



# Introduction to Solar Webinar





# Section 1

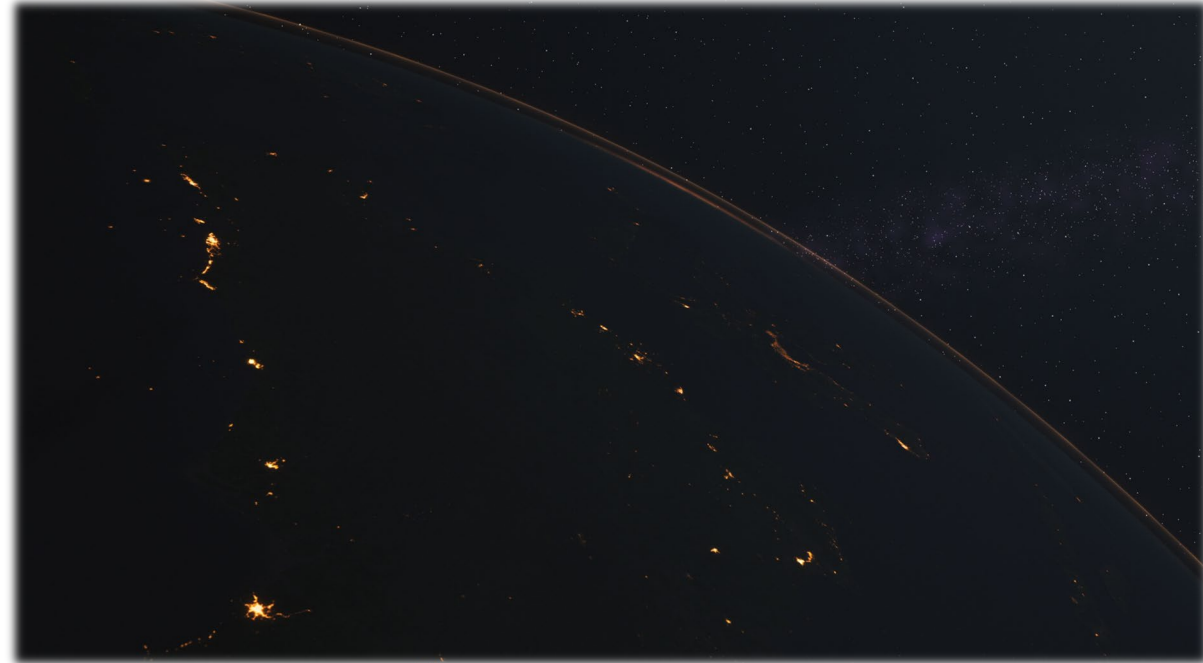
▲ Future of Solar



- ▶ With the awareness of the damaging affects that climate change is having on the planet more highlighted than ever in recent years, people and businesses have become more conscious to their responsibilities to positively impact their carbon footprint.
- ▶ Although sustainable sourcing is not a new phenomenon, the pressure is growing on manufacturers, specifiers, housebuilders, housing associations and local authorities to futureproof the UK's new and existing housing stock for the age of renewable energy.



- ▲ Over the past decade, the cost of solar power has fallen dramatically, and new and advancing technologies promise to increase the efficiency and decrease the cost of solar further. Solar energy is set to become the preferred energy solution over fossil fuels.
- ▲ It is predicted that by 2030, solar is likely to become one of the most important, and sustainable sources of energy production globally.
- ▲ Given the sustainability of solar, alongside the ease of installation and changes to the way we build properties, solar installation figures are only going to grow over the current decade and beyond.





## THE FUTURE OF SOLAR

- ▲ The government's goal to be **carbon net zero by 2050** with any energy produced by fossil fuel offset by renewable sources, further highlights the continued shift in focus to tackle the damaging methods of traditional energy sources on climate change.
- ▲ Managing the carbon footprint for the construction of new-build, and refurbishment of current housing stock in the UK has been highlighted as a **key driver to reaching this vision**.
- ▲ With changes to '**Part L**' of the new **Building Regulations** for both new and refurbished properties, manufacturers are looking at more ways in which the products they supply can support and align to this vision.
- ▲ **Over 900,000 homes** around the UK have **already gone solar**. Furthering this, 87% of the public support this method of energy generation technology, as it makes space that is often unusable into a reliable green energy solution.



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# Section 2

- ▲ Affects on the industry
  - ▲ Understanding Part L of the Building Regulations
  - ▲ Affects on you and your business
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## UNDERSTANDING PART L OF THE BUILDING REGULATIONS

- ▲ The government have begun consultation on the changes to Part L of the Building Regulations, that covers “Conservation of Fuel and Power” which applies to both new buildings and certain types of work in existing buildings to enforce minimum standards of energy efficiency.
- ▲ The new 2021 Building Regulations Part L will be written into law in the Autumn, coming into force in June 2022. A Second update to deliver the Future Homes Standard is likely to be in force for 2025.
- ▲ Incorporating renewable energy sources, like solar PV, into new build and refurbishment projects will undoubtedly help to drive the Ministry of Housings Greener Homes initiative.



- From June 2022, every new-build property will have to incorporate energy saving technology. Although Part L is technology neutral, due to its cost-effective nature, it is likely that solar pv panels will become increasingly popular, and form a large part of the roof area on a growing number of properties
- The energy calculation for new-build properties is 45% of the building footprint, divided by 6.5 to give the KWP. On an average size property, this will consume a minimum 13m<sup>2</sup> of roof space required for solar panels. The bigger the property, the more solar that will be required to hit these standards.





