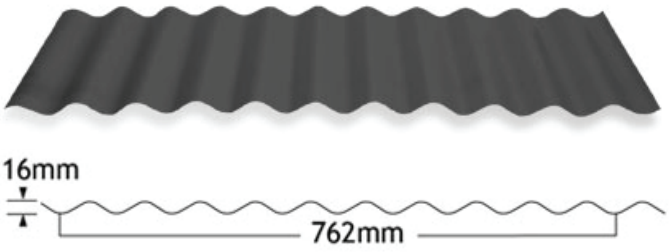
QUEENSLAND
SHEET METAL

CORRUGATED
TECHNICAL MANUAL

CORRUGATED



Corrugated sheeting combines great functional benefits with a stylish look that will complement any exterior.

With its classic look and timeless appeal, corrugated sheeting is a versatile profile that can be used in many applications including roofing, walling and fencing. It complements both contemporary and traditional architecture to put the finishing touches on the exterior of any building project.

Corrugated is available in an unequalled range of colours and finishes including Zincalume®, Colorbond®, MagnaFlow™ and the luxurious UniCote® LUX range.

Features & Benefits

- 762mm cover and 16mm rib height
- Available in 0.42BMT and 0.48BMT
- Hi-tensile steel - strong and lightweight
- 5° minimum pitch
- Cut to length
- Versatility - suitable for commercial/industrial and residential roofing and wall cladding

Materials

Zincalume® - Aluminium / Zinc / Magnesium alloy coated steel coil, 125grams/m² coating weight. Metallic coating conforms to AS1397:2011. Suitable for ISO9223:2012 Atmospheric Classifications C1 – C3

Colorbond® - Pre-painted Aluminium / Magnesium / Zinc alloy coated steel coil, 100grams/m² coating weight. Metallic coating conforms to AS1397:2011, pre-painted finish conforms to AS/NZS2728:2013. Suitable for ISO9223:2012 Atmospheric Classifications C1 – C3

MagnaFlow™ - Pre-painted Zinc / Aluminium / Magnesium alloy coated steel coil, 240grams/m² coating weight. Metallic coating conforms to AS1397:2011, pre-painted finish conforms to AS/NZS2728:2013. Suitable for ISO9223:2012 Atmospheric Classifications C1 – C4

Sheeting max (kg/m2 of roof area)		
	Zincalume®	Corrugated®
0.42mm BMT	4.28	4.35
0.48mm BMT	4.86	4.93

Testing

Queensland Sheet Metal (QSM) Corrugated sheeting has been assessed for suitability for use in non-cyclonic roof and wall cladding applications in accordance to AS1562.1:2018, applicable to both residential and commercial applications. Metallic coated materials comply with AS1397:2011 and pre-painted materials comply with AS/NZS2728:2013.

Installation of product shall be in compliance with AS1562.1:2018 and SA HB-39:2015, National Construction Code (NCC) and relevant QSM Technical Bulletins.

Adverse Conditions

QSM Corrugated sheeting will give excellent durability in almost all locations. It is however important to choose the correct coating for each environment as shown in the table below. Durability recommendations do vary based on the application of the product, in roofing or walling installations. Please read the tables below carefully.

Suitability of coating type	Roof sheeting - site exposure condition				Wall cladding – distance from marine environment
	Mild (ISO Category 1-2)	Moderate (ISO Category 2)	Marine (ISO Category 3)	Severe Marine (ISO Category 4)	
Zincalume®					>1km
Colorbond®					>1km
MagnaFlow™					*

* Severe marine begins 100 - 400m from the coast and may extend inland depending on local conditions.

These are general guidelines only. Building location, design and aspect need to be taken into account. To ensure warranty will be given, check with QSM before using in these areas.

Material Compatibility

Due diligence needs to be applied to ensure that all materials are compatible. Corrosion may occur when incompatible materials are either in direct contact, immersed in a common electrolyte, receive inert drainage or drainage from incompatible materials.

As a general rule for metallic coated and pre-painted materials, always avoid direct contact with copper, lead, tantalised timber, Monel, uncoated steel, stainless steel and concrete/mortar.

Drainage from inert materials must not flow onto galvanised material. Inert materials include glass, aluminium, glazed ceramic tiles, pre-painted steel and metallic coated steel.

More highly corrosive environments require additional care, the effects of marine and industrial environments can extend long distances from the source and create unique corrosive challenges.

QSM are here to assist, speak to your representative for further assistance.

