Social urban retrofit – the future of our energy bills
about system changes and where to start
a mixture of vision and experience
It all started in a cave
The ultimate do it yourself
Specialization
Cooperation
Why are our homes still medieval?
111 energieneutral social homes
Demolition and building process within 25 days
111 energie-neutral social homes

Demolition and building process within 25 days
111 energieneutral social homes
Demolition and building proces within 25 days
Home for elderly with dementia

Petterhusterstaete Stiens
rural region North-NL

additional investment
sustainability | living quality | organization | contextual quality of architecture
Development & Design
Building construction

Total cost of ownership
building | social | sustainable | economic

100
Total cost of ownership
building | social | sustainable | economic

Development & Design
Building construction

Maintanace
Energy costs

100

500
Total cost of ownership
building | social | sustainable | economic

Development & Design
Building construction
100

Maintainace
Energy costs
500

Activities
Staff
20,000
Total cost of ownership

building | social | sustainable | economic

Development & Design
Building construction

Maintanace
Energy costs

Activities
Staff

- 2%
Total cost of ownership

- building
- social
- sustainable
- economic

Development & Design
- Building construction: 100

Maintanace
- Energy costs: 500

Activities
- Staff: 20,000

- 2%
- 0.45%
Total cost of ownership

building | social | sustainable | economic

Development & Design
Building construction

Maintainace
Energy costs

Activities
Staff

100

20.000

- 2%

- 0,45%
“Veilige Veste” [ Safe Fortress ]
A home for victims of violence, prostitution and human trafficking
The old policestation Leeuwarden

How we found it
The “new” Veilige Veste
How we left it
The “new” Veilige Veste

From prison cells to home
Financial relations

Investments and results through sustainable, high-standard energy-saving retrofit

- Housing corporation
  - Rent
  - New building ca. €8.2 mio

- Energy company
  - Energy costs
  - User
  - Interior

- Interior
  - Energy costs
  - User

- User
  - Energy costs
  - Energy company

- Energy company
  - Rent
  - Housing corporation

- Housing corporation
  - Rent
  - Energy company
Financial relations

Investments and results through sustainable, high-standard energy-saving retrofit

- Existing building: €2.0 mio
- Retrofit: €3.4 mio
- Funding: City of Leeuwarden, Postcode loterij
- Private fundraising, crowdfunding
- Extra investment Passivhaus: €0.7 mio (10 years payback)
- Low energy costs
- User
- Long-term contract
- Higher value real estate
- 50%
The concept

low costs | high quality

- facade
  - $U = 0.12 \text{ W/m}^2\text{K}$
- glass
  - $U = 0.6 \text{ W/m}^2\text{K}$
- window frames
  - $U \leq 0.8 \text{ W/m}^2\text{K}$
- floor
  - $U = 0.1 \text{ W/m}^2\text{K}$
- green roof
- warm water: solar boiler
- heating by gas
- prefabricated timber frame element
  - waterresistant film
  - waterresistant fiberboard
  - I-beam
  - cellulosewool
  - vapor barrier
  - panel
- Interior:
  - panel
  - technical infrastructure
  - cellulosewool
- facade element polyestercomposite
- vapor barrier panel
- summer
- winter
- Qv10 = 0.6 W/m²K
The concept

low costs | high quality

c. € 750,- / m² brutto floor space Passivhaus retrofit
c. € 1.100,- / m² brutto floor space complete object
c. € 1.400,- / m² netto floor space

Calculated reduction use of gas from 210.000 m³ to 25.000 m³ / a (in use 21.000 m³)

Construction time: 8 months
A cooperative performance

Hedy d’Ancona Award 2014
Sustainable Award 2012
Nomination Passivhaus Award 2012
1. Renovation of an office building Passivhaus NL
Kooperative Architecture Workshop
Start: 1. May 1976
Traditional model

Against each other | competition
demand - integration

supply - integration
Cooperative
Working together for the same goal
Process tools
What we use

3D modelling BIM

3D print models

Online Platform

Communication strategy
The future of our energy bill
Why not spend the money better?
Nul-op-de-meter (NOM) as funding for sustainable retrofit

about € 45.000,- invest
fixed price
energybundle

live
Why not bring home to the present times?

communication  mobility  information
Why not buy retrofit like a regular product in a supermarket?
Retail store in 4 Dutch cities
1st shop worldwide to buy sustainable retrofit
Reasons to buy

“it’s maintenance-free”  “you get more comfort”  “bigger value”
Reasons to use

“I can stay home”

“I can chose”

“my house can grow with my family”
Live with less energy
Stay as long as you want
Let your home grow
Urban patterns and typologies

Semi-finished products

From process to product

Semi-finished products

Product

Urban patterns and typologies

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The next steps
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