

EN

**HASSLACHER**  
**NORICA TIMBER**

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

# Glued ceiling systems

The high-performance ceiling system.



# 01

## At a glance

### Areas of application

- + Single and multiple family houses
- + Multi-storey residential buildings
- + Industrial and commercial buildings
- + Maintenance of old buildings
- + Urban densification

### Field of use

- + Floors
- + False floors
- + Attic floors
- + Roof panels

### Advantages

- + Quick and easy assembly
- + Loads are applicable immediately after assembly
- + Lower self-weight than reinforced concrete
- + High dimensional stability through bonding and technical drying
- + High fire and chemical resistance
- + High performance in terms of thermal insulation
- + Smallest construction height even under heavy loads
- + Transparent glue line
- + Pleasant and comfortable room climate



# 02 Overview

## Product standard/certification

EN 14080

## Surface qualities

Visual quality  
Industrial quality

## Cross sections

Heights: 60 to 280 mm in 20 mm steps  
Widths: 400 mm to 1,280 mm (steps depend  
on the width of the used raw lamellas)  
Lengths: up to 27 m

## Post-processing

possible up to 1,280 mm

## Strength classes

GL24h, GL28h in accordance to EN 14080  
(higher strength classes are available on request)

## Wood species

- ⊕ Spruce/fir
- ⊕ Other wood species on request

## Certification

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 bright glue line, adhesive type I according to EN 301 approved for gluing loadbearing and non-loadbearing timber components, both indoors and outdoors

### Lamella thickness

Up to 45 mm according to EN 14080

### Moisture content

12 %  $\pm$  2.5 % or ÖNORM EN 14080

### Density

Depending on the strength class, approximately 450 kg/m<sup>3</sup> to 500 kg/m<sup>3</sup> in average

### Thermal conductivity

$\lambda = 0.13$  W/mK

### Diffusion resistance

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

### Formaldehyde emissions

E1 according to EN 717-1 (<0.1 ppm)

### Fire behaviour

D-s2, d0  
D<sub>fl</sub>-s1 when used as floor covering

### Structural fire resistance

0.65 mm/min, in accordance to EN 1995-1-2

### Shrinkage and swelling behaviour

Perpendicular to the grain direction

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

Parallel to the grain direction

$\alpha_{u,0} = 0.01$  % per 1 % change in moisture content

### Recommendation

Due to the swelling and shrinkage behaviour and the associated gap formation, the following element widths are recommended:

Visual quality: 400 mm to 600 mm

Industrial quality: 600 mm to 800 mm

In case of a low wood equilibrium moisture content, a corresponding gap formation between the individual elements has to be expected.

### Dimensional tolerances

According to EN 390 or to EN 14080

### Service classes (EN 1995-1-1)

Service class 1 heated interior

Service class 2 roofed outdoor area

# 04

# Quality description

## Characteristics

## Visual Quality

## Industrial Quality

Characteristics	Visual Quality	Industrial Quality
<b>General</b>	Optimised for a visible use, e.g. as visible rafters and beams for carports and upscale residential areas. All knots are sound knots and knotholes are patched. The occurrence of discolouration such as blue stains, red stripes and/or pitch pockets is minimised. The cracks are minimised and hardly any heart centre is present due to core-free cutting. A homogeneous appearance is aspired.	Optimised for non-visual use, e.g. for industrial and production buildings, farming buildings and roof structures, which are subsequently covered by planks. Discolouration such as brownness (nail-holding), blue stain, and/or red stripes are permitted. Fallen-out knots and pitch pockets may casually occur.
<b>Black knots</b>	Permitted, as long as they don't fall out	Permitted
<b>Fallen-out knots</b>	Permitted up to approximately 20 mm, sound knots are permitted	Permitted, the size depends on the strength classes
<b>Wane</b>	Not permitted	Permitted
<b>Rotten areas</b>	Not permitted	Not permitted
<b>Pitch pockets</b>	Permitted up to approximately 5 x 50 mm, larger pockets must be patched	Permitted
<b>Insect infestation</b>	Not permitted	Permitted up to a diameter of 2 mm
<b>Discolouration</b>	Up to approximately 5 % of the surface	Permitted
<b>Planing quality</b>	Rough areas are not permitted. Planer marks up to a length of 10 mm and a depth of 1 mm are permitted	Rough areas and planer marks are permitted
<b>Cracks</b>	Permitted up to a depth of 1/6th of the component width (per side). The required static load carrying capacity must not be impaired.	Permitted up to a depth of 1/6th of the component width (per side). The required static load carrying capacity must not be impaired.
<b>Scope of validity</b>	The specified surface qualities are valid at time of delivery.	
<b>Information</b>	In case of a low wood equilibrium moisture content, a corresponding gap formation between the individual elements has to be expected. In case of a high wood equilibrium moisture content, the elements can swell perpendicular to the layers' fibre direction.	

