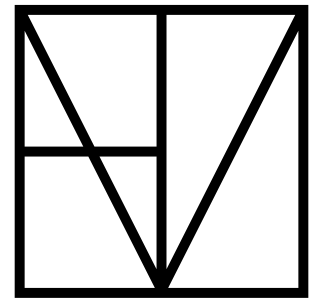


# PRESTO FACADES TECHNICAL GUIDE



METZ®



 **CERTIFIED**  
**NON-COMBUSTIBLE**  
CSIRO TESTED TO AS1530.1



## Contents

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## 1. OVERVIEW

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### ***Metz Presto Ventilated Ceramic Facade Systems***

*offer a wide variety of facade styles  
that are entirely non-combustible, quick  
and cost effective to install.*

#### **PURPOSE**

Metz Presto is a ventilated facade system comprising of ceramic panels. Presto panels are designed to be installed on horizontal profiles (G-Channel) via a feature groove formed on the back of the panel during the manufacturing (extrusion) process. Presto panels allow for easy installation embracing horizontal modulation with continuous linear fixings and vertical modulation with point fixings. The system encompasses hidden fixing methods which are anchored to a substructure.

The anchors shall always be defined in the architectural design of the ventilated facade in accordance with the supporting element and the loads to be transmitted.

The Metz Presto System can be applied both in new construction and in renovation work.

This document provides information intended to assist in installation of Metz Presto ceramic facade panels. Options listed in this guide are not exhaustive and it is advised that there are many possible methods of fixing the Metz Presto panels. It is this suitability to utilise multiple fixing alternatives that enables the Metz Presto Ceramic Facade System to be incorporated into almost any building design.

#### **APPLICATION**

In most cases the installation of Metz Presto panels will be as an ancillary item affixed to a complying external wall. Being certified non-combustible, Presto may be utilised without an FRL (Fire Resistance Level) test conducted with Presto as part of the external wall design. In other words, the Metz Presto panels are installed over an external wall that already meets the performance definitions and requirements of an external wall. This type of facade layer has historically and commonly been referred to as a "rainscreen", "attachment" or "ancillary item". Metz Presto may be used as part of the external wall performance criteria for building classes and requirements that do not need an FRL test. Generally in these designs the Presto panels are installed over a suitable wrap or RAB (Rigid Air Barrier) board that provides the weatherproofing.

### PROPRIETARY ELEMENTS (supplied by Metz)

Aside from the ceramic panels, Metz can provide a choice of two proprietary fixing products - a railing product "G-Channel" to hang panels used only for horizontal orientation, and a clip product to fix panels in either a vertical or horizontal orientation. One of these two alternatives must be utilised to secure the panels to the substrate. It is possible to fix either clips or the G-Channel directly to a solid substrate (such as a concrete or blockwork wall) however, in the majority of cases a framework will be installed to receive either the clips or G-Channel. The combination of the ceramic panels plus one of the two fixing products is referred to in this guide as the "Metz Presto System".

### GENERAL CONSTRUCTION ELEMENTS (not supplied by Metz)

A simple framework attached to the exterior of the building will be utilised in most installations. The framework provides an air gap or space between the rear of the Metz Presto ceramic panel and the exterior surface of the building. This framework must be fixed into structural elements of the building that are capable of withstanding the weight of the Metz Presto System, the framework and any loads that these apply to the structure from the action of wind.

The most commonly used items are :-

"Top hat" profiles

Tube SHS / RHS and angle brackets

Proprietary framing systems.

Aluminum and galvanised steel are the most common elements that are used in the above. In general, simple top-hat or tube/bracket installation will be cheaper than proprietary systems, however many proprietary systems will include an ability to readily correct for plumb in the building exterior. Additionally a higher level of engineering information may also be available with proprietary systems.

### BENEFITS OF FRAMEWORK

The use of a framework to create an air gap between the Presto ceramic panel and the building is of benefit in several aspects including:

- Creation of the chimney effect (stack effect) where a substantial flow of air occurs through the cavity. This can provide savings in the energy efficiency of the building which will far outweigh the cost of the framing over the life of the building.
- A dry cavity - no wet or damp issues
- Correction of an external wall that is out of plumb or not true in its straightness
- Enhancement of the acoustic insulation of the building
- The creation of a building envelope that provides some reduction in expansion/movement of the building elements

## MINIMUM PRE-REQUISITES

Prior to the installation of any part of the system the ceramic panels should be checked for net dimensions. Set-out should be calculated on actual net dimensions of the panel stock on site. Where mixed products are being installed, the net dimensions should be double checked to ensure compatibility with the design. Minor adjustments in the position of fixing elements may be required.

Strength performance and wind load resistance will generally always be improved with supplementary fixing components eg: additional clips, fasteners, brackets and heavier gauge fasteners etc.

All panels shall be installed to conform to the projects wind load and design criteria.

Always allow for thermal movement and direct separation of dissimilar materials.

Ensure panels are isolated from any building loads including shortening or structural deflection.

Ensure panels are installed, plumb, level, true and straight, within acceptable building tolerances.

A minimum of 304 stainless steel is to be used for invisible fixings and grade 316 stainless steel for visible fixings.



## 2. TECHNICAL DATA OF OUR STANDARD CERAMIC PROFILES

Height	300mm	400mm			
Length	≤ 1200mm	≤ 1200mm			
Thickness	17mm	17mm			
Weight	25.5kg/m²	25.5kg/m²			
Bespoke lengths available on request					
CLASSIFICATION		UNE-EN 14411:2007			
Manufacture method	Extrusion				
Water absorption	3 ≤ E < 6 %				
DIMENSIONAL TOLERANCE		UNE-EN 14411:2007			
Tolerance on length	± 2mm				
Tolerance on width	± 2mm				
Tolerance on thickness	± 1mm				
Straightness on width	± 0.3%				
Orthogonality	± 0.5%				
Surface flatness	± 0.3%				
PHYSICAL PROPERTIES		UNE-EN 14411:2007			
Apparent density	~2.3 g/cm³				
Reaction to fire	A1				
Flexural resistance	≥ 11 MPa				
Linear thermal expansion coefficient	≤ 7x10⁻⁶K				
Thermal shock resistance	Complies				
Frost resistance	Complies				
Thermal conductivity	1.04 w/m K				
UV Stability	Satisfactory				
AS 1530.1-1994					
Reaction to fire	Non-combustible				
MECHANICAL CHARACTERISTICS					
UNE-EN ISO10545-4:1997					
Wind suction	Vertical	Clip with rubber	Mechanical clip	Clip & joint profile	G-Channel
≥ 2.4 kPa	2.6 kPa **	3.6 kPa	3.6 kPa	2.8 kPa	>4.0 kPa ***
Wind Pressure	4.7 kPa				
Hard body impact	1J - no obvious damage		3J - cladding element not cracked		10J - cracked
Soft body impact	10J - no obvious damage		60J - cladding element not cracked		300J - cracked
PHYSICAL PROPERTIES			UNE-EN ISO10545-4:1997		
No evidence of efflorescences in glazed panels			Complies		
Stain resistance			Complies		
Graffiti resistance			Complies		
Cleanability			Complies		
Photocatalytic coating Active Plus			Available		

\*\* Distance between clips 20 cm / \*\*\* The system exceeded the tested maximum.



