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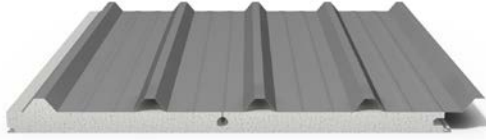
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Sheet 1 of 6

VERSALINK 'S' 1000 WIND LOAD SPAN TABLE



In accordance with: - Wind actions: AS/NZS 1170.2 - Clauses 5.3, 5.4, and D4;
 AS 4055.

Imposed load on roof: AS/NZS 1170.1 Clause 3.5: 1.1 kN
 (110kg) per panel, concentrated load for typical foot-traffic.

Wind Class in accordance with AS4055	Core Thk (mm)	Maximum Single Span (mm)		
		Fully Enclosed Room	One-Side Open	Two/Three Sides Open
N1 (W28N)	50	6893	6398	6893
	75	8644	7794	8644
	100	8726	7989	8726
	125	9791	8828	9791
	150	10568	9610	10568
N2 (W33N)	50	6108	5539	6108
	75	7195	6524	7195
	100	7375	6687	7375
	125	8149	7390	8149
	150	8871	8044	8871
N3 (W41N)	50	4807	4368	4807
	75	5663	5145	5663
	100	5804	5273	5804
	125	6414	5827	6414
	150	6982	6343	6982
N4 (W50N)	50	3906	3552	3906
	75	4601	4184	4601
	100	4716	4289	4716
	125	5212	4739	5212
	150	5673	5159	5673
C1 (W41C)	50	4572	3644	4807
	75	5385	4293	5663
	100	5520	4440	5804
	125	6099	4862	6414
	150	6640	5293	6982
C2 (W50C)	50	3720	2973	3906
	75	4382	3502	4601
	100	4492	3590	4716
	125	4964	3967	5212
	150	5403	4318	5673
C3 (W60C)	50	3048	2422	3201
	75	3591	2876	3771
	100	3680	2948	3866
	125	4067	3258	4272
	150	4427	3546	4650

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Notes:

1. **The Table above on Sheet 2 is only applicable for Structural Insulated Roof Panels (SIRP) manufactured with insulation butt-joint position off-centre. Off-centre means a full piece of 2500 mm length insulation installed in the middle of the panel. Same as in SIRP used in structural load tests.**
2. **This table shall be studied in conjunction with all the information included in this document on: Sheets 1, 2, 3, 4, 5, 6.**

Fixing Detail:

1. Fixed to support member with 14g self-drilling screws at every crest
2. Typically screws on all crests of a panel, 4-off screws to each panel, at each support.
3. Uplift load capacity of fixing to supporting members shall be based on engineering advice: - 1) Screw pull-out; and 2) Screw pull-over; and 3) Depth of penetration in to supporting members.

Cyclonic Fixing:

1. Fixed to support member with 14g self-drilling screws at every crest with cyclone assemblies or washers suitable to the profile shape of the top sheet.
2. Typically 4-off 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: - 1) Screw pull-out; and 2) Screw pull-over; and 3) Depth of penetration in to supporting members.

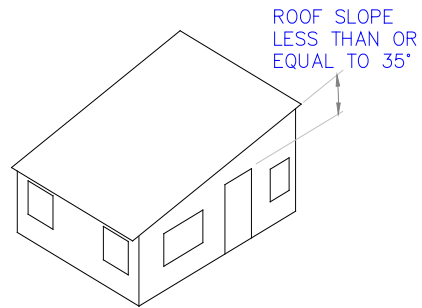
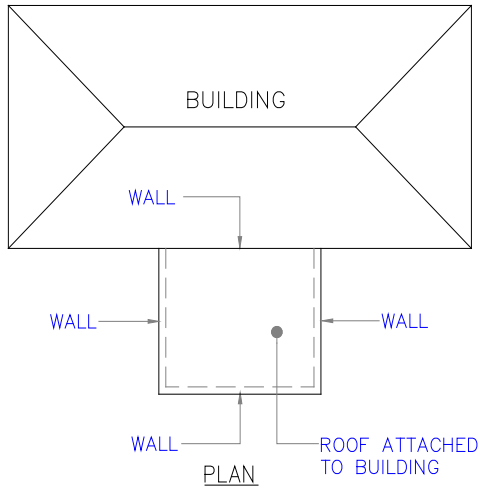
Panel Overhang:

1. Maximum span overhang in direction of panel length = 25% of allowable span; and Back-span shall be at least 2 x cantilever span – *prior to construction & installation, in case this statement is not clear, this statement shall be clarified with VERSICLAD.*
2. Maximum side overhang in direction of panel width = 450 mm

