
PRODUCT OF AUSTRALIA

wesbeam
building better wood

PRODUCT CERTIFIED
paa ENGINEERED WOOD
JAS-ANZ

# e-splay
engineered LVL splayed beams

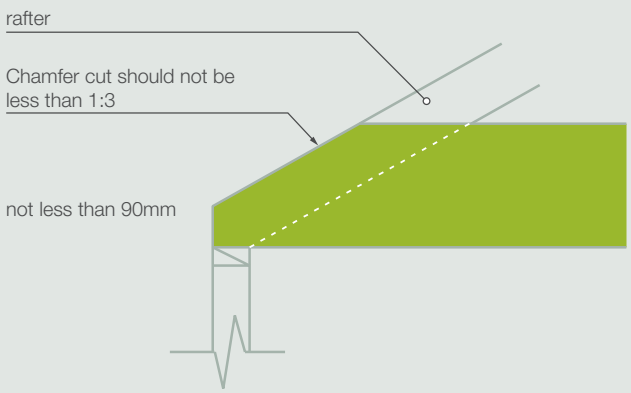
e-splay

## Wesbeam e-splay engineered LVL, the lightweight alternative to splayed steel beams

e-splay Laminated Veneer Lumber (LVL) roof beams offer a light weight alternative to splayed steel beams. They can be used as Strutting Beams, Strutting/Counter Beams, Strutting/Hanging Beams and Counter Beams.

Due to the limitations placed on timber beam taper cuts (minimum end dimension of 90mm or 1/3 the member depth; whichever is the greater), the conventional solution has been the use of reinforced splay cut steel beams. e-splay LVL beams, by Wesbeam, now give the builder and carpenter a lightweight timber alternative to steel for these applications.

## Wesbeam Solid LVL Splay Detail

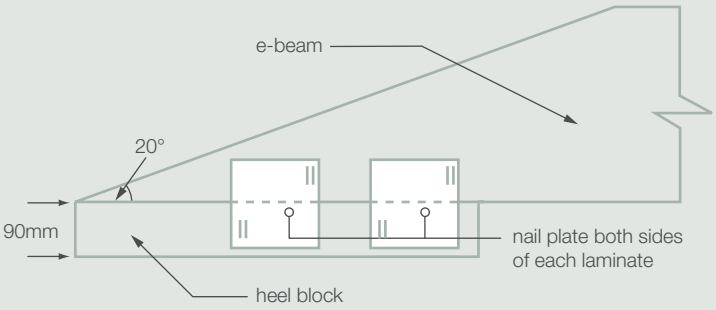



## Features

100% factory manufactured — no on-site cutting required.

- e-splay beams are supplied with the splay ready cut — alleviating the need for long, potentially dangerous, splay cuts on-site.
- High strength yet lighter and safer to handle than the steel alternative.
- Chamfered edges for safer and more comfortable handling.
- Manufactured from 100% sustainably sourced pine.
- Splay cut to standardised 20° (minimum splay cut is 17.5°).

## Typical e-splay Detail




## e-splay specification

e-splay span tables are engineer designed and certified to comply with AS1720.1:2010 - Timber structures, Part 1: Design methods, AS1720.3:2016 - Timber structures, Part 3: Design criteria for timber-framed residential buildings, AS1170 series - Structural design actions, and AS4055:2021 - Wind loads for housing.

e-splay is specified in the following format:

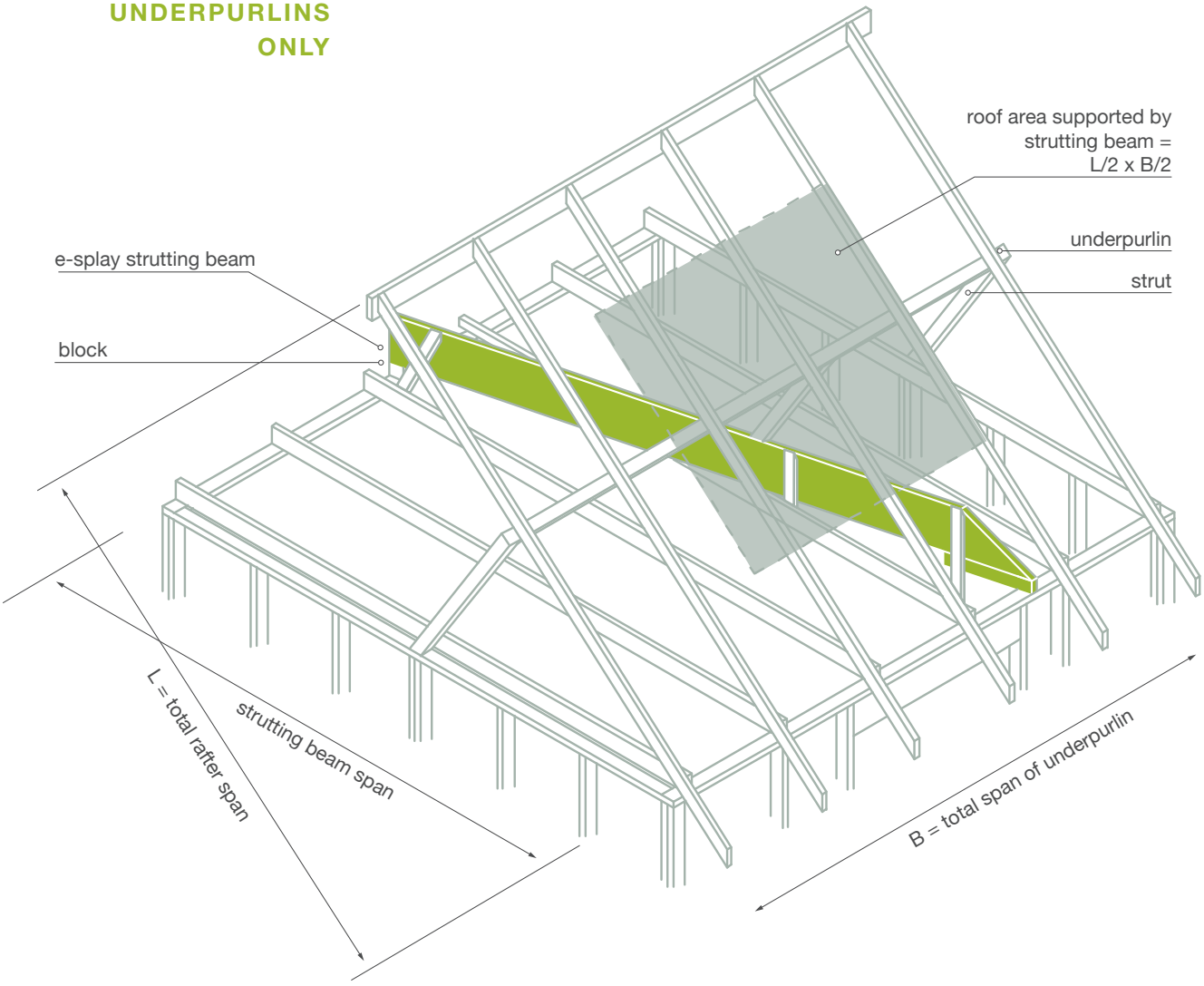
**e-splay 300x45 3600**

Where:

- 300x45 indicates the LVL beam sized from the span tables.
- 3600 indicates the total length of beam (beam length is available in 300mm increments).

