

# Wallshell U-Shield™

INSTALLATION MANUAL - v6.3

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## Introduction

### About Wallshell U-Shield™

U-Shield™ panel system powers you with a design option of our distinctively coated fiber cement panel with a concealed anchoring arrangement. The advantage of this system is that it can be built in the same appearance as the natural granite wall however still keep all the design characteristics of a drained and back ventilated rain screen system.

### Advantages of Wallshell U-Shield™

- Maximum protection against weather
- Excellent longevity, 30 years of decoration life and 15 years of finish warranty
- Light weight and easy for on-site application, and easy installation in any climate
- Almost no maintenance required
- High quality panel finish in strictly controlled environment, no cracks, paint or sealant problems
- High sustainability
- Non combustible



# Inspection, Proper Handling and Storage

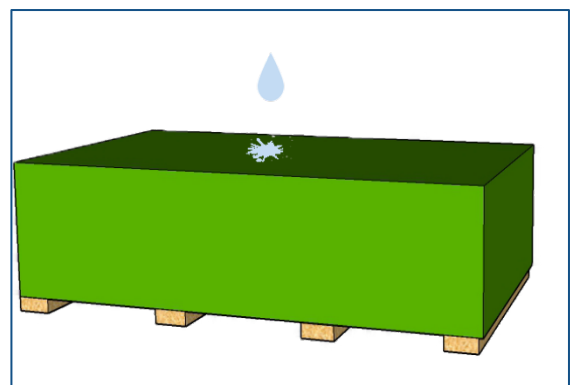
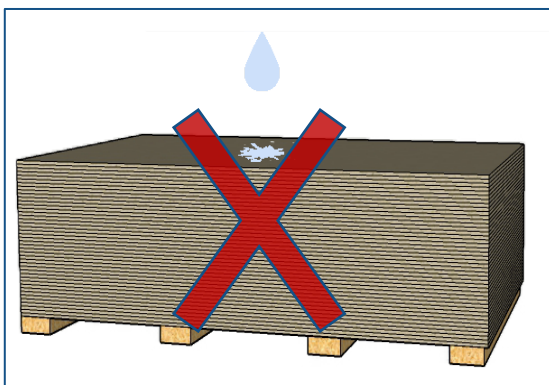
## Product Inspection

Please carefully inspect all products before installation, whether they are damaged during transportation or have irregular surface products. Should you have a question or problem with your order, contact your local dealer or Walpanel Customer Service.

## Storage

Wallshell Panels products are delivered with on the pallet. Hereafter the pallets should be kept under a roof, protected from rainfall, direct sunlight, and other weather influences. If panel is stored outside, it should be protected with an additional waterproof covering. Any material to be installed must be kept dry.

Wallshell Panels must be stored on a flat and dry level surface on pallets or sleepers with a minimum distance of 30cm between the stacks on all sides, leaving the possibility of ventilation around the panels. Maximum 5 pallets in a stack at the warehouse and maximum 2 pallets in a stack on the building site. Each stack should not be more than 1000 mm high (40"). Use foam protection layer between the panels.



It is recommended to organize the pallets of the pre-cut and pre-drilled panels according to their sequences marked by manufacturer or prefabricator in the order to make the installation more efficient.

## Proper Handling

Always lift panels off each other by two persons, and do NOT slide them over one another to avoid scratches and damages of the panel surface. To carry the panels, always lift up them vertically and handle their edges by two persons, avoid handling them with panel flat side from facing up or down, as this can result in cracks in the panel. Do NOT draw panel over the next panel, as this will cause scratches and damage on the surface. These actions will cause the damaged panel to be out of warranty.

## Forklift

Fork length must support pallet entirely; if required, use fork extensions.



## Basics

### Panel Cutting

All Wallshell V-shield™ panels may be cut with a circular saw or a jigsaw equipped with a diamond tipped blade. The panel can be cut by a hand tool or a stationary device.