### 3. TYPICAL ACCESSORIES

CHARACTERISITCS OF FIXING SCREWS - CLIPS		DIN 7504P- UNE EN ISO 15482:2000 (10)
Description	Self-drilling screws	
Diameter	4.2mm	
Length	14-16mm	
Material	A2 stainless steel	
Standard	EN ISO 3506-1:2010	
Strength class	50	
Tensile strength (Rm)	500 MPa	
Elastic limit (Rp0.2)	400 MPa	
Pull-out resistance	1.44 kN (profile thickness 2mm)	

CHARACTERISITCS OF FIXING SCREWS G-CHANNEL		DIN 7504K- UNE-EN ISO 15480:2000 (8) UNE-EN ISO 3506-1:2010 (9)
Description	Hexagonal head self-drilling screws	
Diameter	5.5mm	
Length	22mm	
Material	A2 Stainless steel (AISI 304)	
Strength class	50 - 70 - 80	
Tensile strength (Rm)	500 - 700 - 800 MPa	
Elastic limit (Rp0.2)	210 - 450 - 600 MPa	

#### ADHESIVE/CAULKING

Bostik Simson ISR 70-03-FR non combustible

Bostik Simson ISR 70-03

Or similar to above

## 4. CERAMIC PANEL INSTALLATION

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### 4.i) HORIZONTAL ORIENTATION WITH G-CHANNEL

The G-Channel railing is supplied in 3.8m lengths. Joins in the G-Channel are best staggered unless there is a requirement for a continual break to accommodate a vertical construction joint. G-Channel rails are horizontally spaced at the height dimension of the ceramic panel +2mm. The additional tolerance enables individual tiles to be removed and replaced in isolation. When installing the G-Channel consideration should be given to expansion and contraction. Each length of G-Channel should be installed with one central fixed point and the remaining fixings as a floating point. A minimum 4mm gap should be left when G-Channel lengths join.

Panels are mounted (hung) to the lower ridge of the top G-Channel and the upper ridge of the bottom G-Channel. Each panel is held in place by a top G-Channel and a bottom G-Channel. In turn each G-Channel supports the ceramic panel above and the one below.

Prior to placing the first panel, apply a small bead of adhesive/caulking (approximately 25mm long) to 2 to 3 locations along the top and bottom ridges of the G-Channel. This quantity will prevent any unwanted movement of the panels that may generate noise.

Panels are placed by hooking the upper rebate in the ceramic panel onto the lower ridge of the top G-Channel while holding the panel angled away from the bottom G-Channel. The panel is then lowered into position where its base is touching the bottom G-Channel. A small lift of the panel while being pushed should enable the ridges on the G-Channel to engage with the slotted rebates on the ceramic panel.

Some percentage of the panels will be more easily installed by the reverse process and engaging the bottom of the ceramic panel first with the top tilted forward, then pushing the top into position, followed by a small lift to engage the ridges on the top G-Channel.

Panels are not butted together but placed, leaving a small vertical joint around 3 - 4mm wide. Increasing the overlap reduces the visible horizontal seam/shadowline, however this may eliminate the ability to remove individual panels in isolation. Minimising the overlap may reveal too much of the framework behind the panels, when viewed above eyeline from below at an acute angle.

Standard Aluminium 'G' Channel may also be supplied in stainless steel or galvanised steel. Check availability and possible MOQ.



## HORIZONTAL INSTALLATION - GENERAL PRINCIPLE



1. Layout and bracket installation



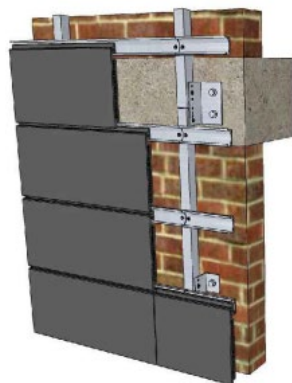
2. Level installation of the vertical profiles and plumb installation of the brackets



