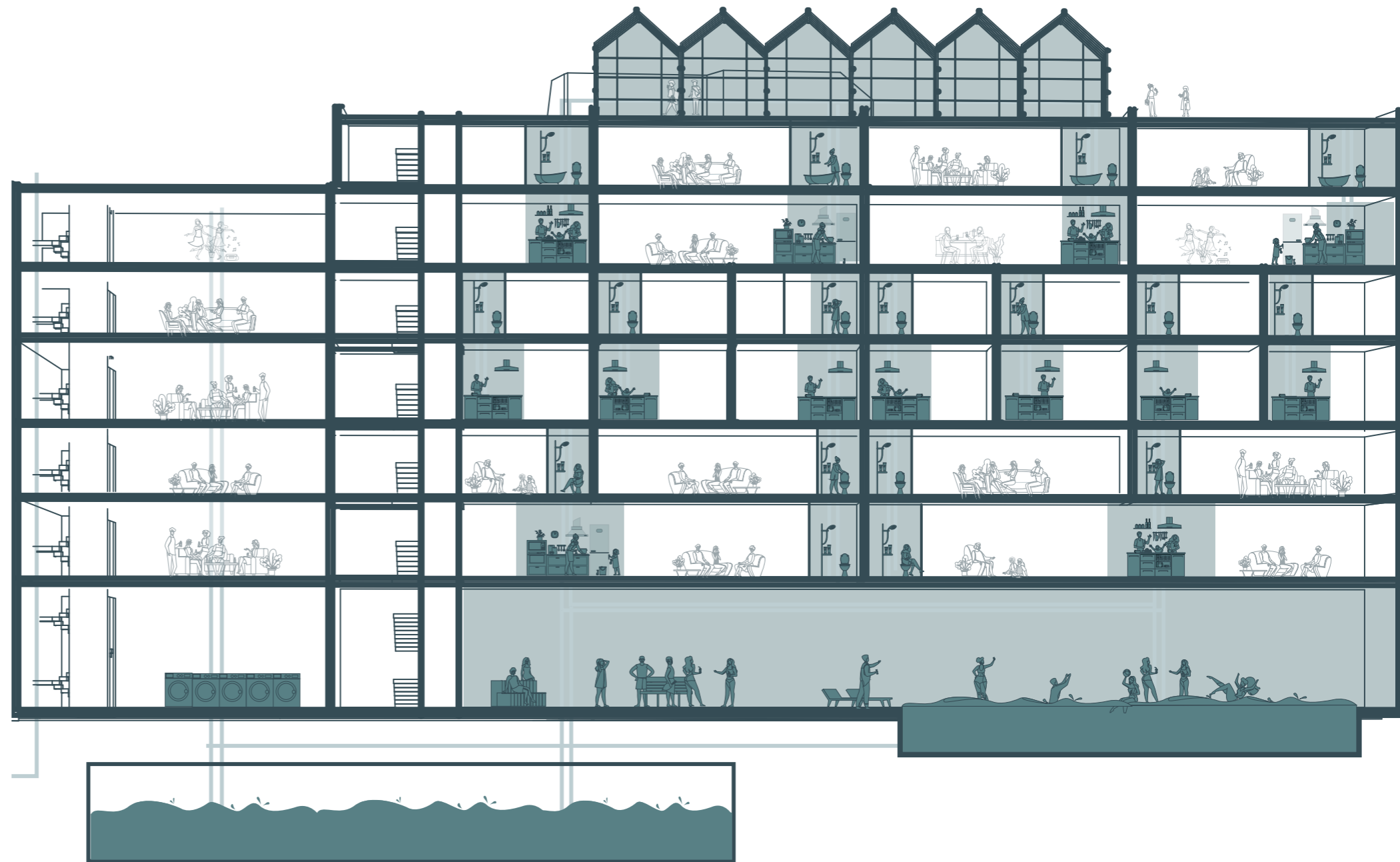


# BIND BY WATER

BUILDING A COMMUNITY AMONGST SOLO DWELLERS  
THROUGH WATER INFRASTRUCTURE

|AR3AD100 - ADVANCED HOUSING STUDIO|

DRAWING SET  
(A3 FORMAT)



KELLY WONG  
4557697  
11-11-22

**BIND BY WATER**

*design ambition*

*“ Designing a residential building that fosters community building amongst solo dwellers to combat loneliness.*

*Generating a pleasant living environment in which water infrastructure becomes a key component in community building and sustainable water resource management. Therefore enhancing the possibility to reduce solo dwellers’ water footprint ”*

RESEARCH QUESTION

How could community building amongst solo dwellers be enhanced through water infrastructure?

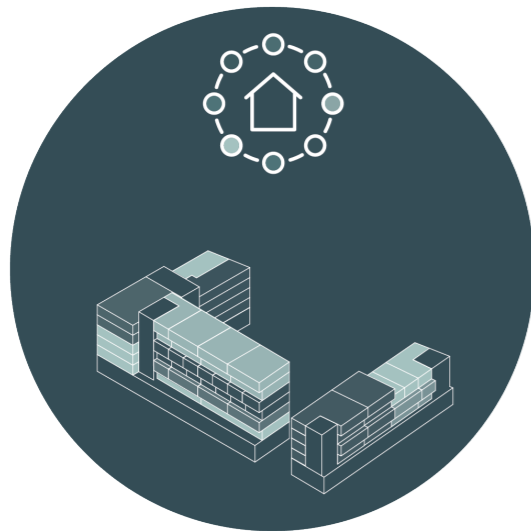
DESIGN QUESTION

How can bathing infrastructure and the social spaces of bathing influence a housing complex (located above it) and its residents?

BIND BY WATER  
*design principles*

A VARIETY OF HOUSING  
TYPOLOGY

for the heterogenous group



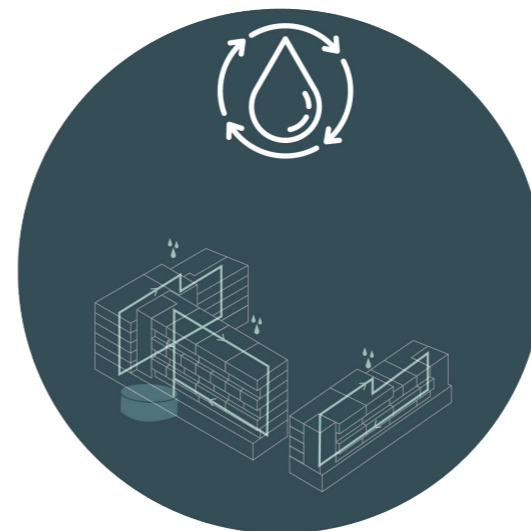
INCORPORATE COMMUNAL  
SPACES

to enhance social interaction



USE INNOVATIVE WATER TREAT-  
MENT SYSTEMS

(sustainable water resource  
management)

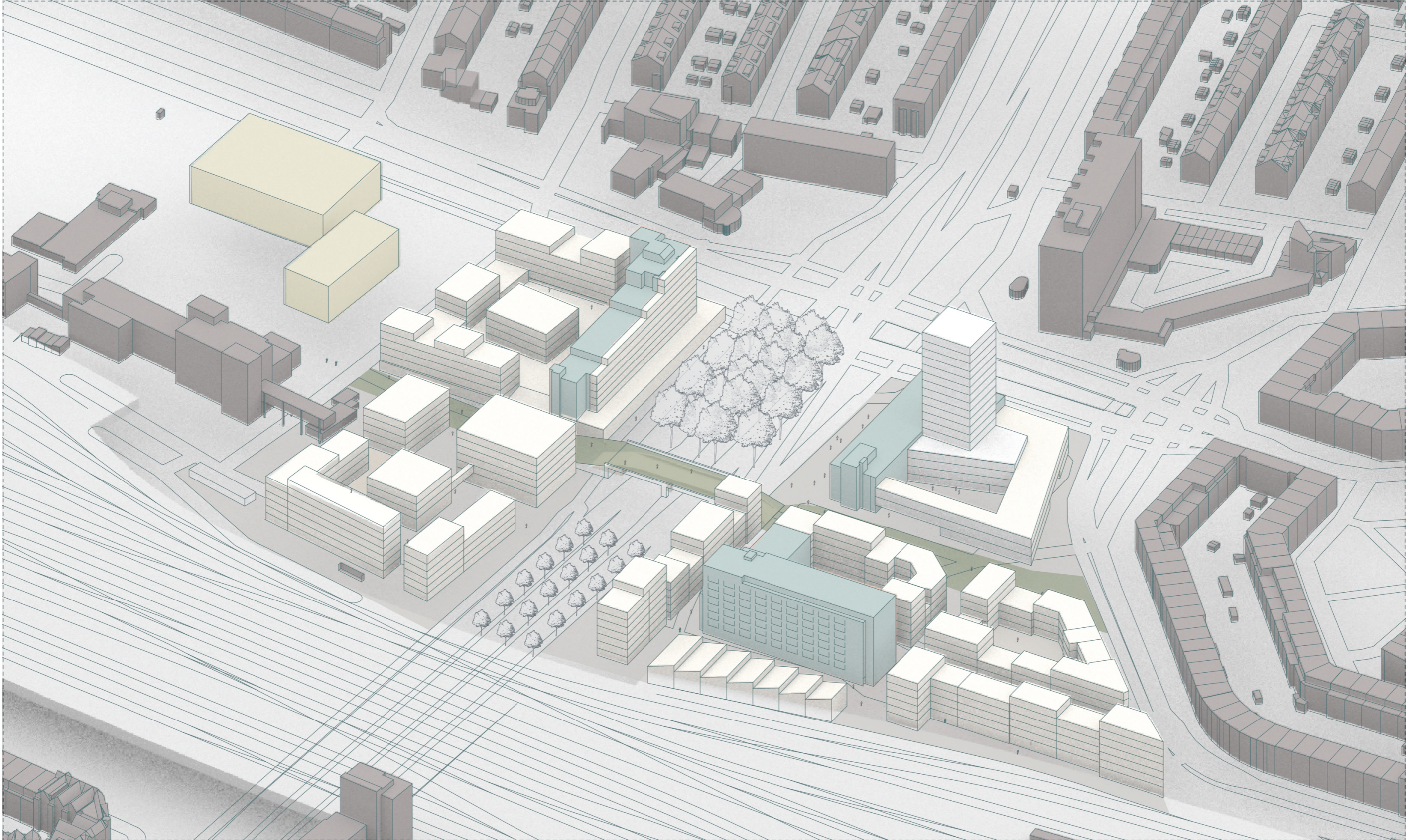


EXPLOIT COMMUNAL BATHING  
+ BATHHOUSE

as a means to connect solo dwell-  
ers and reduce their water foot-  
print



BIND BY WATER  
*collective urban masterplan*



## BIND BY WATER

*bind by water in masterplan*

### 1. Define urban fabric

- Mid-rise buildings
- React to existing urban fabric

### 2. Neighbourhood center

- Mixed program
- Active groundfloor
- Bathhouse for the city

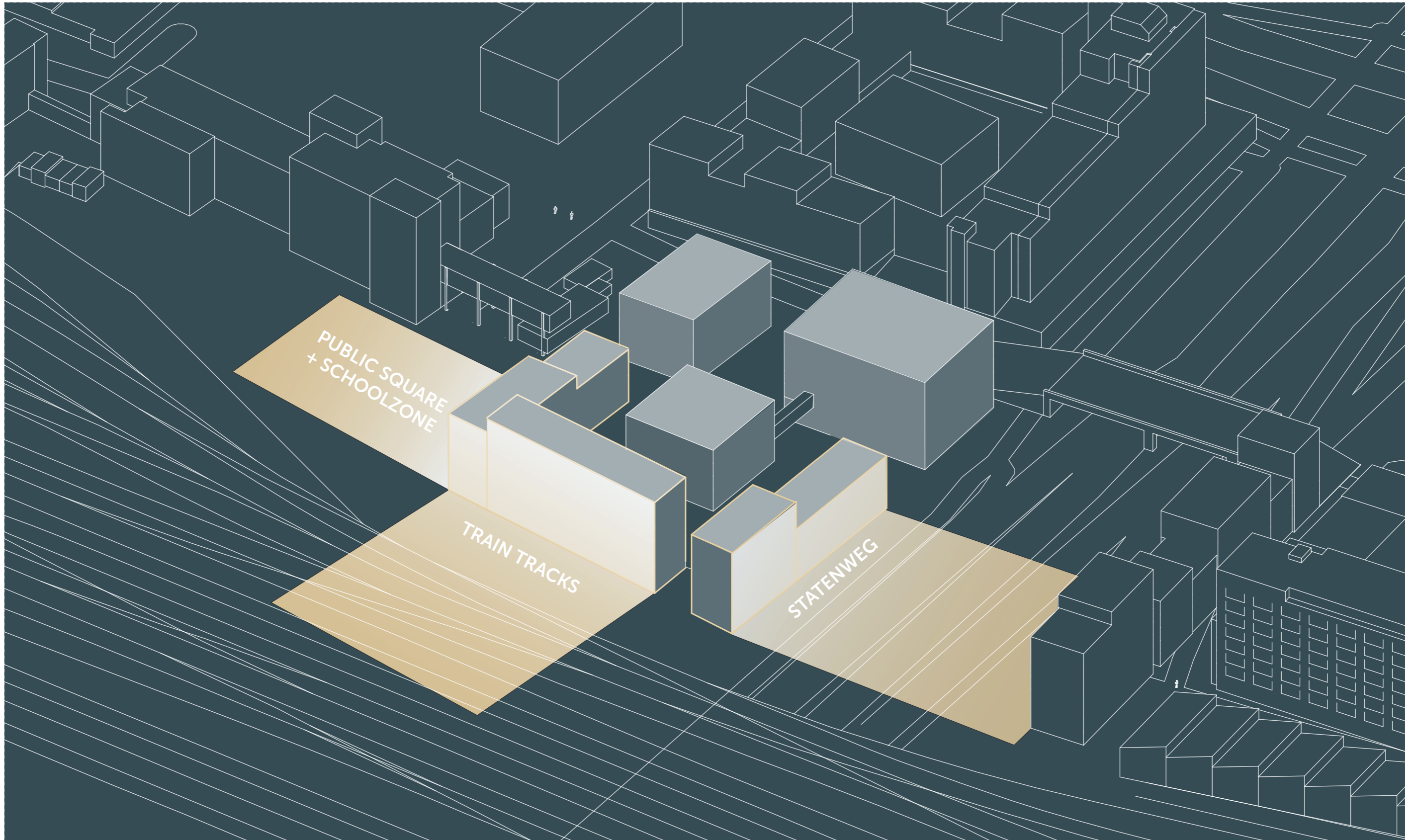
### 3. Healthy living

- Low noise pollution
- Resource-efficient
- Close proximity with water

### 4. Social sustainability

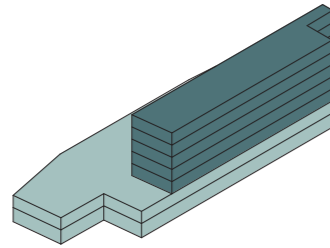
- Social mix of solo dwellers
- Different housing typologies (suited for solo dwellers)
- Collective spaces
- Enhancing social interaction

BIND BY WATER  
*environmental context*



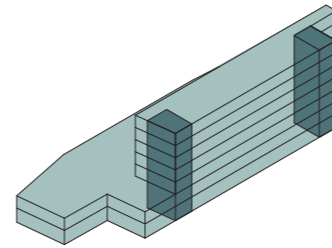
BIND BY WATER  
*design concept*

1



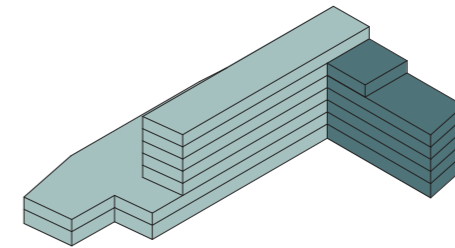
bathing infrastructure 'heart'

2



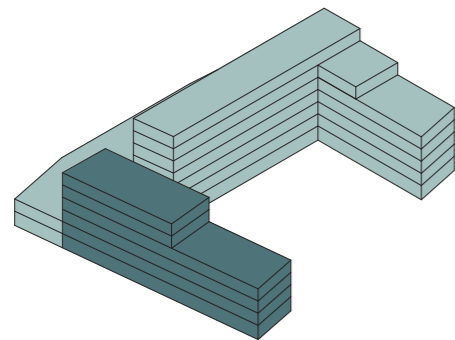
circulation cores on both sides

3



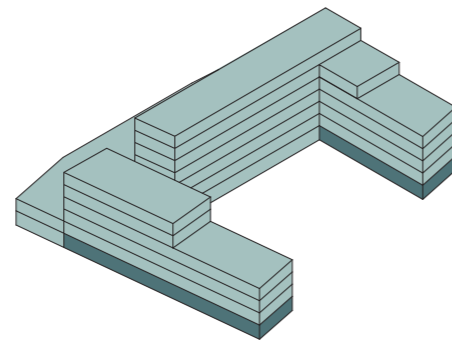
introduction of dwelling typologies with  
no bathrooms + inner corridor

4



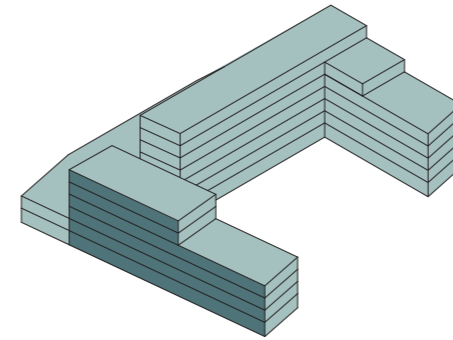
introduction of dwelling typologies with  
limited bathrooms + inner corridor

5



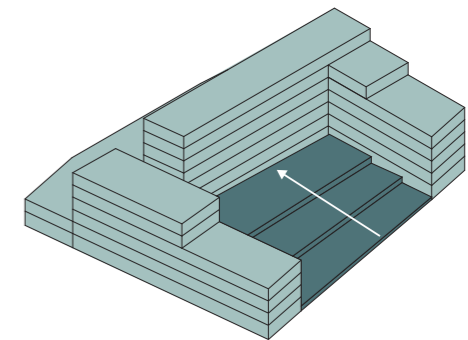
adding ground floor functions  
stimulating healthy living

