

# Design guide and span tables

## POLKKYgiant Resawn Glulam



Impregnated for weather exposure using Celcure© C4 (Brown)  
POLKKYgiant resawn glulam complies with the European standard EN  
14080 and is manufactured according to EN 386.

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## Introduction

The following span table guidelines has been developed in accordance with the following standards:  
EN 1990/AC:2010      EN 1991-1-1      EN 1995-1-1:2004/A2:2014

All tables have been calculated with Statcon 2015.2 SP1 software by Consultec according to Eucode.

This guide contains span tables for a number of common uses of Glulam beams, such as floor joists, roof beams, rafters, lintels and posts.

All tables have been calculated to EU standards as EU standard quality timber has been used. Eu standards are very conservative in their assumptions thus giving the user of the these Polkky Glulam tables the confidence to choose the right timber dimensions for the job at hand.

These tables are to be used as a guideline for builder, architects and engineers to quickly find the right dimension and efficient solutions for a Glulam structure.

For each structure, a number of common scenarios are presented regarding loading, length and spans.

## Production

<b>Wood species</b>	Nordic spruce ( <i>Picea abies</i> ) and Nordic pine ( <i>Pinus sylvestra</i> )	
<b>Strength classes</b>	GL28c and GL30c (These are EU standard classes)	
<b>Adhesives</b>	PUR (polyurethane), light glue for outside use	
<b>Standard lengths</b>	3.6, 4.2, 4.8, 5.4, 6.0, 6.6, 7.2m	
<b>Profile</b>	Eased	
<b>Reaction to fire</b>	D-s2, d0 [EN 13501-1]	
<b>Weatherproof class</b>	Beams-Use Class (UC) 3	NWPC: Class AB 20 kg per m3
	Posts-Use Class (UC) 4	NWPC: Class A 26 kg per m3
	Treated in accordance with EN BS351-1:2007 and EN335	
<b>Tolerances</b>	+/- 2mm	
<b>Moisture content</b>	8-15%	

## Technical Data

STRENGTH VALUES N/mm <sup>2</sup>	GL28c	GL30c
Bending, $f_{mk}$	28	30
Tension parallel II, $f_{t,0,k}$	16,5	20
Tension perpendicular, $f_{t,90,k}$	0,4	0,5
Compression parallel II, $f_{c,0,k}$	24	25
Compression perpendicular, $f_{c,90,k}$	2,7	3
Shear modulus, $f_{v,k}$	2,7	3,5
Modulus of elasticity E, $E_{0,mean}$	12600	13000
Density kg/m <sup>3</sup> , $\rho_k$	380	390

### Beam sizes and properties

Beam size [BxD]	Nominal section area [10 <sup>3</sup> mm <sup>2</sup> ]
35x70	2,45
35x90	3,15
35x120	4,2
35x140	4,9
35x190	6,65
45x90	4,05
45x140	6,3
45x190	8,55
45x240	10,8
45x290	13,05
70x90	6,3
70x140	9,8
70x190	13,3
70x240	16,8
70x290	20,3
70x340	23,8

### Post sizes and properties

Beam size [BxD]	Nominal section area [10 <sup>3</sup> mm <sup>2</sup> ]
90x90	8,1
115x115	13,23
140x140	19,6
190x190	36,1

## Design criterias

### Design loads

Dead loads kg/m <sup>2</sup>	[kg/ m <sup>2</sup> ]
Sheet roof with ceiling	40
Tiled roof with ceiling	75
Timber floor with floor boards	40
Tiled or heavy floors	95

Live loads kg/m <sup>2</sup>	[kg/ m <sup>2</sup> ]
Floor (domestic)	200
Floor (domestic) point loads	200 [kg]

### Duration loads and service class

Load type	Duration	Example
Permanent	>10 years	Dead loads
Medium	1 week - 6 months	Live loads
Short	< 1 week	Wind loads

Span tables for all built-in timber are designed to service class 2. Veranda post and beams is designed as service class 3, any modification if these settings requires advice from an engineer.

### Deflection limits applied

Member	Live load	Total load
Roof beams	L/350	L/300 or 20mm
Roof rafters	L/250	L/200 or 20mm
Floor bearers	L/200	L/300 or 20mm
Floor joists	L200	L/300 or 20mm
Cantilevers	L/250	L200

### Instant deflection limits applied

Limit of instant deflection for a single floor joists is 1,5mm when adding an instant point load of 1,0kN.

