SOLARCHITECTURE
sun as a building material

René Schmid Architekten AG, project in Männedorf

Address
Alte Landstrasse 298, 8708 Männedorf, Switzerland

Location
47°15'05" N | 8°41'55" E

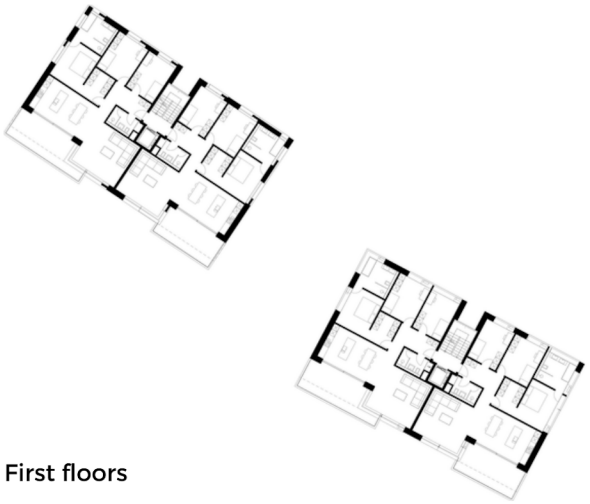
Altitude
417 MAMSL

with the support of

SWISSOLAR swissenergy SUPSI ETH zürich

A carbon-neutral residential complex

The residential development is the second flagship project of the Umwelt Arena Foundation Switzerland and René Schmid Architects AG in cooperation with the Federal Materials Testing and Research Institute EMPA, the University of Applied Sciences in Rapperswil, and the Klimastiftung Schweiz (Swiss Climate Foundation). The two buildings are CO2-neutral thanks to the photovoltaic modules installed on the facades and roofs and two wind turbines. These installations allow renewable electricity to be produced locally. In addition to having a very limited impact on the environment, the objective of the project is the realisation of an energy self-sufficient housing estate where inhabitants do not pay electricity or heating costs.



First floors

The two new buildings as seen from the street. The facade cladding consists of red and white photovoltaic modules.

Energy

Active solar surface	-	847 m² (Suncol modules)
Active solar surface ratio	-	>75%
Peak power	-	80 kWp (Suncol modules)
Building skin application	Flat roof	Cold facade
Storage	Electric battery	n/a

Energy production

90500

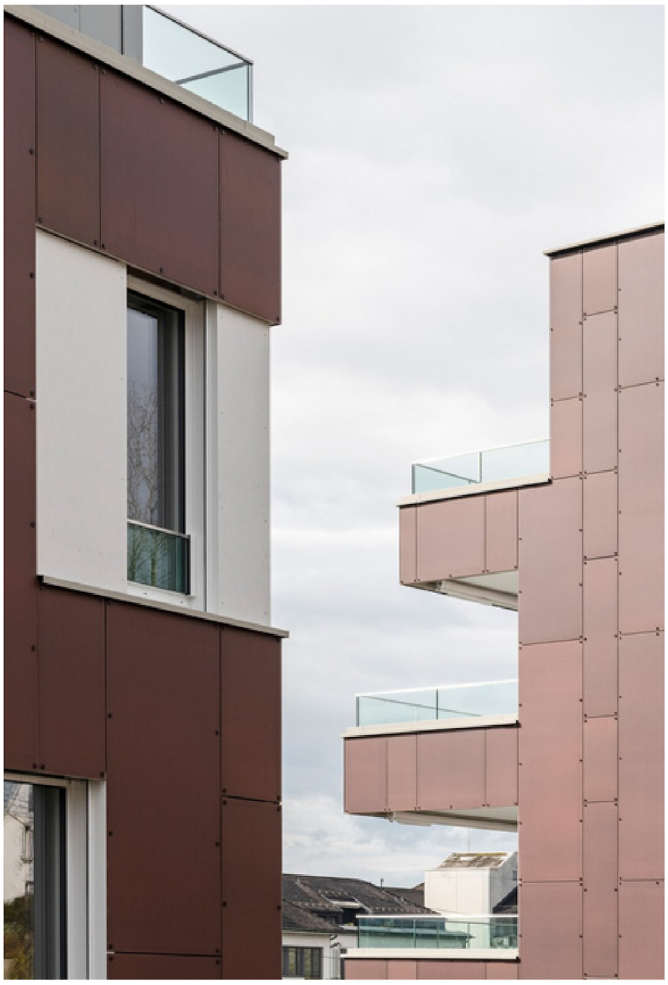
kWh

Approx. 50,000 kWh/y (facade), 40,500 kWh/y (roof, added PV)

Self-consumption

Not available **0%**

Building characteristics



Red-brown and white PV modules are used as cladding for the building.

Building typology
Residential

Construction type
New

Year of construction
2020

Energy reference surface
1884 m² (useful surface)

Energy Index
n/a

Energy labelling
Minergie

BIPV module

Product
Suncol Facade

Manufacturer
Sunage SA

Cell technology
Mono-crystalline

Front glass type/customization
Structured satin glass type BA with vertical lines

Module colour
Red-brown

Dimensions
Variable, modules of different sizes

Nominal power
Vsriable, depends on module size

Specific power
132 Wp/m²

Weight
Variable, depends on module size

Specific weight
Approx. 20-23 Kg/m²

Building skin

Roof

Application
Standard photovoltaic modules are installed on the flat roof.

Description
Flat concrete roof insulated with mineral wool.

U value
n/a

Fastening system
Continuous fixing system (aluminium tracks)

Other
-

Facade

Application
PV cladding integrated in the cold facade

Description
Concrete walls insulated with mineral wool

U value
-

Fastening system
Mechanical fixing (screws) through the glass layer that allow the modules attachment on a wooden structure

Other
-

Glass surface

Application
Windows

Description
Triple glazing with aluminium frame

U value
n/a

g value
n/a

Other
-

View through the large windows.

View from the garden.

Costs

Total cost of the building
n/a

Price per m³
n/a

Building entrance.

Parties involved

Owner
n/a

Architect
René Schmid Architekten AG

Photovoltaic installer
n/a

Photovoltaic consultant
n/a

HVAC engineering
Th. Huonder + Partner AG

Facade installer
n/a

Photo
Beat Bühler

Awards & recognitions

Awards
– watt d'or 2021

Publications
– Oko-Häuser produzieren im Sommer Strom und erhalten im Winter Gas – Neue Zürcher Zeitung of 01.07.2020
– Hier zahlen Mieter keinen Strom und keine Heizkosten – Blick of 01.07.2020
– Das Geheimnis des Klimajuwels – Tages Anzeiger of 04.07.2020

PV installation.