

Heritage, Design and Access statement

7 Sundorne, Overton

Installation of a 10 panel Solar PV System, 5 panels to front/west roof pitch and 5 panels to rear/east roof pitch.

General

It is proposed to install a 10 panel Solar PV System to help reduce the energy consumption of the property.

Design

Obviously with the property being within the Overton Conservation Area and an Article 4 Direction within the conservation area a lot of thought was put in as to positioning of the system, the aesthetics of the system and the visibility of the system within the surrounding area.



Levisham Conservation Area

Levisham Conservation Area was originally designated in 1971.

Article 4(2) for Overton Conservation Area was designated in 2011.

Proposed Works

The Solar panel system will be a 10 panel system split over front and rear roof pitches, 5 panels per pitch.

Impact on surrounding area

There will be very limited views of the system within the surrounding area.

Access

Our proposal will have no impact on access to and from the property or the surrounding area during and post installation.

Conclusion

Due to the position of the property and how the system will therefore be situated the proposed installation will have minimal impact on the Conservation Area and will comply with the Article 4 direction. The property also benefits from having relatively shallow roof pitches which will restrict the views of the solar panels.

Final Comments

Although I accept that other elements need to be looked at when considering solar panels within Conservation Areas, I also think that home owners who live within these areas should not be penalised due to where their property is situated.

I hope that all the information supplied by me will help in coming to a positive decision for the householder where they will benefit economically which in turn will help them to treat the property with the respect it deserves with the minimum of impact to the conservation area.

See the Generic Installation Guide which shows how the system will be installed with the minimum disruption to the existing roof.

Generic Installation Guide

Roof Anchors

Roof anchors are aluminium or steel components that screw directly into the rafters, forming the base of the mounting system. The type of anchor used is determined by the characteristics of the existing roof tiles and the height and spacing of the roof batons. The majority of the anchor fits under the tiles with only a small proportion of its tail visible. It is to this tail that the frame is attached.



Mounting Systems

Once the roof anchors are secured in place the frame is attached to them. This attachment is made using a specially engineered locking system to ensure there is no movement and then tightened using conventional bolts. The frame consists of two parallel aluminium bars for each row of panels. The panels sit directly on the frame and attached by clamps.

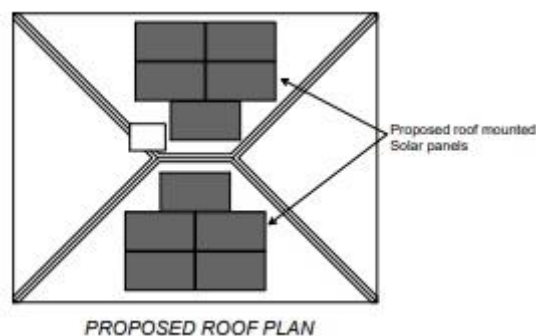
There are two varieties of clamp; end-clamps and mid-clamps. End-clamps are situated at the end of a row of panels, thereby helping to secure one panel. Mid-clamps are used between panels to help secure two panels in place and ensure there is equal spacing between them (usually 20mm) for aesthetic reasons. At least 4 clamps are used to secure each solar panel to the mounting frame, with different clamps being used for each brand of solar panel.

The Solar PV Installation



Now that the components required for the installation have been laid out, the installation process itself can begin. Roofs are very rarely exactly 'straight'. Inevitably the ridge, the eaves and the ground will not run perfectly parallel to each other. The installation looks best when the panels run parallel to the edge that is nearest them, which is usually the eaves. We recognise that after performance, aesthetics are the most important aspect of a solar photovoltaic installation and so our installation teams will ensure this to be the case.

We will arrange to have scaffold erected by locally sourced trained specialists. Depending on the expected length of the job this will either happen before or during the morning of the first working day. The scaffold is erected to reach the eaves of the roof and ensures the safety of those working on the roof with compliance to all relevant Health and Safety codes. Ladders from the scaffold across the roof are used when the roof tiles are slippery or fragile.



Positioning the Roof Anchors



It is important that the roof anchors are positioned carefully on the roof to ensure the solar panels can be installed correctly. The location of the rafters under the existing roof tiles are identified, to which the roof anchors will soon be screwed. The anchors are then placed on top of the tiles where they will eventually be positioned while measurements are taken to ensure that the aluminium frame will sit 'straight'.

Once the position of the anchors is determined they can be fixed to the roof. One roof tile is removed to allow the anchor to be screwed to the rafter and then replaced to ensure the roof remains watertight. It is important that the correct type of anchor is used and this would be determined during the site survey.

Once all the roof anchors are fixed into place, the aluminium bars that make up the frame are then locked into the anchors and screwed into place. Each bar is checked to make sure that it is straight and that all the bars are parallel to each other. This is the single most important step in ensuring that the panels will look correct.

If the length of the frame is longer than the aluminium bars supplied then they are spliced together using specially designed strips of aluminium and further bolts.



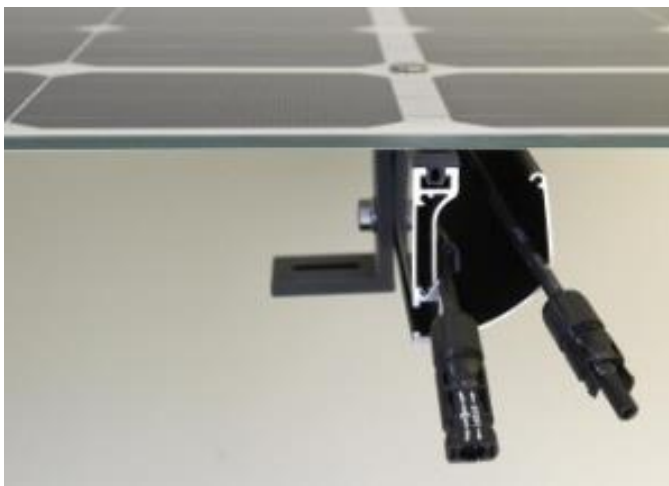
Installing The Solar PV Panels



With the bars in place, the frame is complete and the panels can start to be attached and clamped to the frame. A minimum of 4 clamps is used per solar panel, though in some cases extra clamps are used to aid the parallel alignment of the rows.

The panels are either placed by row or by column depending upon which is the easiest in each specific situation. In the photo to the right the panels are being placed by row. In this case the top row is placed and the alignment of each row thereafter is taken from it.

Wiring The Panels



The solar panels are wired by the manufacturer, meaning the rooftop connection is straightforward. The specific voltage, amperage and power of the system determine how the panels are connected. Smaller systems connect a single series to a single inverter, while larger systems connect several parallel series into a single inverter. The largest systems may require multiple series into multiple inverters. Shading and panel positioning can also influence the design of the wiring.

Installing the Final PV Panel



Once the top row of solar panels is correctly clamped the rows beneath are secured to the frame in the same manner, taking their positioning from the row above.

Aligning the panels parallel to the row above is extremely important in ensuring the finished system will look good. This process is made easier if the original frame is well placed, which is why our installers take care to get things right within the initial stages of the installation.

Once all the panels have been installed and the alignment checked the final wiring of the system can begin. The DC wiring from the panels on the roof needs to enter the property in order to be connected to the electrics in your home. In some cases this is achieved by running the wire under the eaves and directly into the loft. In others, such as in the image on the right, a hole is made within the wall which is then sealed to ensure it is watertight. Once the wiring has reached the inside of the property, the rooftop section of the installation is complete.

