Farmhouse Galley

Introduction

The case study is a partially protected rural building from 1859, on the roof of which a BIPV system was added during a renovation. The terracotta-coloured photovoltaic modules were developed specifically by the CSEM (Swiss Centre for Microelectronics and Microtechnology) in Neuchâtel and ISSOL Suisse.

Sources: ISSOL, CSEM, Solarchitecture.CH

Design approach

The study of the photovoltaic modules integrated into the rural building, created to apply to protected buildings, is part of a pilot project begun in 2014, which was developed thanks to the attention of government agencies such as the Swiss Department of Energy and Department of Cultural Heritage, and the support provided by the Swiss Federal Office of Energy and ÜserHuus, as well as the commitment of various partners. The project was awarded the 2018 Swiss Solar Award.

Aesthetic integration

The colour, which imitates the terracotta colour, and the matte-gloss finish allow the photovoltaic modules to blend perfectly with the Swiss town's construction context. The size of the modules, which is much larger than that of traditional roof tiles, can be noted by a more attentive eye but only at shorter distances.

Energy integration

The estimated electricity production is 28 MWh per year, about 20 % lower than traditional solutions. However, the solution allows the farmhouse to retain its original character, and the energy produced covers the electrical demand of the house's inhabitants. The excess, about 51% of the total, is sent to the network.

Technology integration

The BIPV modules contain standard monocrystalline photovoltaic cells between glass plates. The glass pane exposed to solar radiation is coloured on the inside. Instead of the classic terracotta tiles, the modules are anchored directly to the wooden roof framework through aluminium frames (Solrif® XL mounting system). The perfect fit between the modules protects against frost and water.

PROJECT DATA

Project type	renovation
Building use	residential
Heritage constraint	listed building
Building construction technique	industrial
Building address	Route du village 50, Ecuvillens, Switzerland

BIPV systems

BIPV SYSTEM DATA

Architectural system	Opaque roof
Integration year	2017
Active material	Monocrystalline silicon
Module transparency	opaque
Module technology	glass-glass, hidden PV, customized modules
System power [kWp]	27
System area [m²]	262
Module dimensions [mm]	1,530 x 542
Modules orientation	South
Annual FV production [kWh]	28000

BIPV SYSTEM COSTS

Stakeholders

Main building designer

Lutz architectes

BIPV system designer

CSEM, ISSOL

BIPV system installer

Solstis SA
Sébeillon 9b, Lausanne, Switzerland
info@solstis.ch 021 620 03 50
https://solstis.ch/fr/

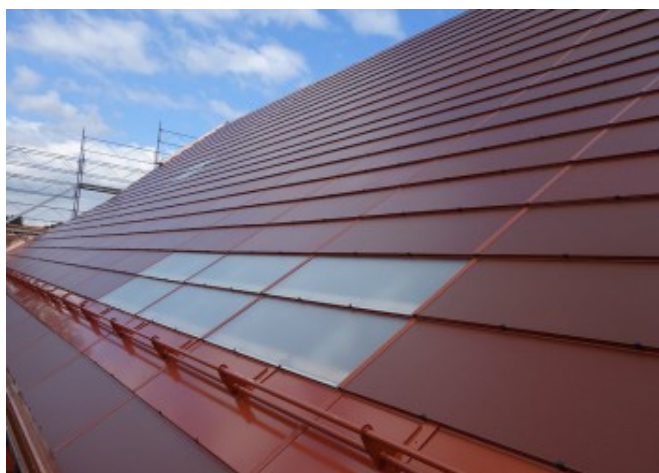### BIPV components producer

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