SmartLVL® 19

INDEX

Scope of this publication

This Design Guide and Load Tables assist in the selection of SmartLVL 19 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, however some limited examples have been reproduced within this document.

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 at the SmartFrame Design Centre who can be contacted for advice on matters concerning the use of its engineered timber products in timber construction at techsupport@tilling.com.au or on the Tech Support Customer HelpLine 1300 668 690.

Substitution of other products

All load tables in this document are designed using in-grade tested properties of SmartLVL 19 as distributed by Tilling Timber Pty Ltd. Other manufacturers' LVL may have different properties and therefore cannot be designed using these span tables.

Copyright

Certification

As a professional engineer, qualified and experienced in timber engineering, I certify that the use of the SmartLVL 19 members as shown in these tables, and installed in accordance with the provisions of this Design Guide, complies to the National Construction Code (NCC). These span tables have been prepared in accordance with standard engineering principles, the relevant test reports and Australian standards, ie:

- AS 1720.3 Timber Structures—Design Criteria for timber-framed residential buildings
- 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 4357 Structural laminated veneer lumber
- AS/NZS 4063 Characterisation of structural timber

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Engineering Manager

1. SmartLVL 19

Description

SmartLVL 19 s a structural Laminated Veneer Lumber (LVL) manufactured for Tilling Timber to meet the quality controlled process requirements of AS/NZS 4357 - Structural Laminated Veneer Lumber by a toll manufacturer.

Preservative Treatment options

Stock SmartLVL 19 is H2 (glue line) treated for use in all parts of Australia. SmartLVL 19 is manufactured from veneers of a Class 3 Natural Durability timber.

It can also be post- production pressure treated to H3 to AS/NZS 1604.4.

Short term water repellency

SmartLVL comes with a clear short term water repellent which Includes a biocide/fungicide.

Joint Strength Group

SmartLVL 19 has a JD2 joint strength group for nails, screws and bolts when tested in accordance with AS 1649:2001 Timber—Methods of test for mechanical fasteners and connectors—Basic working loads and characteristic strengths

1.1 SmartLVL 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 spaning 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 NZS 3603 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

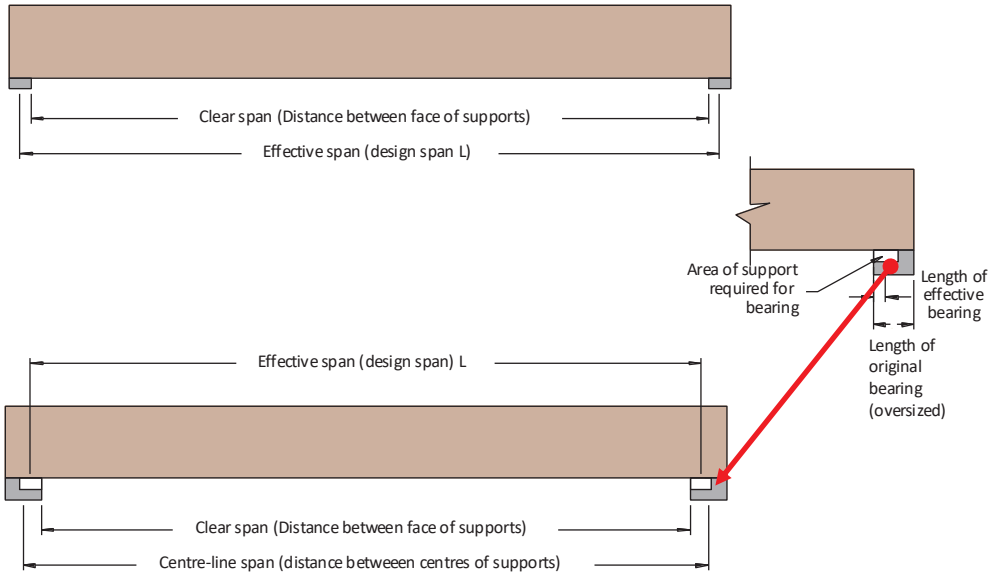


Diagram (b) shows beam where bearings at each end have been oversized. (This is frequently the case for beams that bear onto brickwork or concrete walls where the thickness of the wall is in excess of the area required to give the beam bearing capacity).
To find the correct effective span:

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

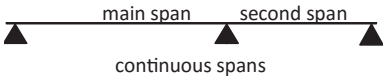
1.2 Continuous spans

For beams continuous over two (2) unequal spans, the design span and the "Resultant Span Description" depend upon the percentage difference between the two spans as shown below:

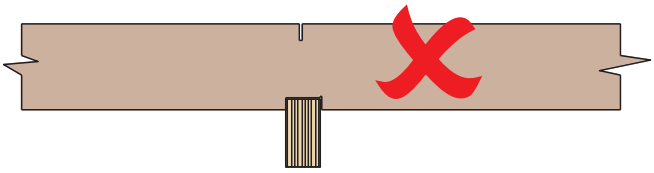
Note, for continuous spans, the Design Span is taken as the distance between the centre of the supports, as shown in **"Design Span"** on page 1 of the Design Guide.

Span Difference %	Effective span	Resultant span Description
10% max	Main span	Continuous
10 - 30%	1.1 x Main span	Continuous
above 30%	Main span	Single

$$\text{span difference} = \frac{(\text{main span} - \text{second span}) \times 100}{(\text{main span} + \text{second span})}$$



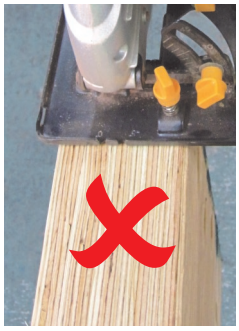
continuous spans



1.3 Rip sawing SmartLVL

One of the unique properties of Smart LVL is that it may be ripped through the depth to the smaller section sizes as those given in these span tables without affecting the basic strength properties. It is important that the new members are not cut undersized if the maximum spans in these tables are to be used.

The sawing through the thickness to produce sections of a lesser thickness may decrease the integrity of the SmartLVL and is therefore NOT recommended under any circumstances.



1.4 Double SmartLVL section beams

Beams of 70, 90 and 130 mm thickness can be formed by nail laminating two sections of SmartLVL as follows.

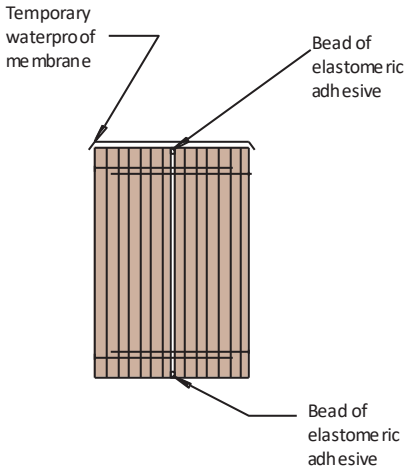
The suggested method of vertical lamination below provides a greater level of fixity between individual components, and with the use of an elastomeric adhesive, also prevents moisture penetration between the laminates.

Beam thickness (mm)	Individual section thickness (mm)	Nail Ø (mm)	Minimum nail length (mm)
70	35	3.06	75
90	45	3.30	90
130	65	3.30	100

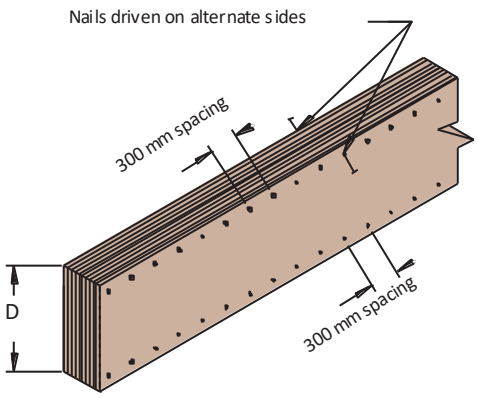
1.4.1 Multiple member laminating of top loaded beams (Symmetrical loading)

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.

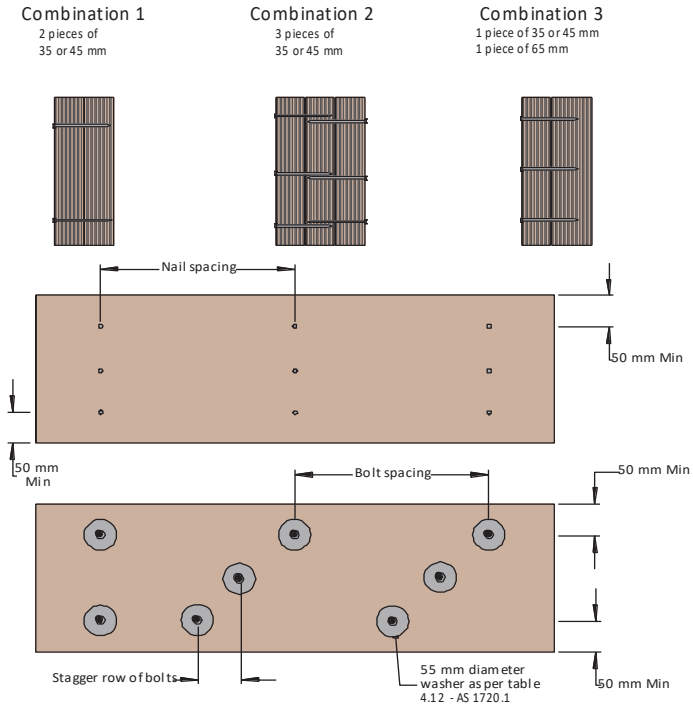
- Depths up to and including 300 mm: 2 rows of nails as shown above at 300 mm centre
- Depths in excess of 300 mm: 3 rows of nails as shown above at 300 mm centres



Recommended "during construction" protection from weather for multiple SmartLVL.



1.4.2 Multiple member laminating of side loaded beams
(Non–symmetrical loading)



Maximum floor load width by either outside member (mm)

Combination (see details below)	3.75Φ x 90 mm nails		12 mm Φ bolts	
	2 rows at 300 ctrs	3 rows at 300 ctrs	2 rows at 600 ctrs	2 rows at 300 ctrs
Combination 1	3600	5300	10200	20300
Combination 2	2800	4000	7600	15300
Combination 3	2800	4000	7600	15000

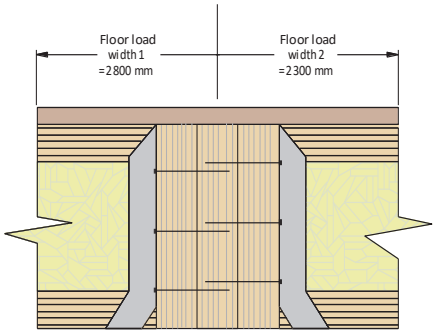
Notes:
1. Table values are for 40 kg/m^2 floors.
2. The table values for nails may be doubled for nails at 150 mm centres, and tripled for nails at 100 mm centres
3. The nail schedules shown apply to both sides of a three (3) piece beam
4. Bolts are to be grade 4.6 commercial bolts. Bolt holes are to be a maximum of 13 mm diameter and are to be located NOT less than 50 mm from either edge.
5. 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.

1.4.3 How to use the maximum uniform side load table

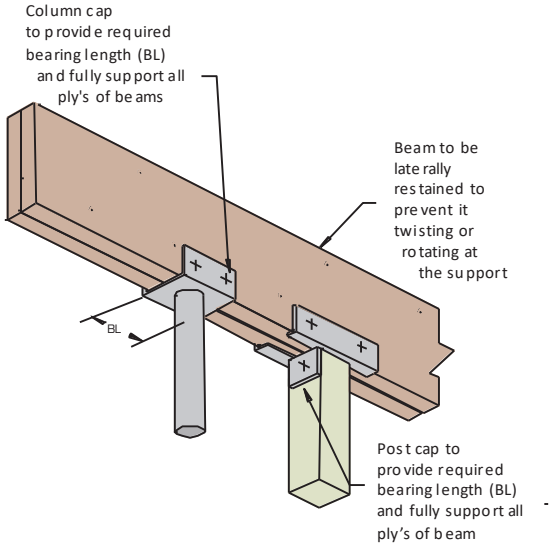
Example: see diagram below

Beam of 2 SmartLVL loaded on both side (Combination 1)
FLW 1 = 2800 mm, FLW 2 = 2300 mm
Total FLW = 2800 + 2300 = 5100 mm.

1. Use SmartLVL 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 2800 mm.
3. Enter the table at the "Combination 1" row and scan across to a table value greater than 2800 mm. The first value in the row at 3600 mm is greater than the 2800 mm required, thus adopt 2 rows of 3.75Φ x 90 mm nails at 300 mm centres



1.5 Steel and timber post fixing to SmartLVL



1.6 Fire resistance

The Fire Resistance Level (FRL) is the performance criteria for fire resistance, i.e. the grading periods (in minutes) for the following criteria as specified in the BCA:

a. Structural adequacy (the duration for which the elements can carry its designated load)
b. Integrity: (the duration for which the element can maintain its integrity to prevent the spread of fire to/ from the compartment)

and

c. Insulation (the duration for which the element is insula ling the adjacent space from excessive temperature rise)

and is expressed in that order e.g. 30/30/30. The method for determining the Fire Resistance Period for timber (including LVL and Glulam) is laid out in AS 1720.4

$$c = 0.4 + \left(\frac{280}{\delta}\right)^2$$

Where:
c = notional charring rate, in mm per minute
δ = timber density of SmartLVL 19 - 900 kg/m^3

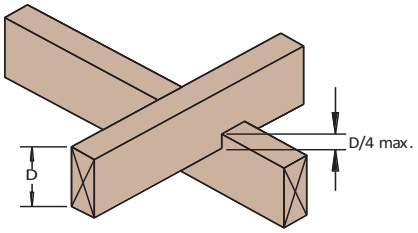
As a general rule however, to maintain FRL 60/60/60 at intersections, a minimum of 45 mm thickness of SmartLVL is required. This is in addition to any structural member within the fire rated wall.

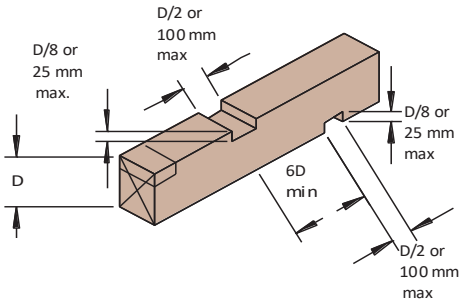
For building in bushfire prone areas, a separate fully impregnated fire resistant SmartLVL FR SaferWood™ is now available within the SmartFrame family of EWP which can be used up to BAL 29.
Stock sizes and lengths of SmartLVL FR SaferWood™ are currently limited but all sizes can be purchased as a special order.

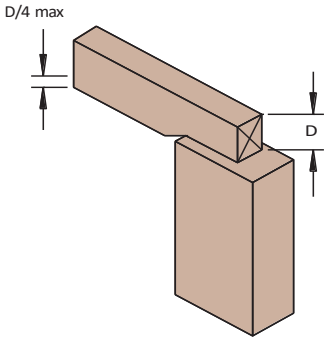
1.7 Cutting and notching SmartLVL beams, bearers, rafters and joists (as per AS 1684.2)

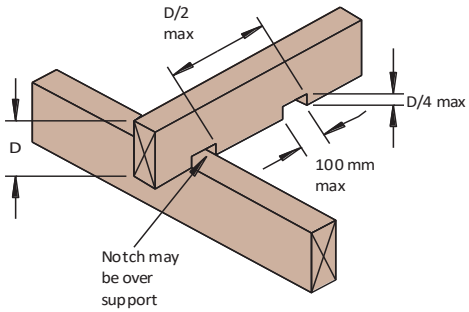
Cutting, notching and drilling recommendations below are reproduced from AS 1684.2:2010 and are therefore apply ONLY to components within buildings that fit within the building type and geometric limitations of that standard.

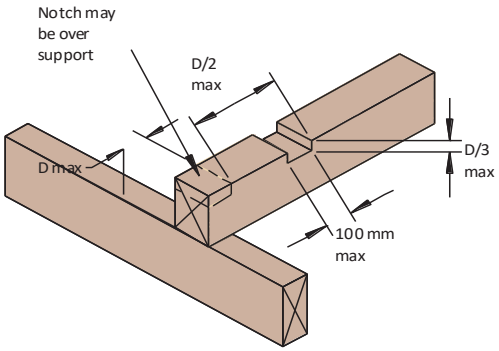
The cutting, notching and drilling of components within structures that do not meet the criteria of AS 1684.2:2010 is outside the scope of this document and should be referred to a an experienced timber engineer or to the Tech Support Customer Helpline on 1300 668 690.

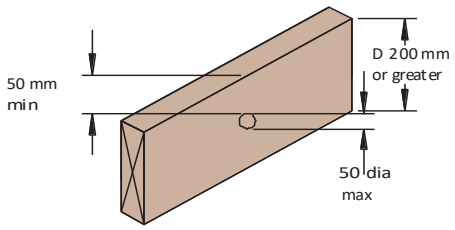




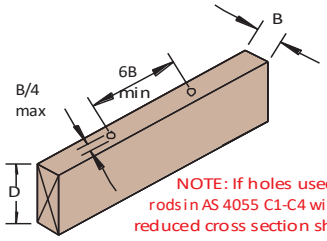




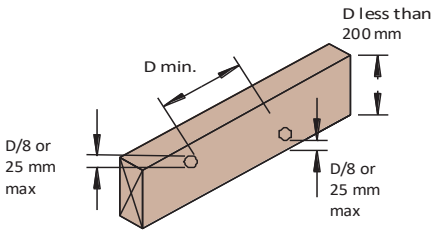




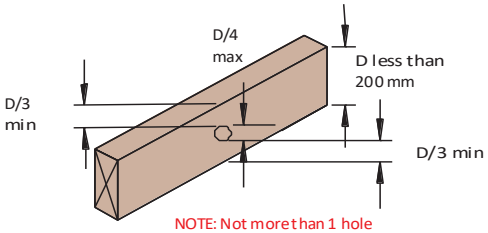
NOTE: Not more than 1 hole per 1800 mm of span



NOTE: If holes used for cyclone rods in AS 4055 C1-C4 wind areas, reduced cross section should be used in all strength calculations

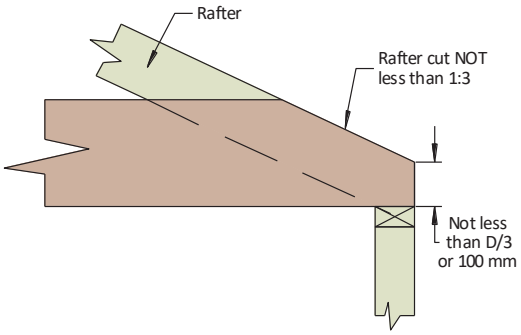


NOTE: Not more than 3 holes per 1800 mm of span

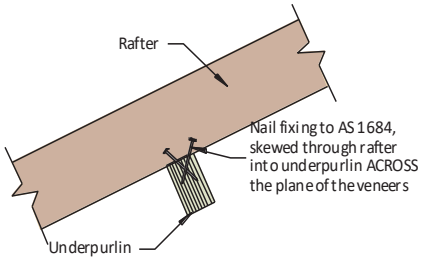


NOTE: Not more than 1 hole per 1800 mm of span

1.8 Roof construction detailing



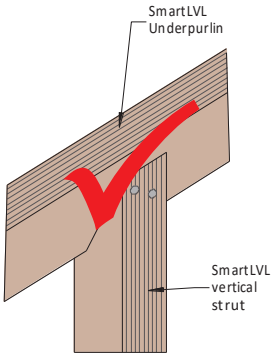
Rafter cut detail - May be used for Counter, Hanging and Strutting beams.

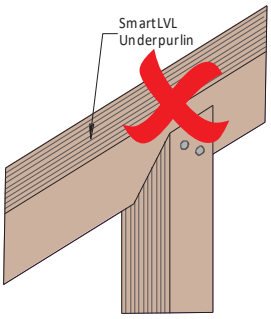


Rafters are NOT to be skew nailed to the underpurlin with the nails parallel to the direction of the veneers

Rafter underpurlin fixing

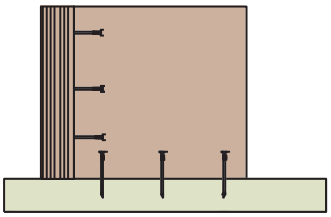
Vertical SmartLVL roof struts



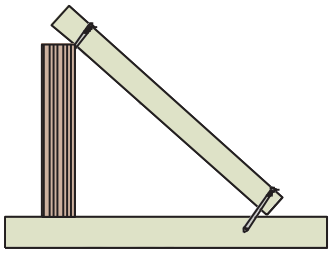


DO NOT cut the birdsmouth in the direction of the SmartLVL veneers

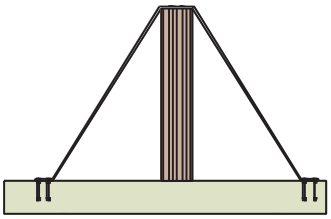
1.9 Lateral restraint of Hanging, Counter, Strutting, Strutting/hanging beams, Strutting/counter beams



(a) Block skew nailed to beam and to support with 3/75 mm skew nails to each member.



