Formed with
ColorLume® VF-20L
Galvalume® (AZM 150)

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ColorLume® is a registered trade mark of Yieh Phui Enterprise Co., Ltd

We are aware of the importance of having shelter over our heads.
We also understand overheads.
Talk to us about our competitive pricing and services.
We are standing by to receive your call.

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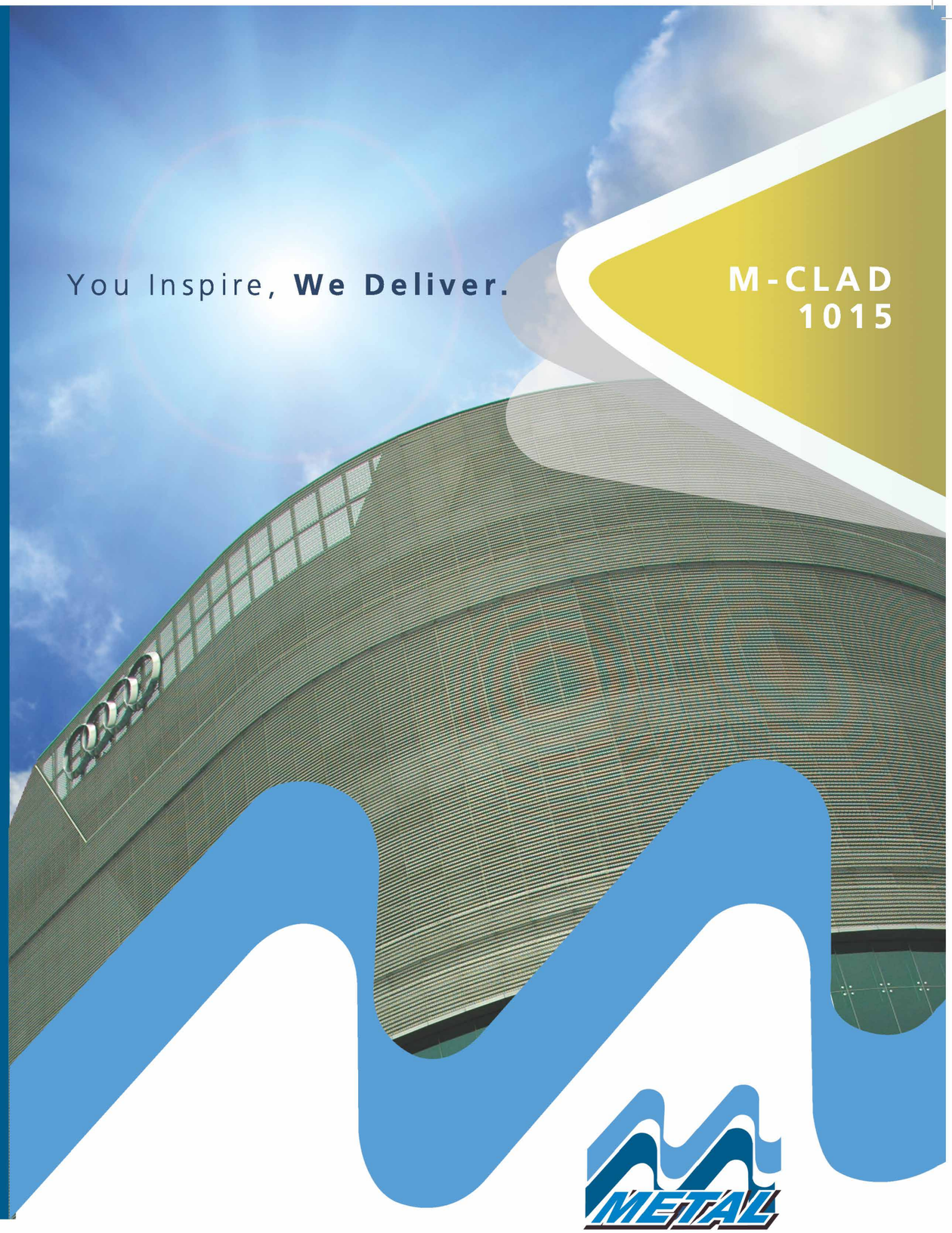
You Inspire, **We Deliver.**

