

GAJCladding V-Shield

INSTALLATION MANUAL - v6.4



GAJ CLADDING

FOCUSED FOR OVER 20 YEARS

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Introduction

About GAJCladding V-Shield

V-Shield™ panel system provides you the excellent properties of the fiber cement that are ideal for high-quality and aesthetic façade solutions, modern and designer arrangements, and top level exterior architectures. Let yourself be inspired with our products and present your vision through our endless variations of this single material.

Advantages of GAJCladding V-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

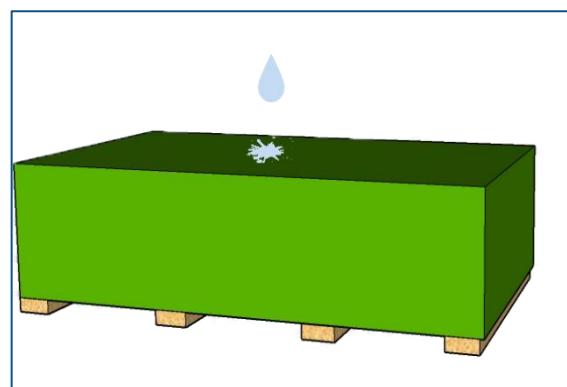
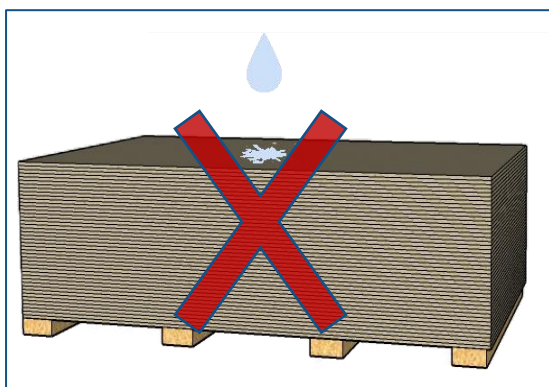
Product Inspection

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 GAJCladding Customer Service.

Storage

GAJCladding 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.

GAJCladding 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 GAJCladding 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.

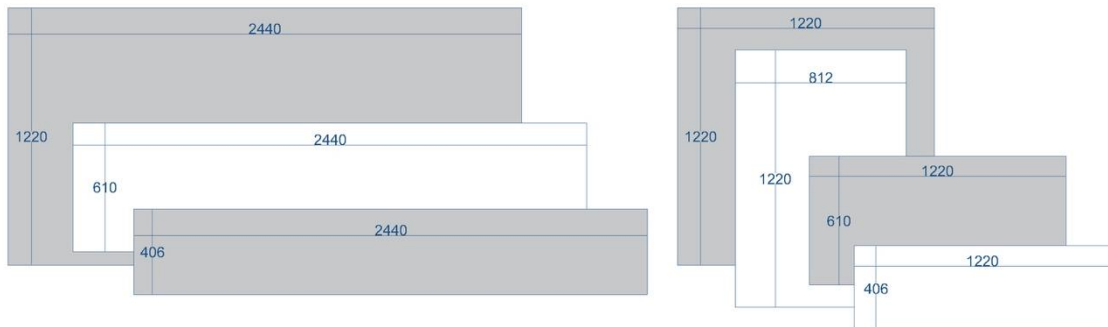
Note 1: When using fast running tools, dust exhaustion must be employed.

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*
812x1220	12
1220x406	8
1220x610	8
1220x1220	16
2440x406	16
2440x610	16
2400x1220	32

All size measures in mm

* Just for information

Panel Technical Data

Properties		Text Value
Apparent Density		1.57g/cm ³
Carrier Board Water Absorption		19.9%
Water Absorption after Coating		0.2%
Wet Rate		0.15%
Flexural Strength (Equilibrium Conditioning))		23.2MPa
Flexural Strength (Wet Conditioning)		16.5MPa
100 Freeze-Thaw	Physical Observations	Pass
Cycles Resistance	Flexural Strength Retention Rate	84.5%
50 Soak/Dry Cycles Performance		91.2%
Falling Ball Impact		Pass (10J)
Non-Combustibility		Class A

Panel Drilling

Panel should face up, and use the drill bit that is fully hardened steel bit with a cutting edge to drill hole. Before drilling, carefully and clearly mark hole positions on the face of panel.

Note 1: One panel is drilled at one time.

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.

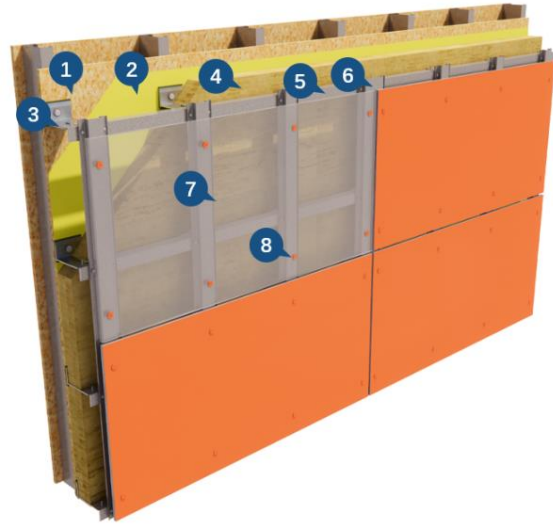
Apply GAJCladding Edge Sealant

Apply edge sealant simply run applicator along panel edges and holes. Ensure full coverage of edges and holes. Repeat this application if necessary

Metal Support

Main Components

1. Exterior Wall
2. Vapor Barrier & Waterproof
3. Brackets
4. Exterior Thermal Insulation
5. Horizontal Rail
6. Vertical Rail
7. V-Shield Panel
8. Rivet or Panel Anchor



Principle

1. Metal Frame

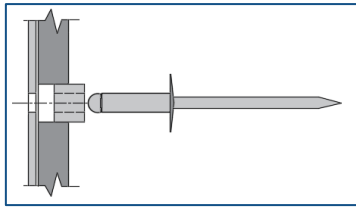
There are three different methods of metal framing. The first is shown above. The remaining two are shown in Catalog.

