

KMEW Facade Panels Filltect / Ceradir V for Aluminum Substructure

Design/Installation Manual for European market September 2025



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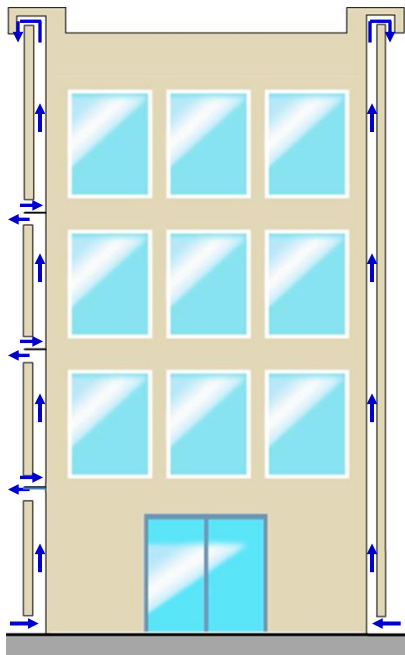
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Description

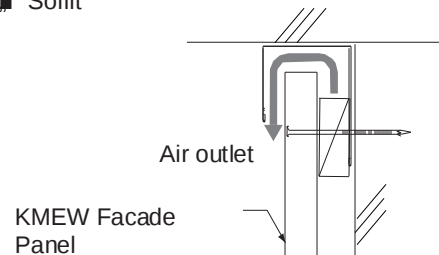
Rain Screen System

- 1 The KMEW Rain Screen System is a cavity-based extruded fibre-reinforced cement panel wall claddings. KMEW Facade panels are available in a range of surface profile patterns and prefinished colours. KMEW Facade panels are rebated to form hidden laps and are fixed with clips to form a drained and ventilated cavity.
- 2 Cladding should have a minimum 15 mm drained and ventilated cavity from the external wall framing.

■ Details of the rain screen system

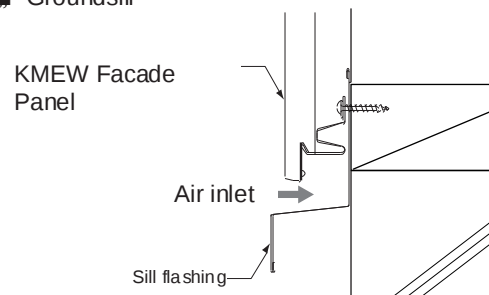


■ Soffit



※ Air may be also ventilated out through the eave or the roof ventilation systems.

■ Groundsill



Safety precautions

	 Caution
 Prohibited	• Do not use KMEW Facade panels for any purpose other than exterior walls. • Do not get KMEW Facade panels wet. Penetrated rain may warp or shrink the KMEW Facade panels after installation.
 Very Important!	• KMEW Facade panels installation includes work in high places. Wear appropriate clothes and protective equipment, and check that the scaffolding is secure. • KMEW Facade panels are heavy. Take extreme care with safety during carriage; otherwise injury may be caused. • The panels are not to be stacked more than 2 pallets high when stored temporarily at construction sites. • KMEW Facade panels are made of cement. Wear gloves when handling them. In particular, when handling wet KMEW Facade panels, wear rubber gloves or other protective equipment. Otherwise your skin may be damaged. • When KMEW Facade panels are installed on a high place or balcony, together with clip fasteners, additional screws or other reinforcement must be secured into the KMEW Facade panels to prevent accidents and injury.

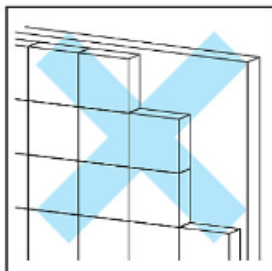
General Precautions

Precautions for prevention of dropping



Prohibited

Direct fastening of tiles, etc. on the KMEW Facade panels

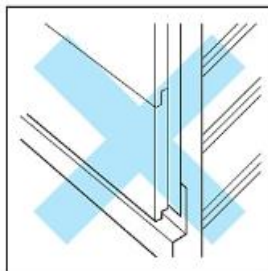


If tiles are fastened directly on KMEW Facade panels, tiles may drop off, be broken or cracked.



Prohibited

Direct fastening of the KMEW Facade panels on ALC/RC walls

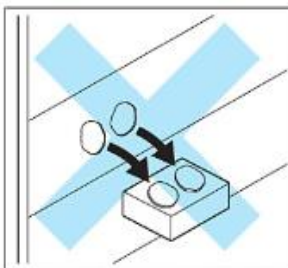


It could cause breakage of the KMEW Facade panel fastening areas or falling of the KMEW Facade panels.



Prohibited

Fastening objects on the KMEW Facade panels



The KMEW Facade panels may be broken or fastened objects may fall if the objects are fastened on the KMEW Facade panels alone.

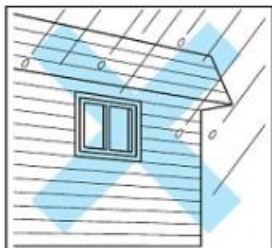
The KMEW Facade panels do not provide sufficient retention force. Objects shall be fastened on frames. Avoid joints of the KMEW Facade panels and fasten with consideration for distance from the edge.

Shall not be used under the following conditions



Prohibited

Installation on tilting parapets

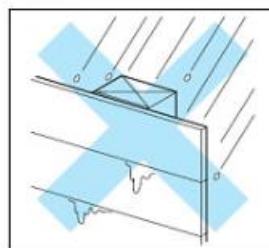


Parapets are subjected to severe conditions equivalent to those of roofs, unlike vertical walls, resulting in deterioration of coated film, freezing and leakage of rainwater. **Please use roofing materials.**



Prohibited

Installation on fences, etc. which get wet due to rain from backside

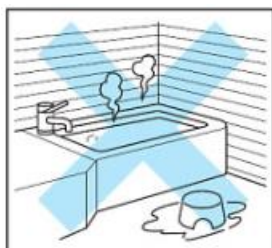


Backside of the KMEW Facade panels is protected by sealer alone, and they may be warped due to repeated wetting and drying caused by water absorption from backside.



Prohibited

Installation on areas that are constantly subjected to water or steam



They will be affected by water, heat, etc, resulting in warping, freezing, deterioration in strength and cracking.



Prohibited

Installation on centralized smoke stacks



Moisture generated inside smoke stacks will leak through mortar and the moisture will be absorbed by the KMEW Facade panels from backside, causing warping and freezing.

General Precautions

Shall not be used under the following conditions



Installation on curved walls

Prohibited

It may cause breakage of the façade panel fastening areas or falling due to different shape of the wall.



Installation on reverse tilted walls

Prohibited



Installation of the façade panel on tilted wall, where an eave protrudes from the sill, may cause warping, deformation and panel fall.

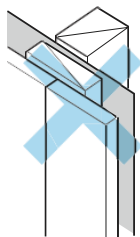
← Reverse tilted wall

Precautions for prevention of rainwater leakage



Butt joints without T-joiner

Prohibited



If the panels are installed without T-joiners it may cause cracking and deformation of the Facade panels



Erratic installation where vertical joints are not on a straight line

Prohibited

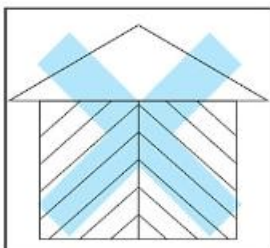


Water flowing down the joint can accumulate on the panel below it and causes water leakage and freezing.



Diagonal installation

Prohibited



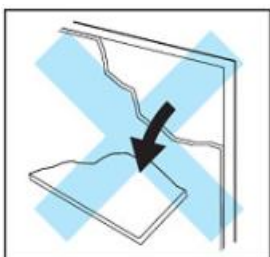
When the KMEW Facade panels are installed diagonally, the amount of water that flows along the grooved joints increases at the bottom of the wall, causing water to flow into the wall, resulting in rainwater leakage.

Precautions for on-site coating



Thick layer of multilayer finish coating or stucco cement

Prohibited

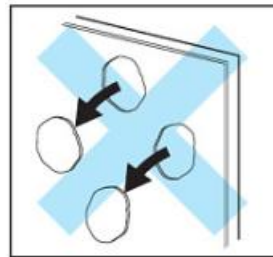


Thick coating may cause separation, breakage or cracks due to insufficient adhesion strength.



On-site coating using materials not recommended for photocatalytic ceramic coat products.

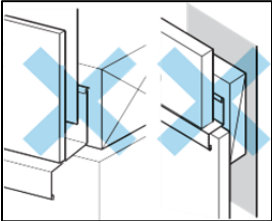
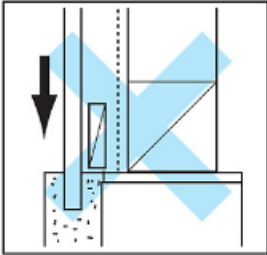
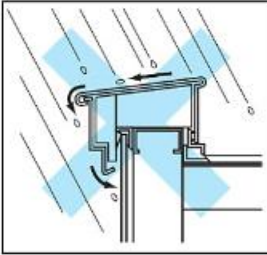
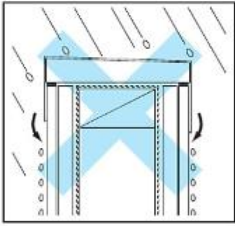
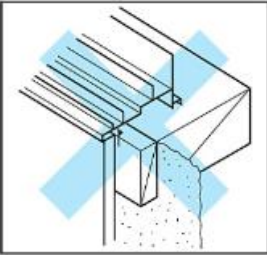
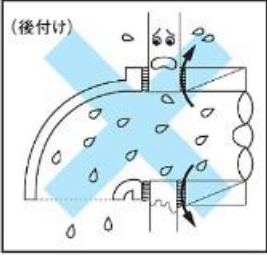
Prohibited



Usage of recoating materials that are not recommended for the products may result in peeling of coating, etc.

General Precautions

Precautions for prevention of base material deterioration

 Butt joint with sill flashing and intermediate flashing Prohibited  Butt joint with sill flashing and intermediate flashing could lead to water absorption caused by capillary action, resulting in deterioration of base material or freezing. In addition, it does not conform to the standard installation method for the ventilated structure.	 Embedding in mortal portion of foundation or butt joint with the area Prohibited  The KMEW Facade panels will absorb water from embedded areas or butt joints, causing separation of coated film, deterioration of base material, freezing, etc. In addition, it does not conform to the standard installation method for the ventilated structure.
 Headboards that are tilted outward Prohibited  If head boards are horizontal or tilted outward, a large amount of rainwater flows on the external wall, causing stains and freezing.	 Head boards with limited overhang, etc. that cause flow of rainwater along the KMEW Facade panel surface, or installation methods that prevent ventilation Prohibited  These conditions may cause staining and freezing of the KMEW Facade panels due to water running down from head boards. Condensation and freezing will be caused if the walls are not ventilated by the ventilated structure.
 Installation under openings for sashes, etc. of limited overhang Prohibited  It could lead to staining and freezing of KMEW Facade panels due to water flowing down the sashes, etc. Prevent water flowing down the sash from flowing on the surface of the KMEW Facade panels.	 Installation of air vents after installation of the KMEW Facade panels Prohibited  If air vents are installed after installation of the KMEW Facade panels, moisture tends to intrude into the wall, causing condensation, rainwater leakage, freezing, etc. Ventilation hoods and connecting pipes should be installed before installation of the Facade panels, and the edges of the wind-moisture protective membrane should be sealed with a waterproof foil, etc. to prevent water ingress.

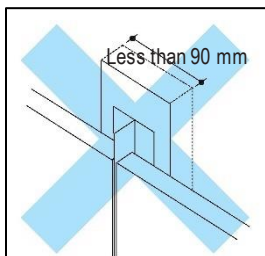
General Precautions

Precautions for prevention of cracks



Prohibited

Usage of furring strips less than 90 mm in width on joints

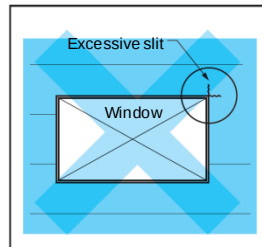


When furring strips less than 90 mm in width are used, the distance from the edge of the KMEW Facade panels to fastening screws become short, resulting in cracks, etc.



Prohibited

Excessive slit, installation of the KMEW Facade panels that are less than minimum allowable width without division

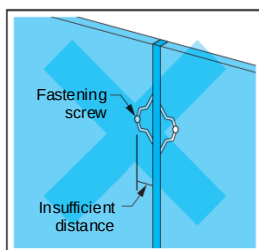


They may cause cracks. Excessive slit could also lead to rainwater leakage and freezing.



Prohibited

Insufficient distance from the edge



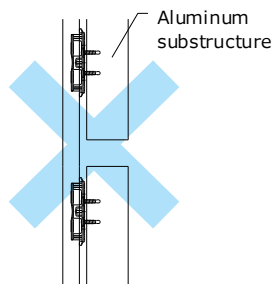
Insufficient distance from the edge could result in cracking or chipping of the edge.

The distance from screw to the edge shall conform to the specifications.



Prohibited

Do not install KMEW Facade panel across the joints of aluminum substructure.



There is a risk that panel may be damaged due to expansion and contract of the aluminum.

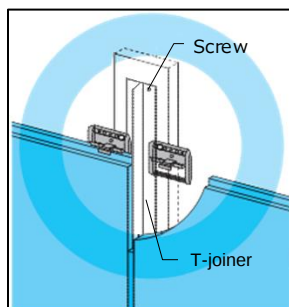
Be sure to separate the panels at the joints of the aluminum substructure.

Precautions for prevention of lateral displacement (in installation with panel clips for horizontal application)



Very Important!

T-Joiners shall be fastened on studs at intervals of approximately 1 m, using screws.

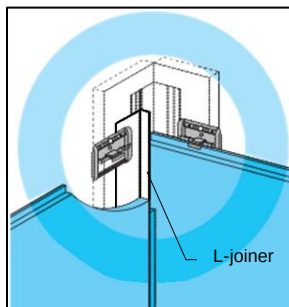


Lateral displacement of the KMEW Facade panels may occur if T-joiners are not fixed.



Very Important!

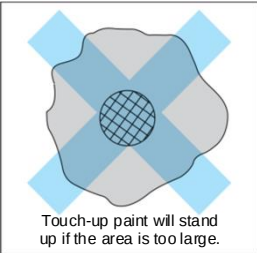
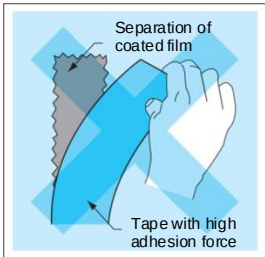
Use L-Joiners on outside/inside corners and beside openings.



Lateral displacement of the KMEW Facade panels may occur if L-joiners are not fixed.

General Precautions

Precautions for prevention of staining and discoloration

 Improper touch-up for screw head, etc. Prohibited  Touch-up paint will stand up if the area is too large. In touching up the screw head, if the area is too large, the paint is not fully mixed or sealing material is used, the area stands up after years of aging. Touch-up paint on screw heads should be limited to the minimum amount.	 Wipe off stains on KMEW Facade panels with thinner or other solvents Prohibited Wiping paint from panels with thinner or other solvents can cause discoloration. If paint or other contaminants adhere to the Facade, repair them with touch-up paint. If the stain is extensive, replace the Facade panels.
 Dividing or adding of touch-up paint for photocatalytic ceramic products Prohibited  They may cause mismatching in color or insufficient performance.	 Touch-up paint for photocatalytic ceramic products shall be applied after 30 minutes or more since being mixed and stirred. Very Important! If the paint is used immediately after stirring, the paint may not provide proper performance
 Cleaning of powder on the surface of the KMEW Facade panel using water Prohibited  If water is used to wipe or wash the surface, whitish patch may appear on the area. Remove completely by air or use dry and clean rug, cloth, soft brush, etc.	 Attaching tapes with high adhesion force on the surface of the KMEW Facade panels Prohibited  If tapes with high adhesion force (such as cloth tapes and masking tapes) are attached on the surface of the KMEW Facade panels, coated film on the surface could be separated or bond could remain on the surface. Avoid attaching tapes on the surface of the KMEW Facade panels if possible.

General Precautions

Health and safety

1. Warning about silica dust

WARNING: AVOID BREATHING SILICA DUST

Cladding panels contain silica. Inhalation of respirable silica dust can cause silicosis a potentially disabling lung disease. When drilling, cutting, or abrading cladding panels during installation or handling, (1) Work outdoors where feasible, otherwise use mechanical ventilation, (2) Wear a dust mask or, if dust may exceed the specific level defined by the local laws or regulations, use an appropriate respirator approved or recommended by the local authority, (3) Warn others in area. For further information, refer to material safety data sheet or consult employer.

FAILURE TO ADHERE TO WARNINGS, MSDS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY.

2. Health precautions

- 1) When cutting the panels, prolonged inhalation of a large amount of dust may be harmful to your health. Follow the instructions below:
 - Use a dustproof cutter equipped with an interlocked dust collector, or local exhaust equipment.
 - Wear a dustproof mask and dustproof glasses.
 - Work in a well-ventilated location.
 - Make sure to gargle and wash your hands.
- 2) When using a solvent-based material, such as repair paint, waterproof sealer, caulking, and caulking primer, wear an appropriate mask and protective gloves, and work in a well-ventilated location.



General Precautions

Handling, transportation and storage

1. Handling and carrying

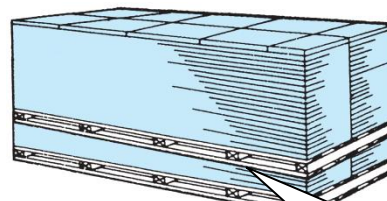
- One pallet weights approx. two tons.
- Carry the panels by holding their lengthwise edges under your arm.
- Take extra care to avoid hitting anything with the panels or dropping them, or the edges may be damaged.
- Don't touch the panels with dirty hands.

How to carry the panels



<Transportation by vehicle>

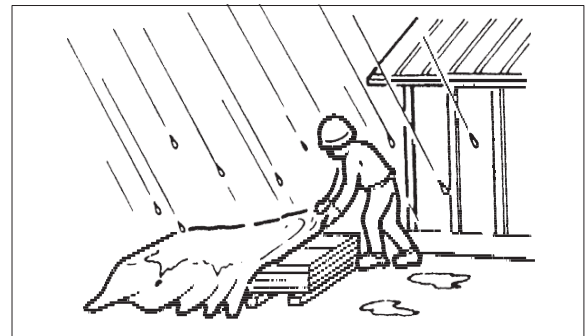
- When transporting the panels by vehicle, stack them flat.
- When loading panels onto a pallet, strap the panels down and use blocks to protect the panel edges.
- When loading/unloading panels, take extra care to avoid damaging them.
- When hoisting panels, put plates between the panels and ropes to avoid damaging the panels.
- Don't stack the pallet with more panels on top of the pallet with fewer panels.



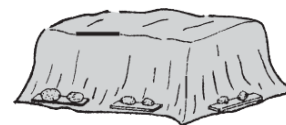
Don't stack the pallet with more panels on top of the pallet with fewer panels. - Otherwise, the stacks may collapse. -

2. Handling and storage

- Store the panels flat and under cover. Keep the panels dry and off the ground prior to installation to avoid moisture conditions that could affect the quality of the work.
- The panels are not to be stacked more than 2 pallets high when stored temporarily at construction sites. Pallets should be loaded and unloaded with a forklift or sling. Taking care not to drop the pallet.
- Keep the panels clean when handling on site, and take care not to damage the edges.
- When necessary to stand panels on edge prior to installation, take care to avoid contact with rough and abrasive surfaces that could damage the factory-applied coating or sealer.
- The maximum number of the pallets to be stacked on a flat concrete floor in an indoor storage should be four.

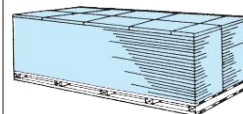


Temporary outdoor storage:

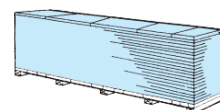


Indoor storage:

a) On a pallet



b) On spacers



● Do not place panels directly on the ground.

Design Criteria

Target Product

1. Product Specification

Product Type	Coating	Core	Panel size			Application
			length [mm]	Height [mm]	Thickness [mm]	
Filltect	Photocatalytic Ceramic	Solid	3030 $\pm$ 1	455 $\pm$ 1	16 $\pm$ 1.2	Horizontal Vertical
	Hydrophilic					Horizontal Vertical
Ceradir V	Hydrophilic	Solid	3000 $\pm$ 1	455 $\pm$ 1	14 $\pm$ 1.0	Horizontal Vertical

Note: This product is an industrial product, and there may be slight variations in color depending on the manufacturing lot. Avoid installing products from different manufacturing lots on the same wall surface as much as possible.

