LIGNO®

Configurable Cross-Laminated Timber

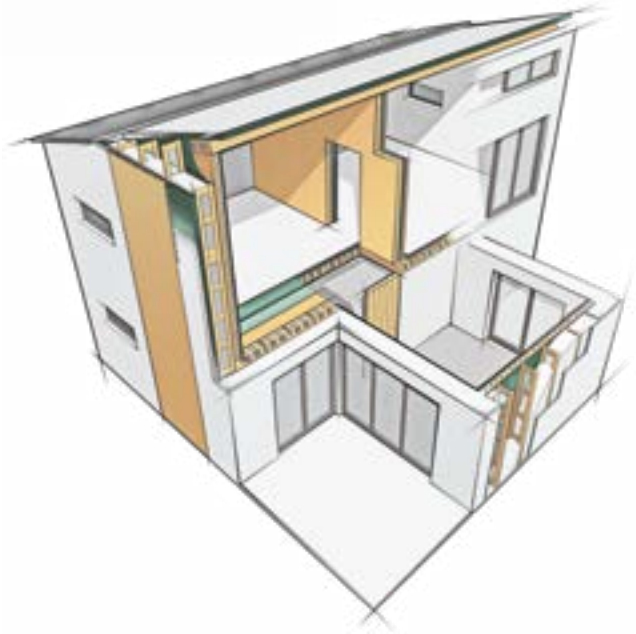
CONFIGURABLE CROSS-LAMINATED TIMBER

Lignotrend produces cross-laminated timber (CLT) box and ribbed modules for timber construction, exterior wall cladding and interior finishing. They are an excellent choice for both new buildings and refurbishment projects.

We make our CLT by bonding precisely sawn timber layers at right angles to one another. The raw material is used very efficiently, and the end result is strong and dimensionally stable.

Versatile processes let us flexibly tailor and configure our solutions to meet the requirements of a wide variety of construction disciplines, applications and projects.

To let you reliably plan and safeguard your investments, Lignotrend also defines optimised solutions with tested technical properties. They consist of LIGNO® CLT plus any required additional layers.



Housing

- Detached single-family homes
- Semi-detached homes
- Multi-family residential housing (with two or more storeys)
- Work on existing buildings

Community and public facilities

- Nurseries and schools
- Sports centres
- Indoor swimming pools
- Multipurpose facilities and entertainment venues

Business and industry

- Office buildings
- Restaurants
- Factory halls and warehouses

CONFIGURABLE MODULE PROPERTIES

SAFETY

Tested safety
Robust metrics

Fire protection
REI 30 - REI 60 - REI 90

Structural strength
Large spans up to 18 m

Flammability

ENERGY

Protection from heat
Heat retention + phase shift

Protection from cold
U-values up to 0.09

BUILDING PHYSICS

Outstanding indoor air quality
Certified solutions

Optimisation of indoor climates
Large interior surface which stores moisture

Soundproofing
Standard and enhanced acoustic insulation

Room acoustics
Various profiles and low-frequency sound absorbers available

Vibration attenuation
No unpleasant movement when walking on floor

Surfaces
625-12-4, 625-20-4, 625-18-6, 625-23-8, 625-12n25-4, 625-12n25-4:3D, 625-22n40-4, 625-18n38-6

Wood varieties
Silver fir, spruce, oak, birch etc.

Available surface treatments
Clear, whitish, white, coloured, photo printing

Surface qualities
Brushed, smoothly sanded, rough sawn

SUBSTAIN-ABILITY

Recyclable

PROCESS

Precision

Professional advice

Planning aids
Software

Ease of assembly
Fast construction

Easy installation
Conduits for electric wiring, plumbing etc.

ECONOMY

Value retention
Focus on entire product lifecycle

Cost-effectiveness

FLOOR SOLUTIONS

Floor solutions made of LIGNO® excel with a combination of design flexibility and outstanding technical properties. They enable you to meet the requirements of single-family detached homes as well as of multi-storey residential buildings, schools or office buildings, to name just a few.

Besides boasting excellent loadbearing properties and fire resistance, they also stand out with above-average sound insulation. Both multi-unit buildings and detached homes can benefit from our tested system modules, which minimise sound transmission between storeys for uniquely quiet indoor environments.