# 02 STRUTTING BEAMS

**SUPPORTING UNDERPURLINS ONLY**



## STRUTTING BEAMS

SUPPORTING UNDERPURLINS ONLY

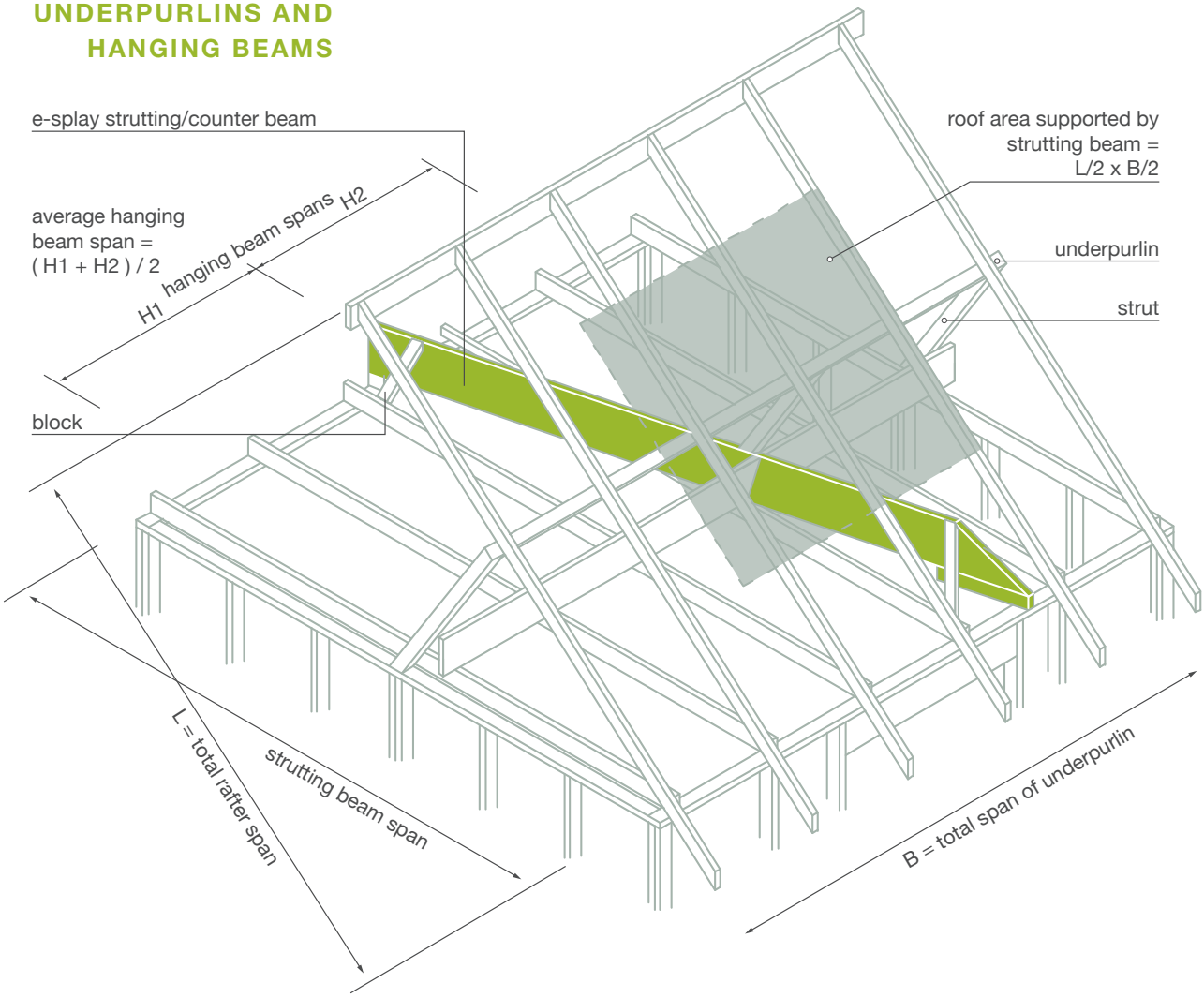
WIND CLASSIFICATION N1, N2, N3

| e-splay Section Size D X B (mm) | Roof Area Supported ($m^2$) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 |
| | Maximum Span (m) | | | | | | | |
| **Sheet Roof** | | | | | | | | |
| 150 x 45 | 3.8 | 3.5 | 3.0 | 2.7 | 2.5 | 2.3 | 2.2 | 2.0 |
| 150 x 63 | 4.4 | 3.9 | 3.5 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 |
| 150 x 75 | 4.8 | 4.2 | 3.7 | 3.5 | 3.2 | 2.9 | 2.8 | 2.5 |
| 170 x 45 | 4.5 | 4.0 | 3.6 | 3.3 | 3.0 | 2.8 | 2.6 | 2.3 |
| 170 x 63 | 5.1 | 4.6 | 4.1 | 3.7 | 3.5 | 3.3 | 3.1 | 2.7 |
| 200 x 63 | 6.1 | 5.7 | 5.2 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| 240 x 63 | 6.6 | 6.6 | 6.3 | 5.9 | 5.5 | 5.2 | 5.0 | 4.5 |
| 300 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.4 | 6.1 |
| 300 x 75 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 360 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 400 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 400 x 75 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 450 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| **Tile Roof** | | | | | | | | |
| 150 x 45 | 2.8 | 2.3 | 2.1 | NS | NS | NS | NS | NS |
| 150 x 63 | 3.3 | 2.7 | 2.3 | 2.2 | 1.9 | NS | NS | NS |
| 150 x 75 | 3.6 | 2.9 | 2.6 | 2.3 | 2.2 | 2.0 | 1.9 | NS |
| 170 x 45 | 3.4 | 2.8 | 2.4 | 2.2 | 2.0 | 1.9 | NS | NS |
| 170 x 63 | 3.8 | 3.3 | 2.8 | 2.5 | 2.3 | 2.2 | 2.1 | 1.9 |
| 200 x 63 | 4.9 | 4.1 | 3.6 | 3.3 | 3.0 | 2.8 | 2.6 | 2.3 |
| 240 x 63 | 6.0 | 5.2 | 4.7 | 4.2 | 3.8 | 3.7 | 3.4 | 3.1 |
| 300 x 63 | 6.6 | 6.6 | 6.2 | 5.8 | 5.3 | 5.0 | 4.7 | 4.2 |
| 300 x 75 | 6.6 | 6.6 | 6.5 | 6.1 | 5.8 | 5.3 | 5.1 | 4.6 |
| 360 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.5 | 6.3 | 6.0 | 5.5 |
| 400 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.2 |
| 400 x 75 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 450 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |

