

# — Project Hoogtij —

P5 Presentation  
Lennart Aben  
December 28th 2021

Architecture mentor	Olv Klijn
BT mentor	Jan van de Voort
Research mentor	Eric van den Ham
External commissioner	André Mulder

**Research  
&  
Design**

**Research**  
&  
Design



**Proving  
Sustainability  
in Architecture**

**A Wicked  
Problem**

**Lennart Aben**





**Proving  
Sustainability  
in Architecture**

**A Wicked  
Problem**

Lennart Aben



**Proving  
Sustainability  
in Architecture**

**A Wicked  
Problem**

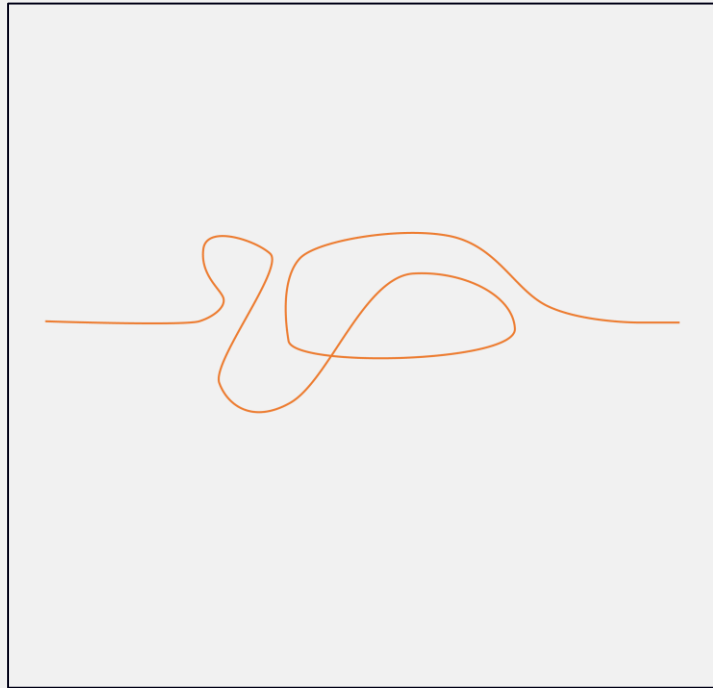
**Lennart Aben**

**— Research Question —**

**Method**

# **— Wicked Problems —**

# \_\_ Tame Problems —



# \_\_ Wicked Problems —



**— Conclusion —**

**— Methods for proving sustainability —**



# — Methods for ~~proving~~ sustainability —

- 1) The current standard;
- 2) The end user measures;
- 3) Drastically tighten regulations;
- 4) Material passport
- 5) Information flow passport;
- 6) Make it competitive;
- 7) Registering and using user patterns;
- 8) User experience.

**Research**  
&  
Design

















**MOBILITY**



**MOBILITY**





**CONSUMPTION**



**CONSUMPTION**





**DIFFERENTIATION**



**DIFFERENTIATION**







**ENERGY**

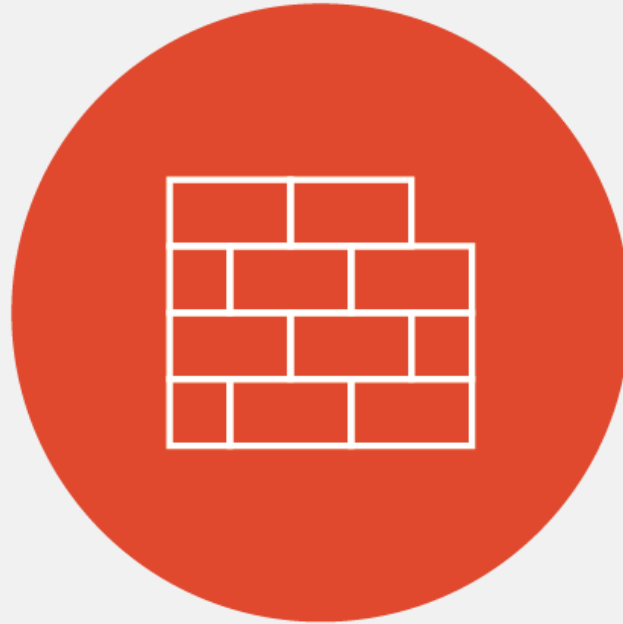


**ENERGY**



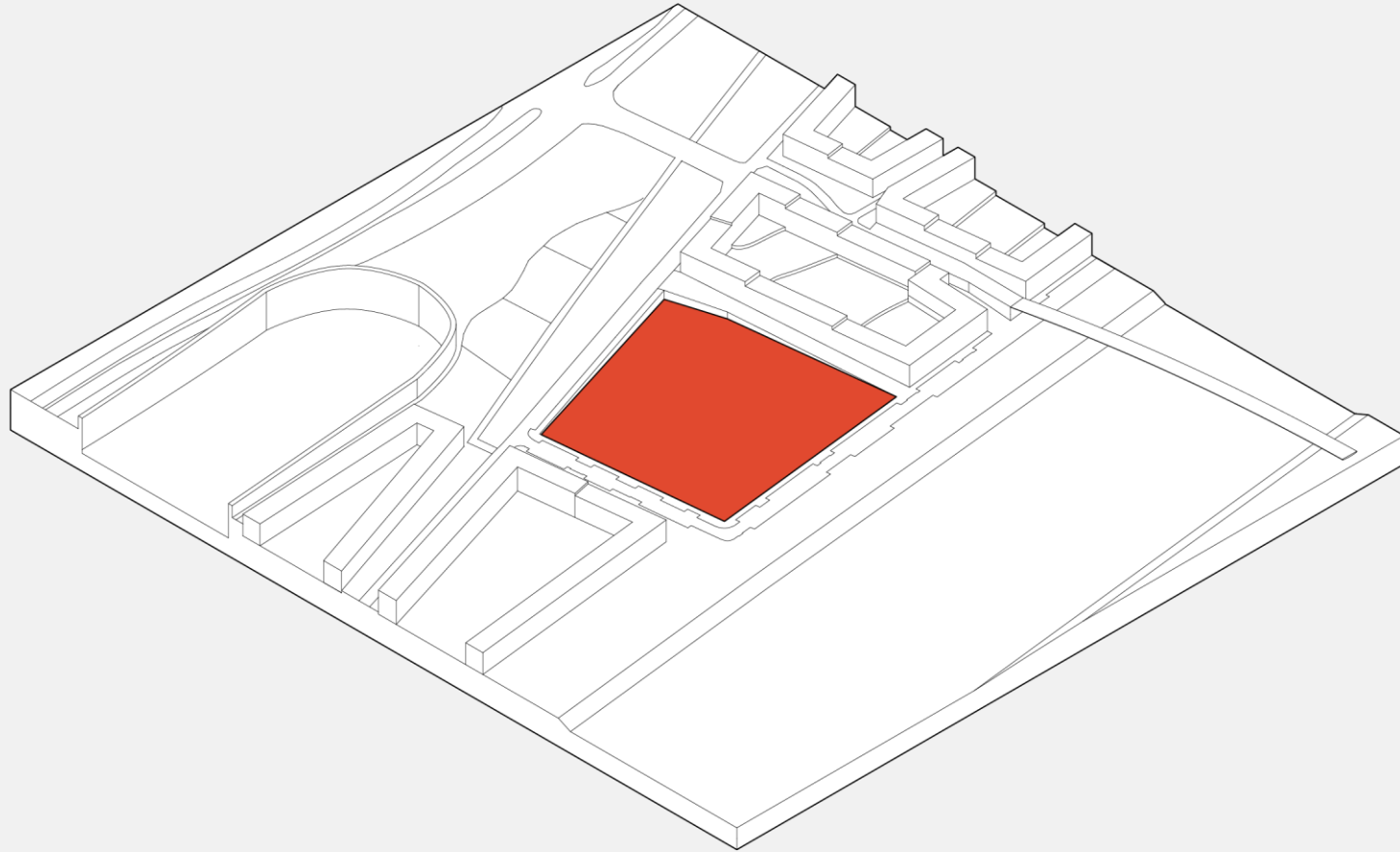


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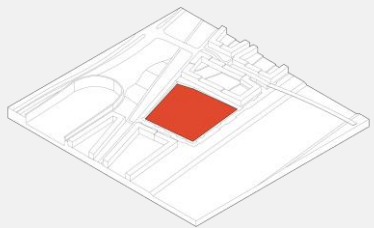
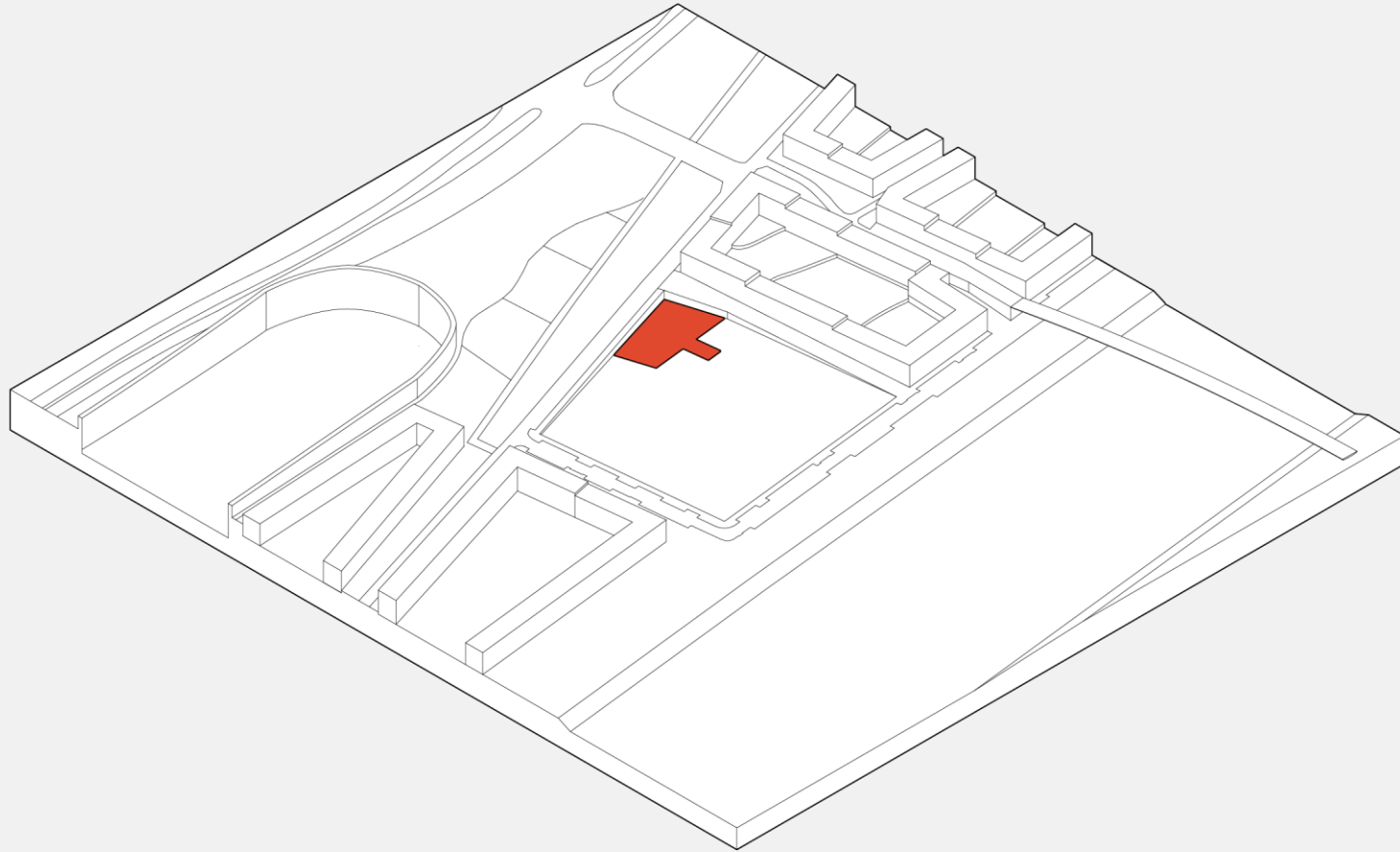


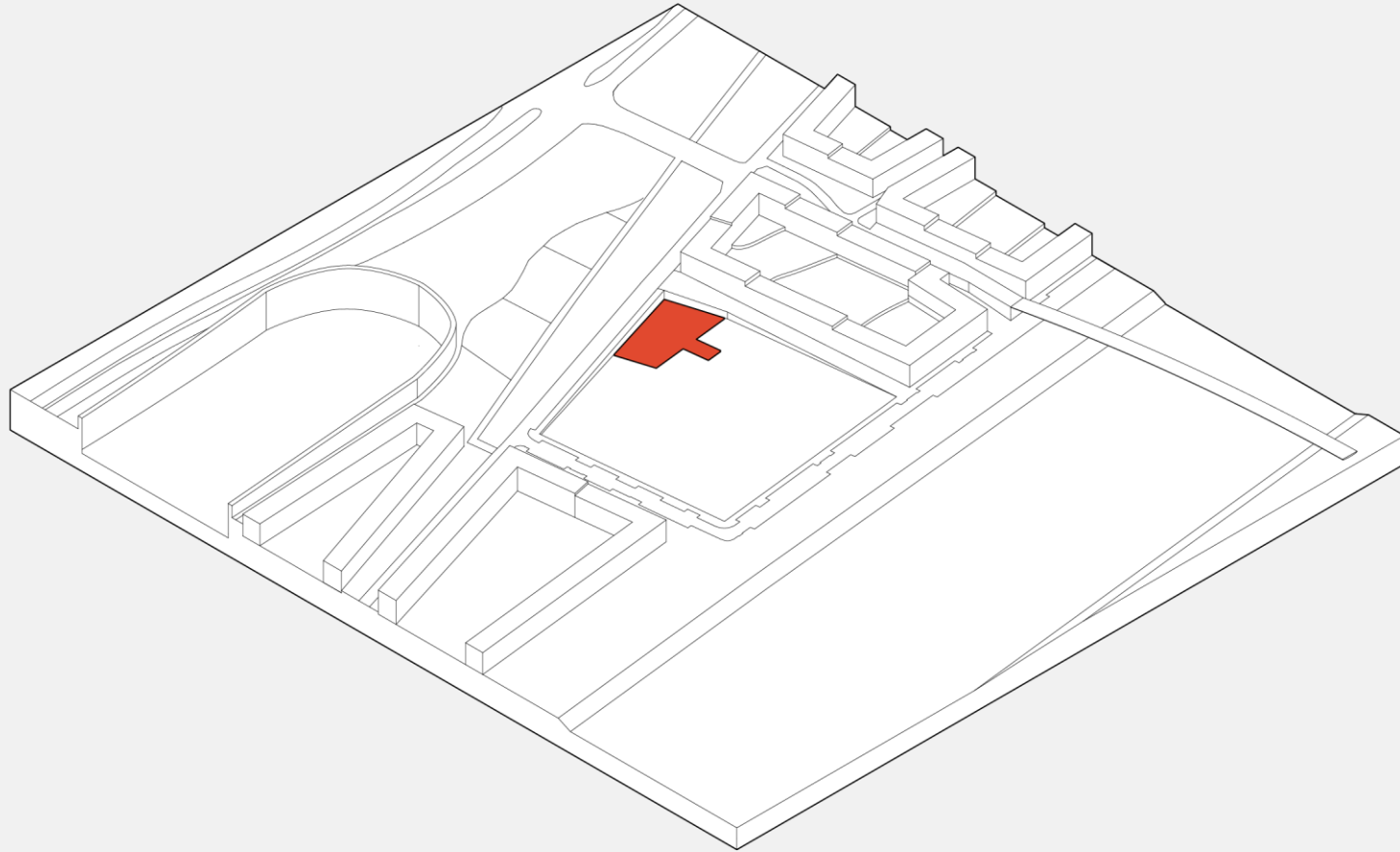
**MATERIALS**

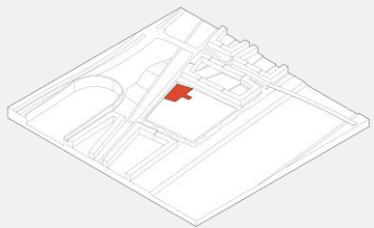




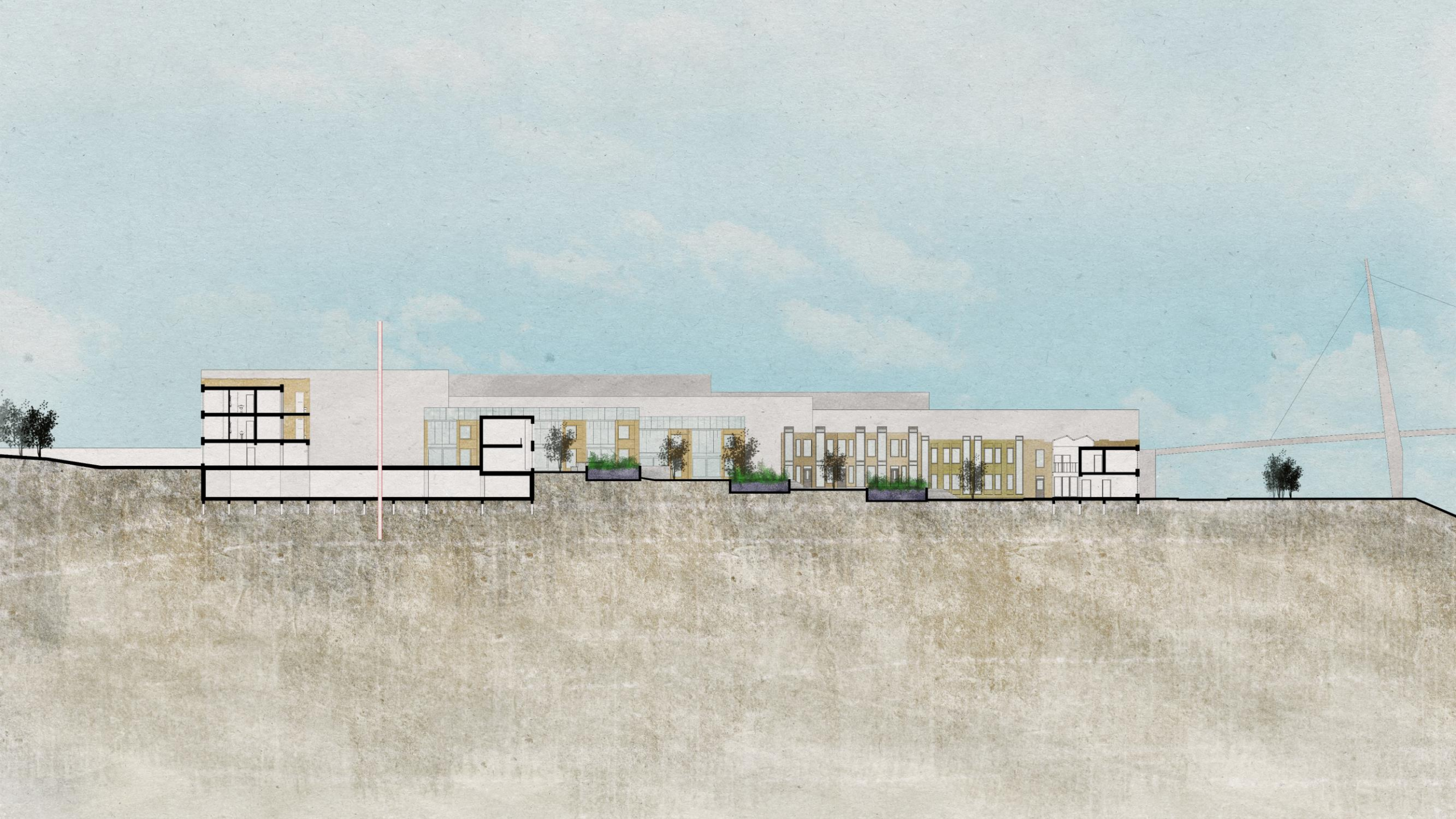


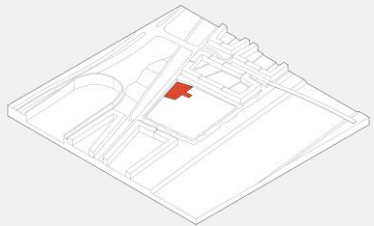




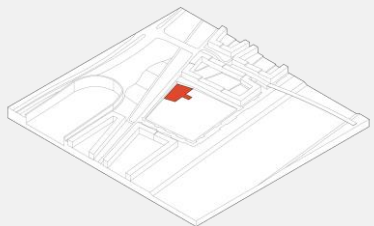
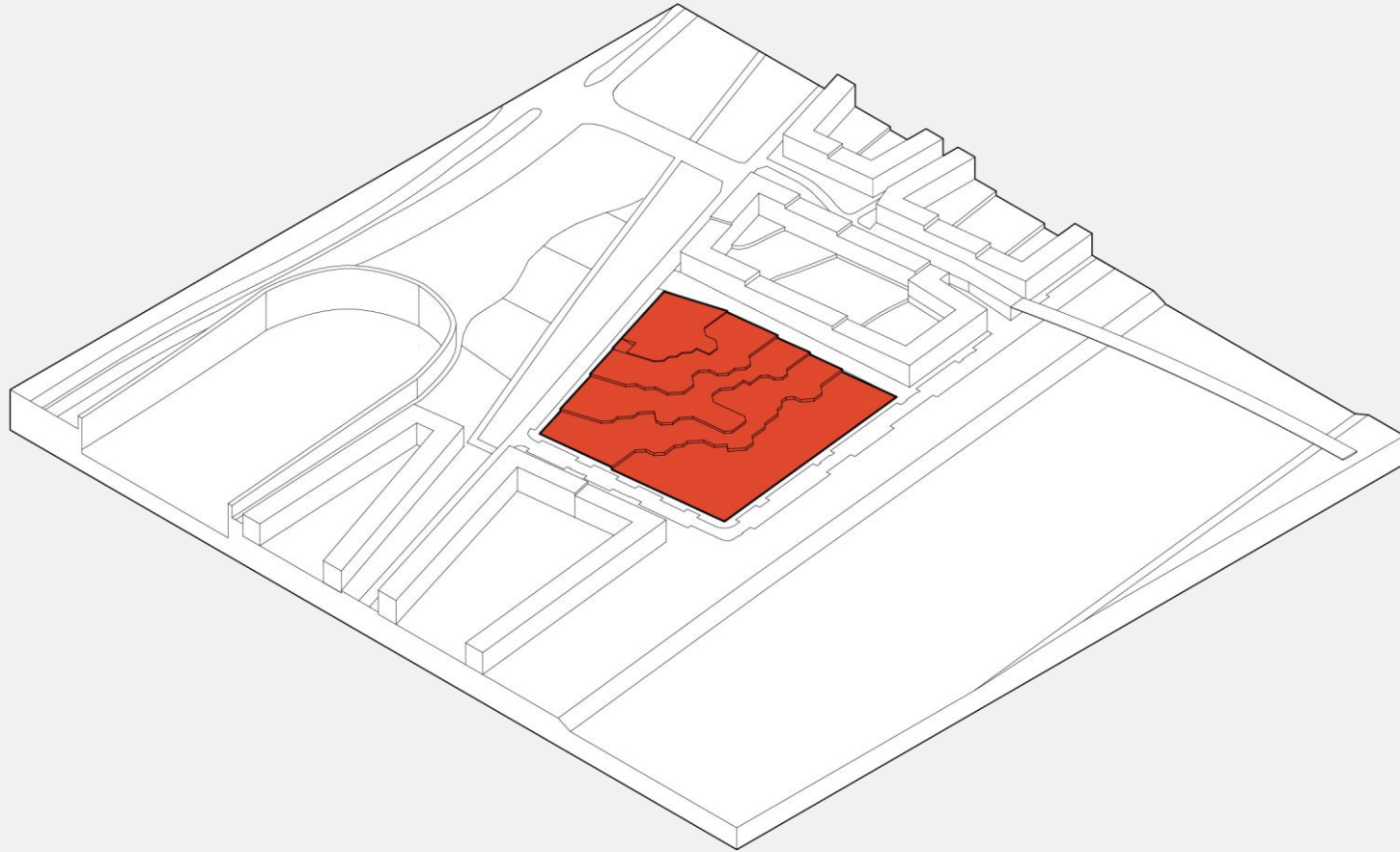