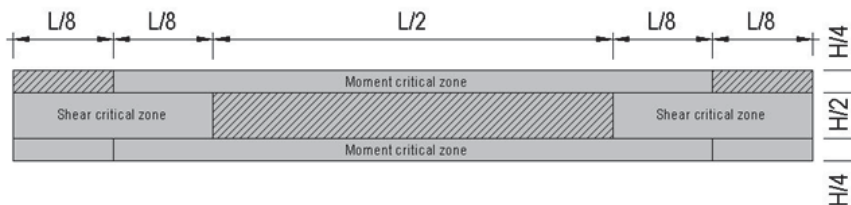
## Handling and protection

### Moisture

Timber in contact with soil or concrete needs to be separated from ground or with a waterproof membrane.

### Holes in beams

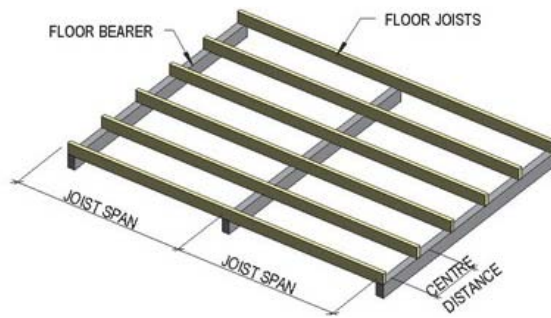
Hole in beams reduced the capacity and strength of the beam. If any uncertainty's, always contact an engineer to assure capacity of the beam for specific situation. In general, holes should be placed in areas where the member is stressed to less than 50%. See picture below for possible positions for holes.



### Termite barriers

All exterior timber needs to be protected from termites, by treatment or well-planned detailing to avoid any damage of the timber.

## FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY



### Floor types and self weight

#### Floor type 1 - 40kg/m<sup>2</sup>

Timber floor with floor boards.

#### Floor type 2 - 95kg/m<sup>2</sup>

Tiled floors or heavier floor.

**Table 1. Single span floor joists. Glulam quality GL28c.**

**Loading:** Dead load + live load (domestic acc. to EN1990 = 2,0kN/m<sup>2</sup>, point load = 2,0kN).

**Bracing:** High, slim beams require full bracing (beams marked \* in table).

**Deflection:** L/300 or 20mm on total loading.

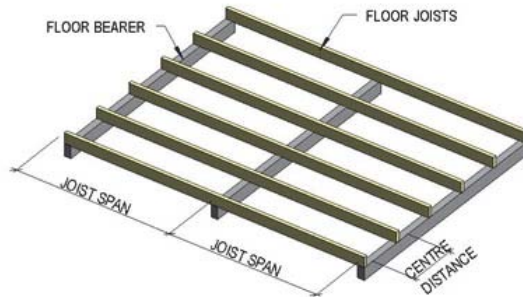
**Instant deflection:** 1,5mm limit for loading of 1kN point load, using 22mm wood floor.

To increase span length: reduce centre distances or add bracing.

**Support lengths:** In general, less than 45mm. Joists marked “/” requires at least 60mm support length

Spacing	Floor type 1 - [40kg/m <sup>2</sup> ]				Floor type 2 - [95kg/m <sup>2</sup> ]			
	s300	s450	s600	s900	s300	s450	s600	s900
<b>Member size BxD</b>	<b>Maximum allowed span - single spans [mm]</b>							
35x120	2400	2150	1950	1700	2250	2000	1800	1500
35x140	2700	2550	2300	2000	2650	2300	2100	1750
35x190	3500	3450*	3100*	2700*	3500*	3100*	2850*	2400*
45x140	2900	2750	2500	2220	2900	2500	2300	2000
45x190	3700	3750	3400	2950	3700	3400	3100	2700
45x240	4550	4700*	4250*	3700*	4550	4300*	3900*	3400*/
45x290	5300	5600*	5150*	4500*/	5350*	5150*	4700*/	4100*/
70x90	2200	2050	1850	1600	2150	1900	1700	1500
70x140	3150	3200	2900	2550	3150	2900	2650	2300
70x190	4100	4300	3950	3400	4100	3950	3600	3150
70x240	5000	5250	4950	4300	5000	4950	4500	3950
70x290	5900	6150	5950	5200	5900	5900	5450	4700
70x340	6750	6700	6600	6000*/	6800	6700	6200	5500*/

## FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY



### Floor types and self weight

#### Floor type 1 - 40kg/m<sup>2</sup>

Timber floor with floor boards.

#### Floor type 2 - 95kg/m<sup>2</sup>

Tiled floors or heavier floor.

