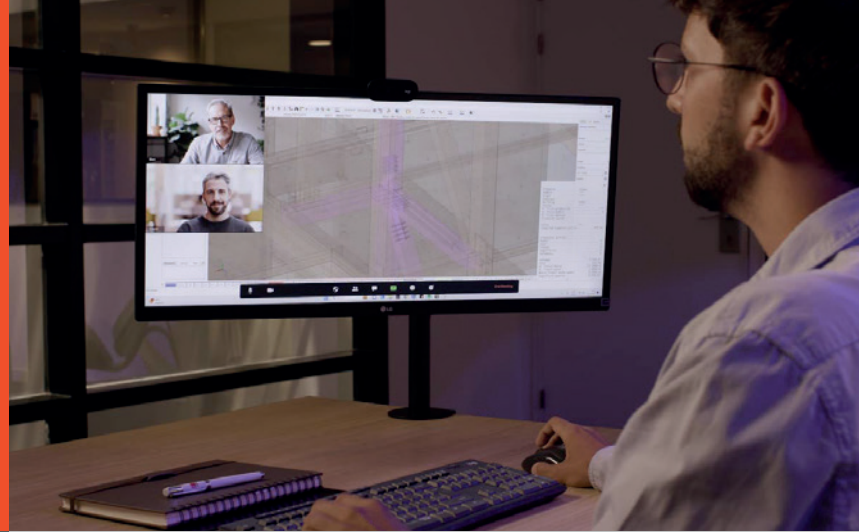




MASS TIMBER BUILDING SOLUTIONS

Mass Timber
Construction System





Mass Timber

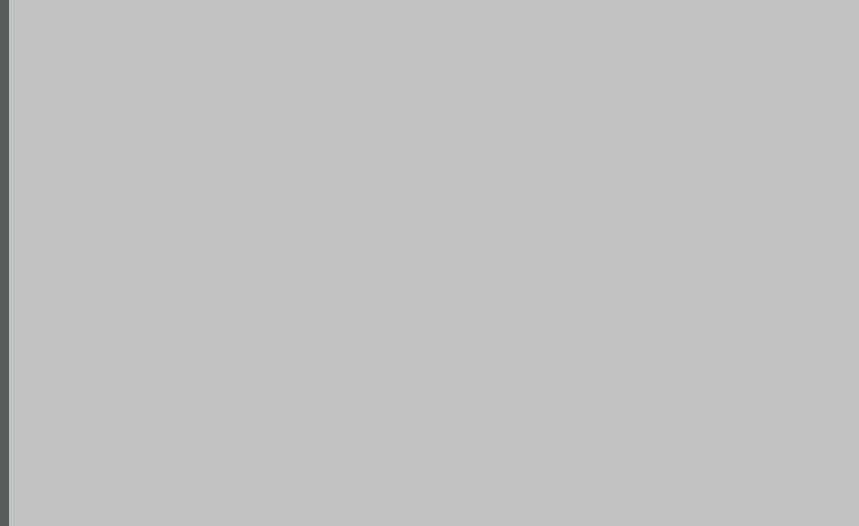




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About US



We are the largest industrial plant of Mass Timber in South America and the only one in Uruguay. We operate the highest-volume pine sawmill in the country.

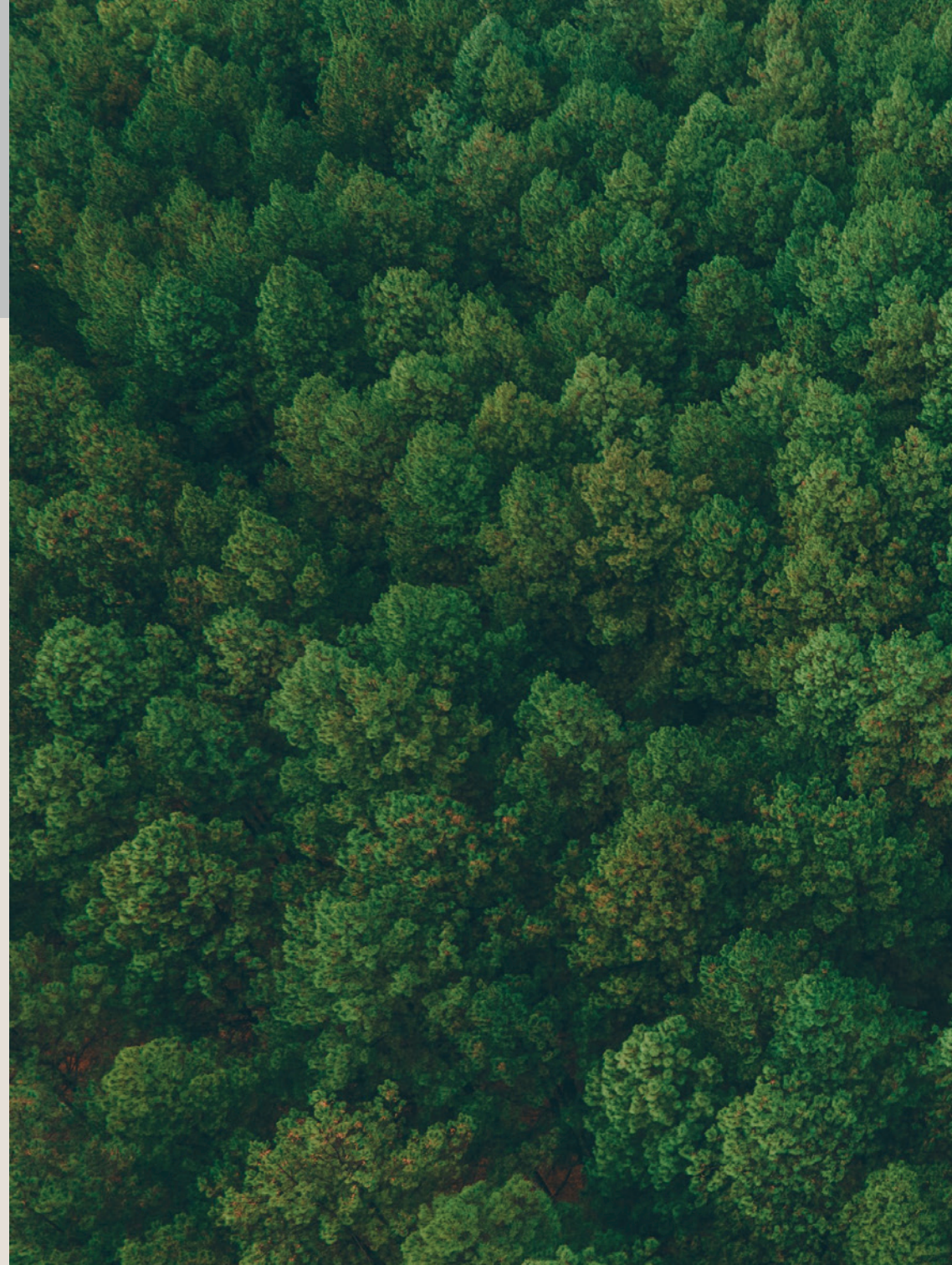
Our vertical integration allows us to offer a wide range of products, from sawn lumber to engineered wooden products, designed specifically for each construction project and supported by a specialized technical team.

Our mission



Accelerating the transition to net zero carbon emissions.

We collaborate in reducing the carbon net emissions in the industry of construction by using wood-derived products and promoting a construction system that embraces circular economy cornerstones.





What is Mass Timber?



Mass Timber is a revolutionary sustainable building system that uses large-scale, prefabricated timber components. These parts, which include walls, floors, columns, and beams, are manufactured with high precision in a controlled environment, ensuring fast and efficient construction. The strength and density of its components make Mass Timber structures ideal for high-rise buildings.



CLT & GLT

Both CLT and GLT have exceptional strength and dimensional stability, as well as effective thermal and acoustic insulation properties. In addition, their sustainable manufacturing and ability to store carbon make these materials an environmentally friendly choice for construction.

CLT panels and GLT beams arrive at the construction site ready to be installed, reducing construction time and cost. This is due to high power and precision of the numerically controlled machines, which are capable of high-quality machining.

One of the elements that make up the Mass Timber family of products is Cross-Laminated Timber (CLT), a product composed of multiple orthogonal layers of structural wood, glued together with high-performance adhesive. Its versatility allows its use in a variety of applications, from walls and floors to roofs in multi-story buildings.

On the other hand, Glue-Laminated Timber (GLT), manufactured by gluing structural timber layers in a single direction, offers exceptional strength in relation to its weight, making it ideal for beams, columns and linear elements.





Building smarter key benefits

- Carbon storage
- Quick assembly
- Fire-resistant
- Aesthetic
- Natural insulator
- Lightweight and versatile
- Acoustic insulation



Certified forestry

Towards a net zero carbon emissions future



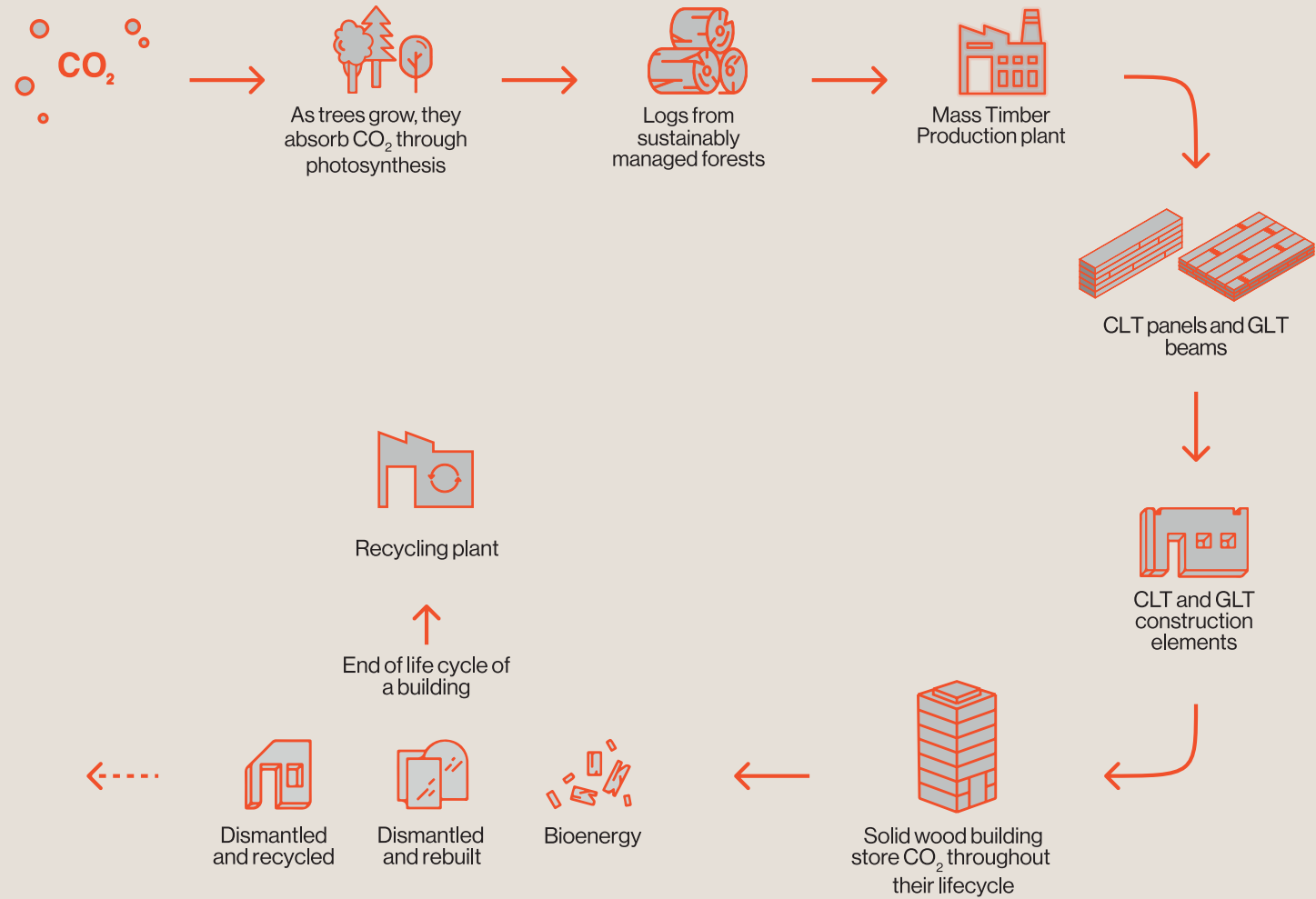
The mark of
responsible forestry

Our commitment to sustainability is mirrored in every aspect of our operations. The chain-of-custody of all our products is FSC® certified.

