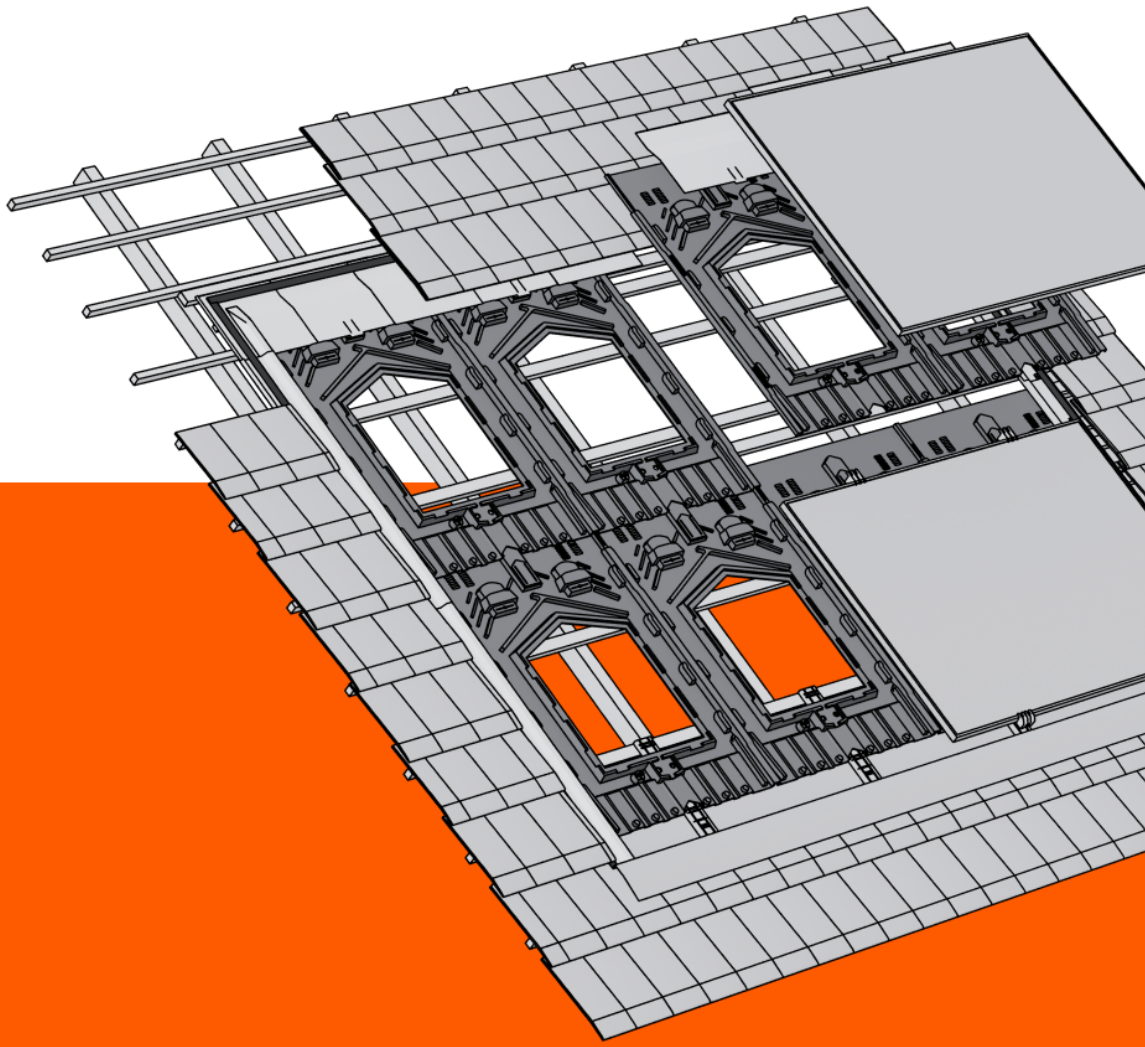
INSTALLATION
MANUAL

GSE
IN-ROOF SYSTEM LANDSCAPE EVOLUTION

50mm battens



www.gseintegration.com

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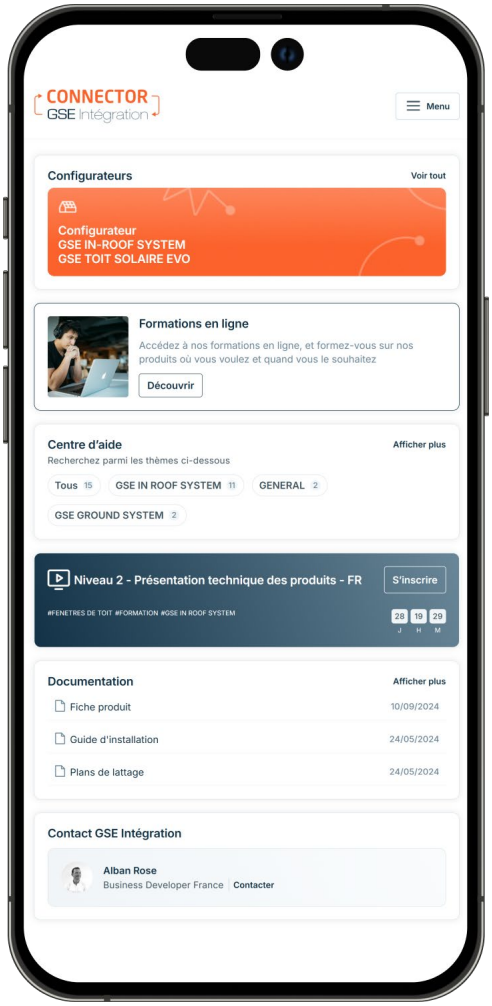
01

Introduction

1 Before installation

Introduction

Before starting the installation, make sure you have set up your project with CONNECTOR.



Setting up your project with CONNECTOR gives you the information you need to properly prepare the site and optimize the number of panel on you roof in one click.

- Optimize the number of modules on a given surface.
- Create the list of required materials.
- Automatically generate the system's complete configuration.
- Save time when preparing orders and quotations.

2 Training

Introduction

Before undertaking any installation, you have to complete our online training module dedicated to the GSE IN-ROOF LANDSCAPE SYSTEM EVOLUTION, which is available on our CONNECTOR platform as well as in person training.

This training will enable you to:

- ✓ Understand the key installation steps in detail
- ✓ Learn best practices for quick and safe assembly
- ✓ Anticipate critical issues that may arise on site
- ✓ Reduce the risk of errors and non-compliance.

3 Safety

Introduction

Safety on site is of paramount importance. Every installation technician must comply with the local regulations and use appropriate personal protective equipment.
Our company only supplies the mounting system and does not provide safety equipment.

We urge you to carefully read this manual in its entirety before commencing installation.

When installing the in-roof landscape system, pay particular attention to:

- ✓ Wearing gloves when installing metal components
- ✓ Wearing a hard hat on site
- ✓ Wearing safety goggles during cutting or drilling work
- ✓ Observing the local regulations and standards for lifting, handling and electrical connections.

02

Site preparation

1 Field of use

Site preparation

The installer must proceed to a measurement work beforehand, in order to guarantee the durability and performance of the PV array installed. Climatic conditions of the project (ie. wind and snow[1]) and PV array layout should be considered according to current regulations (Eurocodes and BS 5534).

This data will help to check if the system is suitable for the project conditions. The thickness of the support battens must be adapted to the roof battens to ensure the junction with the roof covering is watertight.

Climatic conditions

Climatic load according to Eurocode 1 and BS 5534

Geographical wind zone	Wind speed (m/s)	Design Wind Pressure (kN/m²)
1	22	0,820
2	24	0,975
3	26	1,150
4	28	1,330
5	30	1,600

[1]The seismic resistance of the GSE IN-ROOF SYSTEM is validated on the whole European territory. This criterion is not to be taken into account.

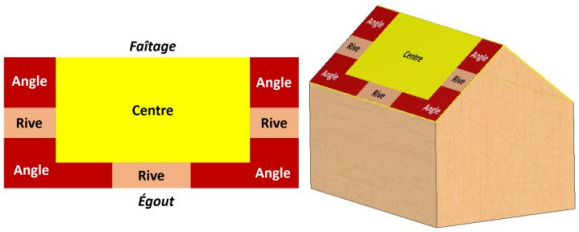
Find the assembly video and much more on CONNECTOR

1 Field of use

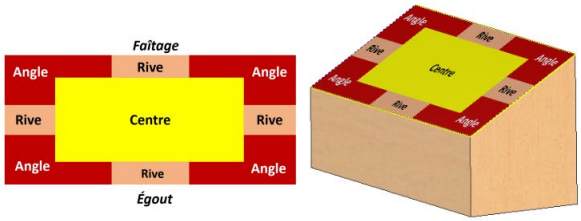
Site preparation

Layout of the PV array

The position of the PV array on the roof affects the wind load value if it is in the centre, at the edge or at a corner. The most unfavourable location should be considered.



