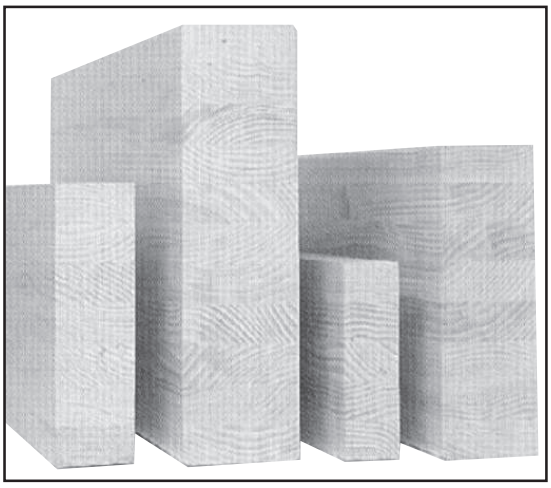
NEW ZEALAND GLULAM SPAN TABLES

The Glulam Span Tables have been developed primarily for domestic applications in accordance with NZS3603 "Timber Structures Standard" and with the joint AS/NZS 1328:1998 standard "Glue Laminated Structural Timbers"

The purpose of these tables is to make it easier for builders, draughtsmen, architects and engineers to come up with a quick and accurate design for Glulam beams. These cover the most common domestic uses for Glulam beams – roof beams, rafters, ridges, lintels and floor beams. At a glance designers and builders will be able to find the correct size of beams for a variety of spans at various spacings and loadings.



Published New Zealand Pine Manufacturers Association – 2008

PINE
Manufacturers

Acknowledgement:
Appreciation is extended to McIntosh Timber Laminates Ltd,
Timberbond Industries (NZ) Ltd
and Hunters (1998) Ltd
for their assistance in the development of these tables.

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Producer Statement

Glulam Span Tables

The span tables and details in this brochure for glue laminated beams (Glulam) have been designed in accordance with sound and widely accepted engineering principles.

The calculation and computation of these span tables was undertaken by Holmes Consulting Group Structural and Civil Engineers.

The design properties of glue laminated timber in this brochure were determined in accordance with clauses 2.2 and C2.3 of NZS 3603: "Timber Structures Standard".

Laminated timber is a product certified by the Standards of New Zealand as being manufactured in accordance with the joint New Zealand/Australian Standard AS / NZS 1328:1998. Product should be obtained from manufacturers holding a current licence under the inspection scheme administered by the NZ Timber certification Board. The list of manufacturers licensed to AS/NZS 1328.1 – 1998 "Glue Laminated Structural Timbers" is tabled on page 71 of this publication. Under this system all manufacturers are certified by the New Zealand Timber Certification Board, audited six-monthly and independently assessed and issued a licence number by Bureau Veritas. This process entitles approved manufacturers to display the 'S' mark on all product.

Product Liability for any loss incurred through non-performance would rest with the licenced manufacturer and the certifying authority.
Structural design is in agreement with NZS 3603 (verification method B1 / VM1, 6.1 and NZS 4203 (Verification method B1 / VM1,2.2) with loads and deflection criteria as indicated on the tables.
Seviceability and other criteria were selected using NZS 4203 (Verification method B1 / VM1,2.2), (Acceptable solution B1 / AS1,4.1).
When installed in accordance with the specifications, details and limitations in this brochure, glue laminated timber members will comply with the requirements of the New Zealand Building Code.

Bruce Black
National Manager
Holmes Consulting Group

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INTRODUCTION

Glued laminated timber or Glulam is a strong, engineered, structural product, well proven in New Zealand building and construction for over 40 years and internationally for much longer. It was first used in 1893 to construct an auditorium in Basel, Switzerland. Now Glulam is gaining renewed popularity because of its many benefits to the designer, builder and end user.

Ongoing research ensures that Glulam is designed to work better than ever in a host of construction applications.

Increased design values have expanded design capabilities and improved performance. The new Bureau Veritas administered quality standards are internationally recognised and more performance based. This gives even greater assurance of long-term serviceability and performance meeting design.
There are many reasons for using Glulam for your project from versatility to environmental reasons, to cost effectiveness.

Unmatched versatility. Glulam has greater strength, stability and stiffness than dimensional timber and can be produced in uniform or varying depths to give strength where it is required. Lengths, dimensions and shapes can be produced almost without limit, making Glulam unsurpassed in its versatility.

The solution for large open spaces is found in the strength and simplicity of Glulam roof frames.

Three-story post and beam structure creates a unique feature demonstrating timber's natural strength and design possibilities.

Appearance, aesthetics. Glue-laminated structural timber products are usually specified for the beauty as well as for strength. The natural aesthetic qualities of Glulam allow the structural elements of a building to be exposed for architectural effect. This combined with the natural warmth and timeless appeal of exposed timber make Glulam ideal for any application requiring an appealing and architecturally interesting structure.

Lightweight. Weight for strength, a Glulam beam is stronger than both steel and concrete. This means that Glulam beams can span very long distances with minimal intermediate support required. Dependent upon specific loading conditions a steel beam may be 20% heavier and a reinforced concrete beam 600% heavier than an equivalent Glulam beam for carrying the same load. The resulting lighter structure can lead to significant economies in foundation construction.

Consistency of Performance. The process of glue laminating timber eliminates the natural performance variations that characterise solid sawn timber. As Glulam beams are engineered wood products that are manufactured to meet specific performance criteria, the specifier and user can be assured that Glulam products will consistently perform as expected.

Ease of installation. When it comes to installation existing, traditional skills can be used and builders who are confident in working with timber easily handle Glulam products. Other sub trades find timber easier and quicker to connect to. As a consequence, erection times are significantly reduced in Glulam structures.

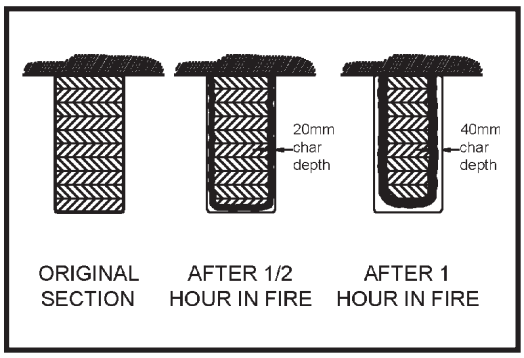
Environment. Glulam uses the World's most prolific renewable construction material. In Canada and New Zealand (where Pinus Radiata grows fastest), trees are growing faster than they are being consumed to build houses and the available plantation pine is increasing dramatically. For their load carrying capability, Glulam beams are very efficient to produce. The energy required to produce a glue-laminated beam from the log is only a fraction of the energy required to produce steel from ore or concrete from limestone.
Using Glulam in fact contributes to a positive storage of carbon compared to the large amount of carbon emission resulting from the production of steel. All round, the production of Glulam has the least effect on the environment by far.

INTRODUCTION

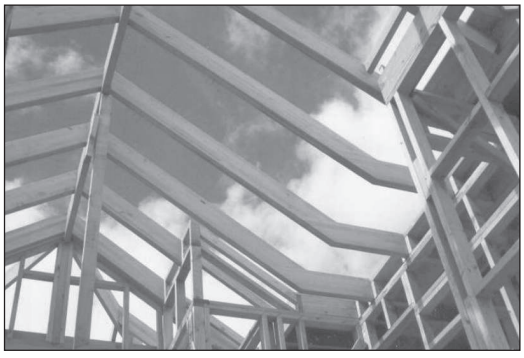
Fire resistance. When exposed to the heat of a fire, timber undergoes a thermal breakdown (pyrolysis) into combustible gases, and a layer of charcoal forms on the burning surface. Glue laminated timber burns slowly and at a predictable rate, and as such fire design techniques can be relatively easily applied. When large cross-sections are subjected to a fire a char forms around the outside of the beam that protects the core by restricting the oxygen supply. There have been examples of portal frame buildings that have effectively burnt down leaving only the charred portal frame. The portal frames were then cleaned and, after engineers' inspection, the structure rebuilt on the existing Glulam.

Harsh environments. Timber is naturally resilient to attack by corrosive atmospheres that would normally cause rust. With appropriate treatment Glulam members will completely avoid deterioration and require minimal long-term maintenance. This makes Glulam structural members suited to environments exposed to corrosive or high-humidity atmospheres.

Pre-cambering. Often deflection is a controlling restraint in structural beam design, especially in longer spans. Whilst any structural member can be designed to minimise deflection, Glulam is the only engineered wood product that can easily be precambered to eliminate the aesthetic effect of in-service deflections.



Curved Glulam portals highlight the design flexibility and natural beauty timber can bring in an indoor – outdoor situation.



The clean lines and cranked shape of these pitched Glulam rafters illustrate the versatile roof forms possible using laminated timber.

Shock Resistance. Wood, steel, and concrete are the three principal materials utilised by civil engineers when designing structures. Unlike steel and concrete, which are cast and formed, wood is anisotropic by nature meaning it performs differently in different directions. Wood also has excellent thermal, acoustic and electrical insulating properties. These factors make it very resilient, naturally. This resilience is a great advantage and permits it to absorb seismic and wind shocks that would actually cause failure in other materials.

Selected Timber Species: Glulam beams are commonly produced in New Zealand from the species Pinus Radiata and Douglas Fir. Occasionally species such as Macrocarpa and Lawson's Cyprus are also used. All of these species are suitable for structural glue laminated timber products.

More exotic species can also be used with success. Species such as Jarrah, Cedar or Eucalyptus Saligna. Almost any timber species that can be kiln dried can be used in Glulam. However, be aware that different timber species will have varying characteristic strengths and the resulting Elastic Moduli of the Glulam will vary accordingly. Speak to a licensed Glulam manufacturer for more assistance on this subject.

STRUCTURAL GRADES

There are a range of structural grades of glue laminated timber beams produced in New Zealand in accordance with Standard AS/NZS 1328.1 – 1998. These grades were developed by the Australian and New Zealand industries to assist designers and specifiers in the selection of Glulam members and their associated design properties. The following table of structural grade characteristics is referenced from AS/NZS 1328 part 2.

Characteristic Strengths and Elastic Moduli for Glulam Grades

	Characteristic Strengths (MPa)			Elastic Moduli (MPa)		
GL Grade	**Bending**	**Tension parallel to grain**	**Shear in Beam**	**Compression parallel to grain**	**Short modulus of elasticity parallel to the end grain**	**Short duration modulus of rigidity for beams**
GL 12	25	12.5	3.7	29	11500	770
GL 10	22	11	3.7	26	10000	670
GL 8	19	10	3.7	24	8000	530

Note: *All tables in this reference guide are based upon characteristics of Glulam meeting GL8 and GL10 grades. For references for higher grades than GL8 and GL10 as incorporated in these Span Tables please refer to a qualified producer. There is a list of qualified producers in the index at the back of this publication.* ***Higher grades*** *(i.e. GL12, etc) will give* ***greater span and load*** *carrying capability than GL8 and GL10 for the same section size.*

APPEARANCE GRADES

There are three standard finishing grades that may be specified, as defined in AS/NZS 1328 part 1. The appearance grades relate to the aesthetic appearance of the visible surfaces of the glued laminated members. This classification bears no relationship to the structural performance of the timber.

Definition of Appearance Grades

Appearance Grade	Description
A	This grade is intended for use in applications where appearance of the member is important and clear or painted finishes are used. All surface voids are filled or repaired. Unless it is specified otherwise, the surfaces shall be sanded to a minimum of 60-grit finish.
B	The grade is intended for use in painted applications where appearance is important but a planed finish is acceptable. The machining shall conform to No. 2 dressed surfaces grade as defined in AS 2796. Occasional skips in the surface are permissible and minor blemishes, voids and machining want shall be acceptable. The outer-most laminations shall be free of loose knots and voids.
C	This grade is intended for use in applications where appearance is not important. All blemishes and voids are acceptable.

Note: The Appearance Grades most commonly produced in New Zealand are Grades ***A*** *and* ***B.***

SERVICE CLASSES

The Service Class defines the environmental conditions in which glue laminated beams may be used. There are three service classes defined as shown in the following table.

Definition of Environmental Conditions for Glulam Service Classes

Service Class	Description	Environmental Conditions
1	**Interior**	Service Class characterised by moisture content in the materials corresponding to a temperature of 20°C and relative humidity of the surrounding air only exceeding 65% for a few weeks per year. For example: Domestic Houses, Commercial Offices.
2	**Exterior, under cover**	Service Class characterised by moisture content in the materials corresponding to a temperature of 20°C and relative humidity of the surrounding air only exceeding 85% for a few weeks per year. For example: Open sheds, exposed beams under soffits, porches, wool scouring plants, laundries.
3	**Exterior, fully exposed**	Service Class characterised by climatic conditions leading to higher moisture content than Service Class 2, or where timber is directly exposed to sun and/or rain. For example: Marine structures, bridges.

TIMBER TREATMENT SPECIFICATION OPTIONS

In order to meet the Services Classes outlined above, depending on where the Glulam structure is to be used, specifiers will need to select timber treatment levels based on one of the following:

Hazard Class	End Use
H1	Low decay hazard
H2	Slight risk of decay and risk of termite attack
H3	Moderate decay hazard
H4	High decay hazard
H5	Severe decay hazard
H6	Marine hazard

Timber treatment options can be either CCA treatment (the requirement for H5 or H6 is rare and specific situations should be discussed with the manufacturer) or LOSP (up to H3). LOSP is an envelope treatment, and because of this, care must be taken when cutting or drilling post-treatment that the affected area is recoated with a suitable protective coating.

PAINTING PROCEDURE

If Glulam has been pre-primed, the protective coating primer may tend to deteriorate over a period of time and become slightly chalky – unable to bond adequately to any additional coating systems without some preparation work. A simple way of testing whether there has been any deterioration is to cut a small "x" through the existing coating system with a sharp blade. Press some cellulose sticky tape firmly across the cut and then rip off the tape. If any of the coating comes off with the tape then the primer is not adequately sound and must be removed by sanding.
Sand back until the surface is completely free from all dirt and degraded material and dust off.
Prime all surfaces, paying particular attention to cut ends and joints, with a good quality solvent-based alkyd primer. Water based primers are less effective in this application.
Allow to dry as per the manufacturers instructions and lightly sand to an even finish.
Apply two coats of premium brand acrylic exterior grade top coat to the manufacturers recommendations.

BEAMS FULLY RESTRAINED ON COMPRESSION FLANGE **GL8**

Glulam Grade = GL8 | k1 = 0.8 | SLS Deflection Limit = Span / 400

Section Size dxb (mm)	Area A (mm^2)	Section Modulus Z (10^3mm^3)	Moment of Inertia I (10^6mm^4)	ϕV_n	Span (m)	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & w (SLS,k_2=1.5) (kN/m) giving deflection = SLS Deflection Limit for Span (Note in both cases w is limited where necessary to prevent shear failure for the span)									
						1.0	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**
135 x 65	8775	197	13.3	16.6	ϕM_b	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
					w (ULS)	17.8	7.9	4.4	2.8	2.0	1.5	1.1	0.9	0.7	0.6
					w (SLS)	*13.6*	*4.0*	*1.7*	*0.9*	*0.5*					
180 x 65	11700	351	31.6	22.9	ϕM_b	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
					w (ULS)	34.1	15.2	8.5	5.5	3.8	2.8	2.1	1.7	1.4	1.1
					w (SLS)	*32.3*	*9.6*	*4.0*	*2.1*	*1.2*	*0.8*	*0.5*			
225 x 65	14625	548	61.7	28.6	ϕM_b	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
					w (ULS)	56.0	24.9	14.0	9.0	6.2	4.6	3.5	2.8	2.2	1.9
					w (SLS)	*63.2*	*18.7*	*7.9*	*4.0*	*2.3*	*1.5*	*1.0*	*0.7*	*0.5*	
225 x 90	20250	759	85.4	39.6	ϕM_b	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
					w (ULS)	77.6	34.5	19.4	12.4	8.6	6.3	4.8	3.8	3.1	2.6
					w (SLS)	*87.5*	*25.9*	*10.9*	*5.6*	*3.2*	*2.0*	*1.4*	*1.0*	*0.7*	*0.5*
270 x 90	24300	1094	147.6	47.5	ϕM_b	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
					w (ULS)	94.9	51.4	28.9	18.5	12.8	9.4	7.2	5.7	4.6	3.8
					w (SLS)		*44.8*	*18.9*	*9.7*	*5.6*	*3.5*	*2.4*	*1.7*	*1.2*	*0.9*
315 x 90	28350	1488	234.4	55.4	ϕM_b	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
					w (ULS)		71.2	40.1	25.6	17.8	13.1	10.0	7.9	6.4	5.3
					w (SLS)		*71.1*	*30.0*	*15.4*	*8.9*	*5.6*	*3.8*	*2.6*	*1.9*	*1.4*
360 x 90	32400	1944	349.9	63.3	ϕM_b	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1
					w (ULS)		84.4	52.2	33.4	23.2	17.1	13.1	10.3	8.4	6.9
					w (SLS)			*44.8*	*22.9*	*13.3*	*8.4*	*5.6*	*3.9*	*2.9*	*2.2*
405 x 90	36450	2460	498.2	71.2	ϕM_b	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
					w (ULS)		94.9	65.9	42.2	29.3	21.5	16.5	13.0	10.5	8.7
					w (SLS)			*63.8*	*32.7*	*18.9*	*11.9*	*8.0*	*5.6*	*4.1*	*3.1*
450 x 90	40500	3038	683.4	79.1	ϕM_b	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5
					w (ULS)			79.1	51.9	36.0	26.5	20.3	16.0	13.0	10.7
					w (SLS)			*87.5*	*44.8*	*25.9*	*16.3*	*10.9*	*7.7*	*5.6*	*4.2*
495 x 90	44550	3675	909.7	87.0	ϕM_b	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8
					w (ULS)			87.0	62.5	43.4	31.9	24.4	19.3	15.6	12.9
					w (SLS)				*59.6*	*34.5*	*21.7*	*14.6*	*10.2*	*7.5*	*5.6*
540 x 90	48600	4374	1181	94.9	ϕM_b	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9
					w (ULS)			94.9	74.1	51.5	37.8	28.9	22.9	18.5	15.3
					w (SLS)				*77.4*	*44.8*	*28.2*	*18.9*	*13.3*	*9.7*	*7.3*
585 x 90	52650	5133	1502	102.8	ϕM_b	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6
					w (ULS)				82.3	60.1	44.2	33.8	26.7	21.6	17.9
					w (SLS)				*98.4*	*56.9*	*35.9*	*24.0*	*16.9*	*12.3*	*9.2*
630 x 90	56700	5954	1875	110.7	ϕM_b	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1
					w (ULS)				88.6	69.4	51.0	39.0	30.8	25.0	20.6
					w (SLS)					*71.1*	*44.8*	*30.0*	*21.1*	*15.4*	*11.5*
675 x 135	91125	10252	3460	178.0	ϕM_b	133.8	133.8	133.8	133.8	133.8	133.8	133.8	133.8	133.8	133.8
					w (ULS)						87.4	66.9	52.9	42.8	35.4
					w (SLS)						*82.6*	*55.4*	*38.9*	*28.3*	*21.3*
720 x 135	97200	11664	4199	189.8	ϕM_b	151.6	151.6	151.6	151.6	151.6	151.6	151.6	151.6	151.6	151.6
					w (ULS)						99.0	75.8	59.9	48.5	40.1
					w (SLS)							*67.2*	*47.2*	*34.4*	*25.8*
765 x 135	103275	13168	5037	201.7	ϕM_b	170.4	170.4	170.4	170.4	170.4	170.4	170.4	170.4	170.4	170.4
					w (ULS)							85.2	67.3	54.5	45.1
					w (SLS)							*80.6*	*56.6*	*41.3*	*31.0*
810 x 135	109350	14762	5979	213.6	ϕM_b	190.2	190.2	190.2	190.2	190.2	190.2	190.2	190.2	190.2	190.2
					w (ULS)							95.1	75.1	60.9	50.3
					w (SLS)							*95.7*	*67.2*	*49.0*	*36.8*
855 x 135	115425	16448	7032	225.4	ϕM_b	211.0	211.0	211.0	211.0	211.0	211.0	211.0	211.0	211.0	211.0
					w (ULS)								83.4	67.5	55.8
					w (SLS)								*79.0*	*57.6*	*43.3*
900 x 135	121500	18225	8201	237.3	ϕM_b	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8
					w (ULS)								92.0	74.5	61.6
					w (SLS)								*92.2*	*67.2*	*50.5*
945 x 135	127575	20093	9494	249.2	ϕM_b	255.7	255.7	255.7	255.7	255.7	255.7	255.7	255.7	255.7	255.7
					w (ULS)									81.8	67.6
					w (SLS)									*77.8*	*58.4*

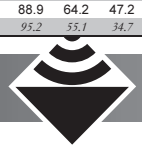
BEAMS FULLY RESTRAINED ON COMPRESSION FLANGE – Continued **GL8**

Glulam Grade = GL8				k1 = 0.8		SLS Deflection Limit = Span / 400									
Section Size dxb (mm)	Area A (mm^2)	Section Modulus Z (10^3mm^3)	Moment of Inertia I (10^6mm^4)	ϕV_n	Span (m)	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & w (SLS,k_2=1.5) (kN/m) giving deflection = SLS Deflection Limit for Span (Note in both cases w is limited where necessary to prevent shear failure for the span)									
						5.5	**6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**	**10.0**
135 x 65	8775	197	13.3	16.6	ϕM_b	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
					w (ULS)	0.6									
					w (SLS)										
180 x 65	11700	351	31.6	22.9	ϕM_b	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
					w (ULS)	1.1	0.9	0.8	0.7	0.6	0.5				
					w (SLS)										
225 x 65	14625	548	61.7	28.6	ϕM_b	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
					w (ULS)	1.9	1.6	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.6
					w (SLS)										
225 x 90	20250	759	85.4	39.6	ϕM_b	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
					w (ULS)	2.6	2.2	1.8	1.6	1.4	1.2	1.1	1.0	0.9	0.8
					w (SLS)	*0.5*									
270 x 90	24300	1094	147.6	47.5	ϕM_b	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
					w (ULS)	3.8	3.2	2.7	2.4	2.1	1.8	1.6	1.4	1.3	1.2
					w (SLS)	*0.9*	*0.7*	*0.6*							
315 x 90	28350	1488	234.4	55.4	ϕM_b	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
					w (ULS)	5.3	4.5	3.8	3.3	2.8	2.5	2.2	2.0	1.8	1.6
					w (SLS)	*1.4*	*1.1*	*0.9*	*0.7*	*0.6*					
360 x 90	32400	1944	349.9	63.3	ϕM_b	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1
					w (ULS)	6.9	5.8	4.9	4.3	3.7	3.3	2.9	2.6	2.3	2.1
					w (SLS)	*2.2*	*1.7*	*1.3*	*1.0*	*0.8*	*0.7*	*0.6*			
405 x 90	36450	2460	498.2	71.2	ϕM_b	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
					w (ULS)	8.7	7.3	6.2	5.4	4.7	4.1	3.6	3.3	2.9	2.6
					w (SLS)	*3.1*	*2.4*	*1.9*	*1.5*	*1.2*	*1.0*	*0.8*	*0.7*	*0.6*	*0.5*
450 x 90	40500	3038	683.4	79.1	ϕM_b	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5
					w (ULS)	10.7	9.0	7.7	6.6	5.8	5.1	4.5	4.0	3.6	3.2
					w (SLS)	*4.2*	*3.2*	*2.5*	*2.0*	*1.7*	*1.4*	*1.1*	*1.0*	*0.8*	*0.7*
495 x 90	44550	3675	909.7	87.0	ϕM_b	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8
					w (ULS)	12.9	10.9	9.2	8.0	6.9	6.1	5.4	4.8	4.3	3.9
					w (SLS)	*5.6*	*4.3*	*3.4*	*2.7*	*2.2*	*1.8*	*1.5*	*1.3*	*1.1*	*0.9*
540 x 90	48600	4374	1181	94.9	ϕM_b	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9
					w (ULS)	15.3	12.9	11.0	9.5	8.2	7.2	6.4	5.7	5.1	4.6
					w (SLS)	*7.3*	*5.6*	*4.4*	*3.5*	*2.9*	*2.4*	*2.0*	*1.7*	*1.4*	*1.2*
585 x 90	52650	5133	1502	102.8	ϕM_b	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6
					w (ULS)	17.9	15.0	12.8	11.0	9.6	8.5	7.5	6.7	6.0	5.4
					w (SLS)	*9.2*	*7.1*	*5.6*	*4.5*	*3.6*	*3.0*	*2.5*	*2.1*	*1.8*	*1.5*
630 x 90	56700	5954	1875	110.7	ϕM_b	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1
					w (ULS)	20.6	17.4	14.8	12.7	11.1	9.8	8.6	7.7	6.9	6.2
					w (SLS)	*11.5*	*8.9*	*7.0*	*5.6*	*4.6*	*3.8*	*3.1*	*2.6*	*2.2*	*1.9*
675 x 135	91125	10252	3460	178.0	ϕM_b	133.8	133.8	133.8	133.8	133.8	133.8	133.8	133.8	133.8	133.8
					w (ULS)	35.4	29.7	25.3	21.9	19.0	16.7	14.8	13.2	11.9	10.7
					w (SLS)	*21.3*	*16.4*	*12.9*	*10.3*	*8.4*	*6.9*	*5.8*	*4.9*	*4.1*	*3.5*
720 x 135	97200	11664	4199	189.8	ϕM_b	151.6	151.6	151.6	151.6	151.6	151.6	151.6	151.6	151.6	151.6
					w (ULS)	40.1	33.7	28.7	24.8	21.6	19.0	16.8	15.0	13.4	12.1
					w (SLS)	*25.8*	*19.9*	*15.7*	*12.5*	*10.2*	*8.4*	*7.0*	*5.9*	*5.0*	*4.3*
765 x 135	103275	13168	5037	201.7	ϕM_b	170.4	170.4	170.4	170.4	170.4	170.4	170.4	170.4	170.4	170.4
					w (ULS)	45.1	37.9	32.3	27.8	24.2	21.3	18.9	16.8	15.1	13.6
					w (SLS)	*31.0*	*23.9*	*18.8*	*15.0*	*12.2*	*10.1*	*8.4*	*7.1*	*6.0*	*5.2*
810 x 135	109350	14762	5979	213.6	ϕM_b	190.2	190.2	190.2	190.2	190.2	190.2	190.2	190.2	190.2	190.2
					w (ULS)	50.3	42.3	36.0	31.1	27.1	23.8	21.1	18.8	16.9	15.2
					w (SLS)	*36.8*	*28.3*	*22.3*	*17.8*	*14.5*	*12.0*	*10.0*	*8.4*	*7.1*	*6.1*
855 x 135	115425	16448	7032	225.4	ϕM_b	211.0	211.0	211.0	211.0	211.0	211.0	211.0	211.0	211.0	211.0
					w (ULS)	55.8	46.9	40.0	34.5	30.0	26.4	23.4	20.8	18.7	16.9
					w (SLS)	*43.3*	*33.3*	*26.2*	*21.0*	*17.1*	*14.1*	*11.7*	*9.9*	*8.4*	*7.2*
900 x 135	121500	18225	8201	237.3	ϕM_b	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8
					w (ULS)	61.6	51.7	44.1	38.0	33.1	29.1	25.8	23.0	20.6	18.6
					w (SLS)	*50.5*	*38.9*	*30.6*	*24.5*	*19.9*	*16.4*	*13.7*	*11.5*	*9.8*	*8.4*
945 x 135	127575	20093	9494	249.2	ϕM_b	255.7	255.7	255.7	255.7	255.7	255.7	255.7	255.7	255.7	255.7
					w (ULS)	67.6	56.8	48.4	41.7	36.4	32.0	28.3	25.3	22.7	20.5
					w (SLS)	*58.4*	*45.0*	*35.4*	*28.3*	*23.0*	*19.0*	*15.8*	*13.3*	*11.3*	*9.7*

