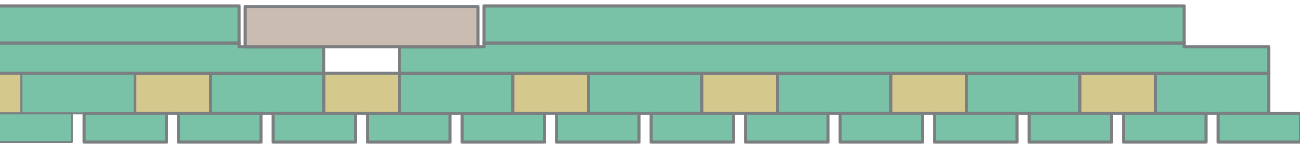
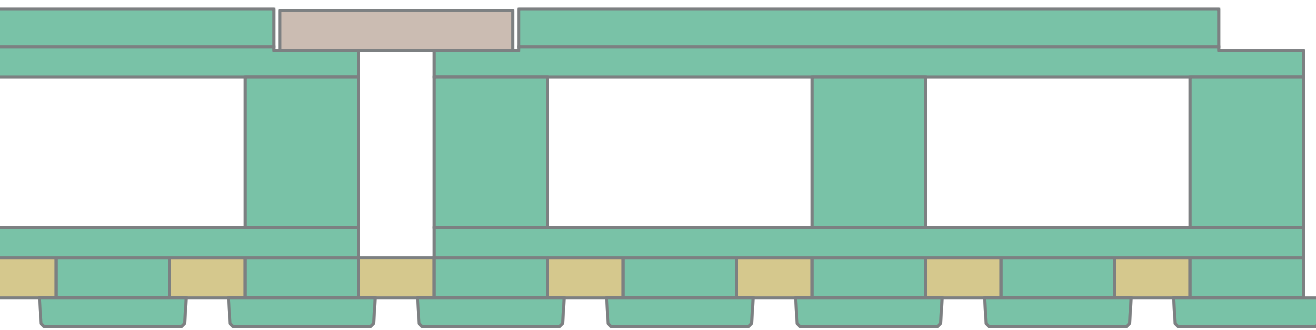


LIGNO® Acoustic classic-x

Technical Data



Configurable cross-laminated timber
solid element for roof components



Configurable cross-laminated timber
box element for roof components

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LIGNO ■ TREND®

For sustainable building in timber.

LIGNOTREND Produktions GmbH
 Steinbachstraße 41 D-79809 Weilheim
 Tel.: +49 (0)7755 9200-0
 info@lignotrend.com www.lignotrend.com

Last revision on 03/04/2024,
 subject to modifications.

Components with LIGNO® Acoustic classic-x

Introduction

Load-bearing roof slab with thermal insulation

In both **flat** and **pitched roofs**, LIGNO® cross-laminated timber, as an area-forming element with a visible surface, acts as a load-bearing panel and a statically stiffening plate in one [▶ page 13](#). The supporting structure is simple: In hall roofs, the element strips lie directly on the beam construction without purlins; in smaller buildings they usually lie directly on the walls, either parallel to the roof ridge or in the direction of the roof pitch.

The latest generation of the roof elements from Lignotrend is flexibly configurable for individual requirements [▶ www.lignotrend.com/konfigurator](http://www.lignotrend.com/konfigurator). LIGNO® Acoustic classic described in this document is selected if the surface shall show wide strips. The LIGNO® Block element line is available for more delicate slat surfaces. [▶ see separate data sheet.](#)

The elements have high dimensionally stable: One or more transverse layers in the element make it tolerant to construction-related change of wood moisture – preventing deformations that are typical for wood.

Visible surface, cutting to size, pipes and cables

The production of the roof elements with real wood visual quality is available in several alternatives, no subsequent interior finishing necessary. Knotless silver fir is unique. [▶ page 6](#)

Openings, e.g. for installing luminaires, can be prepared ex works [▶ see separate surfaces data sheet.](#)

With the LIGNO® Acoustic Q3 classic variant, conduits, cables and even ventilation ducts can be pre-installed.

Thermal insulation

Also in flat roofs a part of the thermal insulation can be installed in cavities if the laws of building physics are taken into respect.

[Building physics](#) [▶ page 4, page 11](#)

Room acoustics

With LIGNO® Acoustic classic, acoustic absorbers are already integrated ex works and reduce noise levels and reverberation.

The visible layer shows gaps.

[Acoustic profiles](#) [▶ from page 5](#)

Span

Architectural design becomes flexible due to free spans.

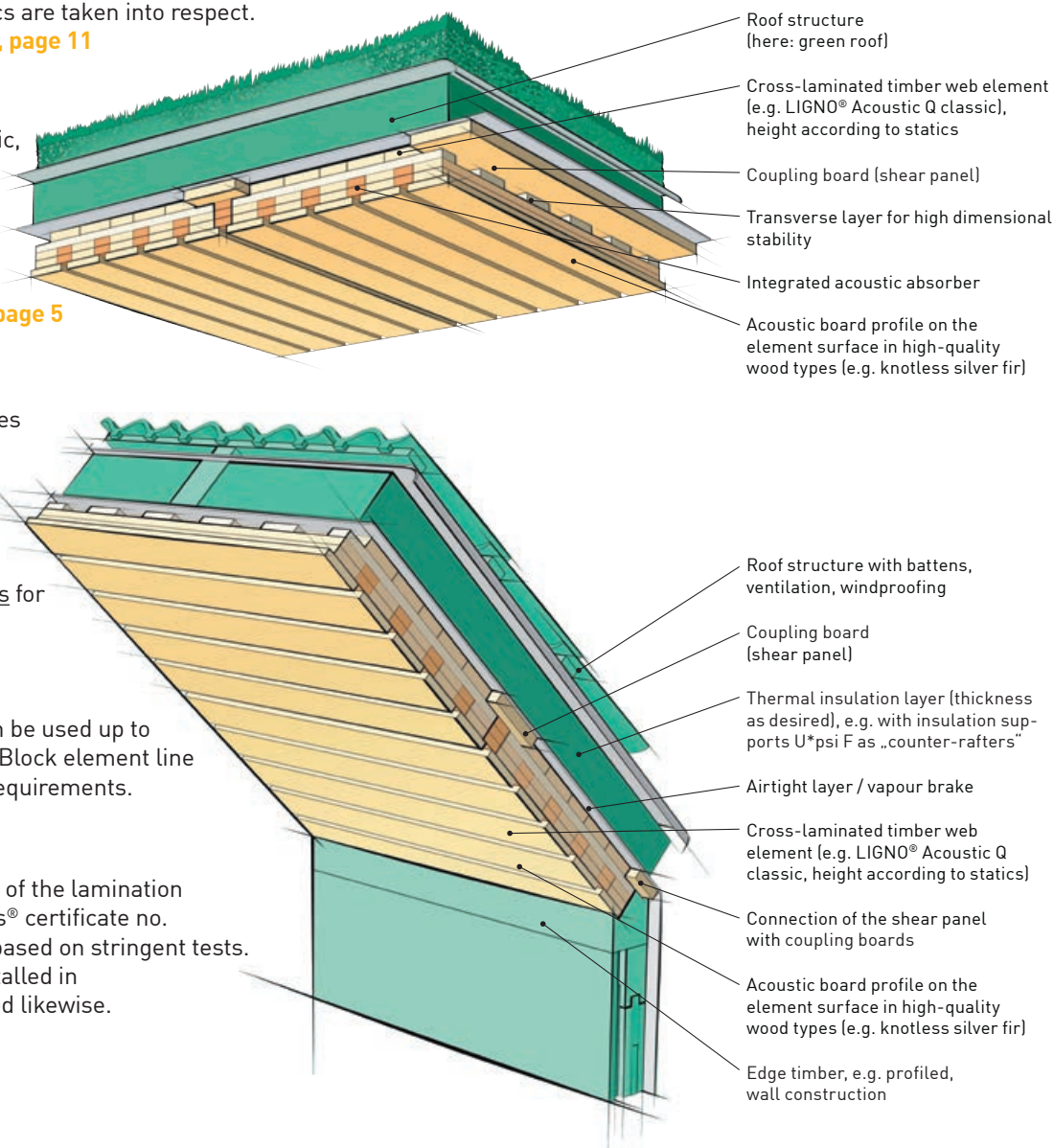
Elements can be prepared in the factory for local reinforcements and hidden joists. Large cross-sections are available as BV elements for large spans.

