

Healthy urban neighbourhoods within green infrastructures

Problem statement

Problem statement



#1 unhealthy urban environment

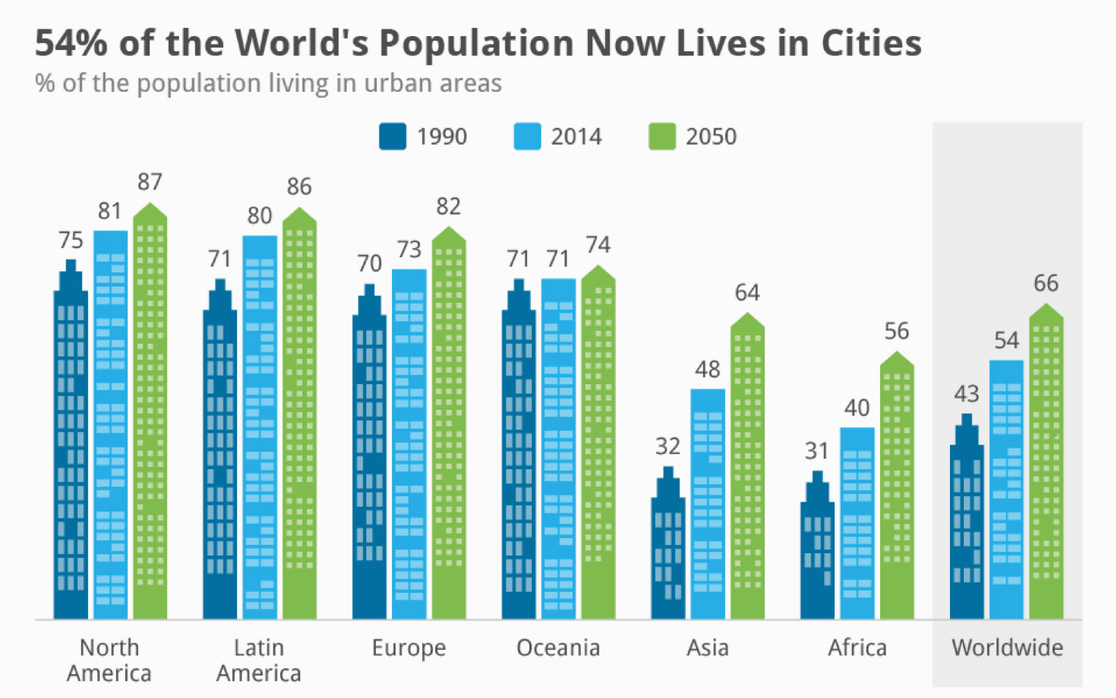


#2 Depression/anxiety
and needed treatment

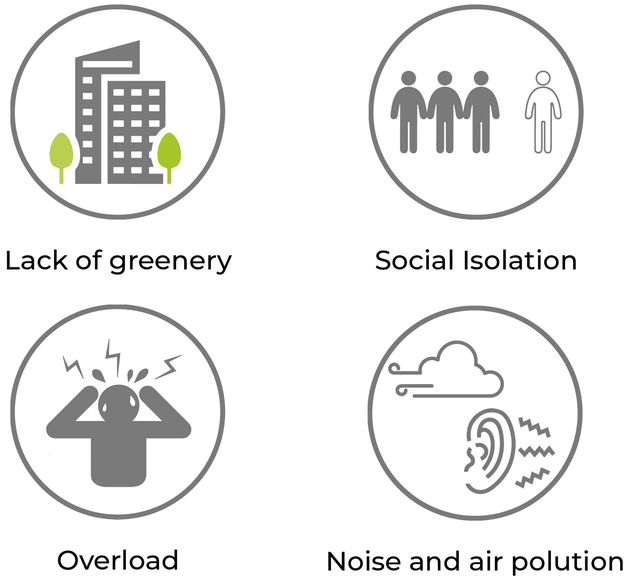


#3 Climate change and sustainability

Problem statement



Urbanisation



Urbanisation risks on mental health

Problem statement



National programme of liveability and safety



Bad state of dwellings and living environment



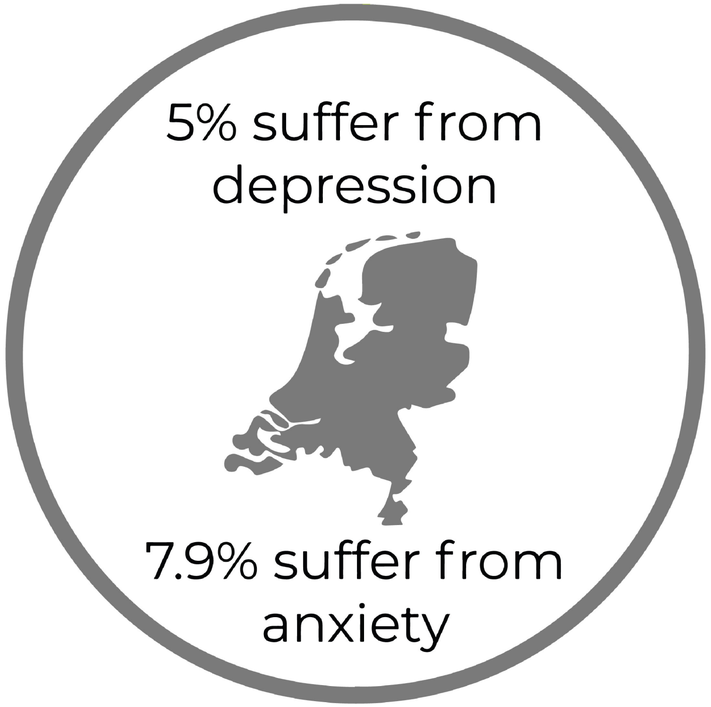
Lack of safety

Risk low income neighourhoods on mental health

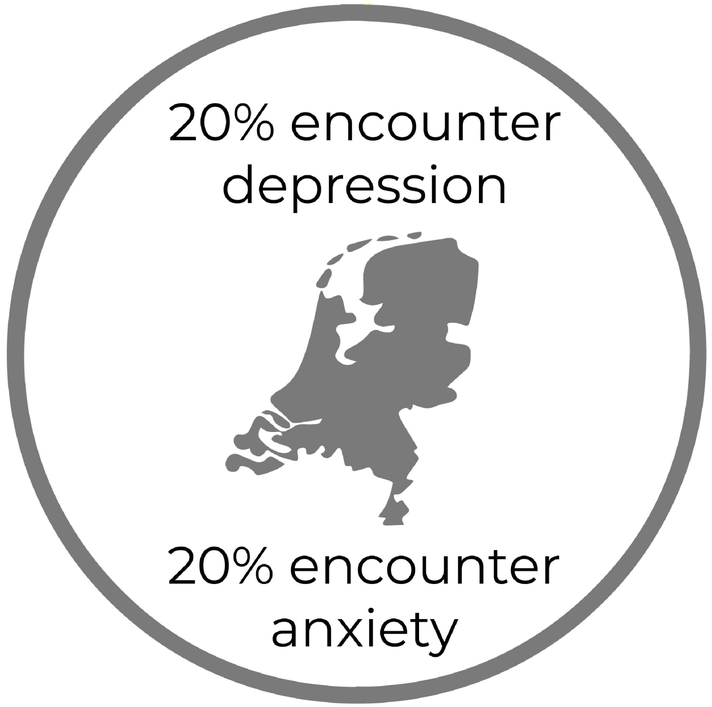
Problem statement



Depression/anxiety rates in the world

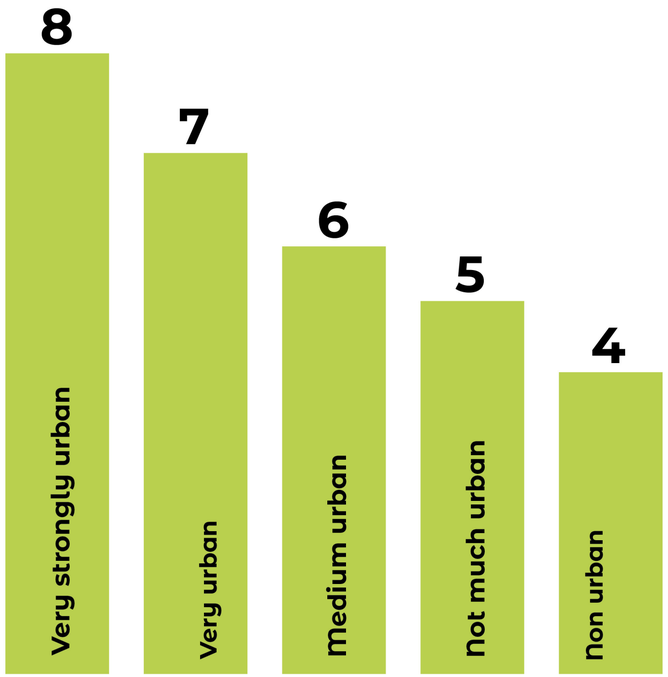


Depression/anxiety rates in the Netherlands



Depression/anxiety encounters in the Netherlands

Problem statement



Percentage with high risk on depression/anxiety in the Netherlands



Care farm in rural environment



Urban environment

Problem statement

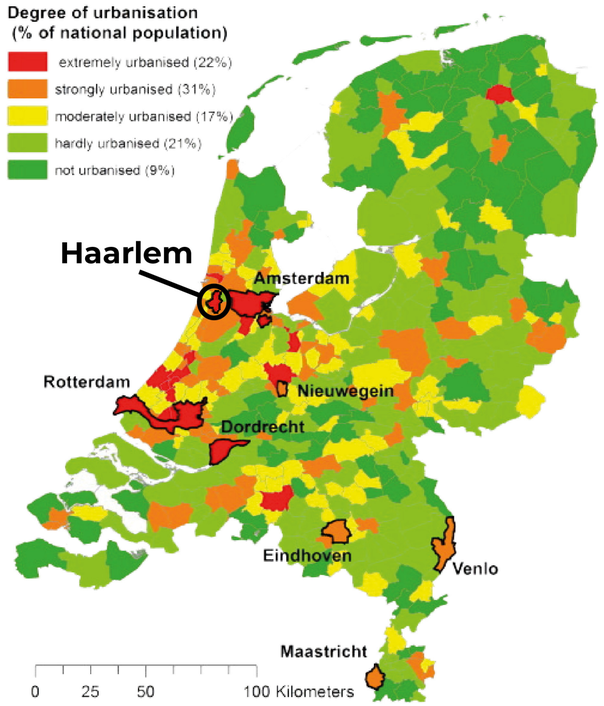


Green to adapt and mitigate
to climate change

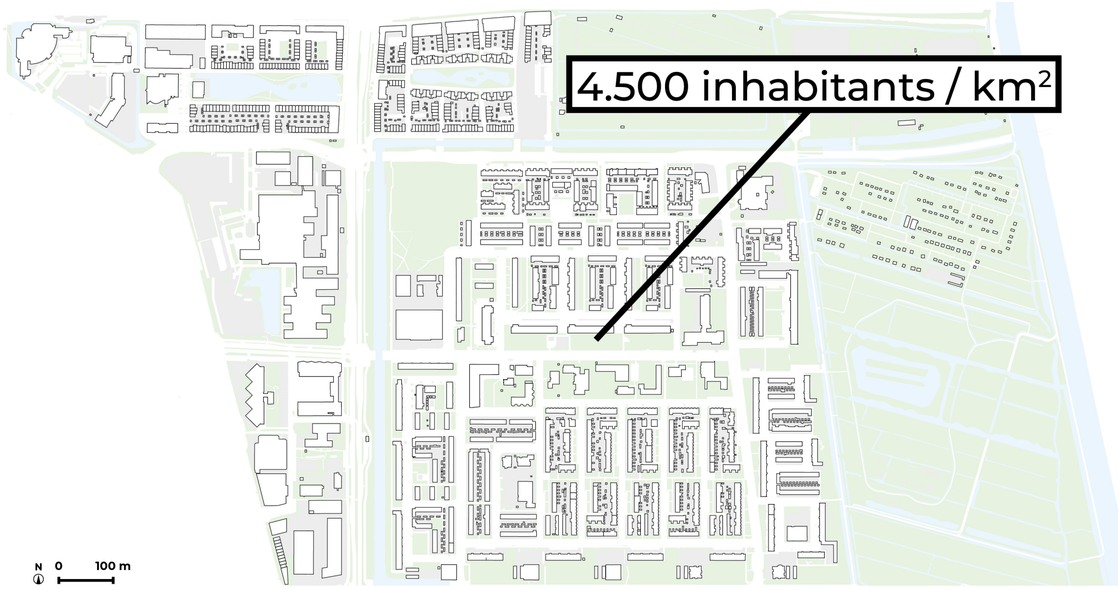


Sustainability by re-use and
renovation

Context



Degree of urbanisation in the Netherlands



Density in Boerhaavewijk



Imrpovement needs according to Gemeente Haarlem

Context



















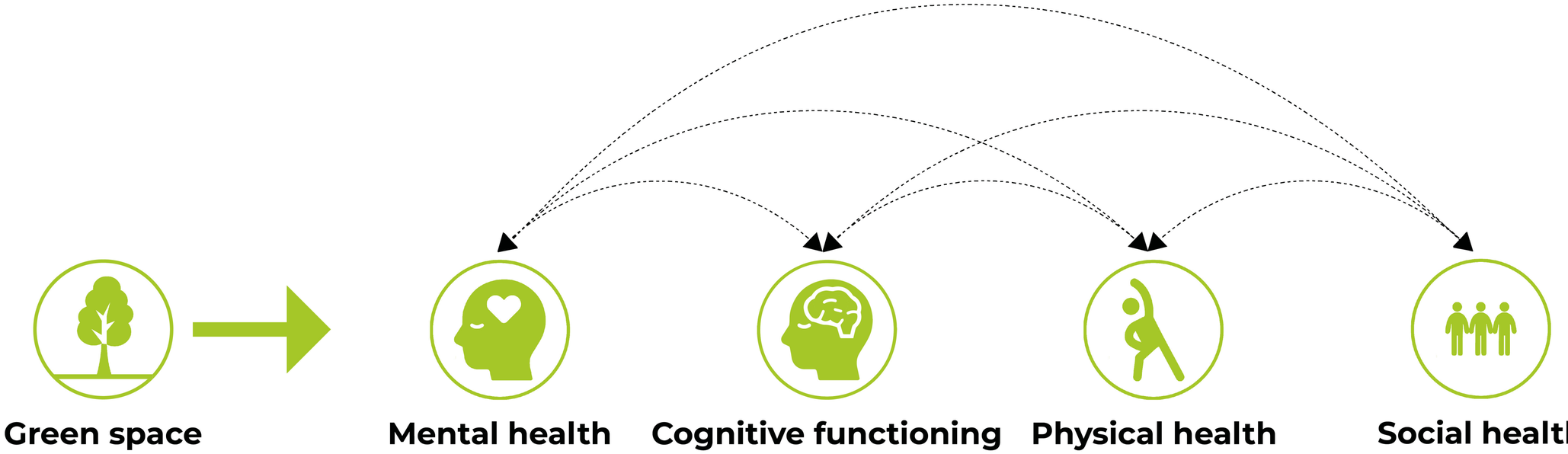




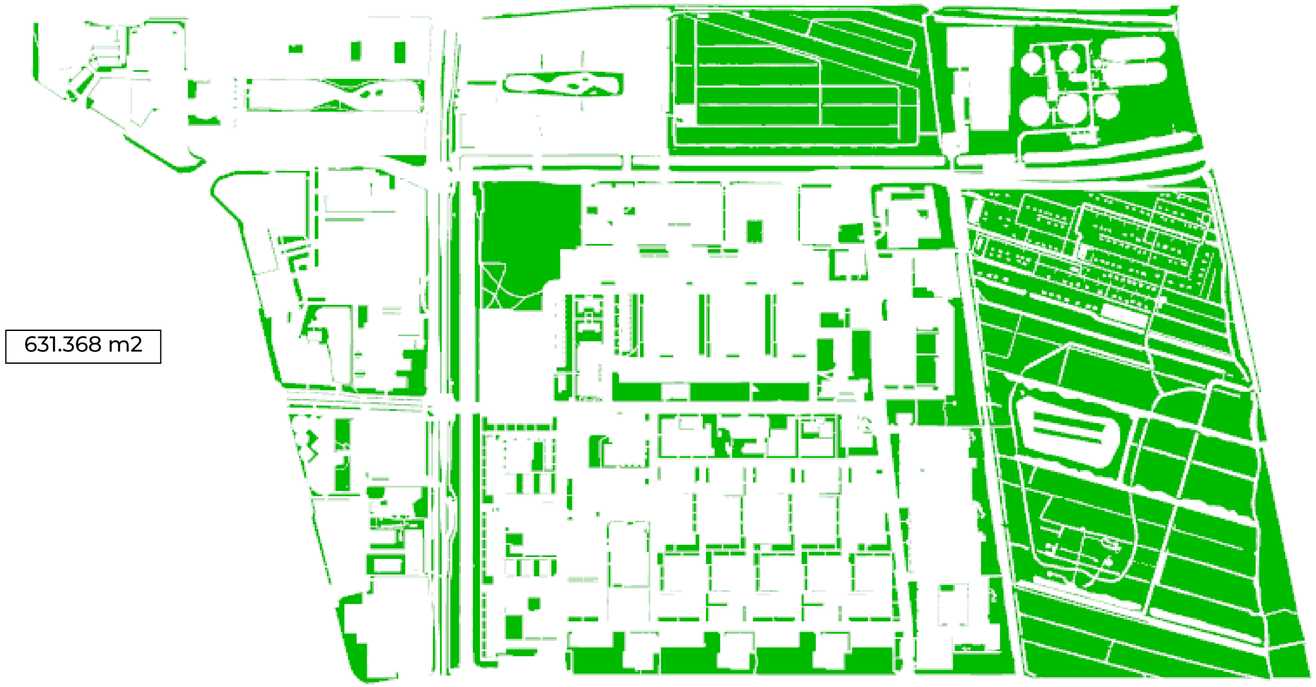
Research

Thematic research question

‘What strategies are needed for decreasing depression/ anxiety levels and -risks in the urban context of Boer-haavewijk, with focus on urban green infrastructures and facilitation of passive and active care?’



Direct and indirect impact of green space on mental health



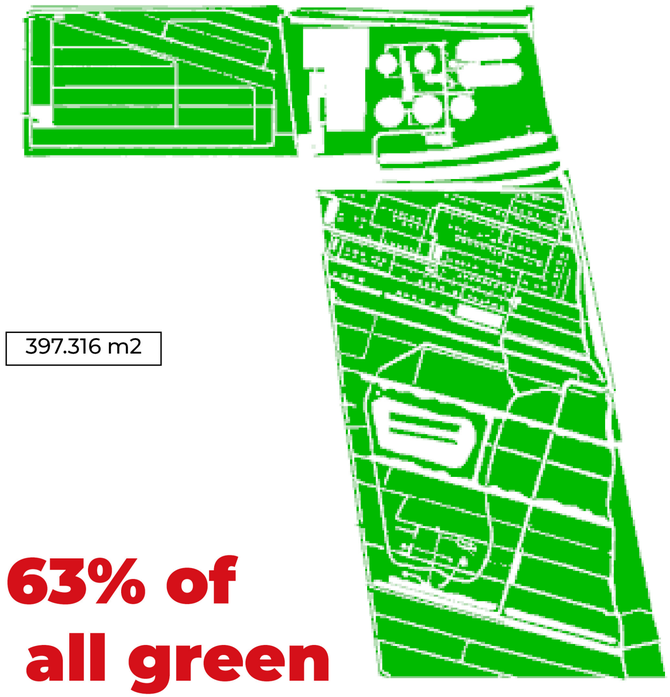
631.368 m2

Amount of greenery



37% of all green

Amount of green within the neighbourhood



63% of all green

Amount of green on the edge of the neighbourhood



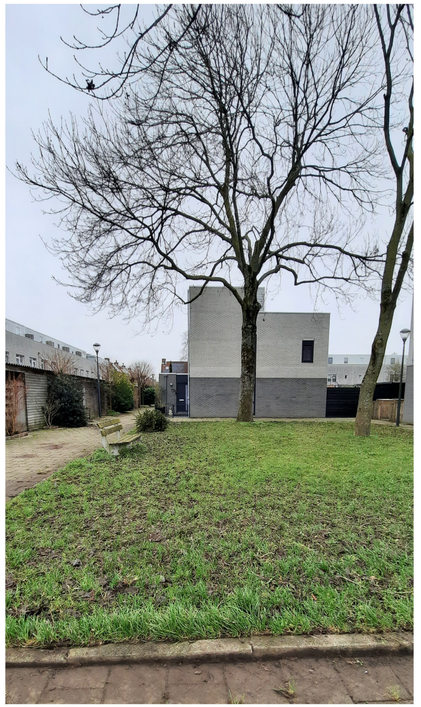
Lack of quality and biodiversity



Lack of quality and biodiversity



Lack of functions within



Lack of places to stay within



Lack of connections because of buildings/garage boxes



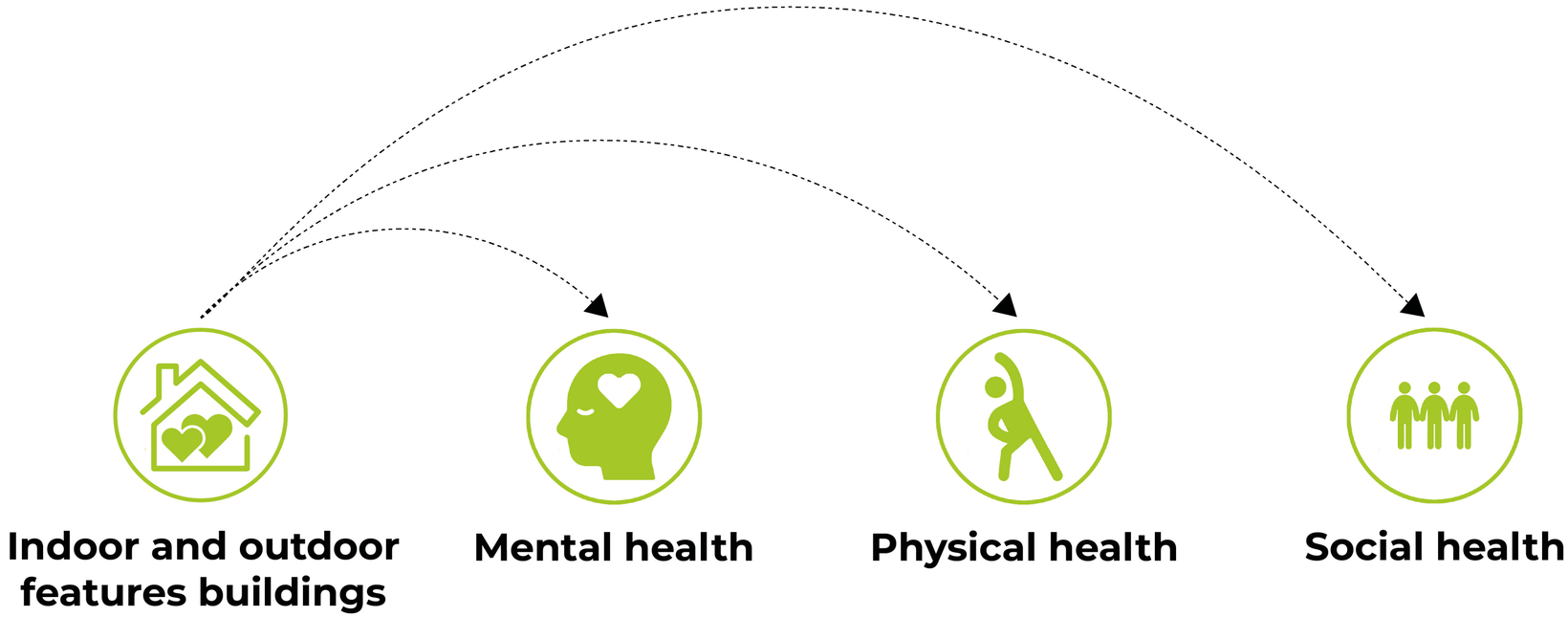
Lack of connections for bike/walking



Big roads



Parking



Indoor and outdoor features of buildings on mental health



Small dwelligns



High energy labels



Closed plinths



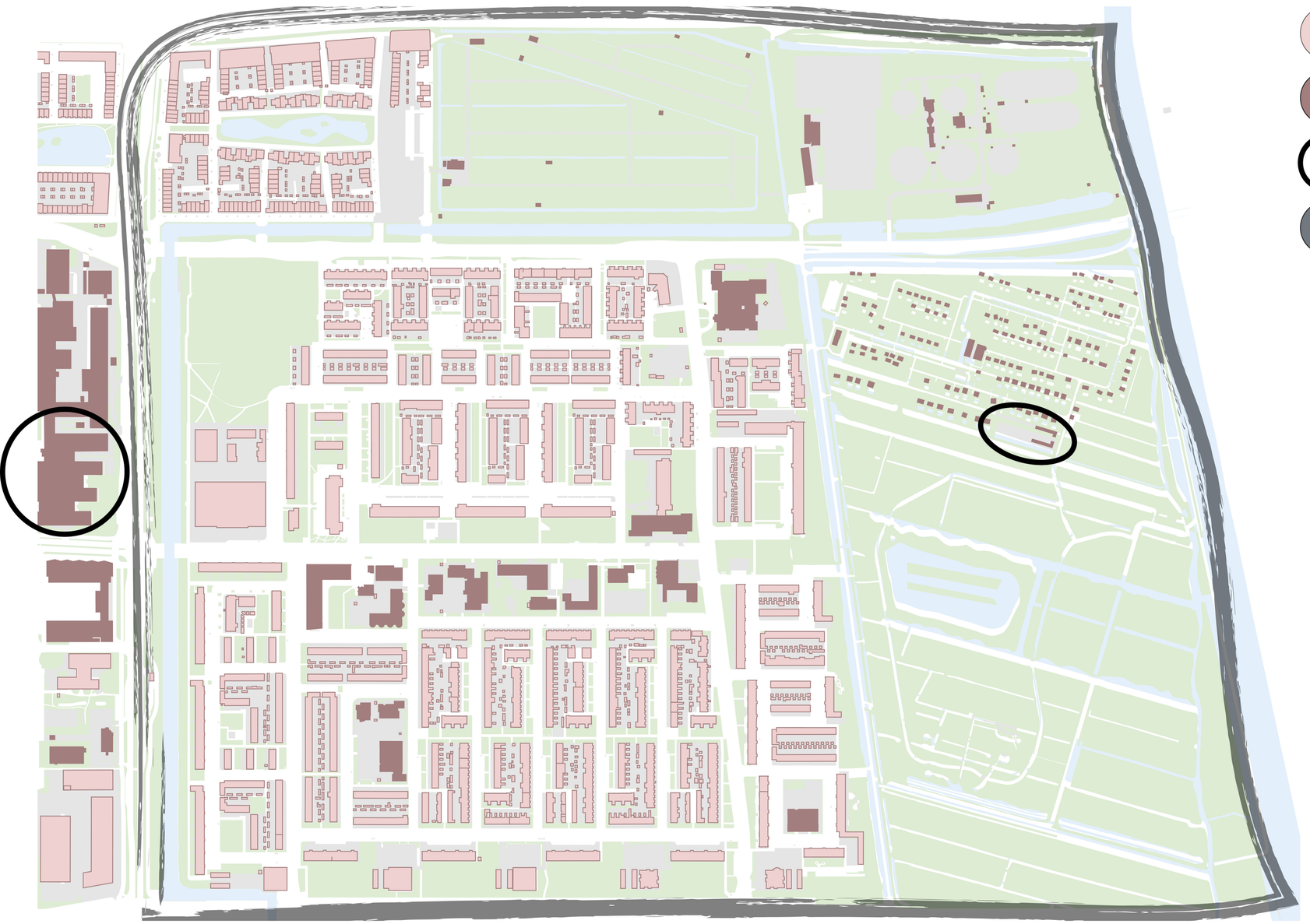
Closed plinths



Living
Other
Focus area

0 100 m

Buildings in Boerhaavewijk



- Living
- Other
- Therapy facilities
- Focus area

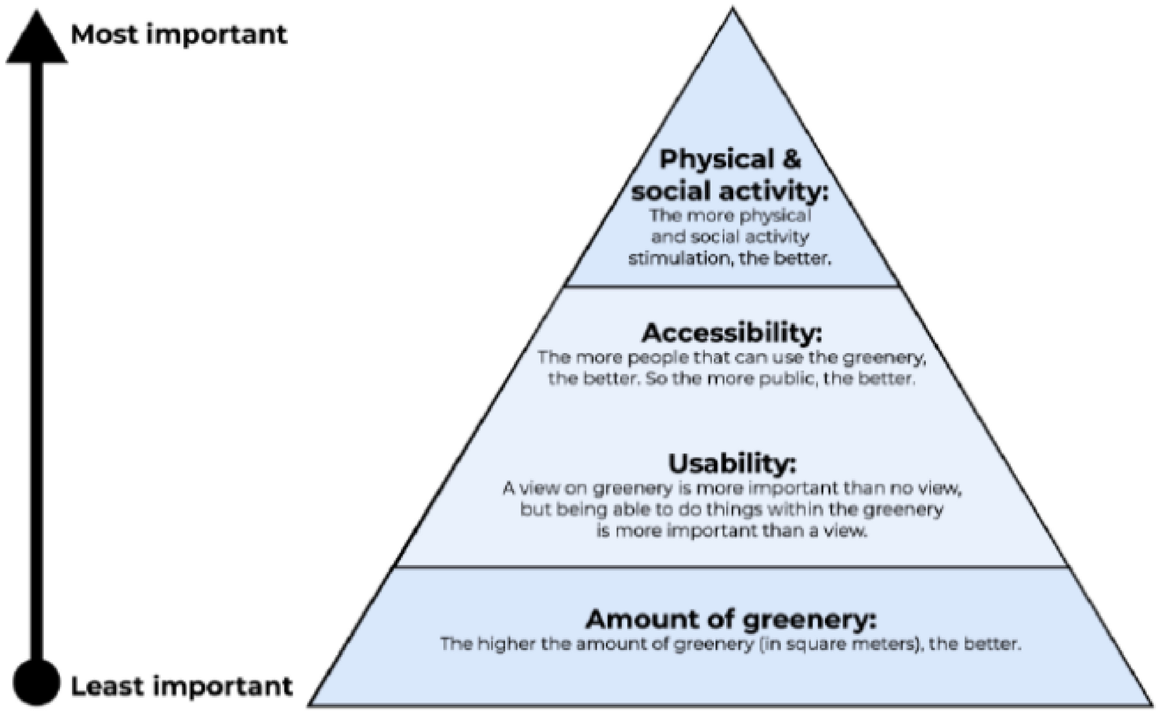
0 100 m

Buildings in Boerhaavewijk

Thematic research question

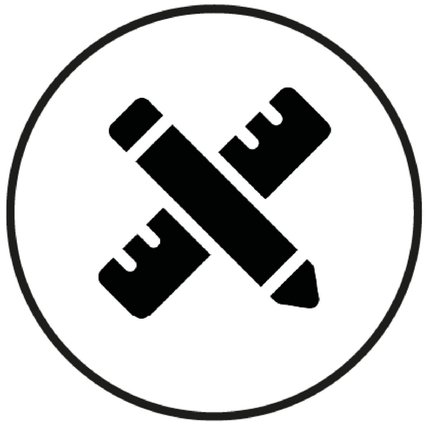
‘What strategies are needed for decreasing depression/ anxiety levels and -risks in the urban context of Boer-haavewijk, with focus on urban green infrastructures and facilitation of passive and active care?’

