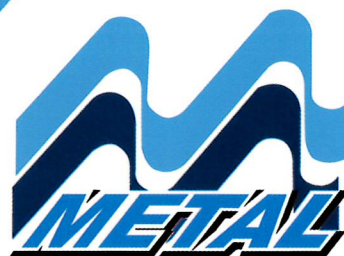


You Inspire, We Deliver.

M-CLIPP
700



Benefits of M-Clipp 700

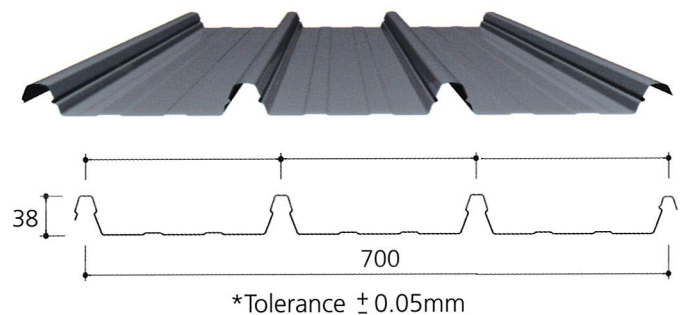
- It has a smooth, clean appearance. Because of special fixing clips which secure M-Clipp 700 to steel or timber supports without the need for punctures, fastening screws are invisible.
- It provides a very effective waterproof cladding system - its wide fluted pans and high ribbed design quickly disperse water to the perimeter of the roof - and is hence particularly well-suited for areas which are prone to heavy rainfall.
- It is extremely strong in terms of wind resistance. Its first-class resistance against corrosion, discolouration and tropical dirt staining, which requires minimal or no maintenance, makes it the best all-weather performer.
- It is simple and cheap to install. Long, straight lengths of M-Clipp 700 can be laid in place and easily aligned. The process of fixing the special clips is straightforward, simple and fast. The smaller number of clips for any given area also means greater economy. Furthermore, M-Clipp 700 is available in long lengths, meaning that it is likely you will only require one sheet from ridge to gutter without end laps.

The base material of M-Clipp 700 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.



Recommended Maximum Support Spacing

Base Metal Thickness (mm)	Roof			Roof			Maximum Cantilever (mm)
	Single Span (mm)	Internal Span (mm)	End Span (mm)	Single Span (mm)	Internal Span (mm)	End Span (mm)	
0.42	1600	2200	1700	2400	3600	3000	250
0.48	2000	2800	2300	2700	3900	3300	300
0.60	2400	3400	2900	3000	4200	3600	350

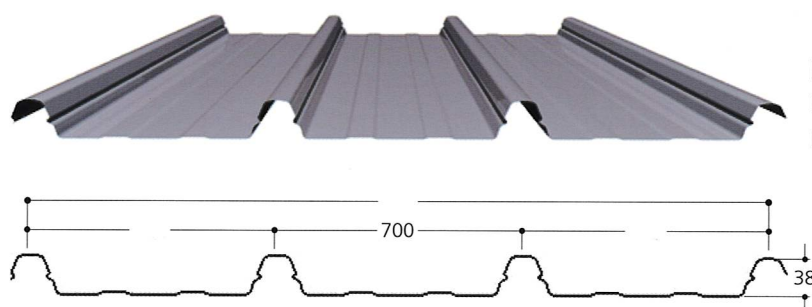
Profile Specification

	Galvalume Steel	Elite Steel	Galvalume Steel	Elite Steel	Galvalume Steel	Elite Steel
Base Metal Thickness (mm)	0.42		0.48		0.60	
Total Coated Thickness (mm)	0.47		0.53		0.65	
Weight (kg/m ²)	4.527	4.608	5.142	5.233	6.38	6.413
Coverage (m ² /t)	221	217	194	191	156	155

Profile

M-Clipp 700

- Combines with smart fluted spans and a lock system rib designed.
- Manufactured from a high tensile steel substrate protected with corrosion inhibitive treatment.
- Wider effective cover width of 700mm and rib heights of 38mm.
- Again concealed fixing method with clip and locking system.
- It's strongly recommend for applications from low pitched roofs to vertical or horizontal ribbed walling for shop offices, exhibition halls, warehouse, factory modern residential and etc.
- Sheets are available on application via our mobile roll-forming capabilities.