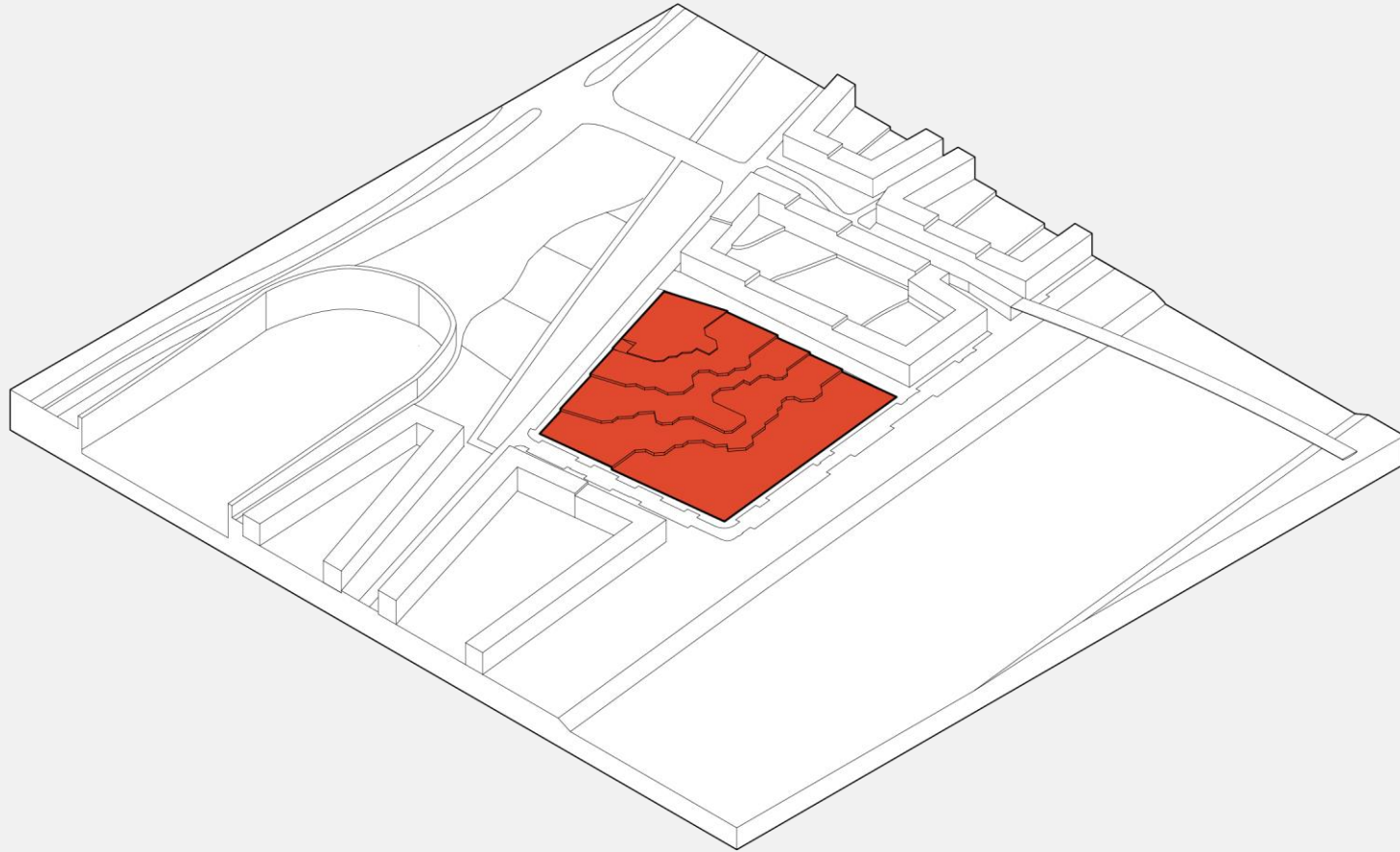


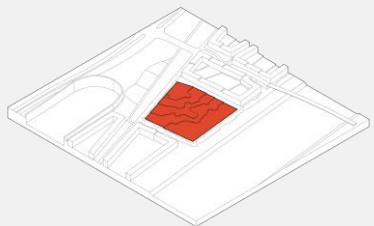




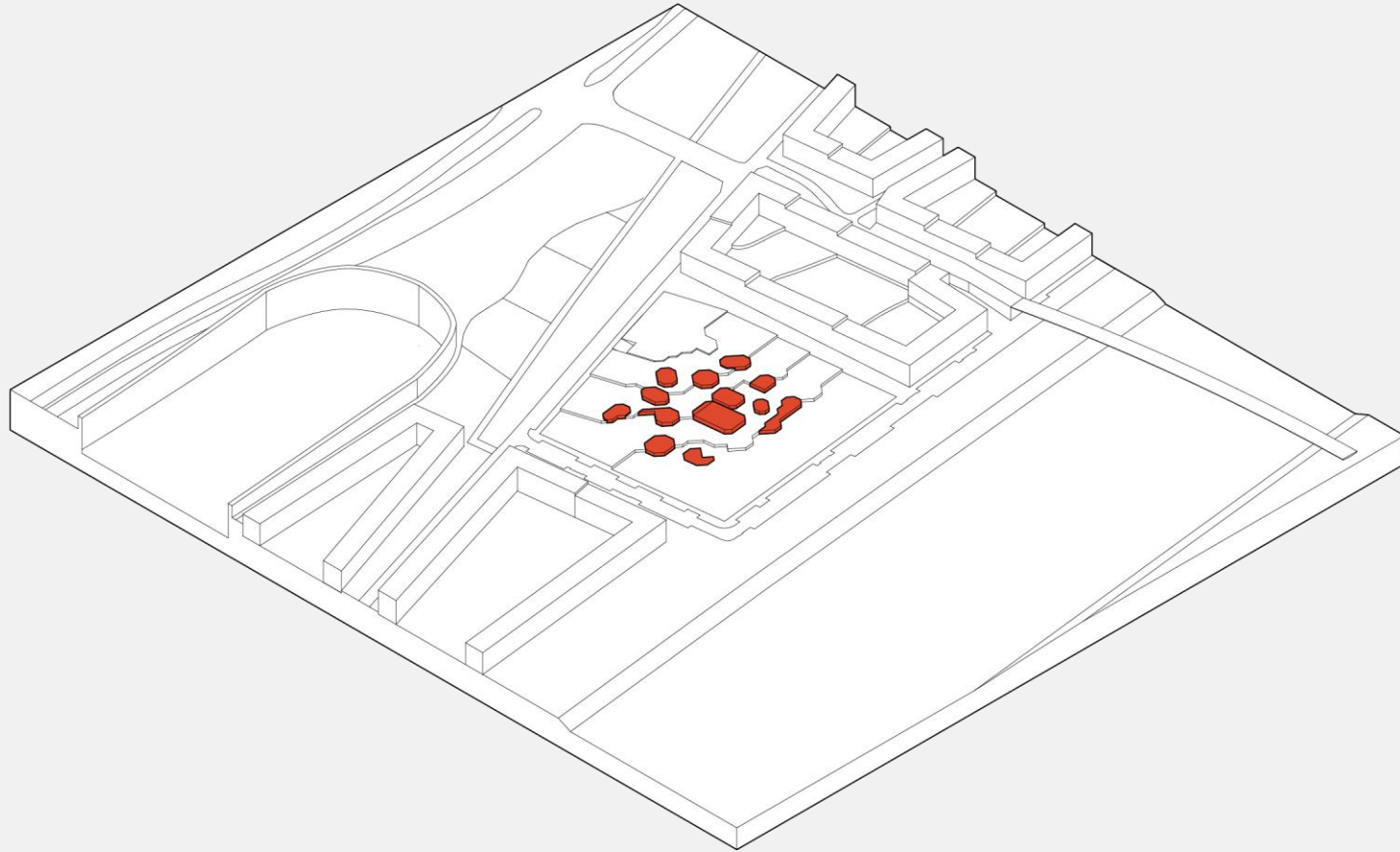


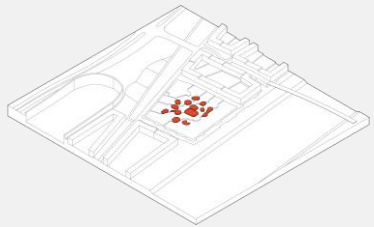




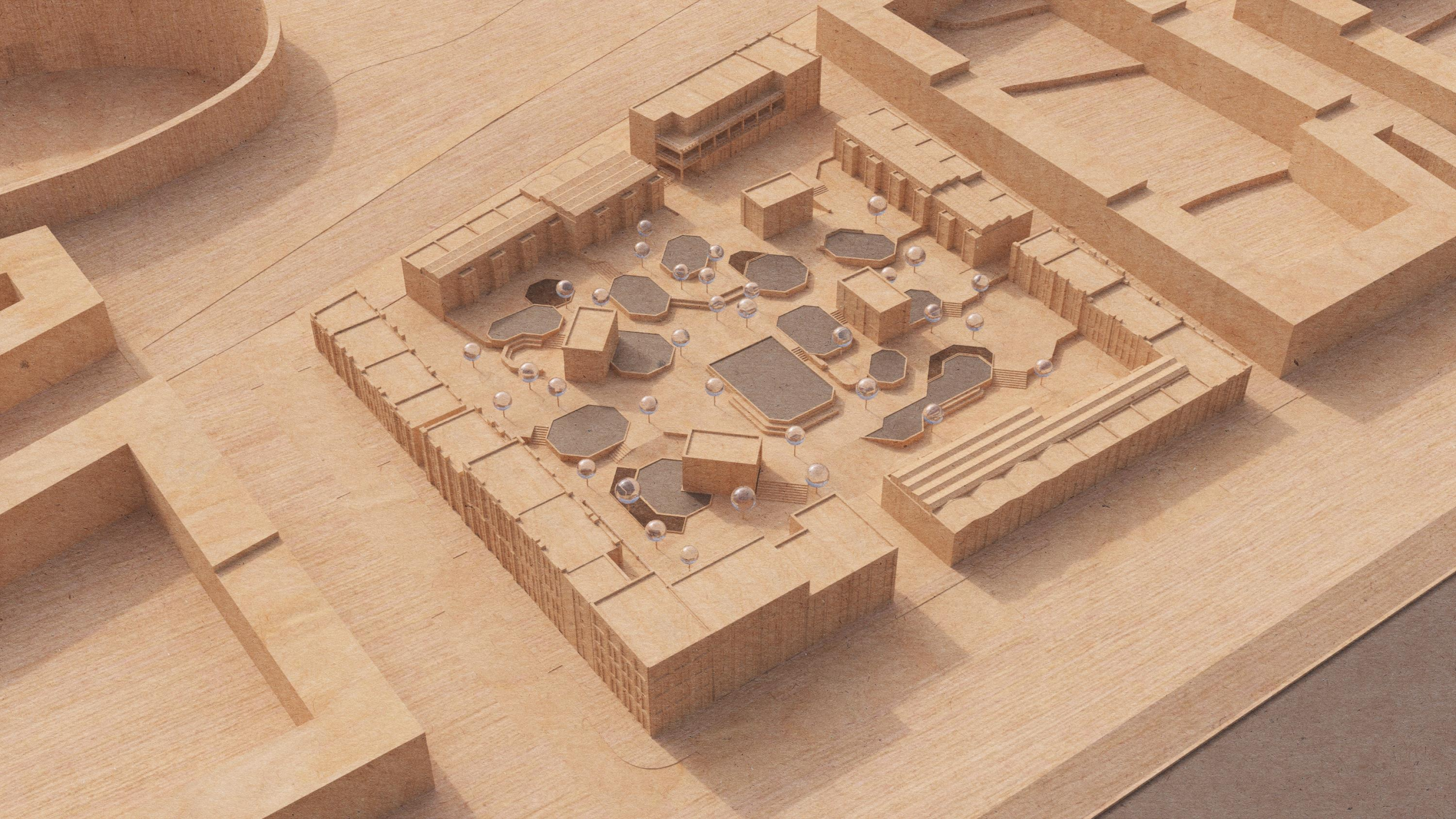




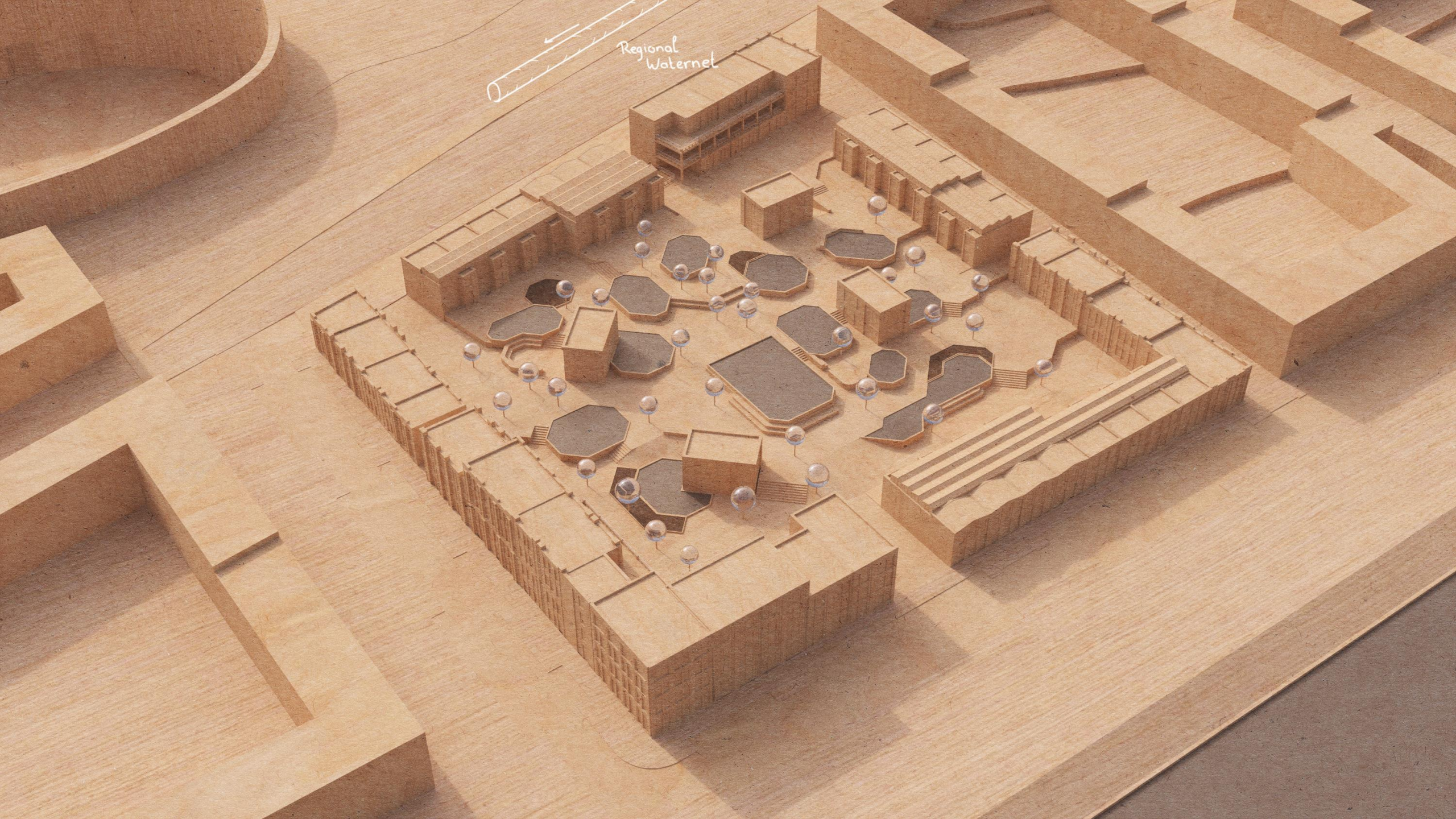






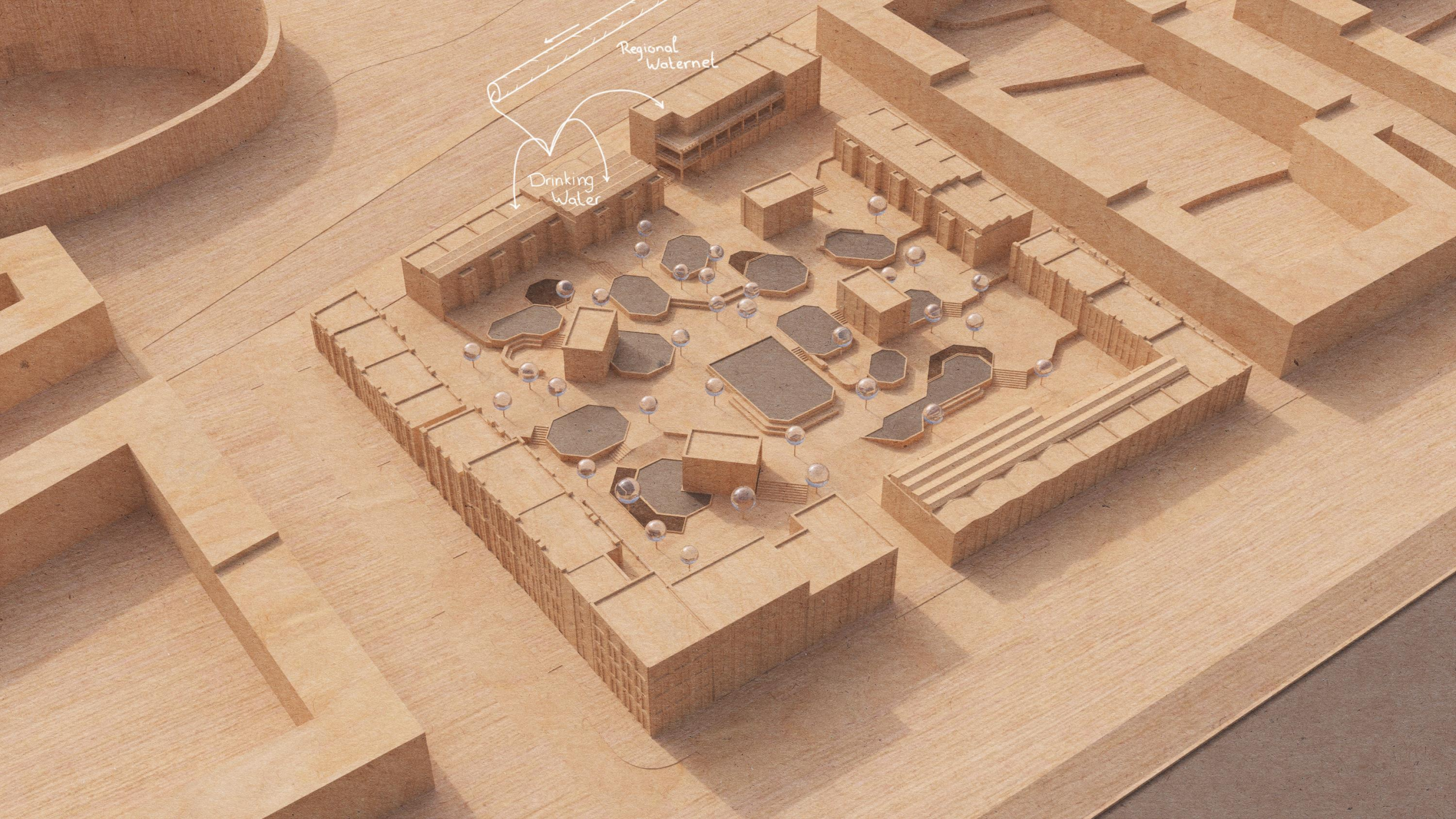






Regional  
Waternet

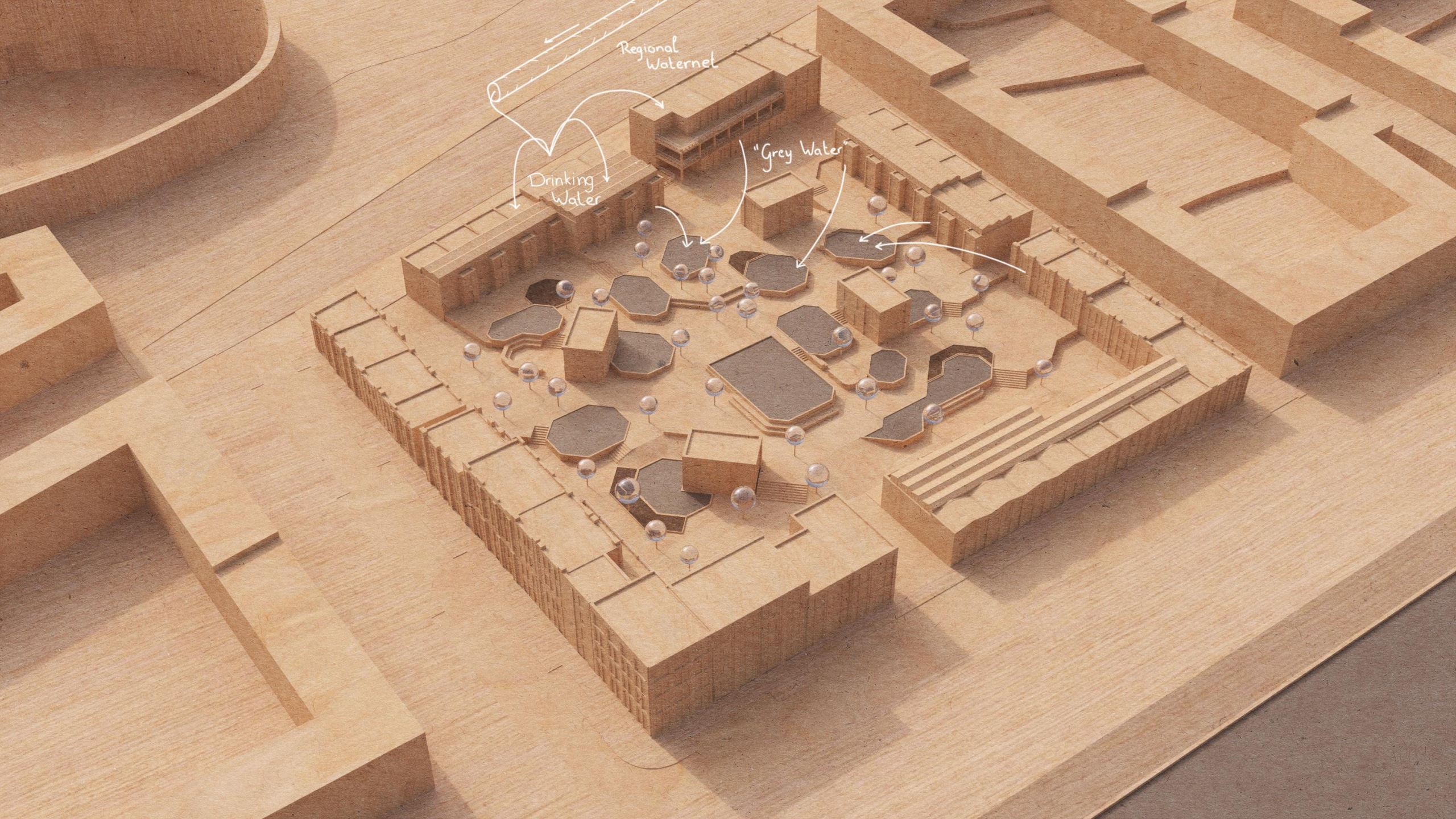




Regional Waternet

Drinking Water



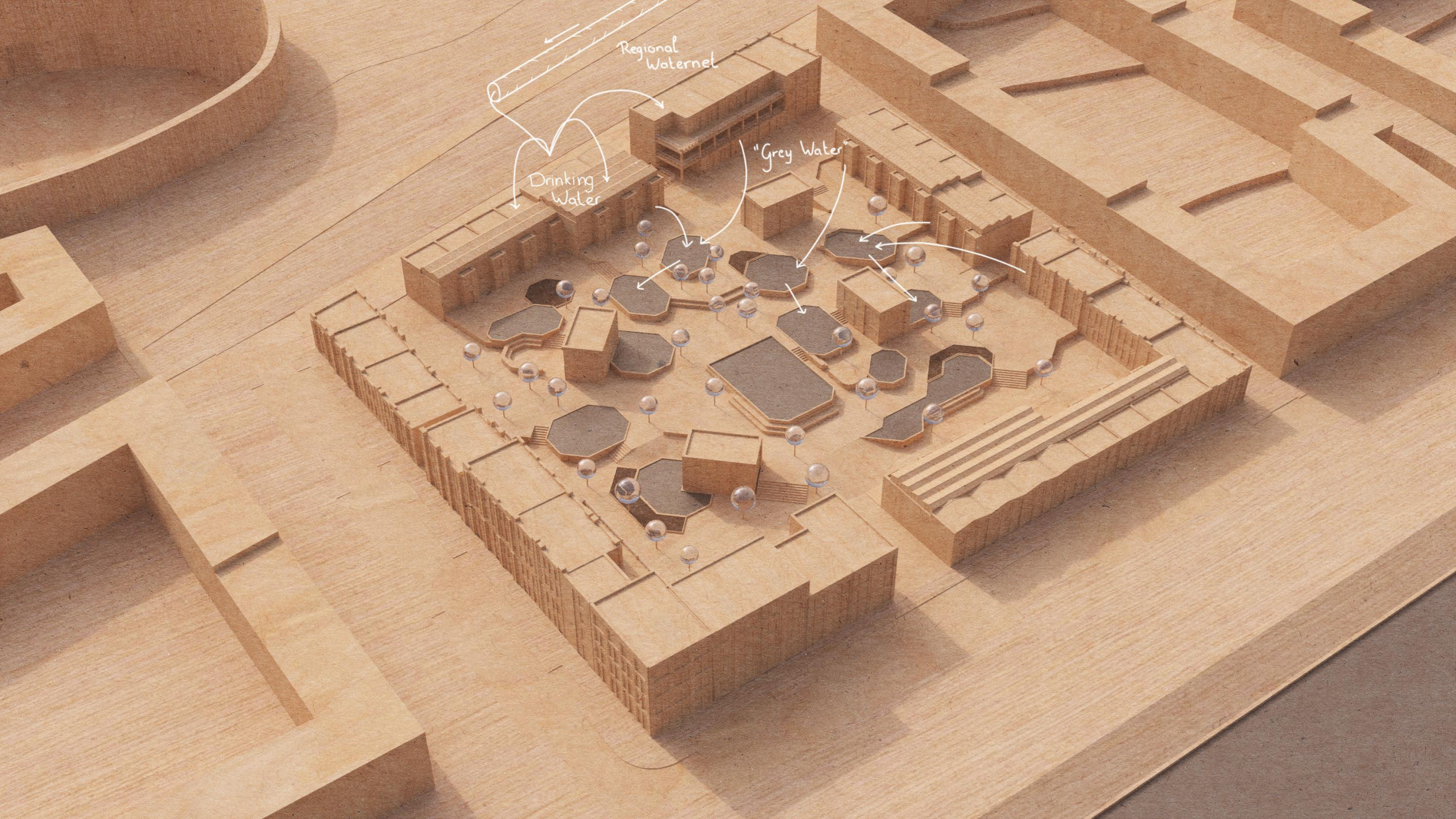


Regional Waternet

Drinking Water

"Grey Water"



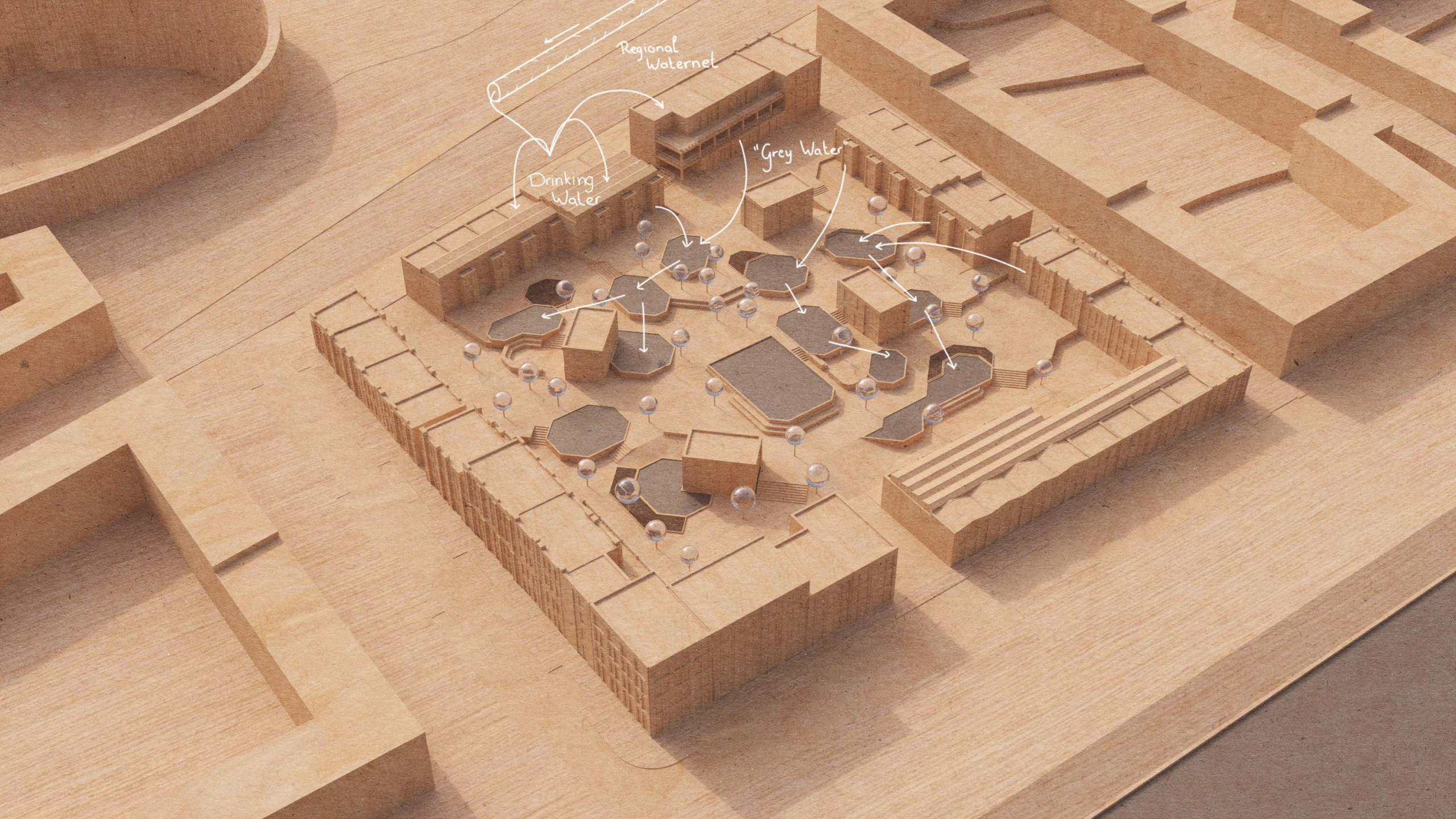


Regional Waternet

Drinking Water

"Grey Water"



