



Monte Rosa Hut



BIPV MEETS HISTORY

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)

Introduzione

The Monte Rosa Hut is in the Zermatt area, a well-known tourist location, as it is a starting point for ice excursions and mountaineers who wish to climb Dufourspitze, the second-highest mountain in the Alps. It is a five-story building that resembles a crystal, and the south-facing walls have integrated photovoltaic modules.

Approccio progettuale

The old refuge on Monte Rosa, which has been demolished, operated on oil and coal. The new refuge was created with futuristic architecture and cutting-edge technology. It has a high level of energy demand coverage (90%), which is necessary given the extreme conditions in the area and the distance from the city's electrical and water mains. The refuge collects dissolved water from the glaciers, reusing it several times for different uses and returning part of it to the environment as purified water. A controlled ventilation system ensures no heat is lost by warming the incoming air using energy taken from the outgoing air.

Integrazione estetica

The photovoltaic modules cover an entire section of the south wall of the building, and their dark colour sets them apart from the rest of the aluminium surfaces.

Integrazione energetica

The photovoltaic plant interacts with the building's other systems. This provides electricity for the waste treatment and wastewater system, controlled ventilation, lighting, and appliances. Harmful emissions are minimised thanks to the photovoltaic system (23 tonnes of CO₂ prevented), the CHP cogeneration system, and other measures. 60.5 m² of thermal solar collectors are installed on the structure. Along with the photovoltaic system, these cover the heating and domestic hot water production demands.

Integrazione tecnologica

The photovoltaic modules cover a surface area of 122 m² on the building's southern façade. They are arranged on a sloped surface to capture the maximum solar radiation.

DATI EDIFICIO

Tipologia progetto	Riqualificazione
Destinazione d'uso	Ricettivo
Vincolo	Area vincolata
Tecnica di costruzione edificio	Secondo dopoguerra
Indirizzo edificio	3920 Zermatt, Switzerland

Sistemi BIPV

DATI SISTEMA BIPV

Sistema architettonico	Warm façade
Anno integrazione BIPV	2009
Active material	Monocrystalline silicon
Trasparenza modulo	Opaco
Tecnologia modulo	Strati di vetro, FV non riconoscibile, modulo customizzato
Area sistema [m²]	122
Orientamento moduli	South
Inclinazione moduli [°]	75

COSTI SISTEMA BIPV

Stakeholders

Progettista principale

Bearth & Deplazes Architekten AG

Produttore componenti BIPV

3S Solar Plus AG

Schorenstrasse 39, Thun, Switzerland

info@3s-solarplus.ch +41332242500

<https://3s-solarplus.ch/>



Autore caso studio:

Eurac Research