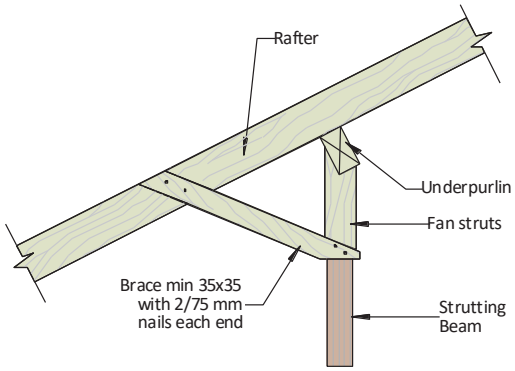
(b) Min 35 x 32 mm tie nailed to top of beam and to support with 2/75 mm nails at each end.



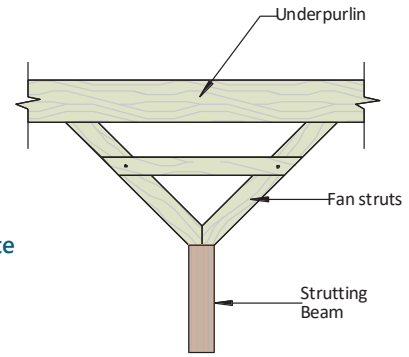
(c) Galvanised strap nailed to support and top of beam with 2/30 x 2.8 mm nails each end and to beam.

Notes:

1. Method used depends upon whether ceiling joists are perpendicular or parallel to the beam.
2. Methods given in (b) and (c) are particularly suitable for restraining strutting beams and strutting/hanging beams at the intermediate points where the beams are supported, as they also permit these beams to be supported up clear of the ceiling joists by packing under at their supports.



Example intermediate lateral restraints



1.10 Chemical resistance

SmartLVL (wood in general) has a definite advantage over steel members when exposed to corrosive environments. Timber and wood products are able to withstand mild acid conditions and are more resistant to degradation.

The behaviour of SmartLVL in chemical environments depends upon a number of factors, including PH and temperature. Wood essentially responds by either swelling (Category S), similar to moisture response, or by chemical degradation (Category D). Damage due to swelling is essentially reversible, but chemical degradation results in breakdown of the wood structure and is non-reversible. Category S agents include alcohol and other polar agents. These agents swell dry wood causing a strength (and stiffness) loss proportional to the swelling.

Category D agents include acids, alkalis and salts and result in a loss of strength and stiffness directly related to the loss of member cross-section. The table below provides a rough guide to performance of SmartLVL in chemical environments.

The effect of chemicals on wood will generally be worsened by increased exposure time, temperature, extremes of pH and chemical concentration. Wood generally offers considerably less resistance to alkalis than acids. Softwoods (includes SmartLVL) generally have better resistance to acids than hardwoods.

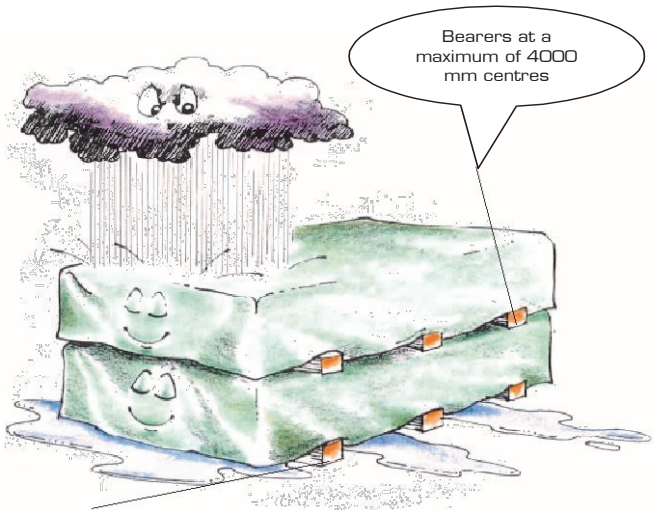
Where there is the possibility of chemical attack on SmartLVL members, designers should seek expert advice.

Agent category	Chemical agent	Mode of attack	Damage - reversible or permanent	Severity - (loss of strength and/or stiffness)
Neutral	Non-polar liquids such as petroleum hydrocarbons	None	Negligible	Negligible
S (swelling)	Alcohol and other polar solvents	Swelling	Reversible	Proportional to volumetric swelling
D (degrading)	Inorganic acids	Hydrolysis of cellulose	Permanent	Slight to moderate
D	Organic acids such as: Formic, acetic, propionic and lactic acid	Hydrolysis of cellulose	Permanent	Slight (pH 3-6)
D	Alkalis such as: sodium, calcium and magnesium hydroxide	De-lignification of wood and dissolving of hemicellulose	Permanent	Moderate (pH > 9.5) Severe (pH > 11)
D	Salts (considered as weak acids)	Hydrolysis of cellulose	Permanent	Slight

Table reference Williamson T.G. 2002 APA Engineered Wood Handbook

1.11 Storage and handling of SmartLVL

- Store SmartLVL flat on a hard, dry surface
- If surface isn't paved, the ground should be covered with a polythene film
- Keep covered with waterproof material that allows bundles to "breathe"
- Use bearers (bolsters) between the ground and the first bundle (4 metre max spacing)
- Use 100 x 50 timber flat between bundles at same spacing as bolsters
- Take great care to rewrap remaining material after opening bundles
- LVL "grows" in thickness and depth when allowed to get wet...,KEEP DRY!
- LVL with high MC has short term reduction in Characteristic Strengths .... KEEP DRY!
- Under NO circumstances is stored SmartLVL to be in contact with the ground.



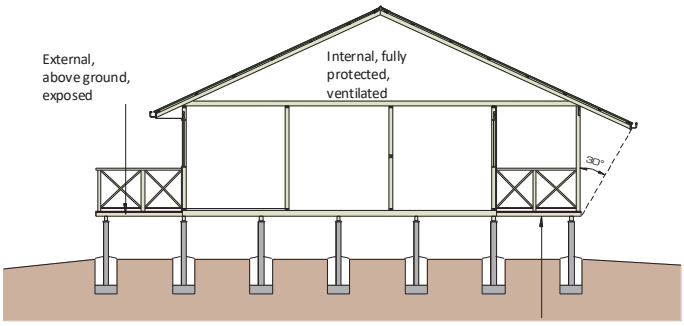
Use bearers to keep stacked material away from damp surfaces.
Align bearer vertically

1.12 Durability and exposure to moisture

SmartLVL is manufactured from hardwood veneers which have a durability rating of class 3, which is the same rating as some Ash type Eucalypts. Untreated SmartLVL should not be used where the equilibrium moisture content is likely to remain above 20% for an extended period.

Untreated SmartLVL is suitable in the ***internal, fully protected, ventilated*** and the ***external above ground, protected*** zones of the structure as shown below. Untreated SmartLVL is not suitable for ***external above ground, exposed*** or humid indoor conditions, such as swimming pool enclosures.

Definitions of exposure zones within a structure



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).

1.12.1 Moisture effects on LVL

SmartLVL, like all wood products, is hygroscopic, which means it has an affinity for water, and being a LVL, should be considered as a composite of many pieces of wood, each with different potential swelling. Moisture exposure will ultimately lead to dimensional change.

SmartLVL is supplied WITH a short term construction water repellent and once framed into a structure may be exposed to the weather for a limited time (usually not greater than 3 months) without negative affect, BUT, it may exhibit some effects of this exposure such as swelling and checking (especially at cut ends), depending upon the weather conditions.

While offering significant water short term repellency comparable to wax coatings, the coating does NOT totally WATER PROOF the LVL. While the products will withstand normal exposure, excessive exposure during distribution, storage or construction may lead to dimensional changes that affect serviceability. These changes include cupping, bowing or expansion to dimensions to beyond the specified tolerance of the product in the "as-manufactured" condition.

Individual members of a vertically laminated multi member may exhibit some cupping if water becomes trapped between the laminates. This cupping produces more of a visual and possible fixity problem rather than being structurally significant. If not properly dried out, this moisture between laminated members may lead to decay. To prevent this effect, use construction details as shown on page 2.

As an organic material, mould and mildew may grow on untreated wood products if moisture is present. Prolonged periods of high moisture may also support the growth of wood decay fungi **The** H_2O Shield™ does provide some resistance to mould and fungi attack, but it is NOT equivalent to H3 treatment.

In critical applications where dimensional change due to moisture exposure is to be absolutely minimised (e.g. truss applications in wet humid conditions) it is recommended that a remedial short term water resistant coating be used to recoat any cut ends or notches etc.

The table below shows the moisture content of LVL as a function of humidity.

Moisture content of wood products % [1]	
Relative Humidity %	LVL MC
10	1.2
20	2.8
30	4.6
40	5.8
50	7.0
60	8.4
70	11.1
80	15.3
90	19.4

1. Approx. moisture content at 21^{0}C

1.12.2 Dimensional change

SmartLVL will shrink and swell in proportion to changes in moisture content between 0 and 28 % fibre saturation point.

The most significant moisture movement will occur across the grain (tangential and radial directions within a log). Longitudinal (movement in the grain direction) may be a factor depending upon the type of structure. Detailing of SmartLVL to be used where moisture contents will cycle should allow for dimensional instability.

The AVERAGE amount of dimensional change in a piece of LVL changes in moisture content can be APPROXIMATED by the following formula:

$$\Delta D = D_i S\,(MC_i - MC_f)/FSP$$

Where:
ΔD = change in dimension
D_i = Initial dimension
S = Shrinkage coefficient = approximately 6%
MC_i = Initial moisture content
MC_f = final moisture content
FSP = fibre saturation point approximately 28%

HOWEVER, these dimensional effects are quite variable. Thickness swell in LVL is erratic along the length because of the densification of the lap joints during manufacture tends to "relieve" when saturated and the total swell in sections containing two (2) laps can be as much as 2 mm.

1.12.3 Change in characteristic strengths

Changes in moisture content in wood results in changes in mechanical properties, with higher properties at lower moisture contents. Estimates of the effect of moisture differentials on the properties of clear wood may be obtained by the following equation:

$$P = P_{12}\left(\frac{P_{12}}{P_g}\right)^{\left(\frac{12-M}{M_p-12}\right)}$$

Where:
P= Characteristic property at moisture content
P_{12} = same Characteristic property at 12% moisture content
P_g = same Characteristic property for Green wood
M_p = Intersection moisture content = 25 %

1.12 Durability and exposure to moisture (Cont'd)

The APPROXIMATE affect upon key Characteristic Properties of LVL by changes in MC are outlined in the table below:

Characteristic Property		Reduction in Characteristic strength at % MC					
		14	16	18	20	22	24
MOE (Stiffness)	E	3.3	6.5	9.7	12.7	15.6	18.4
MOR (Bending)	F'_b	8.4	16.1	23.1	29.6	35.5	40.9
Compression perpendicular to grain	f'_p	9.9	18.9	27.0	34.2	40.8	46.7
Compression parallel to grain	f'_c	11.0	20.7	29.4	37.2	44.1	50.2
Shear	f'_s	6.6	12.8	18.6	24.0	29.0	33.7

The design Characteristic properties of SmartLVL can therefore be considerably reduced by severe increase in MC of the LVL.

If the SmartLVL is being built into structures (such as prefabricated trusses) that are:

1. Likely to experience large increase in MC due to weather exposure or stored on the ground
2. Likely to be loaded to at/or close to design loads while in the high MC state

then the reduced Characteristic Strengths as detailed above NEED to be used in the design or members may require temporary propping.

Once covered, the SmartLVL will ultimately dry and re-equilibrate to the ambient humidity conditions, but some expansion or swelling will remain after re-drying. The thickness swelling in laps will never fully shrink back and a large piece of LVL can have a final thickness variation along the length of 1-2 mm

1.12.4 Design for durability

i. The use of building overhangs and other structures which protect the beams from excessive moisture movement and sun exposure.

ii. 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.

iii. The use of arrised or round edges on beams to reduce the likelihood of coating failures on sharp edges.

iv. The use of drip edges or other devices which provide a path for free moisture flow away from the timber beam.

v. Joint detailing should, wherever possible, comply with the following:

   1. Keep horizontal contact areas to a minimum, in favour of self draining vertical surfaces.
   2. Ventilate joint surfaces by using spacers, wherever possible
   3. 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
   4. Ensure any moisture entering a joint is not trapped but can adequately drain away from the joint

Allow for thermal expansion/contraction in the joint design.

1.12.5 Post-Production treatment

SmartLVL 19 is supplied glue-line H2 treated or can be supplied either LOSP treated or Tru-Core® treated to H3 hazard class levels, as per AS/NZS 1604.4. (Tru-Core® is a registered trade mark of Kop -Coat Australia PTY Limited)

To maintain effective treatment it is a requirement that any cuts, notches or penetrations made in post production treated LVL be painted with a suitable "brush/spray on" preservative.

The hazard class number selected is based upon the specific exposure condition for the proposed end use of the SmartLVL, as shown in the table below.

Hazard class selection guide

Hazard class	Exposure	Specific service conditions	Biological hazard	Typical uses
H1†	Inside, above ground	Completely protected from the weather and well ventilated, and protected from termites	Lyctid borers	Interior beams, staircases, stringers
H2S*	Inside, above ground	Protected from wetting Nil leaching	Borers and termites	Interior beams, staircases, trusses, joists
H2	Inside, above ground	Protected from wetting Nil leaching	Borers and termites	Interior beams, staircases, trusses, joists
H3	External, above ground	Subject to periodic moderate wetting and leaching	Moderate decay, borers and termites	Exterior beams (1)

† The timber species in SmartLVL are not susceptible to Lyctid Borer attack
* H2S treatment is only suitable South of the Tropic of Capricorn

A more comprehensive Hazard Class Table is available in AS/NZS 1604.4, but it is **NOT** recommended that SmartLVL be used in end uses with exposures requiring treatment in excess of H3.

(1) Experience is showing that post production LOSP treated LVL in the ***external above ground, exposed*** (H3 Hazard Class) may experience some leaching of the active ingredients of the treatment. To minimize the possibility of timber degradation in these situations, it is recommended that H3 treated Smart LVL NOT be used where the surface is horizontally exposed AND unprotected from water entrapment OR where post-treatment protection cannot be maintained.

Post treatment protection may include:

(i) Protectadeck ™ high density water proof joist/ bearer cover or malthoid capping

and

(ii) An impervious membrane such as regularly maintained painting or staining.

(iii) Construction detailing to prevent water entrapment.

H3 treated SmartLVL is NOT recommended for fascia's, pergolas or other similar ***external above ground, exposed*** applications due to mechanical degradation of the wood fibre causing checking and cracking which is both aesthetically unacceptable and allows ingress of water to inner veneers.

1.12.6 Fasteners for H3 LVL

For any H3 Smart LVL to be used in exposed exterior applications, it is recommended that either hot dipped galvanised or stainless steel fasteners are used.

1.12 Durability and exposure to moisture (Cont'd)

Specifically, If the Tru-Core® Copper Quat H3 treatment process is used, high grades (304, 305 and 316) of stainless steel materials perform the best.

1.12.7 Painting of treated SmartLVL

1. General

To provide the longest service life of the SmartLVL it is recommended the LVL is painted with an exterior paint with a Light Reflectance Value (LRV) greater than 30%. Heat reduction exterior paints should be used where the desired colour is dark or has a LRV of less than 30% The heat reflective paints colours should be limited to a Total Solar Reflectance (TSR) value greater than 29%.

Any paint or stain must be recommended by the manufacturer as being suitable for the proposed application and must be applied in a manner in strict compliance to the manufacturer's recommendations

2. LOSP Treated

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.

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.

a. 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.

or

Exterior solid colour oil based enamel. One coat of oil based primer followed by one coat of oil based under-coat (if required) then two coats of the oil based enamel.

b. 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.

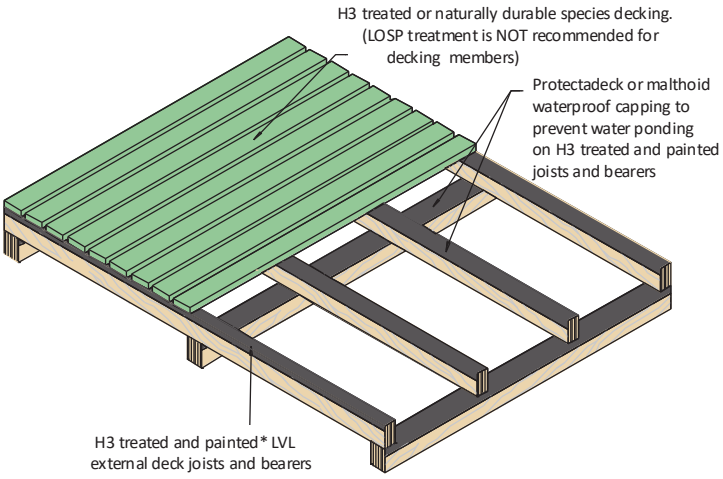
3. Tru-Core® Treated

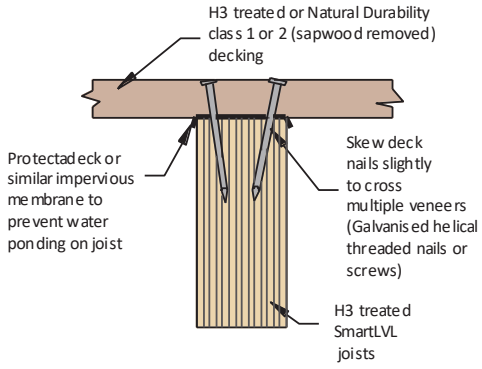
1. The wood must be dry and clean prior to applying any finish coating. If initial cleaning of the treated wood is needed, it is recommended that the project be cleaned with a deck cleaning product and allow to fully dry.
2. At this time, a clear water repellent may be added to the project. If applied, allow 8 weeks prior to the application of a semi-transparent stain or paint
3. If no water repellent is added, an oil based stain can be applied to the clean, dry wood in 30-60 days from treatment date
4. A water based stain can be applied to the clean, dry wood in 45-70 days from treatment date.
5. Depending on the treatment method used, if the wood is left uncoated and without UV protection:
   i. The typical brown colour of the Copper Quat treated wood will naturally weather to a grey colour over long-term exposure to the sun
   ii. The Azole treated wood has no colouration so it will naturally weather to a grey colour over long-term exposure to the sun

Users must always conduct their own tests on coatings in inconspicuous areas of the project to determine acceptability of colour, adhesion and appearance.

1.12.8 H3 Deck bearers and joists

H3 Treated Deck joists and bearers are a common application for treated SmartLVL. The diagram demonstrates the minimum construction detailing for H3 treated joists and bearers. Failure to follow these guidelines may render treatment warranties void.
It is recommended that deck nails be slightly skewed as per the detail below.





Recommended proprietary top protection for joists and bearers

1.13 SmartLVL hanger details

Given the high load carrying capacity of SmartLVL, it is essential that the connection of SmartLVL to other structural members is considered carefully, with the industry practice of simple skew or end nailing of SmartLVL not recommended for anything but the lightest loads.

The list below contains the common light to medium duty SmartLVL framing brackets stocked by Tilling Timber. Member connections requiring capacities greater than those listed below can be designed by your own Engineer or SmartFrame Engineers, but any non-standard connection system designed by your own engineer or SmartFrame Engineers may take some time to have fabricated.

