

LOIT(H)ER

CREATING PLACES OF FUN FOR WOMEN IN RESIDENTIAL NEIGHBOURHOODS

PROBLEM STATEMENT

‘THE PROBLEM OF
EVE TEASING IS
QUITE FRANKLY VERY
RAMPANT.’

‘OF THE 38 TOILET
SEATS IN ANDHERI
TRAIN STATION IN
MUMBAI, 34 ARE FOR
MEN. ONLY 4 TOILET
SEATS FOR WOMEN’

‘THEY MAKE THE
OUTDOORS HOSTILE TO
WOMEN.’

‘WHY IS SHE HERE? THE
QUESTION SILENTLY
DEMANDED OF EVERY
WOMEN IN A PUBLIC
SPACE.’

OCCUPATION

*The spaces are generally occupied by men,
leaving less space for women.*

TOILET ACCESS

*There is a lack of hygienic toilets in most
public spaces, which impacts women more
than men, who use spaces as open toilets
freely.*

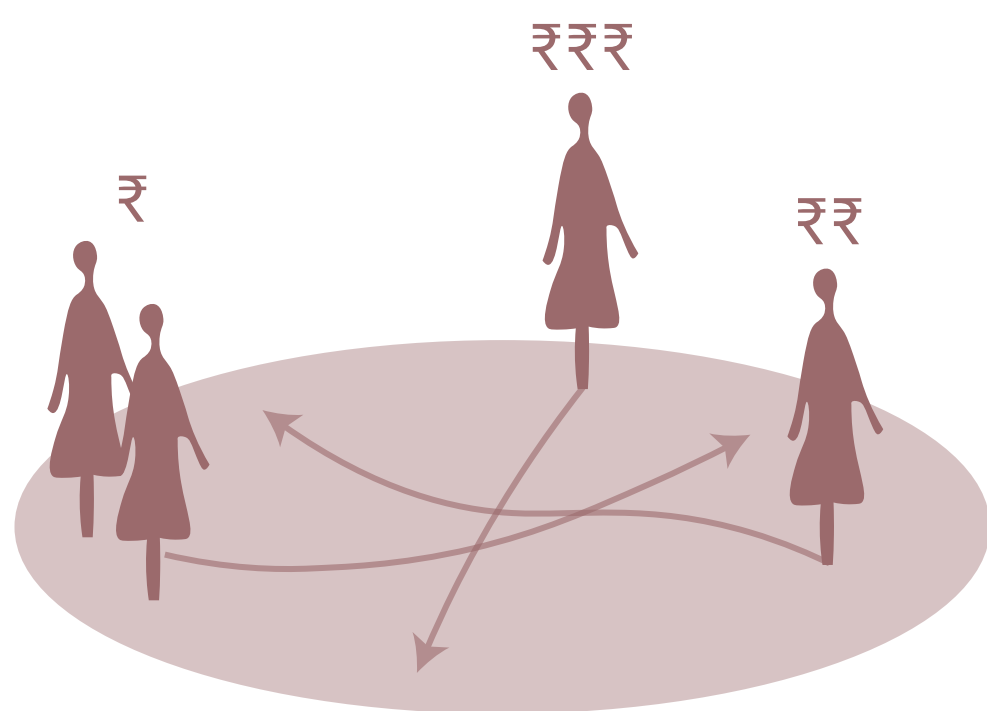
LIGHT

*The lack of proper lighting in public spaces
and walkways create a safety issue for
women.*

PURPOSE

*The claim of public spaces by women in
India is still subjected to their purpose, with
leisure seen as not good enough to justify it.*

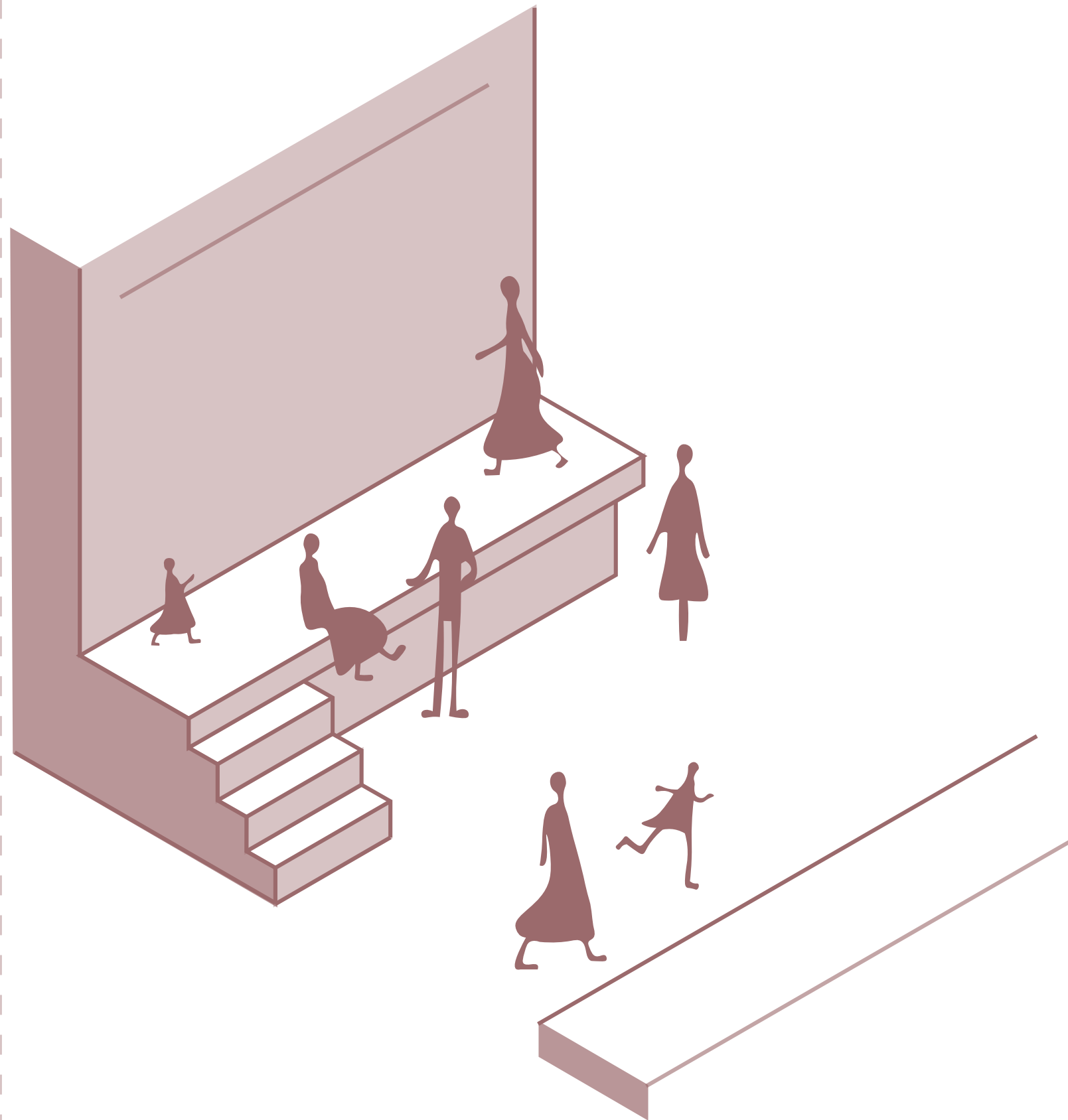
DESIGN INTENTIONS



Social interaction and integration



Creation of spaces of fun/leisure for women

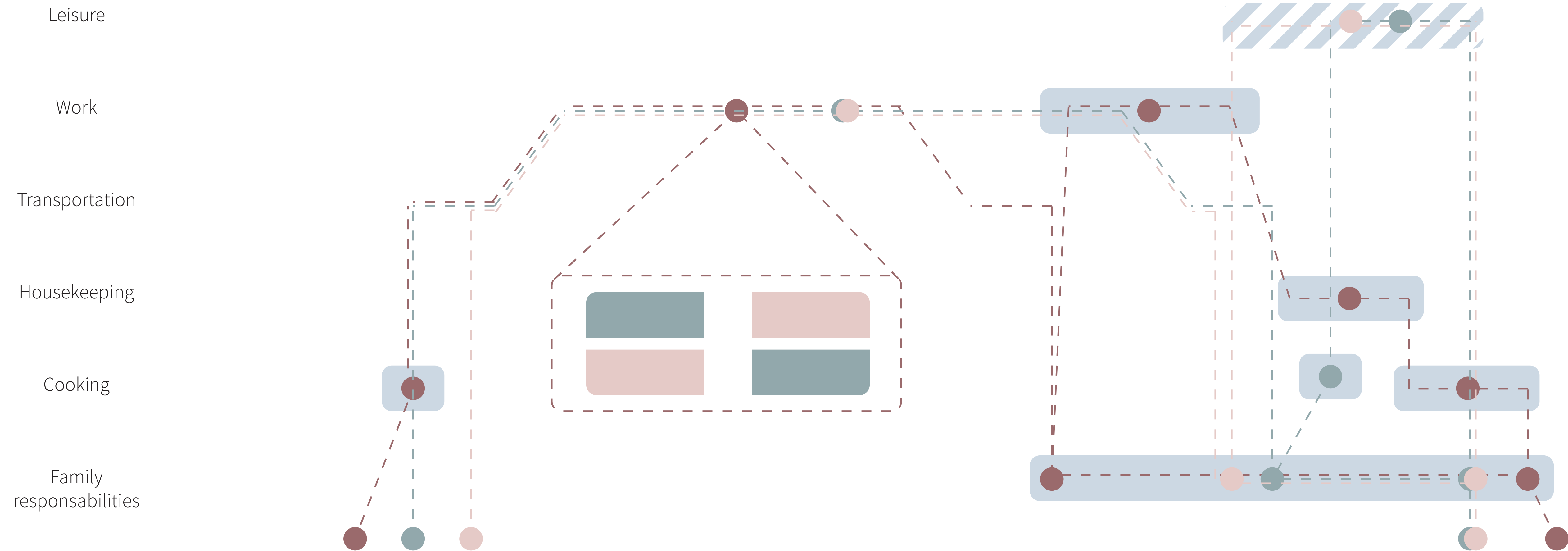


More efficient thresholds

RESEARCH

User profile

06:00 08:00 10:00 12:00 14:00 16:00 18:00 20:00 22:00 00:00



Home

Home or elsewhere



Lakshmi

Low-income
Lives far from work and amenities
Works as housekeeper and does extra work from home



Priya

Middle-income
Lives relatively close to work and amenities



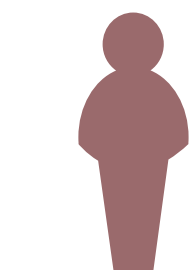
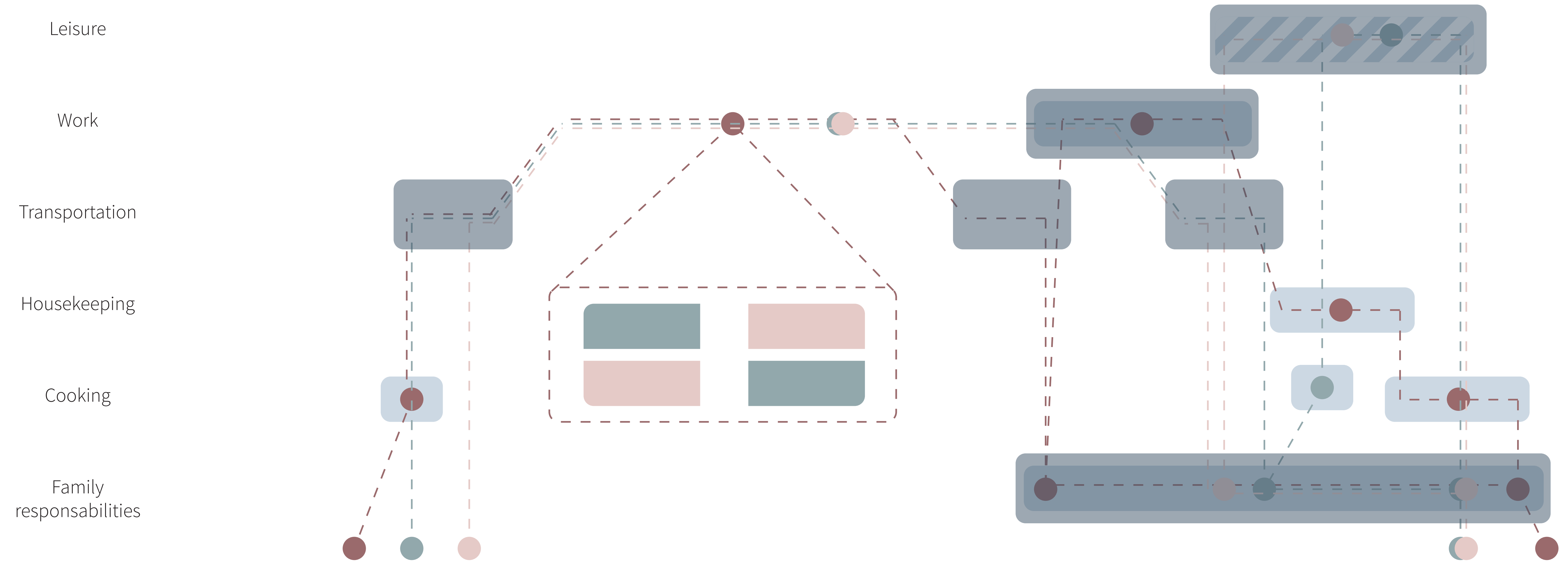
Jasmine

High-income
Lives close to work and amenities

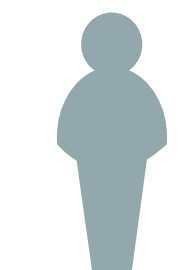
RESEARCH | PEOPLE

User profile

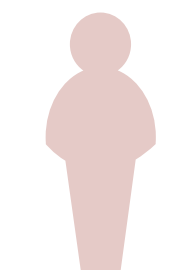
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Lakshmi
Low-income



Priya
Middle-income

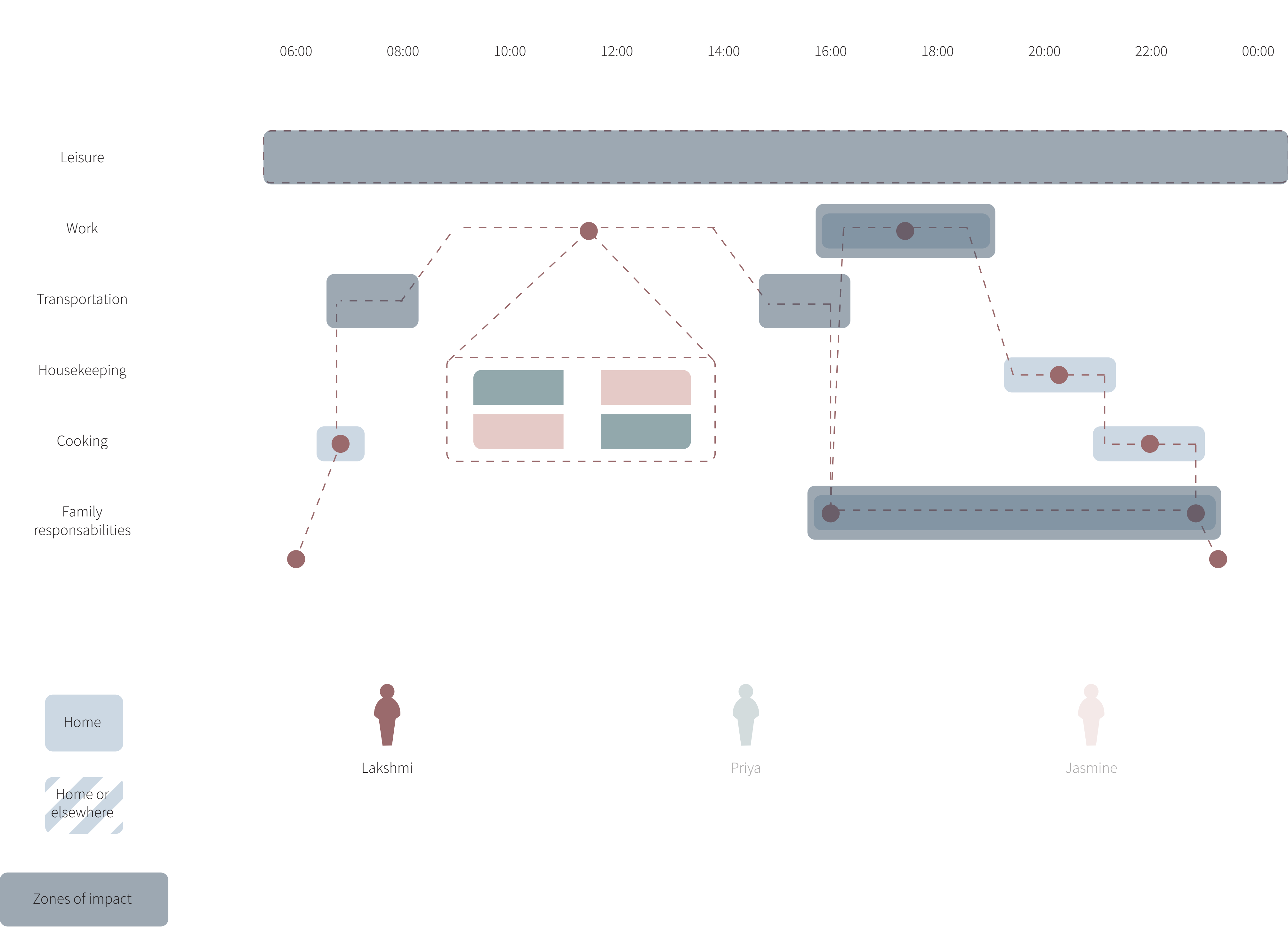


Jasmine
High-income

Zones of impact

RESEARCH | PEOPLE

User profile



Lakshmi
Low-income resident

Zones of impact

Transportation time

By providing better connections linking the new neighbourhood to public transport, Lakshmi can get to and from work faster. These connections can also be used for easier reach to parts of the city for other purposes.

Proximity to other residents from different income groups would improve Lakshmi's chances of getting hired by these, and would significantly decrease time spent on transport.

Family responsibilities

Child caring often ends up being the responsibility of the woman in the family. By offering places for children to play in, Lakshmi and her other neighbours can take turns in watching the children, while also taking care of other responsibilities.