BEAMS FULLY RESTRAINED ON COMPRESSION FLANGE **GL10**

Glulam Grade GL10 $k_1 = 0.8$ *SLS Deflection Limit = Span/ 400*

Section Size dxb (mm)	Area A (mm²)	Section Modulus Z (10^3mm³)	Moment of Inertia I (10^6mm⁴)	ϕV_n	Span (m) ⇒	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & w *(SLS,k_2=1.5) (kN/m) giving deflection* = ***SLS Deflection Limit*** for Span (Note in both cases w is limited where necessary to prevent shear failure for the span)																				
						1.0	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**	**10.0**
270 x 42	11340	510	68.9	22.1	ϕM_b	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
					w (ULS)	44.3	27.8	15.6	10.0	6.9	5.1	3.9	3.1	2.5	2.1	1.7	1.5	1.3	1.1	1.0	0.9	0.8	0.7	0.6
					w (SLS)	*88.2*	*26.1*	*11.0*	*5.6*	*3.3*	*2.1*	*1.4*	*1.0*	*0.7*	*0.5*									
315 x 42	13230	695	109.4	25.8	ϕM_b	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
					w (ULS)	51.7	34.5	21.6	13.9	9.6	7.1	5.4	4.3	3.5	2.9	2.4	2.0	1.8	1.5	1.4	1.2	1.1	1.0	0.9
					w (SLS)		*41.5*	*17.5*	*9.0*	*5.2*	*3.3*	*2.2*	*1.5*	*1.1*	*0.8*	*0.6*	*0.5*							
135 x 65	8775	197	13.3	16.6	ϕM_b	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
					w (ULS)	20.6	9.2	5.2	3.3	2.3	1.7	1.3	1.0	0.8	0.7	0.6								
					w (SLS)	*17.1*	*5.1*	*2.1*	*1.1*	*0.6*														
140 x 65	9100	212	14.9	17.3	ϕM_b	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
					w (ULS)	22.4	10.0	5.6	3.6	2.5	1.8	1.4	1.1	0.9	0.7	0.6	0.5							
					w (SLS)	*19.0*	*5.6*	*2.4*	*1.2*	*0.7*														
180 x 65	11700	351	31.6	22.9	ϕM_b	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
					w (ULS)	39.5	17.6	9.9	6.3	4.4	3.2	2.5	2.0	1.6	1.3	1.1	0.9	0.8	0.7	0.6	0.5			
					w (SLS)	*40.4*	*12.0*	*5.1*	*2.6*	*1.5*	*0.9*	*0.6*												
225 x 65	14625	548	61.7	28.6	ϕM_b	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
					w (ULS)	57.1	28.8	16.2	10.4	7.2	5.3	4.1	3.2	2.6	2.1	1.8	1.5	1.3	1.2	1.0	0.9	0.8	0.7	0.6
					w (SLS)	*79.0*	*23.4*	*9.9*	*5.1*	*2.9*	*1.8*	*1.2*	*0.9*	*0.6*										
240 x 65	15600	624	74.9	30.5	ϕM_b	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
					w (ULS)	60.9	33.2	18.7	12.0	8.3	6.1	4.7	3.7	3.0	2.5	2.1	1.8	1.5	1.3	1.2	1.0	0.9	0.8	0.7
					w (SLS)	*95.8*	*28.4*	*12.0*	*6.1*	*3.5*	*2.2*	*1.5*	*1.1*	*0.8*	*0.6*									
270 x 65	17550	790	106.6	34.3	ϕM_b	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
					w (ULS)	68.6	43.0	24.2	15.5	10.7	7.9	6.0	4.8	3.9	3.2	2.7	2.3	2.0	1.7	1.5	1.3	1.2	1.1	1.0
					w (SLS)		*40.4*	*17.1*	*8.7*	*5.1*	*3.2*	*2.1*	*1.5*	*1.1*	*0.8*	*0.6*								
280 x 65	18200	849	118.9	35.5	ϕM_b	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
					w (ULS)	71.1	46.5	26.2	16.7	11.6	8.5	6.5	5.2	4.2	3.5	2.9	2.5	2.1	1.9	1.6	1.4	1.3	1.2	1.0
					w (SLS)		*45.1*	*19.0*	*9.7*	*5.6*	*3.5*	*2.4*	*1.7*	*1.2*	*0.9*	*0.7*	*0.6*							
315 x 65	20475	1075	169.3	40.0	ϕM_b	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
					w (ULS)	80.0	53.3	33.5	21.4	14.9	10.9	8.4	6.6	5.4	4.4	3.7	3.2	2.7	2.4	2.1	1.9	1.7	1.5	1.3
					w (SLS)		*64.2*	*27.1*	*13.9*	*8.0*	*5.1*	*3.4*	*2.4*	*1.7*	*1.3*	*1.0*	*0.8*	*0.6*	*0.5*					
320 x 65	20800	1109	177.5	40.6	ϕM_b	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
					w (ULS)	81.2	54.2	34.6	22.1	15.4	11.3	8.6	6.8	5.5	4.6	3.8	3.3	2.8	2.5	2.2	1.9	1.7	1.5	1.4
					w (SLS)		*67.3*	*28.4*	*14.5*	*8.4*	*5.3*	*3.5*	*2.5*	*1.8*	*1.4*	*1.1*	*0.8*	*0.7*	*0.5*					
405 x 65	26325	1777	359.8	51.4	ϕM_b	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6
					w (ULS)		68.6	51.4	35.3	24.5	18.0	13.8	10.9	8.8	7.3	6.1	5.2	4.5	3.9	3.4	3.1	2.7	2.4	2.2
					w (SLS)			*57.6*	*29.5*	*17.1*	*10.7*	*7.2*	*5.1*	*3.7*	*2.8*	*2.1*	*1.7*	*1.3*	*1.1*	*0.9*	*0.7*	*0.6*	*0.5*	
450 x 65	29250	2194	493.6	57.1	ϕM_b	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9
					w (ULS)		76.2	57.1	43.4	30.1	22.1	16.9	13.4	10.8	9.0	7.5	6.4	5.5	4.8	4.2	3.8	3.3	3.0	2.7
					w (SLS)			*79.0*	*40.4*	*23.4*	*14.7*	*9.9*	*6.9*	*5.1*	*3.8*	*2.9*	*2.3*	*1.8*	*1.5*	*1.2*	*1.0*	*0.9*	*0.7*	*0.6*
225 x 90	20250	759	85.4	39.6	ϕM_b	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
					w (ULS)	79.1	39.9	22.5	14.4	10.0	7.3	5.6	4.4	3.6	3.0	2.5	2.1	1.8	1.6	1.4	1.2	1.1	1.0	0.9
					w (SLS)		*32.4*	*13.7*	*7.0*	*4.1*	*2.6*	*1.7*	*1.2*	*0.9*	*0.7*	*0.5*								
270 x 90	24300	1094	147.6	47.5	ϕM_b	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
					w (ULS)	94.9	59.5	33.5	21.4	14.9	10.9	8.4	6.6	5.4	4.4	3.7	3.2	2.7	2.4	2.1	1.9	1.7	1.5	1.3
					w (SLS)		*56.0*	*23.6*	*12.1*	*7.0*	*4.4*	*3.0*	*2.1*	*1.5*	*1.1*	*0.9*	*0.7*	*0.6*						
315 x 90	28350	1488	234.4	55.4	ϕM_b	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
					w (ULS)		73.8	46.4	29.7	20.6	15.1	11.6	9.2	7.4	6.1	5.2	4.4	3.8	3.3	2.9	2.6	2.3	2.1	1.9
					w (SLS)		*88.9*	*37.5*	*19.2*	*11.1*	*7.0*	*4.7*	*3.3*	*2.4*	*1.8*	*1.4*	*1.1*	*0.9*	*0.7*	*0.6*				
360 x 90	32400	1944	349.9	63.3	ϕM_b	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2
					w (ULS)		84.4	60.5	38.7	26.9	19.7	15.1	11.9	9.7	8.0	6.7	5.7	4.9	4.3	3.8	3.3	3.0	2.7	2.4
					w (SLS)			*56.0*	*28.7*	*16.6*	*10.4*	*7.0*	*4.9*	*3.6*	*2.7*	*2.1*	*1.6*	*1.3*	*1.1*	*0.9*	*0.7*	*0.6*	*0.5*	
405 x 90	36450	2460	498.2	71.2	ϕM_b	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
					w (ULS)		94.9	71.2	48.8	33.9	24.9	19.1	15.1	12.2	10.1	8.5	7.2	6.2	5.4	4.8	4.2	3.8	3.4	3.1
					w (SLS)			*79.7*	*40.8*	*23.6*	*14.9*	*10.0*	*7.0*	*5.1*	*3.8*	*3.0*	*2.3*	*1.9*	*1.5*	*1.2*	*1.0*	*0.9*	*0.7*	*0.6*
450 x 90	40500	3038	683.4	79.1	ϕM_b	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9
					w (ULS)			79.1	60.1	41.7	30.7	23.5	18.5	15.0	12.4	10.4	8.9	7.7	6.7	5.9	5.2	4.6	4.2	3.8
					w (SLS)				*56.0*	*32.4*	*20.4*	*13.7*	*9.6*	*7.0*	*5.3*	*4.1*	*3.2*	*2.6*	*2.1*	*1.7*	*1.4*	*1.2*	*1.0*	*0.9*
495 x 90	44550	3675	909.7	87.0	ϕM_b	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6
					w (ULS)			87.0	69.6	50.3	36.9	28.3	22.3	18.1	15.0	12.6	10.7	9.2	8.0	7.1	6.3	5.6	5.0	4.5
					w (SLS)				*74.5*	*43.1*	*27.2*	*18.2*	*12.8*	*9.3*	*7.0*	*5.4*	*4.2*	*3.4*	*2.8*	*2.3*	*1.9*	*1.6*	*1.4*	*1.2*
540 x 90	48600	4374	1181	94.9	ϕM_b	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0
					w (ULS)			94.9	75.9	59.6	43.8	33.5	26.5	21.4	17.7	14.9	12.7	10.9	9.5	8.4	7.4	6.6	5.9	5.4
					w (SLS)				*96.7*	*56.0*	*35.3*	*23.6*	*16.6*	*12.1*	*9.1*	*7.0*	*5.5*	*4.4*	*3.6*	*3.0*	*2.5*	*2.1*	*1.8*	*1.5*
585 x 90	52650	5133	1502	102.8	ϕM_b	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3
					w (ULS)				82.3	68.6	51.1	39.2	30.9	25.1	20.7	17.4	14.8	12.8	11.1	9.8	8.7	7.7	6.9	6.3
					w (SLS)					*71.2*	*44.8*	*30.0*	*21.1*	*15.4*	*11.6*	*8.9*	*7.0*	*5.6*	*4.6*	*3.8*	*3.1*	*2.6*	*2.2*	*1.9*
630 x 90	56700	5954	1875	110.7	ϕM_b	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4	90.4
					w (ULS)				88.6	73.8	59.0	45.2	35.7	28.9	23.9	20.1	17.1	14.8	12.9	11.3	10.0	8.9	8.0	7.2
					w (SLS)					*88.9*	*56.0*	*37.5*	*26.3*	*19.2*	*14.4*	*11.1*	*8.7*	*7.0*	*5.7*	*4.7*	*3.9*	*3.3*	*2.8*	*2.4*
225 x 115	25875	970	109.2	50.5	ϕM_b	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
					w (ULS)		51.0	28.7	18.4	12.8	9.4	7.2	5.7	4.6	3.8	3.2	2.7	2.3	2.0	1.8	1.6	1.4	1.3	1.1
					w (SLS)		*41.4*	*17.5*	*8.9*	*5.2*	*3.3*	*2.2*	*1.5*	*1.1*	*0.8*	*0.6*	*0.5*							
270 x 115	31050	1397	188.6	60.6	ϕM_b	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
					w (ULS)		76.0	42.8	27.4	19.0	14.0	10.7	8.4	6.8	5.7	4.8	4.0	3.5	3.0	2.7	2.4	2.1	1.9	1.7
					w (SLS)		*71.5*	*30.2*	*15.5*	*8.9*	*5.6*	*3.8*	*2.6*	*1.9*	*1.5*	*1.1*	*0.9*	*0.7*	*0.6*					
315 x 115	36225	1902	299.5	70.8	ϕM_b	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
					w (ULS)		94.3	59.3	37.9	26.3	19.4	14.8	11.7	9.5	7.8	6.6	5.6	4.8	4.2	3.7	3.3	2.9	2.6	2.4
					w (SLS)			*47.9*	*24.5*	*14.2*	*8.9*	*6.0*	*4.2*	*3.1*	*2.3*	*1.8*	*1.4*	*1.1*	*0.9*	*0.7*	*0.6*	*0.5*		
360 x 115	41400	2484	447.1	80.9	ϕM_b	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6
					w (ULS)			77.3	49.5	34.3	25.2	19.3	15.3	12.4	10.2	8.6	7.3	6.3	5.5	4.8	4.3	3.8	3.4	3.1
					w (SLS)			*71.5*	*36.6*	*21.2*	*13.3*	*8.9*	*6.3*	*4.6*	*3.4*	*2.6*	*2.1*	*1.7*	*1.4*	*1.1*	*0.9*	*0.8*	*0.7*	*0.6*
405 x 115	46575	3144	636.6	91.0	ϕM_b	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8
					w (ULS)			91.0	62.4	43.3	31.8	24.4	19.3	15.6	12.9	10.8	9.2	8.0	6.9	6.1	5.4	4.8	4.3	3.9
					w (SLS)				*52.2*	*30.2*	*19.0*	*12.7*	*8.9*	*6.5*	*4.9*	*3.8*	*3.0*	*2.4*	*1.9*	*1.6*	*1.3*	*1.1*	*1.0*	*0.8*
450 x 115	51750	3881	873.3	101.1	ϕM_b	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
					w (ULS)				76.8	53.3	39.2	30.0	23.7	19.2	15.9	13.3	11.4	9.8	8.5	7.5	6.6	5.9	5.3	4.8
					w (SLS)				*71.5*	*41.4*	*26.1*	*17.5*	*12.3*	*8.9*	*6.7*	*5.2*	*4.1*	*3.3*	*2.6*	*2.2*	*1.8*	*1.5*	*1.3*	*1.1*
495 x 115	56925	4696	1162.3	111.2	ϕM_b	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3	72.3
					w (ULS)				88.9	64.2	47.2	36.1	28.6	23.1	19.1	16.1	13.7	11.8	10.3	9.0	8.0	7.1	6.4	5.8
					w (SLS)				*95.2*	*55.1*	*34.7*	*23.2*	*16.3*	*11.9*	*8.9*	*6.9*	*5.4*	*4.3*	*3.5*	*2.9*	*2.4*	*2.0*	*1.7*	*1.5*



BEAMS FULLY RESTRAINED ON COMPRESSION FLANGE **GL10** – Continued

Glulam Grade GL10 $k_1 = 0.8$ *SLS Deflection Limit = Span/ 400*

Section Size dxb (mm)	Area A (mm^2)	Section Modulus Z ($10^3 mm^3$)	Moment of Inertia I ($10^6 mm^4$)	ϕV_n	Span (m) ⇒	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & *w (SLS,k_2=1.5) (kN/m) giving deflection =* ***SLS Deflection Limit*** for Span (Note in both cases w is limited where necessary to prevent shear failure for the span)																		
						1.0	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**	**10.0**
540 x 115	62100	5589	1509	121.	ϕM_b	85.												6	85.					
					w															10.		3	(ULS)	
					w (SLS)					*71.5*	*45.1*	*30.2*	*21.2*	*15.5*	*11.6*	*8.9*	*7.0*	*5.6*	*4.6*	*3.8*	*3.1*	*2.6*	*2.3*	*1.9*
585 x 115	67275	6559	1919	131.	ϕM_b	100.										00.								
					w					87.												4	(ULS)	
					w (SLS)					*91.0*	*57.3*	*38.4*	*26.9*	*19.6*	*14.8*	*11.4*	*8.9*	*7.2*	*5.8*	*4.8*	*4.0*	*3.4*	*2.9*	*2.5*
630 x 115	72450	7607	2396	141.	ϕM_b	115.										15.								
					w					94.												5	(ULS)	
					w (SLS)						*71.5*	*47.9*	*33.7*	*24.5*	*18.4*	*14.2*	*11.2*	*8.9*	*7.3*	*6.0*	*5.0*	*4.2*	*3.6*	*3.1*
675 x 135	91125	10252	3460	178.	ϕM_b	155.										55.								
					w							77.										0	(ULS)	
					w (SLS)							*69.2*	*48.6*	*35.4*	*26.6*	*20.5*	*16.1*	*12.9*	*10.5*	*8.6*	*7.2*	*6.1*	*5.2*	*4.4*
720 x 135	97200	11664	4199	189.	ϕM_b	175.										75.								
					w							87.										8	(ULS)	
					w (SLS)							*84.0*	*59.0*	*43.0*	*32.3*	*24.9*	*19.6*	*15.7*	*12.7*	*10.5*	*8.8*	*7.4*	*6.3*	*5.4*
765 x 135	103275	13168	5037	201.	ϕM_b	197.										97.								
					w							98.										7	(ULS)	
					w (SLS)								*70.7*	*51.6*	*38.7*	*29.8*	*23.5*	*18.8*	*15.3*	*12.6*	*10.5*	*8.8*	*7.5*	*6.4*
810 x 135	109350	14762	5979	213.	ϕM_b	220.										20.								
					w								87.									6	(ULS)	
					w (SLS)								*84.0*	*61.2*	*46.0*	*35.4*	*27.9*	*22.3*	*18.1*	*14.9*	*12.5*	*10.5*	*8.9*	*7.7*
855 x 135	115425	16448	7032	225.	ϕM_b	244.										44.								
					w								96.									4	(ULS)	
					w (SLS)								*98.8*	*72.0*	*54.1*	*41.7*	*32.8*	*26.2*	*21.3*	*17.6*	*14.7*	*12.3*	*10.5*	*9.0*
900 x 135	121500	18225	8201	237.	ϕM_b	269.										69.								
					w									86.								3	(ULS)	
					w (SLS)									*84.0*	*63.1*	*48.6*	*38.2*	*30.6*	*24.9*	*20.5*	*17.1*	*14.4*	*12.2*	*10.5*
945 x 135	127575	20093	9494	249.	ϕM_b	296.										96.								
					w									94.								2	(ULS)	
					w (SLS)									*97.2*	*73.0*	*56.3*	*44.3*	*35.4*	*28.8*	*23.7*	*19.8*	*16.7*	*14.2*	*12.2*

BEAMS FULLY RESTRAINED ALONG TENSION FLANGE **GL8**

Glulam Grade = GL8 | k1 = 0.8 | SLS Deflection Limit = Span / 400

Section Size dxb (mm)	Area A (mm^2)	Section Modulus Z ($10^3 mm^3$)	Moment of Inertia I ($10^6 mm^4$)	ϕV_n	Span (m)	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & w (SLS,k_2=1.5) (kN/m) giving deflection = SLS Deflection Limit for Span									
						1.0	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**
135 x 65	8775	197	13.3	16.6	ϕM_b	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
					w (ULS)	17.8	7.9	4.4	2.8	2.0	1.5	1.1	0.9	0.7	0.6
					w (SLS)	*13.6*	*4.0*	*1.7*	*0.9*	*0.5*					
180 x 65	11700	351	31.6	22.9	ϕM_b	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
					w (ULS)	34.1	15.2	8.5	5.5	3.8	2.8	2.1	1.7	1.4	1.1
					w (SLS)	*32.3*	*9.6*	*4.0*	*2.1*	*1.2*	*0.8*	*0.5*			
225 x 65	14625	548	61.7	28.6	ϕM_b	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
					w (ULS)	56.0	24.9	14.0	9.0	6.2	4.6	3.5	2.8	2.2	1.9
					w (SLS)	*63.2*	*18.7*	*7.9*	*4.0*	*2.3*	*1.5*	*1.0*	*0.7*	*0.5*	
225 x 90	20250	759	85.4	39.6	ϕM_b	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
					w (ULS)	77.6	34.5	19.4	12.4	8.6	6.3	4.8	3.8	3.1	2.6
					w (SLS)	*87.5*	*25.9*	*10.9*	*5.6*	*3.2*	*2.0*	*1.4*	*1.0*	*0.7*	*0.5*
270 x 90	24300	1094	147.6	47.5	ϕM_b	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
					w (ULS)	94.9	51.4	28.9	18.5	12.8	9.4	7.2	5.7	4.6	3.8
					w (SLS)		*44.8*	*18.9*	*9.7*	*5.6*	*3.5*	*2.4*	*1.7*	*1.2*	*0.9*
315 x 90	28350	1488	234.4	55.4	ϕM_b	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
					w (ULS)		71.2	40.1	25.6	17.8	13.1	10.0	7.9	6.4	5.3
					w (SLS)		*71.1*	*30.0*	*15.4*	*8.9*	*5.6*	*3.8*	*2.6*	*1.9*	*1.4*
360 x 90	32400	1944	349.9	63.3	ϕM_b	26.1	26.1	26.0	25.7	25.7	25.7	25.7	25.7	25.7	25.7
					w (ULS)		84.4	51.9	32.9	22.9	16.8	12.9	10.2	8.2	6.8
					w (SLS)			*44.8*	*22.9*	*13.3*	*8.4*	*5.6*	*3.9*	*2.9*	*2.2*
405 x 90	36450	2460	498.2	71.2	ϕM_b	33.0	33.0	32.4	31.6	31.3	31.3	31.3	31.3	31.3	31.3
					w (ULS)		94.9	64.9	40.4	27.8	20.5	15.7	12.4	10.0	8.3
					w (SLS)			*63.8*	*32.7*	*18.9*	*11.9*	*8.0*	*5.6*	*4.1*	*3.1*
450 x 90	40500	3038	683.4	79.1	ϕM_b	40.5	40.5	39.4	37.8	36.5	36.5	36.5	36.5	36.5	36.5
					w (ULS)			78.8	48.4	32.4	23.8	18.2	14.4	11.7	9.6
					w (SLS)			*87.5*	*44.8*	*25.9*	*16.3*	*10.9*	*7.7*	*5.6*	*4.2*
495 x 90	44550	3675	909.7	87.0	ϕM_b	48.8	48.7	46.8	44.4	42.2	40.9	40.9	40.9	40.9	40.9
					w (ULS)			87.0	56.8	37.5	26.7	20.5	16.2	13.1	10.8
					w (SLS)				*59.6*	*34.5*	*21.7*	*14.6*	*10.2*	*7.5*	*5.6*
540 x 90	48600	4374	1181	94.9	ϕM_b	57.9	57.6	54.8	51.1	47.9	45.2	44.5	44.5	44.5	44.5
					w (ULS)			94.9	65.4	42.5	29.5	22.2	17.6	14.2	11.8
					w (SLS)				*77.4*	*44.8*	*28.2*	*18.9*	*13.3*	*9.7*	*7.3*
585 x 90	52650	5133	1502	102.8	ϕM_b	67.6	67.1	63.1	58.1	53.6	49.9	47.1	47.0	47.0	47.0
					w (ULS)				74.4	47.6	32.6	23.6	18.6	15.0	12.4
					w (SLS)				*98.4*	*56.9*	*35.9*	*24.0*	*16.9*	*12.3*	*9.2*
630 x 90	56700	5954	1875	110.7	ϕM_b	78.1	77.3	72.0	65.3	59.3	54.5	50.7	48.5	48.5	48.5
					w (ULS)				83.6	52.7	35.6	25.4	19.2	15.5	12.8
					w (SLS)					*71.1*	*44.8*	*30.0*	*21.1*	*15.4*	*11.5*
720 x 135	97200	11664	4199	189.8	ϕM_b	151.6	151.6	151.6	150.1	146.0	141.3	136.7	132.7	130.3	130.3
					w (ULS)						92.3	68.4	52.4	41.7	34.5
					w (SLS)							*67.2*	*47.2*	*34.4*	*25.8*
765 x 135	103275	13168	5037	201.7	ϕM_b	170.4	170.4	170.5	168.1	162.6	156.4	150.4	145.0	140.3	138.9
					w (ULS)							75.2	57.3	44.9	36.7
					w (SLS)							*80.6*	*56.6*	*41.3*	*31.0*
810 x 135	109350	14762	5979	213.6	ϕM_b	190.2	190.2	190.3	186.9	179.9	171.9	164.2	157.3	151.3	146.2
					w (ULS)							82.1	62.1	48.4	38.7
					w (SLS)							*95.7*	*67.2*	*49.0*	*36.8*
855 x 135	115425	16448	7032	225.4	ϕM_b	211.0	211.0	211.1	206.6	197.8	187.9	178.2	169.6	162.1	155.8
					w (ULS)							89.1	67.0	51.9	41.2
					w (SLS)								*79.0*	*57.6*	*43.3*
900 x 135	121500	18225	8201	237.3	ϕM_b	232.8	232.8	232.9	227.2	216.4	204.3	192.5	181.9	172.7	165.0
					w (ULS)							96.2	71.9	55.3	43.6
					w (SLS)								*92.2*	*67.2*	*50.5*
945 x 135	127575	20093	9494	249.2	ϕM_b	255.7	255.7	255.6	248.6	235.7	221.1	206.9	194.2	183.2	173.9
					w (ULS)								76.7	58.6	46.0
					w (SLS)									*77.8*	*58.4*

BEAMS FULLY RESTRAINED ALONG TENSION FLANGE – Continued **GL8**

Glulam Grade = GL8					k1 = 0.8	SLS Deflection Limit = Span / 400									
Section Size dxb (mm)	Area A (mm^2)	Section Modulus Z (10^3mm^3)	Moment of Inertia I (10^6mm^4)	ϕV_n	Span (m)	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & w (SLS,k_2=1.5) (kN/m) giving deflection = SLS Deflection Limit for Span									
						5.5	**6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**	**10.0**
135 x 65	8775	197	13.3	16.6	ϕM_b	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
					w (ULS)	0.6									
					w (SLS)										
180 x 65	11700	351	31.6	22.9	ϕM_b	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
					w (ULS)	1.1	0.9	0.8	0.7	0.6	0.5				
					w (SLS)										
225 x 65	14625	548	61.7	28.6	ϕM_b	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
					w (ULS)	1.9	1.6	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.6
					w (SLS)										
225 x 90	20250	759	85.4	39.6	ϕM_b	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
					w (ULS)	2.6	2.2	1.8	1.6	1.4	1.2	1.1	1.0	0.9	0.8
					w (SLS)	*0.5*									
270 x 90	24300	1094	147.6	47.5	ϕM_b	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
					w (ULS)	3.8	3.2	2.7	2.4	2.1	1.8	1.6	1.4	1.3	1.2
					w (SLS)	*0.9*	*0.7*	*0.6*							
315 x 90	28350	1488	234.4	55.4	ϕM_b	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
					w (ULS)	5.3	4.5	3.8	3.3	2.8	2.5	2.2	2.0	1.8	1.6
					w (SLS)	*1.4*	*1.1*	*0.9*	*0.7*	*0.6*					
360 x 90	32400	1944	349.9	63.3	ϕM_b	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7
					w (ULS)	6.8	5.7	4.9	4.2	3.7	3.2	2.8	2.5	2.3	2.1
					w (SLS)	*2.2*	*1.7*	*1.3*	*1.0*	*0.8*	*0.7*	*0.6*			
405 x 90	36450	2460	498.2	71.2	ϕM_b	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3
					w (ULS)	8.3	7.0	5.9	5.1	4.5	3.9	3.5	3.1	2.8	2.5
					w (SLS)	*3.1*	*2.4*	*1.9*	*1.5*	*1.2*	*1.0*	*0.8*	*0.7*	*0.6*	*0.5*
450 x 90	40500	3038	683.4	79.1	ϕM_b	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5
					w (ULS)	9.6	8.1	6.9	6.0	5.2	4.6	4.0	3.6	3.2	2.9
					w (SLS)	*4.2*	*3.2*	*2.5*	*2.0*	*1.7*	*1.4*	*1.1*	*1.0*	*0.8*	*0.7*
495 x 90	44550	3675	909.7	87.0	ϕM_b	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
					w (ULS)	10.8	9.1	7.7	6.7	5.8	5.1	4.5	4.0	3.6	3.3
					w (SLS)	*5.6*	*4.3*	*3.4*	*2.7*	*2.2*	*1.8*	*1.5*	*1.3*	*1.1*	*0.9*
540 x 90	48600	4374	1181	94.9	ϕM_b	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5
					w (ULS)	11.8	9.9	8.4	7.3	6.3	5.6	4.9	4.4	3.9	3.6
					w (SLS)	*7.3*	*5.6*	*4.4*	*3.5*	*2.9*	*2.4*	*2.0*	*1.7*	*1.4*	*1.2*
585 x 90	52650	5133	1502	102.8	ϕM_b	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
					w (ULS)	12.4	10.4	8.9	7.7	6.7	5.9	5.2	4.6	4.2	3.8
					w (SLS)	*9.2*	*7.1*	*5.6*	*4.5*	*3.6*	*3.0*	*2.5*	*2.1*	*1.8*	*1.5*
630 x 90	56700	5954	1875	110.7	ϕM_b	48.5	48.5	48.5	48.5	48.5	48.5	48.5	48.5	48.5	48.5
					w (ULS)	12.8	10.8	9.2	7.9	6.9	6.1	5.4	4.8	4.3	3.9
					w (SLS)	*11.5*	*8.9*	*7.0*	*5.6*	*4.6*	*3.8*	*3.1*	*2.6*	*2.2*	*1.9*
720 x 135	97200	11664	4199	189.8	ϕM_b	130.3	130.3	130.3	130.3	130.3	130.3	130.3	130.3	130.3	130.3
					w (ULS)	34.5	29.0	24.7	21.3	18.5	16.3	14.4	12.9	11.6	10.4
					w (SLS)	*25.8*	*19.9*	*15.7*	*12.5*	*10.2*	*8.4*	*7.0*	*5.9*	*5.0*	*4.3*
765 x 135	103275	13168	5037	201.7	ϕM_b	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9
					w (ULS)	36.7	30.9	26.3	22.7	19.8	17.4	15.4	13.7	12.3	11.1
					w (SLS)	*31.0*	*23.9*	*18.8*	*15.0*	*12.2*	*10.1*	*8.4*	*7.1*	*6.0*	*5.2*
810 x 135	109350	14762	5979	213.6	ϕM_b	146.2	146.1	146.1	146.1	146.1	146.1	146.1	146.1	146.1	146.1
					w (ULS)	38.7	32.5	27.7	23.8	20.8	18.3	16.2	14.4	12.9	11.7
					w (SLS)	*36.8*	*28.3*	*22.3*	*17.8*	*14.5*	*12.0*	*10.0*	*8.4*	*7.1*	*6.1*
855 x 135	115425	16448	7032	225.4	ϕM_b	155.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8
					w (ULS)	41.2	33.7	28.7	24.8	21.6	19.0	16.8	15.0	13.5	12.1
					w (SLS)	*43.3*	*33.3*	*26.2*	*21.0*	*17.1*	*14.1*	*11.7*	*9.9*	*8.4*	*7.2*
900 x 135	121500	18225	8201	237.3	ϕM_b	165.0	158.5	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0
					w (ULS)	43.6	35.2	29.5	25.5	22.2	19.5	17.3	15.4	13.8	12.5
					w (SLS)	*50.5*	*38.9*	*30.6*	*24.5*	*19.9*	*16.4*	*13.7*	*11.5*	*9.8*	*8.4*
945 x 135	127575	20093	9494	249.2	ϕM_b	173.9	166.1	159.6	158.9	158.9	158.9	158.9	158.9	158.9	158.9