Design Criteria

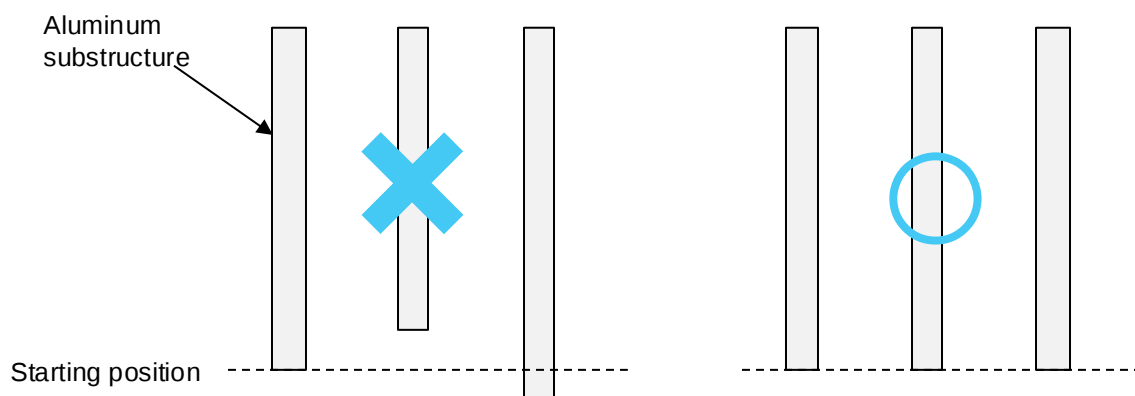
Structural Requirement

1. Standard specification of aluminum substructure

- The design of the substructure must comply with the standards of the each regions and the manufacturer.
- The number and spacing of the bracket, anchor, screw and rivet for aluminum substructure should be calculated by the manufacture or by a specialist engineer.
- KMEW is not responsible for the damages or defects of panels due to substructure.

- The structure that fixes the aluminum substructure should be concrete, reinforced concrete, brick.
- Aluminum will expand or contract according to climatic conditions.
- The aluminum substructure configuration must be a two-material specification of long bar and bracket, and must have fixed and free (sliding) points.
- Please make sure that the starting position of the aluminum substructure is aligned. Otherwise, there is a risk that panel may be damaged due to the difference in expansion and contract of the aluminum.

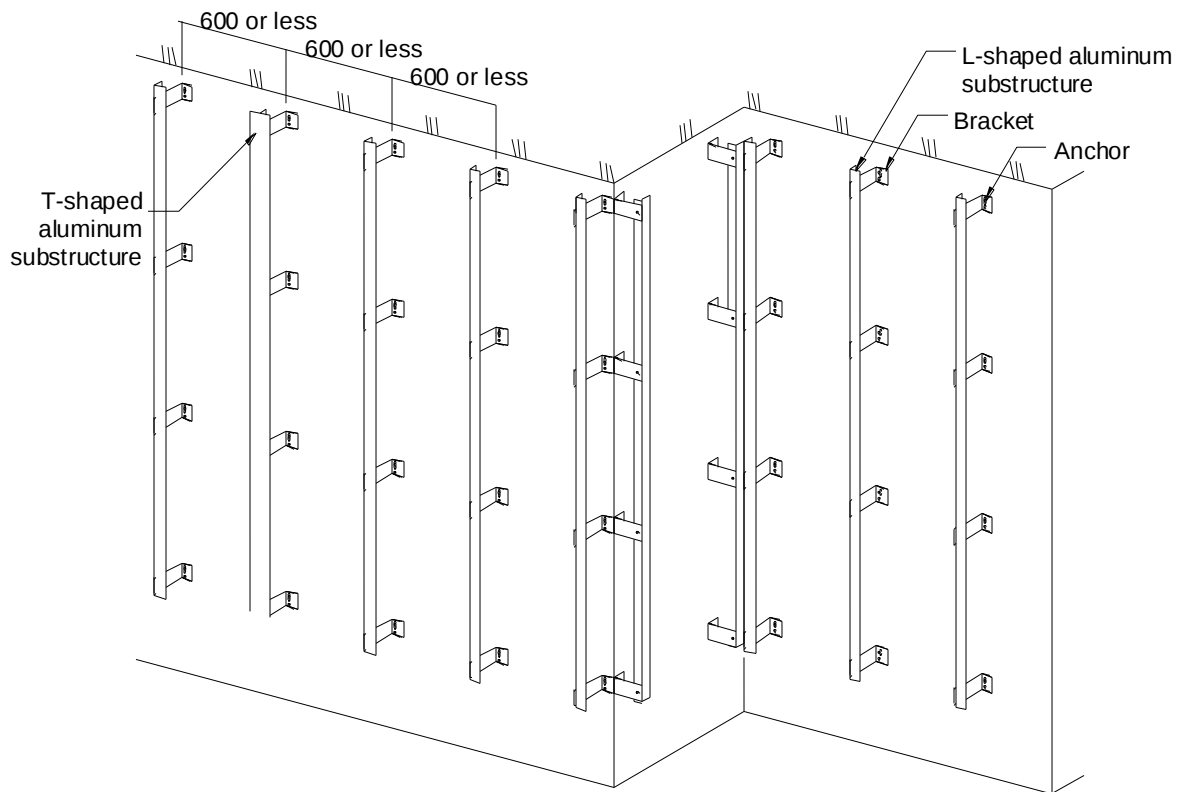
Items	Panel application	Horizontal	Vertical
Substructure	Orientation	Vertical	Vertical
	Material	Aluminum (A6060-T5, A6060-T6, A6060-T66, A6063-T6, A6063-T66) *Use of anodized materials is recommended	
	Thickness	1.5 - 2.2 mm (fastener: screw or rivet) 2.2 mm or more (fastener: rivet)	
	Length	3m or less	
	Shape	Use metal substructures with the appropriate dimensions suitable for each area of installation.	
	Interval	600 mm or less	455 mm
Note	• In the case of vertical installation, the accuracy of the substructure pitch is very important. If the accuracy is poor, the clips cannot be installed. • Install additional substructure as necessary around corners and windows, etc. • L-shaped plates must be installed at corners to secure fastening points. Use steel plates (t=1.2 mm) or aluminum plates (t=1.5 mm or more). • If there are unevenness of the substructure exceeding the 2mm, adjust with shim as necessary.		



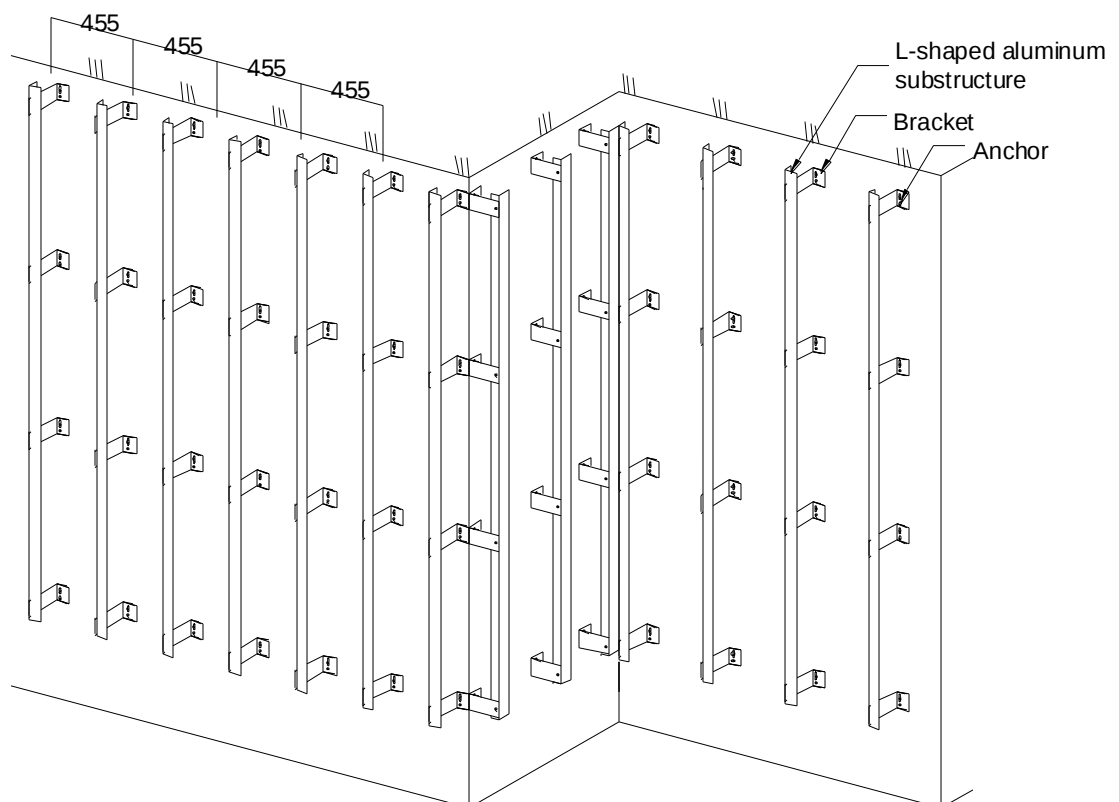
Design Criteria

Structural Requirement

For Horizontal Application



For Vertical Application

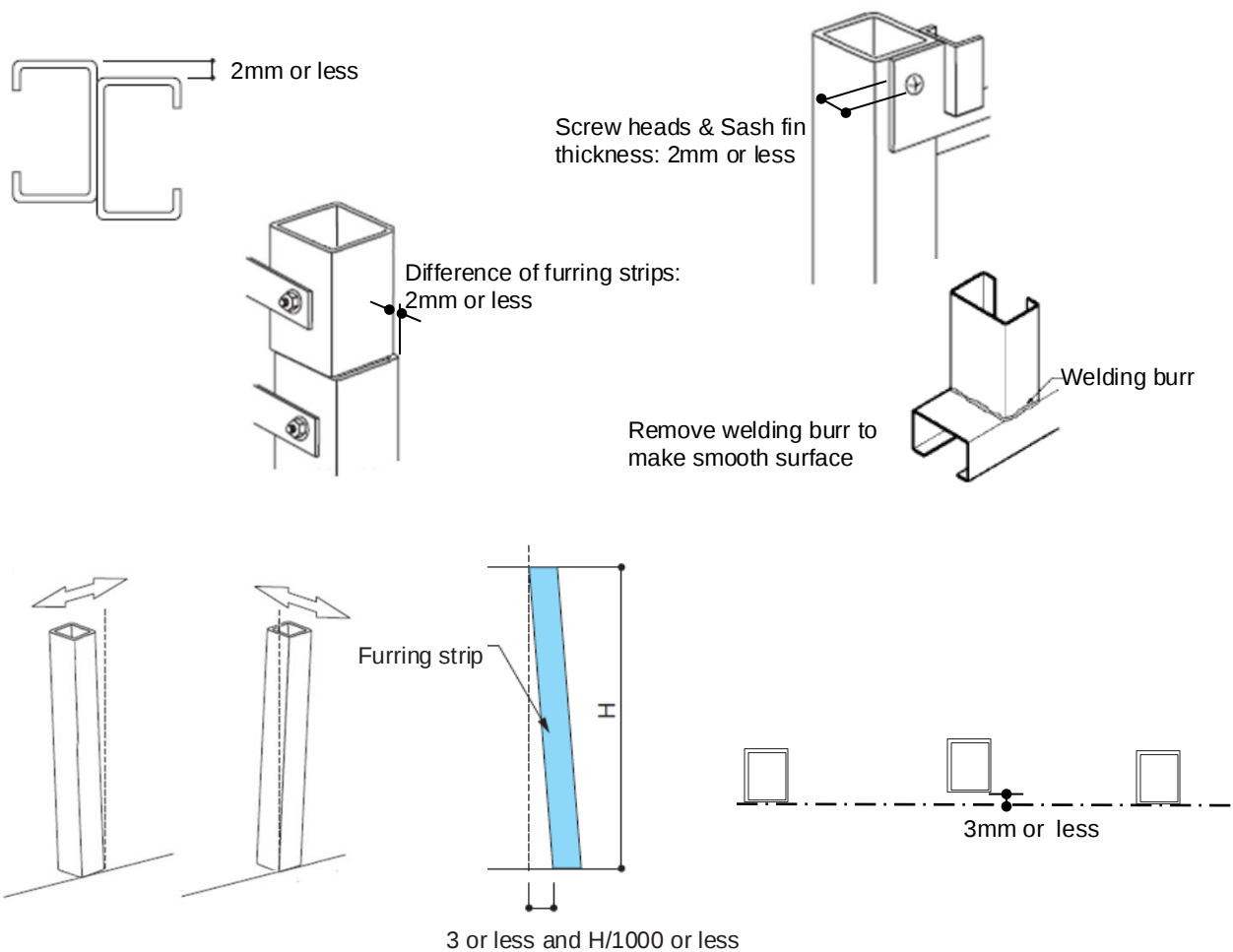


Design Criteria

Structural Requirement

2. Structure unevenness

- Unevenness of the metal substructure no more than 2 mm.
- Unevenness due to screw heads no more than 2 mm.
- Deviation of a metal substructure from a vertical axis no more than 3 mm and $H / 1000$ (H mm : floor height)
- Deviation of the metal substructure from the wall in the transverse direction no more than 3 mm.
- If there are unevenness exceeding the standard, adjust with shim as necessary.



Design Criteria

Installation Criteria

1. Panel installation standard

- Install Facade panels with panel clips. Install Facade panels so as not to allow the gaps between them.
- A clip has several holes for screw. Use an appropriate screw hole depending on the clip fastening area.
- Install the starter bar to the starting position of the panel.
- At the top of a wall, below or above an opening, or in any situation where the panel's shiplaps have been removed, clips cannot be used. Install spacer 5 behind the areas to face screw, drill pilot holes through the panel and fasten the panels with face screw at least 30-40mm from panel edge.
- The fastening specifications for starter bar and each clip are as shown in the table below.
- For Filltect, apply KMEW specified waterproof sealer to the exposed cut edges and panel edges using T/L joiner (with or without cut). Ceradir V is not required.

■Horizontal application

Item \ Panel type		Filltect	Ceradir V
Starter bar	Type	Starter bar (B101052)	
	Number of fasteners	1 fastener per substructure	
Short clip	Type	Panel clip (B1305)	Panel clip (B1205)
	Installation interval	600mm or less	
	Number of fasteners	2 fasteners per clip	
Long clip	Type	Long clip (B10055)	Long clip (B12055)
	Number of fasteners	2 fasteners per substructure	
Fastener for starter bar and clip		Clip screw 16 (B885116) or Rivet (purchased locally) • Material of rivet should be stainless steel.	
Fastener from panel surface		Face screw 35 (B8852135) or Rivet (purchased locally) • Before fastening the fastener, drill a pilot hole (fastener diameter minus 1mm) through the panel. • Recommended size of rivet: Length 30~40mm. • Material of rivet should be stainless steel.	

■Vertical application

Item \ Panel type		Filltect	Ceradir V
Starter bar	Type	Starter bar (B130571) *1	Starter bar (B12057) *1
	Number of fasteners	1 fastener per substructure	
Short clip	Type	Panel clip (B1305)	Panel clip (B1205)
	Installation interval	600mm or less	
	Number of fasteners	2 fasteners per clip	
Long clip	Type	Long clip (B10055)	Long clip (B12055)
	Number of fasteners	2 fasteners every 600mm or one fastener every 300mm	
Fastener for starter bar and clip		Clip screw 16 (B885116) or Rivet (purchased locally) • Material of rivet should be stainless steel.	
Fastener from panel surface		Face screw 40 with gasket (B886240F*) or Rivet (purchased locally) • Before fastening the fastener, drill a pilot hole (φ9mm) through the panel. • In the case of using rivet, to prevent water leakage from the gaps between the rivets and the panel, use KMEW's waterproof rubber. • Recommended size of rivet: Length 30~40mm, Diameter 5mm, Diameter (head) 12mm or more. • Material of rivet should be stainless steel.	

*1 Once the current stock is out, it will be replaced with a new product number (FT: B1320571, CDV: B122057).

Design Criteria

Installation Criteria

2. Installation method

- The installation method for the Facade panels is as shown in the table below.
- Please decide on the installation method according to the required wind load.

	Horizontal	Vertical
(1) Short clip	Substructure T-jointer Panel clip fixed with 2 screws per clip 600 or less	Substructure 455 Panel clip fixed with 2 screws per clip 600 or less
(2) Long clip	Substructure T-jointer Long clip fixed with 2 screws per substructure 600 or less	Substructure 455 Long clip fixed with 2 screws every 600mm or one screw every 300mm 600 or less
(3) Long clip with reinforcement screw	Substructure T-jointer Long clip fixed with 2 screws per substructure 600 or less Face screw one screw per substructure in the middle of panel	Not applicable

Design Criteria

Installation Criteria

3. Wind load

- When installing Facade panels, it is necessary to take into account the location of the building and the required wind load of each area.
- The wind pressure resistance of each installation method of KMEW Facade panel is as shown in the table below.
- These figures are the results of tests conducted at an accredited testing laboratory in accordance with KMEW installation standards.
- The safety factor is not take into account. Please assume an appropriate safety factor as necessary.
- When using rivets instead of KMEW-specified screws, make sure they can handle the wind pressure shown in the table below.

Method		Wind pressure resistance (Pa)			
		Filltect		Ceradir V	
		Horizontal	Vertical	Horizontal	Vertical
Standard	(1) Short Clip	2000	2600	1200	2200
Reinforcement	(2) Long clip	3200	4000	2400	2200
	(3) Long clip with reinforcement screw	4000	N/A	4000	N/A

[Test condition]

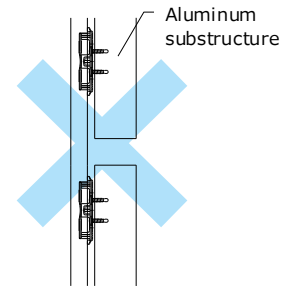
- Test method: Based on EAD 090062-01-0404 section 2.2.9, Annex E.
- Substructure: Aluminum, thickness 2mm, spacing 600mm for horizontal application and 455mm for vertical application.
- Fastener for clip and panel: Screws specified by KMEW

Design Criteria

Installation Criteria

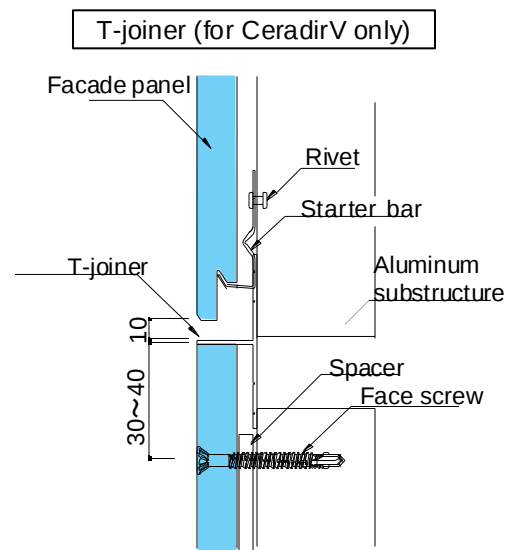
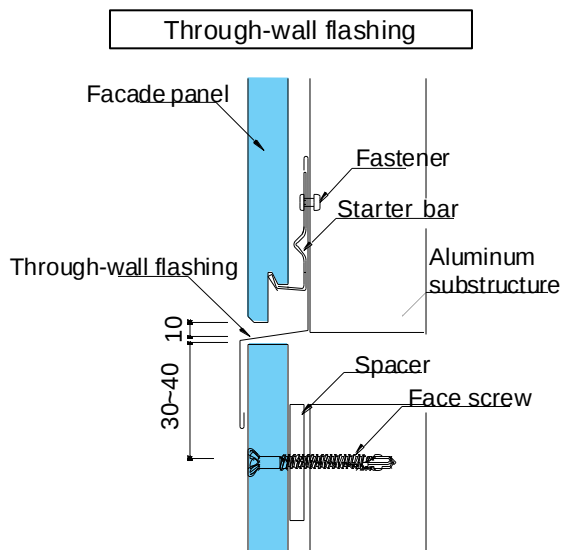
4. Installation of panels separation

- Facade panel installation across aluminum substrate joints is not permitted.
- There is a risk that panel may be damaged due to expansion and contract of the aluminum.



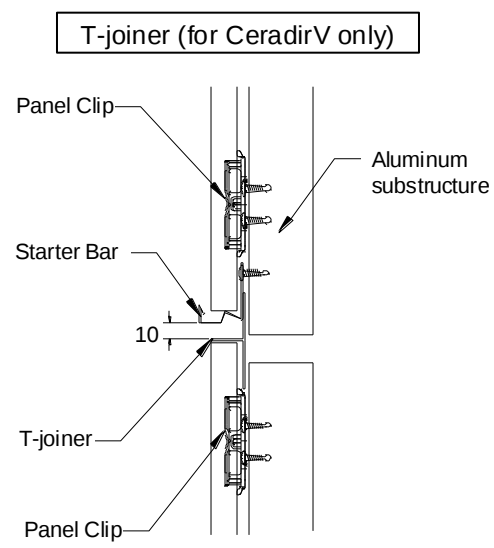
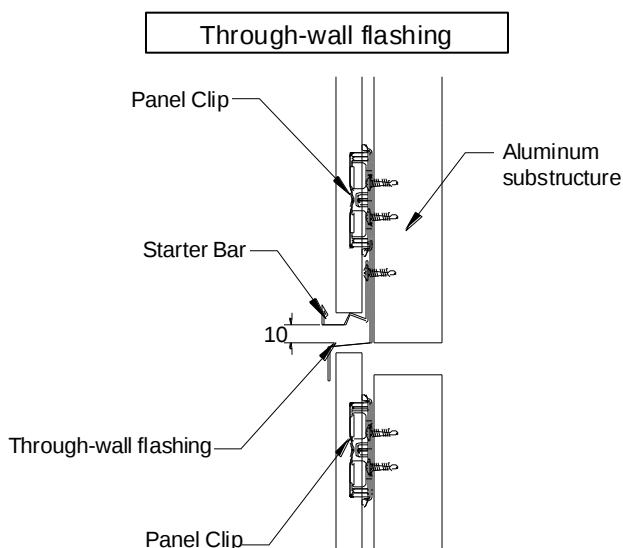
Horizontal application

- For horizontal application, be sure to separate the panels at the joints of the aluminum substructure.
- To fix the upper end of the Facade panel under the separation gap, insert a spacer, secure the minimum distance from the edge of the panel, and fix it to the substructure with face screw.
- Use the through-wall flashing for the gap.
- For Ceradir V, T-jointer can be installed instead of through-wall flashing.