Framing bracket code	Fixing to SUPPORTING beam	Design Capacity ϕN_j (kN) $1.2G+1.5Q_f$ (DL + FLL) JD4	Fixing to SUPPORTED beam	Wind Uplift (k_1 = 1.14) Design Capacity ϕN_j (kN) $1.2G+1.5Q_f$ (DL + RLL) for Joint group JD5	JD4	JD3	Max.
FB3590, FB4290	8 Nails 4 Screws	4.6 6.1	4 nails 2 screws	3.2 3.5	3.7 5.0	5.3 5.0	6.0 5.0
FB35120, FB42120	12 Nails 6 Screws	6.4 9.1	6 nails 4 screws	4.7 7.1	5.7 10.0	7.9 10.0	9.0 10.0
FB35140, FB42140	16 Nails 6 Screws	8.4 9.1	8 nails 4 screws	6.2 7.1	7.5 10.0	10.6 10.0	12.0 10.0
FB35180, FB42180	20 Nails 8 Screws	10.3 12.1	10 nails 6 Screws	7.4 10.6	8.9 15.0*	12.4 15.0*	15.0* 15.0*
FB42220	26 Nails 10 Screws	13.1 14.2	13 nails 8 Screws	9.5 14.2	11.3 15.0*	15.0* 15.0*	15.0* 15.0*
FB60130	12 Nails 4 screws	6.4 6.1	3 nails 7 nails 4 screws	2.4 5.4 7.1	2.8 6.6 10.0	3.9 9.3 10.0	4.5 10.5 10.0
FB65170	18 Nails 6 screws	9.3 9.1	6 nails 11 nails 6 screws	4.7 8.1 10.6	5.7 9.8 15.0*	7.9 13.6 15.0*	9.0 15.0* 15.0*
FB90200	26 Nails 10 Screws	12.9 14.2	3 nails 13 nails 8 screws	2.4 9.6 14.2	2.8 11.6 15.0*	3.9 15.0* 15.0*	4.5 15.0* 15.0*
LVSIA (Horizontal) LVSIA (Vertical)	6 screws 6 screws	8.2 5.8	1 screw 6 screws	1.0	1.4 8.6	1.8 13.3	1.8 13.3
Pryda JHS (pair)	16 Nails 16/8g x 25 mm type 17 screws	15.0 17.9	16 Nails 16 Screws	23.8 33.7	28.3 40.0	29.8 40.0	29.8 40
MiTek SPH180 (pair)	4 MSA1430 screws‡ 8 MSA1430 screws‡	11.4 20.9	4 MSA1430 screws 8 MSA1430 screws	13.3 24.5	18.8 34.6	20.4 37.8	20.4 37.8
MiTek SPH220 (pair)	5 MSA1430 screws‡ 10 MSA1430 screws‡	13.4 25.6	5 MSA1430 screws 10 MSA1430 screws	15.7 30.0	22.1 42.3	25.5 46.0	25.5 46.0
Dunnings Girder brackets	4 nails‡ 6 nails‡	6.2 9.4	4 nails ‡ 6 nails ‡	8.4 12.6	10.2 15.4	14.4 21.6	14.4 21.6

‡ in each face of joist hanger

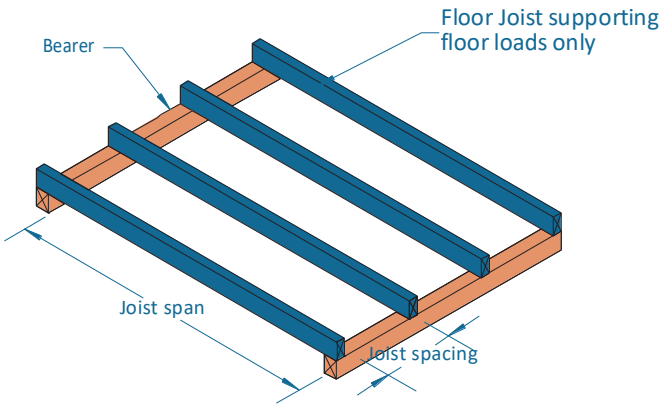
Notes:

1. For this table, SmartLVL has been given a uniform JD4 Joint Strength Group. For more detailed calculations of joint strength group in particular planes contact the Tech Support Customer HelpLine on 1300 668 690
2. The above tabulated capacities are for a minimum beam thickness of 35 mm.
3. For all Pryda FB, LVSIA and JHS brackets - Nails :Pryda 35 x 3.15 galvanised Pryda Timber Connection nails or equivalent, Screws: No 12 Type 17 x 35 mm
4. MSA1430 are MiTek No 14 Type 17 x 30 mm screws
5. Wind uplift capacities apply to designs in accordance with AS/NZS 1170:2002
6. Pryda FB Framing Bracket capacity has been limited to 15.0 kN shown *
7. These capacities apply directly for joints in houses and on secondary beams in other structures. For joints on primary beams in structures other than houses, reduce the capacity by 0.85/0.95 = 0.89
8. For FB65170 brackets, wind uplift dead load values have been reduced due to a shorter end distance on the supported beam compared to the other brackets.
9. Multiple Laminated Supporting Beams - Fasteners with longer lengths are required when Joist Hangers are fixed into a multiple laminated supporting beam. For double laminates, use 65 long nails or screws. Alternatively, for double or triple laminated supporting beams, additional fixings may be provided at hanger locations to laminate plies. Seek advice from the Engineer.

2. Index of Span Tables

Floor joists supporting floor loads only

Floor mass - 40 kg/m^2



EXAMPLE:

domestic floor loads
single span
joist spacing = 450 mm
joist span = 3500 mm

Enter single span table at 450 mm in joist spacing column, read down to a span equal to or greater than 3500 mm

ADOPT:

SmartLVL 19 - 170 x 35

Loadings: permanent - self weight + 40 kg/m^2 + 0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

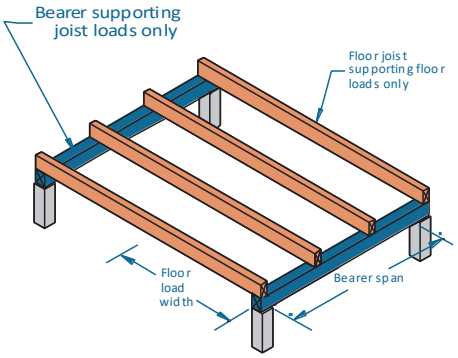
Joist spacing (mm)	300		450		600		300		450		600	
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Member size (DxB) mm	Maximum recommended span (mm)											
	Single span						Continuous span					
90x35	2100	800	1800	700	1700	600	260	800	2100	700	1900	600
120x35	3300	1100	2500	950	2300	850	3900	1100	3000	950	2700	850
140x35	3800	1300	3000	1100	2700	1000	4500	1300	3600	1100	3200	1000
170x35	4400	1600	3700	1350	3400	1250	5200	1600	4600	1350	3900	1250
190x35	4800	1800	4200	1550	3800	1400	5700	1800	5100	1550	4500	1400
200x35	4900	1900	4500	1650	4000	1450	5900	1900	5300	1650	4700	`1450
240x35	5600	2250	5200	2000	4900	1800	6800	2250	6100	2000	5700	1800
300x35	6600	2650	6100	2400	5700	2250	> 7200	2650	> 7200	2400	6700	2250
90x45	2400	900	2000	750	1800	650	3100	900	2300	750	2100	650
120x45	3600	1200	2700	1050	2500	950	4300	1200	3300	1050	2900	950
140x45	4000	1400	3300	1200	3000	1100	4800	1400	4000	1200	3500	1100
170x45	4600	1750	4100	1500	3700	1350	5500	1750	5000	1500	4300	1350
190x45	5000	2000	4600	1700	4200	1550	6000	2000	5400	1700	4900	1550
200x45	5200	2100	4800	1800	4400	1600	6300	2100	5700	1800	5200	1600
240x45	5900	2400	5500	2150	5100	2000	> 7200	2400	6500	2150	6000	2000
300x45	6900	2850	6400	2550	6000	2400	> 7200	2850	> 7200	2550	7100	2400

NOTES:

1. 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
2. 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 2
3. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
4. D = member depth, B = member breadth, NS = not suitable
5. End bearing lengths = 42 mm at end supports and 58 mm at internal supports for continuous members
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span floor bearers supporting floor loads only

Floor mass - 40 kg/m^2



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:
SmartLVL 19 - 300 x 45

Loadings: permanent - self weight + 40 kg/m^2 +0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

Floor load width (mm)	1200		1800		2400		3600		4800		6000	
Member size (DxB) mm	Maximum recommended single span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
90x35	1500	300	1300	250	1200	200	1000	200	NS	NS	NS	NS
120x35	2000	400	1800	350	1600	300	1400	200	1200	200	1100	200
140x35	2400	400	2100	400	1900	300	1600	300	1400	200	1300	250
170x35	2900	500	2500	500	2300	450	2000	400	1800	350	1600	300
200x35	3400	600	3000	600	2700	500	2300	450	2100	400	1900	300
240x35	3900	700	3500	700	3200	600	2800	550	2500	500	2300_5	450_5
2/90x35	1900	300	1700	300	1500	300	1300	250	1200	200	1100	200
2/120x35	2500	500	2200	400	2000	400	1700	300	1600	300	1400	200
2/140x35	3000	600	2600	500	2300	450	2000	400	1800	350	1700	300
2/170x35	3600	700	3100	600	2900	500	2500	500	2200	400	2100	400
2/200x35	4000	800	3700	700	3400	600	2900	500	2600	500	2400	400
2/240x35	4600	900	4200	800	3900	700	3500	700	3200	600	2900	500
90x45	1600	300	1400	200	1300	250	1100	200	1000	200	NS	NS
120x45	2200	400	1900	300	1700	300	1500	300	1300	250	1200	200
140x45	2600	500	2200	400	2000	400	1800	350	1600	300	1400	200
170x45	3100	600	2700	500	2500	500	2100	400	1900	300	1800	350
200x45	3600	700	3200	600	2900	500	2500	500	2300	450	2100	400
240x45	4200	800	3800	750	3500	700	3000	600	2700	500	2500	500
300x45	4900	900	4500	900	4100	800	3700	700	3400	600	3200_{10}	600_{10}
2/90x45	2100	400	1800	350	1600	300	1400	200	1300	250	1200	200
2/120x45	2800	550	2400	400	2200	400	1900	300	1700	300	1600	300
2/140x45	3200	600	2800	550	2500	500	2200	400	2000	400	1800	350
2/170x45	3800	750	3400	600	3100	600	2700	500	2400	400	2200	400
2/200x45	4300	850	3900	700	3600	700	3200	600	2900	500	2600	500
2/240x45	4900	900	4400	800	4100	800	3700	700	3400	600	3200	600
2/300x45	5700	1100	5200	1000	4900	900	4400	800	4100	800	3900	700
200x65	4000	800	3600	700	3300	650	2800	550	2600	500	2400	400
240x65	4500	900	4100	800	3800	750	3400	600	3100	600	2800	550
300x65	5300	1050	4900	900	4500	900	4100	800	3800	750	3600	700
360x65	6100	1200	5600	1100	5200	1000	4700	900	4300	850	4100	800_5

Continuous span floor bearers supporting floor loads only

Floor mass - 40 kg/m^2

Loadings: permanent - self weight + 40 kg/m^2 +0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

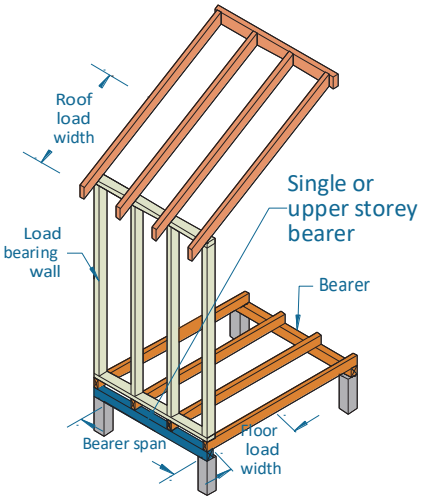
Floor load width (mm)	1200		1800		2400		3600		4800		6000	
Member size (DxB) mm	Maximum recommended Continuous span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
90x35	2000	400	1800	350	1600	300	1400	250	1200	200	1100	200
120x35	2700	500	2400	400	2200	400	1900	300	1600	300	1400	200
140x35	3200	600	2800	550	2500	500	2200	400	1900_{5}	300_{5}	1700_{15}	300_{15}
170x35	3700	700	3400	600	3100	600	2700	500	2300_{20}	45020	2000_{30}	400_{30}
200x35	4200	800	3800	750	3500	700	3100_{25}	600	2700_{35}	500_{35}	2400	400
240x35	4800	950	4400	800	4100_{15}	800	3700_{40}	700	3300	650	2900_{10}	500_{10}
2/90x35	2600	500	2300	450	2000	400	1800	350	1600	300	1500	300
2/120x35	3400	600	3000	600	2700	500	2400	400	2100	400	2000	400
2/140x35	3800	750	3400	600	3200	600	2800	550	2500	500	2300	450
2/170x35	4400	800	4000	800	3700	700	3400	600	3000	600	2800	550
2/200x35	5000	1000	4500	900	4200	800	3800	750	3500	700	3300_{15}	650
2/240x35	5700	1100	5200	1000	4800	950	4400	800	4100_{15}	800	3800_{25}	750
90x45	2200	400	1900	300	1800	350	1500	300	1400	250	1200	200
120x45	3000	600	2600	500	2400	400	2000	400	1800	350	1600	300
140x45	3400	600	3000	600	2800	550	2400	400	2100	400	1900_{5}	300_{5}
170x45	4000	800	3600	700	3300	650	2900	500	2600_{10}	500	2300_{20}	450_{20}
200x45	4500	900	4000	800	3800	750	3400_{10}	600	3100_{25}	600	2700_{35}	500_{35}
240x45	5100	1000	4600	900	4300	850	3900_{20}	700	3600_{40}	700	3300	650
300x45	6100	1200	5500	1100	5100_{10}	1000	4600_{35}	900	4300_{5}	850_{5}	4100_{15}	800_{15}
2/90x45	2800	550	2500	500	2200	400	1900	300	1700	300	1600	300
2/120x45	3600	700	3300	650	3000	600	2600	500	2300	450	2100	400
2/140x45	4100	800	3700	700	3400	600	3000	600	2700	500	2500	500
2/170x45	4700	900	4300	850	4000	800	3600	700	3300	650	3100	600
2/200x45	5300	1050	4800	950	4500	900	4000	800	3800	750	3600	700
2/240x45	6100	1200	5500	1100	5100	1000	4600	900	4300	850	4100_{10}	800
2/300x45	7200	1400	6500	1300	6100	1200	5500	1100	5100_{10}	1000	4800_{25}	950
200x65	4900	900	4400	800	4100	800	3700	700	3500	700	3200_{15}	600
240x65	5600	1100	5100	1000	4700	900	4300	850	4000_{15}	800	3800_{30}	750
300x65	6700	1300	6000	1200	5600	1100	5100_{15}	1000	4700^{30}	900	4500	900
360x65	7200	1400	6900	1300	6400	1200	5800_{25}	1150	5400	1000	5100_{5}	1000_{5}

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. The above table was based on a maximum DL of 40 (kg/m^2) + 0.6 kPa of LL, floor live load of 1.5 (kPa), floor point load of 1.8 (kN)
4. 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
5. Restraint value for slenderness calculations is 600 mm (floor joist centres at 600 mm max)
6. Not all sizes of SmartLVL 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/m^2



EXAMPLE:

sheet roof - 40 kg/m^2
roof load width = 1950 mm
bearer span = 3000 mm (single span)
floor load width = 2200 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/m^2 row.

ADOPT:
SmartLVL 19 - 2/240 x 35

Single span

Floor load width (mm)	Roof Mass kg/m^2	1200						2400						4800					
Roof Load Width (mm)		1500		4500		7500		1500		4500		7500		1500		4500		7500	
Member Size (DxB) mm		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Maximum recommended single span (mm)																	
90x35	40	1300	300	1100	300	1000	300	1100	300	1000	300	NS	NS	NS	NS	NS	NS	NS	NS
	90	1200	300	NS	NS	NS	NS	1000	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
120x35	40	1800	500	1500	400	1400	400	1500	400	1300	300	1200	300	1200	300	1100	300	1100	300
	90	1600	400	1300	300	1100	300	1400	400	1200	300	1000	300	1200	300	1000	300	NS	NS
140x35	40	2000	600	1800	500	1600	400	1700	500	1600	400	1500	400	1400	400	1300	300	1300	300
	90	1800	500	1500	400	1300	300	1600	400	1400	400	1200	300	1400	400	1200	300	1100	300
170x35	40	2500	700	2100	600	1900	500	2100	600	1900	500	1800	500	1700	500	1600	400	1500	400
	90	2300	600	1800	500	1600	400	2000	600	1700	500	1500	400	1700	500	1500	400	1400	400
190x35	40	2800	800	2400	700	2200	600	2400	700	2200	600	2000	600	1900	500	1800	500	1700	500
	90	2500	700	2000	600	1800	500	2200	600	1900	500	1700	500	1900	500	1700	500	1500	400
200x35	40	2900	800	2500	700	2300	600	2500	700	2300	600	2100	600	2000	600	1900	500	1800	500
	90	2700	800	2100	600	1900	500	2400	700	2000	600	1800	500	2000	600	1800	500	1600	400
240x35	40	3500	1000	3100	900	2800	800	3000	900	2700	800	2500	700	2500	700	2300	600	2200	600
	90	3200	900	2600	700	2200	600	2800	800	2400	700	2100	600	2400	700	2100	600	2000	600
2/90x35	40	1600	400	1400	400	1300	300	1400	400	1300	300	1200	300	1100	300	1100	300	1000	300
	90	1500	400	1200	300	1000	300	1300	300	1100	300	1000	300	1100	300	1000	300	NS	NS
2/120x35	40	2200	600	1900	500	1700	500	1900	500	1700	500	1600	400	1500	400	1400	400	1400	400
	90	2000	600	1600	400	1400	400	1800	500	1500	400	1300	300	1500	400	1300	300	1200	300
2/140x35	40	2600	700	2200	600	2000	600	2200	600	2000	600	1800	500	1800	500	1700	500	1600	400
	90	2300	600	1900	500	1600	400	2100	600	1700	500	1600	400	1700	500	1500	400	1400	400
2/170x35	40	3100	900	2700	800	2400	700	2700	800	2400	700	2200	600	2200	600	2100	600	2000	600
	90	2800	800	2300	600	2000	600	2500	700	2100	600	1900	500	2100	600	1900	500	1700	500
2/190x35	40	3500	1000	3000	900	2700	800	3000	900	2700	800	2500	700	2400	700	2300	600	2200	600
	90	3200	900	2500	700	2200	600	2800	800	2400	700	2100	600	2400	700	2100	600	1900	500
2/200x35	40	3700	1100	3200	900	2900	800	3200	900	2900	800	2700	800	2600	700	2400	700	2300	600
	90	3400	1000	2700	800	2400	700	3000	900	2500	700	2200	600	2500	700	2200	600	2100	600
2/240x35	40	4200	1200	3800	1100	3500	1000	3700	1100	3500	1000	3200	900	3100	900	2900	800	2800	800
	90	3900	1100	3200	900	2800	800	3600	1000	3000	900	2700	800	300	900	2700	800	2500	700

Floor bearers supporting single storey load bearing wall - sheet and tiled roof

Single span (Cont'd)

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/m²	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Maximum recommended single span (mm)																	
90x45	40	1400	400	1200	300	1100	300	1200	300	1100	300	1000	300	1000	300	NS	NS	NS	NS
	90	1300	300	1000	300	NS	NS	1100	300	1000	300	NS	NS	NS	NS	NS	NS	NS	NS
120x45	40	1900	500	1600	400	1500	400	1600	400	1500	400	1400	400	1300	300	1200	300	1200	300
	90	1700	500	1400	400	1200	300	1500	400	1300	300	1100	300	1300	300	1100	300	1000	300
140x45	40	2200	600	1900	500	1700	500	1900	500	1700	500	1600	400	1500	400	1500	400	1400	400
	90	2000	600	1600	400	1400	400	1800	500	1500	400	1300	300	1500	400	1300	300	1200	300
170x45	40	2700	800	2300	600	2100	600	2300	600	2100	600	1900	500	1900	500	1800	500	1700	500
	90	2500	700	2000	600	1700	500	2200	600	1800	500	1600	400	1800	500	1600	400	1500	400
190x45	40	3000	900	2600	700	2400	700	2600	700	2300	600	2200	600	2100	600	2000	600	1900	500
	90	2700	800	2200	600	1900	500	2400	700	2100	600	1800	500	2000	600	1800	500	1700	500
200x45	40	3200	900	2800	800	2500	700	2700	800	2500	700	2300	600	2200	600	2100	600	2000	600
	90	2900	800	2300	600	2000	600	2600	700	2200	600	1900	500	2100	600	1900	500	1800	500
240x45	40	3800	100	3300	900	3000	900	3300	9000	3000	900	2800	800	2700	800	2500	700	2400	700
	90	3500	1000	2800	800	2400	700	3100	900	2600	700	2300	600	2600	700	2300	600	2100	600
300x45	40	4500	1300	4000	1200	3700	1100	4000	1200	3700	1100	3500	1000	3400	1000	3200	900	3000	900
	90	4100	1200	350	1000	3100	900	3800	1100	3300	900	2900	800	3200	900	2900	800	2700	800
2/90x45	40	1800	500	1500	400	1400	400	1500	400	1400	400	1300	300	1200	300	1200	300	1100	300
	90	1600	400	1300	300	1100	300	1400	400	1200	300	1100	300	1200	300	1100	300	1000	300
2/120x45	40	2400	700	2100	600	1900	500	2100	600	1900	500	1700	500	1700	500	1600	400	1500	400
	90	2200	600	1700	500	1500	400	1900	500	1600	400	1400	400	1600	400	1400	400	1300	300
2/140x45	40	2800	800	2400	700	2200	600	2400	700	2200	600	2000	600	2000	600	1800	500	1800	500
	90	2500	700	2000	600	1800	500	2200	600	1900	500	1700	500	1900	500	1700	500	1500	400
2/170x45	40	3400	1000	2900	800	2700	800	2900	800	2600	700	2400	700	2400	700	2200	600	2100	600
	90	3100	900	2500	700	2200	600	2700	800	2300	600	2100	600	2300	600	2100	600	1900	500
2/190x45	40	3700	1100	3300	900	3000	900	3300	900	3000	900	2700	800	2700	800	2500	700	2400	700
	90	3400	1000	2800	800	2400	700	3100	900	2600	700	2300	600	2600	700	2300	600	2100	600
2/200x45	40	3900	1100	3500	1000	3100	900	3500	1000	3100	900	2900	800	2800	800	2700	800	2500	700
	90	3600	1000	2900	800	2600	700	3200	900	2700	800	2400	700	2700	800	2400	700	2200	600
2/240x45	40	4500	1300	4000	1200	3700	1100	4000	1200	3700	1100	3500	1000	3400	1000	3200	900	3000	900
	90	4200	1200	3500	1000	3100	900	3800	1100	3300	900	2900	800	3300	900	2900	800	2700	800
2/300x45	40	5300	1500	4700	1400	4400	1300	4700	1400	4400	1300	4100	1200	4000	1200	3900	1100	3700	1100
	90	4900	1400	4200	1200	3800	1100	4500	1300	4000	1200	3600	1000	3900	1100	3600	1000	3400	1000
200x65	40	3600	1000	3100	900	2800	800	3100	900	2800	800	2600	700	2500	700	2400	700	2300	600
	90	3300	900	2600	700	2300	600	2900	800	2400	700	2200	600	2400	700	2200	600	2000	600
240x65	40	4100	1200	3700	1100	3400	1000	3700	1100	3400	1000	3100	900	3000	900	2900	800	2700	800
	90	3800	1100	3200	900	2800	800	3500	1000	2900	800	2600	700	2900	800	2600	700	2400	700
300x65	40	4900	1400	4400	1300	4100	1200	4400	1300	4000	1200	3800	1100	3700	1100	3600	1000	3400	1000
	90	4500	1300	3800	1100	3500	1000	4100	1200	3700	1100	3300	900	3600	1000	3300	900	3000	900
360x65	40	5600	1600	5000	1500	4600	1300	5000	1500	4600	1300	4400	1300	4300	1200	4100	1200	4000	1200
	90	5200	1500	4400	1300	4000	1200	4800	1400	4200	1200	3900	1100	4200	1200	3800	1100	3600	1000

