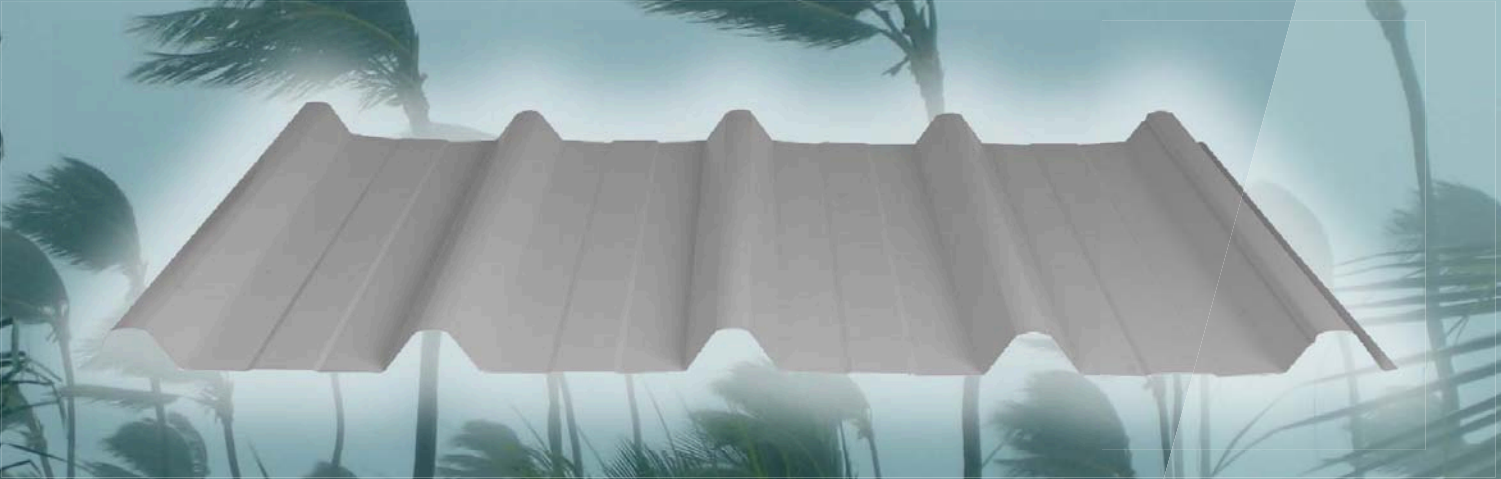


TRIMCLAD® CYCLONIC SPECIFICATION

POPULAR ROOFING & WALLING PROFILE



A Met-TECH™ GUIDE

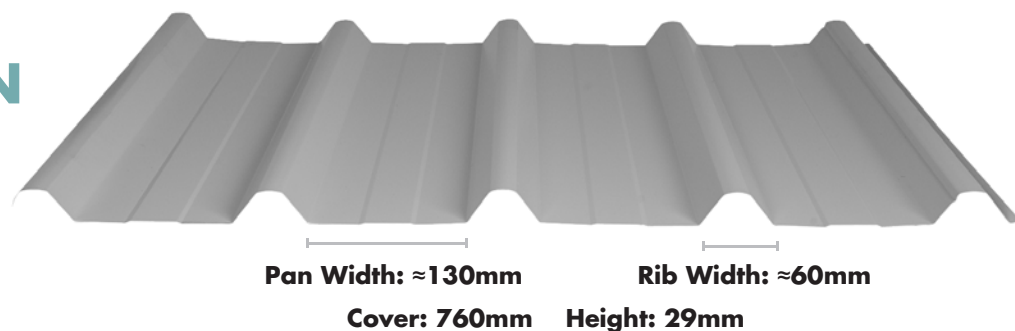
DECEMBER 2018



Metroll®

BETTER SERVICE • BETTER BUILDING SOLUTIONS

TRIMCLAD® CYCLONIC SPECIFICATION



This Metroll Cyclonic Specification provides relevant information for builders, contractors and specifiers who wish to specify or use Metroll Trimclad® in cyclonic areas.

Trimclad® is custom length, high tensile G550 steel roofing and wall cladding. It is manufactured from 0.42mm and 0.48mm BMT COLORBOND® steel, ZINCALUME® steel and zinc-aluminium coated steel conforming to AS 1397.