Wood surfaces are completely finished in the factory to minimise subsequent work. You can achieve an even more agreeable ambience by integrating an acoustic absorber and a surface with openings. Knotless varieties like silver fir open up new design dimensions in modern architecture. The use of customised components enables free spans of up to seven or eight metres between supports.

Configuration

☑ Standard ☐ Optional

Structural considerations

- ☑ Normal spans (≤ 6 m)
- ☑ Shear panel loadbearing ability
- ☐ Extended spans (≥ 6 - 8 m)
- ☐ Freedom from unpleasant vibrations

Fire protection

- ☑ REI 30 without cladding / fire-resistant
- ☐ REI 60 without cladding / very fire-resistant
- ☐ REI 90 without cladding / highly fire-resistant

Sound insulation

- ☑ Protection against transmitted impact sound with low-frequency attenuation
- ☑ Airborne sound attenuation
- ☐ Enhanced sound insulation

Room acoustics

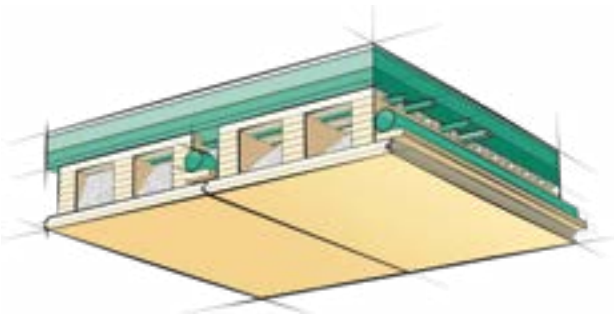
- ☐ Integration of an acoustic absorber
- ☐ Additional low-frequency sound absorption

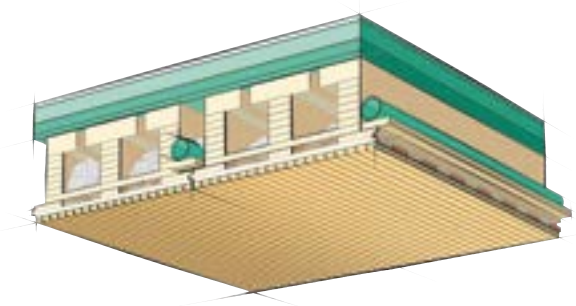
Surface design

- ☑ Finished surface in genuine wood: various types
- ☐ Knotless surfaces, eg silver fir, oak etc.
- ☐ Narrow slats: uniform (various slat/joint combinations, eg 12-4, 20-4, 18-6) or irregular (eg nature-4, nature-6, 3D)

Installations

- ☑ Longitudinal conduits
- ☐ Transverse installation, electrical
- ☐ Transverse installation, large diameter
- ☐ Apertures for installations
- ☐ Solutions for allowing installations to penetrate fire protection layers





Outstanding indoor air quality
Certified solutions

Planning software
Structural strength and acoustics

Cost-effective
Rapid construction

Easy to assemble
Ready-to-install elements

Tested safety
Robust metrics

Dimensionally stable and precise
High-quality CLT

Value retention
Focus on entire product lifecycle

Eco-friendly materials
Sustainable, CO_2 storage

Architecture: Jörg Kaiser, DE-Lauchringen
Photo: Foto & Design Gröber, DE-Waldshut

Architecture: HARTER + KANZLER & Partner, DE-Freiburg im Breisgau
Photo: Olaf Herzog, DE-Freiburg im Breisgau

ROOF SOLUTIONS

Roof solutions made of LIGNO® are flat constructions consisting of cross-laminated timber box elements. They make it possible to very quickly provide protection from the weather, also in large construction projects. The completely ready-to-use bottom faces also speed up work and save costs by minimising overhead finishing.

There is no need to install suspended ceilings, for instance to improve room acoustics, if acoustic absorbers are integrated in the loadbearing element during production and conduits are used for pipes etc. For sports centres and other large-volume facilities, this can be cost-effectively accomplished while erecting the building carcass.

