

Solar Carport Modern and Modern Plus

Technical Specifications & Installation Manual

Version: 1.1 | 30-Mar-2023

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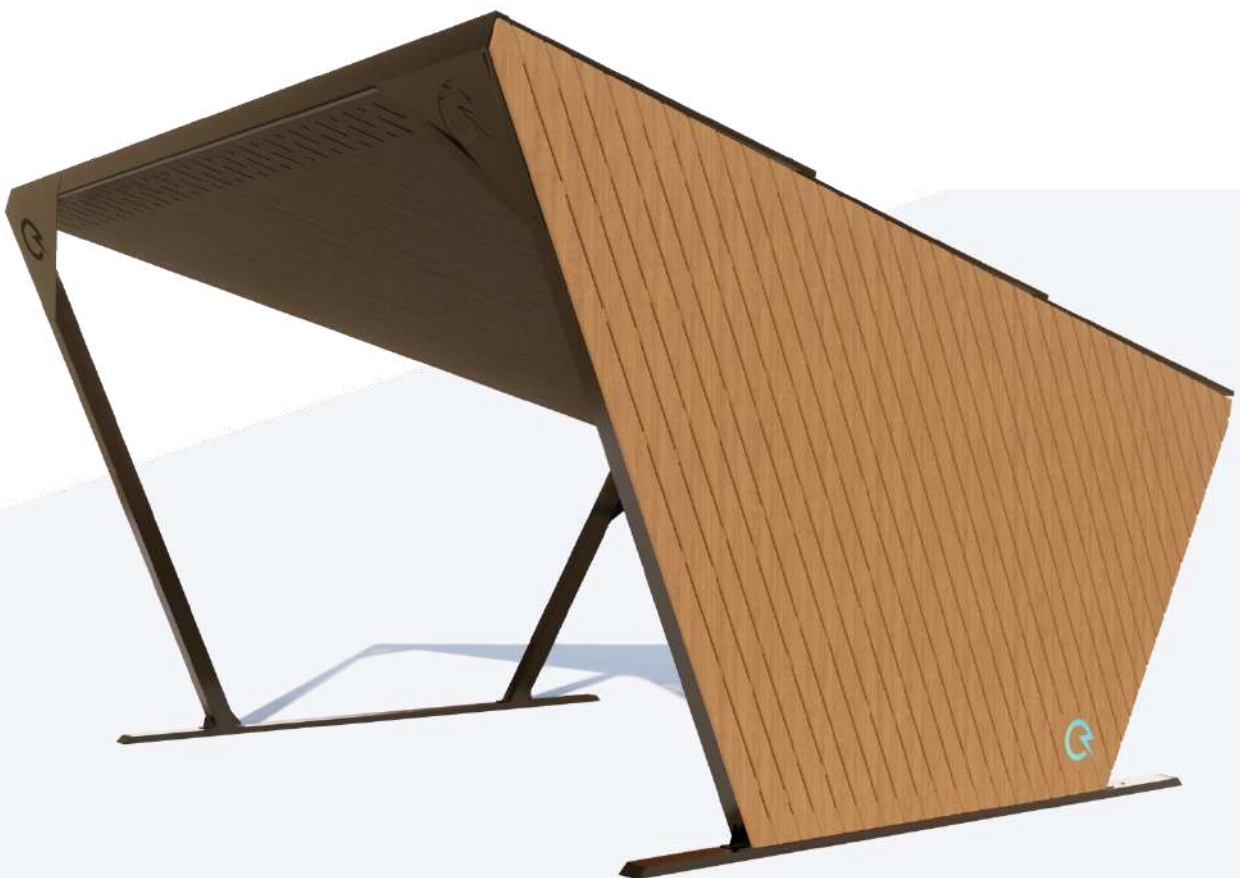


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Description

Solarstone® Solar Carport produces electricity for self-consumption and can charge an electric car. Surplus energy can be sold back to the grid – that way the carport pays for itself. Solarstone®'s building-integrated solar panels ensure resource efficiency, a pleasing appearance and water-tightness. The most modern components of the PV industry are used in the carports, which have passed safety tests.

With Solarstone®'s awarded and patented Click-on® technology, we can use 390 W solar panels and achieve high productivity even on a small roof surface. The Solar Carport will generate electricity for at least 25 years. The carport is incredibly durable and was designed, developed and tested for the Nordic market!

Solarstone®'s Solar Carport comes with an integrated 22 kW EV charger (optional). For optimal gains the carport should be connected to the power grid. This will allow you to use surplus energy for self-consumption or charge your electric car at any time of day. If desired, you can make a simple modification on your phone to charge your car with solar energy only, and no additional electricity will be purchased from the grid.

- Solar power for self-consumption
- Earn credit by selling surplus energy
- Charge electric vehicles
- Less dependence on electricity prices

Solar Carport Modern and Modern Plus can accommodate two cars and have respectively a **5.85 kWp and 7.8 kWp** solar roof which will produce approximately 5000 and 7000 kWh per year. The carport's sides can be cladded with timber boards or plexiglass to provide even more protection against different weather conditions.

- Protects cars from direct sunlight
- Provides protection from the weather
- Offers functionality similar to that of a garage
- Electric car charging option – do so economically and using renewable energy
- Less dependence on fluctuations in electricity prices

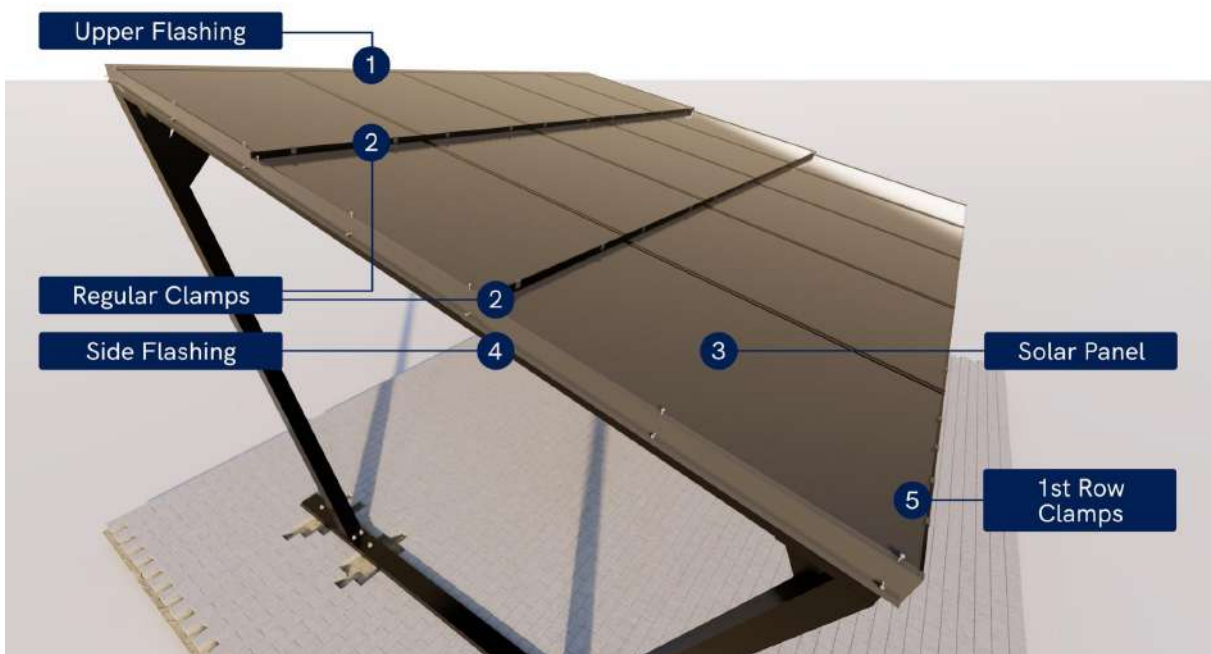
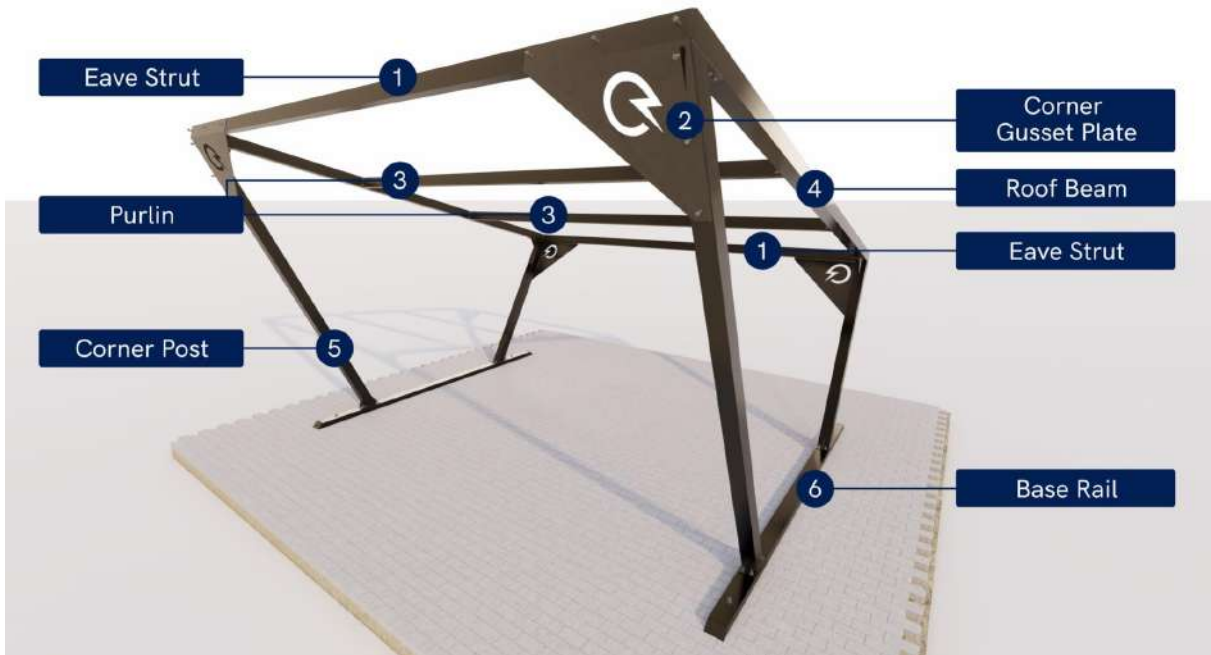
Specifications

