



Maximus™ 22

Design Guide: Roofing & Walling



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Form And Function

Stratco Maximus corrugated roofing - where a timeless classic meets and compliments modern, contemporary and traditional design, to create an aesthetically pleasing Australian roof.

The enhanced design features of this deeper, well-formed corrugated profile provide the ultimate solution and added adaptability to all steel roofing and wall cladding applications. Maximus 22 is available in a wide range of finishes; including ZINCALUME® steel, Galvanised Z600, COLORBOND® steel, COLORBOND® steel in a Matt Finish & COLORBOND® steel Ultra.

Maximus roofing is made from high tensile steel, for strength and impact resistance and provides maximum versatility, strength and reliability.

With the stronger Maximus 22 profile, Stratco offers not only market leading technology and product quality, but now has an extended corrugated roofing product range, offering maximum character, style and a long lasting appearance to all Residential and Commercial applications.

Design Considerations

Maximus 22 has a 762mm cover in 0.40mm BMT and 0.48mm BMT material (South Australia) and a 686mm cover in 0.42mm BMT and 0.48mm BMT material (Queensland). The minimum recommended pitch is 3 degrees.

Maximus 22 roofing is subject to thermal expansion. The maximum length before an expansion joint is needed is 24m for light colours (SA of 0.60 and below) and 16m for dark colours (SA of 0.60 or greater).

For pan fixed wall cladding the maximum length recommended is 15m regardless of colour choice.

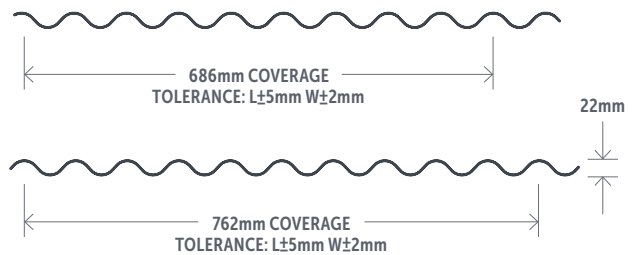
Water Carrying Capacity

Table 1.0 - Maximum Roof Run For Drainage (m)
Maximus 22

Roof Slope	Peak Rainfall Intensity (mm/hr)					
	150	200	250	300	350	400
2°	19	14	12	10	8	7
3°	23	18	14	12	10	9
5°	30	23	18	15	13	11
10°	43	32	26	22	18	16
15°	53	40	32	27	23	20

Note: 2° roof slope for Maximus 22 only suitable for open carport and verandah applications (ie. units not enclosed by peripheral walls). The peak rainfall intensities shown represent a 100 year average recurrence interval (ARI) for a five minute rainfall duration. If roof penetrations exist, the actual roof run will typically be larger than the distance from ridge to eaves due to penetration/s interfering with the runoff. Contact Stratco if further advice is required.