BEAMS FULLY RESTRAINED ALONG TENSION FLANGE **GL10**

Glulam Grade GL10 — $k_1 = 0.8$ — *SLS Deflection Limit = Span/ 400*

Section Size dxb (mm)	Area A (mm²)	Section Modulus Z (10^3mm³)	Moment of Inertia I (10^6mm⁴)	ϕV_n	Span (m) ⇒	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & *w (SLS,k_2=1.5) (kN/m) giving deflection* = ***SLS Deflection Limit*** for Span (Note in both cases w is limited where necessary to prevent shear failure for the span)																			
						1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
270 x 42	11340	510	68.9	22.1	ϕM_b	7.2	6.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
					w (ULS)	44.3	21.5	11.0	7.0	4.9	3.6	2.8	2.2	1.8	1.5	1.2	1.0	0.9	0.8	0.7	0.6	0.5		
					w (SLS)	*88.2*	*26.1*	*11.0*	*5.6*	*3.3*	*2.1*	*1.4*	*1.0*	*0.7*	*0.5*									
315 x 42	13230	695	109.4	25.8	ϕM_b	9.6	7.6	6.4	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
					w (ULS)	51.7	27.0	12.7	7.7	5.3	3.9	3.0	2.4	1.9	1.6	1.3	1.1	1.0	0.9	0.7	0.7	0.6	0.5	
					w (SLS)		*41.5*	*17.5*	*9.0*	*5.2*	*3.3*	*2.2*	*1.5*	*1.1*	*0.8*	*0.6*	*0.5*							
135 x 65	8775	197	13.3	16.6	ϕM_b	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
					w (ULS)	20.6	9.2	5.2	3.3	2.3	1.7	1.3	1.0	0.8	0.7	0.6								
					w (SLS)	*17.1*	*5.1*	*2.1*	*1.1*	*0.6*														
140 x 65	9100	212	14.9	17.3	ϕM_b	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
					w (ULS)	22.4	10.0	5.6	3.6	2.5	1.8	1.4	1.1	0.9	0.7	0.6	0.5							
					w (SLS)	*19.0*	*5.6*	*2.4*	*1.2*	*0.7*														
180 x 65	11700	351	31.6	22.9	ϕM_b	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
					w (ULS)	39.5	17.6	9.9	6.3	4.4	3.2	2.5	2.0	1.6	1.3	1.1	0.9	0.8	0.7	0.6	0.5			
					w (SLS)	*40.4*	*12.0*	*5.1*	*2.6*	*1.5*	*0.9*	*0.6*												
225 x 65	14625	548	61.7	28.6	ϕM_b	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
					w (ULS)	57.1	28.8	16.2	10.4	7.2	5.3	4.1	3.2	2.6	2.1	1.8	1.5	1.3	1.2	1.0	0.9	0.8	0.7	0.6
					w (SLS)	*79.0*	*23.4*	*9.9*	*5.1*	*2.9*	*1.8*	*1.2*	*0.9*	*0.6*										
240 x 65	15600	624	74.9	30.5	ϕM_b	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
					w (ULS)	60.9	33.1	18.6	11.9	8.3	6.1	4.7	3.7	3.0	2.5	2.1	1.8	1.5	1.3	1.2	1.0	0.9	0.8	0.7
					w (SLS)	*95.8*	*28.4*	*12.0*	*6.1*	*3.5*	*2.2*	*1.5*	*1.1*	*0.8*	*0.6*									
270 x 65	17550	790	106.6	34.3	ϕM_b	12.1	12.0	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
					w (ULS)	68.6	42.5	23.6	15.1	10.5	7.7	5.9	4.7	3.8	3.1	2.6	2.2	1.9	1.7	1.5	1.3	1.2	1.0	0.9
					w (SLS)		*40.4*	*17.1*	*8.7*	*5.1*	*3.2*	*2.1*	*1.5*	*1.1*	*0.8*	*0.6*								
280 x 65	18200	849	118.9	35.5	ϕM_b	13.1	12.9	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
					w (ULS)	71.1	45.9	25.3	16.2	11.2	8.3	6.3	5.0	4.0	3.3	2.8	2.4	2.1	1.8	1.6	1.4	1.2	1.1	1.0
					w (SLS)		*45.1*	*19.0*	*9.7*	*5.6*	*3.5*	*2.4*	*1.7*	*1.2*	*0.9*	*0.7*	*0.6*							
315 x 65	20475	1075	169.3	40.0	ϕM_b	16.8	16.3	15.5	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
					w (ULS)	80.0	53.3	31.0	19.7	13.7	10.0	7.7	6.1	4.9	4.1	3.4	2.9	2.5	2.2	1.9	1.7	1.5	1.4	1.2
					w (SLS)		*64.2*	*27.1*	*13.9*	*8.0*	*5.1*	*3.4*	*2.4*	*1.7*	*1.3*	*1.0*	*0.8*	*0.6*	*0.5*					
320 x 65	20800	1109	177.5	40.6	ϕM_b	17.3	16.8	15.9	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
					w (ULS)	81.2	54.2	31.8	20.1	14.0	10.3	7.9	6.2	5.0	4.2	3.5	3.0	2.6	2.2	2.0	1.7	1.6	1.4	1.3
					w (SLS)		*67.3*	*28.4*	*14.5*	*8.4*	*5.3*	*3.5*	*2.5*	*1.8*	*1.4*	*1.1*	*0.8*	*0.7*	*0.5*					
405 x 65	26325	1777	359.8	51.4	ϕM_b	27.5	25.7	23.1	21.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
					w (ULS)		68.6	46.3	27.1	18.0	13.2	10.1	8.0	6.5	5.4	4.5	3.8	3.3	2.9	2.5	2.2	2.0	1.8	1.6
					w (SLS)			*57.6*	*29.5*	*17.1*	*10.7*	*7.2*	*5.1*	*3.7*	*2.8*	*2.1*	*1.7*	*1.3*	*1.1*	*0.9*	*0.7*	*0.6*	*0.5*	
450 x 65	29250	2194	493.6	57.1	ϕM_b	33.8	30.9	27.1	24.1	22.0	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
					w (ULS)		76.2	54.2	30.9	19.5	14.0	10.7	8.5	6.9	5.7	4.8	4.1	3.5	3.1	2.7	2.4	2.1	1.9	1.7
					w (SLS)			*79.0*	*40.4*	*23.4*	*14.7*	*9.9*	*6.9*	*5.1*	*3.8*	*2.9*	*2.3*	*1.8*	*1.5*	*1.2*	*1.0*	*0.9*	*0.7*	*0.6*
225 x 90	20250	759	85.4	39.6	ϕM_b	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
					w (ULS)	79.1	39.9	22.5	14.4	10.0	7.3	5.6	4.4	3.6	3.0	2.5	2.1	1.8	1.6	1.4	1.2	1.1	1.0	0.9
					w (SLS)		*32.4*	*13.7*	*7.0*	*4.1*	*2.6*	*1.7*	*1.2*	*0.9*	*0.7*	*0.5*								
270 x 90	24300	1094	147.6	47.5	ϕM_b	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
					w (ULS)	94.9	59.5	33.5	21.4	14.9	10.9	8.4	6.6	5.4	4.4	3.7	3.2	2.7	2.4	2.1	1.9	1.7	1.5	1.3
					w (SLS)		*56.0*	*23.6*	*12.1*	*7.0*	*4.4*	*3.0*	*2.1*	*1.5*	*1.1*	*0.9*	*0.7*	*0.6*						
315 x 90	28350	1488	234.4	55.4	ϕM_b	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
					w (ULS)		73.8	46.4	29.7	20.6	15.1	11.6	9.2	7.4	6.1	5.2	4.4	3.8	3.3	2.9	2.6	2.3	2.1	1.9
					w (SLS)			*88.9*	*37.5*	*19.2*	*11.1*	*7.0*	*4.7*	*3.3*	*2.4*	*1.8*	*1.4*	*1.1*	*0.9*	*0.7*	*0.6*			
360 x 90	32400	1944	349.9	63.3	ϕM_b	30.2	30.2	30.1	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
					w (ULS)		84.4	60.2	38.1	26.5	19.5	14.9	11.8	9.5	7.9	6.6	5.6	4.9	4.2	3.7	3.3	2.9	2.6	2.4
					w (SLS)			*56.0*	*28.7*	*16.6*	*10.4*	*7.0*	*4.9*	*3.6*	*2.7*	*2.1*	*1.6*	*1.3*	*1.1*	*0.9*	*0.7*	*0.6*	*0.5*	
405 x 90	36450	2460	498.2	71.2	ϕM_b	38.2	38.2	37.6	36.6	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3
					w (ULS)		94.9	71.2	46.8	32.2	23.7	18.1	14.3	11.6	9.6	8.1	6.9	5.9	5.2	4.5	4.0	3.6	3.2	2.9
					w (SLS)			*79.7*	*40.8*	*23.6*	*14.9*	*10.0*	*7.0*	*5.1*	*3.8*	*3.0*	*2.3*	*1.9*	*1.5*	*1.2*	*1.0*	*0.9*	*0.7*	*0.6*
450 x 90	40500	3038	683.4	79.1	ϕM_b	46.9	46.9	45.7	43.9	42.3	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2
					w (ULS)			79.1	56.2	37.6	27.6	21.1	16.7	13.5	11.2	9.4	8.0	6.9	6.0	5.3	4.7	4.2	3.7	3.4
					w (SLS)				*56.0*	*32.4*	*20.4*	*13.7*	*9.6*	*7.0*	*5.3*	*4.1*	*3.2*	*2.6*	*2.1*	*1.7*	*1.4*	*1.2*	*1.0*	*0.9*
495 x 90	44550	3675	909.7	87.0	ϕM_b	56.6	56.4	54.3	51.5	48.9	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4
					w (ULS)			87.0	65.9	43.5	30.9	23.7	18.7	15.2	12.5	10.5	9.0	7.7	6.7	5.9	5.2	4.7	4.2	3.8
					w (SLS)				*74.5*	*43.1*	*27.2*	*18.2*	*12.8*	*9.3*	*7.0*	*5.4*	*4.2*	*3.4*	*2.8*	*2.3*	*1.9*	*1.6*	*1.4*	*1.2*
540 x 90	48600	4374	1181	94.9	ϕM_b	67.0	66.7	63.5	59.3	55.6	52.6	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5
					w (ULS)			94.9	75.9	49.4	34.4	25.7	20.3	16.5	13.6	11.4	9.7	8.4	7.3	6.4	5.7	5.1	4.6	4.1
					w (SLS)				*96.7*	*56.0*	*35.3*	*23.6*	*16.6*	*12.1*	*9.1*	*7.0*	*5.5*	*4.4*	*3.6*	*3.0*	*2.5*	*2.1*	*1.8*	*1.5*
585 x 90	52650	5133	1502	102.8	ϕM_b	78.3	77.8	73.2	67.4	62.2	58.1	54.8	54.4	54.4	54.4	54.4	54.4	54.4	54.4	54.4	54.4	54.4	54.4	54.4
					w (ULS)				82.3	55.3	37.9	27.4	21.5	17.4	14.4	12.1	10.3	8.9	7.7	6.8	6.0	5.4	4.8	4.4
					w (SLS)					*71.2*	*44.8*	*30.0*	*21.1*	*15.4*	*11.6*	*8.9*	*7.0*	*5.6*	*4.6*	*3.8*	*3.1*	*2.6*	*2.2*	*1.9*
630 x 90	56700	5954	1875	110.7	ϕM_b	90.4	89.5	83.4	75.8	68.9	63.4	59.1	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2
					w (ULS)				88.6	61.3	41.4	29.5	22.2	18.0	14.9	12.5	10.6	9.2	8.0	7.0	6.2	5.6	5.0	4.5
					w (SLS)					*88.9*	*56.0*	*37.5*	*26.3*	*19.2*	*14.4*	*11.1*	*8.7*	*7.0*	*5.7*	*4.7*	*3.9*	*3.3*	*2.8*	*2.4*
225 x 115	25875	970	109.2	50.5	ϕM_b	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
					w (ULS)		51.0	28.7	18.4	12.8	9.4	7.2	5.7	4.6	3.8	3.2	2.7	2.3	2.0	1.8	1.6	1.4	1.3	1.1
					w (SLS)		*41.4*	*17.5*	*8.9*	*5.2*	*3.3*	*2.2*	*1.5*	*1.1*	*0.8*	*0.6*	*0.5*							
270 x 115	31050	1397	188.6	60.6	ϕM_b	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
					w (ULS)		76.0	42.8	27.4	19.0	14.0	10.7	8.4	6.8	5.7	4.8	4.0	3.5	3.0	2.7	2.4	2.1	1.9	1.7
					w (SLS)		*71.5*	*30.2*	*15.5*	*8.9*	*5.6*	*3.8*	*2.6*	*1.9*	*1.5*	*1.1*	*0.9*	*0.7*	*0.6*					
315 x 115	36225	1902	299.5	70.8	ϕM_b	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
					w (ULS)		94.3	59.3	37.9	26.3	19.4	14.8	11.7	9.5	7.8	6.6	5.6	4.8	4.2	3.7	3.3	2.9	2.6	2.4
					w (SLS)			*47.9*	*24.5*	*14.2*	*8.9*	*6.0*	*4.2*	*3.1*	*2.3*	*1.8*	*1.4*	*1.1*	*0.9*	*0.7*	*0.6*	*0.5*		
360 x 115	41400	2484	447.1	80.9	ϕM_b	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6
					w (ULS)			77.3	49.5	34.3	25.2	19.3	15.3	12.4	10.2	8.6	7.3	6.3	5.5	4.8	4.3	3.8	3.4	3.1
					w (SLS)			*71.5*	*36.6*	*21.2*	*13.3*	*8.9*	*6.3*	*4.6*	*3.4*	*2.6*	*2.1*	*1.7*	*1.4*	*1.1*	*0.9*	*0.8*	*0.7*	*0.6*
405 x 115	46575	3144	636.6	91.0	ϕM_b	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8
					w (ULS)			91.0	62.4	43.3	31.8	24.4	19.3	15.6	12.9	10.8	9.2	8.0	6.9	6.1	5.4	4.8	4.3	3.9
					w (SLS)				*52.2*	*30.2*	*19.0*	*12.7*	*8.9*	*6.5*	*4.9*	*3.8*	*3.0*	*2.4*	*1.9*	*1.6*	*1.3*	*1.1*	*1.0*	*0.8*
450 x 115	51750	3881	873.3	101.1	ϕM_b	60.0	60.0	60.0	59.8	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3
					w (ULS)				76.5	52.7	38.7	29.7	23.4	19.0	15.7	13.2	11.2	9.7	8.4	7.4	6.6	5.9	5.3	4.7
					w (SLS)				*71.5*	*41.4*	*26.1*	*17.5*	*12.3*	*8.9*	*6.7*	*5.2*	*4.1*	*3.3*	*2.6*	*2.2*	*1.8*	*1.5*	*1.3*	*1.1*

BEAMS FULLY RESTRAINED ALONG TENSION FLANGE **GL10** – Continued

Glulam Grade GL10 | k_1 = 0.8 | *SLS Deflection Limit = Span/ 400*

Section Size dxb (mm)	Area A (mm²)	Section Modulus Z (10^3mm³)	Moment of Inertia I (10^6mm⁴)	ϕV_n	Span (m) ⇒	ϕM_b (kNm) - ULS, w (ULS) (kN/m) & *w (SLS,k_2=1.5) (kN/m) giving deflection* = ***SLS Deflection Limit*** for Span (Note in both cases w is limited where necessary to prevent shear failure for the span)																	
						1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
495 x 115	56925	4696	1162.3	111.2	ϕM_b	72.3	72.3	72.3	71.6	70.4	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8
					w (ULS)				88.9	62.6	45.6	34.9	27.6	22.3	18.5	15.5	13.2	11.4	9.9	8.7	7.7	6.9	6.2	5.6
					w (SLS)				*95.2*	*55.1*	*34.7*	*23.2*	*16.3*	*11.9*	*8.9*	*6.9*	*5.4*	*4.3*	*3.5*	*2.9*	*2.4*	*2.0*	*1.7*	*1.5*
540 x 115	62100	5589	1509	121.3	ϕM_b	85.6	85.6	85.6	84.2	82.1	80.2	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8
					w (ULS)				97.0	73.0	52.4	39.9	31.5	25.6	21.1	17.7	15.1	13.0	11.4	10.0	8.8	7.9	7.1	6.4
					w (SLS)					*71.5*	*45.1*	*30.2*	*21.2*	*15.5*	*11.6*	*8.9*	*7.0*	*5.6*	*4.6*	*3.8*	*3.1*	*2.6*	*2.3*	*1.9*
585 x 115	67275	6559	1919	131.4	ϕM_b	100.1	100.1	99.8	97.4	94.3	91.3	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0
					w (ULS)					83.8	59.7	44.5	35.2	28.5	23.5	19.8	16.9	14.5	12.7	11.1	9.9	8.8	7.9	7.1
					w (SLS)					*91.0*	*57.3*	*38.4*	*26.9*	*19.6*	*14.8*	*11.4*	*8.9*	*7.2*	*5.8*	*4.8*	*4.0*	*3.4*	*2.9*	*2.5*
630 x 115	72450	7607	2396	141.5	ϕM_b	115.5	115.5	114.9	111.4	107.0	102.7	99.0	97.1	97.1	97.1	97.1	97.1	97.1	97.1	97.1	97.1	97.1	97.1	97.1
					w (ULS)					94.3	67.1	49.5	38.4	31.1	25.7	21.6	18.4	15.9	13.8	12.1	10.8	9.6	8.6	7.8
					w (SLS)						*71.5*	*47.9*	*33.7*	*24.5*	*18.4*	*14.2*	*11.2*	*8.9*	*7.3*	*6.0*	*5.0*	*4.2*	*3.6*	*3.1*
675 x 135	91125	10252	3460	178.0	ϕM_b	155.0	155.0	155.0	154.0	150.7	146.8	143.1	139.7	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5
					w (ULS)						95.9	71.5	55.2	44.6	36.9	31.0	26.4	22.8	19.8	17.4	15.4	13.8	12.4	11.2
					w (SLS)							*69.2*	*48.6*	*35.4*	*26.6*	*20.5*	*16.1*	*12.9*	*10.5*	*8.6*	*7.2*	*6.1*	*5.2*	*4.4*
720 x 135	97200	11664	4199	189.8	ϕM_b	175.5	175.5	175.6	173.8	169.2	163.9	158.7	154.0	150.9	150.9	150.9	150.9	150.9	150.9	150.9	150.9	150.9	150.9	150.9
					w (ULS)							79.3	60.9	48.3	39.9	33.5	28.6	24.6	21.5	18.9	16.7	14.9	13.4	12.1
					w (SLS)							*84.0*	*59.0*	*43.0*	*32.3*	*24.9*	*19.6*	*15.7*	*12.7*	*10.5*	*8.8*	*7.4*	*6.3*	*5.4*
765 x 135	103275	13168	5037	201.7	ϕM_b	197.3	197.3	197.4	194.7	188.5	181.4	174.5	168.4	163.1	160.8	160.8	160.8	160.8	160.8	160.8	160.8	160.8	160.8	160.8
					w (ULS)							87.3	66.5	52.2	42.5	35.7	30.5	26.3	22.9	20.1	17.8	15.9	14.3	12.9
					w (SLS)								*70.7*	*51.6*	*38.7*	*29.8*	*23.5*	*18.8*	*15.3*	*12.6*	*10.5*	*8.8*	*7.5*	*6.4*
810 x 135	109350	14762	5979	213.6	ϕM_b	220.2	220.2	220.3	216.5	208.5	199.4	190.6	182.7	175.9	170.1	169.1	169.1	169.1	169.1	169.1	169.1	169.1	169.1	169.1
					w (ULS)							95.3	72.2	56.3	45.0	37.6	32.0	27.6	24.1	21.1	18.7	16.7	15.0	13.5
					w (SLS)								*84.0*	*61.2*	*46.0*	*35.4*	*27.9*	*22.3*	*18.1*	*14.9*	*12.5*	*10.5*	*8.9*	*7.7*
855 x 135	115425	16448	7032	225.4	ϕM_b	244.3	244.3	244.4	239.3	229.3	217.9	206.9	197.0	188.5	181.2	175.7	175.7	175.7	175.7	175.7	175.7	175.7	175.7	175.7
					w (ULS)								77.8	60.3	47.9	39.1	33.3	28.7	25.0	22.0	19.5	17.4	15.6	14.1
					w (SLS)								*98.8*	*72.0*	*54.1*	*41.7*	*32.8*	*26.2*	*21.3*	*17.6*	*14.7*	*12.3*	*10.5*	*9.0*
900 x 135	121500	18225	8201	237.3	ϕM_b	269.6	269.6	269.6	263.1	250.9	236.9	223.4	211.3	200.8	192.0	184.5	180.6	180.6	180.6	180.6	180.6	180.6	180.6	180.6
					w (ULS)								83.5	64.3	50.8	41.0	34.2	29.5	25.7	22.6	20.0	17.8	16.0	14.5
					w (SLS)									*84.0*	*63.1*	*48.6*	*38.2*	*30.6*	*24.9*	*20.5*	*17.1*	*14.4*	*12.2*	*10.5*
945 x 135	127575	20093	9494	249.2	ϕM_b	296.0	296.0	296.0	287.9	273.2	256.4	240.2	225.7	213.1	202.4	193.5	186.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
					w (ULS)								89.2	68.2	53.5	43.0	35.2	30.0	26.2	23.0	20.4	18.2	16.3	14.7
					w (SLS)									*97.2*	*73.0*	*56.3*	*44.3*	*35.4*	*28.8*	*23.7*	*19.8*	*16.7*	*14.2*	*12.2*

FLOOR BEAMS – 1.5 kPa – LIVE LOAD **GL8**

Section Size dxb (mm)	Span of Glulam Beam, Length (m)									
	2.5	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**
	Maximum Tributary Width (m) at Span L									
225 x 65	2.9									
225 x 90	4.0	2.5								
270 x 90	6.0	4.2	2.7							
315 x 90		5.8	4.2	2.9						
360 x 90		7.8	5.5	4.2	3.0	2.1				
360 x 90 Precambered					*3.3*	*2.6*				
precamber required(mm)					*5*	*5*				
405 x 90			7.3	5.4	4.2	3.1	2.3			
405 x 90 Precambered						*3.3*	*2.7*			
precamber required(mm)						*5*	*6*			
450 x 90				7.0	5.3	4.2	3.2	2.4		
450 x 90 Precambered							*3.4*	*2.8*		
precamber required(mm)							*6*	*7*		
495 x 90						5.3	4.2	3.2	2.5	1.9
495 x 90 Precambered								*3.5*	*2.9*	*2.5*
precamber required(mm)								*6*	*7*	*8*

Live load = 1.5 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

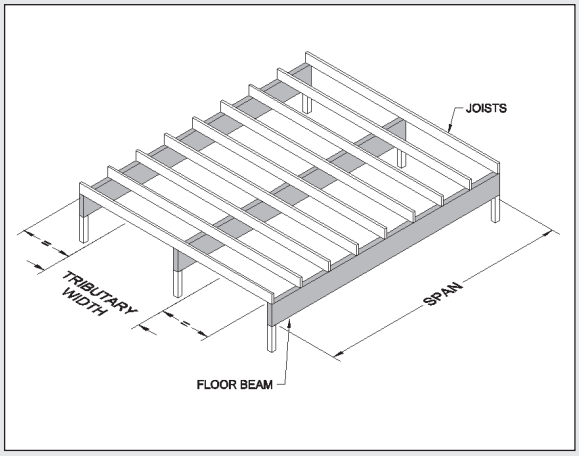
Glulam Grade = GL 8

Instructions

To use this table you will need to know:

- The Span of the floor beam.
- The Maximum Tributary Width – (this is the measured spacing between floor beams).

1. Under the 'Span of Glulam Beam' heading, locate the column headed with a span that meets or exceeds the required span.
2. Read down this column until you find a figure equal to or greater than the Maximum Tributary width required.
3. The section size of the Glulam beam can be read off the left hand column.



Example:

For a floor beam spanning 5m at centres of 3m carrying a normal domestic floor load of 1.5kPa
Span of Glulam Beam = 5
Maximum Tributary Width = 3
Therefore Section Size = 405 x 90 GL8

Alternative: Using GL10
Therefore Section Size: = 405 x 90 GL10 No Precamber
or = 360 x 90 GL10 5mm Precamber

Section Size dxb (mm)	Span of Glulam Beam, Length (m)											
	4.5	**5**	**5.5**	**6**	**6.5**	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**
	Maximum Tributary Width (m) at span L											
540 x 90	8.3	6.5	5.2	4.3	3.3	2.6	2.0					
540 x 90 Precambered					*3.5*	*3.0*	*2.5*					
precamber required(mm)					*7*	*8*	*9*					
585 x 90		7.9	6.4	5.2	4.3	3.4	2.6	2.1				
585 x 90 Precambered						*3.6*	*3.1*	*2.6*				
precamber required(mm)						*8*	*9*	*9*				
630 x 90			7.6	6.2	5.2	4.3	3.5	2.7	2.2			
630 x 90 Precambered							*3.7*	*3.2*	*2.7*			
precamber required(mm)							*9*	*9*	*10*			
675 x 135					9.9	8.4	7.2	5.7	4.5	3.6	2.9	2.4
675 x 135 Precambered								*6.2*	*5.3*	*4.7*	*4.1*	*3.6*
precamber required(mm)								*10*	*11*	*11*	*12*	*13*
720 x 135						9.8	8.3	7.2	5.8	4.7	3.8	3.1
720 x 135 Precambered									*6.2*	*5.4*	*4.8*	*4.2*
precamber required(mm)									*11*	*11*	*12*	*13*
765 x 135							9.6	8.3	7.2	5.9	4.8	3.9
765 x 135 Precambered										*6.3*	*5.5*	*4.9*
precamber required(mm)										*12*	*12*	*13*
810 x 135								9.4	8.2	7.2	5.9	4.9
810 x 135 Precambered											*6.3*	*5.6*
precamber required(mm)											*12*	*13*
855 x 135									9.3	8.2	7.2	6.0
855 x 135 Precambered												*6.4*
precamber required(mm)												*13*
900 x 135											8.1	7.2
945 x 135												8.1

Live load = 1.5 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL 8

Tip:

Factory sealer coating has a limited life. If Glulam is to be exposed to weather for more than 4 weeks, a further protective coating will need to be applied. Consult coatings specialist.

Use web slings for lifting heavy Glulam beams to avoid bruising and crushing of timber.

FLOOR BEAMS – 1.5 kPa – LIVE LOAD **GL10**

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
135 x 65																	
135 x 65 Precambered																	
precamber required(mm)																	
180 x 65	3.2																
180 x 65 Precambered																	
precamber required(mm)																	
225 x 65	5.3	3.4	2.3														
225 x 65 Precambered																	
precamber required(mm)																	
225 x 90	7.4	4.7	3.2														
225 x 90 Precambered																	
precamber required(mm)																	
270 x 90		7.0	4.8	3.5	2.2												
270 x 90 Precambered																	
precamber required(mm)																	
315 x 90			6.7	4.9	3.7	2.5											
315 x 90 Precambered						*2.9*											
precamber required(mm)						*5*											
360 x 90			9.4	6.6	4.9	3.8	2.7	2.0									
360 x 90 Precambered						*3.8*	*3.1*	*2.5*									
precamber required(mm)						*5*	*5*	*6*									
405 x 90				8.8	6.5	5.0	3.9	2.9	2.2								
405 x 90 Precambered							*3.9*	*3.2*	*2.7*								
precamber required(mm)							*5*	*6*	*7*								
450 x 90					8.4	6.4	5.0	4.0	3.3	2.8							
450 x 90 Precambered							*5.0*	*4.0*	*3.3*	*2.8*							
precamber required(mm)							*5*	*6*	*7*	*8*							
495 x 90						8.1	6.4	5.1	4.2	3.2	2.5	2.0					
495 x 90 Precambered								*5.1*	*4.2*	*3.5*	*2.9*	*2.5*					
precamber required(mm)								*5*	*6*	*7*	*8*	*9*					
540 x 90						10.0	7.8	6.3	5.2	4.3	3.4	2.6	2.1				
540 x 90 Precambered								*6.3*	*5.2*	*4.3*	*3.6*	*3.1*	*2.6*				
precamber required(mm)								*5*	*6*	*7*	*8*	*8*	*9*				
585 x 90							9.5	7.6	6.3	5.2	4.4	3.5	2.8	2.2			
585 x 90 Precambered								*7.6*	*6.3*	*5.2*	*4.4*	*3.7*	*3.2*	*2.8*			
precamber required(mm)								*5*	*6*	*7*	*8*	*9*	*9*	*10*			
630 x 90								9.1	7.5	6.2	5.2	4.5	3.7	2.9	2.3	1.9	
630 x 90 Precambered									*7.5*	*6.2*	*5.2*	*4.5*	*3.8*	*3.3*	*2.9*	*2.5*	
precamber required(mm)									*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	
675 x 135												8.6	7.4	6.1	4.9	4.0	3.3
675 x 135 Precambered												*8.6*	*7.4*	*6.4*	*5.6*	*4.9*	*4.4*
precamber required(mm)												*9*	*10*	*11*	*11*	*12*	*13*
720 x 135												10.0	8.6	7.5	6.2	5.1	4.2
720 x 135 Precambered												*10.0*	*8.6*	*7.5*	*6.6*	*5.8*	*5.1*
precamber required(mm)												*8*	*9*	*11*	*11*	*12*	*13*

FLOOR BEAMS – 1.5 kPa – LIVE LOAD **GL10** – Continued

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
765 x 135													9.9	8.6	7.6	6.4	5.3
765 x 135 Precambered													*9.9*	*8.6*	*7.6*	*6.7*	*5.9*
precamber required(mm)													*9*	*10*	*11*	*12*	*13*
810 x 135														9.9	8.6	7.6	6.5
810 x 135 Precambered														*9.9*	*8.6*	*7.6*	*6.8*
precamber required(mm)														*9*	*11*	*12*	*13*
855 x 135															9.8	8.6	7.7
855 x 135 Precambered															*9.8*	*8.6*	*7.7*
precamber required(mm)															*10*	*11*	*13*
900 x 135																9.7	8.6
900 x 135 Precambered																*9.7*	*8.6*
precamber required(mm)																*11*	*12*
945 x 135																	9.7
945 x 135 Precambered																	*9.7*
precamber required(mm)																	*12*

Live load = 1.5 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL 10

FLOOR BEAMS – 2.0 kPa – LIVE LOAD **GL8**

Section Size dxb (mm)	Span of Glulam Beam, Length (m)									
	2.5	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**
	Maximum Tributary Width (m) at Span L									
225 x 65	2.3									
225 x 90	3.2	2.1								
270 x 90	4.8	3.3	2.3							
315 x 90	6.6	4.6	3.3	2.4						
360 x 90	8.8	6.0	4.4	3.3	2.5	1.8				
360 x 90 Precambered						*2.1*				
precamber required(mm)						*5*				
405 x 90		7.8	5.5	4.2	3.3	2.6	1.9			
405 x 90 Precambered							*2.2*			
precamber required(mm)							*5*			
450 x 90			7.1	5.2	4.1	3.3	2.7	2.0		
450 x 90 Precambered								*2.2*		
precamber required(mm)								*6*		
495 x 90			9.0	6.6	5.0	4.0	3.2	2.7	2.1	1.6
495 x 90 Precambered									*2.3*	*1.9*
precamber required(mm)									*6*	*7*

Live load = 2.0 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

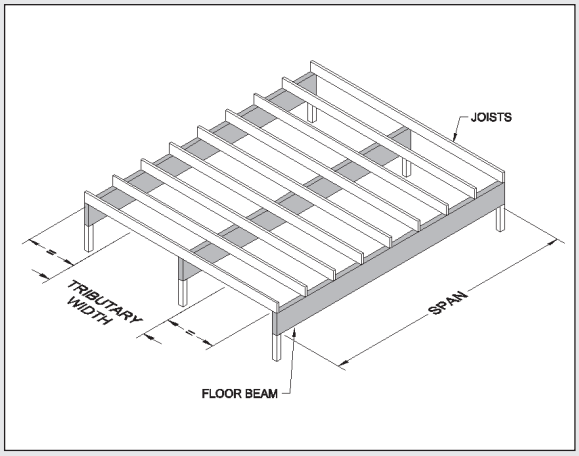
Glulam Grade = GL 8

Instructions

To use this table you will need to know:

- The Span of the floor beam.
- The Maximum Tributary Width – (this is generally the measured spacing between floor beams).

