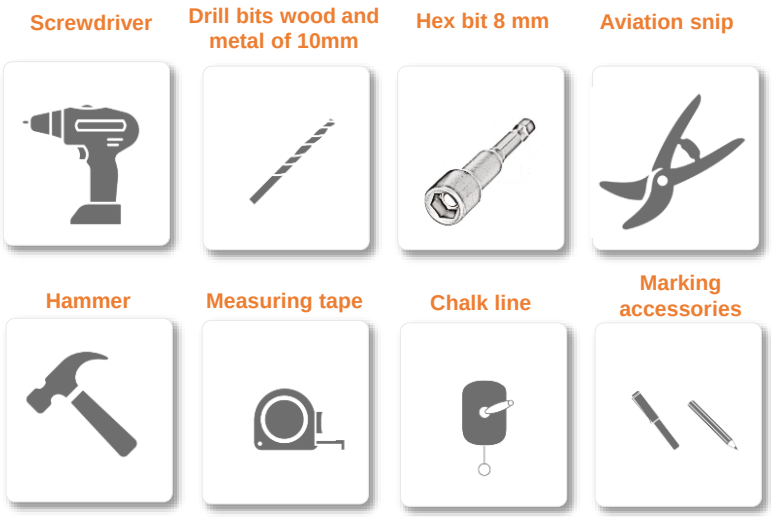
REQUIREMENTS FOR A SUCCESSFUL PROJECT

Before starting the installation of the GSE IN-ROOF System, check that you have carried out the following actions :

- ❑ Watch our installation videos on Connector
- ❑ Configure your site with Connector
- ❑ Download the battening plan specific to your IN-ROOF PORTRAIT installation
- ❑ Prepare the tools you need to install the system :

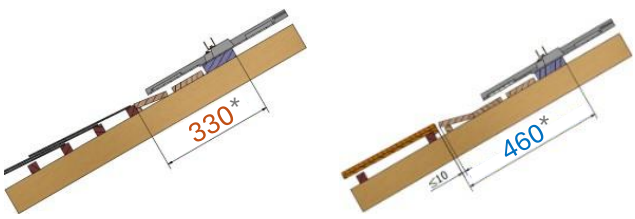
Scan me



Step 1 : Installation of the support batten

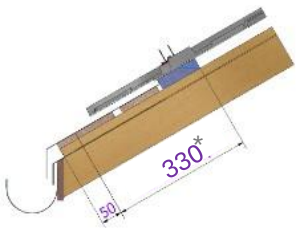
1 Install the **reference batten:**

For installation in the **middle** of the roof :



Slate | Other Tiles

For **gutter** installation :



Gutter

The dimensions above apply to roofs with a pitch of **more than 24°. If the pitch roof is smaller, please **refer to the installation manual.***

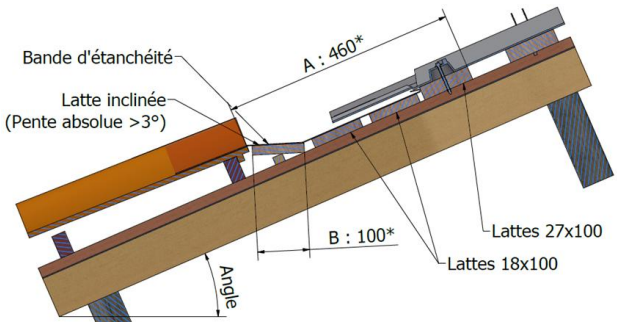
2 **Install the other battens according to the first reference batten installed, following the battening plan (see p.8)**

Step 2 : Laying of the waterproofing strip

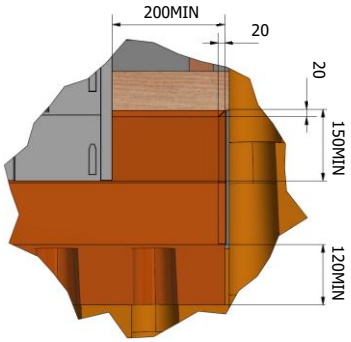
1 **For roofs with flat interlocking tiles, slight-curve tile, deep-curve tiles install an inclined batten of width depending on the roof pitch of your project (see p.20 of the installation manual)**

Sloping batten aren't required for slate or gutter installations.

