



Chalet La Pedevilla

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Roof integrated Photovoltaic System

Solar

What is the solution?

The photovoltaic system is integrated into the sloped roof of a mountain chalet. It is made of black PV modules replacing the conventional wooden boards. The modules are mounted with aluminium Solrif profile frames and fixed to the substructure with special mounting clamps, used to brace two modules to their frames in the overlapping area.

Why does the solution work in terms of compatibility with conservation and technical aspects?

The photovoltaic system was calculated to reach 6,500 kWh per year. Around an 80% of the produced electricity is self-consumed, covering the electric demand of the ventilation system and the heat recovery. The PV modules are integrated in a new construction that can be seen as a modern interpretation of the old “Paarhof”, the traditional kind of farm building typical for South Tyrol built with local natural materials. Such kind of solution could be applied in a historic context. The PV modules are coplanar with the roof and create a dark matt surface similar to traditional materials used in historic heritage. The reversibility of the solution is guarantee from the supporting structure that allows an easy dismounting of the modules.

Description of the context:

The case study is located in Marebbe (BZ-Italy), surrounded by the scenery of the South Tirol dolomite mountain ridges.

Pros and cons of the solution:

The black PV modules are aesthetically integrated into the building as the dark monocrystalline silicon appearance blends in very well with the building's dark painted oak exterior and the surroundings. The usage of standard market-available modules allowed to keep the costs relatively low, making the building a great example of photovoltaic integration with high replication potential.

Type of data available (level of information, simulation):

No results from simulation. Just data coming from a rough energy performance estimation, technical data about PV modules features (efficiency, size, ...), overall costs of the PV system.

Are there any related publications or pictures of the solution?



Photo: Pedevilla Architects



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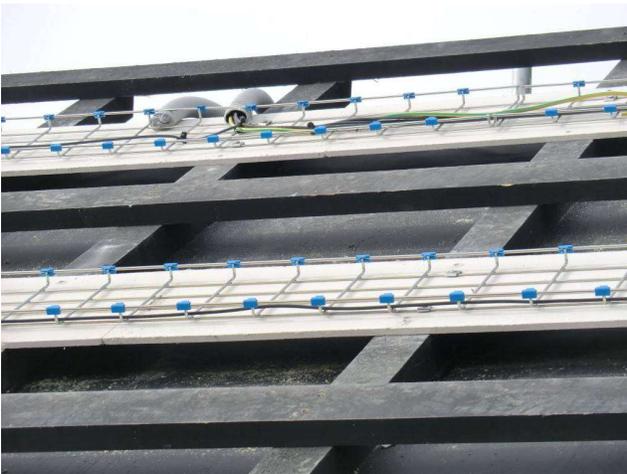


Photo: Leitner Electro Srl



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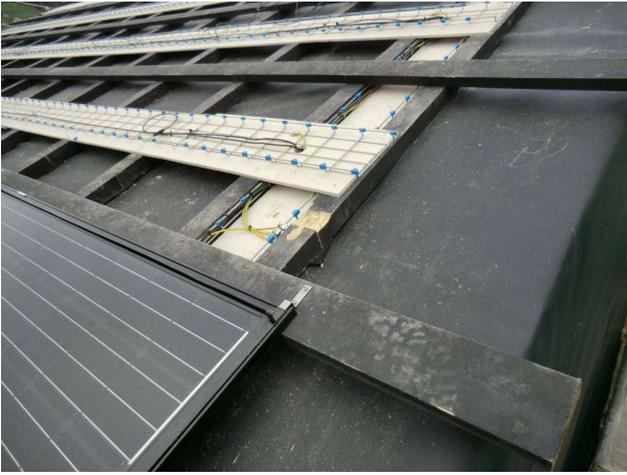
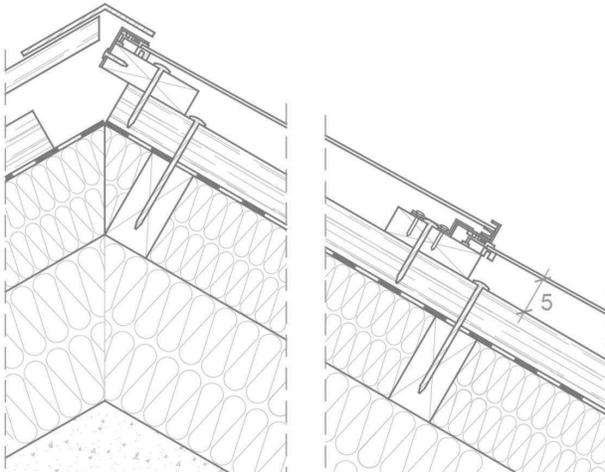


Photo: Leitner Electro Srl



Detail: Leitner Electro Srl, re-drawn by Eurac Research