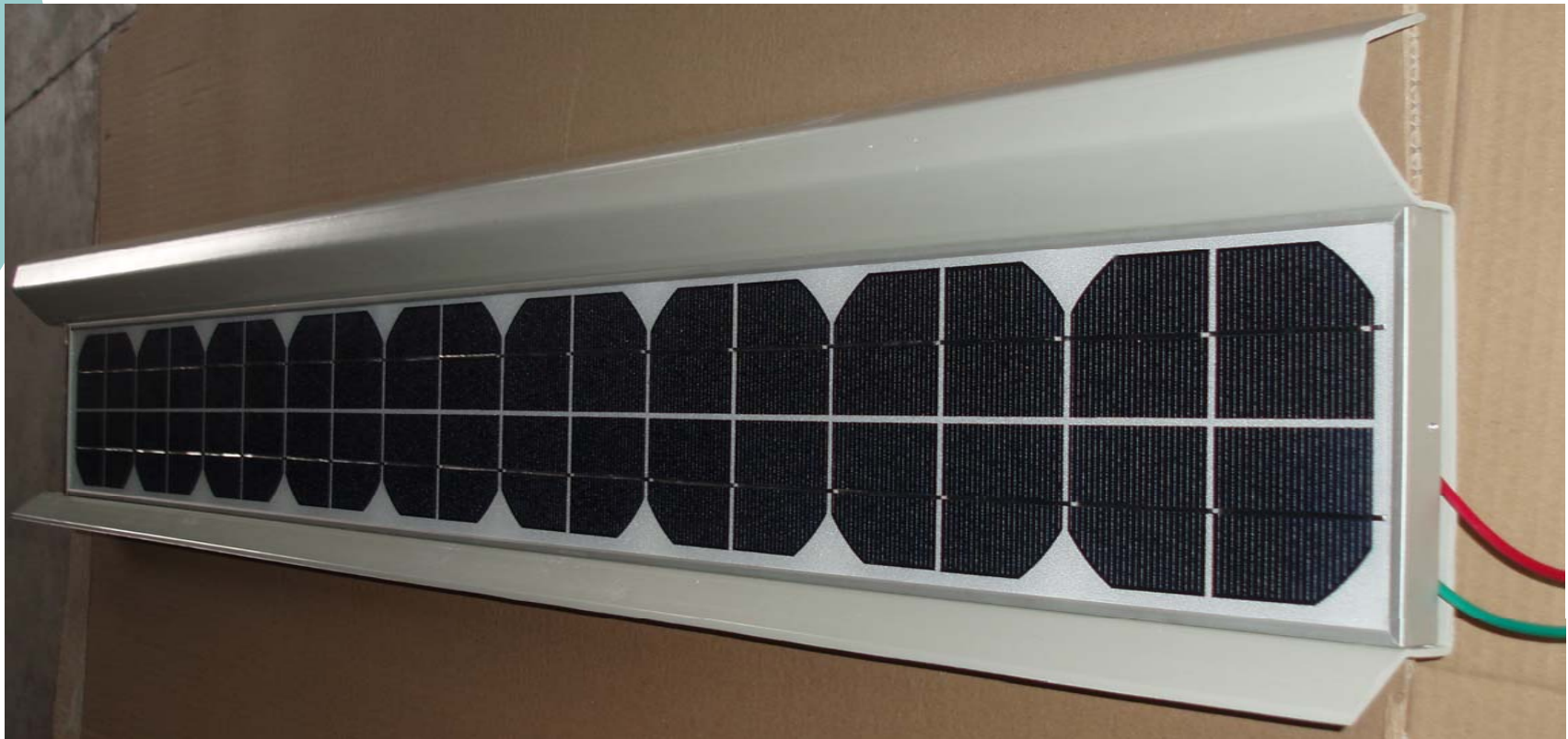


SOLAR PANEL TILE



ORIGIN AND NEED

Construction of buildings requires increase and apply new technologies to make its sale more attractive. The challenge, as always, is to bring the technology, efficiency and aesthetics, as well as helping in the implementation of clean and energy saving.