6



adding site specific design elements

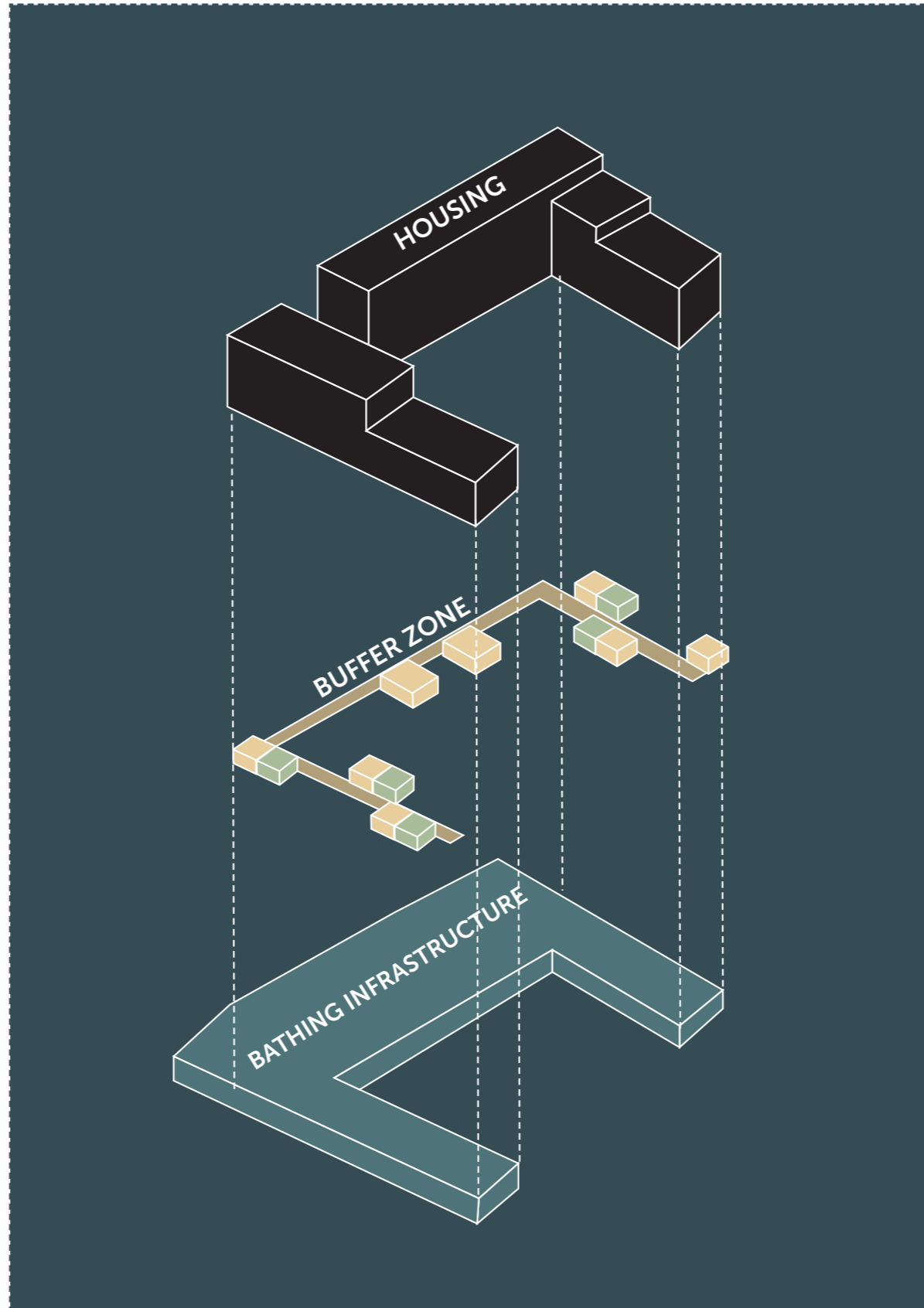
7



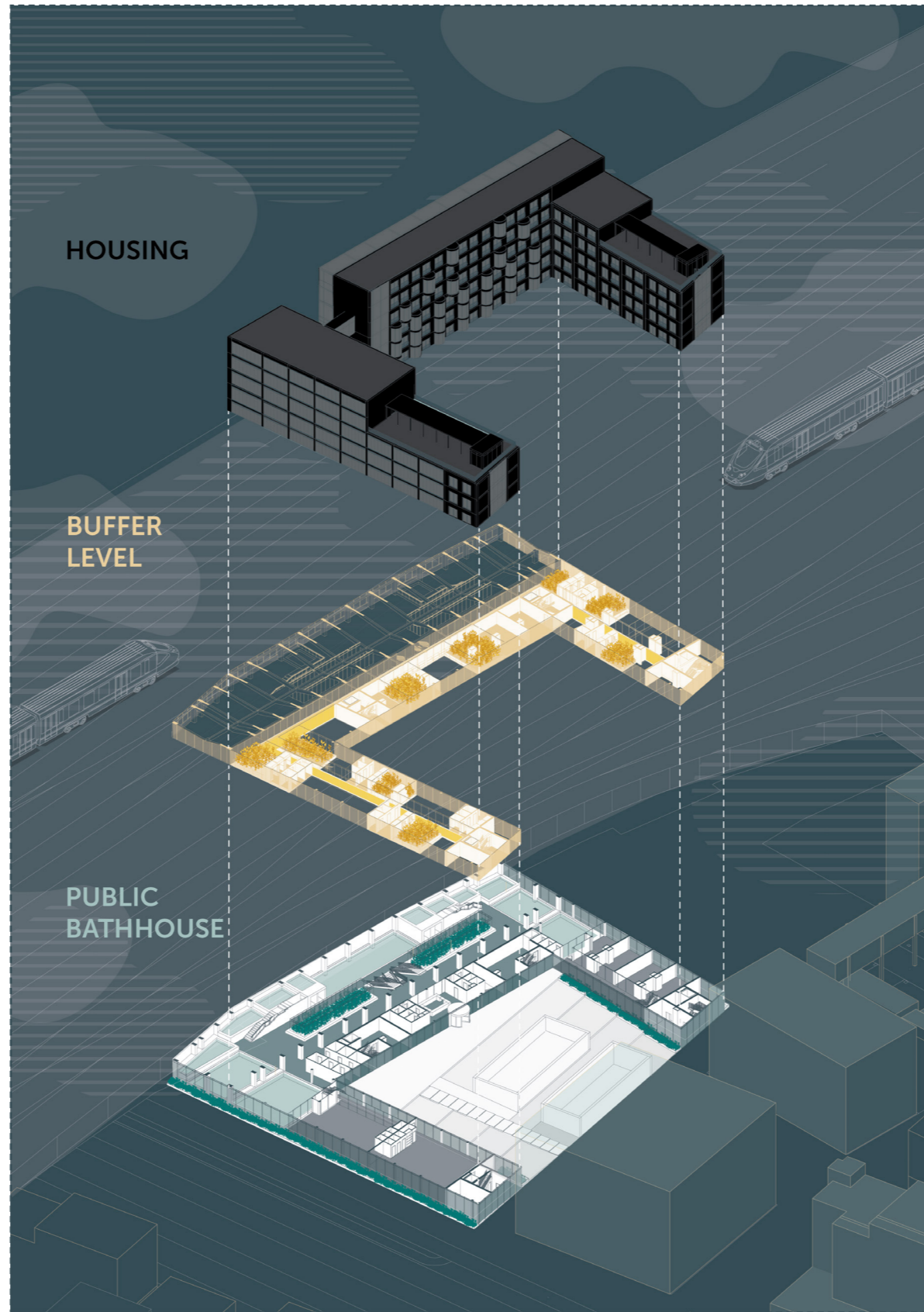
utilize adjacent outdoor space to create  
inviting atmosphere



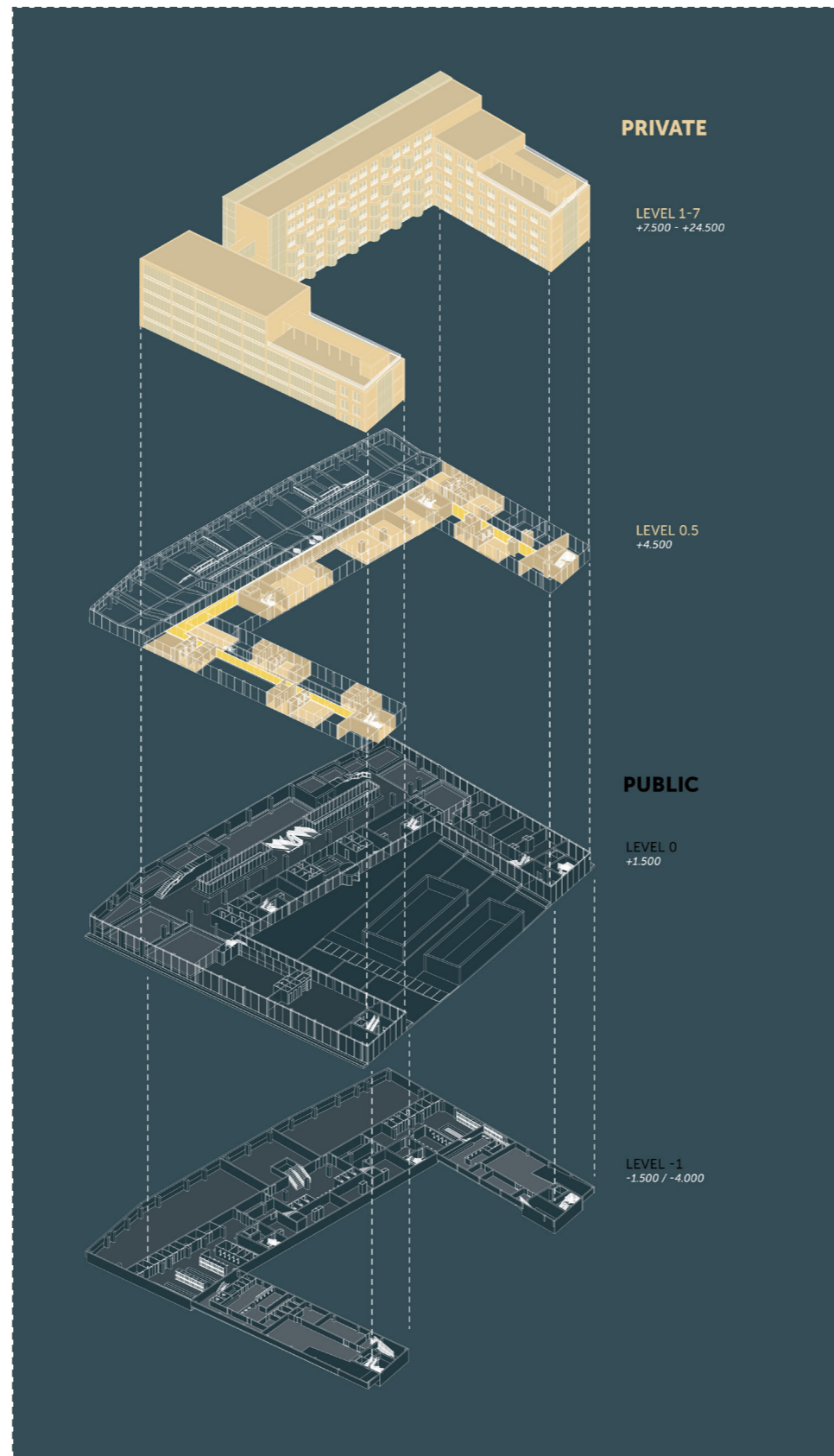
BIND BY WATER  
*project program*



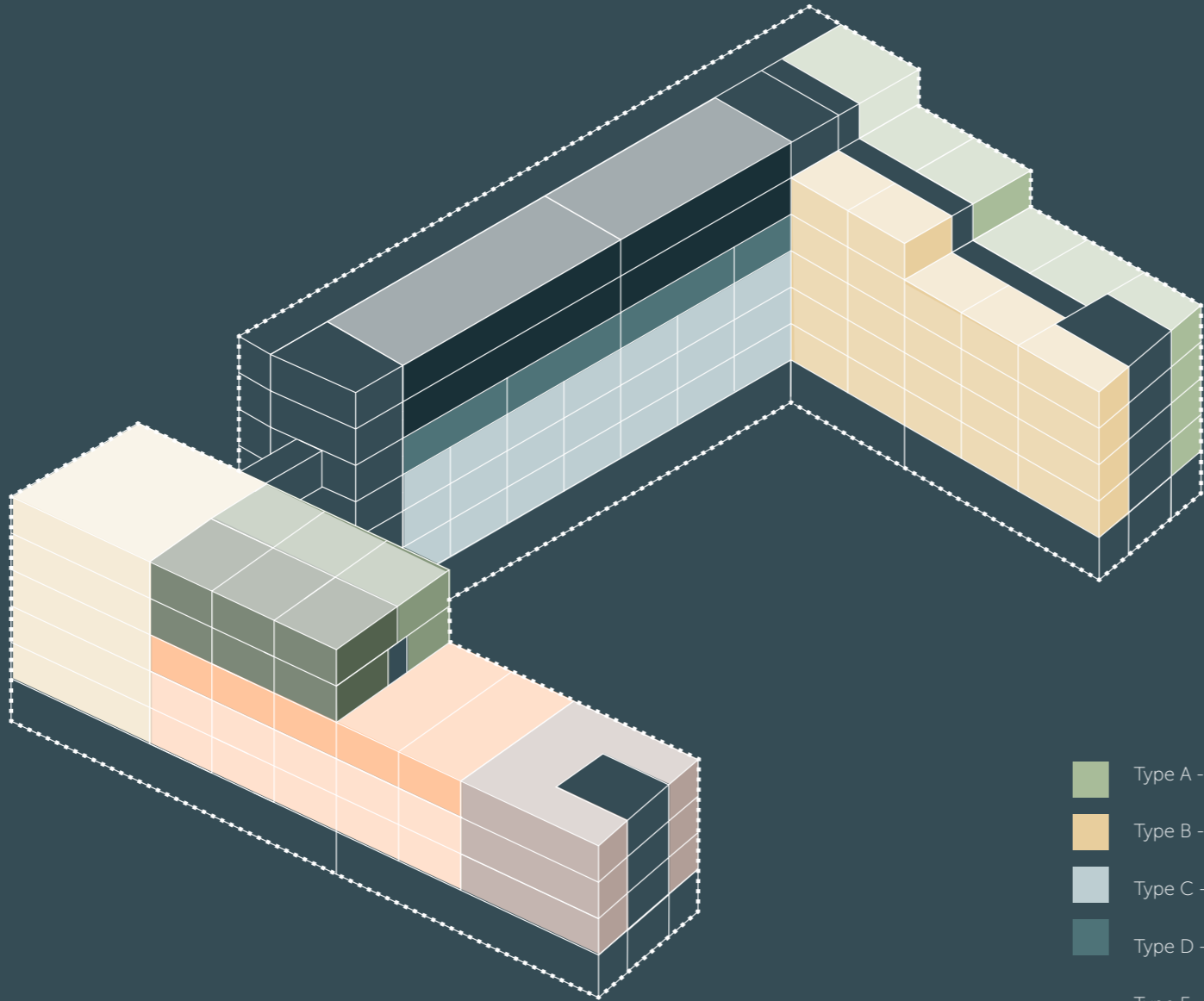
BIND BY WATER  
*project program*



BIND BY WATER  
*public / private*

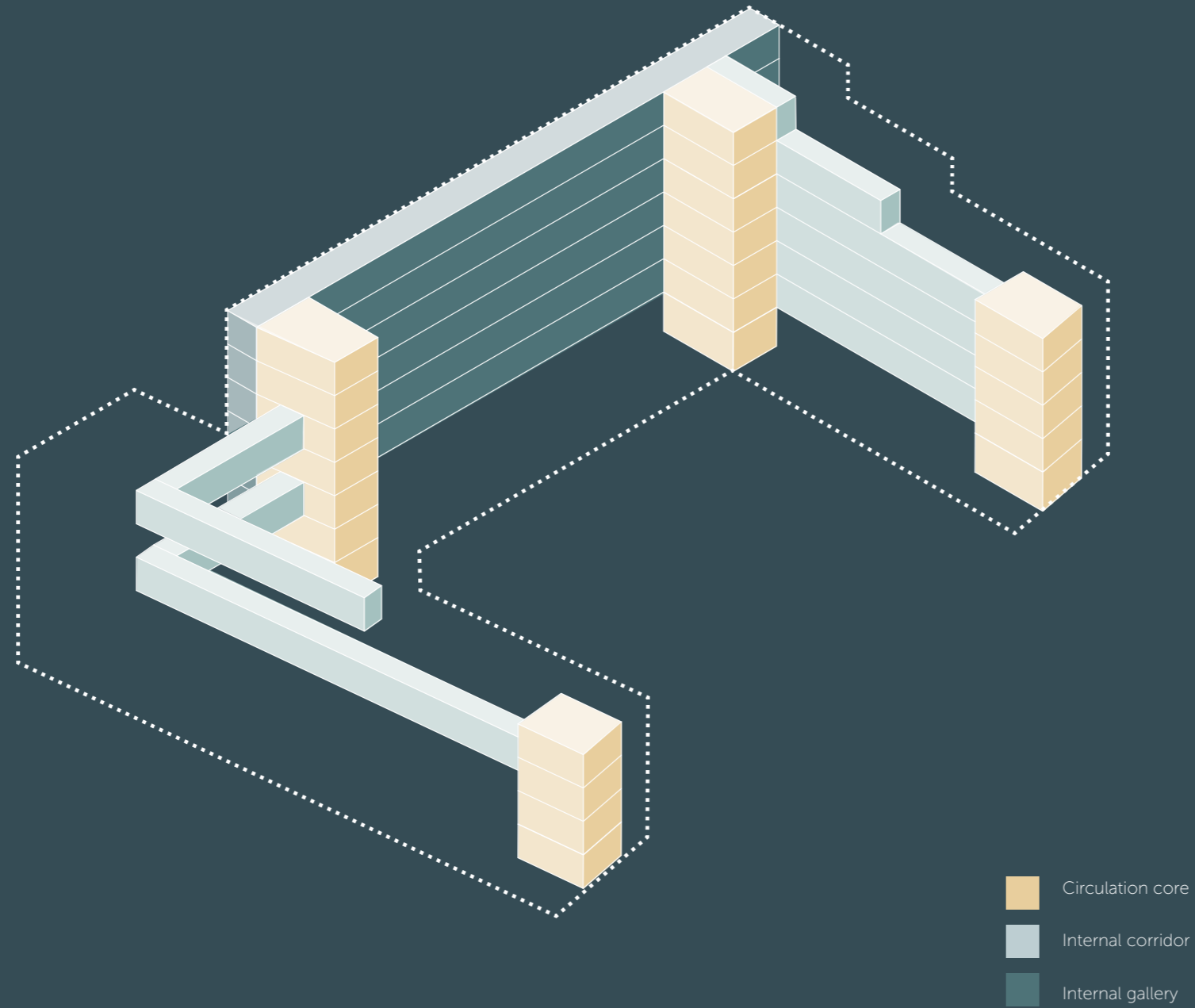


BIND BY WATER  
*housing - typologies*



- Type A - studio
  - Type B - studio
  - Type C - 1-bed apt. \*
  - Type D - 2-bed apt. \*
  - Type E - cluster apt. \*
  - Type F - duplex cluster apt.
  - Type G - duplex 1.5-bed apt.
  - Type H - duplex 1.5-bed apt.
  - Type I - duplex 1.5-bed apt.
  - Type J - duplex 2 -bed apt.
  - Type K - 2 bed apartment
- \* with bathrooms