Effective width : 700mm
Rib Height : 38mm
Minimum Roof Pitch : 1°

*Tolerance $\pm 0.05\text{mm}$

Data Sheet

Minimum Fall

The amount of water that must be shed increases with the length of the roof. To avoid possible back-up of water in severe wind condition, the following recommended roof length should be considered as maximum for a given roof pitch and rain fall rate.

M-Clipp 700	RECOMMENDED MAXIMUM ROOF LENGTH (M)					
	SLOPE IN DEGREE	1°	2°	3°	5°	7.5°
	RAINFALL (mm/h)					
	250	40	51	60	75	88
	300	34	43	50	61	75
	400	26	30	37	47	56
	500	20	26	30	38	45

The amount of water that must be shed increases with the length of the roof. To avoid possible back-up of water in severe wind conditions, the following recommended roof length should be considered as maximum for a given roof pitch and rain fall rate.

Note: All thickness shown above is nominal & provisional. The information contained herein is factual and numerical value are accurate at time of publication and subject to actual site condition.



General Information

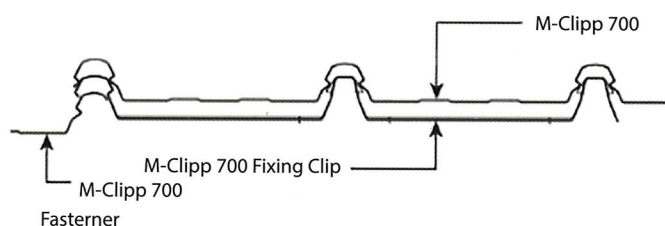
M-Clipp 700	DISTRIBUTED LOAD CAPACITY - CONTINUOUS SPAN CONDITION											
	Thickness (mm) (BMT)	Span	mm	900	1050	1200	1350	1500	1650	1800	1950	2100
		Serviceability	kN/m ²	2.23	1.83	1.63	1.33	0.93	0.63	0.53	0.43	0.28
	0.40	Strength		3.56	2.92	2.60	2.12	1.48	1.00	0.84	0.68	0.44
		Serviceability		2.53	2.03	1.70	1.43	1.13	0.83	0.73	0.53	0.38
	0.42	Strength		4.04	3.24	2.76	2.28	1.80	1.32	1.16	0.84	0.60
		Serviceability		3.04	2.54	2.14	1.74	1.44	1.14	0.89	0.74	0.64
	0.48	Strength		4.84	4.04	3.40	2.76	2.28	1.80	1.40	1.16	1.00

**Based on dead load 0.1kN/m². Live load 0.25kN/m² & wind load 0.75kN/m².

**Deflection Limit : SPAN/180.

Fastener

M-clipp 700 Fixing Clip



Fixing To Steel Supports

M-Clipp 700	Thickness	No Insulation (Directly to support)	Over Insulation Blanket
	Up to 4.5mm	No. 10 - 12 x 25mm wafer head self-drilling steel screws	increases to 22mm long screw if required
	Exceed 4.5mm	No. 12 -24 x 32 wafer head self-drilling steel screws	