The Forest Stewardship Council (FSC®) is a non-governmental organization which provides accreditations and certifications. Its goal is to “promote environmentally sound, socially beneficial and economically viable management of the world’s forests.”

The certification of the chain-of-custody is the way that FSC® can verify that forest-derived materials, manufactured to rigorous standards, are reliably used throughout the product’s journey from forest to finished product.

Reverse climate change using biomaterials



By incorporating circular economy principles, we aim to minimize waste and maximize resource efficiency, paving the way towards a more sustainable and responsible future in construction.



Environmental Product Declarations

Environmental Product Declaration

EPD
INTERNATIONAL EPD SYSTEM
EPD PLATFORM
EPD VERIFIED

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Strength graded structural timber
from
Arboreal

Arboreal
MASS TIMBER BUILDING SOLUTIONS

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-13087
Publication date:	2024-06-30
Valid until:	2029-06-29

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

Environmental Product Declaration

EPD
INTERNATIONAL EPD SYSTEM
EPD PLATFORM
EPD VERIFIED

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Structural finger jointed solid timber
from
Arboreal

Arboreal
MASS TIMBER BUILDING SOLUTIONS

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-13312
Publication date:	2024-06-30
Valid until:	2029-06-29

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

Environmental Product Declaration

EPD
INTERNATIONAL EPD SYSTEM
EPD PLATFORM
EPD VERIFIED

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Glued laminated timber
from
Arboreal

Arboreal
MASS TIMBER BUILDING SOLUTIONS

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-13313
Publication date:	2024-06-30
Valid until:	2029-06-29

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

Environmental Product Declaration

EPD
INTERNATIONAL EPD SYSTEM
EPD PLATFORM
EPD VERIFIED

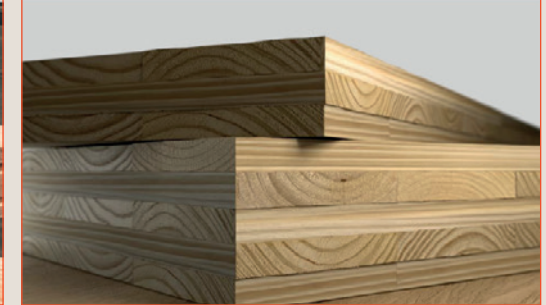
In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Cross-laminated timber
from
Arboreal

Arboreal
MASS TIMBER BUILDING SOLUTIONS

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-13314
Publication date:	2024-06-30
Valid until:	2029-06-29

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



We have Environmental Product Declarations (EPDs), which provide detailed and verified information about the environmental performance of our products.

These documents, well-known for their transparency and rigor, offer an objective analysis of our products' life cycle, including their impact in areas such as carbon emissions and energy and resources usage.

You can access our EPDs at the Official Library, environdec.com, where you will also find key data for making sustainable decisions in your projects.

International structural certifications and evaluations



Evaluated by **ICC-ES (USA)**

Our **CLT and GLT** comply with **North American standards.**

The evaluation includes:

- CLT - See official report ESR-5363
- GLT - See official report ESR-5362



CE marking (European Union)

Our products comply with European requirements for structural use.

Compliance includes:

- CLT - ETA-24/1202 (EAD-130005-00-0304)
- GLT - EN 14080
- Finger-joint - EN 15497
- Structural timber - EN 14081-1



Certified for Australia and New Zealand

Our structural timber complies with the requirements of both markets.

Certification includes the following product substitutions (according to AS 1720.1)

- SP7 - Substitutes F5
- SP8 - Substitutes F7
- SP10 - Substitutes MGP10

Validated in collaboration with the University of Queensland

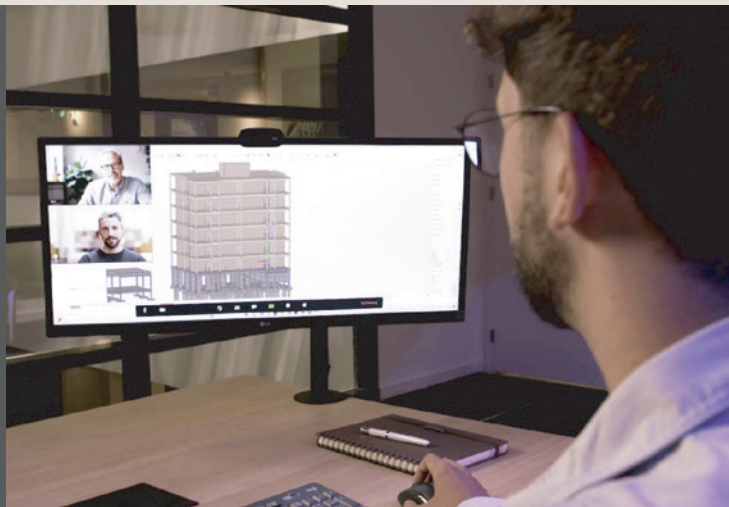
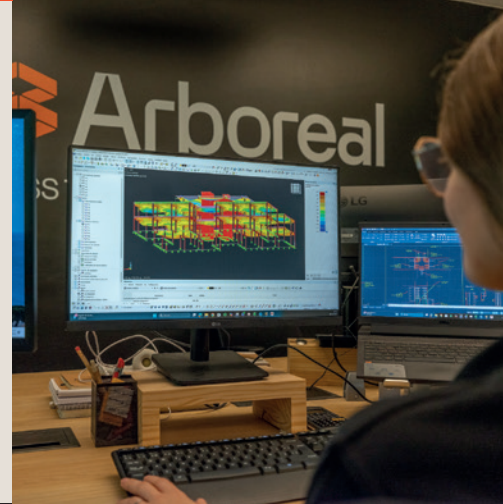


Engineering service & structural design

Our technical team of architects and engineers takes a comprehensive and individualized approach to every project. This happens from the structural analysis all throughout the BIM methodology for manufacturing.

Using BIM methodology allows the detailed visualization and planning of buildings before construction itself, which translates into a smoother interaction among the different stakeholders and a reduction in construction errors and costs.

Along with prefabrication precision, we have managed to shorten the construction time and optimize construction site efficiency.

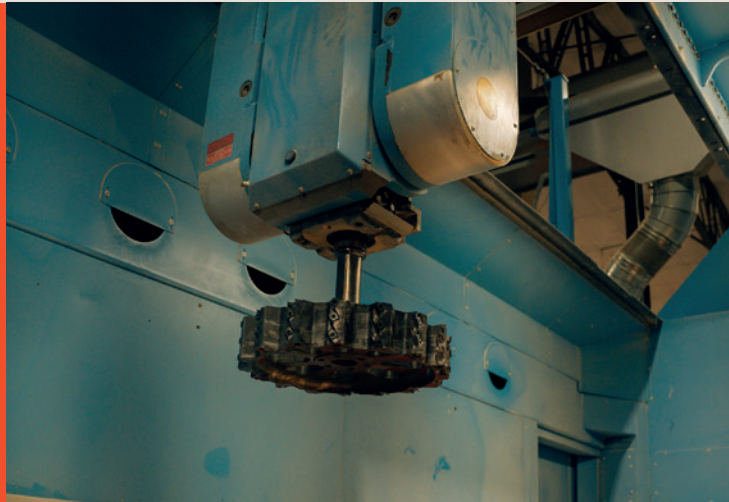


Advanced fabrication technology

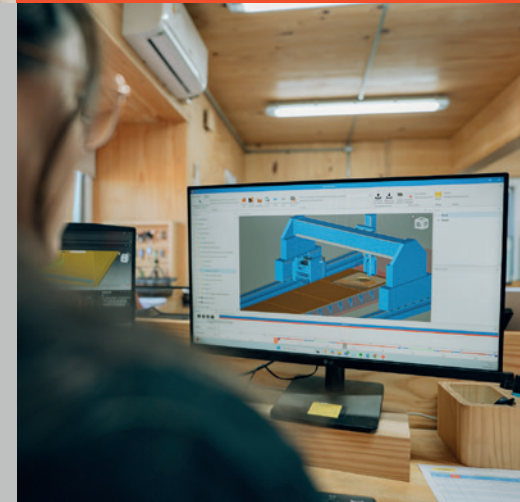
Our factory is the heart of our operation, equipped with state-of-the-art technology, we guarantee quality and precision in our products.

We have the highest mechanical grading technology, allowing us to accurately and efficiently differentiate and obtain structural sawn timber.

With the capacity to process 50,000 m³ of Mass Timber annually, it is one of the largest in LATAM. We supply markets worldwide, ensuring a steady flow and fast deliveries.



Our CNC technology enables millimeter-precision machining for both CLT and GLT.





Our Sawmill

Forest optimization

Our sawmill produces over 270,000 m³ of wood yearly, ensuring a continuous supply of high-quality raw material for our mass timber plant. We make use of forests located within 100 km of our sawmill.

Each of our products undergoes a meticulous grading process and an exhaustive quality control procedure. We guarantee careful attention at every stage, from trees to packaging, ensuring visual and structural superiority.



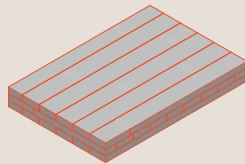


Our products



CLT

Cross Laminated Timber



Cross-laminated timber panels made from finger-jointed structural timber boards, sourced from FSC®-certified pine plantations.

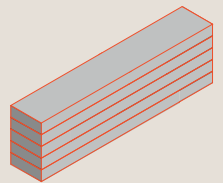
CE ETA-24/1202 according to EAD-130005-00-0304

ICC ES ICC-ES Evaluated: ESR-5363



GLT

Glue Laminated Timber



Glue-laminated timber made from finger-jointed structural timber boards, sourced from FSC®-certified pine plantations.