Top floors of masonry or concrete buildings, such as vertically extended office or school buildings, also benefit from the good acoustics achieved in this way. Their sleek, elegant design also wins points in smaller projects such as nurseries or blocks of flats.

The clear, layered structure of solutions based on LIGNO® is defined in a secure way so that the risk of moisture damage can be easily handled and minimised in buildings with flat roofs. What's more, the cross-laminated timber box elements allow large unsupported spans while reinforcing as shear panels without the addition of diagonal supports.

Configuration

☑ Standard ☐ Optional

Structural considerations
- ☑ Normal spans (≤ 6 m)
- ☑ Shear panel loadbearing ability
- ☐ Extended spans

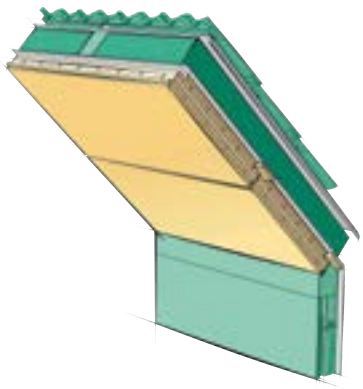
Room acoustics
- ☐ Integration of an acoustic absorber
- ☐ Additional low-frequency sound absorption

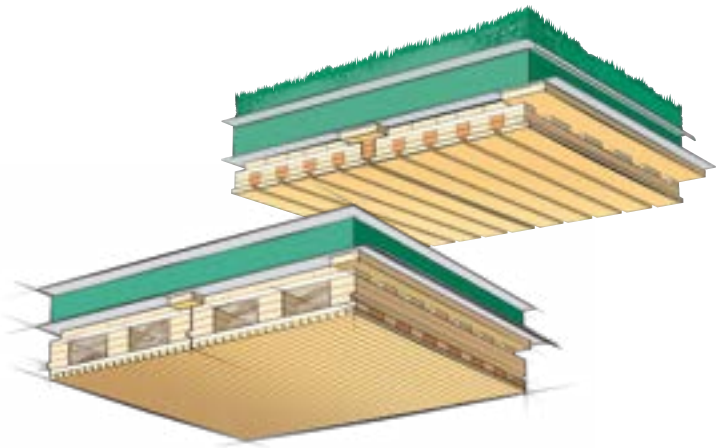
Surface design
- ☑ Finished surface in genuine wood: various types
- ☐ Knotless surfaces
- ☐ Narrow slats: uniform (various slat/joint combinations, eg 12-4, 20-4, 18-6) or irregular (eg nature-4, nature-6, 3D)
- ☐ Wide boards (eg 105-20, 54-8)

Attachment
- ☑ Ready-to-install modules
- ☐ Large-area modules up to 2.5 m wide by 18 m long

Installations
- ☐ Longitudinal conduits
- ☐ Apertures for installations
- ☐ Preinstalled pipes etc.

Fire protection
- ☐ REI 90 without cladding
- ☐ Enhanced fire resistance





Outstanding indoor air quality
Certified solutions

Tested safety
Robust metrics

Planning software
Structural strength and acoustics

Dimensionally stable and precise
High-quality CLT

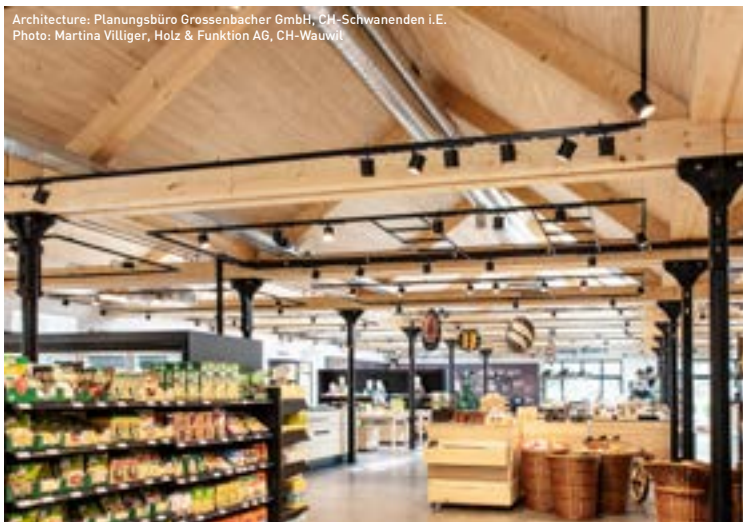
Cost-effective
Fast construction

Value retention
Focus on entire product lifecycle

Protection from summer heat

Eco-friendly materials
Sustainable, CO_2 storage


Architecture: Arge Junk&Reich / Hartmann+Helm, DE-Weimar
Photo: Eva Hartmann, DE-Weimar