1. Under the 'Span of Glulam Beam' heading, locate the column headed with a span that meets or exceeds the required span.
2. Read down this column until you find a figure equal to or greater than the Maximum Tributary width required.
3. The section size of the Glulam beam can be read off the left hand column.



Example:

For a floor beam spanning 5m at centres of 3m carrying a deck load of 2.0kPa
Span of Glulam Beam = 5
Maximum Tributary Width = 3
Therefore Section Size = 450 x 90 GL8

Alternative: Using GL10
Therefore Section Size = 405 x 90 GL10

FLOOR BEAMS – 2.0 kPa – LIVE LOAD GL8 – continued

Section Size dxb (mm)	Span of Glulam Beam, Length (m)												
	4	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**
	Maximum Tributary Width (m) at Span L												
540 x 90	8.2	6.2	4.9	3.9	3.2	2.7	2.1	1.7					
540 x 90 Precambered							*2.3*	*2.0*					
precamber required(mm)							*7*	*8*					
585 x 90		7.6	6.0	4.8	3.9	3.2	2.7	2.2	1.8				
585 x 90 Precambered								*2.3*	*2.0*				
precamber required(mm)								*7*	*8*				
630 x 90		9.1	7.1	5.7	4.7	3.9	3.2	2.7	2.3	1.8			
630 x 90 Precambered									*2.4*	*2.1*			
precamber required(mm)									*8*	*9*			
675 x 135					9.1	7.6	6.4	5.4	4.6	3.7	3.0	2.4	1.9
675 x 135 Precambered										*4.0*	*3.5*	*3.1*	*2.7*
precamber required(mm)										*9*	*10*	*11*	*12*
720 x 135						8.8	7.4	6.3	5.4	4.7	3.8	3.1	2.5
720 x 135 Precambered											*4.1*	*3.6*	*3.2*
precamber required(mm)											*10*	*11*	*11*
765 x 135							8.6	7.3	6.3	5.5	4.8	3.9	3.2
765 x 135 Precambered												*4.2*	*3.7*
precamber required(mm)												*11*	*11*
810 x 135							9.8	8.4	7.2	6.3	5.5	4.8	4.0
810 x 135 Precambered													*4.2*
precamber required(mm)													*11*
855 x 135								9.5	8.2	7.1	6.2	5.5	4.8
900 x 135									9.2	8.0	7.0	6.2	5.5
945 x 135										9.0	7.9	7.0	6.2

Live load = 2.0 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL8

Tip:

If the ends of Glulam beams are cut on site, make sure the exposed end grain is thoroughly recoated with a protective sealer.

If non-galvanised steel connections are used dark staining may result from exposure to moisture. Use rustproof fixings in external areas.

FLOOR BEAMS – 2.0 kPa – LIVE LOAD **GL10**

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
135 x 65																	
135 x 65 Precambered																	
precamber required(mm)																	
180 x 65	2.5																
180 x 65 Precambered																	
precamber required(mm)																	
225 x 65	4.2	2.6	1.8														
225 x 65 Precambered																	
precamber required(mm)																	
225 x 90	5.8	3.7	2.5														
225 x 90 Precambered																	
precamber required(mm)																	
270 x 90	8.7	5.5	3.8	2.8	1.9												
270 x 90 Precambered																	
precamber required(mm)																	
315 x 90		7.7	5.3	3.9	2.9	2.1											
315 x 90 Precambered																	
precamber required(mm)																	
360 x 90			7.0	5.1	3.8	3.0	2.3	1.6									
360 x 90 Precambered								*2.0*									
precamber required(mm)								*5*									
405 x 90			9.4	6.6	4.9	3.8	3.1	2.4	1.8								
405 x 90 Precambered								*2.5*	*2.1*								
precamber required(mm)								*5*	*6*								
450 x 90				8.6	6.3	4.8	3.8	3.1	2.6	2.2							
450 x 90 Precambered									*2.6*	*2.2*							
precamber required(mm)									*6*	*7*							
495 x 90					8.0	6.1	4.8	3.8	3.1	2.7	2.1	1.6					
495 x 90 Precambered									*3.1*	*2.7*	*2.3*	*2.0*					
precamber required(mm)									*5*	*6*	*7*	*8*					
540 x 90					9.8	7.5	5.9	4.7	3.9	3.2	2.7	2.2	1.7				
540 x 90 Precambered									*3.9*	*3.2*	*2.7*	*2.3*	*2.0*				
precamber required(mm)									*5*	*5*	*7*	*7*	*8*				
585 x 90						9.1	7.2	5.8	4.7	3.9	3.3	2.8	2.3	1.8			
585 x 90 Precambered										*3.9*	*3.3*	*2.8*	*2.4*	*2.1*			
precamber required(mm)										*5*	*6*	*7*	*8*	*9*			
630 x 90							8.6	6.9	5.6	4.7	3.9	3.3	2.9	2.4	1.9	1.6	
630 x 90 Precambered										*4.7*	*3.9*	*3.3*	*2.9*	*2.5*	*2.2*	*1.9*	
precamber required(mm)										*5*	*6*	*7*	*8*	*9*	*9*	*10*	
precamber required(mm)										*5*	*6*	*7*	*8*	*9*	*10*	*10*	*11*
675 x 135										9.1	7.7	6.5	5.6	4.9	4.0	3.3	2.7
675 x 135 Precambered										*9.1*	*7.7*	*6.5*	*5.6*	*4.9*	*4.2*	*3.7*	*3.3*
precamber required(mm)										*5*	*6*	*7*	*8*	*9*	*10*	*10*	*11*

FLOOR BEAMS – 2.0 kPa – LIVE LOAD **GL10** - Continued

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
720 x 135											8.9	7.6	6.6	5.7	5.0	4.2	3.4
720 x 135 Precambered											*8.9*	*7.6*	*6.6*	*5.7*	*5.0*	*4.4*	*3.9*
precamber required(mm)											*5*	*6*	*7*	*8*	*10*	*11*	*11*
765 x 135												8.8	7.6	6.6	5.8	5.1	4.4
765 x 135 Precambered												*8.8*	*7.6*	*6.6*	*5.8*	*5.1*	*4.5*
precamber required(mm)												*6*	*7*	*8*	*9*	*10*	*11*
810 x 135												10.0	8.7	7.5	6.6	5.8	5.1
810 x 135 Precambered												*10.0*	*8.7*	*7.5*	*6.6*	*5.8*	*5.1*
precamber required(mm)												*6*	*7*	*7*	*8*	*10*	*11*
855 x 135													9.8	8.6	7.5	6.6	5.9
855 x 135 Precambered													*9.8*	*8.6*	*7.5*	*6.6*	*5.9*
precamber required(mm)													*6*	*7*	*8*	*9*	*10*
900 x 135														9.6	8.5	7.5	6.6
900 x 135 Precambered														*9.6*	*8.5*	*7.5*	*6.6*
precamber required(mm)														*7*	*8*	*9*	*10*
945 x 135															9.5	8.4	7.4
945 x 135 Precambered															*9.5*	*8.4*	*7.4*
precamber required(mm)															*7*	*8*	*9*

Live load = 2.0 kPa, Dead Load = 0.5 kPa

Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL 10

FLOOR BEAMS – 3.0 kPa – LIVE LOAD **GL8**

Section Size dxb (mm)	Span of Glulam Beam, Length (m)										
	2.5	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**	**7.5**
	Maximum Tributary Width (m) at Span L										
225 x 65	1.6										
225 x 90	2.2	1.5									
270 x 90	3.3	2.3	1.7								
315 x 90	4.6	3.2	2.3	1.8							
360 x 90	6.1	4.2	3.1	2.3	1.8	1.3					
405 x 90	7.7	5.3	3.9	2.9	2.3	1.8	1.4				
450 x 90		6.6	4.8	3.6	2.8	2.3	1.9	1.5			
495 x 90		8.3	5.8	4.4	3.4	2.8	2.3	1.9	1.5	1.2	
495 x 90 Precambered									*1.6*	*1.3*	
precamber required(mm)									*5*	*6*	

Live load = 3.0 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

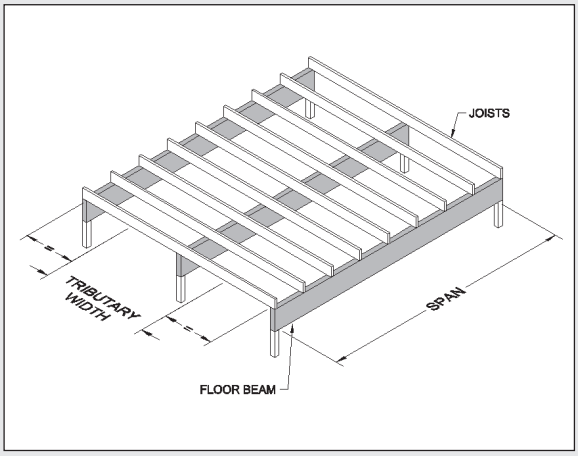
Glulam Grade = GL8

Instructions

To use this table you will need to know:

- The Span of the floor beam.
- The Maximum Tributary Width – (this is generally the measured spacing between floor beams).

1. Under the 'Span of Glulam Beam' heading, locate the column headed with a span that meets or exceeds the required span.
2. Read down this column until you find a figure equal to or greater than the Maximum Tributary width required.
3. The section size of the Glulam beam can be read off the left hand column.



Example:

For a floor beam spanning 5.8m at centres of 1.5m carrying a deck load of 3.0kPa
Span of Glulam Beam = 5.8
Maximum Tributary Width = 1.5
Therefore Section Size = 450 x 90 GL8

Alternative using GL10
Therefore Section Size = 450 x 90 GL10
or = 405 x 90 GL10 5mm Precamber

Section Size dxb (mm)	Span of Glulam Beam, Length (m)													
	3.5	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**
	Maximum Tributary Width (m) at Span L													
540 x 90	7.2	5.3	4.1	3.3	2.7	2.2	1.9	1.6	1.3					
540 x 90 Precambered									*1.4*					
precamber required(mm)									*6*					
585 x 90	8.8	6.4	4.9	3.9	3.2	2.6	2.2	1.9	1.6	1.3				
585 x 90 Precambered										*1.4*				
precamber required(mm)										*7*				
630 x 90		7.7	5.9	4.6	3.7	3.1	2.6	2.2	1.9	1.7	1.4			
630 x 90 Precambered											*1.5*			
precamber required(mm)											*7*			
675 x 135				9.1	7.3	6.0	4.9	4.1	3.5	3.0	2.6	2.1	1.7	1.4
675 x 135 Precambered												*2.2*	*2.0*	*1.8*
precamber required(mm)												*8*	*9*	*10*
720 x 135					8.5	7.0	5.8	4.9	4.1	3.5	3.0	2.7	2.2	1.8
720 x 135 Precambered													*2.3*	*2.0*
precamber required(mm)													*9*	*9*
765 x 135					9.8	8.1	6.7	5.6	4.8	4.1	3.6	3.1	2.7	2.3
765 x 135 Precambered														*2.4*
precamber required(mm)														*9*
810 x 135						9.2	7.7	6.5	5.5	4.7	4.1	3.6	3.1	2.8
855 x 135							8.7	7.4	6.3	5.4	4.7	4.1	3.6	3.2
900 x 135							9.9	8.3	7.1	6.1	5.3	4.6	4.1	3.6
945 x 135								9.4	8.0	6.9	6.0	5.2	4.6	4.0

Live load = 3.0 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL8

Tip:

Delivery wrappings are not intended for longer term protection against the weather. Water can gets under the wrapping but cannot get out. Wrapping should be split to provide drainage.

Make sure any pre-cambered beams are fixed in place with the camber curving upwards.

FLOOR BEAMS - 3.0kPa – LIVE LOAD **GL10**

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
135 x 65																	
135 x 65 Precambered																	
precamber required(mm)																	
180 x 65	1.8																
180 x 65 Precambered																	
precamber required(mm)																	
225 x 65	2.9	1.8	1.3														
225 x 65 Precambered																	
precamber required(mm)																	
225 x 90	4.1	2.6	1.8														
225 x 90 Precambered																	
precamber required(mm)																	
270 x 90	6.1	3.9	2.7	1.9	1.4												
270 x 90 Precambered																	
precamber required(mm)																	
315 x 90	8.5	5.4	3.7	2.7	2.0	1.6											
315 x 90 Precambered																	
precamber required(mm)																	
360 x 90		7.1	4.9	3.5	2.7	2.1	1.7	1.2									
360 x 90 Precambered																	
precamber required(mm)																	
405 x 90		9.2	6.2	4.5	3.4	2.7	2.1	1.8	1.4								
405 x 90 Precambered									*1.5*								
precamber required(mm)									*5*								
450 x 90			7.9	5.6	4.2	3.3	2.7	2.2	1.8	1.5							
450 x 90 Precambered										*1.5*							
precamber required(mm)										*5*							
495 x 90			10.0	7.0	5.1	4.0	3.2	2.6	2.2	1.9	1.5	1.2					
495 x 90 Precambered										*1.9*	*1.6*	*1.4*					
precamber required(mm)										*5*	*5*	*6*					
540 x 90				8.7	6.4	4.9	3.8	3.1	2.6	2.2	1.9	1.6	1.3				
540 x 90 Precambered											*1.9*	*1.6*	*1.4*				
precamber required(mm)											*5*	*6*	*7*				
585 x 90					7.8	5.9	4.6	3.7	3.1	2.6	2.2	1.9	1.7	1.4			
585 x 90 Precambered												*1.9*	*1.7*	*1.5*			
precamber required(mm)												*5*	*6*	*7*			
630 x 90					9.3	7.1	5.6	4.5	3.6	3.0	2.6	2.2	1.9	1.7	1.4	1.2	
630 x 90 Precambered												*2.2*	*1.9*	*1.7*	*1.5*	*1.3*	
precamber required(mm)												*5*	*6*	*7*	*8*	*9*	

FLOOR BEAMS - 3.0kPa – LIVE LOAD **GL10**

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
675 x 135								8.8	7.2	6.0	5.0	4.3	3.7	3.2	2.7	2.3	1.9
675 x 135 Precambered												*4.3*	*3.7*	*3.2*	*2.7*	*2.4*	*2.1*
precamber required(mm)												*5*	*5*	*6*	*7*	*8*	*9*
720 x 135									8.4	7.0	5.9	5.0	4.3	3.7	3.2	2.8	2.5
720 x 135 Precambered													*4.3*	*3.7*	*3.2*	*2.8*	*2.5*
precamber required(mm)													*5*	*6*	*7*	*8*	*9*
765 x 135									9.7	8.1	6.8	5.8	5.0	4.3	3.8	3.3	2.9
765 x 135 Precambered													*5.0*	*4.3*	*3.8*	*3.3*	*2.9*
precamber required(mm)													*5*	*6*	*6*	*7*	*8*
810 x 135										9.2	7.8	6.6	5.7	5.0	4.3	3.8	3.4
810 x 135 Precambered													*5.7*	*5.0*	*4.3*	*3.8*	*3.4*
precamber required(mm)													*5*	*5*	*6*	*7*	*8*
855 x 135											8.9	7.6	6.5	5.7	4.9	4.3	3.8
855 x 135 Precambered														*5.7*	*4.9*	*4.3*	*3.8*
precamber required(mm)														*5*	*6*	*7*	*7*
900 x 135											10.0	8.5	7.4	6.4	5.6	4.9	4.4
900 x 135 Precambered														*6.4*	*5.6*	*4.9*	*4.4*
precamber required(mm)														*5*	*5*	*6*	*7*
945 x 135												9.6	8.3	7.2	6.3	5.5	4.9
945 x 135 Precambered															*6.3*	*5.5*	*4.9*
precamber required(mm)															*5*	*6*	*7*

Live load = 3.0 kPa, Dead Load = 0.5 kPa Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL 10

ROOF BEAMS - 3.0kPa – LIVE LOAD **GL10**

Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at span L																		
135 x 65	3.8	1.6																	
135 x 65 Precambered																			
precamber required(mm)																			
180 x 65	7.3	3.2	1.8																
180 x 65 Precambered																			
precamber required(mm)																			
225 x 65	10.5	5.3	2.9	1.8	1.3														
225 x 65 Precambered																			
precamber required(mm)																			
225 x 90	14.6	7.3	4.1	2.6	1.8														
225 x 90 Precambered																			
precamber required(mm)																			
270 x 90		10.9	6.1	3.9	2.7	1.9	1.4												
270 x 90 Precambered																			
precamber required(mm)																			
315 x 90		13.6	8.5	5.4	3.7	2.7	2.0	1.6											
315 x 90 Precambered																			
precamber required(mm)																			
360 x 90			11.4	7.1	4.9	3.5	2.7	2.1	1.7	1.2									
360 x 90 Precambered																			
precamber required(mm)																			
405 x 90			14.0	9.2	6.2	4.5	3.4	2.7	2.1	1.8	1.4								
405 x 90 Precambered											*1.5*								
precamber required(mm)											*5*								
450 x 90			15.9	11.9	7.9	5.6	4.2	3.3	2.7	2.2	1.8	1.5							
450 x 90 Precambered												*1.5*							
precamber required(mm)												*5*							
495 x 90				14.3	10.0	7.0	5.1	4.0	3.2	2.6	2.2	1.9	1.5	1.2					
495 x 90 Precambered												*1.9*	*1.6*	*1.4*					
precamber required(mm)												*5*	*5*	*6*					
540 x 90					12.3	8.7	6.4	4.9	3.8	3.1	2.6	2.2	1.9	1.6	1.3				
540 x 90 Precambered													*1.9*	*1.6*	*1.4*				
precamber required(mm)													*5*	*6*	*7*				
585 x 90					14.7	10.5	7.8	5.9	4.6	3.7	3.1	2.6	2.2	1.9	1.7	1.4			
585 x 90 Precambered														*1.9*	*1.7*	*1.5*			
precamber required(mm)														*5*	*6*	*7*			
630 x 90						12.6	9.3	7.1	5.6	4.5	3.6	3.0	2.6	2.2	1.9	1.7	1.4	1.2	
630 x 90 Precambered														*2.2*	*1.9*	*1.7*	*1.5*	*1.3*	
precamber required(mm)														*5*	*6*	*7*	*8*	*9*	
225 x 115		9.4	5.2	3.3	2.3	1.6													
225 x 115 Precambered																			
precamber required(mm)																			
270 x 115		14.1	7.8	5.0	3.4	2.5	1.8												
270 x 115 Precambered																			
precamber required(mm)																			
315 x 115			11.1	6.9	4.8	3.5	2.6	2.0	1.4										
315 x 115 Precambered																			
precamber required(mm)																			
360 x 115			15.5	9.3	6.2	4.5	3.5	2.7	2.2	1.6									
360 x 115 Precambered																			
precamber required(mm)																			

ROOF BEAMS - 3.0kPa – LIVE LOAD **GL10** – Continued

Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at span L																		
405 x 115				12.5	8.2	5.8	4.4	3.4	2.8	2.3	1.7	1.3							
405 x 115 Precambered											*1.9*	*1.6*							
precamber required(mm)											*5*	*5*							
450 x 115					10.7	7.5	5.5	4.2	3.4	2.8	2.3	1.9	1.4						
450 x 115 Precambered												*2.0*	*1.7*						
precamber required(mm)												*5*	*6*						
495 x 115					13.5	9.5	7.0	5.3	4.2	3.4	2.8	2.4	2.0	1.6	1.2				
495 x 115 Precambered												*2.4*	*2.0*	*1.8*	*1.5*				
precamber required(mm)												*5*	*5*	*6*	*7*				
540 x 115						11.8	8.7	6.6	5.2	4.1	3.4	2.8	2.4	2.1	1.7	1.3			
540 x 115 Precambered													*2.4*	*2.1*	*1.8*	*1.6*			
precamber required(mm)													*5*	*6*	*7*	*8*			
585 x 115						14.3	10.5	8.1	6.3	5.1	4.1	3.4	2.9	2.5	2.1	1.8	1.4	1.2	
585 x 115 Precambered														*2.5*	*2.1*	*1.9*	*1.7*	*1.5*	
precamber required(mm)														*5*	*6*	*7*	*8*	*9*	
630 x 115							12.6	9.6	7.6	6.1	5.0	4.1	3.4	2.9	2.5	2.2	1.9	1.5	1.3
630 x 115 Precambered														*2.9*	*2.5*	*2.2*	*1.9*	*1.7*	*1.5*
precamber required(mm)														*5*	*6*	*7*	*8*	*9*	*10*
675 x 135								13.8	10.9	8.8	7.2	6.0	5.0	4.3	3.7	3.2	2.7	2.3	1.9
675 x 135 Precambered														*4.3*	*3.7*	*3.2*	*2.7*	*2.4*	*2.1*
precamber required(mm)														*5*	*5*	*6*	*7*	*8*	*9*
720 x 135									12.7	10.2	8.4	7.0	5.9	5.0	4.3	3.7	3.2	2.8	2.5
720 x 135 Precambered															*4.3*	*3.7*	*3.2*	*2.8*	*2.5*
precamber required(mm)															*5*	*6*	*7*	*8*	*9*
765 x 135									14.6	11.8	9.7	8.1	6.8	5.8	5.0	4.3	3.8	3.3	2.9
765 x 135 Precambered															*5.0*	*4.3*	*3.8*	*3.3*	*2.9*
precamber required(mm)															*5*	*6*	*6*	*7*	*8*
810 x 135										13.5	11.1	9.2	7.8	6.6	5.7	5.0	4.3	3.8	3.4
810 x 135 Precambered															*5.7*	*5.0*	*4.3*	*3.8*	*3.4*
precamber required(mm)															*5*	*5*	*6*	*7*	*8*
855 x 135										15.3	12.6	10.5	8.9	7.6	6.5	5.7	4.9	4.3	3.8
855 x 135 Precambered																*5.7*	*4.9*	*4.3*	*3.8*
precamber required(mm)																*5*	*6*	*7*	*7*
900 x 135											14.2	11.8	10.0	8.5	7.4	6.4	5.6	4.9	4.4
900 x 135 Precambered																*6.4*	*5.6*	*4.9*	*4.4*
precamber required(mm)																*5*	*5*	*6*	*7*
945 x 135											15.9	13.3	11.2	9.6	8.3	7.2	6.3	5.5	4.9
945 x 135 Precambered																	*6.3*	*5.5*	*4.9*
precamber required(mm)																	*5*	*6*	*7*

Live load = 3.0 kPa, Dead Load = 0.5 kPa — Beams Fully Restrained

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL 10

ROOF BEAMS, RAFTERS & RIDGES – **LIGHT** ROOF

Instructions:
To use this table you will need to know:

- The Span of the Rafter Beam.
- The Maximum Tributary Width – (this is the measured spacing between rafter beams).

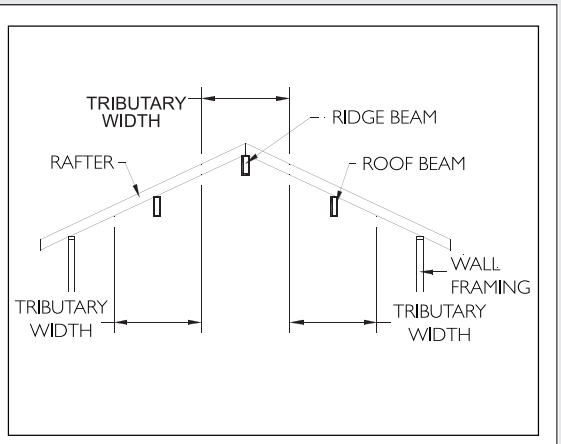
1. Under the 'Span of Glulam Beam' heading, locate the column headed with a span that meets or exceeds the required span.

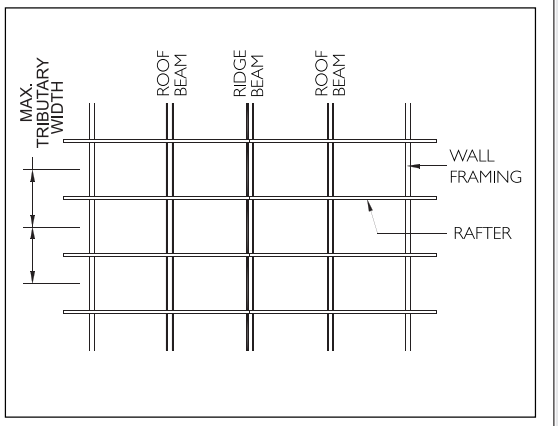
2. Read down this column until you find a figure equal to or greater than the Maximum Tributary width required.

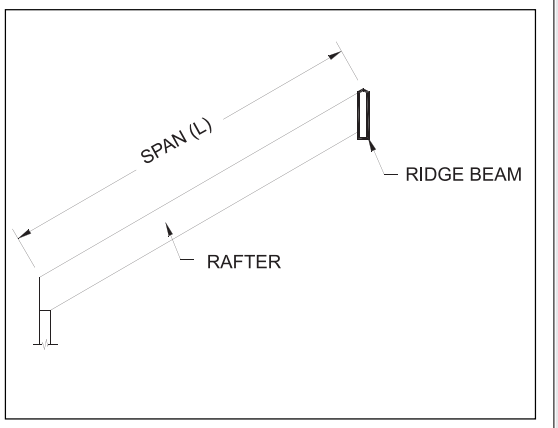
3. The section size of the Glulam beam can be read off the left hand column.

Example:
For a roof beam spanning 6m at centres of 3m carrying a light roof and ceiling.

Span of Glulam Beam	=	6
Maximum Tributary Width	=	3
Therefore Section Size	=	360 x 90 GL8
	=	315 x 90 GL8
		15mm Precamber
Alternative Using GL10		
Therefore Section Size	=	315 x 90 GL10







Tip:

Glulam is an engineered kiln dried product and should always be stored clear of the ground and under cover.