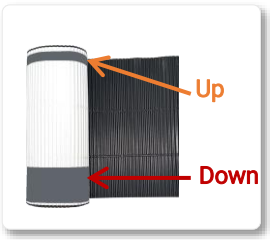
WARNING : the thickness of the battens supporting the waterproofing strip must be **max 18 mm**



2 **Install the waterproofing strip** (Minimum width required : 50 cm)

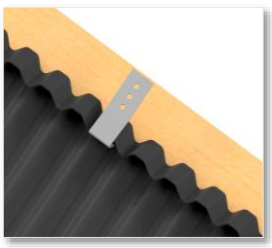


Cut the strip, leaving **20 cm of overlap** on each side of the field.



Be sure to lay the sealing strip right side up : the **smaller strip** of butyl must be laid **below the GSE frames, and the bigger strip on the tiles**

Make a **fold** of approximately **20 mm** at the **top and sides** to prevent water from rising.

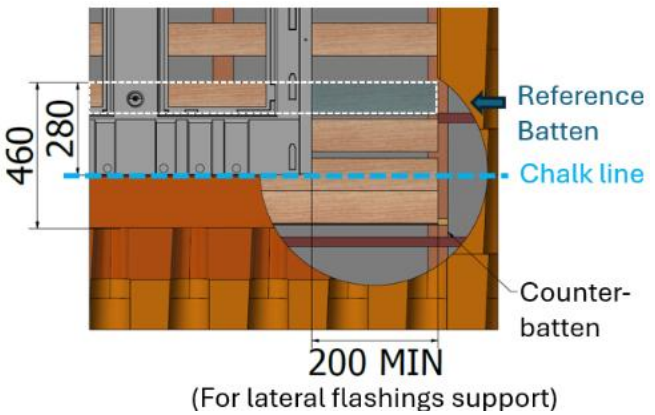


Remove the butyl tape and **dress the strip**.
Hold the strip in place at the top with **flashing hooks.**

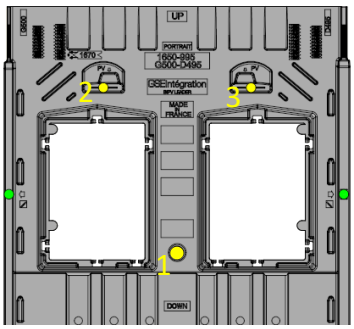
Step 3 : Installation of the Portrait Evolution Frames

1 **Place the first frame at the bottom right of the PV field**

The bottom of the frame must be **25 cm from the top of the reference batten** and **20 cm from the right edge of the battens.**



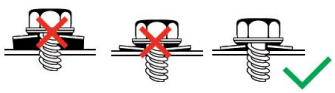
2 Fix the 1st frames at its 3 fixing points



● **Fixing Frame (pre-drilled)**

WARNING :

Do not press the screws too far into the frames



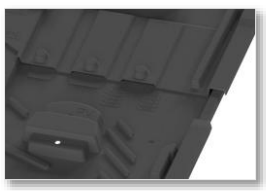
3 Assemble the other frames of the 1st PV field line using the stop and fix them

Fit the frames from right to left

Use the stop system

4 Assemble the next top row frames

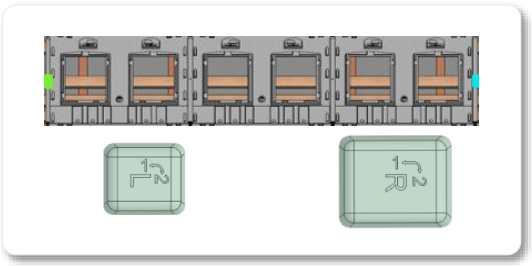
Adjustment possible according to graduation in mm



Step 4: Installation of the lateral flashings

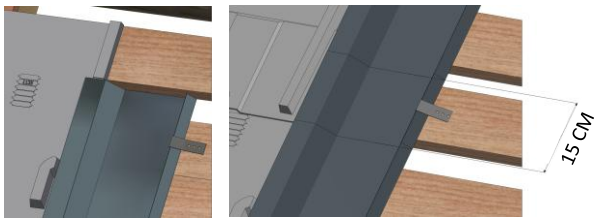
1 Place the wedges under the corrugations at the ends of the PV field, where the clamps will be

- Position the L to the left
- Position the R to the right



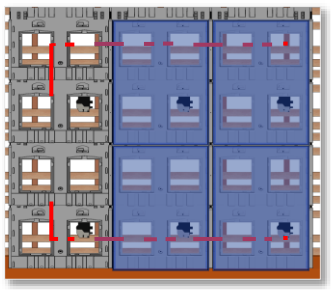
2 Place the side flashings at the right and left ends of the PV field. Make sure there is a minimum **overlap of 15 cm** between 2 flashings.