Architecture: Planungsbüro Grossenbacher GmbH, CH-Schwanenden i.E.
Photo: Martina Villiger, Holz & Funktion AG, CH-Wauwil


Architecture: Bauconzept, LIE-Saxony
Photo: Marcus Dassler, DE-Zeulenroda-Triebes


Architecture: Lauer+Lebok, DE-Lichtenfels
Photo: Michael Bender, DE-Kronach

WALL SOLUTIONS | SOLID TIMBER

Cross-laminated timber wall modules were the starting point for the LIGNO® product line. Today they are in demand for erecting eco-friendly, health-promoting residential and commercial buildings – and the basis of the Klimaholzhaus® building concept. They can also be used for multi-storey, fire-resistant, sound-proofed and earthquake-resistant structures.

A key aspect is that the solutions' optimised internal structure promotes an excellent indoor climate. They also ensure a unique degree of flexibility for installing pipes, conduits etc.

Standard modules 625 mm wide are combined to make large-format wall sections. These can be very flexibly assembled in any desired size by a carpenter or at Lignotrend without necessarily a prescribed planning grid or layout, in the form of a simple loadbearing wall module or as a complete exterior wall.

The layered structure of walls made of LIGNO® is defined for highest security concerning a reliable prevention of condensation. Lignotrend supplies solutions for wood-faced interior walls with excellent sound insulation.

Configuration

☑ Standard ☐ Optional

Structural considerations
- ☑ Loadbearing ability for multi-storey structures
- ☑ Plate loadbearing ability, favourable response to earthquakes
- ☐ Increased loads (small plates, individual loads)

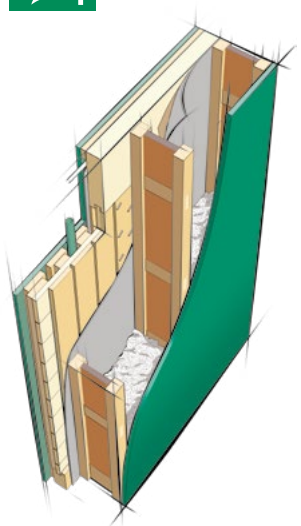
Attachment
- ☑ Individual modules
- ☐ Pre-mounted wall shear panels

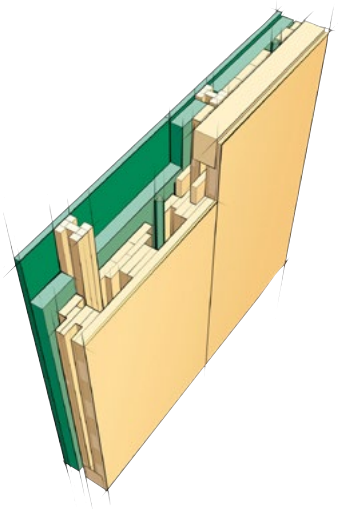
Fire protection
- ☐ REI 30 / fire-resistant
- ☐ REI 60 / very fire-resistant
- ☐ REI 90 / highly fire-resistant
- ☐ Wood facing

Sound insulation
- ☑ Standard
- ☐ Enhanced
- ☐ Interior dividing wall

Installations
- ☑ Vertical conduits
- ☐ Version with enhanced fire protection

Surface design
- ☑ Suitable for plaster finishing
- ☐ Genuine wood facing on one side – various kinds
- ☐ Knotless surfaces





