PRODUCT OF AUSTRALIA

wesbeam
building better wood

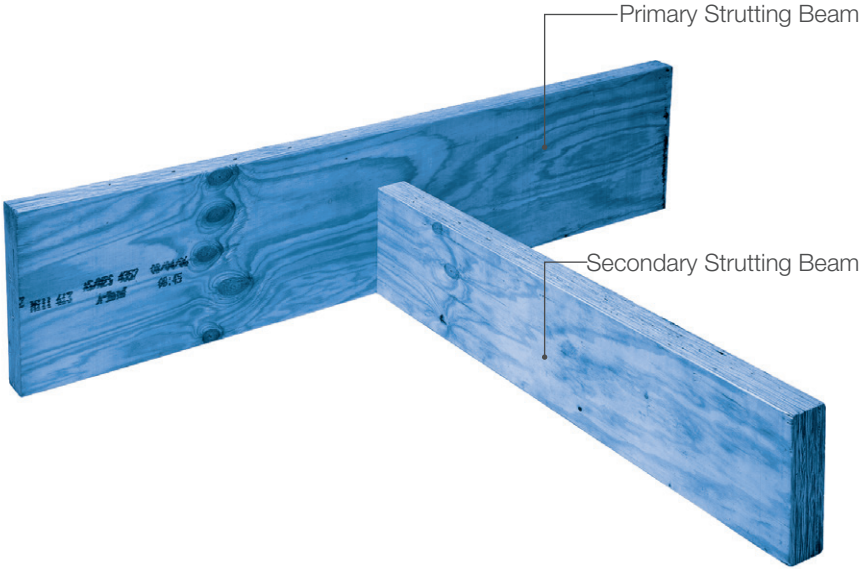
ewpaa CERTIFIED
AS/NZS 4357.0
Mill 013

JAS-ANZ
WWW.JAS-ANZ.ORG/REGISTER

e-beam²
engineered beam to beam LVL

INTRODUCTION TO E-BEAM²

If you have worked with Wesbeam LVL products before, you know how light, easy and fast they are to use. What you might not realise is it is now possible to completely replace steel strutting beams with Wesbeam LVL. To help you select and install the right e-beams for the job, we've created the e-beam² roof beam system.



e-beam² makes design, specification and installation simple by including:

- Easy to use span tables in a format familiar to specifiers of steel beams.
- A simple 3 step system that enables specifiers to design e-beam, e-splay or timber secondary beams connected to e-beam or e-splay primary beams.
- Fully engineered e-splay when beams require splaying to a point.
- Carpenter friendly connection details that enable quick beam-to-beam connection.

Three Simple Steps to Selecting Primary and Secondary Beam

With the e-beam² specification system, it takes just 3 quick steps to select the right beams for any job.

Step 1
Calculate the Width of Roof (WOR) applied to the roof beam using the method illustrated on page 39.

Step 2
Is the roofing material metal sheet or tile?

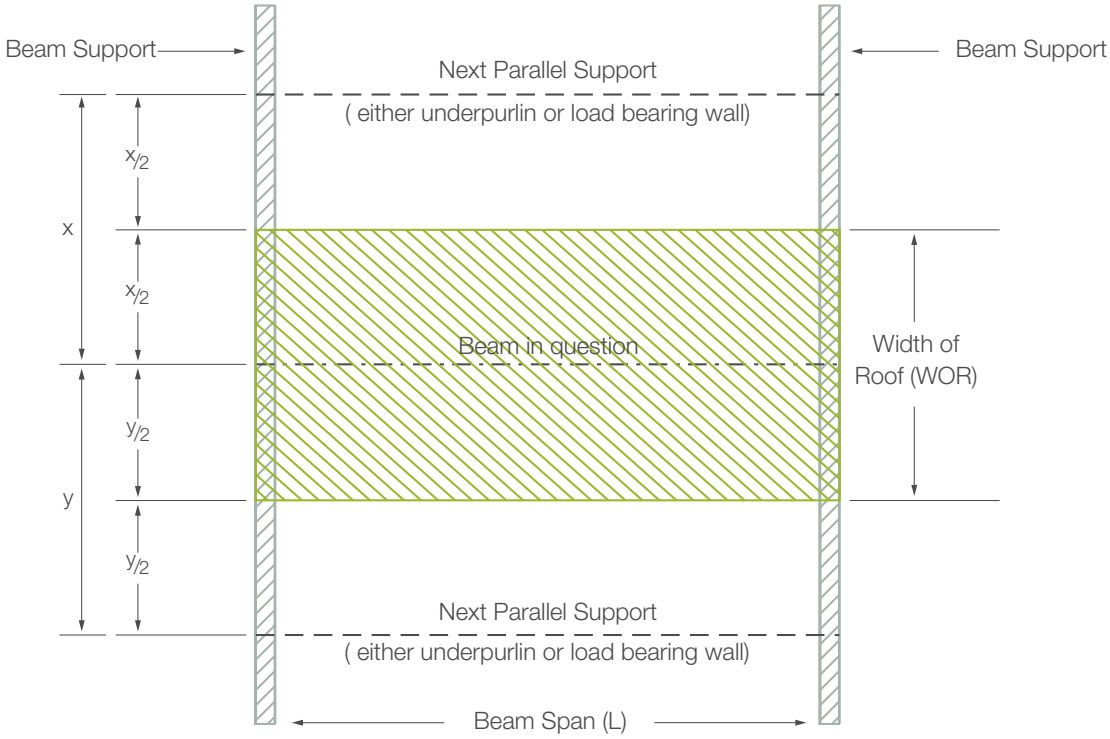
Step 3
Does the beam require a splay cut greater than 2/3's of its depth?