**Table 2. Continuous span floor joists. Glulam quality GL28c.**

**Loading:** Dead load + live load (domestic acc. to EN1990 = 2,0kN/m<sup>2</sup>, point load = 2,0kN).

**Bracing:** High, slim beams require full bracing (beams marked \* in table).

**Deflection:** L/300 or 20mm on total loading.

**Instant deflection:** 1,5mm limit for loading of 1kN point load, using 22mm wood floor. To increase span length: reduce centre distances or add bracing.

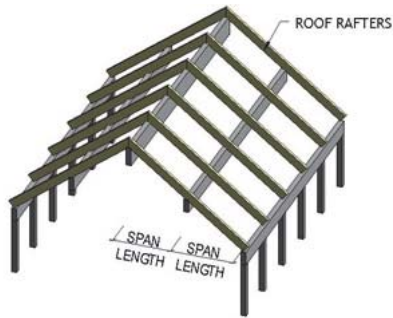
**End support lengths:** End supports is less than 45mm for all of the below.

**Internal support length:** Joists marked "/" requires up to 90mm length. Joists marked "/" requires up to 135mm.

Spacing	Floor type 1 - [40kg/m <sup>2</sup> ]			Floor type 2 - [95kg/m <sup>2</sup> ]		
	s300	s450	s600	s300	s450	s600
<b>Member size BxD</b>	<b>Maximum allowed span - between bearers [mm]</b>					
35x120	2400	2500/	2200/	2400	2300/	1800/
35x140	2750	2850*/	2550*/	2750	2750*/	2100*/
35x190	3500	3700*/	3400*/	3500*/	3700*/	2850*/
45x140	2900	3050	2900/	2900	3000/	2700/
45x190	3700/	3900/	3900*/	3700	3900*/	3650*/
45x240	4550/	4750*/	4900**	4550/	4750*/	4500**
45x290	5350/	5600*/	5750**	5300*/	5600**	5500**
70x90	2200	2350	2150	2200	2250	2050
70x140	3150	3350	3350	3150	3350	3100/
70x190	4050	4300	4400/	4100	4300/	4300/
70x240	5000	5250/	5400/	5000	5250/	5400/
70x290	5900	6150/	6350/	5850/	6150/	6200**
70x340	6750/	6700/	6600/	6800/	7050*/	7100**



## ROOF RAFTERS 38° SUPPORTING ROOF LOADS ONLY



### Roof types and self weight

**Roof type 1 - 40kg/m<sup>2</sup>**  
Sheet roof with ceiling

**Roof type 2 - 75kg/m<sup>2</sup>**  
Tiled roof with ceiling

**Table 3. Roof rafters single and continuous span. Glulam quality GL28c.**

**Dead load:** Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>. **Windspeed:** 30m/s or class N1. **Terrain type:** Category 2.

**Deflection:** L/200 or 20mm on total loading.

**Stabilization:** All rafters are designed without stabilization.

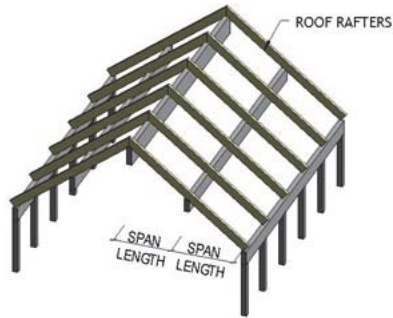
**Span length:** Horizontal measurements.

**Overhangs:** Overhangs need to be strengthened to meet deflection requirements.

**End support lengths:** Less than 45mm. **Internal support lengths:** Rafters marked “/” requires 70mm support length.

Roof load width [mm]		450	600	900	1200	450	600	900	1200
Member size	BxD	Maximum single span [mm]				Maximum continuous span [mm]			
35x120	0,40	2600	2400	2050	1900	3150	2900	2500	2200
	0,75	2300	2100	1800	1600	2800	2550	2200	1950
35x140	0,40	3050	2750	2400	2200	3400	3100	2700	2450
	0,75	2700	2450	2100	1900	3000	2700	2350	2100/
35x190	0,40	3800	3450	3050	2750	3800	3500	3050	2800/
	0,75	3500	3200	2800	2550	3350	3050	2700/	2450/
45x140	0,40	3300	3000	2600	2400	4200	3850	3300	2950
	0,75	2900	2650	2300	2100	3750	3400	2900	2600
45x190	0,40	4300	4000	3550	3200	4800	4400	3850	3500/
	0,75	3900	3600	3150	2850	4250	3850	3400	3050/
45x240	0,40	5100	4700	4200	3800	5200	4800	4200	3850/
	0,75	4600	4300	3850	3500	4600	4200	3700/	3350/
45x290	0,40	5500	5000	4450	4000	5550	5050	4500/	4100/
	0,75	5100	4650	4100	3750	4850	4450	3900/	3550/
70x140	0,40	3750	3400	3050	2750	4700	4400	4000	3700
	0,75	3300	3050	2700	2450	4300	4050	3600	3250
70x190	0,40	4750	4450	4050	3750	5800	5500	5000	4650
	0,75	4350	4000	3600	3300	5350	5050	4550	4250/
70x240	0,40	5600	5250	4800	4500	6900	6500	5900	5500/
	0,75	5100	4800	4350	4100	6400	6000	5450/	5000/
70x290	0,40	6400	6000	5500	5150	7900	7500	6800/	6250/
	0,75	5900	5550	5050	4700	7250	6700	5950/	5400/
70x340	0,40	7200	6750	6200	5800	8700	8100	7200/	6550/
	0,75	6600	6200	5650	5250	7600	7000	6250/	5700/

