

MASTER PANEL S.L. was created in 2007, based on our group's 35 years experience in the metal structure sector. We specialise in the manufacture of polyurethane (PUR) and polyisocyanurate (PIR) insulating panels for the construction industry, and have extensive modern facilities with the most advanced technology in our sector.



Our panels bring together current architectural trends with the most demanding functional requirements, meeting the needs.

All our panels offer the highest technical specifications that meet the most demanding standards, without sacrificing the aesthetic demands and creative freedom of the project. This allows us to provide a suitable response at technical, aesthetic and functional levels, while maintaining respect for the environment.

We have implemented the most stringent controls in our production to ensure a high standard of quality, reflected in our **ISO9001: 2015** certification, complemented by an exhaustive checking of each production batch in our own laboratory.





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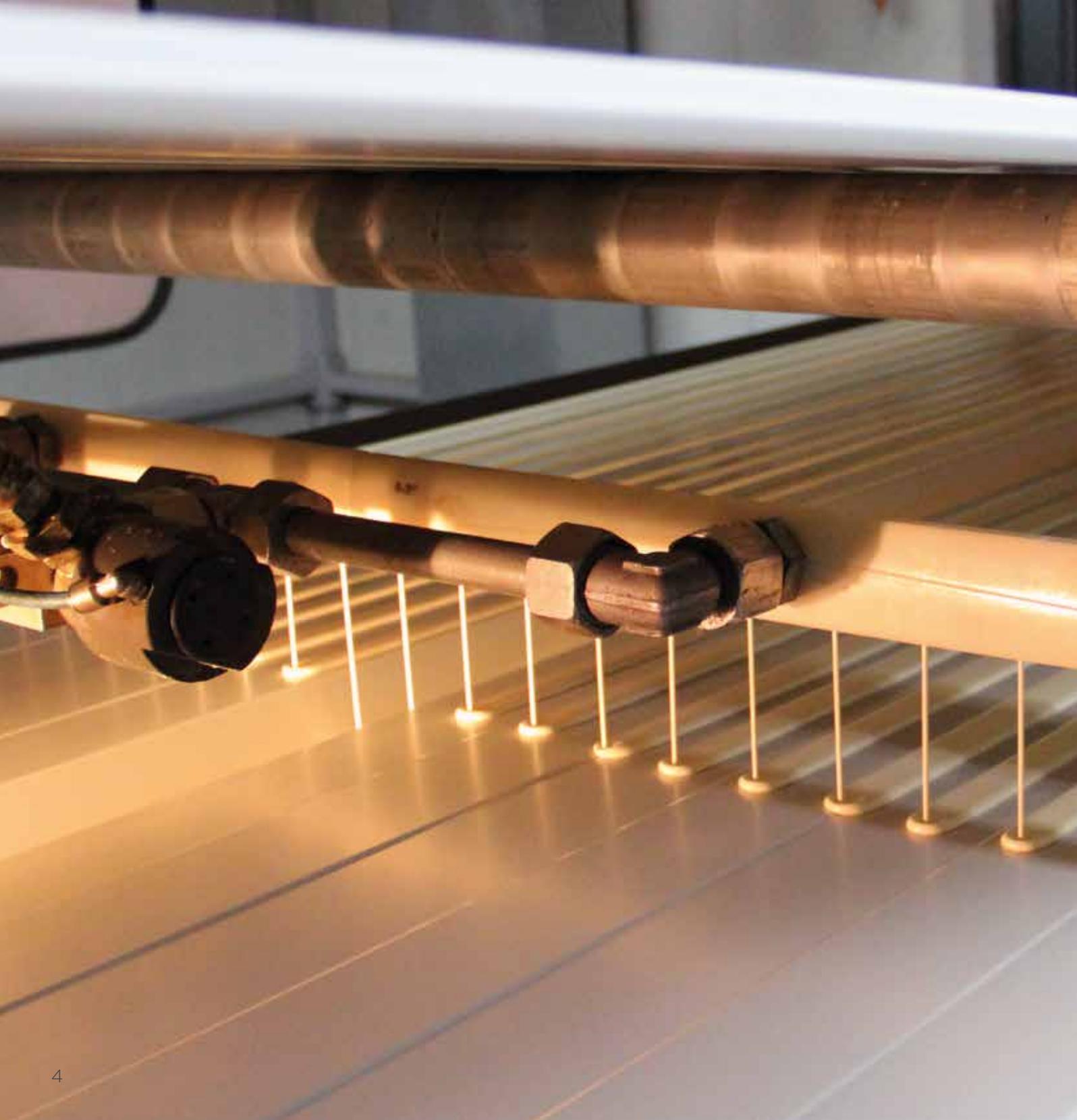
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Master Panel. Properties



What is Polyurethane?

Polyurethane foam is a porous plastic material created by a condensation polymerization of two main components, a polyol and an isocyanate, to which pentane is added as a foaming agent. The mixing of the polyol and the isocyanate causes an exothermic reaction where the heat produced evaporates the very low thermal conductivity pentane gas that then forms bubbles.

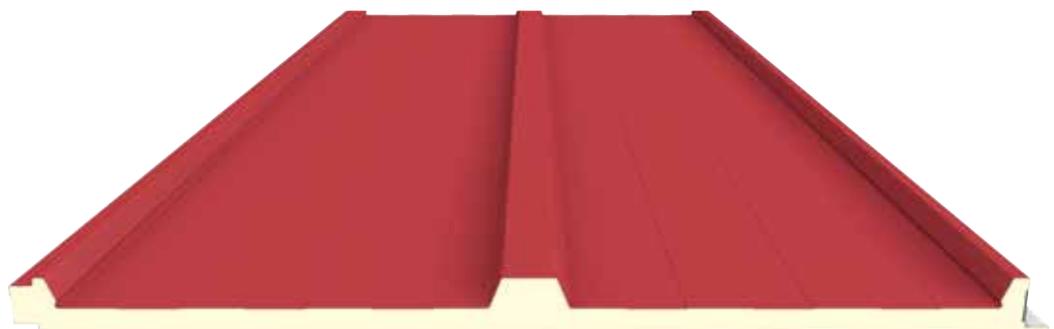
The polyurethane in our panels has a closed cell structure that gives it the characteristics of good thermal stability, high compressive strength and excellent insulating properties. Polyurethane has a very low thermal conductivity, which makes it one of the most effective insulating materials in the world.



What are **Master** sandwich panels?

Master sandwich panels are created with a core of rigid polyurethane foam insulation bonded to two layers of metallic exterior covering, generally hot-dip galvanized steel, which are then pre-painted in various qualities and finishes, depending on the needs of each project. During the manufacturing process, the insulating core expands, completely adhering to the covering layers without the use of any adhesive, so it may be considered that the combination forms a single product or construction element as far as its use and properties are concerned.

They are a unique solution for all types of building enclosures. Thanks to their mechanical and aesthetic properties they can serve a dual function, acting as both enclosure and cladding in a single system, achieving structural and insulation levels far superior to traditional products (blocks, wood, etc.), as well as being available in many finishes and colours to suit the aesthetics of every kind of project.



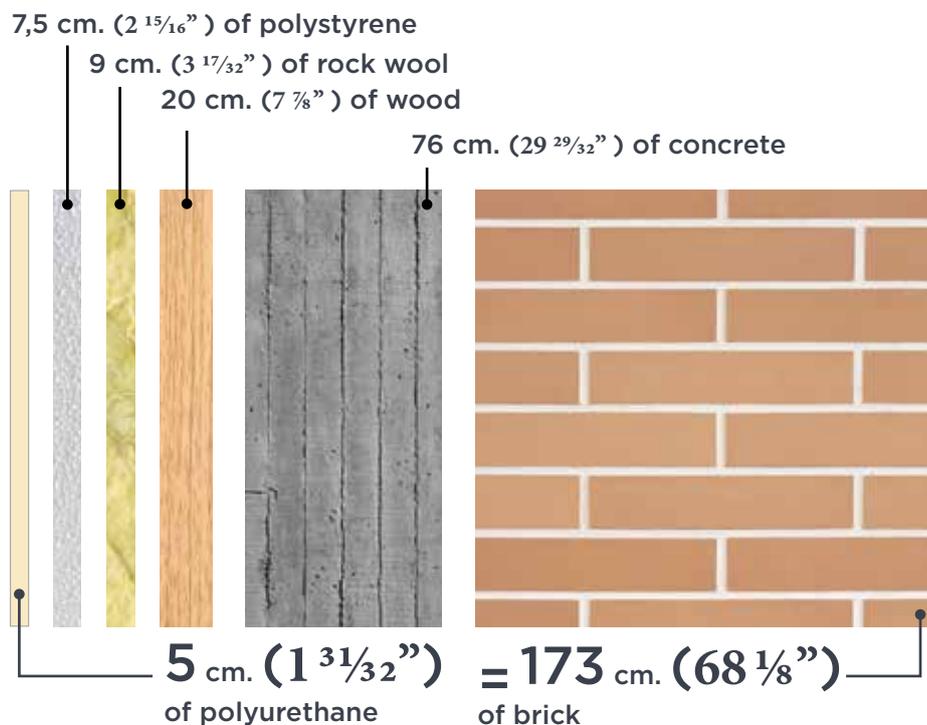
Properties of a Master sandwich panel.

Thermal insulation

In construction, the thermal performance of the façade, roof or floor is expressed as its “U” value, which is basically the amount of heat that can pass through the wall, roof or floor. The insulating core of **Master** panels has the lowest coefficient of thermal conductivity available.

As you can see in the illustration below, insulating with **Master** panels achieves the same “U” value as other materials with considerably less thickness.

The use of **Master** panels makes it easier to keep buildings at a comfortable temperature throughout the year. They create a barrier that stops the flow of heat through the building walls, allowing a better control of the indoor temperature, regardless of the outside temperature.

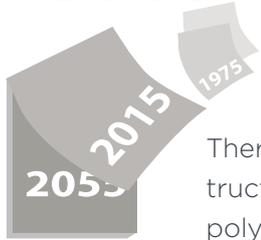


Mechanical properties

Master panels have high resistance to bending and twisting, the result of a perfect combination of the inherent rigidity of the outer layers and the excellent physical and mechanical properties of the foam. The different layers which make up the panels are bonded, forming a self-supporting product, giving rise to the so-called “sandwich effect”.



Durability



There is data to show that polyurethane sandwich panels have proved themselves in construction over the past 40 years. Thanks to the excellent chemical and biological resistance of polyurethane, its high stability even in special conditions (extreme temperatures, high humidity) and the wide range of steel coatings to suit any environmental condition, polyurethane panels may offer the best guarantee of durability.

Watertightness



Master sandwich panels, due to their system of design and assembly, make their buildings windproof and watertight. Additionally, the closed cell structure of the rigid polyurethane foam prevents the penetration of water and moisture which could affect the foam insulating properties and durability. This closed cell structure also prevents the panel from being attacked by microorganisms, making it ideal for the food industry.



Acoustic insulation



As regards soundproofing, a polyurethane sandwich panel of medium thickness can achieve acoustic insulation of 25-35 decibels, and complementing the panel with another product can achieve still higher insulation values.

Sustainability



Insulation is one of the cheapest and easiest ways to improve the energy efficiency of a building, whether old or new. Greater energy efficiency means that less energy is required to heat or cool buildings. In turn this results in lower fuel consumption and lower emissions of environmentally harmful carbon dioxide. Moreover, the waste products from panel production can be utilised, since the steel sheet can be recycled and the rigid polyurethane foam can be incinerated and use made of the energy generated. During their life cycle, **Master** panels save 100 times the energy used in their production.

To reduce environmental impact, **Master** panels offer:

Excellent energy efficiency: leads to energy savings and reduced CO² emissions.

The panels save 100 times the energy used in their production.

Minimum thickness: minimizes the footprint of the building and use.

Reduces the size of the structure: lower environmental impact of the building structure.

Transport: being very light and thin, the insulation requires less delivery transportation, giving a low environmental impact.



Our waste products: 95% of our waste products are recyclable.

Ozone friendly: Our Processes and Products are CFC and HCFC free

Recycling sandwich panels:

The metal cover of injected polyurethane sandwich panels can be recycled following standard procedures for this type of material.

The insulating core of the panel is not affected by any European directives on dangerous products. Three recycling techniques can be used. The choice of one or another depends on characteristics of the polyurethane foam used in the core of the panel, the after use and the cost:



- **Mechanical Recycling.** Using processes of crushing, granulating, grinding or pulverisation, particles of recyclable material are obtained that will be used for new polyurethane products.
- **Chemical Recycling.** This is based on the application of various chemical and thermal processes which decompose the foam into low molecular weight fractions. These are used to regenerate the diisocyanate which, together with the polyol, allows the production of new pieces of polyurethane.
- **Incineration.** Energy recovery through incineration. This technique obtains thermal and/or electrical energy from panel core waste. Current incineration technology ensures that emissions are controlled, thus minimizing their potential environmental impact.

Reaction to fire



In the last decade, polyurethane foams have evolved into construction elements with an excellent reaction to fire. In this context we should highlight the Polyisocyanurate foams (PIR) which are modified polyurethane foams whose molecules have a network structure that gives them fire-resisting properties, helping to resist the spread of fire.

Our panels are manufactured using this new generation of PIR foams characterized by their reaction to fire. They can be called self-extinguishing foams since they reduces fire propagation and smoke emissions, and do not melt or drip when heated

We have tested our **PIR foam** panels according to **ASTM-E84**, which measures frame spread and smoke development, obtaining the following results:

- Frame spread index: 20
- Smoke development index: 300



Report number
102643891SAT-001A

ASTM E84
Flame spread index: 20
Smoke developed index: 300
Class A

Project No. 102643891SAT-001A Master Panel SL	July 11, 2016 Page 2 of 9
ABSTRACT	
Specimen I. D. "Master-C Panel"	
Test Standard:	ASTM E84-15b TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (UL 723, UBC 8-1, NFPA 255)
Test Date:	July 5, 2016
Client:	Master Panel SL
Test Results:	
	FLAME SPREAD INDEX 20
	SMOKE DEVELOPED INDEX 300
<small>This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of the report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.</small>	
 Joseph Martinez Technician III	July 11, 2016
Reviewed and approved:	
 Servando Romo Project Manager	July 11, 2016
 Rick Curkeet, PE Chief Engineer-Building & Hearth Products	July 11, 2016

Quality.

At **Master Panel** we have implemented the most stringent controls in our production process to guarantee our customers a high standard of quality, as ensured by our ISO9001: 2015 certification, and supplemented by exhaustive tests carried out on every production batch in our own laboratory.

All our products bear the CE mark, which lets our clients know that our panels comply with current legislation.

