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Where strength matters

RibForm™

MILLFORM RIBFORM™ SHEET METAL DESIGN GUIDE

CORRUGATED METAL

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With the strength of steel, Millform is dedicated to building a better Australia. We provide quality products, ensure efficient delivery standards, and offer proven solutions for commercial, construction, industrial, and government clients.

You can find other Millform items on our website.

www.millform.com.au

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GENERAL INFORMATION

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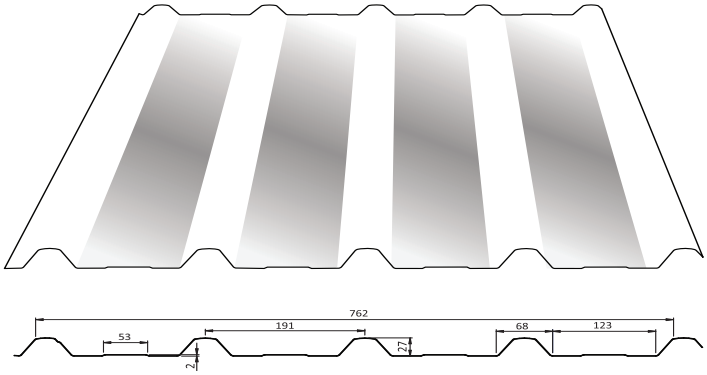

The Strength and Style of *RibForm™* Sheet Metal

Corrugated sheet metal or ***RibForm™*** products provide unmatched strength, durability, and style. These products have been proven to work across multiple locations and applications. Corrugated sheet metal products have been popular in Australia for more than one hundred years.

RibForm™ Sheet Metal combines supreme strength and adaptability with easy handling and installation. This practical and versatile solution is ideal for roofing and walling applications. The profile of these products blend perfectly with contemporary homes, traditional homes, industrial buildings, rural sheds, and domestic fencing applications.

These products are made from high-tensile steel for the ultimate in strength, durability, and impact resistance. This product is available in a variety of lengths and has a non-syphoning side lap to reduce the risk of moisture transfer between sheets. Corrugated sheet metal or ***RibForm™*** Sheet Metal products are available in unpainted zinc and are also sold in an attractive range of pre-painted colours.

Custom Designs for All Applications

RibForm™ Sheet Metal products are available in multiple lengths for a wide array of applications. For lengths longer than 1.2 m, the sheets are rolled to the specific length required before being handled and transported to your delivery address. If lengths longer than 10 m are required, you should consult with our team for advice on handling and transport.

Whatever size you require, we offer a range of solutions to give your roof a more professional finish. From roofing accessories to flashings, we combine professional advice with quality products and reliable delivery standards.

Technical details for all products are present in this installation guide.

Incompatible Materials

The easiest way to reduce corrosion is to keep incompatible metals apart. For example, zinc and pre-painted steel shouldn't be used with lead, copper, and Monel alloys. While pure zinc and galvanised steel can be used with zinc, it's important to avoid water run-off onto galvanised material. Fixing materials are also critical, with all metals needing to be compatible with rivets and self-drilling screws.

Handling and Cutting of Corrugated Sheet Metal or *RibForm™* Sheet Metal

It's important to wash your hands and wear clean gloves whenever you're handling corrugated sheet metal. Zinc alloys can mark easily, and lead and black pencils promote rusting on steel materials. Corrugated sheet metal or ***RibForm™*** is best cut using tin snips for small material sizes and a power saw with a steel cutting blade or power nibbler for larger sizes.

You should avoid using abrasive discs in order to prevent coating damage and burred edges. Cutting sheets on the ground is advised in most situations, and both swarf and metal filings should be removed continuously during the installation process. Dispose of off-cuts carefully to avoid accidents, and keep your work area organised to avoid making mistakes.

Insulation and Sealants

For domestic roofing applications, the use of blanket insulation is advised to control environmental variables. Blanket insulation assists with temperature regulation, condensation, and noise control. ***RibForm™*** Sheet Metal can be used with blanket insulation up to 55 mm in thickness. If you want to work with thicker materials, longer fasteners are required and installation can be more difficult. All silicone sealants used should be non-acetic, amine free, neutral cure, and suitable for roofing and guttering applications.

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Walking on *RibForm™* Sheet Metal Sheeting

It is often necessary to walk on roofing sheets during the installation or maintenance process. When you walk on ***RibForm™*** Sheet Metal roofing, it's essential to walk over the purlins to avoid damage. You should spread your weight evenly over multiple corrugations and wear appropriate flat rubber shoes. Crawl boards are recommended for sensitive carport and veranda applications.

