

# Student housing in Slagelse





## **Aesthetic integration**

The applied renovation strategy considerably transformed the building appearance covering the red bricks of the existing façade with a dark surface made of natural slate and BIPV modules. The modules are integrated as small horizontal bands coplanar with the rest of the façade slates. The fixing system of the façade elements is not visible. Different BIPV modules are integrated on the railings of five balconies, in harmony with the dark building aspect.

## **Energy integration**

--

## **Technology integration**

150 m<sup>2</sup> of photovoltaic modules (solar cells from Gaia Solar) are installed on the facade in the same way as the natural slates, using a plug-and-play solution (Zappa façade system) developed by KOMPROMENT. The modules and the slates are secured by stainless steel hooks so that possible defective parts can be replaced quickly and efficiently. 40 m<sup>2</sup> of semi-transparent modules (spaced out cells) are mounted as traditional railing panels on a structure that hides the PV cabling system.

## **Decision making**

The task was to transform a former school building from the 1970s into 144 modern student housing units. The building had to meet the current requirements for energy efficiency, ventilation and interior climate. One of the solutions that were meant to contribute towards lowering the electricity consumption involved installing PV panels on the flat roof. At the same time, it turned out that there were damp issues in the brick façade that were not fixable. As a result, it became necessary to create a new building envelope. The architects proposed two BIPV options: a glass screen mounted on the existing façade, or a new façade using slate or tile shingles mounted on the exterior of the current façade, which could be insulated. The second option was chosen as easier from a maintenance point of view. The façade solution, besides being functional and aesthetically pleasing, could also act as a demonstration model, a good way for the client to teach the new generation, the young people living in the student housing units about solar energy. (KANT Architects)

## **Lesson learnt**

The co-operation between the architects, the PV supplier company and the manufactures was important for the development of an architectural and economical well-integrated solution. It allowed to have a direct dialogue with precise price settings during the construction process that would not have been possible during the consultancy phase.

To match the module size of the PV with the slate module and the current facade division was a challenge in this project. With existing buildings, it can be difficult to make the PV modules to fit without a number of adaptations that add extra costs. It is important to continue to develop more flexible modules to make integration of PV into existing buildings easier. (KANT Architects)

## PROJECT DATA

<b>Project type</b>	Retrofit
<b>Building function</b>	Residential
<b>Integration system</b>	Opaque cold façade
<b>Location</b>	Slotsalléen 55, 4200 Slagelse, Denmark

## BIPV SYSTEM DATA

<b>Module type</b>	Custom made modules
<b>Solar technology</b>	Monocrystalline silicon
<b>Nominal power [kWp]</b>	20
<b>System size [m<sup>2</sup>]</b>	150 (façade), 40 (balconies)
<b>Module size [mm]</b>	-
<b>Orientation</b>	South
<b>Tilt [°]</b>	90

## BIPV SYSTEM COSTS

<b>Total cost [€]</b>	-
<b>€/m<sup>2</sup></b>	-
<b>€/kWp</b>	-

## PRODUCER DATA

<b>Producer</b>	Gaia Solar A/S
<b>Address</b>	Hammerholmen 9-13, 2650 Hvidovre, Denmark
<b>Contact</b>	info@gaiasolar.dk +45 36777976
<b>Web</b>	<a href="http://gaiasolar.dk/">http://gaiasolar.dk/</a>



2



3



4



5



6



7

1. KANT arkitekter © Kant Architects
2. Apartments before the renovation © Kant Architects
3. Semi-transparent BIPV modules in the balustrades © Kant Architects
4. Slates and solar slates © Kant Architects
5. Proposal 1 - Glass façade © Kant Architects
6. Proposal 2 - Slate façade © Kant Architects
7. BIPV façade © Kant Architects