2. Ventilated Cavity

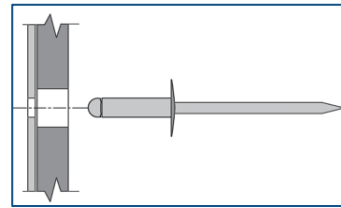
The main function of the ventilated cavity is to discharge water and excess heat. Use the pressure difference between the bottom and the top to make the air circulate naturally.

Cladding Height	Min. Cavity
<6m	20mm
6~15m	25mm
15~25m	30mm
25~50m	40mm
50~75m	50mm
75~100m	75mm
>100m	100mm

Fixing & Gliding Point



Fixing Point



Gliding Point

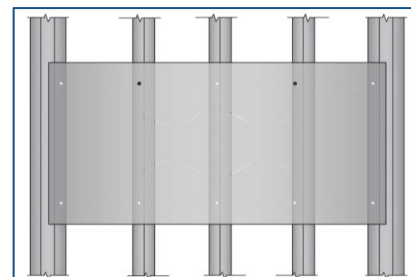
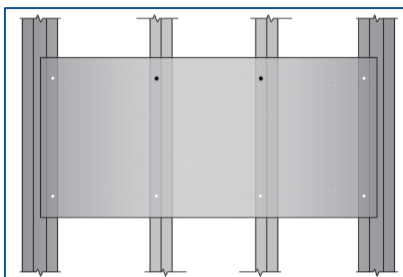
If using rivets to anchor panels, always stainless steel or galvanized steel rivets. Each panel must be fastened by 2 fixing fastening points in the panel center, installed first. All the others are gliding points.

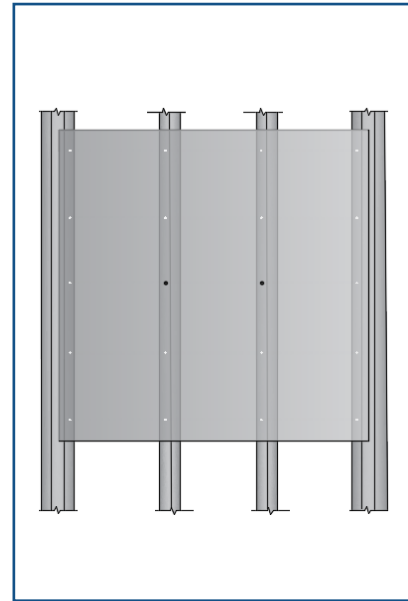
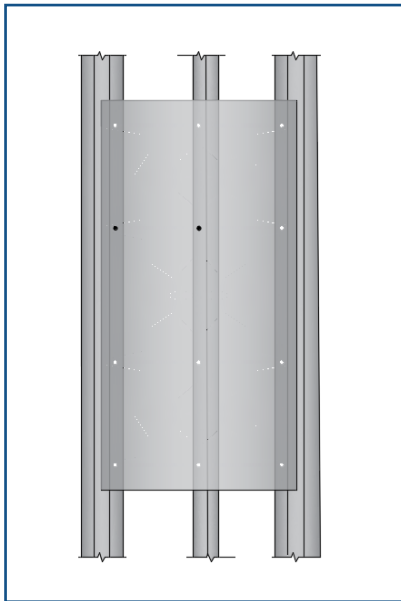
Diameter of the anchoring point hole is 8mm, and of the fixing point must use Rivet Sleeve.

The gliding point connection is NOT meant to accommodate building drift or seismic movement.

Two fixing points are required per panel, and they are always the same height in each panel, close to center of panel as possible, and then either the next adjacent point to the left or right. Be consistent in panel-to-panel location, center and left or center and right, so fixing points are at the same level horizontally for attachment to vertical rail. Between fixing points, the maximum distance can be 1 gliding point.

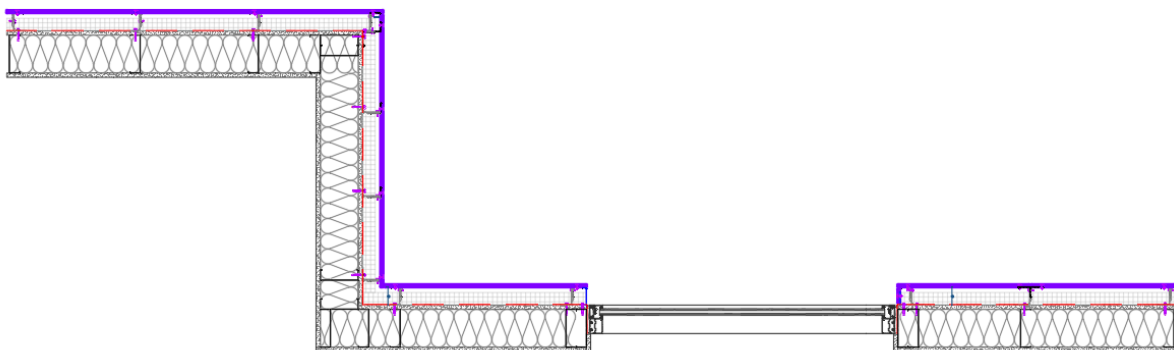
For Example:





● Fixing Point ○ Gilding Point

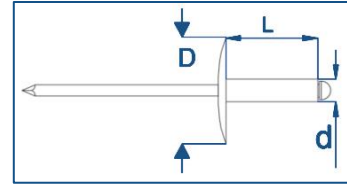
Attachment System



Secure the panel with face rivet or panel anchor which have a colored head to match the panel, and use L-profile Rail and Hat-profile Rail or Z-profile Rail as metal frame. Use fastener for anchoring profile extrusion.

