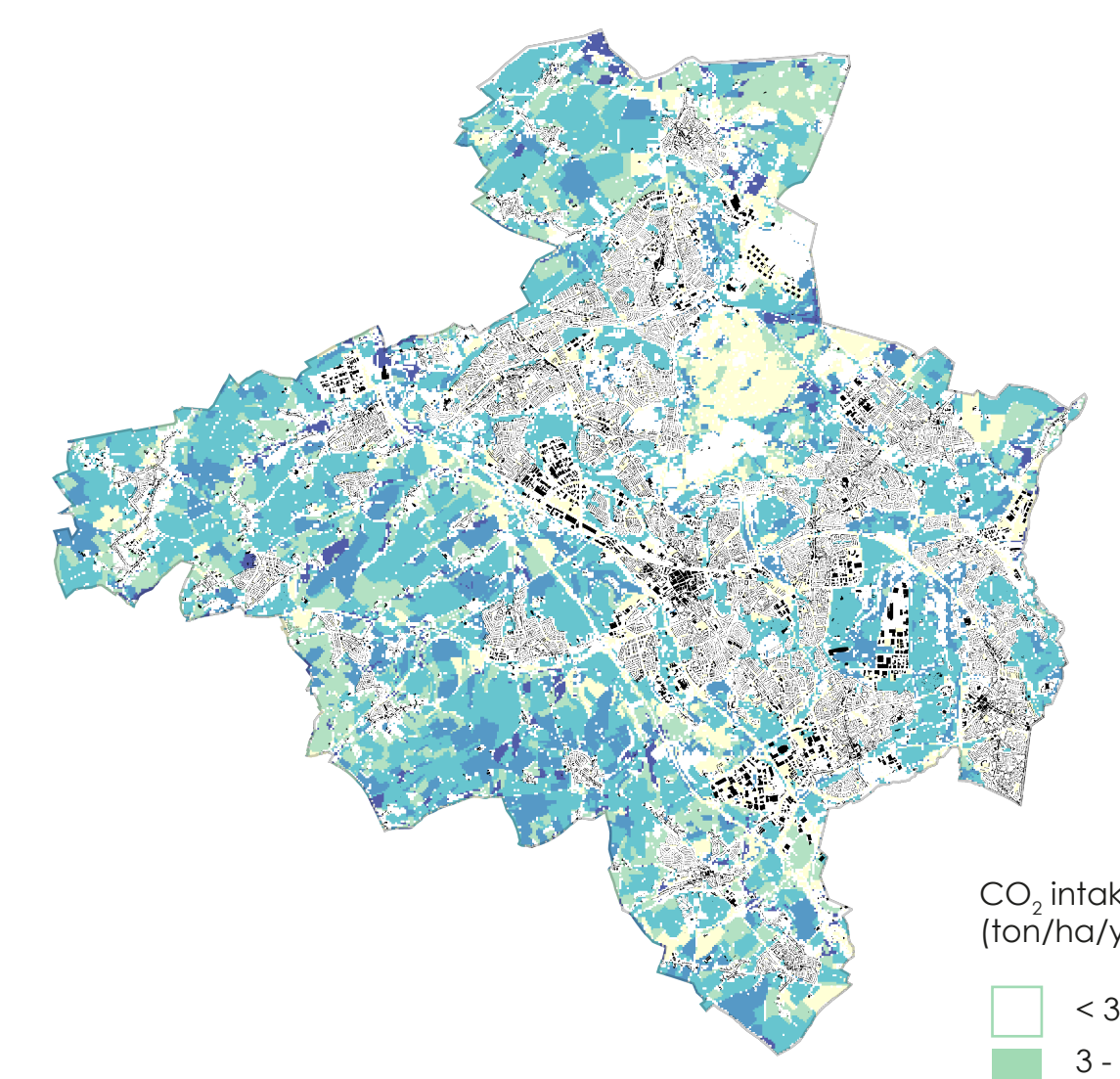
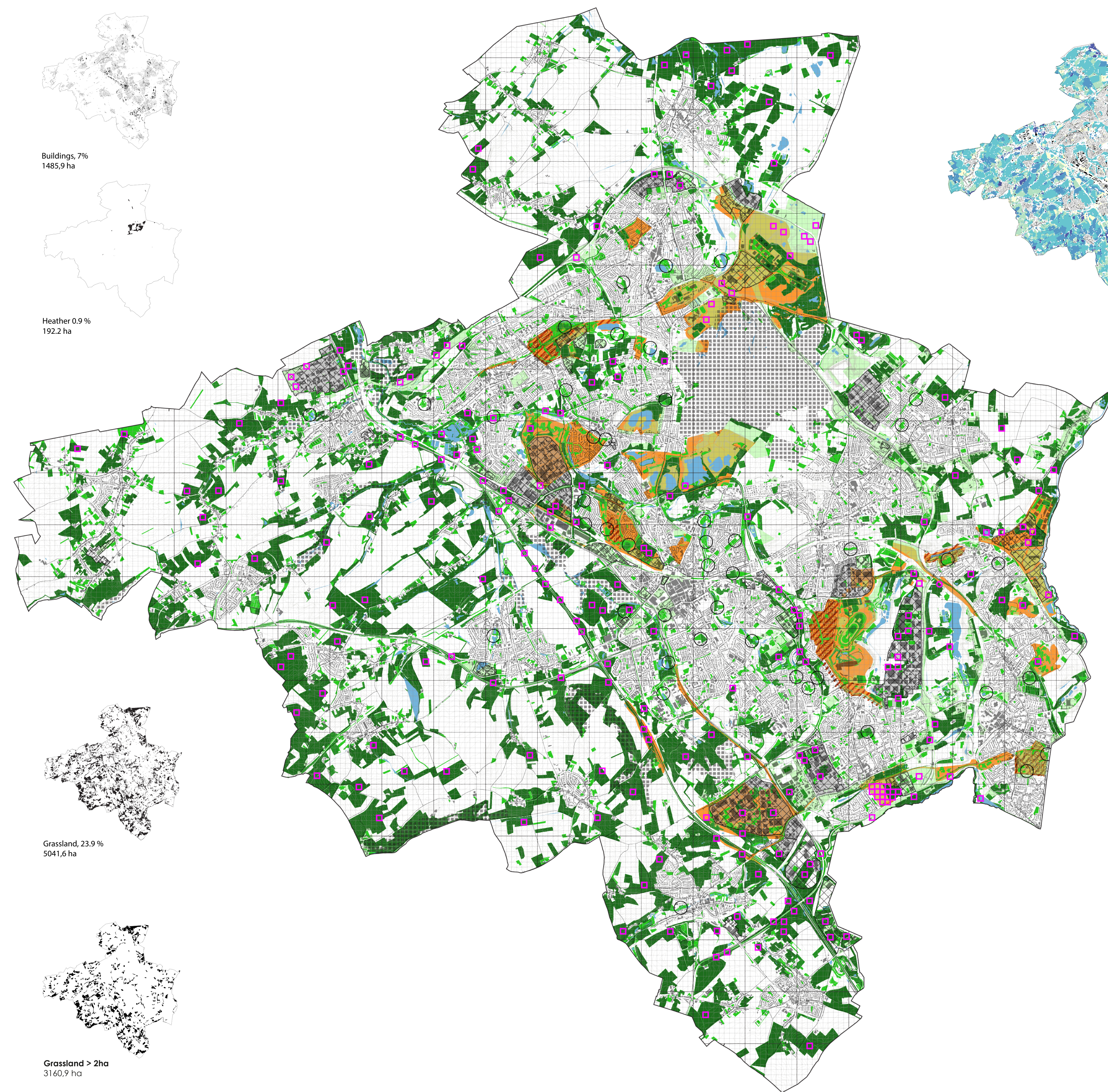
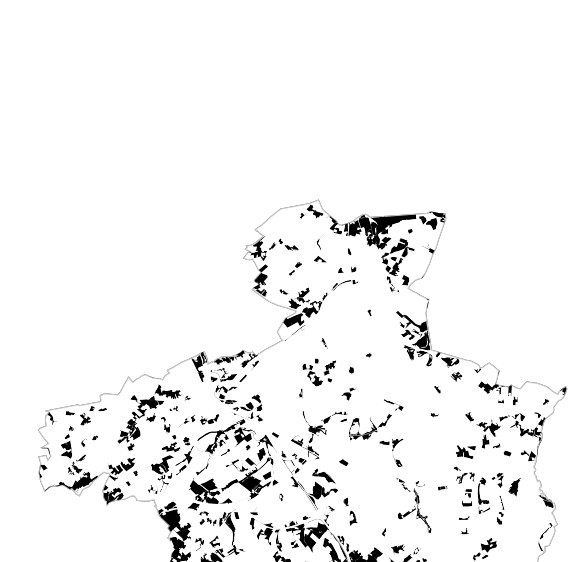
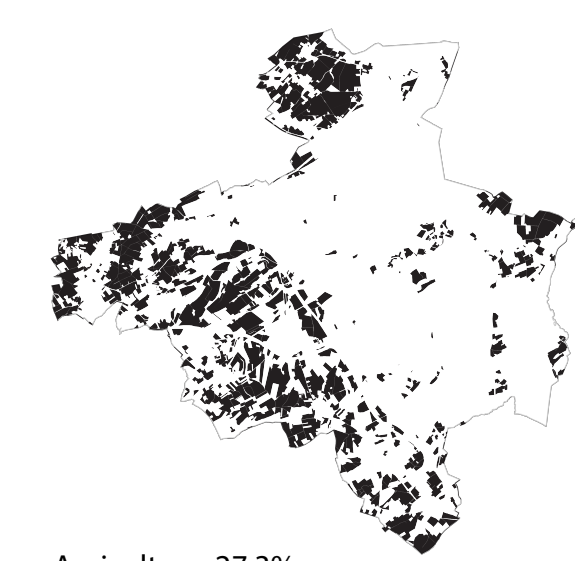
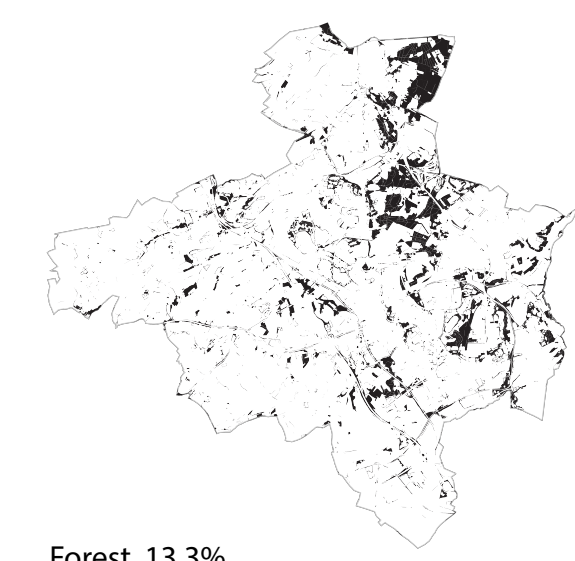
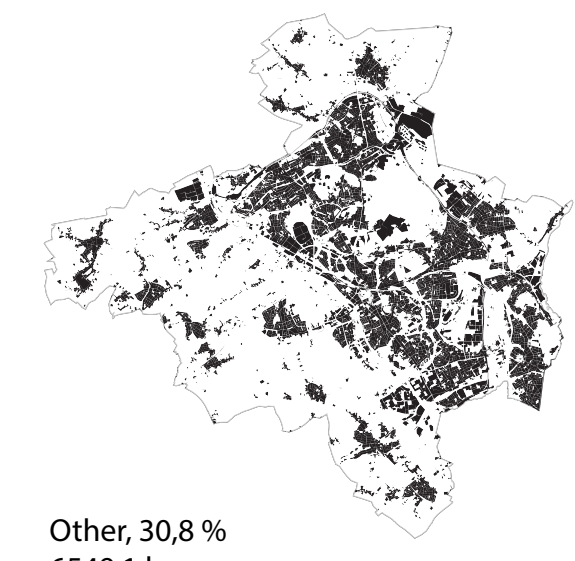
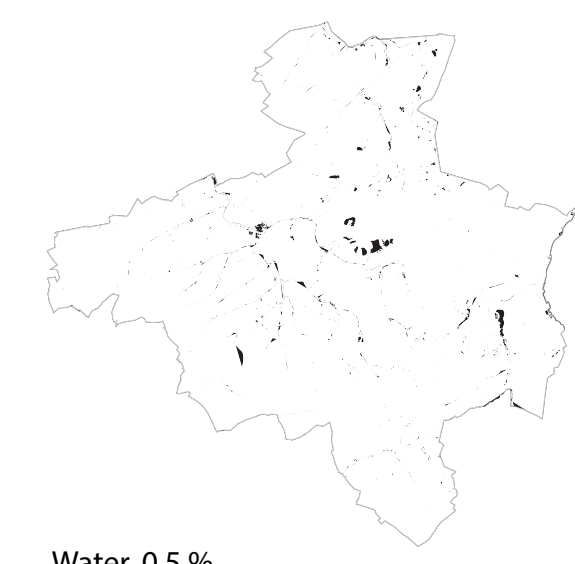
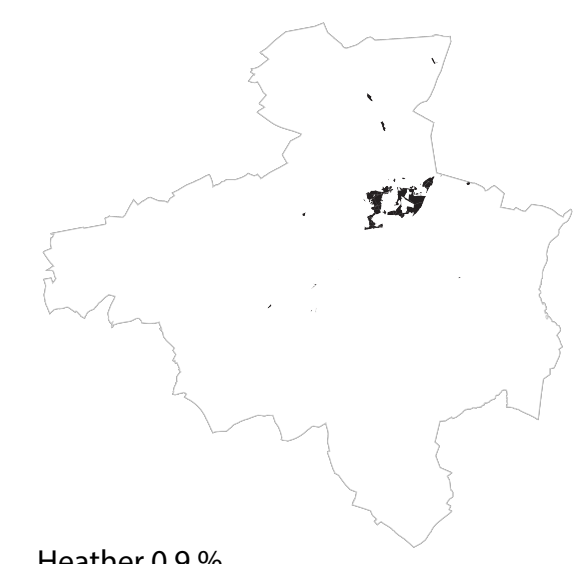
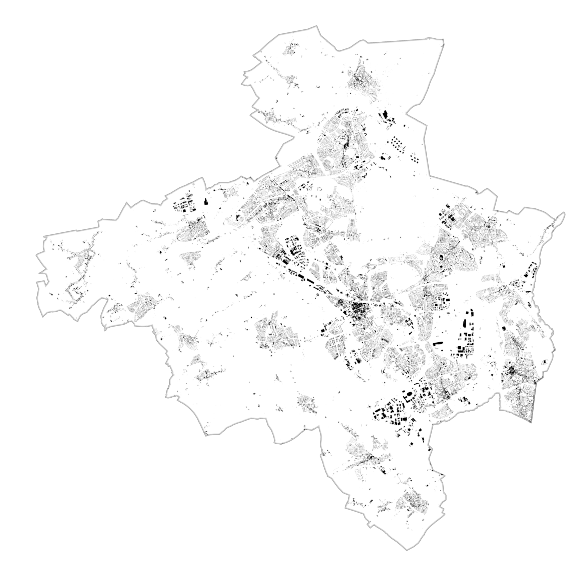


