



THE NEXT CURRENT

Drawing set

Designing Health & Care Graduation Studio

Colophon

Drawing set

Designing Health & Care Graduation Studio
AR4AD300
*Faculty of Architecture and the Built Environment
Delft University of Technology*

Bente van Drie
6098436
9th of June 2026
A3

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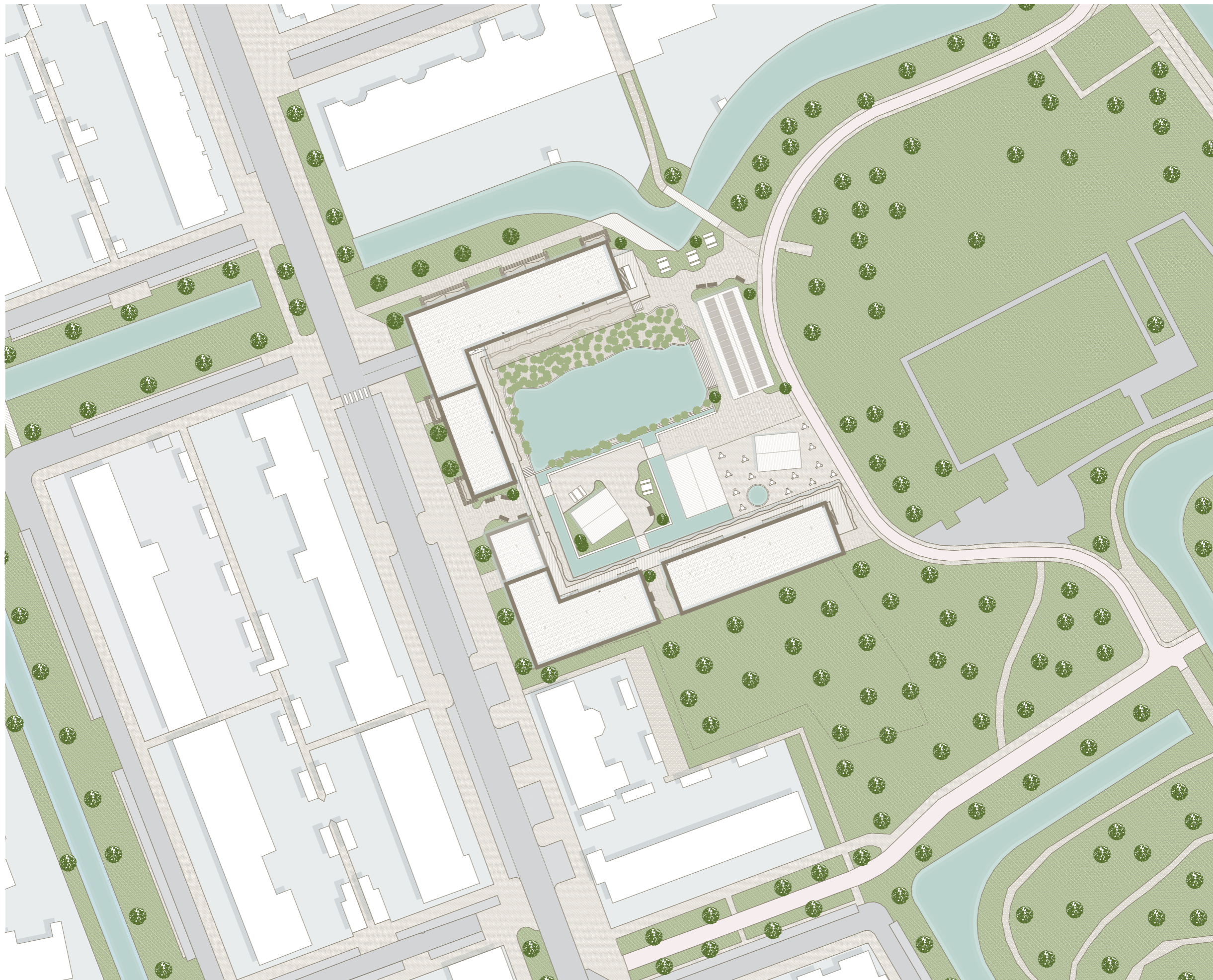
- Grey water system
- Sun study



FLOORPLANS

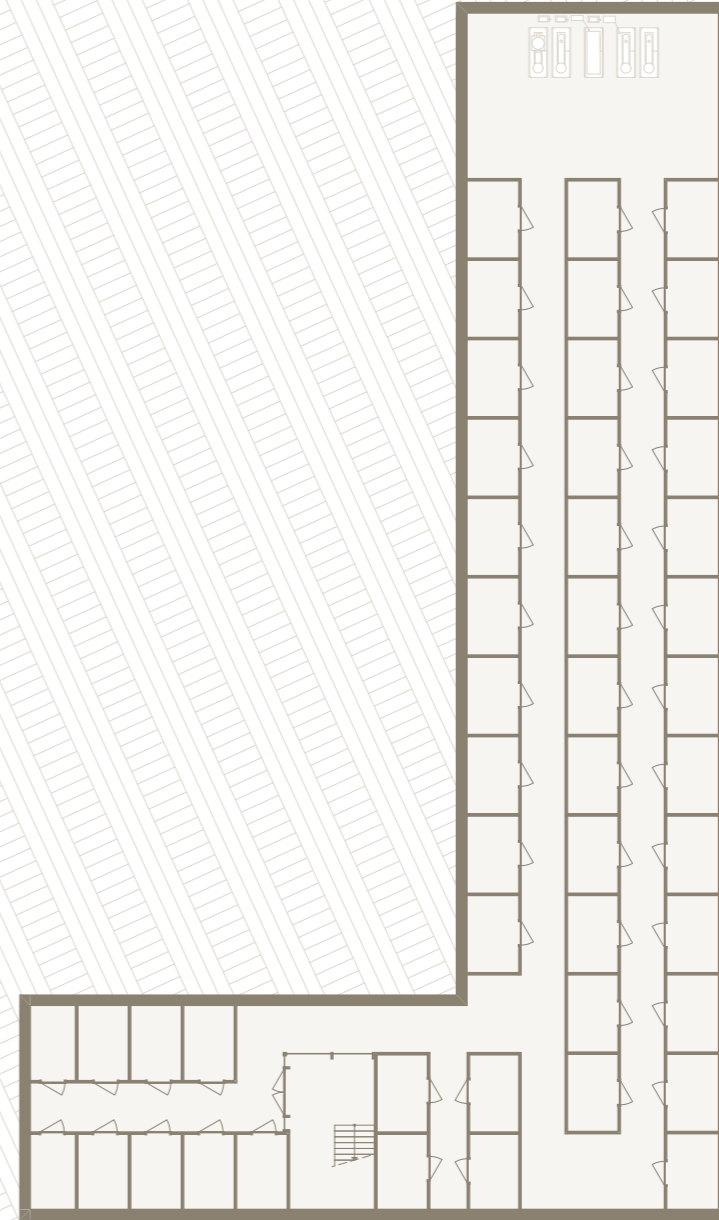
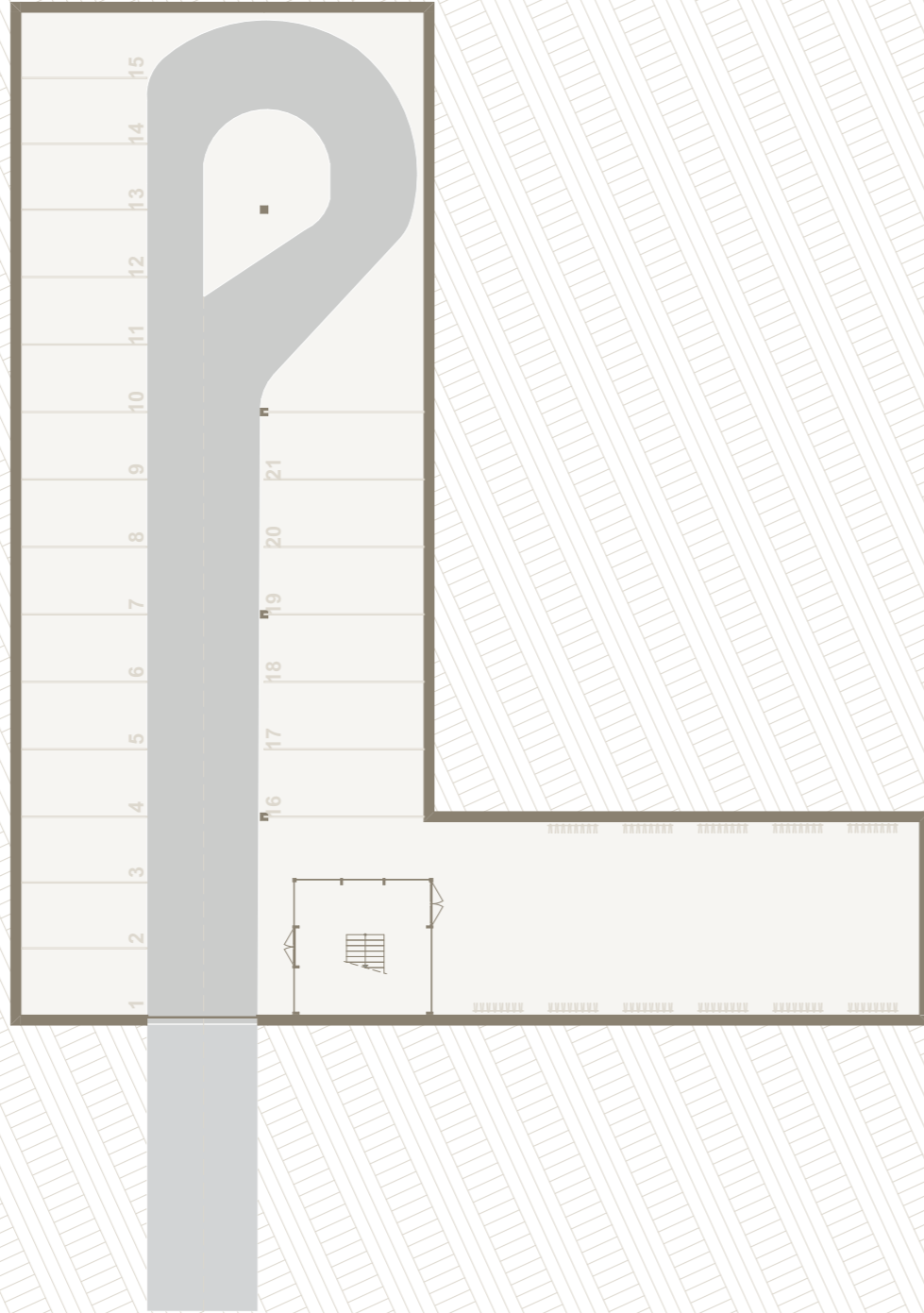
- Situation
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Situation

