SOLARCHITECTURE
sun as a building material

House within Garden

Address
Tobelhofstrasse 240, 8044 Zurich, Switzerland

Location
47°22'60" N | 8°35'13" E

Altitude
602 MAMSL

with the support of

SWISSOLAR swissenergy SUPSI ETH zürich

A breezy living in a landscaped garden

On the edge of Zurich's urban area is located this replacement building of an existing dwelling from the 1920s. The new residential building is volumetrically based on the simple elements of rural farm buildings. Towards Tobelhofstrasse, there will be a planted walkway, which will serve as an arcade to the two entrances on the ground floor and form a screen to the street on the upper floors. The interior of the building is characterised by the load-bearing structure of prefabricated concrete columns and beams, which set the pace of the flats. By means of sliding elements that can be positioned in front of the columns and moved in the plane of the beams, different living situations can be orchestrated – similar to the Japanese house.

To the south, the building opens up to the surrounding landscape and the communal garden through a spacious layer of verandas. Stairways connect the flats directly to the landscaped green space.

On the ground floor, the two staircases are connected to each other and to the south-facing garden by a large communal area.

Side facade and outdoor landscaping.

Energy

Active solar surface	240 m²	-
Active solar surface ratio	<75%	-
Peak power	n/a	-
Building skin application	Solar tiles	-
Storage	-	-

Energy production

Source: annual production 2022

Self-consumption

0%

Building characteristics

Building typology
Residential

Construction type
Retrofit

Year of construction
2018-2023

Energy reference surface
n/a

Energy Index
n/a

Energy labelling
-

Thanks to the sliding elements, the flats adapt to their users and their needs.

BIPV module

Product
Eternit Sunskin Roof Glass-Glass mono Type L

Manufacturer
Etrenit (Schweiz) AG

Cell technology
Mono-crystalline 5BB PERC cell

Cell colour
Black

Front glass type/customization
3.2 mm ESG structured

Dimensions
1300x907 mm, 8x5 cells

Nominal power
195 Wp

Specific power
165 Wp/m^2

Weight
20 kg

Specific weight
17 kg/m^2

Building skin

Roof

Application
Solar tiles integrated in a pitched roof, inclination 11°.

Description
The PV modules rest on finite roof elements, which in turn rest on precast concrete beams. The bottom four rows incorporate hybrid panels (PVT).

U value
n/a

Fastening system
The support hooks are screwed into the roof battens.

Other
-

Facade

Application
Double wall and framed wooden partitions.

Description
Concrete double wall with an insulated cavity and prefabricated timber framed elements.

U value
n/a

Fastening system
-

Other
-

Glass surface

Application
Windows

Description
Triple glazing with wooden frame

U value
n/a

g value
n/a

Other
-

Photovoltaic tiles and PVT modules are integrated in the pitched roof.

Modular subdivision of spaces, kitchen area.

Costs

Total cost of the building
n/a

Price per m³
n/a

The indoor load-bearing structure is made of prefabricated concrete columns and beams.

Parties involved

Owner
Private

Architect
Loeliger Strub Architektur GmbH

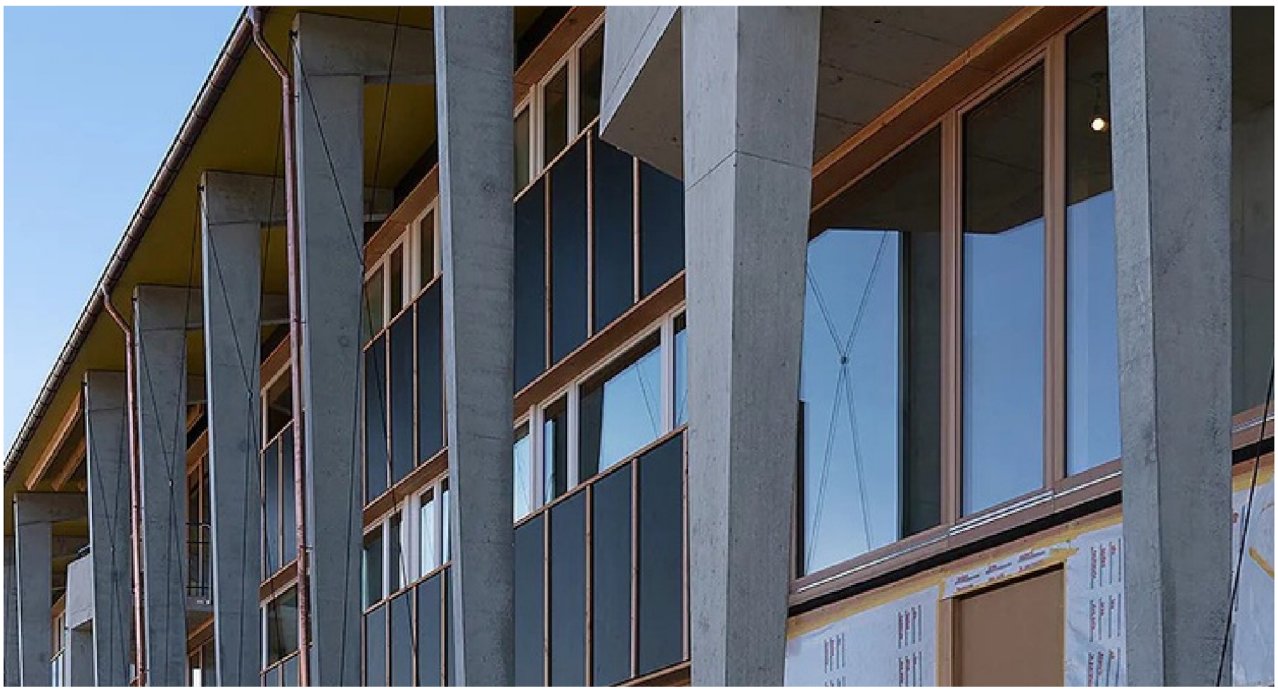
Photovoltaic Installer
n/a

Photo
Seraina Wirz, Fanni Müller, Federico Farinatti

Awards & recognitions

Awards
-

Publications
-



Facade, photo: Loeliger Strub Architektur GmbH