3. Installation and plumb of the horizontal profile on the vertical profile

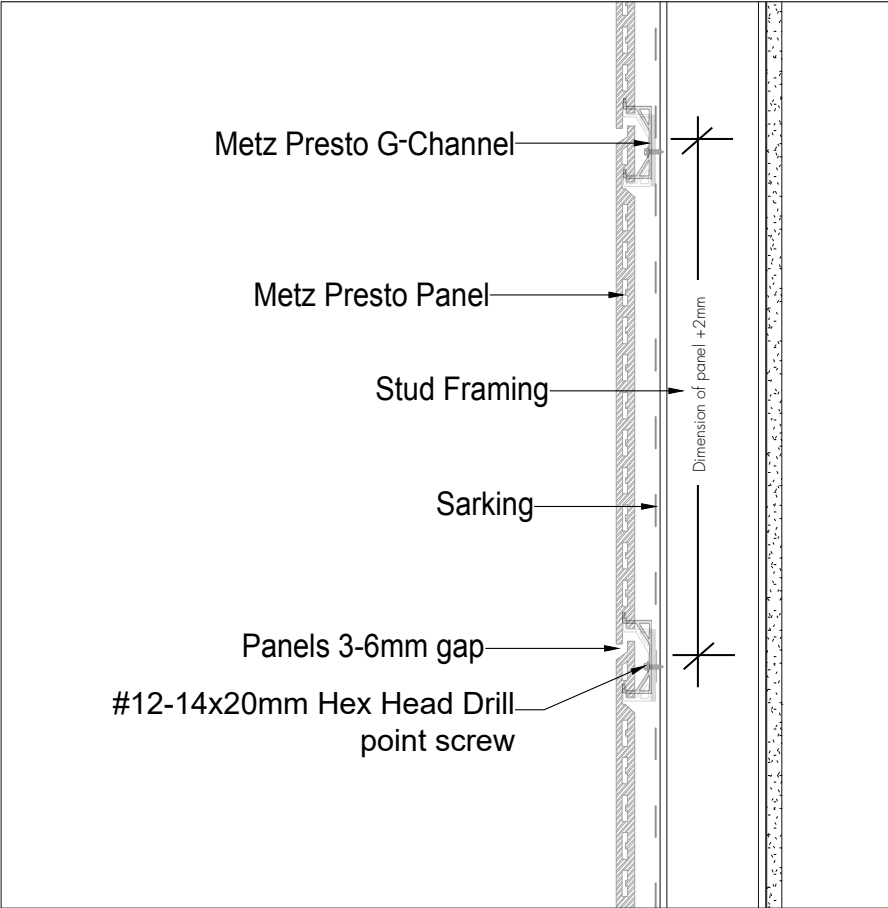


4. Hanging the panels on G-Channel



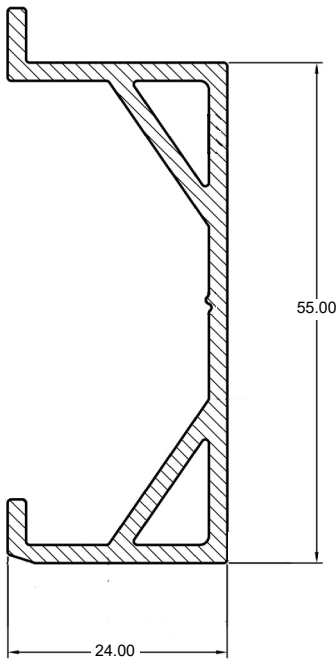
5. Repeat

TYPICAL DETAIL

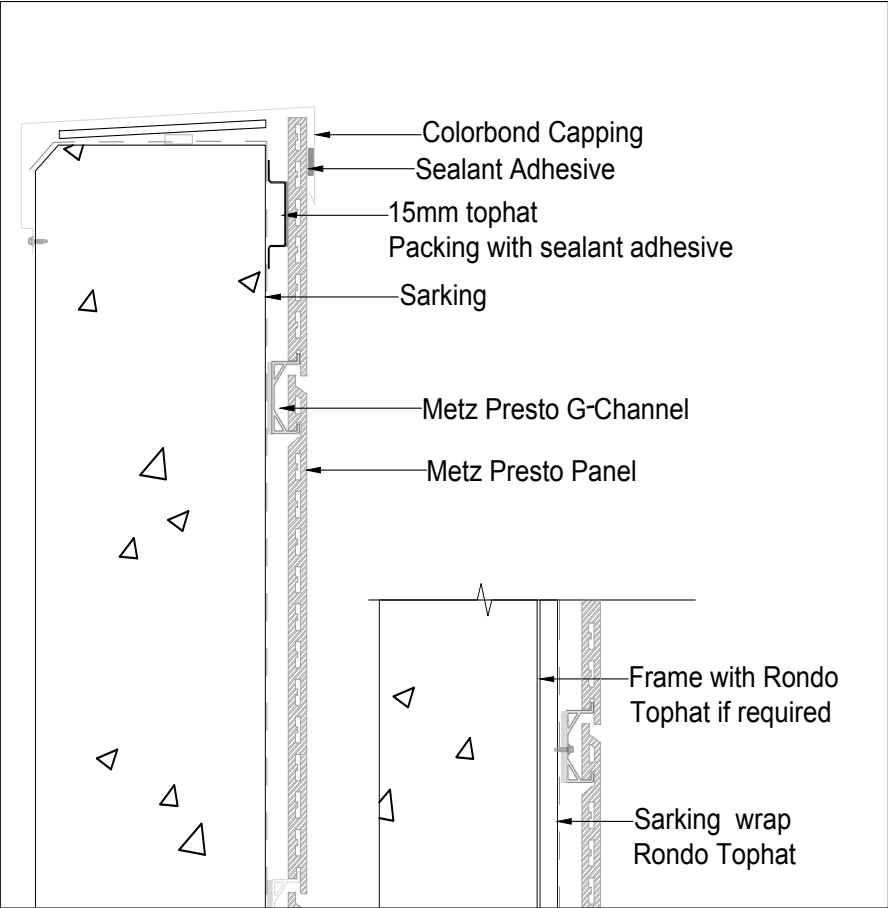


NTS - WALL VERTICAL SECTION

G-CHANNEL DETAIL



PARAPET DETAIL - CUT TILE



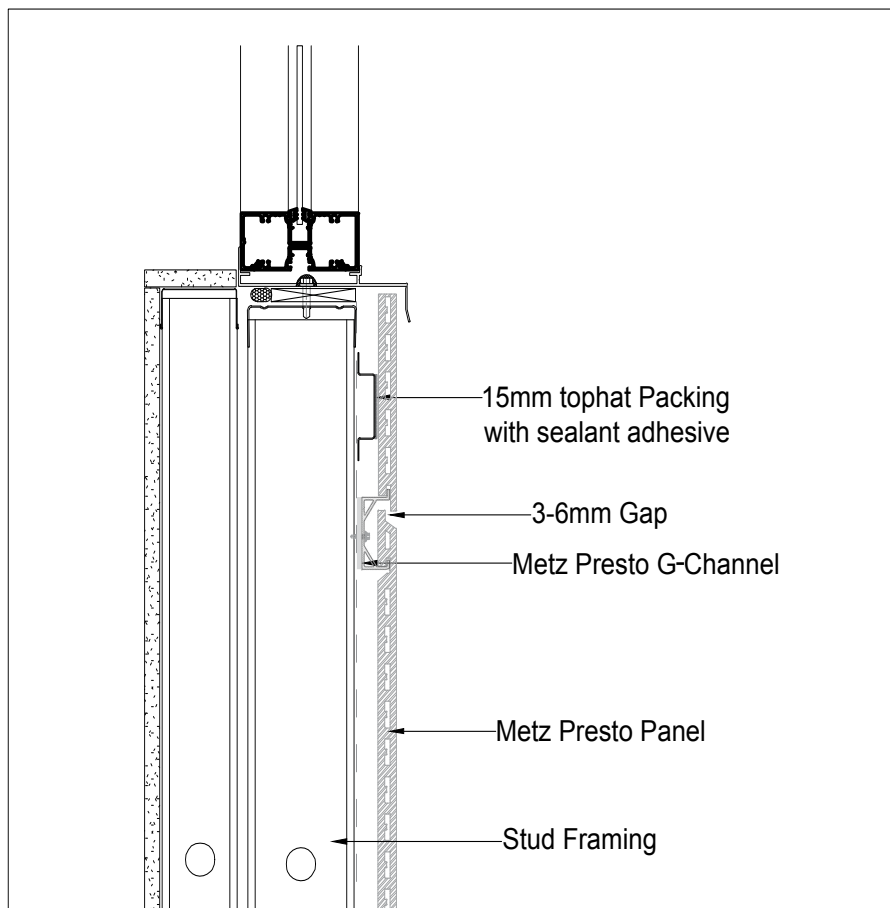
NTS - WALL VERTICAL SECTION

For horizontal orientation the top course will generally be a part panel supported by the upper ridge of the G-Channel below. Retention at the top of the part panel is typically achieved by adhesive fixing the rear of the panel to an appropriately sized tube or top hat, placed horizontally.