**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 points and at supports in accordance with AS1684.2:2021.
**3** A minimum initial clearance of 25mm to ceiling framing member shall be provided at mid-span.
**4** Bearing lengths at end supports shall not be less than 70mm.
**5** e-splay roof beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.

# 04 STRUTTING / COUNTER BEAMS

## SUPPORTING UNDERPURLINS AND HANGING BEAMS



## STRUTTING / COUNTER BEAMS

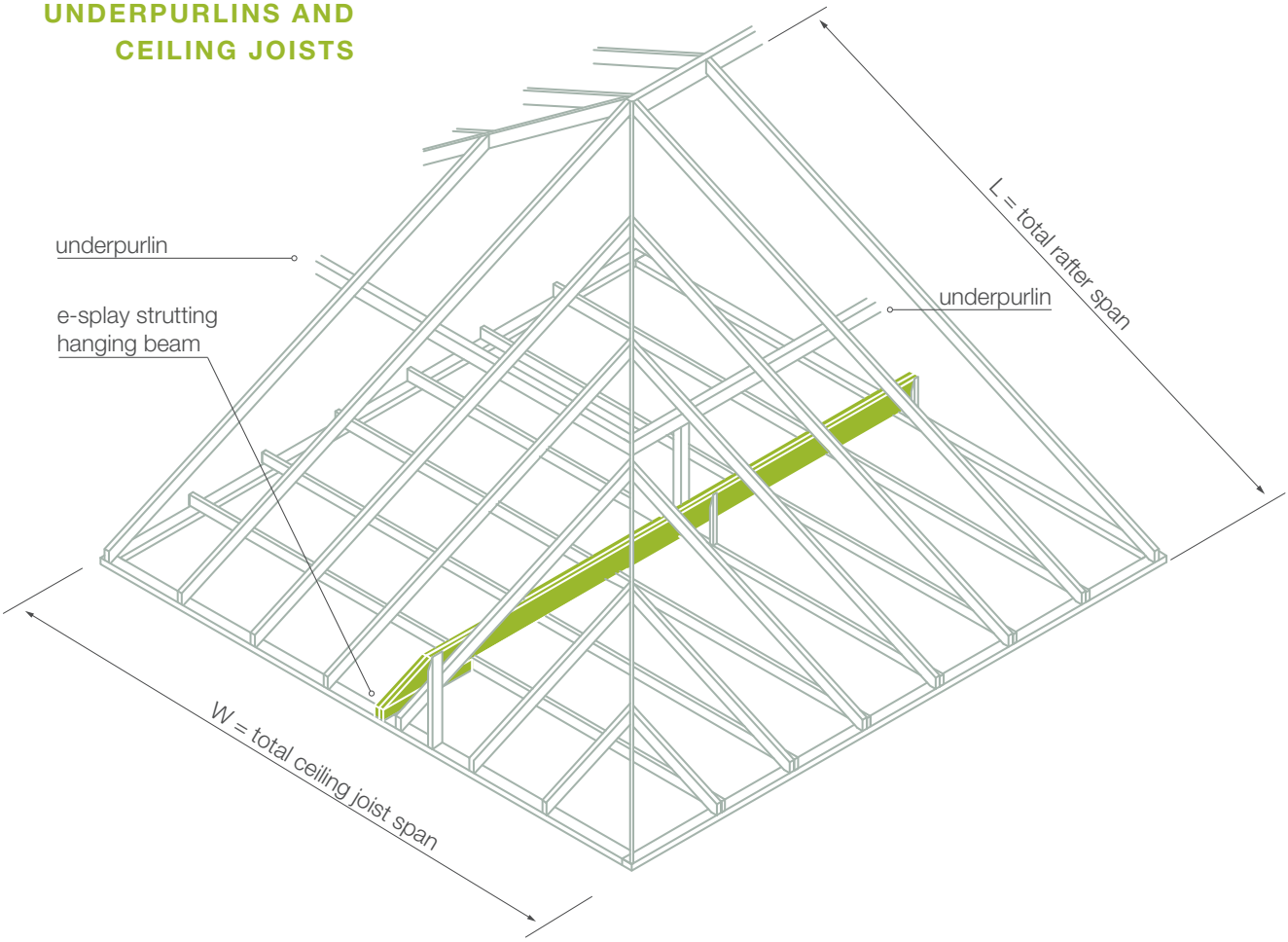
SUPPORTING UNDERPURLINS AND HANGING BEAMS — WIND CLASSIFICATION N1, N2, N3

| e-splay Section Size D X B (mm) | Average Hanging Beam Span (m) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2.4 | | | | | 4.2 | | | | |
| | Roof Area Supported ($m^2$) | | | | | | | | | |
| | 2 | 4 | 6 | 8 | 10 | 2 | 4 | 6 | 8 | 10 |
| | Maximum Span (m) | | | | | | | | | |
| **Maximum Span for Sheet Roof & Ceiling (m)** | | | | | | | | | | |
| 170 x 63 | 3.8 | 3.4 | 3.1 | 2.8 | 2.5 | 3.5 | 3.1 | 2.9 | 2.6 | 2.4 |
| 200 x 63 | 4.3 | 4.0 | 3.7 | 3.5 | 3.2 | 4.0 | 3.7 | 3.5 | 3.3 | 3.0 |
| 240 x 63 | 5.0 | 4.6 | 4.3 | 4.1 | 3.9 | 4.6 | 4.3 | 4.1 | 3.9 | 3.7 |
| 300 x 63 | 5.8 | 5.5 | 5.2 | 5.0 | 4.8 | 5.4 | 5.1 | 4.9 | 4.7 | 4.5 |
| 300 x 75 | 6.0 | 5.7 | 5.5 | 5.2 | 5.0 | 5.6 | 5.3 | 5.1 | 4.9 | 4.8 |
| 360 x 63 | 6.6 | 6.3 | 6.0 | 5.7 | 5.6 | 6.0 | 5.8 | 5.6 | 5.5 | 5.3 |
