

Umwelt Arena Schweiz





Integrazione estetica

The building roof presents a modern architectonic design. It stretches almost down to the ground, in the manner of a dome and is completely covered with PV modules. The architect René Schmid was looking for a shape that expresses dynamism and athleticism. It is inspired partly by the outstretched wings of a bird and partly by the world of fast cars and speedboats. The photovoltaic panels form the protective shell of the building like a reptile's scales. Its facets and the darkly gleaming panels are reminiscent of a crystal. The architecture of the Umwelt Arena is an example of how ecology and economy can be harmoniously combined in the shape of a modern building.

Integrazione energetica

The PV system was calculated to generate around 540,000 kWh per year, twice the amount of energy that it consumes, with a zero CO₂ balance. Other energy production systems are solar thermal panels and a biogas process based on food waste. The solar thermal system is used to cool the building in summer and heat it in winter with an innovative system. The equipment used for this system and the appliances used in the Umwelt Arena run with the self-generated electricity. Some of the surplus electricity is stored and/or used by neighbourhood properties.

Integrazione tecnologica

The roof presents an octagonal BIPV system with 5239 modules produced by 3S Swiss Solar Systems and installed on a total of 33 differently oriented trapezoidal surfaces, with slopes ranging from 6° to 62°. The solar modules are frameless, 3663 of them are standard modules and 1644 have special shapes.

Processo decisionale

Walter Schmid planned the Umwelt Arena Schweiz as an environmental arena and interactive exhibition on sustainability. With its award-winning construction, the building itself is part of the exhibitions which can be visited with tour guides.

Lesson learnt

This project showed that electricity generation could be successfully integrated in a building, but the obstacles were the fixed shape and the shiny dark blue appearance of the PV modules. We have tried and learned different techniques to overcome those obstacles, by creating matt finishes to reduce reflection or colours away from the standard blue, black or brown. Today it is much easier, as PV modules come in many different colours, materials and compositions, with more innovations on the way. In the past, PV has influenced architecture in a negative way with its visually unappealing standard modules that often appear as alien elements on roofs and walls. Now, with the new array of options for colours and patterns as well as the aesthetic and structural integration of PV into the building, possibilities for artistic expression are endless. Some of the most spectacular buildings in the world incorporate solar energy in creative ways. Hopefully this will inspire more and more architects, investors and homeowners to embrace solar as a standard building tool. (Arch. René Schmid, René Schmid Architekten AG)

DATI EDIFICIO

Tipologia progetto	Nuova costruzione
Destinazione d'uso	Altra funzione
Sistema di integrazione	Tetto inclinato opaco
Indirizzo	Türliackerstrasse 4, Spreitenbach, Schweiz

DATI SISTEMA BIPV

Tipologia moduli	Moduli standard
Tecnologia FV	Monokristallines Silizium
Potenza nominale (STC) [kWp]	737
Dimensione sistema [m²]	5334
Dimensioni moduli [mm]	Verschiedene
Orientamento	Norden, Osten, Süden, Westen
Inclinazione [°]	Verschiedene

COSTI SISTEMA BIPV

Costo totale [€]	-
€/m²	-
€/kWp	-

DATI PRODUTTORE

Produttore	Meyer Burger
Indirizzo	Schorenstrasse 39, Thun, Schweiz
Contatto	mbtinfo@meyerburger.com +41 33 221 28 00
Web	https://www.meyerburger.com/en/



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1. BIPV roof overview © René Schmid Architekten AG
2. BIPV roof overview © René Schmid Architekten AG
3. Top view of Umwelt Arena © René Schmid Architekten AG
4. BIPV roof detail © René Schmid Architekten AG
5. Detail of the roof mounting system with overlapping tiles and watertight construction © René Schmid Architekten AG
6. Umwelt Arena during construction © René Schmid Architekten AG
7. View at the interior space for exhibitions © René Schmid Architekten AG