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/m²	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Maximum recommended continuous span (mm)																	
90x35	40	1800	500	1500	400	1400	400	1500	400	1400	400	1300	300	1100	300	1000	300	1000	300
	90	1600	400	1300	300	1100	300	1400	400	1200	300	1000	300	1100	300	1000	300	NS	NS
120x35	40	2400	700	2100	600	1900	500	2000	600	1800	500	1700	500	1500	400	1400	400	1300	300
	90	2200	600	1700	500	1500	400	1900	500	1600	400	1400	400	1400	400	1300	300	1200	300
140x35	40	2800	800	2400	700	2200	600	2400	700	2200	600	2000	600	1700	500	1600	400	1600	400
	90	2500	700	2000	600	1800	500	2200	600	1900	500	1600	400	1700	500	1500	400	1400	400
170x35	40	3400	950	2900	800	2600	700	2900	800	2600	700	2400	700	2100	600	2000	600	1900	500
	90	3100	900	2500	700	2100	600	2700	800	2300	600	2000	600	2000	600	1800	500	1700	500
190x35	40	3700	1050	3300	900	3000	900	3300	900	2900	800	2700	800	2400	700	2200	600	2100	600
	90	3400	1000	2800	800	2400	700	3000	900	2600	700	2200	600	2300	600	2100	600	1900	500
200x35	40	3900	1100	3500	1000	3100	900	3400	1000	3100	900	2900	800	2500	700	2400	700	2300	600
	90	3600	1000	2900	800	2500	700	3200	900	2700	800	2400	700	2400	7000	2200	600	2000	600
240x35	40	4500	1350	4000	1200	3700	1100	4000	1200	3700	1100	3500	1000	3000	900	2800	800	2700	800
	90	4100	1200	3500	1000	3200	900	3800	1100	3300	900	2800	800	2900	800	2600	700	2400	700
2/90x35	40	2300	650	1900	500	1700	500	1900	500	1700	500	1600	400	1600	400	1500	400	1400	400
	90	2000	600	1600	400	1400	400	1800	500	1500	400	1400	400	1500	400	1300	300	1200	300
2/120x35	40	3000	850	2600	700	2300	600	2600	700	2300	600	2200	600	2100	600	2000	600	1900	500
	90	2700	800	2200	600	1900	500	2400	700	2000	600	1800	500	2000	600	1800	500	1700	500
2/140x35	40	3500	1000	3000	900	2700	800	3000	900	2700	800	2500	700	2500	700	2300	600	2200	600
	90	3200	900	2600	700	2200	600	2800	800	2400	700	2100	600	2400	700	2100	600	1900	500
2/170x35	40	4100	1200	3700	1100	3300	900	3600	1000	3300	900	3100	900	3000	900	2800	800	2700	800
	90	3800	1100	3100	900	2700	800	3400	1000	2900	800	2600	700	2900	800	2600	700	2400	700
2/190x35	40	4400	1300	4000	1200	3700	1100	4000	1200	3700	1100	3400	1000	3300	900	3200	900	3000	900
	90	4100	1200	3500	1000	3000	900	3800	1100	3200	900	2900	800	3200	900	2900	800	2700	800
2/200x35	40	4600	1300	4100	1200	3800	1100	4100	1200	3800	1100	3600	1000	3500	1000	3300	900	3200	900
	90	4300	1200	3600	1000	3200	900	3900	1100	3400	1000	3100	900	3400	1000	3000	900	2800	800
2/240x35	40	5300	1500	4700	1400	4400	1300	4700	1400	4400	1300	4100	1200	4000	1200	3900	1100	3700	1100
	90	4900	1400	4200	1200	3800	1100	4500	1300	4000	1200	3700	1100	3600	1100	3600	1000	3400	1000
90x45	40	1900	550	1700	500	1500	400	1700	500	1500	400	1400	400	1300	300	1200	300	1200	300
	90	1800	500	1400	400	1200	300	1500	400	1300	300	1200	300	1200	300	1100	300	1000	300
120x45	40	2600	750	2200	600	2000	600	2200	600	2000	600	1900	500	1700	500	1600	400	1600	400
	90	2400	700	1900	500	1600	400	2100	600	1800	500	1600	400	1700	500	1500	400	1400	400
140x45	40	3000	850	2600	700	2400	700	2600	700	2300	600	2200	600	2000	600	1900	500	1800	500
	90	2700	800	2200	600	1900	500	2400	700	2100	600	1800	500	1900	500	1800	500	1600	400
170x45	40	3700	1050	3200	900	2900	800	3200	900	2900	800	2600	700	2400	700	2300	600	2200	600
	90	3300	900	2700	800	2300	600	3000	900	2500	700	2200	600	2400	700	2100	600	2000	600
190x45	40	4000	1150	3600	1000	3200	900	3500	1000	3200	900	3000	900	2700	800	2600	700	2500	700
	90	3700	1100	3000	900	2600	700	3300	900	2800	800	2500	700	2600	700	2400	700	2200	600
200x45	40	4100	1200	3700	1100	3400	1000	3700	1100	3400	1000	3100	900	2900	800	2700	800	2600	700
	90	3800	1100	3200	900	2800	800	3500	1000	3000	900	2600	700	2800	800	2500	700	2300	600
240x45	40	4800	1400	4300	1200	3900	1100	4200	1200	3900	1100	3700	1100	3500	1000	3300	900	3200	900
	90	4400	1300	3700	1100	3300	900	4000	1200	3600	1000	3200	900	3400	1000	3000	900	2800	800
300x45	40	5600	1600	5000	1500	4700	1400	5000	1500	4600	1300	4400	1300	4200	1200	4100_{5}	1200	3900_{5}	1100
	90	5200	1500	4400	1300	4000	1200	4800	1400	4200	1200	3900	1100	4200_{5}	1200	3800_{15}	1100	3500_{30}	1000

Floor bearers supporting single storey load bearing wall - sheet and tiled roof

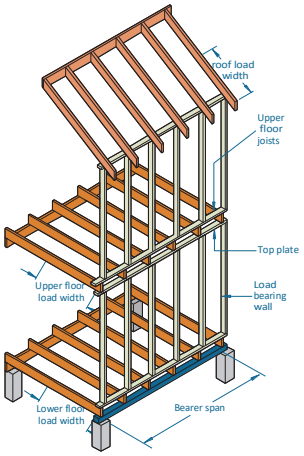
Continuous span (Cont'd)

Floor load width (mm)	Roof Mass kg/m²	1200						2400						4800					
Roof Load Width (mm)		1500		4500		7500		1500		4500		7500		1500		4500		7500	
Member Size (DxB) mm		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Maximum recommended continuous span (mm)																	
2/90x45	40	2400	700	2100	600	1900	500	2100	600	1900	500	1700	500	1700	500	1600	400	1500	400
	90	2200	600	1800	500	1500	400	2000	600	1700	500	1500	400	1600	400	1500	400	1300	300
2/120x45	40	3300	950	2800	800	2500	700	2800	800	2500	700	2300	600	2300	600	2200	600	2000	600
	90	3000	900	2400	700	2100	600	2600	700	2200	600	2000	600	2200	600	2000	600	1800	500
2/140x45	40	3700	1100	3300	900	3000	900	3300	900	3000	900	2700	800	2700	800	2500	700	2400	700
	90	3500	1000	2800	800	2400	700	3100	900	2600	700	2300	600	2600	700	2300	600	2100	600
2/170x45	40	4300	1200	3900	1100	3600	1000	3900	1100	3600	1000	3300	900	3200	900	3100	900	2900	800
	90	4000	1200	3400	1000	3000	900	3700	1100	3200	900	2800	800	3100	900	2800	800	2600	700
2/190x45	40	4700	1400	4200	1200	3900	1100	4200	1200	3900	1100	3700	1100	3600	1000	3400	1000	3300	900
	90	4400	1300	3700	1100	3300	900	4000	1200	3500	1000	3200	900	3500	1000	3100	900	2900	800
2/200x45	40	4900	1400	4400	1300	4100	1200	4400	1300	4100	1200	3800	1100	3700	1100	3600	1000	3400	1000
	90	4600	1300	3900	1100	3500	1000	4200	1200	3700	1100	3300	900	3700	1100	3300	900	3100	900
2/240x45	40	5600	1600	5000	1500	4700	1400	5000	1500	4700	1400	4400	1300	4300	1200	4100	1200	4000	1200
	90	5200	1500	4400	1300	4000	1200	4800	1400	4200	1200	3900	1100	4200	1200	3900	1100	3600	1000
2/300x45	40	6000	1900	6000	1800	5500	1600	5900	1700	5500	1600	5200	1500	5000	1500	4900	1400	4700	1400
	90	6000	1800	5300	1500	4800	1400	5700	1700	5000	1500	4600	1300	5000	1500	4600	1300	4300	1200
200x65	40	4500	1350	4100	1200	3800	1100	4000	1200	3800	1100	3500	1000	3400	1000	3200	900	3100	900
	90	4200	1200	3600	1000	3100	900	3800	1100	3300	900	3000	900	3300	900	3000	900	2700	800
240x65	40	5200	1500	4700	1400	4300	1200	4600	1300	4300	1200	4100	1200	3900	1100	3800	1100	3700	1100
	90	4800	1400	4100	1200	3700	1100	4400	1300	3900	1100	3600	1000	3900	1100	3600	1000	3300	900
300x65	40	>6000	1800	5500	1600	5100	1500	5500	1600	5100	1500	4800	1400	4600	1300	4500	1300	4300	1200
	90	5700	1700	4900	1400	4400	1300	5200	1500	4600	1300	4200	1200	4600	1300	4200	1200	4000	1200
360x65	40	6000	2100	6000	1800	5900	1700	6300	1800	5800	1700	5500	1600	5300	1500	5200	1500	5000	1500
	90	6000	1900	5600	1600	5000	1500	6000	1800	5300	1500	4900	1400	5300	1500	4800	1400	4600_{15}	1300

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. The above table was based on total ground floor mass of 40 (kg/m^2) + 0.5 kPa of LL, wall mass of 37 (kg/m^2), floor live load of 1.5 (kPa), floor point load of 1.8 (kN)
4. The above table was based on a wall height of 2700 mm
5. 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.
6. Restraint value for slenderness calculations is 600 mm
7. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span floor bearer supporting double storey load bearing wall - sheet and tile roof



EXAMPLE:

sheet roof - 40 kg/m^2
roof load width = 1950 mm
bearer span = 3100 mm (single span)
lower floor load width = 3500 mm
upper floor load width = 1500 mm

Enter single span table at 3600 mm in lower floor load width column, 1800 mm in upper floor width column, 4500 mm roof load width column, read down to a span equal to or greater than 3100 mm in the 40 kg/m^2 row.

ADOPT:
SmartLVL 19 - 2/300 x 45

Lower floor load width (mm)		1800						3600					
Upper floor load width (mm)		1800			3600			1800			3600		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended bearer span (mm)											
		Single Span											
120x35	40	1100	1100	1000	1000	1000	NS	1000	1000	NS	NS	NS	NS
	90	1100	1000	NS	1000	NS	NS	1000	NS	NS	NS	NS	NS
140x35	40	1300	1300	1200	1200	1200	1100	1200	1200	1100	1100	1100	1000
	90	1300	1200	1100	1200	1100	1000	1200	1100	1000	1100	1000	NS
170x35	40	1600	1500	1500	1500	1400	1400	1500	1400	1400	1400	1300	1300
	90	1600	1400	1300	1400	1300	1200	1400	1300	1200	1300	1200	1200
200x35	40	1900	1800	1700	1800	1700	1600	1700	1700	1600	1600	1600	1500
	90	1900	1700	1500	1700	1600	1500	1700	1600	1500	1600	1500	1400_{5}
2/120x35	40	1400	1400	1300	1300	1300	1200	1300	1200	1200	1200	1200	1100
	90	1400	1200	1100	1300	1200	1100	1300	1200	1100	1200	1100	1000
2/140x35	40	1700	1600	1500	1500	1500	1400	1500	1500	1400	1400	1400	1300
	90	1600	1500	1300	1500	1400	1300	1500	1400	1300	1400	1300	1200
2/170x35	40	2100	2000	1900	1900	1800	1700	1900	1800	1700	1700	1700	1600
	90	2000	1800	1600	1800	1700	1600	1800	1700	1600	1700	1600	1500
2/200x35	40	2400	2300	2200	2200	2100	2000	2200	2100	2000	2000	2000	1900
	90	2400	2100	1900	2200	2000	1800	2100	2000	1800	2000	1900	1800
2/240x35	40	2900	2800	2600	2700	2600	2500	2700	2500	2400	2500	2400	2300
	90	2800	2500	2300	2600	2400	2200	2600	2400	2200	2400	2200	2100
120x45	40	1200	1200	1100	1100	1100	1000	1100	1100	1000	1000	1000	1000
	90	1200	1100	1000	1100	1000	NS	1100	1000	NS	1000	NS	NS
140x45	40	1500	1400	1300	1300	1300	1200	1300	1300	1200	1200	1200	1100
	90	1400	1300	1200	1300	1200	1100	1300	1200	1100	1200	1100	1000
170x45	40	1800	1700	1600	1600	1500	1500	1600	1500	1500	1500	1400	1400
	90	1700	1500	1400	1600	1400	1300	1600	1400	1300	1500	1400	1300
200x45	40	2100	2000	1900	1900	1800	1800	1900	1800	1700	1800	1700	1600
	90	2000	1800	1700	1900	1700	1600	1800	1700	1600	1700	1600	1500
240x45	40	2500	2400	2300	2300	2200	2100	2300	2200	2100	2100	2100	2000
	90	2400	2200	2000	2200	2000	1900	2200	2000	1900^{5}	2100	1900_{5}	1800_{5}
300x45	40	3200	3000	2900	2900	2800	2700_{5}	2900_{5}	2800_{5}	2600_{5}	2700_{10}	2600_{10}	2500_{10}
	90	3100	2700	2500_{5}	2800	2600_{5}	2400_{10}	2800_{5}	2600_{10}	2400_{15}	2600_{10}	2400_{15}	2300_{20}
2/120x45	40	1600	1500	1400	1400	1400	1300	1400	1400	1300	1300	1300	1200
	90	1500	1400	1300	1400	1300	1200	1400	1300	1200	1300	1200	1100
2/140x45	40	1800	1700	1700	1700	1600	1500	1700	1600	1500	1500	1500	1400
	90	1800	1600	1500	1600	1500	1400	1600	1500	1400	1500	1400	1300
2/170x45	40	2300	2100	2000	2000	2000	1900	2000	1900	1900	1900	1800	1800
	90	2200	1900	1800	2000	1800	1700	2000	1800	1700	1800	1700	1600
2/200x45	40	2700	2500	2400	2400	2300	2200	2400	2300	2200	2200	2200	2100
	90	2600	2300	2100	2300	2200	2000	2300	2100	2000	2200	2000	1900
2/240x45	40	3200	3000	2900	2900	2800	2700	2900	2800	2700	2700	2600	2500
	90	3100	2800	2500	2800	2600	2400	2800	2600	2400	2600	2400	2300
2/300x45	40	3800	3600	3500	3500	3400	3300	3500	3400	3300	3300	3200	3100
	90	3700	3400	3200	3400	3200	3000	3400	3200	3000	3300	3100	2900
200x65	40	2400	2200	2100	2200	2100	2000	2200	2100	2000	2000	1900	1900
	90	2300	2100	1900	2100	1900	1800	2100	1900	1800	2000	1800	1700
240x65	40	2900	2700	2600	2600	2500	2400	2600	2500	2400	2400	2300	2200
	90	2800	2500	2300	2500	2300	2200	2500	2300	2200	2400	2200	2100
300x65	40	3500	3300	3200	3200	3100	3000	3200	3100	3000	3000	2900	2800
	90	3400	3100	2900	3200	2900	2700	3200	2900	2700	3000	2700	2600_{5}
360x65	40	4000	3800	3700	3700	3600	3500	3700	3600	3500	3500_{5}	3400_{5}	3300_{10}
	90	3900	3600	34005	3600	3400_{5}	3300_{10}	3600	3400_{5}	3200_{10}	3500_{5}	3300_{10}	3100_{15}

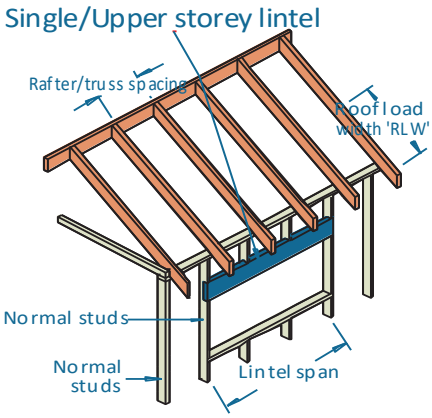
Continuous span floor bearer supporting double storey load bearing wall - sheet & tile roof

