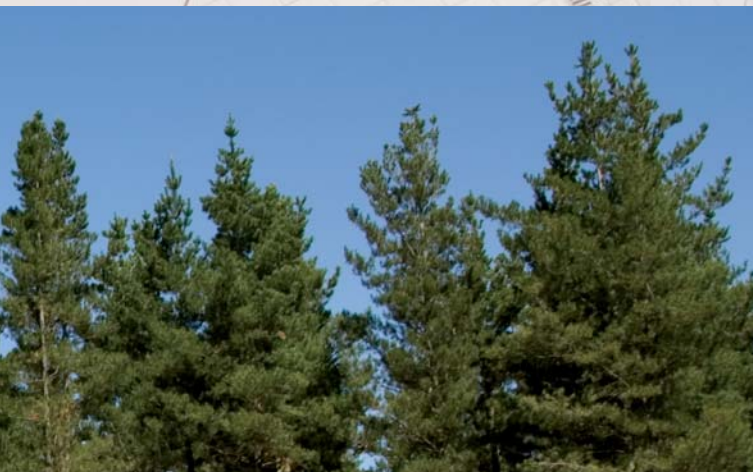


SmartLam GL13 Design Guide



SCOPE OF THIS PUBLICATION

This Design Guide and Load Tables assist in the selection of SmartLam GL13 beams for most of the common structural arrangements met in domestic construction.

Methods of developing lateral restraint and providing adequate support, adequate anchorage against wind uplift, and overall structural stability are outside the scope of this publication.

Information on the above matters can be obtained from AS 1684 Residential timber-framed construction or from a structural engineer experienced in timber construction.

Tilling Timber Pty Ltd have structural engineers within the SmartFrame Design Centre who can be contacted for advice on matters concerning the use of its SmartFrame engineered timber products in timber construction via the SmartData Customer HelpLine on 1300 668 690 or e-mail at smartdata@tilling.com

SUBSTITUTION OF OTHER PRODUCTS

All load tables in this document are designed using the characteristic properties of GL13 defined in table 7.1 of AS 1720.1, manufactured to AS/NZS 1328 by quality producers and distributed by Tilling Timber Pty Ltd.

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CERTIFICATION

As a professional engineer, qualified and experienced in timber engineering, I certify that the use of the SmartLam GL13 members as shown in these tables, and installed in accordance with the provisions of this Design Guide, complies to the Building Code of Australia. These span tables have been prepared in accordance with standard engineering principles, the relevant test reports and Australian standards, ie:

- AS 1684.1 Residential timber-framed construction
- AS 1170.1 Structural design actions – permanent imposed and other actions
- AS 1720.1 Timber structures - design methods
- AS 4055 wind loads for houses
- AS/NZS 4063 Characterisation of structural timber
- AS/NZS 1328 Glue laminated structural timber - performance requirements and minimum production requirements.
- GLTAA Unified design criteria



CRAIG KAY PEng, RPEQ-5100, EC-1961, BPB0730, CC56335 C NPER
National Product Manager - EWP



SmartFrame Product Warranty*

Tilling Timber warrants that its SmartFrame Engineered Wood products will be free from manufacturing defects in workmanship and material.

In addition, provided the product is correctly installed and used, Tilling Timber warrants the adequacy of its design for the normal and expected life of the structure.

This warranty is backed by the full resources of Tilling Timber and by underwritten product liability insurance.

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INTRODUCTION

THE PRODUCT

SmartLam GL13 beams are manufactured to AS/NZS 1328 by quality Glulam manufacturers. SmartLam GL13 Glulam beams are engineered timber products with high strength, dimensional stability, great load carrying capacity, superior fire resistance, and are manufactured from select quality Pine timber.

All timber used for laminating is carefully selected from production and graded according to specification. After trimming to the desired size, all stock is kiln dried to 12% average moisture content, to ensure efficient bonding in the gluing operations. The laminations are finger jointed by machine, with glue being cured by cold press system and controlled temperature.



SmartLam GL13 are available in A, B & C appearance Grades and are pre-cambered to a radius of 600 metres. **Uncambered SmartLam GL13 beams are available to order.**

BENEFITS OF SmartLam GL13

COST EFFECTIVENESS - SmartLam GL13 beams high strength to weight ratio allows you to design for maximum loads over large spans with the smallest possible end sections.

PRODUCT QUALITY - All SmartLam GL13 beams are manufactured in accordance with AS 1328 Glue Laminated Structural Timber and the Glued Laminated Timber Association (GLTAA) Industry standard GLTAA-4-91.

FIRE SAFETY - Extensive fire test data shows that large end section timber performs well in fire situations due to the formation of a protective layer of char which usually occurs at a temperature around 250° C. This charred area inhibits the effects of the fire on the inner portion of the timber component, hence it maintains structural load support for measurable periods of time as the fire progresses.

Conversely, steel loses its strength rapidly as the temperature is raised. At about 550°C, it has lost about 50% of its original bending strength, and by 750°C it has lost 90%. Timber does not lose strength in the same way, with the loss of section size through charring the major reason for any strength reduction.

FAST EASY ERECTION - Timber is a user friendly building material, requiring no special tools other than those a normal builder would use, and with SmartLam GL13 beams, installation is fast, easy and efficient.

ENVIRONMENTAL RESPONSIBILITY - SmartLam GL13 beams are made from timber from sustainable managed forests, a natural resource that is friendly to the environment.

LOW MAINTENANCE - In most applications, SmartLam GL13 beams will require little or no maintenance other than that which you would ordinarily carry out to any structural material.

NATURAL BEAUTY - The natural beauty of timber is desired and highly appropriate in many architectural applications. Appearance Grade A & B SmartLam GL13 beams allow you to build timber's natural warmth and beauty into your designs.

TECHNICAL DATA

DESIGN CRITERIA

Deflection limits

The deflection limits applied in these tables are as stated in Table 1 and are in accordance the Glued Laminated Timber Association of Australia (GLTAA) Unified Design Criteria

Table 1: Deflection limits

MEMBER	LONG TERM		SHORT TERM	
	$J_2 \times D.L$	$J_2 \times (DL+0.6 \text{ kPa})$	L.L	SERVICEABILITY W.L
BEARERS (floor loads only)		$\frac{SPAN}{300}$ or 15 mm	$\frac{SPAN}{360}$ or 18 mm	
BEARERS (with roof loads)		$\frac{SPAN}{300}$ or 15 mm	$\frac{SPAN}{360}$ or 18 mm	$\frac{SPAN}{250}$ or 9 mm
JOISTS		$\frac{SPAN}{300}$ or 15 mm	$\frac{SPAN}{360}$ or 9 mm	
LINTELS (with roof loads only)	$\frac{SPAN}{300}$ or 9 mm		$\frac{SPAN}{250}$ or 9 mm	$\frac{SPAN}{250}$ or 9 mm
LINTELS (with roof and floor)		$\frac{SPAN}{300}$ or 10 mm	$\frac{SPAN}{250}$ or 9 mm	$\frac{SPAN}{250}$ or 9 mm
STRUTTING, HANGING, COUNTER BEAMS	$\frac{SPAN}{300}$ or 15 mm		$\frac{SPAN}{270}$ or 15 mm	$\frac{SPAN}{150}$
HANGING/STRUTTING, COUNTER/STRUTTING	$\frac{SPAN}{300}$ or 12 mm		$\frac{SPAN}{300}$ or 12 mm	$\frac{SPAN}{150}$
ROOF BEAMS, RAFTERS, HIPS	$\frac{SPAN}{300}$ or 20 mm		$\frac{SPAN}{250}$	$\frac{SPAN}{150}$
PATIO & VERANDAH BEAMS	$\frac{SPAN}{400}$ or 10 mm		$\frac{SPAN}{250}$ or 12 mm	$\frac{SPAN}{200}$

For Long Term - Camber may in some circumstances be added to Deflection limits
 WHERE: DL = DEAD LOAD, LL = LIVE LOAD, WL = WIND LOAD, J_2 = FACTOR FOR DURATION OF LOAD

Design loads

Table 4

Dead loads are:

Sheet roof without ceiling	20 kg/m ²
Sheet roof with ceiling	40 kg/m ²
Fibro roof with ceiling	60 kg/m ²
Tiled roof without ceiling	60 kg/m ²
Tiled roof with ceiling	75 kg/m ²
Timber floor with ceiling under	40 kg/m ²

Live loads are:

roof (Non trafficable) = 0.25 kPa minimum (1.8/area + 0.12) kPa or 0.25 kPa maximum.	
Floor Loads (domestic)	1.5 kPa
External - greater than 1 m above ground	2.0 kPa
- Less than 1 m above ground	1.5 kPa

Duration of load/service class

Table 5

Duration of load Factor (J_2)

Duration	Service Class / Exposure Classification		
	1, 2	3	Severe/Adverse
Short Term <= 1 Day	1.0	1.0	1.0
Long Term > 12 months	1.5	2.0	3.0*

Notes:

- Any beams to be used in service class 3 are outside the scope of these span tables, therefore specialist design advice should be sought from an engineer. In general, the size of this beam can conservatively be obtained by the following method:
 - Obtain the beam size for service class 1 & 2
 - Obtain the EI_x from the "Section Properties" table for this beam
 - Obtain from the "Section Properties" table a beam size with an $EI_x \geq 2/1.5 \times EI_x$ of the original beam
 - Follow the recommendations of the GLTAA Technical Data sheet No 2: Glulam in weather exposed applications"

* indicates severe / adverse conditions which are beyond the scope of these span tables and specialist design advice from a engineer should be sought.
- Service Classes 1,2 & 3 are defined in AS1328

ENGINEERING PROPERTIES

Table 6

Glulam grade	Characteristic Strengths (MPa)				Elastic Moduli (MPa)	
	Bending (F'_b)	Tension parallel to grain (F'_t)	Shear in beam (F'_s)	Compression parallel to grain (F'_c)	Short duration modulus of elasticity parallel to the grain (E)	Short duration modulus of rigidity for beams (G)
SmartLam GL13	33	16	4.2	26	13300	900

CAPACITY FACTORS (Φ) FOR USE WITH SmartLam GL13:

The capacity factor Φ for calculating the design capacity for a structural member depends upon the type of structural material and the application of the member as described in table 2.1 of AS 1720.1. SmartLam GL13 used as a structural element in structures presenting a low degree of hazard to life and other property in case of failure (includes houses) has a capacity factor Φ of 0.95. For other structural applications including beams within houses that support an area greater than 25 m², the values of Φ should be obtained from Table 2.1 of AS 1720.1. All the tables within this document have been prepared with the value of $\Phi = 0.95$

OTHER PROPERTIES :

Strength group	SD6
Joint group	JD4
Density	~ 550 kg/m ³
Service class	2 (EMC not to exceed 20% in service)

DIMENSIONAL TOLERANCES:

Height or	<100	+2 mm, -2 mm
Width	100<300	+3 mm, -3 mm
	300<600	+4 mm, -4 mm
	>600	+6 mm, -6 mm

ADHESIVE:

Waterproof resins to include resorcinol, phenol/resorcinol' and polyphenolics

CURING:

Cold press system and controlled temperature

LENGTH:

Stock beams up to 12 m

PRE-CAMBER:

All stock SmartLam GL13 beams are supplied with a built in camber of a radius of 600 metres. SmartLam GL13 beams can be ordered either straight or with or a user specified pre-camber. (see ordering SmartLam GL13)

BEAM PROPERTIES

Table 6 - Section Properties for SmartLam GL13 - Glued laminated beams

SmartLam GL13 section properties

Nominal size DxB mm	Beam mass kg/m	Nominal section area 10 ³ mm ²	Major axis			Minor Axis	
			Z _{xx} 10 ³ mm ²	I _{xx} 10 ⁶ mm ⁴	EI _{xx} 10 ⁹ Nmm ²	Z _{yy} 10 ³ mm ²	I _{yy} 10 ⁶ mm ⁴
200 x 60	6.6	12.0	400	40	532	120.0	3.6
233 x 60	7.7	14.0	543	63	841	139.8	4.2
240 x 60	7.9	14.4	576	69	919	144.0	4.3
266 x 60	8.8	16.0	708	94	1252	159.6	4.8
300 x 60	9.9	18.0	900	135	1796	180.0	5.4
333 x 60	11.0	20.0	1109	185	2456	199.8	6.0
366 x 60	12.1	22.0	1340	245	3260	219.6	6.6
400 x 60	13.2	24.0	1600	320	4256	240.0	7.2
433 x 60	14.3	26.0	1875	406	5399	259.8	7.8
466 x 60	15.4	28.0	2172	506	6729	279.6	8.4
200 x 80	8.8	16.0	533	53	709	213.3	8.5
233 x 80	10.3	18.6	724	84	1122	248.5	9.9
240 x 80	10.6	19.2	768	92	1226	256.0	10.2
266 x 80	11.7	21.3	943	125	1669	283.7	11.3
300 x 80	13.2	24.0	1200	180	2394	320.0	12.8
333 x 80	14.7	26.6	1479	246	3274	355.2	14.2
366 x 80	16.1	29.3	1786	327	4347	390.4	15.6
400 x 80	17.6	32.0	2133	427	5675	426.7	17.1
433 x 80	19.1	34.6	2500	541	7198	461.9	18.5
466 x 80	20.5	37.3	2895	675	8973	497.1	19.9
500 x 80	22.0	40.0	3333	833	11083	533.3	21.3
533 x 80	23.5	42.6	3788	1009	13426	568.5	22.7
200 x 110	12.1	22.0	733	73	975	403.3	22.2
233 x 110	14.1	25.6	995	116	1542	469.9	25.8
240 x 110	14.5	26.4	1056	127	1685	484.0	26.6
266 x 110	16.1	29.3	1297	173	2295	536.4	29.5
300 x 110	18.2	33.0	1650	248	3292	605.0	33.3
333 x 110	20.1	36.6	2033	338	4502	671.6	36.9
366 x 110	22.1	40.3	2456	449	5977	738.1	40.6
400 x 110	24.2	44.0	2933	587	7803	806.7	44.4
433 x 110	26.2	47.6	3437	744	9898	873.2	48.0
466 x 110	28.2	51.3	3981	928	12337	939.8	51.7
500 x 110	30.3	55.0	4583	1146	15240	1008.3	55.5
533 x 110	32.2	58.6	5208	1388	18461	1074.9	59.1

Pre - Camber in mm based upon camber radius of 600 m.

Table 8

CAMBER BASED UPON 600 m RADIUS					
Beam Length (m)	Camber (mm)	Beam Length (m)	Camber (mm)	Beam Length (m)	Camber (mm)
3.3	2.2	6.3	8.3	9.3	18.0
3.6	2.7	6.6	9.1	9.6	19.2
3.9	3.1	6.9	9.9	9.9	20.4
4.2	3.7	7.2	10.8	10.2	21.6
4.5	4.2	7.5	11.7	10.5	23.0
4.8	4.8	7.8	12.7	10.8	24.3
5.1	5.4	8.1	13.7	11.1	25.7
5.4	6.0	8.4	14.7	11.4	27.0
5.7	6.8	8.7	15.7	11.7	29.0
6.0	7.5	9.0	16.9	12.0	30.0

ORDERING SmartLam GL13

SmartLam GL13 glulam can be purchased with or without camber and in different appearance grades.

AS/NZS 1328.2 defines 3 appearance grades:

- Appearance Grade A - Sanded with any voids filled - intended for applications where appearance is important and clear or painted finishes are used
- Appearance Grade B - intended for applications where appearance is important but where a planed finish is acceptable
- Appearance Grade C - intended for applications where appearance is unimportant

SmartLam GL13C B grade

Appearance Grade

"C" indicates pre-cambered
"S" indicates no pre-camber (straight)

Stock SmartLam GL13 will be supplied pre-cambered in B grade finish unless otherwise specifically requested.

PROTECTION AND HANDLING

All beams are wrapped at the factory to protect against weather and handling during storage and transport. Care should be taken during delivery to avoid marking and to avoid damage. Unloading of trucks should be done by hand or with a crane, do not drop or dump members. During unloading with lifting equipment, use fabric or plastic belts or other slings which will not mark the wood. If chains or cables are used, provide protective blocking or padding. Guard against soiling, dirt, footprints, abrasions, or injury to sharp edges or corners.

INSTALLATION

PREPARATORY WORK

Carefully unload and handle the laminated members at job site to prevent surface marking and damage. If laminated timber is to be stored before erection, place it on blocks well off the ground with individual members separated by strips so that air may circulate around all four sides. The top and the sides of storage pile shall be covered with moisture resistant covering. Wrapping shall be left intact, but individual wrappings shall be slit or punctured on the lower side to permit the drainage of water that may have accumulated. Before erection, the assembly should be checked for any damage from water or handling, prescribed camber, and accuracy of anchorage connections.

Laminated beams can be nailed into place in the same way as solid timber beams. Alternatively, a range of plates are available for end fixing. For larger beams, special purpose, engineer designed end fixing should be used.

DEFLECTION

All structural members deflect downwards when dead loads are applied, and therefore it is important to allow for this deflection structurally and/or aesthetically in the selection of the beam sizes. The "Deflection Limits" table on page 1 details deflection limits for various applications.

VERTICALITY

SmartLam GL13 members must not be installed out of plumb more than height/500.

NOTCHES

Large notches and holes in Glulam beams should normally be avoided as they cause abrupt changes in cross section and disrupt the stress flow in the structure. This gives rise to tension perpendicular to the grain and shear stresses around the holes and notches. For this reason, notches seriously reduce the strength of a beam, particularly if located in the tension zone of a beam. Unless specific allowance has been made in the design, no notches shall be made without first obtaining the advice of an engineer. Design rules are set out in AS 1720.1 Timber Engineering Code and should be followed closely when considering notching anywhere in a Glulam beam.

HOLES FOR SERVICES

Horizontal Holes - Like notches, holes in a Glulam beam remove wood fibre, reduce the net area of the beam at the hole location, and introduce stress concentrations. For this reason, horizontal holes in Glulam beams are limited in size and location to maintain the structural integrity of the beam. Figure 2 below shows the zones of a uniformly loaded, simply supported beam where field drilling of holes may be considered.

Field drilled horizontal holes should be for access only and should not be used as attachment points for brackets or other load bearing hardware unless specifically designed as such by the Engineer/Designer.

Regardless of the hole location, the net section of the beam remaining should be checked for flexure and horizontal shear.

Vertical holes - As a rule of thumb, vertical holes drilled through the depth of a Glulam beam cause a reduction in capacity at that location directly proportional to the ratio of 1½ times the

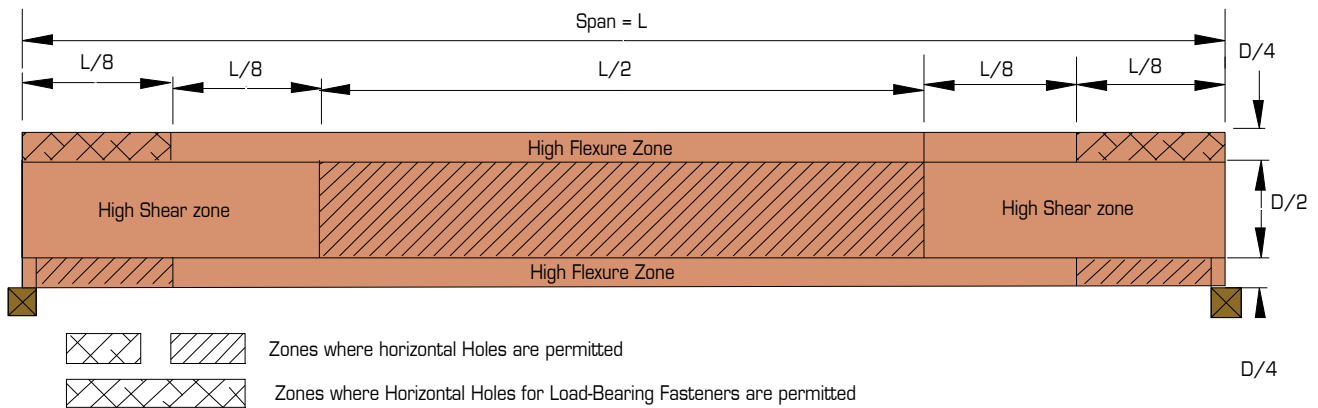
INSTALLATION (cont'd)

diameter of the hole. For example, a 25 mm hole drilled in a 150 mm wide beam would reduce the capacity of the beam at that section by 1/4. For this reason, where it is necessary to drill vertical holes through a Glulam member, the holes should be positioned in areas of the member that are stressed to less than 50% of the design in bending.

Holes for support of heavy equipment - Heavy equipment or

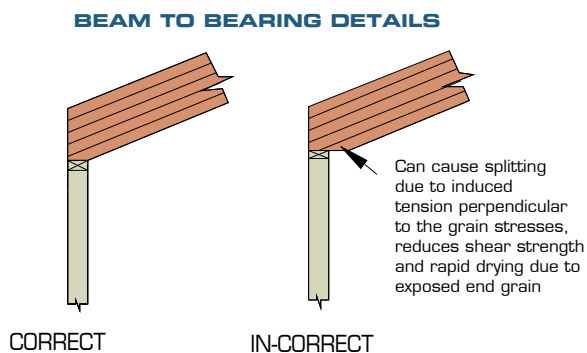
pipng suspended from Glulam should be attached so that the load is applied to the top of the member to avoid tension perpendicular to the grain stresses. Any horizontal holes required for support of significant weight, such as suspended heating and cooling units or main water lines, must be located above the neutral axis of the member and in a zone stressed to less than 50% of the design flexural stresses.

Figure 2 - Zones where Horizontal Holes are permitted in a Uniformly Loaded Simply Supported Beam



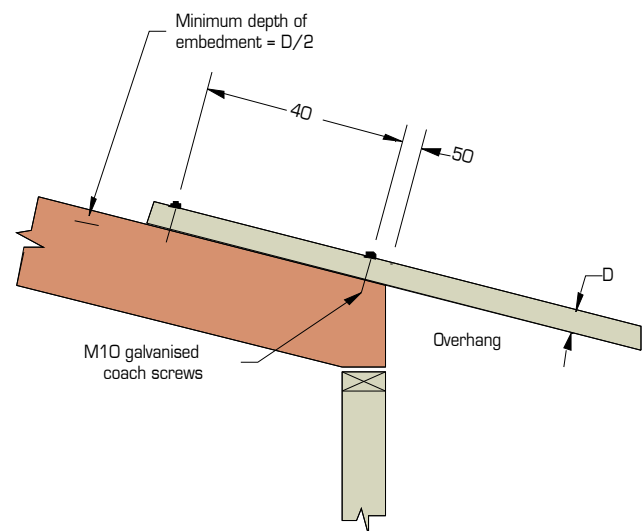
BIRDS MOUTHING

Figure 3 - Birds mouting details for SmartLam GL13



EAVES OVERHANG

Figure 4 - Eaves over hang details for SmartLam GL13



Note:

Refer to AS 1684 Residential timber-framed construction code for overhang member size.

Allowable Eaves overhangs

1. Non Cyclonic Areas

- Beams for flat or similar roofs - Not Birds mouthed:
 - Eaves overhang shall not exceed 40% of the actual beam span.
- Beams with conventional pitched roofs - Birds mouthed to one third their depth:
 - Sheet roof - 20% of actual beam span
 - Tiled roof - 30% of actual beam span

2. Cyclonic Areas

Recommendations as per above, but reduced as follows:

Non Birds mouthed - 25% of actual beam span

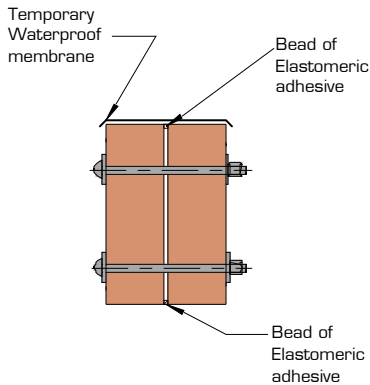
Birds mouthed-

- Sheet roof - 10% of actual beam span
- Tiled roof - 20% of actual beam span

MULTIPLE SmartLam GL13 SECTION BEAMS

Vertical laminations may be achieved by adopting the principle described in clause 2.3 of AS 1684, however, due to the thickness of SmartLam GL13, nails are NOT suitable for combining SmartLam GL13 beams.

Experience with Glulam beams indicates that multiple member laminations individual components may cup as a result of the ingress of moisture between laminates during construction. The suggested method of vertical lamination shown below provides a greater level of fixity between individual components, and combined with the use of a temporary waterproof membrane and an elastomeric adhesive prevents moisture penetration between the laminates.



Recommended "during construction" protection from weather for multiple

TOP LOADED BEAMS (Symmetrical loading)

The edges of the individual sections must be carefully aligned to each other so that the composite beam is flat, allowing the applied loads to be equally shared. It is recommended that there be 2 rows of galvanised M12 bolts at 600 mm centres.

SIDE LOADED BEAMS (Non - symmetrical loading)

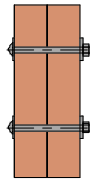
When a load is applied to one side of a built-up Glulam or an unbalanced load is applied to both sides, the elements of the built up beam shall be attached such that the applied load is distributed equally to all elements. Like the minimum connection shown above, the connection is made with bolts, with the allowable floor load width supported by either outside member shown in the table below.

Maximum floor load width supported by either outside member (mm)

Combination (see details below)	12 mm Φ bolts	
	2 rows at 600 ctrs	2 rows at 300 ctrs
Combination 1	7500	15000
Combination 2	5600	11000

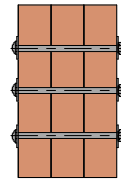
Combination 1

2 pieces of
60 or 80 mm



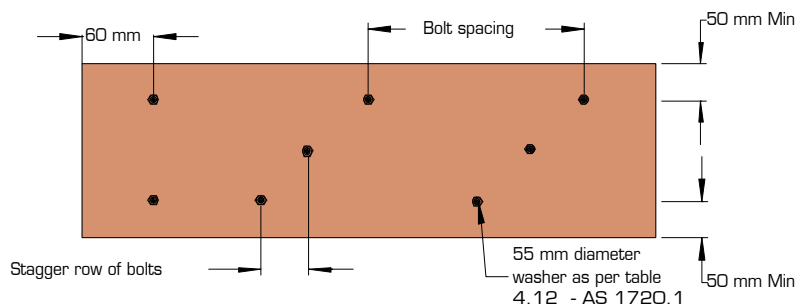
Combination 2

3 pieces of
60 mm



Notes:

1. Table values are for 40 kg/m² floors.
2. Bolts are to be grade 4.6 commercial bolts conforming to AS 1111. Bolt holes are to be a maximum of 13 mm diameter and are to be located NOT less than 50 mm from either edge.
3. All bolts shall be fitted with a washer at each end, of a size NOT less than that given in AS 1720.1 table 4.12.

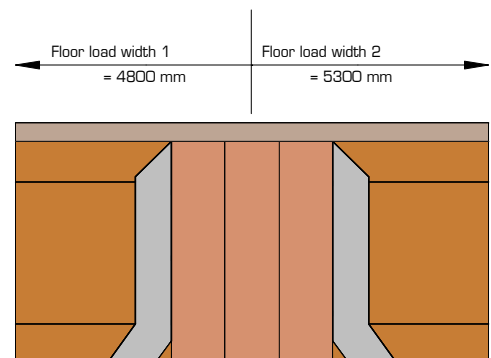


HOW TO USE THE MAXIMUM UNIFORM SIDE LOAD TABLE

Example: see diagram opposite

Beam of 2 SmartLam GL13's loaded on both side (Combination 1)
FLW 1 = 4800 mm, FLW 2 = 5300 mm
Total FLW = 4800 + 5300 = 10100 mm.

