

# PEDIATRIC REHABILITATION AS AN ADVENTURE

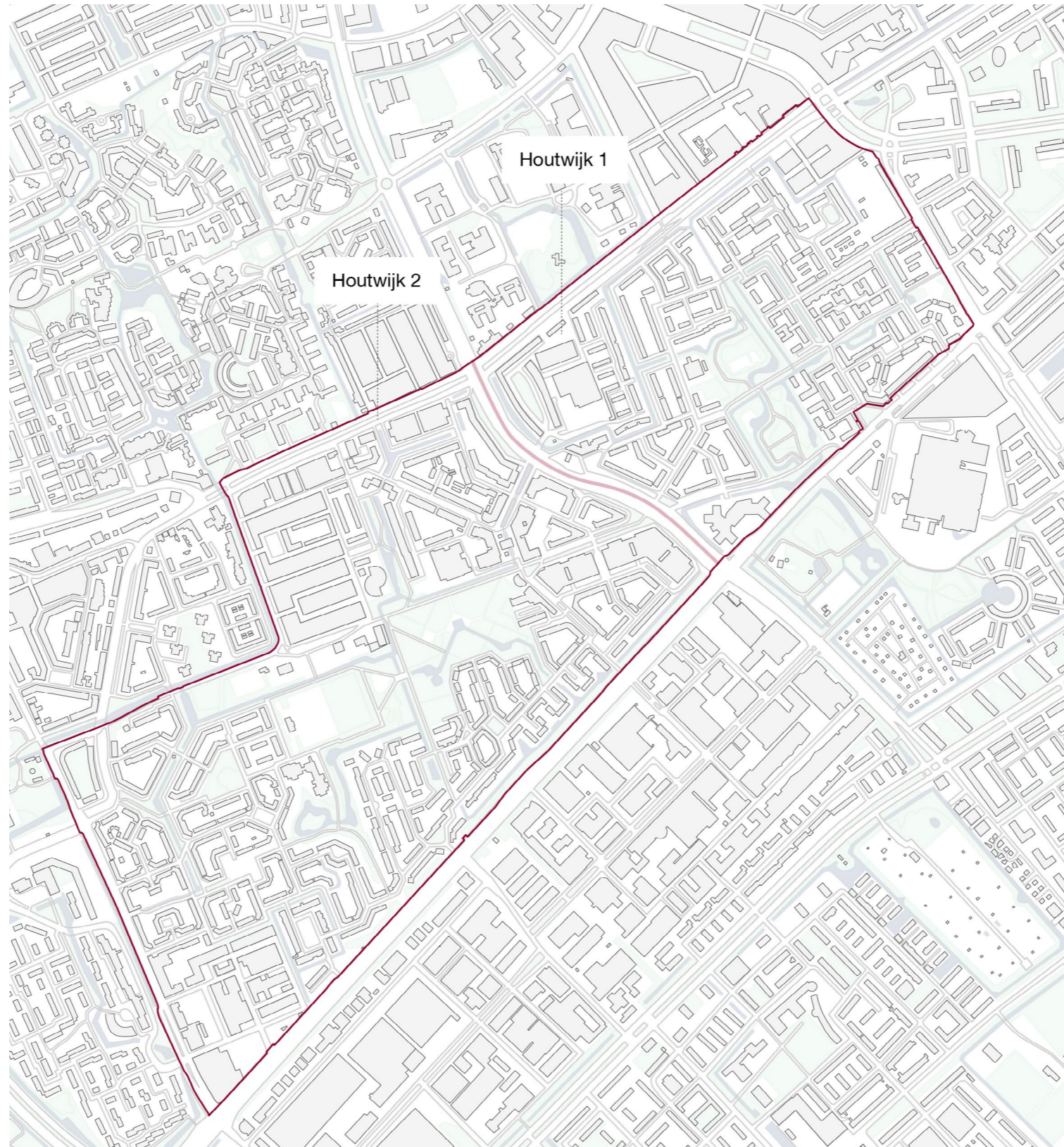


**CONTEXT**

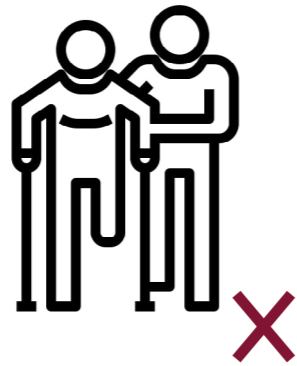
**RESEARCH QUESTION**

**RESULTS AND DESIGN PRINCIPLES**

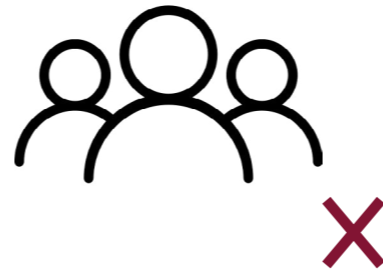
**DESIGN**



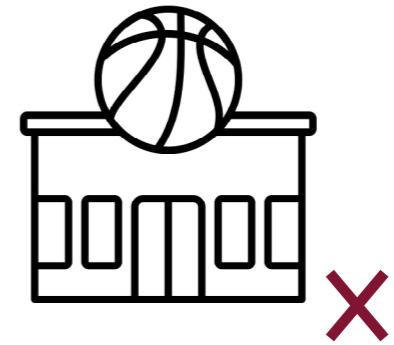
## YOUNGER RESIDENTS



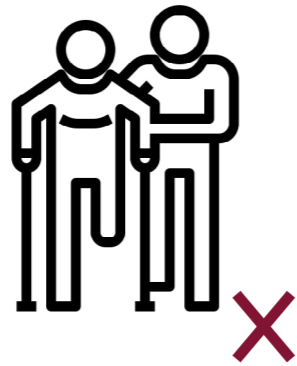
lack of paediatric  
rehabilitation



lack of social interaction



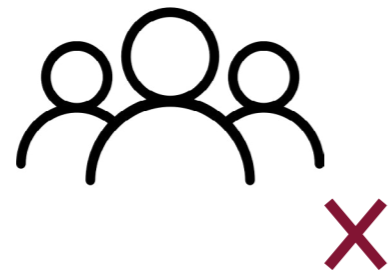
lack of sports facilities



lack of paediatric  
rehabilitation

Juliana Children's hospital

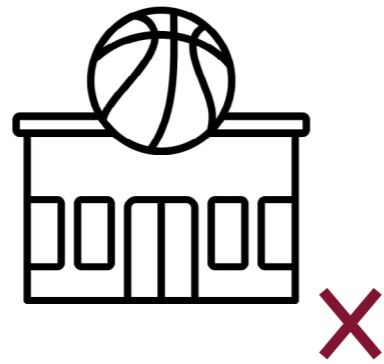
No standalone paediatric rehabilitation centre  
in the Hague



lack of social interaction

31% of younger people in The Hague felt lonely in the last 4 weeks.

Few public facilities for young people in Houtwijk.

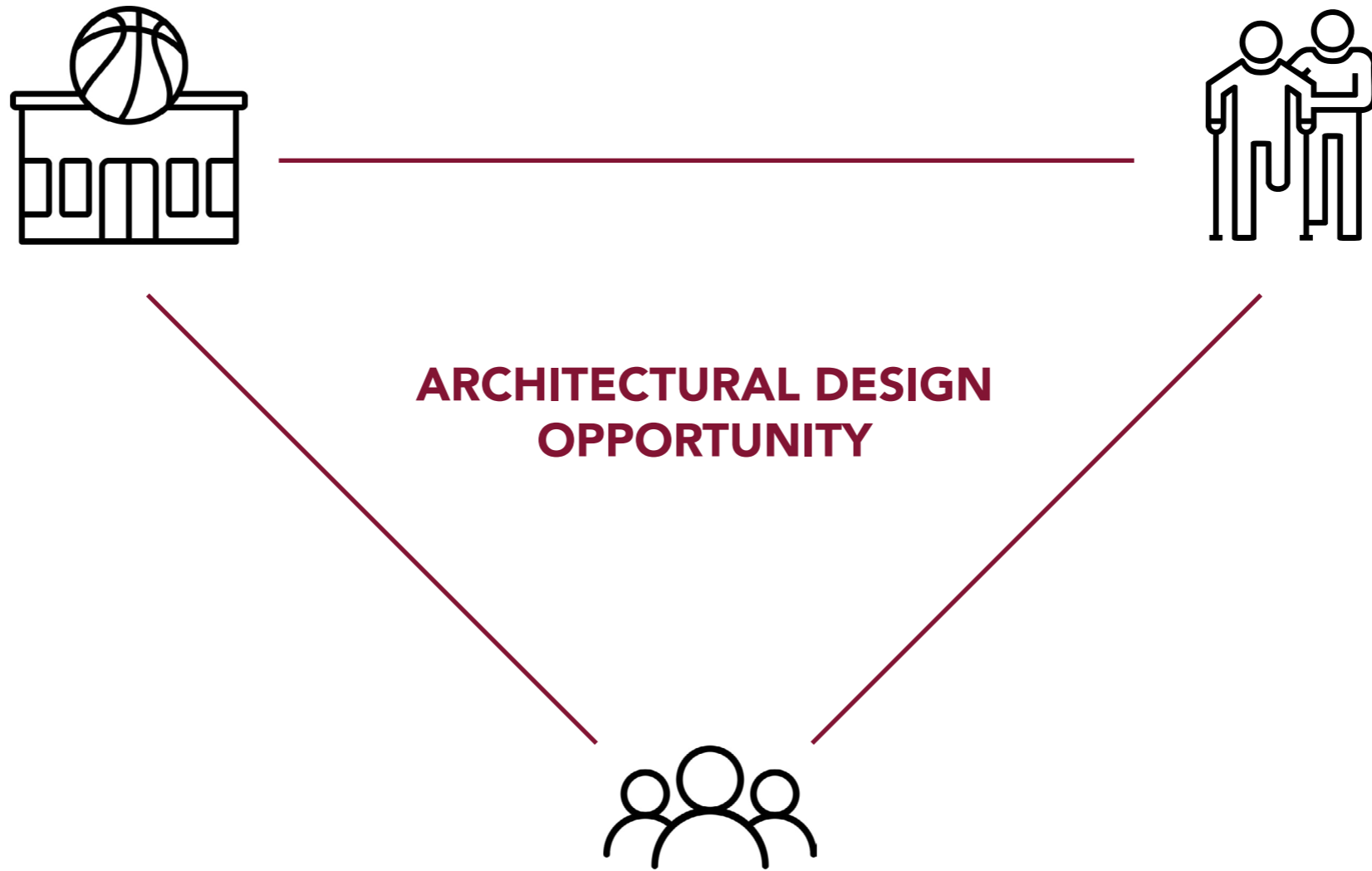


lack of sports facilities

Few indoor sport facilities (SV Houtwijk)

No sport facilities in Houtwijk 1

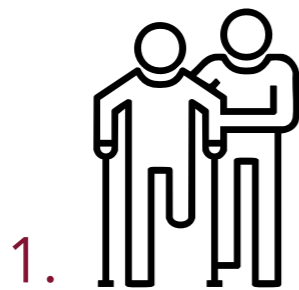
36% of younger people meet Physical Activity Guidelines



## RESEARCH QUESTION

How can the architectural design of a paediatric rehabilitation centre in Houtwijk integrate therapeutic, sports, and social functions to support children's rehabilitation, promote physical activity, and facilitate community engagement with neighbourhood children?

