

EN

HASSLACHER
NORICA TIMBER

From **wood** to **wonders**.



Cross laminated timber

The building material of the future.



01 At a glance

Applications

- ⊕ Single and multiple family houses
- ⊕ Multi-storey residential buildings
- ⊕ Industrial and commercial buildings
- ⊕ Modules and systems
- ⊕ Office buildings, schools and nurseries
- ⊕ Urban densification
- ⊕ Carports

Fields of use

- ⊕ Floors
- ⊕ Roofs
- ⊕ Walls
- ⊕ Shear walls for lateral load transmission
- ⊕ Beams

Benefits

- ⊕ Possibility to combine loads with all of HASSLACHER Timber group's products
- ⊕ Sanded or calibrated surfaces for all qualities
- ⊕ Flexible dimensions up of to 3.20 m x 20.0 m
- ⊕ Order size = invoice size above a width of 2.20 m
- ⊕ Standard element with a width of 1.25 m and a length of 24 m without general finger joint
- ⊕ Pleasant and comfortable room climate
- ⊕ Fast and easy assembly
- ⊕ Lower self-weight than reinforced concrete
- ⊕ Highest earthquake safety ratings
- ⊕ High fire and chemical resistance
- ⊕ High performance in terms of thermal insulation
- ⊕ Ecologically sustainable building materials



02 Overview

Product standard

ETA-12/0281

Surface qualities

Excellent surface
Visual quality
Industrial visual quality
Industrial quality

On request, cover lamellas can also be edge bonded.

Cross sections

	Large size	Standard size
Thickness:	80 mm to 400 mm 60 mm on request	90 mm to 280 mm 60 mm and 80 mm upon request
Width:	up to 3.20 m	1.25 m
Length:	up to 20 m	up to 24 m

Strength classes

CL26E11.8
CL36E14.7

Wood species

- ⊕ Spruce/fir
- ⊕ Pine
- ⊕ Larch
- ⊕ Swiss stone pine, fir, hardwoods (on request)

Certificates

The current certificates are available in the download area of our website at [HASSLACHER.COM](https://www.hasslacher.com).

Sustainability

The HASSLACHER group stands for a careful use of wood as a resource. Our raw materials come from sustainable and controlled forestry. Our locations are certified according to the strict PEFC standards.



03

Technical data

Bonding

Melamine resin adhesive with white glue line, Adhesive type I according to EN 301 approved for gluing of loadbearing and non-loadbearing timber components, both indoors and outdoors

Lamellas

Thickness: 19 mm to 45 mm

Strength: CL26E11.8 100 % C24/L25/T14
in the top layers
max. 30 % C16/L17/T11
in the middle layers
CL36E14.7 100 % C40/L40/T26
in the top layers
100 % C24/L25/T14
in the middle layers

Moisture content

11 % ± 2 % at dispatch

Density

Spruce: on average ca. 450 kg/m³ bis 500 kg/m³

Thermal conductivity

$\lambda = 0.12 \text{ W/mK}$

Thermal capacity

1600 J/kgK

Diffusion resistance

According to EN ISO 10456
 $m = 50$ (dry) to 20 (wet)

Formaldehyde emissions

E1 according to EN 717-1 (<0.1 ppm)
Actual measured value: < 0.02 ppm

Fire behaviour

D-s2, d0

D_{fi} -s1 when used as floor covering

Structural fire resistance

First layer: 0.65 mm/min.

Every additional layer: 0.80 mm/min.

Shrinking and swelling behaviour

Out-of-plane direction

$\alpha_{u,90} = 0.24 \%$ per 1 % change in moisture content

In-plane direction

$\alpha_{u,90} = 0.01 \%$ per 1 % change in moisture content

Air tightness

Joints, component edges, narrow faces and soffits, installations, etc. must be hermetically sealed