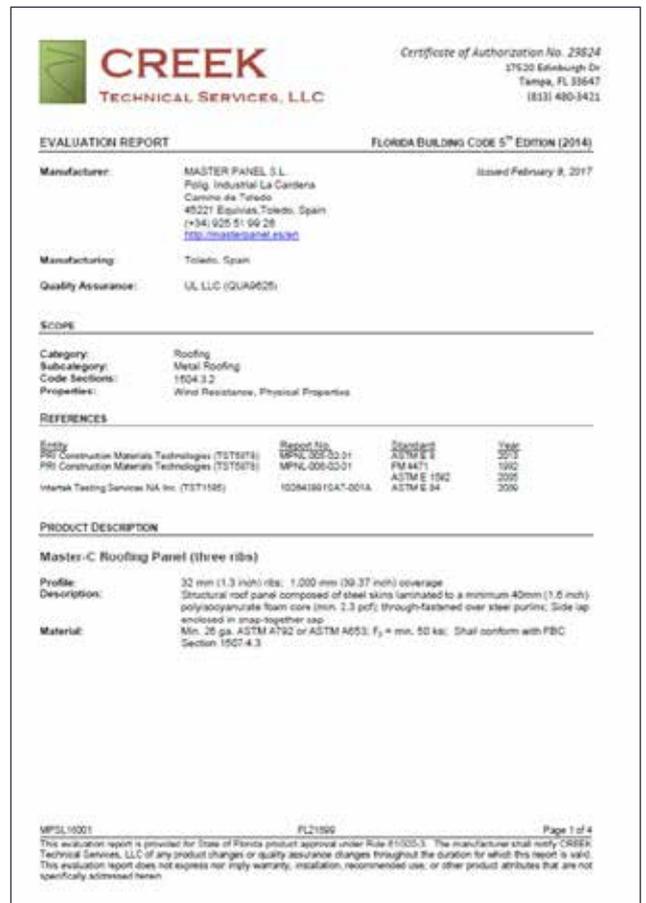


TABLE OF DIMENSIONAL TOLERANCES

Dimension	Maximum tolerance
Panel thickness	$E \leq 100 \text{ mm } (3 \frac{15}{16} \text{''}) \quad \pm 2 \text{ mm } (\frac{3}{32} \text{''})$
	$E \geq 100 \text{ mm } (3 \frac{15}{16} \text{''}) \quad \pm 2 \%$
Deviation from flatness	Deviation from flatness 1,5 mm ($\frac{1}{16} \text{''}$)
Length of the panel	$L \leq 3 \text{ m } (9' 10 \frac{1}{8} \text{''}) \quad \pm 5 \text{ mm } (\frac{13}{64} \text{''})$
	$L > 3 \text{ m } (9' 10 \frac{1}{8} \text{''}) \quad \pm 10 \text{ mm } (\frac{13}{32} \text{''})$
Useable width of the panel	$\pm 2 \text{ mm } (\frac{3}{32} \text{''})$
Non-squareness	6 mm ($\frac{1}{4} \text{''}$)
Deviation from straightness	1 mm ($\frac{1}{32} \text{''}$) per metre, maximum 5 mm ($\frac{13}{64} \text{''}$)
Warp	2 mm ($\frac{3}{32} \text{''}$) per metre of length, maximum 10 mm ($\frac{13}{32} \text{''}$)
	10 mm ($\frac{13}{32} \text{''}$) in width of the panel
Profiling design	$\pm 3 \text{ mm } (\frac{1}{8} \text{''})$

Florida Approved

We have obtained the FL approval (#FL 21699) for our Master-C roofing panel.



Wind uplift

Testing was completed as described in **ASTM E 1592-01 & 05** and **FM4471** (1995) to determine the uplift resistance of Master-C roofing panels.

Master-C roofing panels was tested over 16 ga. purlins with the following results:

	Passing pressure (psf)	Passing pressure (psf)	
Installed at 1 feet span	+ 60	- 270	Complies with FM Windstorm classif 1-270
Installed at 4 feet span	+50	- 75	Complies with FM Windstorm classif 1-75

Permeability

Testing was completed as described in **ASTM E2140-01** (2009) to determine the resistance to water penetration.

Test was passed with no observed water leaks while maintaining a 6" head of water for 6h continuously.

Strength

Testing was completed as described in **ASTM E8/ E 8M-130** to determine the tensile strength of steel skins used in Master-C roofing panel.

Steel skins complied with $F_y > 50$ ksi

A wide-angle shot of a large industrial factory floor. In the foreground, a long conveyor belt carries a continuous roll of white-wrapped Master-C roofing panels. The panels are supported by a series of red rollers. The floor is a light grey color with a yellow safety line running parallel to the conveyor. In the background, a green forklift is visible, and a yellow overhead crane with the number '6.7m' is suspended from the ceiling. The ceiling is a complex metal structure with numerous recessed lights.

Master-C roofing panels



master panel

E15 / 24 11

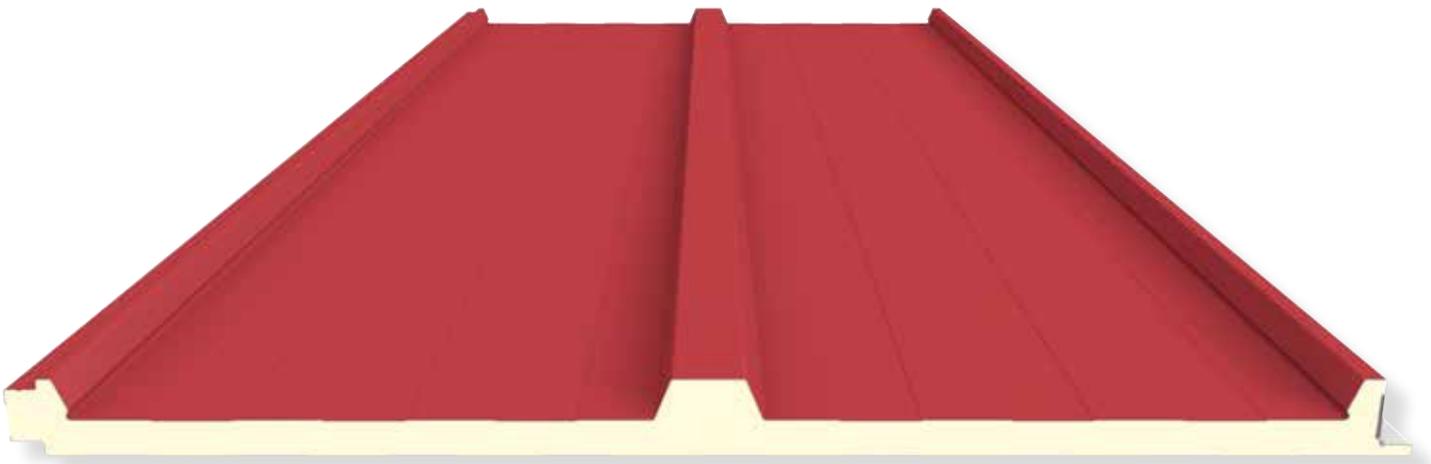


MASTER-C panels are structural roof panels composed of steel skins laminated to a minimum 1.6 inch polyisocyanurate foam core (min 2.3 pcf density).

MASTER-C panels have a tongue and groove joining system with a steel cover cap that hides and protects the fasteners and ensures the watertightness of the system.

Installation is very simple, and provides total watertightness (roof slopes of over ½:12).

Master-C roofing panels



MASTER-C panels have a tongue and groove joining system with a steel cover cap that hides and protects the fasteners and ensures the watertightness of the system.

External profile of the panel is a three-rib design, available in seven different thicknesses, with two different interior rib designs and a wide range of colours to meet customer needs.

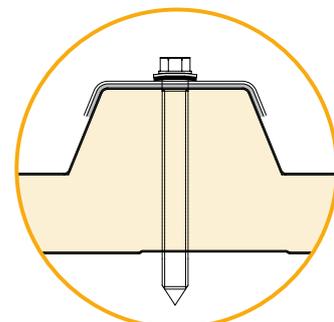
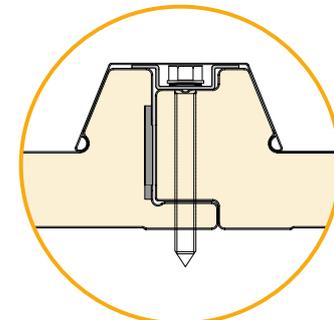
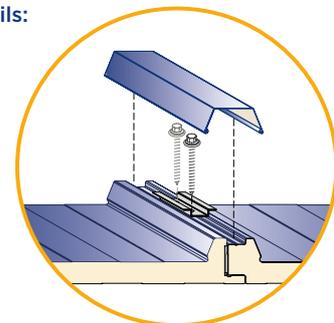


	VALUES
Panel thickness	40, 50, 60, 80, 100, 120 mm. 1 ⁹ / ₁₆ , 1 ³ / ₂ , 2 ³ / ₈ , 3 ⁵ / ₃₂ , 3 ¹⁵ / ₁₆ , 4 ²³ / ₃₂ inch.
Useable width	1000 mm. (39 ³ / ₈ ")
Length	Up to 11.900 mm. (39 ft.)
Field of application	Roofing
Thicknesses of outer face	mm 0.5 / 0.6 / 0.7 GAUGE 26 / 24 / 22
Thicknesses of inner face	mm 0.5 / 0.6 / 0.7 GAUGE 26 / 24 / 22
Exterior face	G90 galvanized or AZ50 aluminium-zinc, coated steel in 26 GA and above
Interior face	G90 galvanized or AZ50 aluminium-zinc, coated steel in 26 GA and above
Coatings (see section on Finishes)	Polyester 25um (1 mil) PVDF 25um / 35um (1 mil / 1.38 mils) Granite HDX / SDP 50 (2,16 mils) PVC imitation wood (interior use)
Outer ribbing	Three ribs
Inner ribbing	Standard / Flat
Type of core	Polyisocyanurate (PIR)
Core Density	40 Kg/m ³ (2.3 PCF)

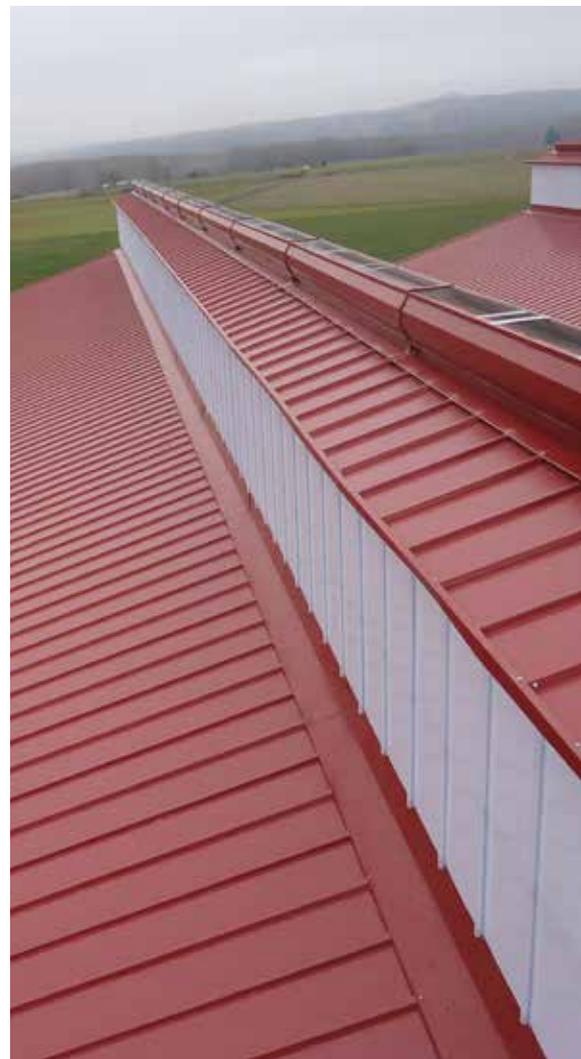
Three ribs



Fixing details:



Panel thickness	Panel weight (²⁶ / ₂₆ ga.)	U - Value	R - Value
mm (")	LB/ft ²	BTU/Hr ft ² °F	Hr ft ² °F/BTU
40 (1 ⁹ / ₁₆ ")	2.23	0.091	11.015
50 (1 ³ / ₂ ")	2.31	0.073	13.694
60 (2 ³ / ₈ ")	2.40	0.061	16.410
80 (3 ⁵ / ₃₂ ")	2.56	0.046	21.803
100 (3 ¹⁵ / ₁₆ ")	2.72	0.037	27.164
120 (4 ²³ / ₃₂ ")	2.89	0.031	32.524



Functions and benefits of **MASTER-C** panels

- Resistant to aggressive environments
- High thermal insulation capacity
- A versatile material that allows any configuration
- High mechanical strength
- Quick to install and easy to maintain (easy to clean)
- The fasteners are hidden and protected
- Easily removable and can be reused
- High dimensional stability
- Made to measure, avoids waste
- Water vapour tight

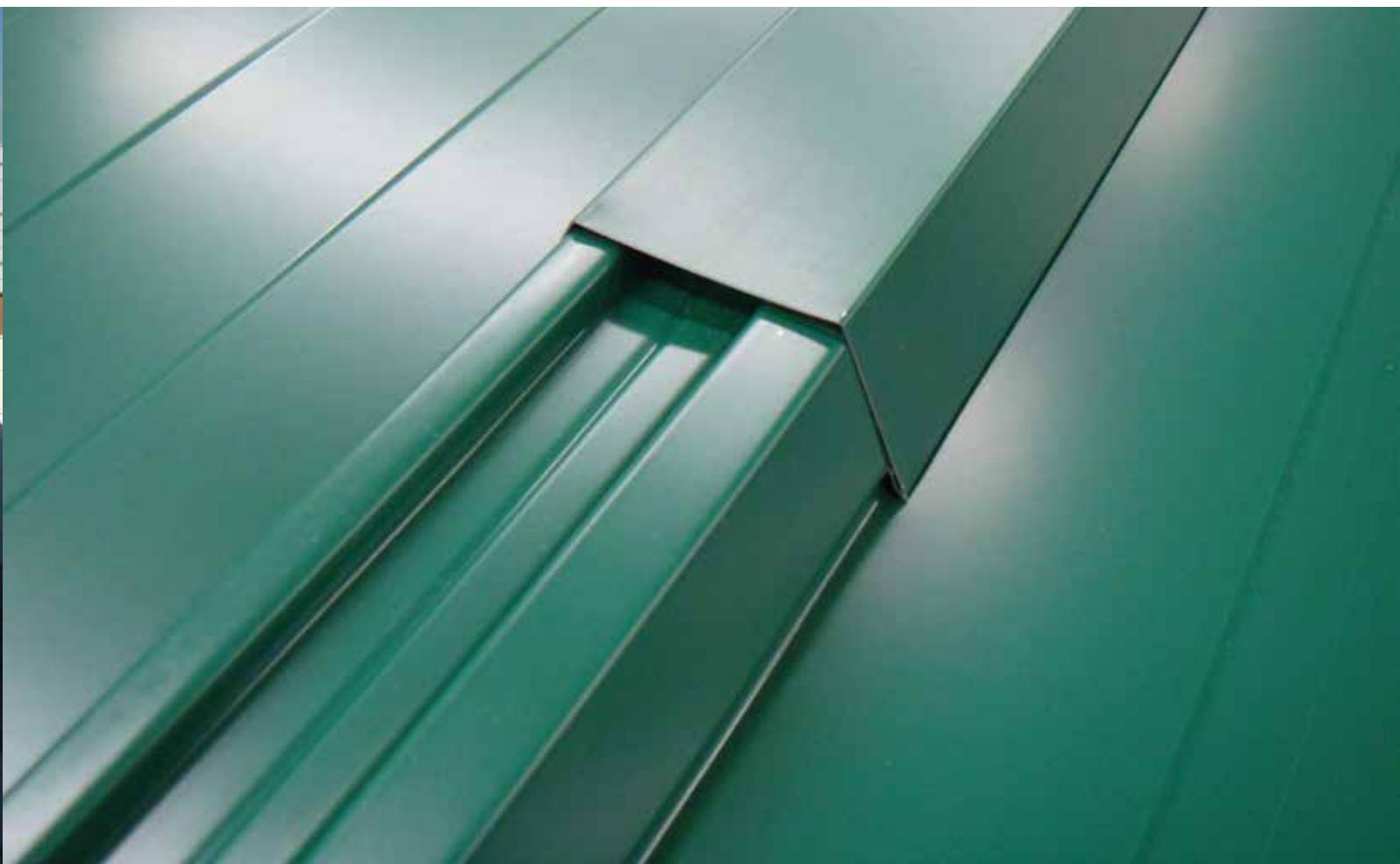
Allowable Inward and Outward Loads (psf). Minimum 2.44" thick 26-26 ga., Three Rib Profile

Panel Span (ft)	Span Condition		
	Single Span	Two Spans	3 or more Spans
1	121.8	131.9	137.5
1.5	81.2	88.4	99.7
2	60.9	66.6	74.8
2.5	48.7	53.5	59.9
3	40.6	44.7	49.9
3.5	34.8	38.4	42.8
4	30.5	33.6	37.5

NOTES:

1. Allowable inward and outward loads are based on panel an connection strength and deflection limit of L/240.
2. Allowable loads are obtained from ASTM E1592 test an calculated with a factor of safety 2.0 for connection.
3. Panels will be fastened along each panel seam with (2) #12-24 x 4-1/4" HWH fasteners with 1/2" bonded sealing washer installed through 2-3/8" x 1-9/16" x 16 ga. bearing plate prior to installing the 24 ga. steel cap.
4. (1) #12-24 x 4-1/4" HWH fastener with 1/2" bonded sealing washer will be installed through 1-9/16" x 20 ga. bearing plate with sealing rubber along the intermediate rib of each panel at each purling.
5. #12-24 x 1" HWH fasteners with 1/2" bonded sealing washers will be installed staggered 2.5 -ft o.c on either side of the seam cap.
6. The structural capacity of the panel supports are not considered and must be examined independently.

