

**SOLAR
INNOVATION
FOR THE 21ST
CENTURY**

**ROBUST FOR
ALL THE UK
WEATHER CAN
THROW AT IT**

BRITISH DESIGN

**BRITISH
MANUFACTURE**

BRITISH QUALITY

**SEAMLESS
SOLAR FOR
SENSITIVE
AESTHETICS**

www.gb-sol.co.uk
slate@gb-sol.co.uk
01443 841 811
Pontypridd, UK

PV SLATE



Installation Guide

**PV Slate 600x300
PV Slate 500x300
PV Slate 500x250**

GB-Sol 

Available PV Slate Sizes

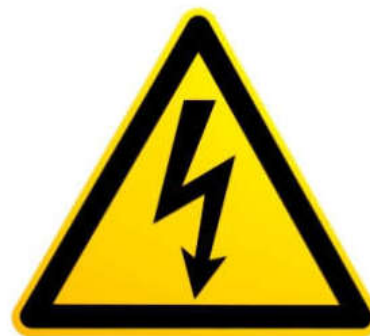
	PV Slate 600x300	PV Slate 500x300	PV Slate 500x250
Natural Slate Compatibility	600mm x 300mm x 6mm (Blue-grey)	500mm x 300mm x 6mm (Blue-grey)	500mm x 250mm x 6mm (Blue-grey)

This installation guide covers all three sizes of PV Slate.

Danger of Electrocutation

In daylight, PV Slates are always live. When 2 or more PV Slates are connected there is a danger of a DC shock. Work on DC systems should only be carried out by suitably qualified persons.

Care must be taken not to damage any DC cable once in position (e.g. via nails).



Installation Notes

Please read these instructions in full before attempting an installation.

We provide free installation advice and training at our premises, contact us for more details.

Ensure any ladder leaning on the PV Slates is padded.

Store PV Slates in a clean, dry location.

PV Slates are a toughened glass product. In particular avoid striking/placing weight on the corner of the glazed area. Avoid any corner contact with the ground when handling.

PV Slates are never installed in electrical strings of more than:

PV Slate 600x300 = 75 x PV Slates

PV Slate 500x300 = 66 x PV Slates

PV Slate 500x250 = 61 x PV Slates

Always observe the maximum system voltage of 600V.



Essential Roof Requirements

Ridge: 1 x Complete natural slate course + Top course of natural slates

Verge/Any Obstruction: 1 x Complete natural slate course

Gutter: 2 x Natural slate courses

Roof Pitch:

Dependant on product selected/location
(Typically minimum 22.5° roof pitch)

Natural Slate Headlap:

PV Slate 600x300 = 70mm

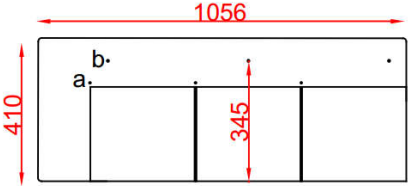
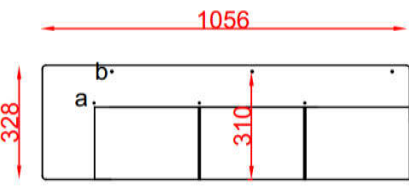
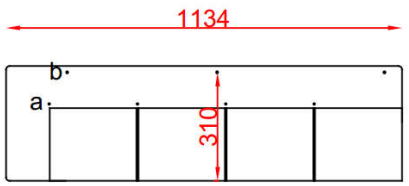
PV Slate 500x300 = 100mm

PV Slate 500x250 = 100mm



Roofing & Mechanical Data:

