

# Addition of stories elementary school, Köniz

2016

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Köniz is growing overdimensionally. In no municipality around Bern has the population grown more in recent years than in Köniz - and it is getting younger and younger. Two existing school buildings were therefore each extended by one storey in wood.

## The project

The numbers speak for themselves: between 2013 and the end of 2015 alone, the number of students in the Buchsee-Köniz school district grew from 410 to 472. To create more space, the municipality decided to add one floor to each of two two-story wings of the elementary school. In addition to new classrooms, the new floors could also accommodate group and multi-purpose rooms as well as the school library. The existing buildings, built in the 1950s as a solid construction, had only limited load-bearing capacity. The new floors of wings C and D of the school building were therefore built entirely in timber frame construction in order to keep the loads low.

## The construction

The new flat roof consists of a simple beam layer of glulam supported on cross beams. In order to be able to transfer the loads to the points determined by the structural engineer, a steel beam visible from the inside was inserted on the south side. The non-structural exposed aggregate concrete elements were cut out at the support points to properly transfer the loads from the columns to the existing concrete parapet. These columns rest on welded-together steel angles that were mounted to the concrete parapet and transfer the loads.

## The challenge

For the new floors, the timber engineers also had to take into account the large shear forces that can be triggered by wind or earthquakes. This challenge was solved with a three-layer slab: This slab was nailed to the bracing wall at the top and connected to the concrete slab at the bottom with iron angles.



The school building from the 1950s was raised by one floor. Thanks to wood: the students now have significantly more space

### **Construction Data**

- Glulam 2 x 56 m<sup>3</sup>
- Three-layer panels 2 x 500 m<sup>2</sup>

### **Services of Timbatec**

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

### **Timber Construction Engineer**

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### **Timber construction manufacture**

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### **Architect**

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### **Facade builder**

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### **Civil engineer**

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### **Photography**

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