

# ES Solar Roof

## A roof that is also a solar collector

### OVERVIEW

The ES Solar Roof turns a roof into an efficient solar collector for hot water, space heating or swimming pool heating supplying between 300 & 600kWh/m<sup>2</sup> energy per year. It simply replaces the tiles, slates or other roof coverings with a series of unglazed collector plates connected by sealed joints. The ES Solar Roof can be installed on both low pitched and curved roofs, allowing great architectural design flexibility.

### ADVANTAGES

- The ES Solar Roof is simple and fast to install
- It fulfills all the requirements of a standard roof
- It is aesthetically appealing
- Strong, durable and high quality materials
- Lightweight construction
- Highly efficient - Performance exceptional at low pitches, the same at 5° as at 30°
- Less expensive than glazed solar panels
- For domestic, commercial and industrial buildings



*The ES Solar Roof can adopt fluid, curved architectural forms, as shown here on display at Construction Resources.*



*The ES Solar Roof is ideal in public, commercial and industrial building applications. Here showing its use in the sports facilities of Great Notley Discovery Centre, Essex (photo © Sue Barr)*

### GENERAL

The ES Solar Roof is an attractive alternative to more conventional discrete solar panels and turns the whole roof into a solar collector. It integrates renewable energy into the architecture of a building -harvesting between 300 and 600kWh/m<sup>2</sup> of thermal energy per year and so reducing the burden of Climate Change levies.

While being less efficient than glazed solar panels for high temperatures, the capital cost is also much lower, and so for many applications this solution may be preferable. It is ideal where a larger roof area for solar collection is available and especially at low roof pitches.

The ES absorber is made of two sheets of high quality stainless steel, ensuring a long lifetime. A water and anti-

freeze mixture flows between the two sheets, irrigating the whole sheet area. Due to the absorber's pattern of offset metal pads the liquid flows turbulently resulting in excellent heat transfer.

The dimpled surface of the absorber is covered with a durable black coating that converts solar radiation into heat very efficiently, but does not re-radiate the heat. The heat can be applied to any form of domestic, commercial and process use including hot water, swimming pool or even space heating.

The fact that the ES Solar Roof can be curved gives great architectural design freedom. The flexible system allows for installations ranging from 20 to 1000m<sup>2</sup> and more.

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## PRODUCT DATA

Basic dimension (height x width)	2360 x 880 mm (module size)
Total thickness	25 mm (includes mounting)
Panel weight incl. anti-freeze	Approx 13 kg/m <sup>2</sup>
Absorption coefficient h <sub>0</sub>	93.7% (with wind) SPF Collector Test No.C420 to EN12975-2
Emissivity coefficient	Less than 18%
Annual Thermal output	300 to 600kWh/m <sup>2</sup> depending on geographical location, type of installation and mean=40°C Output at various tilt angles in the range 50....300 showed no dependency on tilt angle
Embodied energy	Repaid in less than half a year
Absorber material	Selectively coated stainless steel

The ES Solar Roof uses collectors 2480 mm tall, 860 mm wide, 3 mm thick. The height includes 2No 120 mm long flashing.

Installation is quick and the ES Solar Roof can be fixed to a wide variety of substrates including wooden battening, steel framework and concrete.

Refer to Construction Resources for project specific information. Other heights available to special order. Absorbers are available for OEM applications.



*The ES Solar Roof has been used here to roof an apartment block in Switzerland showing how it readily follows a curved profile.*