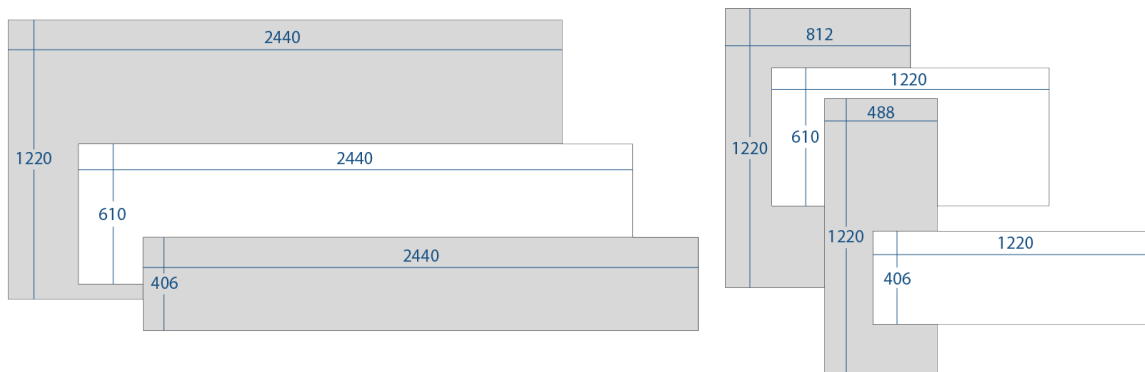
Note 1: When using fast running tools, dust exhaustion must be employed.

Note 2: When using hand tools, cut the panels backside up. When using stationary saw equipment, cut the panels front-side up (the saw blade must always attack the board from the front-side).

Note 3: One panel is cut at one time.

Note 4: Cutting depth should be beyond the panel thickness

### Overview Panel Sizes



Panel Size(Length×Width)	Min. Number of Anchor*
488x1220	8
812x1220	8
1220x406	6
1220x610	6
2440x406	12
2440x610	12
2400x1220	24

All size measures in mm

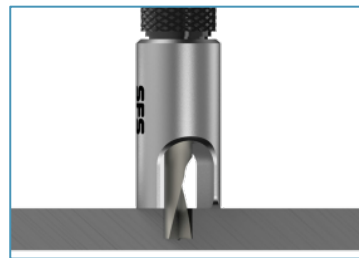
\* Just for information

## Panel Drilling

The undercut anchor holes are drilled at the factory or locally. Using the extension hole drill to make undercut anchor holes. The diameter of drilling ( $D_1$ ) is 7.2 mm, and the diameter of extension hole ( $D_2$ ) is 9.1 mm.

The Hidden panel anchor hole use a  $\varnothing$  6 mm blind-hole drill with depth stop.

Note 1: Different thickness panels correspond to an anchor depth.



## Edge Treatment & Cleaning

After cutting and drilling the panel, the cut edges should be sanded and sealed with edge sealant. This reduces possibility of damage and improves panel edge performance.

Remove dust caused by panel cutting and drilling from the front side and backside of the panels with a soft brush/duster or a vacuum cleaner.

## Apply Wallshell Edge Sealant

Apply edge sealant simply run applicator along panel edge and hole. Ensure full coverage of edge and hole.

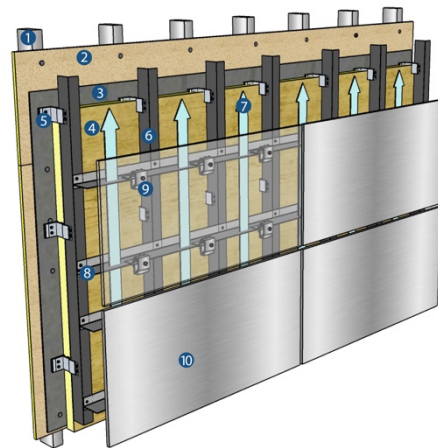
All factory-cut and factory-drill Wallshell panel are impregnated with edge sealant at the factory. The Wallshell panel that have been cut and drill on site must apply Wallshell edge sealant.



# Metal Support

## Main Components

1. Steel Stud
2. Sheathing
3. Vapor Barrier
4. Thermal Insulation Layer
5. L-profile Bracket
6. L-profile Extrusion
7. Ventilated Cavity
8. T-profile Rail
9. Undercut & Clip
10. Wallshell U-Shield™



## Principle

### 1. Metal Frame

There are two different ways of metal framing. The first one is depicted in the diagram above. The second one is to use G-profile rail instead of T-profile rail and G-profile clip.

### 2. Ventilated Cavity

The main function of the ventilated cavity is to discharge water and excess heat. Use the pressure difference between the bottom and the top to make the air circulate naturally. The minimum size of the ventilated cavity is 40mm.