Vertical application

- For vertical application, be sure to separate each stage of panel and also separate the aluminum substructure.
- Use the through-wall flashing for the gap and fasten starter bars with clip screws.
- For Ceradir V, T-jointer can be installed instead of through-wall flashing.



Design Criteria

Installation Criteria

5. Minimum distance from the edge of panel

- At the top of a wall, below or above an opening, or in any situation where the panel's shiplaps have been removed, clips cannot be used.
- In this case, insert the spacer 5 behind the areas to face screw, and fix the panel to the substructure through spacer 5 with face screw.
- Before driving face screws through the panel, be sure to drill pilot holes in the panel surface.
 - For horizontal application: screw diameter minus 1mm
 - For vertical application: $\phi 9\text{mm}$
- Make sure that the required distance from the panel edges should be kept as shown on the diagram.

Part		Cut portion	Top of panel	Bottom of panel
Item				
Image				
Distance from the edge of panel	Filltect	30~40mm		50~60mm
	CeradirV	40~50mm		55~65mm

6. Treatment of panel edges (for Filltect only)

- Apply KMEW specified waterproof sealer to the following panel edges.
- Soak the brush with the sealer and brush back and forth from edge to edge of the application surface to ensure that the wet color is firmly applied to the panel edge surface.
- Ensure that the sealer does not extend beyond the panel edge.
- Ceradir V is not required.



Waterproof sealer application required

Exposed cut edges

Exposed cut edge

Panel edges using T/L joiner (with or without cut)

T joiner

L joiner



The sealer is applied to make the panel edge surface water-repellent.



Do not apply waterproof sealer to panel edges where caulking is to be applied. It may cause the caulking to peel off.

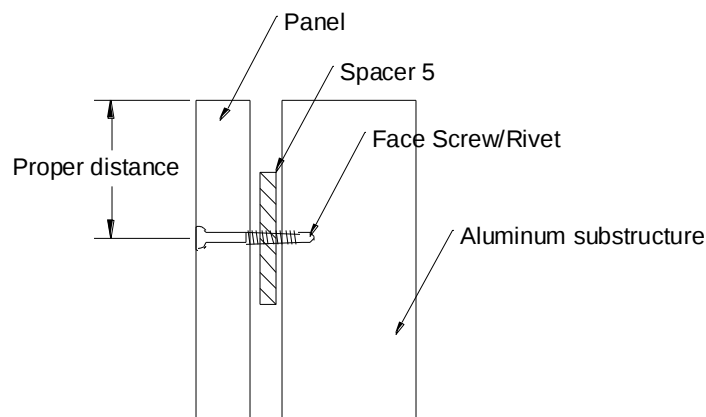
Design Criteria

Installation Criteria

7. Fixing from the panel surface

Horizontal application

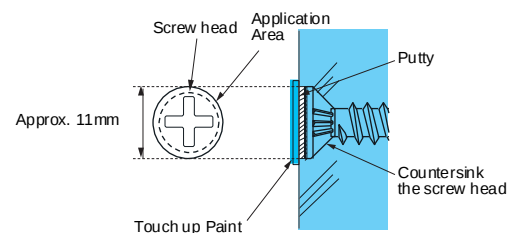
- Install spacer blocks behind panels that are fixed with face screws.
- Before driving face screws through the panel, be sure to drill pilot holes (fastener diameter minus 1mm) in the panel surface.
- Keep the minimum distance from the edge of panels, drill pilot holes and fix the Facade panels with face screws.
- Be sure to remove any dust generated when drilling the pre-drilled hole by air or other means.
- The minimum distance should be 30mm from the thick portion of the panel except for shiplap lips.



Applying putty and then touch-up paint

Screw heads can be treated with one of the following methods:

1. Drive the screw just below the Facade panel surface, apply repair putty to it, and apply touch-up paint after the putty has hardened sufficiently.
2. Apply touch-up paint on the screw heads. This method is only applicable for KMEW system screws, which are alloy coated stainless steel. Touch up paint will not properly adhere to bare stainless steel. Therefore, all locally purchased stainless steel screws must be finished using the method described in section 1 above.



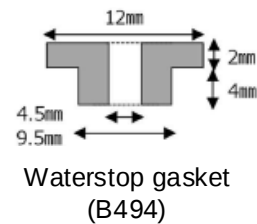
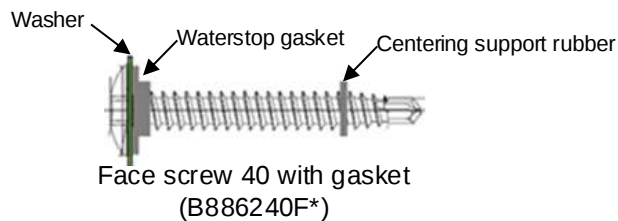
Design Criteria

Installation Criteria

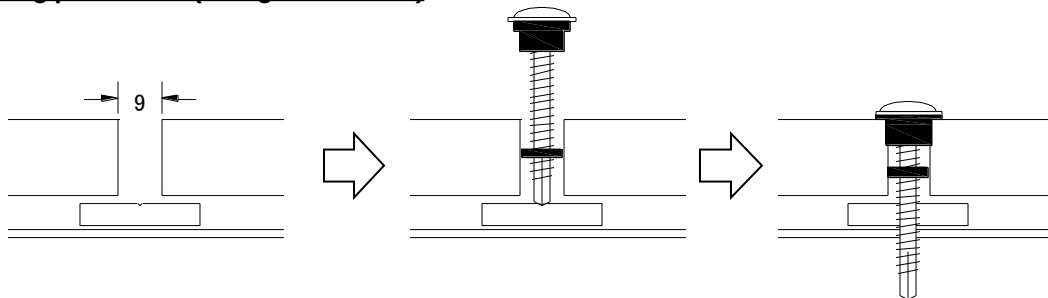
7. Fixing from the panel surface

Vertical application

- There are four colors of screw heads, so please select according to the panel color. If it is not desirable for the screw heads to be exposed, cover them with steel plates.
- Install spacer blocks behind panels that are fixed with face screws.
- KMEW spacers must be stuck to the substructure. Do not stick them to the Facade panels. When attached to Facade panels, thermal expansion and contraction of the aluminum may cause distortion in the Facade panels and spacer sections.
- Before driving face screws through the panel, keep the minimum distance from the edge of panels and drill pilot holes ($\phi 9\text{mm}$) in the panel surface.
 - * In the case of vertical installation, large pilot holes should be drilled in the panels to avoid stress on the panels when the aluminum contracts.
- Be sure to remove any dust generated when drilling the pre-drilled hole by air or other means.
- Fasten the screw straight into the center of the 9mm hole.
- After securing, make sure that the waterstop gasket is firmly compressed
- The place to fasten the screw is the flat area of the panel surface as much as possible.
- When using rivets instead of KMEW screws, use the KMEW's waterstop gasket.



Fastening procedure (using face screw)



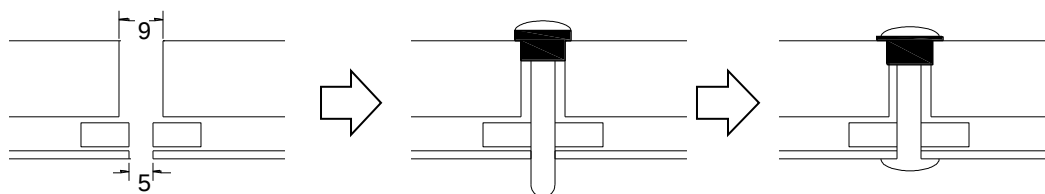
(1) Drill a 9 mm pilot hole in the panel. At this point, make a slight mark in the spacer position at the center of the hole (to align the screw tip).

(2) Align the tip of the screw with the mark on the spacer and place the screw in the center of the hole.

(3) Fasten the screw straight into the center of the hole. Compress the waterproof rubber firmly (until it reaches the bottom of the panel pattern).

Fastening procedure (using rivet)

- When using rivets instead of face screw, use separately sold waterproof rubber. Recommended size of rivet: Length 30~40mm, Diameter 5mm, Diameter (head) 12mm or more



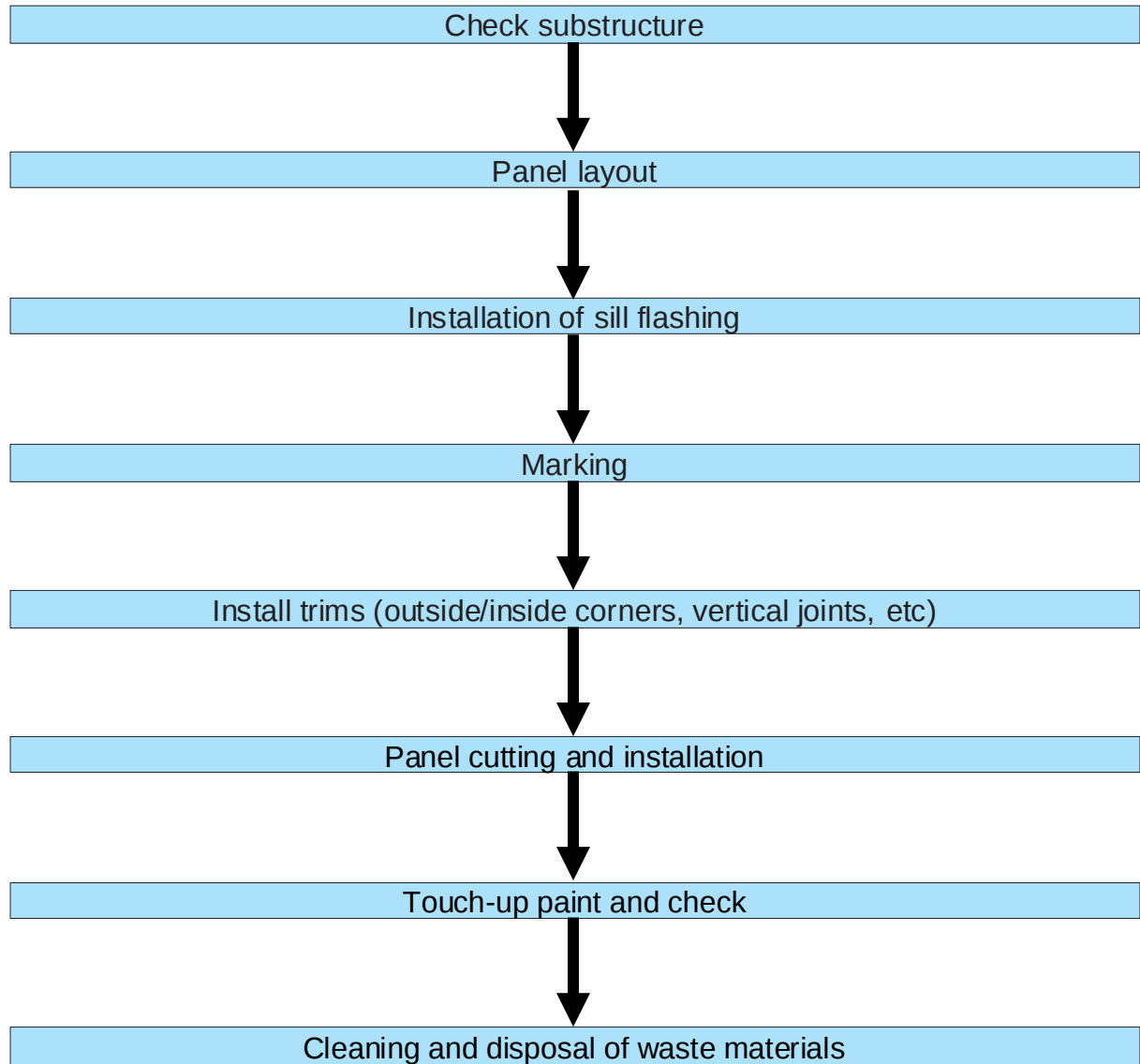
(1) Drill a 9 mm pilot hole in the panel and drill a 5 mm pilot hole in the aluminum and spacer, centering on the 9 mm hole.

(2) Attach waterstop gasket to the rivets and insert the rivets into the holes.

(3) Fasten the rivet with riveter. make sure that the waterstop gasket is firmly compressed

General Installation Instruction

Installation Procedure



General Installation Instruction

Panel Arrangement

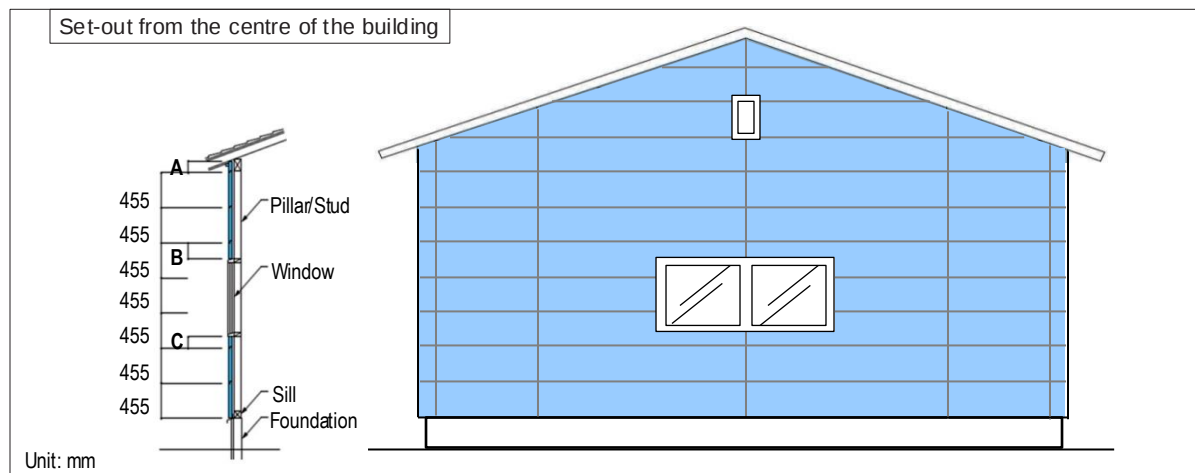
1. Horizontal Application

- When laying out the panels, take into consideration the appearance of the building, the length of provided accessories and how to minimize material waste.
- Layout caulking joints in advance to create an aesthetically pleasing finish.

⚠ **Include the inside dimension of the pre-formed outside corners in consideration of panel arrangement.**

- Vertical joints should be aligned with studs.

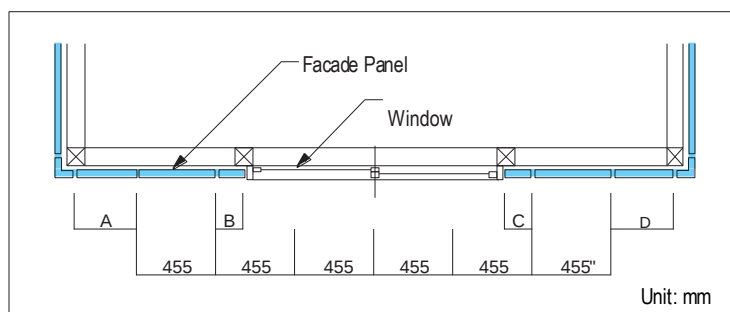
⚠ **Pay attention to window locations and eave soffit height to provide more than 60mm for the panels above and below window frames (B, C, figure below right) and panels below the soffit (A). Avoid installing panels that are less than 60mm wide in these locations.**



2. Vertical Application

⚠ **Include the inside dimension of the pre-formed outside corners in consideration of panel arrangement.**

- The furthest left and right panels should be at least as wide as the side of the outside corners.
- Two methods for avoiding narrow panel pieces are included in this manual: "Centering the Joint" or "Centering the Panel". Refer to the next page for these methods.
- Arrange the panels from the center of the building wall. Make sure the panels along both window frame sides (B and C) are at least 60mm wide.



General Installation Instruction

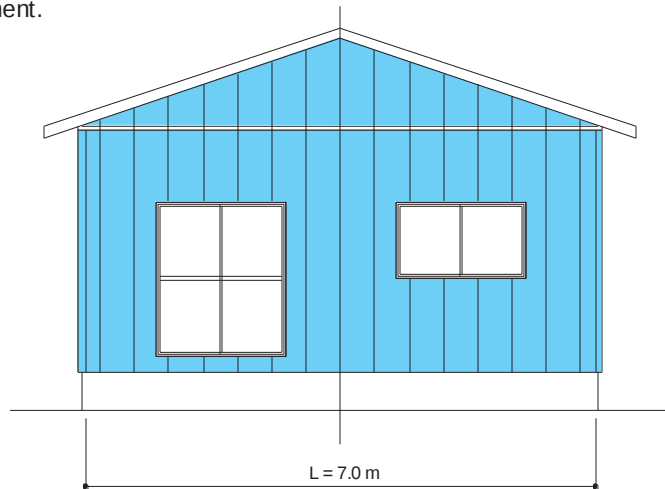
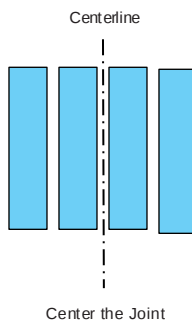
Panel Arrangement

Center the Joint

The building wall centerline matches a vertical joint.

(Example) The building wall length is 7.0m..
 $7.0\text{m} / 2 \div 0.455\text{m (panel width)} = 7.69$

The number after the decimal point is 0.5 and above,
then choose “Center the Joint” arrangement.

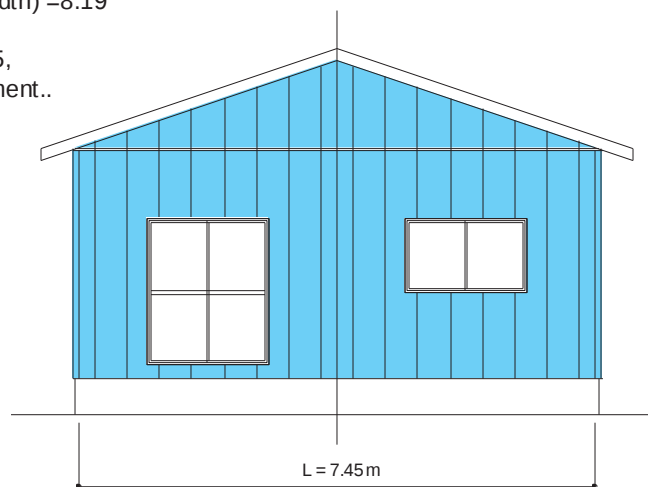
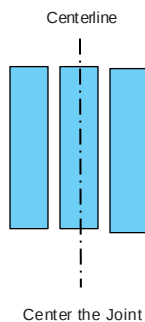


Center the Panel

The building wall centerline matches a vertical joint.

(Example) The building wall length is 7.45m..
 $7.45\text{m} / 2 \div 0.455\text{m (panel width)} = 8.19$

The number after the decimal point is below 0.5,
then choose “Center the Panel” arrangement..