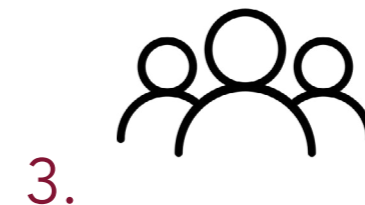
### SUBQUESTION



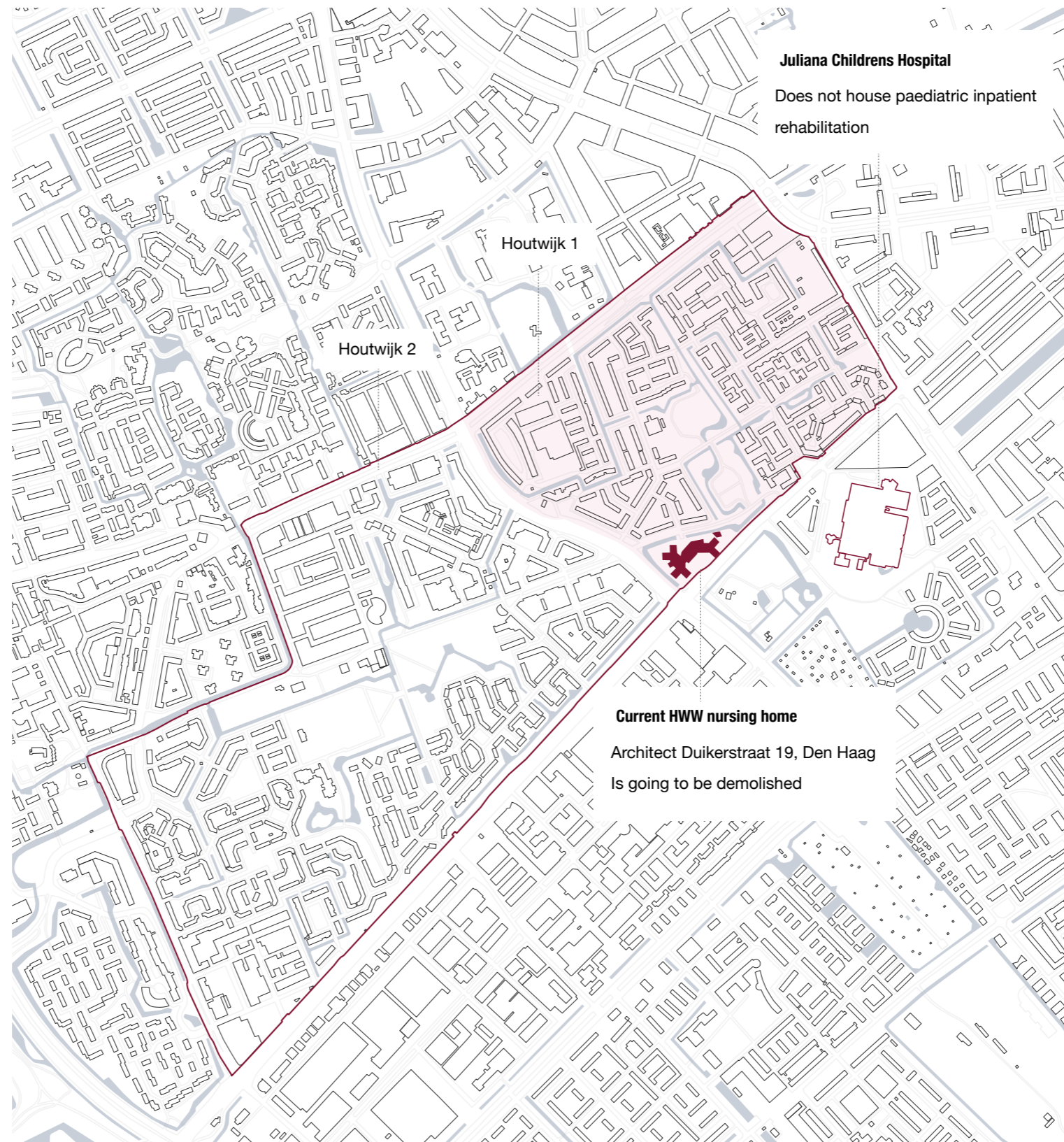
### SUBQUESTION



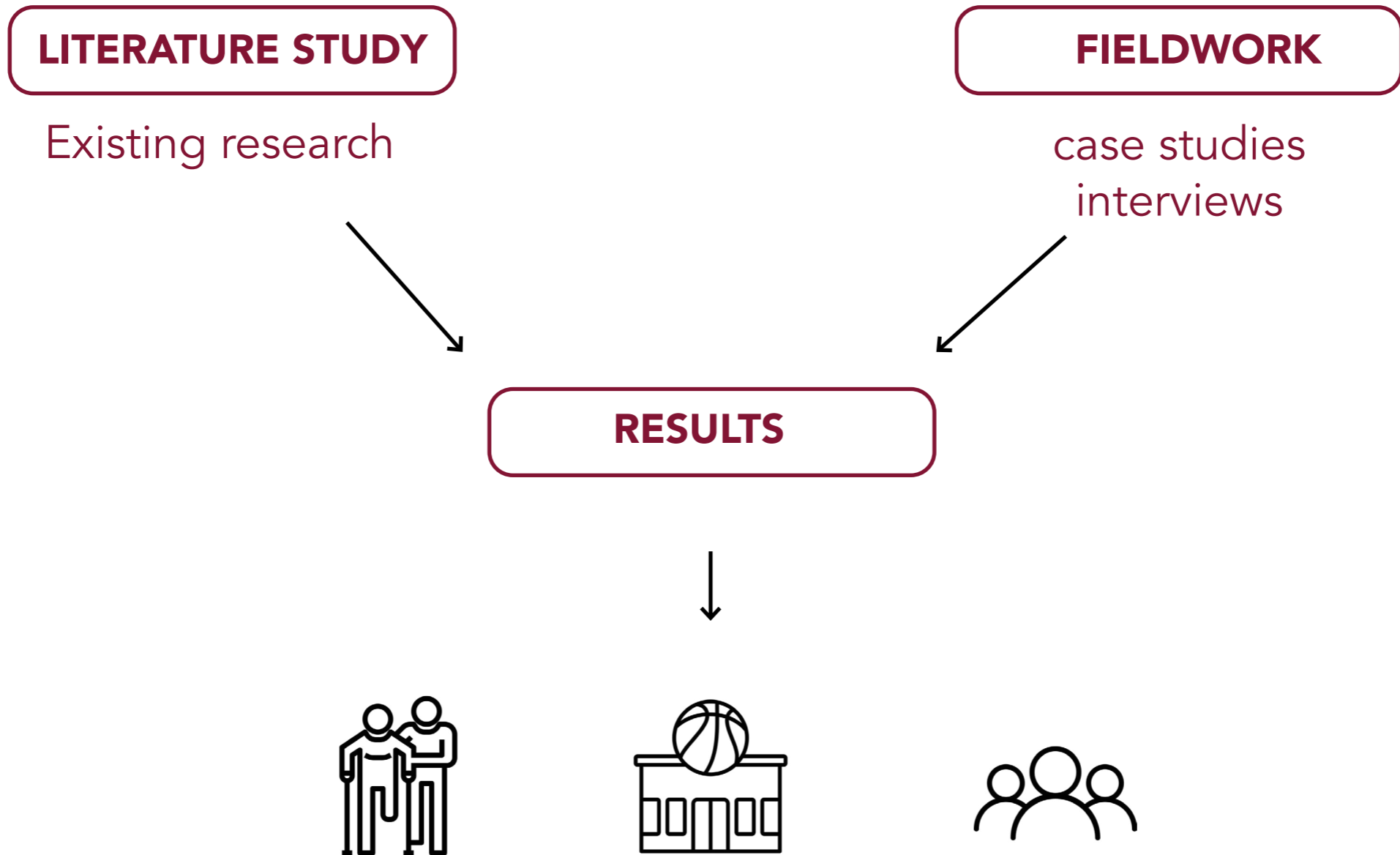
### SUBQUESTION



**A PAEDIATRIC REHABILITATION CENTRE COMBINED  
WITH INDOOR SPORTS AND SOCIAL FACILITIES FOR THE  
CHILDREN OF THE HAGUE AND HOUTWIJK.**



The site in Houtwijk



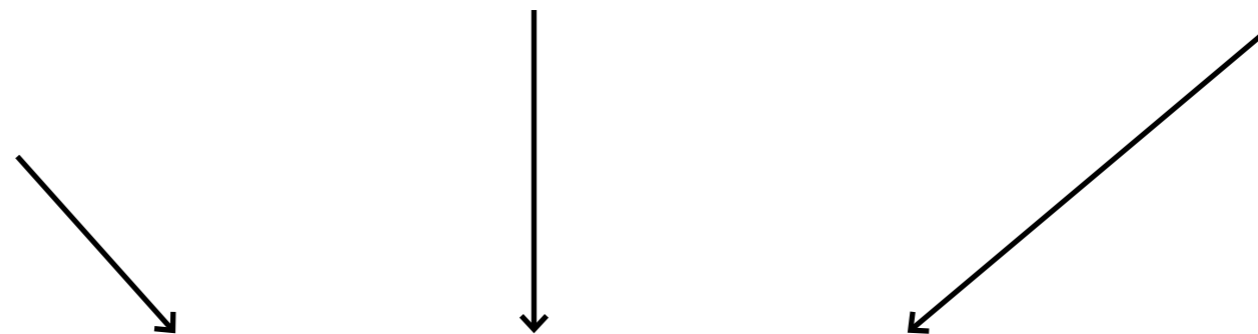


Programme of requirements

Sports and social needs of the residents of houtwijk

Co-location for rehabilitation and neighbourhood

Evidence based design principles supporting rehabilitation



**DESIGN PRINCIPLES**



Primary care domain (patient-centered)	
	Reception
	Clinic environment
	Central treatment area
→	<b>Gym</b>
	Gait analysis
→	<b>Sports hall/central practice floor</b>
→	<b>Swimmingpool</b>
	Individual practice room
	Group therapy
	Consultation room (with examination table)
	Treatment and consultation room (without examination table)
	Restaurant (with outdoor terrace)
	Kitchen area
→	<b>Seating area</b>
→	<b>Coffee corner (with outdoor terrace)</b>
	Services

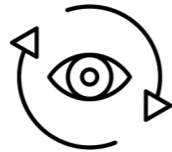
**(visual) connection  
with nature**



**child-friendly scale**



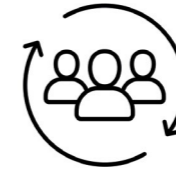
**visual connections**

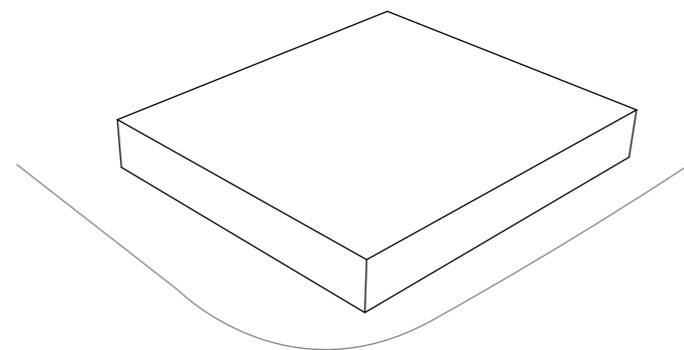


**(therapeutic) play**

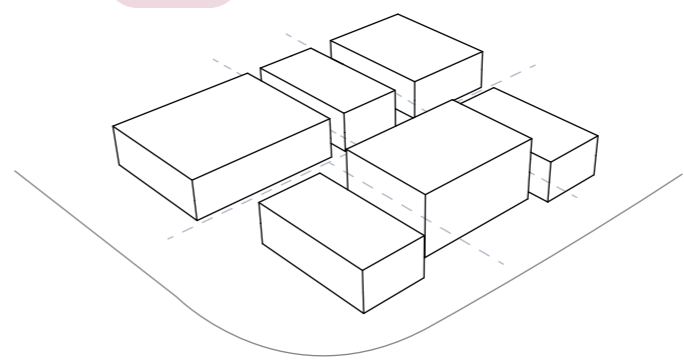


**social interaction**

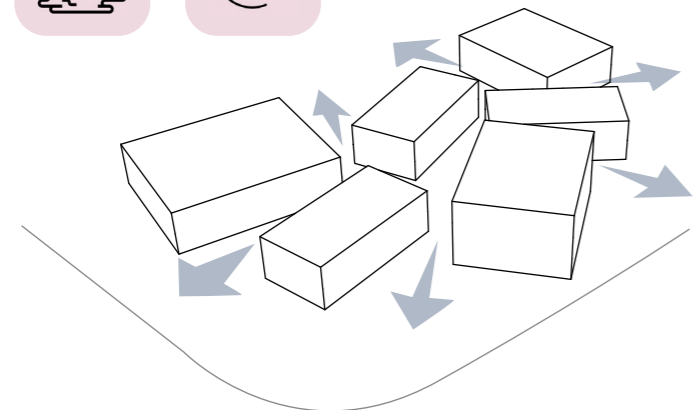
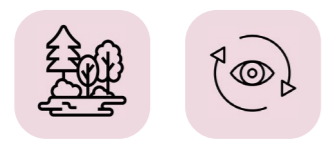