Always use centering tool with drill when drilling holes on the metal support of the panel. The tool shall have a guide that fits into the panel hole and the drill bit extends from the tool to reach out to the profiled metal support. Ensure that the drill bit is vertical to the profile. Do not use pneumatic equipment.

Attention: Failure to use this rivet may invalidate product warranty.

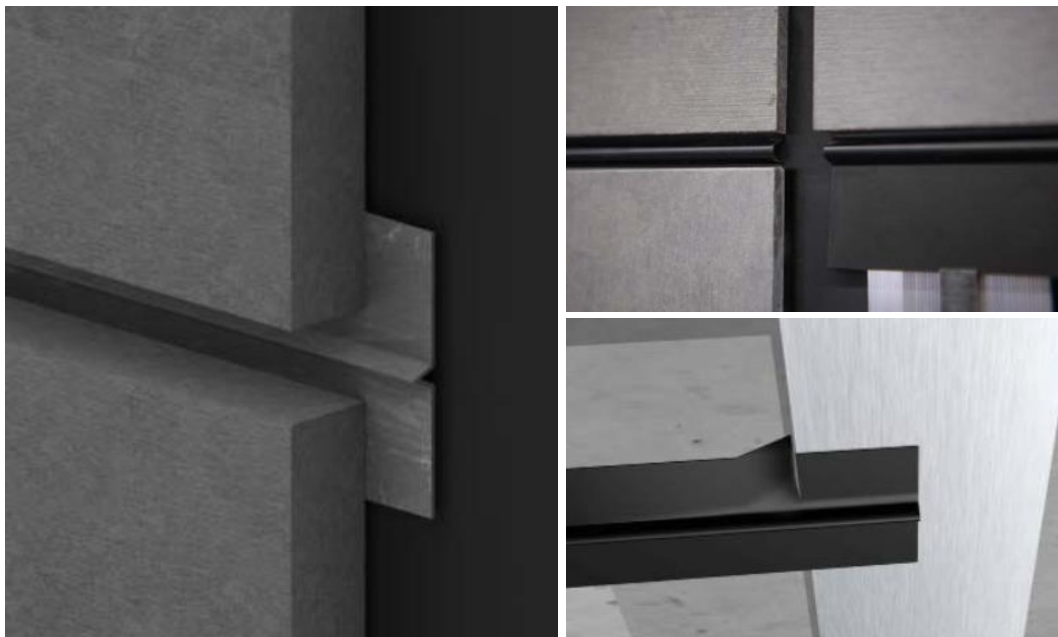


All measures
in mm

Head \varnothing (D)	Fastener \varnothing (d)	Length (L)	Grip Range
15	5	14	6.0~9.5
15	5	18	9.0~13.5
15	5	22	13.0~18.0

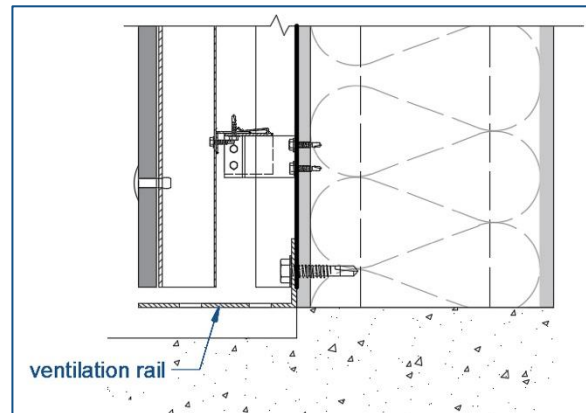
About Panel Joints

V-Shield will be available in two panel seam designs, one open and one closed. For open joints, the weather-cavity thickness to be min. 40 mm. Substrate to be UV resistant and colored dark as it will be visible through the open joints. Closed Joint system eliminates open joints between panels. This system closed the joint by mounting the joint rail. The rain screen system still function as a back draining, ventilated rain screen but may reduce ventilation, because the closed joints don't allow bulk water to penetrate.

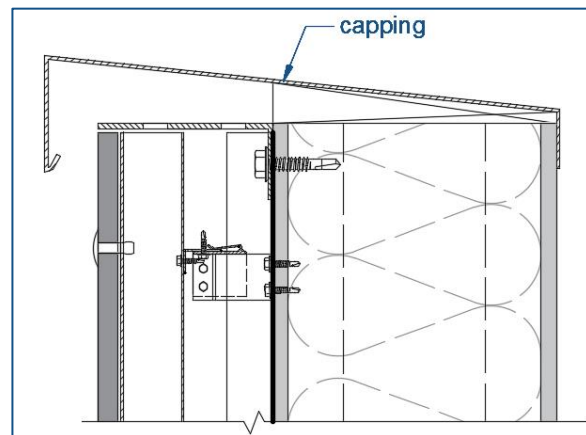


Accessories

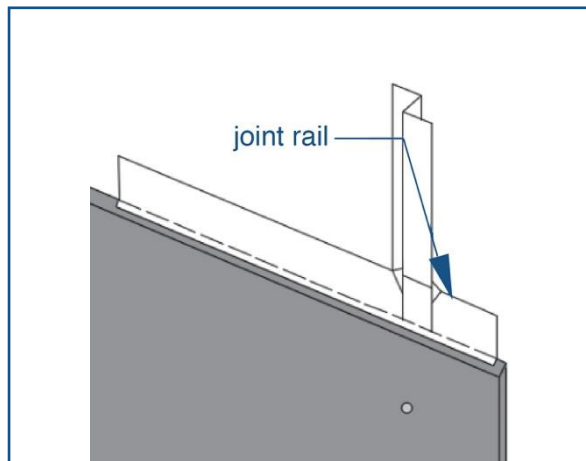
Ventilation Rail is a perforated profile rail. It is applied between the panel and the wall. This rail can allow air to enter the cavity space while preventing the entry of birds or vermin.