Two-sided roof



Single-sided roof

Wind uplift resistance

GSE IN-ROOF LANDSCAPE SYSTEM wind uplift resistance is **2,25kN/m2** according to MCS012

To calculate the wind load on the PV array, you need to know the following parameters :

- Location of the project
- Altitude
- Terrain category
- Distance from the shoreline
- Ridge height
- Roof pitch
- Roof zone (Centre, Edge, Corner)
- Wind zone

Find the assembly video and much more on CONNECTOR

1 Field of use

Site preparation

Example of cases

Project parameters :

- Terrain category: **Country terrain** (including Town Terrain)
- Distance from the shoreline: **10 km**
- Battens dimension: **25 x 50mm**

1st case: Roof pitch = 25°

Ridge Height	Location on the Roof	Zone 1 (Alt≤ 250m)	Zone 2 (Alt ≤ 200m)	Zone 3 (Alt ≤ 130m)	Zone 4 (Alt ≤ 100m)	Zone 5 (Alt ≤ 50m)
6 m	Center	1,26 kN	1,38 kN	1,44 kN	1,58 kN	1,65 kN
	Edges	1,46 kN	1,60 kN	1,67 kN	1,83 kN	1,92 kN
	Corners	1,56 kN	1,72 kN	1,78 kN	1,96 kN	2,05 kN
8 m	Center	1,37 kN	1,51 kN	1,57 kN	1,72 kN	1,80 kN
	Edges	1,59 kN	1,75 kN	1,82 kN	2,00 kN	2,09 kN
	Corners	1,71 kN	1,87 kN	1,95 kN	2,14 kN	2,24 kN
10 m	Center	1,43 kN	1,57 kN	1,63 kN	1,79 kN	1,88 kN
	Edges	1,66 kN	1,82 kN	1,90 kN	2,08 kN	2,18 kN
	Corners	1,78 kN	1,95 kN	2,03 kN	2,23 kN	2,33 kN

Red : installation is forbidden

2nd case: Roof pitch = 35°

Ridge Height	Location on the Roof	Zone 1 (Alt≤ 250m)	Zone 2 (Alt ≤ 200m)	Zone 3 (Alt ≤ 150m)	Zone 4 (Alt ≤ 100m)	Zone 5 (Alt ≤ 50m)
6 m	Center	1,09 kN	1,19 kN	1,29 kN	1,36 kN	1,43 kN
	Edges	1,36 kN	1,49 kN	1,61 kN	1,71 kN	1,78 kN
	Corners	1,43 kN	1,57 kN	1,69 kN	1,79 kN	1,87 kN
8 m	Center	1,19 kN	1,30 kN	1,40 kN	1,49 kN	1,56 kN
	Edges	1,48 kN	1,63 kN	1,75 kN	1,86 kN	1,95 kN
	Corners	1,56 kN	1,71 kN	1,84 kN	1,95 kN	2,04 kN
10 m	Center	1,24 kN	1,36 kN	1,46 kN	1,55 kN	1,62 kN
	Edges	1,55 kN	1,69 kN	1,83 kN	1,94 kN	2,03 kN
	Corners	1,62 kN	1,78 kN	1,92 kN	2,04 kN	2,13 kN

For other locations, please contact technical support through contact@gseintegration.com

Find the assembly video and much more on CONNECTOR

2 Size of the PV array

Site preparation

The dimensions of the PV array can be calculated using the CONNECTOR tool.

Array height (mm) =

A + B + C + D + E**

((Height Ref + 38) x Nb Lines + Adjustement[1] x (Nb lines-1)) + 170 + 155 + 110 + 100**

*Refer to p.23 for the adjustment

**If installed in the middle of the roof, add a 3rd batten (100mm wide) as a tilt filet to compensate the thickness of the tile.

Array width (mm) =

F + 2 x G

(Width Ref + 46.5) x nb. Columns + (2 x 160)

Landscape Evo Frames							
Height Ref	1090	1090	1090	1090	1090	1090	1090
Width Ref	1725	1755	1760	1765	1800	1810	1815

Find the assembly video and much more on CONNECTOR

03

Overview of the system

1 System presentation

Overview of the system

The GSE IN-ROOF SYSTEM is available in two versions to adapt to all roofing projects:

PORTRAIT EVOLUTION SYSTEM
LANDSCAPE EVOLUTION SYSTEM

Both systems enable the integration of photovoltaic modules on all common roof coverings, including curved tiles, interlocking tiles, flat tiles, and slates, whether on new buildings or renovation projects. For both small and larger rooftop arrays and can be mounted on roof pitches from **15° to 50°.**

Each configuration uses a specific battening plan **with 25x50mm battens** designed to ensure proper load transfer and positioning. The system is installed on timber roof structures and fixed to battens selected according to the roof structure and local climatic requirements.

This installation manual describes the essential steps to ensure compliant and reliable installation.

It must be used in conjunction with the module manufacturer's instructions, particularly for cabling and electrical connections.

If you have any questions or doubts about any stage of the process, our team will be more than happy to support you.

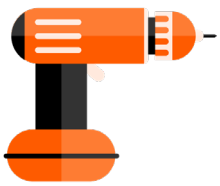
Find the assembly video and much more on CONNECTOR

2 Tools

Overview of the system

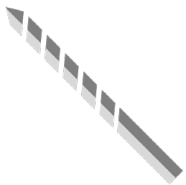
In addition to your personal protective equipment, you will need:

Combi drill



⚠ Do not use an impact driver

Ø 10 mm HSS Drill bit



⚠ To drill the frames and flashings in the clamps fixing point

Hex bit - 8 mm

Tin snips

Hammer

Tape measure

Chalk line

Flashing roller

Marking accessories

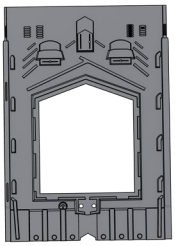
White marker, pencil, etc.

Find the assembly video and much more on CONNECTOR

3 System components

Overview of the system

Half-frames

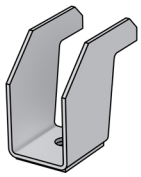


GSE IN_ROOF SYSTEM
Landscape Evolution frame

Clamps & Screws

Bottom Rail

Top end clamps
+ EPDM wedge



Middle clamps
+ EPDM wedge

GSE Self-drilling screws
6,5 x 50, silver
use for frames and rails

GSE Self-drilling screws
6,5 x 60, black
use for clamps

Bottom end clamps
+ EPDM wedge
+ nut and bolt

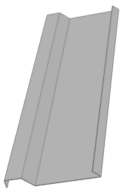
Our screw have been tested and provide mechanical resistance and form part of the warranty

Find the assembly video and much more on CONNECTOR

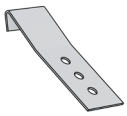
3 System components

Kit presentation

Lateral flashings

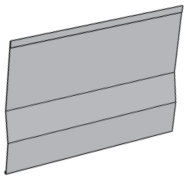


Lateral (side) flashing

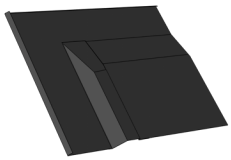


Fixing hook with screws

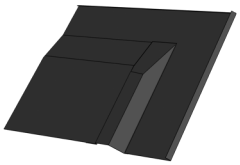
Rigid top flashings



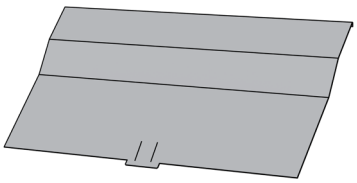
Top junction flashing



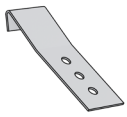
Top left corner flashing



Top right corner flashing



Top central flashing



Fixing hook with screws

Sealing

Pre-compressed foam

Find the assembly video and much more on CONNECTOR

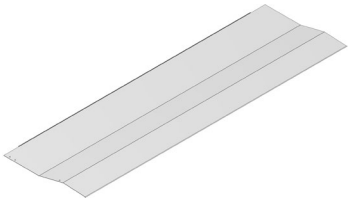
3 System components

Kit presentation

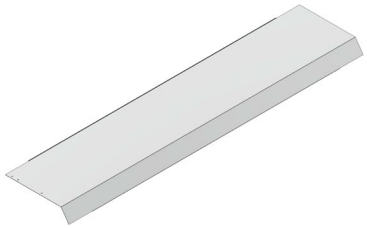
Bottom connection

Flexible waterproofing strip 500 mm / 400mm

Sealant



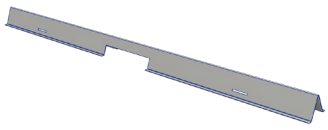
Rigid flashing



Drip flashing

Top connection with waterproofing strip

Flexible waterproofing strip 330 mm



Tiles support

Tiles support Hook

Find the assembly video and much more on CONNECTOR

04

Installation

Installation steps overall

Installation

1 **Positioning the support battens**

Install and align the wooden support battens required for the Landscape configuration, ensuring correct spacing and fastening according to project specifications,

2 **Installing bottom connection**

Install the bottom connection depending on the project specifications (tiles type and position)

3 **Installing the landscape half frames**

Position and fix the Landscape frames starting from the lower right corner, ensuring proper alignment and overlap on the bottom connection.

4 **Installing the flashings**

Install the lateral (side) flashings, top flashings or waterproofing strip.

5 **Installing the rails at the base of the array**

Fix the bottom rails on the first row of frames with 4 and GSE 6,5x50mm screws. These rails are used to fix the bottom clamps and secure the PV modules.

6 **Installing the PV modules and fixing the clamps**

Position the PV modules on the support pads and secure them with the dedicated fixing clamps. Drilling with a Ø10mm drill bit is a crucial step before fixing the clamps.

7 **Installing the roof coverings at the top and sides of the array**

Place the pre-compressed foam all around the pv array and fit the roof coverings. Ensure correct overlapping.

Find the assembly video and much more on CONNECTOR

1 Positioning the support battens

Installation

Before starting any installation, ensure that the roof structure is flat and fully compliant with all applicable local building regulations and standards.

If the roof is already covered, remove the tiles over the area needed for the PV array, plus one extra row, or two extra rows for slate and flat tiles on the sides and at the top.

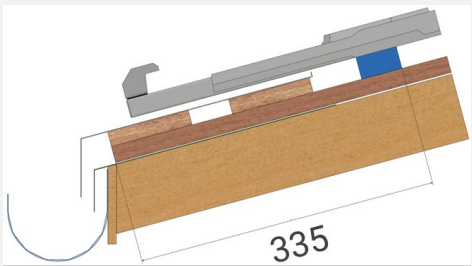
If the roof is not yet covered, check that the PV array dimensions fit within the roof area. Use these dimensions to center the array horizontally and vertically.

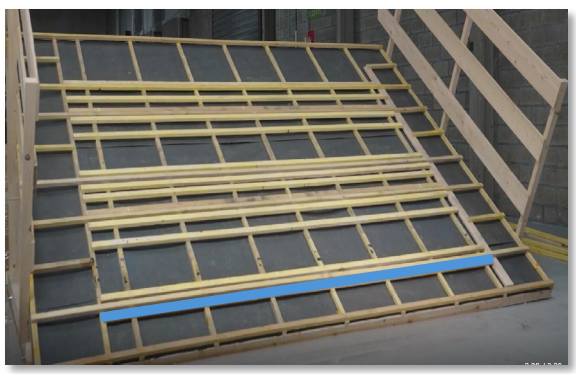
1

Installing the reference batten

- Gutter installation

In the case of gutter installation, position the **reference batten** (in blue) 1st line of half-frames in relation to to the gutter according to the diagram.
This measurement is from the bottom edge of the roof to the top of the reference batten.