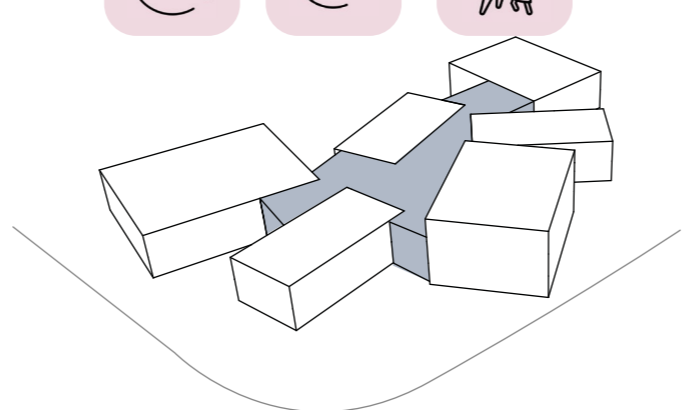
1 Initial mass



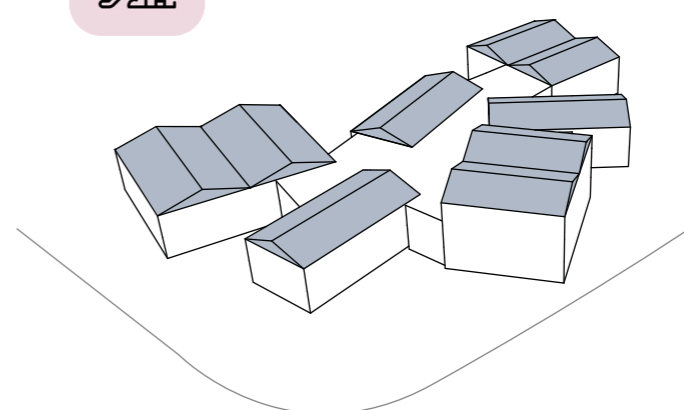
2 Division by function



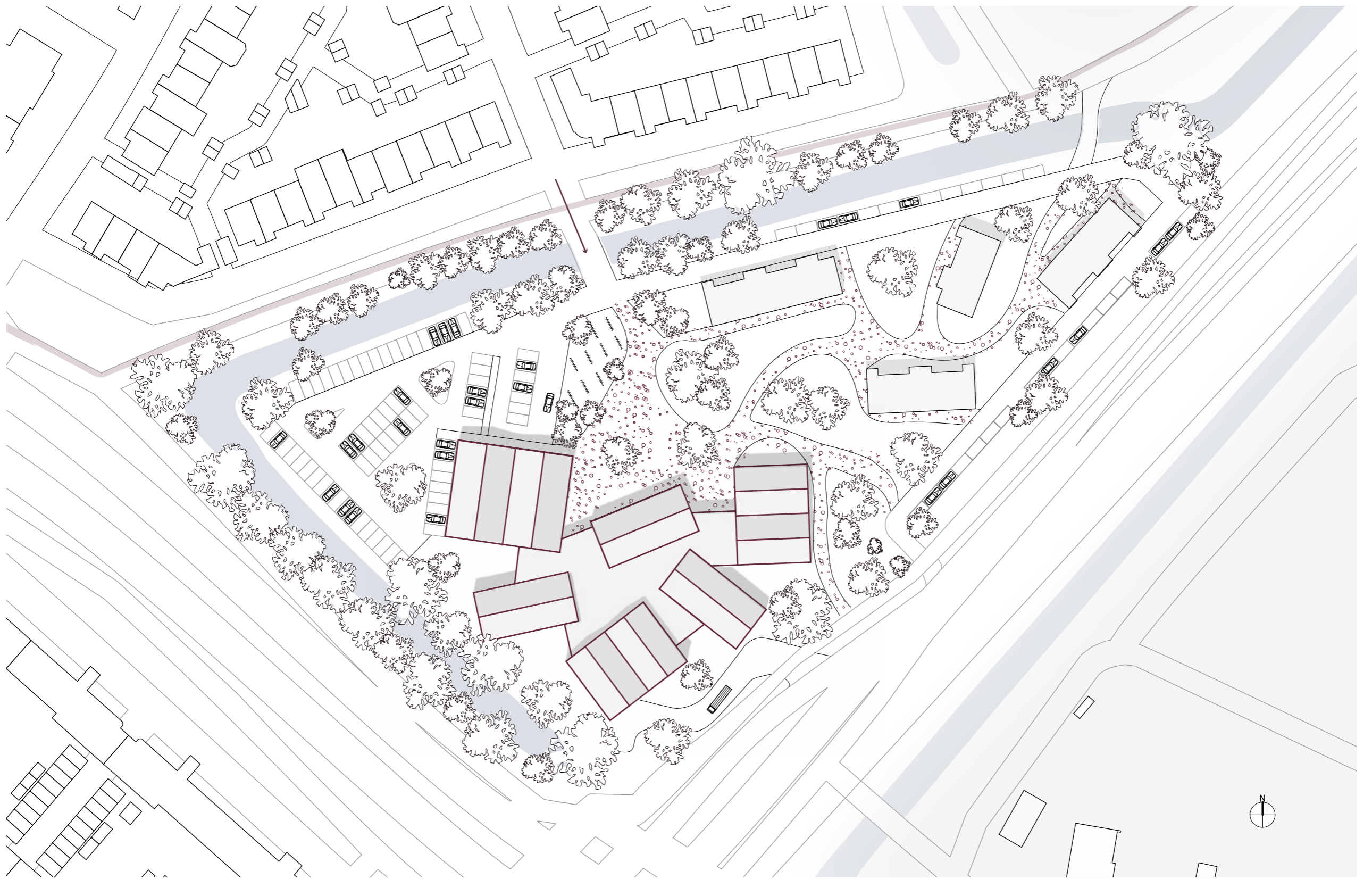
3 Rotation for site orientation



4 Central connection volume



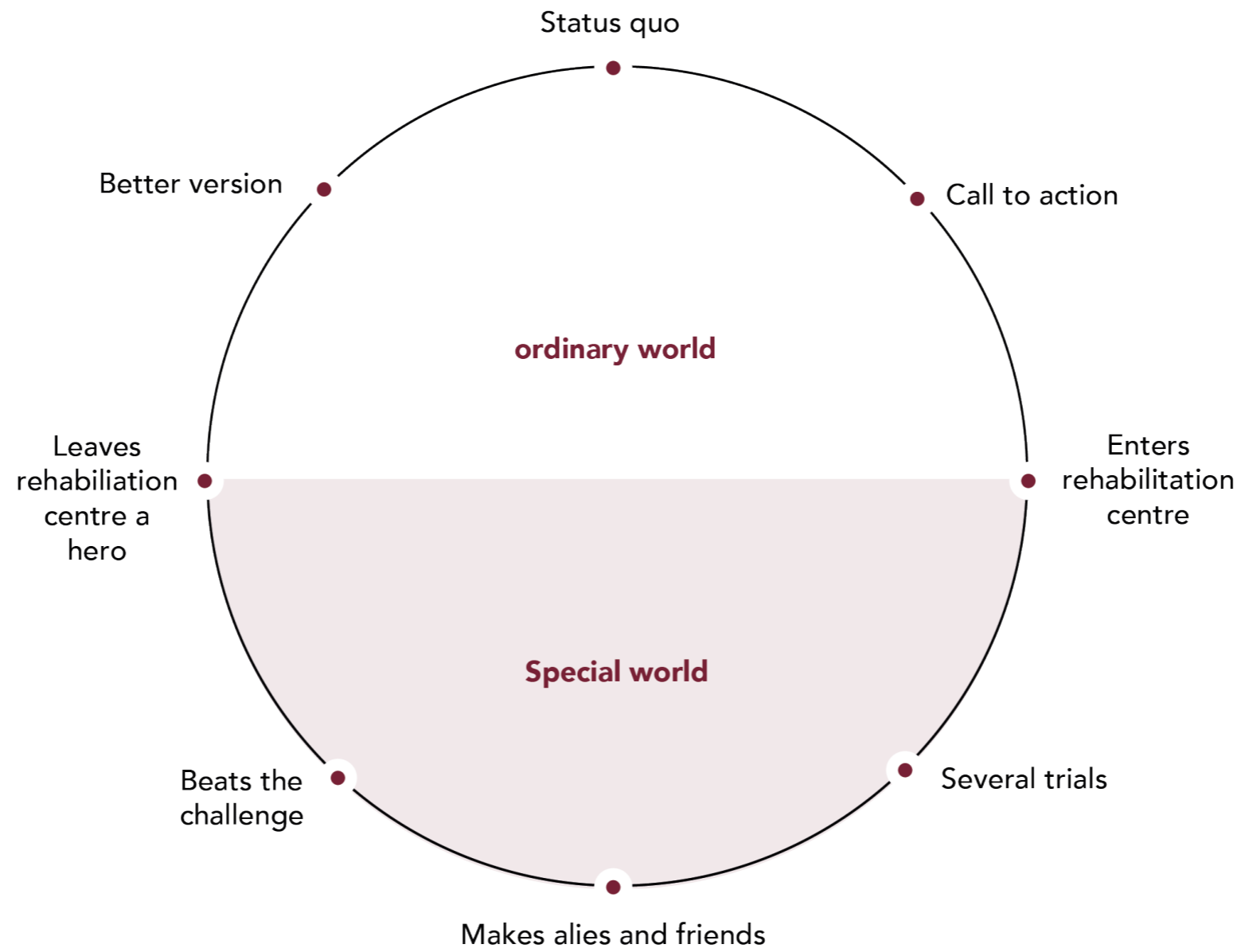
5 Human scale roofs

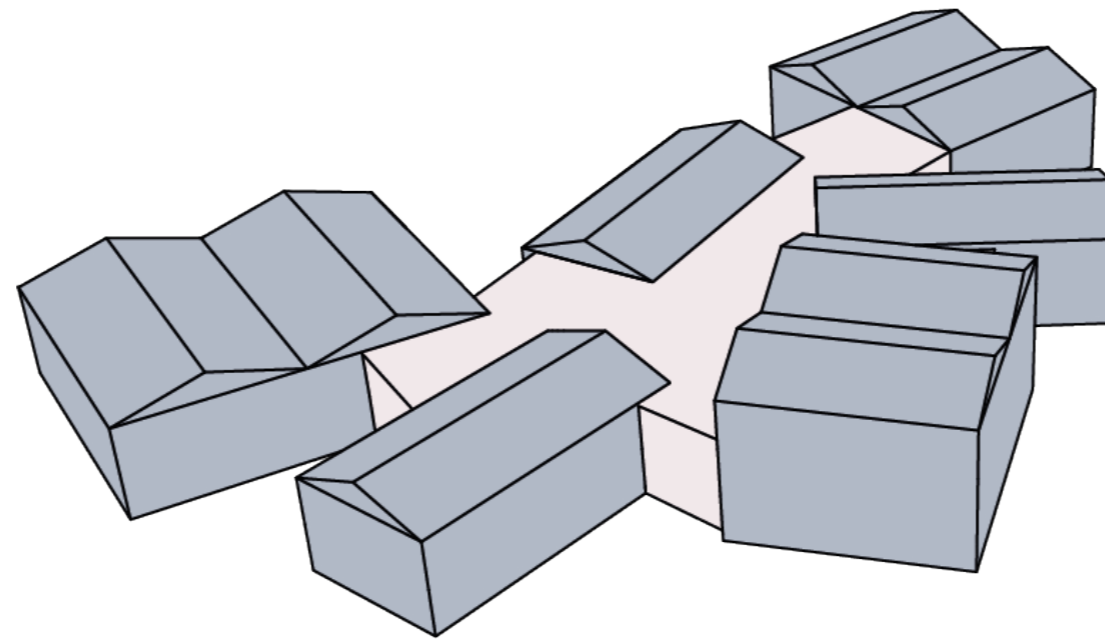


## THE HERO'S JOURNEY

Rehabilitation as an active and engaging adventure rather than a sequence of medical steps.  
The child is positioned as the "hero" of their own journey, overcoming obstacles through play.