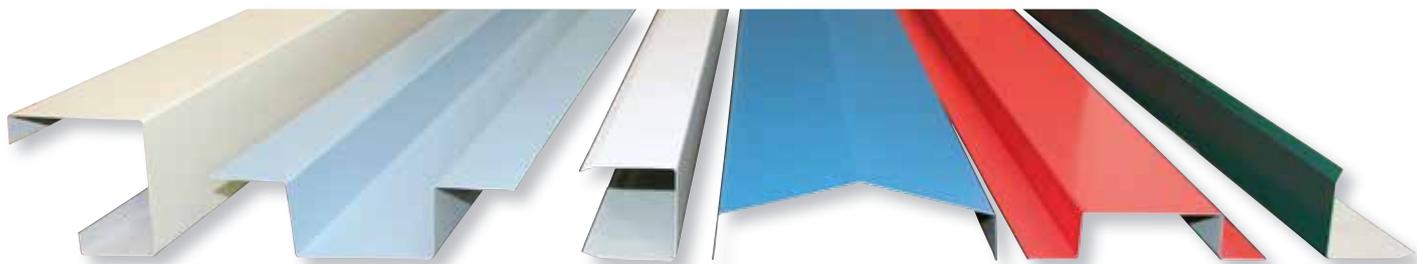




MASTER PANEL offers a wide range of flashing pieces that can provide solutions to all kinds of construction details, achieving the functionality and aesthetics to suit the requirements of every project.

We can adapt to the design requests of our customers, and are able to carry out any cutting or folding job, whatever your requirements.

Flashings



Our flashings are made from coated steel sheet according to the following standards:

- Galvanized steel / UNE-EN 10142
- Prepainted steel/ UNE-EN 10169

We use only quality raw materials; the flashings can be manufactured in lengths up to 20 ft., with thicknesses from gauge 26 to 10 and with a variety of different finishes:

- Galvanized
- Prepainted

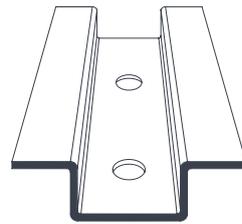
		AVAILABLE THICKNESSES									
Galvanized	mm.	0.50	0.60	0.80	1.00	1.20	1.50	2.00	2.50	3.00	
	gauge	26	24	22	20	18	16	14	12	10	
Prepainted	mm.	0.50	0.60	0.80							
	gauge	26	24	22							
Imitation wood ⁽¹⁾	mm.	0.50	0.60								
	gauge	26	24								

⁽¹⁾ Interior use only.

* For construction details using flashings, please see page 32 of this catalogue.

* For other available possibilities such as material type and thickness, please check with our sales department.

Accessories:



seam plate



bearing plate



#12-24 HWH fasteners with
1/2" bounded sealing washer



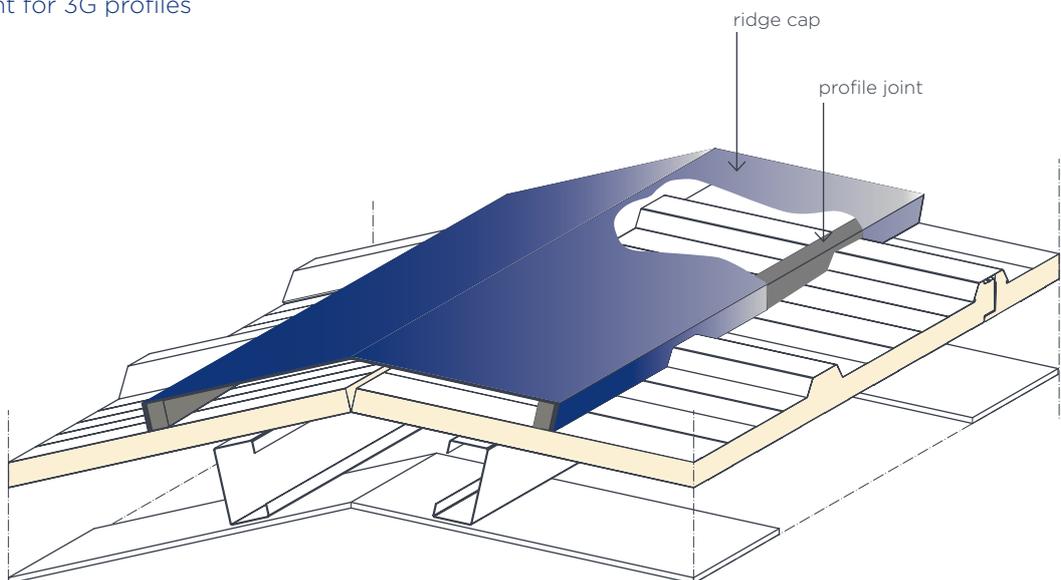
Polyurethane sealant



Butyl rubber



Joint for 3G profiles

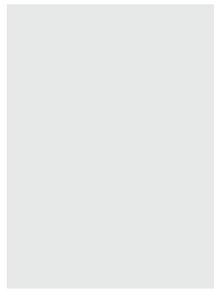


Colour chart:

Standard poliester Colours:



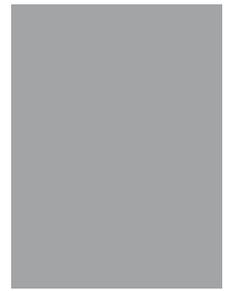
bidasoa cream



pyrenean white



pearl grey



metallic silver

Finishes:

Polyester

MAIN PROPERTIES:

HIGH RESISTANCE TO CORROSION

HIGH RESISTANCE TO UV RADIATION

GOOD FORMABILITY

GOOD STABILITY OF COLOURS
AND APPEARANCE

INTERIOR AND EXTERIOR USE

APPLICATION:

STANDARD FINISH FOR ALL TYPES OF
ROOFING, FACADES, COLD STORES
AND ACCESSORIES

SURFACE APPEARANCE:

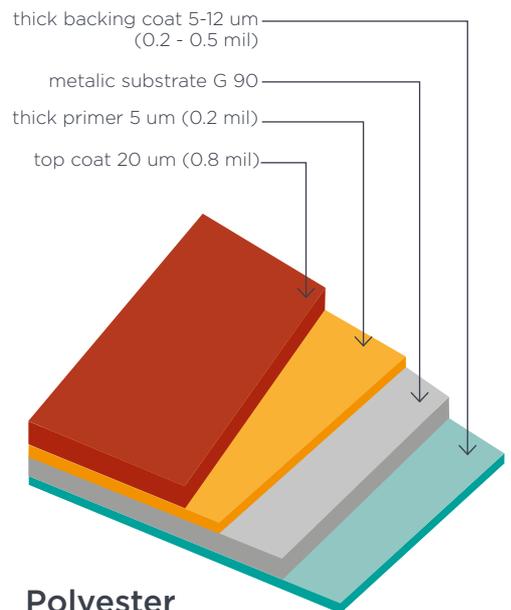
SMOOTH

THICKNESS:

25 MICRONS (1 MIL)

OUTER FACE COMPOSITION:

5 MICRONS PRIMER + 20 MICRONS OF
FINISHING COAT



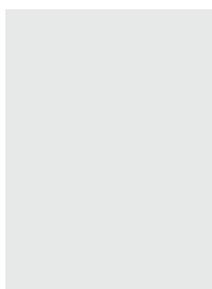
Polyester

NOTES:

- Standard finish 25 µm Polyester. Other finishes available on request.
- Orders outside the standard range of colours have a minimum requirement of 10,760 sqft.



Standard PVDF Colours:

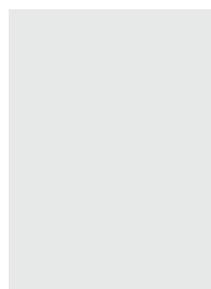


pyrenean white



metallic silver

Standard HDX Colours:



pyrenean white

PVDF

VERY HIGH RESISTANCE TO CORROSION

EXCELLENT RESISTANCE TO UV RADIATION

GOOD FORMABILITY

EXCELLENT STABILITY OF COLOURS AND APPEARANCE

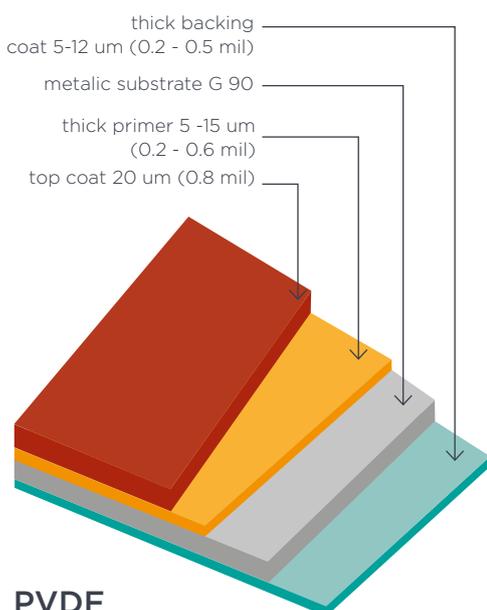
INTERIOR AND EXTERIOR USE

SPECIAL FINISH, WITH VERY HIGH RESISTANCE TO CORROSION AND HIGH STABILITY OF COLOURS, FOR ALL TYPES OF ROOFING, FACADES, COLD STORES AND ACCESSORIES,

SMOOTH

25-35 MICRONS (1 MIL / 1.38 MIL)

5-15 MICRONS PRIMER + 20 MICRONS OF FINISHING COAT



PVDF

Granite HDX/SDP 50

EXCELLENT RESISTANCE TO CORROSION

EXCELLENT RESISTANCE TO UV RADIATION

VERY GOOD FORMABILITY

STABILITY OF COLOURS AND APPEARANCE

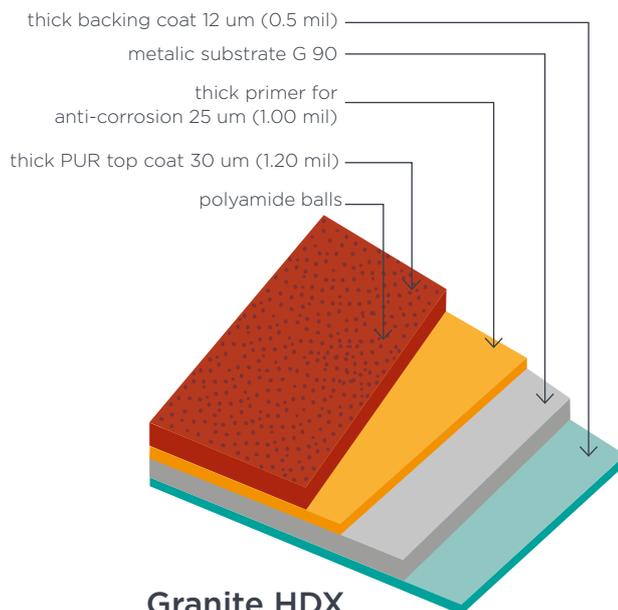
INTERIOR AND EXTERIOR USE

RECOMMENDED FINISH FOR HARSH ENVIRONMENTS, COASTAL AREAS AND / OR SEVERE WEATHER CONDITIONS, FOR ITS EXCELLENT RESISTANCE TO CORROSION.

GRANULATED

55 MICRONS (2.16 MILS)

25 MICRONS PRIMER + 30 MICRONS PURE COATING



Granite HDX

• The colours in this catalogue are approximate.

• Metallic coating are directional. Panels and trims must be installed oriented in the same directions to avoid perceived colours variances.





Technical assistance

Technical assistance: Recommendations

Master Panel offers our clients a technical department to support your designers and Project Management. Our building system section provides support from the initial concept of the project to the installation and subsequent maintenance.

This advice may include:

- Proposals for appropriate technical solutions for each project.
- Providing support regarding the cutting, quantifications of the panels and necessary accessories.
- Support and technical information for the training of fitters.
- We provide plans and sketches of the most common technical details.
- Technical support in the correct installation of our panels, forming a team with the Project Management

Transport and loading

- Panels must always be transported on flatbed vehicles.
- Panels must always be packed with polystyrene blocks at the base to prevent damage (fig. 1).
- Panels must never be stacked to a height greater than 2.70 m. (8' 10") (including polystyrene blocks, accessories, cover caps, trims, etc) (fig. 2).