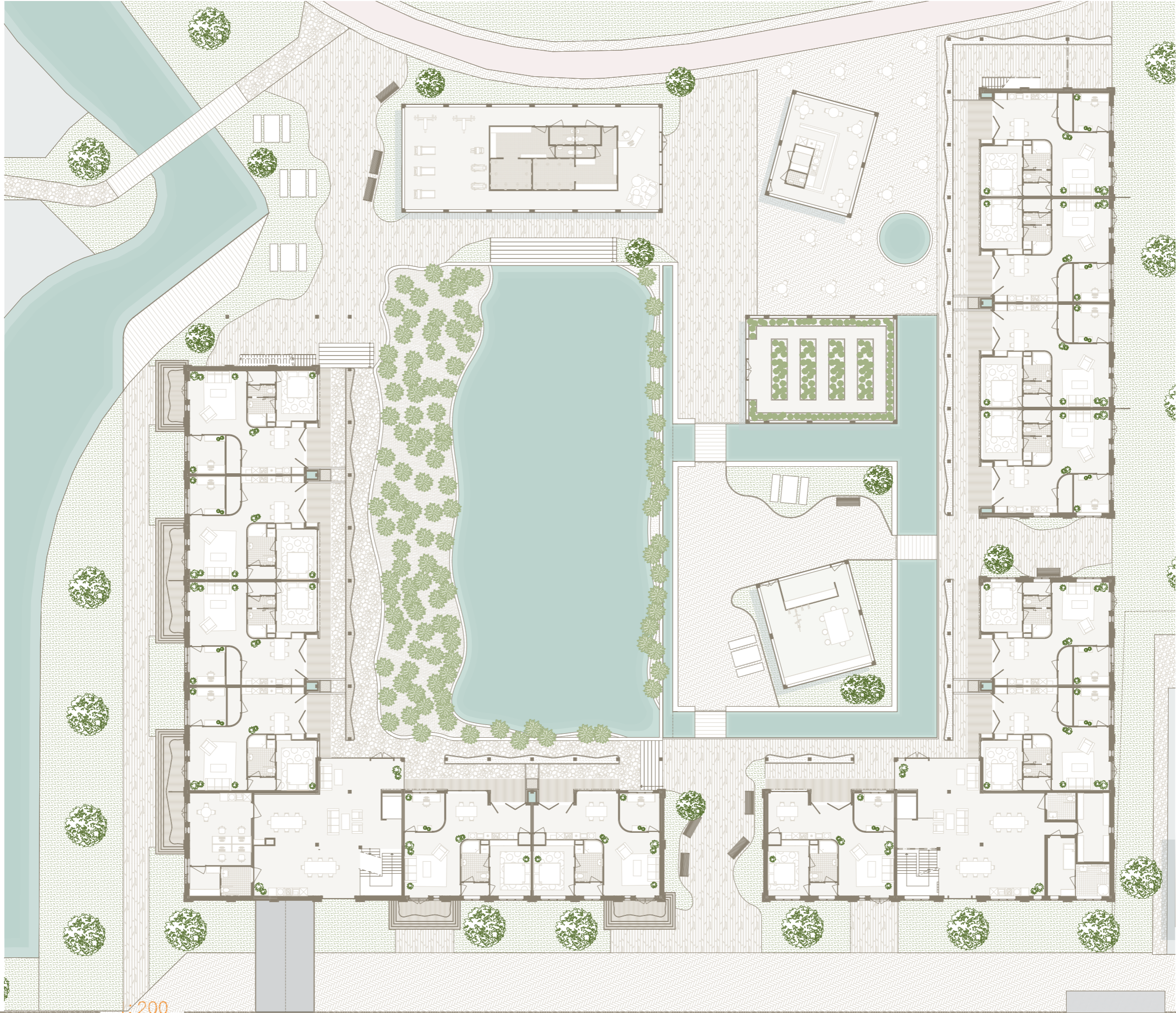




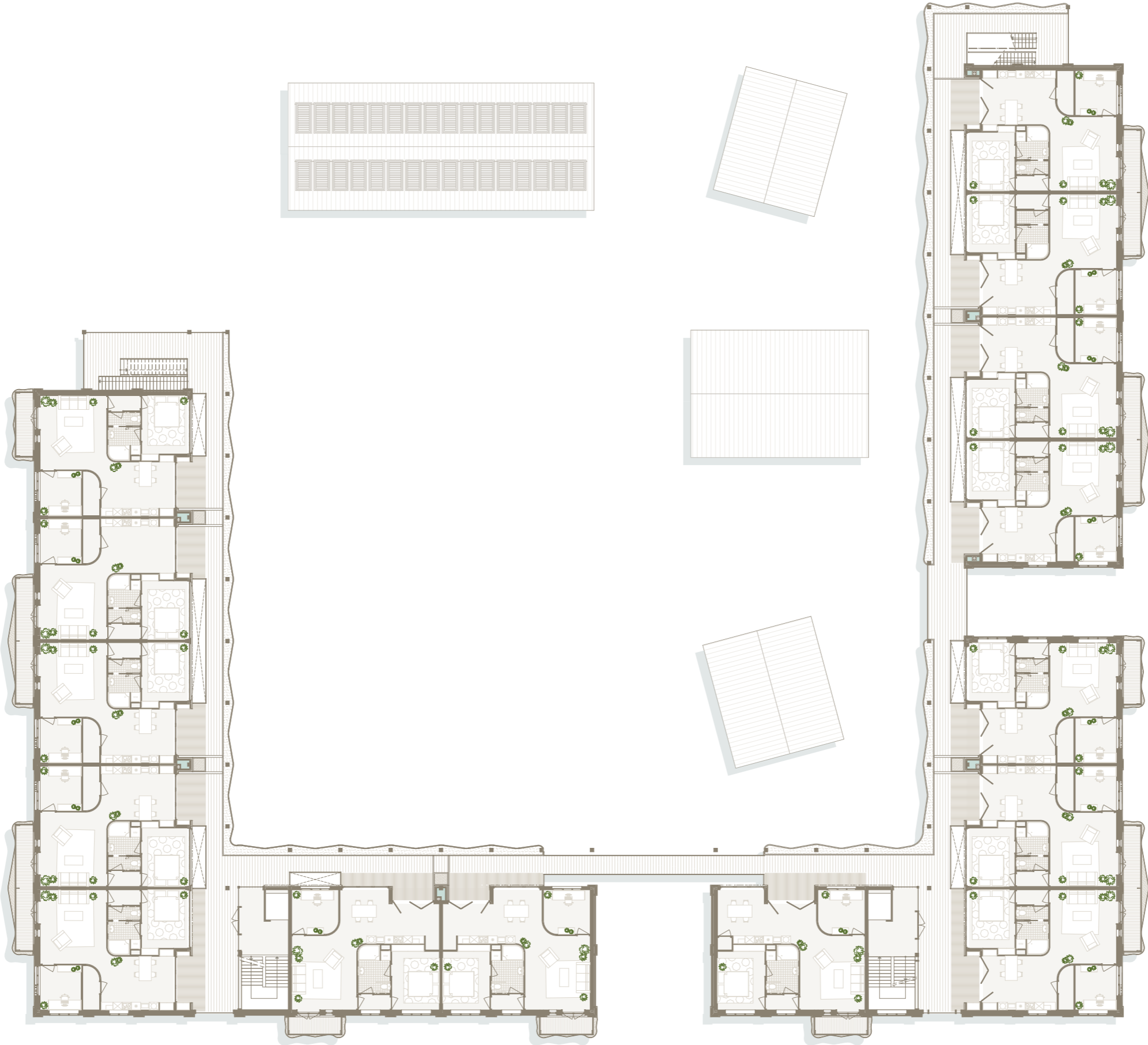
Basement



Ground floor



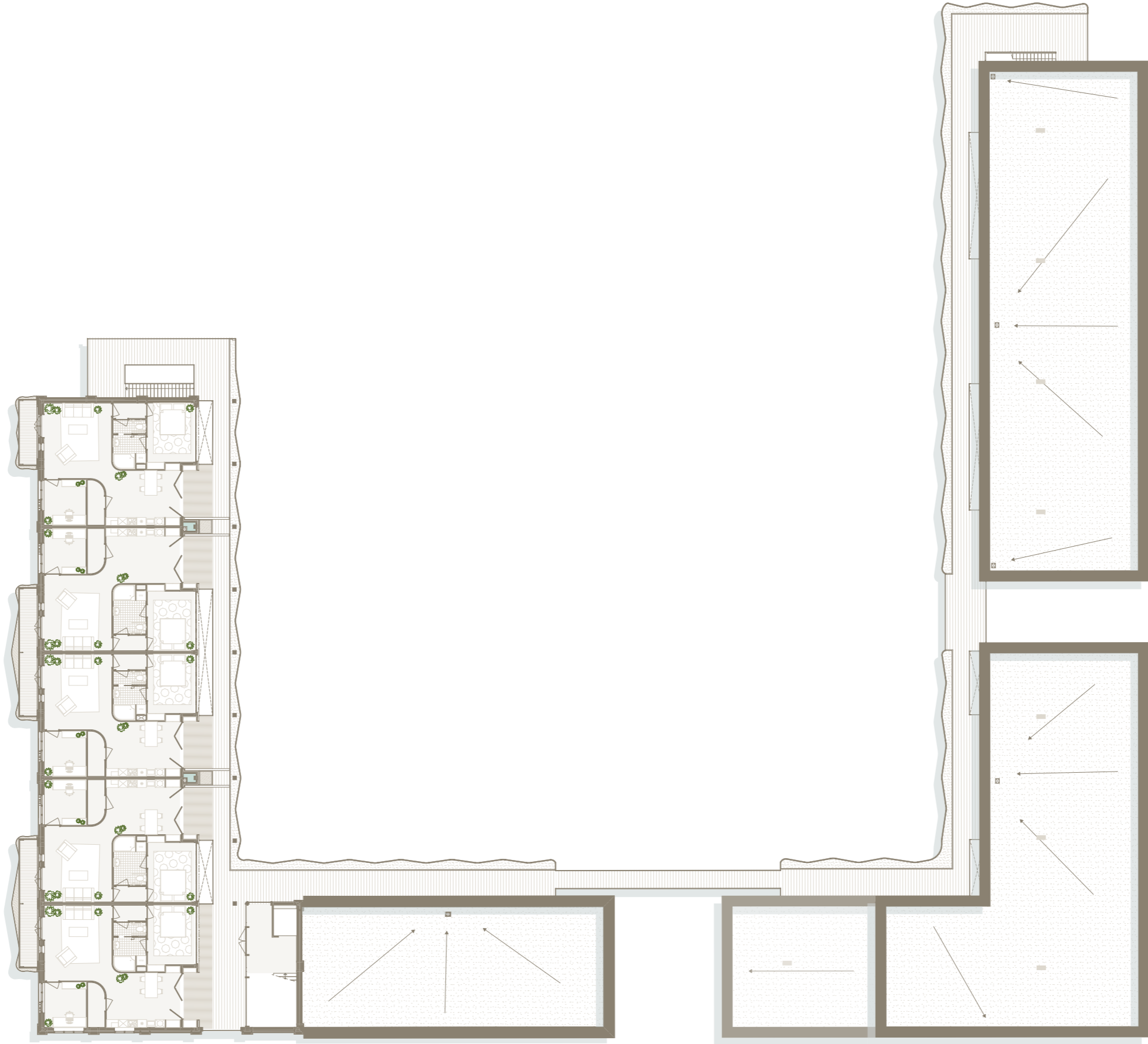
First floor



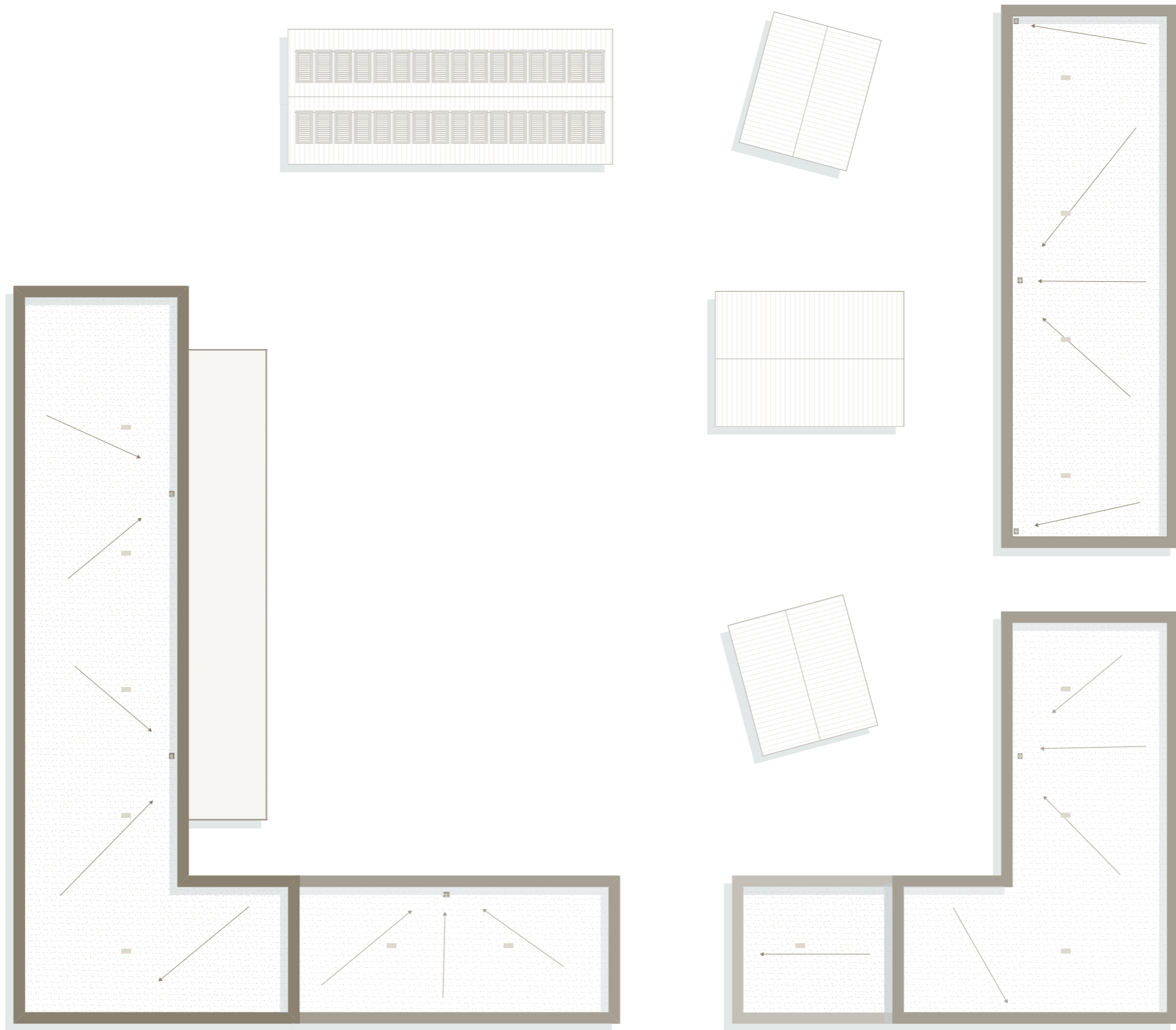
Second floor



Third floor



Roof

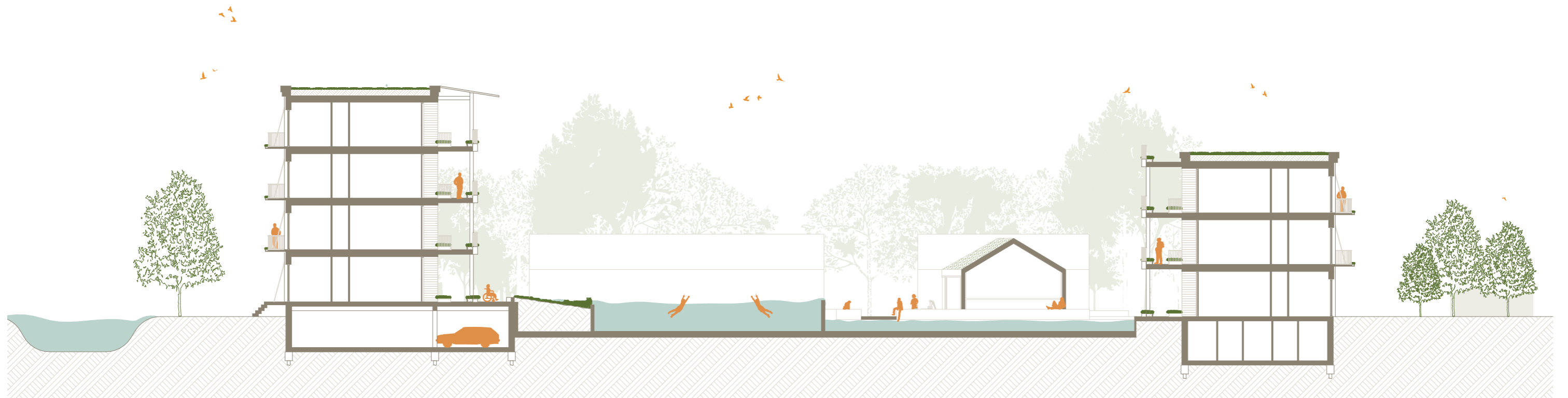




SECTIONS

- A - A
- Climate section
- Sustainable development goals

Section A - A



Climate section

Sustainable development goals

1. Goede gezondheid en welzijn

Het project ondersteunt de fysieke en mentale gezondheid van ouderen.

- Zwembijver stimuleert beweging en ontspanning
- Groene omgeving vermindert stress
- Daglicht en tweezijdige geveloriëntatie verbeteren woonkwaliteit
- Natuurlijke ventilatie en gezond binnenklimaat
- Sociale buitenruimtes verminderen eenzaamheid

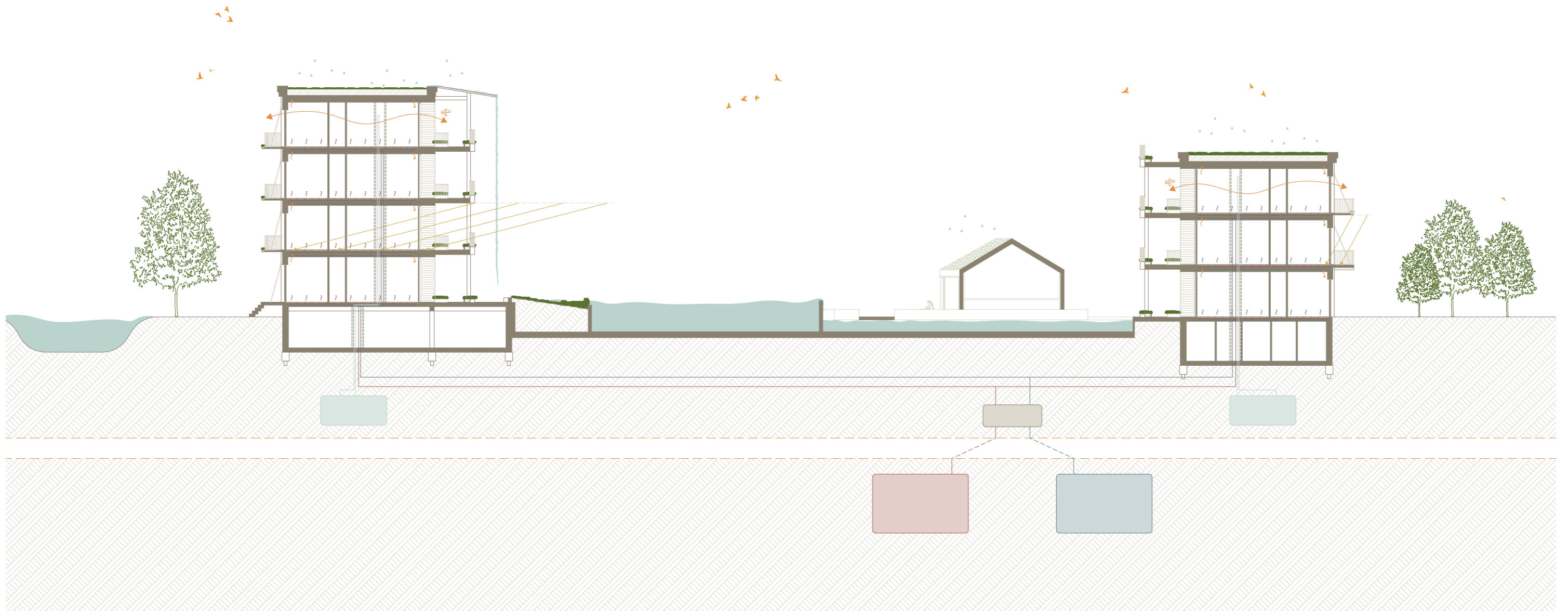
2. Schoon water en sanitair

- Water staat centraal in het ontwerp.
- Regenwateropvang en hergebruik
- Water voor irrigatie van planten
- Zwembijver als natuurlijk watersysteem
- Bewust omgaan met waterverbruik
- Mogelijke buffering van regenwater tegen piekbuien
- Grijswater systeem

3. Klimaatactie

Het ontwerp reageert op klimaatproblemen zoals hitte en wateroverlast.

- Groene daken tegen hittestress
- Wateropvang bij hevige regenval
- Minder CO₂-uitstoot door bodemwarmte
- Klimaatadaptief ontwerp
- Verkoeling door water en groen





FACADES

- North facade - Neighborhood
- South facade - Courtyard

North facade - Neighborhood



South facade - Courtyard





CONSTRUCTION

- Specifications
- Construction overview

Specifications

4. Construction

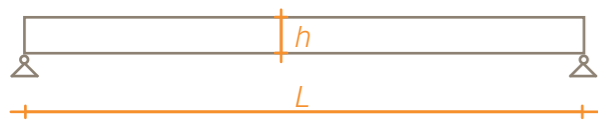
A column structure provides freedom in creating openings in the facades. Especially when it comes to the facade system for the courtyard. This consists of aluminum panels with perforations that allow light to pass through. Behind this, a full-width glass facade is placed to ensure a maximum amount of daylight enters the dwelling. The glass facade can be opened fully and results in the aluminum panel function as a balustrade as well as a facade cladding.