Solar Carport Modern and Modern Plus			
TOTAL OUTPUT	5850 W (Modern) or 7800 W (Modern Plus)		
PROFILE MATERIAL	Galvanized steel		
FRAME THICKNESS (mm)	120	120	4
EXTERNAL MEASUREMENTS (mm)	Modern 5630x5200x2400-3780 (WxLxH) Modern Plus 5630x6900x2400-4235 (WxLxH)		
AVAILABLE COLORS	Black (BLK)		
MANUFACTURER	Solarstone OÜ (Estonia)		
PV-MODULE	Risen-390W		
ROOF DIMENSIONS	Modern 5610x5200 (WxL) Modern Plus 5610x6900 (WxL)		
INVERTER	HUAWEI/HOYMILES		
CHARGER	SOLARSTONE		
PV PANEL DIMENSIONS	Length: 1096mm x Width: 1754mm		
PLYWOOD CEILING PANEL DIMENSIONS	1340mm x 1733mm		
ROOF SLOPE	15°		
TOTAL AMOUNT OF PANELS	15		
CLICK-ON® A PROFILE KIT	15		
CLICK-ON® STARTER CLAMP (30/50)	20		
CLICK-ON® REGULAR CLAMP (30/50)	20		
CLICK-ON® VENTILATION FLASHING	5		
CLICK-ON® VERGE FLASHING (1,8mm)	7		
PEST GUARD	5		
FRAME CONNECTOR BOLTS	88		

Metal Structure specification		
Components	Item	Quantity
Base Rails	A1	2
Right Rear Corner Post	P1	1
Right Front Corner Post	P2	1
Left Rear Corner Post	P3	1
Left Front Corner Post	P2	1
Eave Strut	R1	2
Purlin	R2	2
Left Roof Beam	T1	1
Right Roof Beam	T2	1
Right Rear Corner Gusset Plate	pl15	1
Left Rear Corner Gusset Plate	pl16	1
Right Front Corner Gusset Plate	pl17	1
Left Front Corner Gusset Plate	pl18	1

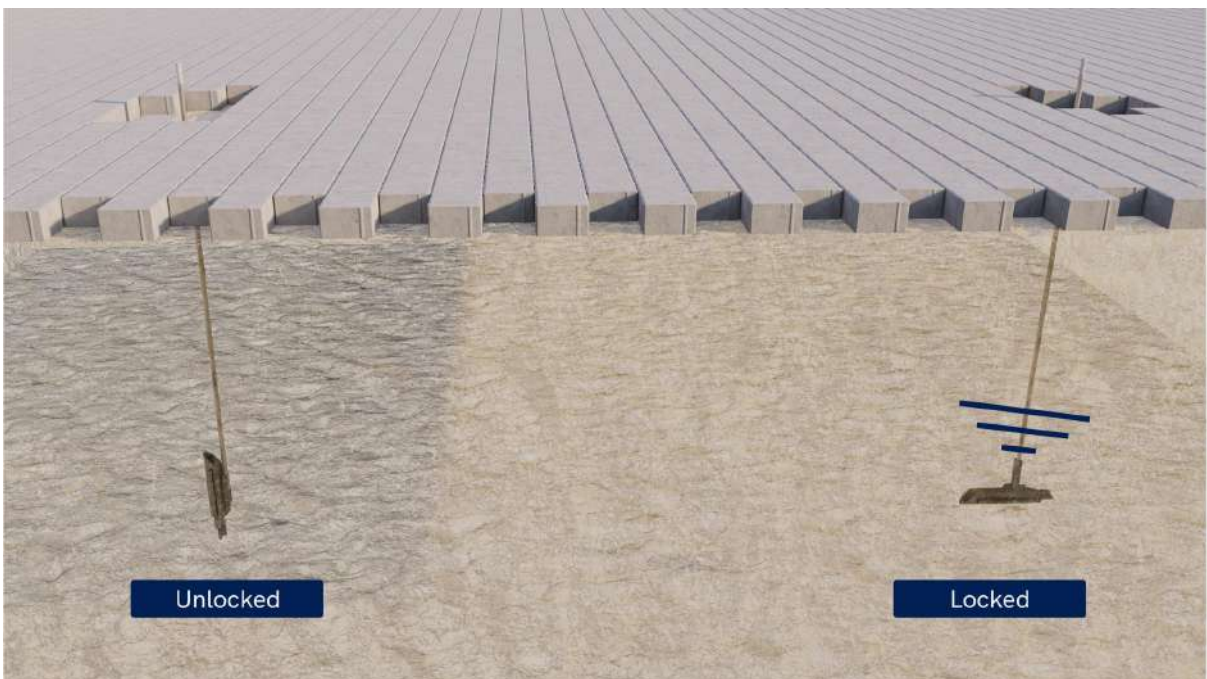
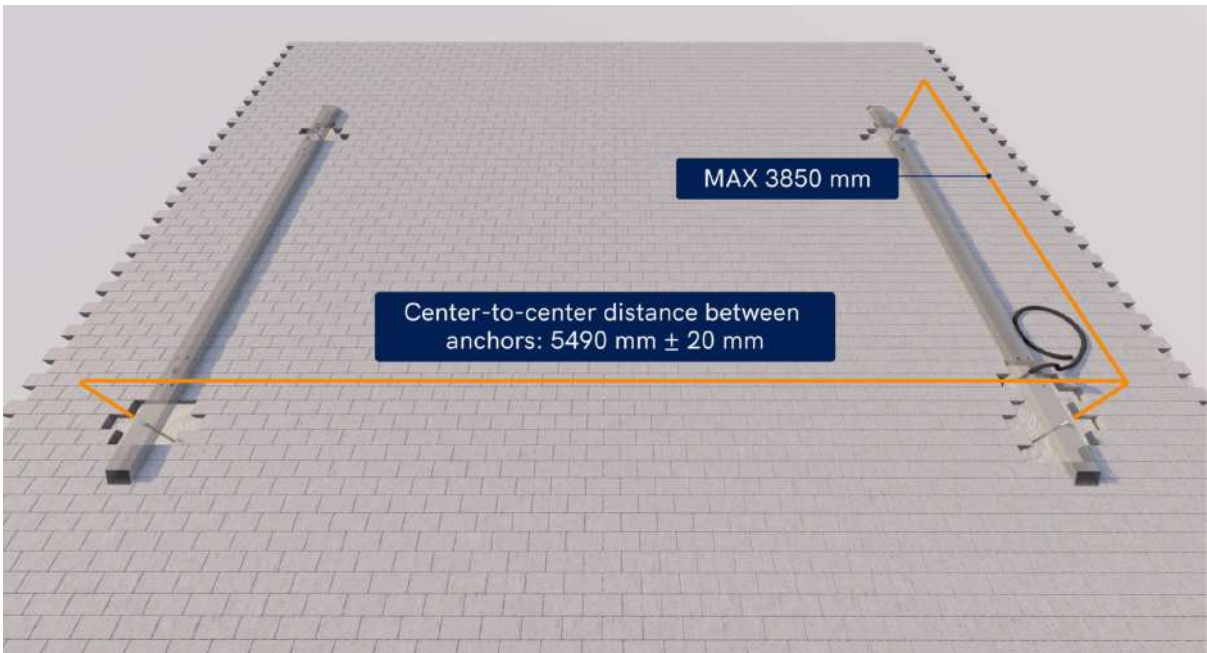
Metal Structure extension specification		
Components	Item	Quantity
Base Rails	A1	2
Right Rear Corner Post	P1	1
Right Front Corner Post	P2	1
Left Rear Corner Post	P3	1
Left Front Corner Post	P2	1
Eave Strut	R1	2
Purlin	R2	2
Left Roof Beam	T1	1
Right Roof Beam	T2	1
Right Rear Corner Gusset Plate	pl15	1
Left Rear Corner Gusset Plate	pl16	1
Right Front Corner Gusset Plate	pl17	1
Left Front Corner Gusset Plate	pl18	1

Metal frame component list



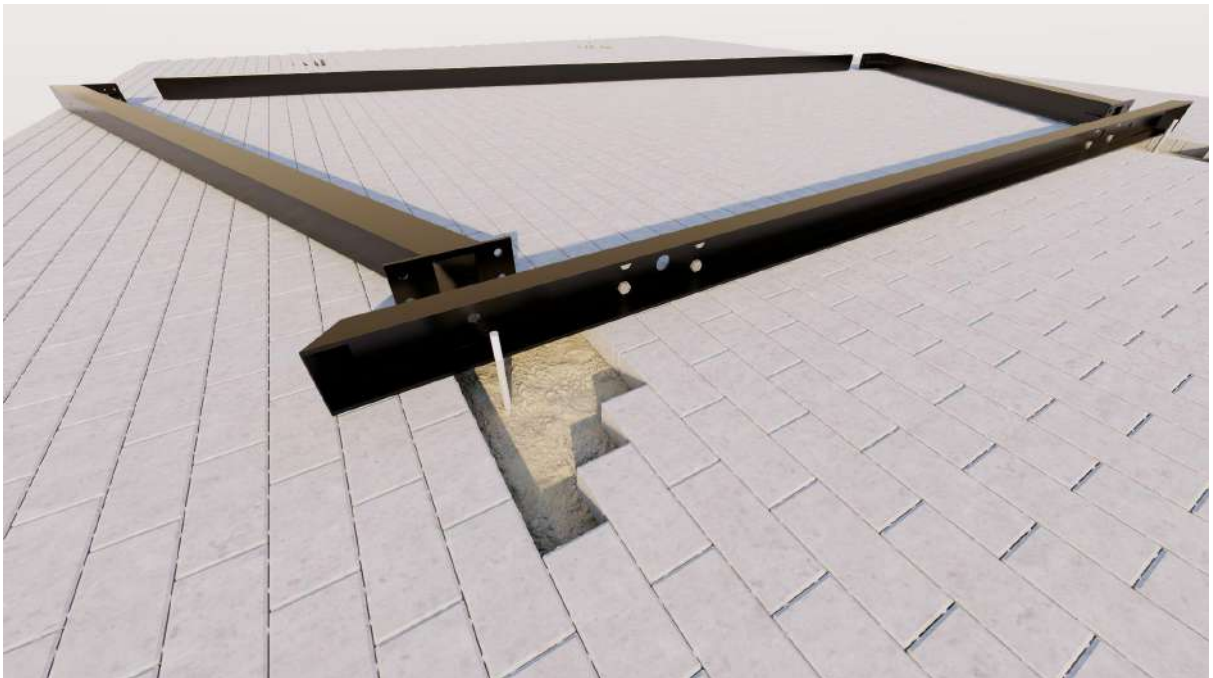
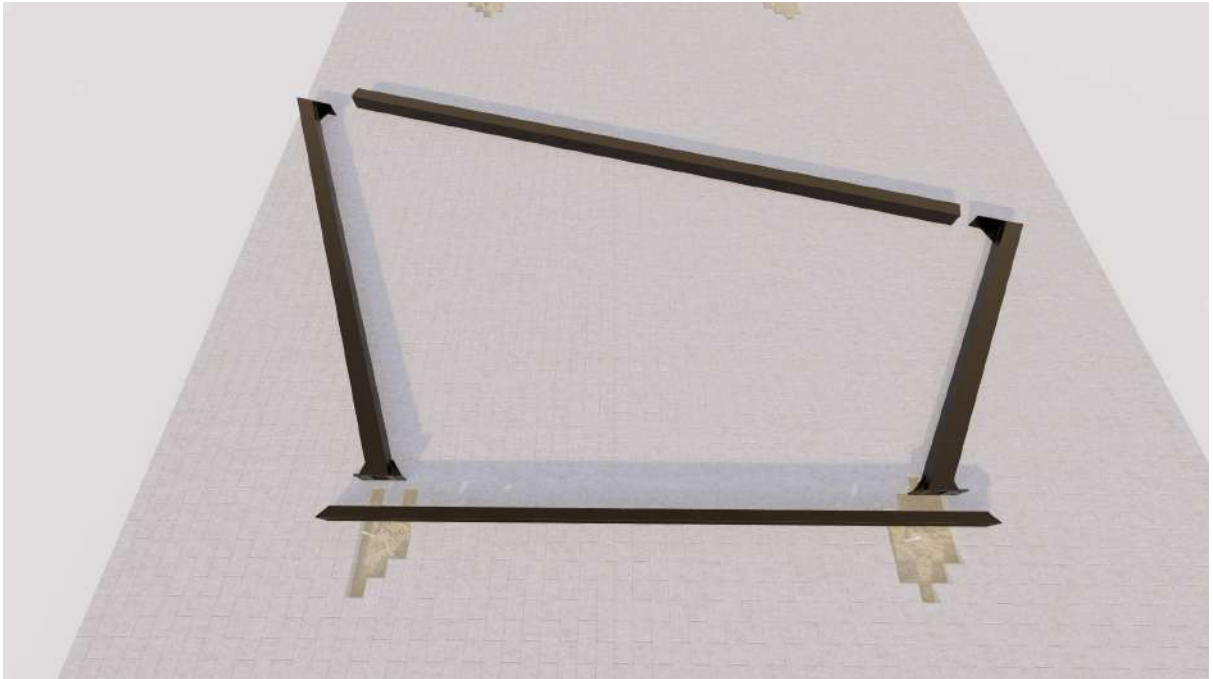
Step 1 | Earth anchor and cable assembly