# 05

# Design and acoustic elements

## Areas of use

- ⊕ Offices and public buildings
- ⊕ Schools and kindergartens
- ⊕ Gyms
- ⊕ Auditoriums and rehearsal rooms

## Advantages

- ⊕ Visually appealing interior architecture
- ⊕ Enhancement of room acoustics
- ⊕ Fast and easy assembly

## Surface qualities

Visual quality

Industrial quality

## Cross sections

Thicknesses: 80 mm to 280 mm in 20 mm steps

Widths: 200 to 1,200 mm in 40 mm steps

Lengths: up to 27 m

## Strength classes

GL24h, GL28h in accordance to EN 14080

Higher strength classes are available on request

## Degree of openness

Approximately 20 % of the visible surface

## Sound absorption coefficient

$\alpha_w = 0.10$



# 06 Joint formation

## Tongue and groove

### Element pattern

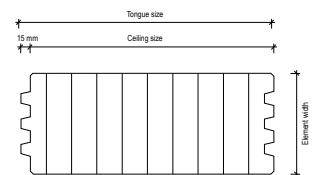
Element thickness: in 20 mm steps  
 Element width: in 40 mm steps  
 Net width = tongue size – 15 mm  
 Possible length up to 27 m

### Thickness

60, 80 mm  
 100, 120, 140 mm  
 160, 180 mm  
 200, 220, 240 mm  
 260, 280 mm

### Tongue and Groove

1 Tongue and groove  
 2 Tongue and groove  
 3 Tongue and groove  
 4 Tongue and groove  
 5 Tongue and groove



## Tongue and groove, including longitudinal rebate

### Element pattern

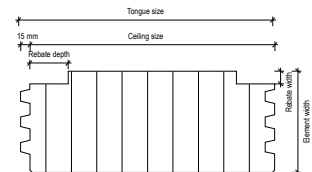
Element thickness: in 20 mm steps  
 Element width: in 40 mm steps  
 Net width = tongue size – 15 mm  
 Possible length up to 27 m

### Thickness

60, 80 mm  
 100, 120, 140 mm  
 160, 180 mm  
 200, 220, 240 mm

### Tongue and Groove

1 Tongue and groove  
 2 Tongue and groove  
 3 Tongue and groove  
 4 Tongue and groove



### Rebate

Thickness 60 mm:  
 Thickness 80-240 mm:

Depth: 60 mm, width: 10 mm  
 Depth: 60 mm, width: 20 mm

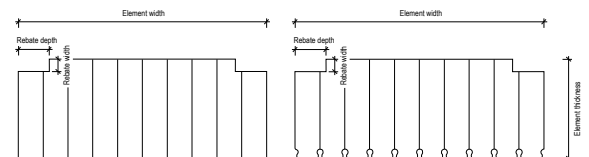
## Longitudinal rebate

### Element pattern

Element thickness: in 20 mm steps  
 Element width: in 40 mm steps  
 Net width = finished size  
 Possible length up to 27 m

### Rebate

Depth: 50 mm  
 Width: 20 mm



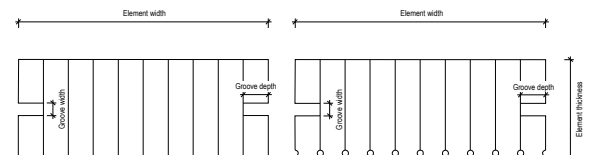
## Single groove with loose tongue

### Element pattern

Element thickness: in 20 mm steps  
 Element width: in 40 mm steps  
 Net width = finished size  
 Possible length up to 27 m

### Groove

Depth: 40 mm  
 Width: 20 mm



## Longitudinal rebate with single groove and loose tongue

### Element pattern

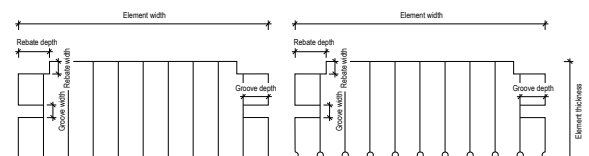
Element thickness: in 20 mm steps  
 Element width: in 40 mm steps  
 Net width = finished size  
 Possible length up to 27 m

### Rebate

Depth: 50 mm  
 Width: 20 mm

### Groove

Depth: 40 mm  
 Width: 20 mm





## 07

# Mechanical properties

## Characteristic strength and stiffness property values

Strength class	acc. to EN 14080			
			GL24h	GL28h
Bending strength	$f_{m,k}^{1)}$	N/mm <sup>2</sup>	24	28
Tensile strength	$f_{t,0,k}$	N/mm <sup>2</sup>	19.2	22.3
	$f_{t,90,k}$	N/mm <sup>2</sup>	0.5	0.5
Compressive strength	$f_{c,0,k}^{1)}$	N/mm <sup>2</sup>	24	28
	$f_{c,90,k}$	N/mm <sup>2</sup>	2.5	2.5
Shear strength	$f_{v,k}$	N/mm <sup>2</sup>	3.5	3.5
Modulus of elasticity	$E_{0,mean}$	N/mm <sup>2</sup>	11,500	12,600
	$E_{0,05}$	N/mm <sup>2</sup>	9,600	10,400
	$E_{90,mean}$	N/mm <sup>2</sup>	300	300
	$E_{90,05}$	N/mm <sup>2</sup>	250	250
Shear modulus	$G_{mean}$	N/mm <sup>2</sup>	650	650
Rolling shear modulus	$\rho_k$	kg/m <sup>3</sup>	385	425
	$\rho_{mean}$	kg/m <sup>3</sup>	420	460

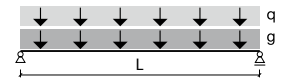
1) According to EN 1995-1-1 or DIN 1052, the values for bending strength and compressive strength parallel to grain direction can be multiplied by the system coefficient.