Area of interventions	Main types of interventions	Sub-types of interventions	Function possibilities			Type of care
			PAF	SAF	TF	
External	Green infrastructure	Park	☒	☒	☒	Passive & Active
		Neighbourhood garden	☒	☒	☒	
		Kitchen garden	☒	☒	☒	
		Green roof	☒	☒	☒	
		Street green	☒	☒	☐	Passive
		Green wall	☒	☒	☐	
	Functions	Physical active functions (PAF)	PAF			Passive
		Social active functions (SAF)		SAF		
		Therapy functions (TF)			TF	Active
			LF	SAF	TF	
Internal	Renovation and add-on	Improved space	☒	☒	☒	Passive & Active
		New space	☒	☒	☒	
	Functions	Living functions (LF)	LF			Passive & Active
		Social active functions (SAF)		SAF		Passive
		Therapy functions (TF)			TF	Active

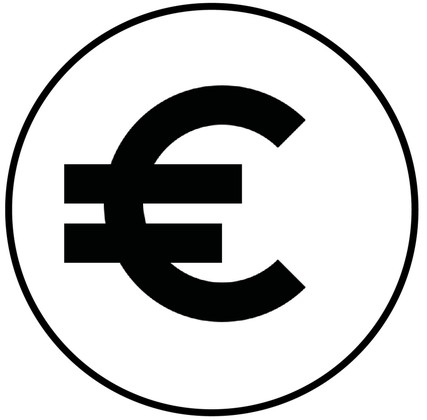




Reflection of users



Design



Budget



Long term urban plan

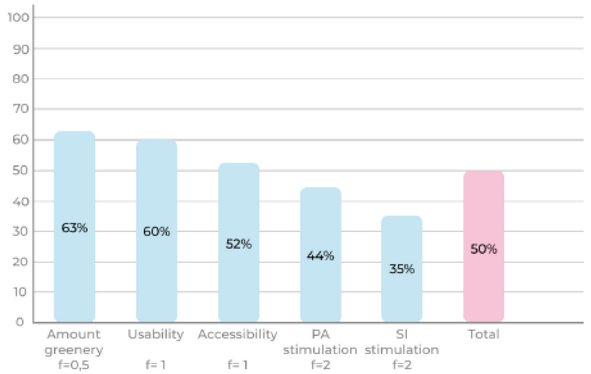
- Other
- Park
- Neighbourhood gardens
- Kitchen garden
- Green facade
- Inaccessible green roofs
- Street green
- Accessible green roofs
- Exercise and play
- Meeting and sitting
- Therapy

0 100 m

Vision long term urban plan



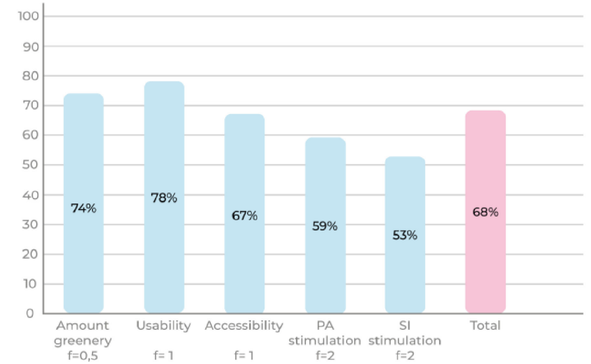
Existing neighbourhood garden



Effectiveness existing



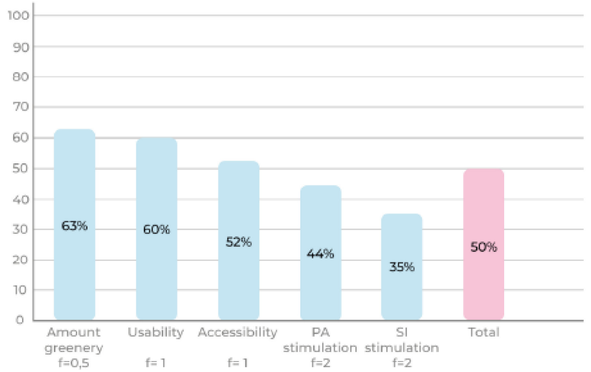
Vision neighbourhood garden



Effectiveness long term



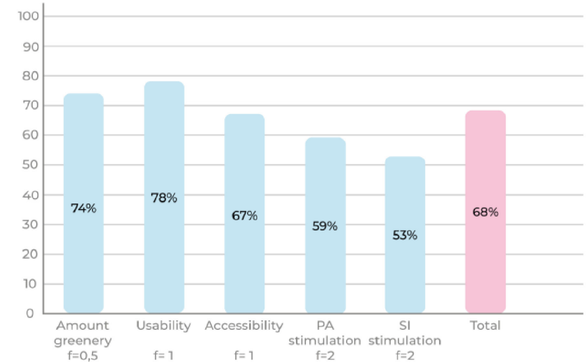
Existing centre neighbourhood



Effectiveness existing



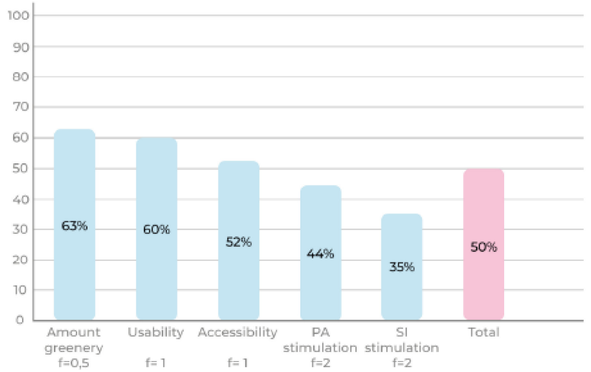
New centre neighbourhood



Effectiveness long term



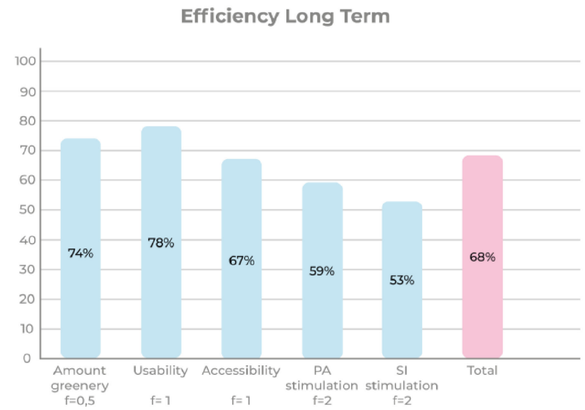
Existing street



Effectiveness existing



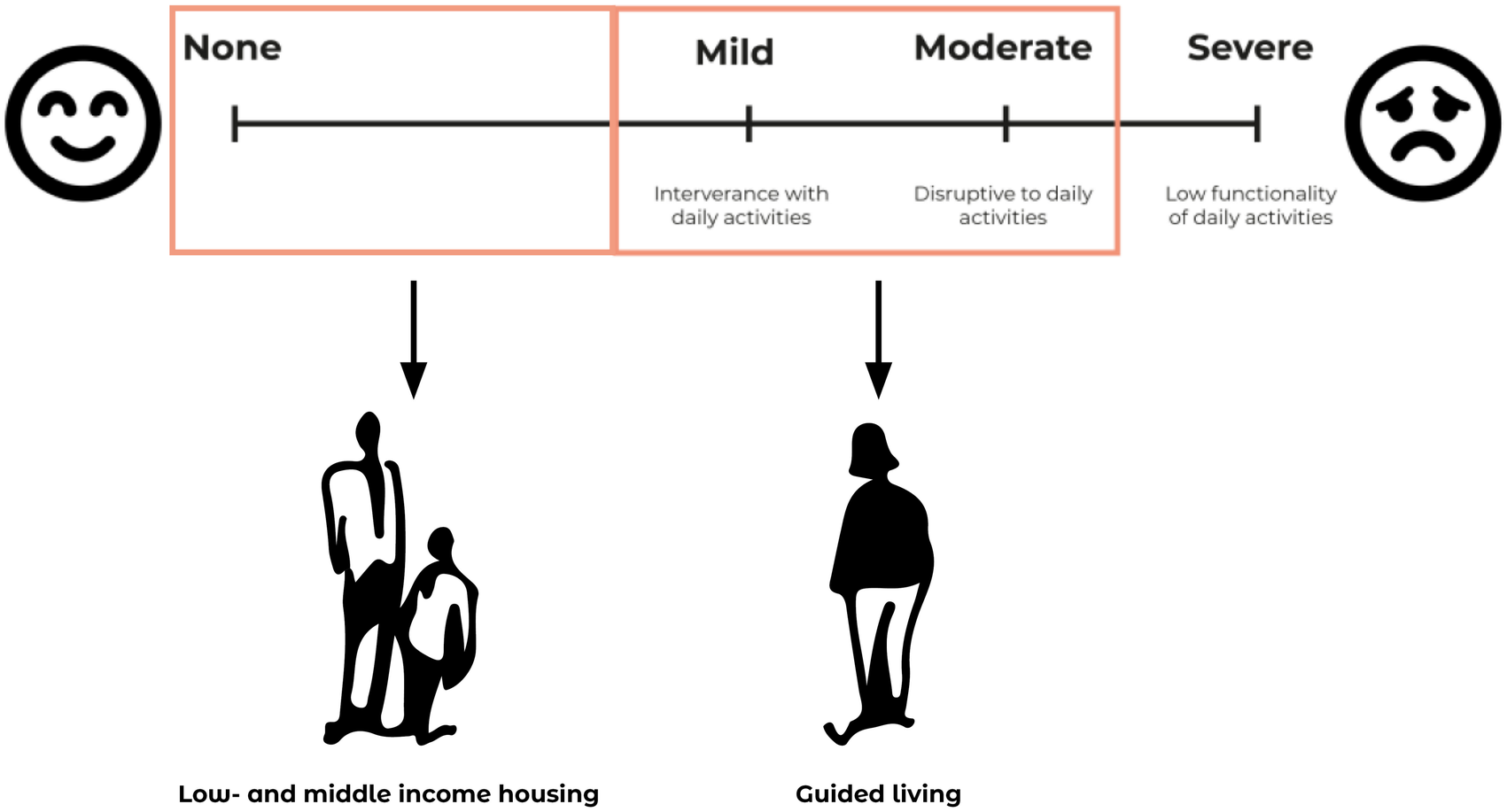
Vision street



Effectiveness long term

Design

‘How can post-war buildings and their immediate environment in Boerhaavewijk Haarlem be renovated in a way that they will be more sustainable and facilitate for better mental health, by the implementation of green infrastructures and the facilitation of preventative and active care to decrease depression/anxiety levels and -risks?’


None
Mild
Moderate
Severe
Interverance with daily activities
Disruptive to daily activities
Low functionality of daily activities
Low- and middle income housing
Guided living

Design



Location design



Location design


Possible locations
0
100 m



Chosen location

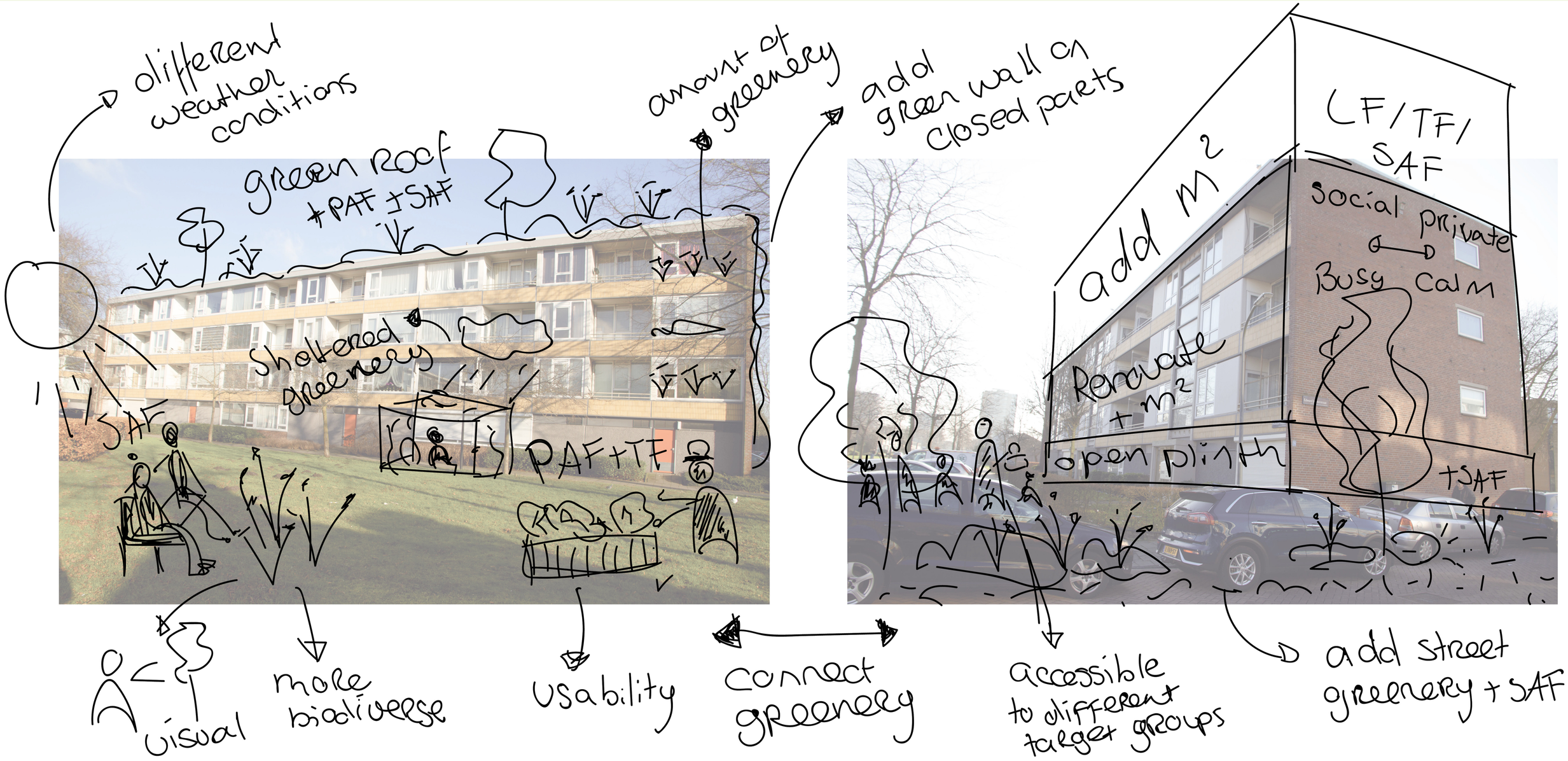
0 100 m



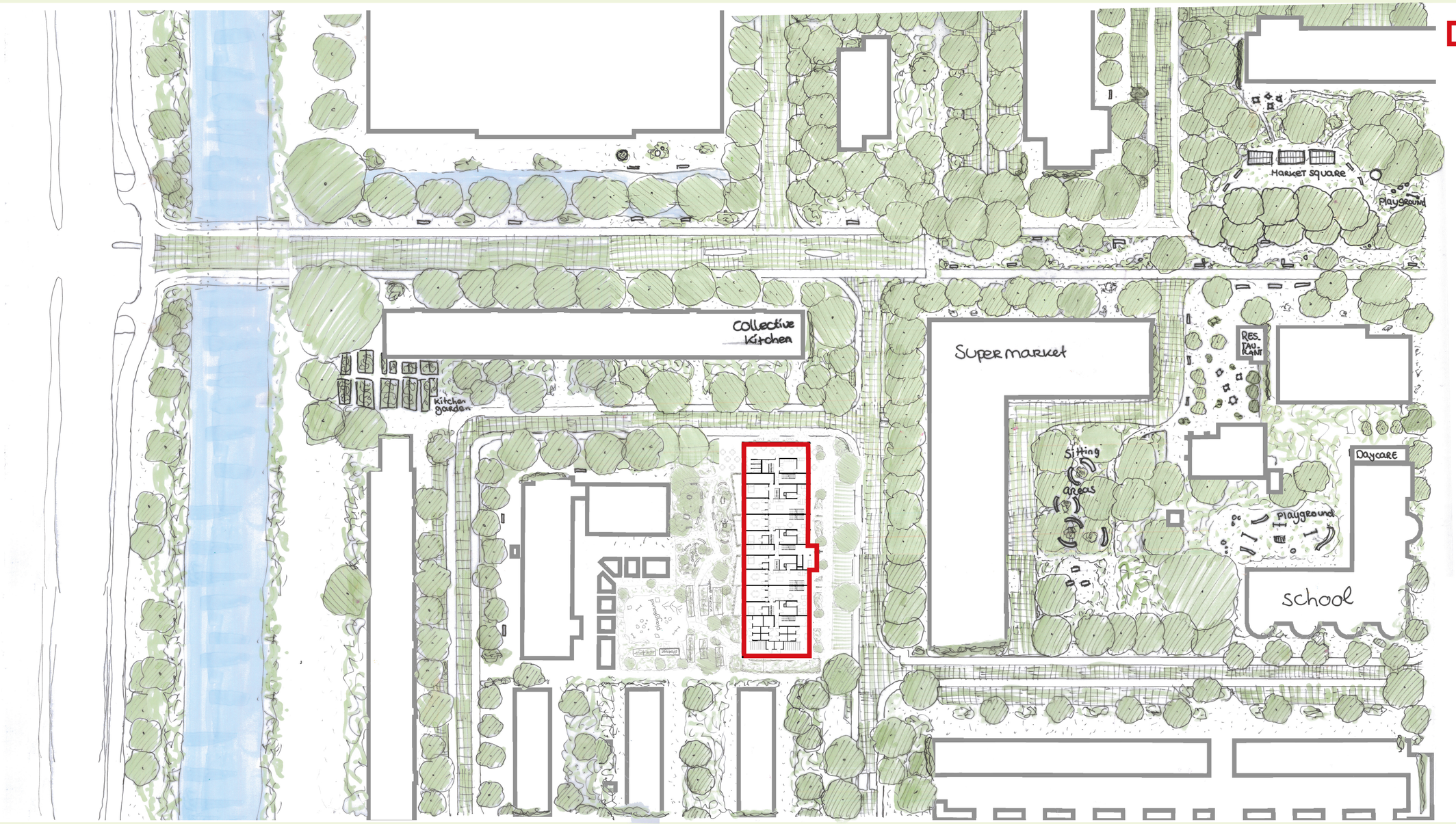


Existing building

Design


different weather conditions
green roof +PAF ±SAF
amount of greenery
add green wall on closed parts
Sheltered greenery
SAF
PAF+TF
add m²
LF/TF/SAF
Social private
Busy Calm
Renovate +m²
open plinth
+SAF
visual
more biodiverse
usability
connect greenery
accessible to different target groups
add street greenery + SAF

