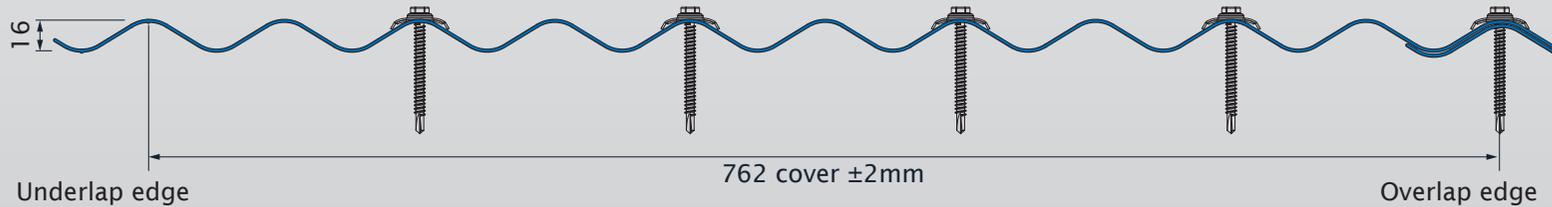


CGI ROOF CLADDING PERFORMANCE IN CYCLONIC REGION C

0.42mm / 0.48mm BMT G550 AZ150

JUN 2015



Maximum Allowable Spans (mm)																						
Terrain Category	KI	3 m Maximum Average Roof Height						5 m Maximum Average Roof Height						10 m Maximum Average Roof Height								
		0.42mm BMT			0.48mm BMT			0.42mm BMT			0.48mm BMT			0.42mm BMT			0.48mm BMT					
		Single	End	Internal	Single	End	Internal	Single	End	Internal	Single	End	Internal	Single	End	Internal	Single	End	Internal			
1.0	1.0	4.07	800	950	1160	900	1220	1290	4.57	800	950	1090	900	1130	1200	5.20	800	940	1000	900	1020	1100
	1.5	5.21	800	940	1000	900	1020	1100	5.86	800	850	920	900	920	1000	6.67	760	760	820	810	810	890
	2.0	6.35	790	790	860	860	860	930	7.15	700	700	770	750	750	830	8.13	600	600	660	640	640	720
	3.0	8.64	560	560	610	600	600	650	9.72	470	470	520	510	510	550	11.06	-	-	-	410	410	450
1.5	1.0	3.74	800	950	1200	900	1280	1350	3.99	800	950	1170	900	1240	1300	4.66	800	950	1070	900	1110	1180
	1.5	4.80	800	950	1050	900	1090	1160	5.11	800	950	1010	900	1040	1110	5.97	800	840	900	900	910	980
	2.0	5.85	800	860	920	900	930	1000	6.23	800	810	880	870	870	950	7.28	690	690	760	730	730	810
	3.0	7.96	620	620	680	660	660	730	8.47	570	570	630	610	610	670	9.91	460	460	500	490	490	540
2.0	1.0	3.44	800	950	1200	900	1300	1420	3.44	800	950	1200	900	1300	1420	4.15	800	950	1150	900	1200	1270
	1.5	4.40	800	950	1110	900	1160	1230	4.40	800	950	1110	900	1160	1230	5.32	800	920	990	900	1010	1080
	2.0	5.37	800	920	980	900	1000	1070	5.37	800	920	980	900	1000	1070	6.48	780	780	850	840	840	920
	3.0	7.30	690	690	760	730	730	810	7.30	690	690	760	730	730	810	8.82	540	540	600	580	580	640
2.5	1.0	3.14	800	950	1200	900	1300	1490	3.14	800	950	1200	900	1300	1490	3.47	800	950	1200	900	1300	1410
	1.5	4.02	800	950	1170	900	1230	1300	4.02	800	950	1170	900	1230	1300	4.45	800	950	1100	900	1150	1220
	2.0	4.91	800	950	1040	900	1070	1140	4.91	800	950	1040	900	1070	1140	5.43	800	910	970	900	990	1060
	3.0	6.67	760	760	820	810	810	890	6.67	760	760	820	810	810	890	7.38	680	680	750	720	720	800
3.0	1.0	2.86	800	950	1200	900	1300	1560	2.86	800	950	1200	900	1300	1560	2.86	800	950	1200	900	1300	1560
	1.5	3.66	800	950	1200	900	1300	1370	3.66	800	950	1200	900	1300	1370	3.66	800	950	1200	900	1300	1370
	2.0	4.47	800	950	1100	900	1150	1220	4.47	800	950	1100	900	1150	1220	4.47	800	950	1100	900	1150	1220
	3.0	6.07	800	830	890	890	970	6.07	800	830	890	890	890	890	970	6.07	800	830	890	890	890	970

