

ZAK conference Brussels – 02 Oct 2024

Redefining sustainability

A large, dark, monochromatic background image of a dense crowd of birds. In the center, a single white bird stands out prominently, facing left. The white bird has a dark beak and is perched slightly above the others.

Hybrid steel curtain walls, the long-awaited disruption in the market?

Eric Claeys, ir MSc MBA

Co-founder Fassada Steel SA

Innovation and cost saving, hand-in-hand



At the end of the day, it's **all about money**

Garry Kasparov



Disruption & cost-saving efficiency goes **hand in hand**



Steel

the real answer to embodied CO₂



Keeping the sun out

drastic reduction of operational CO₂



Hybrid smart solutions

a new era for design



Circularity

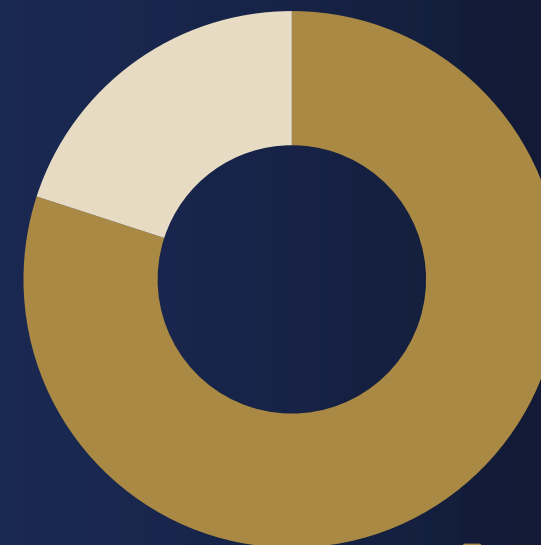
best circularity is no circularity



A concrete project

the façade as a profit model

Typical building



Embodied CO₂

20%



Operational CO₂

80%



Steel

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Circularity

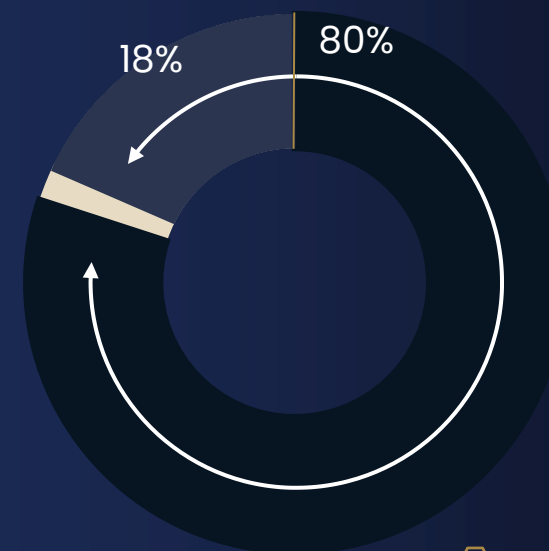
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A concrete project

the façade as a profit model

Smart Building



Embodied CO₂

20% → 2%



Operational CO₂

80% → 0%



A holistic approach

Fassada USP's for the 3 project-stakeholders

Value for money
Fast execution
Low maintenance
High performance



Investor



Architect

Maximum design freedom
No technical worries
Sustainable
Elegant solutions



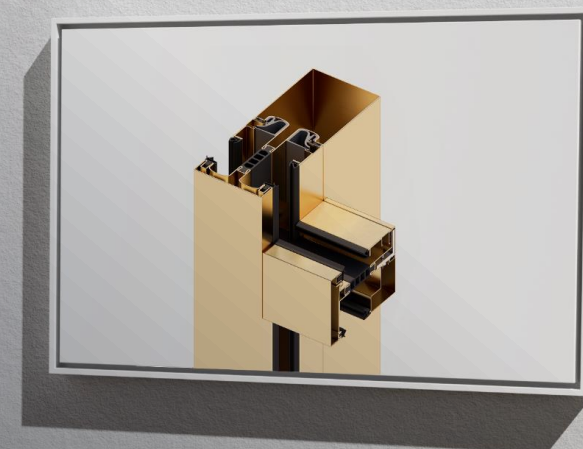
**Façade
contractor**

Minimum cost
Minimum technical risks
High performance
Healthy margin

The perfect match,
together,
we can make a change



Fassada Steel
curtain wall is
not just technics,
it is **a piece of art**



2021



BENG3 (NL)

At least 40%
of building
renewable
energy

2022



S28 (BE)