3 Fix each of them with 2 hooks per flashing.



Step 5 : Installation of the micro-inverters

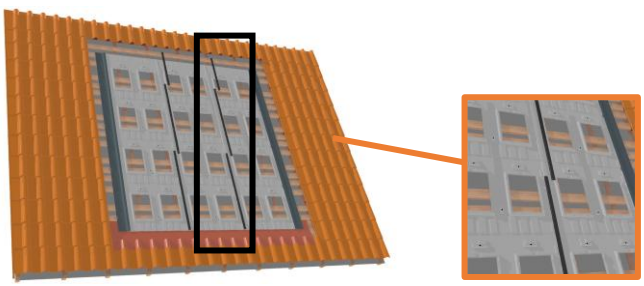
1. **Fix the microinverters to a batten in the central hole**
2. **Connect them together via connecting cables** which must pass under the frames.



Step 6 (optionnal*) Installation of the Intermodule flashings

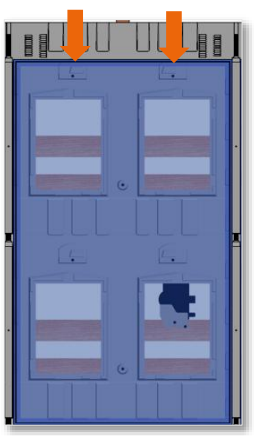
**Mandatory installation step in Germany and the Netherlands*

1. Place the **inter-column flashings** from bottom to top on the frames' corrugations, so that the overlap between 2 flashings is of minimum 150mm. You will fix them later with the clamps.



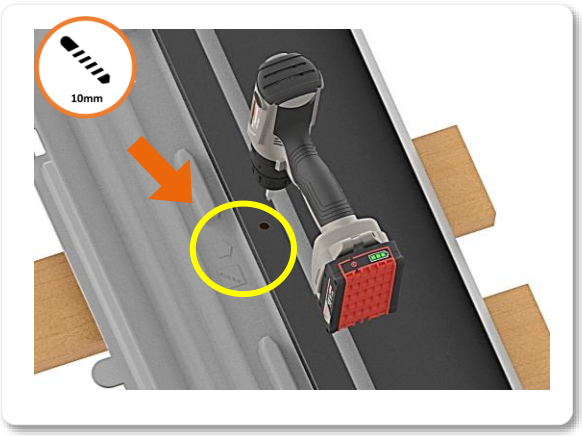
Step 7: Installation of the PV modules

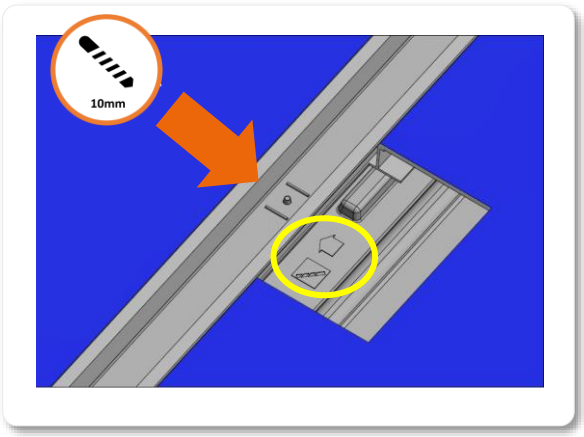
1. **Position the modules** so that they rest on the support pads and abut the upper stops to prevent them from slipping.
2. **Pass the PV module cables under the frames.**



3 **Pre-drill with a 10mm drill bit the fixing points** for the end clamps on each side and middle clamps between each columns.