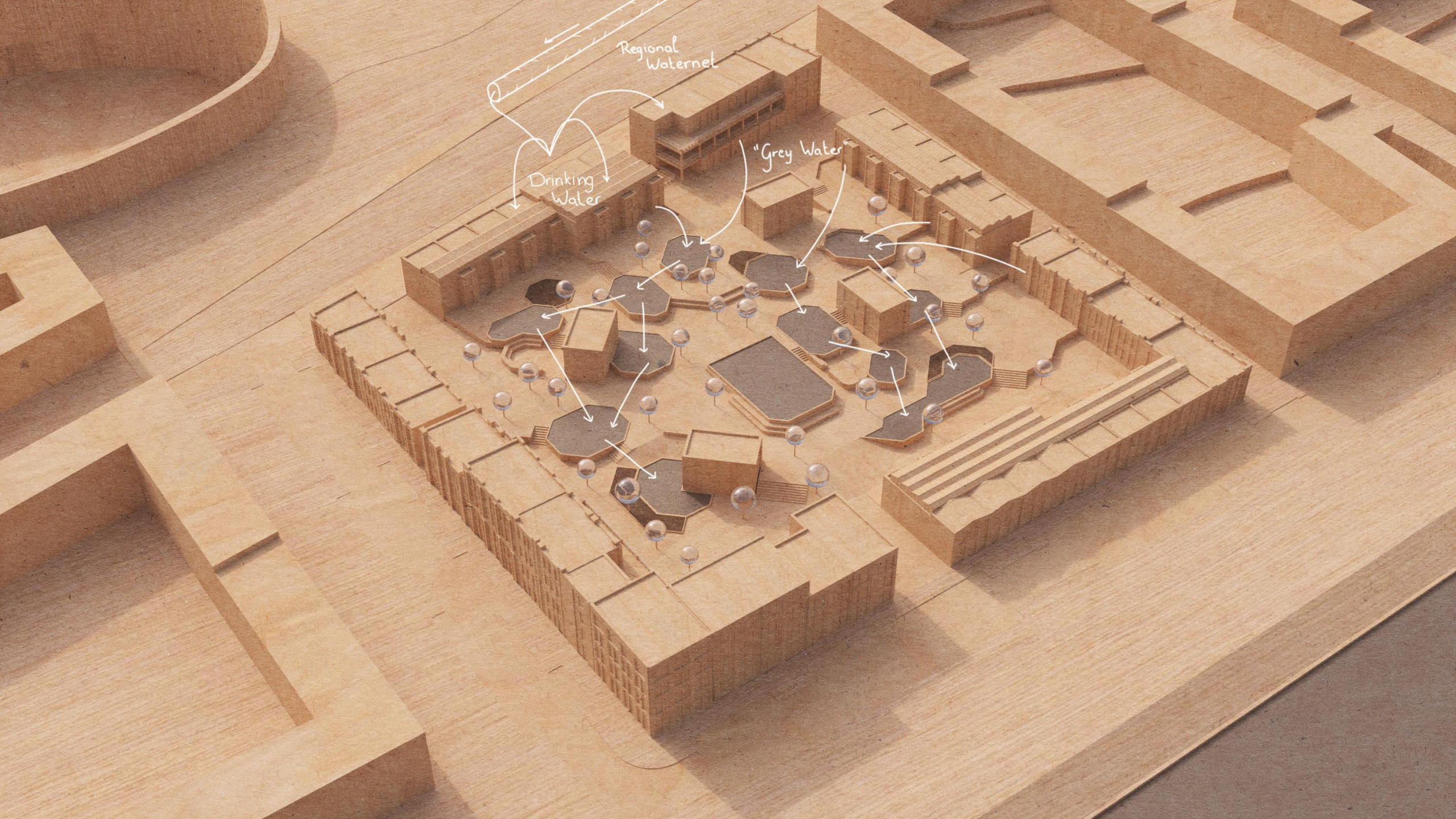


Regional Waternet

Drinking Water

"Grey Water"



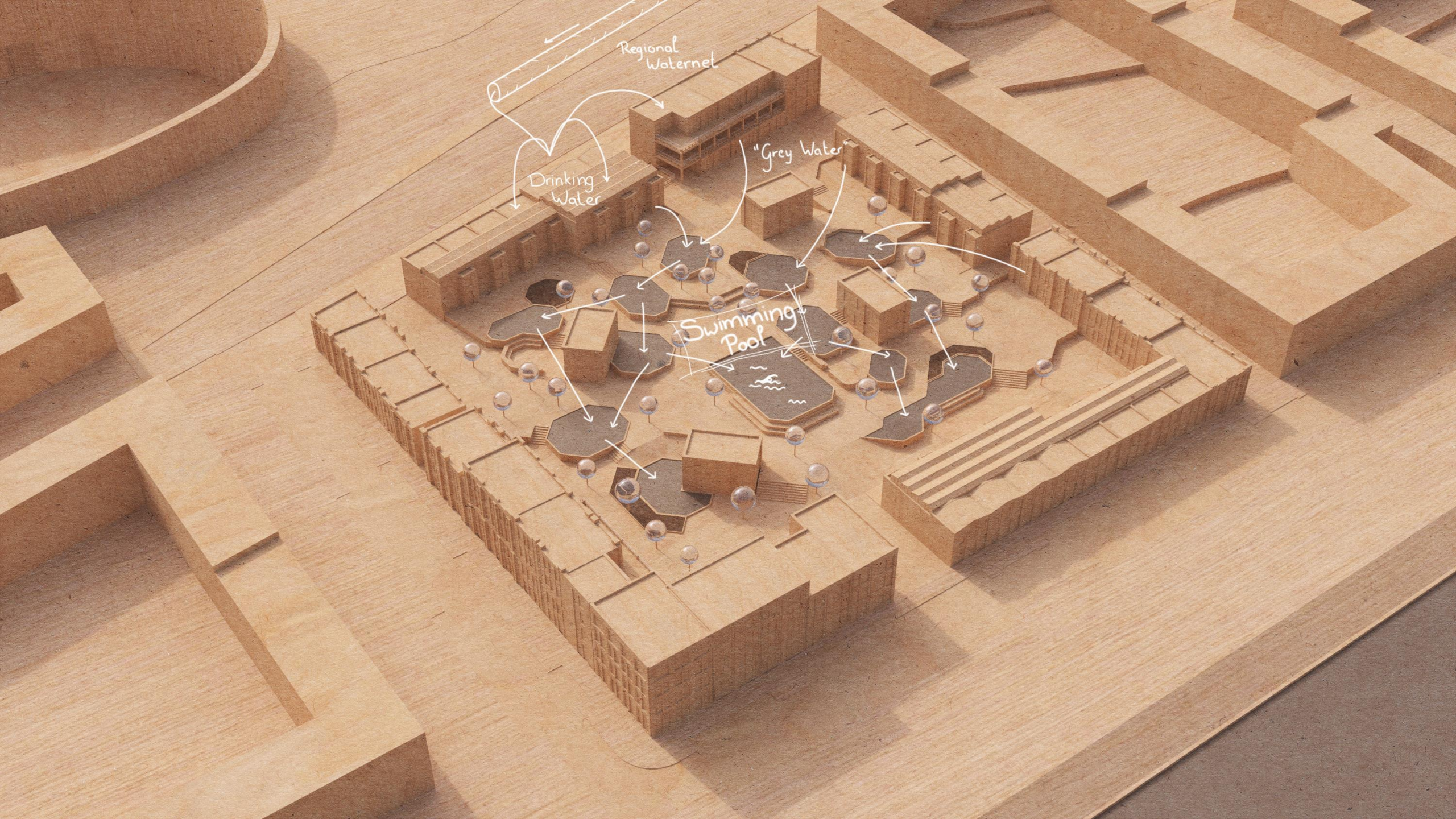


Regional Waternet

Drinking Water

"Grey Water"





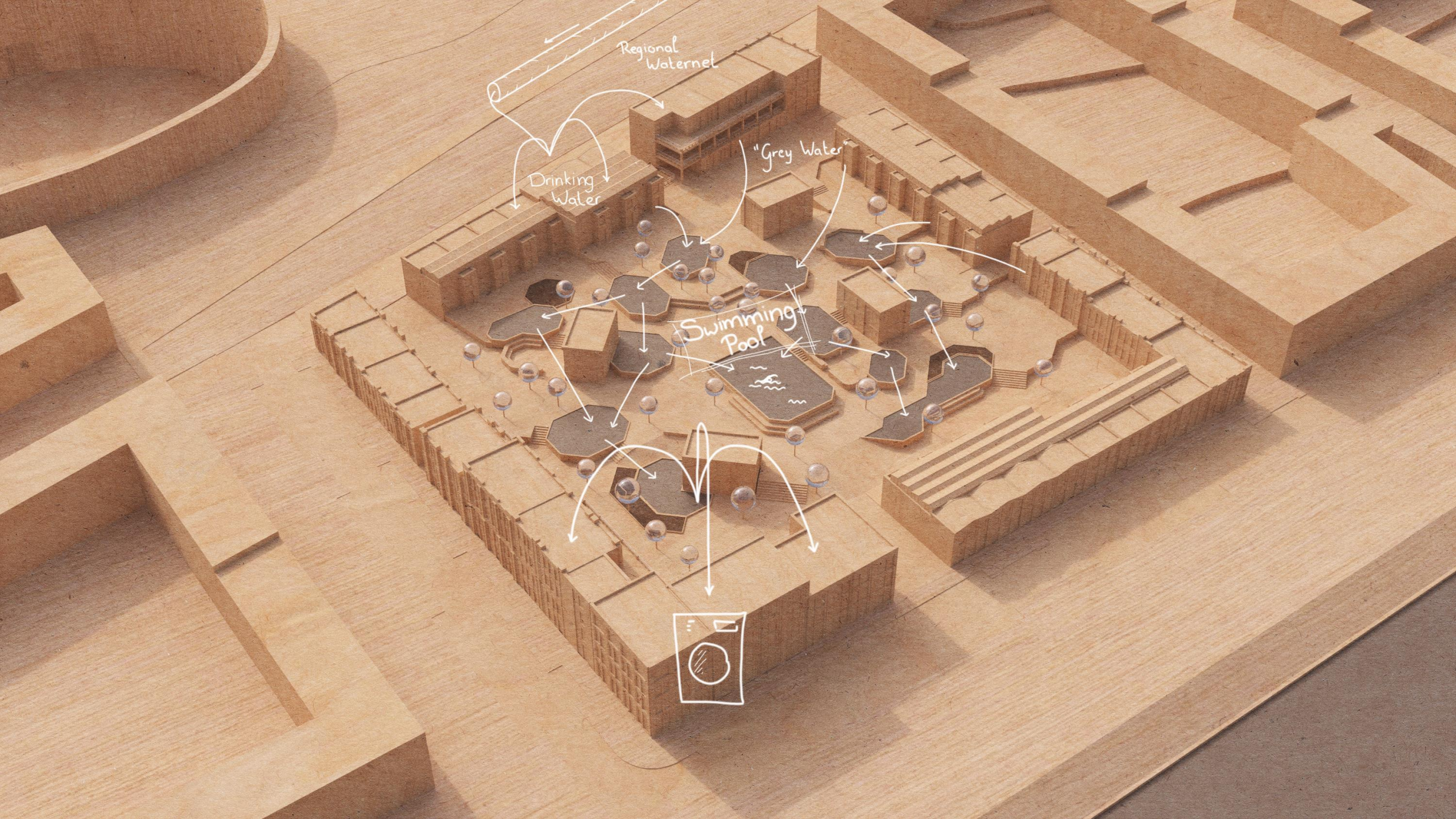
Regional Waternet

Drinking Water

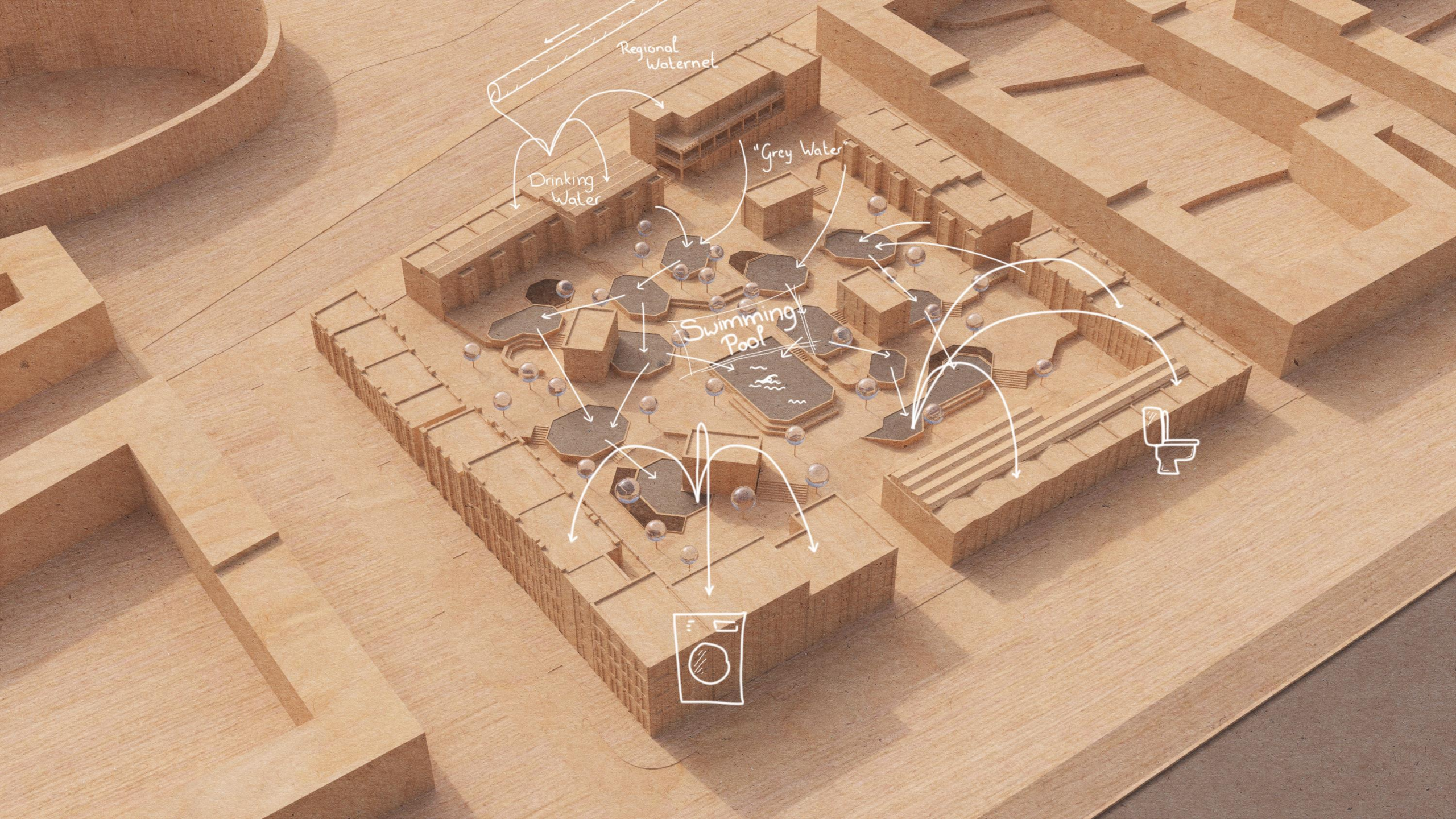
"Grey Water"

Swimming Pool









Regional Waternet

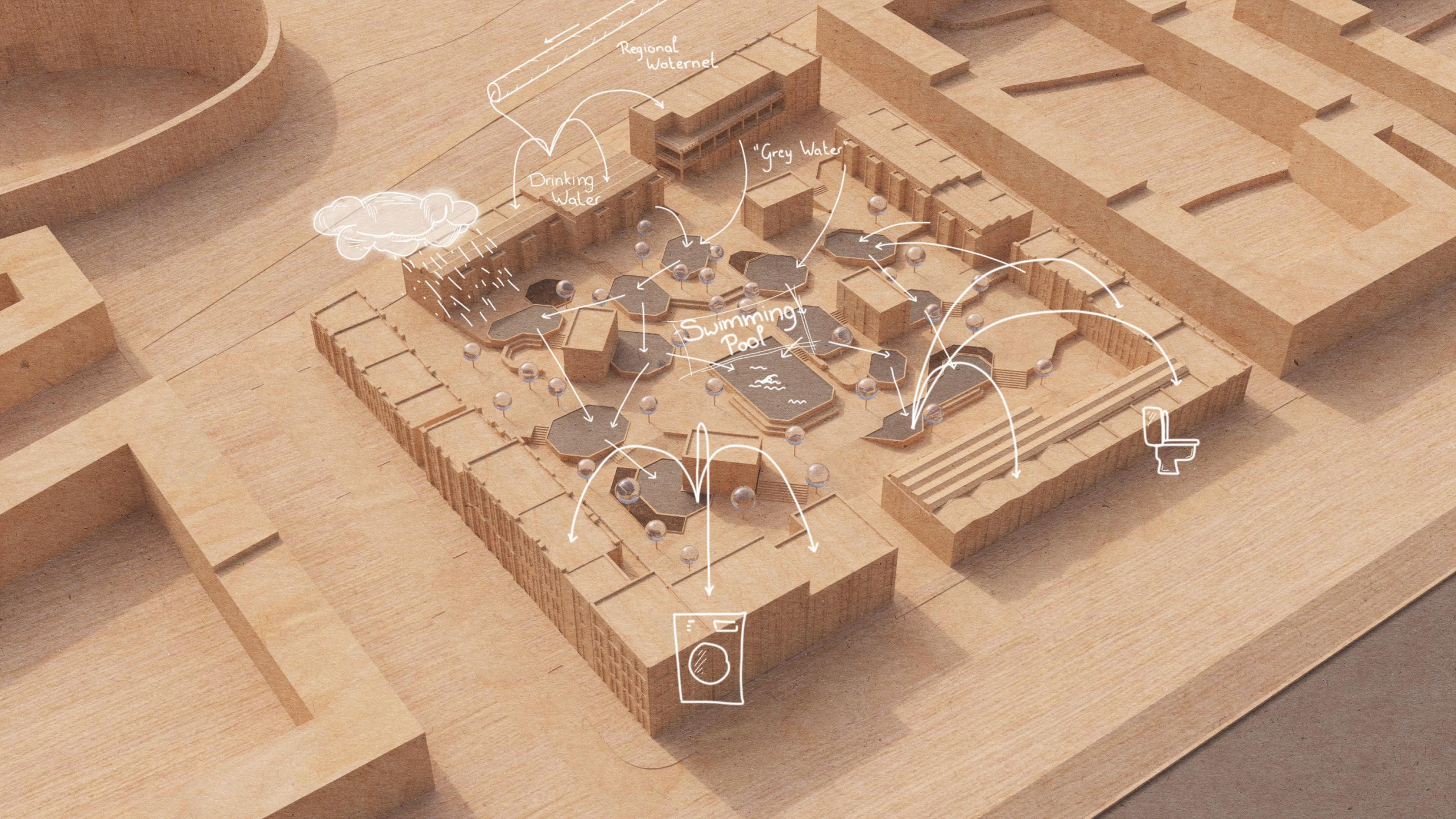
Drinking Water

"Grey Water"

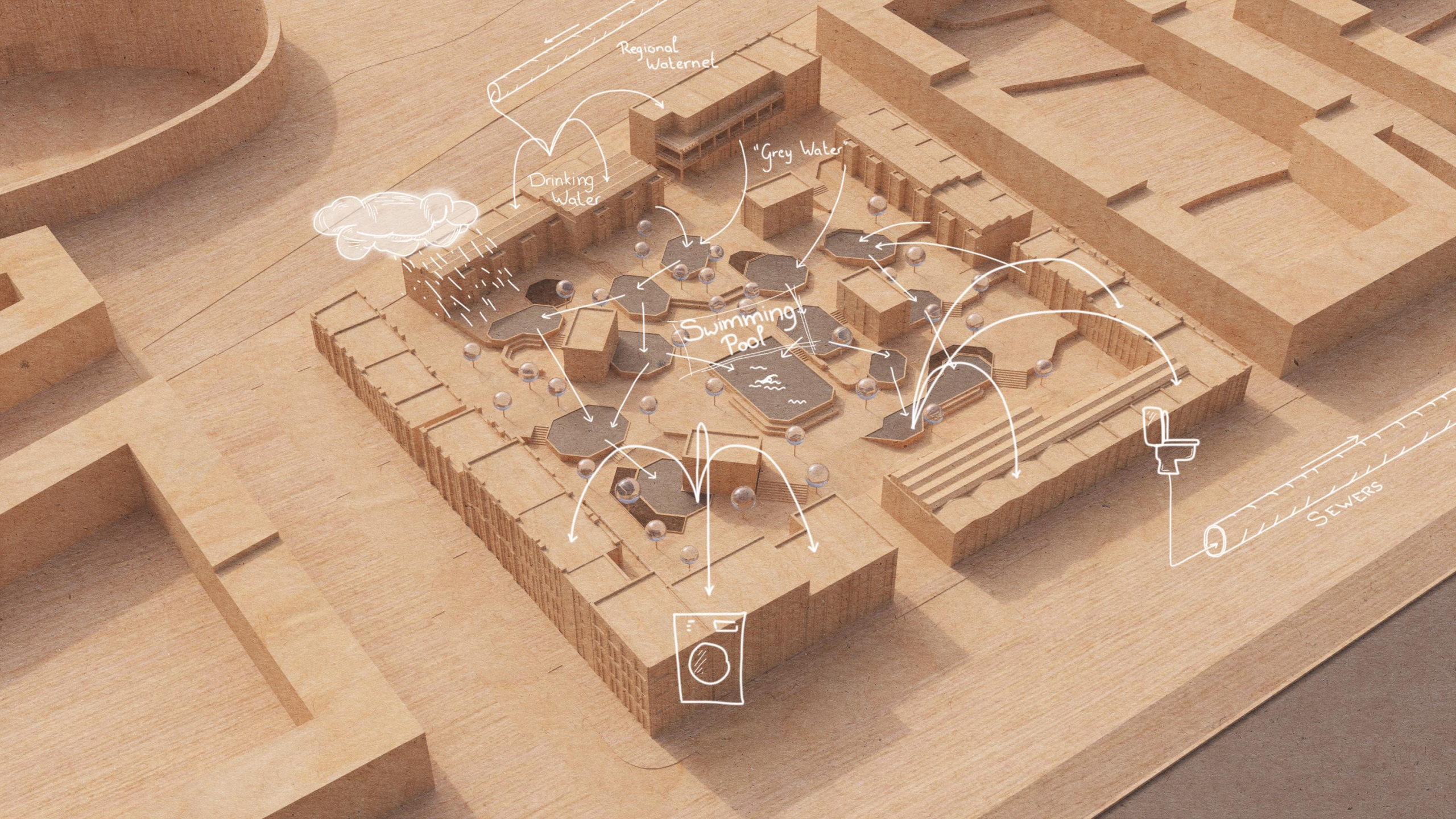
Swimming Pool



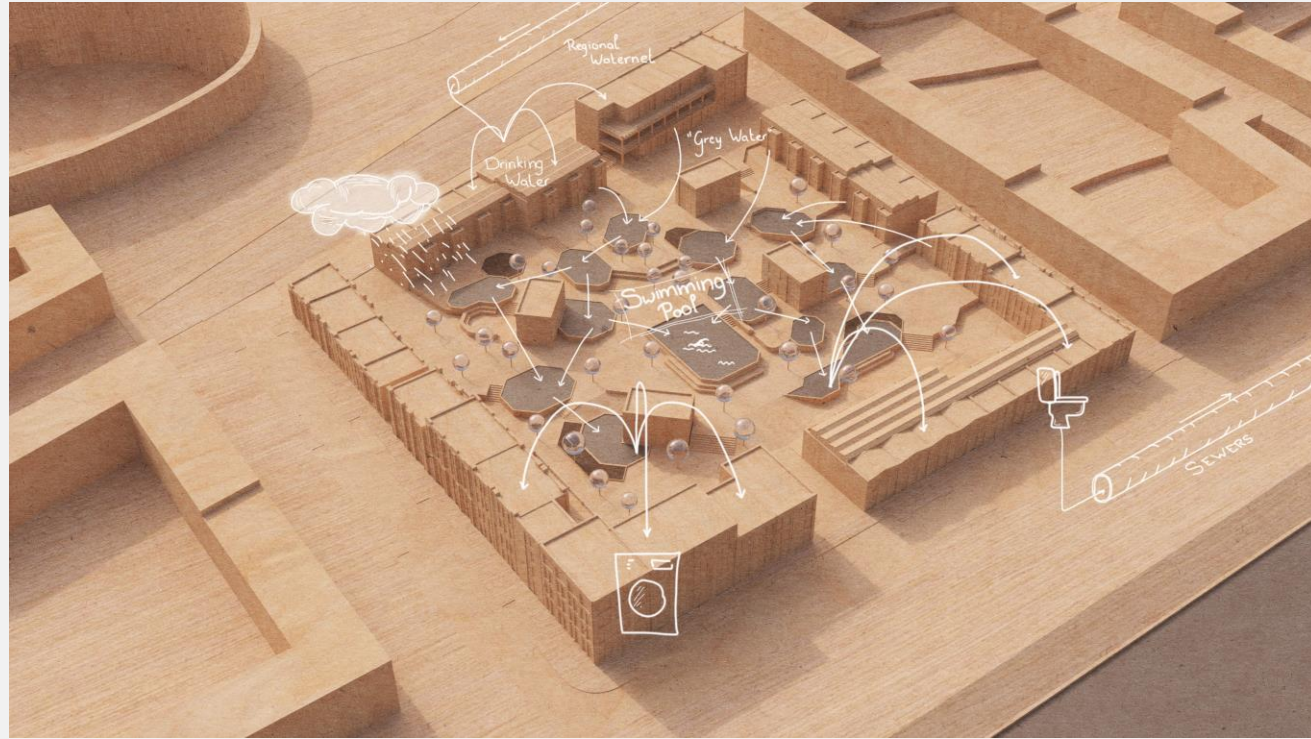


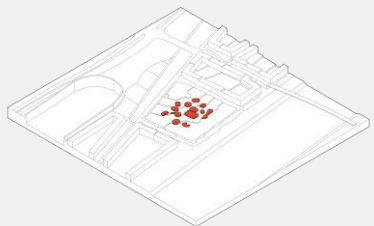
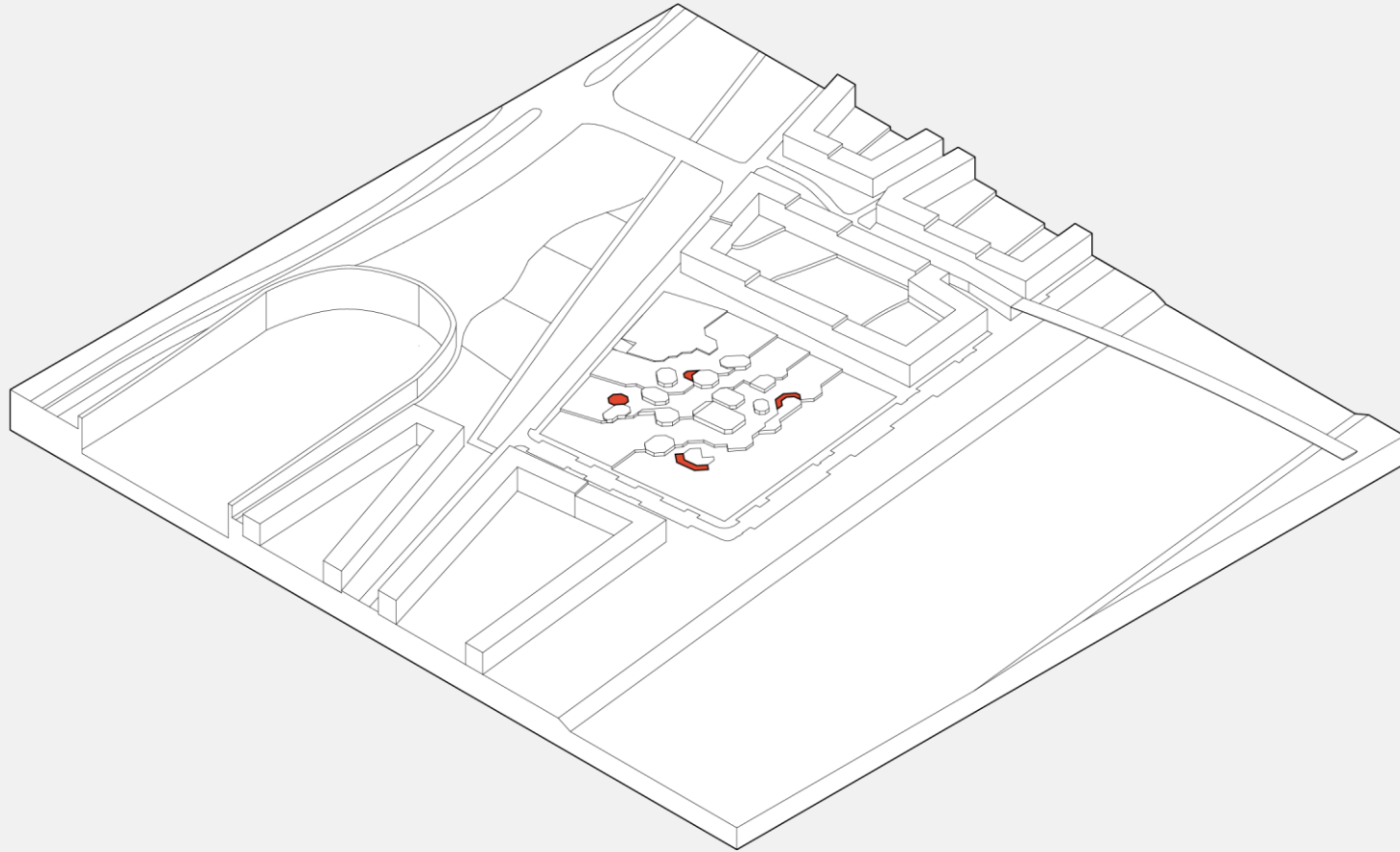