- Step 1 - Install earth anchors under carport



Steps 2-13 | Metal frame assembly

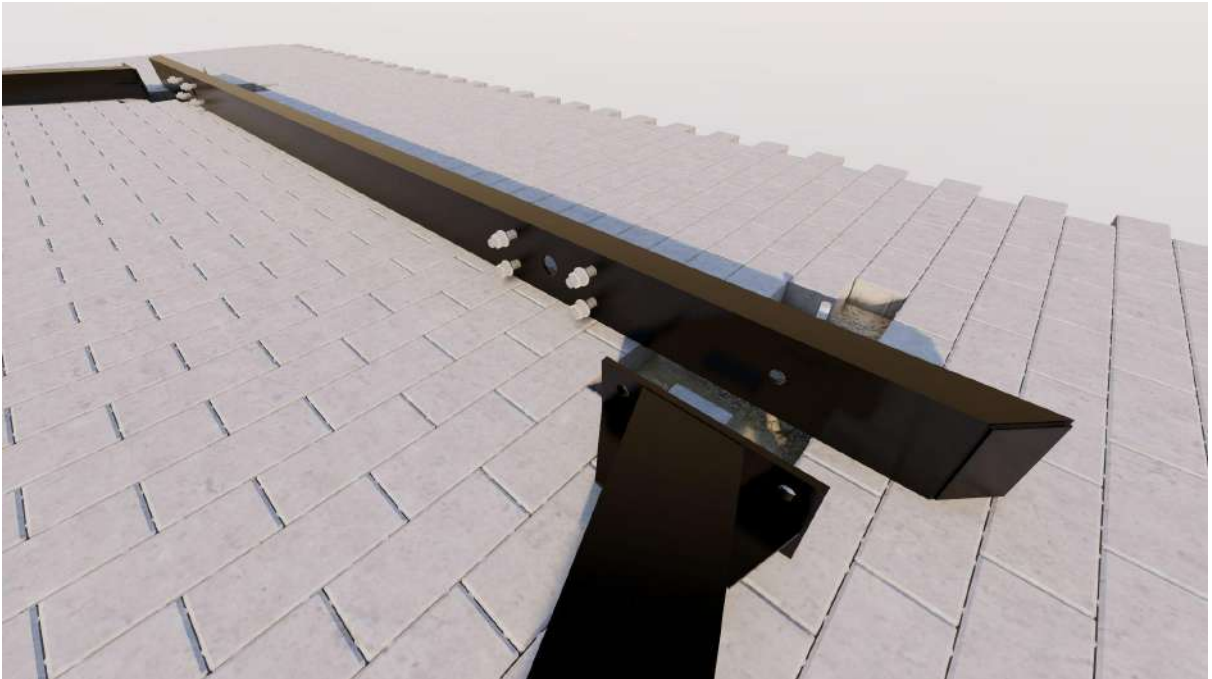
- Step 2 - Place one side of carport frame next to ground screws



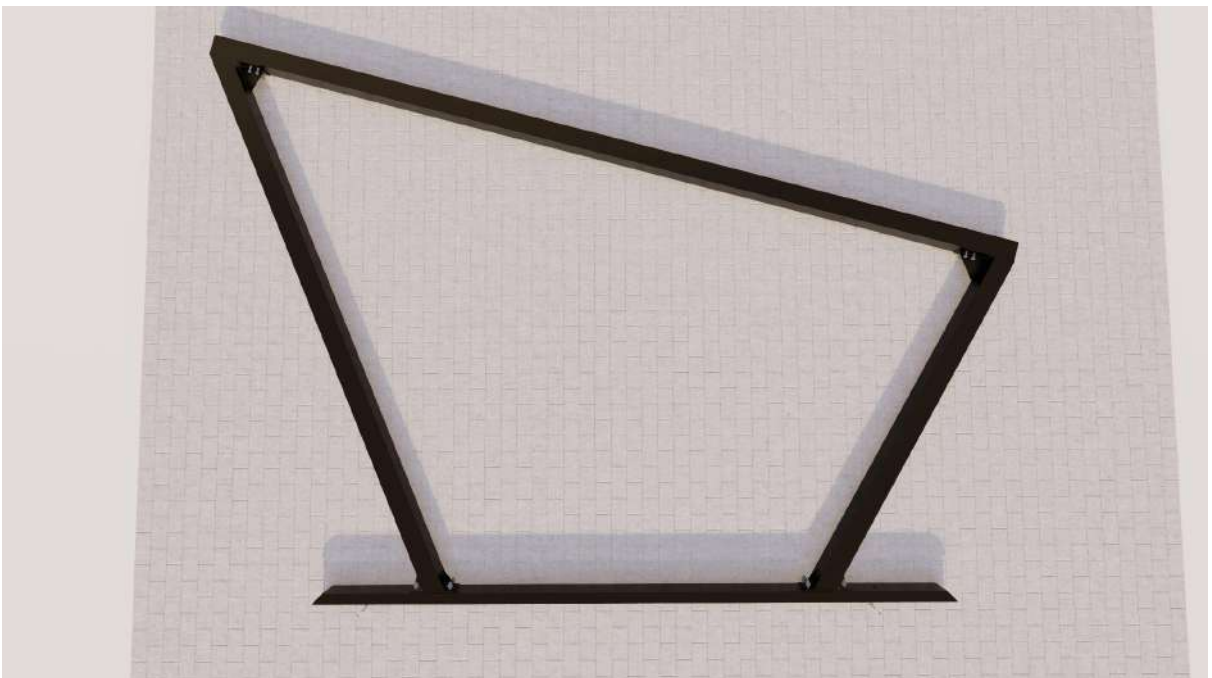
● Step 3 - Power cable installation



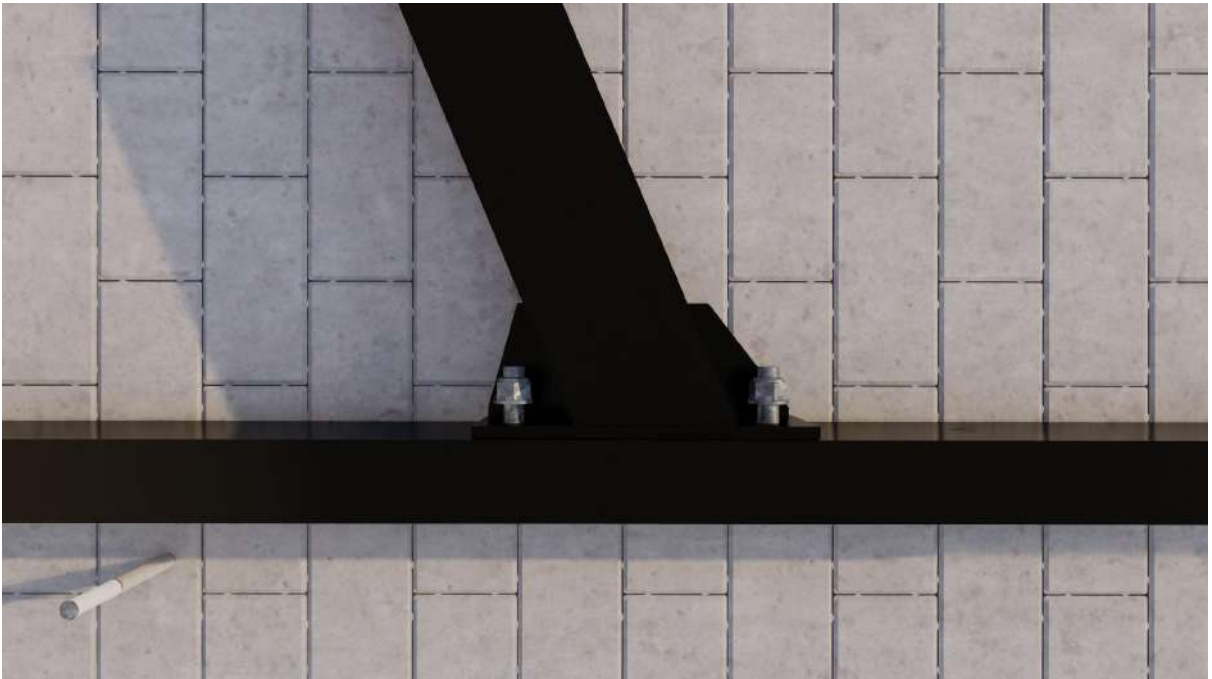
○ Step 4 - Place connection bolts into base rails