**Powerplant
in Parkstad**
225 PIXELS

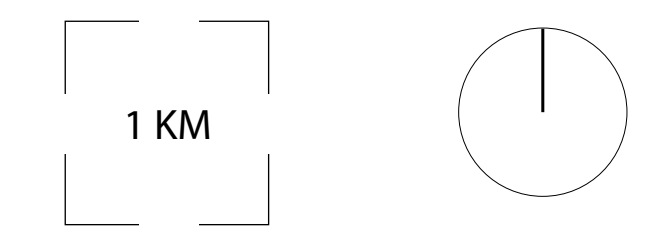
TU Delft / AE / Harvest
Hatto Kienhuis 4430948



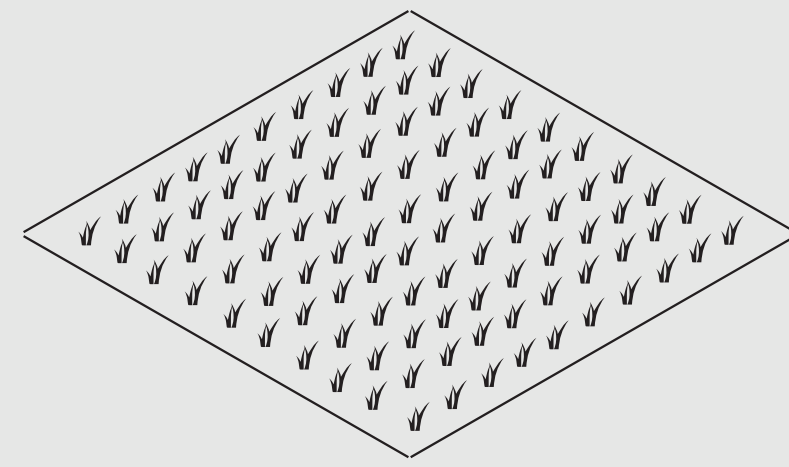
LEGEND

- Grassland > 2ha
- Grassland > 1 ha
- Grassland < 1ha
- Other
- Natura 2000
- Industry
- Minestone pollution
- Minestone cleaned
- 1 Ha of Miscanthus

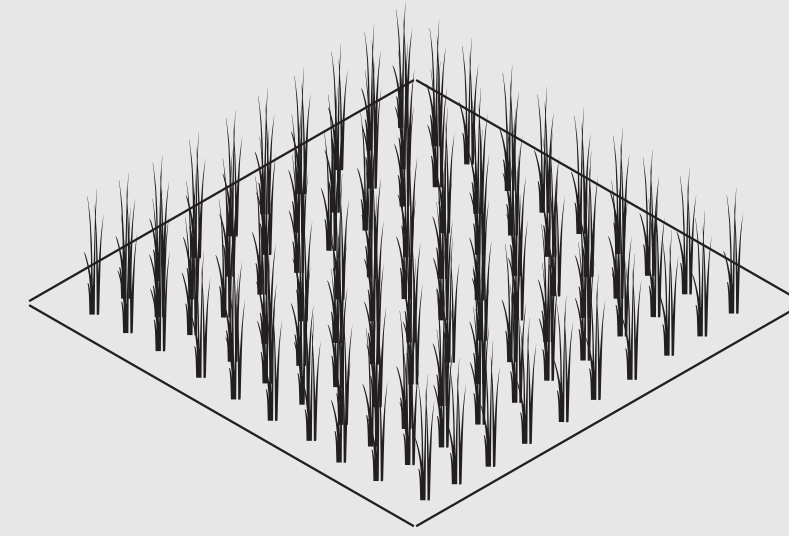
Scale 1: 20.000



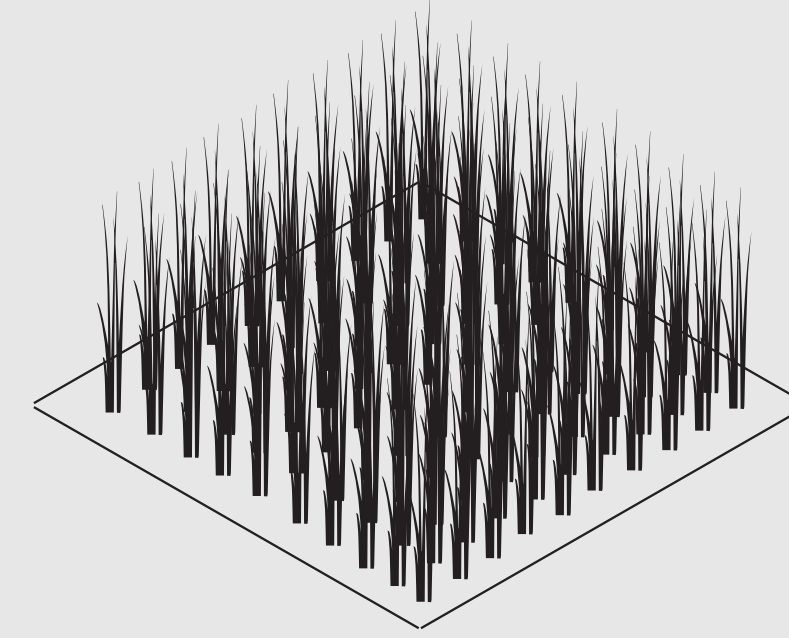
Growth



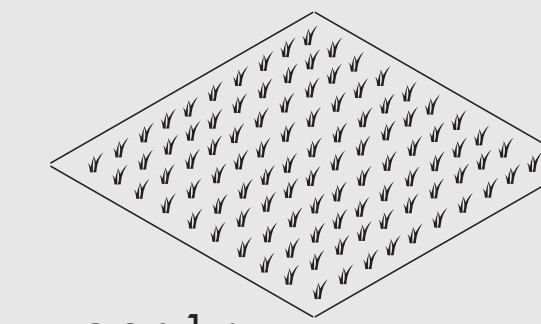
1st & 2nd year:
< 10 T dry material / ha