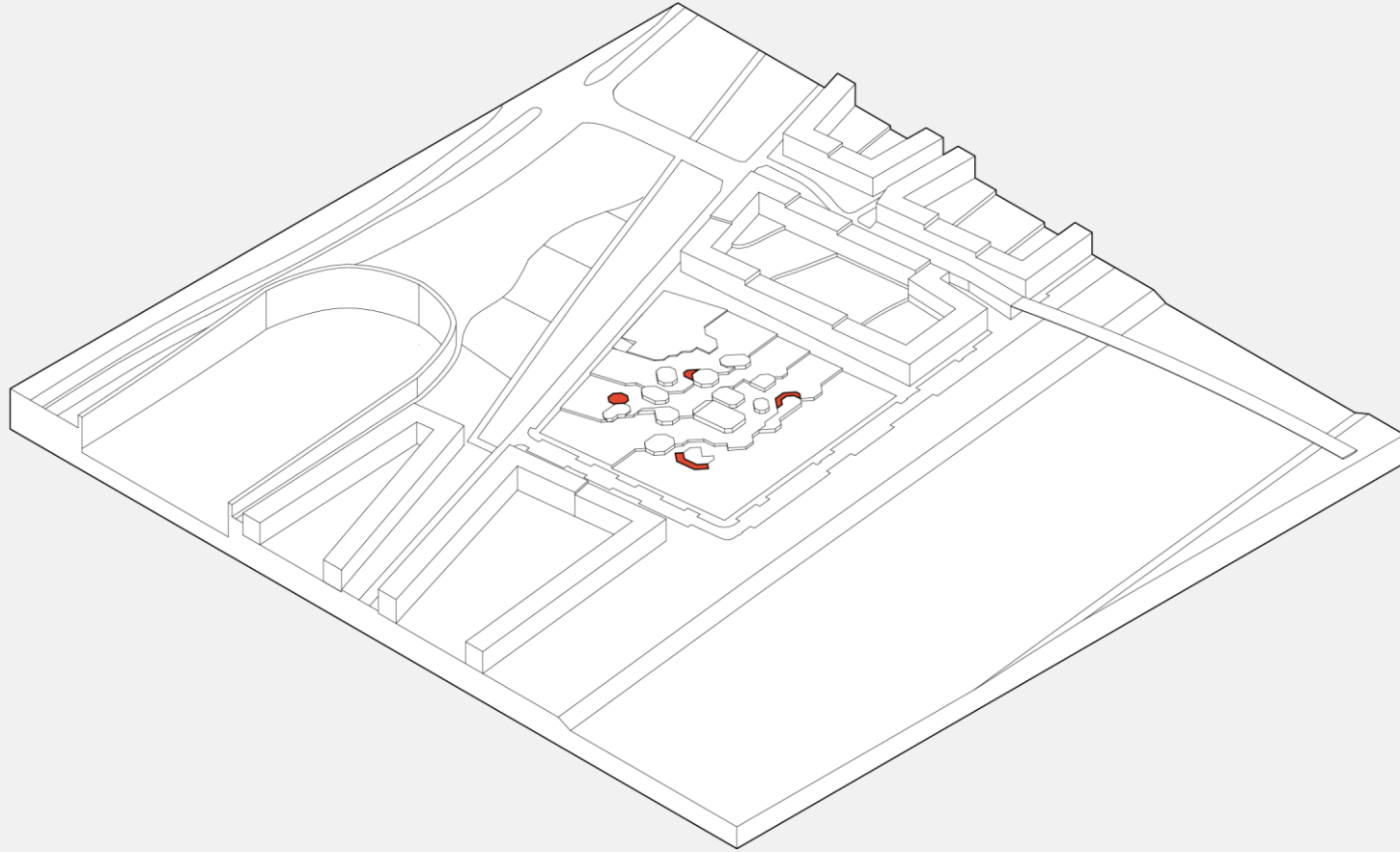


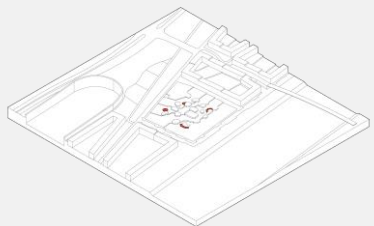
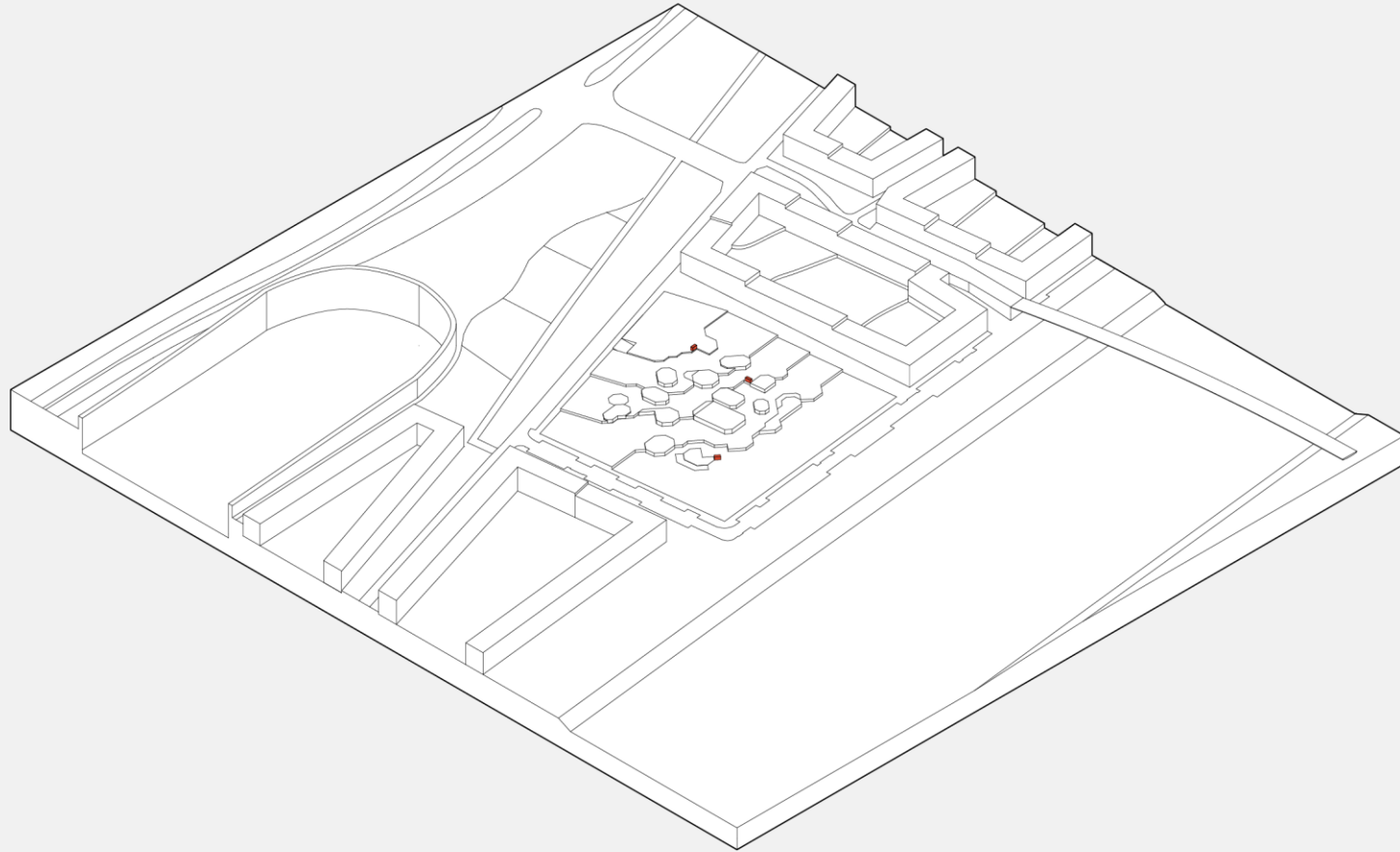


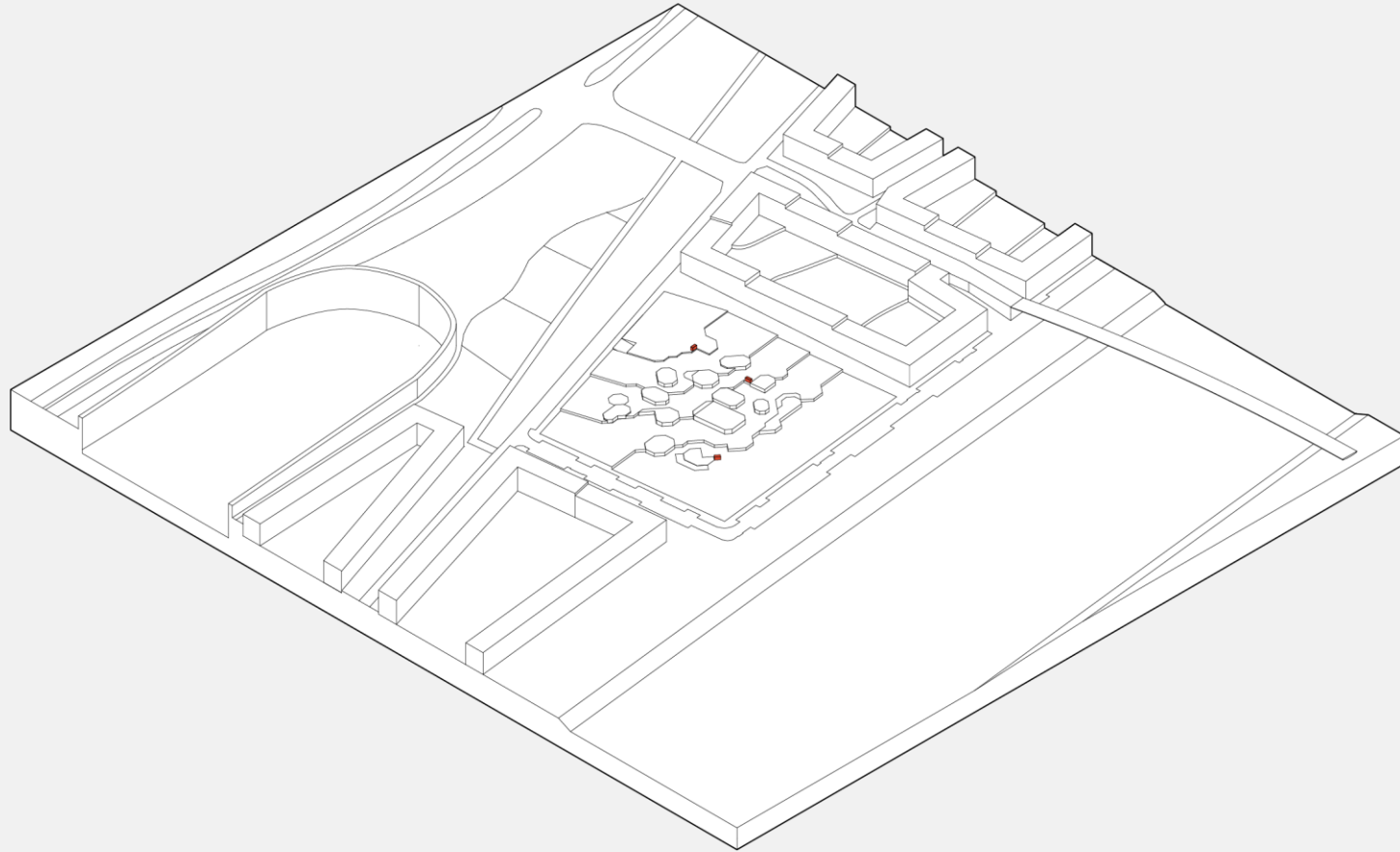


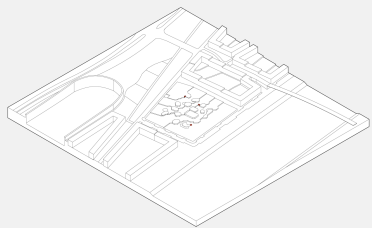


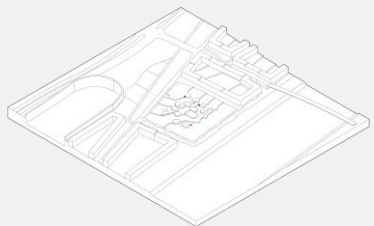


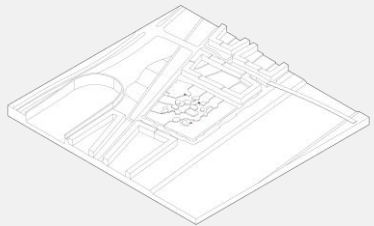
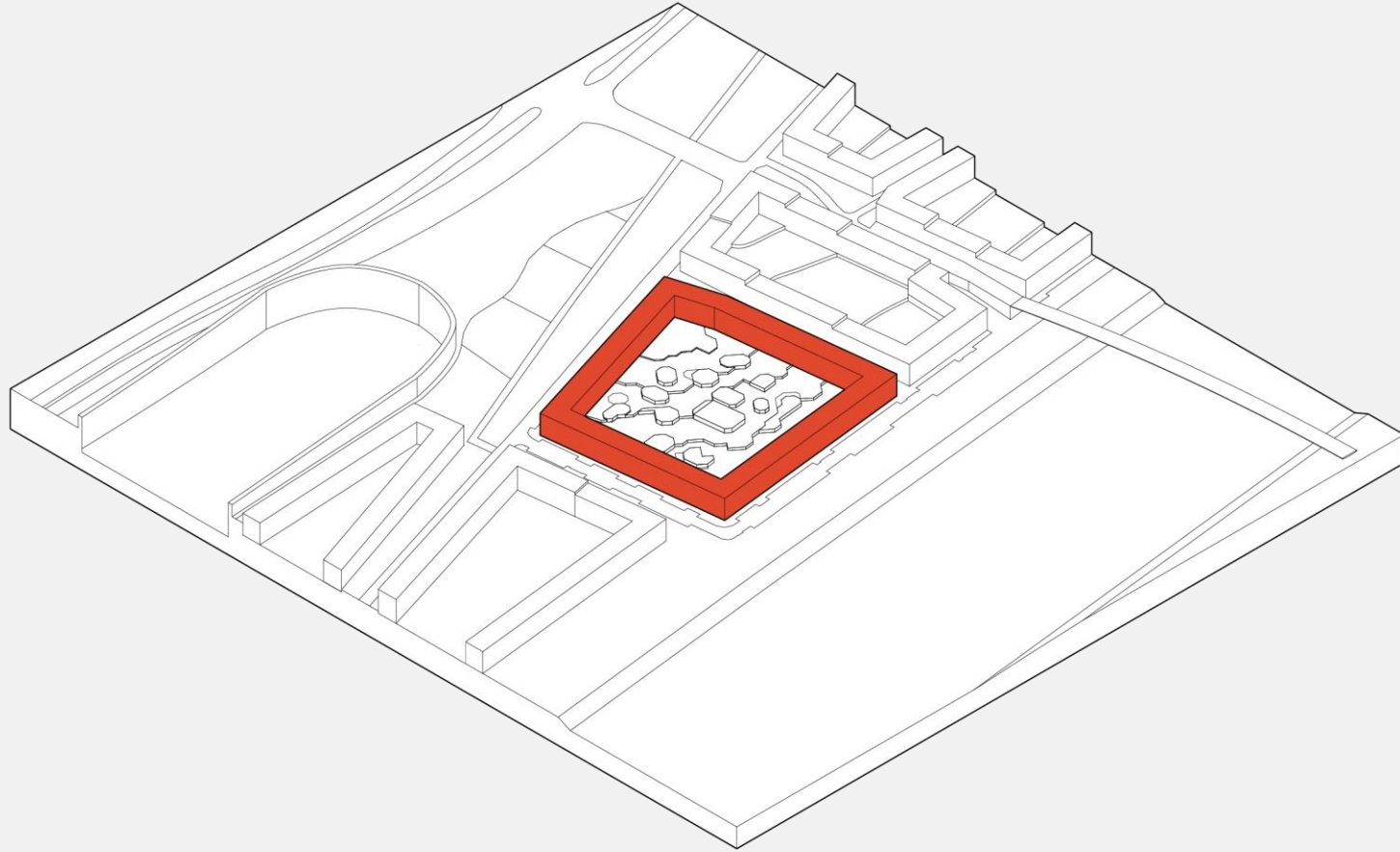


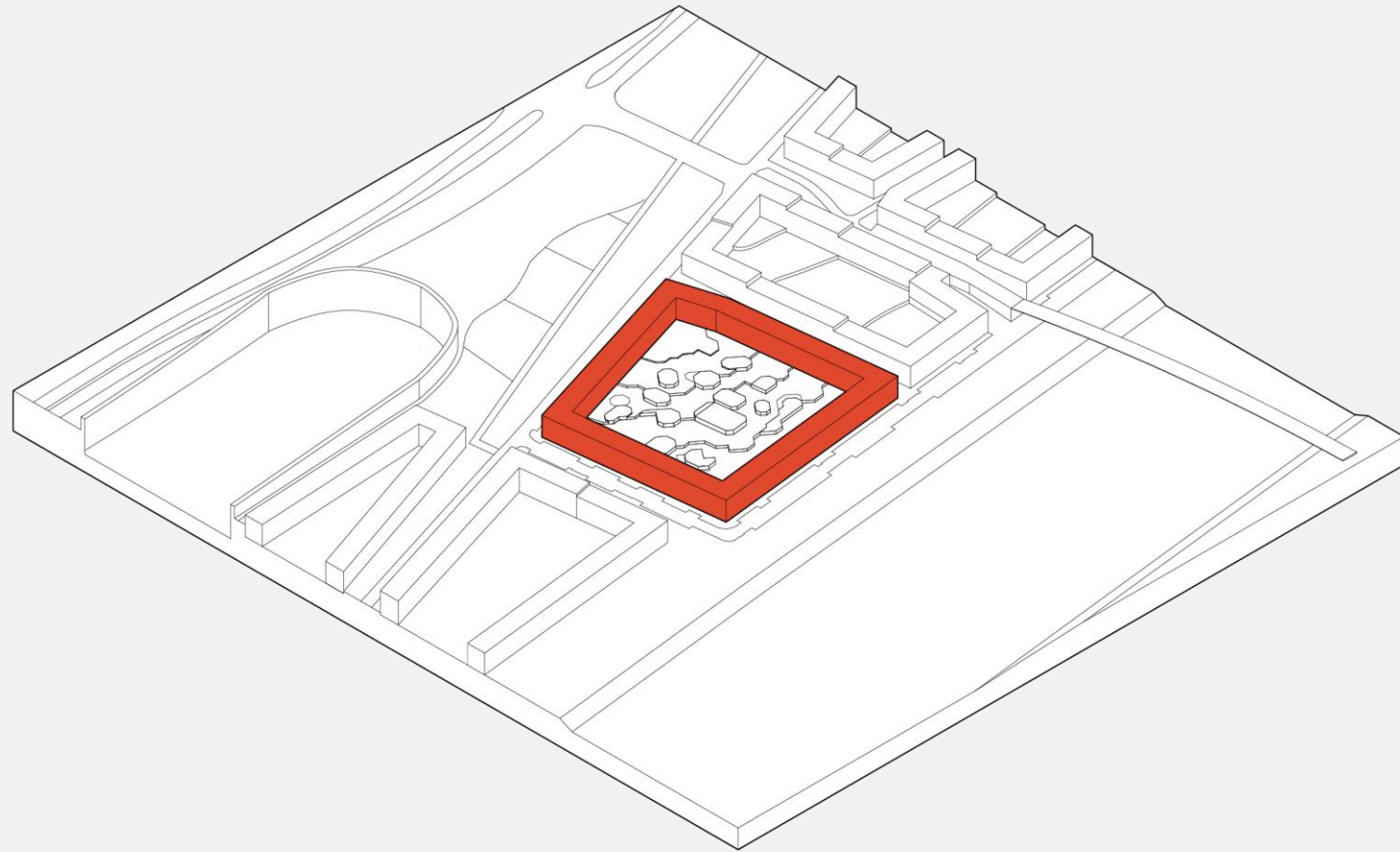




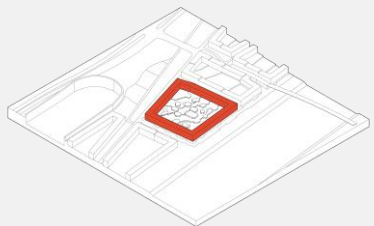
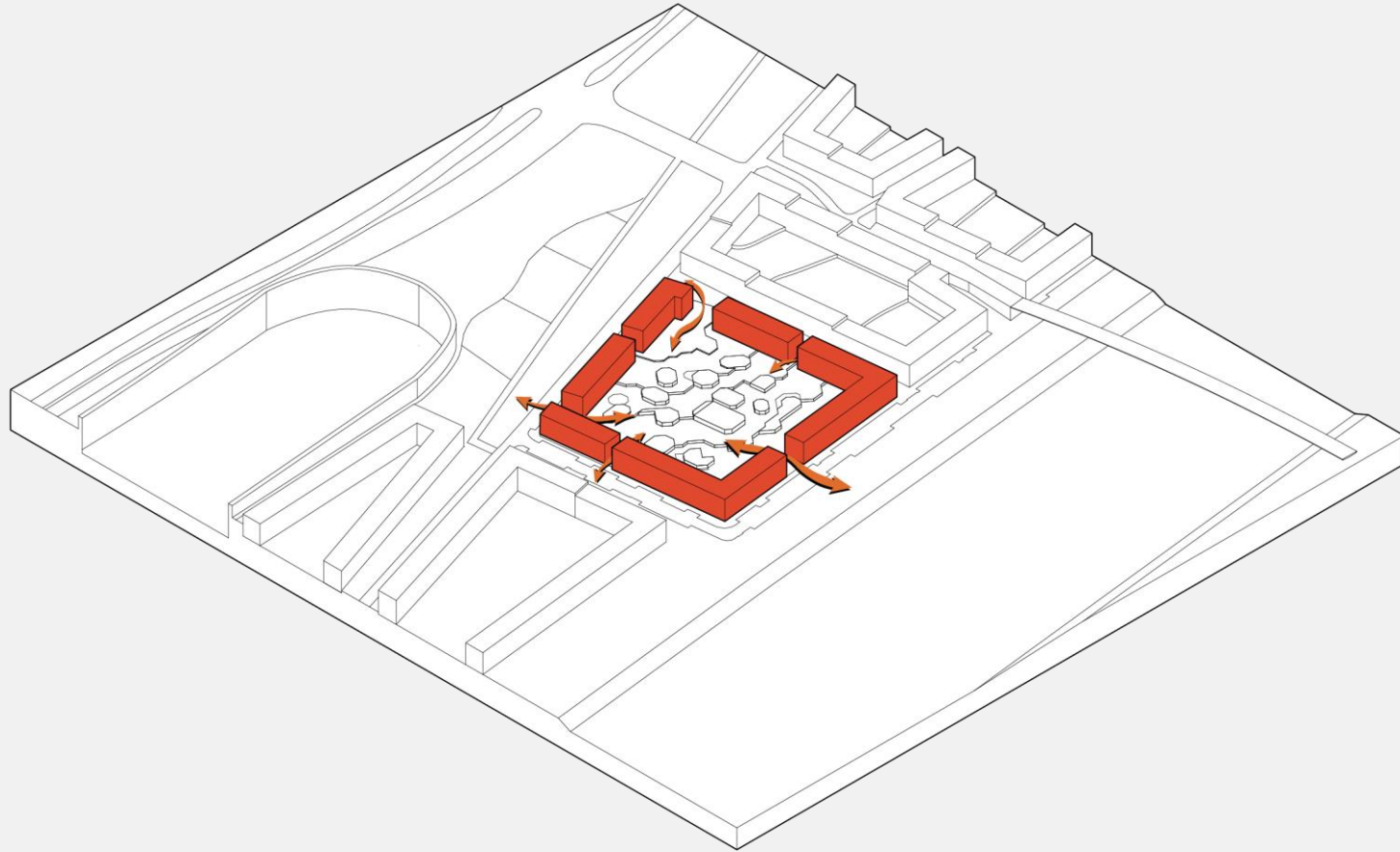




