

# ORP-F1

## Regular: Basic / J-Connection / M-Connection

## Construction Manual

- Thank you for purchasing our product.
  - The indication symbols in this construction manual are for you to construct the product safely and properly and also to protect the owner etc. from damage.
- Be sure to understand the meaning of each indication symbol and act in accordance with this manual(its instructions).

In this construction manual, the following symbols are used.

### Warning

- Mishandling may lead to minor or moderate injury on the part of the user, or to property damage.

### Caution

- Matters you should take particular care with during the construction process.
- If not followed, construction will fail or failure may occur after the product is constructed.

\*

- Matters to be noted related to the contents of construction instructions (each instruction).
- Conditions where limitations apply to construction instructions.

### Tip

- Helpful tips complementing construction instructions.

\* Observe the following items to prevent personal injury or property damage due to damage or collapse of the product.

### <Before Construction>

#### Warning

- Constructing the product may be dangerous. Be sure to have a professional contractor construct the product.
- This product is a simplified carport. Do not carelessly modify or rebuild the product in order to convert it into storage space, playing space or residential space.
- Do not construct the product in a place where snowfall (fresh snow) of more than 20 cm may happen.
- Place the product where snow will not slide off the roof of the house directly onto the product.
- Do not construct the product on a cliff, a roof or in any other place with strong winds.
- Do not construct the product in a place where waste heat from a hot-water heater or a heating apparatus will build up inside the product. Toxicosis may occur due to exhaust.
- If constructing the product on a slope, ensure sufficient embedding depth on the lower side.
- **If constructing products of different sizes simultaneously in the same place, be sure not to mix components of each product in order to preserve the original performance.**



### Caution

- Be sure to read this construction manual before construction for proper construction and assembly.
- Be sure to construct the product by following this construction manual.
- Check if all the required components and parts are prepared by referring to the package details.
- Make sure that the product is constructed where waste heat from a hot-water heater or a heating apparatus will not contact the product. Coating deterioration / exfoliation may occur due to exhaust.
- Check if the product properly fits the size of the construction place.

## <About Foundation Construction>

### ⚠ Warning

- For cold places where the subsoil may be frozen, build the foundations deeper than the frost line. Otherwise, strength degradation may occur.
- Be sure to lay crushed stones on the foundations and make water draining holes (φ6) at the base of the pillars and foundations for water drainage inside the pillars. Otherwise the water inside the pillars may freeze and expand, causing damage to the pillars.
- Do not apply sand containing salt (sea sand) or chlorine-based strongly alkaline concrete admixtures (anti-freezing agents, curing accelerators, accelerators, etc.) to mortar or concrete. Otherwise, metal such as aluminum may be corroded. If required, use chlorine-free or non-alkaline admixtures.

### Caution

- If substances such as mortar or concrete have adhered to the product surface, quickly wipe them away. Otherwise the product appearance may be affected with stains or blotches.

## <Warnings During Construction>

### ⚠ Warning

- If a water pipe is mounted to the pillar labeled "Warnings for Use", it will hide the label and the warnings will not be provided properly. Direct the indication label to the side where no water pipe is mounted.
- If aluminum products contact metal other than zinc or stainless steel, implement insulation.
- Do not modify the product or make holes other than on the specified points.
- Seal the specified points in order to prevent water leakage.
- If using silicone sealant, use our specified dealcoholized sealant in order to avoid failure such as cracks in polycarbonate boards.
- In order to prevent product strength degradation or injury, use the specified number of our genuine bolts and screws and make sure that there is no looseness after fixing them at the following recommended torque.

Sealant Manufacturer	Product Name and Number
Shin-Etsu Chemical Co., Ltd.	Sealant 72
Momentive Performance Materials Japan LLC	TOSSEAL 380
Toray / Dow Corning Corporation	SE960

\* φ4 Screws: 2.5 N·m ± 0.5 N·m (25 ± 5 kgf·cm)

\* φ5 Screws: 3.0 N·m ± 0.5 N·m (30 ± 5 kgf·cm)

\* M8 Bolts: 20.0 N·m ± 0.5 N·m (200 ± 5 kgf·cm)

### Caution

- Work safely during construction.
  - \* Wear working clothes properly (safety helmets, safety belts and protective equipment for eyes, hands and feet) .
  - \* Keep the workplace tidy and ensure safety.  
Ensuring safety for high place work, preventing collapse, keeping enough illuminance with lighting, etc. are especially important.
  - \* Check the functions of equipment, tools, protective equipment, etc. before using them.
  - \* Consider each work and process while proceeding with construction. Work which requires a license, skill training or special education must only be done by a qualified person.
  - \* Workers should confirm one another's safety. Be sure to check the health of each worker and maintain health management.
  - \* If an accident should happen, immediately provide first aid and prioritize rescue over anything else.
- Remove stains on the product surface. If the product surface is damaged by mistake, repair it with repairing coating.

## <After Construction>

### ⚠ Warning

- Retighten the bolts and nuts. However, the lock bolts must be retightened before curing.

### Caution

- Give the installation manual to the owner.

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## Indication Symbols



**For Construction with Independent Foundations**



**For Construction with Concrete Slabs on Grade**



**For Construction by Moving Pillar Position**



**For Constructing M-Connection**



**For Constructing "J-Connection"**



**For Wind Resistant Construction**

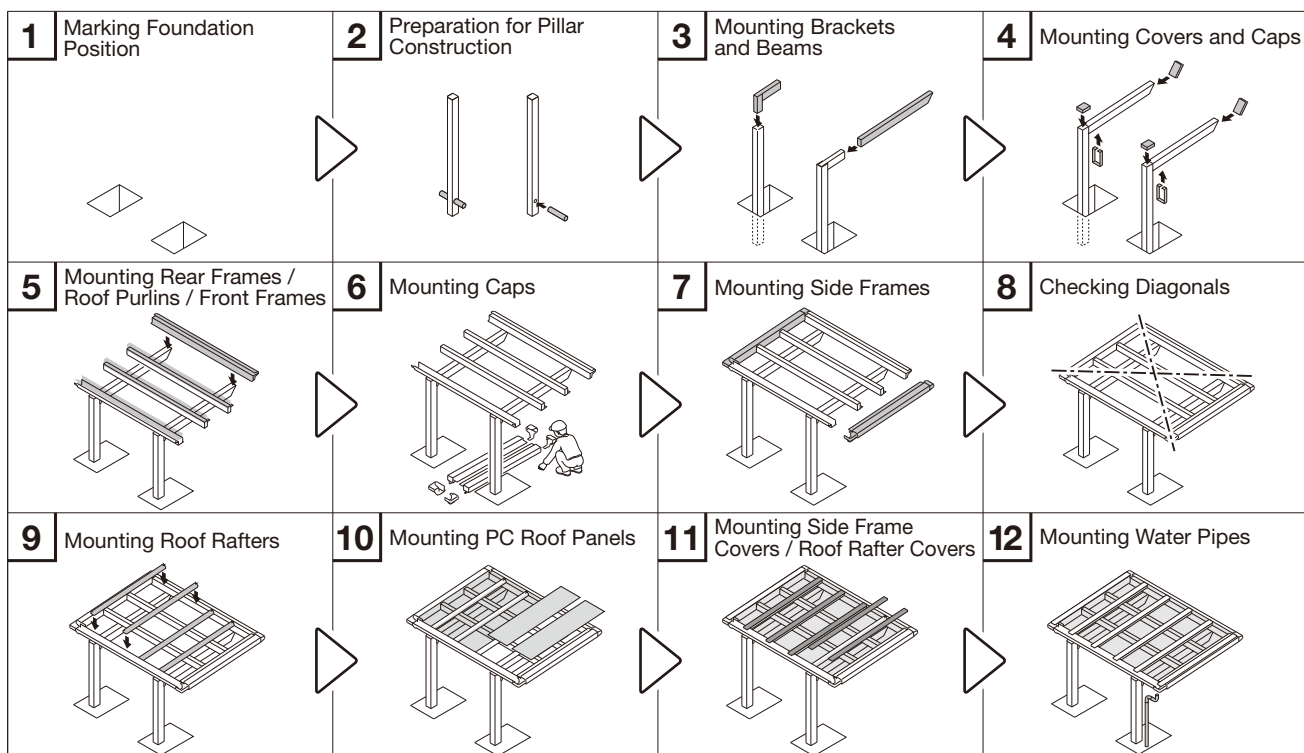


**Optional Product**



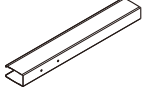
**Sealing Point**

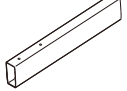
## Construction Process




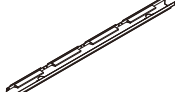
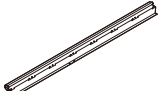
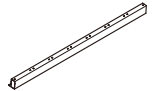

# Package Details

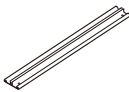
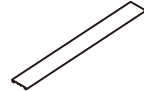
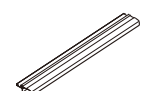
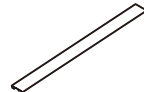
\* Check if all the required components and parts are provided by referring to the package details.

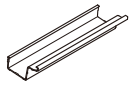
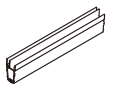
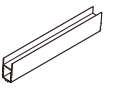

[1] Pillar Set		Required Quantity
Name	Sketch	2 Included
Pillar		2

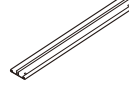
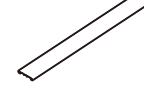
[2] Beam Set		Required Quantity
Name	Sketch	2 Included
Beam		2



[3] Bracket Set		Required Quantity
Name	Sketch	2 Included
Bracket		2

[4] Length Set		Required Quantity	
Name	Sketch	W24 / 27	W30
Rear Frame		1	1
Front Frame		1	1
Roof Purlin		3	4
Water Pipe $\phi 40 \times L3500$		1	1









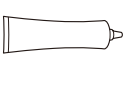

[5] Width Set (Roof Rafter)		Required Quantity		
Name	Sketch	W24 / L50	W27 / L50	W30 / L50
Roof Rafter		6	6	6
Roof Rafter Cover		6	6	6
Side Frame		2	2	2
Side Frame Cover		2	2	2


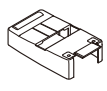


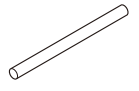
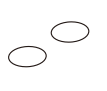



[6] Connection Component Set		Required Quantity	
Name	Sketch	W24 / 27	W30
Rear Frame Sleeve		1	1
Front Frame Sleeve		1	1
Roof Purlin Sleeve		3	4
[6-1] $\phi 4 \times 13$ Pan Head Self Drilling Screw		44	52

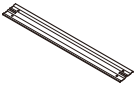


[7] Connection Width Set (Roof Rafter)		Required Quantity		
Name	Sketch	W24	W27	W30
Roof Rafter		7	7	7
Roof Rafter Cover		7	7	7

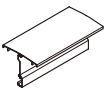
[8] Roof Purlin Reinforcement Set (Optional)		Required Quantity
Name	Sketch	
Roof Purlin Reinforcement for Wind Resistant Reinforcement (L = 1500)		2
[8-1] $\phi 5 \times 13$ Pan Head Self Drilling Screw		8

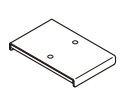
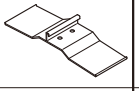

[9] PC Roof Panel Set		Required Quantity		
Name	Sketch	1 Included	3 Included	4 Included
PC Roof Panel		1	3	4


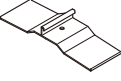

[10] Parts Set		Required Quantity	
Name	Sketch	W24 / 27	W30
Drain Elbow		1	1
92° Elbow (φ 40)		2	2
Rainwater Pipe Holder		3	3
Rainwater Pipe Attachment		1	1
Rainwater Pipe Packing		2	2
Rainwater Pipe Hole Cover Cap		1	1
Panel Cushion		24	32
Rear Frame Corner Cap [Part Number] L: 628740A, R: 628741A		1 Each for Right and Left	1 Each for Right and Left
Adhesive		1	1
Front Frame Corner Cap [Part Number] L: 628738A, R: 628739A		1 Each for Right and Left	1 Each for Right and Left

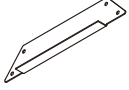






[10] Parts Set (Continued)		Required Quantity	
Name	Sketch	W24 / 27	W30
Roof Purlin Cap		3 Each for Right and Left	4 Each for Right and Left
Pillar Cap		2	2
Pillar-Beam Cover		2	2
Beam Cap		2	2
φ8 x 200 Anchor Stick		2	2
Hole Hiding Sticker φ10		20	24
[10-1] M8 x 20 Hex Bolt PW (with loosening prevention)		14	14
[10-2] φ4 x 13 Pan Head Self Drilling Screw		3	3
[10-3] φ5 x 12 Self-Tapping Truss Head Screw Class 3		182	218
Installation Manual <UD127>	-	1	1
Construction Manual <D620>	-	1	1

[11] PC Roof Panel Holder Set		Required Quantity		
Name	Sketch	Standard Type		
		706 Pitch		
		L22	L29	L50
PC Roof Panel Holder		3	4	7
PC Roof Panel Holder Spacer		4	4	4
[11-1] φ5 x 13 Pan Head Self Drilling Screw		17	17	26
Construction Manual<D614>	-	1	1	1