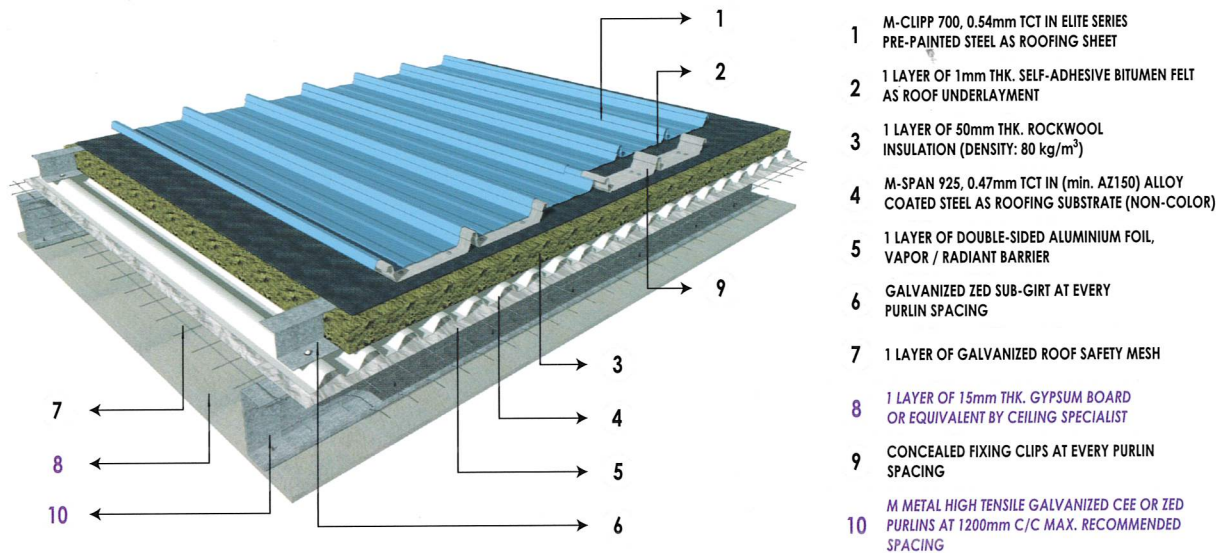
Fixing To Timber Support

M-Clipp 700	Type of Timber	No Insulation (Directly to support)	Over Insulation Blanket
	Hardwood	No. 10 - 12 x 25mm wafer head self-drilling steel screws	increases to 45mm long screw if required
	Softwood	No. 10 -12 x 45 wafer head self-drilling steel screws	

Roof System

The 1st sheet is positioned and then pressed over the fixing clip which must be accurately aligned and fixed to ensure positive engagement between the roof sheet and the fixing clips. A "click" indicate a positive lock. The second and subsequent sheets are laid each time after a new set of fixing clips have been placed firmly over the male rib of the preceding sheets.

Note: Please contact your nearest M Metal (M) Sdn Bhd for advise on use of an expansion joints, or use long length sheet from a mobile roll former.





Formed with
Hi-Tensile
Galvanised
Steel



Locally produced &
custom-cut using
modern machinery



FPC & ISO
9001:2015
Certified

**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.**

M Metal (M) SDN BHD (1051034-V) Headquarter

Lot 2606, Jalan Tee Teck San Saleng Batu 17,
Mukim Senai 81400 Senai, Johor.

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F: (+6) 07-598 8322

W: www.mmetal.com.my



You Inspire, We Deliver.

M-CLIPP
430





**M Metal - a
game changer**

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

We started the company in 2007 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.