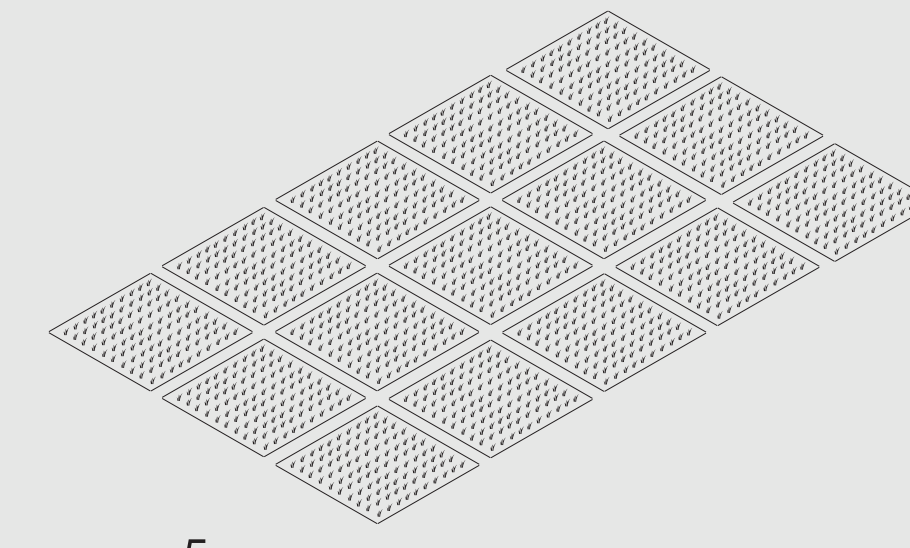
3rd & 4th year:
10 T dry material / ha



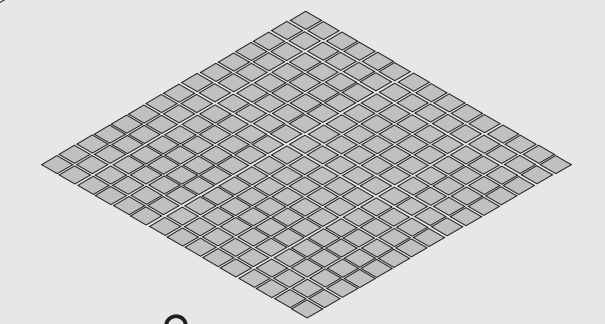
> 4th year:
20 T dry material / ha



year 1 :
planting rhizomes

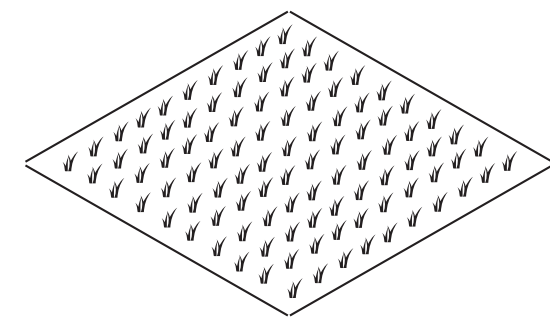


year 5 :
after 4 years the rhizomes
can be spread

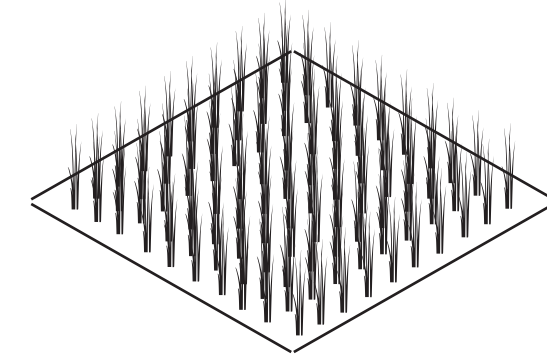


year 9 :
again the rhizomes
can be spread

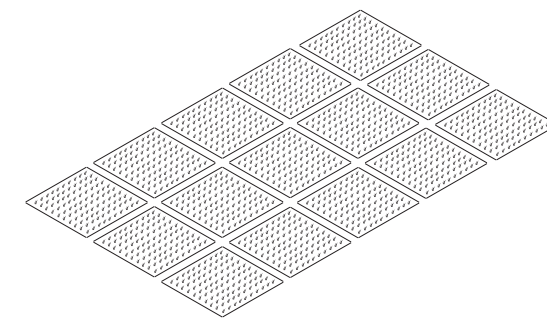
Landscape



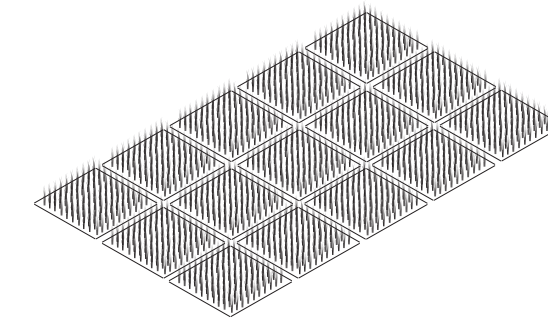
1 Ha



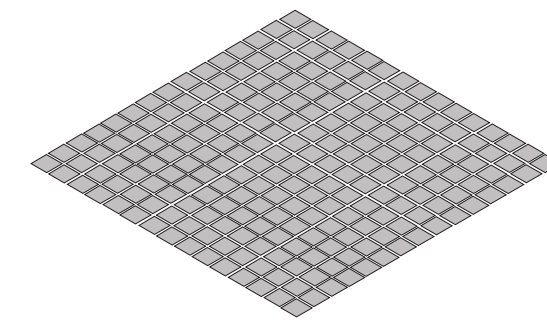
1 Ha



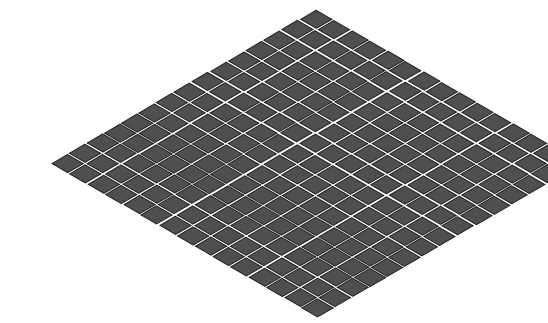
15 Ha



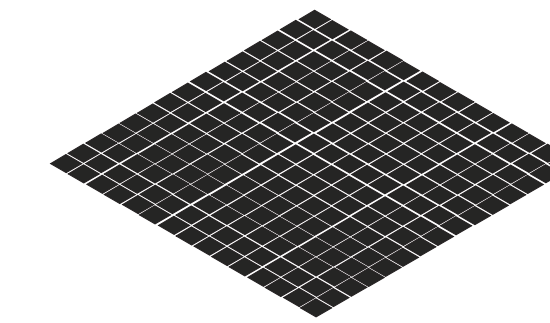
15 Ha



225 Ha



225 Ha



225 Ha

Timeline

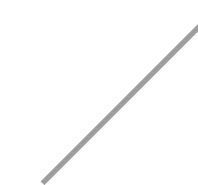


Fertilizer

Season 1-2
150 kg / ha



0.15 T



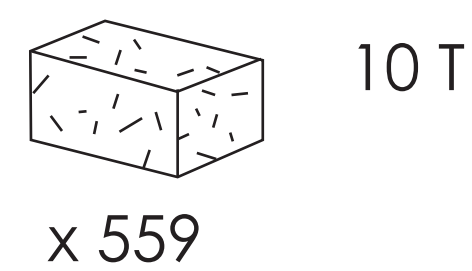
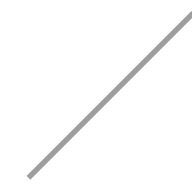
2.25 T



33.75 T

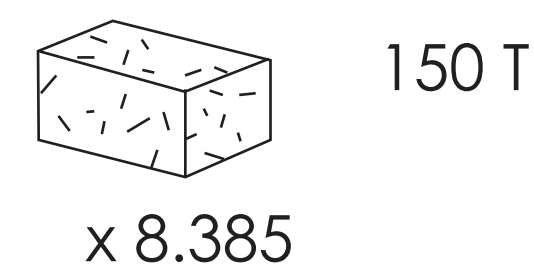
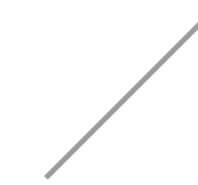
Harvest

Bales (0.48x0.8 x 0.35)
density of 133kg/m3



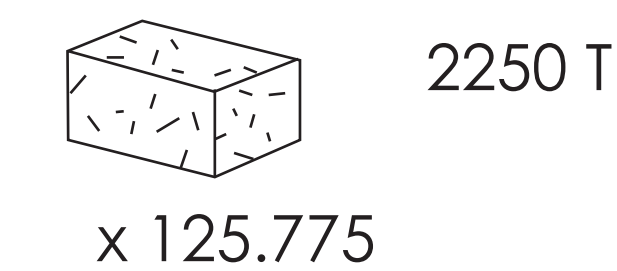
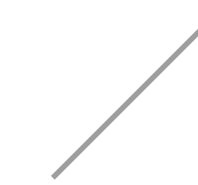
10 T

x 559



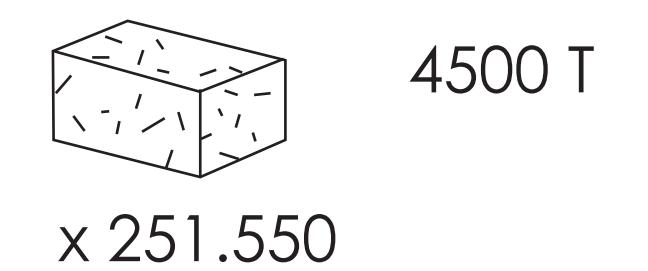
150 T

x 8.385



2250 T

x 125.775

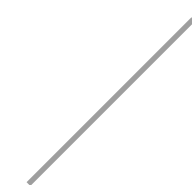


4500 T

x 251.550

Processing

Ethanol 300L/T
&
Carbon fibre 100kg/T



- Insulation
- Fodder
- Burning for energy

- Biogas
- Fertilizer

- Insulation
- Fodder
- Burning for energy

- Biogas
- Fertilizer

- Ethanol 675.000 liter



x 14

- Carbon fibre 225T



x 2250

- Ethanol 1.350.000 Liter



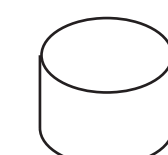
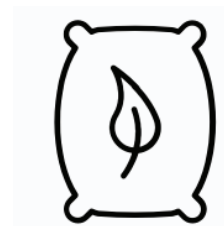
x 28