Fire resistance

LIGNO® Acoustic classic can be used up to R30 [▶ page 7](#). The LIGNO® Block element line is even suitable for higher requirements.

Green building

The harmlessness to health of the lamination is certified by the natureplus® certificate no. 0211-0606-014-1, which is based on stringent tests. The wood fibre material installed in acoustic elements is certified likewise.



Configuration of the element surface

Acoustic profiles, absorber _al40g

Sound-absorbing board profiles

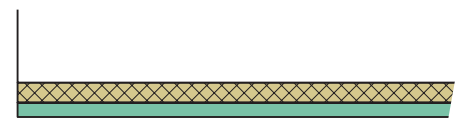
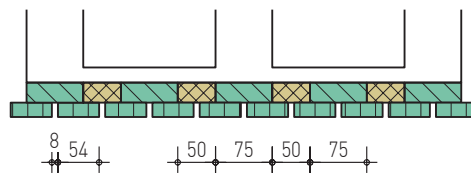
To achieve a sound-absorbing effect of the interior element surface it is profiled with joints ex works. The layer located behind is fitted with an absorber.

Absorber layer _al40g

with wood fibre acoustic absorber (40% of area)

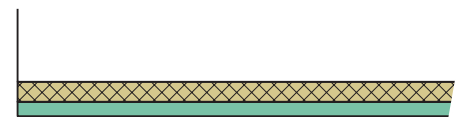
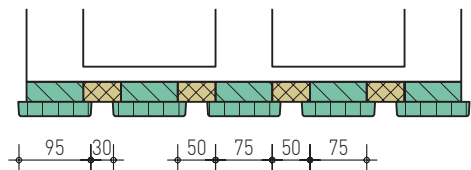
_625-54-8

54 mm stripe, 8 mm gap



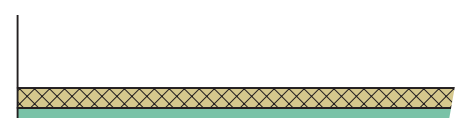
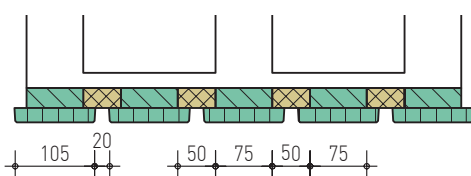
_625-95-30

95 mm stripe, 30 mm gap



_625-105-20

105 mm stripe, 20 mm gap



Configuration of the element surface

Wood type, surface treatment

High-quality genuine wood surface

With most types of timber, the one-ply-panels used for the visible layer of the elements consist of lamella sections, which are connected lengthwise by finger-joints. Approx. every 2.87 m, the complete elements are coupled by a general **butt joint**, which is recognisable close up as a fine line over element width of 625 mm.

- The technical data sheet „LIGNO® surfaces“ contains a precise description of the character of the available wood types.



Silver fir knotless, patterned	_WTL	Vivid pattern, variation in brightness and colour
Silver fir knotless, plain	_WTS	Like _WTL, but with less variation, finer grain. <u>Limited availability, please enquire about delivery time.</u>
Silver fir knotless, economy	_WTE	Like _WTL, but with wood irregularities.
Spruce knotless, plain	_FIS	Comparable with _WTS, but very little colour variation
Spruce with knots (A-qual.)	_FI-ä	Grade with knots in homogeneous pattern, continuous lamellae without finger-joints
Oak knotless	_EI	Vivid pattern, variation in the brightness, lamella joint visible only as a line (horizontal finger joints). <u>Limited availability, please enquire about delivery time.</u>
Other types of timber		Should the element soffit be designed with a different type of wood? Please ask a Lignotrend consultant; he will check the feasibility.

Surface treatment

Light-protection primer, transparent

Glaze for light-coloured wood: Transparent UV-protection primer to prevent darkening of the wood. Suitable for interior use (not classified as toxic). Final treatment necessary if washout cannot be ruled out.

Make: Adler Lignovit Interior UV 100 LT5.

Other surface treatments

An on-site application is recommended for other final treatments of the surface.

Basic element configuration - box element

Fire resistance R 30

LIGNO® Acoustic Q3 classic_z0_k0

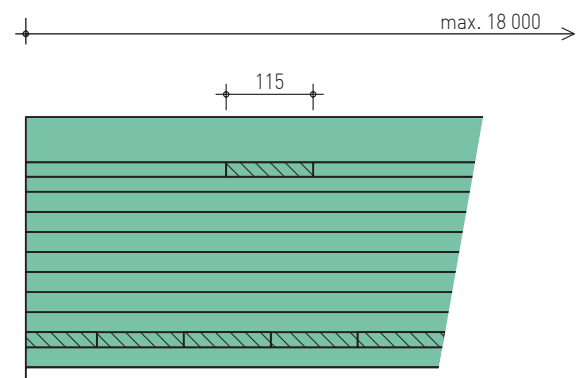
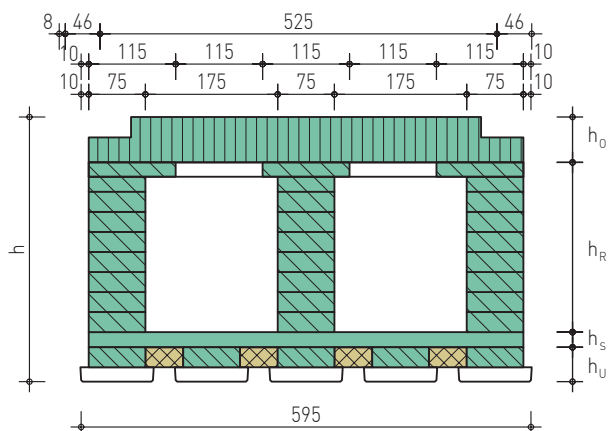
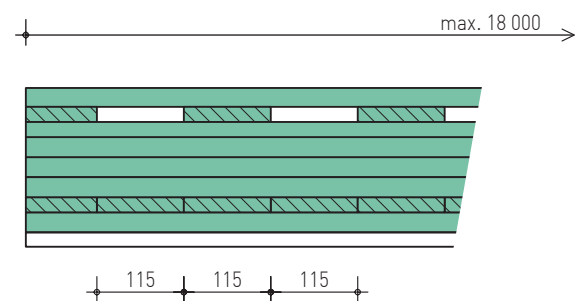
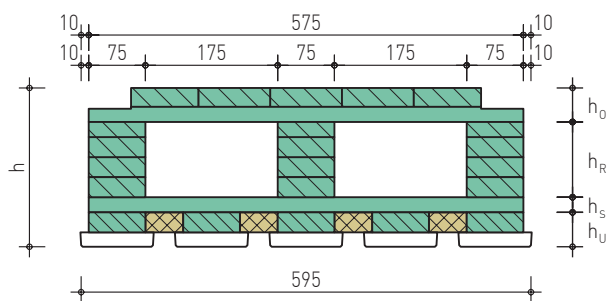
Height	Recomm. maximum length	Upper girder h_0	Web h_R	Dead weight			Cavity	Filling weight at 60 kg/m ³
				_625-54-8	_625-95-30	_625-105-20		
130	≤ 15 m	24,5	40,0	45	44	45	0,011	1
150	≤ 15 m	24,5	60,0	49	48	48	0,022	1
170	≤ 15 m	24,5	80,0	52	51	52	0,034	2
190	≤ 18 m	25	99,5	56	55	56	0,044	3
210	≤ 18 m	25	119,5	60	59	59	0,056	3
230	≤ 18 m	25	139,5	63	62	63	0,067	4
250	≤ 18 m	25	159,5	67	66	67	0,078	5
270	≤ 18 m	25,5	179,0	71	70	70	0,089	5
290	≤ 18 m	25,5	199,0	74	73	74	0,100	6
310	≤ 18 m	60	184,5	89	88	88	0,100	6
330	≤ 18 m	60	204,5	92	91	92	0,111	7
350	≤ 18 m	60	224,5	96	95	96	0,122	7
370	≤ 18 m	80	224,5	100	104	105	0,122	7
390	≤ 18 m	100	224,5	105	114	114	0,122	7
410	≤ 18 m	120	224,5	115	123	124	0,122	7
430	≤ 18 m	140	224,5	133	132	133	0,122	7
450	≤ 18 m	160	224,5	143	142	143	0,122	7

