Bjoernveien 119, Oslo, Norway

Picture source: Dahle/Dahle/Breitenstein AS

Architectural integration of solar thermal energy systems
Bjoernveien 119, Oslo, Norway
Multi-family house with solar collectors integrated into the façade

**PROJECT**

Multi-family house, 8 flats (130-170 m²) in two and three stories - total area 1868 m².

In the housings at Bjoernveien 119 in Oslo, the use of solar energy has been an important issue of the design. 100 square meters of solar collectors have been incorporated into the southern facade. In this project the produced energy will be stored and used to heat water that will flow into the water based floor heating system.

The dark, reflecting surfaces are attractive building elements, producing energy and acting as a sound barrier for road traffic.

Picture source: Dahle/Dahle/Breitenstein AS

Architectural integration of solar thermal energy systems
**Key figures**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living area per house</td>
<td>130 - 170 m²</td>
</tr>
<tr>
<td>Total heat demand</td>
<td>100 kWh/m² BTA per year</td>
</tr>
<tr>
<td>Energy sources</td>
<td>solar collectors, gas burner and electricity</td>
</tr>
<tr>
<td>Collector area</td>
<td>92 m²</td>
</tr>
<tr>
<td>Heat store</td>
<td>8 m³, water</td>
</tr>
<tr>
<td>Gas burners</td>
<td>2 x 24 kW</td>
</tr>
</tbody>
</table>

**Heating system**

The homes rely on “green energy”: In the southern sections, 92 square metres of solar capturing panel are fixed in continuance with the wooden panelling. The system gathers and stores the solar energy, which is used to heat water, and ultimately reaches the homes as hydrothermal floor heating. This system is supplementary to a central gas heater. Solar energy supplies about 25 per cent of these homes’ energy requirements.
**SOLAR COLLECTOR**

Type: Flat plate polymer collector
AventaSolar

Dimensions:
- **Width:** 600 mm,
- **Depth:** 66 mm,
- **Length:** various
- **Weight:** without water; 5.5 kg/m², water filled; 8.7 kg/m²

More info about the solar collector:

**ECONOMY**

Calculated solar energy cost is about 0.60 NOK/kWh (7.3 €cent/kWh).

Solar gain: 25 000 kWh/year, approx 25% of the total energy demand for domestic hot water and space heating.

Picture source: Dahle/Dahle/Breitenstein AS
GALLERY

PHOTOS; Nils Petter Dale

- Built: 2006
- Project designers: Dahle/Dahle/Breitenstein AS
- Consultants: Will Arentz AS
- Project management: Backe Prosjekt AS
- Entrepreneurs: Bøhmer entreprenør AS
- Address: Bjørnveien 119
- Location: Oslo, Norway
- Project period: 2005-2006
- Type of project: Multi-family house

Read more: http://www.archdaily.com/91125/housing-bjørnveien-dahle-dahle-breitenstein/