○ Step 5 - Connect corner posts and roof beams



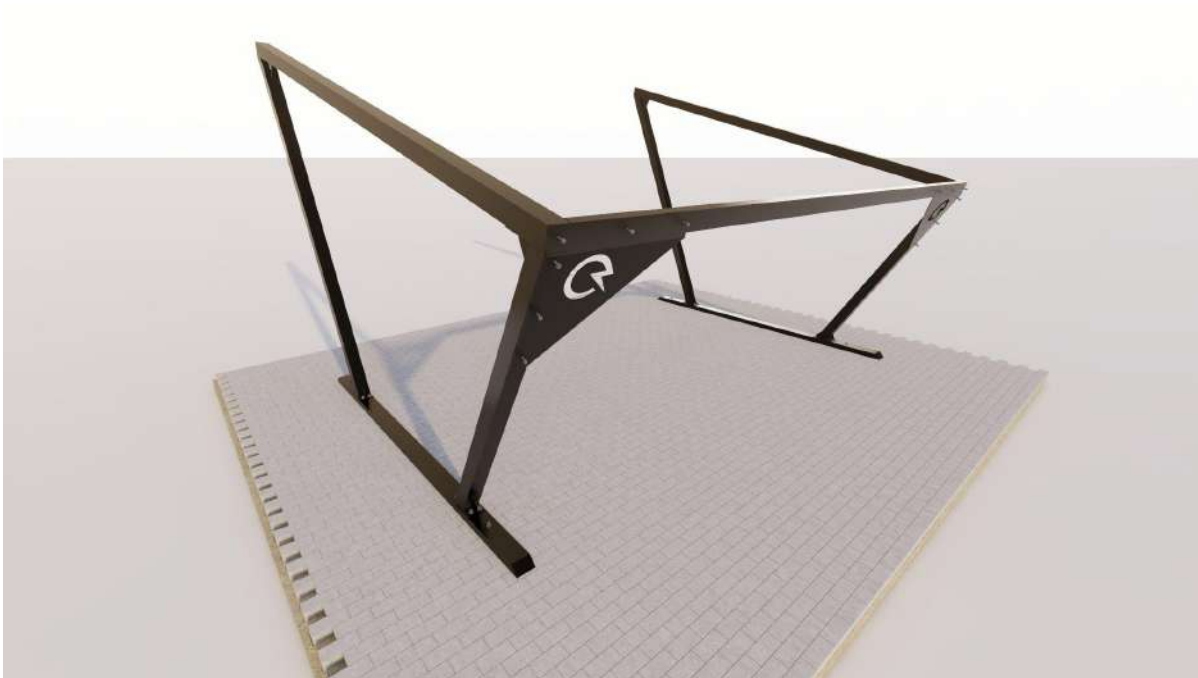
○ Step 6 - Connect corner posts and base rails



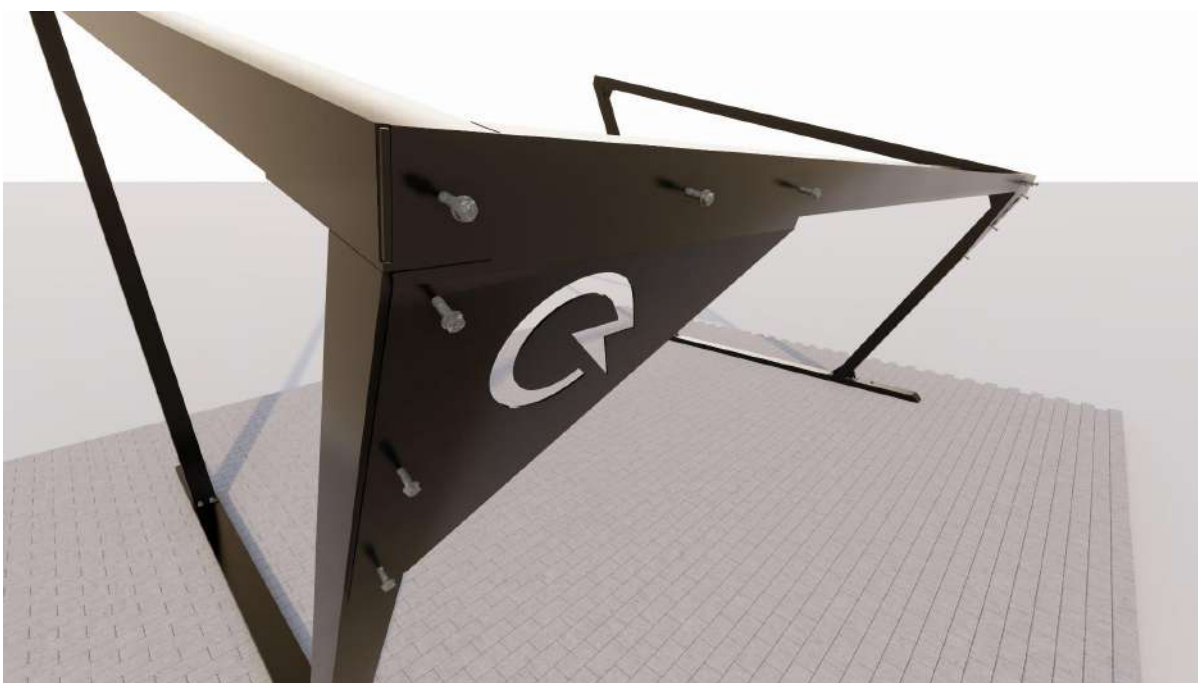
○ Step 7 - Connect corner posts and roof beams



- Step 8 - Lift up both sides of carport and connect eave strut



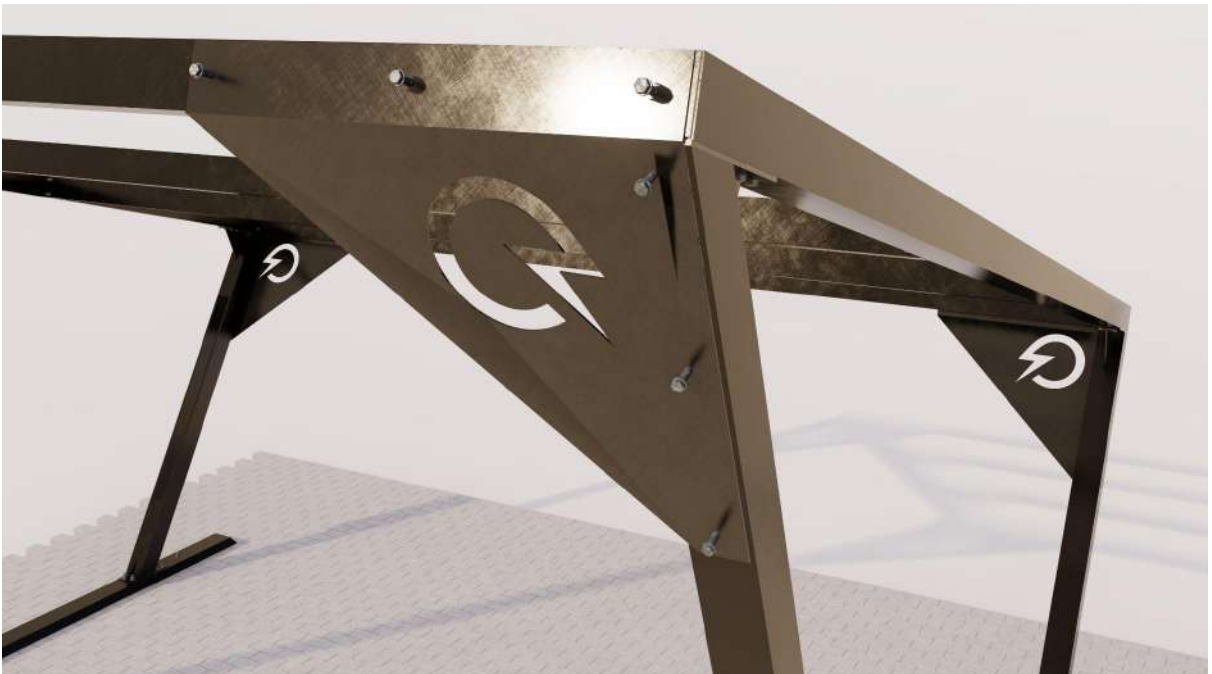
- Step 9 - Connect rear corner gusset plates



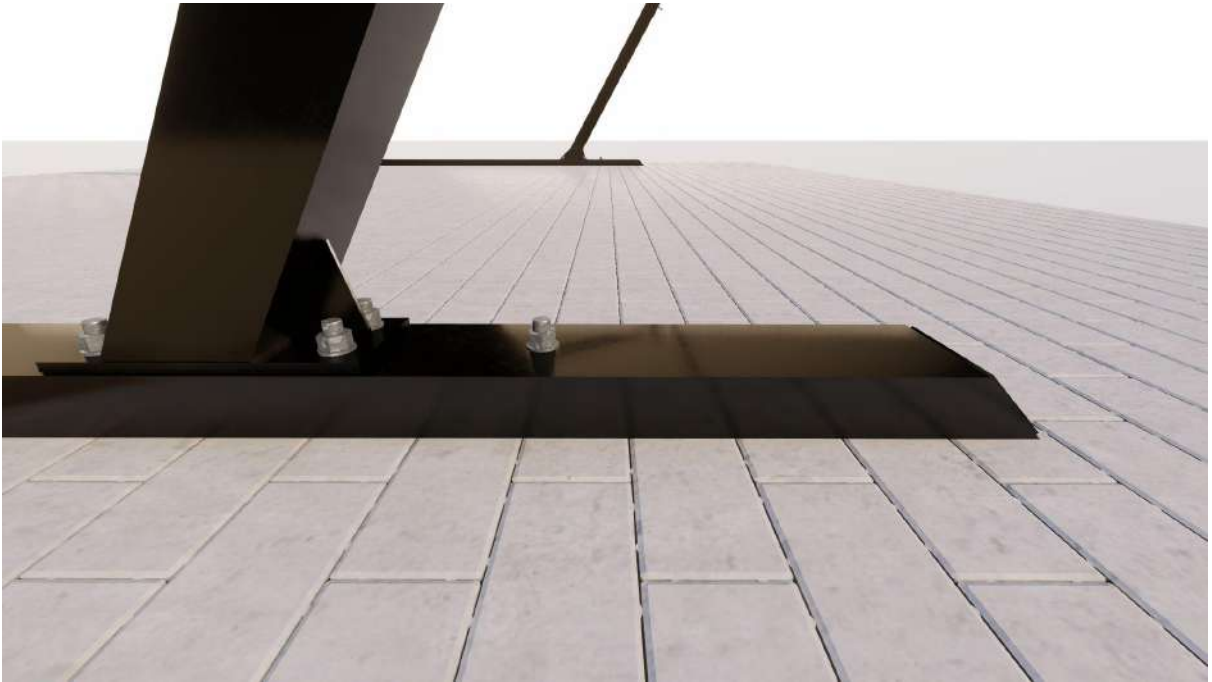
○ Step 10 - Connect purlins



○ Step 11 - Connect front corner gusset plates



- Step 12 - Connect base rails with earth anchors (avoid supporting post connections)



- Step 13 - Connect base rails with earth anchors (avoid supporting post connections)