Note: For roofing applications a local pressure of KI=3.0 is applicable adjacent roof corners on roofs with a pitch less than 10°.

Fixing Recommendations

CGI sheets should be laid into the prevailing wind and sit neatly on the preceding roof sheet, with a side lap of 1.5 corrugations. They should be fixed within the recommended support spacings. Avoid 'stretching' the width of the sheet when installing, as this could allow wind and rain to enter. Side lap fixing is recommended to maintain a weather-proof seal and to secure the overlap especially when the roof is walked on occasionally. This is done with either 8x12 mm self drilling stitching screws or a 3.2 mm blind rivet (rivets should be sealed to prevent water penetration). It is recommended side lap fasteners are secured midspan, when roofing spans exceed 900mm. At the end of the sheets, the valleys of each corrugation should be turned up at the ridge of the roof using a turn up tool.

Maintenance Requirements

The performance of CGI over time depends on its correct application and maintenance. Maintenance should be performed as often as is required to remove any dirt, salt and pollutants. Where CGI is used in severely corrosive environments, cleaning should be performed more often. It is important that screws have the same life expectancy as the CGI cladding you have specified. Packs of CGI should always be kept dry and stored above ground level on site. If the sheets have become wet, they should be separated, wiped and placed in the open to dry. Refer to the Stratco "Selection, Use and Maintenance" brochure for more detailed information about the correct use and maintenance of this product.

Carport/Verandah Spans in Region C

Terrain Category	Base Metal Thickness	
	0.42mm BMT	0.48mm BMT
1.0	1070	1180
1.5	1160	1290
2.0	1250	1400
2.5	1300	1470
3.0	1350	1540

Note: The values are for use with steel supports of minimum thickness 0.75mm BMT G550.

Fastener Details

Material	Minimum Thickness (BMT)	Details
Steel	0.75mm (BMT)	Minimum 13 gauge x 50mm hex head screw with cyclonic washer assembly.
Timber	Hardwood F11/JD2 or stronger	Minimum 13 gauge hex head screw with cyclonic washer assembly, embedded at least 35mm into timber.
	Softwood F7/JD4 or stronger	Minimum 13 gauge hex head screw with cyclonic washer assembly, embedded at least 35mm into timber.

Note: All screws shall be minimum Class 4.

Design Pressures - Strength Limit State Capacity (kPa)

Span (mm)	0.42mm BMT			0.48mm BMT		
	Single	End	Internal	Single	End	Internal
400	10.76	10.76	11.77	11.23	11.23	12.28
700	7.21	7.21	7.88	7.60	7.60	8.31
1000	4.80	4.80	5.25	5.39	5.39	5.89
1300	2.96	2.96	3.24	3.69	3.69	4.04
1600	1.69	1.69	1.85	2.50	2.50	2.73
1900	1.00	1.00	1.09	1.82	1.82	1.99

Design Criteria

The following criteria was used in the development of the tables:

Region C with design return period of 500 years.