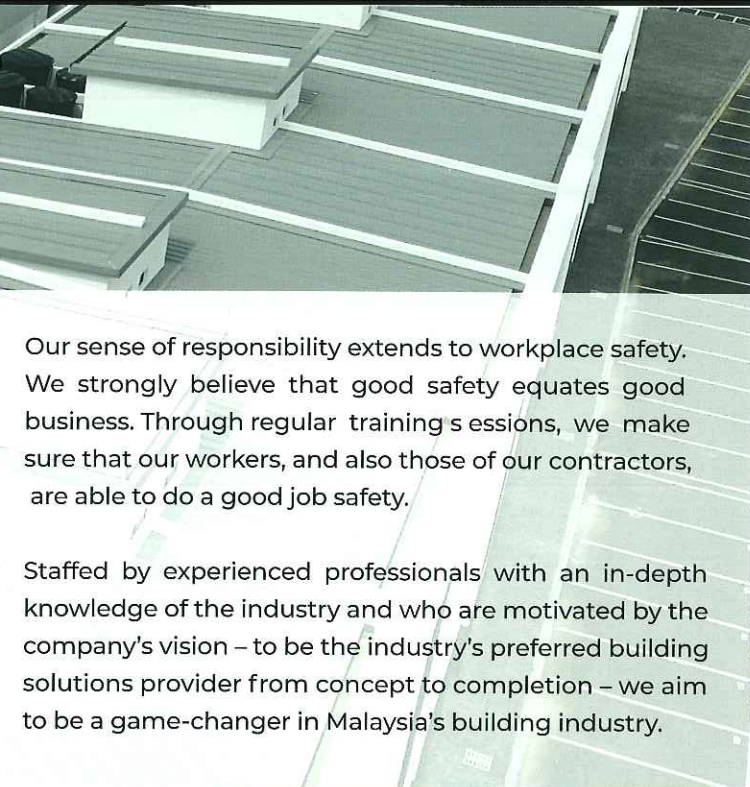
M-CLIPP 430 The Widest Concealed Fix Cladding

M-Clipp 430 steel cladding is a strong, durable, versatile long-length roofing and walling solution. It is distinguished by a lock-action rib enabling concealed clip fixing, which would appeal to architects who wish to achieve aesthetically-pleasing smooth, clean lines in their designs.

The lock-action rib design, together with smart fluted pans and concealed fastening, means that M-Clipp 430 can be used in a variety of applications including low-pitched roofs, vertical as well as horizontal ribbed walling.

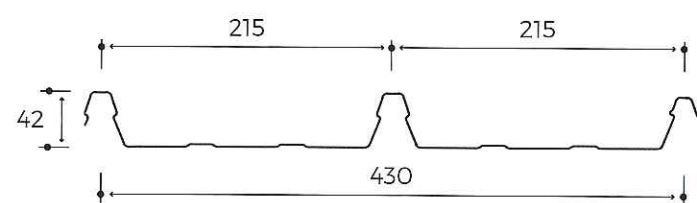
Combined with a durable paint finish which is derived from a Real colorTM Supreme refer material specification page and which allows for colour retention under severe weather conditions, M-Clipp 430 is a reliable, versatile and eye-pleasing option for builders and architects.





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.



Benefits of M-Clipp 430

- It has a smooth, clean appearance. Because of special fixing clips which secure M-Clipp 430 to steel or timber supports without the need for punctures, fastening screws are invisible.
- It provides a very effective waterproof cladding system - its wide fluted pans and high ribbed design quickly disperse water to the perimeter of the roof - and is hence particularly well-suited for areas which are prone to heavy rainfall.
- It is extremely strong in terms of wind resistance. Its first-class resistance against corrosion, discolouration and tropical dirt staining, which requires minimal or no maintenance, makes it the best all-weather performer.
- It is simple and cheap to install. Long, straight lengths of M-Clipp 430 can be laid in place and easily aligned. The process of fixing the special clips is straight forward, simple and fast. The smaller number of clips for any given area also means greater economy. Furthermore, M-Clipp 430 is available in long lengths, meaning that it is likely you will only require one sheet from ridge to gutter without end laps.
- **✓✓ Very Good** Green mark certified by Singapore Green Building Council (SGBC).



Material Specification

Thickness & Weight

	Standard	Non-Standard
Base Metal Thickness	0.42	0.48
Total Coated Thickness	0.47	0.53
Weight	3.53 Kg/m ²	4.00 Kg/m ²

tolerance +/- 0.02% thickness

The base material of M-Clipp 430 is a protected steel sheet with a minimum yield stress of 560 MPa (Grade CGC570) finished with high colour and gloss retention Realcolor™ paint system by Beckers that provide excellent colour and gloss retention. The substrate is hot-dipped coated minimum with 99% zinc for superior corrosion performance against corrosion.

The minimum total coating mass is 275 g/m² or Z 27 zinc coat as determined by Japanese Industrial Standard JIS G3312.