CE EN14080

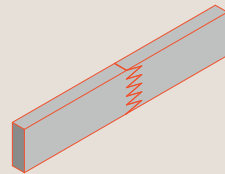
ICC ES ICC-ES Evaluated: ESR-5362

Our products



SFJT

Structural Finger-jointed Timber



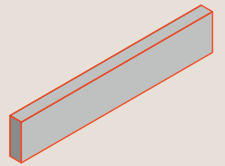
Finger-jointed structural timber, manufactured from machine-graded structural timber, sourced from FSC®-certified pine plantations.

CE EN15497



ST

Structural Strength-graded Timber



Machine-graded structural sawn timber, sourced from FSC®-certified pine plantations.

CE EN14081-1



Cross Laminated Timber (CLT)



Our Cross-Laminated Timber (CLT) stands out for its robustness and versatility, enabling the construction of complex structures with efficiency and precision, providing exceptional strength and stability, comparable to other materials such as steel and concrete.

Its ideal for a variety of structural applications makes it an optimal choice for innovative architecture and engineering projects.



The mark of responsible forestry

Features of CLT

MANUFACTURING STANDARD

The manufacture and quality control are according to European standard EN 16351:2021 or ANSI/APA PRG 320: 2025.

WOOD SPECIES

Southern yellow pine: Loblolly pine (*Pinus taeda*) and Slash pine (*Pinus elliottii*) from locally sourced FSC® certified plantations.

APPLICATIONS

- Slabs
- Walls
- Roofs

LAYERS

CLT panels can be manufactured with 3, 5, 7, or 9 layers*.

STRUCTURAL ADHESIVE

- Single-component PUR cold-curing structural adhesive.
- In accordance with EN 15425 I 90 GP 0.3 w.
- Free of organic solvents or formaldehyde.
- Resistant to water, weak acids and bases, and organic solvents.

*ETA includes up to 7 layers.

Dimensions

- Total height (mm): from 66 to 355.
- Widths (m): up to 3.3*.
- Lengths (m): up to 11.9*.

*The maximum press dimension is 12 m x 3.5 m. The maximum dimension is determined by transport and cutting offset.

Certifications



ETA-24/1202 according to EAD-130005-00-0304.



ICC-ES Evaluated ESR-5363.

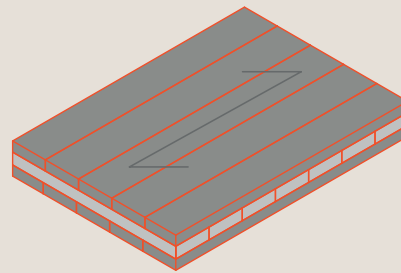
Features of CLT

Sections

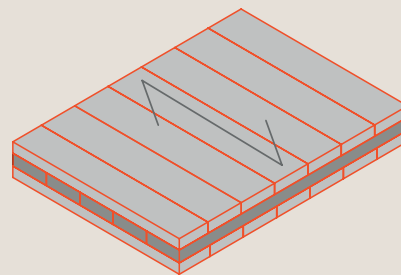
Layers	Thickness (mm)	Board configuration (mm)
3	66 (2,6")	22-22-22
3	79 (3,1")	22-35-22
3	92 (3,6")	35-22-35
3	105 (4,1")	35-35-35
3	115 (4,5")	35-45-35
3	125 (4,9")	45-35-45
3	135 (5,3")	45-45-45
5	110 (4,3")	22-22-22-22-22
5	123 (4,8")	22-22-35-22-22
5	136 (5,4")	35-22-22-22-35
5	149 (5,9")	35-22-35-22-35
5	162 (6,4")	35-35-22-35-35
5	175 (6,9")	35-35-35-35-35
5	195 (7,7")	45-35-35-35-45
5	215 (8,5")	45-45-35-45-45
7	193 (7,6")	35-22-22-35-22-22-35
7	213 (8,4")	45-22-22-35-22-22-45
7	232 (9,1")	35-35-35-22-35-35-35
7	255 (10,0")	35-35-35-45-35-35-35
7	275 (10,8")	45-35-35-45-35-35-45
7	295 (11,6")	45-45-35-45-35-45-45
7	315 (12,4")	45-45-45-45-45-45-45
9	335 (13,2")	45-35-35-35-35-35-35-35-45
9	355 (14,0")	45-45-35-35-35-35-35-45-45

Configuration

The CLT panels are made with the external layer following the main axis of the panel, namely longitudinal (L) or with the external layer perpendicular to the main axis of the panel, namely transversal (T).



LONGITUDINAL (L)



TRANSVERSAL (T)

Thickness wise, the panels are symmetrical.

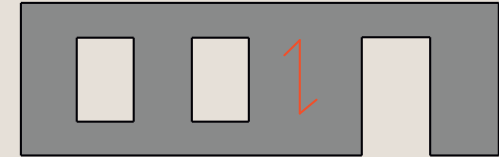
Type "s" indicates that the CLT panel is made with standard orthogonal layup.

Type "d" indicates that the first and second external layers are in the same direction.

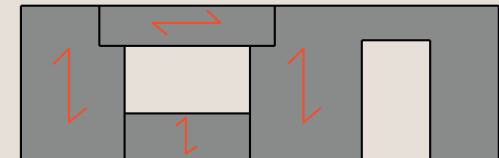


CNC cuts

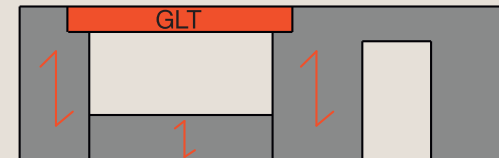
We have the ability to machine joints, openings, and installations using state-of-the-art computer numerical control (CNC) cutting machines.



Machined openings in a full panel. Generally for small openings.



Openings formed by pieces of CLT panels. Typically used when the CLT lintel is structurally verified and the log grain is oriented horizontally.



Openings formed by pieces of CLT panels and using a GLT lintel. Generally applied when the opening span is significantly large.

CLT Visual Grades

We offer two types of visual grades for the CLT boards' surface and they can be combined in many ways.

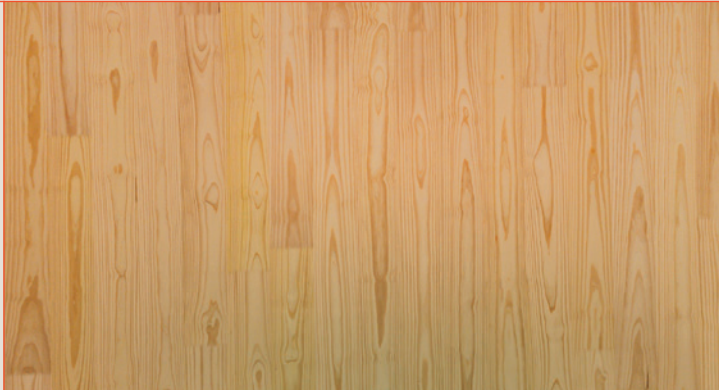
Industrial (I)

Suitable for panels that are typically covered on site. It presents singularities of the wood at sight and without specific aesthetic requirements.



(I) Industrial Quality

*The images are illustrative. The quality and the number of knots may vary depending on the board surface.



(C) Clear Quality

Clear (C)

Suitable for constructions where it is required to leave the structural wood layer of the panel exposed and the singularities of the wood are not accepted. The exposed surface is free of knots and other aesthetic defects.

Characteristic parameters

Criteria	I	C
Type of Wood	Pine	Pine
Healthy Knot	Allowed	Not allowed
Black Knot	Allowed	Not allowed
Resin Pockets	Allowed	Not allowed
Wane	Not allowed	Not allowed
Pith	Allowed	Not allowed
Blue Stain	Allowed	Not allowed
Decayed Knot	Not allowed	Not allowed
Cracks	Allowed	Allowed
Edge Gluing	No	No
Surface	Not sanded	Sanded
Surface Fixing	No fixing	Allowed
Moisture Content	12% ± 2%	12% ± 2%

CLT

Service Classes

The concept of service classes, associated with classes of use, is related to the probability that the structural element will suffer biotic or abiotic degradation during service.

SERVICE CLASS 1

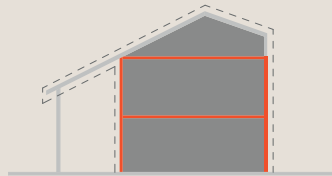
Indoor space, with stable and controlled humidity levels. It is characterized by an environment protected from external weather conditions and generally with a relative humidity* of air below 65%*, except for a few weeks of the year. Hygroscopic equilibrium humidity of wood <12%.

SERVICE CLASS 2

Outdoor but covered space, protected from direct rain. The structure may occasionally become damp and condensation may occur on the surface. It is characterized as an indoor environment in which the relative humidity of the air exceeds 85%* only a few weeks of the year. Hygroscopic equilibrium humidity of wood <20%.

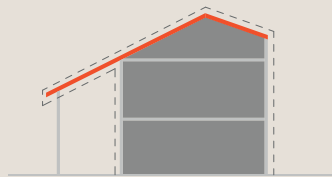
*Note: relative humidity of the air corresponding to a temperature of $20 \pm 2^{\circ}\text{C}$

01



Indoor space. Not exposed to weather or humidity.

02



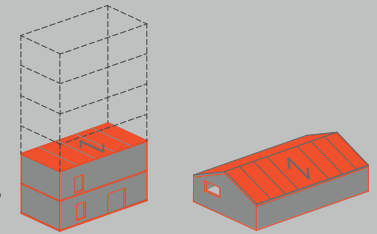
Space under cover, protected from the weather, occasionally humidity is allowed.



Typical applications

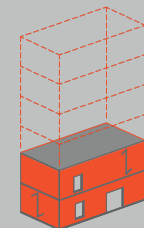
SLABS AND ROOF

In general, to solve floor slabs and roofs, the panel is oriented with exterior laminates in the engthwise direction (L-panels).



WALLS

In general, to solve walls, the panel is oriented with exterior sheets in the transversal direction (T-panels).

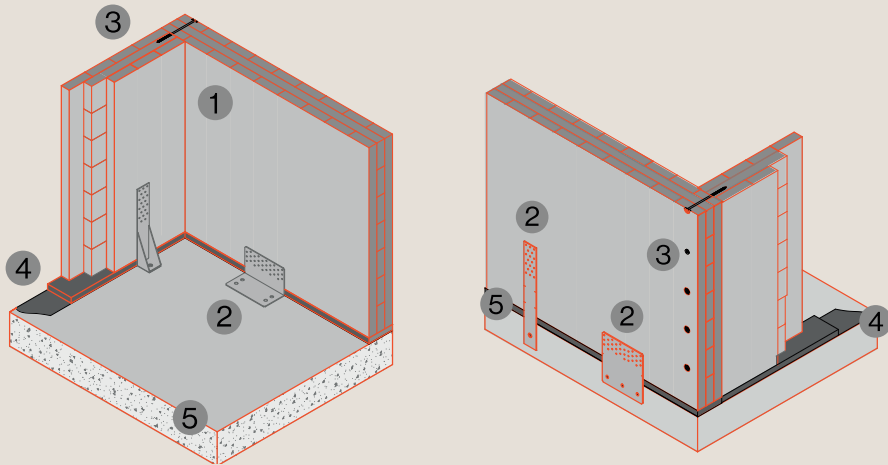




Typical details

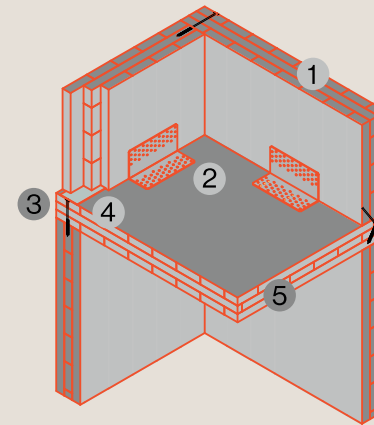
Possible solutions for CLT structural joints.