Working from home

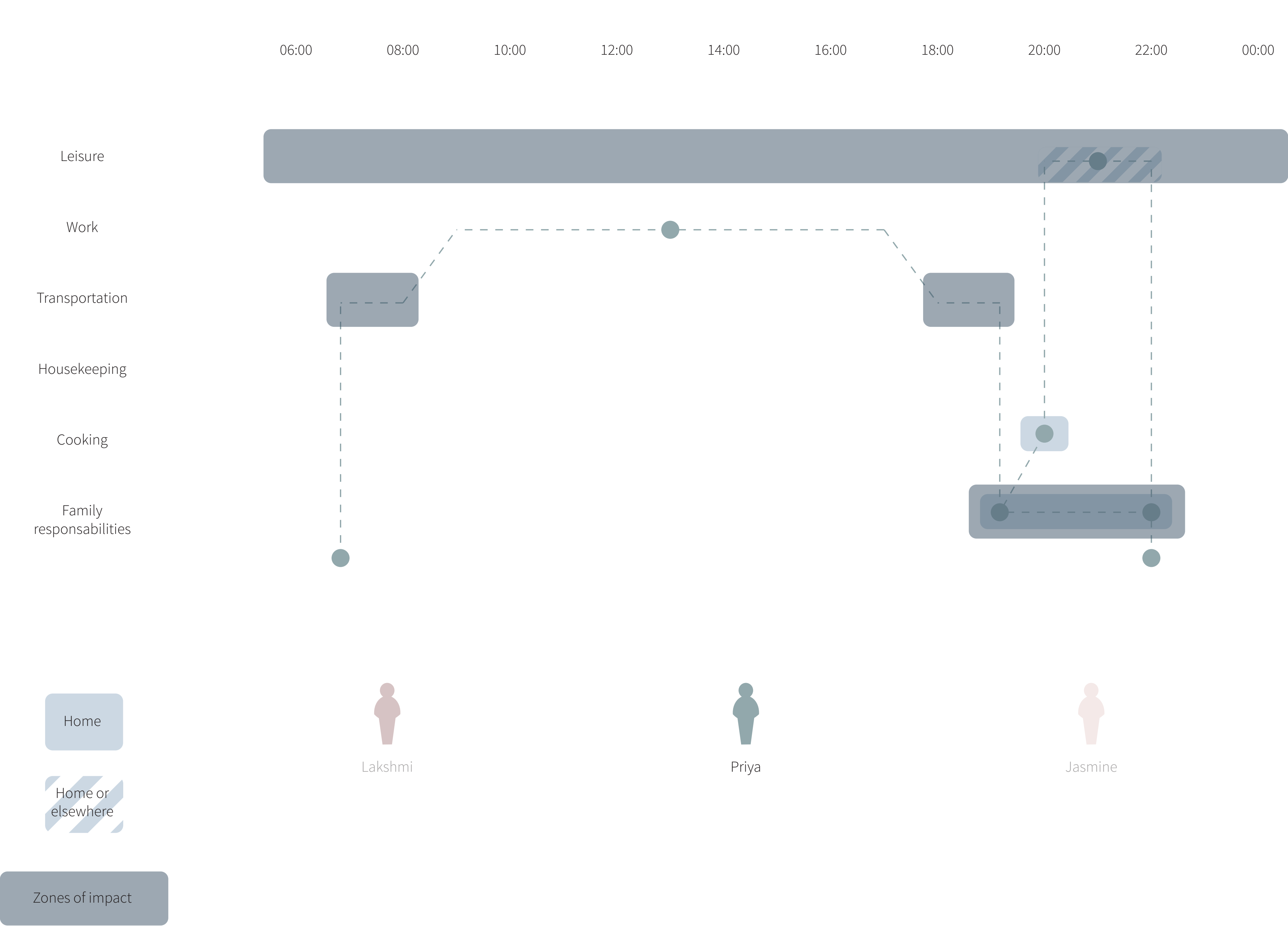
Lakshmi counts on other income-generating activities that she can do at home, such as laundry, bead working or others. Having a better environment to do these could improve her efficiency and products.

Leisure

Providing safe and comfortable leisure spaces in the proximity of Lakshmi's home could help her to spend time for herself.

RESEARCH | PEOPLE

User profile



Priya
Middle-income resident

Zones of impact

Transportation time

By providing better connections linking the new neighbourhood to public transport, Priya can get to and from work faster. These connections can also be used for easier reach to parts of the city for other purposes.

Family responsibilities

Child caring often ends up being the responsibility of the woman in the family. By offering places for children to play in, Priya and her other neighbours can take turns in watching the children, while also taking care of other responsibilities.

Taking care of the household

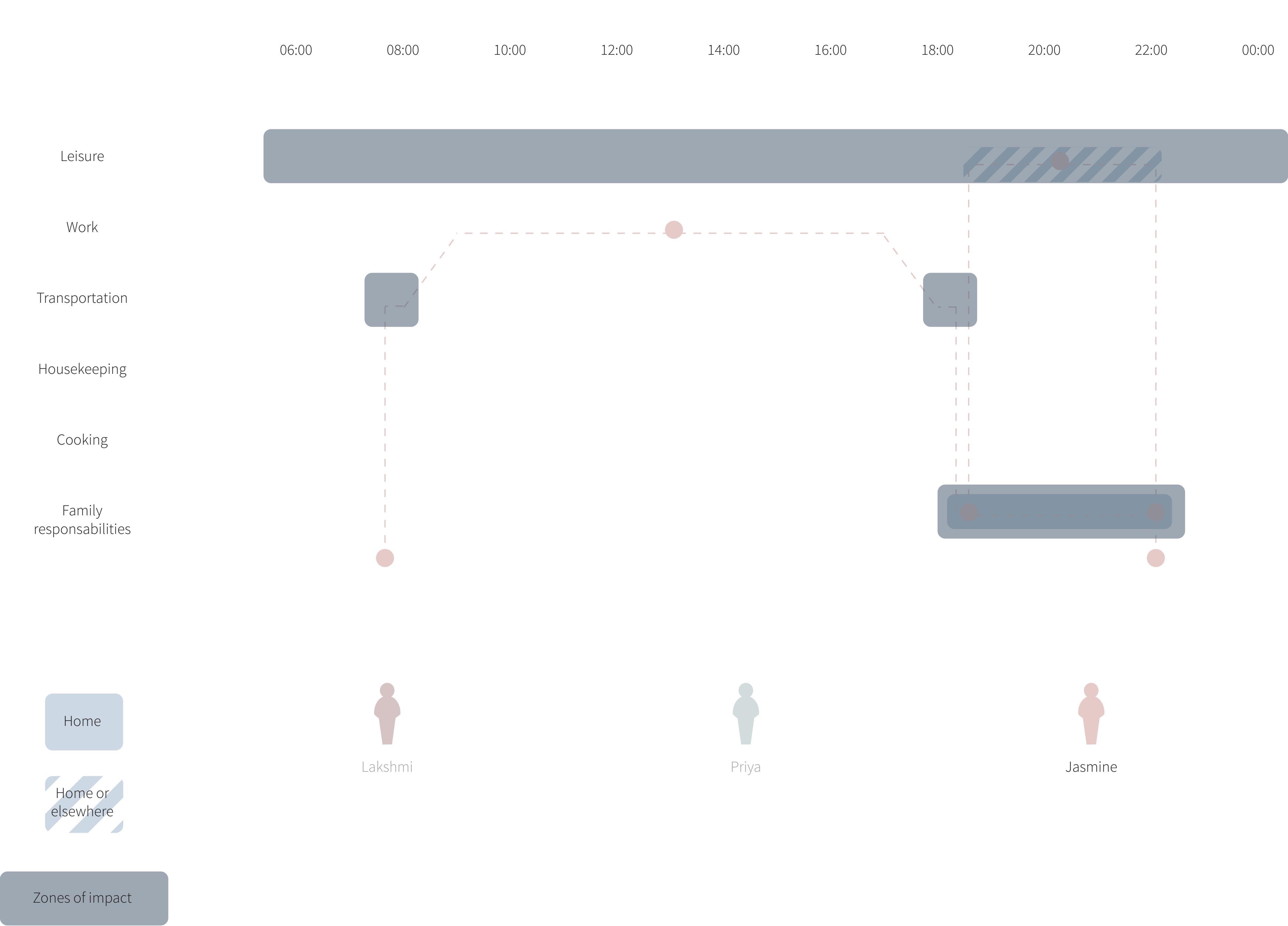
Proximity to other residents from different income groups would help Priya, who is now able to hire someone living close-by to help her with housekeeping.

Leisure

Providing safe and comfortable leisure spaces in the proximity of Priya's home would help her take time off when needed without the need to travel elsewhere for amenities.

RESEARCH | PEOPLE

User profile



Jasmine
High-income resident

Zones of impact

Transportation time

By providing better connections linking the new neighbourhood to public transport, as well as good connections for private transport, Jasmine can get to and from work faster. These connections can also be used for easier reach to parts of the city for other purposes.

Family responsibilities

Child caring often ends up being the responsibility of the woman in the family. By offering places for children to play in, Jasmine and her other neighbours can take turns in watching the children, while also taking care of other responsibilities.

Taking care of the household

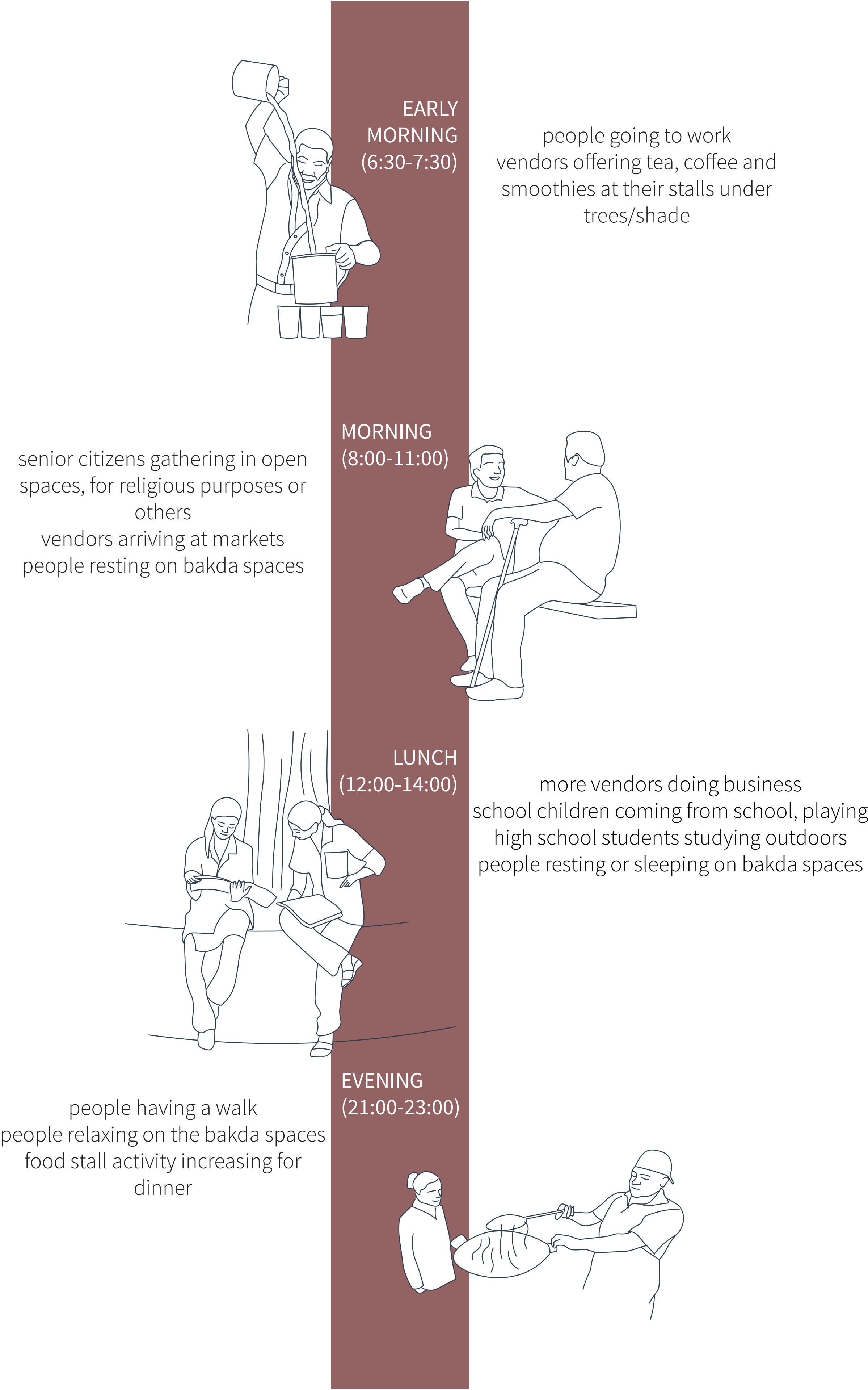
Proximity to other residents from different income groups would help Jasmine, who is now able to hire someone living close-by to help her with housekeeping and cooking.

Leisure

Providing safe and comfortable leisure spaces in the proximity of Jasmine's home could help her to spend time for herself. Diverse amenities close to her home would also improve her living conditions.

RESEARCH | SPACES

Public spaces timeline



HOUSING PROPOSAL S+pS Architects

- pedestrian community connected by nature
- mixed-use, lower levels for public activities
- limit vehicular access
- low-rise without elevators
- creating a sense of space with Indian spatial typologies
- spaces spanning different social groups, age groups and usage typologies
- mixture of these Indian spatial typologies

- streets in the sky
- mediating the entry area with a threshold space, the *otla*
- single sided circulation corridor for light, ventilation and views
- risen dwelling at the *otla* level providing privacy from circulation corridor level

- loft unit providing additional bedroom space



Proposed site plan
Not to scale

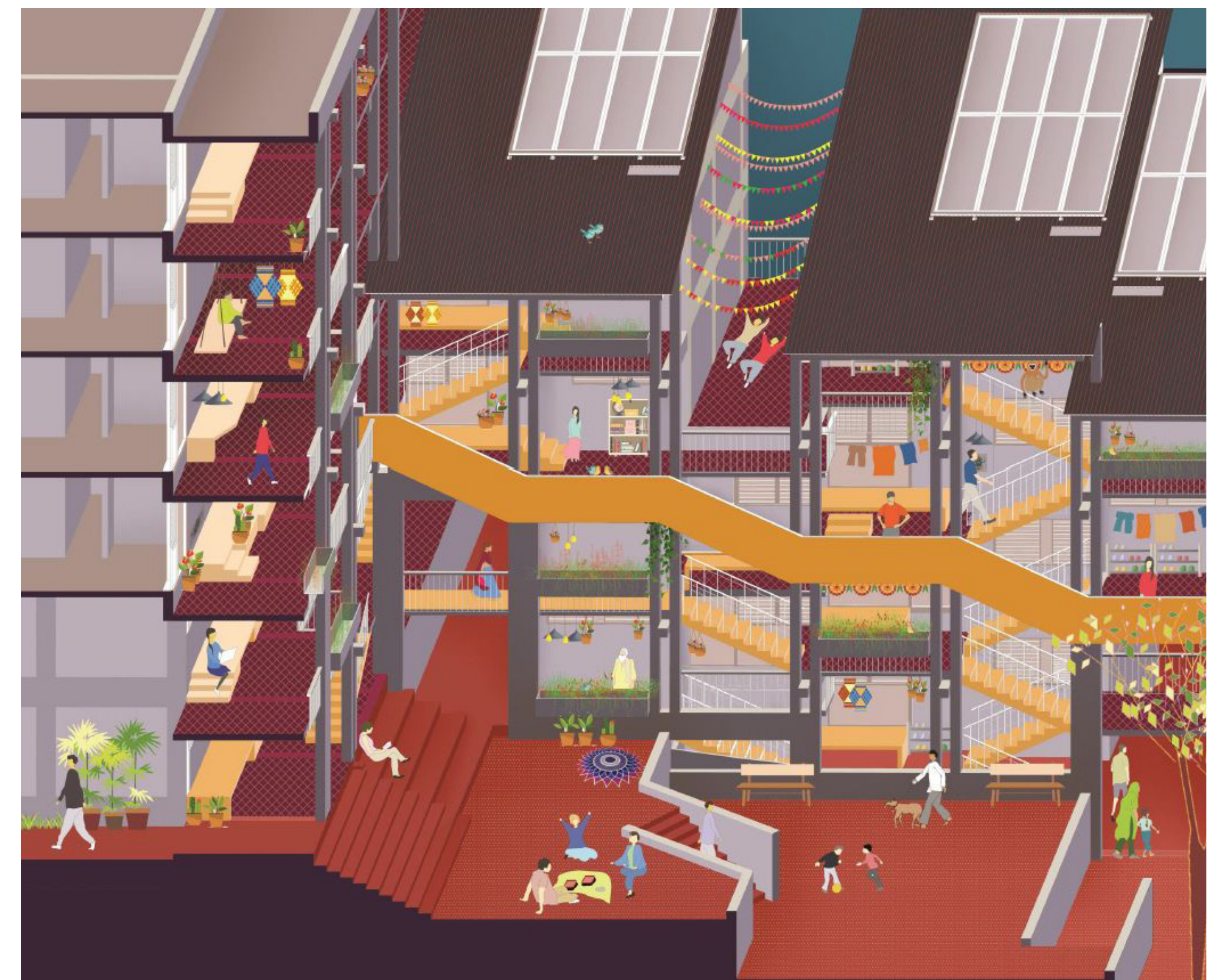


Illustration of pedestrian path and dwellings

Public spaces

Analysis on the typologies of public spaces present in the Indian context. Common typologies are ghat, maidan, temple courtyard, chauraaha, aangan, bakda and katta.

Establishing which would offer most benefits for all residents is taken into consideration. The employed public spaces should create a sense of belonging across age, income and social group.

