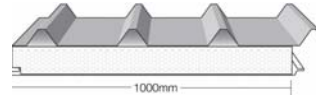




**SPACEMAKER SPAN TABLES**



In accordance with: - Wind actions: AS/NZS 1170.2:2002 - Clauses 5.3, 5.4 and D4  
 Imposed load on roof: AS/NZS 1170.1:2002 – Clause 3.5

Wind Class in accordance with AS4055-2006	Panel Core Thickness	Maximum Single Span (mm)		
		Fully Enclosed Room	One-Side Open	Two/Three Sides Open
N1 (W28N)	50 mm	5520	5120	5750
	75 mm	6480	6020	6750
	90 mm	6880	6510	7240
N2 (W33N)	50 mm	4600	4300	4900
	75 mm	5400	5070	5750
	90 mm	5720	5480	6040
N3 (W41N)	50 mm	3670	3390	3900
	75 mm	4320	3990	4600
	90 mm	4520	4310	4740
N4 (W50N)	50 mm	2900	2760	3040
	75 mm	3400	3250	3570
	90 mm	3670	3510	3860
C1 (W41C)	50 mm	3550	2830	3730
	75 mm	4180	3330	4380
	90 mm	4520	3600	4740
C2 (W50C)	50 mm	2900	2300	3030
	75 mm	3400	2710	3570
	90 mm	3670	2930	3860
C3 (W60C)	50 mm	2360	1900	2480
	75 mm	2780	2230	2930
	90 mm	3000	2410	3160

**Fixing Detail:**

1. Fixed to support member with 14g self-drilling screws at every crest
2. Typically 3 screws to each panel, at each support.

**Cyclonic Fixing:**

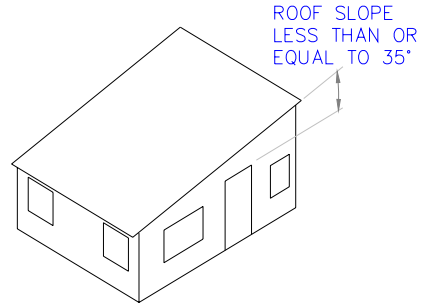
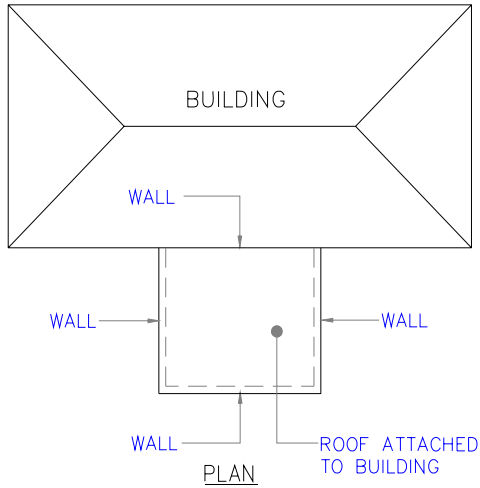
1. Fixed at every crest, to supporting member with 14g self-drilling screws and cyclone assemblies or washers suitable to the profile shape of the top sheet.
2. Typically 3 screws and cyclone assemblies or washers to each panel, at each support.
3. Uplift load capacity of fixing to supporting members shall be based on engineering advice.
4. Max overhang is 25% of the allowable span.

**NOTES:**

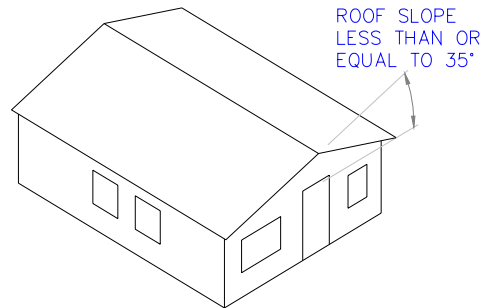
1. All windows included in the building shall be rated N1, N2, N3, N4, C1, C2, C3, in accordance with AS 2047.2.
2. All glass included in the building shall be rated N1, N2, N3, N4, C1, C2, C3, in accordance with AS 1288.
3. For buildings in cyclonic wind regions, the building envelope (windows, doors and cladding) shall be capable of resisting impact loading equivalent to a 4 kg piece of timber of 100 mm x 50 mm cross-section, projected at 15 m/s at any angle in accordance with Clause 5.3.2, AS/NZS 1170.2:2002.



