



Ütia da Ju

Introduction

The PV system is integrated into the shading canopy applied to a tourist accommodation, hosting a restaurant, placed in Piz de Plaies. The solar canopy has a distinctive and original spiral structure exposed on a steep wooded slope of Val Badia, at an altitude of 1622 m.

Aesthetic integration

The BIPV system consists of semi-transparent trapezoidal PV modules running around the building roof with a uniform inclination and partially shading the terrace. The photovoltaic canopy is a modern structure harmoniously and elegantly integrated into the natural environment of a region bound to the traditional Ladin culture and language.

Energy integration

The BIPV system has been designed to have an annual electricity production of about 7,800 kWh to cover almost the whole building electricity demand. It feeds additional energy into the grid (Augustin Clement). Thanks to the modules' semi-transparency, the photovoltaic roofing system allows part of the sunlight to enter through the structure, contributing to the heating of the canopy, which is an enclosed space.

Technology integration

The 40 semi-transparent modules (Ertex VSG 140-211) were customized in order to match the building shape. Moreover, they had to get the specific texture and mechanical resistance as UNI7696 (Ertex Solartechnik GmbH). The modules are composed of laminated safety glass, encapsulating polycrystalline cells 2 cm spaced out. They are supported by a timber load-bearing structure, specially designed according to the modules' shape. The structure beams hide the module's fixing system and the cables from people staying below. All the electric connections are made of special UV-resistant cables. They are protected with waterproof ducts.

Decision making

After discovering some interesting examples of BIPV installations at an Austrian exhibition, the restaurant owner, Augustin Clement, decided to apply the photovoltaic technology. He wanted to integrate it into the building in order to create an installation visible to all the visitors, aesthetically attractive and functionally useful also as a shading device. Even though the building is placed into a mountain environment, introducing an innovative element as a BIPV system did not raise any problem getting the planning permission from the public administration (Augustin Clement).

Lessons learnt

Ütia da Ju represents an exemplary case of a retrofit, where a complex structure bearing the integrated PV plant was applied after the building construction. The particular configuration of the solar canopy implies a great attention to details and specific construction solutions. The BIPV system has to guarantee the same functions as the traditional roofing system, e.g. water tightness, resistance to snow loading, to atmospheric agents, to fire, etc. It required an accurate design process which also took into account the aesthetic viewpoint. Finally, it resulted to be an expressive architectural element thanks to the module's aesthetic appearance and the shading effect under the structure. The solar canopy covers an area which was equipped to accommodate the restaurant customers that can appreciate the attractive atmosphere.

PROJECT DATA

Project type	renovation
Building use	receptive
Heritage constraint	conservation area
Building address	Strada Ju 43, San Martino di Badia (BZ), Italy

BIPV systems

BIPV SYSTEM DATA

Architectural system	canopy
Integration year	2009
Active material	polycrystalline silicon
Module transparency	semi-transparent
Module technology	glass-glass, recognizable PV, customized modules
System power [kWp]	7.05
System area [m²]	100
Module dimensions [mm]	several
Modules orientation	from 75° West to 45° East
Modules tilt [°]	10
Annual FV production [kWh]	7800

BIPV SYSTEM COSTS

Total cost [€]	36200
€/m²	362
€/kWp	5135

Stakeholders

BIPV system designer

Electro Clara Sas, Ertex Solartechnik GmbH

BIPV system installer

Ertex Solartechnik GmbH
Peter-Mitterhofer-Straße 4, Amstetten, Austria
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BIPV components producer

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Collaborators

Prada Holzbau Srl



The building is embedded in the natural surroundings of Piz de Plaies © Augustin Clement



The solar canopy exposed on the wooded slope © Augustin Clement



Construction phase, the frameless modules are easily mounted © Augustin Clement



Timber structure hiding the modules fixing system © Augustin Clement



View from above of the BIPV glass roof: the visible ducts protect the electric connections © Augustin Clement



BIPV shading effect © Augustin Clement

Case study author:

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