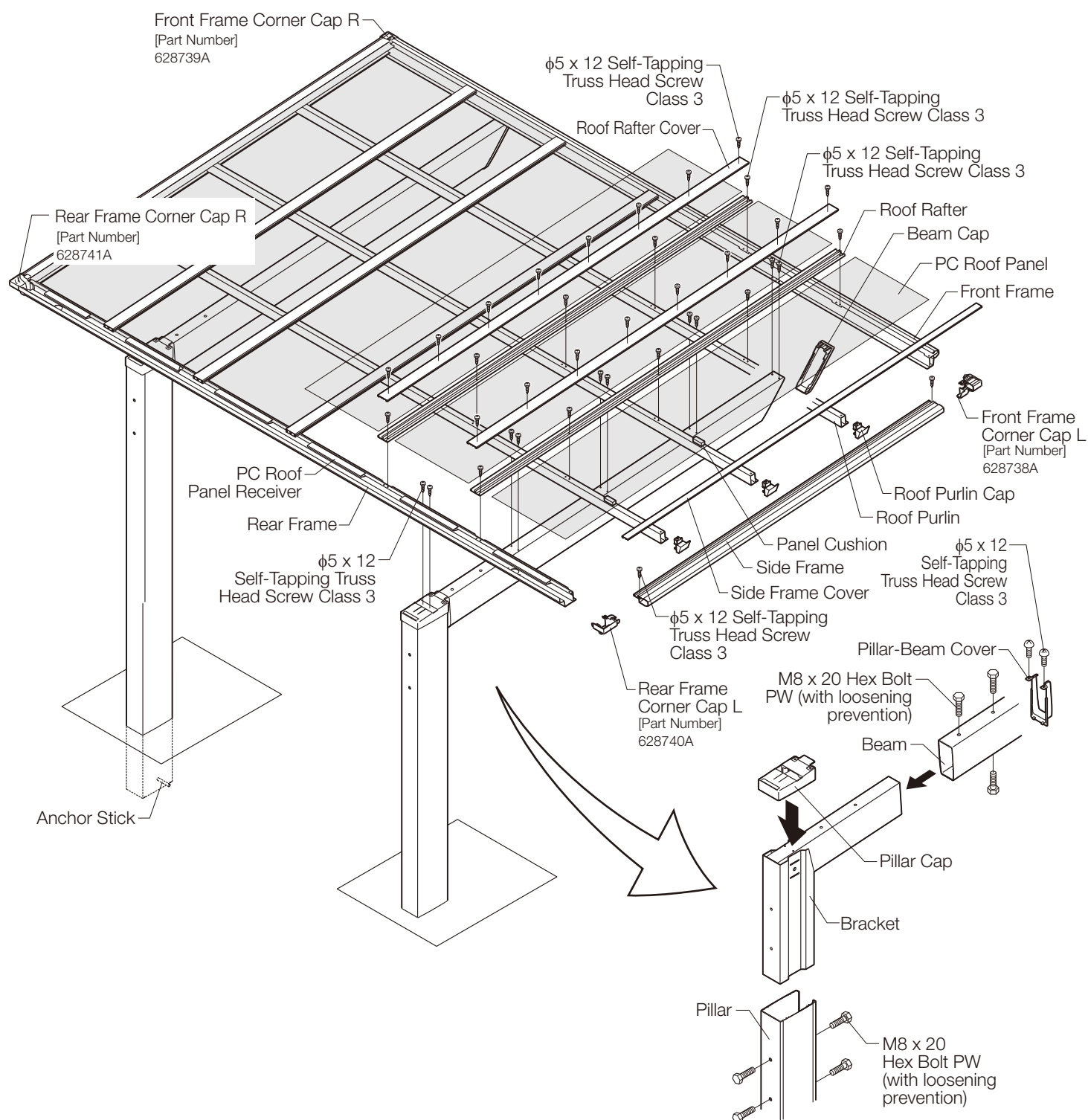
[12] MY-Connection Ridgepole Set		Required Quantity
Name	Sketch	
M/Y-Connection Ridgepole		1

[13] M-Connection Parts Set		Required Quantity
Name	Sketch	
MY-Connection Cover for F		1
M-Connection Connecting Fixing Fitting for F		1
[13-1] φ4 x 13 Pan Head Self Drilling Screw		4

[14] M-Connection Parts Set		
Name	Sketch	Required Quantity
M-Connection Metal Fitting Spacer		8
M-Connection Fixing Fitting for F		4
M-Connection Edge Cap for F		2

[14] M-Connection Parts Set (Continued)		
Name	Sketch	Required Quantity
M-Connection Beam Connecting Fitting for F		4
Beam Spacer		8
[14-1] M8 x 80 Hex Bolt		8
[14-2] Hex Self-Lock Nut for M8		8
[14-3] Plain Washer for M8		16
[14-4] $\phi 4 \times 13$ Pan Head Self Drilling Screw		4
[14-5] $\phi 4 \times 20$ Self-Tapping Truss Head Class 2		4

## Part Names



# Construction of Basic Type

## Items to Check

### Drawing

#### Warning



For [Pillar Moving], move the pillar within  $\pm 100$  mm of the pillar core-to-core distance dimensions.

#### Caution

Be sure to lay crushed stones so that the water inside the pillars can be drained.



For Mounting Detachable Supports  
Also refer to "Detachable Support Mounting Manual <D605>".

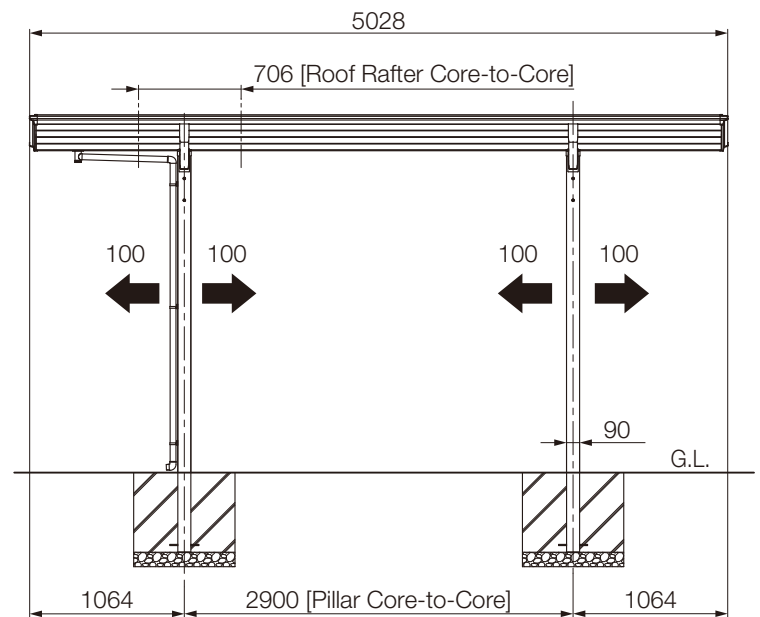
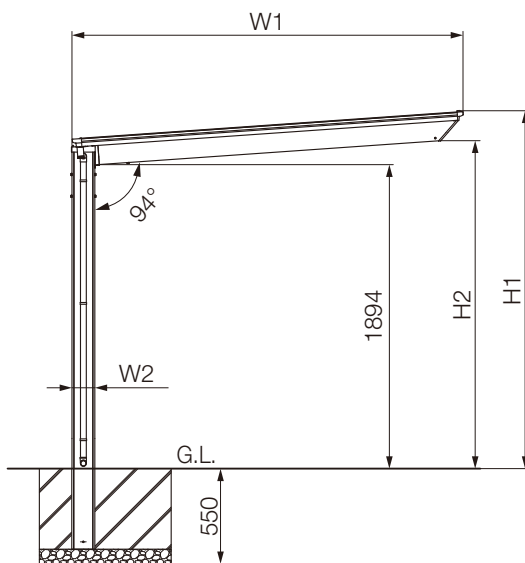


For the foundation dimensions of [J-Connection] and [M-Connection], refer to page 8 and relevant pages.

#### Tip

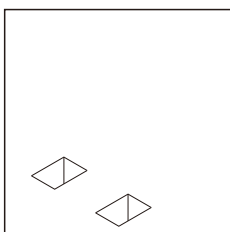


This symbol indicates [For Long Pillars] the [Pillar Moving] Add 300 to the height dimension range.



Width	W1	W2	H1	H2
W24	2393	158	2249	2043
W27	2692	158	2270	2064
W30	2992	158	2291	2085

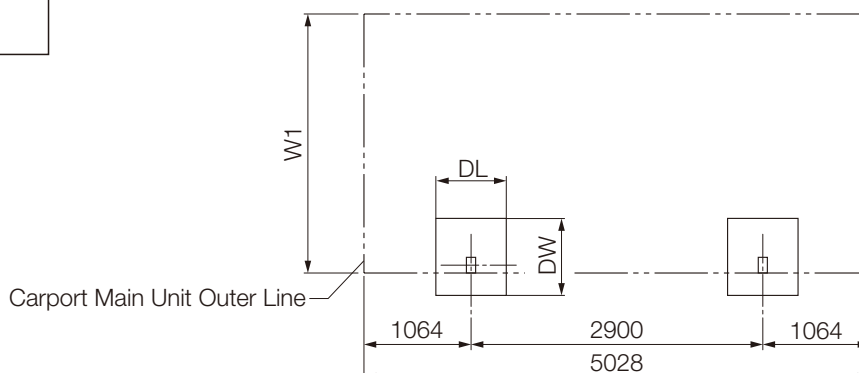
## Marking Foundations



(1) Determine the embedding position for pillars and then dig foundation holes.



[About Foundation Dimensions]  
Refer to "Page 8" for foundation dimensions.



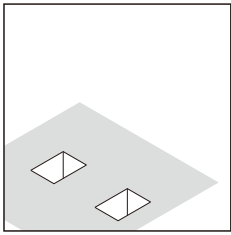


# 1 Checking Foundation Dimensions



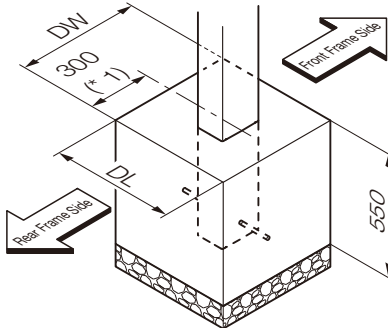
[J-Connection] Also refer to the foundation dimensions on this page.  
[M-Connection]

## Independent Foundations



Work required for [Construction with Independent Foundations].

(1) Check the foundation hole dimensions.

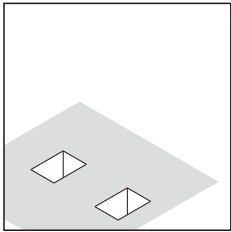


Size (Width)	DW	DL
W24	700	600
W27	700	600
W30	800	700

### Tip

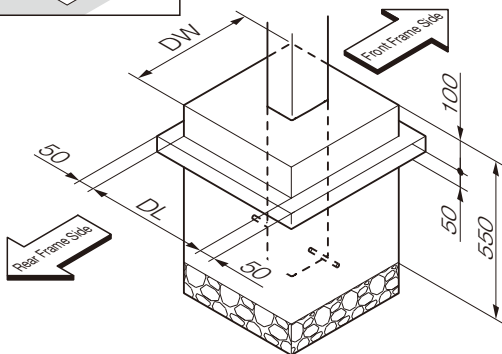
(\*1) is the dimension between the pillar core and the foundation edge on the rear side of the foundation.

## Concrete Slabs on Grade



Work required for [Construction with Concrete Slabs on Grade].

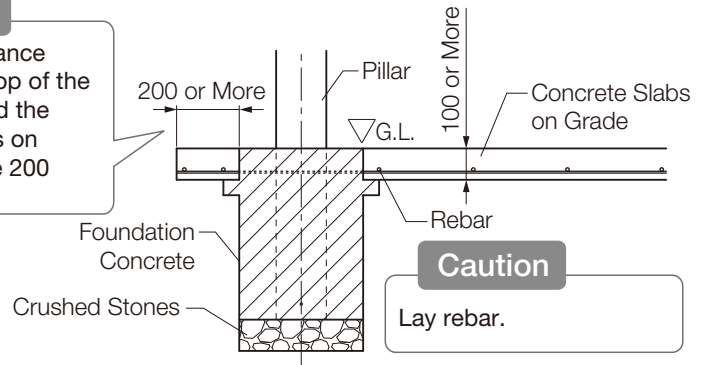
(1) Check the foundation hole dimensions.



Size (Width)	DW	DL
W24	350	300
W27	350	300
W30	370	370

### Caution

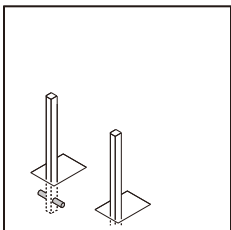
The edge distance between the top of the foundation and the concrete slabs on grade must be 200 mm or more.



### Caution

Lay rebar.

# 2 Preparation for Pillar Construction



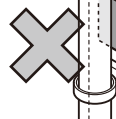
(1) Insert an anchor stick to the pillar.

(2) Make a  $\phi 6$  water drain hole near the G.L. of the pillar (aboveground).

### Caution

#### [When Constructing Pillars]

Construct the pillar so that the "Warnings for Use" label will not be hidden by the water pipe.

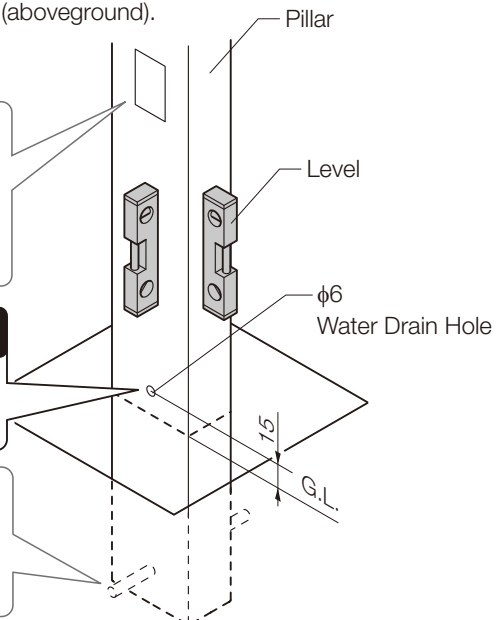
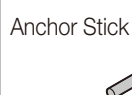


### Caution

Check if the pillar is vertical.

### Warning

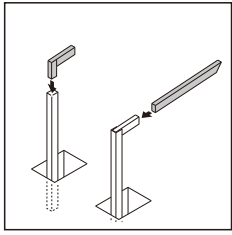
The pillar may be damaged if there is no water drain hole.



