

# BSH Ceiling elements

## Spruce



The ceiling elements are solid waterproof bonded laminated timber elements which correspond with the high requirements in the construction sector from both an environmental and ecological perspective. The ceiling is constructed in thicknesses of 6 to 26 cm, in a standard width of 62.5 cm and in lengths of up to 24 m. Depending on the property requirements and technical possibilities the elements are available with double or multi-groove and crest, tongue and groove or flat edge profile. If required, the BSH ceiling elements can be supplied directly to the construction site.

### Technical characteristics

<b>Wood type:</b> Spruce, fin thickness 40 mm
<b>Product standard:</b> EN 14080, DIN 1052/EN 386
<b>Surfaces:</b> Visual quality (Si), Industrial quality (NSi)
<b>Strength class:</b> GL 24 h
<b>Bonding:</b> Melamine resin (light glued joint)
<b>Edge formation:</b> Bevelled underside, top side sharp-edged

### Dimensions

<b>Thicknesses:</b> from 6 to 26 cm, in 2 cm steps
<b>Standard width:</b> 62.5 cm (coverage dimensions)
<b>Special widths:</b> from 40 to 120 cm on enquiry
<b>Lengths:</b> from 1.2 to 24 m

### Profiles

Double/multi-groove and crest
Tongue and groove
Flat edge profile

### Service classes

Elements can only be used in service classes 1 or 2 according to EN 386:1996-07 without climatic alternating stress, meaning indoors or under cover of roof.

### Joining

ready for mounting join according to your implementation plan including fixed lengths, notches, drill holes, lengthways rebates and laying plans on request

### Assembly

Delivery direct to the construction site subsequent to agreement.  
 Safe assembly by screwing eye bolts or assembly loops into pre-mounted threaded ‚Rampa‘ inserts (type BL, external diameter 22 mm, internal thread M12, length 60 or 100 mm), on request. 4 eye bolts are supplied per order.  
 No waiting times or delays during the construction as the ceiling can be loaded immediately.

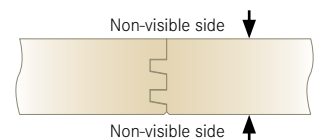
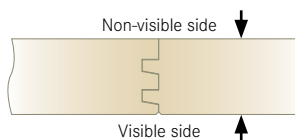
### Advantages

Exact fit and inherently stable
Easy and quick assembly
Dry construction, ready to use
Lower dead load than concrete ceilings
Lower ceiling height than beam ceilings
Suitable for static panel configurations
Joint-free and snug, no nails or dowels
Easy to work on with carpentry tools
Good thermal insulation
CO <sup>2</sup> reservoir, climate-positive
Pleasant ambient and living environment

### Surface quality

Visual quality (Si)

Industrial quality (NSi)



### Longitudinal joints

The longitudinal joints are designed with a double / multi-groove and crest profile. Factory produced rebate of 16 x 45 mm or 20 x 45 mm possible (from 10 cm element thickness). For the fitting of a joining strip during construction e. g. OSB.

#### Standard profile

	Double crest and groove (10–26 cm) simple crest and groove (6–8 cm)
	Double crest and groove with top side rebate (from 8 cm)
	Butt-jointed with top side rebate (from 8 cm)
	Groove and separate tongue with top side rebate (from 8 cm)
	Groove and separate tongue

Wood-based boards for the top side rebate and separate tongue (during construction).

## Panel formation

The elements can be combined to create statically effective ceiling panels and contribute to the horizontal reinforcing of the building. The panelling effect must be demonstrated in all cases.

Timber panel strips nailed on during construction connect the individual elements to create the complete panel.

Alternatively, diagonally nailed on spiked bands can be used for the horizontal reinforcing.

OSB panels for full area installation can be supplied on request. (OSB panels, page 38)



## Surface treatment

It is possible to provide a water soluble primer coat to minimise any absorption of moisture during the assembly phase.

Small shrinkage cracks may arise due to the natural and thus unavoidable shrinkage and swelling behaviour of the wood depending on the ambient conditions in the room.

It is recommended that paint should only be applied after the equilibrium moisture content has been reached.

## Storage & packaging

The elements may not be exposed to external weather conditions at any time.

Individually wrapped packages, in assembly sequence upon request

# Measurement aid

## Requirements

Loading on a field by field basis is not taken into account.

The dead weight of the ceiling must be taken into account.