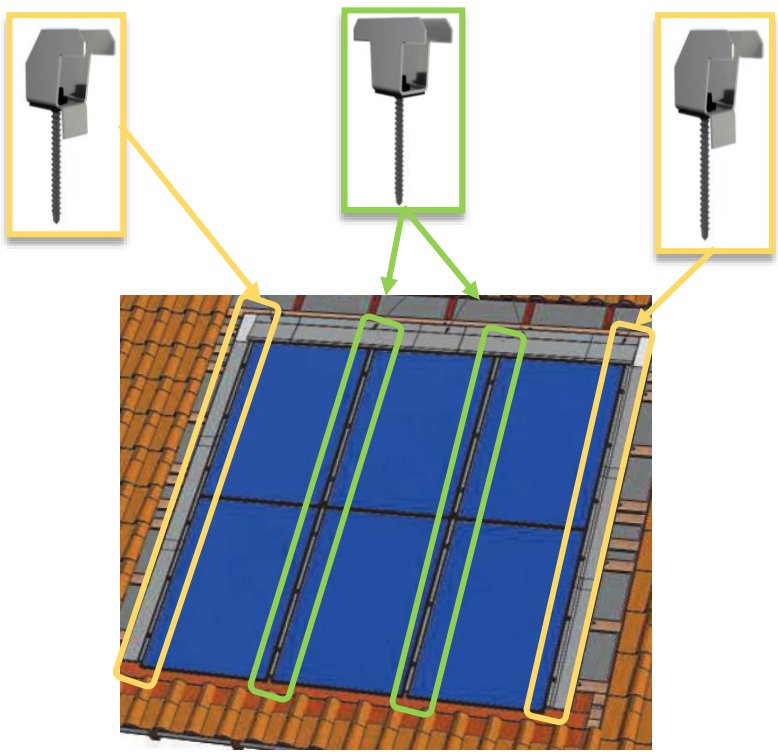
There is a frame indicator to follow.





4 **Fix the clamps into the pre-drilled holes**

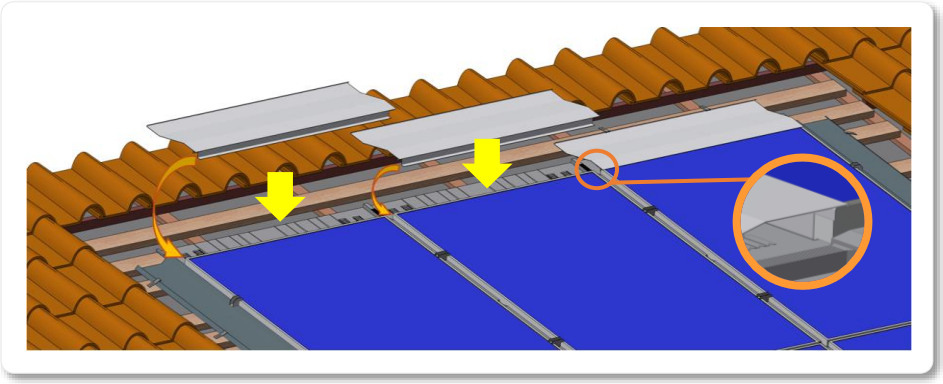
⚠ **WARNING :** Pre-drilling is mandatory. **Do not use an impact screwdriver to fix the clamps.**



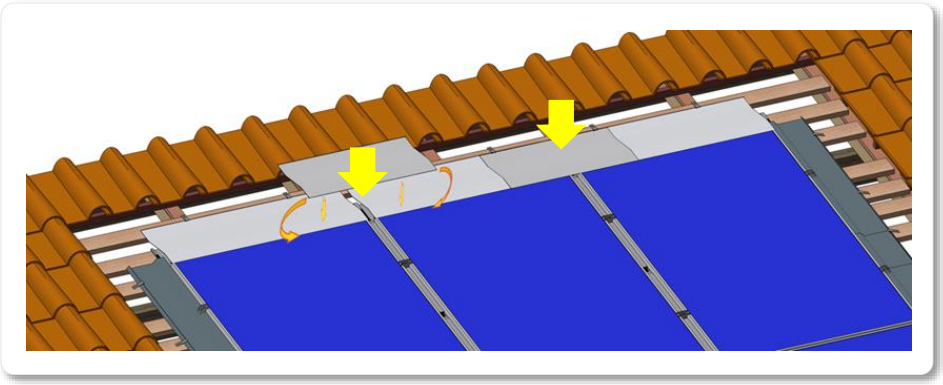
Step 8: Installation of the top flashing

Only for module thickness = 30mm & roof pitch ≥20°

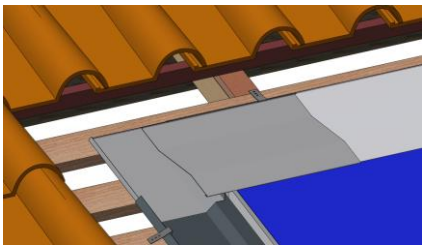
1 **Put one top center flashing per column.**
Snap it with the pv panel.