Size tolerances

according to DIN 18203-3

Service classes

Service class 1 heated interior

Service class 2 roofed outdoor area

04

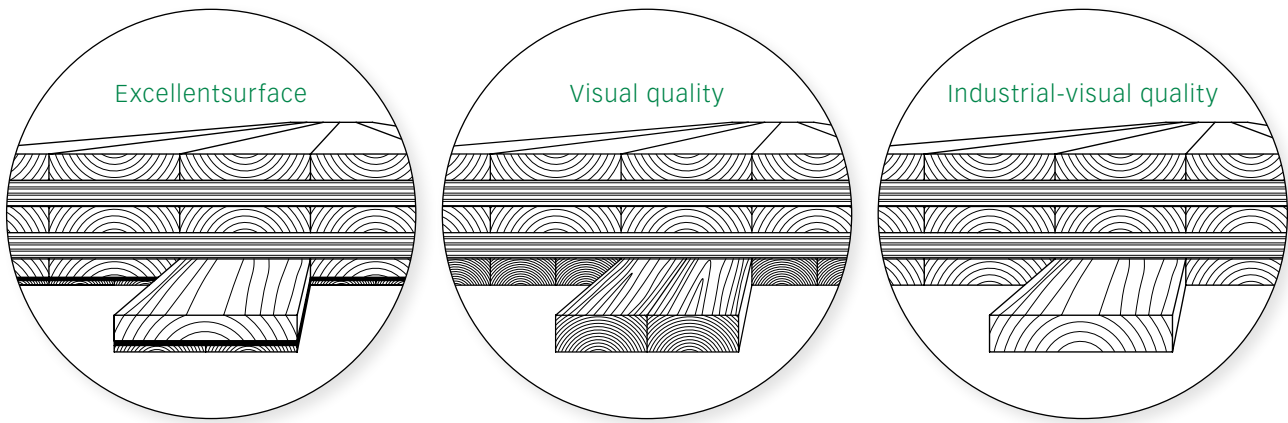
Quality description

Characteristics

Excellent surface

Visual quality

Description	Consists of finger-jointed lamellas, whereby the cover lamellas have a special lay-up including a cross layer. Wood grain and texture result in a very homogeneous appearance. Appearance of gaps is remarkably lessened. Repairs through wood patches are permissible.	Consists of finger-jointed lamellas of a single wood species, which have a homogeneous appearance in texture and grain. Field of use: Exposed floors in the luxury market. Growth-related features occur in reduced form. Non-conforming growth-related features may be repaired through wood patches.
Wood species for the cover layer	On request, various soft- and hardwood species are available.	On request, spruce, larch, pine, fir and hardwood.
Surface	Sanded	Sanded
Gap width on delivery	Up to maximum of 1 mm	Up to maximum of 1 mm
Knots	Sound knots, isolated black knots are permissible, edge knots and falling knots of up to 10 mm are permissible	Sound knots, isolated black branches are permissible, edge knots and falling knots of up to 15 mm are permissible
Pitch pockets	are permissible up to 3 mm x 50 mm (or the equivalent in mm ²).	are permissible up to 5 mm x 70 mm (or the equivalent in mm ²).
Patches	Permissible	Permissible
Blue stains and red stripes	Slight discolourations of less than 5 % are permissible, which are predominantly balanced out.	Slight discolourations covering 5 % of the surface area are permissible
Insect infestation	Not permissible	Not permissible
Ingrown bark	Not permissible	Not permissible
Piths	Widely free from ingrown bark	Permissible
Cracks	A crack width up to 1 mm are permissible	Up to 2 mm are permissible
Compression wood	which are predominantly balanced out	Up to 40 % of the surface area
Soft rot	Not permissible	Not permissible
Mistletoe	Not permissible	Not permissible
Wood moisture content	Maximum 10 % ± 2 %	Maximum 10 % ± 2 %
Board thicknesses	Specific lay-up of the cover lamella	19 mm to 45 mm
Board widths	80 mm to 200 mm; only boards with identical widths are used in the cover layer.	80 mm to 200 mm; only boards with identical widths are used in the cover layer.
Type of cutting	The cut is heartwood-free	Centre boards
Scope of application	The specified surface qualities are only valid for the outer layer(s), and thus not applicable to the cross laminated timber's narrow faces. The indicated surface qualities are valid upon delivery. Crack and gap formation may occur in use, in particular at extreme climatic conditions.	
Sanded surface	The surfaces are sanded or calibrated up to a panel width of 3.20 m, or a panel thickness of 300 mm. In dependence of the panel format or on the cover layer's orientation the element may be sanded perpendicular to grain direction.	
Edge bonding	Edge-wise bonding of the boards of the longitudinal cover layer on request.	