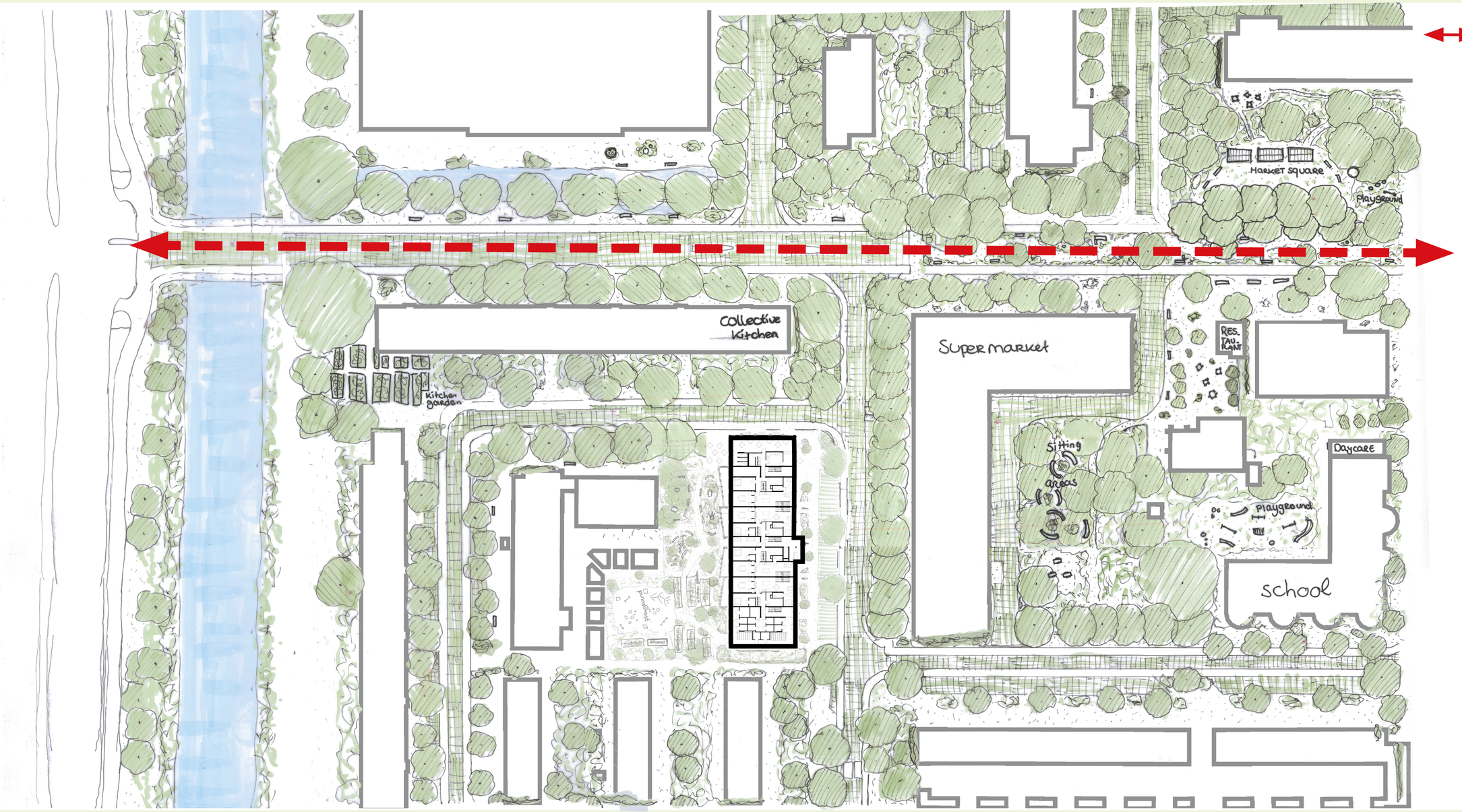
Design



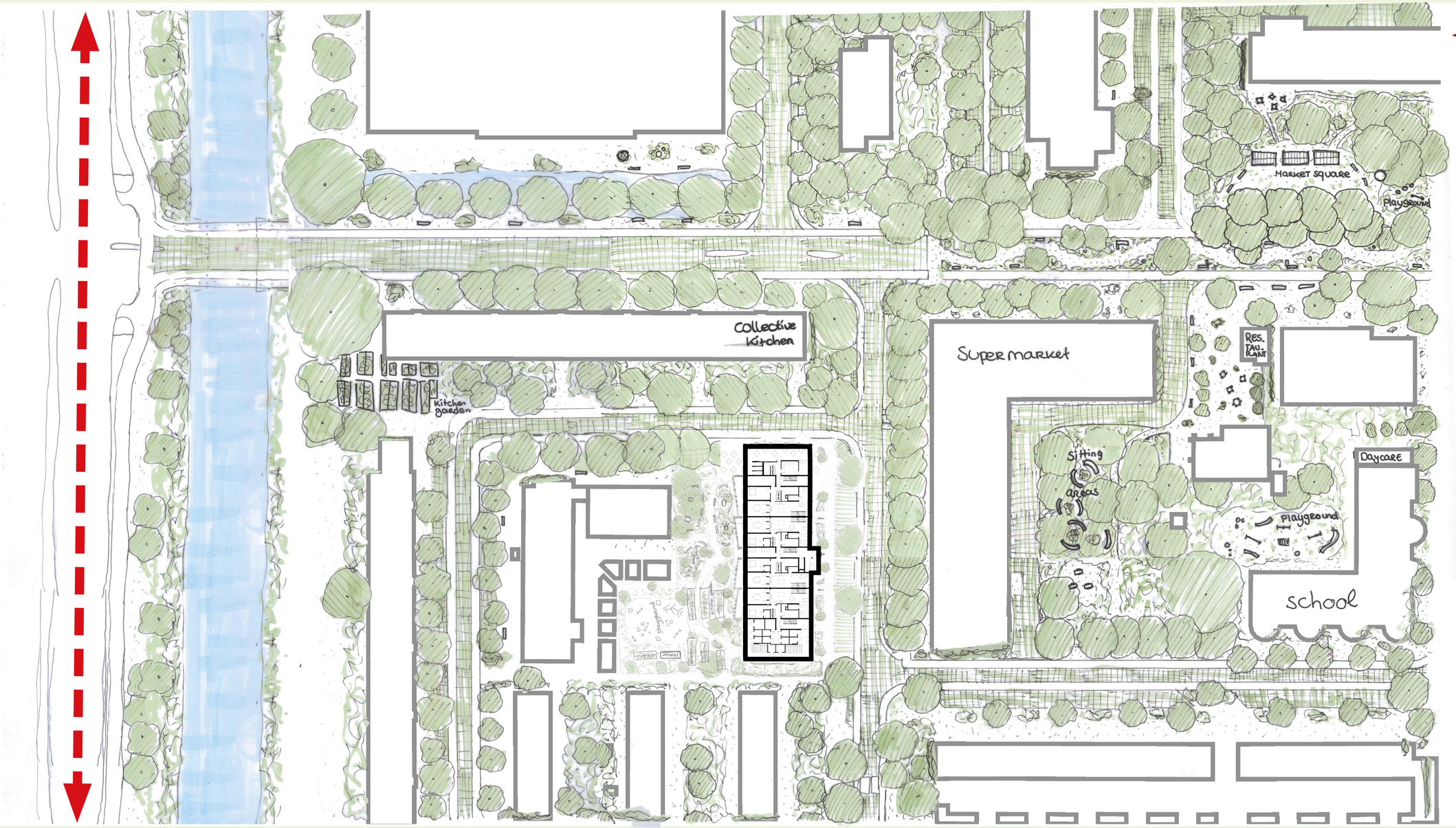
Building location

Masterplan direct environment

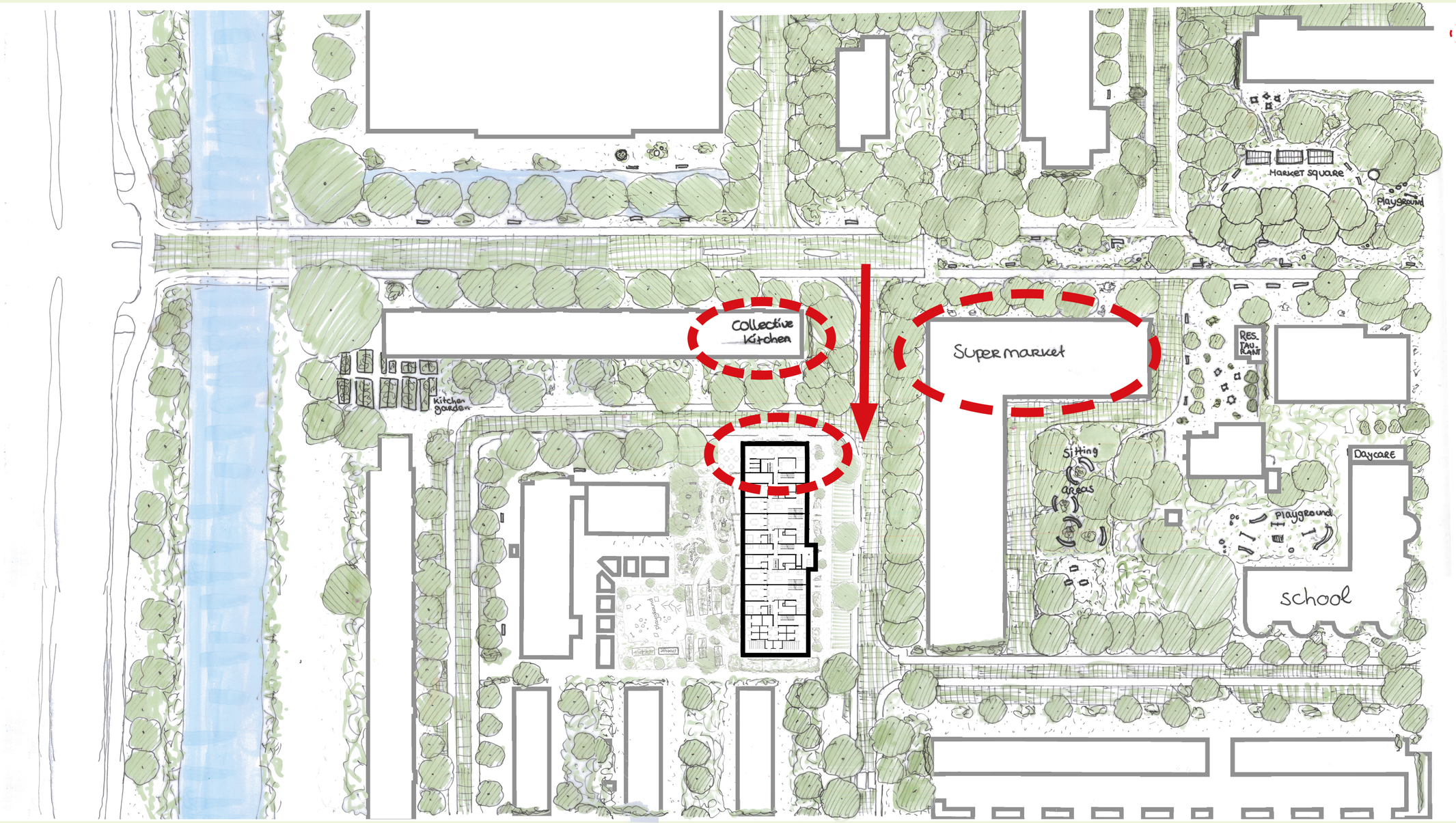
Design



Masterplan direct environment

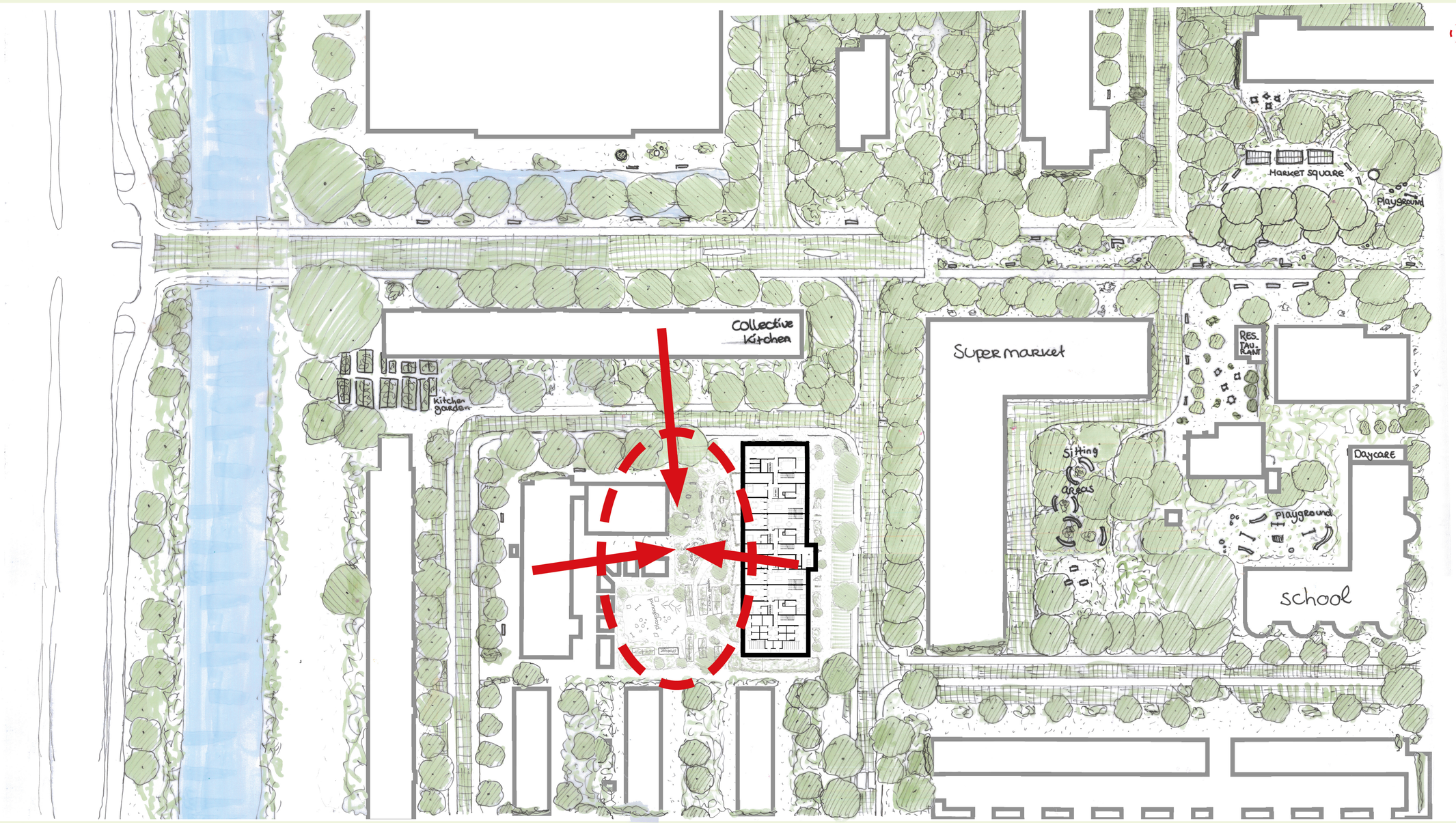


Masterplan direct environment



Masterplan direct environment

Design



Neighbourhood garden

0 10 20m

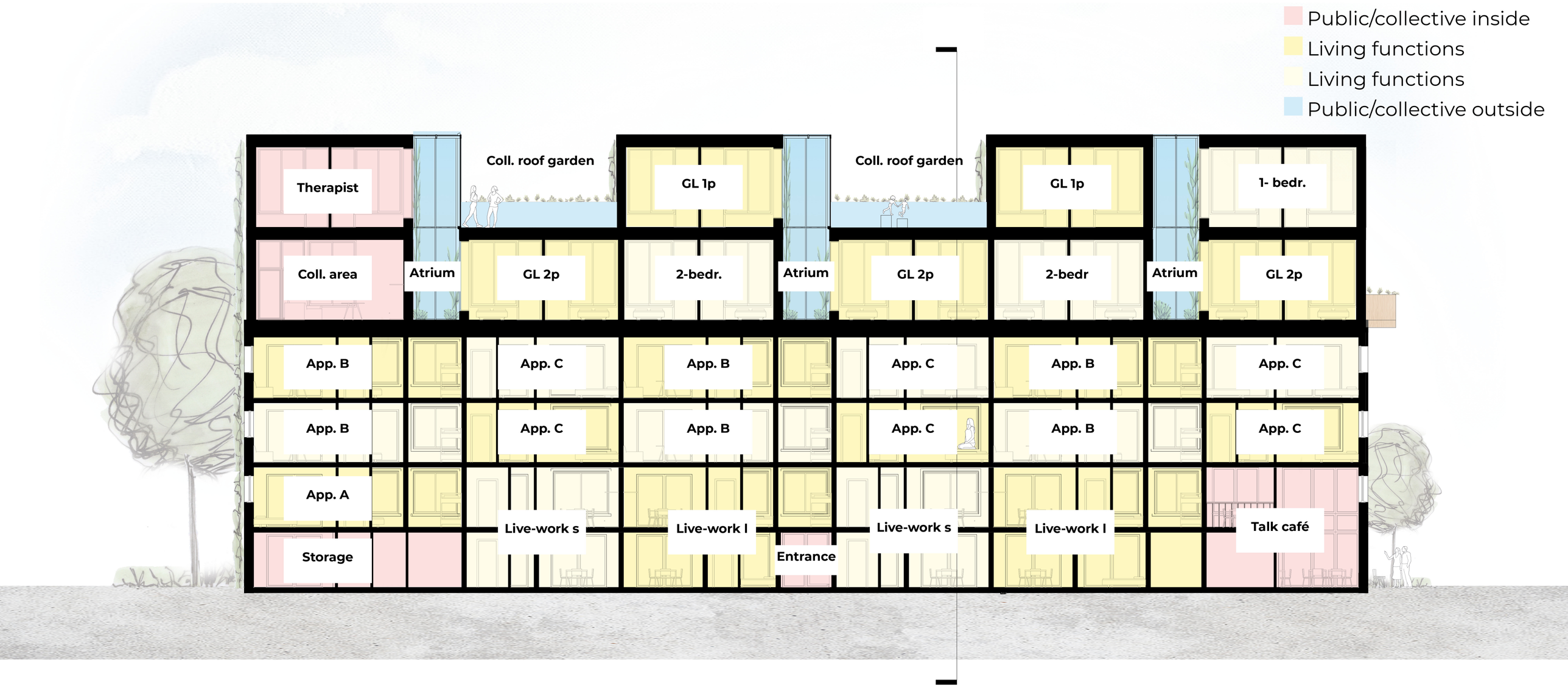
Masterplan direct environment



0 1 2 3 4 5m

North Facade

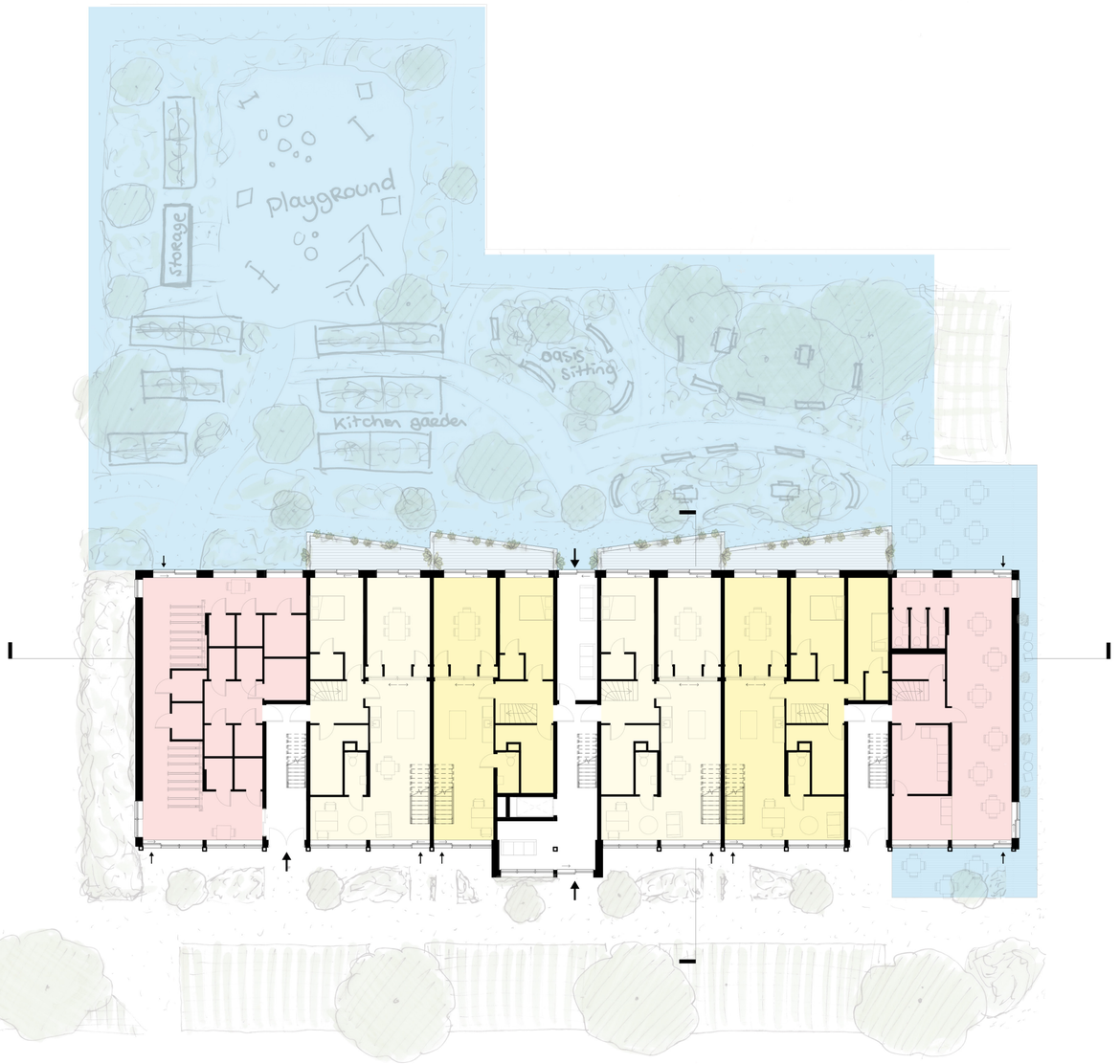
Design



0 1 2 3 4 5m

Longitudinal section

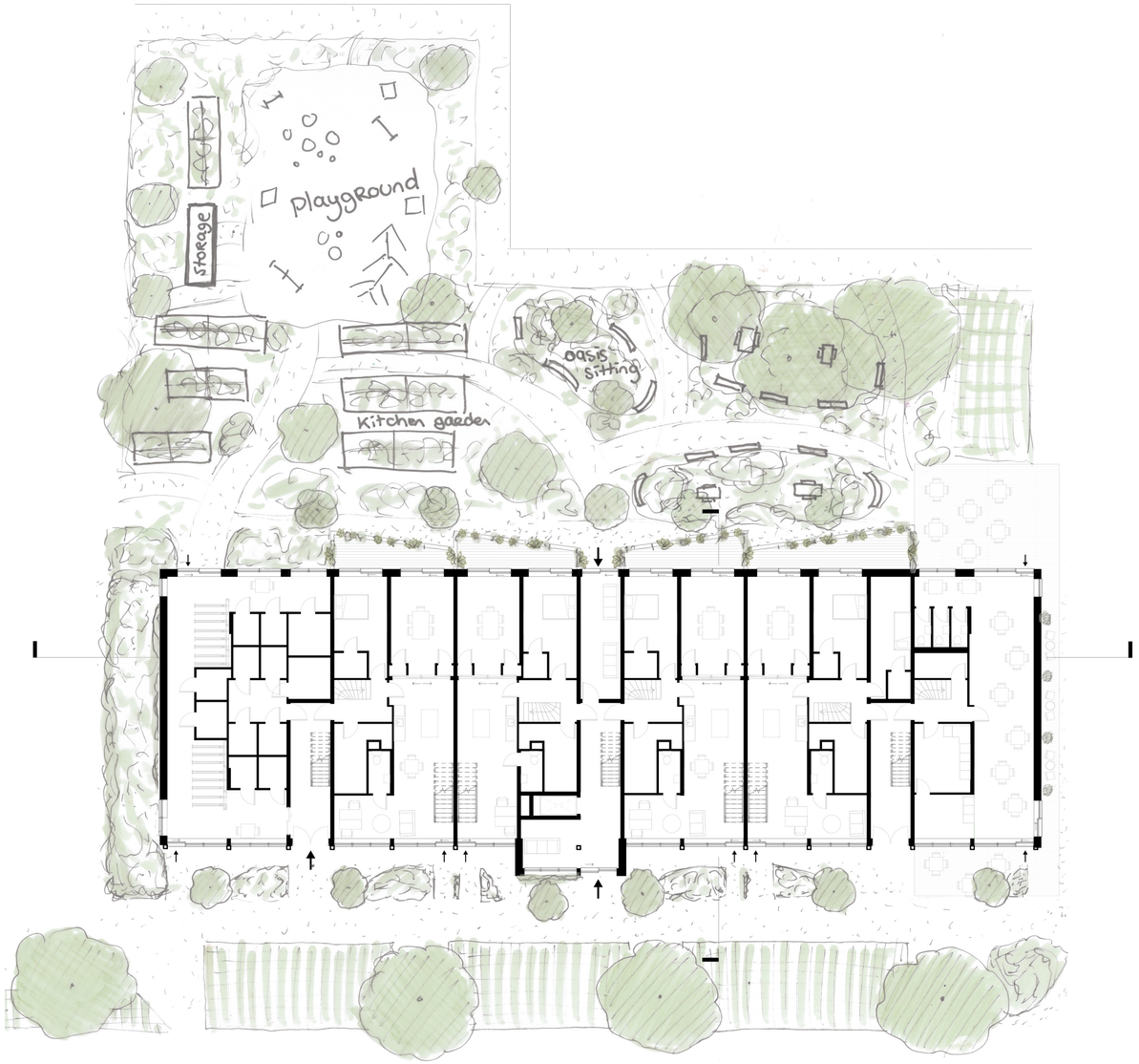
Design



- Public/collective inside
- Live-work apartment l
- Live-work apartment s
- Private outside
- Public/collective outside