No: use the e-beam tables on pages 40 and 41.

Yes: use the e-splay tables on pages 42 and 43 for single splay or pages 44 and 45 for double splay.

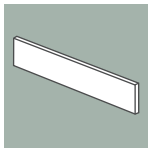
DETERMINING THE WIDTH OF ROOF

The Width of Roof (WOR) is measured perpendicular to the Beam in question being x/2 + y/2.



Notes:

1. All roof and ceiling members (ceiling joists, hanging beams, rafters, underpurlins) running parallel to the beam in question are to be supported in line with the beam support.
2. All roof and ceiling members (ceiling joists, hanging beams, rafters, underpurlins) running perpendicular to the beam in question are to be supported in line with the next parallel support.
3. All spans and distances are measured on plan (horizontal plane).
4. Roof pitch has been allowed in the calculation of beams in these tables. Maximum roof pitch is 35°.



E-BEAM² STRUTTING BEAMS

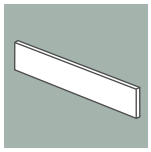
SHEET ROOF

WIND CLASSIFICATION N1, N2, N3

Strutting Beams
Strutting-Hanging Beams, or
Strutting-Counter Beams

e-beam² Strutting Beams — Sheet Roof + Ceiling								
Max Beam Span (mm)	**WOR = Width of Roof (mm)**							
	1500	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**	**5000**
3000	150x45	200x45	200x45	200x45	200x45	200x45	200x45	240x45
	150x63	150x63	150x63	200x63	200x63	200x63	200x63	200x63
3300	200x45	200x45	200x45	200x45	200x45	240x45	240x45	240x45
	150x63	150x63	200x63	200x63	200x63	200x63	200x63	240x63
3600	200x45	200x45	200x45	240x45	240x45	240x45	240x45	300x45
	150x63	200x63	200x63	200x63	200x63	240x63	240x63	240x63
3900	200x45	240x45	240x45	240x45	300x45	300x45	300x45	300x45
	200x63	200x63	200x63	240x63	240x63	240x63	240x63	300x63
4200	240x45	240x45	300x45	300x45	300x45	300x45	300x45	300x63
	200x63	240x63	240x63	240x63	300x63	300x63	300x63	NS
4500	240x45	300x45	300x45	300x45	300x45	300x63	300x63	300x63
	240x63	240x63	240x63	300x63	300x63	NS	NS	NS
4800	300x45	300x45	300x45	300x63	300x63	360x63	360x63	360x63
	240x63	300x63	300x63	NS	NS	NS	NS	NS
5100	300x45	300x45	300x63	300x63	360x63	360x63	360x63	360x63
	300x63	300x63	NS	NS	NS	NS	NS	NS
5400	300x45	300x63	360x63	360x63	360x63	360x63	400x63	400x63
	300x63	NS	NS	NS	NS	NS	NS	NS
5700	300x63	360x63	360x63	360x63	400x63	400x63	400x63	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6000	360x63	360x63	360x63	400x63	400x63	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6300	360x63	360x63	400x63	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6600	360x63	400x63	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS

1 All sections with depth to breadth ratio greater than three must be laterally restrained against rollover at strutting points and at supports in accordance with AS1684.2:2021.
2 Bearing lengths at end supports to be not less than 70mm.
3 e-beam² beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.
4 Beam ends may be chamfer cut to a minimum depth of 90mm or D/3, whichever is the greater.