| 400 x 63 | 6.6 | 6.6 | 6.5 | 6.3 | 6.0 | 6.5 | 6.3 | 6.1 | 5.9 | 5.5 |
| 400 x 75 | 6.6 | 6.6 | 6.6 | 6.6 | 6.3 | 6.6 | 6.5 | 6.3 | 6.1 | 6.0 |
| 450 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.5 |
| **Maximum Span for Tile Roof & Ceiling (m)** | | | | | | | | | | |
| 170 x 63 | 3.3 | 2.6 | 2.2 | 2.0 | 1.8 | 3.0 | 2.5 | 2.2 | 2.0 | 1.8 |
| 200 x 63 | 3.9 | 3.3 | 2.8 | 2.5 | 2.2 | 3.6 | 3.1 | 2.7 | 2.4 | 2.2 |
| 240 x 63 | 4.5 | 3.9 | 3.6 | 3.2 | 2.9 | 4.2 | 3.8 | 3.5 | 3.1 | 2.9 |
| 300 x 63 | 5.4 | 4.8 | 4.4 | 4.1 | 3.9 | 5.1 | 4.6 | 4.3 | 4.0 | 3.8 |
| 300 x 75 | 5.6 | 5.1 | 4.6 | 4.3 | 4.1 | 5.3 | 4.8 | 4.5 | 4.2 | 4.0 |
| 360 x 63 | 6.2 | 5.6 | 5.2 | 4.9 | 4.6 | 5.7 | 5.4 | 5.0 | 4.7 | 4.5 |
| 400 x 63 | 6.6 | 6.1 | 5.6 | 5.4 | 5.1 | 6.2 | 5.8 | 5.5 | 5.2 | 4.9 |
| 400 x 75 | 6.6 | 6.4 | 5.9 | 5.6 | 5.4 | 6.5 | 6.0 | 5.7 | 5.5 | 5.2 |
| 450 x 63 | 6.6 | 6.6 | 6.3 | 5.9 | 5.6 | 6.6 | 6.4 | 6.0 | 5.7 | 5.5 |

**1** Splay detail to one end only.
**2** Average Hanging Beam Span = (H1 + H2)/2, where H1 and H2 are the spans of the hanging beams on each side of the Strutting-Counter Beam.
**3** All sections with depth to breath ratio exceeding three must be restrained against rollover as per AS1684.2:2021.
**4** Bearing lengths at end supports to be not less than 70mm.
**5** e-splay roof beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.