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



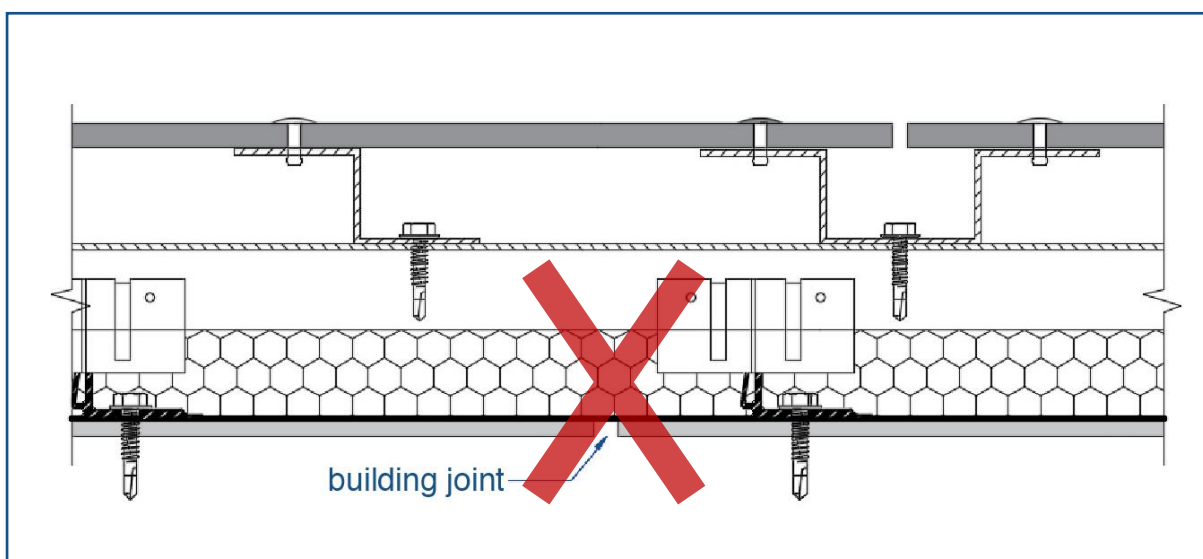
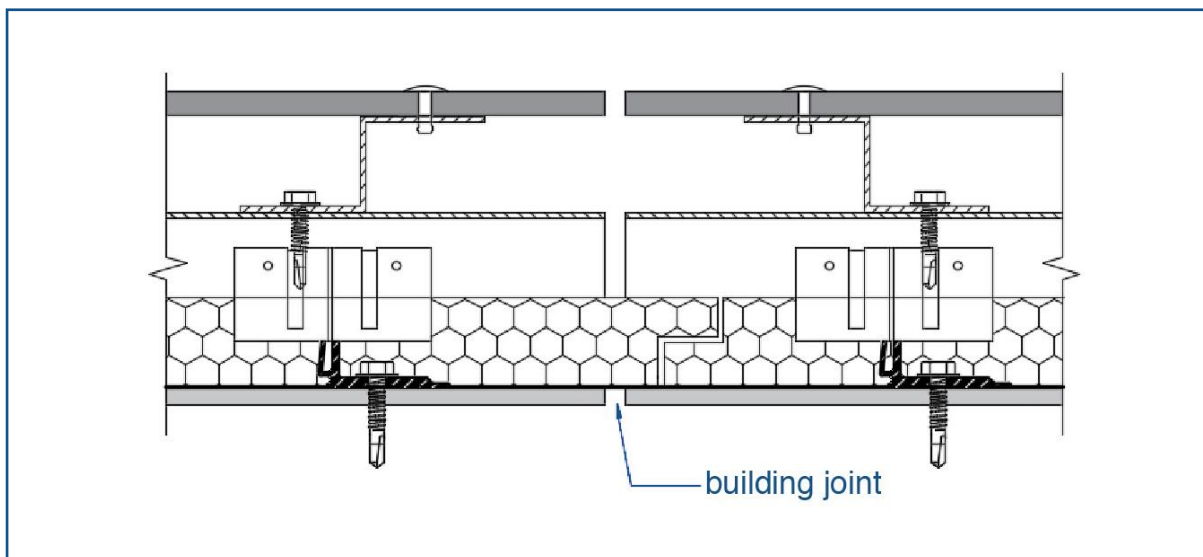
Joint Rail is used to close horizontal joints. Normally, there are two types of panel joint between panels. Open joints in which there is a clear open gap between panels. Closed joints need joint rail.