## ROOF RAFTERS 32,5° SUPPORTING ROOF LOADS ONLY



### Roof types and self weight

**Floor type 1 - 40kg/m<sup>2</sup>**

Sheet roof with ceiling

**Floor type 2 - 75kg/m<sup>2</sup>**

Tiled roof with ceiling

**Table 4. Roof rafters single and continuous span. Glulam quality GL28c.**

**Dead load:** Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>. **Windspeed:** 30m/s or class N1. **Terrain type:** Category 2.

**Deflection:** L/200 or 20mm on total loading.

**Stabilization:** All rafters are designed without stabilization.

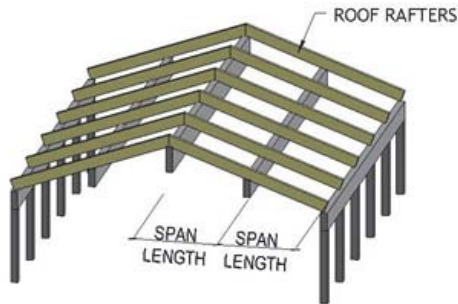
**Span length:** Horizontal measurements.

**Overhangs:** Overhangs need to be strengthened to meet deflection requirements.

**End support lengths:** Less than 45mm. **Internal support lengths:** Rafters marked “/” requires 70mm support length.

Roof load width [mm]		450	600	900	1200	450	600	900	1200
Member size BxD	Roof mass [kN/m <sup>2</sup> ]	Maximum single span [mm]				Maximum continuous span [mm]			
		35x120	0,40	2800	2550	2250	2000	3400	3050
	0,75	2450	2250	1950	1800	3000	2700	2300	2050
35x140	0,40	3300	2950	2600	2400	3600	3300	2850	2550
	0,75	2900	2600	2300	2100	3200	2900	2500	2250/
35x190	0,40	4000	3650	3200	2900	4050	3700	3250	2950/
	0,75	3700	3350	2950	2700	3550	3250	2850/	2600/
45x140	0,40	3550	3200	2850	2600	4500	4050	3500	3150
	0,75	3150	2850	2450	2250	4000	3600	3100	2800/
45x190	0,40	4550	4250	3800	3450	5100	4650	4100	3700
	0,75	4150	3800	3350	3050	4500	4150	3600/	3250//
45x240	0,40	5400	5000	4450	4050	5500	5100	4450	4050/
	0,75	4900	4600	4050	3700	4850	4450	3900/	3600/
45x290	0,40	5850	5350	4700	4300	5850	5350	4750	4300/
	0,75	5400	4900	4300	3950	5150	4750	4150/	3800/
70x140	0,40	4050	3750	3300	3000	5000	4700	4250	3950
	0,75	3600	3250	2900	2650	4550	4250	3850	3500
70x190	0,40	5000	4700	4300	4000	6200	5850	5300	4950
	0,75	4600	4250	3850	3500	5700	5350	4850	4500/
70x240	0,40	5950	5550	5100	4750	7350	6900	6300	5900/
	0,75	5450	5100	4650	4350	6750	6350	5750/	5300/
70x290	0,40	6750	6350	5850	5450	8350	7900	7200/	6500/
	0,75	6250	5850	5300	4950	7700	7150	6300/	5750/
70x340	0,40	7600	7100	6550	6150	9250	8500	7500/	6900/
	0,75	7000	6550	5950	5600	8050	7450	6650/	6100/

## ROOF RAFTERS 20° SUPPORTING ROOF LOADS ONLY



### Roof types and self weight

**Floor type 1 - 40kg/m<sup>2</sup>**  
Sheet roof with ceiling

**Floor type 2 - 75kg/m<sup>2</sup>**  
Tiled roof with ceiling

**Table 5. Roof rafters single and continuous span. Glulam quality GL28c.**

**Dead load:** Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>. **Windspeed:** 30m/s or class N1. **Terrain type:** Category 2.