1. Use SmartFrame software or these SmartLam GL13 safe load tables to size the two member section to support the FLW of 5100 mm.
2. Choose the larger of the side FLW's carried by the beam, in this case 5300 mm.
3. Enter the table at the "Combination 1" row and scan across to a table value greater than 5300 mm. The first value in the row at 10200 mm is greater than the 5300 mm required.
4. Thus adopt 2 rows of 12 mm Φ x bolts at 600 mm centres



SmartLam GL13 Design /Effective span

Normal structural analysis uses the centreline representation of the member. The term "span" can be defined in a number of ways and these are defined as follows:

Clear span. This is the distance between the faces of any support. It is generally the one easiest to measure and read from the drawings

Nominal span/centre-line span. This is the distance between the centre of the supports. This span is used to determine bending moments and deflections for continuous spanning SmartJoist members

Design span/Effective span. This is the span used for single span members to determine the bending moment, the slenderness of bending members and the deflections. In AS 1720.1, this is the dimension referred to as "L", and is defined below.

Design span/Effective span is the distance between -

- The centre of the bearing at each end of a beam where the bearing lengths have **NOT** been conservatively sized
- The centre of notional bearing that have been sized appropriately, where the size of the bearing **IS** conservative.

Diagram (a) shows beam where bearings have been designed appropriately. The effective span is taken as the distance between the centre of each bearing area

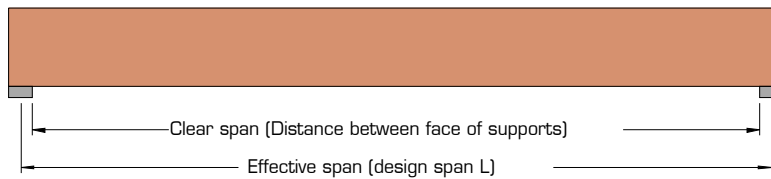
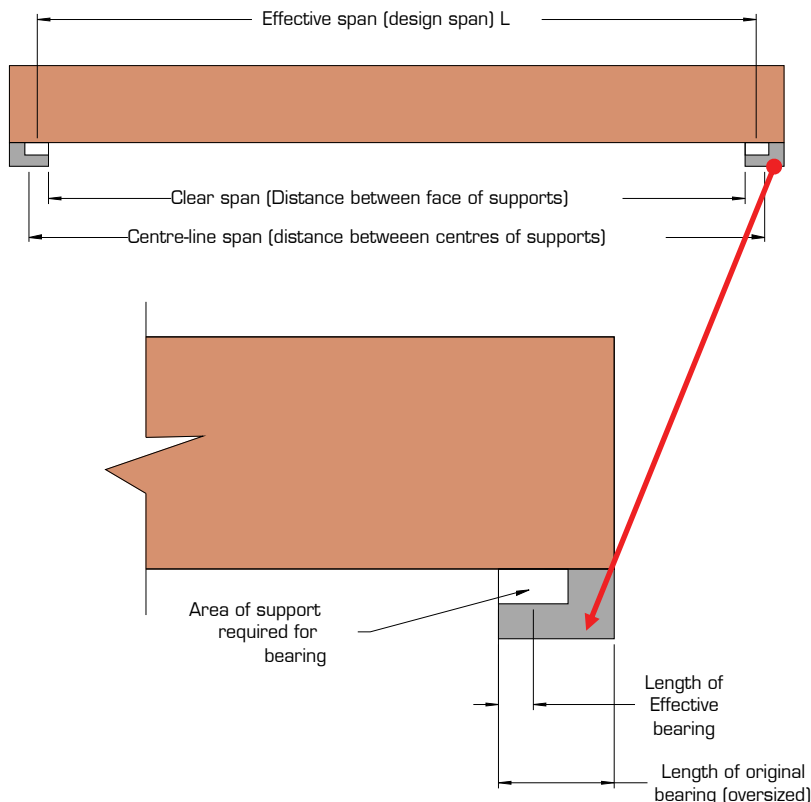


Diagram (b) shows beam where bearings at each end have been oversized. (This is frequently the case for beams that bear onto brickwork or concrete walls where the thickness of the wall is in excess of the area required to give the beam bearing capacity).

To find the correct effective span:

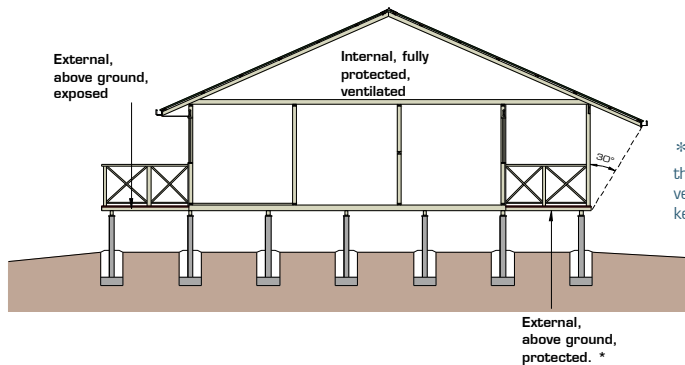
1. Calculate the minimum bearing required to carry the loads satisfactorily
2. Add minimum bearing length to "clear span" distance



span difference	effective span	resultant span description
10% Max	main span	continuous
10 - 30%	1.1 x main span	continuous
Above 30% difference	main span	single

$$\text{span difference} = \frac{(\text{major span} - \text{minor span})}{(\text{major span} + \text{minor span})} \times 100$$

The span to use in the case of unequal continuous spans is the "resultant span description" as shown in the table above. (Note: It is recommended for the most accurate designs, that the SmartFrame software be used.)



DEFINITIONS OF EXPOSURE

* External timbers are regarded as protected in AS 1684 if they are covered by a roof projection (or similar) at 30° to the vertical and they are well detailed and maintained (painted and kept well ventilated).

SmartLam GL's are manufactured from kiln dried timber (MC less than 15%), and therefore need to be protected from moisture cycling that can occur from:

- ◆ Exposure to direct sun and rain (including during construction)
- ◆ Contact or close exposure with moisture laden porous material (e.g. Concrete blocks)
- ◆ Exposure to extreme environments such as dry heating systems (e.g. slow combustion wood heaters), air conditioning, large north or west facing windows or moisture laden environments such as pool enclosures

SmartLam PROTECTION METHODS

1. During Construction

SmartLam GL's are supplied WITHOUT any short term construction sealer. However if SmartLam GL is expected to be exposed for an extended period or become wet, it is recommended that the beam be sealed with a construction sealer that is compatible with the final paint or varnish finish, or wrapped in plastic to provide protection (plastic must allow for drainage and air circulation to breath).

Examples:

- i. If the SmartLam GL's is installed inside a building without direct exposure to air-conditioning such as in wall cavity, protection to the beam is not required.
- ii. If the SmartLam GL's is installed inside a building with direct exposure to air conditioning or dry heat then a sealer is required.
- iii. If the SmartLam GL's is under the eaves and protected from direct rain and sun, it is recommended that the construction sealer be lightly sanded and a finish coat of compatible premium quality paint be applied. (In accordance with paint manufacturer's specifications).
- iv. If the SmartLam GL's is exposed to the sun or weather refer to "Exterior Applications" below.

2. Exterior Applications

It is **NOT** recommended that ANY SmartLam GL be used in external above ground exposed applications. SmartLam GL's used in protected exterior applications must be:

- i. H3 treated to AS/NZS 1604.5 (Only Pine SmartLam is

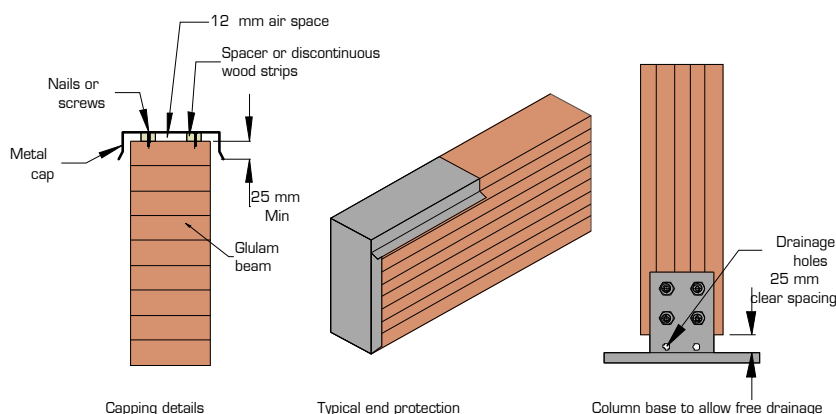
suitable for treatment)

- ii. Correctly detailed (e.g. End caps, good drainage and ventilation). See "Design & Construction detailing tips" below
- iii. Correctly painted with a premium quality protective finish (e.g. light coloured pigmented external paint system) For painting of LOSP treated SmartLam see "PAINTING LOSP TREATED SmartLam BEAMS" below

It is important that an inspection and maintenance programme, based on exposure level and the paint manufacturer's recommendations be prepared.

3. Design & Construction detailing tips

- i. The use of building overhangs and other structures which protect the beams from excessive moisture movement and sun exposure.
- ii. Shielding of the beam from free moisture or direct sun. The use of metal, fibro or plastic shields on the exposed faces or ends of beams is highly recommended to help maintain the beam in an unstressed dry condition.
- iii. All beams should be provided with adequate ventilation so that moisture content within beams will not exceed 15% and moisture gradients across the beam will not occur.
- iv. The use of arrised or round edges on beams to reduce the likelihood of coating failures on sharp edges.
- v. The use of drip edges or other devices which provide a path for free moisture flow away from the timber beam. Refer to detail below.
- vi. Joint detailing should, wherever possible, comply with the following:
 - Keep horizontal contact areas to a minimum, In favour of self draining vertical surfaces.
 - Ventilate joint surfaces by using spacers, wherever possible.
 - Always use compatible fasteners which have adequate corrosion protection and do not cause splitting during installation e.g. Hot dipped galvanic coatings or stainless steel.
 - Ensure any moisture entering a joint is not trapped but can adequately drain away from the joint.
- vii. Allow for thermal expansion/contraction in the joint design.



PAINTING LOSP TREATED SmartLam BEAMS

Wait until excess solvents have evaporated and timber is dry. The pressure of the solvent (white spirits) from the LOSP treatment may affect the drying and hardening of paints if there has been insufficient evaporation time after the treatment. It is strongly recommended that the treated timber is left to recondition for at least 7 days in the end use situation before painting.

Resin bleeding can occasionally be a problem with LOSP treated softwoods. See "RESIN BLEEDS" below

One coat of premium quality primer as a minimum should be applied to all surfaces prior to erection of beam and to any cuts or holes drilled. If the first coat of primer, sealant paint or stain fails to dry or adhere within the time expected, do not proceed to any further coats until the first coat has achieved satisfactory dryness and adhesion. If the first coat fails to dry it may be necessary to strip back to bare timber and allow it to weather for another week or two.

1 Paint

- Exterior solid colour acrylic finish. One coat of oil based primer followed by one or two coats of the exterior acrylic finish as required.
- Exterior solid colour oil based enamel. One coat of oil based primer followed by one coat of oil based undercoat (if required) then two coats of the oil based enamel.

2 Stains

Exterior semi-transparent or solid colour penetrating oil based stain or similar. Two or three coats of the stain as required or recommended by the manufacturer.

Water based stains and un-pigmented sealants, oil or water repellents are NOT recommended.

CHECKING IN SmartLam GLULAM

One of the advantages of glued laminated timber construction is that while seasoning checks may occur for the same reasons that they do in sawn members, checking in glued laminated timber will generally occur to a much lesser degree because of careful control of the moisture content of timber used for laminating. Checks in wood are separations along the fibres normally occurring across the rings of annual growth resulting from stresses developed during changes in moisture content. Checks in glued laminate timber may appear as openings parallel to the grain on the sides of members.

As wood loses moisture to the surrounding atmosphere, the outer fibres of the member lose moisture at a more rapid rate than do the inner fibres. As outer fibres try to shrink, they are restrained by the inner portion of the member that has higher moisture content. The more rapid the rate of drying, the greater will be the differential in shrinkage between the outer and inner fibres resulting in higher shrinkage stresses.

These resultant stresses perpendicular to the grain of the wood can cause characteristic wood seasoning checks. The

RESIN BLEED

Resin Bleed may be identified by a sticky, clear or white exudation that has a characteristic aromatic odour. It is most commonly encountered around knots or other imperfections in the wood and in places where the tree sustained damage. Paint or stain will generally be softened and may even be lifted off by a resin bleed.

If resin bleed occurs the following steps are recommended:

- i. Physically remove the exuded resin from the surface
- ii. Allow to weather for a few days to ensure the bleed has ceased.
- iii. Seal the affected area with a suitable sealant such as Resene Everseal.

Further advice may be obtained from AS 2311

FIRE RATINGS (RESISTANCE)

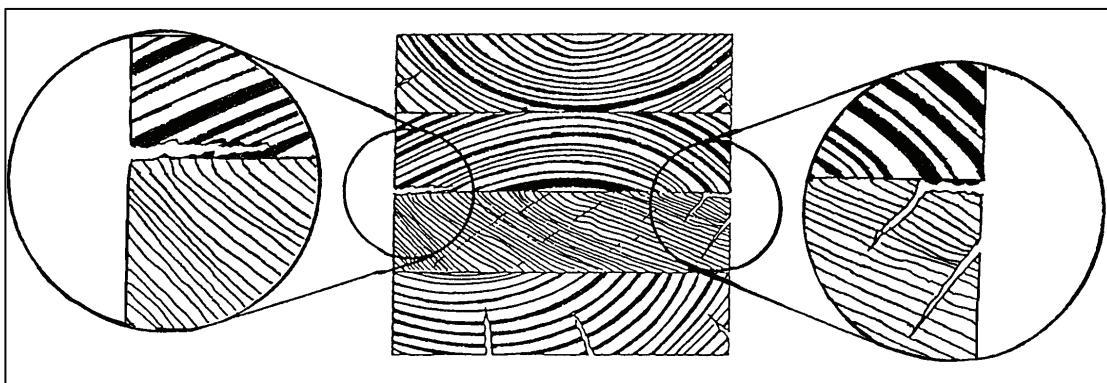
In a fire, SmartLam GL13 beams have an inherent fire rating. As timber burns, a layer of charcoal forms enclosing a core of timber which is yet unaffected by the fire. This timber core maintains its structural capacity. Hence, dependant upon the loss of material to the charcoal layer, the SmartLam GL13 beam can carry the dead load of the structure for a period of time.

Resistance to fire can be established by reference to AS 1720.4 Fire Resistance of Structural Timber Members, using a charring rate of 0.66 mm per minute. Therefore, the strength and stiffness after fire may be assessed using the uncharred residual cross section computed for the period of exposure to the fire.

influence of checks on the structural performance of glued laminated timber members is generally minor. Checking can be minimized by careful installation practices that avoid prolonged exposure of the members during construction.

IDENTIFICATION OF CHECKING

Checks occur as transverse separations or openings that are nearly parallel to the grain direction in glued laminated timber and generally follow the grain direction around knots and along sloping grain. Differences in the shrinkage rate of individual laminations used in glued laminated timber tend to concentrate shrinkage stresses at or near glue lines, resulting in checks. Checks are often confused with delamination that occurs when the glue bond is not adequate. The presence of wood fibre separation in these openings is the key distinguishing characteristic of seasoning checks. Openings due to inadequate adhesive bonding may appear as smooth wood surface separations, possibly darkened by the adhesive film, or as glossy surface areas of adhesive with an absence of torn wood fibres.



CHECKING IN SmartLam GLULAM (Cont'd)

Checking often occurs along the first glue line adjacent to the outer lamination that may dry more rapidly because a larger surface area of that lamination is exposed to the air. This condition is sometimes aggravated when the outer lamination tends to cup, creating tension perpendicular to grain stresses along or near the first glue line.

SIGNIFICANCE OF CHECKING

In general, checks have little effect on the strength of glued laminated members. Glued laminated members are made from laminations that are thin enough to season readily in kiln drying schedules without developing checks. Checks usually appear on the wide faces of the timber and do not materially affect the shear strength of the laminations. In cases where members are designed for loading parallel to the wide face of the laminations, checks may affect the shear strength of the beam their effect may be evaluated in the same manner as for sawn timber. Seasoning checks in bending members affect only the horizontal shear capacity.

In establishing allowable horizontal shear values, normal checking due to seasoning has been considered.

Checks are usually not of structural importance unless they are significant in depth, occur in the mid-height of the member

near the supports, and the design of the member is governed by shear. If these conditions exist, the reduction in shear strength is directly proportional to the ratio of the depth of checks to the width of the bending member. Checks in columns are not of structural importance unless the check develops into a split, thereby increasing the l/d ratio of the column.

ADDITIONAL INFORMATION

While checking is not considered to be of structural significance, the reason for the checking and the means by which further checking may be minimized should be determined.

If there is concern regarding structural adequacy, advice can be obtained from engineers from the SmartFrame Design Centre or a structural engineer experienced and qualified in glued laminated timber technology should evaluate the significance of the checking.

The SmartFrame **Technical Note - "Evaluation of Checking in Glued Laminated Timber (Glulam)"** gives detailed analysis of the modification to structural capacity as a result of severe checking.

SAFETY PRECAUTIONS:

WOOD DUST

(For all wood dust, wood and wood products Not preservative treated)

CAUTION

WOOD DUST CAN BE PRODUCED BY SAWING, SANDING OR MACHINING WOOD AND WOOD PRODUCTS
FLAMMABLE - POSSIBLE EXPLOSION HAZARD
MAY CAUSE RESPIRATORY, EYE AND SKIN IRRITATION
SOME SPECIES MAY CAUSE DERMATITIS OR ALLERGIC RESPONSE
THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) CLASSIFIES WOOD DUST AS A NASAL
CARCINOGEN IN HUMANS

For Additional information, see the Material Data Sheet

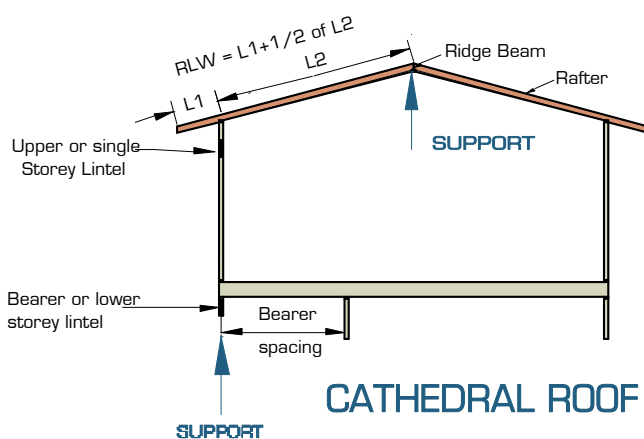
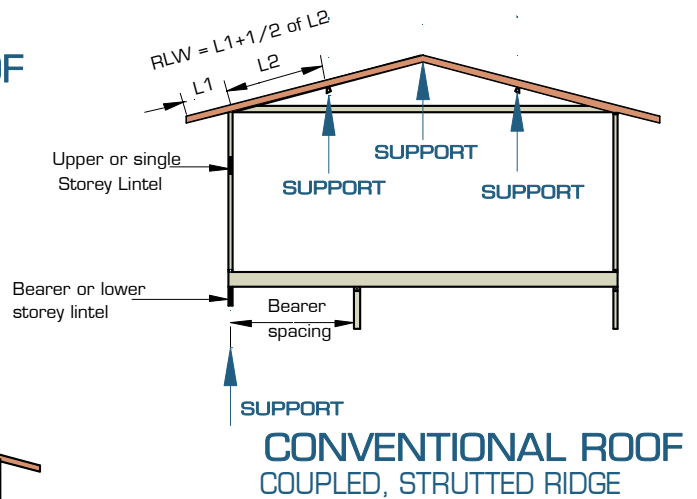
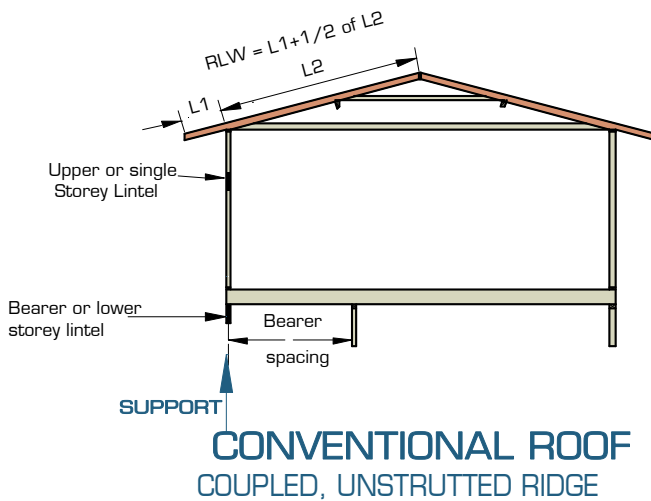
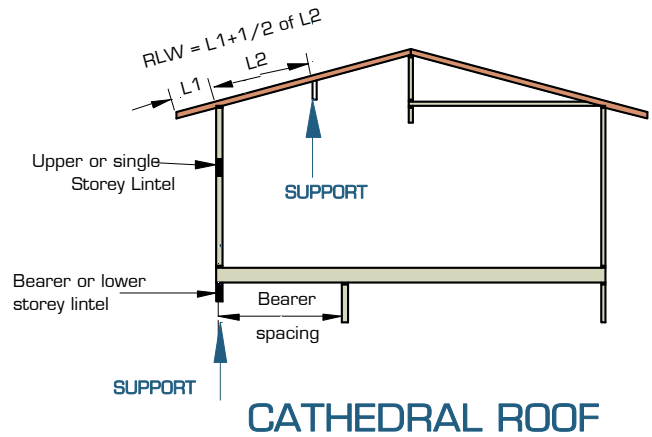
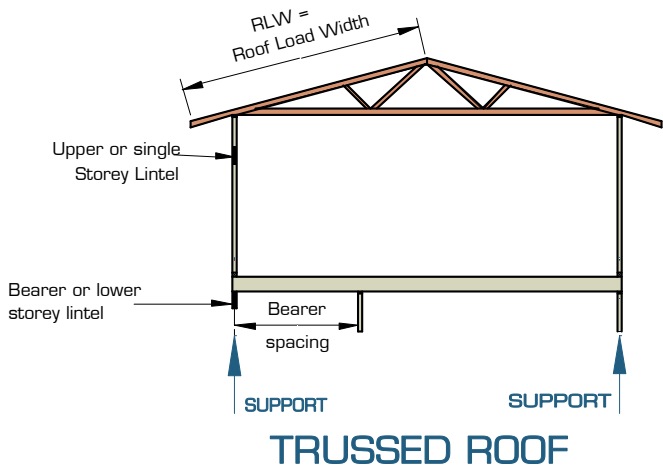
Tilling Timber Pty Ltd
Head Office and Manufacturing
Kilsyth, Victoria.
Ph. (03) 9725 0222, Fax (03) 9723 6569
SmartData Customer Helpline 1300 668 690
or at smartdata@tilling.com

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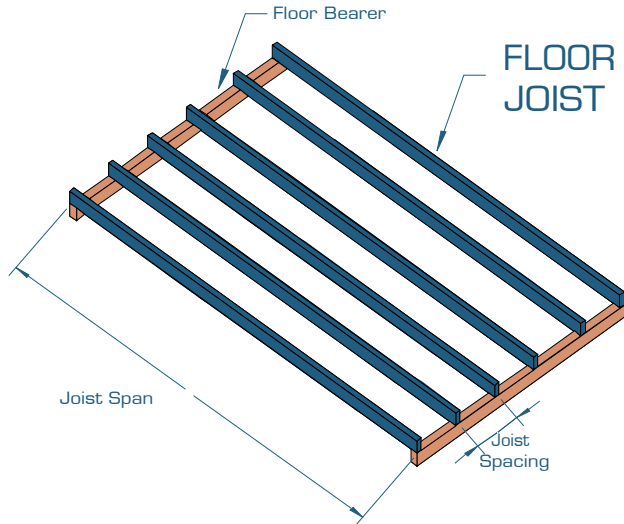
DETERMINATION OF ROOF LOAD WIDTH

“Roof load width” (RLW) applies to wall framing members only (e.g. bearers under walls, lintels etc) and determines the loads carried by the walls. Typical examples of RLW are shown below, a far more comprehensive list is shown in AS 1684.2



FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY

Floor mass - 40 kg/m²



EXAMPLE:

domestic floor loads
single span
joist spacing = 450 mm
joist span = 6000 mm

Enter single span table at 450 mm in joist spacing column, read down to a span equal to or greater than 6000 mm

ADOPT:

SmartLam GL13 - 266x60

Loadings: permanent - self weight + 40 kg/m² + 0.6 kPa of the live load, live load - 1.5 kPa or floor Point load of 1.8 kN

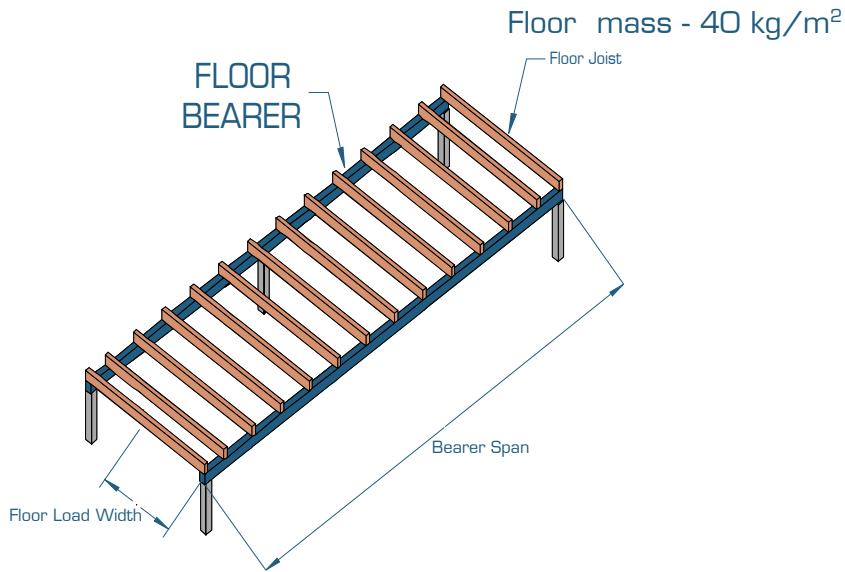
Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Joist Spacing (mm)	300	450	600	300	450	600
Member size DxB (mm)	Maximum allowable span (mm)					
	Single span			Continuous span		
200x60	5350	4850	4350	6200	5600	5100
233x60	6000	5400	5050	6950	6300	5850
240x60	6150	5550	5150	7100	6450	6000
266x60	6600	6000	5550	7700	6950	6450
300x60	7250	6550	6100	8400	7600	7100
333x60	7850	7100	6600	9100	8200	7650
366x60	8400	7600	7050	9750	8850	8200
400x60	9000	8100	7550	9950	9450	8800
433x60	9550	8600	8000	9950	9950	9300
200x80	5750	5200	4800	6650	6050	5600
233x80	6450	5800	5400	7500	6750	6300
240x80	6600	5950	5550	7650	6900	6450
266x80	7100	6450	6000	8250	7450	6950
300x80	7800	7050	6550	9050	8150	7600
333x80	8400	7600	7100	9800	8850	8200
366x80	9050	8150	7600	9950	9500	8850
400x80	9650	8750	8100	10000	9950	9450
433x80	9950	9250	8600	10600	9950	9950
200x110	6200	5600	5250	7200	6550	6100
233x110	7000	6300	5850	8100	7300	6800
240x110	7150	6450	6000	8300	7500	6950
266x110	7700	6950	6500	8950	8100	7500
300x110	8450	7600	7100	9750	8850	8250
333x110	9100	8250	7650	9950	9550	8900
366x110	9800	8850	8250	10100	9950	9550
400x110	9950	9450	8800	10800	9950	9950
433x110	9950	9950	9350	11450	9950	9950