A column structure is also the most suitable solution for achieving transparency in the gallery. Transparency in the U-shaped courtyard provides residents with social control and encouragement to meet others.

4.1 Beam

According to the Vademecum¹ a beam from laminated wood with a 'heart to heart' distance <5 meters should be dimensioned following this formula:

- $h = L / 17$ (with L being the distance between columns)
- $L = 4050$ mm
- $4050 / 17 = 238$
- **The beam will be 240 mm thick**



This way, it is visually clear where activities take place and where people are present. The material of this structure will be wood. The calm character of the courtyard is emphasized by the use of this material and the column structure enables transparency.

On the exterior side of the courtyard, facing the surrounding neighborhood, the structure will not be visible. This exterior side will be connected to the more traditional brick housing in the neighborhood around.

4.2 Column

A column from laminated wood GL24h with a maximum of 5 building layers should be dimensioned following the table in figure 1.²

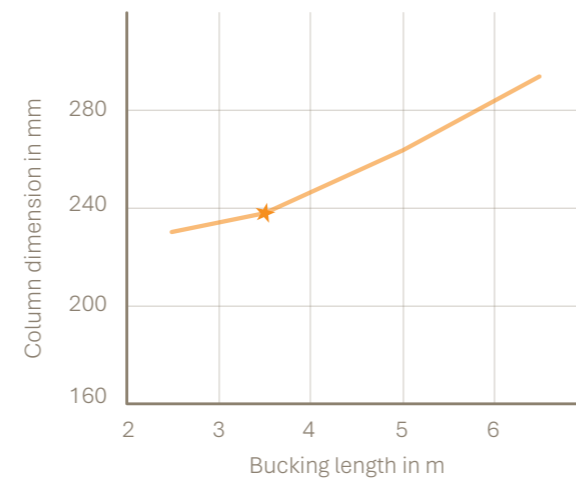


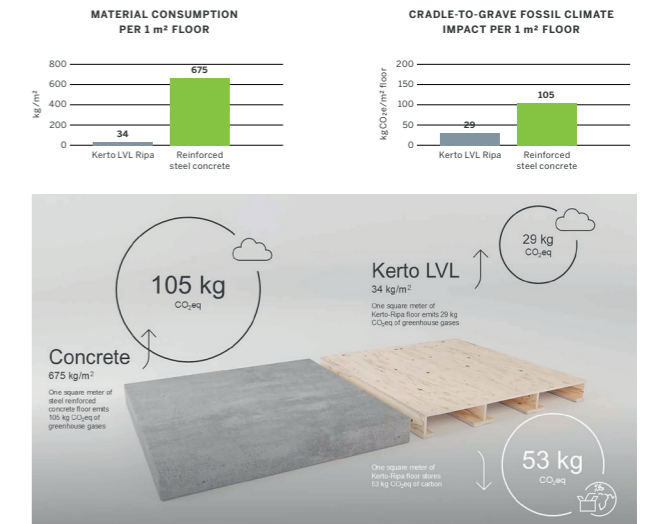
Figure 1: Table for dimensions of a GL24h column (Own drawing, 2026)

4.3 Floors

The floors will be constructed as wooden floor elements from Kerto Ripa. These Box elements are fire resistant for 90 minutes and are able to span 15 meters. For the construction of the building a maximum span of 9,9 meters is required.

Besides this, the floors are sustainable because of the fact that wood is a renewable and biobased material. The origin of the wood is verifiable and meets the requirements of PEFC- and FSC certification. These certificates guarantee the origin, legality and sustainability of the material throughout the whole production process.

