



SOLARCHITECTURE
sun as a building material



Three flats in Bouchs



Address

Lindenstrasse 4, 6374 Bouchs, Switzerland



Location

46°58'25.367" N | 8°25'40.405" E



Altitude

452 MAMSL

with the support of

SWISSOLAR 



SUPSI

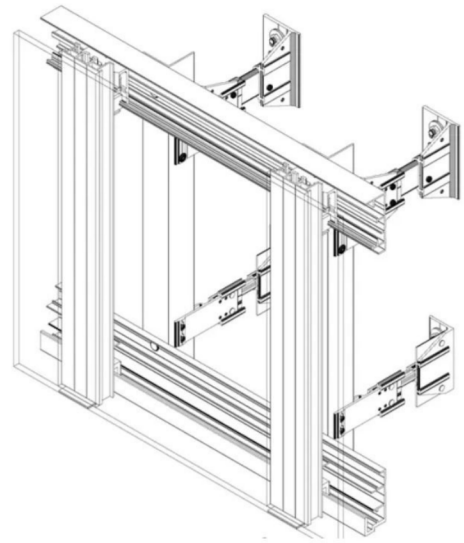
ETH zürich



Glass, wood and photovoltaic





It's barely recognisable at first glance, but the facade of this modern apartment building produces electricity. The matt-brown photovoltaic modules are integrated horizontally per floor, including the balcony parapets, forming bands that cover all four sides of the building.

The Meyer-Petermann property in Buochs (NW) houses three residential units. Well insulated, this PEB consumes 18,600 kWh/yr, or 6,200 kWh/yr per flat. Roof and facades generate around 30,100 kWh/yr per year. This results in a solar power surplus of around 11,500 kWh/yr and a self-energy supply of around 162%. A battery storage system stores the surplus daytime electricity, which can be consumed at night.



The photovoltaic modules are applied on the facade via the GFT Fassadentechnik mounting system.

Energy

		
Active solar surface	115m ²	44 m ²
Active solar surface ratio	>75%	<25%
Peak power	27kWp	14 kWp
Building skin application	Flat roof	Cold Facade & railing
		
Storage	Electrical Battery	n/a

Energy production

30'060 kWh

Source: Solaragentur, Schweizer Solarpreis 2021

Self-consumption

 0 %

Self-efficiency

 162%



Building characteristics

Building typology

Residential

Construction typology

New

Year of construction

2020-2021

Energy reference surface

646 m²

Energy Index

28.8 kWh/m²yr (heating and electricity)

Energy labelling

-



Building front. The matt-brown photovoltaic modules matches nicely the wood cladding.

BIPV module

Product

Custom made BIPV module (Glass/Glass)

Manufacturer

Intelligent Solar (facade), Sunpower (roof)

Cell technology

Mono-crystalline

Front glass type/customization

Chemical etched colored glass (Matt-Bronze)

Dimensions

Type1 (950×712 mm – 71 pcs); Type2 (950×727 mm – 32 pcs); Type3 (950×730 mm – 52 pcs); Type4 (950×741 mm – 105 pcs); Type5 (950×562 mm – 6 pcs); Type6 (950×982 mm – 2 pcs).

Specific power

About 76 Wp/m²

Specific weight

About 20 kg/m²



Building skin

Roof

Application

Standard modules are laid east-west on a metallic support system.

Description

Flat roof with a 24 cm of insulating layer.

U value

0.10 W/m²K

Fastening system

Formsol mounting system by PV-Integ

Facade

Application

PV modules are integrated into both the cold facade and balcony railing.

Description

Concrete walls with 20 cm of insulating layer.

U value

0.17 W/m²K

Fastening system

n/a

Glass surface

Application

Windows.

Description

Triple glazing with wooden frame.

U value

0.8 W/m²K

g value

n/a



Matt-brown photovoltaic modules are integrated into portions of the facades.



Costs

Total cost of the building

n/a

Price per m³

n/a

Parties involved

Owner

Meyer-Petermann

Architect

Heller Architekten GmbH

Photovoltaic installer

BE Netz AG

Photovoltaic consultant

BE Netz AG

Facade installer

Tschopp Holzbau AG

Photo

Intelligent Solar & Heller
Architekten GmbH

Awards & recognitions

Awards

Schweizer Solarpreis
2022 – Norman Foster
Diploma

Publications

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The new building fits smoothly into the landscape.