ORIGIN AND NEED

- Given the need to combine energy efficiency and aesthetics of the building, has developed the design of the solar roof tiles that solves the one hand, the need for renewable energy use (as is the use of solar energy) and aesthetics of the building, avoiding the typical installation of solar panels.

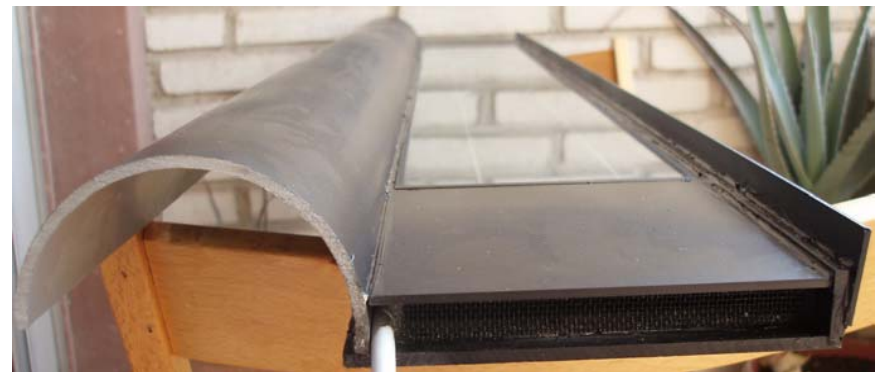


CHARACTERISTICS OF THE SOLAR TILE

- To make a product without being so specific costs increase too, has been designed to build the base, ie the tiles in a Polycarbonate ABS. This high-strength plastic allows us through the extrusion process, we need to get the length of the roof, lowering the costs of production and subsequently, reducing installation costs. As a special feature of this tile, we must specify in its opening tip. This space has two main objectives:
 - 1- Provide a way for connections between the solar panels that are inserted into the tile.
 - 2- Cooling of the panels. This is important because it has been shown that solar cells have increased efficiency and durability if kept refrigerated

SOLAR FEATURES TEJA (prototype)

- Details of the openings to cool the panel. As improvement of this natural cooling system, can be placed on the top, fans fueled by the energy generated by the panels, and thereby increase the cooling capacity.



SOLAR FEATURES TEJA (prototype)

- Within the solar panel tile insert. The measures are standard 150mm (W) x 1200mm (L) x 15mm (T). The panel consists of solar cells attached to the panel by special adhesives and resins. For the best finish, tempered glass is placed on the solar cells, and closed with an aluminum frame for better seal.
- Subsequently, the panel is fixed in the hole or channel that has been designed in tiles made of polycarbonate.



SOLAR FEATURES TEJA (prototype)

- As shown in the picture, the junction box is located on the back of it, and then through the channel made in the tile, you can mount the wiring that connects the panels, thereby minimizing the number the joints between tiles.



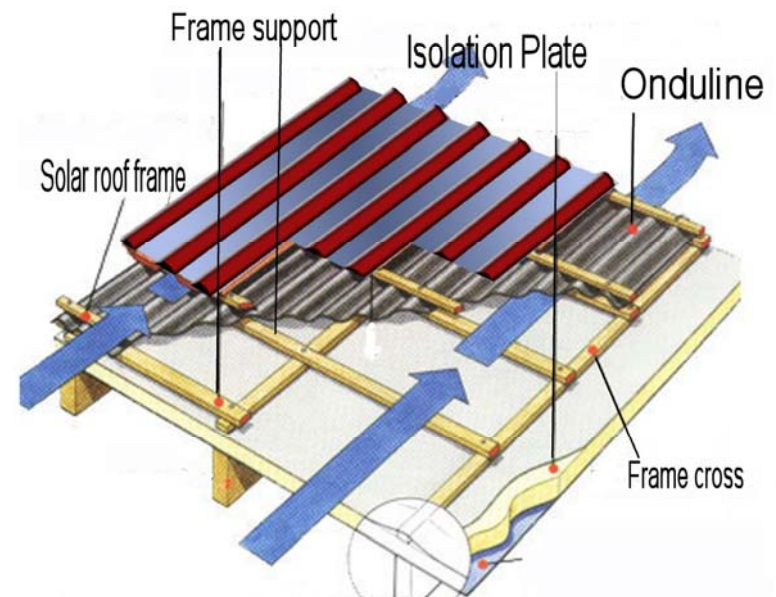
SOLAR TILE FEATURES (prototype)