TRIMCLAD® - ROOFING

BMT mm	Steel Base Mpa	Mass CB* kg/m ²	Mass Zinc kg/m ²	Min. Pitch°	Max Spans mm	
					End	Internal
0.42	G550	4.35	4.28	2 (1 in 30)	1300	1700
0.48	G550	4.93	4.81	2 (1 in 30)	1700	2300

TRIMCLAD® - WALLING

0.42	G550	4.35	4.28	3000	3000
------	------	------	------	------	------

CB = Colorbond®

CYCLONIC TESTING

The Building Code of Australia requires all roof claddings used in cyclonic areas to withstand a Low High Low (LHL) cyclonic testing regime.

Metroll has undergone extensive testing to confirm it meets or exceeds all relevant requirements of the BCA and associated Australian Standards. Metroll's products were tested at the Cyclone Testing Station - James Cook University, Townsville.

The wind pressures and capacities stated in this manual are based on the testing completed and comply with AS4040.3. Simplified design tables provided comply with AS4055. Ultimate limit state capacity tables comply with AS1170.2.

NORTHERN TERRITORY - DEEMED TO COMPLY

The data tables in this brochure may be used for designers, builders and contractors operating in the Northern Territory. Metroll products have been approved under the Deemed to Comply regime. More information can be accessed on the NT BAC website.

What is Met-TECH™?

Met-TECH™ is Metroll's

Technical Resource Centre. It is the one stop shop for all of Metroll's product and technical information.

Perfect for builders, contractors and specifiers to source all the information they may require. You can find other Met-TECH™ items on our website

www.metroll.com.au/resources

INSTALLATION & GENERAL INFORMATION

LENGTH

Metroll supplies Trimclad® cut to order as required; depending on load limit regulations set by local transport authorities. Lengths for manufacture need to be site measurements and not taken off plans. Sheet length is obtained by measuring the distance from the ridges to the external edges or fascia and adding a minimum of 50mm for overhang into the gutter. Length tolerance for Trimclad® is ± 0 -15mm. To prevent damage when lifting long lengths, ensure sheets are lifted with the use of multiple lift point spreader bars.

CUTTING

Cut sheets with a method and in a location so that damage is avoided to sheets and other building products. Material should be cut on the ground and not above other materials. Remove all swarf and debris from the work and installation area. Sheets may be cut using a power saw with a steel cutting blade, a power nibbler or with tin snips. Avoid using abrasive discs as these can cause edge and coating damage. Cut COLORBOND® sheets face down to reduce the likelihood of swarf embedding into the surface.

CARE, HANDLING & STORAGE

Care should be taken at all times when handling sheets to preserve the quality of the finish. Keep packs dry, stored clear of the ground and protected from rain and moisture. Any sheets which become wet should be separated, wiped and placed in the open air to dry.

WALKING ON TRIMCLAD®

When walking on Trimclad® roof sheeting always wear flat rubber soled shoes and only walk over areas where purlins or batten supports are installed. Walk in either pan next to lapped edge ribs.

CLEAN UP

Prior to departing the work site remove all foreign debris, screws, rivets and especially any swarf created by drilling or cutting from the roof surface and/or inside gutters. Failure to do so may result in premature corrosion.

MATERIAL SPECIFICATION & SCOPE

All roofing and walling should be specified on drawings as Trimclad®, manufactured by Metroll Pty Ltd and installed in accordance with the manufacturers recommendations. Base sheet steel is G550 / AZ150 with specified finish.

HARSH ENVIRONMENTS

Contact your local Metroll branch if you intend to use Trimclad® within 1 km of industrial, chemical, marine or corrosive environments.

CORROSION PROTECTION & MATERIAL COMPATIBILITY

Some building materials and environmental conditions can be detrimental to coated steel products irrespective of the product thickness. These include contact with or exposure to run off from:

- Industrial, agricultural, marine or other aggressive atmospheric conditions.
- Incompatible materials such as lead or copper.
- Building materials subject to cycles of excessive moisture content such as non-seasoned timber.
- Materials which have been treated with preservatives such as CCa or tanalith treated sections.

The best way to minimise corrosion is to keep incompatible materials apart. Never use lead flashings with ZINCALUME®, COLORBOND® or galvanised steels. Drainage from copper roofs onto ZINCALUME®, COLORBOND® or galvanised steels must be avoided.

