

Single carport installation instructions



Contents

1. Introduction		
1.1 Brief Description		
1.2 About the Guide		
2. Technical Description		
_____	1	
2.1 Components List		
_____	1-2	
2.2 Technical data		
3. Important assembly instructions		
3.1 Preparation ahead of assembly		
3.2 Aids and required tools		
3.3 Assembly descriptions		
4. Installation Steps		
4.1 Preparation		
_____	3	
4.2 Installation of Feet		
4.2.1 Feet Placement Planning		
_____	4	
4.2.2 Fix the Feet		
_____	5	
4.3 Installation of Supports		
_____	5	
4.4 Installation of Main Beams		
_____	6	
4.5 Installation of Secondary Beams		
_____		7-8
4.6 Installation of Solar Panels		
_____		8-9
4.6.1 Installation of Vertical Gutter		
_____		9-11
4.6.2 Installation of Horizontal Gutter and Solar Panel		
4.7 Installation of Drainage System		
_____		12-14
4.7.1 Installation of Rain Gutter		
_____		15-17
4.7.2 Installation of Downpipe		
_____		18-19
4.8 Installation of Bolt Cap		
5 Video of Installation Steps		
_____		20

1. Introduction

1.1 Description

The Modular Home Solar Carport offers a double parking space and can be fitted with up to 15 solar modules. The delivery includes the carport with drainage system.

1.2 About the Guide

Instructions

The instruction provides details on installing the Modular Home Solar Carport and securing PV panels on the carport roof. It also includes a component installation list.

Please read both this installation manual and the above mentioned documents carefully prior to any installation work. You will be provided with all information and complete installation. However, if you have any questions after having read these documents, please contact Laniakea Energy Co., Ltd.

2. Technical description

2.1 Components List

Check the delivery for completeness

1



Foot

- 4x Foot

2



Foot Cover

- 4x Foot Cover

3/4



Rear Support/Front Support

- 2x Rear Support 140*120*2548mm
- 2x Front Support 140*120*2170mm

5



Main Beam

- 2x Main Beam 140*120*5220mm

6



Secondary Beam

- 5x Secondary Beam 88*150*3540mm

7



Support Connector

- 4x Support Connector
- 16x M10*30mm Hex Bolt Kit

8



Vertical Gutter

- 4x Vertical Gutter 91*29*5170mm

9



Horizontal Gutter

- 6x Horizontal Gutter 80*34*1090mm

10



Main Beam Clamp Kit

- 18x Main Beam Clamp
- 36x M10*30mm Hex Bolt Kit

11



Secondary Beam Clamp Kit

- 40x Main Beam Clamp
- 40x M8*25mm Allen Bolt Kit
- 40x T-Slot Nut

12



30mm Middle Clamp Kit

- 12x 30mm Middle Clamp Kit

13



30mm End Clamp

- 12x 30mm End Clamp Kit

14



Rain Gutter

- 1x Rain Gutter 160*210*3540mm

15



Gutter End Cap

- 2x Gutter End Cap
- 12x M4.8*13mm Phillips Truss Head Self Tapping Screw

16



Gutter Flashing

- 1x Gutter Flashing 97*70*3540mm

17



Downpipe

- 1x Downpipe

18



Gutter Outlet

- 1x Gutter Outlet

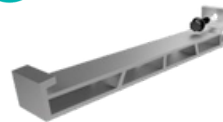
19



45° Downpipe Bend

- 2x 45° Downpipe Bend
- 8x M5.5*16mm Hex Head Self Tapping Screw

20



Rain Gutter Hanger

- 4x Rain Gutter Hanger
- 4x M5.5*16mm Hex Head Self Tapping Screw

21



Downpipe Clamp

- 3x Downpipe Clamp Set
- 6x M5*14mm Machine Screw&M5 Nut
- 3x M5.5*16mm Hex Head Self Tapping Screw

22



Gutter Spacer

- 2x Gutter Spacer Set

23



Main Beam Clamp Kit

- 2x Main Beam Clamp
- 4x M10*25mm Hex Bolt Kit

24



M4.2*13mm Phillips Pan Head Self Tapping Screw

- 6x M4.2*13mm Phillips Pan Head Self Tapping Screw

25



M12*150mm Expansion Anchor Bolt

- 16x M12*150mm Expansion Anchor Bolt

26



M10*140mm Hex Bolt

- 32x M10*140mm Hex Bolt Kit

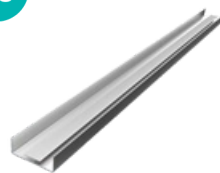
27



M10 Bolt Cap

- 32x M10 Bolt Cap

28



Positioning Tool

- 2x Positioning Tool

29



Extended Hex Bit Socket

- 1x M8*150mm Extended Hex Bit Socket

2.2 Technical Data

Number of parking spaces	1
Application	Open Terrain
Foundations	Concrete anchors Simple assembly without special tools
Roof inclination	6°
Snow load	2.50 kN/m ² – on the roof
Wind load	33 m/s – on the roof
Solar Panel	Size: 1722*1134*30mm Qty: 9pcs Total power: 9pcs*420W=3.78 kW
Color	Optional: Black, Grey
Material of Carport Bracket	6005-T6 Aluminum

3. Important Assembly Instructions

3.1 Preparation ahead of Assembly

Laniakea Energy recommends you should acquire complete knowledge about the local conditions before ordering your Modular Home Solar Carport. Pay particular attention to:

- the preparation of foundations: level floor
- the minimum number of people: 4

3.2 Recommended Aids and Required tools

You will need the following tools to install the carport bracket:

- Spanner
- Allen key
- Hammer drill with a 16mm concrete bit
- Frame ladder
- Battery powered screwdriver
- 7m measuring tape
- Laser level
- Tubular spirit level
- Plumb & line
- Aluminum hole drill 72-75 mm
- Waterproof adhesive/silicone for sealing

3.3 Assembly descriptions

The following chapters describe the steps for installing the Modular Home Solar Carport in the correct order. Please adhere to the specified installation steps.

4. Installation Steps

4.1 Preparation

- a. Check whether the solar carport kit and tools are ready.
- b. The installation site should have a level ground without significant slopes, bumps, or uneven terrain. A level surface ensures that the solar carport structure can be properly anchored and remain stable.

4.2 Installation of Feet

4.2.1 Feet Placement Planning

Using two **Laser Levels** to lay out the four feet based on the data shown in the picture.

1

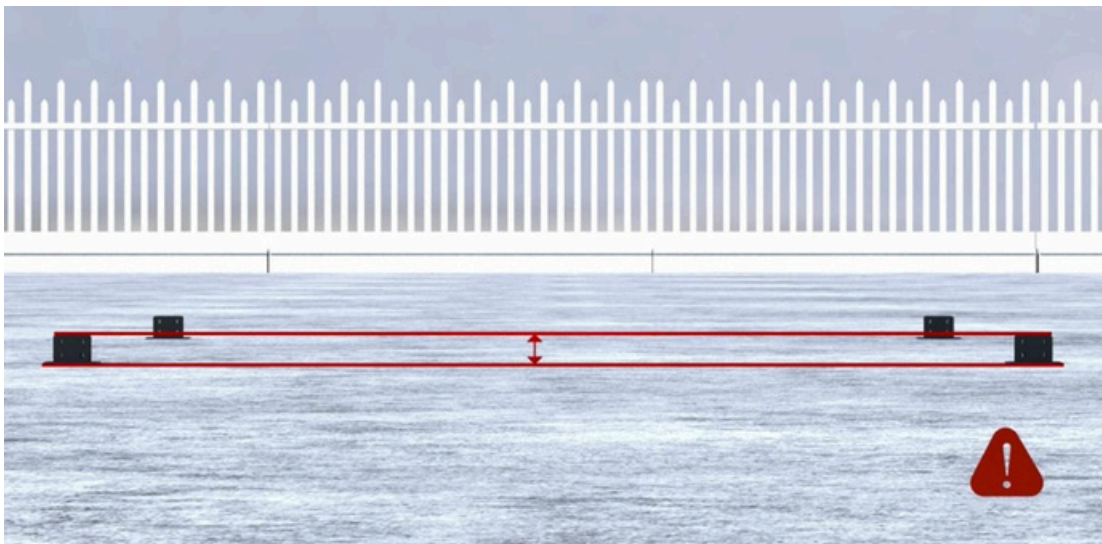
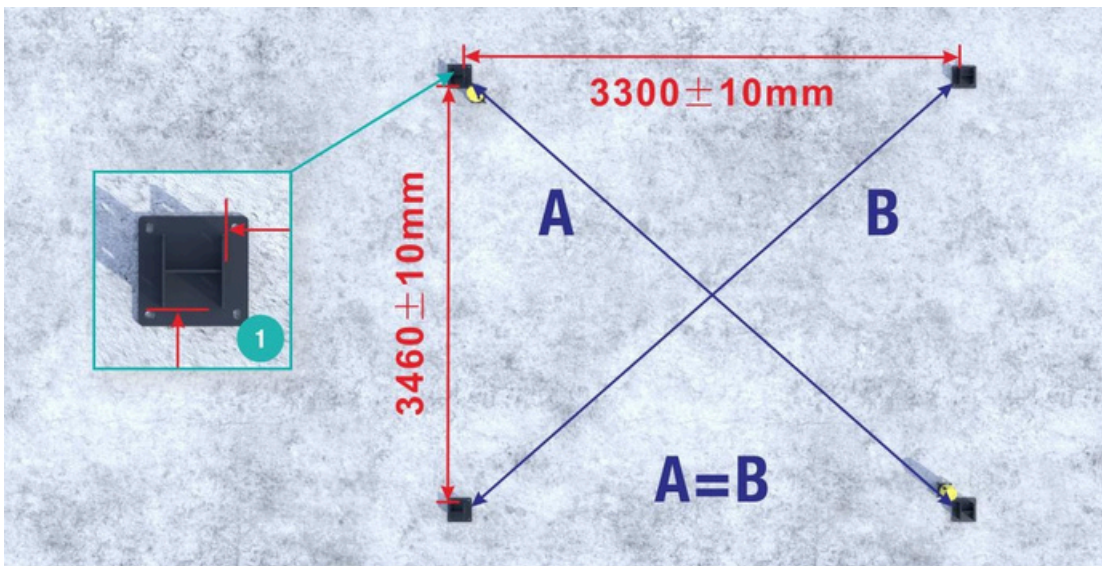


