binderholz

SOLID TIMBER IS NATURAL, BEAUTIFUL AND COZY

WOOD AS A BUILDING MATERIAL

Solid timber is natural, beautiful and cozy

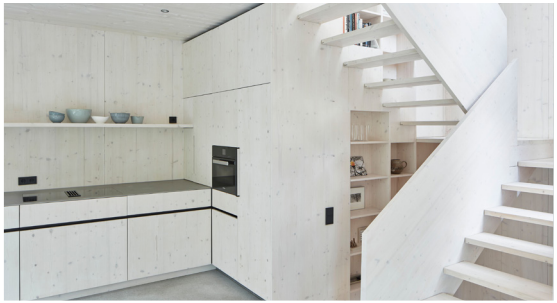
Building projects evolve with binderholz solid timber products and construction solutions, which all standard requirements in terms of structural physics and fire protection. Solid wood buildings retain their value, are stable and meet the most stringent demands on quality, cost-effectiveness and ecological sustainability.
In order to guarantee this, all binderholz construction solutions are developed with practicality in mind. They are comprehensively tested and certified. Moreover, they make fast, dry, clean and quiet building possible. Owing to the extensive research, development and certification work on the part of binderholz, solid timber buildings can be technically realized today - within the framework of what‘s possible under the building law - so they reliably meet all applicable building standards.
A broad range of successfully implemented reference properties and a constantly rising demand provide proof that solid timber construction is very popular as well as being commercially competitive.

COZINESS AND AIR QUALITY

Solid timber stands for well-being and living comfort. The broad scope of design options that opens up to the architect is certainly one factor to ensure this. Inside the building, for example, the visible surfaces of different wood species such as spruce, Swiss pine, silver fir or CLT BBS Antique can be combined and further customized by color glazes as well as by polished or brushed surfaces.

In conjunction with the outstanding properties of the wood substance as a storage for heat and moisture, the warm wooden surfaces ensure a well-balanced living climate and a high level of living comfort.





Photos: © binderholz, Holztechnikum Kuchl, David Schreyer, Rene Riller Fotografie

NATURAL

As natural wood is used without building chemistry in solid timber construction, a building construction of solid timber has even positive effects on health. Cheap building materials and furniture can release problematic substances possibly causing allergies and other illnesses. To deliberately counteract the causation of such diseases, it should be relied upon materials that are harmless in terms of building biology. Solid timber is a completely unpolluted building material and moreover even strengthens the immune system and vitalises the nervous system. Wooden rooms have a calming effect and ensure a pleasant room climate.

SUSTAINABILITY

Sustainability rests on three pillars: an economic, an ecological and a social pillar. All three of them must be in harmony before it can be spoken of sustainability. Building with wood fulfils all of them. Building with wood is economical. Building with wood is ecological because wood is a sustainable raw material. And building with wood is socially valuable because wooden structures are optimised energetically and therefore affordable over the long term.

WOOD IS THE BUILDING MATERIAL OF THE FUTURE AND ALSO THE MOST SUSTAINABLE ONE

About 300 years ago, the term sustainability was coined by Hans Carl von Carlowitz in his “Silvicultura oeconomica”. This economic management concept that was originally developed exclusively for forestry is put into practice today more than ever and in politics and the economy it by now stands for the model of a future-oriented use of resources worldwide. This is also reflected in the official data of the EU. Accordingly, the forested area in the EU has increased by 2% in 15 years, which means an absolute growth of rounded 4 million hectares of forested area. The same applies to the forestry and use of timber from the forests at a national level.

In Austria, currently nearly half of the country’s entire territory is forest. Since 1961, an area of 300,000 hectares has been added and by now, 0.5 hectares of forest per resident is reached. Of this, 82% is in private and 18% in public ownership. As continuously more timber regrows than is harvested, the Austrian forest, differently than is the case in the clearing of tropical forests, can perpetually spread more. Moreover, Austrian forests are the home to 3.4 billion trees and 65 different types of trees with a total reservoir of 1.1 billion metres of existing forest. Of the 30.4 million solid cubic metres that regrow each year in the Austrian forests, 25.9 million solid cubic metres are extracted to fully satisfy the principle of sustainable forestry.