Characteristics

Industrial-visual quality

Industrial quality

Description	Surfaces consist of a single wood species; colour differences, wood grain and texture are categorically less relevant. Used as to cover industrial hall constructions. Non-conforming growth-related features may be repaired by means of wood patches. Industrial quality possible on request.	No visual requirements at all; the surface is assumed to be covered with additional materials. Various wood species are possible for cover layer.
Wood species for the cover layer	Spruce/fir, pine	Spruce/fir, pine
Surface	Sanded	Calibrated
Gap width on delivery	Up to maximum of 2 mm	Up to maximum of 3 mm
Knots	Sound knots, black knots of up to 20 mm are permissible, broken edge knots and falling knots up to 25 mm permissible.	Restrictions are in accordance to the corresponding strength grading
Pitch pockets	Are permissible up to 6 mm x 80 mm (or the equivalent in mm ²).	No restrictions
Patches	Permissible	Permissible
Blue stains and red stripes	Discolouration covering up to 10 % of the surface area is permissible	No restrictions
Insect infestation	Not permissible	Worm grooves of up to 2 mm of diameter are permissible
Ingrown bark	Permissible if isolated	Permissible
Piths	Permissible	Permissible
Cracks	Up to 3 mm are permissible	Restrictions are in accordance to the corresponding strength grading
Compression wood	Restrictions are in accordance with the corresponding strength grading	Restrictions are in accordance with the corresponding strength grading
Soft rot	Not permissible	Not permissible
Mistletoe	Not permissible	Not permissible
Wood moisture content	Maximum 12 % ± 2 %	Maximum 12 % ± 2 %
Board thicknesses	19 mm to 45 mm	19 mm to 45 mm
Board widths	80 mm to 240 mm; boards with varying widths in one layer are possible.	80 mm to 280 mm; boards with varying widths in one layer are possible.
Type of cutting	No restrictions	No restrictions
Scope of application	The specified surface qualities are only valid for the outer layer(s), and thus not applicable to the cross laminated timber's narrow faces. The indicated surface qualities are valid upon delivery. Crack and gap formation may occur in use, in particular at extreme climatic conditions.	
Sanded surface	The surfaces are sanded or calibrated up to a panel width of 3.20 m, or a panel thickness of 300 mm. In dependence of the panel format or on the cover layer's orientation the element may be sanded perpendicular to grain direction.	
Edge bonding	Edge-wise bonding of the boards of the longitudinal cover layer on request.	

05 Product range

Panel lay-ups

Type	Thickness (mm)	Layers	Panel lay-ups mm						Width (m)	Length (m)	Mass (kg/m ²)
BSP 60	60	3		20	20	20		2.20 – 3.20 m	up to 20 m	27	
BSP 80	80	3		20	40	20				36	
BSP 90	90	3		30	30	30		none Standard widths	The type and orientation of the layers define the recommended maximum length of the panels for reasons of	41	
BSP 100	100	3		30	40	30				45	
BSP 120	120	3		40	40	40		no modular dimensions	transport and installation.	54	
BSP 100	100	5	20	20	20	20	20			45	
BSP 120	120	5	30	20	20	20	30	54			
BSP 140	140	5	40	20	20	20	40	63			
BSP 160	160	5	40	20	40	20	40	72			
BSP 180	180	5	40	30	40	30	40	81			
BSP 200	200	5	40	40	40	40	40	90			
BSP 200	200	7s / 7ss	30	30	30	20	30	30	30	90	
BSP 210	210	7s / 7ss	30	30	30	30	30	30	30	95	
BSP 220	220	7s / 7ss	40	40	20	20	20	40	40	99	
BSP 240	240	7s / 7ss	40	40	20	40	20	40	40	108	
BSP 260	260	7s / 7ss	40	40	30	40	30	40	40	117	
BSP 280	280	7s / 7ss	40	40	40	40	40	40	40	126	
BSP 300	300	8s / 8ss	40	40	30	40 + 40	30	40	40	135	
BSP 320	320	8s / 8ss	40	40	40	40 + 40	40	40	40	144	

Due to the density's natural variability, the quantified masses may vary up to ±15 %.
ss: Outer layers consist of 2 longitudinal layers (l)
BSP 60 mm and other panel thicknesses or special lay-ups on request.