Foot



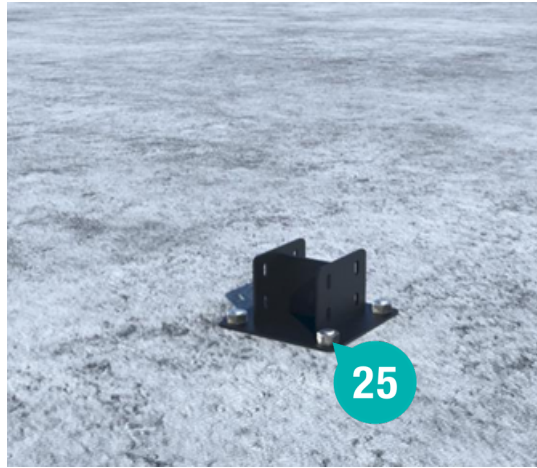
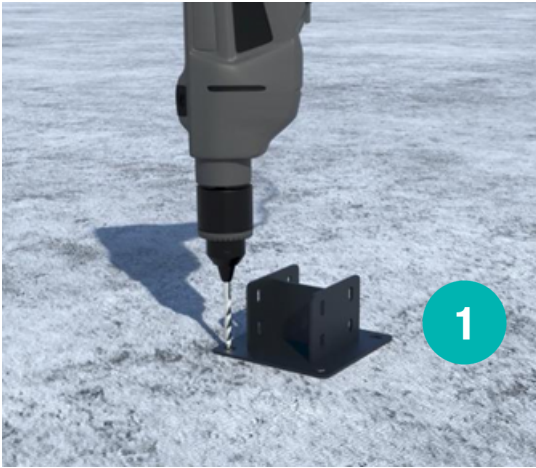
NOTE

Ensure that the feet (1) are aligned and at the same level and at the same height so that the supports (3) and (4) can be installed as required. (tolerance $\pm 20\text{mm}$)



4.2.2 Fix the Feet

Secure the four feet(1) to the foundation; each foot is installed using 4x M12*150mm bolts(25).



1



Foot

25



M12*150mm
Expansion Anchor Bolt

3/4



Rear Support
Front Support

26



M10*140mm Hex Bolt

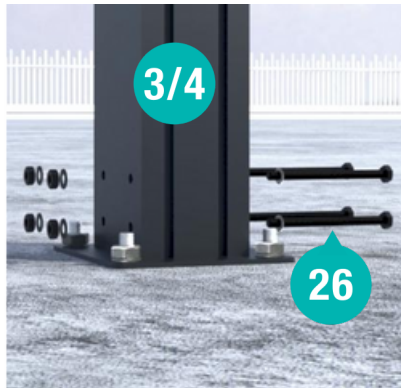
2



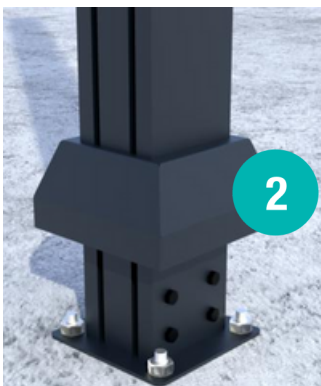
Foot Cover

4.3 Installation of Supports

- Secure the 2x rear supports(3) and 2x front supports(4) to the feet, using 4x M10*140mm.



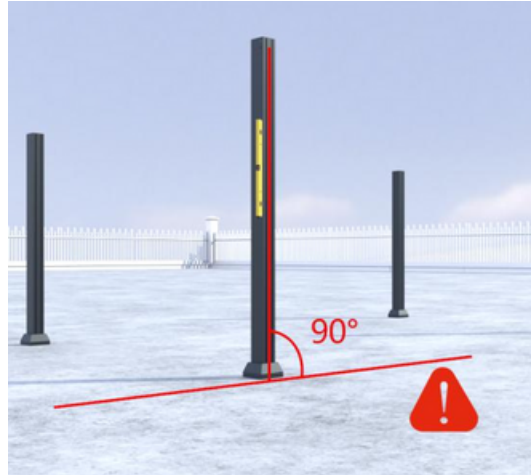
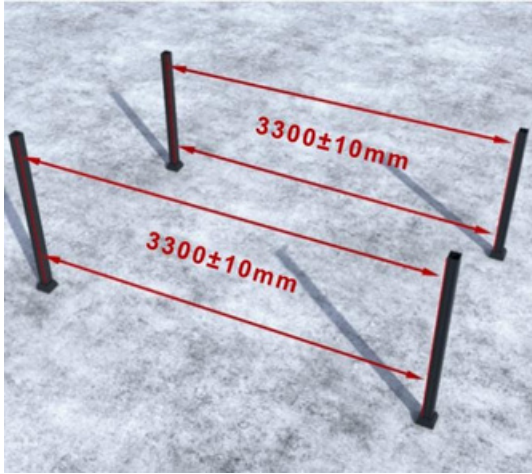
- bolts(26) for each support Cover the feet with foot covers(2).





NOTE

Ensure that all four sides of each support are perpendicular to the ground and verify using a spirit level.



3/4



Rear Support
Front Support

5



Main Beam

7



Support Connector

10

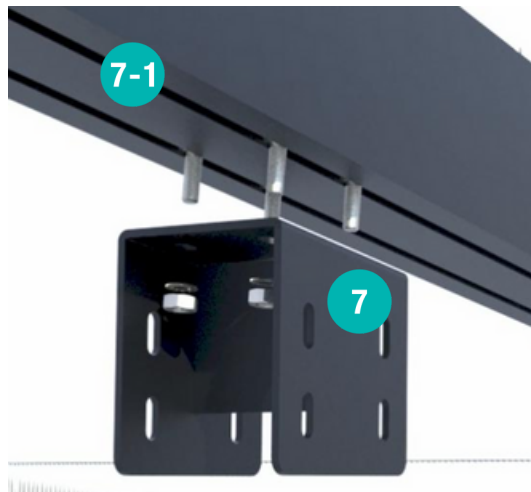
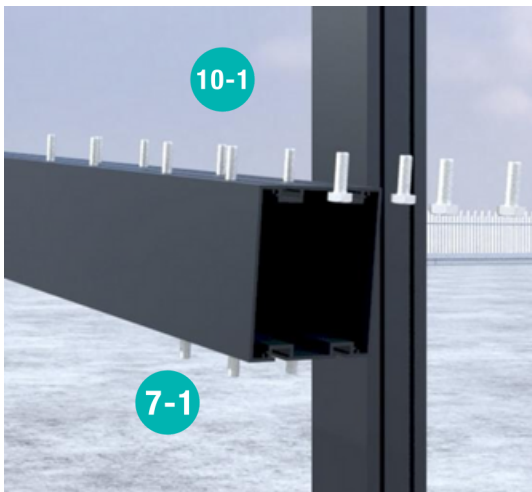