Furthermore, the fossil climate impact on the life-cycle of Kerto LVL is 70% lower than the traditional steel- and reinforced concrete.³



Floor sustainability

HEIGHT mm	WEIGHT kg/m²	ROOF m	FLOOR m			
			RESIDENTIAL	OFFICE	SCHOOL	VENUE
250 (25 + 45 x 200 + 25)**	84.2	10.25	7.65	7.15		
256 (31 + 45 x 200 + 25)	91.5	10.50	7.90	7.40	5.65	4.35
275 (25 + 45 x 225 + 25)	87.0	10.90	8.25	7.70		
281 (31 + 45 x 225 + 25)	94.4	11.15	8.50	7.95	6.30	4.85
290 (25 + 45 x 240 + 25)	88.7	11.25	8.60	8.05		
296 (31 + 45 x 240 + 25)	96.1	11.50	8.85	8.30	6.70	5.15
310 (25 + 45 x 260 + 25)	91.0	11.65	9.05	8.45		
316 (31 + 45 x 260 + 25)	98.4	11.90	9.35	8.75	7.25	5.50
350 (25 + 45 x 300 + 25)	95.6	12.50	9.80	9.35		
356 (31 + 45 x 300 + 25)	103.0	12.75	10.05	9.60	8.10	6.40
410 (25 + 45 x 360 + 25)	102.5	13.65	10.75	10.40		
416 (31 + 45 x 360 + 25)	109.9	13.90	11.00	10.60	9.20	7.75
434 (37 + 45 x 360 + 37)	131.9	14.60	11.80	11.00	10.00	7.90
450 (25 + 51 x 400 + 25)	113.2	14.40	11.40	11.05		
456 (31 + 51 x 400 + 25)	120.6	14.65	11.70	11.30	10.05	9.35
474 (37 + 51 x 400 + 37)	142.6	15.35	12.50	11.85	10.80	9.55
500 (25 + 57 x 450 + 25)	126.6	15.35	12.25	11.85		
506 (31 + 57 x 450 + 25)	134.0	15.60	12.50	12.10	10.95	10.30
524 (37 + 57 x 450 + 37)	156.0	16.30	13.35	12.65	11.55	11.05
550 (25 + 63 x 500 + 25)	141.5	16.25	13.05	12.65		
556 (31 + 63 x 500 + 25)	148.9	16.45	13.35	12.85	11.65	11.20
574 (37 + 63 x 500 + 37)	170.9	17.15	14.15	13.45	12.25	11.75
586 (43 + 63 x 500 + 43)	185.6	17.55	14.50	13.90	12.65	12.10

Floor specifications

The wooden box floor elements are used on the first, second and third floor. They don't have a connection to the ground and the common obstacle of moisture. With a span of 9,9 meters for a residential floor, the dimensions are shown in Figure 2.

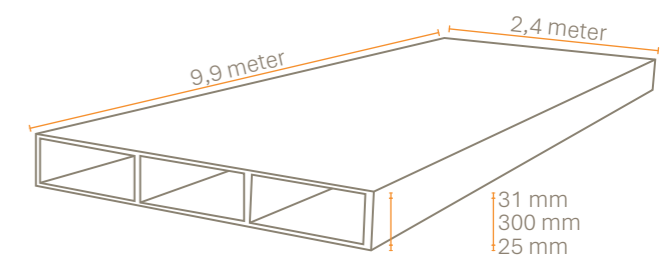
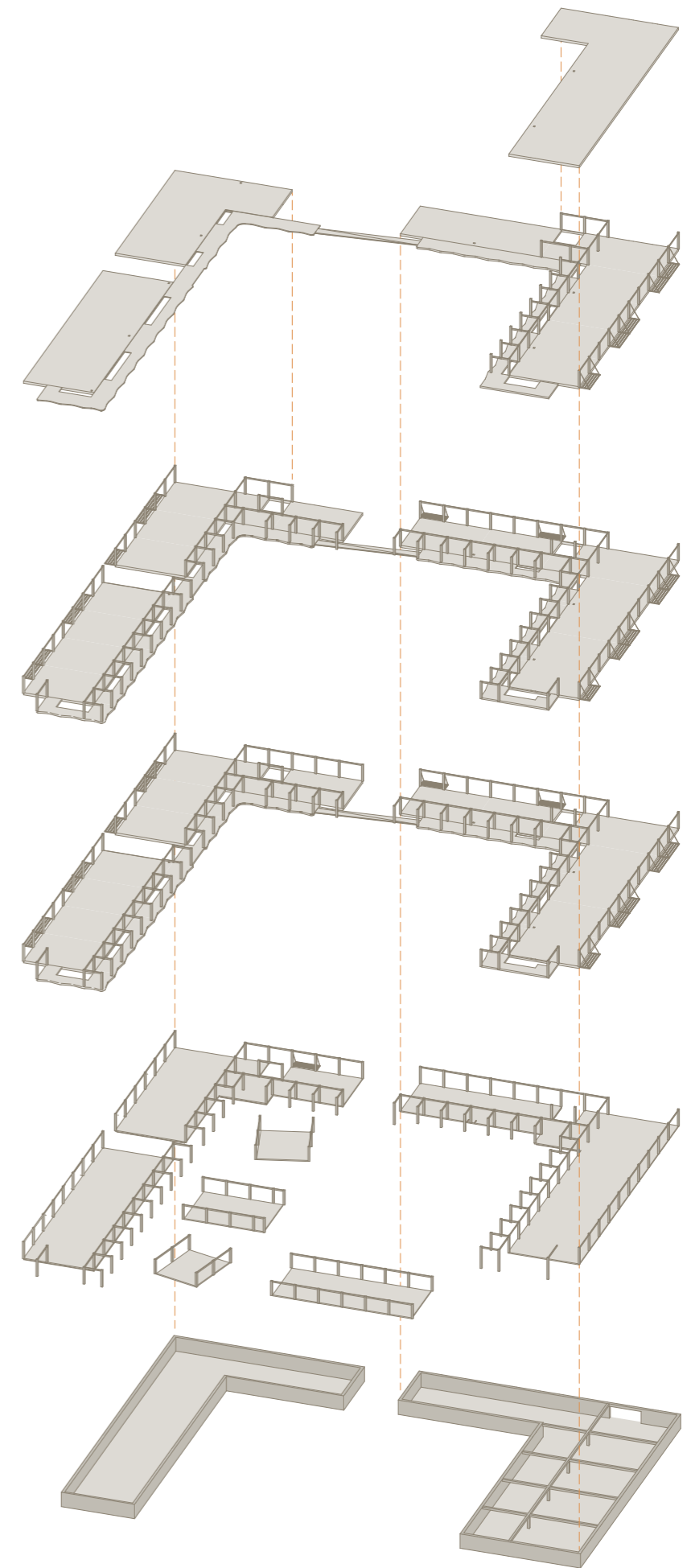
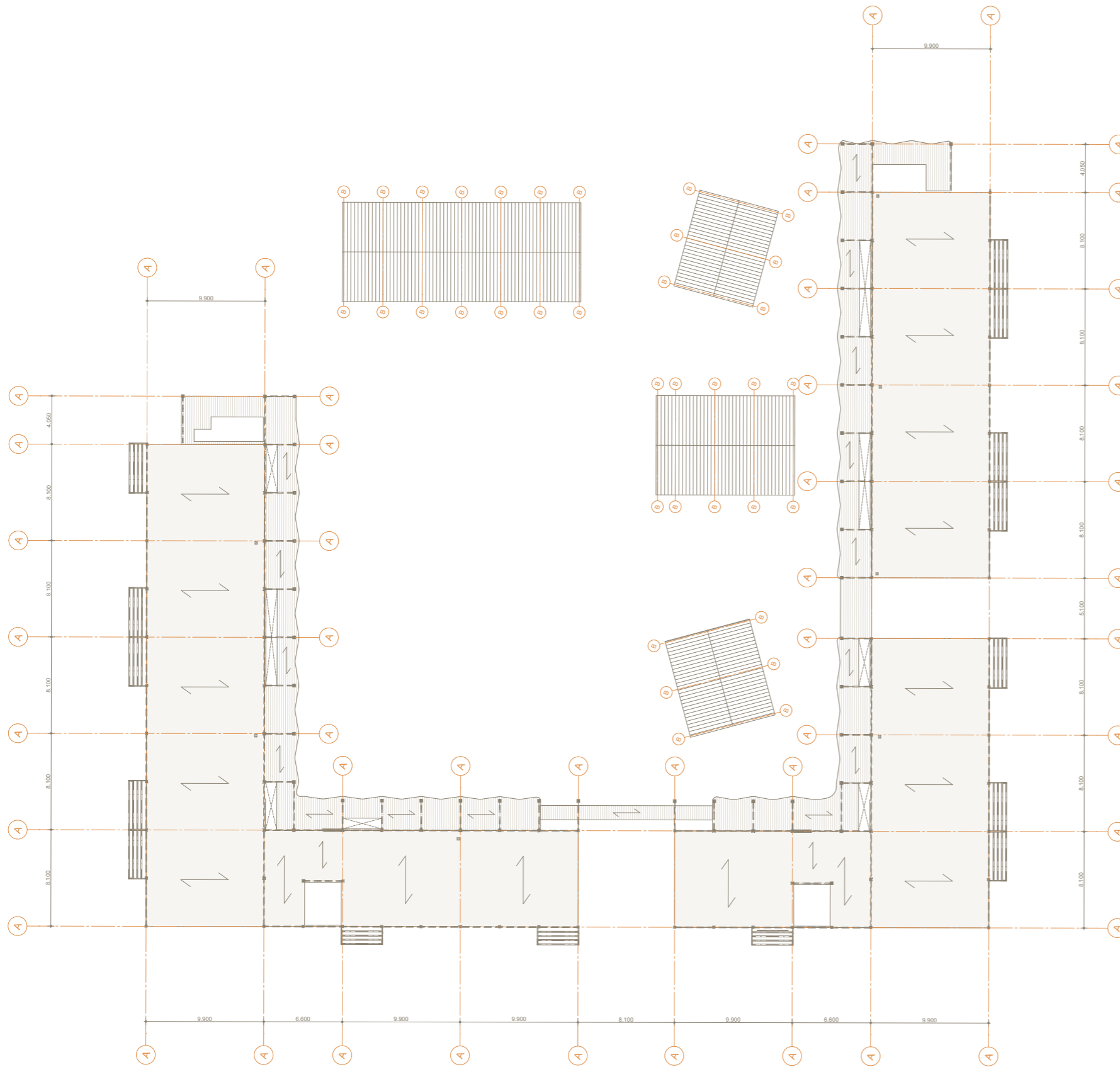


Figure 2: Dimensions of floor (Own drawing, 2026)

1. Ate Snijder, Roel Schipper, Sander Pasterkamp, Marco Schuurman, Arjen Meijer, Rebecca Hartwell, Minke van den Boogaard, Niels van Vliet, Guus Meinema, 'Liggers', *Vademecum voor draagconstructies van gebouwen*, (Delft University of Technology, CC BY 4.0, April 2026), p. n.a.
 2 A. Snijder, et al., 'Kolommen', *Vademecum voor draagconstructies van gebouwen*, (Delft University of Technology, CC BY 4.0, April 2026), p. n.a.
 3 Metsa wood, 'Sustainability', *Kerto LVL*, (Metsa, n.a.), p. 16