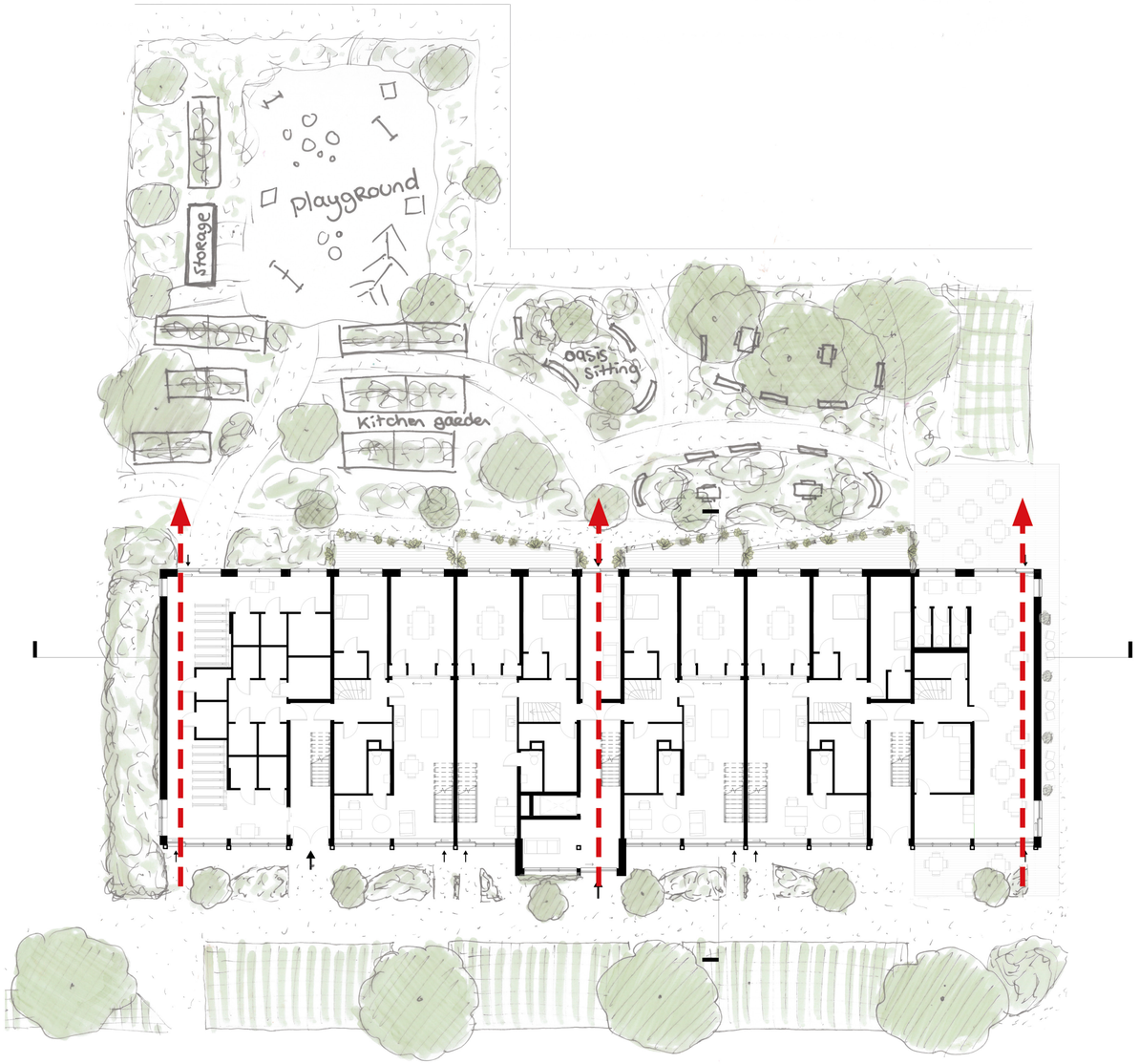
0 2 4 6 8 10m

Ground floor



0 2 4 6 8 10m

Ground floor

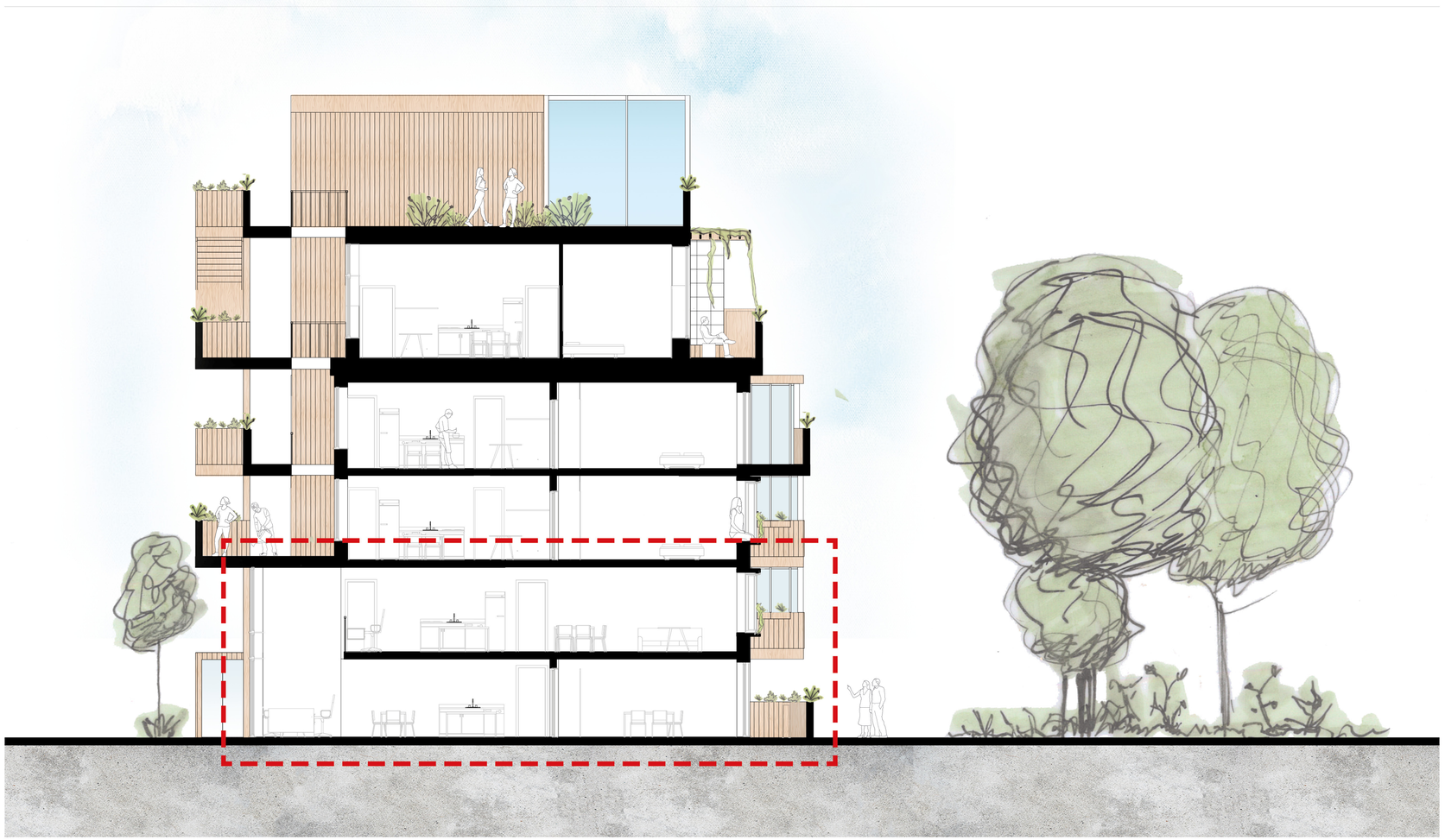


0 2 4 6 8 10m

Ground floor

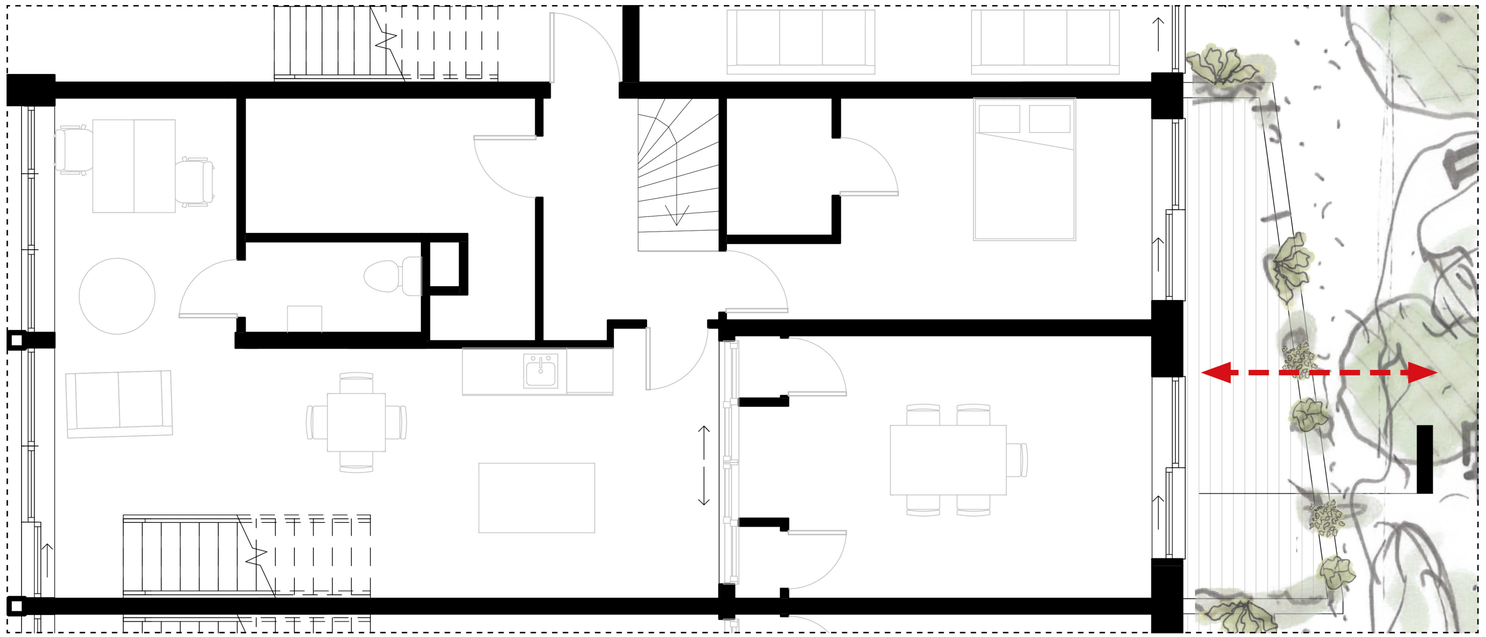


Neighbourhood garden



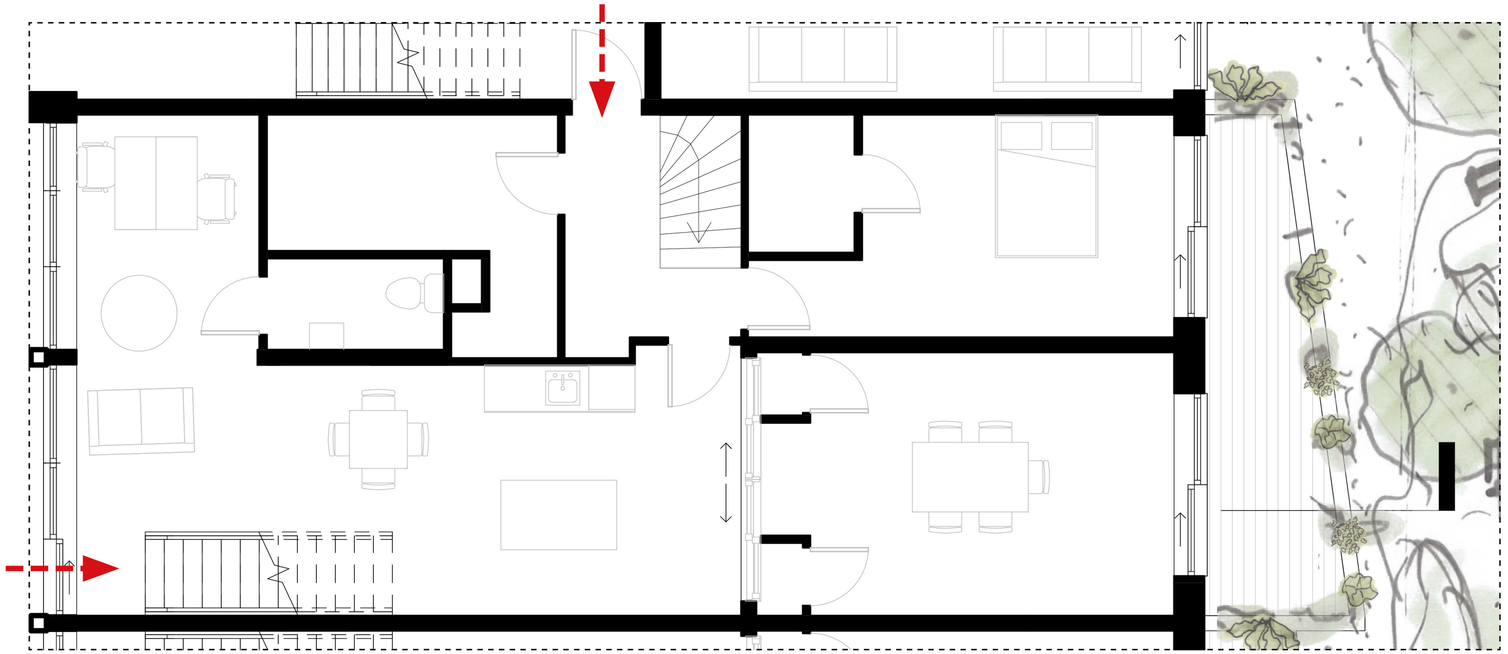
0 1 2 3 4 5m

Live-work apartment



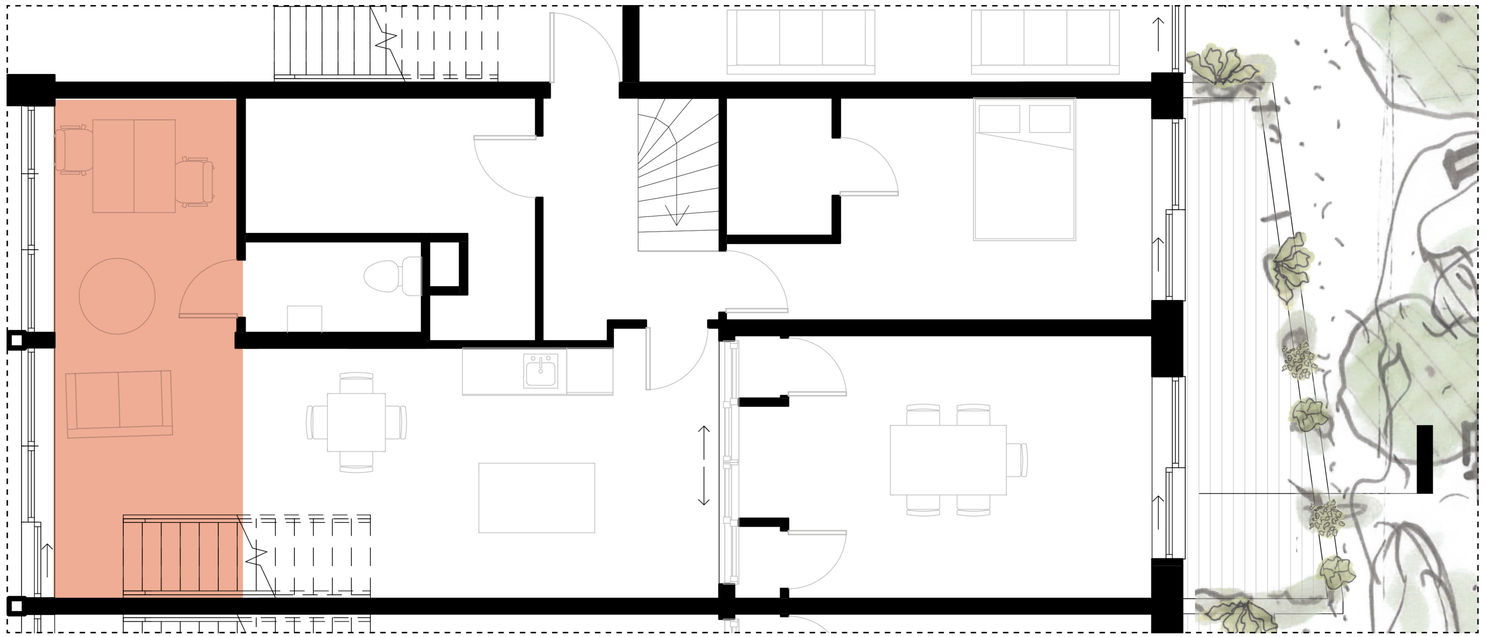
Floorplan ground floor



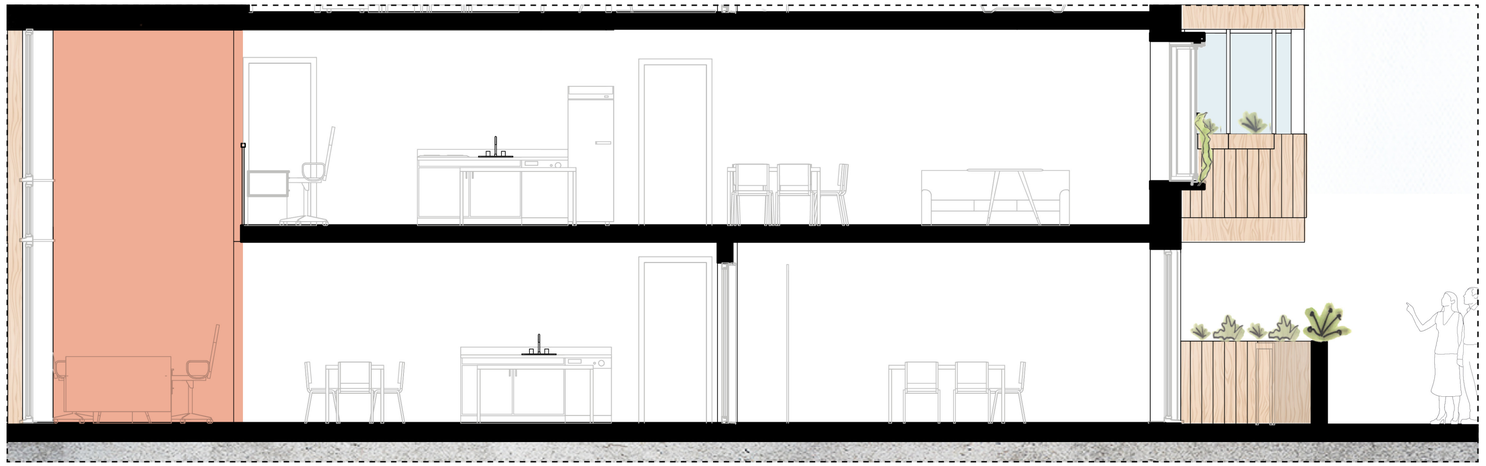


Floorplan ground floor





Floorplan ground floor



Section live-work apartment

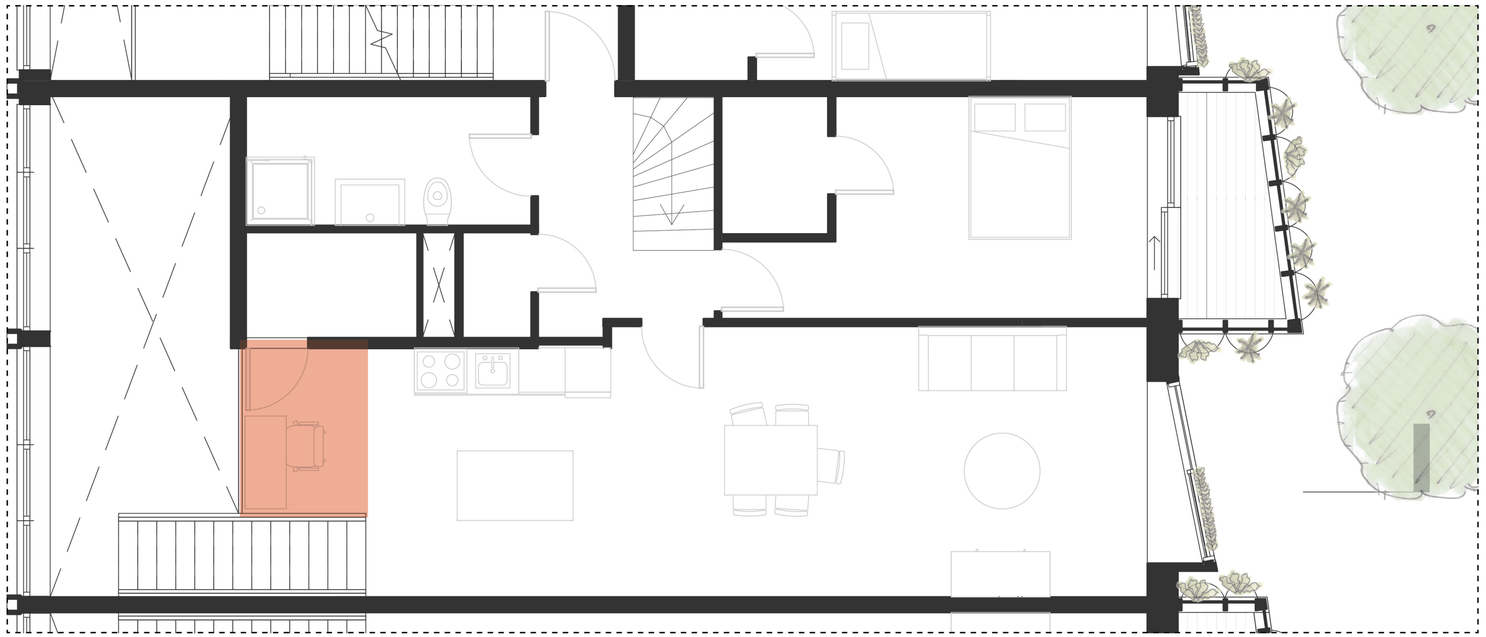
Design

Public/collective inside
Live-work apartment l
Live-work apartment s
Private outside



