

DEEP RETROFIT OF 1930s END OF TERRACE HOUSE, OXFORD

Photovoltaic panels installation

Main PV options:

- Installed on the roof tiles
- Integrated i.e. installed instead of the roof tiles

Selection rationale:

The roof of the house was being retilled and therefore it was an opportunity to install integrated PV panels. Integrated PVs are slightly more expensive than those installed on top of roof tiles, but there was a saving in that fewer tiles had to be purchased. Integrated PV panels are less visually apparent.

On the roof of the garden office, which had a new roof, the panels were installed on top of the tiles.

Project description:

Deep retrofit including insulation to roof, walls, windows, floor and new services and renewable energy sources.

Project location:

50 Cornwallis Road, Oxford OX4 3NW

Completion: 2022

Client/ architect/ environmental designer:

Paola Sassi

PV Installers:

R-ECO

1

The roof-integrated panels are set within plastic trays surrounded by slate tiles. If the roof is retilled this means fewer tiles are required.

Each panel is connected with a wire, which passes through the roof.



2

The roof-integrated panels are flush with the roof finish. This makes it less possible for squirrels to access and cut through the connection wires, a risk relevant to this project.



3

The wires from the panels are linked to power optimiser. The optimisers help to maximise output and can help locate faults. The optimisers are located under the panels set on top of the tiles and inside the building for the roof-integrated panels.



4

The panels set on top of the tiles are supported on brackets that are installed without having to remove tiles. Advanced technology enables the timber structure to be identified and the brackets are fixed in place through the slates.



5

The panel optimisers are located below the PV panels and squirrel mesh prevents squirrels from chewing the connection cables.



6

The panels are connected to an inverter, which converts the DC current generated by the panels in AC current. A safety switch enables the system to be isolated should work be required to the system. A generation meter records the amount of energy generated.



7

Thanks to a wifi connection it is possible to see online the amount of energy generated, the energy used on site and the energy imported from the grid.