GHAT

a series of steps leading down to a body of water, used for bathing or cremation, along a river

CHAIWALLA

a small roadside shop

CHAURAAHA

crossroad or intersection

GANPATI INSTALLATION

part of a Hindu festival which features cultural and economic activities, public celebrations include installing idols of Lord Ganesh in temporary shelters/stages

TEMPLE COURTYARD

open space for a religious building

PANCHVATI

religious space beside the river Godavari



KATTA

ledge around a tree for seating in shade



BAKDA

resting area with benches, under a tree



MAIDAN

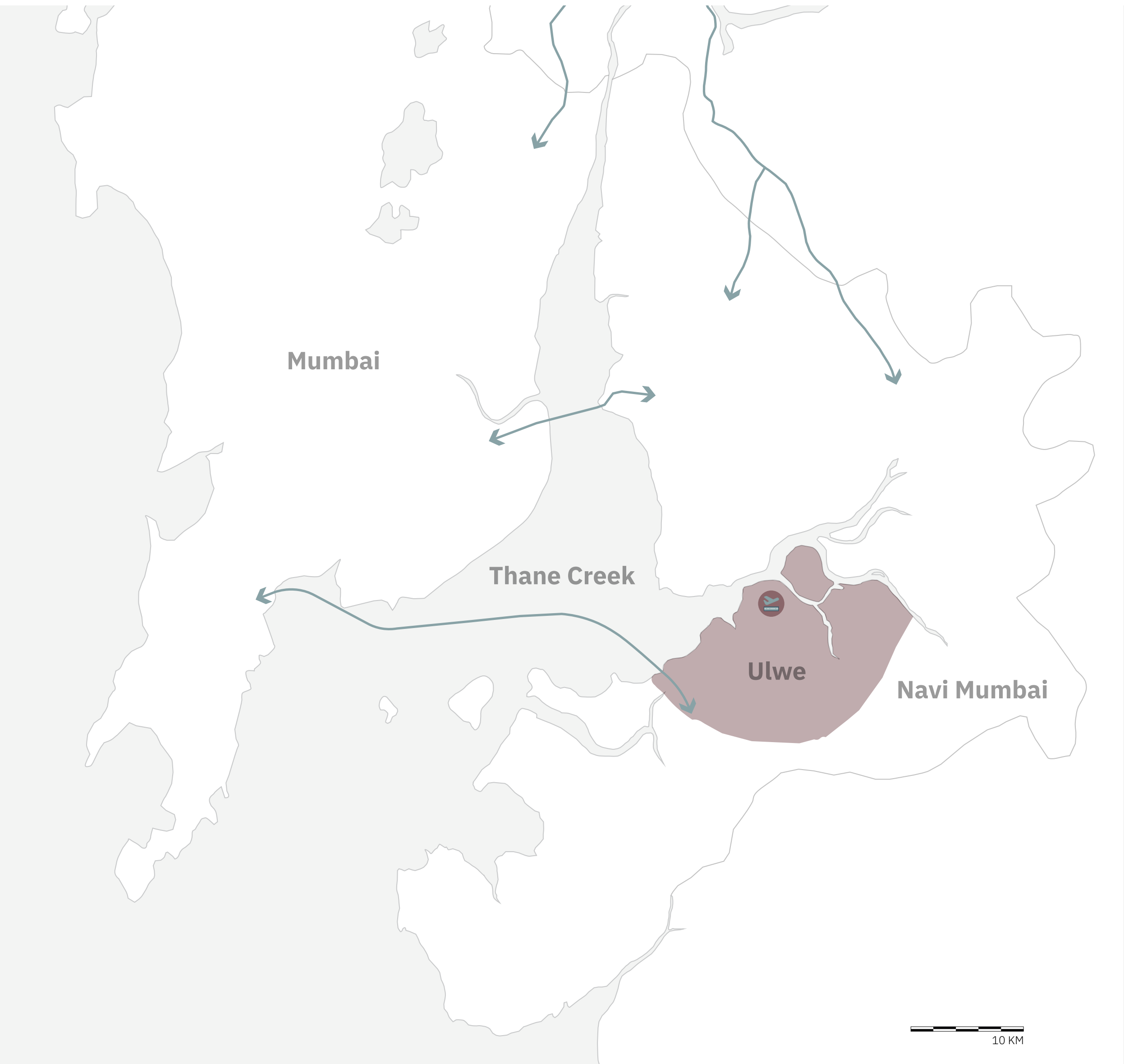
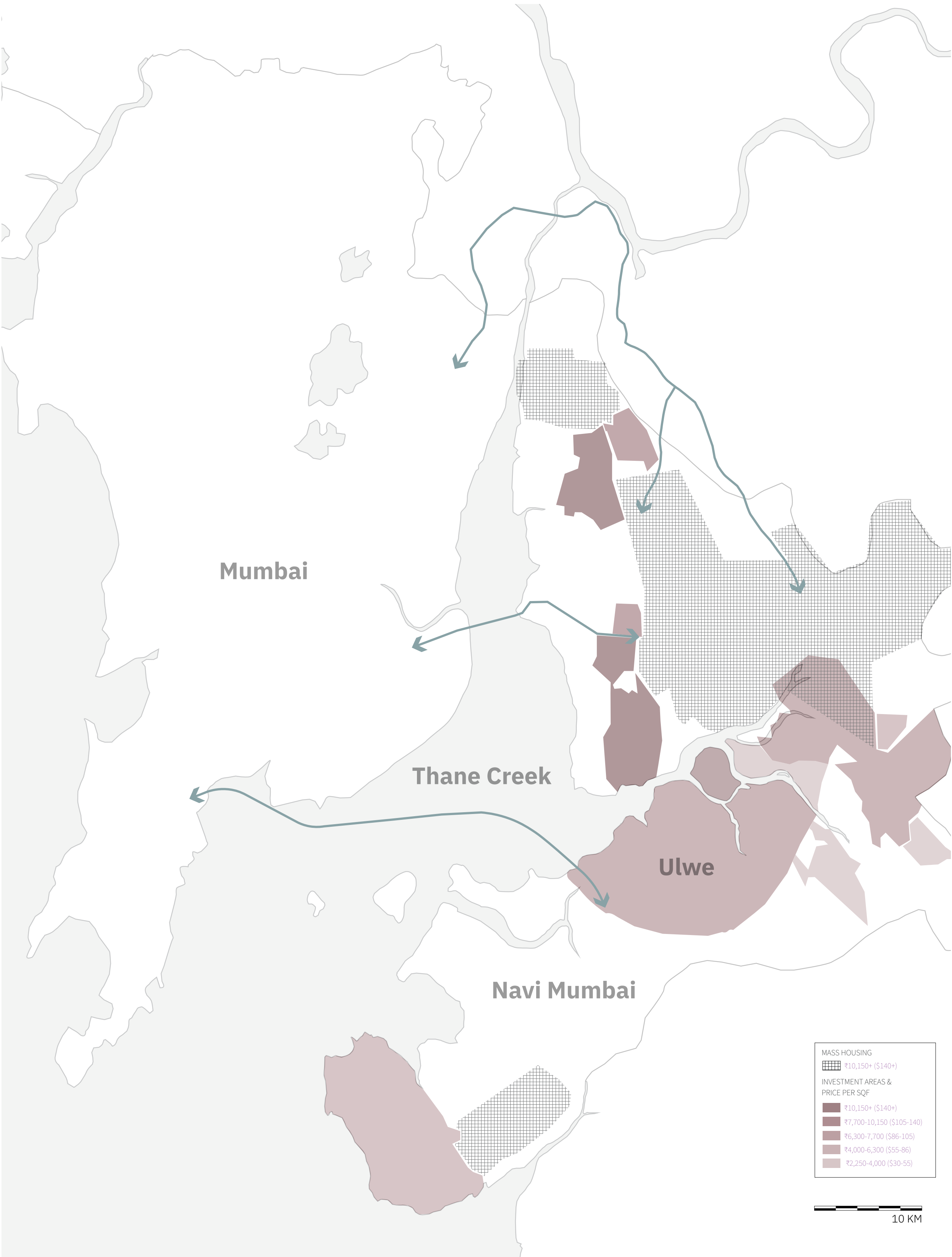
emblem of openness, public gathering place for informal congregation, an open field, large public area, usually empty



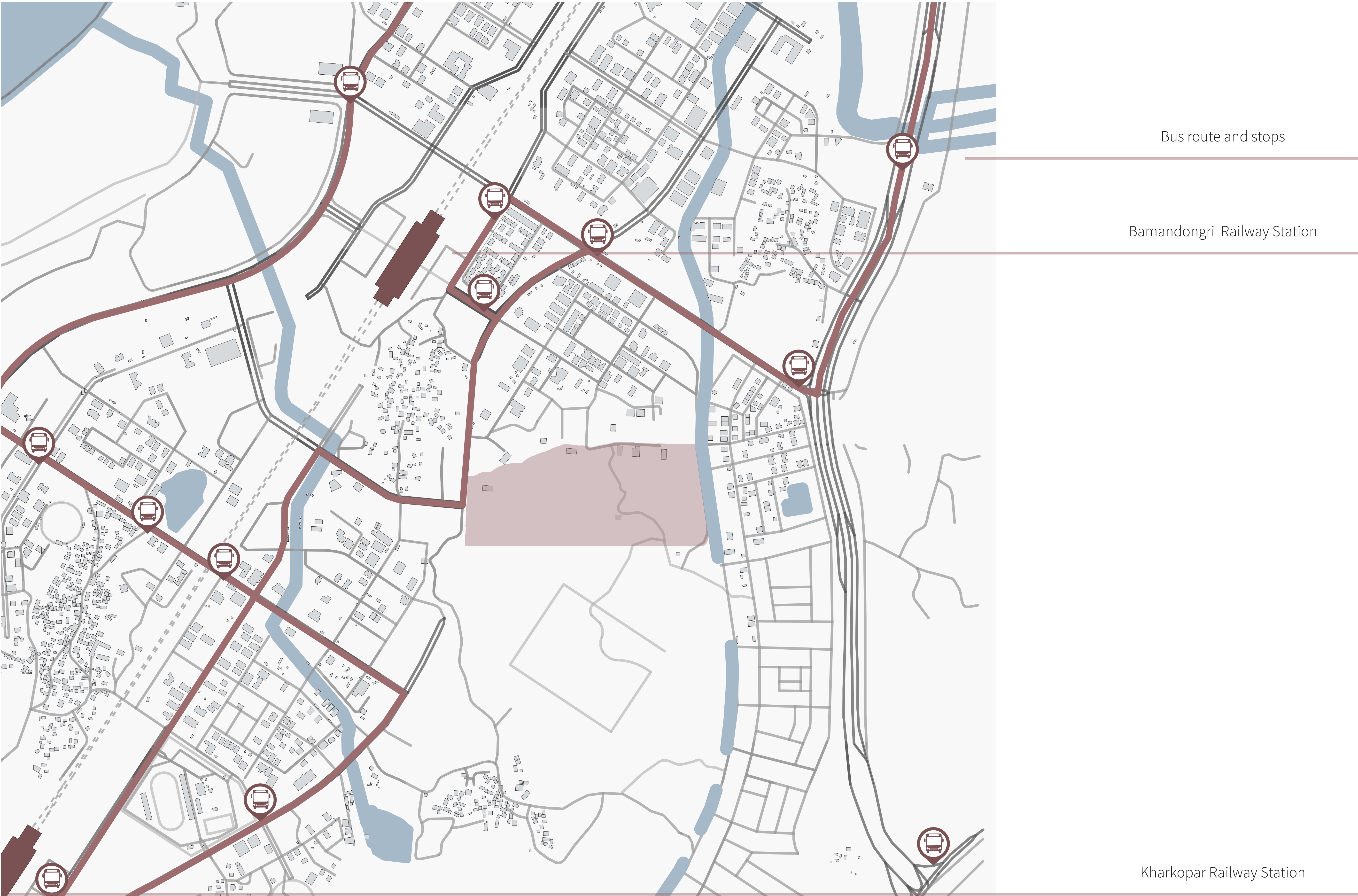
AANGAN

courtyard, enclosed space adjoining a house

Potential of the node to become a high-investment zone is the near future



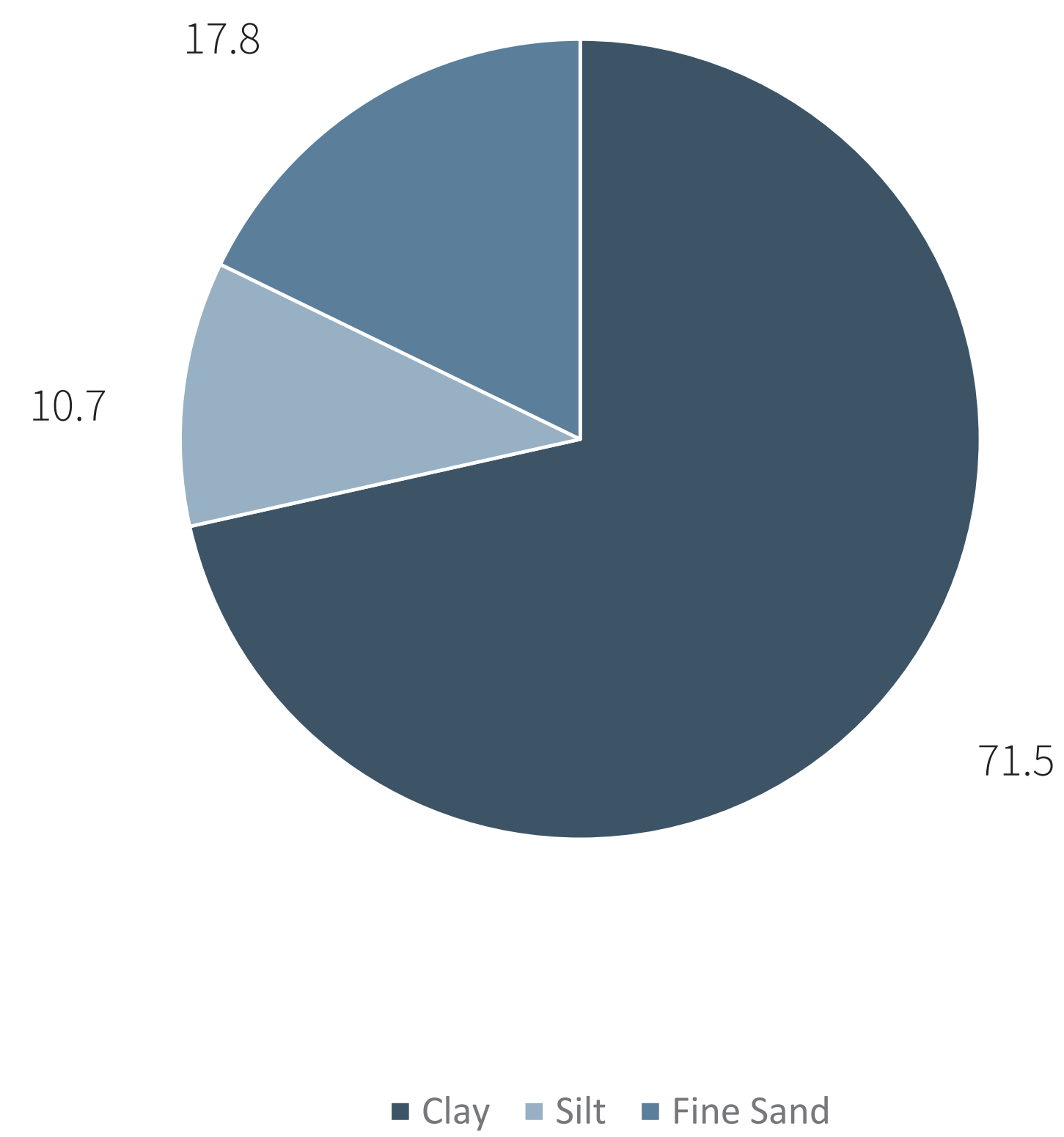
Connections to Mumbai



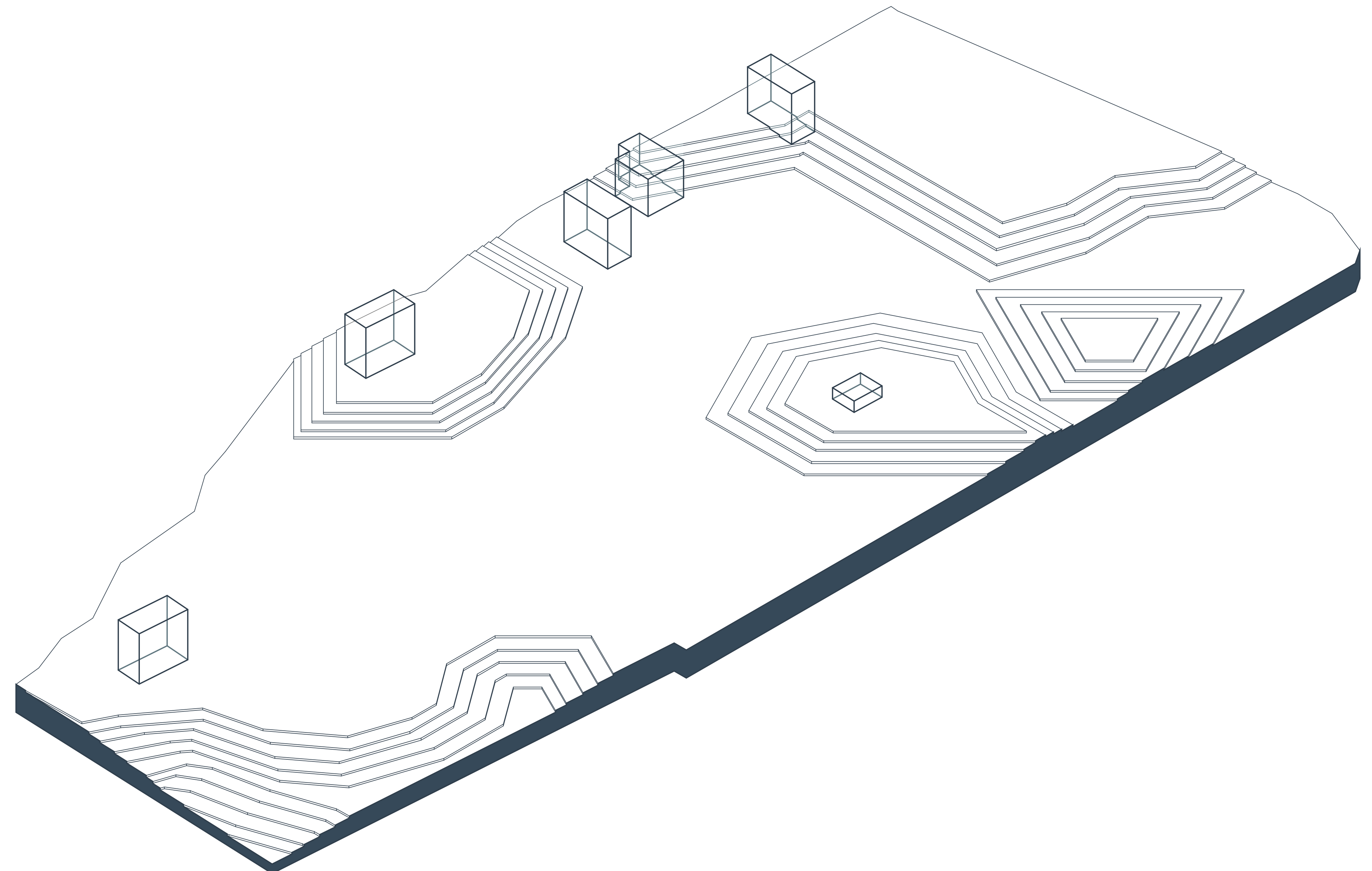
Transport links
Scale 1:5000 on A1

Existing buildings on site:
5 apartment buildings (up to 10 floors)
Hindu Temple

Soil texture analysis



Source: Environmental Compliance Monitoring Report Navi Mumbai International Airport (NMIA)