E-BEAM² STRUTTING BEAMS

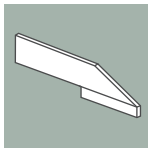
TILE ROOF

WIND CLASSIFICATION N1, N2, N3

Strutting Beams
Strutting-Hanging Beams, or
Strutting-Counter Beams

e-beam² Strutting Beams — Tile Roof + Ceiling								
Max Beam Span (mm)	WOR = Width of Roof (mm)							
	1500	2000	2500	3000	3500	4000	4500	5000
3000	200x45	200x45	240x45	240x45	240x45	300x45	300x45	300x45
	200x63	200x63	200x63	240x63	240x63	240x63	240x63	240x63
3300	200x45	240x45	240x45	300x45	300x45	300x45	300x45	300x45
	200x63	200x63	240x63	240x63	240x63	300x63	300x63	300x63
3600	240x45	240x45	300x45	300x45	300x45	300x45	300x63	300x63
	200x63	240x63	240x63	300x63	300x63	300x63	NS	NS
3900	240x45	300x45	300x45	300x45	300x63	300x63	360x63	360x63
	240x63	240x63	300x63	300x63	NS	NS	NS	NS
4200	300x45	300x45	300x63	300x63	360x63	360x63	360x63	360x63
	300x63	300x63	NS	NS	NS	NS	NS	NS
4500	300x45	300x63	360x63	360x63	360x63	360x63	400x63	400x63
	300x63	NS	NS	NS	NS	NS	NS	NS
4800	300x63	360x63	360x63	360x63	400x63	400x63	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5100	360x63	360x63	400x63	400x63	400x63	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5400	360x63	400x63	400x63	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5700	360x63	400x63	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6000	400x63	NS	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS

1 All sections with depth to breadth ratio greater than three must be laterally restrained against rollover at strutting points and at supports in accordance with AS1684.2:2021.
2 Bearing lengths at end supports to be not less than 70mm.
3 e-beam² beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.
4 Beam ends may be chamfer cut to a minimum depth of 90mm or D/3, whichever is the greater.



E-BEAM² SINGLE SPLAYED STRUTTING BEAMS

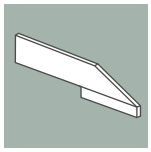
SHEET ROOF

WIND CLASSIFICATION N1, N2, N3

Strutting Beams
Strutting-Hanging Beams, or
Strutting-Counter Beams

e-beam² – Single Splayed Strutting Beams — Sheet Roof + Ceiling								
Max Beam Span (mm)	**WOR = Width of Roof (mm)**							
	1500	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**	**5000**
3000	150x45	200x45	200x45	200x45	200x45	200x45	200x45	240x45
	150x63	150x63	150x63	200x63	200x63	200x63	200x63	200x63
3300	200x45	200x45	200x45	200x45	240x45	240x45	240x45	240x45
	150x63	200x63	200x63	200x63	200x63	200x63	200x63	240x63
3600	200x45	200x45	200x45	240x45	240x45	240x45	240x45	300x45
	150x63	200x63	200x63	200x63	200x63	240x63	240x63	240x63
3900	200x45	240x45	240x45	240x45	300x45	300x45	300x45	300x45
	200x63	200x63	200x63	240x63	240x63	240x63	240x63	300x63
4200	240x45	240x45	300x45	300x45	300x45	300x45	300x63	300x63
	200x63	240x63	240x63	240x63	300x63	300x63	NS	NS
4500	240x45	300x45	300x45	300x45	300x63	300x63	300x63	360x63
	240x63	240x63	300x63	300x63	NS	NS	NS	NS
4800	300x45	300x45	300x45	300x63	300x63	360x63	360x63	360x63
	240x63	300x63	300x63	NS	NS	NS	NS	NS
5100	300x45	300x63	300x63	360x63	360x63	360x63	360x63	400x63
	300x63	NS	NS	NS	NS	NS	NS	NS
5400	300x63	300x63	360x63	360x63	360x63	400x63	400x63	400x63
	NS	NS	NS	NS	NS	NS	NS	NS
5700	300x63	360x63	360x63	400x63	400x63	400x63	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6000	360x63	360x63	400x63	400x63	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6300	360x63	400x63	400x63	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6600	400x63	400x63	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS

1 Splay detail to one end only.
2 All sections with depth to breadth ratio greater than three must be laterally restrained against rollover at strutting point and at supports in accordance with AS1684.2:2021.
3 Bearing lengths at end supports to be not less than 70mm.
4 e-beam² beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.



E-BEAM² SINGLE SPLAYED STRUTTING BEAMS

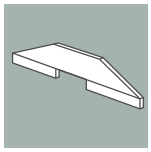
TILE ROOF

WIND CLASSIFICATION N1, N2, N3

Strutting Beams
Strutting-Hanging Beams, or
Strutting-Counter Beams

e-beam² – Single Splayed Strutting Beams — Tile Roof + Ceiling								
Max Beam Span (mm)	**WOR = Width of Roof (mm)**							
	1500	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**	**5000**
3000	200x45	200x45	240x45	240x45	240x45	300x45	300x45	300x45
	200x63	200x63	200x63	240x63	240x63	240x63	240x63	300x63
3300	200x45	240x45	240x45	300x45	300x45	300x45	300x45	300x45
	200x63	200x63	240x63	240x63	240x63	300x63	300x63	300x63
3600	240x45	240x45	300x45	300x45	300x45	300x63	300x63	300x63
	200x63	240x63	240x63	300x63	300x63	NS	NS	NS
3900	300x45	300x45	300x45	300x63	300x63	360x63	360x63	360x63
	240x63	240x63	300x63	NS	NS	NS	NS	NS
4200	300x45	300x45	300x63	360x63	360x63	360x63	360x63	360x63
	300x63	300x63	NS	NS	NS	NS	NS	NS
4500	300x45	300x63	360x63	360x63	360x63	400x63	400x63	400x63
	300x63	NS	NS	NS	NS	NS	NS	NS
4800	300x63	360x63	360x63	400x63	400x63	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5100	360x63	360x63	400x63	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5400	360x63	400x63	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5700	400x63	NS	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6000	NS	NS	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS

1. Splay detail to one end only.
2. All sections with depth to breadth ratio greater than three must be laterally restrained against rollover at strutting point and at supports in accordance with AS1684.2:2021.
3. Bearing lengths at end supports to be not less than 70mm.
4. e-beam² beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.



E-BEAM² DOUBLE SPLAYED STRUTTING BEAMS

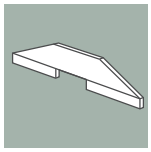
SHEET ROOF

WIND CLASSIFICATION N1, N2, N3

Strutting Beams
Strutting-Hanging Beams, or
Strutting-Counter Beams

e-beam² – Double Splayed Strutting Beams — Sheet Roof + Ceiling								
Max Beam Span (mm)	WOR = Width of Roof (mm)							
	1500	2000	2500	3000	3500	4000	4500	5000
3000	150x45	200x45	200x45	200x45	200x45	200x45	240x45	240x45
	150x63	150x63	150x63	200x63	200x63	200x63	200x63	200x63
3300	200x45	200x45	200x45	200x45	240x45	240x45	240x45	240x45
	150x63	200x63	200x63	200x63	200x63	200x63	200x63	240x63
3600	200x45	200x45	240x45	240x45	240x45	240x45	300x45	300x45
	150x63	200x63	200x63	200x63	200x63	240x63	240x63	240x63
3900	200x45	240x45	240x45	240x45	300x45	300x45	300x45	300x45
	200x63	200x63	200x63	240x63	240x63	240x63	240x63	300x63
4200	240x45	240x45	300x45	300x45	300x45	300x63	300x63	300x63
	200x63	240x63	240x63	240x63	300x63	NS	NS	NS
4500	240x45	300x45	300x45	300x63	300x63	300x63	360x63	360x63
	240x63	240x63	300x63	NS	NS	NS	NS	NS
4800	300x45	300x45	300x63	300x63	360x63	360x63	360x63	360x63
	240x63	300x63	NS	NS	NS	NS	NS	NS
5100	300x45	300x63	360x63	360x63	360x63	360x63	400x63	400x63
	300x63	NS	NS	NS	NS	NS	NS	NS
5400	300x63	360x63	360x63	360x63	400x63	400x63	400x63	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5700	360x63	360x63	360x63	400x63	400x63	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6000	360x63	360x63	400x63	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6300	360x63	400x63	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6600	400x63	NS	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS

1 Splay detail to one end only.
2 All sections with depth to breadth ratio greater than three must be laterally restrained against rollover at strutting point and at supports in accordance with AS1684.2:2021.
3 Bearing lengths at end supports to be not less than 70mm.
4 e-beam² beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.



E-BEAM² DOUBLE SPLAYED STRUTTING BEAMS

TILE ROOF

WIND CLASSIFICATION N1, N2, N3

Strutting Beams
Strutting-Hanging Beams, or
Strutting-Counter Beams

e-beam² – Double Splayed Strutting Beams — Tile Roof + Ceiling								
Max Beam Span (mm)	WOR = Width of Roof (mm)							
	1500	2000	2500	3000	3500	4000	4500	5000
3000	200x45	240x45	240x45	240x45	300x45	300x45	300x45	300x45
	200x63	200x63	200x63	240x63	240x63	240x63	240x63	300x63
3300	240x45	240x45	240x45	300x45	300x45	300x45	300x63	300x63
	200x63	200x63	240x63	240x63	240x63	300x63	NS	NS
3600	240x45	300x45	300x45	300x45	300x63	300x63	300x63	360x63
	200x63	240x63	240x63	300x63	NS	NS	NS	NS
3900	300x45	300x45	300x63	300x63	300x63	360x63	360x63	360x63
	240x63	300x63	NS	NS	NS	NS	NS	NS
4200	300x45	360x63	360x63	360x63	360x63	360x63	400x63	400x63
	300x63	NS	NS	NS	NS	NS	NS	NS
4500	300x63	360x63	360x63	360x63	400x63	400x63	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
4800	360x63	360x63	400x63	400x63	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5100	360x63	400x63	400x63	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5400	400x63	400x63	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
5700	400x63	NS	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS
6000	NS	NS	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS

1 Splay detail to one end only.
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3 Bearing lengths at end supports to be not less than 70mm.
4 e-beam² beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.

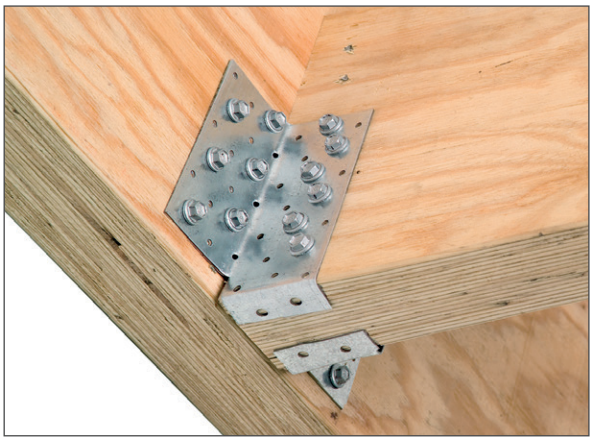
WESBEAM E-BEAM² CONNECTION DETAILS ARE WA SPECIFIC

At Wesbeam, we are so committed to stick roof construction in WA that we have engineered a range of LVL strutting beam connection details specifically for local conditions. In tandem with MiTek, we've developed a split hanger connection for 90° connections. We've also collaborated with WA specifiers and carpenters to develop e-ledger®, a metal bracket for strutting beam connections between 45° and 90°. By using a MiTek split hanger or a Wesbeam e-ledger a fully engineered connection detail is assured for all load conditions in the e-beam² tables.

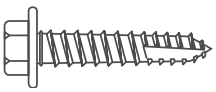
Split Hanger

For secondary strutting beams connecting at 90° to the primary strutting beams, Wesbeam recommends the use of the MiTek 140mm split hanger.

- Use nails to temporarily secure the secondary beam to the primary beam.



- Screw fix the 140mm MiTek split hanger into position using 6 MiTek MS 1430 hex head screws per leg.