Find the assembly video and much more on CONNECTOR

1 Positioning the support battens

Installation

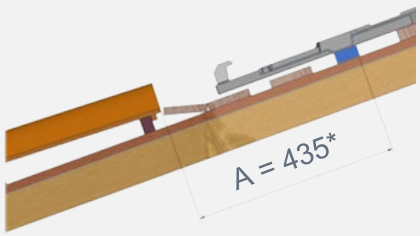
- Mid-roof installation

Position the **reference batten** for the 1st line of half-frames in relation to the lower line of tiles/slates, according to the schemes and table below.

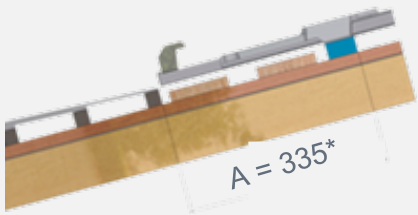
This measurement is from the top of the tiles/slates to the top of the reference batten.

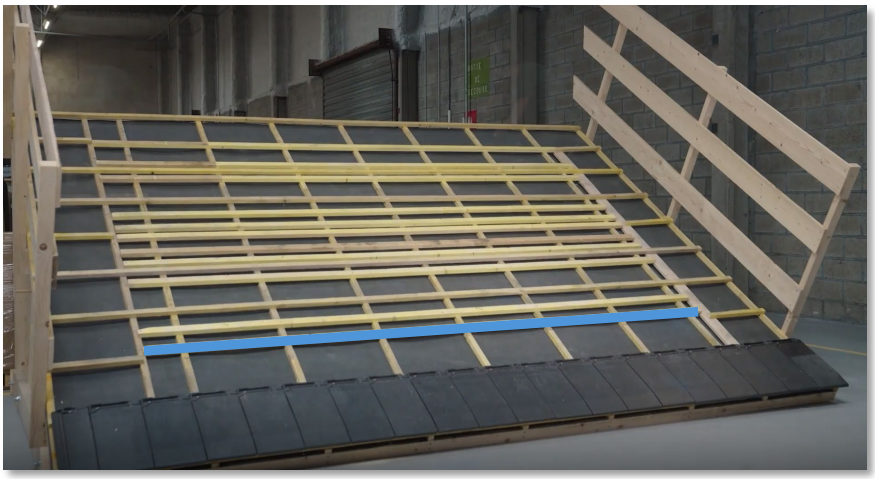
Roof pitch	Min. distance reference batten to tiles
12° to 19°	A = 535 or B = 435
20° to 23°	A = 465 or B = 365
24° to 50°	A = 435 or B = 335

with interlocking tiles



with slates and flat tiles





Find the assembly video and much more on CONNECTOR

Next battens positioning

2

Next battens positioning

Determine the distance Y, between 45 and 105 mm depending on the width of the PV module installed.

Panel width	Additional row Y	Half-frame adjustment
1090	45	0
1095	50	5
1100	55	10
1105	60	15
1110	65	20
1115	70	25
1120	75	30
1125	80	35
1130	85	40
1135	90	45
1140	95	50
1145	100	55
1150	105	60

Arrange the remaining battens for the system in relation to the first reference batten installed:

1/ Battens for clamps and bottom rails

2/ Battens for frame fixing points

3/ Battens to support the frames

4/ Support battens of **max 18 mm thick** for bottom connections.

5/ Battens to support the top flashings

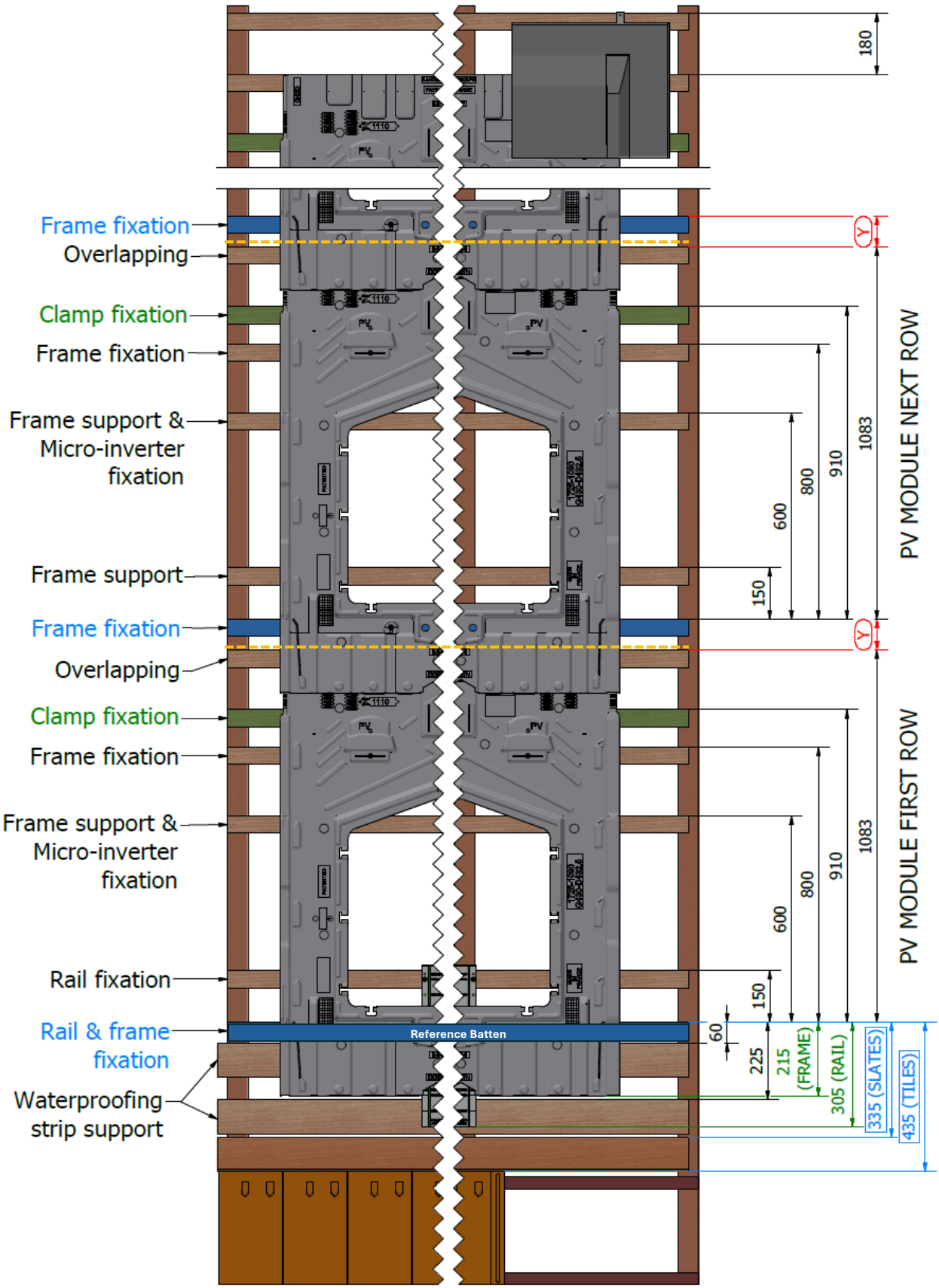
Follow the battening plan next page

Find the assembly video and much more on CONNECTOR

1 Positioning the support battens

Installation

Battening plan



04.1

Installation of bottom connection

2 Installing the bottom connection

Installation

3 bottom connection options are available :

- With bottom rigid flashing – mid-roof installation
- With waterproofing strip – mid-roof installation
- With drip flashing – gutter installation

Installing the bottom rigid flashing – mid roof installation

⚠ This bottom connection is only possible
- on slates and flat mechanical tiles
- for roof slope ≥20°

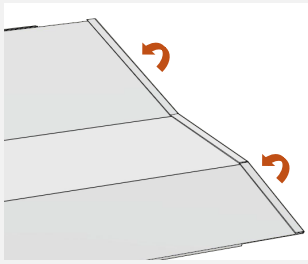
1

Install the bottom row of tiles (recommended)

2

Make the right angle of the rigid flashing

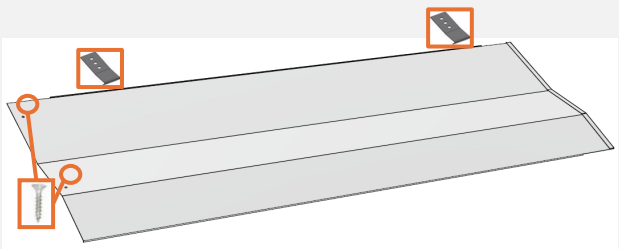
Bend the 2 cm overhang cut with flat-nose pliers to create a clamp to act as a lateral water barrier. Flatten the clip so that it is not completely stuck to the flat part of the flashing, but is raised by 2 mm - 3 mm.



3

Position the 1st bottom rigid flashing

Position the right angle created earlier at the lower right end of the PV field, and fix it using 2 fixing screws to the support battens and add 2 hooks.



2 Installing the bottom connection

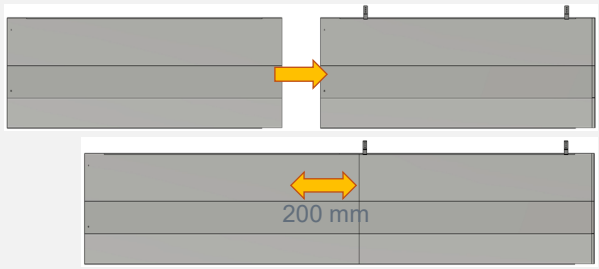
Installation

4

Position the next bottom rigid flashings

Position the flashings from right to left. Place the flashings on the tilt filet, securing them at their 2 left-hand side fixing points. Add 2 strips of glue.

Place the flaps side by side until the top clips touch. The overlap between 2 flashings is then **200 mm**.