$V_r = F_c 66m/s$ (strength limit state), with $F_c = 1.05$

$M_t/M_r = 1.00$

$K_{c,e} = K_{c,i} = 0.90$

Height (m)	Terrain/Height Multiplier (M_z, cat)				
	1.0	1.5	2.0	2.5	3.0
≤ 3.0	0.99	0.95	0.91	0.87	0.83
≤ 5.0	1.05	0.98	0.91	0.87	0.83
≤ 10.0	1.12	1.06	1	0.915	0.83

Pressure Coefficients:

Internal $C_{p,i} = +0.7$

External $C_{p,e} = -0.9$

Carport and Verandah Spans

The carport and verandah spans only apply to structures not enclosed by peripheral walls. Spans are based on height ≤ 5m, $C_{p,n} = -0.9$ and $KI=1.5$ applied over the entire span, and are suitable for all span types. Loads on supporting purlins may limit these spans.

Stratco can provide additional engineering advice if any design parameters vary from those above.

Limitations

- Design pressures and maximum allowable spans are based on five fasteners per sheet per support.
- When fixing over insulation, screw length should be increased to ensure sufficient penetration of the fastener.
- Maximum allowable overhang is 200mm for roof cladding.
- For variations in design criteria, refer AS/NZS 1170.2:2011 Wind Actions for evaluation of pressure, P_z

Notes

- Cyclonic Fatigue Testing in accordance with Building Code of Australia (BCA) - Low-High-Low Pressure Testing.
- Design Criteria are determined in accordance with AS/NZS 1170.2:2011 Wind Actions.

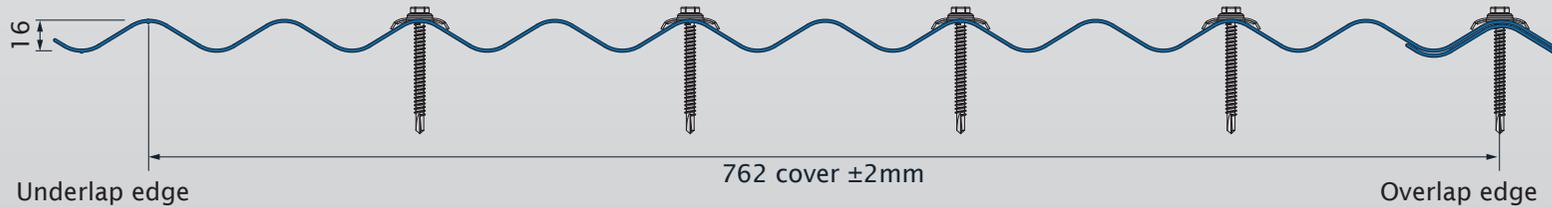
Walking on CGI

When walking on CGI roofing, it is recommended you walk over the purlins to avoid any damage. Wear flat rubber soled shoes and walk flat footed, spreading your weight over as many purlins as possible. For carport and verandah applications, crawl boards should be used to avoid damage during installation and maintenance.