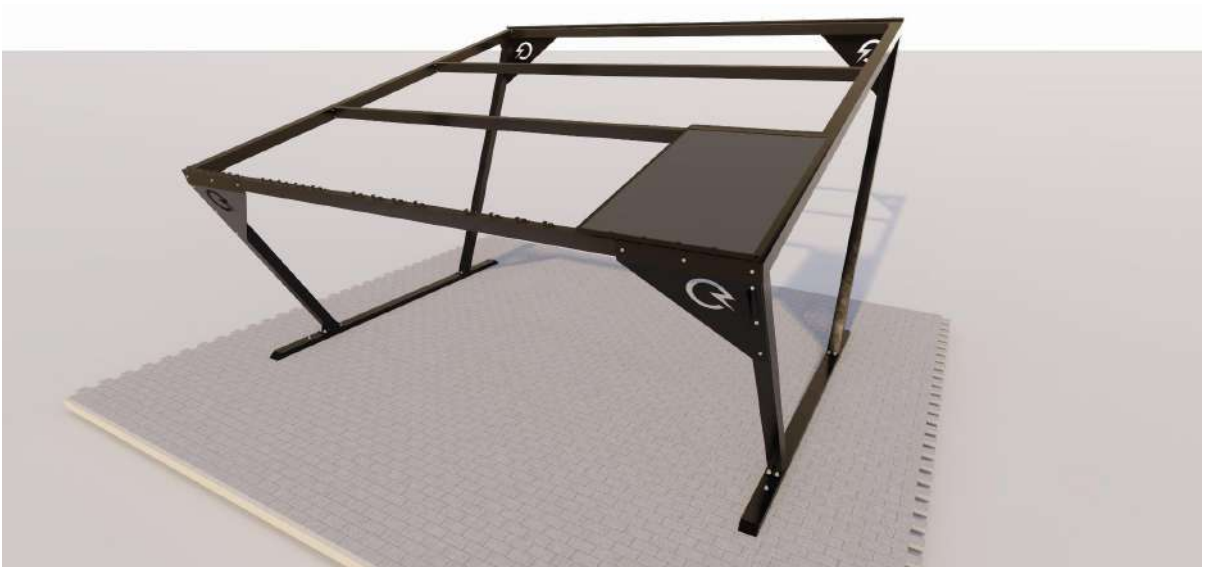


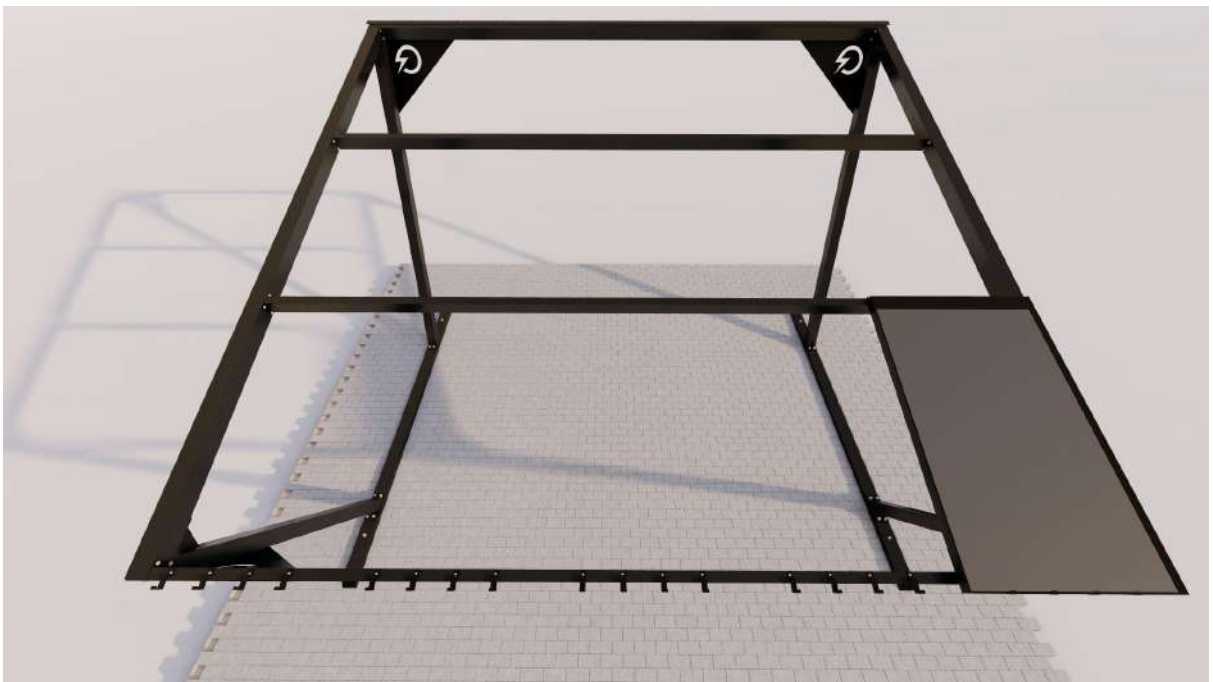
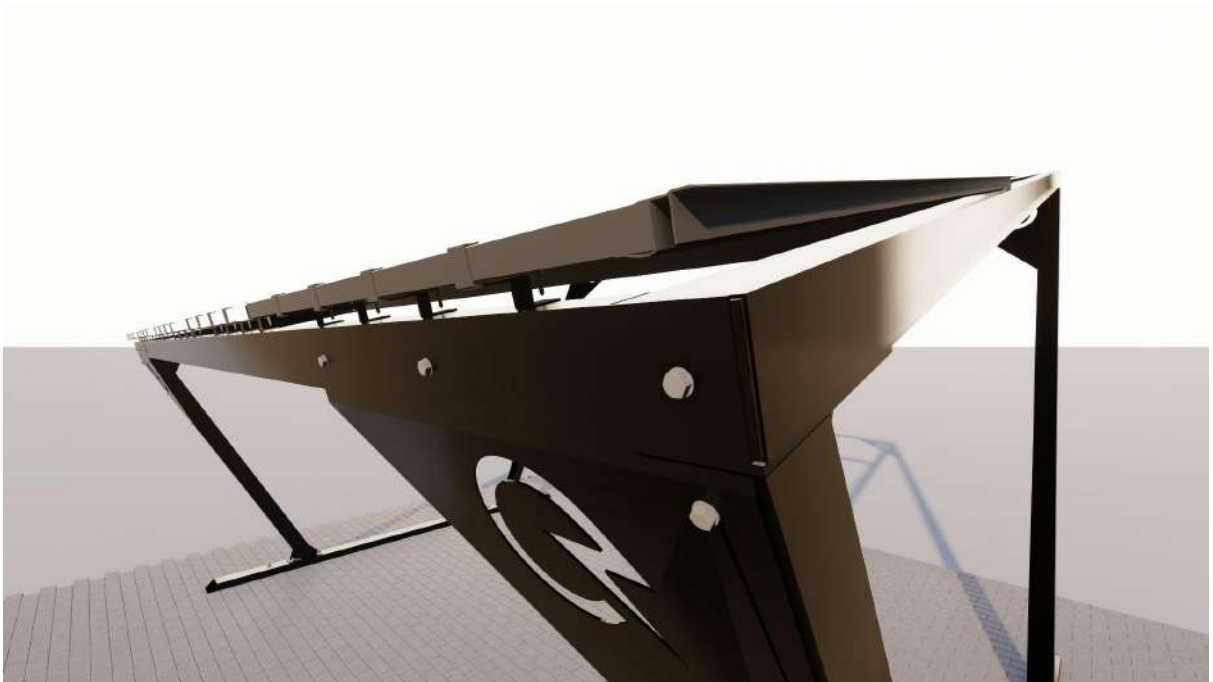
Steps 14-20 | Solar Full Roof™ Installation