Outstanding indoor air quality
Certified solutions

Improves indoor climate
Balanced humidity

Thermal insulation
Freely selectable due to layered structure

Protection from summer heat
Solid construction

Tested safety
Robust metrics

Dimensionally stable and precise
High-quality CLT

Value retention
Focus on entire product lifecycle

Eco-friendly materials
Sustainable, CO_2 storage

Architecture: Jörg Kaiser, DE-Lauchringen
Photo: Foto&Design Gröber, DE-Waldshut

Architecture: Lauer+Lebok, DE-Lichtenfels
Photo: Michael Bender, DE-Kronach

INTERIOR FINISHING | ROOM ACOUSTICS

As the acoustic properties of all rooms used by people make a difference, noise-reducing claddings made of LIGNO® are used across a wide range of building types. These include large-volume sports and multipurpose facilities, concert halls, schools, nurseries, restaurants and office buildings, all of which must comply with standardised, clearly defined rules on room acoustics. Private homes typically don't need to comply with requirements of this kind, but if sparsely furnished also suffer from unpleasant, echo-prone acoustics unless they are properly furnished.

LIGNO® Acoustic light panels combine good sound absorption with an attractive design. Their body consists of natural wood. The many available options let you choose the wood type, profile and treatment of the panel surfaces to suit a wide variety of interior decorating wishes and needs. A favourite, for example, is knotless silver fir. Oak is also enjoying a renaissance in popularity. Rustic versions are also available, for instance in classic spruce or with brushed or rough-sawn surfaces.

LIGNO® Acoustic light contains wood fibres, which very effectively absorb sound across a broad range of frequencies. This natural material is directly integrated in the panel.

For venues used by large numbers of people, such as sports centres, there are also several flame-retardant versions as well as impact wall constructions.

Configuration

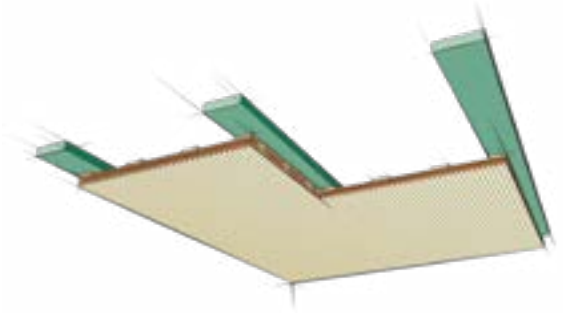
☑ Standard ☐ Optional

Room acoustics
- ☑ Absorbers integrated in panels
- ☐ Configurations with a variety of frequency response modes, eg improved low frequency absorption

Flammability
- ☑ Normal flame retardation
- ☐ High flame retardation

Attachment, application
- ☐ Direct
- ☐ Suspended
- ☐ Secure against ball impacts
- ☑ Hidden attachment
- ☐ Ceiling cladding
- ☐ Wall cladding
- ☐ Impact wall
- ☐ Ceiling canopy
- ☐ Grid ceiling
- ☐ Baffle

Surface design
- ☑ Finished surface in genuine wood: various types
- ☐ Knotless surfaces, eg silver fir, oak etc.
- ☐ Uniform slats (various slat/joint combinations, eg 12-4, 20-4, 18-6)
- ☐ Irregular slats (eg nature-4, nature-6, 3D)
- ☐ Surface quality (eg sanded, brushes, rough-sawn)
- ☐ Finished with UV protector, varnish or paint in any of a large choice of colours



Outstanding indoor air quality
Certified solutions

Planning software
Acoustic calculation

Improves indoor climate
Wood adds ambience

Tested safety
Robust metrics

Dimensionally stable and precise
High-quality CLT

Value retention
Focus on entire product lifecycle

Eco-friendly materials
Sustainable, CO_2 storage

Architecture: Rotterdam Dakowski, DE-Leverkusen
Photo: Andreas Wiese, DE-Düsseldorf