Construction overview

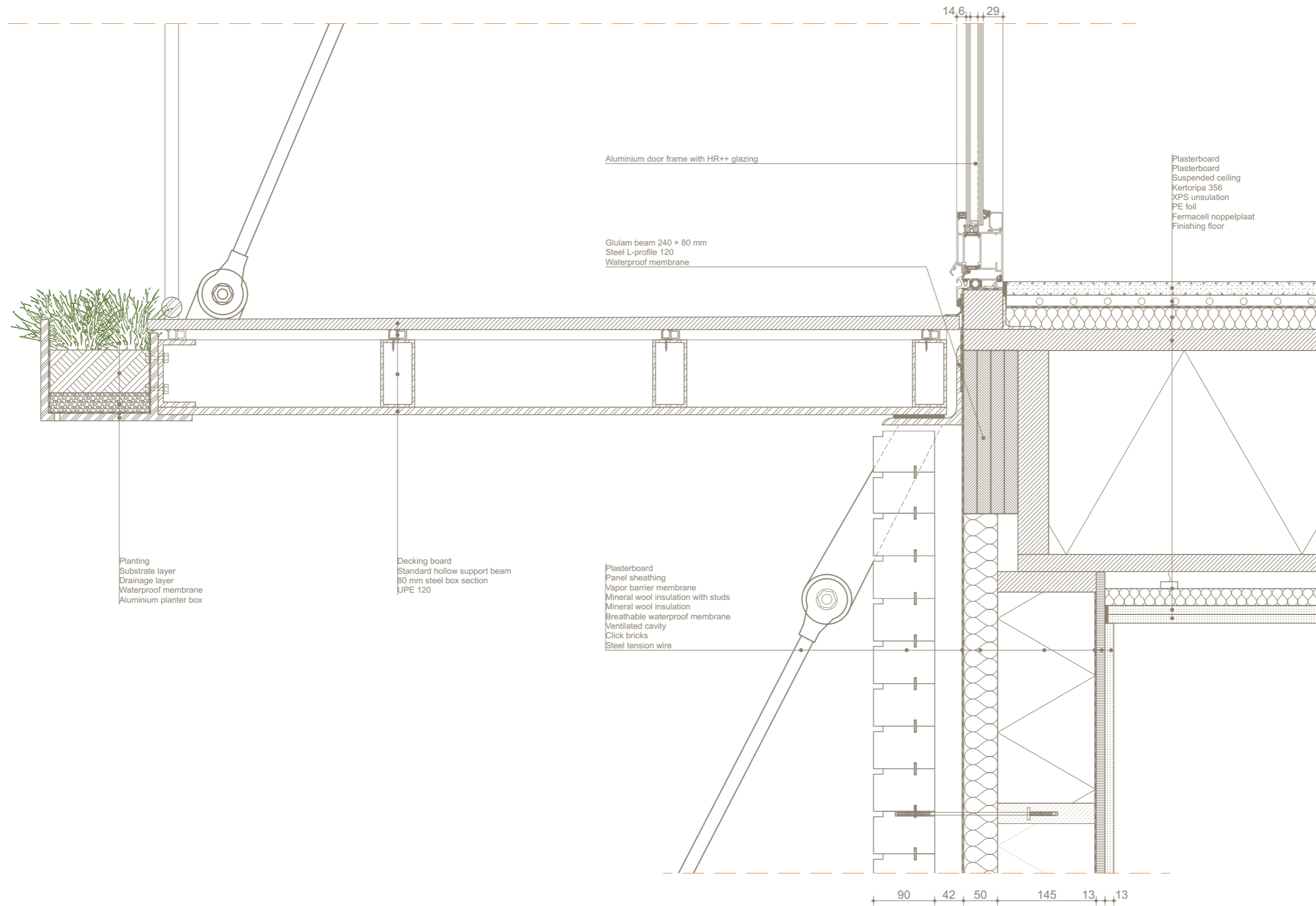




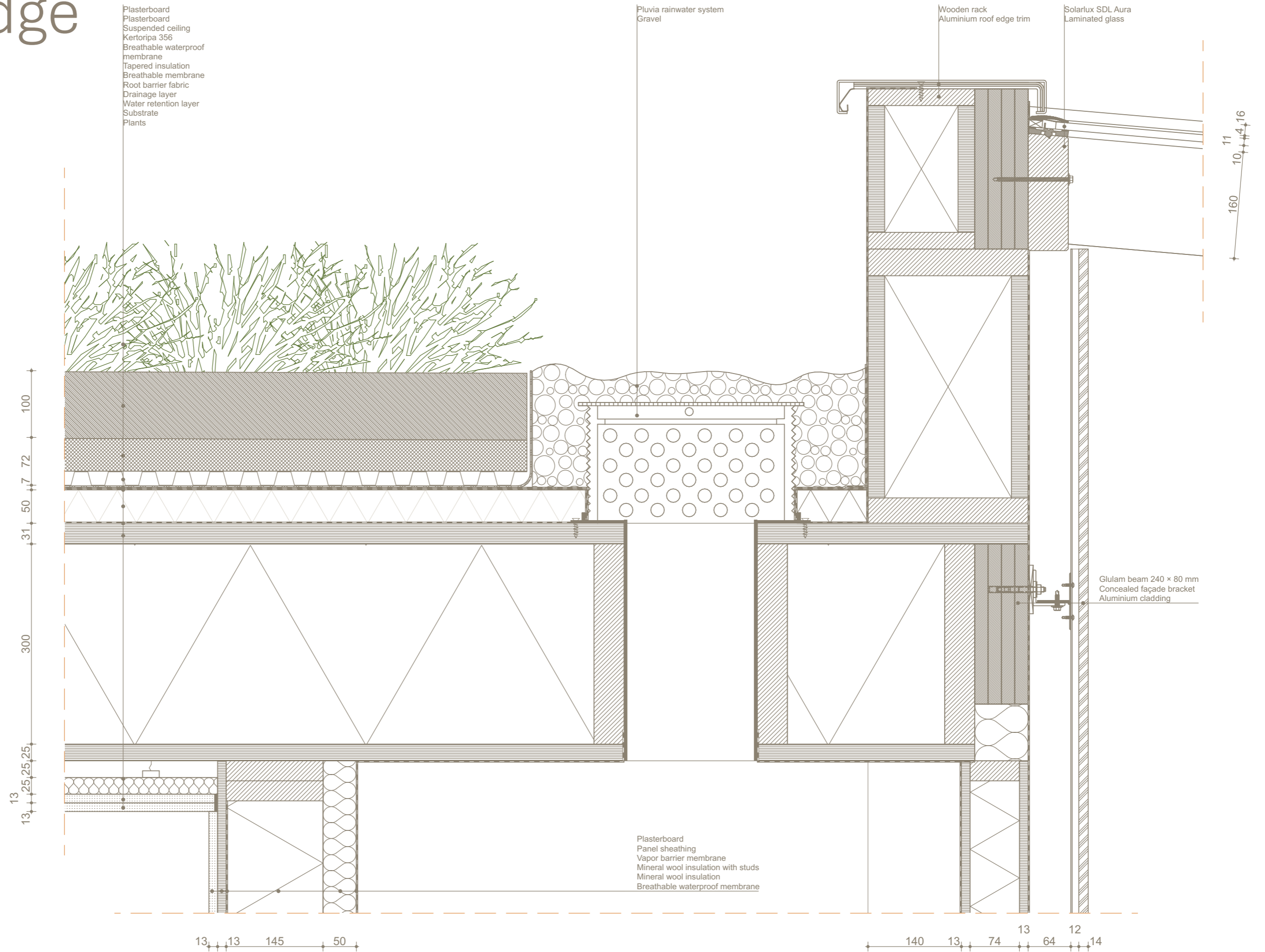
DETAILS

- Balcony outer facade
- Roof edge
- Upper floor
- Ground floor
- Gallery edge

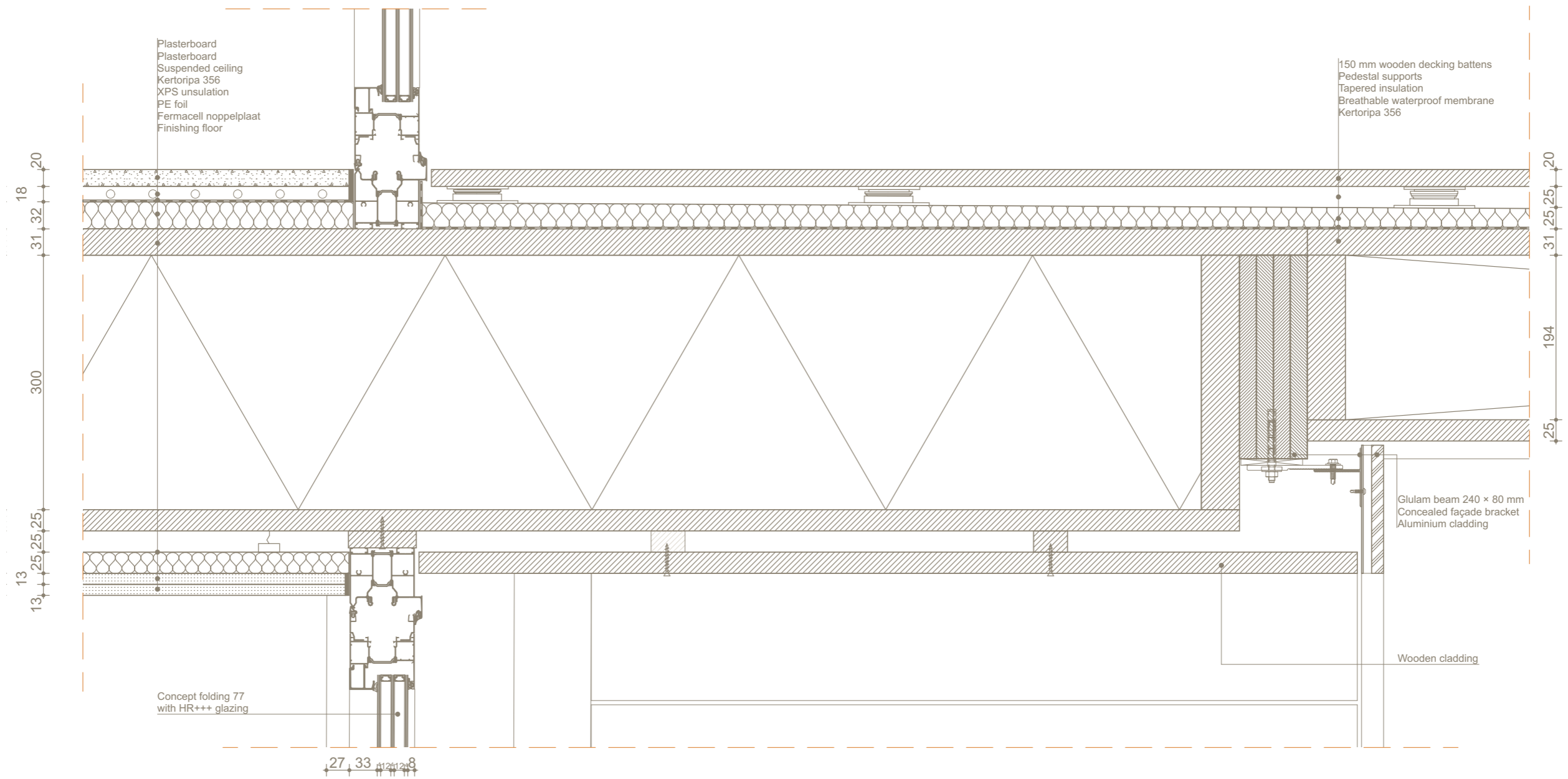
Balcony outer facade



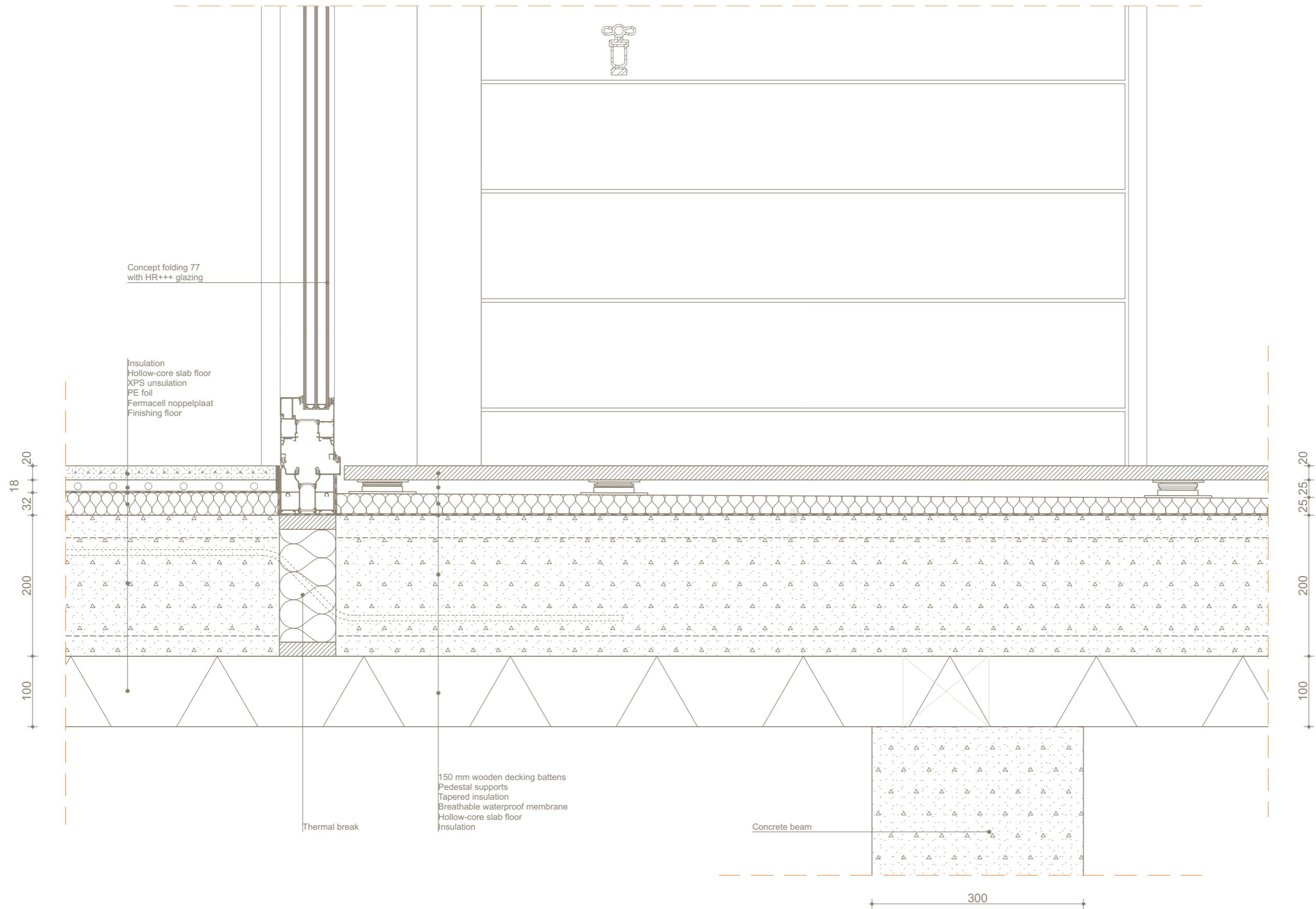
Roof edge



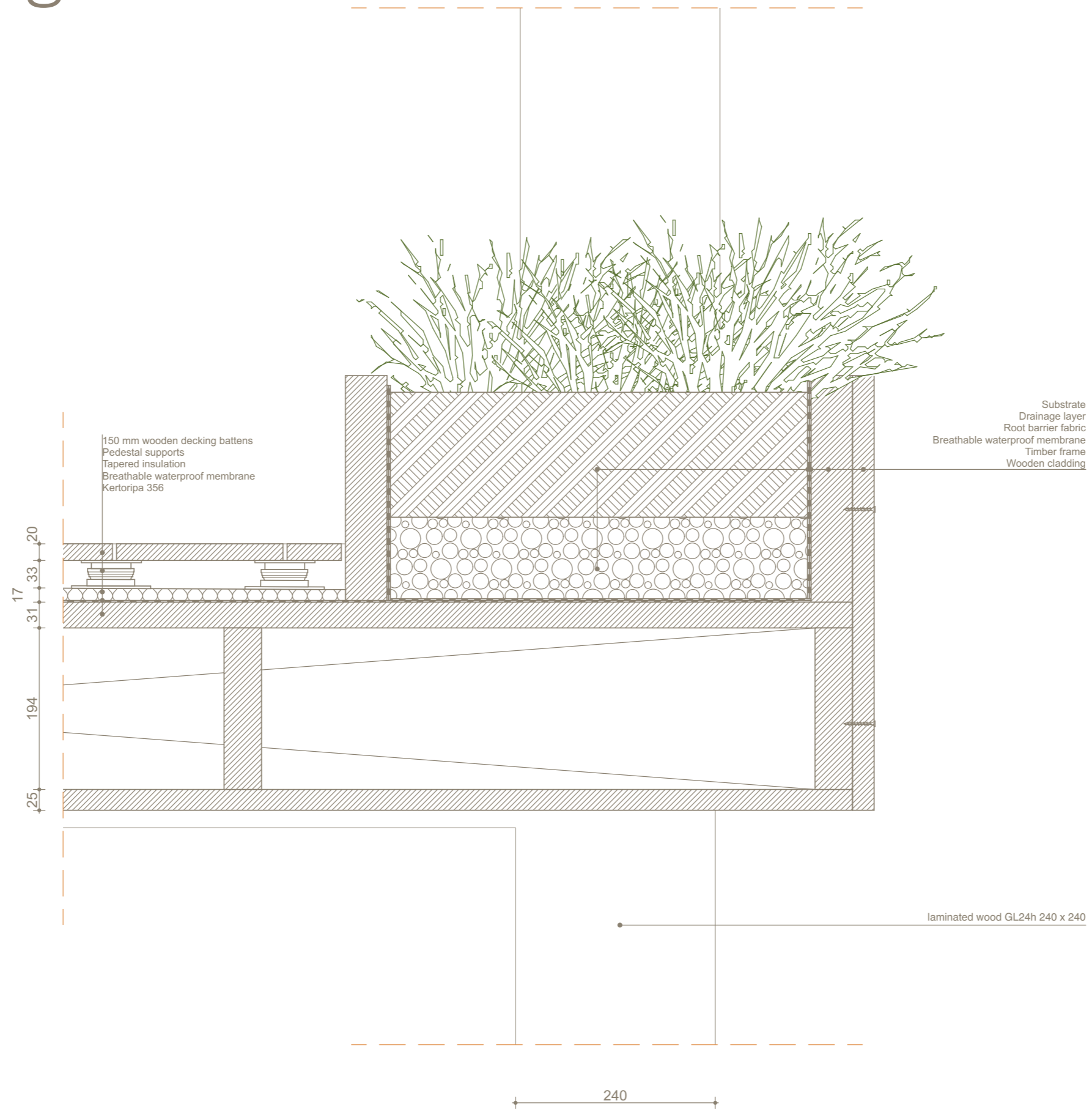
Upper floor



