


## Flatmettoekomst - Utrecht (net zero-energy 'flat for the future')

by Sandra Winkel / © 2019-06-11 13:38:14 / Internacional / 6512 / EN



**Renovation**

Renovation Grand Prize International Mention  
GREEN SOLUTIONS AWARDS 2019

**Primary energy need :**

1 kWhpe/m<sup>2</sup>.year

(Calculation method : Other )

**ENERGY CONSUMPTION**

*Economical building* *Building*

< 50	<b>A</b>
51 à 90	<b>B</b>
91 à 150	<b>C</b>
151 à 230	<b>D</b>
231 à 330	<b>E</b>
331 à 450	<b>F</b>
> 450	<b>G</b>

*Energy-intensive building*

**Building Type** : Collective housing < 50m  
**Construction Year** : 2016  
**Delivery year** : 2016  
**Address 1 - street** : Camera Obscuradreef 48 3561XL UTRECHT, Netherlands  
**Climate zone** : [Cfc] Marine Cool Winter & summer- Mild with no dry season.

**Net Floor Area** : 4 000 m<sup>2</sup> Superficie útil  
**Construction/refurbishment cost** : 4 300 000 €  
**Number of Dwelling** : 48 Dwelling  
**Cost/m2** : 1075 €/m<sup>2</sup>

**Proposed by :**



### General information

Flatmettoekomst won the Sustainable Renovation Grand Prize of the 2019 Green Solutions Awards et the Netherlands level + a mention for the international Sustainable Renovation Grand Prize.

Flatmettoekomst is a net zero energy retrofit of apartment buildings dated from the early sixties of last century. The project consist of 48 apartments. Currently an additional 80 apartments are retrofitted with the same concept.

This renovation is a complete refurbishment of the apartments. Main goal was to deliver a nett zero energy building, but als the renewal of kitchen, bathroom and toilets, upgrade of the communal area's in the building were part of the project.

Another unique point of the project is bringing it back to the original architectural design.

[See more details about this project](#)

<https://www.nieuwutrechtspiel.nl>

## Photo credit

ONB architecten, fotograaf: Kim van Zwieten

## Stakeholders

### Contractor

Name : Mitros

Contact : Job van Buchem

<https://www.mitros.nl>

### Construction Manager

Name : Nieuw Utrechts Peil

Contact : Sandra Winkel

<https://www.nieuwutrechtspiel.nl>

### Stakeholders

Function : Contractor

Vios Bouw

Sandra Winkel

<http://www.vios-bouw.nl/>

Function : Designer

ONB

Lars Zwart

<https://www.onb.nl/>

Function : Thermal consultancy agency

Nieman Raadgevende Ingenieurs

John Bouwman

<https://www.nieman.nl/>

### Contracting method

Other methods

### If you had to do it again?

What would I do different the next time? Because we worked on this project for several years, step by step we had the opportunity to make it better step by step. These were relative small changes, I described the placing in an more invisible way of the solar panels above.

A question that I asked before we were obliged by the municipality to stick to the original architecture was: can we be more free in the renovation of the façade?

We have so many the same buildings of this type in Holland. Can we allow ourselves a renovation with a totally new façade? Hopefully we will get the change someday.

Ir. Lars Zwart, ONB architecten, Utrecht

### Building users opinion

During the first year of occupation, an independent party followed the residents and measured their satisfaction with their new home. Satisfaction with the climate system was also examined. The residents give an overall rating of 8 out of 10.

## Energy

### Energy consumption

Primary energy need : 1,00 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 150,00 kWhpe/m<sup>2</sup>.year

Calculation method : Other

Breakdown for energy consumption : heating: 10,9 kWh/m<sup>2</sup>

hot water: 14,2

cooling: 0

ventilation: included with heating

household: 24,8 kWh/m<sup>2</sup>

Initial consumption : 225,00 kWhpe/m<sup>2</sup>.year

## More information

Total energy demand is generated by solar pv-panels; total energy consumption equals the total energy output of the panels

## Real final energy consumption

Final Energy : 50,00 kWhfe/m<sup>2</sup>.year

## Renewables & systems

### Systems

Heating system :

- Heat pump
- Water radiator

Hot water system :

- Heat pump

Cooling system :

- No cooling system

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic
- Heat pump

Renewable energy production : 100,00 %

## Smart Building

Users' opinion on the Smart Building functions : Tenants were not directly involved in the design phase. A representation of tenants was participating in the clients team and advised the client during the selection and clarification of the design.