### 3. Undercut & Hidden Panel Anchor

Undercut 1 consists of an anchor sleeve, a hexagon socket screw and nut with locking ratchet. The Undercut 2 only consist of an anchor sleeve and a hexagon bolt.





The anchor sleeve is expanded to its original dimension by inserting the screw to a controlled depth, so that the sleeve sits snugly against the undercut section of the hole in the U-shield panel.

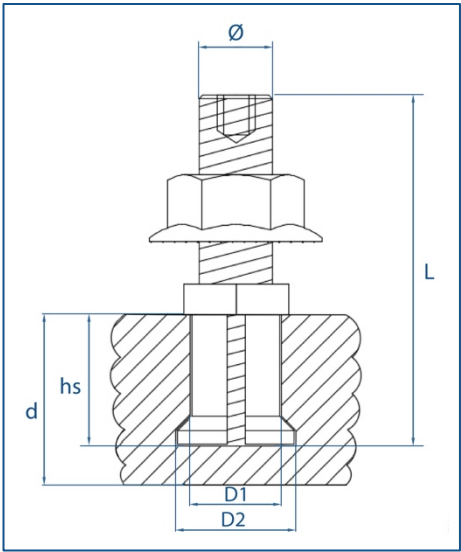
Different thickness of panel (d) requires different anchoring depths of the undercut (hs)

Ø	L	D <sub>1</sub>	D <sub>2</sub>	hs
6	22	7.2	9.1	7
6	22	7.2	9.1	9
6	22	7.2	9.1	12

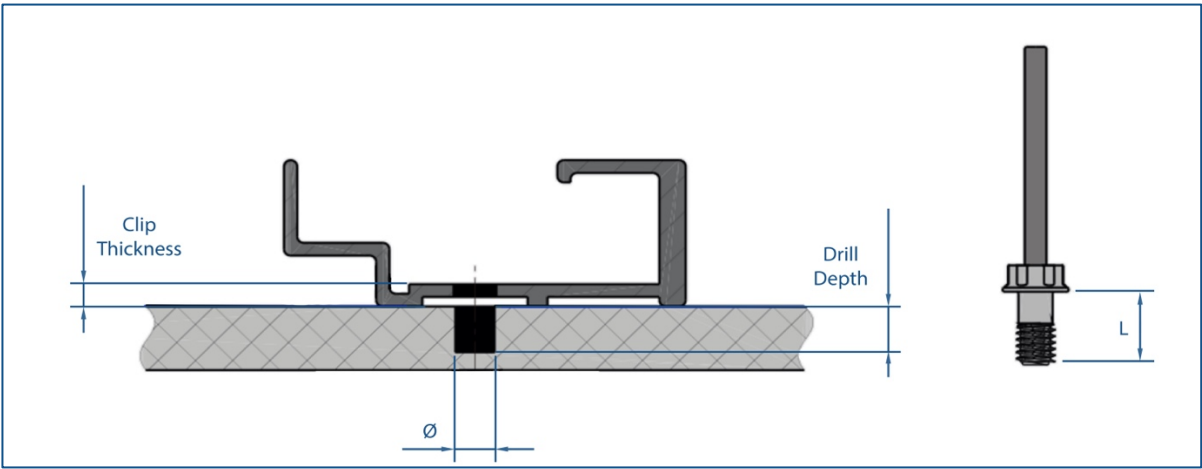
All measures in mm

Anchoring Depth (hs)	Panel Thickness (d)
7	10
9	12
12	15

All measures in mm



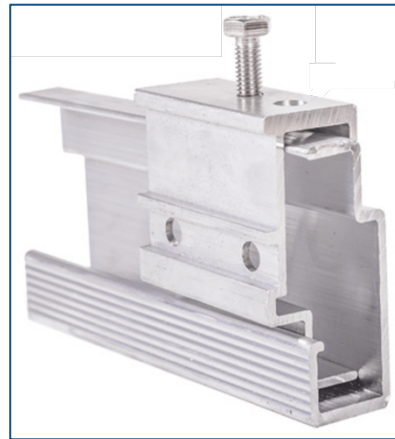
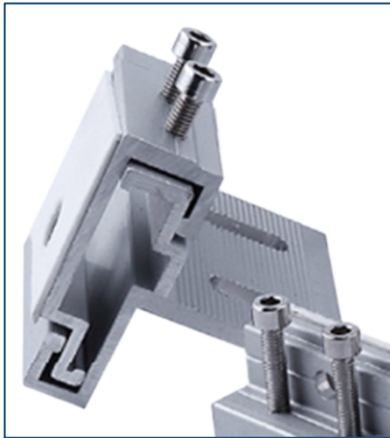
Hidden panel anchor is used to anchor panel to C-profile Clip which with round hole.