AVAILABILITY & DELIVERY

Trimclad® is available nationwide. Contact your local Metroll branch for lead times, colours and availability.

Ensuring suitable arrangements are made to assist the unloading of Metroll trucks will help supply material in good order. When lifting long lengths by crane please ensure the load is evenly spread. Where a crane cannot be made available it is the customers responsibility to provide sufficient labour to assist the driver in unloading.

MAINTENANCE & CLEANING

Basic maintenance of steel cladding by regular washing with water is recommended. Applications where cladding is naturally washed by rainwater do not usually require this maintenance, e.g. roofing. Areas that are not naturally washed by rainfall, such as eaves, wall cladding and the underside of gutters, will benefit from regular washing. These areas and any others that are not regularly exposed to rainfall should be hosed down every six months. In coastal areas where marine salt is prevalent or areas where high levels of industrial fall-out occur, washing should be carried out more frequently.

If required wash the surface with a mild solution of pure soap or mild nonabrasive kitchen detergent in warm water. Apply with a sponge, soft cloth or soft bristle nylon brush. Rinse thoroughly with clean water.

Never use abrasive or solvent based cleaners (turpentine, petrol, kerosene, paint thinner) on COLORBOND® and ZINCALUME® steels.

TRIMCLAD LIMIT STATE CAPACITY TABLES

ULTIMATE LIMIT STATE DESIGN PRESSURE (kPa)

Tables and values must be used in conjunction with the Design Notes to Limit State Capacity Tables

Support Structure	BMT mm	Cyclone Washers Fitted?	Span Type	MAX. DESIGN PRESSURE (kPa) FOR SPAN (mm)						
				450	600	900	1200	1500	1800	2100
Metal 1.5mm or Timber F17 Hardwood	0.42	No	Internal	7.68	5.49	3.29	2.19	1.75	1.46	1.25
			Equal	7.00	4.75	2.83	2.00	1.59	1.33	1.14
			Double	5.60	3.80	2.27	1.60	1.28	1.06	0.91
		Yes	Internal	-	9.87	6.52	4.84	3.63	2.82	2.25
			Equal	-	9.00	5.92	4.41	3.21	2.50	2.05
			Double	-	7.20	4.74	3.53	2.57	2.00	1.64
	0.48	No	Internal	9.87	7.31	4.74	3.46	2.71	2.22	1.86
			Equal	9.00	6.57	4.26	3.15	2.45	2.01	1.70
			Double	7.20	5.26	3.41	2.52	1.96	1.61	1.36
		Yes	Internal	-	-	9.16	6.58	4.76	3.54	2.68
			Equal	-	-	8.35	6.00	4.15	3.10	2.44
			Double	-	-	6.68	4.80	3.33	2.48	1.95
Metal 1.0mm	0.42	No	Internal	7.68	5.49	3.29	2.19	1.75	1.46	1.25
			Equal	7.00	4.75	2.83	2.00	1.59	1.33	1.14
			Double	5.60	3.80	2.27	1.60	1.28	1.06	0.91
		Yes	Internal	-	9.87	6.52	4.84	3.63	2.82	2.25
			Equal	-	9.00	5.92	4.41	3.21	2.50	2.05
			Double	-	7.20	4.74	3.53	2.57	2.00	1.64
	0.48	No	Internal	9.87	7.31	4.74	3.46	2.71	2.22	1.86
			Equal	9.00	6.57	4.26	3.15	2.45	2.01	1.70
			Double	7.20	5.26	3.41	2.52	1.96	1.61	1.36
		Yes	Internal	-	-	8.20	6.15	4.76	3.54	2.68
			Equal	-	-	7.48	5.61	4.15	3.10	2.44
			Double	-	-	6.58	4.80	3.33	2.48	1.95
Metal 0.75mm	0.42	No	Internal	7.68	5.49	3.29	2.19	1.75	1.46	1.25
			Equal	7.00	4.75	2.83	2.00	1.59	1.33	1.14
			Double	5.60	3.80	2.27	1.60	1.28	1.06	0.91
		Yes	Internal	-	8.90	5.93	4.45	3.63	2.82	2.25
			Equal	-	8.11	5.41	4.06	3.21	2.50	2.05
			Double	-	7.14	4.74	3.53	2.57	2.00	1.64
	0.48	No	Internal	9.87	7.31	4.74	3.46	2.71	2.22	1.86
			Equal	9.00	6.57	4.26	3.15	2.45	2.01	1.70
			Double	7.20	5.26	3.41	2.52	1.96	1.61	1.36
		Yes	Internal	-	-	5.93	4.45	3.56	2.97	2.54
			Equal	-	-	5.51	4.06	3.25	2.70	2.32
			Double	-	-	4.76	3.57	2.86	2.38	1.95