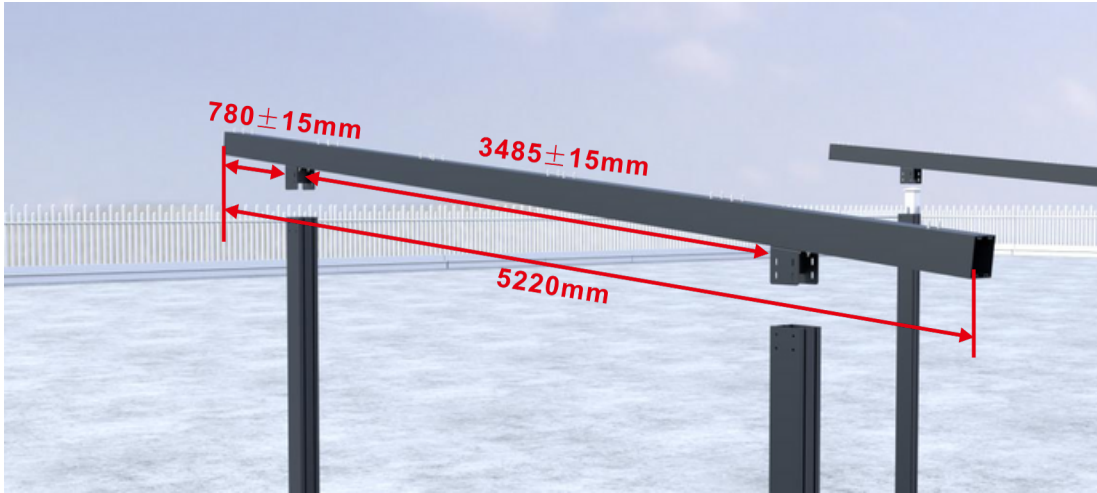
Main Beam Clamp Kit

4.4 Installation of Main Beams

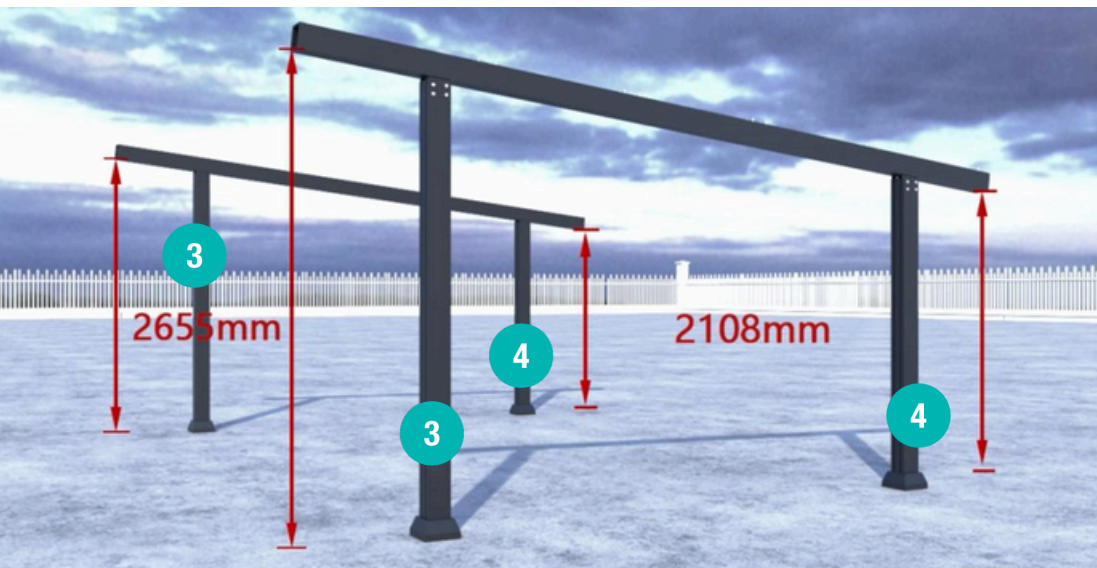
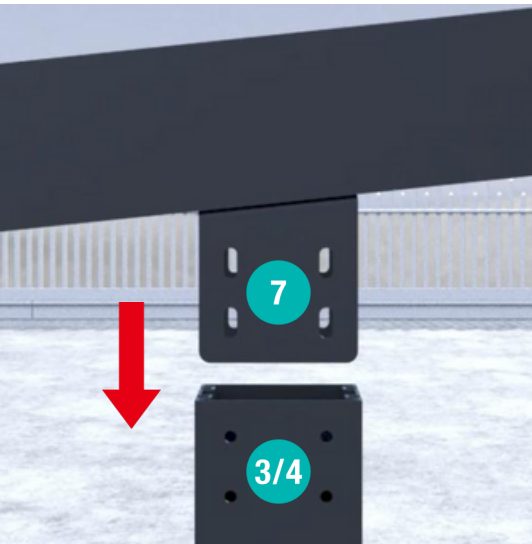
4.4.1 Connect Main Beams and Support

- Remove the end cap on the side of the main beams(5) near the front supports(4).
- Slide the 18× M10*30mm bolts(10-1) into the groove at the top of main beam.
- Slide the 8× M10*30mm bolts(7-1) into the groove at the bottom of main beam.
- Attach the support connectors(7) to the main beam according to the dimensions shown in the picture.





- The support connectors are inserted vertically into the supports, and fastened with 4x M10*140mm bolts(26).



3/4



Rear Support
Front Support

7



Support Connector

26



M10*140mm Hex Bolt

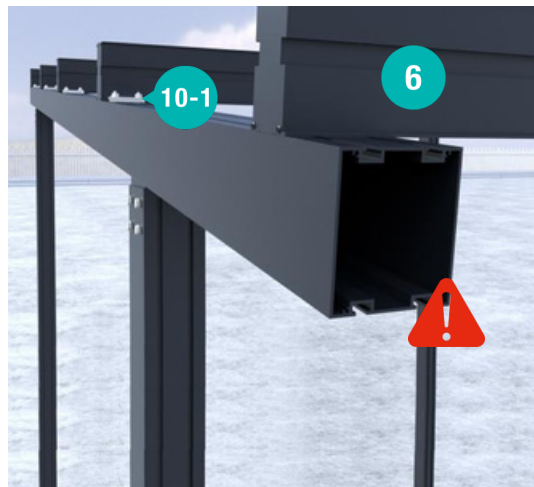
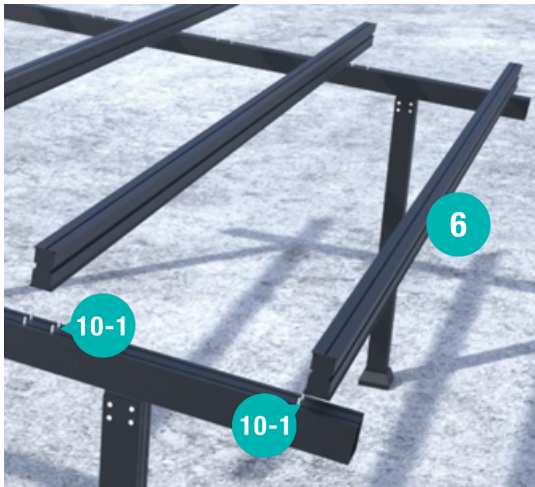
4.5 Installation of Secondary Beam

- Position **5x** secondary beams(**6**) between four bolts(**10-1**) on the top of the primary beams based on the data shown in the picture.
- Press and secure the **left and right** sides of the secondary beam with **9x** main beam clamp kits(**10-1**).



NOTE

Do not install the main beam clamp(**23**) for The outermost secondary beams until installing the drainage system, as this clamp kit has different specifications.