Spans

Spans (mm) determined by wind speed – 3 Fasteners Per Sheet					
BMT	Application	Span Type	Wind Classification		
			N1	N2	N3
0.42	Roofing	Internal	1200	1200	1200
		Double	900	900	900
		End	900	900	900
	Walling	Internal	2600	2350	2050
		Double	2150	1750	1550
		End	2150	1750	1550
0.48	Roofing	Internal	1600	1600	1600
		Double	1200	1200	1200
		End	1200	1200	1200
	Walling	Internal	2700	2450	2100
		Double	2350	1950	1700
		End	2350	1950	1700

Spans (mm) determined by wind speed – 5 Fasteners Per Sheet					
BMT	Application	Span Type	Wind Classification		
			N1	N2	N3
0.42	Roofing	Internal	1200	1200	1200
		Double	900	900	900
		End	900	900	900
	Walling	Internal	2600	2300	2100
		Double	2150	1900	1750
		End	2150	1900	1750
0.48	Roofing	Internal	1600	1600	1600
		Double	1200	1200	1200
		End	1200	1200	1200
	Walling	Internal	2700	2500	2300
		Double	2350	2100	1900
		End	2350	2100	1900

Table based on testing in accordance to AS1562.1:2018, AS4040.0:1992 (R2016) and AS4040.2:1992 (R2016, Amd.1 2018) and wind loading to AS4055:2012. Internal spans must have both end spans reduced by 20%. Roof sheets are to be fastened with minimum 12 gauge screw and wall sheets are to be fastened with minimum 10 gauge screw, having a non-conductive sealing washer and minimum corrosion coating of Class 4. Table based on fixing to minimum steel support thickness of 1.50mm BMT.

Pressures

Wind Pressure Limit State Capacities – 3 Fasteners per Sheet										
BMT	Type	Limit State	Span (mm)								
			600	900	1200	1500	1800	2100	2400	2700	3000
0.42	Internal	Serviceability	2.41	1.93	1.42	1.23	1.03	0.84	0.65	0.46	0.27
		Strength	10.33	9.45	6.08	5.15	4.22	3.82	3.43	2.69	1.65
	Double	Serviceability	2.15	1.68	1.39	1.05	0.74	0.60	0.44	0.31	0.20
		Strength	10.33	6.83	4.52	3.91	3.30	3.18	2.53	2.01	1.58
	End	Serviceability	2.15	1.68	1.39	1.05	0.74	0.60	0.44	0.31	0.20
		Strength	10.33	6.83	4.52	3.91	3.30	3.18	2.53	2.01	1.58
0.48	Internal	Serviceability	4.12	2.87	1.42	1.25	1.09	0.92	0.76	0.59	0.43
		Strength	12.43	10.03	7.18	6.37	4.50	4.08	3.66	2.99	2.15
	Double	Serviceability	4.12	2.07	1.39	1.15	0.91	0.72	0.56	0.39	0.31
		Strength	11.41	9.43	7.14	5.62	4.37	3.69	3.04	2.53	2.10
	End	Serviceability	4.12	2.07	1.39	1.15	0.91	0.72	0.56	0.39	0.31
		Strength	11.41	9.43	7.14	5.62	4.37	3.69	3.04	2.53	2.10

Wind Pressure Limit State Capacities – 5 Fasteners per Sheet										
BMT	Type	Limit State	Span (mm)								
			600	900	1200	1500	1800	2100	2400	2700	3000
0.42	Internal	Serviceability	7.00	4.79	2.60	2.20	1.50	1.00	0.69	0.50	0.27
		Strength	12.43	11.66	7.53	6.80	6.07	5.34	4.62	3.89	3.16
	Double	Serviceability	6.97	4.55	2.54	1.50	0.89	0.61	0.42	0.30	0.24
		Strength	11.41	10.50	7.25	6.80	6.07	5.26	4.35	3.60	2.98
	End	Serviceability	6.97	4.55	2.54	1.50	0.89	0.61	0.42	0.30	0.24
		Strength	11.41	10.50	7.25	6.80	6.07	5.26	4.35	3.60	2.98
0.48	Internal	Serviceability	7.08	5.08	3.08	2.64	1.82	1.26	0.90	0.65	0.43
		Strength	12.43	11.12	7.89	7.09	6.28	5.47	4.66	3.85	3.04
	Double	Serviceability	6.97	5.08	2.99	1.82	1.18	0.79	0.54	0.36	0.23
		Strength	11.41	10.31	7.89	7.09	6.28	5.47	4.66	3.85	3.04
	End	Serviceability	6.97	5.08	2.99	1.82	1.18	0.79	0.54	0.36	0.23
		Strength	11.41	10.31	7.89	7.09	6.28	5.47	4.66	3.85	3.04

Table based on testing in accordance to AS1562.1:2018, AS4040.0:1992 (R2016) and AS4040.2:1992 (R2016, Amd.1 2018), to be used in conjunction with AS1170.2:2011 (R2016). Internal spans must have both end spans reduced by 20%. Roof sheets are to be fastened with minimum 12 gauge screw and wall sheets are to be fastened with minimum 10 gauge screw, having a non-conductive sealing washer and minimum corrosion coating of Class 4. Table based on fixing to minimum steel support thickness of 1.50mm BMT.

Foot Traffic

Foot traffic limits for QSM Corrugated sheeting are based on the accepted industry practise of designing traffic limitations on typical maintenance work. This equates to a single person with a small tool kit up to a total mass of 110kg (1.1kN load).

Walking on QSM Corrugated profile requires that feet are placed evenly over at least two ribs. Walk as close as practical to the supports or ideally walk directly on the screw line.