NOTES:

- Spans are suitable for solid timber, particle board and ply flooring. floor sheeting glued and nailed to joists will improve floor rigidity. Where heavy overlay material is to be applied, such as a mortar bed tiled or slate floor, the permanent load allowance should be increased to 1.2 kPa. A reduction of joist spacing may be used to accommodate this extra permanent load. A satisfactory result can be achieved by adopting the maximum spans for 600 mm and 450 mm spacing but installing the joists at 450 and 300 mm spacing respectively.
- For beams which are continuous over two unequal spans, the design span and the 'resultant span description' depend upon the percentage span differences between the two spans as shown on page 7
- D = member depth, B = member breadth, NS = not suitable.
- The above table was based on a maximum DL of 40 (kg/m²), floor live load of 1.5 (kPa), floor point load of 1.8 (kN).
- End bearing lengths = 42 mm at end supports and 58 mm at internal supports for continuous members.
- Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE SPAN FLOOR BEARERS SUPPORTING FLOOR LOADS ONLY



EXAMPLE:

single span Bearer = 4000 mm
 floor load width = 6000 mm

Enter single span table at 6000 mm in floor load width column, read down to a span equal to or greater than 4000 mm

ADOPT:

SmartLam GL13 - 433x60
 (With additional bearing length of 55 mm)

Loadings: permanent - self weight + 40 kg/m² + 0.6 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Floor load width (mm)		1200	1800	2400	3000	3600	4200	4800	5400	6000	6800
Member size DxB (mm)	Floor mass (kg/m ²)	Maximum Bearer span (mm)									
		Single span									
200x60	40	3800	3350	3000	2800	2600	2450	2350	2250	2150	2050 ₅
233x60	40	4300	3850	3550	3250	3050	2900	2750	2600 ₅	2500 ₁₀	2350 ₁₀
240x60	40	4400	3950	3650	3350	3150	2950	2850 ₅	2700 ₅	2550 ₁₀	2450 ₁₅
266x60	40	4800	4300	3950	3700	3500	3300 ₅	3150 ₁₀	3000 ₁₀	2850 ₁₅	2700 ₂₀
300x60	40	5350	4750	4400	4100	3900 ₅	3700 ₁₀	3550 ₁₅	3400 ₂₀	3200 ₂₀	3050 ₂₅
333x60	40	5900	5200	4800	4500 ₅	4250 ₁₀	4050 ₁₅	3900 ₂₀	3750 ₂₅	3550 ₃₀	3350 ₃₀
366x60	40	6400	5650	5200	4850 ₅	4600 ₁₅	4400 ₂₀	4200 ₂₅	4050 ₃₀	3850 ₃₅	3650 ₄₀
400x60	40	6950	6150	5650 ₅	5250 ₁₀	5000 ₁₅	4750 ₂₅	4550 ₃₀	4400 ₃₅	4150 ₄₀	3950 ₄₅
433x60	40	7500	6600	6050 ₅	5650 ₁₅	5350 ₂₀	5100 ₃₀	4900 ₃₅	4700 ₄₀	4500 ₄₅	4250 ₅₀
200x80	40	4100	3650	3350	3050	2850	2700	2600	2450	2350	2300
233x80	40	4650	4150	3850	3600	3350	3200	3050	2900	2800	2700 ₅
240x80	40	4800	4250	3950	3700	3500	3300	3100	3000	2850	2750 ₅
266x80	40	5200	4650	4300	4000	3800	3650	3500	3350 ₅	3200 ₅	3100 ₁₀
300x80	40	5800	5150	4750	4450	4200	4050	3850 ₅	3750 ₁₀	3600 ₁₅	3500 ₁₅
333x80	40	6400	5650	5200	4850	4600	4400 ₅	4200 ₁₀	4100 ₁₅	3950 ₂₀	3850 ₂₀
366x80	40	6950	6150	5650	5300	5000 ₅	4750 ₁₀	4600 ₁₅	4400 ₂₀	4250 ₂₀	4150 ₂₅
400x80	40	7550	6700	6150	5700	5400 ₅	5150 ₁₀	4950 ₁₅	4750 ₂₀	4600 ₂₅	4450 ₃₀
433x80	40	8200	7200	6600	6150 ₅	5800 ₁₀	5550 ₁₅	5300 ₂₀	5100 ₂₅	4950 ₃₀	4800 ₃₅
200x110	40	4450	4000	3700	3400	3200	3050	2900	2750	2650	2550
233x110	40	5100	4550	4200	3900	3700	3550	3400	3250	3100	3000
240x110	40	5200	4650	4300	4000	3800	3650	3500	3350	3200	3100
266x110	40	5700	5100	4700	4400	4150	3950	3800	3700	3550	3450
300x110	40	6350	5650	5200	4850	4600	4400	4200	4100	3950	3850 ₅
333x110	40	7000	6200	5700	5300	5050	4800	4600	4450 ₅	4300 ₅	4200 ₁₀
366x110	40	7650	6750	6200	5800	5500	5200	5000	4850 ₅	4650 ₁₀	4550 ₁₅
400x110	40	8300	7350	6750	6300	5950	5650	5400 ₅	5200 ₁₀	5050 ₁₅	4900 ₂₀
433x110	40	9000	7950	7250	6750	6400	6050 ₅	5800 ₁₀	5600 ₁₅	5400 ₂₀	5250 ₂₀

CONTINUOUS SPAN FLOOR BEARERS SUPPORTING FLOOR LOADS ONLY

Floor mass - 40 kg/m²

Loadings: Permanent - Self weight + 40 kg/m² + 0.6 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

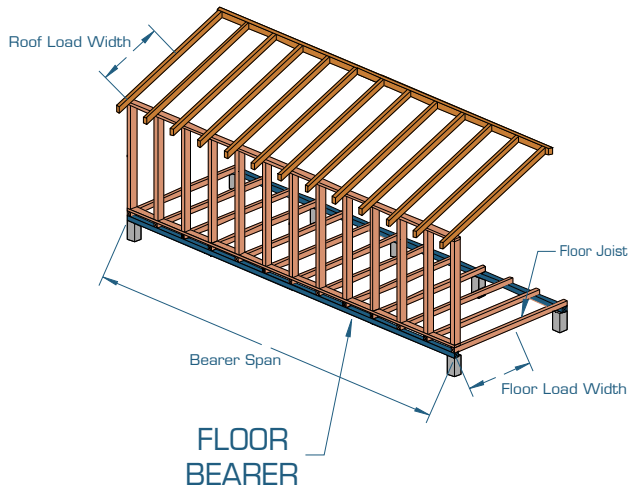
Floor load width (mm)		1200	1800	2400	3000	3600	4200	4800	5400	6000	6600
Member size DxB (mm)	Floor mass (kg/m ²)	Maximum Bearer span (mm)									
		Continuous span									
200x60	40	4500	4000	3450	3050	2800 ₁₀	2600 ₂₀	2400 ₂₅	2250 ₃₀	2150 ₃₅	2050 ₄₅
233x60	40	5050	4550	4000 ₅	3550 ₁₅	3250 ₂₅	3000 ₃₅	2800 ₄₀	2650 ₅₀	2500 ₅₅	2350 ₆₅
240x60	40	5150	4700	4100 ₅	3700 ₂₀	3350 ₃₀	3100 ₃₅	2900 ₄₅	2700 ₅₀	2550 ₆₀	2450 ₇₀
266x60	40	5550	5050	4550 ₂₀	4100 ₃₀	3700 ₄₀	3450 ₅₀	3200 ₆₀	3000 ₆₅	2850 ₇₅	2700 ₈₅
300x60	40	6100	5500 ₁₀	5150 ₃₀	4600 ₄₀	4200 ₅₅	3850 ₆₅	3600 ₇₅	3400 ₉₀	3200 ₁₀₀	3050 ₁₀₅
333x60	40	6550	5950 ₁₅	5550 ₄₀	5050 ₅₅	4600 ₇₀	4250 ₈₀	3950 ₉₅	3750 ₁₀₅	3550 ₁₁₅	3350 ₁₂₅
366x60	40	7050	6400 ₂₅	5950 ₄₅	5500 ₆₅	5000 ₈₅	4650 ₁₀₀	4300 ₁₁₀	4050 ₁₂₀	3850 ₁₃₀	3650 ₁₄₀
400x60	40	7500	6800 ₃₀	6350 ₅₅	5950 ₈₀	5450 ₁₀₀	5000 ₁₁₀	4700 ₁₂₅	4400 ₁₃₅	4150 ₁₄₅	3950 ₁₅₅
433x60	40	7950 ₅	7200 ₃₅	6750 ₆₅	6350 ₈₅	5850 ₁₁₀	5400 ₁₂₅	5050 ₁₃₅	4750 ₁₅₀	4500 ₁₆₀	4250 ₁₇₀
200x80	40	4850	4400	3950	3550	3200	3000 ₅	2800 ₁₀	2600 ₁₅	2450 ₂₀	2350 ₂₅
233x80	40	5400	4900	4550	4100	3750 ₁₀	3450 ₂₀	3250 ₂₅	3050 ₃₀	2900 ₄₀	2750 ₄₅
240x80	40	5550	5000	4650	4250 ₅	3850 ₁₅	3550 ₂₀	3350 ₃₀	3150 ₃₅	2950 ₄₀	2800 ₄₅
266x80	40	5950	5400	5050	4700 ₁₅	4300 ₂₅	3950 ₃₀	3700 ₄₀	3450 ₄₅	3300 ₅₅	3100 ₆₀
300x80	40	6500	5900	5500 ₁₀	5200 ₂₅	4800 ₃₅	4450 ₄₅	4150 ₅₅	3900 ₆₅	3700 ₇₅	3500 ₈₀
333x80	40	7000	6350	5950 ₁₅	5600 ₃₅	5300 ₅₀	4900 ₆₀	4600 ₇₀	4300 ₈₀	4050 ₉₀	3850 ₁₀₀
366x80	40	7500	6850 ₅	6350 ₂₅	6000 ₄₀	5750 ₆₀	5350 ₇₅	5000 ₈₅	4700 ₉₅	4450 ₁₀₅	4200 ₁₁₅
400x80	40	8000	7300 ₁₀	6800 ₃₀	6450 ₅₀	6150 ₇₀	5800 ₈₀	5400 ₁₀₀	5100 ₁₁₀	4800 ₁₂₀	4600 ₁₃₀
433x80	40	8500	7700 ₁₅	7200 ₃₅	6800 ₆₀	6500 ₈₀	6200 ₁₀₀	5800 ₁₁₀	5450 ₁₂₀	5150 ₁₃₀	4900 ₁₄₀
200x110	40	5200	4700	4400	4150	3750	3500	3250	3050	2900 ₅	2750 ₁₀
233x110	40	5800	5300	4900	4650	4400	4050 ₅	3800 ₁₀	3550 ₁₅	3350 ₂₀	3200 ₂₅
240x110	40	5950	5400	5050	4750	4500	4200 ₅	3900 ₁₅	3650 ₂₀	3450 ₂₅	3300 ₃₀
266x110	40	6400	5800	5450	5150	4900 ₅	4650 ₁₅	4300 ₂₅	4050 ₃₀	3850 ₃₅	3650 ₄₀
300x110	40	7000	6350	5950	5600	5350 ₁₅	5150 ₂₅	4850 ₃₅	4600 ₄₅	4350 ₅₀	4100 ₅₅
333x110	40	7550	6850	6400	6050 ₁₀	5800 ₂₅	5550 ₃₅	5350 ₄₅	5050 ₅₅	4750 ₆₅	4550 ₇₀
366x110	40	8050	7350	6850	6500 ₁₅	6200 ₃₀	5950 ₄₅	5750 ₅₅	5500 ₇₀	5200 ₇₅	4950 ₈₅
400x110	40	8600	7850	7300 ₅	6950 ₂₅	6600 ₄₀	6350 ₅₀	6150 ₆₅	5950 ₈₀	5650 ₉₅	5350 ₁₀₀
433x110	40	9100	8300	7750 ₁₅	7350 ₃₀	7000 ₄₅	6750 ₆₀	6500 ₇₅	6300 ₉₅	6050 ₁₀₅	5750 ₁₁₅

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a maximum DL of 40 (kg/m²), floor live load of 1.5 (kPa), floor point load of 1.8 (kN).
3. End bearing lengths = 42 mm at end supports and 58 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 42 mm at end supports and 58 mm at internal supports.
4. Restraint value for slenderness calculations is 600 mm. (floor joist centres at 600 mm max)
5. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

FLOOR BEARERS SUPPORTING SINGLE STOREY LOAD BEARING WALL - SHEET AND TILED ROOF

Floor mass - 40 kg/m²



EXAMPLE:

sheet roof - 40 kg/m²
 roof load width = 1950 mm
 bearer span = 3000 mm (single span)
 floor load width = 3500 mm

Enter single span table at 2400 mm in floor load width column, 4500 roof load width column, read down to a span equal to or greater than 3000 mm in the 40 kg/m² row.

ADOPT:

SmartLam GL13 - 266 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

SINGLE SPAN

Floor load width (mm)		1200			2400			4800		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Bearer span (mm)								
		Single span								
200x60	40	3000	2650	2450	2600	2400	2250	2150	2050	1950
	75	2800	2400	2150	2500	2200	2000	2100	1950	1800 ₅
233x60	40	3500	3100	2850	3050	2800	2650	2550 ₅	2400 ₅	2300 ₅
	75	3300	2800	2500	2950	2600	2350 ₅	2450 ₅	2250 ₁₀	2100 ₁₅
240x60	40	3600	3200	2950	3150	2900	2700	2600 ₅	2500 ₅	2350 ₁₀
	75	3400	2900	2600 ₅	3050	2650	2450 ₅	2550 ₅	2350 ₁₀	2200 ₁₅
266x60	40	3950	3600	3300	3500	3250	3000	2900 ₁₀	2750 ₁₀	2650 ₁₅
	75	3750	3200	2850 ₅	3350	2950 ₅	2700 ₁₀	2850 ₁₀	2600 ₁₅	2450 ₂₀
300x60	40	4350	3950	3700	3900	3650	3450 ₅	3300 ₁₅	3150 ₂₀	3000 ₂₀
	75	4150	3650 ₅	3250 ₁₅	3800	3350 ₁₀	3050 ₂₀	3200 ₂₀	2950 ₂₀	2750 ₃₀
333x60	40	4750	4350	4050 ₅	4250	4000 ₅	3800 ₁₀	3650 ₂₅	3500 ₂₅	3350 ₃₀
	75	4550	3950 ₅	3650 ₂₀	4100 ₅	3750 ₁₅	3450 ₂₅	3600 ₂₅	3300 ₃₀	3100 ₃₅
366x60	40	5150	4700	4400 ₁₀	4600 ₅	4300 ₁₀	4100 ₁₅	3950 ₃₀	3800 ₃₀	3700 ₃₅
	75	4950	4300 ₁₀	3900 ₂₅	4450 ₅	4050 ₂₀	3750 ₃₀	3900 ₃₀	3650 ₃₅	3400 ₃₅
400x60	40	5600	5050 ₅	4700 ₁₀	4950 ₁₀	4650 ₁₅	4400 ₂₀	4250 ₃₅	4100 ₄₀	3950 ₄₀
	75	5350	4650 ₁₅	4250 ₃₀	4800 ₁₀	4350 ₂₅	4050 ₃₅	4200 ₃₅	3900 ₄₀	3650 ₄₀
433x60	40	6000	5450 ₅	5050 ₁₅	5350 ₁₀	5000 ₁₅	4700 ₂₅	4550 ₄₀	4400 ₄₅	4250 ₄₅
	75	5700	4950 ₂₀	4500 ₃₅	5150 ₁₅	4650 ₃₀	4300 ₄₅	4500 ₄₀	4200 ₅₀	3950 ₅₀
200x80	40	3300	2950	2700	2850	2650	2450	2400	2250	2150
	75	3100	2650	2350	2750	2450	2200	2350	2150	2000
233x80	40	3800	3450	3150	3350	3100	2900	2800	2650	2550
	75	3650	3100	2750	3250	2850	2600	2750	2500	2350 ₅
240x80	40	3900	3550	3250	3450	3200	3000	2900	2750	2600
	75	3750	3200	2850	3350	2950	2700	2800	2600	2400 ₅
266x80	40	4250	3900	3650	3800	3550	3350	3200	3050 ₅	2900 ₅
	75	4050	3550	3150	3700	3300	3000 ₅	3150 ₅	2900 ₅	2700 ₁₀
300x80	40	4700	4300	4000	4200	3950	3750	3650 ₁₀	3450 ₁₀	3300 ₁₀
	75	4500	3950	3600 ₅	4100	3700	3400 ₁₀	3550 ₁₀	3300 ₁₀	3050 ₂₀
333x80	40	5150	4700	4400	4600	4300	4100 ₅	3950 ₁₀	3800 ₁₅	3700 ₁₅
	75	4950	4300	3950 ₁₀	4450	4050 ₅	3750 ₁₅	3900 ₁₅	3650 ₂₀	3400 ₂₅
366x80	40	5600	5100	4750	5000	4650	4450 ₅	4300 ₁₅	4100 ₂₀	4000 ₂₀
	75	5350	4650	4250 ₁₅	4850	4350 ₁₀	4050 ₂₀	4200 ₂₀	3950 ₂₅	3750 ₃₀
400x80	40	6050	5500	5150 ₅	5400	5050 ₅	4800 ₁₀	4650 ₂₀	4450 ₂₅	4300 ₂₅
	75	5800	5050 ₅	4600 ₁₅	5250	4700 ₁₀	4350 ₂₅	4550 ₂₀	4250 ₂₅	4050 ₃₅
433x80	40	6550	5900	5500 ₅	5800 ₅	5400 ₅	5100 ₁₅	4950 ₂₅	4750 ₃₀	4600 ₃₀
	75	6250	5400 ₁₀	4900 ₂₀	5600 ₅	5050 ₁₅	4700 ₃₀	4850 ₂₅	4550 ₃₀	4300 ₄₀
200x110	40	3650	3300	3000	3200	2950	2750	2650	2550	2400
	75	3500	2950	2600	3100	2700	2450	2600	2400	2250
233x110	40	4150	3800	3550	3700	3450	3250	3100	2950	2850
	75	3950	3450	3100	3600	3200	2900	3050	2800	2600
240x110	40	4250	3900	3650	3800	3600	3350	3200	3050	2950
	75	4050	3550	3200	3700	3300	3000	3150	2900	2700
266x110	40	4650	4250	3950	4150	3900	3700	3600	3400	3250
	75	4450	3900	3550	4050	3650	3350	3500	3250	3000
300x110	40	5150	4700	4400	4600	4300	4100	3950	3800	3700
	75	4900	4300	3950	4450	4050	3750	3900	3650	3400 ₅
333x110	40	5650	5150	4800	5050	4700	4450	4350	4150 ₅	4000 ₅
	75	5400	4700	4300	4900	4400	4100 ₅	4250	4000 ₅	3750 ₁₀
366x110	40	6150	5600	5200	5450	5100	4850	4700 ₅	4500 ₅	4350 ₁₀
	75	5850	5100	4650	5300	4800	4450 ₅	4600 ₅	4300 ₁₀	4100 ₁₅
400x110	40	6650	6050	5600	5900	5550	5250	5050 ₁₀	4850 ₁₀	4700 ₁₅
	75	6350	5500	5000 ₅	5750	5150	4800 ₁₀	5000 ₁₀	4650 ₁₅	4400 ₂₀
433x110	40	7200	6500	6050	6350	5950	5600 ₅	5450 ₁₀	5200 ₁₅	5050 ₁₅
	75	6850	5900	5400 ₁₀	6150	5550 ₅	5100 ₁₅	5350 ₁₅	5000 ₂₀	4700 ₂₅

FLOOR BEARERS SUPPORTING SINGLE STOREY LOAD BEARING WALL - SHEET AND TILED ROOF

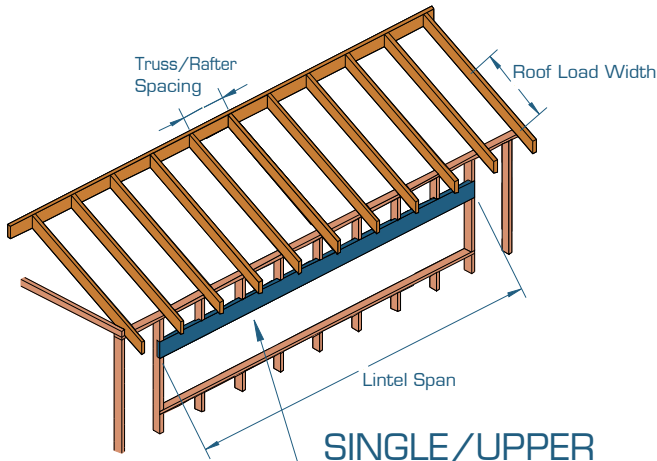
CONTINUOUS SPAN

Floor load width (mm)		1200			2400			4800		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Bearer span (mm)								
		Continuous span								
200x60	40	3750	3250	2850 ₁₀	3050	2800 ₁₀	2550 ₂₀	2250 ₃₀	2150 ₃₅	2100 ₄₀
	75	3550	2750 ₁₀	2350 ₃₀	2950 ₅	2500 ₂₅	2150 ₃₅	2200 ₃₅	2050 ₄₀	1900 ₅₅
233x60	40	4200	3750 ₁₀	3300 ₂₅	3550 ₁₅	3300 ₂₅	2950 ₂₅	2650 ₃₀	2500 ₃₅	2400 ₅₀
	75	4050	3200 ₂₅	2700 ₄₅	3400 ₂₀	2900 ₄₀	2500 ₅₅	2600 ₃₀	2400 ₆₀	2200 ₇₅
240x60	40	4300	3900 ₁₅	3400 ₂₅	3650 ₂₀	3400 ₃₀	3050 ₄₀	2700 ₅₀	2600 ₆₀	2500 ₆₅
	75	4150 ₅	3300 ₃₀	2800 ₅₀	3550 ₂₅	3000 ₄₀	2600 ₈₀	2650 ₅₅	2450 ₆₅	2250 ₈₀
266x60	40	4650	4300 ₂₅	3800 ₃₅	4050 ₃₀	3750 ₄₀	3400 ₅₀	3000 ₆₅	2900 ₇₅	2750 ₈₀
	75	4500 ₁₀	3650 ₄₀	3100 ₆₅	3900 ₃₅	3300 ₆₅	2850 ₇₅	2950 ₇₀	2750 ₈₅	2500 ₁₀₀
300x60	40	5100 ₅	4700 ₃₅	4250 ₅₀	4550 ₄₅	4200 ₅₅	3800 ₇₀	3400 ₉₀	3250 ₉₅	3100 ₁₀₅
	75	4900 ₂₀	4100 ₅₅	3500 ₈₅	4400 ₄₅	3700 ₇₀	3250 ₁₀₀	3300 ₉₅	3100 ₁₀₅	2850 ₁₂₀
333x60	40	5500 ₁₅	5100 ₄₀	4700 ₆₅	5000 ₅₅	4650 ₇₀	4200 ₈₅	3700 ₁₀₅	3550 ₁₁₀	3450 ₁₂₀
	75	5300 ₃₀	4550 ₇₀	3850 ₁₀₀	4850 ₆₀	4100 ₉₀	3550 ₁₁₅	3650 ₁₁₀	3400 ₁₂₀	3100 ₁₃₅
366x60	40	5900 ₂₅	5450 ₅₀	5100 ₈₀	5350 ₆₅	5050 ₈₅	4550 ₁₀₀	4050 ₁₂₀	3900 ₁₃₀	3750 ₁₃₅
	75	5700 ₃₅	4950 ₈₅	4200 ₁₁₅	5200 ₇₀	4450 ₁₀₅	3900 ₁₃₀	4000 ₁₂₅	3700 ₁₄₀	3400 ₁₅₅
400x60	40	6300 ₃₀	5800 ₆₀	5450 ₉₅	5700 ₇₅	5400 ₉₅	4950 ₁₁₅	4400 ₁₃₅	4200 ₁₄₅	4050 ₁₅₀
	75	6050 ₄₅	5350 ₁₀₀	4550 ₁₃₀	5550 ₈₅	4800 ₁₂₀	4200 ₁₄₅	4300 ₁₄₀	4000 ₁₅₅	3650 ₁₇₅
433x60	40	6700 ₃₅	6150 ₇₀	5800 ₁₀₅	6050 ₉₀	5750 ₁₀₅	5300 ₁₂₅	4750 ₁₅₀	4550 ₁₆₀	4350 ₁₆₅
	75	6450 ₅₀	5700 ₁₁₀	4850 ₁₄₅	5900 ₉₅	5200 ₁₃₀	4500 ₁₆₀	4650 ₁₅₅	4300 ₁₇₀	3950 ₁₉₀
200x80	40	4050	3750	3300	3500	3250	2950 ₅	2600 ₁₅	2500 ₂₀	2400 ₂₅
	75	3900	3200	2700 ₁₅	3400	2850 ₅	2500 ₂₀	2550 ₂₀	2350 ₂₅	2150 ₃₅
233x80	40	4550	4200	3800 ₁₀	4100 ₅	3800 ₁₀	3400 ₂₀	3050 ₃₀	2900 ₃₅	2800 ₄₀
	75	4350	3700 ₁₀	3150 ₃₀	3950 ₅	3350 ₂₅	2900 ₃₅	3000 ₃₅	2750 ₄₀	2550 ₅₅
240x80	40	4650	4250	3950 ₁₀	4200 ₅	3900 ₁₅	3500 ₂₅	3150 ₃₅	3000 ₄₀	2900 ₄₅
	75	4450	3800 ₁₅	3200 ₃₀	4050 ₁₀	3450 ₂₅	3000 ₄₀	3050 ₃₅	2850 ₄₅	2600 ₆₀
266x80	40	5000	4600 ₅	4350 ₂₀	4550 ₁₅	4300 ₂₅	3900 ₃₅	3450 ₄₅	3300 ₅₅	3200 ₆₀
	75	4800	4200 ₂₅	3550 ₄₅	4400 ₁₅	3800 ₂₅	3300 ₅₅	3400 ₅₀	3150 ₆₀	2900 ₇₅
300x80	40	5450	5050 ₁₀	4750 ₃₀	4950 ₂₀	4700 ₃₅	4400 ₅₀	3900 ₆₅	3750 ₇₀	3600 ₈₀
	75	5250	4650 ₃₅	4000 ₆₀	4800 ₂₅	4300 ₅₀	3750 ₇₅	3850 ₇₀	3550 ₉₀	3250 ₉₅
333x80	40	5900	5450 ₂₀	5100 ₄₀	5350 ₃₀	5050 ₄₀	4850 ₆₀	4300 ₈₀	4100 ₉₀	3950 ₉₅
	75	5700 ₅	5050 ₄₅	4400 ₇₅	5200 ₃₅	4700 ₆₅	4100 ₉₀	4200 ₈₅	3900 ₁₀₀	3600 ₁₁₀
366x80	40	6300 ₅	5850 ₃₀	5500 ₅₀	5750 ₄₀	5400 ₅₀	5200 ₇₅	4700 ₉₅	4500 ₁₀₅	4300 ₁₁₀
	75	6100 ₁₅	5400 ₅₅	4800 ₉₀	5600 ₄₀	5100 ₈₀	4450 ₁₀₅	4600 ₁₀₀	4250 ₁₁₀	3900 ₁₂₅
400x80	40	6750 ₁₀	6250 ₃₅	5850 ₆₀	6150 ₄₅	5800 ₆₀	5550 ₈₅	5050 ₁₁₀	4850 ₁₁₅	4700 ₁₂₅
	75	6500 ₃₀	5800 ₆₅	5200 ₁₀₅	5950 ₅₀	5450 ₉₅	4850 ₁₂₀	5000 ₁₁₅	4600 ₁₂₅	4250 ₁₄₅
433x80	40	7150 ₁₅	6600 ₄₀	6250 ₇₀	6500 ₅₅	6150 ₇₀	5850 ₉₅	5450 ₁₂₀	5250 ₁₃₀	5000 ₁₄₀
	75	6900 ₃₀	6150 ₇₅	5600 ₁₁₅	6350 ₆₀	5800 ₁₀₅	5200 ₁₃₀	5350 ₁₂₅	4950 ₁₄₀	4550 ₁₆₀
200x110	40	4350	4050	3800	3950	3750	3450	3050	2950 ₅	2800 ₁₀
	75	4200	3700	3150	3850	3350	2900 ₅	3000 ₅	2800 ₁₀	2550 ₂₀
233x110	40	4900	4500	4250	4450	4200	4000 ₅	3550 ₁₅	3400 ₂₀	3250 ₂₅
	75	4700	4200	3650 ₁₅	4300	3900 ₅	3400 ₂₀	3500 ₂₀	3250 ₂₅	2950 ₃₅
240x110	40	5000	4600	4350	4550	4300	4100 ₅	3650 ₂₀	3500 ₂₅	3350 ₂₅
	75	4800	4250	3750 ₁₅	4400	4000 ₁₀	3500 ₂₅	3600 ₂₀	3350 ₃₀	3050 ₄₀
266x110	40	5400	5000	4700	4900	4600	4400 ₁₅	4050 ₃₀	3900 ₃₅	3750 ₄₀
	75	5200	4600 ₅	4200 ₂₅	4750	4350 ₂₀	3850 ₃₅	4000 ₃₀	3700 ₄₀	3400 ₅₀
300x110	40	5900	5450	5100 ₁₀	5350	5050 ₁₀	4850 ₂₅	4550 ₄₅	4400 ₅₀	4200 ₅₅
	75	5650	5050 ₁₅	4650 ₄₀	5200 ₅	4750 ₃₀	4350 ₅₀	4500 ₄₅	4150 ₅₅	3800 ₇₀
333x110	40	6350	5850 ₁₅	5550 ₁₅	5800 ₅	5450 ₁₅	5200 ₃₀	5000 ₅₅	4800 ₆₀	4650 ₇₀
	75	6100	5450 ₂₀	5050 ₅₀	5650 ₁₀	5150 ₃₅	4800 ₆₀	4950 ₆₀	4600 ₇₀	4200 ₈₅
366x110	40	6800	6300 ₅	5950 ₂₅	6200 ₁₅	5850 ₂₅	5600 ₄₀	5450 ₆₅	5250 ₇₅	5050 ₈₅
	75	6550	5850 ₃₀	5400 ₈₀	6050 ₂₀	5500 ₄₅	5200 ₇₅	5350 ₇₀	5000 ₈₅	4550 ₁₀₀
400x110	40	7250	6700 ₁₀	6350 ₃₀	6600 ₂₀	6250 ₃₀	6000 ₅₀	5800 ₆₀	5600 ₉₀	5450 ₉₅
	75	7000	6250 ₃₅	5750 ₇₀	6450 ₂₅	5900 ₅₅	5550 ₈₀	5700 ₈₅	5400 ₁₀₀	4950 ₁₁₅
433x110	40	7700	7150 ₂₀	6700 ₃₅	7000 ₂₅	6650 ₄₀	6350 ₅₅	6150 ₉₀	5950 ₁₀₀	5800 ₁₀₅
	75	7400 ₅	6600 ₄₅	6100 ₈₀	6850 ₃₀	6250 ₆₀	5850 ₁₀₀	6050 ₉₅	5700 ₁₁₀	5300 ₁₂₅