# 08

# Tables for preliminary design

## Floors without the verification of vibrations floor class 3

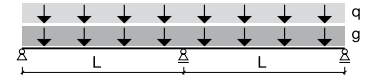
### Single span beam



g + q = p	Span length L									
	3.00 m	3.50 m	4.00 m	4.50 m	5.00 m	5.50 m	6.00 m	6.50 m	7.00 m	7.50 m
2.0 kN/m <sup>2</sup>	80 mm	80 mm	100 mm	100 mm	120 mm	140 mm	140 mm	160 mm	180 mm	180 mm
3.0 kN/m <sup>2</sup>	80 mm	100 mm	100 mm	120 mm	140 mm	140 mm	160 mm	180 mm	180 mm	200 mm
4.0 kN/m <sup>2</sup>	80 mm	100 mm	120 mm	140 mm	140 mm	160 mm	180 mm	180 mm	200 mm	220 mm
5.0 kN/m <sup>2</sup>	100 mm	100 mm	120 mm	140 mm	160 mm	160 mm	180 mm	200 mm	220 mm	220 mm
6.0 kN/m <sup>2</sup>	100 mm	120 mm	140 mm	140 mm	160 mm	180 mm	200 mm	200 mm	220 mm	240 mm
7.0 kN/m <sup>2</sup>	100 mm	120 mm	140 mm	160 mm	160 mm	180 mm	200 mm	220 mm	240 mm	on request
8.0 kN/m <sup>2</sup>	100 mm	120 mm	140 mm	160 mm	180 mm	200 mm	200 mm	220 mm	240 mm	on request

The table only represents a feature for preliminary design and therefore does not replace the necessary static proof.

### Two-span beam



g + q = p	Span length L									
	3.00 m	3.50 m	4.00 m	4.50 m	5.00 m	5.50 m	6.00 m	6.50 m	7.00 m	7.50 m
2.0 kN/m <sup>2</sup>	80 mm	80 mm	80 mm	80 mm	100 mm	100 mm	100 mm	120 mm	120 mm	140 mm
3.0 kN/m <sup>2</sup>	80 mm	80 mm	80 mm	100 mm	100 mm	100 mm	120 mm	120 mm	140 mm	140 mm
4.0 kN/m <sup>2</sup>	80 mm	80 mm	80 mm	100 mm	100 mm	120 mm	120 mm	140 mm	160 mm	160 mm
5.0 kN/m <sup>2</sup>	80 mm	80 mm	100 mm	100 mm	120 mm	120 mm	140 mm	140 mm	160 mm	180 mm
6.0 kN/m <sup>2</sup>	80 mm	80 mm	100 mm	120 mm	120 mm	140 mm	140 mm	160 mm	160 mm	180 mm
7.0 kN/m <sup>2</sup>	80 mm	100 mm	100 mm	120 mm	120 mm	140 mm	160 mm	160 mm	180 mm	180 mm
8.0 kN/m <sup>2</sup>	80 mm	100 mm	100 mm	120 mm	140 mm	140 mm	160 mm	180 mm	180 mm	200 mm

The table only represents a feature for preliminary design and therefore does not replace the necessary static proof.

### Boundary conditions

- ⊕ Service class 1 in accordance with EN 1995-1-1
- ⊕ Persistent load g without the element's self-weight, as it has already been taken into account.
- ⊕ The share of imposed loads q is in total at least 50 %.
- ⊕ As part of this preliminary design, oscillations are not taken into account.
- ⊕ The load is uniformly distributed, individual/concentrated loads are not taken into account.
- ⊕ Field loads are not taken into account.
- ⊕ For an estimation of the impact of vibrations, the loads can be increased by approximately 35 %.

### Example calculation

Imposed load	2.00 kN/m <sup>2</sup>
Light wall allowance	0.50 kN/m <sup>2</sup>
Floor covering	0.10 kN/m <sup>2</sup>
Floor structure, e.g. screed	1.20 kN/m <sup>2</sup>
Self-weight	is included in the calculation
<b>Total load p =</b>	<b>3.80 kN/m<sup>2</sup></b>

Single-span beam, span length 5 m =>  
element thickness 140 mm

09

# 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



HASSLACHER CLT



Glued laminated timber  
special components



HASSLACHER rib panels



Pellets



Formwork panels



Pallets & packaging solutions

# HASSLACHER NORICA TIMBER

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

## HASSLACHER group

Feistritz 1 | 9751 Sachsenburg | Austria  
T +43 4769 22 49-0 | F +43 4769 22 49-129  
info@hasslacher.com | hasslacher.com