Standard size panel lay-ups

Type	Thickness (mm)	Layers	Panel lay-ups mm						Width (m)	Length (m)	Mass (kg/m ²)
BSP 60	60	3s		20	20	20		Standard width 1.25 m	up to 24 m	27	
BSP 80	80	3s		20	40	20				36	
BSP 90	90	3s		30	30	30		Widths below 1.25 m can be cut	The type and orientation of the layers define the recommended maximum length of the panels for reasons of	41	
BSP 100	100	3s		40	20	40				45	
BSP 120	120	3s		40	40	40		transport and installation.		54	
BSP 100	100	5s	20	20	20	20	20			45	
BSP 120	120	5s	20	30	20	30	20	54			
BSP 140	140	5s	32.5	20	35	20	32.5	63			
BSP 160	160	5s	40	20	40	20	40	72			
BSP 180	180	5s	40	30	40	30	40	81			
BSP 200	200	5s	40	40	40	40	40	90			
BSP 220	220	7ss	36	36	20	36	20	36	36	99	
BSP 240	240	7ss	40	40	20	40	20	40	40	108	
BSP 260	260	7ss	40	40	30	40	30	40	40	117	
BSP 280	280	7s / 7ss	40	40	40	40	40	40	40	126	

Due to the density's natural variability, the quantified masses may vary up to ±15 %.
ss: Outer layers consist of 2 longitudinal layers (l)
BSP 60 mm and 80 mm and other panel thicknesses or special lay-ups on request.

06 Cutting

Benefits

- ⊕ Maximum precision due to modern technology
- ⊕ Fast and cost-efficient assembly on the construction site due to a high level of prefabrication.
- ⊕ Ongoing development through regular and continuous quality control.
- ⊕ Professional support in design, consultancy and service by qualified employees

Machining options

- ⊕ Rectangular formatting of the panel
- ⊕ Machining of the narrow faces for X-fix, step or spline joints
- ⊕ Inclined cuts and curves
- ⊕ Door and window openings
- ⊕ Routing of channels for building service installations
- ⊕ Holes and slots for all types of fasteners and installations

Description of post-processing technologies

	Timber framing facilities	Component dimensions
Hundegger PBA 7043	5-axis unit for circular saw and milling cutter 2 x 3-axis milling machines 5-axis CNC centre with chain saw 2 vertical drilling units	Length: up to 20 m Thickness: up to 400 mm Width: up to 3.20 m
SCM linea Celaschi ACL/056/00	5-axis unit for portal processing Double-end tenoners for precise processing of narrow faces	Length: 1.50 to 20 m Thickness: up to 400 mm Width: 600 mm to 3.20 m
Hundegger PBA	5-axis unit for portal processing Double-end tenoners for precise processing of narrow faces	Length: 1.50 to 20 m Thickness: up to 400 mm Width: 600 mm to 3.20 m
Biesse Uniteam CLT 400 (2x)	2 5-axis universal units 2 vertical drilling units	Length: 16.50 m Thickness: up to 400 mm Width: up to 3.20 m
Biesse Rover B	1 5-axis spindle	Length: 6 m Thickness: up to 120 mm Width: up to 2.20 m
Hundegger Robot Drive 1.250	1 6-axis spindle	Length: up to 24 m Thickness: up to 280 mm Width: up to 1.25 m

IT Interface | Import formats

- (1) hsbCAD (main program) | Files are evaluated and directly migrated.
- (2) *.sat (ACIS), 2D/3D *.dwg, *.dxf | Files can be imported and post-processed.
- (3) Dietrich's, Cadwork and SEMA | files can be exported, which can be post-processed with hsbCAD.
- (4) *.bvx and *.bvx files are exported | which are post-processed with hsbCAD.

A *.pdf file is also required for all of the above-mentioned import formats and interfaces. This is vital for the determination of component designations, cover layer orientations, qualities and further relevant information.





07

Mechanical properties

Mechanical properties according to European Technical Assessment ETA-12/0281

Out-of-plane loading			Strength classes	
			CL26E11.8	CL36E14.7
Modulus of elasticity	parallel to the boards' grain direction	$E_{0,mean}$	11,800 N/mm ²	14,700 N/mm ²
Modulus of elasticity	Perpendicular to the boards' grain direction	$E_{90,mean}$	370 N/mm ²	
Modulus of shear	parallel to the boards' grain direction	$G_{090,mean}$	690 N/mm ²	
Rolling shear modulus	Perpendicular to the boards' grain direction	$G_{9090,mean}$	50 N/mm ²	
Bending strength	parallel to the boards' grain direction	$f_{m,k}$	26.40 N/mm ²	36 N/mm ²
Tensile strength	Perpendicular to the boards' grain direction	$f_{t,90,k}$	0.12 N/mm ²	
Compressive strength	Perpendicular to the boards' grain direction	$f_{c,90,k}$	2.50 N/mm ²	
Shear strength	parallel to the boards' grain direction	$f_{v,090,k}$	4.00 N/mm ²	
Rolling shear strength		$f_{v,k}$	1.50 N/mm ²	