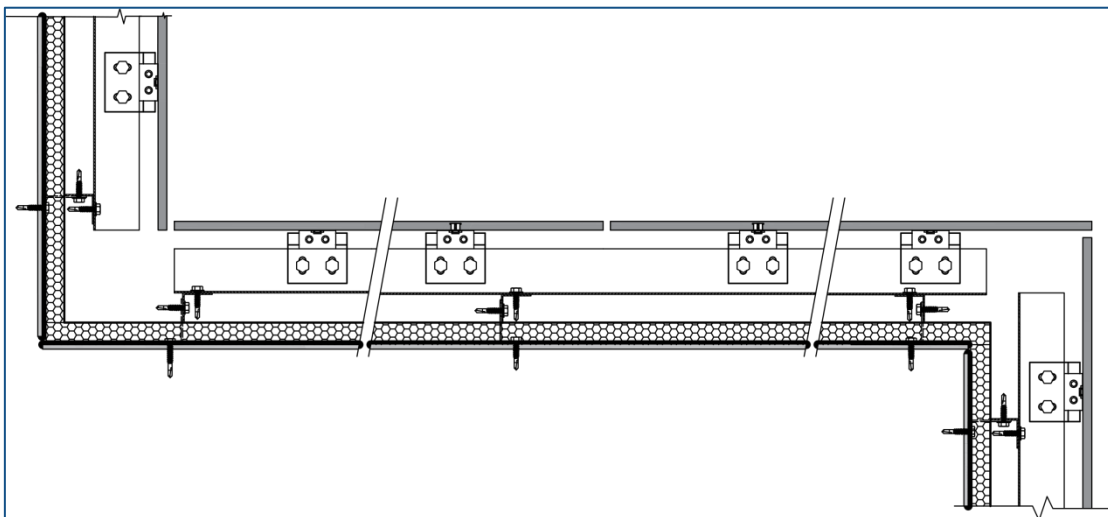
Drill Depth = Hidden panel anchor Length(L) - Clip Thickness

#### 4. Clip

Wallshell C-profile clip with keil hole and G-profile clip are a set, they need to be used together. There are two threaded hole and one unthreaded hole at each C-profile clip with keil hole. For C-profile clip with round hole, each clip only one threaded hole and one unthreaded hole.



### CG Anchoring System

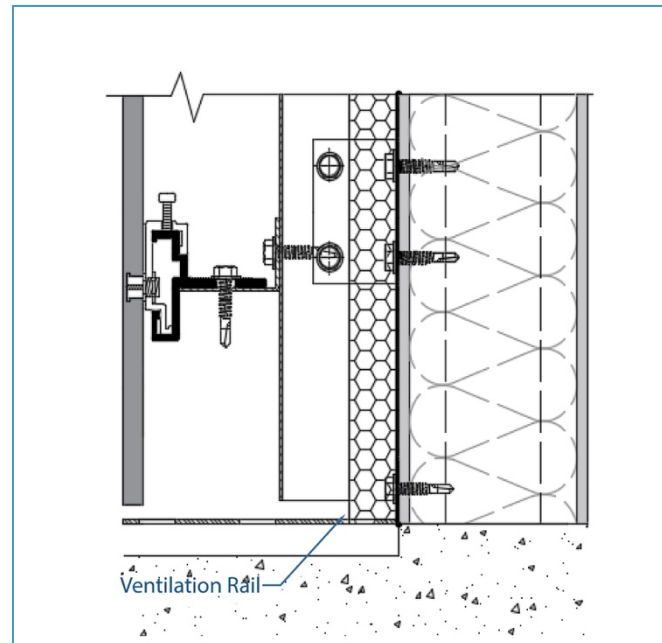


Secure the panel with undercut & clip and use Wallshell T-profile rail and L-profile extrusion as metal frame. Use Fastener for anchoring profile rail or extrusion.