TYPICAL JOINT: WALL - CONCRETE



1. CLT Wall.
2. Fittings.
3. Wood-to-wood joint with screws.
4. Waterproofing/ Leveling/ Protection.
5. Concrete.

TYPICAL JOINT: WALL - SLAB - WALL

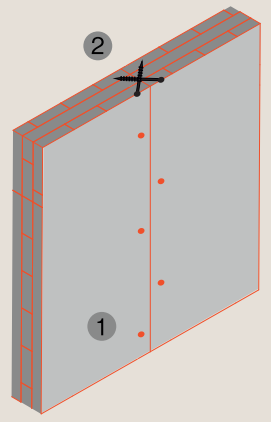


1. CLT Wall.
2. Fittings.
3. Wood-to-wood joint with screws.
4. Acoustic insulation strip.
5. CLT slabs.

Typical details

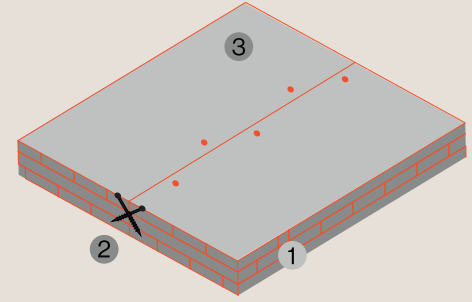
Possible solutions for CLT structural joints.

TYPICAL JOINT:
WALL - WALL



- 1. CLT Wall.
- 2. Screws cross-connection.

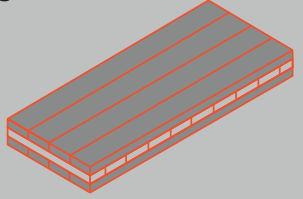
TYPICAL JOINT:
SLAB - SLAB



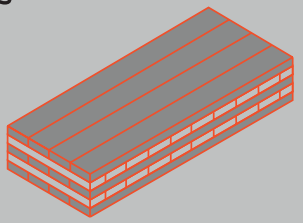
- 1. CLT Slab.
- 2. Screws cross-connection.
- 3. CLT floor.

Configurations

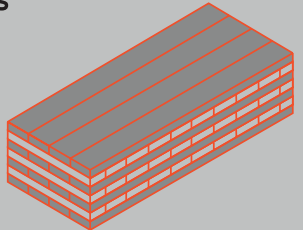
3s



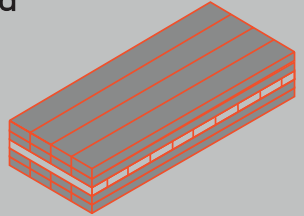
5s



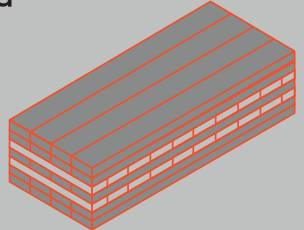
7s



5d



7d

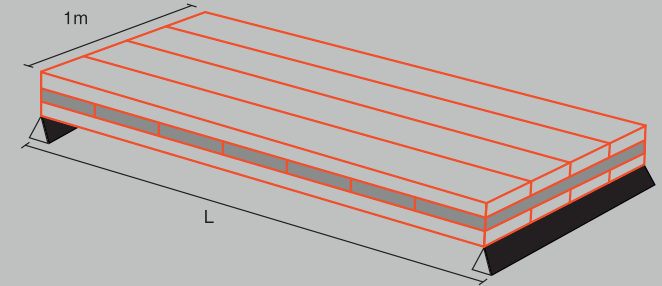




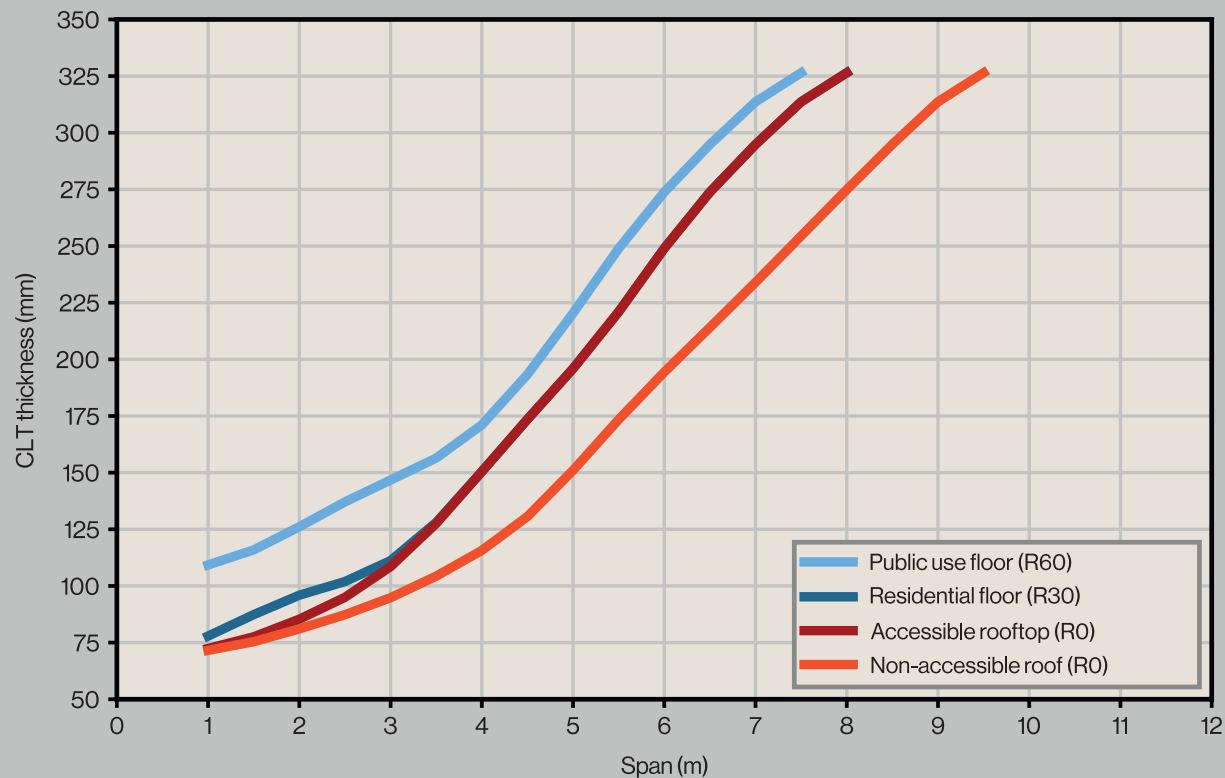
Preliminary sizing of CLT slabs

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Simply supported slab



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 1.3 kN/m^2 is considered for the non-accessible roof and 2.4 kN/m^2 for the other cases.

A live load of 2.0 kN/m^2 is considered for the residential floor and the accessible roof, 4.0 kN/m^2 for the public floor and 0.4 kN/m^2 for the non-accessible roof.

A wind pressure of 0.8 kN/m^2 is considered only in the case of roofs.

Only one side exposed to fire is considered.

Deflection limits for integrity $L/300$, comfort $L/350$ (not applicable for non-accessible roofs), and appearance $L/300$.

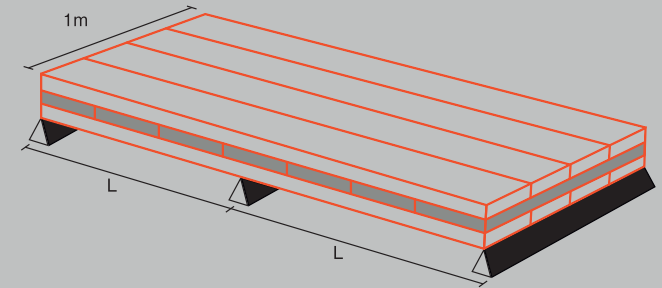
The serviceability limit state for vibration is not regarded in any case.

The structural calculation is carried out as per UNE-EN-1995.

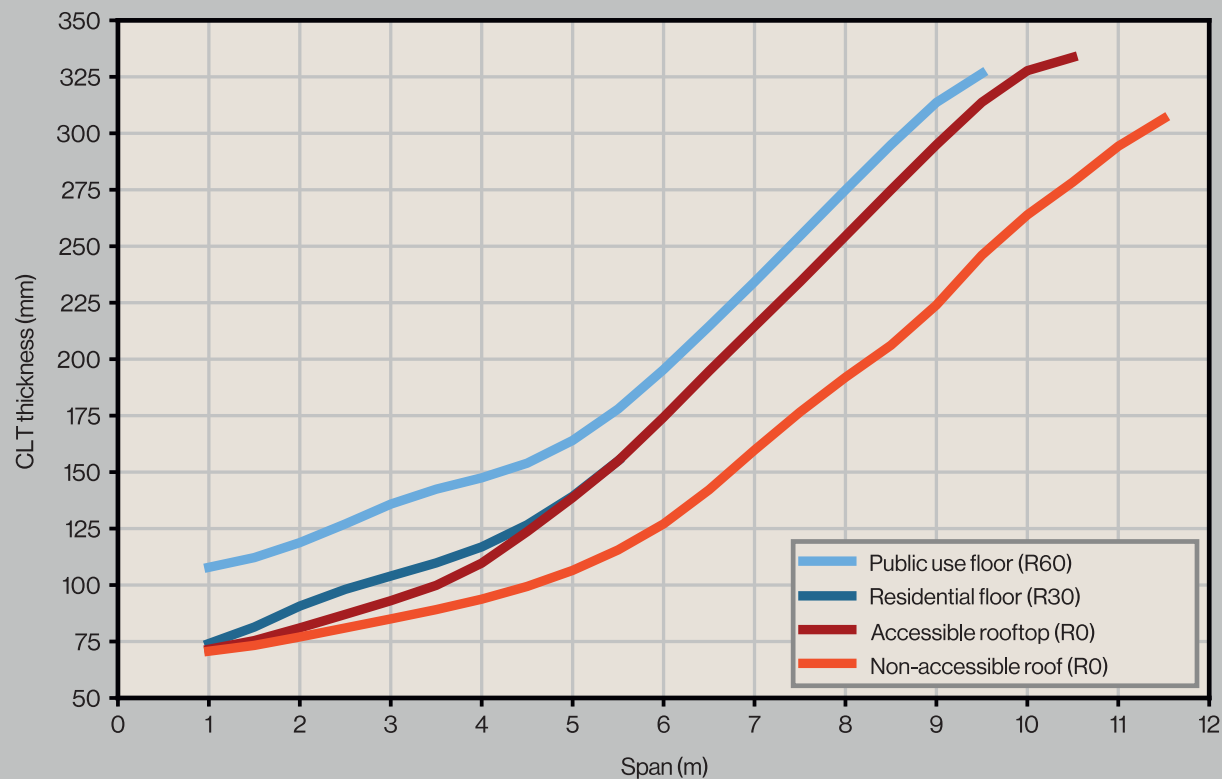
Preliminary sizing of CLT slabs

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Continuous slab



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 1.3 kN/m^2 is considered for the non-accessible roof and 2.4 kN/m^2 for the other cases.