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 and 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 370 : 1994 Specification for Metal Roofing.

* Fire Classification A1 in accordance to EN 13501-1.

Finishes

M-Clipp 430 is finished with Realcolor™ Supreme; Thermoshield or Primero factory finished system by Beckers.

The detailed coating composition is as follows:

Finish Coat*

Realcolor™ Supreme : Contain > 70% Polyvinylidene Fluoride (PVdF) binder which offers a unique combination of excellent outdoor durability, UV protection, formability and chemical resistance.

Realcolor™ Thermoshield : A cool roof system which helps to reduce heat absorption. In addition, it retains its glossiness and colour vibrancy longer.

Realcolor™ Primero : Satisfied roofing and cladding application with excellent surface hardness and flexibility as well as optimal colour selection.

Primer Coat

Anti-corrosion inhibitive polyurethane primer. 5µm nominal dry film thickness on both sides.

Pre-treatment

With proprietary conversion film to achieve excellent adhesion between the steel surface and paint finish on both sides.

Substrate

AZ 150 alloy coated steel. AZ comprises 55% Aluminium, 43.5% Zinc and 1.5% Silicon (by weight) in accordance to ASTM A792M. Minimum coating mass, 150 g/m² on both sides.

Substrate

Z 275 alloy coated steel. Z comprises 99% Zinc (by weight) in accordance to ASTM A792. Minimum coating mass, 275 g/m² on both sides.

Backing Coat

Custom formulated polyester coating, Light Grey for all range. 10µm nominal dry film thickness.

Gloss

Nominal glass level of 25 GU at 60° reflection angel.

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

Recommended Roof Pitch

Sheet length without end lap	2° (approx 1 in 30)
Sheet length with end lap	3° (approx 1 in 20)

Design Performance

M-Clipp 430 Limit State Wind Pressure Capacity - kPa

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

Type of Span	Limit State	Span - mm									
		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	2.40	2.20	1.90	1.60	1.40	1.10	0.80	0.60	-	-
	Strength*	4.60	4.10	3.70	3.40	3.00	2.50	1.90	1.40	-	-
End	Serviceability	2.20	2.00	1.80	1.60	1.50	1.30	1.20	1.10	0.90	0.80
	Strength*	3.30	3.10	3.00	2.80	2.50	2.10	1.80	1.50	1.30	1.20
Internal	Serviceability	2.60	2.50	2.40	2.30	2.10	1.90	1.60	1.50	1.40	1.20
	Strength*	3.70	3.20	2.80	2.40	2.10	1.90	1.60	1.50	1.40	1.20

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

Type of Span	Limit State	Span - mm									
		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	4.40	3.70	3.20	2.60	2.10	1.70	1.20	0.80	-	-
	Strength*	8.00	6.90	6.00	5.10	4.30	3.60	3.00	2.40	-	-
End	Serviceability	4.20	3.90	3.60	3.20	2.70	2.40	2.00	1.60	1.30	1.20
	Strength*	5.90	4.70	3.70	3.20	2.80	2.40	2.20	1.90	1.70	1.50
Internal	Serviceability	4.60	4.30	4.00	3.60	3.30	3.00	2.60	2.20	1.90	1.50
	Strength*	6.70	5.80	5.00	4.30	3.80	3.30	2.80	2.60	2.10	1.70

* 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 15621, and AS 4040.2-1992 Resistance to Wind Pressure for Non-Cyclonic Regions.

Maximum Support Spacing

Type of Application	Type of Span	TCT (mm)	
		0.54	0.66
Roof	Single	1600	1900
	End	1900	2200
	Internal	2200	2500
	Unstiffened Overhang	150	250

Type of Application	Type of Span	TCT (mm)	
		0.54	0.66
Wall	Single	2200	2400
	End	2300	2900
	Internal	2300	2900
	Overhang	300	150

These numbers represent the maximum spans that can be achieved for foot traffic and have no relationship with capacity to withstand resistance to wind uplift



Site Rolling

One of the most valuable services M Metal offers is site rolling, whereby cladding – in particular, 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 watertightness, 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-Clipp 430, 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-Clipp 430 sheeting to the purlin/structural support should conform to AS3566 – Class 3 or Class 4, self-drilling with a wafer-head.