mm mm mm kg/m² kg/m² kg/m² m³/m² kg/m²

Additional layer **_z0** h_z - Transversal layer h_s 20 mm
 No plus layer **_p0** h_p - Surface h_u 45,5 mm

Configuration options

-  Visible surface, acoustic profile
-  [▶ from page 5](#)
-  Fire resistance up to R 30
-  Improvement of the sound absorption [▶ page 13](#)





Basic element configuration - solid element

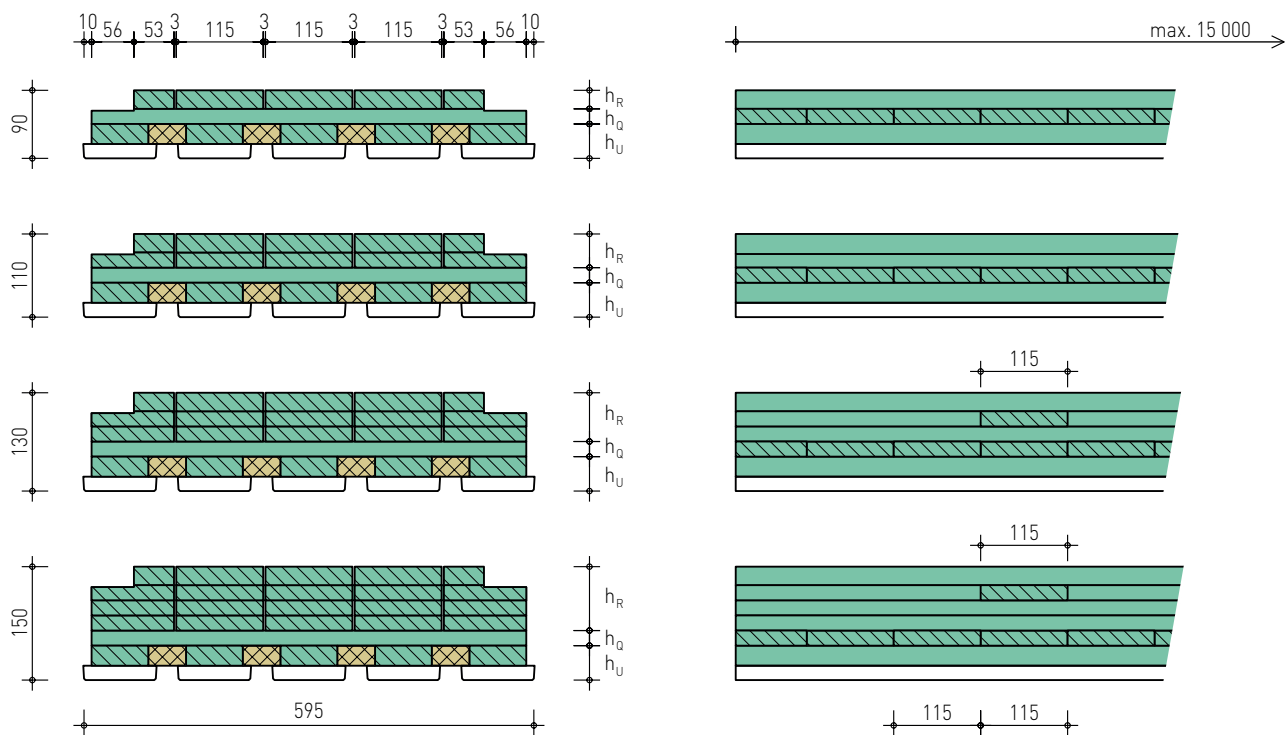
Visible quality / fire resistance R0

LIGNO® Acoustic Q classic_z0_k0

Height	Recomm. maximum length	Upper girder h_0	Web h_R	Dead weight			Cavity
				_625-54-8	_625-95-30	_625-105-20	
90	≤ 12 m	24,5	0,0	36	35	36	0,000
110	≤ 15 m	24,5	20,0	45	44	45	0,000
130	≤ 15 m	24,5	40,0	55	54	54	0,000
150	≤ 15 m	24,5	60,0	64	63	64	0,000
mm		mm	mm	kg/m²	kg/m²	kg/m²	m³/m²
Additional layer _z0			h_z	-	Transversal layer h_s		20 mm
No plus layer _p0			h_p	-	Surface h_u		45,5 mm

Configuration options

-  Visible surface, acoustic profile
-  [▶ from page 5](#)



Performance

Acoustic absorption

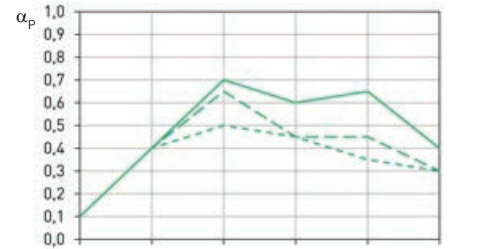
Key absorption figures

Subsequent interior finishing work for acoustically absorbing suspended ceilings is rendered superfluous because the elements are configured with an acoustic profile, see ► [page 5](#). Natural wood fibre material is used as the absorber material. Test reports ► www.lignotrend.com

LIGNO® Acoustic Q classic-x _z0_k0_al40g



No cavities,
limited low-frequency absorption.



