



**e-splay®**  
engineered LVL splayed beams

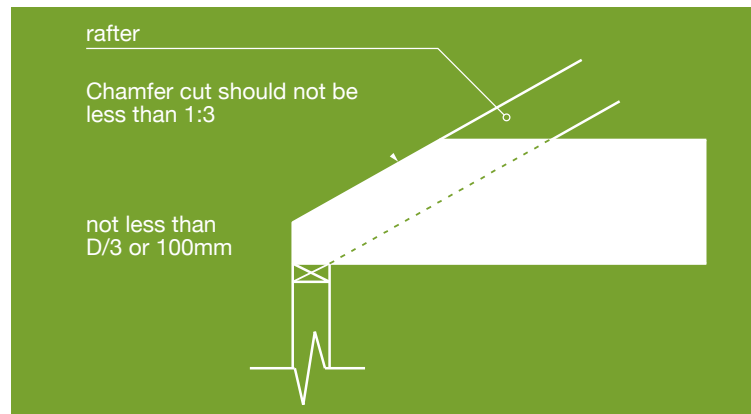
e-splay  
 engineered to load  
 engineered to length  
 engineered to last  
 end of story

**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 100mm 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.

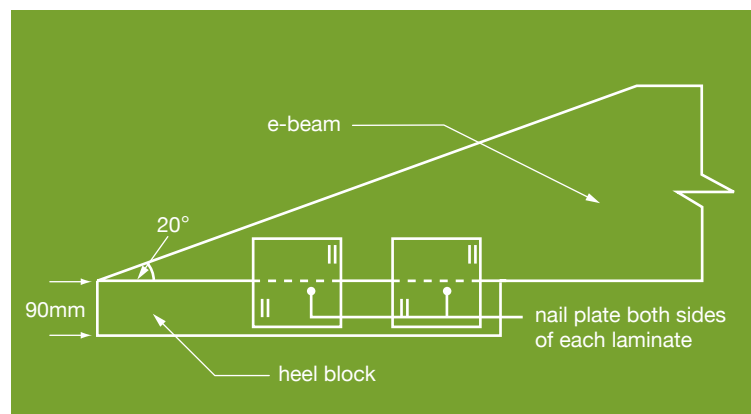
**AS1684 Details**



**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% plantation 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 Timber structures Part 1:Design Methods, AS1684 Residential timber-framed construction — Part 1 Design Criteria, AS/NZS1170 Loading codes — Parts 0 — 4 and AS4055 Wind loading for housing.

e-splay is specified in the following format:

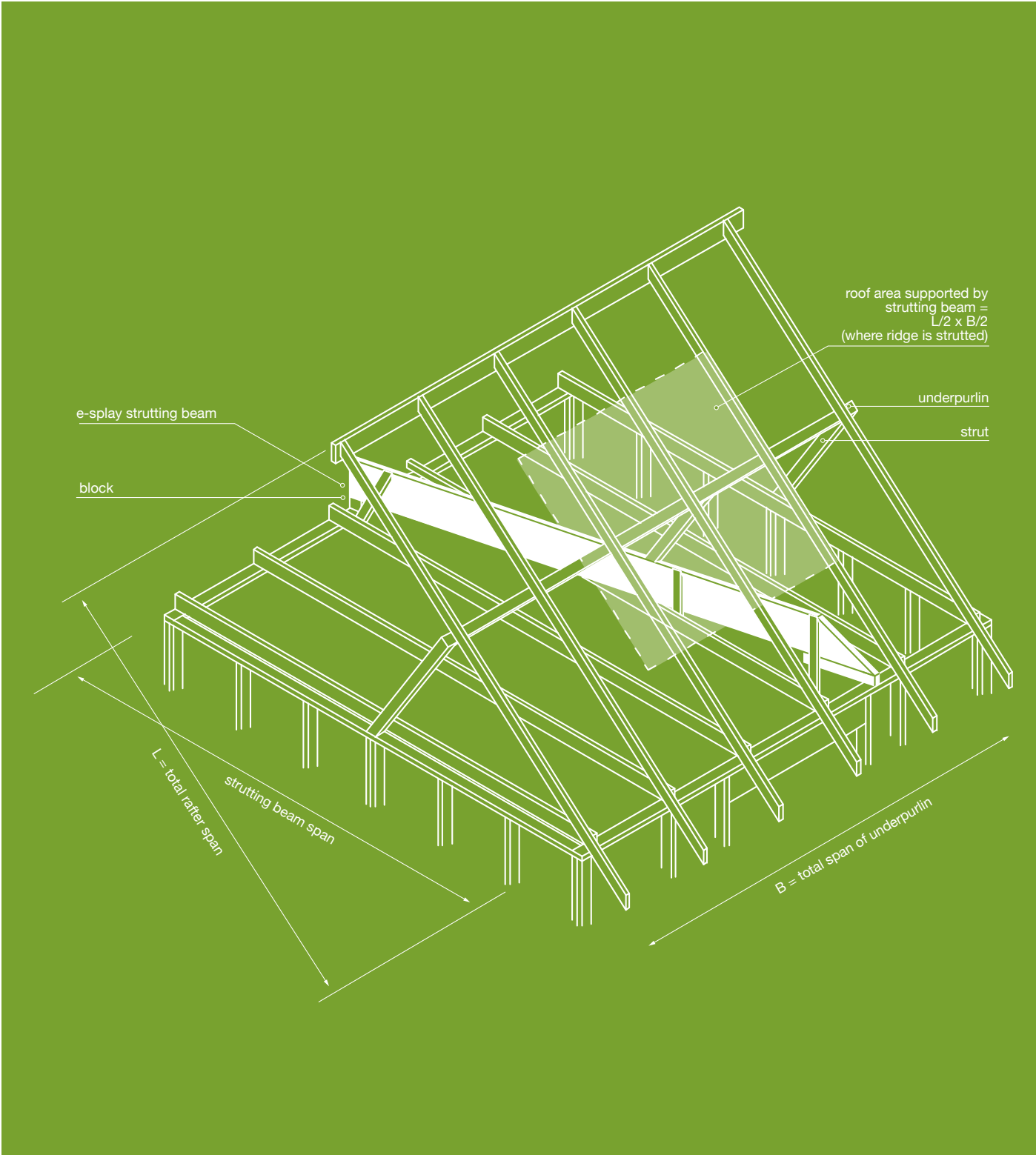
**e-splay 300x45 3600**

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).