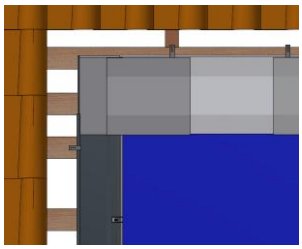


2 **Add one top junction flashing between each top center flashing.**
Snap this two pieces together.



3 **Add for each corner side – top left corner & top right corner flashing.**
Snap the corner pieces with the lateral flashing and top center flashing.



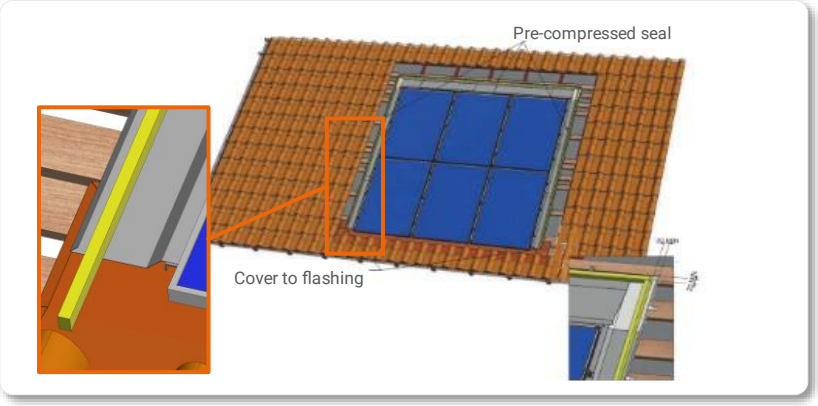


Waterproofing strip can also be installed for top connection. Min width 330mm.

Step 10: Connection to the roof

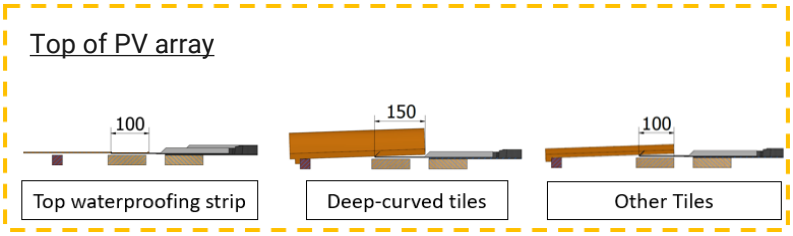
1 **Place the pre-compressed seal** on the flashings around the side and top of the array (at approx. 2cm from the edges of the flashings)

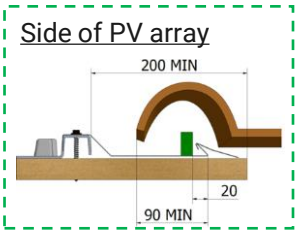
WARNING : The seal must reach the bottom of the flexible flashing strip to prevent possible seepage of water or solid particles.