	PV Slate 600x300	PV Slate 500x300	PV Slate 500x250
Natural Slate Compatibility	600mm x 300mm x 6mm	500mm x 300mm x 6mm	500mm x 250mm x 6mm
PV Slates per m² Roof Area*	4.17 PV Slates	5.52 PV Slates	4.96 PV Slates
Wp per m² Roof Area*	146 Wp	138 Wp	136 Wp
Dimensions (L x W x D) - Nominal	1056mm x 410mm x 6mm	1056mm x 328mm x 6mm	1134mm x 328mm x 6mm
Dimensions (L x W x D) - Visible on Roof	906mm x 265mm	906mm x 200mm	1009mm x 200mm
Natural Slates Replaced	3	3	4
Natural Slate Headlap	70mm	100mm	100mm
Weight	3.9 Kg	3.0 Kg	3.5 Kg
Minimum Natural Slates on Roof	Ridge: 1 x Complete natural slate course + Top course of natural slates Verge/Any Obstruction: 1 x Complete natural slate course Gutter: 2 x Natural slate courses		
Natural Slate Colour Compatibility	All blue-grey slates		
Batten Gauge	265mm	200mm	200mm
Battens	BS 5534 Graded & treated battens only (50mm x 25mm)		
Roof Pitch (Typical)	22.5°-90° - Dependant on location - contact us for more details		
Roof Mounting Method (Supplied)	3 of M5 x 25mm A2 pan-head wood screws 3 of Roof Hooks 2.7mm 316 Steel grey powder coated		3 of M5 x 25mm A2 pan-head wood screws 4 of Roof Hooks 2.7mm 316 Steel grey powder coated

PV Slate 600x300	PV Slate 500x300	PV Slate 500x250
		
a = PV Slate Hook holes / b = Screw fixing holes		








Electrical Data:

	PV Slate 600x300	PV Slate 500x300	PV Slate 500x250
Nominal Output	35 Wp (+/-10%)	25 Wp (+/-10%)	27.5 Wp (+/-10%)
Short Circuit Current	6.6 A	4.1 A	4.1 A
Open Circuit Voltage	6.6 V	7.5 V	8.1 V
MPP Current	6.4 A	4.0 A	4.0 A
MPP Voltage	5.5 V	6.2 V	6.9 V
Temperature Coefficient of Power	-0.40 %/K	-0.40 %/K	-0.40 %/K
Temperature Coefficient of Voltage	-0.32 %/K	-0.32 %/K	-0.32 %/K
Temperature Coefficient of Current	0.042 %/K	0.042 %/K	0.042 %/K
Maximum Permissible System Voltage	600 V	600 V	600 V

General Data:

Feed in Tariff Applicable	Yes
Product Warranty	10 Years
Power Output Warranty	10 Years
Product Certification & Testing	MCS 012 (BABT 8752-02) & MCS 005 (BABT 8501-15), EN 15601:2015 (Weathertightness), EN 13501-5:2005 (Fire), CEN/TS 1187:2012 (Fire), BS 476-3:2004 (Fire - EXT.S.AA Rating), BS EN 14437:2004 (Wind Uplift)

Supplied Components:

			
PV Slate Hooks	Roof Hooks	Top Flashing	Grommet
			
Wood Screws	Right Hand Side Flashing	PV Slate	

1. Layout Roof Battens

All battens should be treated and graded to BS 5534 (50mm x 25mm only).

The PV Slate Batten Gauge:

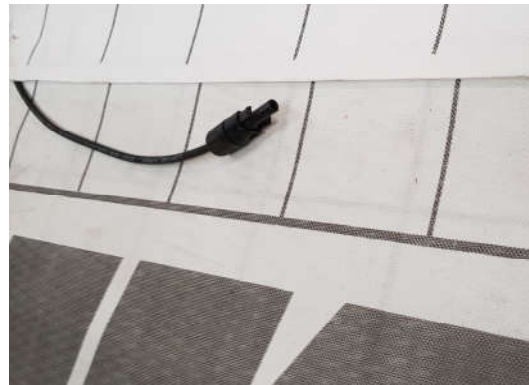
PV Slate 600x300 = 265mm
PV Slate 500x300 = 200mm
PV Slate 500x250 = 200mm



2. Ensure DC Cables are in position

Install internal DC cable run (from DC isolators) and ensure that the correct MC4 terminated DC cable is available on the roof at the expected start and end position of every string (consult roof drawing if unsure).

The join in the roofing membrane is recommended to route the DC cable through to the roof.



3. Install Natural Slate Rows, up to but not including the Natural Slate Row Below the PV Slates

Following standard roofing practice, install the required rows of natural slates from the gutter, stopping with one natural slate row required below the PV Slates.

Ensure a 3mm gap between natural slates.



4. Cut Natural Slates to Allow PV Slate Junction Box Clearance

Some natural slates on the natural slate row below the PV Slates need to be cut to allow the junction box on the back of the PV Slate to sit correctly.

This is achieved by cutting the top right hand corner of every third (PV Slate 600x300 & 500x300) or fourth (PV Slate 500x250) natural slate in this row.

We recommend temporarily placing the PV Slate above the cut natural slate in position to check the first cut-out is correct for your installation.