BIND BY WATER  
*housing - circulation*



BIND BY WATER  
*east facade*



0 2.5 5 10m

BIND BY WATER  
*west facade*



0 2.5 5 10m

BIND BY WATER  
*south facade*



0 2.5 5 10m

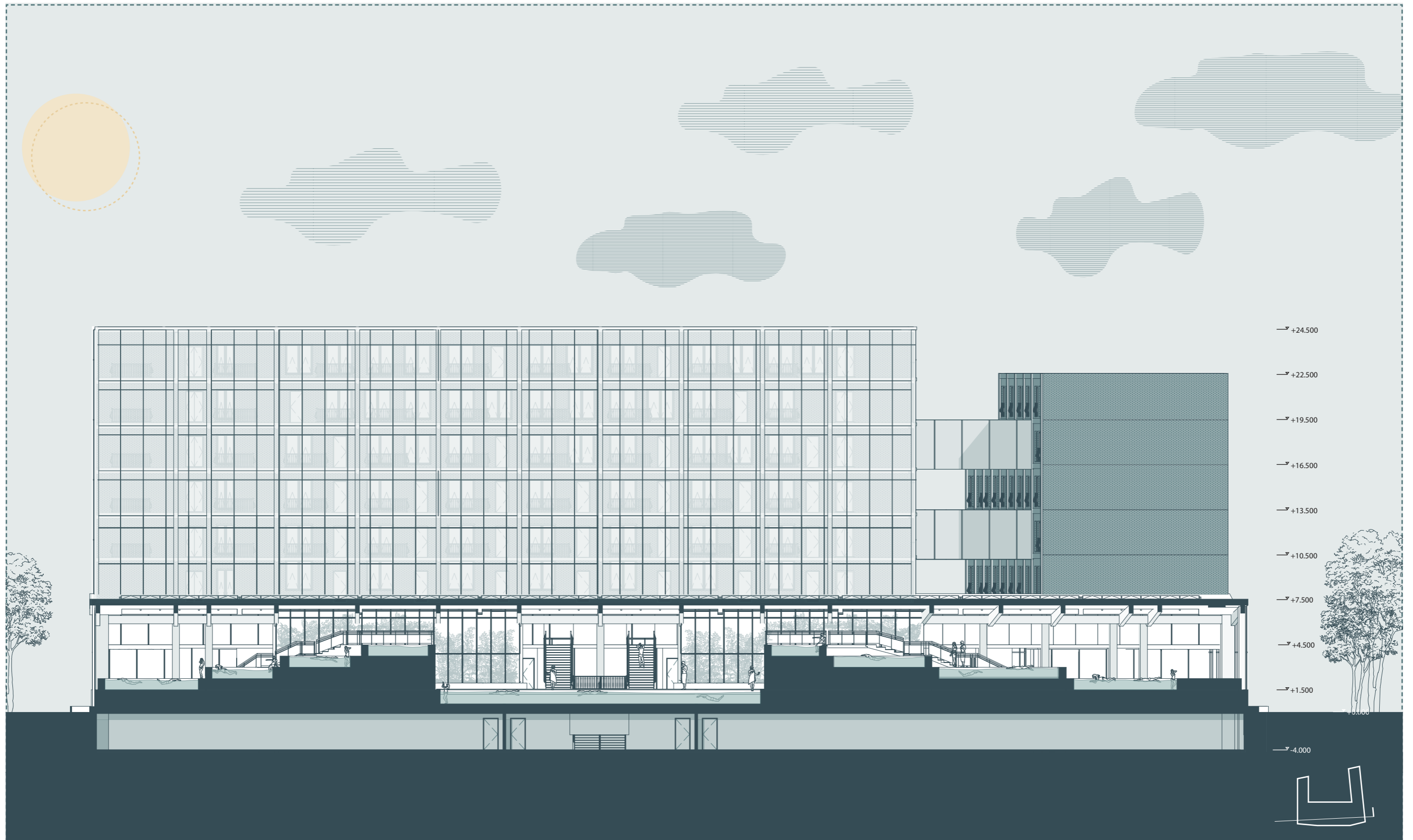


BIND BY WATER  
*north facade*



0 2.5 5 10m

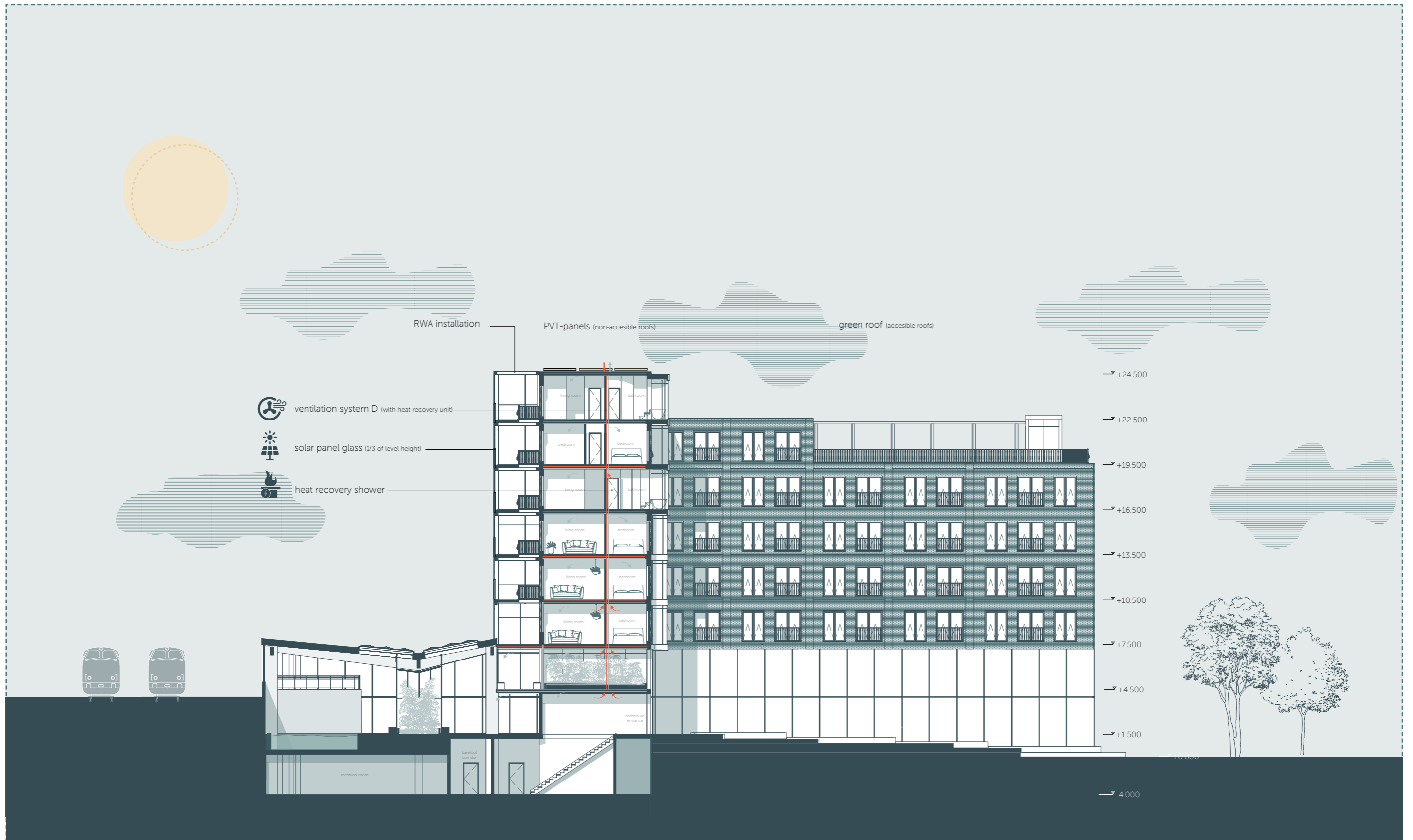
BIND BY WATER  
section AA



BIND BY WATER  
section BB



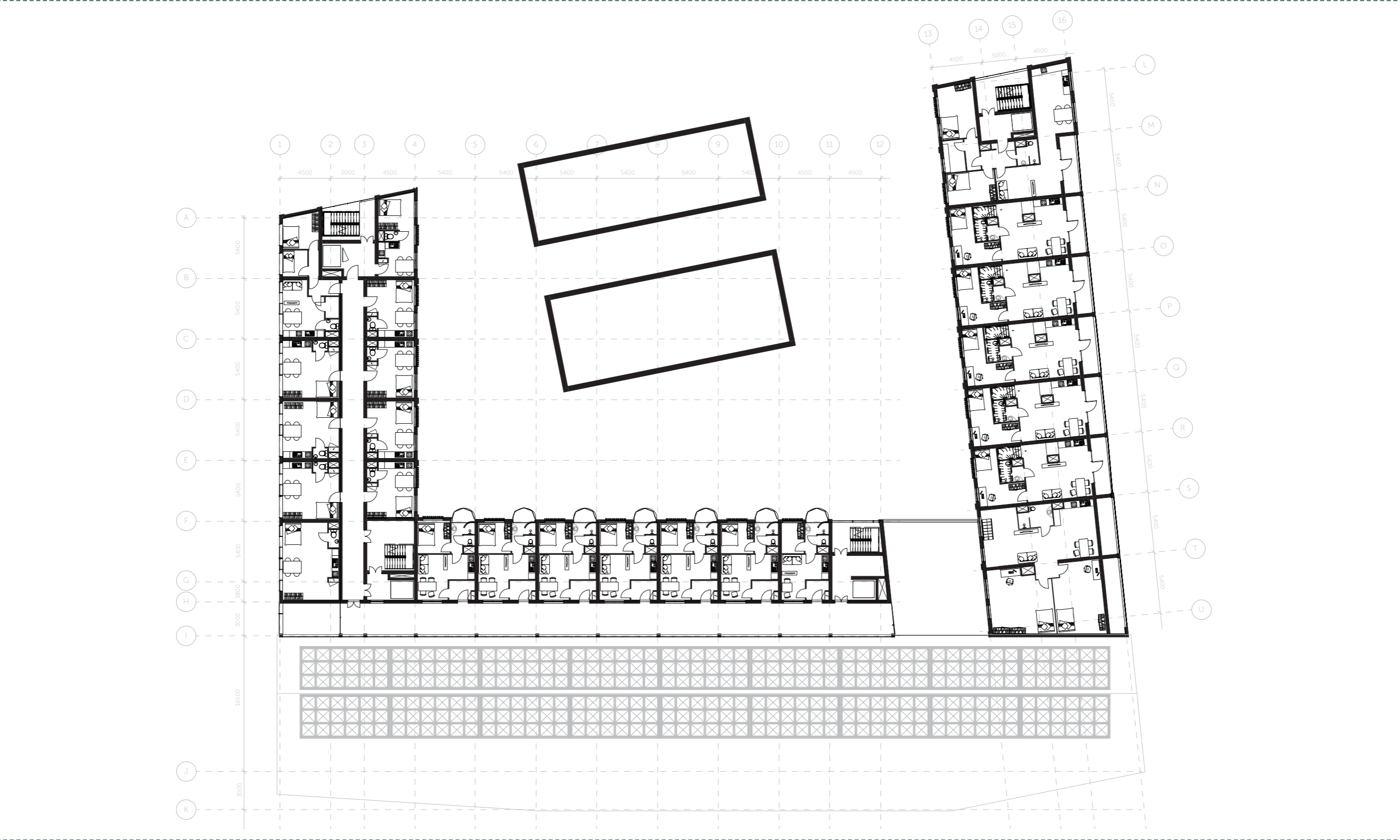
BIND BY WATER  
climate section



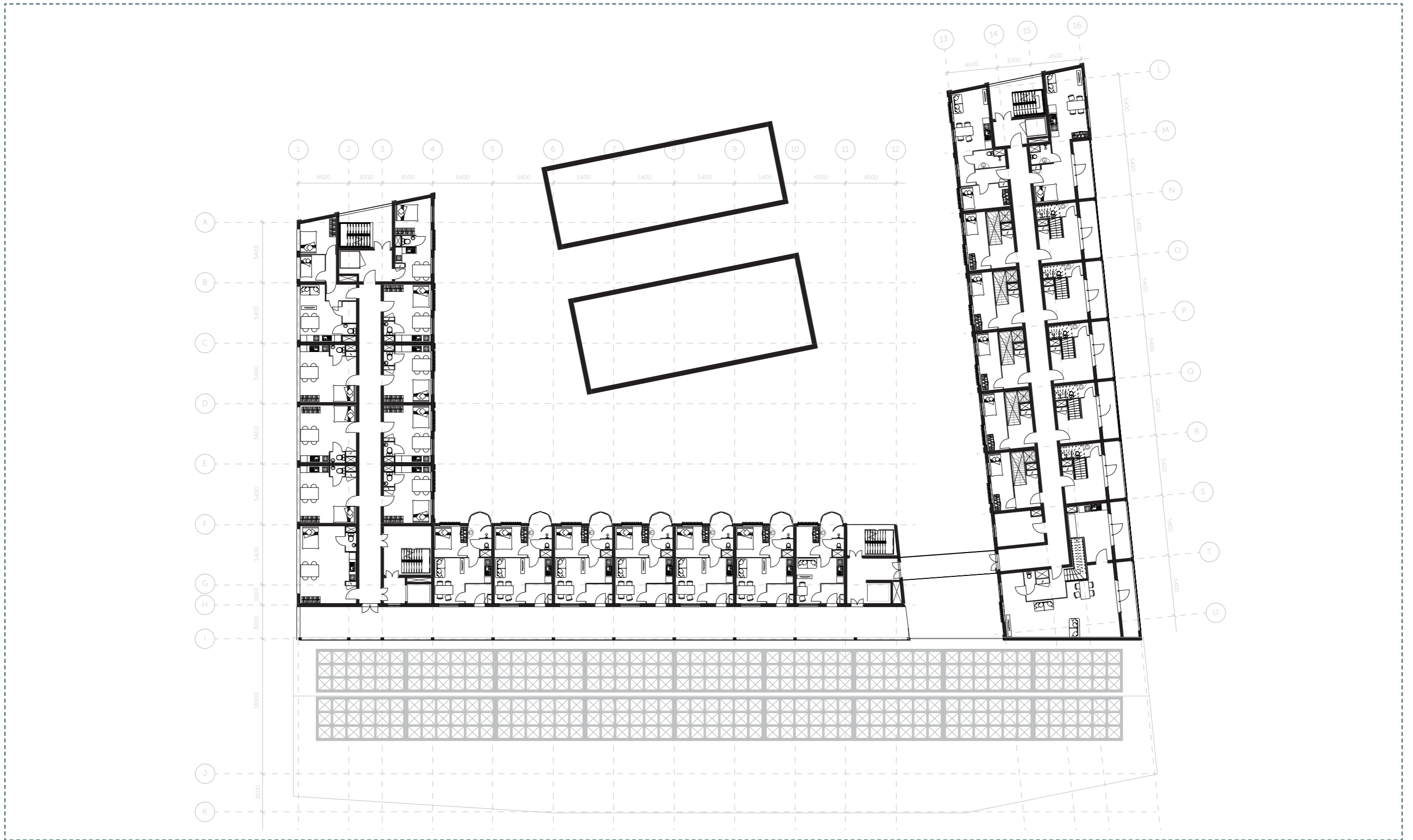
BIND BY WATER  
*section CC*



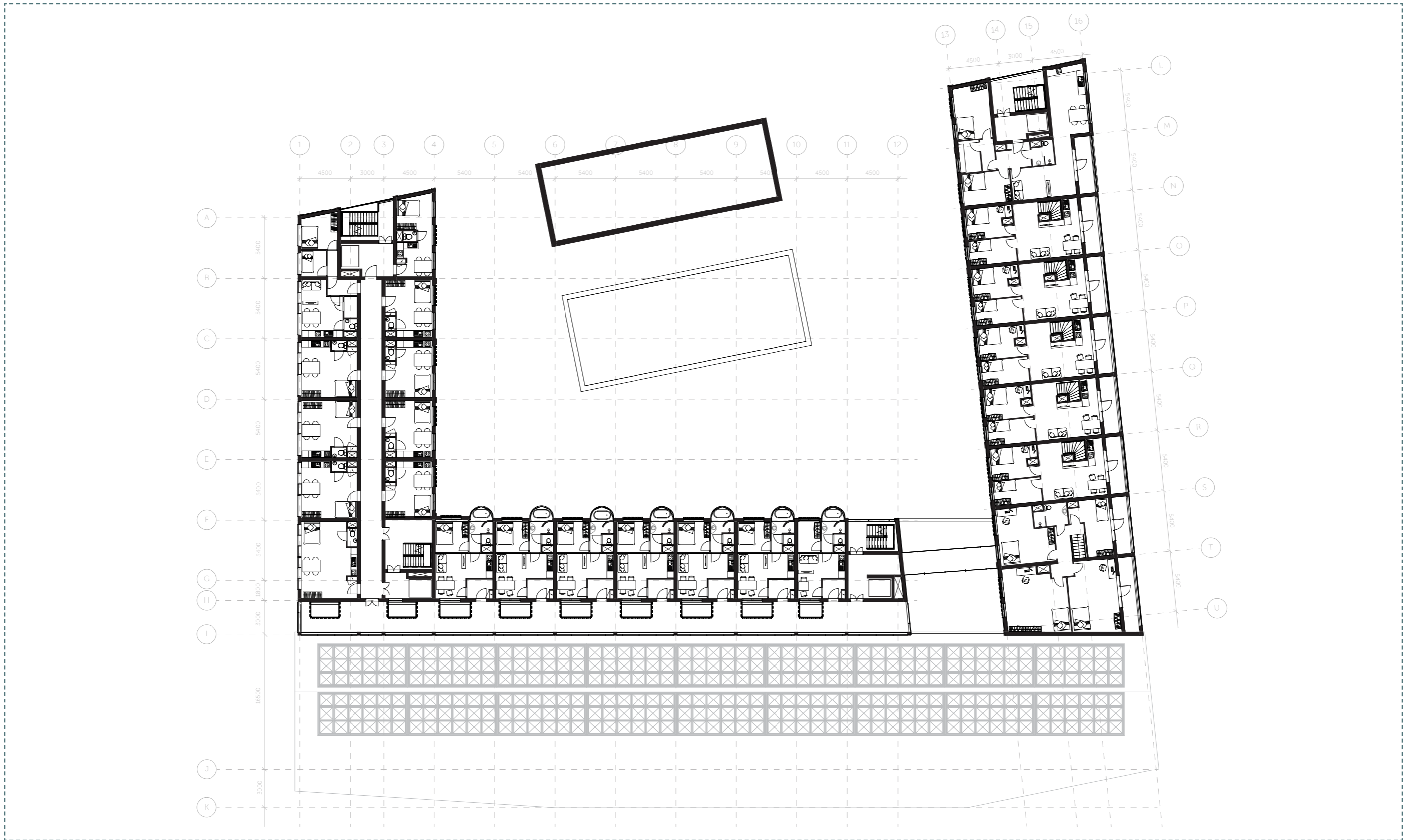
BIND BY WATER  
floorplan - first floor



BIND BY WATER  
floorplan - second floor

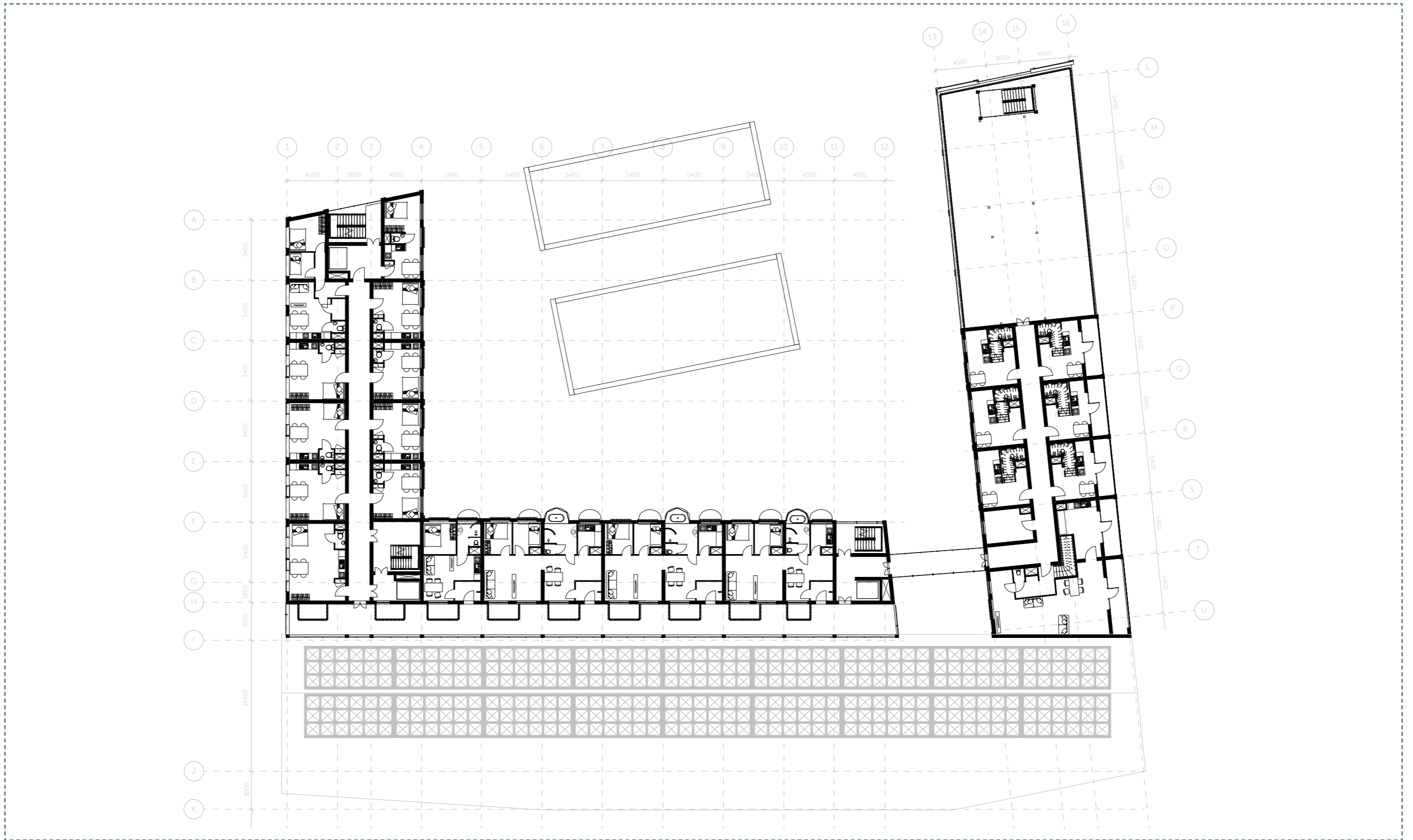


BIND BY WATER  
floorplan - third floor

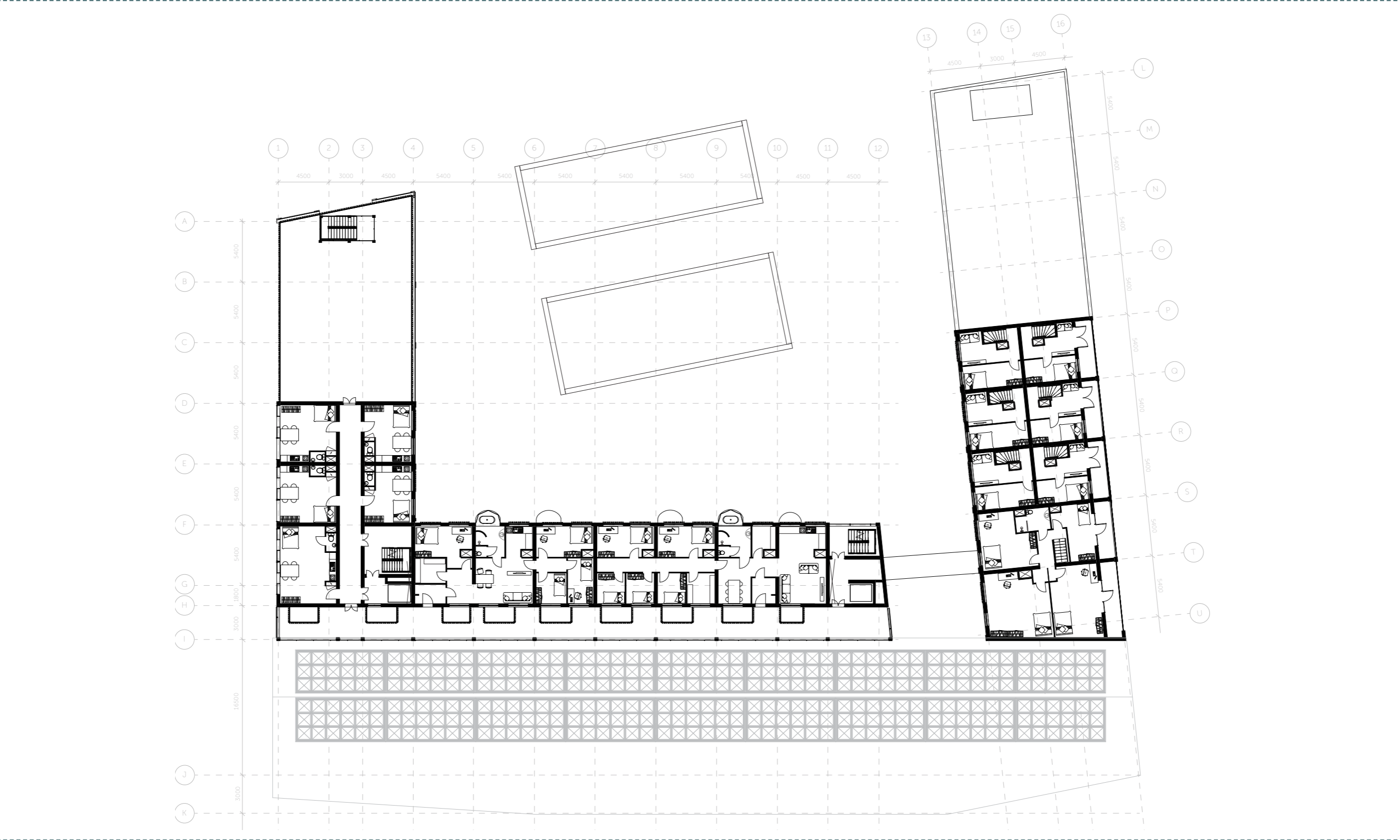




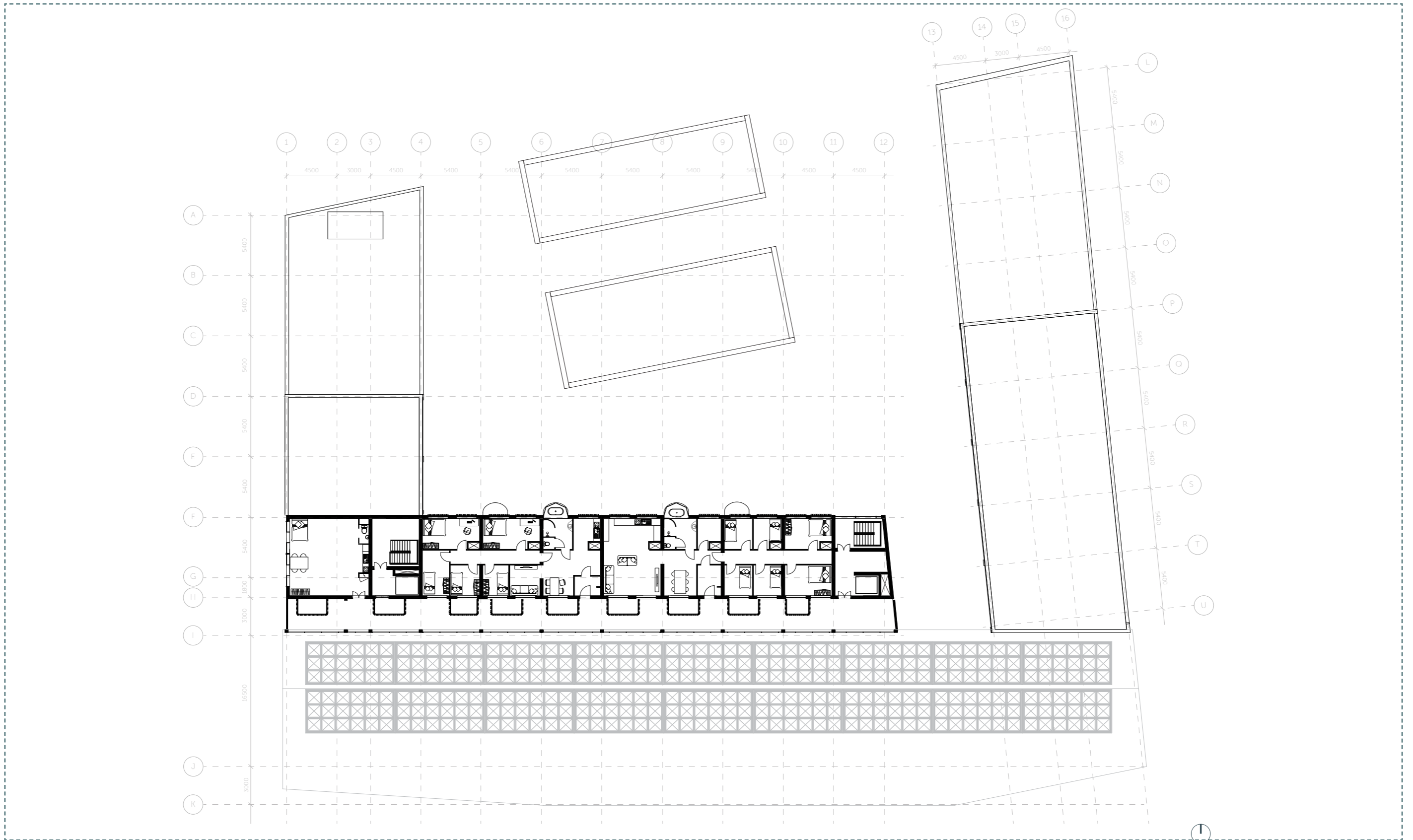
BIND BY WATER  
floorplan - fourth floor