Foot traffic limited spans (mm)		
BMT	**Span type**	**Maximum span (mm)**
0.42	Internal	1200
	Double	900
	End	900
0.48	Internal	1600
	Double	1200
	End	1200

Testing has been undertaken in accordance to AS1562.1:2018 and AS4040.0:1992 (R2016) and AS4040.2:1992 (R2016, Amd.1 2018).

Fasteners

Fastener Selection

Fastening screws are to be hex head and must be fitted with a non-conductive sealing washer for both roof and wall applications. Screws must conform to AS3566 with a corrosion resistant coating to Class 4 as minimum. Use of load spreading washers for high wind zones and for the fixing of flashings is encouraged. Fastener lengths specified below are based on using 60mm blanket, thicker insulation may require increased screw lengths.

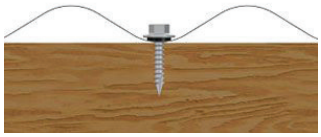
QSM Corrugated Screws (Non-Cyclonic only)			
Application	Fixing to Timber	Fixing to Steel ≤1.2	Fixing to Steel ≥1.2
Crest Fixed Roof	12g x 50mm Type 17 or M6 x 50mm Roof Zips®	M6 x 50mm Roof Zips® or 12g x 50mm Teks®	M6 x 50mm Roof Zips® (up to 1.9mm) or 12g x 50mm Teks®
Valley Fixed Wall	12g x 25mm Type 17 or 10g x 25mm Designer Head Zips®	10g x 25mm Designer Head Zips® or 10g x 16mm Teks® (over 1.0mm)	10g x 16mm Teks® or 10g x 25mm Designer Head Zips® (up to 1.9mm)

When fixing to steel section of 0.75mm BMT or less, use Type 17 or proprietary hybrid point screw. Metal self-drilling screws (such as Buildex® Teks®) should not be used in steel less than 1.0mm BMT. Buildex® Roof Zips® may be used both in steel (up to 1.9mm) and timber.

Buildex® Designer Head Zips® may be used both in steel (up to 1.9mm) and timber. Designer Head Zips® are an ideal solution for valley fixing QSM Corrugated, resulting in a pleasing and discrete finish.

Crest fixed into timber

Valley fixed into timber



Crest fixed into steel

Valley fixed into steel

Fastener Locations

Roofing: Three Fastener Location (internal supports)

Roofing: Five Fastener Location (end supports)

Walling: Three Fastener Location (internal supports)

Walling: Five Fastener Location (end supports)

Water Carrying Capacity

Minimum Roof Slope (degrees)								
Rainfall intensity (mm/hr)	**Total roof run length (m)**							**Max roof run length (m) at 5°min slope**
	10	**15**	**20**	**25**	**30**	**35**	**40**	
150	-	-	-	5.5	9.1	14	19	24
175	-	-	5.0	8.4	14	20	-	20
200	-	-	6.6	12	19	-	-	18
225	-	5.0	9.1	16	-	-	-	16
250	-	5.5	12	21	-	-	-	14
275	-	7.2	16	-	-	-	-	13
300	-	9.1	19	-	-	-	-	12
325	-	12	23	-	-	-	-	11
350	5.0	14	-	-	-	-	-	10
375	5.5	16	-	-	-	-	-	9
400	6.6	19	-	-	-	-	-	9

Drainage capacity calculated in accordance to AS1562.1:2018

Installation

- QSM Corrugated sheeting should be installed into the prevailing weather
- Each sheet should be laid accurately to cleanly lap the adjoining roof sheet without over or under lapping
- Where sheeting spans exceed 900mm for roofing and 1200mm for walling, install a side lap fastener mid-span
- For roofing, the valleys of each corrugation need to be turned up at the crest of the roof
- At the completion of each days work, the roof surface needs to be cleaned to remove all traces of metal debris and swarf. Typically this is achieved by air blower, hose down or sweeping
- Good trade practise should be applied, such as that contained in SA HB39:2015

Ordering

- QSM Corrugated is ordered cut to length.
- Manufacturing tolerance on the length is +0/-15mm.
- Delivery can usually be made within 24-48 hours of payment depending on location, quantity and availability.
- Please ensure lengths are within the limit of local Transport Authority regulations.
- Be sure that a suitable arrangement has been made for truck unloading as this is the responsibility of the receiver.

Maintenance

- Roofing and cladding materials that are not exposed to rainfall should be washed down at least once every six months (more often in marine environments) to remove build-up of corrosive elements.
- Prior to installation, materials must be kept clean and dry. Ensure that sheeting packs are covered, air flow is adequate to eliminate condensation and water is not allowed to pond. Should materials get wet, sheeting must be separated and thoroughly dried.
- Sheeting should be handled with care to both avoid installer injury and damage to the product. Cutting of sheets must only be done with tin snips, shears or cold-cutting saw, so as to avoid the damage caused by abrasive cutting methods (i.e angle grinder).

QUEENSLAND
SHEET METAL

PREMIUM AFFORDABLE ROOFING SUPPLIES

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