Ground floor



Gallery edge





ADDITIONS

- Grey water system
- Water storage

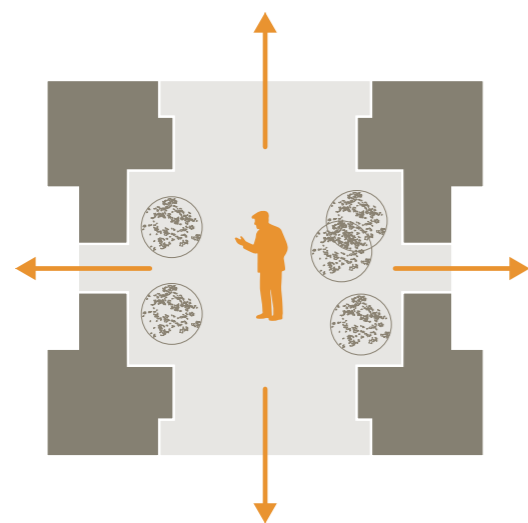
Concept



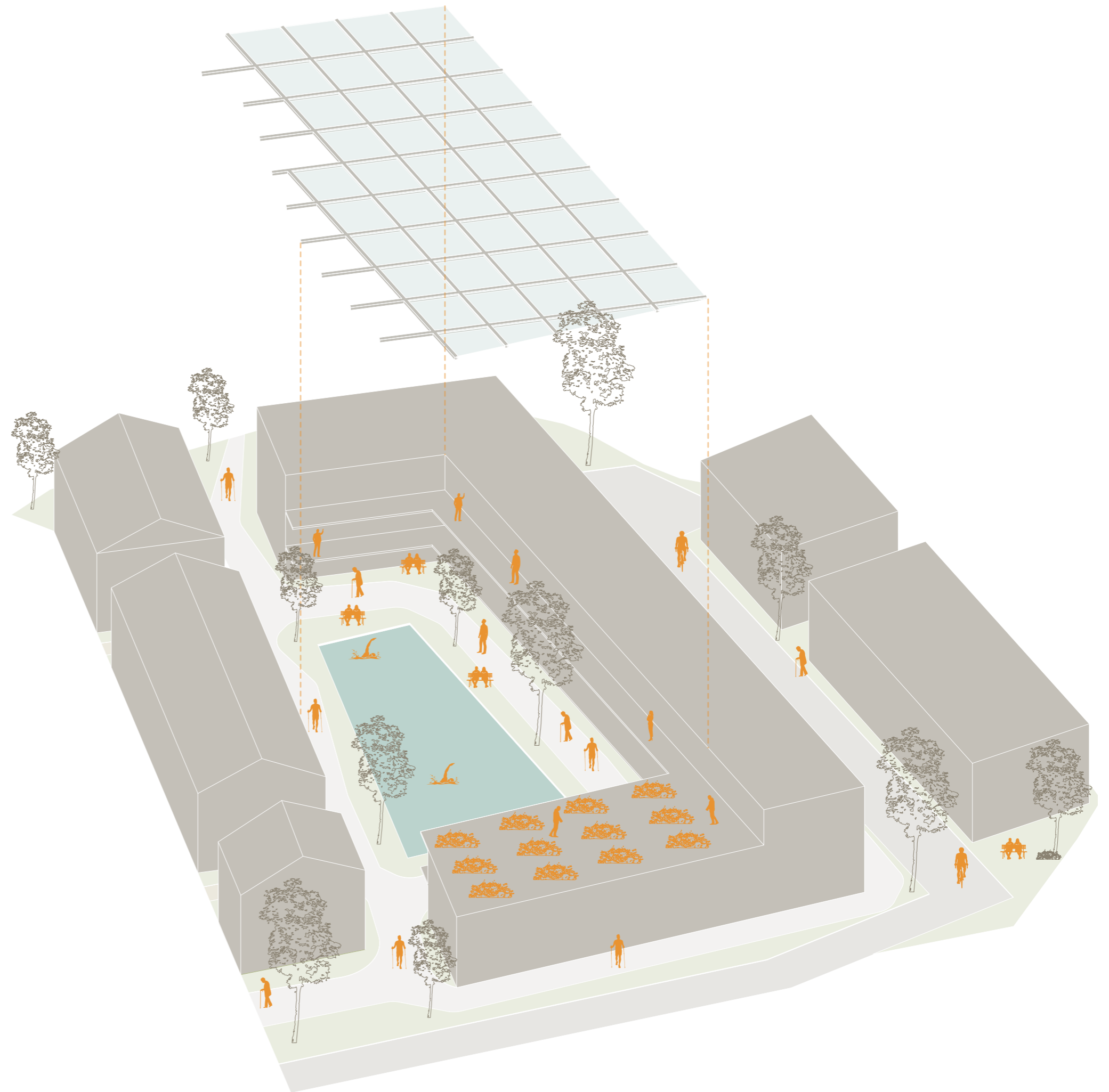
Concept of the almhouses



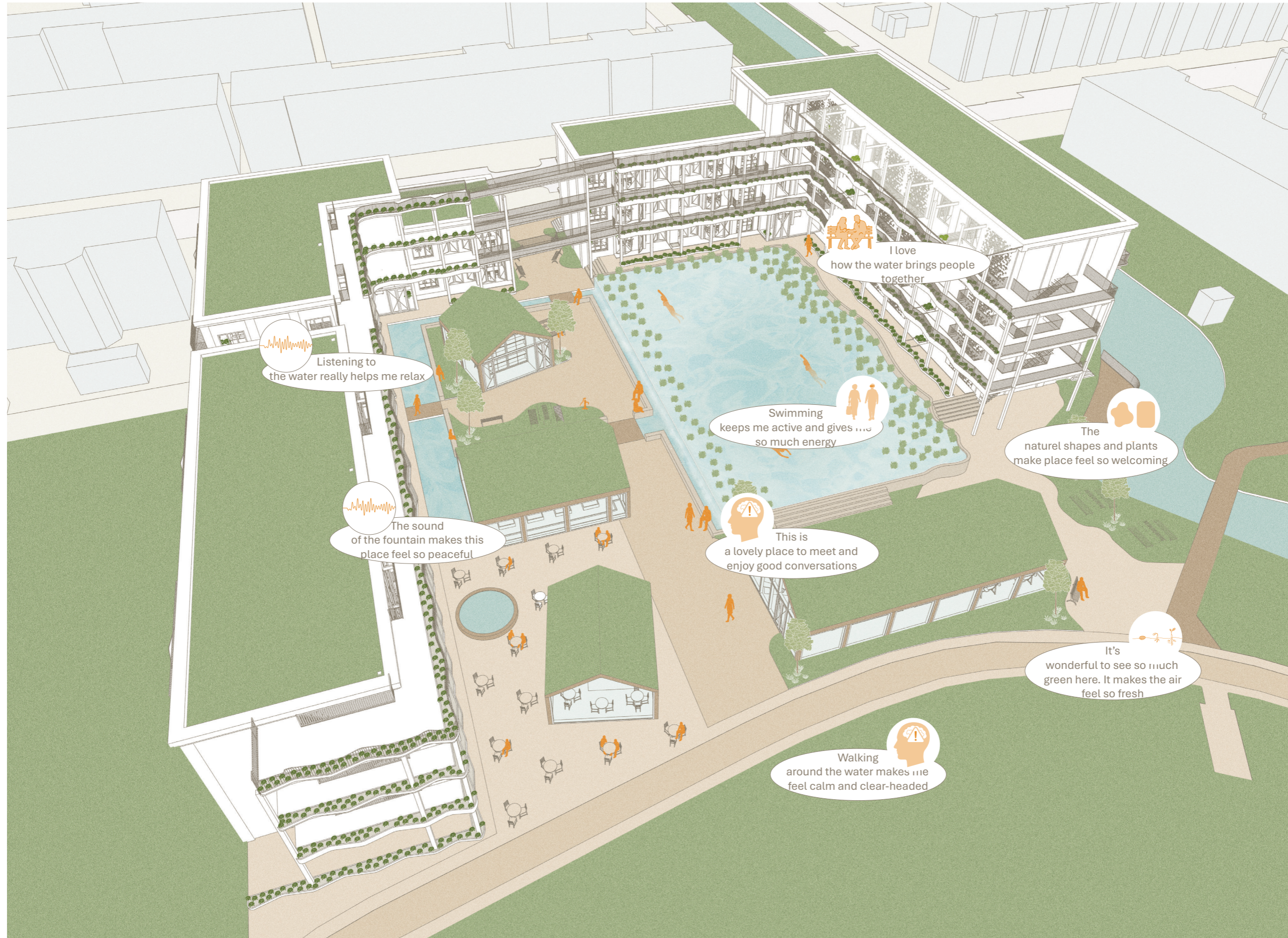
Combination of calmness & activity



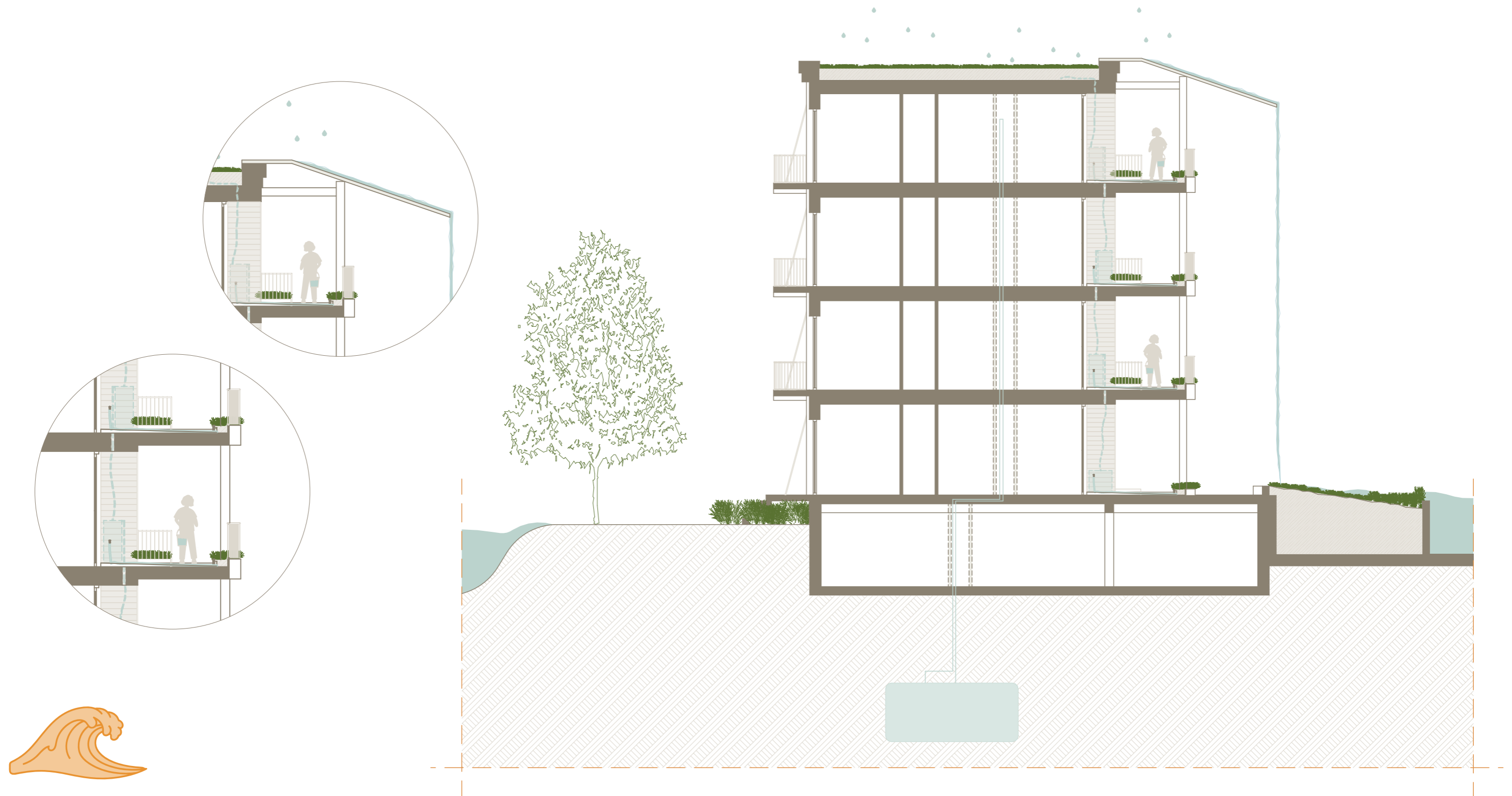
Connection to the neighborhood



Active ageing on surroundings