- Special world
- Ordinary world

## LUCAS

11 years old

cerebrale parese

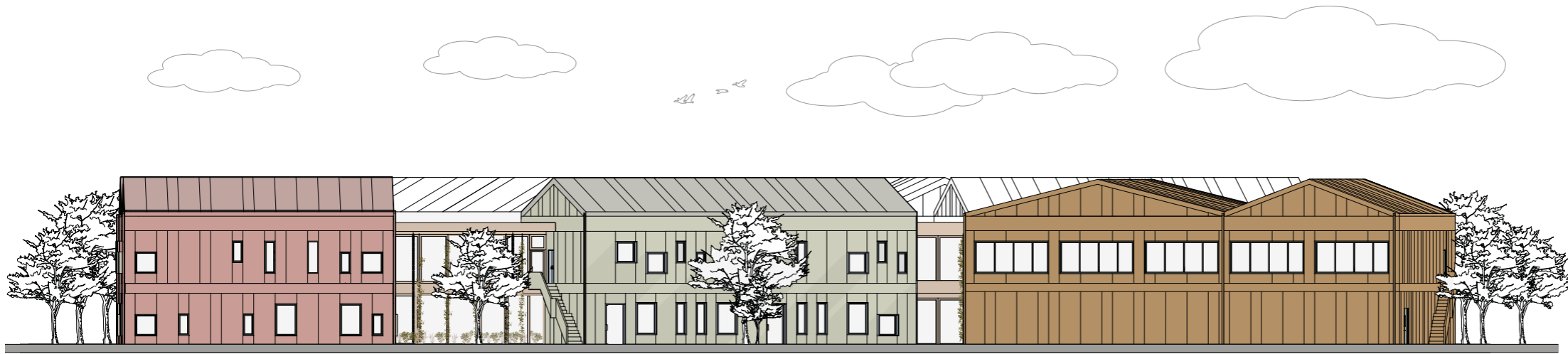
Visits twice a week



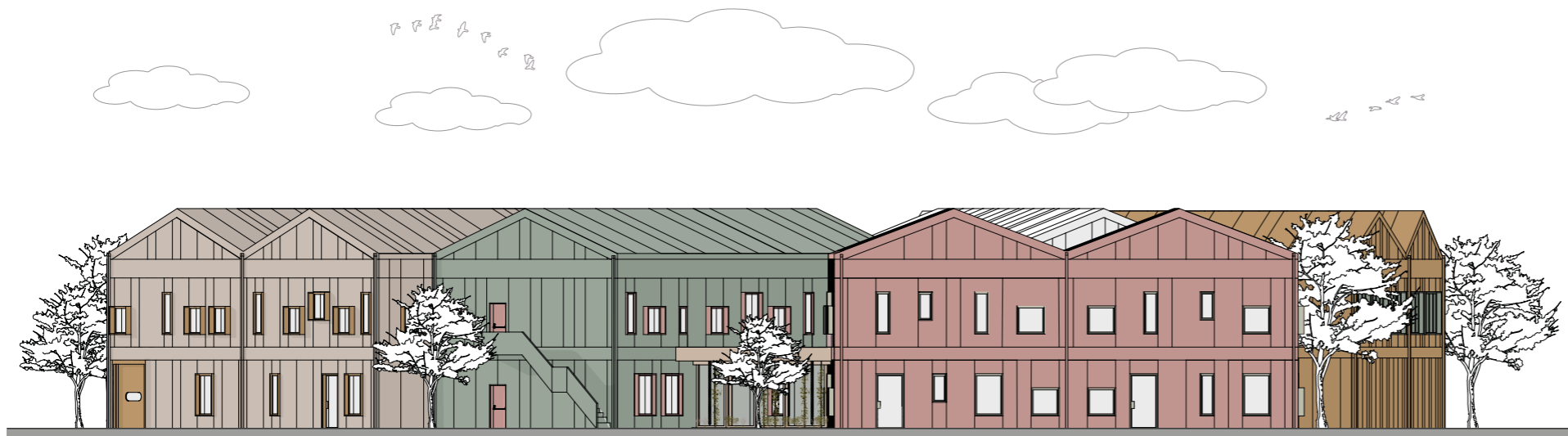


8:15

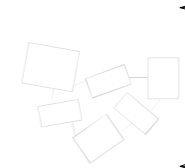
Arrival



South elevation



East elevation



# Elevation

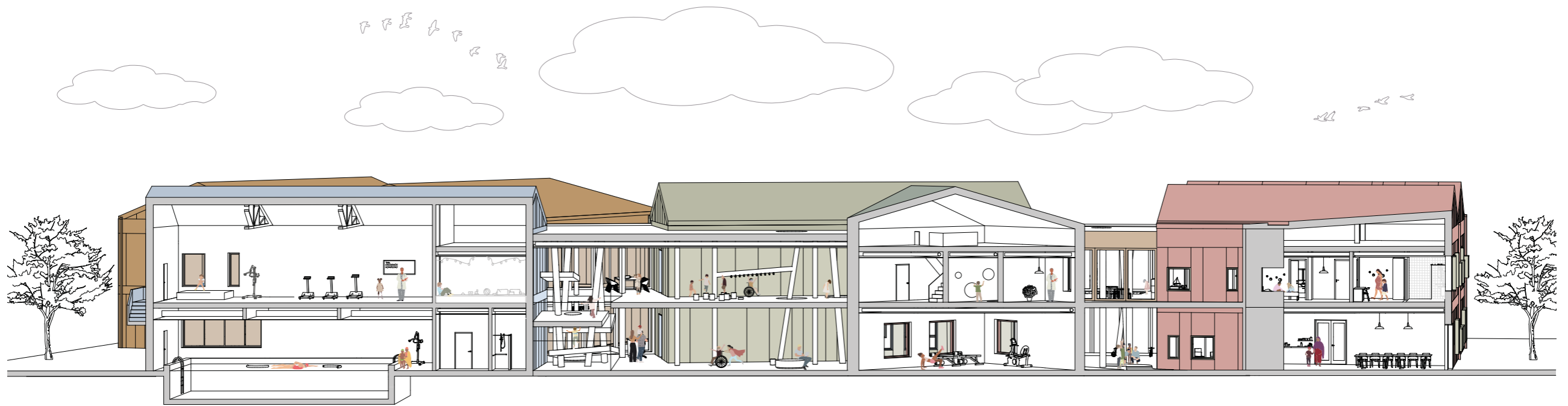


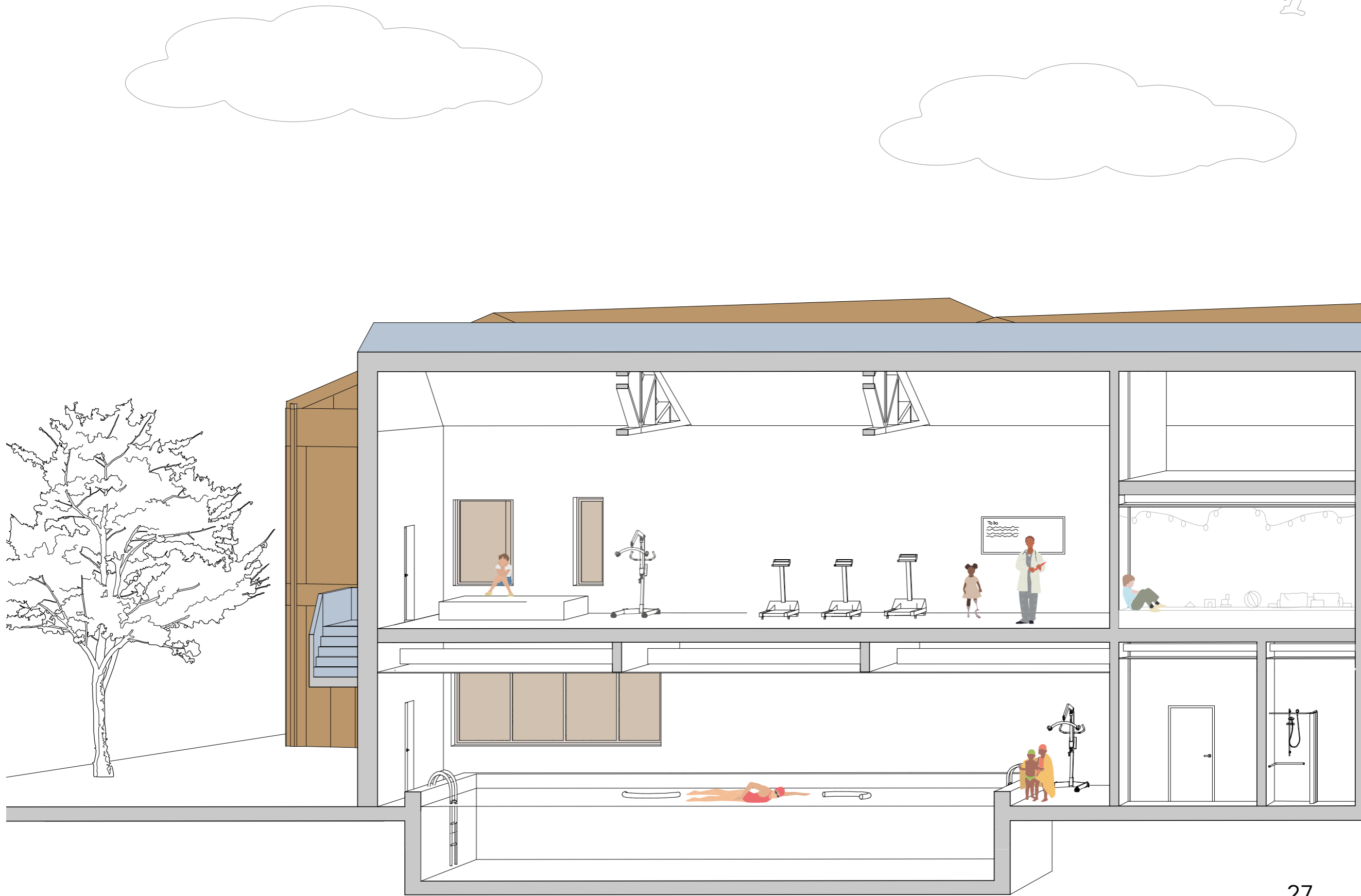
Facade 1: 'Ordinary world'