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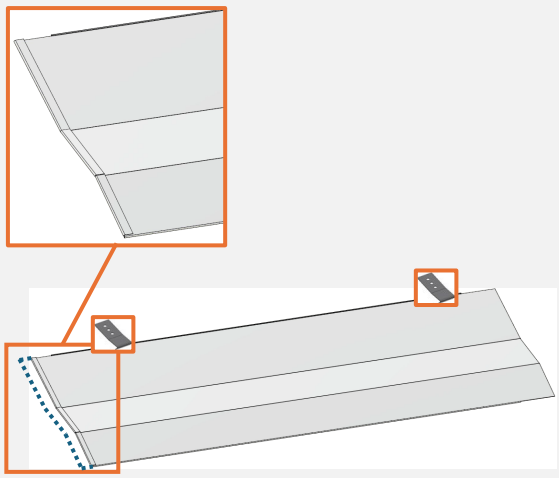
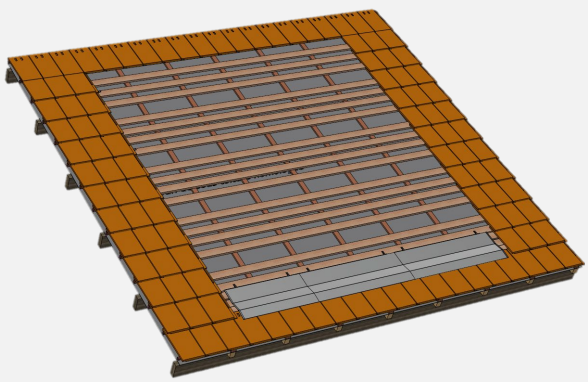
5

Create the left-hand corner

To do this, cut the flashing at the left end of the field to the required length. Make a 20 mm fold at the side to create a lateral water barrier.





Find the assembly video and much more on CONNECTOR

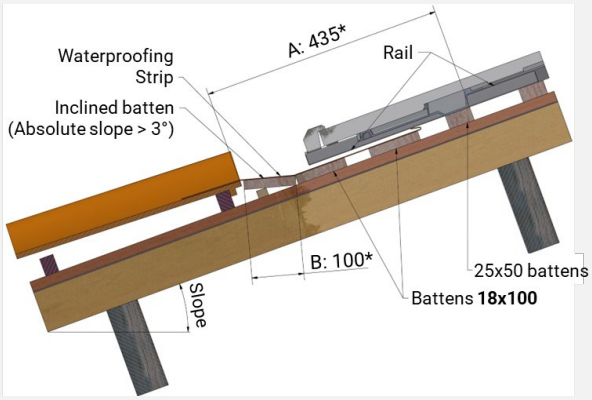
Installing the flexible waterproofing strip – mid roof installation

1

Installing the tilt filet

Except on slate roofs, or gutter level

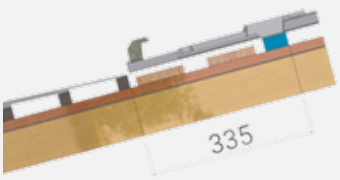
Position the flexible waterproofing strip to meet the roof covering at the bottom of the array. For interlocking tiles, install a tilt filet to create a smooth support.
For highly curved tiles, install the tilt filet flush with the tiles and angle up to the top of the tile if needed.



The width of the tilt filet depends on the roof pitch and defines the gap between the array battens and the first row of tiles.
Battens supporting the flexible waterproofing strip must be **max. 18 mm thick.**

Roof pitch	Min. width of tilt filet	Min. distance reference batten/tiles	Min. flexible waterproofing strip width mm
12° to 19°	B = 200 mm	A = 535 mm	590 mm
20° to 23°	B = 130 mm	A = 465 mm	520 mm
24° to 50°	B = 100 mm	A = 435 mm	500 mm

For slates, use a 400 mm with flexible waterproofing strip
to ensure the correct overlapping.
Add 2 support battens without tilt filet.



Find the assembly video and much more on CONNECTOR

2 Installing the bottom connection

Installation

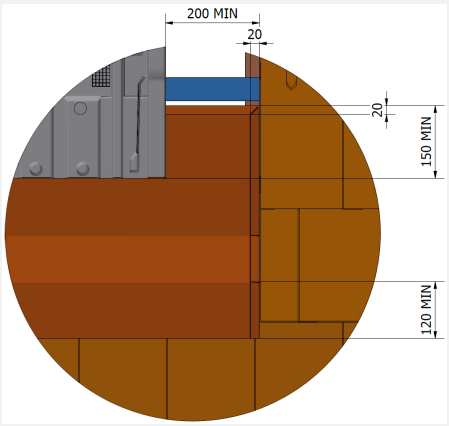
2

Sticking the flexible waterproofing strip

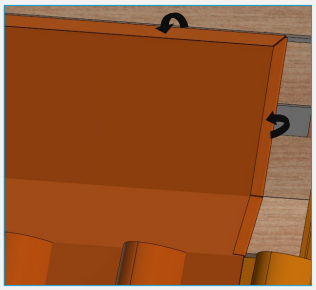
Cut the strip to the length of the PV array, leaving **200 mm beyond the edge of the frames** on each side.

Remove the film.
Lay the flexible waterproofing strip on the battens and tiles.
Fix it with a flashing hook if needed.
Dress it with a roller.

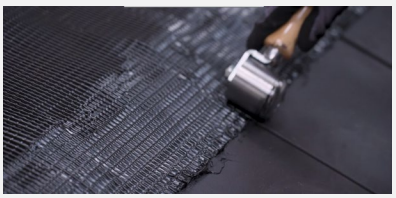
⚠ Ensure tiles are clean, dust-free and dry before applying the strip



Make a fold of **20 mm** along the top and sides to prevent water ingress.



Apply sealant along the bottom edge and both sides to secure the flexible waterproofing strip, then smooth it with a roller.



Find the assembly video and much more on CONNECTOR

2 Installing the bottom connection

Installation

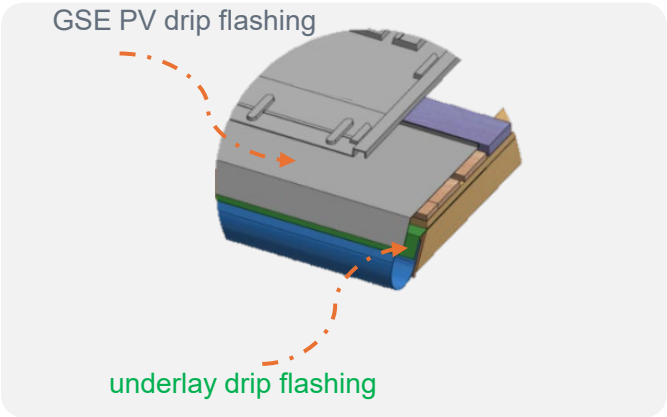
Installing the drip flashing – gutter installation

⚠ This bottom connection is only possible
- from roof pitches between 25° and 45°

1

Installing a drip flashing for a gutter installation

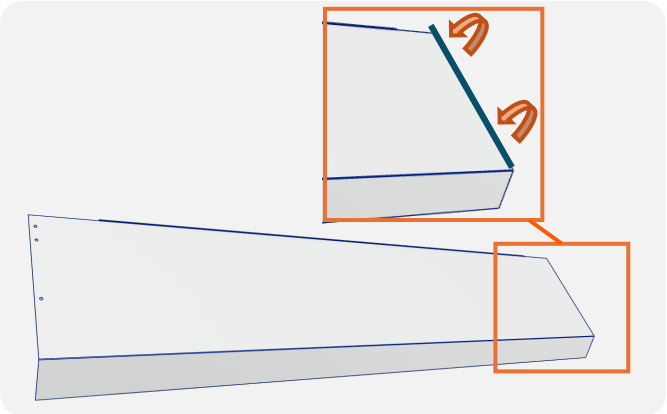
When the PV array is installed directly at the gutter, we recommend connecting it to the gutter using a **GSE drip flashing for the PV array** and a **drip flashing for the roof underlay** (not supplied by GSE Intégration).



2

Make the right angle of the drip flashing

Bend the 2 cm overhang cut with flat-nose pliers to create a clamp to act as a lateral water barrier. Flatten the clip so that it is not completely stuck to the flat part of the flashing, but is raised by 2 mm – 3 mm.



3

Position the 1st drip flashing

Position the right angle created earlier at the lower right end of the PV field, and fix it using 2 fixing screws to the support battens and 2 flashings hooks.

Find the assembly video and much more on CONNECTOR

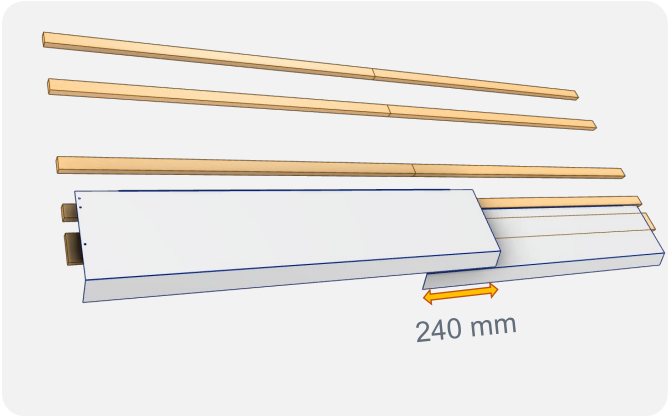
2 Installing the bottom connection

Installation

4

Position the next drip flashings

Place the flaps side by side until the top clips touch.
The overlap between 2 flashings is then 240 mm.

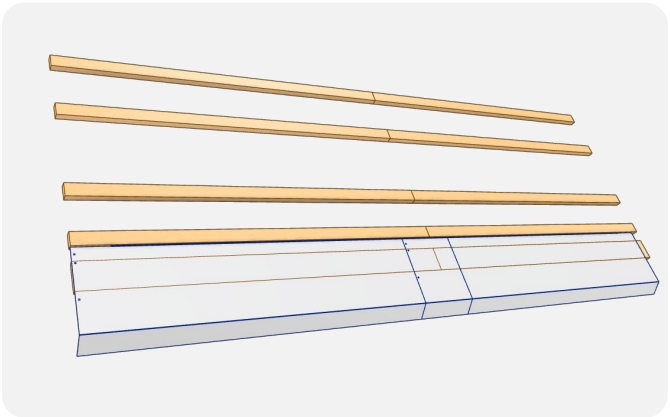


5

Fix the next drip flashings

Fix the 2nd Drip Flashing using 3 fixing screws to the support battens and with 2 flashing hooks.

