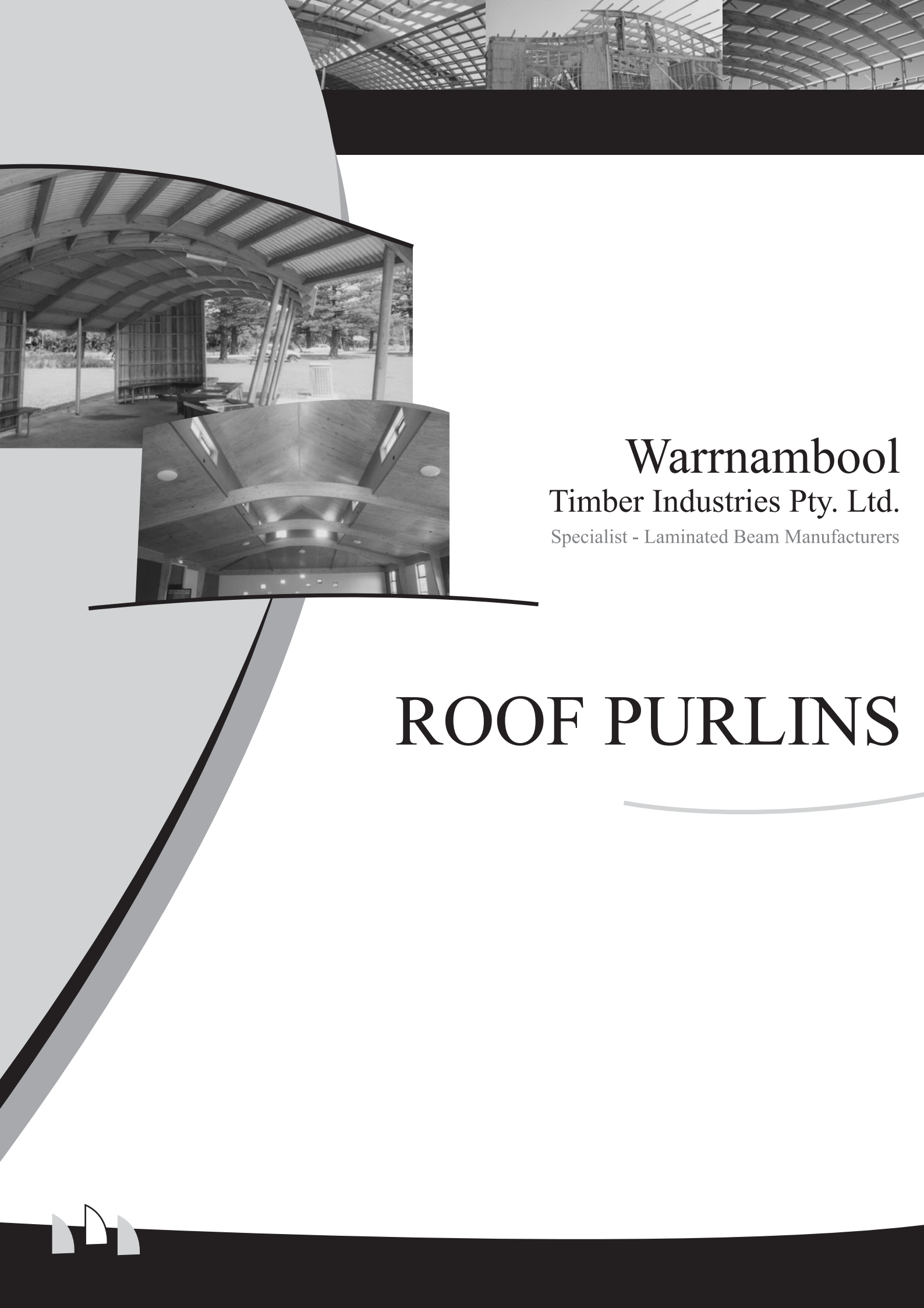




Warrnambool
Timber Industries Pty. Ltd.
Specialist - Laminated Beam Manufacturers

ROOF PURLINS



ROOF PURLINS

Single and Continuous Spans

Roof load of Light Sheet (10 kg/m²).

Roof load of Sheet (20 kg/m²).

Roof load of Sheet & Ceiling (40 kg/m²).

Restraint value for slenderness calculations is 340 mm.

K6 factor of 1.0 used. K23 factor applied to bending strength.

J2 value of 1.5 used for DL Deflection.

Pre-camber radius of 0m used.

Roof Pitch of 25.0 deg used in load calculations.

N3 WIND AREAS Downdrag loads were ignored.