# Strutting Beams

Supporting Underpurlins Only



# Strutting Beams

## Supporting Underpurlins Only

## Wind Classification N3

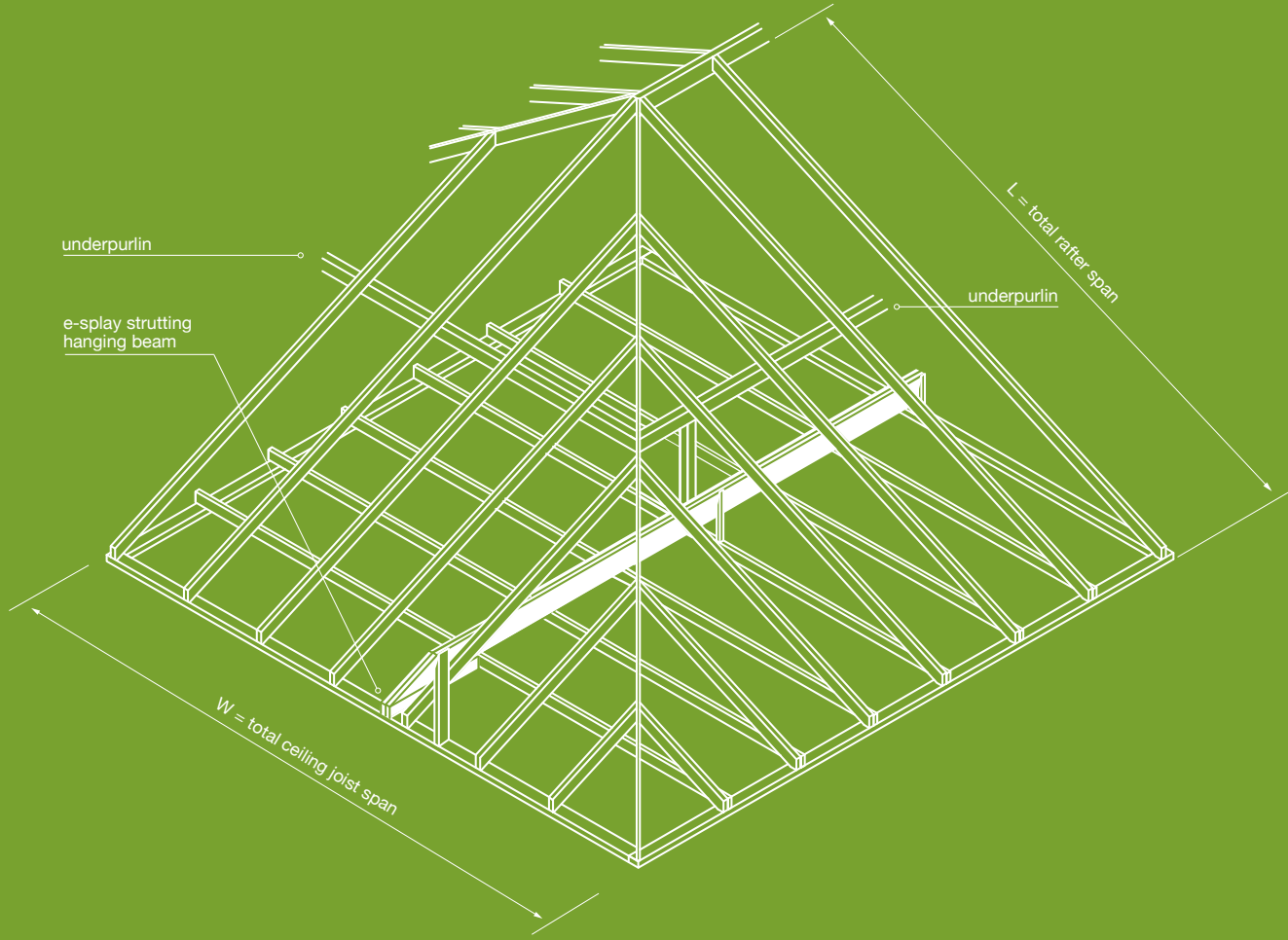
Limits on deflection  
 Dead load: span/300 or 20mm max.  
 Live load: span/250 or 20mm max.

e-splay Section Size D X B (mm)	Roof Area Supported (m <sup>2</sup> )							
	2	3	4	5	6	7	8	10
	Maximum Span (m)							
<b>Sheet Roof</b>	<b>For Wind Classification N3</b>							
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
2/150 x 35	4.7	4.1	3.7	3.4	3.1	2.9	2.7	2.4
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
2/200 x 36	6.4	5.9	5.3	5.0	4.6	4.3	4.0	3.6
2/200 x 45	6.6	6.2	5.8	5.3	5.1	4.8	4.5	4.1
240 x 63	6.6	6.6	6.3	5.9	5.5	5.2	5.0	4.5
2/240 x 45	6.6	6.6	6.6	6.5	6.2	6.0	5.8	5.2
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	6.3
2/300 x 45	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.4
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	6.4
400 x 75	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.3
450 x 63	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
<b>Tile Roof</b>	<b>For Wind Classification N3</b>							
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
2/150 x 35	3.5	2.9	2.5	2.2	2.1	2.0	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
2/200 x 35	5.1	4.3	3.8	3.5	3.2	3.0	2.8	2.5
2/200 x 45	5.5	4.8	4.2	3.8	3.6	3.3	3.1	2.8
240 x 63	6.0	5.2	4.7	4.2	3.8	3.7	3.4	3.1
2/240 x 45	6.6	6.0	5.3	5.0	4.6	4.2	4.0	3.7
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
2/300 x 45	6.6	6.6	6.6	6.4	6.1	5.8	5.4	5.0
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

