SOLARCHITECTURE
building solutions

Wattbuck Tower

Address
Im Wattbuck 3, 8307 Illnau-Effretikon, Switzerland

Location
47°25’50.4”N / 8°41’43.7”E

Altitude
521 MAMSL

Optimal integration into the facade

The Wattbuck residential development in Effretikon is a typical example of the architectural style of the 1960s and 1970s. For some of the high-rise buildings built around that time the second general renovation is now due – the ideal time to integrate solar power into the facade. The installation was easily integrated into the architecturally simple design of the facade by exploiting the parapets under the long window bands, which were previously clad with fibre cement panels. In addition to a well-insulated building envelope, around 470m² of photovoltaic modules were installed on the east, south and west facades. The 84 kWp system supplies valuable solar power, most of which is consumed directly on site.

Black photovoltaics modules are ideal for a simple and understated facade design

The photovoltaic modules blend in smoothly with the basic architecture of the building.

Energy

Active solar surface	-	470m²
Active solar surface ratio	-	<50%
Peak power	-	84 kWp
Building skin application	-	Cold facade
Storage	NO	-

Energy production

53000

kWh

Source: Arento G

Self-consumption

0%

Measurements in progress

Building characteristics

Building typology
Residential

Construction type
Retrofit

Year of construction
1968, firt renovated in 1982 and finally renovated in 2019

Energy reference surface
4,292 m²

Energy index
82 kWh/m²a (before), 31 kWh/m² (after) per heating and warm water

Energy labelling
-

The old PVC windows were replaced by new windows of the same material.

BIPV module

Product
Glass-glass facade modules with 48 cells

Manufacturer
Megasol AG

Cell technology
Mono-crystalline

Front glass type/customization
Fullblack, frameless glass/glass modules

Dimensions
1350 x 995 mm

Specific power
178 Wp/m²

Building skin

Roof

Application
None

Description
Compact flat roof with extensive greening a insulation layer in EPS.

U value
-

Fastening system
-

Other
-

Facade

Application
PV cladding integrated in a cold facade

Description
Concrete walls insulated 18 cm of glass wool. The non-active surface is covered with white fibre-cement panels.

U value
0.17 W/m²K

Fastening system
Hilti ventilated facade system

Other
350 PV modules of identical size

Glass surface

Application
Windows

Description
Triple glazing with PVC frame.

U value
0.6 W/m²K

g value
0.5

Other
-

With the right approach, older high-rise residential buildings can make an important contribution to a sustainable future.

Costs

Total cost of the building
n/a

Price per m³
n/a

Parties involved

Owner
Pension fund of the Zürcher Cantonal Bank

General planner
Arento AG

Construction management
Arento AG

Photovoltaic installer
Planeco GmbH

Photo
Arento AG

Awards & recognitions

Awards
-

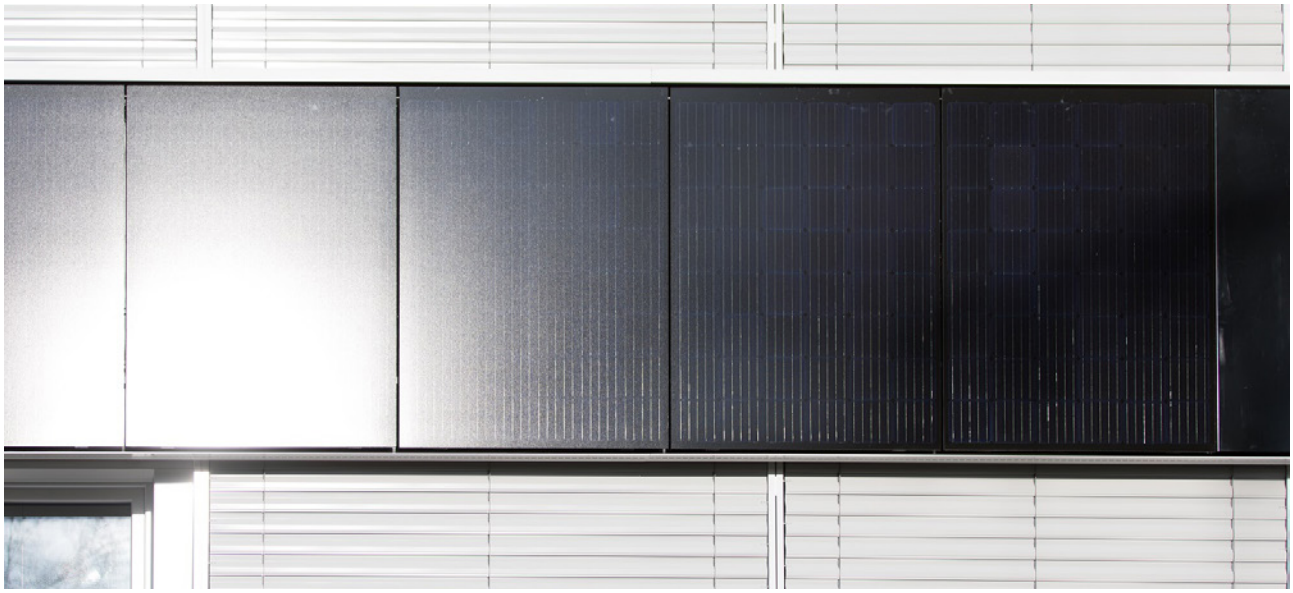
Publications
Nachhaltig Bauen | 1 | 2019 – Solarfassaden an Hochhäusern – aktiver Beitrag zum Klimaschutz

Der Landbote / 21 May 2019 / Wände, die Strom produzieren

ZO/AvU /15 May 2019 / Solarstrom direkt ab der Hochhaus-Fassade

Aktives Hinwiler Gewerbe / May 2019 / Solarfassaden an Hochhäuser Beitrag zum Klimaschutz

Umwelt & Technik / Seite 120 – 122 / Aktiver Beitrag zum Klimaschutz



PV cladding

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Remarks