M-CLAD 1015



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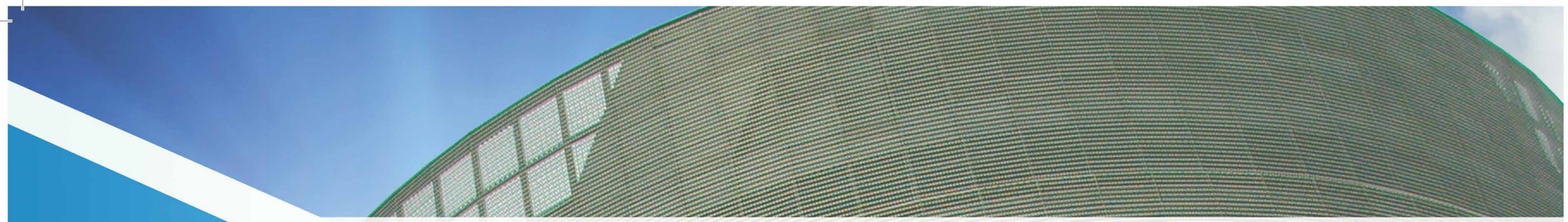


M Metal - a game changer

M Metal is a Malaysia-based manufacturer of high quality steel and non-steel roofing and walling products.

The company was established in response to what we saw was a growing industry need for a responsible supplier, which believes in the value of forging partnerships with stakeholders in order to deliver innovative, reliable and customized solutions. It is our breadth and depth of specialized knowledge, combined with our stakeholders' awareness of their client needs, which results in a win-win collaboration.

Our sense of responsibility extends to workplace safety. We strongly believe that good safety equates good business. Through regular training sessions, we make sure that our workers, and also those of our contractors, are able to do a good job safely.

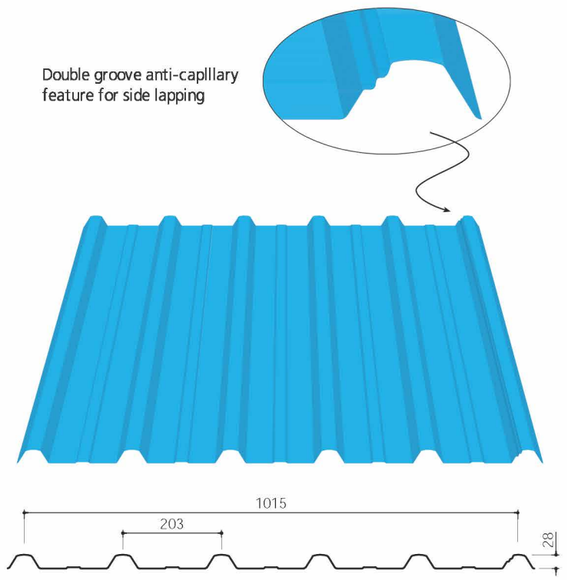
Staffed by experienced professionals with an in-depth knowledge of the industry and who are motivated by the company's vision - to be the industry's preferred building solutions provider from concept to completion - we aim to be a game-changer in Malaysia's building industry.

M-CLAD 1015 Square fluted steel cladding with extra-wide pan

M-Clad 1015 offers a subtle square fluted roofing and walling profile. It is an economical solution for roof and wall cladding applications in industrial and commercial project segments.

With an extra-wide profiled width of 1015mm, it is made of high-strength steel and is strong and versatile, but is also quick to install. Its wide support spacings can be used safely.

Combined with a durable paint finish which is derived from ColorLume® VF-20L PVDF 70/30 and which allows for colour/gloss retention under severe weather conditions. M-Clad 1015 is a reliable, versatile, economical option for builders and architects.



Benefits of M-Clad 1015

- It is coated with high performance PVDF paint for better colour/gloss retention and chalk resistance.
- It conforms to International and Malaysia Standards.
- It features a double-groove anti-capillary at the side lap.
- It is quick and easy to install due to the simple fixing method (pierce-fixed).
- Its long span allows the cladding to be easily lowered into place and aligned. At the same time, its strength, spanning ability, lightness and rigidity means that wide support spacings can be safely employed.
- It is available in long lengths so one continuous sheet can be used from ridge to gutter, or full wall lengths, without end laps.
- It is light-weight and weather-resistant.
- It has good water-carrying capacity and is reliably water-tight because of its double-groove anti- capillary side laps, which prevent water seepage.
- It is versatile and can be used in a variety of applications including for roofs, walls, fencing & even internal ceilings.
- It can be curved by a crimp curving process.
- It is available in both convex & concave shapes to provide versatility and creativity for aesthetically-pleasing building designs.