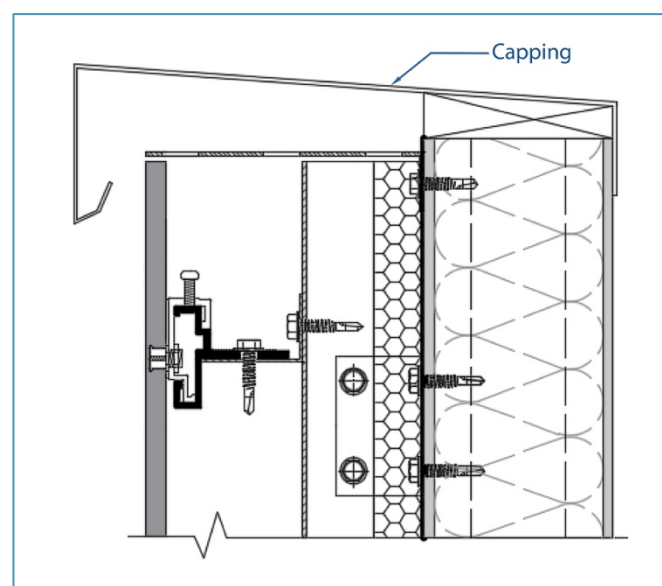
**Attention:** Failure to use Wallshell undercut & clip invalidates product warranty.

## Accessories

Ventilation Rail is a perforated profile rail. It is applied between the panel and the wall. This rail can allow air to enter the cavity space while preventing the entry of birds or vermin.

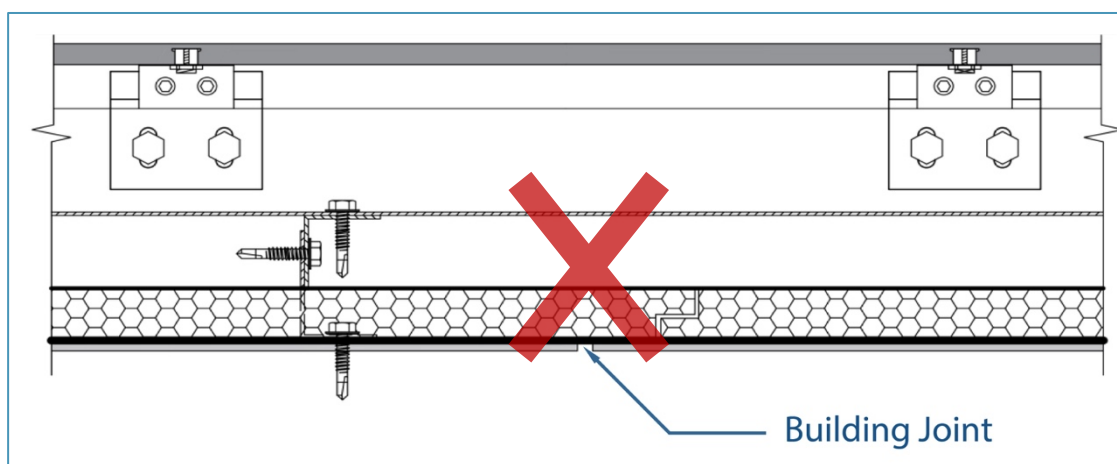
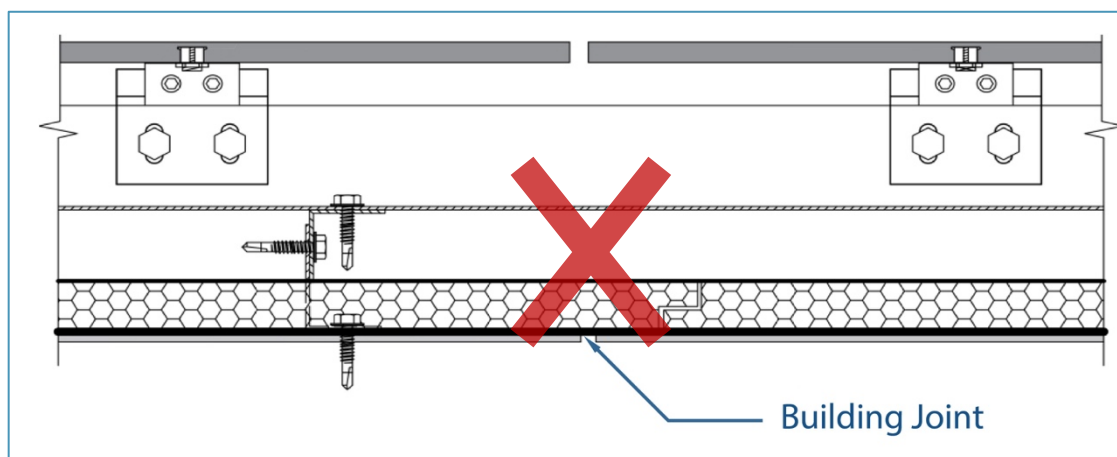
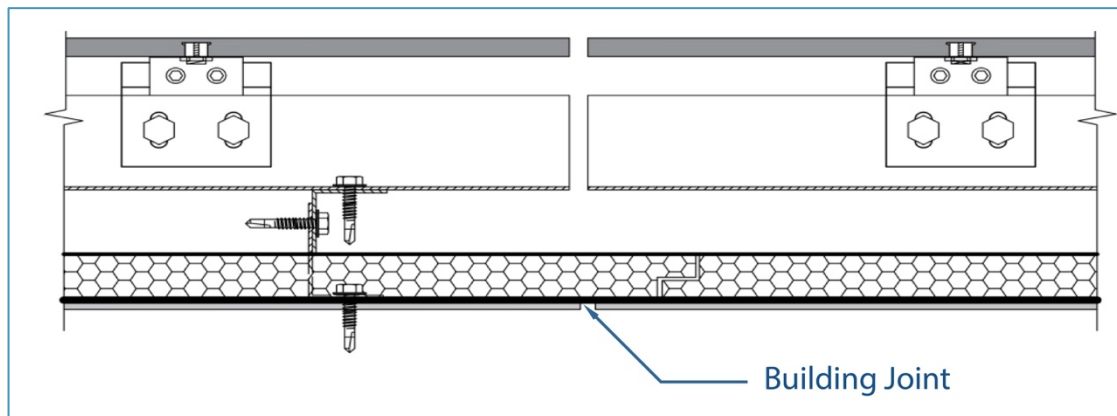