Profile	α_w	NRC	SAA	SAK		125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
_625-54-8	0,40	0,45	0,42	D	-----	0,10	0,40	0,50	0,45	0,35	0,30
_625-95-30	0,60	0,60	0,59	C	—————	0,10	0,40	0,70	0,60	0,65	0,40
_625-105-20	0,45	0,50	0,48	D	-----	0,10	0,40	0,65	0,45	0,45	0,30

Sound insulation Requirements

Requirements for the airborne sound insulation of exterior components (examples)

according to DIN 4109

		Airborne sound insulation $R'_{w,res}$		
Noise level range (decisive exterior noise level)		Office rooms	Living rooms, hotel rooms, classrooms	Wards in hospitals
I	56 bis 60 dB	≥ 30 dB	≥ 30 dB	≥ 35 dB
II	61 bis 65 dB	≥ 30 dB	≥ 35 dB	≥ 40 dB
III	66 bis 70 dB	≥ 35 dB	≥ 40 dB	≥ 45 dB
IV	71 bis 75 dB	≥ 40 dB	≥ 45 dB	≥ 50 dB
V	76 bis 80 dB	≥ 45 dB	≥ 50 dB	¹
VI		≥ 50 dB	¹	¹

¹ The requirements must be defined here on the basis of the local conditions.

according to SIA 181 (2006) ²

		Requirements for protection against airborne sound D_e		
Degree of disturbance due to exterior noise		Low sensitivity	Medium sensitivity	High sensitivity
low		≥ 22 dB	≥ 27 dB	≥ 32 dB
considerable to very strong		≥ $L_r - 38$ dB ($L_r - 30$ dB)	≥ $L_r - 33$ dB ($L_r - 25$ dB)	≥ $L_r - 28$ dB ($L_r - 20$ dB)

(Values in brackets apply to the night)

L_r Assessment level according to the regulation of the Noise Protection Ordinance

² The specified values represent the normal requirement, increased requirement in each case 3 dB stricter.

Sound insulation performance Roof elements

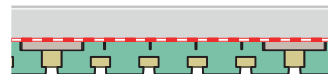
Airborne sound in roof components

Roof components made of LIGNO® achieve good values for the sound insulation value R_w even without cladding on the underside. Only products equivalent in terms of noise-relevant may be used in the structure to these characteristic products specified in the test reports (e.g. density, dynamic stiffness)!

Specified values are laboratory values, **a reserve is therefore to be taken into account in the verification for flanking sound transmission!** The following must be adhered to: existing $R'_w \geq$ required R'_w as well as existing $L'_{n,w} \leq$ required $L'_{n,w}$.

Test reports ► www.lignotrend.com

Tin roof



Covering	0,8 mm	Aluminium sheet
Insulation	80 mm	Thermal insulation Mineral wool
	5 mm	Bitumen membrane
Load-bearing element	LIGNO® Acoustic Q classic_90 (Dead weight ca. 33 kg/m ²)	

without ballasting

e.g. CLT box module
LIGNO® Acoustic Q classic_90
(Dead weight approx. 33 kg/m²)

$R_w [C;C_r] = 44 \text{ dB} [-3; -9]$
PB 0013.01-P27_DE



Structure as shown on the left, but with additional 10mm gypsum fibreboard

without ballasting

e.g. CLT box module
LIGNO® Acoustic Q classic_90
(Dead weight approx. 33 kg/m²)

$R_w [C;C_r] = 48 \text{ dB} [-3; -10]$
PB 0010.01-P27_DE

Building physics

Thermal conductivity



LIGNO® Acoustic Q3 classic-x

Height	_z0_k0			
	Cavity empty		Cavity insulated	
	R_0	$e\lambda_0$	R_1	$e\lambda_0$
130	1,025	0,127	1,332	0,098
150	1,075	0,140	1,633	0,092
170	1,109	0,153	1,926	0,088
190	1,139	0,167	2,212	0,086
210	1,160	0,181	2,497	0,084
230	1,178	0,195	2,781	0,083
250	1,194	0,209	3,063	0,082
270	1,211	0,223	3,342	0,081
290	1,222	0,237	3,623	0,080
310	1,387	0,224	3,645	0,085
330	1,399	0,236	3,923	0,084
350	1,410	0,248	4,201	0,083
370	1,575	0,235	4,374	0,085
390	1,737	0,224	4,545	0,086
410	1,899	0,216	4,714	0,087
430	2,059	0,209	4,883	0,088
450	2,218	0,203	5,051	0,089
mm	m ² K/W	W/mK	m ² K/W	W/mK

LIGNO® Acoustic Q classic-x

Height	_z0_k0	
	Cavity empty	
	R_0	$e\lambda_0$
90	0,722	0,208
110	0,884	0,170
130	1,045	0,144
150	1,203	0,125
mm	m ² K/W	W/mK

The values given were determined in accordance with EN ISO 6946:2003-10 (heat flow upwards). They refer to the component layer „filled or unfilled roof element“, ignoring any superstructure. In most building physics calculation programs, LIGNO® elements can be defined as an intrinsic material with the „equivalent“ thermal conductivity eq λ determined from the heat transmission resistance as well as element height and bulk density.

Flat roof structure as non-ventilated flat roof

Part of the thermal insulation can be installed in the load-bearing element ex works.

Caution with non-ventilated flat roofs (warm roofs) in which a seal is arranged over the insulation and an air-tight, vapour blocking interior seal between the element and the insulation. Such a structure can work in terms of building physics, even without a further vapour-tight layer on the inside of the roof element, if about 2/3 of the insulation lies above the element. **The finished acoustic profile respectively therefore doesn't need to be covered! Depending on the structure or shading of the roof, a dynamic calculation of the moisture balance is useful in case of doubt.**

If insulating materials such as soft wood fibre or cellulose are used, it may be possible to transfer even more insulation into the cavity of the element without the structure becoming too moist. A verification through detailed considerations extending beyond the calculation according to Glaser.

Building physics

Water vapour diffusion

LIGNO® Acoustic Q3 classic-x

_z0_k0				
Height	$\mu_{eq,min}$	$\mu_{eq,max}$	$s_{D,min}$	$s_{D,max}$
130	5,4	35,4	0,7	4,6
150	4,7	37,3	0,7	5,6
170	4,1	38,8	0,7	6,6
190	3,7	40,0	0,7	7,6
210	3,3	41,0	0,7	8,6
230	3,5	41,7	0,8	9,6
250	3,2	42,4	0,8	10,6
270	3,0	43,0	0,8	11,6
290	2,8	43,4	0,8	12,6
310	4,8	47,1	1,5	14,6
330	4,5	47,3	1,5	15,6
350	4,6	47,4	1,6	16,6
370	5,4	47,6	2,0	17,6
390	6,2	47,7	2,4	18,6
410	6,8	47,8	2,8	19,6
430	7,4	47,9	3,2	20,6
450	8,0	48,0	3,6	21,6
mm	mm	mm	m	m

LIGNO® Acoustic Q classic-x

_z0_k0				
Height	$\mu_{eq,min}$	$\mu_{eq,max}$	$s_{D,min}$	$s_{D,max}$
90	6,7	40,0	0,6	3,6
110	5,5	41,8	0,6	4,6
130	5,4	43,1	0,7	5,6
150	4,7	44,0	0,7	6,6
mm	mm	mm	m	m

For the water vapour diffusion resistance, the lower values $\mu_{eq,min}$ or $s_{D,min}$ are given for the „most open“ state, in which the vapour can diffuse without hindrance through air layers to the inner surface of the element's upper girder, for instance in the axis of the cavity of an element with acoustic profile. For the upper value $\mu_{eq,max}$ or $s_{D,max,w}$, a solid wood layer in element thickness was applied correspondingly in the axis of one of the webs. With high insulated elements, the modelling of three layers with cover plates and insulation layer provides more realistic results.