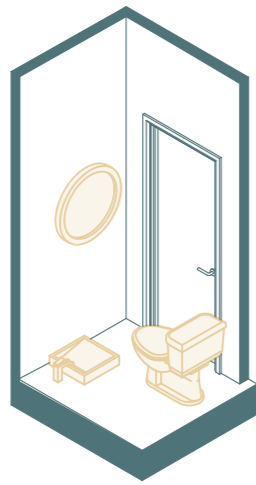
BIND BY WATER  
floorplan - fifth floor



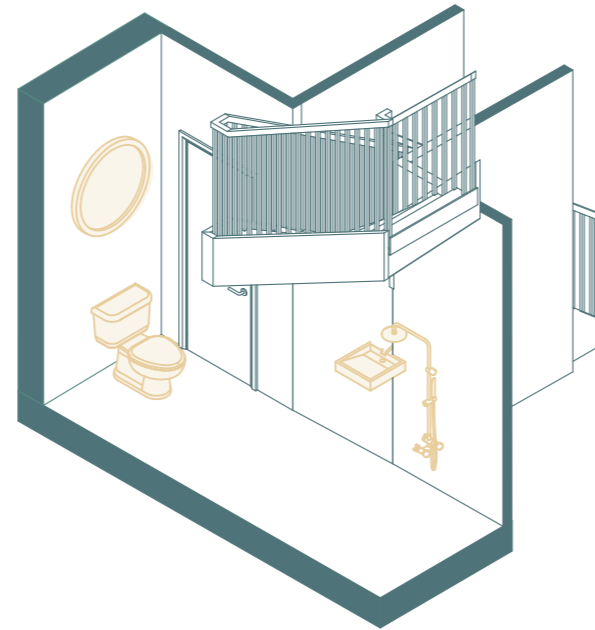
BIND BY WATER  
floorplan - sixth floor



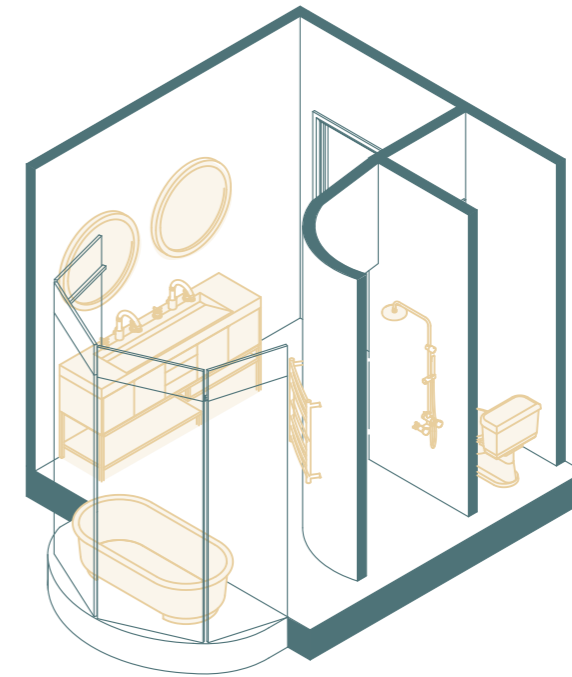
BIND BY WATER  
*bathroom typologies*



1. no bathroom

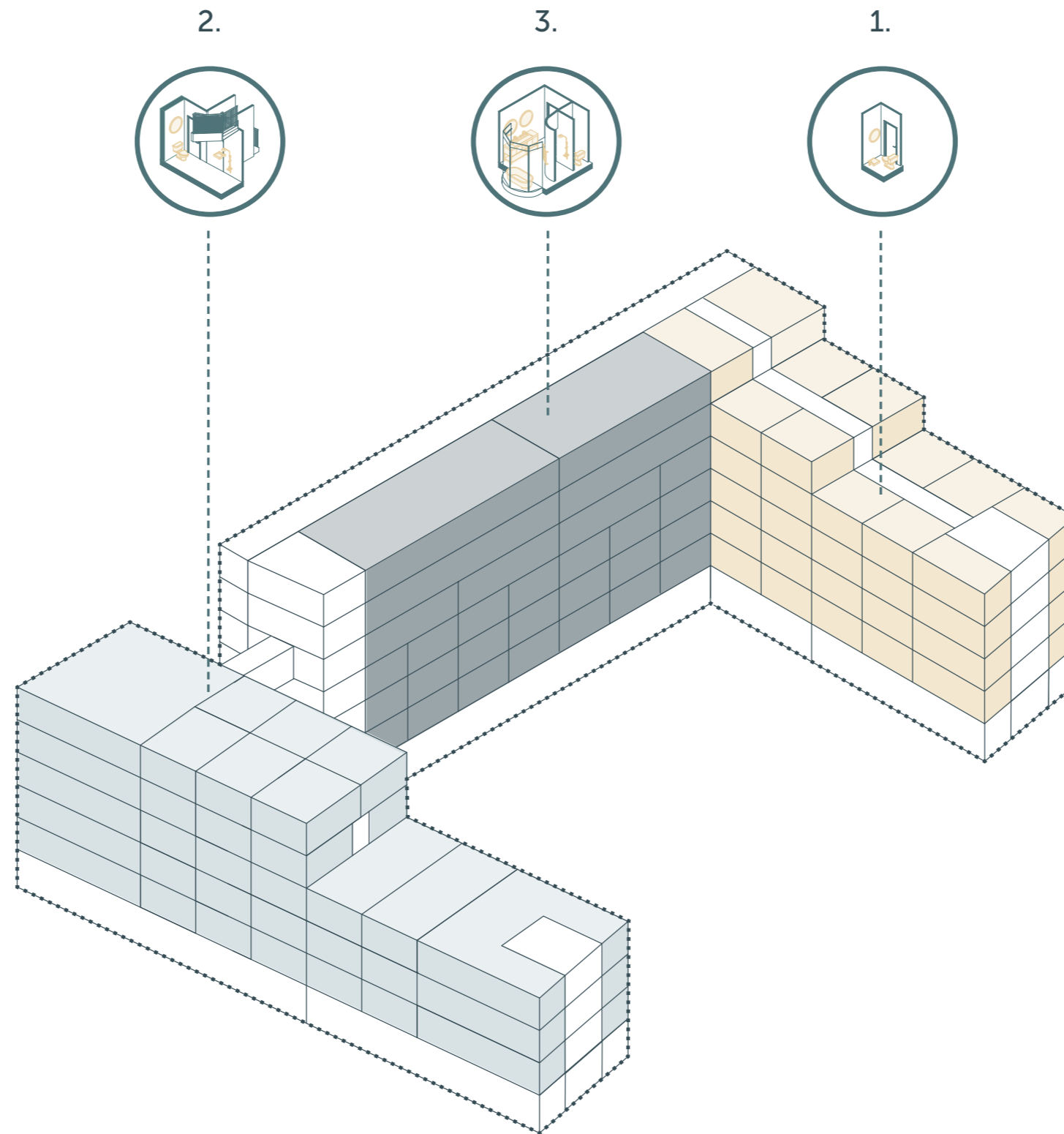


2. limited bathroom



3. extravagant bathroom

BIND BY WATER  
*typologies building distr*



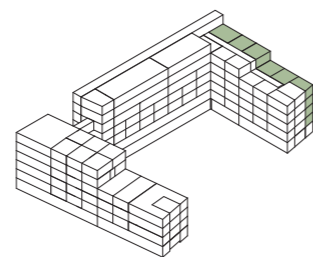
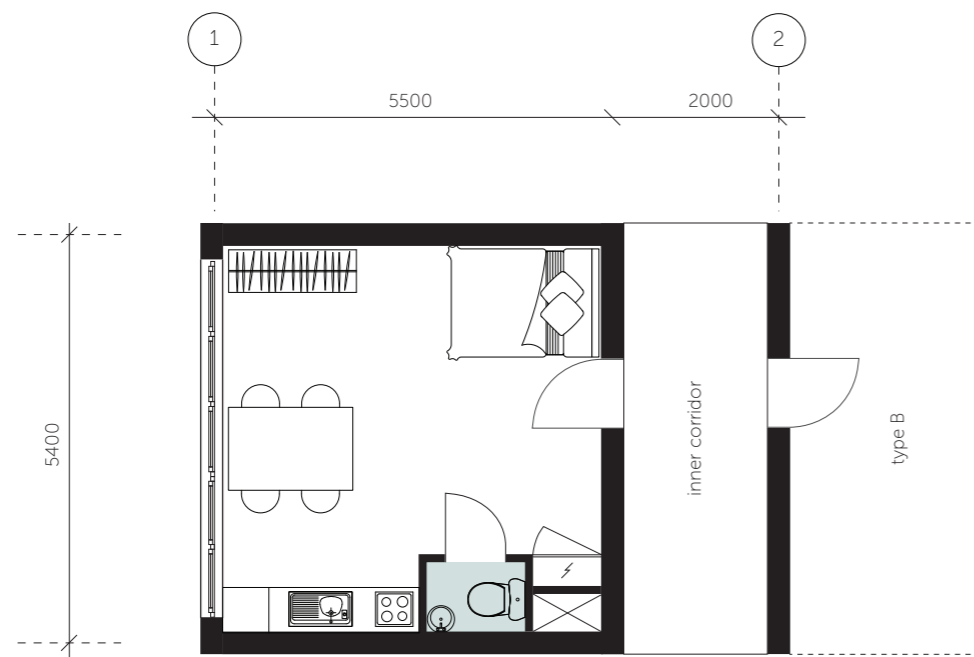
# BIND BY WATER

*typologies - a big variety*

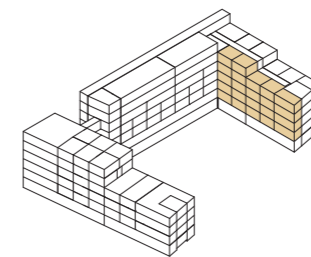
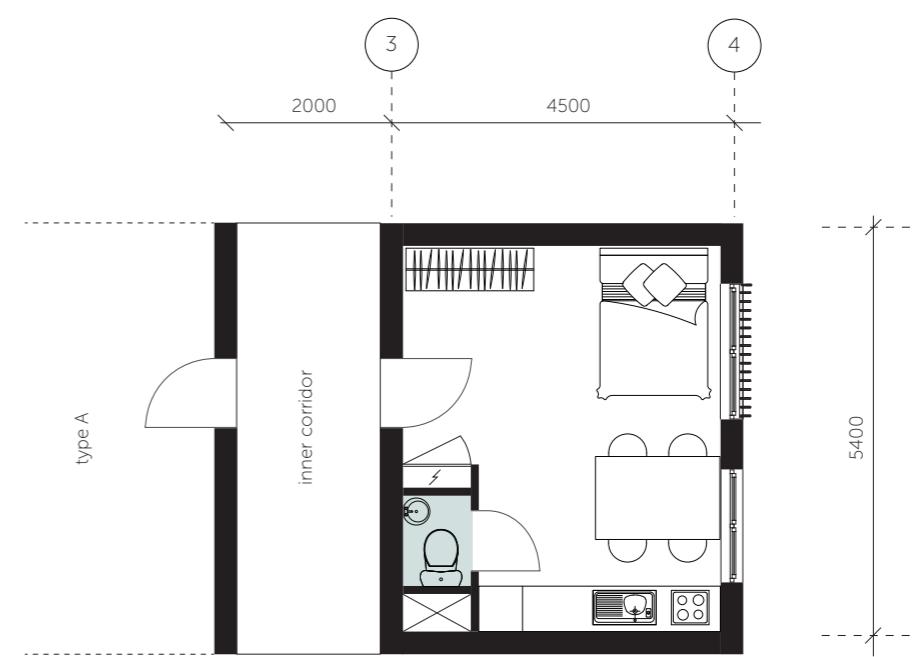


BIND BY WATER  
typologies - no bathroom

TYPE A  
studio



TYPE B  
studio



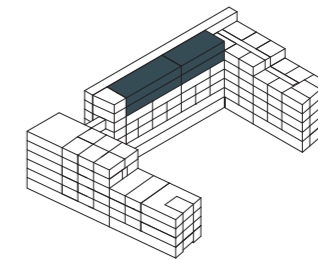
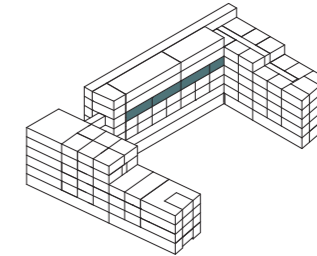
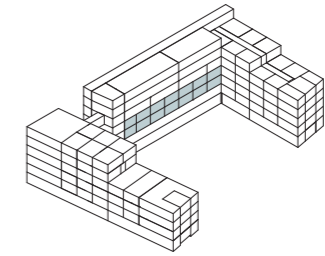
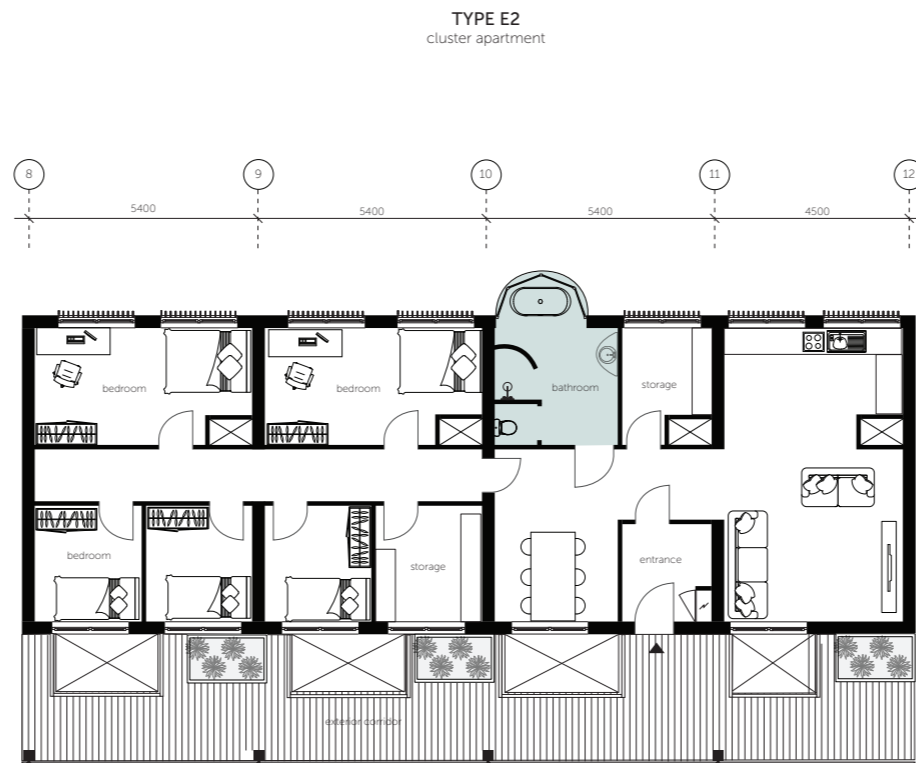
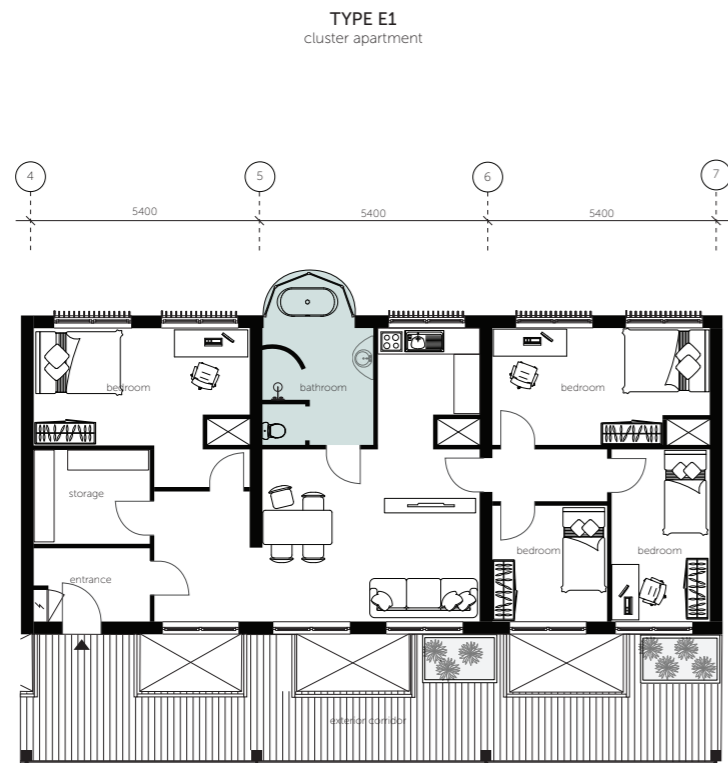
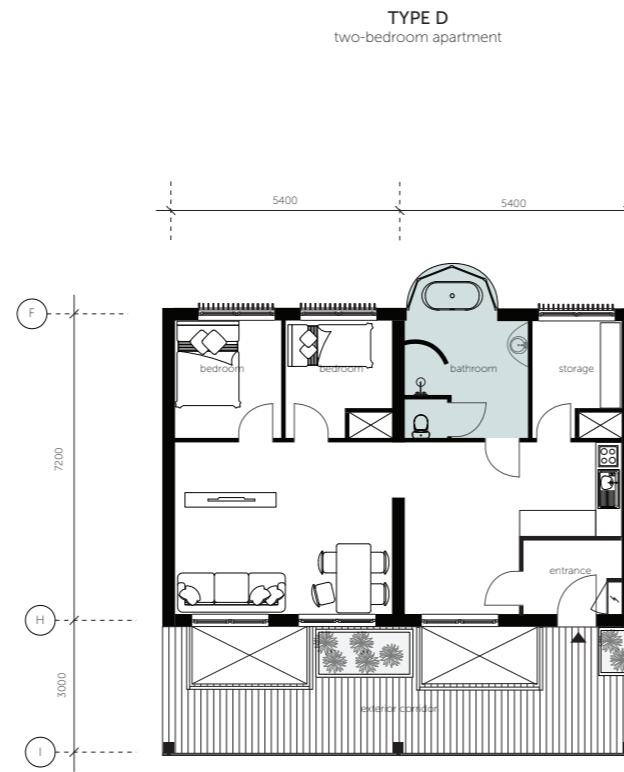
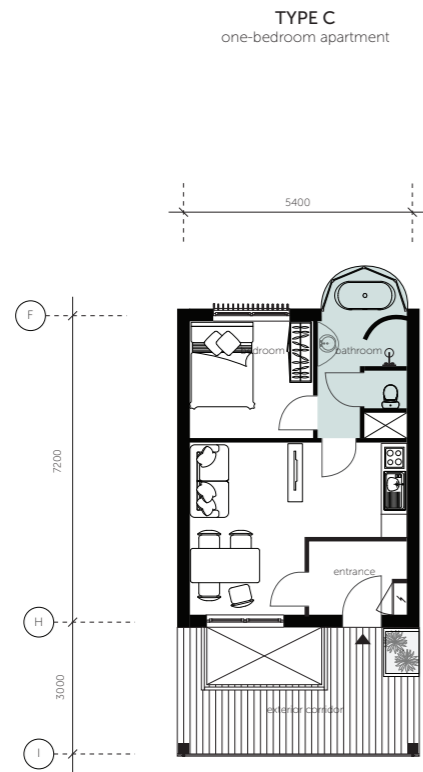
**BIND BY WATER**  
*typologies - limited bathroom*