**Deflection:** L/200 or 20mm on total loading.

**Stabilization:** All rafters are designed without stabilization.

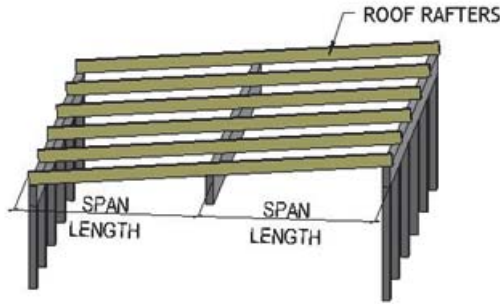
**Span length:** Horizontal measurements.

**Overhangs:** Overhangs need to be strengthened to meet deflection requirements.

**End support lengths:** Less than 45mm. **Internal support lengths:** Rafters marked “/” requires 70mm support length.

Roof load width [mm]		450	600	900	1200	450	600	900	1200
Member size BxD	Roof mass [kN/m <sup>2</sup> ]	Maximum single span [mm]				Maximum continuous span [mm]			
35x120	0,40	3400	3100	2750	2500	4100	3750	3250	2900
	0,75	2950	2650	2300	2100	3300	3000	2550	2300
35x140	0,40	3900	3650	3200	2900	4350	4000	3500	3150
	0,75	3400	3100	2700	2450	3550	3250	2800	2500/
35x190	0,40	4900	4500	4000	3450	4800	4400	3900	3550
	0,75	4100	3750	3300	3000	3950	3650	3200/	2900/
45x140	0,40	4200	3800	3450	3150	5200	4900	4650	3900
	0,75	3700	3350	2950	2650	4450	4000	3450	3050/
45x190	0,40	5250	4950	4450	4150	6100	5600	4950	4500
	0,75	4700	4250	3950	3650	5050	4600	4050/	3650/
45x240	0,40	6200	5750	5300	4950	6500	6000	5350	4900
	0,75	5450	5100	4550	4150	5450	5000	4400/	4000/
45x290	0,40	7000	6500	5800	5300	6850	6350	5650	5200/
	0,75	5950	5450	4800	4350	5750	5300	4650/	4250/
70x140	0,40	4600	4350	4000	3650	5800	5400	4950	4600
	0,75	4150	3900	3400	3100	5200	4850	4400	4100
70x190	0,40	5800	5450	4950	4600	7100	6750	6150	5750
	0,75	5150	4800	4400	4100	6450	6050	5500	5100/
70x240	0,40	6850	6400	5900	5500	8500	8000	7250	6800
	0,75	6050	5750	5250	4900	7650	7100	6450/	5900/
70x290	0,40	7800	7300	6700	6300	9650	9100	8350	7850/
	0,75	7000	6550	6050	5600	8650	8000	7100/	6450/
70x340	0,40	8700	8200	7550	7100	10500	9800	8900	8200/
	0,75	7900	7350	6750	6350	9000	8350/	7450/	6800/

## ROOF RAFTERS 5° SUPPORTING ROOF LOADS ONLY



### Roof types and self weight

**Floor type 1 - 40kg/m<sup>2</sup>**  
Sheet roof with ceiling

**Floor type 2 - 75kg/m<sup>2</sup>**  
Tiled roof with ceiling

**Table 6. Roof rafters single and continuous span. Glulam quality GL28c.**

**Dead load:** Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>. **Windspeed:** 30m/s or class N1. **Terrain type:** Category 2.