Attention: The joint rail should be slid up under the panel, before final fixing of the lowest rivets on a panel. (The length of joint rail needs to be 2 mm shorter than panel length)

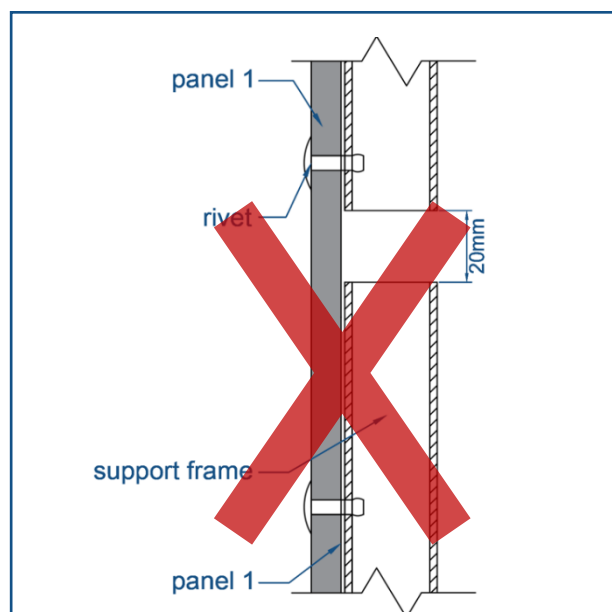
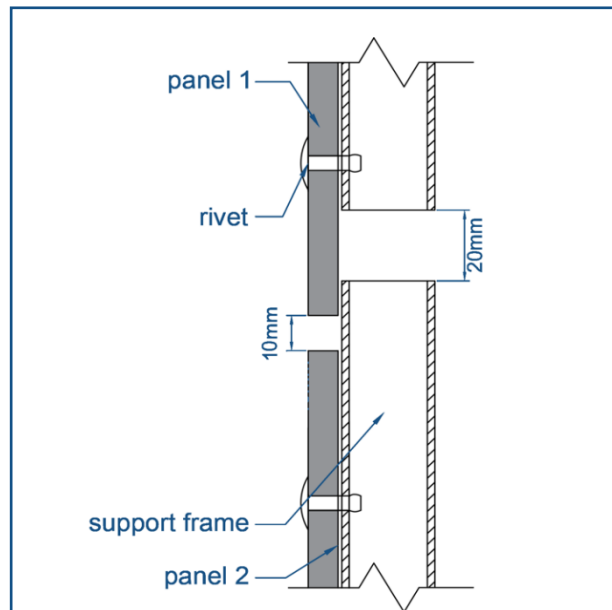
About Building Joint

No panel or its supporting frame shall be installed across the building structural joints, and no panel shall be installed across its supporting frame along the frame's direction, vertically or horizontally.



About Panel Support Frame

The movement in the profiles of panel support caused by expansion and contraction of the metal material needs to be taken into account while installing the profiles. A minimum 20 mm gap between profiles should be kept along the profile direction. A panel shall never be fixed on two separate profiles in the profile direction since the movement of the profiles may cause the cross-fixed panel to crack.



Installation

Anchor Layout

- Corner anchoring point area

Horizontally: 40 ~ 100 mm

Vertically: 80 ~ 100 mm

- Panel joints

d_3 : 5~10 mm

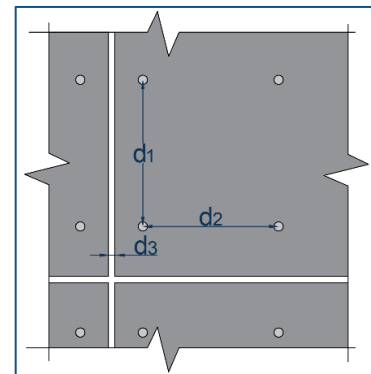
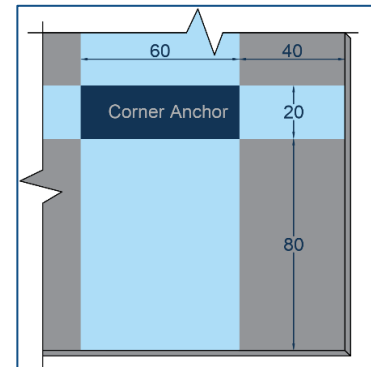
- Distance between anchors

Horizontally (d_2): 200 ~ 400 mm

Vertically (d_1): 200 ~ 450 mm

- Holes in panel for rivet

Ø: 8mm



- All rivets must be inserted perpendicularly to the panel surface and must not be under tightened, nor over tightened to restrain the free movement of the panel.
- To prevent distortion of the panel at mid anchoring points when fastening the panes, foam tapes need to be placed around these mid anchoring points as a cushion on the rails.
- NOTE: When drilling or cutting occurs on project site, extra care and protection should be taken not to scratch the surface of the panel.

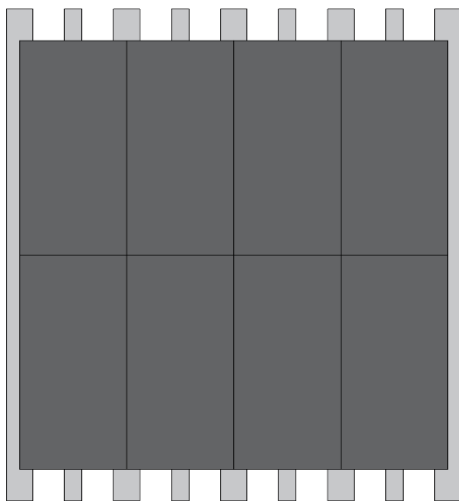
Panel Layout

One factor in the design of the support frame is wind load, and another important factor is the actual panel layout required by the architect. The panel layout can have a large impact on the number and type of profiles required for the project.

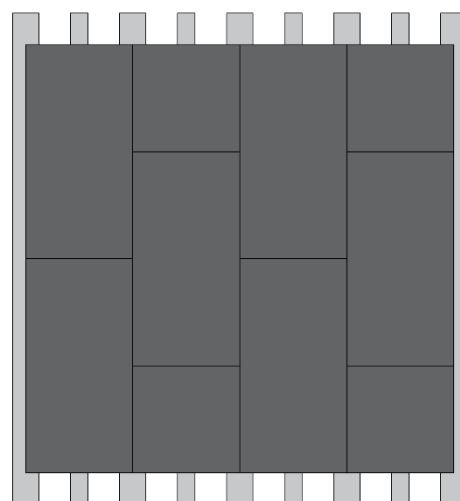
Other effects on the layout of the support frame include staggered panel joints or completely free patterns that use different sized panels in a random layout. These considerations may result in the use of different kinds of profiles.