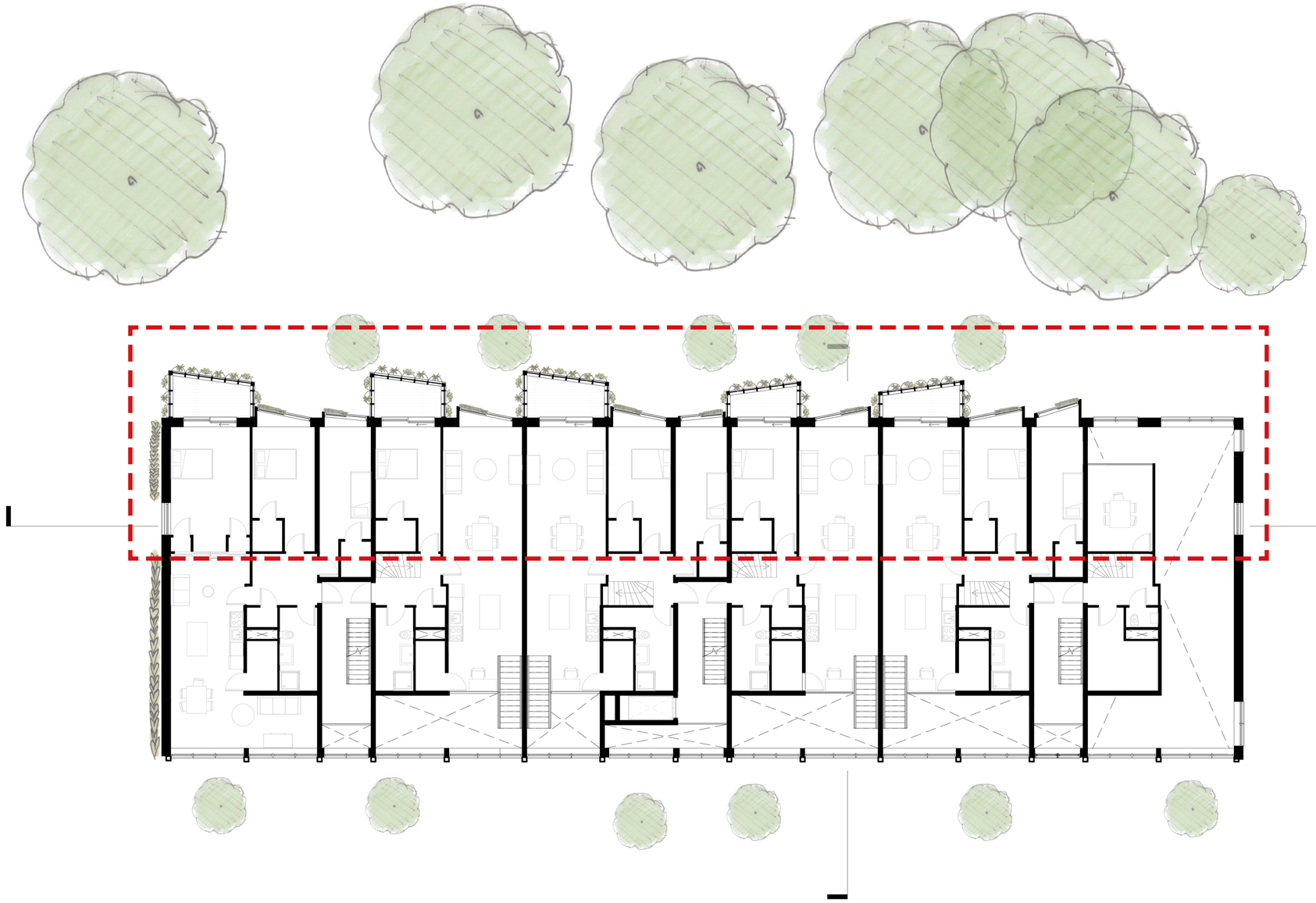
0 1 2 3 4 5m

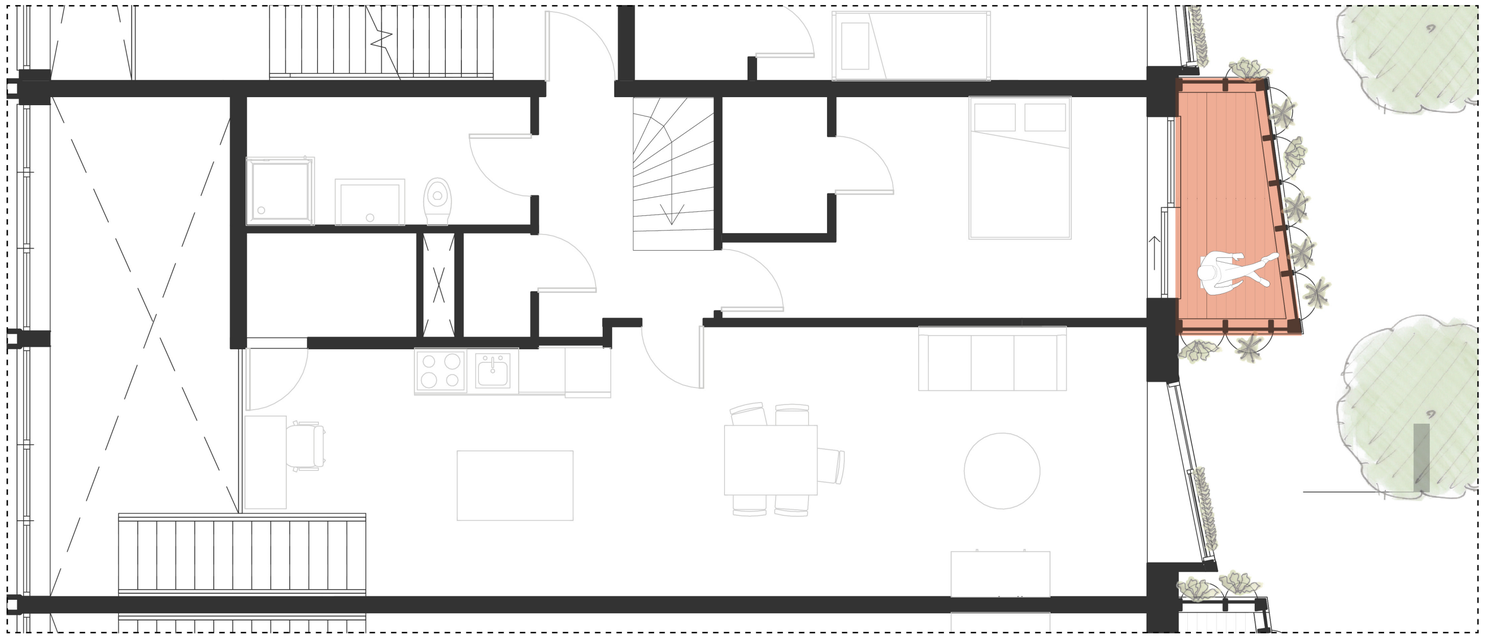
First floor



Floorplan first floor

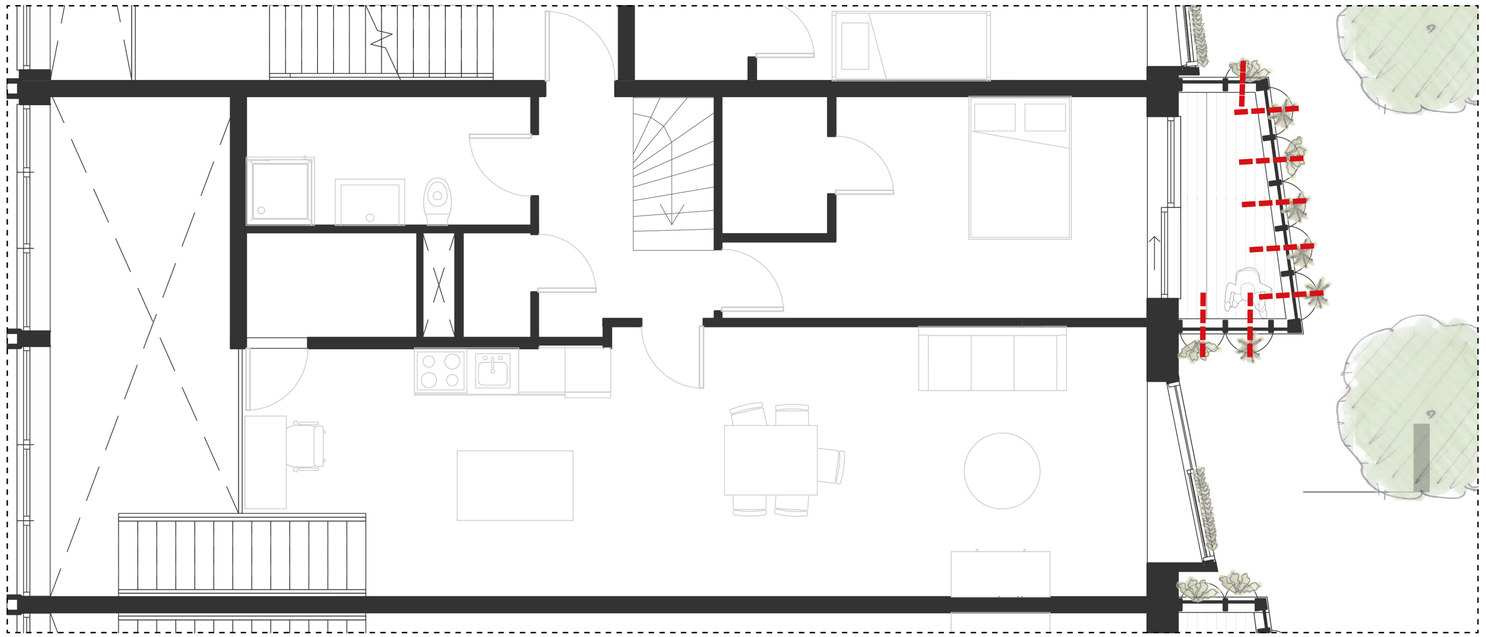






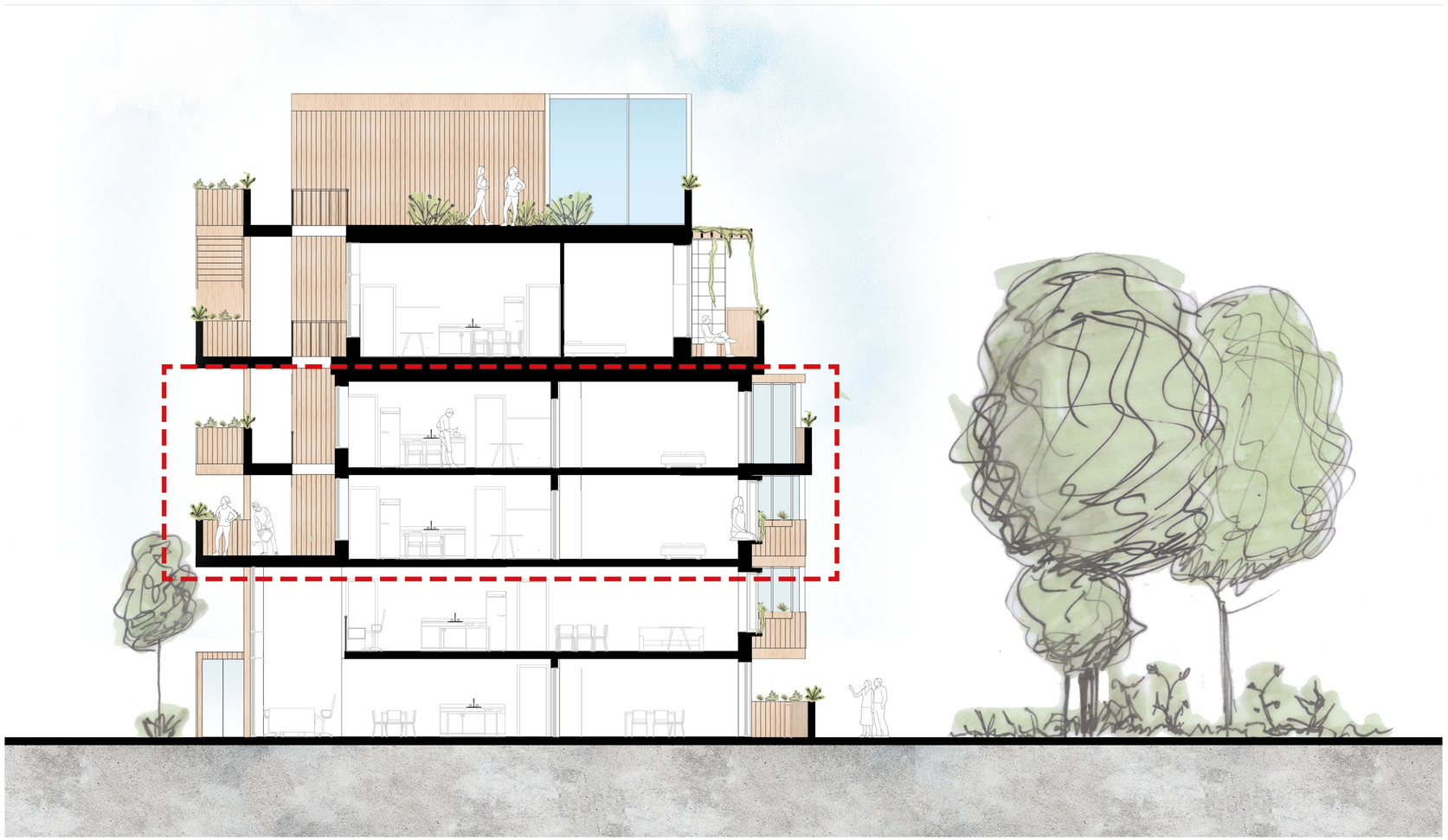
Floorplan first floor





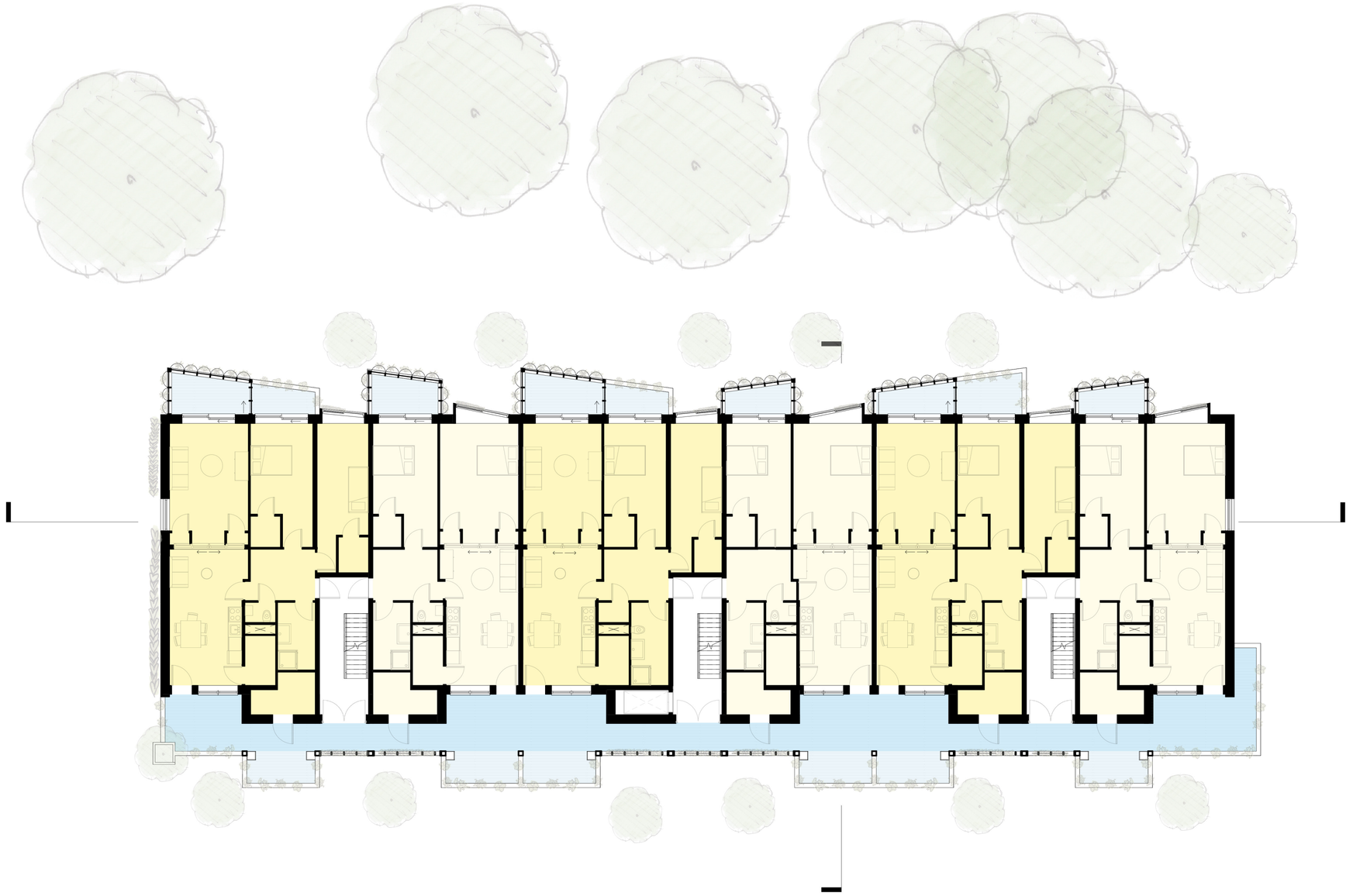
Floorplan first floor





0 1 2 3 4 5m

Design



Second floor

Collective gallery

Private balconies

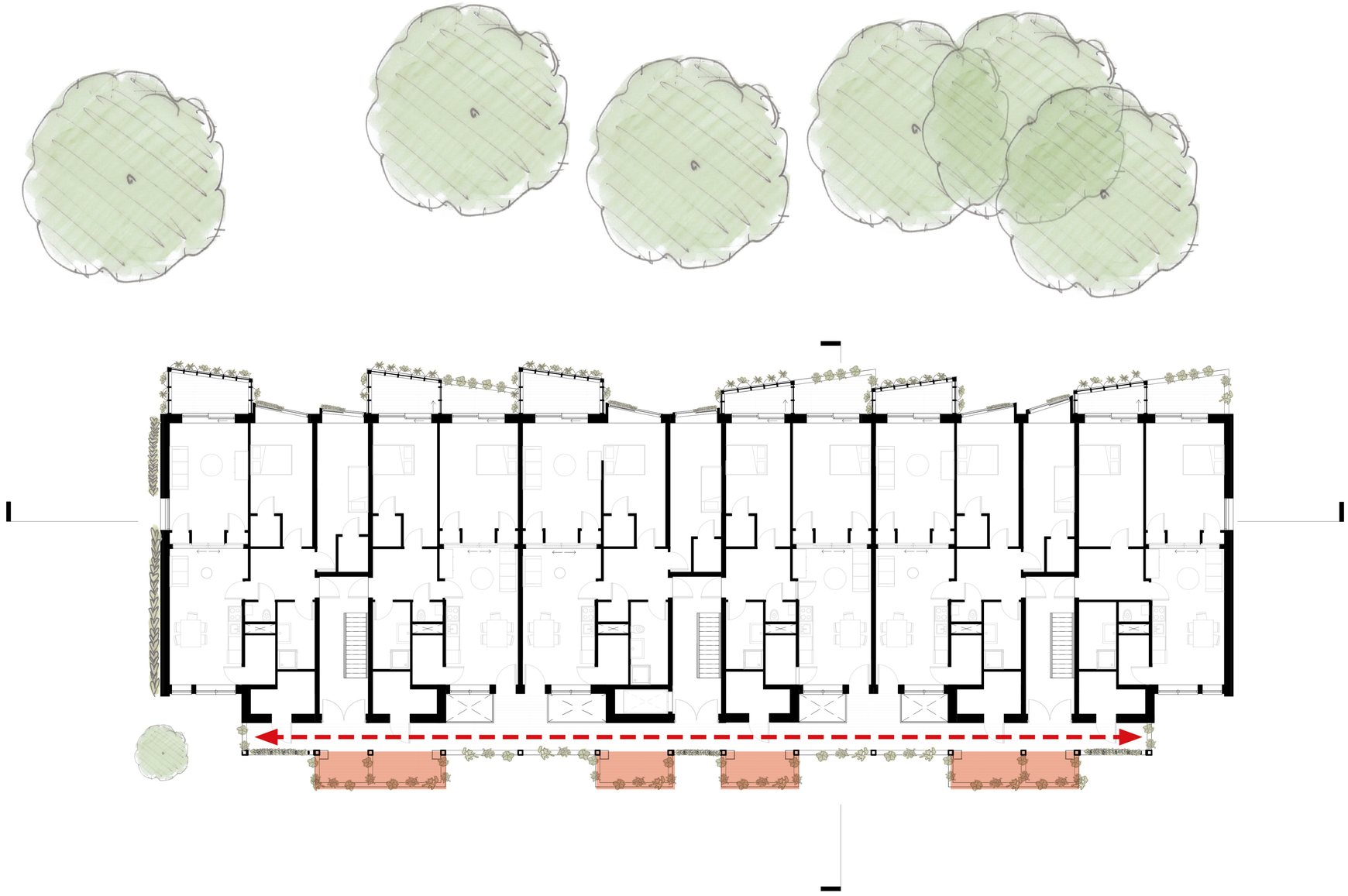


0 1 2 3 4 5m

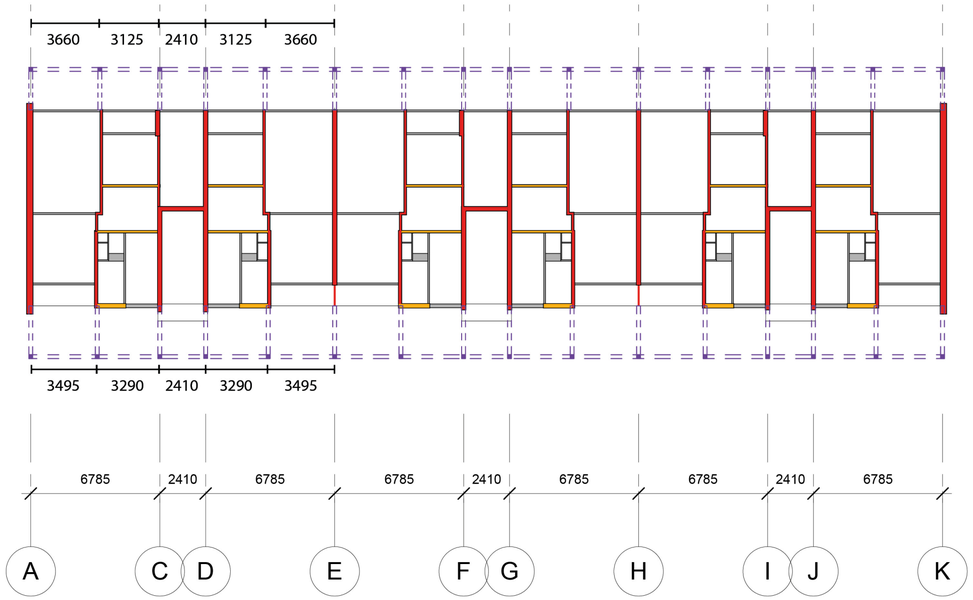
Second floor

Collective gallery

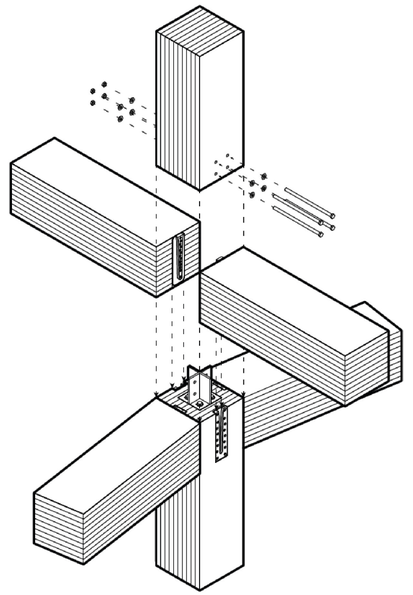
Private balconies



- Existing constructive concrete walls
- Existing stabilizing concrete walls
- New modular wooden collumn beam structure



First - third floor



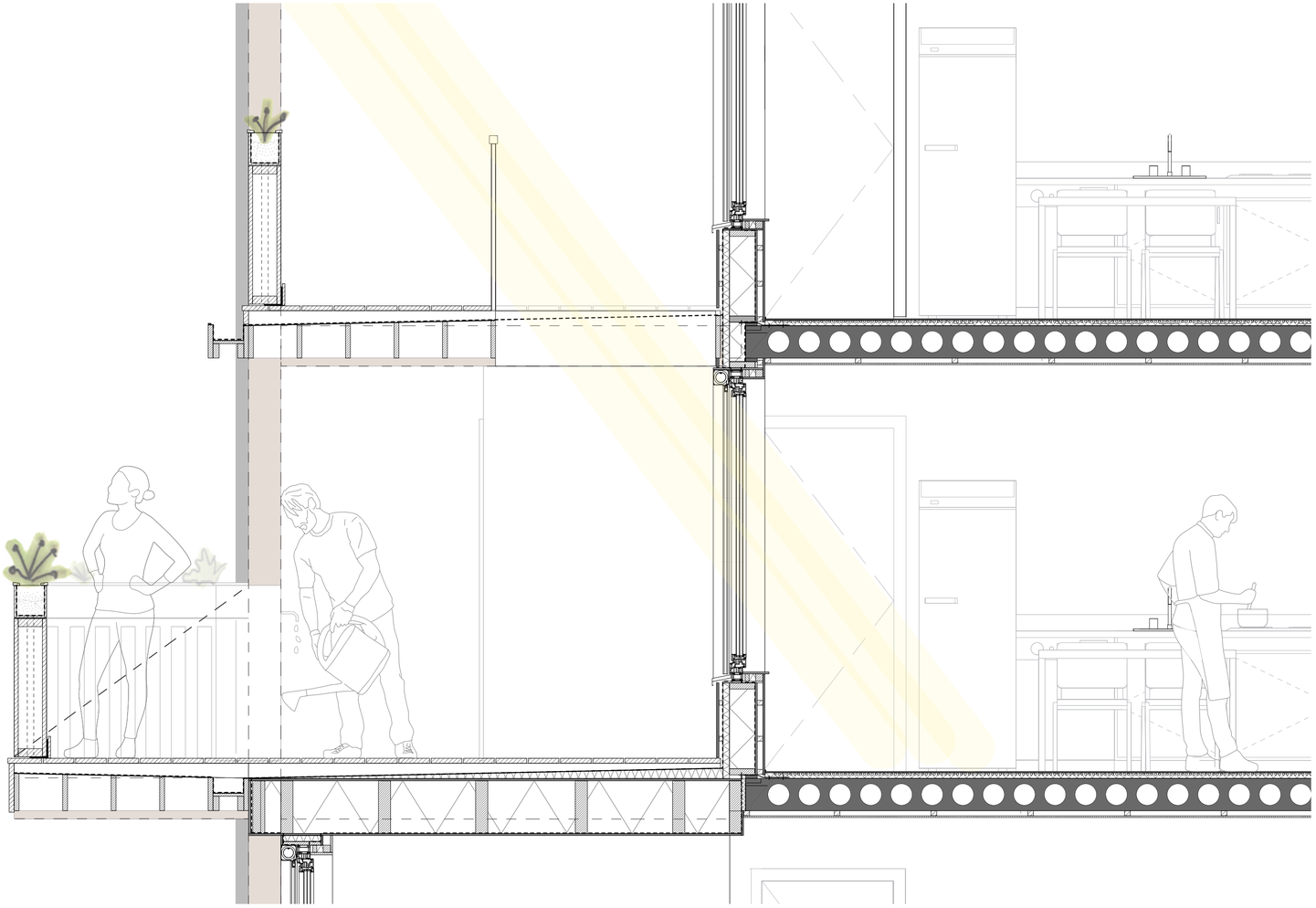
Reference



0 1 2 3 4 5m

East facade





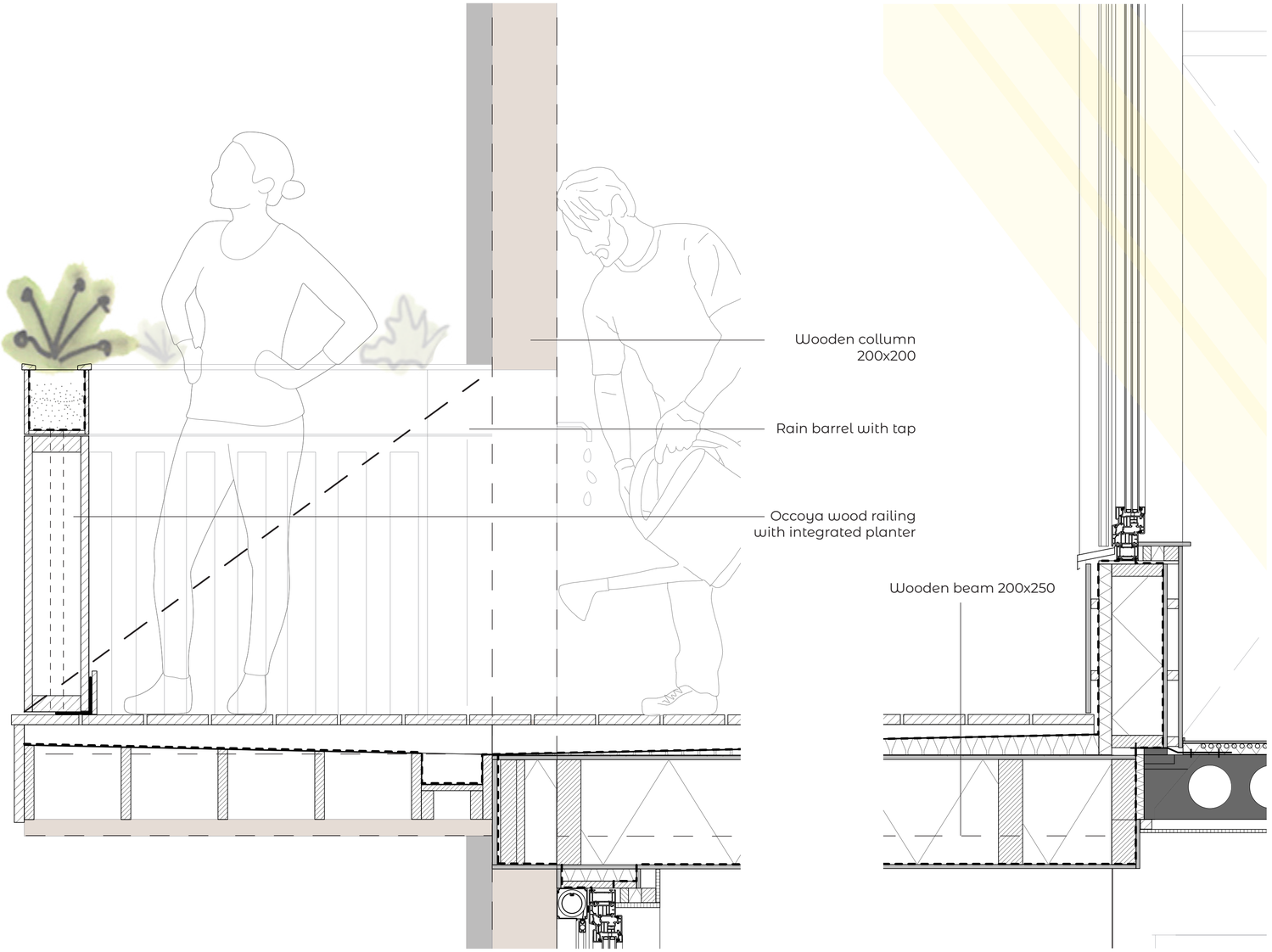
Facade fragment East

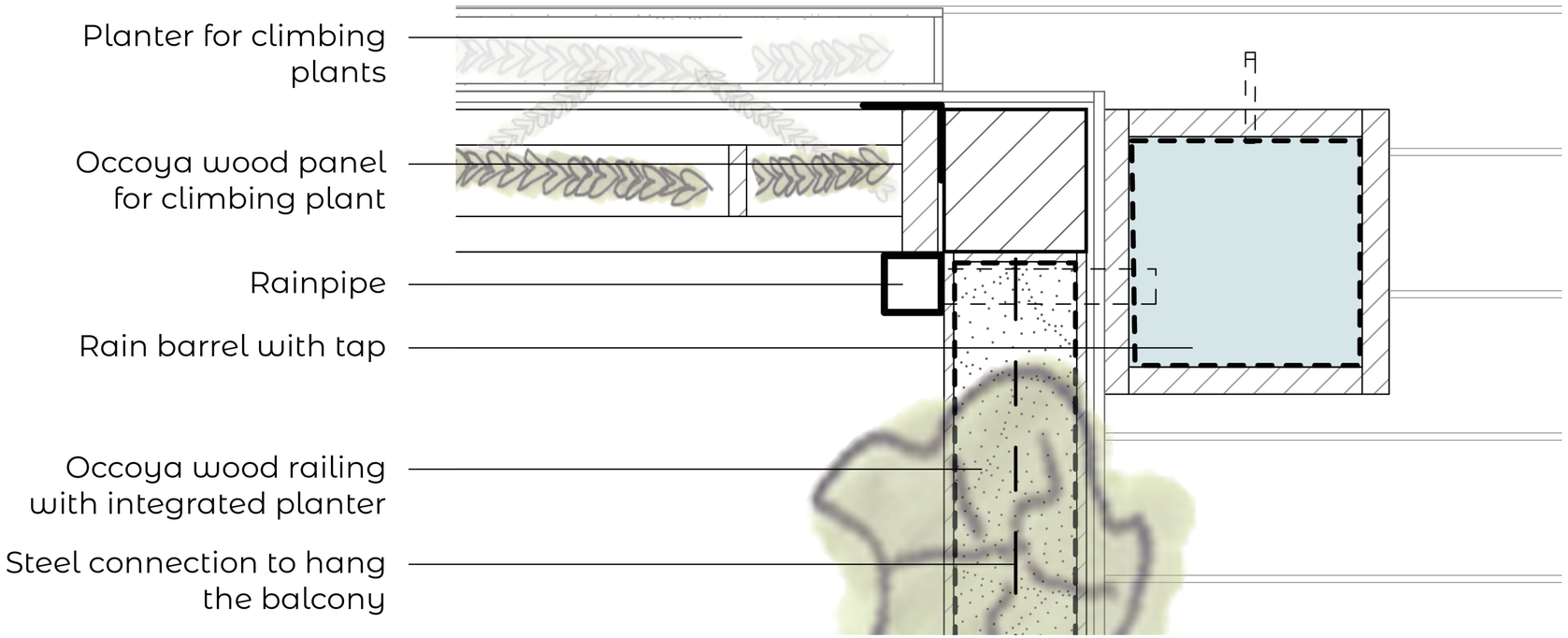


Sketch model



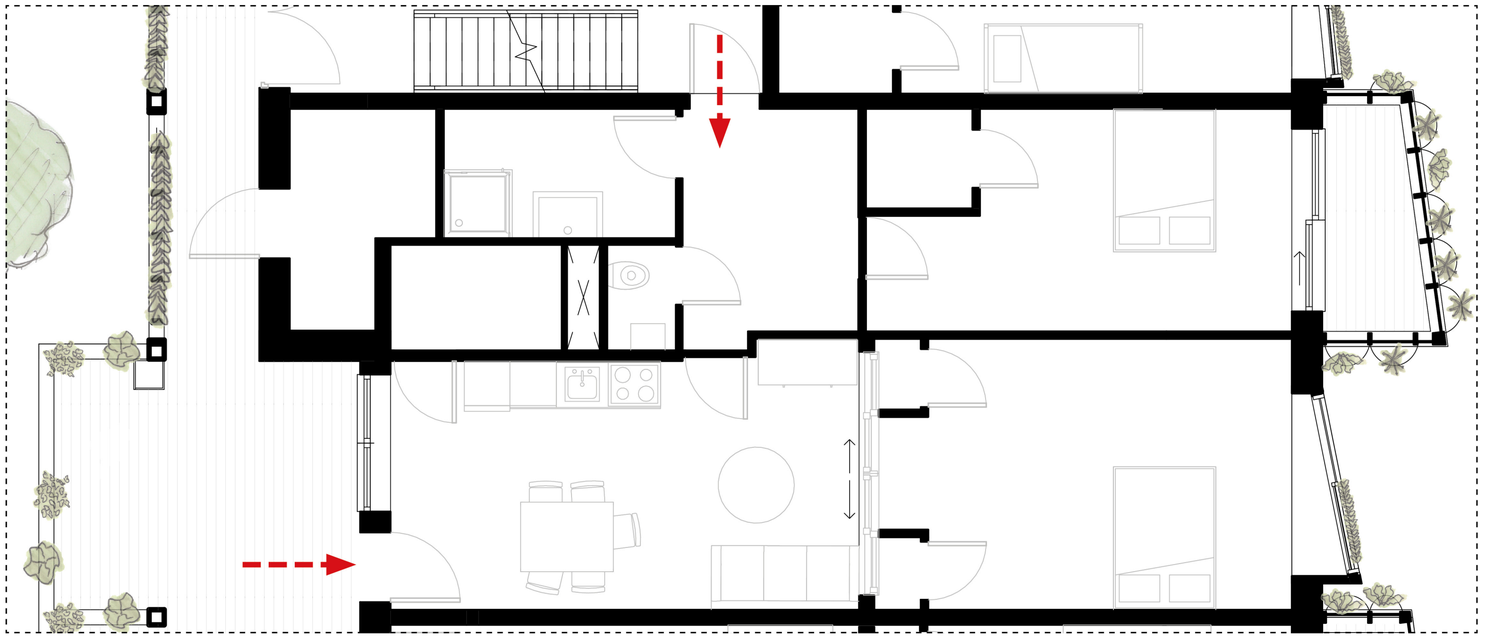
Reference


Wooden collumn
200x200
Rain barrel with tap
Occoya wood railing
with integrated planter
Wooden beam 200x250


Planter for climbing plants
Occoya wood panel for climbing plant
Rainpipe
Rain barrel with tap
Occoya wood railing with integrated planter
Steel connection to hang the balcony

