University of Applied Sciences and Arts of Southern Switzerland
Department of Environment Constructions and Design
**Institute of Applied Sustainability to the Built Environment**

**SUPSI**

Swiss BiPV Competence Centre

Cold facade

# Casa Solara

## Laax, Kanton Graubünden (CH)

## Building Details

| CONTACTS | Name | Website (or e-mail) |
|---|---|---|
| **Owner** | Ecobauhaus AG | www.ecobauhaus.ch |
| **Architect** | Giovanni Cerfeda | cerfeda@ecobauhaus.com |
| **Energy Consultant** | MGT-esys GmbH | www.mgt-esys.at |
| **PV Installer** | MGT-esys GmbH | www.mgt-esys.at |

**BUILDING**

**Completion year** 2012 Building 2012 Plant

**Category** New | Renovation | Enlargement | Other

**Typology** Residential | Administration | Industrial | Sport | Agricultural | Urban | Historical | Other

**Building Energy Performance** **kWh/m² y**

## Description

The residential building, built with Minergie standard, is located at an altitude of 1050 m above sea level in the ski center of Laax (Graubunden Canton in Switzerland) . The south facade is made by customized PV modules with high efficiency monocrystalline cells. The cold facade system, installed onto a wooden substructure, allows an appropriate ventilation of the panels and is equipped with a mechanical anchoring system that is invisible from the outside. The architectural language is characterized by the grey appearance of the solar cladding obtained by the all-black modules. This creates a uniform striped effect similar to the wooden cladding of the other facades. The PV plant, grid connected, produce enough energy to supply the apartments .

**Aknowledgments** -


# BiPV Details

## LOCATION OF PLANT

| | | | | |
|---|---|---|---|---|
| **Roof** | Flat roof | Sloped | Curved | |
| **Façade** | Cladding | Balcony | Greenhouse | Curved |
| **Glass** | Façade | Roof | Solar shading | Canopy |
| **Orientation** | South | West | East | North |
| **BiPV System** | In-roof Solar Tiles (PV modules) | | | |

## ARCHITECTURAL EVALUATION

| | |
|---|---|
| **Color** | Black |
| **Transparency** | opaque |
| **Frame** | Framless (glass-glass) |

## COSTUMIZATION LANGUAGE AT COMPONENT SCALE

| **PV CELL** | **MODULE LAYERING** | **MODULE FEATURES** | **DUMMIES** |
|---|---|---|---|

**DESCRIPTION** Stratified glass modules customized with gray lines made of film on the back. Invisible fixing system. Joint between the modules: 10 mm. Spacing between the cells: 2-3 mm. 7 special format modules

## SPECIFICATION

| | | | | |
|---|---|---|---|---|
| **Photovoltaic** | Monocrystalline | Multicrystalline | Thin Film | |
| **PV Module** | **Cells** | | | |
| | **Module** | MGT-esys Undercut System | | |
| **Power** | **kWp** | 34.4 kWp | | |
| **Size** | **m²** | 346 | | |
| **Energy production** | **kWh/year** | 25000 | | |
| **Cost** | **€/m²** | 600 (BiPv system excluding back façade) | | |