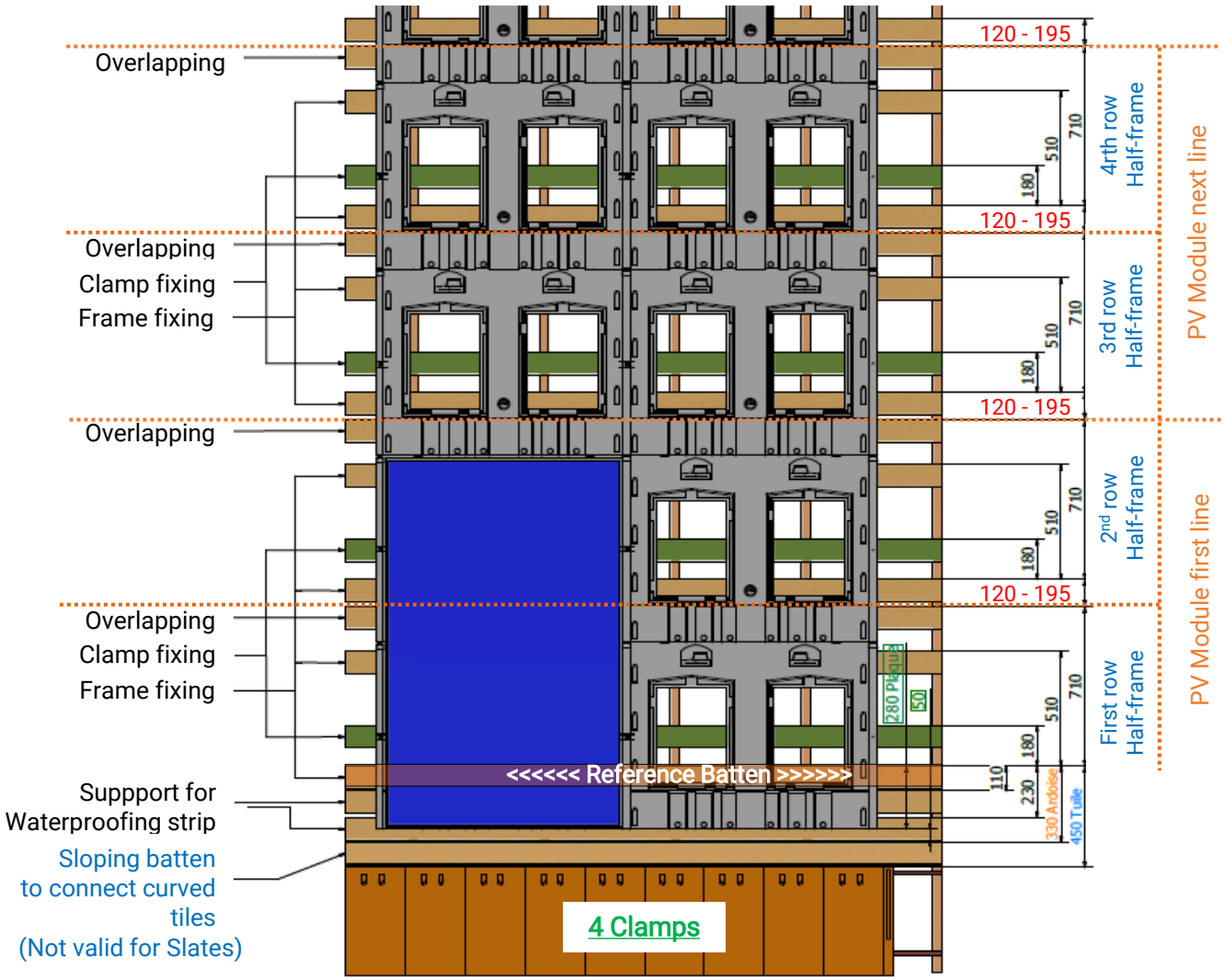
2 **Place the roofing elements** at the sides and top following the adjacent minimum overlapping dimensions :

It may be necessary to cut the tiles to ensure effective covering that complies with local norms.





BATTENING PLAN FOR PORTRAIT EVOLUTION HALF-FRAMES OF REFERENCE HEIGHT 1650 MM WITH 4 CLAMPS



Define the line spacing annotated in red in the plan above (between 120 and 195mm) in relation to the length of PV module to be installed (and therefore the adjustment required between the half-frames).
Please refer to the adjacent table:

PV Panel Length	First row	Next Rows	Half-frame adjustment
≤1650	450 (or 330) + 710	120 + 710	0
1660	450 (or 330) + 710	125 + 710	5
1670	450 (or 330) + 710	130 + 710	10
1680	450 (or 330) + 710	135 + 710	15
1690	450 (or 330) + 710	140 + 710	20
1700	450 (or 330) + 710	145 + 710	25
1710	450 (or 330) + 710	150 + 710	30
1720	450 (or 330) + 710	155 + 710	35
1730	450 (or 330) + 710	160 + 710	40
1740	450 (or 330) + 710	165 + 710	45
1750	450 (or 330) + 710	170 + 710	50
1760	450 (or 330) + 710	175 + 710	55
1770	450 (or 330) + 710	180 + 710	60
1780	450 (or 330) + 710	185 + 710	65
1790	450 (or 330) + 710	190 + 710	70
1800	450 (or 330) + 710	195 + 710	75