NOTES:

- D = member depth, B = member breadth, NS = not suitable.
- The above table was based on a maximum DL of 40 (kg/m²), total ground floor mass of 40 (kg/m²), total wall mass of 37 (kg/m²), floor live load of 1.5 (kPa), floor point load of 1.8 (kN).
- The above table was based on a wall height of 2700 mm
- End bearing lengths = 42 mm at end supports and 58 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 42 mm at end supports and 58 mm at internal supports
- Restraint value for slenderness calculations is 600 mm.
- Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE SPAN LINTELS IN SINGLE/UPPER STOREY WALLS AS 4055 CLASSIFICATION N1, N2 AND N3



**SINGLE/UPPER
STOREY LINTEL**

EXAMPLE:

wind speed = N3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 lintel span = 3500 mm
 roof load width = 3900 mm
 Enter span table at 4500 roof load width column, rafter/truss spacing 600 mm, and read down to a span equal to or greater than 3500 mm

ADOPT:

SmartLam GL13 - 233 x 60

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Lintel span (mm)									
		Single span									
200x60	40	4500	4500	3750	3700	3350	3300	2950	2900	2650	2600 ₅
	90	3600	3600	3000	3000	2700	2700	2400	2450 ₅	2250 ₅	2200 ₁₀
	233x60	40	5150	5150	4250	4250	3800	3750	3500	3350	3100
240x60	90	4100	4100	3400	3350	3050	3050	2800 ₅	2850 ₁₀	2650 ₁₀	2700 ₁₅
	40	5300	5300	4350	4350	3900	3850	3600	3450	3200	3050 ₅
	90	4200	4200	3500	3450	3100	3100	2900 ₅	2900 ₁₀	2700 ₁₀	2750 ₁₅
266x60	40	5800	5800	4800	4750	4250	4250	3950	3850 ₅	3600 ₁₀	3400 ₁₀
	90	4650	4600	3800	3750	3400	3350	3150	3100 ₁₀	2950 ₁₅	2950 ₂₅
	300x60	40	6500	6500	5300	5300	4750	4700	4350 ₅	4350 ₁₀	4050 ₁₀
333x60	90	5150	5150	4200	4200	3750 ₅	3750	3500 ₁₅	3450 ₁₀	3250 ₁₀	3250 ₂₀
	40	7200	7150	5850	5850	5200	5200 ₅	4800 ₁₅	4750 ₁₀	4450 ₁₅	4400 ₂₀
	90	5650	5650	4650	4600	4100 ₁₀	4100 ₁₅	3800 ₁₅	3750 ₁₀	3600 ₂₅	3550 ₂₀
366x60	40	7900	7900	6400	6400	5700 ₅	5650 ₁₀	5200 ₁₀	5200 ₁₅	4850 ₂₅	4850 ₂₅
	90	6200	6150	5050	5000	4500 ₅	4450 ₁₀	4100 ₁₅	4100 ₁₅	3850 ₂₅	3850 ₂₅
	400x60	40	8650	8600	7000	6950	6200 ₁₀	6150 ₁₀	5650 ₁₅	5650 ₂₅	5250 ₂₀
433x60	90	6750	6750	5450	5450 ₅	4850 ₁₅	4800 ₂₀	4450 ₂₀	4450 ₂₅	4150 ₂₀	4150 ₂₅
	40	9350	9350	7550	7550	6650 ₁₅	6650 ₂₀	6100 ₂₅	6100 ₂₀	5700 ₃₀	5600 ₄₀
	90	7300	7250	5900	5850 ₅	5200 ₁₅	5200 ₂₀	4800 ₃₀	4750 ₂₅	4500 ₃₅	4450 ₃₀
200x80	40	4850	4850	4050	4000	3600	3600	3350	3300	3050	2950
	90	3900	3900	3250	3200	2900	2900	2700	2700	2500	2500 ₅
	233x80	40	5550	5550	4600	4600	4100	4100	3800	3750	3550
240x80	90	4450	4450	3700	3650	3300	3250	3050	3050	2850	2850 ₁₀
	40	5700	5700	4750	4700	4200	4200	3900	3850	3650	3550
	90	4600	4550	3800	3750	3400	3350	3100	3100	2950	2950 ₁₀
266x80	40	6300	6250	5200	5200	4650	4600	4250	4250	4000 ₅	4000 ₁₀
	90	5000	5000	4100	4100	3700	3650	3400	3350	3200	3150 ₅
	300x80	40	7050	7000	5800	5750	5150	5150	4750	4700	4450
333x80	90	5600	5550	4600	4550	4100	4050	3750 ₅	3750	3550 ₁₀	3500 ₁₀
	40	7800	7800	6400	6350	5650	5650	5200	5200 ₅	4900 ₁₀	4850 ₁₀
	90	6150	6150	5050	5000	4500	4450	4100 ₁₀	4100 ₁₅	3850 ₁₀	3850 ₁₀
366x80	40	8550	8550	7000	6950	6200	6150	5700 ₅	5650 ₁₀	5300 ₁₀	5300 ₁₀
	90	6750	6750	5500	5500	4900	4850 ₅	4500 ₅	4450 ₁₀	4200 ₂₀	4200 ₂₅
	400x80	40	9400	9350	7650	7650	6750	6750 ₅	6200 ₁₀	6150 ₁₀	5800 ₁₅
433x80	90	7350	7350	6000	5950	5250	5300 ₅	4850 ₁₅	4800 ₂₀	4550 ₁₅	4500 ₂₀
	40	10200	10200	8300	8250	7300 ₅	7250 ₅	6650 ₁₅	6650 ₂₀	6250 ₂₀	6200 ₁₅
	90	8000	7950	6450	6400	5700 ₅	5650 ₁₀	5200 ₁₅	5200 ₂₀	4900 ₂₅	4850 ₃₀
200x110	40	5300	5300	4400	4400	3950	3900	3650	3600	3450	3400
	90	4250	4250	3550	3500	3150	3150	2900	2950	2750	2800
	233x110	40	6050	6050	5050	5050	4500	4500	4150	4150	3900
240x110	90	4850	4850	4000	4000	3600	3550	3350	3300	3100	3100
	40	6200	6200	5150	5200	4600	4600	4250	4250	4000	4000
	90	5000	5000	4100	4100	3700	3650	3400	3350	3200	3200
266x110	40	6850	6850	5650	5650	5050	5050	4650	4650	4400	4350
	90	5500	5450	4500	4500	4000	4000	3700	3700	3500	3450
	300x110	40	7700	7700	6350	6300	5650	5600	5200	5200	4850
333x110	90	6100	6100	5000	5000	4450	4450	4100	4100	3850	3850
	40	8500	8500	7000	7000	6200	6200	5700	5700	5350	5350 ₅
	90	6750	6750	5500	5500	4900	4900	4500	4500	4250 ₅	4250 ₁₀
366x110	40	9350	9350	7700	7700	6800	6800	6250	6200	5850	5800 ₅
	90	7400	7400	6050	6000	5350	5350	4900	4900 ₅	4600	4600 ₅
	400x110	40	10250	10250	8400	8400	7450	7400	6800	6800 ₅	6350 ₅
433x110	90	8100	8100	6550	6550	5800	5800	5300	5350 ₅	5000 ₁₀	4950 ₁₅
	40	11300	11150	9100	9150	8050	8050	7350 ₅	7350 ₅	6850 ₁₀	6850 ₁₅
	90	8800	8800	7100	7100	6250	6250	5750 ₅	5700 ₁₀	5350 ₁₀	5350 ₁₅

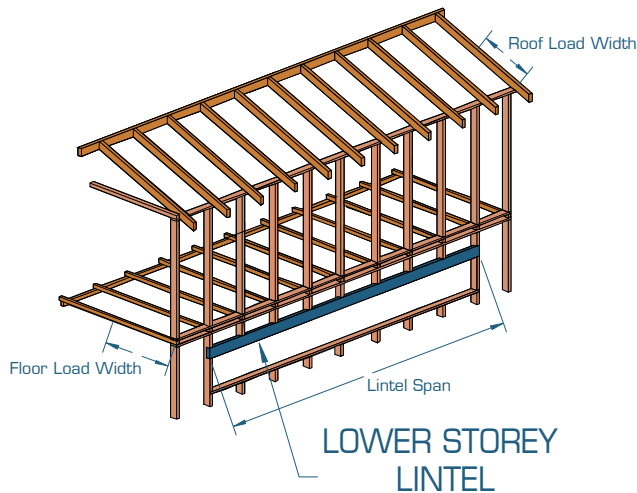
SINGLE SPAN LINTELS IN SINGLE/UPPER STOREY WALLS AS 4055 CLASSIFICATION C1, C2 AND C3

Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Lintel span (mm)									
		Single span									
		3950	3800	2750	2700	2250	2150	1900	1650 ₅	1650	1300
200x60	40	3600	3600	2900	2800	2400 ₅	2250 ₅	2000	1800 ₁₀	1750 ₅	1450 ₁₀
	90	4600	4600	3200	3100	2650	2550 ₅	2250 ₅	2200 ₅	2000	1750 ₁₅
233x60	40	4100	4100	3400	3250	2750 ₁₀	2700 ₁₀	2400 ₁₅	2300 ₁₅	2100 ₁₀	1950 ₂₀
	90	4750	4700	3350	3200	2700	2650 ₅	2350 ₅	2250 ₅	2050	1900 ₁₀
240x60	40	4200	4200	3500	3350	2800 ₁₀	2750 ₁₀	2500 ₁₅	2350 ₁₅	2200 ₂₅	2050 ₂₀
	90	5250	5200	3700	3550	3000	2900 ₁₀	2600 ₅	2500 ₁₅	2300 ₁₅	2250 ₁₅
266x60	40	4650	4600	3800	3750 ₅	3150 ₅	3000 ₁₅	2700 ₁₅	2650 ₂₅	2450 ₂₅	2350 ₂₅
	90	5950	5850	4150	4050 ₅	3400	3250 ₅	2900 ₁₅	2850 ₁₅	2600 ₁₅	2550 ₂₅
300x60	40	5150	5150	4200 ₅	4200 ₁₀	3600 ₂₀	3400 ₁₅	3050 ₂₅	2950 ₃₅	2750 ₂₅	2700 ₄₀
	90	6550	6500	4600	4600	3750 ₁₀	3600 ₁₀	3250 ₁₅	3100 ₂₅	2850 ₁₅	2800 ₂₅
333x60	40	5650	5650	4650 ₅	4600 ₁₀	3950 ₁₅	3800 ₂₀	3400 ₂₀	3250 ₃₀	3000 ₂₀	2900 ₅₅
	90	7200	7150	5050 ₅	5000 ₅	4100 ₁₀	3950 ₁₀	3550 ₂₅	3350 ₂₀	3150 ₃₀	3000 ₄₅
366x60	40	6200	6150	5050 ₁₀	5000 ₁₅	4300 ₂₅	4200 ₃₅	3700 ₃₅	3550 ₃₀	3300 ₃₅	3150 ₅₅
	90	7750	7750	5450 ₁₀	5400 ₅	4450 ₁₅	4400 ₂₅	3850 ₂₅	3700 ₂₀	3450 ₂₅	3250 ₄₀
400x60	40	6750	6750	5450 ₂₀	5450 ₂₅	4700 ₂₅	4650 ₃₀	4000 ₃₅	3900 ₃₅	3650 ₅₅	3450 ₅₀
	90	8400	8300	5900 ₁₀	5800 ₁₅	4800 ₂₀	4800 ₂₅	4100 ₂₅	4000 ₂₅	3700 ₄₅	3550 ₃₅
433x60	40	7300	7250	5900 ₁₅	5850 ₂₀	5050 ₃₅	5000 ₄₀	4350 ₅₀	4250 ₆₀	3850 ₅₅	3700 ₄₅
	90	4550	4550	3200	3050	2600	2500	2250	2150	1950	1750
200x80	40	3900	3900	3250	3200	2700	2650	2400 ₅	2250 ₅	2100	1900 ₁₀
	90	5350	5300	3750	3600	3000	2900	2650	2550 ₅	2350	2250 ₅
233x80	40	4450	4450	3700	3650	3200	3050 ₅	2750 ₁₀	2700 ₁₀	2500 ₁₀	2350 ₁₅
	90	5500	5400	3850	3700	3100	3000	2700	2650 ₅	2450 ₅	2300 ₅
240x80	40	4600	4550	3800	3750	3300	3150 ₅	2800 ₁₀	2750 ₁₀	2550 ₁₀	2450 ₂₀
	90	6100	6000	4300	4200	3500	3300	3000	2900 ₁₀	2700 ₅	2600 ₁₀
266x80	40	5000	5000	4100	4100	3700 ₅	3500 ₅	3150 ₅	3000 ₁₅	2800 ₂₀	2750 ₂₀
	90	6900	6850	4850	4800	3950	3800	3400	3250 ₅	3000 ₁₀	2900 ₂₅
300x80	40	5600	5550	4600	4550	4100 ₁₀	4000 ₁₀	3600 ₂₀	3400 ₁₅	3150 ₂₀	3050 ₃₀
	90	7600	7550	5350	5300 ₅	4350 ₅	4250 ₁₀	3750 ₁₀	3600 ₁₀	3350 ₁₀	3200 ₂₀
333x80	40	6150	6150	5050	5000 ₅	4500 ₁₀	4450 ₁₅	3950 ₁₅	3800 ₂₀	3550 ₃₅	3350 ₂₅
	90	8300	8250	5850	5750	4750 ₁₀	4750 ₅	4100 ₁₀	3950 ₁₀	3650 ₂₀	3500 ₁₅
366x80	40	6750	6750	5500 ₅	5500 ₁₀	4900 ₂₀	4850 ₂₀	4300 ₂₅	4200 ₃₅	3850 ₃₀	3700 ₃₀
	90	9000	8950	6350	6250	5150 ₁₀	5100 ₁₀	4450 ₁₅	4400 ₂₅	3950 ₂₀	3800 ₂₀
400x80	40	7350	7350	6000 ₅	5950 ₅	5250 ₁₅	5300 ₂₀	4700 ₂₅	4650 ₃₀	4150 ₃₀	4050 ₃₀
	90	9700	9700	6800 ₅	6750 ₁₀	5550 ₁₅	5450 ₂₀	4800 ₂₀	4800 ₂₅	4250 ₃₅	4150 ₂₀
433x80	40	8000	7950	6450 ₁₀	6400 ₁₀	5700 ₂₅	5650 ₃₀	5050 ₃₅	5000 ₄₀	4500 ₄₀	4450 ₅₀
	90	5300	5300	3800	3600	3050	2950	2650	2600	2400	2250
200x110	40	4250	4250	3550	3500	3150	3050	2750	2700 ₅	2500	2350
	90	6050	6050	4400	4350	3600	3400	3050	2950	2750	2700
233x110	40	4850	4850	4000	4000	3600	3550	3250	3100	2900 ₅	2800 ₁₅
	90	6200	6200	4550	4500	3700	3550	3150	3050	2800	2750
240x110	40	5000	5000	4100	4100	3700	3650	3350	3200	2950 ₅	2850 ₁₅
	90	6850	6850	5050	5000	4100	3950	3550	3350	3150	3000 ₅
266x110	40	5500	5450	4500	4500	4000	4000 ₅	3700 ₅	3550 ₅	3300 ₅	3150 ₁₀
	90	7700	7700	5700	5600	4650	4600	4000	3850	3600 ₅	3400 ₅
300x110	40	6100	6100	5000	5000	4450	4450	4100 ₁₀	4100 ₁₅	3750 ₁₅	3600 ₁₅
	90	8500	8500	6300	6200	5100	5050	4400	4350 ₁₀	3950 ₅	3800 ₅
333x110	40	6750	6750	5500	5500	4900 ₅	4900 ₅	4500 ₁₀	4500 ₁₅	4100 ₂₀	4000 ₁₅
	90	9350	9350	6850	6800	5550	5500 ₅	4850 ₁₀	4800 ₁₀	4300 ₁₅	4200 ₂₀
366x110	40	7400	7400	6050	6000	5350 ₁₀	5350 ₁₅	4900 ₁₅	4900 ₂₀	4500 ₂₀	4450 ₂₅
	90	10250	10250	7450	7450	6050 ₅	5950 ₅	5200 ₅	5200 ₁₀	4700 ₁₀	4650 ₁₅
400x110	40	8100	8100	6550	6550	5800 ₅	5800 ₁₀	5300 ₁₅	5350 ₂₀	4900 ₃₀	4900 ₃₀
	90	11150	11150	8000	7950 ₅	6500 ₅	6450 ₅	5600 ₁₅	5550 ₂₀	5050 ₂₀	5000 ₂₀
433x110	40	8800	8800	7100	7100 ₅	6250 ₁₅	6250 ₁₀	5750 ₂₀	5700 ₃₀	5250 ₂₅	5200 ₃₀

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Minimum bearing length = 35 mm at end supports. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm.
3. Restraint value for slenderness calculations is 600 mm.
4. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE SPAN LINTELS IN LOWER STOREY WALLS AS 4055 CLASSIFICATION N1, N2, N3 & C1



EXAMPLE:

wind speed = N3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 lintel span = 3500 mm
 roof load width = 3900 mm
 floor load width = 1200 mm
 Enter span table at 4500 roof load width column, floor load width 1200 mm, and read down to a span equal to or greater than 3500 mm

ADOPT:

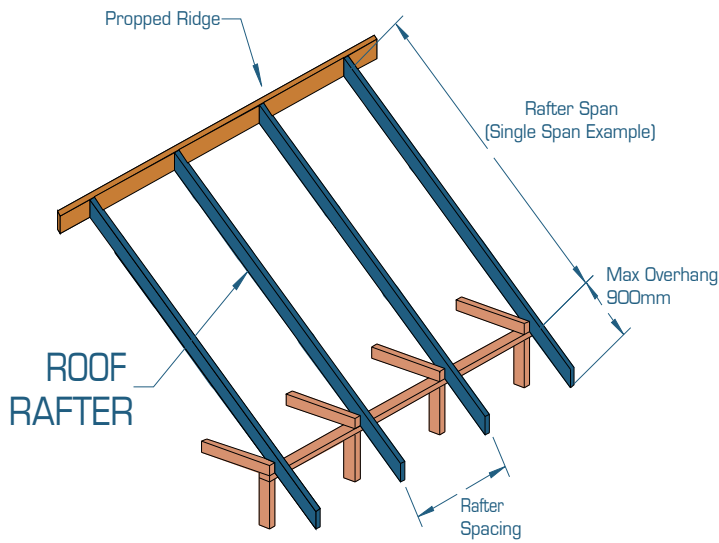
SmartLam GL13 - 333 x 60
 (With additional 5 mm bearing length)

Roof load width (mm)		1500			3000			4500			6000		
Floor load width (mm)		1200	2400	3600	1200	2400	3600	1200	2400	3600	1200	2400	3600
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Lintel span (mm)											
		Single span											
200x60	40	3200	2850	2600	3000	2700	2450	2850	2600	2400	2700	2500	2300
	90	2950	2700	2450	2650	2450	2250	2400	2250	2150 ₅	2250	2100 ₅	2000 ₅
233x60	40	3650	3200	2950 ₅	3400	3100	2850 ₅	3200	2950	2750 ₅	3100	2850	2700 ₅
	90	3350	3050	2850 ₅	3000	2800	2650 ₅	2800	2650 ₅	2500 ₁₀	2650 ₅	2500 ₁₀	2350 ₁₅
240x60	40	3750	3300	3000 ₅	3500	3150	2900 ₅	3300	3050	2850 ₅	3150	2950	2750 ₅
	90	3450	3100	2900 ₅	3100	2900	2750 ₁₀	2850	2700 ₅	2550 ₁₀	2700 ₅	2550 ₁₀	2450 ₁₅
266x60	40	4050	3600	3300 ₅	3800	3450	3200 ₁₀	3600	3300	3100 ₁₀	3450	3200	3000 ₁₀
	90	3750	3400	3150 ₁₀	3350	3150 ₅	2950 ₁₀	3100 ₅	2950 ₁₀	2800 ₁₅	2950 ₁₀	2800 ₁₅	2700 ₂₀
300x60	40	4500	4000	3650 ₁₀	4200	3800	3500 ₁₀	4000	3650 ₅	3400 ₁₅	3800	3550 ₅	3300 ₁₅
	90	4150	3750 ₅	3500 ₁₅	3750	3450 ₅	3300 ₁₅	3450 ₅	3250 ₁₅	3100 ₂₀	3250 ₁₅	3100 ₂₀	3000 ₂₅
333x60	40	4950	4350 ₅	4000 ₁₅	4600	4150 ₅	3850 ₁₅	4350	4000 ₅	3750 ₂₀	4150	3850 ₁₀	3650 ₂₀
	90	4550	4100 ₅	3800 ₁₅	4050 ₅	3800 ₁₀	3600 ₂₀	3750 ₁₀	3550 ₂₀	3400 ₂₅	3550 ₂₀	3400 ₂₅	3250 ₃₀
366x60	40	5400	4750 ₅	4300 ₂₀	5000	4500 ₁₀	4150 ₂₀	4750	4350 ₁₀	4050 ₂₅	4500 ₅	4200 ₁₅	3950 ₂₅
	90	4950	4450 ₁₀	4150 ₂₀	4400 ₅	4100 ₁₅	3900 ₂₅	4100 ₁₅	3850 ₂₀	3700 ₃₀	3850 ₂₅	3650 ₃₀	3550 ₃₅
400x60	40	5850	5150 ₁₀	4650 ₂₅	5450	4900 ₁₅	4500 ₂₅	5150 ₅	4700 ₁₅	4350 ₂₅	4900 ₁₀	4500 ₁₅	4250 ₂₀
	90	5350	4850 ₁₅	4450 ₂₅	4800 ₁₀	4450 ₂₀	4200 ₃₀	4400 ₂₀	4200 ₂₅	4000 ₃₅	4150 ₂₅	3950 ₃₅	3800 ₄₀
433x60	40	6350	5500 ₁₅	5000 ₃₀	5850	5250 ₁₅	4850 ₃₀	5550 ₅	5050 ₂₀	4700 ₃₀	5250 ₁₀	4850 ₂₀	4550 ₃₅
	90	5750 ₅	5200 ₁₅	4800 ₃₀	5150 ₁₅	4800 ₂₀	4500 ₃₅	4750 ₂₅	4500 ₃₀	4250 ₄₀	4450 ₃₀	4250 ₄₀	4050 ₄₅
200x80	40	3450	3050	2800	3250	2950	2700	3050	2800	2650	2950	2750	2550
	90	3200	2900	2700	2900	2700	2500	2650	2500	2350	2500	2350	2250
233x80	40	3950	3500	3200	3650	3350	3100	3500	3200	3000	3350	3100	2900
	90	3600	3300	3050	3250	3050	2900	3000	2850	2750	2850	2750	2600 ₅
240x80	40	4050	3550	3250	3750	3400	3150	3550	3300	3050	3400	3150	3000
	90	3700	3350	3150	3350	3100	2950	3100	2950	2800 ₅	2900	2800 ₅	2700 ₅
266x80	40	4400	3900	3550	4100	3700	3450	3900	3550	3350	3700	3450	3250 ₅
	90	4050	3700	3400	3650	3400	3200 ₅	3400	3200	3050 ₅	3200	3050 ₅	2950 ₁₀
300x80	40	4900	4300	3950 ₅	4550	4100	3800 ₅	4300	3950	3700 ₅	4100	3800	3600 ₅
	90	4500	4100	3800 ₅	4050	3750	3550 ₅	3750	3550 ₅	3350 ₁₀	3500 ₅	3350 ₁₀	3250 ₁₅
333x80	40	5400	4750	4300 ₅	5000	4500	4150 ₁₀	4750	4350	4050 ₁₀	4500	4200	3950 ₁₀
	90	4950	4450	4150 ₁₀	4400	4100 ₅	3900 ₁₀	4100 ₅	3850 ₁₀	3700 ₁₅	3850 ₁₀	3700 ₁₅	3550 ₂₀
366x80	40	5900	5150	4700 ₁₀	5450	4900	4550 ₁₀	5150	4700 ₅	4400 ₁₀	4900	4550 ₅	4250 ₁₅
	90	5400	4850	4500 ₁₀	4800	4450 ₅	4200 ₁₅	4450 ₅	4200 ₁₀	4000 ₂₀	4150 ₁₅	4000 ₂₀	3800 ₂₅
400x80	40	6400	5600 ₅	5100 ₁₅	5950	5300 ₅	4900 ₁₅	5600	5100 ₅	4750 ₁₅	5350	4900 ₁₀	4600 ₁₅
	90	5850	5250 ₅	4850 ₁₅	5200 ₅	4850 ₁₀	4550 ₂₀	4800 ₁₀	4550 ₁₅	4300 ₂₀	4500 ₁₅	4300 ₂₀	4150 ₃₀
433x80	40	6900	6050 ₅	5450 ₁₅	6400	5750 ₁₀	5250 ₂₀	6050	5500 ₁₀	5100 ₂₀	5750 ₅	5300 ₁₀	4950 ₂₀
	90	6300	5650 ₁₀	5200 ₂₀	5600 ₅	5200 ₁₀	4900 ₂₀	5150 ₁₅	4850 ₂₀	4650 ₂₅	4850 ₂₀	4600 ₂₅	4450 ₃₅