Site axonometry, 1m levels, with existing buildings
NTS



1 Apartment building on site

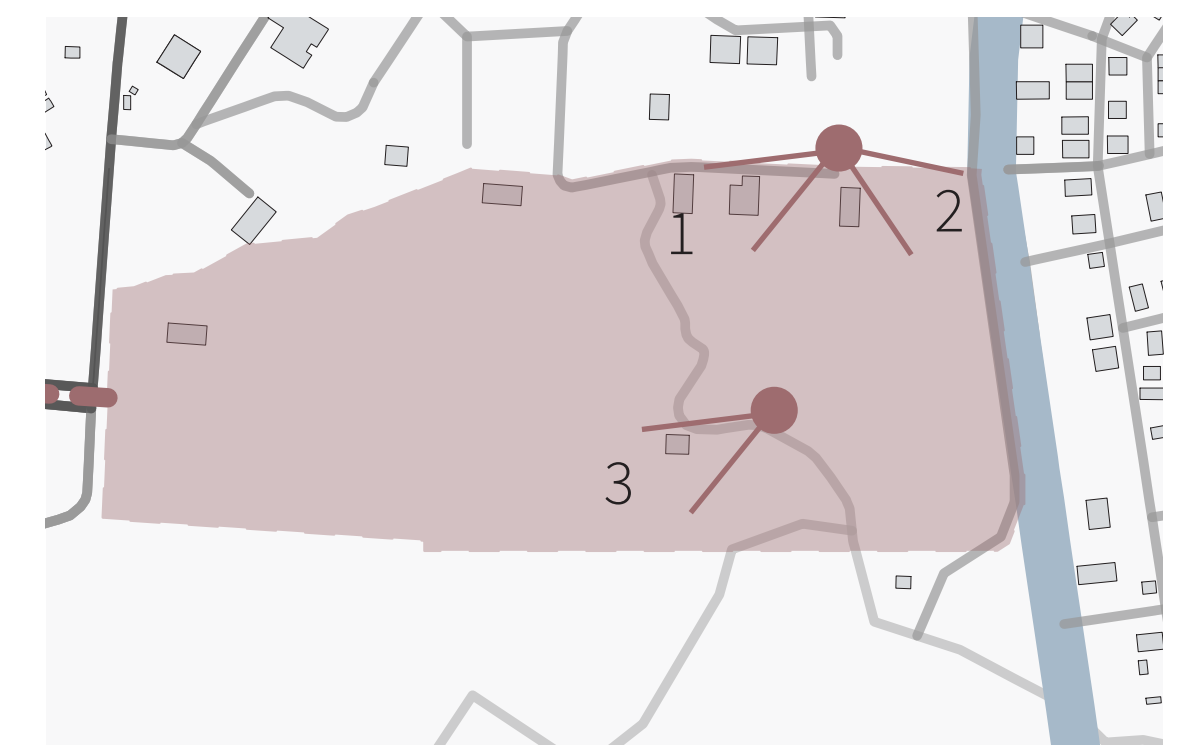


3 Hindu Temple on site

Source: Google Maps

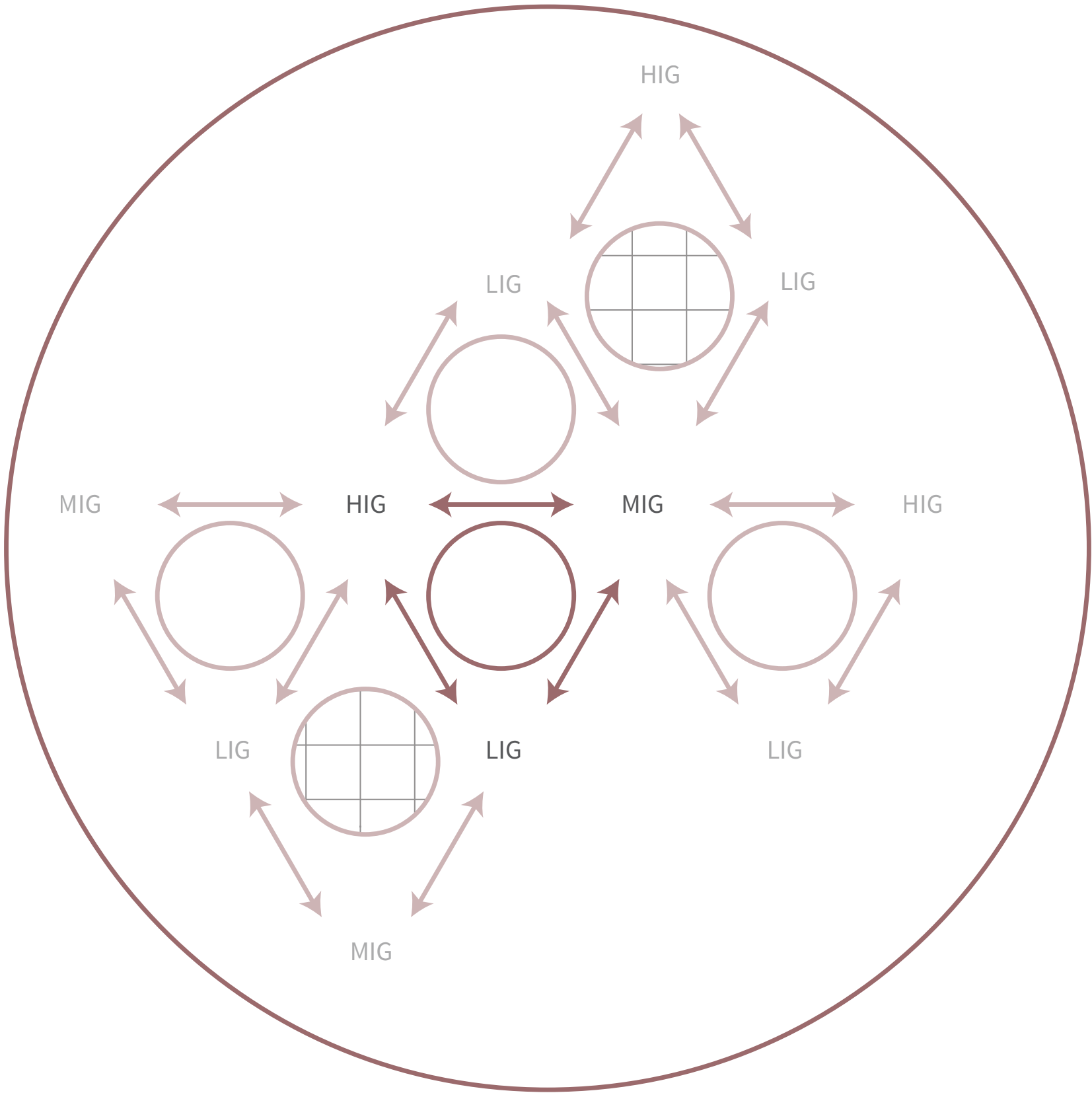


2 Apartment building on site



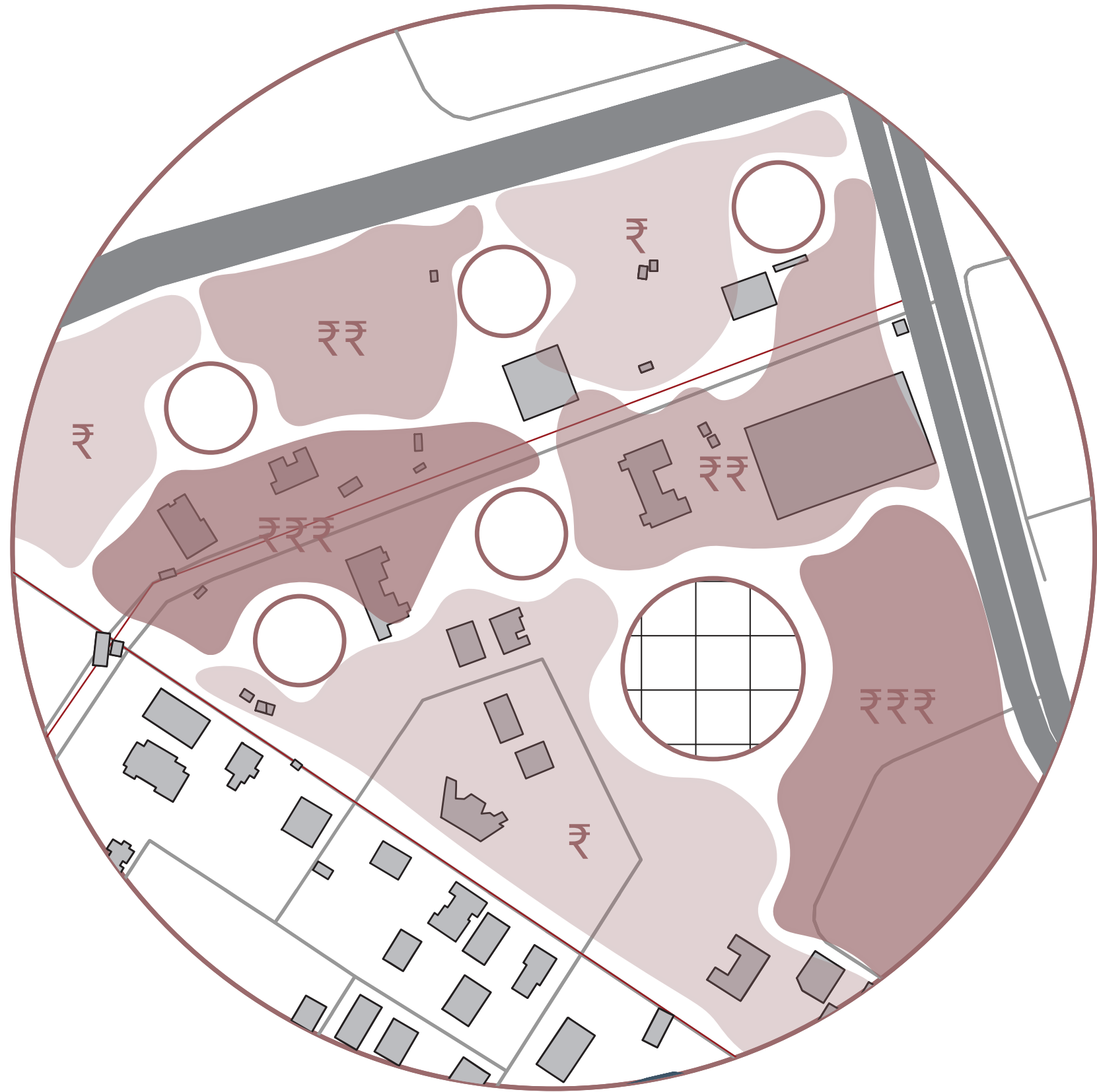
Site picture locations

Empty plot



- Provide a strong amenity that all income groups would benefit from
- Establish zones for all income groups
- Arrange housing clusters around the amenity, with the cluster inner space as a community booster
- Expand the income groups zones
- Add another amenity and accompany it with the needed income group zones

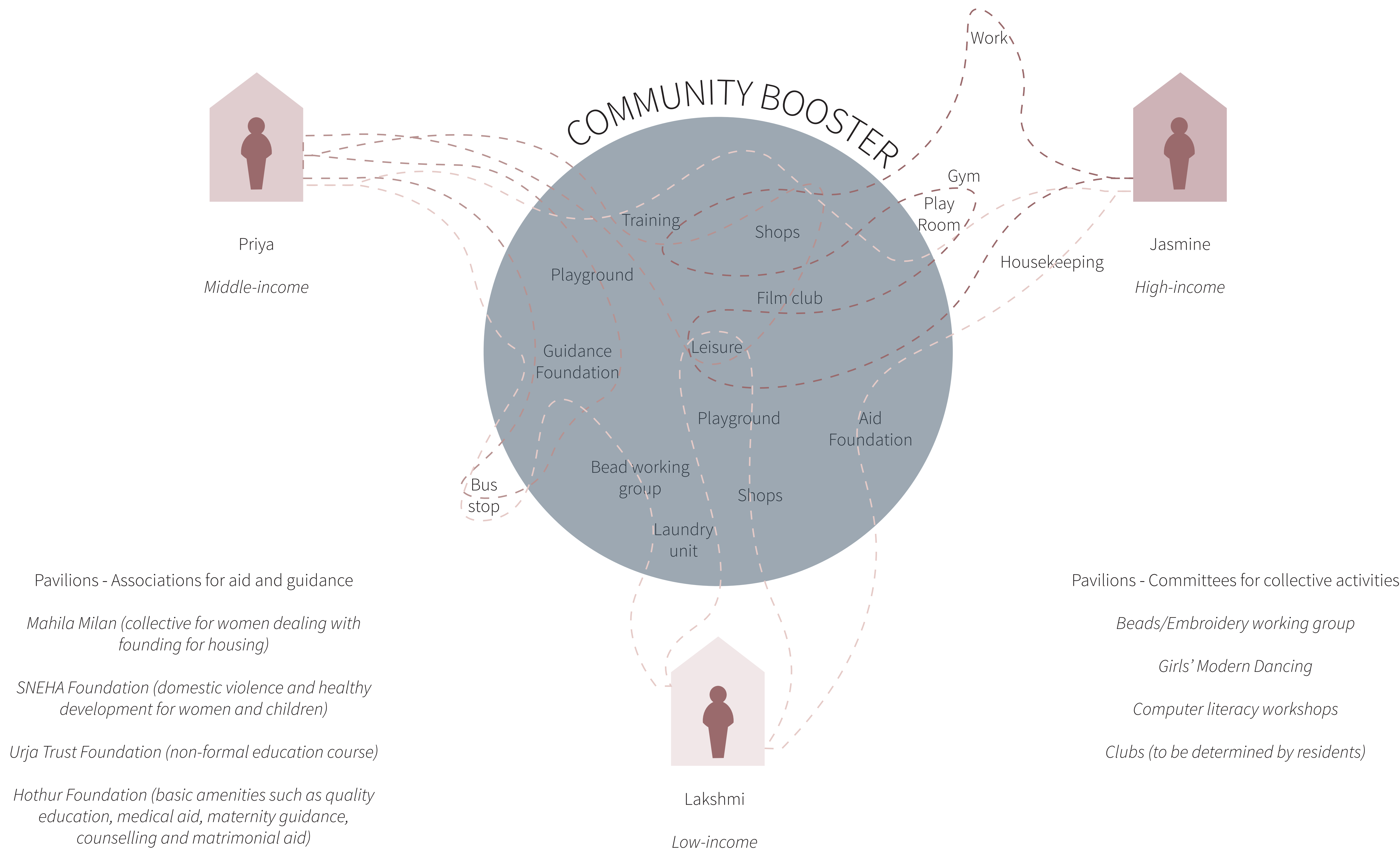
Built-up plot



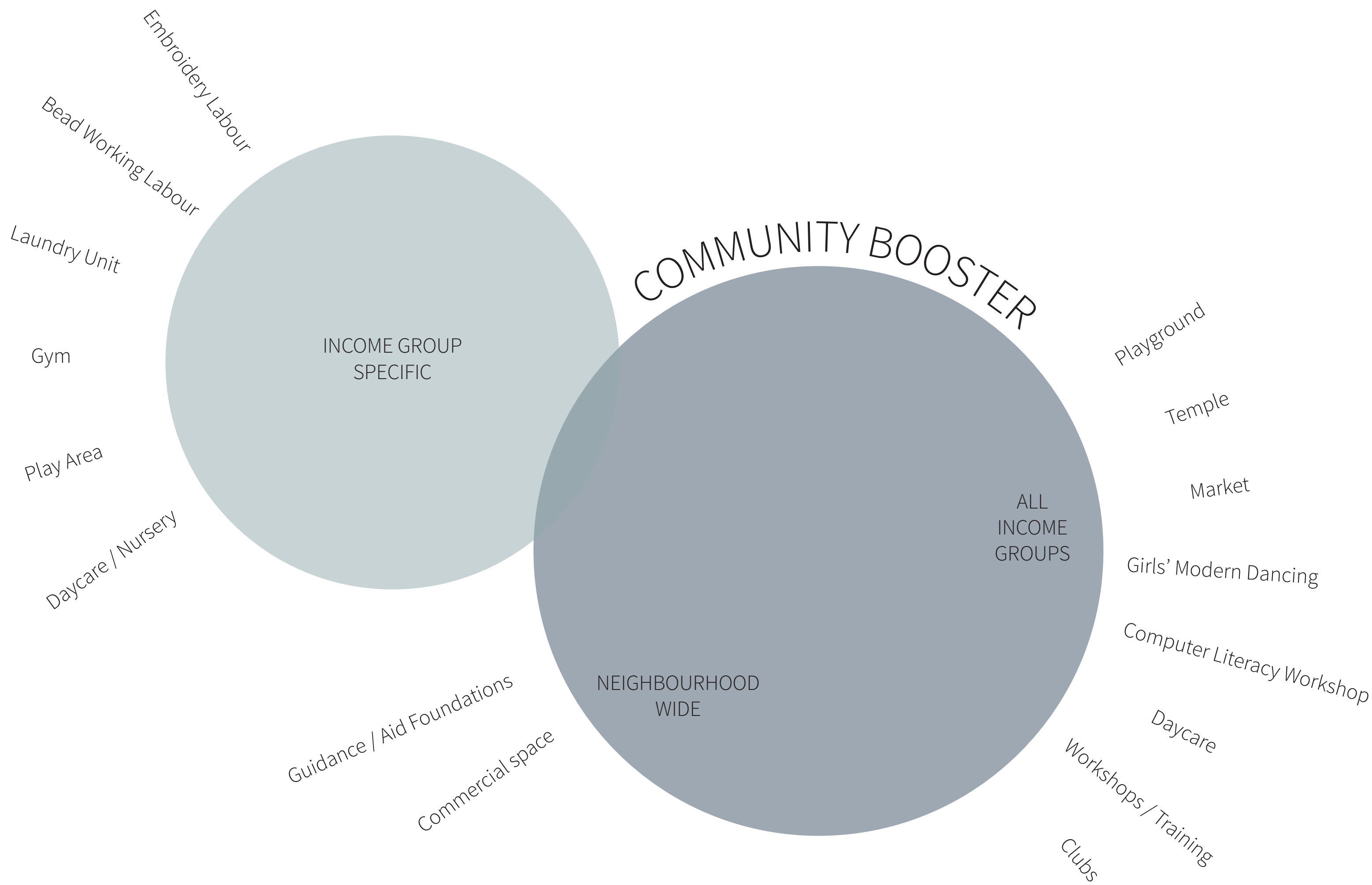
- Identify the existing social structure
- Identify or provide needed amenities that all income groups would benefit from
- Diversify the social structure by providing appropriate dwellings
- Create pockets to serve as community boosters (around which housing can be clustered)