Ordering and Delivery

RibForm™ metal sheets are available in custom lengths available to maximise design options and help minimise waste. ***RibForm™*** Sheet Metal is sold as unpainted zinc, and it's also available in a range of pre-painted colours. Delivery is fast and efficient, with delivery time based on the size and type of order along with the delivery location. A one-tonne maximum is typically applied to larger packs for reasons of safety and logistics.

Customers are responsible for unloading the truck upon delivery. The details of this process should be arranged before ordering to avoid waiting times. Spreaders and slings should be used when unloading to prevent damage. Portal frames, braced roof trusses, and other structural members used to hold packs must be of sufficient strength for safety reasons.

Maintenance Requirements

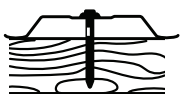
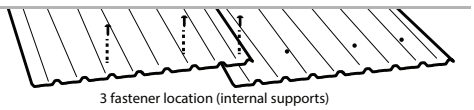
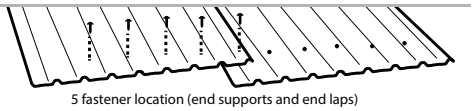
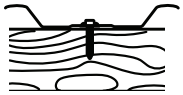
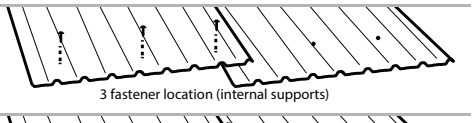
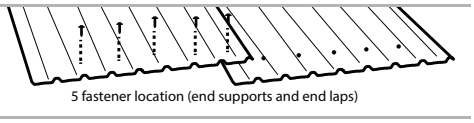
RibForm™ Sheet Metal performance over time is dependent on correct application, maintenance, and storage. Maintenance is needed on a regular basis to remove dirt, salt, and pollutants from the material. Cleaning routines should be carried out more often when the material is used or stored in severely corrosive environments. All screws and other components used in the installation should have the same life expectancy as the ***RibForm™*** materials. ***RibForm™*** Sheet Metal packs should always be stored in dry above-ground conditions while on site. If the sheets have become wet, they should be separated, wiped down, and placed in an open environment to dry.

Fixing Recommendations

During the fixing process, the ***RibForm™*** sheet should be placed on the preceding sheet with a side lap of 1.5 corrugations. It's important to think about wind conditions during this process. This procedure is shown below.

Sheets should always be fixed within the recommended support spacings. Avoid stretching the width of the sheet during installation, as this can allow rain and wind to enter. Side lap fixing is recommended to provide support for walking and maintain a weatherproof seal.

8 x 12 mm self-drilling stitching screws or 3.2 mm blind rivets are recommended. All rivets should be sealed to prevent water penetration. Side lap fasteners should be secured mid-span whenever spans exceed 900 mm for roofing or 1,200 mm for walling. For roofing applications, at the end of the sheets, the valleys of each corrugation should be turned up the crest of the roof and down into the gutter with a turn up/down tool.

	fastener size selection		Prevailing Wind / Laying Direction
	Fixing to Steel	Fixing to Timber	
ROOFING Crest fixing All roofing screws must have a neoprene washer for a weather tight seal	 12 x 35mm Self drilling and tapping screw or M6 x 50mm TS felf drilling screw (for 0.55mm thick use M6 x 50 TS self drilling screws)	 12 x 50mm Type 17 hex head screw or M6 x 50mm TS self drilling screw	 3 fastener location (internal supports)  5 fastener location (end supports and end laps)
WALLING Pan fixing Fasten adjacent to overlapping rib	 10 x 16mm Self drilling and tapping screw with neoprene washer	 10 x 25mm Type 17 hex head screw with neoprene washer	 3 fastener location (internal supports)  5 fastener location (end supports and end laps)

The above fastener sizes are suitable for fixing over an insulation blanket up to 55mm thick, for thickness up to 100mm, the next standard screw length to that indicated is to be used

PRODUCT RANGE & PROPERTIES

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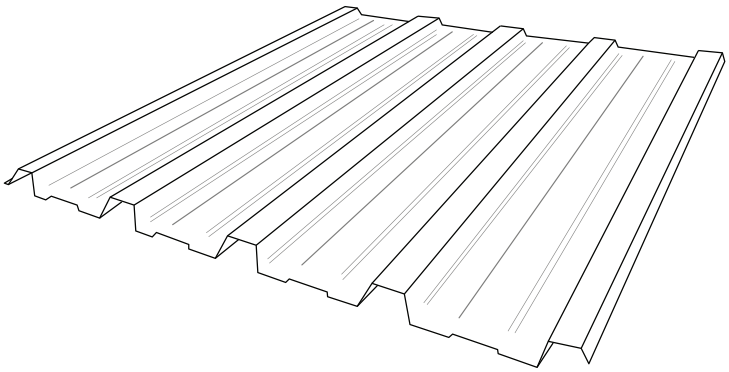
Using Corrugated Sheet Metal or *RibForm™* Sheet Metal

Corrugated sheet metal or ***RibForm™*** Sheet Metal will have a long and useful life in most situations. When installed as a roofing material, a lifespan in excess of 30 years is typical. While this lifespan can be greatly reduced in coastal and industrial environments, it is stronger and more durable than many other roofing solutions.