Capping is applied between front of the panel and the top of the ventilated cavity. The capping usually uses with perforated profile rail, it can allow to enter the cavity space while preventing the entry of rain, birds or vermin.



## About Building Joint

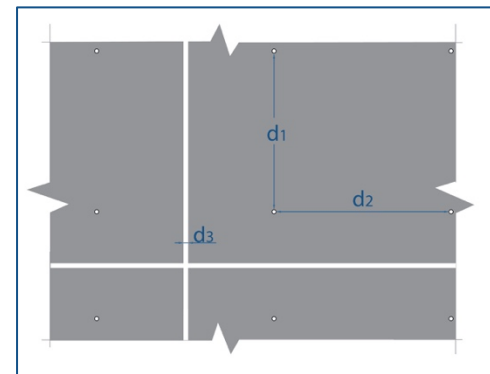
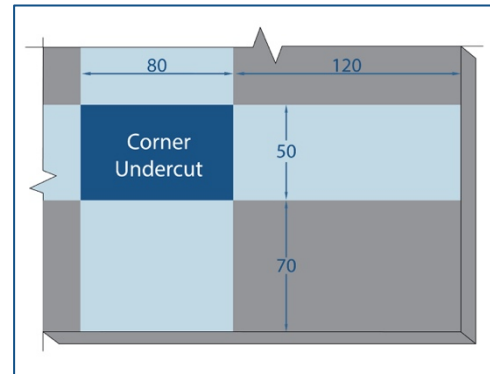
For the building structural joints, the panel must be not be fixing across or crossing over these joints.



# Installation

## Undercut Layout

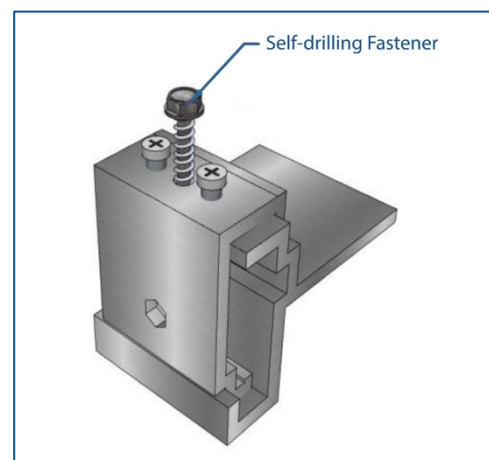
- Corner anchoring point area  
Horizontally: 120 ~ 200 mm  
Vertically: 70 ~ 120 mm
- Panel joints  
 $d_3$ : 5~10 mm
- Distance between anchors  
Horizontally ( $d_2$ ): 200 ~ 450 mm  
Vertically ( $d_1$ ): 200 ~ 450 mm
- Holes in panel for rivet  
Drilling  $\varnothing$ : 7.2mm  
Extension hole  $\varnothing$ : 9.1 mm