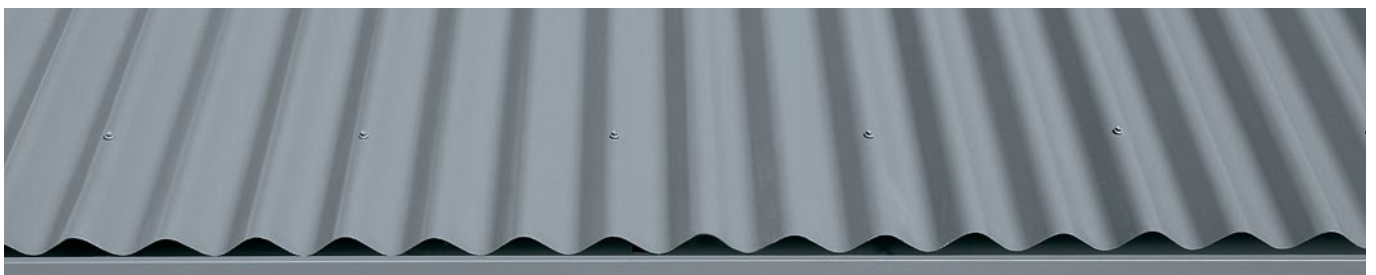
Profile



Material Specifications

Table 2.0

Material Properties	Finish	0.40mm	0.42mm	0.48mm	0.48mm
Width Coverage (mm)	ZINCALUME® steel	762	686	762	686
	COLORBOND® steel				
	Galvanised Z600				
Minimum AM Coating Mass (g/m²)	ZINCALUME® steel	AM125	AM125	AM125	AM125
	COLORBOND® steel	AM100	AM100	AM100	AM100
	Galvanised Z600	Z600	Z600	Z600	Z600
Mass (kg/linear metre)	ZINCALUME® steel	3.24	3.23	3.86	3.66
	COLORBOND® steel	3.26	3.25	3.89	3.69
	Galvanised Z600	3.76	3.72	4.39	-
Mass (kg/m²)	ZINCALUME® steel	4.25	4.70	5.07	5.63
	COLORBOND® steel	4.27	4.73	5.11	5.38
	Galvanised Z600	4.93	5.42	5.76	-
Yield (m²/tonne)	ZINCALUME® steel	235	213	197	187
	COLORBOND® steel	234	211	196	186
	Galvanised Z600	203	185	174	-
Tensile Strength (MPa)	ZINCALUME® steel COLORBOND® steel Galvanised Z600	550	550	550	550
Sheet Tolerances (mm)	Length & Width	±5 ±2	±5 ±2	±5 ±2	±5 ±2
Minimum Roof Pitch	ZINCALUME® steel COLORBOND® steel Galvanised Z600	3°	3°	3°	3°



Fixing Recommendations

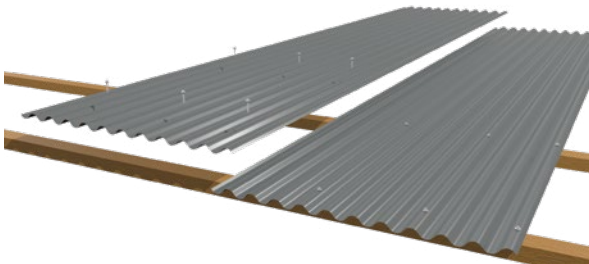
Maximus sheets should be laid into the prevailing wind and sit neatly on the preceding roof sheet with a side lap as shown in the fastener positions detail below. They should be fixed within the recommended support spacings. Avoid 'stretching' the width of the sheet when installing, as this could allow 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 best done with either 8 x 12mm self drilling stitching screws or a 3.2mm blind rivet (rivets should be sealed to prevent water penetration). It is recommended side lap fasteners are secured at maximum 900mm centres for roofing and 1200mm centres for walling. On roofing, at the high end of the sheets, the valleys of each corrugation should be turned up at crest using a turn up tool.

