



House Brunner-Bapst



Operazione co-finanziata dall'Unione Europea, Fondo Europeo di Sviluppo Regionale, dallo Stato Italiano, dalla Confederazione elvetica e dai Cantoni nell'ambito del Programma di Cooperazione Interreg V-A Italia-Svizzera. (Codice progetto 603882)

Introduction

In 2020, the Brunner-Bapst farming family built a PlusEnergie single-family house in Waltensburg with the highest solar energy supply ever installed in Switzerland up to that point. The BIPV system covers the entire roof of the building.

Sources: [Norman Foster Foundation](#), [Solargentur.CH](#)

Design approach

With large glass and wood façades and a simple design, the new building blends into the surrounding landscape. The BIPV system is part of modern building design based on energy efficiency and the use of renewable energy. The project won the Norman Foster Solar Award in 2020.

Aesthetic integration

BIPV modules are arranged in a regular and coplanar manner on both roof pitches and do not require inactive elements to fully cover the surfaces. They give the roof a dark and uniform appearance. Elements of a different colour from the modules were inserted to connect the two pitches along the roof ridgeline.

Energy integration

The BIPV system produces 40,200 kWh per year, covering 817 % of the building's electrical consumption, a Swiss and European PEB record. Due to the 20 to 30 cm thick insulation of the walls and roof, class A++ appliances, and LED lighting installation, the electrical demand is relatively low and equals approximately 4,915 kWh per year. The surplus of approximately 35,239 kWh is partly used for charging electric cars using charging stations connected to the system. The remainder is sent to the network.

Technology integration

The BIPV modules completely cover both the east and west pitches of a large roof that produces energy and extends far beyond the building, protecting it from wind and weather. They replace the traditional roof elements.

Lessons learnt

It is estimated that the energy produced prevents the emission of almost 2.6 tonnes of CO₂ in the atmosphere.

PROJECT DATA

Project type	new construction
Building use	residential
Heritage constraint	conservation area
Building construction technique	postwar
Building address	Waltensburg, Switzerland

BIPV systems

BIPV SYSTEM DATA

Architectural system	Opaque roof
Integration year	2020
Active material	Polycrystalline silicon
Module transparency	opaque
Module technology	glass-glass, recognizable PV, standard modules
System power [kWp]	48.36
System area [m²]	270.4
Modules orientation	East, West
Annual FV production [kWh]	40200

BIPV SYSTEM COSTS

Stakeholders

Main building designer

Bearth & Deplazes Architekten AG, Silvana Janett

BIPV system installer

Solpic AG
Via S. Clau Sura 18, Ilanz, Switzerland
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Case study author:

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