Uniform loading

Creep deformations are not taken into account

The deflection criteria must be selected according to the requirements:  $l / 300$  and/or  $l / 400$  in this case.

Tables can be used for:

GL 24h = DIN 1052:2004, SIA 265

BS 11 = DIN 1052:1988, Austrian Standard B 4100-2

## Example: Calculation of a load

Vertical working load according to DIN 1055	2.00 KN / m <sup>2</sup>
Lightweight partition walls	0.75 KN / m <sup>2</sup>
1 cm tiling	0.20 KN / m <sup>2</sup>
Flooring material: 6 cm screed	1.50 KN / m <sup>2</sup>
Dead weight of ceiling, 12 cm	0.55 KN / m <sup>2</sup>

Load q 5.00 KN / m<sup>2</sup>

## Single span girders

Deflection  $f = l/300$

Load q [kN/m <sup>2</sup> ]	Element thickness in mm							
	100	120	140	160	180	200	220	240
2.50	4.54	5.45	6.36	7.27	8.18	9.08	9.99	10.90
3.00	4.27	5.13	5.98	6.84	7.69	8.55	9.40	10.26
3.50	4.06	4.87	5.68	6.50	7.31	8.12	8.93	9.75
4.00	3.88	4.66	5.43	6.21	6.99	7.77	8.54	9.32
4.50	3.73	4.48	5.23	5.97	6.72	7.47	8.21	8.96
5.00	3.60	4.32	5.05	5.77	6.49	7.21	7.93	8.65
5.50	3.49	4.19	4.89	5.59	6.28	6.98	7.68	8.38
6.00	3.39	4.07	4.75	5.43	6.11	6.78	7.46	8.14

Deflection  $f = l/400$

Load q [kN/m <sup>2</sup> ]	Element thickness in mm							
	100	120	140	160	180	200	220	240
2.50	4.12	4.95	5.78	6.60	7.43	8.25	9.08	9.90
3.00	3.88	4.66	5.43	6.21	6.99	7.77	8.54	9.32
3.50	3.69	4.42	5.16	5.90	6.64	7.38	8.12	8.85
4.00	3.53	4.23	4.94	5.64	6.35	7.06	7.76	8.47
4.50	3.39	4.07	4.75	5.43	6.11	6.78	7.46	8.14
5.00	3.27	3.93	4.58	5.24	5.89	6.55	7.21	7.86
5.50	3.17	3.80	4.44	5.07	5.71	6.34	6.98	7.61
6.00	3.08	3.70	4.31	4.93	5.55	6.16	6.78	7.40

## Double span beam and triple span beam (equal span widths)

Deflection  $f = l/300$

Load q [kN/m <sup>2</sup> ]	Element thickness in mm							
	100	120	140	160	180	200	220	240
2.50	5.64	6.77	7.90	9.02	10.15	11.28	12.41	13.54
3.00	5.31	6.37	7.43	8.49	9.55	10.62	11.68	12.74
3.50	5.04	6.05	7.06	8.07	9.08	10.08	11.09	12.10
4.00	4.82	5.79	6.75	7.72	8.68	9.65	10.61	11.58
4.50	4.63	5.56	6.49	7.42	8.35	9.27	10.20	11.13
5.00	4.47	5.37	6.27	7.16	8.06	8.95	9.85	10.75
5.50	4.33	5.20	6.07	6.94	7.81	8.67	9.54	10.41
6.00	4.21	5.05	5.90	6.74	7.58	8.43	9.27	10.11

Deflection  $f = l/400$

Load q [kN/m <sup>2</sup> ]	Element thickness in mm							
	100	120	140	160	180	200	220	240
2.50	5.12	6.15	7.17	8.20	9.22	10.25	11.28	12.30
3.00	4.82	5.79	6.75	7.72	8.68	9.65	10.61	11.58
3.50	4.58	5.50	6.41	7.33	8.25	9.16	10.08	11.00
4.00	4.38	5.26	6.13	7.01	7.89	8.76	9.64	10.52
4.50	4.21	5.05	5.90	6.74	7.58	8.43	9.27	10.11
5.00	4.06	4.88	5.69	6.51	7.32	8.13	8.95	9.76
5.50	3.94	4.73	5.51	6.30	7.09	7.88	8.67	9.46
6.00	3.82	4.59	5.36	6.12	6.89	7.65	8.42	9.19