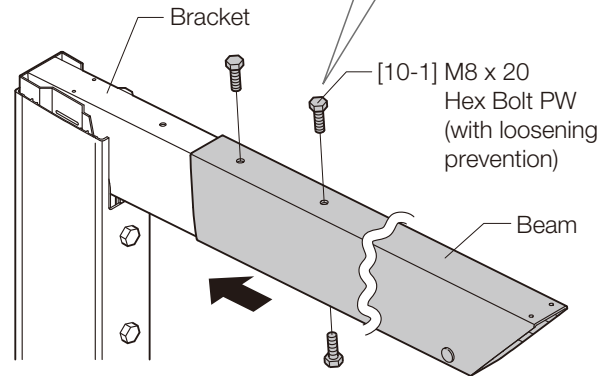
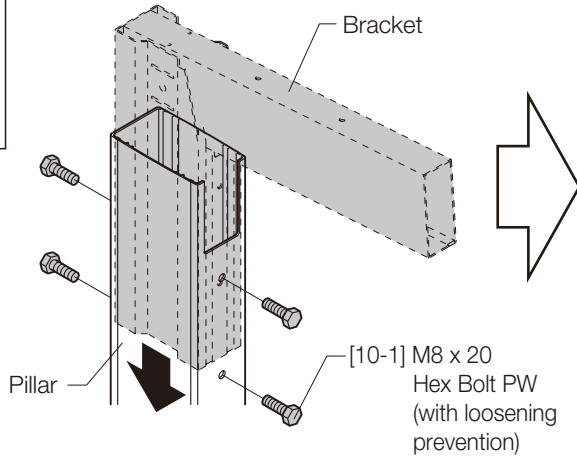


### 3 Constructing Pillars and Beams

#### 1 Mounting Brackets and Pillar-Beam Covers



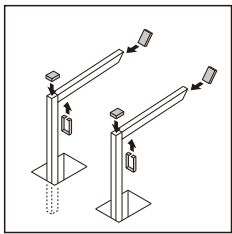
- (1) Insert a bracket to the pillar and mount it with [10-1].
- (2) Insert a beam to the bracket and mount it with [10-1].



#### Caution

Do not "loosen or tighten" bolts after the loosening prevention agent has cured. Bolts may become easy to loosen. (Cures in about 24 hours after tightening.)

#### 2 Mounting Beams and Caps

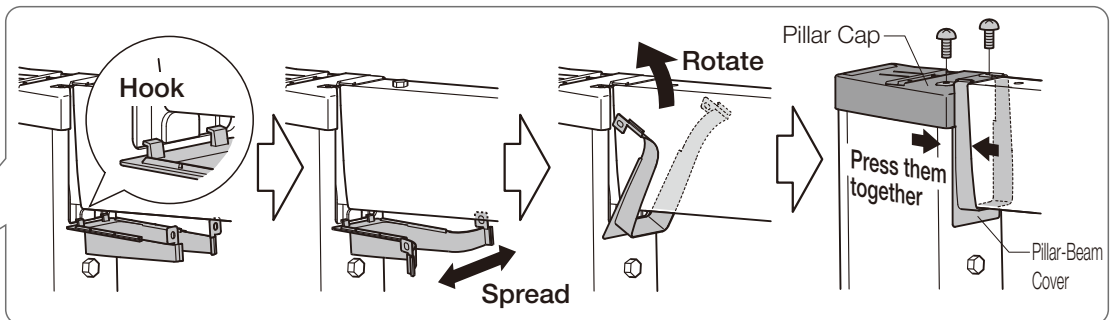
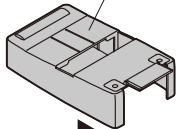


- (1) Put a pillar cap on the pillar.
- (2) Fit a pillar-beam cover into the notch on the pillar.
- (3) Mount the pillar-beam cover to the pillar cap with [10-3].
- (4) Seal the beam cap and then put it on the beam.

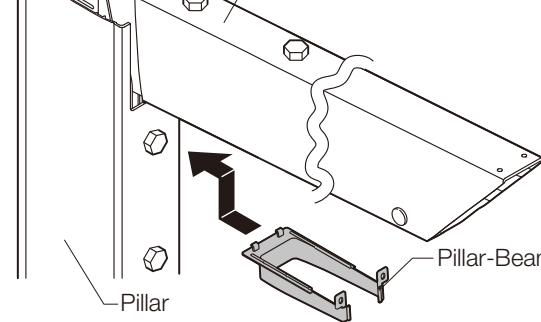


For [M-Connection], also refer to page 22 prior to work.

Pillar Cap



Beam



Pillar-Beam Cover

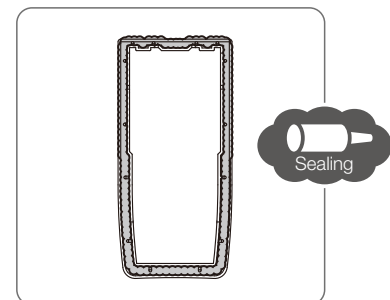
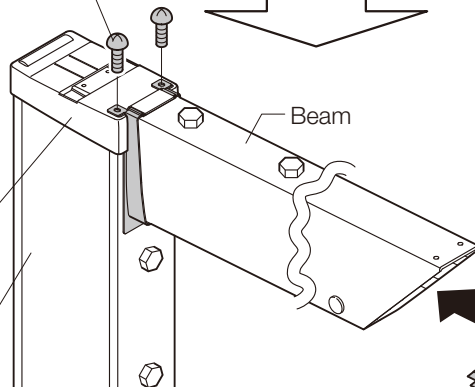
[10-3]  $\phi 5 \times 12$  Self-Tapping Truss Head Screw Class 3

#### Tip

During this step, pillar caps or pillar-beam covers are slightly unsteady.

Pillar Cap

Pillar

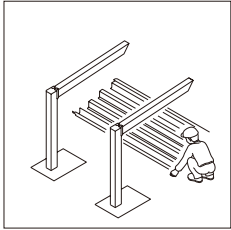


## 4 Processing Components

P.18

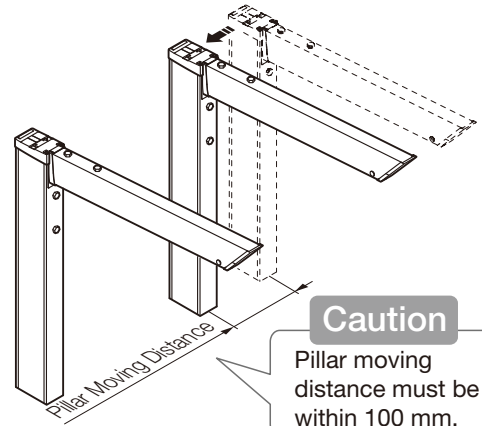
Refer to page 18 for processing J-connection components.

### For Pillar Moving (processing components to be mounted on moved pillars or beams)

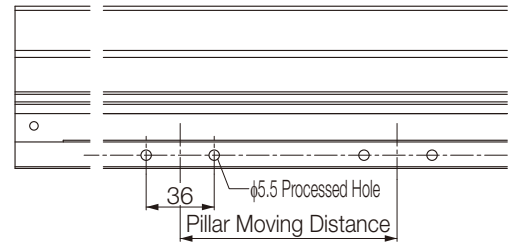
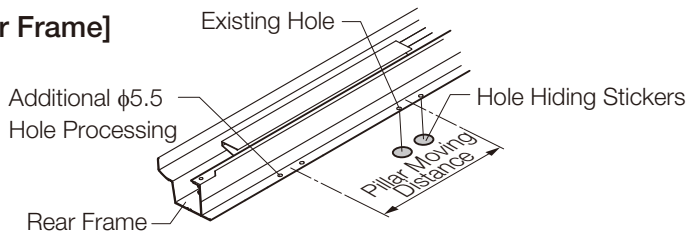


Work required for [Pillar Moving].

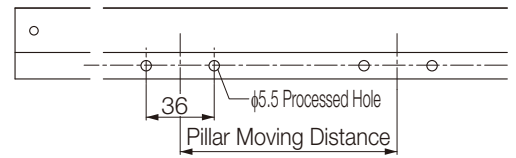
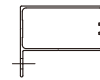
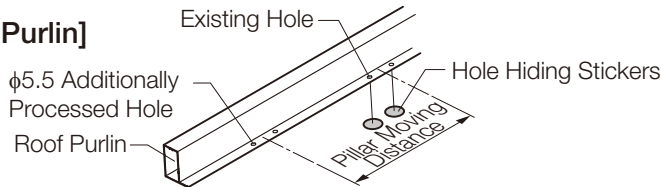
- (1) Process holes on the component.
- (2) Cover the existing holes with hole hiding stickers.



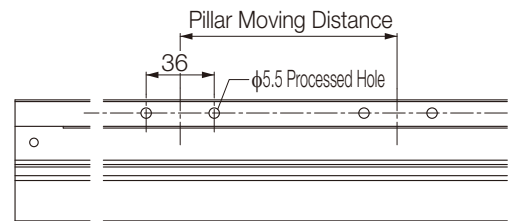
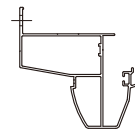
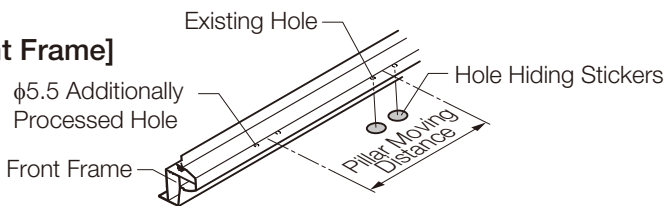
#### [Rear Frame]



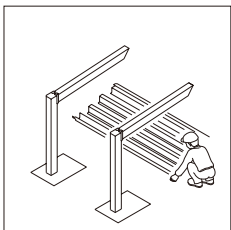
#### [Roof Purlin]



#### [Front Frame]

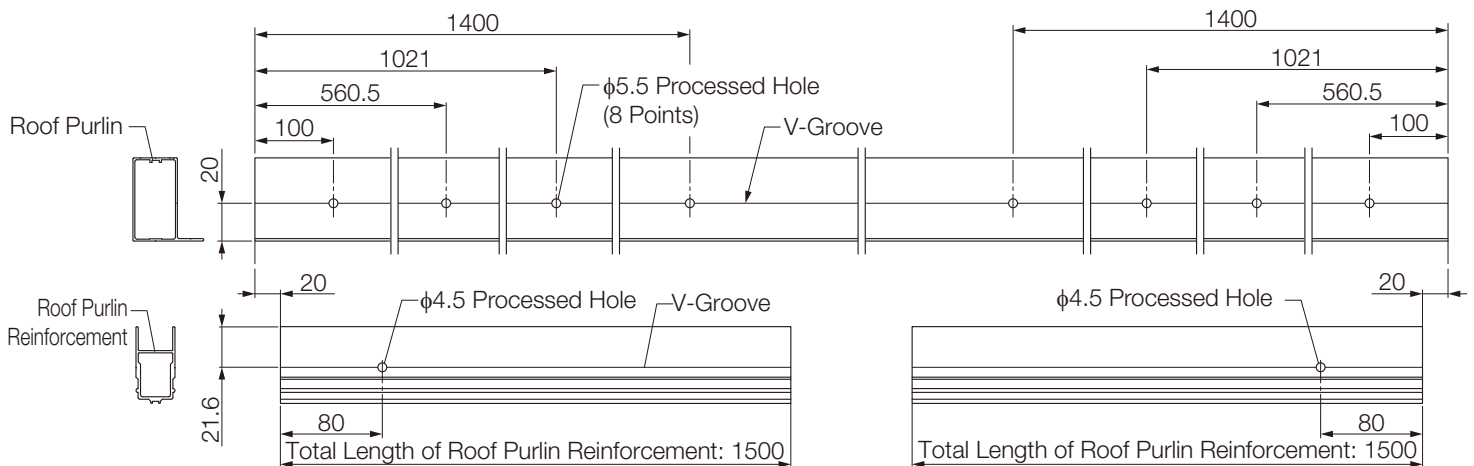
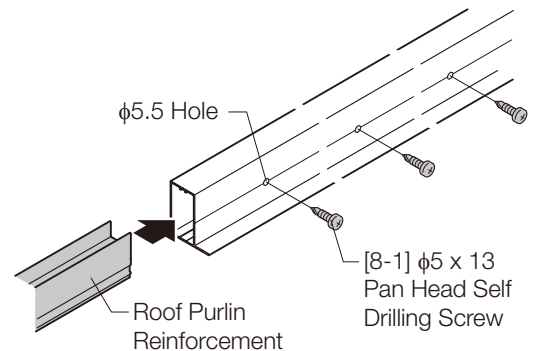


### For Mounting Roof Purlin Reinforcement <sup>OP</sup> Optional

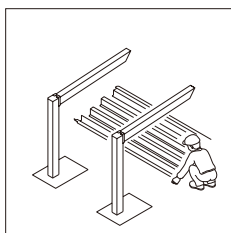


Work required for [Wind Resistance].

- (1) Process  $\phi 5.5$  holes on the side of the roof purlin. (8 points)
- (2) Process  $\phi 4.5$  additional holes on the side of the roof purlin reinforcement.
- (3) Insert the roof purlin reinforcement into the roof purlin and mount it with [8-1].



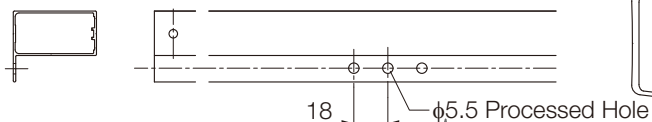
☐ For Wind Resistant Construction (processing holes for additional reinforcement screws)



Work required for [Wind Resistance].

(1) Process the component.

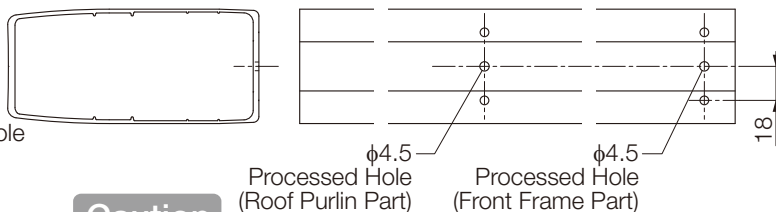
**[Roof Purlin]**



**Caution**

- Process holes in all roof purlins.
- **[For Moving Pillars Inside]**  
Process holes only on the moved side.

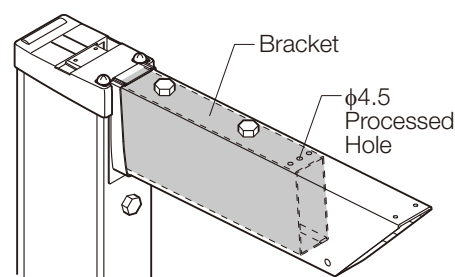
**[Beam]**



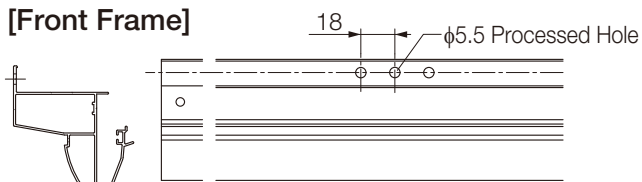
**Caution**

**[For W30]**

Process  $\phi 4.5$  pilot holes also in the bracket.