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Total upper floor mass of 40 (kg/m²), floor live load of 1.5 (kPa), floor point load of 1.8 (kN).
3. Minimum bearing length = 35 mm at end supports. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm.
4. Restraint value for slenderness calculations is 600 mm.
5. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION N1, N2 AND N3 WITH CEILING ATTACHED



EXAMPLE:

wind speed = N3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 rafter span = 5800 mm
 Enter span table at rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm

ADOPT:

SmartLam GL13 - 200 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x60	30	7550	7100	6500	6050	8450	8050	7450	7000
	40	7100	6650	6050	5550	8050	7600	7000	6600
	75	6150	5650	4950	4500	7100	6700	6100	5650
	90	5850	5350	4700	4250	6850	6450	5850	5350
233x60	30	8600	8100	7350	6900	9350	8900	8300	7800
	40	8100	7550	6900	6400	8900	8450	7800	7350
	75	7000	6500	5850	5300	7950	7450	6850	6400
	90	6700	6200	5500	5000	7650	7200	6550	6150
240x60	30	8800	8300	7550	7050	9550	9100	8450	8000
	40	8300	7750	7050	6550	9100	8650	8000	7500
	75	7150	6650	6000	5450	8100	7650	7000	6550
	90	6850	6350	5650	5150	7800	7350	6700	6250
266x60	30	9600	9050	8250	7700	10200	9750	9100	8600
	40	9050	8500	7700	7150	9750	9300	8600	8100
	75	7800	7300	6550	6100	8700	8200	7500	7050
	90	7500	6950	6250	5750	8400	7900	7200	6750
300x60	30	10650	10050	9150	8550	11000	10550	9850	9350
	40	10050	9450	8550	7950	10550	10050	9350	8800
	75	8700	8100	7300	6750	9450	8950	8200	7700
	90	8300	7700	6950	6400	9100	8600	7900	7400
333x60	30	11700	11050	10050	9400	11800	11300	10600	10050
	40	11050	10350	9400	8750	11300	10800	10050	9500
	75	9550	8900	8000	7400	10150	9600	8850	8300
	90	9100	8450	7600	7050	9800	9250	8500	7950
366x60	30	12000	12000	11000	10250	12000	12000	11250	10700
	40	12000	11300	10250	9500	12000	11500	10700	10150
	75	10400	9700	8700	8050	10850	10250	9450	8900
	90	9950	9200	8250	7650	10450	9900	9100	8550 _s
400x60	30	12000	12000	11950	11150	12000	12000	11950	11400
	40	12000	12000	11150	10350	12000	12000	11400	10800
	75	11300	10500	9450	8700	11500	10900	10050	9450 _s
	90	10800	10000	8950	8300	11150	10550	9700	9100 _s
433x60	30	12000	12000	12000	12000	12000	12000	12000	12000 _s
	40	12000	12000	12000	11150	12000	12000	12000	11400 _s
	75	12000	11350	10150	9400	12000	11550	10650	10000 _s
	90	11650	10800	9650	8900	11750	11150	10250	9650 ₁₀

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION N1, N2 AND N3 WITH CEILING ATTACHED [Cont'd]

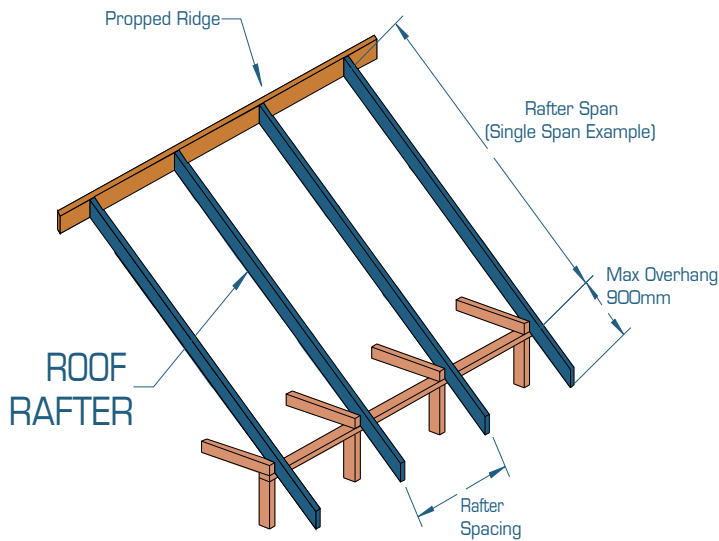
Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x80	30	8000	7550	6950	6500	8850	8450	7850	7450
	40	7550	7100	6500	6050	8450	8050	7450	7000
	75	6600	6150	5450	4950	7550	7100	6500	6100
	90	6300	5850	5150	4700	7250	6850	6250	5850
233x80	30	9050	8600	7850	7350	9750	9350	8750	8300
	40	8600	8100	7350	6900	9350	8900	8300	7800
	75	7500	7000	6300	5850	8400	7950	7300	6850
	90	7150	6700	6050	5500	8100	7650	7000	6550
240x80	30	9300	8800	8050	7550	9950	9550	8900	8450
	40	8800	8300	7550	7050	9550	9100	8450	8000
	75	7650	7150	6500	6000	8550	8100	7450	7000
	90	7350	6850	6200	5650	8250	7800	7150	6700
266x80	30	10150	9600	8800	8250	10600	10200	9550	9100
	40	9600	9050	8250	7700	10200	9750	9100	8600
	75	8400	7800	7050	6550	9200	8700	8000	7500
	90	8000	7500	6750	6250	8900	8400	7700	7200
300x80	30	11250	10650	9800	9150	11450	11000	10350	9850
	40	10650	10050	9150	8550	11000	10550	9850	9350
	75	9300	8700	7850	7300	9950	9450	8700	8200
	90	8900	8300	7500	6950	9650	9100	8400	7900
333x80	30	12000	11700	10750	10050	12000	11800	11100	10600
	40	11700	11050	10050	9400	11800	11300	10600	10050
	75	10250	9550	8600	8000	10700	10150	9400	8850
	90	9800	9100	8200	7600	10350	9800	9050	8500
366x80	30	12000	12000	11750	11000	12000	12000	11800	11250
	40	12000	12000	11000	10250	12000	12000	11250	10700
	75	11150	10400	9400	8700	11400	10850	10050	9450
	90	10700	9950	8950	8250	11050	10450	9650	9100
400x80	30	12000	12000	12000	11950	12000	12000	12000	11950
	40	12000	12000	11950	11150	12000	12000	11950	11400
	75	12000	11300	10200	9450	12000	11500	10650	10050
	90	11600	10800	9700	8950	11700	11150	10300	9700
433x80	30	12000	12000	12000	12000	12000	12000	12000	12000
	40	12000	12000	12000	12000	12000	12000	12000	12000
	75	12000	12000	11000	10150	12000	12000	11250	10650
	90	12000	11650	10450	9650	12000	11750	10900	10250

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birds mouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports
5. Construction loads shall not be applied to overhangs until a 190x19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Rafter spacing up to 1200 mm
7. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION C1, C2 AND C3 WITH CEILING ATTACHED



EXAMPLE:

wind speed = C3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 rafter span = 5800 mm
 Enter span table at rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm

ADOPT:

SmartLam GL13 - 200 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x60	30	7350	6700	5550	4700	8050	6900	5550	4700
	40	7100	6650	5600	4750	8050	7000	5600	4750
	75	6150	5650	4950	4500	7100	6700	5800	4900
	90	5850	5350	4700	4250	6850	6450	5850	5000
233x60	30	8550	7800	6500	5500	9350	8100	6500	5500
	40	8100	7550	6550	5550	8900	8150	6550	5550
	75	7000	6500	5850	5300	7950	7450	6800	5750
240x60	90	6700	6200	5500	5000	7650	7200	6550	5850
	30	8800	8000	6700	5700	9550	8350	6700	5700
	40	8300	7750	6750	5750	9100	8400	6750	5750
266x60	75	7150	6650	6000	5450	8100	7650	7000	5950
	90	6850	6350	5650	5150	7800	7350	6700	6050 ₅
	30	9600	8900	7450	6350	10200	9300	7450	6350
266x60	40	9050	8500	7500	6400	9750	9300	7500	6400
	75	7800	7300	6550	6100	8700	8200	7500	6600 ₅
	90	7500	6950	6250	5750	8400	7900	7200	6700 ₁₀
300x60	30	10650	10000	8450	7200	11000	10500	8450	7200
	40	10050	9450	8500	7250	10550	10050	8500	7250 ₅
	75	8700	8100	7300	6750	9450	8950	8200	7500 ₁₅
333x60	90	8300	7700	6950	6400	9100	8600	7900 ₅	7400 ₁₅
	30	11700	11050	9300	7950	11800	11300	9300	7950 ₁₀
	40	11050	10350	9400	8000	11300	10800	9400 ₅	8000 ₁₀
366x60	75	9550	8900	8000	7400	10150	9600	8850 ₅	8300 ₂₀
	90	9100	8450	7600	7050	9800	9250	8500 ₅	7950 ₂₅
	30	12000	12000	10200	8700	12000	12000	10200 ₅	8700 ₁₅
366x60	40	12000	11300	10250	8800	12000	11500	10300 ₁₀	8800 ₂₀
	75	10400	9700	8700	8050	10850	10250	9450 ₁₀	8900 ₃₀
	90	9950	9200	8250	7650	10450	9900	9100 ₁₀	8550 ₃₀
400x60	30	12000	12000	11100	9450	12000	12000	11100 ₁₀	9450 ₂₀
	40	12000	12000	11150	9550	12000	12000	11200 ₁₅	9550 ₂₅
	75	11300	10500	9450	8700	11500	10900	10050 ₁₅	9450 ₃₅
433x60	90	10800	10000	8950	8300	11150	10550	9700 ₁₅	9100 ₃₅
	30	12000	12000	11950	10200	12000	12000	11950 ₂₀	10200 ₂₅
	40	12000	12000	12000	10300	12000	12000	12000 ₂₀	10300 ₃₀
433x60	75	12000	11350	10150	9400	12000	11550	10650 ₂₀	10000 ₄₀
	90	11650	10800	9650	8900	11750	11150	10250 ₂₀	9650 ₄₀

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION C1, C2 AND C3 WITH CEILING ATTACHED [Cont'd]

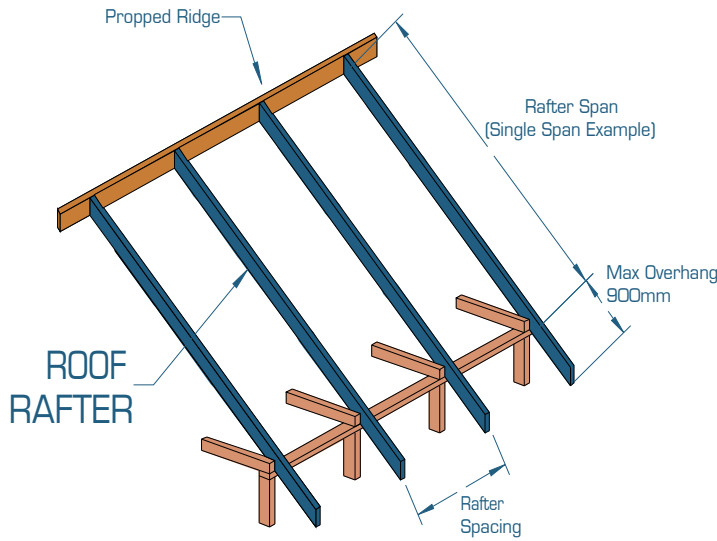
Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x80	30	8000	7350	6400	5450	8850	8050	6450	5450
	40	7550	7100	6400	5500	8450	8050	6500	5500
	75	6600	6150	5450	4950	7550	7100	6500	5700
	90	6300	5850	5150	4700	7250	6850	6250	5800
233x80	30	9050	8550	7500	6400	9750	9350	7550	6400
	40	8600	8100	7350	6500	9350	8900	7600	6500
	75	7500	7000	6300	5850	8400	7950	7300	6700
	90	7150	6700	6050	5500	8100	7650	7000	6550
240x80	30	9300	8800	7700	6600	9950	9550	7800	6600
	40	8800	8300	7550	6700	9550	9100	7850	6700
	75	7650	7150	6500	6000	8550	8100	7450	6900
	90	7350	6850	6200	5650	8250	7800	7150	6700
266x80	30	10150	9600	8550	7400	10600	10200	8650	7400
	40	9600	9050	8250	7450	10200	9750	8750	7450
	75	8400	7800	7050	6550	9200	8700	8000	7500
	90	8000	7500	6750	6250	8900	8400	7700	7200
300x80	30	11250	10650	9650	8350	11450	11000	9800	8350
	40	10650	10050	9150	8450	11000	10550	9850	8450
	75	9300	8700	7850	7300	9950	9450	8700	8200
	90	8900	8300	7500	6950	9650	9100	8400	7900 ₅
333x80	30	12000	11700	10700	9250	12000	11800	10850	9250
	40	11700	11050	10050	9350	11800	11300	10600	9350 ₅
	75	10250	9550	8600	8000	10700	10150	9400	8850 ₅
	90	9800	9100	8200	7600	10350	9800	9050	8500 ₅
366x80	30	12000	12000	11750	10100	12000	12000	11800	10100 ₅
	40	12000	12000	11000	10200	12000	12000	11250	10200 ₁₀
	75	11150	10400	9400	8700	11400	10850	10050	9450 ₁₀
	90	10700	9950	8950	8250	11050	10450	9650	9100 ₁₀
400x80	30	12000	12000	12000	11000	12000	12000	12000	11000 ₁₀
	40	12000	12000	11950	11100	12000	12000	11950 ₅	11100 ₁₅
	75	12000	11300	10200	9450	12000	11500	10650 ₅	10050 ₁₅
	90	11600	10800	9700	8950	11700	11150	10300 ₅	9700 ₁₅
433x80	30	12000	12000	12000	11900	12000	12000	12000	11900 ₂₀
	40	12000	12000	12000	12000	12000	12000	12000 ₅	12000 ₂₀
	75	12000	12000	11000	10150	12000	12000	11250 ₅	10650 ₂₀
	90	12000	11650	10450	9650	12000	11750	10900 ₅	10250 ₂₀

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birds mouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports
5. Construction loads shall not be applied to overhangs until a 190x19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Rafter spacing up to 1200 mm
7. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION N1, N2 AND N3 WITHOUT CEILING ATTACHED



EXAMPLE:

wind speed = N3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 rafter span = 5800 mm
 Enter span table at rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm

ADOPT:

SmartLam GL13 - 200 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x60	10	8350	7600	6650	6050	9800	9500	8200	6950
	20	8150	7600	6650	6050	9000	8600	8050	7100
	40	7100	6650	6050	5550	8050	7600	7000	6600
	60	6500	6050	5350	4850	7450	7000	6450	6050
233x60	10	9750	8850	7750	7000	10700	10400	9600	8200
	20	9250	8800	7750	7000	9900	9550	8900	8350
	40	8100	7550	6900	6400	8900	8450	7800	7350
240x60	60	7350	6900	6200	5700	8300	7800	7200	6750
	10	10050	9100	7950	7250	10900	10600	9900	8450
	20	9500	9000	7950	7250	10100	9700	9100	8600
	40	8300	7750	7050	6550	9100	8650	8000	7500
266x60	60	7550	7050	6350	5900	8450	8000	7350	6900
	10	11100	10100	8800	8000	11600	11300	10800	9400
	20	10350	9800	8800	8000	10800	10400	9750	9300
	40	9050	8500	7700	7150	9750	9300	8600	8100
300x60	60	8250	7700	6950	6450	9100	8600	7900	7400
	10	12000	11400	9950	9050	12000	12000	11600	10650
	20	11450	10900	9950	9050	11600	11200	10550	10050
	40	10050	9450	8550	7950	10550	10050	9350	8800
333x60	60	9150	8550	7700	7150	9850	9350	8600	8100
	10	12000	12000	11050	10050	12000	12000	12000	11800
	20	12000	11950	11050	10050	12000	11950	11300	10800
	40	11050	10350	9400	8750	11300	10800	10050	9500
366x60	60	10050	9400	8450	7850	10600	10050	9250	8700
	10	12000	12000	12000	11050	12000	12000	12000	12000
	20	12000	12000	12000	11050	12000	12000	12000	11500
	40	12000	11300	10250	9500	12000	11500	10700	10150
400x60	60	11000	10250	9200	8550	11250	10700	9900	9300
	10	12000	12000	12000	12000	12000	12000	12000	12000
	20	12000	12000	12000	12000	12000	12000	12000	12000
	40	12000	12000	11150	10350	12000	12000	11400	10800
433x60	60	11950	11150	10000	9250	11950	11400	10550	9950
	10	12000	12000	12000	12000	12000	12000	12000	12000
	20	12000	12000	12000	12000	12000	12000	12000	12000
	40	12000	12000	12000	11150	12000	12000	12000	11400 _s
433x60	60	12000	12000	10800	10000	12000	12000	11150	10500 _s

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION N1, N2 AND N3 WITHOUT CEILING ATTACHED [Cont'd]

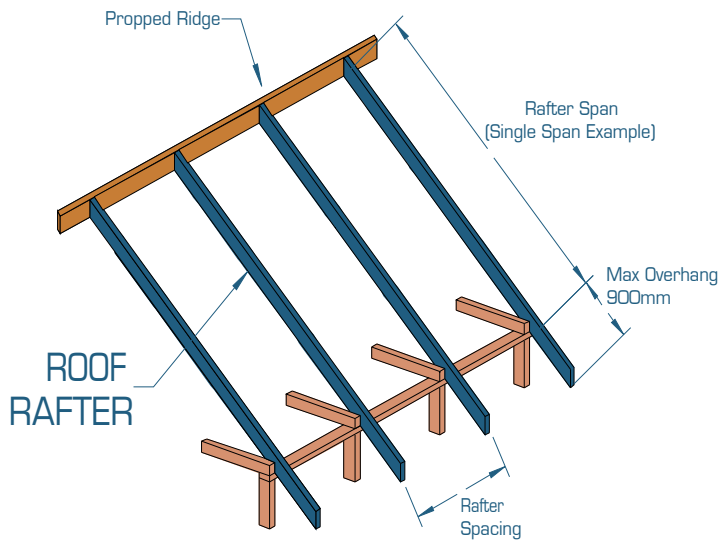
Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x80	10	9200	8350	7300	6650	10050	9800	9350	8150
	20	8550	8150	7300	6650	9350	9000	8450	8050
	40	7550	7100	6500	6050	8450	8050	7450	7000
	60	6950	6500	5850	5350	7850	7450	6850	6450
233x80	10	10600	9750	8500	7750	10950	10700	10300	9550
	20	9700	9250	8500	7750	10300	9900	9350	8900
	40	8600	8100	7350	6900	9350	8900	8300	7800
240x80	60	7850	7350	6700	6200	8750	8300	7650	7200
	10	10850	10050	8750	7950	11150	10900	10450	9850
	20	9950	9500	8750	7950	10450	10100	9550	9100
266x80	40	8800	8300	7550	7050	9550	9100	8450	8000
	60	8050	7550	6850	6350	8900	8450	7800	7350
	10	11750	11100	9700	8800	11850	11600	11150	10800
300x80	20	10800	10350	9600	8800	11150	10800	10200	9750
	40	9600	9050	8250	7700	10200	9750	9100	8600
	60	8800	8250	7500	6950	9550	9100	8400	7900
333x80	10	12000	12000	10950	9950	12000	12000	12000	11600
	20	12000	11450	10650	9950	12000	11600	11000	10550
	40	10650	10050	9150	8550	11000	10550	9850	9350
	60	9800	9150	8300	7700	10350	9850	9100	8600
366x80	10	12000	12000	12000	11050	12000	12000	12000	12000
	20	12000	12000	11700	11050	12000	12000	11800	11300
	40	11700	11050	10050	9400	11800	11300	10600	10050
	60	10750	10050	9100	8450	11100	10600	9800	9250
400x80	10	12000	12000	12000	12000	12000	12000	12000	12000
	20	12000	12000	12000	12000	12000	12000	12000	12000
	40	12000	12000	11000	10250	12000	12000	11250	10700
	60	11750	11000	9950	9200	11800	11250	10450	9900
433x80	10	12000	12000	12000	12000	12000	12000	12000	12000
	20	12000	12000	12000	12000	12000	12000	12000	12000
	40	12000	12000	11950	11150	12000	12000	11950	11400
	60	12000	11950	10800	10000	12000	11950	11150	10550
433x80	10	12000	12000	12000	12000	12000	12000	12000	12000
	20	12000	12000	12000	12000	12000	12000	12000	12000
	40	12000	12000	12000	12000	12000	12000	12000	12000
	60	12000	12000	11650	10800	12000	12000	11750	11150

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birds mouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports
5. Construction loads shall not be applied to overhangs until a 190x19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Rafter spacing up to 1200 mm
7. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION C1, C2 AND C3 WITHOUT CEILING ATTACHED



EXAMPLE:

wind speed = C3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 rafter span = 5800 mm
 Enter span table at rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm

ADOPT:

SmartLam GL13 - 200 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x60	10	7350	6700	5450	4600	7900	6800	5450	4600
	20	7350	6700	5500	4650	8000	6850	5500	4650
	40	7100	6650	5600	4750	8050	7000	5600	4750
	60	6500	6050	5350	4800	7450	7000	5700	4800
233x60	10	8550	7800	6350	5400	9250	7950	6350	5400
	20	8550	7800	6450	5450	9350	8000	6450	5450
	40	8100	7550	6550	5550	8900	8150	6550	5550
	60	7350	6900	6200	5650	8300	7800	6700	5650
240x60	10	8800	8000	6550	5600	9550	8200	6550	5600
	20	8800	8000	6650	5650	9650	8250	6650	5650
	40	8300	7750	6750	5750	9100	8400	6750	5750
	60	7550	7050	6350	5850	8450	8000	6900	5850
266x60	10	9750	8900	7300	6200	10600	9100	7300	6200
	20	9750	8900	7400	6300	10700	9200	7400	6300
	40	9050	8500	7500	6400	9750	9300	7500	6400
	60	8250	7700	6950	6450	9100	8600	7650	6500
300x60	10	11000	10000	8300	7050	12000	10300	8300	7050
	20	11000	10000	8350	7100	11600	10400	8350	7100
	40	10050	9450	8500	7250	10550	10050	8500	7250 ₅
	60	9150	8550	7700	7150	9850	9350	8600	7400 ₁₀
333x60	10	12000	11100	9150	7800	12000	11350	9150	7800
	20	12000	11100	9250	7850	12000	11500	9250	7850 ₅
	40	11050	10350	9400	8000	11300	10800	9400 ₅	8000 ₁₀
	60	10050	9400	8450	7850	10600	10050	9250 ₅	8200 ₂₀
366x60	10	12000	12000	10000	8550	12000	12000	10000	8550 ₅
	20	12000	12000	10100	8600	12000	12000	10100 ₅	8600 ₁₀
	40	12000	11300	10250	8800	12000	11500	10300 ₁₀	8800 ₂₀
	60	11000	10250	9200	8550	11250	10700	9900 ₁₀	8950 ₂₅
400x60	10	12000	12000	10900	9300	12000	12000	10900 ₅	9300 ₁₅
	20	12000	12000	11000	9400	12000	12000	11000 ₁₀	9400 ₂₀
	40	12000	12000	11150	9550	12000	12000	11200 ₁₅	9550 ₂₅
	60	11950	11150	10000	9250	11950	11400	10550 ₁₅	9750 ₃₀
433x60	10	12000	12000	11750	10000	12000	12000	11750 ₁₀	10000 ₂₀
	20	12000	12000	11850	10100	12000	12000	11850 ₁₅	10100 ₂₅
	40	12000	12000	12000	10300	12000	12000	12000 ₂₀	10300 ₃₀
	60	12000	12000	10800	10000	12000	12000	11150 ₂₀	10500 ₄₀

SINGLE/CONTINUOUS SPAN ROOF RAFTER AS 4055 CLASSIFICATION C1, C2 AND C3 WITHOUT CEILING ATTACHED [Cont'd]