Lower floor load width (mm)		1800						3600					
Upper floor load width (mm)		1800			3600			1800			3600		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended bearer span (mm)											
		Continuous span											
120x35	40	1600	1500	1400	1400	1400	1300_{5}	1400	1300	1300_{5}	1200_{5}	1200_{10}	1100_{10}
	90	1500	1400	1200_{5}	1400	1200_{5}	1100_{10}	1300	1200_{5}	1100_{10}	1200_{5}	1100_{10}	1000_{15}
140x35	40	1800	1700	1600_{5}	1700_{5}	1600_{10}	1500_{15}	1600_{10}	1500_{15}	1500_{15}	1400_{20}	1400_{20}	1300_{20}
	90	1800	1600_{10}	1400_{15}	1600_{10}	1500_{20}	1300_{20}	1600_{10}	1400_{20}	1300_{25}	1400_{20}	1300_{25}	1100_{25}
170x35	40	2200_{5}	2100_{10}	2000_{20}	2000_{20}	1900_{25}	1800_{30}	2000_{25}	1900_{30}	1800_{30}	1800_{35}	1700_{35}	1600_{40}
	90	2200_{10}	1900_{25}	1800_{35}	2000_{25}	1800_{35}	1600_{40}	1900_{25}	1700_{35}	1500_{40}	1700_{35}	1500_{40}	1400_{45}
200x35	40	2600_{20}	2500_{25}	2400_{35}	2400_{35}	2300_{40}	2200_{45}	2300_{40}	2200_{45}	2100_{50}	2100_{50}	2000_{55}	1900_{55}
	90	2500_{25}	2300_{40}	2100_{50}	2300_{40}	2100_{50}	1800_{60}	2300_{45}	2000_{50}	1800_{60}	2000_{50}	1800_{55}	1600_{65}
2/90x35	40	1500	1400	1300	1300	1300	1200	1300	1300	1200	1200	1200	1200
	90	1400	1300	1200	1300	1200	1100	1300	1200	1100	1200	1100	1100
2/120x35	40	2000	1900	1800	1800	1700	1700	1800	1700	1600	1700	1600	1600
	90	1900	1700	1600	1700	1600	1500	1700	1600	1500	1600	1500	1400
2/140x35	40	2300	2200	2100	2100	2000	1900	2100	2000	1900	1900	1900	1800
	90	2200	2000	1800	2000	1900	1700	2000	1900	1700	1900	1800	1700
2/170x35	40	2800	2700	2500	2600	2500	2400	2600	2400	2400	2400_{5}	2300_{5}	2200_{5}
	90	2700	2400	2300	2500	2300	2100_{10}	2500	2300	2100_{10}	2300_{5}	2200_{10}	2000_{20}
2/200x35	40	3300	3100	3000	3000	2900_{5}	2800_{5}	3000_{5}	2900_{5}	2800_{10}	2800_{15}	2700_{15}	2600_{20}
	90	3200	2900	2700_{10}	2900	2700_{10}	2500_{20}	2900_{5}	2700_{15}	2500_{20}	2700_{15}	2500_{25}	2400_{30}
2/240x35	40	3800	3600	3500_{5}	3500_{10}	3400_{15}	3300_{20}	3500_{15}	3400_{20}	3300_{25}	3300_{30}	3200_{35}	3100_{35}
	90	3700	3400_{10}	3200_{25}	3400_{15}	3200_{25}	3000_{40}	3400_{20}	3200_{30}	3000_{40}	3300_{30}	3100_{40}	2900_{50}
120x45	40	1700	1600	1500	1500	1500	1400	1500	1500	1400	1400	1400	1300
	90	1600	1500	1400	1500	1400	1300_{5}	1500	1400	1300_{5}	1400	1300_{5}	1200_{10}
140x45	40	2000	1900	1800	1800	1700	1700_{5}	1800	1700_{5}	1700_{5}	1600_{10}	1600_{10}	1500_{10}
	90	1900	1700	16005	1800	1600_{5}	1500_{15}	1800	1600_{10}	1500_{15}	1600_{10}	1500_{15}	1400_{20}
170x45	40	2400	2300	2200_{5}	2200_{5}	2100_{10}	2000_{20}	2200_{15}	2100_{15}	2000_{20}	2000_{25}	1900_{25}	1900_{30}
	90	2300	2100_{10}	1900_{20}	2100_{10}	2000_{20}	1800_{30}	2100_{15}	2000_{25}	1800_{30}	2000_{25}	1800_{30}	1700_{40}
200x45	40	2900_{5}	2700_{10}	2600_{20}	2600_{20}	2500_{25}	2400_{30}	2600_{30}	2500_{30}	2400_{35}	2400_{40}	2300_{40}	2200_{45}
	90	2800_{10}	2500_{25}	2300_{35}	2500_{25}	2300_{35}	2200_{50}	2500_{30}	2300_{40}	2100_{50}	2300_{40}	2100_{50}	2000_{55}
240x45	40	3400_{15}	3200_{25}	3100_{35}	3100_{40}	3000_{45}	2900_{50}	3100_{45}	3000_{50}	2900_{55}	2900_{60}	2800_{65}	2700_{70}
	90	3300_{25}	3000_{40}	2800_{55}	3100_{40}	2800_{55}	2600_{70}	3000_{50}	2800_{60}	2600_{75}	2800_{60}	2600_{75}	2300_{85}
300x45	40	4000_{35}	3800_{45}	3700_{55}	3700_{55}	3600_{65}	3500_{80}	3700_{70}	3600_{75}	3500_{90}	3500_{105}	3400_{110}	3300_{115}
	90	3900_{40}	3600_{60}	3400_{100}	3700_{65}	3400_{100}	3300_{120}	3600_{75}	3400_{105}	3200_{120}	3500_{105}	3200_{120}	2900_{125}
2/120x45	40	2200	2000	1900	2000	1900	1800	2000	1900	1800	1800	1700	1700
	90	2100	1900	1700	1900	1700	1600	1900	1700	1600	1800	1600	1600
2/140x45	40	2500	2400	2300	2300	2200	2100	2300	2200	2100	2100	2000	2000
	90	2400	2200	2000	2200	2000	1900	2200	2000	1900	2100	1900	1800
2/170x45	40	3100	2900	2800	2800	2700	2600	2800	2700	2600	2600	2500	2400
	90	3000	2700	2500	2700	2500	2300	2700	2500	2300	2500	2400	2200_{5}
2/200x45	40	3500	3400	3200	3300	3200	3000	3300	3100	3000	3000_{5}	2900_{5}	2800_{5}
	90	3400	3100	2900	3200	2900	2700_{10}	3200	2900_{5}	2700_{10}	3000_{5}	2800_{10}	2600_{15}
2/240x45	40	4000	3900	3700	3800	3600	3500_{5}	3700_{5}	3600_{5}	3500_{10}	3500_{15}	3400_{15}	3400_{20}
	90	3900	3600	3400_{10}	3700	3400_{10}	3300_{20}	3700_{5}	3400_{15}	3300_{25}	3500_{15}	3300_{25}	3100_{35}
200x65	40	3200	3100	2900	3000	2800_{5}	2700_{10}	2900_{10}	2800_{10}	2700_{15}	2700_{20}	2600_{20}	2600_{25}
	90	3100	2800_{5}	2600_{15}	2900_{5}	2600_{15}	2500_{25}	2900_{10}	2600_{15}	2500_{25}	2700_{20}	2500_{25}	2300_{35}
240x65	40	3700	3600_{5}	3400_{10}	3500_{15}	3300_{20}	3200_{25}	3400_{20}	3300_{25}	3200_{30}	3300_{35}	3200_{35}	3100_{40}
	90	3600_{5}	3300_{20}	3100_{30}	3400_{15}	3200_{30}	3000_{40}	3400_{20}	3200_{35}	3000_{45}	3200_{35}	3000_{45}	2800_{55}
300x65	40	4400_{10}	4200_{20}	4100_{25}	4100_{25}	4000_{35}	3800_{45}	4100_{35}	4000_{40}	3800_{45}	3900_{50}	3800_{55}	3700_{60}
	90	4300_{15}	3900_{30}	3700_{50}	4000_{30}	3800_{50}	3600_{65}	4000_{40}	3800_{55}	3600_{70}	3800_{55}	3600_{70}	3400_{95}
360x65	40	5000_{20}	4800_{30}	4700_{40}	4700_{40}	4500_{50}	4400_{55}	4700_{50}	4500_{55}	4400_{60}	4400_{70}	4300_{75}	4200_{90}
	90	4900_{25}	4500_{45}	4300_{65}	4600_{45}	4300_{65}	4100_{95}	4600_{55}	4300_{70}	4100_{100}	4400_{75}	4100_{100}	4000_{120}

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. The above table was based on total upper floor mass of 40 (kg/m^2), total ground floor mass of 30 (kg/m^2), floor live load of 1.5 kPa, floor point load of 1.8 kN, wall mass of 32 (kg/m^2), & permanent floor live load of 0.5 kPa and a wall height of 5400 mm
4. 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.
5. Not all sizes of SmartLVL 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-N4



EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
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:
SmartLVL 19 - 240 x 35

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 recommended single span (mm)									
120x35	40	2800	2800	2200	2200	1900	1900	1700	1700	1600	1500
	90	2100	2100	1700	1600	1500	1300	1300	1100	1200	1000
140x35	40	3100	3100	2600	2600	2200	2200	2000	2000	1900	1900
	90	2400	2500	1900	1900	1700	1600	1500	1400	1400	1200
170x35	40	3600	3500	3000	3000	2700	2700	2400	2500	2200	2200
	90	2900	2900	2300	2300	2000	2000	1800	1800	1700	1600
200x35	40	4000	4000	3400	3400	3100	3100	2800	2800	2600	2700
	90	3300	3300	2700	2800	2400	2400	2200	2100	2000	2000
240x35	40	4600	4500	3900	3900	3500	3500	3300	3300	3100	3100
	90	3800	3700	3200	3200	2900	2900	2600	2600	2400	2400
2/90x35	40	2600	2700	2100	2100	1800	1800	1600	1600	1500	1400
	90	2000	2000	1600	1500	1400	1200	1300	1000	1200	900
2/120x35	40	3300	3200	2700	2700	2400	2400	2200	2200	2000	2000
	90	2600	2700	2100	2100	1800	1800	1600	1600	1500	1400
2/140x35	40	3600	3600	3100	3100	2700	2800	2500	2600	2300	2400
	90	3000	3000	2400	2500	2100	2100	1900	1900	1700	1700
2/170x35	40	4100	4100	3500	3500	3200	3200	3000	3000	2800	2800
	90	3400	3400	2900	2900	2600	2600	2300	2300	2100	2100
2/200x35	40	4600	4600	4000	4000	3600	3600	3400	3400	3200	3200
	90	3900	3900	3300	3300	3000	3000	2700	2700	2500	2600
2/240x35	40	5300	5300	4600	4500	4100	4100	3900	3900	3700	3600
	90	4400	4400	3800	3700	3400	3400	3200	3200	3000	3000
2/300x35	40	6200	6200	5300	5300	4900	4900	4600	4500	4300	4300
	90	5200	5200	4400	4400	4000	4000	3800	3700	3600	3500
90x45	40	2300	2400	1800	1900	1600	1500	1500	1300	1400	1200
	90	1800	1800	1400	1200	1300	1000	1100	900	1000	800
120x45	40	3000	3000	2400	2400	2100	2100	1900	1900	1700	1700
	90	2300	2300	1800	1800	1600	1500	1400	1300	1300	1100
140x45	40	3300	3300	2700	2800	2400	2500	2200	2200	2000	2000
	90	2600	2700	2100	2100	1800	1800	1600	1600	1500	1400
170x45	40	3800	3700	3200	3200	2900	2900	2600	2700	2400	2500
	90	3100	3100	2500	2600	2200	2200	2000	2000	1800	1800
200x45	40	4200	4200	3600	3600	3300	3200	3000	3000	2900	2900
	90	3500	3500	3000	3000	2600	2600	2300	2300	2200	2100
240x45	40	4800	4800	4100	4100	3700	3700	3500	3500	3300	3300
	90	4000	4000	3400	3400	3100	3000	2800	2800	2600	2700
300x45	40	5600	5600	4800	4800	4400	4400	4100	4100	3900	3900
	90	4700	4700	4000	4000	3600	3600	3400	3300	3200	3200

Single span lintels in single/upper storey walls
AS 4055 classification N1-N4 (Cont'd)

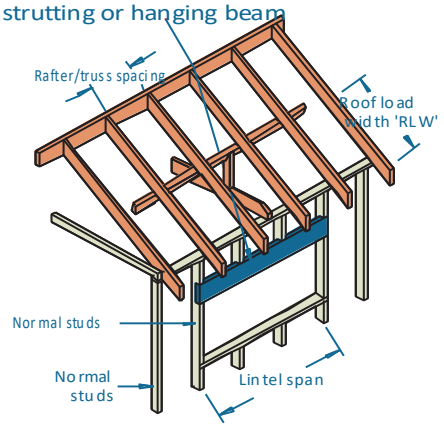
Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size (DxB) mm	Roof mass kg/m^2	Maximum recommended single span (mm)									
2/90x45	40	2800	2800	2200	2300	2000	2000	1800	1800	1600	1600
	90	2200	2200	1700	1700	1500	1400	1400	1200	1300	1000
2/120x45	40	3400	3400	2900	2900	2600	2600	2300	2400	2200	2200
	90	2800	2800	2200	2300	2000	1900	1800	1700	1600	1600
2/140x45	40	3800	3800	3300	3200	3000	3000	2700	2700	2500	2600
	90	3200	3200	2600	2700	2300	2300	2100	2000	1900	1900
2/170x45	40	4400	4400	3800	3700	3400	3400	3200	3200	3000	3000
	90	3700	3600	3100	3100	2800	2800	2500	2600	2300	2300
2/200x45	40	4900	4900	4200	4200	3800	3800	3600	3600	3400	3400
	90	4100	4100	3500	3500	3200	3100	2900	2900	2700	2800
2/240x45	40	5500	5500	4800	4800	4400	4400	4100	4100	3900	3900
	90	4700	4700	4000	4000	3600	3600	3400	3300	3200	3200
2/300x45	40	6500	6500	5600	5600	5200	5200	4800	4800	4600	4600
	90	5500	5500	4700	4700	4300	4300	4000	4000	3800	3800
200x65	40	4600	4600	3900	3900	3600	3500	3300	3300	3100	3100
	90	3800	3800	3200	3200	2900	2900	2700	2700	2500	2500
240x65	40	5200	5200	4500	4500	4100	4100	3800	3800	3600	3600
	90	4400	4300	3700	3700	3400	3300	3100	3100	2900	2900
300x65	40	6100	6100	5300	5300	4800	4800	4500	4500	4300	4300
	90	5100	5100	4400	4400	4000	3900	3700	3700	3500	3500
360x65	40	6900	6900	6000	6000	5500	5500	5100	5100	4900	4900
	90	5900	5800	5000	5000	4500	4500	4200	4200	4000	4000

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
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 SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span lintels in single/upper storey walls supporting strutting or hanging beams—AS 4055 classification N1-N4

Single/Upper storey lintel supporting strutting or hanging beam



EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
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:
SmartLVL 19 - 2/200 x 35

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/m2)	Maximum recommended lintel span (mm)									
90x35	40	2100	2100	1600	1500	1400	1300	1300	1100	1200	1000
	90	1600	1500	1300	1100	1100	900	1000	800	900	700
120x35	40	2600	2700	2100	2100	1800	1800	1600	1600	1500	1400
	90	2100	2100	1600	1600	1400	1300	1300	1100	1200	1000
140x35	40	3000	3000	2400	2400	2100	2100	1900	1900	1700	1700
	90	2400	2400	1900	1900	1600	1600	1500	1300	1400	1200
170x35	40	3400	3400	2900	2900	2500	2600	2300	2300	2100	2100
	90	2900	2900	2300	2300	2000	2000	1800	1800	1600	1600
200x35	40	3900	3800	3300	3200	2900	2900	2700	2700	2500	2500
	90	3300	3200	2700	2700	2300	2300	2100	2100	2000	1900
240x35	40	4400	4400	3700	3700	3400	3300	3100	3100	3000	3000_5
	90	3700	3700	3100	3100	2800	2800	2500	2500_{10}	2300_{10}	2300_5
2/90x35	40	2500	2600	2000	2000	1700	1700	1500	1400	1400	1300
	90	2000	2000	1500	1400	1400	1200	1300	1000	1100	900
2/120x35	40	3100	3100	2600	2600	2200	2300	2000	2000	1900	1900
	90	2600	2600	2000	2000	1800	1700	1600	1500	1500	1300
2/140x35	40	3500	3500	3000	3000	2600	2600	2400	2400	2200	2200
	90	3000	3000	2400	2400	2100	2000	1800	1800	1700	1700
2/170x35	40	4000	4000	3400	3400	3100	3100	2800	2900	2600	2700
	90	3400	3400	2800	2900	2500	2600	2200	2200	2100	2100
2/200x35	40	4500	4500	3800	3800	3500	3400	3200	3200	3100	3100
	90	3800	3800	3200	3200	2900	2900	2700	2700	2500	2500
2/240x35	40	5200	5200	4400	4400	4000	4000	3700	3700	3500	3500
	90	4400	4400	3700	3700	3400	3300	3100	3100	3000	3000
90x45	40	2200	2200	1700	1700	1500	1400	1400	1200	1300	1100
	90	1700	1700	1400	1200	1200	1000	1100	800	1000	700
120x45	40	2800	2800	2200	2300	1900	1900	1800	1700	1600	1600
	90	2200	2300	1800	1700	1500	1400	1400	1200	1300	1100
140x45	40	3200	3100	2600	2600	2200	2300	2000	2000	1900	1900
	90	2600	2600	2000	2000	1800	1800	1600	1500	1500	1400
170x45	40	3600	3600	3100	3100	2700	2700	2500	2500	2300	2300
	90	3100	3100	2500	2500	2200	2100	1900	1900	1800	1800
200x45	40	4100	4100	3500	3400	3100	3100	2900	2900	2700	2700
	90	3500	3400	2900	2900	2500	2600	2300	2300	2100	2100
240x45	40	4700	4700	4000	3900	3600	3500	3300	3300	3200	3100
	90	4000	3900	3300	3300	3000	3000	2800	2800	2600	26005
300x45	40	5500	5500	4700	4600	4200	4200	3900	3900	3700	3700
	90	4700	4600	3900	3900	3600	3500	3300	3300	3100	3100_5

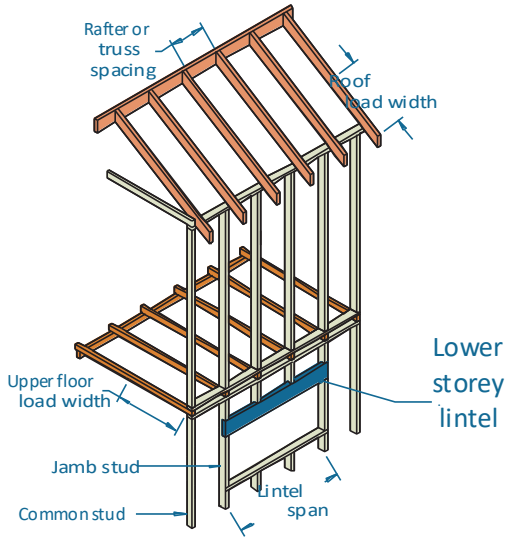
Single span lintels in single/upper storey walls supporting strutting or hanging beams — AS 4055 classification N1-N4 (Cont'd)

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 recommended lintel span (mm)									
2/90x45	40	2700	2700	2100	2100	1800	1900	1700	1600	1500	1400
	90	2100	2100	1700	1600	1500	1300	1300	1100	1300	1000
2/120x45	40	3300	3300	2800	2800	2400	2500	2200	2200	2000	2000
	90	2800	2800	2200	2200	1900	1900	1700	1700	1600	1500
2/140x45	40	3700	3700	3100	3100	2800	2800	2600	2600	2400	2400
	90	3100	3100	2600	2600	2200	2200	2000	2000	1900	1900
2/170x45	40	4200	4200	3600	3600	3300	3200	3100	3000	2900	2900
	90	3600	3600	3100	3000	2700	2700	2500	2500	2300	2300
2/200x45	40	4800	4800	4100	4100	3700	3700	3400	3400	3300	3200
	90	4100	4100	3400	3400	3100	3100	2900	2900	2700	2700
2/240x45	40	5400	5400	4700	4600	4200	4200	3900	3900	3700	3700
	90	4700	4600	3900	3900	3600	3500	3300	3300	3100	3100
2/300x45	40	6400	6400	5500	5500	5000	5000	4700	4600	4400	4400
	90	5500	5500	4700	4600	4200	4200	3900	3900	3700	3700
200x65	40	4400	4400	3800	3700	3400	3400	3200	3200	3000	3000
	90	3800	3700	3200	3200	2800	2900	2600	2600	2400	2400
240x65	40	5100	5100	4300	4300	3900	3900	3600	3600	3500	3400
	90	4300	4300	3600	3600	3300	3300	3100	3100	2900	2900
300x65	40	6000	5900	5100	5100	4600	4600	4300	4300	4100	4100
	90	5100	5100	4300	4300	3900	3900	3600	3600	3400	3400
360x65	40	6800	6800	5800	5800	5300	5300	4900	4900	4700	4700
	90	5800	5800	4900	4900	4500	4500	4200	4200	3900	3900

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
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 SmartLVL 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 - N4 & C1



EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
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:
SmartLVL 19 - 2/300 x 35

Roof Load Width (mm)		1500			3000			4500			6000		
Upper 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 recommended lintel span (mm)											
120x35	40	1500	1400	1300	1400	1300	1200	1400	1300	1200	1300	1200	1100
	90	1400	1300	1200	1300	1200	1100	1200	1100	1100	1100	1100	1000
140x35	40	1800	1600	1500	1700	1500	1400	1600	1500	1400	1500	1400	1300
	90	1700	1500	1400	1500	1400	1300	1400	1300	1300	1300	1300	1200
170x35	40	2200	2000	1800	2100	1900	1800	2000	1800	1700	1900	1800	1600
	90	2000	1900	1700	1900	1700	1600	1700	1600	1500	1600	1500	1500
200x35	40	2600	2300	2100	2400	2200	2100	2300	2100	2000	2200	2100	1900
	90	2400	2200	2100	2200	2000	1900	2000	1900	1800	1900	1800	1700
240x35	40	3000	2800	2600	2900	2700	2500	2800	2600	2400	2700	2500	2300
	90	2800	2700	2500	2600	2500	2300	2400	2300	2200	2300	2200	2100
300x35	40	3500	3300	3100	3400	3200	3000	3300	3100	2900	3200	3000	2900
	90	3400	3100	3000	3100	3000	2800_5	3000	2800_5	2700_{10}	2800_5	2700_{10}	2600_{15}
2/120x35	40	1900	1700	1600	1800	1700	1600	1700	1600	1500	1700	1600	1500
	90	1800	1700	1500	1600	1500	1400	1500	1400	1400	1400	1400	1300
2/140x35	40	2300	2000	1900	2100	2000	1800	2000	1900	1800	2000	1800	1700
	90	2100	1900	1800	1900	1800	1700	1800	1700	1600	1700	1600	1500
2/170x35	40	2700	2500	2300	2600	2400	2200	2500	2300	2100	2400	2200	2100
	90	2600	2400	2200	2300	2200	2100	2200	2100	2000	2000	1900	1900
2/200x35	40	3100	2900	2700	3000	2800	2600	2900	2700	2500	2800	2600	2500
	90	2900	2800	2600	2700	2600	2400	2600	2400	2300	2400	2300	2200
2/240x35	40	3600	3300	3100	3400	3200	3000	3300	3100	2900	3200	3000	2900
	90	3400	3200	3000	3100	3000	2900	3000	2800	2700	2800	2700	2600
2/300x35	40	4200	3900	3700	4000	3800	3600	3900	3700	3500	3800	3600	3400
	90	4000	3700	3500	3700	3500	3400	3500	3400	3200	3400	3200	3100
120x45	40	1700	1500	1400	1600	1400	1300	1500	1400	1300	1400	1300	1300
	90	1600	1400	1300	1400	1300	1200	1300	1200	1200	1200	1200	1100
140x45	40	2000	1800	1600	1800	1700	1600	1800	1600	1500	1700	1600	1500
	90	1800	1700	1500	1700	1500	1500	1500	1400	1400	1400	1400	1300
170x45	40	2400	2100	2000	2300	2100	1900	2100	2000	1800	2100	1900	1800
	90	2200	2000	1900	2000	1900	1800	1900	1800	1700	1800	1700	1600
200x45	40	2800	2500	2300	2700	2400	2300	2500	2300	2200	2400	2300	2100
	90	2600	2400	2200	2400	2200	2100	2200	2100	2000	2100	2000	1900
240x45	40	3200	2900	2800	3100	2900	2700	2900	2800	2600	2800	2700	2600
	90	3000	2800	2700	2800	2700	2500	2700	2500	2400	2500	2400	2300
300x45	40	3800	3500	3300	3600	3400	3200	3500	3300	3100	3400	3200	3100
	90	3600	3400	3200	3300	3200	3000	3100	3000	2900	3000	2900	2800_5

