

North Sea: Landscapes of Coexistence  
*Transitional Territories Studio 2019-2020*

Building Technology Report

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**HIM and HER**

*How a cognitive and experiential understanding  
of the place can create new meanings for a more  
conscious design action*

**Abstract**

One of the main themes of the project concerns the mediation between space deriving from the construction system and the spatial theme. Tectonics, in fact, is a fundamental theme of the compositional process. The construction system is the ontological part of an architecture, it is the first thing that the individual perceives of a building.

The whole compositional process is a continuous mediation between tectonic space and ornamental space.

Theoretical approach

## Tectonic value of Architecture

*"Tektonik referred not just to the activity of making the materially requisite construction, but rather to the activity that raises this construction to an art form. . . . The functionally adequate form must be adapted so as to give expression to its function."*

Stanford Anderson, *"Towards a Critical Regionalism: Six Points for an Architecture of Resistance"*  
by Kenneth Frampton, 1983



The composition of spaces, especially the buffer zone, took place through a continuous mediation between the Tectonic Space, or the space deriving from the construction system and the Ornamental Space, or the spatial theme, the labyrinth.

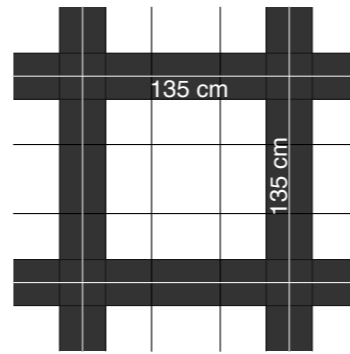
To implement this mediation I used a 45cm X 45cm matrix grid.

From this matrix derive the grid of the IPE beam roof and the grid I used to configure the interior spaces and furnishings.

Changing the matrix will change the architectural space too. The matrix I decided to use is the best suited to the spatial experience that I wanted to obtain.

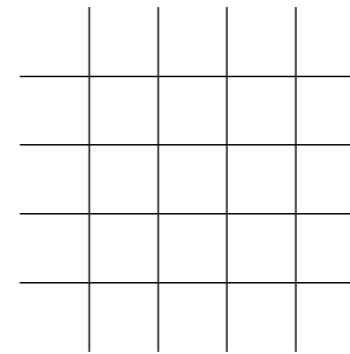
### Her | Tectonic and Space mediation

beams grid | buffer zone



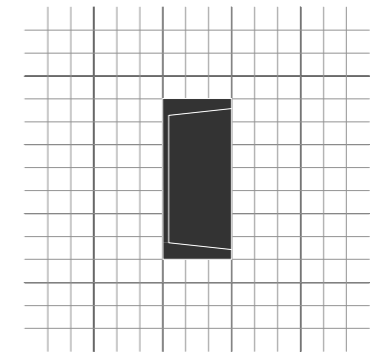
135 cm x 135 cm

matrix

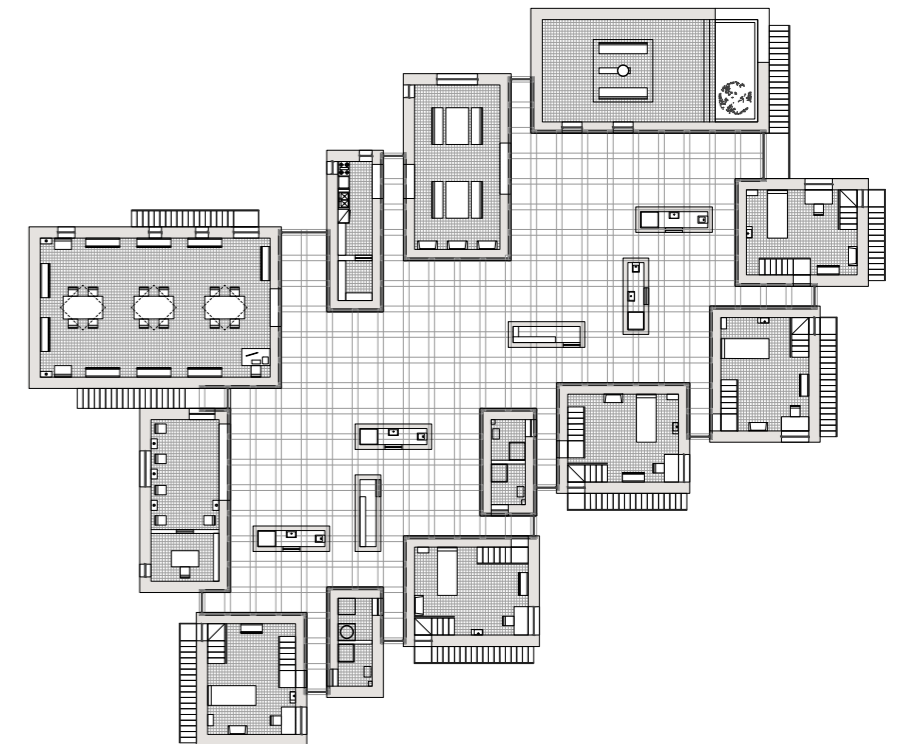
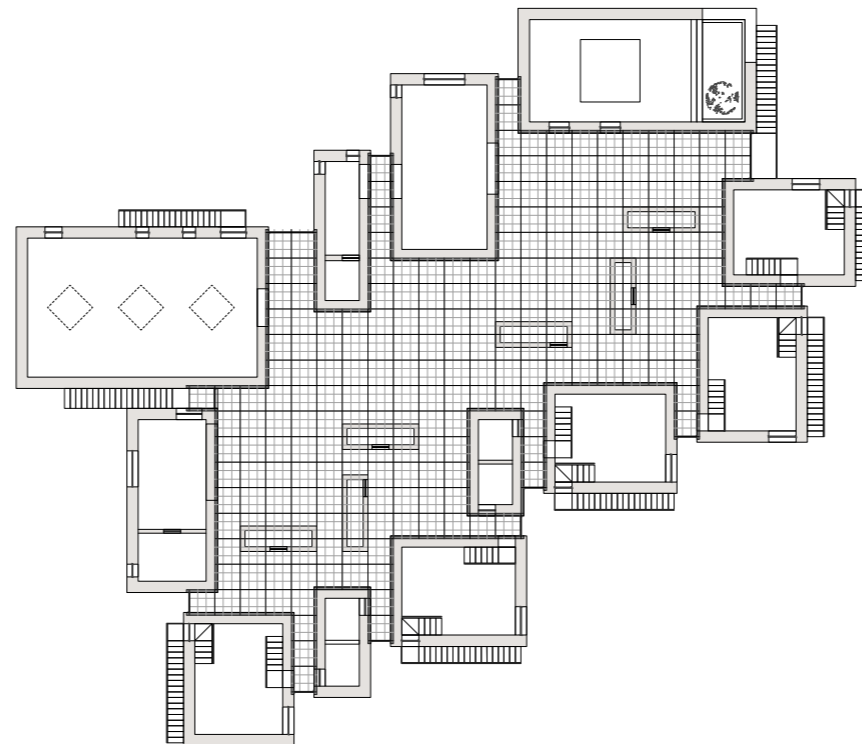
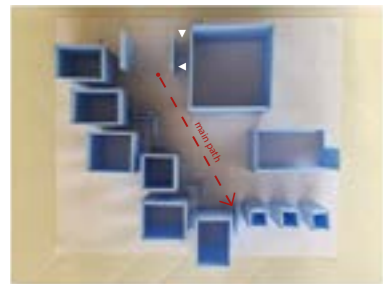


45 cm x 45 cm

fornitures grid | internal spaces



15 cm x 15 cm



Her | Project

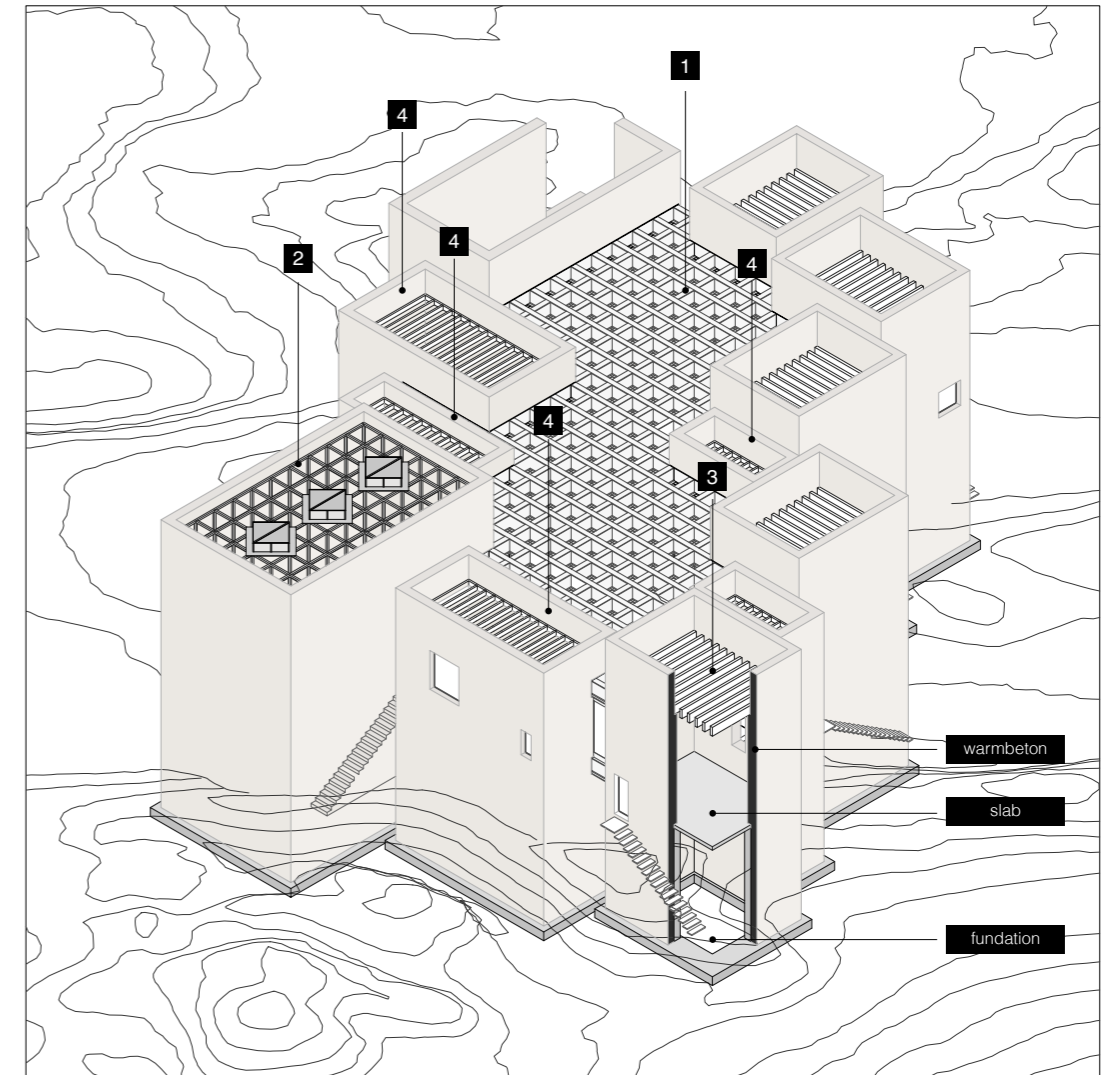
## Constructive system

The construction system of the entire building includes deep foundations, 60cm thick walls in warmbeton, slabs as floors and four different types of roofing.

The different types of roofs are not a purely formal choice.

In fact, they differ from the roof of the buffer zone, so as to give the internal spaces a tactile quality useful for making the internal space perceive as a space of being. In contrast to the buffer zone space which is perceived as the passage space. If the roofs of the interior spaces are made of wood, the space of the buffer zone is made of steel. Each of the materials have their own formal language. This language will have the “task” of inducing certain “sensations” to the user.

## Her | Constructive system



## Her | Constructive system

Warmbeton is an ultralight thermal insulation concrete, which can be used for structural applications.

- Thermal conductivity of  $0.13 \text{ W} / (\text{m} \cdot \text{K})$ ,
- Compressive strength above 10 MPa.