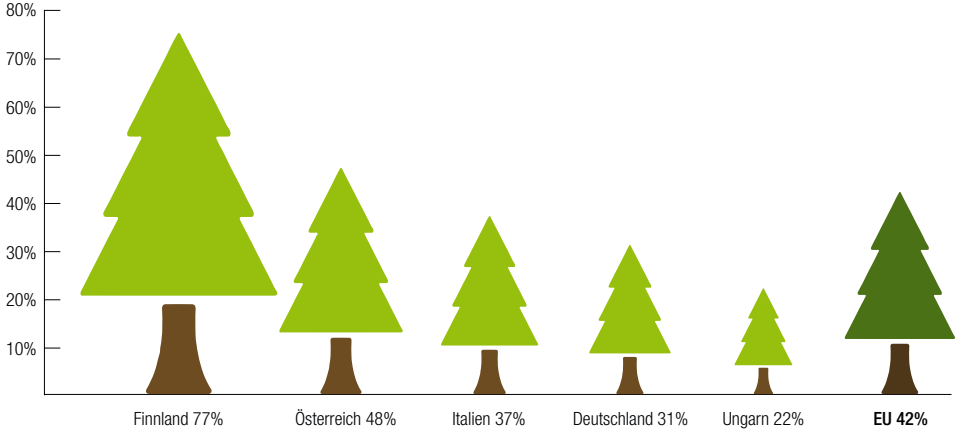


Figure: Forest area of the EU Member States, Zuschnitt 51 proholz Austria

Photos: © Daniel Shearing, b&k structures

HOW MUCH WOOD IS NEEDED TO MANUFACTURE 1 m^3 CLT BBS?

For the manufacturing of high-quality binderholz cross laminated timber CLT BBS, only suitable boards with certain strength properties and surface qualities can be used. For this reason, about 2.3 m^3 of log wood are needed for 1 m^3 CLT BBS. This quantity of wood regrows alone in Austria's forests as soon as after 2.3 seconds.

But what happens with the rest of the wood?

Before cutting the wood in our chip removal timber mills, the rind, which is approx. 10% of the volume, is removed from the trunk and converted into biomass directly on site in our timber mill. This biomass is converted into green electricity as well as heat for drying our woods. 58% of the log can be processed further into high-quality solid timber products. 0.7% of the volume of one log is then extracted from the wood through drying in our drying chambers. Another 20% that we convert again into milling by-products is eliminated when cutting open or planing the

individual boards.
Thus, no waste is created in the production of CLT BBS; the entire log is processed sensibly. As the wood additionally originates from forests that are kept under sustainable management, building solid timber houses is no problem for our forest either, quite the contrary even. Cultivated forests have even more CO_2 storage capacity than non-cultivated forests, and thereby make an even bigger contribution to climate protection.

4,500 m^3 of binderholz CLT BBS, i.e. the volume of CLT BBS that was installed in the Dalston Lane project, grows back in the Austrian forest alone within only 3 hours. If you build a solid wood house, you will not only give yourself a treat, but also do a good thing for the forest and the entire environment.

Examples of CO_2 storage in buildings

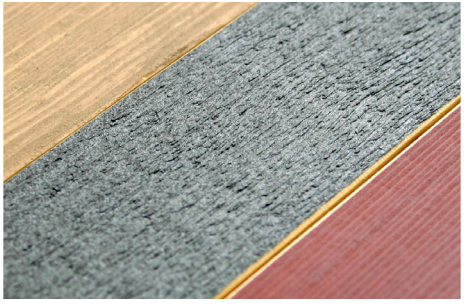
If 10% of all houses in Europe were built of wood, the carbon emissions would reduce by an entire 1.8 million tonnes per year (rounded 2% of the entire carbon emissions).

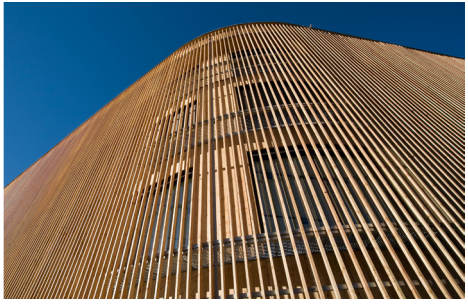
The devastating earthquake in L'Aquila (Italy, 2009) cost 70,000 people their homes. They were to be reconstructed in high-quality and earthquake-proof construction design. binderholz CLT BBS emerged as the winner in the international tender procedure. Overall, 11,000 m^3 CLT BBS were delivered and thus 29,600 m^2 of residential area were created. In the Austrian forest, 40 m^3 of wood regrow per minute. Thus, it takes just 7 hours until the wood delivered to L'Aquila had regrown in the Austrian forest. In these 11,000 m^3, 25,300 tonnes of CO_2 are bound for the long term. This is as much CO_2 as 1,000 Europeans or 5,000 cars per year emit on average.

Each cubic metre of wood that is used as substitute for other building materials, reduces the CO_2 emissions in the atmosphere by 1.1 tonnes on average. When adding this to the one tonne of CO_2 that is stored in the wood, approx. two tonnes of CO_2 are stored overall in one cubic metre of wood.