Lowering S-level
from 31 to 28

2026



**Electric
driving** (BE)

All commercial
vehicles
mandatory electric

2027/2030

**New buildings
climate neutral**
(BE)

No more fossil fuel
allowed in new
construction

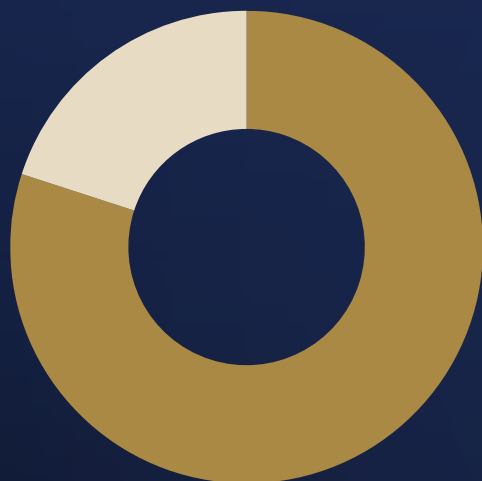
By 2027 public
buildings, from 2030
all new construction

2050



**Carbon
neutral**

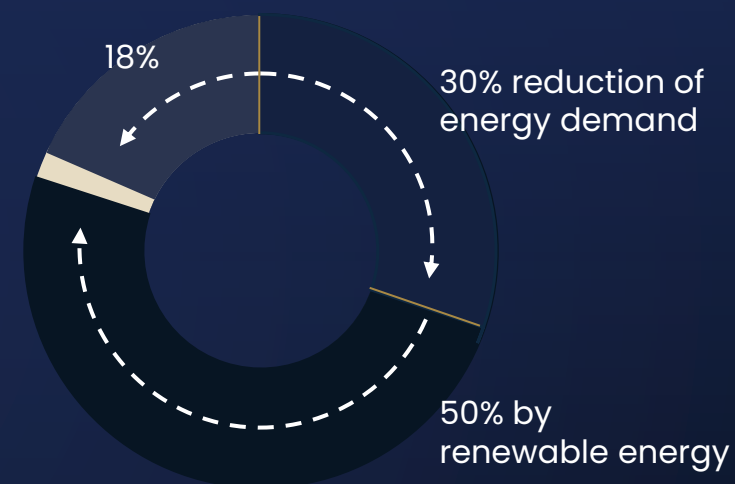
Typical building




Embodied CO₂
20%


Operational CO₂
80%

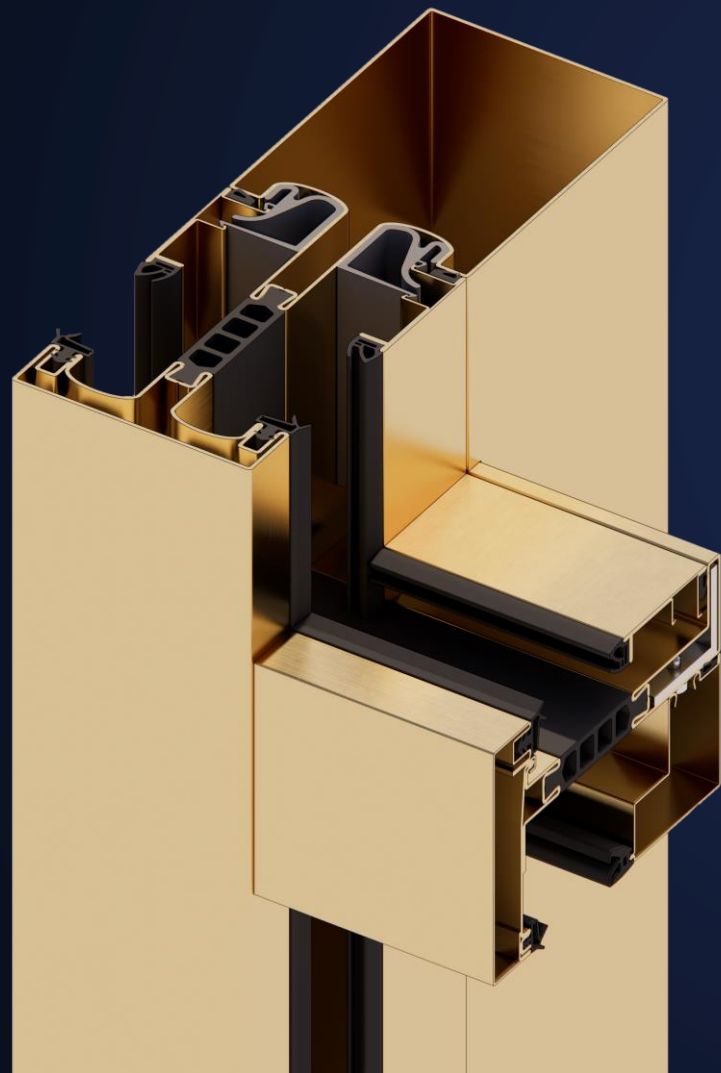
Smart building




Embodied CO₂
2%


Operational CO₂
0%

Embodied CO₂