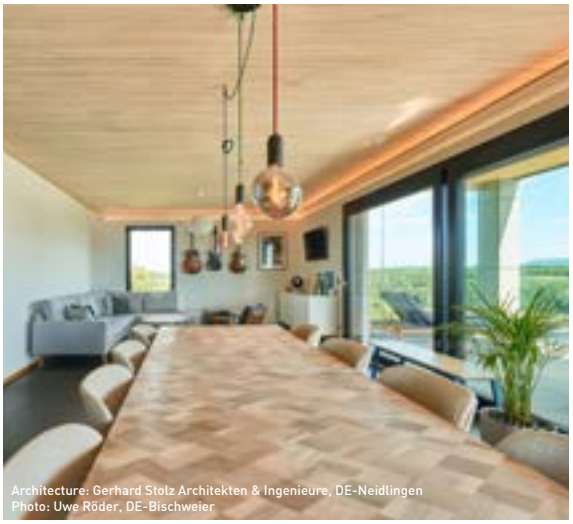
Architecture: Architektur: Ludescher + Lutz Architekten, AT-Innsbruck
Photo: Adolf Bereuter, AT-Dornbirn

Architecture: S4 Architekten, DE-Waldshut-Tiengen
Photo: Foto & Design Gröber, DE-Waldshut

Architecture: F64, DE-Kempten
Photo: Rainer Retzlaff, DE-Waltenhofen

Korteknie Stuhlmacher Architecten, NL-Rotterdam
Luuk Kramer photography & film

made of LIGNO®



Architecture: Gerhard Stolz Architekten & Ingenieure, DE-Neidlingen
Photo: Uwe Röder, DE-Bischweier

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Photo: Uwe Röder, DE-Bischweier

Architecture: Wohlgemuth & Pafumi Architekten AG, CH-Reinach
Photo: Martina Villiger, Holz & Funktion, CH-Wauwil

Photo: Lilagold Design Studio, DE-Prem

Architecture: Harter + Kanzler & Partner, DE-Freiburg
Photo: Olaf Herzog, DE-Waldkirch

Architecture: Snøhetta Studio Innsbruck GmbH, AT-Innsbruck
Photo: Christian Flatscher, AT-Innsbruck

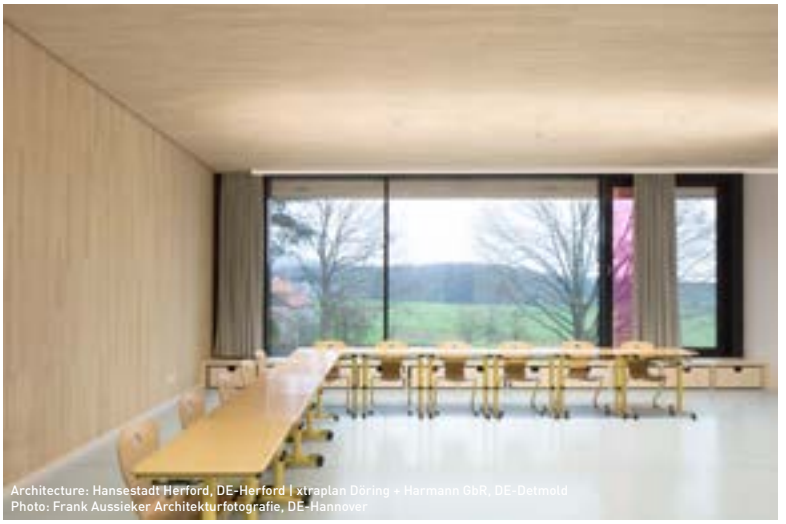
Architecture: C+ INTERIOR DESIGN, DE-Stuttgart
Photo: Christian Mader, DE-Stuttgart

Architecture: wittfoht architekten bda, DE-Stuttgart
Photo: Fotografie Brigida González, DE-Stuttgart

Architecture: voelse architekten bda, DE-Borchen
Photo: Matthias Groppe, DE-Paderborn

Architecture: Fahrni Partner Architekten GmbH, CH-Luzern
Photo: Lignotrend Produktions GmbH, DE-Weilheim

Architecture: Architekturbüro Ernesto Preiser, DE-Waldshut-Tiengen
Photo: Foto & Design Gröber, DE-Waldshut



Architecture: Hansestadt Herford, DE-Herford | xtraplan Döring + Harmann GbR, DE-Detmold
Photo: Frank Aussieker Architekturfotografie, DE-Hannover

Architecture: Batimo AG Architekten SIA, CH-Olten
Photo: Martina Villiger, Holz & Fiktion, CH-Wauwil