Shaded value denotes spans outside of recommended foot traffic

TRIMCLAD® ROOFING SERVICEABILITY LIMIT STATE DESIGN PRESSURE (kPa)

BMT mm	Cyclone Washers Fitted?	Span Type	MAX. DESIGN PRESSURE (kPa) FOR SPAN (mm)						
			450	600	900	1200	1500	1800	2100
0.42	No	Internal	5.08	3.86	2.64	2.03	1.50	1.14	0.89
		Equal	4.63	3.51	2.41	1.85	1.32	1.01	0.81
		Double	3.70	2.85	1.95	1.48	1.05	0.81	0.65
	Yes	Internal	-	5.46	4.04	3.32	2.26	1.55	1.04
		Equal	-	4.98	3.68	3.03	1.91	1.31	0.95
		Double	-	3.99	3.04	2.42	1.53	1.05	0.76
0.48	No	Internal	7.80	6.01	4.22	3.32	2.33	1.67	1.20
		Equal	7.11	5.48	3.85	3.03	2.00	1.44	1.09
		Double	5.69	4.50	3.15	2.42	1.60	1.15	0.87
	Yes	Internal	-	-	6.11	4.82	3.20	2.12	1.35
		Equal	-	-	5.57	4.39	2.68	1.77	1.23
		Double	-	-	4.46	3.51	2.14	1.41	0.98

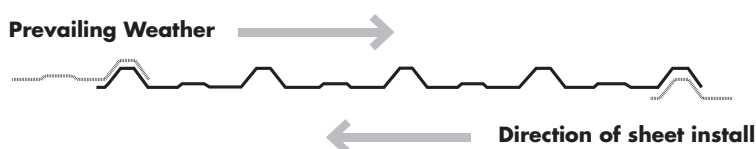
Shaded value denotes spans outside of recommended foot traffic

FASTENER SELECTION

Trimclad® can be fixed to supports with Class 4 fasteners in accordance with manufacturers recommendations. Length to suit insulation, sarking and 30mm embedment into timber. Fasteners to be crest fixed to every rib. Always face side laps away from the prevailing weather.

Timber F17 Hardwood Supports	14 - 10 x 65mm Type 17
Steel Supports 0.75 - 1.0mm BMT	M6.5 - 12 x 55mm Roof Zips® or equivalent
Steel Supports 1.2 - 4.0mm BMT	14 - 10 x 53mm Hex Head
Side Lap (where required)	8 - 18 x 12mm Screws

Cyclonic washers to be Square Lok® or equivalent



CYCLONIC LIMIT STATE SPAN TABLES

TRIMCLAD® ROOFING

Fixed to minimum Metal 1.0mm Steel or Timber F17 Hardwood

Tables and values must be used in conjunction with Design Notes

BMT mm	Cyclone Washers Fitted?	WIND CATEGORY	C1			C2			C3			C4		
		Pressure kPa	2.16	3.38	4.59	3.21	5.02	6.83	4.73	7.39	10.05	6.39	9.98	13.58
		Span Type	G	RE	RC	G	RE	RC	G	RE	RC	G	RE	RC
0.42	N	End	760	640	530	660	-	-	520	-	-	-	-	-
		Internal	1430	970	740	1010	680	520	720	-	-	550	-	-
	Y	End	1400	990	780	1030	730	570	760	540	-	600	-	-
		Internal	1600	1250	990	1300	930	730	970	690	550	770	550	-
0.48	N	End	1140	790	610	830	570	-	600	-	-	-	-	-
		Internal	1490	1030	800	1070	740	570	780	540	-	610	-	-
	Y	End	1600	1190	950	1240	890	710	930	670	530	740	530	-
		Internal	1600	1510	1210	1570	1130	900	1180	850	670	940	680	540

G = General Areas, RE = Within 1200mm of Roof Edges, RC = At corners within 1200mm of the Roof Edges