Transport:

By truck:



1



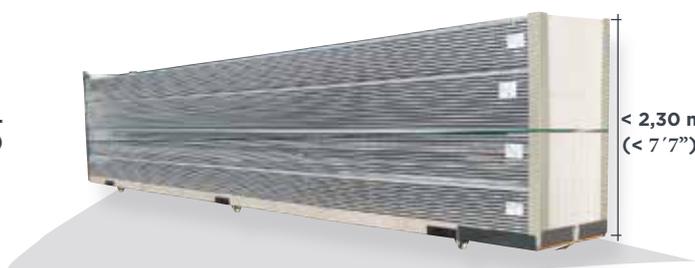
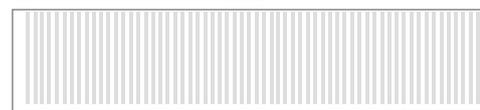
< 2,70 m.
(< 8'10")

2

In containers:



20' DV
40' HC



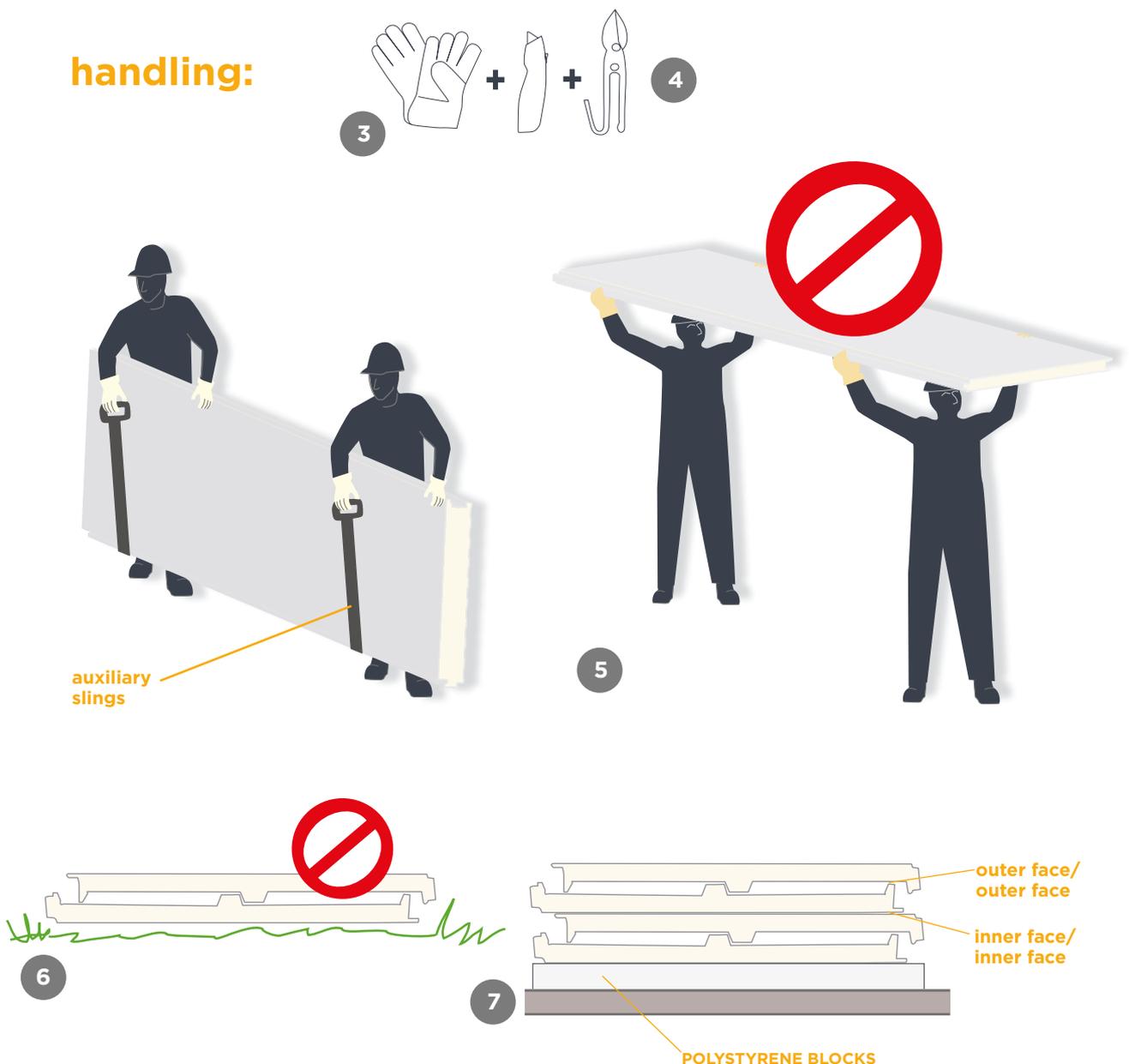
< 2,30 m.
(< 7'7")

Handling

Manual unloading:

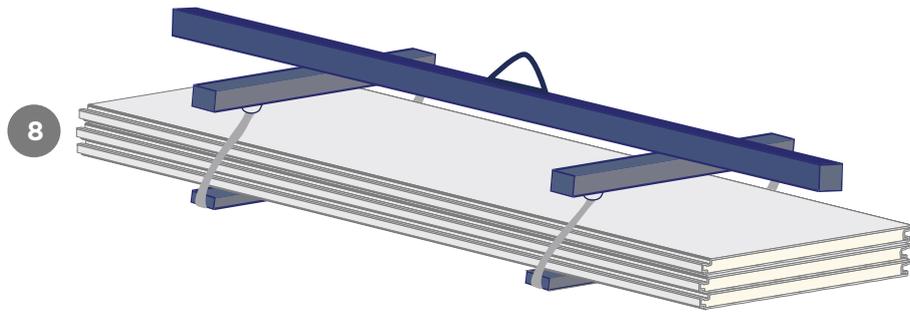
- Staff who handle panels should always wear safety gloves (fig. 3).
- Appropriate tools should be used to remove the panel packaging (fig. 4).
- The storage area must be defined in advance. Always store on a firm, level surface free of debris (see recommendations for storage). Remember that panels should not be stacked to a height exceeding 2.70 m. (8' 10").
- Always move panels one by one. Panels should always be moved by lifting them, they should never be dragged, as the panel edges can cause damage to the next panel.
- Panels should always be moved while held in a vertical position. Auxiliary slings may be used where necessary (fig. 5).
- Packs of panels should never be stacked directly on earth, vegetation or bare ground (fig. 6).
- Panels can be stacked on site by placing one panel over another, facing each other (fig. 7)

handling:



Crane unloading:

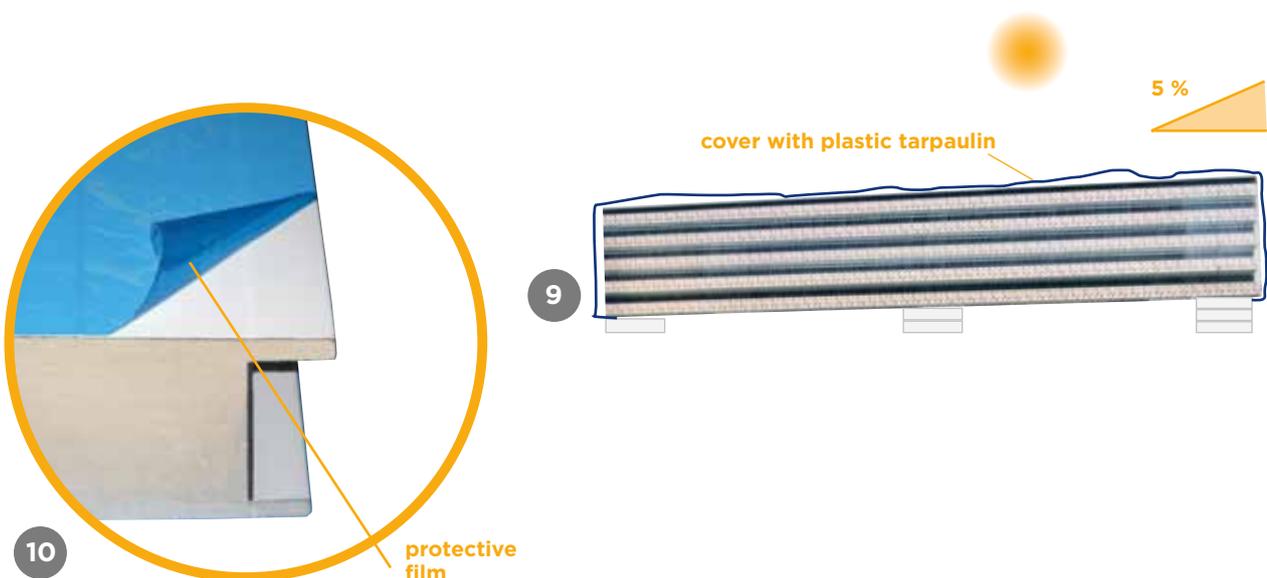
- Staff who handle panels should always wear safety gloves.
- The crane must be operated by a qualified person who holds the necessary permits and licences.
- We recommend you always use a balance beam cradle or unloading cradle. (fig. 8).
- Panels should be lifted when held with slings, ensuring there is a minimum of two supports along the pack.
- We suggest that you place protection on the edges of the pack at the points where it is held by the slings, rigid spacers may be used with a length greater than the panel width.



Storage.

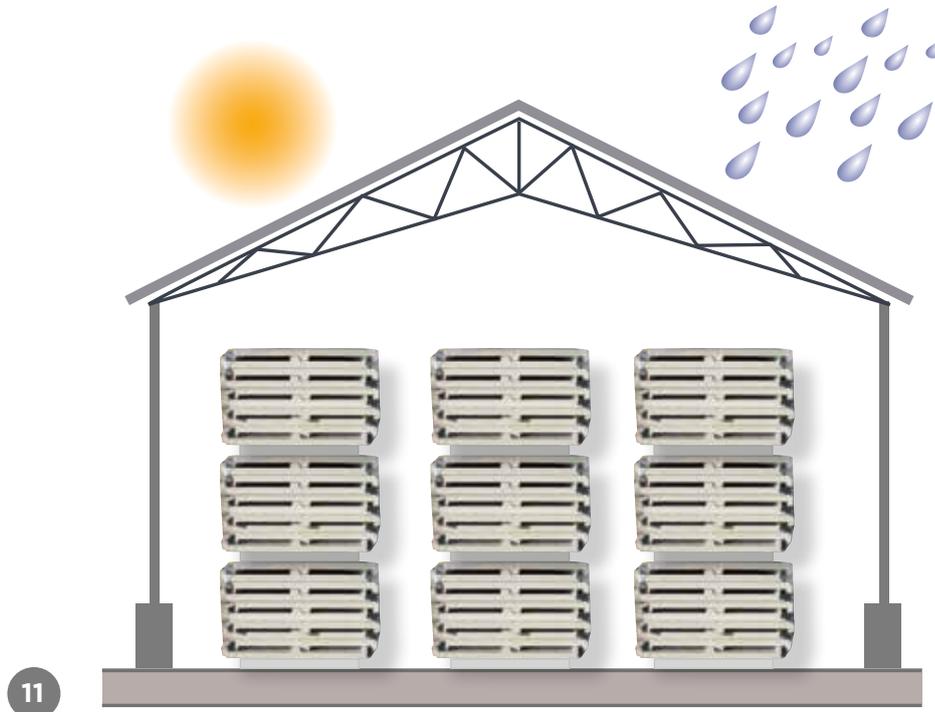
Short term:

- Packs and panels should never be stacked directly in contact with bare earth or vegetation (fig. 7).
- The storage area should be dry and ventilated.
- If covered storage is not possible, the panels should be stored with an inclination of 5% to avoid the accumulation of water in the package. Make cuts in the stretch film plastic packaging so as to allow the escape of any water that may accidentally enter. Packages must be covered with waterproof materials, tarpaulin or plastic (fig. 9).
- The protective film must be removed from the surface of the panel in a period not exceeding 15 days from their exposure to the elements (fig. 10).
- Panel that are stored in packs are sensitive to moisture, condensation and rain. The water that accumulates between the panels could create zinc hydrocarbon on the surface, which in the case of prepainted panels will be seen as surface staining. To avoid this, place spacers between panels. Accumulated water can in turn damage the paint on the panels, causing it to peel.



Long term:

- Follow the short-term storage recommendations (except the third recommendation in the previous section). The storage area should be dry, ventilated and covered. Under no circumstances should panels suffer long-term exposure to the elements (**fig. 11**).
- Remove the stretch plastic packing from the panels to prevent the build-up of moisture or condensation inside the pack.



Maintenance Recommendations

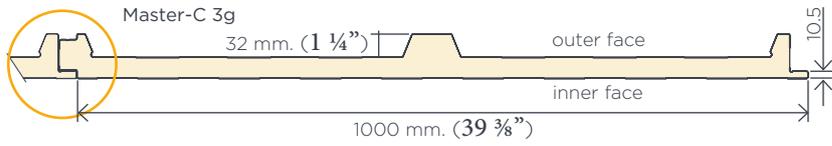
Once the panels have been fitted on-site, a general cleaning should be performed. Be sure to remove all metal chips or burrs and any objects, metallic or otherwise, that may be on the surface, so as to remove possible focal points for the formation of rust. If necessary, use a mild household detergent without caustic soda.

Before starting any maintenance work please remember that our roofing is not designed for frequent heavy walking, but just for walking on occasionally; always avoid stepping on flashings, ridges and any installed trim, always wear rubber-soled shoes and safety gloves; do not drag equipment or tools along the surface of the roofing.

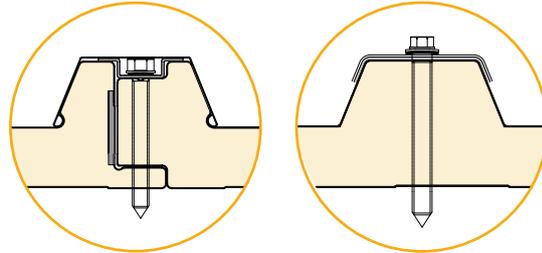
- Inspect the gutters and downpipes twice a year.
- Carry out an annual cleaning, including skylights. If necessary use a mild household detergent, without caustic soda. Do not use brushes, metal scouring pads or other abrasive materials.
- Make an annual check on the condition of mouldings and trims, sealants and screw fittings that are exposed to the elements.
- Inspect the areas of sheet overlaps, the state of the sealant and of the screw fittings and, if necessary, re-seal.
- If lightning conductors are installed, make an annual inspection of the condition of the installation.
- For panels with a polyester paint finish, check the state of the paint every two years. For special finishes the first inspection should be carried out as from the fifth year.

Construction details:

Master-C type profiles and joints:

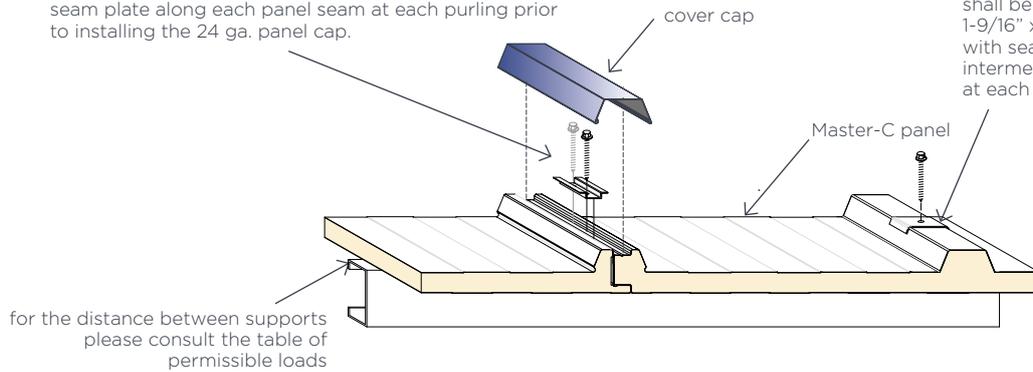


fixing details:



#12-24 HWH fastener with 1/2" bonded sealing washers shall be installed through a 2-3/8" x 1-9/16" x 16 ga. seam plate along each panel seam at each purling prior to installing the 24 ga. panel cap.

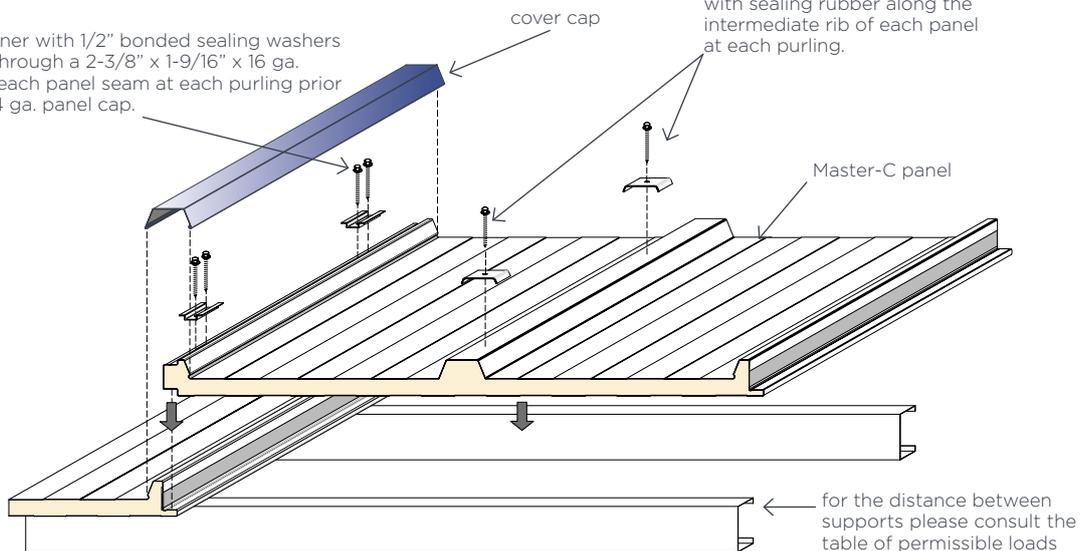
#12-24 HWH fastener with 1/2" bonded sealing washers shall be installed through a 1-9/16" x 20 ga. bearing plate with sealing rubber along the intermediate rib of each panel at each purling.