Bracing panels Construction

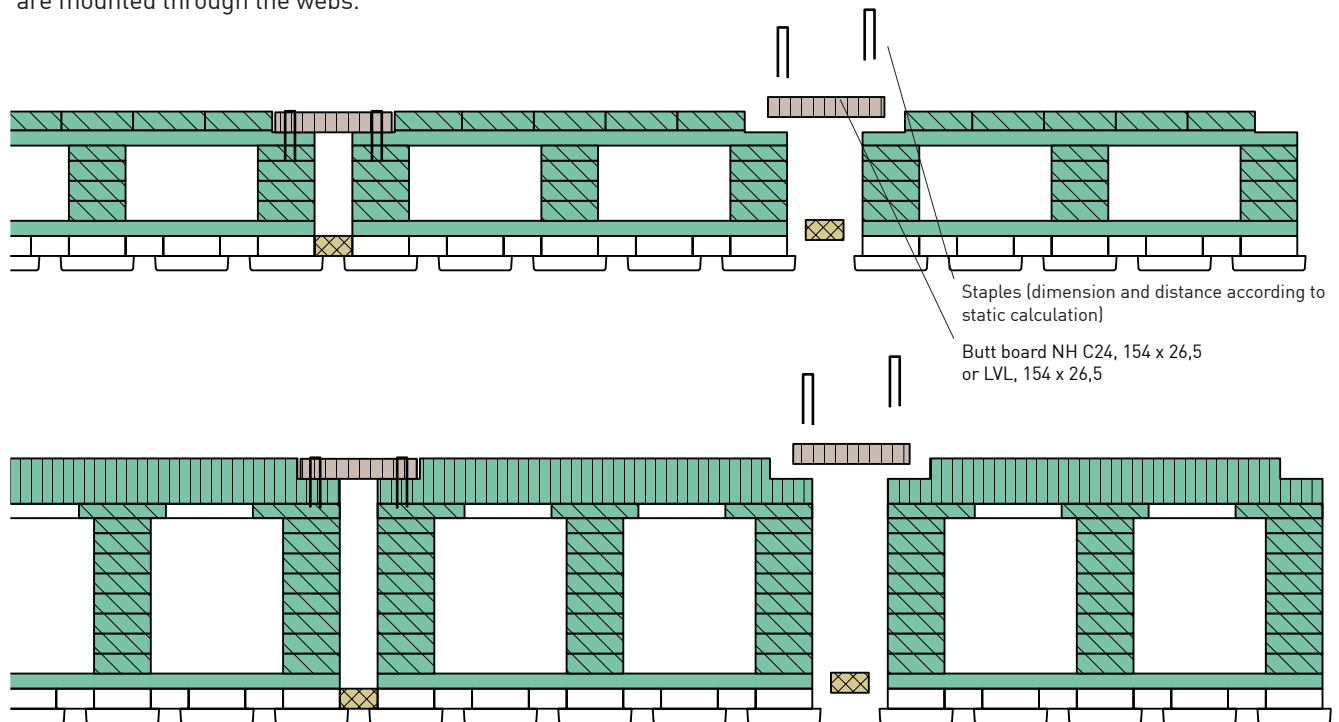


Coupling

Coupling is done by means of a butt board at the **lateral butt joint of the elements**. Solid wood boards (strength class at least C24, cross-section 154 mm x 26.5 mm) are delivered as standard. In the case of elements with acoustic profile or with larger stresses, they can be replaced by stripes of LVL, for example. Additional bracing by boards or diagonals usually aren't necessary.

The butt boards are connected to both adjacent elements with **staples** or – less common – with wood screws (dimension and distance of the connectors as specified in the static calculation).

The **connection of the bracing panels to the adjacent components** is usually done with **long wood screws (d = 8 mm)**, which are mounted through the webs.



The butt boards are used as boards for the transport pallets when delivering. Use boards from dismantled pallets for the element joint!

Static verification

In particular, the following points must be taken into account when verifying bracing performance of a roof:

- Load capacity of the elements as well as of butt board and connection means
- Edge belt of bracing
- Connection joints to neighbouring components
- Resilience of the connectors / panel deformation

Sample statics ► www.lignotrend.com.

The Technical Dept. is available for support with the verification.

Load capacity values

Butt board C24 (154 mm x 26,5 mm)	admissible shear flow	R_k	53 kN/m					
Clamps		n	5	10	15	No. per metre	100	cm
	1,80 x 63	admissible shear flow	R_k	3,6	7,2	10,8		0,70 kN/m
Wood screws		n	5	10	15	No. per metre	100	cm
	d = 6 mm	admissible shear flow	R_k	3,15	6,3	9,45		0,63 kN/m
	d = 8 mm	admissible shear flow	R_k	5,55	11,1	16,65		1,11 kN/m



Bracing panels

Characteristic values

Load capacity and rigidity values

The characteristic values from the following tables are used in the bracing panel analysis. Since, as a rule, depending on the load case transverse to or parallel with the element stripes, either the complete number of *whole* elements or *exactly one* edge element are applied for the load dissipation, the **values for the shear load capacity of the elements per element in the width of 0.625 m are specified**, *not* on the 1 m-wide panel surface.

LIGNO® Acoustic classic Q3

_z0_k0				
Height	$V_{R,k,xy}$	GA_{ef}	I_z	$M_{R,k,z}$
130	35,7	4619	112,2	57,1
150	35,7	4619	131,2	66,8
170	35,7	4619	150,1	76,4
190	35,7	4619	169,1	86,1
210	35,7	4619	188,1	95,8
230	35,7	4619	207,1	105,4
250	35,7	4619	226,0	115,1
270	35,7	4619	245,0	124,7
290	35,7	4619	264,0	134,4
310	21,9	2828	348,5	177,4
330	21,9	2828	367,4	187,1
350	21,9	2828	386,4	196,7
370	21,9	2828	418,1	212,9
390	21,9	2828	449,8	229,0
410	21,9	2828	481,5	245,1
430	21,9	2828	513,2	261,2
450	21,9	2828	544,8	277,4
mm	kN	kN	10³cm⁴	kNm

LIGNO® Acoustic classic Q

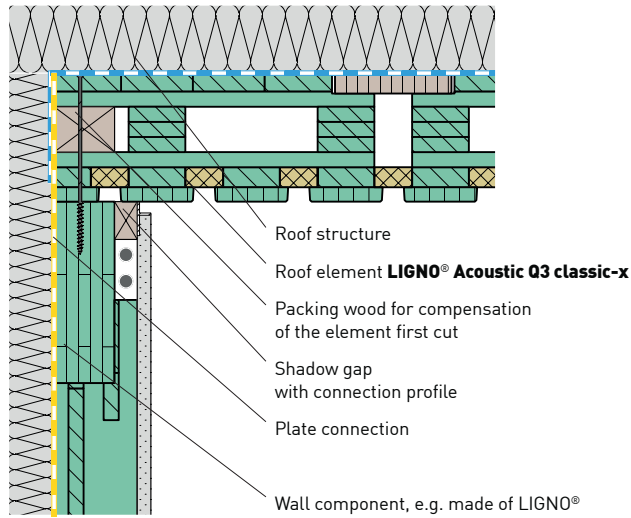
_z0_k0				
Height	$V_{R,k,xy}$	GA_{ef}	I_z	$M_{R,k,z}$
90	14,6	2785	93,2	47,5
110	21,5	2785	124,9	63,6
130	21,5	2785	156,6	79,7
150	21,5	2785	188,3	95,9
mm	kN	kN	10³cm⁴	kNm