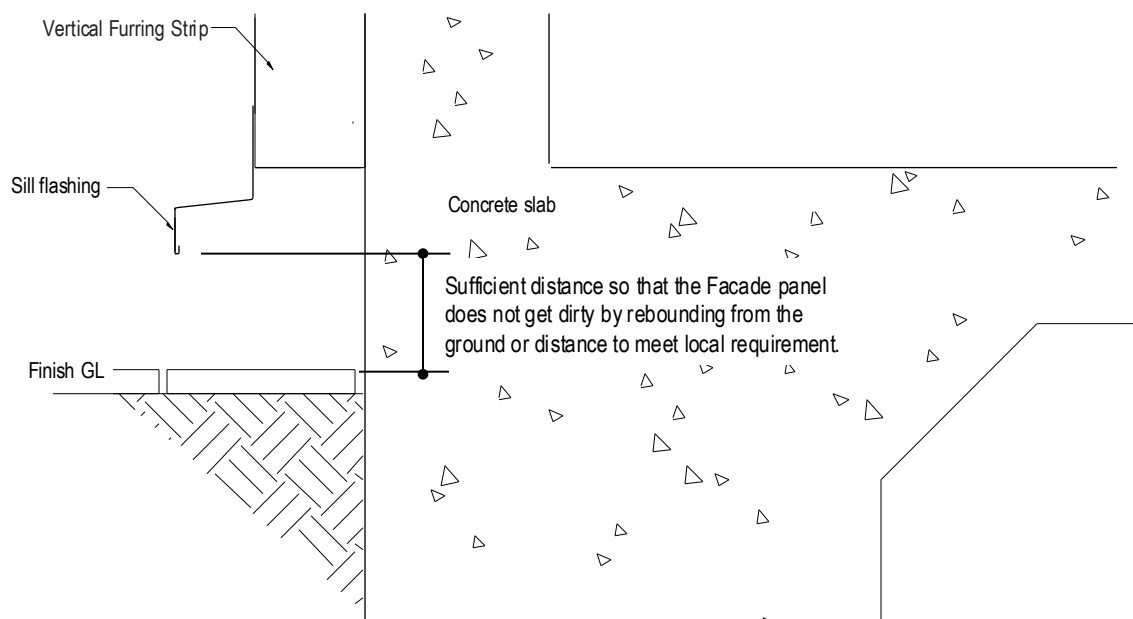
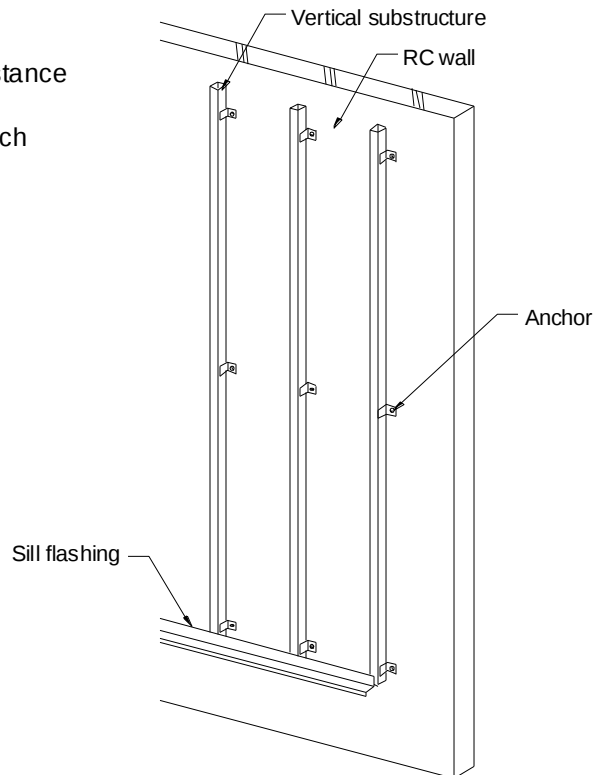


General Installation Instruction

Installation of Sill Flashing

Installation of Sill Flashing

- Sill Flashing must be fastened with required distance from the finished ground level.
- Sill flashing (purchase locally) is fastened to each substructure with one screw.
- Level the Sill Flashings with a leveling tool.



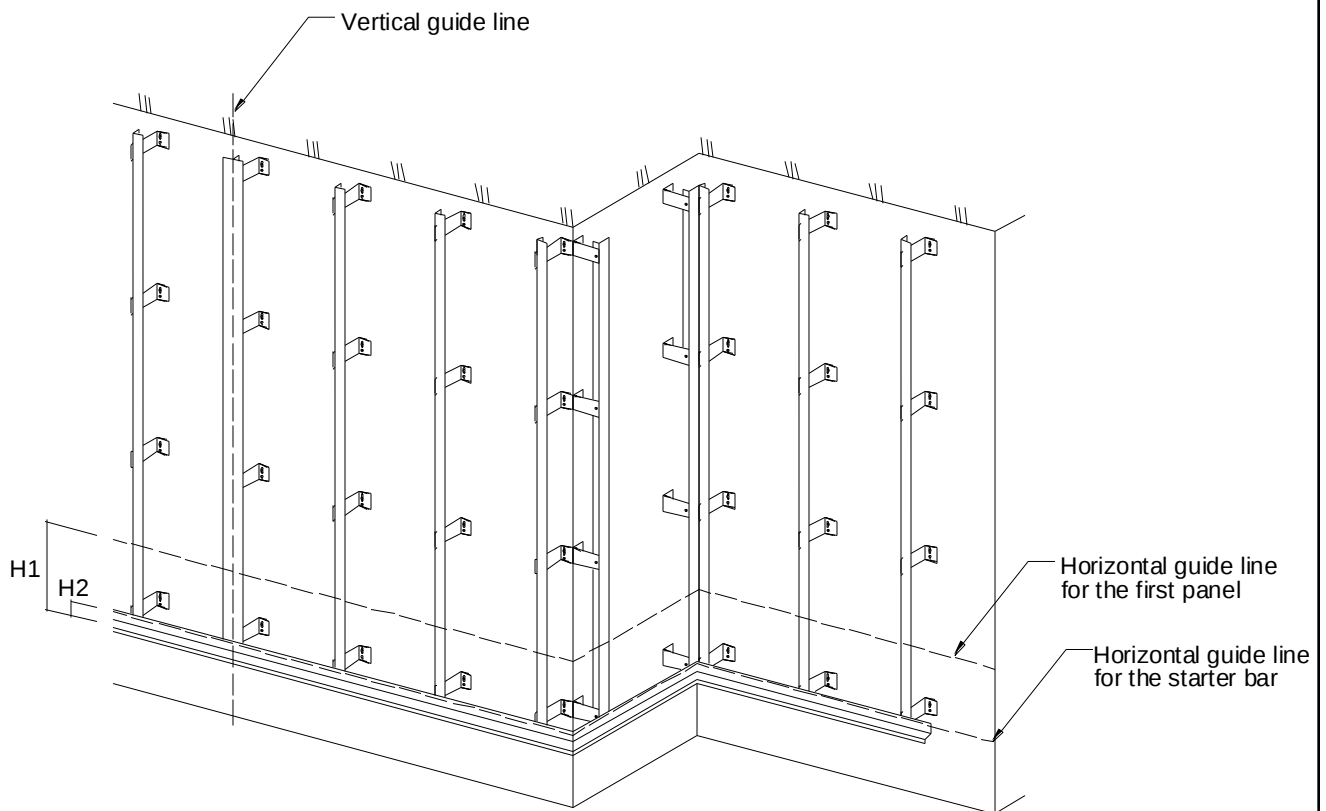
Unit: mm

General Installation Instruction

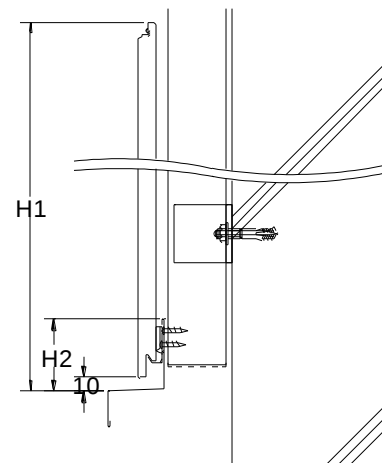
Marking

1. Horizontal Application

- In order to install panel horizontally, horizontal guide lines are drawn around the entire perimeter of the building.
- The position of the horizontal guide lines are shown in the table below.
- One or more vertical guide lines on each side of the building at the location of the vertical joint of the panels.



Item	Position of horizontal guide line (from the sill flashing)
For the first Facade panel (H1)	476mm
For the top edge of starter (H2)	64mm

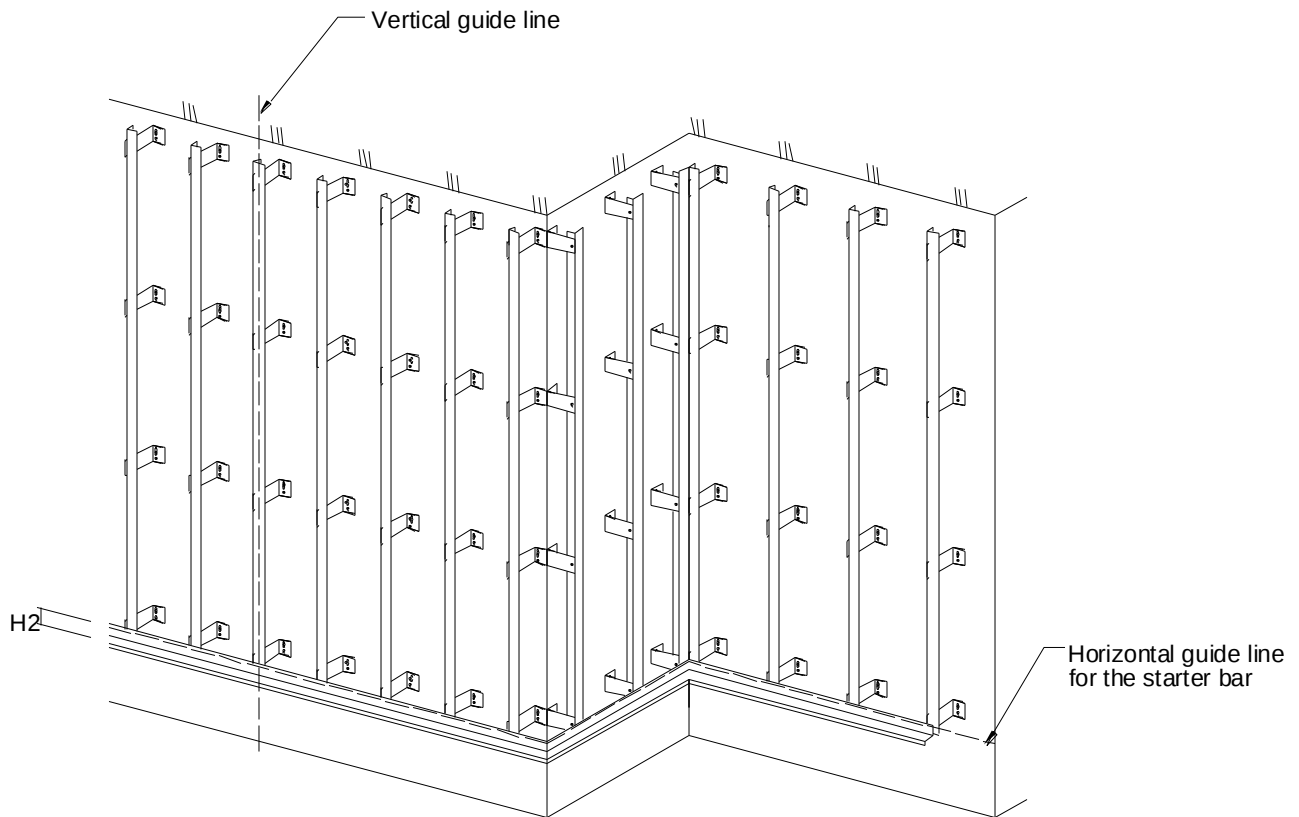


General Installation Instruction

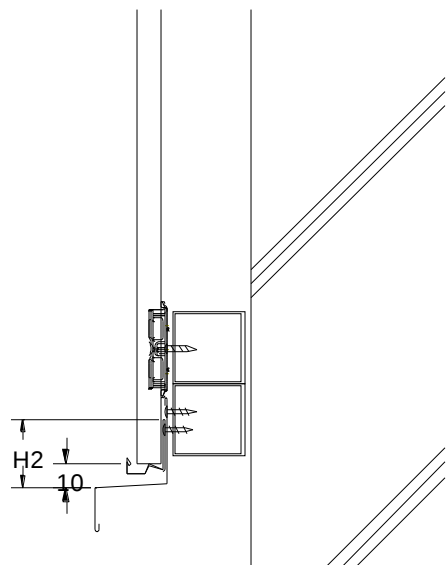
Marking

2. Vertical Application

- In order to install panel vertically, vertical guide line is drawn.
- The position of the horizontal guide lines for starter bar are shown in the table below.



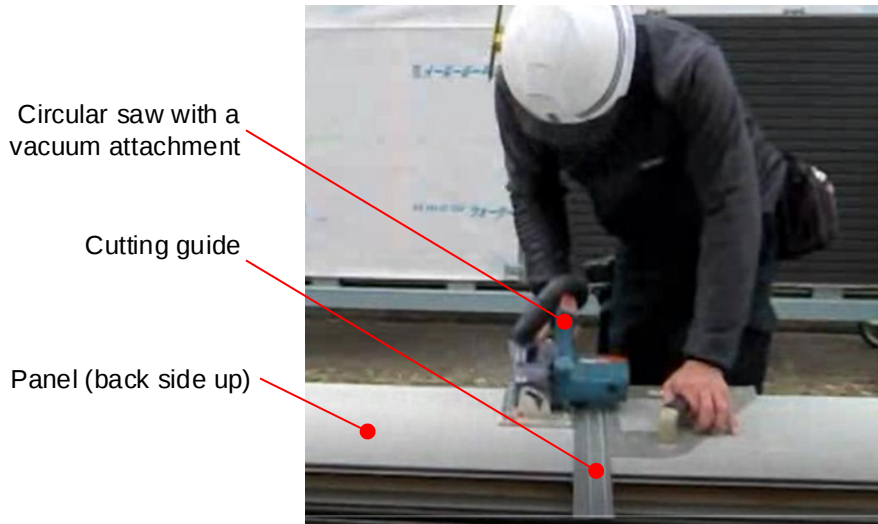
Item	Position of horizontal guide line (from the sill flashing)
For the top edge of starter (H2)	45mm



General Installation Instruction

Cutting Panels

- Panels should be cut with the back side up.
- Use a panel saw or circular saw with a vacuum attachment to cut panels.
- Cut panels straight using a guide.
- Clean cut panels by blowing dust away with compressed air or with a clean dry cloth.
- Surface chipping caused by the cut should be touched up with touch-up paint.
- Seal the exposed cut edges and the panel edges with T/L joiner (with or without cut) with the KMEW specified waterproof sealer (Ceradir V is not required).
- Be careful when handling small pieces of Facade as they can be fragile.



Surface chipping
Repair with touch-up paint is required.



<Examples of blades and guides>

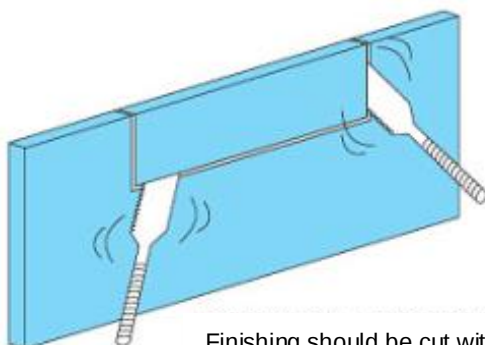


Cutting blade with diamond chip

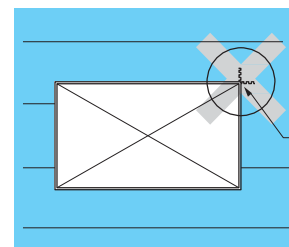


Cutting Guide

- When processing into the shape shown in the figure below, finishing should be cut with a hand saw or similar tools.



Finishing should be cut with a hand saw or similar tools.



Over cutting

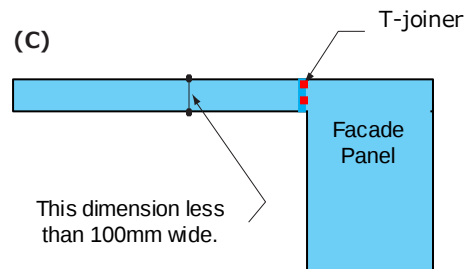
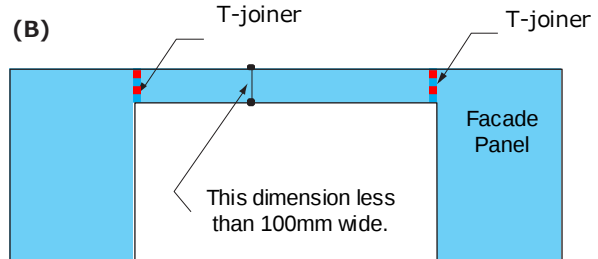
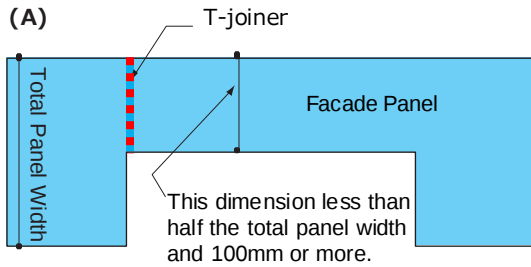
Over cutting may cause cracks on the panel surfaces or rain leakages.

General Installation Instruction

Cutting Panels

Horizontal application

- If small pieces are installed above or below a wide opening, it is recommended to follow example (B) & (C) and completely separate the smaller sections.



Example A: If the cut piece above or below an opening is less than half the total width of the panel but greater than 100mm wide, separate the panel into 2 pieces and install a T-shaped aluminum panel joiner at one edge of the opening.

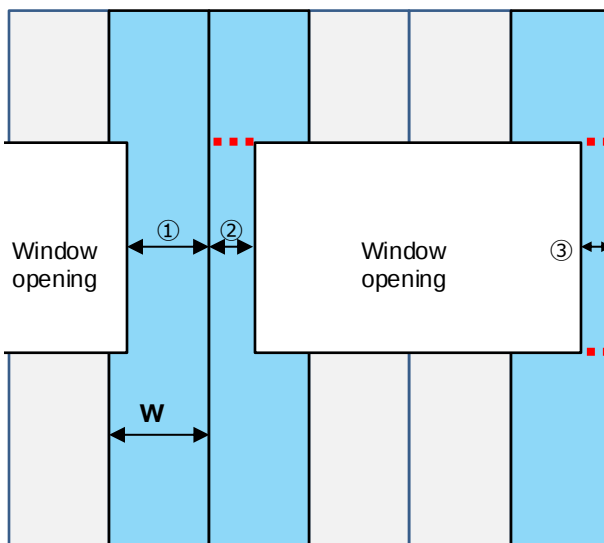
Example B: If the cut piece above or below an opening is less than 100mm in width, separate the panel into 3 pieces and install a T-shaped aluminum panel joiner between each piece.

Example C: If the cut piece above or below an opening is less than 100mm in width, separate the panel into 2 pieces and install a T-shaped aluminum panel joiner between each piece.

Note: Minimum panel dimension is 60mm. Avoid cutting panels smaller than this width.

Vertical application

- For the upper and lower parts of openings, doors and windows, the panel is cut.
- In case of ①, the width of the cut panel is more than 1/2; In case of ②, the width of the panel must be more than 100 mm
- If the width of the cut panel becomes less than the required width, then cut off the panel and apply the sealing at the joint. For Ceradir V, T-jointer can be installed instead of sealing.



W = Panel Width

①= more than 1/2 of W
→ No need to cut the panel

②= less than 1/2 of W and more than 100 mm
→ Cut the panel and apply sealing in place as shown in the figure. (For Ceradir V, T-jointer can be installed instead of sealing)

③= less than 100 mm
→ Cut the panel and apply sealing in two places as shown in the figure. (For Ceradir V, T-jointer can be installed instead of sealing)

General Installation Instruction

Application of Touch-up Paint (Photocatalytic Ceramic Coat)



Please read before proceeding

- Paint should be finished within the same day of mixing the paint ingredients. If the application cannot be completed within the same day, be sure to finish painting within 24 hours of applying the primer.
- Failure to follow the procedures below can result in poor color matching and may cause repaired portions to discolor over time. Please note that we assume no responsibility for such a case.
- Use no caulking materials in touch up repairing. Caulking used for touch-up will fade over time.
- Although the solid paint base may appear hard, it will work properly after vigorous mixing with the liquid hardener.
- Please refer to the material identification key to identify the ingredients.

Material Identification Key.



Blue Label:
Paint Base



Red Label:
Primer



Green Label:
Hardener

- Follow these directions when applying touch-up paint.

1) Preparation	• Ensure that the Facade surface is completely dry. Avoid painting when it is rainy and wet or the temperature is 5°C or less. • Clean dirty painting portions. Be sure to finish application within a day, if possible, as both the primer and the paint have a working life.	Touch up Paint Kit Paint Base Primer Hardener Brushes
2) Mixing of touch-up paint	• Pour the entire bottle of hardener into the base paint bottle. Shake the bottle well. • The mixed paint is susceptible to air humidity; be sure to close the lid tightly after mixing and agitation. • The mixed paint should be used after 30 minutes and within 8 hours of mixing. • For best results mix the entire quantities of the two bottles. Incremental mixing may result in poor performance. • Leave the mixed paint alone for 30 minutes after mixing to stabilize the color tone. • Apply the mixed paint within 24 hours after applying the primer.	Hardener Paint Base Put all of the hardener into the paint base bottle. Shake the bottle well until paint color becomes even.
3) Primer application	• Avoid dripping during application. In case of dripping, remove it immediately with a clean cloth. • The primer is susceptible to air humidity; be sure to close the lid tightly after use. • For best results, apply sparingly.	Brush Primer Apply the paint carefully to prevent dripping.
4) Drying	• Allow 30 minutes for the primer to dry.	
5) Application of touch-up paint	• The mixed paint should be used after 30 minutes and within 8 hours of mixing. • Use the included brushes to apply the paint without dripping. • Apply the paint over portions applied with the primer. • Apply the paint within 24 hours after applying the primer. • For best results, use the paint sparingly and cover only the nail head. • Prime all locations before painting.	Approx. 7mm Nail head Application area Paint Primer
6) Inspection	• Check for uncoated sections. Paint as needed.	

General Installation Instruction

Application of Touch-up Paint (Hydrophilic Coat)

Order	Main work	Diagram
1) Prior confirm ation	● Make sure the Facade surface is not wet. Do not paint when rains, the surface wet, or the temperature below 5 °C. ● Avoid using the product in places that are moist due to freezing or condensation. ● Clean the area to be painted if it is dirty.	
2) Mixing paint	● Stir well enough to scrape the mass from the bottom of the container with the included stir bar. (Two minutes or more, or 200 times) ● We do not dilute touch-up paint and use as it is. ● Be careful not to make bubbles when stirring ● Stir in advance as pigment may be precipitated ● Insufficient stirring may cause color difference	Do not shake with the can, but use a stir bar to stir Stir well until the paint color is uniform  Be sure to scrape any lumps that have accumulated on the bottom.