Section Size dxb (mm)	Span Glulam Beam, L (m)																
	2	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**
	Maximum Tributary Width (m) at Span L																
135 x 65	4.3	2.1	1.2														
135 x 65 Precambered	*4.9*	*2.9*	*1.6*	*1.0*													
precamber required (mm)	5.0	6.0	7.0	9.0													
180 x 65	9.6	5.2	2.9	1.8	1.1												
180 x 65 Precambered		*6.1*	*3.9*	*2.5*	*1.6*	*1.1*											
precamber required (mm)		6.0	7.0	9.0	10.0	11.0											
225 x 65		10.0	5.8	3.6	2.3	1.6	1.1										
225 x 65 Precambered		*10.0*	*6.9*	*4.9*	*3.2*	*2.3*	*1.6*	*1.2*	*0.9*								
precamber required (mm)		6.0	7.0	9.0	10.0	11.0	13.0	14.0	14.0								
270 x 65				6.3	4.1	2.8	2.0	1.4	1.1								
270 x 65 Precambered				*7.6*	*5.6*	*3.9*	*2.9*	*2.1*	*1.6*	*1.3*	*1.0*						
precamber required (mm)				9.0	10.0	11.0	12.0	13.0	16.0	17.0	18.0						
315 x 65				10.1	6.7	4.6	3.3	2.4	1.8	1.3	1.0						
315 x 65 Precambered				*10.5*	*8.0*	*6.3*	*4.6*	*3.4*	*2.6*	*2.1*	*1.6*	*1.3*	*1.1*	*0.9*			
precamber required (mm)				9.0	10.0	11.0	13.0	14.0	15.0	16.0	18.0	20.0	21.0	21.0			
405 x 65						10.1	7.3	5.4	4.0	3.1	2.4	1.9	1.5	1.2	0.9		
405 x 65 Precambered						*10.4*	*8.4*	*6.9*	*5.6*	*4.4*	*3.5*	*2.9*	*2.3*	*1.9*	*1.6*	*1.4*	*1.2*
precamber required (mm)						11.0	13.0	14.0	15.0	16.0	18.0	19.0	21.0	22.0	23.0	26.0	27.0
450 x 65						12.9	10.0	7.5	5.6	4.4	3.4	2.7	2.2	1.7	1.4	1.1	0.9
450 x 65 Precambered						*12.9*	*10.4*	*8.5*	*7.1*	*6.0*	*4.9*	*3.9*	*3.2*	*2.7*	*2.3*	*1.9*	*1.6*
precamber required (mm)						10.0	12.0	14.0	15.0	17.0	18.0	19.0	21.0	22.0	23.0	24.0	26.0
225 x 90			8.1	5.0	3.2	2.2	1.5	1.1									
225 x 90 Precambered			*9.6*	*6.7*	*4.5*	*3.1*	*2.3*	*1.7*	*1.3*	*1.0*							
precamber required (mm)			7.0	9.0	10.0	11.0	12.0	14.0	16.0	16.0							
270 x 90				8.8	5.8	3.9	2.8	2.0	1.5	1.1							
270 x 90 Precambered					*7.8*	*5.5*	*4.0*	*3.0*	*2.3*	*1.8*	*1.4*	*1.1*	*0.9*				
precamber required (mm)					10.0	11.0	13.0	14.0	15.0	17.0	18.0	20.0	20.0				
315 x 90					9.3	6.4	4.6	3.3	2.5	1.9	1.4	1.1					
315 x 90 Precambered						*8.7*	*6.3*	*4.8*	*3.7*	*2.9*	*2.3*	*1.8*	*1.5*	*1.3*	*1.0*	*0.9*	
precamber required (mm)						11.0	13.0	14.0	15.0	17.0	18.0	20.0	20.0	22.0	25.0	24.0	
360 x 90						9.7	7.0	5.1	3.9	2.9	2.3	1.8	1.4	1.1			
360 x 90 Precambered							*9.2*	*7.1*	*5.5*	*4.3*	*3.4*	*2.8*	*2.3*	*1.9*	*1.6*	*1.3*	*1.1*
precamber required (mm)							13.0	14.0	15.0	16.0	18.0	20.0	21.0	23.0	23.0	26.0	27.0
405 x 90							10.1	7.4	5.6	4.3	3.4	2.6	2.1	1.7	1.3	1.1	
405 x 90 Precambered								*9.6*	*7.8*	*6.1*	*4.9*	*4.0*	*3.3*	*2.7*	*2.3*	*1.9*	*1.6*
precamber required (mm)								14.0	15.0	16.0	18.0	19.0	21.0	22.0	23.0	26.0	26.0
450 x 90									7.8	6.1	4.7	3.8	3.0	2.4	2.0	1.6	1.3
450 x 90 Precambered									*9.9*	*8.3*	*6.7*	*5.5*	*4.5*	*3.7*	*3.1*	*2.7*	*2.3*
precamber required (mm)									15.0	17.0	18.0	19.0	21.0	22.0	24.0	25.0	27.0
495 x 90										8.2	6.4	5.1	4.1	3.3	2.7	2.2	1.8
495 x 90 Precambered											*8.6*	*7.3*	*6.0*	*5.0*	*4.2*	*3.6*	*3.1*
precamber required (mm)											18.0	19.0	20.0	22.0	23.0	25.0	26.0
540 x 90											8.5	6.8	5.5	4.5	3.7	3.0	2.5
540 x 90 Precambered											*10.3*	*8.9*	*7.8*	*6.5*	*5.5*	*4.6*	*4.0*
precamber required (mm)											18.0	19.0	21.0	22.0	24.0	25.0	26.0
585 x 90												8.7	7.1	5.8	4.8	4.0	3.3
585 x 90 Precambered													*9.1*	*8.0*	*7.0*	*5.9*	*5.1*
precamber required (mm)													21.0	22.0	23.0	25.0	26.0
630 x 90													9.0	7.4	6.1	5.1	4.2
630 x 90 Precambered														*9.3*	*8.2*	*7.4*	*6.3*
precamber required (mm)														22.0	23.0	25.0	26.0

Light Roof Beams Fully Restrained @ Top Edge Only

Wind Speed = Medium

Roof Pitch < 20º

Maximum Precamber = 1.5 x Dead Load deflection or span / 400 whichever is the least

If precamber width not shown there is no additional benefit of precamber

Deflection Limit = span / 300

Glulam Grade = GL8

ROOF BEAMS, RAFTERS & RIDGES – **LIGHT** ROOF – HIGH WIND SPEED **GL8**

Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																		
270 x 42			10.2	6.5	4.5	3.3	2.2	1.5	1.1										
270 x 42 Precambered					*4.5*	*3.3*													
precamber required (mm)					*5.0*	*7.0*													
315 x 42			11.7	7.1	4.9	3.5	2.7	2.1	1.7	1.3	1.0								
315 x 42 Precambered							*2.7*	*2.1*	*1.7*										
precamber required (mm)							*6.0*	*8.0*	*10.0*										
135 x 65		8.2	3.4	1.7	1.0														
135 x 65 Precambered																			
precamber required (mm)																			
140 x 65		9.1	3.8	1.9	1.1														
140 x 65 Precambered																			
precamber required (mm)																			
180 x 65			8.2	4.2	2.4	1.5	1.0												
180 x 65 Precambered																			
precamber required (mm)																			
225 x 65			15.1	8.2	4.7	3.0	2.0	1.4	1.0										
225 x 65 Precambered																			
precamber required (mm)																			
240 x 65				9.9	5.7	3.6	2.4	1.7	1.2	0.9									
240 x 65 Precambered																			
precamber required (mm)																			
270 x 65				14.0	8.2	5.1	3.4	2.4	1.7	1.3	1.0								
270 x 65 Precambered																			
precamber required (mm)																			
280 x 65				15.0	9.1	5.7	3.8	2.7	1.9	1.4	1.1								
280 x 65 Precambered																			
precamber required (mm)																			
315 x 65					12.6	8.2	5.5	3.8	2.8	2.1	1.6	1.2	0.9						
315 x 65 Precambered																			
precamber required (mm)																			
320 x 65					12.9	8.6	5.7	4.0	2.9	2.2	1.7	1.3	1.0						
320 x 65 Precambered																			
precamber required (mm)																			
405 x 65						12.2	9.3	7.3	5.9	4.5	3.4	2.7	2.1	1.7	1.4	1.1	0.9		
405 x 65 Precambered						*12.2*	*9.3*	*7.3*	*5.9*						*1.4*	*1.2*	*1.0*		
precamber required (mm)						*5.0*	*6.0*	*8.0*	*10.0*						*19.0*	*21.0*	*23.0*		
450 x 65						12.9	9.8	7.7	6.2	5.1	4.3	3.6	3.0	2.4	2.0	1.6	1.3	1.1	0.9
450 x 65 Precambered							*9.8*	*7.7*	*6.2*	*5.1*	*4.3*	*3.6*				*1.6*	*1.4*	*1.2*	*1.0*
precamber required (mm)							*5.0*	*6.0*	*8.0*	*10.0*	*12.0*	*14.0*				*21.0*	*22.0*	*24.0*	*26.0*
225 x 90				11.4	6.5	4.1	2.7	1.9	1.4	1.0									
225 x 90 Precambered																			
precamber required (mm)																			
270 x 90					11.4	7.1	4.8	3.3	2.4	1.8	1.4	1.0							
270 x 90 Precambered																			
precamber required (mm)																			
315 x 90						11.4	7.6	5.3	3.9	2.9	2.2	1.7	1.3	1.0					
315 x 90 Precambered													*1.4*	*1.1*	*0.9*				
precamber required (mm)													*17.0*	*18.0*	*20.0*				
360 x 90							11.4	8.0	5.8	4.3	3.3	2.6	2.1	1.7	1.3	1.0			
360 x 90 Precambered														*1.7*	*1.4*	*1.1*	*1.0*		
precamber required (mm)														*19.0*	*20.0*	*21.0*	*23.0*		

Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																		
405 x 90								11.4	8.3	6.2	4.8	3.7	3.0	2.4	2.0	1.6	1.2	1.0	
405 x 90 Precambered															*2.0*	*1.6*	*1.4*	*1.2*	*1.0*
precamber required (mm)															*20.0*	*21.0*	*22.0*	*24.0*	*26.0*
450 x 90								15.4	11.4	8.5	6.5	5.1	4.1	3.3	2.7	2.3	1.8	1.5	1.2
450 x 90 Precambered																*2.3*	*1.9*	*1.6*	*1.4*
precamber required (mm)																*21.0*	*22.0*	*24.0*	*25.0*
495 x 90									13.9	11.4	8.7	6.9	5.5	4.4	3.7	3.0	2.6	2.1	1.7
495 x 90 Precambered																		*2.2*	*1.8*
precamber required (mm)																		*24.0*	*25.0*
540 x 90									15.1	12.4	10.4	8.8	7.1	5.8	4.8	4.0	3.3	2.8	2.3
540 x 90 Precambered									*15.1*	*12.4*	*10.4*	*8.8*							*2.4*
precamber required (mm)									*8.0*	*9.0*	*11.0*	*14.0*							*25.0*
585 x 90									16.0	13.1	11.0	9.3	8.0	6.9	6.0	5.0	4.2	3.6	3.1
585 x 90 Precambered									*16.0*	*13.1*	*11.0*	*9.3*	*8.0*	*6.9*	*6.0*				
precamber required (mm)									*6.0*	*8.0*	*9.0*	*11.0*	*13.0*	*15.0*	*18.0*				
630 x 90										13.6	11.3	9.6	8.2	7.1	6.2	5.5	4.8	4.3	3.8
630 x 90 Precambered										*13.6*	*11.3*	*9.6*	*8.2*	*7.1*	*6.2*	*5.5*	*4.8*	*4.3*	*3.8*
precamber required (mm)										*6.0*	*8.0*	*9.0*	*11.0*	*13.0*	*15.0*	*17.0*	*19.0*	*21.0*	*24.0*
225 x 115				14.5	8.4	5.3	3.5	2.4	1.8	1.3	0.9								
225 x 115 Precambered										*1.3*	*1.0*								
precamber required (mm)										*13.0*	*14.0*								
270 x 115					14.5	9.1	6.1	4.3	3.1	2.3	1.8	1.3	1.0						
270 x 115 Precambered												*1.4*	*1.1*	*0.9*					
precamber required (mm)												*16.0*	*18.0*	*19.0*					
315 x 115						14.5	9.7	6.8	4.9	3.7	2.8	2.2	1.7	1.3	1.0				
315 x 115 Precambered													*1.8*	*1.4*	*1.2*	*1.0*			
precamber required (mm)													*17.0*	*19.0*	*20.0*	*22.0*			
360 x 115							14.5	10.2	7.4	5.6	4.3	3.3	2.7	2.1	1.7	1.3	1.0		
360 x 115 Precambered														*2.2*	*1.8*	*1.5*	*1.2*	*1.0*	*0.9*
precamber required (mm)														*18.0*	*20.0*	*21.0*	*23.0*	*25.0*	*26.0*
405 x 115								14.5	10.6	7.9	6.1	4.8	3.8	3.1	2.5	2.0	1.6	1.3	1.0
405 x 115 Precambered															*2.5*	*2.1*	*1.8*	*1.5*	*1.3*
precamber required (mm)															*20.0*	*21.0*	*23.0*	*24.0*	*26.0*
450 x 115									14.5	10.9	8.4	6.6	5.3	4.3	3.5	2.9	2.4	1.9	1.6
450 x 115 Precambered																*2.9*	*2.4*	*2.1*	*1.8*
precamber required (mm)																*21.0*	*23.0*	*24.0*	*26.0*
495 x 115										14.5	11.2	8.8	7.0	5.7	4.7	3.9	3.3	2.7	2.2
495 x 115 Precambered																		*2.8*	*2.4*
precamber required (mm)																		*24.0*	*25.0*
540 x 115											14.5	11.4	9.1	7.4	6.1	5.1	4.3	3.6	3.0
540 x 115 Precambered																			*3.1*
precamber required (mm)																			*25.0*
585 x 115												14.5	11.6	9.4	7.8	6.5	5.4	4.6	4.0
585 x 115 Precambered																			
precamber required (mm)																			
630 x 115													14.4	11.8	9.7	8.1	6.8	5.8	4.9
630 x 115 Precambered																			
precamber required (mm)																			
675 x 135															14.0	11.7	9.8	8.4	7.2
675 x 135 Precambered																			
precamber required (mm)																			

Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																		
720 x 135																14.2	12.0	10.2	8.7
720 x 135 Precambered																			
precamber required (mm)																			
765 x 135																	14.3	12.2	10.5
765 x 135 Precambered																			
precamber required (mm)																			
810 x 135																	15.0	13.4	12.0
810 x 135 Precambered																	*15.0*	*13.4*	*12.0*
precamber required (mm)																	*17.0*	*20.0*	*22.0*
855 x 135																	15.6	13.9	12.5
855 x 135 Precambered																	*15.6*	*13.9*	*12.5*
precamber required (mm)																	*15.0*	*17.0*	*19.0*
900 x 135																	16.0	14.3	12.8
900 x 135 Precambered																	*16.0*	*14.3*	*12.8*
precamber required (mm)																	*13.0*	*15.0*	*17.0*
945 x 135																		14.5	13.0
945 x 135 Precambered																		*14.5*	*13.0*
precamber required (mm)																		*13.0*	*15.0*

Light Roof

Beams Fully Restrained @ top edge only

Wind Speed = High

Roof Pitch < 20º

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additional benefit of precamber

Deflection Limit = span / 300

Glulam Grade = GL8

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
135 x 65	5.4	2.7	1.5	0.9													
135 x 65 Precambered	5.7	3.6	2.1	1.3													
precamber required (mm)	5.0	6.0	7.0	9.0													
180 x 65		6.5	3.7	2.2	1.4	1.0											
180 x 65 Precambered		7.0	4.8	3.1	2.1	1.4	1.0										
precamber required (mm)		6.0	7.0	8.0	9.0	11.0	11.0										
225 x 65			7.3	4.5	3.0	2.0	1.4	1.0									
225 x 65 Precambered			8.0	5.8	4.1	2.8	2.1	1.5	1.2	0.9							
precamber required (mm)			7.0	8.0	10.0	11.0	12.0	14.0	15.0	16.0							
270 x 65				8.0	5.2	3.6	2.6	1.9	1.4	1.0							
270 x 65 Precambered				8.8	6.7	4.9	3.6	2.7	2.1	1.6	1.3	1.0					
precamber required (mm)				9.0	10.0	11.0	13.0	14.0	15.0	16.0	18.0	20.0					
315 x 65					8.5	5.8	4.2	3.1	2.3	1.7	1.3	1.0					
315 x 65 Precambered					9.3	7.3	5.7	4.3	3.3	2.6	2.1	1.7	1.4	1.1	0.9		
precamber required (mm)					10.0	11.0	12.0	14.0	15.0	16.0	17.0	19.0	20.0	21.0	24.0		
405 x 65							9.2	6.8	5.1	4.0	3.1	2.5	2.0	1.6	1.3	1.0	
405 x 65 Precambered							9.8	8.0	6.7	5.5	4.4	3.6	2.9	2.4	2.1	1.7	1.5
precamber required (mm)							13.0	14.0	15.0	17.0	18.0	19.0	21.0	22.0	24.0	24.0	25.0
450 x 65								9.4	7.2	5.5	4.4	3.5	2.8	2.3	1.8	1.5	1.2
450 x 65 Precambered								9.9	8.3	7.0	6.0	4.9	4.1	3.4	2.8	2.4	2.1
precamber required (mm)								14.0	15.0	16.0	18.0	19.0	20.0	22.0	23.0	24.0	25.0
225 x 90				6.3	4.1	2.8	2.0	1.4	1.0								
225 x 90 Precambered				8.1	5.6	3.9	2.9	2.1	1.6	1.3	1.0						
precamber required (mm)				9.0	10.0	11.0	13.0	14.0	15.0	16.0	17.0						
270 x 90					7.3	5.0	3.6	2.6	1.9	1.4	1.1						
270 x 90 Precambered					9.3	6.9	5.0	3.7	2.9	2.2	1.8	1.4	1.2	1.0			
precamber required (mm)					10.0	11.0	13.0	14.0	15.0	16.0	18.0	19.0	20.0	23.0			
315 x 90						8.1	5.8	4.3	3.2	2.4	1.9	1.5	1.1	0.9			
315 x 90 Precambered						10.1	7.9	6.0	4.6	3.6	2.9	2.3	1.9	1.6	1.3	1.1	0.9
precamber required (mm)						11.0	12.0	14.0	15.0	16.0	18.0	20.0	20.0	23.0	24.0	25.0	27.0
360 x 90							8.8	6.5	4.9	3.8	2.9	2.3	1.8	1.5	1.2	0.9	
360 x 90 Precambered							10.7	8.8	6.9	5.4	4.3	3.5	2.9	2.4	2.0	1.7	1.4
precamber required (mm)							12.0	14.0	15.0	17.0	18.0	19.0	20.0	23.0	24.0	25.0	26.0
405 x 90								9.4	7.1	5.5	4.3	3.4	2.7	2.2	1.8	1.4	1.2
405 x 90 Precambered								11.1	9.3	7.7	6.1	5.0	4.1	3.4	2.9	2.4	2.1
precamber required (mm)								14.0	15.0	16.0	18.0	19.0	20.0	22.0	24.0	24.0	27.0
450 x 90									9.9	7.7	6.1	4.8	3.9	3.2	2.6	2.1	1.7
450 x 90 Precambered									11.5	9.7	8.3	6.9	5.6	4.7	3.9	3.3	2.9
precamber required (mm)									15.0	16.0	18.0	19.0	21.0	22.0	24.0	25.0	26.0
495 x 90											8.2	6.6	5.3	4.3	3.6	2.9	2.4
495 x 90 Precambered											10.1	8.7	7.5	6.3	5.3	4.5	3.8
precamber required (mm)											18.0	19.0	20.0	22.0	24.0	24.0	26.0
540 x 90												8.6	7.0	5.7	4.7	3.9	3.3
540 x 90 Precambered												10.4	9.1	8.0	6.9	5.8	5.0
precamber required (mm)												19.0	20.0	22.0	23.0	24.0	26.0
585 x 90													9.0	7.4	6.1	5.1	4.3
585 x 90 Precambered													10.6	9.4	8.3	7.4	6.3
precamber required (mm)													20.0	22.0	23.0	24.0	26.0
630 x 90														9.4	7.8	6.5	5.5
630 x 90 Precambered														10.9	9.6	8.6	7.7
precamber required (mm)														22.0	23.0	24.0	26.0

Light Roof Beams Fully Restrained @ Top Edge Only

Wind Speed = Medium

Roof Pitch < 20°

Maximum Precamber = 1.5 x Dead Load deflection or span / 400 whichever is the least

If precamber width not shown there is no additional benefit of precamber

Deflection Limit = span / 300

Glulam Grade = GL10

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
270 x 42		7.5	5.2	3.8	2.8	1.9	1.4	1.0									
270 x 42 Precambered																	
precamber required (mm)																	
315 x 42		8.2	5.7	4.1	3.1	2.4	2.0	1.6	1.3	1.0							
315 x 42 Precambered																	
precamber required (mm)																	
135 x 65	4.3	2.2	1.2														
135 x 65 Precambered																	
precamber required (mm)																	
140 x 65	4.8	2.4	1.4	0.9													
140 x 65 Precambered																	
precamber required (mm)																	
180 x 65		5.2	3.0	1.9	1.2	0.9											
180 x 65 Precambered																	
precamber required (mm)																	
225 x 65			5.9	3.7	2.5	1.7	1.2	0.9									
225 x 65 Precambered																	
precamber required (mm)																	
240 x 65			7.2	4.5	3.0	2.1	1.5	1.1	0.9								
240 x 65 Precambered																	
precamber required (mm)																	
270 x 65				6.4	4.3	3.0	2.2	1.6	1.2	1.0							
270 x 65 Precambered																	
precamber required (mm)																	
280 x 65				7.2	4.8	3.4	2.4	1.8	1.4	1.1							
280 x 65 Precambered																	
precamber required (mm)																	
315 x 65					6.8	4.8	3.5	2.6	2.0	1.6	1.2	1.0					
315 x 65 Precambered																	
precamber required (mm)																	
320 x 65					7.2	5.0	3.7	2.7	2.1	1.6	1.3	1.0					
320 x 65 Precambered																	
precamber required (mm)																	
405 x 65						8.5	6.8	5.6	4.3	3.4	2.7	2.2	1.8	1.5	1.2	1.0	
405 x 65 Precambered						*8.5*	*6.8*										
precamber required (mm)						*7.0*	*9.0*										
450 x 65						9.0	7.2	5.9	5.0	4.2	3.6	3.0	2.5	2.0	1.7	1.4	1.2
450 x 65 Precambered						*9.0*	*7.2*	*5.9*	*5.0*	*4.2*	*3.6*						
precamber required (mm)						*6.0*	*7.0*	*9.0*	*11.0*	*13.0*	*15.0*						
225 x 90			8.2	5.1	3.4	2.4	1.7	1.3	1.0								
225 x 90 Precambered									*1.0*								
precamber required (mm)									*15.0*								

ROOF BEAMS, RAFTERS & RIDGES – **LIGHT** ROOF HIGH WIND SPEED **GL10**

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
270 x 90				8.9	6.0	4.2	3.0	2.3	1.7	1.4	1.0						
270 x 90 Precambered										*1.4*	*1.1*	*0.9*					
precamber required (mm)										*16.0*	*17.0*	*19.0*					
315 x 90					9.5	6.7	4.8	3.6	2.8	2.2	1.7	1.4	1.1				
315 x 90 Precambered												*1.4*	*1.1*	*0.9*			
precamber required (mm)												*19.0*	*20.0*	*21.0*			
360 x 90						10.0	7.2	5.4	4.2	3.3	2.6	2.1	1.7	1.4	1.1	0.9	
360 x 90 Precambered													*1.7*	*1.4*	*1.2*	*1.0*	*0.9*
precamber required (mm)													*19.0*	*21.0*	*23.0*	*25.0*	*26.0*
405 x 90								7.8	6.0	4.7	3.7	3.0	2.5	2.1	1.7	1.4	1.1
405 x 90 Precambered															*1.7*	*1.5*	*1.2*
precamber required (mm)															*23.0*	*24.0*	*25.0*
450 x 90									8.2	6.4	5.1	4.2	3.4	2.9	2.4	2.0	1.6
450 x 90 Precambered																*2.0*	*1.7*
precamber required (mm)																*24.0*	*25.0*
495 x 90										8.6	6.9	5.6	4.6	3.8	3.2	2.7	2.3
495 x 90 Precambered																	*2.3*
precamber required (mm)																	*25.0*
540 x 90											8.8	7.2	6.0	5.0	4.2	3.5	3.0
540 x 90 Precambered											*8.8*						
precamber required (mm)											*15.0*						
585 x 90											9.3	8.0	7.0	6.2	5.3	4.5	3.9
585 x 90 Precambered											*9.3*	*8.0*	*7.0*	*6.2*			
precamber required (mm)											*12.0*	*14.0*	*16.0*	*18.0*			
630 x 90											9.6	8.3	7.3	6.4	5.6	5.0	4.5
630 x 90 Precambered											*9.6*	*8.3*	*7.3*	*6.4*	*5.6*	*5.0*	*4.5*
precamber required (mm)											*10.0*	*12.0*	*13.0*	*15.0*	*17.0*	*19.0*	*22.0*

Light Roof Beams Fully Restrained @ Top Edge Only

Wind Speed = High

Roof Pitch < 20º

Maximum Precamber = 1.5 x Dead Load deflection or span / 400 whichever is the least

If precamber width not shown there is no additional benefit of precamber

Deflection Limit = span / 300

Glulam Grade = GL10

ROOF BEAMS, RAFTERS & RIDGES – **HEAVY** ROOF MEDIUM WIND SPEED **GL8**

Section Size dxb (mm)	Span Glulam Beam, L (m)																	
	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																	
135 x 65	5.2	2.4	1.2															
135 x 65 Precambered		*2.9*	*1.8*	*1.2*														
precamber required (mm)		5.0	7.0	7.0														
180 x 65	10.0	5.6	2.9	1.6	1.0													
180 x 65 Precambered			*3.5*	*2.4*	*1.8*	*1.2*												
precamber required (mm)			7.0	8.0	10.0	10.0												
225 x 65		9.2	5.7	3.3	2.0	1.3	0.9											
225 x 65 Precambered			*5.9*	*4.0*	*2.9*	*2.2*	*1.7*	*1.2*	*0.9*									
precamber required (mm)			7.0	8.0	10.0	11.0	13.0	14.0	14.0									
270 x 65			8.8	5.7	3.5	2.3	1.6	1.1										
270 x 65 Precambered			8.8	6.1	4.4	3.3	2.6	2.1	1.6	1.2	0.9							
precamber required (mm)			6.0	8.0	9.0	11.0	13.0	14.0	15.0	17.0	17.0							
315 x 65				8.4	5.7	3.8	2.6	1.8	1.3	1.0								
315 x 65 Precambered				8.4	6.2	4.7	3.7	2.9	2.4	2.0	1.5	1.2	0.9					
precamber required (mm)				7.0	10.0	11.0	13.0	14.0	15.0	17.0	17.0	20.0	20.0					
405 x 65						7.8	5.7	4.1	3.0	2.3	1.7	1.3	1.0					
405 x 65 Precambered						7.8	6.1	4.9	4.0	3.3	2.8	2.4	2.1	1.7	1.4	1.1	0.9	
precamber required (mm)						11.0	13.0	14.0	15.0	17.0	18.0	19.0	20.0	22.0	25.0	24.0	26.0	
450 x 65						9.6	7.5	5.6	4.2	3.2	2.4	1.9	1.5	1.2	1.0			
450 x 65 Precambered						9.6	7.5	6.1	5.0	4.1	3.5	3.0	2.6	2.2	2.0	1.7	1.3	1.1
precamber required (mm)						9.0	12.0	14.0	16.0	17.0	18.0	20.0	21.0	23.0	25.0	26.0	26.0	28.0
225 x 90			8.0	4.5	2.8	1.8	1.2											
225 x 90 Precambered			*8.1*	*5.6*	*4.1*	*3.1*	*2.4*	*1.7*	*1.2*	*0.9*								
precamber required (mm)			7.0	8.0	10.0	11.0	12.0	13.0	15.0	16.0								
270 x 90				7.9	4.9	3.2	2.2	1.5	1.1									
270 x 90 Precambered				*8.4*	*6.1*	*4.7*	*3.6*	*2.9*	*2.2*	*1.7*	*1.3*	*0.9*						
precamber required (mm)				8.0	10.0	11.0	12.0	13.0	15.0	16.0	18.0	18.0						
315 x 90					7.9	5.2	3.6	2.6	1.9	1.4	1.0							
315 x 90 Precambered					*8.6*	*6.5*	*5.1*	*4.1*	*3.3*	*2.8*	*2.1*	*1.7*	*1.3*	*1.0*				
precamber required (mm)					10.0	11.0	13.0	14.0	16.0	17.0	18.0	20.0	21.0	20.0				

Instructions

To use this table you will need to know:

- The Span of the Rafter Beam.
- The Maximum Tributary Width – (this is the measured spacing between rafter beams).

1. Under the 'Span of Glulam Beam' heading, locate the column headed with a span that meets or exceeds the required span.
2. Read down this column until you find a figure equal to or greater than the Maximum Tributary width required.
3. The section size of the Glulam beam can be read off the left hand column.

Example:

For a rafter beam spanning 6m at centres of 3m carrying a heavy roof and ceiling.

Span of Glulam Beam = 6
Maximum Tributary Width = 3
Therefore Section = 405 x 90 GL8
or = 360 x 90 GL8 17mm Precamber

Alternative using GL10
Therefore Section Size = 405 x 65 GL10 17mm Precamber
or = 315 x 90 GL10 17mm Precamber

Section Size dxb (mm)	Span Glulam Beam, L (m)																	
	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																	
360 x 90						7.9	5.5	3.9	2.9	2.2	1.6	1.3	1.0					
360 x 90 Precambered						*8.5*	*6.7*	*5.4*	*4.4*	*3.7*	*3.1*	*2.6*	*2.1*	*1.7*	*1.3*	*1.1*		
precamber required (mm)						11.0	13.0	14.0	16.0	17.0	18.0	20.0	21.0	23.0	24.0	27.0		
405 x 90							7.9	5.6	4.2	3.1	2.4	1.9	1.5	1.2	0.9			
405 x 90 Precambered							*8.5*	*6.8*	*5.6*	*4.6*	*3.9*	*3.3*	*2.9*	*2.4*	*1.9*	*1.6*	*1.3*	*1.1*
precamber required (mm)							13.0	14.0	16.0	17.0	18.0	20.0	21.0	23.0	24.0	25.0	27.0	30.0
450 x 90								7.8	5.8	4.4	3.4	2.7	2.1	1.7	1.3	1.1	0.9	
450 x 90 Precambered								*8.4*	*6.9*	*5.8*	*4.9*	*4.2*	*3.6*	*3.1*	*2.7*	*2.3*	*1.9*	*1.6*
precamber required (mm)								14.0	15.0	17.0	18.0	20.0	21.0	23.0	23.0	26.0	28.0	28.0
495 x 90									7.8	5.9	4.6	3.6	2.9	2.3	1.9	1.5	1.2	1.0
495 x 90 Precambered									*8.4*	*7.0*	*5.9*	*5.0*	*4.4*	*3.8*	*3.3*	*2.9*	*2.6*	*2.2*
precamber required (mm)									15.0	17.0	18.0	20.0	21.0	23.0	25.0	25.0	26.0	28.0
540 x 90									9.9	7.8	6.0	4.8	3.8	3.1	2.5	2.0	1.7	1.4
540 x 90 Precambered									9.9	8.3	7.0	6.0	5.2	4.5	4.0	3.5	3.1	2.8
precamber required (mm)									15.0	17.0	18.0	20.0	21.0	23.0	24.0	25.0	27.0	29.0
585 x 90										9.7	7.7	6.1	4.9	4.0	3.2	2.7	2.2	1.8
585 x 90 Precambered										9.7	8.2	7.0	6.1	5.3	4.7	4.1	3.7	3.3
precamber required (mm)										17.0	18.0	20.0	21.0	23.0	24.0	26.0	27.0	28.0
630 x 90											9.5	7.7	6.2	5.0	4.1	3.4	2.8	2.4
630 x 90 Precambered											9.5	8.2	7.1	6.2	5.4	4.8	4.3	3.8
precamber required (mm)											18.0	20.0	21.0	23.0	24.0	26.0	27.0	29.0

Heavy Roof Beams Fully Restrained @ Top Edge Only

Wind Speed = Medium

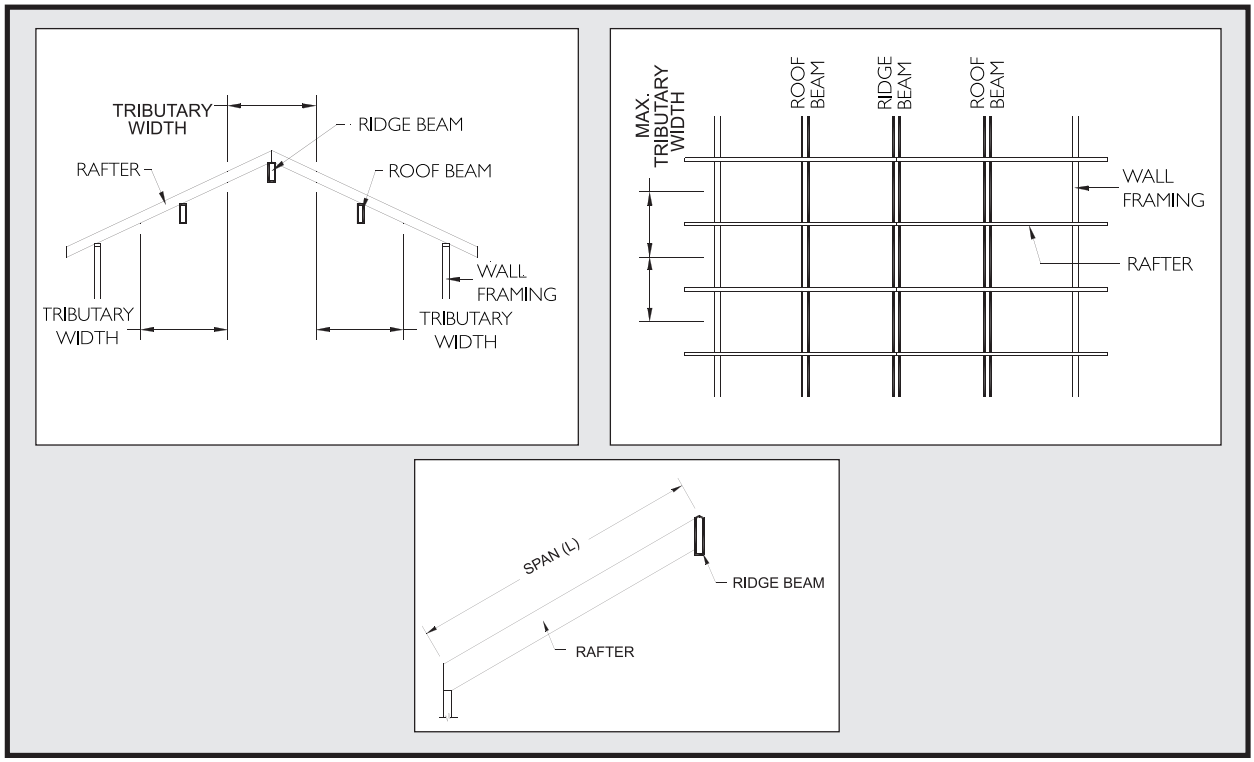
Roof Pitch < 20°

Maximum Precamber = 1.5 x Dead Load deflection or span / 400 whichever is the least

