minimal interventions, big change

Centraal Beheer
concept

from open office landscape to urban agricultural landscape
research
reprogram
redesign
reflection
research
reprogram
redesign
reflection
Heritage & Architecture - The Future of Structuralism

Centraal Beheer by Herman Hertzberger
structuralism

unit

open ended

city in building

social
examples

Burgerweeshuis - Aldo van Eyck
examples

Kubuswoningen - Piet Blom
examples

Centraal Beheer - Herman Hertzberger
urban plan

Centraal Beheer as entrance to the new city center
unit
unit
unit
open-ended
open-ended
open-ended
city in building
city in building
social
social
opportunities

(mostly) overdimensioned construction

open space plan

lots of daylight (in the periphery of the building)

voids
challenges

low ceiling height

orientation

dark
(in the middle of the building)

own challenge:
restoration
heritage position

leave / preserve  add, but reversible  reuse
position as architect

icon, so careful intervention, demolishing as little as possible

finding a function that fits in the building

position evolved to restoration
why restoration

icon of structuralism
design question

How can Centraal Beheer be transformed to a multi-functional urban farm, while doing as little as possible?
research
reprogram
redesign
reflection
dark
demolish?

14 may 2018
program
program
why vertical farming?
why vertical farming?
vertical farming

Philips GrowWise research center

Duurzame Kost
how does it work?

indoor controlled environment vertical farming
two types of hydroponics

nutrient film technique (NFT)
- lettuce
- strawberries
- herbs
- leafy greens

deep water culture (DWC)
- lettuce
- strawberries
- herbs
- bell peppers
research
reprogram
redesign
reflection
impression

walking up to the building
impression

entrance
vertical farm
vertical farm

grow
vertical farm

harvest
vertical farm

consume
yield

4800 m² of production
36 kg / m² yearly (based on references)
172,800 kg / yearly

over 470 kg per day

restaurant: about 300 guests per night
60 kg of produce each night
impression

restaurant
impression

restaurant
street

interior street
impression

interior street
impression

openness - ceiling
impression

openness - views
detail

- floor finish
- Variocomp floor heating 20 mm
- rigid insulation 10 mm
- concrete screed 60 mm
- prefab concrete slab
- bamboo ceiling

Verwil Woodvision partition wall in bamboo 100 mm
impression

hotel room
impression

steps
facade

before
facade

currently
facade

new
facade
detail

- facade

- existing curtain wall
- ventilated cavity
- second skin:
  - sliding window HR++ glass

- floor finish
  - Variocomp floor heating 20 mm
  - rigid insulation 10 mm
  - concrete screed 60 mm
  - prefab concrete slab
  - bamboo ceiling

- glass shutters for ventilation
- ventilated cavity
- Eternit panel on timber framework

- glass fibre insulation 100 mm
- vapor permeable film
- concrete brick 100 mm
- cast in situ concrete
- concrete brick 100 mm

- "3"
glass shutters for ventilation
ventilated cavity
Eternit panel on timber framework
glass fibre insulation 100 mm
vapor permeable film
concrete brick 100 mm
cast in situ concrete
concrete brick 100 mm

tiles
bitumen insulation 230 mm
vapor permeable film
concrete screed 60 mm
prefab concrete slab
bamboo ceiling

eexisting curtain wall
ventilated cavity
second skin:
sliding window HR++ glass
humans <-> plants
climate design

ventilation
impression

exposed ductwork
climate design

heating
climate design

artificial light
impression

artificial light
axonometry
research
reprogram
redesign
reflection
design question