### Non Solar Installer


- ▲ Average home would require 8-10 Solar PV panels which could reduce roof tiling by up to 16m<sup>2</sup>.
- ▲ In some cases this could be 1/3 of a roof which could lead to reduced earning potential.
- ▲ Opportunities limited to projects with no requirement for solar panels.
- ▲ Potentially not considered during tendering process with housebuilders and homeowners.

### Solar Installer

- ▲ Greater £/m<sup>2</sup> potential as the cost of a roof using Solar PV is increased.
- ▲ Housebuilders and homeowners are more and more likely to accept tender applications for installers able to complete all aspects of a roof and solar installation.
- ▲ Protected against future potential losses when Part L of the new Building regulations comes into fruition.
- ▲ Future-proof your business

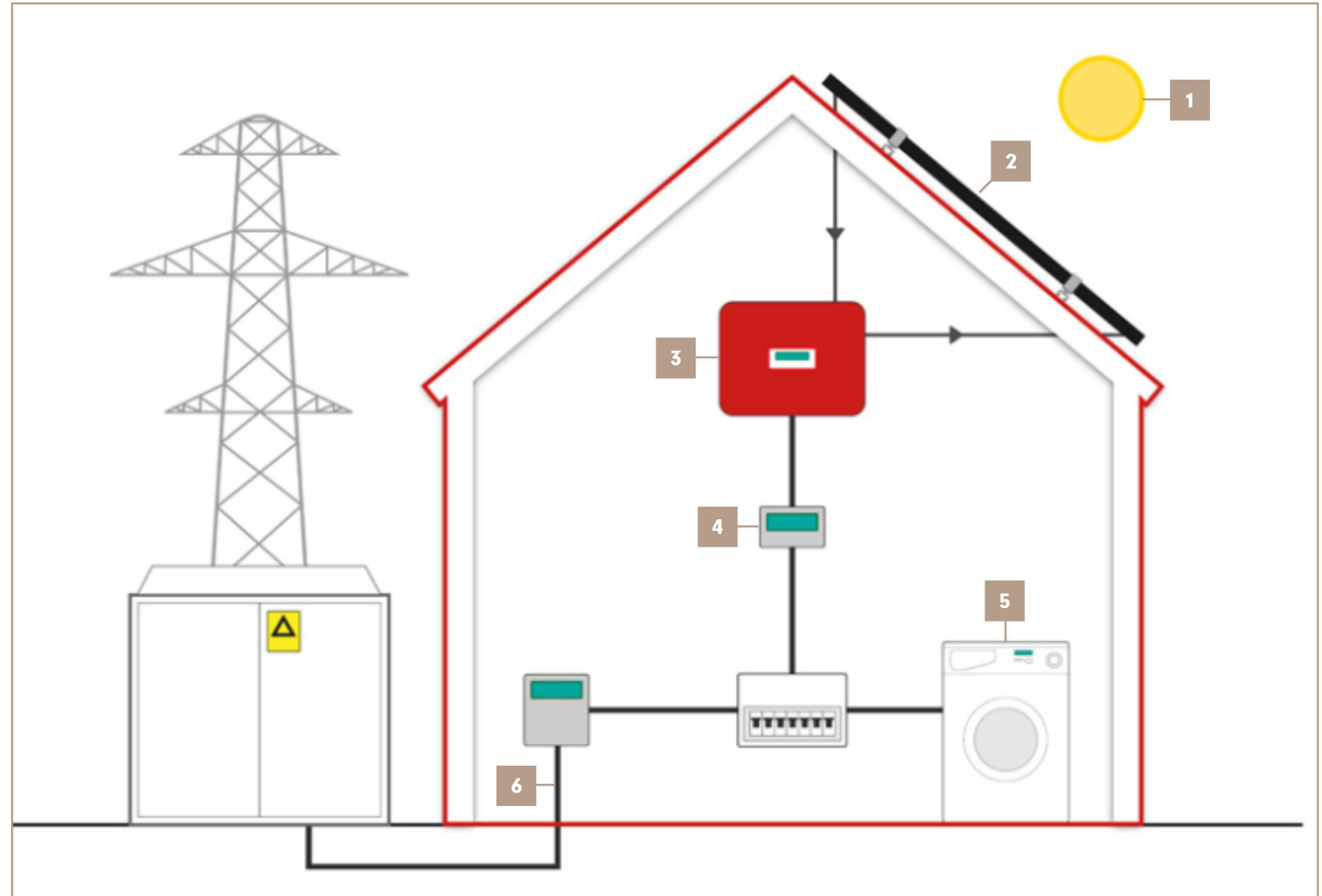
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# Section 3

- ▲ How solar PV works
  - ▲ Mono vs Poly
  - ▲ Lifespan of a panel
  - ▲ Payback period
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- A collection of semi-transparent geometric shapes in shades of red and pink, including a circle, a diamond, and a large curved shape, positioned on the right side of the slide.

### SOLAR PV EXPLAINED

The diagram shows how it's all connected and helps you understand how solar panels work.





- ▲ Both monocrystalline and polycrystalline solar panels serve the same function in the overall solar PV system:
  - Capture energy from the sun and turn it into electricity.
  - **Both** made from silicon, which is used for solar panels because it is an abundant, very durable element.