Depending on the height of the piece of panel it may be possible to position the cut to leave a 'U' section at the top enabling the use of clips in lieu of adhesive.

Most top courses will incorporate a parapet capping or flashing and these are commonly designed to enable air to exhaust while excluding rainwater.

## WINDOW STILL DETAIL - CUT TILE



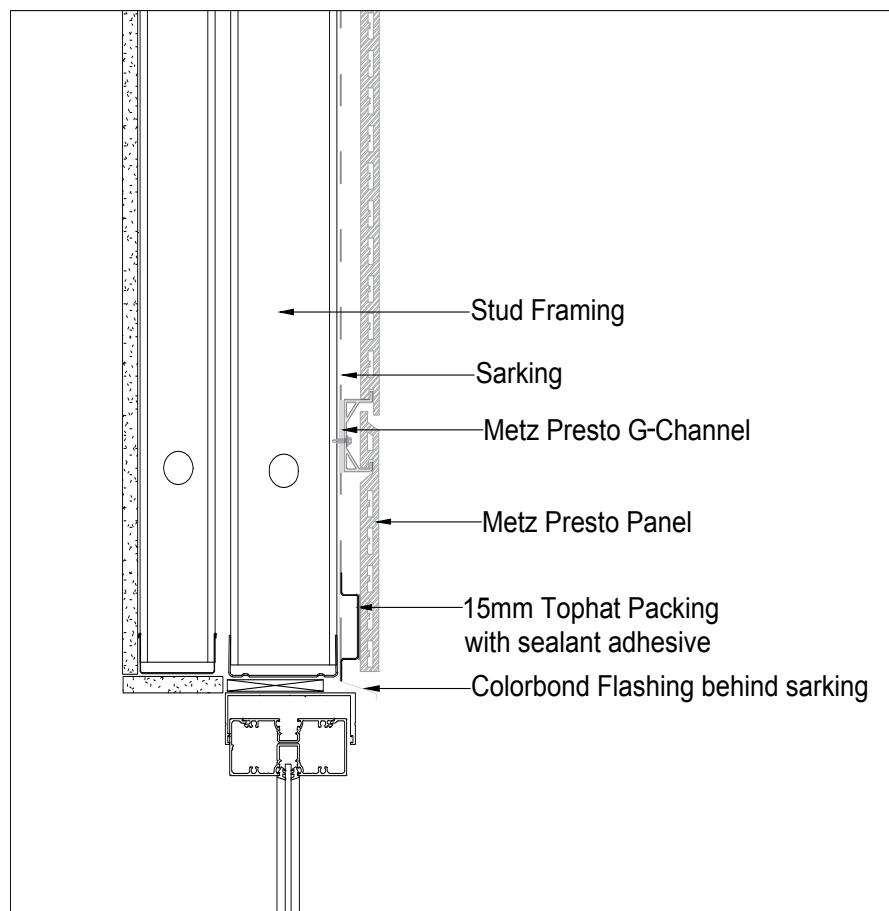
NTS - WALL VERTICAL SECTION

Most ceramic panel installations will be installed in a square bond pattern where joints align both horizontally and vertically. Where this bond is interrupted by an opening for a window or door, a determination will need to be made on the set-out if the panels continue above the window or door opening.

Generally this will involve the header courses above the opening being hung from the G-Channel or supported from the bottom of the panel where clips are used. Some form of horizontal frame (tube or top hat) will be placed over the opening to maintain the vertical plane.

Trim pieces are also possible that create both support and finishing for these locations.

## WINDOW HEADER DETAIL

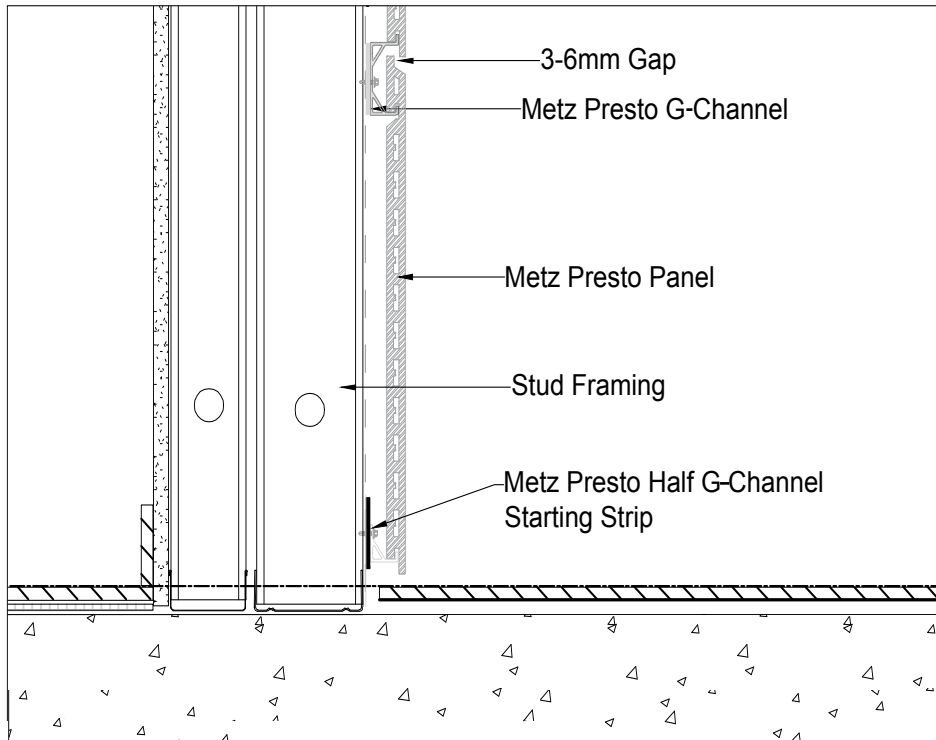


NTS - WALL VERTICAL SECTION

For wood grain look Presto panels, consideration can be given to offsetting the panel layout, to achieve a more natural appearance.