- Splay detail to one end only.
- All sections with depth to breadth ratio exceeding three must be restrained against rollover at mid-span and support points.
- Multiple sections nail laminated as per AS 1684.
- A minimum initial clearance of 25 mm to ceiling framing members shall be provided at mid-span.
- Bearing length at end supports to be not less than 70 mm.
- Beams tested and approved to a maximum span of 6.6m.
- e-splay can be put at an angle to ceiling joists so as to avoid loads falling over window openings.
- NS signifies section size unlikely to be suitable

# 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 N3

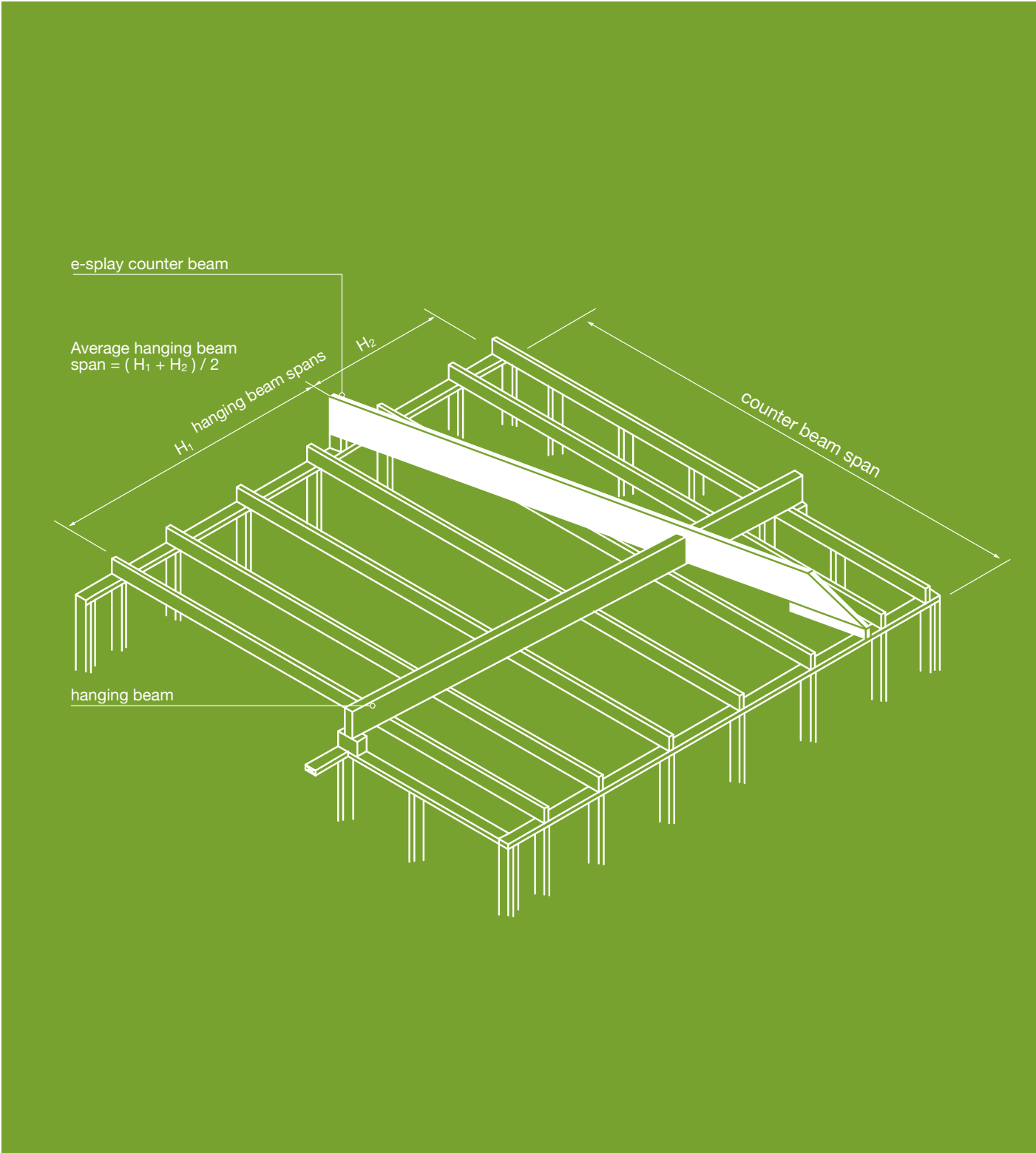
Limits on deflection  
 Dead load: span/300 or 12mm max.  
 Live load: span/300 or 12mm max.