- Carbon fibre 450T

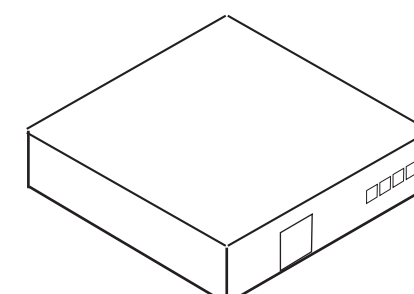


x 4500

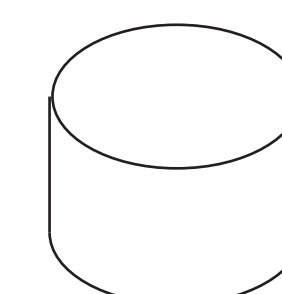
Building



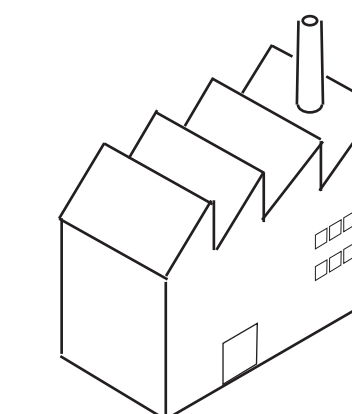
- Biofertiliser



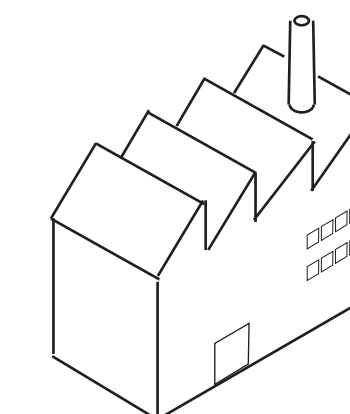
- Empty factory hall



- Biofertiliser



- Biorefinery

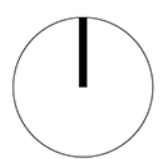
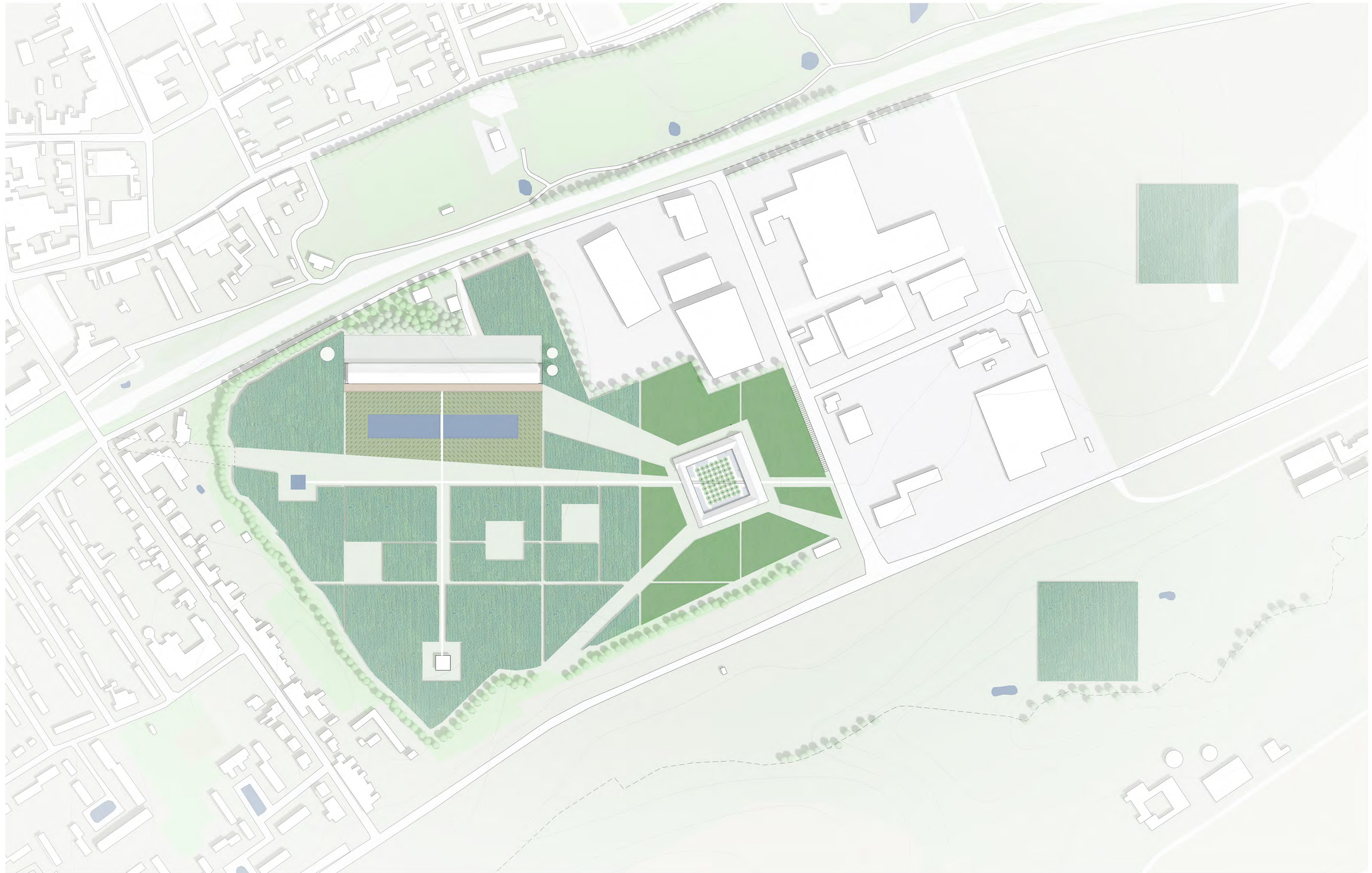


- Biorefinery

**Powerplant
in Parkstad**

LOCATION

TU Delft / AE / Harvest
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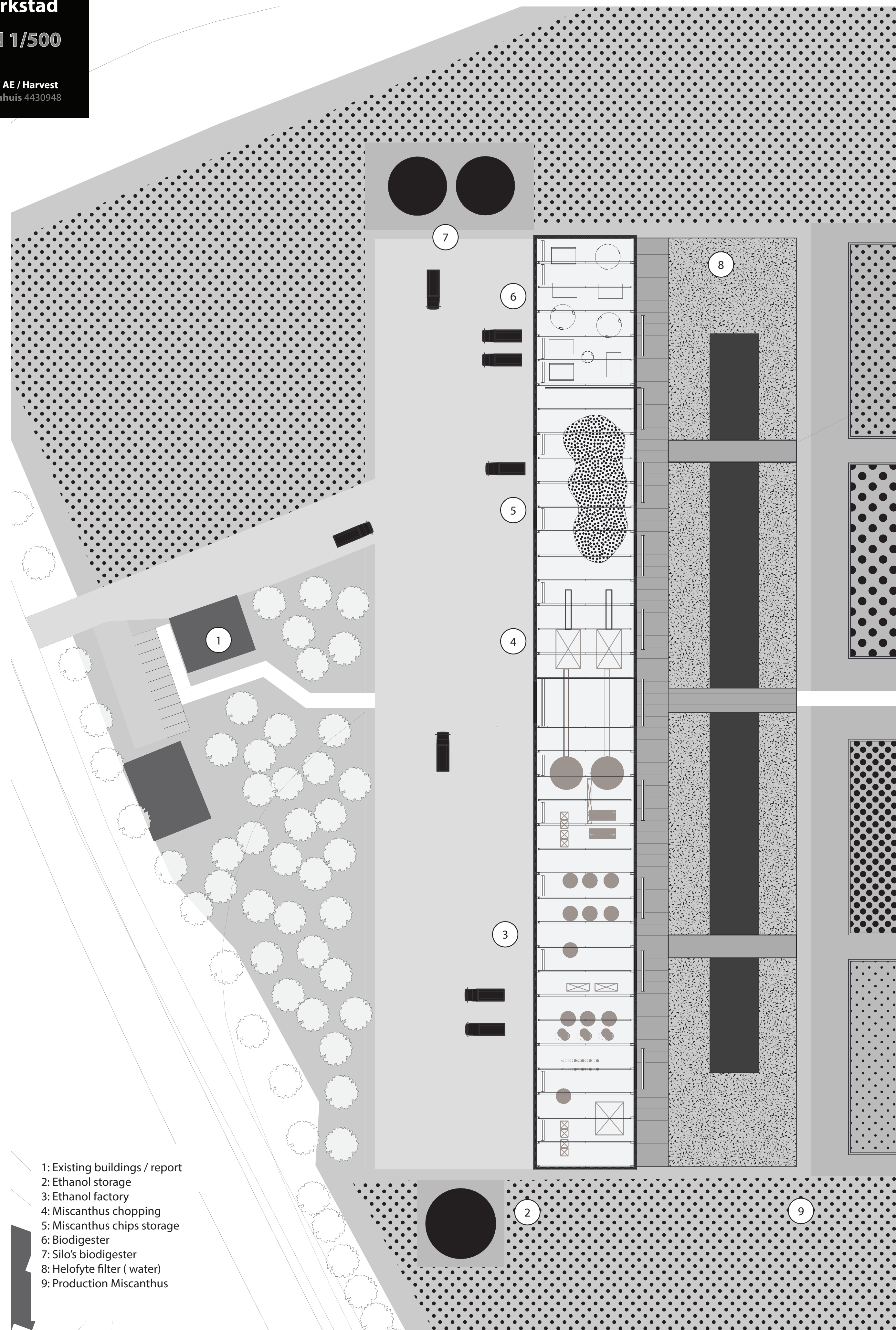


Scale: 1 / 2000

**Powerplant
in Parkstad**

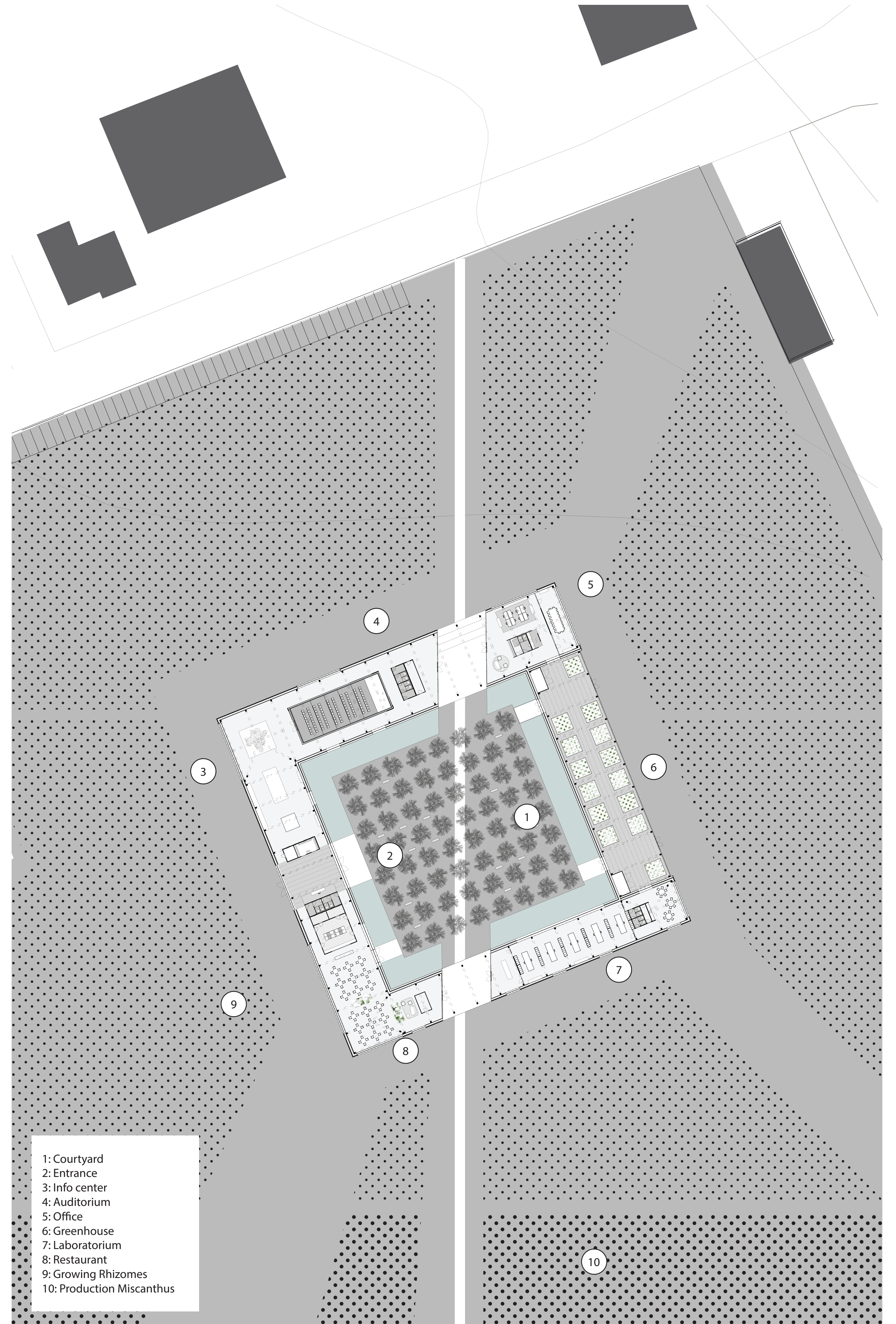
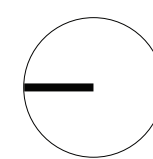
PLAN 1/500

TU Delft / AE / Harvest
Hatto Kienhuis 4430948



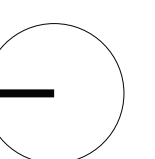
- 1: Existing buildings / report
- 2: Ethanol storage
- 3: Ethanol factory
- 4: Miscanthus chopping
- 5: Miscanthus chips storage
- 6: Biogester
- 7: Silo's biogester
- 8: Helofyte filter (water)
- 9: Production Miscanthus