- Step 14 - Install first row PV clamps

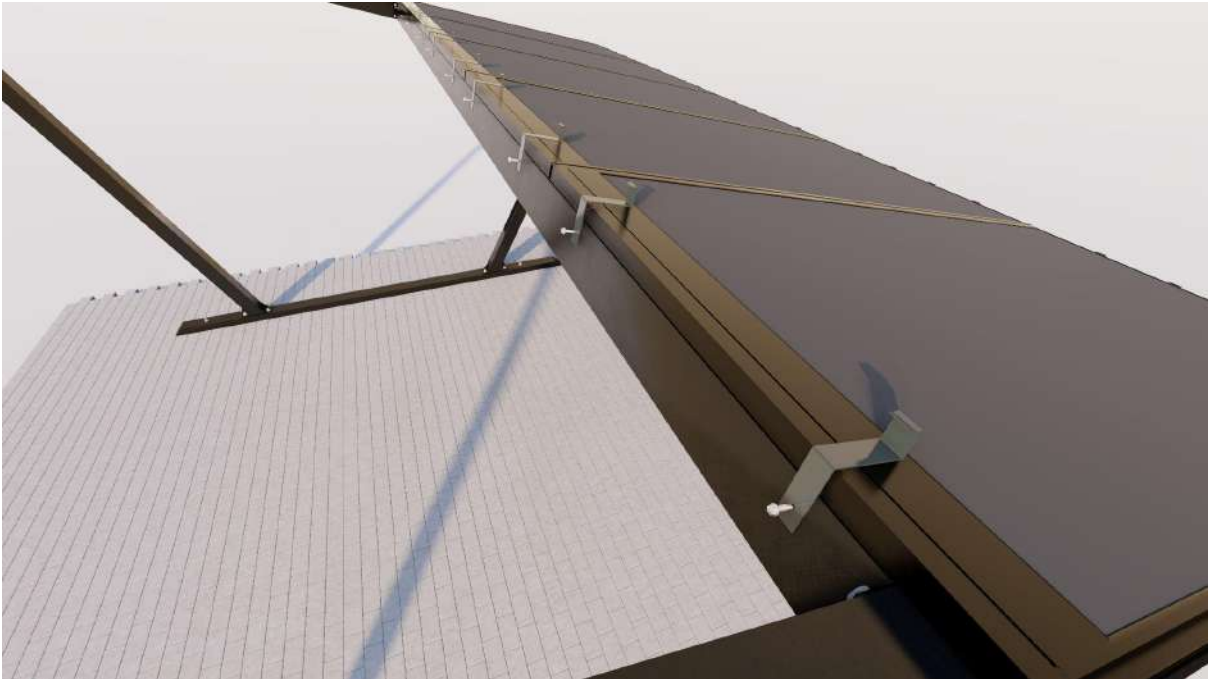


- Step 15 - Install first row PV panels

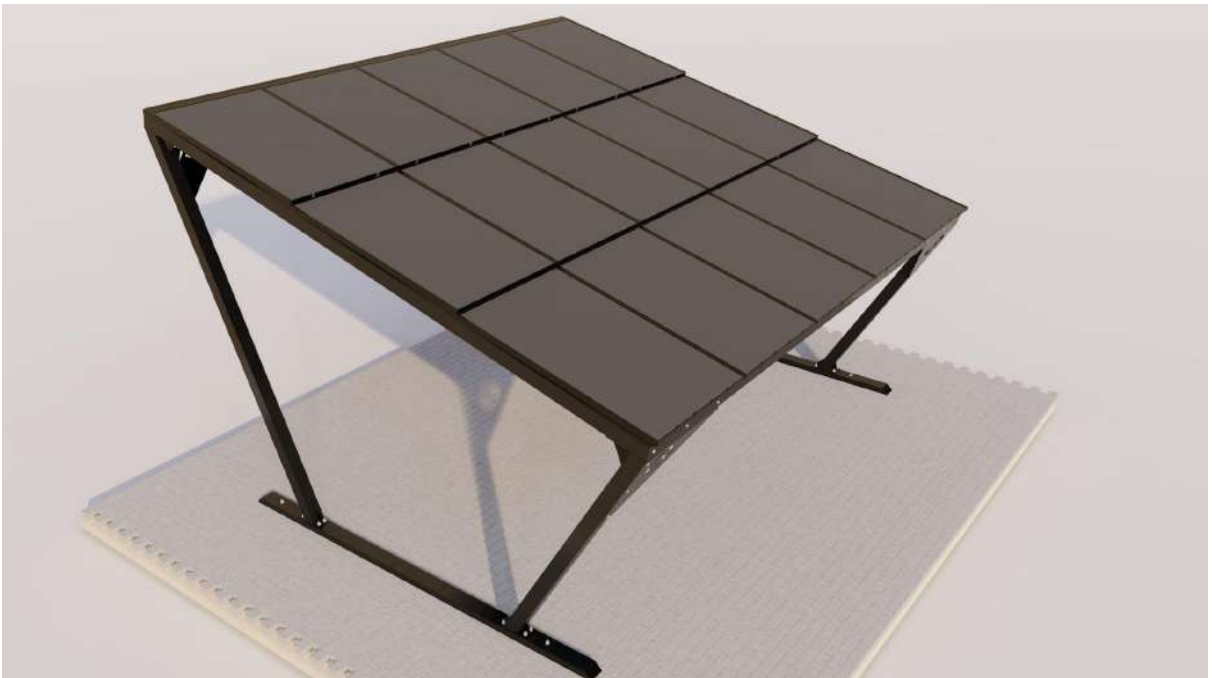




○ Step 16 - Install second row PV panels

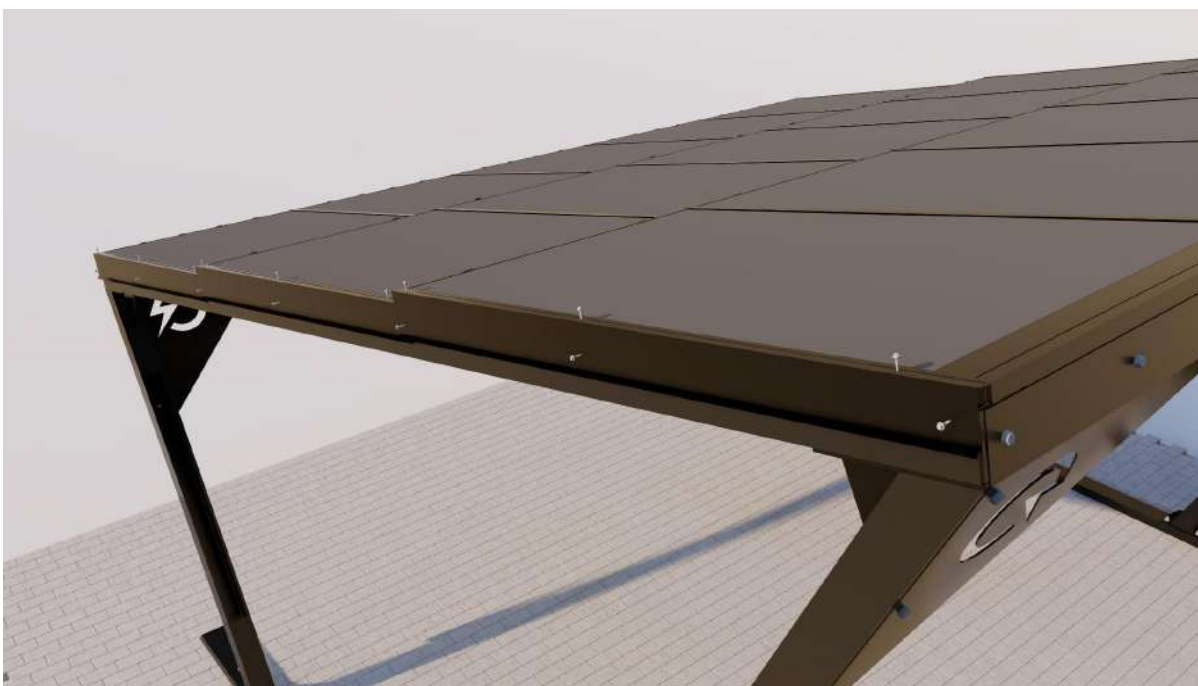
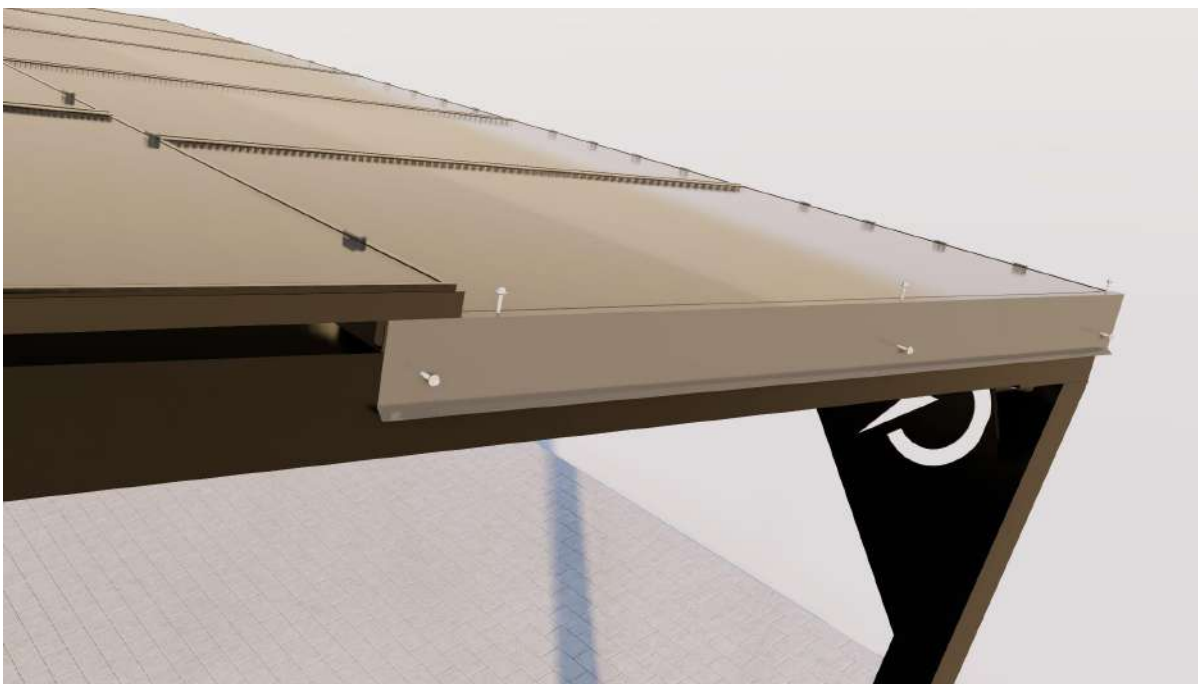


○ Step 17 - Install third row PV panels



NB! Solar Carport Modern Plus has a 4th row of solar panels. Same instructions apply.