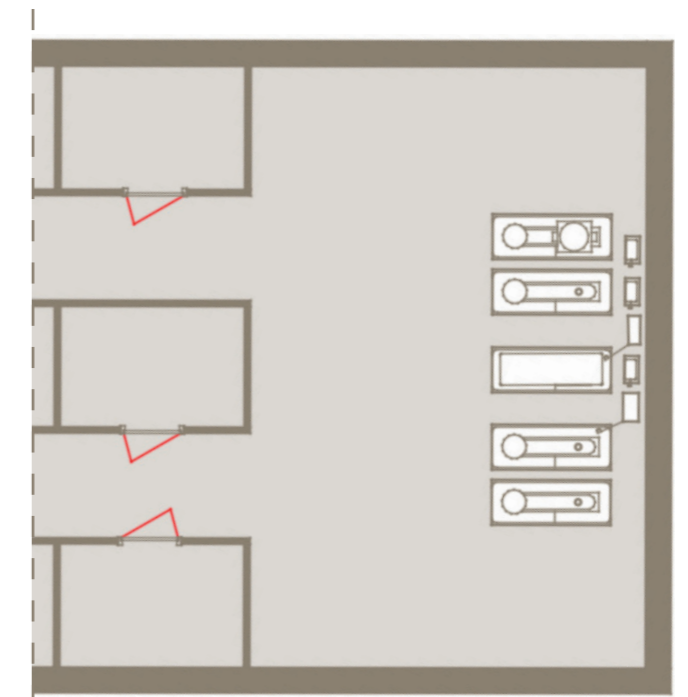
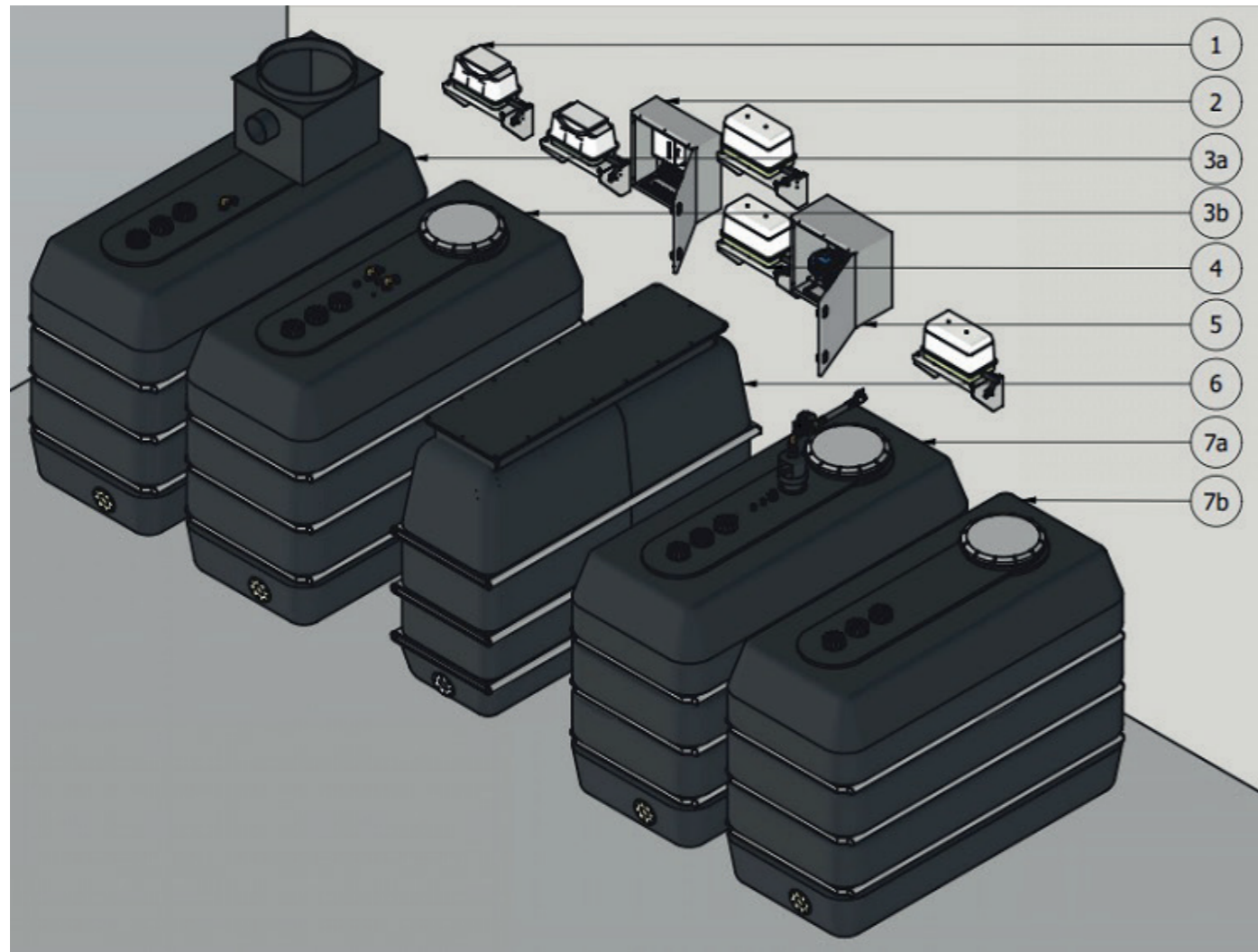


Active ageing on the building



Grey water system

Grey water system to recycle water from showers, taps and washing machines. The water will be stored in the Grijswatertanks (3). Than filtered in the Membraantanks (6), and reused from the Schoonwatertanks (7) to flush toilets.