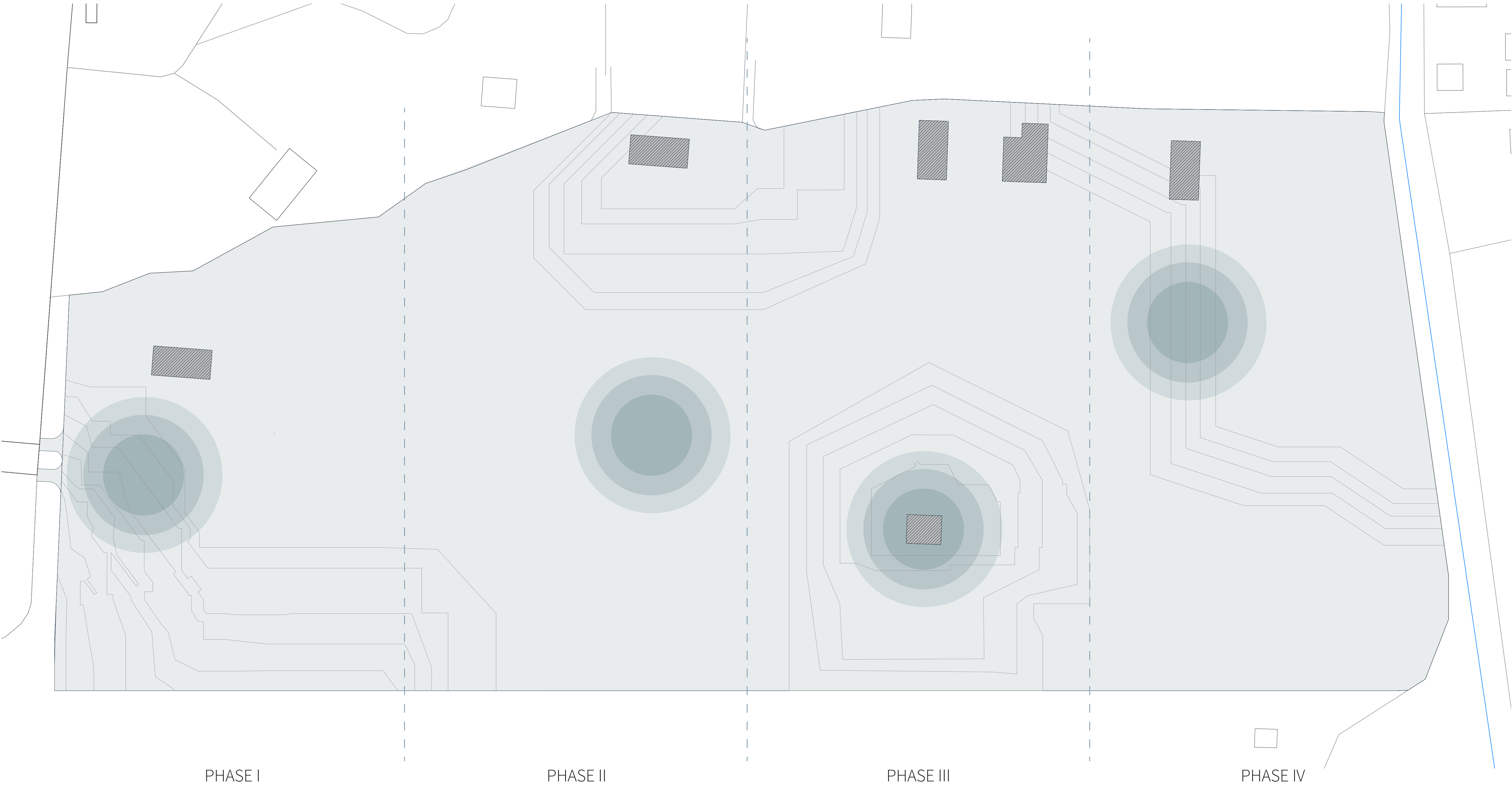
DESIGN | APPROACH

Community booster

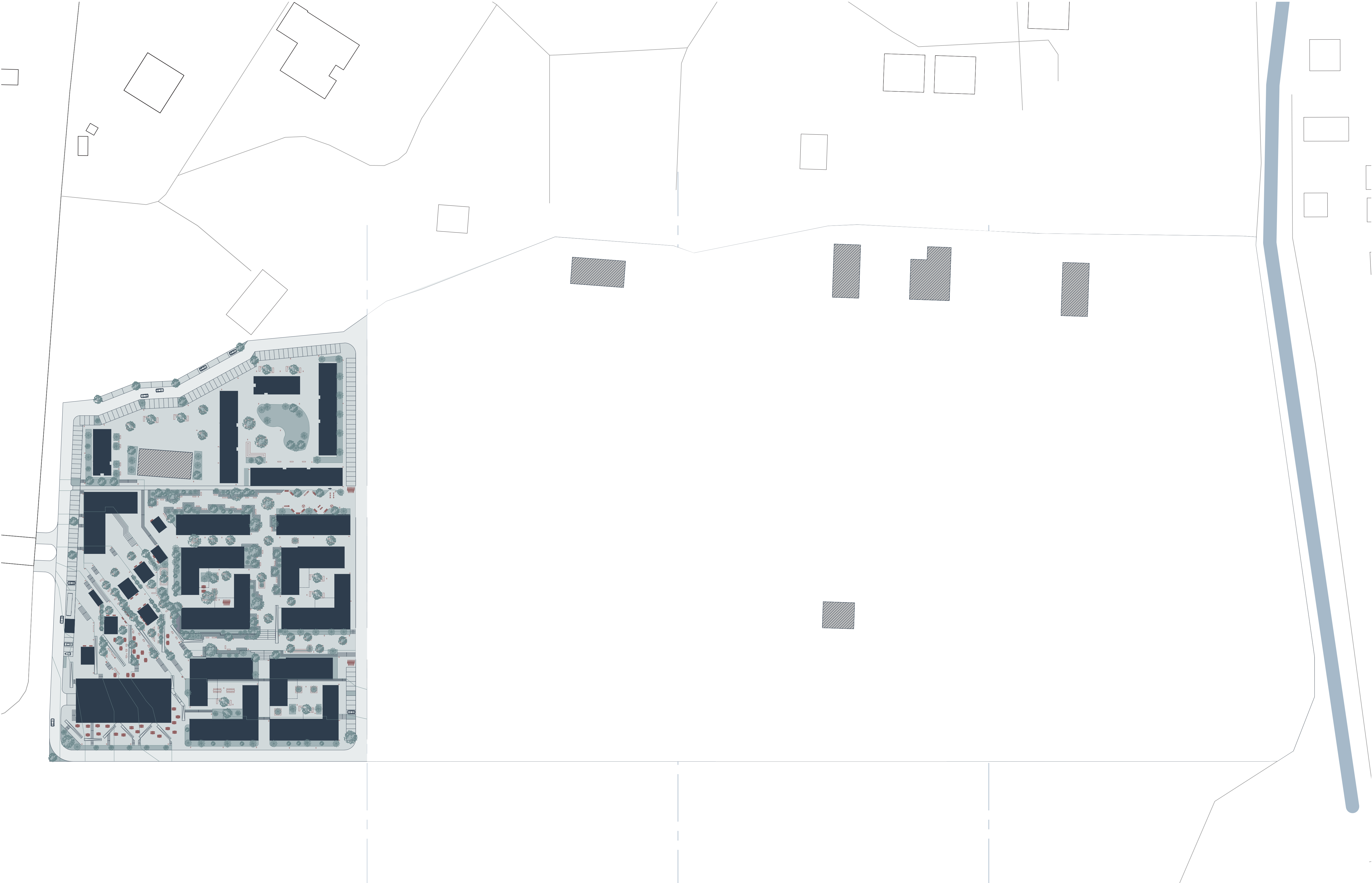


Community booster





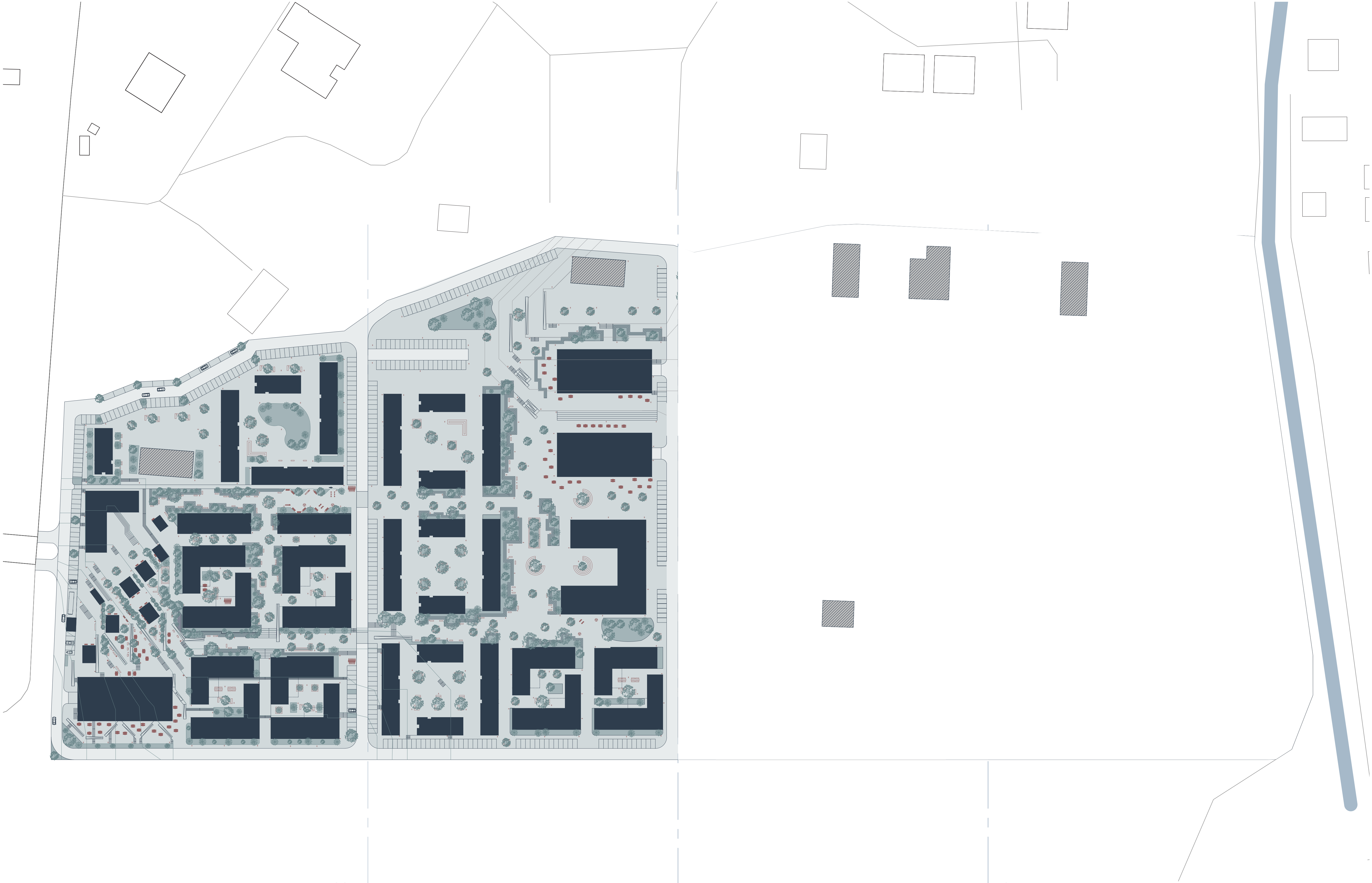
Phase II plan
Scale 1:1000 on A1



GSI=0.3

FSI=1.2

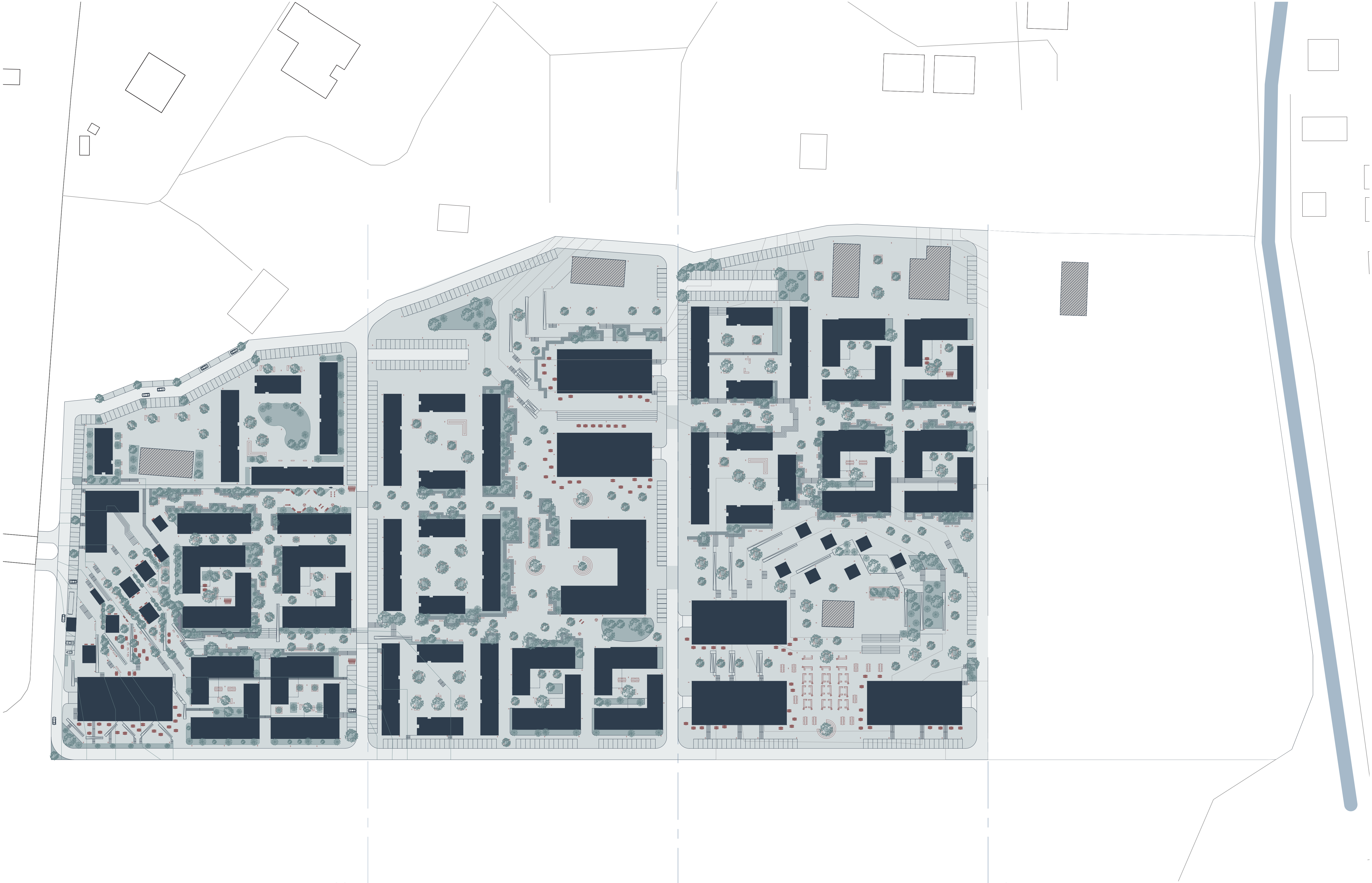
Phase I plan
Scale 1:1000 on A1



GSI=0.3

FSI=1.4

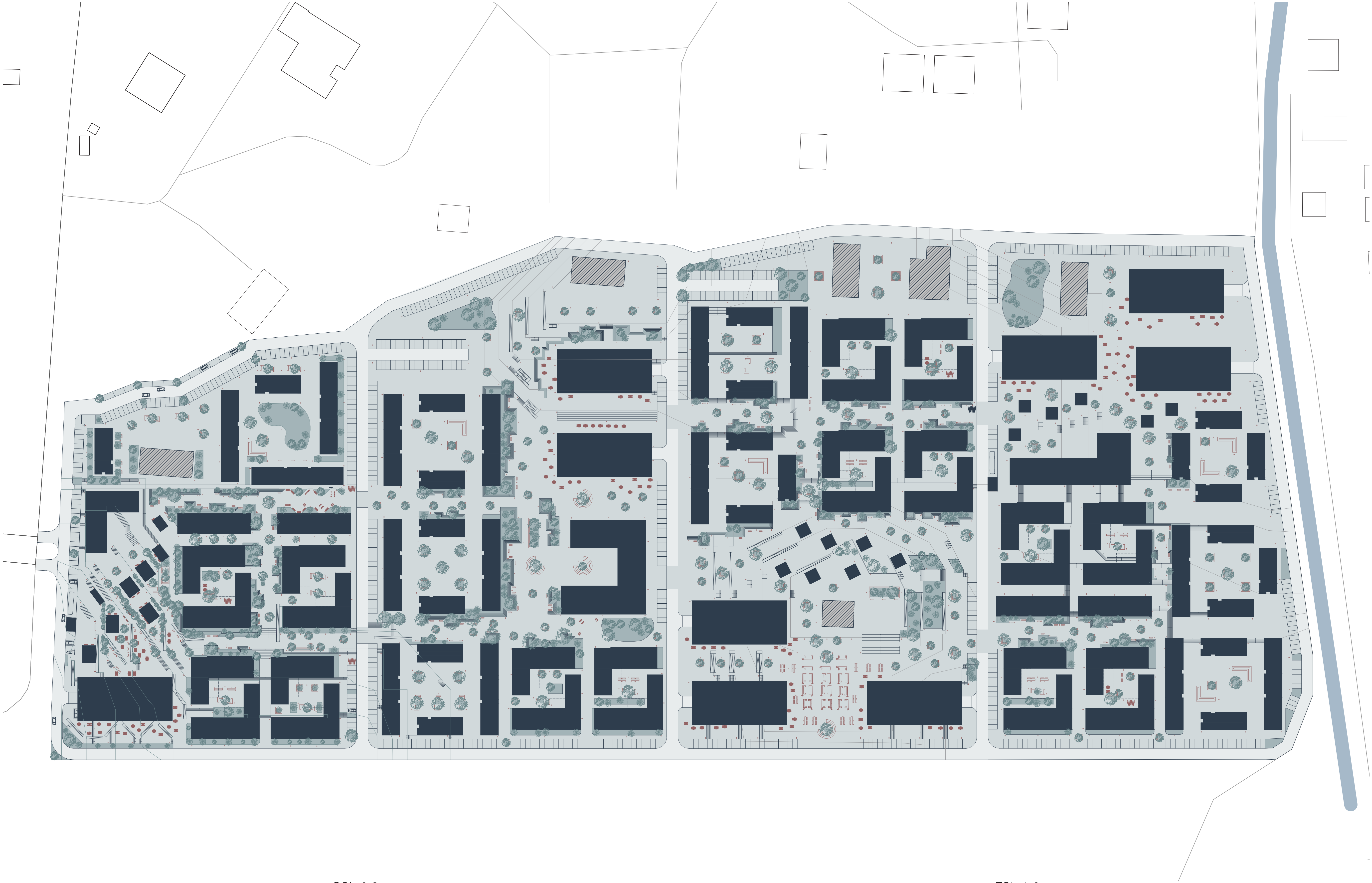
Phase II plan
Scale 1:1000 on A1



GSI=0.2

FSI=1.6

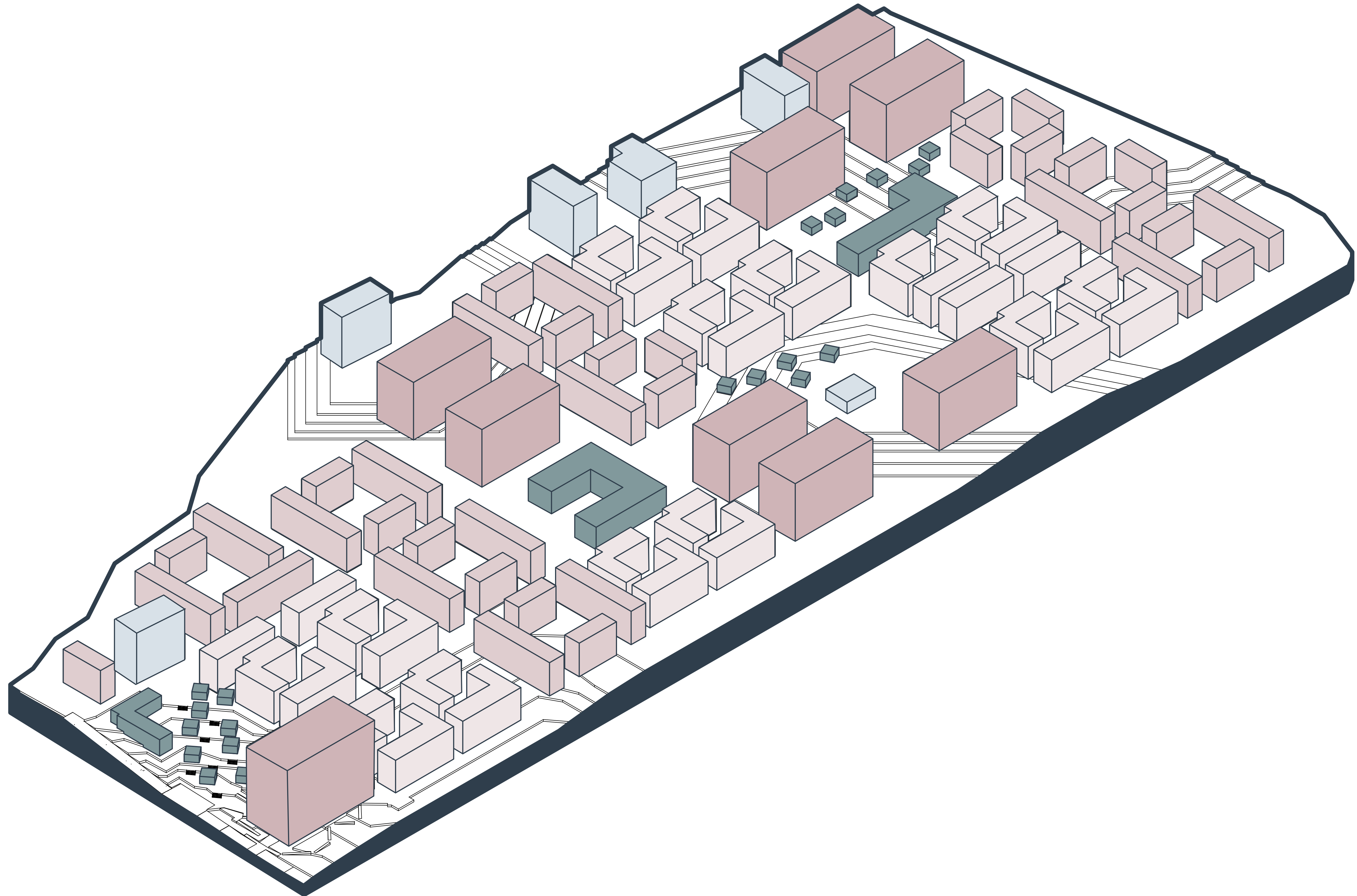
Phase III plan
Scale 1:1000 on A1



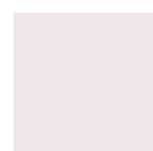
GSI=0.2

FSI=1.9

Phase IV plan
Scale 1:1000 on A1



Low-income group



Middle-income group



High-income group



Community booster



GSI=0.25

Proposed masterplan massing axonometry

FSI=1.5