5. Install the Natural Slate Row Below the PV Slates with Roof Hooks

While installing the natural slate row beneath the PV Slates, nail the provided Roof Hooks into the batten where there will be PV Slates.

Use a chalk mark or string line across the roof to ensure these Roof Hooks are straight.

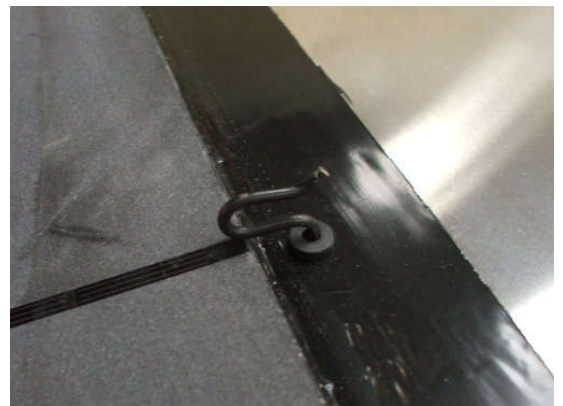
This Roof Hook will support the bottom edge of the bottom row of PV Slates.

We recommend using a line of sealant around the "L" of the cut natural slates.



6. Assemble PV Slates

Insert the provided PV Slate Hooks into the rubber grommets on the PV Slates before their installation. They are designed to be tight on the glass.



7. Place First PV Slate into Position

Starting on the right of the bottom row of PV Slates, place the first PV Slate into position by locating the bottom edge into the nailed in Roof Hooks, ensuring it is level. Ensure the Roof Hooks are in the exact centre of each PV Slate "Slate" area.

DO NOT fix yet.

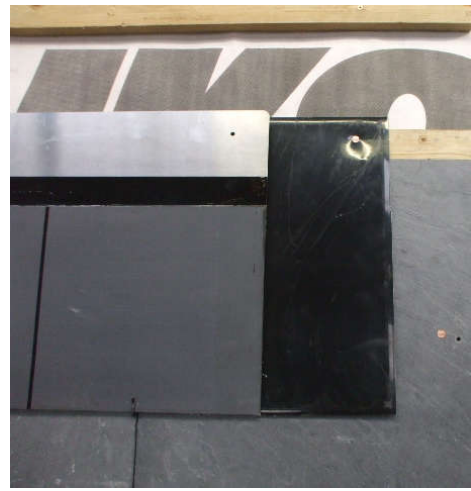
Make the electrical connection with the first DC cable leading through the roof to the DC isolator. Make sure the PV Slate junction box fits into your cut-out.

When placing a PV Slate, ensure it sits flat. If not, this is often caused by trapping a curl of cable or the junction box not fitting in the natural slate cut-out.



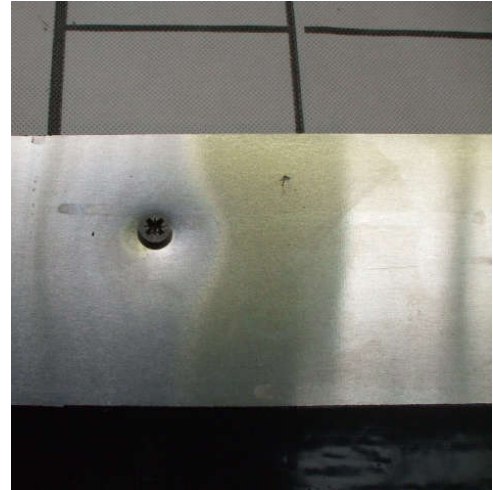
8. Install Right Hand Side Flashing

Slide Right Hand Side flashing so that half of it is under the right edge of the first PV Slate and nail flashing into position.



9. Fix First PV Slate

Using the provided screws, screw the first PV Slate into the batten using the three holes that do not have rubber grommets.



10. Place Second PV Slate into position

Slide the second PV Slate over the in-built left hand side flashing of the installed PV Slate and locate in Roof Hooks.

Ensure you make the electrical connection to the previous PV Slate while doing this.



11. Fix Second PV Slate

Leaving a 3mm gap between the glazed areas of the two PV Slates, screw into position.



12. Complete First PV Slate Row

Repeat steps 10 & 11 to complete the first row, ensuring all electrical connections are made.

We recommend electrically testing the installed PV Slates at the end of each row.



