Cyclonic Performance of TL-5™

Fielders have undertaken cyclonic testing of TL-5™ in accordance with the Low-High-Low cyclonic testing method in the BCA.

Cyclonic Load Span Tables

The cyclonic wind load capacities for TL-5™ roofing profile are shown in Table 1 below.

TL-5™ Wind Load Capacity –Strength Limit State Design (kPa) Cyclonic				
Span (mm)	0.42 mm BMT		0.48 mm BMT	
	End	Internal	End	Internal
900	6.50		7.21	
1200	3.95	5.96	4.85	6.81
1500	2.66	3.99	3.29	4.86
1800	1.94	2.87	2.52	3.51
2100		2.17		2.76

Table 1 – TL-5™ wind load capacity – strength limit state design – Cyclonic

The allowable roof spans for the TL-5™ 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.

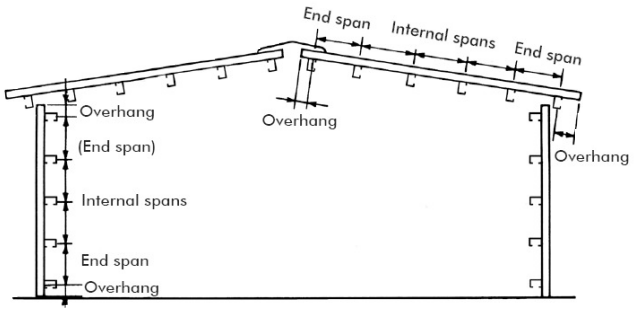

Figure 1 – Span locations.

Design Parameters for Tables 2 & 3:

- Max. roof pitch < 10°
- $P_{a,r}$ = 1:500
- V_r = 66 m/s
- M_d = 1.00
- F_c = 1.05
- M_s = 1.00
- M_t = 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.

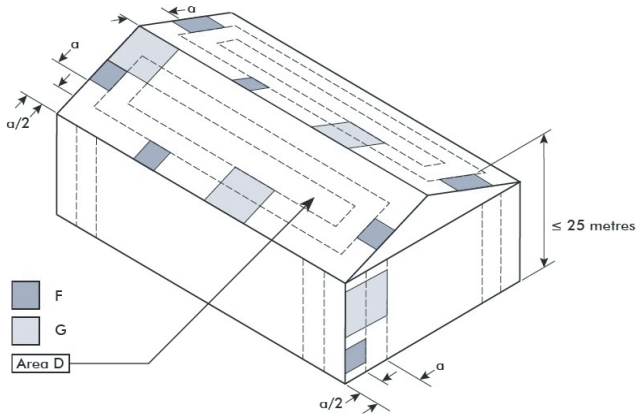

Figure 2 – Local pressure factors.

Note to Table 2 and 3:
** Pressure is total ultimate value

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TL-5® Maximum Allowable Roof Spans (mm)
Cyclonic – for building height ≤ 5.0 m

Terrain Category	Region C					Region D				
	Roof Area Notation & Uplift (kPa)**	0.42 mm BMT		0.48 mm BMT		Roof Area Notation & Uplift (kPa)**	0.42 mm BMT		0.48 mm BMT	
		End	Internal	End	Internal		End	Internal	End	Internal
1 & 2	D-4.18	1170	1460	1310	1630	D-6.66	**880**	970	**1095**	1225
	F-5.35	1020	1270	1130	1410	F-8.54	**660**	**730**	**805**	**935**
	G-6.53	900	1150	980	1240	G-10.41	**440**	**495**	**520**	**645**
2.5	D-3.54	1270	1600	1440	1790	D-5.65	**1000**	1100	**1245**	1280
	F-4.54	1120	1400	1250	1560	F-7.24	**815**	**895**	**1005**	**1135**
	G-5.54	1000	1250	1100	1380	G-8.83	**625**	**695**	**765**	**890**

Table 2 – TL-5™ maximum allowable roof spans for building heights ≤ 5.0 m. **Bold** Values are extrapolated. All other values are interpolated.

TL-5® Maximum Allowable Roof Spans (mm)
Cyclonic – for 5.0 m building height ≤ 10.0 m

Terrain Category	Region C					Region D				
	Roof Area Notation & Uplift (kPa)**	0.42 mm BMT		0.48 mm BMT		Roof Area Notation & Uplift (kPa)**	0.42 mm BMT		0.48 mm BMT	
		End	Internal	End	Internal		End	Internal	End	Internal
1 & 2	D-4.18	1100	1380	1230	1540	D-7.38	**795**	**880**	**985**	**1110**
	F-5.35	960	1200	1050	1320	F-9.46	**550**	**615**	**665**	**790**
	G-6.53	830	1070	900	1140	G-11.54	**305**	**350**	**350**	**470**
2.5	D-3.54	1170	1460	1320	1640	D-6.59	**890**	980	**1105**	1235
	F-4.54	1020	1280	1130	1420	F-8.45	**670**	**740**	**820**	**950**
	G-5.54	900	1150	980	1250	G-10.30	**455**	**505**	**7540**	**665**

Table 3 – TL-5™ maximum allowable roof spans for 5.0 m > building height ≤ 10.0 m. **Bold** Values are extrapolated. All other values are interpolated.

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 to be fixed at **each crest** of the TL-5™ roof sheeting.

TL-5® Pierce Fixing – Cyclonic

Fixing Supports	Crest Fixing	Valley Fixing (Wall Only)	Side Lap Fixing
Steel 1.0 to 3.5 mm	14-10x50mm Metal Teks hex head Square-Lok cyclone assembly	14-10x25mm Metal Teks hex head Ext Pt/Seal	10x16mm Neo Teks hex head
Timber Hardwood	14-10x65mm Type 17 hex head Square-Lok cyclone assembly	14-10x25mm Type 17 hex head & seal	
Timber Softwood	14-10x75mm Type 17 hex head Square-Lok cyclone assembly	14-10x25mm Type 17 hex head & seal	
Metal Battens (0.55 to 1.00mm)	15-15x55mm Metal Batten Teks hex head Square-Lok cyclone assembly	15-15x25mm Metal Batten Teks hex head & seal	

For further information on the TL-5™ roofing profile, including installation procedures, refer to Specifying Fielders – Roofing & Walling manual.

Table 4 – TL-5® 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.