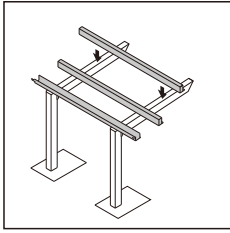


**[Front Frame]**



**MEMO**

## 5 Mounting Roof Purlins / Rear Frames

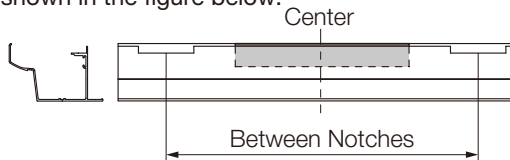


For [J-Connection], also refer to page 20 prior to work.

- (1) Mount a rear frame to the bracket with [10-3].
- (2) Affix a panel cushion to the roof purlin.
- (3) Mount the roof purlin to the beam with [10-3].

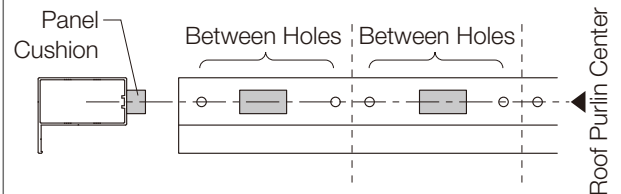
### Caution

Move the PC roof panel receiver to the position shown in the figure below.



### Caution

Affix the panel cushion to the position shown in the figure below.



[10-3]  $\phi 5 \times 12$   
Self-Tapping Truss Head Screw Class 3

PC Roof Panel Receiver

Rear Frame

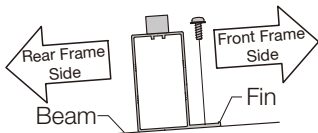
Panel Cushion

Roof Purlin

[10-3]  $\phi 5 \times 12$   
Self-Tapping Truss Head Screw Class 3

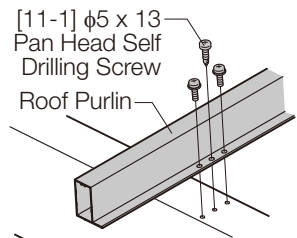
### Caution

Direct the fin on the roof purlin to the front frame side.

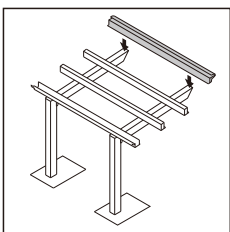


Work required for  
[Wind Resistance].

Additionally fix to the roof purlin and beam with [11-1].



## 6 Mounting Front Frames



For [J-Connection], also refer to page 20 prior to work.

- (1) Mount the front frame to the beam with [10-3].

[10-3]  $\phi 5 \times 12$   
Self-Tapping  
Truss Head Screw Class 3

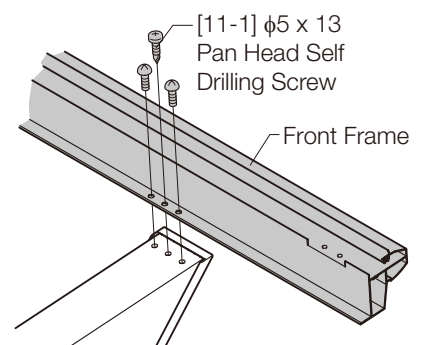
Front Frame

Beam



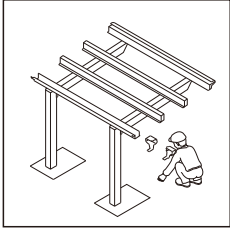
Work required for  
[Wind Resistance].

Additionally fix to the roof purlin and beam with [11-1].



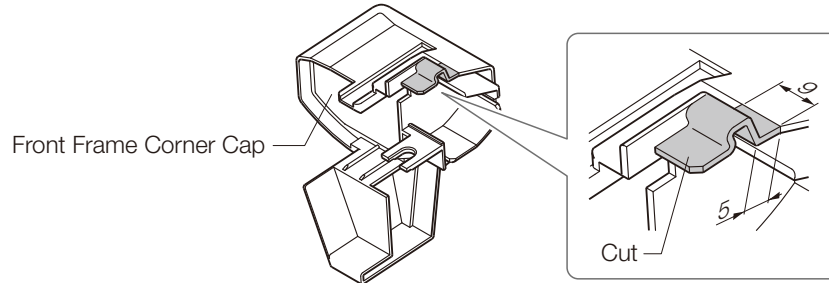
## 7 Mounting Side Frames

### 1 Processing Caps

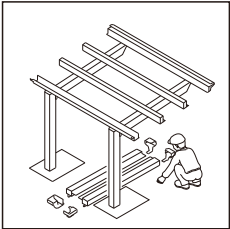


Work required for [M-Connection].

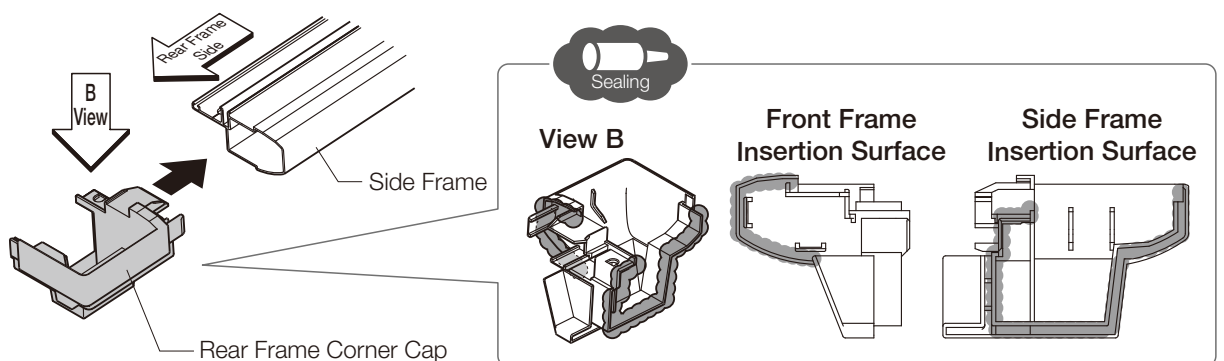
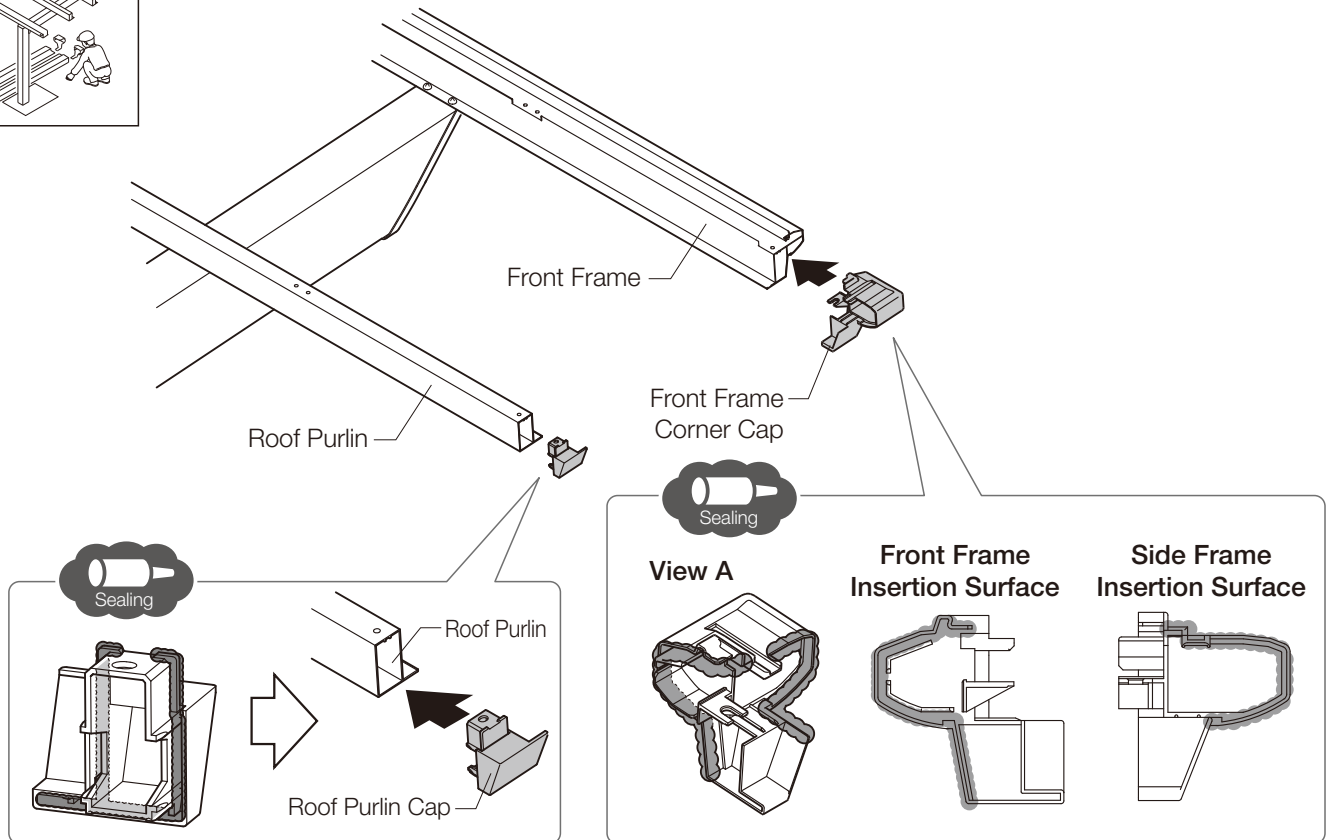
(1) Process corner caps.



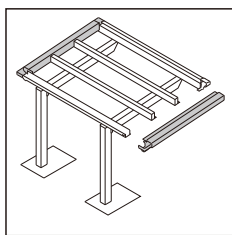
### 2 Mounting Caps



- (1) Seal a front frame corner cap and rear frame corner cap.
- (2) Put the front frame corner cap on the front frame.
- (3) Put the rear frame corner cap on the side frame.

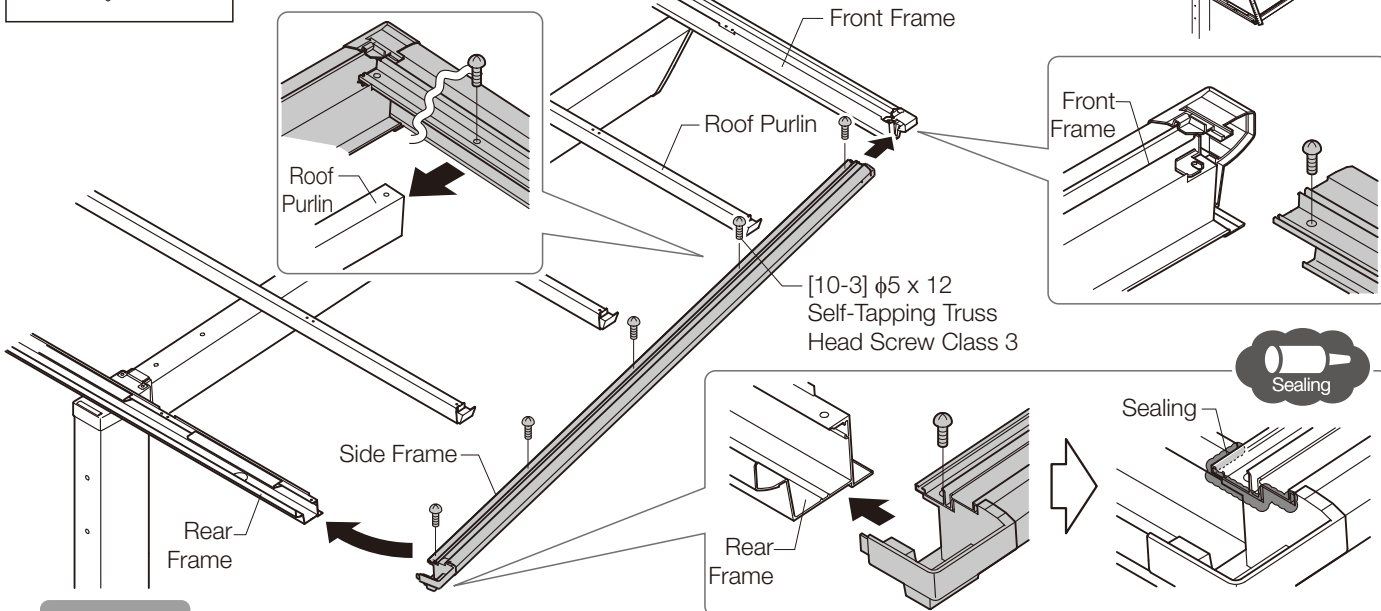
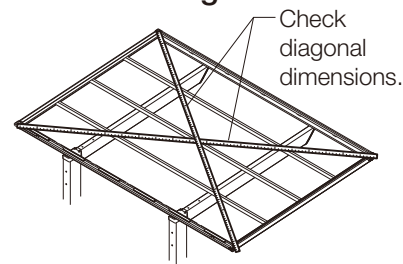


### 3 Mounting Side Frames



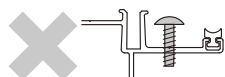
- (1) Temporarily fix a side frame to the front frame corner cap with [10-3].
- (2) Insert the side frame to the rear frame and mount it with [10-3].
- (3) Mount the side frame to the roof purlin and rear frame with [10-3].
- (4) Seal the joint of the notch on the rear frame edge and the side frame.
- (5) Even out the diagonal dimensions around the roof frames.

### [After Mounting Side Frames]

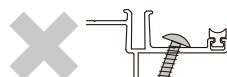


#### Caution

Mount components so that screws do not float or tilt.