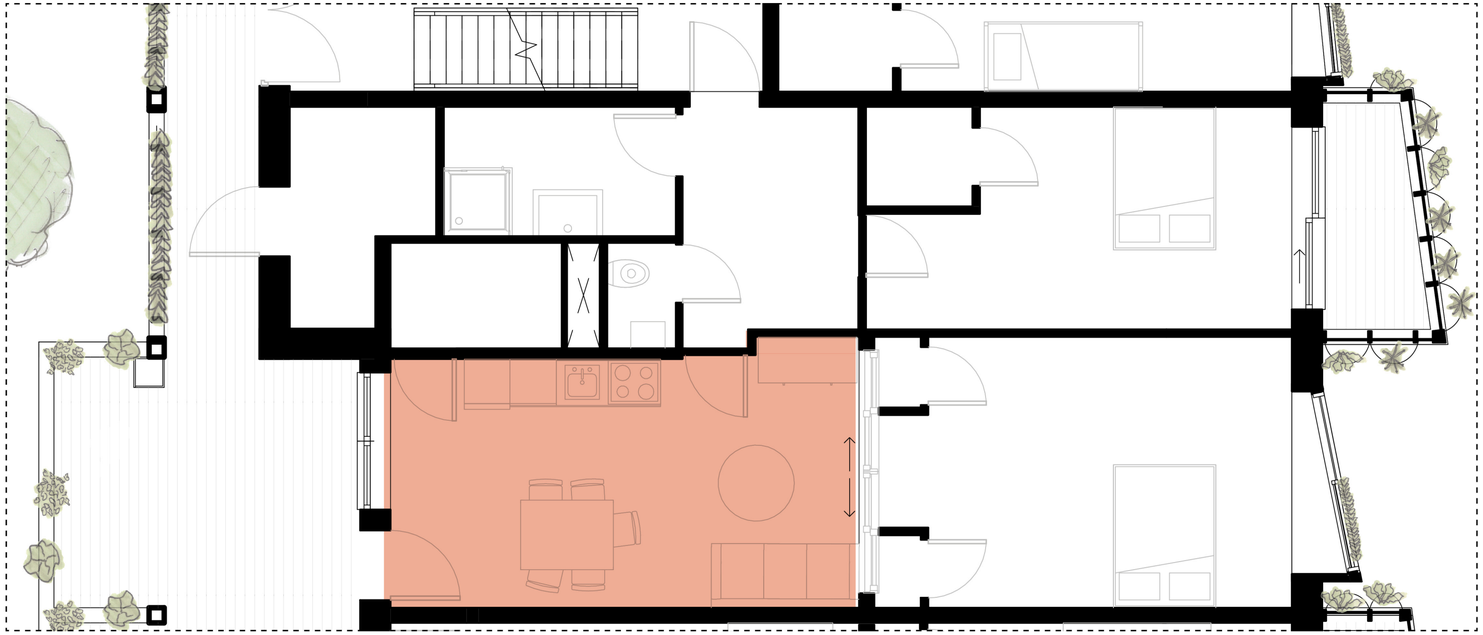




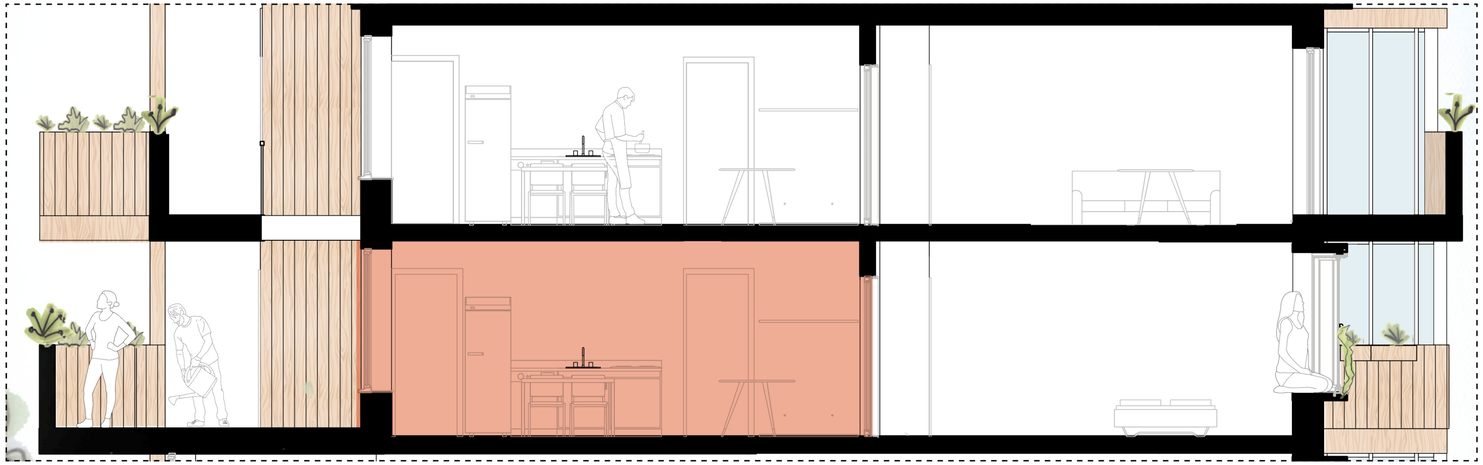


Floorplan second floor





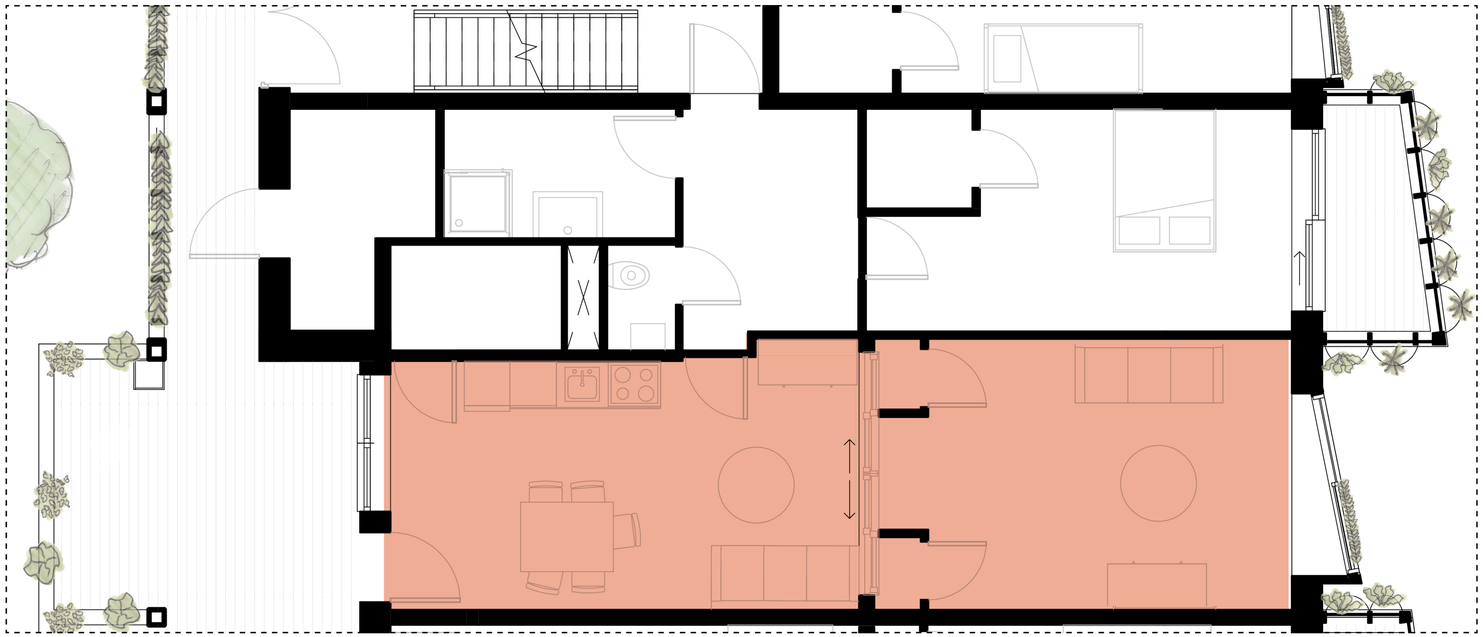
Floorplan second floor



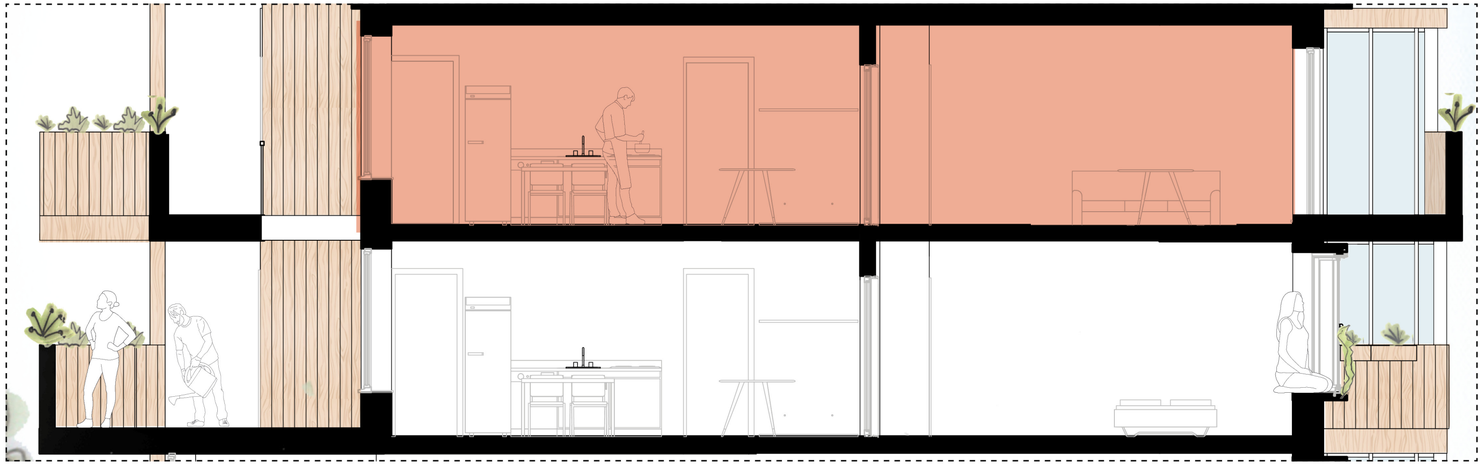
Section apartment type c

0 1 2 3 m





Floorplan second floor



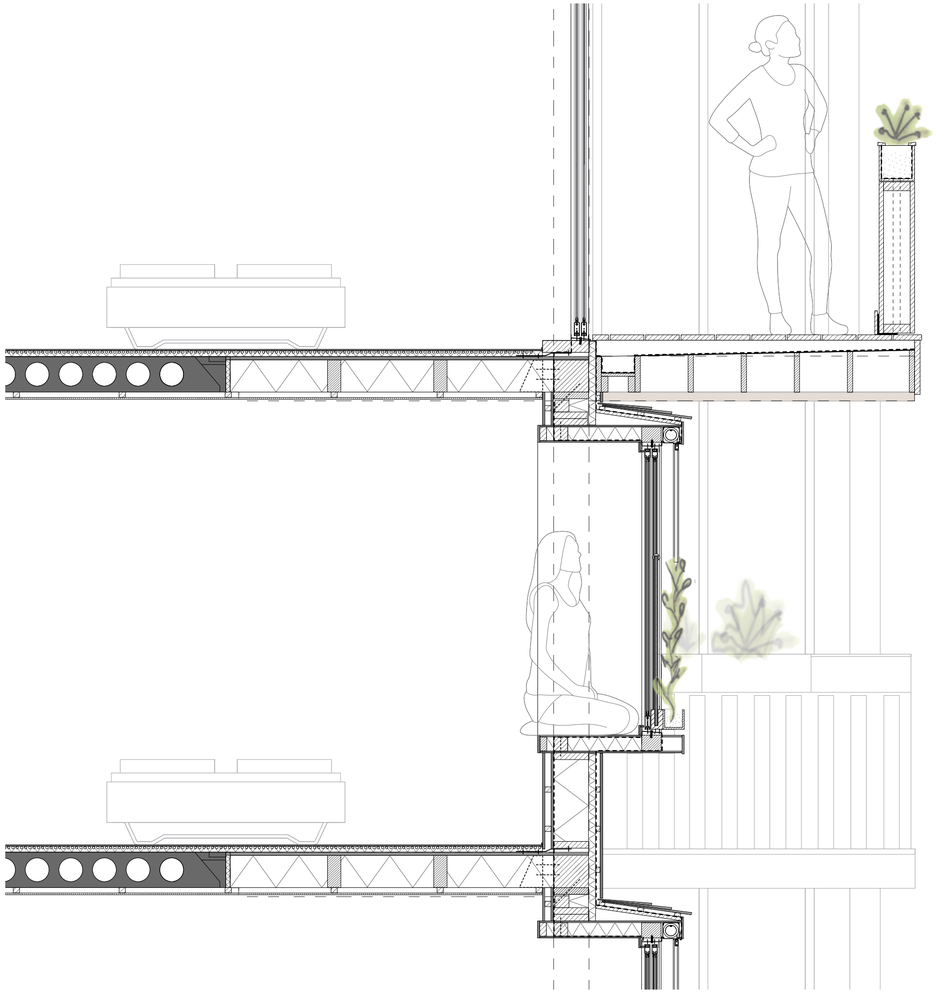
Section apartment type c

0 1 2 3 m



0 1 2 3 4 5m

West facade

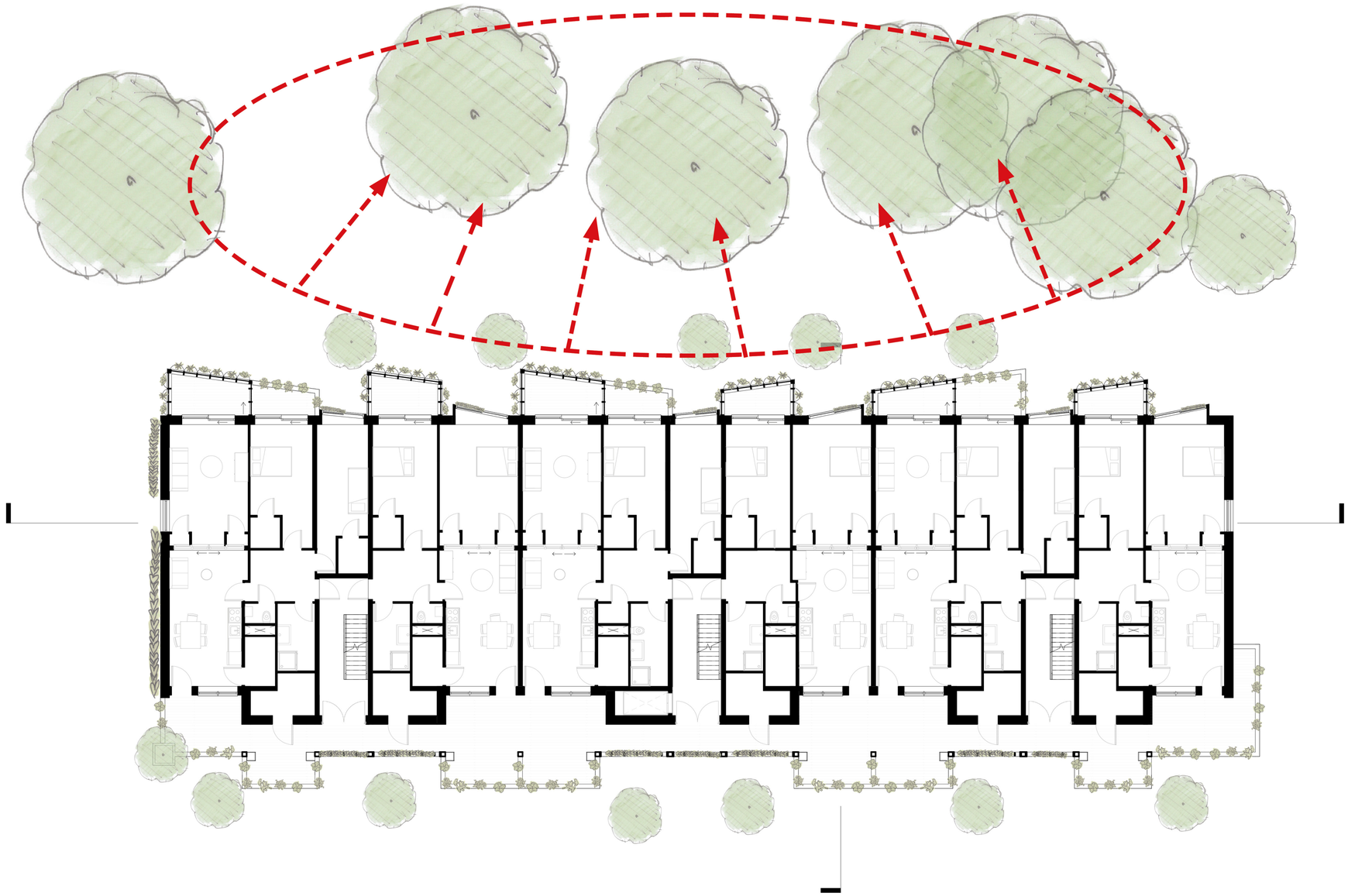




Facade fragment West

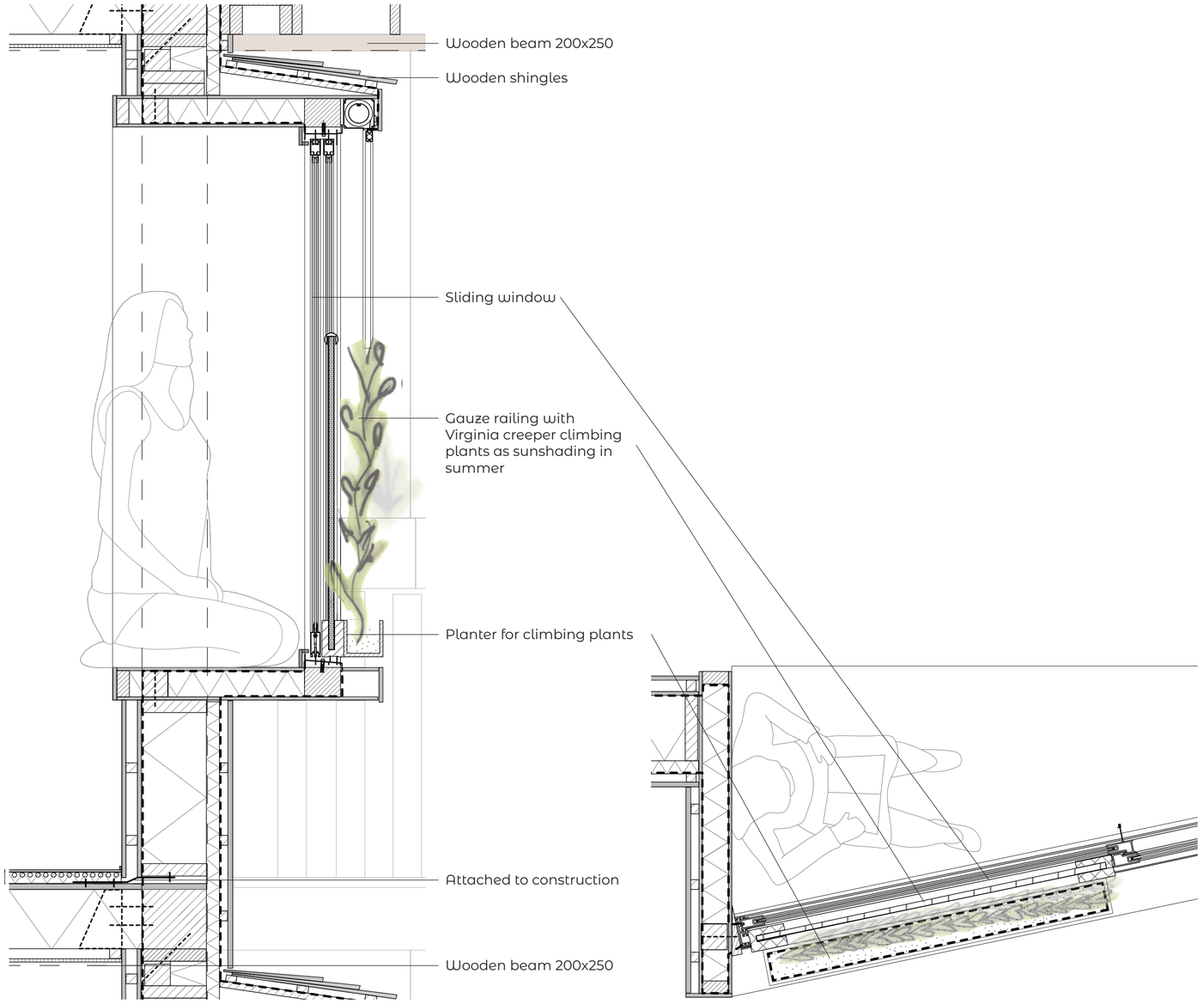


Outside areas West facade



0 1 2 3 4 5m

Second floor



Vertical and horizontal detail window with seating

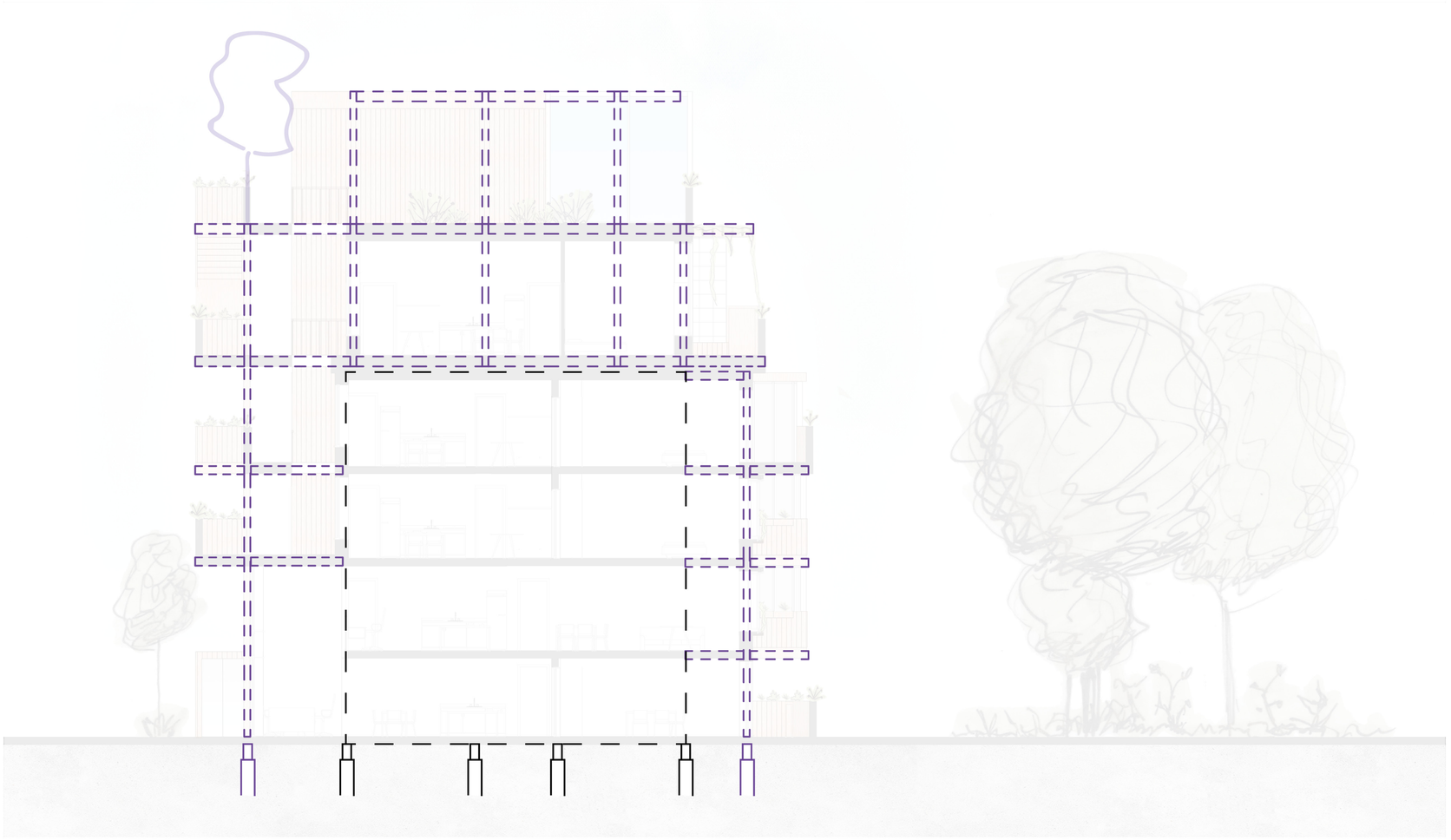


Window with seating



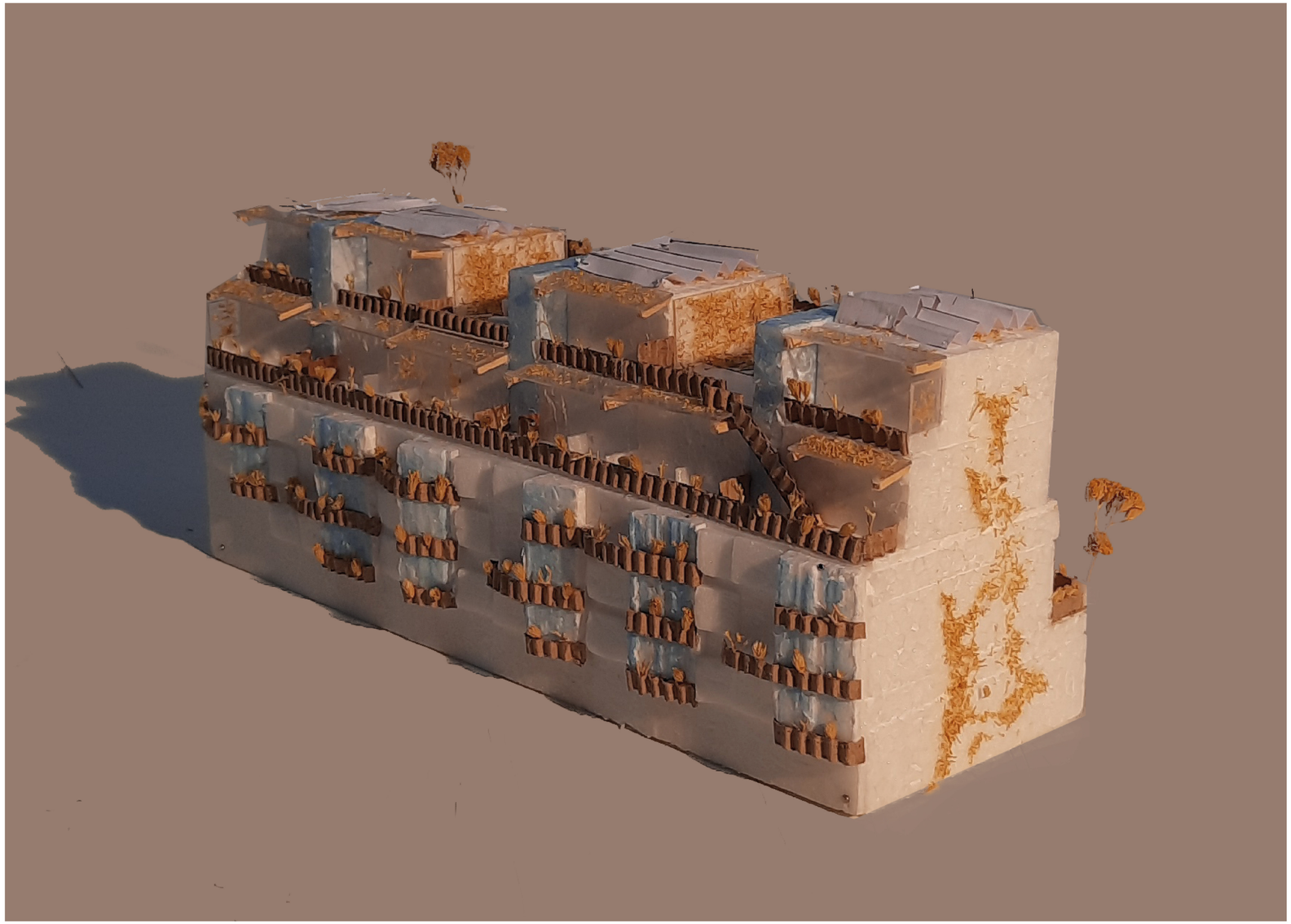
0 1 2 3 4 5m

New
Existing



0 1 2 3 4 5m

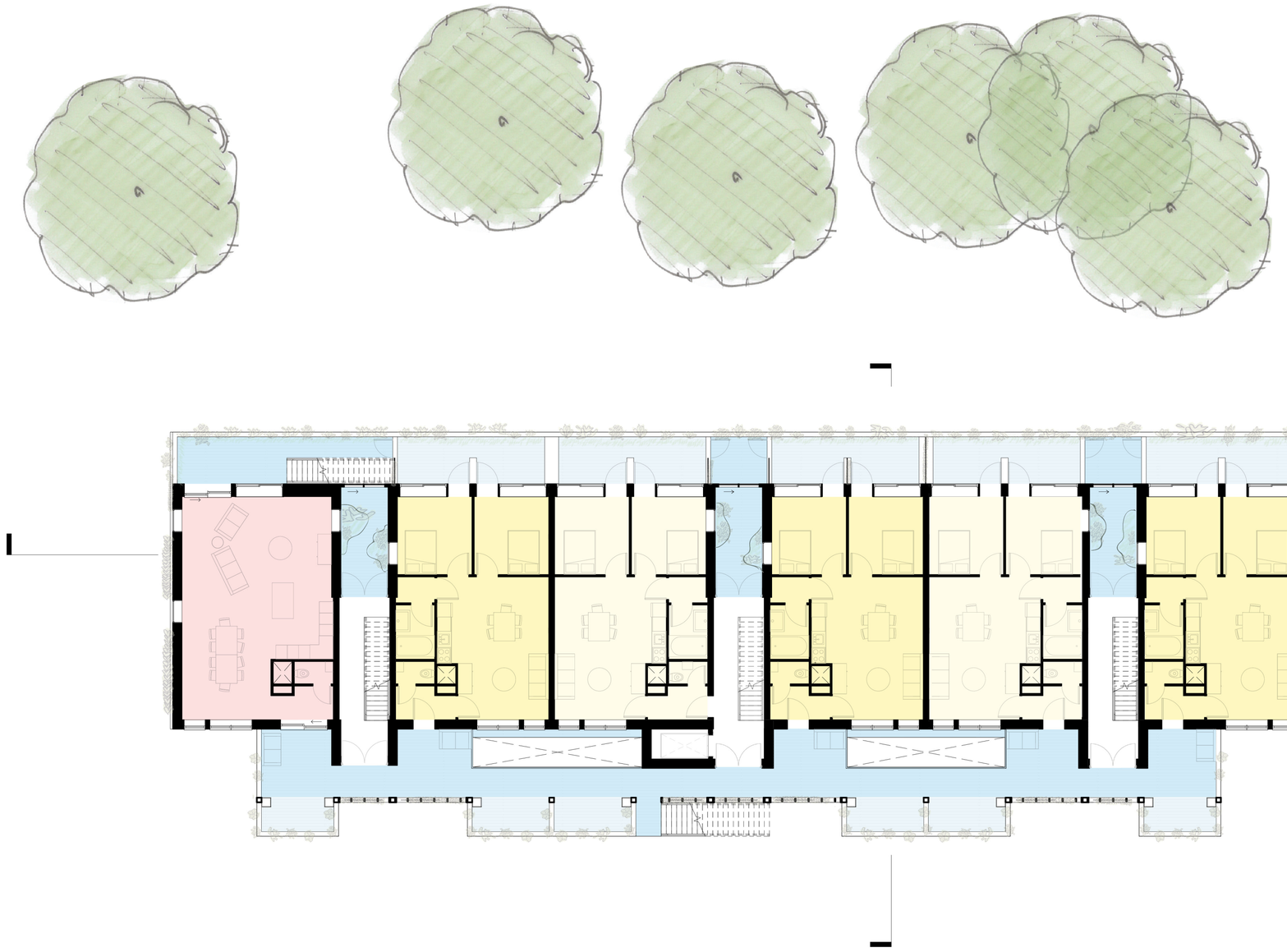
Construction diagrams





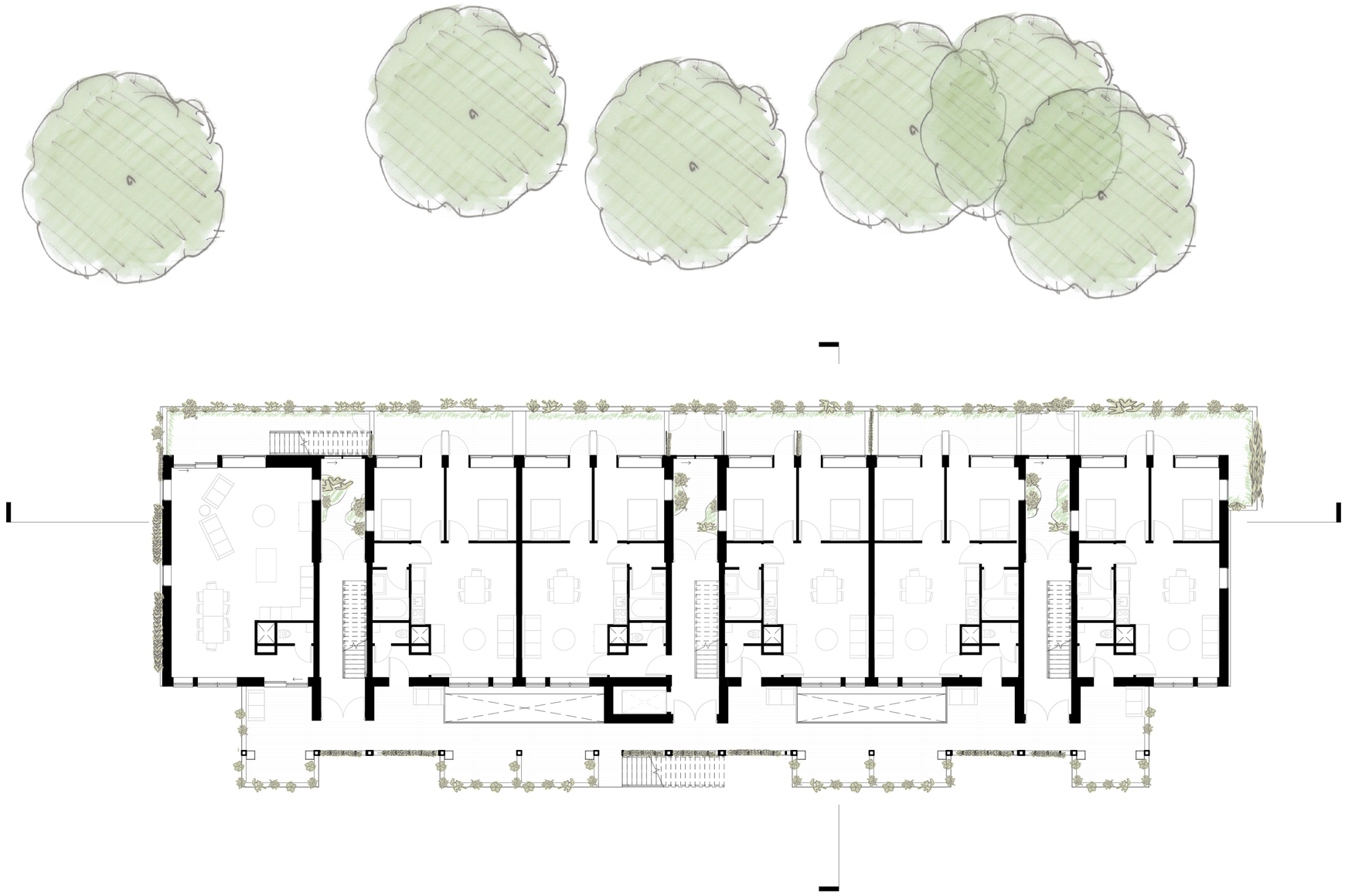






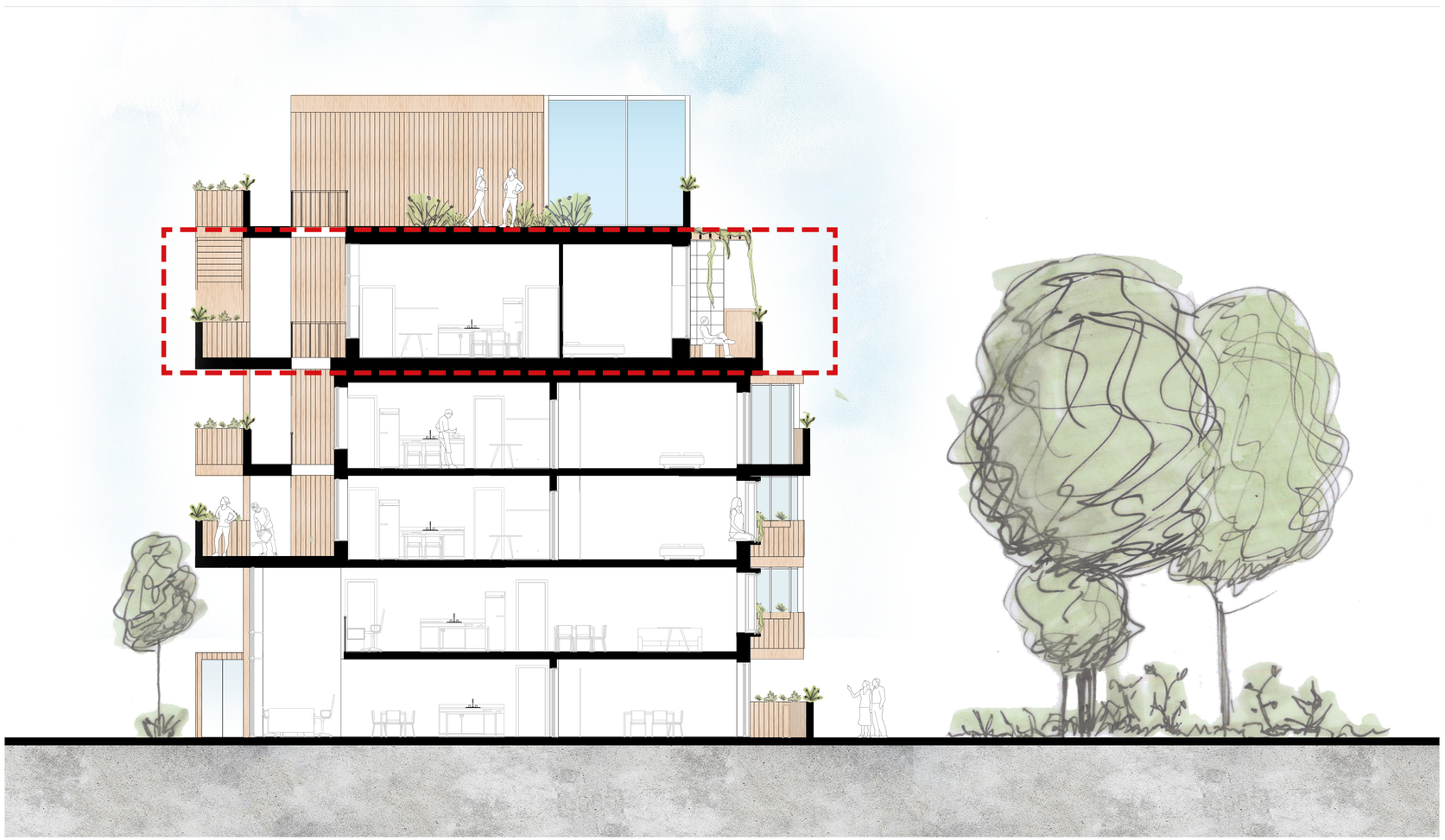
0 1 2 3 4 5m

Fourth floor



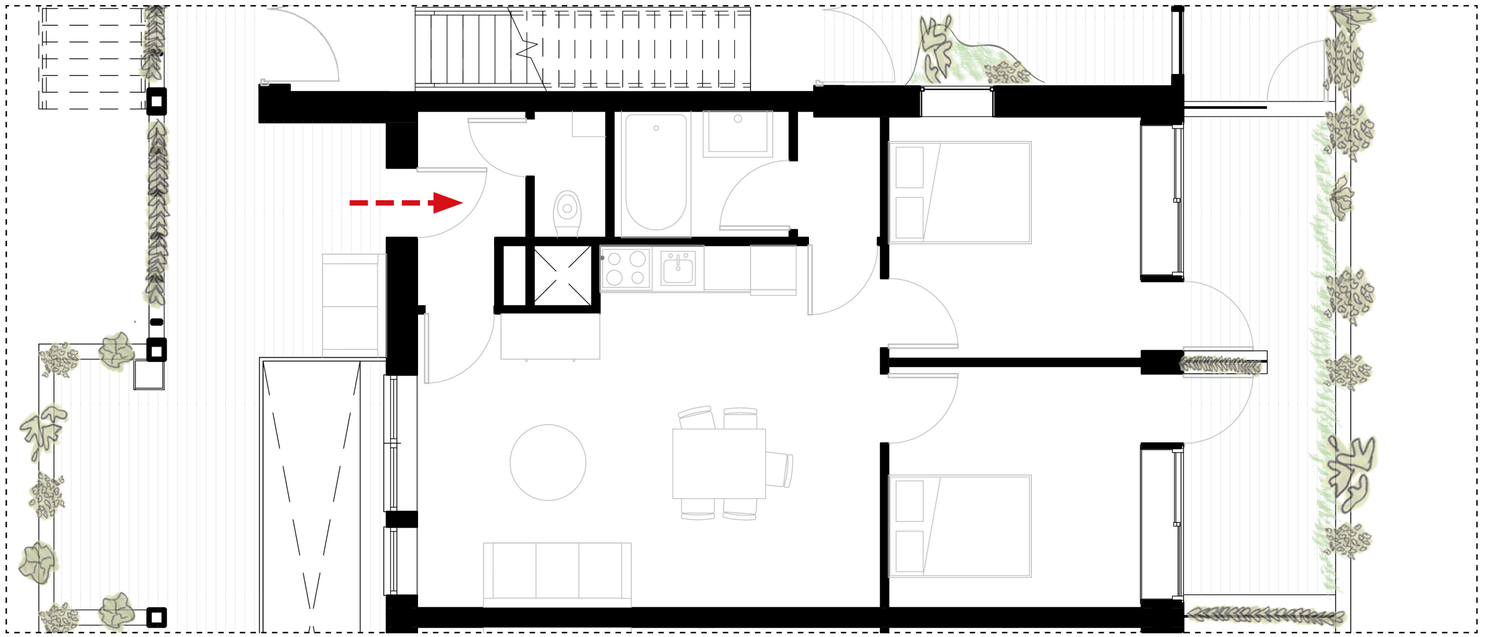
0 1 2 3 4 5m