*In all situations, gap should exist to enable drainage between sarking and the G-Channel in all locations*

## BASE DETAIL



NTS - WALL VERTICAL SECTION

### First (bottom) course details

Getting the bottom course in the correct location is paramount to the success of the installation. Where G-Channel is used, these are cut down their length and the bottom half only is typically used. The cut should be carried out to ensure a maximum area of the flat back of the G-Channel is retained with the bottom half.

Most bottom courses will incorporate a mesh screen typically as a spark arrester and vermin excluder. Some form of decorative or impact resisting trim may also be incorporated.

#### 4.ii) VERTICAL ORIENTATION WITH CLIPS

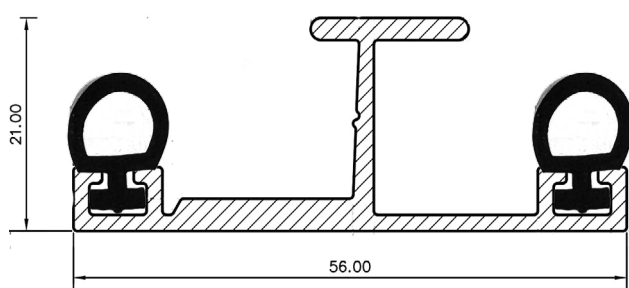
The minimum support requirement is two clips along the bottom end of each Presto panel. The clip face fits into one of the voids on the perforated end of the panel.

The first pair of clips are fixed level at the desired position and the tile is then positioned by engaging the clip into the hollow sections of the panel. The top pair of clips are then positioned, again engaging the clip with the top perforated end of the panel. The panel is then leaned back and the top clips are screwed into place, creating provision to receive the panel above.

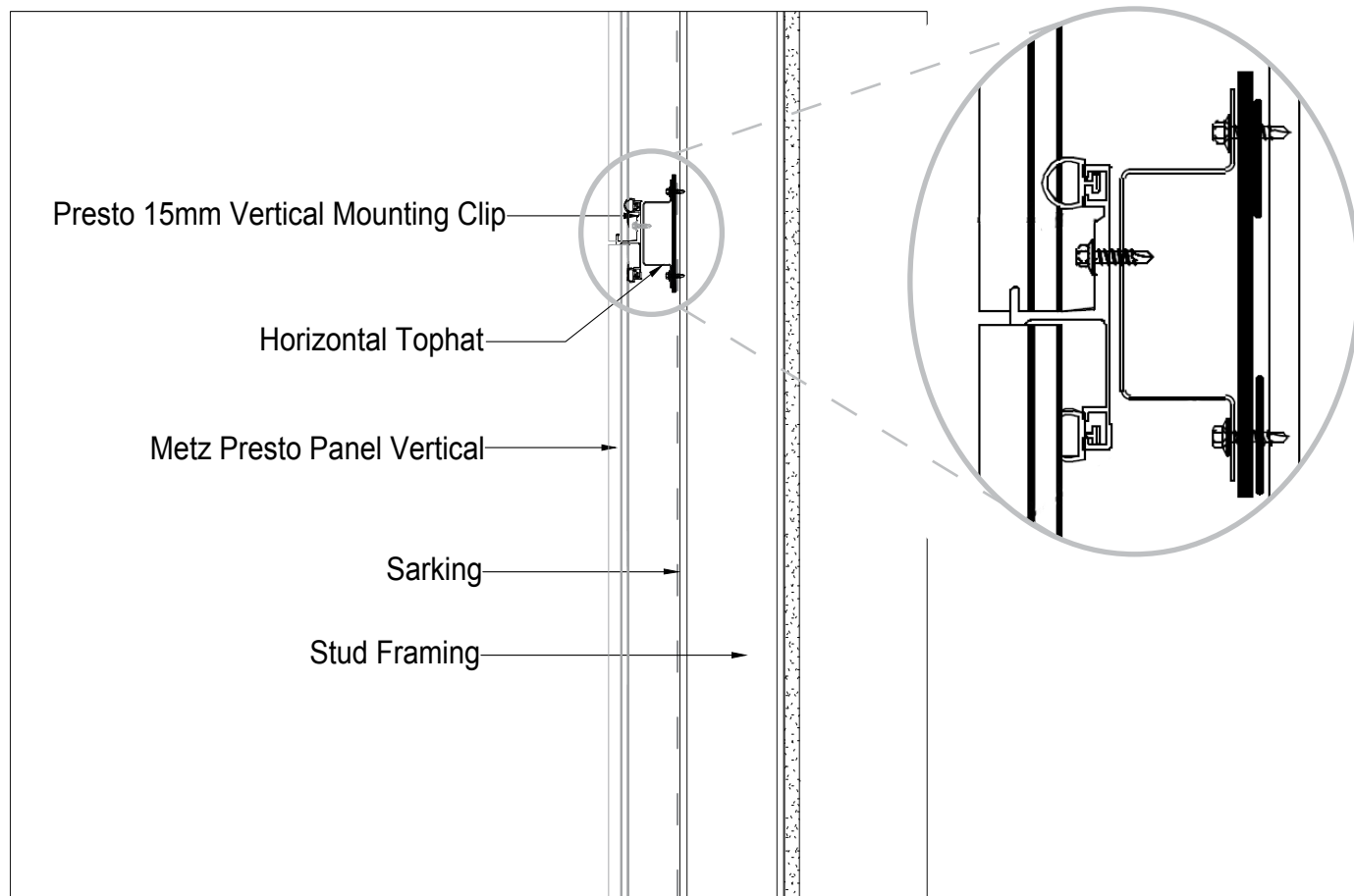
Where clips are being used, retaining as much of the lower part of the clip (below the T) that still allows the ceramic panel to be correctly located is ideal.

For all methods of installation it is strongly recommended that panels are re-checked for placement by measuring individually and cumulatively.