A 45 cm thick wall made with Warmbeton achieves a thermal resistance of  $3.5 \text{ m}^2 \cdot \text{K} / \text{W}$ .

Therefore, it is particularly suitable for use walls of complete buildings, allowing rapid construction without the need for other insulating materials or load-bearing sections.

Warmbeton is suitable for various architectural constructions, offering the possibility of monolithic facades, eliminating the risk of creating thermal bridges.

*Data: [www.warmbeton.nl](http://www.warmbeton.nl)*

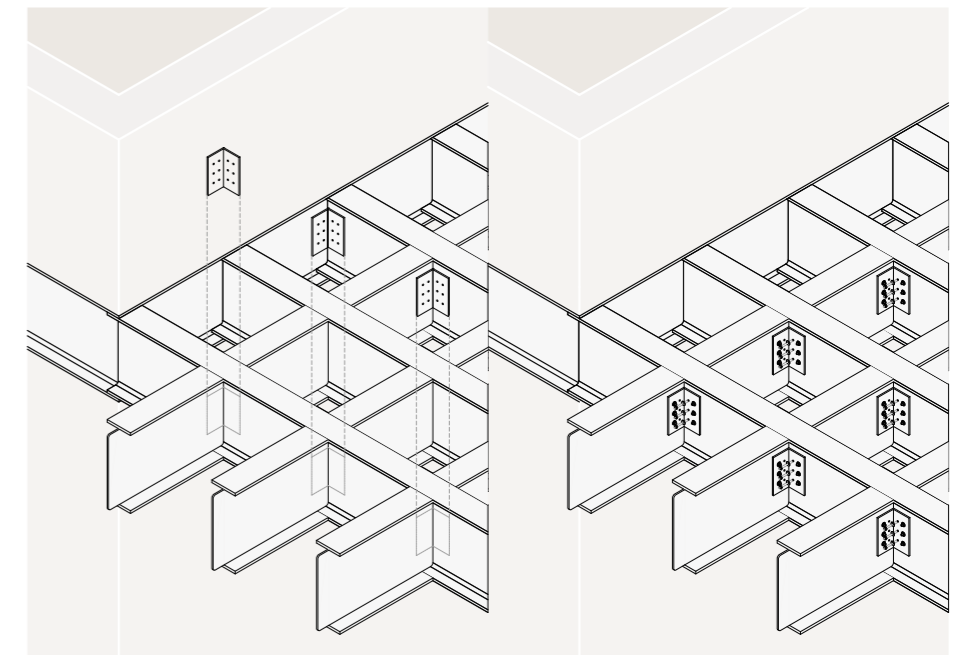
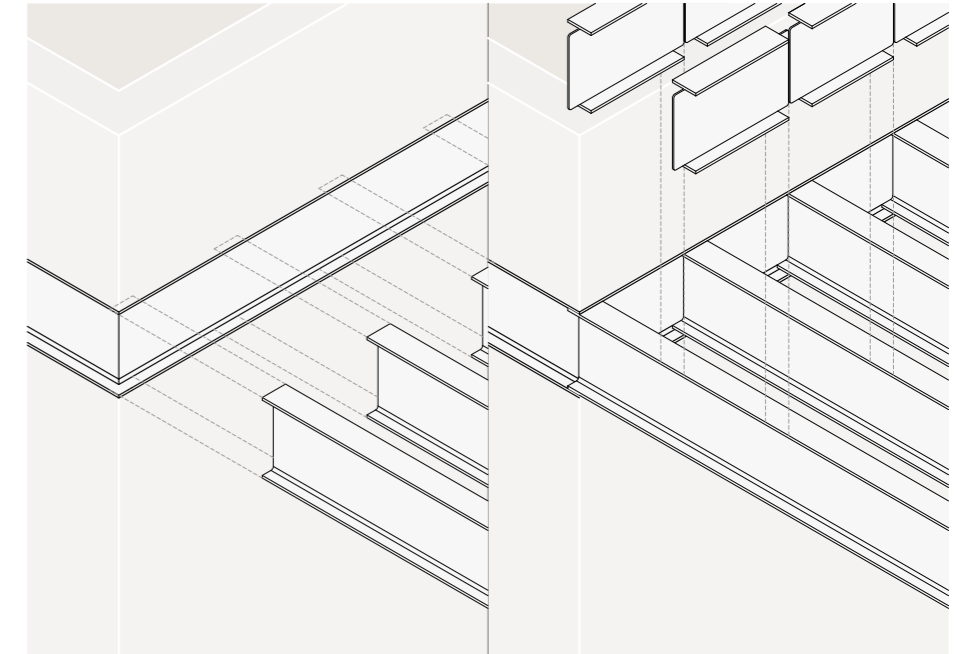




The joint between the wall and the IPE beam was designed thinking to a scratch on the surface of the wall. It allows the insertion of a C-beam on which the IPE beams rest, creating the two floors of the buffer zone.  
 The IPE beam grid consist of two orders of beams connected by bolting.