e-splay Section Size D X B (mm)	Ceiling Load Width (m)												
	2.4				3.0				4.2				
	Roof Load Width (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
<b>Sheet Roof</b>	<b>For Wind Classification N3</b>												
2/170 x 45	3.4	3.3	3.1	3.0	3.3	3.1	3.0	2.9	3.1	3.0	2.9	2.8	2.7
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
2/200 x 35	3.7	3.6	3.5	3.4	3.6	3.5	3.4	3.3	3.5	3.4	3.3	3.1	3.1
2/200 x 45	3.9	3.7	3.6	3.5	3.7	3.6	3.5	3.4	3.6	3.5	3.4	3.3	3.2
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
2/240 x 45	4.5	4.3	4.2	4.0	4.3	4.2	4.0	3.9	4.2	4.0	3.9	3.8	3.8
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	5.5	4.8	5.1	4.9	4.8	4.7	4.9	4.8	4.7	4.6	4.5
2/300 x 45	5.5	5.3	5.1	5.0	5.3	5.1	5.0	4.9	5.1	5.0	4.9	4.8	4.7
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
2/400 x 45	6.6	6.4	6.3	6.1	6.5	6.3	6.1	5.9	6.3	6.2	5.9	5.8	5.7
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
2/450 x 63	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
<b>Tile Roof</b>	<b>For Wind Classification N3</b>												
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
2/170 x 35	3.0	2.8	2.6	2.5	2.9	2.7	2.6	2.5	2.8	2.7	2.5	2.4	2.3
2/170 x 45	3.3	3.0	2.9	2.7	3.2	3.0	2.8	2.7	3.1	2.9	2.7	2.6	2.5
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
2/200 x 35	3.5	3.3	3.1	3.0	3.5	3.2	3.1	2.9	3.4	3.2	3.0	2.9	2.8
2/200 x 45	3.7	3.5	3.4	3.2	3.6	3.5	3.3	3.2	3.6	3.4	3.2	3.1	3.0
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
2/240 x 45	4.3	4.1	3.9	3.8	4.2	4.0	3.8	3.7	4.1	3.9	3.8	3.7	3.6
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
2/300 x 45	5.1	4.8	4.6	4.5	5.0	4.7	4.6	4.4	4.9	4.7	4.5	4.3	4.2
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	5.6	5.4	5.3
2/450 x 63	6.6	6.6	6.6	6.5	6.6	6.6	6.6	6.4	6.6	6.6	6.5	6.3	6.1

- Splay detail to one end only.
- All sections with depth to breadth ratio exceeding three must be restrained against rollover at mid-span and support points.
- RLW for underpurlin is the average of the rafter spans on each side of the underpurlin supported by the Strutting-Hanging beam.
- Underpurlin span assumed to be one-half the Strutting/Hanging beam span.
- CLW is the average of the ceiling joist spans on each side of the Strutting/Hanging beam.
- Multiple sections nail laminated as per AS 1684.
- Bearing length at end supports to be not less than 70 mm.
- Beams tested and approved to a maximum span of 6.6m.
- e-splay can be put at an angle to ceiling joists so as to avoid loads falling over window openings.

# Counter Beams

## Supporting Hanging Beams



# Counter Beams

## Supporting Hanging Beams

### Wind Classification N3

Limits on deflection  
 Dead load: span/300 or 12mm max.  
 Live load: span/300 or 12mm max.

