

Application: Rafters

A Rafter is one of a number of parallel members required to support roofing loads, via an overlying set of battens or purlins.

They are aligned at the roof and run perpendicular to the ridge and top plate.

Basic Loading Data

Snow Load = 0.9kPa
Wind Area = Very High
Min End Bearing Length = 36mm

Tables 1 & 2: Light Sheet Roof - with ceiling - 40kg/m²

Roofing = Sheet (20kg/m²)
Ceiling = 13mm P'Board = (20kg/m²)

Tables 3 & 4: Heavy Roof Tile - with ceiling - 90kg/m²

Roofing = Terracotta Tiles (70kg/m²)
Ceiling = 13mm P'Board = (20kg/m²)

Dimensional Data

Roof Pitch = 15.0 deg
Bottom Edge Restraint = 0.45m

Design Deflection Limits

Dead Load - Span/300 or 200mm max
Live Load - Span/250 or 12.5mm max
Overhang - Span/300 or 10mm max

Overhangs - The overhanging rafters must be tied together at their ends by a fascia board. No overhang is to be greater than one half of the adjacent back span.

NP Frame LVL 8
NP Frame LVL 11
NP Frame LVL 13

Light Sheet Roof - with ceiling - 40kg/m² Table 1

Single Span Rafter spacing (mm)	Max Span (mm)				
	2400	3700	4900	5200	6500
600	140x45	190x45	240x45	290x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
			150x63	200x63	240x63
	2100	3200	4400	4700	6000
900	140x45	190x45	240x45	290x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
			150x63	200x63	240x63
	1900	3000	4000	4300	5700
1200	140x45	190x45	240x45	290x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
			150x63	200x63	240x63

Heavy Roof Tile - with ceiling - 90kg/m² Table 3

Single Span Roof load width (mm)	Max Span (mm)				
	1800	2900	3900	4200	5500
600	140x45	190x45	240x45	240x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
		150x63	150x63	200x63	240x63
	1600	2500	3400	3700	4900
900	140x45	190x45	240x45	240x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
		150x63	200x63	200x63	240x63
	1500	2300	3100	3400	4500
1200	140x45	190x45	240x45	240x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
		150x63	150x63	200x63	240x63

Table 2

Continuous Span Roof load width (mm)	Max Span (mm)				
	3200	5000	6400	6700	8200
600	140x45	190x45	240x45	240x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
			150x63	200x63	240x63
	2800	4400	5900	6200	7600
900	140x45	190x45	240x45	290x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
			200x63	200x63	240x63
	2600	4000	5400	5800	7200
1200	140x45	190x45	240x45	240x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
			150x63	200x63	240x63

Table values relate to Allowable Maximum Span in mm

Table 4

Continuous Span Roof load width (mm)	Max Span (mm)				
	2500	3900	5300	5700	7000
600	140x45	190x45	240x45	240x45	290x45
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
		150x63	150x63	200x63	240x63
	2200	3400	4600	5000	6400
900	140x45	190x45	240x45	290x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
		150x63	150x63	200x63	240x63
	2000	3100	4200	4600	6000
1200	140x45	190x45	240x45	240x45	
	90x45	140x45	190x45	150x90	200x90
	150x45	150x45	200x45	200x45	300x45
		150x63	150x63	200x63	240x63

Table values relate to Allowable Maximum Span in mm

Note: Span tables shown here for NP Frame LVL 8, 11 and 13 are representative for the basic design function in the NP Design program.

For specific design options, refer to NP Design's professional design feature at www.nelsonpine.co.nz

These span tables apply only to NelsonPine®LVL products