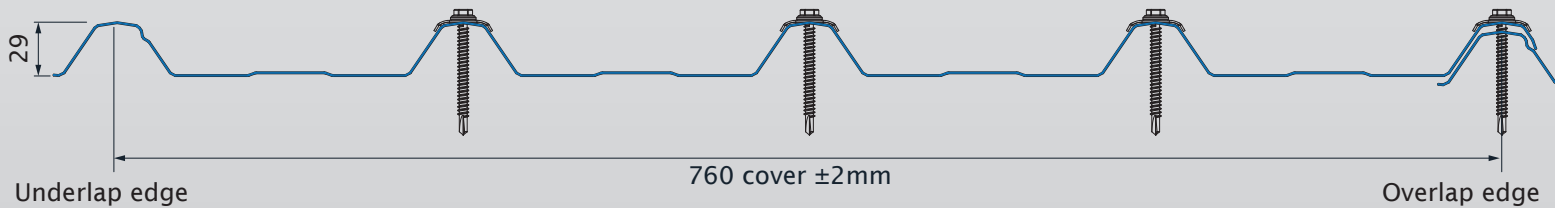


# SUPERDEK ROOF CLADDING PERFORMANCE IN CYCLONIC REGION C

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	1030	1030	1090	1110	1110	1160	4.57	950	950	1010	1040	1040	1090	5.20	860	860	930	960	960	1010
	1.5	5.21	860	860	920	960	960	1010	5.86	780	780	840	880	880	940	6.67	680	680	750	780	780	850
	2.0	6.35	710	710	780	820	820	880	7.15	640	640	700	730	730	800	8.13	560	560	620	630	630	700
	3.0	8.64	530	530	580	590	590	650	9.72	460	460	500	500	500	550	11.06	-	-	-	410	410	440
1.5	1.0	3.74	1080	1080	1140	1160	1160	1210	3.99	1040	1040	1100	1120	1120	1180	4.66	940	940	1000	1030	1030	1080
	1.5	4.80	920	920	980	1010	1010	1070	5.11	880	880	940	970	970	1030	5.97	760	760	830	860	860	920
	2.0	5.85	780	780	840	880	880	940	6.23	730	730	800	830	830	900	7.28	630	630	690	720	720	780
	3.0	7.96	580	580	630	650	650	720	8.47	540	540	590	600	600	660	9.91	440	440	490	490	490	530
2.0	1.0	3.44	1130	1130	1190	1210	1210	1260	3.44	1130	1130	1190	1210	1210	1260	4.15	1020	1020	1070	1100	1100	1150
	1.5	4.40	980	980	1040	1060	1060	1120	4.40	980	980	1040	1060	1060	1120	5.32	850	850	910	940	940	1000
	2.0	5.37	840	840	900	940	940	990	5.37	840	840	900	940	940	990	6.48	700	700	770	800	800	870
	3.0	7.30	630	630	690	720	720	780	7.30	630	630	690	720	720	780	8.82	510	510	560	570	570	630
2.5	1.0	3.14	1150	1190	1240	1260	1260	1310	3.14	1150	1190	1240	1260	1260	1310	3.47	1130	1130	1180	1200	1200	1250
	1.5	4.02	1040	1040	1090	1120	1120	1170	4.02	1040	1040	1090	1120	1120	1170	4.45	970	970	1030	1060	1060	1110
	2.0	4.91	900	900	960	990	990	1050	4.91	900	900	960	990	990	1050	5.43	830	830	900	930	930	990
	3.0	6.67	680	680	750	780	780	850	6.67	680	680	750	780	780	850	7.38	620	620	680	710	710	770
3.0	1.0	2.86	1150	1240	1290	1310	1310	1360	2.86	1150	1240	1290	1310	1310	1360	2.86	1150	1240	1290	1310	1310	1360
	1.5	3.66	1100	1100	1150	1170	1170	1220	3.66	1100	1100	1150	1170	1170	1220	3.66	1100	1100	1150	1170	1170	1220
	2.0	4.47	970	970	1030	1050	1050	1110	4.47	970	970	1030	1050	1050	1110	4.47	970	970	1030	1050	1050	1110
	3.0	6.07	750	750	820	850	850	910	6.07	750	750	820	850	850	910	6.07	750	750	820	850	850	910

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

Superdek sheets should be laid into the prevailing wind and sit neatly on the preceding roof sheet. 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 that side lap fasteners are secured midspan, when roofing spans exceed 900mm. Due to its rib height, flashing turn downs into the pan of Superdek should always be notched around the rib to provide maximum weather tightness. At the end of the sheets, the pans should be turned up at the ridge of the roof and down into the gutter using a turn up/down tool.