Deflection Limit = span / 300

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL8



Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																		
270 x 42		15.9	8.9	5.7	3.5	2.2	1.4	1.0											
270 x 42 Precambered				*5.7*	*3.9*	*2.8*	*2.1*	*1.5*	*1.1*										
precamber required (mm)				*6.0*	*8.0*	*9.0*	*10.0*	*12.0*	*13.0*										
315 x 42			12.4	7.9	5.4	3.5	2.3	1.6	1.1										
315 x 42 Precambered				*7.9*	*5.4*	*4.0*	*3.0*	*2.3*	*1.8*	*1.3*	*1.0*								
precamber required (mm)				*5.0*	*7.0*	*9.0*	*10.0*	*12.0*	*13.0*	*14.0*	*16.0*								
135 x 65	11.8	5.2	2.3	1.1															
135 x 65 Precambered			*2.9*	*1.7*	*1.0*														
precamber required (mm)			*5.0*	*6.0*	*7.0*														
140 x 65	12.9	5.7	2.6	1.3															
140 x 65 Precambered			*3.1*	*1.9*	*1.1*														
precamber required (mm)			*5.0*	*7.0*	*8.0*														
180 x 65		10.0	5.5	2.8	1.6	0.9													
180 x 65 Precambered			*5.6*	*3.5*	*2.4*	*1.5*	*1.0*												
precamber required (mm)			*5.0*	*6.0*	*8.0*	*9.0*	*10.0*												
225 x 65			9.2	5.5	3.1	1.9	1.2												
225 x 65 Precambered				*5.9*	*4.0*	*2.9*	*2.0*	*1.4*	*1.0*										
precamber required (mm)				*6.0*	*8.0*	*9.0*	*10.0*	*11.0*	*14.0*										
240 x 65			10.7	6.7	3.8	2.4	1.5	1.0											
240 x 65 Precambered				*6.8*	*4.7*	*3.4*	*2.4*	*1.7*	*1.2*	*0.9*									
precamber required (mm)				*6.0*	*8.0*	*9.0*	*10.0*	*11.0*	*13.0*	*14.0*									
270 x 65			13.8	8.8	5.5	3.4	2.2	1.5	1.1										
270 x 65 Precambered				*8.8*	*6.1*	*4.4*	*3.3*	*2.4*	*1.7*	*1.3*	*1.0*								
precamber required (mm)				*6.0*	*8.0*	*9.0*	*10.0*	*12.0*	*14.0*	*15.0*	*14.0*								
280 x 65			15.0	9.5	6.2	3.8	2.5	1.7	1.2	0.9									
280 x 65 Precambered				*9.5*	*6.6*	*4.8*	*3.6*	*2.7*	*1.9*	*1.4*	*1.1*	*0.9*							
precamber required (mm)				*6.0*	*8.0*	*9.0*	*11.0*	*12.0*	*13.0*	*15.0*	*15.0*	*18.0*							
315 x 65				12.2	8.4	5.5	3.6	2.5	1.8	1.3	0.9								
315 x 65 Precambered				*12.2*	*8.4*	*6.2*	*4.7*	*3.7*	*2.8*	*2.1*	*1.6*	*1.2*	*1.0*						
precamber required (mm)				*5.0*	*7.0*	*9.0*	*11.0*	*12.0*	*14.0*	*15.0*	*15.0*	*17.0*	*18.0*						
320 x 65				12.6	8.7	5.8	3.8	2.6	1.9	1.4	1.0								
320 x 65 Precambered				*12.6*	*8.7*	*6.4*	*4.8*	*3.8*	*2.9*	*2.2*	*1.7*	*1.3*	*1.0*						
precamber required (mm)				*5.0*	*7.0*	*9.0*	*11.0*	*12.0*	*14.0*	*15.0*	*16.0*	*16.0*	*19.0*						
405 x 65					14.0	10.2	7.8	5.5	3.9	2.9	2.2	1.7	1.3	1.0					
405 x 65 Precambered					*14.0*	*10.2*	*7.8*	*6.1*	*4.9*	*4.0*	*3.3*	*2.7*	*2.1*	*1.7*	*1.4*	*1.2*	*1.0*		
precamber required (mm)					*6.0*	*8.0*	*11.0*	*12.0*	*13.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*22.0*	*22.0*	*24.0*		
450 x 65						12.6	9.6	7.5	5.4	4.0	3.0	2.3	1.8	1.4	1.1	0.9			
450 x 65 Precambered						*12.6*	*9.6*	*7.5*	*6.1*	*5.0*	*4.1*	*3.5*	*3.0*	*2.4*	*2.0*	*1.6*	*1.4*	*1.2*	*1.0*
precamber required (mm)						*7.0*	*9.0*	*12.0*	*13.0*	*15.0*	*16.0*	*17.0*	*19.0*	*20.0*	*21.0*	*23.0*	*23.0*	*26.0*	*28.0*
225 x 90			12.8	7.7	4.4	2.7	1.7	1.2											
225 x 90 Precambered				*8.1*	*5.6*	*4.1*	*2.7*	*1.9*	*1.4*	*1.0*									
precamber required (mm)				*7.0*	*8.0*	*9.0*	*10.0*	*12.0*	*13.0*	*15.0*									
270 x 90				12.2	7.6	4.7	3.1	2.1	1.5	1.1									
270 x 90 Precambered				*12.2*	*8.4*	*6.1*	*4.7*	*3.3*	*2.4*	*1.8*	*1.4*	*1.1*							
precamber required (mm)				*6.0*	*8.0*	*9.0*	*11.0*	*12.0*	*13.0*	*15.0*	*16.0*	*18.0*							
315 x 90					11.7	7.6	5.0	3.5	2.5	1.8	1.3	1.0							
315 x 90 Precambered					*11.7*	*8.6*	*6.5*	*5.1*	*3.9*	*2.9*	*2.2*	*1.7*	*1.4*	*1.1*	*0.9*				
precamber required (mm)					*8.0*	*9.0*	*11.0*	*12.0*	*14.0*	*15.0*	*16.0*	*18.0*	*20.0*	*21.0*	*20.0*				
360 x 90					15.3	11.2	7.6	5.3	3.8	2.8	2.1	1.6	1.2	0.9					
360 x 90 Precambered					*15.3*	*11.2*	*8.5*	*6.7*	*5.4*	*4.3*	*3.3*	*2.6*	*2.1*	*1.7*	*1.4*	*1.1*	*1.0*		
precamber required (mm)					*7.0*	*9.0*	*11.0*	*12.0*	*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*21.0*	*24.0*	*23.0*		

Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																		
405 x 90						14.2	10.8	7.6	5.4	4.0	3.0	2.3	1.8	1.4	1.1	0.9			
405 x 90 Precambered						*14.2*	*10.8*	*8.5*	*6.8*	*5.6*	*4.6*	*3.7*	*3.0*	*2.4*	*2.0*	*1.6*	*1.4*	*1.2*	*1.0*
precamber required (mm)						*8.0*	*11.0*	*12.0*	*13.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*22.0*	*24.0*	*25.0*	*27.0*	*26.0*
450 x 90							13.3	10.4	7.5	5.6	4.2	3.3	2.6	2.0	1.6	1.3	1.0		
450 x 90 Precambered							*13.3*	*10.4*	*8.4*	*6.9*	*5.8*	*4.9*	*4.1*	*3.3*	*2.7*	*2.3*	*1.9*	*1.6*	*1.4*
precamber required (mm)							*9.0*	*12.0*	*13.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*22.0*	*23.0*	*24.0*	*25.0*	*28.0*
495 x 90								12.6	10.1	7.5	5.7	4.4	3.5	2.8	2.2	1.8	1.5	1.2	1.0
495 x 90 Precambered								*12.6*	*10.2*	*8.4*	*7.0*	*5.9*	*5.0*	*4.4*	*3.7*	*3.0*	*2.6*	*2.2*	*1.8*
precamber required (mm)								*11.0*	*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*23.0*	*25.0*	*26.0*	*28.0*
540 x 90								15.0	12.1	9.8	7.5	5.8	4.6	3.7	3.0	2.4	2.0	1.6	1.3
540 x 90 Precambered								*15.0*	*12.1*	*9.9*	*8.3*	*7.0*	*6.0*	*5.2*	*4.5*	*4.0*	*3.3*	*2.8*	*2.4*
precamber required (mm)								*10.0*	*12.0*	*15.0*	*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*23.0*	*25.0*	*26.0*	*27.0*
585 x 90									14.1	11.6	9.6	7.5	5.9	4.7	3.8	3.1	2.6	2.1	1.8
585 x 90 Precambered									*14.1*	*11.6*	*9.7*	*8.2*	*7.0*	*6.1*	*5.3*	*4.7*	*4.1*	*3.6*	*3.1*
precamber required (mm)									*11.0*	*14.0*	*16.0*	*18.0*	*19.0*	*20.0*	*22.0*	*23.0*	*25.0*	*26.0*	*28.0*
630 x 90										13.5	11.3	9.4	7.4	6.0	4.9	4.0	3.3	2.7	2.3
630 x 90 Precambered										*13.5*	*11.3*	*9.5*	*8.2*	*7.1*	*6.2*	*5.4*	*4.8*	*4.3*	*3.8*
precamber required (mm)										*13.0*	*15.0*	*18.0*	*19.0*	*21.0*	*22.0*	*24.0*	*25.0*	*26.0*	*28.0*
225 x 115				9.8	5.6	3.4	2.2	1.5	1.0										
225 x 115 Precambered				*10.4*	*7.2*	*5.2*	*3.5*	*2.4*	*1.8*	*1.3*	*1.0*								
precamber required (mm)				*6.0*	*8.0*	*9.0*	*10.0*	*12.0*	*13.0*	*14.0*	*16.0*								
270 x 115				15.6	9.8	6.1	4.0	2.7	1.9	1.4	1.0								
270 x 115 Precambered				*15.6*	*10.8*	*7.9*	*6.0*	*4.3*	*3.1*	*2.3*	*1.8*	*1.4*	*1.1*	*0.9*					
precamber required (mm)				*6.0*	*8.0*	*9.0*	*11.0*	*12.0*	*13.0*	*15.0*	*16.0*	*17.0*	*18.0*	*20.0*					
315 x 115					15.0	9.8	6.4	4.4	3.2	2.3	1.7	1.3	1.0						
315 x 115 Precambered					*15.0*	*10.9*	*8.3*	*6.5*	*4.9*	*3.7*	*2.8*	*2.2*	*1.8*	*1.4*	*1.2*	*1.0*			
precamber required (mm)					*8.0*	*9.0*	*11.0*	*12.0*	*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*23.0*	*22.0*			
360 x 115						14.3	9.7	6.7	4.8	3.5	2.7	2.0	1.6	1.2	0.9				
360 x 115 Precambered						*14.3*	*10.9*	*8.5*	*6.9*	*5.6*	*4.3*	*3.3*	*2.7*	*2.2*	*1.8*	*1.5*	*1.2*	*1.0*	
precamber required (mm)						*9.0*	*11.0*	*12.0*	*13.0*	*15.0*	*17.0*	*18.0*	*20.0*	*20.0*	*21.0*	*23.0*	*26.0*	*25.0*	
405 x 115							13.8	9.7	7.0	5.1	3.9	3.0	2.3	1.8	1.4	1.1	0.9		
405 x 115 Precambered							*13.8*	*10.8*	*8.7*	*7.1*	*6.0*	*4.8*	*3.8*	*3.1*	*2.5*	*2.1*	*1.8*	*1.5*	*1.3*
precamber required (mm)							*11.0*	*12.0*	*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*21.0*	*23.0*	*25.0*	*26.0*	*29.0*
450 x 115								13.4	9.7	7.2	5.4	4.2	3.3	2.6	2.1	1.7	1.3	1.1	0.9
450 x 115 Precambered								*13.4*	*10.8*	*8.8*	*7.4*	*6.2*	*5.3*	*4.3*	*3.5*	*2.9*	*2.4*	*2.1*	*1.8*
precamber required (mm)								*12.0*	*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*24.0*	*24.0*	*27.0*	*28.0*
495 x 115									12.9	9.6	7.3	5.7	4.5	3.5	2.8	2.3	1.9	1.5	1.3
495 x 115 Precambered									*13.0*	*10.7*	*8.9*	*7.5*	*6.5*	*5.6*	*4.7*	*3.9*	*3.3*	*2.8*	*2.4*
precamber required (mm)									*13.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*22.0*	*23.0*	*25.0*	*26.0*	*29.0*
540 x 115									15.4	12.6	9.6	7.4	5.9	4.7	3.8	3.1	2.5	2.1	1.7
540 x 115 Precambered									*15.4*	*12.7*	*10.6*	*9.0*	*7.7*	*6.6*	*5.8*	*5.1*	*4.3*	*3.6*	*3.1*
precamber required (mm)									*12.0*	*15.0*	*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*24.0*	*25.0*	*27.0*	*28.0*
585 x 115										14.9	12.3	9.6	7.6	6.1	4.9	4.0	3.3	2.7	2.3
585 x 115 Precambered										*14.9*	*12.4*	*10.5*	*9.0*	*7.8*	*6.8*	*6.0*	*5.3*	*4.6*	*4.0*
precamber required (mm)										*14.0*	*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*23.0*	*25.0*	*26.0*	*28.0*
630 x 115											14.4	12.0	9.5	7.6	6.2	5.1	4.2	3.5	2.9
630 x 115 Precambered											*14.4*	*12.2*	*10.5*	*9.0*	*7.9*	*6.9*	*6.1*	*5.5*	*4.9*
precamber required (mm)											*15.0*	*18.0*	*19.0*	*21.0*	*22.0*	*24.0*	*25.0*	*26.0*	*28.0*
675 x 135													13.9	11.1	9.1	7.5	6.2	5.2	4.3
675 x 135 Precambered													*14.1*	*12.2*	*10.6*	*9.4*	*8.3*	*7.4*	*6.6*
precamber required (mm)													*19.0*	*21.0*	*22.0*	*24.0*	*25.0*	*27.0*	*28.0*

Section Size dxb (mm)	Span of Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																		
720 x 135													16.0	13.6	11.1	9.2	7.6	6.4	5.4
720 x 135 Precambered													*16.0*	*13.8*	*12.1*	*10.6*	*9.4*	*8.4*	*7.5*
precamber required (mm)													*18.0*	*21.0*	*22.0*	*24.0*	*25.0*	*27.0*	*28.0*
765 x 135														15.6	13.4	11.1	9.2	7.7	6.5
765 x 135 Precambered														*15.6*	*13.6*	*12.0*	*10.6*	*9.5*	*8.5*
precamber required (mm)														*20.0*	*22.0*	*24.0*	*25.0*	*26.0*	*28.0*
810 x 135															15.3	13.2	11.0	9.3	7.8
810 x 135 Precambered															*15.3*	*13.4*	*11.9*	*10.6*	*9.5*
precamber required (mm)															*21.0*	*23.0*	*25.0*	*26.0*	*28.0*
855 x 135																14.9	13.1	11.0	9.3
855 x 135 Precambered																*14.9*	*13.3*	*11.8*	*10.6*
precamber required (mm)																*22.0*	*25.0*	*26.0*	*28.0*
900 x 135																	14.7	12.9	11.0
900 x 135 Precambered																	*14.7*	*13.1*	*11.7*
precamber required (mm)																	*24.0*	*26.0*	*28.0*
945 x 135																		14.4	12.8
945 x 135 Precambered																		*14.4*	*12.9*
precamber required (mm)																		*25.0*	*28.0*

Heavy Roof Beams Fully Restrained @ top edge only

Wind Speed = High

Roof Pitch < 20º

Maximum Precamber = 1.5 x Dead Load deflection or span / 400, whichever is the least

If precamber width not shown there is no additionall benefit of precamber

Deflection Limit = span / 300

Glulam Grade= GL8

Section Size dxb (mm)	Span Glulam Beam, L (m)																		
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L																		
135 x 65		6.0	3.0	1.5															
135 x 65 Precambered			3.4	2.1	1.4	1.0													
precamber required (mm			5.0	7.0	8.0	9.0													
180 x 65			6.5	3.6	2.1	1.2													
180 x 65 Precambered			6.5	4.1	2.8	2.0	1.5	1.0											
precamber required (mm			5.0	7.0	8.0	9.0	11.0	11.0											
225 x 65				6.8	4.1	2.5	1.6	1.1											
225 x 65 Precambered				6.8	4.7	3.4	2.6	2.0	1.6	1.1									
precamber required (mm				6.0	8.0	9.0	11.0	12.0	14.0	14.0									
270 x 65					7.0	4.5	2.9	2.0	1.4	1.0									
270 x 65 Precambered					7.0	5.1	3.9	3.0	2.4	2.0	1.6	1.2	0.9						
precamber required (mm					8.0	10.0	11.0	12.0	14.0	15.0	17.0	19.0	18.0						
315 x 65					9.8	7.2	4.7	3.3	2.3	1.7	1.3	1.0							
315 x 65 Precambered					9.8	7.2	5.4	4.3	3.4	2.8	2.3	2.0	1.5	1.2	0.9				
precamber required (mm					7.0	10.0	11.0	13.0	14.0	15.0	17.0	19.0	18.0	22.0	20.0				
405 x 65							9.0	7.1	5.1	3.8	2.9	2.2	1.7	1.4	1.1	0.9			
405 x 65 Precambered							9.0	7.1	5.7	4.7	3.9	3.3	2.8	2.4	2.1	1.8	1.5	1.3	1.0
precamber required (mm							10.0	12.0	14.0	15.0	17.0	18.0	19.0	21.0	23.0	24.0	25.0	28.0	25.0
450 x 65								8.8	7.0	5.3	4.0	3.1	2.4	1.9	1.6	1.3	1.0		
450 x 65 Precambered								8.8	7.0	5.8	4.8	4.1	3.5	3.0	2.6	2.3	2.0	1.7	1.5
precamber required (mm								11.0	14.0	15.0	17.0	18.0	19.0	21.0	23.0	25.0	25.0	26.0	29.0
225 x 90				9.5	5.7	3.5	2.3	1.6	1.1										
225 x 90 Precambered				9.5	6.5	4.7	3.6	2.8	2.2	1.6	1.2	0.9							
precamber required (mm				6.0	8.0	10.0	11.0	13.0	14.0	15.0	17.0	18.0							
270 x 90					9.8	6.2	4.1	2.8	2.0	1.4	1.1								
270 x 90 Precambered					9.8	7.1	5.4	4.2	3.4	2.8	2.2	1.6	1.3	1.0					
precamber required (mm					8.0	10.0	11.0	12.0	14.0	15.0	17.0	18.0	19.0	19.0					
315 x 90						9.9	6.6	4.6	3.3	2.4	1.8	1.4	1.0						
315 x 90 Precambered						9.9	7.6	5.9	4.8	3.9	3.2	2.7	2.1	1.7	1.3	1.1	0.9		
precamber required (mm						10.0	11.0	13.0	14.0	15.0	17.0	19.0	19.0	21.0	22.0	24.0	26.0		
360 x 90							9.9	6.9	4.9	3.7	2.8	2.1	1.6	1.3	1.0				
360 x 90 Precambered							9.9	7.8	6.2	5.1	4.3	3.6	3.1	2.6	2.1	1.7	1.4	1.1	1.0
precamber required (mm							11.0	13.0	14.0	16.0	17.0	18.0	19.0	21.0	22.0	24.0	24.0	27.0	28.0
405 x 90								9.8	7.1	5.3	4.0	3.1	2.4	1.9	1.5	1.2	1.0		
405 x 90 Precambered								9.8	7.9	6.5	5.4	4.6	3.9	3.4	2.9	2.5	2.1	1.7	1.4
precamber required (mm								12.0	14.0	15.0	17.0	18.0	20.0	21.0	22.0	24.0	26.0	27.0	27.0
450 x 90									9.8	7.3	5.6	4.3	3.4	2.7	2.2	1.8	1.4	1.2	1.0
450 x 90 Precambered									9.8	8.0	6.7	5.7	4.9	4.2	3.7	3.2	2.8	2.5	2.1
precamber required (mm									14.0	15.0	17.0	18.0	20.0	21.0	23.0	25.0	25.0	28.0	29.0
495 x 90										9.7	7.5	5.8	4.6	3.7	3.0	2.4	2.0	1.6	1.4
495 x 90 Precambered										9.7	8.1	6.9	5.9	5.1	4.4	3.9	3.4	3.1	2.7
precamber required (mm										15.0	17.0	18.0	20.0	21.0	23.0	24.0	26.0	27.0	29.0
540 x 90											9.7	7.6	6.0	4.8	3.9	3.2	2.6	2.2	1.8
540 x 90 Precambered											9.7	8.2	7.0	6.1	5.3	4.6	4.1	3.7	3.3
precamber required (mm											17.0	18.0	20.0	21.0	23.0	24.0	25.0	27.0	28.0
585 x 90												9.6	7.8	6.2	5.1	4.2	3.4	2.9	2.4
585 x 90 Precambered												9.6	8.2	7.1	6.2	5.5	4.8	4.3	3.8
precamber required (mm												18.0	20.0	21.0	23.0	24.0	25.0	27.0	29.0
630 x 90													9.5	7.9	6.4	5.3	4.4	3.7	3.1
630 x 90 Precambered													9.5	8.2	7.2	6.3	5.6	5.0	4.5
precamber required (mm													19.0	21.0	23.0	24.0	26.0	27.0	29.0

Heavy Roof

Beams Fully Restrained @ Top Edge Only

Wind Speed = Medium

Roof Pitch < 20º

Maximum Precamber = 1.5 x Dead Load deflection or span / 400 whichever is the least

If precamber width not shown there is no additional benefit of precamber

Deflection Limit = span / 300

Glulam Grade = GL10

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
270 x 42		6.6	4.5	2.8	1.8	1.2	0.9										
270 x 42 Precambered		*6.6*	*4.5*	*3.3*	*2.5*	*1.9*	*1.4*	*1.0*									
precamber required (mm)		*5.0*	*8.0*	*9.0*	*10.0*	*11.0*	*13.0*	*14.0*									
315 x 42		9.2	6.3	4.4	2.9	2.0	1.4	1.0									
315 x 42 Precambered		*9.2*	*6.3*	*4.6*	*3.5*	*2.7*	*2.2*	*1.7*	*1.3*	*1.0*							
precamber required (mm)		*5.0*	*7.0*	*9.0*	*10.0*	*12.0*	*13.0*	*14.0*	*16.0*	*17.0*							
135 x 65	2.9	1.4															
135 x 65 Precambered	*3.4*	*2.1*	*1.2*														
precamber required (mm)	*5.0*	*6.0*	*8.0*														
140 x 65	3.2	1.6	0.9														
140 x 65 Precambered	*3.6*	*2.3*	*1.4*	*0.9*													
precamber required (mm)	*5.0*	*6.0*	*8.0*	*8.0*													
180 x 65	6.5	3.5	2.0	1.2													
180 x 65 Precambered	*6.5*	*4.1*	*2.8*	*1.9*	*1.2*	*0.9*											
precamber required (mm)	*5.0*	*6.0*	*8.0*	*9.0*	*11.0*	*11.0*											
225 x 65		6.8	4.0	2.4	1.6	1.1											
225 x 65 Precambered		*6.8*	*4.7*	*3.4*	*2.5*	*1.7*	*1.2*	*0.9*									
precamber required (mm)		*6.0*	*8.0*	*9.0*	*11.0*	*12.0*	*12.0*	*14.0*									
240 x 65		7.9	4.8	3.0	2.0	1.3	0.9										
240 x 65 Precambered		*7.9*	*5.4*	*3.9*	*3.0*	*2.1*	*1.5*	*1.1*	*0.9*								
precamber required (mm)		*6.0*	*8.0*	*9.0*	*11.0*	*12.0*	*13.0*	*15.0*	*16.0*								
270 x 65			6.9	4.3	2.8	1.9	1.4	1.0									
270 x 65 Precambered			*7.0*	*5.1*	*3.9*	*3.0*	*2.2*	*1.6*	*1.2*	*1.0*							
precamber required (mm)			*8.0*	*9.0*	*10.0*	*12.0*	*14.0*	*15.0*	*15.0*	*16.0*							
280 x 65			7.6	4.8	3.2	2.2	1.5	1.1									
280 x 65 Precambered			*7.6*	*5.6*	*4.2*	*3.3*	*2.4*	*1.8*	*1.4*	*1.1*	*0.9*						
precamber required (mm)			*8.0*	*9.0*	*11.0*	*12.0*	*13.0*	*14.0*	*15.0*	*17.0*	*20.0*						
315 x 65			9.8	6.9	4.6	3.2	2.3	1.6	1.2	0.9							
315 x 65 Precambered			*9.8*	*7.2*	*5.4*	*4.3*	*3.4*	*2.6*	*2.0*	*1.6*	*1.2*	*1.0*					
precamber required (mm)			*7.0*	*9.0*	*11.0*	*12.0*	*14.0*	*14.0*	*16.0*	*17.0*	*18.0*	*19.0*					
320 x 65				7.2	4.8	3.3	2.4	1.7	1.3	1.0							
320 x 65 Precambered				*7.4*	*5.6*	*4.4*	*3.5*	*2.7*	*2.1*	*1.6*	*1.3*	*1.0*	*0.9*				
precamber required (mm)				*9.0*	*11.0*	*12.0*	*14.0*	*14.0*	*16.0*	*18.0*	*18.0*	*21.0*	*20.0*				
405 x 65					9.0	6.9	4.9	3.7	2.8	2.1	1.7	1.3	1.0				
405 x 65 Precambered					*9.0*	*7.1*	*5.7*	*4.7*	*3.9*	*3.3*	*2.7*	*2.2*	*1.8*	*1.5*	*1.2*	*1.0*	*0.9*
precamber required (mm)					*10.0*	*12.0*	*13.0*	*15.0*	*16.0*	*17.0*	*19.0*	*20.0*	*21.0*	*22.0*	*25.0*	*24.0*	*25.0*
450 x 65						8.8	6.9	5.1	3.9	3.0	2.3	1.9	1.5	1.2	1.0		
450 x 65 Precambered						*8.8*	*7.0*	*5.8*	*4.8*	*4.1*	*3.5*	*3.0*	*2.5*	*2.0*	*1.7*	*1.5*	*1.2*
precamber required (mm)						*11.0*	*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*23.0*	*25.0*	*26.0*	*29.0*
225 x 90		9.5	5.5	3.4	2.2	1.5	1.0										
225 x 90 Precambered		*9.5*	*6.5*	*4.7*	*3.4*	*2.4*	*1.7*	*1.3*	*1.0*								
precamber required (mm)		*6.0*	*8.0*	*9.0*	*11.0*	*12.0*	*13.0*	*14.0*	*15.0*								
270 x 90			9.6	6.0	3.9	2.7	1.9	1.4	1.0								
270 x 90 Precambered			*9.8*	*7.1*	*5.4*	*4.2*	*3.0*	*2.3*	*1.7*	*1.4*	*1.1*	*0.9*					
precamber required (mm)			*8.0*	*9.0*	*11.0*	*12.0*	*13.0*	*15.0*	*16.0*	*18.0*	*19.0*	*19.0*					

Section Size dxb (mm)	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
315 x 90				9.6	6.3	4.4	3.1	2.3	1.7	1.3	1.0						
315 x 90 Precambered				*9.9*	*7.6*	*5.9*	*4.8*	*3.6*	*2.8*	*2.2*	*1.7*	*1.4*	*1.1*	*0.9*			
precamber required (mm)			*7.0*	*9.0*	*11.0*	*12.0*	*13.0*	*15.0*	*16.0*	*17.0*	*19.0*	*21.0*	*22.0*	*24.0*			
360 x 90					9.6	6.6	4.8	3.5	2.7	2.0	1.6	1.2	1.0				
360 x 90 Precambered					*9.9*	*7.8*	*6.2*	*5.1*	*4.2*	*3.3*	*2.6*	*2.1*	*1.7*	*1.4*	*1.2*	*1.0*	*0.9*
precamber required (mm)					*11.0*	*12.0*	*14.0*	*15.0*	*17.0*	*17.0*	*19.0*	*20.0*	*22.0*	*24.0*	*24.0*	*27.0*	*28.0*
405 x 90						9.5	6.9	5.1	3.9	3.0	2.3	1.8	1.5	1.2	0.9		
405 x 90 Precambered						*9.8*	*7.9*	*6.5*	*5.4*	*4.6*	*3.7*	*3.0*	*2.5*	*2.1*	*1.7*	*1.5*	*1.2*
precamber required (mm)						*12.0*	*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*22.0*	*24.0*	*24.0*	*27.0*	*27.0*
450 x 90							9.5	7.1	5.4	4.2	3.3	2.6	2.1	1.7	1.4	1.1	0.9
450 x 90 Precambered							*9.8*	*8.0*	*6.7*	*5.7*	*4.9*	*4.2*	*3.4*	*2.9*	*2.4*	*2.0*	*1.7*
precamber required (mm)							*14.0*	*15.0*	*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*23.0*	*25.0*	*26.0*	*27.0*
495 x 90								9.5	7.2	5.6	4.4	3.5	2.9	2.3	1.9	1.6	1.3
495 x 90 Precambered								*9.7*	*8.1*	*6.9*	*5.9*	*5.1*	*4.4*	*3.8*	*3.2*	*2.7*	*2.3*
precamber required (mm)								*15.0*	*16.0*	*18.0*	*19.0*	*20.0*	*22.0*	*23.0*	*25.0*	*27.0*	*28.0*
540 x 90									9.5	7.4	5.8	4.7	3.8	3.1	2.6	2.1	1.8
540 x 90 Precambered									*9.7*	*8.2*	*7.0*	*6.1*	*5.3*	*4.6*	*4.1*	*3.5*	*3.0*
precamber required (mm)									*16.0*	*18.0*	*19.0*	*21.0*	*22.0*	*23.0*	*25.0*	*26.0*	*28.0*
585 x 90										9.4	7.5	6.0	4.9	4.0	3.3	2.8	2.3
585 x 90 Precambered										*9.6*	*8.2*	*7.1*	*6.2*	*5.5*	*4.8*	*4.3*	*3.8*
precamber required (mm)										*18.0*	*19.0*	*21.0*	*22.0*	*23.0*	*25.0*	*27.0*	*28.0*
630 x 90											9.4	7.6	6.2	5.1	4.2	3.5	3.0
630 x 90 Precambered											*9.5*	*8.2*	*7.2*	*6.3*	*5.6*	*5.0*	*4.5*
precamber required (mm)											*19.0*	*21.0*	*22.0*	*24.0*	*25.0*	*26.0*	*28.0*
720 x 135															9.7	8.1	6.9
720 x 135 Precambered															*11.0*	*9.8*	*8.8*
precamber required (mm)															*25.0*	*26.0*	*28.0*
765 x 135																9.8	8.3
765 x 135 Precambered																*11.1*	*9.9*
precamber required (mm)																*26.0*	*28.0*

Heavy Roof Beams Fully Restrained @ Top Edge Only

Wind Speed = High

Roof Pitch < 20^{o}

Maximum Precamber = 1.5 x Dead Load deflection or span / 400 whichever is the least

Deflection Limit = span / 300

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL10

LINTELS SUPPORTING **LIGHT** ROOF & 1.5 kPa FLOOR **GL8**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	5.3	2.7								
225 x 65	2		8.9	5.5	2.1						
225 x 90	2					4.7	1.3				
270 x 90	2								5.3	1.9	
225 x 90	3	3.6	1.3								
270 x 90	3	8.1	5.8	3.4	0.6						
315 x 90	3				6.2	2.8					
360 x 90	3						5.5	2.3			
405 x 90	3									4.1	1.7
315 x 90	4	4.4	2.1								
360 x 90	4	8	5.6	3.3	0.8						
405 x 90	4				4.6	1.2					
450 x 90	4					5.5	2.9				
495 x 90	4							5.1	2.6		
540 x 90	4										2.9
360 x 90	5	2.7									
405 x 90	5	5	2.6								
450 x 90	5	7.8	5.5	3.2	0.6						
495 x 90	5			6.7	3.6	1					
540 x 90	5				6.8	4.2	1.8				
585 x 90	5						5.3	2.8	0.5		
630 x 90	5								4.2	1.9	
450 x 90	6	3.3	0.9								
495 x 90	6	5.3	3	0.6							
540 x 90	6		5.4	3.1	0.9						
585 x 90	6			5.9	3.4	0.9					
630 x 90	6				5.9	3.5	1				

Floor Live Load = 1.5kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Light

Wind Speed range = Low-High

Deflection Limit = Span / 400

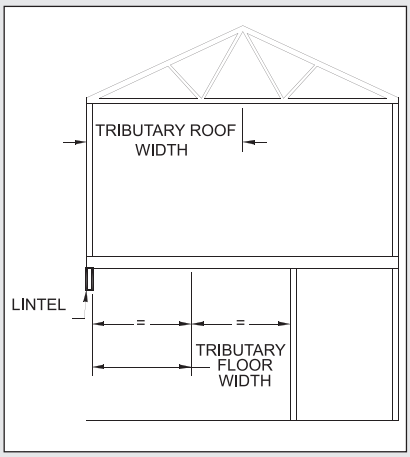
Glulam Grade = GL8

Instructions

To use this table you will need to know:

- The Span of the Lintel Beam.
- The Maximum Tributary Width of floor.