A live load of 2.0 kN/m^2 is considered for the residential floor and the accessible roof, 4.0 kN/m^2 for the public floor and 0.4 kN/m^2 for the non-accessible roof.

A wind pressure of 0.8 kN/m^2 is considered only in the case of roofs.

Only one side exposed to fire is considered.

Deflection limits for integrity $L/300$, comfort $L/350$ (not applicable for non-accessible roofs), and appearance $L/300$.

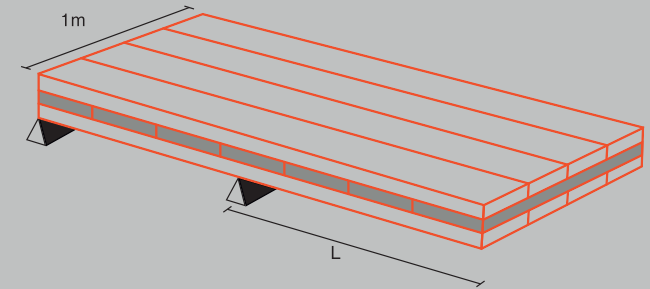
The serviceability limit state for vibration is not regarded in any case.

The structural calculation is carried out as per UNE-EN-1995.

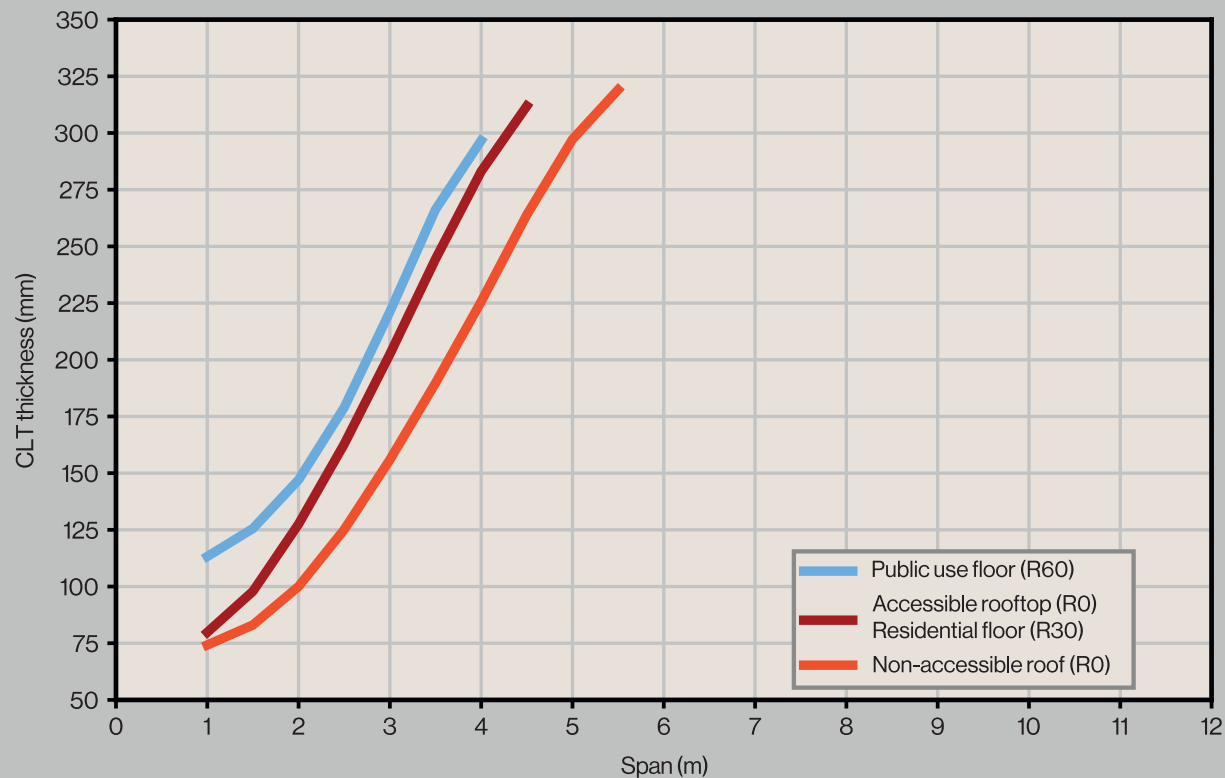
Preliminary sizing of CLT slabs

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Cantilever slab



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 1.3 kN/m^2 is considered for the non-accessible roof and 2.4 kN/m^2 for the other cases.

A live load of 2.0 kN/m^2 is considered for the residential floor and the accessible roof, 4.0 kN/m^2 for the public floor and 0.4 kN/m^2 for the non-accessible roof.

A wind pressure of 0.8 kN/m^2 is considered only in the case of roofs.

Only one side exposed to fire is considered.

Deflection limits for integrity $L/150$, comfort $L/175$ (not applicable for non-accessible roofs), and appearance $L/150$.

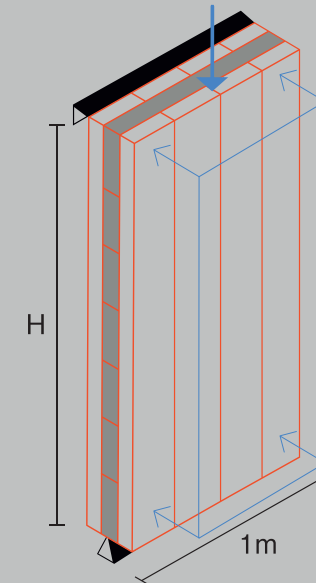
The serviceability limit state for vibration is not regarded in any case.

The structural calculation is carried out as per UNE-EN-1995.

Preliminary sizing of CLT walls

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 3.2 kN/m^2 and a live load of 2.0 kN/m^2 for residential floor and 4.0 kN/m^2 for public floor are considered for all levels.

These loads are multiplied by the number of floors $n (1 \leq n \leq 20)$ and by the area of influence of wall A ($A_{ext} = 2.50 \text{ m}$; $A_{int} = 5.00 \text{ m}$), and the resulting loads are applied linearly at the upper end of the wall.

A wind pressure perpendicular to the face of the walls of 1.2 kN/m^2 is considered for the exterior walls only.

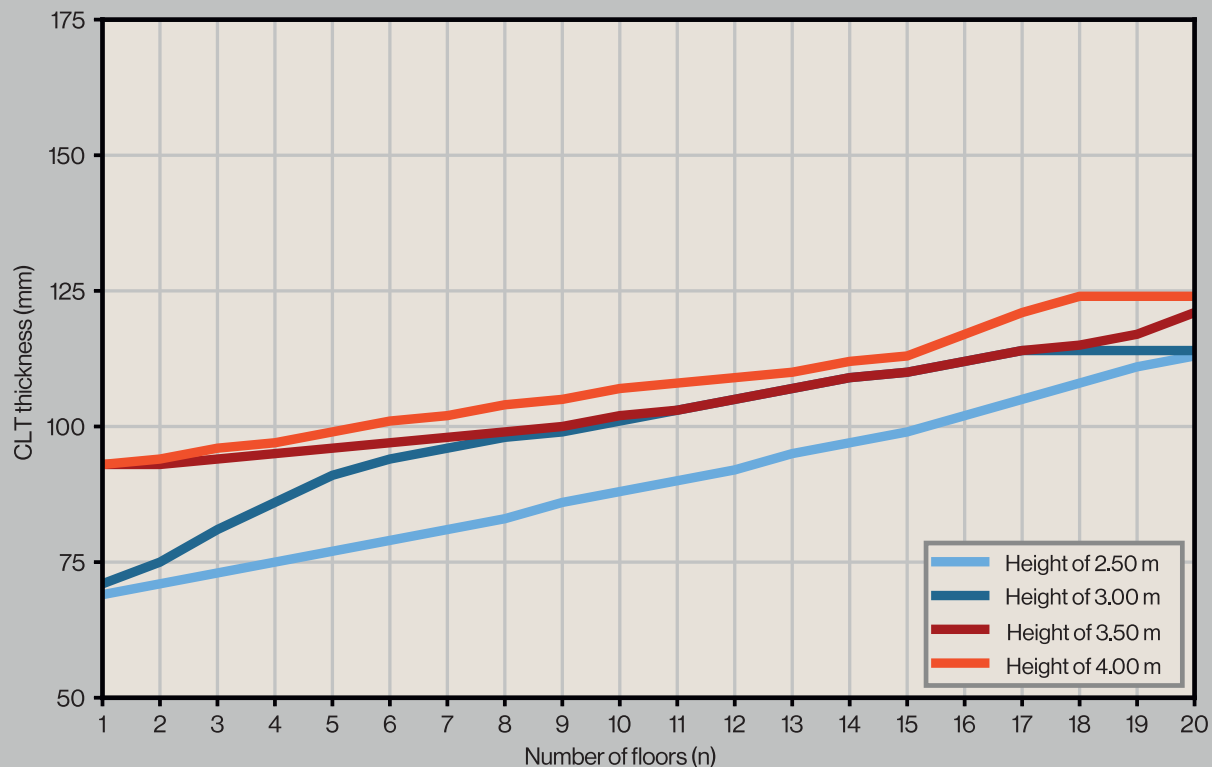
Only one face exposed to fire is considered.

Deflection limit for integrity $L/300$ and appearance $L/300$.

Windowsills, lintels or stress concentrations are not taken into account.

Structural design according to UNE-EN-1995.

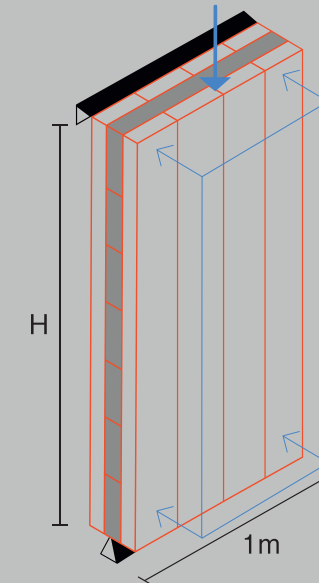
Exterior wall - Residential mezzanine (R0)



Preliminary sizing of CLT walls

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 3.2 kN/m^2 and a live load of 2.0 kN/m^2 for residential floor and 4.0 kN/m^2 for public floor are considered for all levels.

These loads are multiplied by the number of floors $n (1 \leq n \leq 20)$ and by the area of influence of wall A ($A_{ext} = 2.50 \text{ m}$; $A_{int} = 5.00 \text{ m}$), and the resulting loads are applied linearly at the upper end of the wall.

A wind pressure perpendicular to the face of the walls of 1.2 kN/m^2 is considered for the exterior walls only.