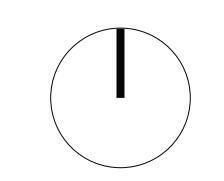
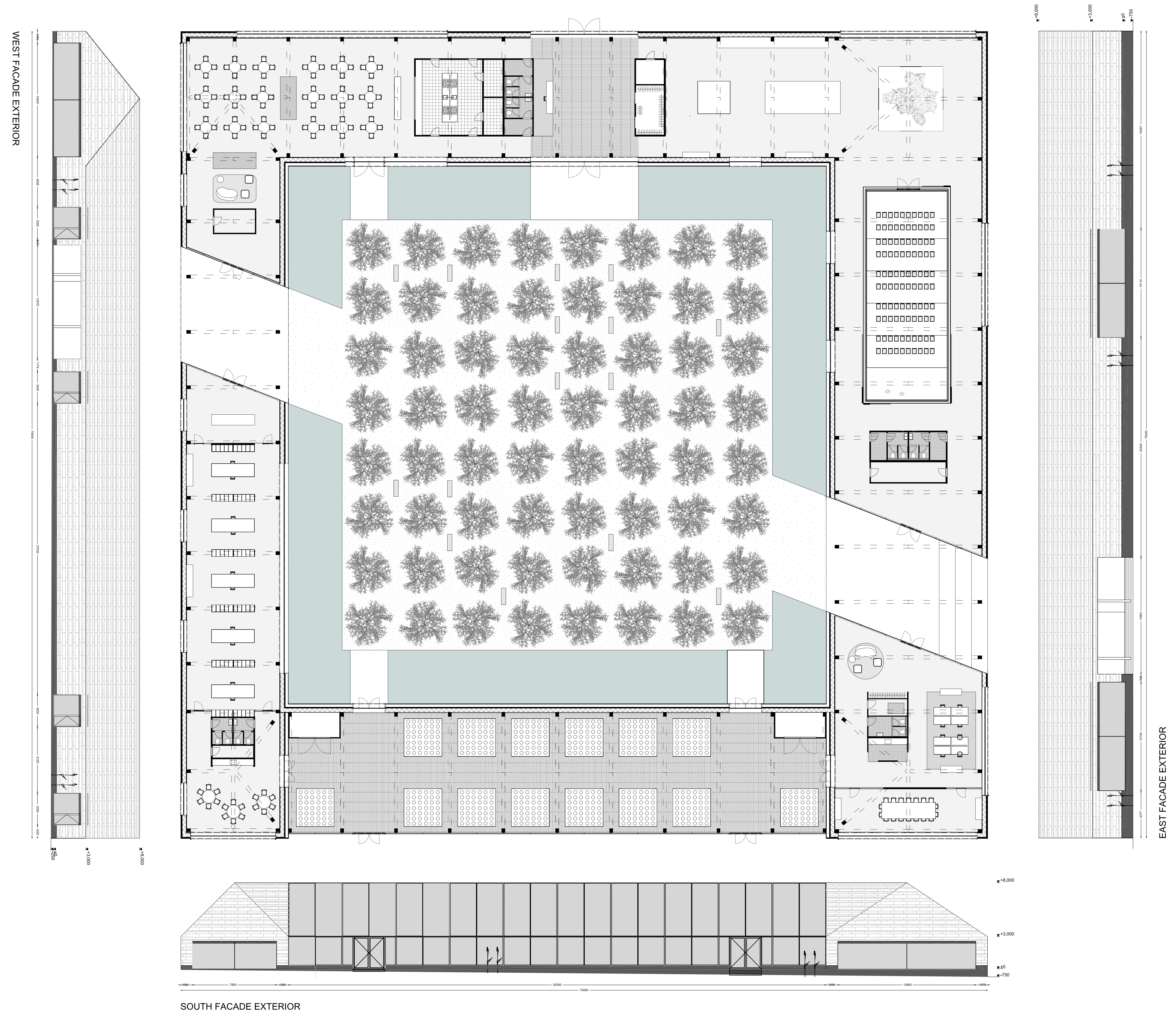
The Factory Scale : 1 / 500



- 1: Courtyard
- 2: Entrance
- 3: Info center
- 4: Auditorium
- 5: Office
- 6: Greenhouse
- 7: Laboratorium
- 8: Restaurant
- 9: Growing Rhizomes
- 10: Production Miscanthus

The Hoeve Scale : 1 / 500



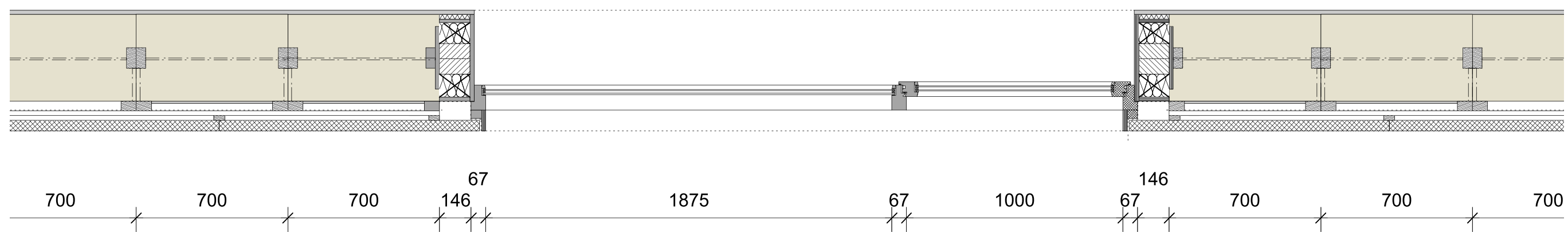


Powerplant
in Parkstad
FACADE

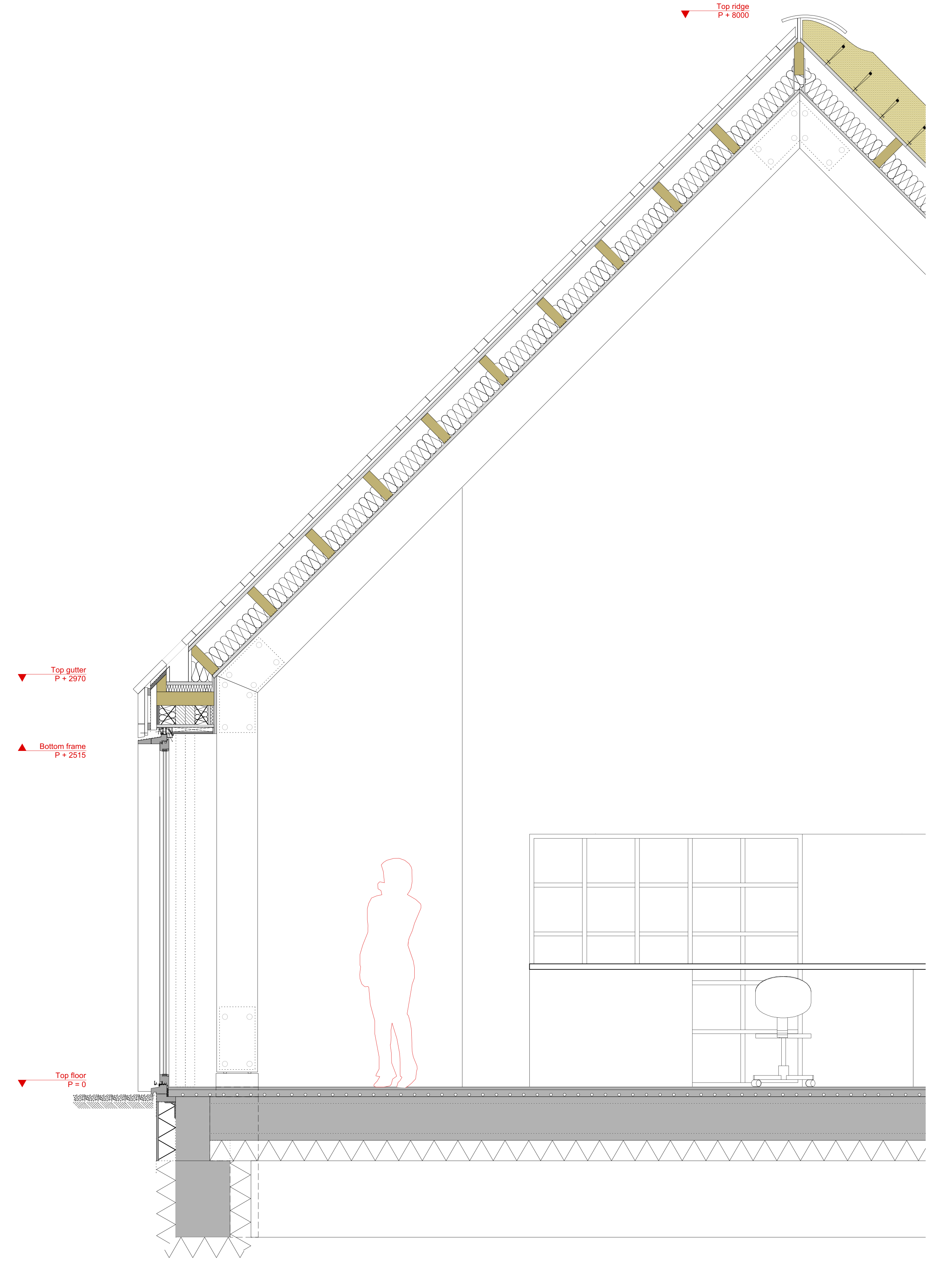
TU Delft / AE / Harvest
Hatto Kienhuis 4430948