6



Secondary Beam

10

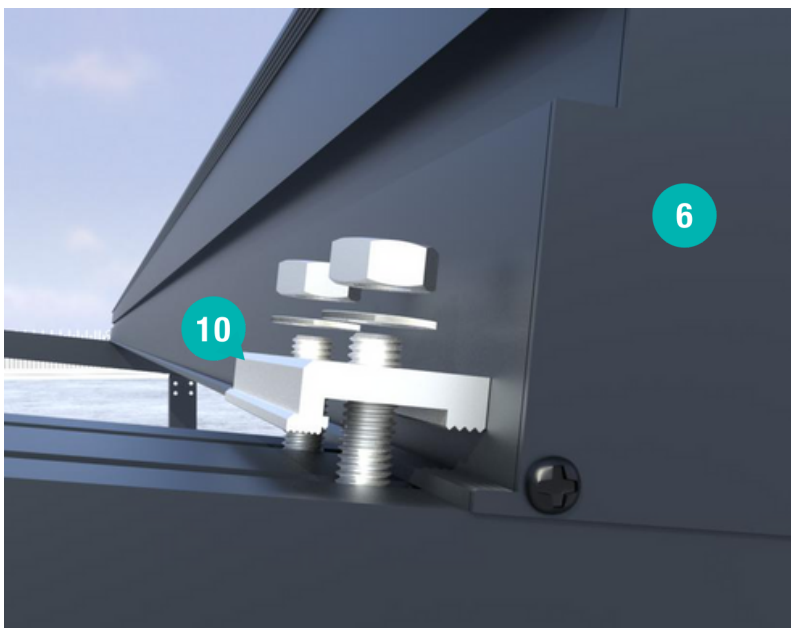


Main Beam Clamp Kit



NOTE

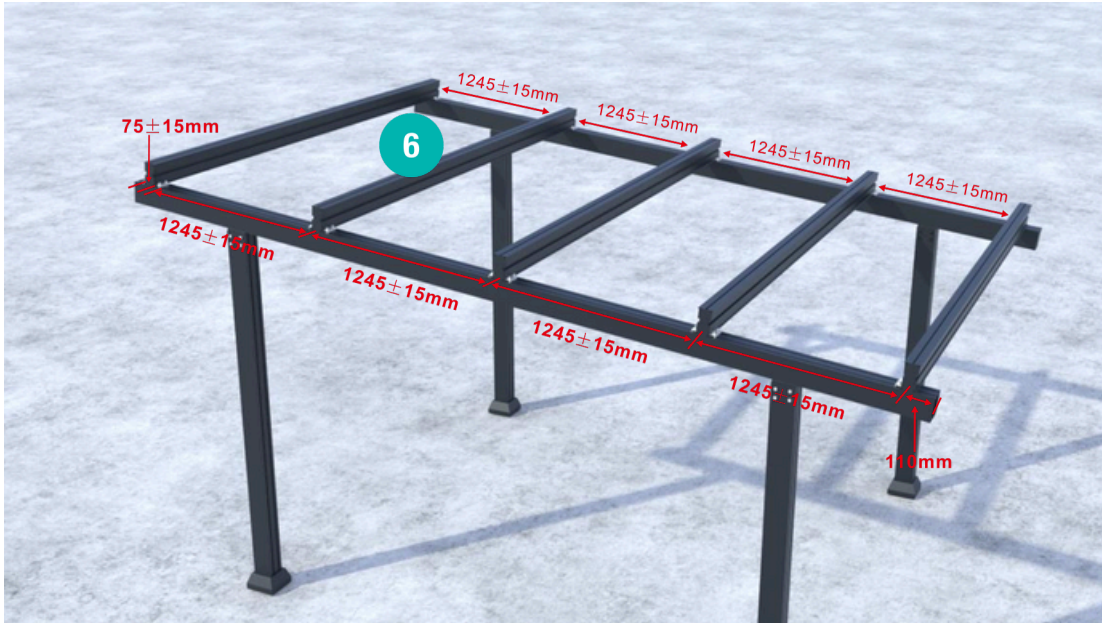
Please note that when installing the main beam clamps(**10**), follow the diagram below strictly and **do not** reverse the direction of the clamps.





NOTE

When installing the main beam clamps (10), please strictly follow the specified distances below and ensure the proper positioning of the clamps.



6



Secondary Beam

8



Vertical Gutter

11

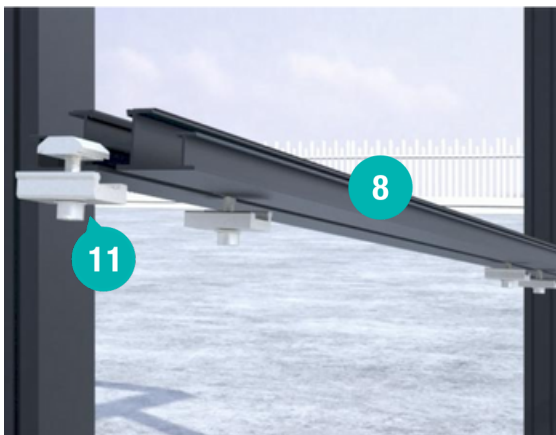


Secondary Beam Clamp Kit

4.6 Installation of Solar Panels

4.6.1 Installation of Vertical Gutter

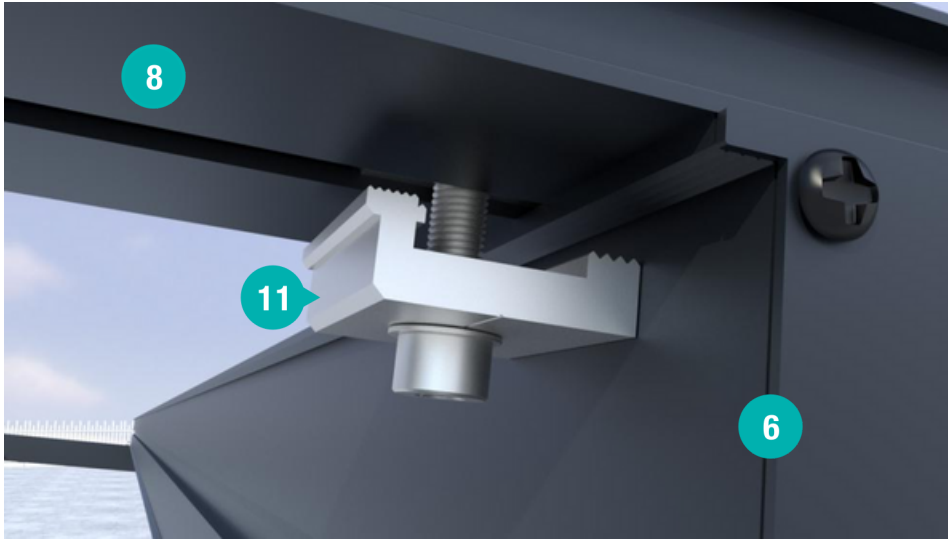
- Slide 10x secondary beam clamp kits(11) into the groove at the bottom of each vertical gutter(8).
- Position two vertical gutters vertically over the two ends of the 5 secondary beams(6), and secure the secondary beam and vertical gutter with the secondary beam clamp kit(11).





NOTE

Please note that when installing the secondary beam clamps(11), follow the diagram below strictly and **do not** reverse the direction of the clamps.



6



Secondary Beam

8



Vertical Gutter

11

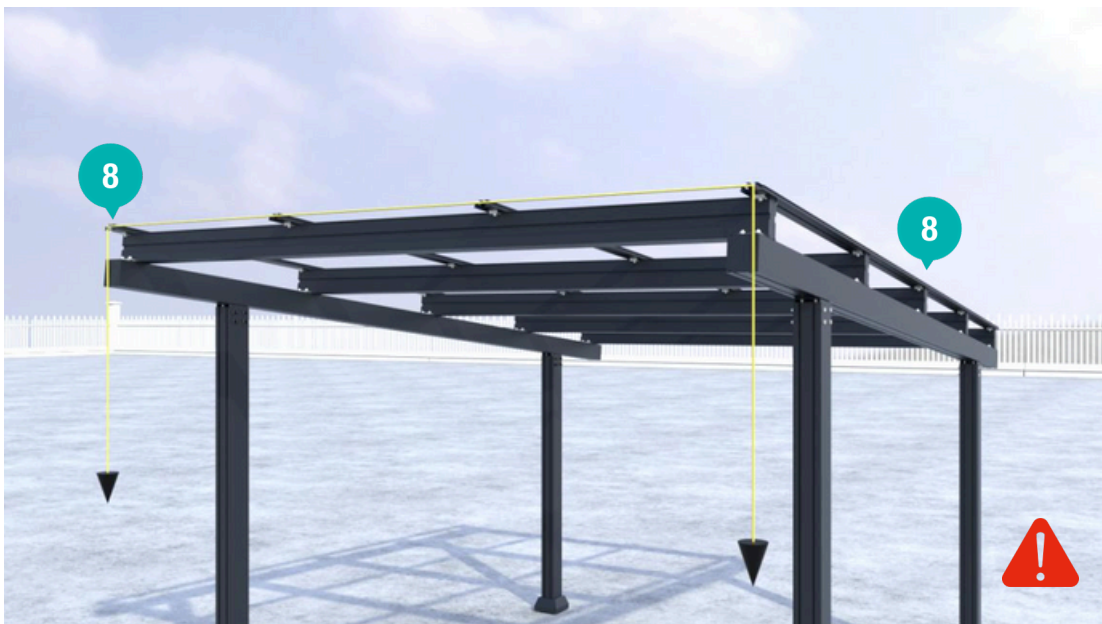


Secondary Beam Clamp Kit



NOTE

Ensure that the two gutters are parallel and the ends are aligned, verified using a plumb line.



- To install the other vertical gutter at 1063mm intervals, utilize 2x positioning tools(28) to determine the spacing distance.