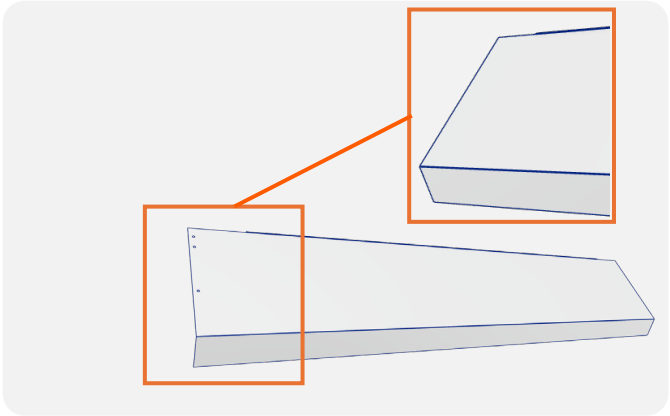
.



6

Create the left hand corner

For the last Drip Flashing of the PV Array, create the left-hand corner.
To do this, cut the flashing at the left end of the field to the required length. Make a 20 mm fold at the side to create a lateral water barrier.



7

Fix the last Drip Flashing using 2 flashing hooks.

Find the assembly video and much more on CONNECTOR

04.2

Installation of the half frames

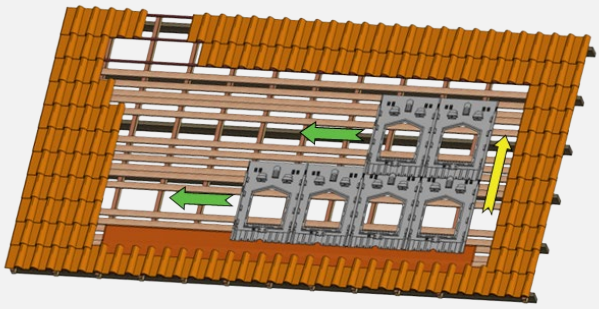
3 Installing the landscape half-frames

Installation

1

Position of the landscape half-frames

Install the landscape frames **row by row**, working **right to left** and **bottom to top**.
Position the first frame at the bottom right of the PV array.

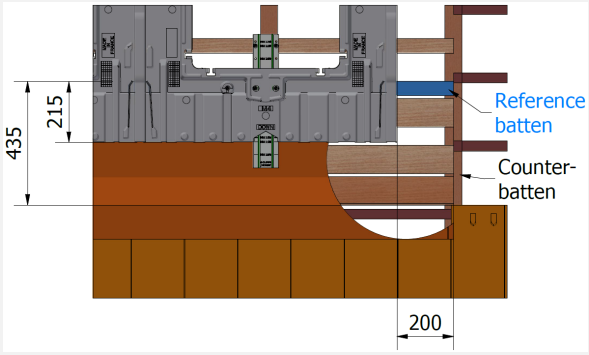


Horizontal mounting direction

Vertical mounting direction

Align it **vertically** using the reference batten: the base of the frame must be **215 mm** from the top of the reference batten,

Align it **horizontally 200 mm from the edge of the bottom connection.** Make sure that it is straight.



You can mark the bottom of the first row with a chalk line, **215 mm above the top of the reference batten**.

Find the assembly video and much more on CONNECTOR

3 Installing the landscape half-frames

Installation

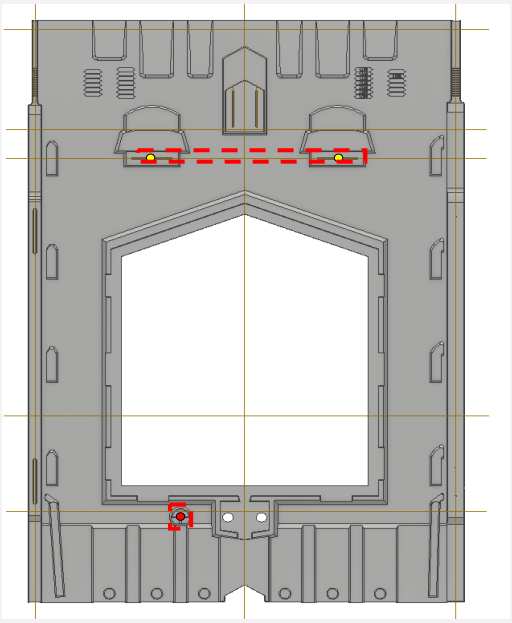
2

Fixing the landscape half-frames

Fix the 1st half-frame at its **three fixing points** with the GSE Intégration silver screw 50mm length.

⚠ Avoid driving the screws too far, as this may deform the frame.

⚠ Do not drill in the drainage areas or on the support pad of the half-frame. Doing so can damage the system and its watertightness.

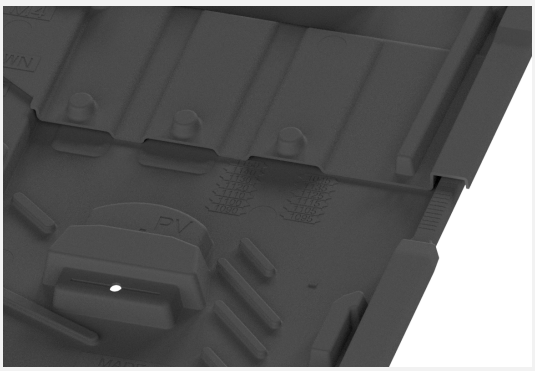


3

Connecting the half-frames

Assemble the remaining frames in the first row horizontally using the interlock of the landscape frames. Fix each frame at its three fixing points.

Assemble the half-frames of the upper rows at the **correct graduation according to the width of the PV module** to be installed. Fix each half-frame at its three fixing points.



Find the assembly video and much more on CONNECTOR

04.3

Installation of lateral flashing

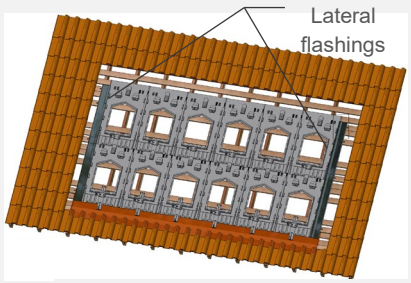
4 Installing the lateral flashings

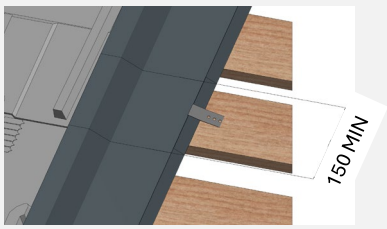
Installation

1

Positioning of the lateral flashing

Place the lateral (side) flashings at the right and left ends of the PV array.
Ensure a **minimum overlap of 150 mm** between each flashing.
Fix each of them with 2 hooks per flashing.





2

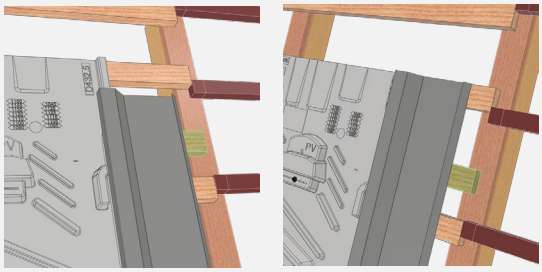
Bottom position of the lateral flashing

- Option 1 : align with the bottom of the half-frame
- Option 2 : align with the bottom of the PV module, more aesthetic

3

Top position of the lateral flashing

- If you install rigid top flashing : up to the top of the markings
- If you install waterproofing strip : flush with the top of the frames



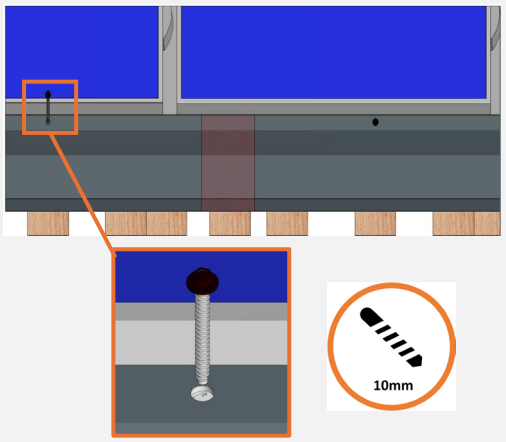
Find the assembly video and much more on CONNECTOR

4 Installing the lateral flashings

Installation

If the lateral flashings lift on the overlaps, install a GSE 60mm length black screw to secure them. At least at 150mm from an overlapping zone.

Drill the screw location using a **Ø10 mm drill bit** before fixing the screw.



Find the assembly video and much more on CONNECTOR

04.4

Installation of top connection

5 Installing the top connection

Installation

2 top connection options are available :

- With rigid top flashing
- With waterproofing strip

Installing the top rigid flashing

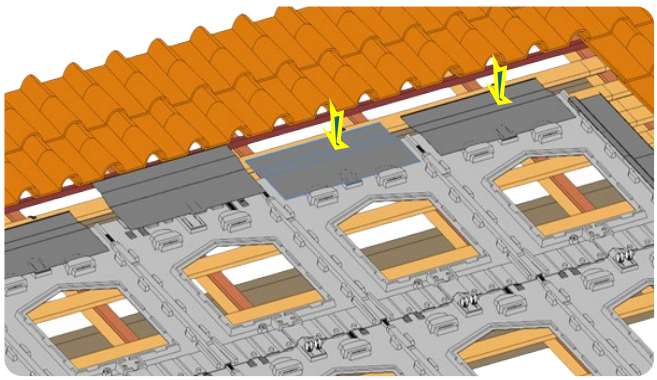
⚠ This top connection is possible

- on slates and mechanical tiles
- for roof slope ≥20°

1

Position one top flashing per half-frame on the last row

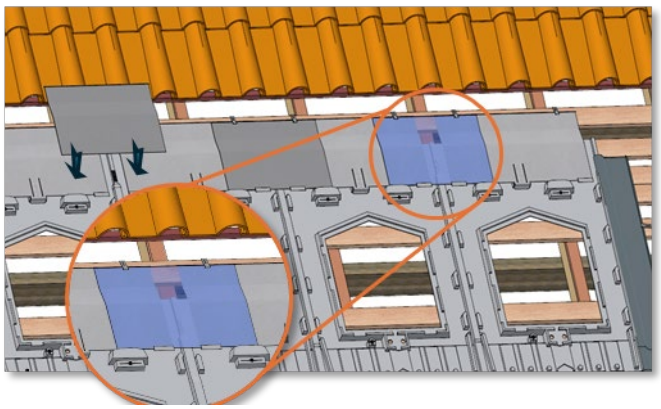
Align the marking on the top flashing with the marking on the half-frame.