Facade Scale : 1 / 20



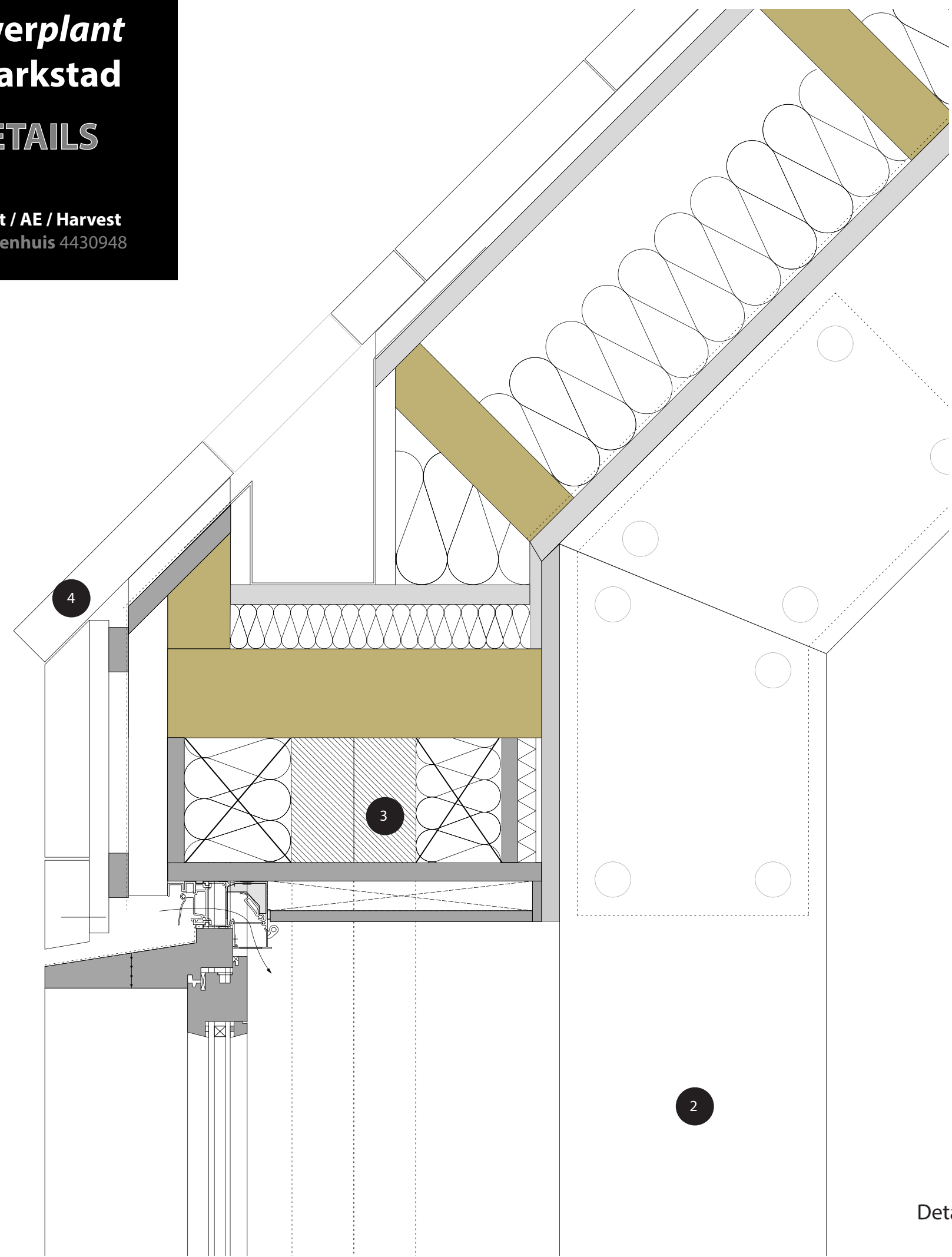
Plan Scale : 1 / 20



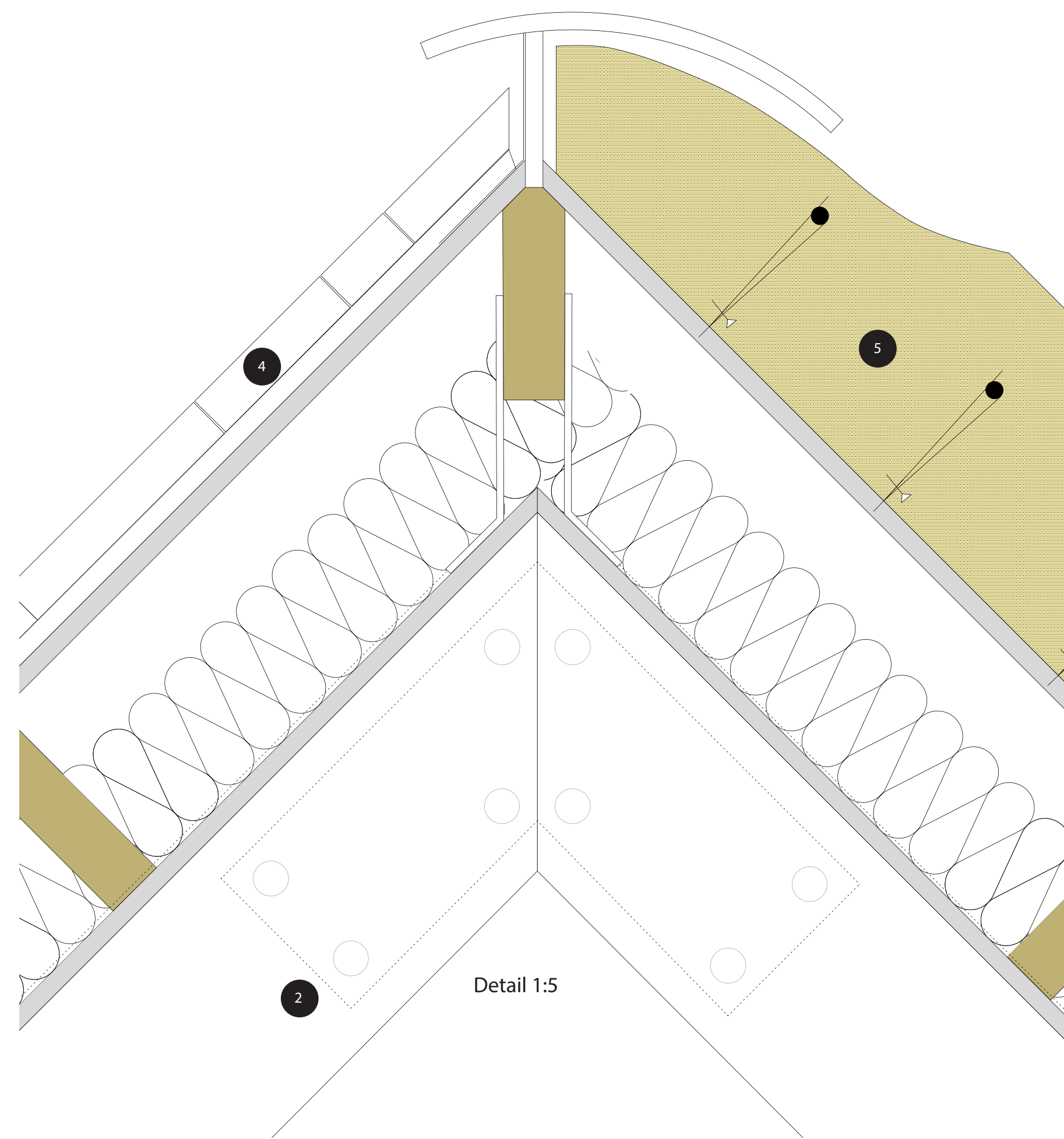
Section Scale : 1 / 20

**Powerplant
in Parkstad**
DETAILS

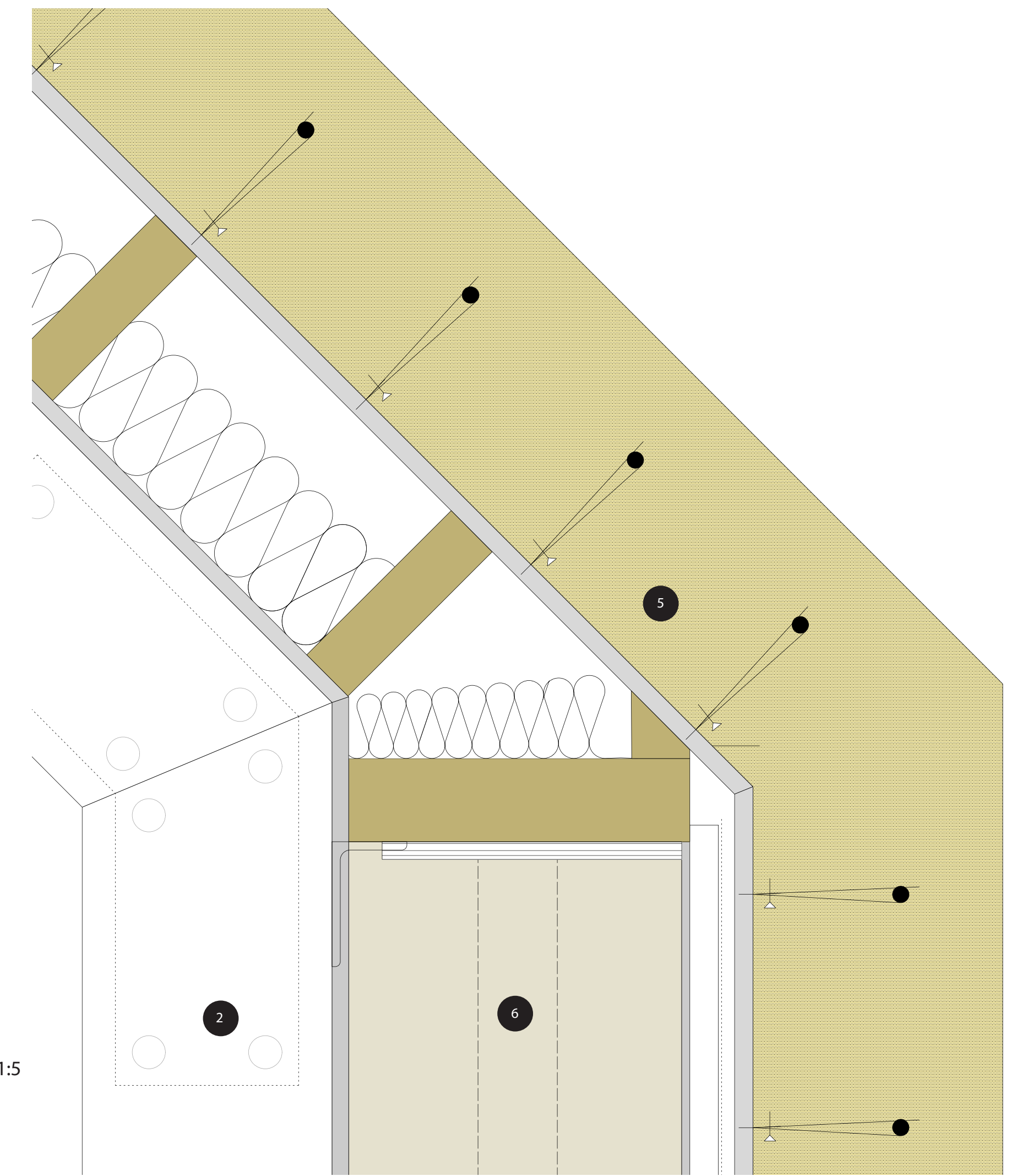
TU Delft / AE / Harvest
Hatto Kienhuis 4430948