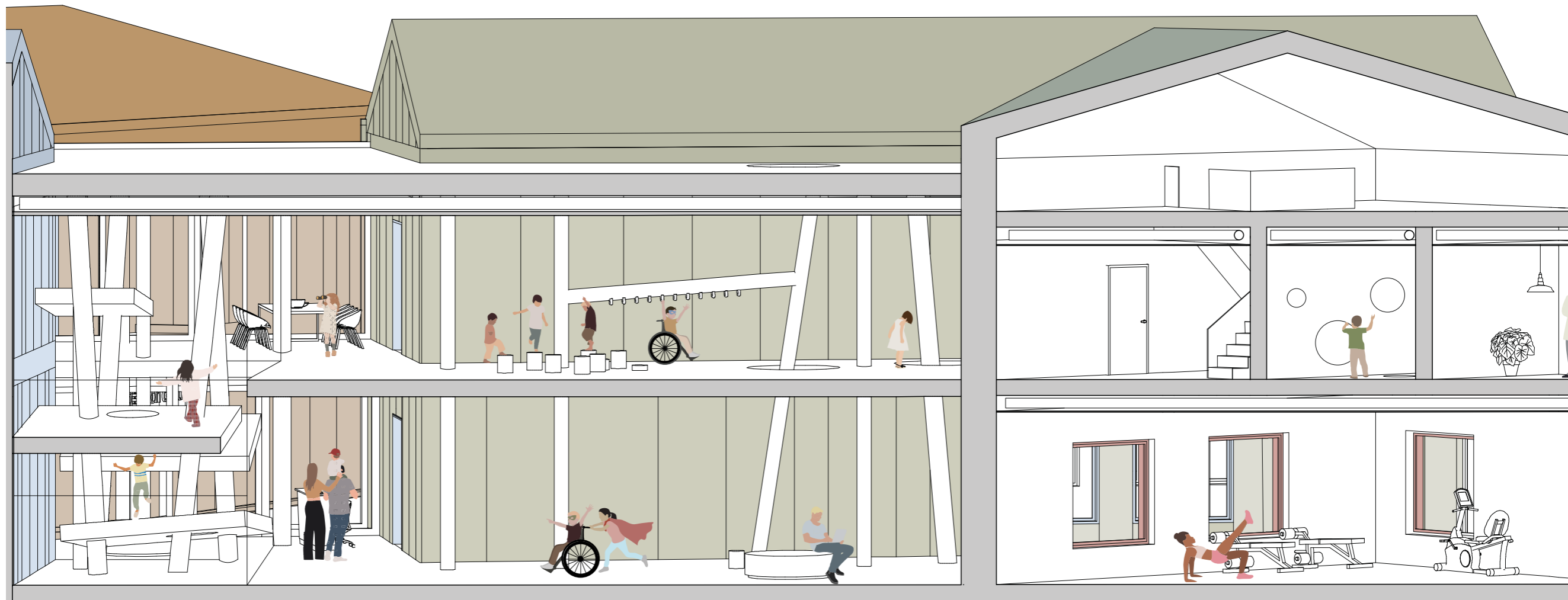


8:30

Entering the building





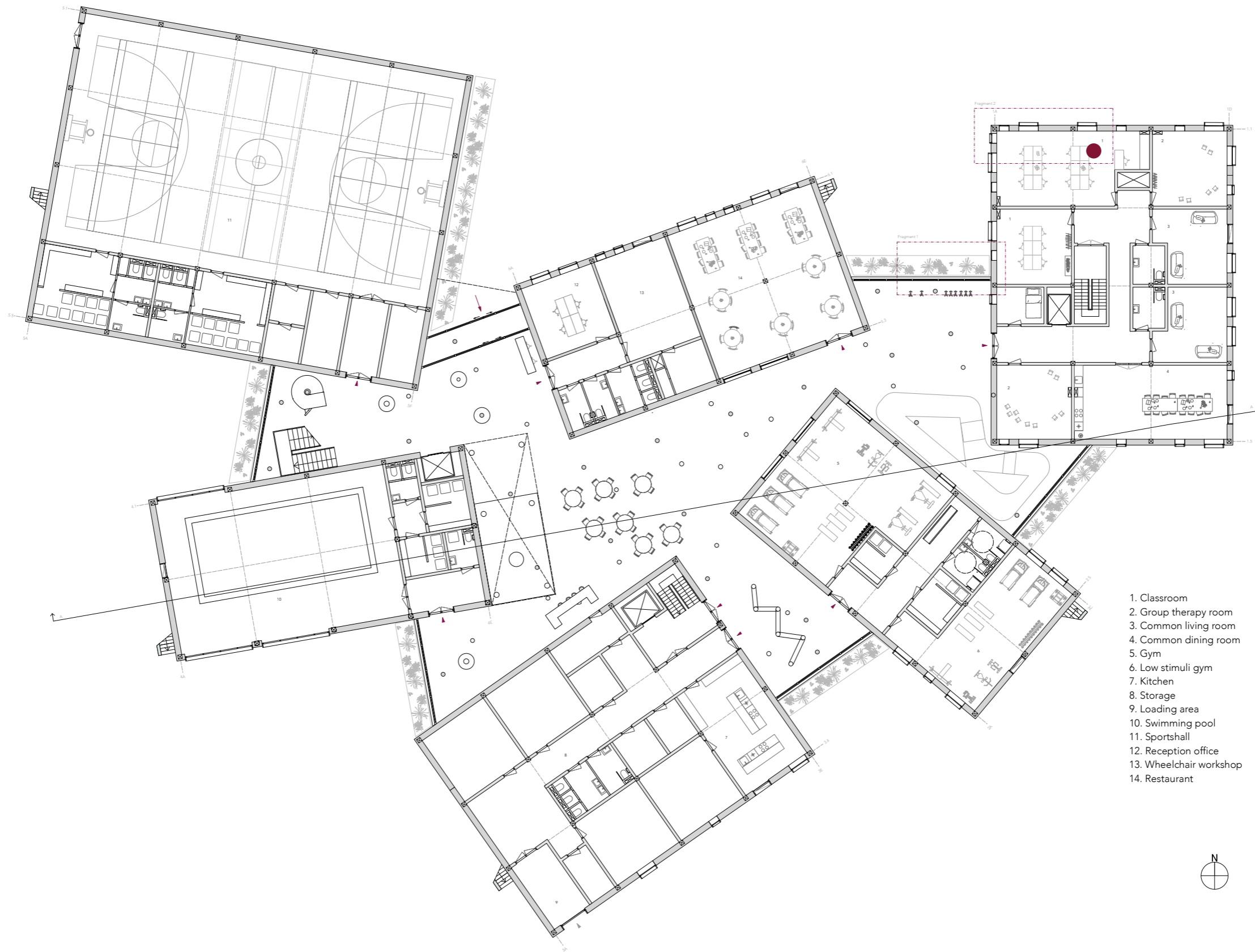






11:00

School



- 1. Classroom
- 2. Group therapy room
- 3. Common living room
- 4. Common dining room
- 5. Gym
- 6. Low stimuli gym
- 7. Kitchen
- 8. Storage
- 9. Loading area
- 10. Swimming pool
- 11. Sportshall
- 12. Reception office
- 13. Wheelchair workshop
- 14. Restaurant