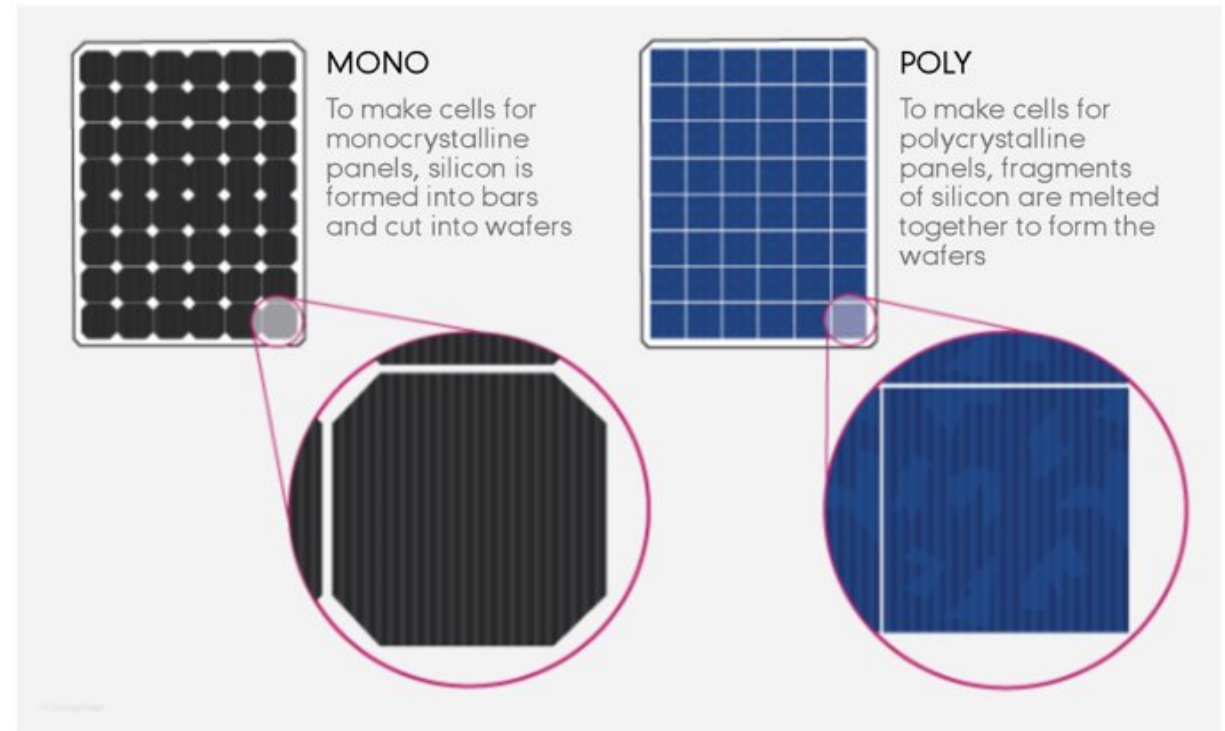
### Monocrystalline solar panels

- ▲ **The main advantages of monocrystalline panels are higher efficiencies and sleeker aesthetics.**
- ▲ To make solar cells for monocrystalline solar panels, silicon is formed into bars and cut into wafers.
- ▲ Types of panels are called “monocrystalline” to indicate that the silicon used is single-crystal silicon.
- ▲ **Monocrystalline panels are more efficient than their polycrystalline counterparts.**

## Polycrystalline solar panels

▲ **Polycrystalline solar panels generally have lower efficiencies than monocrystalline options, but their advantage is a lower price point.** In addition, polycrystalline solar panels tend to have a **blue hue instead of the black hue** of monocrystalline panels.

	MONOCRYSTALLINE SOLAR PANELS	POLYCRYSTALLINE SOLAR PANELS
COST	More expensive	Less expensive
EFFICIENCY	More efficient	Less efficient
AESTHETICS	Solar cells are a black hue	Solar cells have a blue-ish hue
LONGEVITY	25 years+	25 years+



- ▲ Solar panels are subject to degradation in a variety of ways. Due to a lack of moving parts within the system, our solar tiles can be classed as almost a “fit and forget”, with very little maintenance required once installed.
- ▲ Most payback calculations are based on a period of 20-25 years, however this does not mean that the panel will likely have stopped working after that point.
  - Still be performing at a minimum of 80% of its original efficiency.





## HOW LONG WILL IT TAKE FOR MY SOLAR PV SYSTEM TO EARN BACK ITS INITIAL COST?

Each solar installation is unique and so too is the period it will take to earn back your initial outlay. It depends on a wide range of factors such as:

- **Where in the country you live.**
- **Orientation of your roof.**
- **Cost of your installation.**

However, the **biggest factor** influencing how quickly you can recover the cost of your installation

- Your **behaviour in your home.**
- **How much of your own self-generated solar power you use.**



- ▲ The Solar Trade Associations (STA) earn-back model includes all of the previous factors, as well as:
  - System deterioration
  - Maintenance.
  - Discount rate and inverter replacement.
- ▲ **Our analysis shows solar still pays back in around**
  - **10 years** for the '**Home All Day**' behavioural category under optimal conditions and a fair market payment for power exported to the grid
  - **11 years** even **without a fair payment** for the Smart Export Guarantee, because relatively little power is exported to the grid.

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# Section 4

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- Installing Solar: Built on vs integrated systems



### On roof systems

- ▲ The first generation of residential solar panels.
- ▲ Consist of a set of solar panels attached to your roof by **a mount**, which is **bolted onto your rafters**.
- ▲ On roof solar installations instructions recommend **notching the roof tile** around the roof hook to ensure it doesn't disturb the roof plane. Modifying this crucial penetration point means a **susceptibility for water ingress** and will **invalidate any of the roof tile manufacturer's warranty**.





### On roof systems

- On roof solar adds **additional weight**, at roughly **20 extra kg per m<sup>2</sup>**, which puts unnecessary strain on the roof structure and may not have been tested. This could have **some potentially serious consequences**.
- On roof systems are **installed on a completed roof**. Roof tiles are not designed to be walked on, so increased likelihood of damage due to hairline cracks as a consequence of foot traffic, which only **become evident 9-12 months following weathering**.



