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Ref: VERSI-50/CORRO1000/WLST-V1

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VERSI-50\_CORRO1000\_WindLoadSpanTable\_V1\_CONTROLLED&Signed\_240821.doc / pdf

Sheet 1 of 6



## CORROLINK 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	Panel Size (mm)	Maximum Single Span (mm)		
		Fully Enclosed Room	One-Side Open	Two/Three Sides Open
N1 (W28N)	50	7515	6776	7515
	75	8958	8077	8958
	100	9343	8425	9343
	125	9742	8785	9742
	150	10618	9574	10618
	180	11579	10441	11579
N2 (W33N)	50	6255	5672	6255
	75	7456	6761	7456
	100	7777	7052	7777
	125	8109	7353	8109
	150	8832	8014	8832
	180	9638	8739	9638
N3 (W41N)	50	4923	4473	4923
	75	5870	5335	5870
	100	6121	5561	6121
	125	6400	5810	6400
	150	6956	6320	6956
	180	7585	6892	7585
N4 (W50N)	50	4000	3638	4000
	75	4768	4336	4768
	100	4973	4522	4973
	125	5186	4716	5186
	150	5652	5139	5652
	180	6164	5605	6164
C1 (W41C)	50	4682	3732	4923
	75	5581	4449	5868
	100	5821	4640	6121
	125	6069	4838	6382
	150	6615	5273	6956
	180	7214	5750	7585
C2 (W50C)	50	3810	3045	4000
	75	4542	3630	4768
	100	4737	3786	4973
	125	4939	3947	5186
	150	5383	4302	5652
	180	5870	4692	6164
C3 (W60C)	50	3122	2501	3279
	75	3721	2981	3908
	100	3881	3109	4076
	125	4047	3242	4250
	150	4410	3533	4632
	180	4810	3853	5052

**Notes:**

- 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.**
- 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 7 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 7 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.

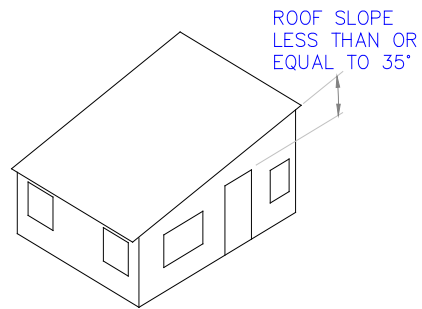
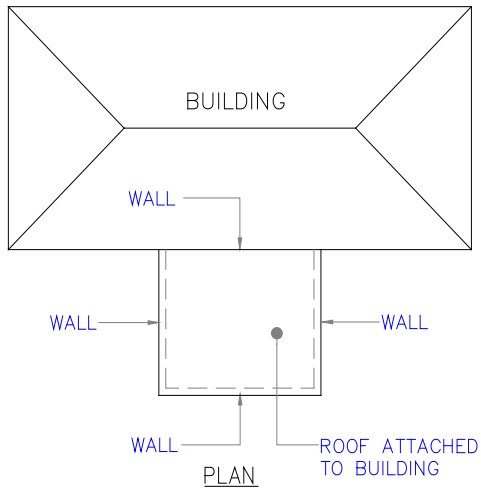
## **Panel Overhang:**

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

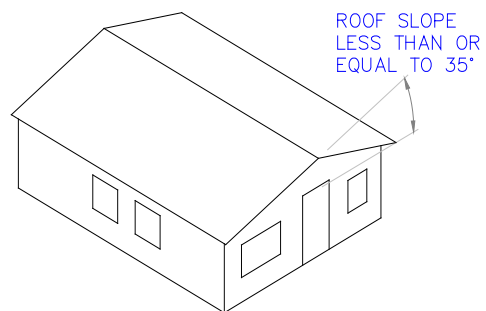
## **NOTES applicable to Span Tables:**

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 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

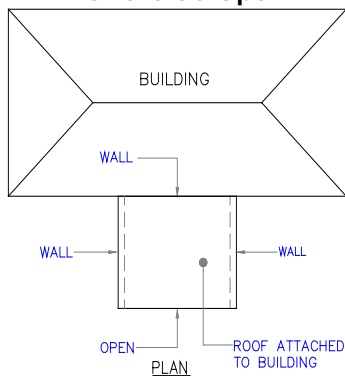


SKILLION OR LEAN TO ROOF OF ISOLATED BUILDING

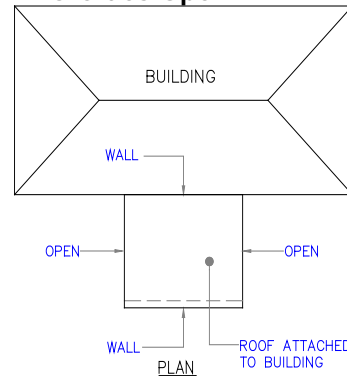


GABLE ROOF OF ISOLATED BUILDING

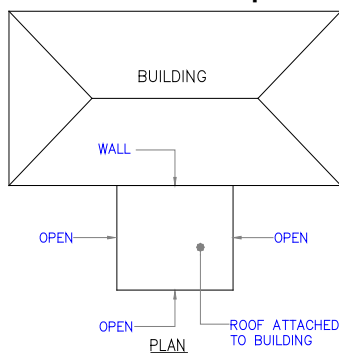
## One-Side Open



## Two-Sides Open



## Three-Sides Open



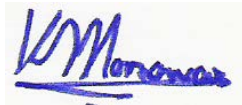
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This span table and structural engineering certification is based on:

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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