Total Uplift coefficient was 1.6

Deflection Criteria:

1: Dead Load = Span / 300 or 20mm

2: Roof Live Load = Span / 250.

3: Wind Uplift = Span / 150.

Timber Properties: Fb = 33 MPa, Elasticity = 13300 MPa

Density = 600 kg/m³, Fs = 3.7MPa

Ft = 5.2 MPa, Fc = 12 MPa.

Ft = 5.2 MPa, Fc = 12 MPa.

Load Cases:

1: Dead Load

2: Roof Live Load

3: Wind Uplift

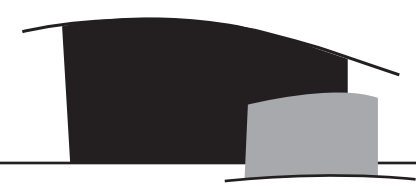
MAX ROOF PITCH = 25 DEGREES

Roof pitch used in calculations is 25 degrees. For roof pitches greater than 25 degrees but not exceeding 45 degrees you may multiply purlin spacing x 1.28 then use answer to enter table at correct load width.

CONTINUOUS SPAN ROOF PURLINS

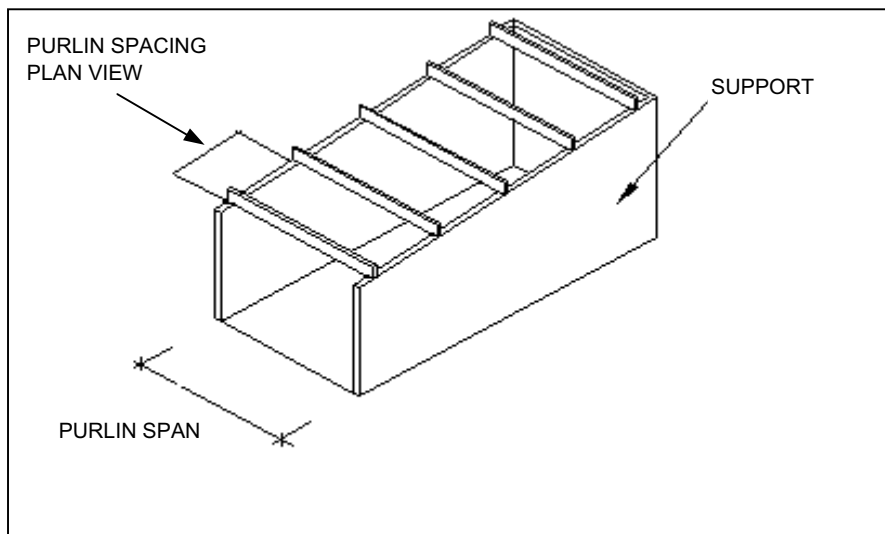
Continuous Span Purlins may have unequal spans, provided major span does not exceed 1.25 times the length of the minor span, major span length should be used in determining roof purlin size.

For determination of Roof Construction Mass
Refer to table 1 on page 6



ROOF PURLINS

Figure15



Blocking of long Purlins

(in excess of 3.6m)

Purlins having a depth greater than four times their thickness should be blocked (nogged), at 3.6 centres eg. 3.7m span 1 row noggings 7.8m span 2 rows evenly spaced.



ROOF PURLINS

Roof load of Light Sheet (10 kg/m²).

N3 WIND LOADS

Maximum Permissible Span (m)

Single Span

Continuous Span

Beam Size	Purlin Spacing m						
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 42	4.4	3.9	3.5	3.4	3.1	2.9	2.7
168 x 42	5.9	5.4	5.2	4.6	4.2	3.9	3.6
210 x 42	7.3	6.9	6.5	5.8	5.3	4.9	4.6
252 x 42	8.2	7.8	7.4	6.8	6.2	5.8	5.4
294 x 42	9.1	8.6	8.2	7.6	7.0	6.4	6.0
336 x 42	9.9	9.4	9.0	8.3	7.6	7.0	6.6
375 x 42	10.6	10.1	9.7	8.9	8.1	7.5	7.0
420 x 42	11.3	10.8	10.4	9.3	8.5	7.9	7.3
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 65	5.1	4.5	4.4	4.2	3.9	3.6	3.4
168 x 65	6.9	6.5	6.0	5.6	5.2	4.9	4.5
210 x 65	8.3	7.9	7.5	7.0	6.6	6.1	5.7
252 x 65	9.3	8.9	8.6	8.3	7.9	7.4	6.9
294 x 65	10.2	9.8	9.4	9.2	8.9	8.6	8.0
336 x 65	11.1	10.6	10.3	10.0	9.7	9.5	9.2
375 x 65	11.8	11.4	11.1	10.8	10.5	10.2	10.0
420 x 65	12.6	12.2	11.8	11.5	11.2	11.0	10.8
462 x 65	13.3	12.9	12.5	12.2	11.9	11.7	11.5
504 x 65	14.0	13.5	13.2	12.9	12.6	12.3	12.1