Design proposals

Support

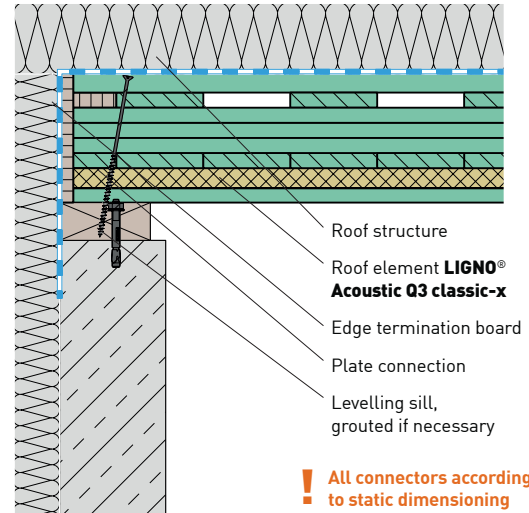
Support on timber

Exterior wall



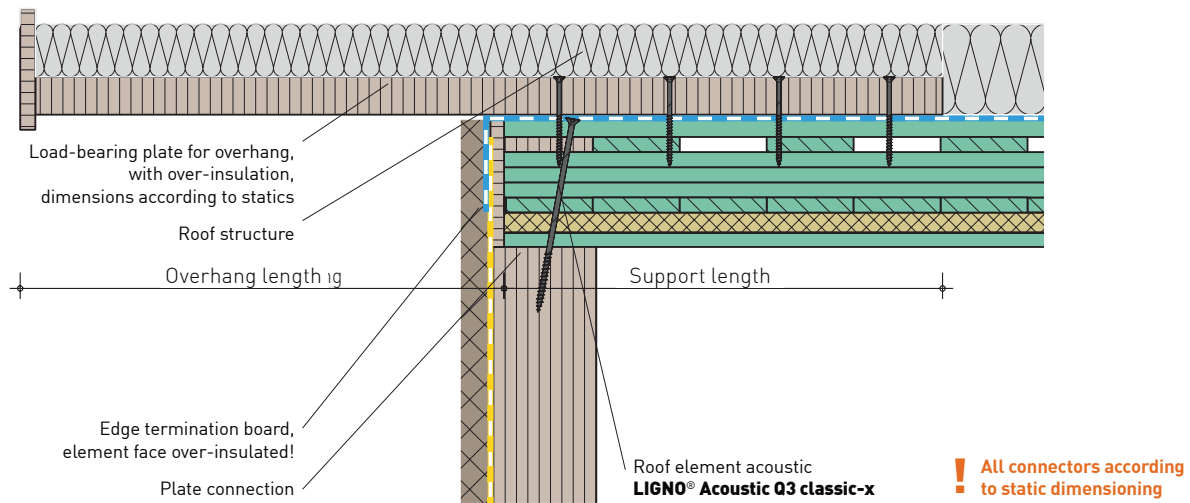
Support on concrete

by means of timber sill



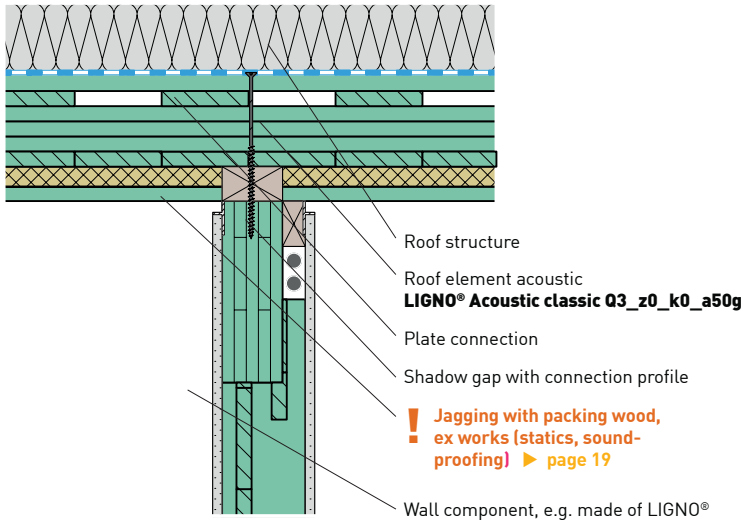
Roof edge with overhang

with complete insulation



Support on timber

Intermediate bearing



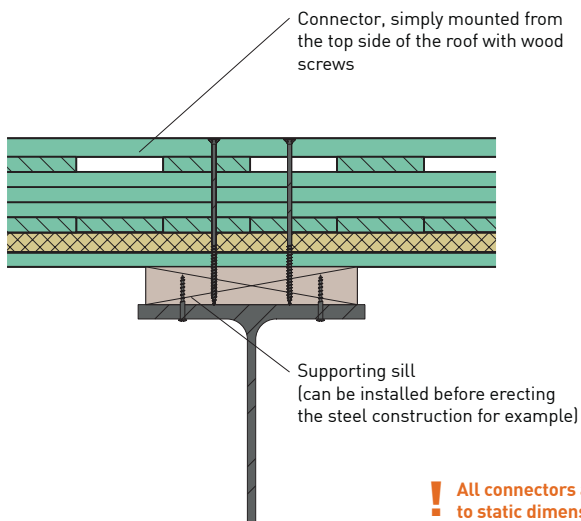
! Notes on non-ventilated flat roof structure
▶ page 11

! Jagging with packing wood,
ex works (statics, sound-proofing) ▶ page 19

! All connectors according
to static dimensioning

Support: steel beam

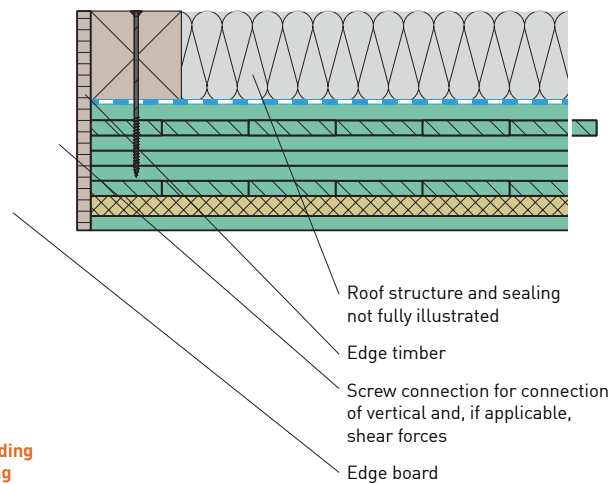
with mounting sill



! All connectors according
to static dimensioning

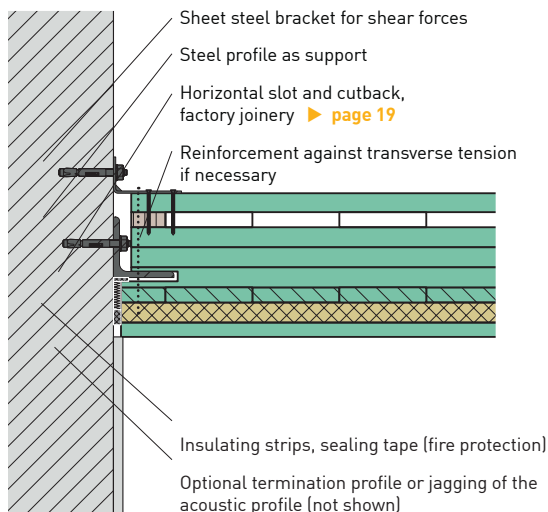
Free edge / trimmer joist

(e.g. at openings, roof edges)