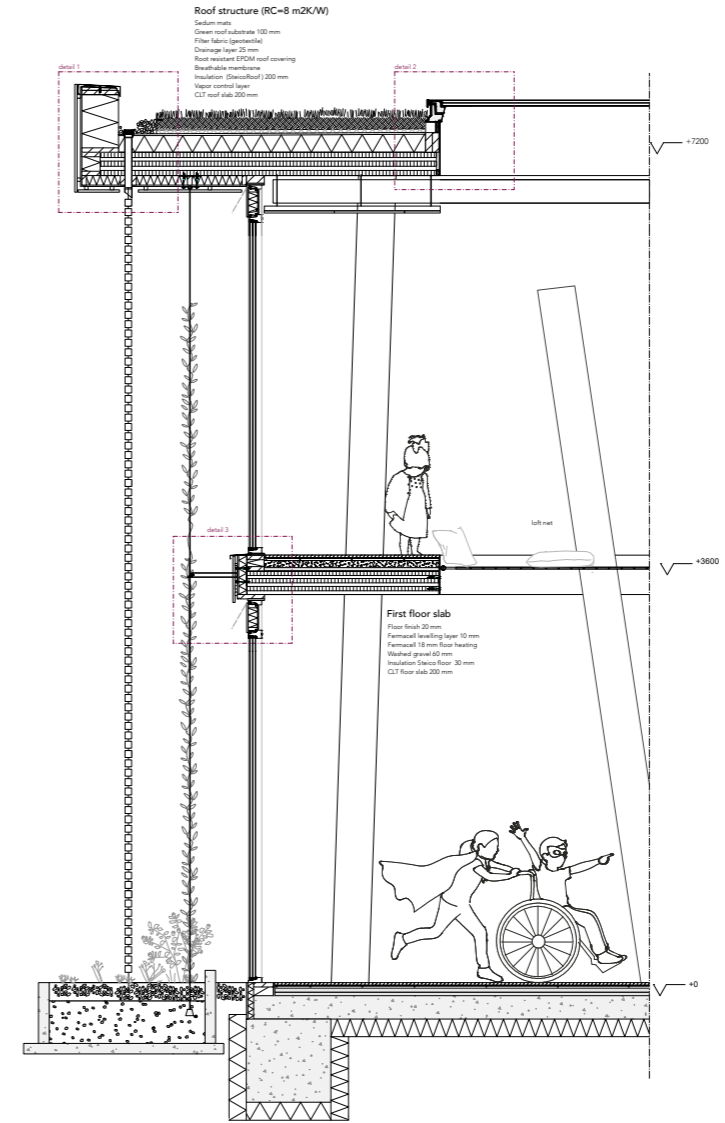


Floor plan ground floor

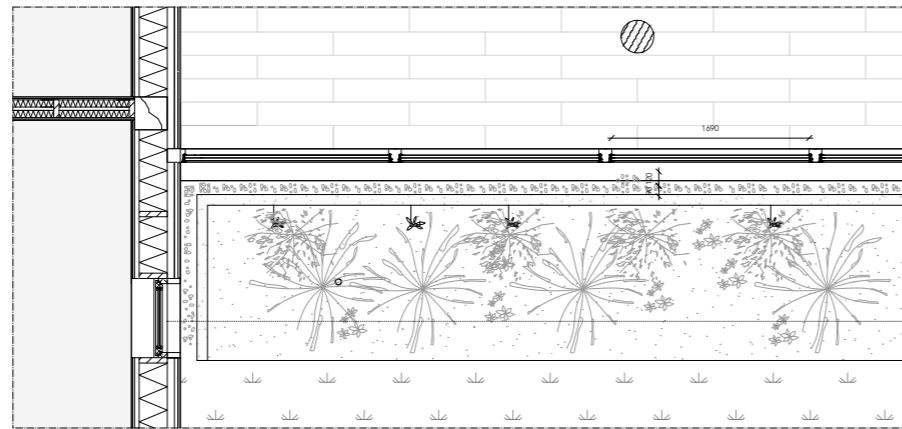


13:00

Group therapy

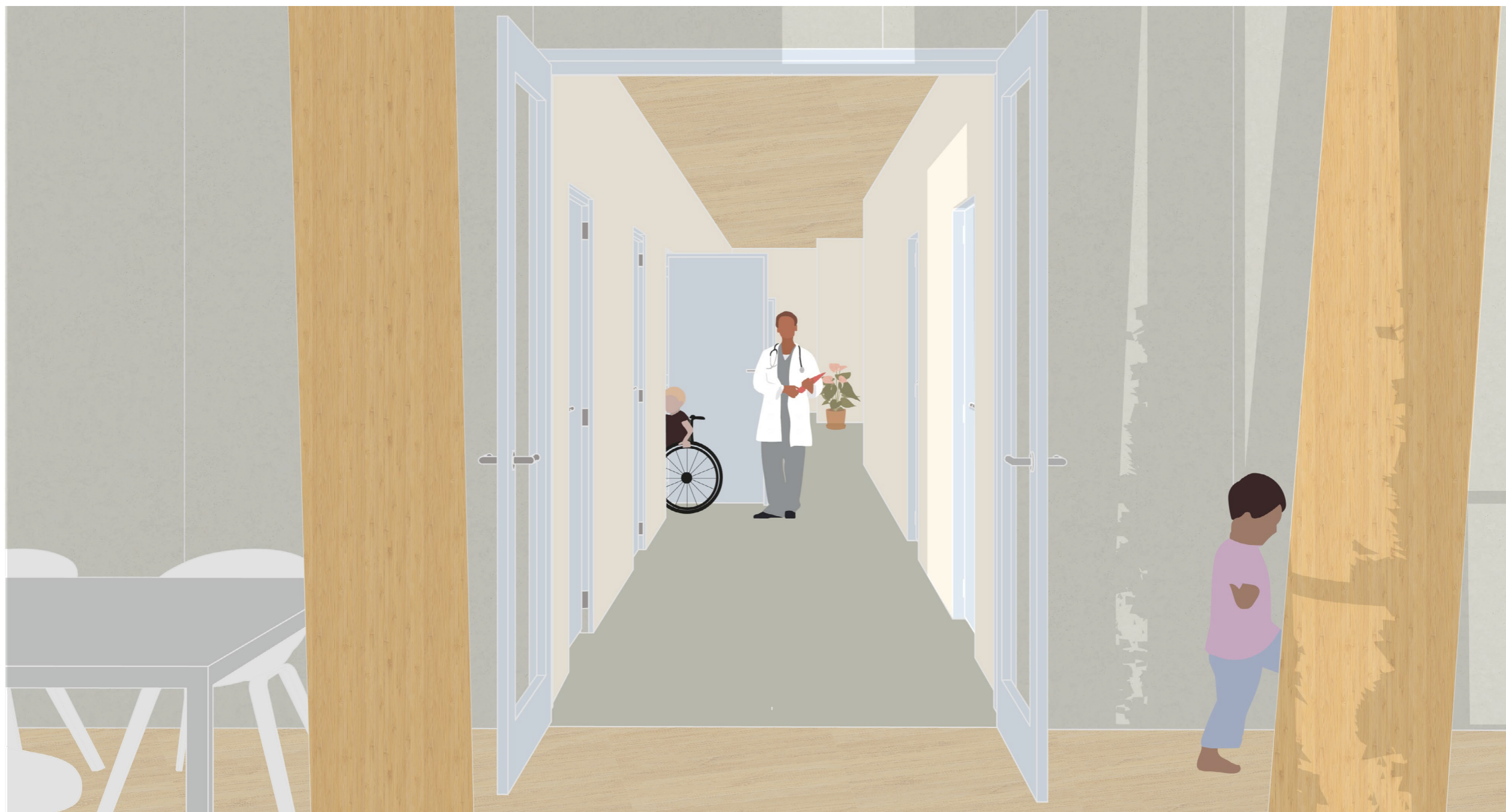


Section A 1:20



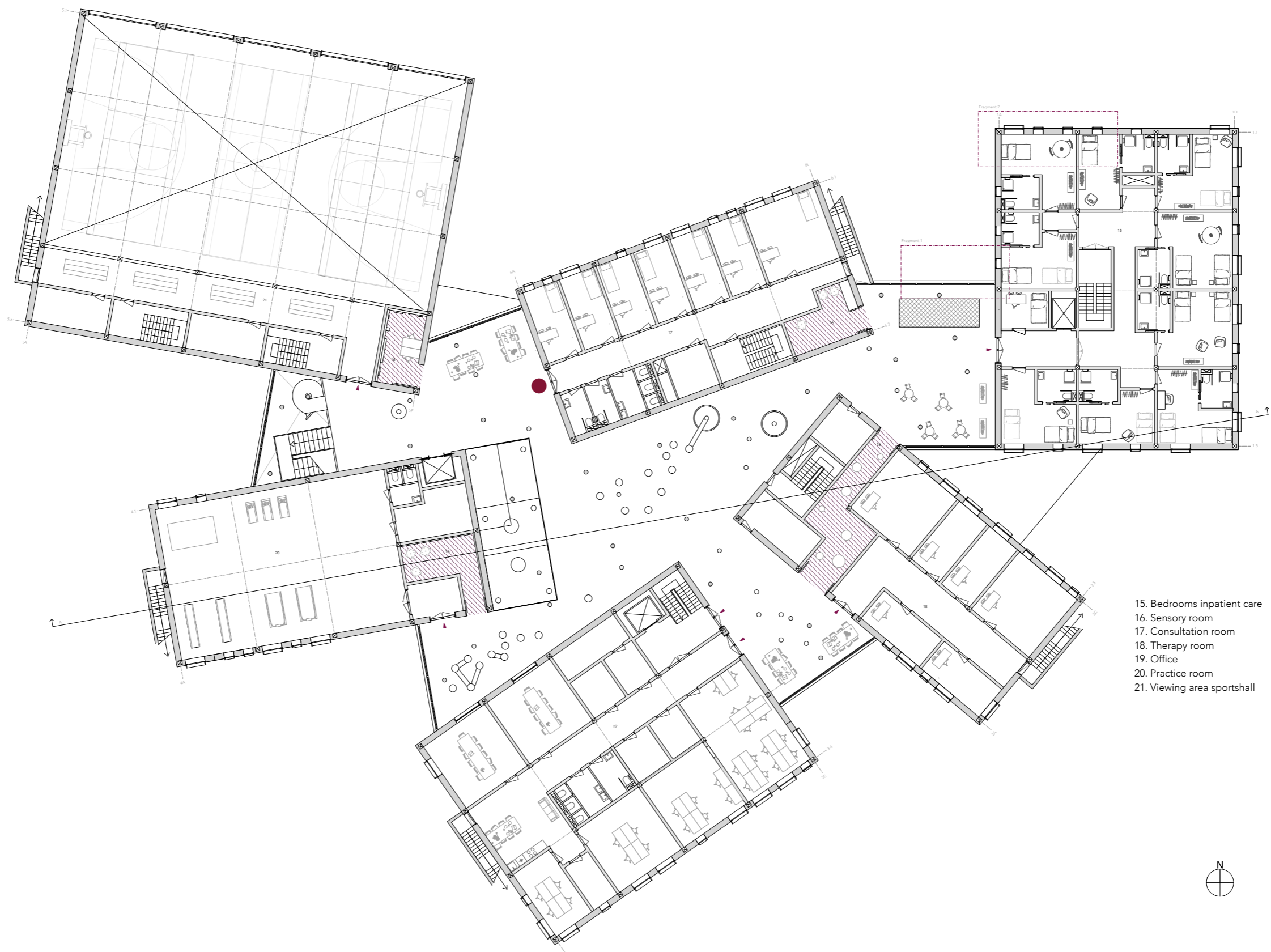
Section B 1:20

## Facade 2: 'Special world'



15:00

Therapy session



- 15. Bedrooms inpatient care
- 16. Sensory room
- 17. Consultation room
- 18. Therapy room
- 19. Office
- 20. Practice room
- 21. Viewing area sportshall

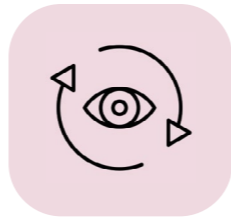
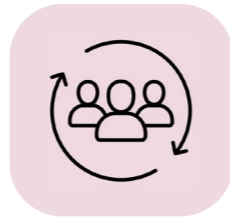


Floor plan first floor



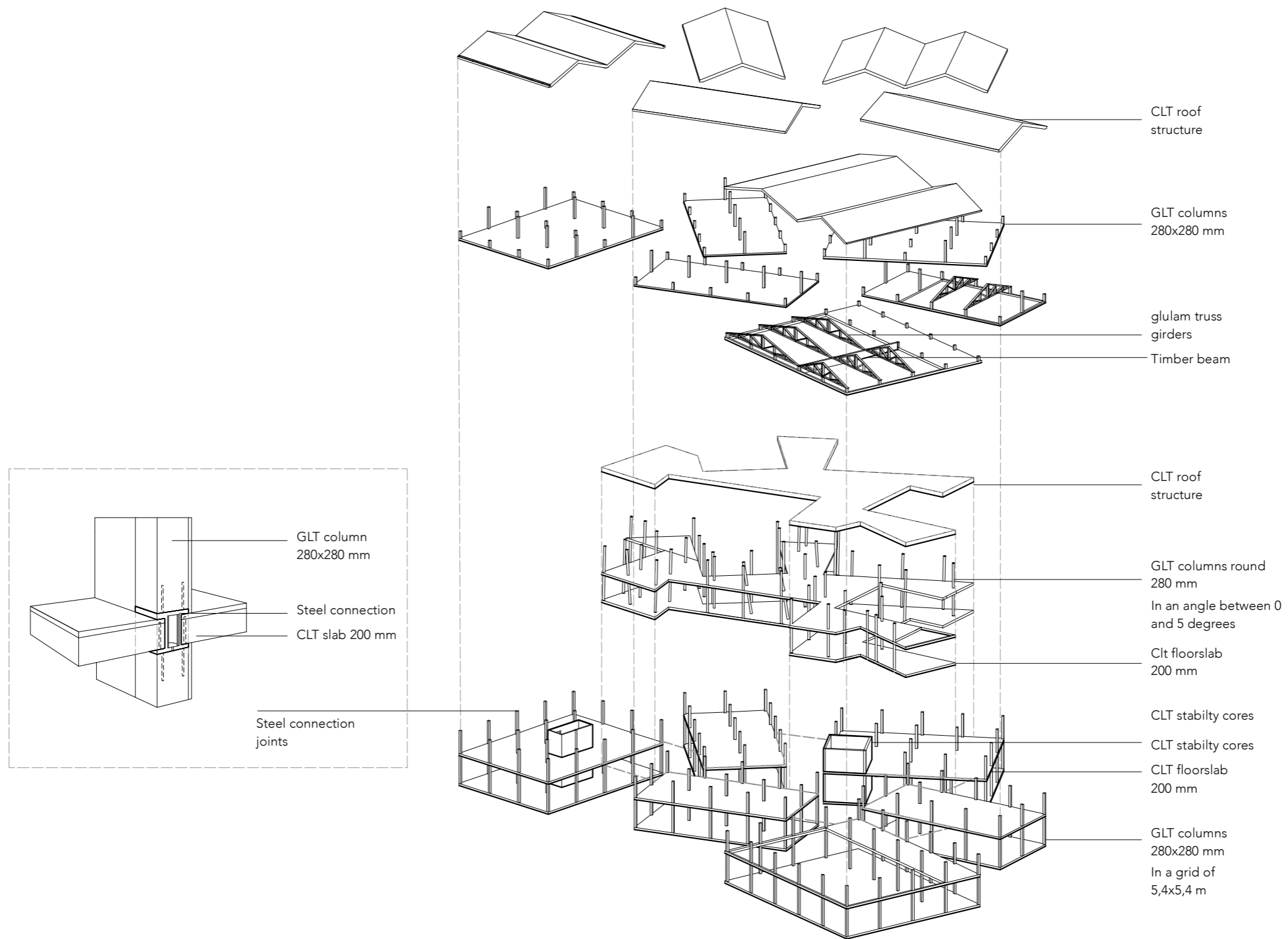
16:00

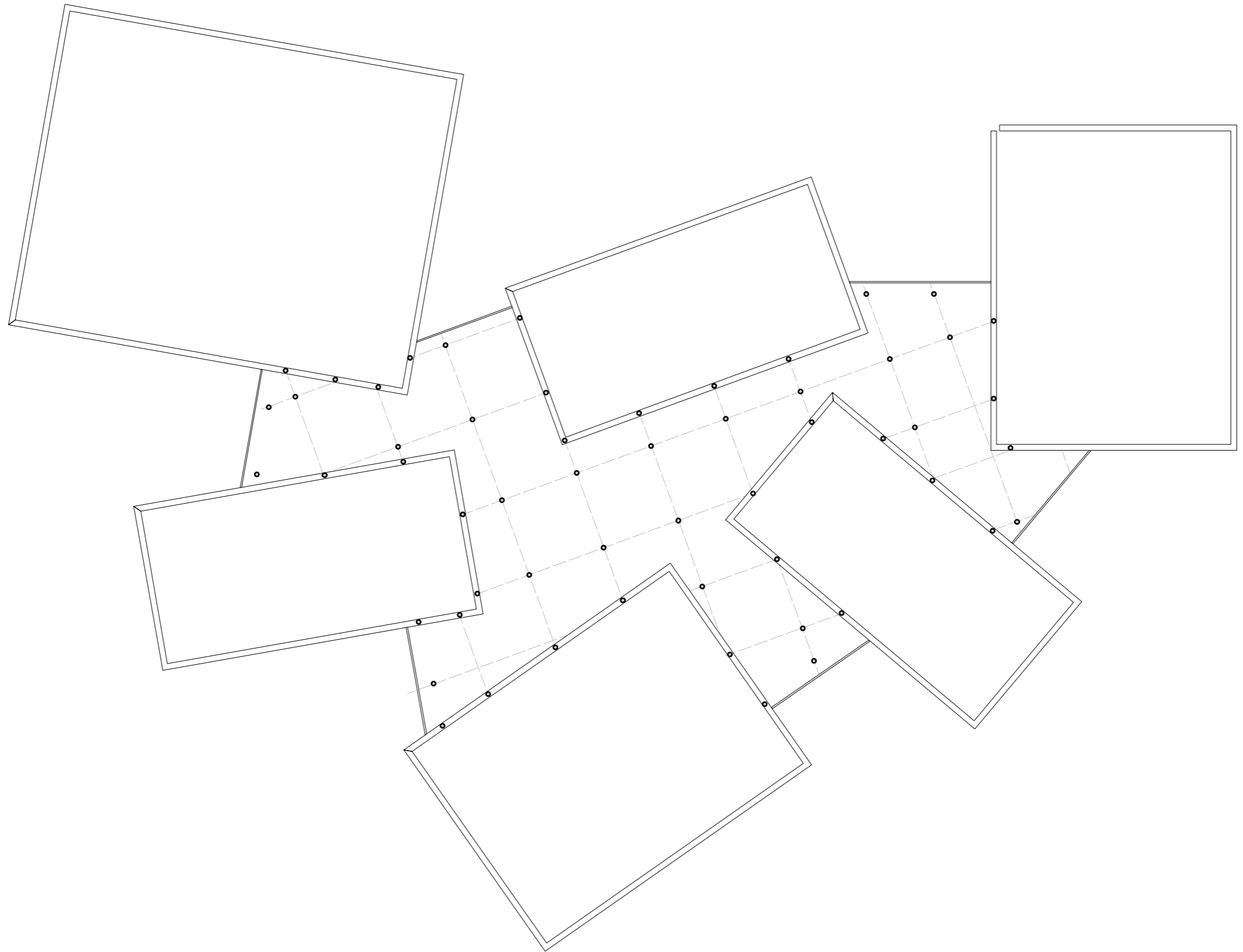
Free time

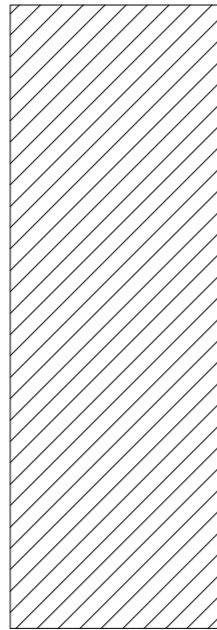


Answer research question

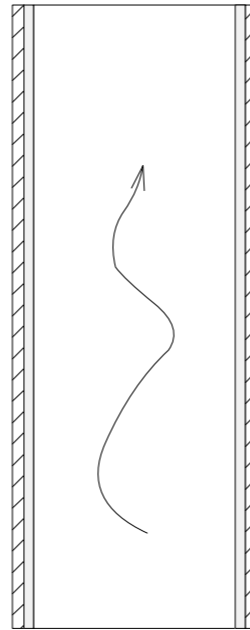
**THANK YOU**



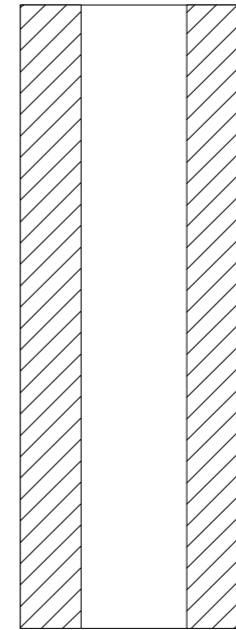




Structural column  
(Glulam)