Fourth floor

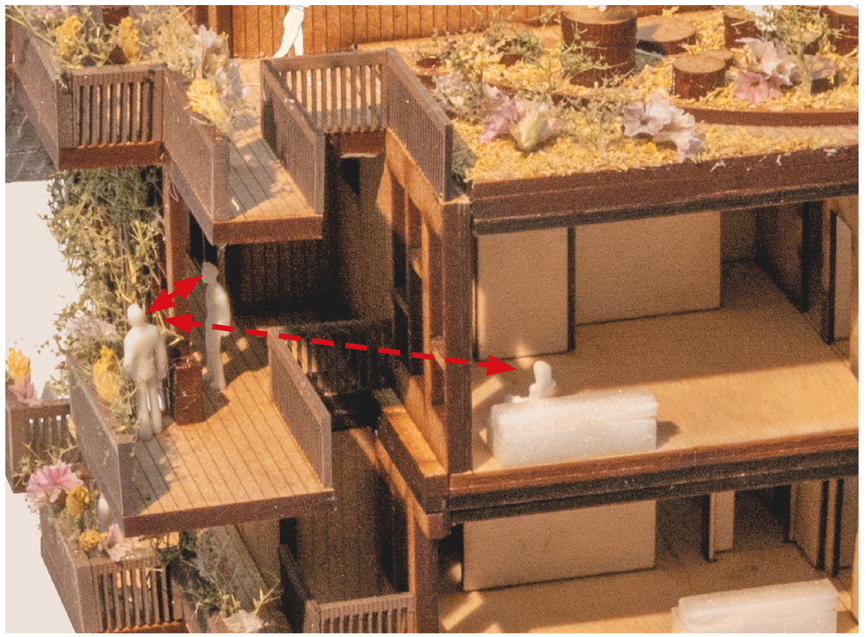


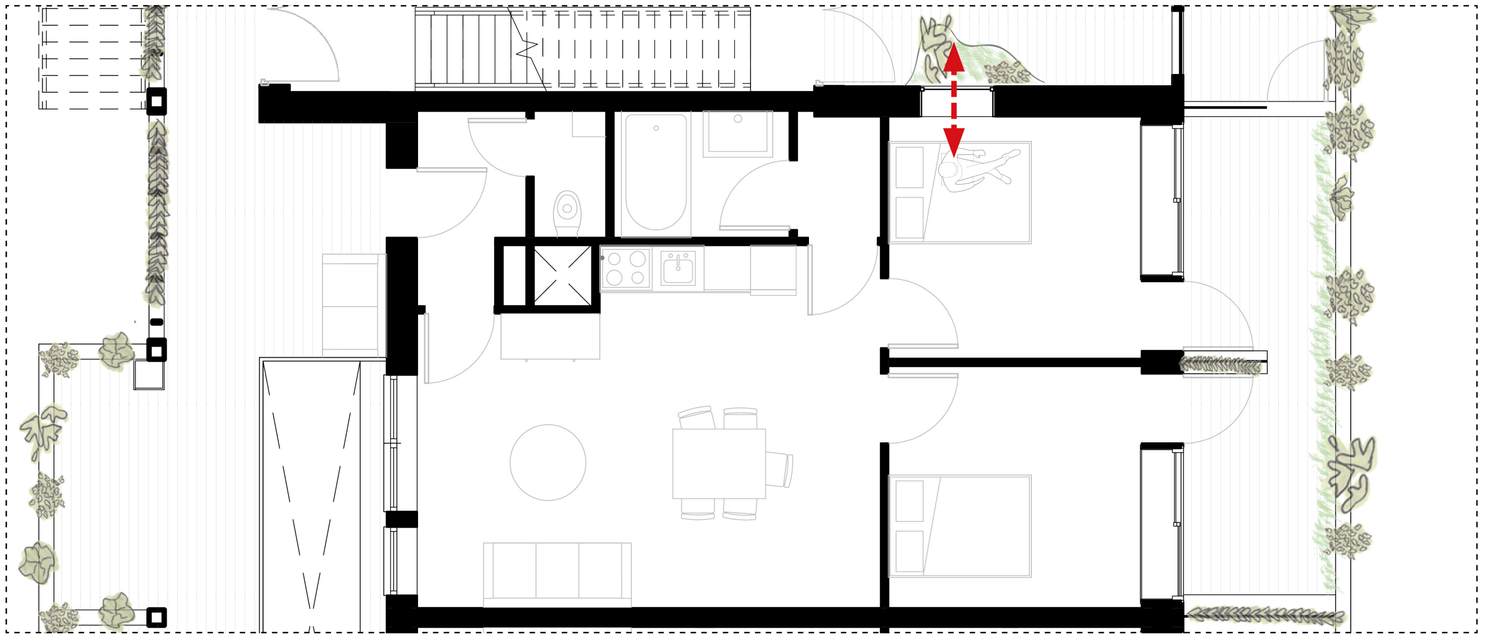
0 1 2 3 4 5m

Guided living - two persons apartment



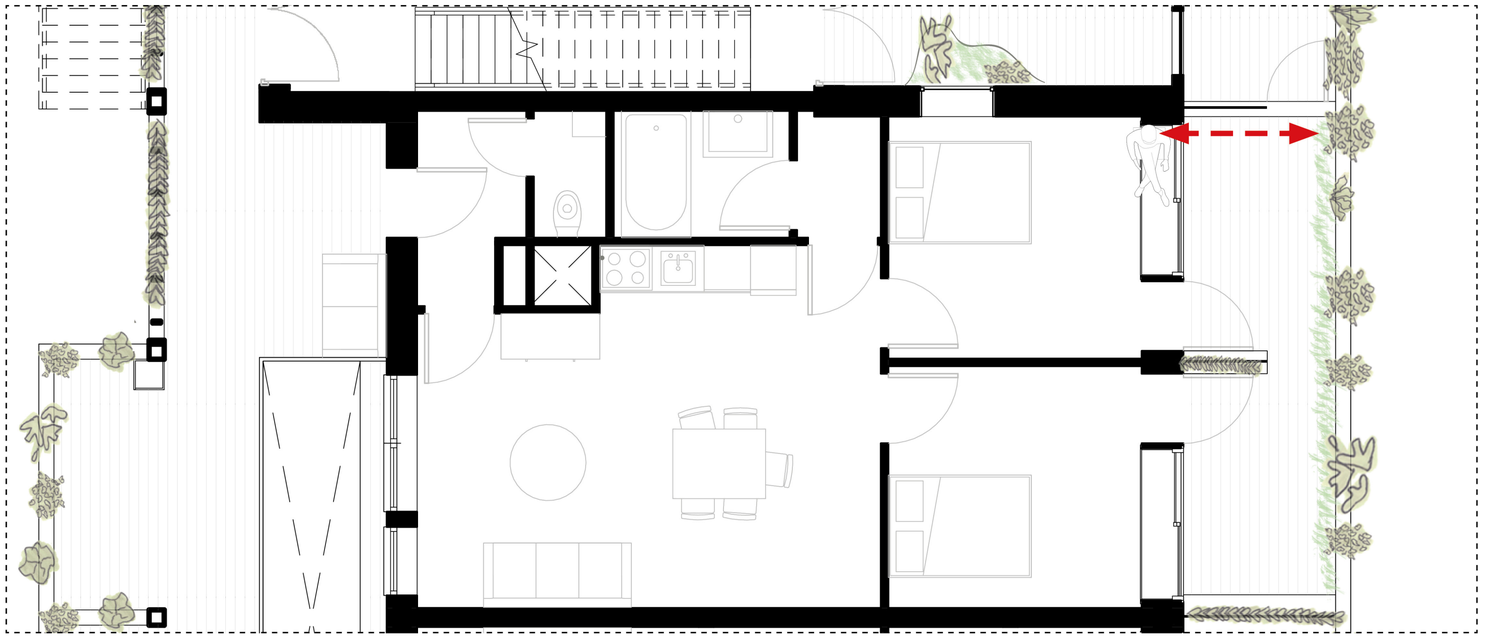
Floorplan fourth floor





Floorplan fourth floor

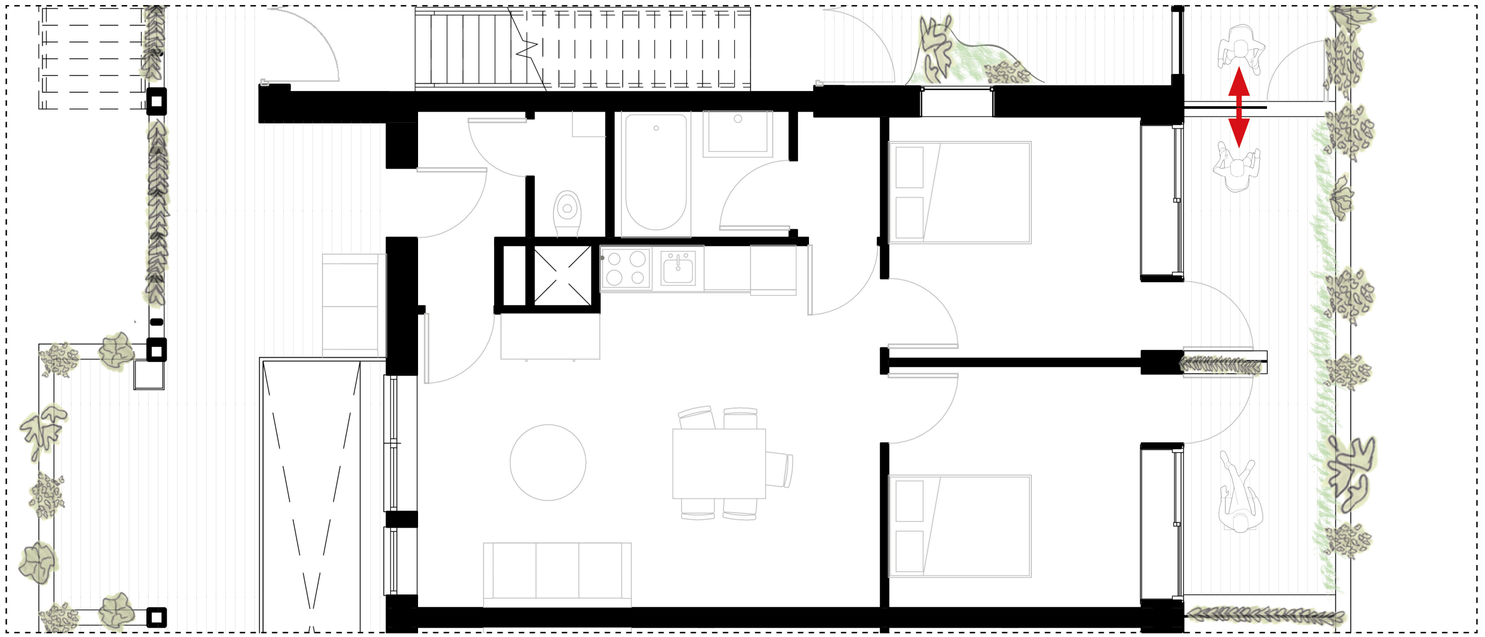




Floorplan fourth floor

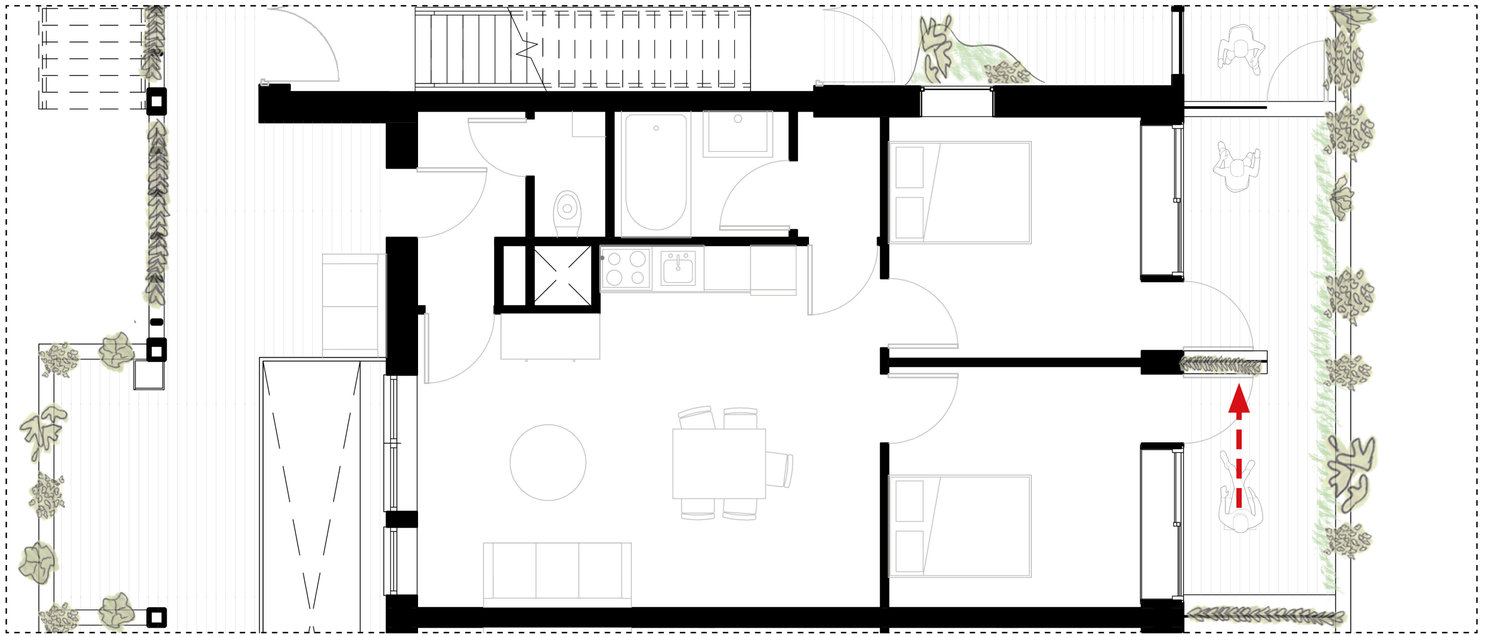


Design



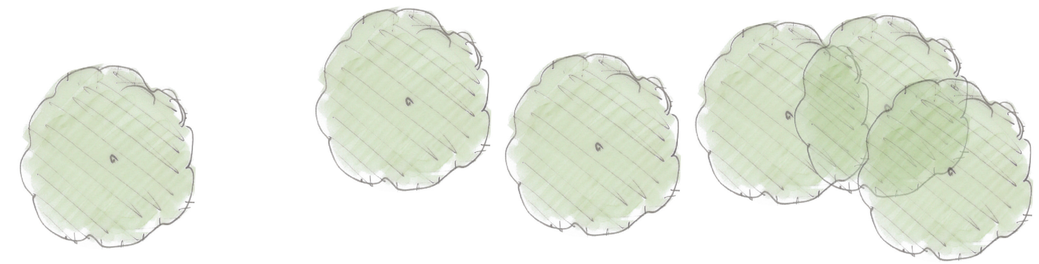
Floorplan fourth floor

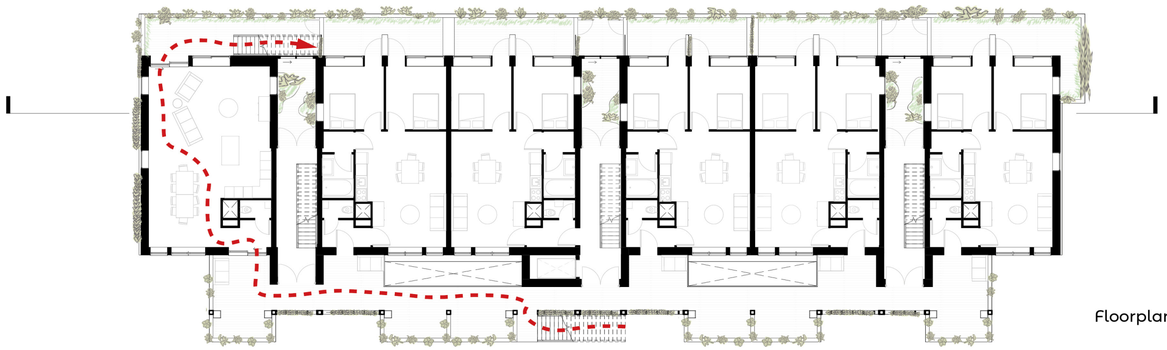




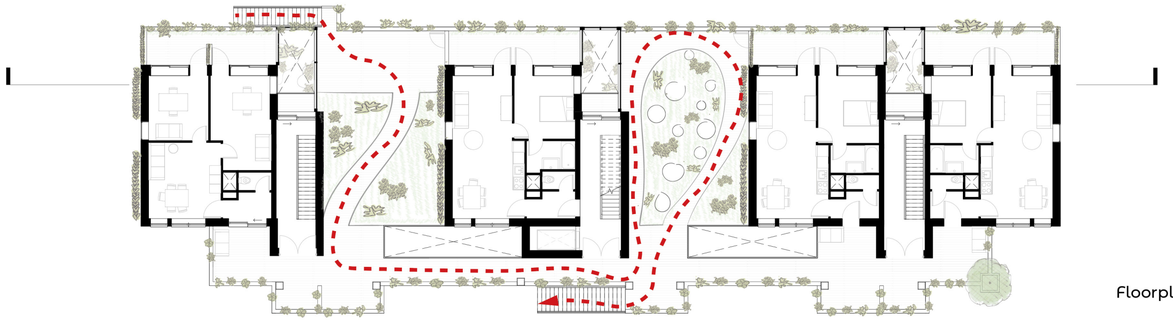
Floorplan fourth floor



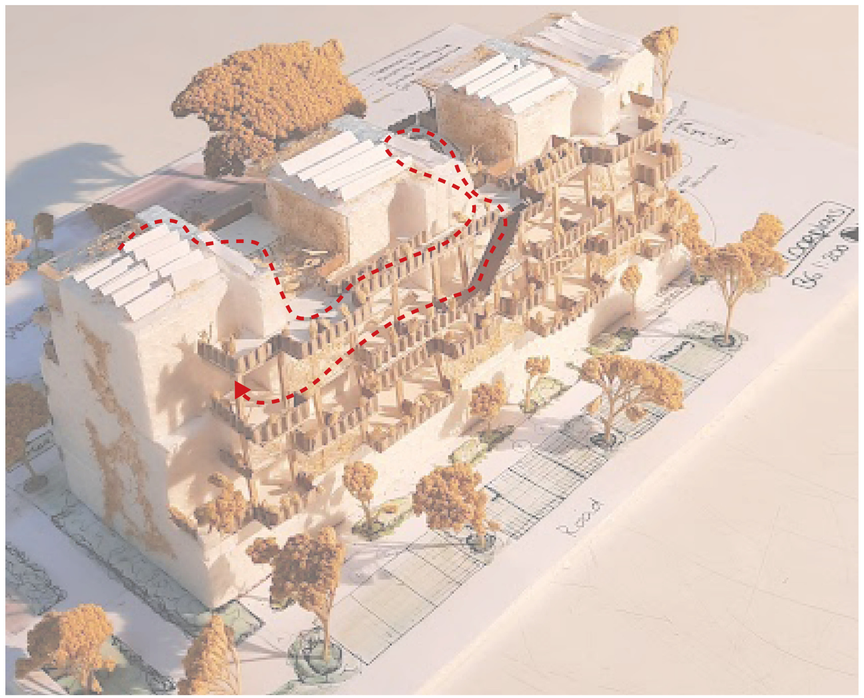


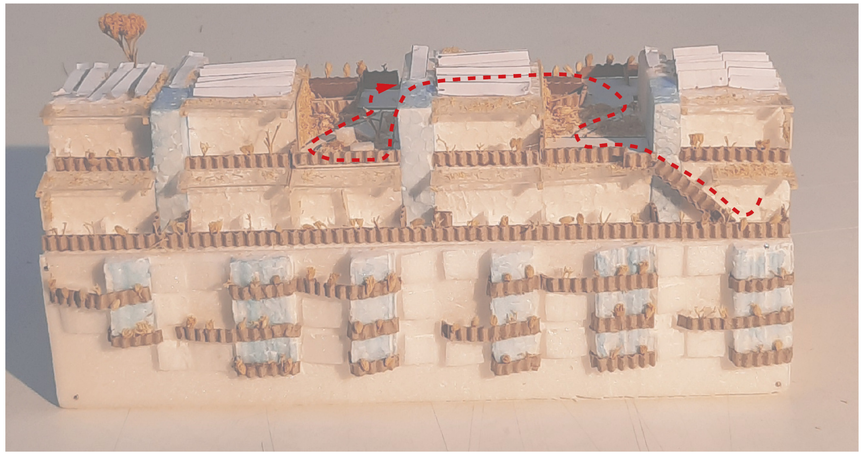


Floorplan fourth floor



Floorplan fith floor

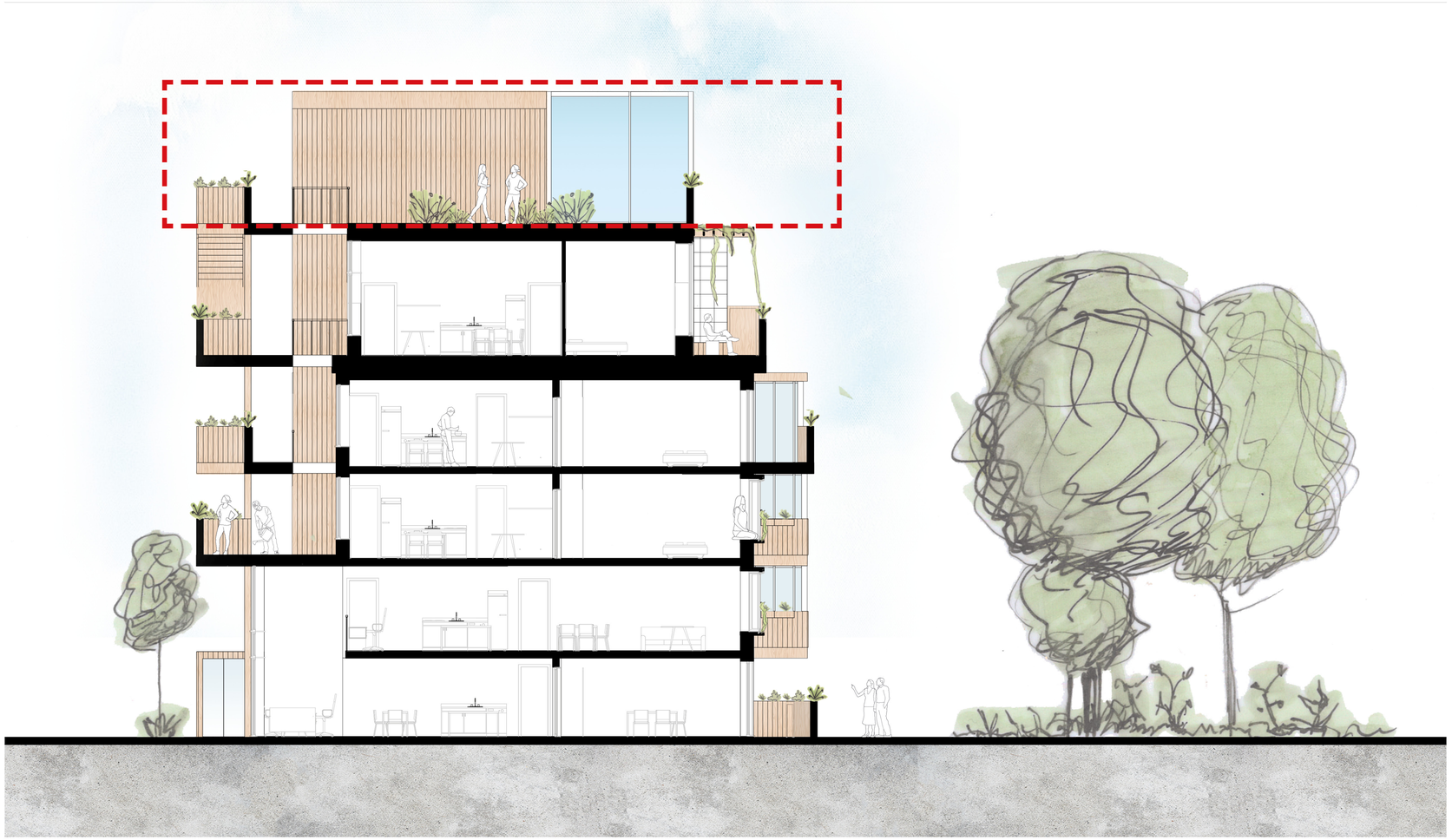








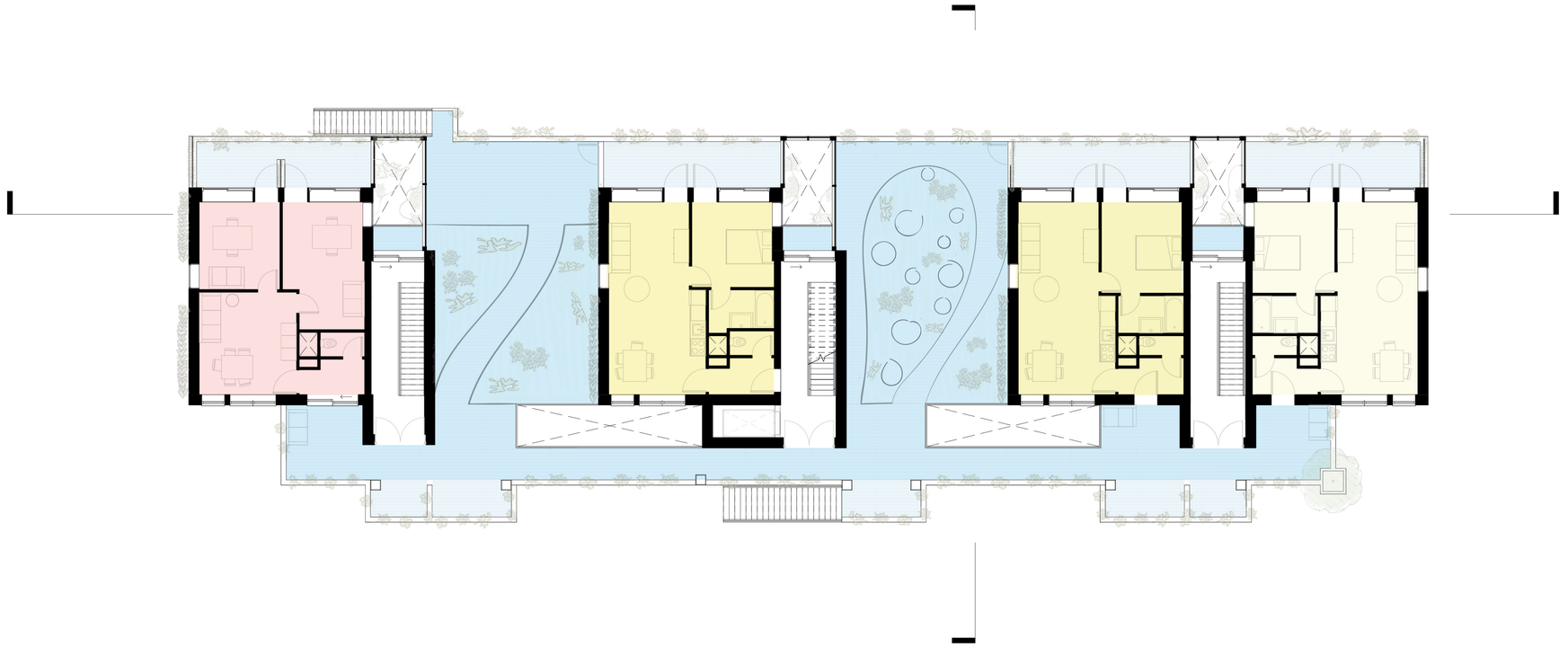




0 1 2 3 4 5m

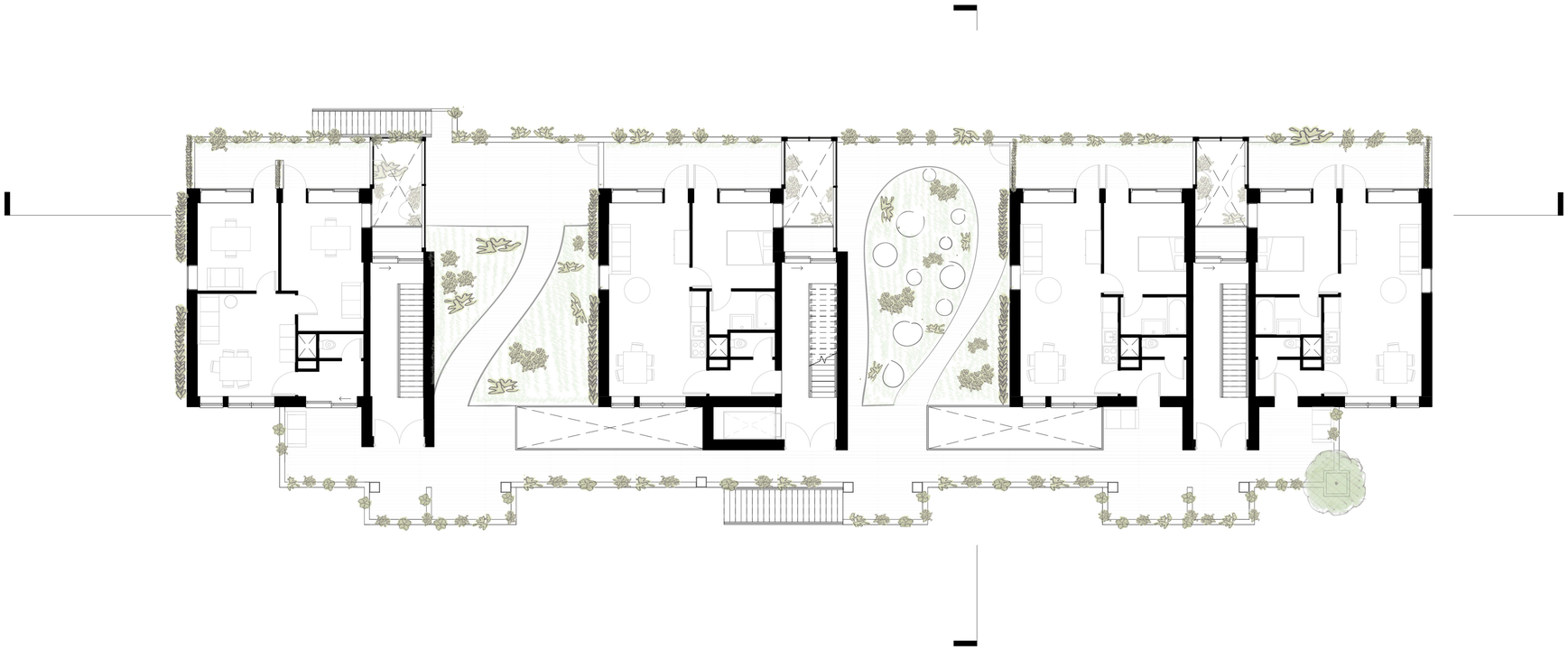
Guided living - one persons apartment

Therapist
Guided living one person
One bedroom apartment
Private outside
Collective outside



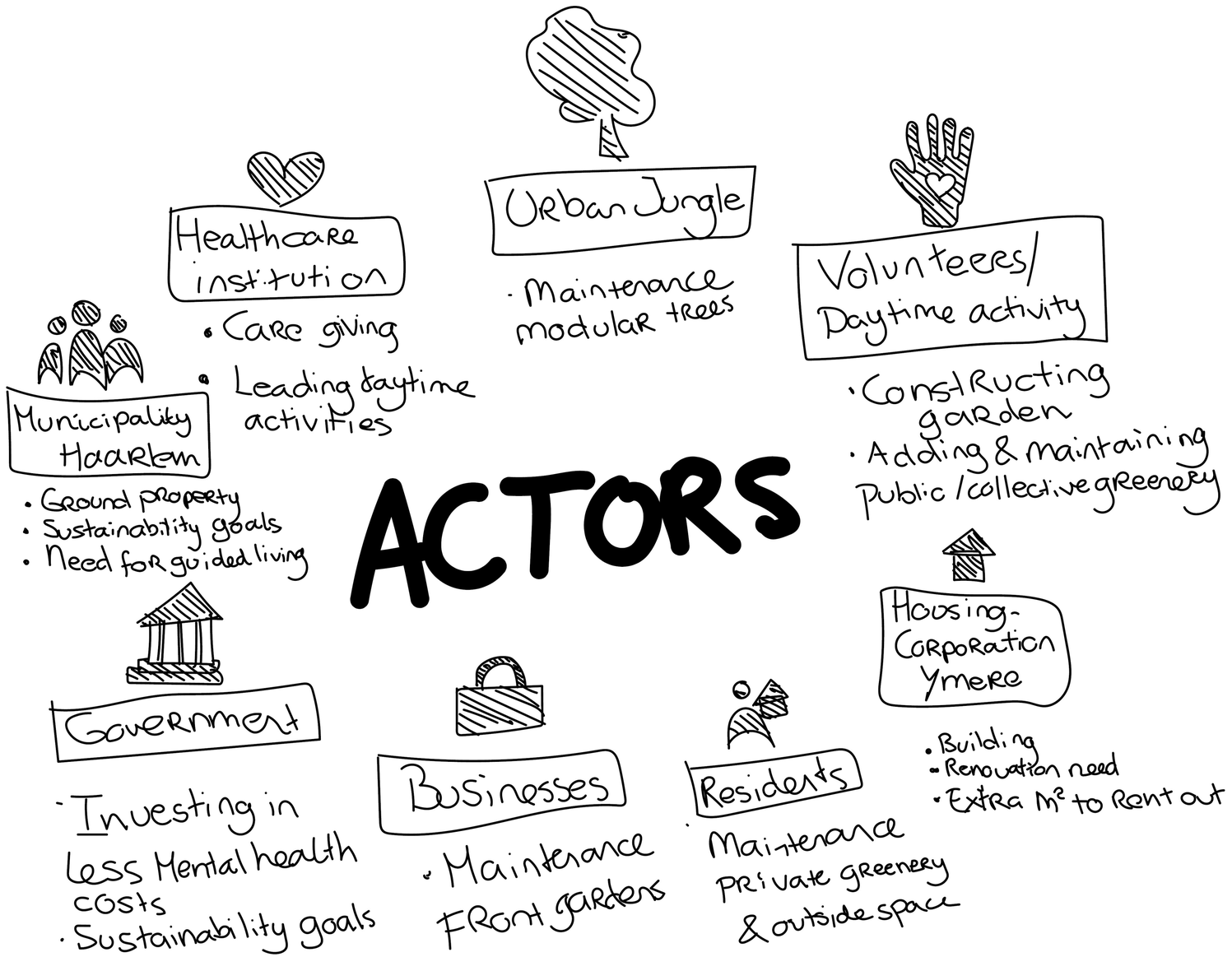
0 1 2 3 4 5m