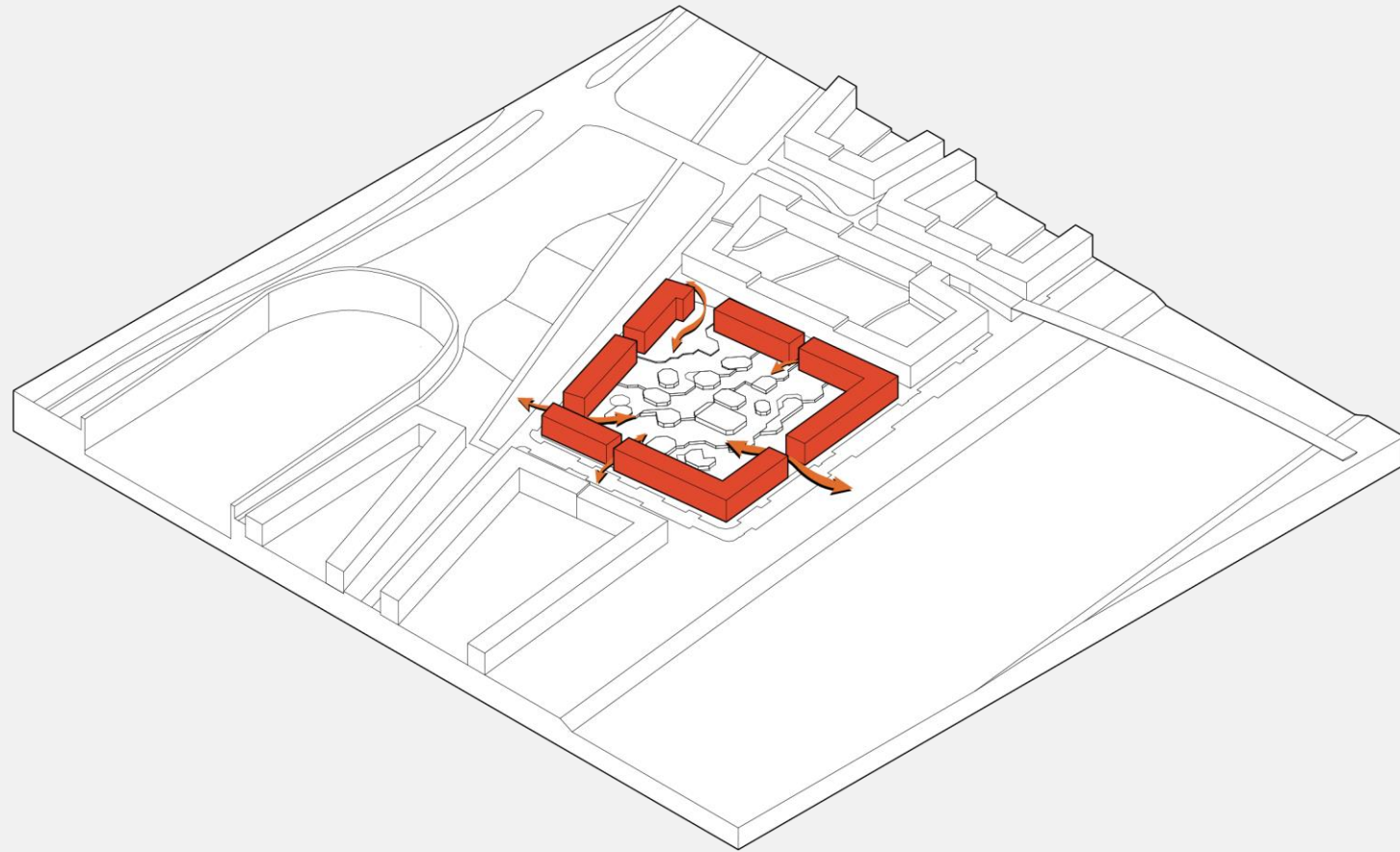


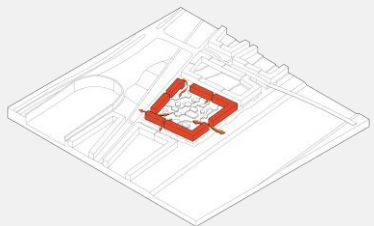
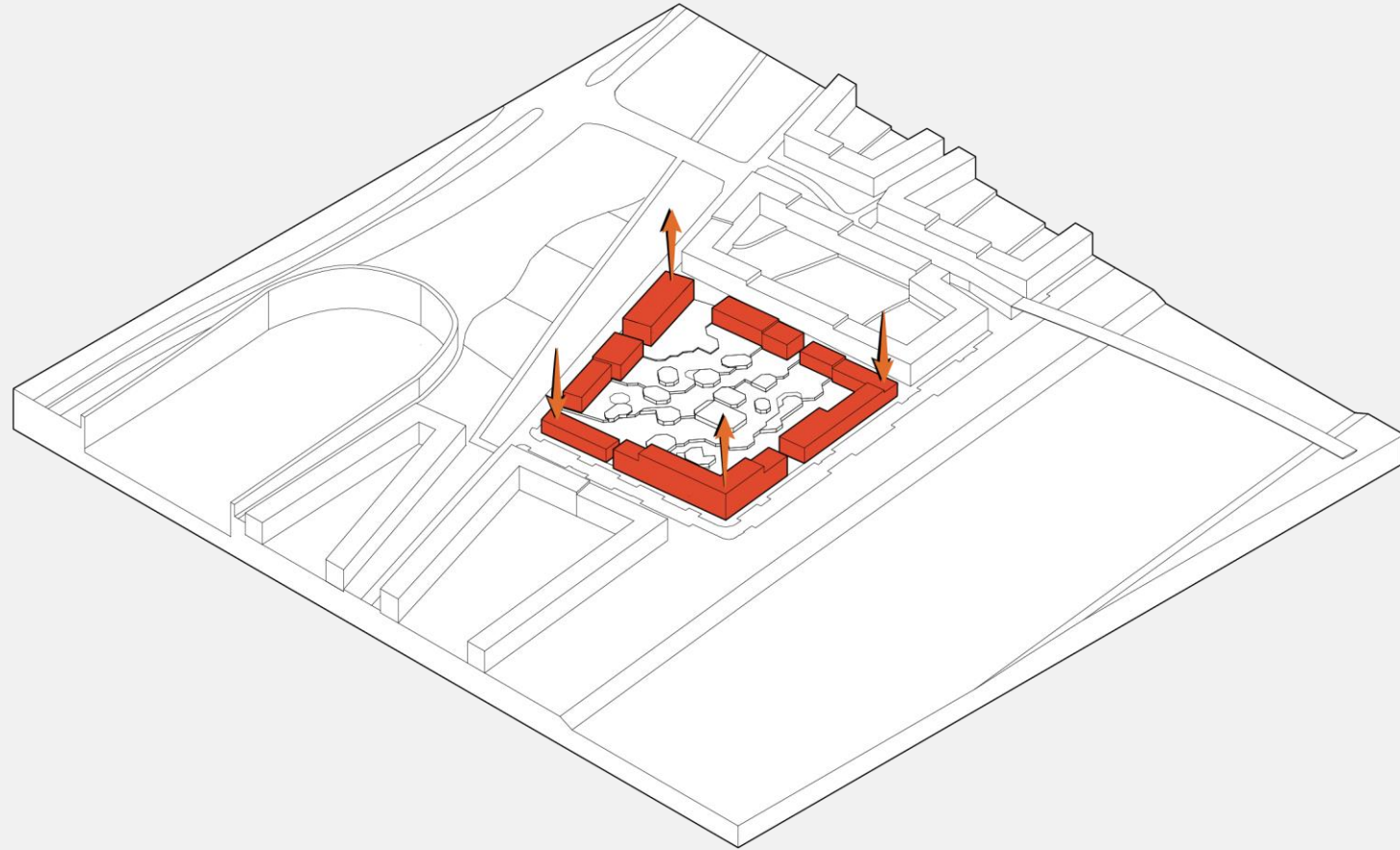


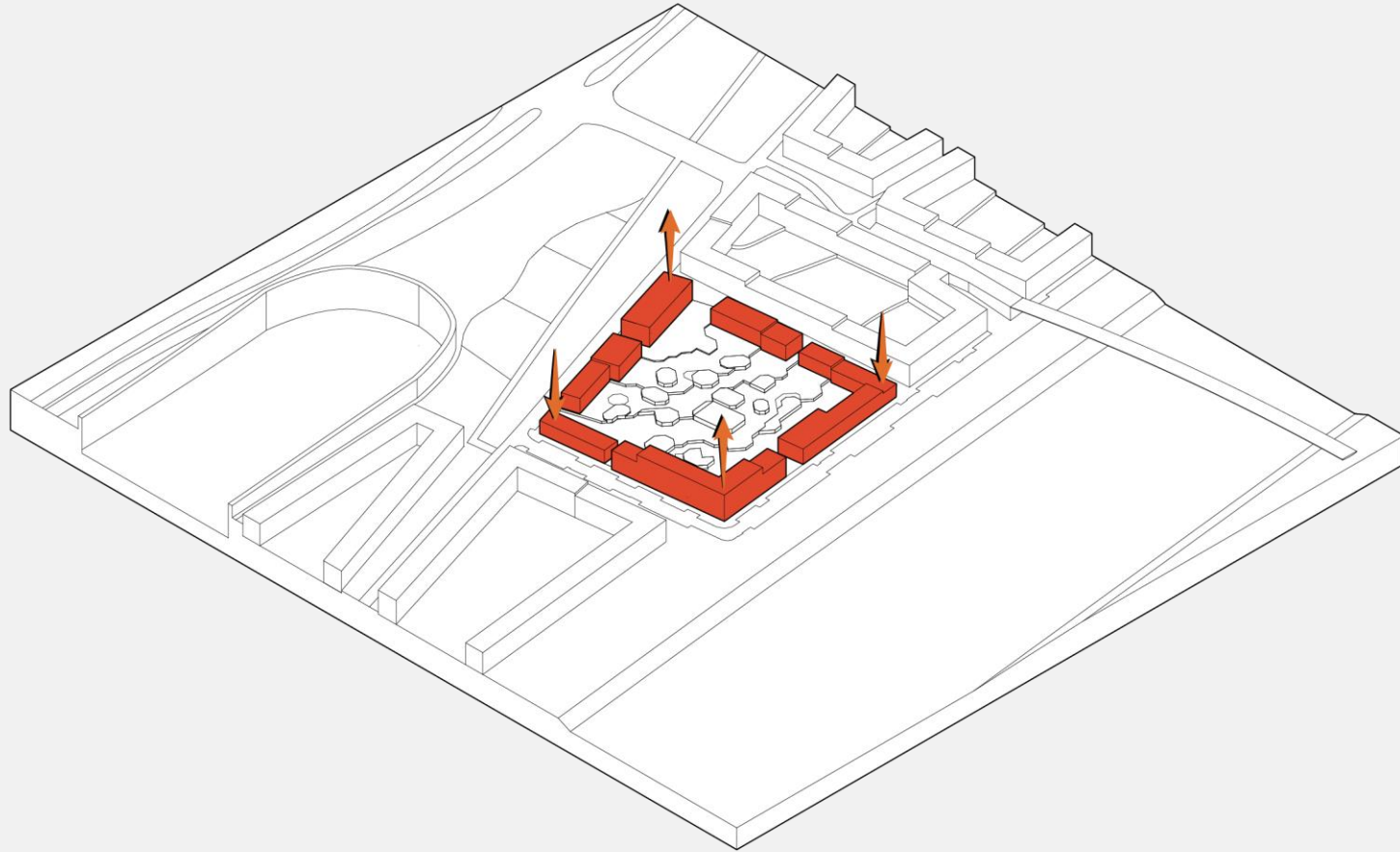


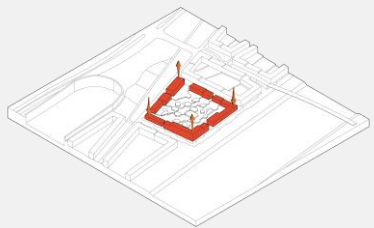
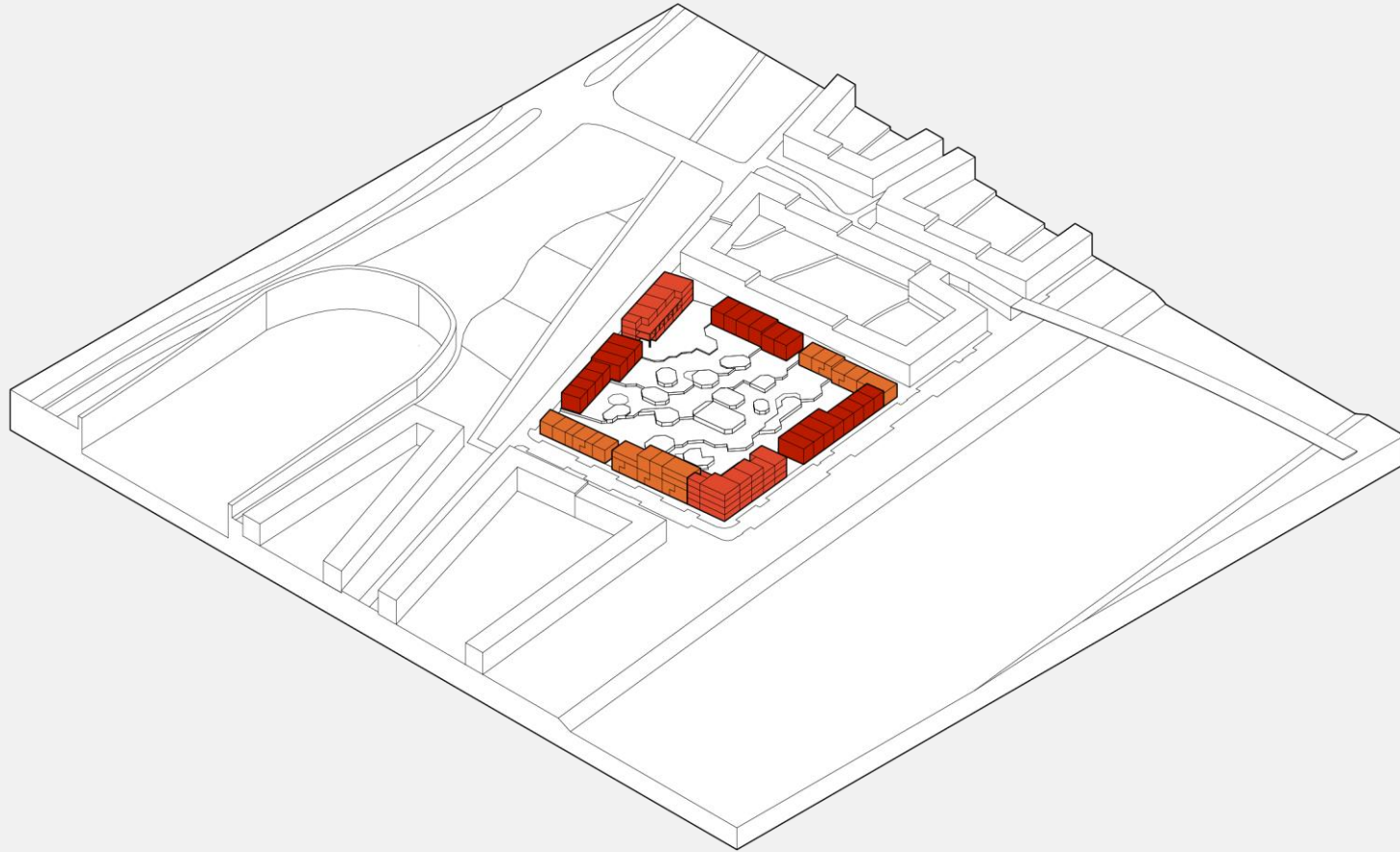


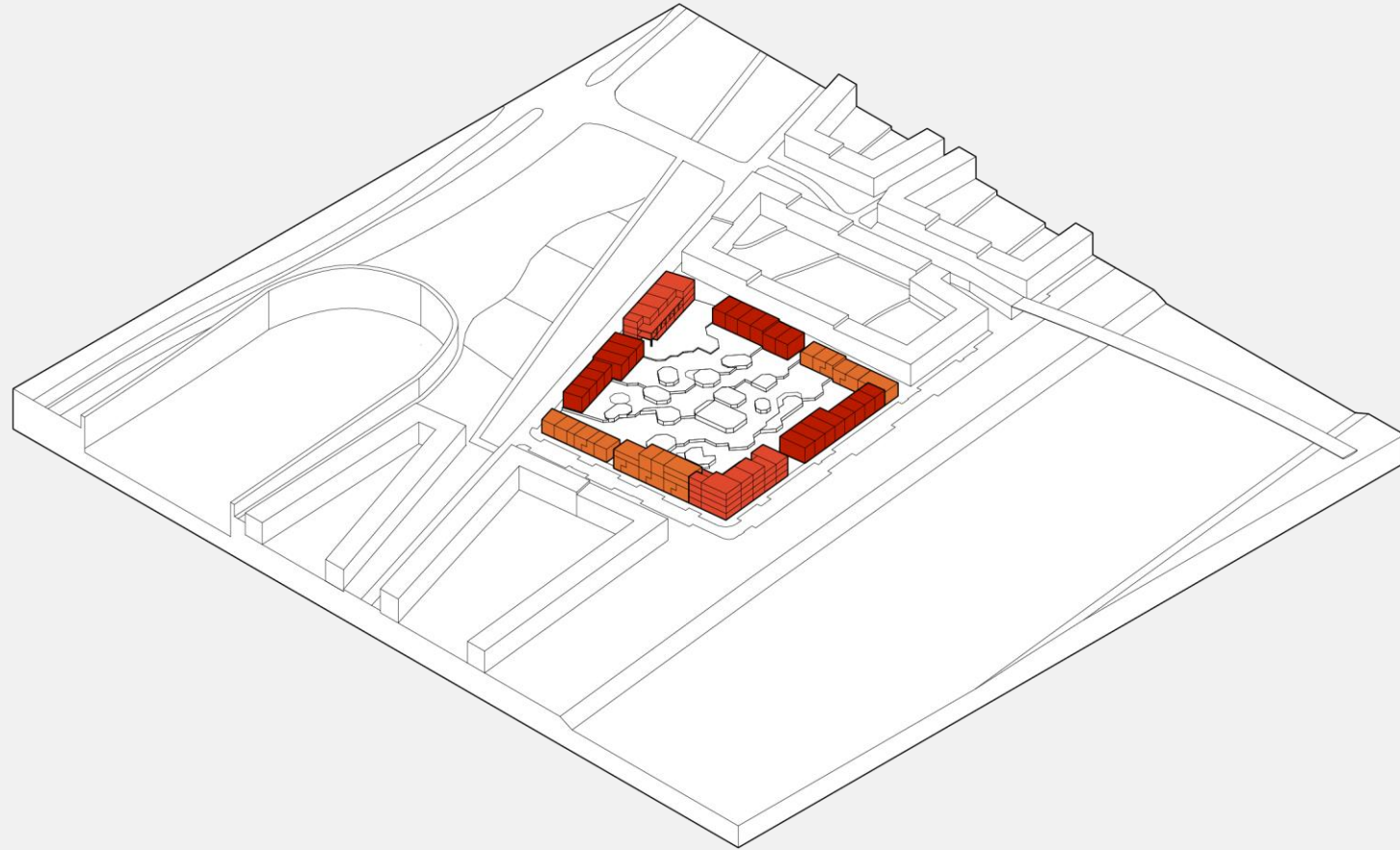


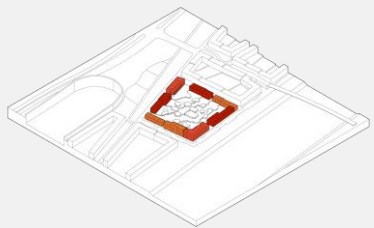
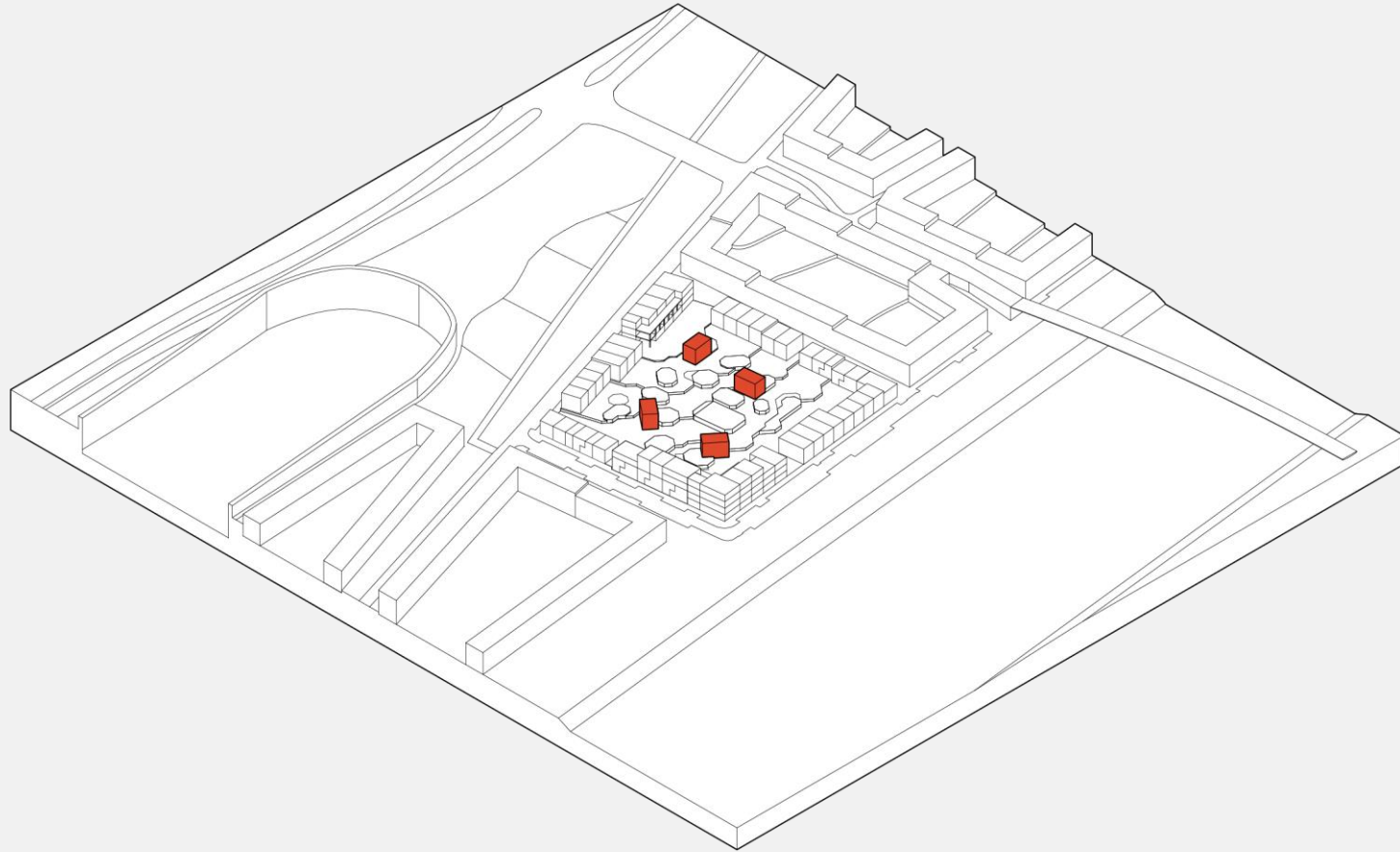




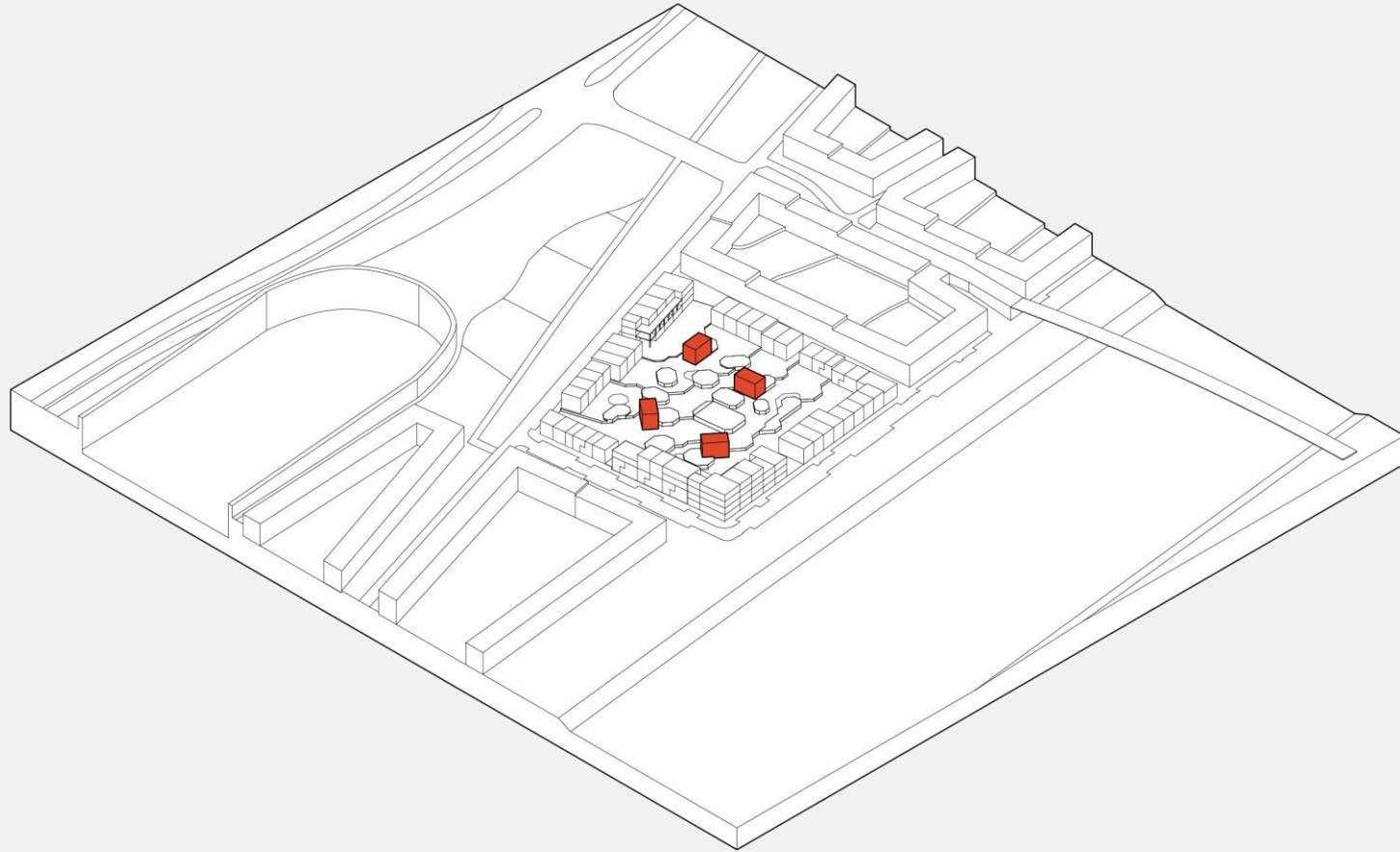


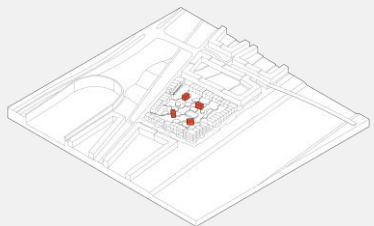




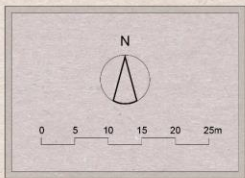
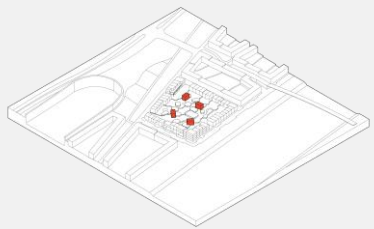