**Deflection:** L/200 or 20mm on total loading.

**Stabilization:** All rafters are designed without stabilization.

**Span length:** Horizontal measurements.

**Overhangs:** Overhangs need to be strengthened to meet deflection requirements.

**End support lengths:** Less than 45mm. **Internal support lengths:** Rafters marked “/” requires 80mm support length.

Roof load width [mm]		450	600	900	1200	450	600	900	1200
Member size BxD	Roof mass [kN/m <sup>2</sup> ]	Maximum single span [mm]				Maximum continuous span [mm]			
35x120	0,40	4000	3600	3250	2900	4400	4000	3500	3100
	0,75	3300	3000	2600	2400	3550	3200	2750	2400/
35x140	0,40	4500	4150	3700	3400	4650	4300	3750	3400
	0,75	3800	3500	3000	2700	3800	3500	3000	2700/
35x190	0,40	5200	4750	4150	3800	5200	4750	4200	3850
	0,75	4300	3900	3400	3100	4300	3900	3400	3150/
45x140	0,40	4750	4450	4050	3700	5800	5300	4650	4150
	0,75	4100	3800	3300	3000	4700	4250	3650	3250/
45x190	0,40	5900	5500	5000	4700	6500	6000	5350	4850
	0,75	5100	4800	4300	3900	5450	5000	4350/	3900/
45x240	0,40	6850	6400	5750	5250	7000	6500	5750	5250
	0,75	5850	5350	4750	4300	5850	5400	4750/	4350/
45x290	0,40	7350	6750	6050	5550	7400	6800	6100	5600/
	0,75	6200	5650	5000	4600	6150	5700	5000/	4600/
70x140	0,40	5200	4900	4450	4200	6450	6100	5500	5200
	0,75	4550	4200	3850	3500	5650	5300	4800	4400
70x190	0,40	6450	6100	5600	5200	8000	7500	6900	6450
	0,75	5600	5300	4850	4500	7000	6600	6000	5500
70x240	0,40	7550	7200	6600	6200	9400	8900	8200	7700
	0,75	6700	6250	5750	5350	8300	7800	7000/	6300/
70x290	0,40	8600	8100	7550	7100	10700	10100	9200	8400/
	0,75	7600	7200	6600	6150	9300	8600/	7600/	6900/
70x340	0,40	9600	9100	8400	7900	11200	10500	9600	8800/
	0,75	8500	8000	7400	6900	9600	9000/	8000/	7300/

## RIDGE BEAM AND INTERMEDIATE ROOF BEAM

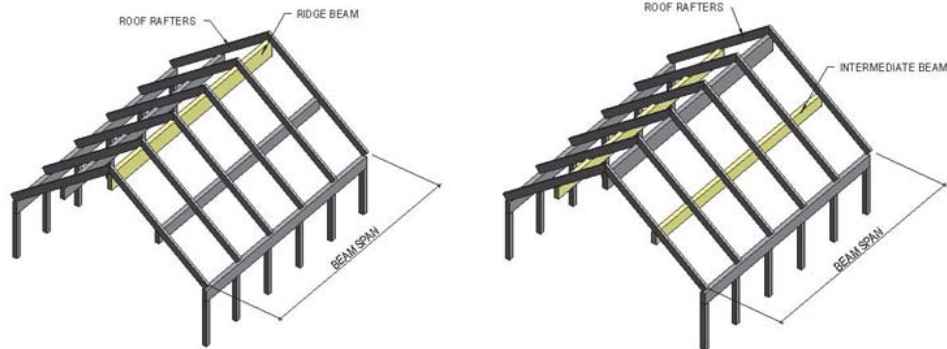


Table 7. Ridge beams and intermediate roof beams. Glulam quality GL28c.

**Dead load:** Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>.

**Windspeed:** 30m/s or class N1. **Terrain type:** Category 2.

**Deflection:** L/300 or 20mm on total loading.

**Support lengths:** In general, less than 45mm. Beams marked "/" requires 80mm support length.

Roof load width [mm]		1800	2400	3000	3600	4200	4800	5400	6000	6600
Member size	BxD	Roof mass [kN/m <sup>2</sup> ]								
		Maximum single span [mm]								
45x140	0,40	2700	2450	2250	2100	2000	1900	1850	1750	1700
	0,75	2200	2000	1850	1750	1500	-	-	-	-
45x190	0,40	3650	3300	3050	2850	2750	2600	2500	2400	2300
	0,75	3000	2750	2500	2350	2050	1800	1600	-	-
45x240	0,40	4550	4150	3850	3650	3450	3300	3150/	3050/	2900/
	0,75	3800	3400	3150/	2950/	2600/	2300/	2050	1850/	1650/
45x290	0,40	4900	4500	4200	3950	3750	3600/	3450/	3350/	3200/
	0,75	4000	3700	3400/	3200/	3050/	2750/	2450/	2200/	2000/
70x140	0,40	3100	2850	2600	2450	2350	2250	2150	2050	1950
	0,75	2600	2350	2150	2050	1950	1850	1750	1650	1500
70x190	0,40	4200	3800	3550	3350	3150	3050	2900	2800	2650
	0,75	3500	3200	2950	2750	2600	2500	2400	2200	2000
70x240	0,40	5250	4750	4500	4200	4000	3800	3700	3550	3400
	0,75	4400	4000	3700	3500	3300	3150/	3050/	2850/	2600/
70x290	0,40	6200	5750	5400	5050	4800	4600	4400	4250	4100
	0,75	5300	4800	4500	4200/	4000/	3800/	3650/	3450/	3150/
70x340	0,40	7000	6500	6200	5850	5600	5400/	5200/	5000/	4850/
	0,75	6100	5650	5250/	4950/	4700/	4500/	4300/	4100/	3700/