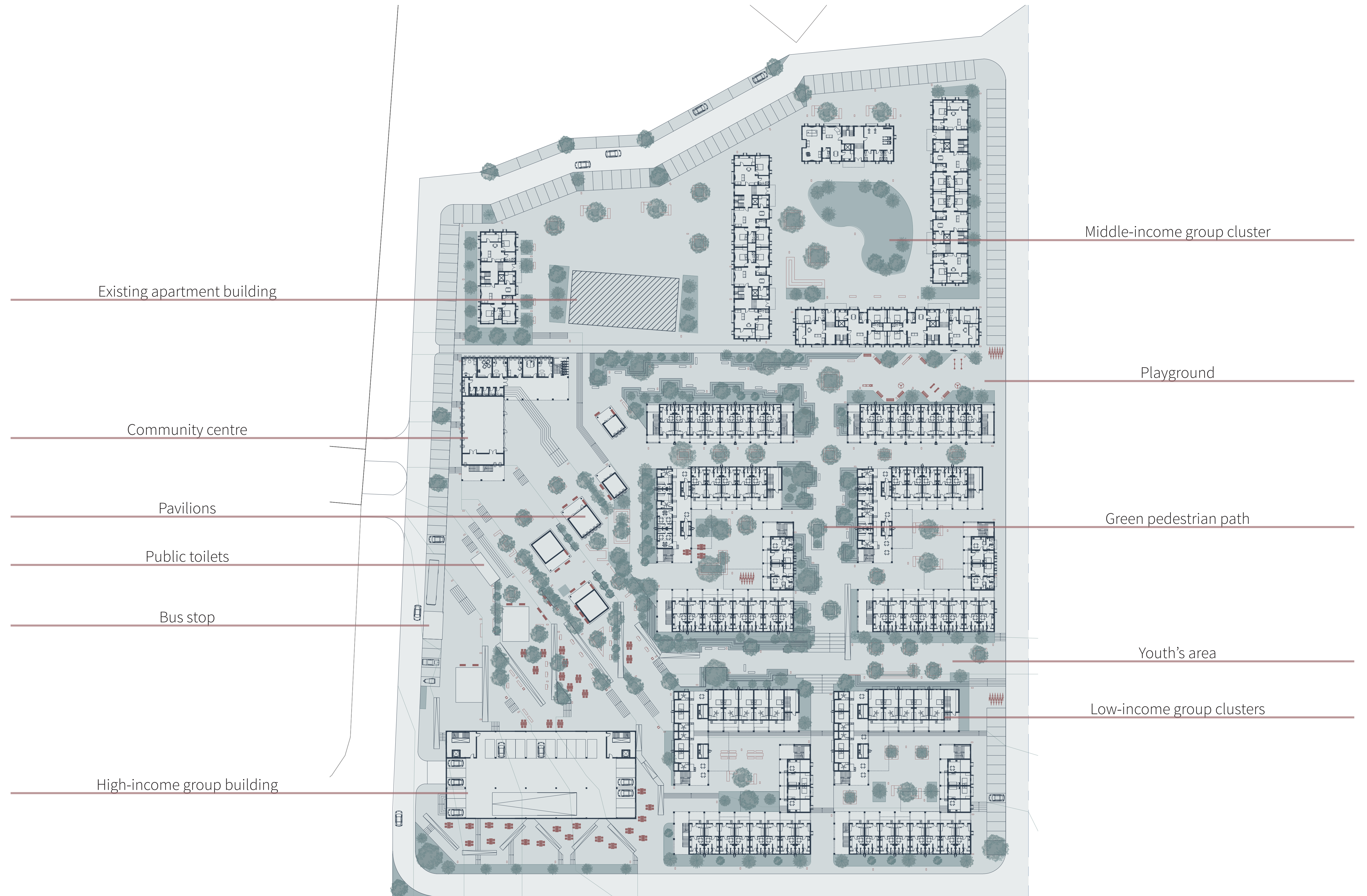
Not to Scale

PROPOSED MASTERPLAN

PHASE I



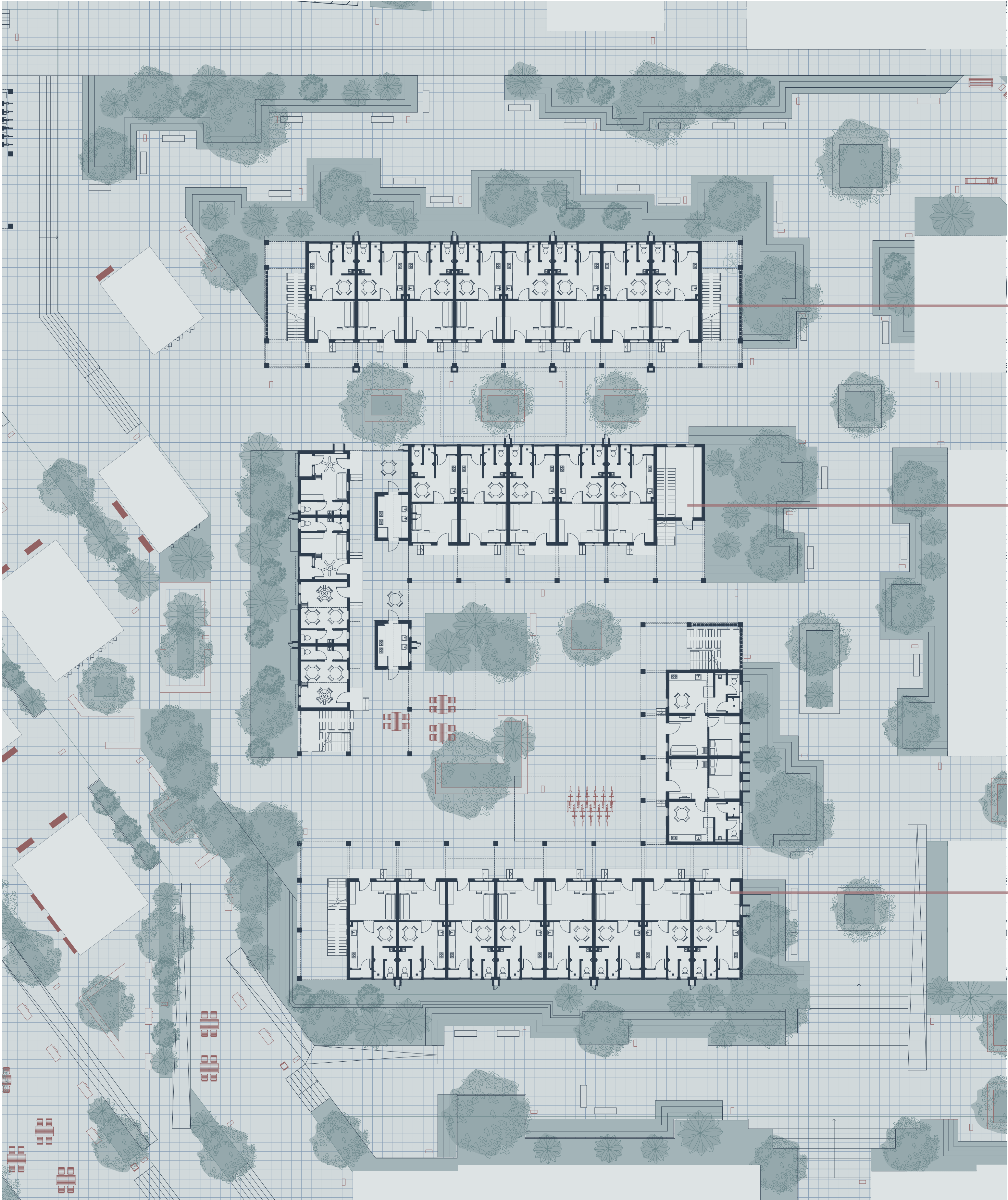
Phase I axonometry
Not to scale



Ground floor plan
Scale 1:500 on A1

LOW-INCOME GROUP

Cluster



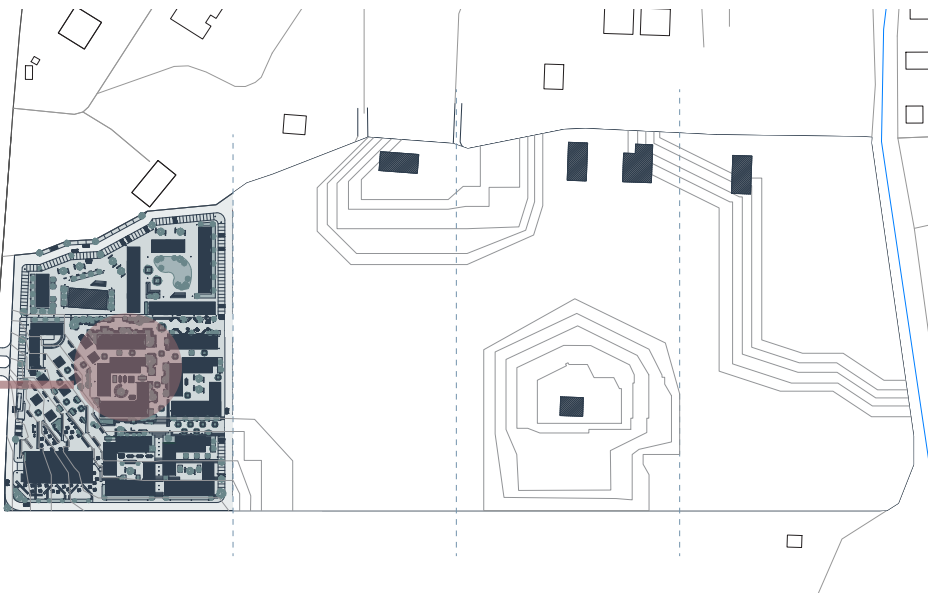
Border typology

Cluster I typology

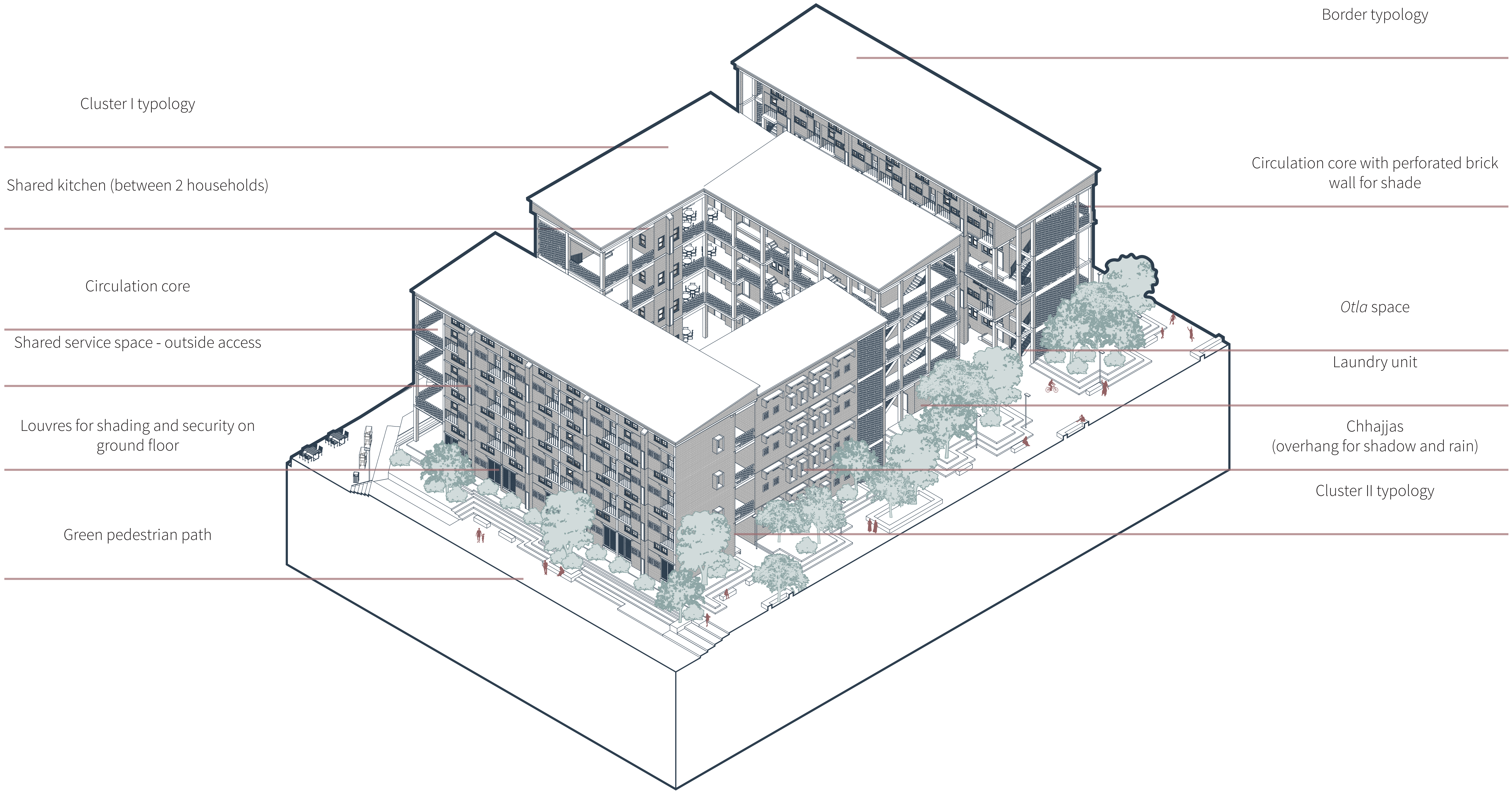
Cluster II typology

Low-income group cluster plan - Ground floor
Scale 1:200 on A1

Location



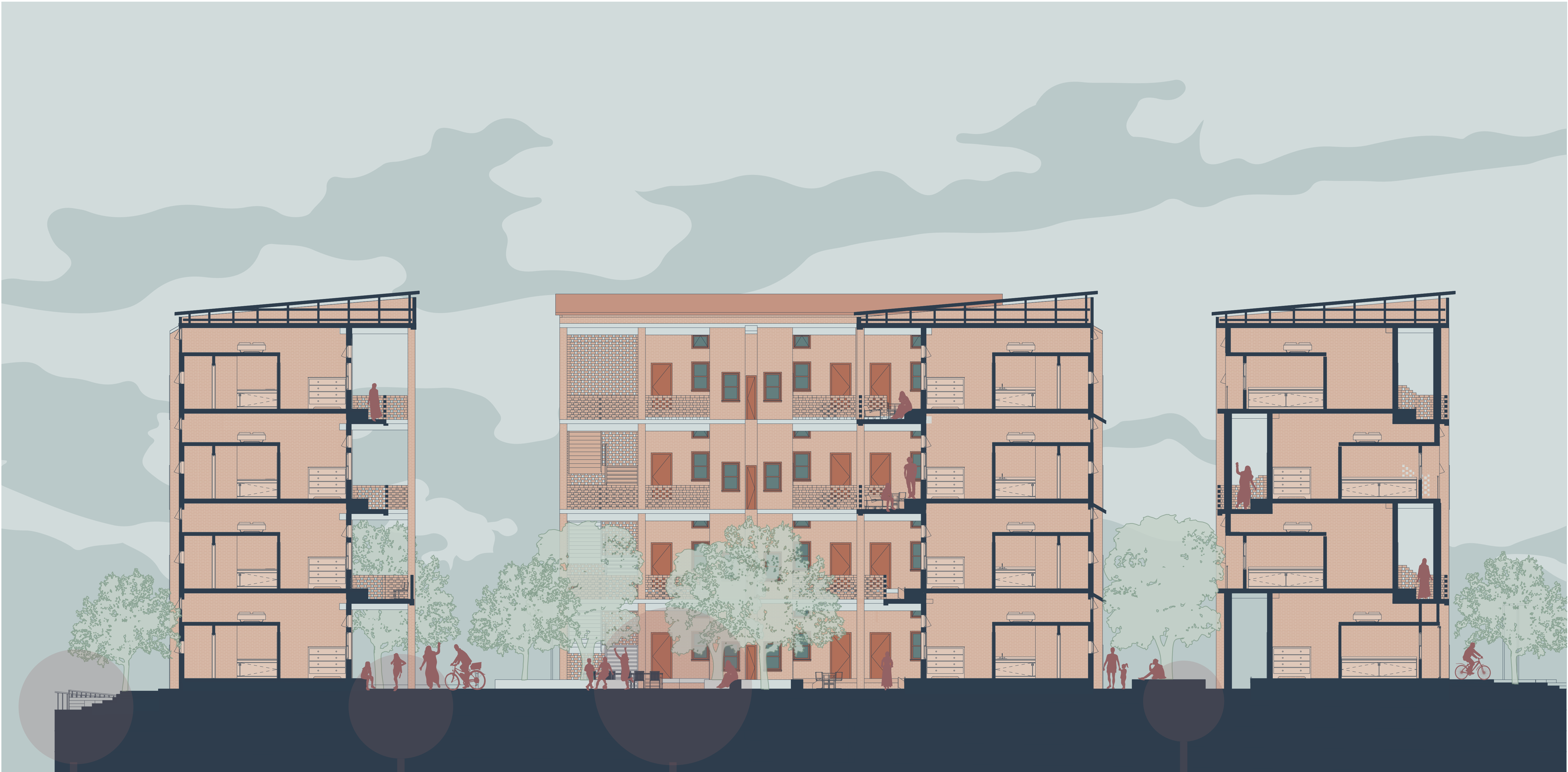
LOW-INCOME GROUP



Low-income group cluster
Axonometry

LOW-INCOME GROUP

Private to public sequence



GREEN PATH

PUBLIC

DOORSTEP
OTLA

SEMI-PRIVATE

COURTYARD

SEMI-PUBLIC

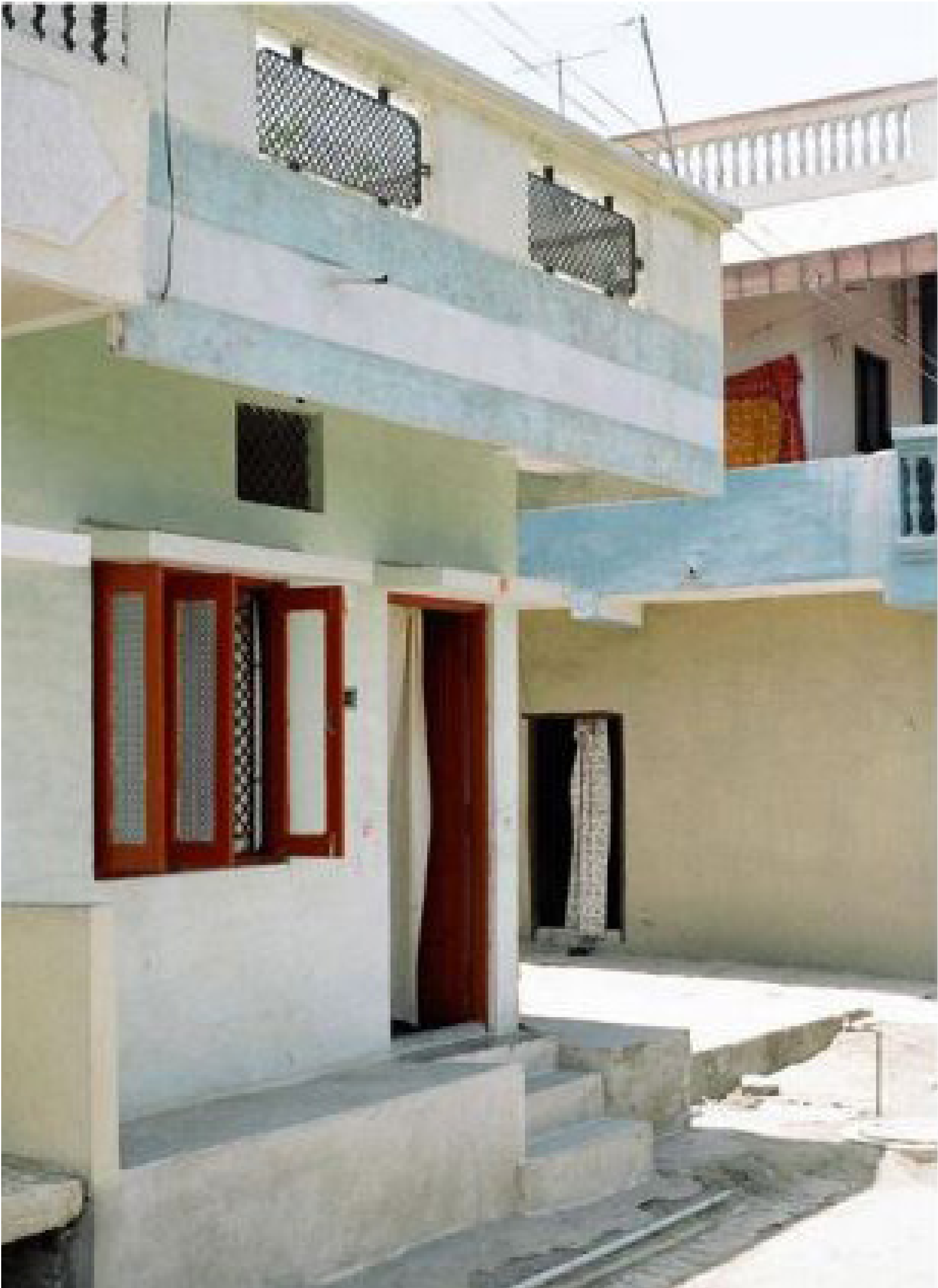
PEDESTRIAN ROUTE

SEMI-PUBLIC

Low-income group cluster section