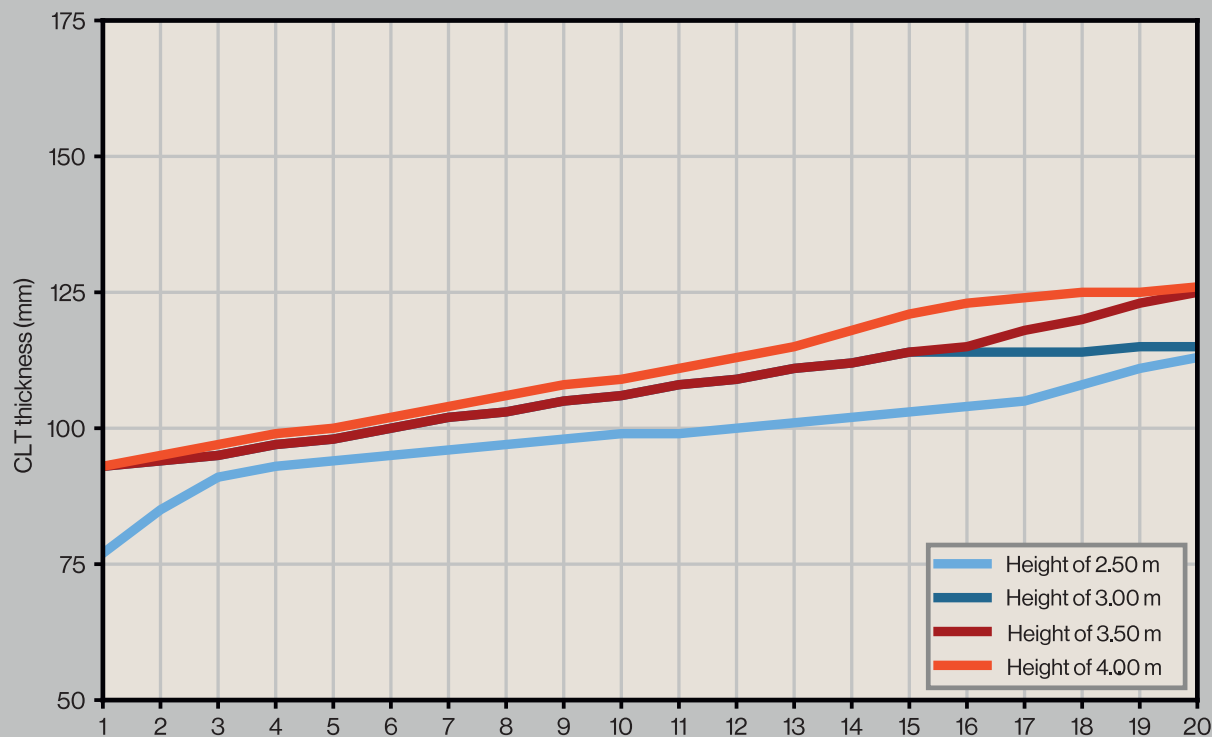
Only one face exposed to fire is considered.

Deflection limit for integrity $L/300$ and appearance $L/300$.

Windowsills, lintels or stress concentrations are not taken into account.

Structural design according to UNE-EN-1995.

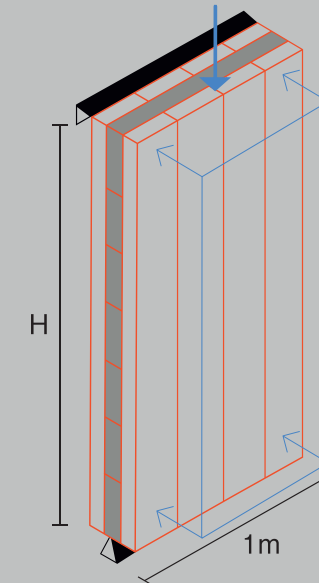
Exterior wall - Residential mezzanine (R30)



Preliminary sizing of CLT walls

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 3.2 kN/m^2 and a live load of 2.0 kN/m^2 for residential floor and 4.0 kN/m^2 for public floor are considered for all levels.

These loads are multiplied by the number of floors $n (1 \leq n \leq 20)$ and by the area of influence of wall A ($A_{ext} = 2.50 \text{ m}$; $A_{int} = 5.00 \text{ m}$), and the resulting loads are applied linearly at the upper end of the wall.

A wind pressure perpendicular to the face of the walls of 1.2 kN/m^2 is considered for the exterior walls only.

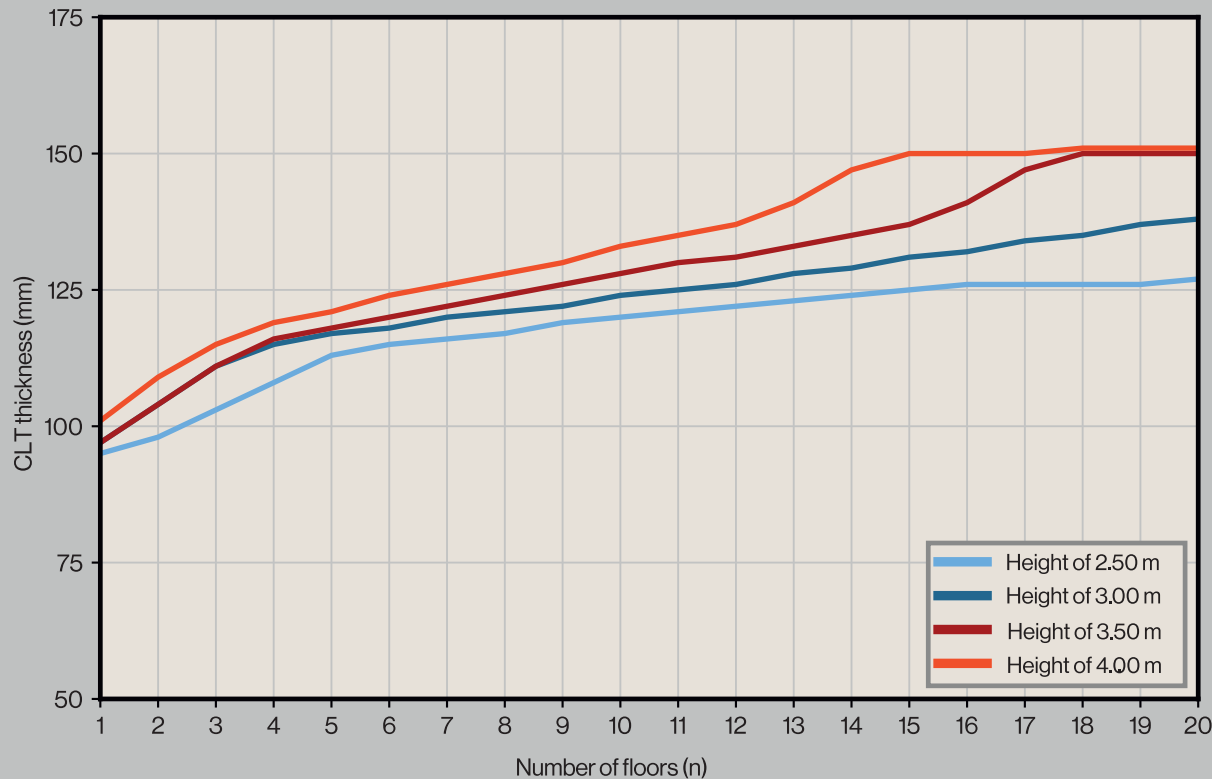
Only one face exposed to fire is considered.

Deflection limit for integrity $L/300$ and appearance $L/300$.

Windowsills, lintels or stress concentrations are not taken into account.

Structural design according to UNE-EN-1995.

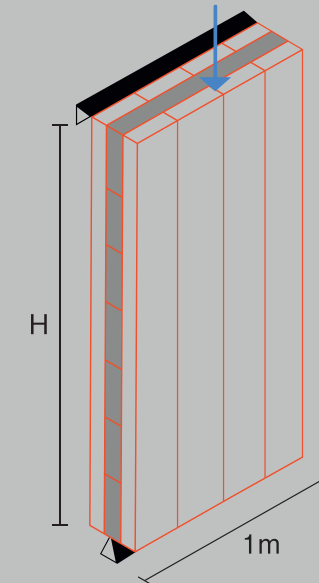
Exterior wall - Public use mezzanine (R60)



Preliminary sizing of CLT walls

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 3.2 kN/m^2 and a live load of 2.0 kN/m^2 for residential floor and 4.0 kN/m^2 for public floor are considered for all levels.

These loads are multiplied by the number of floors $n (1 \leq n \leq 20)$ and by the area of influence of wall A ($A_{ext} = 2.50 \text{ m}$; $A_{int} = 5.00 \text{ m}$), and the resulting loads are applied linearly at the upper end of the wall.

A wind pressure perpendicular to the face of the walls of 1.2 kN/m^2 is considered for the exterior walls only.

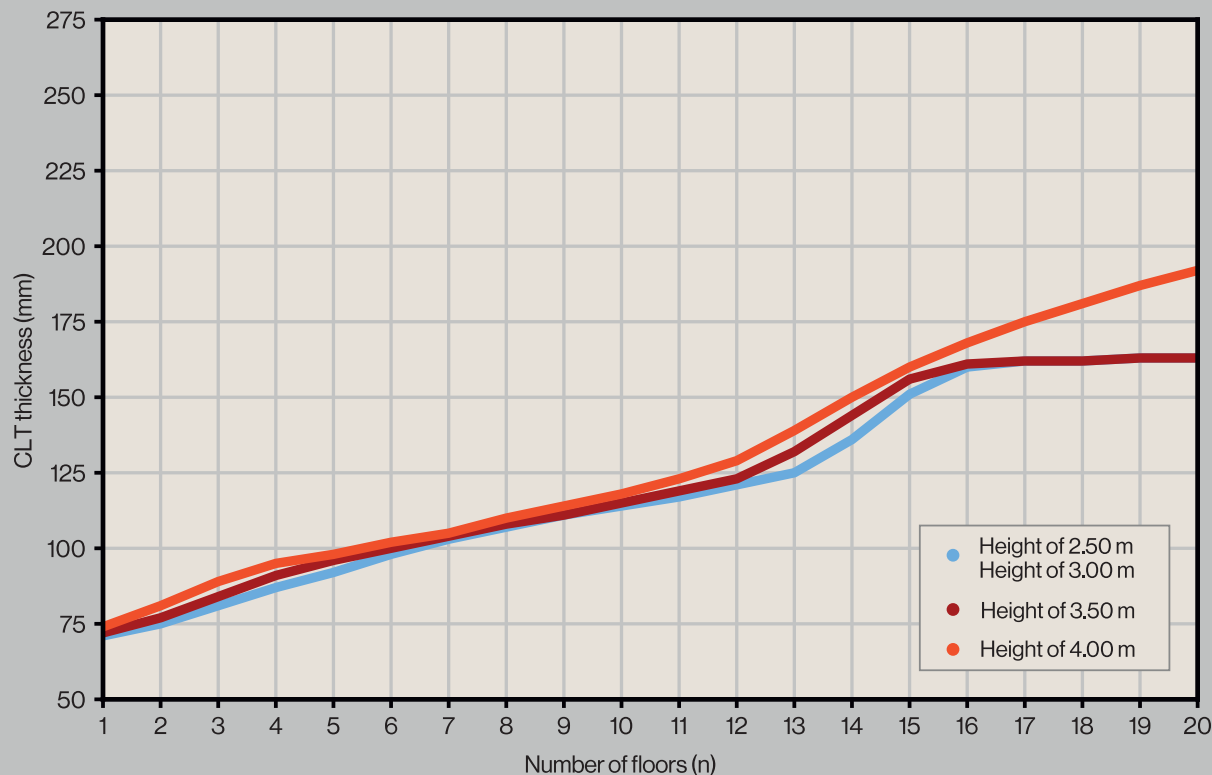
Only one face exposed to fire is considered.