6



Secondary Beam

8




Vertical Gutter

28

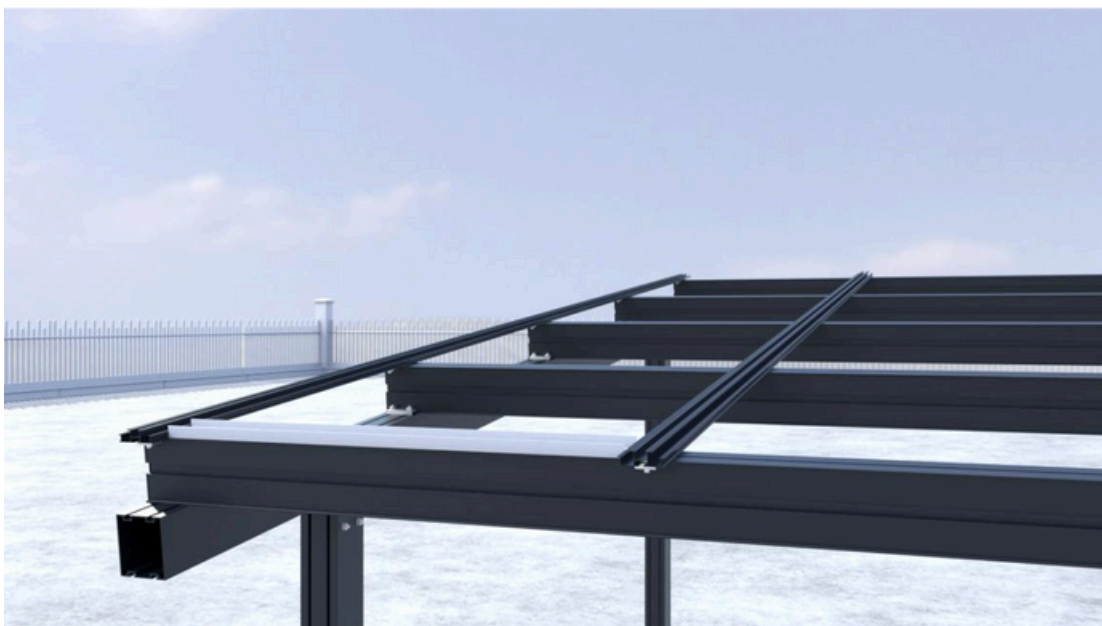
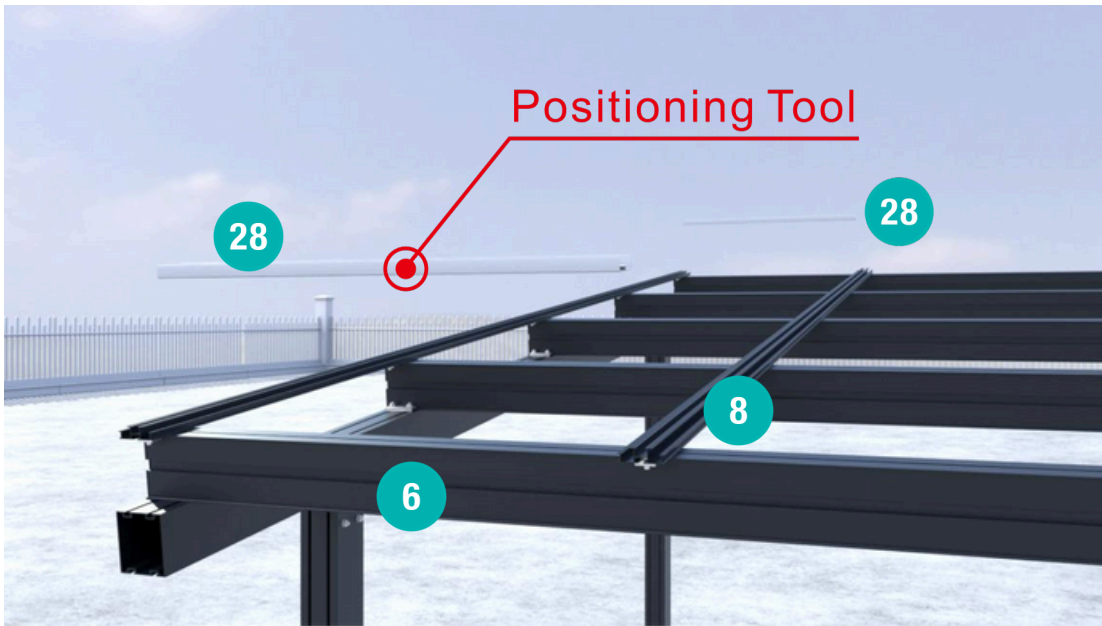


Positioning Tool



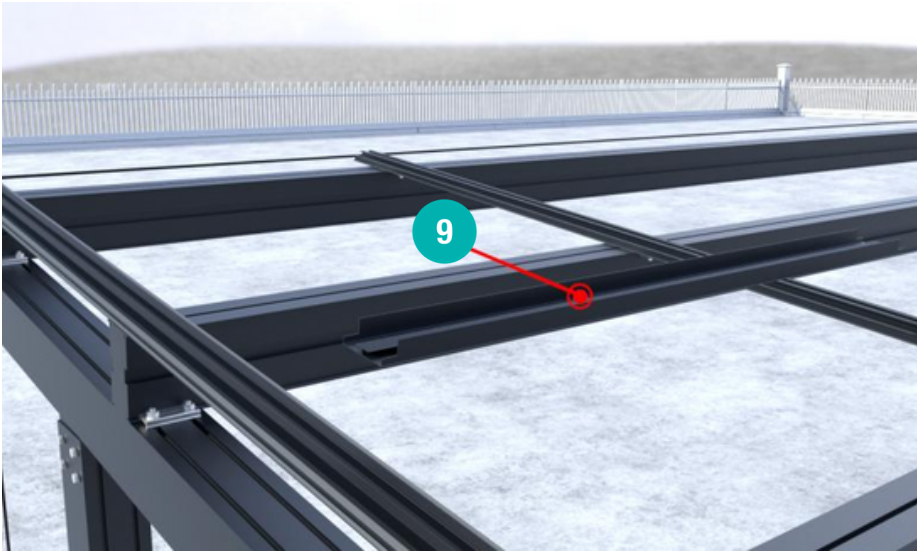
NOTE

The positioning tool is only used to determine the distance between the vertical gutters and is removed when finished.



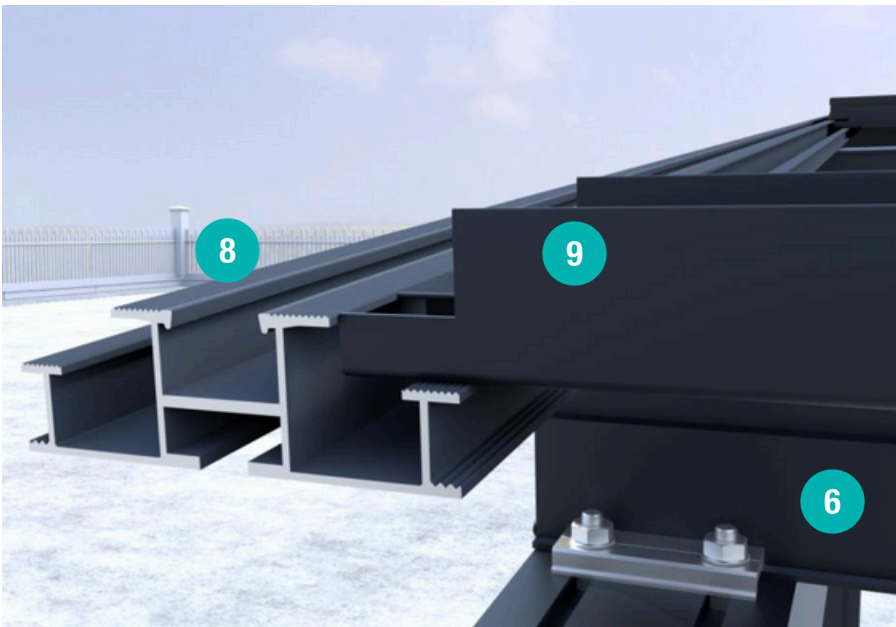
4.6.2 Installation of Horizontal Gutter and Solar Panel

- Position 2x horizontal gutters(9) between two vertical gutters(8).



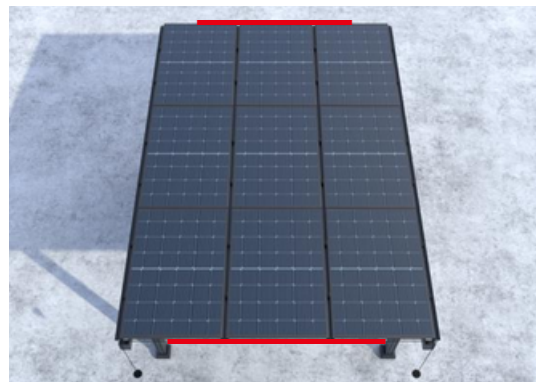
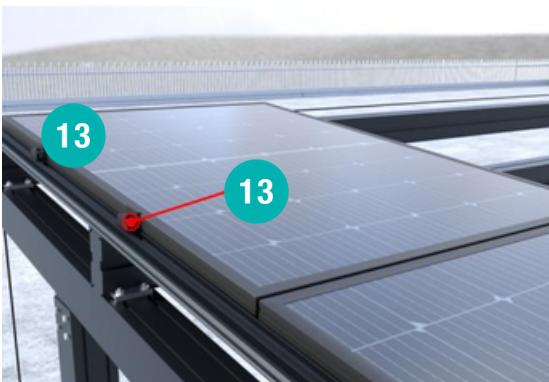
When installing the horizontal gutter(9), the horizontal gutter must be correctly placed on the side of the vertical gutter(8). Please strictly adhere to the provided cross-sectional detail diagram below for installation.