Beam Size	Purlin Spacing m						
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 42	5.5	4.5	3.9	3.4	3.1	2.9	2.7
168 x 42	7.4	6.0	5.2	4.6	4.2	3.9	3.6
210 x 42	9.2	7.6	6.5	5.8	5.3	4.9	4.6
252 x 42	10.4	8.9	7.7	6.8	6.2	5.8	5.4
294 x 42	11.4	10.0	8.6	7.6	7.0	6.4	6.0
336 x 42	12.4	10.8	9.3	8.3	7.6	7.0	6.6
375 x 42	13.3	11.6	10.0	8.9	8.1	7.5	7.0
420 x 42	14.2	12.1	10.4	9.3	8.5	7.9	7.3
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 65	6.9	5.6	4.8	4.3	3.9	3.6	3.4
168 x 65	9.1	7.5	6.5	5.8	5.3	4.9	4.5
210 x 65	10.5	9.5	8.2	7.3	6.6	6.1	5.7
252 x 65	11.7	11.2	9.8	8.8	8.0	7.4	6.9
294 x 65	12.9	12.3	11.5	10.3	9.3	8.6	8.0
336 x 65	13.9	13.4	12.9	11.8	10.7	9.9	9.2
375 x 65	14.9	14.4	13.9	13.1	11.9	11.0	10.3
420 x 65	15.8	15.3	14.9	14.2	12.9	11.9	11.1
462 x 65	16.7	16.2	15.7	15.2	13.8	12.7	11.9
504 x 65	17.6	17.0	16.6	16.1	14.6	13.5	12.6*

Bearing Lengths:

35mm for single span supports, or end supports for continuous members.

35mm for internal supports on continuous members or cantilever supports.

*For continuous spans: denotes 45mm bearing at end supports, and 65mm at internal supports.



ROOF PURLINS

Roof load of Sheet (20 kg/m²).

N3 WIND LOADS

Maximum Permissible Span (m)

Single Span

Continuous Span

Beam Size	Purlin Spacing m						
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 42	4.2	3.8	3.5	3.3	3.1	2.9	2.8
168 x 42	5.6	5.0	4.6	4.3	4.1	3.9	3.7
210 x 42	6.6	6.1	5.7	5.3	5.0	4.8	4.7
252 x 42	7.4	6.9	6.5	6.2	6.0	5.7	5.5
294 x 42	8.2	7.7	7.3	7.0	6.7	6.5	6.2
336 x 42	9.0	8.4	8.0	7.6	7.4	7.1	6.8
375 x 42	9.7	9.1	8.7	8.3	8.0	7.7	7.2
420 x 42	10.4	9.8	9.3	8.9	8.6	8.1	7.6
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 65	5.1	4.5	4.4	4.1	3.9	3.7	3.5
168 x 65	6.5	6.1	5.7	5.4	5.1	4.8	4.7
210 x 65	7.6	7.1	6.7	6.4	6.2	6.0	5.8
252 x 65	8.6	8.0	7.6	7.3	7.1	6.8	6.6
294 x 65	9.4	8.9	8.5	8.1	7.9	7.6	7.4
336 x 65	10.3	9.7	9.3	8.9	8.6	8.4	8.2
375 x 65	11.1	10.5	10.0	9.7	9.4	9.1	8.9
420 x 65	11.8	11.2	10.8	10.4	10.1	9.8	9.5
462 x 65	12.5	11.9	11.5	11.1	10.7	10.4	10.2
504 x 65	13.2	12.6	12.1	11.7	11.4	11.1	10.8

Beam Size	Purlin Spacing m						
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 42	5.7	4.6	4.0	3.6	3.2	3.0	2.8
168 x 42	7.1	6.2	5.3	4.8	4.3	4.0	3.7
210 x 42	8.3	7.7	6.7	6.0	5.4	5.0	4.7
252 x 42	9.4	8.7	7.9	7.0	6.4	5.9	5.5
294 x 42	10.4	9.7	8.8	7.9	7.2	6.6	6.2
336 x 42	11.3	10.6	9.6	8.6	7.8	7.2	6.8
375 x 42	12.2	11.5	10.3	9.1	8.3	7.7	7.2
420 x 42	13.1	12.3	10.7	9.6	8.7	8.1	7.6
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 65	6.8	5.8	5.0	4.4	4.0	3.7	3.5
168 x 65	8.2	7.7	6.7	6.0	5.4	5.0	4.7
210 x 65	9.6	8.9	8.4	7.5	6.8	6.3	5.9
252 x 65	10.8	10.1	9.6	9.0	8.2	7.6	7.1
294 x 65	11.9	11.2	10.7	10.3	9.6	8.9	8.3
336 x 65	12.9	12.2	11.7	11.2	10.9	10.2	9.5
375 x 65	13.9	13.2	12.6	12.2	11.8	11.3	10.6
420 x 65	14.9	14.1	13.5	13.1	12.7	12.2	11.4
462 x 65	15.7	15.0	14.4	13.9	13.5	13.1	12.2
504 x 65	16.6	15.9	15.2	14.7	14.3	13.9	12.9*