13. Install Natural Slates at Ends of Row

We recommend alternate natural slate and a halves on each row.



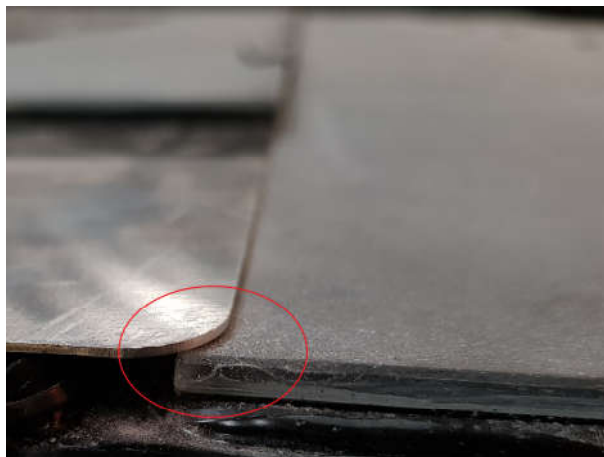
14. Repeat Procedure to Install Remaining PV Slate Rows

When installing the second PV Slate second row and above, ensure the PV Slate glass and flashing sits on top of the PV Slate glass of the row below.

When starting a row, remember to ensure that each PV Slate Hook is exactly in the centre of each PV Slate "Slate" area.

An additional Roof Hook will be required on some rows, please see your roof drawing.

Complete all the rows of PV Slates, ensuring all electrical connections are made (following the string design).



15. Install Top Flashing

Position the Top Flashings above the top row of PV Slates or as specified by our drawing.

Overlap each Top Flashing by 100mm and ensure the Top Flashings stick beyond the PV Slate glazing at the ends of the row by a minimum of 150mm.

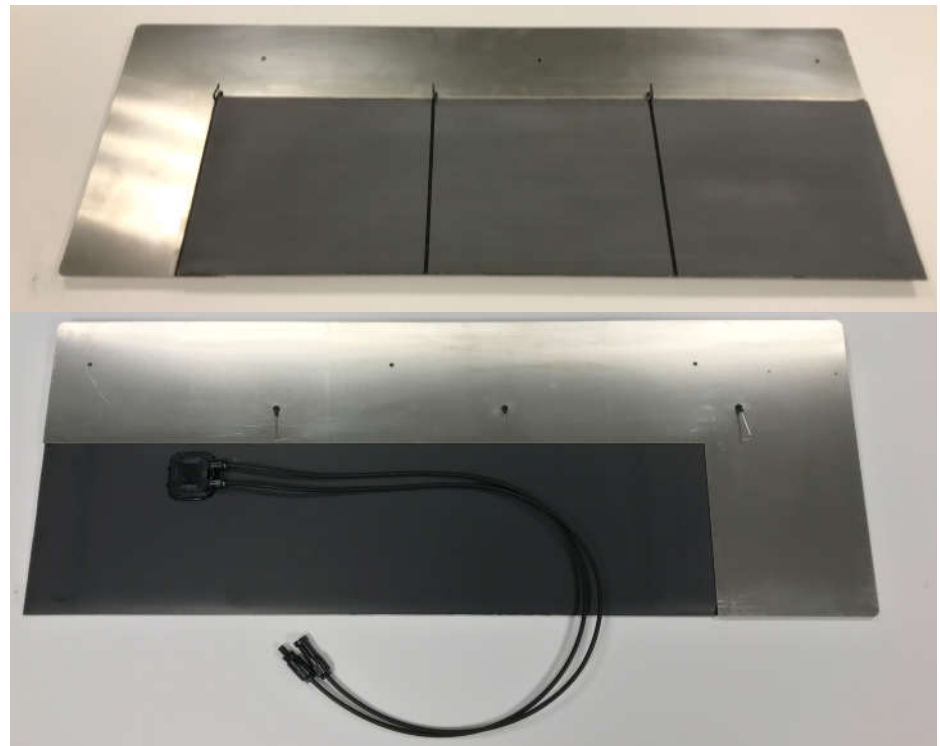
Nail into place.



16. Complete Roof

The remainder of the roof can now be slated as per standard roofing practice.

We recommend cleaning the PV Slates with a soft cloth and water to remove any dust created from the installation.



www.gb-sol.co.uk
slate@gb-sol.co.uk
01443 841 811
Pontypridd, UK