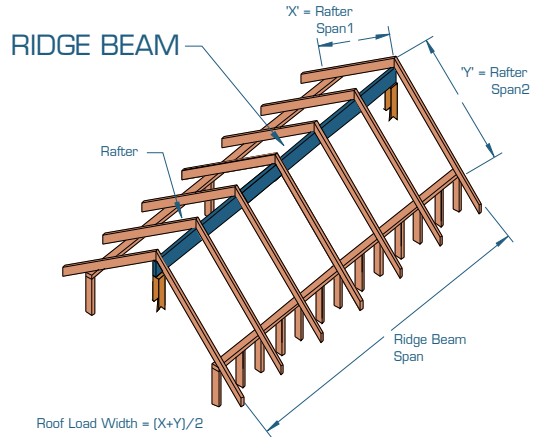
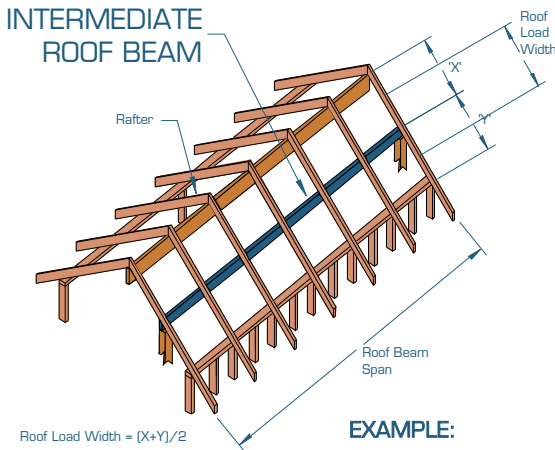
Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Rafter span (mm)							
		Single span				Continuous span			
200x80	10	8100	7350	6300	5350	9200	7900	6300	5350
	20	8100	7350	6400	5400	9300	7950	6400	5400
	40	7550	7100	6400	5500	8450	8050	6500	5500
	60	6950	6500	5850	5350	7850	7450	6650	5650
233x80	10	9400	8550	7400	6300	10750	9250	7400	6300
	20	9400	8550	7500	6350	10300	9300	7500	6350
	40	8600	8100	7350	6500	9350	8900	7600	6500
	60	7850	7350	6700	6200	8750	8300	7650	6600
240x80	10	9700	8800	7650	6500	11100	9500	7650	6500
	20	9700	8800	7700	6550	10450	9600	7700	6550
	40	8800	8300	7550	6700	9550	9100	7850	6700
	60	8050	7550	6850	6350	8900	8450	7800	6800
266x80	10	10750	9750	8500	7250	11850	10600	8500	7250
	20	10750	9750	8550	7300	11150	10700	8600	7300
	40	9600	9050	8250	7450	10200	9750	8750	7450
	60	8800	8250	7500	6950	9550	9100	8400	7600
300x80	10	12000	11000	9650	8200	12000	12000	9650	8200
	20	12000	11000	9650	8300	12000	11600	9700	8300
	40	10650	10050	9150	8450	11000	10550	9850	8450
	60	9800	9150	8300	7700	10350	9850	9100	8600
333x80	10	12000	12000	10650	9100	12000	12000	10650	9100
	20	12000	12000	10700	9150	12000	12000	10750	9150
	40	11700	11050	10050	9350	11800	11300	10600	9350 ₅
	60	10750	10050	9100	8450	11100	10600	9800	9250 ₅
366x80	10	12000	12000	11650	9950	12000	12000	11650	9950
	20	12000	12000	11750	10000	12000	12000	11750	10000 ₅
	40	12000	12000	11000	10200	12000	12000	11250	10200 ₁₀
	60	11750	11000	9950	9200	11800	11250	10450	9900 ₁₀
400x80	10	12000	12000	12000	10800	12000	12000	12000	10800 ₅
	20	12000	12000	12000	10900	12000	12000	12000	10900 ₁₀
	40	12000	12000	11950	11100	12000	12000	11950 ₅	11100 ₁₅
	60	12000	11950	10800	10000	12000	11950	11150	10550 ₁₅
433x80	10	12000	12000	12000	11650	12000	12000	12000	11650 ₁₀
	20	12000	12000	12000	11750	12000	12000	12000	11750 ₁₅
	40	12000	12000	12000	12000	12000	12000	12000 ₅	12000 ₂₀
	60	12000	12000	11650	10800	12000	12000	11750 ₅	11150 ₂₀

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birds mouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports
5. Construction loads shall not be applied to overhangs until a 190x19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Rafter spacing up to 1200 mm
7. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

RIDGE/INTERMEDIATE ROOF BEAM AS 4055 CLASSIFICATION N1, N2 AND N3



EXAMPLE:

wind speed = N3
 sheet roof - 40 kg/m²
 beam span = 4500 mm
 X = 2000 mm Y = 3000 mm
 roof load width = $(X+Y)/2 = 2500$ mm

Enter single span Table at 3000 roof load width with column
 And read down to span equal to or greater than 4500 mm

ADOPT:

SmartLam GL13 - 233 x 60 mm

Roof load width (mm)		1800	3000	4200	5400	6600	7800	1800	3000	4200	5400	6600	7800
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Ridge span (mm)											
		Single span						Continuous span					
200x60	40	4700	3900	3400	3100	2850	2650	5900	4350	3700	3250	2900	2650
	75	3850	3200	2850	2600	2400	2200	4900	4000	3400	2950	2650	2450 ₁₀
233x60	40	5550	4600	4000	3600	3350	3100 ₅	6600	5100	4300	3800	3400 ₁₀	3100 ₁₅
	75	4550	3800	3350	3000	2800	2600 ₅	5700	4650	3950	3450 ₁₀	3100 ₂₀	2850 ₃₀
240x60	40	5700	4750	4150	3750	3450 ₅	3200 ₅	6750	5250	4450	3900	3500 ₁₀	3200 ₂₀
	75	4700	3900	3450	3100	2900 ₅	2700 ₅	5850	4800	4050	3550 ₁₀	3200 ₂₀	2950 ₃₀
266x60	40	6300	5300	4600	4150	3800 ₅	3550 ₁₀	7250	5800	4900	4300 ₁₀	3900 ₂₀	3550 ₃₀
	75	5250	4350	3850	3500 ₅	3200 ₅	3000 ₁₀	6350	5350	4500 ₁₀	3950 ₂₀	3550 ₃₅	3250 ₄₅
300x60	40	7000	6000	5250	4750 ₅	4350 ₁₀	4000 ₁₅	7950	6650	5550 ₁₀	4850 ₂₅	4400 ₃₅	4000 ₅₀
	75	5950	4950	4350	3950 ₅	3650 ₁₅	3400 ₂₀	6950	6000	5050 ₂₀	4450 ₃₅	4000 ₅₀	3650 ₆₅
333x60	40	7650	6550	5900 ₅	5300 ₁₀	4800 ₁₅	4400 ₂₀	8550	7400 ₅	6100 ₂₀	5350 ₃₅	4800 ₅₀	4400 ₆₅
	75	6550	5550	4850 ₅	4400 ₁₀	4050 ₂₀	3800 ₂₅	7500	6600 ₁₀	5550 ₃₀	4900 ₅₀	4400 ₆₅	4000 ₈₀
366x60	40	8350	7150	6400 ₁₀	5850 ₁₅	5250 ₂₀	4800 ₂₅	9150	8050 ₁₅	6650 ₃₀	5850 ₄₅	5250 ₆₅	4800 ₈₀
	75	7100	6100	5400 ₁₀	4900 ₁₅	4500 ₂₅	4200 ₃₀	8000	7050 ₂₀	6050 ₄₀	5300 ₆₀	4800 ₈₀	4400 ₉₅
400x60	40	9050	7700 ₅	6900 ₁₀	6300 ₂₀	5700 ₂₅	5200 ₃₀	9750	8600 ₂₀	7200 ₄₀	6300 ₆₀	5700 ₈₀	5200 ₉₅
	75	7650	6600 ₅	5950 ₁₅	5400 ₂₀	4950 ₃₀	4650 ₃₅	8550	7550 ₂₅	6550 ₅₅	5750 ₇₅	5200 ₉₅	4750 ₁₁₀
433x60	40	9750	8300 ₅	7450 ₁₅	6800 ₂₅	6100 ₃₀	5600 ₃₅	10300	9100 ₂₅	7750 ₅₀	6800 ₇₀	6100 ₉₀	5600 ₁₀₅
	75	8250	7050 ₅	6350 ₁₅	5850 ₂₅	5400 ₃₅	5050 ₄₅	9050	8000 ₃₅	7050 ₆₅	6200 ₉₀	5600 ₁₀₅	5100 ₁₂₀
200x80	40	5200	4300	3750	3400	3150	2900	6300	5050	4250	3750	3350	3100
	75	4250	3550	3150	2850	2650	2450	5350	4500	3900	3400	3100	2800
233x80	40	6100	5050	4450	4000	3650	3400	7050	5850	5000	4350	3900	3600 ₅
	75	5000	4150	3700	3350	3100	2900	6150	5250	4550	4000	3600 ₅	3300 ₁₅
240x80	40	6250	5200	4600	4150	3800	3500	7200	6050	5100	4500	4050	3700 ₅
	75	5200	4300	3800	3450	3200	3000	6300	5400	4650	4100	3700 ₅	3400 ₁₅
266x80	40	6800	5800	5100	4600	4250	3950 ₅	7750	6800	5700	5000	4500 ₁₀	4100 ₁₅
	75	5800	4800	4250	3850	3550	3300 ₅	6800	5950	5150	4550 ₅	4100 ₁₅	3750 ₂₅
300x80	40	7550	6500	5800	5250	4800 ₅	4450 ₁₀	8450	7450	6400	5600 ₁₀	5050 ₂₀	4600 ₃₀
	75	6450	5450	4800	4350	4050 ₅	3750 ₁₀	7400	6550	5850 ₅	5100 ₂₀	4600 ₃₀	4200 ₄₀
333x80	40	8250	7100	6400	5850 ₅	5350 ₁₀	5000 ₁₅	9100	8050	7050 ₅	6150 ₂₀	5550 ₃₀	5050 ₄₀
	75	7050	6100	5400	4900 ₅	4500 ₁₀	4200 ₁₅	8000	7050	6400 ₁₅	5650 ₃₀	5050 ₄₀	4650 ₅₅
366x80	40	9000	7700	6950	6400 ₁₀	5950 ₁₅	5500 ₂₀	9700	8600	7650 ₁₅	6700 ₃₀	6050 ₄₀	5550 ₅₅
	75	7700	6600	5950	5400 ₁₀	5000 ₁₅	4650 ₂₀	8550	7550	6950 ₂₅	6150 ₄₀	5500 ₅₅	5050 ₇₀
400x80	40	9800	8350	7500 ₅	6900 ₁₀	6450 ₂₀	6000 ₂₅	10350	9200	8300 ₂₅	7300 ₄₀	6550 ₅₅	6000 ₇₀
	75	8300	7150	6450 ₅	5950 ₁₅	5500 ₂₀	5100 ₂₅	9150	8050 ₅	7400 ₃₀	6650 ₅₀	6000 ₇₀	5500 ₈₅
433x80	40	10550	9000	8050 ₅	7400 ₁₅	6900 ₂₀	6450 ₃₀	10950	9700 ₅	8900 ₃₀	7850 ₅₀	7050 ₆₅	6450 ₈₅
	75	8950	7650	6900 ₁₀	6400 ₁₅	6000 ₂₅	5600 ₃₀	9650	8550 ₁₀	7850 ₄₀	7150 ₆₅	6450 ₈₅	5900 ₉₅

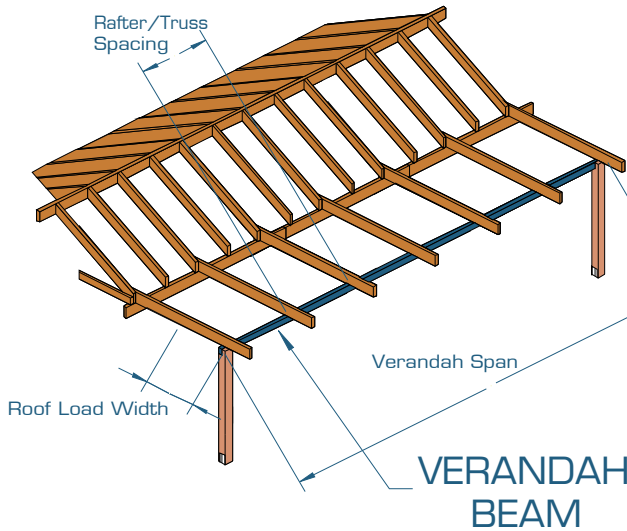
RIDGE/INTERMEDIATE ROOF BEAM AS 4055 CLASSIFICATION C1, C2 AND C3

Roof load width (mm)		1800	3000	4200	5400	6600	7800	1800	3000	4200	5400	6600	7800
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Ridge span (mm)											
		Single span						Continuous span					
200x60	40	3650	2800	2400	2100	1900	1750	3650	2800	2400	2100	1900	1750 ₁₀
	75	3800	2900	2450	2200	1950 ₅	1800 ₁₀	3800	2900	2450	2200 ₅	1950 ₁₅	1800 ₂₅
233x60	40	4350	3300	2800	2450	2250 ₅	2050 ₁₀	4350	3300	2800	2450 ₅	2250 ₁₅	2050 ₂₅
	75	4500	3400	2900	2550 ₅	2300 ₁₀	2100 ₁₅	4500	3400	2900 ₅	2550 ₂₀	2300 ₃₀	2100 ₄₀
240x60	40	4500	3400	2850	2550	2300 ₅	2100 ₁₀	4500	3400	2850	2550 ₅	2300 ₁₅	2100 ₂₅
	75	4650	3500	2950	2600 ₅	2350 ₁₀	2200 ₁₅	4650	3500	2950 ₁₀	2600 ₂₀	2350 ₃₅	2200 ₄₅
266x60	40	5000	3750	3200	2800 ₅	2550 ₁₀	2350 ₁₅	5000	3750	3200 ₅	2800 ₁₅	2550 ₃₀	2350 ₄₀
	75	5200	3900	3300 ₅	2900 ₁₀	2650 ₁₅	2450 ₂₀	5200	3900	3300 ₂₀	2900 ₃₅	2650 ₅₀	2450 ₆₅
300x60	40	5750	4250	3600 ₅	3150 ₁₀	2850 ₁₅	2650 ₂₀	5750	4250	3600 ₁₅	3150 ₃₀	2850 ₄₅	2650 ₆₀
	75	5950	4400 ₅	3700 ₁₀	3300 ₂₀	2950 ₂₅	2750 ₃₀	5950	4400 ₁₅	3700 ₃₀	3300 ₅₀	2950 ₆₅	2750 ₈₅
333x60	40	6350	4650	3950 ₁₀	3500 ₁₅	3150 ₂₀	2900 ₂₅	6350	4650 ₁₀	3950 ₂₅	3500 ₄₀	3150 ₆₀	2900 ₇₅
	75	6550	4800 ₁₀	4100 ₁₅	3600 ₂₀	3250 ₃₀	3000 ₃₅	6600 ₅	4800 ₂₅	4100 ₄₅	3600 ₆₅	3250 ₈₅	3000 ₁₀₀
366x60	40	7000	5100 ₅	4300 ₁₅	3800 ₂₀	3450 ₂₅	3200 ₃₀	7000	5100 ₁₅	4300 ₃₅	3800 ₅₅	3450 ₇₅	3200 ₉₀
	75	7100 ₅	5250 ₁₀	4450 ₂₀	3950 ₃₀	3550 ₃₅	3300 ₄₀	7200 ₁₀	5250 ₃₅	4450 ₅₅	3950 ₈₅	3550 ₁₀₀	3300 ₁₁₅
400x60	40	7600	5500 ₁₀	4650 ₁₅	4150 ₂₅	3750 ₃₀	3450 ₃₅	7600 ₅	5500 ₂₅	4650 ₄₅	4150 ₇₀	3750 ₉₀	3450 ₁₀₅
	75	7650 ₅	5700 ₁₅	4850 ₂₅	4250 ₃₅	3850 ₄₀	3550 ₄₅	7900 ₂₀	5700 ₄₅	4850 ₇₅	4250 ₉₅	3850 ₁₁₅	3550 ₁₃₀
433x60	40	8200 ₅	5950 ₁₀	5000 ₂₀	4450 ₃₀	4000 ₃₅	3700 ₄₀	8200 ₁₅	5950 ₃₅	5000 ₆₀	4450 ₈₅	4000 ₁₀₀	3700 ₁₁₅
	75	8250 ₁₀	6150 ₂₀	5200 ₃₀	4600 ₄₀	4150 ₄₅	3850 ₅₅	8500 ₃₀	6150 ₅₅	5200 ₈₅	4600 ₁₁₀	4150 ₁₃₀	3850 ₁₄₅
200x80	40	4300	3250	2750	2450	2200	2050	4300	3250	2750	2450	2200	2050
	75	4250	3350	2850	2500	2300	2100 ₅	4450	3350	2850	2500	2300	2100 ₁₀
233x80	40	5100	3800	3200	2850	2600	2350 ₅	5100	3800	3200	2850	2600	2350 ₁₀
	75	5000	3950	3300	2950	2650 ₅	2450 ₁₀	5300	3950	3300	2950 ₅	2650 ₁₅	2450 ₂₅
240x80	40	5250	3900	3300	2950	2650	2450 ₅	5250	3900	3300	2950	2650 ₅	2450 ₁₀
	75	5200	4050	3400	3050	2750 ₅	2550 ₁₀	5450	4050	3400	3050 ₁₀	2750 ₂₀	2550 ₃₀
266x80	40	5900	4350	3650	3250	2950 ₅	2700 ₁₀	5900	4350	3650	3250	2950 ₁₅	2700 ₂₅
	75	5800	4500	3800	3350 ₅	3050 ₁₀	2800 ₁₅	6100	4500	3800 ₅	3350 ₁₅	3050 ₃₀	2800 ₄₀
300x80	40	6700	4900	4150	3650 ₅	3300 ₁₀	3050 ₁₅	6700	4900	4150	3650 ₁₅	3300 ₂₅	3050 ₃₅
	75	6450	5050	4300 ₅	3800 ₁₀	3450 ₁₅	3150 ₂₀	6950	5050	4300 ₁₅	3800 ₃₀	3450 ₄₅	3150 ₆₀
333x80	40	7400	5400	4550 ₅	4050 ₁₀	3650 ₁₅	3350 ₂₀	7400	5400	4550 ₁₀	4050 ₂₅	3650 ₃₅	3350 ₅₀
	75	7050	5550 ₅	4700 ₁₀	4150 ₁₅	3800 ₂₀	3500 ₂₅	7700	5550 ₁₀	4700 ₂₅	4150 ₄₅	3800 ₆₀	3500 ₈₀
366x80	40	8150	5900	5000 ₅	4400 ₁₀	4000 ₂₀	3650 ₂₀	8150	5900 ₅	5000 ₂₀	4400 ₃₅	4000 ₅₀	3650 ₆₅
	75	7700	6100 ₅	5150 ₁₅	4550 ₂₀	4100 ₂₅	3800 ₃₀	8450	6100 ₂₀	5150 ₃₅	4550 ₅₅	4100 ₇₅	3800 ₉₀
400x80	40	8900	6450 ₅	5400 ₁₀	4750 ₁₅	4300 ₂₀	4000 ₂₅	8900	6450 ₁₀	5400 ₃₀	4750 ₄₅	4300 ₆₅	4000 ₈₀
	75	8300	6700 ₁₀	5600 ₁₅	4950 ₂₅	4450 ₃₀	4100 ₃₅	9150 ₁₀	6700 ₃₀	5600 ₅₀	4950 ₇₀	4450 ₉₀	4100 ₁₀₅
433x80	40	9600	7000 ₅	5800 ₁₅	5150 ₂₀	4650 ₂₅	4300 ₃₀	9600	7000 ₂₀	5800 ₄₀	5150 ₆₀	4650 ₇₅	4300 ₉₅
	75	8950	7250 ₁₅	6000 ₂₀	5300 ₃₀	4800 ₃₅	4450 ₄₀	9650 ₁₅	7250 ₄₀	6000 ₆₀	5300 ₈₅	4800 ₁₀₀	4450 ₁₂₀

NOTES:

- D = member depth, B = member breadth, NS = not suitable.
- End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.
- Rafter Spacing up to 1200 mm
- Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE SPAN VERANDAH BEAM AS 4055 CLASSIFICATION N1, N2 AND N3



EXAMPLE:

wind speed = N3
 Sheet roof - 40 kg/m²
 Rafter/truss spacing = 600 mm
 Verandah span = 3500 mm (single span)
 roof load width = 3900 mm
 Enter span table at 4500 roof load width column, rafter spacing of 1200 mm, and read down to a span equal to or greater than 3500 mm

ADOPT:

SmartLam GL13 - 233 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Verandah span (mm)									
		Single span									
200x60	40	4600	4600	3700	3700	3200	3100	2800	2700	2500	2400
	75	3800	3800	3000	3000	2600	2600	2300	2300	2200	2100
233x60	40	5200	5200	4300	4300	3800	3700	3300	3100	2900	2800
	75	4400	4400	3500	3500	3100	3000	2800	2800 ₅	2600 ₅	2600 ₁₀
240x60	40	5400	5400	4400	4400	4000	3800	3400	3200	3000	2900
	75	4500	4500	3700	3600	3200	3100	2800	2900 ₅	2600 ₅	2700 ₁₀
266x60	40	5900	5900	4800	4800	4300	4300	3800	3600	3400	3200
	75	4900	4900	4100	4000	3500	3500	3200	3200	2900 ₅	2900 ₁₅
300x60	40	6600	6600	5400	5400	4800	4800	4300	4200	3800	3700
	75	5500	5500	4500	4500	4000	4000	3600 ₅	3600 ₅	3400 ₅	3300 ₁₀
333x60	40	7300	7200	5900	5900	5300	5300	4800	4700	4200 ₅	4100 ₁₀
	75	6100	6000	4900	4900	4400	4400 ₅	4100 ₁₀	4000 ₂₀	3800 ₁₅	3700 ₁₅
366x60	40	8000	8000	6500	6500	5800	5700	5200	5100 ₅	4600	4600 ₅
	75	6600	6600	5400	5400	4800 ₅	4800 ₁₀	4400 ₁₀	4400 ₁₅	4100 ₂₅	4100 ₁₅
400x60	40	8700	8700	7100	7100	6300	6200	5600 ₅	5500 ₁₀	5000 ₁₀	5000 ₁₅
	75	7200	7200	5900	5800	5200 ₅	5200 ₁₀	4800 ₁₀	4700 ₂₅	4500 ₂₀	4400 ₃₀
433x60	40	9500	9400	7600	7700	6800	6800 ₅	6100 ₁₀	5900 ₅	5400 ₁₀	5300 ₁₅
	75	7800	7800	6300	6300	5600 ₁₀	5600 ₁₅	5100 ₂₀	5100 ₂₅	4800 ₃₀	4800 ₄₀
200x80	40	4900	4900	4100	4100	3600	3500	3200	3100	2900	2800
	75	4200	4200	3300	3300	2900	2900	2600	2600	2400	2400
233x80	40	5600	5600	4700	4700	4200	4200	3800	3700	3400	3300
	75	4800	4700	3900	3900	3400	3300	3100	3000	2800	2800
240x80	40	5800	5800	4800	4800	4300	4300	4000	3800	3500	3400
	75	4900	4900	4000	4000	3500	3500	3200	3100	2900	2900
266x80	40	6400	6400	5200	5300	4700	4700	4300	4300	3900	3800
	75	5300	5300	4400	4400	3900	3900	3500	3500	3300	3200
300x80	40	7100	7100	5900	5800	5200	5200	4800	4800	4400	4400
	75	6000	5900	4900	4900	4400	4300	4000	4000	3700 ₅	3700 ₅
333x80	40	7900	7900	6500	6500	5700	5700	5300	5300	4900	4900 ₅
	75	6600	6600	5400	5400	4800	4800	4400	4400 ₅	4100 ₁₀	4100 ₁₅
366x80	40	8700	8600	7100	7100	6300	6300	5800	5700	5300	5300 ₅
	75	7200	7200	5900	5800	5200	5200	4800 ₅	4800 ₁₀	4500 ₅	4500 ₁₀
400x80	40	9500	9500	7700	7700	6800	6800	6300	6200	5800	5700 ₅
	75	7900	7900	6400	6400	5600	5600	5200 ₅	5200 ₁₀	4900 ₁₅	4800 ₂₀
433x80	40	10300	10300	8400	8300	7400	7400	6800	6800 ₅	6300 ₅	6200 ₅
	75	8500	8500	6900	6900	6100 ₅	6100	5600 ₁₀	5600 ₁₅	5200 ₁₅	5200 ₂₀

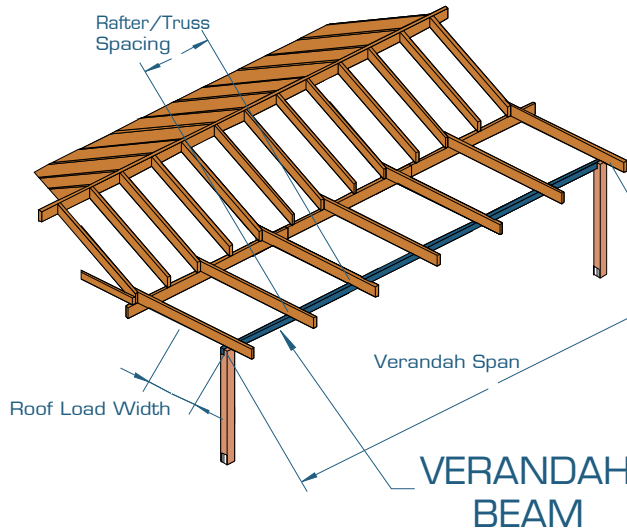
CONTINUOUS SPAN VERANDAH BEAM AS 4055 CLASSIFICATION N1, N2 AND N3

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Verandah span (mm)									
		Continuous span									
200x60	40	5200	5200	4100	4100	3300	3200	2800	2800	2600	2600
	75	4500	4500	3700	3700	3300	3200	3000	3000	2700	2700
233x60	40	5800	5800	4700	4700	3900	3800	3300	3300	3000	3000
	75	5000	5100	4300	4300	3800	3800	3500	3500 ₅	3200 ₁₅	3100 ₁₅
240x60	40	5900	6000	4900	4900	4000	4000	3500	3400	3000	3000
	75	5100	5200	4400	4300	3900	3900	3600 ₅	3600 ₅	3300 ₂₀	3200 ₁₅
266x60	40	6400	6400	5400	5400	4400	4400	3800	3700	3400	3300
	75	5600	5600	4700	4700	4300	4300	4000 ₁₅	3900 ₁₅	3600 ₃₀	3500 ₃₀
300x60	40	6900	7000	6000	6000	5000	5000	4300	4300	3900	3800
	75	6100	6100	5100	5200	4700 ₅	4700 ₅	4400 ₂₅	4300 ₂₅	4100 ₄₅	4100 ₄₅
333x60	40	7300	7500	6400	6400	5500	5500	4800	4700	4200 ₅	4200 ₅
	75	6500	6500	5600	5600	5100 ₁₅	5100 ₁₅	4700 ₃₅	4700 ₃₅	4500 ₆₀	4400 ₆₀
366x60	40	7700	8000	6800	6900	6000	5900	5200 ₅	5200 ₅	4600 ₁₅	4600 ₁₅
	75	6900	7000	6000	6000	5400 ₂₀	5400 ₂₀	5100 ₄₅	5100 ₄₅	4800 ₇₀	4800 ₇₀
400x60	40	8100	8600	7200	7400	6500	6500	5600 ₁₀	5600 ₁₀	5000 ₂₀	5000 ₂₀
	75	7300	7500	6400	6400	5800 ₂₅	5800 ₂₅	5400 ₅₅	5400 ₅₅	5100 ₈₅	5100 ₈₅
433x60	40	8500	9000	7600	7800	7000 ₅	7000 ₅	6100 ₂₀	6000 ₂₀	5400 ₃₀	5400 ₃₀
	75	7600	7900	6700	6700 ₅	6100 ₃₅	6200 ₃₅	5700 ₆₅	5700 ₆₅	5400 ₉₅	5400 ₉₅
200x80	40	5600	5600	4700	4700	3800	3800	3300	3200	2900	2900
	75	4800	4800	4100	4100	3600	3600	3300	3200	3100	3000
233x80	40	6200	6200	5300	5300	4500	4400	3900	3800	3500	3400
	75	5400	5400	4600	4600	4200	4200	3800	3800	3600	3500
240x80	40	6300	6300	5400	5400	4600	4600	4000	4000	3500	3500
	75	5500	5500	4700	4700	4200	4200	3900	3900	3700	3600
266x80	40	6700	6800	5900	5900	5100	5100	4400	4400	3900	3900
	75	5900	5900	5000	5100	4600	4600	4300	4300	4000 ₁₀	4000 ₁₀
300x80	40	7200	7400	6400	6400	5800	5700	5000	5000	4500	4400
	75	6500	6500	5500	5500	5000	5000	4700 ₅	4700 ₅	4400 ₂₀	4400 ₂₀
333x80	40	7700	8000	6800	6900	6300	6300	5500	5500	4900	4900
	75	6900	7000	6000	6000	5400	5400	5100 ₁₅	5100 ₁₅	4800 ₃₀	4800 ₃₀
366x80	40	8100	8500	7200	7400	6700	6700	6000	5900	5400	5400
	75	7300	7500	6400	6400	5800	5800	5400 ₂₀	5400 ₂₀	5100 ₄₀	5100 ₃₅
400x80	40	8500	9000	7600	7800	7100	7200	6500	6500	5800 ₁₀	5800 ₁₀
	75	7700	8000	6800	6800	6200 ₅	6200 ₅	5800 ₃₀	5800 ₂₅	5500 ₄₅	5500 ₃₀
433x80	40	9000	9600	7900	8400	7400	7600	7000 ₅	7000 ₅	6300 ₁₅	6200 ₁₅
	75	8000	8500	7100	7200	6600 ₁₀	6600 ₁₀	6100 ₃₅	6200 ₃₅	5800 ₆₀	5800 ₅₅