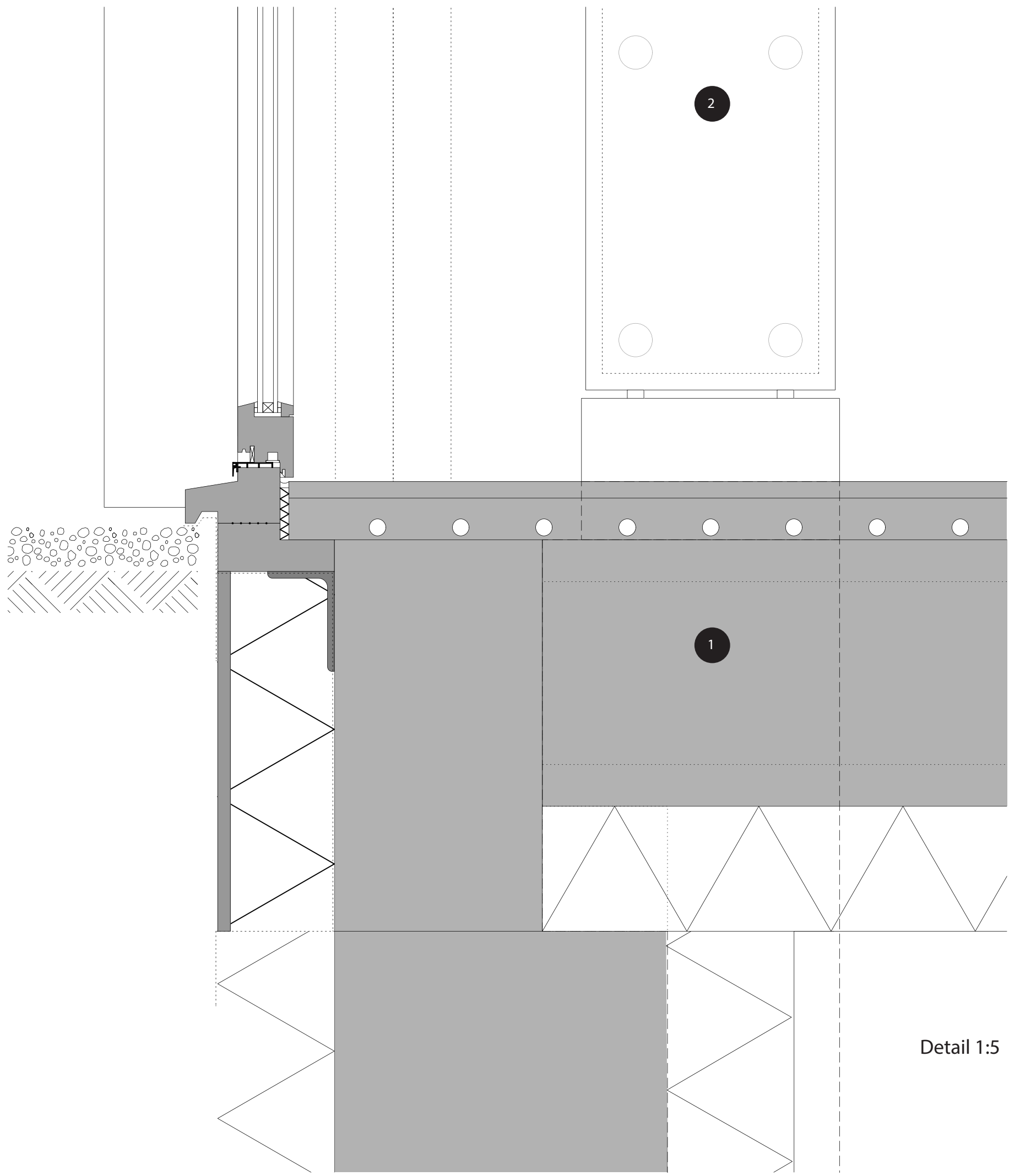
Detail 1:5



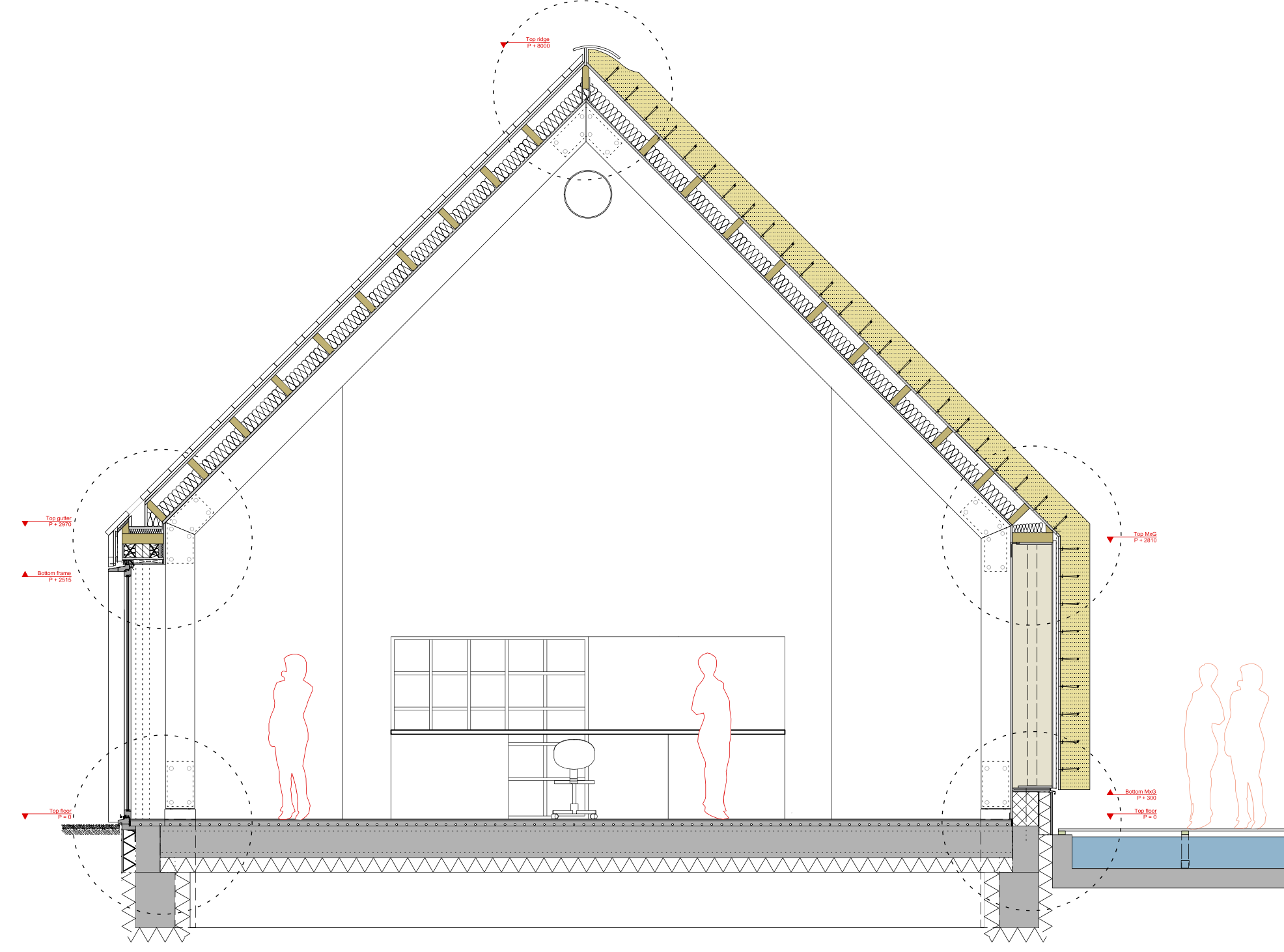
Detail 1:5



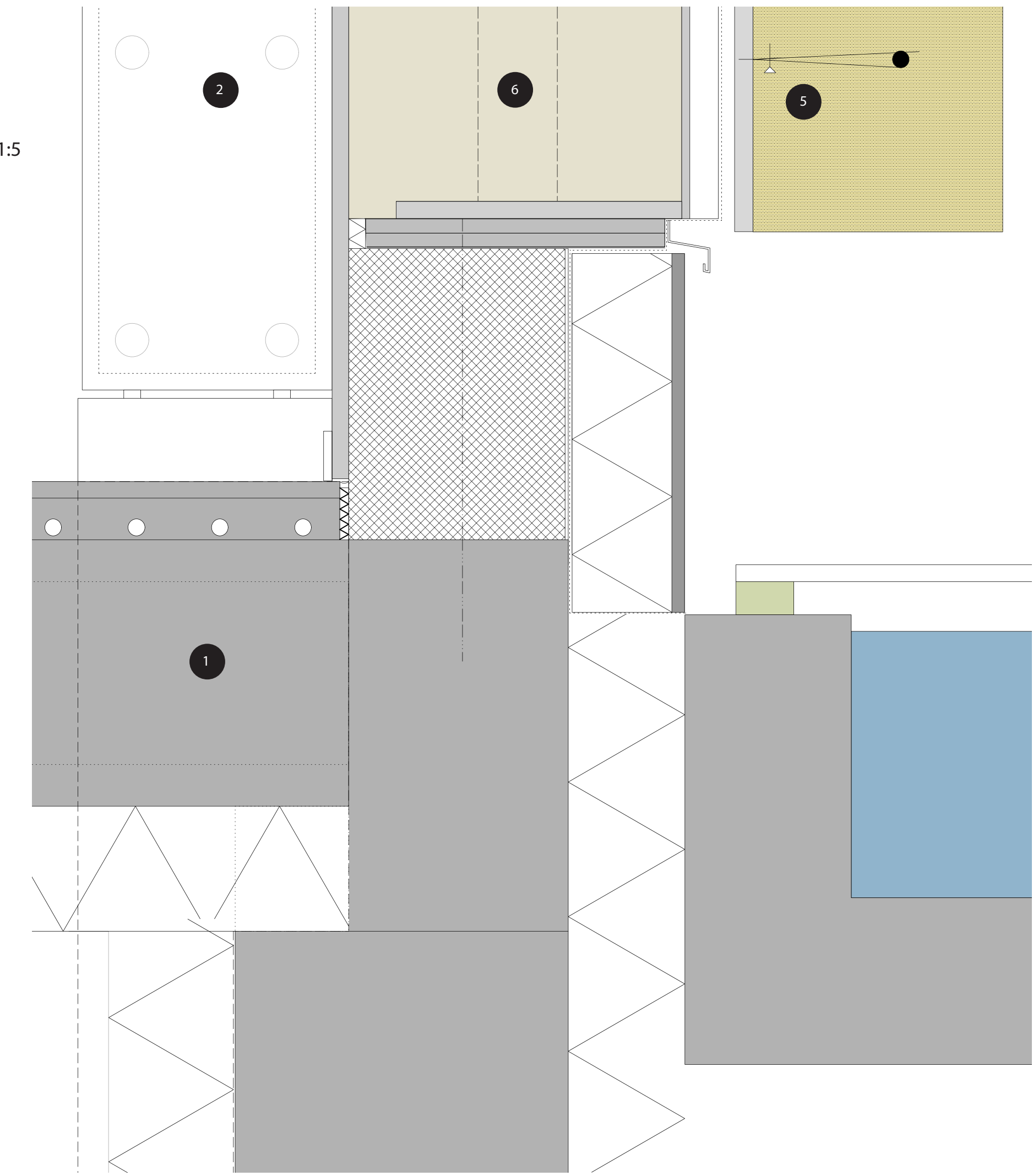
Detail 1:5



Detail 1:5



Section 1:50

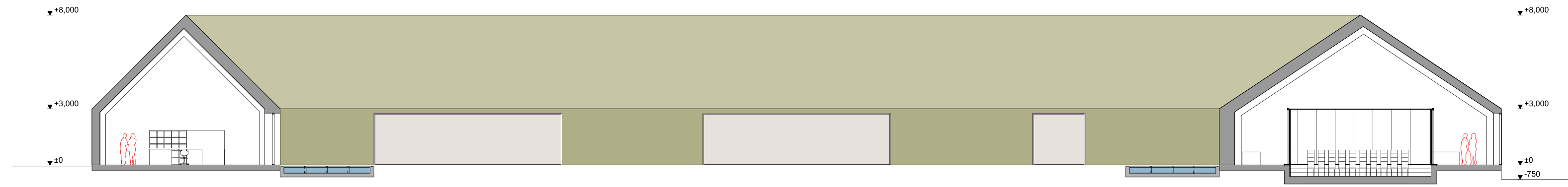


Detail 1:5

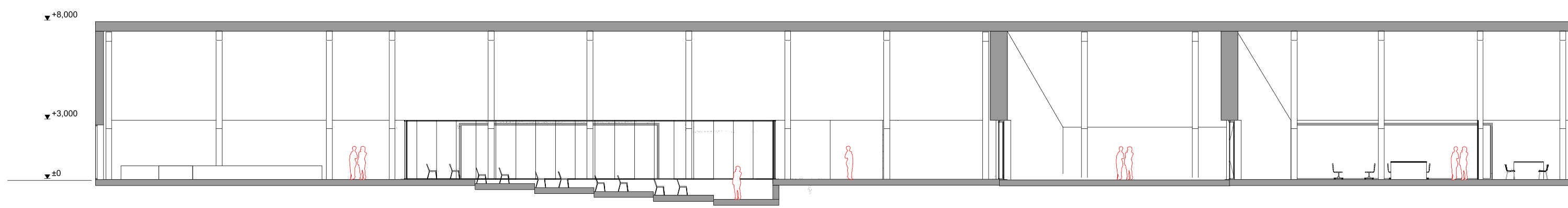
- 1: Hollow core floor slab 320 mm
- 2: Kerto Truss 300x150mm
- 3: Wooden lintel 2x 140x70mm
- 4: Xirton stone 1200x400x50mm
- 5: Miscanthus x Giganteus 300mm
- 6: MxG wall element 700x400 Rc > 6 m2 K / W

