# New construction Simmental Arena, Zweisimmen

2018

The Simmental Arena, the new multifunctional hall in Zweisimmen, is largely made of Swiss wood. What's more, it does not require any interior supports at all. The roof is supported by ten 38-meter-long arched trusses.

## The project

The Simmental Arena was built to replace the old Zweisimmen Fair Hall. It is an event and market hall in one, is a place for markets and events of all kinds and houses the fire department magazine. The construction method basement and floor slab are made of concrete, the hall is a pure timber construction and consists mainly of wood from Switzerland. The hall is 80 meters long, the supporting structure of the roof consists of ten curved glulam beams up to 38 meters long, each weighing around 10 tons. The girders are around 2.40 meters high and over 20 centimeters wide - for a good reason: the hall does not need any supports at all on the inside. The girders span from outer wall to outer wall and bear the weight of the roof; a roof, it should be noted, that has to support a photovoltaic system and a lot of snow in winter. Timbatec was responsible for the design planning, structural analysis, earthquake bracing and fire protection planning for the hall.

## The challenge

In the area of the fire station, there are only gates along almost the entire length, and there are no bracing elements - a major challenge in terms of earthquake bracing. The bracing is therefore provided by the wall panels of the market hall. The large bracing forces are transferred to the wall panels of the market hall via the roof panel of the fire station. Another challenge: fire protection. Special measures with regard to fire protection were required in particular for the fire department's fuel storage area. In this area, the fire resistance was increased and the walls were designed in such a way that in the event of an explosion, no damage could occur to the primary load-bearing components. The event hall is limited to an occupancy of 2000 people. Therefore, it was sufficient to install simple smoke and heat vents in the roof. A complex smoke simulation with subsequent hot smoke tests could be dispensed with.

The Simmental Arena gallery: view of the arch trusses

The building is almost entirely made of local wood and bears the Swiss wood origin mark (HSH)

Also has room in the hall: fire department magazine including emergency vehicles

Detail of the large and heavy wooden arch trusses

**Construction Data**

- Structural timber 863 $m^3$
- Cross laminated timber 102 $m^3$
- OSB boards 5400 $m^2$
- Facade formwork 2000 $m^2$

**Services of Timbatec**

- SIA phase 31 preliminary project
- Cost estimate
- SIA Phase 32 Construction project
- Fire protection planning
- Site supervision and site inspections
- Structural analysis and design
- SIA Phase 41 Tendering and comparison of offers
- SIA Phase 51 Implementation project
- Fire protection: QA responsibility
- Specialist planner for structural fire protection
- Specialist planner for fire protection in timber construction

**Client**

Community Zweisimmen

**Architect**

Germann Architektur AG
3778 Schönried

**Timber construction**

ARGE Holzbau Zweisimmen Kunz/Schletti, 3770 Zweisimmen

**Civil engineer**

Haldi Design AG, 3778 Schönried

**Electrical engineer**

ogiplan elektroplanung + lichtdesign, 3780 Gstaad

**HVAC engineer**

H&K Planungs AG, 3600 Thun

**Timber construction engineer**

Timbatec Holzbauingenieure AG