### On roof systems

- ▲ Bird nesting can also cause issues. They build their nests, as the panels protect them from the elements.
- ▲ As Solar string arrays only work to their least efficient panel, pigeon droppings and nests could cover part of the panel, affecting energy produced by the whole system.





### Roof integrated systems

- ▲ Roof-integrated panels are designed to be incorporated into your roof surface, **dual purposing as a MCS 012 approved building material**, and therefore when installed, **will replace a section of your tiles**.
- As an **integral part of the roof** - no **modification to the roof tiles**, **securing the validity of the warranty**.
- Certified to MCS 012, they perform as a building product, **protecting against wind lift, weather** and other elements.
- Usually **installed at the time of installing or replacing a roof**.
- ▲ On roof systems are sleeker than ever before, but hold **no comparison to the aesthetic of roof-integrated PV**. Roof integrated systems make it **easier to pass difficult planning conditions** and may **even be used in heritage sites**.





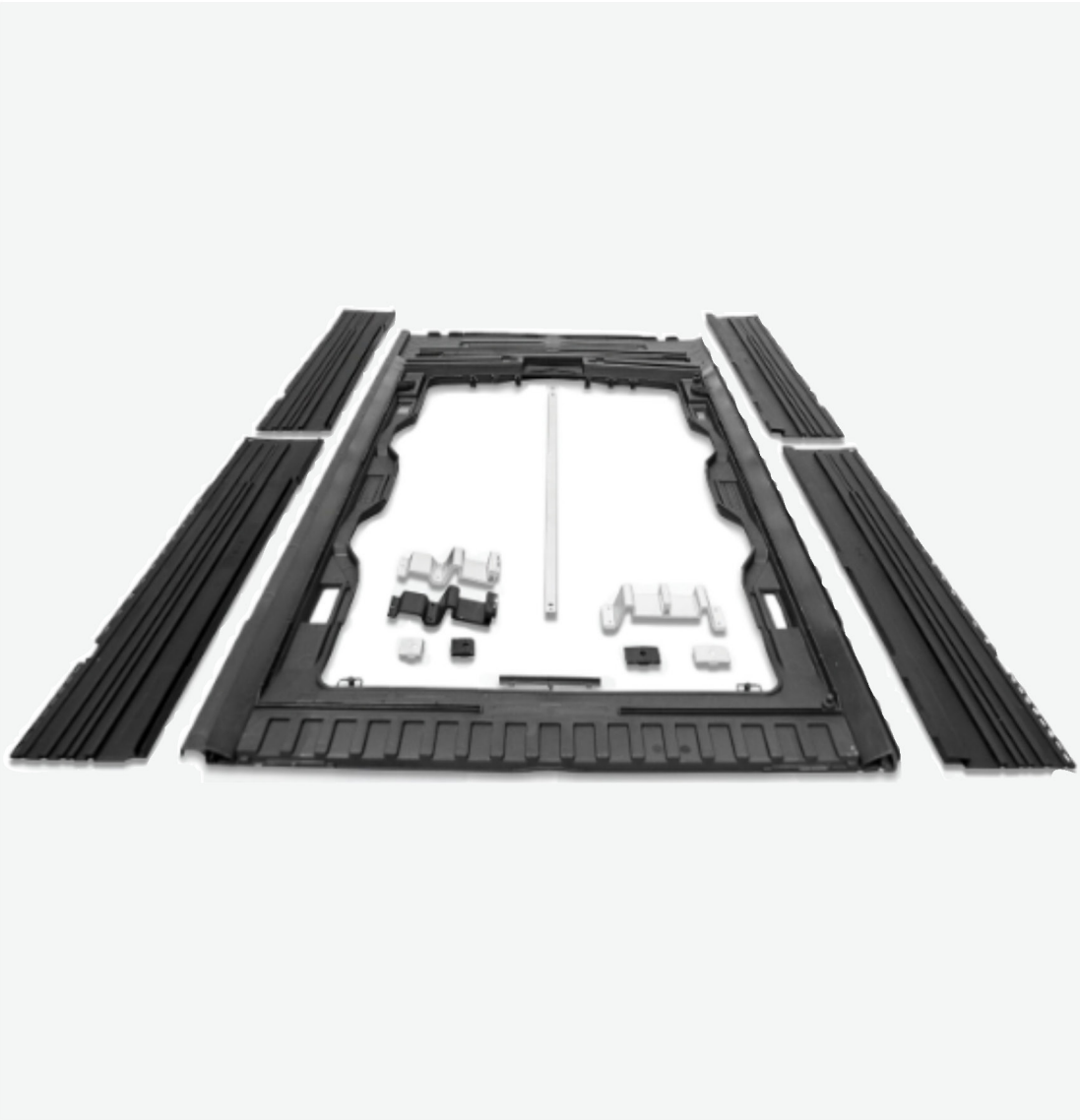
### ROOF INTEGRATED SOLAR PV



There are numerous integrated solar PV solutions on the market in the UK.

The majority of the systems require a carrier system for the panel to sit into. These tend to be manufactured from polypropylene trays the PV panels are placed and fixed into the trays.

The trays provide adequate ventilation for the panels and weather-tightness to the roof.



### ▲ The **main disadvantages:**

- Require **additional timbers to fix to and often wider timbers 100mm+.**
- These are often less expensive systems to buy but once the **additional battens and labour has been taken into account, they are a similar price to our in roof system.**
- If the customer/specifier is concerned about fire they do provide a tray which is **fire retardant but at a higher cost.**





# Section 5

- ▲ Microgeneration Certification Scheme (MCS)



▲ MCS refers to the **Microgeneration Certification Scheme**. MCS is an internationally recognised quality assurance scheme supported by the Department for Business, Energy & Industrial Strategy (BEIS).

