

# Glulam Decking Elements



Engineered Wood Products represent a bold step forward, not only in terms of ease of use, excellent performance, and cost saving characteristics, but in the environmental credentials they offer to specifiers and end users who are increasingly required to prove the eco ratings of the buildings they construct.

The performance of Engineered Wood Products can be accurately predicted which means we can fine tune a design so that exactly the right amount of product is employed for any given situation.

Södra Wood is a leading supplier of Engineered Wood Products to the UK and Irish markets and has a wealth of experience in the storage, handling and distribution of these high-quality materials.

Glulam Decking Elements are used as both load bearing and non-load bearing components in floors and roofs

## YOUR BENEFITS

- Optimised panel sizes to suit your application
- Low thermal conductivity as well as predictable fire protection
- Cost savings in transportation and construction in comparison to heavier building materials
- Visual applications possible with no additional finishing necessary
- Ideal dimensions for maximising transport volumes
- Load bearing immediately after construction
- Cut-outs can be performed quickly
- High degree of pre-fabrication in the mill allows for shorter construction time
- Can be utilised for any building style or plan
- Applications in conventional house building as well as classic timber frame construction

Species	Nordic Spruce
Grade	GL24h and GL28c to EN 14080
Sorting	Machine stress graded to EN 14081
Lamella	≤ 45mm standard
Moisture	12% +/- 2% (at time of manufacture)
Bonding	Melamine Resin (clear glue line)
Surface	Visible or Industrial surface quality Each component should be specified for both upper and lower surface.

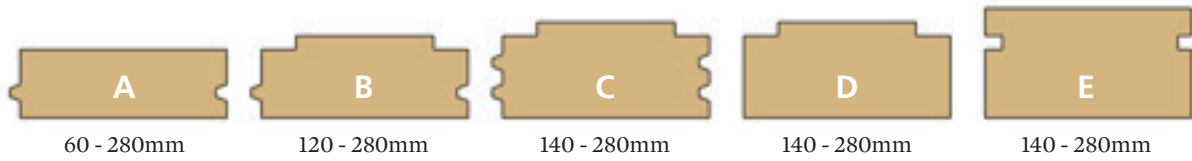
Decking elements offer the possibility to have a floor and ceiling as one.

Natural wooden flooring is visually appealing and when treated with the proper finish is mark resistant and easy to clean. You can design your visual ceiling with various types of eco-friendly varnishes or paint.

A natural renewable resource like wood is free of any health hazards and together with a low moisture content. Wood performs well in terms of environmental matters. Its CO<sub>2</sub> accumulating capacity is well known and in comparison to other construction materials has a much lower energy consumption level during manufacturing and construction.

## Product Range Availability

### EXAMPLE PROFILES AND THICKNESSES:



Laid width for profiles A to C are invoice width minus 15mm (tongue), laid width for profiles D and E are invoice width.

The standard invoice width is 725mm, however other widths are available from 200mm to 1000mm for either non-visual or visual products. Widths above 1000mm are only available in non-visual finish and only up to 240mm thickness.

Lengths supplied to suit the application and up to a maximum of 18m for an individual element either visual or non-visual. Lengths between 18m and 22m are possible but only available in non-visual finish and only up to 240mm thickness.

The actual lengths and widths of each panel can be optimised to suit the building dimensions and side boards are provided with an un-profiled edge.



## Technical Data

Lamella Thickness	Up to 45 mm according to EN 14080	
Fire Characteristics	Behaviour D-s2, d0 generally, Dfl-s1 when used as a floor covering Structural fire resistance 0.65mm/min in accordance with EN 1995-1-2	
Moisture content and movement coefficient	At time of manufacture, 12% +/- 2% to EN 14080 Perpendicular to direction of grain $\alpha_{u,90} = 0.13$ W/mK 90 = 0.24% per 1% change in moisture content Parallel to direction of grain $\alpha_{u,90} = 0.01\%$ per 1% change in moisture content	
Density	Depending on the strength class, approx. 480kg/m <sup>3</sup> to 500kg/m <sup>3</sup> on 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 (<0.1ppm)	
Service Classes (EN 1995-1-1)	Service class 1	heated interior
	Service class 2	roofed outdoor area

## Mechanical Properties

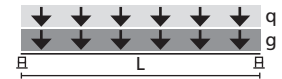
STRENGTH CLASS	TO EN 14080:2013			
		GL24H	GL28H	
Bending Strength	$f_{m,k}^{1)}$	N/mm <sup>2</sup>	24	28
Tensile Strength	$f_{t,0,k}$	N/mm <sup>2</sup>	19.2	22.3
	$f_{t,90,k}$	N/mm <sup>2</sup>	0.5	0.5
Compressive Strength	$f_{c,0,k}^{1)}$	N/mm <sup>2</sup>	24	28
	$f_{c,90,k}$	N/mm <sup>2</sup>	2.5	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, the values for bending strength and compressive strength parallel to grain direction can be multiplied by the system coefficient.

# Tables for preliminary design

## FOR FLOORS WITHOUT THE VERIFICATION OF VIBRATIONS FLOOR CLASS 3

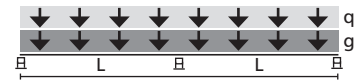
### SINGLE SPAN BEAM



g + q + p	PRODUCT DIMENSIONS									
	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

This table is only intended for preliminary design, full structural calculations are still required

### TWO-SPAN BEAM



g + q + p	PRODUCT DIMENSIONS									
	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

This table is only intended for preliminary design, full structural calculations are still required

### TABLE LIMITATIONS

- 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, vibrations 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 vibration, the loads can be increased by approximately 35%

### PRACTICAL INFORMATION

- Care should be taken to ensure that glulam decking panels are protected against extended periods of exposure to inclement weather. Swelling of moisture laden product can result in sideways movement in the floor/ceiling panels.
- Once installed, it is advisable to maintain a clear ventilation path around the panels in order to control the moisture content.
- Each decking element should be fixed in place at either end using appropriate screw or bolt fixings. Design of these is bespoke according to the need of the individual building and installation location.
- Where panels are jointed using strips of OSB (patterns B, C and D above), these should be screw fixed every 300mm along each panel.
- Panels will be fitted with either RAMPA® Sleeves or ASSY® Screws to enable lifting.
- Where multiple panels with one visual side are delivered, they are loaded with the visual side downwards except for the bottom panel which is turned so the visual face is upwards. This protects it during loading and unloading and means it needs to be turned on site.

Please contact us if you need any further information or have a specific project to discuss.

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