TRIMCLAD® WALL CLADDING

Fixed to minimum Metal 1.0mm Steel or Timber F17 Hardwood

Tables and values must be used in conjunction with Design Notes

BMT mm	Cyclone Washers Fitted?	WIND CATEGORY	C1			C2			C3			C4		
		Pressure kPa	1.80	1.80	2.70	2.68	2.68	4.02	3.94	3.94	5.91	5.33	5.33	7.99
		Span Type	G, SC	G	SC	G, SC	G	SC	G, SC	G	SC	G, SC	G	SC
0.42	N	End	800	800	710	710	710	580	590	590	-	-	-	-
		Internal	1670	1670	1180	1180	1180	830	840	840	590	650	650	-
	Y	End	1610	1610	1180	1180	1180	860	880	880	640	700	700	510
		Internal	2020	2020	1490	1490	1490	1100	1110	1110	820	890	890	650
0.48	N	End	1330	1330	950	960	960	690	700	700	500	540	540	-
		Internal	1730	1730	240	1240	1240	890	910	910	650	710	710	500
	Y	End	1890	1890	1400	1410	1410	1050	1060	1060	790	850	850	630
		Internal	1800	2400	1790	1800	1800	1330	1350	1350	1000	1080	1080	800

Wall cladding may be crest or pan fixed

REGION D ROOFING & WALLING SPAN TABLES

	Roof Height (m)	Terrain Category	Local Pressure Factor (k)	ROOF PRESSURE (kPa)		Max. Batten Spacing (mm) for Batten Span & Fixing				SPAN				
						x2 No. 14 screws into 1.5 G450 Metal				0.42 BMT		0.48 BMT		
				Service	Strength	450	600	900	1200	Internal	Equal	Internal	Equal	
TRIMCLAD® ROOFING	< = 5	1 & 2	1	1.84	6.04	1200	900	600	450	1100	1050	1200	1150	
			1.5	2.59	7.74	950	700	475	350	1000	950	1050	1000	
			2	3.34	9.44	775	575	375	275	900	850	950	900	
			3	4.85	12.83	575	425	275	525	750	700	800	750	
		2.5	1	1.26	5.12	1425	1075	700	400	1200	1150	1300	1250	
			1.5	1.78	6.56	1125	825	550	325	1100	1000	1150	1100	
			2	2.30	8.00	900	675	450	250	950	900	1050	1000	
			3	3.33	10.89	675	500	325	625	850	800	900	850	
		3	1	1.15	4.28	1725	1275	850	500	1350	1250	1450	1350	
			1.5	1.62	5.49	1325	1000	650	400	1200	1100	1250	1200	
			2	2.09	6.69	1100	825	550	300	1050	1000	1150	1100	
			3	3.03	9.10	800	600	400	400	900	850	1000	900	
	< = 10	1 & 2	1	2.09	6.69	1100	825	500	300	1050	1000	1150	1100	
			1.5	2.95	8.57	850	625	425	250	950	900	1000	950	
			2	3.81	10.45	700	525	350	175	850	800	900	850	
			3	5.52	14.22	500	375	250	450	700	700	750	750	
		2.5	1	1.40	5.98	1225	925	600	350	1150	1050	1200	1150	
			1.5	1.97	7.66	950	700	475	275	1000	950	1050	1000	
			2	2.54	9.34	775	575	375	275	900	850	950	900	
			3	3.68	12.70	575	425	275	200	750	750	800	800	
		3	1	1.15	5.30	1375	1025	675	500	1200	1150	1300	1200	
			1.5	1.62	6.79	1075	800	525	400	1050	1000	1150	1050	
			2	2.09	8.26	875	650	425	325	950	900	1000	950	
			3	3.03	11.26	650	475	325	225	800	750	650	850	
TRIMCLAD® WALLING	< = 5	1 & 2	1	1.42	5.09	1450	1075	725	525	1250	1150	1300	1250	
			1.5	1.96	6.32	1150	875	575	425	1100	1050	1150	1100	
			2	2.51	7.55	975	725	475	350	1000	950	1050	1000	
		2.5	1	0.98	4.32	1700	1275	850	625	1350	1250	1450	1350	
			1.5	1.35	5.36	1375	1025	675	500	1200	1150	1300	1200	
			2	1.72	6.40	1150	850	575	425	1100	1050	1150	1100	
		3	1	0.89	3.61	2025	1525	1000	750	1450	1400	1550	1500	
			1.5	1.23	4.48	1650	1225	825	600	1300	1250	1400	1350	
			2	1.57	5.35	1375	1025	675	500	1200	1150	1300	1200	
		< = 10	1 & 2	1	1.62	5.65	1300	975	650	475	1150	1100	1250	1200
				1.5	2.24	7.00	1050	775	525	375	1050	1000	1100	1050
				2	2.85	8.36	875	650	425	325	950	900	1000	950
	2.5		1	1.08	8.04	1450	1100	725	550	1250	1150	1300	1250	
			1.5	1.49	6.26	1175	875	575	425	1100	1050	1200	1100	
			2	1.90	7.47	975	725	475	350	1000	950	1100	1000	
	3		1	0.89	4.47	1650	1225	825	600	1300	1250	1400	1350	
			1.5	1.23	5.55	1325	975	650	475	1150	1100	1250	1200	
			2	1.57	6.62	1100	825	550	400	1050	1000	1150	1100	

