

TS3 long-term test at ETH Zurich, Zürich

2018



Recently, the new Timber Structures 3.0 technology (TS3) has been developed. This technology makes it possible to bond timber components made of solid, glulam or cross laminated timber on the front side. This makes it possible to produce point-supported, multi-axis load-bearing panels or folding units in any shape and size.

As part of a CTI project in cooperation with the Bern University of Applied Sciences and the Swiss Federal Institute of Technology ETH, test benches were set up at both universities to investigate the long-term behavior of the technology.

The endurance test benches are an important step in the approval process for the European and American markets. They also impressively demonstrate the new possibilities for timber construction.

The test bench at ETH Zurich consists of four glued together cross laminated timber panels. After construction, the roof was loaded with 12 Big Bags. The total weight of the Big Bags of 9.6 tons was loaded on the ceiling for one year. This simulated the quasi-permanent loads of a ceiling, which allowed a payload of up to 500 kg/m².

The test provided insights into the assembly and grouting process. In addition, the deformation behaviour under changing wood moisture was analyzed and thirdly, the vibration behaviour of the biaxially supporting plate was tested. In the meantime, the test has been successfully completed.



Joint ready for bonding



Measuring tool for checking the deformation behavior under changing wood moisture



Mounting the CLT plates



Long-term practical test protected from rain

Construction Data

Butt-joint bonding of CLT

TS3 Timber Structures 3.0 AG

3600 Thun

Glue

Henkel & Cie. AG

Statics and Testing Setup

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