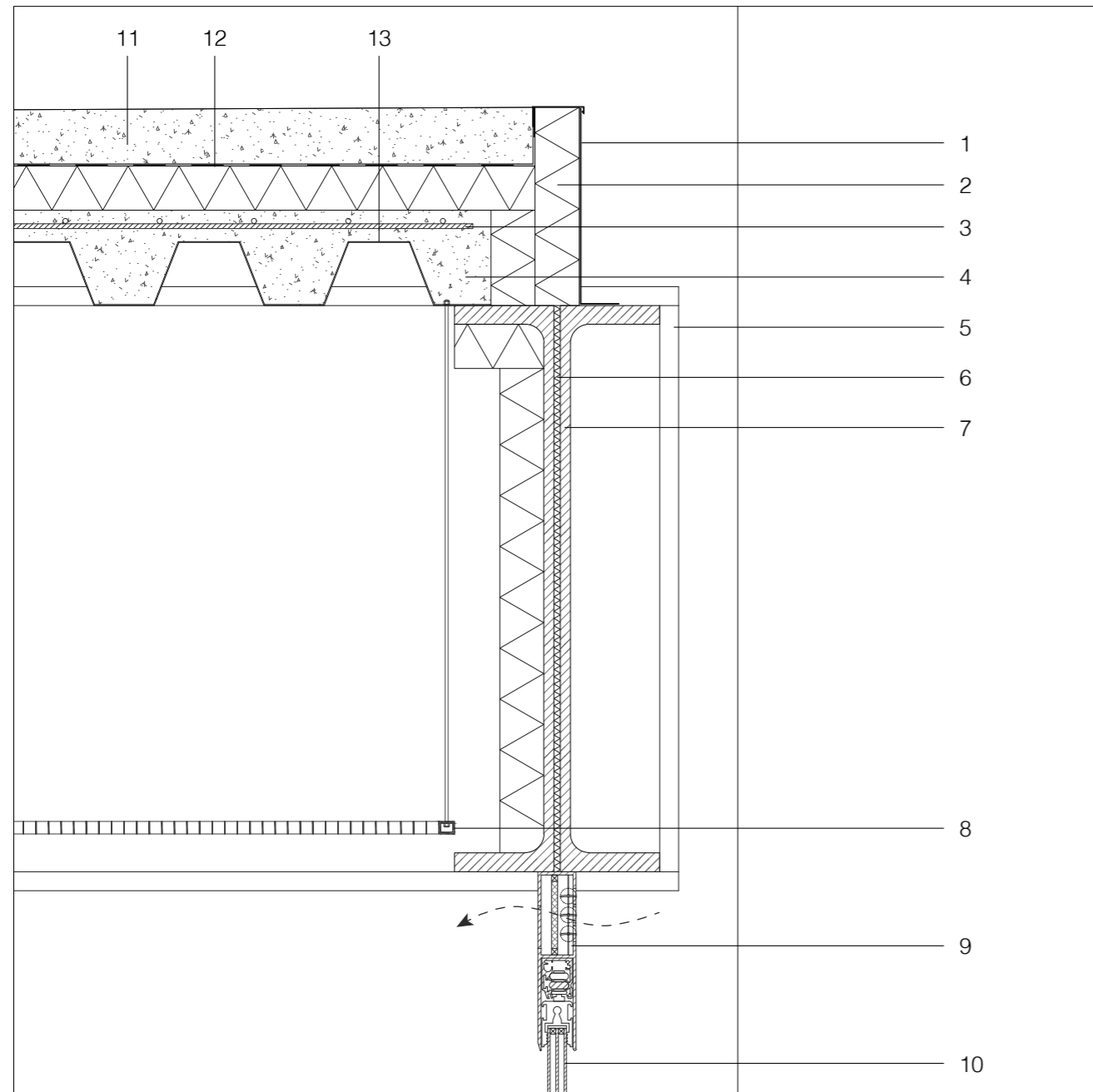
**Her | Constructive system**



**IPE 900 beam**



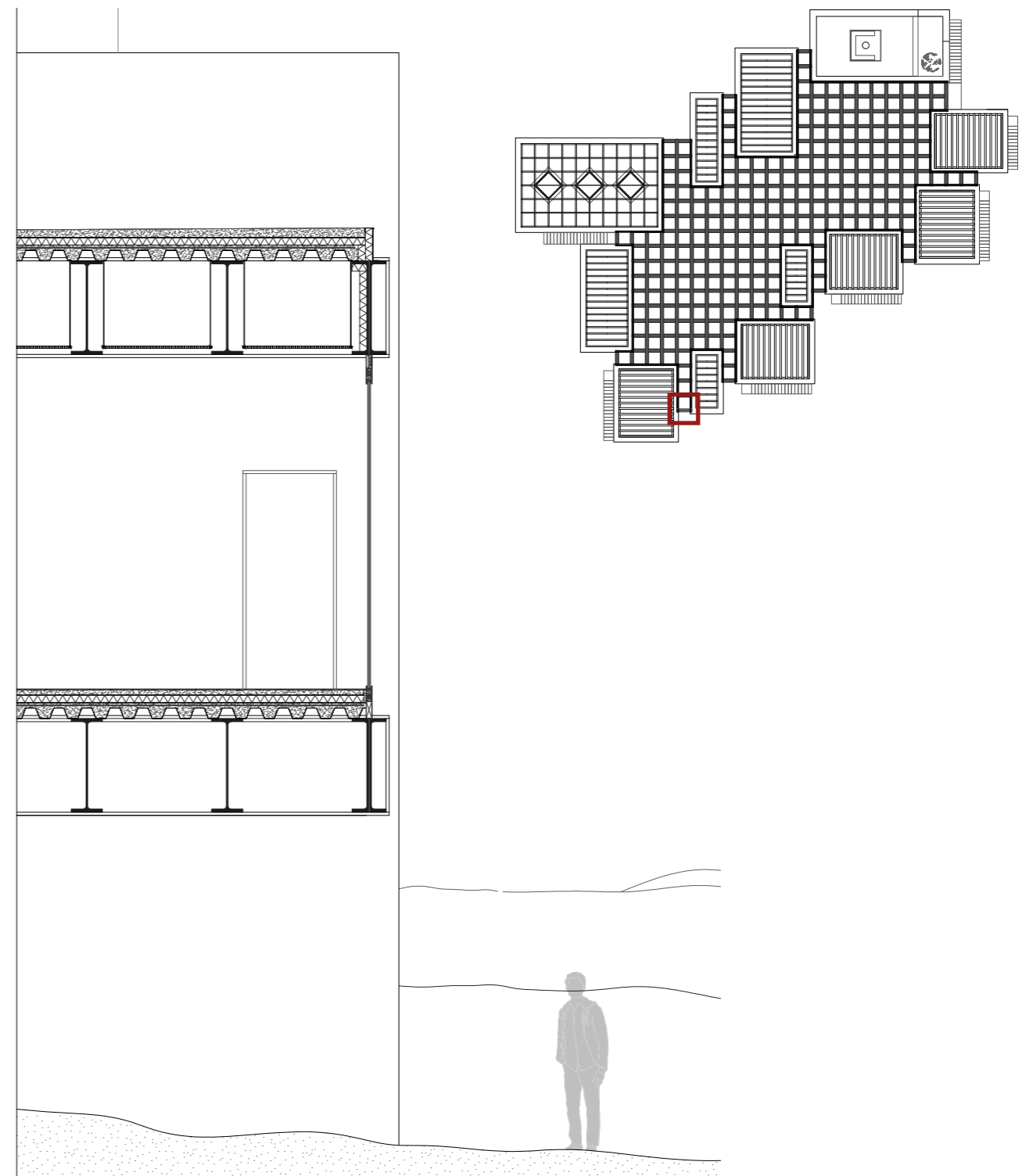


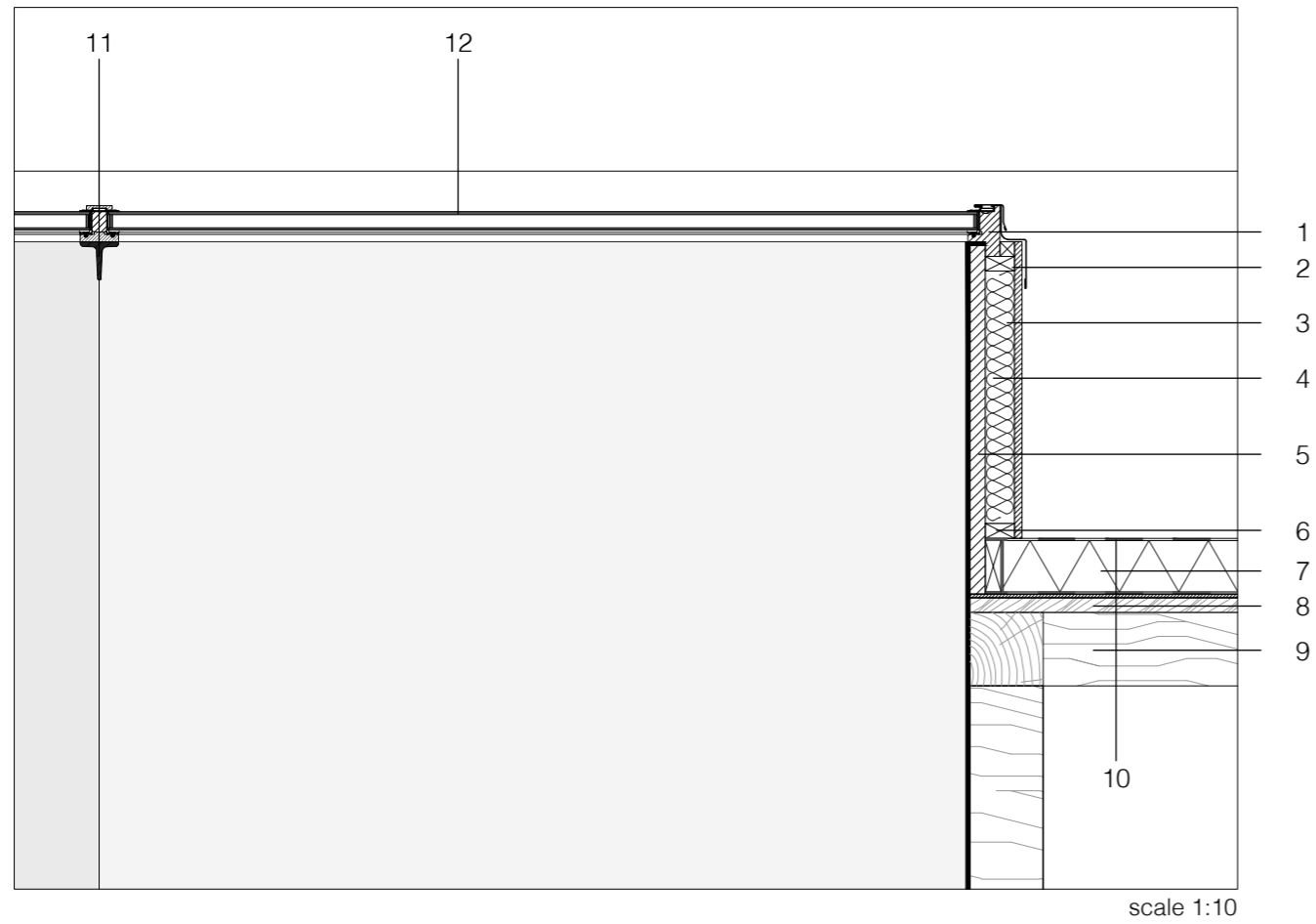


scale 1:10

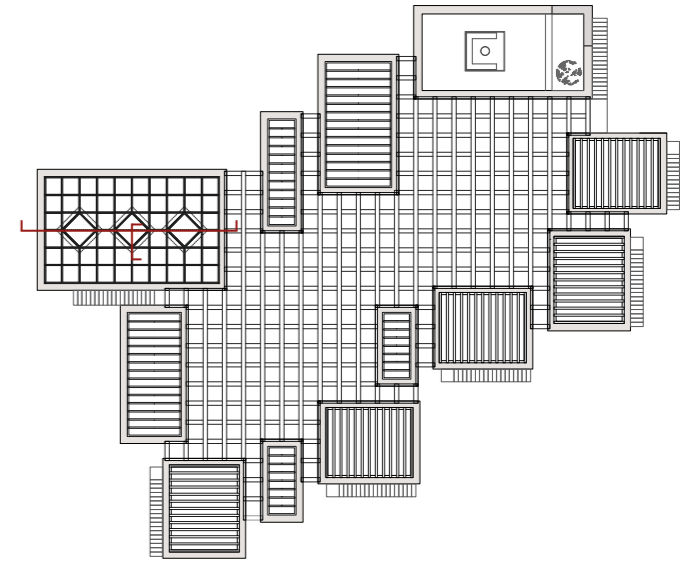
- |  |   |
|--|---|
| 1 metal sheet for floor covering t: 1,5 mm | 8 countertop                                  |
| 2 thermal insulation, t: 80 mm             | 9 fixed frame with air intake for ventilation |
| 3 electro-welded mesh, 200mm x 200mm       | 10 triple glass                               |
| 4 concrete casting                         | 11 concrete screed (pendence 2%)              |
| 5 closing plate (steel C-beam)             | 12 waterproof layer t: 3 mm                   |
| 6 Aeropan thermal beam insulation, t: 1 mm | 13 corrugated sheet t: 1,5 mm                 |
| 7 double C-beam h: 900 mm                  |   |

### Her | Constructive system

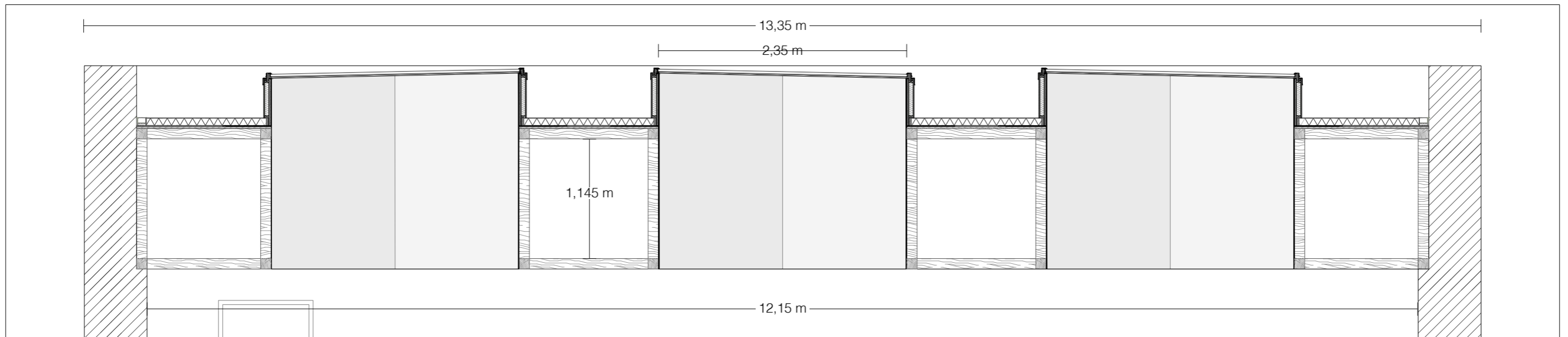




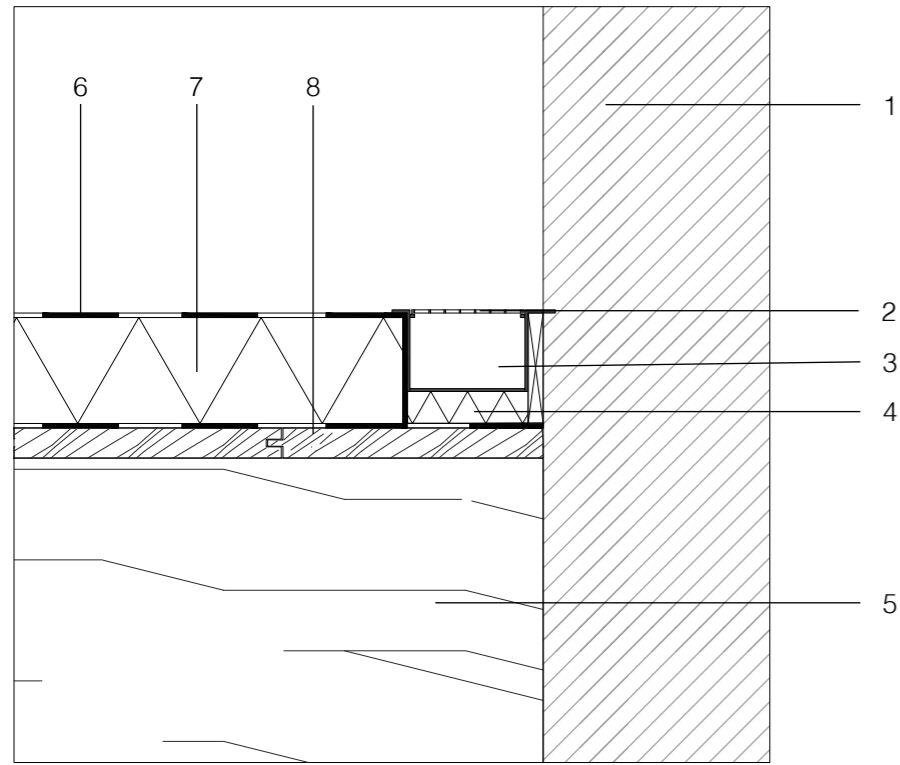
Her | Constructive system



- |   |  |
|---|--|
| 1 sky light frame                             | 7 thermal insulation, t: 80 mm               |
| 2 metal sheet cover, t: 1,5 mm                | 8 wooden lath, t: 20 mm                      |
| 3 metal panel cover, t: 10 mm                 | 9 wooden beam (pine wood) s; 100 mm x 100 mm |
| 4 thermal insulation, t: 40 mm                | 10 waterproof layer t: 3 mm                  |
| 5 steel upright skylight supporting, t: 20 mm | 11 T support (skylight divider)              |
| 6 wooden support, t: 30 mm                    | 12 double glass                              |