2

Position the junction pieces

Position the junction pieces by sliding them into the side folds of the central flashings.



Find the assembly video and much more on CONNECTOR

5 Installing the top connection

Installation

3

Position the corner flashings

Position the corner flashings on the lateral flashings and slide them into the folds of the central top pieces located at the edges of the PV field. .

4

Secure all the flashings with at least 2 hooks per flashing.

Find the assembly video and much more on CONNECTOR

5 Installing the top connection

Installation

Installing the waterproofing strip

1

Add the support batten for the waterproofing strip

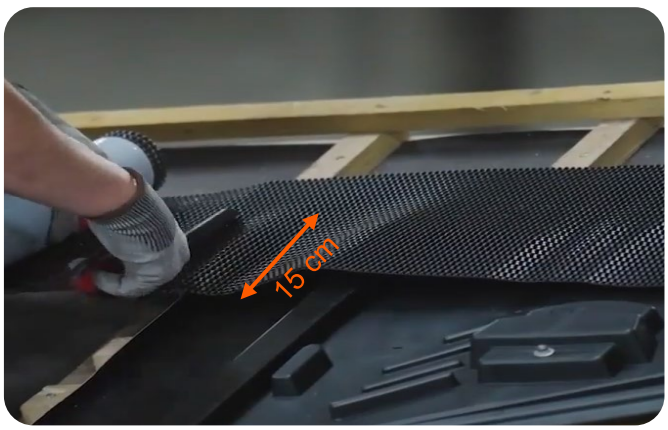
2

Unroll, cut and stick the flexible waterproofing strip

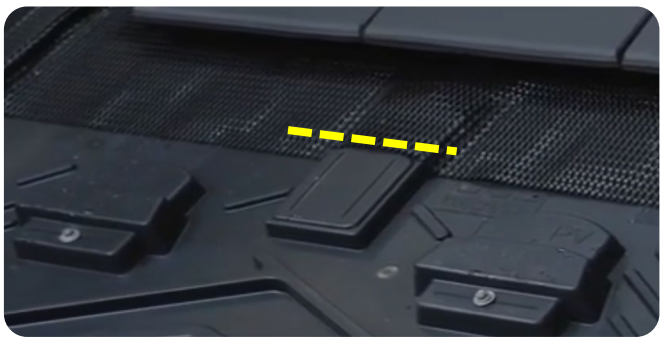
on the support battens and the frames at the top of the array.

Ensure a minimum **under-tile overlap of 10 cm,** increased to 12 cm for curved tiles.

Ensure 15 cm vertical overlap of the flexible waterproofing strip at the top of the frames



⚠ The flexible waterproofing strip must stop before the clamp-fixing area as to not screw through the strip.



Find the assembly video and much more on CONNECTOR

5 Installing the top connection

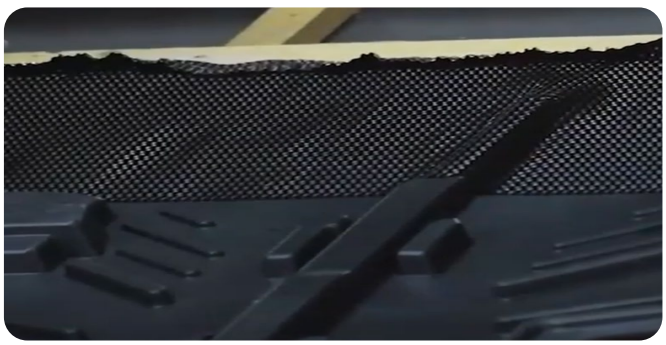
Installation

3

Remove the plastic film for the butyl and smooth the flexible waterproofing strip using a roller

4

Fold the strip 2 cm at the top and on both sides to prevent water ingress by capillary action.



⚠ You must use a tile support on a waterproofing strip (except for slates) find installation step in “Connection to the roof coverings”

Find the assembly video and much more on CONNECTOR

04.5

Installation of rails

6 Installing the bottom rails

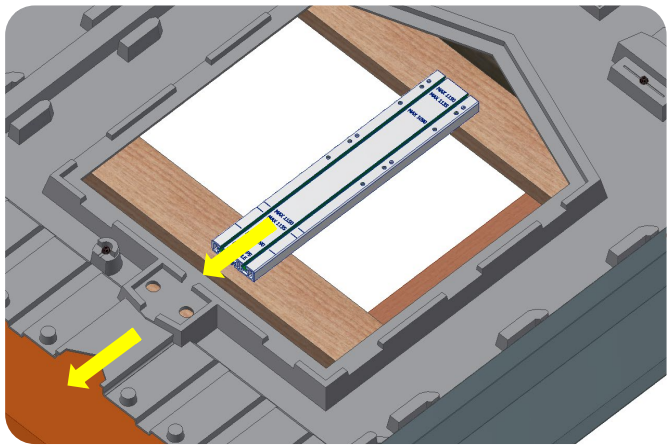
Installation

1

Positioning of the rails

The rails support the clamps at the base of the array **without damaging the bottom connection**
They are essential for ensuring the wind resistance of the PV modules in the first row.

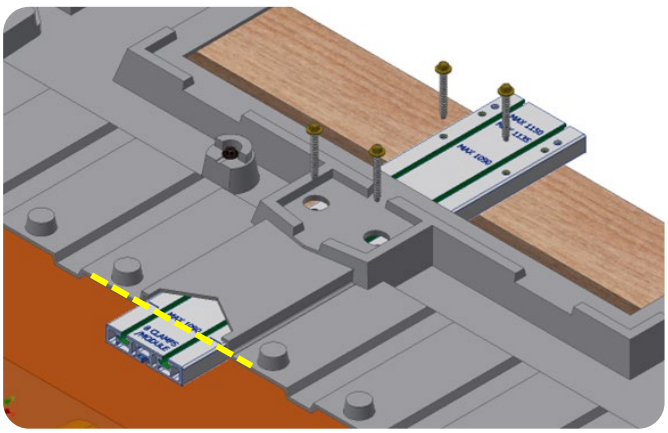
For the bottom row of half-frames, slide the rails from the inside of the frame (entry through the central hole) to the outside (towards the flexible waterproofing strip) using the guide located at the base of the half-frame.



2

Aligning the rails

Align the rail with the bottom edge of the frame at the graduation corresponding to the module width.

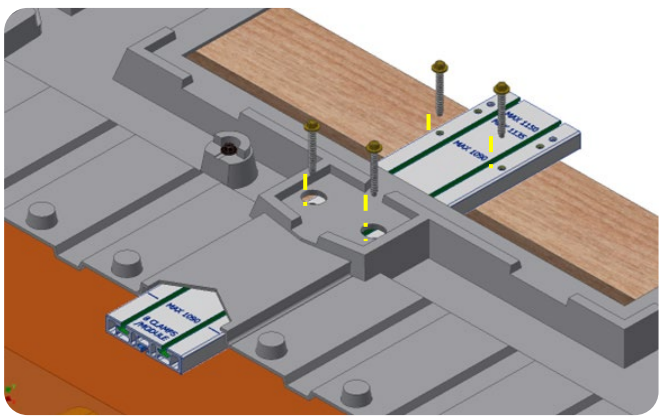


3

Fixing the rails

Secure the rail with 4 silver GSE Intégration screws 50 mm length.

⚠ **Do not pinch the half-frame** when fixing the rail. The screws must pass through the holes in the half-frame.



Find the assembly video and much more on CONNECTOR

04.6

Cabling

7 Cabling

Installation

To install the PV modules, 2 options are available:

- Install the microinverters, do the cabling and install and fix the PV modules
- Place the PV modules and do the cabling, then fix the PV modules

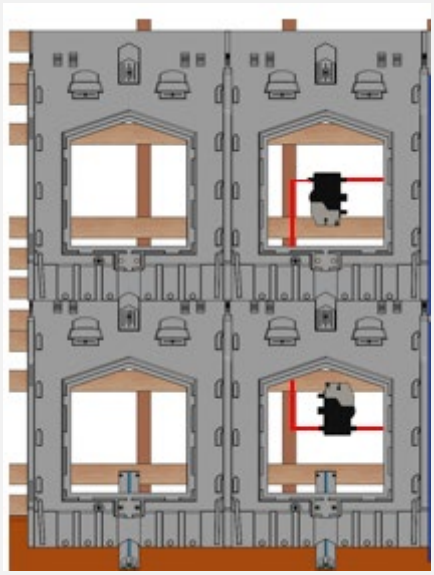
With microinverters

1

Installing the microinverters

Attach them to a batten through the central hole of the Landscape Evolution half-frames.
Interconnect the micro-inverters using the connection cables, which must pass **beneath the half-frames**.

⚠ Follow the inverter, microinverter, and module manufacturers' guidelines, and comply with local regulations



2

Cabling

Route all cables **beneath the half-frames**, ensuring they are protected and properly secured.