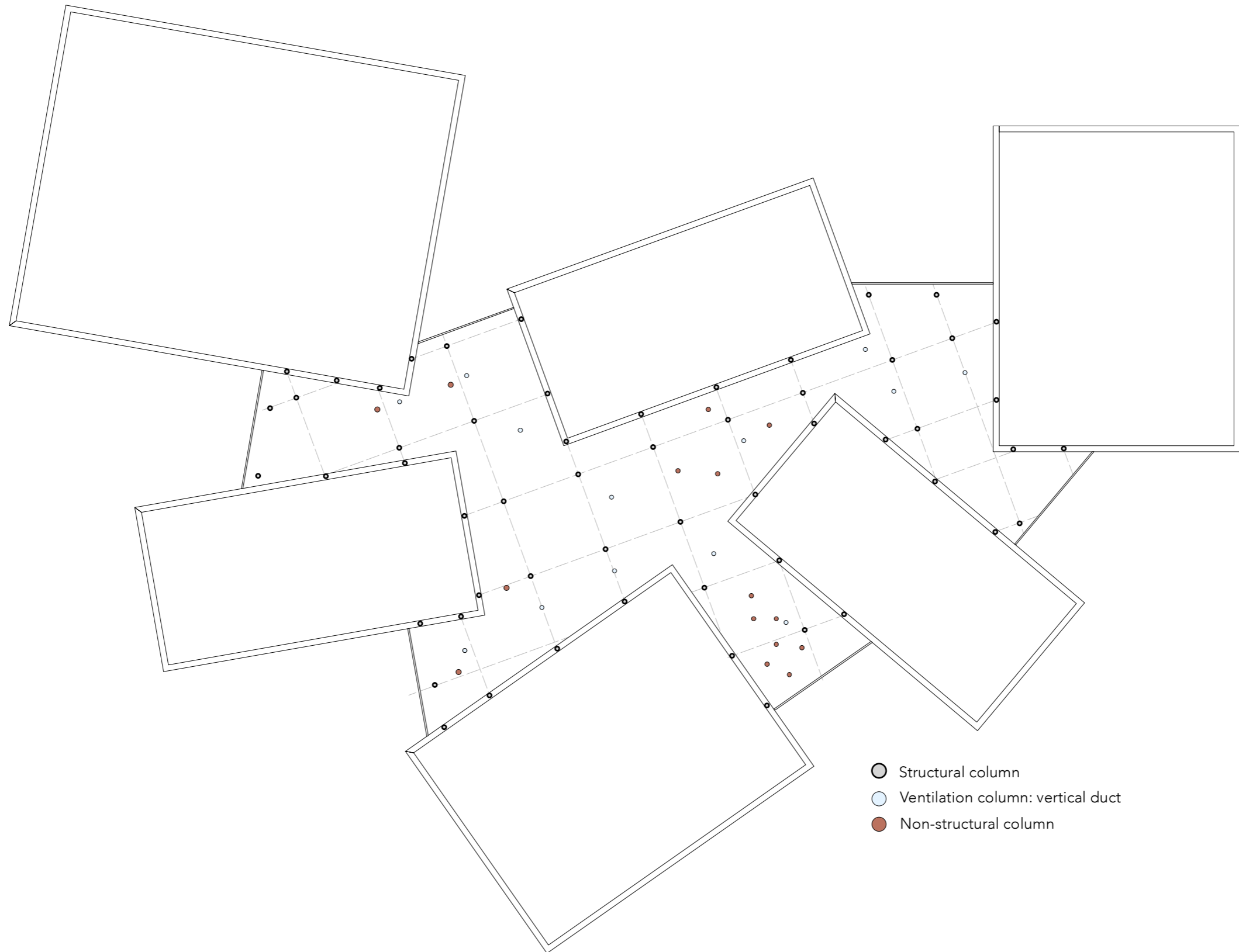


Ventilation column  
vertical duct



Non-structural column  
for play elements

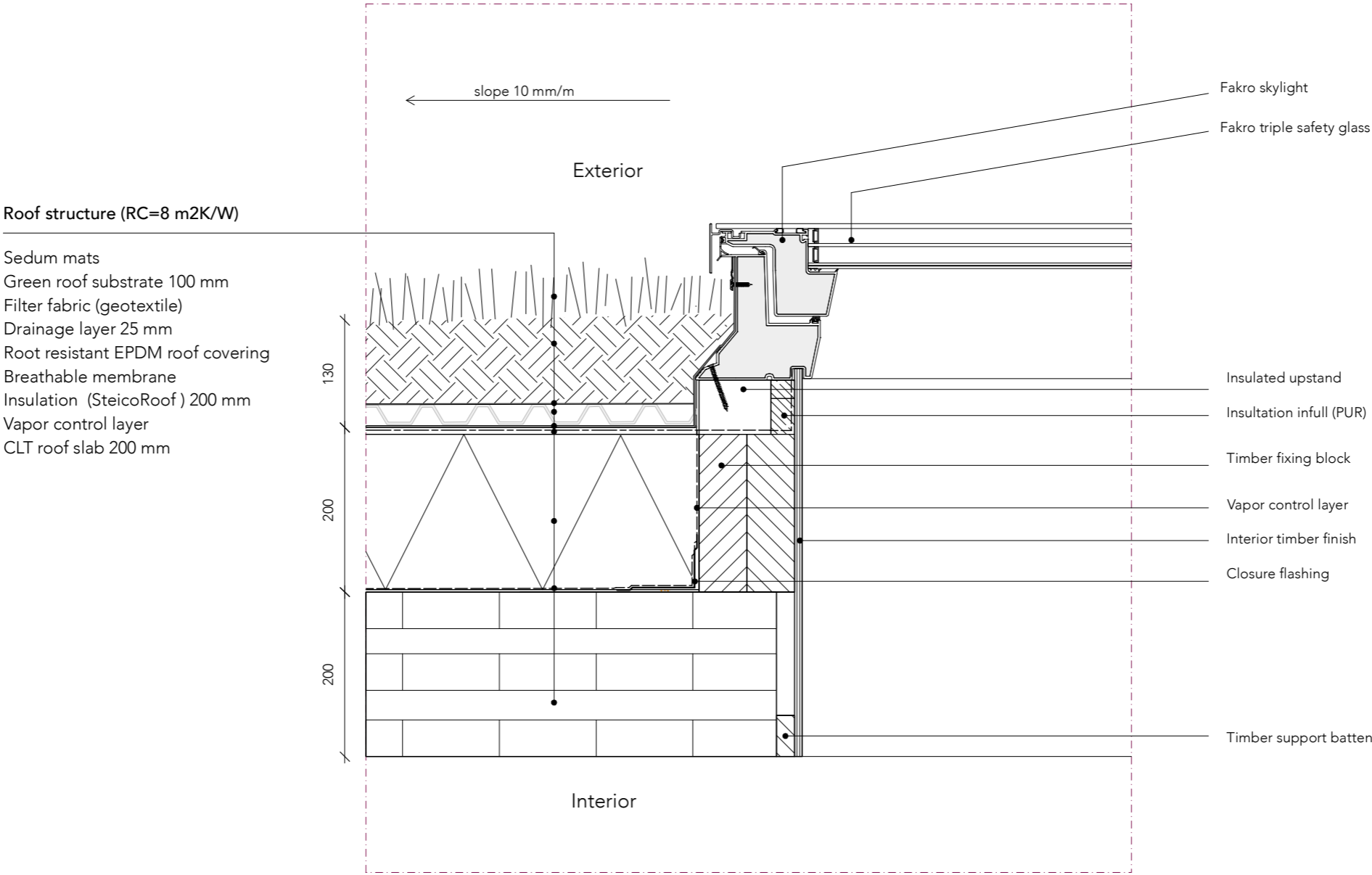
The three different columns (trees)



The three different trees

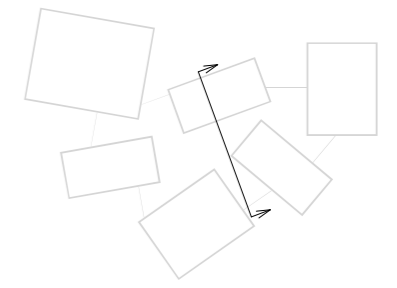
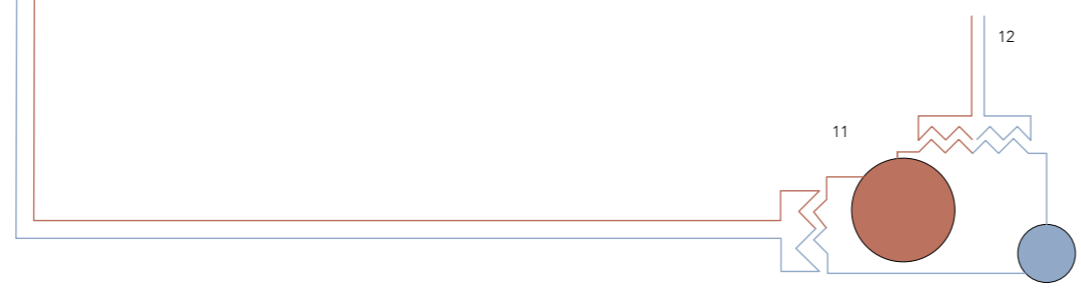
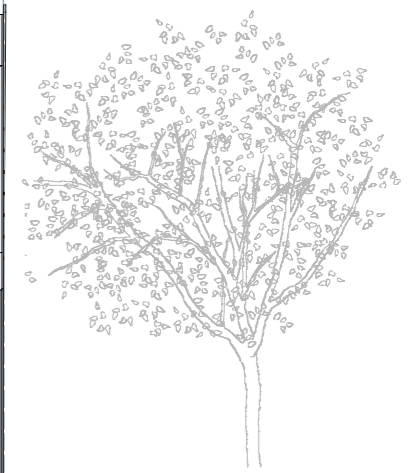
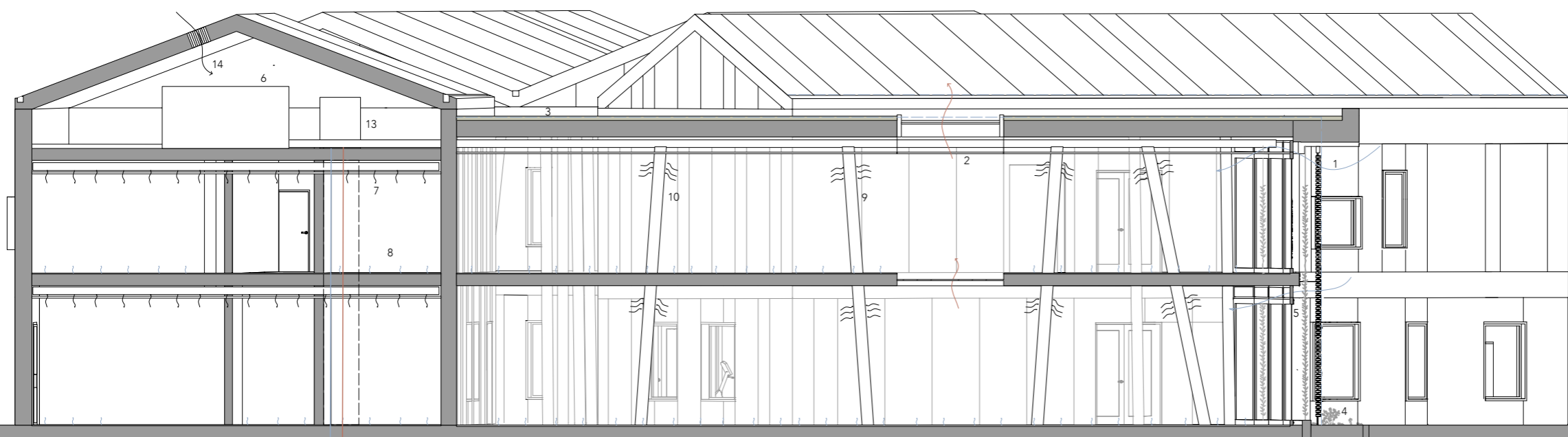
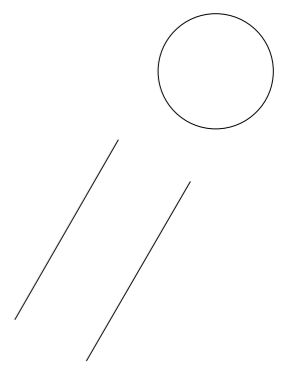