EXPLODED VIEW OF A MASTER-C JOINT:

#12-24 HWH fastener with 1/2" bonded sealing washers shall be installed through a 2-3/8" x 1-9/16" x 16 ga. seam plate along each panel seam at each purling prior to installing the 24 ga. panel cap.

#12-24 HWH fastener with 1/2" bonded sealing washers shall be installed through a 1-9/16" x 20 ga. bearing plate with sealing rubber along the intermediate rib of each panel at each purling.

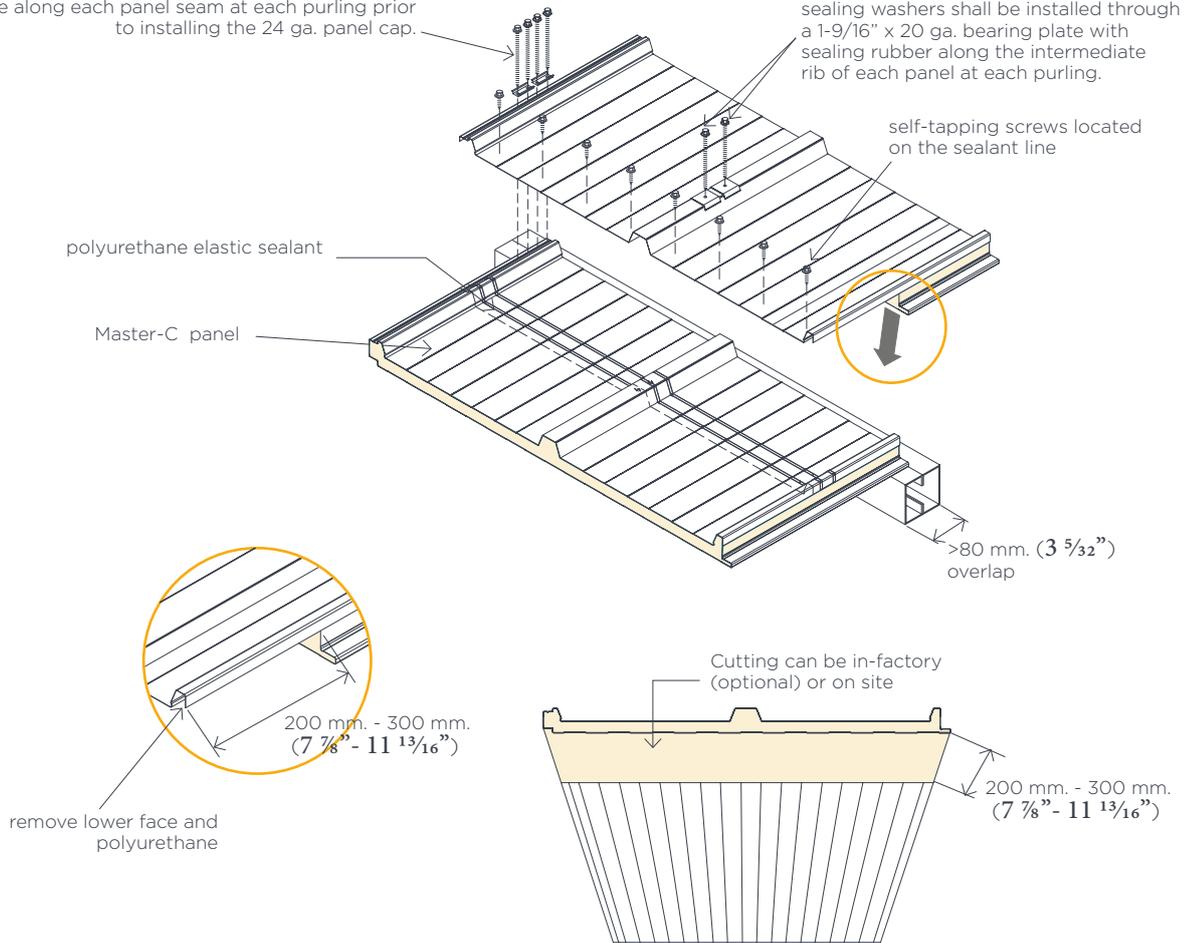


Sheet overlaps:

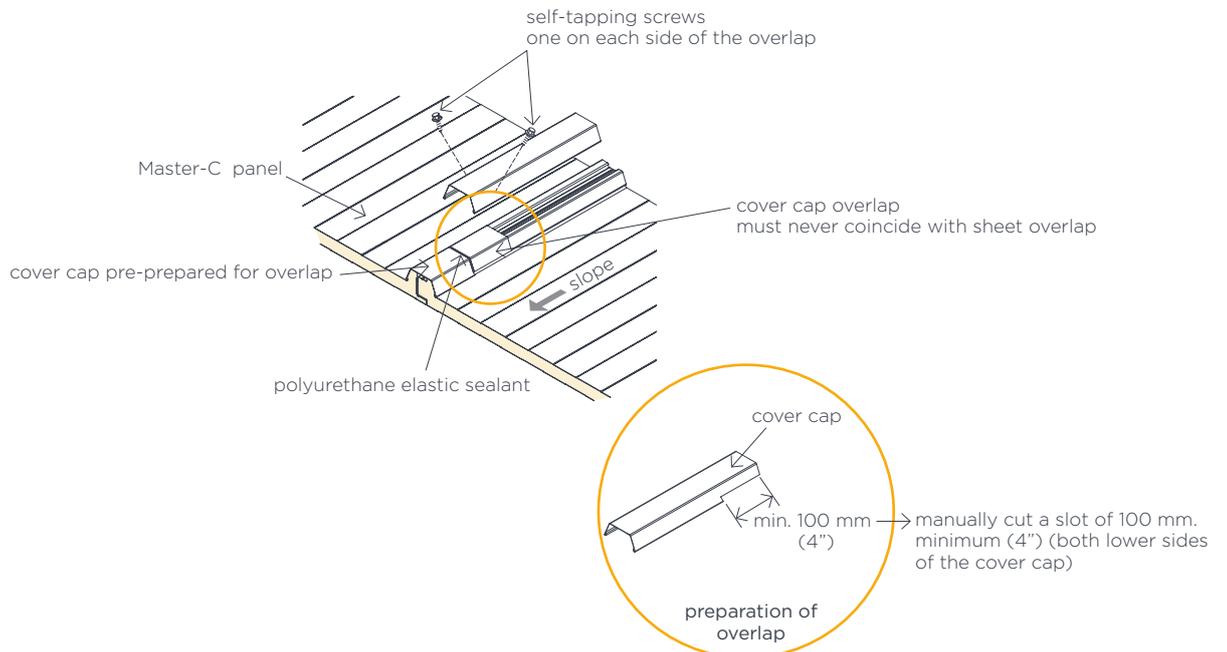
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a solution to be used when the length of roofing is greater than the maximum transportable: national = 16.00m and export = 39'

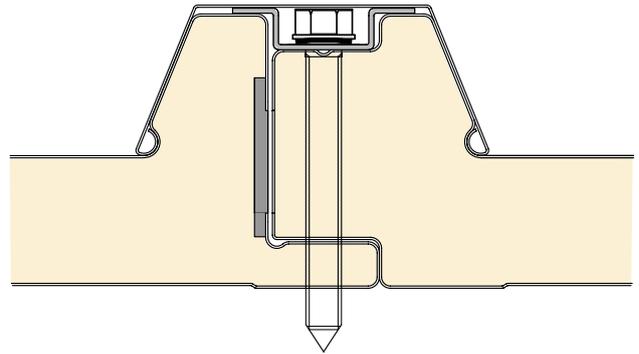
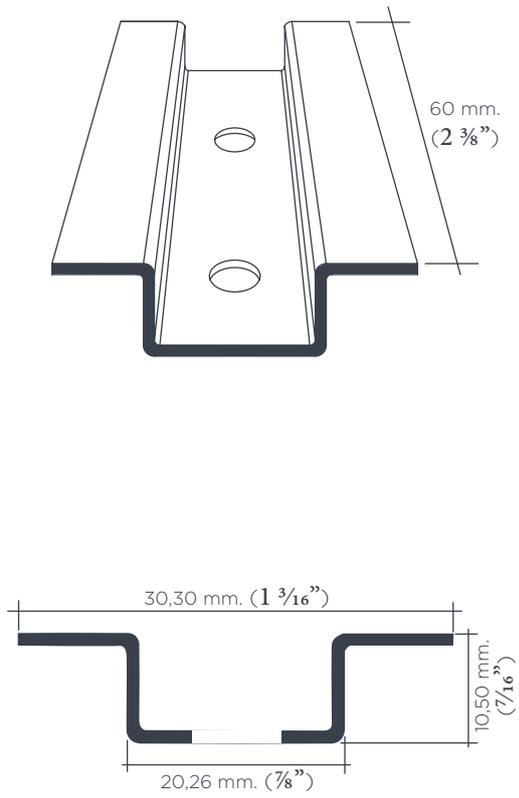
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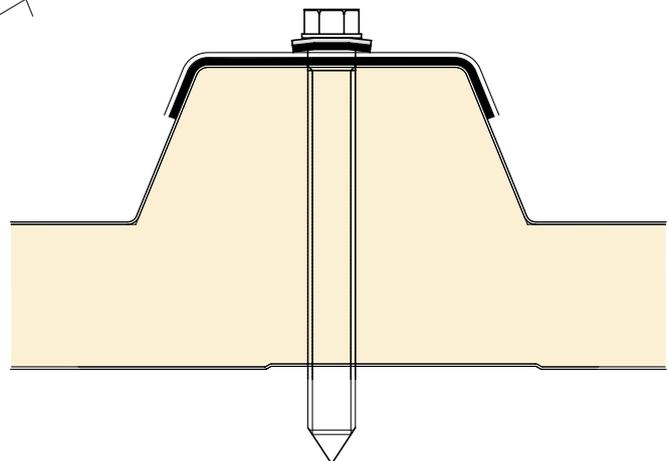
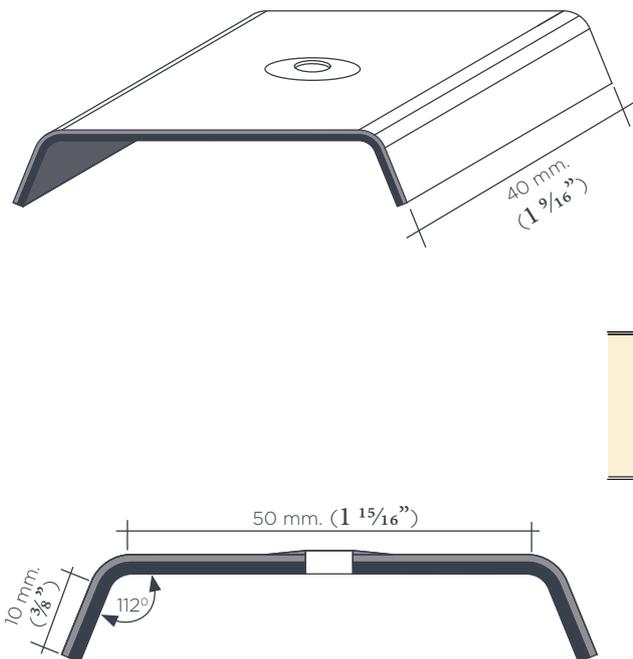
Cover cap overlaps:



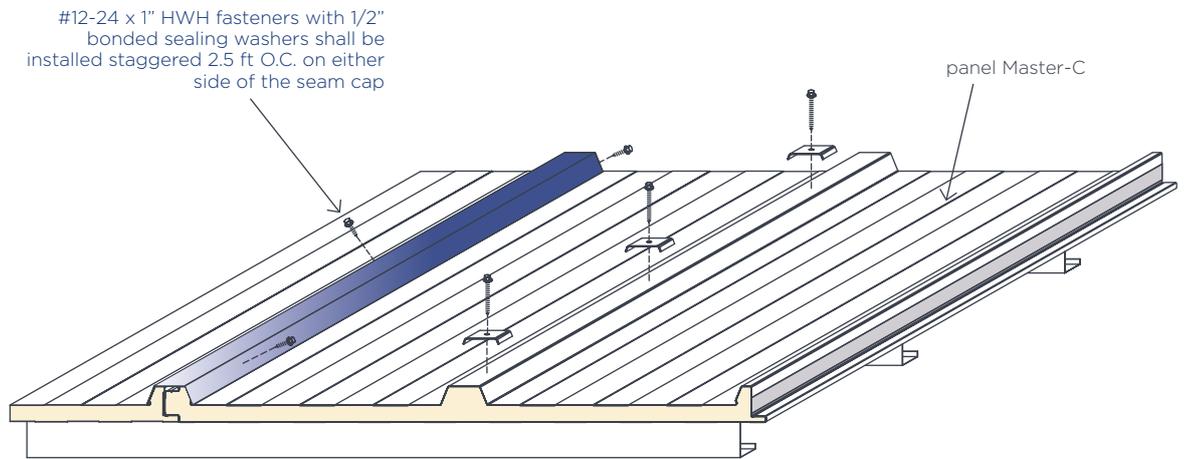
Seam plate:



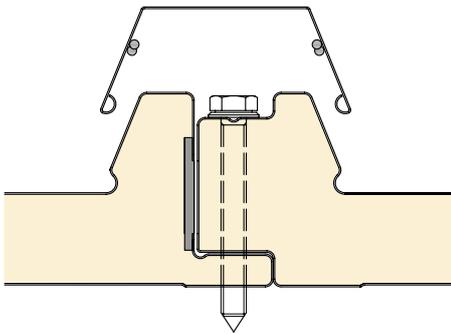
Bearing plate:



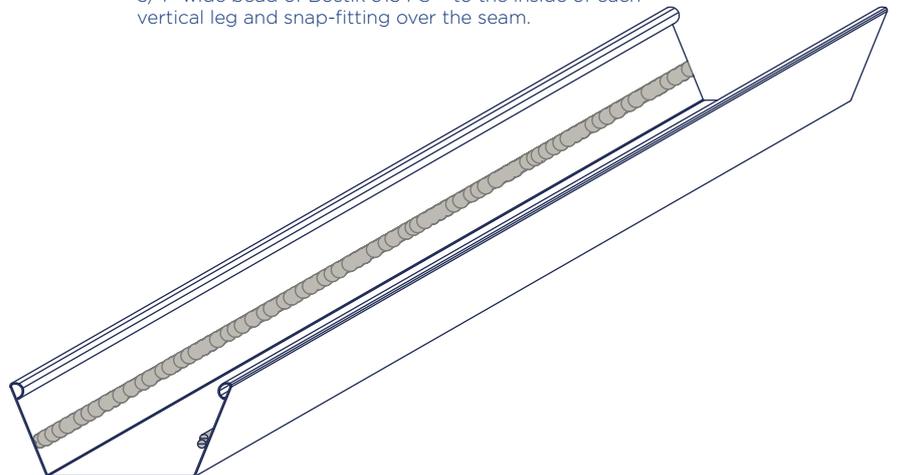
Cover cap fixing details:



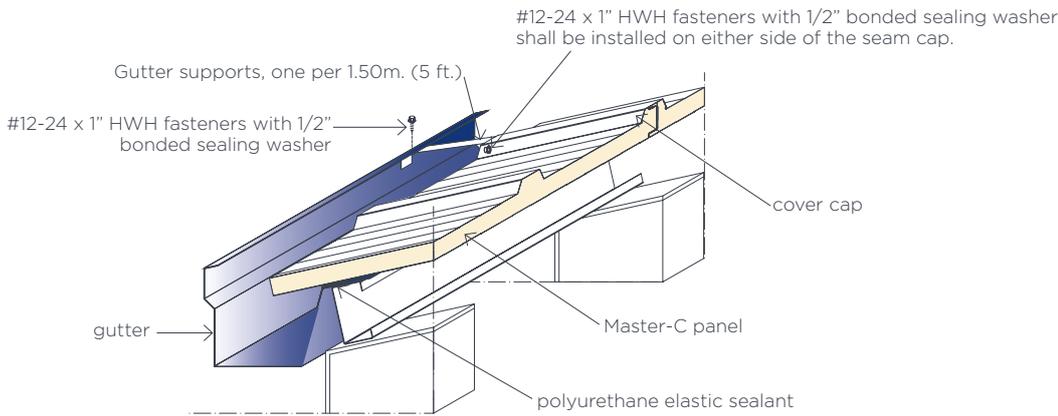
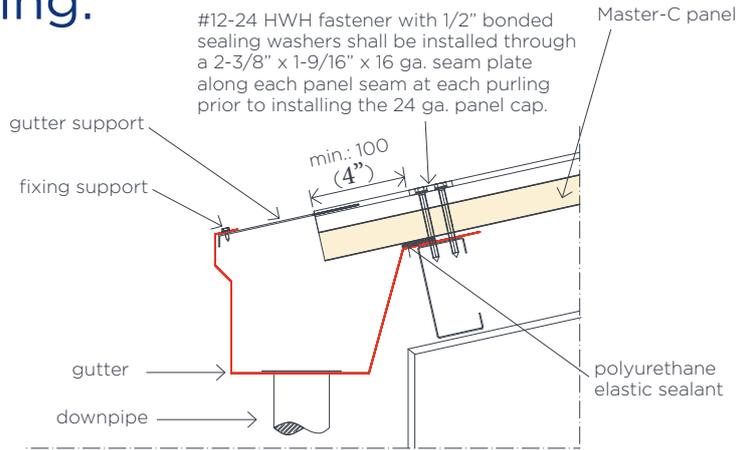
ASTM E 2140 test Method for water penetration



two (2) # 12- 24 x 4-1/4" HWH fasteners with 1/2" bonded sealing washer were installed through a 2-3/8" x 1-9/16" x 16 ga. bearing plate along each panel seam at each purlin prior to installing the 24 ga. steel cap. The cap was installed by applying a continuous 3/4" wide bead of Bostik 915 FS™ to the inside of each vertical leg and snap-fitting over the seam.

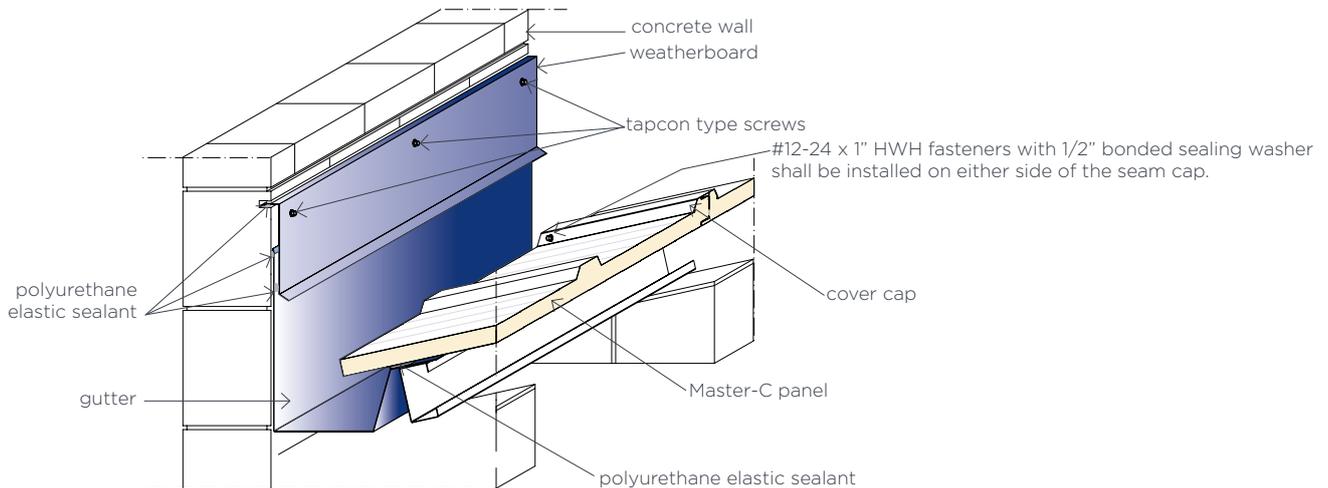
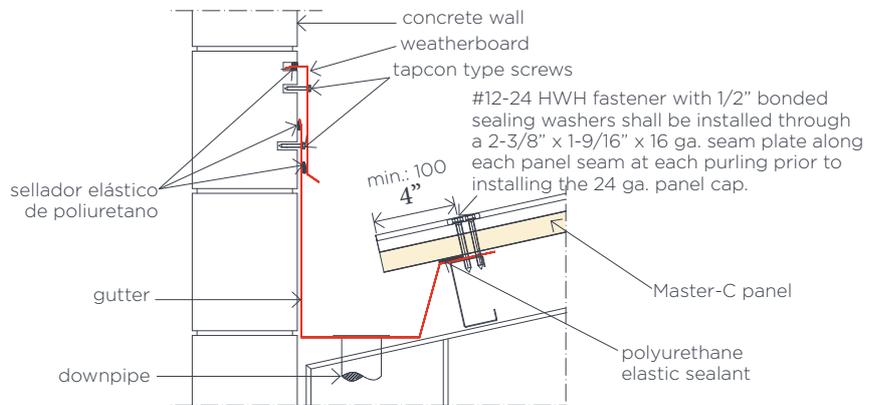


Exterior Guttering:

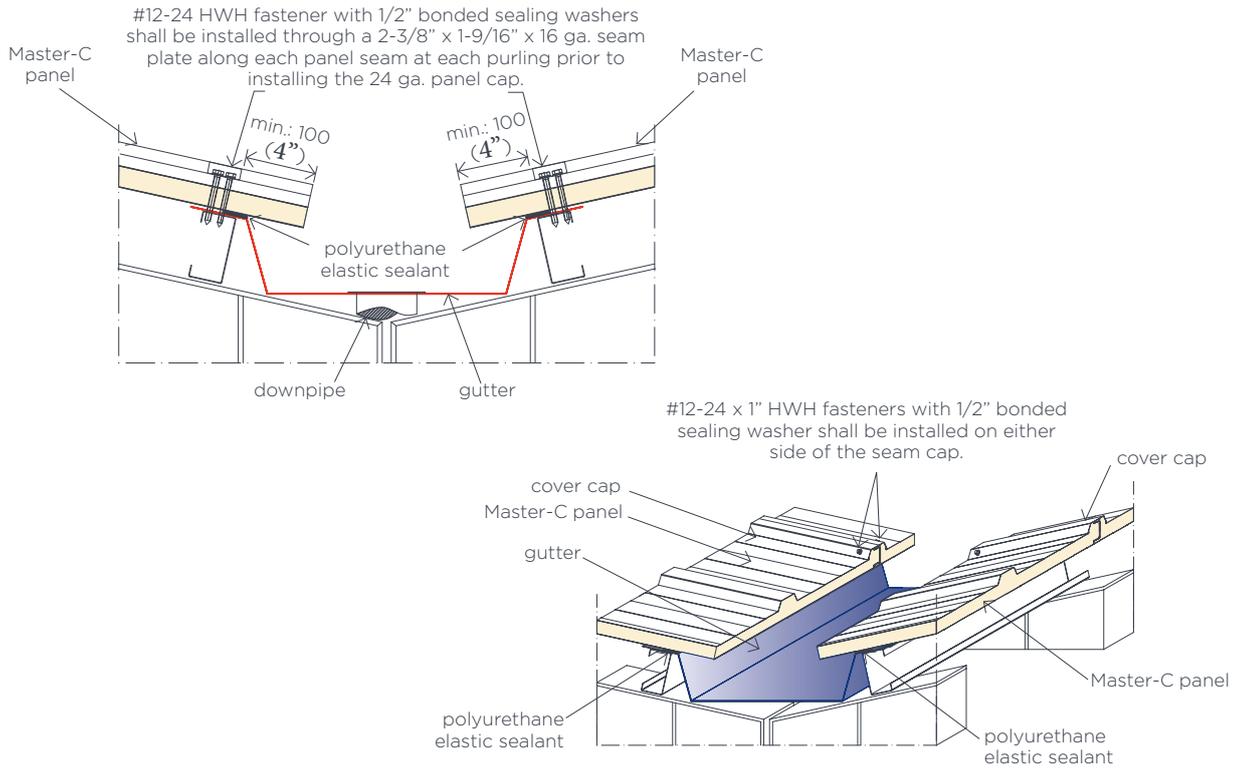


Interior guttering on concrete wall:

Detail not recommended in geographical areas where the maximum intensity of rain > 20 cm. (10")/ hour

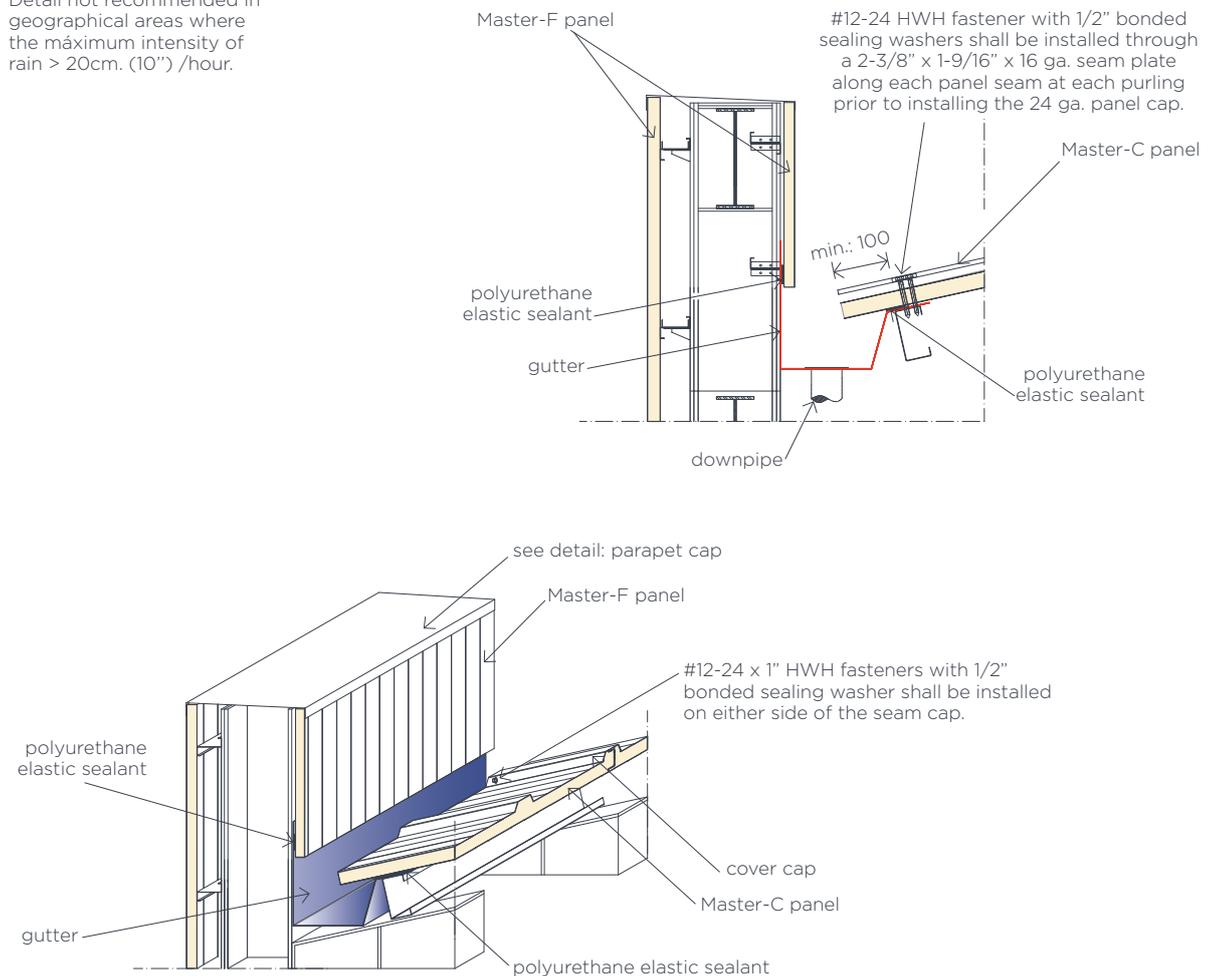


Central guttering:



Side interior guttering:

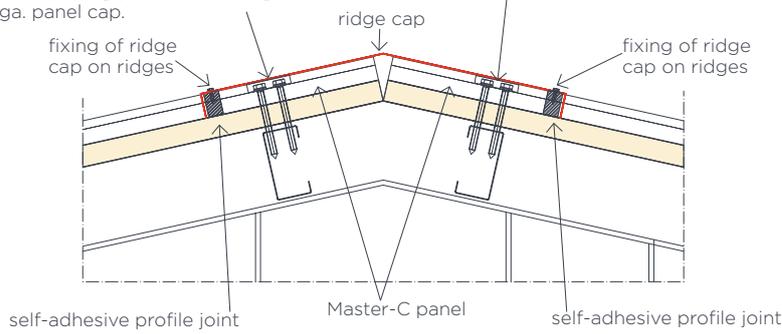
Detail not recommended in geographical areas where the maximum intensity of rain > 20cm. (10") /hour.