MiTek MS 1430 hex head

e-ledger®

Wesbeam's e-ledger® eliminates the need to notch secondary LVL strutting beams when connecting two LVL strutting beams at angles other than 90°.

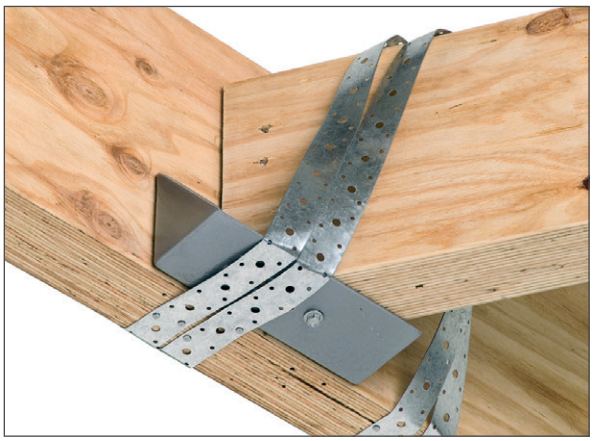
This is a major advance for specifiers as the current practice of notching the secondary beam into a pine ledger significantly reduces the maximum load capacity of the connection.

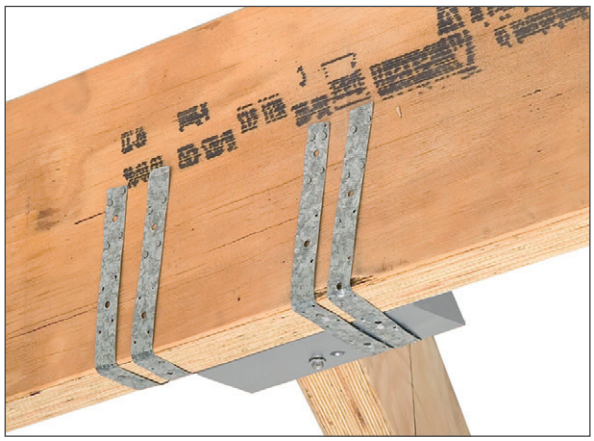
e-ledger® provides an easy to install solution for all load conditions contained in the e-beam² tables.

*e-ledger is a registered trademark of Wesbeam.

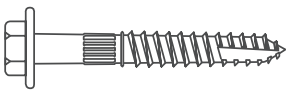
- Fix the e-ledger to the primary beam using 8/No.14 type 17, 50mm long hex head screws.

- Locate the secondary beam on the e-ledger and fix with 1/No.14 type 17, 50mm long hex head screw through one of the three holes located on the bottom face of the e-ledger.
- To prevent the secondary beam from rolling fix the secondary beam to the primary beam using 2/3.15mmø nails located either side of the top of the secondary beam.





- Fix the secondary beam to the e-ledger using 2/30 x 0.8 G.I. looped strap with 4/3.15mmø nails to each of the four ends.



No.14 type 17, 50mm hex head

SPECIFICATIONS

Manufacture

Manufactured in accordance with AS/NZS 4357

Veneer

Thickness	Constant through the product thickness
Species	Sustainably sourced timber
Joints	Outer 2 plies are scarf jointed Inner plies – scarf and/or butt jointed

Moisture Content

8% – 15% (at time of dispatch)

Dimensional Tolerances

Available on request

Straightness

Available on request

Density

650kg/m^3 (approximately)

Adhesive

Phenolic – AS2754.1:2016 - Adhesives for timber and timber products; Adhesives for manufacture of plywood and laminated veneer lumber (LVL)

Bond

Type A – AS/NZS2098.2:2012 - Methods of tests for veneer and plywood; Bond quality of plywood (chisel test)

Joint Group

JD3 – for nails, bolts and screws unless noted otherwise

Finish

Unsanded faces, sawn edges and arrised edges

Branding

Each piece of Wesbeam LVL is branded at least once with the product name for identification and evidence of compliance with manufacturing control standards

Storage

Store on level bearers at maximum 1800mm centres well clear of the ground, and cover to keep dry but allow ventilation

Source

Sustainably sourced timber certified to AS4707 - Chain of custody for forest products PEFC

Treatment Condition

Untreated – but can be specified to e2S*, H2 and H3 Treatment levels

*e2S is a CodeMark® certified glue-line termite treatment.

wesbeam
building better wood

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