CGI ROOF CLADDING PERFORMANCE IN CYCLONIC REGION D

0.42mm / 0.48mm BMT G550 AZ150

JUN 2015



		Maximum Allowable Spans (mm)																				
Terrain Category	KI	3 m Maximum Average Roof Height						5 m Maximum Average Roof Height						10 m Maximum Average Roof Height								
		0.42mm BMT			0.48mm BMT			0.42mm BMT			0.48mm BMT			0.42mm BMT			0.48mm BMT					
		Single	End	Internal	Single	End	Internal	Single	End	Internal	Single	End	Internal	Single	End	Internal	Single	End	Internal			
1.0	1.0	6.56	770	770	840	830	910	7.38	680	680	750	720	720	800	8.39	580	580	640	620	620	680	
	1.5	8.40	580	580	640	620	620	680	9.45	490	490	540	530	530	580	10.75	400	400	430	430	430	470
	2.0	10.25	430	430	470	470	510	11.53	-	-	-	-	-	-	13.11	-	-	-	-	-	-	
	3.0	13.94	-	-	-	-	-	15.68	-	-	-	-	-	-	17.84	-	-	-	-	-	-	
1.5	1.0	6.04	800	830	900	900	970	6.43	790	790	850	850	850	920	7.52	660	660	730	710	710	790	
	1.5	7.74	640	640	710	680	680	760	8.23	600	600	650	630	630	700	9.63	480	480	520	510	510	560
	2.0	9.44	490	490	540	530	530	580	10.04	450	450	490	480	480	530	11.75	-	-	-	-	-	-
	3.0	12.83	-	-	-	-	-	13.65	-	-	-	-	-	-	15.98	-	-	-	-	-	-	
2.0	1.0	5.54	800	890	960	900	970	1050	5.54	800	890	960	900	970	1050	6.69	750	750	820	810	810	890
	1.5	7.10	710	710	780	760	760	840	7.10	710	710	780	760	760	840	8.57	570	570	620	600	600	660
	2.0	8.66	560	560	610	590	590	650	8.66	560	560	610	590	590	650	10.45	420	420	460	450	450	490
	3.0	11.77	-	-	-	-	-	11.77	-	-	-	-	-	-	14.22	-	-	-	-	-	-	
2.5	1.0	5.06	800	950	1020	900	1050	1120	5.06	800	950	1020	900	1050	1120	5.60	800	890	950	900	960	1040
	1.5	6.49	780	780	840	840	840	910	6.49	780	780	840	840	840	910	7.18	700	700	770	750	750	830
	2.0	7.91	630	630	680	660	660	740	7.91	630	630	680	660	660	740	8.75	550	550	600	590	590	640
	3.0	10.76	-	-	-	430	430	470	10.76	-	-	-	430	430	470	11.90	-	-	-	-	-	-
3.0	1.0	4.61	800	950	1080	900	1120	1190	4.61	800	950	1080	900	1120	1190	4.61	800	950	1080	900	1120	1190
	1.5	5.91	800	850	910	900	920	990	5.91	800	850	910	900	920	990	5.91	800	850	910	900	920	990
	2.0	7.20	700	700	770	740	740	820	7.20	700	700	770	740	740	820	7.20	700	700	770	740	740	820
	3.0	9.79	470	470	510	500	500	550	9.79	470	470	510	500	500	550	9.79	470	470	510	500	500	550

Note: For roofing applications a local pressure of KI=3.0 is applicable adjacent roof corners on roofs with a pitch less than 10°.

Fixing Recommendations

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Carport/Verandah Spans in Region D

Terrain Category	Base Metal Thickness	
	0.42mm BMT	0.48mm BMT
1.0	730	780
1.5	830	900
2.0	940	1030
2.5	1000	1100
3.0	1060	1170

Note: The values are for use with steel supports of minimum thickness 0.75mm BMT G550.

Fastener Details

Material	Minimum Thickness (BMT)	Details
Steel	0.75mm (BMT)	Minimum 13 gauge x 50mm hex head screw with cyclonic washer assembly.
Timber	Hardwood F11/JD2 or stronger	Minimum 13 gauge hex head screw with cyclonic washer assembly, embedded at least 35mm into timber.
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Span (mm)	0.42mm BMT			0.48mm BMT		
	Single	End	Internal	Single	End	Internal
400	10.76	10.76	11.77	11.23	11.23	12.28
700	7.21	7.21	7.88	7.60	7.60	8.31
1000	4.80	4.80	5.25	5.39	5.39	5.89
1300	2.96	2.96	3.24	3.69	3.69	4.04
1600	1.69	1.69	1.85	2.50	2.50	2.73
1900	1.00	1.00	1.09	1.82	1.82	1.99

Design Criteria

The following criteria was used in the development of the tables:

Region D with design return period of 500 years.

$V_r = F_{80} \text{m/s}$ (strength limit state), with $F_d = 1.1$

$M_s/M_d = 1.00$

$K_{c,e} = K_{c,i} = 0.90$

Height (m)	Terrain/Height Multiplier (M_z, cat)				
	1.0	1.5	2.0	2.5	3.0
≤ 3.0	0.99	0.95	0.91	0.87	0.83
≤ 5.0	1.05	0.98	0.91	0.87	0.83
≤ 10.0	1.12	1.06	1	0.915	0.83

Pressure Coefficients:

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