

Cyclonic Performance of S-Rib™ Corrugated

Fielders have undertaken cyclonic testing of S-Rib™ in accordance with AS4040.0-1992. The cyclonic wind load capacities for S-Rib™ roofing profile is shown in Table 1 below.

S-Rib™ Corrugated Wind Load Capacity – Strength Limit State Design (kPa) Cyclonic – Region C												
Span (mm)	0.42 mm BMT				0.48 mm BMT				0.60 mm BMT			
	Single Span	Double Span	Multiple Spans		Single Span	Double Span	Multiple Spans		Single Span	Double Span	Multiple Spans	
			End	Internal			End	Internal			End	Internal
600	16.12	11.01	8.92		17.30	11.92	9.71		18.89	12.51		
900	10.62	5.60	5.68	7.53	11.27	6.16	6.29	8.25	12.26	6.78	8.91	
1200	7.18	3.47	3.61	5.23	7.52	3.83	4.07	5.81	8.25	4.17	3.67	8.28
1500	5.80	2.35	2.30	3.63	6.04	2.58	2.64	4.09	6.24	2.76	3.99	5.75
1800				2.52				2.88			3.00	4.26
2100												3.31

Table 1 – S-Rib™ wind load capacity – strength limit state design – Cyclonic.

The allowable roof spans for the S-Rib™ Corrugated roofing profile in Region C are shown in Tables 2 and 3.

The allowable spans have been determined from tests carried out in accordance with AS4040.0-1992, AS 1170.2-2002 and the Building Code of Australia (BCA) 2008 Specification B1.2 for the design of buildings in cyclonic areas.

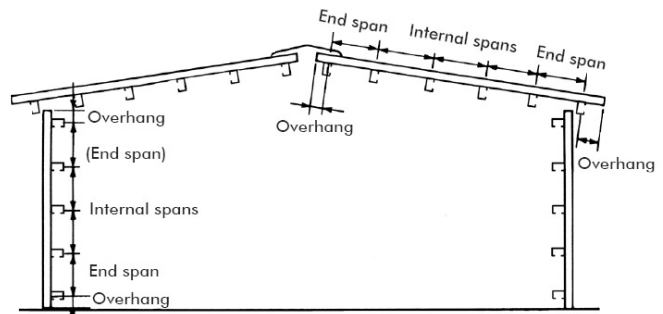


Figure 1 – Span locations.

Design parameters for Tables 2 and 3 are shown below:

- Max. roof pitch < 10°
- $P_{o,r} = 1:500$
- $V_r = 66 \text{ m/s}$
- $M_d = 1.00$
- $F_c = 1.05$
- $M_s = 1.00$
- $M_i = 1.00$
- $C_{p,i} = 0.70$
- $C_{p,e} = -0.90$
- $K_l = 1.5$ for Area F
- $K_l = 2.0$ for Area G

The local pressure factors (K_l) are shown in Figure 2. Local pressure factors are not applicable at the ridge where the roof pitch is less than 10°. The value of 'a' is the minimum of 0.2 breadth, 0.2 width or the height.

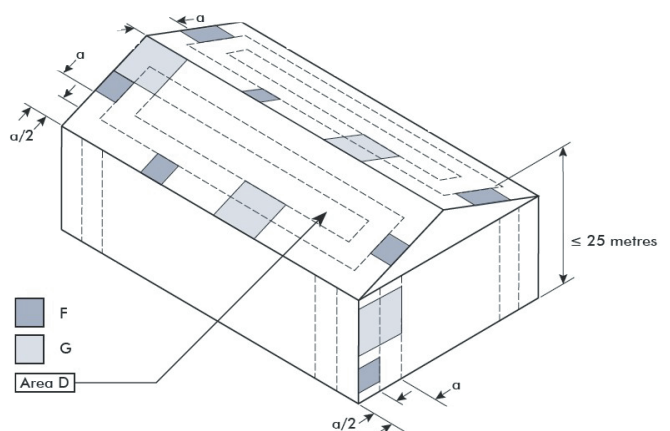


Figure 2 – Local pressure factors.