Roofing Laying Procedure

» PREVAILING WIND

LAYING DIRECTION «



Fastener Size Selection

Walling - Pan Fixing

All screws must have a neoprene washer for a weather tight seal

Fixing To Steel



M6 x 25mm
TS self drilling screw

Fixing To Timber



M6 x 25mm
TS self drilling screw

Fastener Positions

Walling - 0.40mm BMT, 0.48mm BMT - 762mm Cover



Single, End & Internal Spans
3 screws/sheet/support

Walling - 0.42mm BMT - 686mm Cover



Single, End & Internal Spans
3 screws/sheet/support

Roofing - 0.40mm BMT, 0.48mm BMT - 762mm Cover



Single, End & Internal Spans
3 screws/sheet/support

Roofing - 0.42 & 0.48mm BMT - 686mm Cover



Single, End & Internal Spans
3 screws/sheet/support

Roofing - Crest Fixing

All screws must have a neoprene washer for a weather tight seal

Fixing To Steel



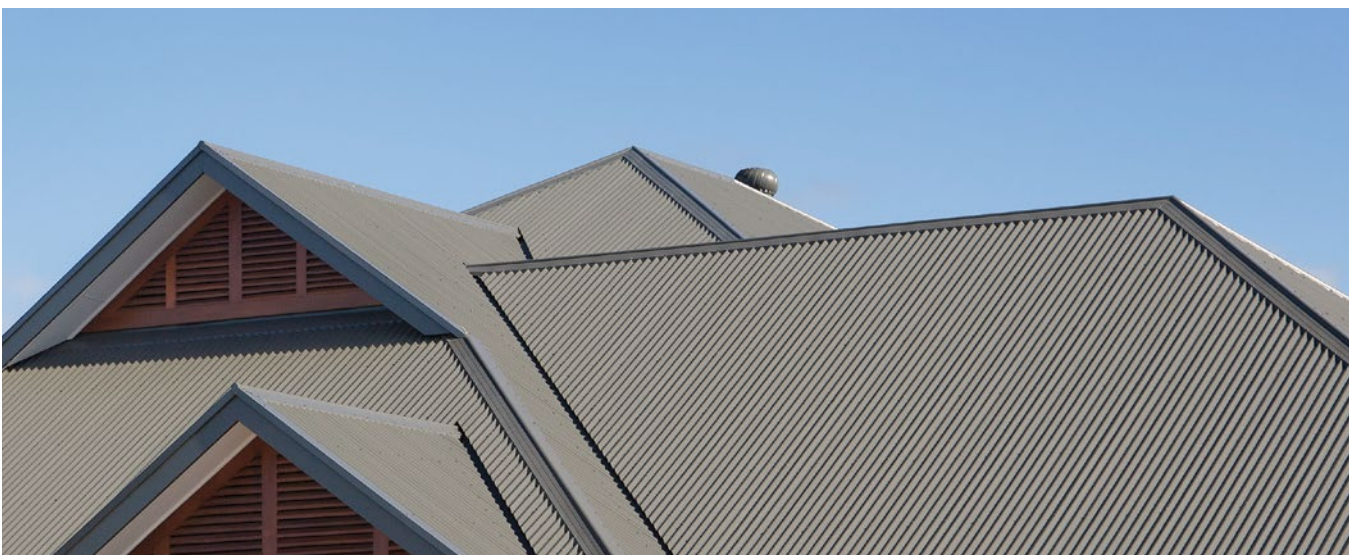
M6 x 50mm
TS self drilling screw

Fixing To Timber



M6 x 50mm
TS self drilling screw

If fixing over an insulation blanket the next standard screw length to that indicated may be required with minimum 25mm timber embedment to be maintained.



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Spans

Spans are determined by wind speeds for non-cyclonic areas. For domestic applications, the pressures and spans are based on an eaves height not exceeding 6m, a roof pitch no greater than 35° and a total roof height of maximum 8.5m. For commercial and industrial applications, span tables are based on a maximum overall height of ten metres and a 500 year design return period.

Roofing calculations are based on $C_{pe} = -0.9$ and $C_{pi} = 0.2$, walling is based on $C_{pe} = -0.65$ and $C_{pi} = 0.2$. A local pressure factor, $K_l = 2.0$ has been used for all roofing spans for both strength and serviceability limit states. Roof spans take into consideration loads incidental to maintenance.

All pressures have been determined assuming wind loading in any direction but which is not affected by topography. The following shielding factors, M_s , have been used for each of the terrain categories: Category 3 = 0.85, Category 2.5 = 0.95, and Category 2 = 1.

Domestic carport and verandah spans only apply to structures not enclosed by peripheral walls. Spans are based on $C_{pn} = -0.9$ and $K_l = 1.5$ 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 shown.

Testing Systems

Stratco have developed purpose built testing equipment for the testing of cladding systems sufficient to ensure the structural adequacy of the product it produces.

Wind Load Conversion

For domestic applications use the appropriate wind classification for the area. To read the span tables for commercial and industrial applications, select the region and category for the area, then convert it to a wind classification using Table 3.0 below.

Compliance

Wind Capacity Tables are based on testing in accordance with AS1562.1-1992 and AS4040.0, 1 & 2-1992. Span tables have been developed by determining relevant wind pressures in accordance with AS4055 for domestic applications and AS/NZS 1170.2 for industrial/commercial applications. Capacity tables are in limit state format.

Maintenance Requirements

Refer to the Stratco 'Selection, Use and Maintenance' brochure for more detailed information about the correct use and maintenance of this product.

Span Definitions

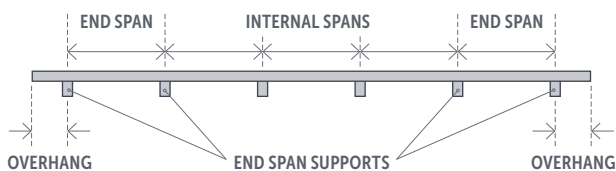


Table 3.0 - Wind Load Conversion

Wind Classification (Domestic)	Region & Category (Commercial/Industrial)
N1	Reg A, Cat 3
N2	Reg A, Cat 2.5 & Reg B, Cat 3
N3	Reg A, Cat 2 & Reg B, Cat 2.5
N4	Reg B, Cat 2

Spans

Table 4.0 - Maximum Recommended Spans (mm)

Span Type	Walling (BMT)		Roofing (BMT)		
	0.40mm	0.42mm	0.40mm	0.42mm	0.48mm
Single Span	1800	1900	800	900	1100
End Span	2400	2500	1200	1350	1650
Internal Span	2600	2700	1400	1500	2000
Un-stiffened Overhang	300	300	250	250	250
Stiffened Overhang	300	300	400	400	450

Roofing: Spans are limited based on foot traffic incidental to maintenance.