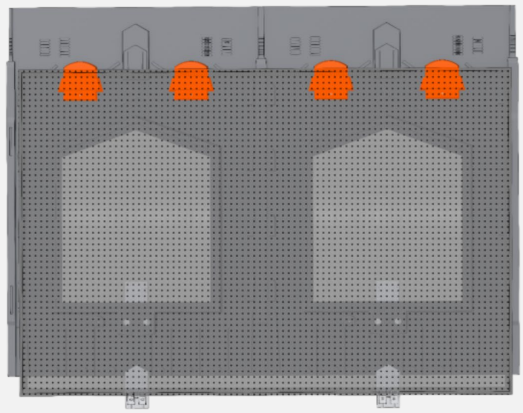
Find the assembly video and much more on CONNECTOR

Without microinverters

1

Positioning the PV modules

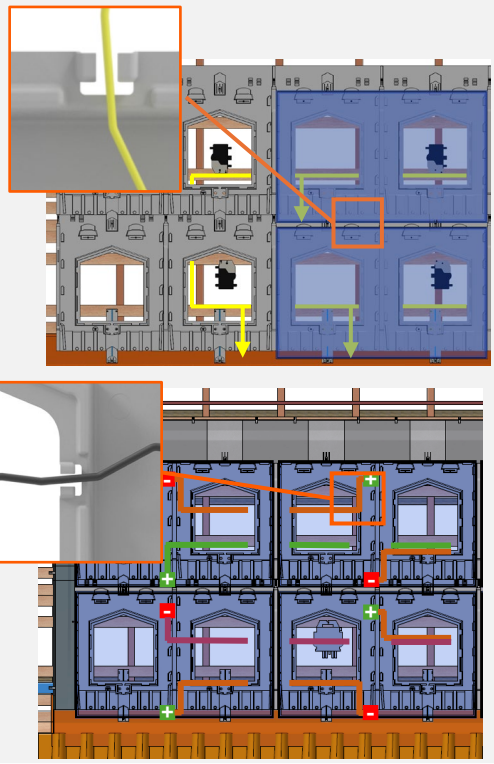
Position the modules so that **they rest on the support pads** and sit against the upper stops to prevent any slipping



2

Wiring the PV modules

To interconnect the PV modules or to connect them, route the cables **beneath the frames** using the folds in the central holes.
A jumper may be needed.



⚠ Follow the inverter, microinverter, and module manufacturers' guidelines, and comply with local regulations

Find the assembly video and much more on CONNECTOR

04.7

Installation of PV modules

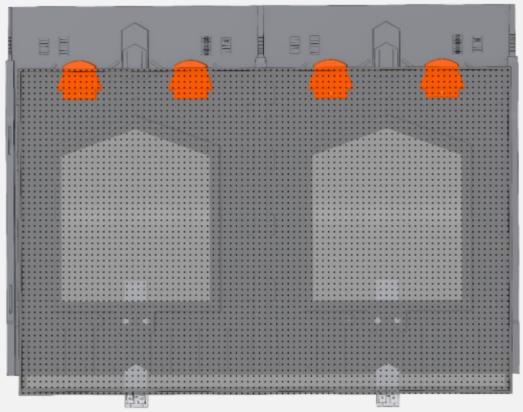
8 Installation of the PV modules

Installation

1

Positioning the PV modules

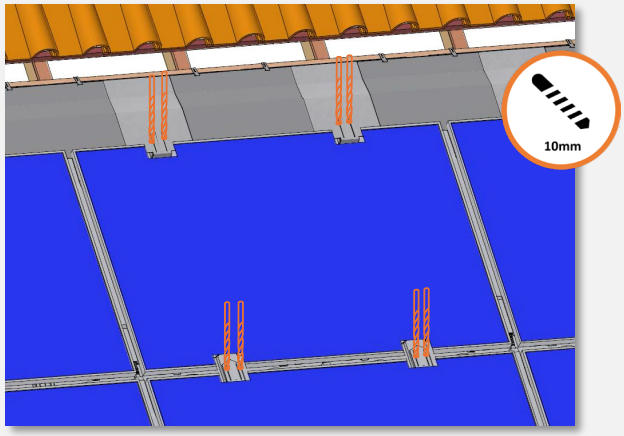
Position the modules so that **they rest on the support pads** and sit against the upper stops to prevent any slipping



2

Place the clamps (top clamps or middle clamps) in its intended position and **mark the drilling point.**

Drill with a **Ø10mm** HSS Drill bit

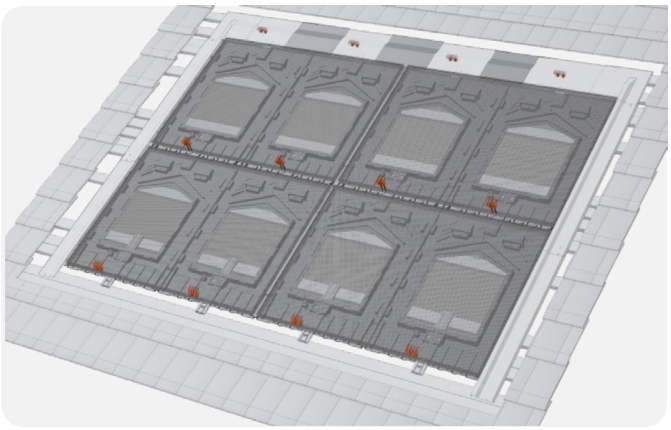


- Ensure 8 clamps are used for each PV modules.
- Ensure the PV modules are properly centered horizontally between the two half-frames.

3

Clamp fixing

Fix the clamps using the **GSE black 60 mm screws**, tightening until the clamp touches the frame of the PV module.



- **DO NOT** use an impact driver to fix the clamps. Use a standard combi drill (with adjustable speed and torque) to ensure the clamps remain securely in place over time.

Find the assembly video and much more on CONNECTOR

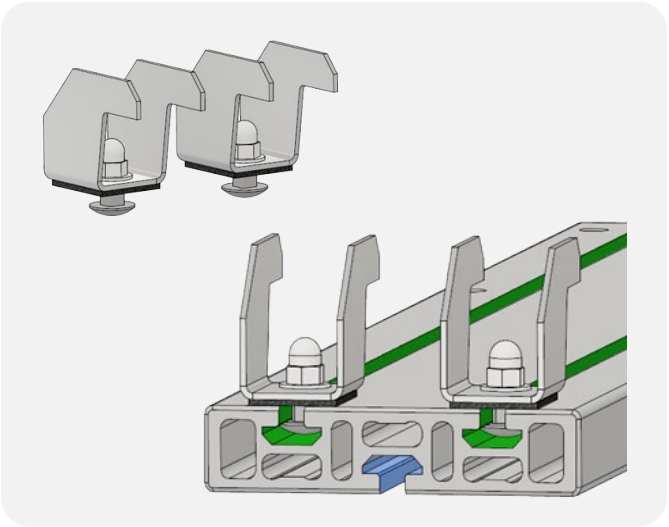
8 Installation of the PV module

Installation

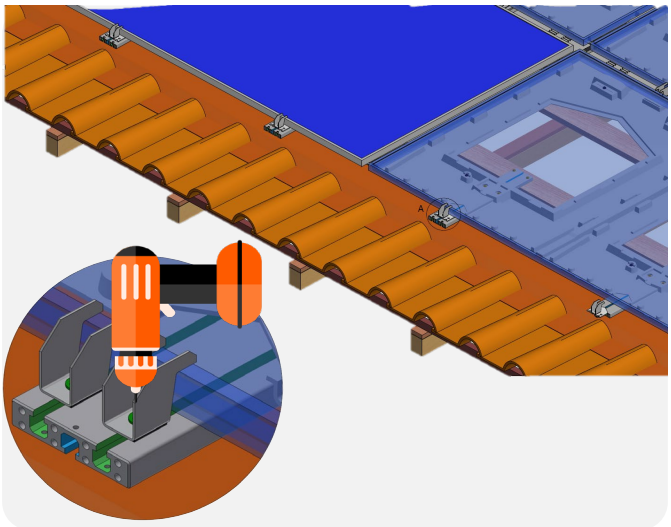
3

Installing the clamps into the rails

For the bottom row, insert the clamps with the bolt into the rails.



Move the clamps against the PV module frame and tighten the nut to **5 N·m** ±20%.



Find the assembly video and much more on CONNECTOR

04.8

Connection to the roof

9 Connection to the roof covering

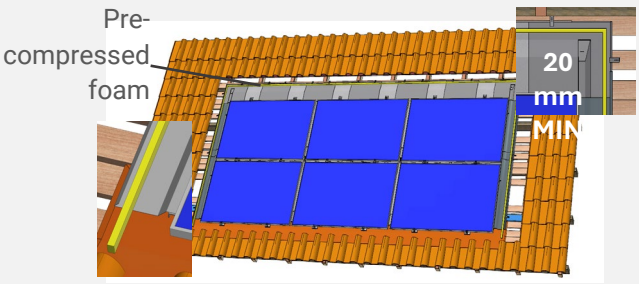
Installation

1

Pre-compressed foam installation

Place the pre-compressed foam on the flashings around the sides and top of the array, 2 cm from the edges of the flashings.

The seal must reach the bottom connection to prevent any ingress of water or solid particles.

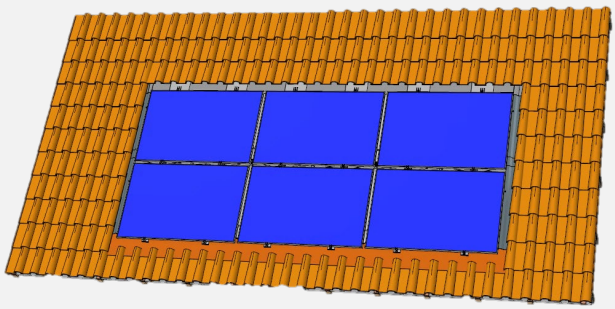


2

Installation of the roof coverings

Reposition the side and top roofing elements to create a continuous connection with the roof.

It may be necessary to cut the tiles to ensure an effective covering that complies with local standards and building regulations. Ensure that all cut elements are mechanically fixed as required by the relevant local standards and building regulations.



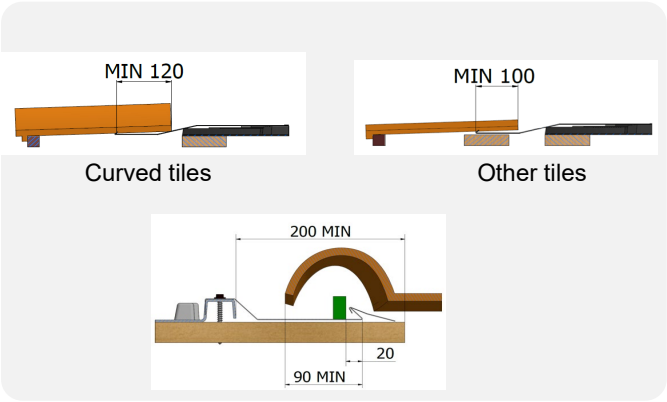
Find the assembly video and much more on CONNECTOR

9 Connection to the roof covering

Installation

The upper part of the tile must rest on the top flashing with sufficient overlap to meet the requirements of local standards and building regulations.

On the side, the minimum overlap is 90mm.



