

## **Colterenzio Winery**



## **Aesthetic integration**

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. 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).

## **Lesson 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>	Retrofit
<b>Building function</b>	Industrial
<b>Integration system</b>	Semi-transparent tilted roof
<b>Location</b>	Str. Vino 8, Appiano (BZ), Italy

## BIPV SYSTEM DATA

<b>Module type</b>	Standard modules
<b>Solar technology</b>	Monocrystalline silicon
<b>Nominal power [kWp]</b>	27.7
<b>System size [m<sup>2</sup>]</b>	236
<b>Module size [mm]</b>	1,600 x 800
<b>Orientation</b>	South
<b>Tilt [°]</b>	20

## BIPV SYSTEM COSTS

<b>Total cost [€]</b>	138,775
<b>€/m<sup>2</sup></b>	589
<b>€/kWp</b>	5,010

## PRODUCER DATA

<b>Producer</b>	SOLARWATT GmbH
<b>Address</b>	Maria Reiche Straße 2A, Dresden, Germany
<b>Contact</b>	info@solarwatt.net
<b>Web</b>	<a href="https://www.solarwatt.com/">https://www.solarwatt.com/</a>



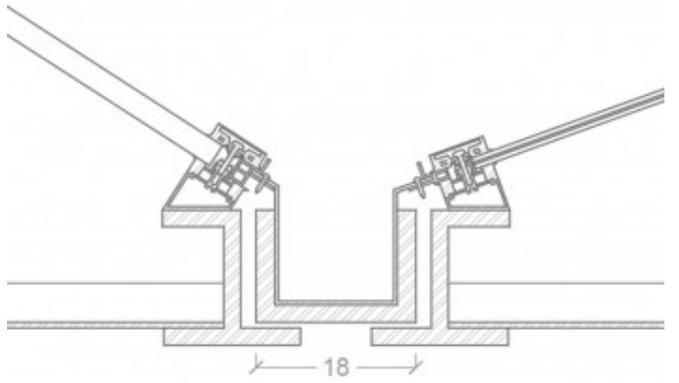
2



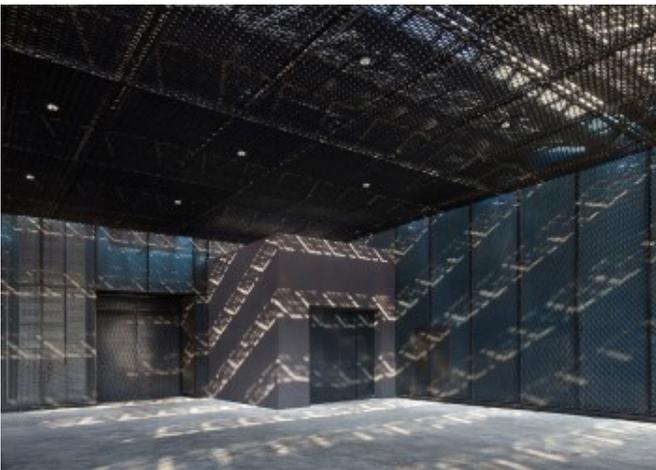
3



4



5



6



7

1. Colterenzio winery BIPV system (Günter Richard Wett)
2. Integration of different materials and structures (Günter Richard Wett)
3. View of the glass photovoltaic roof and the black aluminium grill placed below (Günter Richard Wett)
4. Detailed view of the BIPV plant bearing structure (Colterenzio Winery)
5. Technical detail of the modules fixing system, re-drawn by Eurac (Eng. Klaus Fleischmann)
6. BIPV shading effect (Günter Richard Wett)
7. The solar canopy takes on an aesthetically pleasing appearance (Günter Richard Wett)