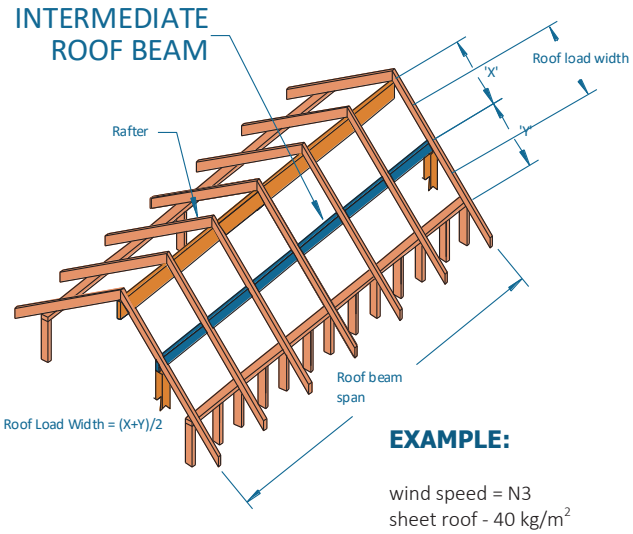
Single span lintels in lower storey walls
AS 4055 classification N1-N4 & C1 (Cont'd)

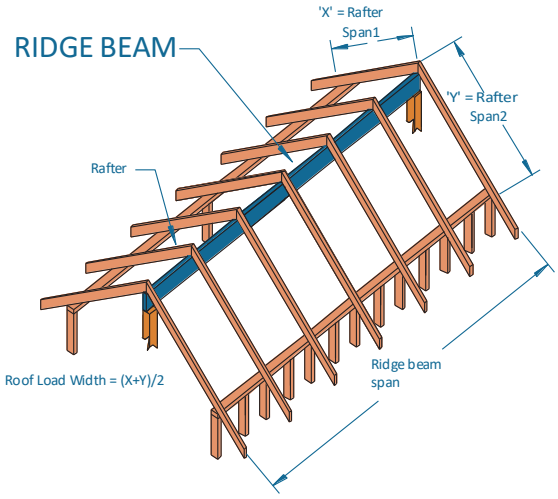
Roof Load Width (mm)		1500			3000			4500			6000		
Upper Floor Load Width (mm)		1200	2400	3600	1200	2400	3600	1200	2400	3600	1200	2400	3600
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended lintel span (mm)											
2/120x45	40	2100	1900	1700	2000	1800	1700	1900	1800	1600	1800	1700	1600
	90	2000	1800	1700	1800	1700	1600	1700	1600	1500	1600	1500	1400
2/140x45	40	2500	2200	2000	2300	2100	2000	2200	2100	1900	2100	2000	1900
	90	2300	2100	2000	2100	2000	1800	1900	1800	1700	1800	1700	1700
2/170x45	40	2900	2700	2500	2800	2600	2400	2700	2500	2300	2600	2400	2300
	90	2800	2600	2400	2500	2400	2200	2400	2200	2100	2200	2100	2000
2/200x45	40	3300	3000	2900	3200	3000	2800	3000	2900	2700	3000	2800	2700
	90	3100	2900	2800	2900	2800	2600	2700	2600	2500	2600	2500	2400
2/240x45	40	3800	3500	3300	3600	3400	3200	3500	3300	3100	3400	3200	3100
	90	3600	3400	3200	3300	3200	3000	3200	3000	2900	3000	2900	2800
2/300x45	40	4500	4100	3900	4300	4000	3800	4100	3900	3700	4000	3800	3600
	90	4200	4000	3800	3900	3800	3600	3700	3600	3500	3600	3400	3300
200x65	40	3000	2800	2600	2900	2700	2500	2800	2600	2500	2700	2600	2400
	90	2900	2700	2500	2700	2500	2400	2500	2400	2200	2300	2200	2100
240x65	40	3500	3200	3000	3300	3100	3000	3200	3000	2900	3100	3000	2800
	90	3300	3100	2900	3100	2900	2800	2900	2800	2700	2800	2700	2600
300x65	40	4100	3800	3600	4000	3700	3500	3800	3600	3400	3700	3500	3400
	90	3900	3700	3500	3600	3500	3300	3400	3300	3200	3300	3200	3100
360x65	40	4700	4400	4100	4500	4200	4000	4400	4100	3900	4200	4000	3800
	90	4500	4200	4000	4200	4000	3800	4000	3800	3700	3800	3600	3500

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
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 SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span ridge/intermediate roof beam
AS 4055 classification N1 - N4





EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
beam span = 4500 mm (single span)
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:
SmartLVL 19 - 2/240 x 35

Roof load width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m^2)	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Maximum recommended single span beam & overhang (mm)									
120x35	40	2600	1000	2000	950	1700	750	1600	650	1400	600
	90	2000	1000	1600	800	1400	700	1200	600	1100	500
140x35	40	3100	1150	2400	1100	2000	900	1800	800	1700	700
	90	2400	1150	1900	900	1600	800	1400	700	1300	600
170x35	40	3700	1400	2900	1300	2500	1100	2200	950	2000	850
	90	2900	1400	2300	1100	2000	1000	1800	900	1600	800
200x35	40	4400	1650	3400	1550	2900	1250	2600	1100	2400	1000
	90	3400	1650	2700	1300	2300	1100	2100	1000	1900	900
240x35	40	5200	1950	4100	1850	3500	1500	3100	1300	2900	1200
	90	4100	1950	3200	1600	2800	1400	2500	1200	2300	1100
2/120x35	40	3300	1250	2600	1250	2200	1100	2000	950	1800	850
	90	2600	1250	2000	1000	1700	800	1600	800	1400	700
2/140x35	40	3800	1450	3000	1450	2600	1250	2300	1100	2100	1000
	90	3000	1450	2400	1200	2000	1000	1800	900	1700	800
2/170x35	40	4600	1750	3600	1750	3100	1500	2800	1300	2500	1200
	90	3600	1750	2900	1400	2500	1200	2200	1100	2100	1000
2/200x35	40	5400	2050	4300	2050	3700	1800	3300	1550	3000	1400
	90	4300	2050	3400	1700	2900	1400	2600	1300	2400	1200
2/240x35	40	6400	2450	5100	2350	4400	2100	4000	1850	3600	1700
	90	5100	2450	4100	2050	3500	1700	3200	1600	2900	1400
120x45	40	2900	1100	2200	1050	1900	850	1700	750	1500	700
	90	2200	1100	1700	800	1500	700	1300	600	1200	600
140x45	40	3300	1250	2600	1250	2200	1000	2000	900	1800	800
	90	2600	1250	2000	1000	1800	900	1600	800	1400	700
170x45	40	4000	1500	3200	1500	2700	1200	2400	1050	2200	950
	90	3200	1500	2500	1200	2100	1000	1900	900	1800	900
200x45	40	4700	1800	3700	1750	3200	1450	2800	1250	2600	1100
	90	3700	1800	2900	1400	2500	1200	2300	1100	2100	1000
240x45	40	5700	2150	4500	2100	3800	1700	3400	1500	3100	1350
	90	4400	2150	3500	1700	3000	1500	2700	1300	2500	1200
300x45	40	7000	2650	5600	2500	4800	2150	4300	1850	3900	1700
	90	5500	2600	4400	2200	3800	1900	3400	1700	3100_5	1500_5

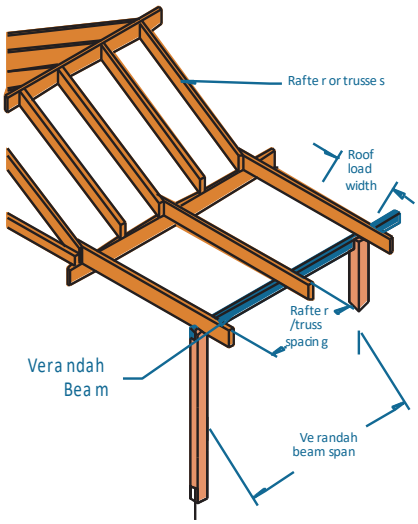
Single span ridge/intermediate roof beam
AS 4055 classification N1 - N4 (Cont'd)

Roof load width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m^2)	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Maximum recommended Single span beam & overhang (mm)									
2/120x45	40	3600	1350	2800	1350	2400	1200	2100	1050	1900	950
	90	2800	1350	2200	1100	1900	900	1700	800	1600	800
2/140x45	40	4100	1600	3300	1600	2800	1400	2500	1250	2300	1100
	90	3200	1600	2600	1300	2200	1100	2000	1000	1800	900
2/170x45	40	5000	1900	4000	1900	3400	1700	3000	1500	2800	1350
	90	3900	1900	3100	1500	2700	1300	2400	1200	2200	1100
2/200x45	40	5800	2250	4600	2200	4000	1950	3600	1750	3300	1600
	90	4600	2250	3700	1800	3200	1600	2900	1400	2600	1300
2/240x45	40	6900	2700	5500	2500	4800	2250	4300	2050	3900	1900
	90	5500	2600	4400	2200	3800	1900	3400	1700	3200	1600
2/300x45	40	> 7200	3350	6900	3000	6000	2700	5400	2450	4900	2300
	90	6900	3100	5500	2600	4800	2350	4300	2150	4000	2000
200x65	40	5300	2000	4200	2000	3600	1750	3200	1500	2900	1350
	90	4200	2000	3300	1600	2900	1400	2600	1300	2400	1200
240x65	40	6300	2400	5000	2300	4300	2050	3900	1800	3500	1600
	90	5000	2400	4000	2000	3400	1700	3100	1500	2800	1400
300x65	40	> 7200	3000	6200	2750	5400	2450	4800	2250	4400	2000
	90	6200	2850	5000	2400	4300	2150	3900	1900	3600	1800
360x65	40	> 7200	3600	> 7200	3200	6400	2850	5800	2600	5300	2400
	90	> 7200	3250	5900	2750	5200	2450	4600	2300	4300	2150

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable
3. 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
4. Maximum rafter spacing up to 1200 mm
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span Verandah beam
AS 4055 classification N1 – N4



EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
rafter/truss spacing = 600 mm
verandah span = 3500 mm
roof load width = 3900 mm
Enter span table at 4500 roof load width column, rafter spacing of 600 mm, and read down to a span equal to or greater than 3500 mm

ADOPT:
SmartLVL 19 - 240 x 45

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 recommended verandah beam span (mm)									
		Single Span									
140x35	10	4100	4000	3000	2900	2400	2300	2100	1900	1800	1500
	20	3500	3500	2800	2800	2500	2400	2100	2000	1900	1600
	40	2800	2800	2200	2300	2000	1900	1800	1800	1600	1600
	60	2500	2600	2000	1900	1700	1700	1500	NS	NS	NS
	90	2200	2200	1700	1700	1500	NS	NS	NS	NS	NS
170x35	10	4900	4900	3700	3500	3000	2900	2600	2500	2300	2200
	20	4200	4200	3400	3400	3000	2900	2600	2600	2300	2200
	40	3400	3400	2700	2800	2400	2400	2200	2200	2000	2000
	60	3000	3000	2400	2400	2100	2100	1900	1900	1700	1700
	90	2600	2700	2100	2100	1800	1800	1600	1600	1500	NS
200x35	10	5500	5400	4300	4200	3500	3400	3000	2900	2700	2600
	20	4700	4800	4000	4000	3600	3400	3100	3000	2700	2700
	40	4000	4000	3200	3200	2800	2800	2600	2600	2400	2400
	60	3600	3500	2800	2800	2500	2500	2200	2200	2100	2000
	90	3100	3100	2500	2500	2200	2100	1900	1900	1800	1800
240x35	10	6200	6200	5200	5200	4200	4100	3700	3500	3300	3100
	20	5400	5400	4600	4700	4200	4200	3700	3600	3300	3200
	40	4600	4700	3900	3900	3400	3400	3100	3100	2900	2900
	60	4200	4200	3400	3400	3000	3000	2700	2700	2500	2500
	90	3700	3700	3000	3000	2600	2600	2300	2300	2200	2100
140x45	10	4400	4300	3400	3300	2800	2700	2400	2300	2100	2000
	20	3800	3800	3100	3100	2700	2700	2400	2300	2200	2000
	40	3100	3100	2500	2500	2100	2100	1900	1900	1800	1800
	60	2700	2700	2100	2100	1900	1900	1700	1600	1600	1500
	90	2400	2400	1900	1900	1600	1500	1500	NS	NS	NS
170x45	10	5100	5100	4200	4100	3400	3200	2900	2800	2600	2600
	20	4400	4500	3700	3700	3300	3200	3000	2900	2600	2600
	40	3700	3700	3000	3000	2600	2700	2400	2400	2200	2200
	60	3300	3200	2600	2700	2300	2300	2100	2000	1900	1900
	90	2900	2900	2300	2300	2000	2000	1800	1800	1700	1600
200x45	10	5700	5700	4900	4900	4000	3900	3500	3300	3100	2900
	20	5000	5000	4300	4300	3900	3800	3500	3400	3100	3000
	40	4300	4300	3500	3500	3100	3100	2800	2800	2600	2700
	60	3900	3800	3100	3100	2700	2700	2400	2500	2300	2200
	90	3400	3300	2700	2700	2300	2300	2100	2100	2000	1900
240x45	10	6500	6500	5700	5700	4800	4800	4200	4000	3700	3600
	20	5700	5700	4900	4900	4400	4500	4100	4100	3800	3600
	40	4900	4900	4100	4100	3700	3700	3400	3300	3100	3100
	60	4400	4500	3700	3700	3200	3200	2900	2900	2700	2800
	90	4000	4000	3200	3200	2800	2800	2600	2600	2400	2300

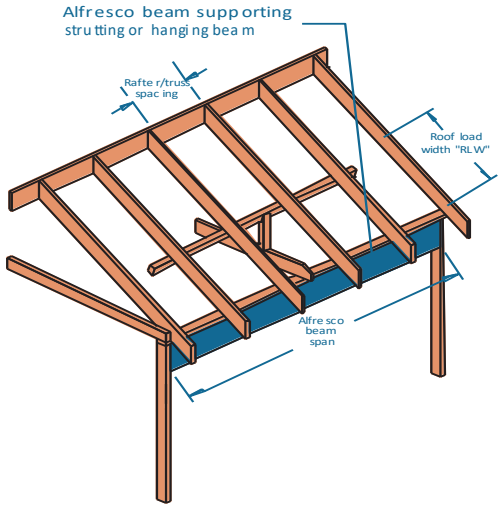
Single span Verandah beam
AS 4055 classification N1 - N4 (Cont'd)

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/m2)	Maximum recommended verandah beam span (mm)									
		Single Span									
300x45	10	7200	7200	6600	6600	6000	5900	5200	5200	4700	4600
	20	6600	6600	5800	5700	5200	5200	4900	4900	4700	4700
	40	5700	5700	4900	4900	4400	4500	4100	4100	3900	3900
	60	5200	5200	4400	4500	4000	4000	3700	3600	3400	3400
	90	4800	4800	4000	4000	3500	3500	3200	3200	3000	3000
200x65	10	6100	6100	5400	5400	4900	4800	4200	4100	3700	3600
	20	5400	5400	4700	4700	4200	4200	4000	3900	3700	3600
	40	4700	4700	4000	3900	3500	3400	3200	3100	2900	2900
	60	4200	4200	3500	3400	3000	3000	2800	2800	2600	2600
	90	3800	3800	3000	3000	2700	2700	2400	2400	2200	2200
240x65	10	6900	6900	6100	6100	5600	5600	5000	5000	4500	4400
	20	6100	6100	5300	5300	4900	4900	4500	4600	4300	4300
	40	5300	5300	4500	4600	4100	4100	3800	3800	3500	3500
	60	4900	4900	4100	4100	3600	3600	3300	3300	3100	3100
	90	4400	4400	3600	3600	3200	3200	2900	2900	2700	2700
300x65	10	7200	7200	7100	7200	6600	6600	6200	6200	5600	5500
	20	7100	7200	6200	6200	5700	5700	5300	5300	5100	5100
	40	6200	6200	5300	5300	4900	4900	4500	4600	4300	4300
	60	5700	5700	4900	4900	4400	4400	4100	4100	3900	3800
	90	5200	5200	4400	4400	4000	4000	3600	3600	3400	3300
360x65	10	7200	7200	7200	7200	7200	7200	7100	7100	6600	6600
	20	7200	7200	7100	7100	6500	6500	6100	6100	5800	5800
	40	7100	7100	6100	6100	5600	5500	5200	5200	4900	5000
	60	6500	6500	5600	5500	5100	5100	4700	4800	4500	4500
	90	6000	5900	5100	5100	4600	4600	4300	4300	4000	4000

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. End bearing lengths = 45 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
4. Restraint value for slenderness calculations is 1200 mm
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span Alfresco beam supporting hanging and/or strutting beams AS 4055 classification N1 - N4



EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
verandah span = 3500 mm
roof load width = 3900 mm
Enter span table at 4500 roof load width column, and read down to a span equal to or greater than 3500 mm

ADOPT:
SmartLVL 19 - 2/200 x 35

Roof Load Width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended beam span & overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
120x35	40	2500	1000	1900	950	1600	750	1500	650	1300	600
	90	2000	1000	1500	700	1300	600	1200	600	1100	500
140x35	40	2900	1150	2200	1100	1900	900	1700	800	1600	700
	90	2300	1150	1800	900	1600	800	1400	700	1300	600
170x35	40	3500	1400	2700	1350	2300	1100	2100	950	1900	850
	90	2800	1400	2200	1100	1900	900	1700	800	1600	800
200x35	40	4100	1650	3200	1550	2800	1300	2500	1100	2300	1000
	90	3300	1650	2600	1300	2200	1100	2000	1000	1900	900
240x35	40	4900	1950	3900	1900	3300	1550	3000	1350	2700	1200
	90	4000	1950	3100	1500	2700	1300	2400	1200	2200_5	1100_5
2/120x35	40	3100	1250	2400	1200	2100	1000	1900	950	1700	850
	90	2500	1250	2000	1000	1700	800	1500	700	1400	700
2/140x35	40	3600	1450	2800	1400	2400	1200	2200	1100	2000	1000
	90	2900	1450	2300	1100	2000	1000	1800	900	1600	800
2/170x35	40	4300	1750	3400	1700	2900	1400	2600	1300	2400	1200
	90	3500	1750	2800	1400	2400	1200	2200	1100	2000	1000
2/200x35	40	5100	2050	4000	2000	3500	1750	3100	1550	2800	1400
	90	4100	2050	3300	1600	2800	1400	2600	1300	2300	1100
2/240x35	40	6000	2450	4800	2300	4200	2050	3700	1850	3400	1700
	90	5000	2400	3900	1900	3400	1700	3100	1500	2800	1400
120x45	40	2700	1100	2100	1050	1800	850	1600	750	1500	700
	90	2100	1000	1700	800	1400	700	1300	600	1200	600
140x45	40	3100	1250	2400	1200	2100	1000	1900	900	1700	800
	90	2500	1250	2000	1000	1700	800	1500	700	1400	700
170x45	40	3800	1500	3000	1500	2500	1250	2300	1050	2100	950
	90	3000	1500	2400	1200	2100	1000	1900	900	1700	800
200x45	40	4400	1800	3500	1750	3000	1450	2700	1250	2500	1150
	90	3600	1800	2800	1400	2400	1200	2200	1100	2000	1000
240x45	40	5300	2150	4200	2050	3600	1750	3200	1500	2900	1350
	90	4300	2150	3400	1700	2900	1400	2600	1300	2400	1200
300x45	40	6400	2650	5200	2450	4500	2150	4000	1900	3700	1700
	90	5400	2550	4300	2150	3700	1800	3300	1600	3100_5	1500_5

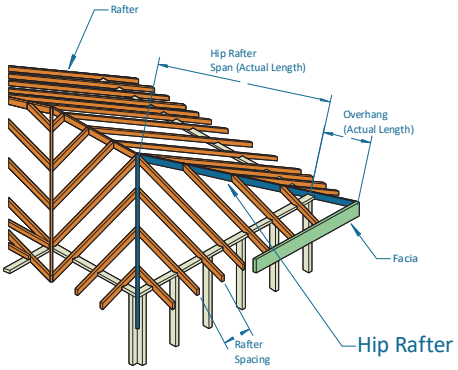
Single span Alfresco beam supporting hanging and/or strutting beams AS 4055 classification N1 - N4 (Cont'd)

