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24th August 2021

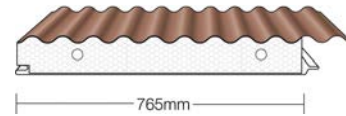
Ref: VERSI-47/CORRO765/WLST-V1

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Sheet 1 of 6



CORROLINK 765 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	Panel Core Thickness	Maximum Single Span (mm)		
		Fully Enclosed Room	One-Side Open	Two/Three Sides Open
N1 (W28N)	65 mm	4770	4515	5035
	85 mm	5540	5240	5840
	115 mm	6530	6175	6875
	150 mm	7550	7150	7950
	200 mm	9000	9000	9000
N2 (W33N)	65 mm	3975	3805	4195
	85 mm	4610	4415	4860
	115 mm	5425	5195	5725
	150 mm	6250	6000	6600
	200 mm	8685	8305	9000
N3 (W41N)	65 mm	3135	2990	3285
	85 mm	3645	3470	3815
	115 mm	4285	4080	4495
	150 mm	4900	4700	5150
	200 mm	6820	6495	7165
N4 (W50N)	65 mm	2550	2435	2675
	85 mm	2955	2825	3105
	115 mm	3480	3335	3655
	150 mm	4000	3800	4200
	200 mm	5525	5280	5810
C1 (W41C)	65 mm	3000	2385	3145
	85 mm	3485	2770	3650
	115 mm	4100	3265	4300
	150 mm	4740	3750	4980
	200 mm	6815	5410	7165
C2 (W50C)	65 mm	2440	1945	2560
	85 mm	2825	2255	2970
	115 mm	3330	2660	3495
	150 mm	3850	3050	4050
	200 mm	5525	4400	5810
C3 (W60C)	65 mm	2000	1600	2100
	85 mm	2320	1850	2430
	115 mm	2725	2180	2870
	150 mm	3150	2500	3300
	200 mm	4510	3620	4745

Notes:

1. This Table is based on Structural Insulated Roof Panels (SIRP) manufactured with insulation butt-joint located off-center 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.

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Fixing Detail:

1. Fixed to support member with 14g self-drilling screws at every alternate crest
2. Typically 5 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 alternate crest with cyclone assemblies or washers suitable to the profile shape of the top sheet.
2. Typically 5 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.

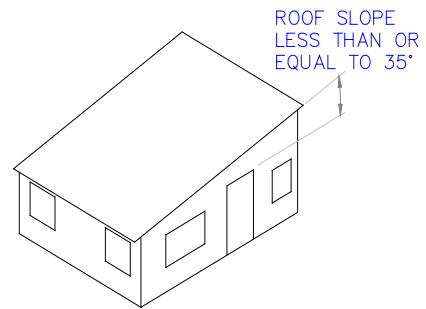
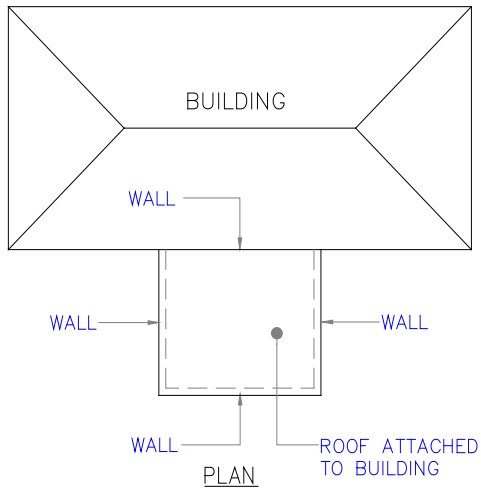
Panel Overhang:

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 = 300 mm

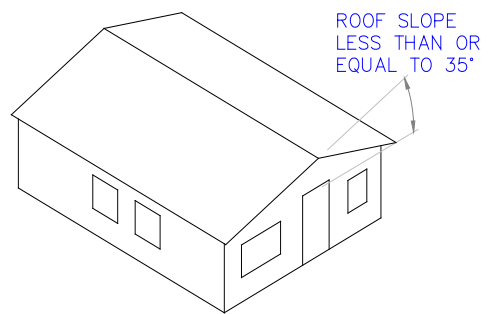
NOTES applicable to Span Tables:

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 CORROLINK 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

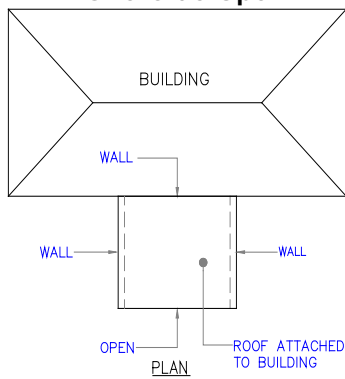


SKILLION OR LEAN TO ROOF OF ISOLATED BUILDING

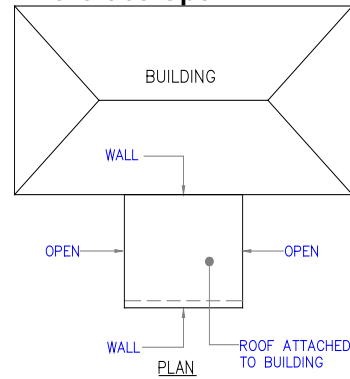


GABLE ROOF OF ISOLATED BUILDING

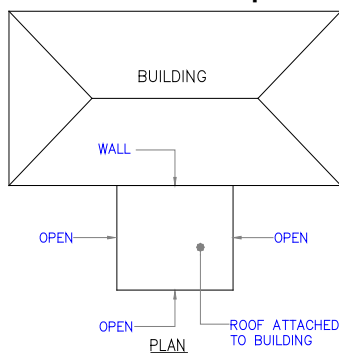
One-Side Open



Two-Sides Open



Three-Sides Open

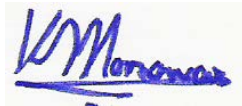


This span table and structural engineering certification is based on:

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.
 - [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 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,
 - [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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