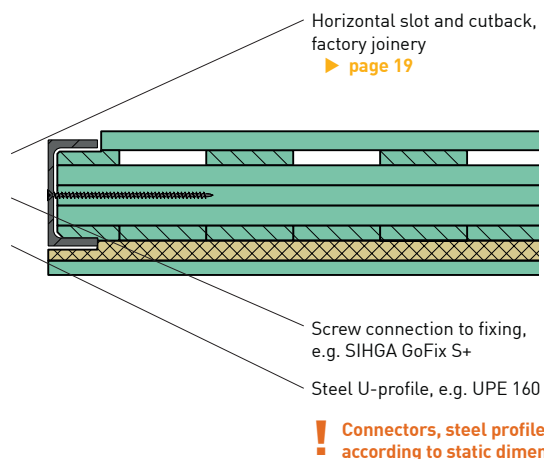
Concrete wall edge support

with steel profile



Free edge / steel profile

e.g. flush-with-ceiling window lintel



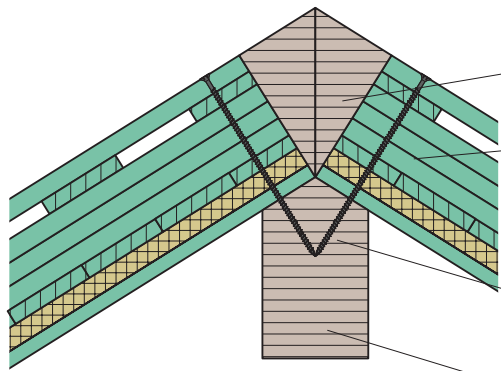
! Connectors, steel profile
according to static dimensioning

Design proposals

Pitched roof

Roof ridge

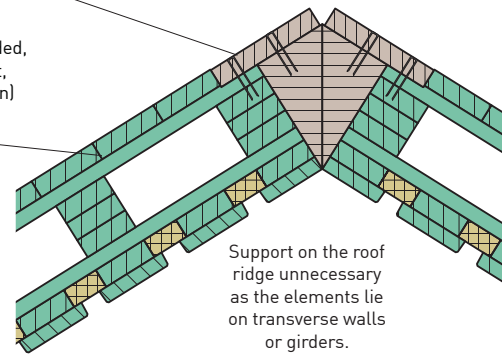
Elements parallel to gable



- Plate coupling via butt boards and fitting piece
- Fitting piece (if needed, ex works on request, otherwise: insulation)
- Roof element **LIGNO® Acoustic Q3 classic-x**, optionally insulated ex works [▶ page 4](#)
- Fixing with wood screws
- Roof ridge purlin bevelled at the top

Roof ridge

Elements parallel to ridge

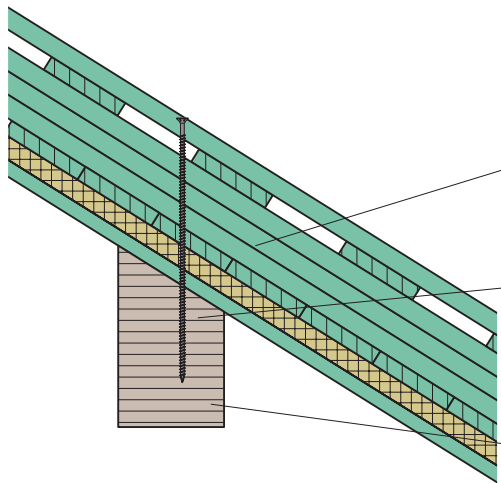


Support on the roof ridge unnecessary as the elements lie on transverse walls or girders.

! All connectors according to static dimensioning

Central support

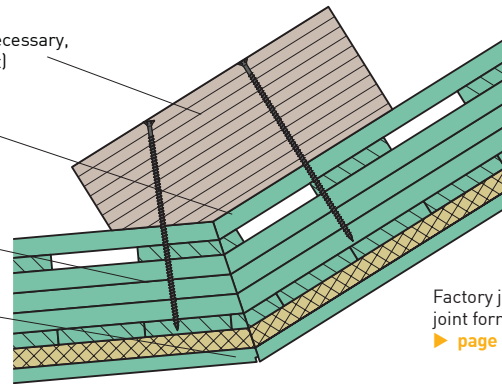
Elements parallel to gable



- Coupling piece (if necessary, ex works on request)
- Roof element **LIGNO® Acoustic Q3 classic-x**, optionally insulated ex works [▶ page 4](#)
- Fixing with wood screws
- Milled rebate, alternatively: cover strip on site
- Central purlin bevelled on top

Free bend

Elements parallel to gable

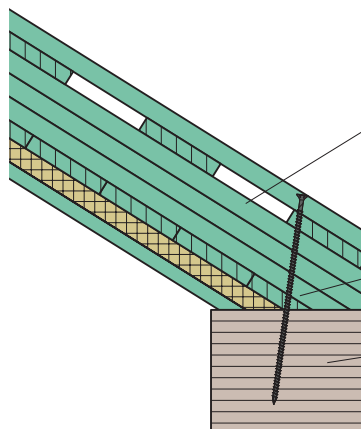


Factory joinery for joint formation [▶ page 19](#)

! All connectors according to static dimensioning

Eaves support

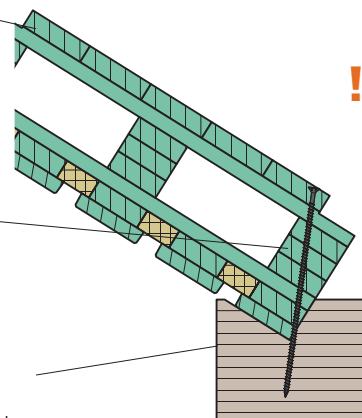
Elements parallel to gable



- Roof element **LIGNO® Acoustic Q3 classic-x**, optionally insulated ex works [▶ page 4](#),
- Factory joinery for support [▶ page 19](#)
- Fixing with wood screws
- Support sill, e.g. on wall
- Alternative version of support sill with birdsmouth joint, ex works on request)

Eaves support

Elements parallel to ridge



! All connectors according to static dimensioning

Ready to mount ex works: Joinery

Preparation of the construction elements ready for installation

The preparation of the LIGNO® elements so that they are ready to mount can be ordered in addition to mere delivery. The scope of the pre-planning depends on the possible degree of prefabrication.