Walling: Spans are based on N1 wind loading, refer to 'Spans' table for additional wind allocations.

Table 5.0 - Domestic Carport / Verandah Spans (mm)
Single, End & Internal Spans

Wind Classification	Base Metal Thickness		
	0.40mm	0.42mm	0.48mm
N1	1900	2000	2200
N2	1900	2000	2200
N3	1500	1700	1900
N4	1200	1400	1600

For carport and verandah applications, utilise crawl boards or ladders over roofing to avoid damage during installation and maintenance. Always ensure boards or ladders are stable and will not slide.

Table 6.0 - Spans (mm) - Determined By Wind Speeds For Non Cyclonic Areas

BMT	Application	Span Type	Wind Classification			
			N1	N2	N3	N4
0.40mm	Walling	Single	1800	1450	1250	1150
		End	2400	1900	1500	1350
		Internal	2600	1900	1500	1350
	Roofing	Single	800	800	800	800
		End	1200	1200	1150	1000
		Internal	1400	1400	1150	1000
0.42mm & 0.48mm	Walling	Single	1900	1600	1400	1350
		End	2500	2100	1900	1650
		Internal	2700	2400	1900	1650
0.42mm	Roofing	Single	900	900	900	900
		End	1350	1350	1350	1150
		Internal	1500	1500	1350	1150
0.48mm	Roofing	Single	1100	1100	1100	1100
		End	1650	1650	1650	1500
		Internal	2000	2000	1700	1500

0.40 & 0.42mm BMT Maximus roofing values are applicable for use with steel supports of minimum 0.55mm thickness (G550).

0.40 & 0.42mm BMT Maximus walling values are applicable for use with steel supports of minimum 0.75mm thickness (G550).

0.48mm BMT roofing values are applicable for use with steel supports of minimum 1.0mm thickness (G550).

Note: If fixing 0.48mm BMT Maximus roofing to 0.55mm supports, 0.42mm BMT Maximus roofing spans must be used.

Note: End and Internal spans are applicable for cladding spanning over three or more continuous spans.

Table 7.0 - Wind Capacities (kPa)

BMT	Span Type	Limit State	Span (mm)							
			600	900	1200	1500	1800	2100	2400	2700
0.40mm Roofing & Walling	Single	Serviceability	2.60	1.92	1.36	0.93	0.63	0.45	-	-
		Strength	8.40	7.00	5.70	4.50	3.40	2.39	-	-
	End / Internal	Serviceability	2.45	1.99	1.59	1.27	1.01	0.82	0.70	0.65
		Strength	6.40	5.20	4.18	3.35	2.70	2.24	1.96	1.86
0.42mm Roofing	Single	Serviceability	3.35	2.44	1.71	1.14	0.74	0.51	-	-
		Strength	9.00	7.57	6.24	5.00	3.85	2.80	-	-
0.42mm & 0.48mm Walling	End / Internal	Serviceability	2.46	2.12	1.81	1.54	1.30	1.10	0.93	0.80
		Strength	7.80	6.32	5.06	4.01	3.18	2.56	2.16	1.98
0.48mm Roofing	Single	Serviceability	-	2.90	2.12	1.48	0.98	0.62	0.41	0.34
		Strength	-	9.30	7.73	6.39	5.30	4.45	3.83	3.46
	End / Internal	Serviceability	-	-	2.11	1.85	1.60	1.35	1.11	0.88
		Strength	-	-	6.30	5.07	4.05	3.25	2.66	2.28

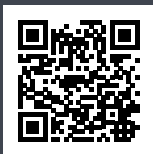
Values shown for 0.40 & 0.42mm Maximus roofing are applicable for use with steel supports of minimum 0.55mm thickness (G550).

Walling values are applicable for use with steel supports of minimum 0.75mm thickness (G550).

0.48mm BMT roofing values are applicable for use with steel supports of minimum 1.0mm thickness (G550).

Note: If fixing 0.48mm BMT Maximus roofing to 0.55mm supports, 0.42mm BMT Maximus capacities must be used.

Note: End / Internal capacities are applicable for cladding spanning over three or more continuous spans.



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How To.