Scale 1:100 on A1

LOW-INCOME GROUP

Otla space materiality



Traditional *otla* space
Typical materiality
Rendered bricks or masonry

Modern *otla* space
Materiality
Exposed concrete

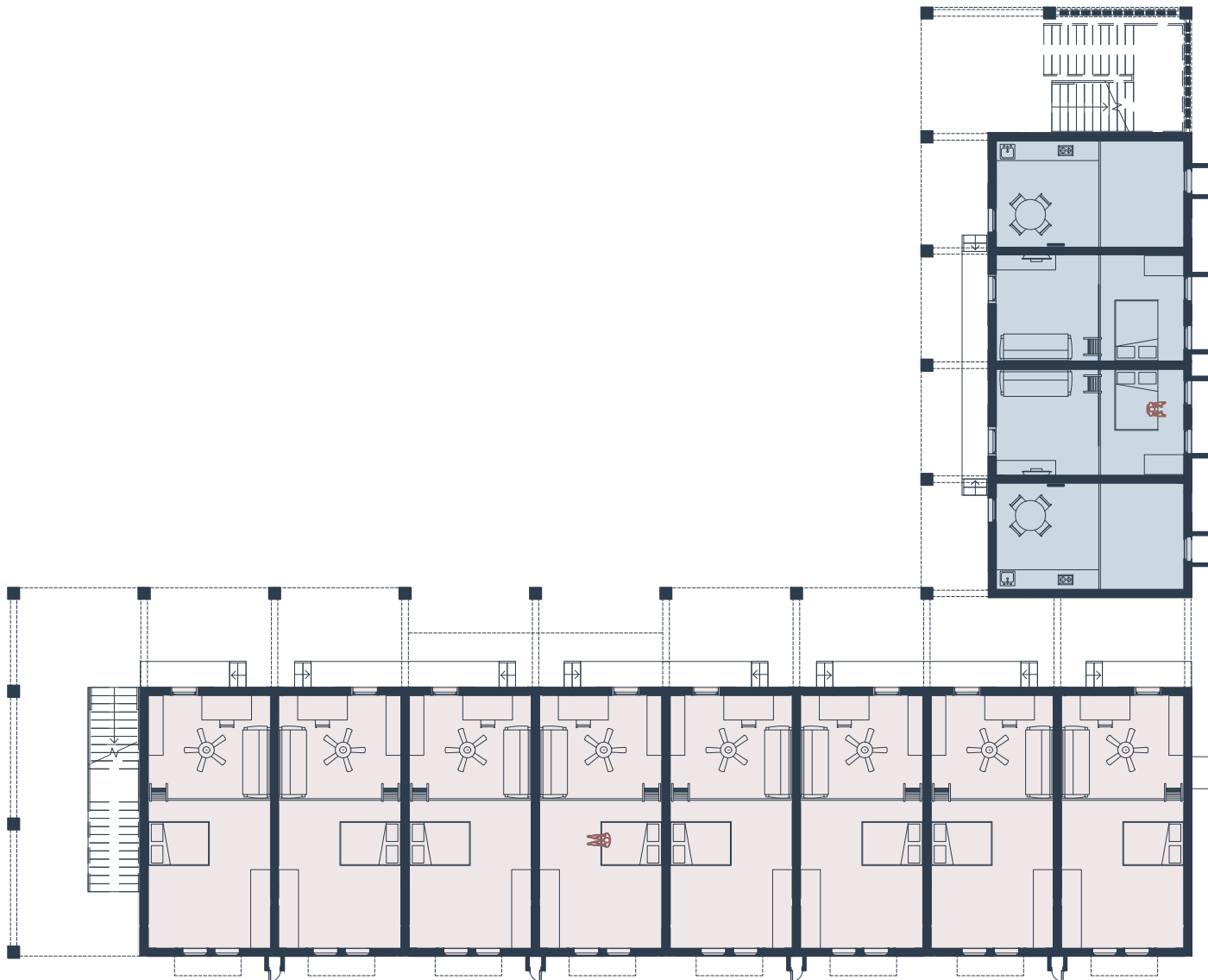
LOW-INCOME GROUP

Building typologies

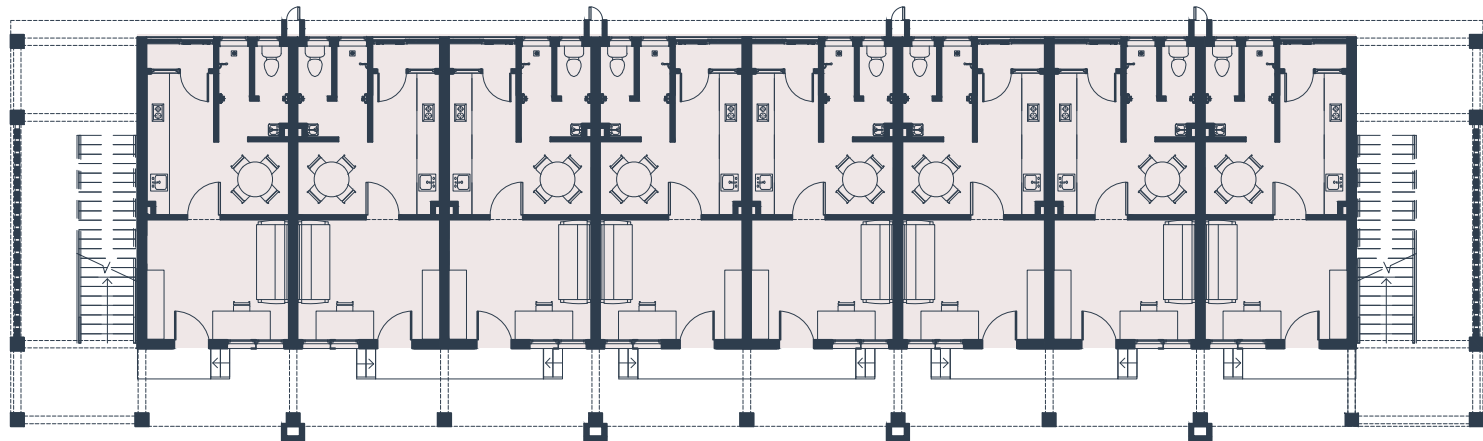
Cluster I typology



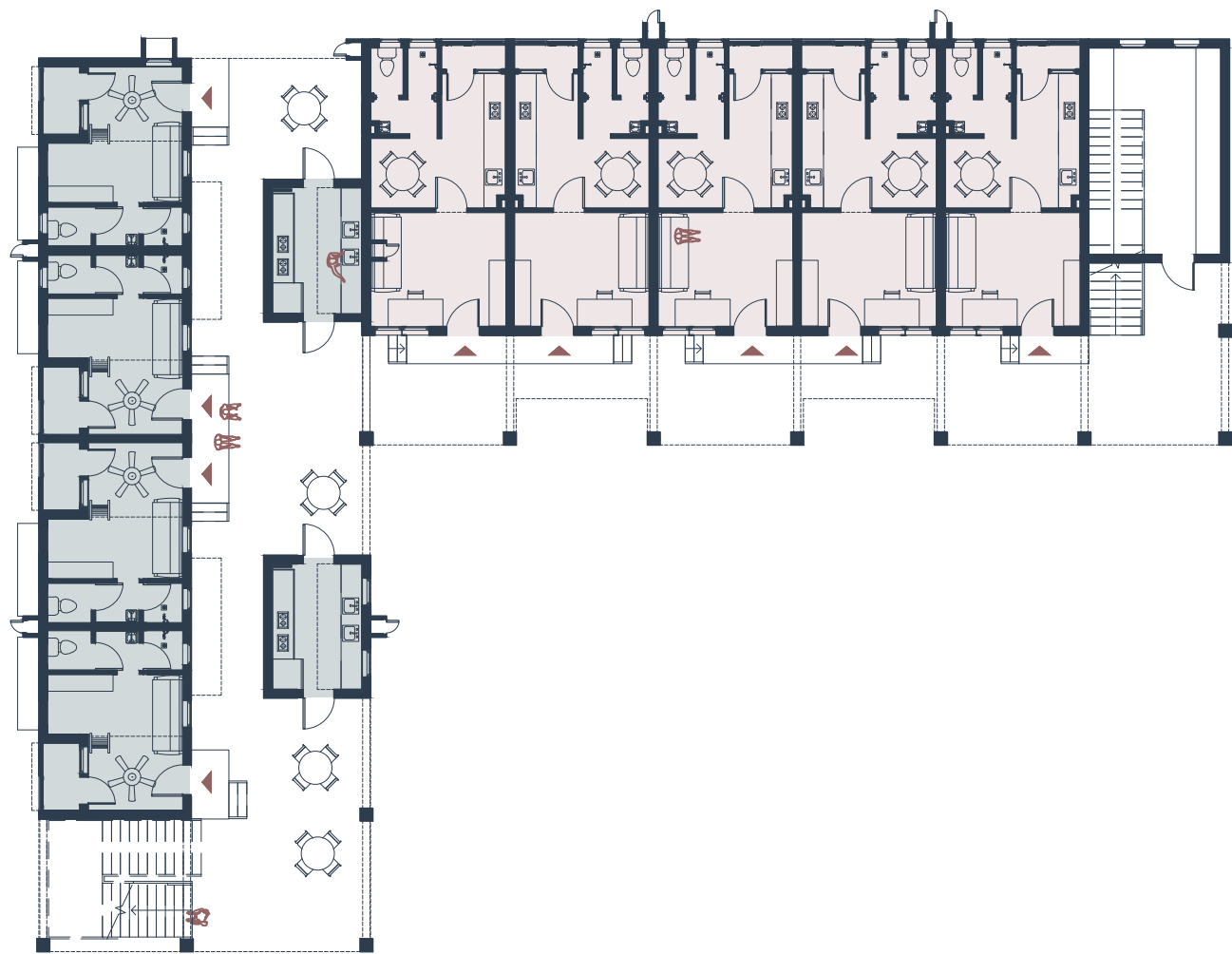
Cluster II typology



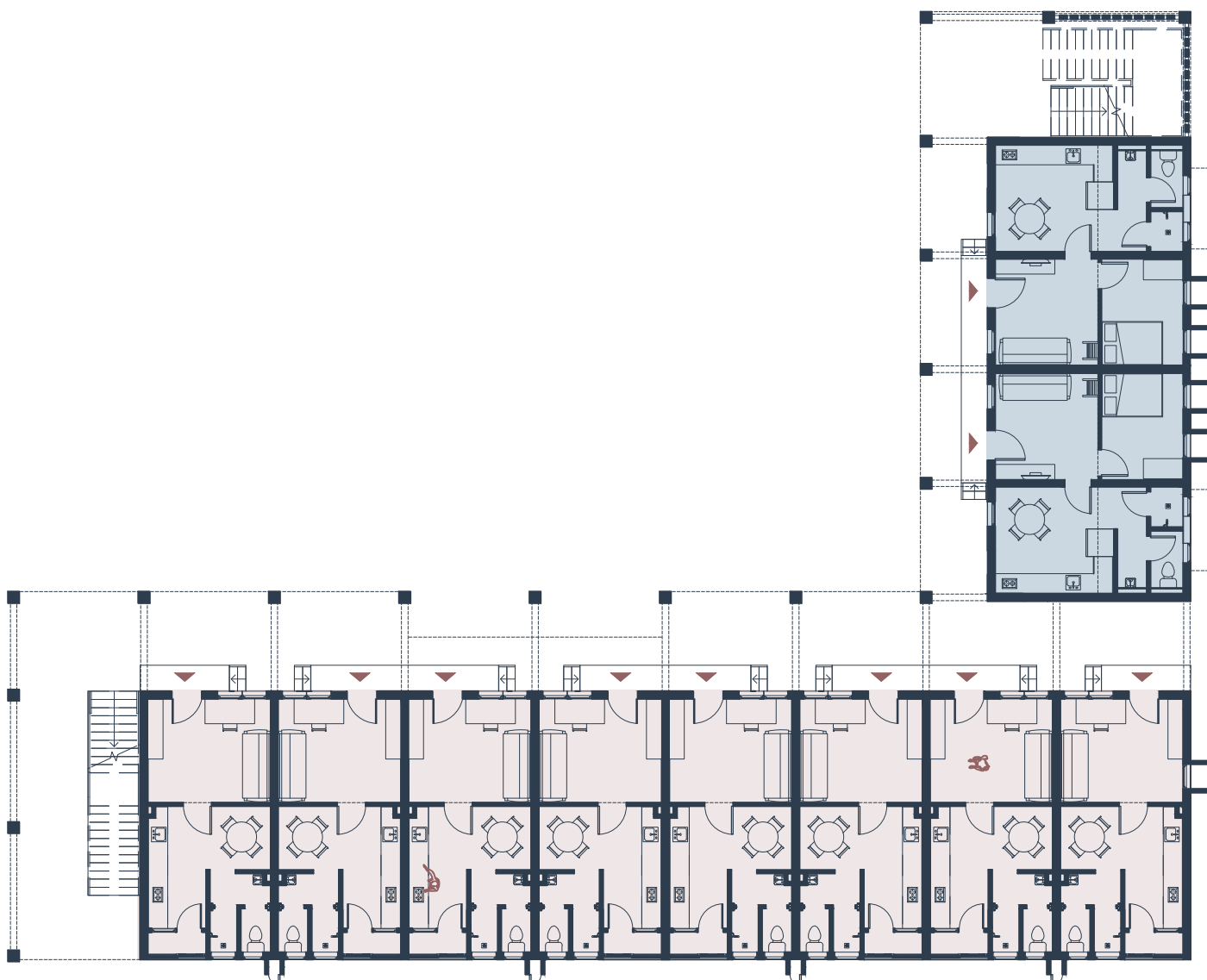
Border typology



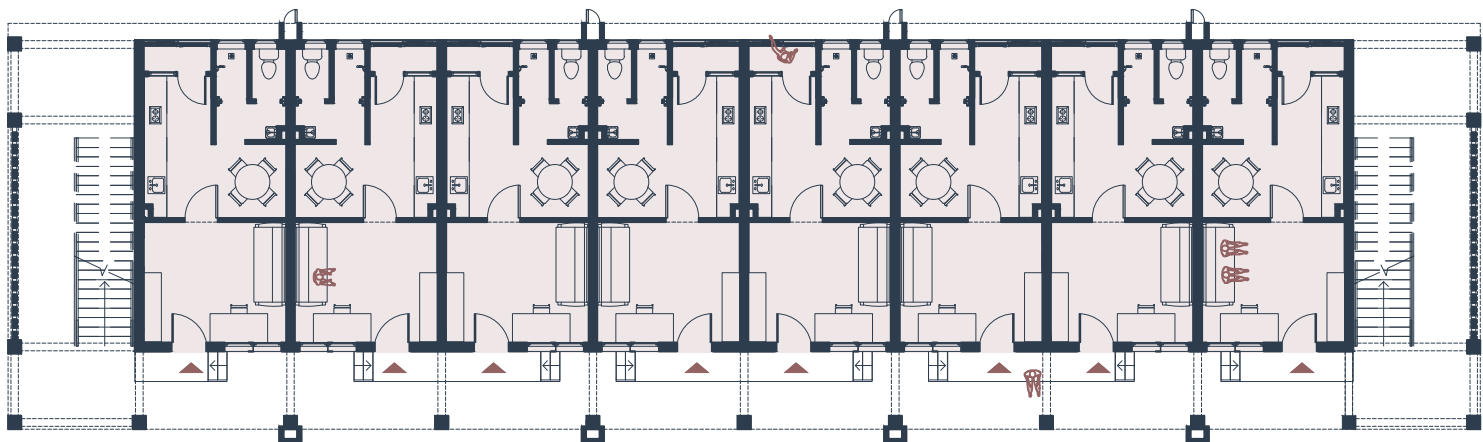
Mezzanine floor plan



Mezzanine floor plan



Mezzanine floor plan



Ground floor plan

Ground floor plan

Ground floor plan

Scale 1:200 on A1

Scale 1:200 on A1

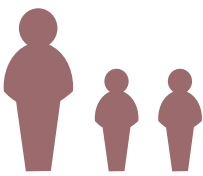
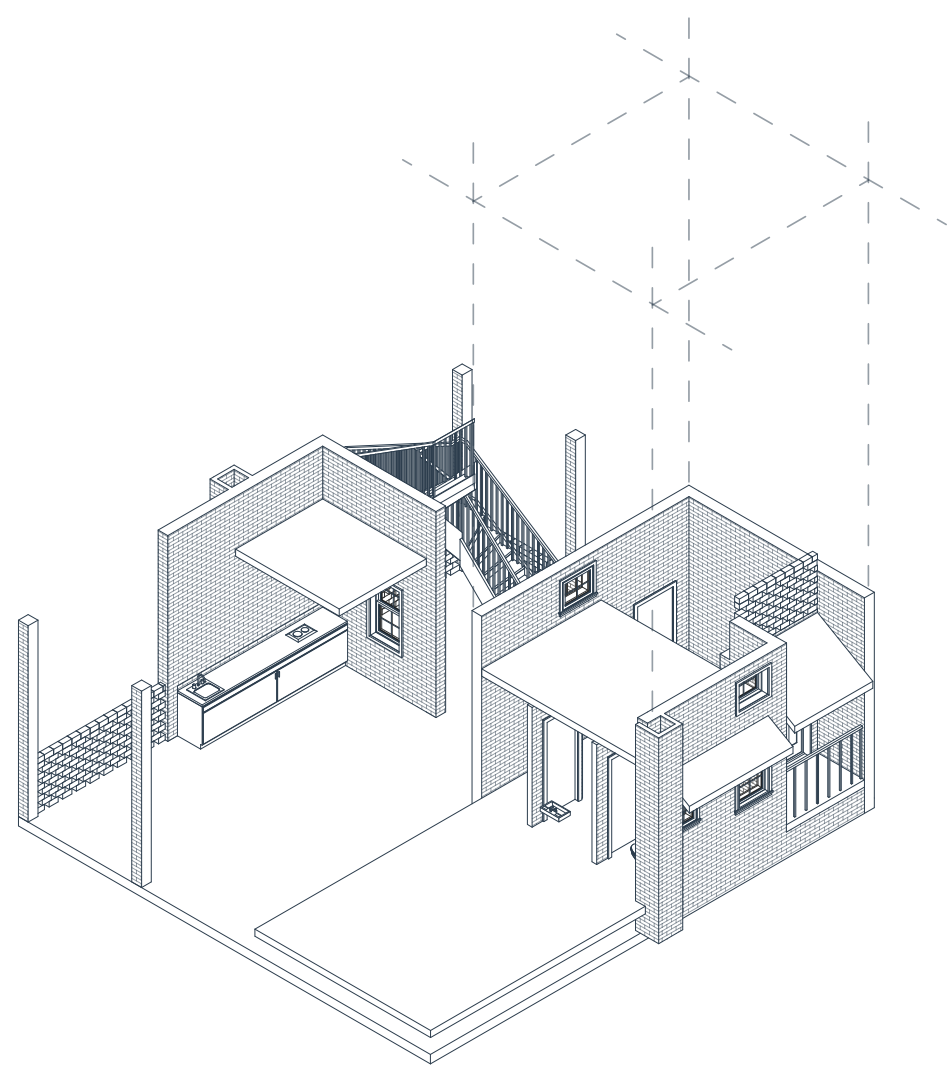
Scale 1:200 on A1



