Platonising – The Platowood process

Platowood uses fast-growing wood from sustainably managed forests, including FSC®, PEFC™ and OLB certified. In these certified forests, consideration is given to biodiversity, the working conditions of forest workers and the rights of local inhabitants. Through platonising, a patented hydro-thermal modification process, the properties present in the wood are enhanced, without chemical additives.

The hydro-thermal modification process consists of three steps:

Hydro-thermolysis (unique in the world)
Before the wood undergoes the hydro-thermolysis treatment, the planks/beams are pre-dried and stacked with spacers into a production package. In the autoclave the wood is heated by means of steam, under high pressure (6 to 8 bar). This takes on average, depending on the cross-section and wood species, 6 hours. During this process step the sugars, which are attractive to fungi, are naturally broken down. In this way we prevent fungal growth that can damage the wood. From this point the modification process begins: the structure of the wood changes at the molecular level.

Intermediate drying
After the hydro-thermolysis the wood must be dried. This takes place in a drying chamber that is slowly brought up to temperature. Using moisture sensors in the wood, the moisture content is continuously measured. In 5 to 21 days the wood is dried to a moisture content of approx. 8%. The duration of the drying process is mainly determined by the wood species and the respective cross-section. The moisture measurements, together with the drying chamber temperature, relative humidity and time, form the control parameters that are integrated into a fully automated control program. After the intermediate drying the wood is ready to undergo the final process step, the curing.

Curing
During the curing the wood is heated once more, at a maximum of 180 degrees, under dry conditions and without oxygen. A large oven is used, filled with approx. 80 m³ of wood. In the oven steam is conducted through a kind of radiators and with the help of fans this hot air is circulated through the oven. This process is also fully computer-controlled, from heating to cooling. The total duration of this process step is 12 to 16 hours, depending on the wood species and cross-section. During the curing new stable (molecular) bonds are formed in the wood. Due to the relatively low temperature, the wood remains stronger and more resilient than with other thermal processes. After curing the wood is conditioned in a drying chamber to bring it to its new equilibrium moisture content of 5-8%.

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About the process

Platonising of wood leads to a greatly improved durability. In addition, the dimensional stability is also enormously improved, so the wood can shrink and/or swell less. The unique Platowood process is completely environmentally friendly, using only water and heat. Since no chemicals are added to the wood in any way, the environmental impact of Platowood is very low. Even the wastewater, which contains only some organic/natural decomposition products of wood, is purified in a water treatment installation. In addition, the residual heat is used to heat the office.

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