Examples:

- Cutting to size of the elements: mitre cuts, bevel cuts and round cuts
- Machining of the element soffit: Jaggung of wall supports, milling of recesses for built-in parts such as luminaires, partition wall rails or similar
- Milling of built-in parts, e.g. trimmer joists, steel beams as flush-with-the-ceiling joist
- Preparation for installations: Drill holes for cable or pipe feed-throughs, openings for installation shafts, insertion of electrical cables or conduits with pull wire or ventilation ducts
- Preassembly of large-area modules (format up to 2.50 m x 18 m)



Preassembled
large-area modules during
installation



Insertion of the
absorber strip in the
lateral element joint



Attachment of the butt board
(not shown: stapling
according to statics)



Solid elements



Connection of the panel
to girder or head plate



Finished joined
BV box elements

Assembly procedure gerneal



Installation with Lignotrend lifting tool

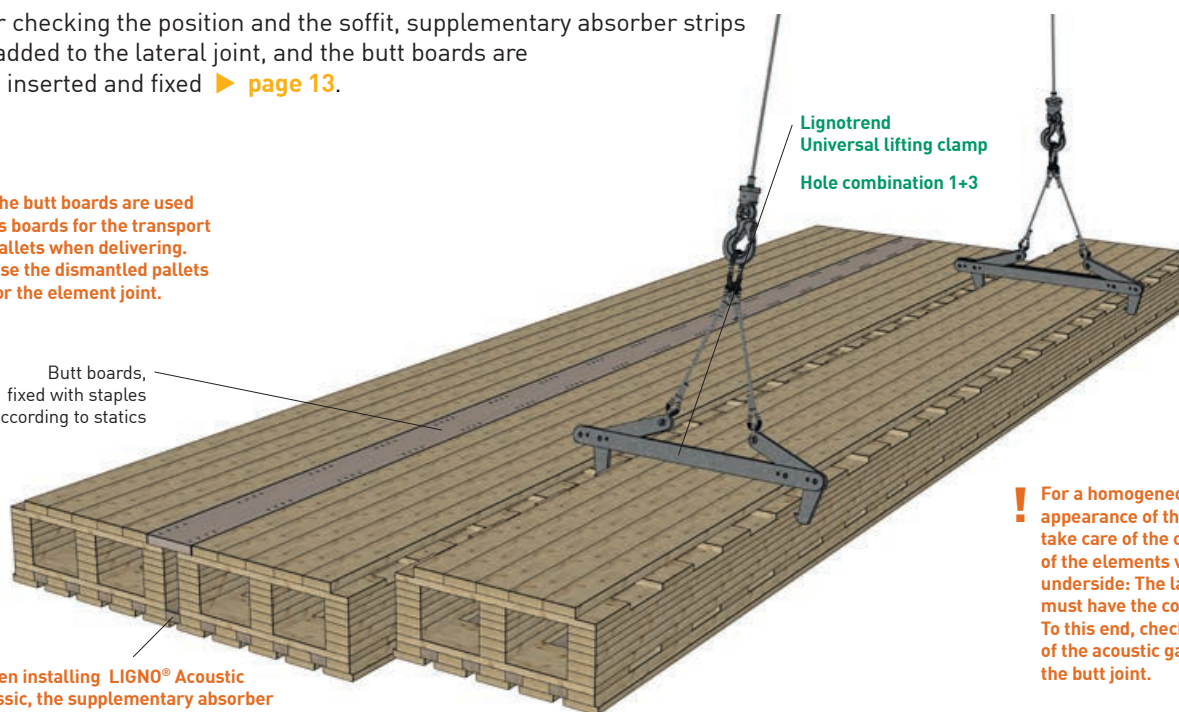
The roof elements are laid stripe by stripe or as large-area modules, pulled together laterally – if necessary, a beam puller or a screw clamp can be used as an aid. After aligning the elements, each element is fixed to the supports.

After checking the position and the soffit, supplementary absorber strips are added to the lateral joint, and the butt boards are then inserted and fixed ► [page 13](#).

! The butt boards are used as boards for the transport pallets when delivering. Use the dismantled pallets for the element joint.

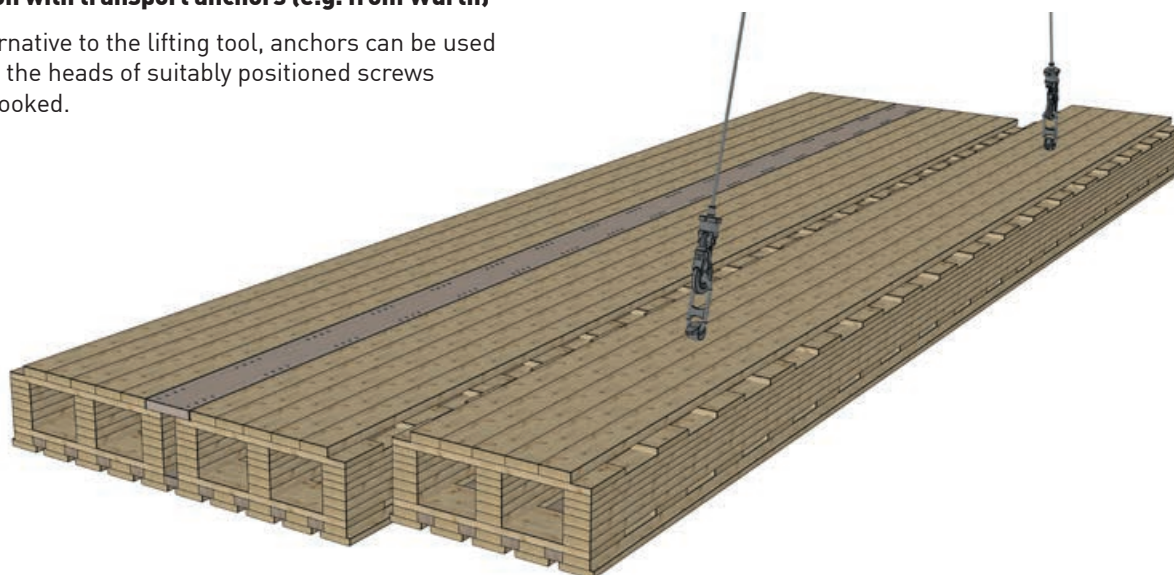
Butt boards, fixed with staples according to statics

! When installing LIGNO® Acoustic classic, the supplementary absorber strips supplied must be inserted in the lateral element joint



Installation with transport anchors (e.g. from Würth)

As an alternative to the lifting tool, anchors can be used into which the heads of suitably positioned screws must be hooked.



Large-area, preassembled elements

When mounting large-area modules with a width of 1.875 m or 2.50 m respectively, suitable suspension gear or cross bars must be used.



HOTLINE
for questions on installation
+49 7755 9200-0

Processing instructions

Goods receiving / unloading

- Unload the elements from the truck pallet by pallet if possible
- When unloading with a strap:
Insert a board underneath so that the edges of the visible surface are not damaged



Intermediate storage

- Store protected against splash water and level on suitable support wedges
- Protect against moisture and long-term solar irradiation
- No long-term outdoor storage!
(also not under foil, otherwise danger of formation of dew and mould!)



Installation

- To protect the visible surface, use only the illustrated or equivalent lifting tools
- For protection against dirt, wear clean gloves when assembling



Weather protection

- **Keep a large tarpaulin at the ready (for use in case of thunderstorms, for example)**
- **Apply the first sealing layer (e.g. weatherproof vapour barrier) as soon as possible after assembly.**

Coupling the bracing panel

- First insert the supplementary absorber strips in the lateral joint
- Fastening with staples according to statics, see also ► [page 13](#). Bracing panel connection to wall construction with screws according to statics.
- The butt boards are used as boards for the packaging pallets when delivering.
Use the dismantled pallets for the element joint.

Important note:

- **Pay attention to the acoustic gap in the joint when installing.**
Before fixing each element: check the butt joint from the underside of the roof!

In addition, the general application notes on Lignotrend cross-laminated timber products are to be observed.

► **Installation hotline +49 (0) 77 55 – 92 00-0**