In-plane loading				
Modulus of elasticity	parallel to the boards' grain direction	$E_{0,mean}$	11,600 N/mm ²	14,700 N/mm ²
Modulus of shear	parallel to the boards' grain direction	$G_{090,mean}$	250 N/mm ²	
Bending strength	parallel to the boards' grain direction	$f_{m,k}$	24.00 N/mm ²	34.50 N/mm ²
Tensile strength	parallel to the boards' grain direction	$f_{t,90,k}$	14.00 N/mm ²	19.50 N/mm ²
Compressive strength	parallel to the boards' grain direction	$f_{c,90,k}$	21.00 N/mm ²	24.50 N/mm ²
Shear strength	parallel to the boards' grain direction	$f_{v,090,k}$	4.0 N/mm ²	

Density				
Characteristic density		ρ_k	385 kg/m ³	430 kg/m ³
Mean density		ρ_{mean}	420 kg/m ³	480 kg/m ³

The above-stated mechanical properties are identical to the ones declared in ETA-12/0281.

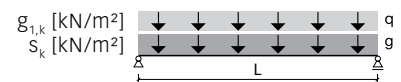


08

Tables for preliminary design

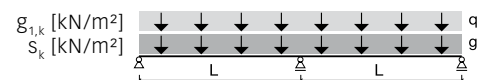
Floors without consideration of vibration

HASSLACHER CLT CL26E11.8 - Floor class 3



Single-span beams

$g_{1,k}$	$s = \mu * s_k$	Span length L						
		3.00 m	3.50 m	4.00 m	4.50 m	5.00 m	5.50 m	6.00 m
0.5 kN/m ²	1.0 kN/m ²	BSP 80 3s	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 140 5s
	2.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s
	3.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s
1.0 kN/m ²	1.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s
	2.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s
	3.0 kN/m ²	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 160 5s	BSP 180 5s
1.5 kN/m ²	1.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s
	2.0 kN/m ²	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 160 5s	BSP 180 5s
	3.0 kN/m ²	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 5s



Two-span beams

$g_{1,k}$	$g_{1,k} + q_k$	Span length L						
		3.00 m	3.50 m	4.00 m	4.50 m	5.00 m	5.50 m	6.00 m
0.5 kN/m ²	1.0 kN/m ²	BSP 60 3s	BSP 60 3s	BSP 80 3s	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s
	2.0 kN/m ²	BSP 60 3s	BSP 80 3s	BSP 90 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 120 3s
	3.0 kN/m ²	BSP 80 3s	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 140 5s
1.0 kN/m ²	1.0 kN/m ²	BSP 60 3s	BSP 80 3s	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 120 3s
	2.0 kN/m ²	BSP 80 3s	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s
	3.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 140 5s
1.5 kN/m ²	1.0 kN/m ²	BSP 60 3s	BSP 80 3s	BSP 90 3s	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s
	2.0 kN/m ²	BSP 80 3s	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 140 5s
	3.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s

The tables show a preliminary design of HASSLACHER CLT and do not replace a structural analysis of the construction. The software CLTdesigner was developed by Center of Competence holz.bau forschungs gmbh / Technical University Graz and is available to our customers free of charge and without obligation. For more information see hasslacher.com.

Panel lay-up

3s: 3-layer; 5s: 5-layer;

7ss: 7ss: 7-ply with double-layer top layer

Duration of fire resistance:

R0	R30	R60	R90
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Preliminary design according to EN 1995-1-1 and the technical assessment.