# 06 STRUTTING / HANGING BEAMS

## SUPPORTING UNDERPURLINS AND CEILING JOISTS




roof load width (RLW) = L/2
ceiling load width (CLW) = W/2

## STRUTTING / HANGING BEAMS

SUPPORTING UNDERPURLINS
AND CEILING JOISTS

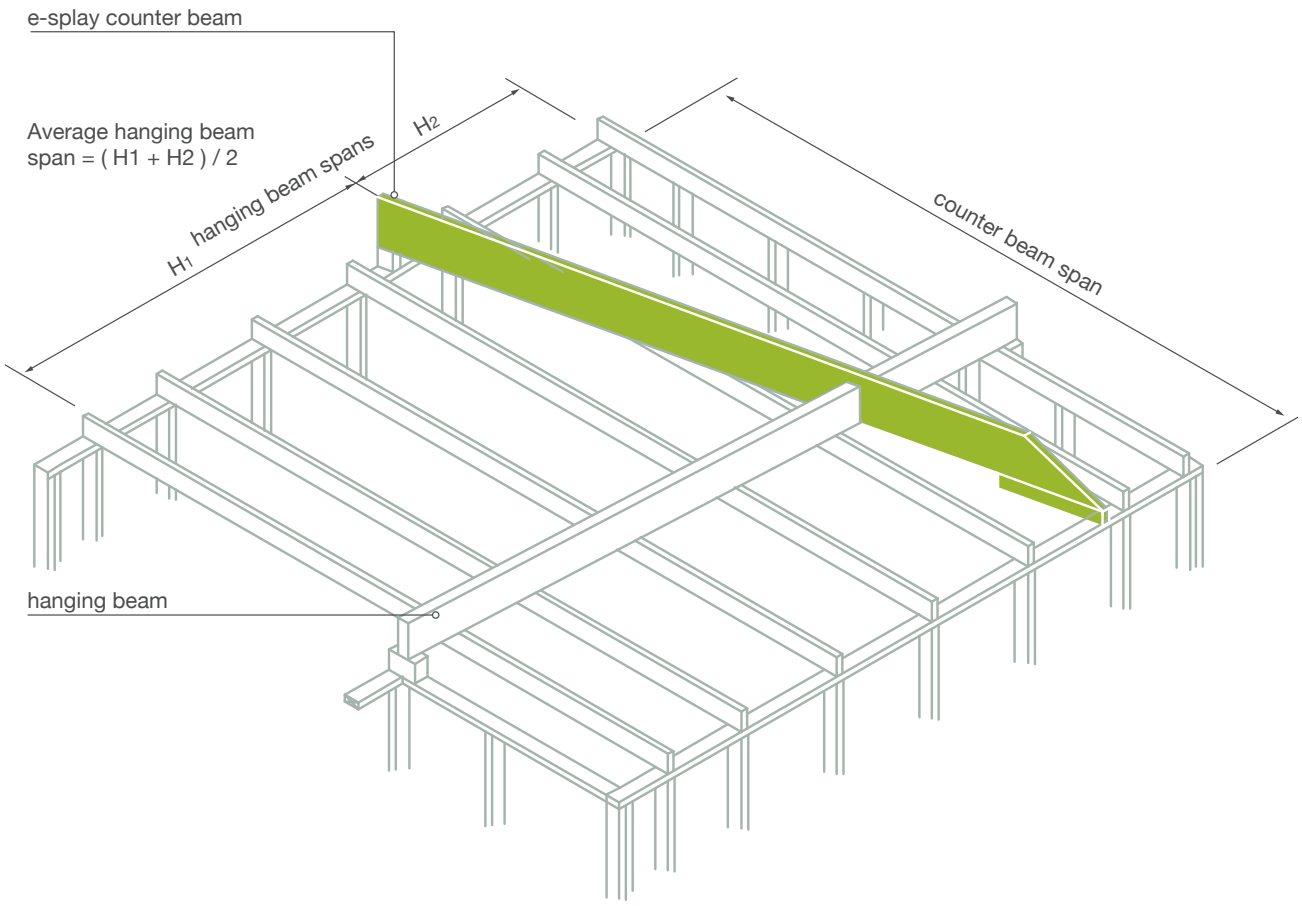
WIND CLASSIFICATION N1, N2, N3

| e-splay Section Size D X B (mm) | Ceiling Load Width 'CLW (m) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.4 | | | | 3.0 | | | | 4.2 | | | | |
| | Roof Load Width 'RLW' for Underpurlins (m) | | | | | | | | | | | | |
| | 1.8 | 2.4 | 3.0 | 3.6 | 1.8 | 2.4 | 3.0 | 3.6 | 1.8 | 2.4 | 3.0 | 3.6 | 4.2 |
| **Maximum Span for Sheet Roof & Ceiling (m)** | | | | | | | | | | | | | |
| 200 x 63 | 3.5 | 3.4 | 3.3 | 3.1 | 3.4 | 3.3 | 3.1 | 3.0 | 3.3 | 3.1 | 3.0 | 2.9 | 2.8 |
| 240 x 45 | 4.0 | 3.9 | 3.7 | 3.6 | 3.9 | 3.7 | 3.6 | 3.5 | 3.7 | 3.6 | 3.5 | 3.4 | 3.4 |
| 240 x 63 | 4.2 | 4.1 | 3.9 | 3.8 | 4.1 | 3.9 | 3.8 | 3.7 | 3.9 | 3.8 | 3.7 | 3.6 | 3.6 |
| 300 x 63 | 4.8 | 4.7 | 4.5 | 4.4 | 4.7 | 4.5 | 4.4 | 4.3 | 4.5 | 4.4 | 4.3 | 4.2 | 4.1 |
| 300 x 75 | 5.3 | 5.1 | 5.0 | 4.8 | 5.1 | 4.9 | 4.8 | 4.7 | 4.9 | 4.8 | 4.7 | 4.6 | 4.5 |
| 360 x 63 | 5.6 | 5.5 | 5.3 | 5.2 | 5.5 | 5.4 | 5.2 | 5.1 | 5.3 | 5.2 | 5.1 | 5.0 | 4.9 |