1 kg **hybrid steel** = 1,65 kg CO₂ emission



1kg **aluminium** = 16,1 kg CO₂ emission



Weight/m² facade in hybrid steel = weight in aluminium



Operational CO₂



The most sustainable energy
is the one you don't need

No energy = zero CO₂ exhaust



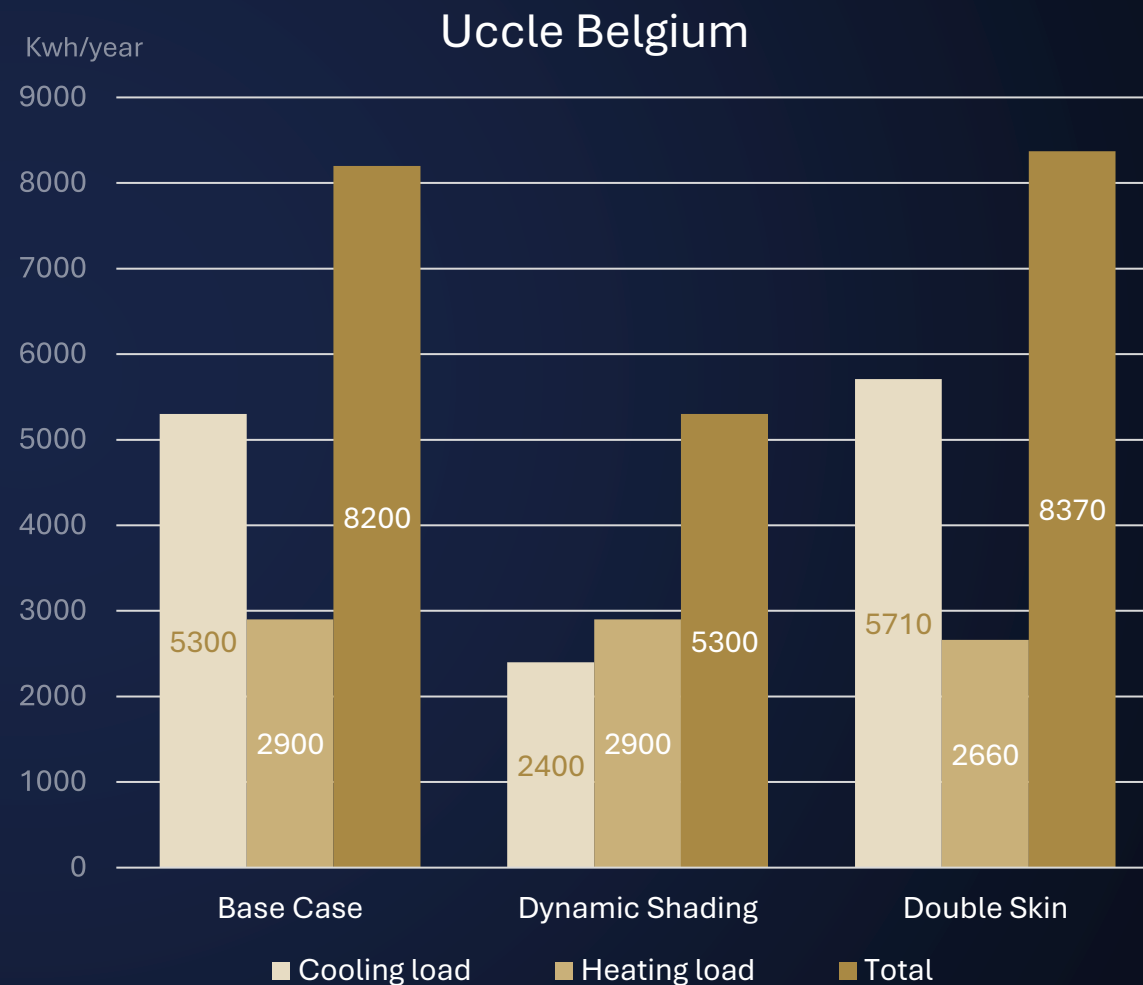
Operational CO₂



G-factor: 0,20 → 0,02

- dynamic shading devices
- cooling loads reduced by 55%

1. Total energy load reduced by 35%
2. This remaining load as renewable energy
3. Operational CO₂ 80% → 0%



Keeping the sun out, a question of interpretation...