## Maintenance Requirements

The performance of Superdek 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 Superdek is used in severely corrosive environments, cleaning should be performed more often. It is important that screws have the same life expectancy as the Superdek cladding you have specified. Packs of Superdek 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.

## Carpport/Verandah Spans in Region C

Terrain Category	Base Metal Thickness	
	0.42mm BMT	0.48mm BMT
1.0	1000	1080
1.5	1080	1160
2.0	1170	1250
2.5	1230	1300
3.0	1280	1350

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

## Fastener Details

Steel	Minimum 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	6.51	6.51	7.12	7.50	7.50	8.20
1000	4.29	4.29	4.69	4.90	4.90	5.36
1300	2.60	2.60	2.84	2.95	2.95	3.23
1600	1.44	1.44	1.58	1.64	1.64	1.80
1900	0.82	0.82	0.90	0.98	0.98	1.07
2100	0.70	0.70	0.77	0.90	0.90	0.98

## Design Criteria

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

Region C with design return period of 500 years.

$V_w = F_c 66 \text{ m/s}$  (strength limit state), with  $F_c = 1.05$

$M_t/M_d = 1.00$

$K_{ce} = K_{ci} = 0.90$

Height (m)	Terrain/Height Multiplier (Mz, 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  $C_{pi} = +0.70$

External  $C_{pe} = -0.9$

## Carpport and Verandah Spans

The carport and verandah spans only apply to structures not enclosed by peripheral walls. Spans are based on height ≤ 5m,  $C_{pn} = -0.9$  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 four 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

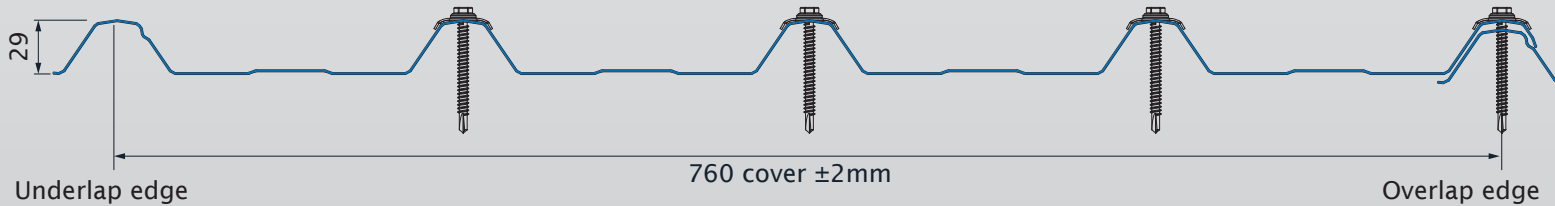
- Cyclonic Fatigue Testing in accordance with Building Code of Australia (BCA) - Low-High-Low Pressure Testing.
- Design Criteria are determined in accordance with AS/NZS 1170.2:2011 Wind Actions.

## Walking on Superdek

When walking on Superdek 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 pans as possible. For carport and verandah applications, crawl boards should be used to avoid damage during installation and maintenance.