**Powerplant
in Parkstad**
VARIOUS

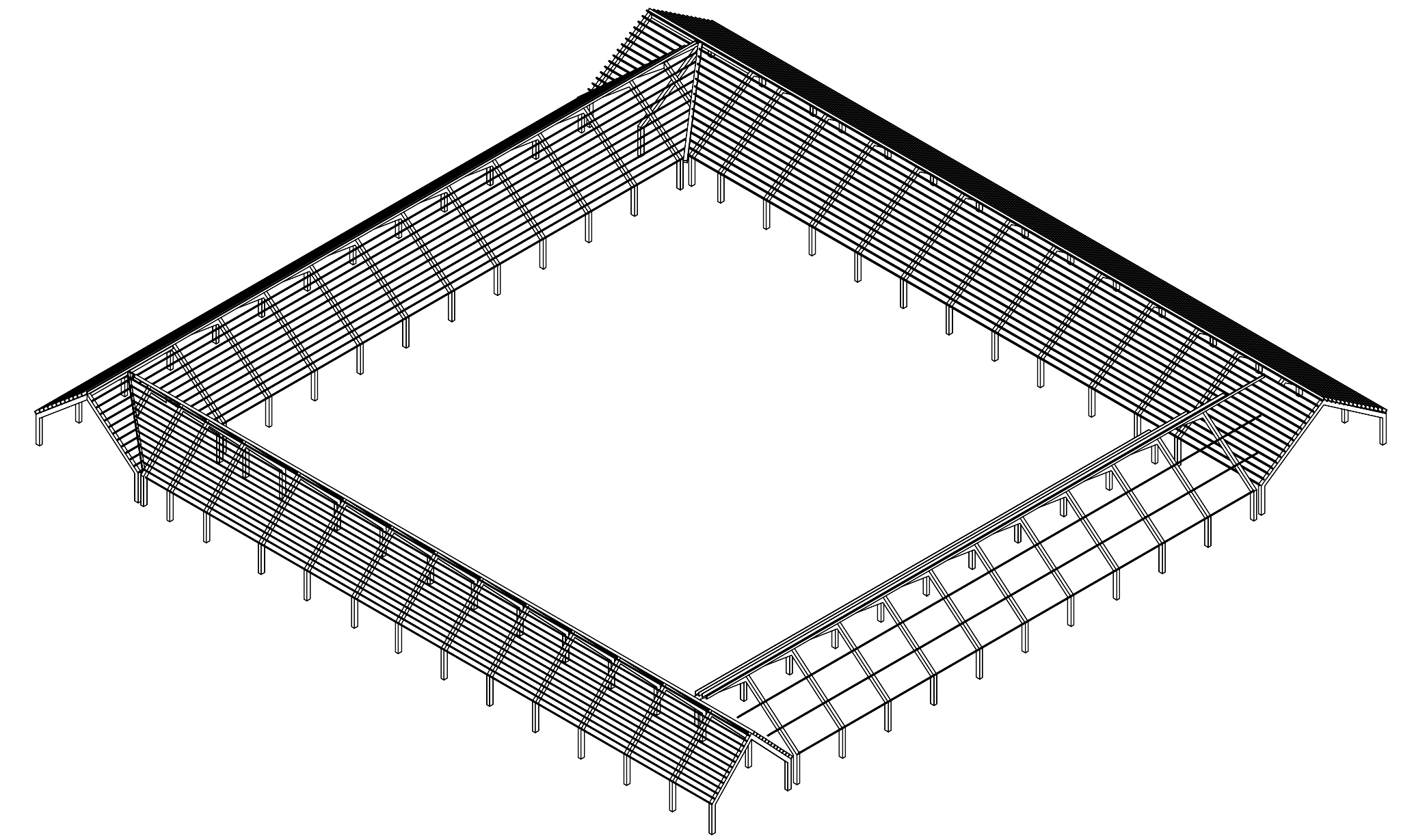
TU Delft / AE / Harvest
Hatto Kienhuis 4430948



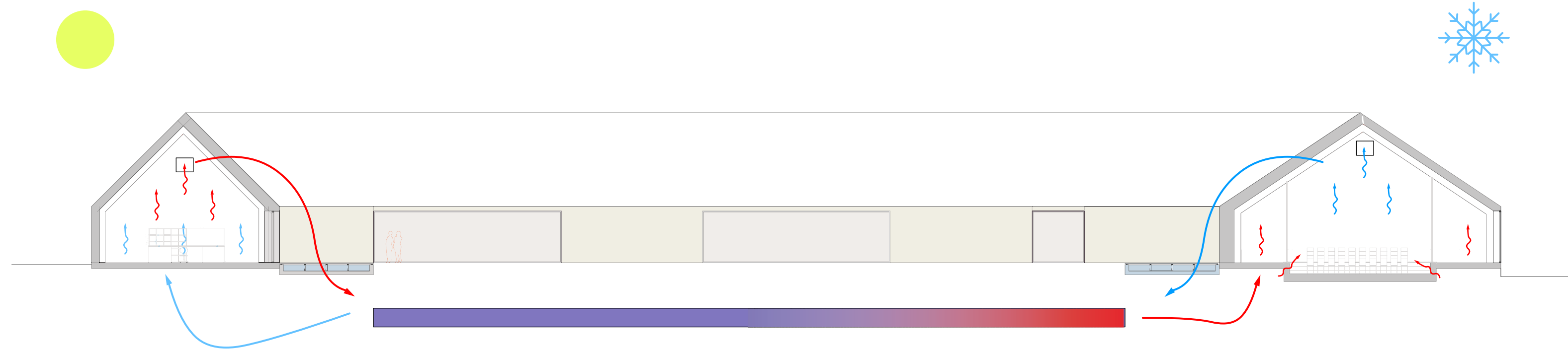
Scale : 1 / 200
Section AA



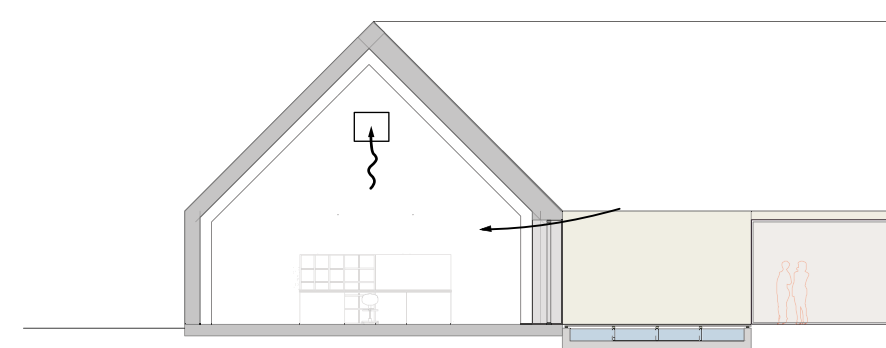
Scale : 1 / 200
Section BB



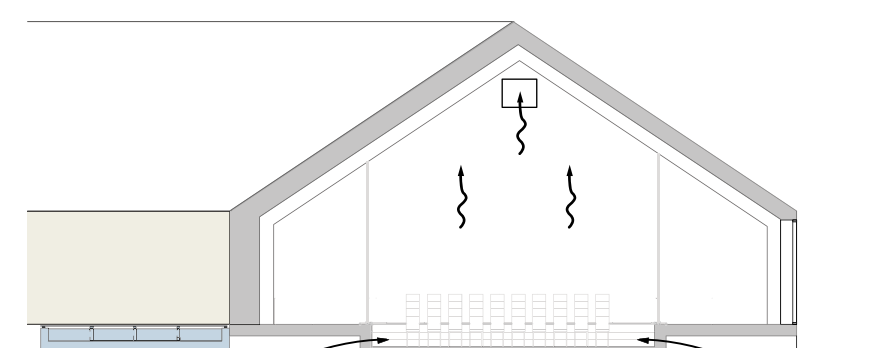
Scale : 1 / 400
Construction axonometry



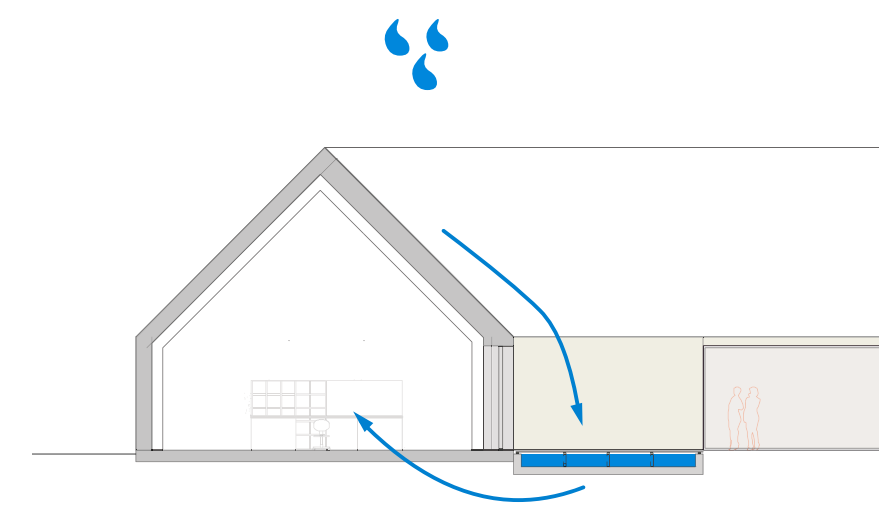
Scale : 1 / 200
Heating
Groundheat exchange



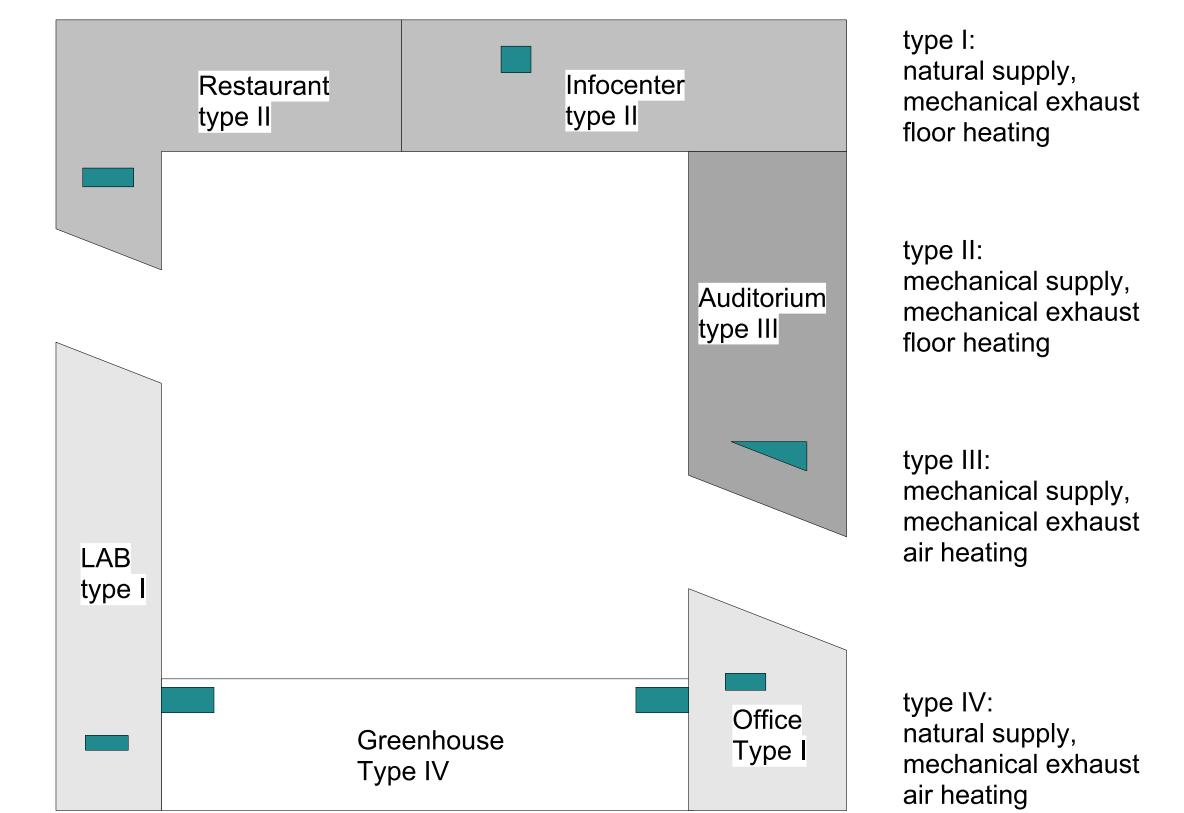
Scale : 1 / 200
Type I
Ventilation
Natural supply
Mechanical exhaust



Scale : 1 / 200
Type II/ III
Ventilation
Mechanical supply
Mechanical exhaust



Scale : 1 / 200
Rain Water storage
Grey water system toilets



4 types of ventilation & heating