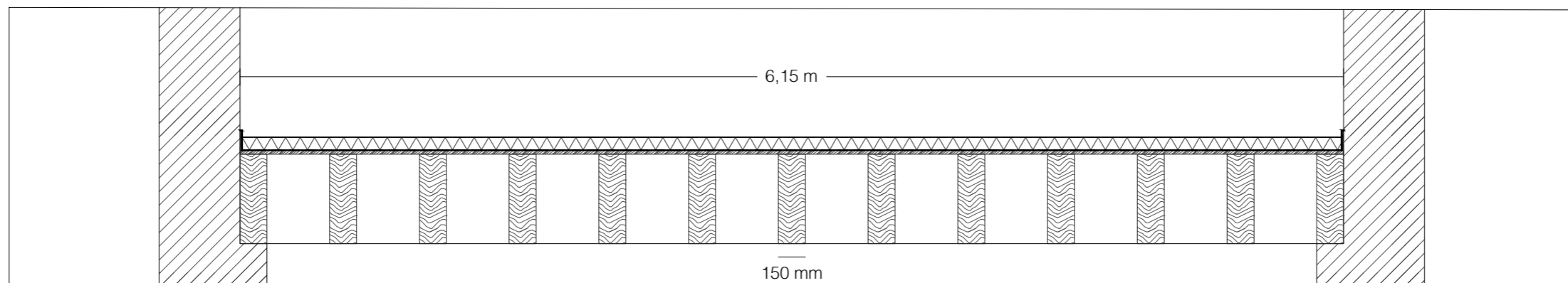
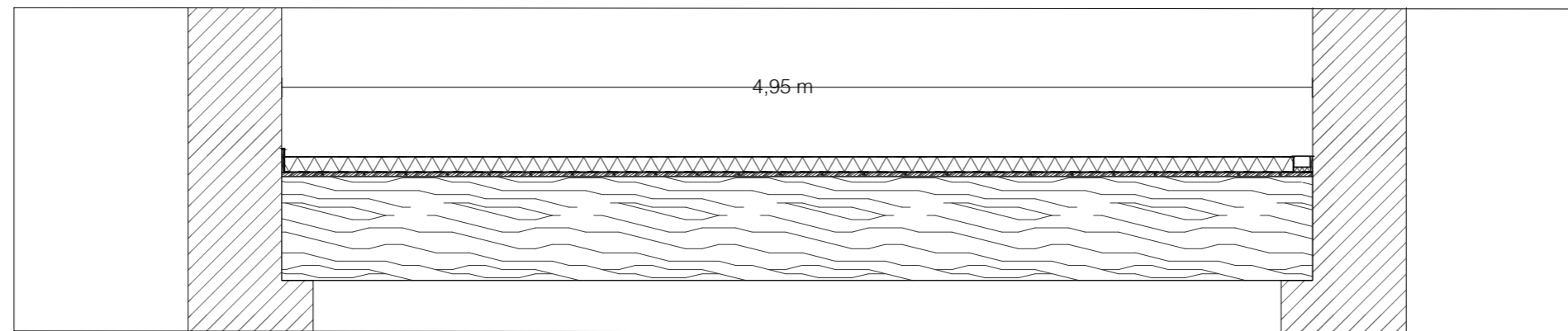
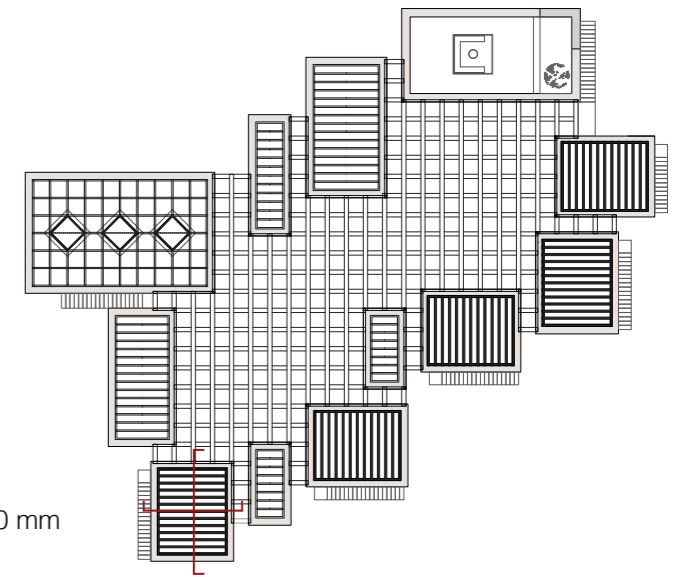


### Her | Constructive system

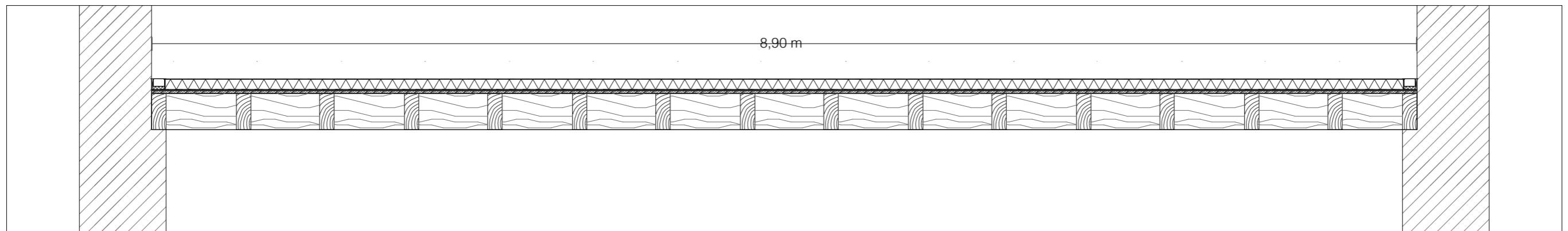
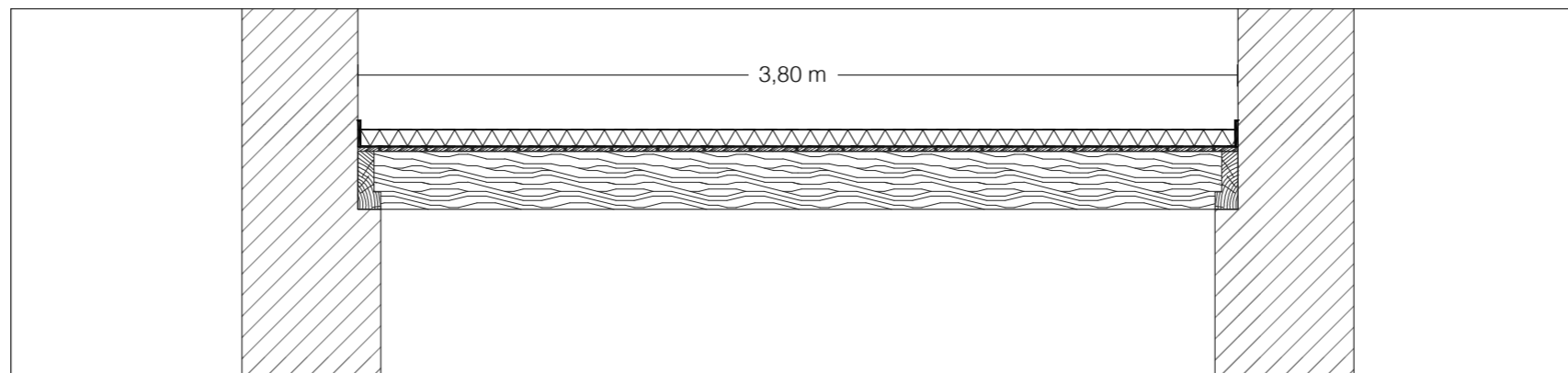
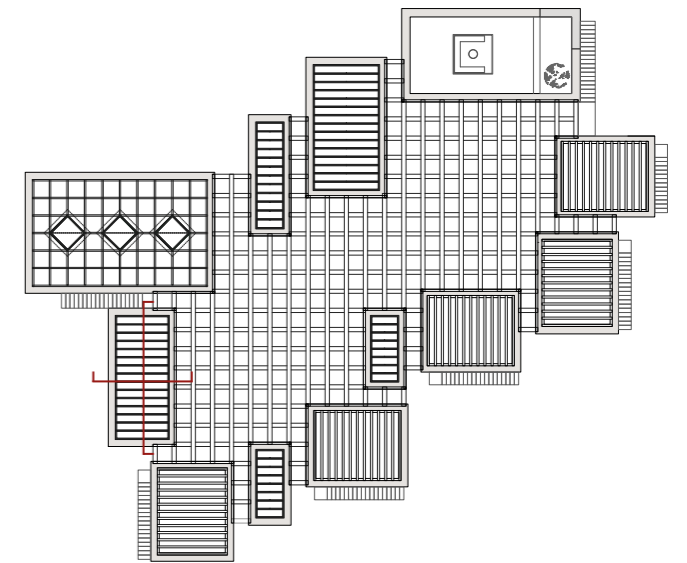
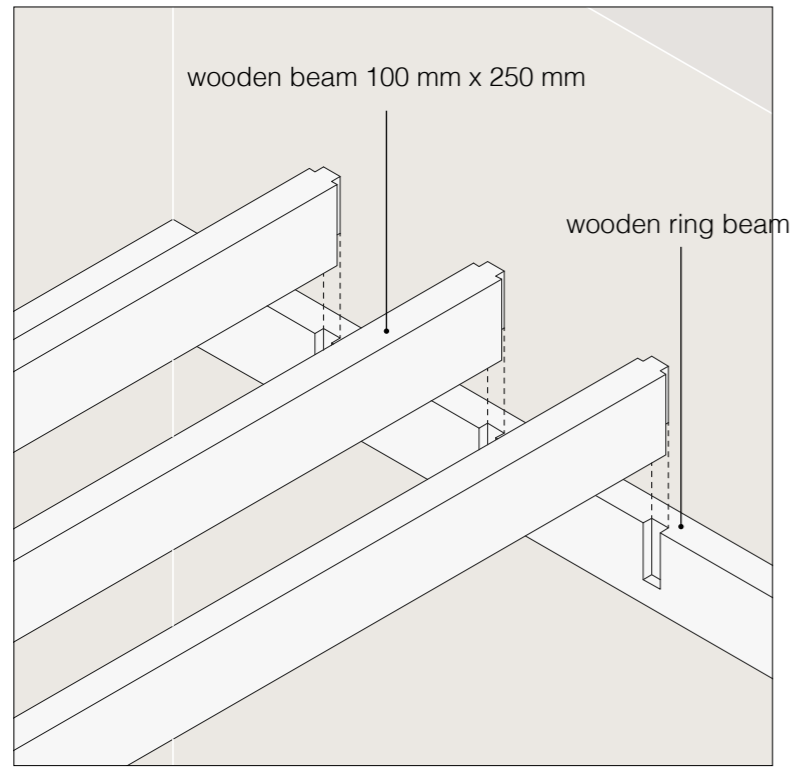


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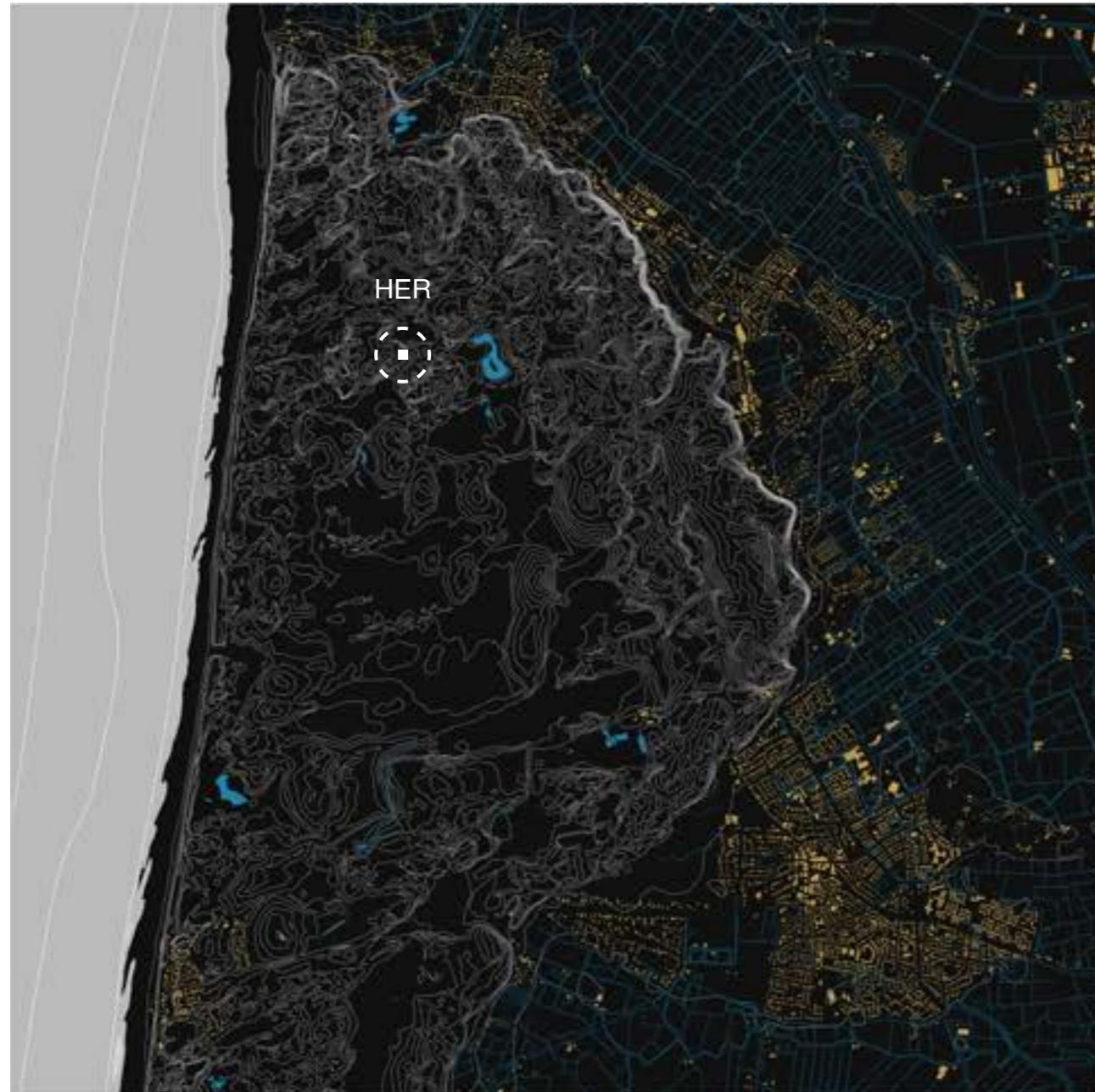
- 1 wall in warmbeton t: 600 mm
- 2 gutter channel
- 3 wooden panel closing floor t: 30 mm
- 4 thermal insulation, t: 35 mm
- 5 wooden beam (pine wood) section 500 mm x 150 mm
- 6 waterproof layer t: 3 mm
- 7 thermal insulation, t: 80 mm
- 8 wooden lath, t: 20 mm