#### VERTICAL FIXING CLIP



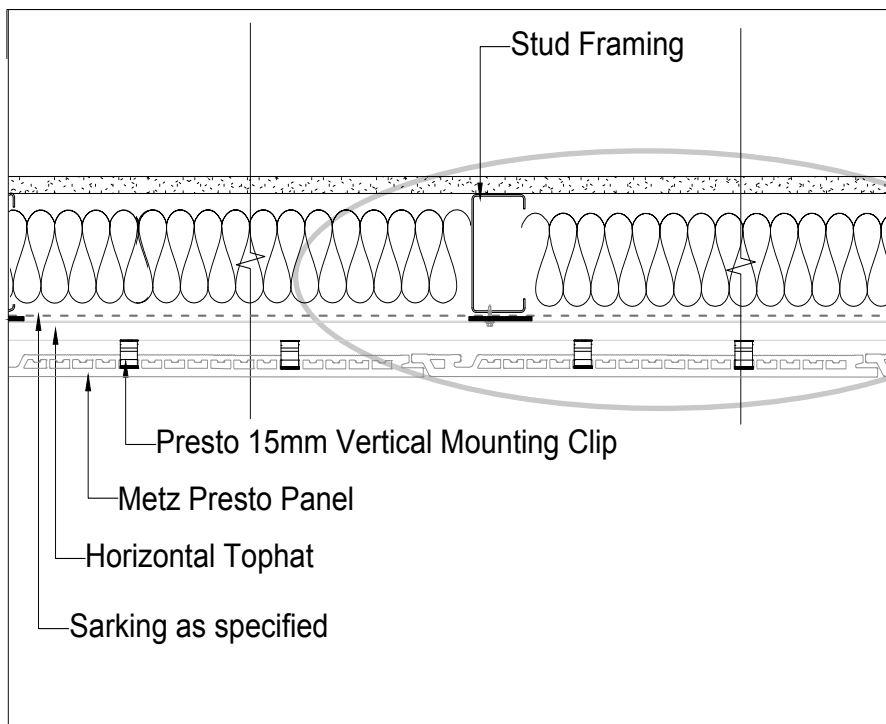
#### VERTICAL INSTALLATION DETAIL



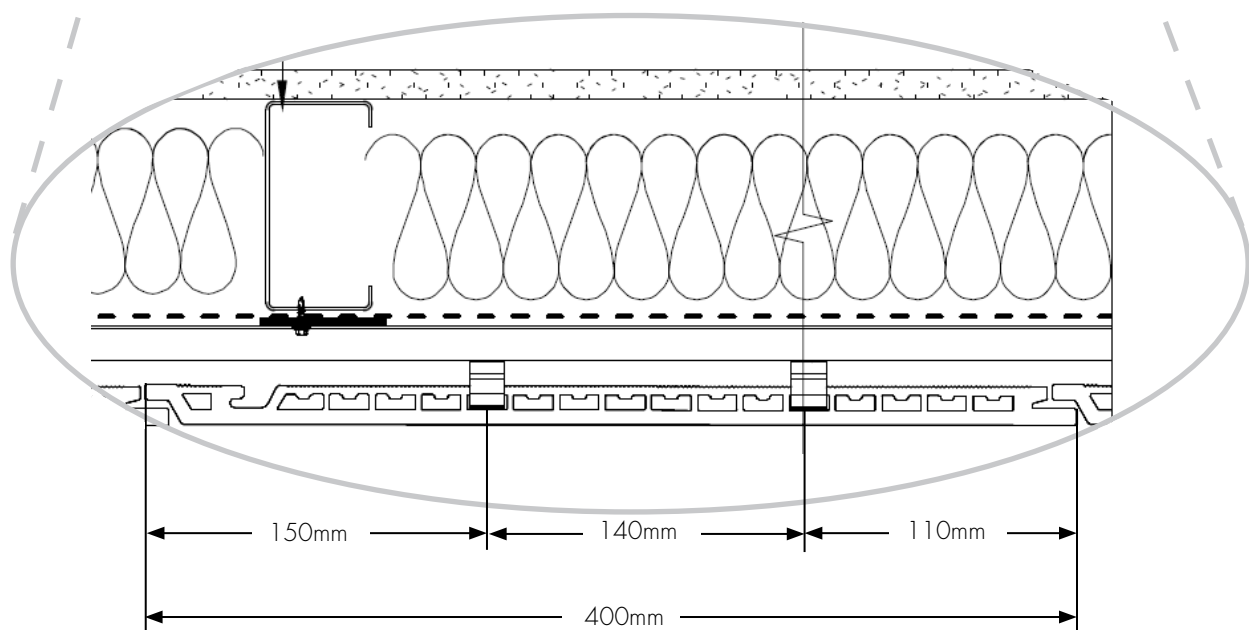
NTS - WALL VERTICAL SECTION

*In all situations, gap should exist to enable drainage between sarking and the G-Channel in all locations*

## Vertical Installation - Top View



NTS - WALL SECTION - PLAN VIEW



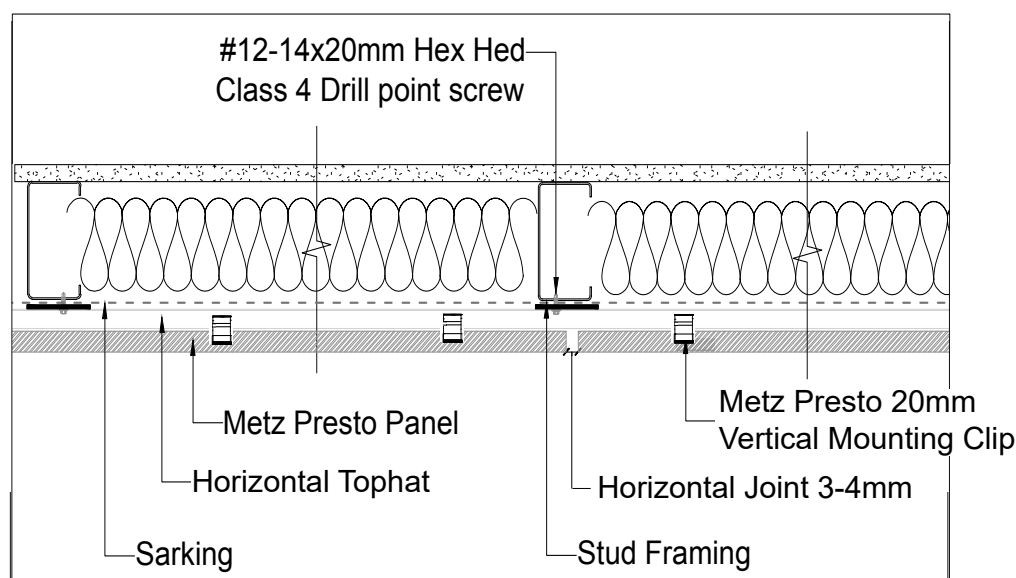
NTS - WALL SECTION - DETAIL VIEW  
VERTICAL FIXING CLIP SPACING

#### 4.iii) HORIZONTAL ORIENTATION WITH CLIPS

Direct fixing – clips are simply screwed into a suitable substrate that can withstand the weight of the Presto ceramic panel. A maximum of 300mm spacings (centres) are recommended for clips with direct fixing, the direct fixing method is not recommended into timber or steel stud wall construction. For concrete including tilt-up, blockwork and polymer formwork structural walls, fixing products and centres are selected according to the substrate material itself, as well as local conditions. Minor corrections in the true and plumb may be possible with suitable packers.