1. Under the 'Lintel Span (m) Max' column choose the block that meets or exceeds the required span.
2. Then select the 'Tributary Width of Floor Supported' column that meets or exceeds the required width.
3. Read down this column until you find a figure that meets or exceeds the Maximum Tributary Width of Roof.
4. The section size of the Glulam beam can now be read off the left hand column.



LINTELS SUPPORTING **LIGHT** ROOF & 1.5 kPa FLOOR **GL10**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	7.2	4.2	0.8							
225 x 65	2			8	4.6	1.2					
225 x 90	2					8.2	4.8	1.4			
270 x 90	2									7	3.6
225 x 90	3	5.2	2.8	0.5							
270 x 90	3		8.5	6.2	3						
315 x 90	3				9.4	6	2.6				
360 x 90	3						9.7	6.5	3.9	1.4	
405 x 90	3									9.4	6.9
270 x 90	4	3	0.6								
315 x 90	4	6.3	3.9	1.6							
360 x 90	4		8.3	6	3.1						
405 x 90	4				7.6	4.2	1.6				
450 x 90	4					9.1	6.5	4	1.6		
495 x 90	4							9.5	7	4.6	2.2
540 x 90	4										8.1
360 x 90	5	4.1	1.7								
405 x 90	5	6.9	4.6	2.3							
450 x 90	5		8.2	5.9	2.9						
495 x 90	5			9.8	6.4	3.8	1.3				
540 x 90	5					7.6	5.1	2.7			
585 x 90	5						9.1	6.7	4.4	2	
630 x 90	5								8.7	6.4	4.1
405 x 90	6	2.8	0.5								
450 x 90	6	4.8	2.5								
495 x 90	6	7.4	5	2.7	0.6						
540 x 90	6		8.1	5.8	3.2	0.8					
585 x 90	6			8.9	6	3.6	1.2				
630 x 90	6				9.1	6.6	4.2	1.8			

Floor Live Load = 1.5kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Light

Wind Speed range = High

Deflection Limit = Span / 400

Precamber = Span / 400

Glulam Grade = GL10

LINTELS SUPPORTING **HEAVY** ROOF & 1.5 kPa FLOOR **GL8**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	2.9	1.6								
225 x 65	2	7.1	5.7	3.5	1.3						
225 x 90	2			7.4	5.2	3	0.8				
270 x 90	2							5.6	3.4	1.2	
225 x 90	3	2	0.7								
270 x 90	3	4.5	3.2	1.9							
315 x 90	3		6.8	5.5	4	1.8					
360 x 90	3					5.8	3.6	1.5			
405 x 90	3							5.9	4.3	2.7	1.1
315 x 90	4	2.5	1.2								
360 x 90	4	4.5	3.2	1.8	0.5						
405 x 90	4	7	5.7	4.4	3	0.8					
450 x 90	4				5.7	3.5	1.8				
495 x 90	4					6.6	4.9	3.3	1.7		
540 x 90	4							6.6	5	3.4	1.9
585 x 90	4										5.4
360 x 90	5	1.5									
405 x 90	5	2.8	1.5								
450 x 90	5	4.4	3.1	1.8							
495 x 90	5	6.4	5.1	3.8	2.3	0.6					
540 x 90	5		7.5	6.2	4.4	2.7	1.1				
585 x 90	5				6.7	5	3.4	1.8			
630 x 90	5						5.8	4.3	2.7	1.2	
450 x 90	6	1.8	0.5								
495 x 90	6	3	1.6								
540 x 90	6	4.3	3	1.7	0.6						
585 x 90	6	5.9	4.6	3.3	2.2	0.5					
630 x 90	6	7.8	6.5	5.2	3.8	2.2	0.7				
675 x 135	6								6.5	5	3.6

Floor Live Load = 1.5kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Heavy

Wind Speed range = Low-High

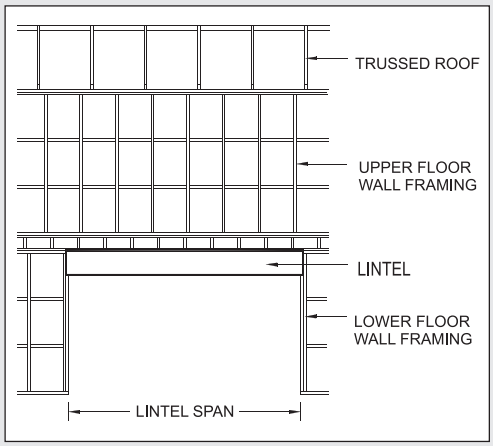
Deflection Limit = Span / 400

Glulam Grade = GL8

Example:
For a Rafter Lintel spanning 5m carrying a tributary **heavy** roof of 3m and a tributary floor width of 2m.

Span of Glulam Lintel = 5
Maximum Tributary Width of Floor = 2
Maximum Tributary Width of Roof = 3
Therefore Section Size = 450 x 90 GL8

Alternative using GL10
Therefore Section Size = 450 x 90 GL10



LINTELS SUPPORTING **HEAVY** ROOF & 1.5 kPa FLOOR **GL10**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	4.1	2.7	0.5							
225 x 65	2	9.3	7.4	5.2	2.9	0.7					
225 x 90	2			9.7	7.5	5.3	3.1	0.9			
270 x 90	2							9	6.7	4.5	2.3
225 x 90	3	2.9	1.6								
270 x 90	3	6.1	4.8	3.4	1.9						
315 x 90	3		9.2	7.9	6.1	3.9	1.7				
360 x 90	3					8.5	6.3	4.2	2.5	0.9	
405 x 90	3							9.3	7.7	6.1	4.5
270 x 90	4	1.6									
315 x 90	4	3.5	2.2	0.9							
360 x 90	4	6	4.7	3.4	2						
405 x 90	4	9.2	7.9	6.6	4.9	2.7	1				
450 x 90	4				8.1	5.9	4.2	2.6	1		
495 x 90	4					9.4	7.7	6.1	4.5	3	1.4
540 x 90	4							9.9	8.3	6.8	5.2
585 x 90	4										9.4
360 x 90	5	2.3	1								
405 x 90	5	3.9	2.6	1.3							
450 x 90	5	5.9	4.6	3.3	1.9						
495 x 90	5	8.4	7.1	5.8	4.1	2.4	0.8				
540 x 90	5			8.8	6.6	4.9	3.3	1.7			
585 x 90	5				9.2	7.5	5.9	4.3	2.8	1.3	
630 x 90	5						8.7	7.2	5.6	4.1	2.6
405 x 90	6	1.5									
450 x 90	6	2.7	1.4								
495 x 90	6	4.1	2.8	1.5							
540 x 90	6	5.9	4.5	3.2	2.1	0.5					
585 x 90	6	7.9	6.6	5.3	3.9	2.3	0.7				
630 x 90	6		9	7.7	5.8	4.2	2.7	1.1			

Floor Live Load = 1.5kPa, Dead Load = 0.5kPa — Lintels assumed fully restrained

Roof Type = Heavy

Wind Speed range = High

Deflection Limit = Span / 400

Precamber = Span / 400

Glulam Grade = GL10

LINTELS SUPPORTING **LIGHT** ROOF & 2.0 kPa FLOOR **GL8**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	4.8	0.9								
225 x 65	2		7.1	2.8							
225 x 90	2			8.8	4.5						
270 x 90	2						6.6	2.3			
315 x 90	2									6.3	2
360 x 90	2										
225 x 90	3	3.1									
270 x 90	3	7.6	4.9	1.3							
315 x 90	3			6.9	2.6						
360 x 90	3				8.7	4.4					
405 x 90	3						6.9	2.9			
450 x 90	3								7.3	4.2	1.2
495 x 90	3										9.5
315 x 90	4	4	1.2								
360 x 90	4	7.5	4.7	1.5							
405 x 90	4		9.3	5.3	1						
450 x 90	4			9.6	5.3	0.9					
495 x 90	4				9.9	5.6	2.4				
540 x 90	4						7.5	4.4	1.3		
585 x 90	4							9.9	6.8	3.8	0.9
630 x 90	4									9.7	6.8
360 x 90	5	2.2									
405 x 90	5	4.5	1.7								
450 x 90	5	7.4	4.6	1.3							
495 x 90	5		8.1	4.3							
540 x 90	5			7.5	3.2						
585 x 90	5				6.7	3.5					
630 x 90	5					7.2	4.2	1.2			
450 x 90	6	2.8									
495 x 90	6	4.8	2.1								
540 x 90	6	7.3	4.5	1.1							
585 x 90	6		7.4	3.5							
630 x 90	6			6.1	2.5						
675 x 135	6							7.2	4.3	1.5	
720 x 135	6								8.7	5.9	3.1
765 x 135	6								13.4	10.6	7.8

Floor Live Load = 2.0kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Light

Wind Speed range = Low-High

Deflection Limit = Span / 400

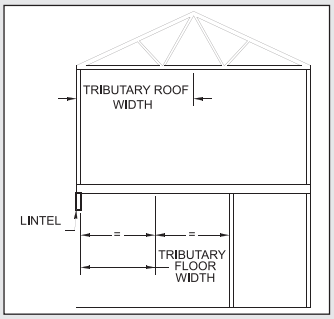
Glulam Grade = GL8

Instructions

To use this table you will need to know:

- The Span of the Lintel Beam.
- The Maximum Tributary Width of floor.

1. Under the 'Lintel Span (m) Max' column choose the block that meets or exceeds the required span.
2. Then select the 'Tributary Width of Floor Supported' column that meets or exceeds the required width.
3. Read down this column until you find a figure that meets or exceeds the Maximum Tributary Width of Roof.
4. The section size of the Glulam beam can now be read off the left hand column.



LINTELS SUPPORTING **LIGHT** ROOF & 2.0 kPa FLOOR **GL10**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	4.1	2.7	0.5							
225 x 65	2	9.3	7.4	5.2	2.9	0.7					
225 x 90	2			9.7	7.5	5.3	3.1	0.9			
270 x 90	2							9	6.7	4.5	2.3
225 x 90	3	2.9	1.6								
270 x 90	3	6.1	4.8	3.4	1.9						
315 x 90	3		9.2	7.9	6.1	3.9	1.7				
360 x 90	3					8.5	6.3	4.2	2.5	0.9	
405 x 90	3							9.3	7.7	6.1	4.5
270 x 90	4	1.6									
315 x 90	4	3.5	2.2	0.9							
360 x 90	4	6	4.7	3.4	2						
405 x 90	4	9.2	7.9	6.6	4.9	2.7	1				
450 x 90	4				8.1	5.9	4.2	2.6	1		
495 x 90	4					9.4	7.7	6.1	4.5	3	1.4
540 x 90	4							9.9	8.3	6.8	5.2
585 x 90	4										9.4
360 x 90	5	2.3	1								
405 x 90	5	3.9	2.6	1.3							
450 x 90	5	5.9	4.6	3.3	1.9						
495 x 90	5	8.4	7.1	5.8	4.1	2.4	0.8				
540 x 90	5			8.8	6.6	4.9	3.3	1.7			
585 x 90	5				9.2	7.5	5.9	4.3	2.8	1.3	
630 x 90	5						8.7	7.2	5.6	4.1	2.6
405 x 90	6	1.5									
450 x 90	6	2.7	1.4								
495 x 90	6	4.1	2.8	1.5							
540 x 90	6	5.9	4.5	3.2	2.1	0.5					
585 x 90	6	7.9	6.6	5.3	3.9	2.3	0.7				
630 x 90	6		9	7.7	5.8	4.2	2.7	1.1			

Floor Live Load = 1.5kPa, Dead Load = 0.5kPa — Lintels assumed fully restrained

Roof Type = Heavy

Wind Speed range = High

Deflection Limit = Span / 400

Precamber = Span / 400

Glulam Grade = GL10

LINTELS SUPPORTING **HEAVY** ROOF & 2.0 kPa FLOOR **GL8**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	2.7	0.6								
225 x 65	2	6.9	4.6	1.8							
225 x 90	2			5.7	2.9						
270 x 90	2						4.3	1.5			
315 x 90	2									4.1	1.3
225 x 90	3	1.7									
270 x 90	3	4.3	2.7	0.8							
315 x 90	3		6.3	4.5	1.7						
360 x 90	3				5.6	2.8					
405 x 90	3						4.5	1.9			
450 x 90	3								4.7	2.7	0.7
315 x 90	4	2.2	0.7								
360 x 90	4	4.2	2.6	0.9							
405 x 90	4	6.8	5.2	3.4	0.6						
450 x 90	4			6.2	3.4	0.6					
495 x 90	4				6.4	3.6	1.5				
540 x 90	4						4.8	2.8	0.8		
585 x 90	4								4.4	2.5	0.6
630 x 90	4										4.4
360 x 90	5	1.2									
405 x 90	5	2.5	1								
450 x 90	5	4.1	2.6	0.8							
495 x 90	5	6.1	4.6	2.7							
540 x 90	5		7	4.8	2						
585 x 90	5			7.1	4.3	2.2					
630 x 90	5				6.7	4.7	2.7	0.7			
450 x 90	6	1.6									
495 x 90	6	2.7	1.1								
540 x 90	6	4.1	2.5	0.7							
585 x 90	6	5.7	4.1	2.2							
630 x 90	6	7.6	6	3.9	1.6						
675 x 135	6						6.5	4.6	2.8	1	
720 x 135	6								5.6	3.8	2
765 x 135	6										5

Floor Live Load = 2.0kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Heavy

Wind Speed range = Low-High

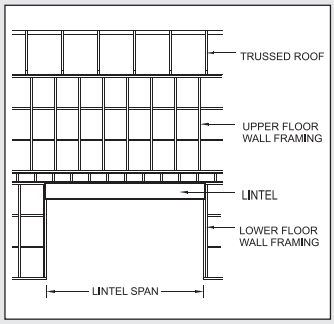
Deflection Limit = Span / 400

Glulam Grade = GL8

Example:
For a Rafter Lintel spanning 5m carrying a tributary **heavy** roof of 3m and a tributary floor width of 2m.

Span of Glulam Lintel = 5
Maximum Tributary Width of Floor = 2
Maximum Tributary Width of Roof = 3
Therefore Section Size = 495 x 90 GL8

Alternative using GL10
Therefore Section Size = 450 x 90 GL10



LINTELS SUPPORTING **HEAVY** ROOF & 2.0 kPa FLOOR **GL10**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	3.8	1.5								
225 x 65	2	9	6.2	3.4	0.6						
225 x 90	2			7.9	5.1	2.3					
270 x 90	2						7.6	4.8	2		
315 x 90	2									8.7	5.9
225 x 90	3	2.6	1.1								
270 x 90	3	5.8	4.2	2.3							
315 x 90	3		8.7	6.5	3.7	0.9					
360 x 90	3				8.3	5.5	2.7				
405 x 90	3						7.9	5.3	3.2	1.2	
450 x 90	3								8.9	6.9	4.9
270 x 90	4	1.4									
315 x 90	4	3.3	1.7								
360 x 90	4	5.7	4.2	2.5							
405 x 90	4	8.9	7.4	5.3	2.5						
450 x 90	4			8.5	5.7	2.9	0.8				
495 x 90	4				9.3	6.5	4.4	2.3			
540 x 90	4						8.2	6.2	4.2	2.3	
585 x 90	4								8.3	6.4	4.5
630 x 90	4										8.9
360 x 90	5	2									
405 x 90	5	3.6	2.1								
450 x 90	5	5.7	4.1	2.3							
495 x 90	5	8.2	6.6	4.6	1.8						
540 x 90	5		9.6	7	4.2	2.1					
585 x 90	5			9.6	6.8	4.7	2.8	0.8			
630 x 90	5				9.6	7.6	5.6	3.6	1.7		
405 x 90	6	1.3									
450 x 90	6	2.5	0.9								
495 x 90	6	3.9	2.3	0.5							
540 x 90	6	5.6	4	2.2							
585 x 90	6	7.6	6.1	4	1.7						
630 x 90	6		8.5	5.9	3.6	1.6					
675 x 135	6							8.1	6.2	4.4	2.6
720 x 135	6								9.6	7.7	5.9
765 x 135	6										9.4

Floor Live Load = 2.0kPa, Dead Load = 0.5kPa

Lintels Assumed Fully Restrained

Roof Type = Heavy

Wind Speed range = High

Deflection Limit = Span / 400

Precamber = Span / 400

Glulam Grade = GL10

LINTELS SUPPORTING **LIGHT** ROOF & 3.0 kPa FLOOR **GL8**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	3.4									
225 x 65	2	9.6	3.4								
225 x 90	2		9.5	3.4							
270 x 90	2				8	1.9					
315 x 90	2						8.3	2.2			
360 x 90	2								9.9	3.7	
225 x 90	3	2.2									
270 x 90	3	6.7	2								
315 x 90	3		7.6	1.5							
360 x 90	3			7.6	1.4						
405 x 90	3				8.3	2.2					
450 x 90	3						3.6				
495 x 90	3							6.3	1.8		
540 x 90	3									6.6	2.4
315 x 90	4	3.1									
360 x 90	4	6.6	2.2								
405 x 90	4		6								
450 x 90	4			4.1							
495 x 90	4			8.8	2.7						
540 x 90	4				7.8	1.6					
585 x 90	4					7.1	2.6				
630 x 90	4						8.5	4.2			
360 x 90	5	1.3									
405 x 90	5	3.6									
450 x 90	5	6.5	2								
495 x 90	5	10	5								
540 x 90	5		8.2	2.1							
585 x 90	5			5.6							
630 x 90	5			9.3	3.2						
675 x 135	5								6.1	2.1	
720 x 135	5									8.5	4.6
450 x 90	6	1.9									
495 x 90	6	3.9									
540 x 90	6	6.4	1.8								
585 x 90	6	9.2	4.2								
630 x 90	6		6.8	0.6							
675 x 135	6				9.3	5	0.8				
720 x 135	6					9.4	5.3	1.2			
765 x 135	6						9.9	5.9	1.9		
810 x 135	6								6.9	3	
855 x 135	6									8.2	4.3

Floor Live Load = 3.0kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Light

Wind Speed range = Low-High

Deflection Limit = Span / 400

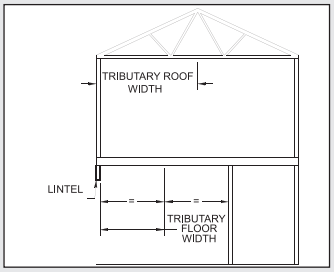
Glulam Grade = GL8

Instructions

To use this table you will need to know:

- The Span of the Lintel Beam.
- The Maximum Tributary Width of floor.

1. Under the 'Lintel Span (m) Max' column choose the block that meets or exceeds the required span.
2. Then select the 'Tributary Width of Floor Supported' column that meets or exceeds the required width.
3. Read down this column until you find a figure that meets or exceeds the Maximum Tributary Width of Roof.
4. The section size of the Glulam beam can now be read off the left hand column.



LINTELS SUPPORTING **LIGHT** ROOF & 3.0 kPa FLOOR GL10

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximun Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	4.9									
225 x 65	2		5.9								
225 x 90	2			6.8	0.7						
270 x 90	2					7	0.9				
315 x 90	2							9.4	3.3		
360 x 90	2										7
225 x 90	3	3.8									
270 x 90	3	9.4	4.3								
315 x 90	3			4.7							
360 x 90	3				5.6						
405 x 90	3					7.4	1.3				
450 x 90	3							4.4			
495 x 90	3								9.6	5.3	1.1
270 x 90	4	1.6									
315 x 90	4	4.9	0.5								
360 x 90	4	9.3	4.5								
405 x 90	4		9	2.8							
450 x 90	4			7.8	1.6						
495 x 90	4				7.1	0.9					
540 x 90	4					6.8	2.3				
585 x 90	4						8.6	4.3			
630 x 90	4								7	2.8	
360 x 90	5	2.7									
405 x 90	5	5.6	1.2								
450 x 90	5	9.2	4.3								
495 x 90	5		7.8	1.6							
540 x 90	5			5.4							
585 x 90	5			9.4	3.3						
630 x 90	5				7.7	3.2					
675 x 135	5									9.8	5.8
405 x 90	6	1.4									
450 x 90	6	3.5									
495 x 90	6	6	1.5								
540 x 90	6	9.1	4.1								
585 x 90	6		6.9	0.7							
630 x 90	6		9.9	3.8							
675 x 135	6						6.2	2.1			
720 x 135	6							7.3	3.3		
765 x 135	6								8.7	4.8	1
810 x 135	6										6.7

Floor Live Load = 3.0kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Light

Wind Speed range = High

Deflection Limit = Span / 400

Precamber = Span / 400

Glulam Grade = GL10

LINTELS SUPPORTING **HEAVY** ROOF & 3.0 kPa FLOOR **GL8**

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	2.2									
225 x 65	2	6.2	2.2								
225 x 90	2	9.6	6.1	2.2							
270 x 90	2			9.1	5.2	1.2					
315 x 90	2					9.4	5.4	1.4			
360 x 90	2								6.4	2.4	
405 x 90	2										8.5
225 x 90	3	1.2									
270 x 90	3	3.8	1.3								
315 x 90	3	7.3	4.9	0.9							
360 x 90	3		8.8	4.9	0.9						
405 x 90	3			9.3	5.3	1.4					
450 x 90	3					6.3	2.3				
495 x 90	3						7.7	4	1.2		
540 x 90	3							9.9	7.1	4.3	1.5
585 x 90	3										7.9
315 x 90	4	1.7									
360 x 90	4	3.7	1.4								
405 x 90	4	6.3	3.9								
450 x 90	4	9.5	6.6	2.7							
495 x 90	4		9.7	5.7	1.7						
540 x 90	4			9	5	1					
585 x 90	4				8.6	4.6	1.7				
630 x 90	4					8.4	5.5	2.7			
360 x 90	5	0.7									
405 x 90	5	2									
450 x 90	5	3.6	1.3								
495 x 90	5	5.6	3.2								
540 x 90	5	8	5.3	1.3							
585 x 90	5		7.5	3.6							
630 x 90	5		10	6	2						
675 x 135	5						9.2	6.6	3.9	1.3	
720 x 135	5								8.1	5.5	2.9
765 x 135	5									9.9	7.3
450 x 90	6	1.1									
495 x 90	6	2.2									
540 x 90	6	3.6	1.1								
585 x 90	6	5.2	2.7								
630 x 90	6	7.1	4.4								
675 x 135	6			9.3	6	3.2	0.5				
720 x 135	6				8.8	6.1	3.4	0.8			
765 x 135	6					9.1	6.4	3.8	1.2		
810 x 135	6						9.6	7	4.4	1.9	

Floor Live Load = 3.0kPa, Dead Load = 0.5kPa — Lintels Assumed Fully Restrained

Roof Type = Heavy

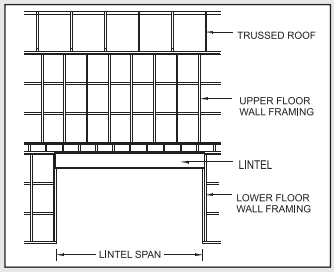
Wind Speed range = Low-High

Deflection Limit = Span / 400

Glulam Grade = GL8

Example:
For a Rafter Lintel spanning 5m carrying a tributary **heavy** roof of 3m and a tributary floor width of 2m.

Span of Glulam Lintel	= 5
Maximum Tributary Width of Floor	= 2
Maximum Tributary Width of Roof	= 3
Therefore Section Size	= 495 x 90 GL8
Alternative using GL10	
Therefore Section Size	= 495 x 90 GL10



LINTELS SUPPORTING **HEAVY** ROOF & 3.0 kPa FLOOR GL10

Section Size dxb (mm)	Lintel Span (m) Max.	Tributary Width of Floor Supported (m)									
		1	2	3	4	5	6	7	8	9	10
		Maximum Tributary Width of Roof (m) at Span between 2m & 6m									
180 x 65	2	3.2									
225 x 65	2	7.8	3.8								
225 x 90	2		8.4	4.4							
270 x 90	2				8.5	4.5	0.6				
315 x 90	2							6.1	2.1		
360 x 90	2									8.5	4.5
225 x 90	3	2.1									
270 x 90	3	5.3	2.8								
315 x 90	3	9.8	7	3							
360 x 90	3			7.6	3.6						
405 x 90	3				8.8	4.8	0.8				
450 x 90	3						6.5	2.8			
495 x 90	3							9.1	6.2	3.4	0.7
540 x 90	3										7.5
270 x 90	4	0.9									
315 x 90	4	2.7									
360 x 90	4	5.2	2.9								
405 x 90	4	8.4	5.8	1.8							
450 x 90	4		9	5	1						
495 x 90	4			8.5	4.5	0.6					
540 x 90	4				8.4	4.4	1.5				
585 x 90	4					8.5	5.6	2.8			
630 x 90	4							7.2	4.5	1.8	
360 x 90	5	1.5									
405 x 90	5	3.1	0.7								
450 x 90	5	5.2	2.8								
495 x 90	5	7.7	5	1							
540 x 90	5		7.4	3.5							
585 x 90	5			6.1	2.1						
630 x 90	5			8.9	4.9	2					
675 x 135	5								8.9	6.3	3.8
720 x 135	5										8.6
405 x 90	6	0.8									
450 x 90	6	1.9									
495 x 90	6	3.4	0.9								
540 x 90	6	5.1	2.6								
585 x 90	6	7.1	4.4	0.5							
630 x 90	6	9.5	6.4	2.4							
675 x 135	6				9.4	6.7	4	1.4			
720 x 135	6						7.3	4.7	2.1		
765 x 135	6							8.2	5.6	3.1	0.6
810 x 135	6								9.3	6.8	4.3
855 x 135	6										8.2

Floor Live Load = 3.0kPa, Dead Load = 0.5kPa

Lintels Assumed Fully Restrained

Roof Type = Heavy

Wind Speed range = High

Deflection Limit = Span / 400

Precamber = Span / 400

Glulam Grade = GL10

LINTELS SUPPORTING ROOF ONLY (**LIGHT** ROOF) **GL8**

Section Size dxb (mm)	1.5	2	2.5	3	3.5	4	4.5	5
	Maximum Tributary Width (m) at Span L							
135 x 65	6.1	2.6	1.3					
180 x 65		6.1	3.1	1.8	1.1			
225 x 65			6.1	3.5	2.2	1.5	1.0	
270 x 65				6.1	3.8	2.6	1.8	1.3
315 x 65				9.8	6.1	4.1	2.9	2.1
405 x 65						8.7	6.1	4.5
450 x 65							8.4	6.1
315 x 90					8.5	5.7	4.0	2.9
360 x 90						8.5	6.0	4.3
405 x 90							8.5	6.2
450 x 90								8.5

Light Roof Beams Fully Restrained
Wind Speed = High
Deflection Limit = span / 400
Glulam Grade = GL8

Section Size dxb (mm)	Span Of Glulam Beam, L (m)									
	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
	Maximum Tributary Width (m) at Span L									
315 x 65	1.5	1.1								
405 x 65	3.3	2.6	2.0	1.5	1.2					
450 x 65	4.6	3.5	2.8	2.2	1.7	1.3	1.0			
315 x 90	2.2	1.6	1.1							
360 x 90	3.2	2.5	1.8	1.4	1.0					
405 x 90	4.6	3.6	2.8	2.1	1.6	1.2				
450 x 90	6.4	4.9	3.8	3.1	2.4	1.8	1.4	1.1		
495 x 90	8.5	6.5	5.1	4.1	3.3	2.6	2.1	1.6	1.3	1.0
540 x 90		8.5	6.7	5.3	4.3	3.5	2.8	2.3	1.8	1.4
585 x 90		10.8	8.5	6.8	5.5	4.5	3.7	3.0	2.4	2.0
630 x 90				8.5	6.9	5.7	4.7	3.9	3.2	2.6
675 x 135							8.8	7.4	6.1	5.1
720 x 135								9.0	7.6	6.3
765 x 135									9.1	7.8
810 x 135										9.3

Light Roof Beams Fully Restrained
Wind Speed = High
Deflection Limit = span / 400
Glulam Grade = GL8

Instructions
To use this table you will need to know:
- The Span of the Lintel Beam.
- The Maximum Tributary Width of Roof.