### Her | Constructive system



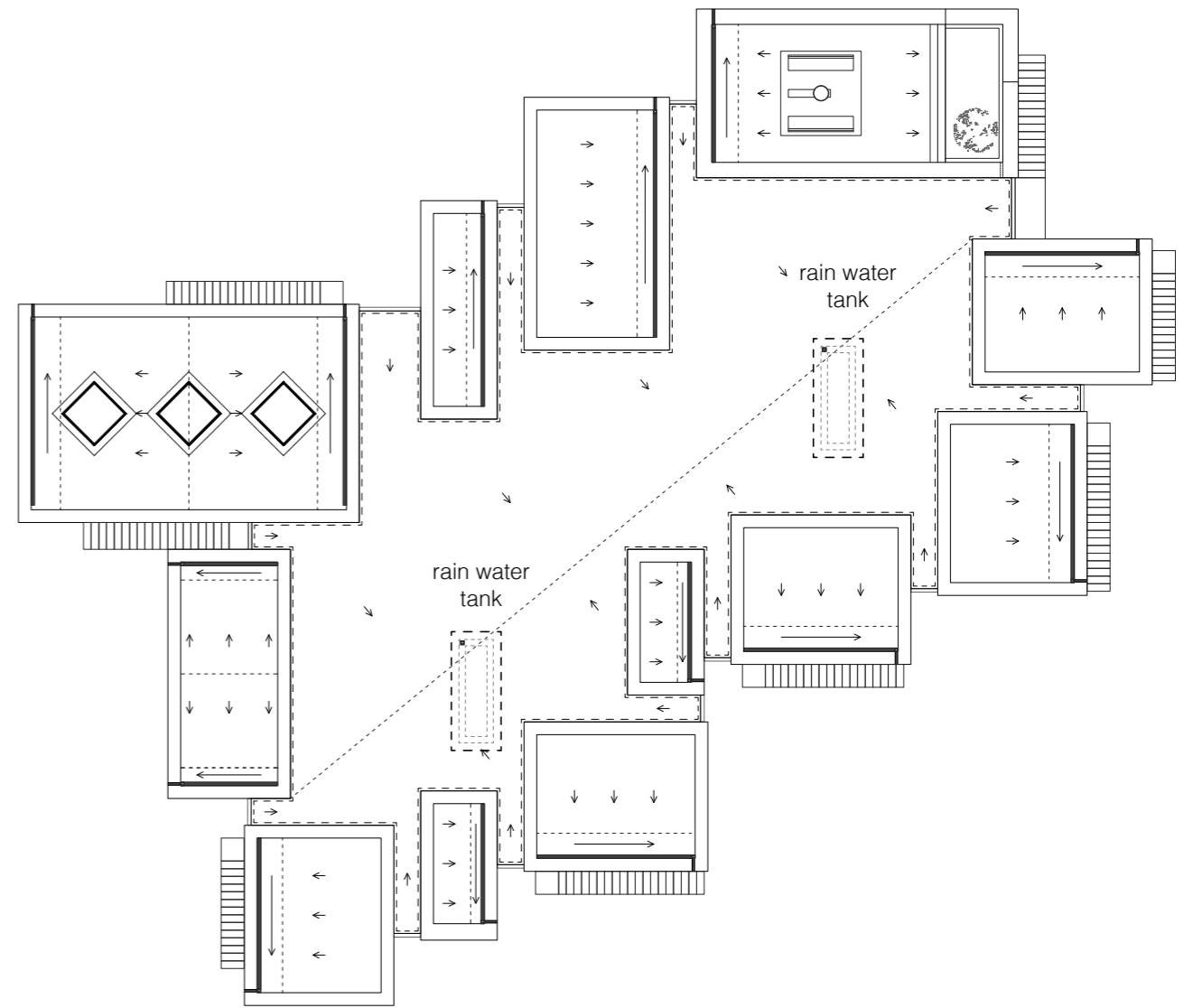
### Infrastructural isolation of the project