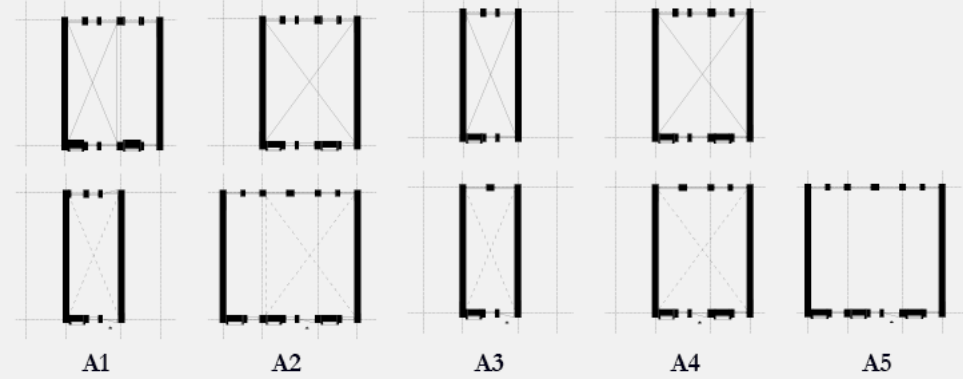




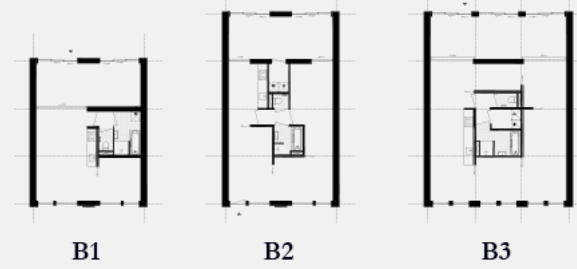




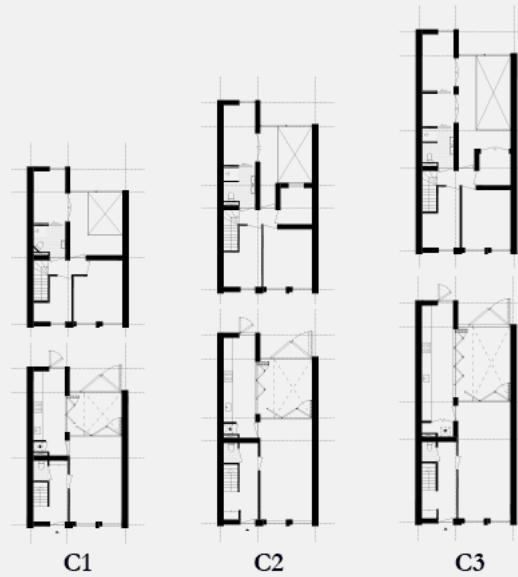
## TYPE A



## TYPE B

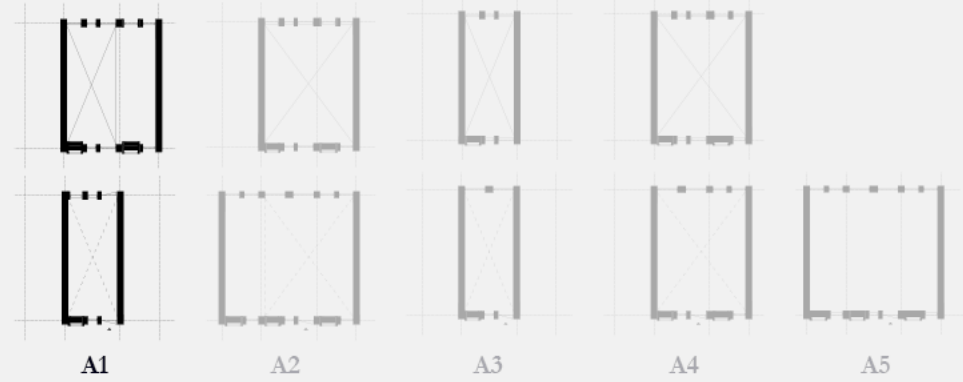


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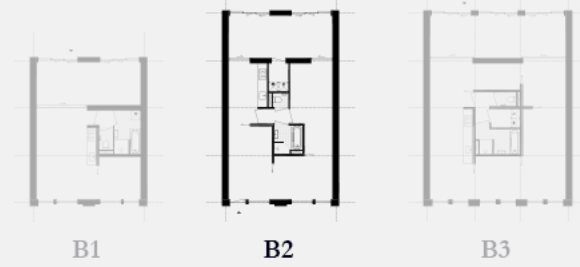




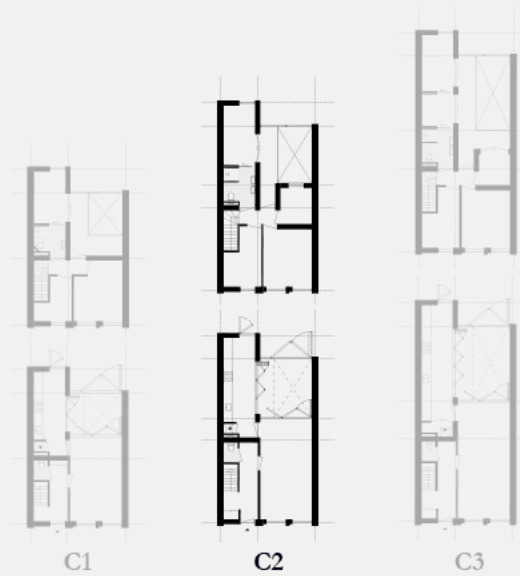
## TYPE A



## TYPE B



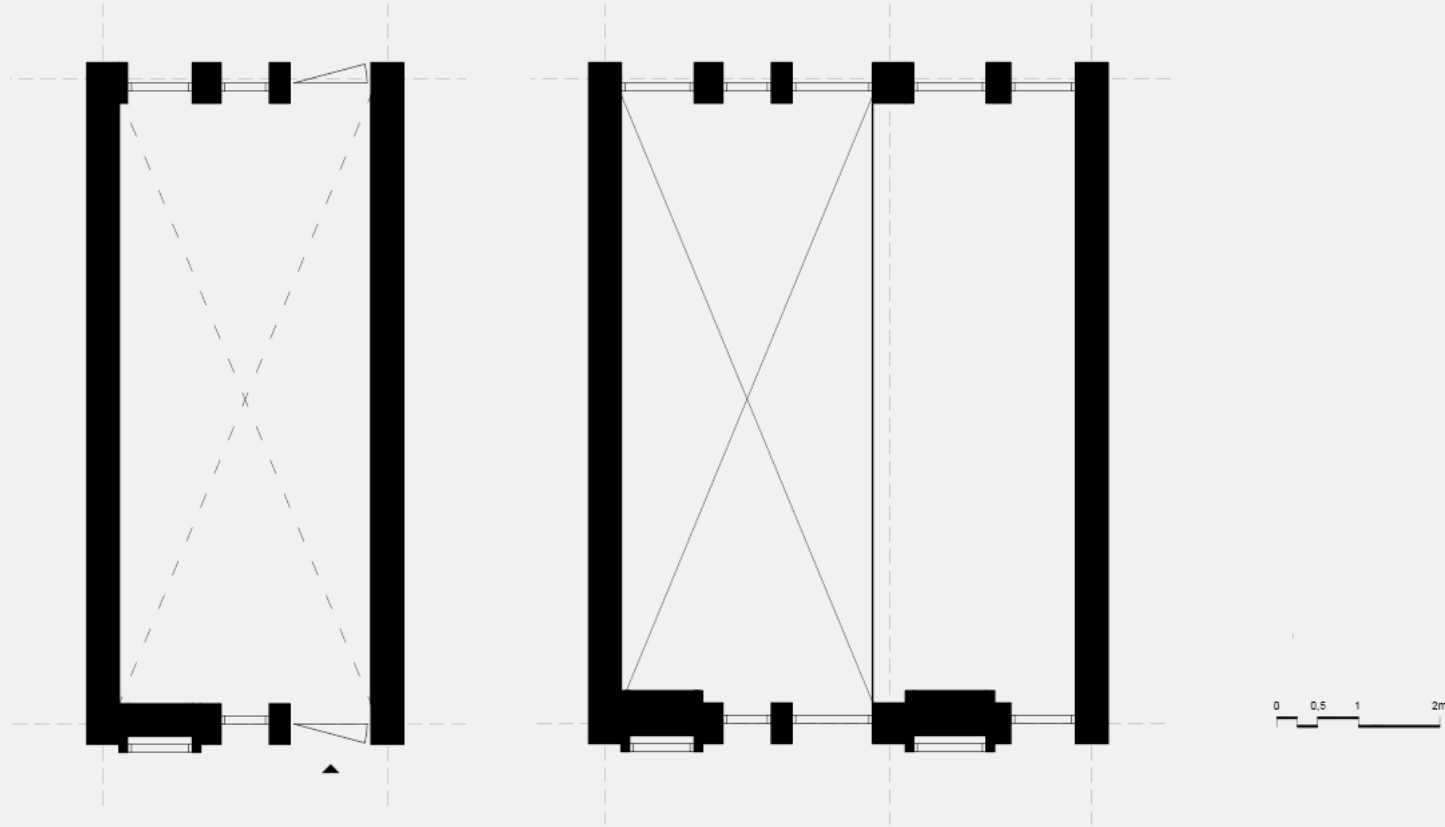
## TYPE C





# TYPE A

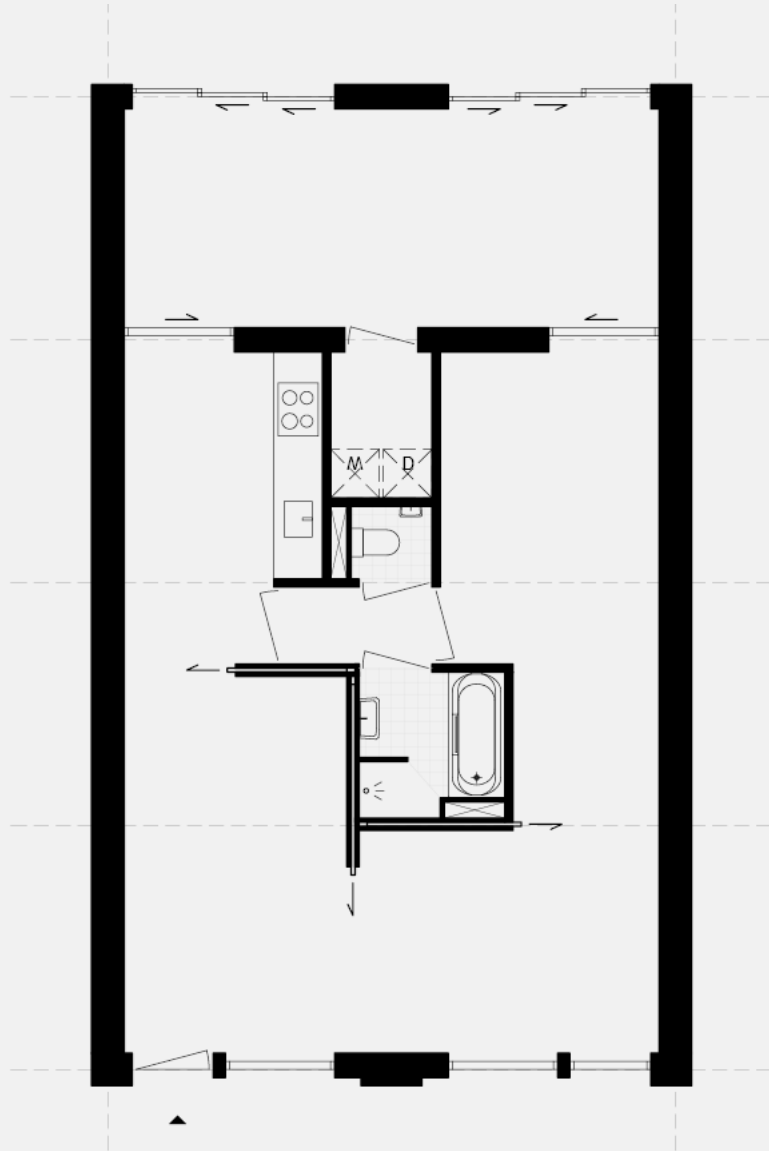
The Casco Loft





# TYPE B

The Sliding House

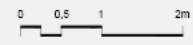
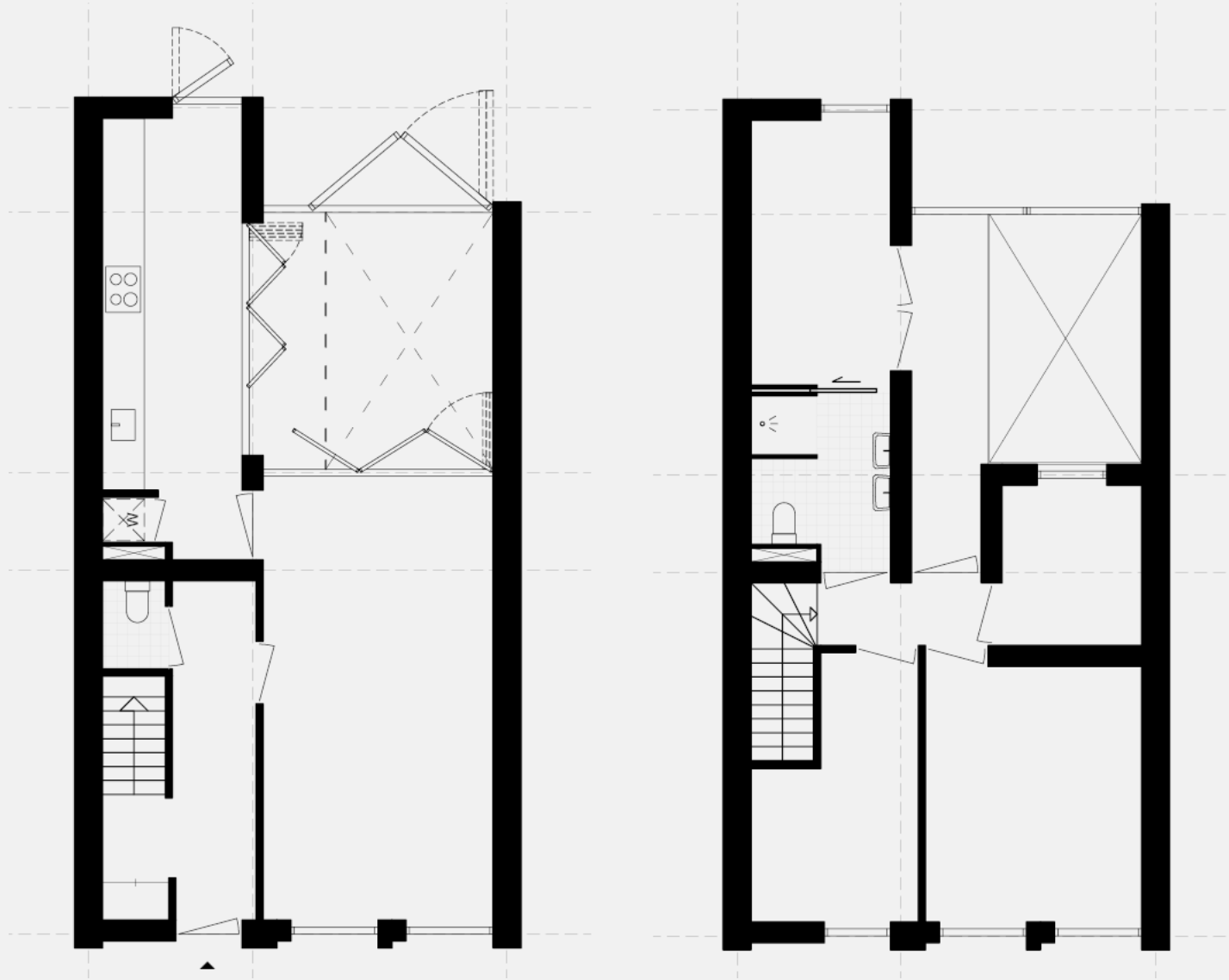


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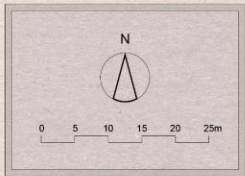