Installation Details (Horizontal Application)

1) Installation Accessories (Filltect)

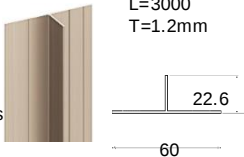
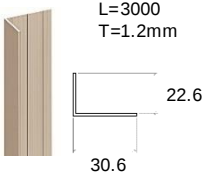
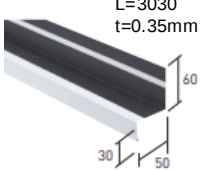
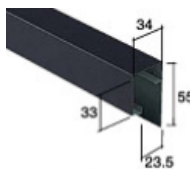
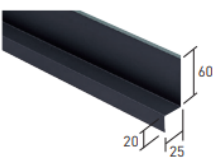
■ For Filltect

	Image	Material	Application area
Starter Bar (B101052)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Sill
Panel Clip (B1305)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Long Clip (B10055)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Corner Clip (B10053)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Outside Corner
Clip Screw 16 (B885116)		Stainless Steel	• Starter Bar • Panel Clip • Corner Clip
Face Screw 35 for horizontal application (B8852135)		Stainless Steel	• Openings (above, below) • Soffit
Spacer 5 (RY82S05)		Polypropylene	
Spacer 2 (RY82S02)		Polypropylene	To adjust unevenness

Installation Details (Horizontal Application)

1) Installation Accessories (Filltect)

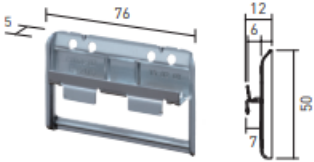
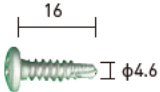
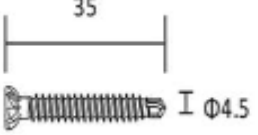
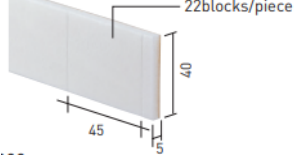
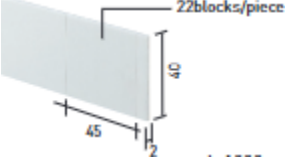
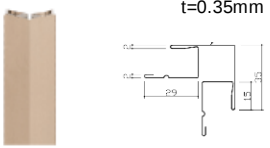
■ For Filltect

	Image	Material	Application area
T-Joiner (B3616F*)	 *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Vertical joint • Outside corner
L-Joiner (B3616KF*)	 *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Inside corner • Openings (both sides)
Sill Flashing (B238W*)	 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Sill
Soffit Flashing Ventilation type (B256W*)	 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Soffit
Through Wall Flashing (B2241*)		Coated galvanized steel	• Separate section
Water proof sealer (LTKMB3103C)		Silane water repellent	• Panel edge
Repair putty (B4901)		Acrylic emulsion	• Panel surface (for repair)
Repair paint (Different for each SKU)		-	• Panel surface (for touch-up)
Cutting Guide (B49311)		Main Body: Aluminum Guide Surface: Stainless Steel Protective Cap: ABS Resin Large Handle: ABS Resin, Elastomer Resin	It is used to assist in cutting panel

Installation Details (Horizontal Application)

1) Installation Accessories (CeradirV)

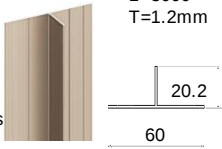
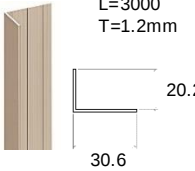
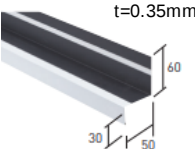
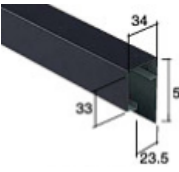
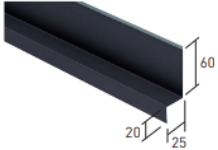
■ For Ceradir V

	Image	Material	Application area
Starter Bar (B101052)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Sill
Panel Clip (B1205)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Long Clip (B12055)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Clip Screw 16 (B885116)		Stainless Steel	• Starter Bar • Panel Clip • Corner Clip
Face Screw 35 for horizontal application (B8852135)		Stainless Steel	• Starter Bar • Panel Clip • Corner Clip
Spacer 5 (RY82S05)		Polypropylene	• Openings (above, below) • Soffit
Spacer 2 (RY82S02)		Polypropylene	To adjust unevenness
Metal Outside Corner (B211***)		Coated galvanized steel	• Outside corner

Installation Details (Horizontal Application)

1) Installation Accessories (CeradirV)

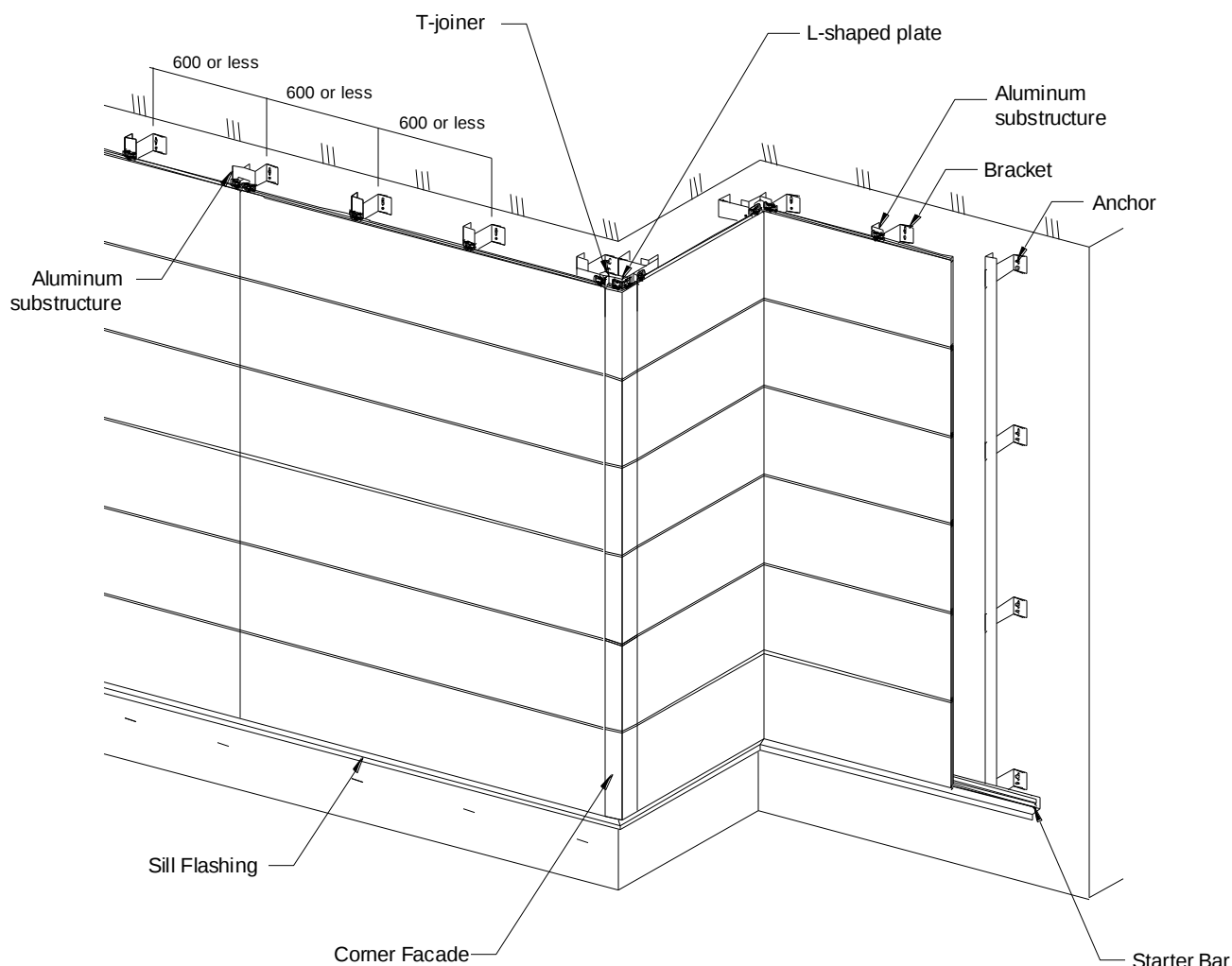
■ For Ceradir V

	Image	Material	Application area
T-Joiner (B36F*)	 L=3000 T=1.2mm *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Vertical joint
L-Joiner (B36KF*)	 L=3000 T=1.2mm *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Inside corner • Openings (both sides)
Sill Flashing (B238W*)	 L=3030 t=0.35mm *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Sill
Soffit Flashing Ventilation type (B256W*)	 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Soffit
Through Wall Flashing (B2241*)		Coated galvanized steel	• Separate section
Repair putty (B4901)		Acrylic emulsion	• Panel surface (for repair)
Repair paint (Different for each SKU)		-	• Panel surface (for touch-up)
Cutting Guide (B49311)		Main Body: Aluminum Guide Surface: Stainless Steel Protective Cap: ABS Resin Large Handle: ABS Resin, Elastomer Resin	It is used to assist in cutting panel

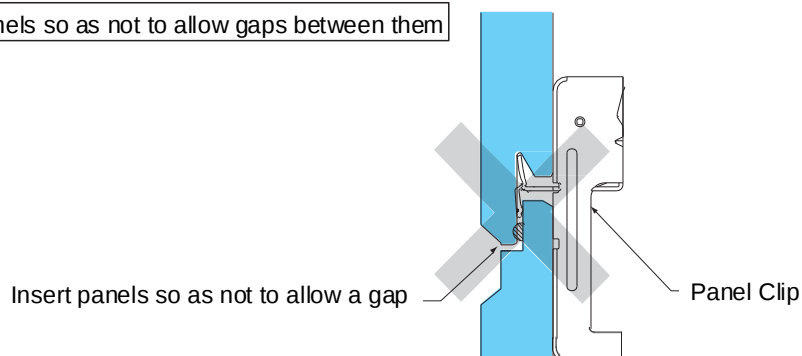
Installation Details (Horizontal Application)

1) Overview

- Install Facade panels with panel clips and corner Facades with corner clips.
- At the top of a wall, below or above an opening, or in any situation where the panel's shiplaps have been removed, clips cannot be used. Install spacer 5 behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel (screw diameter minus 1mm) and fasten the panels with face screw onto a furring strips.
- A clip has several holes for screw. Use an appropriate screw hole depending on the clip fastening area.
- Fasten a clip with two screws or rivets.
- Install starter bars at the base of the wall. Use clip screws to fasten the starter bars.
- Install starter bars so as to hold both Facade panels and corner Facades.
- Install Facade Panels so as not to allow the gaps between them.
- ※ For Filltect, seal the exposed cut edges and the panel edges with T/L joiner (with or without cut) with the KMEW specified waterproof sealer. Ceradir V is not required.



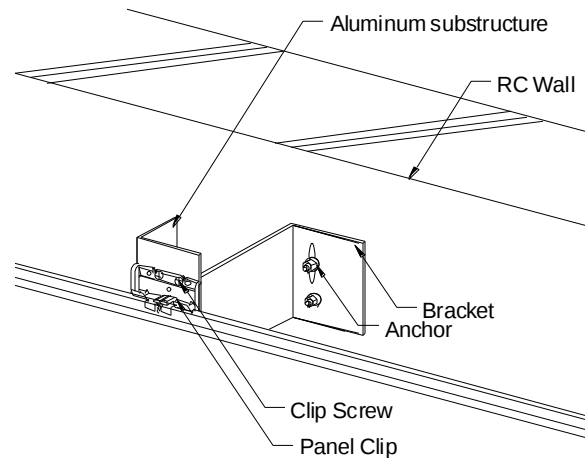
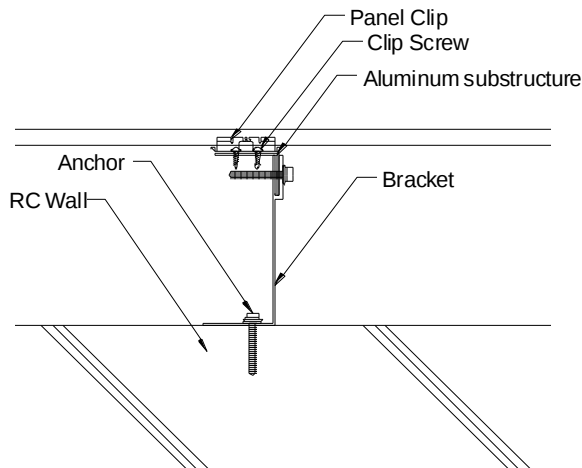
Install Facade panels so as not to allow gaps between them



Installation Details (Horizontal Application)

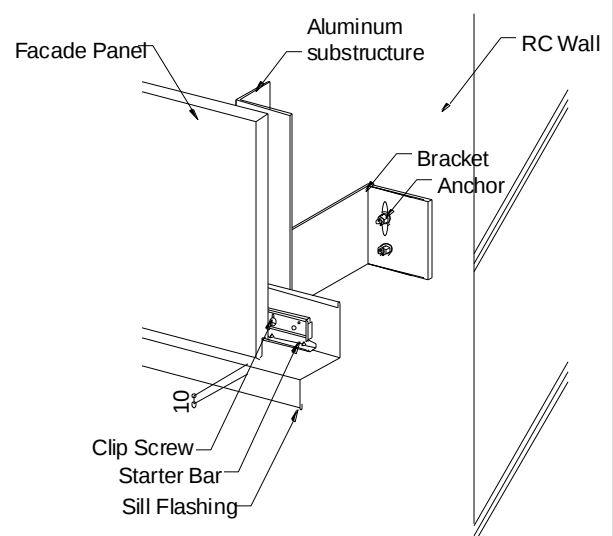
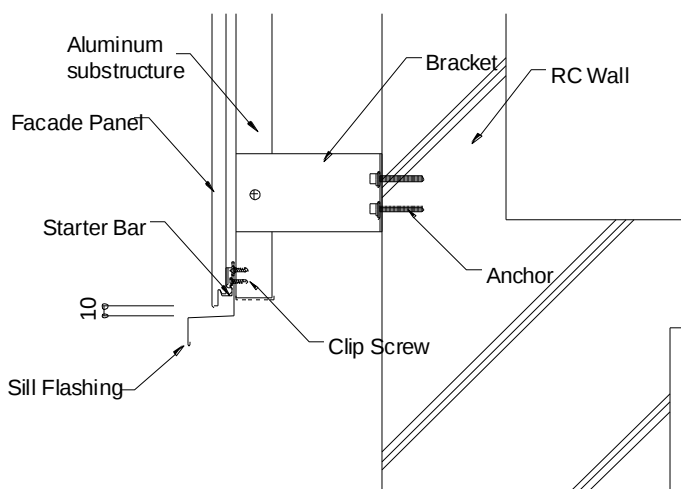
2) General Section

- Set panel clips on the shiplap at intervals of 600mm or less and fasten securely to the furring strips with two screws or rivets.
- A clip has several holes for screw. Use an appropriate screw hole depending on the clip fastening area.



3) Starter Bar

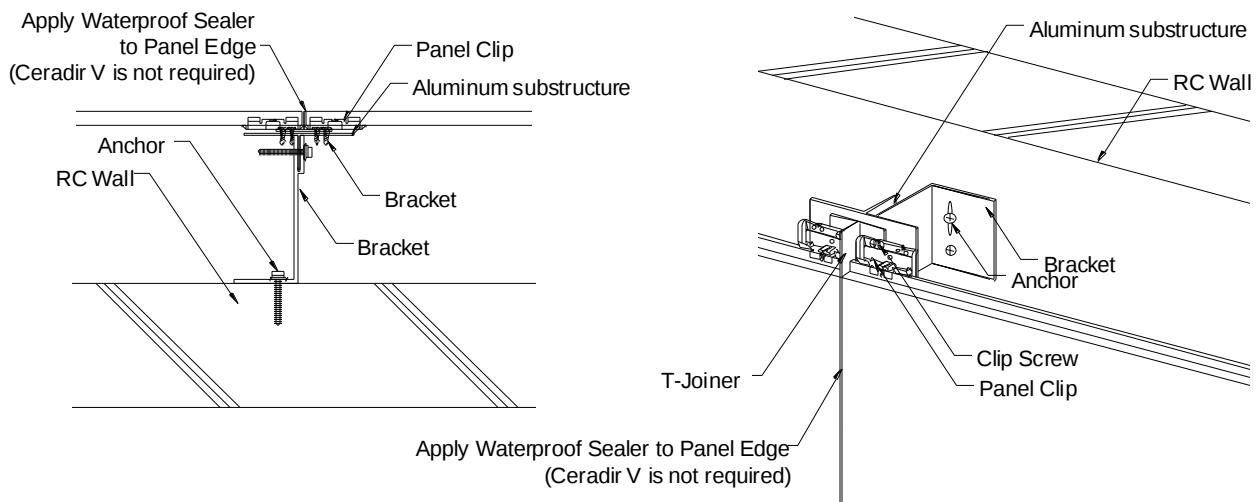
- Please make sure that the starting position of the aluminum substructure is aligned.
- Ensure starter bars are level at the sill because they serve as the reference for the Facade panel installation.
- Make sure that Facade panels are level at each row.
- Fasten starter bars to each substructure with one screw.
- Keep a 10mm gap between the sill flashing and Facade panel to prevent capillarity, secure air intake, and drain condensation.



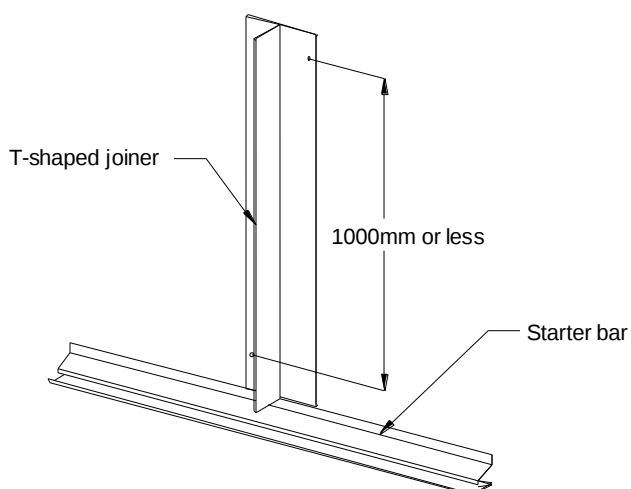
Installation Details (Horizontal Application)

4) Vertical Joints

- Use T-joiners for a vertical joint. Fasten the flanges of the joiner with screws in the interval of approx. 1m (to prevent the panel horizontal movement).
 - When adding another joiner make sure to secure 5mm gap between the joiners.
 - Butt panels to the T-joiner then install the panels.
 - Set one clip at the right side and another clip at the left sides of the vertical joint.
 - Fasten one panel clip with two screws or rivets onto the furring strips.
 - It is allowed to fasten the clip on the fringe of T-joiner. Place the clip on the T-joiner so that the clip holes align along the lines which are made for fastening with screw.
- ※ For Filltect, waterproof sealer should be applied to panel edges where T-joiners are used (Ceradir V is not required).

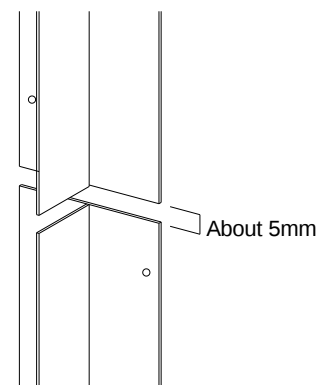


■ Example T-Joiner installation at sill



T-joints should be installed as far as they hit the starter bar.