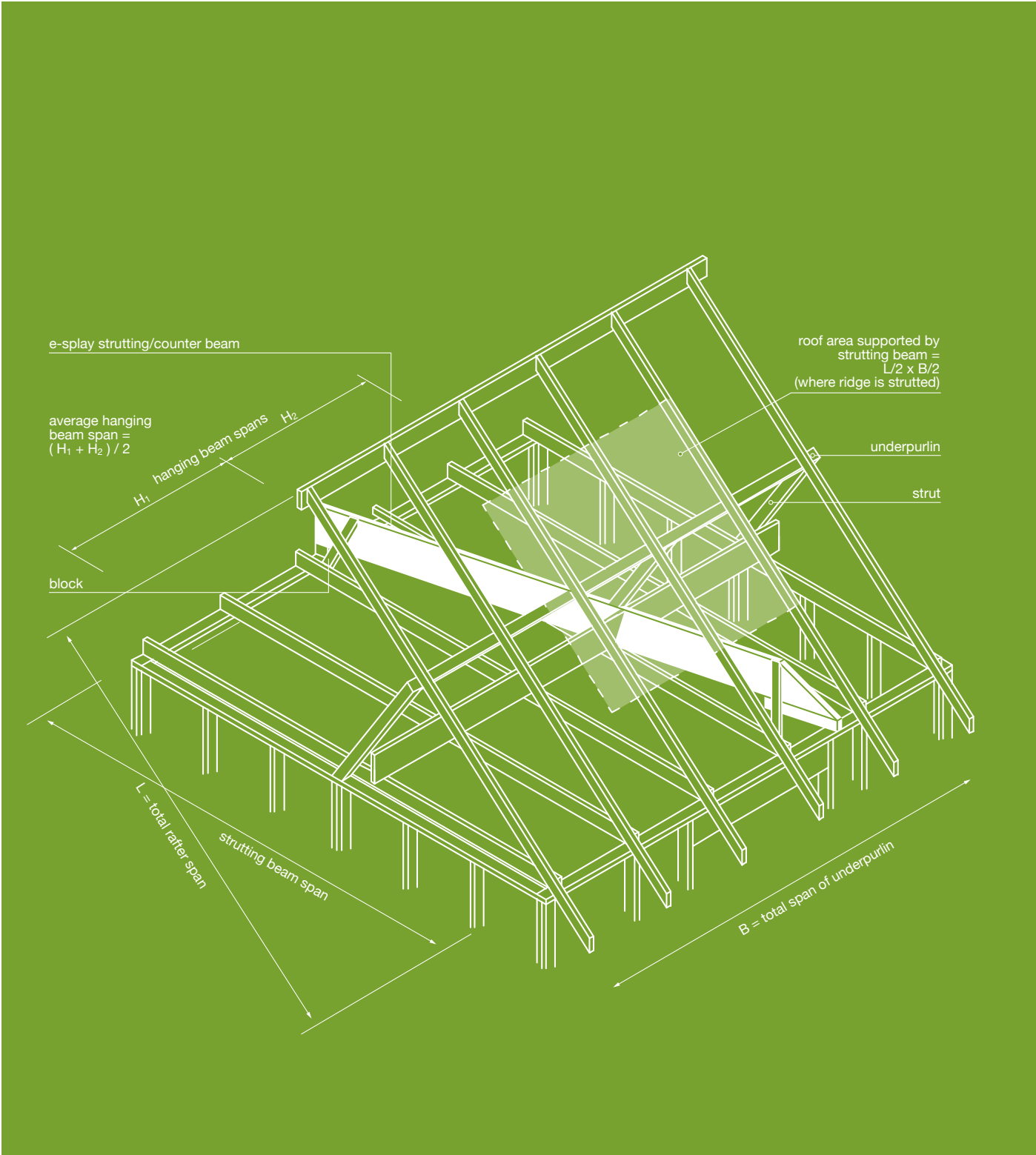
e-splay Section Size D X B (mm)	Average Hanging Beam Span (m)							
	2.4	3	3.6	4.2	4.8	5.4	6	6.6
	Maximum Span (m)							
150 x 35	3.2	3.0	2.8	2.7	2.6	2.5	2.4	2.3
150 x 45	3.5	3.2	3.1	2.9	2.8	2.7	2.6	2.5
170 x 35	3.7	3.4	3.2	3.1	2.9	2.8	2.6	2.5
170 x 45	4.0	3.7	3.5	3.3	3.2	3.0	2.9	2.8
200 x 35	4.2	3.9	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. Multiple sections nail laminated as per AS 1684.
3. Bearing length at end supports to be not less than 70mm.
4. Beams tested and approved to a maximum span of 6.6m.
5. e-splay can be put at an angle to ceiling joists so as to avoid loads falling over window openings.