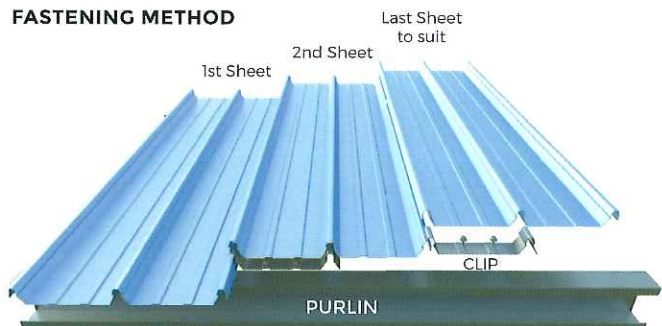
STEEL SUPPORT

Thickness	Up to 4.5mm	Exceeds 4.5mm
Directly to support	No. 10 - 24 x 16mm wafer-head self drilling and tapping screw	Teks 5 No. 12 - 24 x 32mm wafer-head self drilling and tapping screw
Over insulation blanket	Increase to 22mm long screw if required	Same as above

TIMBER SUPPORT

Grade	Hardwood	Softwood
Directly to support	No. 10 - 12 x 25mm wafer-head type 17 self drilling wood screw; 3.75mm x 50mm flat-head spiral threaded nail (on special orders).	No. 10 - 12 x 46mm wafer-head type 17 self drilling wood screw
Over insulation blanket	Increase to 22mm long screw if required 3.75mm x 50mm flat-head spiral threaded nail (on special orders).	Same as above

FASTENING METHOD



FEATURES OF FASTENER



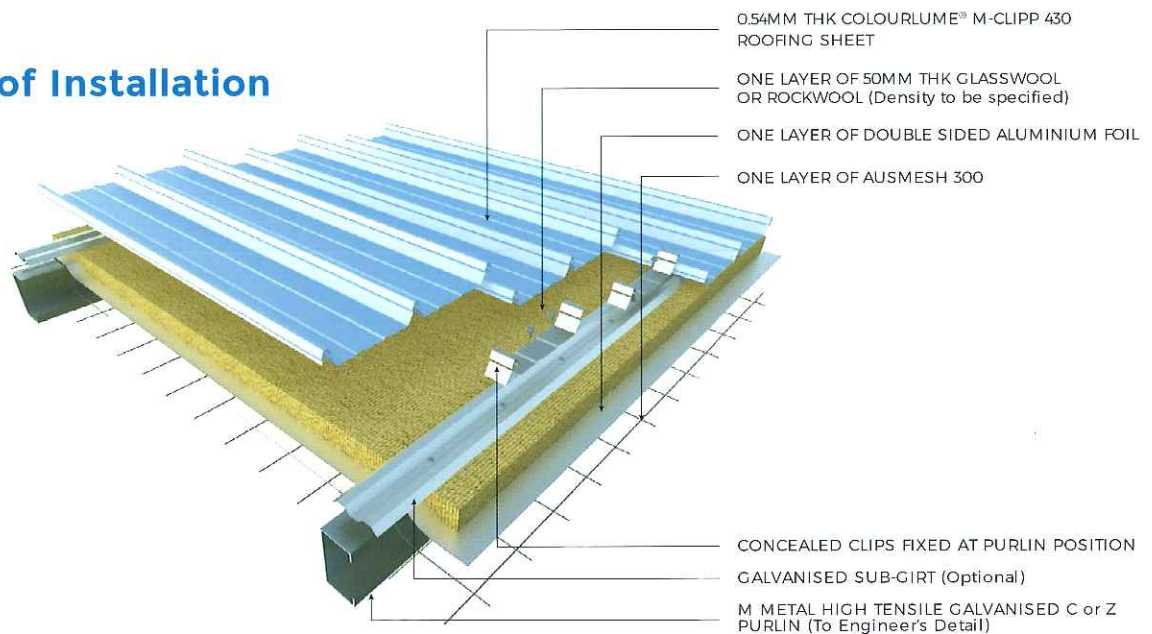
- Forged drill point
- Strip out resistant
- Higher pullout load
- Zinc alloy proven corrosion protection