NOTES:

- 1) D = member depth, B = member breadth, NS = not suitable.
- 2) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.
- 3) Restraint value for slenderness calculations is 1200 mm
- 4) Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SINGLE SPAN VERANDAH BEAM AS 4055 CLASSIFICATION C1, C2 AND C3



EXAMPLE:

wind speed = C3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 verandah span = 3500 mm (single span)
 roof load width = 3900 mm
 Enter span table at 4500 roof load width column, rafter spacing of 1200 mm, and read down to a span equal to or greater than 3500 mm

ADOPT:

SmartLam GL13 - 300 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Verandah span (mm)									
		Single span									
200x60	40	4600	4600	3200	3100	2600	2600	2300	2100	2000	1800
	75	3800	3800	3000	3000	2600	2600	2300	2200	2100	1900
233x60	40	5200	5200	3800	3600	3000	2900	2600	2600	2400	2300
	75	4400	4400	3500	3500	3100	3000	2800	2700 ₅	2500 ₅	2400 ₁₅
240x60	40	5400	5400	3900	3700	3100	3000	2700	2700	2400	2300
	75	4500	4500	3700	3600	3200	3100	2800	2800 ₁₀	2500 ₅	2400 ₁₅
266x60	40	5900	5900	4300	4300	3500	3300	3000	2900	2700	2600 ₅
	75	4900	4900	4100	4000	3500	3500	3200	3000 ₅	2800 ₁₀	2700 ₁₅
300x60	40	6600	6600	4900	4900	4000	3800	3400	3300	3000	2900 ₁₀
	75	5500	5500	4500	4500	4000 ₅	4000	3600 ₁₀	3400 ₅	3200 ₅	3100 ₁₅
333x60	40	7300	7200	5400	5300	4400	4300	3800	3600	3400	3200 ₅
	75	6100	6000	4900	4900	4400	4400 ₅	4000 ₁₀	3800 ₁₀	3600 ₂₀	3400 ₁₅
366x60	40	8000	8000	5900	5800	4800	4800 ₅	4100 ₅	4000	3700 ₁₀	3500 ₅
	75	6600	6600	5400	5400	4800 ₁₀	4800 ₁₅	4300 ₁₅	4300 ₂₀	3900 ₂₀	3700 ₁₅
400x60	40	8700	8700	6400	6300	5200	5200 ₅	4500 ₅	4500 ₁₀	4000 ₁₀	3900 ₁₀
	75	7200	7200	5900	5800	5200 ₁₀	5200 ₁₅	4700 ₁₀	4700 ₂₀	4200 ₃₀	4100 ₂₀
433x60	40	9500	9400	6900	6900	5600 ₅	5500 ₁₀	4900 ₁₀	4900 ₁₅	4300 ₁₅	4200 ₂₅
	75	7800	7800	6300	6300	5600 ₁₅	5600 ₂₀	5100 ₂₅	5100 ₃₀	4500 ₂₅	4500 ₃₅
200x80	40	4900	4900	3800	3600	3000	2900	2600	2600	2400	2200
	75	4200	4200	3300	3300	2900	2900	2600	2600	2400	2300
233x80	40	5600	5600	4400	4300	3600	3400	3000	2900	2700	2700
	75	4800	4700	3900	3900	3400	3300	3100	3000	2800	2800 ₅
240x80	40	5800	5800	4500	4500	3700	3500	3100	3000	2800	2700
	75	4900	4900	4000	4000	3500	3500	3200	3100	2900	2800 ₅
266x80	40	6400	6400	5000	5000	4100	3900	3500	3300	3100	3000
	75	5300	5300	4400	4400	3900	3900	3500	3500	3300	3100
300x80	40	7100	7100	5700	5600	4600	4600	4000	3800	3600	3400
	75	6000	5900	4900	4900	4400	4300	4000 ₅	4000	3700 ₁₀	3600 ₅
333x80	40	7900	7900	6300	6200	5100	5100	4400	4300	3900	3800
	75	6600	6600	5400	5400	4800	4800	4400	4400 ₅	4100 ₁₀	4000 ₅
366x80	40	8700	8600	6800	6800	5600	5500	4800	4800 ₅	4300 ₅	4200 ₁₀
	75	7200	7200	5900	5800	5200	5200	4800 ₁₀	4800 ₁₅	4500 ₁₀	4400 ₁₅
400x80	40	9500	9500	7400	7400	6100	5900	5200	5200 ₅	4700	4700 ₅
	75	7900	7900	6400	6400	5600	5600 ₅	5200 ₁₀	5200 ₁₅	4900 ₂₀	4800 ₂₅
433x80	40	10300	10300	8000	7900	6500	6400	5600 ₅	5500 ₁₀	5000 ₁₀	5000 ₁₅
	75	8500	8500	6900	6900	6100 ₅	6100	5600 ₁₅	5600 ₂₀	5200 ₂₀	5200 ₂₅

CONTINUOUS SPAN VERANDAH BEAM AS 4055 CLASSIFICATION C1, C2 AND C3

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Verandah span (mm)									
		Continuous span									
200x60	40	4700	4600	3300	3200	2600	2700	2300	2200	2000	2000
	75	4500	4500	3400	3300	2800	2800	2400	2400	2100	2000
233x60	40	5400	5400	3800	3700	3100	3100	2700	2700	2400	2300
	75	5000	5100	4000	4000	3200	3200	2800	2800	2500	2600 ₅
240x60	40	5600	5600	3900	3900	3200	3200	2800	2800	2400	2400
	75	5100	5200	4100	4100	3300	3300	2900	2900	2600	2600 ₅
266x60	40	6200	6200	4400	4300	3500	3500	3000	3000	2700	2800
	75	5600	5600	4600	4500	3700	3600	3200	3200 ₅	2800 ₁₅	2800 ₁₅
300x60	40	6900	7000	4900	4900	4000	4000	3500	3400	3100	3100
	75	6100	6100	5100	5200	4200	4200	3600 ₁₅	3500 ₁₀	3200 ₂₅	3200 ₂₅
333x60	40	7300	7500	5400	5400	4400	4400	3800	3700	3400 ₁₀	3300 ₁₀
	75	6500	6500	5600	5600	4600 ₁₀	4600 ₁₀	4000 ₂₅	4000 ₂₅	3600 ₃₅	3500 ₃₅
366x60	40	7700	8000	5900	5900	4800	4800	4100 ₁₀	4100 ₁₀	3700 ₂₀	3600 ₁₅
	75	6900	7000	6000	6000	5000 ₂₀	5000 ₂₀	4400 ₃₅	4400 ₃₅	3900 ₅₀	3800 ₄₅
400x60	40	8100	8600	6400	6400	5200	5200	4500 ₁₅	4500 ₁₅	4000 ₂₅	4000 ₂₅
	75	7300	7500	6400	6400 ₅	5500 ₃₀	5500 ₃₀	4800 ₄₅	4700 ₄₅	4200 ₆₀	4200 ₆₀
433x60	40	8500	9000	6900	6900	5600 ₁₀	5600 ₁₀	4900 ₂₅	4800 ₂₀	4300 ₃₅	4300 ₃₅
	75	7600	7900	6700 ₁₀	6700 ₁₀	5900 ₃₅	5800 ₃₅	5100 ₅₅	5100 ₅₅	4600 ₇₅	4600 ₈₀
200x80	40	5400	5400	3800	3700	3000	3000	2600	2700	2300	2300
	75	4800	4800	4000	3900	3200	3200	2800	2800	2500	2600
233x80	40	6200	6200	4400	4400	3600	3500	3100	3100	2800	2800
	75	5400	5400	4600	4600	3800	3700	3200	3200	2900	2900
240x80	40	6300	6300	4500	4500	3700	3600	3200	3200	2800	2800
	75	5500	5500	4700	4700	3900	3800	3300	3300	3000	3000
266x80	40	6700	6800	5000	5100	4100	4100	3500	3500	3200	3100
	75	5900	5900	5000	5100	4300	4300	3700	3600	3300	3300
300x80	40	7200	7400	5700	5700	4700	4600	4000	4000	3600	3500
	75	6500	6500	5500	5500	4900	4800	4200	4200	3700 ₁₀	3700 ₁₀
333x80	40	7700	8000	6300	6200	5100	5100	4400	4400	3900	3900
	75	6900	7000	6000	6000	5300	5300	4600 ₁₀	4600 ₁₀	4100 ₂₀	4100 ₂₀
366x80	40	8100	8500	6800	6900	5600	5600	4800	4800	4300 ₅	4300 ₅
	75	7300	7500	6400	6400	5800 ₅	5800 ₅	5000 ₂₀	5000 ₂₀	4500 ₃₀	4500 ₃₀
400x80	40	8500	9000	7400	7400	6100	6000	5200	5200	4700 ₁₅	4600 ₁₀
	75	7700	8000	6800	6800	6200 ₁₀	6200 ₁₀	5500 ₃₀	5500 ₃₀	4900 ₄₀	4800 ₄₀
433x80	40	9000	9600	7900	8000	6500	6500	5600 ₁₀	5600 ₁₀	5000 ₂₀	5000 ₂₀
	75	8000	8500	7100	7200	6600 ₁₅	6600 ₂₀	5900 ₃₅	5800 ₃₅	5300 ₅₀	5300 ₅₅

NOTES:

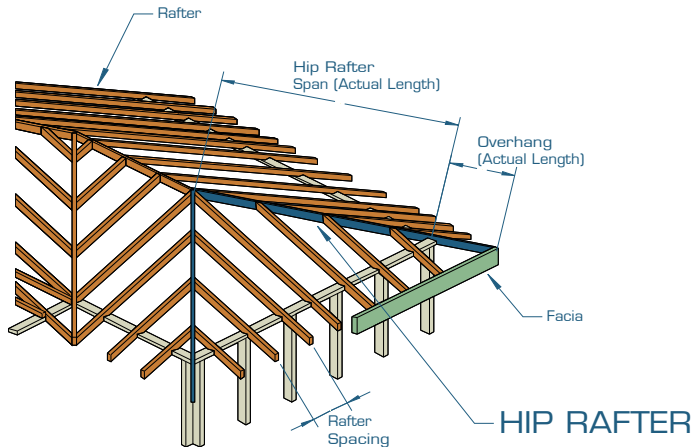
D = member depth, B = member breadth, NS = not suitable.

End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Restraint value for slenderness calculations is 1200 mm

Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

HIP RAFTER - SHEET AND TILE ROOF AS 4055 WIND CLASSIFICATION N1, N2, N3, C1, C2 & C3



EXAMPLE:

wind speed = N3
 roof load = 40 kg/m² (sheet roof)
 hip rafter span = 4500 mm (single span)
 rafter spacing = 600 mm

Enter column at (N1, N2 & N3) Wind speed, 600 mm rafter spacing and read down to span equal to or greater than 4500 mm for a 40 kg/m² roof load

ADOPT:
SmartLam GL13 — 266x60

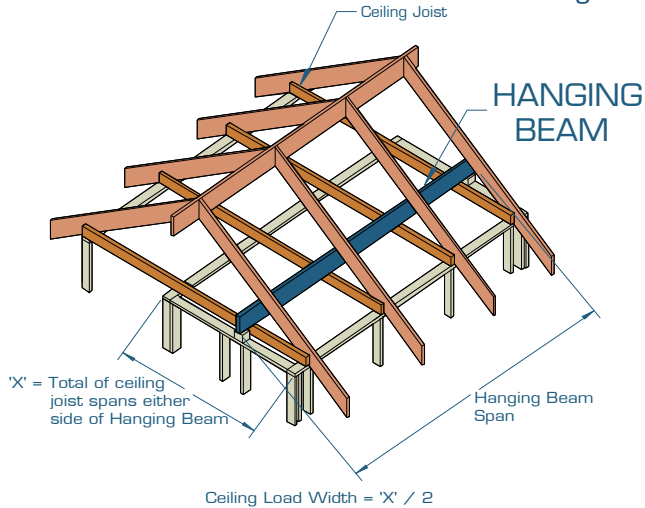
Wind Speed		N1, N2 & N3				C1, C2 & C3			
Rafter Spacing (mm)		600		1200		600		1200	
		Maximum Rafter span + overhang span (mm)				Maximum Rafter span + overhang span (mm)			
Member size DxB (mm)	Roof & ceiling mass (kg/m ²)	span	overhang	span	overhang	span	overhang	span	overhang
		Single span				Single span			
200x60	40	4000	800	4000	575	3700	625	3700	425
	75	3650	725	3650	575	3650	650	3650	450
233x60	40	4350	850	4350	625	4050	700	4050	475
	75	4000	800	4000	675	4000	725	4000	500
240x60	40	4450	850	4450	650	4100	725	4100	500
	75	4100	800	4100	675	4100	750	4100	500
266x60	40	4750	950	4750	700	4350	775	4350	550
	75	4350	850	4350	750	4350	800	4350	550
300x60	40	5100	1000	5100	775	4700	875	4700	600
	75	4650	925	4650	825	4650	900	4650	600
333x60	40	5400	1075	5400	850	5000	950	5000	650
	75	4950	950	4950	875	4950 ₅	975	4950	650
366x60	40	5700	1100	5700	925	5300 ₅	1025	5300 ₅	700
	75	5250	1050	5250	950	5250 ₁₀	1050	5250 ₅	700
400x60	40	6050	1200	6050	975	5600 ₁₀	1100	5600 ₁₀	750
	75	5550	1100	5550	1025	5550 ₁₅	1100	5550 ₁₀	775
433x60	40	6350	1200	6350	1050	5850 ₁₅	1150	5850 ₁₀	800
	75	5800	1150	5800	1100	5800 ₁₅	1150	5800 ₁₅	825
200x80	40	4200	800	4200	650	3900	725	3900	500
	75	3850	750	3850	675	3850	750	3850	525
233x80	40	4600	900	4600	750	4300	825	4300	575
	75	4250	850	4250	775	4250	850	4250	575
240x80	40	4700	900	4700	775	4350	850	4350	575
	75	4300	850	4300	800	4300	850	4300	600
266x80	40	5000	1000	5000	825	4650	925	4650	625
	75	4600	900	4600	875	4600	900	4600	650
300x80	40	5400	1075	5400	925	5000	1000	5000	700
	75	4900	975	4900	950	4900	975	4900	725
333x80	40	5750	1150	5750	1000	5300	1050	5300	750
	75	5250	1050	5250	1050	5250	1050	5250	775
366x80	40	6050	1200	6050	1075	5600	1100	5600	825
	75	5550	1100	5550	1100	5550	1100	5550	850
400x80	40	6400	1205	6400	1150	5900	1175	5900	900
	75	5850	1150	5850	1150	5850 ₅	1150	5850 ₅	900

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Minimum backspan = 200 % of overhang
4. Maximum birdsmouth depth = 30 % of depth
5. End bearing length = 35 at end supports and 35 mm. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end support.
6. Construction loads shall not be applied to overhangs until a 190x19 mm (min) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
7. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

HANGING BEAM SUPPORTING CEILING LOADS ONLY AS 4055 CLASSIFICATION N1, N2 AND N3

Ceiling mass - 20 kg/m²



EXAMPLE:

wind speed = N3
hanging beam span = 4200 mm
X = 5000 mm

ceiling load width = $X/2 = 5000/2 = 2500$ mm

Enter column at 3000 mm ceiling load width & read down to a span greater than or equal to 4200 mm

ADOPT:

SmartLam GL13 - 200 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Ceiling load width (mm)	1800	2400	3000	3600	4200	4800
Member size DxB (mm)	Maximum Hanging beam span (mm)					
200x60	5450	5000	4700	4400	4100	3850
233x60	6250	5700	5300	5000	4750	4550
240x60	6400	5850	5450	5150	4850	4650
266x60	7000	6400	5950	5600	5300	5050
300x60	7800	7100	6600	6200	5900	5600
333x60	8550	7850	7250	6800	6450	6150
366x60	9350	8550	7900	7450	7050	6700
400x60	10200	9300	8600	8050	7600	7250
433x60	11050	10050	9300	8700	8200	7800
200x80	5900	5400	5050	4750	4500	4250
233x80	6700	6150	5750	5400	5100	4900
240x80	6850	6300	5900	5550	5250	5000
266x80	7500	6900	6400	6050	5750	5450
300x80	8400	7700	7150	6700	6350	6050
333x80	9250	8450	7850	7400	7000	6650
366x80	10100	9250	8600	8050	7600	7250
400x80	11000	10050	9350	8750	8300	7900
433x80	11900	10900	10100	9450	8950	8500

HANGING BEAM SUPPORTING CEILING LOADS ONLY AS 4055 CLASSIFICATION C1, C2 AND C3

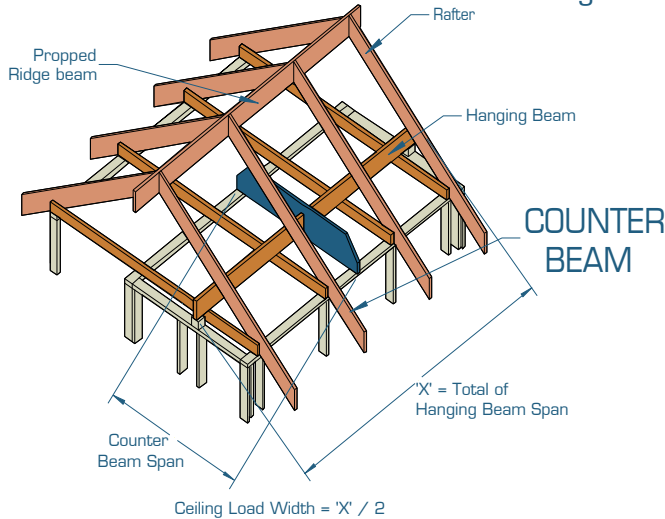
Ceiling load width (mm)	1800	2400	3000	3600	4200	4800
Member size DxB (mm)	Maximum Hanging beam span (mm)					
200x60	4550	3950	3500	3200	2950	2750
233x60	5300	4550	4100	3700	3450	3200
240x60	5450	4700	4200	3850	3550	3300
266x60	6000	5200	4650	4250	3900	3650
300x60	6800	5850	5250	4800	4400	4150
333x60	7450	6450	5750	5250	4850	4550
366x60	8100	7050	6300	5750	5300	4950
400x60	8800	7600	6800	6200	5750	5350
433x60	9450	8200	7350	6700	6200	5750
200x80	5200	4500	4050	3700	3400	3200
233x80	6100	5250	4700	4300	3950	3700
240x80	6250	5400	4850	4400	4100	3800
266x80	6950	6000	5350	4900	4550	4250
300x80	7800	6750	6050	5500	5100	4750
333x80	8550	7450	6650	6050	5600	5250
366x80	9350	8100	7250	6600	6100	5700
400x80	10100	8750	7850	7150	6650	6200
433x80	10850	9400	8450	7700	7100	6650

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a maximum ceiling mass of 20 (kg/m²).
3. Minimum bearing length = 70 mm at end supports.
4. Restraint value for slenderness calculations is 1500 mm
5. Value in subscript indicate extra bearing length required
6. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

COUNTER BEAM SUPPORTING HANGING BEAM AS 4055 CLASSIFICATION N1, N2 AND N3

Ceiling mass - 20 kg/m²



EXAMPLE:

wind speed = N3
Total of hanging beam span = 6400 mm
ceiling load width = 'X' / 2 = 6400 / 2 = 3200 mm

counter beam span = 4500 mm

Enter column at 3600 mm ceiling load width and read down to a span greater than or equal to 4500 mm

ADOPT:

SmartLam GL13 - 200 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Ceiling load width (mm)	600	1800	2400	3000	3600	4200	4800	5400	6600
Member size DxB (mm)	Maximum Counter beam span (mm)								
200x60	7650	6050	5600	5300	4850	4500	4200	3950	3600
233x60	8700	6850	6400	6050	5600	5200	4900	4600	4150
240x60	8950	7050	6550	6200	5800	5350	5000	4750	4300
266x60	9800	7700	7200	6800	6400	5950	5550	5250	4750
300x60	10900	8600	8000	7550	7200	6700	6250	5900	5350
333x60	11950	9500	8800	8300	7900	7350	6900	6500	5900
366x60	12000	10350	9650	9100	8650	8000	7500	7100	6400
400x60	12000	11300	10500	9900	9350	8700	8150	7700	6950
433x60	12000	12000	11350	10700	10050	9300	8750	8250	7500
200x80	8050	6450	6050	5700	5450	5150	4850	4550	4150
233x80	9150	7350	6850	6500	6200	5950	5600	5300	4800
240x80	9400	7550	7050	6650	6350	6100	5800	5450	4950
266x80	10250	8250	7700	7300	6950	6700	6400	6050	5500
300x80	11400	9200	8600	8150	7750	7450	7200	6800	6150
333x80	12000	10150	9500	8950	8550	8200	7900	7500	6800
366x80	12000	11100	10350	9800	9350	8950	8650	8150	7400
400x80	12000	12000	11300	10700	10150	9750	9350	8850	8000
433x80	12000	12000	12000	11550	11000	10550	10050	9500	8600

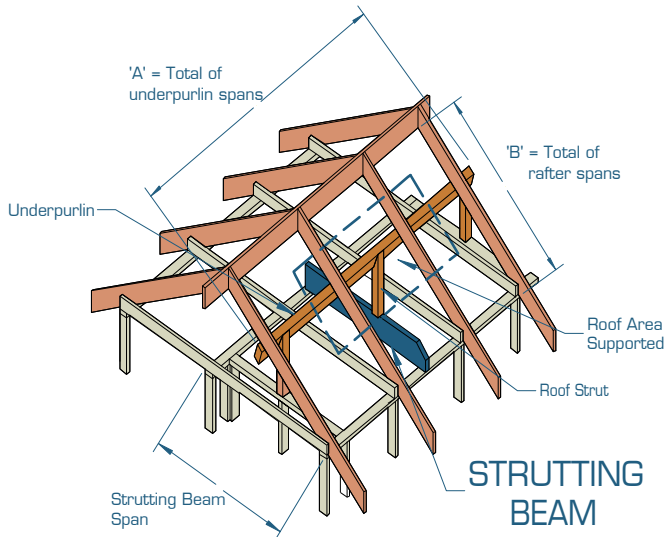
COUNTER BEAM SUPPORTING HANGING BEAM AS 4055 CLASSIFICATION C1, C2 AND C3

Ceiling load width (mm)	600	1800	2400	3000	3600	4200	4800	5400	6600
Member size DxB (mm)	Maximum Counter beam span (mm)								
200x60	7650	4550	3950	3550	3200	3000	2800	2650	2350
233x60	8700	5300	4600	4100	3750	3450	3250	3050	2750
240x60	8950	5450	4750	4250	3850	3600	3350	3150	2850
266x60	9800	6050	5250	4700	4300	3950	3700	3500	3150
300x60	10900	6850	5950	5300	4850	4450	4200	3950	3550
333x60	11950	7500	6500	5850	5300	4900	4600	4350	3900
366x60	12000	8150	7100	6350	5800	5350	5000	4750	4300
400x60	12000	8850	7700	6900	6300	5850	5450	5150	4650
433x60	12000	9500	8250	7400	6800	6250	5850	5550	5000
200x80	8050	5250	4550	4100	3700	3450	3200	3050	2750
233x80	9150	6100	5300	4750	4350	4000	3750	3550	3200
240x80	9400	6300	5450	4900	4450	4150	3850	3650	3300
266x80	10250	7000	6050	5450	4950	4600	4300	4050	3650
300x80	11400	7850	6850	6100	5600	5150	4850	4550	4100
333x80	12000	8650	7500	6750	6150	5700	5300	5000	4550
366x80	12000	9400	8150	7350	6700	6200	5800	5450	4950
400x80	12000	10150	8850	7950	7250	6750	6300	5950	5350
433x80	12000	10900	9500	8550	7800	7250	6800	6400	5750

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a maximum ceiling mass of 20 (kg/m²)
3. Minimum bearing length = 70 mm at end supports
4. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

STRUTTING BEAM SUPPORTING UNDERPURLINS AS 4055 CLASSIFICATION N1, N2 AND N3



EXAMPLE:

wind speed = N3
 sheet roof = 20 kg/m²
 total of underpurlin span 'A' = 5000 mm
 total of rafter span 'B' = 4200 mm
 roof area supported = (A/2) x (B/2)
 = (5000/2) x (4200/2)
 = 5250000 mm² [Convert to m²]
 = 5250000/1000000 = 5.25 m²

strutting beam span = 4500 mm

Enter column at 6 m² roof area supported and read down to a span greater than or equal to 4500 mm

ADOPT:

SmartLam GL13 - 233 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Roof area supported (m ²)		2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Strutting beam span (mm)					
200x60	20	5750	5500	4450	3300	2650	2200
	60	5550	4300	3500	3000	2400	2000
233x60	20	6650	6450	6050	4500	3600	3000
	60	6600	5200	4450	3850	3250	2700
240x60	20	6850	6600	6250	4800	3800	3150
	60	6800	5350	4600	4000	3450	2900
266x60	20	7600	7350	7050	5900	4700	3900
	60	7600	6050	5200	4700	4200	3550
300x60	20	8600	8300	8000	7400	6000	5000
	60	8600	7000	6000	5400	4950	4500
333x60	20	9550	9200	8900	8400	7300	6050
	60	9550	7950	6800	6100	5600	5200
366x60	20	10500	10100	9750	9500	8700	7200
	60	10500	9000	7700	6850	6300	5850
400x60	20	11450	11050	10650	10350	9850	8550
	60	11450	10100	8650	7700	7000	6500
433x60	20	12000	11950	11550	11200	10900	9900
	60	12000	11250	9600	8550	7800	7200
200x80	20	6300	6050	5600	4450	3550	2950
	60	6100	4800	4050	3500	3100	2650
233x80	20	7350	7100	6650	6050	4800	4000
	60	7250	5750	4950	4450	3950	3600
240x80	20	7550	7300	6900	6250	5100	4250
	60	7500	5950	5150	4600	4150	3800
266x80	20	8400	8100	7800	7050	6300	5250
	60	8400	6700	5800	5200	4800	4450
300x80	20	9450	9100	8800	8200	7550	6700
	60	9450	7750	6700	6000	5500	5150
333x80	20	10500	10100	9800	9300	8600	8050
	60	10500	8850	7600	6800	6250	5800
366x80	20	11550	11100	10750	10450	9700	9100
	60	11550	9950	8600	7700	7050	6550
400x80	20	12000	12000	11750	11400	10900	10250
	60	12000	11200	9650	8650	7900	7350
433x80	20	12000	12000	12000	12000	12000	11400
	60	12000	12000	10750	9600	8800	8150