Fixing into an attached frame - the frame needs to have at least vertical elements eg: top-hats or T profile/ brackets for the clips to be screwed into. A 100mm wide face dimension width on the vertical elements is considered the minimum suitable. This width allows the ends of adjacent ceramic panels to be secured by clips screwed into the same vertical element. Fixing products and centres are selected according to the material itself as well as local conditions. Minor corrections in the true and plumb may be possible with suitable packers.

#### TOP VIEW DETAIL - HORIZONTAL INSTALLATION



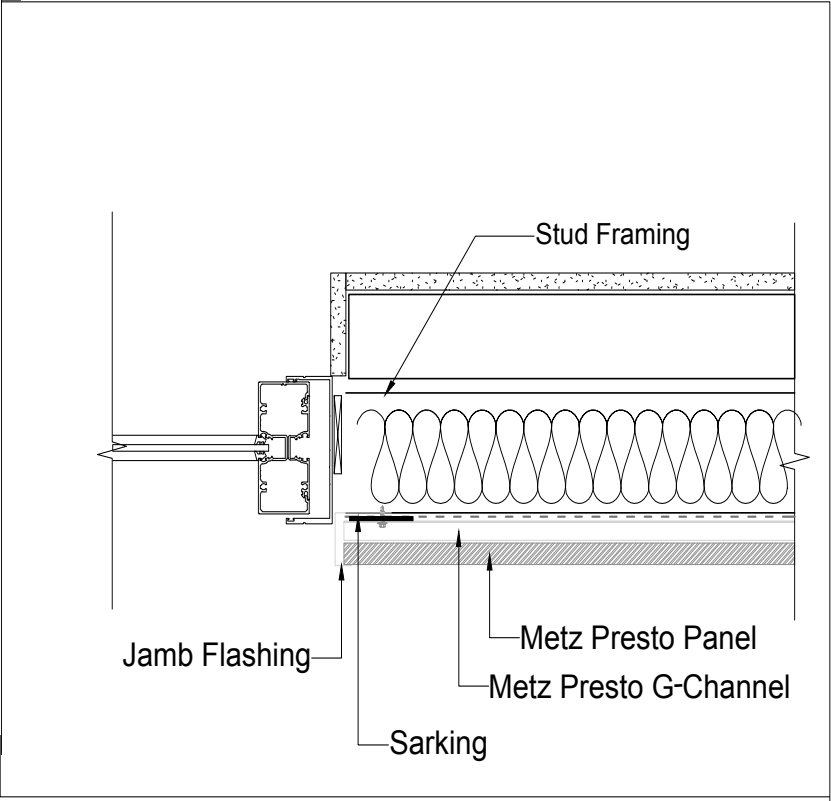
NTS - WALL SECTION, PLAN VIEW

*In all situations, gap should exist to enable drainage between sarking and the G-Channel in all locations*



