



Die Mobiliar Renovation



Address

Monbijoustrasse 68, 3007 Bern, Swizterland



46°56'28" N | 7°26'08" E



Altitude 520 MAMSL



Upgrading the facades

The building, which dates back to the early 1980s, was brought up to date in terms of design and technology. The focal point is the complete renovation of the facade, the glass slat sare equipped with photovoltaic cells on the south-facing facades and are motor-controlled to adjust according to the position of the sun. They represent an innovative design element and simultaneously serve to provide shade and energy. In terms of urban planning, the facade concept with the louvres creates a calming effect on the building, which is already relatively complex due to its shape. These vertically positioned lamellas adjust to the position of the sun. The thin-film cells are semi-transparent, so that there is sufficient shading, but a certain amount of transparency remains between the slats and even through the slats.



New outdoor lounge area.



Die Mobiliar (Schweiz) building in Bern before the retrofit.

Energy

Active solar surface		1384m²
Active solar surface ratio		
Peak power	76 kWp	74 kWp
Building skin application		
	(<u>+</u> _	
Storage		

Energy production

kWh Source: GWJ Architektur AG

Self-consumption

40%



Building characteristics

Building typology

Administrative

Construction type Retrofit

Year of construction Late '80, renovation 2013-2017 **Energy reference surface** 12,384 m²

Energy index n/a kWh/m²a (heating and electricity)

Energy labelling Minergie-P BE-588-P



Aerial view of the building.

BIPV module

Product Custom made glass louvre

Manufacturer Antec Solar Gmbh

Cell technology Amorphous silicon

Front glass type/customization

8 mm tempered (extraclear) + 3.2mm PV + 8mm tempered. Transparency abt. 20%.

Dimensions

Type 1 -> 2,370x450 mm, Type 2 -> 2,570x450 mm, Type 3 -> 3,030x450 mm, Type 4 -> 2,080x450 mm

Specific power About 116 Wp/m²

Building skin

Roof

Application

Standard modules are laid on a metallic support system.

Description

The production of the facade system is supplemented by commercially available crystalline photovoltaic modules on the flat roof.

U value

n/a

Fastening system

Continuous fixing system (aluminium tracks)

Other

Facade

Application Thin film glass luovres (slats)

Description Concrete walls insulated with a layer of mineral wool.

U value n/a W/m²K

Fastening system No infomation available

Other

The facade recess is straightened, which not only improves the urban space, but also moves the static behind the insulation level

Glass surface

Application Windows and sun shading glass louvres

Description Triple glazing with aluminium frame

U value n/a

Other

The PV-glass slats with amorphous cells thinfilm cells provide a solar protection element with a transparency of about 20%, which is approximately the same g-value as a textile sunshade.



Since most photovoltaic cells based on silicon thin-film tent to be violet-brownish in colour, this was the colour integrated into the facade design.



Costs

Total cost of the building 8'300'000 CHF

Price per m³ n/a

Parties involved

Owner Die Mobiliar (Schweiz)

Architect GWZ Architektur AG

Engineer Emch + Berger AG

Facade planner Buri Müller Partner GmbH

Photovoltaic consultant Ingenieurbüro Hostettler

Curtain wall elements manufacturer Colt International (Schweiz) AG

Building physics Gartenmann Engineering AG

Photo Kaspar Martig Awards & recognitions

Publications

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PV slats - Photo: Kaspar Martig

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Remarks