## Tighten Fastener

Use self-drilling fastener as tighten fastener. Install C-profile Clip to G-profile Clip or C-profile Rail locking fastener through unthreaded hole in C-profile Clip and fully through G-profile Clip or C-profile Rail. Tighten fastener to "fix" facade panel position.

**Attention:** One panel with at least one tighten fastener.



# Special Location

Figure1: Outer Corner

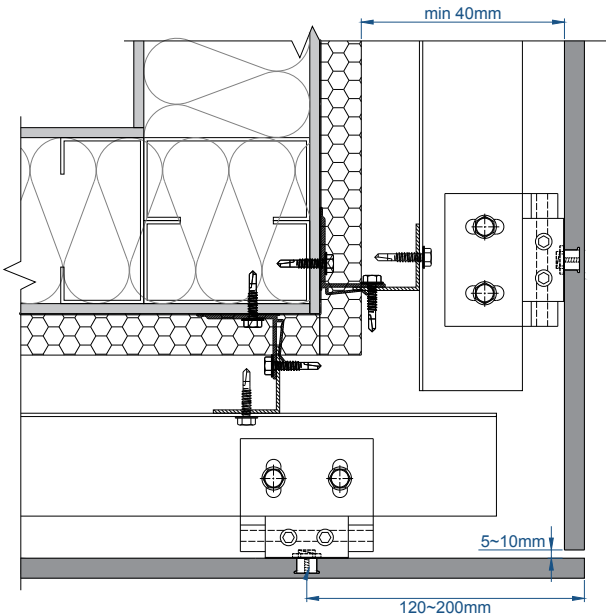


Figure 2: Inner Corner

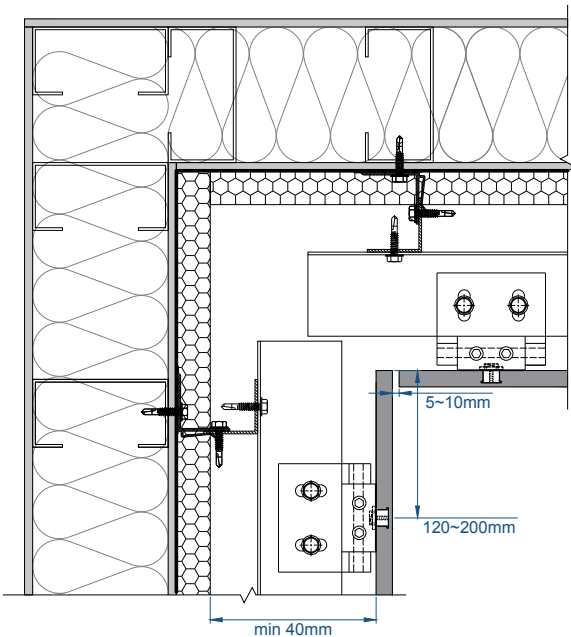


Figure 3: Window Jamb

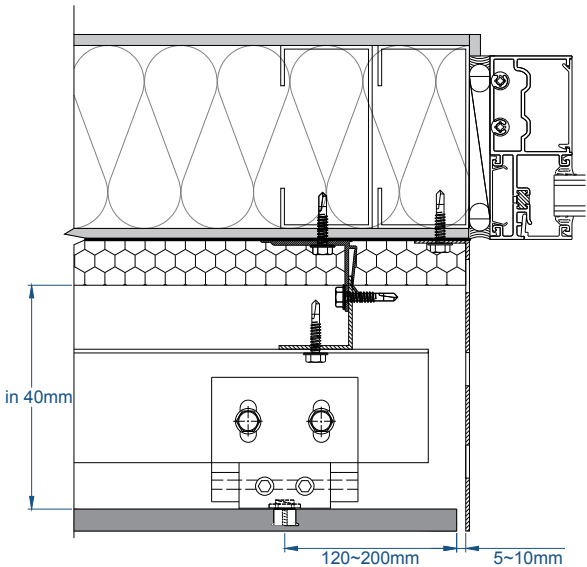


Figure 4: Window Sill

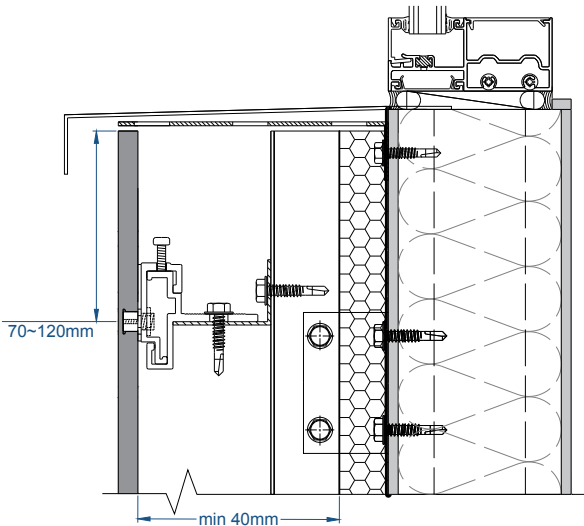
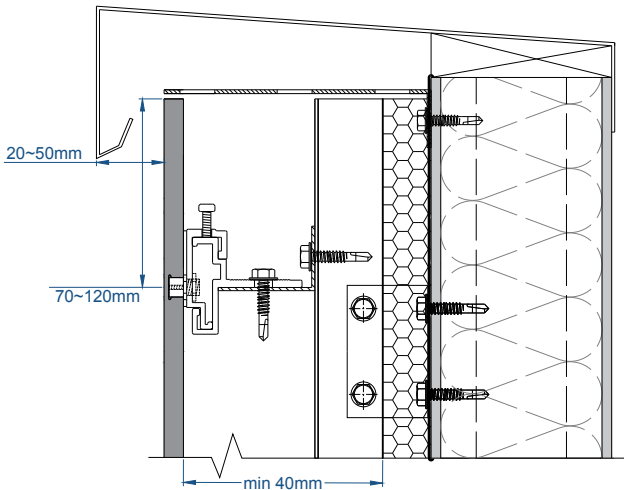


Figure 5: Capping





## Remarks

### Cleaning

There are two methods of cleaning panel, mechanical cleaning and chemical cleaning. In principle, perform the cleaning of the panel over the entire surface, because partial cleaning can result in color and tonal imbalance. Normal stains can be removed with a sponge and water. Warning High Pressure Cleaning is a rough treatment of panel. Use of a high-pressure cleaner may damage the surface. Therefore, high pressure cleaning is not recommended.