## VERANDA BEAM SINGLE SPAN

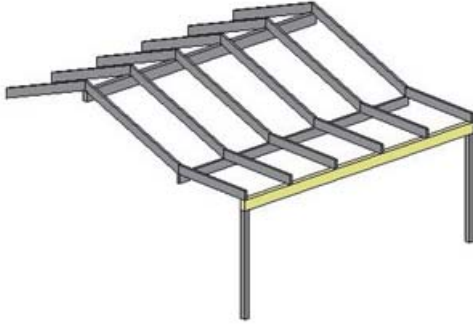


Table 8. Veranda beams single span. Glulam quality GL28c.

Dead load: Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>.

Windspeed: 30m/s or class N1. Terrain type: Category 2.

Deflection: L/300 or 20mm on total loading.

Support lengths: In general, less than 45mm. Beams marked "/" requires 80mm support length.

Spans: Maximum span represents each span.

Roof load width [mm]		1500	2400	3000	4500	5000	6000
Member size BxD	Roof mass [kN/m <sup>2</sup> ]	Maximum single span [mm]					
35x120	0,40	2250	1900	1750	1550	1500	-
	0,75	1850	1600	-	-	-	-
35x140	0,40	2600	2250	2050	1800	1750	1550
	0,75	2150	1850	1650	-	-	-
35x190	0,40	3350	3000	2800	2450	2300	2100
	0,75	2900	2450	2250	1500	-	-
45x140	0,40	2850	2400	2250	1950	1900	1750
	0,75	2350	2000	1850	-	-	-
45x190	0,40	3850	3300	3050	2650	2550	2400
	0,75	3200	2750	2550	1900	1750	-
45x240	0,40	4800	4150	3850	3350	3200	3050/
	0,75	4000	3400	3150/	2400/	2200/	1800/
45x290	0,40	5200	4450	4200	3650	3550/	3350/
	0,75	4250	3650	3400/	2850/	2600/	2200/
70x140	0,40	3300	2800	2600	2300	2200	2050
	0,75	2750	2350	2150	1900	1800	1650
70x190	0,40	4400	3850	3500	3100	3000	2800
	0,75	3750	3200	2950	2550	2450	2200
70x240	0,40	5500	4800	4500	3900	3750	3500
	0,75	4700	4000	3700	3200/	3100/	2800/
70x290	0,40	6500	5750	5350	4650	4500	4300
	0,75	5600	4850	4500	3900/	3750/	3400/
70x340	0,40	7250	6500	6150	5500	5250/	5000/
	0,75	6400	5700/	5250/	4600/	4400/	4000/

## VERANDA BEAM CONTINUOUS SPAN

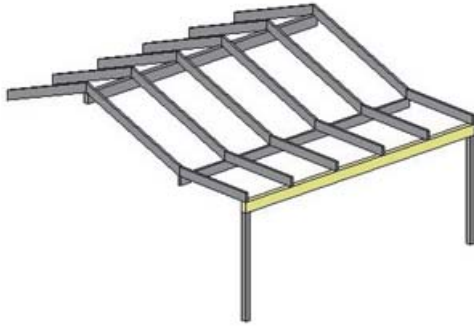


Table 9. Veranda beams continuous span. Glulam quality GL28c.

Dead load: Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>.

Windspeed: 30m/s or class N1. Terrain type: Category 2.

Deflection: L/300 or 20mm on total loading.

Internal support lengths: Beams marked “/” requires up to 90mm length. Beams marked “//” requires up to 135mm.