Architecture: Fetscher Architekten, DE-Illmensee
Photo: Frank Herlet, DE-Köln

Architecture: lattkearchitekten, DE-Augsburg
Photo: Eckhart Matthäus Fotografie, DE-Wertingen

Architecture: Sacker Architekten GmbH, DE-Freiburg
Photo: Martin Granacher, DE-Weilheim

Architecture: Slangen + Koenis - Architecten, NL-MP IJsselstein
Photo: Marcel van der Burg

Architecture: S4 Architekten, DE-Waldshut-Tiengen
Photo: Foto & Design Gröber, DE-Waldshut

Architecture: phalt Architekten AG, CH-Zürich
Photo: Lignotrend Produktions GmbH, DE-Weilheim

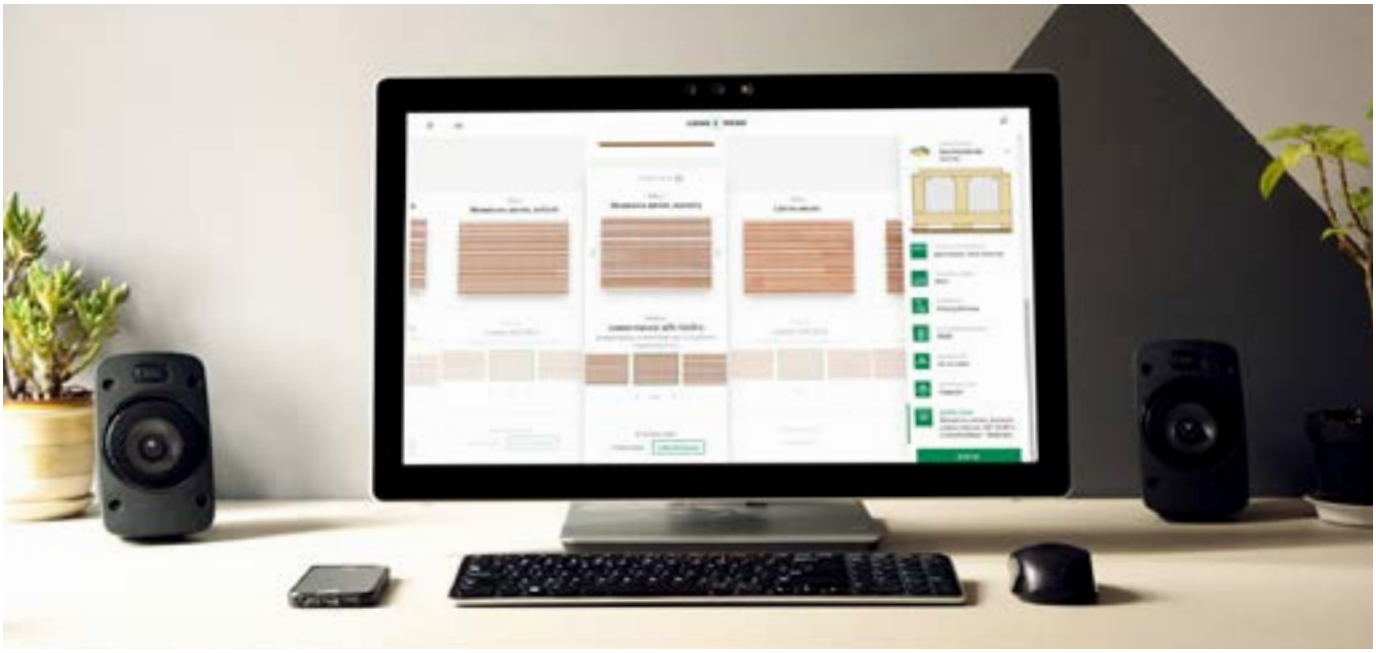
Architecture: Lamott.Lamott Architekten PartGmbB, DE-Stuttgart
Photo: Fotografie Brigida González, DE-Stuttgart

CONFIGURABLE CROSS-LAMINATED TIMBER

In the development of our products, we focus on intelligent and sustainable multifunctionality. Hence, with components made of LIGNO®, tasks can be accomplished today that will become building standards in future – for example where sound insulation is concerned.