MCS **certifies both products, installers and their installations** to help ensure that Microgeneration products are installed to a high standard.



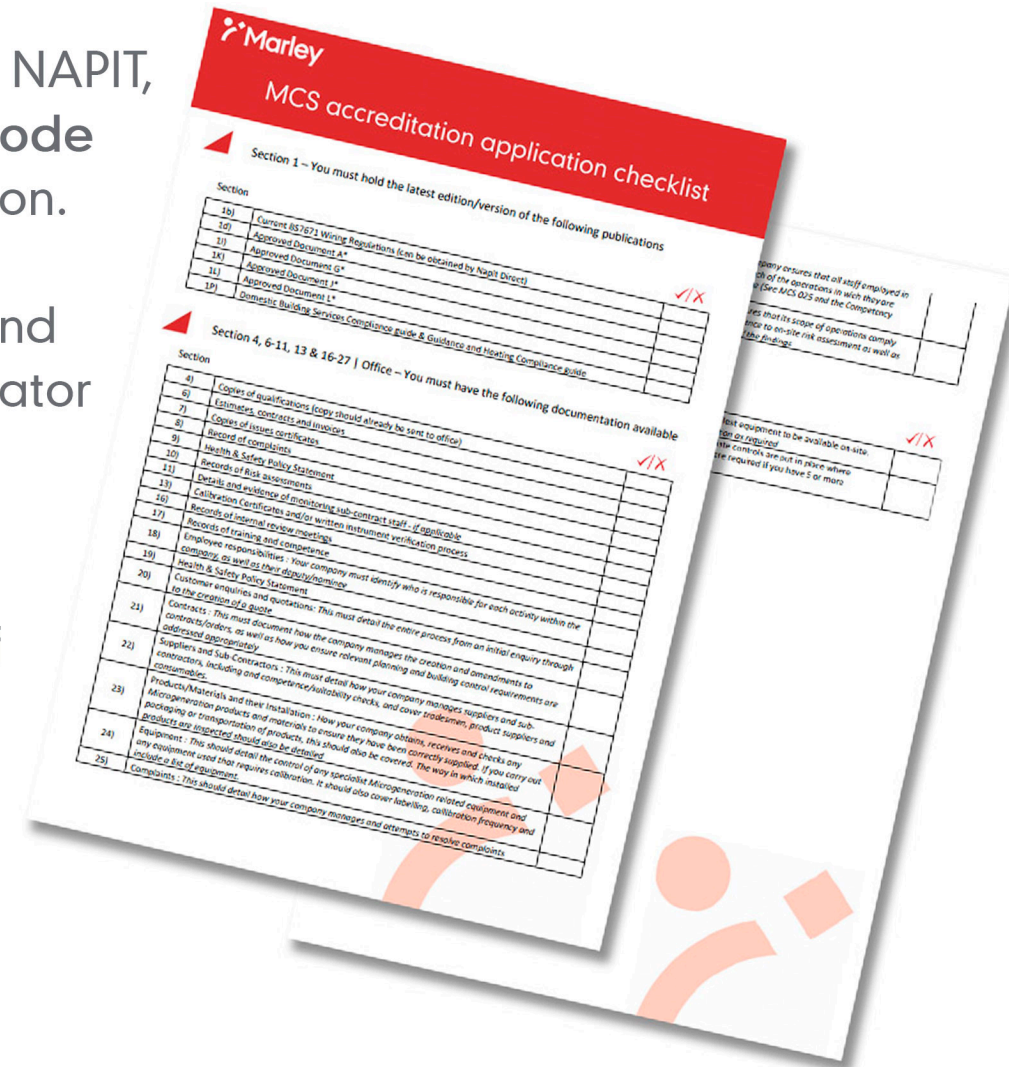


▲ **MCS create and maintain standards that allows:**

- **The certification of products, installers and their installations.**
- Associated with these standards is the certification scheme by Certification Bodies who hold UKAS accreditation to ISO 17065.
- **Low-carbon products and installations used to produce electricity and heat from renewable sources.**
- **MCS is a mark of quality.** Members demonstrate adherence to these recognised industry standards; highlighting quality, competency and compliance.
- All installs of Solar PV **work needs to be overseen**, applied for and verified by and MCS certified installer. This covers both the installation of the panels and connection of all the electrics.

▲ For more information please look at the following website:  
**<https://mcscertified.com/>**

- ▲ We can help you become MCS accredited.
- Through a partnership between Marley and NAPIT, we can offer your business a **£50 discount code** to process your MCS accreditation application.
- NAPIT is a leading Government approved and UKAS accredited membership scheme operator in the building services and fabric sector.
- The scheme demonstrates yours or your employees competence to install a range of small scale renewable and low carbon technologies, in both the domestic and commercial sector.