# Strutting / Counter Beams

Supporting Underpurlins and Hanging Beams



# Strutting / Counter Beams

## Supporting Underpurlins and Hanging Beams

## Wind Classification N3

Limits on deflection  
 Dead load: span/300 or 12mm max.  
 Live load: span/300 or 12mm max.

e-splay Section Size D X B (mm)	Average Hanging Beam Span (m)									
	2.4					4.2				
	Roof Area Supported (m2)									
	2	4	6	8	10	2	4	6	8	10
	Maximum Span (m)									
<b>Sheet Roof</b>	<b>For Wind Classification N3</b>									
170 x 63	3.8	3.4	3.1	2.8	2.5	3.5	3.1	2.9	2.6	2.4
2/170 x 35	3.9	3.6	3.3	3.0	2.7	3.6	3.3	3.0	2.8	2.6
2/170 x 45	4.1	3.8	3.5	3.3	3.0	3.8	3.5	3.3	3.1	2.9
200 x 63	4.3	4.0	3.7	3.5	3.2	4.0	3.7	3.5	3.3	3.0
2/200 x 35	4.5	4.1	3.8	3.6	3.4	4.1	3.8	3.6	3.4	3.2
2/200 x 45	4.7	4.3	4.1	3.8	3.6	4.3	4.1	3.8	3.7	3.5
240 x 63	5.0	4.6	4.3	4.1	3.9	4.6	4.3	4.1	3.9	3.7
2/240 x 45	5.4	5.0	4.8	4.5	4.3	4.9	4.7	4.5	4.3	4.1
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
2/300 x 45	6.2	5.9	5.6	5.5	5.3	5.7	5.6	5.4	5.2	5.0
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	5.7
400 x 75	6.6	6.6	6.6	6.5	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	6.5	6.3
<b>Tile Roof</b>	<b>For Wind Classification N3</b>									
170 x 63	3.3	2.6	2.2	2.0	1.8	3.0	2.5	2.2	2.0	1.8
2/170 x 35	3.5	2.8	2.4	2.2	1.9	3.2	2.6	2.3	2.1	1.9
2/170 x 45	3.7	3.1	2.6	2.3	2.2	3.5	2.9	2.5	2.2	2.1
200 x 63	3.9	3.3	2.8	2.5	2.2	3.6	3.1	2.7	2.4	2.2
2/200 x 35	4.0	3.5	3.0	2.6	2.4	3.8	3.3	2.9	2.6	2.3
2/200 x 45	4.2	3.7	3.3	2.9	2.7	4.0	3.6	3.2	2.9	2.6
240 x 63	4.5	3.9	3.6	3.2	2.9	4.2	3.8	3.5	3.1	2.9
2/240 x 45	4.9	4.4	4.0	3.7	3.5	4.6	4.2	3.9	3.6	3.4
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
2/300 x 45	5.8	5.3	4.9	4.6	4.3	5.5	5.1	4.7	4.4	4.2
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
2/450 x 63	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6

- Splay detail to one end only.
- 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.
- All sections with depth to breadth ratio exceeding three must be restrained against rollover at supports.
- Multiple sections nail laminated as per AS 1684.
- Bearing length at end supports to be not less than 70 mm.
- Beams tested and approved to a maximum span of 6.6m.
- e-splay can be put at an angle to ceiling joists so as to avoid loads falling over window openings.