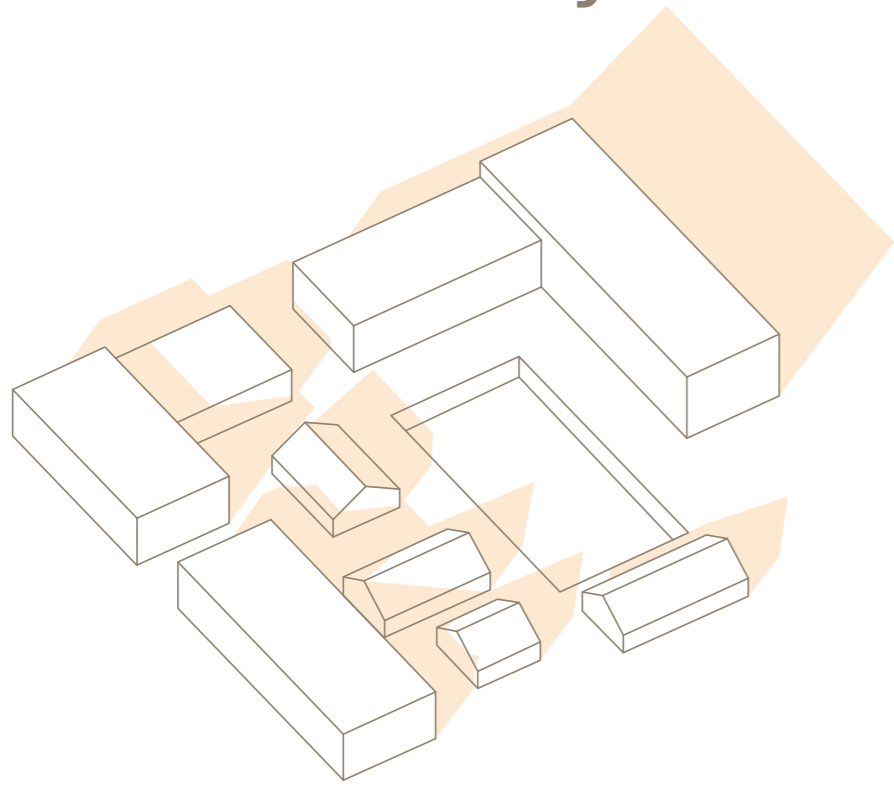
4.000L filtering system
in Basement for 48 residents

Legend Grey water system 4.000 indoor.

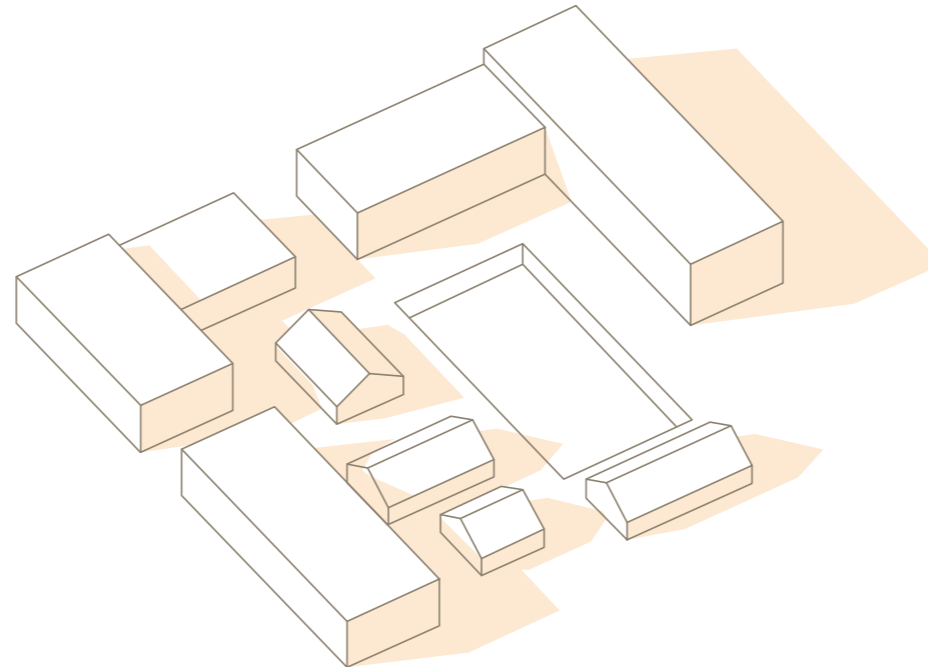
1. Compressor voor beluchting GWT (2 stuks)
2. GEP Grijswater systeem besturing
3. Grijswatertanks 2.000 Liter 2 stuks
4. Compressor voor beluchting MWT (3 stuks)
5. Membraanpompkast voor grijswatersysteem
6. Membraanwatertank MWT 2.000 liter
7. Schoonwatertanks 2.000 Liter 2 stuks

<https://gepwater.com/inpandig/grijswater-systeem-gwt4000/>

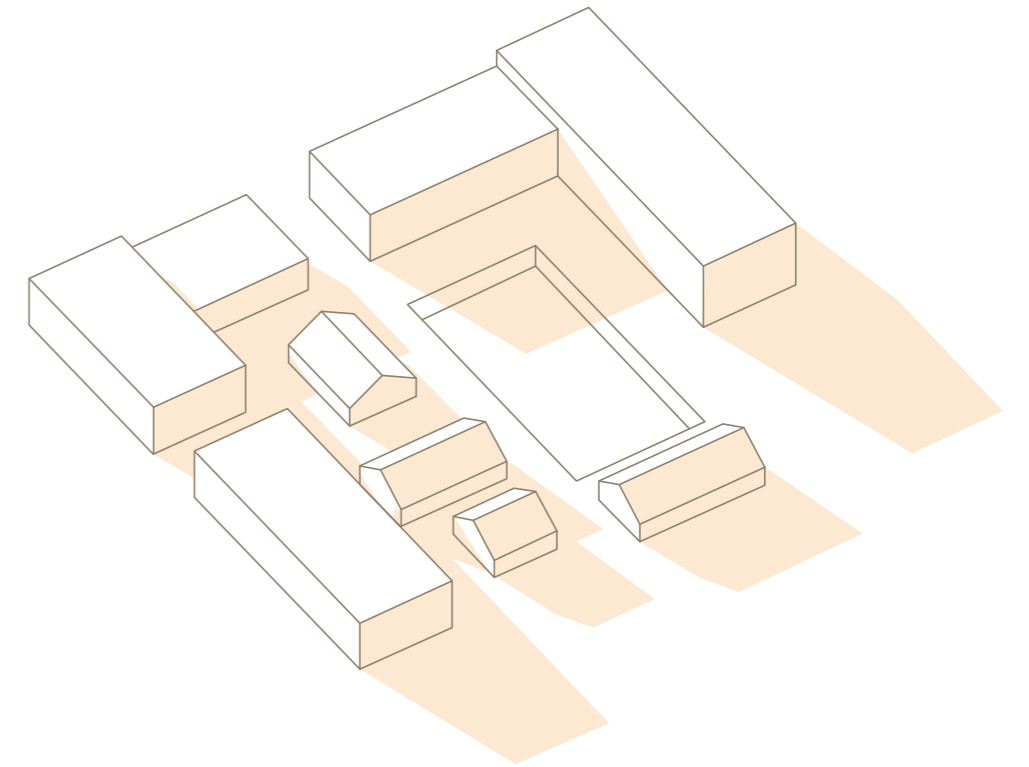
Sun study



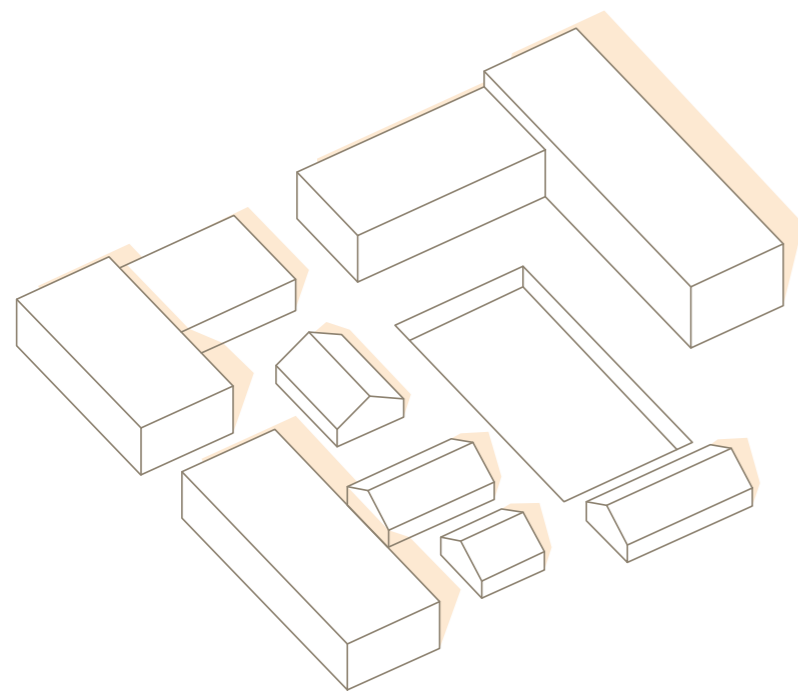
March - 10:00



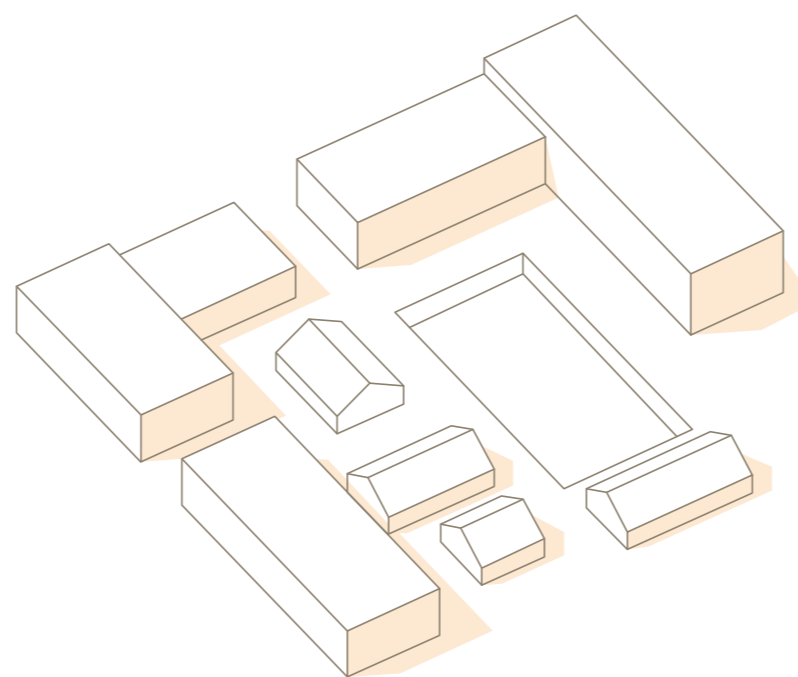
March - 13:00



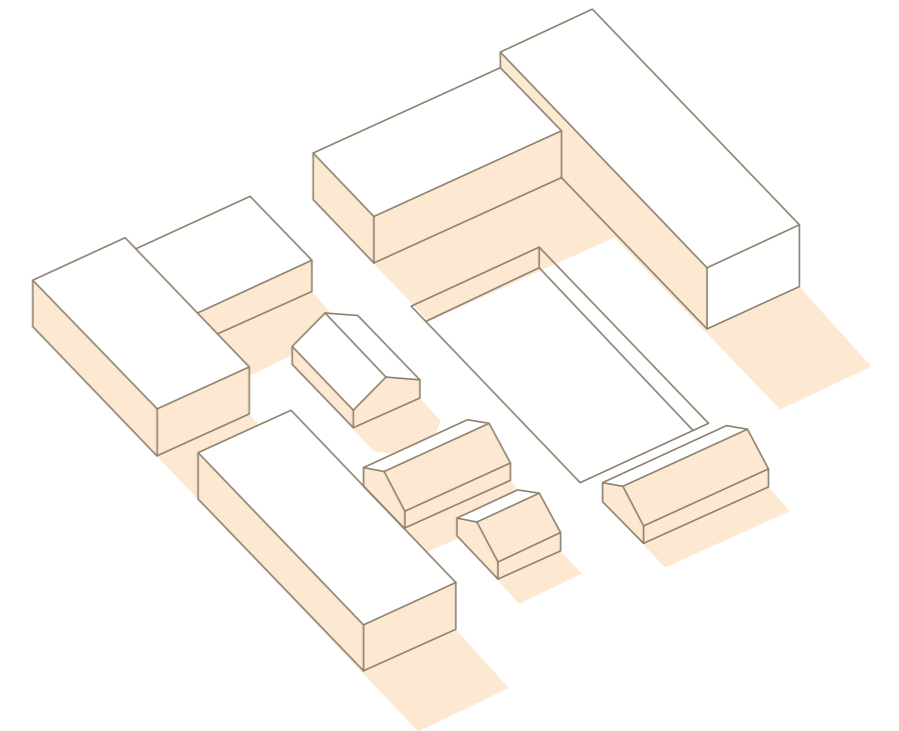
March - 16:00



June - 10:00



June - 13:00



June - 16:00



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