### Impact by Pollution and Nature

Weather and nearby vegetation may affect the appearance of the panels. Take caution to avoid pollution, dust and leaves from trees, bushes and flowers to not impact the integrity of the panels. Excessive humidity, salts, or other chemical agents can corrode the panel and attack metal.

### Special Information

THE INFORMATION OR DATA IN THIS SHEET SERVES TO ENSURE THE PRODUCT'S INTENDED PURPOSE OR ITS SUITABILITY FOR USE AND IS BASED ON OUR FINDINGS AND EXPERIENCE. NEVERTHELESS, USERS ARE RESPONSIBLE FOR ESTABLISHING THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE. APPLICATIONS OTHER THAN THOSE EXPLICITLY MENTIONED IN THIS TECHNICAL DATA SHEET ARE ONLY PERMISSIBLE AFTER PRIOR CONSULTATION WITH WALPANEL, INC. WHERE NO APPROVAL IS GIVEN, SUCH APPLICATIONS ARE AT THE RISK OF THE USER. THIS APPLIES IN PARTICULAR WHEN THE PRODUCT IS USED IN COMBINATION WITH OTHER PRODUCTS. WHEN A NEW TECHNICAL DATA SHEET IS PUBLISHED, ALL PREVIOUS TECHNICAL DATA SHEETS ARE NO LONGER VALID. THE LATEST VERSION IS AVAILABLE ON THE INTERNET AT [WWW.WALLSHELL.COM](http://WWW.WALLSHELL.COM).

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