- urbanization
- water system

### Her | Water autarchy

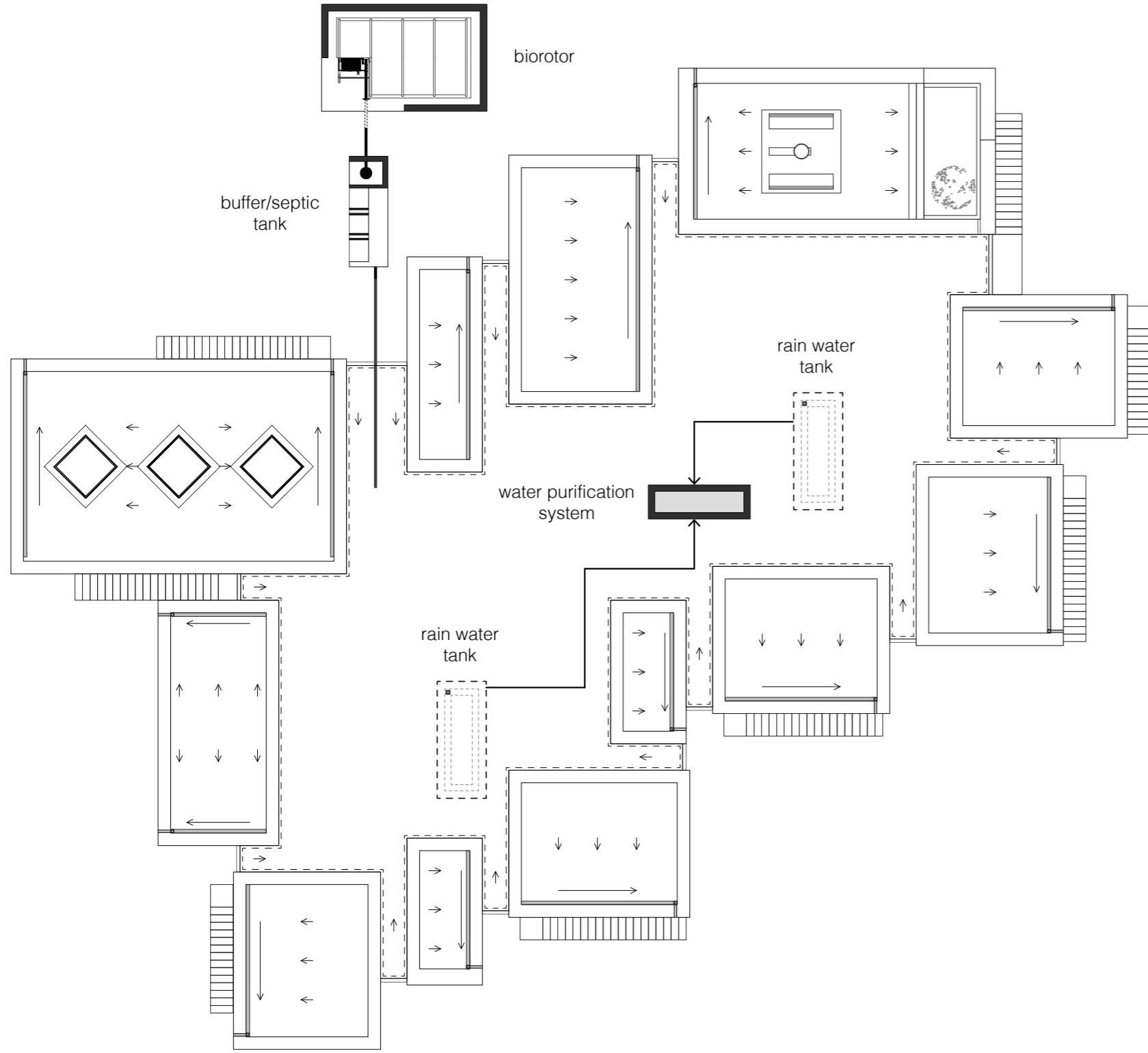
### Rainwater collection scheme



- gutter channel
- rain water tank
- floor inclination

# Her | Water autarchy

## Rainwater and wastewater reuse scheme

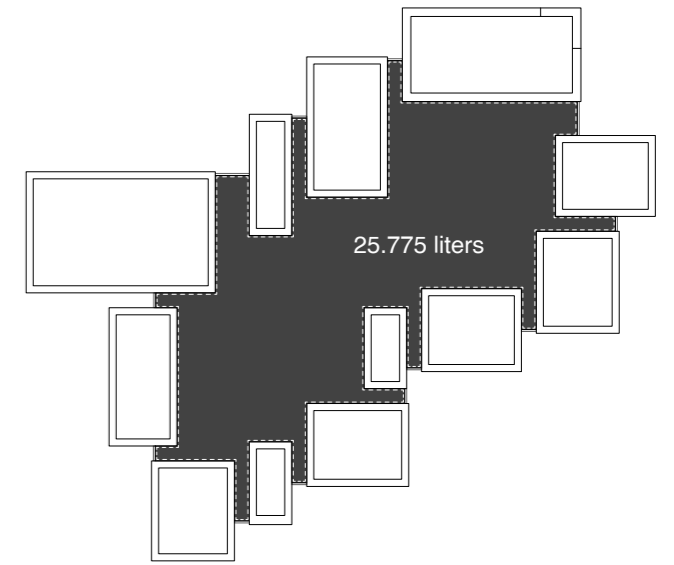


### Annual water need

6.250 liters

### Roof collection capacity

25.775 liters



— gutter channel

→ floor inclination

- - - rain water tank

↓ ↑ water purification system

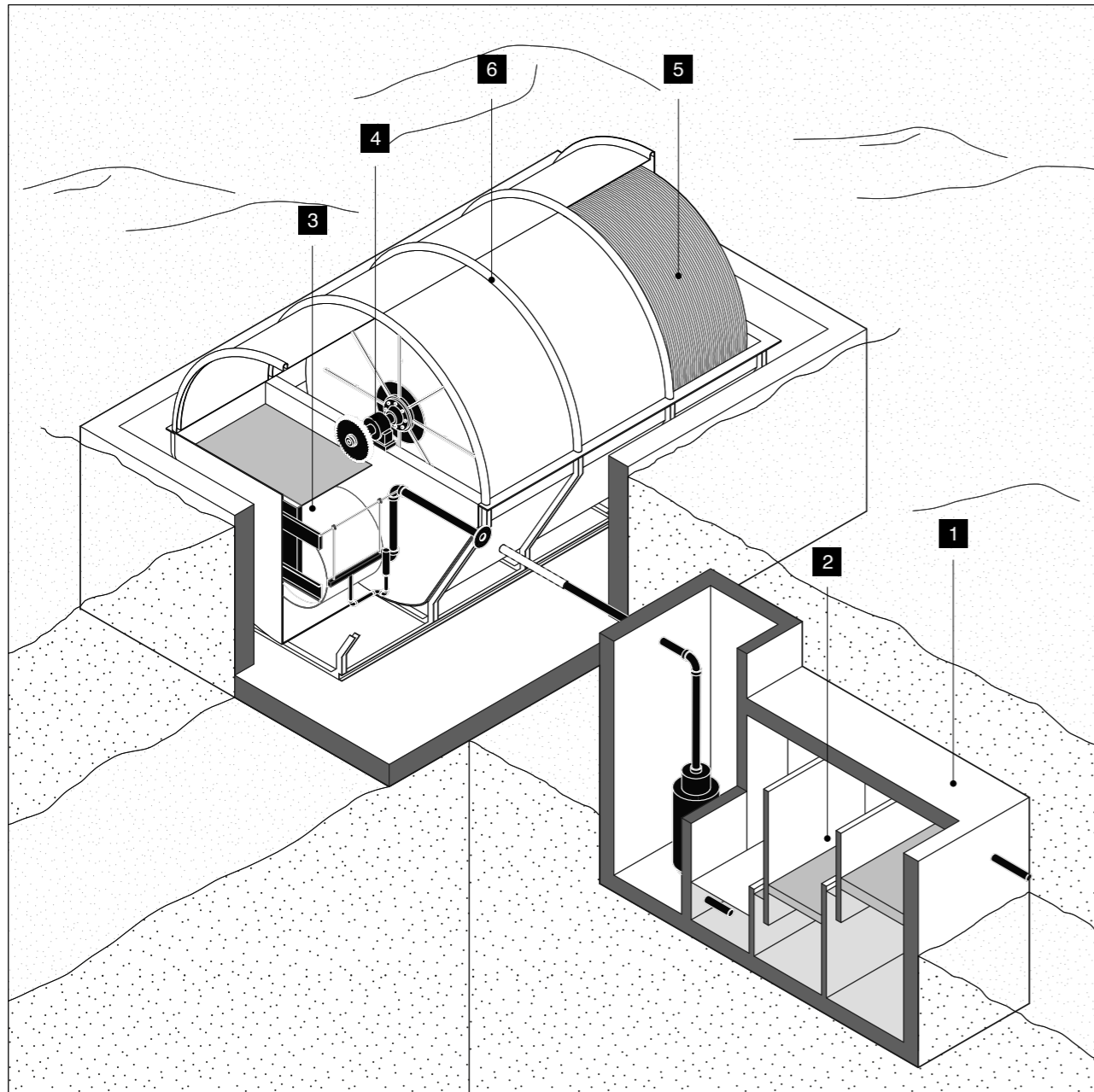
↓ ↑ biorotor

- fresh water
- indoor plant

- water for domestic use
- outdoor plant



## Her | Water autarchy



### Biorotor model M 200-15-1

Small monobloc series. It includes a disc roller complete with tank and cover, both made of glass fiber reinforced polyester. It is an economical and easy to install version. Typical applications:

- condominiums
- villas
- small campsites

**Model**  
M 200-15-1

**Disk  $\varnothing$**   
2,00

**Active surface [m<sup>2</sup>]**  
750

**Dimensions [mm x mm x mm]**  
2,83 x 2,46 x 2,29

**Installed power [kW]**  
0,75

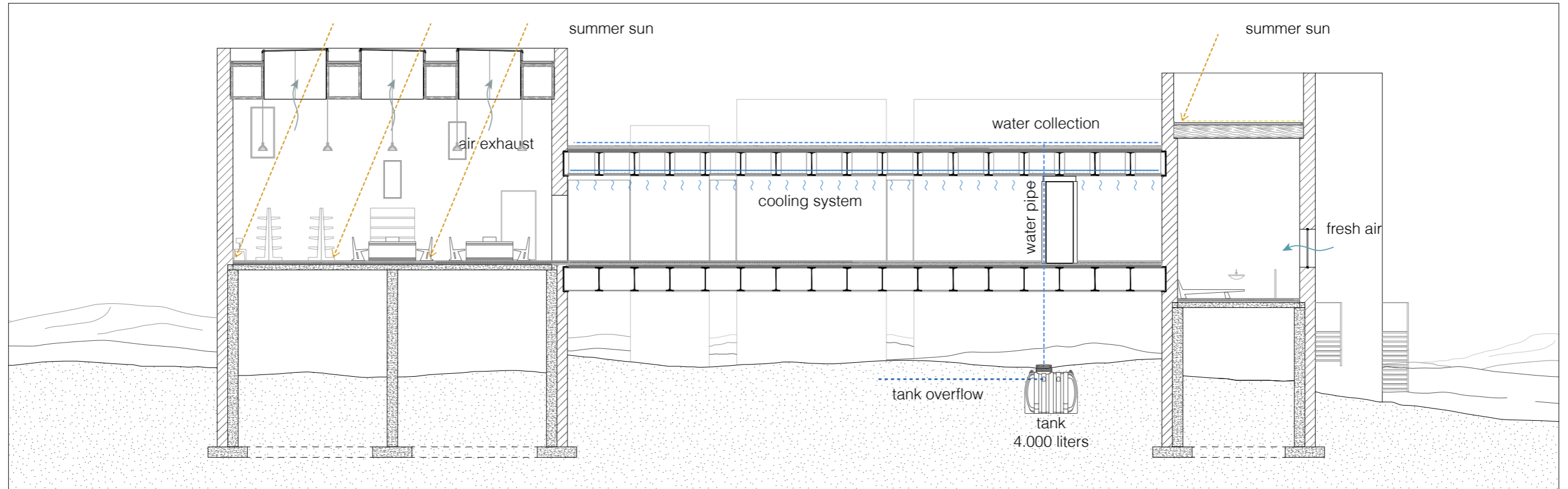
**Absorbed power [kW]**  
0,45

Data: MITA technologies web site

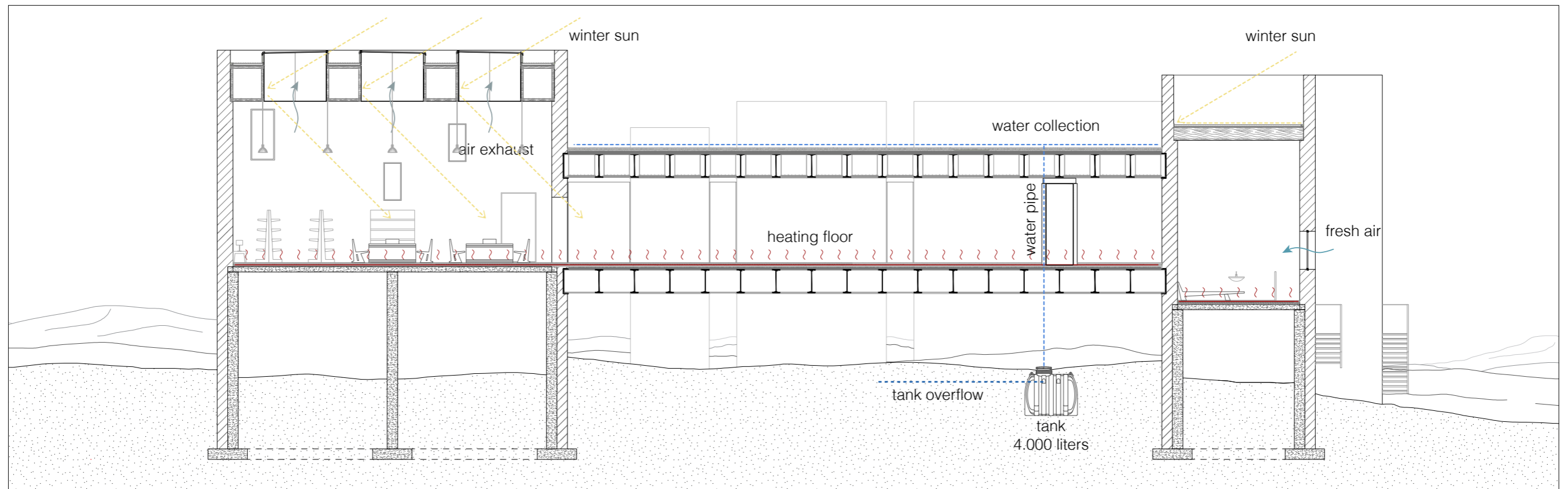
- 1 buffer/septic tank
- 2 elements of sewage separation
- 3 feed pump
- 4 main shaft
- 5 rotating discs
- 6 protective shell in aluminum

