

BauBuche
The renewable alternative to reinforced concrete.

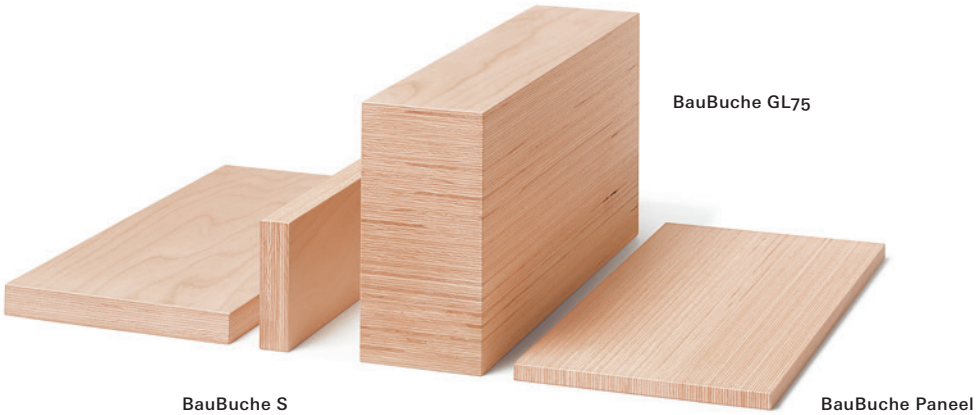
The built environment is a key area for climate action. The building and construction sector generates around 37% of global CO_2 emissions and accounts for nearly 50% of global raw material extraction.*
For new buildings today, a significant portion of the emissions generated over the entire lifecycle occurs during the manufacturing phase alone.
The high level of energy and resource consumption associated with conventional building materials therefore necessitates a rethink in construction.
To reduce greenhouse gas emissions from construction and ensure the long-term use of resources, a shift towards circular architecture and a greater use of renewable raw materials is required.
Investors, proprietors and developers must face up to this challenge.
We at Pollmeier would like to make our contribution with BauBuche.

* Global Status Report for Buildings and Construction 2025–2026

BauBuche High-performance material

BauBuche is a high-performance material made from beech veneer. Its compressive strength is equivalent to that of C50/60 concrete and three times that of softwood. BauBuche is produced in Creuzburg (Thuringia) in one of the most modern wood processing plants in Europe. The raw material is PEFC-certified beech wood sourced from sustainably managed forests in the region.

Chain of custody DINC-PEFC-COC-000841, 20.06.2023





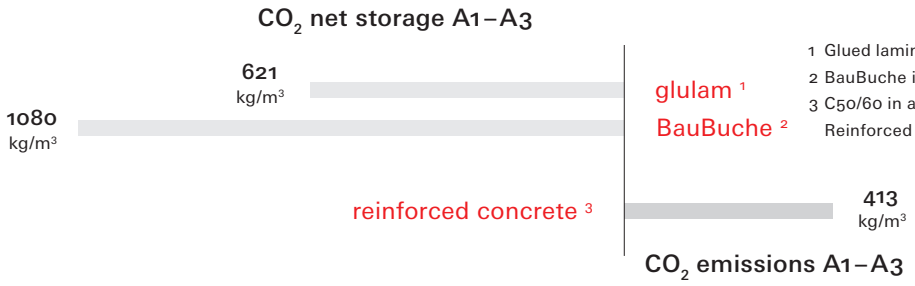
Architect C.F. Møller **Structural engineer** merz kley partner
Proprietor R&S Immobilienmanagement GmbH iCampus Munich

BauBuche Skeleton construction

The method and type of construction play an important role when it comes to the sustainability of a building. Skeleton buildings are particularly economical due to a systemised building structure and flexibility in floor plan and façade design. The building skeleton consists of load-bearing elements to which non-loading bearing elements are attached. This makes the design of the façade largely independent of the shell structure. Skeleton buildings also offer maximum flexibility as regards their use. Upgrades and conversions are easily possible, as the skeleton can be re-clad, equipped with the latest technology and reorganised into new rooms as needs change. This has already been demonstrated in many "old" industrial skeleton building that have recently been converted to house high-quality residential units or offices.