Zinc and pre-painted steel should not be used in certain environments, including areas that adjoin swimming pools and spas. It's also important to avoid direct contact with moisture, including dirt, soil, compost, and paving sand materials. Concrete should not be poured against zinc materials, and severe environments should be avoided to ensure durability.



RIBFORM - CORRUGATED SHEET METAL

MATERIAL PROPERTIES	FINISH	0.35 BMT	0.42 BMT	0.48 BMT
Total Coated Thickness (TCT) mm	Zinc	0.40	0.47	0.53
	Colour	0.43	0.50	0.56
Mass (kg/linear metre)	Zinc	2.74	3.26	3.70
	Colour	2.79	3.32	3.76
Mass (kg/square metre)	Zinc	3.60	4.28	4.86
	Colour	3.67	4.35	4.93
Yield (square metre/tonne)	Zinc	277.9	233.8	205.9
	Colour	272.3	229.8	202.8
Tensile Strength (MPa)	Zinc & Colour	550	550	550
Width Coverage (mm)	Zinc & Colour	762	762	762
Sheet Tolerances (mm)	Length & Width	±5 ±2	±5 ±2	±5 ±2
Minimum Roof Pitch	Zinc & Colour	N/A	2˚	2˚

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PERFORMANCE TESTING

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For affordable pre-painted steel we trust UniCote® Steel. UniCote® is tested and manufactured to withstand the harshest Australian conditions. UniCote® is backed by a strong warranty, so you know it's made to last.

Heat Resistance
Suitable for continuous service up to 100°C. Continuous service at higher temperatures may cause some colour change and damage to the paint film.

Scratch Resistance
Good stratch resistance. Testing includes needle scratch test - no marking of paint surface when a needle with up to a 2kg weight attached is drawn across. AS 2331.4.7.

Salt Spray
Meets the requirements of AS/NZS2728:2013.

Humidity Resistance
Meets the requirements of AS/NZS2728:2013.

Bend Test
No loss of adhesion or paint cracking when bent around a diameter equal to five times the thickness of the sheet.

Impact Resistance
No loss of paint adhesion after a test piece is struck on the reverse side with a specified force, in line with the test methodology.

QUV Resistance (durability of coating system)
Meets the requirements of AS/NZS2728:2013.

Note: Tests are conducted on a flat panel.

COLOUR CHART

Whether your home is classic or modern, you will find the perfect colours to suit your home with our UniCote® colour range. Choose from any of the 22 available colours below.

Smooth Cream / COLORBOND® **Classic Cream™**	**Wallaroo /** COLORBOND® **Wallaby®**
Off White / COLORBOND® **Surfmist®**	**Jasmin Brown /** COLORBOND® **Jasper®**
Merino / COLORBOND® **Paperbark®**	**Heritage Red /** COLORBOND® **Manor Red®**
Dusk / COLORBOND® **Evening Haze®**	**Territory /** COLORBOND® **Terrain®**
Gull Grey / COLORBOND® **Shale Grey™**	**Basal /** COLORBOND® **Basalt®**
Birch / COLORBOND® **Dune®**	**Slate Grey /** COLORBOND® **Woodland Grey®**
Coventry / COLORBOND® **Cove®**	**Monolith /** COLORBOND® **Monument®**
Armour Grey / COLORBOND® **Windspray®**	**Iron Grey /** COLORBOND® **Ironstone®**
Mist Green / COLORBOND® **Pale Eucalypt®**	**Caulfield Green /** COLORBOND® **Cottage Green®**
Gulf / COLORBOND® **Gully®**	**Mountain Blue /** COLORBOND® **Deep Ocean®**
Manteal / COLORBOND® **Mangrove®**	**Ebony /** COLORBOND® **Night Sky®**

Note: All colours shown above are indicative only. Slight variations may occur from the pre-painted metal. Equivalent colour names listed are trademarks of BlueScope Steel Limited and used only for comparison. The use of colour names in any Rollsec document indicates no more than the colour of the product supplied or a colour equivalency.

DESIGN & SPECIFICATIONS

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Design Considerations

RibForm™ Sheet Metal has a coverage of 762mm, with the minimum recommended roof pitch being two degrees or 1 in 30. These measurements are important, as ***RibForm™*** Sheet Metal roofing is subject to thermal expansion. Darker coloured sheets are affected more, and spring curved sheeting also needs additional consideration. The maximum length before an expansion joint is 24 m for light colours and 16 m for dark colours. For spring curved sheeting, this distance is 20 m for light colours and 16 m for dark colours.