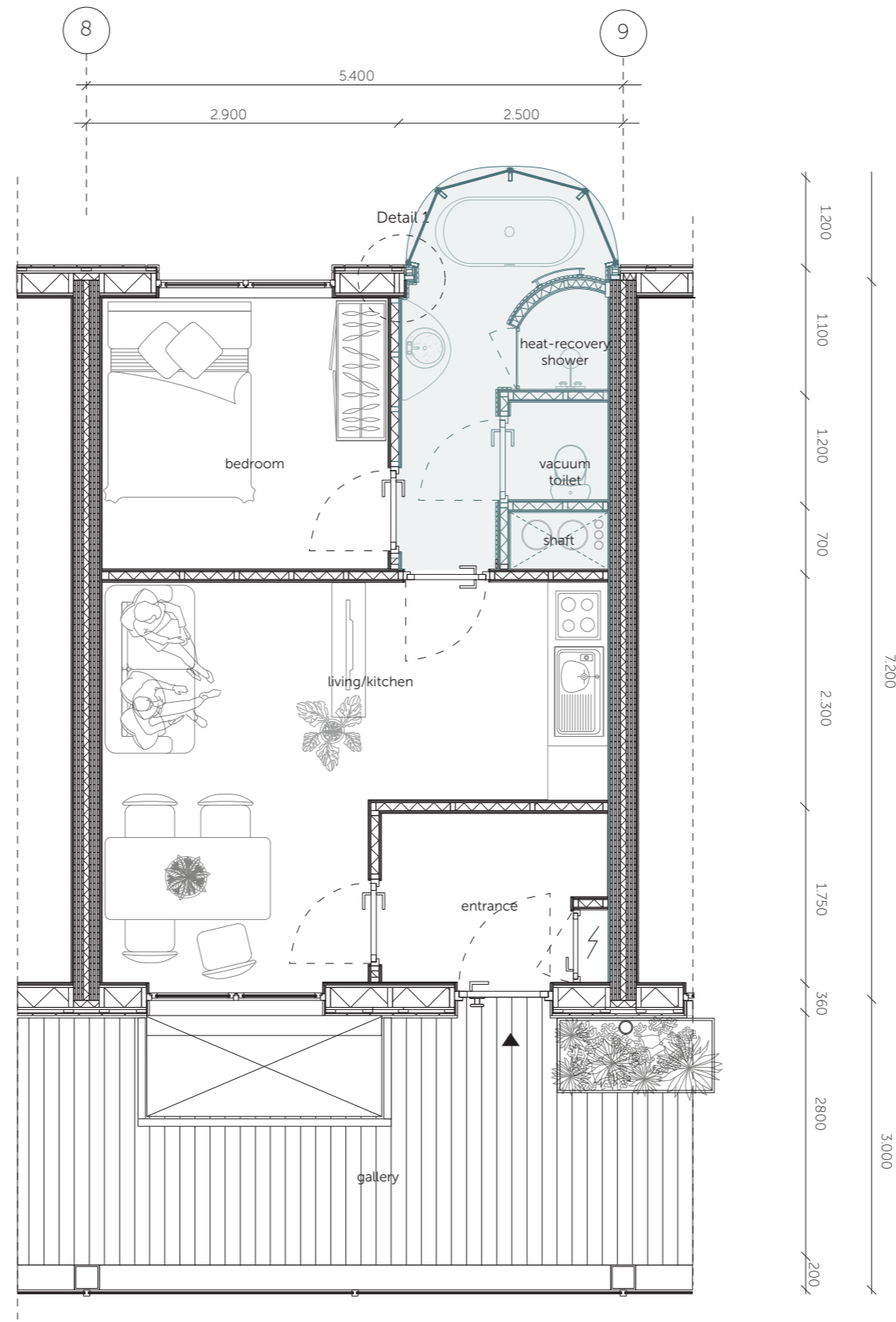


# BIND BY WATER

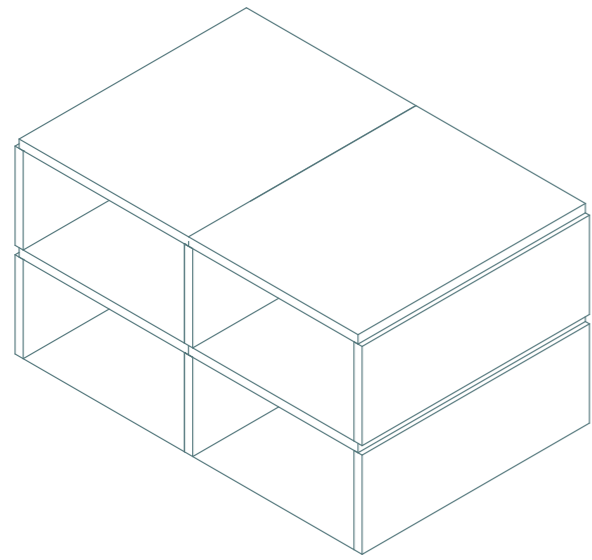
*typologies - extravagant bathroom*



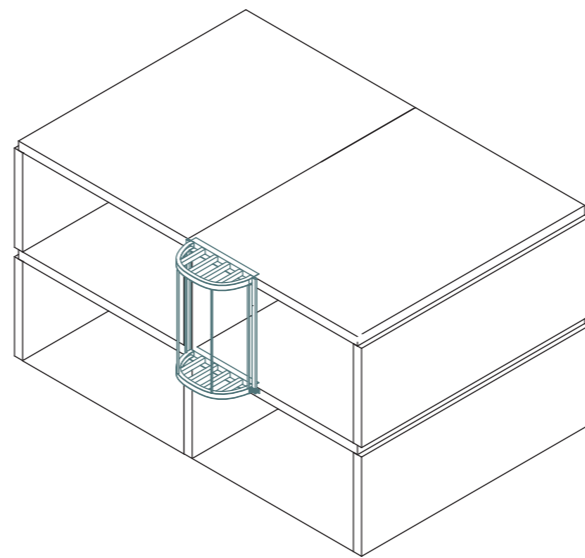
BIND BY WATER  
type c - floorplan 1:50



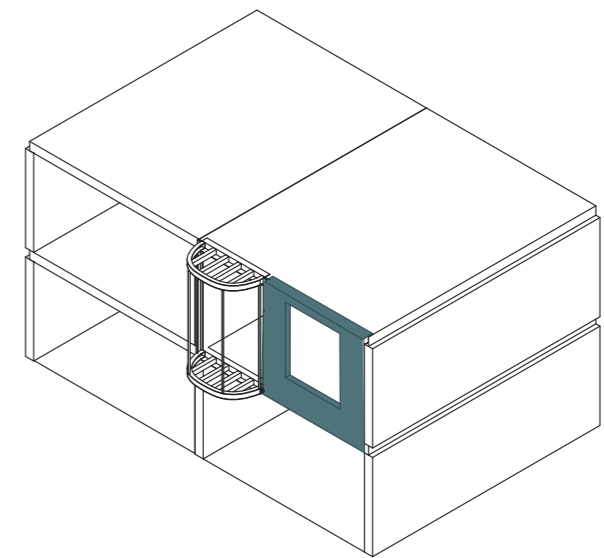
BIND BY WATER  
*bathroom assembly*



load bearing CLT walls  
+ kerto ripa slabs



prefab bathroom  
steel construction

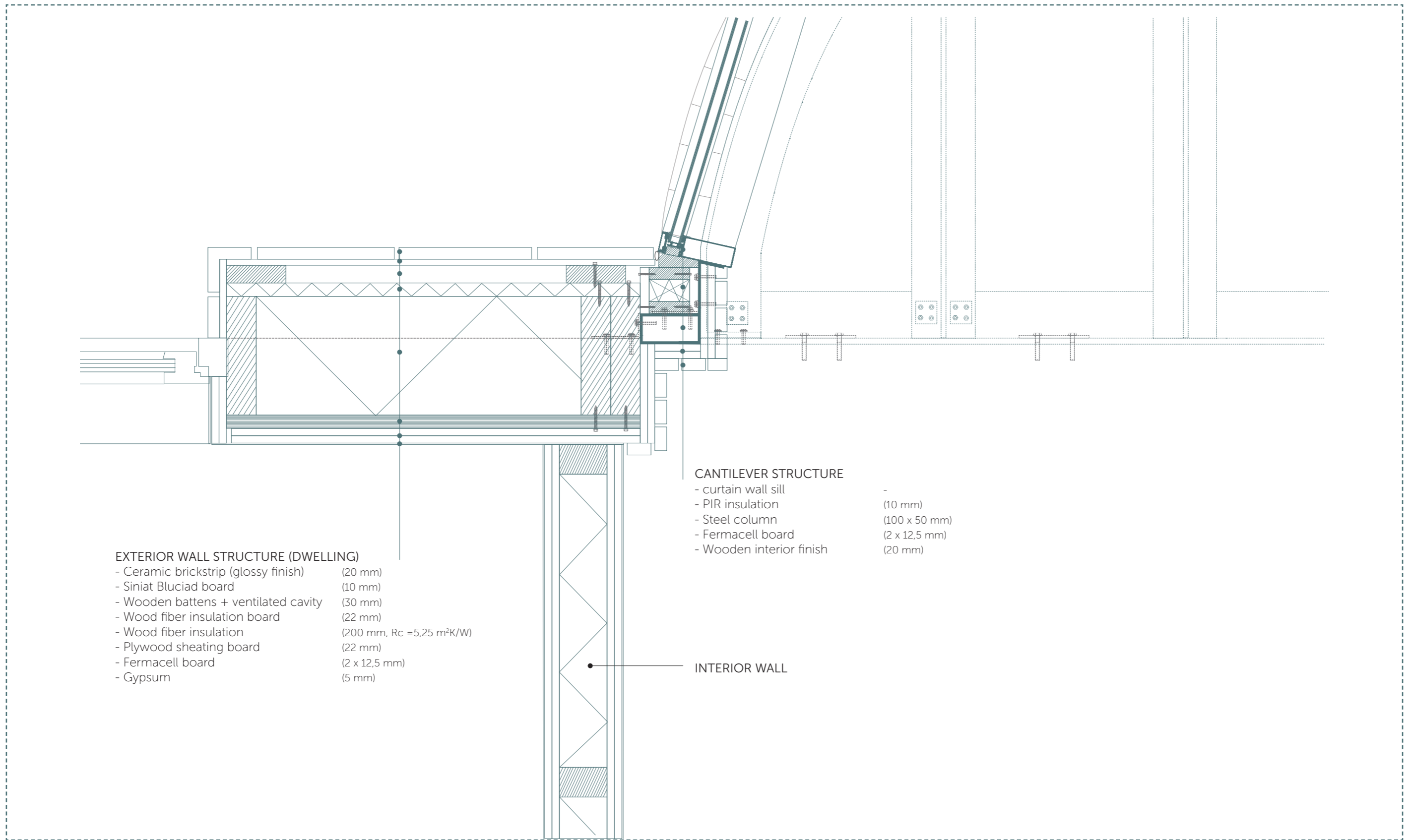


prefab facade panels

BIND BY WATER  
facade fragment 1:50



**BIND BY WATER**  
*detail 1 - bathroom cantilever (hor)*



- EXTERIOR WALL STRUCTURE (DWELLING)**
- Ceramic brickstrip (glossy finish) (20 mm)
  - Siniat Bluciad board (10 mm)
  - Wooden battens + ventilated cavity (30 mm)
  - Wood fiber insulation board (22 mm)
  - Wood fiber insulation (200 mm,  $R_c = 5,25 \text{ m}^2\text{K/W}$ )
  - Plywood sheathing board (22 mm)
  - Fermacell board (2 x 12,5 mm)
  - Gypsum (5 mm)

- CANTILEVER STRUCTURE**
- curtain wall sill -
  - PIR insulation (10 mm)
  - Steel column (100 x 50 mm)
  - Fermacell board (2 x 12,5 mm)
  - Wooden interior finish (20 mm)

INTERIOR WALL

0 10 20 40cm

# BIND BY WATER

## FLOOR STRUCTURE (BATHROOM CANTILEVER)

- Bathroom stone tiles (15 mm)
- Fermacell gypsemboard + floor heating (20 mm)
- Wood fiber insulation board (15 mm)
- Wood fiber insulation (150 mm)
- Plywood sheating board (22 mm)
- PIR insulation (80 mm)
- Wood fiber insulation board (22 mm)
- Wooden battens (25 x 75 mm)
- Timber exterior finish (25 mm)

## EXTERIOR WALL STRUCTURE (BATHROOM)

- Wooden exterior cladding (20 mm)
- Wooden battens (30 mm)
- Wood fiber (insulation) board (22 mm)
- Wood fiber insulation (75 mm)
- Plywood sheating board (22 mm)

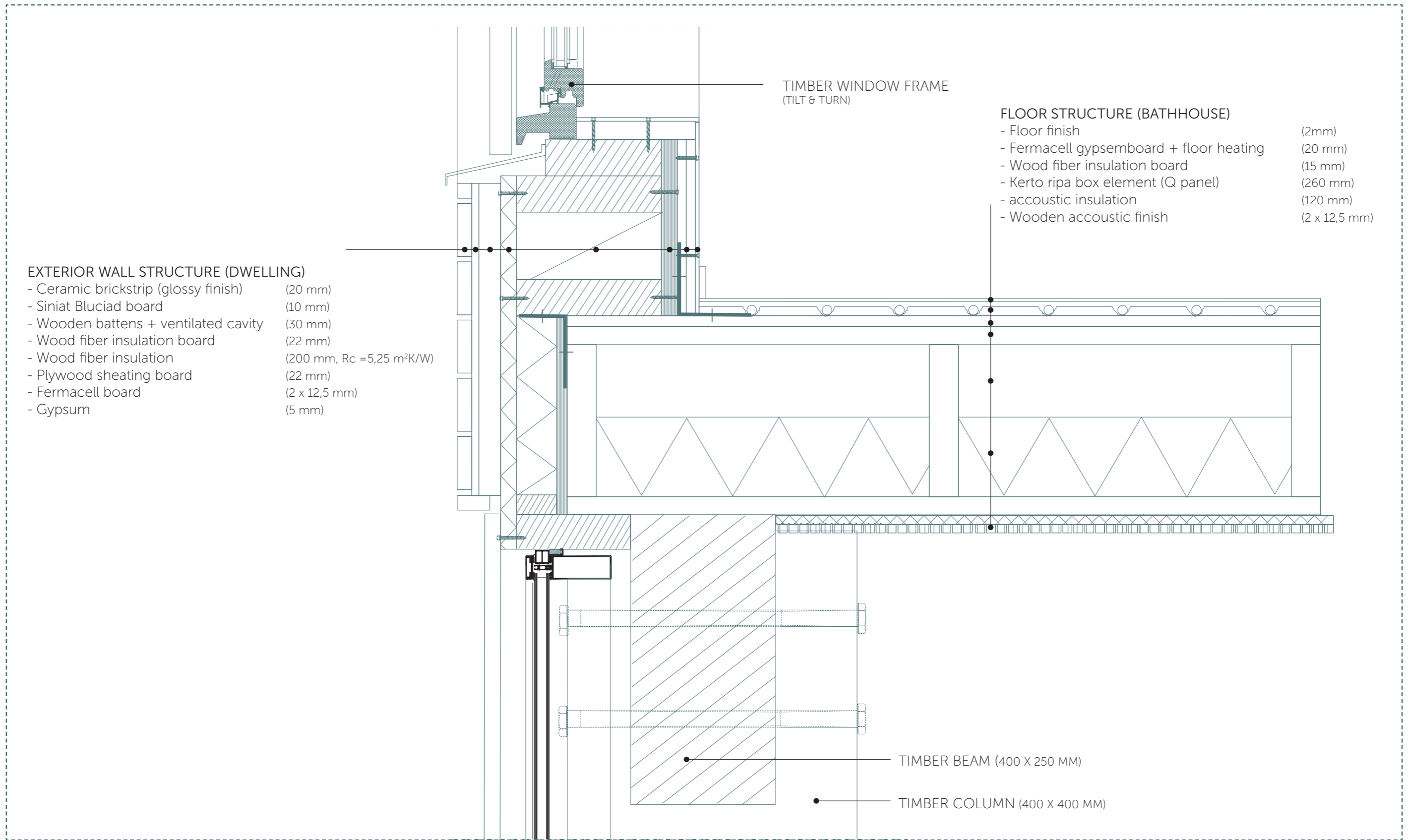
## EXTERIOR WALL STRUCTURE (DWELLING)

- Ceramic brickstrip (glossy finish) (20 mm)
- Siniat Bluciad board (10 mm)
- Wooden battens + ventilated cavity (30 mm)
- Wood fiber insulation board (22 mm)
- Wood fiber insulation (200 mm,  $R_c = 5,25 \text{ m}^2\text{K/W}$ )
- Plywood sheating board (22 mm)
- Fermacell board (2 x 12,5 mm)
- Gypsum (5 mm)