■ Joints between the joiners

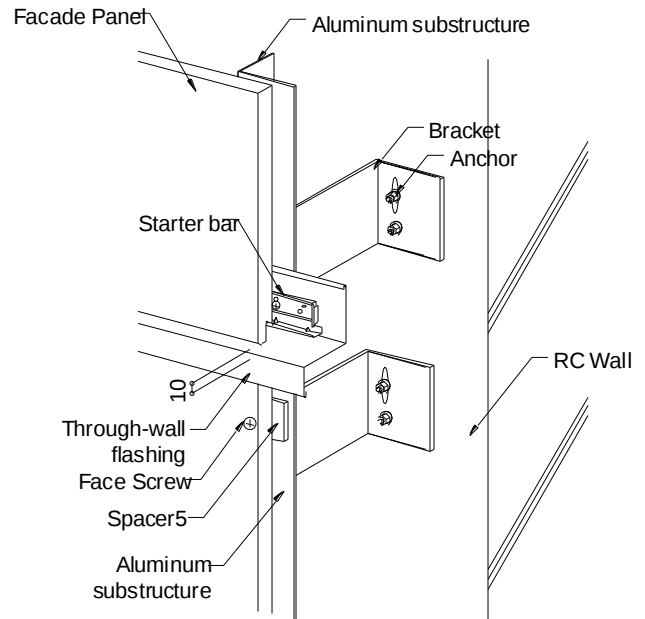
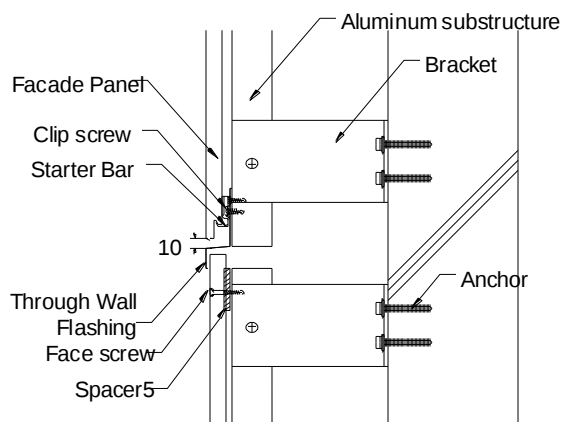


Installation Details (Horizontal Application)

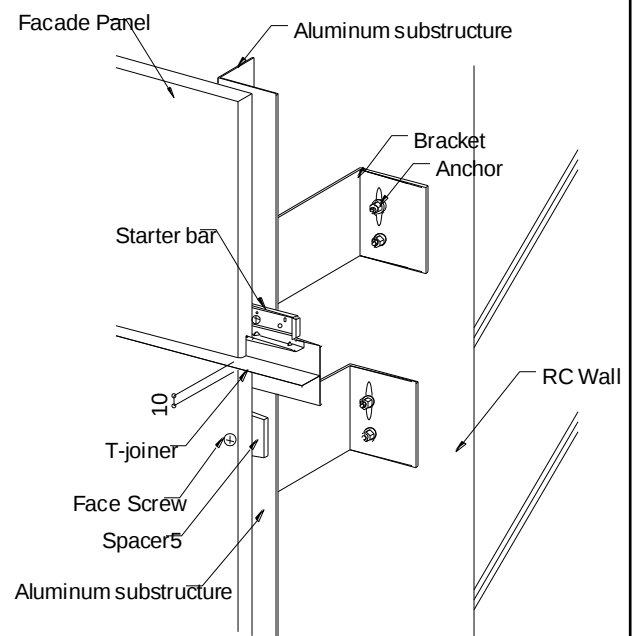
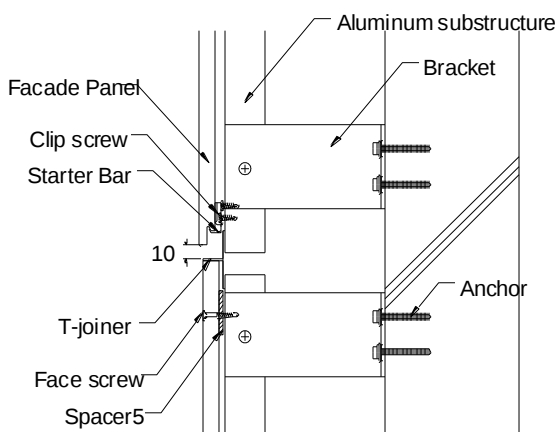
5) Installation of Panels Separation

- Be sure to separate the panels at the joints of the aluminum substructure.
- To fix the upper end of the Facade panel under the separation gap, insert a spacer, secure the minimum distance from the edge of the panel, and fix it to the substructure with face screw.
- Through wall flashing is installed on the upper edge of the panel
- Fasten starter bars to each substructure with one screw.
- Keep a 10mm gap between the through wall flashing and starter bar.
- For Ceradir V, T-jointer can be installed instead of through-wall flashing.

Through-wall flashing



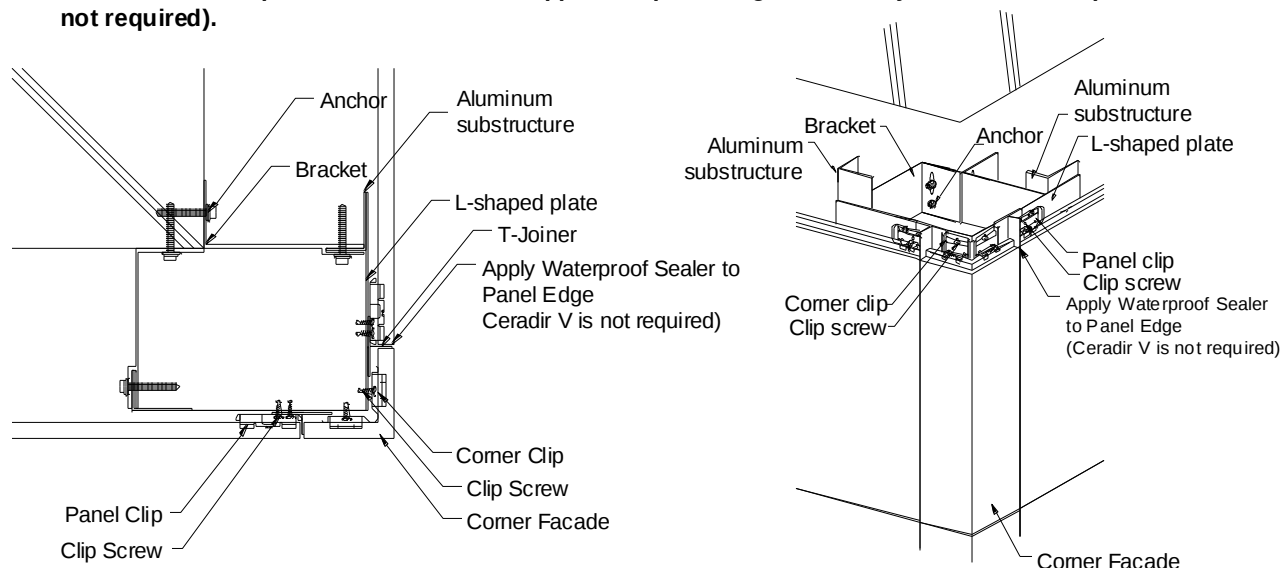
T-jointer (for CeradirV only)



Installation Details (Horizontal Application)

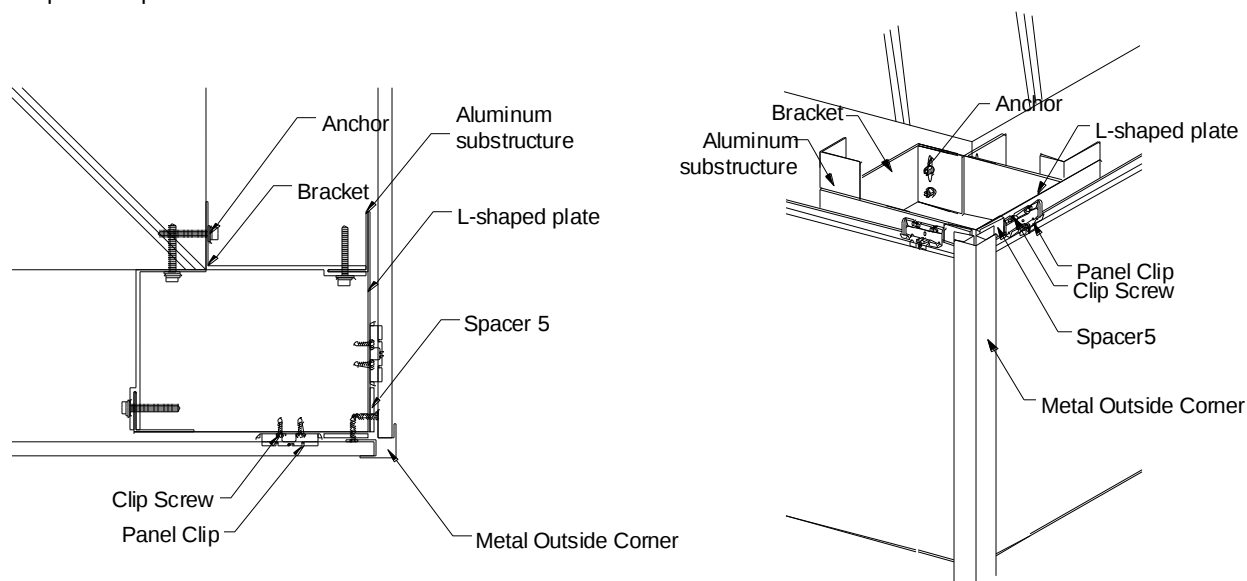
6-1) Outside Corner (Corner Facade)

- L-shaped plates must be installed at corners to secure fastening points. Use steel plates ($t=1.2$ mm) or aluminum plates ($t=1.5$ mm or more).
- Set T-joiners in the vertical joints between a corner Facade and the adjacent panels. Fasten the flanges of the joiner with screws at the interval of approx. 1m (to prevent panel horizontal movement.).
- When adding another joiner make sure to secure 5mm gap between the joiners.
- Butt panels to the T-joiner then install the panels.
- Make sure that the corner Facade and the panels are level each row.
- Fasten one corner Facade with two corner clips.
- Fasten a panel clip securely with two screws or rivets onto furring strips.
- ※ For Filltect, waterproof sealer should be applied to panel edges where T-joiners are used (Ceradir V is not required).



6-2) Outside Corner (Metal Outside Corner)

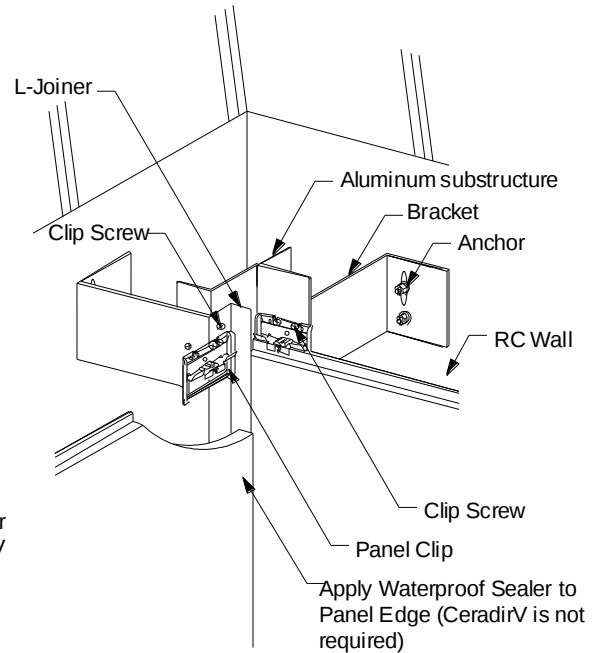
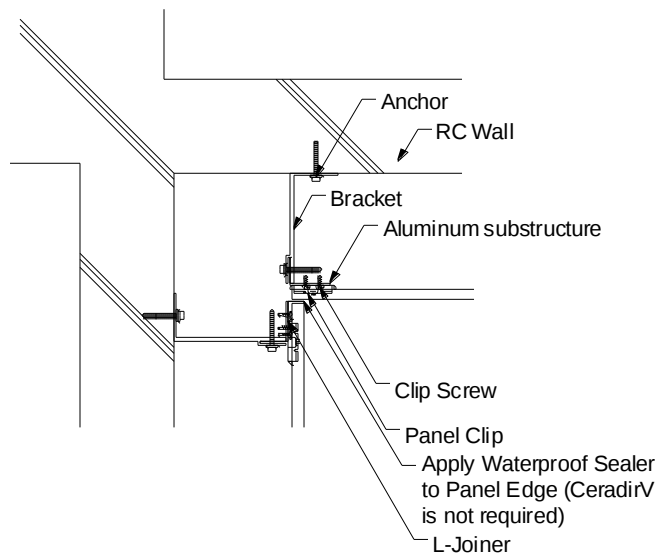
- L-shaped plates must be installed at corners to secure fastening points. Use steel plates ($t=1.2$ mm) or aluminum plates ($t=1.5$ mm or more).
- Set the spacer on both sides of the corner at intervals of 600mm or less to adjust the height, then install the metal corner on the spacer.
- Align the lower end of the metal corner with the panel and install it with a gap of about 10 mm from the sill flashing.
- Insert the panels in the metal corner which covers at least 10mm of the panels and fasten panels with panel clips.



Installation Details (Horizontal Application)

7) Inside Corner

- Use L-joiners for inside corner. Fasten the flanges of the joiner with screws at the interval of approx. 1m (to prevent panel horizontal movement.).
- When adding another joiner make sure to secure 5mm gap between the joiners.
- Butt panels to the L-joiner then install the panels.
- ※ For Filltect, waterproof sealer should be applied to panel edges where L-joiners are used (CeradirV is not required).

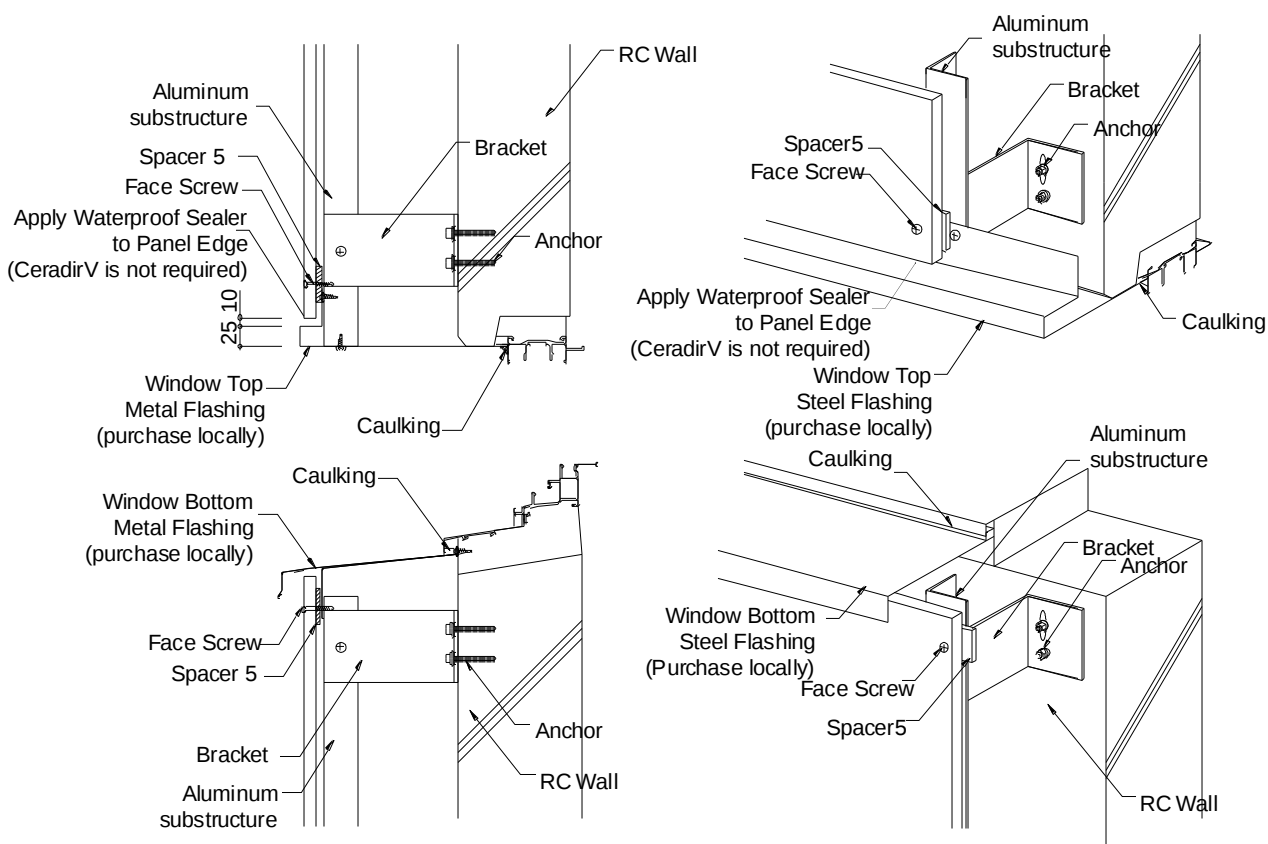


Installation Details (Horizontal Application)

8-1) Opening (Above and Below)

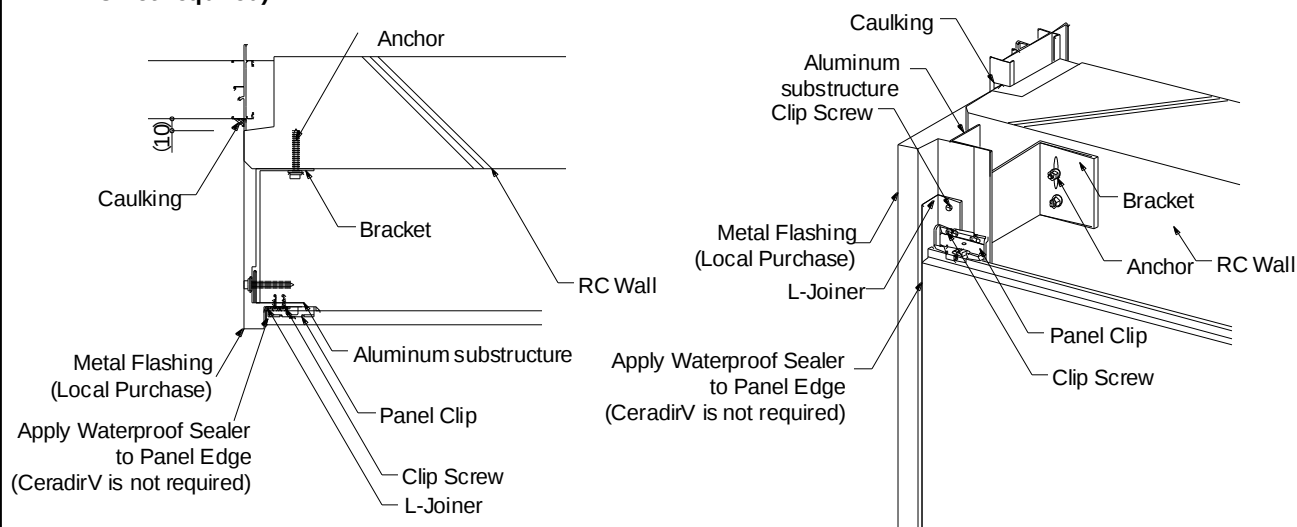
- Install the Facade panels so that to secure 10mm gaps between the Facade panels and openings .
- Install spacer 5 behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel (screw diameter minus 1mm) and fasten the panels with face screw onto a furring strips.

※ For Filltect, waterproof sealer should be applied to exposed cut edges (CeradirV is not required).



8-2) Opening (Both Sides)

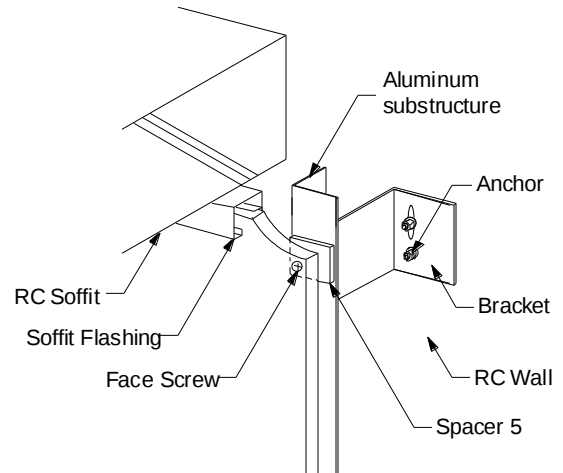
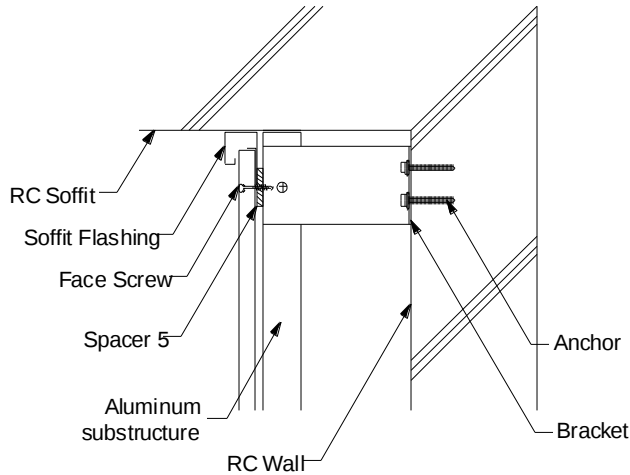
- Install L-joiner between panels and window frame (to prevent panel horizontal movement.)
 - When adding another joiner make sure to secure 5mm gap between the joiners.
 - Butt panels to the L-joiner then install the panels.
- ※ For Filltect, waterproof sealer should be applied to panel edges where L-joiners are used (CeradirV is not required).