NOTE



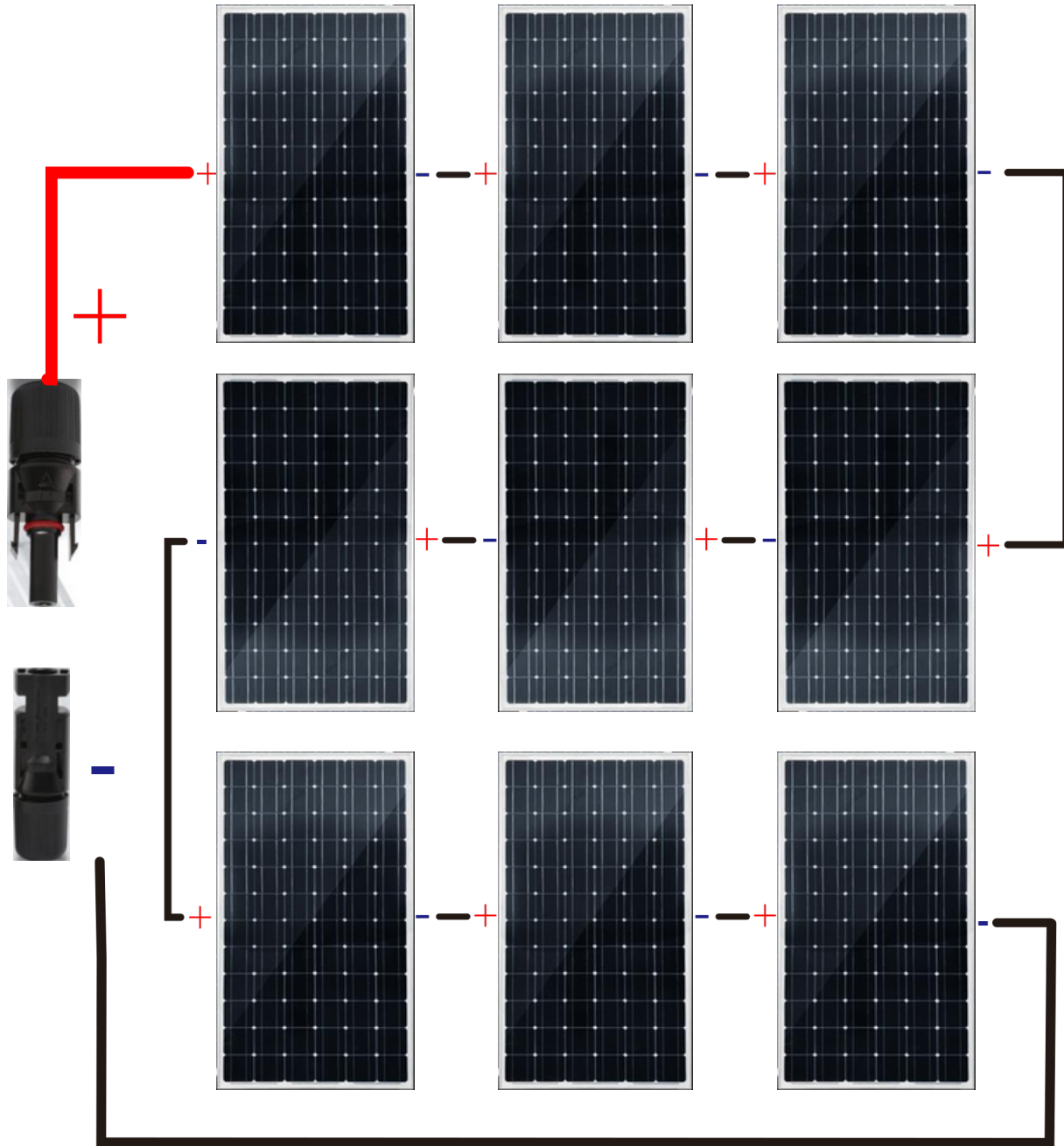
- Position **3x** solar panels one after the other, with each panel pressed against the vertical gutters(**8**) and the horizontal gutters(**9**).
- End clamp kits(**13**) are slid into the groove at the top of the vertical gutter(**8**), and are used to secure the solar panels tightly with bolts. The middle clamp is used between two solar panels. **2x** end clamp & **2x** middle clamp for each solar panel.
- And repeat the installation steps above, installing all vertical gutters, horizontal gutters, and solar panels.

Ensure that all vertical gutters are parallel and the ends are aligned.





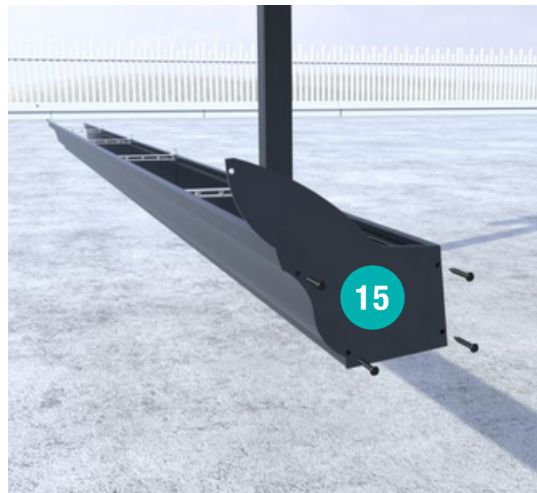
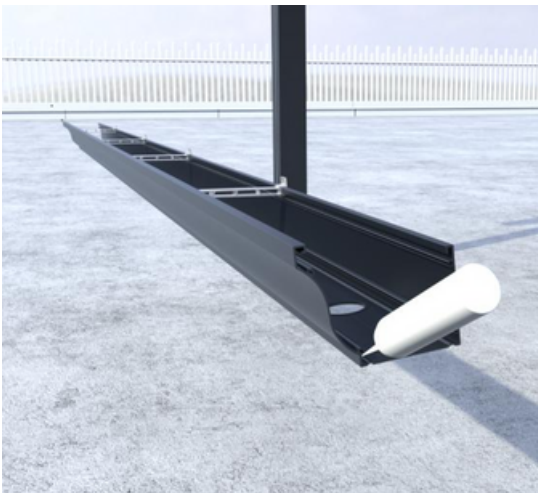
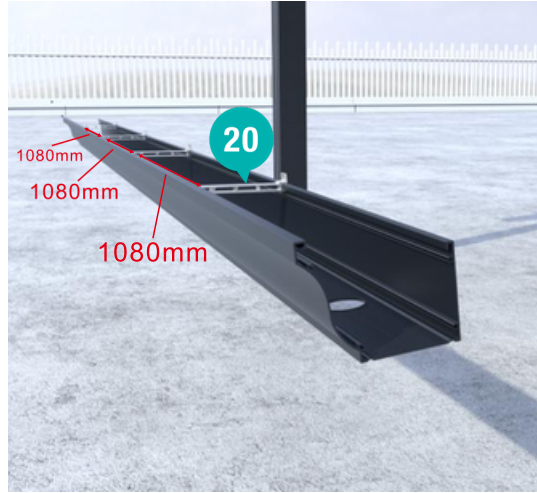
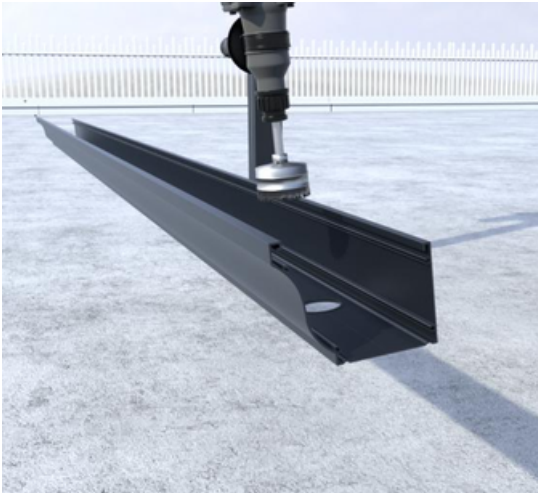
When installing the solar panels, it is crucial to determine the correct wiring configuration based on the specifications of the solar panels and the inverter purchased. The following is a wiring diagram provided by our company for the solar panels, intended for reference purposes only.



