

# Residential Roofing Span Tables

Residential Roofing Design & Install Guide

## Span Tables

### InsulRoof®

With a cover of 1000mm and the ability to order sheets to any given length (max. 12m), the layout and calculation of quantities are greatly simplified. Large spans and sufficient overhangs (cantilevers) are determined by wind zone and InsulRoof® panel thickness. Refer to InsulRoof® Housing Application Span Table for permissible spans in the required region.



		Panel Thickness (mm)		125				150				200			
		Wind Class	ULS Design Wind Pressure (kPa)	Max. Span (m)		Max. Cantilever (mm)	Max. Corner Overhang (mm)	Max. Span (m)		Max. Cantilever (mm)	Max. Corner Overhang (mm)	Max. Span (m)		Max. Cantilever (mm)	Max. Corner Overhang (mm)
				Single Span	Multi-Span			Single Span	Multi-Span			Single Span	Multi-Span		
Fixed at every second crest to 1.5mm BMT G450 Steel (min)	Non-Cyclonic	N1	-0.97	7.3	8.3	1600	450	7.9	9.1	1800	450	9.1	9.9	2100	450
		N2	-1.34	6.1	7.0	1600	450	6.6	7.6	1800	450	7.6	8.8	2100	450
		N3	-2.10	4.8	5.5	1600	450	5.2	6.0	1800	450	6.0	6.9	2100	450
		N4	-3.13	3.9	4.4	1600	450	4.2	4.8	1800	450	4.8	4.9	2100	450
		N5	-4.60	3.0	3.1	1400	450	3.5	3.3	1450	450	4.0	3.3	1450	450
	Cyclonic	C1	-2.78	4.1	4.7	1600	450	4.5	5.2	1800	450	5.2	5.9	2100	450
		C2	-4.13	3.3	3.4	1600	450	3.7	4.1	1800	450	4.2	4.8	2100	450
		C3	-6.08	2.7	2.3	1200	450	3.0	2.8	1550	450	3.4	3.6	1850	450
	C4	-8.21	2.1	1.7	900	450	2.5	2.0	1150	450	2.9	2.6	1350	450	
Fixed at every second crest to 90x45mm MGP10/JD5 timber (min 35mm Embedment)	Non-Cyclonic	N1	-0.97	7.3	7.5	1600	450	7.9	8.1	1800	450	9.1	9.3	2100	450
		N2	-1.34	6.1	7.0	1600	450	6.6	7.6	1800	450	7.6	8.5	2100	450
		N3	-2.10	4.8	5.2	1600	450	5.2	5.2	1800	450	6.0	5.2	2100	450
		N4	-3.13	3.9	3.4	1500	450	4.2	3.4	1500	450	4.8	3.4	1500	450
		N5	-4.60	3.0	2.3	1000	450	3.5	2.3	1000	450	4.0	2.3	1000	450
Fixed at every crest to 90x45mm MGP10/JD5 timber (min 35mm Embedment)	Non-Cyclonic	N1	-0.97	7.3	7.5	1600	450	7.9	8.1	1800	450	9.1	9.3	2100	450
		N2	-1.34	6.1	7.0	1600	450	6.6	7.6	1800	450	7.6	8.8	2100	450
		N3	-2.10	4.8	5.5	1600	450	5.2	6.0	1800	450	6.0	6.9	2100	450
		N4	-3.13	3.9	4.4	1500	450	4.2	4.8	1500	450	4.8	5.6	1500	450
		N5	-4.60	3.0	3.1	1000	450	3.5	3.7	1000	450	4.0	4.6	1000	450
	Cyclonic	C1	-2.78	4.1	4.7	1600	450	4.5	5.2	1800	450	5.2	5.9	2100	450
		C2	-4.13	3.3	3.4	1600	450	3.7	4.1	1800	450	4.2	4.8	2100	450
		C3	-6.08	2.7	2.3	1200	450	3.0	2.8	1550	450	3.4	3.5	1800	450
	C4	-8.21	2.1	1.7	900	450	2.5	2.0	1150	450	2.9	2.6	1350	450	

#### Notes:

- Wind speeds and coefficients based on AS 4055 - Wind Loads for Housing.
- Roof pressure coefficients based on the following worst-case assumptions:
  - External Pressure - Ratio of building height to least horizontal dimension on plan,  $h/d < 0.5$ .  $C_{pe} = -0.9$
  - Internal Pressure - Non-Cyclonic - Building has no dominate openings & more than one permeable wall or is effectively sealed.  $C_{pi} = +0.2$   
- Cyclonic - Based on dominate opening pressure.  $C_{pi} = +0.7$
  - Local Pressure - Least Horizontal Dimension on Plan  $< 20m$  ( $a = 4m$ ).  $K_l = 1.5$
  - Combination Factor -  $K_c = 0.9$
  - Non-cyclonic -  $C_g = -1.4$ , Cyclonic -  $C_g = -1.85$
- Serviceability deflection limit of span/150 has been allowed for.
- Self weight of the panel has been allowed for, plus an allowance of up to  $25kg/m^2$  ( $0.25kPa$  dead load) for light duty fittings (lights, etc.).
- Non-traf cable maintenance access (concentrated load) of  $140kg$  on any span has been allowed for.
- Distributed live load of  $0.25kPa$  (as per AS/NZS 1170.1) has been allowed for.
- Fixings to be:
  - 7x 14g tek screws per panel for every second crest
  - 13x 14g tek screws per panel for every crest
- Overhangs:
  - Max. Overhang min. of value stated or 40% of backspan.
  - Overhangs include an allowance for a  $1.1kN$  concentrated load based on strength limit state as a separate load case.
- Larger spans can be achieved when fixed into 1.5mm BMT G450 steel. Contact Bondor® for further details.