# Section 6

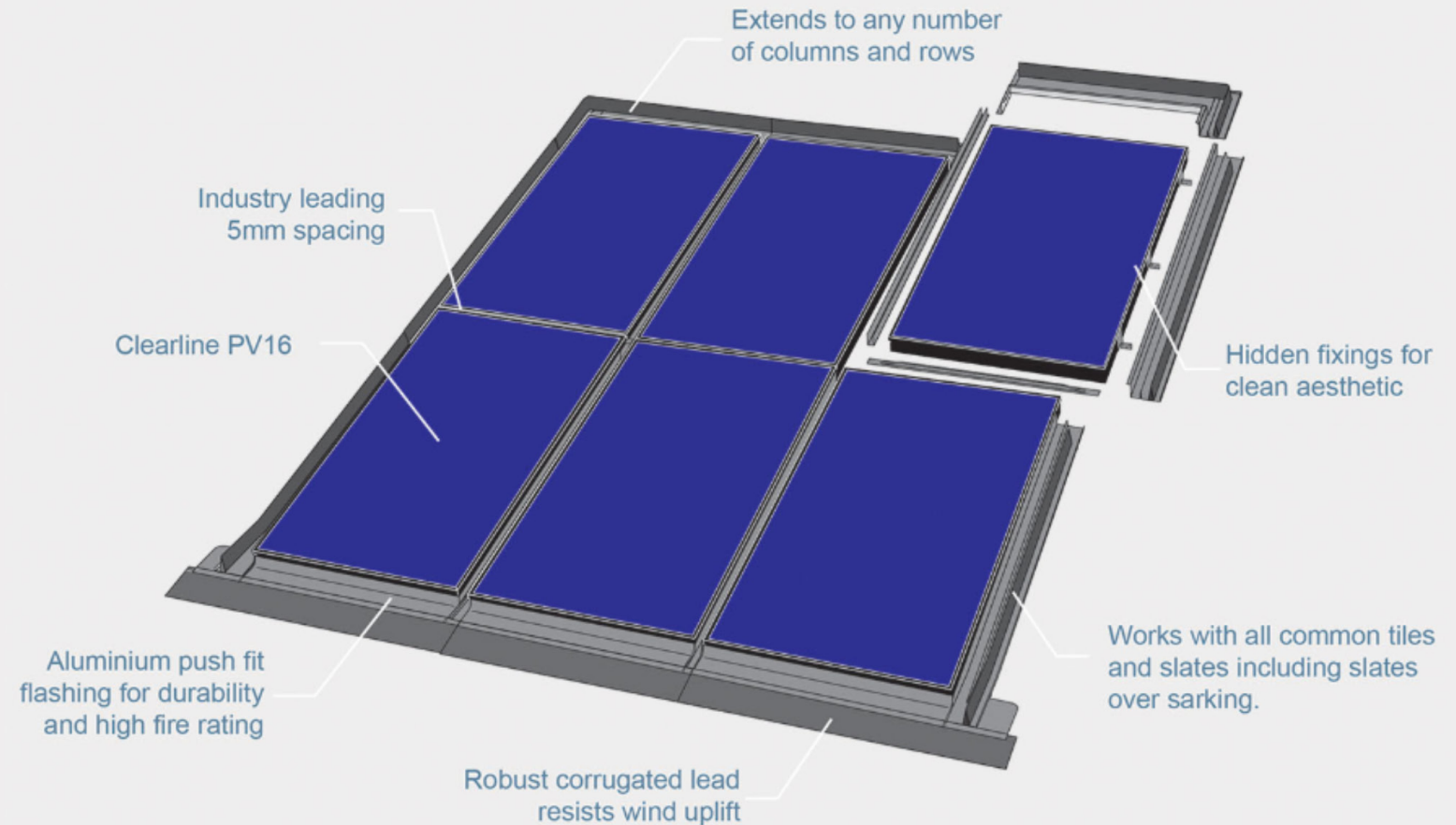
▲ Marley Solartile® range





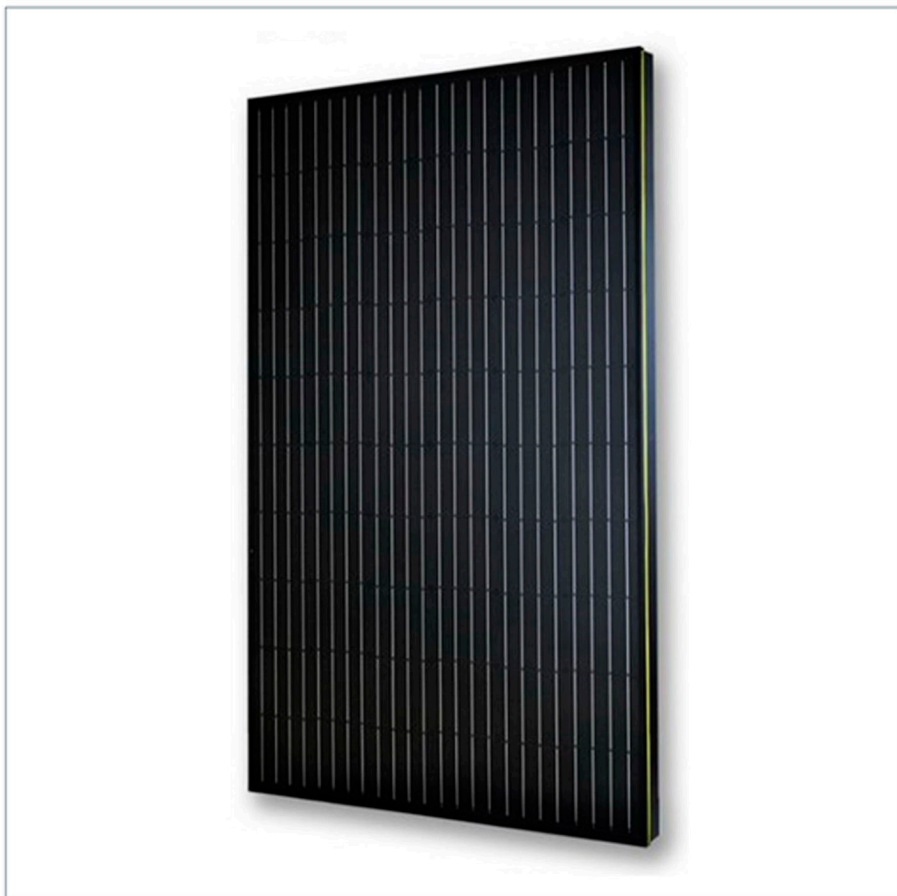
The range comprises of three sleek, low-profile PV16 solar panels for roof integration and are available in:

- A range of power output
- A range of styles.
- Simple, beautiful, durable design.
- Installed portrait or landscape orientation.
  - Monocrystalline – black 320Wp
  - Monocrystalline – black 300Wp
  - Polycrystalline – black 270Wp



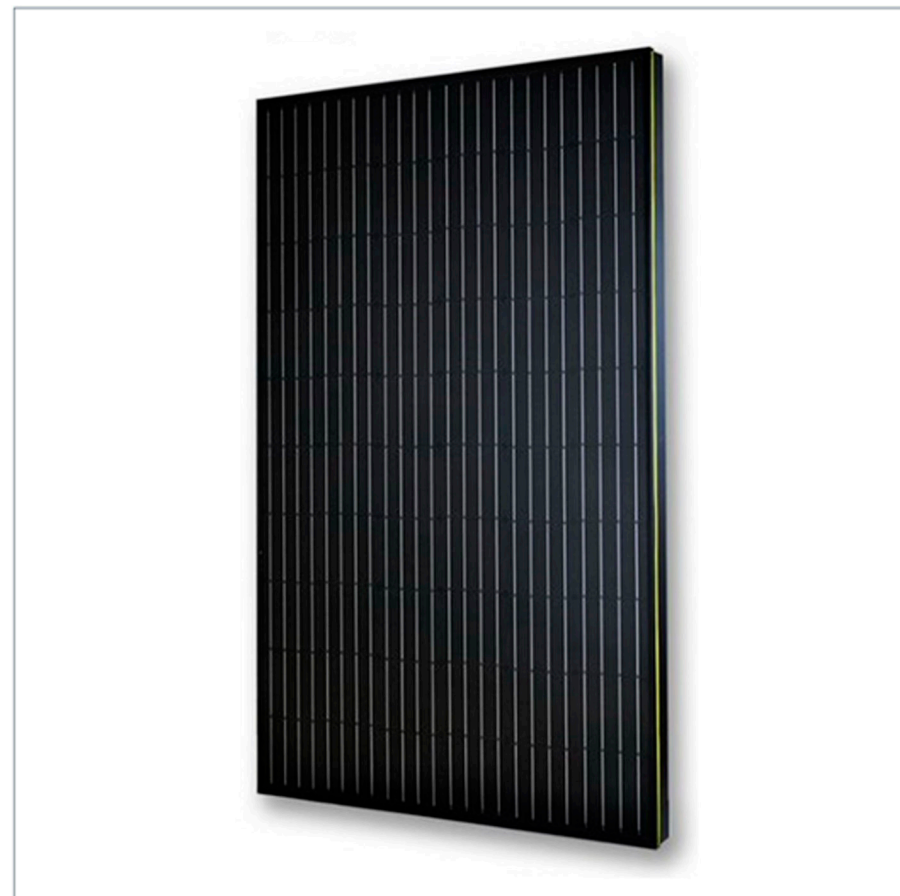


## Monocrystalline-black 320



- Available as:  
320Wp panel (product code MAPV16320)  
300Wp panel (product code MAPV16300)

## Polycrystalline-black



- Available as:  
270Wp panel  
(product code MAPV16-270PB).

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- An orange triangle icon pointing to the right, used as a section header marker.
- Installation of the panels is made easier with:
    - A full suite of flashing kits which can create many combinations of panel arrays. Industry leading 5mm panel spacing and hidden fixings give a high-end clean aesthetic.
    - Panels simply slide together to create a weather-tight seal and roof fixing.
    - All the flashing kits are provided in colour-coded boxes making installation very quick and simple on site.
    - The roofing kits work with all our tiles and are compatible with slates.
    - Fixings are available for sarking boards for Scottish practice.

- Specifying and pricing all the components couldn't be any simpler with our configuration software.
- It shows the flashing kit required by colour, and the boxes are marked the same, so the installers know which kits go where. Extremely easy for everyone.
- The configurator also calculates the kWp output so you can easily achieve size and performance of system your customers require. This can be used to up-sell to the more efficient panels to achieve the same level of performance.



The screenshot displays two configuration sets for solar panels, each showing a grid layout and a list of required components.

**Set 1: 3.24 kWp**

- To outside flashing: H 5,435 mm, W 4,310 mm
- Type x T: each colour makes a solar panel
- Grid layout: 12 panels (6x2)
- 1 Sets like this
- 1 Panels: PV16-270P-B 12
- Batten Thickness (mm): 25
- 1 Roofing Kits: F16-TL 1, F16-TC 2, F16-TR 1, F16-TY 2, F16-J 6, VAT-N 0, F16-VC 0
- 1 Bracket Packer: SP-S 0, SP-SU 0, 20 pieces/box

**Set 2: 3.84 kWp**

- To outside flashing: H 5,435 mm, W 4,310 mm
- Type x T: each colour makes a solar panel
- Grid layout: 12 panels (6x2)
- 1 Sets like this
- 2 Panels: PV16-320 12
- Batten Thickness (mm): 25
- 2 Roofing Kits: F16-TL 1, F16-TC 2, F16-TR 1, F16-TY 2, F16-J 6, VAT-N 0, F16-VC 0
- 2 Bracket Packer: SP-S 0, SP-SU 0, 20 pieces/box

**Physical Components:**



Photograph of physical components in boxes, labeled with Marley part numbers: F16-TC, F16-TL, F16-TR, F16-TY, F16-J, VAT-N, F16-VC, and F16-VC.