Tenants review their apartments with an 8 out of 10.

## Environment

### Urban environment

The project is a retrofit of existing apartment buildings to net zero energy apartments. The building is located in Overvecht in Utrecht. Next to the 48 apartments we describe in this context, another 80 apartments adjacent to this building have been refurbished with the same net zero energy concept.

At the same plot we have also renovated 120 apartments to energy label A++ using the same principles of the concept, but with a lower energy performance. These apartments are heated by natural gas boilers. In the future these boilers can be exchanged by heat pumps.

Apart from the energetic and architectural renovation we also attributed to the quality of the social environment. Most of the housing of the sixties have garages and storages placed on ground level. This causes unsafe and unattractive surroundings. In three blocks we succeeded to create extra houses with front doors on the street on the ground floor. The next step is the renovation of the gardens, pavements etc.

Together with the municipality we strive to remake this neighbourhood as an example for a social and sustainable future.

## Products

## Product

Energy Module Factory Zero

FactoryZero

S. Klein Velderman

<https://factoryzero.nl/>

**Product category :** Table 'c21\_spain.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '18'

Factory Zero delivers a completely integrated system for heating, domestic hot water supply, double flow ventilation and monitoring.

Factory zero delivered a total concept and had experience in other zero energy projects. They were able to make a tailor made solution that fitted exactly on the (former) balcony.

## Costs

### Construction and exploitation costs

Total cost of the building : 4 300 000 €

## Health and comfort

### Indoor Air quality

A double flow ventilation system with heat recovery is part of the nett zero energy concept. The ventilationsystem is controled through CO2 sensing. The installation increases and decreases ventilation flows as a respond to the CO2 concetration. This gives a guarantee on good indoor air quality as well on reducing energy consumption by ventilation as much as possible.

## Contest

### Reasons for participating in the competition(s)

- zero energy retrofit of 5-storey apartment building
- with respect for the original architectural design (the original design is brought back)
- use of an integrated energy module for heating, hot water, ventilation and energy monitoring
- much attention for tennants comfort and health
- user-friendly installation
- creating energy effiecient and healthy homes by using CO2-monitored ventilation
- very satisfied tennants (review 8/10)
- total energy demand is produced by PV solarpanels.

### Building candidate in the category



Energy & Temperate Climates





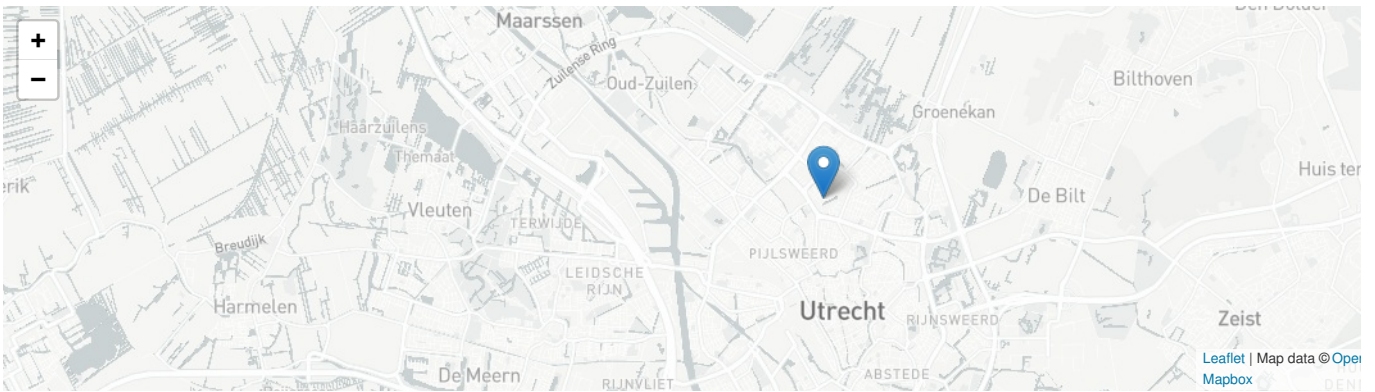
Low Carbon



Health & Comfort



Users' Choice



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