Roof load width [mm]		1500	2400	3000	4500	5000	6000
Member size BxD	Roof mass [kN/m <sup>2</sup> ]	Maximum span [mm]					
35x120	0,40	2850	2400/	2100/	-	-	-
	0,75	2200/	-	-	-	-	-
35x140	0,40	3150	2650/	2400/	1600/	1500/	-
	0,75	2450/	1650/	-	-	-	-
35x190	0,40	3600/	3100/	2850/	2250/	2050/	1700/
	0,75	2900/	2250/	1800/	-	-	-
45x140	0,40	3800	3200/	2850/	2100/	1900/	1600/
	0,75	3000/	2100/	1650/	-	-	-
45x190	0,40	4500/	3800/	3500/	2750/	2550/	2150/
	0,75	3600/	2750/	2300/	1550/	-	-
45x240	0,40	4900/	4250/	3950/	3400//	3200//	2750//
	0,75	4050/	3400//	2850//	1950//	1800//	1500//
45x290	0,40	5200/	4500/	4200/	3700//	3550//	3300//
	0,75	4300/	3650//	3400//	2350//	2100//	1800//
70x140	0,40	4400	3750	3500	3000/	2800/	2450/
	0,75	3600	2950/	2500/	1750/	1600/	-
70x190	0,40	5800	5000/	4700/	4100/	3800/	3250/
	0,75	4900/	4000/	3400/	2400/	2200/	1800/
70x240	0,40	7000/	6000/	5400/	4800//	4650//	4100//
	0,75	5800/	4700//	4300//	3000//	2700//	2250//
70x290	0,40	7700/	6600/	6100/	5400//	5200//	4900//
	0,75	6400/	5350//	5000//	3600//	3300//	2750//
70x340	0,40	8300/	7000/	6500/	5800//	5600//	5100//
	0,75	6800/	5800//	5400//	3800//	3350//	2800//

## LINTEL BEAM



Table 10. Lintel beams with only roof loads, upper or single floor. Glulam quality GL28c.

Dead load: Roof type 1: 0,40kN/m<sup>2</sup>. Roof type 2: 0,75kN/m<sup>2</sup>.

Windspeed: 30m/s or class N1. Terrain type: Category 2.

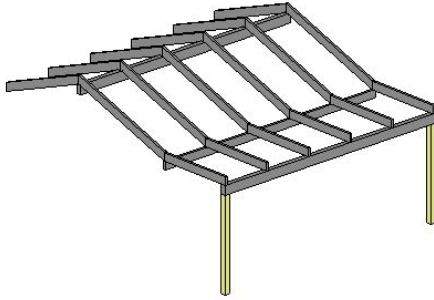
Deflection: L/300 or 10mm on total loading, due to deflection on top of windows or doors.

Support lengths: In general, less than 45mm. Beams marked "/" requires 80mm support length.

Roof load width [mm]		1500	2400	3000	4500	5000	6000
Member size	BxD	Maximum single span [mm]					
	Roof mass [kN/m <sup>2</sup> ]						
35x120	0,40	2450	1900	2050	-	-	-
	0,75	1850	1600	-	-	-	-
35x140	0,40	2750	2250	2300	1800	1700	-
	0,75	2150	1850	1600	-	-	-
35x190	0,40	3400	3000	3850	2400	2300	2100
	0,75	2900	2450	2200	1500	-	-
45x140	0,40	2900	2400	2250	1950	1900	1750
	0,75	2350	2000	1850	-	-	-
45x190	0,40	3600	3200	3050	2650	2500	2400
	0,75	3200	2750	2650	1900	1700	-
45x240	0,40	4300	3900	3650	3300	3200	3050/
	0,75	3800	3300	3100/	2400/	2100/	1800/
45x290	0,40	4900	4450	4200	3650	3550/	3350/
	0,75	4250	3650	3400/	2800/	2500/	2200/
70x140	0,40	3250	2800	2750	2300	2200	2050
	0,75	2800	2350	2200	1900	1800	1650
70x190	0,40	4100	3600	3450	3100	3000	2800
	0,75	3550	3100	2900	2550	2450/	2200
70x240	0,40	4850	4300	4000	3700	3600	3400
	0,75	4200	3700	3550	3150/	3000/	2750/
70x290	0,40	5500	4900	4700	4250	4100	3950
	0,75	4800	4300	4050	3600/	3500/	3300/
70x340	0,40	6250	5600	5300	4800	4600	4400/
	0,75	5400	4900	4600/	4050/	3900/	3700/



## FREE STANDING POSTS



**Table 11. Veranda post or similar, free standing posts. Glulam quality GL28c.**

**Dead load:** Table values represent characteristic vertical load [kN] on top of column.

**Windspeed:** Wind pressure only on post width. **Wind speed:** 30m/s or class N1. **Terrain type:** Category 2.

**Deflection:** L/300 or depending on case/ post length.

Unconnected post height [mm]	2500	4000	5000	6000	7000	8000
Member size BxD	Maximum allowed point load [kN]					
90x90	25	10	6,5	4,2	3	2,1
115x115	63	27	17	12	8,5	6,3
140x140	120	58	38	26	19	14
190x190	250	175	125	90	65	50