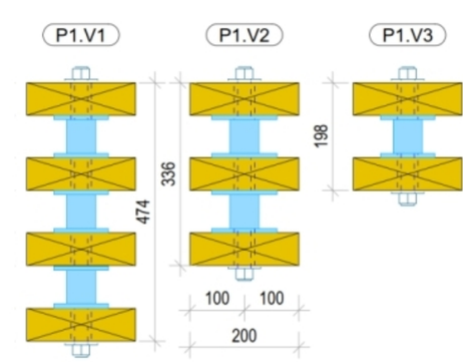
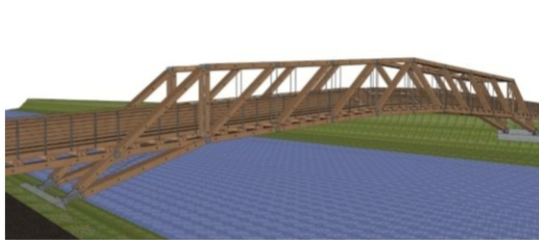


# Stiffness of compression bars made of solid beech wood

2020



The "Tüfisteg" pedestrian bridge was replaced with a new bridge structure made of solid beech wood. This consists of composite compression members and is the first bridge made of beech wood in Switzerland. For the design of the compression members, a design tool was developed as a supplement to the existing standards.

## The project

### Basic principles and research approach

Testing of the compression members provided knowledge for assessing the stiffness of the lanyards by means of displacement and torsion springs. This, in turn, provides evaluation bases regarding the stability of the components in the direction of the connecting axis. On the basis of this, the effective moment of inertia can be determined via the bending deformation in order to consequently test stability verifications on a replacement cross-section and then obtain the buckling coefficient.

## The construction method

### Results and conclusion

The bridge structure was initially divided into three types of beam packages. These were tested for their effective deformation behavior and it was found that after an initial high stiffness, the composite action decreases and a significantly lower one is obtained. Since this largely contradicts the initial assumption of the behavior, it is recommended that the design procedure be examined in a further study. Title of thesis: Investigation of the stiffness of composite compression members made of solid beech wood in moisture class II Type of work: Thesis at the BFH AHB Author: Ciril Stadler