



**Colterenzio Winery**

## Introduction

The Colterenzio Winery headquarter comes from the refurbishment of existing structures from the 1970s. The old buildings have undergone a major restoration that integrated the tradition of the oak wood with the innovation of modern materials and technologies.

## Aesthetic integration

The BIPV system is part of the translucent glass roof of a steel canopy placed within the building's complex. It is made of semi-transparent modules that provide an aesthetically attractive shading effect.

## Energy integration

The integrated photovoltaic system was calculated to have an annual production of 28,300 kWh (Eng. Klaus Fleischmann). It contributes, together with the other PV system installed on the headquarter buildings, to 55% of the winery electricity consumption, mainly due to the machineries and the air conditioning system of the wine cellar. The most of the generated electricity is self-consumed by the buildings. The use of the photovoltaic technology is added to a combined technique of solar panels and efficient capture of the heat, able to provide 70% of all hot water required (Colterenzio Winery).

## Technology integration

The 184 integrated PV modules Solarwatt (M140-36 GEG LK XL) are standard semi-transparent panels made of 36 monocrystalline cells placed between glazed laminates. They are mounted as a simple glass into the canopy roofing system and naturally ventilated. The bearing structure is made of steel profiles that guarantee the roof water tightness.

## Decision making

Since 2009, the Colterenzio Winery headquarter has been under renovation to be harmonized and steered towards environmental sustainability. Energy saving, costs reduction and an environmentally friendly high-quality wine production are the main goals that led the company to equip all buildings with photovoltaic and solar panels. A semi-transparent BIPV plant was integrated on the canopy in order to achieve a high aesthetic quality. It did not require substantial changes to the original architectural appearance. No special requirements in relation to the building permit were needed (Colterenzio Winery).

## Lessons learnt

Achieving a high aesthetic quality was one of the main design purposes, together with the energy performance. Thanks to the BIPV shading effect, the space covered by the solar canopy takes on an attractive appearance, a composition of light and shadow changing throughout the day. This allows an

area usually used for the grapes storage to be used also for different purposes. The canopy is sometimes a place used as a venue for events (bergmeisterwolf). This case study showed how the BIPV technology can be used in order to improve the potentialities of a construction. All its functions should be analysed from the beginning of the design process to maximize the PV integration benefits. So, all the stakeholders (owner, designers, consultants, technics, etc.) should be involved to work together (bergmeisterwolf).

## PROJECT DATA

<b>Project type</b>	renovation
<b>Building use</b>	commercial
<b>Building address</b>	Str. Vino 8, Appiano (BZ), Italy

## BIPV systems

### BIPV SYSTEM DATA

<b>Architectural system</b>	canopy
<b>Integration year</b>	2014
<b>Active material</b>	monocrystalline silicon
<b>Module transparency</b>	semi-transparent
<b>Module technology</b>	glass-glass, recognizable PV, standard modules
<b>System power [kWp]</b>	27.7
<b>System area [m<sup>2</sup>]</b>	236
<b>Module dimensions [mm]</b>	1,600 x 800
<b>Modules orientation</b>	South
<b>Modules tilt [°]</b>	20
<b>Annual FV production [kWh]</b>	28300

### BIPV SYSTEM COSTS

<b>Total cost [€]</b>	138775
<b>€/m<sup>2</sup></b>	589
<b>€/kWp</b>	5010

## Stakeholders

### Main building designer

bergmeisterwolf

### BIPV system designer

?Fleischmann & Jansen

### BIPV system installer

Obrist GmbH  
Via Pillhof 7, Appiano (BZ), Italy  
info@obrist.bz.it +39 0471 971 800  
<https://www.obrist.bz.it/en>

### BIPV components producer

SOLARWATT GmbH  
Maria-Reiche-Straße 2a, Dresden, Germany  
info@solarwatt.com +49-351-8895-0  
<https://www.solarwatt.com/>

### Collaborators

Roland Decarli, Jürgen Prosch



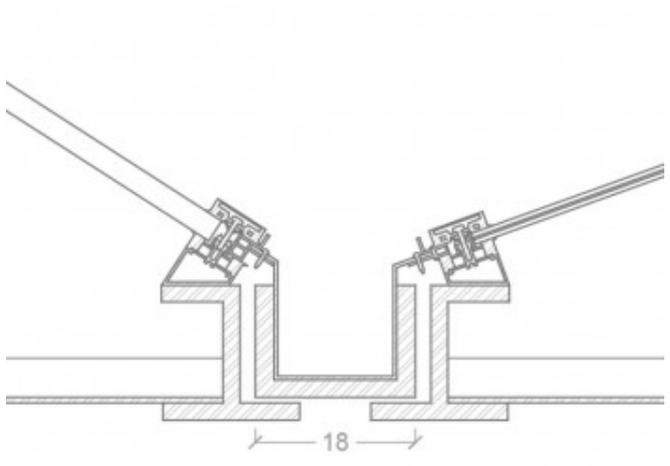
Integration of different materials and structures © Günter Richard Wett



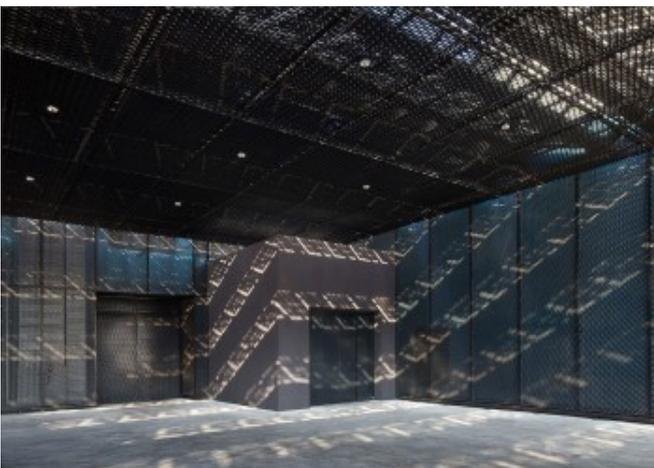
View of the glass photovoltaic roof and the black aluminium grill placed below © Günter Richard Wett



Detailed view of the BIPV plant bearing structure © Colterenzio Winery



Technical detail of the modules fixing system by Eng. Klaus Fleischmann, re-drawn by Eurac Research



BIPV shading effect © Günter Richard Wett



The solar canopy takes on an aesthetically pleasing appearance © Günter Richard Wett

Case study author:

Eurac Research