TECHNICAL NOTES TO LIMIT STATE CAPACITY TABLES C CLASS WIND REGIONS

DESIGN CRITERIA

The following criteria from AS/NZS 1170 have been used to generate the tables in this brochure:

1. Importance Level 2. Annual probability of exceedance 1:500.
2. $V_{500} = 66\text{m/s}$, $F_c + 1.05$, $V_R = 69\text{m/s}$.
3. $M_s = M_t = M_d = 1.0$.
4. $C_{pe} =$ as per AS/NZS 1170.
5. Height multiplier as determined by Structural Engineer.
6. For local pressure factors and building aspect ratios refer to table 5.6 AS 1170.

LIMITATIONS

- Information provided is for roof application only.
- Values in shaded cells denotes spans that exceed foot traffic limitations.
- Internal spans should have both end spans 20% shorter than tabulated values.
- The maximum permissible free edge overhang is 150mm from the screw line.
- The maximum permissible stiffened edge overhang is 300mm from the screw line.
- Sheeting span can be limited by maximum batten spacing when using cyclonic steel battens.
- It is essential that the relevant deemed to comply information (for NT) for the batten product is used in conjunction with these tables.

FOOT TRAFFIC

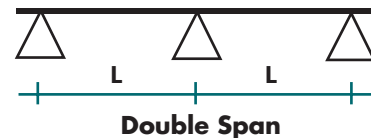
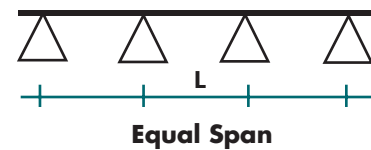
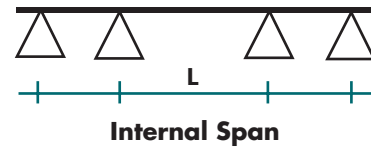
Recommended maximum spans for foot traffic on roofs are:

	0.42 BMT	0.48 BMT
Trimclad®	1350mm	1850mm

NOTES TO TABLES

These tables have been prepared by LCJ Engineers Pty Ltd. Information is based on Low High Low testing completed by the Cyclone Testing Station - School of Engineering, James Cook University.

1. The table values are only valid for use when the supporting steel members are high enough tensile strength, G450 with a thickness greater than 0.75mm or F17 Hardwood.
2. Roof sheeting shall be crest fixed to supports with Class 4 self drilling screws (refer fixing table), in accordance with manufacturers recommendations. Length to suit insulation, sarking and 30mm embedment into timber.
3. Side lap fasteners required on all spans greater than 900mm and shall consist of No. 8 - 18 x 12mm screws at midspan.
4. Description of span types in the tables refer to the following support configurations:



D CLASS WIND REGIONS

DESIGN CRITERIA

The values in the tables are calculated in accordance with AS4600 Cold-formed Steel Structures and are derived from beam movement and deflection formulas. Spans are designed to limit maximum deflection of span/150 under service load. Design criteria to AS1170.2 as follows:

1. Importance Level 2.
2. $M_s = 1.0$, $M_t = 1.0$, $C_{dyn} = 1.0$.
3. Roof height = 5m top 10m, roof height/building length ≤ 5
4. Roof slope $\leq 10^\circ$
5. V strength = 88 m/s
6. V serviceability = 53 m/s
7. $k_{ce} = k_{ci} = 0.9$
8. $k_a = 1.0$
9. $k_p = 1.0$

NOTES TO TABLES

- The capacities are theoretical values derived from beam movement and deflection formulas.
- Internal = Internal spans with end spans at least 20% shorter.
- Equal = All spans equal, with minimum of 3 spans.
- Crest fixing to be Buildex 15 - 15 Tek's or M6 - 11 Roof Zips with cyclone caps or equivalent.
- Maximum 5 fixings per sheet per steel support.
- Support to be minimum 0.5mm thick G550 steel.