Deflection limit for integrity $L/300$ and appearance $L/300$.

Windowsills, lintels or stress concentrations are not taken into account.

Structural design according to UNE-EN-1995.

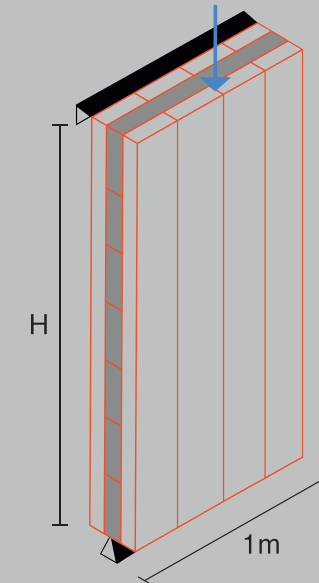
Interior wall - Residential mezzanine (R0)



Preliminary sizing of CLT walls

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 3.2 kN/m^2 and a live load of 2.0 kN/m^2 for residential floor and 4.0 kN/m^2 for public floor are considered for all levels.

These loads are multiplied by the number of floors $n (1 \leq n \leq 20)$ and by the area of influence of wall A ($A_{ext} = 2.50 \text{ m}$; $A_{int} = 5.00 \text{ m}$), and the resulting loads are applied linearly at the upper end of the wall.

A wind pressure perpendicular to the face of the walls of 1.2 kN/m^2 is considered for the exterior walls only.

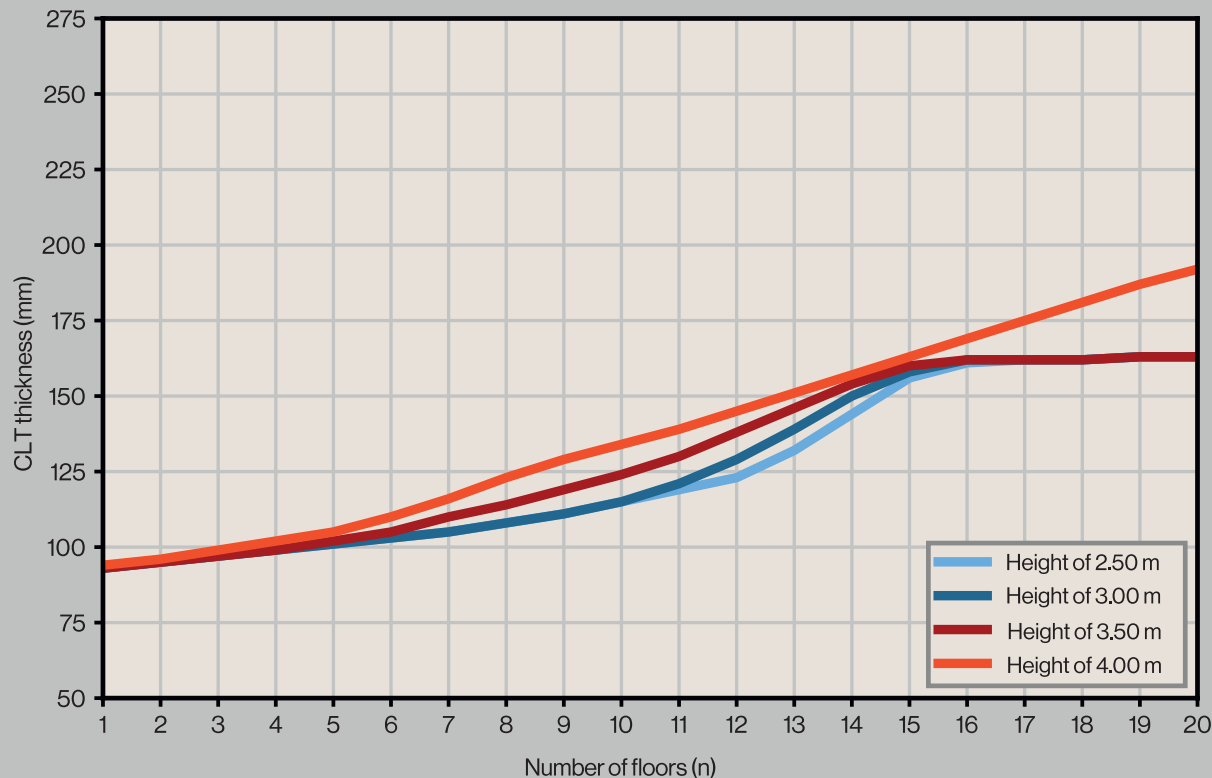
Only one face exposed to fire is considered.

Deflection limit for integrity $L/300$ and appearance $L/300$.

Windowsills, lintels or stress concentrations are not taken into account.

Structural design according to UNE-EN-1995.

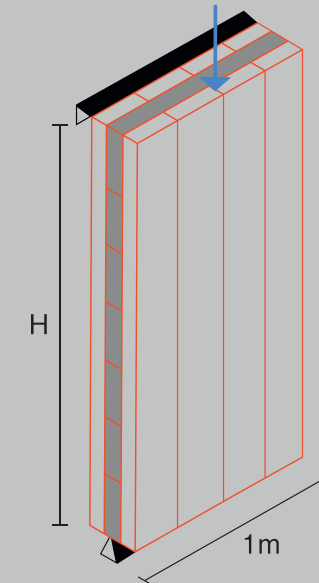
Interior wall - Residential mezzanine (R30)



Preliminary sizing of CLT walls

The graphs presented were prepared for specific conditions and are intended to serve as an approximate example.

These graphs cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 3.2 kN/m^2 and a live load of 2.0 kN/m^2 for residential floor and 4.0 kN/m^2 for public floor are considered for all levels.

These loads are multiplied by the number of floors $n (1 \leq n \leq 20)$ and by the area of influence of wall A ($A_{ext} = 2.50 \text{ m}$; $A_{int} = 5.00 \text{ m}$), and the resulting loads are applied linearly at the upper end of the wall.

A wind pressure perpendicular to the face of the walls of 1.2 kN/m^2 is considered for the exterior walls only.

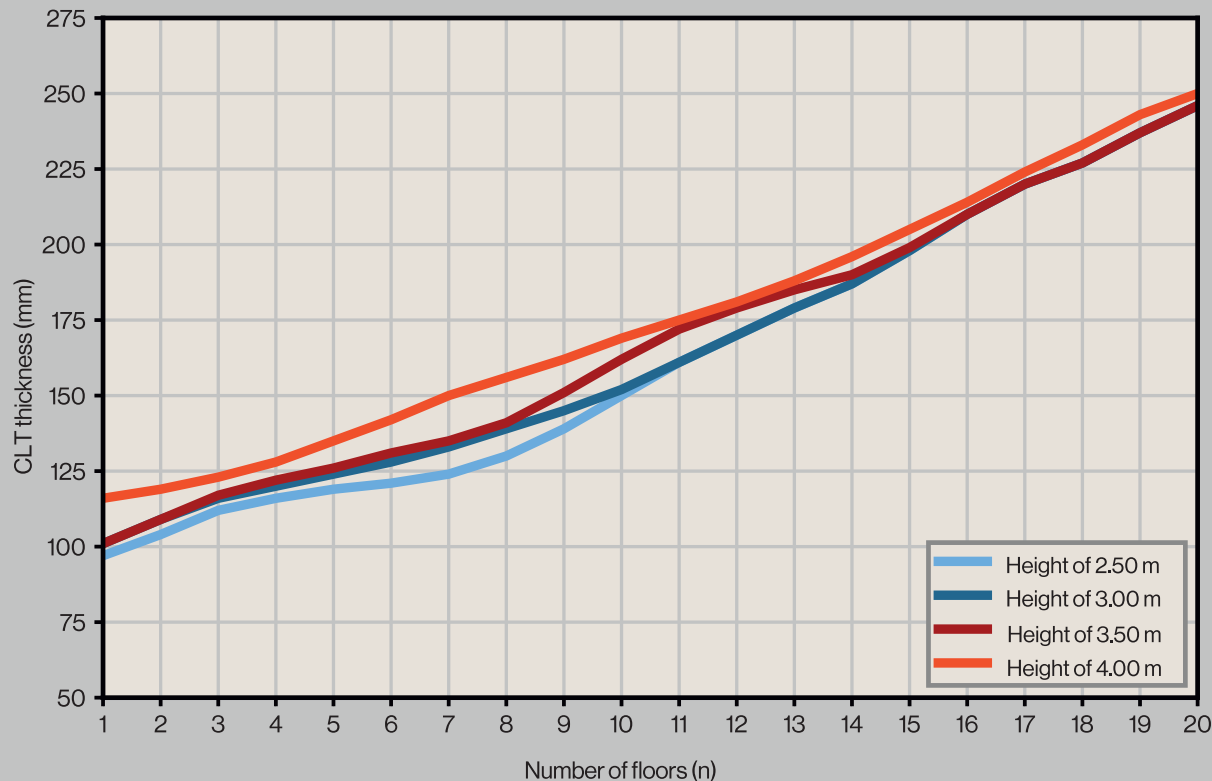
Only one face exposed to fire is considered.

Deflection limit for integrity $L/300$ and appearance $L/300$.

Windowsills, lintels or stress concentrations are not taken into account.

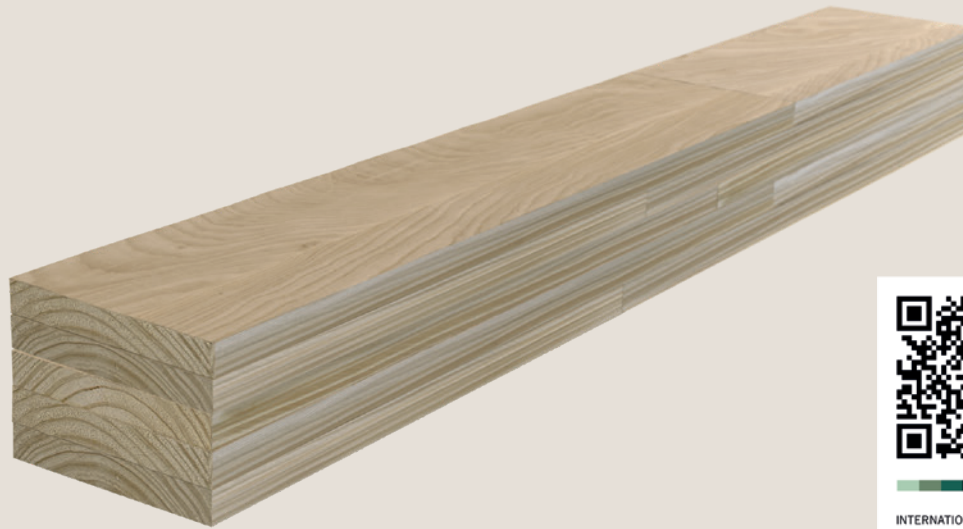
Structural design according to UNE-EN-1995.

