

**MAXIMUM VISUAL IMPACT,
WE'LL BRING THE
How To.**

STRATCO
MAXIMUS
ROOFING & WALLING



MAXIMUS™ 22 & 33

DESIGN GUIDE: ROOFING AND WALLING

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 steel roof.

Adding more choice and additional features, this deeper, rounder, well-formed Maximus corrugated profile now provides the ultimate solution and adaptability to all steel roofing and walling applications, and is available in unpainted Zinc/Al, an attractive range of pre-painted colours, the striking matt range, as well as Z600 traditional galvanised (*Maximus 22 - SA only*).

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

With the stronger Maximus 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 material and 0.42mm BMT galvanised sheeting, and 686mm cover in both 0.42mm and 0.48mm BMT material. The minimum recommended roof pitch is 3°.

Maximus 33 has a 633mm cover in 0.42mm BMT walling material and 614mm cover in 0.48mm BMT roofing material. The minimum recommended roof pitch is 2°.

Maximus roofing is subject to thermal expansion. The maximum length before an expansion joint is needed is 24 metres for light colours and 16 metres for dark colours. For pan fixed walling applications, it is recommended the maximum length is limited to 15 metres.

MAINTENANCE REQUIREMENTS

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

WATER CARRYING CAPACITY

TABLE 2.0 - 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

MAXIMUS 33

Roof Slope	PEAK RAINFALL INTENSITY (mm/hr)					
	150	200	250	300	350	400
2°	54	41	33	27	23	20
3°	67	50	40	33	29	25
5°	86	65	52	43	37	32
10°	122	92	73	61	52	46
15°	151	113	91	75	65	57

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.

MATERIAL SPECIFICATIONS

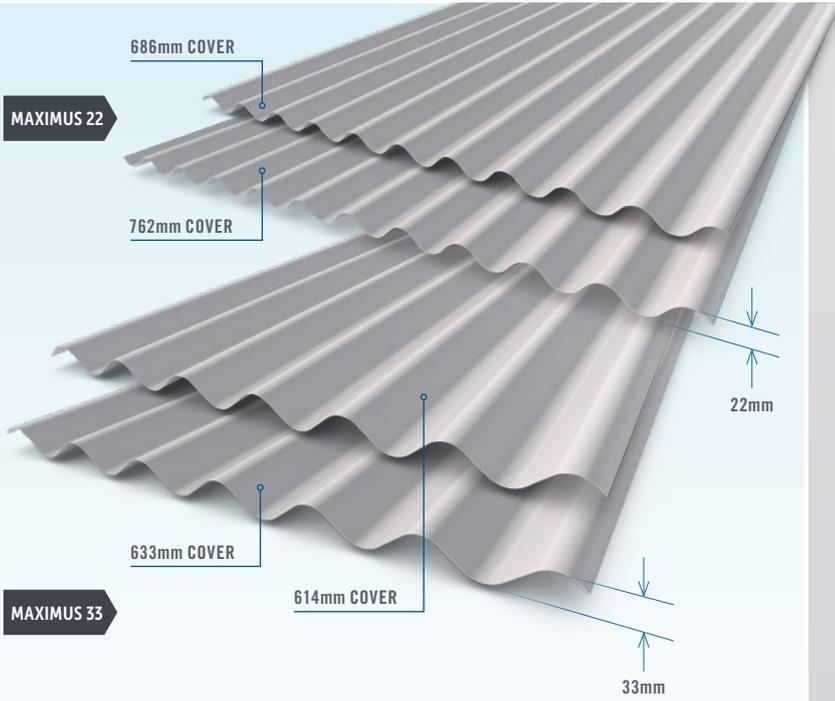
TABLE 1.0

Material Properties	Finish	MAXIMUS 22			MAXIMUS 33	
		0.40mm BMT	0.42mm BMT	0.48mm BMT	0.42mm BMT	0.48mm BMT
Minimum 'AZ' Coating Mass (g/m ²)	Zinc/Al & Colour	150	150	150	150	150
Mass (kg/linear metre)	Zinc/Al	3.31	3.26	3.70	3.26	3.70
	Colour	3.37	3.32	3.76	3.32	3.76
Mass (kg/square metre)	Zinc/Al	4.34	4.75	5.40	5.15	6.03
	Colour	4.42	4.83	5.48	5.24	6.12
Yield (square metre/tonne)	Zinc/Al	230	210	185	194	166
	Colour	226	207	183	191	163
Tensile Strength (MPa)	Zinc/Al & Colour	550	550	550	550	550
Width Coverage (mm)	Zinc/Al & Colour	762	686	686	633	614
Sheet Tolerances (mm)	Length & Width	±5 ±2	±5 ±2	±5 ±2	±5 ±2	±5 ±2
Minimum Roof Pitch	Zinc/Al & Colour	3°	3°	3°	2°	2°

NOTE: 0.42mm BMT Z600 galvanised Maximus 22 sheeting available upon request.



"Maximus corrugated steel has a timeless appeal combined with strength and versatility"



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 above.

SPAN DEFINITIONS



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 11.0 below.

TABLE 11.0 - 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

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.



MAXIMUS 22

TABLE 3.0 - 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.

*0.40mm BMT spans are applicable to 0.42mm galvanised sheeting due to the profiles having the same sheet cover.

TABLE 4.0 - 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.

*0.40mm BMT spans are applicable to 0.42mm galvanised sheeting due to the profiles having the same sheet cover.