TERRAIN CATEGORY TO AS1170.2

CATEGORY 1:

Exposed open terrain with few or no obstructions and water surfaces at serviceability wind speeds.

CATEGORY 2:

Water surfaces, open terrain, grassland with few; well scattered obstructions having heights generally from 1.5m to 10m.

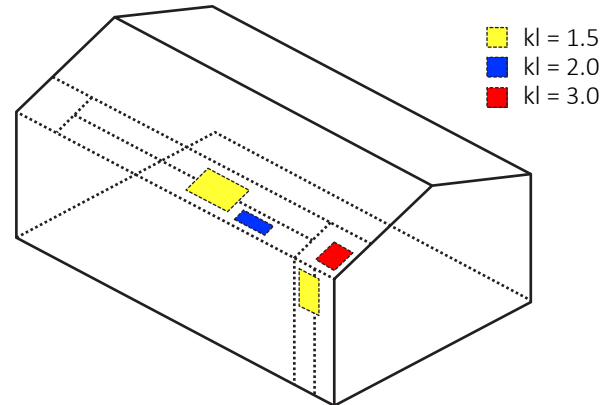
CATEGORY 3:

Terrain with numerous closely spaced obstructions 3m to 5m high, such as areas of suburban housing.

CATEGORY 4:

Terrain with numerous large, high (10m to 30m) and closely placed obstructions, such as large city centres and well-developed industrial complexes.

LOCAL PRESSURE DIAGRAM



REFERENCED AUSTRALIAN STANDARDS

AS/NZS 1170.1:2011	Structural Design Actions - Permanent, imposed & other actions.
AS/NZS 1170.2:2011	Structural Design Actions - Wind actions.
AS/NZS 1397:2013	Steel Sheet & Strip - Hot dipped zinc-coated or aluminium/zinc coated.
AS/NZS 1562.1:1992	Design & Installation of Sheet Roof & Wall Cladding - Metal
AS/NZS 2179.1:1994	Specification for Rainwater Goods, Accessories & Fasteners - Metal shape or sheet rainwater goods & metal accessories & fasteners.
AS 2180.2:1986	Metal Rainwater Goods Selection & Installation.
AS/NZS 2334:1980	Steel Nails - Metric series.
AS/NZS 2728:2007	Prefinished/prepainted Sheet Metal Products for Interior/Exterior Building Applications - Performance Requirements.
AS 3500.3:2003	Plumbing & Drainage - Stormwater drainage.
AS 3566.1:2002	Self-drilling Screws for the Building & Construction Industries - General requirements and mechanical properties.
AS 4040.1:1992	Methods of Testing Sheet Roof & Wall Cladding - Resistance to concentrated loads.
AS 4040.2:1992	Resistance to Wind Pressures for Non-cyclonic Regions.
AS 4055:2012	Wind Loads for Housing.
HB 39:1997	Installation Code for Metal Roof & Wall Cladding.

Can we assist with any additional Steel Building Products?



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Cairns	07 4054 0888	Lismore	02 6622 6677	Preston	03 9480 3744	Launceston	03 6335 8555
Townsville	07 4779 8266	Tamworth	02 6765 4799	Laverton	03 8369 8300	NT	
Mackay	07 4968 1255	Newcastle	02 4954 5799	Geelong	03 5248 2006	Darwin	08 8935 9555
Rockhampton	07 4920 0900	Sydney	1300 766 346	Ballarat	03 5335 6416	WA	
Bundaberg	07 4155 5999	Dubbo	02 6883 4800	Pakenham	03 8710 9300	Perth	08 9365 5444
Toowoomba	07 4634 6144	Wagga Wagga	02 5924 4500	SA		Bunbury	08 9796 9796
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