| 400 x 63 | 5.9 | 5.7 | 5.6 | 5.5 | 5.7 | 5.6 | 5.5 | 5.4 | 5.6 | 5.5 | 5.4 | 5.2 | 5.1 |
| 400 x 75 | 6.4 | 6.2 | 6.0 | 5.8 | 6.2 | 6.0 | 5.9 | 5.7 | 6.0 | 5.8 | 5.7 | 5.6 | 5.6 |
| 450 x 63 | 6.6 | 6.6 | 6.6 | 6.4 | 6.6 | 6.6 | 6.4 | 6.2 | 6.6 | 6.4 | 6.2 | 6.1 | 6.0 |
| **Maximum Span for Tile Roof & Ceiling (m)** | | | | | | | | | | | | | |
| 170 x 63 | 2.9 | 2.7 | 2.5 | 2.4 | 2.8 | 2.6 | 2.5 | 2.4 | 2.7 | 2.5 | 2.4 | 2.3 | 2.2 |
| 200 x 63 | 3.4 | 3.2 | 3.0 | 2.8 | 3.3 | 3.1 | 2.9 | 2.8 | 3.2 | 3.0 | 2.9 | 2.7 | 2.6 |
| 240 x 63 | 3.9 | 3.7 | 3.6 | 3.4 | 3.8 | 3.7 | 3.5 | 3.4 | 3.8 | 3.6 | 3.5 | 3.3 | 3.2 |
| 300 x 63 | 4.7 | 4.4 | 4.2 | 4.1 | 4.6 | 4.4 | 4.2 | 4.0 | 4.5 | 4.3 | 4.1 | 4.0 | 3.9 |
| 300 x 75 | 4.9 | 4.6 | 4.4 | 4.3 | 4.8 | 4.5 | 4.4 | 4.2 | 4.7 | 4.5 | 4.3 | 4.2 | 4.0 |
| 360 x 63 | 5.4 | 5.1 | 4.9 | 4.7 | 5.2 | 5.0 | 4.8 | 4.6 | 5.1 | 4.9 | 4.7 | 4.6 | 4.4 |
| 400 x 63 | 5.7 | 5.5 | 5.3 | 5.1 | 5.6 | 5.4 | 5.2 | 5.0 | 5.6 | 5.3 | 5.1 | 5.0 | 4.8 |
| 400 x 75 | 5.9 | 5.6 | 5.5 | 5.3 | 5.8 | 5.6 | 5.4 | 5.3 | 5.7 | 5.5 | 5.3 | 5.2 | 5.0 |
| 450 x 63 | 6.2 | 5.9 | 5.7 | 5.6 | 6.1 | 5.8 | 5.6 | 5.5 | 6.0 | 5.7 | 5.4 | 5.3 | 5.3 |