# SUPERDEK ROOF CLADDING PERFORMANCE IN CYCLONIC REGION D

0.42mm / 0.48mm BMT G550 AZ150



		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	690	690	760	800	800	860	7.38	620	620	680	710	710	770	8.39	540	540	590	610	610	670
	1.5	8.40	540	540	590	610	610	670	9.45	470	470	680	520	520	570	10.75	400	400	430	430	430	470
	2.0	10.25	420	420	460	460	460	510	11.53	-	-	-	-	-	-	13.11	-	-	-	-	-	-
	3.0	13.94	-	-	-	-	-	-	15.68	-	-	-	-	-	-	17.84	-	-	-	-	-	-
1.5	1.0	6.04	750	750	820	850	850	920	6.43	710	710	770	810	810	870	7.52	610	610	670	690	690	760
	1.5	7.74	590	590	650	670	670	740	8.23	550	550	680	630	630	680	9.63	460	460	500	510	510	560
	2.0	9.44	470	470	520	520	520	570	10.04	440	440	680	480	480	520	11.75	-	-	-	-	-	-
	3.0	12.83	-	-	-	-	-	-	13.65	-	-	-	-	-	-	15.98	-	-	-	-	-	-
2.0	1.0	5.54	820	820	880	910	910	970	5.54	820	820	880	910	910	970	6.69	680	680	740	780	780	850
	1.5	7.10	640	640	700	740	740	800	7.10	640	640	700	740	740	800	8.57	530	530	580	600	600	650
	2.0	8.66	520	520	570	590	590	640	8.66	520	520	680	590	590	640	10.45	410	410	450	450	450	490
	3.0	11.77	-	-	-	-	-	-	11.77	-	-	-	-	-	-	14.22	-	-	-	-	-	-
2.5	1.0	5.06	880	880	940	970	970	1030	5.06	880	880	940	970	970	1030	5.60	810	810	870	910	910	970
	1.5	6.49	700	700	770	800	800	870	6.49	700	700	770	800	800	870	7.18	640	640	700	730	730	790
	2.0	7.91	580	580	630	660	660	720	7.91	580	580	680	660	660	720	8.75	520	520	570	580	580	630
	3.0	10.76	-	-	-	430	430	470	10.76	-	-	-	430	430	470	11.90	-	-	-	-	-	-
3.0	1.0	4.61	950	950	1010	1030	1030	1090	4.61	950	950	1010	1030	1030	1090	4.61	950	950	1010	1030	1030	1090
	1.5	5.91	770	770	840	870	870	930	5.91	770	770	840	870	870	930	5.91	770	770	840	870	870	930
	2.0	7.20	630	630	690	730	730	790	7.20	630	630	680	730	730	790	7.20	630	630	690	730	730	790
	3.0	9.79	450	450	490	500	500	540	9.79	450	450	680	500	500	540	9.79	450	450	490	500	500	540

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

Superdek sheets should be laid into the prevailing wind and sit neatly on the preceding roof sheet. 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 that side lap fasteners are secured midspan, when roofing spans exceed 900mm. Due to its rib height, flashing turn downs into the pan of Superdek should always be notched around the rib to provide maximum weather tightness. At the end of the sheets, the pans should be turned up at the ridge of the roof and down into the gutter using a turn up/down tool.

## Maintenance Requirements

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## Carpport/Verandah Spans in Region D

Terrain Category	Base Metal Thickness	
	0.42mm BMT	0.48mm BMT
1.0	660	760
1.5	750	860
2.0	860	960
2.5	930	1020
3.0	990	1070

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

## Fastener Details

Material	Minimum 0.75mm (BMT)	Minimum 13 gauge x 50mm hex head screw with cyclonic washer assembly.
Steel	Hardwood F11/JD2 or stronger	Minimum 13 gauge hex head screw with cyclonic washer assembly, embedded at least 35mm into timber.
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	6.51	6.51	7.12	7.50	7.50	8.20
900	4.97	4.97	5.44	5.70	5.70	6.23
1200	3.10	3.10	3.39	3.53	3.53	3.86
1500	1.77	1.77	1.94	2.01	2.01	2.20
1800	0.97	0.97	1.06	1.13	1.13	1.24
2100	0.70	0.70	0.77	0.90	0.90	0.98

## Design Criteria

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

Region D with design return period of 500 years.

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

$M_s/M_t/M_d = 1.00$

$K_{ce} = K_{ci} = 0.90$

Height (m)	Terrain/Height Multiplier (Mz,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  $C_{pi} = +0.7$

External  $C_{pe} = -0.9$

## Carpport and Verandah Spans

The carpport and verandah spans only apply to structures not enclosed by peripheral walls. Spans are based on height ≤ 5m,  $C_{pn} = -0.9$  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 four 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 Superdek

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