Material Specification

Thickness & Weight

	Standard	Non-Standard
Base Metal Thickness	0.42mm	0.48mm
Total Coated Thickness	0.47mm	0.53mm
Weight	4.22 Kg/m²	4.75 Kg/m²

The base material of M-Clad 1015 is a protected steel sheet with a minimum yield stress of 550MPa (Grade G550). Its coating is a metallic hot-dipped zinc/aluminium alloy comprising 55% Aluminium, 43.5% Zinc and 1.5% Silicon.

The minimum total coating mass for the zinc/aluminium alloy is 150 g/m² or AZM150* coating class.

* AZM 150 is widely known as Galvalume®, a registered trademark of BIEC International Inc (USA) licensed to YP Enterprise Co., Ltd.

* AZM 200 is available upon request & subject to minimum order quantity.

Finishes

M-Clad 1015 is finished with ColorLume® VF-20L PVDF 70/30. This is a substrate which is derived from a reliable 2-coat/2-bake Fluorocarbon (PVDF) process with over 70% of KYNAR® 500 or HYLAR® 5000 as the top coat.

The detailed coating composition is as follows:

Top Coat*

Polyvinylidene Fluoride (Fluorocarbon or PVDF) comprising over 70% KYNAR® 500 or HYLAR® 5000 paint system of 20µm nominal dry film thickness on the top or weather side.

Primer Coat

High anti-corrosion inhibitive polyurethane primer of 5µm dry film thickness on the top and underside of the panel.

Back Coat

Light grey epoxy resin with anti-corrosion polyester coat of 5µm nominal dry film thickness.

* For colour selection, please refer to our colour chart or the actual colour plate sample. Specular gloss to finish is 25~30 G.U. (Gloss Unit is measured at 60° reflection angle in accordance to ASTM D 523 : 2008 / SS 5 Part E1 : 2003 Performance Standards).

Material Performance Test

Typical Properties	Test Standard (Method)	Correspond to Singapore Standard SS370:1994*
T-Bend Test	ASTM D 4145-10	AS 2728
Pencil Hardness	ASTM D 3363-09e2	ASTM D 3363
Colour	ASTM D 2244-11	SS Part E3
Specular Gloss	ASTM D 523-08	SS 5 Part E1
Dry Film Thickness	ASTM D 7091-05	SS 5 Part B1
Impact Resistance	JIS K5600-5-3	ISO 6272
Humidity Resistance	JIS K5600-7-2	SS 5 Part G6
Cross Cut Adhesion	JIS K5600-5-6	ISO 2409

Corrosion & Weathering	Test Standard (Method)	Correspond to Singapore Standard SS370:1994*
Salt Spray Test	ASTM B 117-09	SS 5 Part G1
Weathering Test	ASTM G 154-06	SS 5 Part G4
Acid Resistance (10%v/v HCL)	JIS K5600-6-1	ISO 2812

* Material performance for the manufacture of profiled roof and wall cladding conforms to Singapore Standard SS370:1994 Specification for Metal Roofing.

Design Performance

M-Clad 1015 Limit State Wind Pressure Capacity - kPa

Base Material Thickness (BMT) = 0.42mm, Total Coated Thickness (TCT) = 0.47mm

Type of Span	Limit State	Span - mm									
		600	900	1200	1500	1800	2100	2400	2700	3000	3300
Single	Serviceability	5.00	3.90	2.60	1.90	1.30	0.80	0.50	0.30	0.20	-
	Strength*	9.80	7.90	6.00	4.50	3.80	3.00	2.50	2.00	1.70	-
End	Serviceability	7.60	5.20	3.70	2.70	1.90	1.30	0.90	0.60	0.40	-
	Strength*	9.40	8.00	6.70	5.50	4.50	3.50	2.90	2.30	1.80	-
Internal	Serviceability	4.20	3.50	3.00	2.50	2.00	1.60	1.20	1.00	0.70	0.60
	Strength*	9.80	8.50	7.20	5.80	4.70	3.70	3.00	2.50	1.90	1.50

Base Material Thickness (BMT) = 0.48mm, Total Coated Thickness (TCT) = 0.53mm

Type of Span	Limit State	Span - mm									
		600	900	1200	1500	1800	2100	2400	2700	3000	3300
Single	Serviceability	6.70	5.30	3.90	2.70	1.70	0.90	0.50	0.30	0.20	-
	Strength*	11.20	9.00	6.90	5.80	4.40	3.50	2.80	2.40	2.10	-
End	Serviceability	7.80	6.20	4.80	3.50	2.30	1.50	1.00	0.60	0.50	0.50
	Strength*	11.30	9.70	8.20	6.90	5.60	4.50	3.60	2.90	2.20	1.70
Internal	Serviceability	5.90	5.00	4.10	3.20	2.50	1.90	1.50	1.20	1.00	0.80
	Strength*	11.80	10.40	9.00	7.70	6.40	5.30	4.20	3.30	2.40	1.60