Boundary conditions

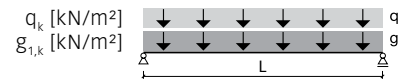
- ⊕ Service class 1 in accordance to EN 1995-1-1
- ⊕ Persistent load $g_{1,k}$ is without the self-weight of X-LAM; (the self-weight was taken into account via $g_{0,k}$)
- ⊕ Structural fire resistant design according to EN 1995-1-2 and the technical assessment
- ⊕ Snow loads at altitude/region < 1,000m above sea level
- ⊕ Vibration is not taken into account in this preliminary design.
- ⊕ The load is regarded as uniformly distributed, individual/concentrated loads are not taken into account.
- ⊕ Preliminary design was carried out using CLTdesigner from Center of Competence holz.bau forschungs gmbh / Technical University Graz

08

Tables for preliminary design

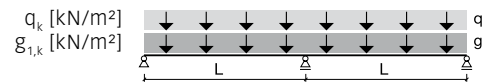
Floors with consideration of vibration

HASSLACHER CLT CL26E11.8 - Floor class 1



Single-span beams

$g_{1,k}$	q_k	Span length L						
		3.00 m	3.50 m	4.00 m	4.50 m	5.00 m	5.50 m	6.00 m
1.0 kN/m ²	2.0 kN/m ²	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss
	3.0 kN/m ²	BSP 90 3s	BSP 120 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss
	4.0 kN/m ²	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss
1.5 kN/m ²	2.0 kN/m ²	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 180 5s	BSP 200 5s	BSP 220 7ss
	3.0 kN/m ²	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 140 5s	BSP 180 5s	BSP 200 5s	BSP 220 7ss
	4.0 kN/m ²	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 5s	BSP 220 7ss
2.0 kN/m ²	2.0 kN/m ²	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss	BSP 240 7ss
	3.0 kN/m ²	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss	BSP 240 7ss
	4.0 kN/m ²	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss	BSP 240 7ss



Two-span beams

$g_{1,k}$	q_k	Span length L						
		3.00 m	3.50 m	4.00 m	4.50 m	5.00 m	5.50 m	6.00 m
1.0 kN/m ²	2.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss
	3.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss
	4.0 kN/m ²	BSP 80 3s	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss
1.5 kN/m ²	2.0 kN/m ²	BSP 80 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 180 5s	BSP 200 5s	BSP 220 7ss
	3.0 kN/m ²	BSP 80 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 180 5s	BSP 200 5s	BSP 220 7ss
	4.0 kN/m ²	BSP 90 3s	BSP 100 3s	BSP 120 3s	BSP 140 5s	BSP 180 5s	BSP 200 5s	BSP 220 7ss
2.0 kN/m ²	2.0 kN/m ²	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss	BSP 240 7ss
	3.0 kN/m ²	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss	BSP 240 7ss
	4.0 kN/m ²	BSP 90 3s	BSP 120 3s	BSP 140 5s	BSP 160 5s	BSP 180 5s	BSP 200 7ss	BSP 240 7ss

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Panel lay-up

3s: 3-layer; 5s: 5-layer;

7ss: 7s: 7-ply with double-layer top layer

Duration of fire resistance:

RO	R30	R60	R90
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Preliminary design according to EN 1995-1-1 and the technical assessment.

Boundary conditions

- ⊕ Service class 1 in accordance to EN 1995-1-1
- ⊕ The cross-laminated timber's self-weight was taken into account via $g_{0,k}$
- ⊕ Load category A and B (residential and office space)
- ⊕ Structural fire resistant design according to EN 1995-1-2 and the technical assessment
- ⊕ Vibration verification according to EN 1995-1-1 fulfilled, normal requirements
- ⊕ The load is regarded as uniformly distributed.
- ⊕ Individual loads must be taken into account separately
- ⊕ Preliminary design was carried out using CLTdesigner from Center of Competence holz.bau forschungsbau GmbH / Technical University Graz

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HASSLACHER group product range



Sawn timber



Surfaced timber



Structural finger jointed
solid timber & GLT®



Glued solid timber Duo/Trio



Glued laminated timber



Glued ceiling systems



Cross laminated timber



Glued laminated timber
special components



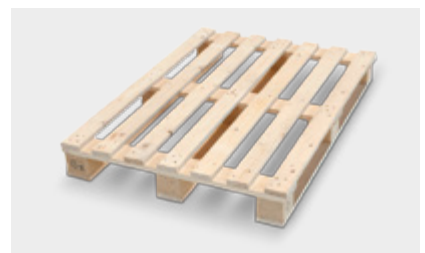
Solid wood boards



Pellets



Formwork panels



Pallets & packaging solutions

HASSLACHER NORICA TIMBER

From **wood** to **wonders**.

HASSLACHER group

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