4.7 Installation of Drainage System

4.7.1 Installation of Rain Gutter

- Cut a $\Phi 75\text{mm}$ hole in the bottom of the rain gutter(14) for installing the gutter outlet.
- Attach 4x rain gutter hangers(20) to the rain gutter at 1080mm intervals.
- Fill the screw holes at end of rain gutter with waterproof adhesive, then cover the end with the gutter end cap (15) and fasten it with M4.8*13mm screws.



Main Beam



Secondary Beam



Rain Gutter



Gutter End Cap

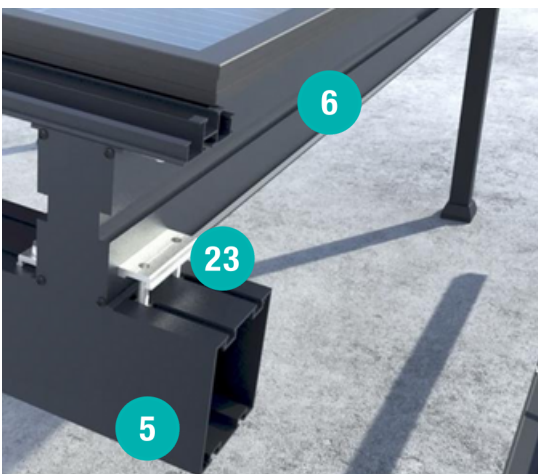


Rain Gutter Hanger

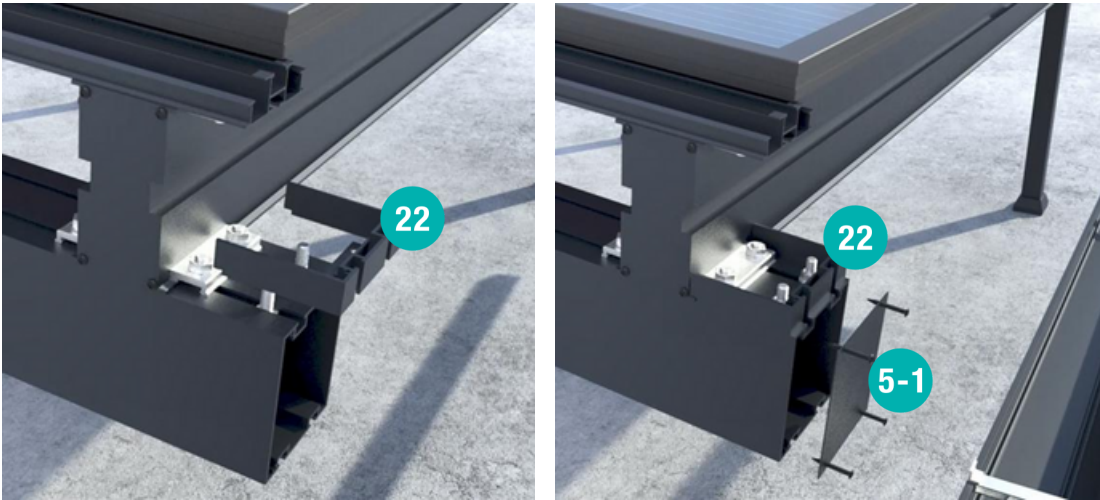


Main Beam Clamp Kit

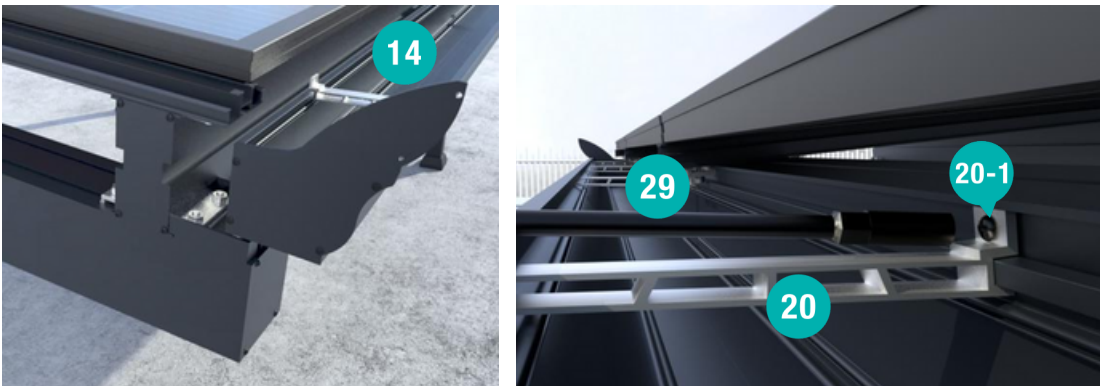
- Install the main beam clamp kits(23) for the outermost secondary beams.



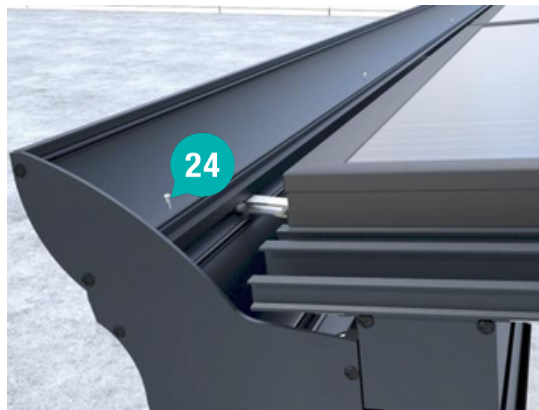
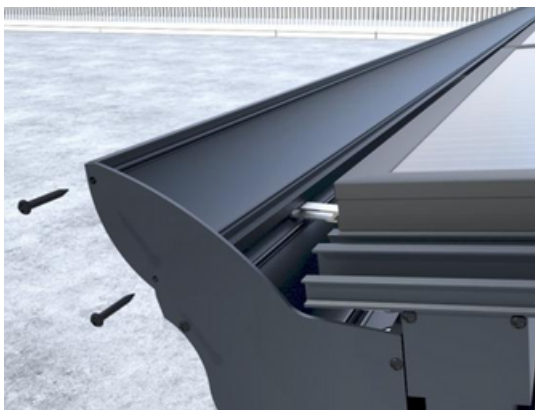
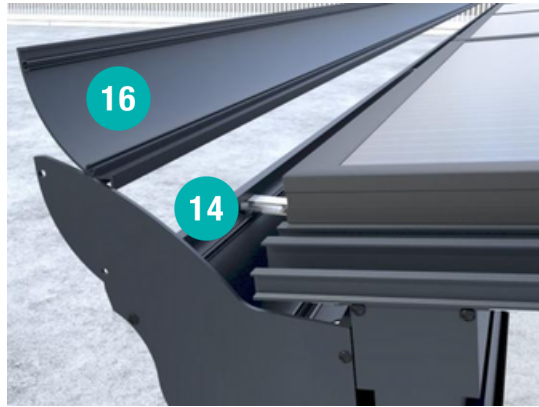
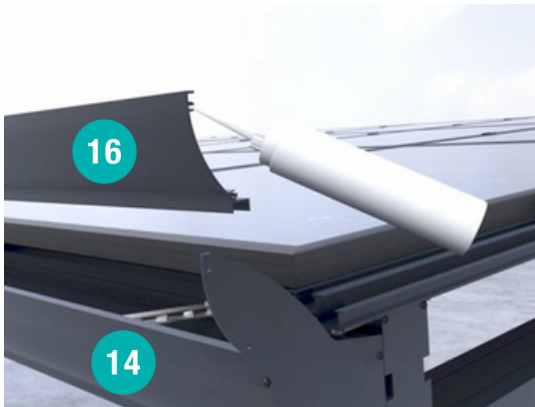
- Attach the gutter spacers(22) to the main beams.
- Cover the end of main beam with main beam end cap(5-1) and secure with screws.



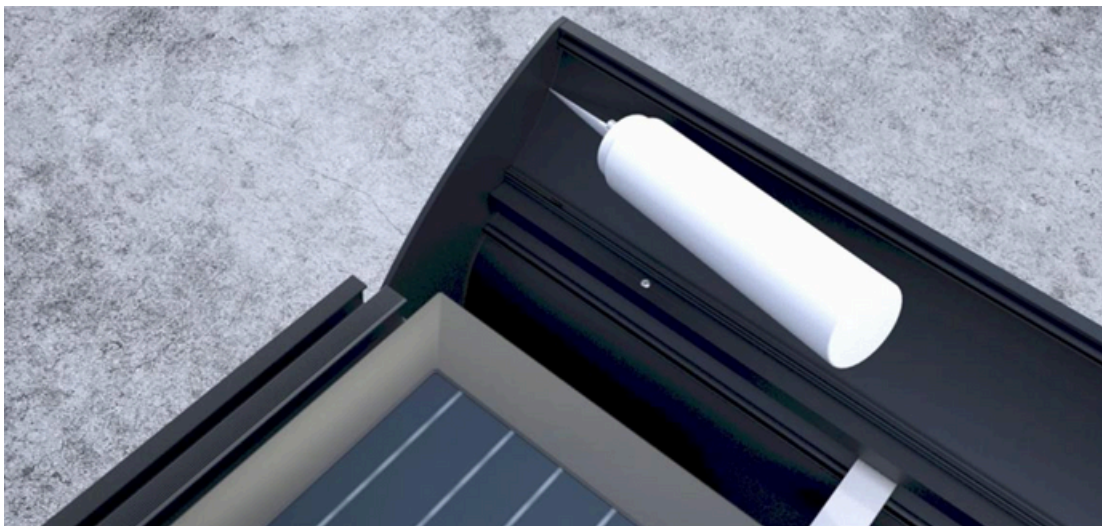
- Attach the rain gutter(14) to the main beams, and secure the 4x rain gutter hangers(20) to the secondary beam with 4x M5.5*16mm screws(20-1) using an extended hex bit socket(29).