Installation Details (Horizontal Application)

9) Top of Wall

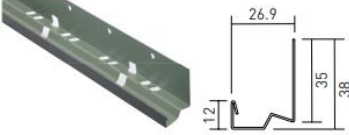
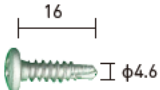
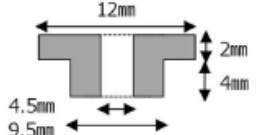
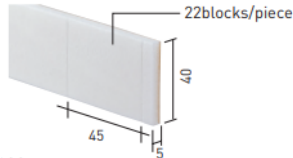
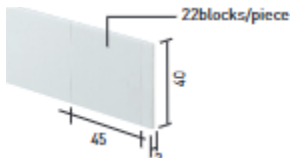
- Install soffit flashing under soffit.
- Install spacer 5 behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel (screw diameter minus 1mm) and fasten the panels with face screw onto a furring strips.
- Insert Facade panels into the soffit flashing to protect panel cut edges.
- ✱ **Ensure ventilation by using soffit flashing ventilation type or by allowing air to exit through the eaves or roof ventilation system.**



Installation Details (Vertical Application)

1) Installation Accessories (Filltect)

■ For Filltect

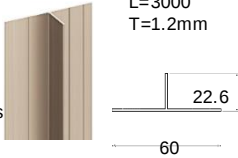
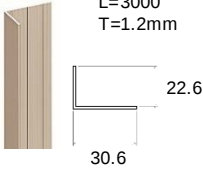
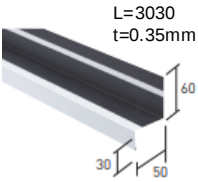
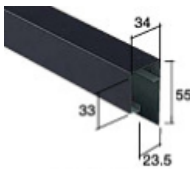
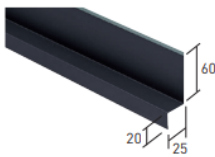
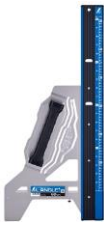
	Image	Material	Application area
Starter Bar (B130571) *1		Coated galvanized steel	• Sill
Corner cap for starter bar (B293W1D)		Coated galvanized steel	• Sill
Panel Clip (B1305)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Long Clip (B10055)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Clip Screw 16 (B885116)		Stainless Steel	• Starter Bar • Panel Clip • Corner Clip
Face Screw 40 with gasket (B886240F*)	 Head type : Torx T20	Screw: Stainless Steel Washer: Stainless Steel Gasket: EPDM	• Corner • Openings (above, below) • Soffit
Waterstop gasket (B494)		EPDM	
Spacer 5 (RY82S05)		Polypropylene	• Outside corner
Spacer 2 (RY82S02)		Polypropylene	To adjust unevenness

*1 Once the current stock is out, it will be replaced with a new product number (B1320571).

Installation Details (Vertical Application)

1) Installation Accessories (Filltect)

■ For Filltect

	Image	Material	Application area
T-Joiner (B3616F*)	 *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Outside corner
L-Joiner (B3616KF*)	 *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Inside corner • Openings (both sides)
Sill Flashing (B238W*)	 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Sill
Soffit Flashing Ventilation type (B256W*)	 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Soffit
Through Wall Flashing (B2241*)		Coated galvanized steel	• Separate section
Water proof sealer (LTKMB3103C)		Silane water repellent	• Panel edge
Repair putty (B4901)		Acrylic emulsion	• Panel surface (for repair)
Repair paint (Different for each SKU)		-	• Panel surface (for touch-up)
Cutting Guide (B49311)		Main Body: Aluminum Guide Surface: Stainless Steel Protective Cap: ABS Resin Large Handle: ABS Resin, Elastomer Resin	It is used to assist in cutting panel

Installation Details (Vertical Application)

1) Installation Accessories (CeradirV)

■ For Ceradir V

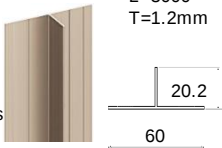
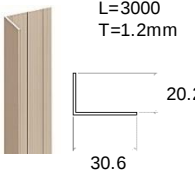
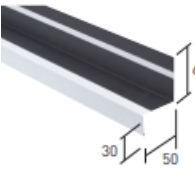
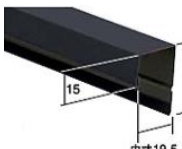
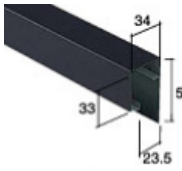
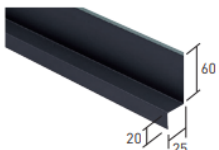
	Image	Material	Application area
Starter Bar (B12057) *1		Coated galvanized steel	• Sill
Corner cap for starter bar (B291W1D)		Coated galvanized steel	• Sill
Panel Clip (B1205)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Long Clip (B12055)		Hot-dip zinc-aluminum magnesium alloy coated steel	• Facade Panel
Clip Screw 16 (B885116)		Stainless Steel	• Starter Bar • Panel Clip • Corner Clip
Face Screw 40 with gasket (B886240F*)	 Head: Torx T20	Screw: Stainless Steel Washer: Stainless Steel Gasket: EPDM	• Openings (above, below) • Soffit
Waterstop gasket (B494)		EPDM	
Spacer 5 (RY82S05)		Polypropylene	
Spacer 2 (RY82S02)		Polypropylene	To adjust unevenness
Metal Outside Corner (B211***)		Coated galvanized steel	• Outside corner

*1 Once the current stock is out, it will be replaced with a new product number (B122057).

Installation Details (Vertical Application)

1) Installation Accessories (CeradirV)

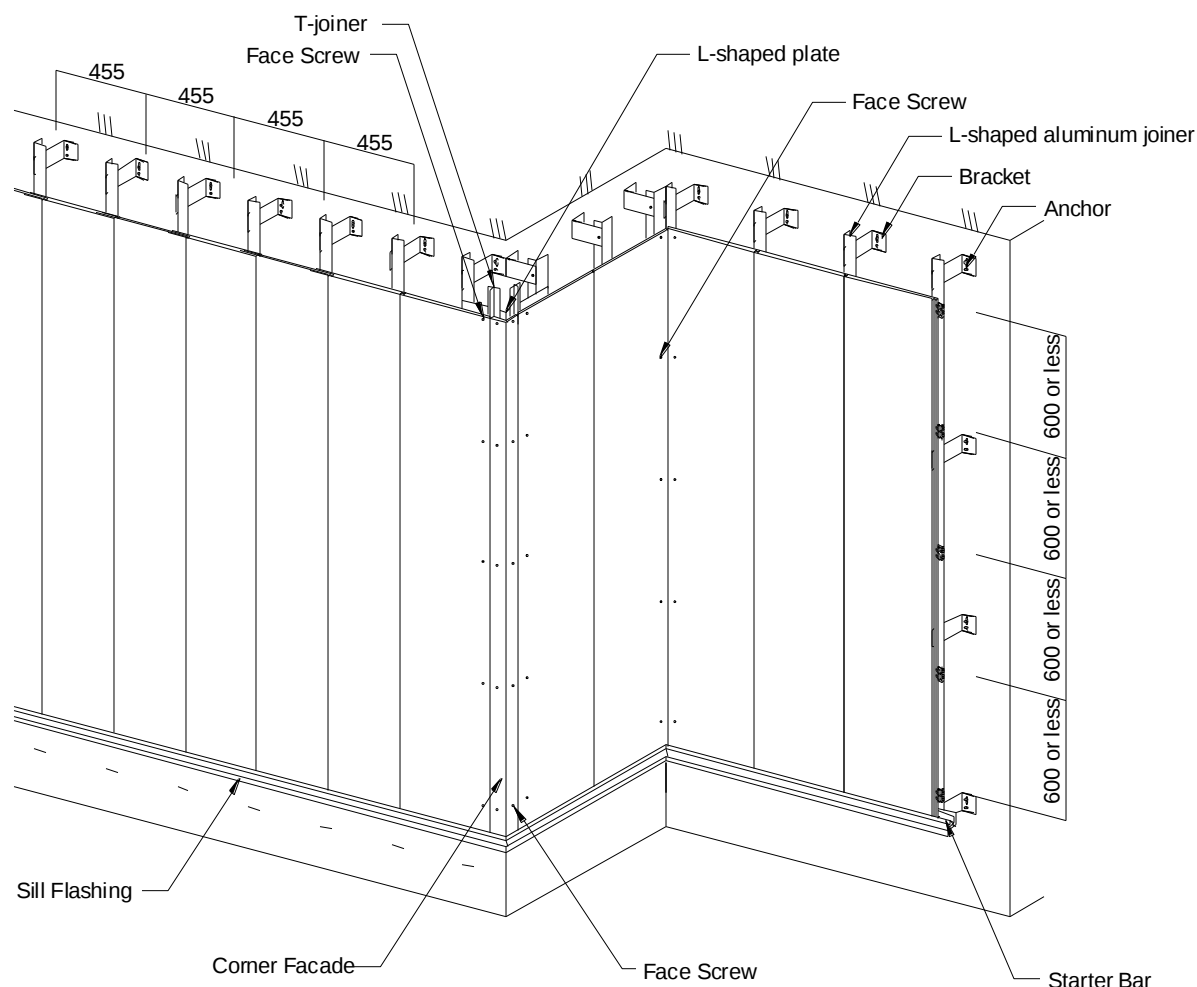
■ For Ceradir V

	Image	Material	Application area
T-Joiner (B36F*)	 L=3000 T=1.2mm 20.2 60 *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Outside corner
L-Joiner (B36KF*)	 L=3000 T=1.2mm 20.2 30.6 *1=Black 2=White 3=Brown 4=Dark stain less	Aluminum	• Inside corner • Openings (both sides)
Sill Flashing (B238W*)	 60 30 50 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Sill
Soffit Flashing (B254W*)	 15 35 19.5 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	• Soffit
Soffit Flashing Ventilation type (B256W*)	 34 33 55 23.5 *= 1:Black 2:White 3:Brown 4:Gray	Coated galvanized steel	
Through Wall Flashing (B2241*)	 60 20 25	Coated galvanized steel	• Separate section
Repair putty (B4901)		Acrylic emulsion	• Panel surface (for repair)
Repair paint (Different for each SKU)		-	• Panel surface (for touch-up)
Cutting Guide (B49311)		Main Body: Aluminum Guide Surface: Stainless Steel Protective Cap: ABS Resin Large Handle: ABS Resin, Elastomer Resin	It is used to assist in cutting panel

Installation Details (Vertical Application)

2) Overview

- Install Facade panels with panel clips and corner Facades with face screws.
 - At the outside/inside corner, both sides of opening, or in any situation where the panel's shiplaps have been removed, clips cannot be used. Install spacer 5 behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel ($\phi 9\text{mm}$) and fasten the panels with face screw onto a furring strips.
 - A clip has several holes for screw. Use an appropriate screw hole depending on the clip fastening area.
 - Fasten a clip with two screws or rivets.
 - Install starter bars at the base of the wall. Use clip screws to fasten the starter bars.
 - Install starter bars so as to hold both Facade panels and corner Facades.
 - Install Facade Panels so as not to allow the gaps between them.
- ※ For Filltect, seal the exposed cut edges and the panel edges with T/L joiner (with or without cut) with the KMEW specified waterproof sealer (CeradirV is not required).



Caution during vertical installation

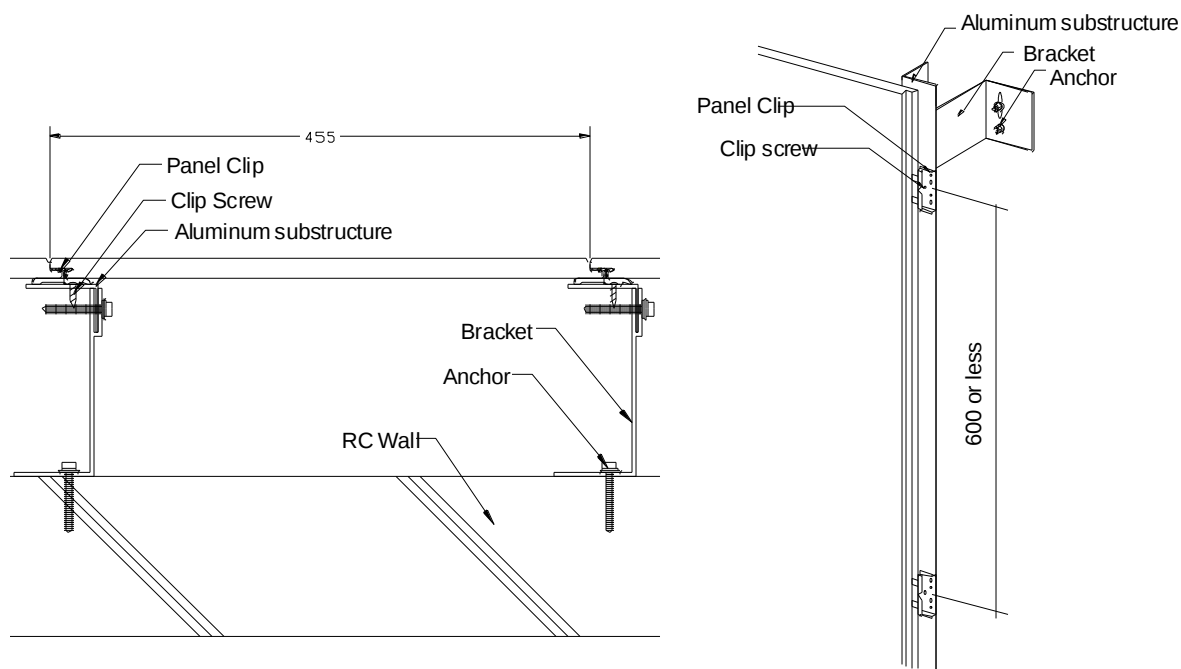
Be sure to observe the following rules to prevent the panels from falling.

- ① In the places where the panel installation begins, it is necessary to fix the starter bar to the substructure as the start bar supports the weight of the panel. (If the starter bar is not used or the starter bar is used with insufficient holding force, the panel may fall out.)
Places where panel installation starts: Sill, horizontal joint, upper edge of openings, joints with the roof.
 - ② In the places where the installation starts, it is necessary to fix the first clip just above the starter bar. If the clip is not used in the places where the panel installation starts, the panel may fall out.
- ※ If it seems impossible to use the first clip just above the starter bar, insert a spacer 5 and fix the panel with face screw at a required distance from the panel edge. When fastening the panel with self-tapping screw, observe the distance from the edge of the panel.

Installation Details (Vertical Application)

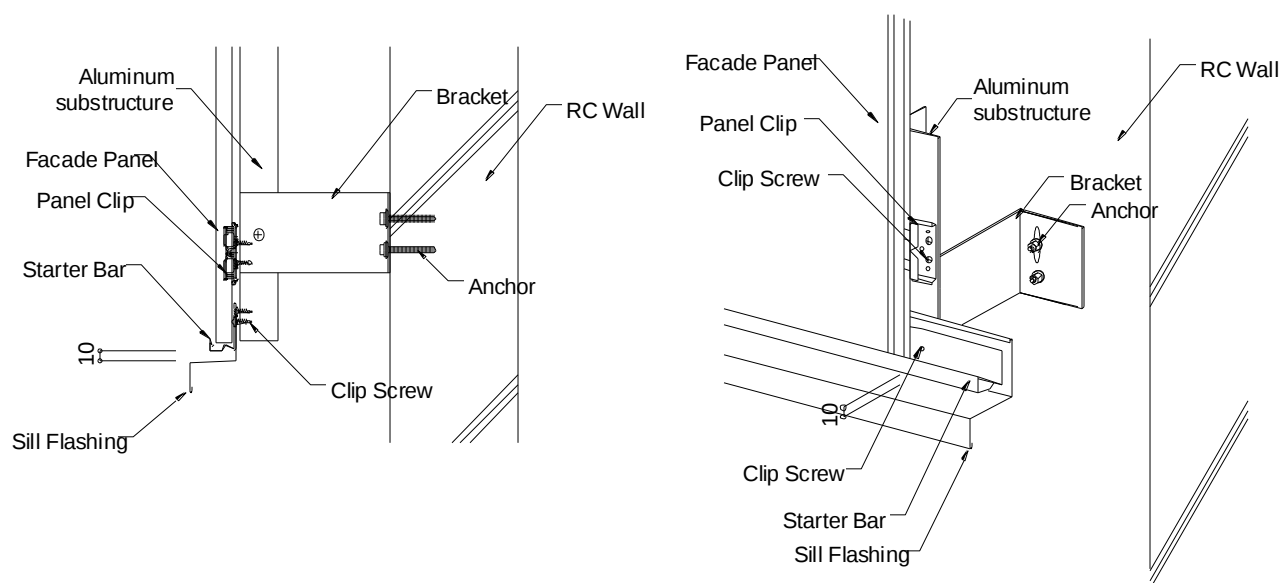
2) General Section

- Install panel clips on the shiplap at intervals of 600mm or less and fasten securely to the furring strips with two screws or rivets.
- A clip has several holes for screw. Use an appropriate screw hole depending on the clip fastening area.



3) Starter Bar

- Please make sure that the starting position of the aluminum substructure is aligned.
- Ensure starter bars are level at the sill because they serve as the reference for the Facade panel installation.
- Fasten starter bars to each substructure with one screw.
- Keep a 10mm gap between the sill flashing and Facade panel to prevent capillarity, secure air intake, and drain condensation.
- Panel clip is fastened just above the starter bar with two screws or rivets.

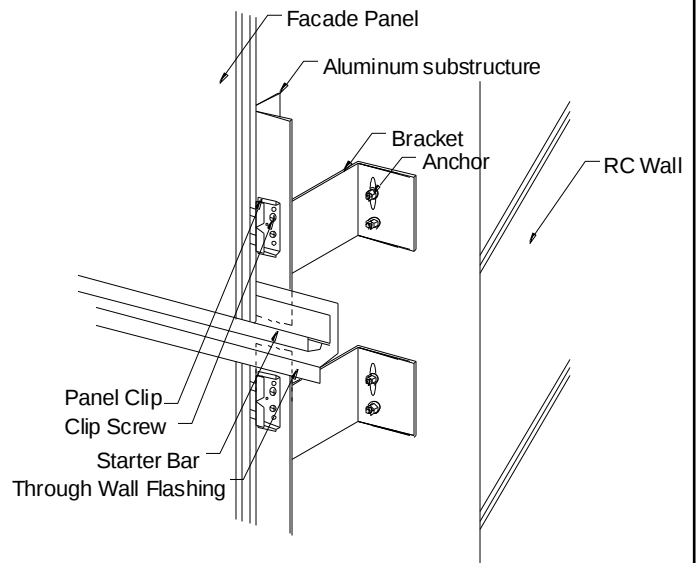
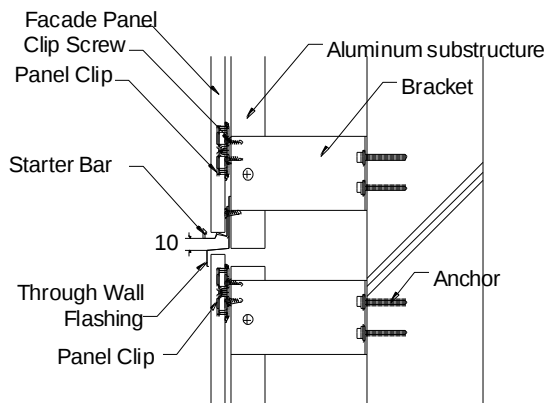


Installation Details (Vertical Application)

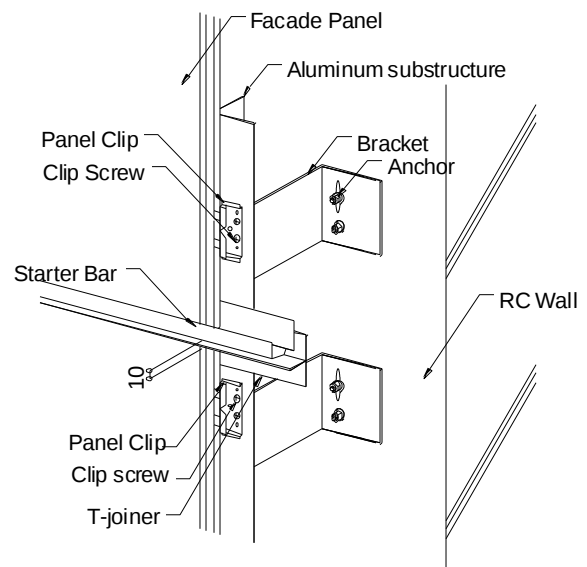
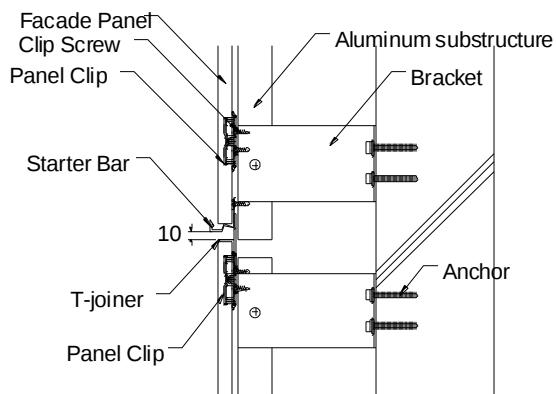
4) Installation of Panels Separation

- Be sure to separate each stage of panel and also separate the aluminum substructure.
- Through wall flashing is installed on the upper edge of the panel
- Fasten starter bars to each substructure with one screw.
- Keep a 10mm gap between the through wall flashing and starter bar.
- Panel clip is fastened just above the starter bar with clip screw.
- For Ceradir V, T-jointer can be installed instead of through-wall flashing.