### Her | Climate scheme

summer

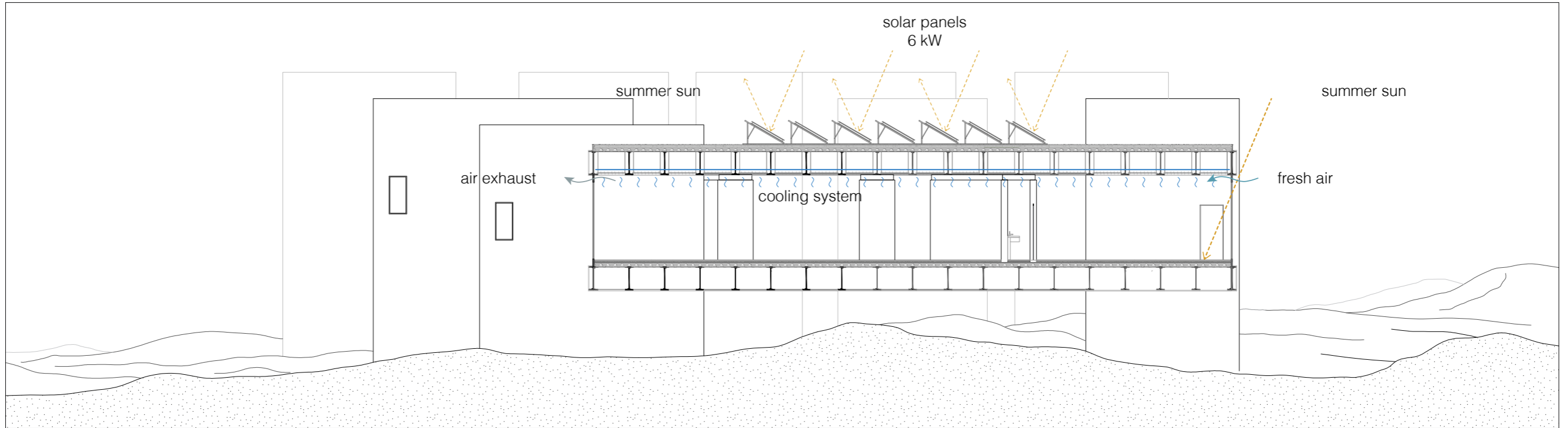


winter

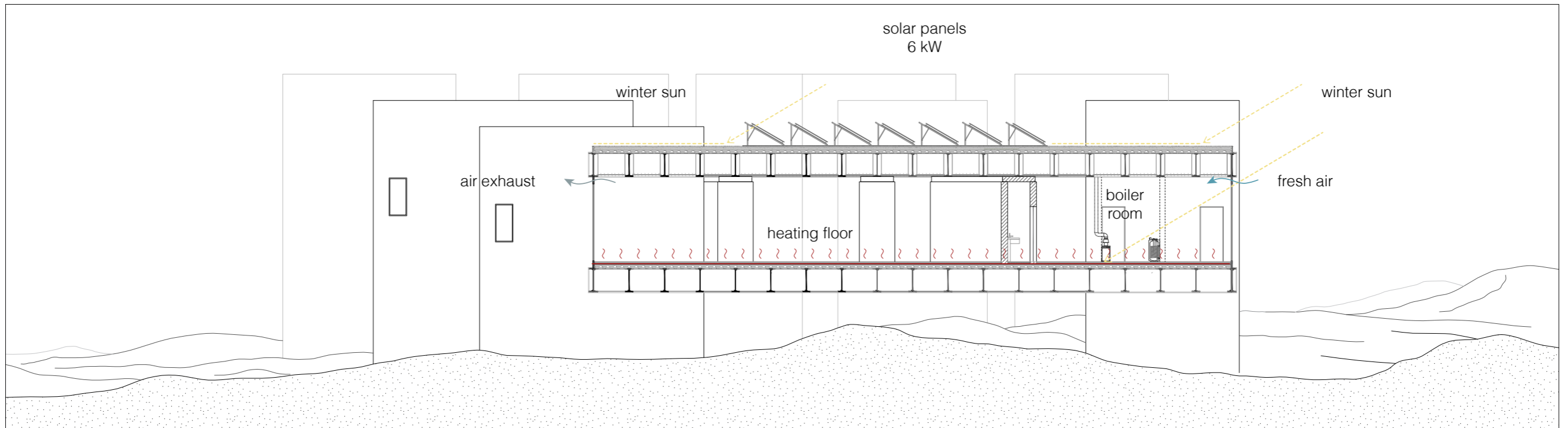


### Her | Climate scheme

summer



winter



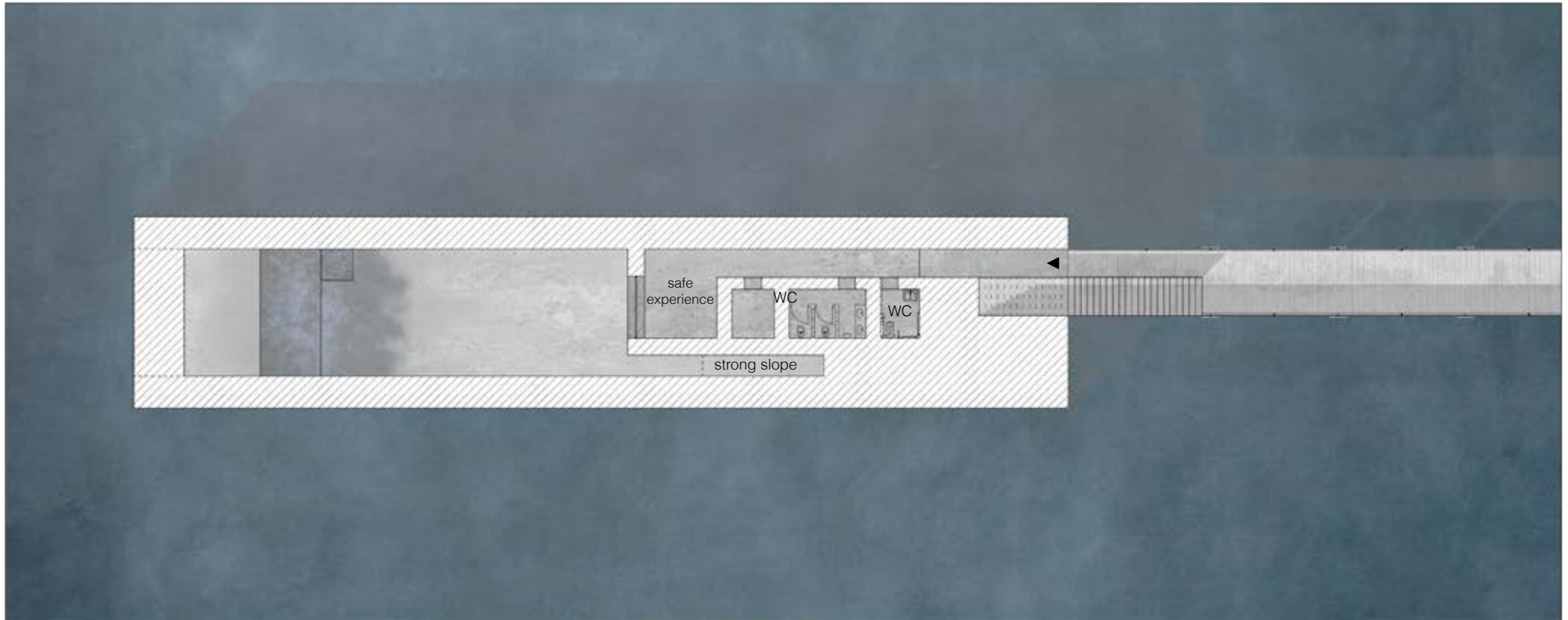
Him | Project

### Denial of tectonics

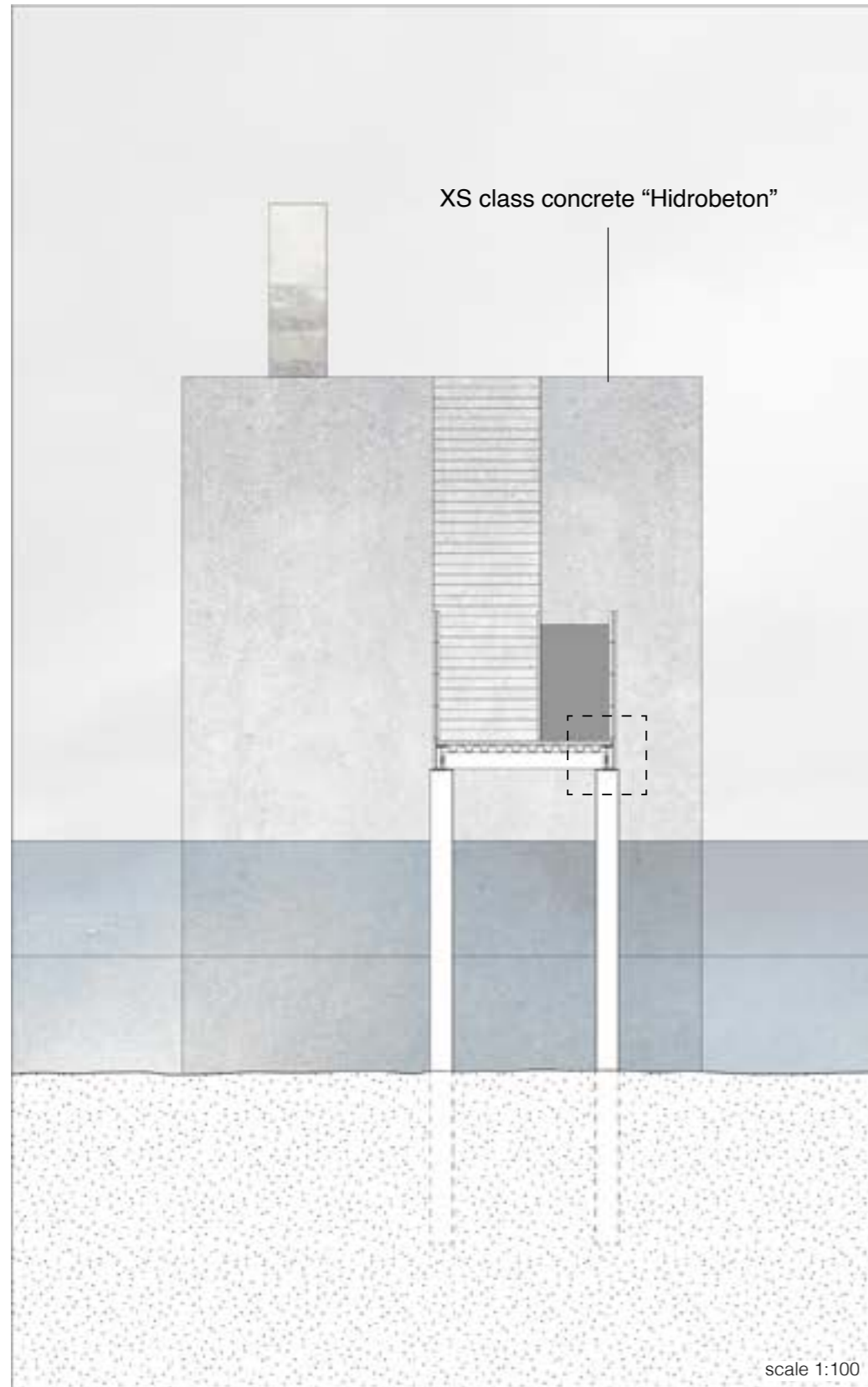
If in Her (in the monastery) tectonics was the theme, or one of the main themes, here in the memorial, this concept is completely denied. The thick concrete walls create a shape that is perceived as a cave. The individual will have difficulty in clearly perceiving the space and will have no constructive reference. He or she will not be able to perceive the "ontological" side of the architectural body.