Roof Load Width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended beam span & overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
2/120x45	40	3300	1350	2600	1300	2300	1100	2000	1000	1800	900
	90	2700	1350	2100	1000	1800	900	1600	800	1500	700
2/140x45	40	3900	1600	3100	1500	2600	1300	2400	1200	2200	1100
	90	3100	1500	2500	1200	2100	1000	1900	900	1800	900
2/170x45	40	4700	1900	3700	1850	3200	1600	2900	1400	2600	1300
	90	3800	1900	3000	1500	2600	1300	2400	1200	2200	1100
2/200x45	40	5500	2250	4400	2100	3800	1900	3400	1700	3100	1500
	90	4500	2200	3600	1800	3100	1500	2800	1400	2600	1300
2/240x45	40	6400	2700	5200	2450	4500	2150	4100	2000	3700	1850
	90	5400	2550	4300	2150	3700	1800	3300	1600	3100	1500
2/300x45	40	7200	3350	6400	2900	5600	2600	5100	2400	4600	2250
	90	6500	3000	5300	2550	4600	2300	4200	2100	3800	1900
200x65	40	5000	2000	3900	1950	3400	1700	3000	1500	2800	1350
	90	4000	2000	3200	1600	2800	1400	2500	1200	2300	1100
240x65	40	5900	2400	4700	2250	4100	2000	3600	1800	3300	1650
	90	4800	2350	3800	1900	3300	1600	3000	1500	2800	1400
300x65	40	7000	3000	5900	2650	5100	2400	4600	2200	4200	2050
	90	6000	2800	4800	2350	4200	2100	3800	1900	3500	1700
360x65	40	7200	3600	6700	3050	6100	2750	5500	2550	5000	2350
	90	6900	3200	5700	2700	5000	2400	4500	2250	41005	2000_5

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. End bearing lengths = 45 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
4. Restraint value for slenderness calculations is 1200 mm
5. Not all sizes of SmartLVL 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 and C3



EXAMPLE:

wind speed = N3
roof load = 40 kg/m^2 (sheet roof)
hip rafter span = 4500 mm (single span)
rafter spacing = 600 mm

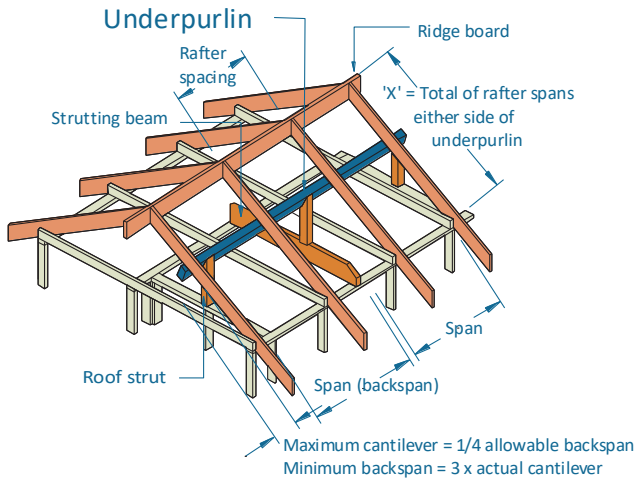
Enter column at 600 mm rafter spacing and read down to span equal to or greater than 4500 mm for a 40 kg/m^2 roof load
ADOPT:
SmartLVL 19 - 240 x 35

Member size DxB (mm)	Roof & ceiling Mass (kg/m^2)	Rafter Spacing (mm)			
		600		1200	
		Maximum recommended hip rafter span + overhang (mm)			
		Span	O/H	Span	O/H
90x35	40	2400	350	2400	300
	90	2000	300	2000	250
120x35	40	3000	500	3000	450
	90	2500	450	2500	350
140x35	40	3400	600	3400	500
	90	2800	500	2800	400
170x35	40	3900	800	3900	650
	90	3200	650	3200	550
200x35	40	4400	1000	4400	800
	90	3600	800	3600	650
240x35	40	5000	1200	5000	1000
	90	4200	1000	4200	750
90x45	40	2600	400	2600	400
	90	2100	350	2100	300
120x45	40	3200	600	3200	550
	90	2600	550	2600	450
140x45	40	3600	750	3600	650
	90	2900	650	2900	500
170x45	40	4100	1000	4100	850
	90	3400	800	3400	650
200x45	40	4700	1200	4700	1000
	90	3900	1000	3900	750
240x45	40	5300	1500	5300	1200
	90	4400	1200	4400	900
300x45	40	6100	1800	6100	1550
	90	5200	1500	5200	1050
200x65	40	5100	1500	5100	1300
	90	4200	1250	4200	950
240x65	40	5700	1700	5700	1600
	90	4800	1400	4800	1100
300x65	40	6500	1950	6500	1900
	90	5700	1700	5700	1300
360x65	40	> 7200	2150	> 7200	2150
	90	6400	1900	6400	1500

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. > 7200 means the actual span exceeds the available length of LVL 19
3. The above table was based on a batten spacing of 900 mm
4. Minimum backspan = 200 % of overhang, Maximum birdsmouth depth = 30 % of depth
5. End bearing length = 35 at end supports. 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 190 x 19 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 SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Underpurlins - sheet and tiled roof
AS 4055 wind classification N1 - N4



RLW = X/2 where ridge is strutted

EXAMPLE:

wind speed = N3
rafter spacing = 1200 mm
roof load = 20 kg/m^2 (sheet roof)
underpurlin span = 3500 mm (single span)

'X' (total of rafter span) = 5400 mm
roof load width = 'X' / 2 = 5400 / 2 = 2700 mm

Enter single span table at 2700 mm roof load width column, 1200 rafter spacing and read down to span equal to or greater than 3500 mm in a 20 kg/m^2 row

ADOPT:
SmartLVL 19 - 170 x 45

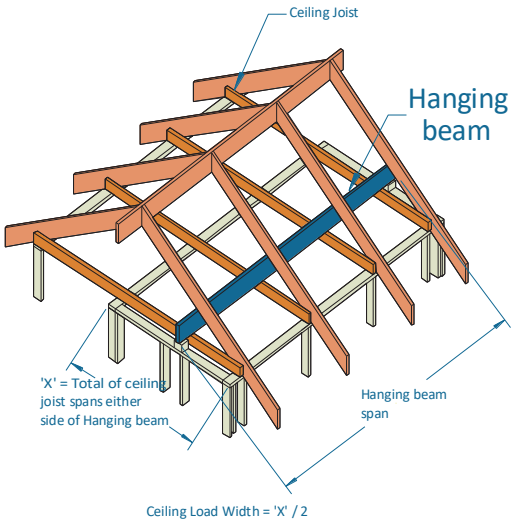
Roof Load Width (mm)		1800		2700		3600		1800		2700		3600	
Rafter Spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof Mass (kg/m^2)	Maximum recommended underpurlin span (mm)											
		Single span						Continuous span					
90x35	20	2200	2300	1900	1900	1700	1500	2700	2700	2200	2200	1900	1900
	60	1500	1400	1300	1100	1200	1000	2100	2000	1800	1800	1600	1500
120x35	20	2900	2900	2600	2600	2300	2400	3600	3500	2900	2900	2600	2600
	60	2100	2000	1800	1800	1600	1500	2800	2700	2400	2400	2200	2100
140x35	20	3400	3400	3000	3000	2700	2800	4200	4200	3400	3400	3000	3000
	60	2400	2500	2100	2100	1900	1900	3200	3200	2800	2800	2600	2600
90x45	20	2400	2500	2100	2100	1900	1900	3100	3100	2500	2600	2100	2100
	60	1600	1600	1400	1300	1300	1100	2200	2200	1900	1900	1800	1800
120x45	20	3200	3200	2800	2800	2600	2600	4100	4100	3400	3300	2900	2900
	60	2200	2300	1900	1900	1700	1700	3000	3000	2600	2600	2400	2400
140x45	20	3700	3700	3300	3200	3000	3000	4800	4800	3900	3900	3400	3300
	60	2600	2700	2300	2300	2100	2100	3500	3500	3100	3000	2800	2800
170x45	20	4500	4500	4000	4000	3600	3600	5900	5800	4800	4800	4100	4100
	60	3200	3100	2800	2800	2500	2600	4300	4300	3700	3700	3400	3400
200x65	20	5900	5900	5200	5200	4800	4800	> 7200	> 7200	6800	6700	5900	5800
	60	4200	4200	3700	3700	3400	3300	5700	5700	5000	5000	4500	4500
240x65	20	7000	7000	6200	6200	5700	5700	> 7200	> 7200	> 7200	> 7200	7000	7000
	60	5100	5100	4400	4400	4000	4000	6700	6700	6000	6000	5400	5400

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. Maximum cantilever = 1/4 allowable backspan
4. Minimum backspan = 3 x actual cantilever
5. End bearing length = 45 at end supports and 45 mm at internal for continuous member. Subscript values indicate the minimum additional bearing length where required to be greater than 45 mm at end support and 45 mm at internal for continuous member
6. Not all sizes of SmartLVL 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 - N4

ceiling mass - 20 kg/m^2



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:
SmartLVL 19 - 240 x 35

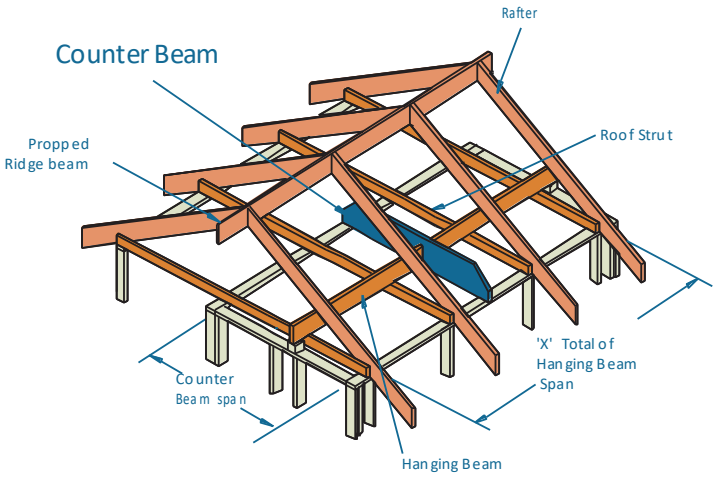
Ceiling Load Width (mm)		1800	2400	3000	3600	4200	4800
Member size DxB (mm)	Ceiling mass (kg/m^2)	Maximum recommended hanging beam span (mm)					
90x35	20	2300	2000	1800	1700	1600	1500
120x35	20	3000	2700	2500	2300	2100	2000
140x35	20	3500	3200	2900	2700	2500	2400
170x35	20	4300	3800	3500	3300	3100	2900
200x35	20	4800	4500	4100	3800	3600	3400
240x35	20	5500	5100	4800	4600	4300	4100
90x45	20	2400	2200	2000	1900	1700	1600
120x45	20	3300	2900	2700	2500	2300	2200
140x45	20	3800	3400	3100	2900	2700	2600
170x45	20	4600	4100	3800	3500	3300	3100
200x45	20	5100	4800	4500	4200	3900	3700
240x45	20	5900	5400	5100	4800	4600	4400
300x45	20	6900	6400	6000	5700	5500	5200
200x65	20	5600	5200	4900	4600	4400	4200
240x65	20	6300	5900	5600	5300	5000	4800
300x65	20	7200	6900	6500	6200	5900	5700
360x65	20	7200	7200	7200	7100	6800	6500

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. The above table was based on a maximum ceiling mass of 20 (kg/m^2).
4. Minimum bearing length = 70 mm at end supports.
5. Restraint value for slenderness calculations is 1500 mm
6. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Counter beam supporting hanging beam
AS 4055 classification N1 - N4

ceiling mass - 20 kg/m^2



Ceiling Load width = X/2

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

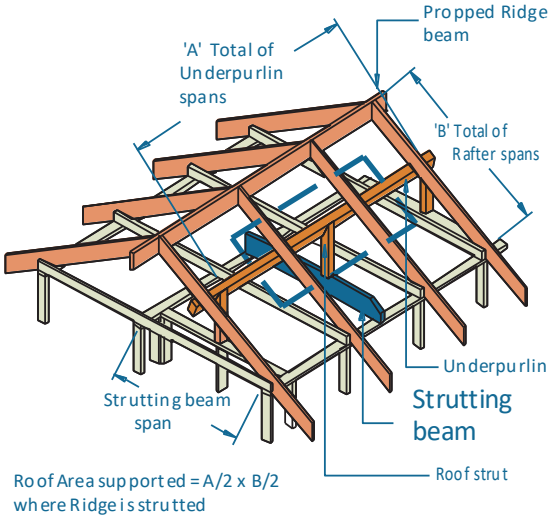
ADOPT:
SmartLVL 19 - 200 x 35

Ceiling load width (mm)	600	1800	2400	3000	3600	4200	4800	5400	6600
Member size DxB (mm)	Maximum recommended counter beam span (mm)								
120x35	4600	3400	3100	2900	2700	2600	2500	2400	2200
140x35	5100	4000	3600	3400	3200	3000	2900	2800	2600
170x35	5900	4700	4400	4100	3900	3700	3500	3400	3200
200x35	6600	5300	5000	4700	4500	4300	4100	4000	3700
240x35	7200	6000	5700	5400	5200	5000	4800	4700	4500
120x45	4900	3700	3400	3100	3000	2800	2700	2600	2400
140x45	5400	4300	3900	3700	3500	3300	3100	3000	2800
170x45	6100	5000	4700	4400	4200	4000	3800	3700	3500
200x45	6800	5600	5200	5000	4800	4600	4500	4300	4100
240x45	>7200	6400	6000	5700	5500	5300	5100	5000	4800
300x45	>7200	7200	7000	6700	6400	6200	6000	5900	5600
200x65	>7200	6000	5700	5400	5200	5000	4900	4700	4500
240x65	>7200	6800	6500	6200	5900	5700	5600	5400	5200
300x65	>7200	>7200	>7200	>7200	7000	6700	6600	6400	6100
360x65	>7200	>7200	>7200	>7200	>7200	>7200	>7200	>7200	7000

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. The above table was based on a maximum ceiling mass of 20 (kg/m^2).
4. Minimum bearing length = 70 mm at end supports
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering
5. Top edge of Counter beams with D/B > 3 shall be laterally restrained as per details on page 5

Strutting beam supporting underpurlins
AS 4055 classification N1 - N4



EXAMPLE:

wind speed = N3
sheet roof = 20 kg/m^2
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 mm^2 **(Convert to m^2)**
= 5250000/1000000 = 5.25 m^2

strutting beam span = 4500 mm

Enter column at 6 m^2 roof area supported and read down to a span greater than or equal to 4500 mm

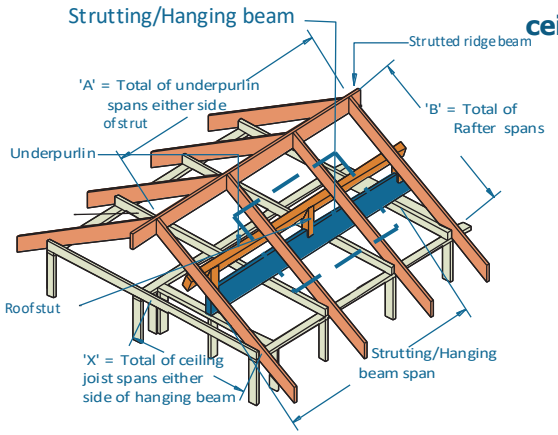
ADOPT:
SmartLVL 19 - 240 x 35

Roof Area Supported (m^2)		2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended strutting beam span (mm)					
120x35	20	3000	2500	2000	1500	1200	NS
	60	2300	1600	1300	1200	NS	NS
140x35	20	3800	3200	2600	2100	1600	1400
	60	2900	2100	1700	1500	1300	NS
170x35	20	5100	4200	3500	3000	2400	2000
	60	3900	2800	2300	2000	1800	1600
200x35	20	6000	5200	4400	3800	3400	2800
	60	4900	3600	2900	2500	2300	2100
240x35	20	7200	6500	5700	5000	4500	4100
	60	6200	4600	3800	3300	3000	2700
120x45	20	3400	2800	2300	1900	1500	1300
	60	2600	1900	1500	1300	1200	1100
140x45	20	4300	3500	2900	2500	2100	1800
	60	3300	2400	1900	1700	1500	1400
170x45	20	5500	4700	3900	3400	3100	2600
	60	4300	3200	2600	2200	2000	1800
200x45	20	6500	5800	4900	4300	3900	3600
	60	5400	4000	3300	2900	2600	2300
240x45	20	7200	6900	6200	5600	5000	4600
	60	6600	5200	4300	3800	3400	3100
300x45	20	7200	7200	7200	7000	6600	6200
	60	7200	6700	5900	5200	4700	4300
200x65	20	7200	6400	5700	5100	4600	4200
	60	6200	4700	3900	3400	3100	2800
240x65	20	7200	7200	6800	6300	5900	5500
	60	7200	6100	5100	4500	4000	3700
300x65	20	7200	7200	7200	7200	7200	6900
	60	7200	7200	6600	6100	5600	5100
360x65	20	7200	7200	7200	7200	7200	7200
	60	7200	7200	7200	7200	6800	6400

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. D = member depth, B = member breadth, NS = not suitable.
3. Minimum bearing length = 70 mm at end supports
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering
5. Top edge of strutting beams with D/B > 3 shall be laterally restrained as per details on page 5

Strutting/hanging beam
AS 4055 classification N1- N3



Roof Area Supported =A/2 x B/2 Ceiling Load width = X/2

ceiling mass - 20 kg/m^2

EXAMPLE:

wind speed = N3
sheet roof = 40 kg/m^2
A = 5000 mm, B = 4200 mm
roof area supported = (A/2) x (B/2)
= (5000/2) x (4200/2) = 5250000 mm^2 **(Convert to m^2)**
= 5250000/1000000 = 5.25 m^2
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 m^2 roof area supported and read down to a span greater than or equal to 4200 mm

ADOPT:
SmartLVL 19 - 300 x 45

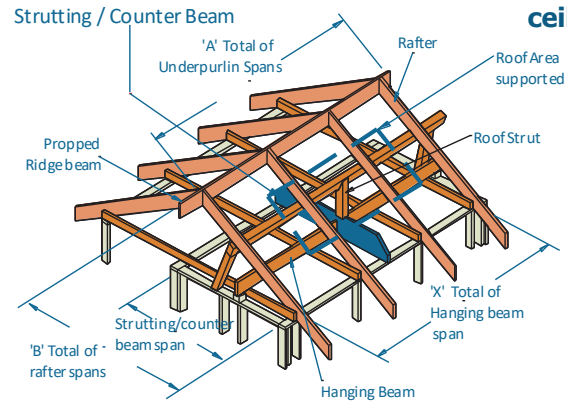
Ceiling load width (mm)		1800						3600					
Roof area supported (m^2)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended counter beam span (mm)											
120x35	40	2300	1800	1500	1300	1200	1100	2000	1700	1500	1300	1200	1100
	75	1900	1400	1200	1000	NS	NS	1800	1400	1200	1000	NS	NS
140x35	40	2800	2200	1900	1700	1500	1400	2500	2100	1800	1600	1500	1400
	75	2400	1800	1500	1300	1200	1100	2200	1700	1500	1300	1100	1100
170x35	40	3500	2900	2500	2200	2000	1800	3100	2700	2300	2100	1900	1800
	75	3000	2400	2000	1700	1600	1400	2800	2200	1900	1700	1500	1400
200x35	40	4000	3600	3100	2800	2500	2300	3600	3200	2900	2600	2400	2300
	75	3700	3000	2500	2200	2000	1800	3400	2800	2400	2200	2000	1800
240x35	40	4700	4200	3800	3600	3300	3100	4200	3900	3600	3400	3100	2900
	75	4300	3700	3300	2900	2600	2400	4000	3500	3100	2800	2500	2400
120x45	40	2500	2000	1700	1500	1400	1200	2300	1900	1600	1500	1300	1200
	75	2100	1600	1300	1200	1000	NS	2000	1600	1300	1100	1000	NS
140x45	40	3100	2500	2100	1900	1700	1600	2700	2300	2000	1800	1700	1500
	75	2600	2000	1700	1500	1300	1200	2400	1900	1600	1400	1300	1200
170x45	40	3800	3200	2800	2500	2300	2100	3400	2900	2600	2400	2200	2000
	75	3400	2700	2200	2000	1800	1600	3100	2500	2200	1900	1700	1600
200x45	40	4300	3800	3500	3100	2900	2600	3900	3600	3200	3000	2700	2600
	75	4000	3300	2800	2500	2300	2100	3700	3100	2700	2400	2200	2000
240x45	40	5000	4500	4100	3900	3600	3400	4500	4200	3900	3700	3500	3300
	75	4600	4000	3600	3300	3000	2700	4300	3800	3500	3100	2900	2700
300x45	40	5900	5400	5100	4700	4500	4300	5300	5000	4700	4500	4300	4100
	75	5600	4900	4500	4100	3900	3700	5100	4600	4300	4000	3800	3600
200x65	40	4700	4300	3900	3600	3400	3100	4300	3900	3700	3500	3200	3000
	75	4400	3800	3400	3000	2700	2500	4000	3600	3200	2900	2600	2400
240x65	40	5500	5000	4600	4300	4100	3900	4900	4600	4300	4100	3900	3800
	75	5100	4500	4100	3800	3500	3200	4700	4200	3900	3600	3400	3200
300x65	40	6500	6000	5600	5300	5000	4800	5800	5500	5200	5000	4800	4600
	75	6100	5500	5000	4600	4400	4200	5600	5100	4800	4500	4200	4100
360x65	40	>7200	6900	6500	6200	5900	5700	6700	6300	6100	5800	5600	5400
	75	7100	6400	5900	5500	5200	4900	6400	6000	5600	5300	5000	4800