Note to Table 2 and 3:

** Pressure is total ultimate value

S-Rib™ Corrugated Allowable Roof Spans (mm) in Region C Cyclonic – for building height ≤ 5.0 m

Terrain Category	Roof Area Notation & Uplift (kPa)**	0.42 mm BMT				0.48 mm BMT				0.60 mm BMT			
		Single Span	Double Span	Multiple Spans		Single Span	Double Span	Multiple Spans		Single Span	Double Span	Multiple Spans	
				End	Internal			End	Internal			End	Internal
1 & 2	D-4.18	1930	1060	1100	1380	2040	1130	1180	1480	2010	1200	1460	1820
	F-5.35	1560	920	940	1180	1650	970	1010	1270	1670	1030	1240	1570
	G-6.53	1310	830	810	1020	1340	870	870	1100	1440	920	1100	1390
2.5	D-3.54	2230	1180	1210	1520	2350	1260	1300	1620	2280	1320	1620	2020
	F-4.54	1800	1010	1050	1320	1900	1070	1120	1410	1890	1140	1380	1730
	G-5.54	1510	910	910	1150	1600	960	990	1240	1630	1010	1220	1530

Table 2 – S-Rib™ Corrugated maximum allowable roof spans for building heights ≤ 5.0 m.

S-Rib™ Corrugated Maximum Allowable Roof Spans (mm) in Region C Cyclonic – for 5.0 m > building height ≤ 10.0 m

Terrain Category	Roof Area Notation & Uplift (kPa)**	0.42 mm BMT				0.48 mm BMT				0.60 mm BMT			
		Single Span	Double Span	Multiple Spans		Single Span	Double Span	Multiple Spans		Single Span	Double Span	Multiple Spans	
				End	Internal			End	Internal			End	Internal
1 & 2	D-4.18	1770	1000	1030	1300	1870	1060	1110	1390	1860	1130	1360	1710
	F-5.35	1430	870	870	1100	1510	920	940	1180	1550	970	1160	1470
	G-6.53	1200	780	740	930	1280	820	800	1010	1330	870	1030	1300
2.5	D-3.54	1950	1070	1110	1390	2060	1140	1190	1490	2030	1210	1470	1830
	F-4.54	1570	930	940	1190	1660	980	1020	1280	1680	1040	1250	1570
	G-5.54	1330	830	810	1020	1410	880	880	1110	1450	930	1100	1400

Table 3 – S-Rib™ Corrugated maximum allowable roof spans for 5.0 m > building height ≤ 10.0 m.

Fixing of Cladding

Fasteners must be selected to match the life expectancy of the cladding material. Recommendations from fastener manufacturers should be sought. Only fasteners complying with AS 3566:2002 and those that are compatible with the roofing material should be used for its fastening.

All fasteners used externally should be fitted with an EPDM seal. Do not use punches to form fastener holes. Fasteners are fixed at **alternate crests** of the S-Rib™ Corrugated roof sheeting.

S-Rib™ Corrugated Pierce Fixing – Cyclonic

Fixing Supports	Crest Fixing	Valley Fixing (Wall Only)	Side Lap Fixing
Steel 1.0 to 3.5 mm	14-10x42mm Metal Tek hex head Square-Lok cyclone assembly	14-10x25mm Metal Tek hex head Ext Pt/Seal	10x16mm Neo Tek hex head
Timber Hardwood	M6-10x50mm RoofZips hex head Corri-Lok cyclone assembly	14-10x25mm Type 17 hex head & seal	
Timber Softwood	14-10x65mm Type 17 hex head Corri-Lok cyclone assembly	14-10x25mm Type 17 hex head & seal	
Metal Battens (0.55 to 1.00mm)	M6-10x50mm RoofZips hex head Corri-Lok cyclone assembly	15-15x25mm Metal Batten Tek hex head & seal	

For further information on the S-Rib™ Corrugated roofing profile, including installation procedures, refer to Specifying Fielders – Roofing & Walling manual.

Table 4 – Corrugated pierce fixing - cyclonic.

References:

Australian Building Codes Board 2008, *Building Code of Australia, Australian Building Codes Board, Australia*
Standards Australia 2002, AS 1170.2 – *Structural design actions part 2: wind actions, Standards Australia, Sydney, Australia*
Standards Australia 2002, AS 3566 – *Self-drilling screws for the building and construction industries, Standards Australia, Sydney, Australia*
Standards Australia 1999, AS4040.0 - *Methods of testing sheet roof and wall cladding – Introductions, list of methods and general requirements.*

Disclaimer:

This data sheet updates and amends section 2.15 from Specifying Fielders – Roofing and Walling Edition 2 2008.

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