Screw Float

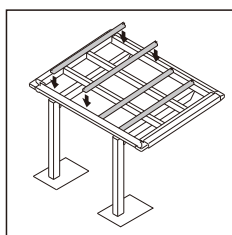


Screw Tilt

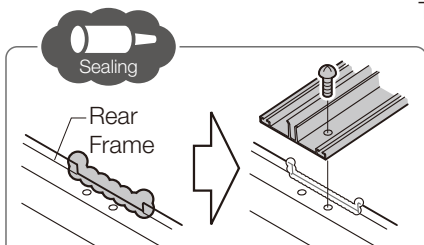


No Screw Float / Tilt

### 8 Mounting Roof Rafters

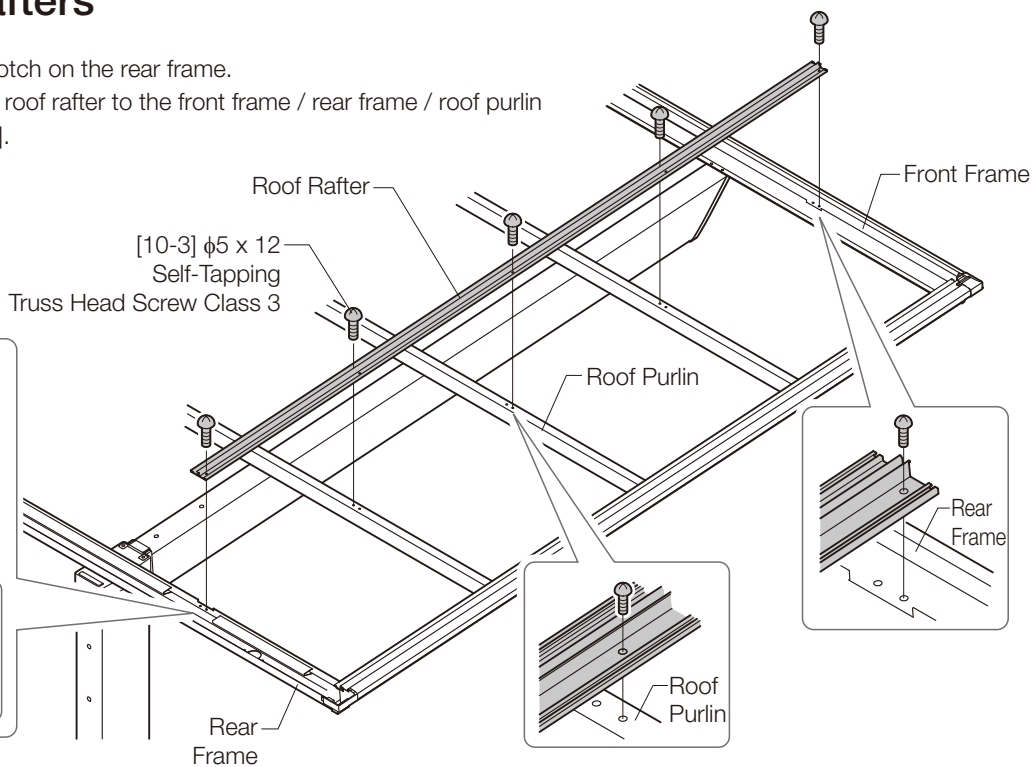


- (1) Seal the notch on the rear frame.
- (2) Mount the roof rafter to the front frame / rear frame / roof purlin with [10-3].



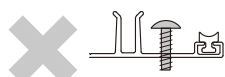
#### Caution

If the sealant on the rear frame notch has spilled onto the inner side of the roof, wipe it up.



#### Caution

Mount components so that screws do not float or tilt.



Screw Float



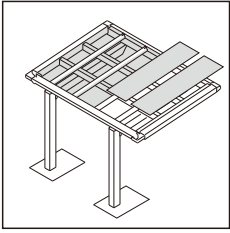
Screw Tilt



No Screw Float / Tilt



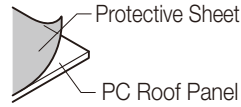
## 9 Mounting PC Roof Panels



(1) Insert PC roof panels into the front frame cover and PC roof panel receiver into the rear frame.

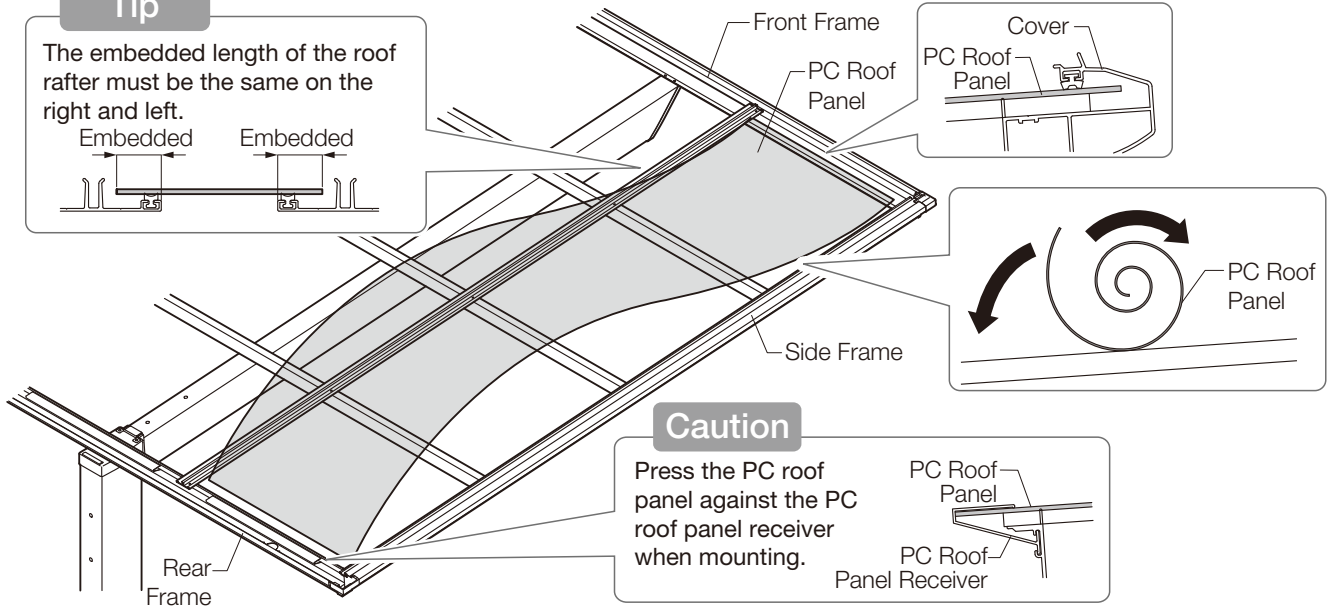
### Caution

Be sure to check the front and back of the PC roof panels and detach their protective sheets before mounting them.



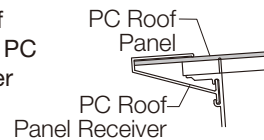
### Tip

The embedded length of the roof rafter must be the same on the right and left.

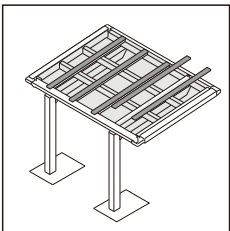


### Caution

Press the PC roof panel against the PC roof panel receiver when mounting.



## 10 Mounting Side Frame Covers / Roof Rafter Covers



- (1) Mount the roof rafter / side frame cover to the roof rafter and side frame with [10-3].
- (2) Seal the roof rafter cover / side frame cover.



For Mounting PC Roof Panel Holders  
Also refer to "PC Roof Panel Holder  
Mounting Manual <D614>".

### Caution

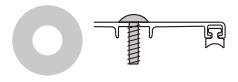
Mount components so that screws do not float or tilt.



Screw Float



Screw Tilt



No Screw  
Float / Tilt

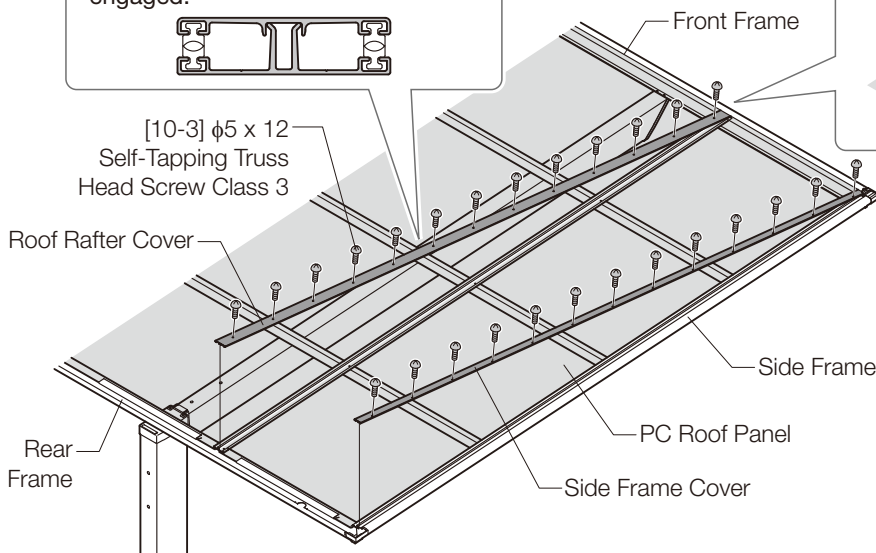
### Caution

#### [After Mounting]

Check that the roof rafter and the roof rafter cover are properly engaged.



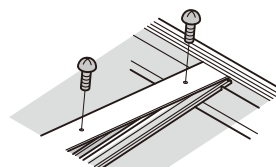
[10-3]  $\phi 5 \times 12$   
Self-Tapping Truss  
Head Screw Class 3



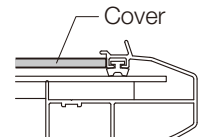
### Caution

#### [When Mounting]

- Mount from the front frame side.



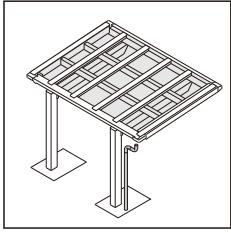
- Mount while pressing against the front frame.



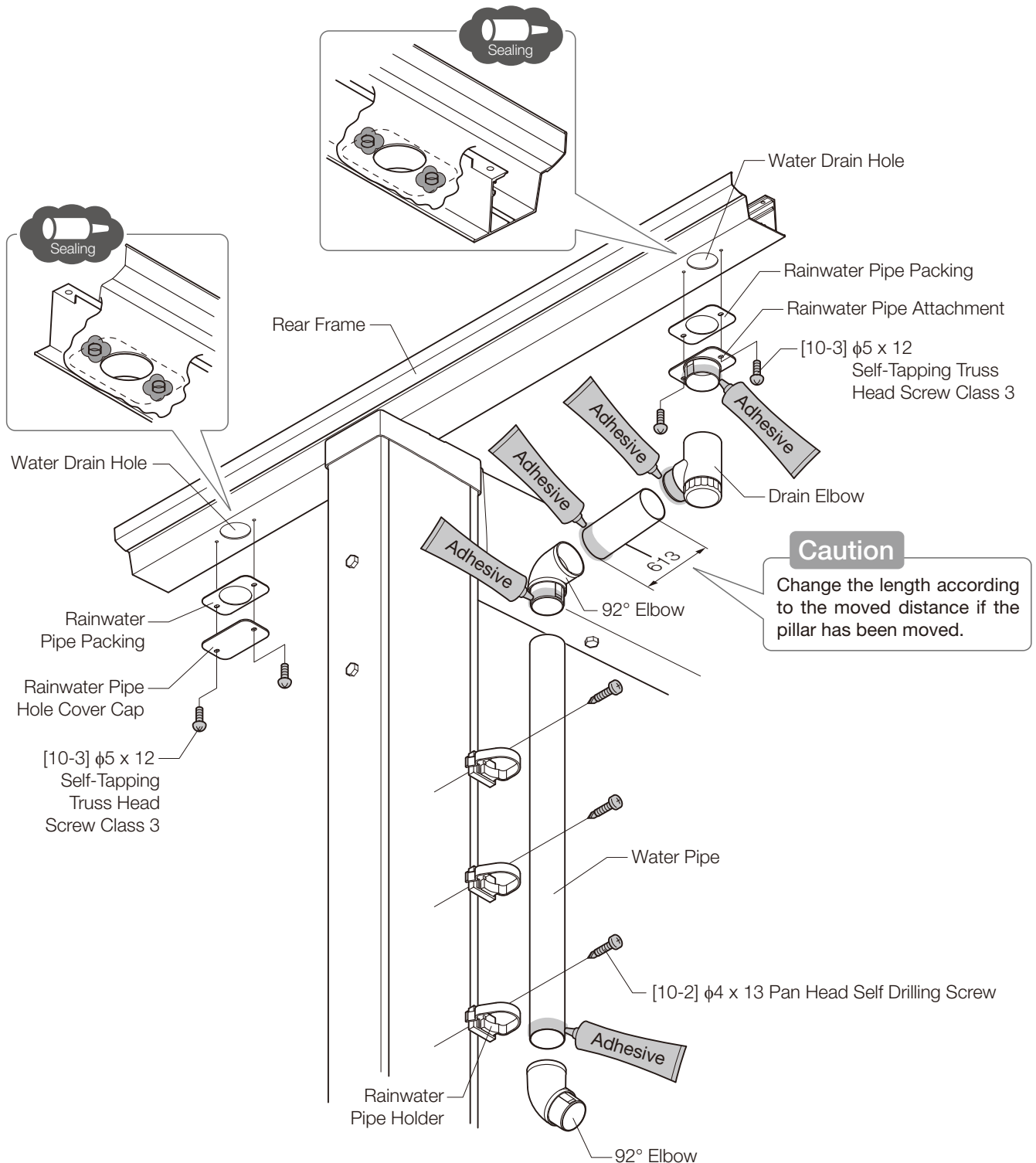
Sealing



## 11 Mounting Water Pipes



- (1) Cut the water pipe.
- (2) Mount "Rainwater Pipe Packing" and "Rainwater Pipe Attachment" to the water drain hole on one side of the rear frame with [10-3].
- (3) Mount "Rainwater Pipe Holder" to the pillar with [10-2].
- (4) Mount a "Drain Elbow", "Water Pipe" and "92° Elbow" with adhesive.
- (5) Mount "Rainwater Pipe Packing" and "Rainwater Pipe Hole Cover Cap" to the water drain hole on the other side of the rear frame with [10-3].
- (6) Seal the screws inside the rear frame.



## Items to Check

## Drawing

### Warning

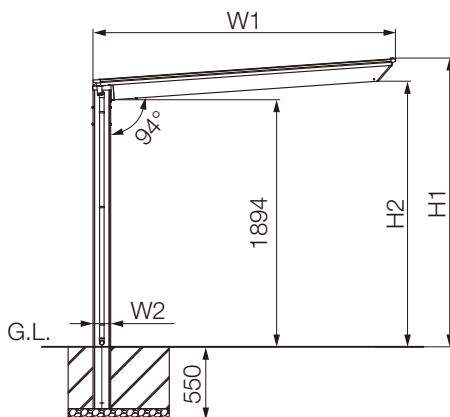


For [Pillar Moving],  
move the pillar within  $\pm 100$  mm of the pillar  
core-to-core distance dimensions.