- Fill the screw holes at end of gutter flashing(16) with waterproof adhesive, then attach the gutter flashing to the rain gutter(14), and secure the final two screws of the gutter end cap.
- Fix the gutter flashing to the rain gutter with 6x M4.2*13mm screws(24), drilling a screw hole and fastening a screw at intervals of 0.58m.

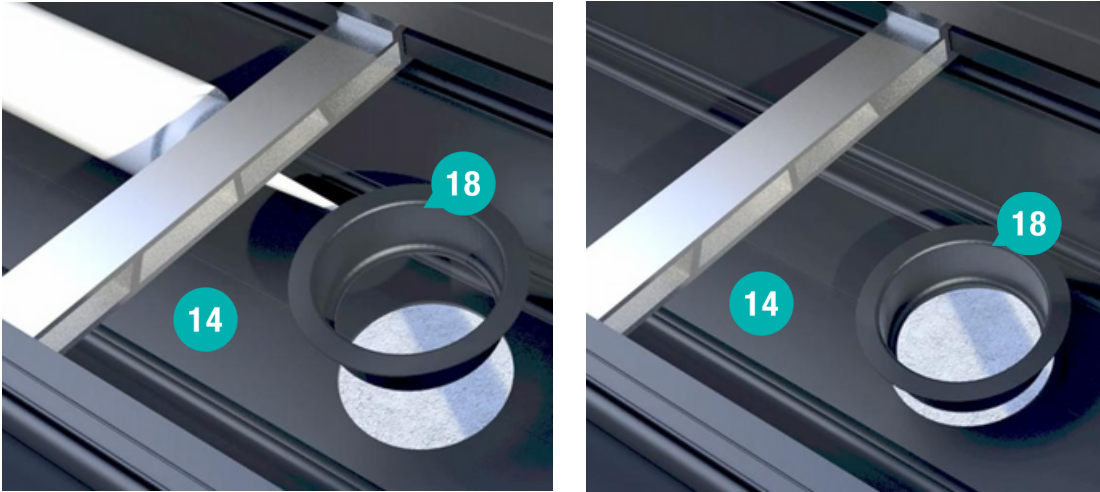


- Finally, apply a second layer of waterproof adhesive at the junction where the gutter end cap connects with the rain gutter and gutter flashing.



4.7.2 Installation of Downpipe

- Apply a layer of waterproof adhesive at the connection point of the gutter outlet(18), then insert the gutter outlet into the hole at the bottom of the rain gutter(14).



14



Rain Gutter

17



Downpipe

18



Gutter Outlet

- Assemble the downpipe(17) and 2x 45°downpipe bend(19) together with waterproof adhesive.



19



45°Downpipe Bend

- Fix the 3x downpipe clamps(21) to the front support(4) with M5.5*16mm screws(21-1)
- Fix the complete downpipe(17) to the front support(4) with downpipe clamp(21).



21



Downpipe Clamp

17



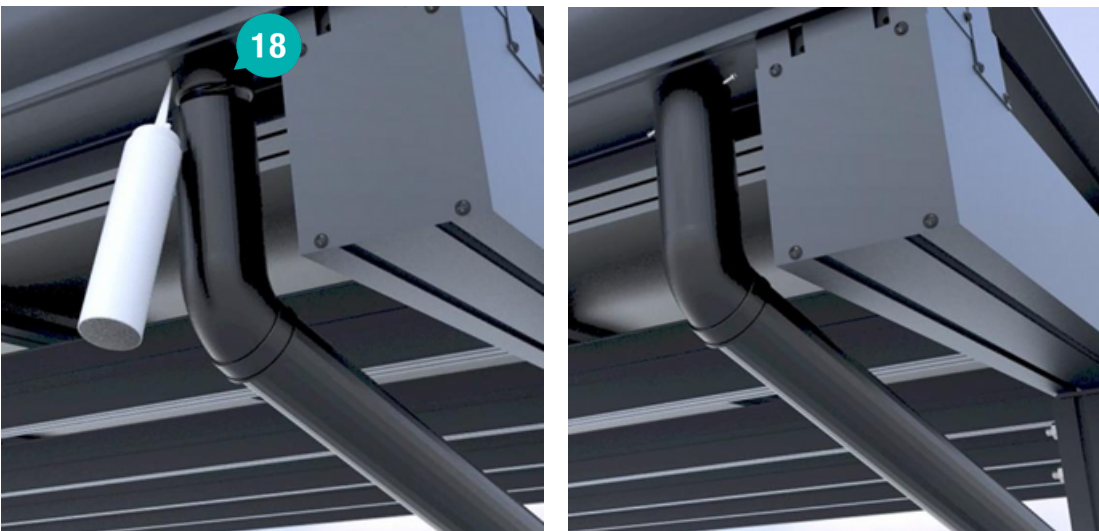
Downpipe

18



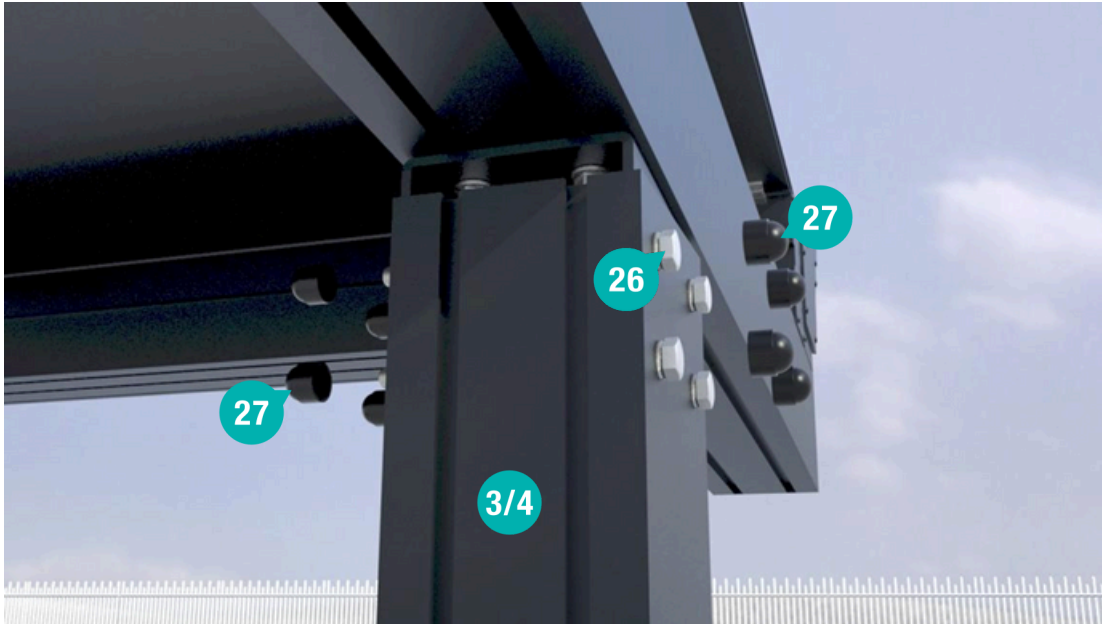
Gutter Outlet

- Apply a second layer of waterproof adhesive to outer edge of gutter outlet(18).
- Ensure the gutter outlet is aligned with the downpipe, and connect them correctly, then secure with screws.



4.8 Installation of Bolt Cap

Cover the 32× M10*140mm Hex Bolt(26) with 32× M10 Bolt Cap(27), and complete the installation of Solar Carport.



3/4



Rear Support
Front Support

26



M10*140mm Hex Bolt

27



M10 Bolt Cap

5. Video of Installation Steps

To enhance the completeness of the installation process, we provide an installation video (scan the QR code below to get it) which includes detailed installation steps.

Please combine these installation instructions with the video content to install.

If this QR code is not working, please feel free to contact us for the latest installation video.



[Video of Installation Steps](#)