ML 70 FIXING CLIP



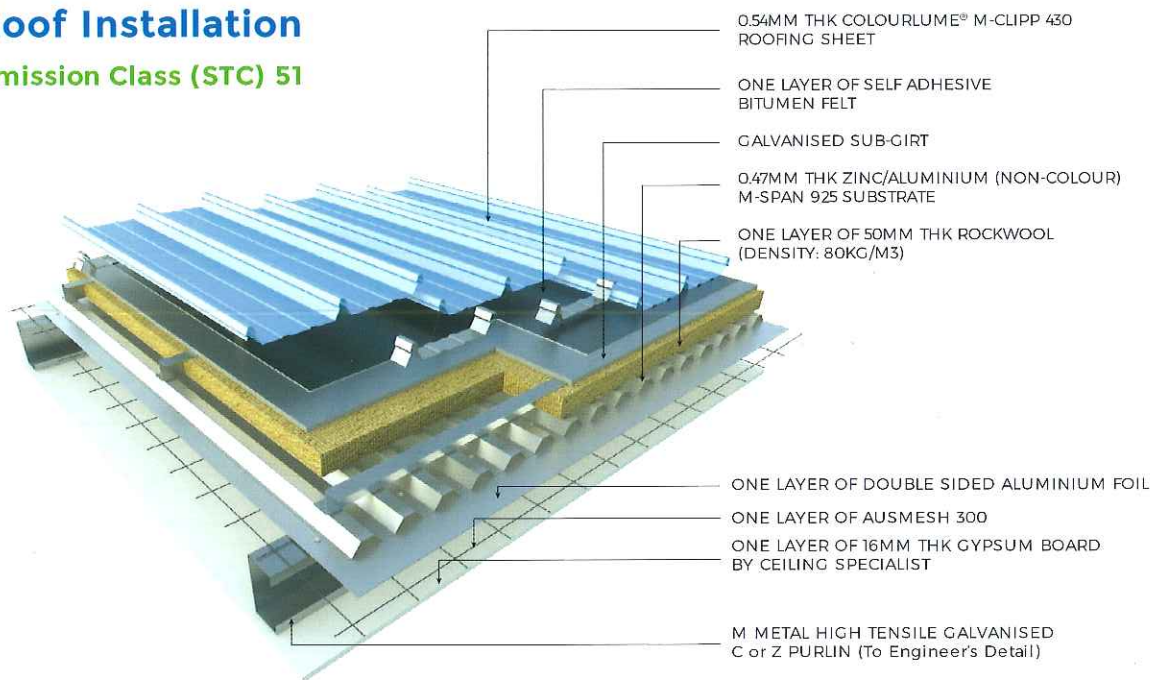
Roof System

Typical Roof Installation



Acoustic Roof Installation

- Sound Transmission Class (STC) 51



Please contact M Metal Pte Ltd, 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.

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

Length

M-Clipp 430 roof and 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 $\pm 0-15\text{mm}$.

Delivery / Unloading

M Metal provides a shorter lead-time than other manufacturers because its manufacturing facility is located in Singapore. 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-Clipp 430, care should be taken to ensure that the load is spread evenly to prevent damage.

Handling / Storage

M-Clipp 430 should be handled with care at all times to preserve the quality of its finish and product capabilities. M-Clipp 430 packs should be stored above ground level while on-site and kept dry.



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Realcolour™
Galvalume®
Colouro.7®



Locally produced &
custom-cut using
modern machinery



Supply
and fix
service



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9001-2015
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