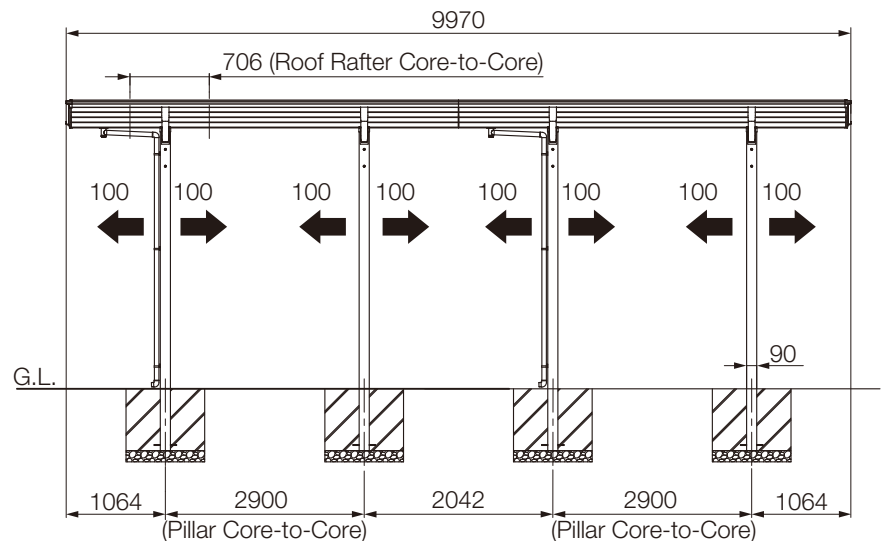
### Tip



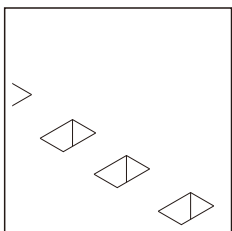
<p>■ This symbol indicates the [Pillar Moving] range.</p>	<p><b>[For Long Pillars]</b> Add 300 to the height dimension.</p>
---	---



Width	W1	W2	H1	H2
W24	2393	158	2249	2043
W27	2692	158	2270	2064
W30	2992	158	2291	2085



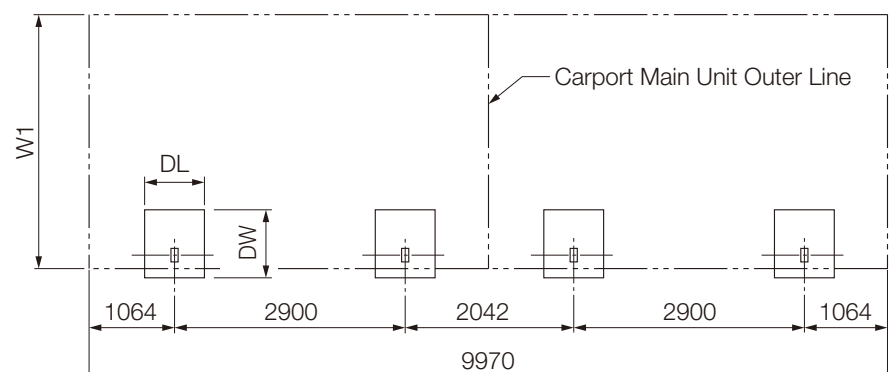
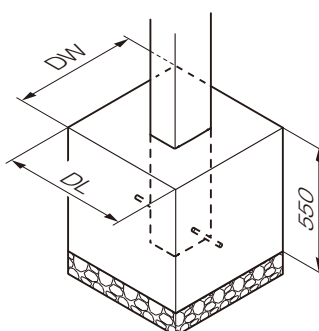
## ☐ Marking Foundations



(1) Determine the embedding position for pillars and then dig foundation holes.

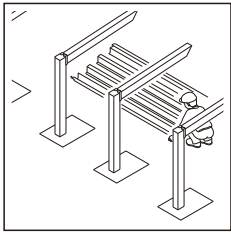


[About Foundation Dimensions]  
Refer to page 8 for foundation dimensions "DW" and "DL".



# 1 Processing Components

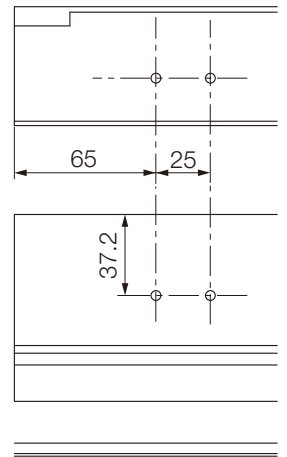
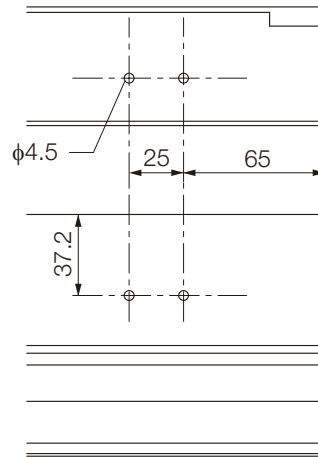
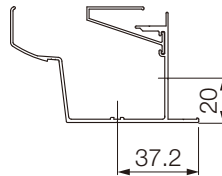
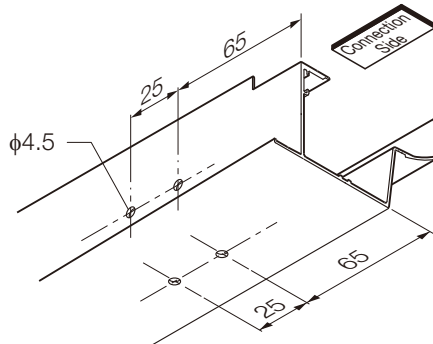
## □ Connection Part (Processing Holes for Mounting Connecting Sleeves)



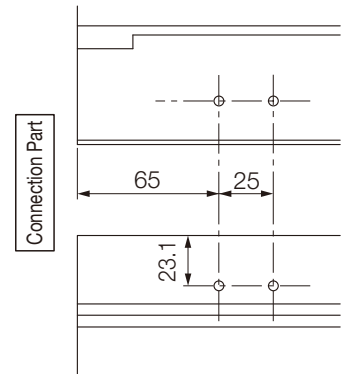
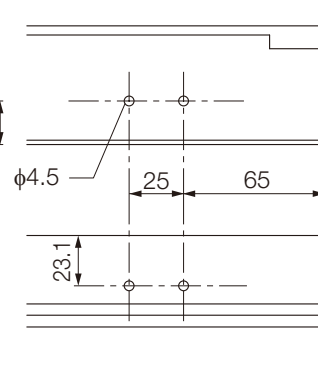
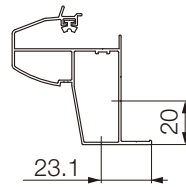
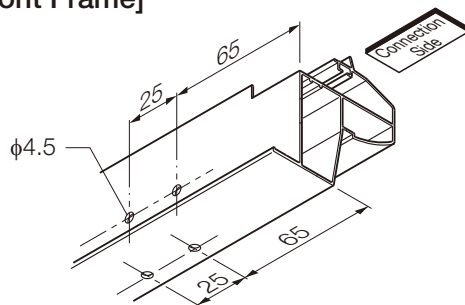
P.19  
If mounting roof purlin reinforcement, also refer to page 19 and process the roof purlin.

(1) Process holes on the connection side of the rear frame / front frame / roof purlin.

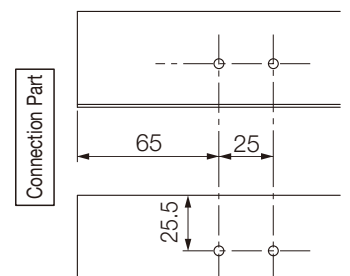
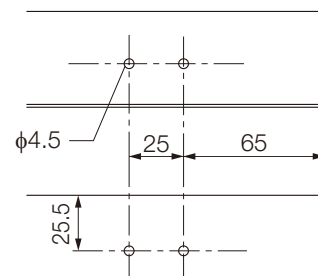
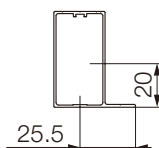
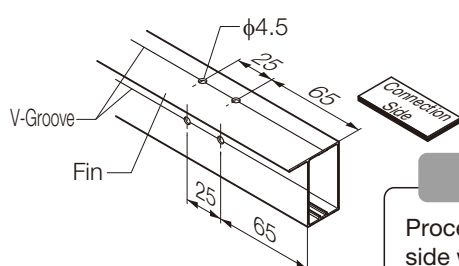
### [Rear Frame]



### [Front Frame]



### [Roof Purlin]

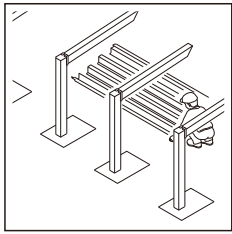


#### Tip

Process holes on the side with fin.

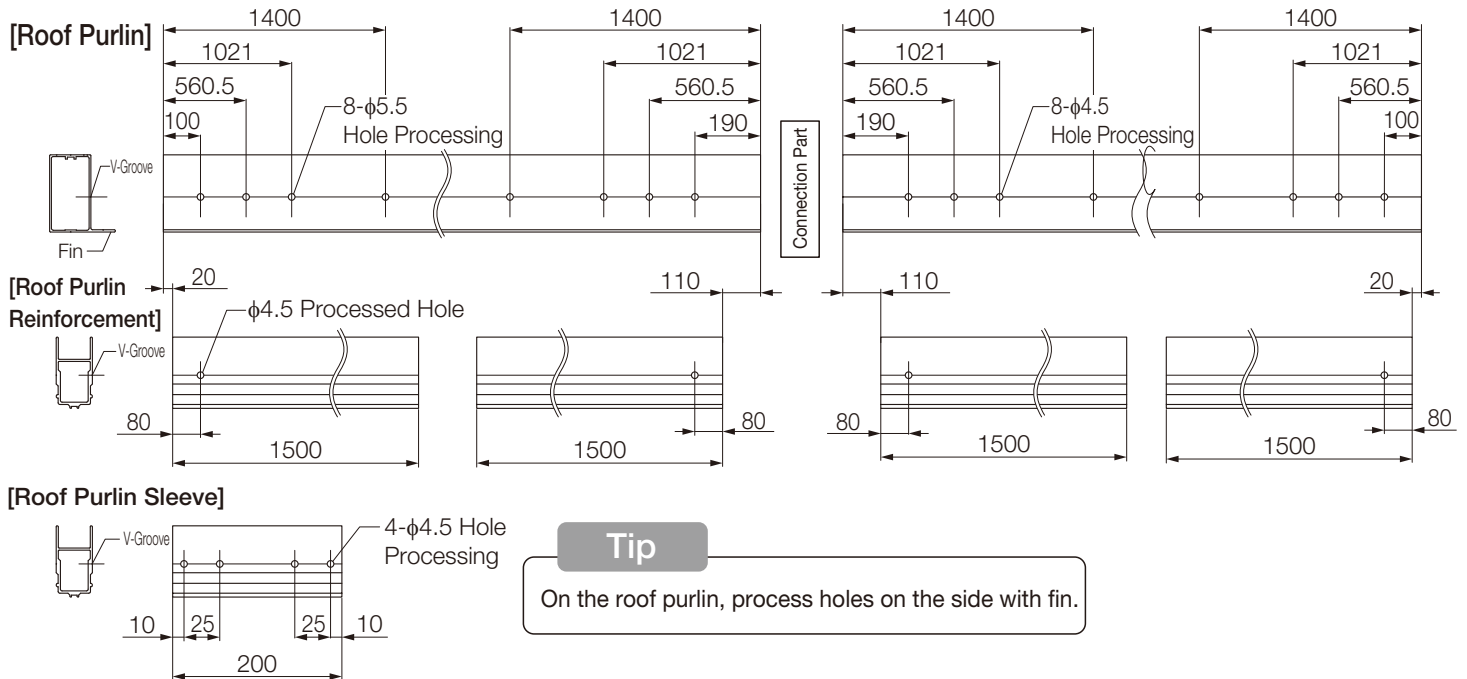
## □ For Mounting Roof Purlin Reinforcement

OP  
Optional



Work required for [Wind Resistance].

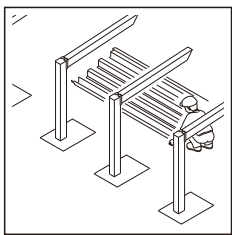
(1) Process the roof purlin, roof purlin reinforcement and roof purlin sleeves.