Vertical Layout:

aligned grid pattern

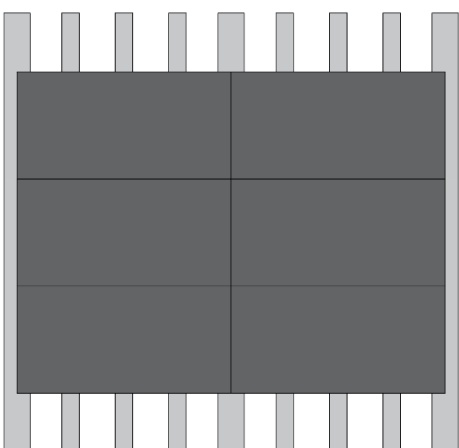


staggered grid pattern

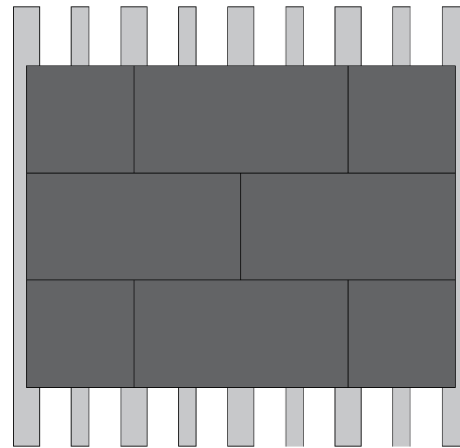


Horizontal Layout:

aligned grid pattern

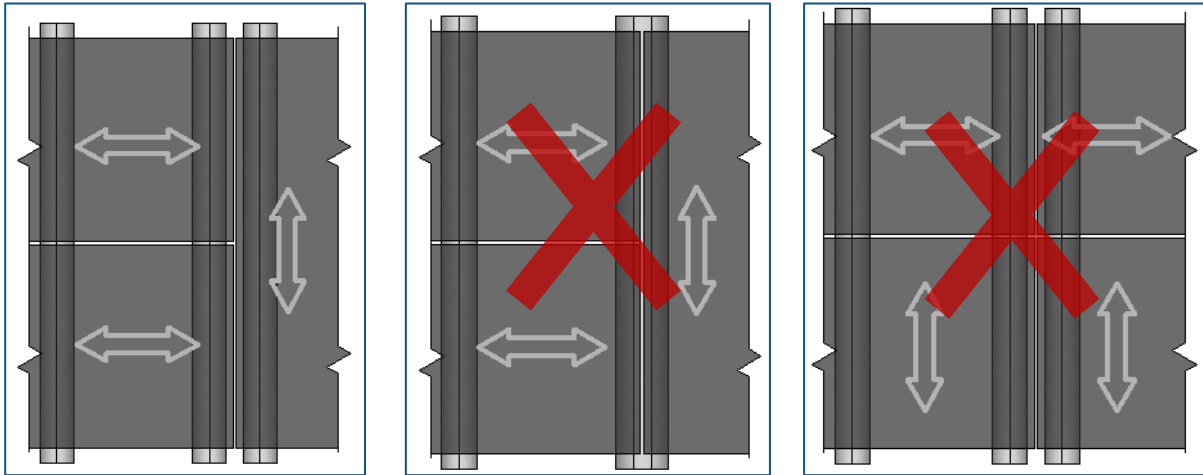


staggered grid pattern



The GAJCladding panel grain direction is along long side of the standard panel, and is marked on the protective film of the panel.

During the installation, all the arrows on the protective film of panels sharing the same supporting rail shall point in the same direction.