# Detail 2 - Skylight



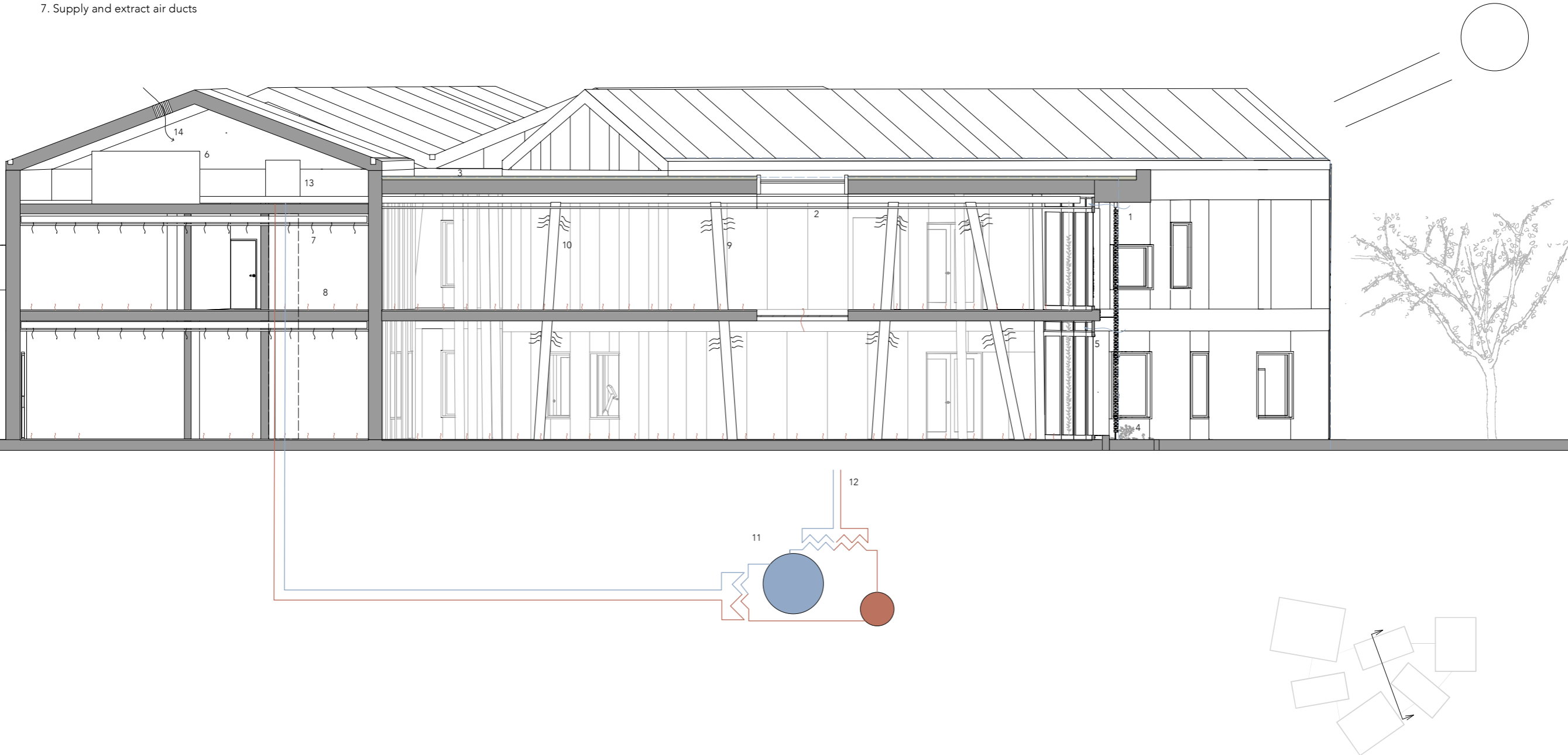


- 1. Natural ventilation
- 2. Skylight for stack ventilation
- 3. Green roof
- 4. Rainchain for visible rainwater discharge with infiltration and storage for facade vegetation
- 5. Green facade ivy - denser coverage for reducing solar gains
- 6. Air handling unit (AHU)
- 7. Supply and extract air ducts
- 8. Underfloor cooling
- 9. Vertical supply air shaft ('tree')
- 10. Vertical exhaust air shaft ('tree')
- 11. Aquifer Thermal Energy Storage
- 12. Distribution to other heat pumps
- 13. Heat pump
- 14. Outdoor air intake to AHU



# Climate section summer

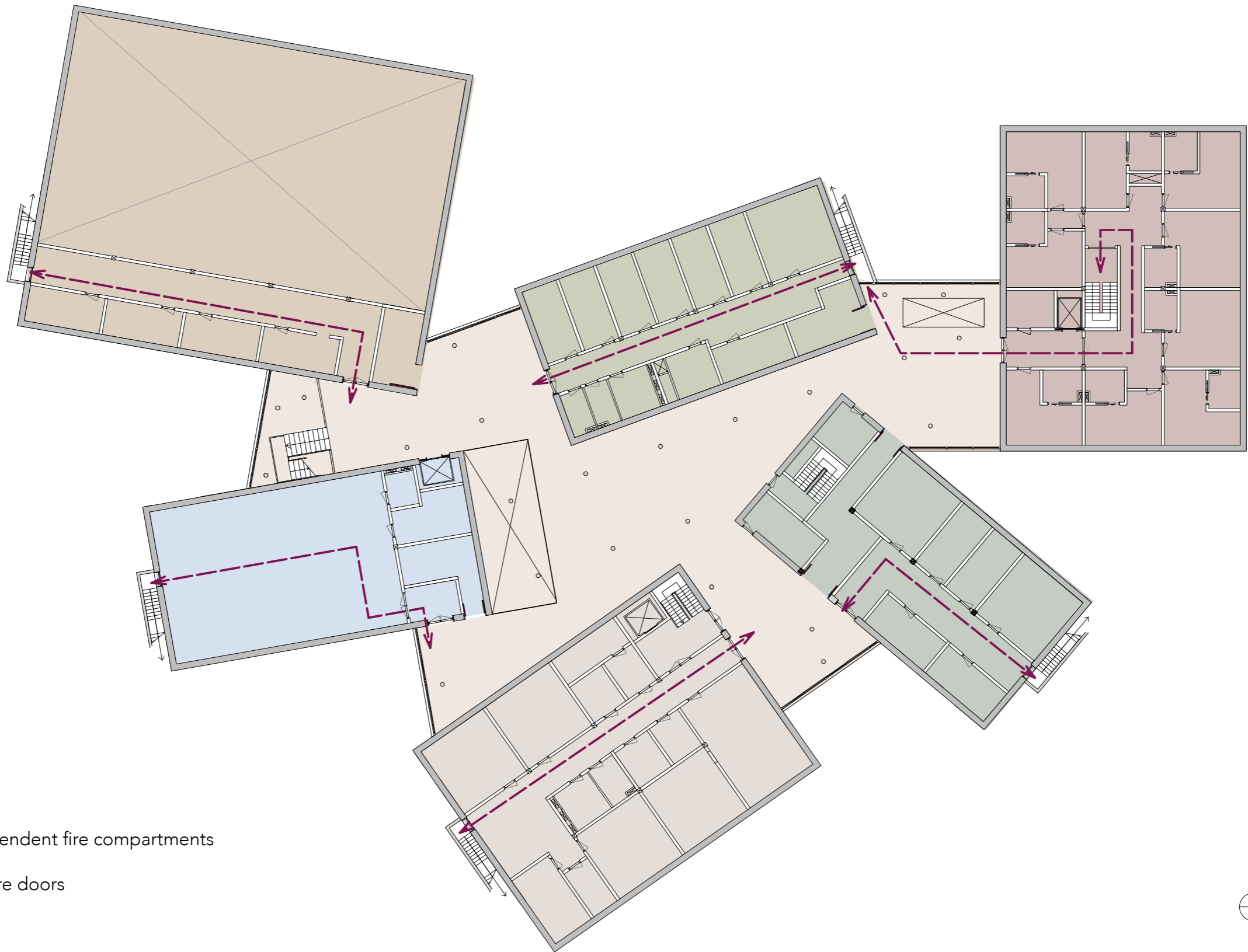
- 1. Natural ventilation
- 2. Skylight for daylight admission
- 3. Green roof
- 4. Rainchain for visible rainwater discharge with infiltration and storage for facade vegetation
- 5. Green facade ivy minimal coverage to allow optimal solar gain
- 6. Air handling unit (AHU)
- 7. Supply and extract air ducts
- 8. Underfloor heating
- 9. Vertical supply air shaft ('tree')
- 10. Vertical exhaust air shaft ('tree')
- 11. Aquifer Thermal Energy Storage
- 12. Distribution to other heat pumps
- 13. Heat pump
- 14. Outdoor air intake to AHU



Climate section winter



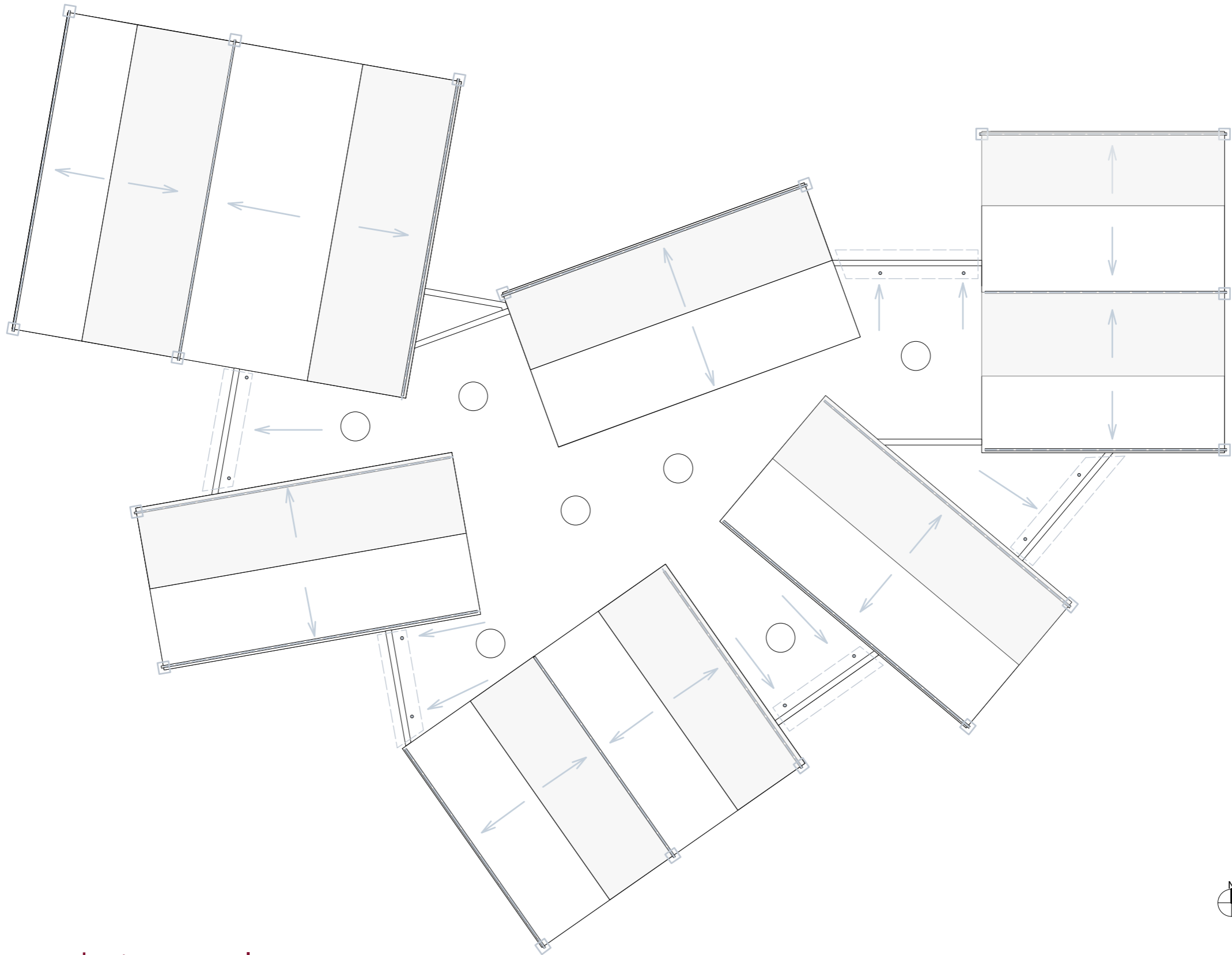
Ventilation plan



Seven independent fire compartments

Automatic fire doors

# Fire safety



Green roofs

Wadis

# Rainwater drainage plan



## **NATURE BASED DESIGN**

Integrating nature and natural processes into the built environment across spatial, material and technical levels.