# TYPE C

The GreenHouse

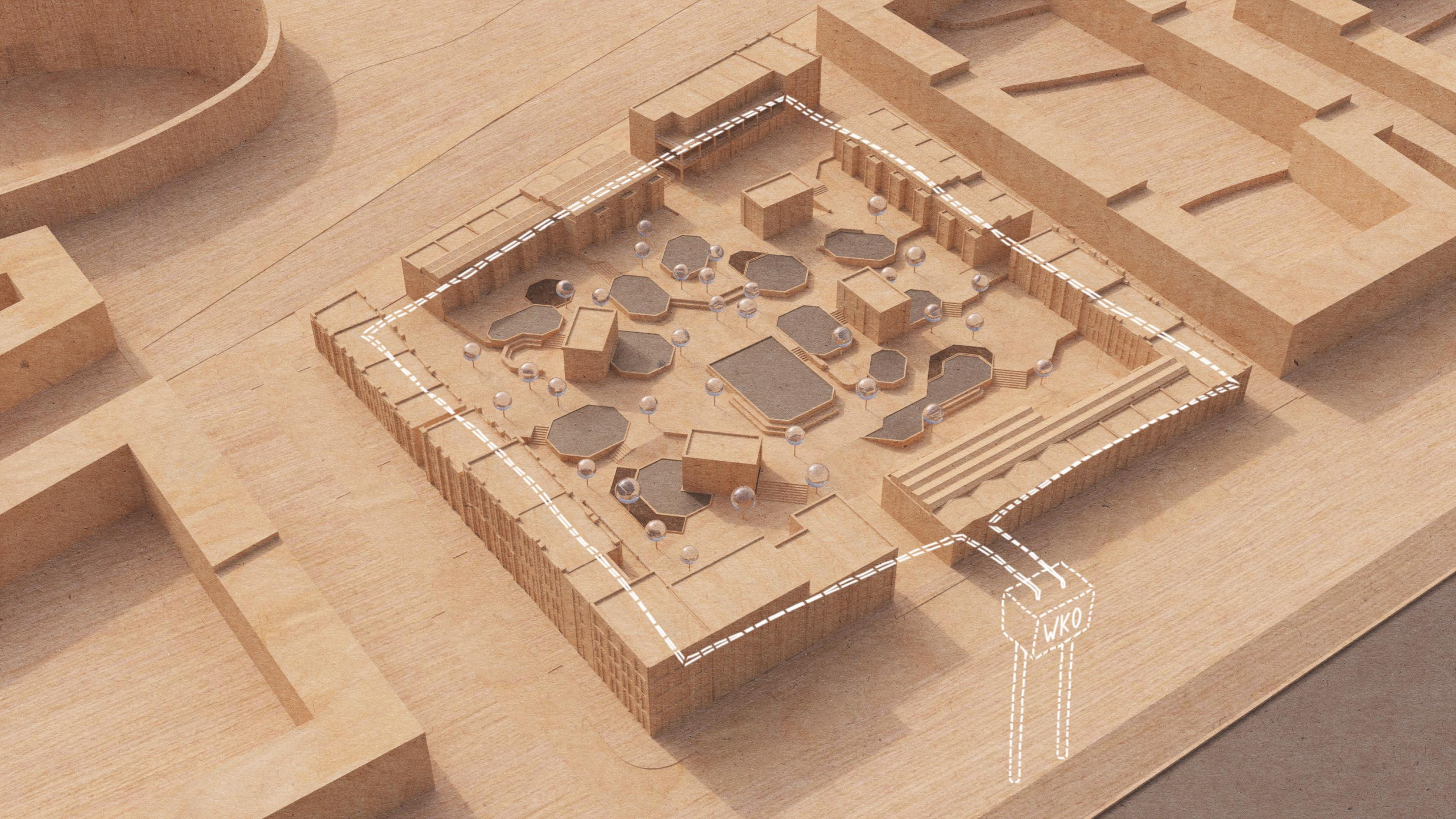






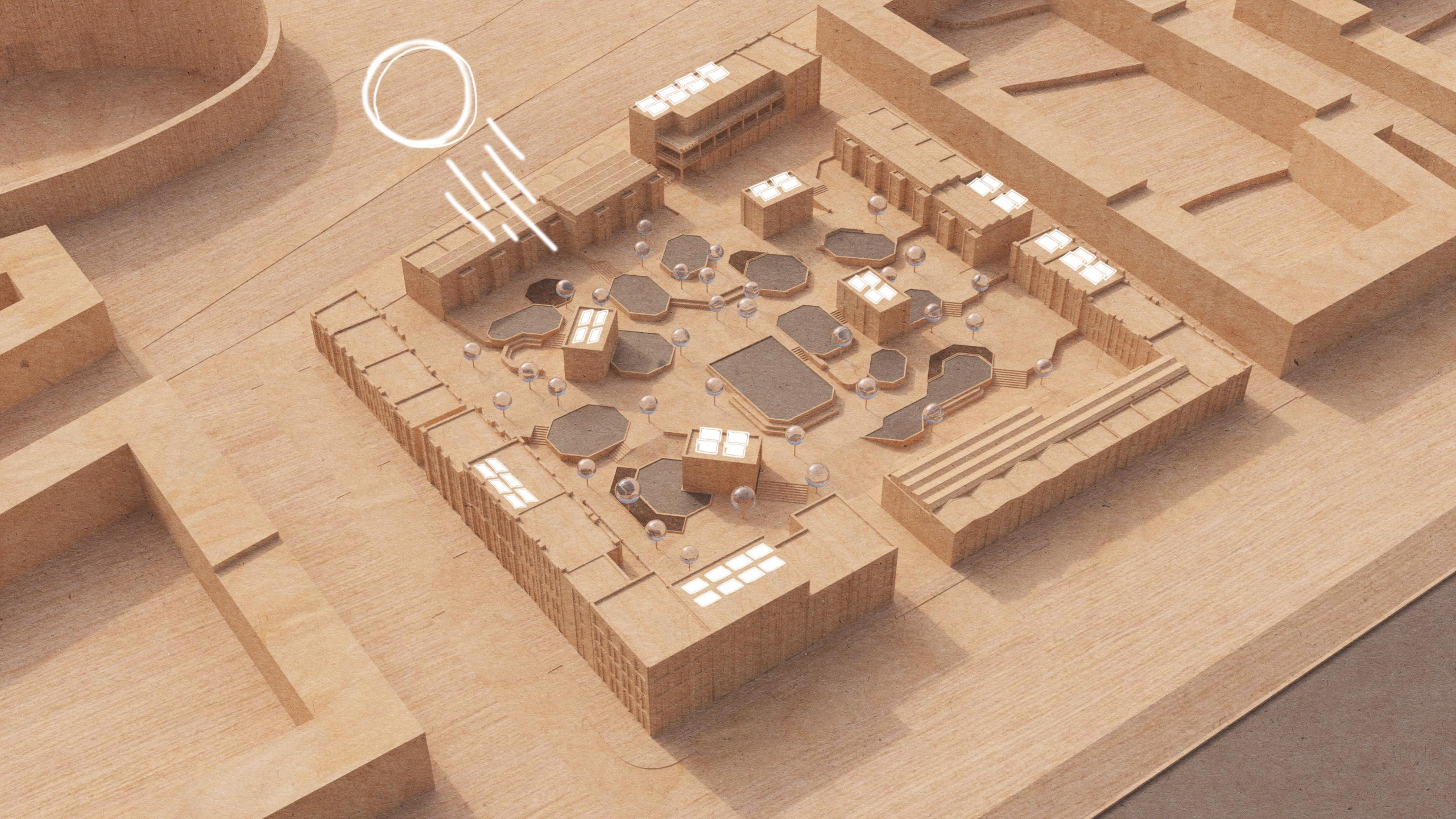




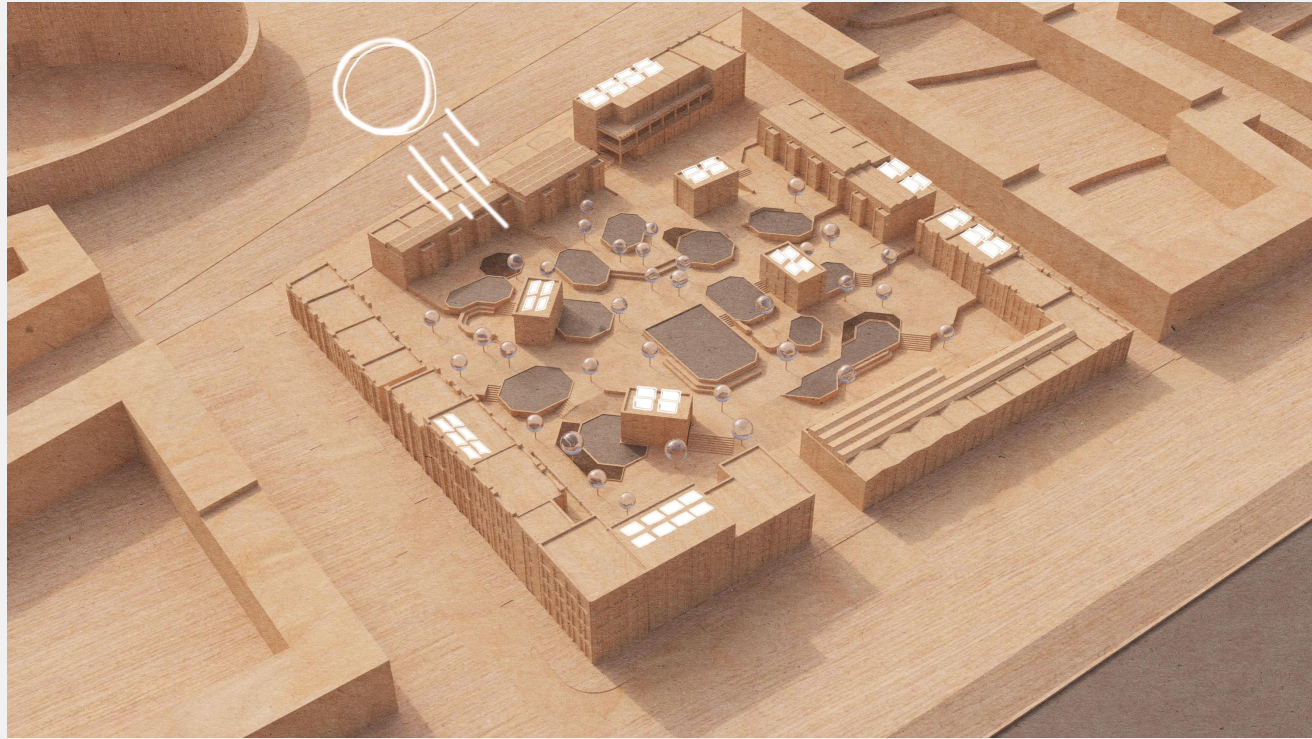


WKO







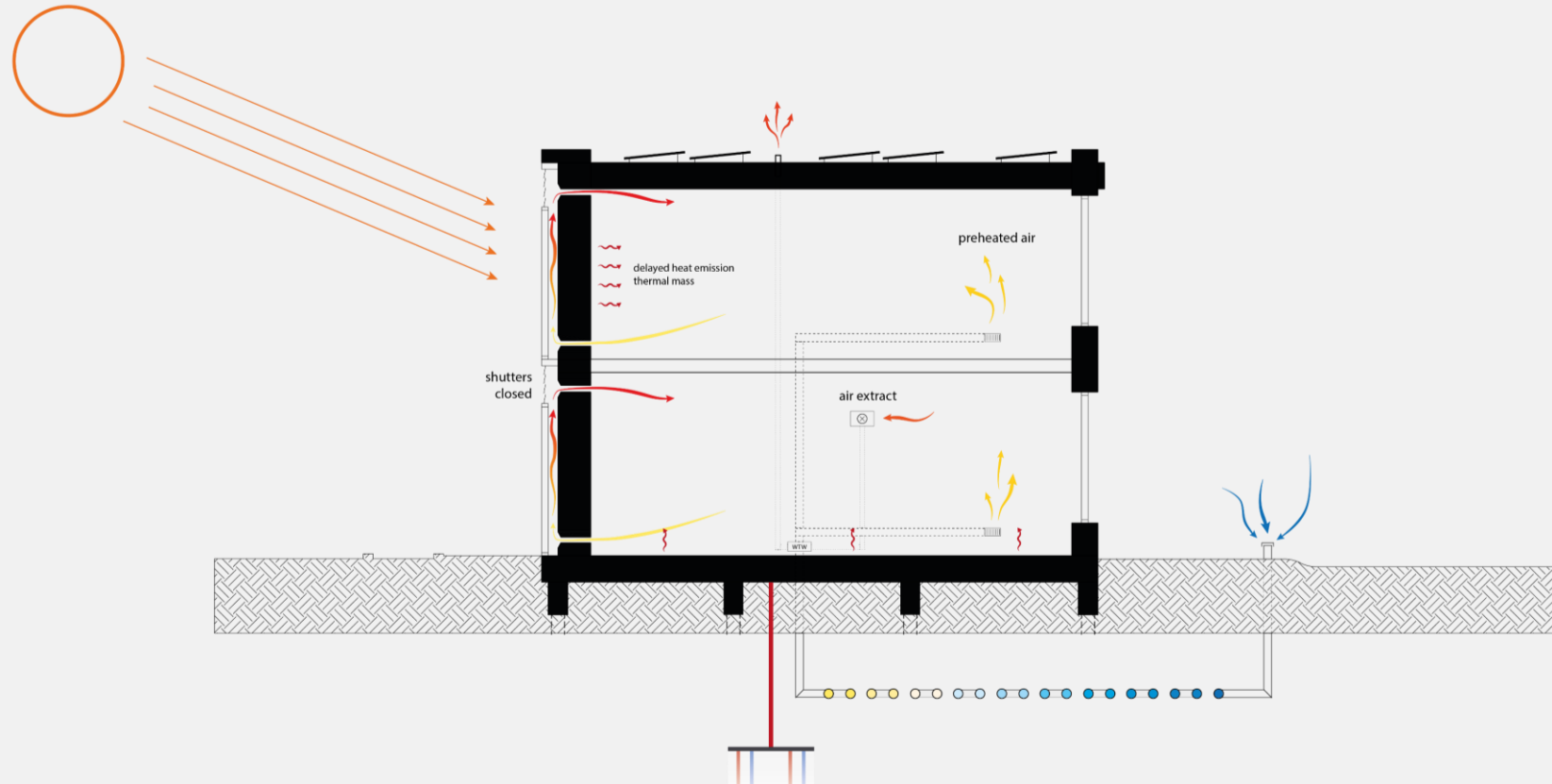






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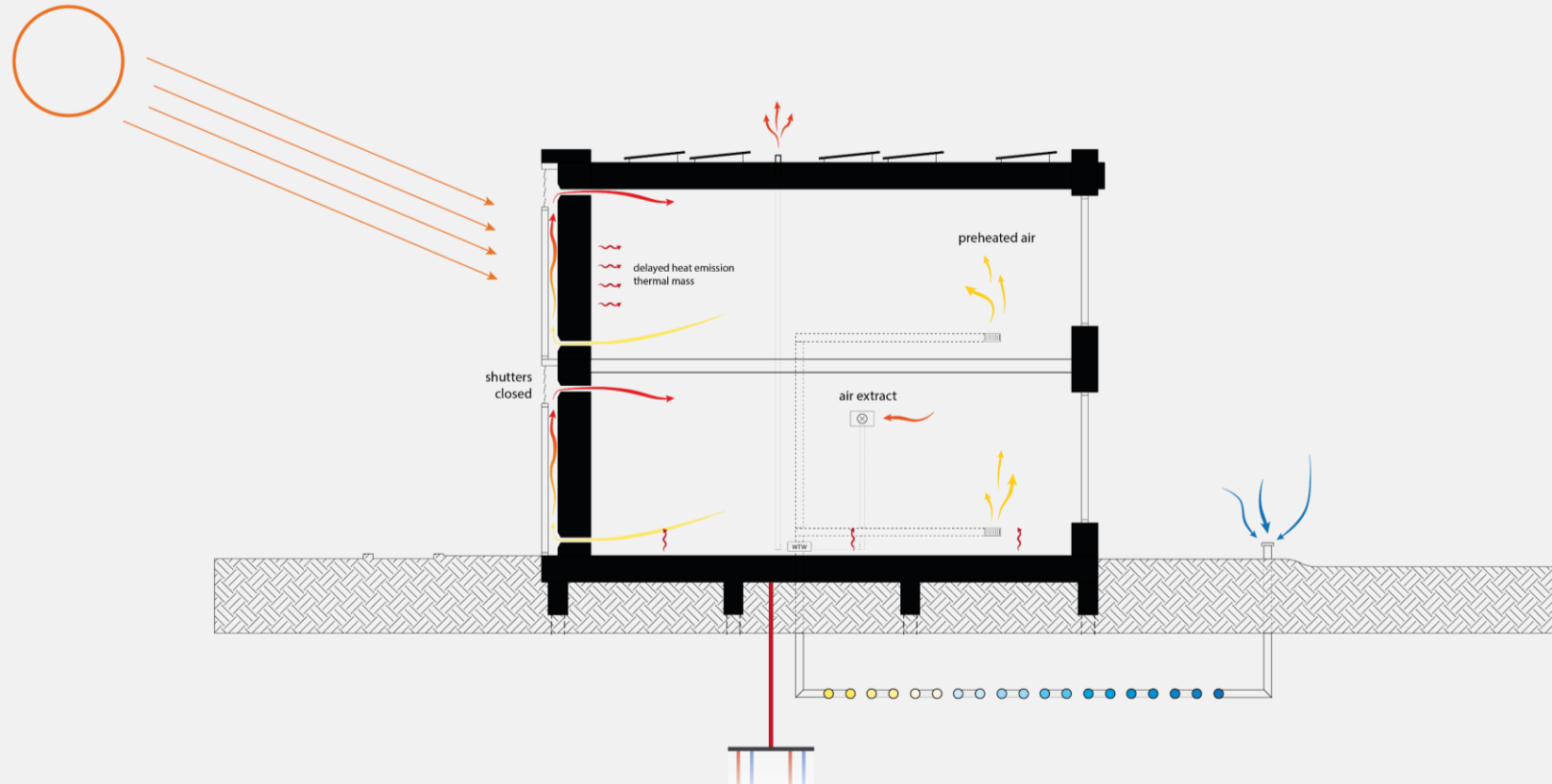
The Casco Loft | Winter situation





# TYPE A

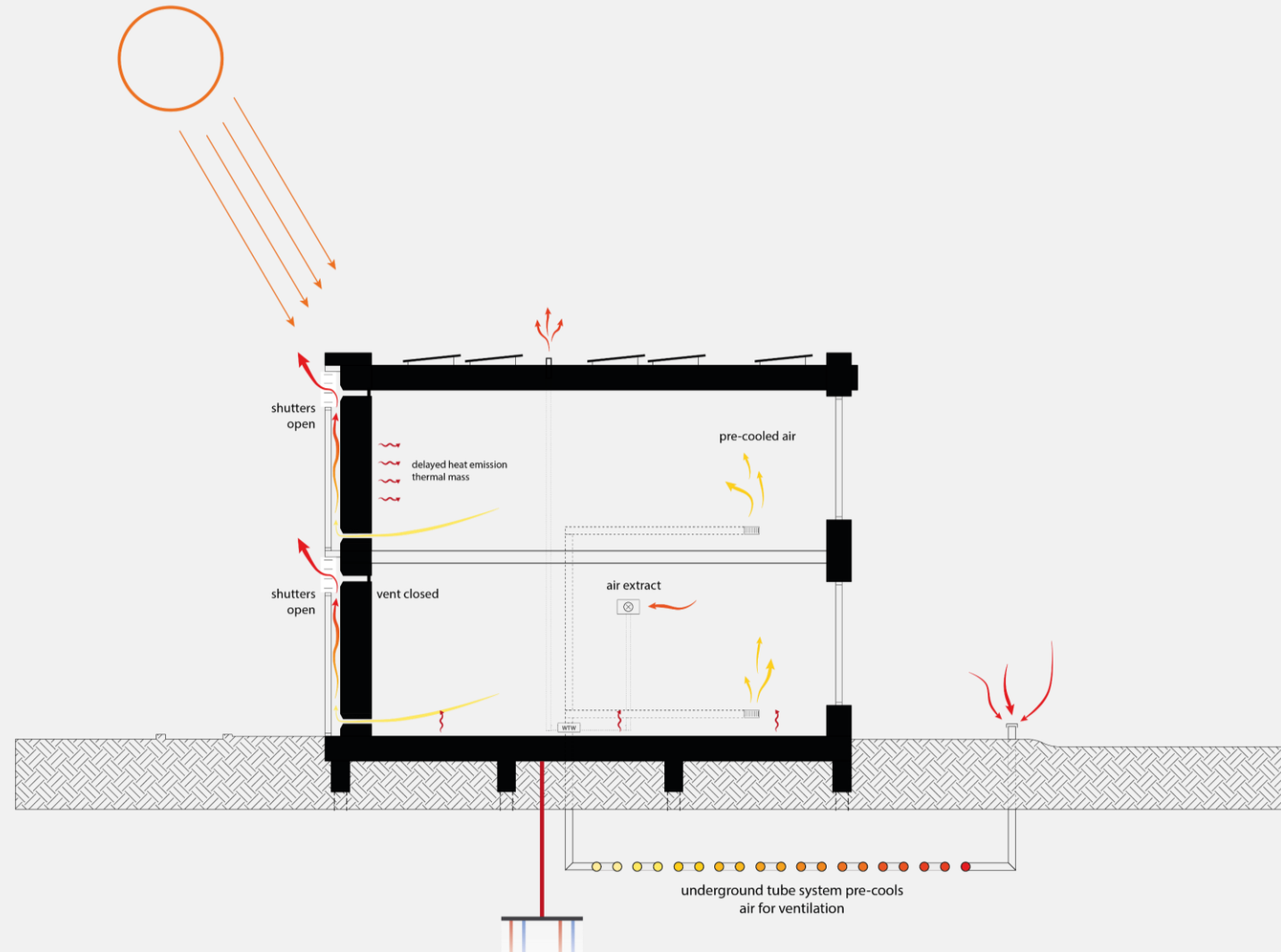
The Casco Loft | Winter situation





# TYPE A

The Casco Loft | Summer situation

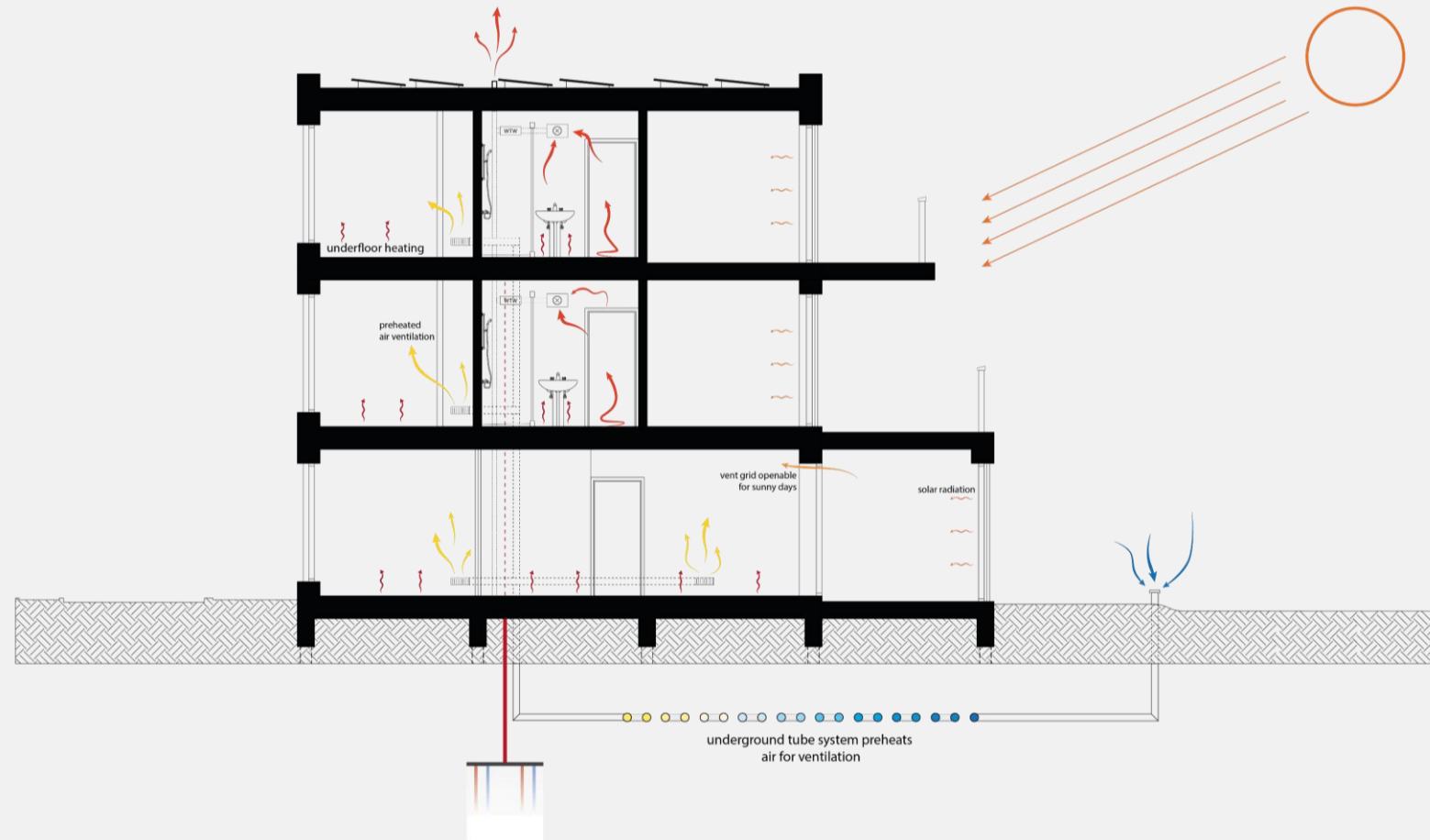






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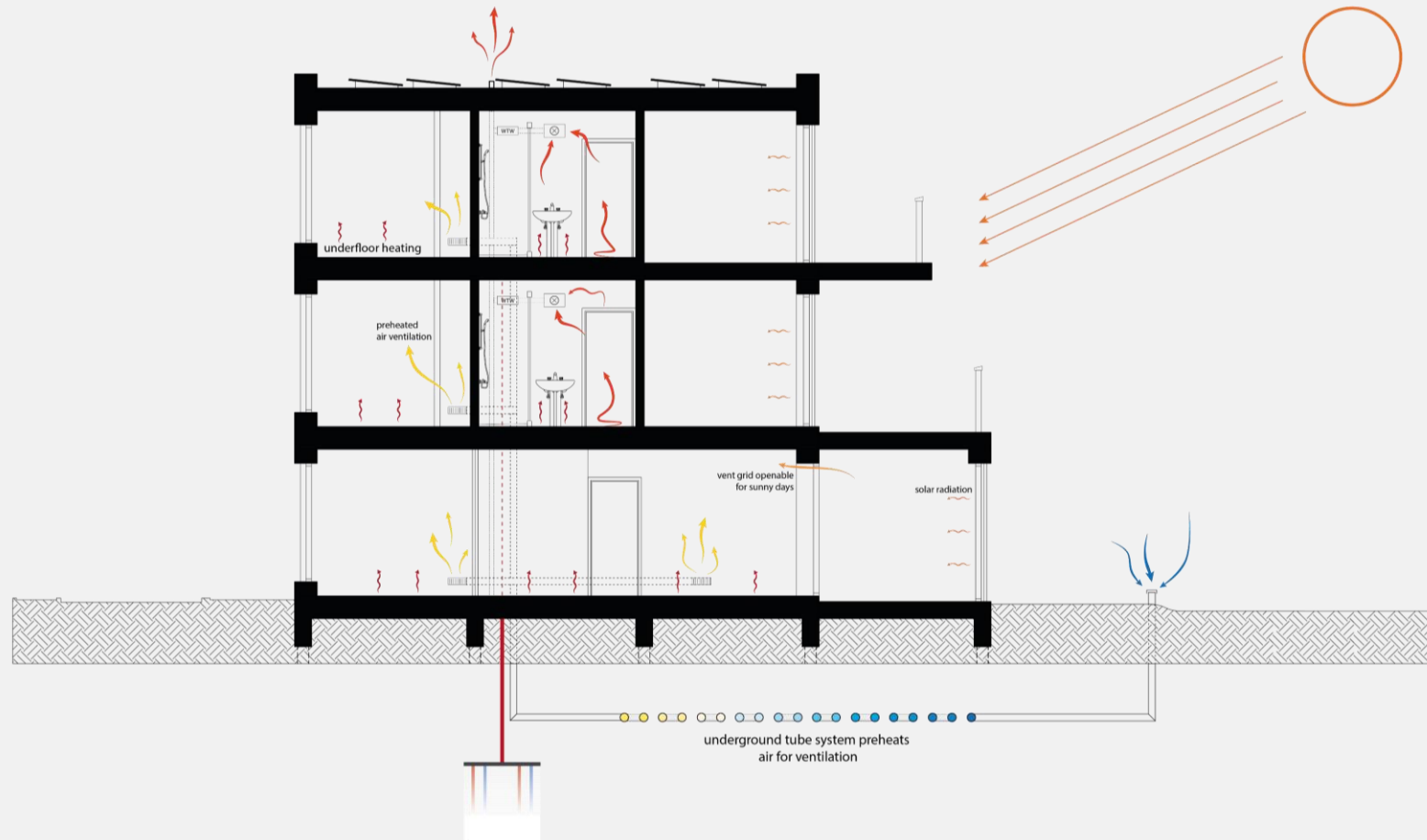
The Sliding House | Winter situation





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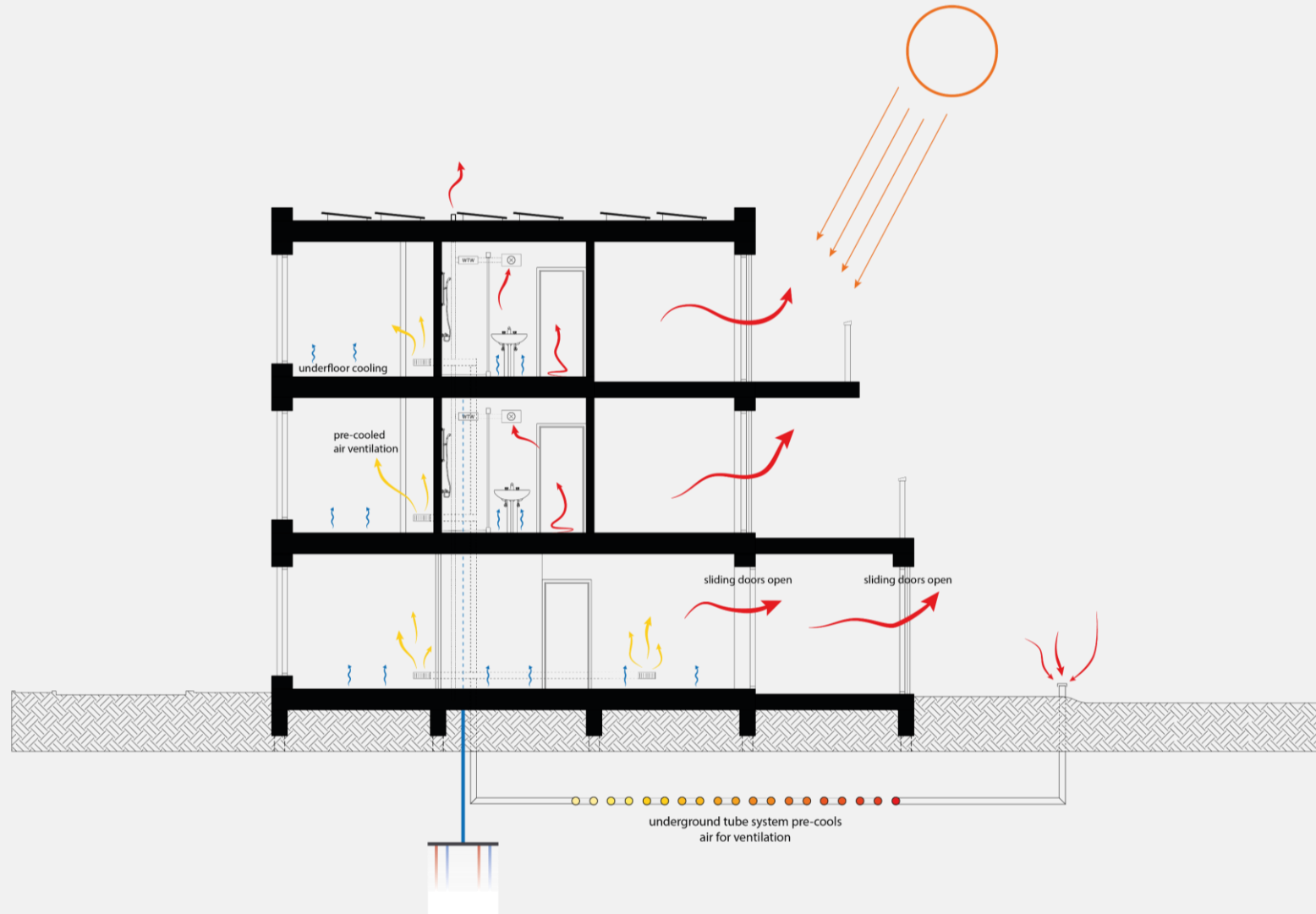
The Sliding House | Winter situation





# TYPE B

The Sliding House | Summer situation

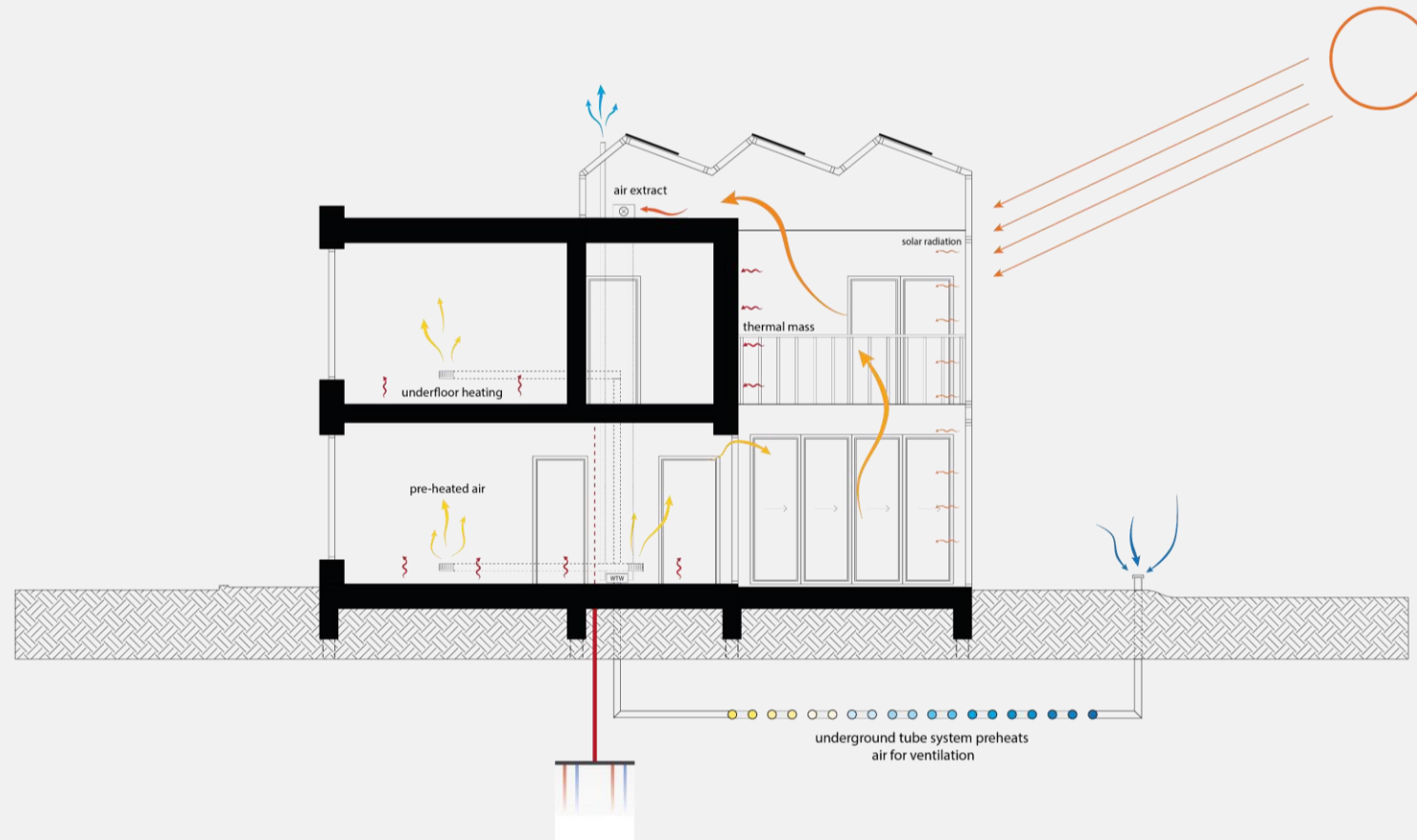






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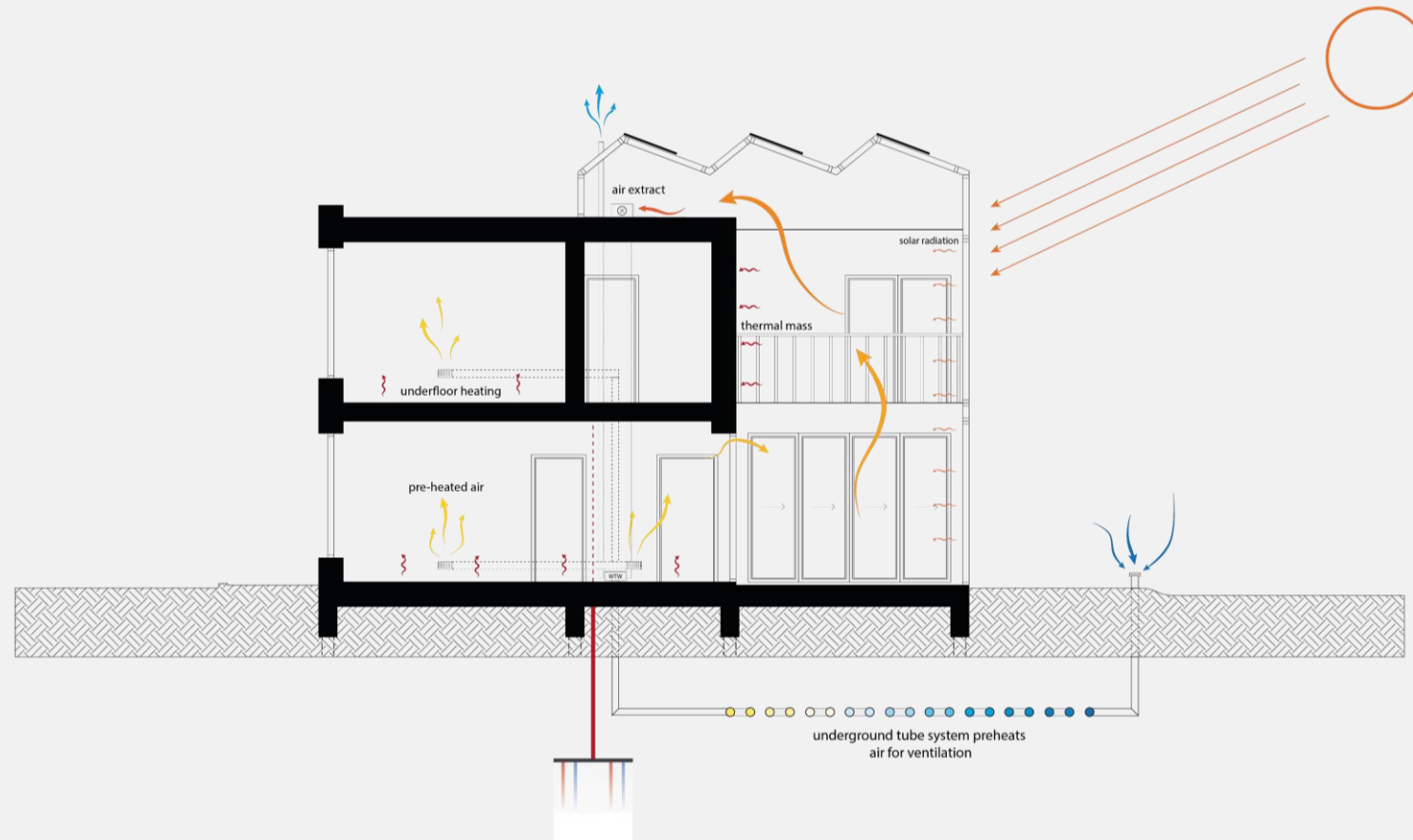
The GreenHouse | Winter situation