**Full Enclosed Room**

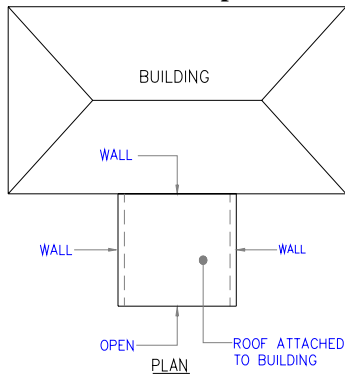


SKILLION OR LEAN TO ROOF OF ISOLATED BUILDING

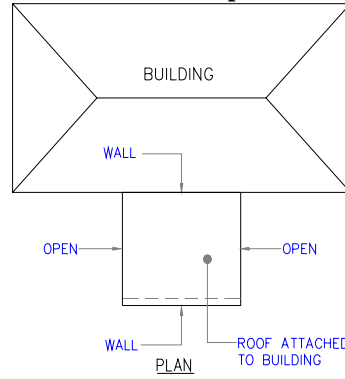


GABLE ROOF OF ISOLATED BUILDING

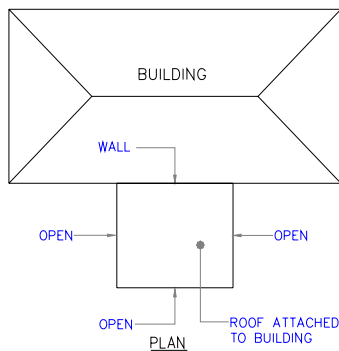
**One-Side Open**



**Two-Sides Open**



**Three-Sides Open**





This span table and structural engineering certification is based on:

1. Referenced Building Code of Australia [1] and Australian Standards [2] to [11];
2. Referenced design manual [12] and research report [13];
3. Structural load testing; and
4. Structural analysis and design calculations held on file.

The adequacy of the structural insulated roof panels for cyclonic wind loading is based on:

- 1) Documented adequacy of the performance of ribbed type roofing profiles when all crests are fastened with cyclone assemblies or washers when the region around the fastener (self-drilling screws) is free of large stress concentrations [13].
- 2) Fatigue behaviour is very much dependent on the local plastic buckling deformation load on the fastener [13]. The imposed load on a fastener for the recommended spans is restricted to below the local plastic buckling deformation load including a factor of safety.
- 3) Interpretation of recommendations in AS/NZS 4600:2005 [9] for fatigue including screw connections subject to cyclic loading
- 4) Evidence from field or site in cyclonic wind regions in the last 20 years that structural insulated roof panels installed to supporting members in accordance with recommendations in this document have performed adequately [14].

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Registered Professional Engineer of Queensland - RPEQ, Membership Number 7652  
Principal Engineer - Innovative Construction Engineering Solutions Pty Ltd

**References:**

- [1] Building code of Australia (BCA), Volume Two, Australian Building Codes Board, ACT 2601.
- [2] Australian/New Zealand Standard AS/NZS1170.0:2002 Structural design actions – General principles.
- [3] Australian/New Zealand Standard AS/NZS1170.0 Supp 1:2002 Structural design actions – General principles – Commentary (Supplement to AS/NZS 1170.0:2002).
- [4] Australian/New Zealand Standard AS/NZS1170.1:2002 Structural design actions – Permanent, imposed and other actions.
- [5] Australian/New Zealand Standard AS/NZS1170.1 Supp 1:2002 Structural design actions – Permanent, imposed and other actions – Commentary (Supplement to AS/NZS 1170.1:2002).
- [6] Australian/New Zealand Standard AS/NZS1170.2:2002 Structural design actions, Part 2: Wind actions.
- [7] Australian/New Zealand Standard AS/NZS1170.2:2002 Structural design actions – Wind actions – Commentary (Supplement to AS/NZS 1170.2:2002).
- [8] Australian Standard AS 4055-2006 Wind loads for housing.
- [9] Australian/New Zealand Standard AS/NZS 4600:2005 Cold-formed steel structures
- [10] Australian Standard AS 3566.1 – 2002 Self-drilling screws for the building and construction industries, Part 1: General requirements and mechanical properties
- [11] Australian Standard AS 3566.2 – 2002 Self-drilling screws for the building and construction industries, Part 2: Corrosion resistance requirements
- [12] Gregory J. Hancock, Design of Cold-Formed Steel Structures (To Australian/New Zealand Standard AS/NZS 4600:2005), Australian Steel Institute, Fourth Edition, 2007
- [13] M. Mahendran, Fatigue behaviour of light gauge steel roof claddings under simulated cyclonic wind forces. Technical Report No. 39, February 1993, James Cook Cyclone Structural Testing Station.
- [14] Discussions and communications with APS Versiclad.