## 2 Mounting Components

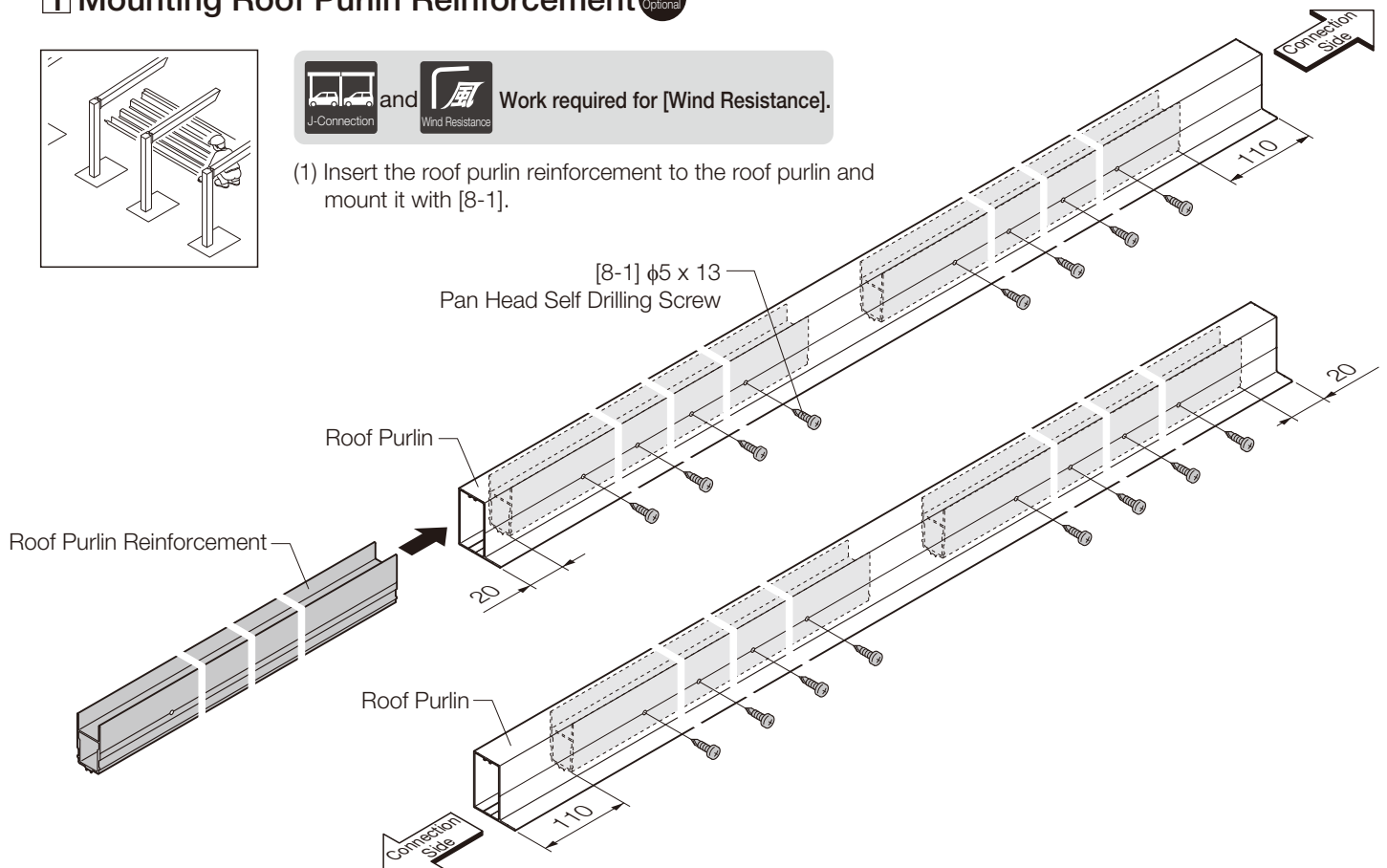
### 1 Mounting Roof Purlin Reinforcement

OP  
Optional

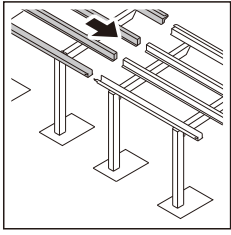


Work required for [Wind Resistance].

(1) Insert the roof purlin reinforcement to the roof purlin and mount it with [8-1].



## 2 Mounting on Connection Part

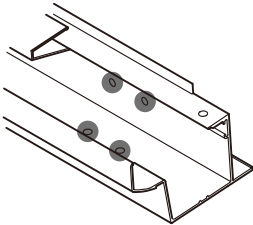


- (1) Insert sleeves into one side of the front frame / roof purlin / rear frame and mount them with [6-1].
- (2) Seal the connection part.
- (3) Insert sleeves into the other side of the front frame / roof purlin / rear frame and mount them with [6-1].
- (4) Clear up the spilled sealant.

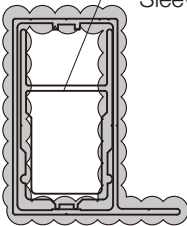


### [When Connecting Rear Frame]

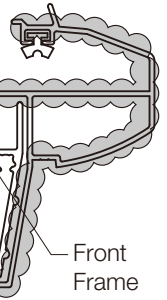
Fix with screws after filling the processed holes on the rear frame with sealant.



Roof Purlin Sleeve

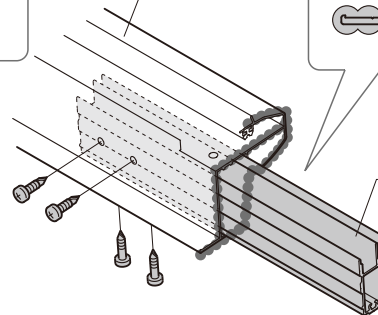


Sealing



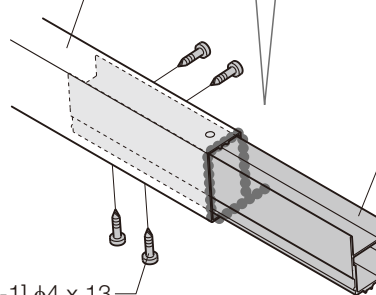
Front Frame

Front Frame Sleeve



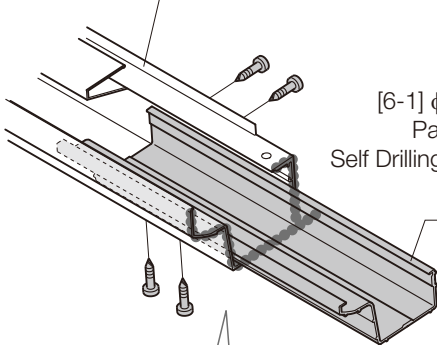
Front Frame Sleeve

Roof Purlin



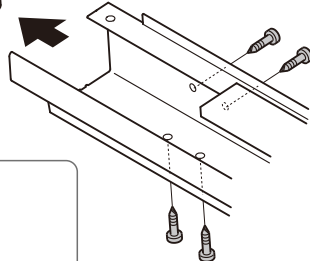
Roof Purlin Sleeve

Rear Frame

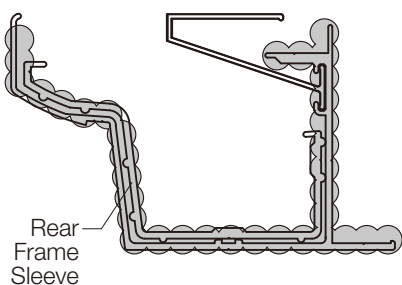


[6-1]  $\phi 4 \times 13$   
Pan Head Self Drilling Screw

Rear Frame Sleeve



[6-1]  $\phi 4 \times 13$   
Pan Head Self Drilling Screw



Rear Frame Sleeve

# Construction of M-Connection Type



Work required for [M-Connection].

## Drawing

### Warning



For [Pillar Moving], move the pillar within  $\pm 100$  mm of the pillar core-to-core distance dimensions.

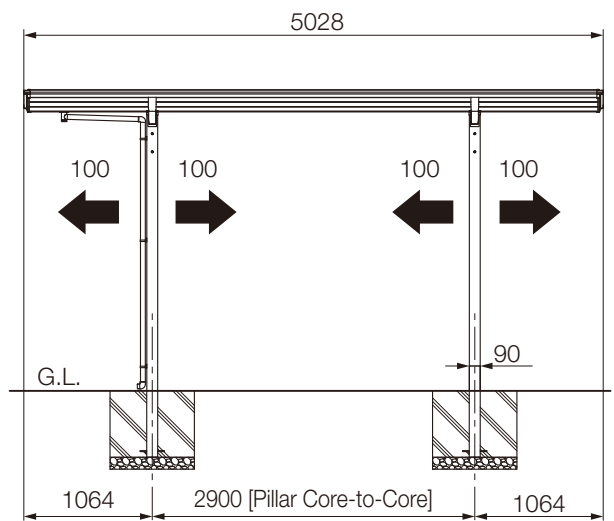
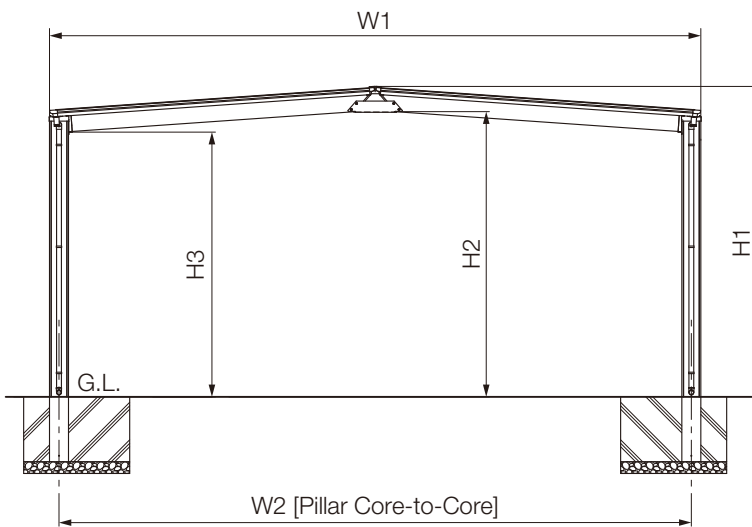
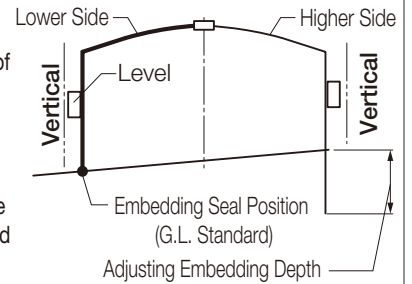
### Tip



This symbol indicates the [Pillar Moving] range. **[For Long Pillars]** Add 300 to the height dimension.

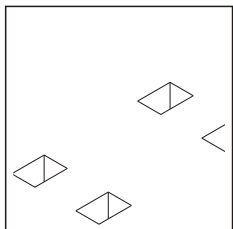
### Caution

When constructing on a slope, construct the product by adjusting the embedding depth of the main unit on the higher side according to the height of the main unit on the lower side so that the pillars are vertical. Otherwise, water leakage may be caused by the water accumulated on the connected ridgepole.

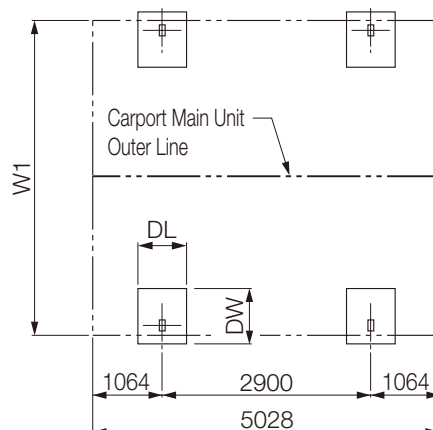
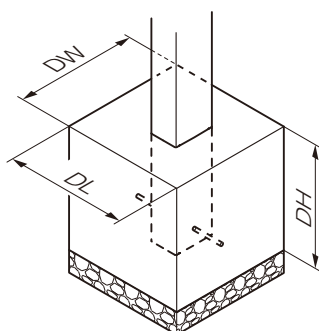


Width	W1	W2	H1	H2	H3
W24-24	4801	4643	2252	2043	1894
W24-27	5100	4942	2252	2043	1894
W27-27	5399	5241	2273	2064	1894
W27-30	5699	5541	2273	2064	1894
W30-30	5999	5839	2294	2085	1894

## Marking Foundation Position



(1) Determine the embedding position for pillars and then dig foundation holes.



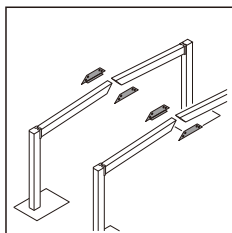
[About Foundation Dimensions]  
Refer to page 8 for foundation dimensions "DW" and "DL".

### Caution

For different sizes (widths), the foundation depth (DH) is as shown in the table below.

Width	W24 Side	W27 Side	W30 Side
W24-27	550	571	-
W27-30	-	550	571

# 1 Constructing M-Connection Beam Connecting Fittings



- (1) Remove the push buttons on the beam.
- (2) Press the M-connection beam connecting fitting against the beam, mark the hole positions and then drill  $\phi 9$  through holes.
- (3) Mount the M-connection beam connecting fitting, M-connection metal fitting spacer, and beam spacer to the beam with [14-1], [14-2] and [14-3].

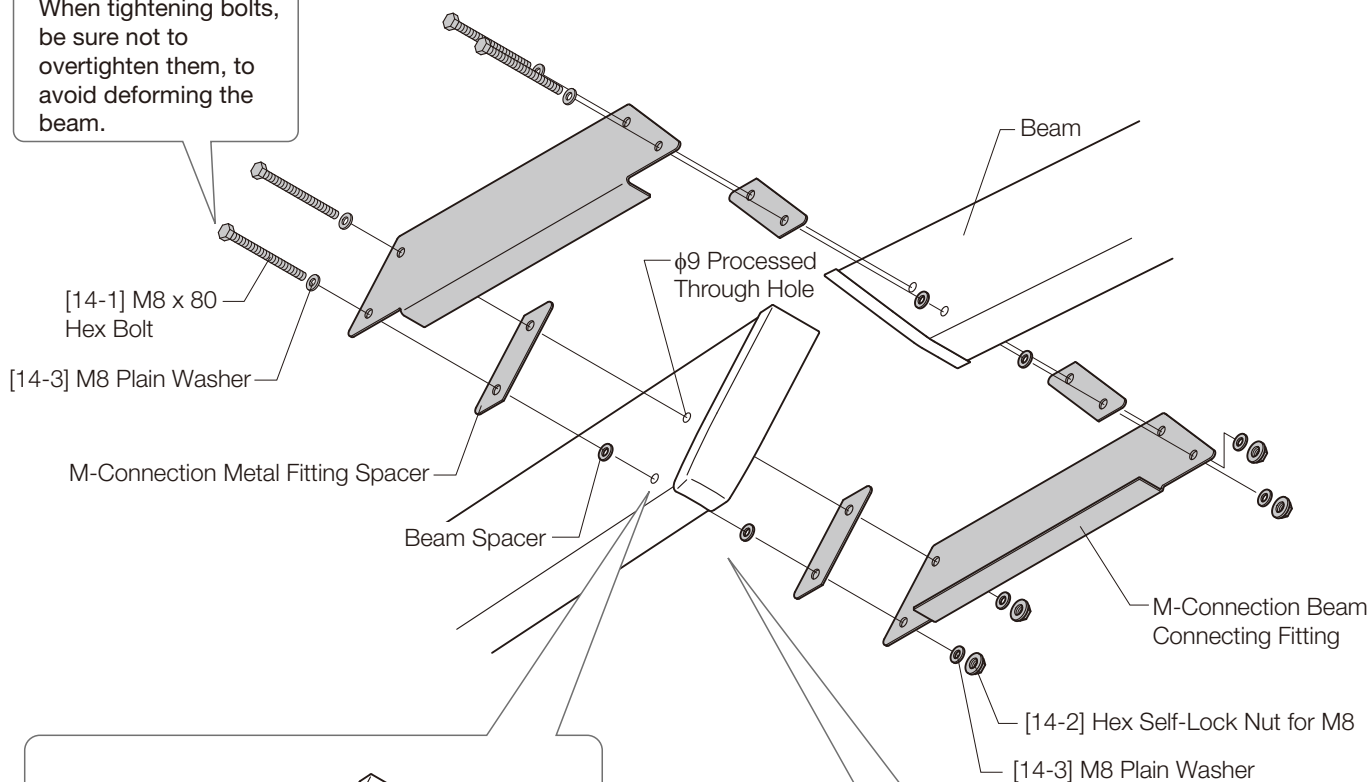
## Tip

[Mounting for Other than Connection Part]

Refer to "■ Construction Method for Basic Type".

