

# SmartFrame *Red Alert* wall framing



- ☑ Strong and light Smart LVL 12
- ☑ Straight, no twists and warps
- ☑ Coloured Red for easy identification
- ☑ Glue-line H2S treated to AS/NZS 1604.4
- ☑ Sizes 90 x 35 mm
- ☑ Lengths 2.7 & 5.4
- ☑ Precision docking of studs available on request

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# Design tables

## 1. Wall studs

Characteristic properties			
Bending	$f'_b$	46	MPa
Compression parallel	$f'_c$	30	MPa
Edge shear	$f'_s$	4.5	MPa
Modulus of Elasticity	E	12,000	MPa

Design loads	
Roof dead load	40 kg/m <sup>2</sup> (sheet)
Roof dead load	90 kg/m <sup>2</sup> (tile)
Roof live load	0.25 kPa
Floor dead load:	40 kg/m <sup>2</sup> (sheet)
Floor live load	1.5 kPa
Wall dead load	30 kg/m <sup>2</sup>
Wind speed:	N3

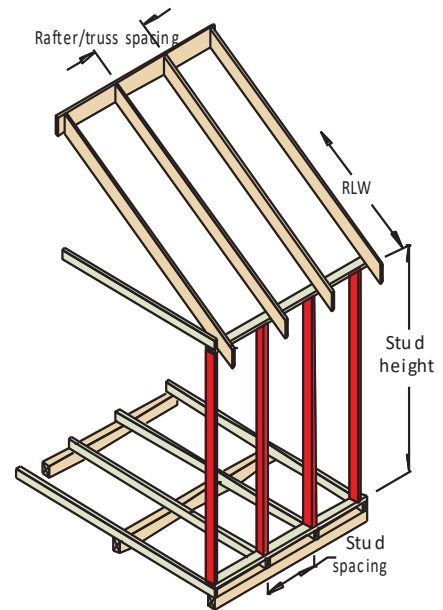
Design criteria/assumptions:
1) Double studs are nail laminated
2) Reduced $f'_b$ by 40% for notched stud
3) Reduced $f'_c$ & $f'_t$ by 22% for notched stud
4) Studs are assumed laterally restrained by noggings
5) Maximum 450 mm stud spacing
6) Rafter/truss spacing - up to 600 mm for tile & 900 mm for sheet roof
7) Maximum 600 mm floor joist spacing
8) Upper wall height is assumed to be the same as the lower wall height

### Common wall studs - (not notched)

Size	Stud height (m)	Maximum recommended RLW (m)	
		Sheet roof (40 kg/m <sup>2</sup> ) Max 900 mm truss spacing	Tile roof (90 kg/m <sup>2</sup> ) Max 600 mm truss spacing
90x35	up to 3.0 m	Floor load width up to 4.5 m	
		10.0	10.0

### Common wall studs - (maximum 20 mm notch into the depth for bracing element)

Size	Stud height (m)	Maximum recommended RLW (m)	
		Sheet roof (40 kg/m <sup>2</sup> ) Max 900 mm truss spacing	Tile roof (90 kg/m <sup>2</sup> ) Max 600 mm truss spacing
90x35	up to 2.7 m	Floor load width up to 4.5 m	
		10	10
	2.7 - 3.0 m	Floor load width up to 4.5 m	
		6.7	5.4



### Jamb studs - (not notched)

Size	Jamb stud height (m)	Roof load width (m)	Maximum recommended opening width (m)					
			Sheet roof (Max 900 mm truss spacing)			Tile roof (Max 600 mm truss spacing)		
			No floor	2.0 m FLW	4.5 m FLW	No floor	2.0 m FLW	4.5 m FLW
2/90x35	up to 2.7 m	1.5	4.1	3.8	3.4	4.0	3.7	3.3
		4.5	3.5	3.2	2.9	3.2	3.0	2.8
		7.5	3.0	2.8	2.6	2.7	2.5	2.3
	2.7 - 3.0 m	1.5	3.2	3.0	2.7	3.1	2.9	2.7
		4.5	2.8	2.6	2.4	2.6	2.5	2.3
		7.5	2.4	2.3	2.1	2.2	2.1	2.0

### Studs supporting concentrated loads - (not notched)

Size	Jamb stud height (m)	Maximum recommended roof area supported (m <sup>2</sup> )					
		Sheet roof (40 kg/m <sup>2</sup> )			Tile roof (90 kg/m <sup>2</sup> )		
		No floor	5 m <sup>2</sup> floor	10 m <sup>2</sup> floor	No floor	5 m <sup>2</sup> floor	10 m <sup>2</sup> floor
2/90x35	up to 2.7 m	44	40	37	31	28	25
	2.7 - 3.0 m	38	34	30	27	24	21