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. The above table was based upon a maximum ceiling mass of 20 kg/m^2
3. D = member depth, B = member breadth, NS = not suitable.
4. Minimum bearing length = 70 mm at end supports
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering
6. Top edge of strutting beams with D/B > 3 shall be laterally restrained as per details on page 5

Strutting/counter beam supporting underpurlins & hanging beam
AS 4055 classification N1 - N4

ceiling mass - 20 kg/m^2



Roof Area supported = A/2xB/2 Counter/Strutting beam spacing = X/2

EXAMPLE:

wind speed = N3
sheet roof = 40 kg/m^2
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 mm^2 **(Convert to m^2) =** 5.25 m^2
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 m^2 roof area supported and read down to a span greater than or equal to 4500 mm

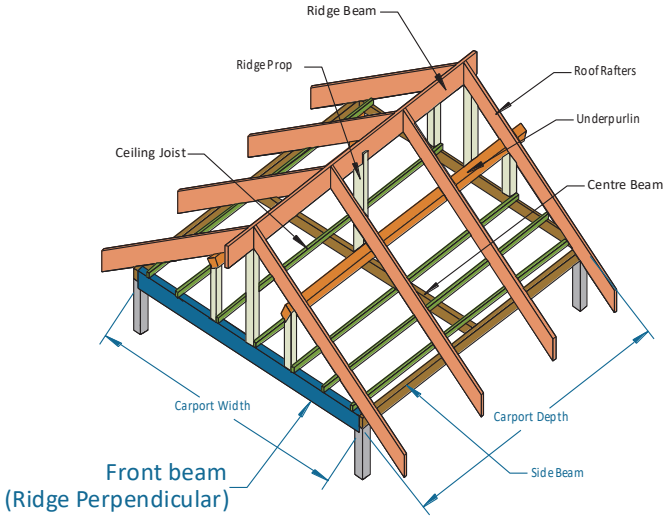
ADOPT: SmartLVL 19 - 300 x 45

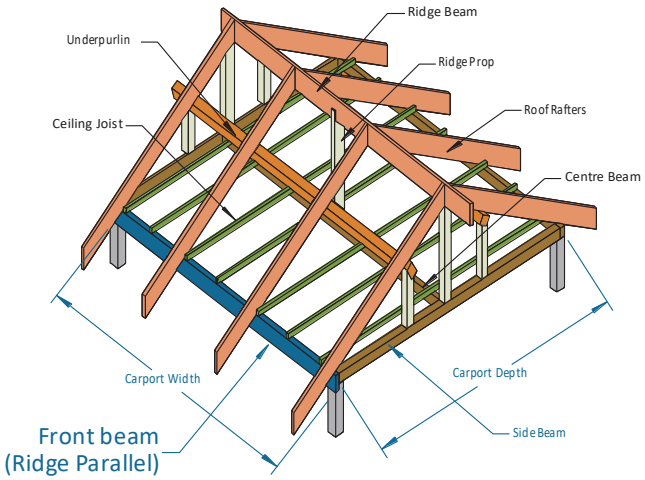
Effective beam spacing (mm)		1800						3600					
Roof area supported (m^2)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m^2)	Maximum recommended counter beam span (mm)											
120x35	40	2300	1800	1500	1300	1200	1100	2000	1700	1500	1300	1200	1100
	75	1900	1400	1200	1000	NS	NS	1800	1400	1200	1000	NS	NS
140x35	40	2800	2200	1900	1700	1500	1400	2500	2100	1800	1600	1500	1400
	75	2400	1800	1500	1300	1200	1100	2200	1700	1500	1300	1100	1100
170x35	40	3500	2900	2500	2200	2000	1800	3100	2700	2300	2100	1900	1800
	75	3000	2400	2000	1700	1600	1400	2800	2200	1900	1700	1500	1400
200x35	40	4000	3600	3100	2800	2500	2300	3600	3200	2900	2600	2400	2300
	75	3700	3000	2500	2200	2000	1800	3400	2800	2400	2200	2000	1800
240x35	40	4700	4200	3800	3600	3300	3100	4200	3900	3600	3400	3100	2900
	75	4300	3700	3300	2900	2600	2400	4000	3500	3100	2800	2500	2400
120x45	40	2500	2000	1700	1500	1400	1200	2300	1900	1600	1500	1300	1200
	75	2100	1600	1300	1200	1000	NS	2000	1600	1300	1100	1000	NS
140x45	40	3100	2500	2100	1900	1700	1600	2700	2300	2000	1800	1700	1500
	75	2600	2000	1700	1500	1300	1200	2400	1900	1600	1400	1300	1200
170x45	40	3800	3200	2800	2500	2300	2100	3400	2900	2600	2400	2200	2000
	75	3400	2700	2200	2000	1800	1600	3100	2500	2200	1900	1700	1600
200x45	40	4300	3800	3500	3100	2900	2600	3900	3600	3200	3000	2700	2600
	75	4000	3300	2800	2500	2300	2100	3700	3100	2700	2400	2200	2000
240x45	40	5000	4500	4100	3900	3600	3400	4500	4200	3900	3700	3500	3300
	75	4600	4000	3600	3300	3000	2700	4300	3800	3500	3100	2900	2700
300x45	40	5900	5400	5100	4700	4500	4300	5300	5000	4700	4500	4300	4100
	75	5600	4900	4500	4100	3900	3700	5100	4600	4300	4000	3800	3600
200x65	40	4700	4300	3900	3600	3400	3100	4300	3900	3700	3500	3200	3000
	75	4400	3800	3400	3000	2700	2500	4000	3600	3200	2900	2600	2400
240x65	40	5500	5000	4600	4300	4100	3900	4900	4600	4300	4100	3900	3800
	75	5100	4500	4100	3800	3500	3200	4700	4200	3900	3600	3400	3200
300x65	40	6500	6000	5600	5300	5000	4800	5800	5500	5200	5000	4800	4600
	75	6100	5500	5000	4600	4400	4200	5600	5100	4800	4500	4200	4100
360x65	40	7200	6900	6500	6200	5900	5700	6700	6300	6100	5800	5600	5400
	75	7100	6400	5900	5500	5200	4900	6400	6000	5600	5300	5000	4800

NOTES:

1. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
2. The above table was based upon a maximum ceiling mass of 20 kg/m^2
3. D = member depth, B = member breadth, NS = not suitable.
4. Minimum bearing length = 70 mm at end supports
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering
6. Top edge of strutting beams with D/B > 3 shall be laterally restrained as per details on page 5

Front carport beams for conventional pitched roofs
AS 4055 classification N1 – N4





Carport depth (mm)		5600	5800	6000
Member size (DxB) mm	Roof + ceiling mass (kg/m^2)	Maximum recommended carport front beam span (mm)		
120x35	40	2800	2800	2700
	90	2100	2100	2100
140x35	40	3300	3200	3200
	90	2500	2400	2400
170x35	40	4000	3900	3900
	90	3000	3000	2900
200x35	40	4600	4600	4500
	90	3500	3500	3500
240x35	40	5300	5200	5200
	90	4300	4200	4200
120x45	40	3000	3000	3000
	90	2300	2300	2200
140x45	40	3500	3500	3500
	90	2700	2700	2600
170x45	40	4300	4200	4200
	90	3300	3200	3200
200x45	40	4900	4800	4800
	90	3900	3800	3800
240x45	40	5600	5500	5500
	90	4600	4500	4500
300x45	40	6600	6500	6400
	90	5400	5400	5300
200x65	40	5300	5300	5200
	90	4300	4300	4200
240x65	40	6000	6000	5900
	90	5000	5000	4900
300x65	40	7100	7000	7000
	90	5900	5800	5800
360x65	40	>7200	>7200	>7200
	90	6700	6700	6600

EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
Carport depth = 5500
Carport beam span 4100 mm
Enter span table at 5600 mm carport depth column, and read down to a span equal to or greater than 4100 mm

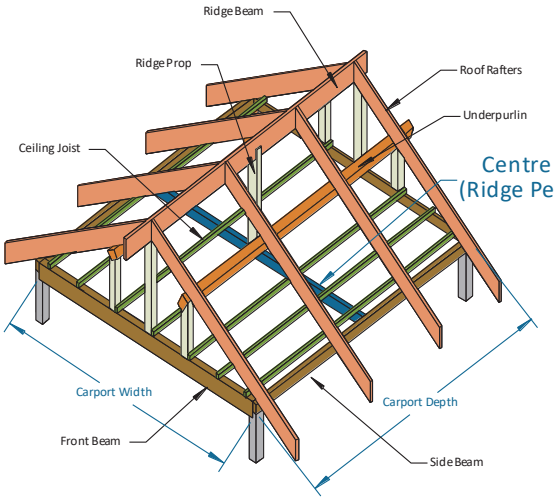
ADOPT:

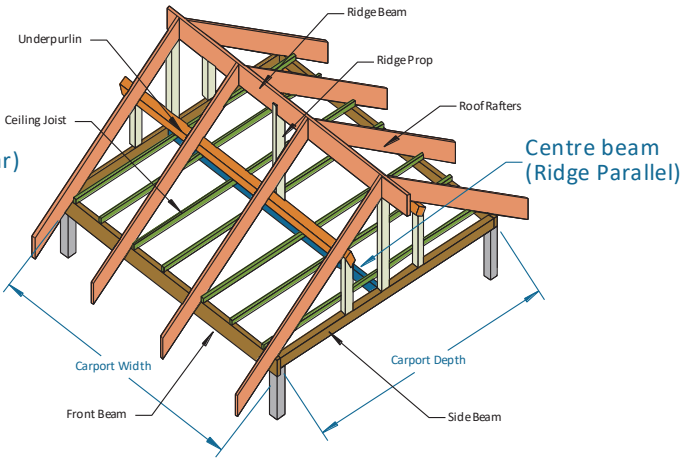
SmartLVL 19 - 200 x 35

NOTES:

1. The below above have been developed for the most severe case likely to be encountered in the roof diagrams shown. Front beam tables are also suitable for Dutch gable applications (not shown)
2. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
3. D = member depth, B = member breadth, NS = not suitable
4. 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
5. Maximum rafter spacing up to 1200 mm
6. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Centre carport beams for conventional pitched roofs
AS 4055 classification N1 – N4





Carport depth (mm)		5600	5800	6000
Member size (DxB) mm	Roof + ceiling mass (kg/m^2)	Maximum recommended carport centre beam span (mm)		
120x35	40	2100	2100	2100
	90	1600	1500	1500
140x35	40	2500	2400	2400
	90	1800	1800	1800
170x35	40	3000	3000	2900
	90	2200	2200	2200
200x35	40	3400	3400	3400
	90	2600	2600	2600
240x35	40	3900	3900	3800
	90	3100	3100	3100
120x45	40	2300	2300	2200
	90	1700	1700	1700
140x45	40	2700	2700	2600
	90	2000	2000	1900
170x45	40	3200	3200	3200
	90	2400	2400	2400
200x45	40	3600	3600	3600
	90	2900	2800	2800
240x45	40	4200	4100	4100
	90	3300	3300	3300
300x45	40	4900	4900	4800
	90	3900	3900	3800
200x65	40	4000	3900	3900
	90	3200	3100	3100
240x65	40	4500	4500	4500
	90	3600	3600	3600
300x65	40	5300	5300	5300
	90	4300	4200	4200
360x65	40	6100	6000	6000
	90	4900	4900	4800

EXAMPLE:

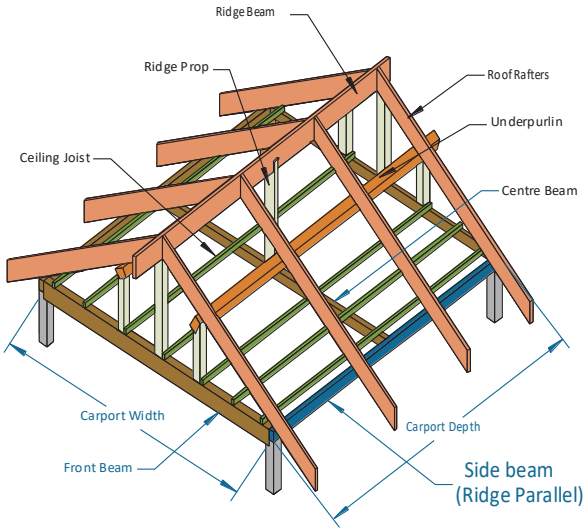
wind speed = N3
sheet roof - 40 kg/m^2
Carport depth = 5500 mm
Centre carport beam span 4100 mm
Enter span table at 5600 mm carport depth column, and read down to a span equal to or greater than 4100 mm

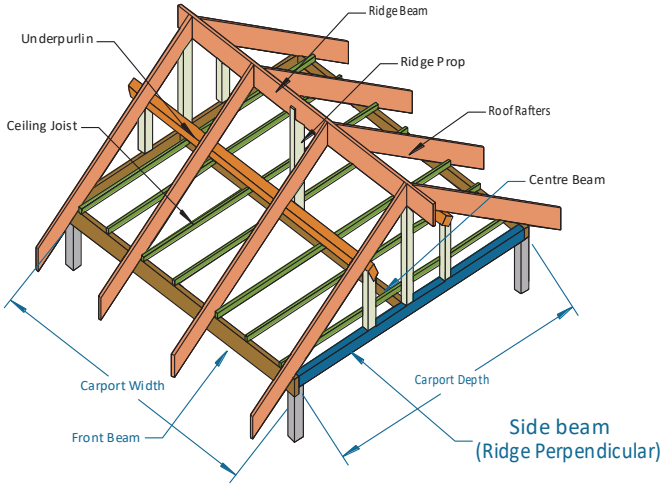
ADOPT:
SmartLVL 19 - 240 x 45

NOTES:

1. The below above have been developed for the most severe case likely to be encountered in the roof diagrams shown. Front beam tables are also suitable for Dutch gable applications (not shown)
2. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
3. D = member depth, B = member breadth, NS = not suitable
4. 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
5. Maximum rafter spacing up to 1200 mm
6. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Side carport beams for conventional pitched roofs
AS 4055 classification N1 – N4





Carport width (front) mm		5600	5800	6000
Member size (DxB) mm	Roof + ceiling mass (kg/m^2)	Maximum recommended carport side beam span (mm)		
120x35	40	2100	2100	2100
	90	1600	1500	1500
140x35	40	2500	2400	2400
	90	1800	1800	1800
170x35	40	3000	3000	2900
	90	2200	2200	2200
200x35	40	3400	3400	3400
	90	2600	2600	2600
240x35	40	3900	3900	3800
	90	3100	3100	3100
120x45	40	2300	2300	2200
	90	1700	1700	1700
140x45	40	2700	2700	2600
	90	2000	2000	1900
170x45	40	3200	3200	3200
	90	2400	2400	2400
200x45	40	3600	3600	3600
	90	2900	2800	2800
240x45	40	4200	4100	4100
	90	3300	3300	3300
300x45	40	4900	4900	4800
	90	3900	3900	3800
200x65	40	4000	3900	3900
	90	3200	3100	3100
240x65	40	4500	4500	4500
	90	3600	3600	3600
300x65	40	5300	5300	5300
	90	4300	4200	4200
360x65	40	6100	6000	6000
	90	4900	4900	4800

EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m^2
Carport depth = 5500
Carport side beam span = 4100 mm
Enter span table at 5600 mm carport depth column, and read down to a span equal to or greater than 4100 mm

ADOPT:
SmartLVL 19 - 240 x 45

NOTES:

1. The below above have been developed for the most severe case likely to be encountered in the roof diagrams shown. Front beam tables are also suitable for Dutch gable applications (not shown)
2. > 7200 mm means that the span exceeds the maximum supply length of SmartLVL 19
3. D = member depth, B = member breadth, NS = not suitable
4. 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
5. Maximum rafter spacing up to 1200 mm
6. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Pryda® WA Beam Hanger

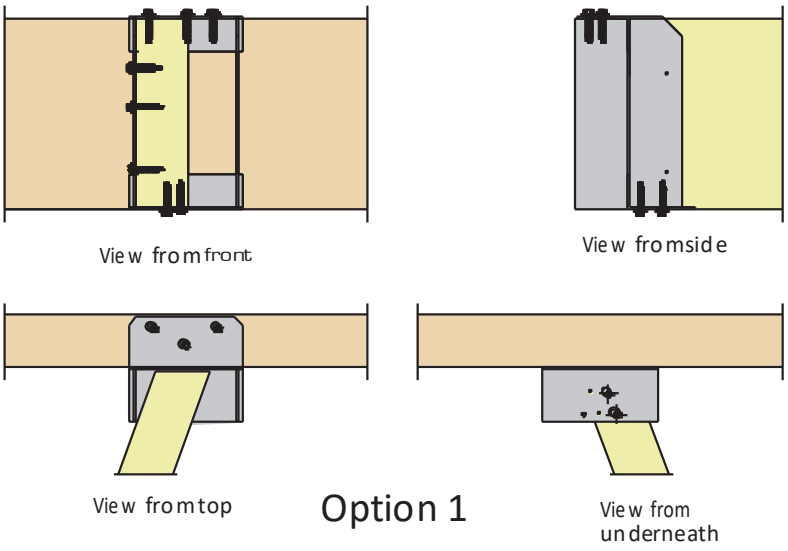
Pryda WA Beam hangers are heavy duty welded hangers for connection of large sized strutting beams placed at angles between 30 and 60 degrees. This bracket is specially developed for the Western Australian market and are available as part of the SmartFrame order.

All fixings are No 12 x 35 Type 17 hex-head screws and capacities shown adjacent are based upon a minimum joint strength group of JD4.

Design capacities

Load Direction	Capacity (kN)
Downward	15.0
Uplift (light fixing)	4.0
Uplift (medium fixing)	10.0
Uplift (heavy fixing)	20.0

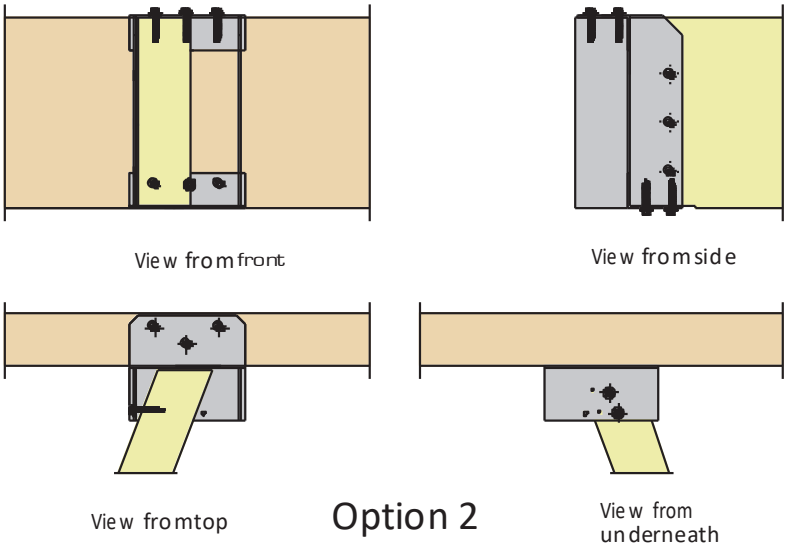
Order code BBT125240 or WABBT



Light fixing

Supporting beam:
3 screws on top

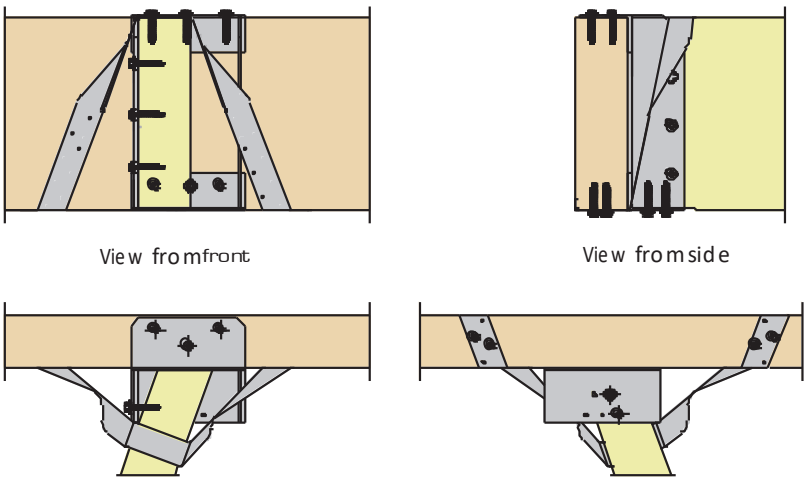
Supported beam:
2 screws into bottom



Medium fixing

Supporting beam:
3 screws on top and 3 screws through side

Supported beam:
3 screws from side
2 screws into bottom



Heavy fixing

Medium fixing in combination with a cyclonic strap