STRUTTING BEAM SUPPORTING UNDERPURLINS AS 4055 CLASSIFICATION C1, C2 AND C3

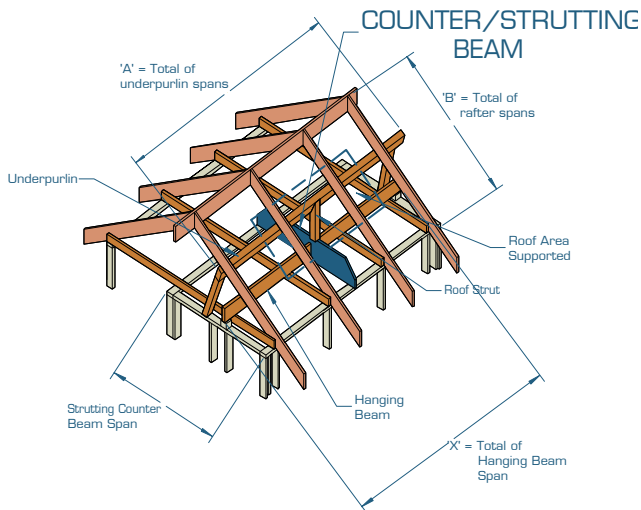
Roof area supported (m ²)		2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Strutting beam span (mm)					
200x60	20	5750	4350	2900	2150	1700	1450
	60	5550	4300	3050	2300	1850	1550
233x60	20	6650	5950	3900	2950	2350	1950
	60	6600	5200	4150	3100	2500	2100
240x60	20	6850	6300	4150	3100	2500	2050
	60	6800	5350	4400	3300	2650	2200
266x60	20	7600	7350	5150	3850	3050	2550
	60	7600	6050	5200	4050	3250	2700
300x60	20	8600	8300	6550	4900	3900	3250
	60	8600	7000	6000	5150	4100	3450
333x60	20	9550	9200	8000	5950	4750	3950
	60	9550	7950	6800	6100	5000	4150
366x60	20	10500	10100	9550	7100	5650	4700
	60	10500	9000	7700	6850	5900	4950
400x60	20	11450	11050	10650	8350	6650	5500
	60	11450	10100	8650	7700	6900	5800
433x60	20	12000	11950	11550	9700	7700	6400
	60	12000	11250	9600	8550	7800	6700
200x80	20	6900	5850	3850	2900	2300	1900
	60	6100	4800	4050	3050	2450	2050
233x80	20	7350	7100	5250	3900	3150	2600
	60	7250	5750	4950	4150	3300	2750
240x80	20	7550	7300	5600	4150	3300	2750
	60	7500	5950	5150	4400	3500	2950
266x80	20	8400	8100	6900	5150	4100	3400
	60	8400	6700	5800	5200	4300	3600
300x80	20	9450	9100	8800	6550	5200	4350
	60	9450	7750	6700	6000	5450	4550
333x80	20	10500	10100	9800	8000	6350	5250
	60	10500	8850	7600	6800	6250	5500
366x80	20	11550	11100	10750	9550	7550	6250
	60	11550	9950	8600	7700	7050	6550
400x80	20	12000	12000	11750	11350	8950	7400
	60	12000	11200	9650	8650	7900	7350
433x80	20	12000	12000	12000	12000	10400	8600
	60	12000	12000	10750	9600	8800	8150
200x110	20	7000	6750	5350	4000	3150	2650
	60	6700	5400	4700	4100	3350	2800
233x110	20	8150	7850	7300	5450	4300	3600
	60	7950	6400	5550	5000	4550	3800
240x110	20	8400	8100	7650	5750	4600	3800
	60	8200	6650	5750	5200	4800	4000
266x110	20	9300	9000	8600	7100	5650	4700
	60	9200	7500	6500	5850	5400	4950
300x110	20	10500	10150	9800	9050	7250	6000
	60	10500	8650	7500	6750	6200	5800
333x110	20	11650	11250	10900	10300	8800	7300
	60	11650	9800	8550	7700	7050	6600
366x110	20	12000	12000	11950	11550	10550	8700
	60	12000	11050	9650	8700	8000	7450
400x110	20	12000	12000	12000	12000	12000	10350
	60	12000	12000	10850	9800	8950	8350
433x110	20	12000	12000	12000	12000	12000	12000
	60	12000	12000	12000	10900	10000	9300

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Minimum bearing length = 70 mm at end supports.
3. Restraint value for slenderness calculations is 1500 mm
4. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

STRUTTING/COUNTER BEAM SUPPORTING UNDERPURLINS & HANGING BEAM AS 4055 CLASSIFICATION N1, N2 AND N3

Ceiling mass - 20 kg/m²



EXAMPLE:

wind speed = N3
 sheet roof = 40kg/m²
 total of underpurlin span 'A' = 5000 mm
 total of rafter span 'B' = 4200 mm
 roof area supported = (A/2) x (B/2)
 = (5000/2) x (4200/2)
 = 5250000 mm² (Convert to m²)
 = 5250000/1000000 = 5.25 m²

total of hanging beam span 'X' = 4500 mm
 effective beam spacing = 'X' / 2 = 4500 / 2 = 2250 mm
 strutting counter beam span = 4500 mm

Enter column at 3600 mm effective beam spacing, 6 m² roof area supported and read down to a span greater than or equal to 4500 mm

ADOPT:

SmartLam GL13 - 266 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Effective beam spacing (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size Dx B (mm)	Roof mass (kg/m ²)	Maximum Strutting beam span (mm)											
200x60	40	4600	4050	3650	3300	2800	2350	4100	3700	3400	3100	2700	2300
	75	4200	3500	2950	2600	2350	1950	3800	3250	2850	2500	2250	1950
233x60	40	5300	4700	4300	3950	3700	3150	4700	4300	4000	3750	3550	3050
	75	4850	4150	3700	3300	2950	2650	4400	3900	3500	3150	2850	2600
240x60	40	5450	4850	4400	4100	3850	3350	4800	4400	4100	3850	3650	3250
	75	5000	4250	3800	3450	3100	2800	4550	4000	3650	3300	3000	2700
266x60	40	6000	5400	4900	4550	4300	4050	5300	4900	4550	4300	4100	3900
	75	5550	4750	4250	3900	3650	3350	5000	4450	4050	3750	3500	3250
300x60	40	6750	6100	5600	5200	4900	4600	5900	5500	5150	4850	4600	4400
	75	6300	5400	4850	4450	4150	3900	5600	5000	4600	4250	4000	3800
333x60	40	7500	6800	6250	5850	5500	5200	6500	6050	5700	5400	5150	4950
	75	7000	6100	5450	5000	4650	4400	6200	5600	5150	4750	4500	4250
366x60	40	8200	7500	6950	6500	6100	5800	7100	6650	6300	6000	5700	5450
	75	7700	6750	6100	5550	5200	4900	6800	6150	5650	5300	4950	4700
400x60	40	9000	8300	7700	7200	6800	6450	7700	7300	6900	6550	6300	6000
	75	8500	7450	6750	6200	5750	5400	7400	6750	6250	5850	5500	5200
433x60	40	9750	9000	8400	7900	7450	7050	8350	7900	7500	7150	6850	6600
	75	9250	8200	7400	6800	6350	5950	8000	7350	6800	6400	6000	5700
200x80	40	5000	4400	4000	3700	3450	3100	4450	4050	3750	3500	3250	3000
	75	4550	3900	3400	3000	2700	2500	4150	3700	3250	2900	2650	2450
233x80	40	5750	5150	4700	4350	4100	3900	5100	4700	4400	4150	3900	3750
	75	5300	4550	4100	3750	3450	3150	4800	4250	3900	3600	3300	3050
240x80	40	5900	5300	4850	4500	4250	4000	5200	4850	4500	4250	4050	3850
	75	5500	4700	4200	3850	3600	3300	4950	4400	4000	3700	3450	3200
266x80	40	6550	5900	5400	5050	4750	4500	5750	5350	5000	4700	4500	4300
	75	6050	5250	4700	4300	4000	3800	5450	4900	4450	4150	3900	3700
300x80	40	7350	6700	6150	5750	5400	5150	6400	6000	5650	5350	5100	4850
	75	6850	6000	5400	4950	4600	4300	6100	5500	5050	4700	4450	4200
333x80	40	8150	7450	6900	6450	6100	5750	7050	6650	6250	5950	5700	5450
	75	7650	6700	6050	5550	5200	4850	6750	6150	5650	5300	4950	4700
366x80	40	8950	8250	7650	7200	6800	6450	7700	7300	6900	6600	6300	6050
	75	8450	7450	6750	6200	5800	5450	7400	6750	6250	5850	5500	5250
400x80	40	9750	9050	8500	7950	7550	7150	8400	7950	7600	7250	6950	6650
	75	9250	8250	7500	6900	6450	6050	8100	7450	6900	6450	6100	5800
433x80	40	10600	9900	9300	8750	8300	7900	9050	8650	8250	7900	7550	7300
	75	10100	9050	8250	7600	7100	6650	8750	8100	7550	7100	6700	6350

STRUTTING/COUNTER BEAM SUPPORTING UNDERPURLINS & HANGING BEAM AS 4055 CLASSIFICATION C1, C2 AND C3

Ceiling mass - 20 kg/m²

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

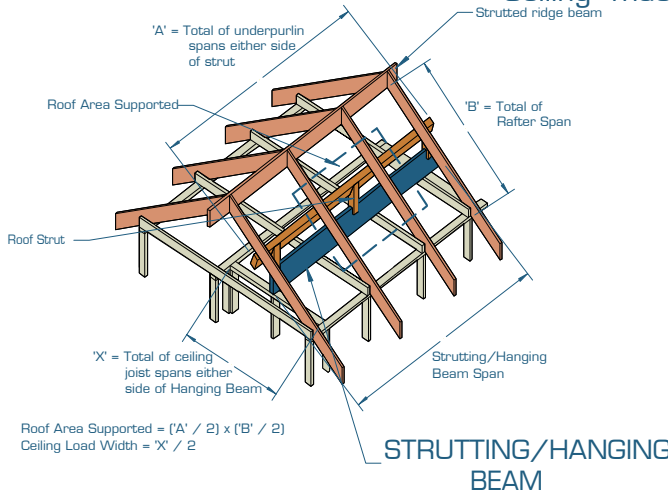
Effective Beam Spacing (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Strutting Beam span (mm)											
200x60	40	4600	3100	2000	1500	1200	1000	4100	3200	2050	1500	1200	1000
	75	4200	3350	2150	1600	1300	1050	3800	3250	2200	1600	1300	1050
233x60	40	5300	4300	2750	2050	1650	1350	4700	4300	2800	2050	1650	1350
	75	4850	4150	2950	2200	1750	1450	4400	3900	3050	2200	1750	1450
240x60	40	5450	4550	2950	2200	1750	1450	4800	4400	3000	2200	1750	1450
	75	5000	4250	3150	2350	1850	1550	4550	4000	3250	2350	1850	1550
266x60	40	6000	5400	3650	2700	2150	1750	5300	4900	3750	2750	2150	1800
	75	5550	4750	3900	2900	2300	1900	5000	4450	4050	2950	2300	1900
300x60	40	6750	6100	4700	3450	2750	2250	5900	5500	4850	3500	2750	2300
	75	6300	5400	4850	3700	2900	2400	5600	5000	4600	3750	2950	2450
333x60	40	7500	6800	5750	4200	3300	2750	6500	6050	5700	4300	3350	2800
	75	7000	6100	5450	4500	3550	2950	6200	5600	5150	4600	3600	2950
366x60	40	8200	7500	6900	5000	3950	3300	7100	6650	6300	5150	4050	3300
	75	7700	6750	6100	5400	4250	3500	6800	6150	5650	5300	4350	3550
400x60	40	9000	8300	7700	5950	4700	3850	7700	7300	6900	6200	4800	3900
	75	8500	7450	6750	6200	5000	4150	7400	6750	6250	5850	5150	4200
433x60	40	9750	9000	8400	6950	5450	4500	8350	7900	7500	7150	5600	4550
	75	9250	8200	7400	6800	5850	4800	8000	7350	6800	6400	6000	4900
200x80	40	5000	4200	2700	2000	1600	1350	4450	4050	2750	2050	1600	1350
	75	4550	3900	2900	2150	1700	1400	4150	3700	3000	2200	1750	1450
233x80	40	5750	5150	3750	2750	2200	1800	5100	4700	3850	2800	2200	1800
	75	5300	4550	4000	2950	2350	1950	4800	4250	3900	3000	2350	1950
240x80	40	5900	5300	3950	2950	2300	1950	5200	4850	4100	2950	2350	1950
	75	5500	4700	4200	3150	2500	2050	4950	4400	4000	3200	2500	2100
266x80	40	6550	5900	4900	3600	2850	2400	5750	5350	5000	3700	2900	2400
	75	6050	5250	4700	3900	3050	2550	5450	4900	4450	3950	3100	2550
300x80	40	7350	6700	6150	4650	3650	3050	6400	6000	5650	4750	3700	3050
	75	6850	6000	5400	4950	3950	3250	6100	5500	5050	4700	4000	3300
333x80	40	8150	7450	6900	5650	4450	3700	7050	6650	6250	5850	4550	3750
	75	7650	6700	6050	5550	4800	3950	6750	6150	5650	5300	4900	4000
366x80	40	8950	8250	7650	6800	5350	4400	7700	7300	6900	6600	5450	4450
	75	8450	7450	6750	6200	5750	4700	7400	6750	6250	5850	5500	4800
400x80	40	9750	9050	8500	7950	6350	5200	8400	7950	7600	7250	6550	5300
	75	9250	8250	7500	6900	6450	5600	8100	7450	6900	6450	6100	5700
433x80	40	10600	9900	9300	8750	7400	6050	9050	8650	8250	7900	7550	6200
	75	10100	9050	8250	7600	7100	6500	8750	8100	7550	7100	6700	6350

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Minimum bearing length = 70 mm at end supports.
3. The above table was based on a maximum ceiling mass of 20 (kg/m²).
4. Restraint value for slenderness calculations is 1500 mm
5. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

STRUTTING/HANGING BEAM AS 4055 CLASSIFICATION N1, N2 AND N3

Ceiling mass - 20 kg/m²



EXAMPLE:

wind speed = N3
 sheet roof= 40 kg/m²
 A = 5000 mm, B = 4200 mm
 roof area supported= (A/2) x (B/2)
 = (5000/2) x (4200/2)
 = 5250000 mm² (Convert to m²)
 = 5250000/1000000 = 5.25 m²

strutting/hanging beam span = 4200 mm
 ceiling joist span (X') = 4400 mm
 ceiling load width = (X' / 2) = 4400/2 = 2200 mm

Enter column at 3600 mm ceiling load width, 6 m² roof area supported and read down to a span greater than or equal to 4200 mm

ADOPT:

SmartLam GL13 - 266 x 60

Note: Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering.

Ceiling load width (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Strutting/hanging beam span (mm)											
200x60	40	4450	3950	3600	3250	2800	2350	3800	3500	3200	2950	2650	2250
	75	4100	3450	2900	2600	2300	1950	3600	3100	2700	2450	2250	1900
233x60	40	5150	4600	4200	3900	3650	3150	4400	4050	3800	3600	3400	3050
	75	4750	4100	3650	3250	2950	2650	4150	3750	3350	3050	2800	2550
240x60	40	5300	4750	4350	4050	3800	3350	4500	4200	3950	3750	3550	3200
	75	4900	4200	3750	3400	3050	2800	4300	3850	3500	3200	2900	2700
266x60	40	5900	5300	4850	4500	4250	4000	4950	4600	4350	4150	3950	3750
	75	5450	4700	4200	3850	3600	3300	4700	4250	3900	3650	3400	3150
300x60	40	6650	6000	5500	5150	4800	4600	5550	5200	4900	4650	4450	4250
	75	6150	5350	4800	4400	4100	3850	5300	4800	4450	4150	3900	3700
333x60	40	7400	6700	6200	5750	5400	5150	6100	5750	5450	5200	4950	4750
	75	6900	6000	5400	4950	4600	4350	5850	5350	4950	4650	4350	4150
366x60	40	8150	7450	6850	6400	6050	5750	6700	6350	6000	5750	5500	5300
	75	7650	6700	6000	5500	5150	4850	6450	5900	5450	5150	4850	4600
400x60	40	8950	8200	7600	7100	6700	6350	7350	6950	6600	6300	6050	5800
	75	8450	7400	6700	6150	5700	5400	7050	6500	6000	5650	5350	5100
433x60	40	9800	9000	8350	7850	7400	7000	7950	7550	7200	6900	6600	6350
	75	9200	8150	7350	6750	6300	5900	7650	7050	6600	6200	5850	5550
200x80	40	4850	4350	3950	3650	3400	3100	4150	3850	3600	3350	3100	2950
	75	4450	3850	3350	3000	2700	2450	3950	3500	3100	2800	2550	2350
233x80	40	5600	5050	4650	4300	4050	3850	4750	4450	4200	3950	3800	3650
	75	5200	4500	4050	3700	3400	3100	4550	4100	3750	3500	3200	3000
240x80	40	5800	5200	4800	4450	4200	3950	4900	4600	4300	4100	3900	3750
	75	5350	4650	4150	3800	3550	3250	4650	4200	3900	3650	3350	3100
266x80	40	6400	5800	5350	4950	4700	4450	5400	5050	4750	4550	4350	4150
	75	5950	5200	4650	4300	4000	3750	5150	4650	4300	4050	3800	3600
300x80	40	7250	6600	6100	5700	5350	5100	6050	5700	5400	5150	4900	4700
	75	6750	5900	5300	4900	4550	4300	5800	5300	4900	4600	4300	4100
333x80	40	8050	7350	6850	6400	6000	5700	6650	6300	6000	5700	5500	5250
	75	7550	6650	6000	5500	5150	4850	6400	5900	5450	5100	4850	4600
366x80	40	8900	8200	7600	7100	6750	6400	7350	6950	6600	6300	6050	5850
	75	8400	7400	6700	6150	5750	5400	7050	6500	6050	5700	5350	5100
400x80	40	9800	9050	8450	7900	7500	7100	8000	7600	7300	6950	6700	6450
	75	9250	8200	7450	6850	6400	6000	7750	7150	6650	6250	5950	5650
433x80	40	10700	9900	9250	8700	8250	7850	8700	8300	7950	7600	7300	7050
	75	10150	9050	8200	7550	7050	6650	8400	7800	7300	6850	6500	6200

STRUTTING/HANGING BEAM AS 4055 CLASSIFICATION C1, C2 AND C3

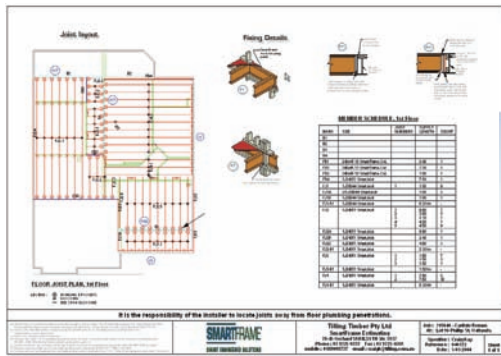
Ceiling mass - 20 kg/m²

Ceiling load width (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum Strutting/hanging beam span (mm)											
200x60	40	3650	3800	2850	2150	1750	1450	2600	2650	2700	2100	1700	1450
	75	3750	3450	2550	1950	1550	1300	2600	2700	2450	1900	1550	1300
233x60	40	4250	4350	3800	2900	2350	1950	3000	3050	3100	2800	2300	1950
	75	4350	4100	3400	2600	2100	1750	3050	3100	3200	2550	2050	1750
240x60	40	4400	4500	4000	3100	2500	2100	3100	3150	3200	3000	2450	2050
	75	4450	4200	3600	2750	2250	1850	3100	3200	3300	2700	2200	1850
266x60	40	4850	4950	4750	3750	3050	2550	3400	3450	3500	3550	2950	2500
	75	4950	4700	4200	3350	2750	2300	3450	3550	3650	3250	2650	2250
300x60	40	5450	5550	5500	4750	3850	3250	3850	3900	3950	4000	3700	3150
	75	5550	5350	4800	4250	3450	2900	3900	3950	4050	4050	3350	2850
333x60	40	6000	6100	6200	5650	4650	3900	4250	4300	4350	4400	4450	3800
	75	6100	6000	5400	4950	4150	3500	4250	4350	4450	4550	4000	3400
366x60	40	6550	6650	6750	6400	5450	4600	4600	4650	4700	4750	4800	4450
	75	6600	6700	6000	5500	4900	4150	4650	4750	4800	4900	4700	4000
400x60	40	7100	7200	7300	7100	6350	5400	5000	5050	5100	5150	5200	5200
	75	7150	7350	6700	6150	5700	4850	5050	5100	5200	5300	5350	4700
433x60	40	7650	7750	7850	7850	7300	6200	5400	5450	5500	5550	5600	5650
	75	7700	7900	7350	6750	6300	5550	5400	5500	5600	5650	5750	5350
200x80	40	4250	4350	3600	2850	2300	1950	3000	3000	3100	2750	2250	1900
	75	4300	3850	3350	2550	2050	1700	3000	3100	3100	2500	2050	1700
233x80	40	4900	5000	4500	3850	3100	2600	3450	3500	3550	3600	3050	2550
	75	5000	4500	4050	3450	2800	2350	3500	3600	3650	3300	2700	2300
240x80	40	5050	5150	4700	4050	3300	2800	3550	3600	3650	3700	3200	2700
	75	5150	4650	4150	3650	2950	2500	3600	3700	3750	3500	2900	2450
266x80	40	5600	5700	5350	4750	4050	3400	3950	4000	4050	4100	3900	3300
	75	5650	5200	4650	4300	3600	3050	4000	4050	4150	4050	3500	2950
300x80	40	6300	6400	6100	5700	5050	4300	4450	4500	4550	4600	4650	4150
	75	6400	5900	5300	4900	4550	3850	4500	4550	4650	4600	4300	3750
333x80	40	6950	7050	6850	6400	5950	5150	4900	4950	5000	5050	5100	4950
	75	7000	6650	6000	5500	5150	4600	4900	5000	5100	5100	4850	4450
366x80	40	7550	7650	7600	7100	6750	6050	5300	5350	5400	5500	5550	5600
	75	7650	7400	6700	6150	5750	5400	5350	5450	5550	5600	5350	5100
400x80	40	8200	8300	8400	7900	7500	7050	5750	5800	5850	5900	6000	6050
	75	8300	8200	7450	6850	6400	6000	5800	5900	6000	6050	5950	5650
433x80	40	8800	8900	9000	8700	8250	7850	6200	6250	6300	6350	6400	6450
	75	8900	9050	8200	7550	7050	6650	6250	6350	6400	6500	6500	6200

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a maximum ceiling mass of 20 (kg/m²)
3. Minimum bearing length = 70 mm at end supports
4. Restraint value for slenderness calculations is 1500 mm
5. Not all sizes of SmartLam GL13 in this table are stocked in each state. Please check with your supplier before ordering

SmartFrame TOOLS



SmartFrame Software

You really do need to see our software to believe it. This state of the art *FREE* software is world leading technology. Not only does it provide the services noted previously, but you also have the benefit of being able to 'size' specific members for your project—fast. No other software package can give you all these benefits at no charge.

Quick Design -

Can't get a particular timber? Just enter the spans and you have a SmartFrame alternative. It's that easy.

Take-Off -

This is the module from which we produce our designs. Either use this yourself, or send the plans to us and we'll do it for you. The take-off is provided in A3 full colour easy to read layouts.

Bracing -

More for Designers and Engineers, this module will work out force summaries for wind bracing and more.

Connection Details -

Ever wondered how to connect an I-Joist to a steel PFC? If you have, this is the module for you. Over 30 different types of connection details all with easy to read graphics and detailed notes.

Select Bracket -

Want to be sure you've got the hardware? Visit 'select bracket' and you'll get all the info you need i.e.: size, the joists it suits and order code. Choose from straight face mount hangers, top mounts, 45° offsets, rafter to ridge hangers and even heavy duty hangers for our LVL.

Tie Down -

A powerful tool to enable users to quickly calculate the uplift forces on a structure and to assign suitable tie down solutions as contained in Chapter 9 of AS 1684

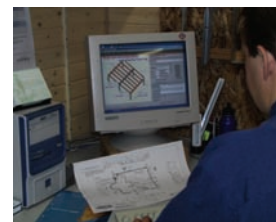
Reports -

Need a certificate report for council? Easy—just switch on your PC, bring up the job and hit the reports button. In one or two minutes, you'll have complete computer generated certifications suitable for most councils and inspectors. Of course, if they aren't satisfied,

send the job to us and our Engineer will look over it, ensure it's correct and then issue you an Engineer's Certificate.

SmartFrame Design Service

Tilling offer a comprehensive design service to builders as part of our SmartFrame builders program—at no charge. Simply give us your plans and we'll supply you with the following:



Floor Beam/Post/Lintel Layout - This is clearly show where members go, what they bear onto and how they connect within the frame, all in easy to read colour graphics.

Joist Layout - Showing the layout of joists, bearing points, where to start your layout and other site specific details such as joist hangers and rimboard/end blocking. These layouts can include location of service holes so the tradesman can adjust the joists as necessary.

Member Schedule - Our member schedule illustrates the direction of each member, size, length, count, how it bears left and right and any other information deemed to be needed.

Order Schedule - This is the take off to build the floor. Simply take a look at it to check everything is included, then fax it to your merchant for supply.

Training

Installation Training - It's not always easy for carpenters to keep up to date on new products, however to produce a well built, strong home, it's a necessity. At Tilling, we realize that education and training are lynch pins of the SmartFrame range. If you've ever used our products before, or you've just started a new chippie crew, give us a call. Given either on site, in your office or ours, installation training runs through all the details required to install our joists and LVL, including shortcuts to save time and money. Once again this service is provided at no charge to SmartFrame users. It's all part of the service to ensure you can work with confidence.



SMARTFRAME DESIGN COMPENDIUM

Design Compendium Contents

Specification Software

- Technical Support

Design Guides (pdf)

Technical Illustrations (dxf/dwg for CAD)

Fixing Details - fixing details/hangers (jpg)

Video Clips - installation/company (mpg)

Software Tutorial

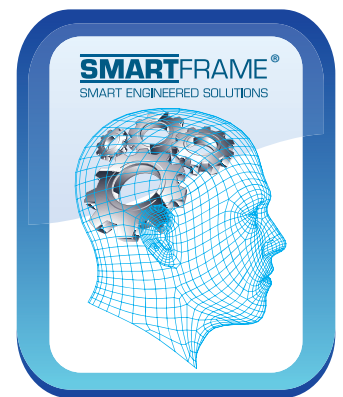
Interactive



Printable



PC



Never before has so much user friendly computer power been unleashed into the hands of building industry professionals to allow the design and detailing of engineered timber products. This software, in conjunction with the SmartFrame Design Centre and SmartFrame engineered timber products themselves, combines to form the most sophisticated structural timber option ever available to the Australian market. The SmartFrame Engineered Timber Solution represents an entirely new and revolutionary concept in the delivery of 21st century technology and service to the building industry.

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