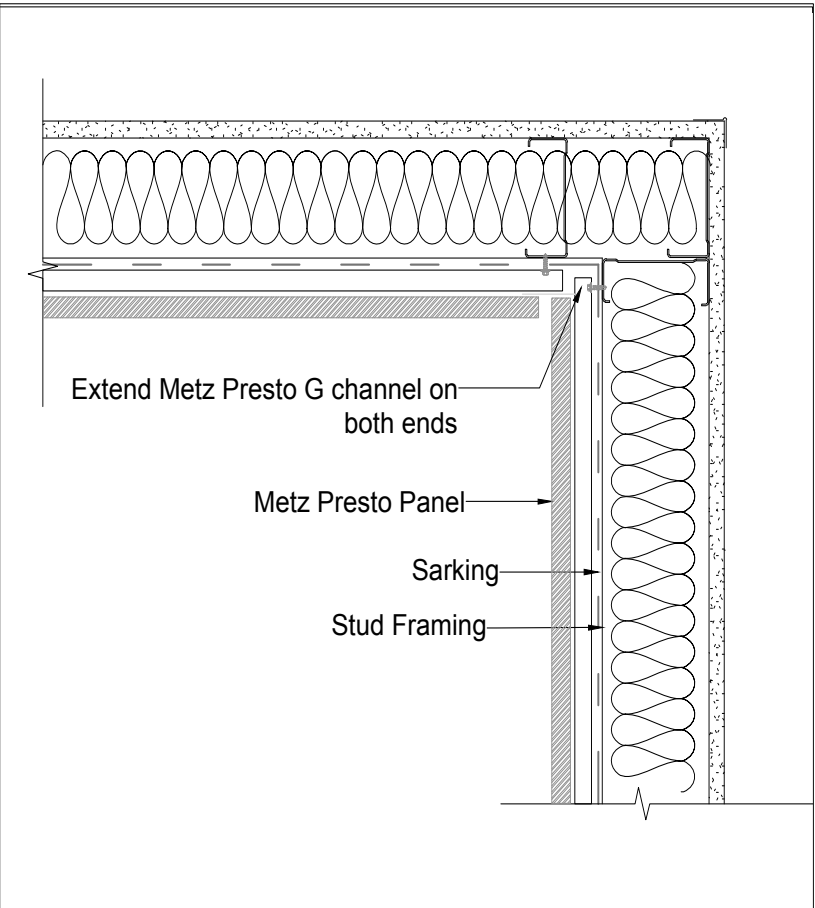
4.iv) GENERAL DETAILS

WINDOW JAMB DETAIL



NTS - WALL SECTION, PLAN VIEW

INTERNAL CORNER DETAIL

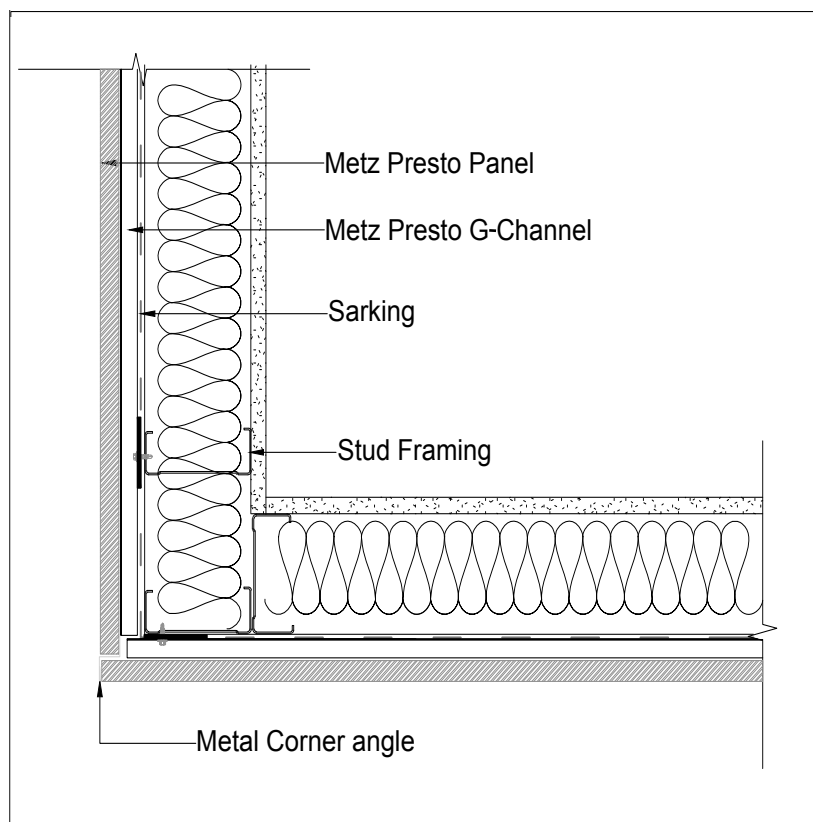


NTS - HORIZONTAL CROSS SECTION

Internal corners are similarly detailed with two main choices - with or without a trim piece. Unlike external corners, internals allow the use of a simple butt joint as the ends of the panels are not visible. This is by far the most common detail, however a multitude of trim piece choices may be utilised.

*In all situations, gap should exist to enable drainage between sarking and the G-Channel in all locations*

## EXTERNAL CORNER ANGLE OPTION

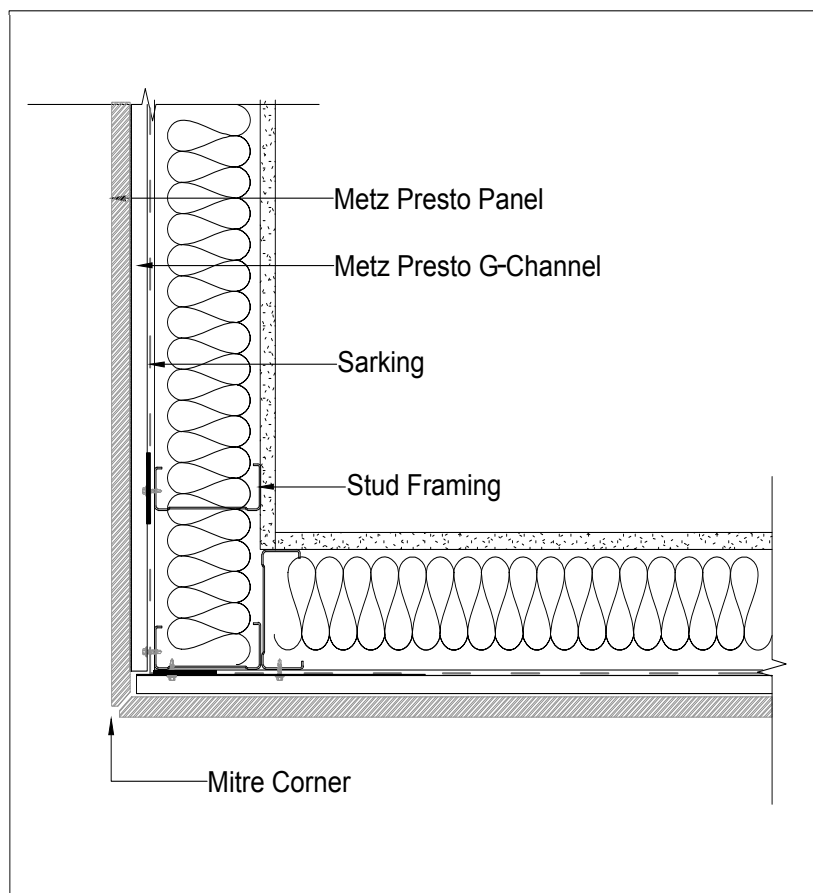


NTS - HORIZONTAL CROSS SECTION

External corners are typically detailed with two main choices - with or without a trim piece. Where a trim piece is not used the most common finishing is a mitre that creates a small birdsmouth style corner. The mitre is worked back about 4-5mm from the front edge of the panels which are placed leaving a consistent joint gap for the rest of the installation.

The huge variety of trim angles that exist provide enormous scope to create a detail to the exact preferences for the project.

## EXTERNAL CORNER DETAIL MITRE/BIRDS MOUTH



NTS - HORIZONTAL CROSS SECTION

*In all situations, gap should exist to enable drainage between sarking and the G-Channel in all locations*

## 5. SITE SAFETY AND CUTTING INFORMATION

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### CUTTING OF TILES DURING INSTALLATION

Appropriate dust suppression techniques together with suitable PPE must be utilised when cutting tiles. Use industry standard tools and equipment in accordance with the equipment's technical data.

Carefully prepare cuts in accordance with Safe Work Australia standard; Workplace Exposure Standards for Airborne Contaminants.

Suitable ceramic cutting blade type, diameter, speed and machine shall be determined by a ceramic tool supply company. Always carry out a cutting trial before proceeding to check suitability.

## 6. HANDLING AND STORAGE

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- Ensure panels are stored in a well protected dry storage location
- Store components raised from the ground on a flat surface
- Use adequate spacers between pallets
- Do not double stack pallets

## 7. MAINTENANCE

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### INSPECTION

It is recommended that a Presto Facade System inspection be carried out on a regular basis (at a minimum on an annual basis).

This includes Presto panels, 'G' hanging rails and fixings to ensure ongoing integrity.

### SPARE PANELS

It is suggested to order an additional number of spare Presto panels and store on site in a safe clean environment for replacement for any unforeseen future damage.

### CLEANING

Presto panels are virtually maintenance free. While the product has self-cleaning properties, additional cleaning may be required if the area doesn't receive adequate rainfall. Areas that are not washed by natural rainfall may be cleaned simply with a hose down or washed with a soft sponge to remove any pollution or grime build up.

In areas of heavy dirt build up panels should be washed down with a soft sponge, water and a neutral pH cleaner then rinsed with clean water. This should be carried out on a regular basis after installation. Always carry out a cleaning trial on a small area prior to proceeding. A log book should be kept detailing the date, contact and type of cleaner used.

### REPLACING A PRESTO TILE

Please refer to Metz Presto Facades brochure for the latest approved method and directions.



Joining our Presto Ceramic Facade Systems are:

**Onyx Solar**

Building Integrated Photovoltaics (BiPV)

**BB fiberbeton**

Glassfibre Reinforced Concrete (GRC)

**Al3x**

Metz Aluminium Facade Systems



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REV: 08/23