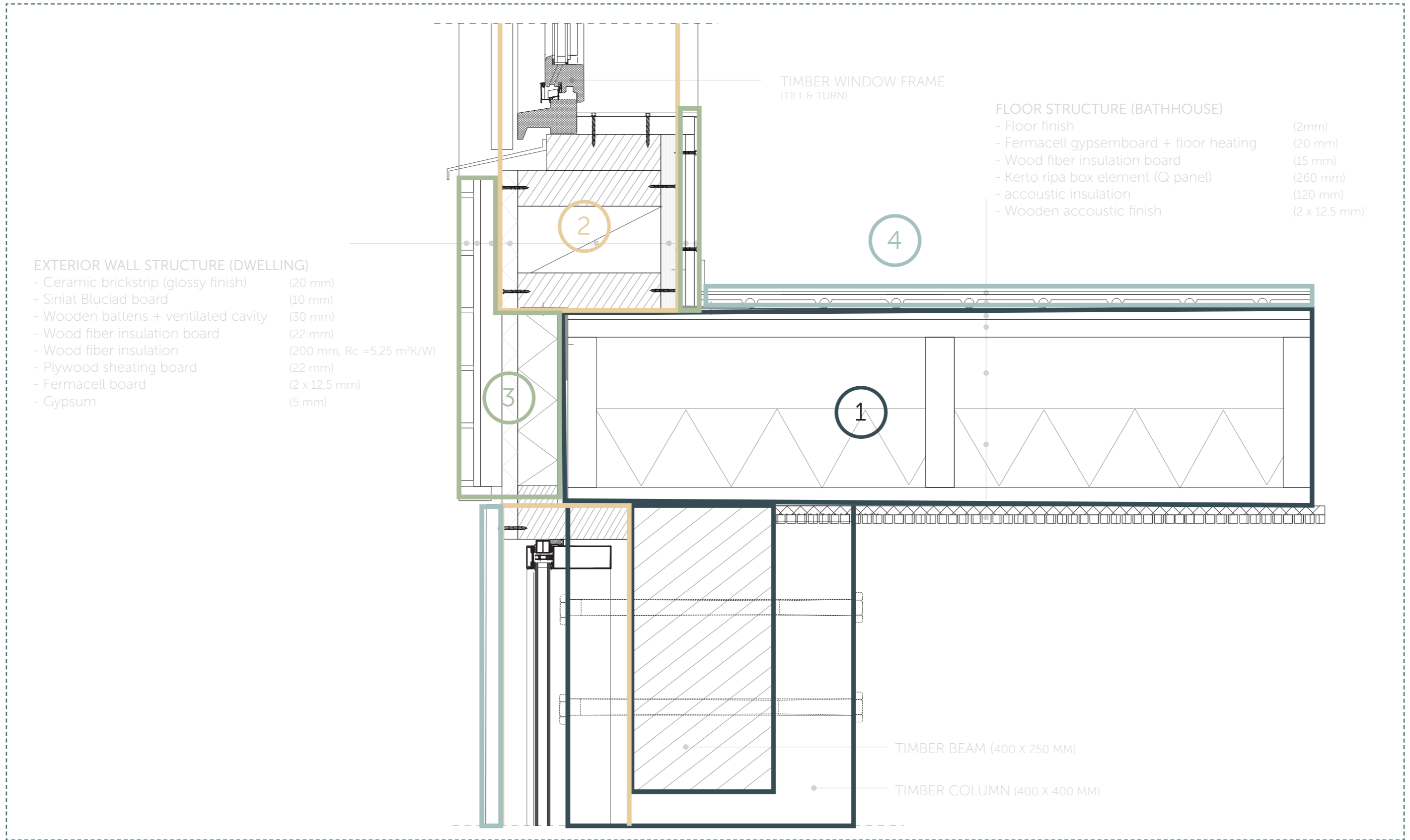


# BIND BY WATER

## detail 3 - transition housing / bathhouse (ver)

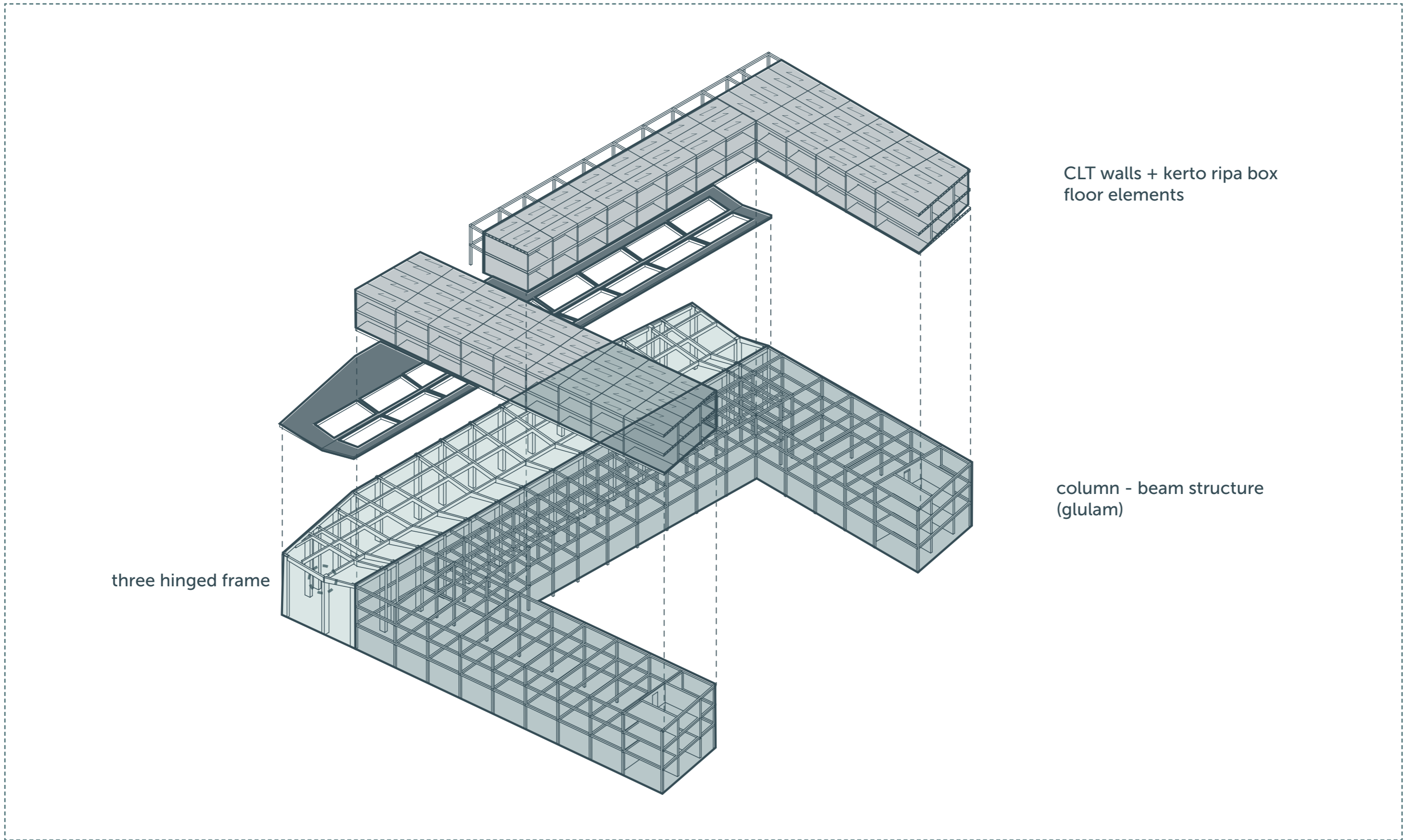


**BIND BY WATER**  
*order of assembly (detail 3)*





BIND BY WATER  
*building structure*

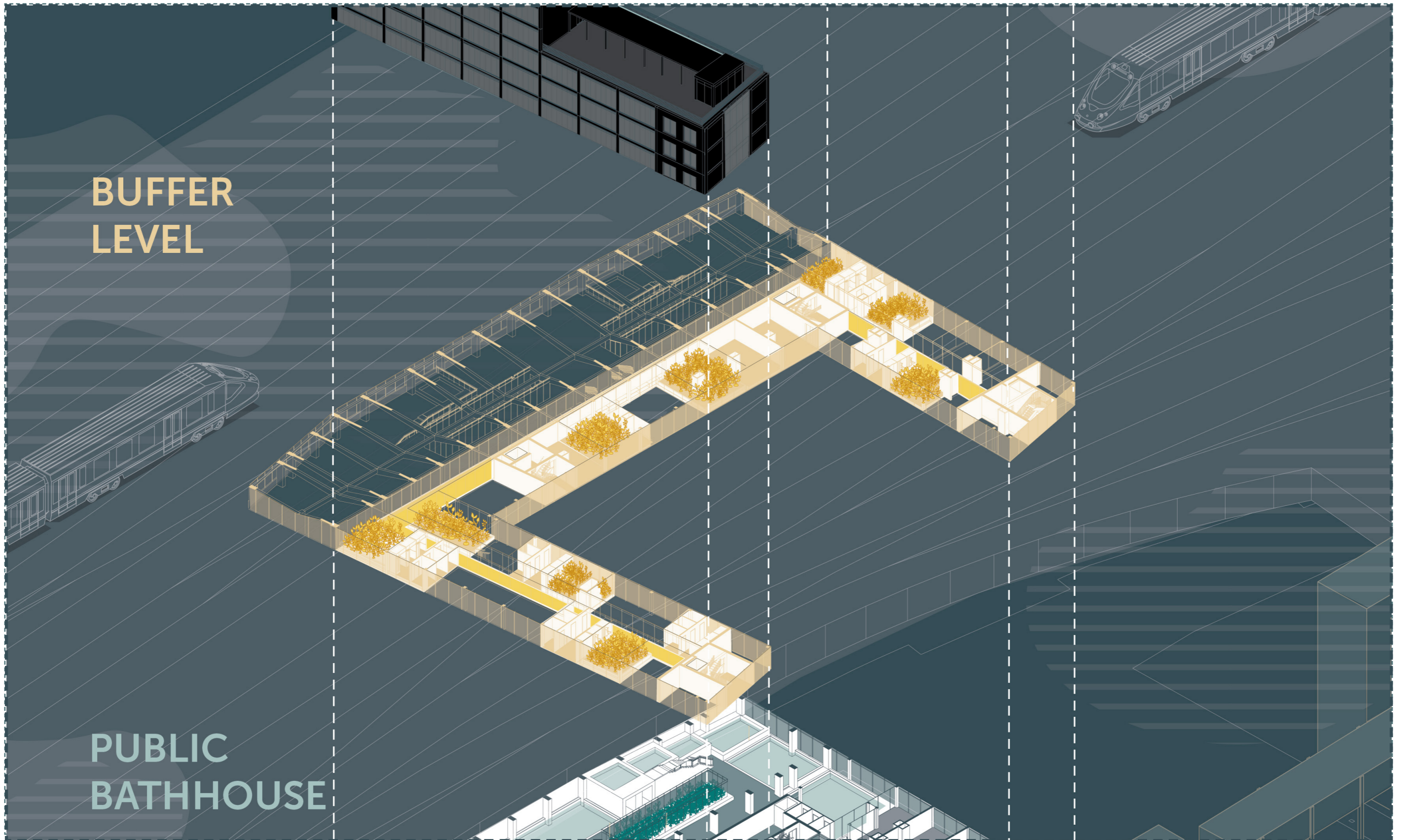


three hinged frame

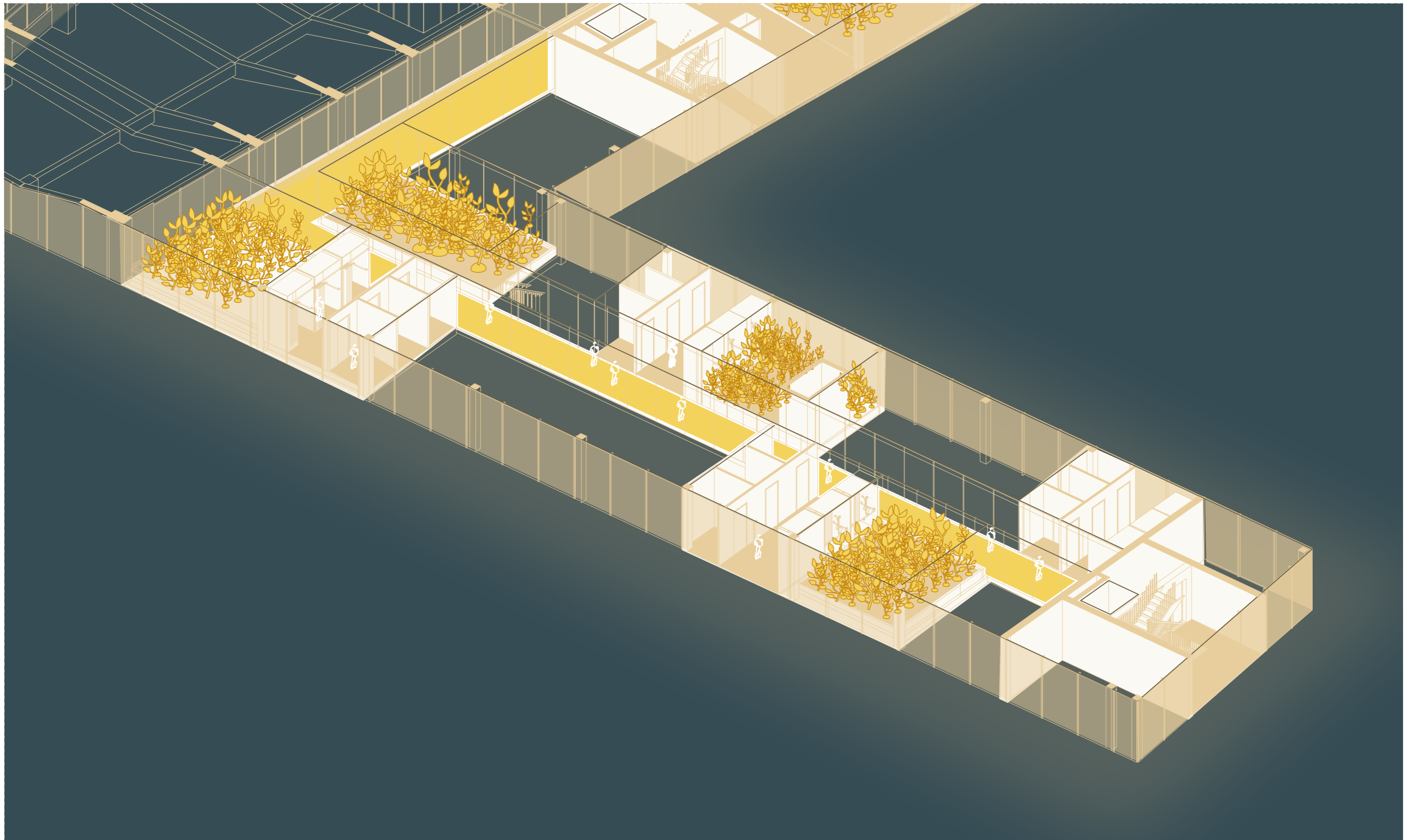
CLT walls + kerto ripa box  
floor elements

column - beam structure  
(glulam)

BIND BY WATER  
*the buffer zone*

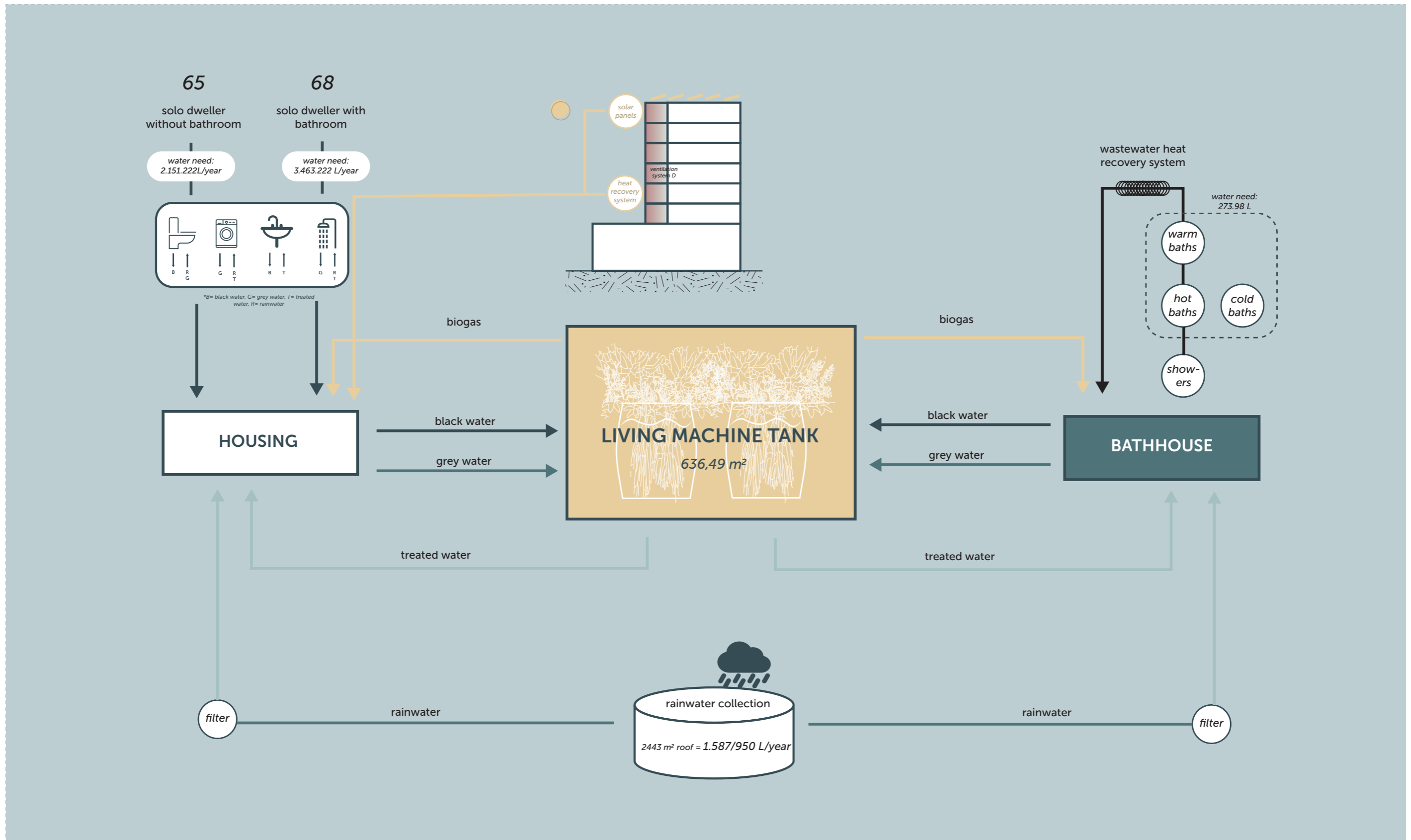


BIND BY WATER  
*private bathing infrastructure in nature*

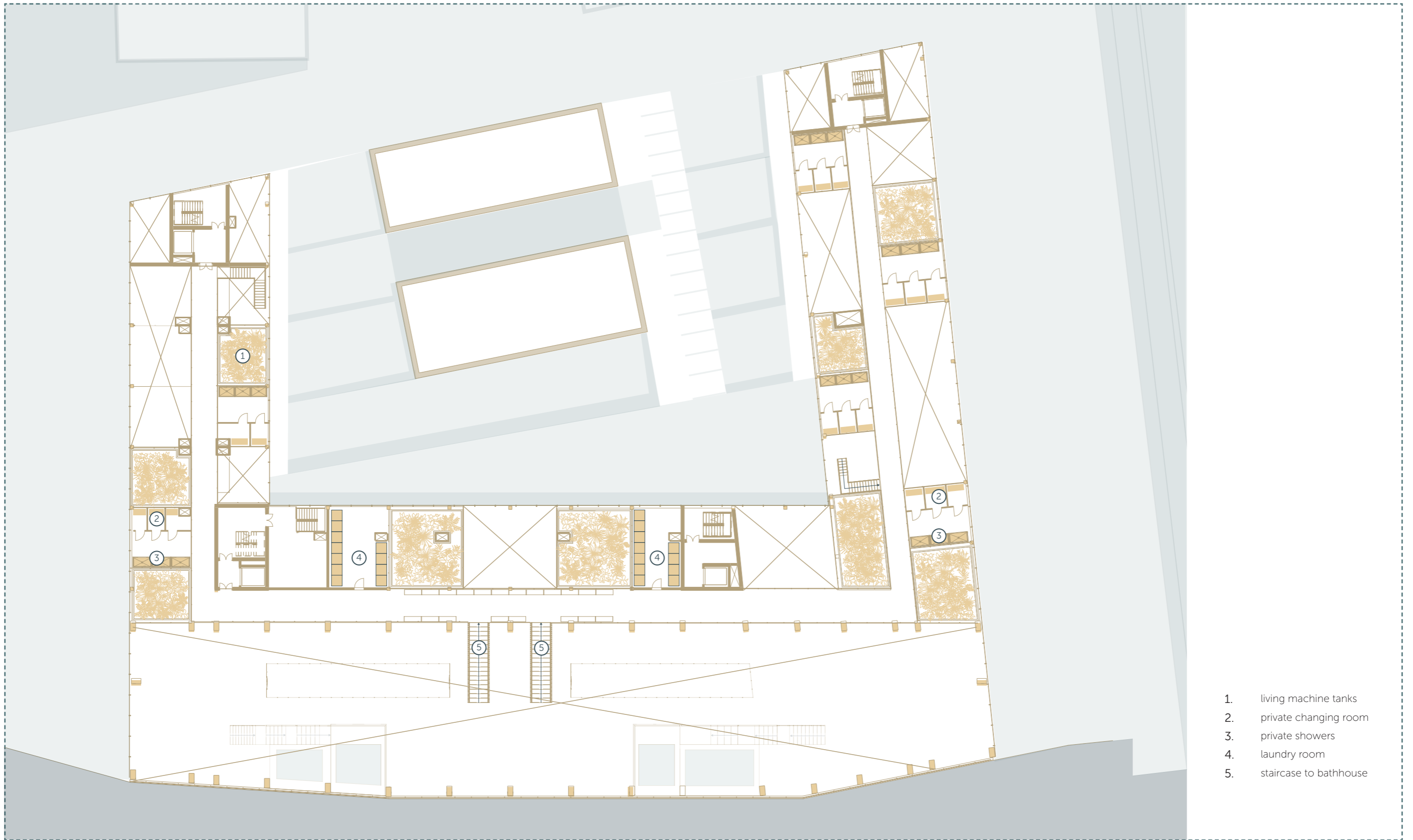


# BIND BY WATER

water + energy concept

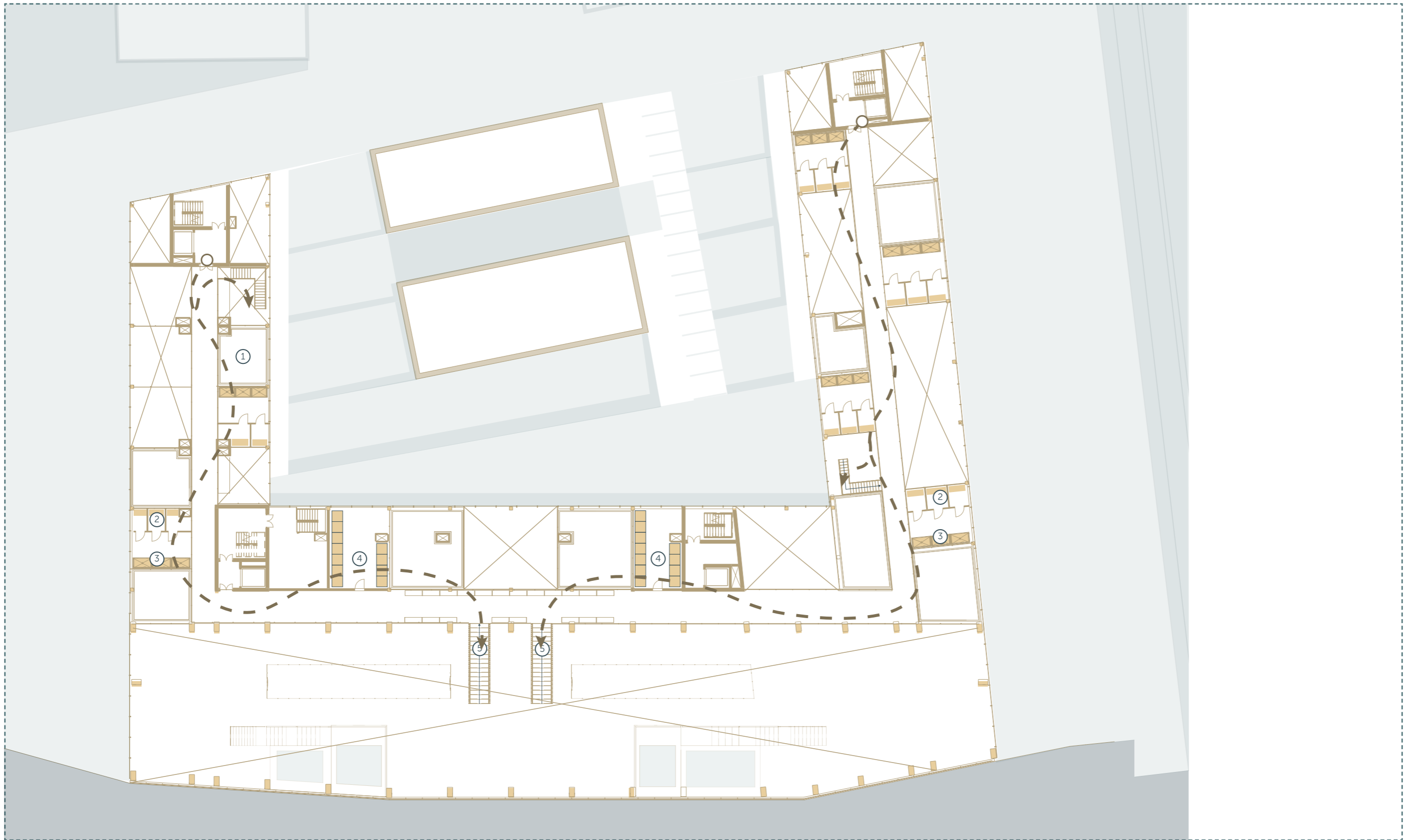


BIND BY WATER  
floorplan - level 0.5



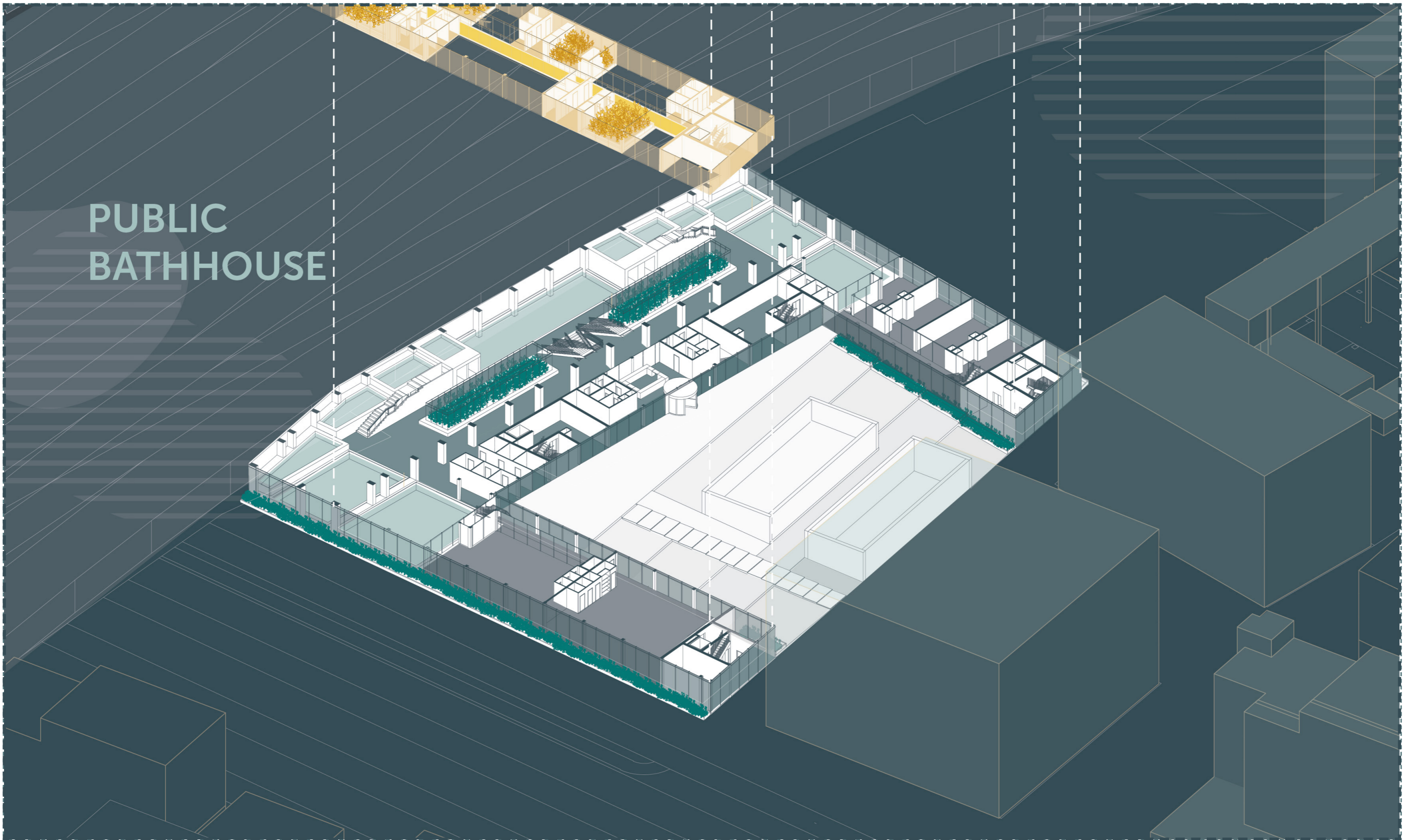
1. living machine tanks
2. private changing room
3. private showers
4. laundry room
5. staircase to bathhouse