# TYPE C

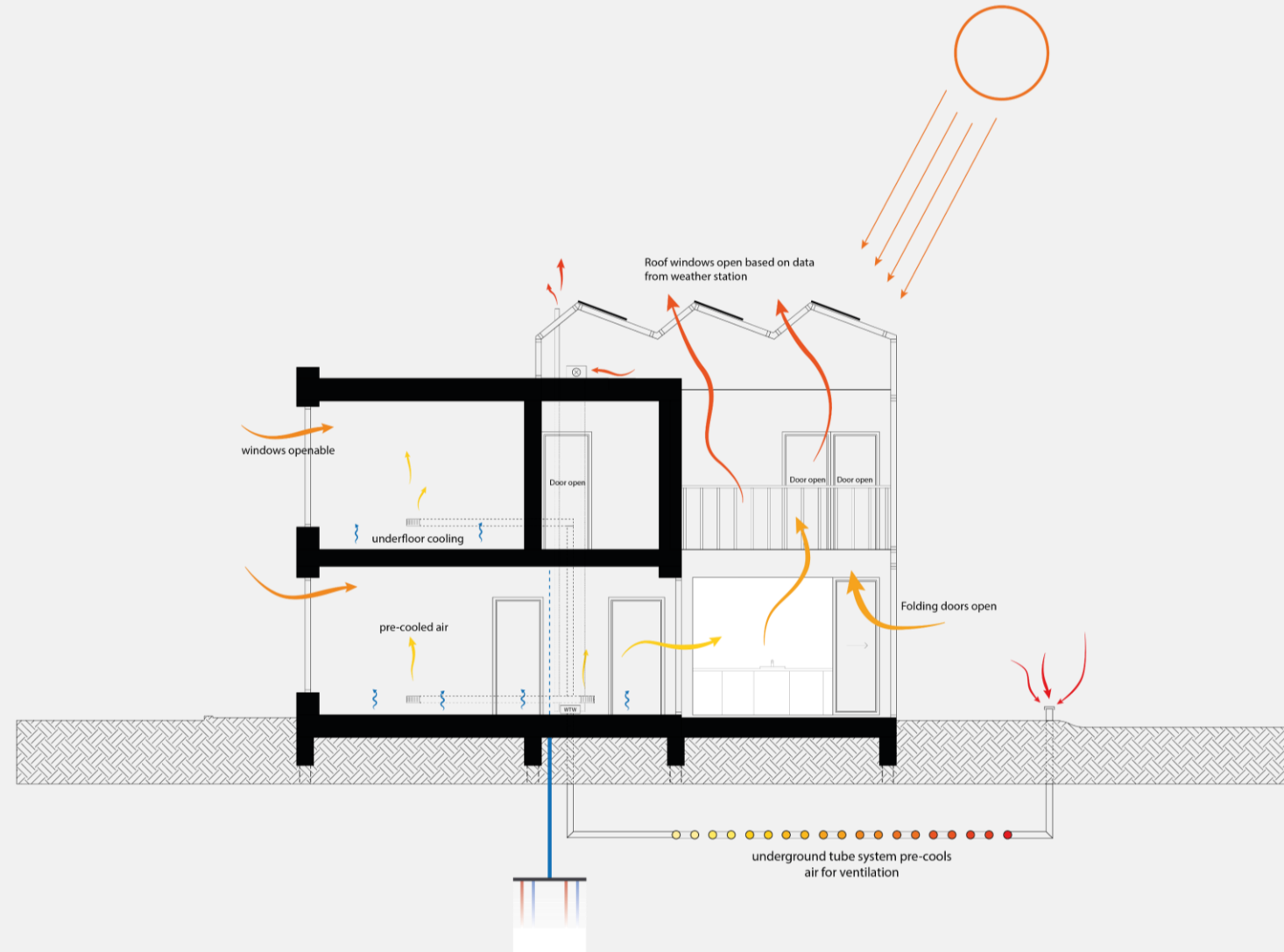
The GreenHouse | Winter situation





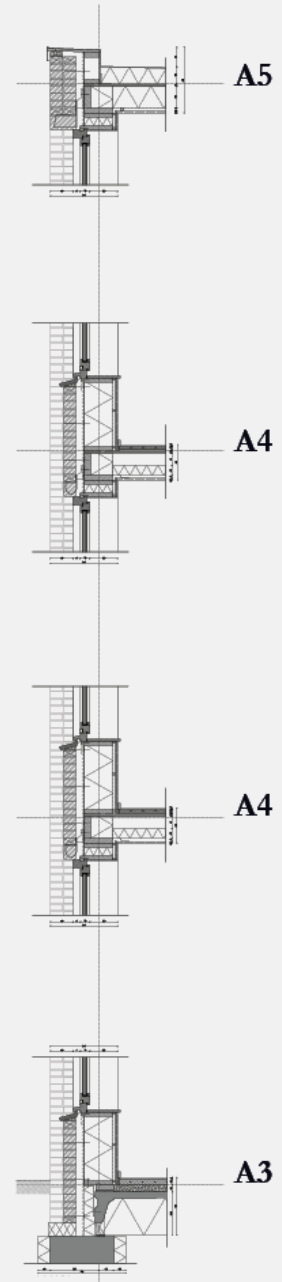
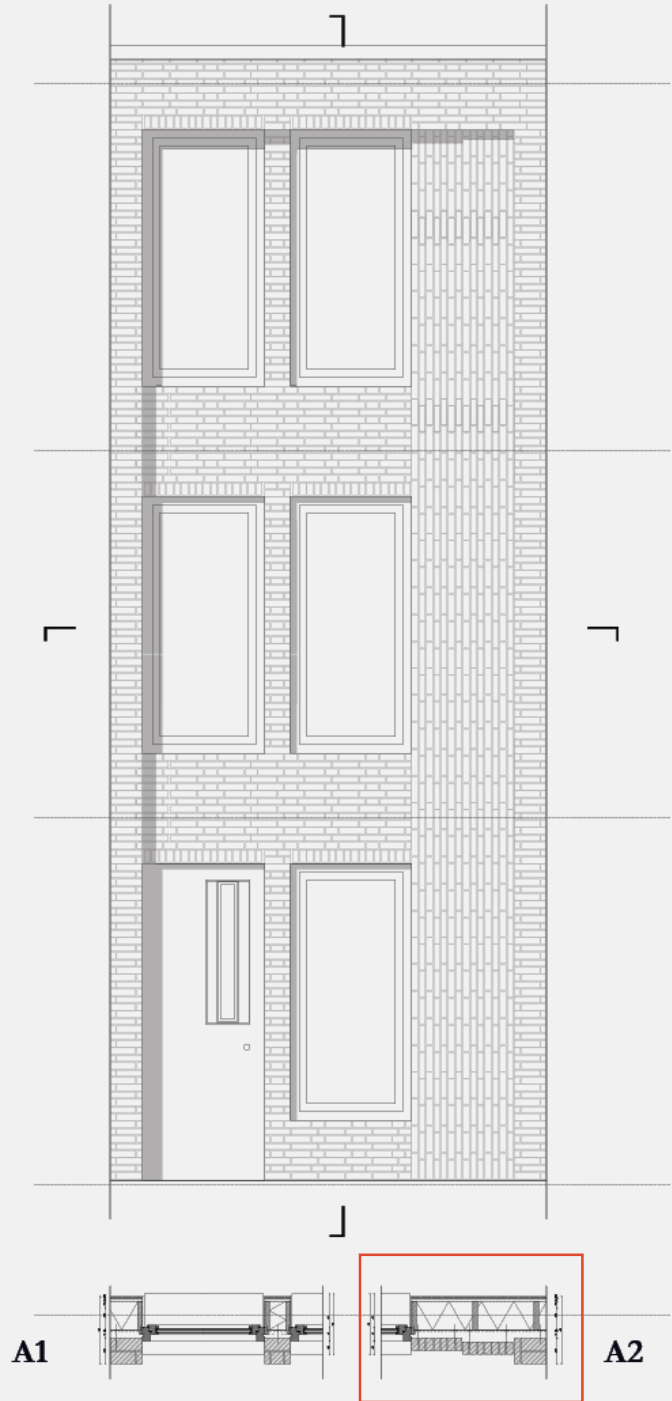
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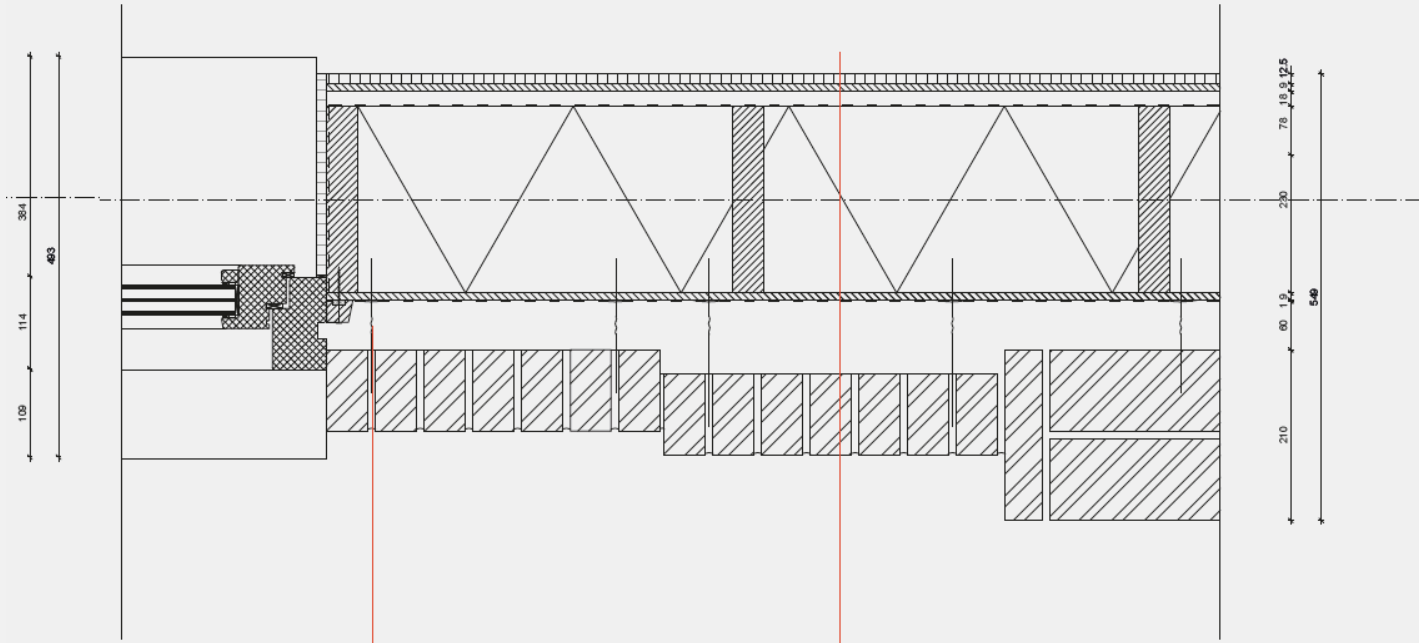
The GreenHouse | Summer situation











Cavity anchor

StoneCycling brickwork (100 - 210 mm)

Air Cavity (60 mm)

Prefab wall element

Wood boards (9 mm)

Insulation Pavatherm, woodfibre (170 mm)

Wood posts (38x170 mm)

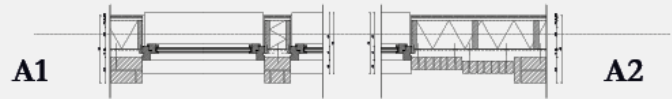
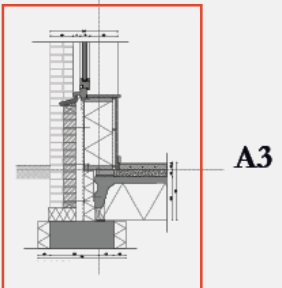
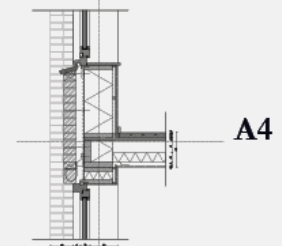
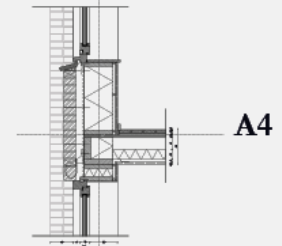
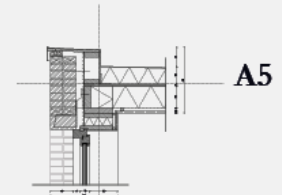
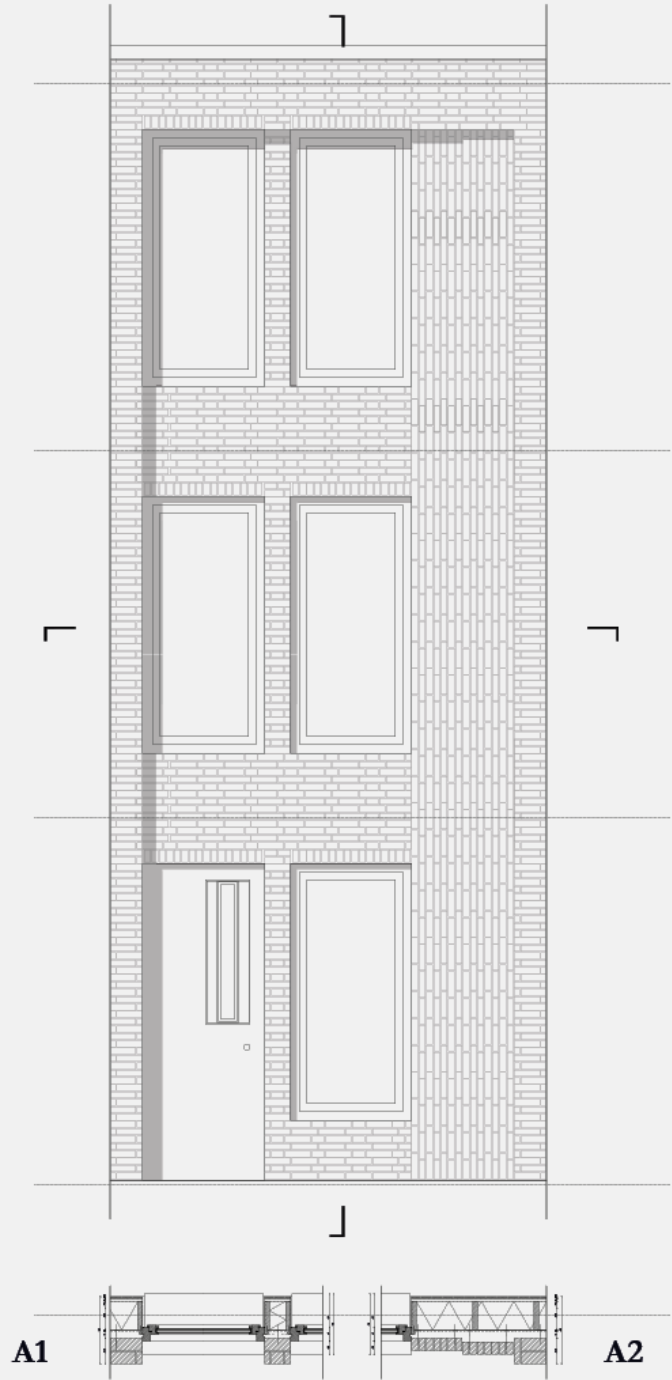
Intello (pro clima) membrane (0,1 mm)

Wood lattice (18x18 mm)

Wood boards (9 mm)

Drywall (12,5 mm)







Triple Glass HR++

Double crack sealing

Seam sealing

Water repellent layer

Open butt joint

StoneCycling brickwork (100 - 210 mm)

Air Cavity (40 mm)

Water repellent layer (0,1 mm)

Prefab wall element

Wood boards (9 mm)

Insulation Pavatherm, woodfibre (170 mm)

Wood posts (38x170 mm)

Intello (pro clima) membrane (0,1 mm)

Wood lattice (18x18 mm)

Wood boards (9 mm)

Drywall (12,5 mm)

Cavity anchor

Open butt joint

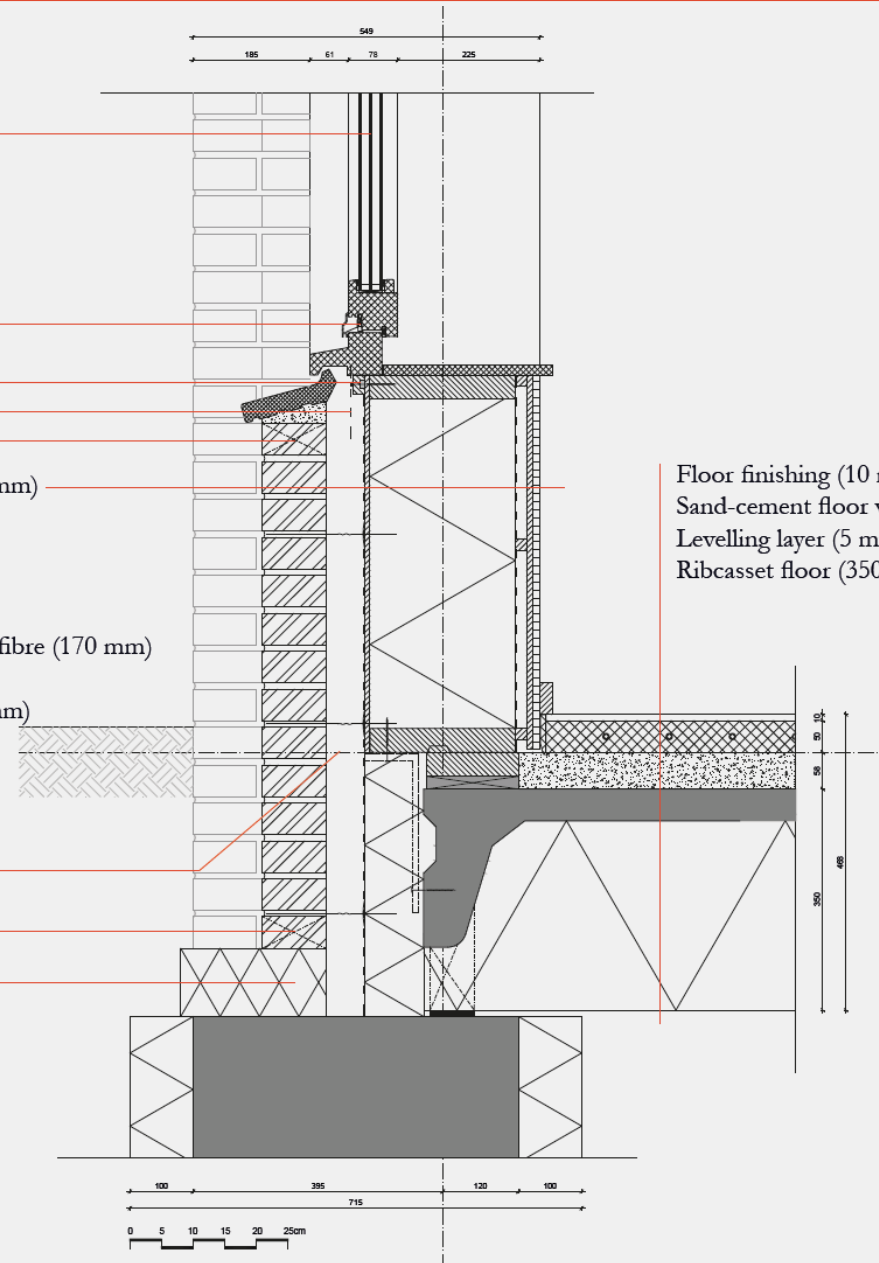
Foamglass Perinsul

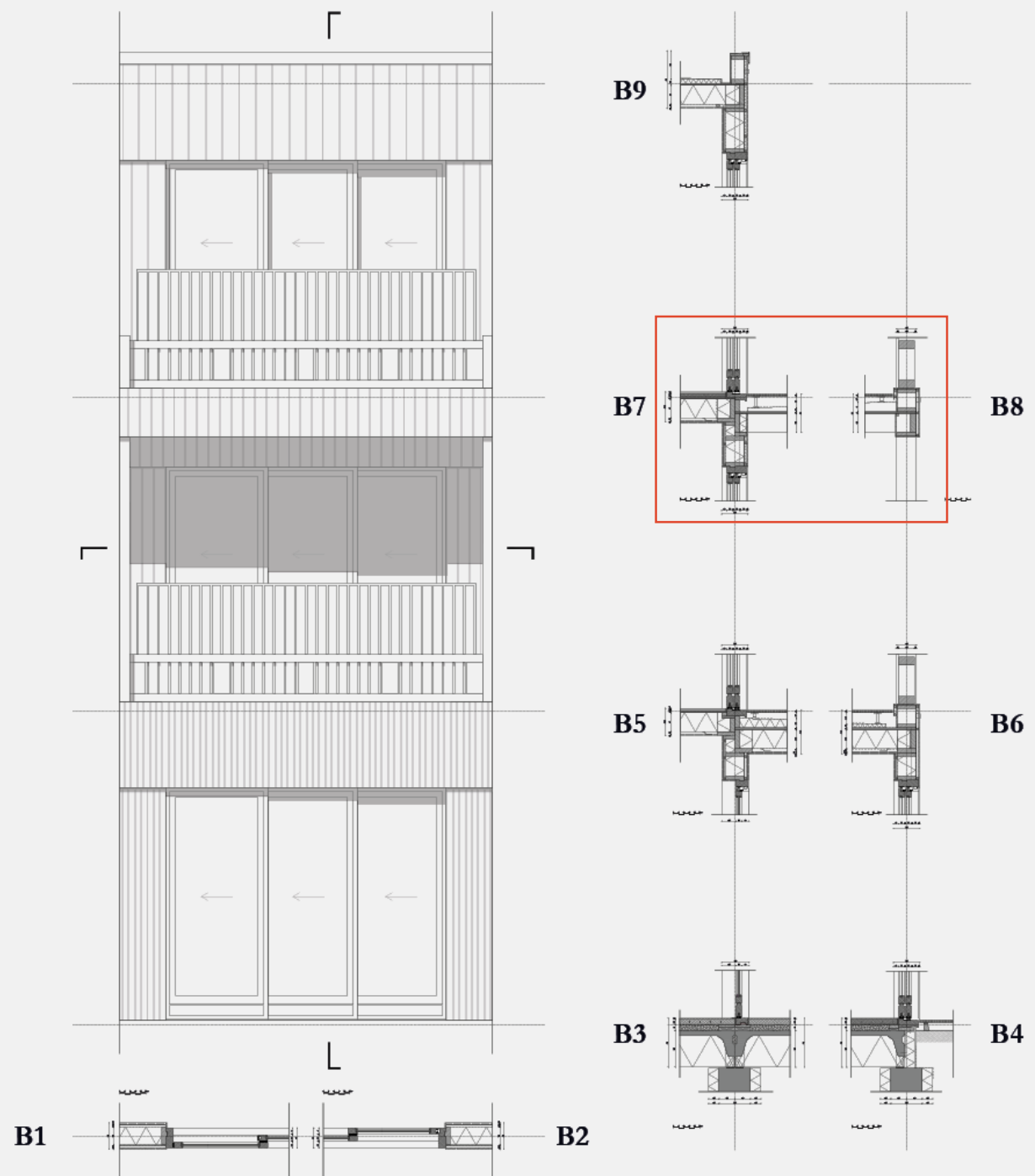
Floor finishing (10 mm)

Sand-cement floor with underfloor heating (50 mm)

Levelling layer (5 mm)

Ribcasset floor (350 mm)









- Floor finishing (10 mm)
- Fermacell Floor System (39 mm)
  - Levelling layer (5 mm)
  - Fermacell floor element 2E26 (34 mm)  
(including felt layer (9 mm))
- Prefab floor Element
  - Wood boards (18 mm)
  - Wood beams (180x70 mm)
  - Insulation Pavatherm, woodfibre (80 mm)
- Veerregels (20 mm)
- Drywall (12,5 mm)

- Tiles (20 mm)
- Adjustable tile stands
- Water repellent layer
- Slope 20mm per meter
- Prefab floor Element
  - Wood boards (18 mm)
  - Wood beams (180x70 mm)