**1** Splay detail to one end only.
**2** All sections with a depth to breadth ratio exceeding three must be laterally restrained at each strutting point and at supports in accordance with AS1684.2:2021.
**3** Roof Load Width 'RLW' for the underpurlin is the average of the rafter spans either side of the underpurlin supported by the Strutting-Hanging Beam.
**4** Underpurlin span assumed to be one-half of the Strutting-Hanging Beam span.
**5** Ceiling Load Width 'CLW' is the average of the ceiling joist spans either side of the Strutting-Hanging Beam.
**6** Bearing lengths at end supports to be not less than 70mm.
**7** e-splay roof beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.

# 08 COUNTER BEAMS

## SUPPORTING HANGING BEAMS



WIND CLASSIFICATION N1, N2, N3

## COUNTER BEAMS

SUPPORTING HANGING BEAMS

**LIMITS ON DEFLECTION**
**PERMANENT LOAD** span/300 or 15mm max
**IMPOSED LOAD** span/300 or 15mm max

| e-splay Section Size D X B (mm) | Average Hanging Beam Span (m) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2.4 | 3 | 3.6 | 4.2 | 4.8 | 5.4 | 6 | 6.6 |
| | Maximum Span (m) | | | | | | | |
| 150 x 35 | 3.2 | 3.0 | 2.8 | 2.7 | 2.6 | 2.5 | 2.4 | 2.3 |
| 150 x 45 | 3.5 | 3.2 | 3.1 | 2.9 | 2.8 | 2.7 | 2.6 | 2.5 |
| 170 x 35 | 3.7 | 3.4 | 3.2 | 3.1 | 2.9 | 2.8 | 2.6 | 2.5 |
| 170 x 45 | 4.0 | 3.7 | 3.5 | 3.3 | 3.2 | 3.0 | 2.9 | 2.8 |
| 200 x 35 | 4.2 | 3.9 | 3.6 | 3.4 | 3.3 | 3.0 | 2.9 | 2.8 |
| 200 x 45 | 4.6 | 4.3 | 4.1 | 3.9 | 3.7 | 3.6 | 3.5 | 3.4 |
| 200 x 63 | 4.9 | 4.7 | 4.5 | 4.3 | 4.2 | 4.0 | 3.9 | 3.8 |
| 240 x 35 | 4.6 | 4.2 | 3.9 | 3.8 | 3.6 | 3.4 | 3.3 | 3.2 |
| 240 x 45 | 5.2 | 5.0 | 4.8 | 4.6 | 4.4 | 4.1 | 4.0 | 3.9 |
| 240 x 63 | 5.6 | 5.4 | 5.1 | 5.0 | 4.8 | 4.7 | 4.6 | 4.5 |
| 300 x 45 | 6.1 | 5.7 | 5.4 | 5.1 | 4.9 | 4.6 | 4.5 | 4.4 |
| 300 x 63 | 6.5 | 6.2 | 6.0 | 5.8 | 5.6 | 5.5 | 5.4 | 5.3 |
| 300 x 75 | 6.6 | 6.4 | 6.2 | 6.0 | 5.8 | 5.7 | 5.6 | 5.5 |
| 360 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.4 | 6.2 | 6.1 | 6.0 |
| 400 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.5 |
| 400 x 75 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 450 x 63 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |

**1** Splay detail to one end only.
**2** Average Hanging Beam Span = (H1 + H2)/2, where H1 and H2 are the spans of the hanging beams on each side of the Counter Beam.
**3** Bearing lengths at end supports to be not less than 70mm.
**4** e-splay counter beams can be put at an angle to the ceiling joists so as to avoid end loads falling over openings.

# 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<br>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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ABN 89 004 268 017
WESB0617 May 2023

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