**SIMPLE, ERROR FREE ORDER FULFILMENT**



### ▲ **No need to compromise on product specification**

- Marley SolarTile® integrates with the full Marley roof system and all tiles types, meaning no compromise on product choice and providing the only product on the market with a full system warranty from one manufacturer

### ▲ **Sleek design ensures no compromise on building design**

- Very low profile and unobtrusive design, giving more kerb appeal and enhanced aesthetics desired by house builders and self-builders

### ▲ **Extra security with market-leading fire performance**

- The only roof-integrated solar system accredited with the highest resistance to spread of flame and fire penetration in all European fire tests

### ▲ **Installation confidence for all locations with exceptional wind resistance performance**

- Double fixing to battens and trusses means greater resistance against wind uplift and delivers industry leading performance with the highest rated wind loading of any roof integrated solar system

## **Quick, easy and simple to install**

- Marley SolarTile® comes with all the components, including fixings, to complete the installation divided into sections, so no additional third party products are required to complete the job. Colour coded boxes and clear installation guide make it easy to see the order that sections need to be fitted, supporting quick installation. Installation times of below 1 hour per kWp can be easily achieved.

## **No need for counter battens**

- With double fixing to battens and trusses there's no requirement for counter battens meaning no additional material costs and time saving on site.

## **Flexibility and versatility**

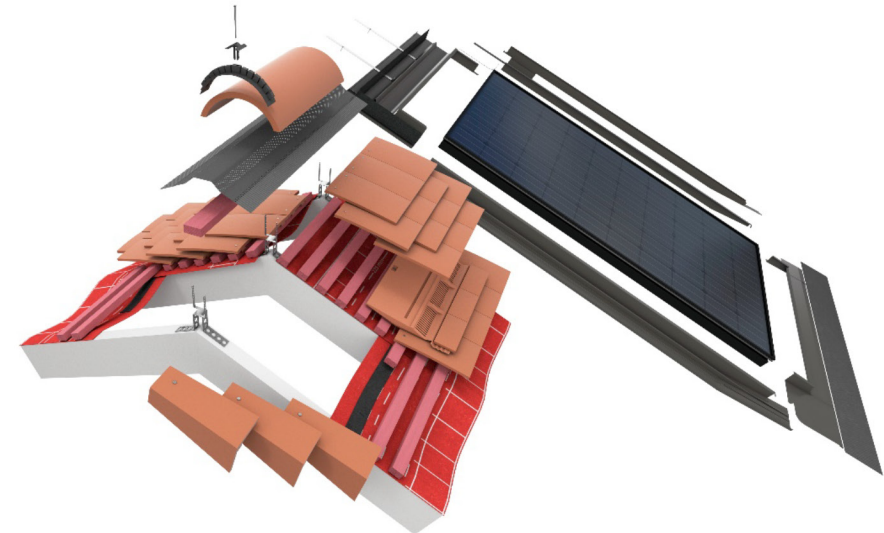
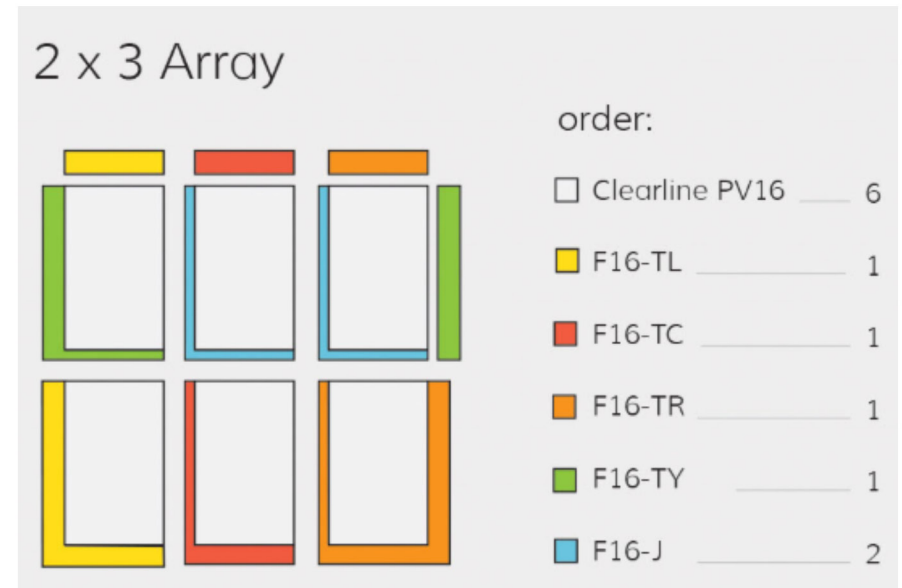
- Marley SolarTile® offers versatility, it can be fitted in both tiled and slate roof applications and is compatible with all core roof covering products, giving you ultimate flexibility across all projects.

## Design and technical support

- Our dedicated technical team are here to make things simple, so if you need technical support, design advice or even have questions on installation our team are here to help

## 15 year warranty guaranteeing extra peace of mind

- Marley's 15 year guarantee covers the whole roof system, including Solar PV, giving you consistency of warranty across the whole roof and offering extra liability assurance when completing projects.







- ▲ **Design help** - We offer a full technical design service for all roofing works including solar panel and full roof system installation requirements.
- ▲ **Speed of installation** - Integrated solution that fits seamlessly with all roof tiles and slates for quick and easy installation
- ▲ **Sleek aesthetic** - Unobtrusive design that complements both tiled and slate roofs
- ▲ **Safety measures** - Offering the highest fire rating available (AA) across T1,2, 3 & 4.
- ▲ **Harsh weather resistance** - Our panels are proven to work up to 5300 pascals, or can withstand typhoon conditions of up to 200mph windspeeds.
- ▲ **Sole manufacturer** - All products sourced through one supplier for easier transaction, and providing peace of mind through a 15 year full roof system guarantee



Thank you