Spring Curving

RibForm™ Sheet Metal roofing can be spring curved using purlins at a maximum spacing of 800 mm for .42 mm BMT and 1,000 mm for .48 mm BMT. The curve must have a minimum radius of 12 m for .42 mm BMT and 10 m for .48 mm BMT. The maximum radius should be 35 m to allow for sufficient drainage over a crest. The side laps must be sealed wherever the roof pitch is less than the recommended minimum.

Spans and Applications

Spans should be calculated carefully based on intended application and sheeting sizes. Spans are determined by wind speeds for non-cyclonic areas.

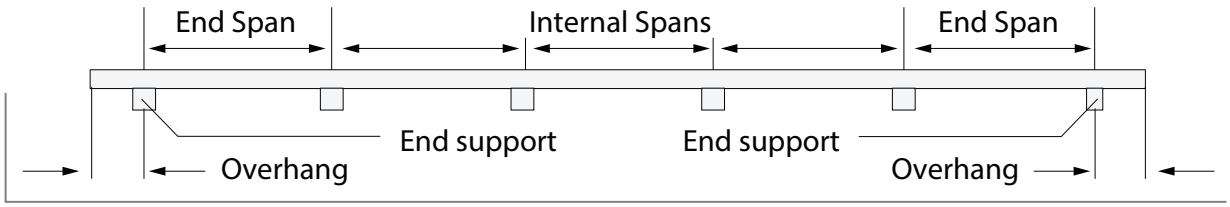
- For domestic applications, pressures and spans are based on the following maximum: Eaves at a height of 6 m, roof pitch at 35 degrees, and total roof height at 8.5 m.

- For commercial and industrial applications, tables are based on a maximum overall height of 10 m and a 500-year design return period.

Roofing calculations are based on Cpe=-0.9 and Cpi=0.2, and walling calculations are based on Cpe=-0.65 and Cpi=0.2. A local pressure factor of Kl=2.0 has been used for all roofing and walling spans to meet both strength and serviceability limit states. Roof spans allow for loads incidental to maintenance.

All pressures have been determined based on neutral geographic conditions where wind loading in any direction has not been affected by topography. The following shielding factors have been used for each of the terrain categories: Category 3 = 0.85, Category 2.5 = 0.95, and Category 2 = 1.

Carport and veranda spans only apply to structures that are not enclosed by peripheral walls. Spans are based on Cpn=-0.9 and Kl=1.5 applied over the entire span. While these measurements are suitable for all span types, loads on supporting purlins may limit these spans.



Span Definitions

Compliance

Wind capacity tables are based on testing in accordance with AS1562.1-1992 and AS4040.0, 1 & 2-1992.

WIND LOAD CONVERSION

Wind Classification (Domestic)	Region & Category (Commercial/Industrial)
N1 (W28)	Reg A, Cat 3
N2 (W33)	Reg A, Cat 2.5 – Reg B, Cat 3
N3 (W41)	Reg A, Cat 2 – Reg B, Cat 2.5
N4 (W50)	Reg B, Cat 2

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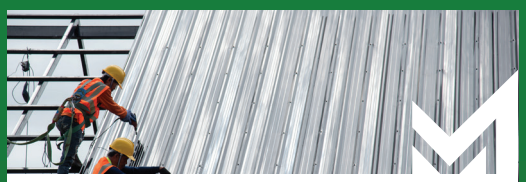
TOPHAT & BATTENS

PURLIN & CHANNEL

HOOKFAST PURLIN BRIDGING SYSTEM



ROOFING & WALLING

ROOFING ACCESSORIES

JUNCTION STUD & FACADE SYSTEM

SLAB & SPIRAL DUCT

MILLFORM OFFICE & MANUFACTURING FACILITY

Sydney
22 Shale Place, Eastern Creek, NSW, 2766
Ph. (02) 9832 6900

Albury
101 Ceres Drive, Albury, NSW, 2640
Ph. (02) 6025 4377

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QLD, NSW, ACT, VIC, TAS, WA, NT

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Version 2.1

All reasonable care has been taken to present accurate information at the time of publication. All recommendations related to the use of Millform products are made without a guarantee. Many factors are beyond our control, and all information presented is meant as a guide only. It is the customer's responsibility to ensure that all products are suitable for their intended purpose. Millform reserves the right to change product specifications and recommendations at any time without prior notice. The Millform logo is registered and protected under Australian law.

SUSTAINABLE CERTIFICATION ISO 9001

SUSTAINABLE CERTIFICATION ISO 45001