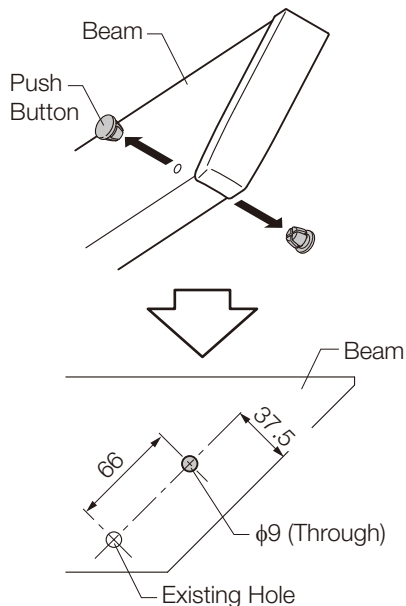
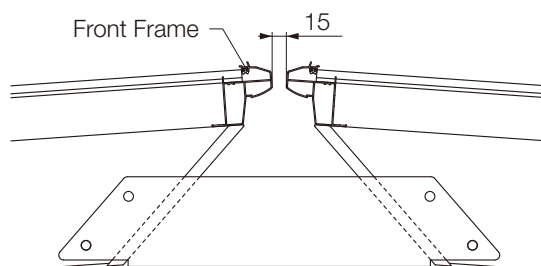
## Caution

When tightening bolts, be sure not to overtighten them, to avoid deforming the beam.



## Caution

Check that the distance between front frames is 15 mm.





## 2 Mounting Connection Ridgepoles

### ☐ For Independent Construction

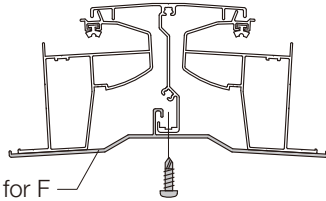
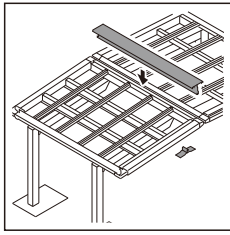


Be sure to complete "Construction Method for Basic Type 7 Mounting Side Frames" and "Processing Caps (page 13)".

#### Tip

Be sure to complete "Construction Method for Basic Type 8. Mounting Roof Rafters" before this process.

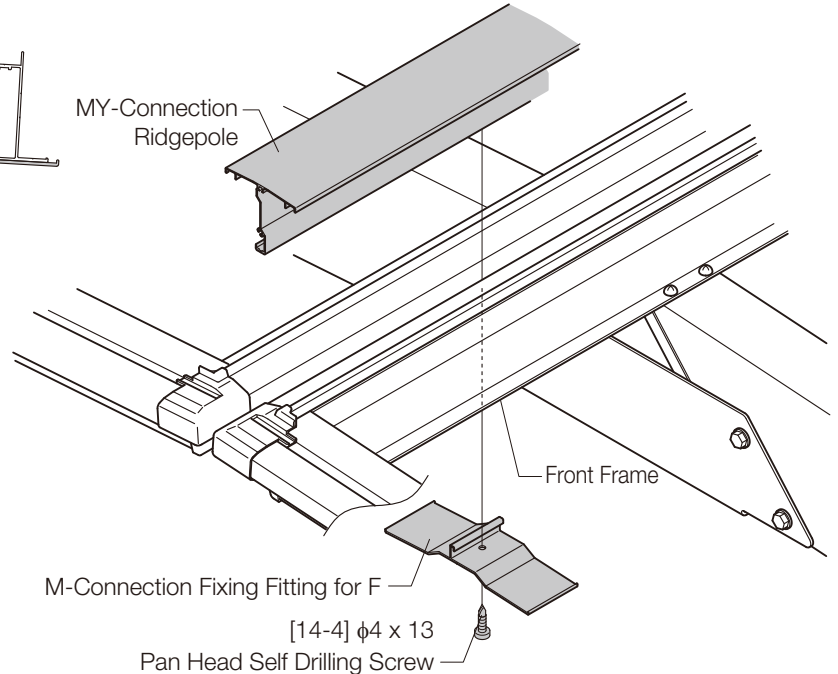
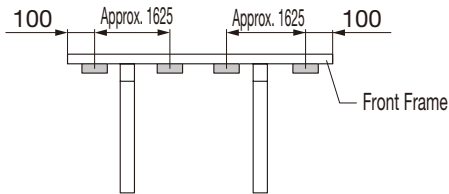
- (1) Place the MY-connection ridgepole between front frames, and then fix it with an M-connection fixing fitting for F and [14-4].



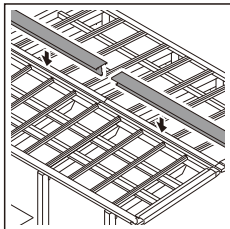
M-Connection Fixing Fitting for F

#### Caution

Mount the M-connection fixing fitting for F to the position shown in the figure below. If a beam is at the fixing fitting mounting position, shift it before mounting.



### ☐ For Connecting Construction

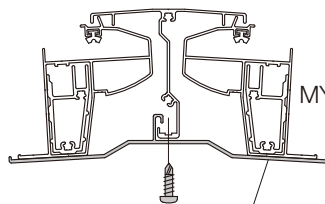


Work required for [J-Connection].



Also refer to page 20.

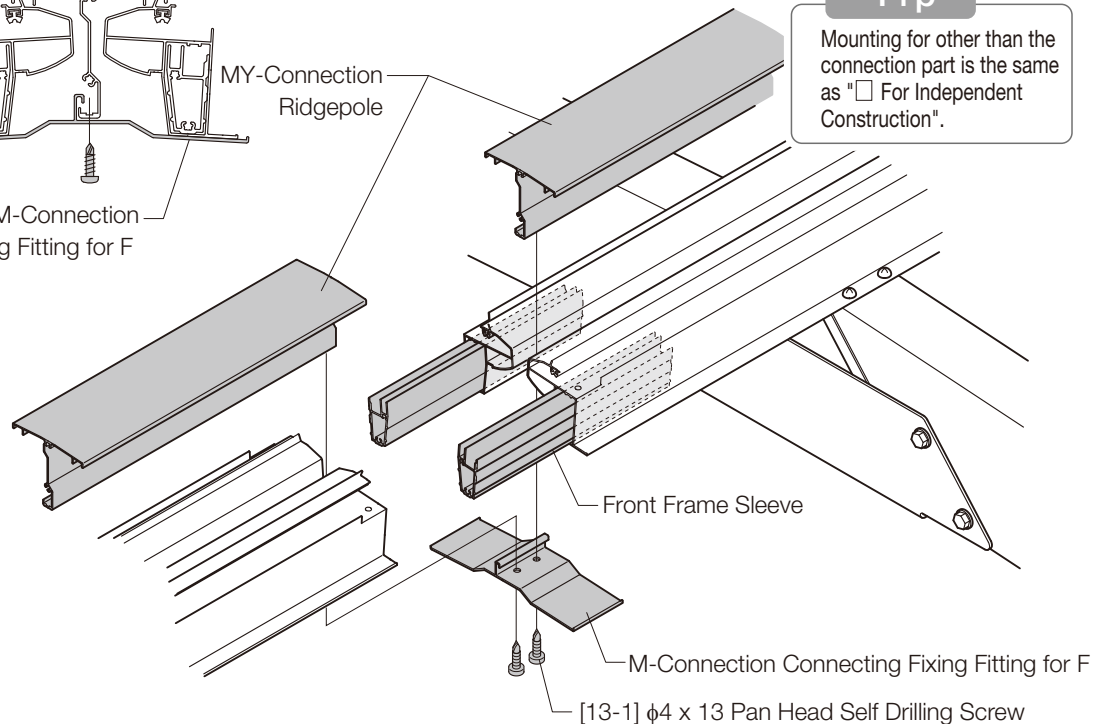
- (1) Connect the front frames with front frame sleeves.
- (2) Place the MY-connection ridgepole between front frames, and then fix it with an M-connection fixing fitting for F and [13-1].



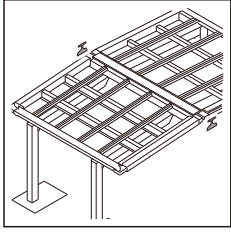
For M-Connection Fixing Fitting for F

#### Tip

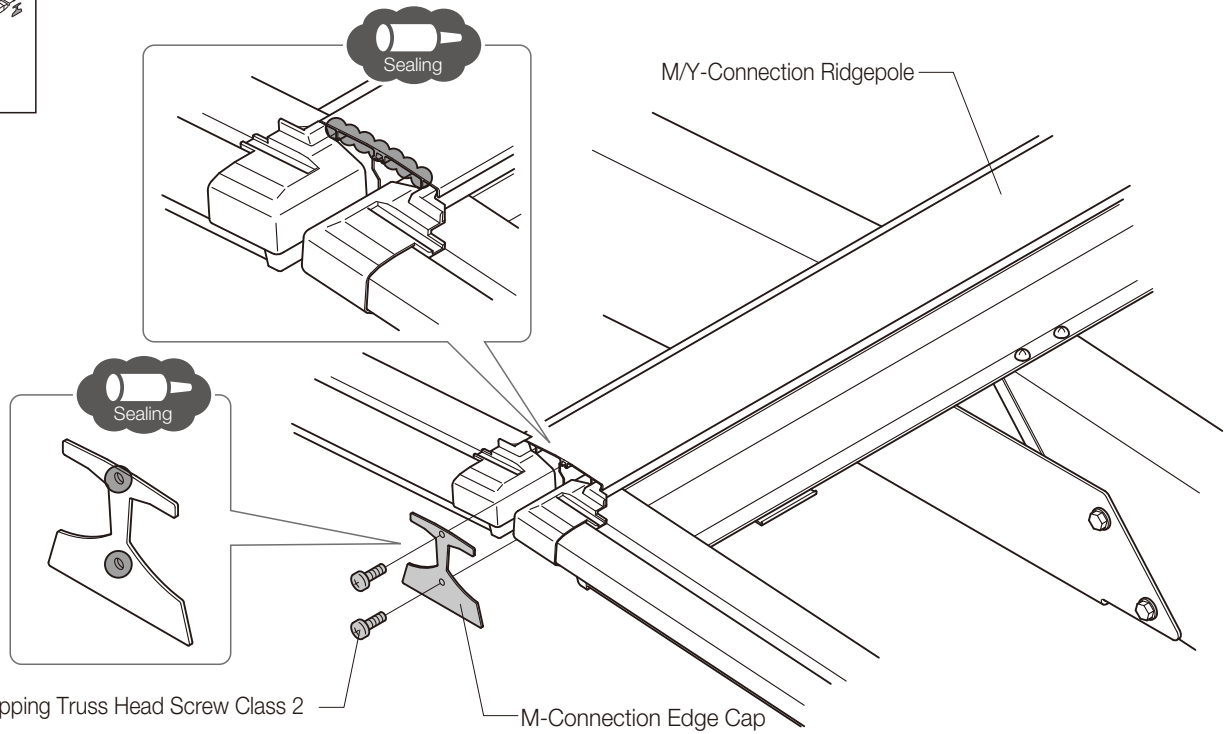
Mounting for other than the connection part is the same as "For Independent Construction".



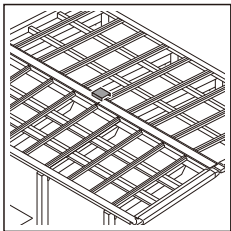
### 3 Mounting M-Connection Edge Caps



- (1) Seal the M-connection edge cap and MY-connection ridgepole.
- (2) Mount the M-connection edge cap to the MY-connection ridgepole with [14-5].

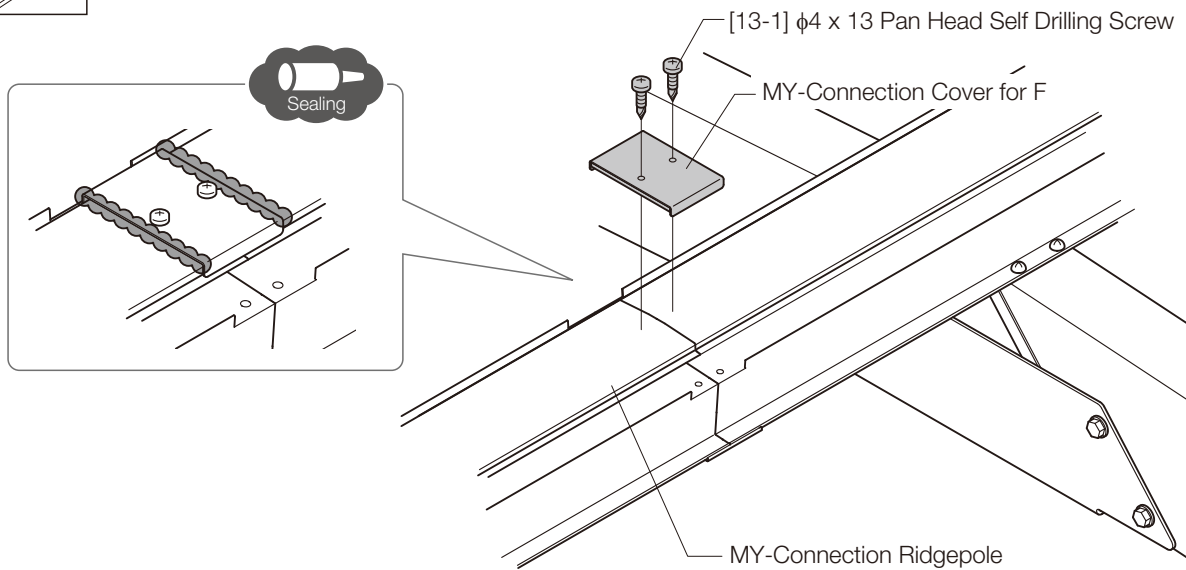


### 4 Mounting MY-Connection Covers



Work required for [J-Connection].

- (1) Mount the MY-connection cover for F to the MY-connection ridgepole with [13-1].
- (2) Seal the MY-connection cover.



Manual No.

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