fifth floor



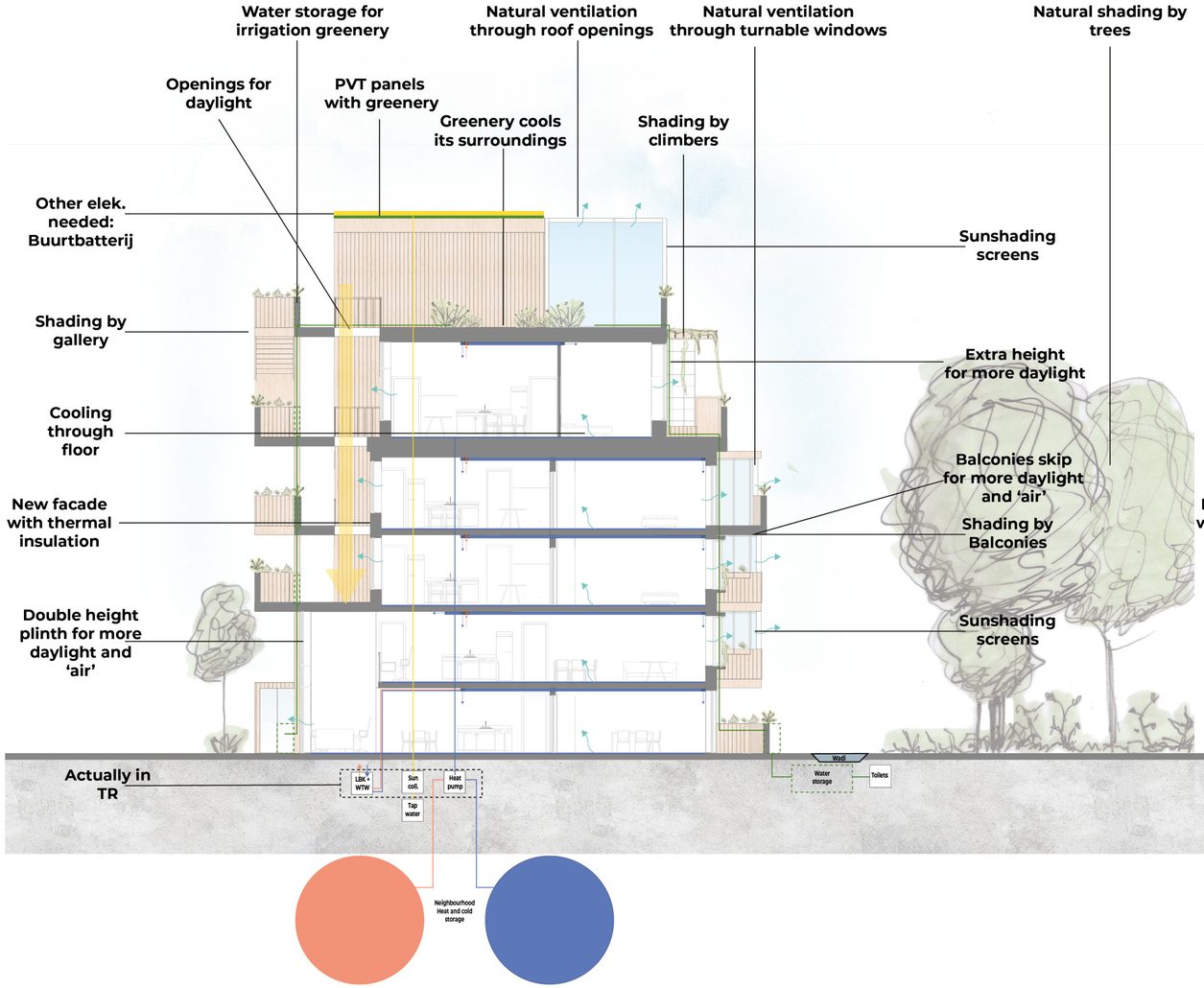
0 1 2 3 4 5m

fifth floor

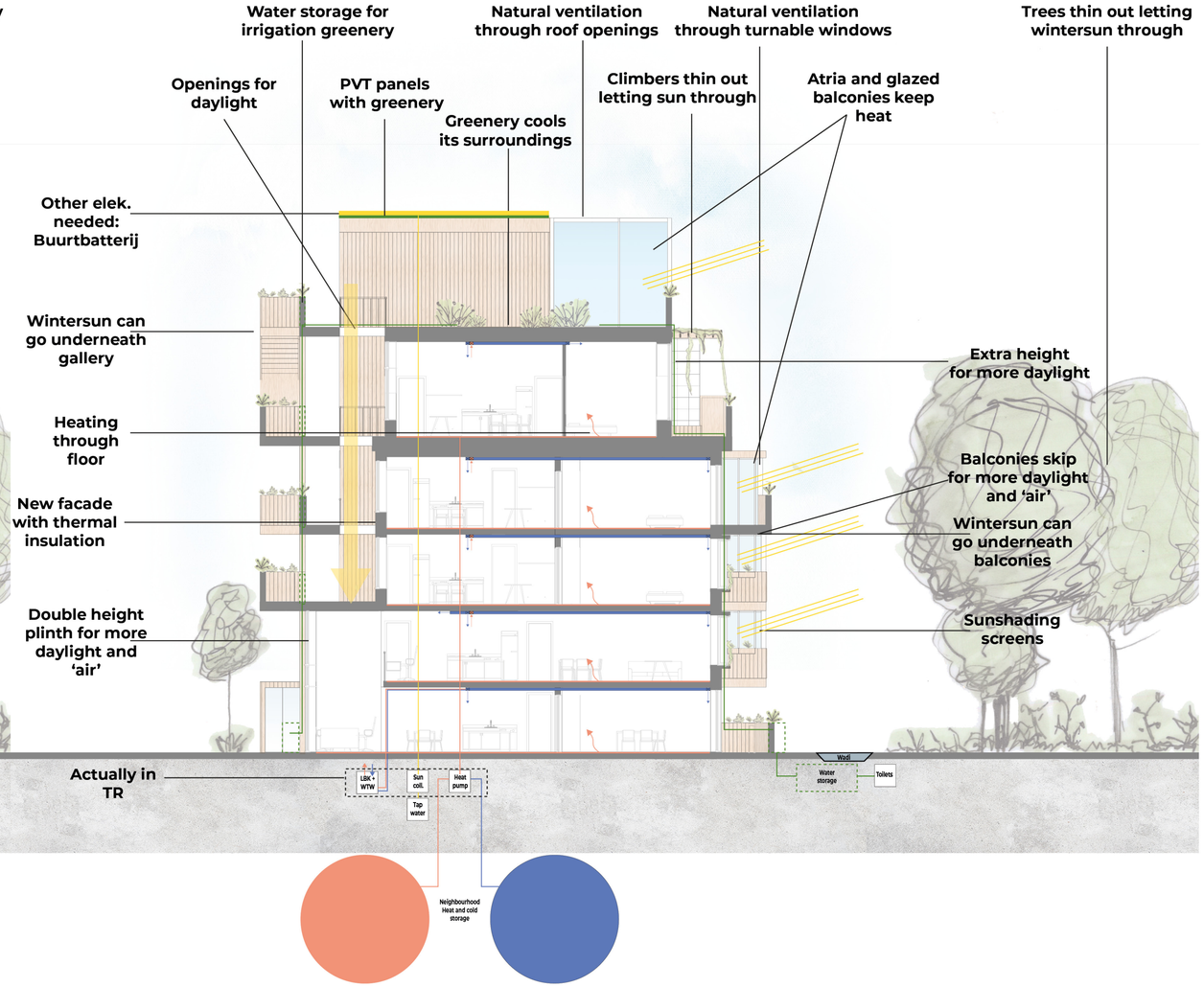


Stakeholder diagram

Summer section



Winter section



Lightweight sedum roof with small flowers and PV panels





Attracts pollinators

Lightweight sedum roof with parts including larger plants





Attracts pollinators and ladybugs

Lightweight modular trees onto new collumns

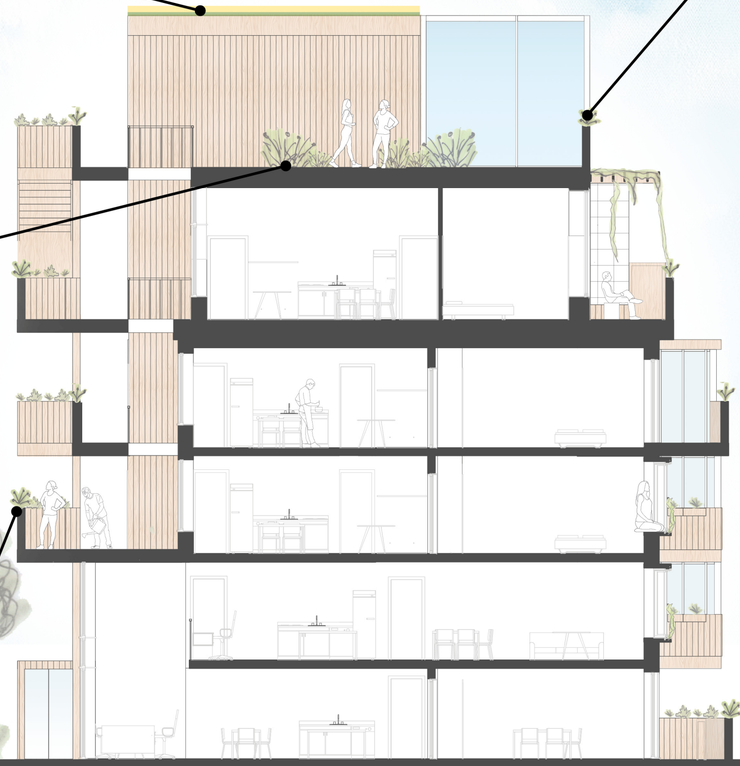




Attracts birds

Wind resistant plants in collective area, such as:
- Rosa Rugosa
- Purple cone flower





Plants in collective area that don't shed in the winter, such as:
- Winterheath
- Pieris plant



Climbers for shading in summer, and looses leaves in winter:
- Virginia Creeper





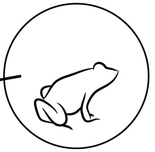
Attracts birds

Keep existing trees



Wadi: combined with waterstorage





Attracts water - and amphibious animals

Wild flowers





Attracts butterflies and bees



Healthy urban neighbourhoods within green infrastructures