Through-wall flashing



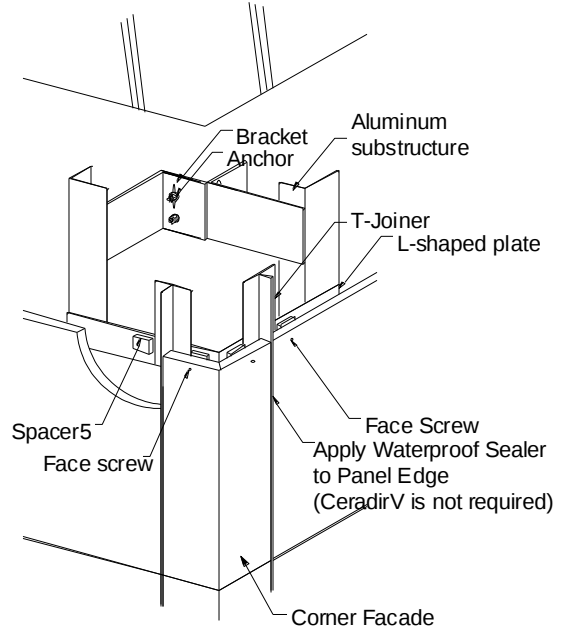
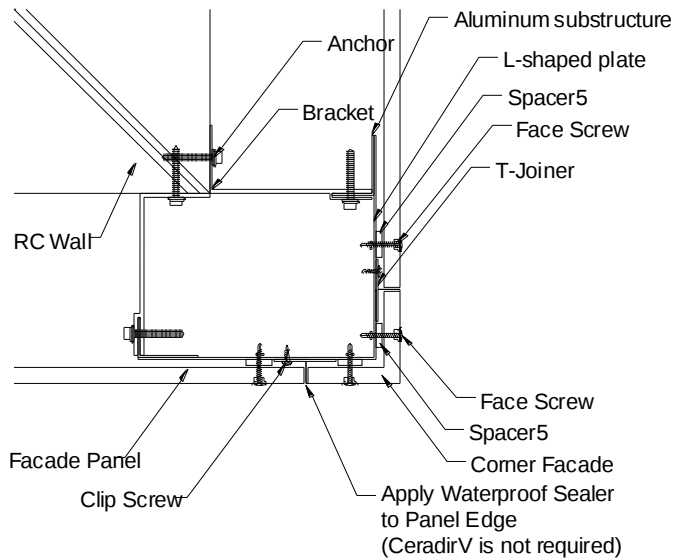
T-jointer (for CeradirV only)



Installation Details (Vertical Application)

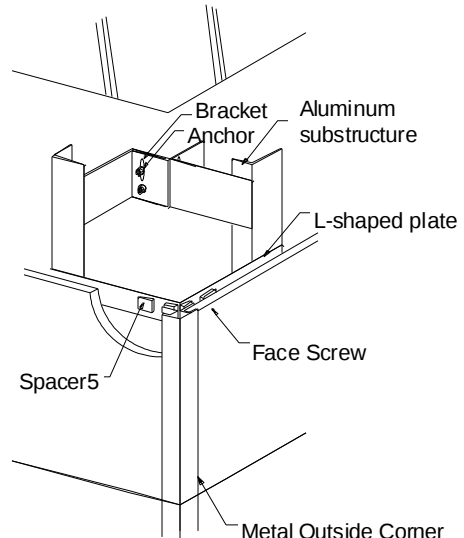
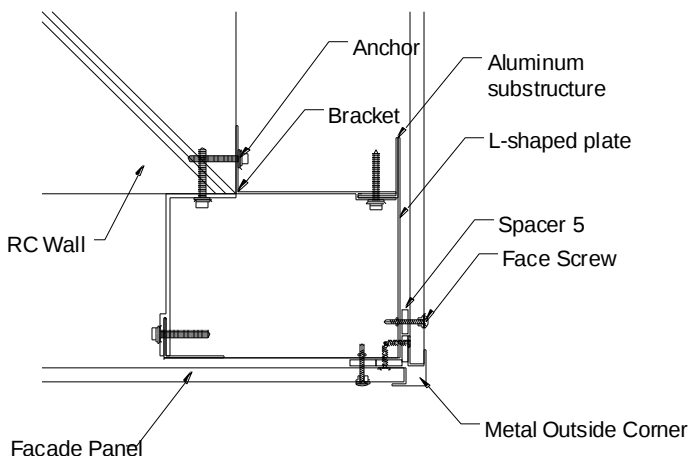
5-1) Outside Corner (Corner Facade)

- L-shaped plates must be installed at corners to secure fastening points. Use steel plates ($t=1.2$ mm) or aluminum plates ($t=1.5$ mm or more).
 - Cut the shiplaps of the panel and corner Facade before installing.
 - Set T-joiners in the vertical joints between a corner Facade and panels. Fasten the flanges of the joiner with screws at the interval of approx. 1m (to prevent panel horizontal movement.).
 - When adding another joiner make sure to secure 5mm gap between the joiners.
 - Butt panels to the T-joiner then install the panels.
 - Install spacer 5 at intervals 600mm or less behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel ($\phi 9$ mm) and fasten the panels with face screw onto a furring strips.
- ※ For Filltect, waterproof sealer should be applied to panel edges where T-joiners are used (CeradirV is not required).



5-2) Outside Corner (Metal Outside Corner)

- L-shaped plates must be installed at corners to secure fastening points. Use steel plates ($t=1.2$ mm) or aluminum plates ($t=1.5$ mm or more).
- Cut the shiplaps of the panel before installing.
- Fix spacers on both sides of the corner at a distance of no more than 600 mm along the longitudinal direction to adjust the height.
- Then install the metal corner on the spacer and fasten to furring strips with screws.
- Align the lower end of the metal corner with the Facade panel.
- Install spacer 5 at intervals 600mm or less behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel ($\phi 9$ mm) and fasten the panels with face screw onto a furring strips.

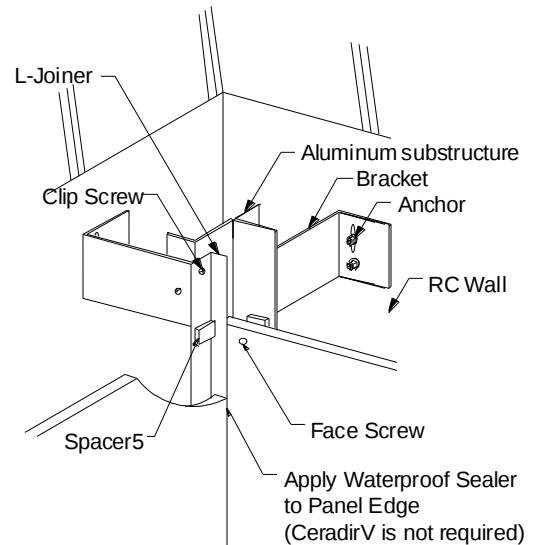
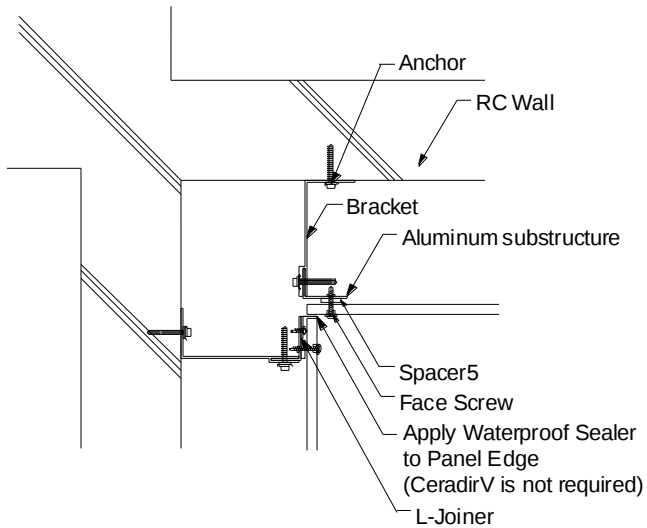


Installation Details (Vertical Application)

6) Inside Corner

- Cut the shiplaps of the panel before installing.
- Install L-joiner at the joint of the panels.
- When adding another joiner make sure to secure 5 mm gap between the joiners.
- Butt panels to the L-joiner then install the panels.
- Install spacer 5 at intervals 600mm or less behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel ($\phi 9\text{mm}$) and fasten the panels with face screw onto a furring strips.

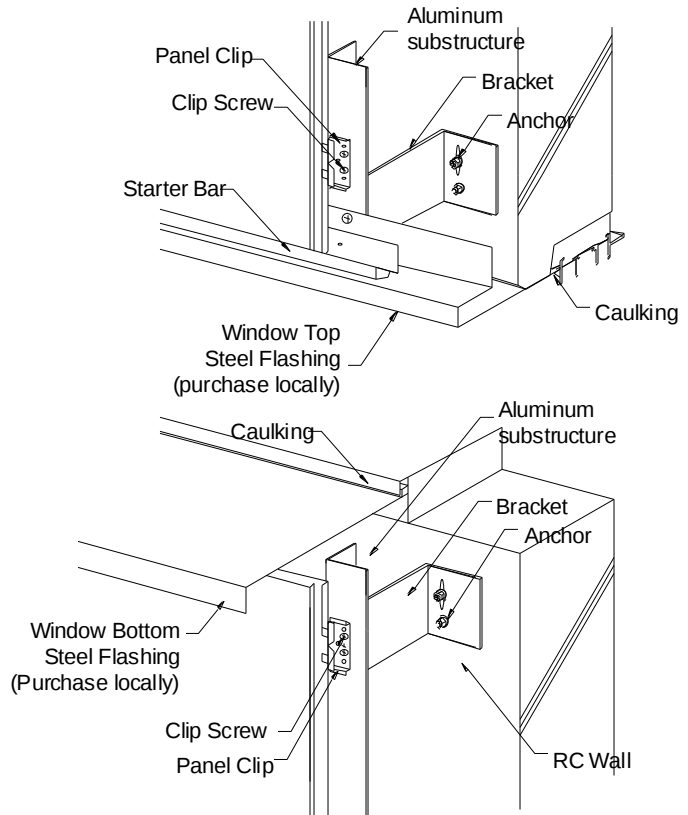
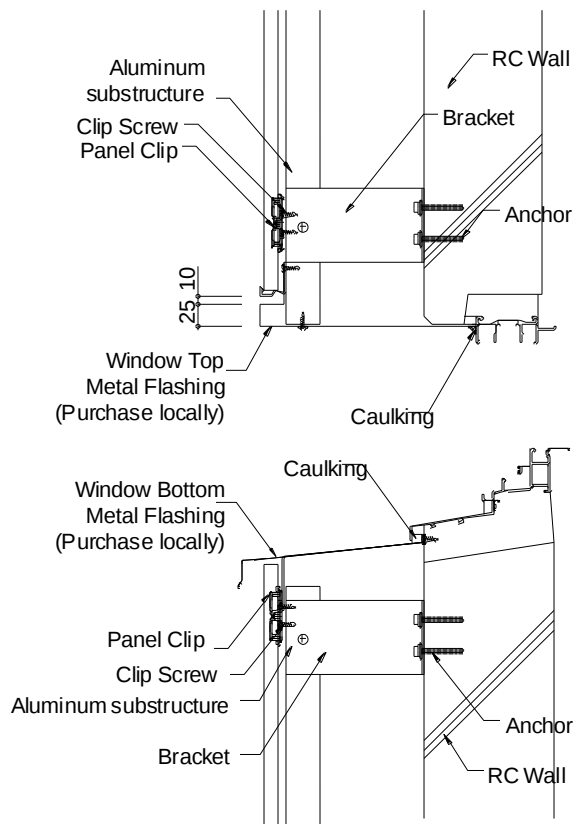
※ For Filltect, waterproof sealer should be applied to panel edges where L-joiners are used (CeradirV is not required).



Installation Details (Vertical Application)

7-1) Opening (Above and Below)

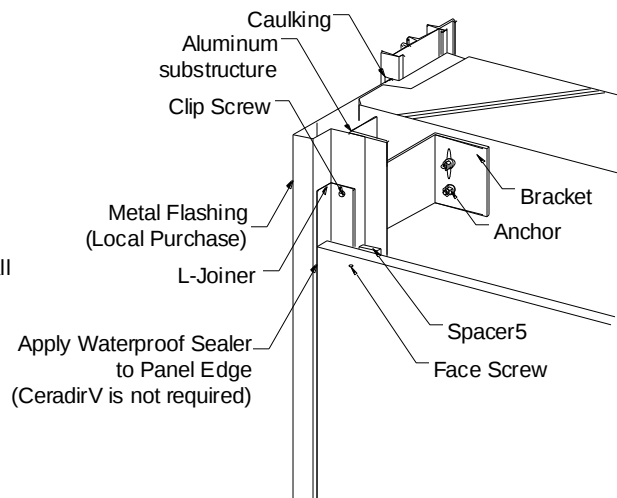
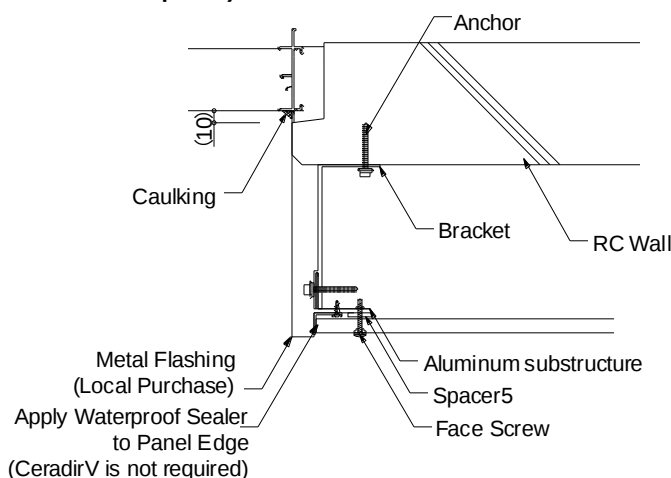
- Purchase flashings for the openings locally and cut them with the appropriate size for installation.
- Above the opening, fasten starter bars to each substructure with one screw and install the Facade panels so that to secure 10mm gaps between the Facade panels and window flashing.
- Panel clip at above the opening is fastened just above the starter bar with two screws or rivets.



7-2) Opening (Both Sides)

- Cut the shiplaps of the panel before installing.
- Insert L-joiner at the joint of the panel and window frame.
- When adding another joiner make sure to secure 5 mm gap between the joiners.
- Butt panels to the L-joiner then install the panels.
- Install spacer 5 at intervals 600mm or less behind the areas to face screw, ensuring an appropriate distance from the edge of panel, drill pilot holes through the panel ($\phi 9$ mm) and fasten the panels with face screw onto a furring strips.

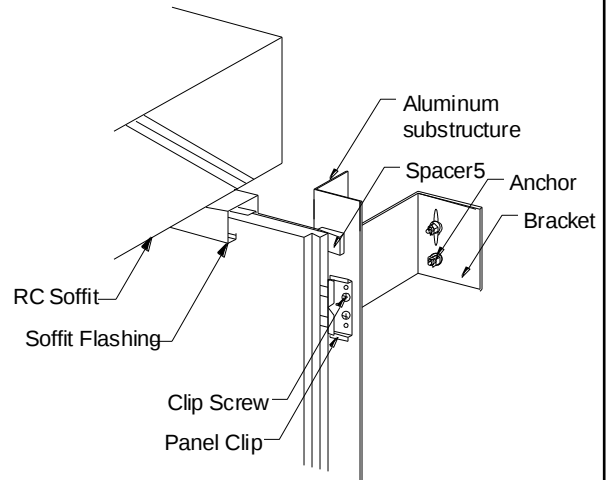
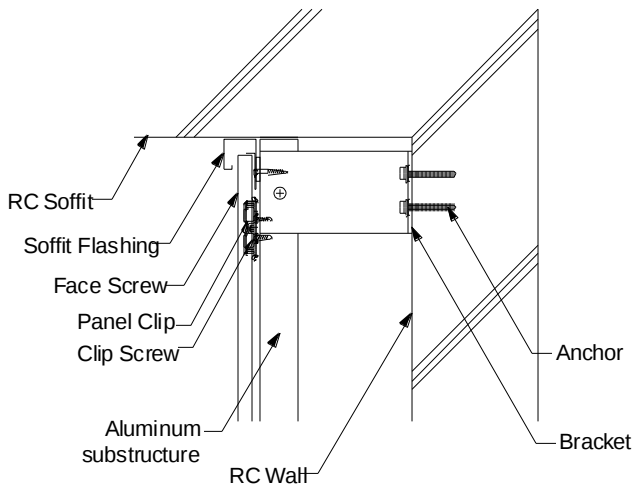
※ For Filltect, waterproof sealer should be applied to panel edges where L-joiners are used (CeradirV is not required).



Installation Details (Vertical Application)

8) Top of Wall

- Install soffit flashing under soffit.
- Insert Facade panels into the soffit flashing to protect panel cut edges.
- ✖ **Ensure ventilation by using soffit flashing ventilation type or by allowing air to exit through the eaves or roof ventilation system.**



Repair

Minor damages

- Repair minor cracks and dents in Facade panels with putty.
- Apply putty to cover screw heads exposed after installation.
- ✘ For best results, use putty sparingly.
- ✘ Major damage will require panel replacement.



Don't use caulking for repairing screw/nail heads or other touch-up.
The caulking's appearance will fade over time.

Repair Order	Repairing Method	Image
1)Check the weather before starting	▪ Make sure that the panel surfaces are completely dry prior to putty application. ▪ Do not apply putty in the following conditions: ①Outdoor temperature below 5 degrees C. ②Panel surface temperature above 50 degrees C. ③If precipitation is expected.	
2)Cleaning damaged portions	▪ Clean the damaged portions with a toothbrush or similar tool. ✘Apply painter's tape to mask around the area if necessary.	
3)Putty application	▪ Apply the putty evenly onto the damaged area. Use a soft and flat tool to smooth the surface. ✘Remove any painter's tape carefully.	
4)Apply Touch-up Paint	▪ Apply touch-up paint with a brush after the putty has hardened. ✘Prime the putty before painting.	

- These repair instructions are only a general guide and additional steps may be required.

Repair

Replacing a single panel

- Replacement panels must be fastened with screws

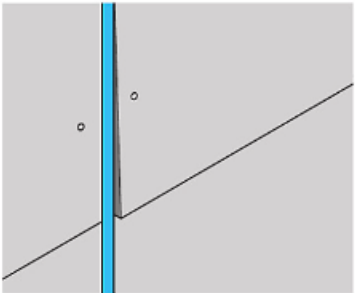
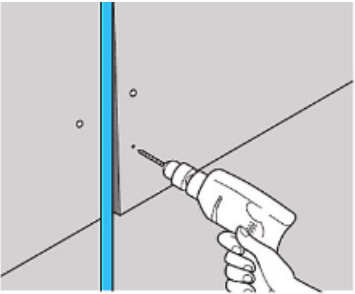
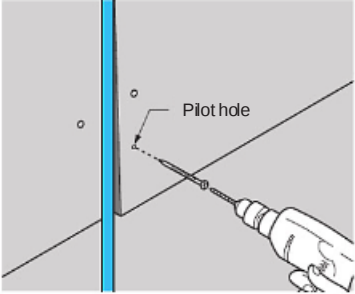
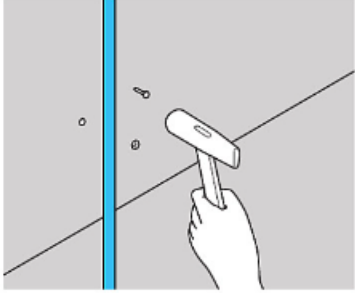
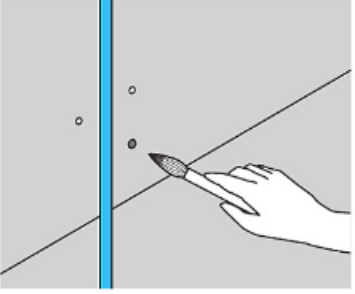
Order	Content of work	Images
1) Remove	• Cut the center of the panel with a power saw and remove the panel. ※Be careful not to damage the sheathing, waterproof building paper, and adjacent panels.	
2) Prepare the replacement panel	• Remove the part ① (figure, right) of the replacement panel. • Without removing this portion of the shiplapped edge the replacement panel will not fit. • Apply waterproof sealer to cut portion.	
3) Installation	• If the waterproof seal on shiplapped edge comes off, apply caulking to the area where seal comes off. • Apply waterproof sealer to panel edge. • Attach spacer blocks where the panel will be nailed (or screwed). • Insert the replacement panel. • For vertical application, install additional substructure as necessary.	
	• Predrill pilot holes and nail or screw the panel into place. • Apply touch-up paint to the nail or screw heads.	

- These repair instructions are only a general guide and additional steps may be required.

Repair

Warp and waviness

- Warping and waviness of Facade panels will be repaired with additional nails/screws.
- If the repair cannot be completed with additional nails/screws, please consider replacement. It may be affected by deformation of the substructure.

Order	Content of work	Images
1) Preliminary investigation	• Check the condition of warping and waviness of the Facade. ※ If it does not return to its original state after pressing, it may be affected by deformation of the substrate, etc., and replacement should be considered.	
2) Pre-drilling	• Decide on the position to be drilled and predrill pilot hole. ※ The location of the additional screws should be where the substructure is located, and ensure the minimum default distance from the panel edge.	
3) Additional screws	• Fasten the flat head stainless steel screws. • Screw fastening should be adjusted to prevent the Facade from sinking. ※ Over-driving the screws may cause the Facade to sink and crack.	
4) Retightening /re-tightening	• If the original fastener is floating, retighten or re-fasten with new screws. • For vertical application, install additional substructure as necessary.	
5) Repair screw heads	• Apply repair paint to screw heads.	

- These repair instructions are only a general guide and additional steps may be required.