BIND BY WATER  
*flow of dwellers*

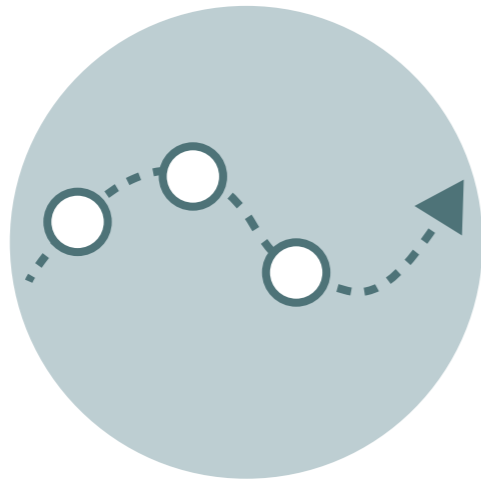


BIND BY WATER  
*the bathhouse*

PUBLIC  
BATHHOUSE

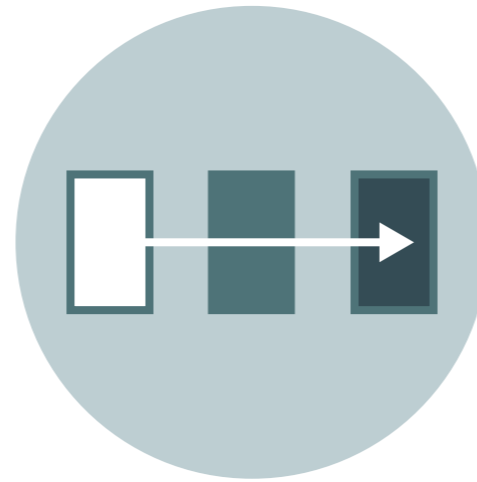


## BIND BY WATER



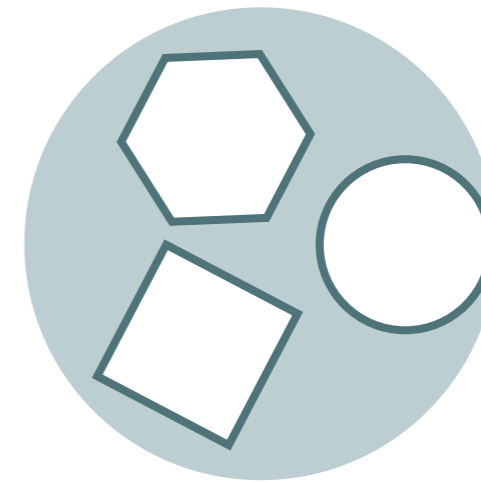
### ROUTING

clear routing through bathhouse



### SEQUENCE

from warm-hot-cold baths

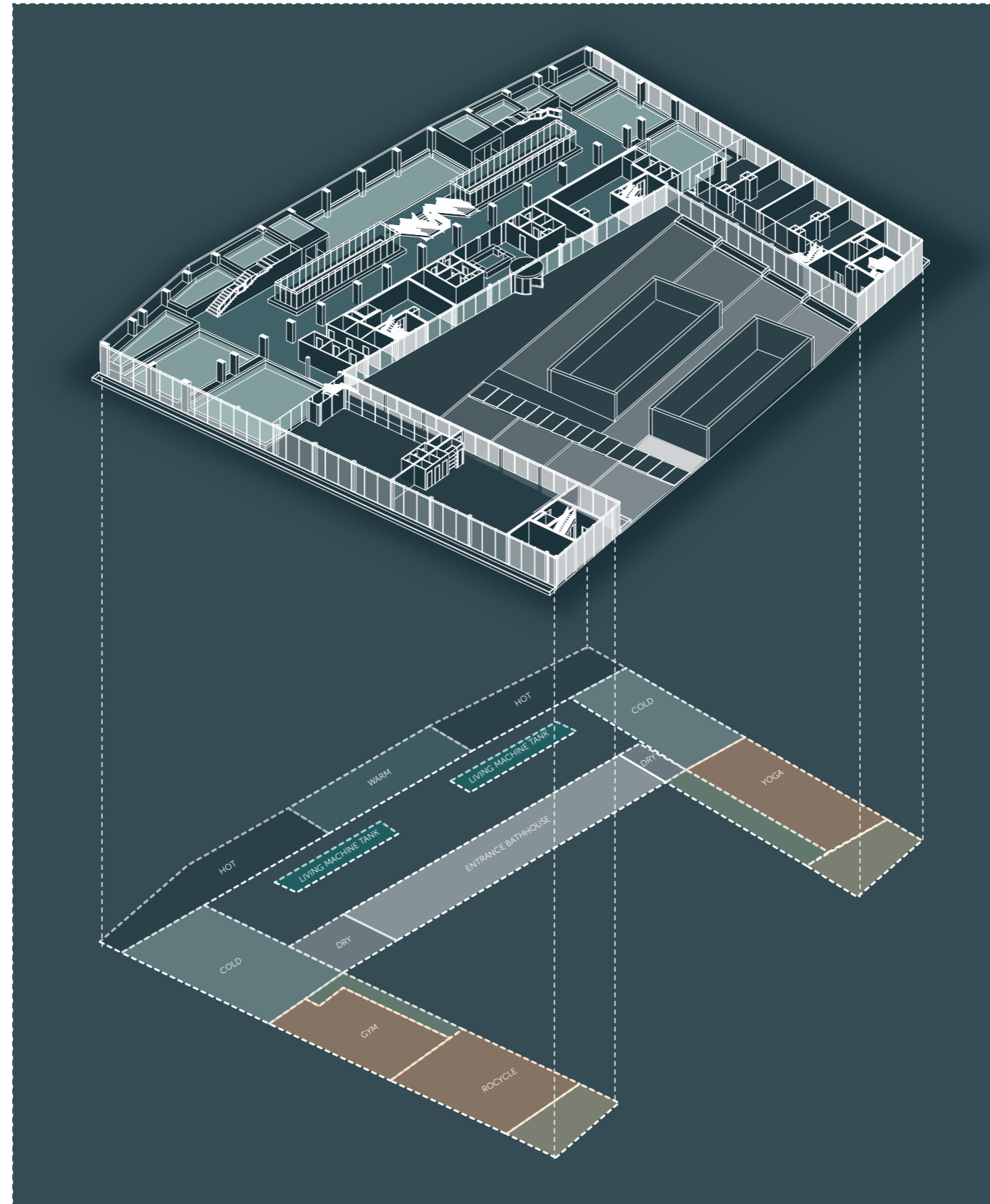


### HYBRID PROGRAM

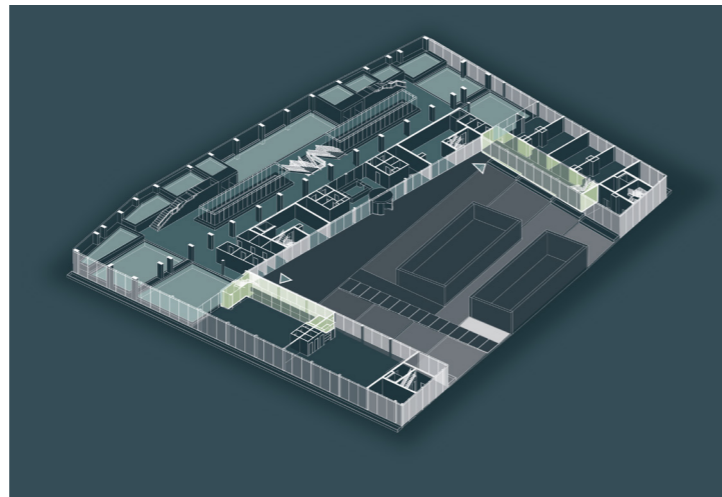
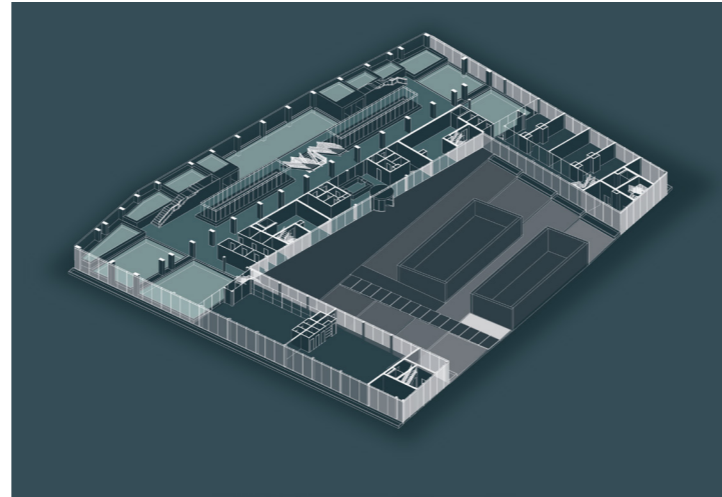
to attract broader audience



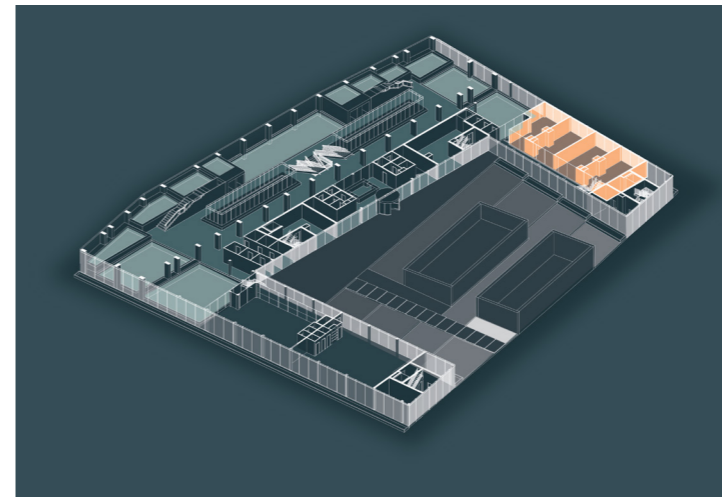
BIND BY WATER  
*bathhouse program*



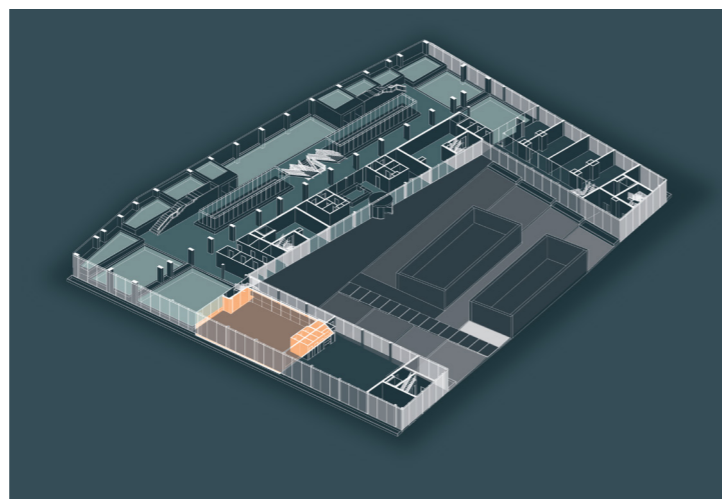
BIND BY WATER  
*program sequence*



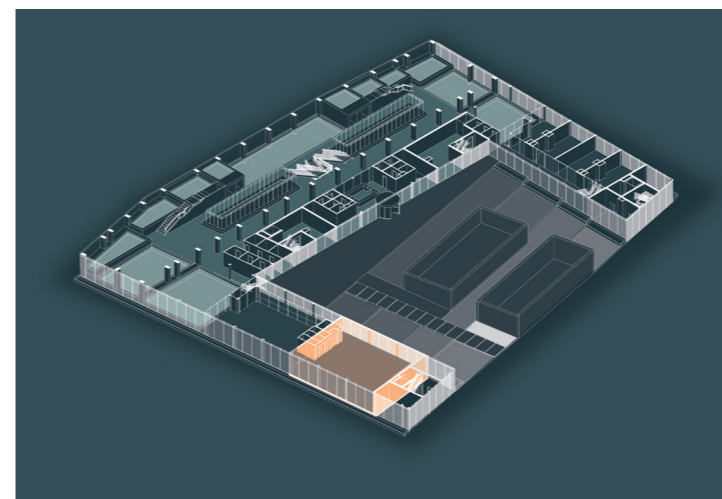
*entrance active program*



*yoga studio's*

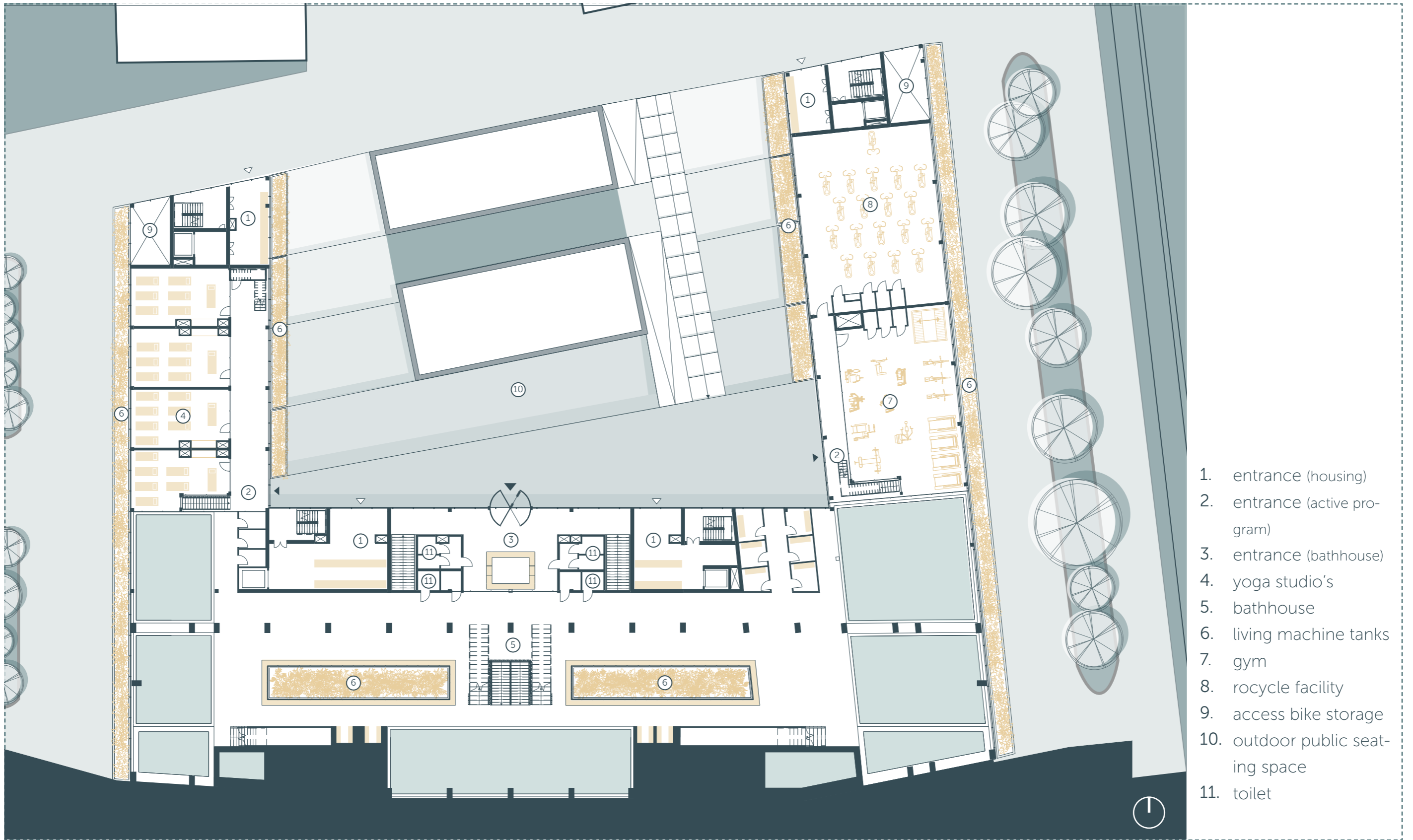


*gym facility*



*recycling facility*

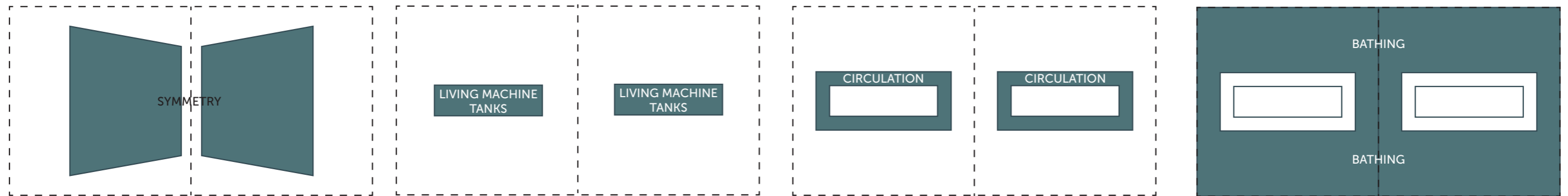
BIND BY WATER  
 floorplan - ground floor (+1.500)



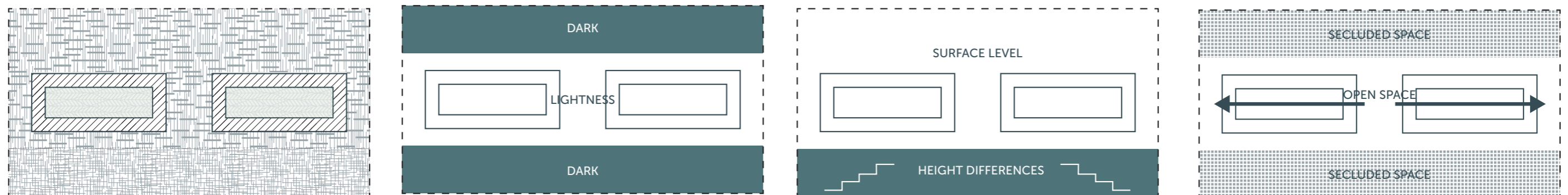
- 1. entrance (housing)
- 2. entrance (active program)
- 3. entrance (bathhouse)
- 4. yoga studio's
- 5. bathhouse
- 6. living machine tanks
- 7. gym
- 8. recycle facility
- 9. access bike storage
- 10. outdoor public seating space
- 11. toilet

