



The Urbach Tower at the Remstal Garden Show – timber construction made by the University of Stuttgart becomes a landmark

“A paradigm shift in timber construction”, is how experts describe the roughly 14-meter high Urbach Tower, which was built by the Institute for Computational Design and Construction (ICD) and the Institute of Building Structures and Structural Design (ITKE) at the University of Stuttgart. The unique construction in Urbach is one of 16 showpieces at the Remstal Garden Show 2019. The tower is the first building in the world with a supporting wooden structure made from self-forming timber components.

Timber forming in the drying process

Curved or bent wood gives a construction a sense of uniqueness. This accentuates the Urbach Tower in particular, which is made from self-forming timber. The tower’s striking shape, 14 meters high and four meters in diameter, was created using a brand-new self-forming process for the intricately curved components. In contrast to the very elaborate and energy-intensive forming processes currently used which require heavy pressing tools, the material forms by itself. The precalculated curved shape of the timber components is formed in the drying process. The components are also laminated during the same process. When the moisture content drops during the industrial drying process, the wood deforms and gets its precalculated curved shape. This process opens up whole new architectural possibilities using wood, a material which is sustainable, renewable and available locally.

The tower at the Remstal Garden Show is the first example in the world of this innovation being used in a building, which was created in cooperation between the Institute for Computational Design and Construction (ICD) and the Laboratory for Applied Wood Research at Empa Switzerland. The tower was designed and planned by both the Institute for Computational Design and Construction (ICD) and the

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Institute for Building Structures and Structural Design (ITKE). The industrial partner for manufacturing the self-forming timber components and building the tower is Blumer Lehmann AG.

The project clearly demonstrates how the use of digital planning, simulation and production processes opens up new opportunities, even for traditional construction materials such as wood. This approach will be researched in more depth at the University of Stuttgart in the next few years in the newly-built Cluster of Excellence "Integrative Computational Design and Construction for Architecture".