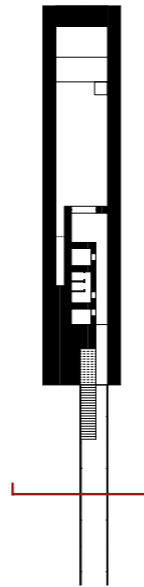
# Him | Constructive system



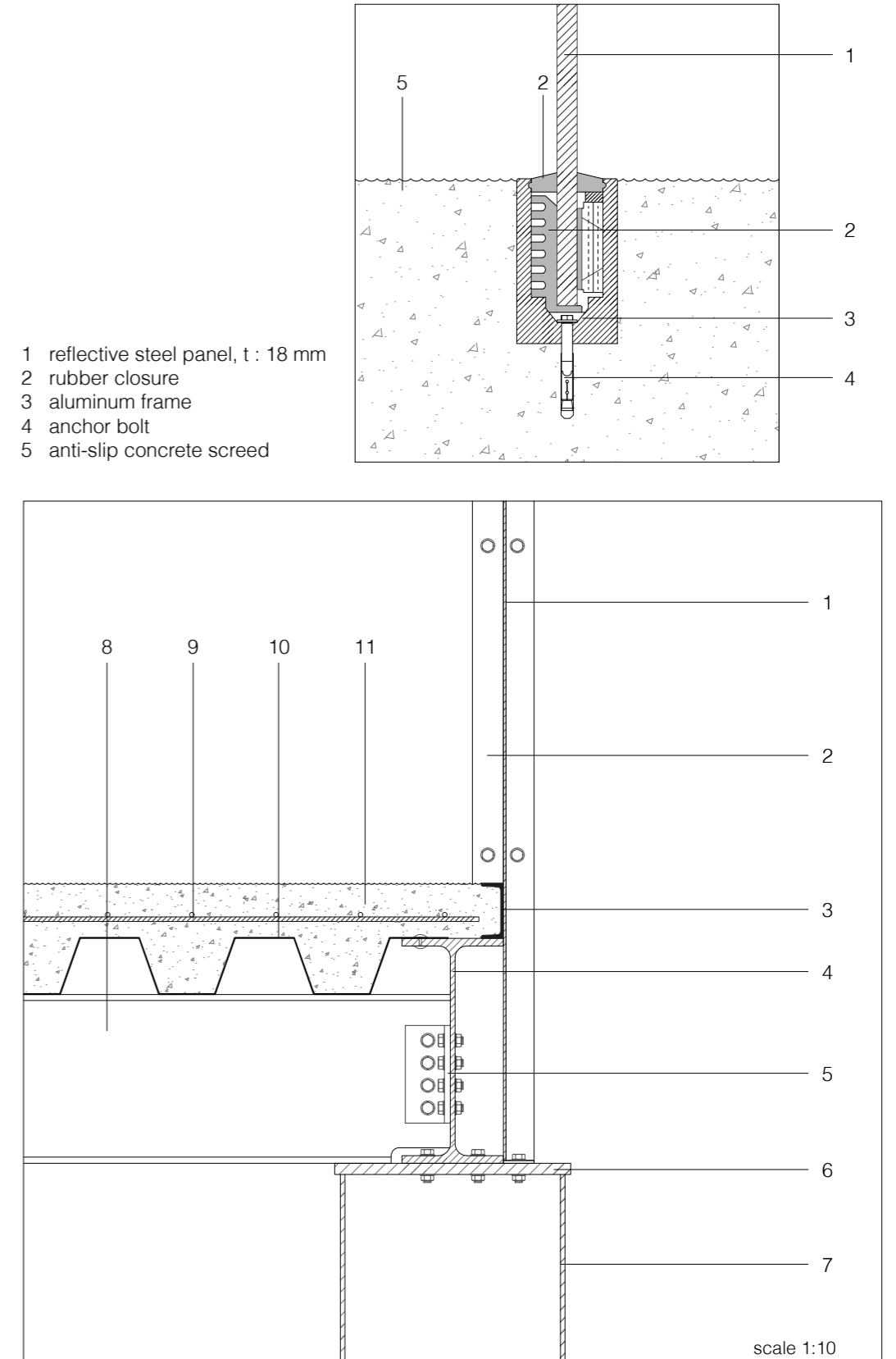
scale 1:200



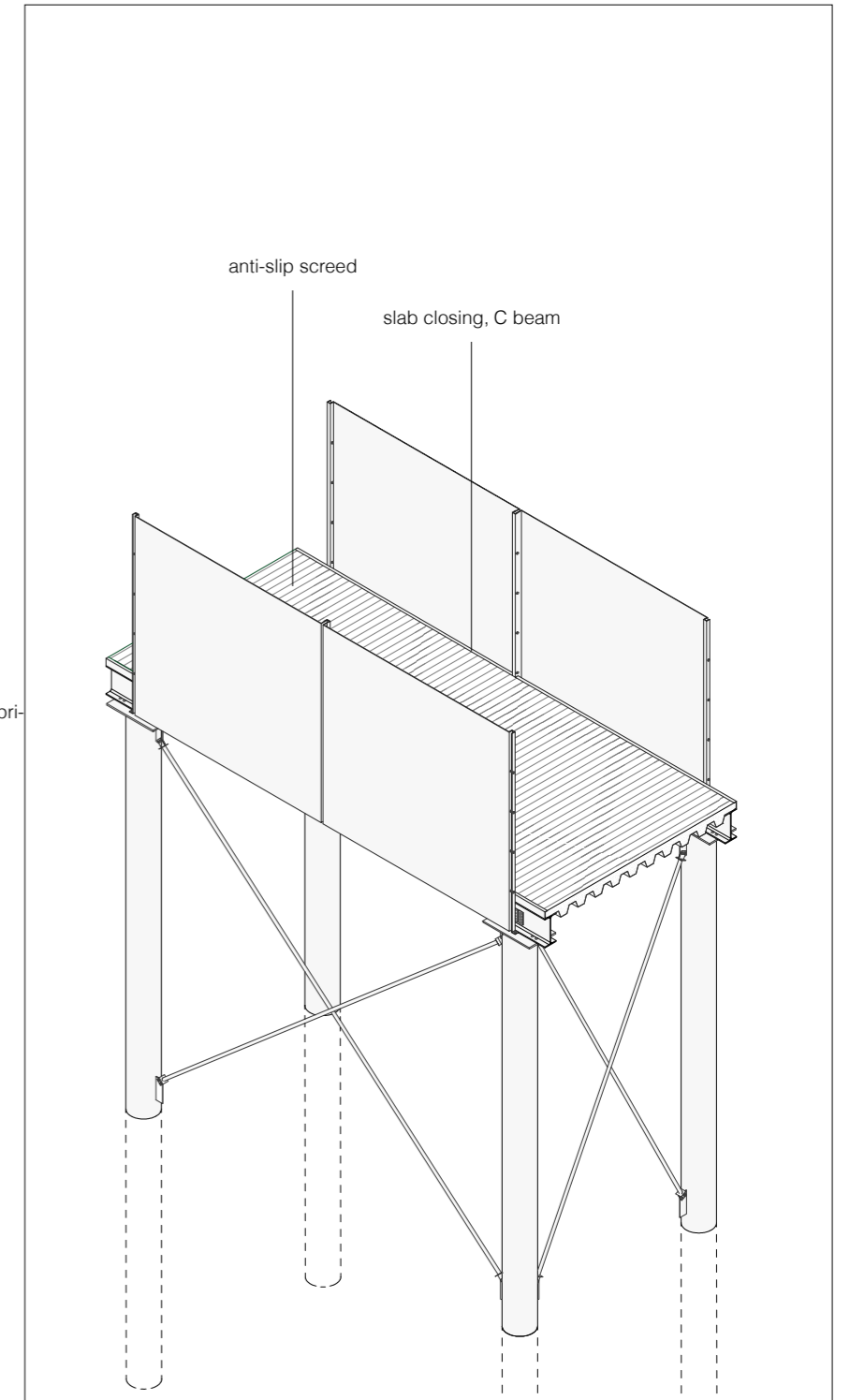
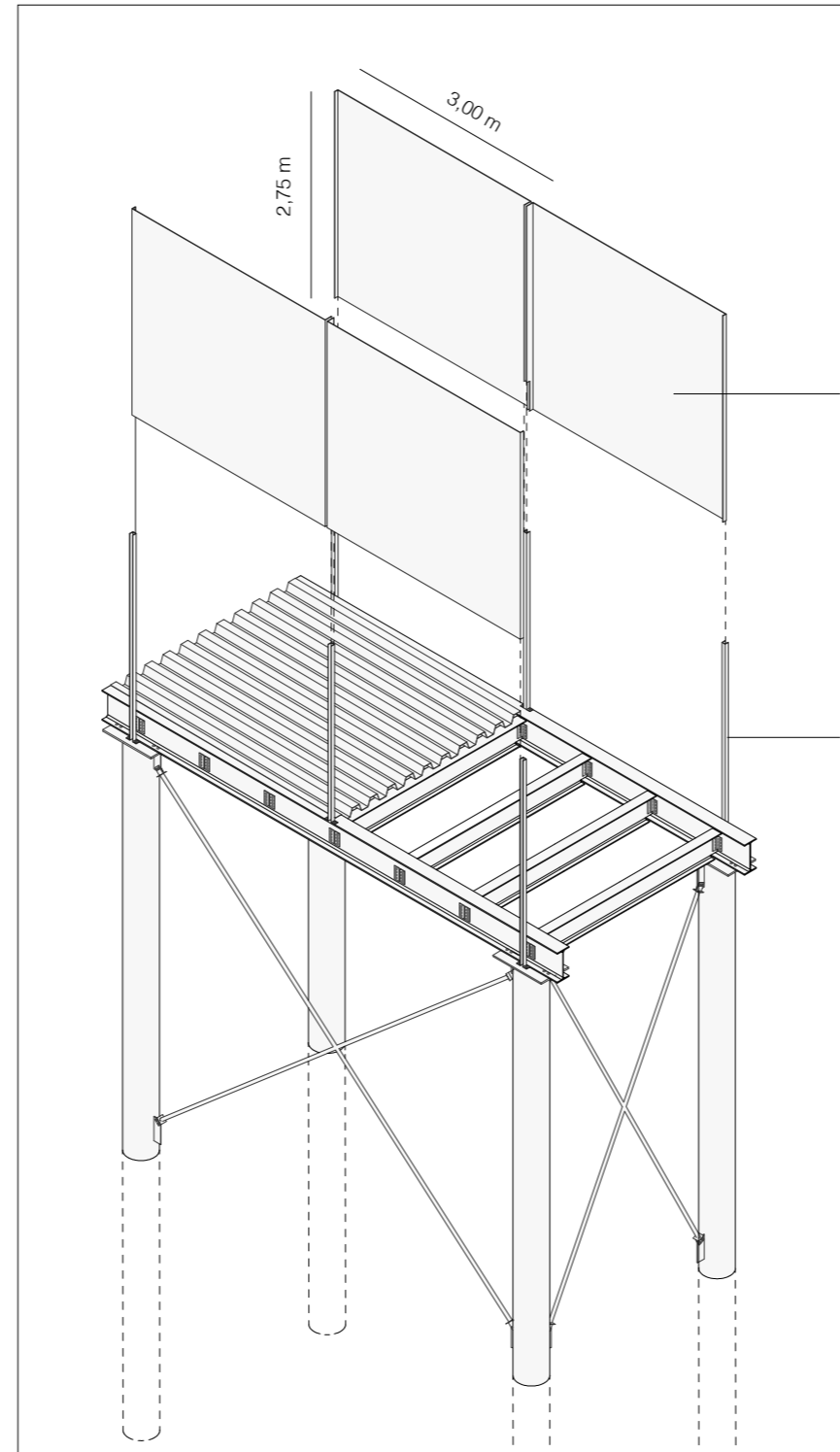
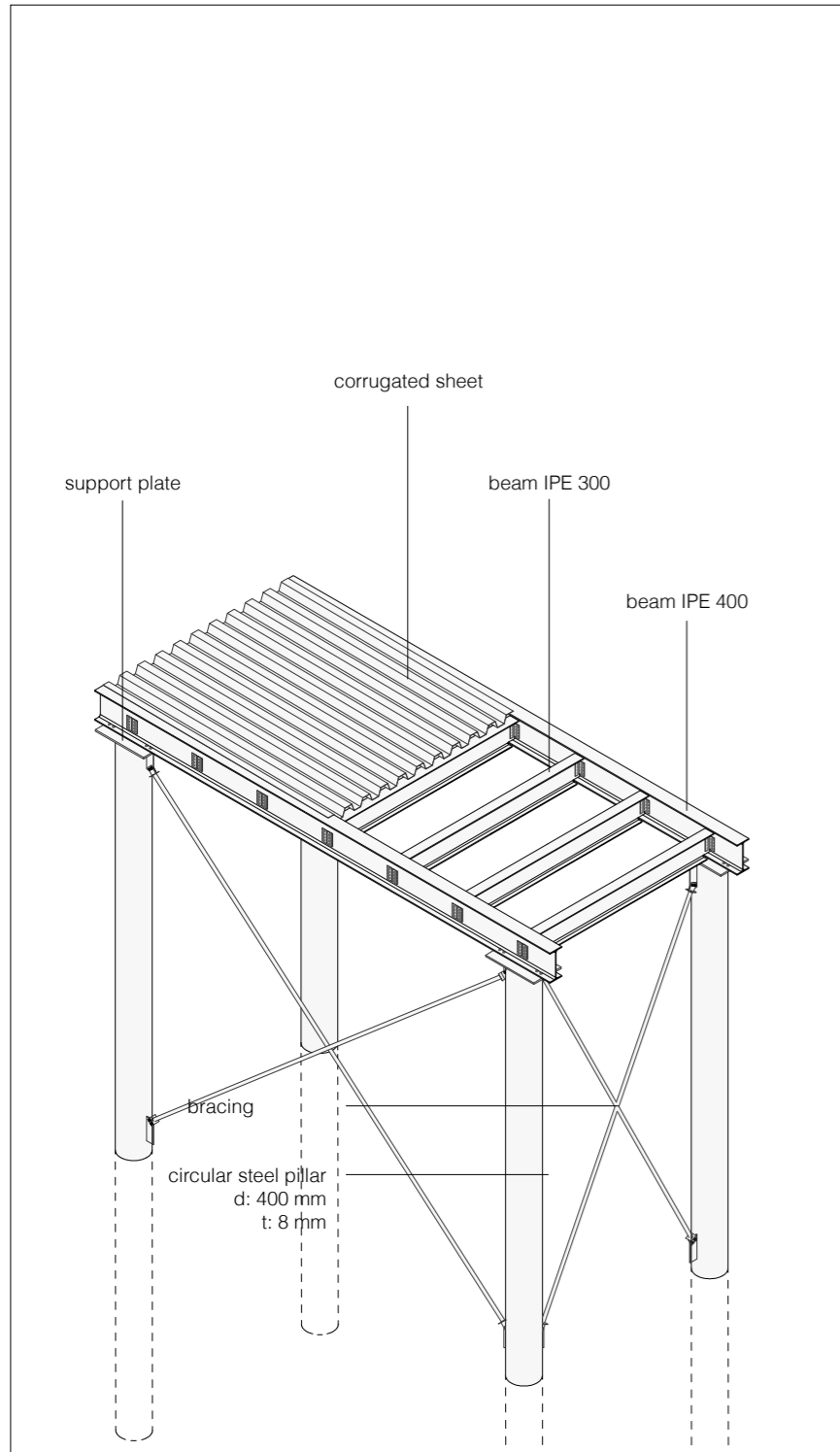
- 1 C- shaped upright, t: 5mm (section)
- 2 U- shaped upright, t: 5mm (projection)
- 3 floor closing element
- 4 IPE 400 beam
- 5 anchor plate
- 6 support plate, t: 10 mm
- 7 steel pillar, d: 400 mm, t: 8 mm
- 8 IPE 300 beam
- 9 electro-welded mesh, 200mm x 200mm
- 10 corrugated sheet t: 1,5 mm
- 11 anti-slip concrete screed



Him | Constructive system



### Him | Pier constructive system







Him | Pier constructive system