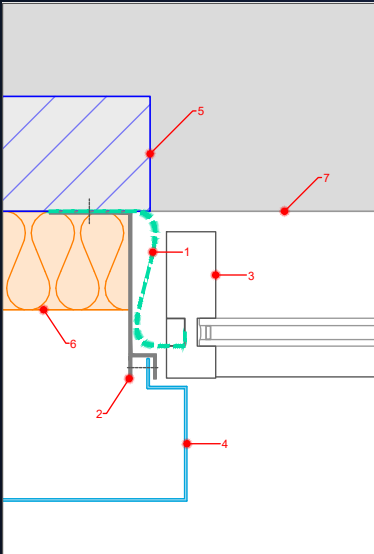


Hybrid technologies

The monolithic mullion,
a new era for design!

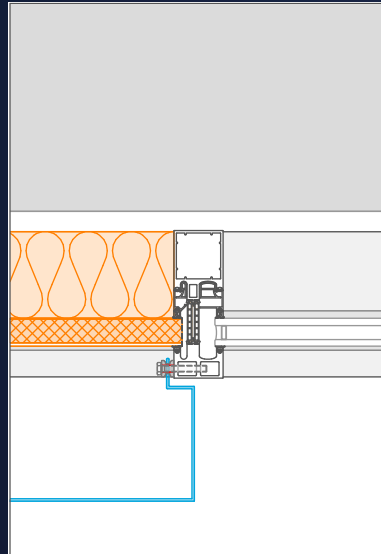
- Full installation & glazing from inside
- Perfect uninterrupted shield
- No silicone, no membranes

Conventional system

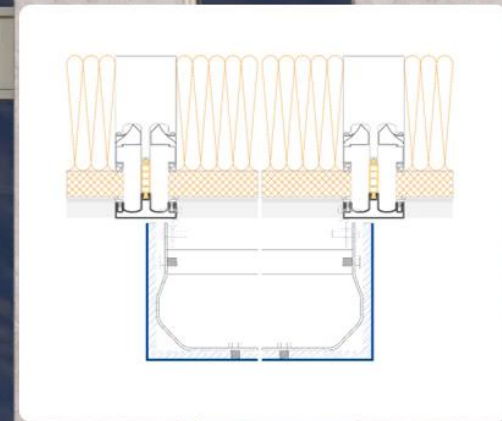


- 1. EPDM membrane
- 2. Substructure
- 3. Mullion
- 4. Cladding
- 5. Wall
- 6. Insulation
- 7. Edge of the slab