3

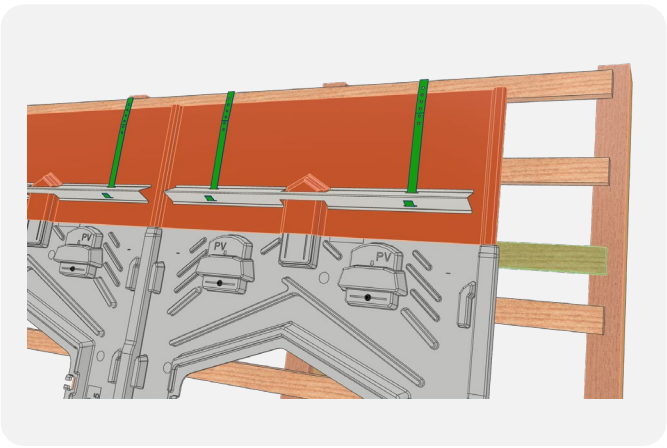
Installation of tiles supports

Designed for all kind **of interlocking tiles (not compatible with slates) Tiles support prevents tiles from sagging and damaging the waterproofing strip.**

Use two tiles support hooks to maintain tiles support on our top flashings or our flexible strip.

Tiles support hook is fixed by with a nail/screw on the battens

You must use tile support on a flexible waterproofing strip except for slates.



Find the assembly video and much more on CONNECTOR

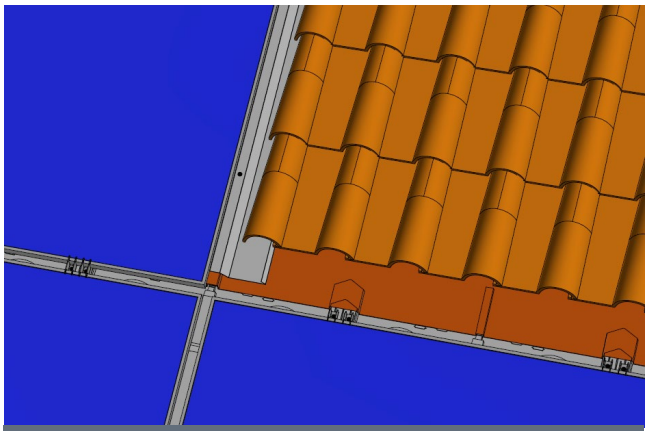
04.9

Specific cases

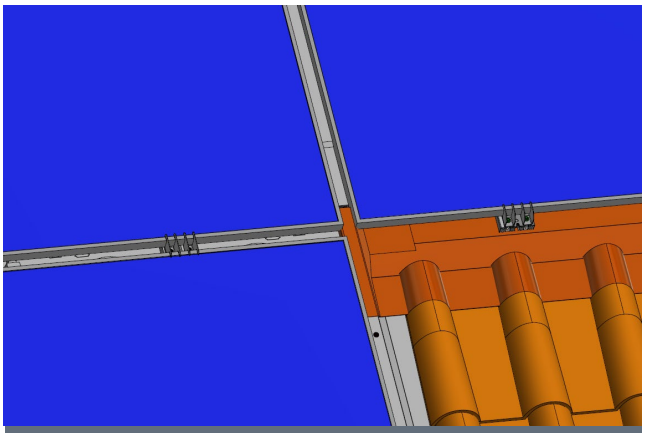
10 Specific case : PV Array with Inner/Outer Corners

Installation

In the case of a non-rectangular PV array, the inner and outer corners must be connected to the roofing using a flexible waterproofing strip.



Specific case: inner corner



Specific case: outer corner

1 Inner corner (L-shaped)

Installing the flexible waterproofing strip

Installing the lateral flashing

Follow the instruction of the flexible waterproofing strip detailed before.
You must ensure the waterproofing strip don't tear on any of the overlaps and the lateral flashing are on top of the waterproofing strip and frames.

⚠ You must use tile support on a flexible waterproofing strip except for slates.

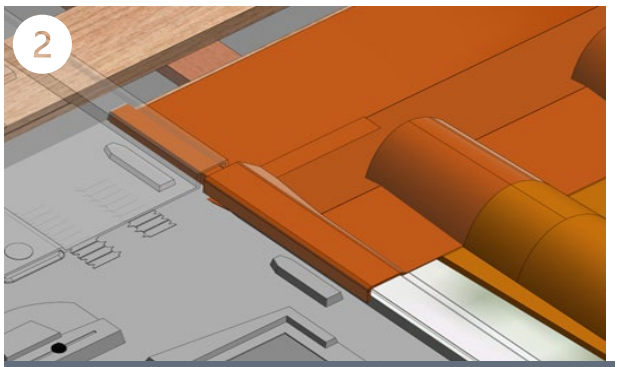
Find the assembly video and much more on CONNECTOR

10 Specific case : PV Array with Inner/Outer Corners

Installation

2 Outer corner (T-shaped)

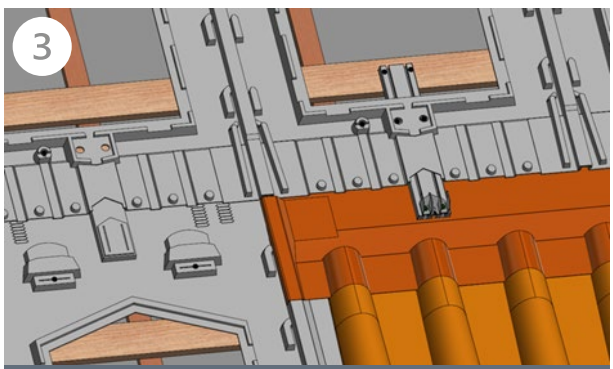
Installing the lateral flashing and tilt filet



Installing the flexible waterproofing strip

Follow the instruction detailed below for the tilt filet.

Place the lateral flashing on the lower frames.
Replace the column of tiles to cover the lateral flashing, then lay the flexible waterproofing strip on the tilt filet and the tiles
Ensure a 20 mm fold at the top of waterproofing strip.



Installing the bottom rails

Fit the half-frame and the bottom array rail onto the flexible waterproofing strip, following the installation instructions seen before.

Ensure compliance with the overlap requirements in local standards as well as the recommendations of this document.

Find the assembly video and much more on CONNECTOR

05

Maintenance & servicing

1 Verification

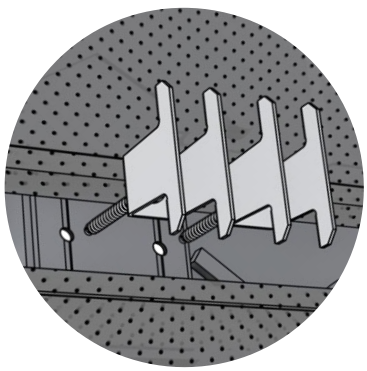
Maintenance & servicing

⚠ Once a year, check whether leaves or other elements have accumulated beneath the photovoltaic unit or between the panels. You may use a compressed-air blower to remove any debris that has settled beneath the unit. Do not use solvents to clean any surfaces.

We recommend having a maintenance contract that includes an annual inspection of the production system, electrical components, panels, panel supports, fixings, pre-compressed foam, and flexible waterproofing strips.

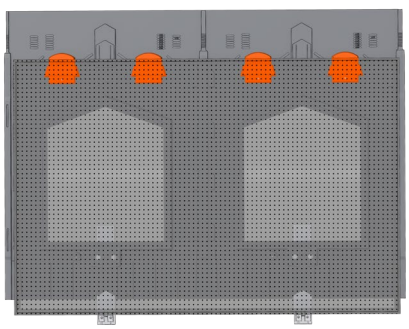
2 Module replacement

Disconnect the PV array from the AC box and proceed as follows:

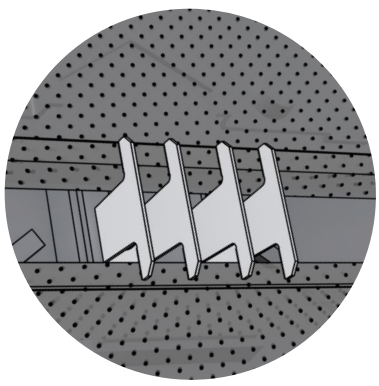


1 Unscrew the clamps

2 Drill the current holes to Ø12mm



3 Reposition the module



4 Place our replacement kit with new clamps and new screws supplied by GSE Integration. Tighten the screws.

Find the assembly video and much more on CONNECTOR

06

Training

1 Training sessions

Assistance & contact

GSE Intégration now offers a dedicated training program, including an installer certification pathway. To become certified, installers must watch all training videos available on CONNECTOR and attend an in-person practical training session. For further information, please contact your sales manager or distributor.

GSE Intégration TRAINED INSTALLER

Please refer to article 2.1 of our "General Terms and Conditions" regarding trainings in the installation of system assembly available

For more details, please refer to our General Terms and Conditions available in the "Documents" section of the Connector tool.

Training is a requirement to install our system.

Training Structure :

1. Online learning – Participants complete video-based training, followed by two short multiple-choice knowledge checks (Portrait & Landscape).

2. In-person training – Once online training is successfully completed; participants can book a session at a partner training center/distributor.

These sessions are hands-on, with rig/roof-based installation practice where possible, and group sizes capped at 7–8 to ensure quality.

3. Certification – Each session concludes with a short multiple-choice assessment. Successful participants will be awarded a GSE Intégration Trained Installer certificate, valid for 12 months.

4. Refresher training – After 12 months, installers will be invited to complete refresher training/knowledge checks.

This program is designed to create a consistent, high-quality installer base while supporting training centers and distributors with certified, recognized learning pathways.

Find the assembly video and much more on CONNECTOR

07

Support
Certification
Warranty

1 Technical assistance

Technical assistance is available from your technical business developer as well as our team directly in France.

Monday to Friday
From 09:30 to 18:00 (CET time)
contact@gseintegration.com

2 Certification

MCS 012 - KIWA00041

3 Fire tests

B-Roof t4

Check our module compatibility list in the "Documents" section of the Connector tool.

4 Warranty

GSE IN-ROOF LANDSCAPE EVOLUTION is guaranteed for **10 years** when installed in accordance with this manual and our certifications.
For more details, please refer to our General Terms and Conditions available in the "Documents" section of the Connector tool.

Find the assembly video and much more on CONNECTOR