* Reduction factor of 0.90 has been applied. These capacities are based on tests carried out by the Cyclone Testing Station of James Cook University and in accordance with the requirements of Australian Standard AS 1562.1, and AS 4040.2-1992 Resistance to Wind Pressure for Non-cyclonic Regions.

Maximum Support Spacing

Type of Application	Type of Span	TCT - mm	
		0.47	0.53
Roof	Single	1200	1600
	End	1900	2100
	Internal	2500	3000
	Unstiffened Overhang	150	150
	Stiffened Overhang	250	250
Wall	Single	2200	2300
	End	2500	2700
	Internal	3300	3300
	Overhang	150	150

Recommended Roof Pitch

Sheet length without end lap	3° (approx 1 in 20)
Sheet length with end lap	5° (approx 1 in 12)

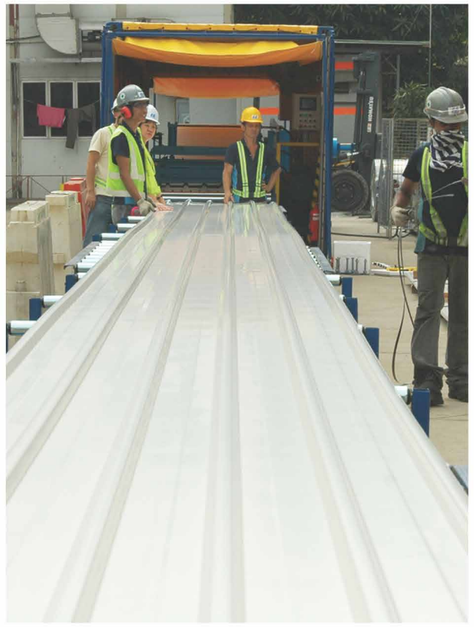
Site Rolling

One of the most valuable services M Metal offers is site rolling, whereby cladding – in particularly long-length cladding - can be roll-formed on site itself with a roll-former.

Benefits:

- Greater convenience for projects where roof length is over transportable limits
- Better water-tightness, as there is no need to compromise by resorting to having several end-laps over the whole roof length
- Versatility, as the roll former can be placed at the ground level or roof level, whichever suits the site conditions
- Time savings, as the roll former can be quickly re-positioned to where the cladding is required
- Self-sufficient production reduces on-site labour and packing requirements

M Metal can manufacture all its roof and wall cladding profiles, including M-Clad 1015, on-site



Fixing

Fasteners

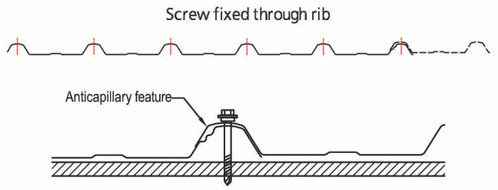
It is important that the correct fasteners are used so that it is compatible with the cladding material selected, and matches with the cladding's life expectancy.

The fasteners used for installation of M-Clad 1015 sheeting to the purlin/structural support should conform to AS3566 – Class 3 or Class 4, and should be self-drilling with a hexagon head and washer.

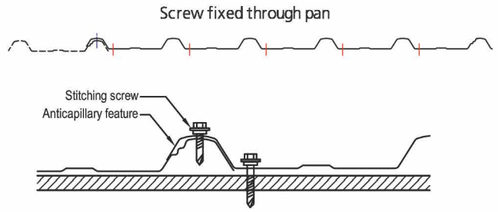
Fixing Location	Fixing to Steel	Fixing to Timber
Crest fixed	Self drilling screws 12 - 14 x 50 HGS	Self drilling screws with hexagon washer-head & EPDM seal Softwood : 12 - 11 x 65 Hardwood : 12 - 11 x 50
Valley fixed	Self drilling screws 12 - 14 x 20 HWFS	Self drilling screws with hexagon washer-head & EPDM seal Softwood : 10 - 12 x 30 Hardwood : 10 - 12 x 20
Side lap/Stitching	Self drilling screws 15 - 15 x 20 HWFS	