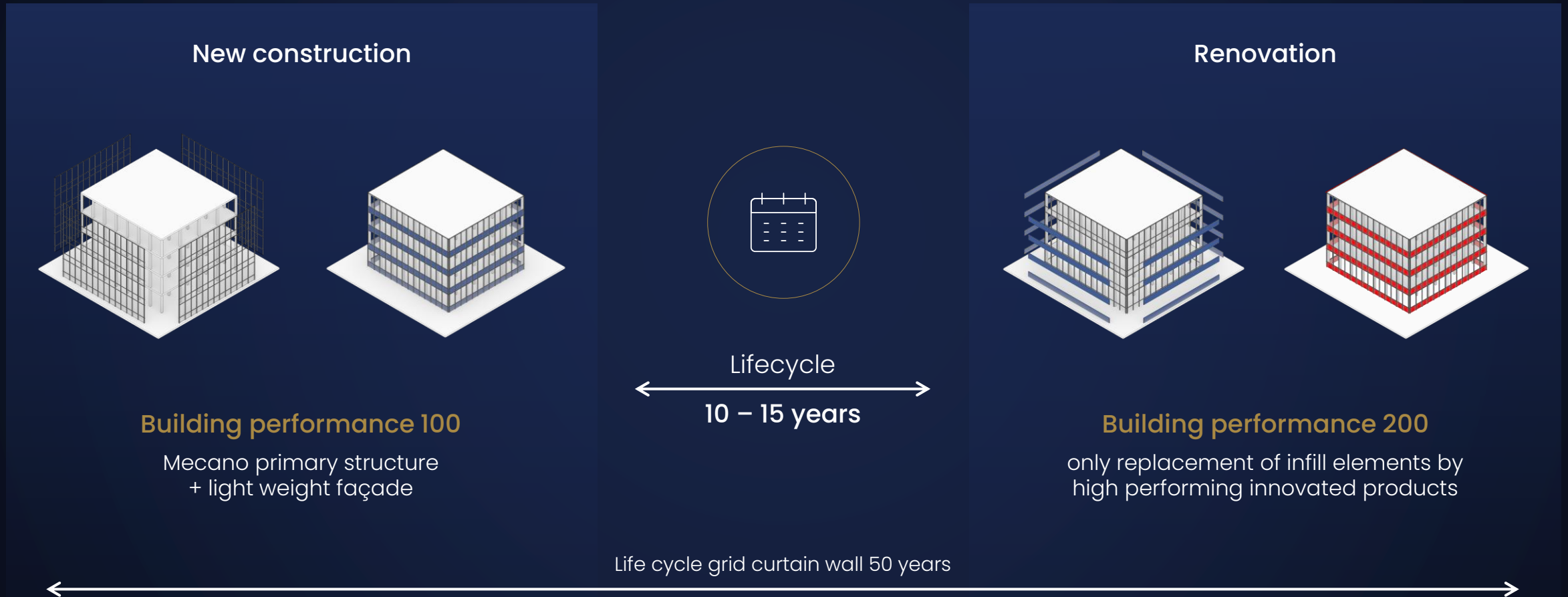
Fassada smart solution



- No interior wall
- No membrane!
- Uninterrupted skin – no perforations
- 1 plane thermal & acoustical skin



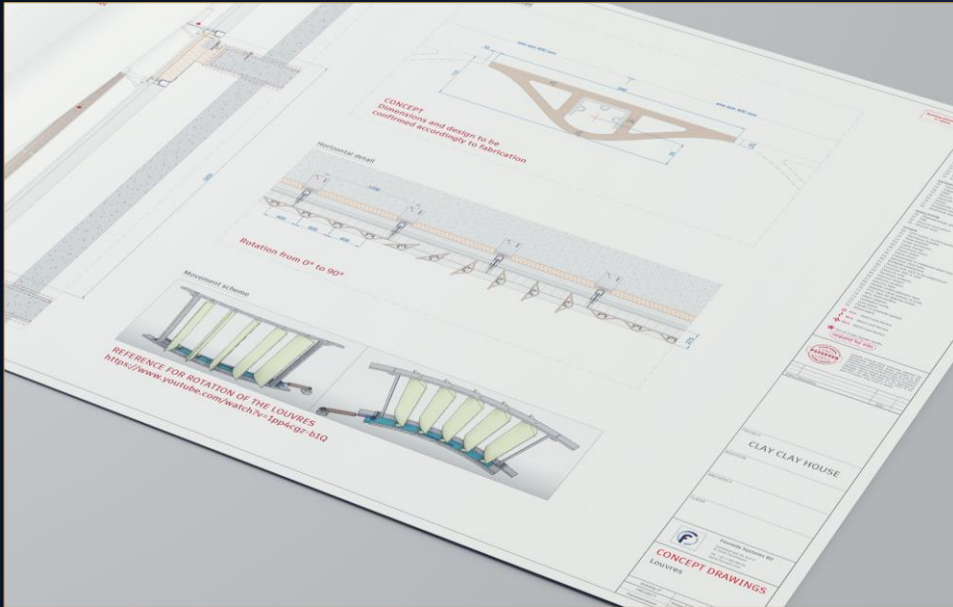
The best circularity is no circularity





The façade as a profit model

The result



The technical solution

HS75-hybrid steel curtain wall
with integrated heating & cooling

All opaque area: ABIPV panels

Full solar control by **rotatable louvres** controlled by BMS

Flat roof with standard **solar panels**

Heating by **micro convectors** integrated in transoms

Cooling by **natural ventilation** operable vents controlled by BMS

Days where T_{int} would become higher than 23°C:
cooling by micro convectors



Features



Perfect comfort



Energy requirements & consumption
reduced by 65%



Energy production larger than energy consumption
→ **sales of the surplus**

Finances



Total invest cost HVAC-installation
reduced by 60%



The revenues of sales of the energy surplus is more than the financing cost of the building

Redefined sustainability: not just 0 energy, but also 0 finance cost

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*Dear ladies and gentlemen,
my name is Fazzi and from now on
I will be your technical assistant.
Thank you for your attention*

