

SolarSpan®

With a cover of 1000mm and the ability to order sheets to any given length (max. 24m), the layout and calculation of quantities are greatly simplified. Large spans and sufficient overhangs (cantilevers) are determined by wind zone and SolarSpan® panel thickness.



		Panel Thickness (mm)		150				175				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 to 1.5mm BMT G450 Steel (min)	Non-Cyclonic	N1	-0.97	7.9	8.1	2400	400	8.6	9.6	2550	400	9.1	9.0	2750	400
		N2	-1.34	6.6	7.4	2400	400	7.1	8.2	2550	400	7.6	9.0	2750	400
		N3	-2.1	5.2	5.6	2400	400	5.6	5.8	2450	400	5.9	5.7	2400	400
		N4	-3.13	4.1	3.7	1600	400	4.6	3.8	1600	400	4.8	3.8	1600	400
		N5	-4.6	3.4	2.5	1100	400	3.8	2.6	1100	400	3.9	2.5	1100	400
	Cyclonic	C1	-2.78	4.5	4.7	1800	400	4.8	4.7	2400	400	5.1	5.2	2650	400
		C2	-4.13	3.6	3.1	1600	400	4.0	3.2	1600	400	4.2	3.4	1800	400
		C3	-6.08	3.0	2.1	1100	400	3.2	2.1	1100	400	3.4	2.3	1200	400
C4		-8.21	2.6	1.5	800	400	2.8	1.6	800	400	2.9	1.7	900	400	
Fixed to 90x45mm MGP10/JD5 timber (min 35mm Embedment)	Non-Cyclonic	N1	-0.97	7.9	7.4	2200	400	8.5	7.5	2200	400	9.1	7.5	2200	400
		N2	-1.34	6.6	5.2	2200	400	7.1	5.2	2200	400	7.6	5.2	2200	400
		N3	-2.1	5.2	3.2	1400	400	5.6	3.2	1400	400	5.9	3.2	1400	400
		N4	-3.13	4.2	2.1	900	400	4.5	2.1	900	400	4.8	2.1	900	400
		N5	-4.6	3.4	-	600	400	3.6	-	600	400	3.6	-	600	400
	Cyclonic	C1	-2.78	4.5	4.7	2400	400	4.8	4.7	2400	400	5.1	4.8	2450	400
		C2	-4.13	3.6	3.1	1600	400	3.9	3.1	1600	400	4.2	3.2	1600	400
		C3	-6.08	3.0	2.1	1100	400	3.2	2.1	1100	400	3.4	2.1	1100	400
C4		-8.21	2.5	1.5	800	400	2.7	1.5	800	400	2.9	1.6	800	400	
Fixed to double 90x45mm MGP10/JD5 timber (min 70mm Embedment)	Non-Cyclonic	N1	-0.97	7.9	8.1	2200	400	8.5	8.7	2200	400	9.1	9.0	2200	400
		N2	-1.34	6.6	7.4	2200	400	7.1	8.1	2200	400	7.6	9.0	2200	400
		N3	-2.10	5.2	5.6	1400	400	5.6	5.7	1400	400	5.9	5.7	1400	400
		N4	-3.13	4.2	3.7	900	400	4.5	3.7	900	400	4.8	3.8	900	400
		N5	-4.60	3.4	2.5	600	400	3.7	2.5	600	400	3.9	2.5	600	400

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 - $C_{fig} = -1.4$, Cyclonic - $C_{fig} = -1.85$
- 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 $25kN/m^2$ ($0.25kPa$ dead load) for light duty fittings (lights, etc.).
- Non-trafficable maintenance access (concentrated load) of $140kN$ on any span has been allowed for, in roof pans only. Avoid stepping on the ribs.
- Distributed live load of $0.25kPa$ (as per AS/NZS 1170.1) has been allowed for.
- Fix using 14g MultiSeal screws at each rib for non-cyclonic regions, and each rib and pan for cyclonic regions.
- 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 loadcase.
- Larger spans can be achieved when fixed into 1.5mm BMT G450 steel. Contact Bondor® for further details.