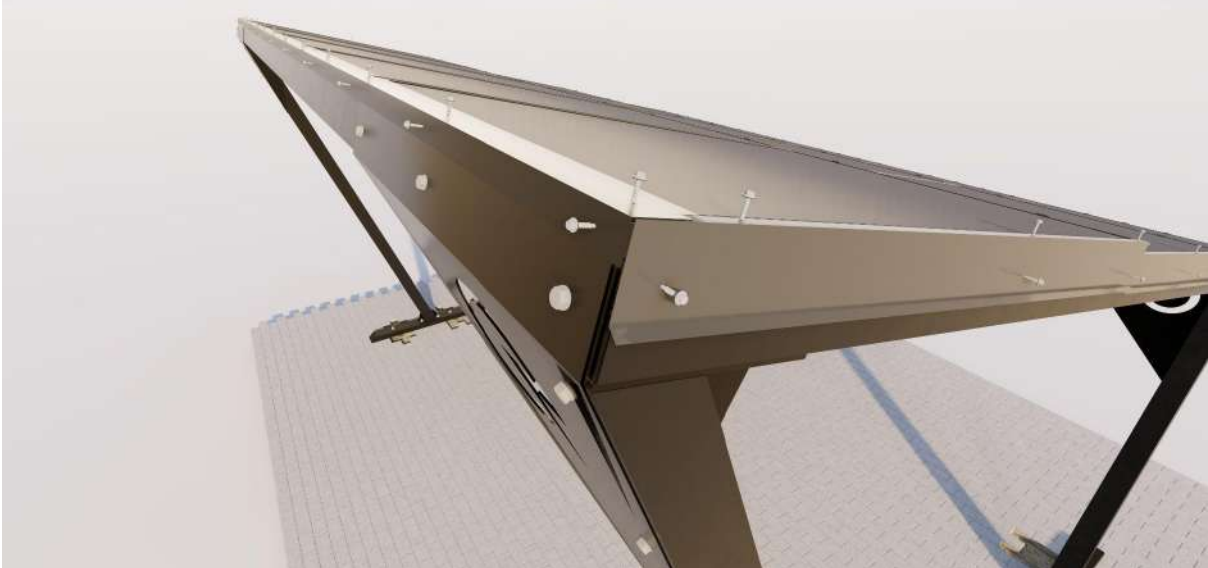
● Step 18 - Install side flashing

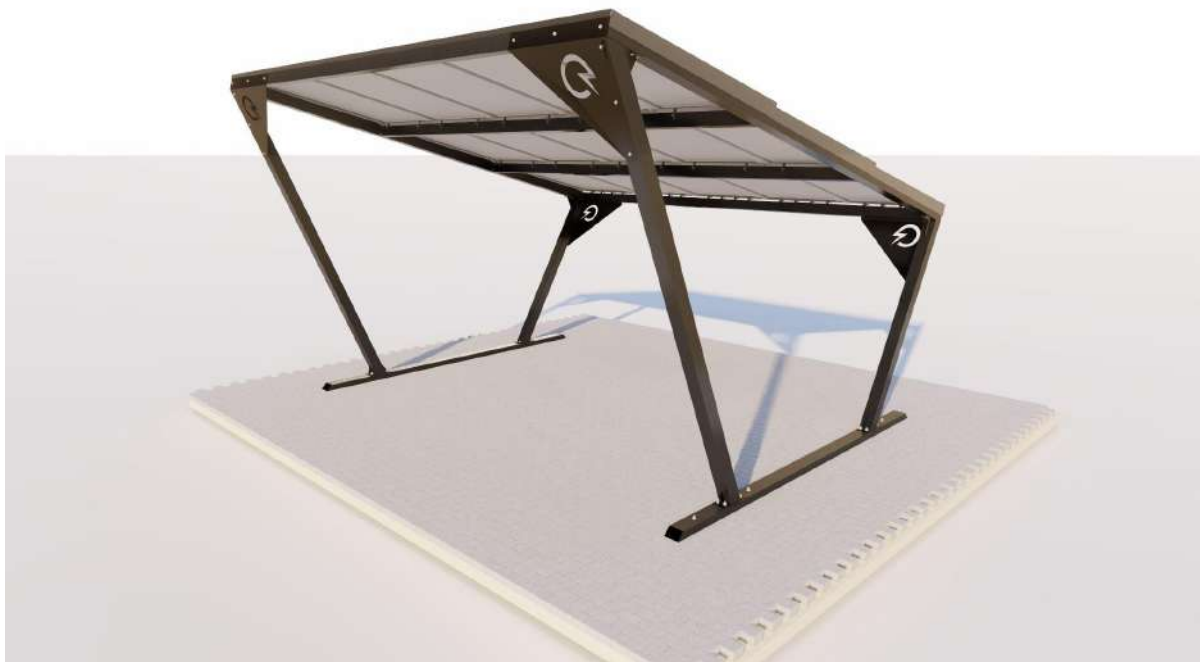


○ Step 19 - Install upper flashing



○ Step 20 - Connect screws





Steps 21-24 | Timber cladding installation

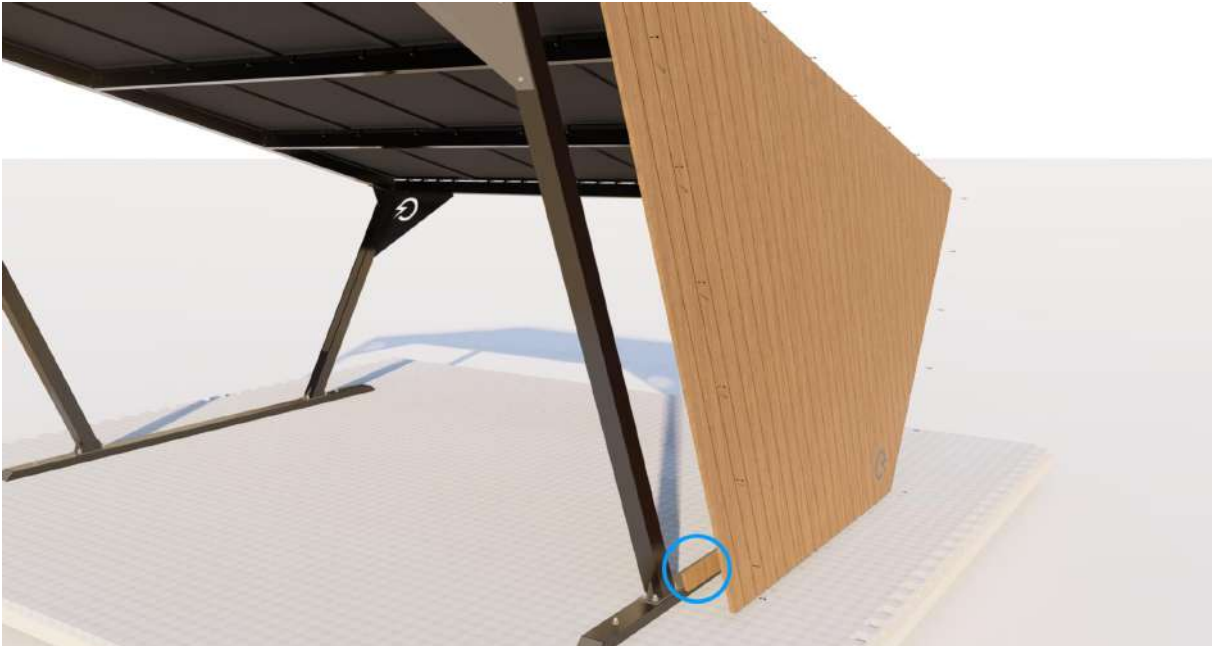
- Step 21 - Install first row CLT timber cladding with screws



- Step 22 - Connect mortise and tenon joints and install the next row of CLT panel



○ Step 23 - Connect all CLT panels with screws

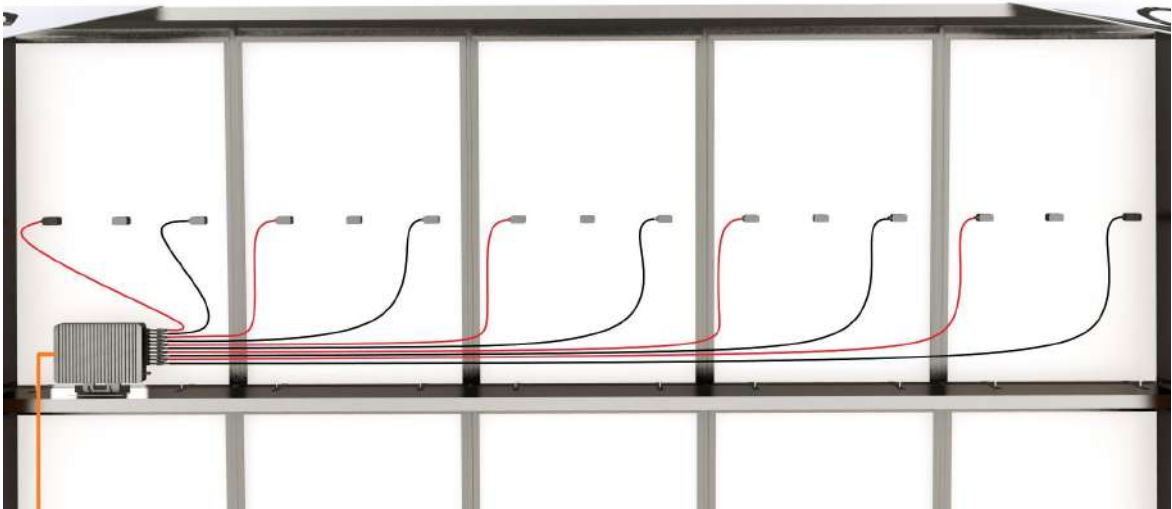


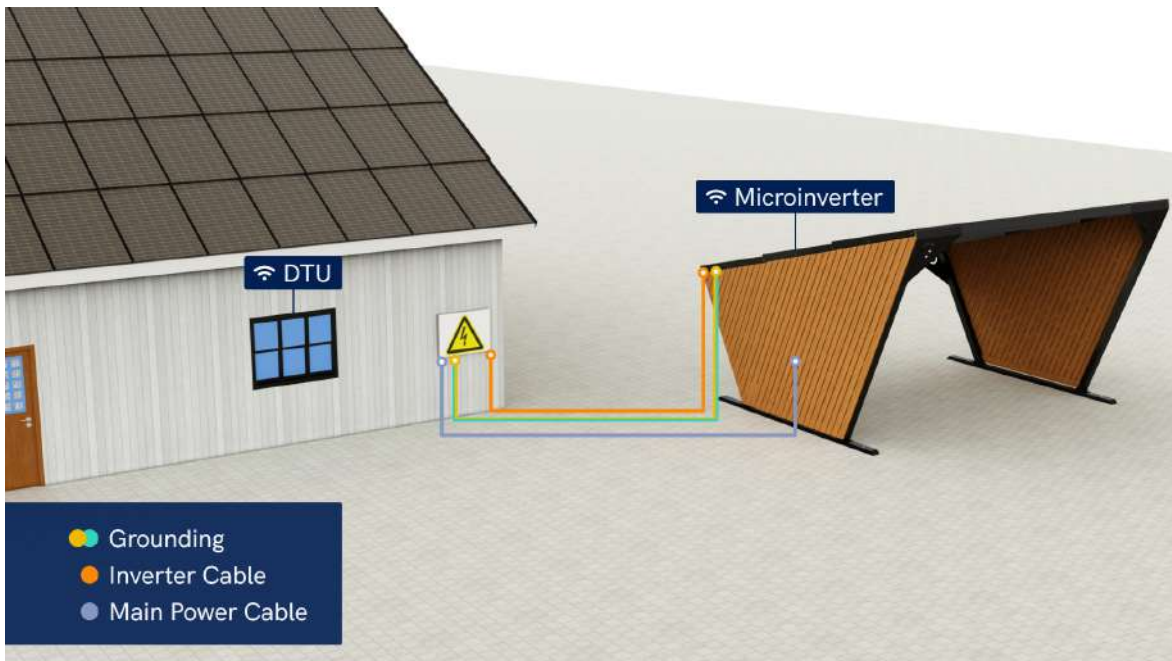
○ Step 24 - Connect timber board behind CLT timber cladding's lower edge with screws