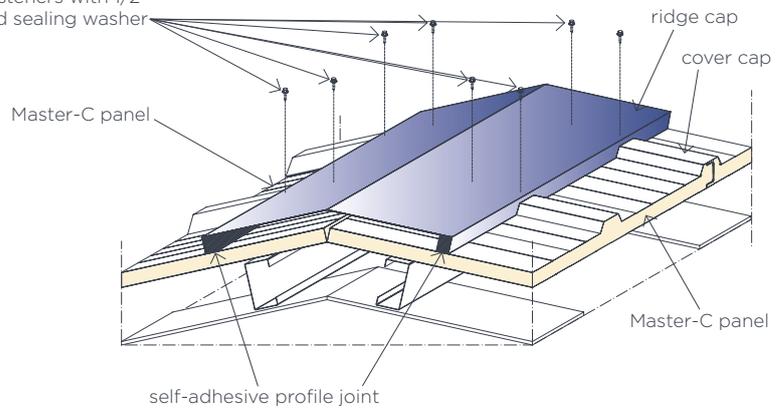
Ridge caps:

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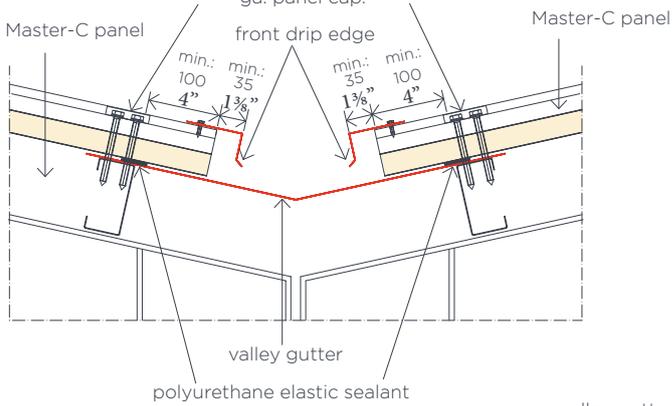


#12-24 x 1" HWH fasteners with 1/2" bonded sealing washer

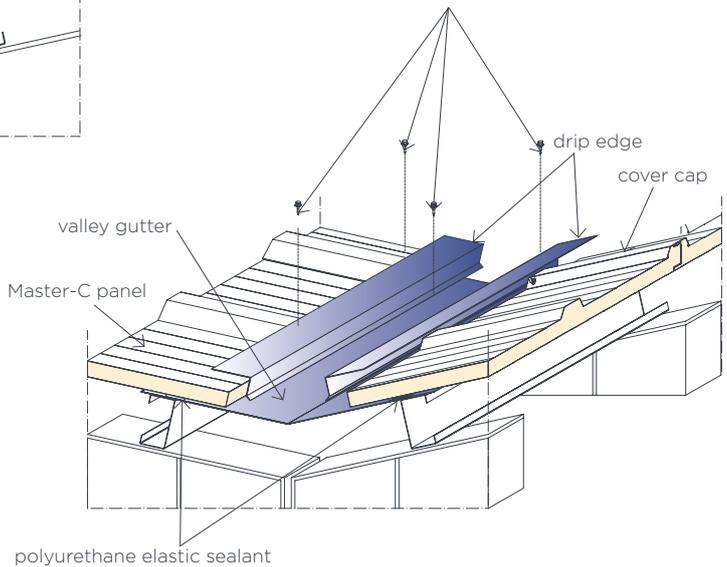


Valley gutters:

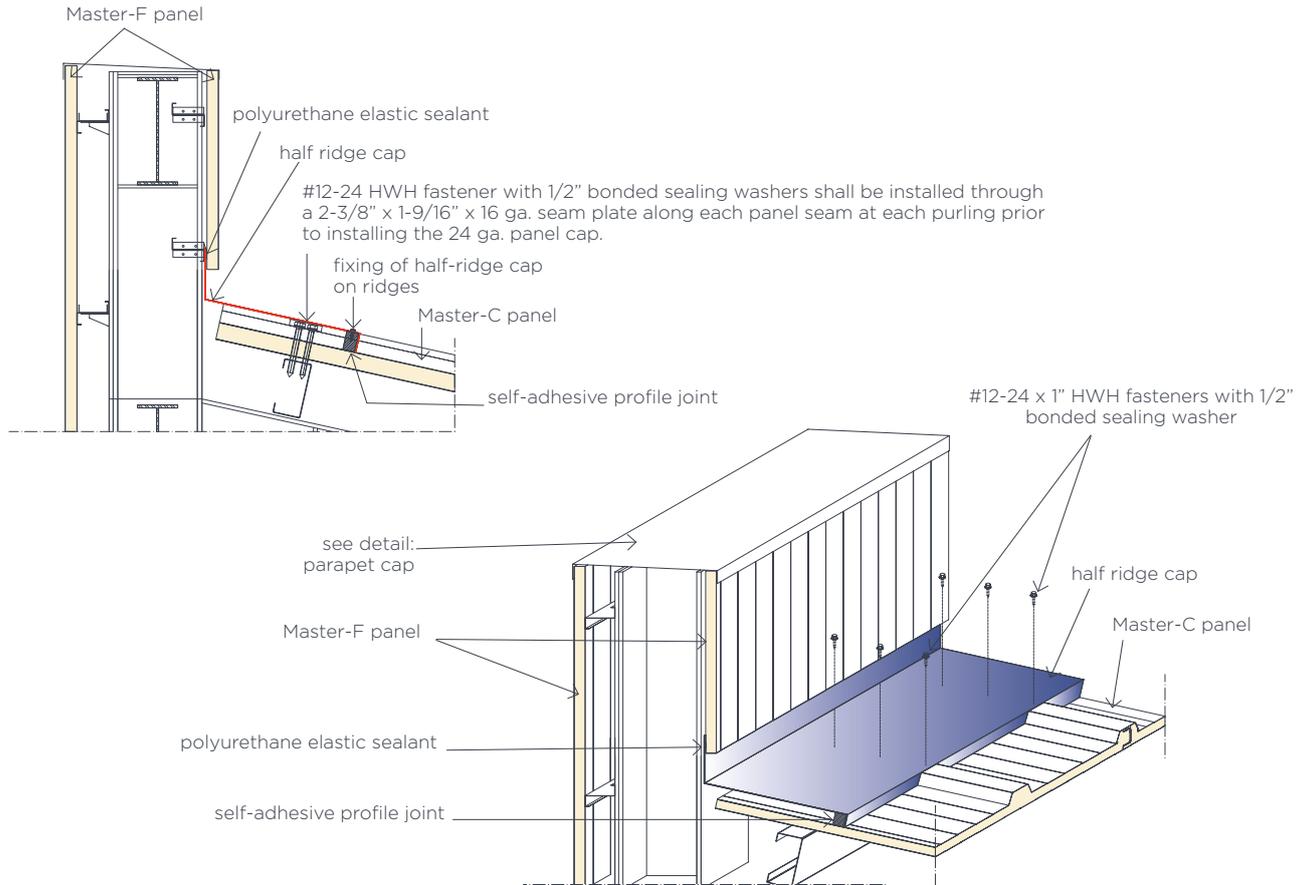
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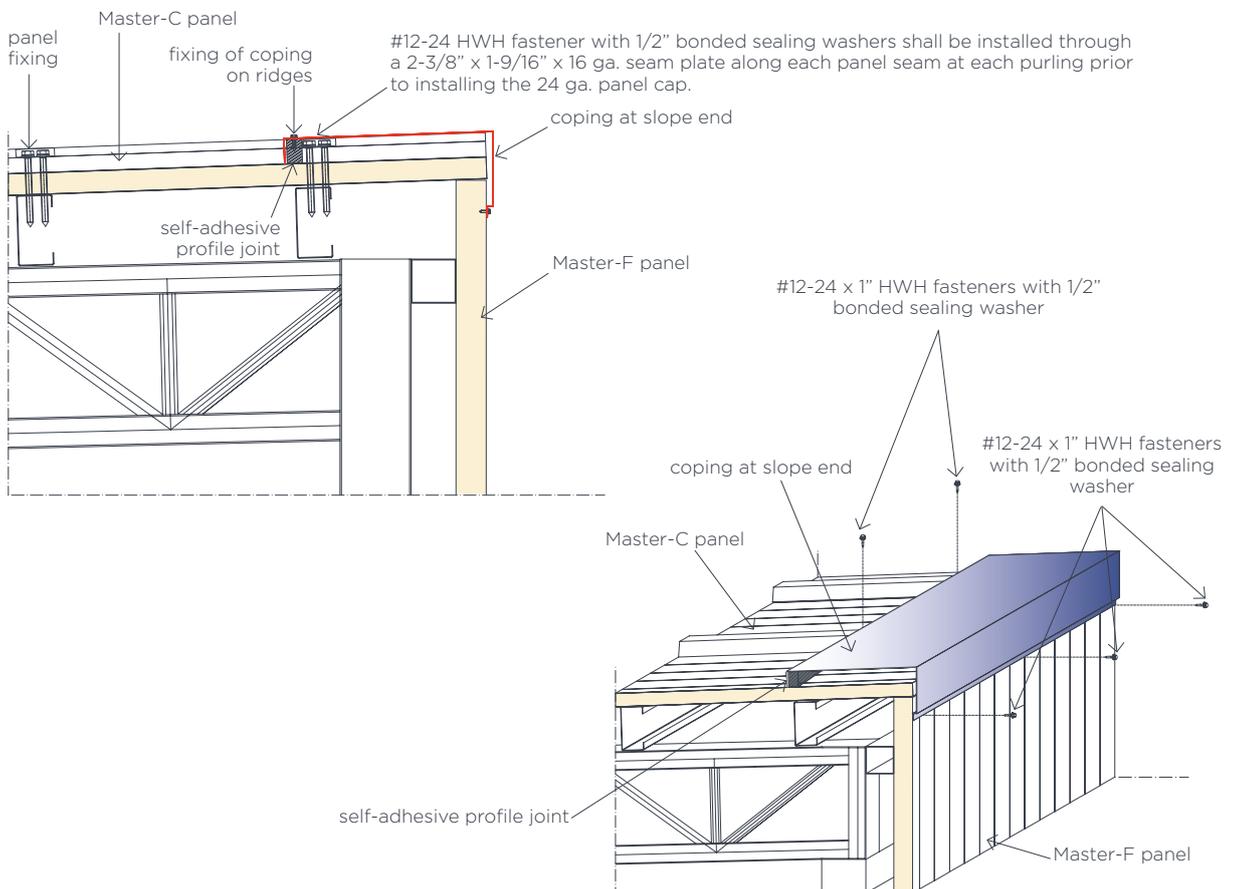
#12-24 x 1" HWH fasteners with 1/2" bonded sealing washer



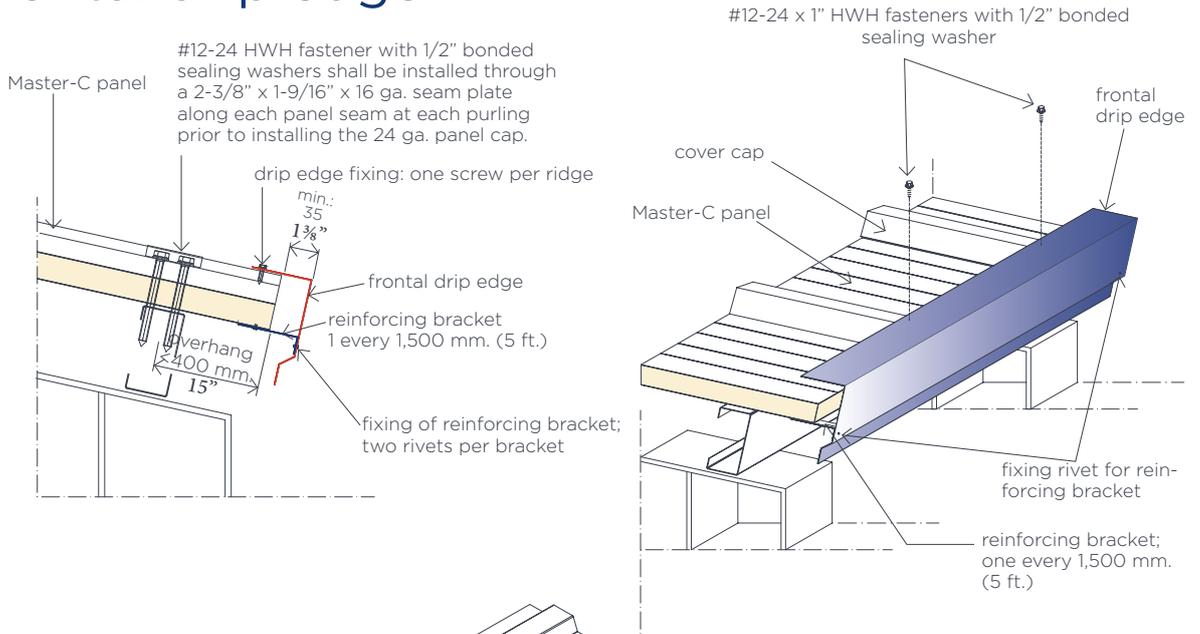
Top of slope to wall:



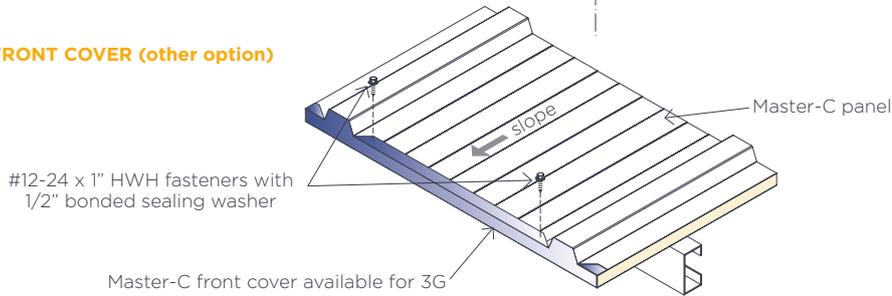
Copings for slope ends:



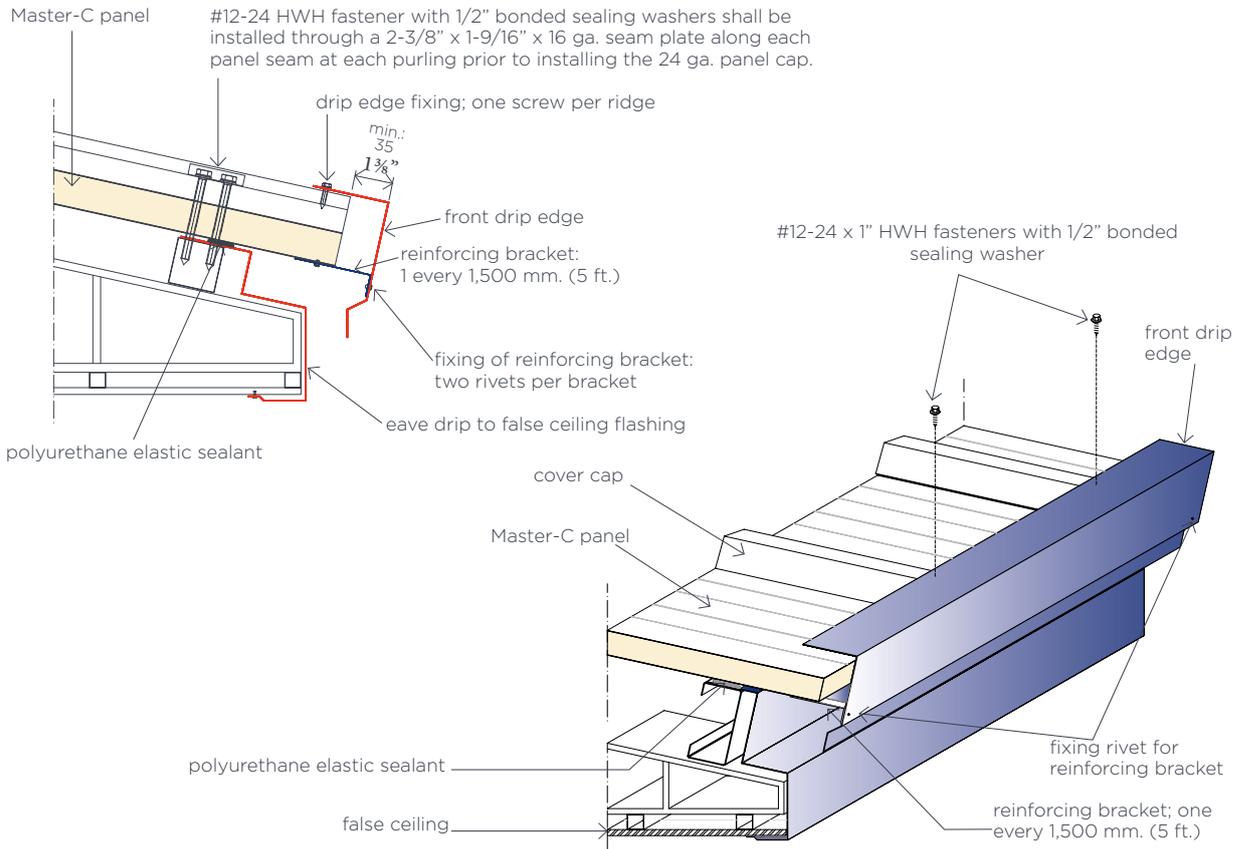
Frontal drip edge:



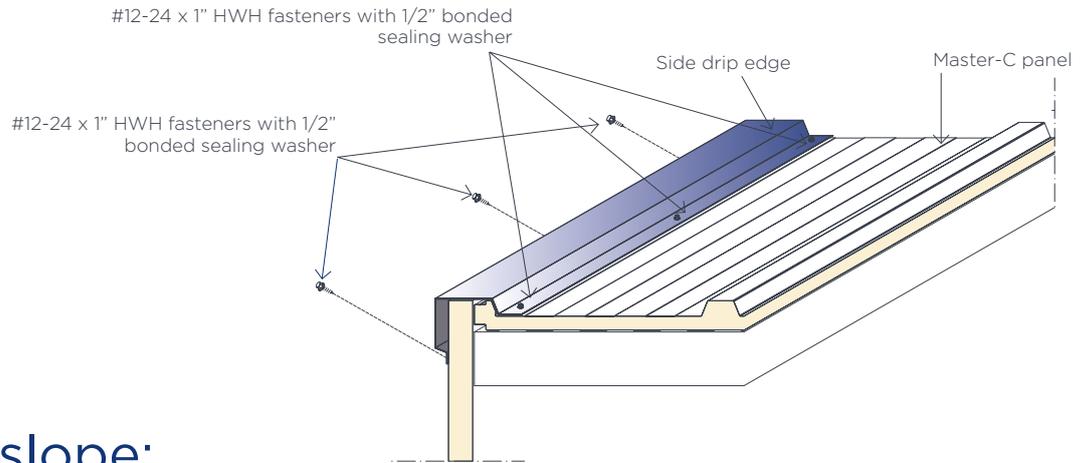
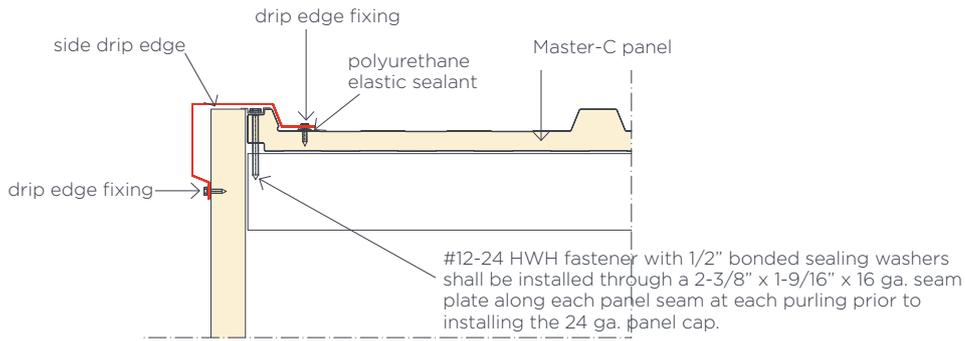
FRONT COVER (other option)



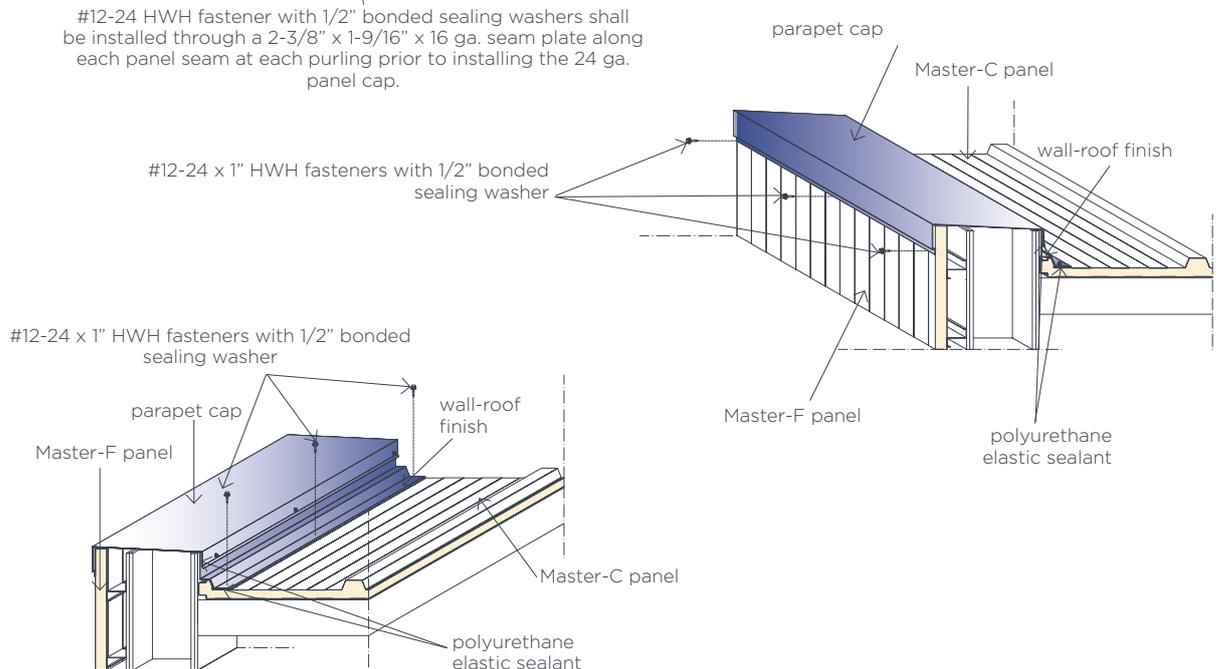
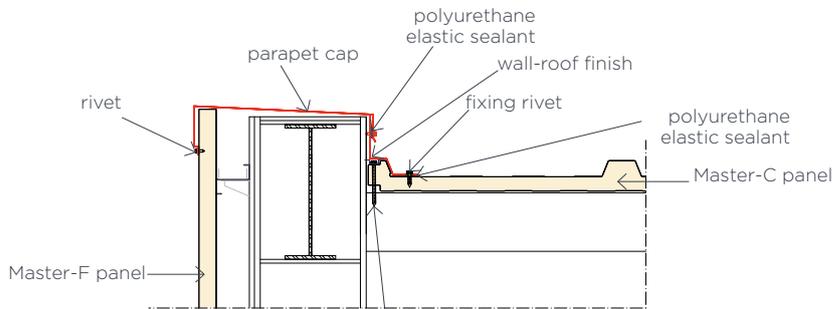
Eave drip to false ceiling:



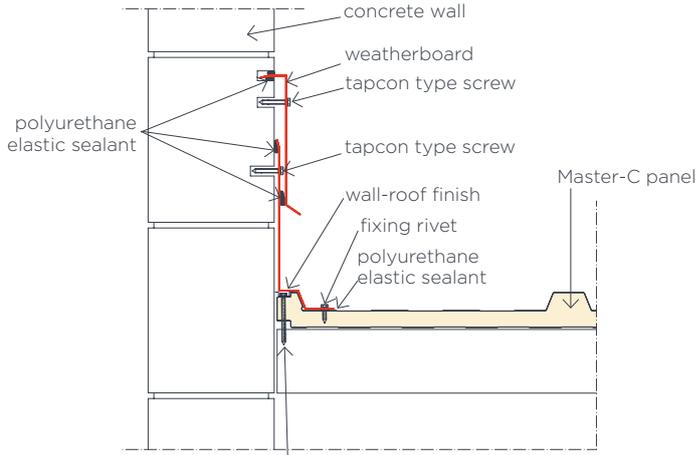
Side drip edge:



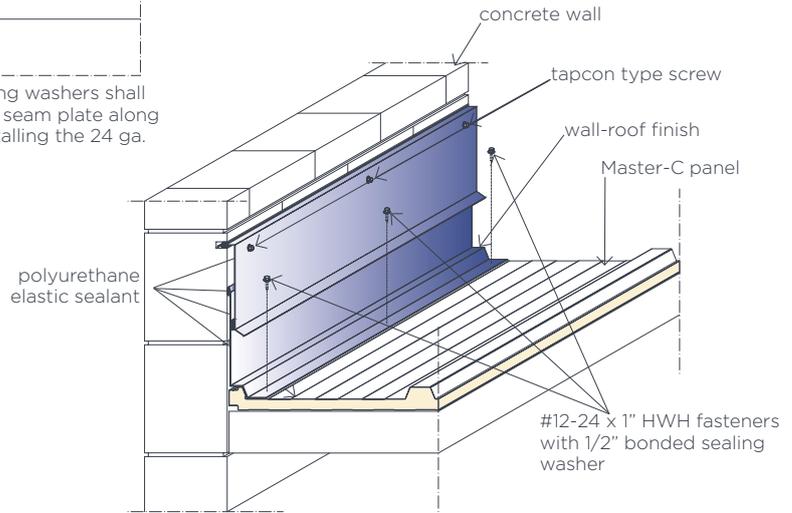
Side slope:



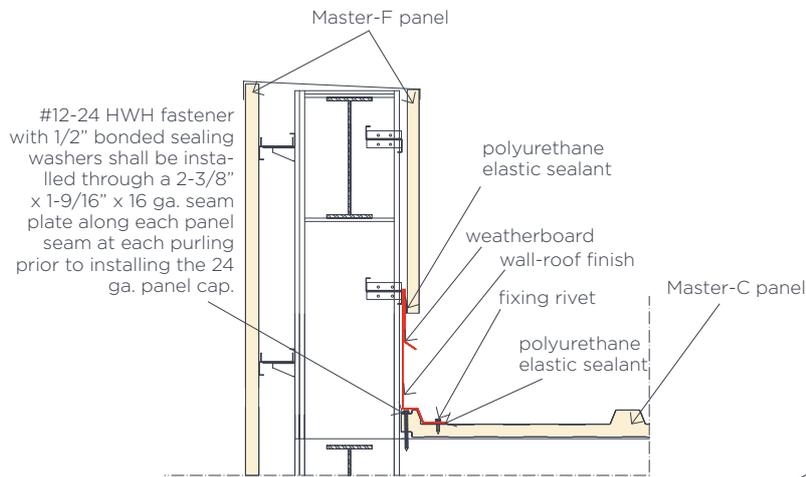
Side slope to wall:



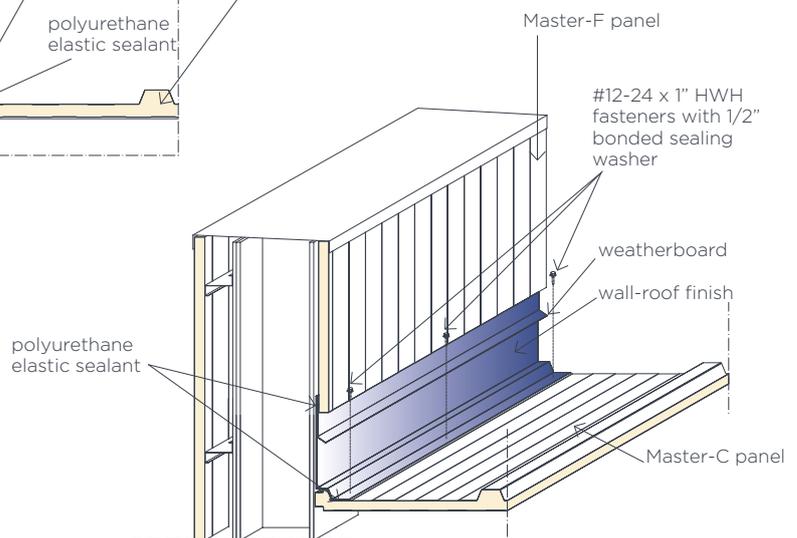
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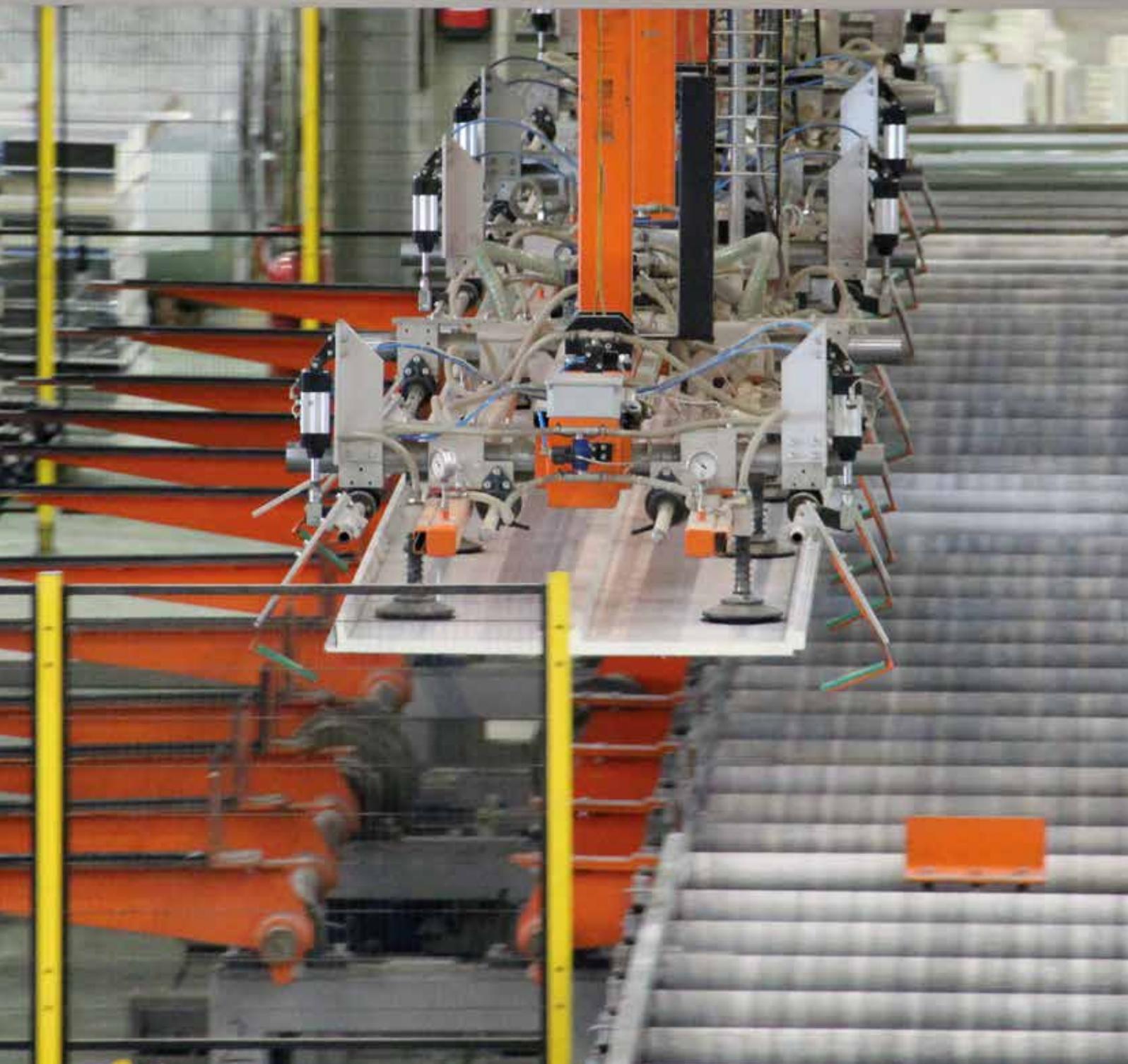


Side of slope to wall:



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MPCUSA.17.1

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