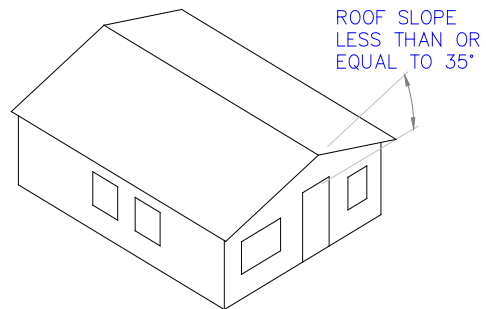
NOTES applicable to Span Tables:

1. All windows included in the building shall be rated N1, N2, N3, N4, C1, C2, C3, in accordance with AS 2047 (latest revision): - Windows and external glazed doors in buildings.
2. All glass included in the building shall be rated N1, N2, N3, N4, C1, C2, C3, in accordance with AS 1288 (latest revision): – Glass in buildings – Selection and Installation.
3. For buildings in cyclonic wind regions, the building envelope (windows, doors and cladding) shall be capable of resisting impact loading from windborne debris in accordance with Clause 5.3.2 – Openings and Clause 2.5.8 – Impact Loading from Windborne Debris, in AS/NZS 1170.2.
4. Performance of the installed VERSALINK structural insulated roof panels due to thermal expansion and contraction shall be verified by the Architect or Building Designer based on local weather and climate.

Full Enclosed Room

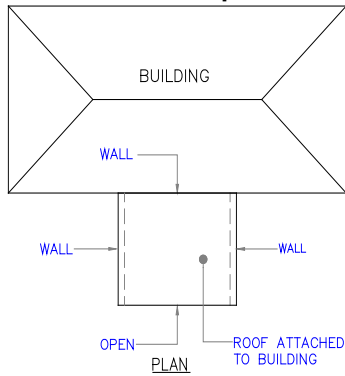


SKILLION OR LEAN TO ROOF OF ISOLATED BUILDING

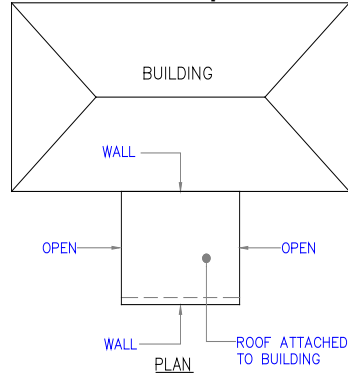


GABLE ROOF OF ISOLATED BUILDING

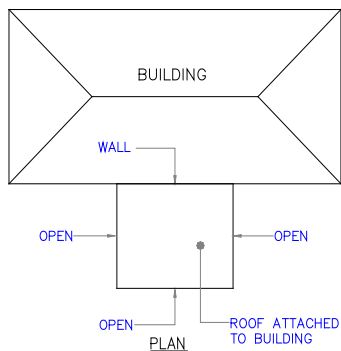
One-Side Open



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 corrugated roofing when alternate 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 [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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References:

- [1] National Construction Code, Volume Two, Building Code of Australia. Australian Building Codes Board, ACT 2601.
 - [2] Australian/New Zealand Standard AS/NZS1170.0 Structural design actions – General principles.
 - [3] Australian/New Zealand Standard AS/NZS1170.0 Supp 1 (R2016) Structural design actions – General principles – Commentary (Supplement to AS/NZS 1170.0).
 - [4] Australian/New Zealand Standard AS/NZS1170.1 Structural design actions – Permanent, imposed and other actions.
 - [5] Australian/New Zealand Standard AS/NZS1170.1 Supp 1 Structural design actions – Permanent, imposed and other actions – Commentary (Supplement to AS/NZS 1170.1).
 - [6] Australian/New Zealand Standard AS/NZS1170.2 Structural design actions, Part 2: Wind actions.
 - [7] Australian/New Zealand Standard AS/NZS1170.2 Structural design actions –Wind actions – Commentary (Supplement to AS/NZS 1170.2).
 - [8] Australian Standard AS 4055-2012 Wind loads for housing.
 - [9] Australian/New Zealand Standard AS/NZS 4600 Cold-formed steel structures
 - [10] Australian Standard AS 3566.1 , Self-drilling screws for the building and construction industries, Part 1: General requirements and mechanical properties.
 - [11] Australian Standard AS 3566.2 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), Australian Steel Institute, Fourth Edition, 2007.
 - [13] M. Mahendran, Fatigue behaviour of corrugated roofing under cyclic wind loading, Technical Report No. 35, Cyclone Testing Station.
 - [14] Discussions and communications with Versiclad Pty Ltd.
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