Consumption in everyday life - CO_2 emissions

FLIGHT round trip	Munich – Mallorca	0.5 tonnes
	Munich – Tenerife	1.2 tonnes
	Munich – New York	2.4 tonnes
TRIP BY CAR 12,000 km	Small vehicle, petrol	2.8 tonnes
	Small vehicle, diesel	3.0 tonnes
	Off-roader SUV, petrol	6.7 tonnes
	Off-roader SUV, diesel	7.2 tonnes
NUTRITION per year	Heavy on meat	1.6 - 3.2 tonnes
	Vegetarian	0.9 - 1.8 tonnes
	Vegan	0.8 - 1.6 tonnes





ACTIVE CLIMATE PROTECTION

binderholz products and construction solutions protect the climate twice. This is because CO_2 previously extracted from the atmosphere is stored as carbon in the solid wood products for many decades. At the same time, these products replace conventional building materials, the production of which would use fossil fuels.

The sustainably grown raw material wood is one of the most important natural CO_2 storage systems. Trees need this climate-damaging gas for their growth and extract it from the atmosphere through photosynthesis. It remains stored in solid wood products from binderholz for decades. In this way, the use of the raw material wood slows down the increase of CO_2 in the atmosphere and has been shown to demonstrably reduce the greenhouse effect.

WIRTSCHAFTLICHKEIT

The low deadweight of timber and dry construction structures reduces the expense for the foundation and baseplates. The high degree of pre-fabrication simplifies the implementation at the construction site and secures a standardised and verifiable level of quality. The construction site equipment can be reduced and the logistics expense is lower. The dry construction design shortens the construction periods significantly and thereby enables that the buildings can be used at an earlier point in time, which in turn drastically reduces the financing periods.

SAVINGS OF TIME

The savings of time through the use of binderholz CLT BBS can be substantial in the construction of large-volume buildings. The high degree of pre-fabrication drastically shortens the construction phase. Load-bearing wall elements simply need to be aligned and linked to each other. Based on their comparably low weight, these pre-fabricated timber elements can have very large dimensions. As the installation is made in the level between the plasterboard system and the timber element, the subsequent cutting and plastering work is omitted.

Photos: © binderholz, b&k structures, Walter Ebenhofer

NOISE-FREE, DUST-FREE, RAINPROOF

Noise, waste and dust are three keywords that probably everyone associates with construction projects. Not so when building with CLT BBS. Based on the high degree of pre-fabrication and the installation method of solid timber, CLT BBS in particular, noise, waste and dust can be reduced drastically. The installation of CLT BBS does not require a noisy machine park, as individual elements are merely bolted together on site. A raised level of pre-fabrication of the CLT BBS elements reduces the processing steps on site and lowers the exposure to dust, waste and also noise. Since timber does not require any periods for drying and as the construction site is rainproof when the roof is set on top, also multi-storey floor additions can be realised quickly within a few days.





Photos: © binderholz

SLIM, LIGHTWEIGHT DESIGNS WITH A HIGH DEGREE OF PREFABRICATION

binderholz construction solutions allow for a high degree of prefabrication. It shortens building times considerably while always maintaining high quality. In addition, solid timber constructions have an attractive ratio in terms of gross and net living space compared to conventional methods. Especially in the urban space, this has become increasingly important when considering the building costs. Intelligent combinations of solid timber and conventional building materials such as concrete, steel and glass can result in cost-efficient hybrid solutions, which combine the advantages of traditional materials with the merits of solid timber construction.

The comparatively low weight of solid wood is a great advantage, for example. When building another story to a building, this strength is literally brought to bear. Solid timber wins the argument here on account of its structural possibilities and the fact that the load on the building, owing to the low weight, is not substantially increased.

Photos: © binderholz

THIS IS WHERE IT COMES FULL CIRCLE - RESOURCE EFFICIENCY AT BINDERHOLZ

binderholz stands for a responsible use of wood as a natural raw material. We process the entire trunk - from the core to the bark - thus ensuring 100 percent value creation. Solid timber products come into being that have been produced efficiently and sustainably and conform to the highest requirements. Let‘s take a look at the main sustainability factors to demonstrate how we achieve such a high degree of resource efficiency.

binderholz processes exclusively timber from sustainable and controlled forest management

All binderholz production sites meet the strict PEFC standards and are certified under these standards. The PEFC seal certifies the sustainability of the binderholz value creation chain, from the raw material to the finished product. The use of timber from sustainably managed forests and the environmentally friendly and proper use of resources are regularly monitored by independent third party.

Further projects can be found at www.binderholz.com/en-us/mass-timber-solutions

Borgafjellet Primary School
Os | Norway

INTRO
Cleveland | USA

binderholz office building
in Baruth | Germany

Train station and town hall 'Stadshus'
Växjö | Sweden

Quartier Prinz-Eugen-Park
Munich | Germany

Hotel MalisGarten
Zell am Ziller | Austria

Seethalerhuette
at the Dachstein | Austria

Coffee Production Plant Johannson
Vestby | Norway

Single-family house
Uderns | Austria

Water Park Rulantica
Rust | Germany

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