TABLE 5.0 - SPANS (mm) - Determined by wind speeds for non cyclonic areas

BMT	Application	Span Type	WIND CLASSIFICATION			
			N1	N2	N3	N4
0.40mm (0.42mm galvanised)	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	Walling	Single	1900	1600	1400	1350
		End	2500	2100	1900	1650
		Internal	2700	2400	1900	1650
	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 6.0 - WIND CAPACITIES (kPa)

BMT	Span Type	Limit State	SPAN (mm)							
			600	900	1200	1500	1800	2100	2400	2700
0.40mm Roofing & Walling (0.42mm galvanised)	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 & Walling	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	-	-
	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	-	10.37	8.61	7.12	5.90	4.95	4.26	3.85
	End / Internal	Serviceability	-	-	2.11	1.85	1.60	1.35	1.11	0.88
		Strength	-	-	7.00	5.63	4.51	3.62	2.97	2.57

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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TABLE 7.0 - MAXIMUM RECOMMENDED SPANS (mm)

Span Type	Walling (BMT)	Roofing (BMT)
	0.42mm	0.48mm
Single Span	2400	1300
End Span	2700	1600
Internal Span	2700	2500
Un-stiffened Overhang	400	250
Stiffened Overhang	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 8.0 - DOMESTIC CARPORT / VERANDAH SPANS (mm)
 Single, End & Internal Spans

Wind Classification	Base Metal Thickness
	0.48mm
N1	2700
N2	2450
N3	2200
N4	2100

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 9.0 - SPANS (mm) - Determined by wind speeds for non cyclonic areas

BMT	Application	Span Type	WIND CLASSIFICATION			
			N1	N2	N3	N4
0.42mm	Walling	Single	2400	2200	1900	1800
		End	2700	2650	2350	1800
		Internal	2700	2650	2350	1800
0.48mm	Roofing	Single	1300	1300	1300	1300
		End	1600	1600	1600	1600
		Internal	2500	2350	1800	1600

0.42mm BMT Maximus walling values are applicable for use with steel supports of minimum 0.75mm thickness, G550.
 0.48mm BMT Maximus roofing values are applicable for use with steel supports of minimum 1.0mm thickness, G550.
 Note: End and Internal spans are applicable for cladding spanning over three or more continuous spans.

TABLE 10.0 - WIND CAPACITIES (kPa)

BMT	Span Type	Limit State	SPAN (mm)						
			900	1200	1500	1800	2100	2400	2700
0.42mm Walling	Single	Serviceability	2.80	2.27	1.80	1.40	1.06	0.78	-
		Strength	8.53	6.96	5.58	4.40	3.41	2.62	-
	End / Internal	Serviceability	2.30	2.04	1.81	1.59	1.39	1.21	1.05
		Strength	7.35	5.55	4.44	3.42	2.69	2.25	2.10
0.48mm Roofing	Single	Serviceability	-	2.39	1.97	1.59	1.24	0.93	0.65
		Strength	-	9.50	7.67	6.23	5.17	4.49	4.20
	End / Internal	Serviceability	-	2.35	1.97	1.66	1.41	1.22	1.10
		Strength	-	7.82	6.35	5.16	4.27	3.67	3.36

Values shown for 0.42mm Maximus are applicable for walling applications and use with steel supports of minimum 0.75mm thickness (G550).
 0.48mm Maximus values are applicable for roofing applications and minimum 1.0mm supports (G550).
 Note: In roofing applications, if fixing 0.48mm BMT Maximus to 0.75mm BMT supports, 0.42mm BMT Maximus capacities are applicable.
 Note: End / Internal capacities are applicable for cladding spanning over three or more continuous spans.



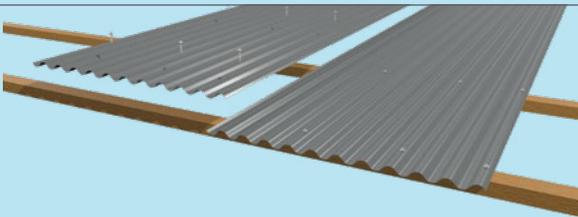
FIXING RECOMMENDATIONS

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.

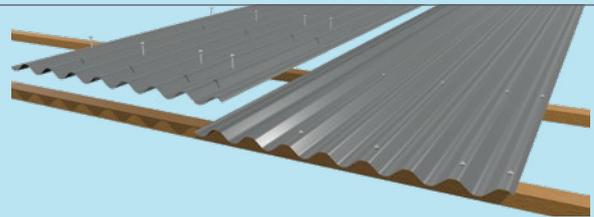
MAXIMUS 22 - ROOFING LAYING PROCEDURE

» PREVAILING WIND LAYING DIRECTION «



MAXIMUS 33 - ROOFING LAYING PROCEDURE

» PREVAILING WIND LAYING DIRECTION «



MAXIMUS 22 - FASTENER POSITIONS

WALLING - 0.40mm BMT, 0.42mm BMT (galvanised only) - 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, 0.42mm BMT (galvanised only) - 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



MAXIMUS 33 - FASTENER POSITIONS

WALLING - 0.42mm BMT - 633mm Cover
Single, End & Internal Spans
3 screws/sheet/support



ROOFING - 0.48mm BMT - 614mm Cover
Single, End & Internal Spans
3 screws/sheet/support



*Note: End and internal spans are applicable for cladding spanning over three or more continuous spans.
Note: For double spans, reduce strength limit state wind capacity or sheet span by 20% from that published for end span application.*

MAXIMUS 22 & 33 - FASTENER SIZE SELECTION

WALLING - Pan Fixing

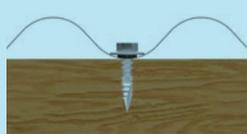
All screws must have a neoprene washer for a weather tight seal

FIXING TO STEEL



M6 x 25mm
TS self drilling screw

FIXING TO TIMBER



M6 x 25mm
TS self drilling screw

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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