- The end result is a fully integrated part, resistant to any climate and hermetically isolated agent. Complying with the maximum guarantees of quality, since all its components are approved and certified with the CE mark.



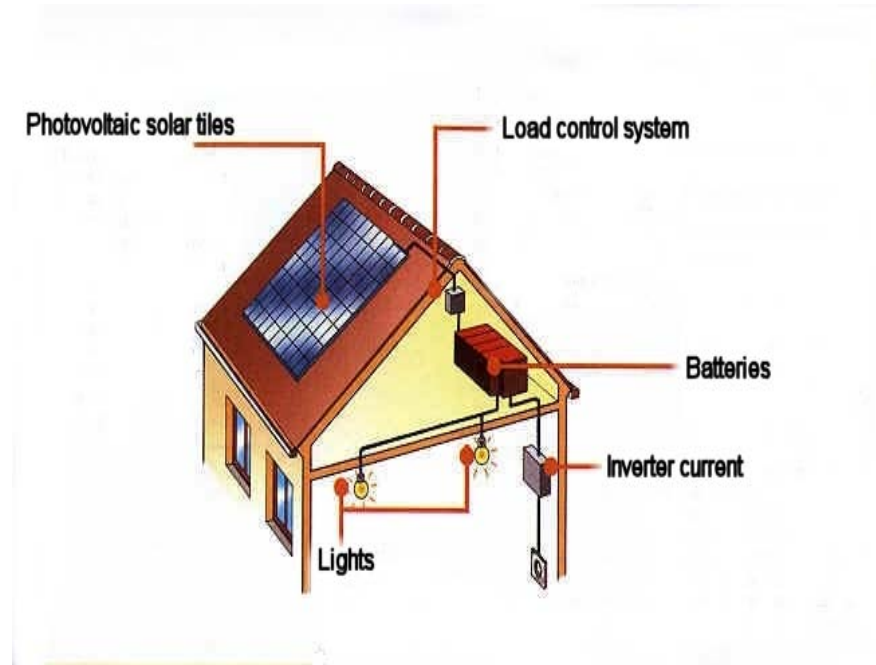
INSTALLATION ON BUILDING

- In the attached graph, we offer a possibility. But the housing characteristics and the opinion of the architects will provide the best installation option. However, the most widespread opinion is that lag screws placed across the "V" of the roof, and fixing the roof at the base resin. Thus, it confers the highest setting and wind resistance.



ELECTRICAL INSTALLATION

As the chart shows a simple form as an example, describes an installation of this system for the consumption of energy generated. There is also the possibility of selling to the grid energy production. In Spain, the generation of this type of action is prima between 0.26 and 0.29 € / kWh produced.



CONCLUSIONS

- The solar roof tile joint aesthetic demands of the building with the needs of clean energy production, in this case solar.
Production costs and installation conform to the requirements of the market can compete with any product in the same range.
- Can be installed on any type of building, very useful in remote areas or difficult terrain, to save costs on installation of lines, high in the electric company, etc. Ability to sell the output to the utilities. Easy and low maintenance cost.
- The average duration of all components of the solar roof is 25 years.
In addition to producing clean energy, all components are 100% recyclable.

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