BIND BY WATER  
*bathhouse design*

FLOORPLANNING

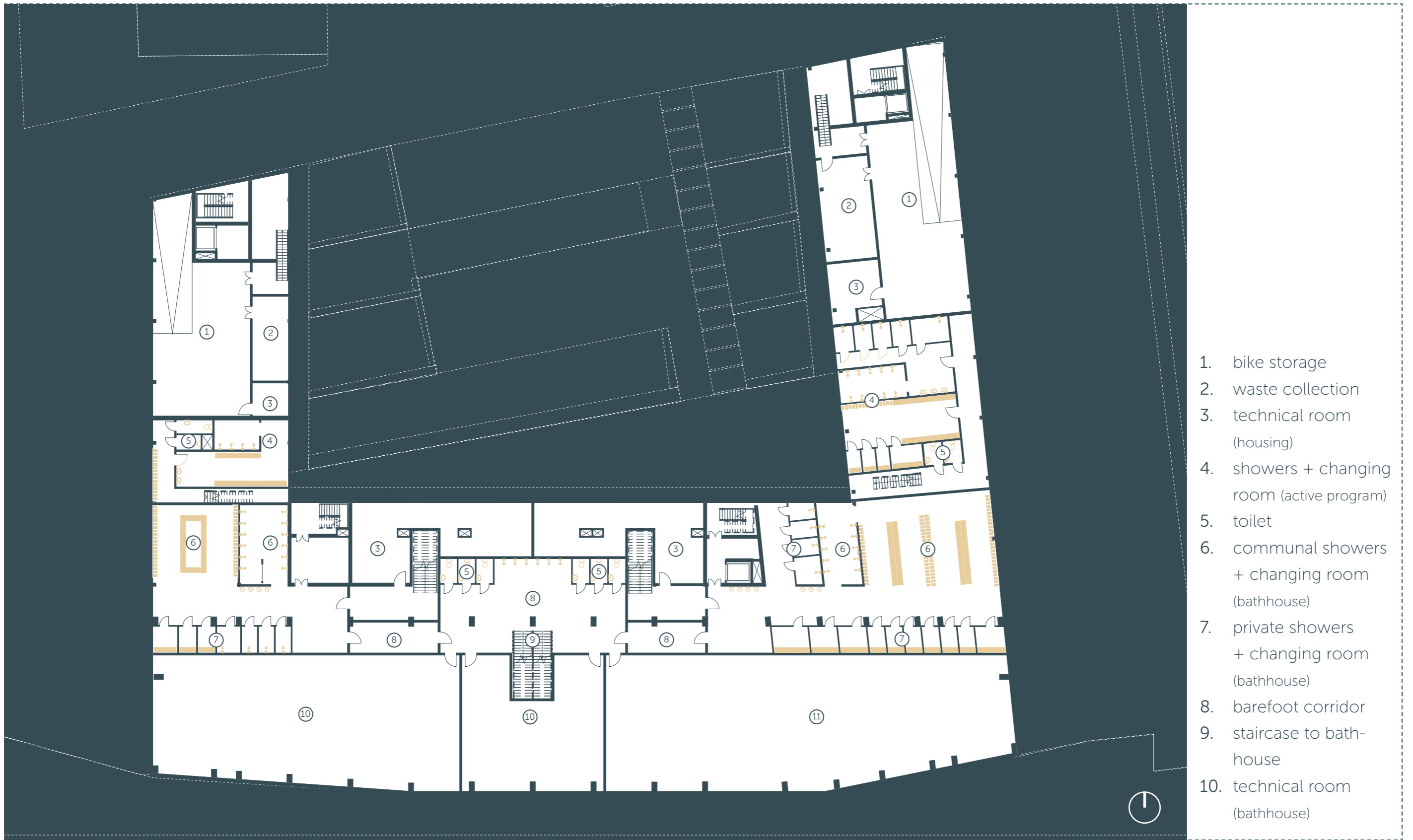


MULTI-SENSORY SPATIAL EXPERIENCE



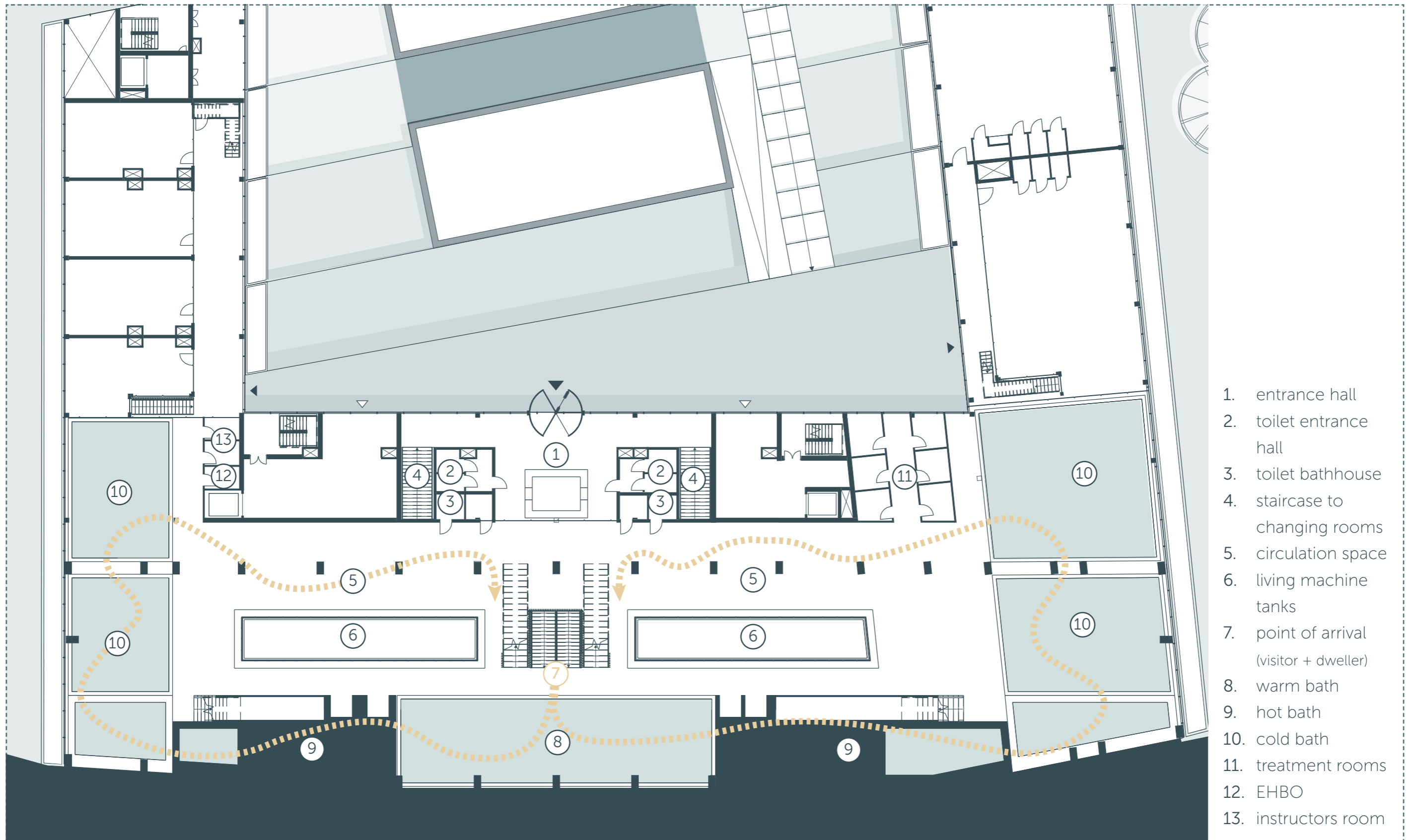
# BIND BY WATER

floorplan - basement (-1.500 / - 4.000)



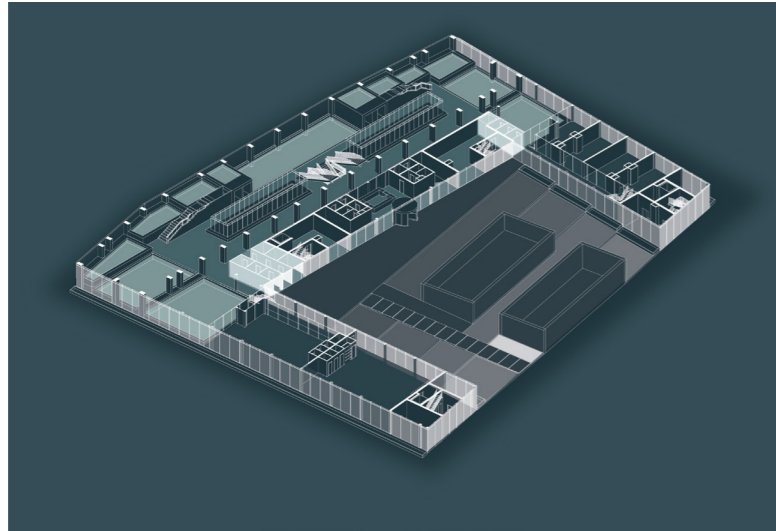
1. bike storage
2. waste collection
3. technical room (housing)
4. showers + changing room (active program)
5. toilet
6. communal showers + changing room (bathhouse)
7. private showers + changing room (bathhouse)
8. barefoot corridor
9. staircase to bathhouse
10. technical room (bathhouse)

BIND BY WATER  
*bathhouse routing*

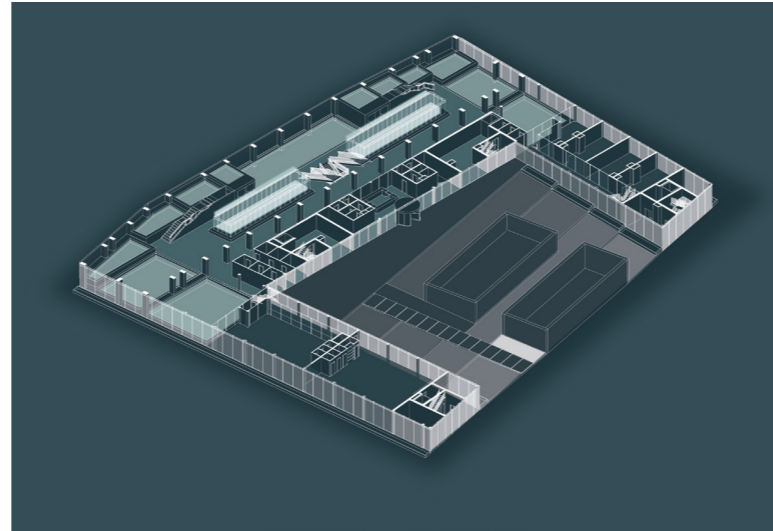


- 1. entrance hall
- 2. toilet entrance hall
- 3. toilet bathhouse
- 4. staircase to changing rooms
- 5. circulation space
- 6. living machine tanks
- 7. point of arrival (visitor + dweller)
- 8. warm bath
- 9. hot bath
- 10. cold bath
- 11. treatment rooms
- 12. EHBO
- 13. instructors room

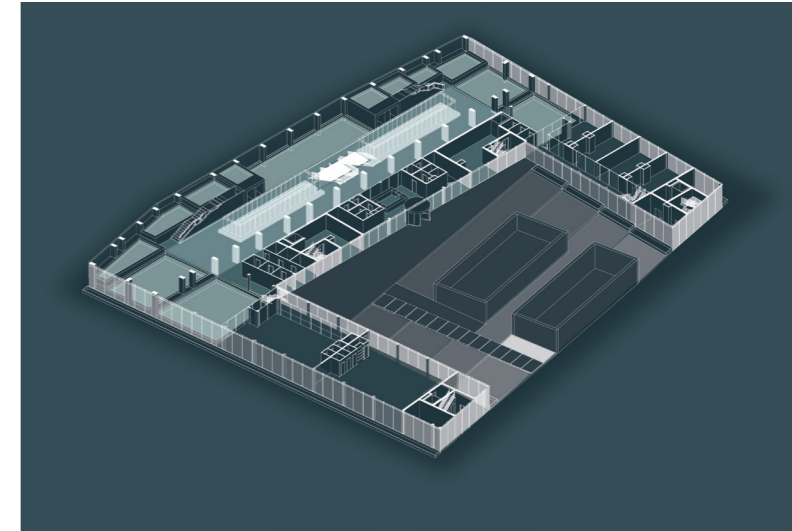
BIND BY WATER  
*bathhouse program sequence*



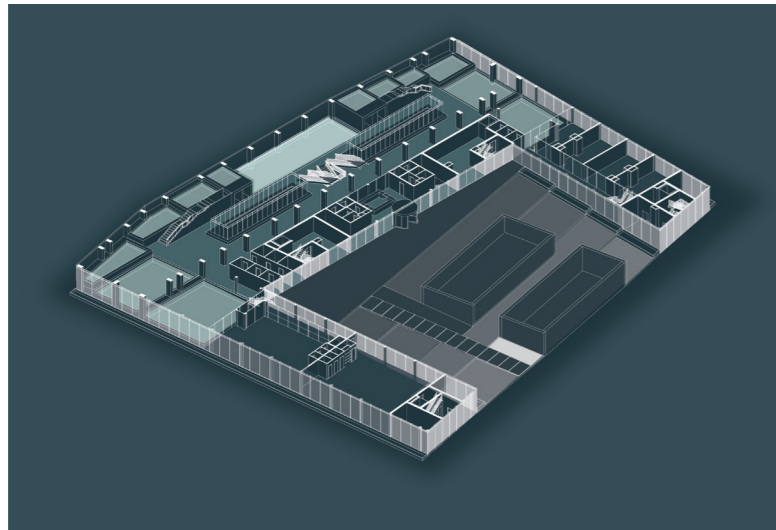
*dry functions*



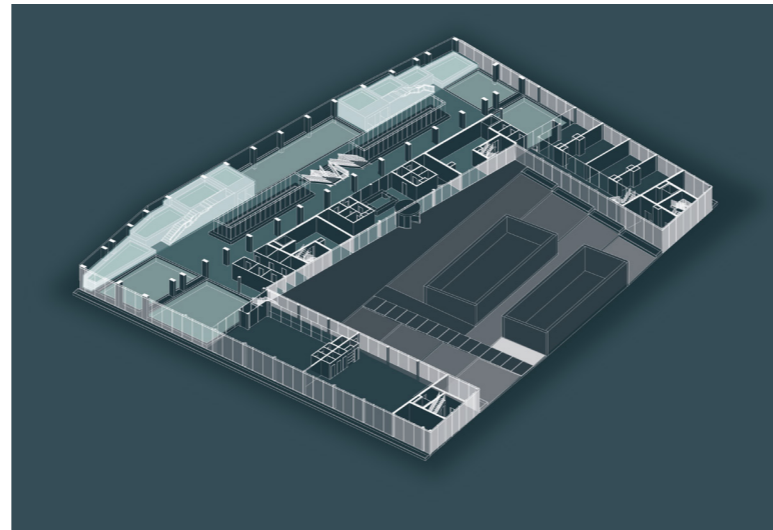
*living machine tanks*



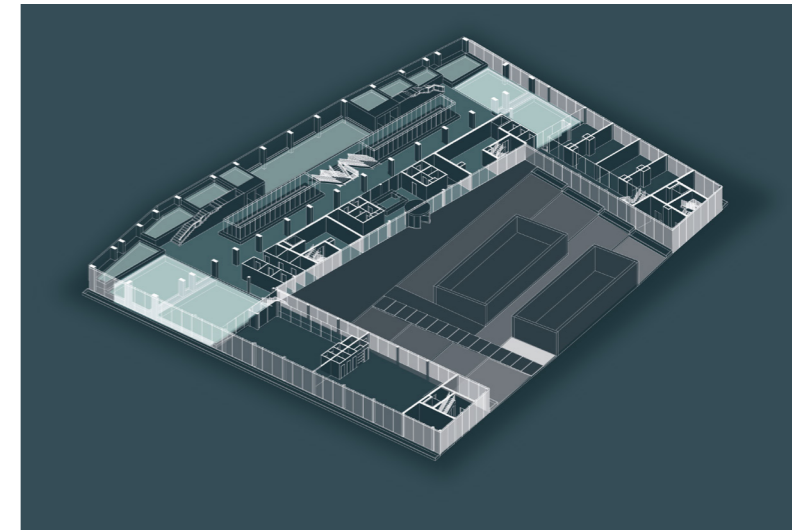
*circulation space*



*warm bath*



*hot baths*

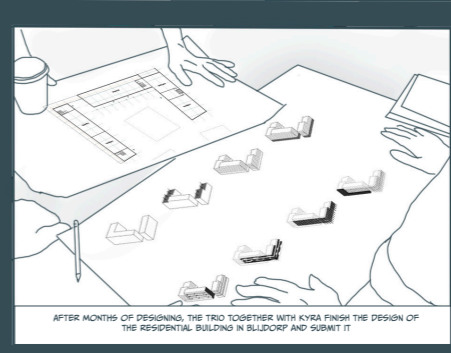
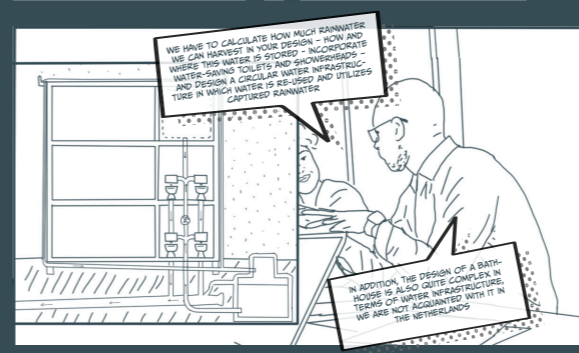
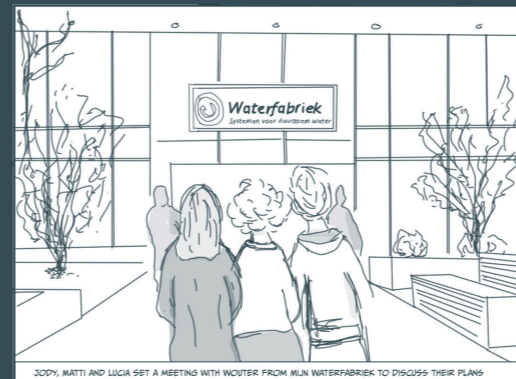
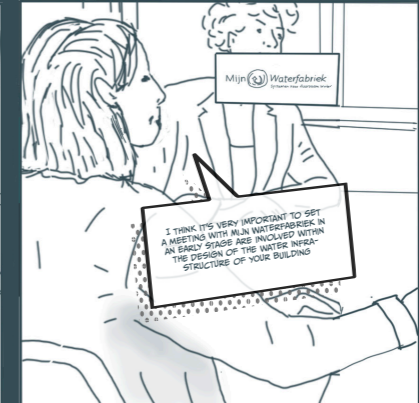
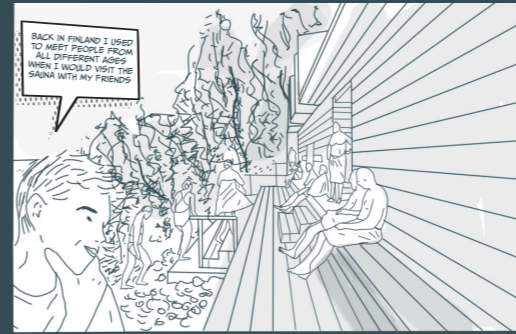
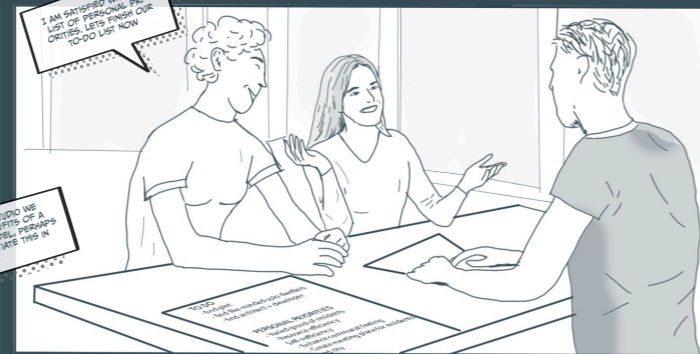
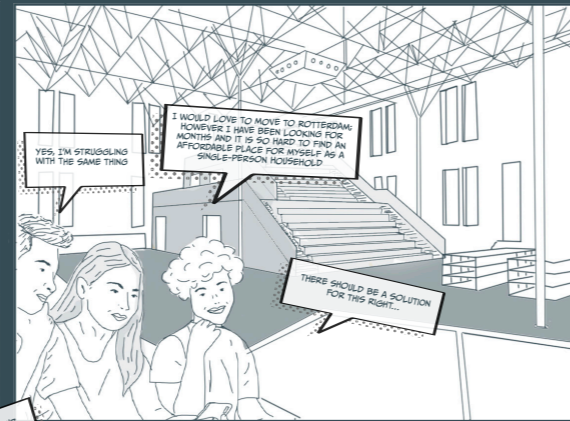
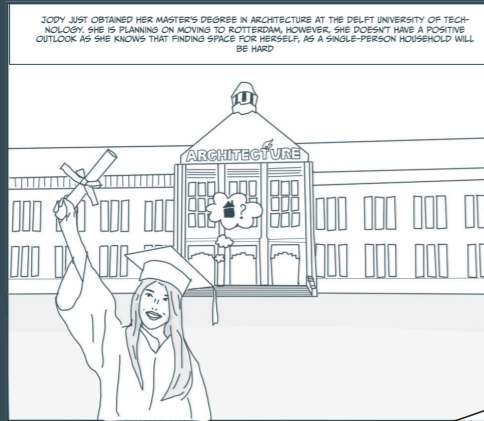


*cold baths*

BIND BY WATER  
 graphic novel (recap)

# BADHUIS

BUILDING A COMMUNITY AMONGST SOLO DWELLERS THROUGH WATER INFRASTRUCTURE





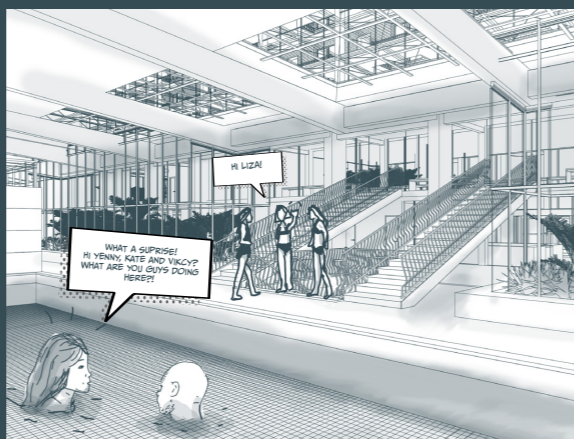
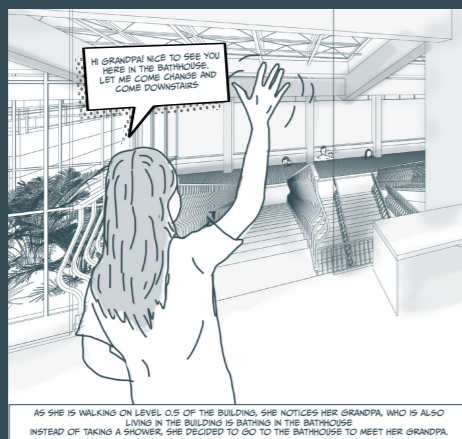
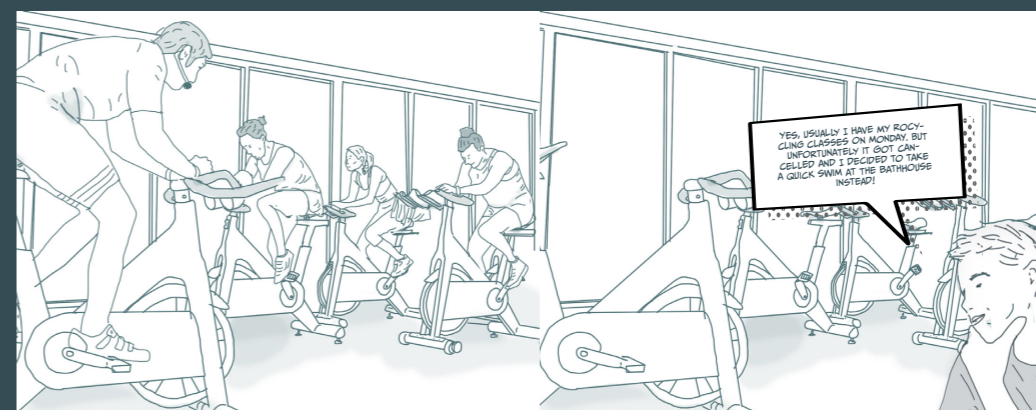
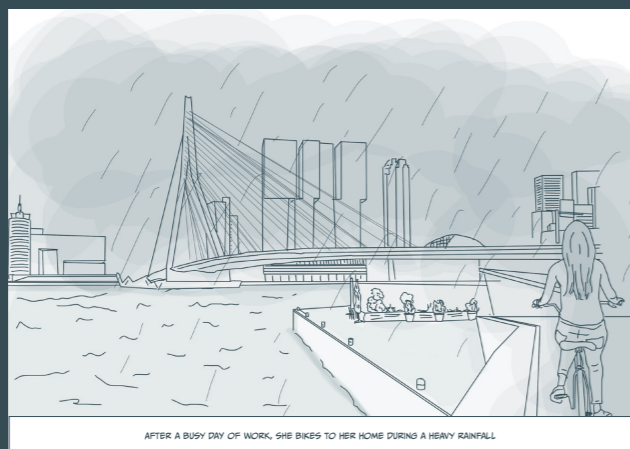
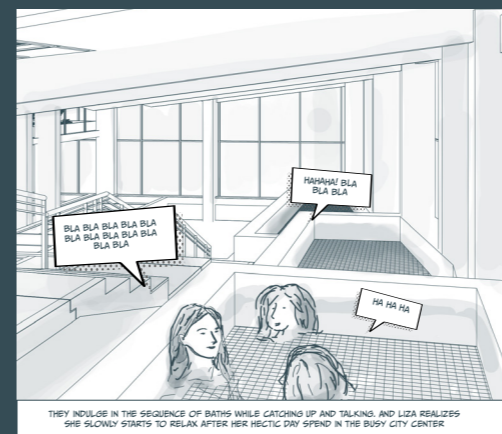
# BIND BY WATER

graphic novel (recap)



# BIND BY WATER

living in *BIND BY WATER*



**BIND BY WATER**  
*impression exterior + landscape*



BIND BY WATER

*impression north facade + landscape*



BIND BY WATER



**BIND BY WATER**  
*impression extravagant bathroom*



**BIND BY WATER**  
*gallery / space for social encounter*