How can Centraal Beheer be transformed to a multi-functional urban farm, while doing as little as possible?
heritage position

leave / preserve

add, but reversible

reuse
section

existing
thank you
climate design

closing the loops - air
climate design

energy
climate design

food
climate design

water
climate design

rainwater: two systems, storage
climate design

ventilation in quadrant
climate design

ventilation vertical farm +0
climate design

ventilation vertical farm +1
sections
concrete brick 100 mm
cavity insulation 60 mm
crystal brick 100 mm
glass fibre insulation 120 mm
plasterboard 12.5 mm

floor finish
Variocomp floor heating 20 mm
rigid insulation 30 mm
existing concrete floor
detail

glass shutters for ventilation
ventilated cavity
Eternit panel on timber framework
glass fibre insulation 100 mm
vapor permeable film
concrete brick 100 mm
cast in situ concrete
concrete brick 100 mm

existing curtain wall
ventilated cavity
second skin:
sliding window HR++ glass

floor finish
Variocomp floor heating 20 mm
rigid insulation 10 mm
concrete screed 60 mm
prefab concrete slab
bamboo ceiling
detail

- concrete brick 100 mm
- cavity insulation 60 mm
- concrete brick 100 mm
- glass fibre insulation 120 mm
- plasterboard 12.5 mm

floor finish
- Variocomp floor heating 20 mm
- rigid insulation 10 mm
- concrete screed 60 mm
- prefab concrete slab
detail

glass shutters for ventilation
ventilated cavity
Eternit panel on timber framework
glass fibre insulation 100 mm
vapor permeable film
concrete brick 100 mm
cast in situ concrete
concrete brick 100 mm

existing curtain wall
ventilated cavity
second skin:
sliding window HR++ glass

tiles
bitumen
insulation 230 mm
vapor permeable film
concrete screed 60 mm
prefab concrete slab
bamboo ceiling
detail

- concrete brick 100 mm
- cavity insulation 60 mm
- concrete brick 100 mm
- glass fibre insulation 120 mm
- plasterboard 12,5 mm

- tiles
- bitumen insulation 230 mm
- vapor permeable film
- concrete screed 60 mm
- prefab concrete slab
detail

- glass
- bitumen
- insulation 230 mm
- vapor permeable film
- concrete screed 60 mm
- prefab concrete slab
- bamboo ceiling

- HR++ glass
- existing gutter construction
existing curtain wall
ventilated cavity
second skin:
sliding window HR++ glass

HR++ glass
existing gutter construction

floor finish
Variocomp floor heating 20 mm
rigid insulation 10 mm
concrete screed 60 mm
 prefab concrete slab

REDESIGN
second skin:
sliding window HR++ glass
ventilated cavity
existing curtain wall

floor finish
Variocomp floor heating
rigid insulation 10 mm
cast in situ concrete slab
vapor permeable film
glass fibre insulation 150 mm
Eternit panel

cement brick 100 mm
cast in situ concrete
concrete brick 100 mm
vapor permeable film
glass fibre insulation 100 mm
Eternit panel on timber framework
plasterboard 12.5 mm
glass fibre insulation 120 mm
concrete brick 100 mm
cavity insulation 60 mm
concrete brick 100 mm

floor finish
Variocomp floor heating
rigid insulation 10 mm
concrete screed 60 mm
prefab concrete slab
glass fibre insulation 150 mm
Eternit panel
detail

existing concrete construction
curtain wall HR++ glass
detail

- curtain wall HR++ glass
- concrete screed floor 50 mm
- rigid insulation 50 mm
- existing concrete floor
- gravel for drainage
floor finish
Variocomp floor heating 20 mm
rigid insulation 10 mm
concrete screed 115 mm
prefab concrete slab

Verwol Woodvision partition wall
in bamboo 100 mm
detail

- floor finish
- Variocomp floor heating 20 mm
- rigid insulation 10 mm
- concrete screed 60 mm
- prefab concrete slab
- bamboo ceiling

- Venvol Woodvision partition wall in bamboo 100 mm
existing curtain wall
ventilated cavity
second skin:
sliding window HR++ glass

detail

cement brick 100 mm
cavity insulation 60 mm
cement brick 100 mm
glass fibre insulation 120 mm
plasterboard 12,5 mm
A: 2.716,322 m²