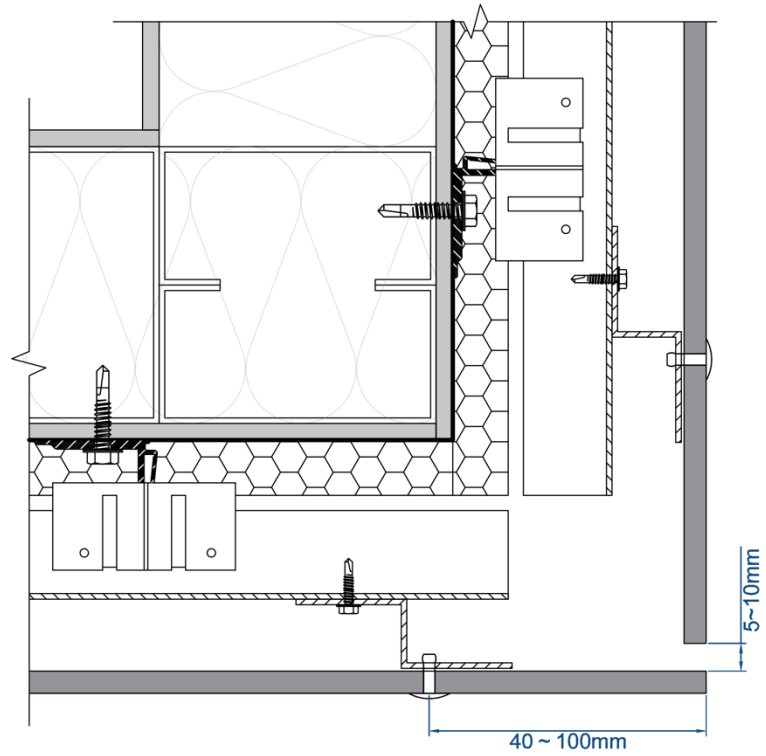


Vertical Panel Joints

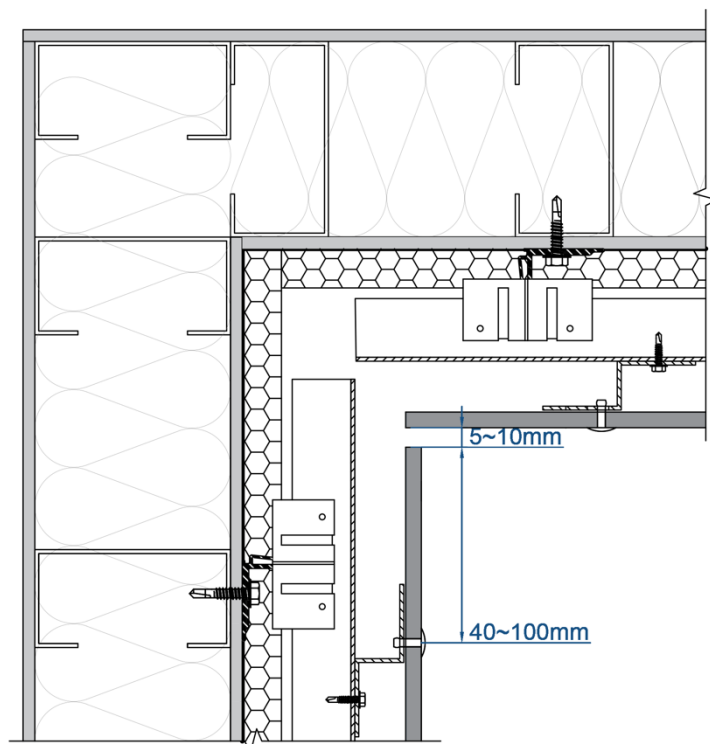
Vertical panel joints are usually backed with vertical supporting rails. If the light or silver color galvanized steel rail is used, the joints can be very eye-catching especially when the panel is coated with dark color. To black out the prominent vertical joints, the black UV light resistant wide foam tapes are usually used, or painting on the metal rails can be applied alternatively.

Special Location

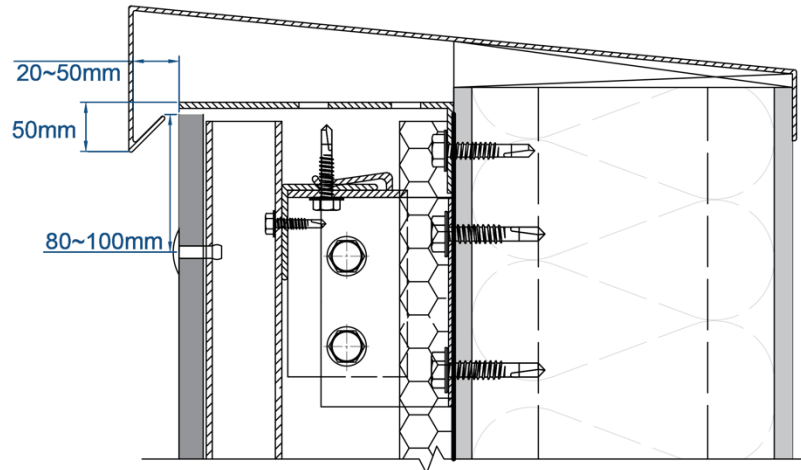
Outer Corner:



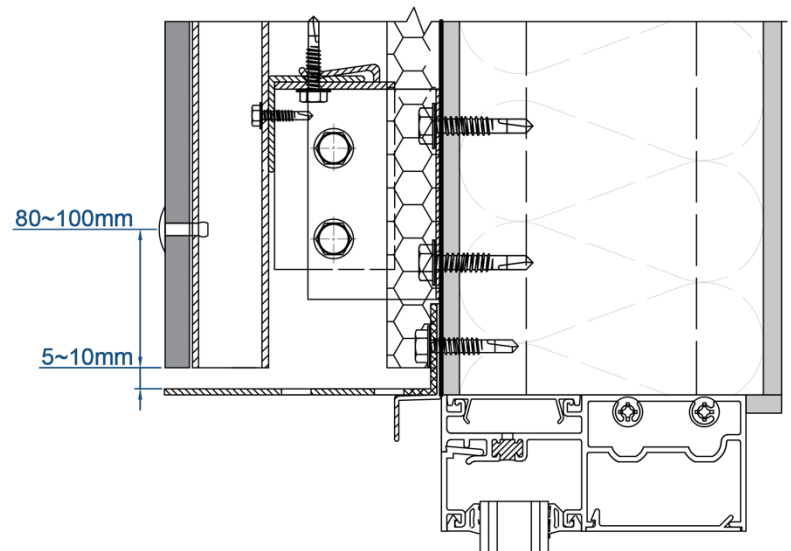
Inner Corner:



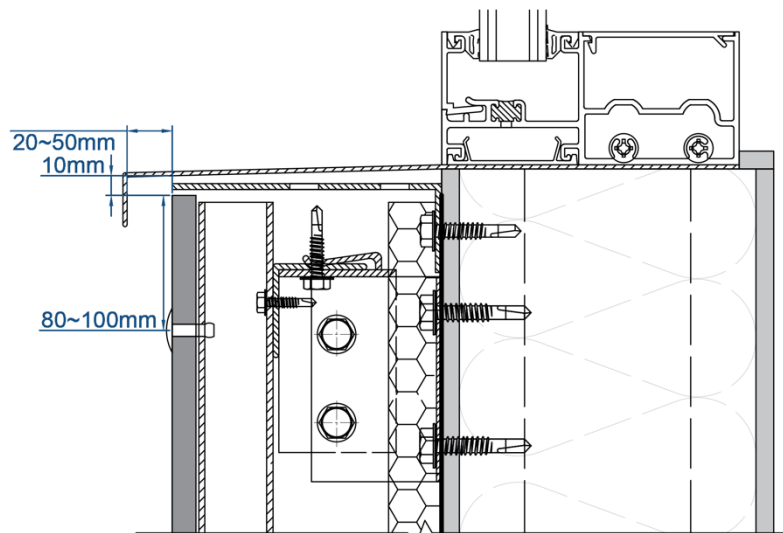
Parapet:



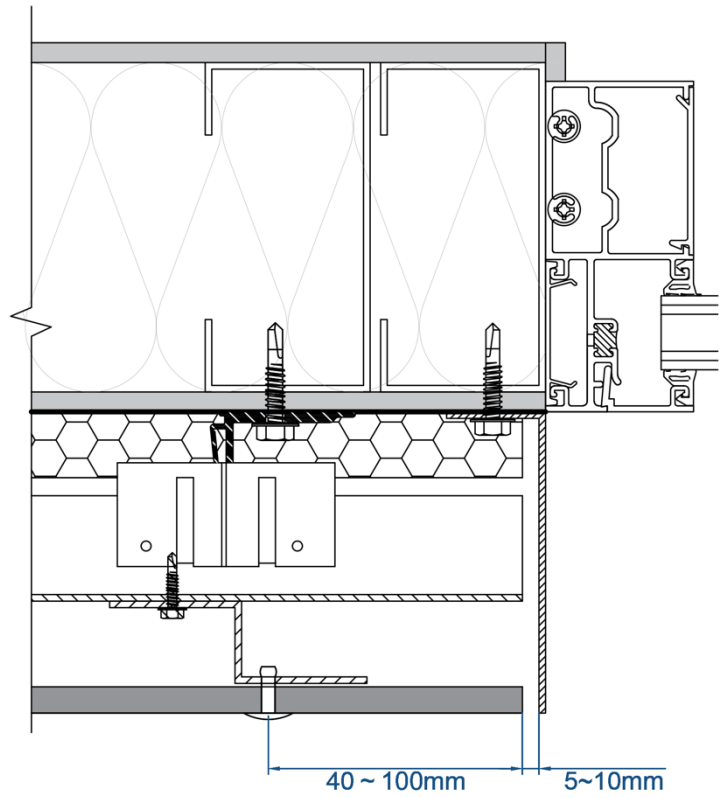
Window Head



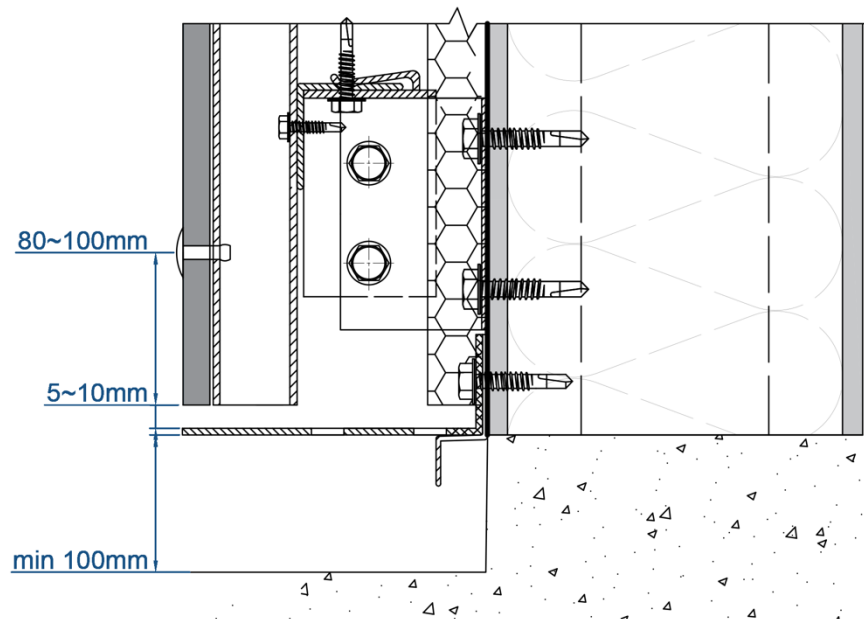
Window Sill:



Window Jamb:



Base:



Top-Down Installation

There are many benefits to use the top-down approach for cladding panel installation, for examples, to prevent the installed façade from damaging by working on the scaffold, to reduce time needed to clean the façade installed, to minimize the chances of dirty panels, to use the supporting rail ensure the accurate panel joints, etc.

Major steps of working top-down approach are as follows:

Step 1. Starting at the top of the façade, measure, mark and align the top panel position on the supporting rails, then temporarily clamp a horizontal panel support across the vertical supporting rails. Place the top panel onto this support and position into its place. Adjust and secure the clamp into the position.

Step 2. Always fix the two central fixing points first to hold the panel, and then tighten the rest of sliding points, always from the center towards the edges. Note: if a horizontal joint profile is to be installed, do not fasten the bottom row fasteners at this moment.

Step 3. Place 10mm spacers before placing the next below panel. Make sure the spacers can be removed without causing panel damage.

Step 4. Measure down from bottom edge of the upper installed panel and mark the position of the next panel below it. Remember to add horizontal joint space, which is panel height plus spacer height (10 mm).

Step 5. Repeat the Step 1, 2, 3 and 4.

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 CHONGQING GUANJIE QIZHONG BUILDING MATERIALS CO., LTD. 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.GAJCLADDING.COM.

GAJCladding V-Shield INSTALLATION MANUAL

July 21, 2024



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FOCUSED FOR OVER 20 YEARS

Chongqing Guanjie Qizhong Building Materials Co., Ltd.

info@gajcladding.com

www.gajcladding.com