1. Under the 'Span of Glulam Beam' heading, locate the column headed with a span that meets or exceeds the required span.
2. Read down this column until you find a figure that meets or exceeds the Maximum Tributary Width of Roof.
3. The section size of the Glulam beam can now be read off the left hand column.

LINTELS SUPPORTING ROOF ONLY (**LIGHT** ROOF) **GL10**

Section Size dxb (mm)	Span of Glulam Beam, L (m)								
	2	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**
	Maximum Tributary Width (m) at Span L								
135 x 65	3.2	1.6							
180 x 65	7.7	3.9	2.2	1.4					
225 x 65		7.7	4.4	2.8	1.8	1.3			
270 x 65			7.7	4.8	3.2	2.2	1.6	1.2	
315 x 65				7.7	5.1	3.6	2.6	1.9	1.5
405 x 65					10.9	7.7	5.6	4.2	3.2
450 x 65						10.5	7.7	5.7	4.4
315 x 90					7.1	5.0	3.6	2.7	2.1
360 x 90						7.5	5.4	4.1	3.1
405 x 90							7.7	5.8	4.5
450 x 90								8.0	6.1
495 x 90									8.2

Light Roof Beams Fully Restrained

Wind Speed = High

Deflection Limit = span / 400

Glulam Grade = GL10

Section Size dxb (mm)	Span of Glulam Beam, L (m)							
	6.5	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**
	Maximum Tributary Width (m) at Span L							
135 x 65								
180 x 65								
225 x 65								
270 x 65								
315 x 65	1.1							
405 x 65	2.5	2.0	1.5	1.2				
450 x 65	3.5	2.8	2.2	1.8	1.4	1.1		
315 x 90	1.5	1.1						
360 x 90	2.4	1.8	1.4	1.1				
405 x 90	3.5	2.8	2.2	1.7	1.3	1.0		
450 x 90	4.8	3.8	3.1	2.5	1.9	1.5	1.2	
495 x 90	6.4	5.1	4.2	3.4	2.7	2.2	1.8	1.4
540 x 90	8.4	6.7	5.4	4.5	3.7	3.0	2.4	2.0
585 x 90		8.5	6.9	5.7	4.7	4.0	3.3	2.7
630 x 90			8.6	7.1	5.9	5.0	4.2	3.5
675 x 135						9.2	7.8	6.7
720 x 135							9.5	8.2
765 x 135								9.8

Light Roof Beams Fully Restrained

Wind Speed = High

Deflection Limit = span / 400

Glulam Grade = GL10

LINTELS SUPPORTING ROOF ONLY (**HEAVY** ROOF) **GL8**

Section Size dxb (mm)	Span of Glulam Beam, L (m)							
	1.5	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**
	Maximum Tributary Width (m) at span L							
135 x 65	4.1	1.7						
180 x 65		4.1	2.0	1.1				
225 x 65		8.1	4.1	2.3	1.4			
270 x 65			7.1	4.1	2.5	1.6	1.1	
315 x 65				6.5	4.0	2.6	1.8	1.2
405 x 65					8.8	5.8	4.0	2.8
450 x 65						8.0	5.5	4.0
315 x 90				9.1	5.6	3.7	2.5	1.7
360 x 90					8.5	5.6	3.8	2.7
405 x 90						8.0	5.5	3.9
450 x 90							7.7	5.5
495 x 90								7.4
540 x 90								9.7

Heavy Roof Beams Fully Restrained
Wind Speed = High
Deflection Limit = Span/400
Glulam Grade = GL8

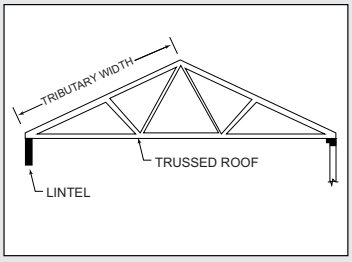
Section Size dxb (mm)	Span of Glulam Beam, L (m)									
	5.5	**6**	**6.5**	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**
	Maximum Tributary Width (m) at span L									
405 x 65	2.1	1.5	1.1							
450 x 65	2.9	2.2	1.6	1.3	1.0					
315 x 90	1.2									
360 x 90	1.9	1.4	1.0							
405 x 90	2.9	2.1	1.6	1.2						
450 x 90	4.0	3.0	2.3	1.8	1.4	1.0				
495 x 90	5.5	4.1	3.1	2.4	1.9	1.5	1.2			
540 x 90	7.2	5.4	4.2	3.2	2.6	2.0	1.6	1.3	1.0	
585 x 90	9.2	7.0	5.4	4.2	3.3	2.7	2.1	1.7	1.4	1.1
630 x 90	11.6	8.8	6.8	5.4	4.3	3.4	2.8	2.2	1.8	1.5
675 x 135				10.0	8.0	6.5	5.2	4.3	3.5	2.9
720 x 135					9.8	8.0	6.5	5.3	4.4	3.7
765 x 135						9.7	7.9	6.5	5.4	4.5
810 x 135							9.5	7.9	6.5	5.5
855 x 135								9.4	7.8	6.5
900 x 135									9.2	7.8
945 x 135										9.1

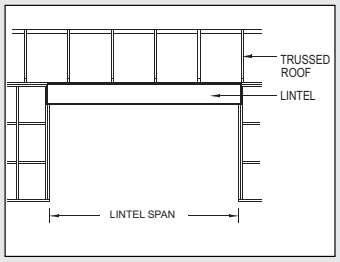
Heavy Roof Beams Fully Restrained
Wind Speed = High
Deflection Limit = Span / 400
Glulam Grade = GL8

Example:
For a Rafter Lintel spanning 5m carrying a tributary **Heavy** roof of 3m.

Span of Glulam Lintel = 5
Maximum Tributary Width of Roof = 3
Therefore Section Size = 405 x 90 GL8

Alternative using GL10
Therefore Section Size = 360 x 90 GL10





LINTELS SUPPORTING ROOF ONLY (HEAVY ROOF) GL10

Section Size dxb (mm)	Span of Glulam Beam, L (m)								
	1.5	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**
	Maximum Tributary Width (m) at Span L								
135 x 65	5.2	2.1	1.0						
180 x 65		5.2	2.6	1.4					
225 x 65			5.1	2.9	1.8	1.1			
270 x 65			9.0	5.1	3.1	2.0	1.4	1.0	
315 x 65				8.2	5.1	3.3	2.3	1.6	1.1
405 x 65						7.3	5.0	3.6	2.6
450 x 65							7.0	5.0	3.7
315 x 90					7.1	4.6	3.2	2.2	1.6
360 x 90						7.0	4.8	3.4	2.5
405 x 90							7.0	5.0	3.7
450 x 90							9.7	7.0	5.1
495 x 90								9.4	6.9
540 x 90									9.1

Heavy Roof Beams Fully Restrained

Wind Speed = High

Deflection Limit = span / 400

Glulam Grade = GL10

Section Size dxb (mm)	Span of Glulam Beam, L (m)								
	6	**6.5**	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**
	Maximum Tributary Width (m) at Span L								
405 x 65	2.0	1.5	1.1						
450 x 65	2.8	2.1	1.6	1.3	1.0				
315 x 90	1.2								
360 x 90	1.9	1.4	1.1						
405 x 90	2.7	2.1	1.6	1.2	1.0				
450 x 90	3.9	3.0	2.3	1.8	1.4	1.1			
495 x 90	5.2	4.0	3.1	2.5	2.0	1.6	1.3	1.0	
540 x 90	6.9	5.3	4.2	3.3	2.6	2.1	1.7	1.4	1.1
585 x 90	8.9	6.9	5.4	4.3	3.5	2.8	2.3	1.9	1.5
630 x 90		8.7	6.8	5.5	4.4	3.6	2.9	2.4	2.0
675 x 135				10.2	8.3	6.8	5.6	4.6	3.8
720 x 135					10.2	8.3	6.9	5.7	4.8
765 x 135						10.1	8.4	7.0	5.9
810 x 135							10.1	8.4	7.1
855 x 135								10.0	8.4
900 x 135									10.0
945 x 135									

Heavy Roof Beams Fully Restrained

Wind Speed = High

Deflection Limit = span / 400

Glulam Grade = GL10

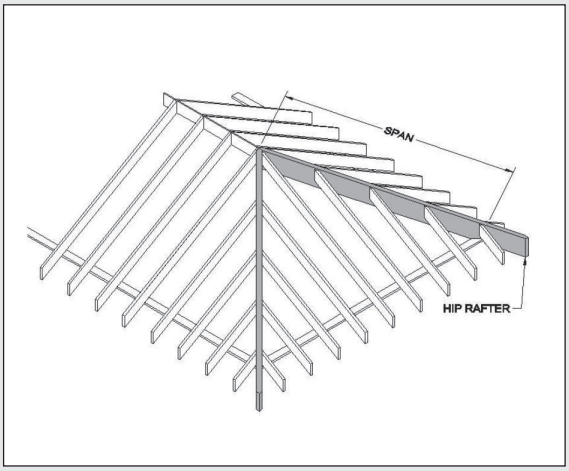
ROOF HIP MEMBERS GL8

Roof Type and pitch < 20°	Wind Speed	Span (m) on plan							
		3	4	5	6	7	8	9	10
Heavy	L	180x65	225x90	270x115	360x115	450x90	540x90	630x90	675x135
	M	180x65	225x90	270x115	360x115	450x90	540x90	630x90	675x135
	H	180x65	225x90	270x115	360x115	450x115	540x115	630x115	675x135
	VH	180x65	225x90	315x90	360x115	450x115	540x115	630x115	675x135
Light	L	135x65	225x65	225x115	315x90	360x115	450x115	540x90	585x115
	M	135x65	225x65	225x115	315x90	360x115	450x115	540x90	585x115
	H	180x65	225x65	270x90	315x115	405x90	450x115	540x115	630x90
	VH	180x65	225x90	270x115	360x90	405x115	495x115	585x115	675x135

Wind speed zones in accordance with NZS 3604:1999
Deflection limited to span / 300
Glulam Grade = GL8

Instructions
To use this table you will need to know:
- The Span of the Hip on plan.
- The Wind Speed (Light, Medium or Heavy).
- Type of Roof Load (Light or Heavy).

1. Select the Roof Type in the left hand column (Heavy or Light).
2. Within this block, locate the row of the required Wind Speed (L, M, H or VH).
3. Under the 'Span on Plan' heading, locate the column that meets or exceeds the required span.
4. Locate the beam dimensions in the cell where the row in step 2 and the column in step 3 meet.



Example:
For a Rafter Lintel spanning 5m carrying a light roof in a medium wind speed, Roof Pitch <20˚

Span of Glulam Beam = 5
Wind Speed = M
Therefore Section Size = 225 x 115 GL8
or = 225 x 90 GL8
12mm Precamber

Alternative using GL10
Therefore Section Size = 225 x 90 GL10

Roof Type and pitch	Wind Speed	Span (m) on plan							
< 20º		**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Heavy	L	180x65	225x65	270x90	315x115	405x115	495x115	585x90	630x115
	M	180x65	225x65	270x90	315x115	405x115	495x115	585x90	630x115
	H	180x65	225x65	270x90	360x90	405x115	495x115	585x115	675x135
	VH	180x65	225x65	270x115	360x90	405x115	495x115	585x115	675x135
Light	L	135x65	225x65	225x90	270x115	360x90	405x115	495x90	540x115
	M	135x65	225x65	225x90	270x115	360x90	405x115	495x90	540x115
	H	135x65	225x65	225x115	315x90	360x115	450x90	495x115	585x90
	VH	180x65	225x65	270x90	315x115	405x90	450x115	585x90	630x115

Wind speed zones in accordance with NZS 3604:1999

Deflection limited to span / 300

Glulam Grade = GL10

Roof Type and pitch	Wind Speed	Span (m) on plan							
< 60º		**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Heavy	L	225x65	270x90	360x90	450x115	540x115	675x135	720x135	855x135
	M	225x65	270x90	360x115	450x115	585x90	675x135	720x135	855x135
	H	225x65	270x115	360x115	450x115	585x115	675x135	765x135	855x135
	VH	225x65	315x90	405x90	495x115	630x115	675x135	810x135	945x135
Light	L	180x65	225x115	315x90	405x90	495x90	585x90	675x135	720x135
	M	225x65	270x90	315x115	405x115	495x115	630x115	675x135	765x135
	H	225x65	270x115	360x115	495x90	585x90	675x135	765x135	855x135
	VH	225x65	315x90	405x90	495x115	630x115	675x135	810x135	945x135

Wind speed zones in accordance with NZS 3604:1999

Deflection limited to span / 300

Glulam Grade = GL10

ROOF HIP MEMBERS – PRECAMBERED BEAMS GL8

Roof Type < 20°	Wind Speed	Span (m)							
		3	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Heavy	L	135x65	225x65	225x115	315x90	360x115	450x90	495x115	585x115
	precamber (mm)	7	10	12	15	17	20	22	25
	M	135x65	225x65	225x115	315x90	360x115	450x90	495x115	585x115
	precamber (mm)	7	10	12	15	17	20	22	25
	H	180x65	225x65	270x90	315x115	405x90	450x115	585x90	630x90
	precamber (mm)	N/A	10	12	15	17	20	22	25
	VH	180x65	225x90	270x115	360x90	405x115	495x115	585x115	675x135
	precamber (mm)	N/A	N/A	12	15	17	20	22	N/A
Light	L	135x65	180x65	225x90	270x90	315x115	360x115	450x90	495x115
	precamber (mm)	N/A	10	12	15	17	20	22	25
	M	135x65	225x65	225x90	270x115	360x90	405x115	450x115	540x115
	precamber (mm)	N/A	N/A	12	15	17	20	22	25
	H	180x65	225x65	270x90	315x115	405x90	450x115	540x115	585x115
	precamber (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25
	VH	180x65	225x90	270x115	360x90	405x115	495x115	585x115	675x135
	precamber (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Precamber = 1.5 x Dead Load Deflection or Span / 400, whichever is the least
Wind speed zones in accordance with NZS 3604:1999
Deflection limited to span / 300
Glulam Grade = GL8

Tip:

Avoid cutouts, rebating or drilling holes in top and bottom flanges of Glulam Beams. Consult manufacturer or designer if in doubt.

If non-galvanised steel connections are used dark staining may result from exposure to moisture. Use rustproof fixings in external areas.

ROOF HIP MEMBERS – PRECAMBERED BEAMS GL10

Roof Type	Wind Speed	Span (m)							
< 20º		**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Heavy	L	135x65	180x65	225x90	270x115	360x90	405x115	495x90	540x115
	precamber (mm)	7	10	12	15	17	20	22	25
	M	135x65	180x65	225x90	270x115	360x90	405x115	450x115	540x115
	precamber (mm)	7	10	12	15	17	20	22	25
	H	135x65	225x65	225x115	315x90	360x115	450x90	495x115	585x90
	precamber (mm)	7	N/A	12	15	17	20	22	25
	VH	180x65	225x65	270x90	315x115	405x90	450x115	540x115	630x115
	precamber (mm)	N/A	N/A	12	15	17	20	22	25
Light	L	135x65	180x65	225x65	225x115	315x90	360x90	405x115	450x115
	precamber (mm)	N/A	10	12	15	17	20	22	25
	M	135x65	180x65	225x90	270x90	315x115	360x115	450x115	540x90
	precamber (mm)	N/A	10	N/A	15	17	20	22	25
	H	135x65	225x65	225x115	315x90	360x115	405x115	495x115	585x90
	precamber (mm)	N/A	N/A	N/A	N/A	N/A	20	N/A	N/A
	VH	180x65	225x65	270x90	315x115	405x90	450x115	540x115	630x115
	precamber (mm)	N/A	N/A	N/A	N/A	N/A	N/A	16	N/A

Precamber = 1.5 x Dead Load Deflection or Span / 400, whichever is the least

Wind speed zones in accordance with NZS 3604:1999

Deflection limited to span / 300

Glulam Grade = GL10

Roof Type	Wind Speed	Span (m)							
< 60º		**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Heavy	L	180x65	225x115	315x90	405x90	495x90	585x115	675x135	720x135
	precamber (mm)	7	10	12	15	17	20	22	25
	M	180x65	225x115	315x115	405x115	495x115	585x115	675x135	720x135
	precamber (mm)	7	10	12	15	17	20	22	25
	H	225x65	270x90	360x90	450x115	540x115	630x115	720x135	810x135
	precamber (mm)	N/A	10	12	N/A	17	20	22	25
	VH	225x65	270x115	360x115	495x90	585x115	675x115	765x135	855x135
	precamber (mm)	N/A	10	12	15	17	20	22	25
Light	L	180x65	225x90	270x115	360x115	450x90	540x90	630x90	675x135
	precamber (mm)	N/A	10	12	15	17	20	22	25
	M	180x65	225x115	315x115	405x90	495x115	585x115	675x135	720x135
	precamber (mm)	7	10	N/A	15	N/A	20	N/A	25
	H		270x90	360x90	450x115	540x115	630x115	720x135	810x135
	precamber (mm)	7	10	12	15	17	20	22	25
	VH	225x65	270x115	360x115	495x90	585x115	675x135	765x135	900x135
	precamber (mm)	N/A	10	12	15	17	N/A	22	25

Precamber = 1.5 x Dead Load Deflection or Span / 400, whichever is the least

Wind speed zones in accordance with NZS 3604:1999

Deflection limited to span / 300

Glulam Grade = GL10

LINTELS SUPPORTING ROOF ONLY – LIGHT ROOF

Section Size dxb (mm)	Span of Glulam Beam, L (m)									
	1.5	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**
	Maximum Tributary Width (m) at Span L									
140 x 65	6.8	2.9	1.4							
180 x 65		6.1	3.1	1.8	1.1					
240 x 65			7.4	4.3	2.7	1.8	1.2			
280 x 65				6.8	4.3	2.9	2.0	1.4	1.0	
320 x 65					6.4	4.3	3.0	2.2	1.6	1.2

Light Roof Beams Fully Restrained

Wind Speed = High

Deflection Limit = span / 400

Glulam Grade = GL8

ROOF BEAMS, RAFTERS & RIDGES – LIGHT ROOF

Section Size dxb (mm)	Span Glulam Beam, L (m)														
	1.5	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**	**7.5**	**8**	**8.5**
	Maximum Tributary Width (m) at Span L														
140 x 65	9.6	4.8	2.4	1.3											
140 x 65 Precambered		*5.4*	*3.2*	*1.8*	*1.1*										
precamber required (mm)		5.0	6.0	7.0	9.0										
180 x 65		9.6	5.2	2.9	1.8	1.1									
180 x 65 Precambered			*6.1*	*3.9*	*2.5*	*1.6*	*1.1*								
precamber required (mm)			6.0	7.0	9.0	10.0	11.0								
240 x 65				7.1	4.4	2.9	1.9	1.4	1.0						
240 x 65 Precambered				*8.0*	*5.8*	*3.9*	*2.8*	*2.0*	*1.5*	*1.1*	*0.9*				
precamber required (mm)				7.0	9.0	10.0	11.0	13.0	14.0	15.0	17.0				
280 x 65					7.1	4.6	3.2	2.3	1.6	1.2	0.9				
280 x 65 Precambered					*8.2*	*6.2*	*4.4*	*3.2*	*2.4*	*1.8*	*1.4*	*1.1*	*0.9*		
precamber required (mm)					9.0	10.0	11.0	13.0	14.0	15.0	17.0	19.0	20.0		
320 x 65						7.0	4.9	3.5	2.5	1.9	1.4	1.1			
320 x 65 Precambered						*8.3*	*6.5*	*4.8*	*3.6*	*2.8*	*2.2*	*1.7*	*1.4*	*1.1*	*0.9*
precamber required (mm)						10.0	11.0	13.0	14.0	15.0	16.0	18.0	19.0	20.0	23.0

Light Roof Beams Fully Restrained @ Top Edge Only

Wind Speed = Medium

Roof Pitch < 20∞

Maximum Precamber = 1.5 x Dead Load deflection or span / 400 whichever is the least

If precamber width not shown there is no additional benefit of precamber

Deflection Limit = span / 300

Glulam Grade = GL8

LINTELS SUPPORTING ROOF ONLY – HEAVY ROOF

Section Size dxb (mm)	Span of Glulam Beam, L (m)							
	1.5	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**
	Maximum Tributary Width (m) at span L							
140 x 65	4.6	1.9						
180 x 65	9.9	4.1	2.0	1.1				
240 x 65		9.9	5.0	2.8	1.7	1.1		
280 x 65			8.0	4.5	2.8	1.8	1.2	
320 x 65				6.9	4.2	2.8	1.9	1.3

Heavy Roof Beams Fully Restrained

Wind Speed = High

Deflection Limit = Span/400

Glulam Grade = GL8

ROOF BEAMS, RAFTERS & RIDGES – HEAVY ROOF

Section Size dxb (mm)	Span Glulam Beam, L (m)												
	1	**1.5**	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**
	Maximum Tributary Width (m) at Span L												
140 x 65	5.7	2.7	1.3										
140 x 65 Precambered		*3.1*	*2.0*	*1.3*									
precamber required (mm)		5.0	7.0	8.0									
180 x 65		5.6	2.9	1.6	1.0								
180 x 65 Precambered		*5.6*	*3.5*	*2.4*	*1.8*	*1.2*							
precamber required (mm)		5.0	7.0	8.0	10.0	10.0							
240 x 65			6.8	4.0	2.4	1.6	1.1						
240 x 65 Precambered			*6.8*	*4.7*	*3.4*	*2.6*	*2.0*	*1.5*	*1.1*				
precamber required (mm)			7.0	8.0	9.0	11.0	13.0	13.0	14.0				
280 x 65			9.5	6.4	4.0	2.6	1.8	1.2	0.9				
280 x 65 Precambered			*9.5*	*6.6*	*4.8*	*3.6*	*2.8*	*2.3*	*1.8*	*1.4*	*1.0*		
precamber required (mm)			6.0	8.0	10.0	11.0	13.0	13.0	15.0	17.0	18.0		
320 x 65				8.7	6.0	3.9	2.7	1.9	1.4	1.0			
320 x 65 Precambered				*8.7*	*6.4*	*4.8*	*3.8*	*3.0*	*2.5*	*2.0*	*1.6*	*1.2*	*0.9*
precamber required (mm)				7.0	10.0	11.0	12.0	14.0	15.0	16.0	18.0	19.0	19.0

Heavy Roof Beams Fully Restrained @ Top Edge Only

Wind Speed = Medium

Roof Pitch < 20˚

Maximum Precamber = 1.5 Dead Load deflection or span / 400 whichever is the least

Deflection Limit = span / 300

If precamber width not shown there is no additional benefit of precamber

Glulam Grade = GL8

Q ***Why should I use Glulam instead of steel?***

A Here are just a few reasons –
- ■Easier and lighter to handle and fix
- ■Friendlier on the environment – stores carbon rather than emitting it
- ■ Uses NZ's only renewable construction material – plantation timber
- ■ Uses 14 times less energy to produce than equivalent steel beam
- ■ Superior Fire Resistance compared to steel
- ■ Lower maintenance –Glulam does not rust or corrode
- ■ Cost effective – no boxing in or covering steel beams
- ■ Appearance – natural warmth and beauty of timber cannot be reproduced in steel
- ■ Will not buckle or distort in response to temperature changes
- ■ Direct fixing of plates, joists and other connections is much easier

Q ***Why should I use Glulam instead of solid timber?***

A Because Glulam is manufactured from selected grade, kiln dried material it is stronger and more stable than a solid timber beam of the same section. The tendency of large section solid timber to twist, split and shrink is greatly minimised in Glulam. A Glulam beam can reduce the overall section of members up to 40% compared to unseasoned timber.

Q ***What Type of Quality assurance comes with Glulam Beams?***

A All Glulam must be manufactured to comply with the joint Australia and New Zealand Standard. Licensed manufacturers are regularly inspected by the NZ Timber Certification Board and issued with an individual License number. This certifies that the manufacturer's production system complies with the detailed requirements of AS/NZS 1328 – Glue Laminated Structural Timber. Audits are also carried out by Bureau Veritas to ensure compliance and quality control procedures and records are in place. To ensure you have a quality product check that your supplier has a current license number.

Q ***Can Glulam beams be used in exterior situations?***

A Yes.Treatment to hazard class 3 (H3) is recommended for all Glulam beams exposed to the weather. Along with this treatment an exterior adhesive such as resorcinol adhesive should be used. The finished beams must be suitably coated with either a penetrating sealer or film forming coating.
When painting or staining external Glulam beams it is preferable to use lighter colours. Dark colours attract heat and may cause surface shrinkage.
Because Glulam is chemically inert it is ideal for corrosive atmospheres such as marine structures, fertilisers and scouring plants where steel is subject to rust and corrosion.

Q ***What finish should I ask for on my beams?***

A If your beam is going to be used in a situation where appearance is important such as house interiors, halls etc – appearance Grade A should be specified. This calls for a flush, filled and sanded surface. Appearance Grade B is intended for applications where surface appearance is not so critical and a machine planed finish that may have occasional skips and other minor voids is acceptable.

Q ***What strength grades should Glulam be designed to?***

A The new Glulam Code AS/NZS 1328 allocated Glulam beams manufacturers in NZ Radiata Pine to three grades – GL8, GL10, & GL12. These figures refer to the stiffness (E) of the beam. The most common is GL8; some manufacturers are certified to produce GL10 or GL12. Check with your supplier.

Q ***Are there any recommendations for storage of Glulam?***

A In order to maintain the best condition of manufactured Glulam proper storage and handling is important. They should be stacked well clear of the ground and protected from the elements. Stacks of beams should be covered with a weatherproof material ensuring adequate ventilation to prevent condensation building up. Avoid black polythene, as this will make the beams sweat. If possible fillet stack beams to allow air circulation.

Avoid the use of chains or hard ropes that might damage the edges of beams. When lifting ensure the beams evenly supported and use fabric slings properly secured to prevent any slipping. Avoid any sudden movements when lifting.

Be careful not to handle and lift long beams on their weak axis – flat – as they are designed to act as a beam not a plank.

Remember these are pre-finished members and a lack of care during storage and installation will affect the finished appearance.

Q ***How long should I keep wrapping on?***

A Wrapping of Glulam beams is primarily to protect them from marking during handling and transport. This is not designed to be a waterproof protection. Once on-site water can often get in under the wrapping and cannot get out. Wrapping should be slit to provide drainage.

Wrapping can be left on Glulam beams for as long as possible (even during construction) to protect against accidental marking.

Also be aware that partial removal of wrapping to access connections may cause patches of discolouration by exposure to weather.

Q ***Do I need special connections for my beams?***

A Glulam can be treated as natural solid timber when it comes to fixings. The use of standard nailing systems and bolts is normal. In exposed situations dark stains can appear from the use of unprotected steel brackets and bolts. Use galvanised metalwork where there is any possibility of moisture.

Q ***Can finished Glulam beams be re-cut and drilled?***

A Any cutting, drilling or slotting that exposes unsealed timber must be protected with an application of appropriate weather or treatment sealer. Avoid cut-outs, rebating or drilling in the top and bottom edges of Glulam beams. These could cause serious weakness in tension and compression areas. Consult the manufacturer or designer first.

Q ***Will CCA treated Glulam cause corrosion on galvanised fixings?***

A While this may be a problem with solid unseasoned timber, Glulam does not act in the same way. Because all Glulam is manufactured from material that is kiln dried after treatment, the treatments salts are thoroughly fixed into the timber. They will therefore not subsequently leach out or affect galvanised fixings. For additional protection bolts may be greased before inserting into CCA treated Glulam beams that are exposed to weathering.

Q ***Do splits along glue lines mean delamination has occurred?***

A Actual delamination is a failure in the laminating process. While an opening along a glue line may be indicative of delamination there are other more common causes. Typical checking that occurs in large section timber in response to moisture variation will most naturally occur in Glulam along a glue line where the natural continuation of the timber fibres is interrupted. This is often mistaken for delamination.

Q ***How serious are checks and why do they appear?***

A Surface checking and splits occur as timber is allowed to absorb moisture then dries out in response to environmental changes. Surface fibres are more severely exposed to these changes than the inner core and as a result of the movement in these fibres as they dry and shrink, surface splits may occur. Changes in atmospheric conditions will affect the appearance and disappearance of these checks. The effect of surface checks are superficial only and do not usually have any effect on the structural performance of the Glulam.

Q ***How can these checks be minimised?***

A Glulam beams should be provided with a coating capable of controlling the ingress of moisture into the timber, which is done before the beams leave the factory.

If the beams are exposed to the weather for a greater period than 8-10 weeks a further coating should be applied. For coatings to protect beams that are permanently exposed to the elements consult a coatings specialist.