The adaptability of the LIGNO® cross-laminated timber ribbed and box elements was fully standardised in 2019: From now on, individual configurability is possible in order to meet the requirements of almost all building classes: With regard to fire protection, sound insulation, aesthetics, room acoustics and installation capability, Lignotrend elements can be purposefully adapted – and users can now do that themselves: the online configurator enables the simple transfer of the planning requirements into the technical characteristics of the LIGNO® element.

www.lignotrend.com/konfigurator



LOOKBOOK – ARCHITECTURE MADE OF LIGNO®

Our contribution to architecture – Developement and protection of the regional forest resources for production of precise cross laminated timber elements. Provision of configurable, high performant solutuions for sustainable building with a high degree of design freedom. Creativity in timber.
Visible. Audible. Tangible.

The Lookbook summarises some of the most outstanding references.
Ask for your personal copy.

www.lignotrend.com/lookbook

BUILDING BIOLOGY | SUSTAINABILITY

When making cross-laminated timber products, it's important to ensure that the raw material is used sustainably and processed in ways that avoid creating health hazards. The finished products must also be highly durable. LIGNO® cross-laminated timber has held the natureplus® ecolabel since 2006 for complying with that organisation's very strict ceilings on contaminants, and ranks amongst Europe's most environmentally friendly and health-conducive building materials.

The natureplus ceilings undercut the legal requirements by a wide margin. They apply in particular to emissions of formaldehyde and volatile organic compounds (VOCs).

Lignotrend uses a high proportion of renewable energy for production and is proud of its products' excellent ecological footprint throughout their lifecycles. The polyurethane (PUR)-based adhesives used to make cross-laminated timber must also meet stringent requirements in respect of their effects on health; for instance, they must be completely free of isocyanates. By the time the products have cured, these have been completely removed by chemical reactions.

The raw material is used very efficiently for producing LIGNO® cross-laminated timber. As a result of leaving gaps within the layers, each cubic metre of raw timber yields more square metres of product without sacrificing any of the strength which is needed for robust timber constructions. By optimising the cross-sections of its products in this way, Lignotrend is bucking the trend towards very thick, completely dense building components.

This cross-sectional optimisation with hollow cavities also delivers various technical benefits. One is that material is only placed where it is required for loadbearing purposes. In addition, it lets installations run inside the cross-laminated timber components and leaves space for fillings and absorbers to improve building and room acoustics.

PLANNING SERVICE

Lignotrend is convinced that the timber construction method will continue to establish itself if the focus is consistently placed on quality. As a manufacturer, we therefore offer numerous services related to timber construction, which architects, specialist planners and timber construction companies can order from us.

The Lignotrend planning services:

- Structural calculations for timber construction
- Proofs of diaphragm statics
- Clarification of building physics issues
- Elaboration of joinery details
- Installation diagrams for timber construction companies
- Delivery of BIM-capable CAD data

The Lignotrend processing services:

- Pre-assembly (e.g. for wall components)
- Joinery: Elaboration of all details on the element
- Installation of pipes and cables
- Ready-to-install parts made of acoustic panels

CONSULTING

Lignotrend accompanies work on the optimum timber construction solution right from the planning: as a planning office or timber processing company, you can benefit from the competence of experienced consultants at your premises or alternatively by video conference, in which plans can simply be viewed and discussed together by screen sharing. We assist you in putting your creative ideas into practice in high-quality timber construction projects!

Project-specific timber construction support

- at the draft stage with pre-dimensioning
- in questions of detail ideas / design details
- with regard to building physics, e.g. fire protection, sound insulation
- advice on room acoustics
- with guiding prices and initial cost estimates
- with the preparation of quotations
- with questions of processing

Do you have a specific project and wish to discuss the use of our components in detail with an expert? Or would you like a no-obligation appointment to get to know the creative, constructive and building physics-related possibilities of the Lignotrend components? Our competent timber construction experts cover all regions in Central Europe. Contact us for an eye-level discussion – from planner to planner.

www.lignotrend.com/consulting

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LIGNO TREND®
For sustainable building in timber.