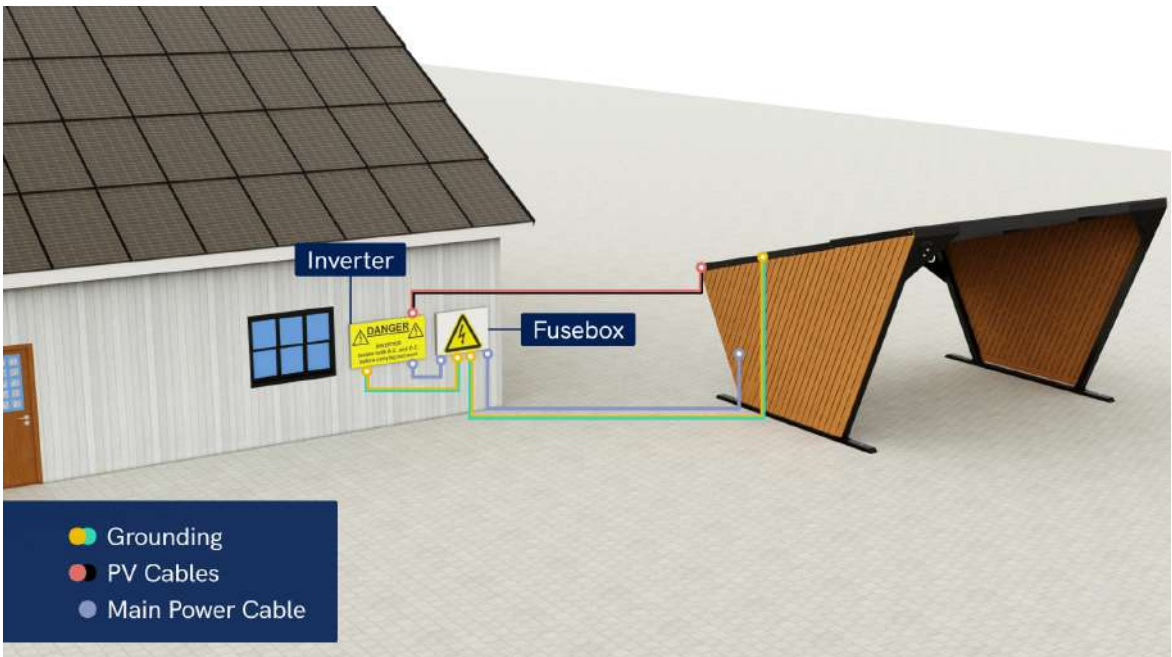
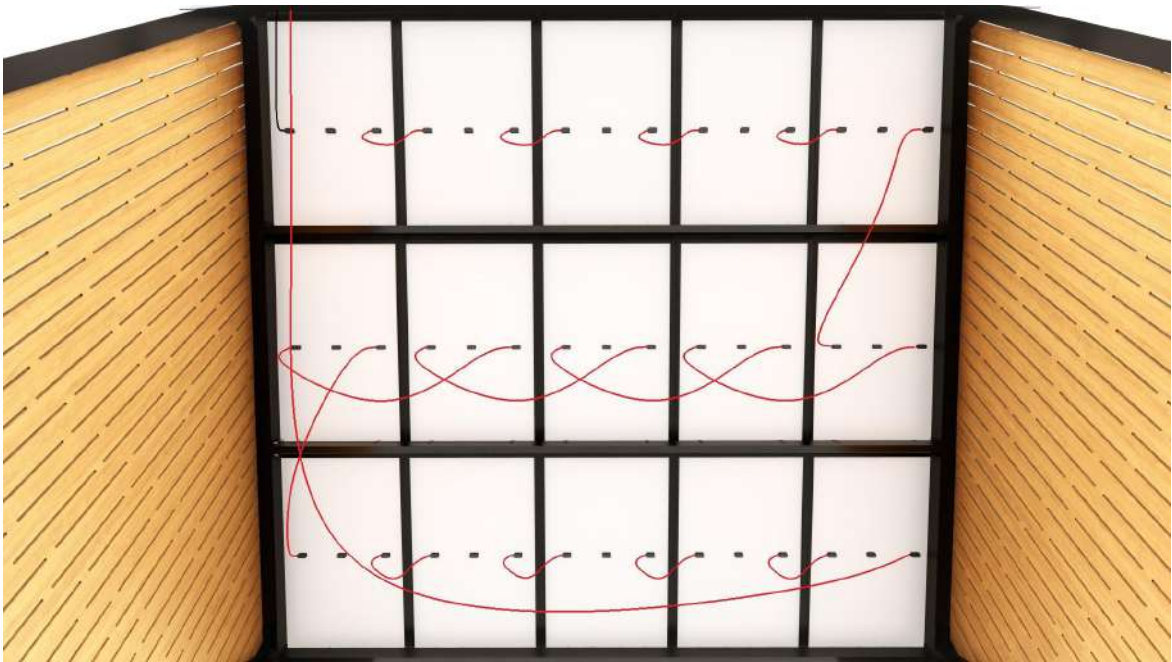


Step 25 | Microinverter



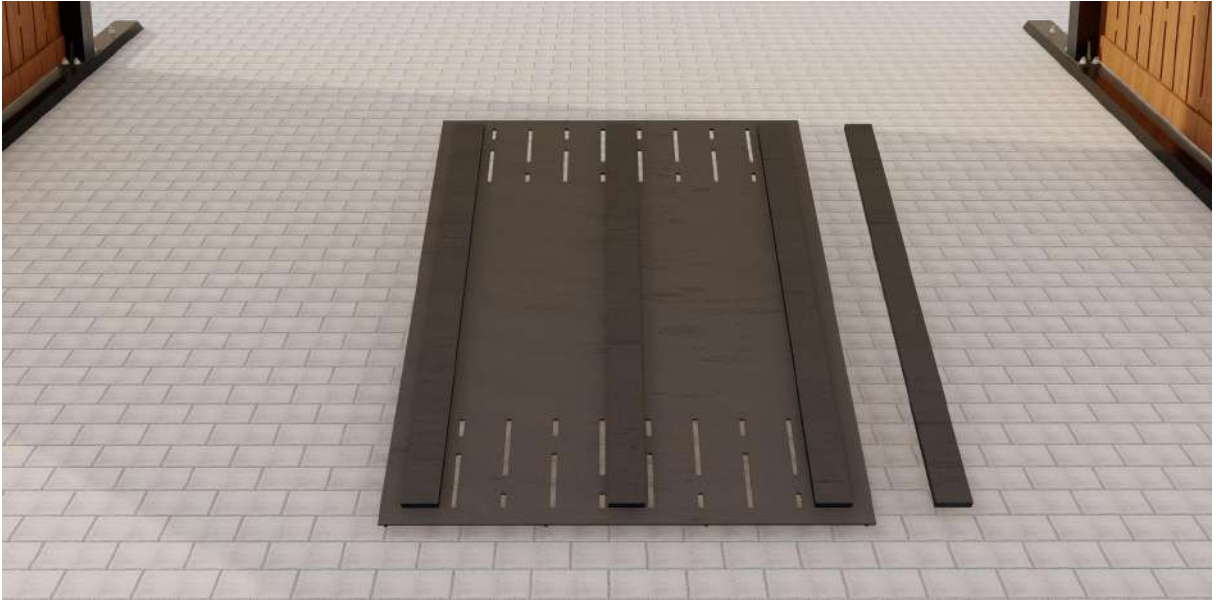


Step 26 | String inverter



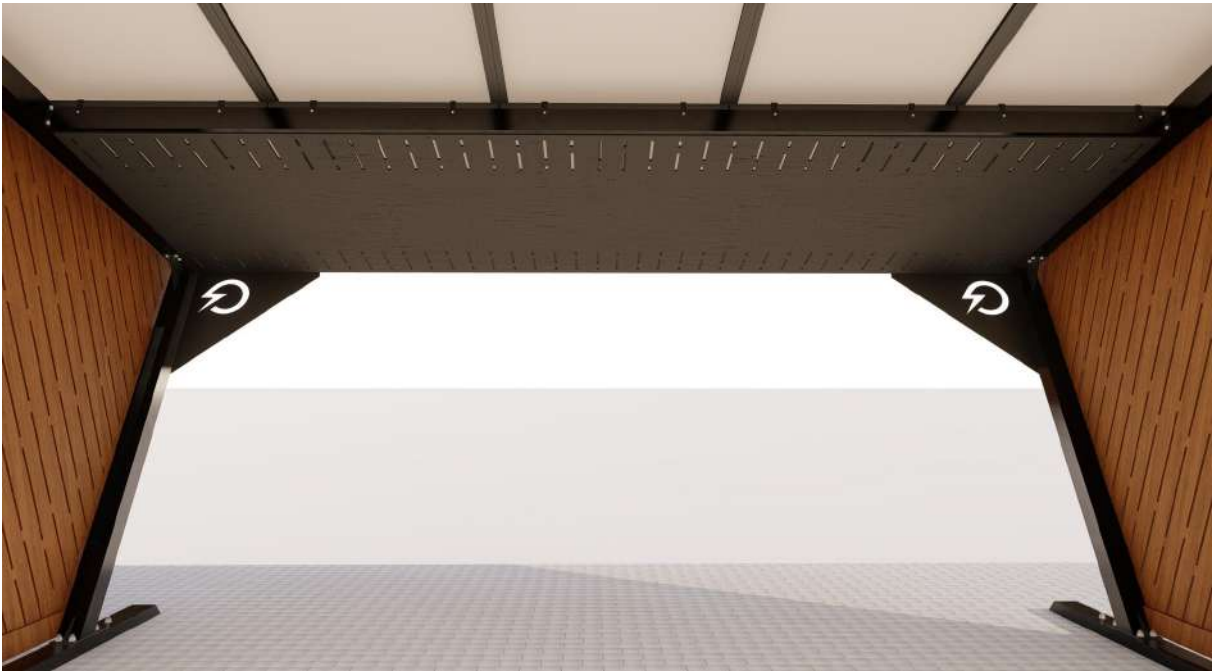
Steps 27-29 | Ceiling installation

- Step 27 - Connect timber board into plywood with screws

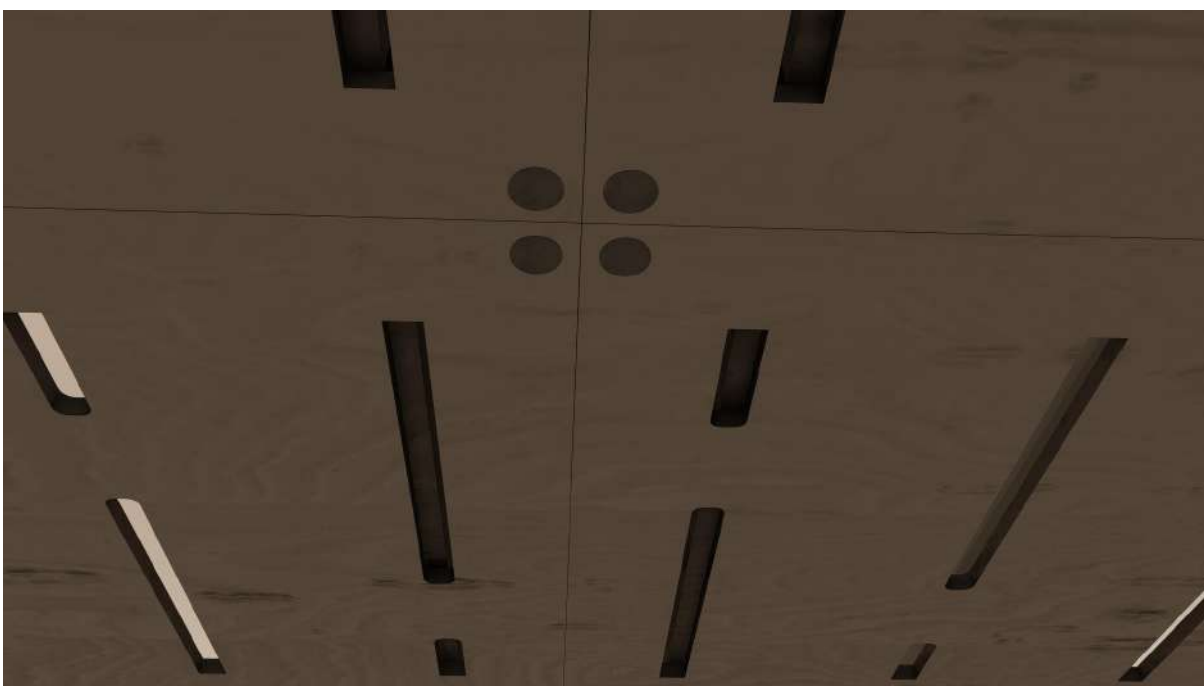


- Step 28 - Connect plywood ceiling onto purlins with screws





Step 29 - Install screw caps



Version

NO	DATE	DESCRIPTION	WHO
1.0	10.01.2023	Released version	Erkki Ehasalu
1.1	30.03.2023	Updated product name and formatting	Erkki Ehasalu

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