Interior wall - Public use mezzanine (R60)





Glue Laminated Timber (GLT)



EPD
INTERNATIONAL EPD SYSTEM

Glued Laminated Timber (GLT), or glulam, is a versatile construction material recognized for its strength, durability, and the ability to create varied shapes through the bonding of wood layers with high-performance adhesives. This technique facilitates quick construction, supports customized designs, and is suitable for a broad spectrum of construction projects.



The mark of
responsible forestry

Features of GLT

MANUFACTURING STANDARD

The manufacture and quality control are according to: EN 14080:2022 or ANSI A190.1:2022.

WOOD SPECIES

Southern yellow pine: Loblolly pine (*Pinus taeda*) and Slash pine (*Pinus elliottii*) from locally sourced FSC® certified plantations.

APPLICATIONS

- Beams
- Columns and posts
- Structural components

STRENGTH CLASSES

GL22h y GL24h.

STRUCTURAL ADHESIVE

- Single-component PUR. Cold-curing structural adhesive.
- In accordance with EN 15425 I 90 GP 0.3 w.
- Free of organic solvents or formaldehyde.
- Resistant to water, weak acids and bases, and organic solvents.

Dimensions

- Board thickness (mm): 35, 45 | Total height (mm): up to 990
- Width (mm): 145 and 196 for a single piece | Length (m): up to 11.8

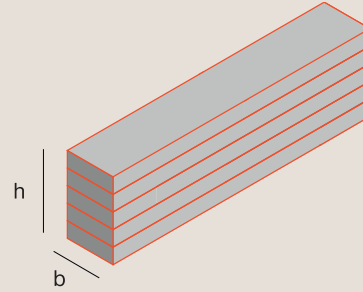
Certifications



ICC-ES Evaluated
ESR-5362.

Sizes

b [mm]	h [mm]	Layers	Layer thickness [mm]*
145/196	90	2	45
145/196	135	3	45
145/196	180	4	45
145/196	225	5	45
145/196	270	6	45
145/196	315	7	45
145/196	360	8	45
145/196	405	9	45
145/196	450	10	45
145/196	495	11	45
145/196	540	12	45
145/196	585	13	45
145/196	630	14	45
145/196	675	15	45
145/196	720	16	45
145/196	765	17	45
145/196	810	18	45
145/196	855	19	45
145/196	900	20	45
145/196	945	21	45
145/196	990	22	45



*In Service Class 3, 35 mm layers are used and h may vary.

Finished sizes

Planed on four sides, with a 4 mm bevel on the top and bottom sides (measured diagonally). Treatment against biological agents available upon request.



Strength classes

GL22c, GL22h and GL24h. Check 5362 for design values, according ANSI 190.1.

Property	Unit	GL22c	GL22h	GL24h
Bending strength parallel to the fibre, characteristic value ($f_{m,g,k}$)	N/mm ²	22	22	24
Modulus of elasticity in bending parallel to the fibre, average value ($E_{0,g,mean}$)	kN/mm ²	10.4	10.5	11.5
Density, characteristic value ($\rho_{g,k}$)	Kg/m ³	355	370	385

Service Classes

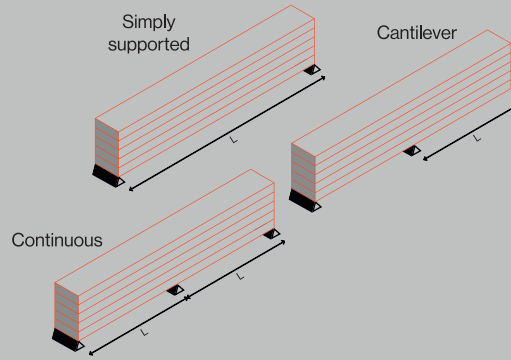
Standard GLT elements can be used in Use Classes 1 and 2 as per UNE EN 335, which correspond to Service Classes 1 and 2 as per UNE-EN-1995. Service Class 3 available upon request.

See Page 28.



Presizing of GLT beams

The tables presented have been prepared for specific conditions and are intended to serve as an approximate example. The tables cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 1.3 kN/m² is considered for non-accessible roof and one of 2.4 kN/m² is considered for the rest of the cases.

A live load of 2.0 kN/m² is considered for the residential mezzanine and accessible deck, 4.0 kN/m² for the public mezzanine and 0.4 kN/m² for the non-accessible deck.

A wind pressure of 0.8 kN/m² is considered only in the case of roofs.

The lower edge and the two lateral faces are considered exposed to fire.

Deflection limit for integrity L/300, comfort L/350 (not applicable for non-accessible roof) and appearance L/300.

In the case of the cantilever positioning, limits change to L/150, L/175 and L/150, accordingly.

The structural calculations have been made as per UNE-EN-1995.

GLT Sections [mm x mm]

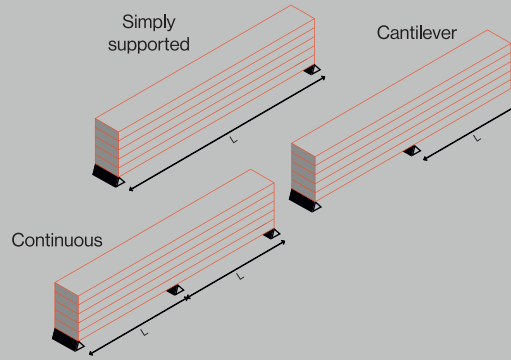
Tributary width 2 m - without bracing for lateral torsional buckling

Element	Residential floor (R30)			Public use floor (R60)			Accessible Roof Terrace (R0)			Non-Accessible (R0)		
Support Span	Simply supported	Continuous	Cantilever	Simply supported	Continuous	Cantilever	Simply supported	Continuous	Cantilever	Simply supported	Continuous	Cantilever
1,00	90x145	90x145	135x196	145x180	145x180	145x270	90x145	90x145	135x196	90x145	90x145	90x145
1,50	135x196	135x145	145x225	145x225	145x225	145x360	90x196	90x196	145x225	90x145	90x145	135x196
2,00	135x196	135x196	145x315	145x270	145x270	145x585	135x196	135x196	145x315	90x196	90x145	145x225
2,50	145x225	145x225	145x405	145x315	145x315	196x405	145x225	145x225	145x405	90x196	90x196	145x270
3,00	145x270	145x225	145x450	145x405	145x405	196x495	145x270	145x225	145x450	145x180	135x196	145x315
3,50	145x270	145x270	145x540	196x315	145x585	196x585	145x270	145x270	145x540	145x225	145x180	145x360
4,00	145x315	145x315	196x540	196x360	196x315	196x630	145x315	145x315	196x540	145x270	145x180	145x405
4,50	145x360	145x360	196x585	196x405	196x360	196x720	145x360	145x360	196x585	145x270	145x225	145x450
5,00	145x405	145x405	196x675	196x405	196x405	196x855	145x405	145x405	196x675	145x315	145x270	145x495
5,50	145x450	145x405	196x720	196x450	196x450		145x450	145x405	196x720	145x315	145x270	145x540
6,00	145x495	145x450	196x810	196x495	196x495		145x495	145x450	196x810	145x360	145x315	196x540
6,50	145x495	145x495	196x900	196x540	196x540		145x540	145x495	196x900	145x405	145x315	196x585
7,00	145x585	145x540	196x990	196x585	196x585		145x585	145x540	196x990	145x405	145x360	196x675
7,50	196x540	196x495		196x675	196x630		196x540	196x495		145x450	145x360	196x720
8,00	196x585	196x540		196x765	196x765		196x585	196x540		145x495	145x405	196x765
8,50	196x630	196x585		196x945	196x900		196x630	196x585		145x495	145x405	196x810
9,00	196x630	196x585					196x630	196x585		145x540	145x450	196x855
9,50	196x675	196x630					196x675	196x630		145x585	145x495	196x900
10,00	196x720	196x675					196x720	196x675		145x585	145x540	196x990
10,50	196x765	196x720					196x765	196x765		196x585	145x585	
11,00	196x810	196x765					196x810	196x765		196x630	196x450	
11,50	196x855	196x855					196x855	196x855		196x630	196x495	

Presizing of GLT beams

The tables presented have been prepared for specific conditions and are intended to serve as an approximate example.

The tables cannot be used as valid information for the development of a structural project.



Notes:

Service class 1, $\gamma_M = 1.25$.

A dead load of 1.3 kN/m² is considered for non-accessible roof and one of 2.4 kN/m² is considered for the rest of the cases.

A live load of 2.0 kN/m² is considered for the residential mezzanine and accessible deck, 4.0 kN/m² for the public mezzanine and 0.4 kN/m² for the non-accessible deck.

A wind pressure of 0.8 kN/m² is considered only in the case of roofs.

The lower edge and the two lateral faces are considered exposed to fire.

Deflection limit for integrity L/300, comfort L/350 (not applicable for non-accessible roof) and appearance L/300.

In the case of the cantilever positioning, limits change to L/150, L/175 and L/150, accordingly.

The structural calculations have been made as per UNE-EN-1995.

GLT Sections [mm x mm]

Tributary width 5 m - without bracing for lateral torsional buckling

Element	Residential floor (R30)			Public use floor (R60)			Accessible Roof Terrace (R0)			Non-Accessible (R0)		
	Simply supported	Continuous	Cantilever	Simply supported	Continuous	Cantilever	Simply supported	Continuous	Cantilever	Simply supported	Continuous	Cantilever
1,00	135x196	145x180	145x270	145x270	145x270	145x450	135x196	145x180	145x270	90x145	90x145	135x196
1,50	145x225	145x270	145x405	145x360	145x405	196x450	145x225	145x270	145x405	90x196	90x196	145x225
2,00	145x270	145x315	145x540	145x450	145x495	196x585	145x270	145x315	145x540	135x196	135x196	145x315
2,50	145x360	145x405	196x540	196x360	196x450	196x720	145x360	145x405	196x540	145x225	145x180	145x360
3,00	145x405	145x495	196x630	196x450	196x540		145x405	145x495	196x630	145x270	145x225	145x450
3,50	145x450	145x585	196x720	196x495	196x630		145x450	145x585	196x720	145x315	145x270	145x540
4,00	145x540	196x495	196x810	196x585	196x720		145x540	196x495	196x810	145x315	145x315	145x585
4,50	145x585	196x540		196x630	196x810		145x585	196x540		145x360	145x360	196x585
5,00	196x540	196x585		196x720	196x855		196x540	196x630		145x405	145x360	196x630
5,50	196x585	196x675		196x810	196x945		196x585	196x675		145x450	145x405	196x720
6,00	196x630	196x720		196x855			196x630	196x720		145x495	145x450	196x765
6,50	196x675	196x765					196x675	196x810		145x540	145x495	196x855
7,00	196x720	196x855					196x720	196x855		145x585	145x540	196x945
7,50	196x810	196x900					196x810	196x900		145x585	145x585	
8,00	196x855	196x945					196x855	196x990		196x585	196x495	
8,50	196x945						196x945			196x630	196x540	
9,00										196x675	196x585	
9,50										196x675	196x630	
10,00										196x720	196x675	
10,50										196x765	196x720	
11,00										196x810	196x765	
11,50										196x855	196x810	



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