Fixing Points – Non-Cyclonic

Roof: Screw should be fixed through the rib



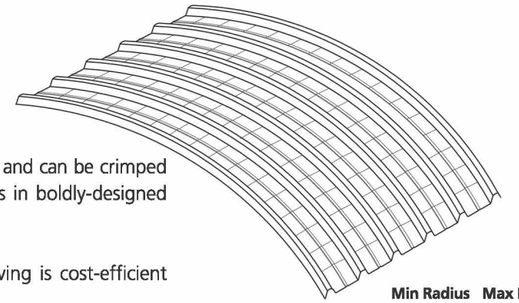
Wall: Screw should be fixed through the pan



Curving

Crimp Curved Roof

On the aesthetic front, M-Clad 1015 is highly versatile and can be crimped curved to fulfill architectural visions for curved roofs in boldly-designed commercial, industrial and even residential buildings.

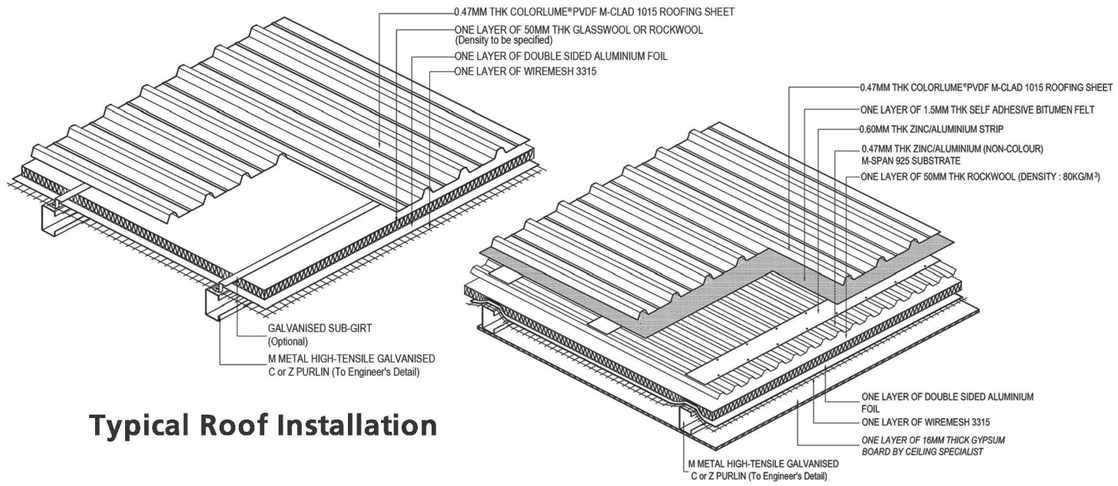


The nature of M-Clad 1015 is such that crimp curving is cost-efficient because:

- There is less supporting framework required for fascias, parapets and roofs.
- Less work is required for the installation of fascia cladding.
- The need for many flashings & cappings is reduced or entirely eliminated.

	Min Radius (mm)	Max Radius (mm)
0.42mm BMT / 0.47mm TCT	400	20000
0.48mm BMT / 0.53mm TCT	450	20000

Roof System



Typical Roof Installation

Acoustic Roof Installation
- Sound Transmission Class (STC) 51

Please contact M Metal (M) Sdn Bhd, Technical Department for all technical matters and assistance with your roof design.

Compatibility

All products should be checked for compatibility with adjacent materials before installation. It is important to check the implications of direct contact between materials, and water runs from one material to another.

AZM 150/ColorLume® VF-20L (70/30) PVDF steel sheets should not be placed in direct contact with copper, lead, green or treated timber, stainless steel, mortar or concrete.

Length

M-Clad 1015 roof/wall claddings are supplied cut-to-length.

Regulatory limits for transporting long products by the local transport authority should be verified.

The manufacturing tolerance on the length of product supplied is ±0-15mm.

Delivery / Unloading

M Metal provides a shorter lead-time than other manufacturers because its manufacturing facility is located in Malaysia. Delivery can be made within 3 working days subject to the delivery location, quantity and material availability.

Please ensure that suitable arrangements have been made for truck unloading.

When lifting M-Clad 1015, care should be taken to ensure that the load is spread evenly to prevent damage.

Handling / Storage

M-Clad 1015 should be handled with care at all times to preserve the quality of its finish and product capabilities.

M-Clad 1015 packs should be stored above ground level while on-site and kept dry.