



Scrimber CSC
Carbon Sink Concrete

Timber construction needs new products

Timber construction is booming. Today, solid wood products are mostly used for load-bearing purposes. These high-quality building products can perform the same functions in structural construction as reinforced concrete, but have a significantly better CO₂ balance in comparison. The demand for solid wood products is high. In addition, the wood yield is only around 30 percent. Using an innovative shredding technology, a new building product is now to be developed in the research project „Upcycling of low-cost wood assortments into high-performance building elements“ together with the Bern University of Applied Sciences. This will make it possible to use almost the entire wood volume of a tree in the long term and to give used wood a new life cycle. With this development, Scrimber CSC is making an important contribution to optimizing material cycles in the construction sector.

Wooden panels for load-bearing applications

The aim of the research project is to develop new timber construction products, in

particular multilayer panels for load-bearing applications. The building products called Scrimber CSC based on an innovative technology for generating wood splinters. Unlike conventional chip-based products such as particleboard or OSB, Scrimber uses large rollers to shred tree trunks and branches into individual fibers.

The rolling process for splitting the wood was developed in the Australia and USA for the production of beam products called Scrimber. The development initiated by Timber Structures 3.0 now aims to apply this technology to large-format panels for load-bearing applications.

Scrimber CSC vs. cross laminated timber

The Scrimber CSC multi-layer panel is said to have comparable mechanical and machining properties to cross-laminated timber (CLT), but can be produced at around 50 percent lower cost due to its wood utilization rate of almost 100 percent and the continuous production. Scrimber CSC has a number of other advantages over Lumber:

The density and thus the strengths, for example, can be controlled by the compression pressure. In addition, additives such as fire retardants can be incorporated into the entire board, not just on the surface.

Compared with solid construction, building elements made of Scrimber CSC have the same advantages that apply in principle to wood construction: These include the low weight of the components and thus the good suitability for industrial prefabrication as well as the resulting short erection times. Furthermore, the timber construction method convinces with good thermal insulation properties of the load-bearing components and the high CO₂ sequestration in the building. Due to the significantly lower production costs of Scrimber CSC compared to Lumber, it can be assumed that the competitiveness of timber construction compared to solid construction will further improve. This will also make the application of ecological building principles economically more interesting.



1 Logs and branches are shredded into individual fibre strands.

2 We augment these with adhesive, 3 and process them into construction.

4 Scrimber CSC can be used to create panels and beams for load-bearing timber construction.



From the splinters to the panel

The first step in the project is to define the manufacturing technology for producing the scrimbers. The researchers analyze existing processes and equipment and exchange information with people and institutions that

have been able to build up expertise in the field of scrimber technology in recent years. In a further step, scrimbers are produced in the laboratory and processed into laboratory plates. Extensive tests are carried out to narrow down the optimal process condi-

tions. Following the successful development of single-layer boards, these are to be bonded into multilayer boards similar to CLT in the further course of the project. Parallel to the development, the ecological and economic effects will be evaluated.

Research project Upcycling of low-cost wood assortments into high-performance construction elements

The Bern University of Applied Sciences as a competent research partner

The Bern University of Applied Sciences BFH in Switzerland is one of the leading international wood technology research institutions. The Institute for Materials and Wood Technology brings many years of experience, comprehensive expertise and infrastructure to the project. In addition to conventional chip- and fiber-based materials, the institute focuses on lightweight materials, material combinations and alternative raw materials and manufacturing processes.

The Timbagroup as a strong business partner

25 years after Timbatec was founded, we are a group of companies with a common goal: "To raise the market share of timber

construction in the building sector." Each company makes its contribution to this goal. Timbatec Engineering is the driving force of the Timbagroup. As an innovative engineering company, Timbatec promotes the use of wood as a raw material. We develop new technologies for modern timber construction and are available to architects as a service provider for timber construction engineering services.

The most successful development from the Timbagroup is the TS3 technology. It enables column and slab construction using wood in a way that was previously only possible with reinforced concrete. This opens up new markets for timber construction. Scrimber CSC enables the complete elimination of steel and concrete in the construction industry





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