Bearing Lengths:

35mm for single span supports, or end supports for continuous members.

35mm for internal supports on continuous members or cantilever supports.

*For continuous spans: denotes 45mm bearing at end supports, and 65mm at internal supports.



ROOF PURLINS

Roof load of Sheet & Ceiling (40 kg/m²).

N3 WIND LOADS

Maximum Permissible Span (m)

Single Span

Continuous Span

Beam Size	Purlin Spacing m						
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 42	3.5	3.1	2.9	2.6	2.5	2.4	2.3
168 x 42	4.6	4.1	3.8	3.5	3.3	3.2	3.0
210 x 42	5.7	5.0	4.7	4.4	4.1	3.9	3.8
252 x 42	6.5	6.0	5.6	5.1	4.9	4.7	4.5
294 x 42	7.3	6.7	6.3	6.0	5.7	5.4	5.2
336 x 42	8.0	7.4	6.9	6.6	6.3	6.1	5.9
375 x 42	8.7	8.0	7.5	7.2	6.9	6.7	6.5
420 x 42	9.3	8.6	8.1	7.7	7.4	7.2	7.0
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 65	4.4	3.9	3.6	3.3	3.2	3.0	2.9
168 x 65	5.7	5.1	4.7	4.4	4.1	3.9	3.8
210 x 65	6.7	6.2	5.8	5.4	5.1	4.9	4.7
252 x 65	7.6	7.1	6.6	6.3	6.1	5.9	5.6
294 x 65	8.5	7.9	7.4	7.1	6.8	6.6	6.4
336 x 65	9.3	8.6	8.2	7.8	7.5	7.2	7.0
375 x 65	10.0	9.4	8.9	8.5	8.2	7.9	7.7
420 x 65	10.8	10.1	9.5	9.1	8.8	8.5	8.3
462 x 65	11.5	10.7	10.2	9.8	9.4	9.1	8.9
504 x 65	12.1	11.4	10.8	10.4	10.0	9.7	9.4

Beam Size	Purlin Spacing m						
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 42	4.7	4.2	3.8	3.5	3.2	3.0	2.8
168 x 42	6.1	5.5	5.1	4.7	4.3	4.0	3.8
210 x 42	7.2	6.6	6.2	5.9	5.4	5.0	4.7
252 x 42	8.2	7.5	7.1	6.7	6.4	6.0	5.6
294 x 42	9.2	8.4	7.9	7.5	7.2	7.0	6.6
336 x 42	10.0	9.3	8.7	8.3	8.0	7.7	7.2*
375 x 42	10.9	10.1	9.5	9.0	8.7	8.2*	7.7*
420 x 42	11.7	10.8	10.2	9.8	9.3*	8.6*	8.0*
	0.6	0.9	1.2	1.5	1.8	2.1	2.4
126 x 65	5.9	5.3	4.8	4.4	4.0	3.7	3.5
168 x 65	7.2	6.7	6.2	5.9	5.4	5.0	4.7
210 x 65	8.5	7.8	7.3	7.0	6.7	6.2	5.8
252 x 65	9.6	8.9	8.4	8.0	7.7	7.4	7.0
294 x 65	10.7	9.9	9.3	8.9	8.6	8.3	8.0
336 x 65	11.7	10.9	10.3	9.8	9.4	9.1	8.9
375 x 65	12.6	11.8	11.2	10.7	10.3	9.9	9.6
420 x 65	13.5	12.7	12.0	11.5	11.1	10.7	10.4*
462 x 65	14.4	13.5	12.8	12.3	11.8	11.5	11.1*
504 x 65	15.2	14.3	13.6	13.0	12.6	12.2*	11.9*

Bearing Lengths:

35mm for single span supports, or end supports for continuous members.

35mm for internal supports on continuous members or cantilever supports.

*For continuous spans: denotes 45mm bearing at end supports, and 65mm at internal supports.