BauBuche
The wood-based alternative to reinforced concrete.

With every cubic meter of beech wood used in construction, not only is CO_2 sequestered long-term within the building's structure, but additional CO_2 emissions are avoided by dispensing with energy-intensive reinforced concrete.

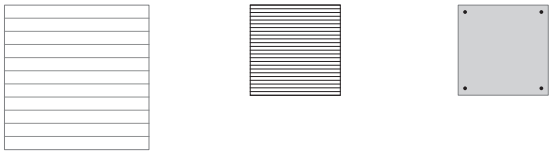


1 Glued laminated timber in accordance with EPD-SHL-20240270-IBO1-DE, 28.05.2025
2 BauBuche in accordance with EPD-POL-20230326-IBA1-DE, 18.12.2023
3 C50/60 in accordance with EPD-IZB-20230424-IBA1-DE, 20.10.2023
Reinforced concrete in accordance with EPD-BSW-20210265-CBA1-DE, 02.03.2022

Every cubic metre of reinforced concrete that is substituted with BauBuche saves 1.5 tons of CO_2 emissions, thus protecting the climate.

Comparison of 3.05 m posts

glulam	BauBuche	reinforced concrete	
GL24h softwood	GL75	C50/60 with 4 % steel reinforcement	
6020 kN	**6020 kN**	**6020 kN**	**Load E_d**
R90	R90	R90	Fire resistance
474 kg	410 kg	1220 kg	Weight
64 × 64 cm	40 × 40 cm	40 × 40 cm	Post cross-section





A comparison of common building materials shows that BauBuche can be used for structures that are as tall and slender as those conventionally made in reinforced concrete. A 3.05 m reinforced concrete post with a cross-section of 40 × 40 cm can withstand a centric compressive force of 6020 kN. A BauBuche post of the same dimensions can also withstand a compressive force of 6020 kN – with fire resistance class R90. To achieve the same compressive strength with softwood, a significantly larger cross-section of 64 × 64 cm would be required. By opting for BauBuche posts instead of a softwood construction, many square metres of floor become useful space, making the construction much more economical.

Fire safety

If it were up to them, firefighters would rather fight a fire in a timber building than a steel construction.

Timber construction elements have high fire safety ratings, as wood protects itself as it burns.

This chemical process is known as carbonisation. The layer of carbon forming on the outside of the timber as it burns has a heat-insulating effect and reduces the oxygen supply to the inside of the element. As a result, the core of the load-bearing structure remains undamaged for longer. The burning rate of BauBuche construction elements is β_n = 0.7 mm / minute. The fire behaviour of a BauBuche construction can thus be calculated with great accuracy, so that fire safety regulations can be met.

BauBuche is made from renewable beech wood sourced from sustainably managed forests.* **BauBuche** is the ideal material for exposed timber constructions. **BauBuche** has a compressive strength that is similar to that of C50/60 concrete. **BauBuche** comes with an attractive surface finish.**BauBuche** has a dead weight that is 66 % lower than that of reinforced concrete. Compared to softwood, **BauBuche** enables slimmer cross-sections and reduced material usage. **BauBuche** allows for post cross-sections that are equal to those of reinforced concrete. * Proof of origin DINC-PEFC-COC-000841, 20.06.2023

See how BauBuche is produced.

Pollmeier Massivholz GmbH & Co. KG
Pferdsdorfer Weg 6, D-99831 Amt Creuzburg
T +49 (0)36926 945-560, baubuche@pollmeier.com

Architect Helen & Hard AS **Structural engineer** Degree of Freedom AS
Proprietor SpareBank 1 SR-Bank Spare Bank Norway

Architect Spengler Wiescholek Architektur **Structural engineer**
merz kley partner **Proprietor** UmweltBank AG UmweltHaus Nuremberg

Architect C.F. Møller **Structural engineer** merz kley partner
Proprietor R&S Immobilienmanagement GmbH iCampus Munich

Architect Oliv Architekten **Structural engineer** merz kley partner
Proprietor Accumulata Real Estate Tri Elsenheimerstraße

Architect Waugh Thistleton **Structural engineer** Eckersley O'Callaghan
Proprietor The Office Group The Black & White Building Hackney