LOW-INCOME GROUP

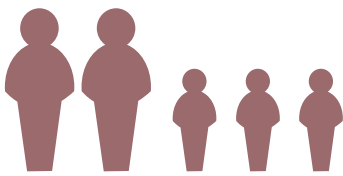
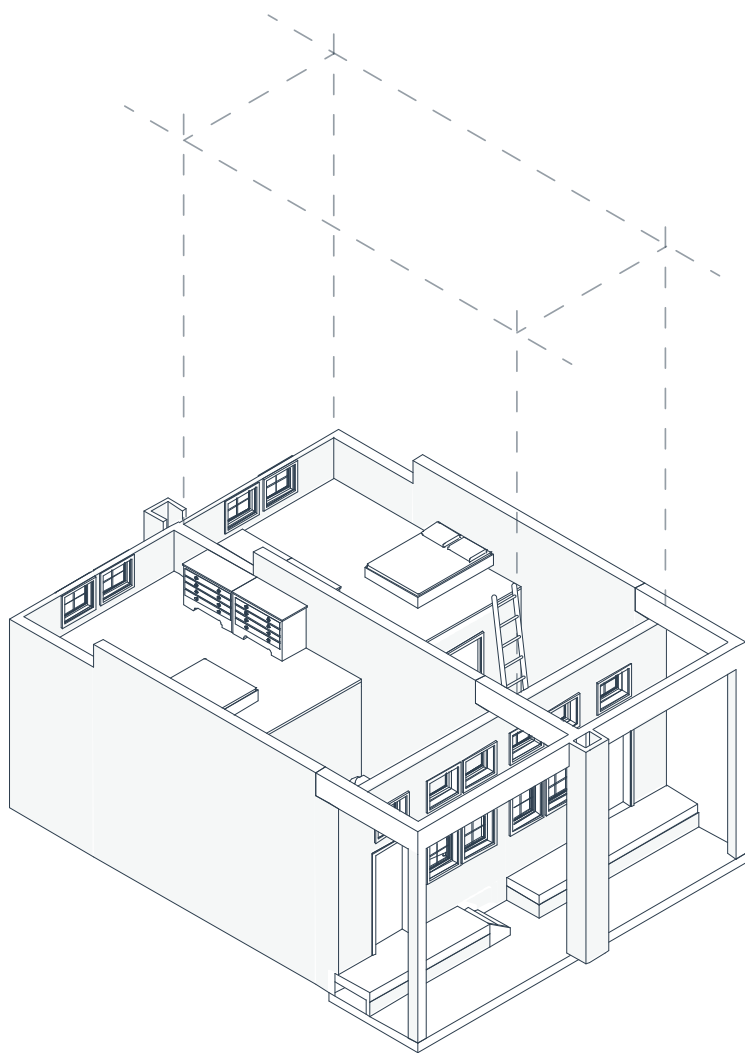
Unit typologies

Chawl typology



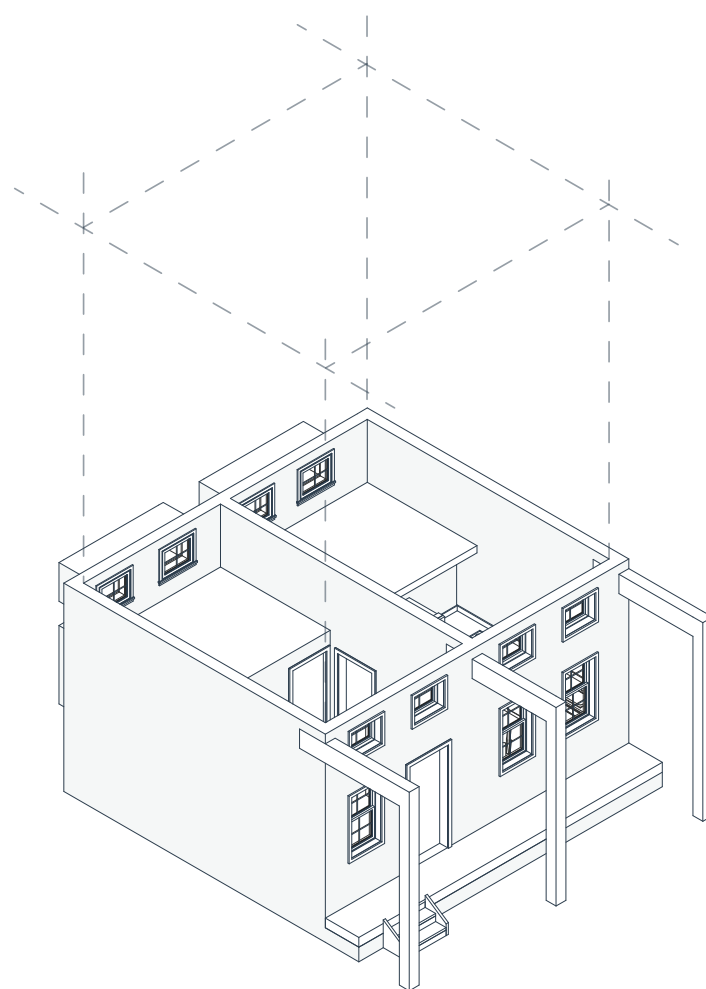
Unit size: 20 m²
Residents 1-3
Rooms: 1 + loft space
Common shared kitchen (2 households)
Budget Low

Border and Cluster typology I & II



Unit size: 30 m²
Residents 3-6
Rooms: 2 + loft space
Budget Middle

Cluster typology II



Unit size: 42 m²
Residents 4+
Rooms: 3 + 2 loft spaces
Budget High

LOW-INCOME GROUP

View



Low-income group courtyard view

LOW-INCOME GROUP

Construction



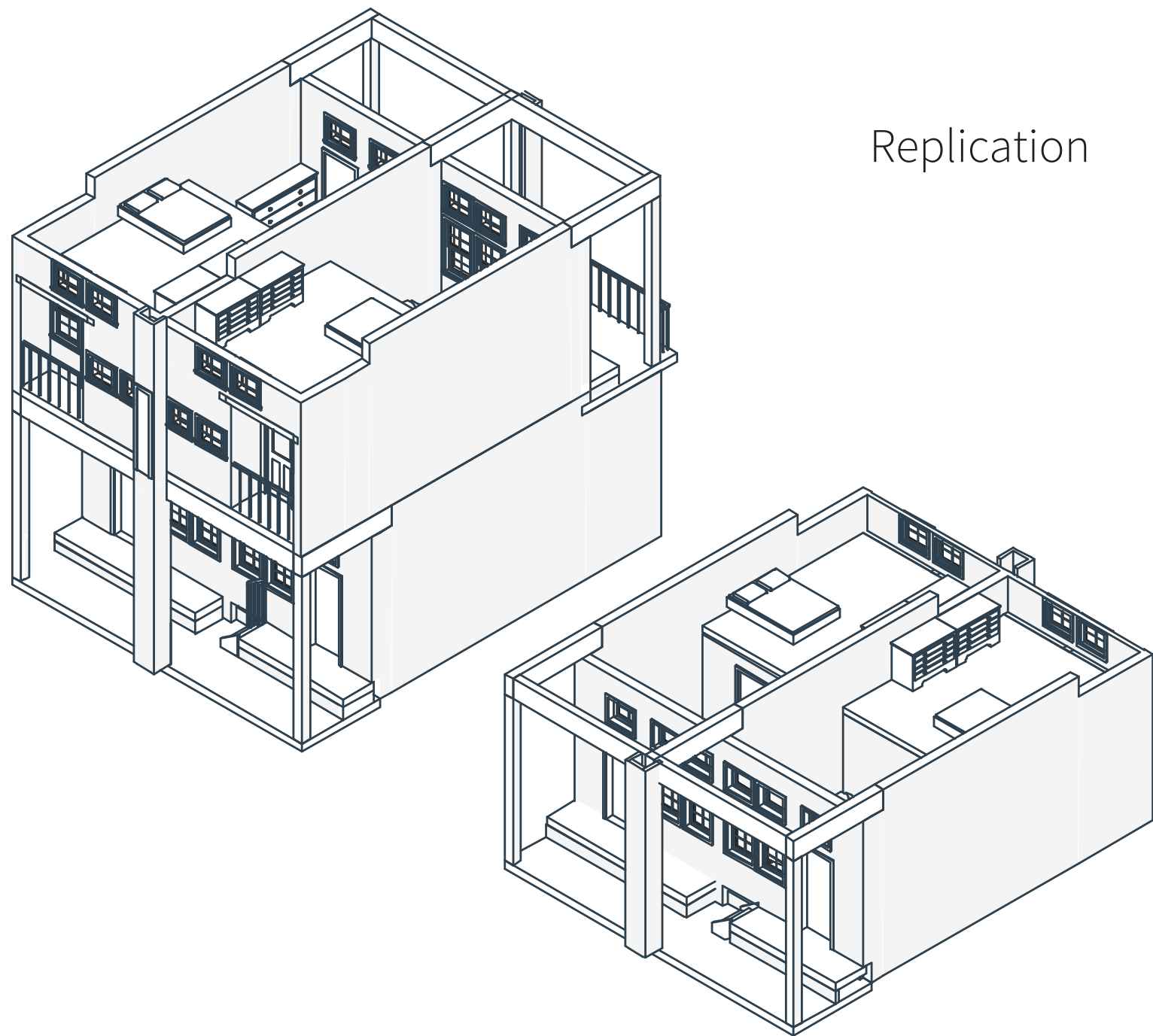
1 2 3 4 5

10

Border typology elevation
Scale 1:50 on A1

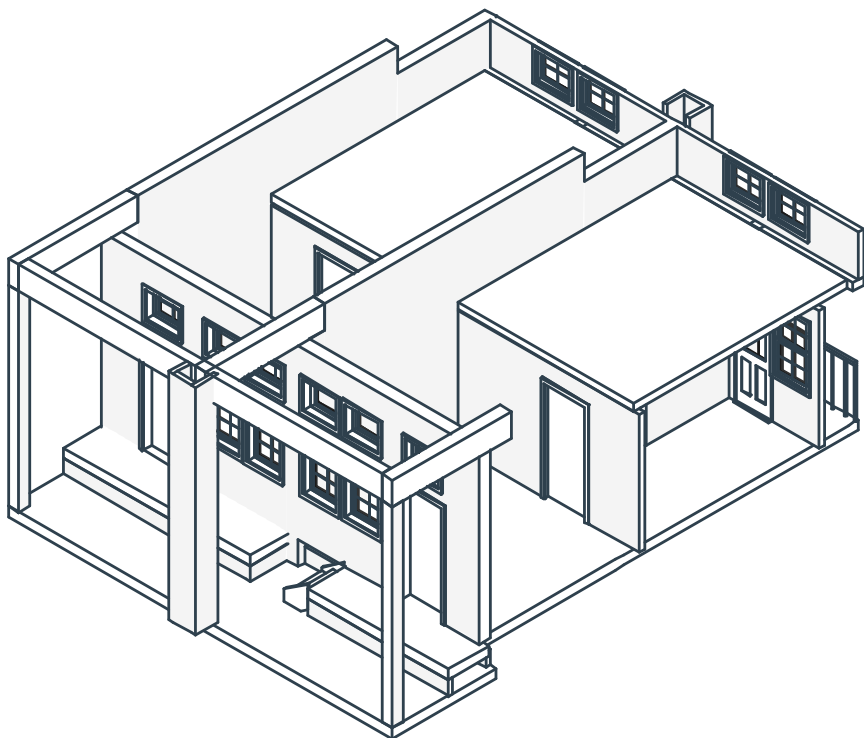
LOW-INCOME GROUP

Construction strategy

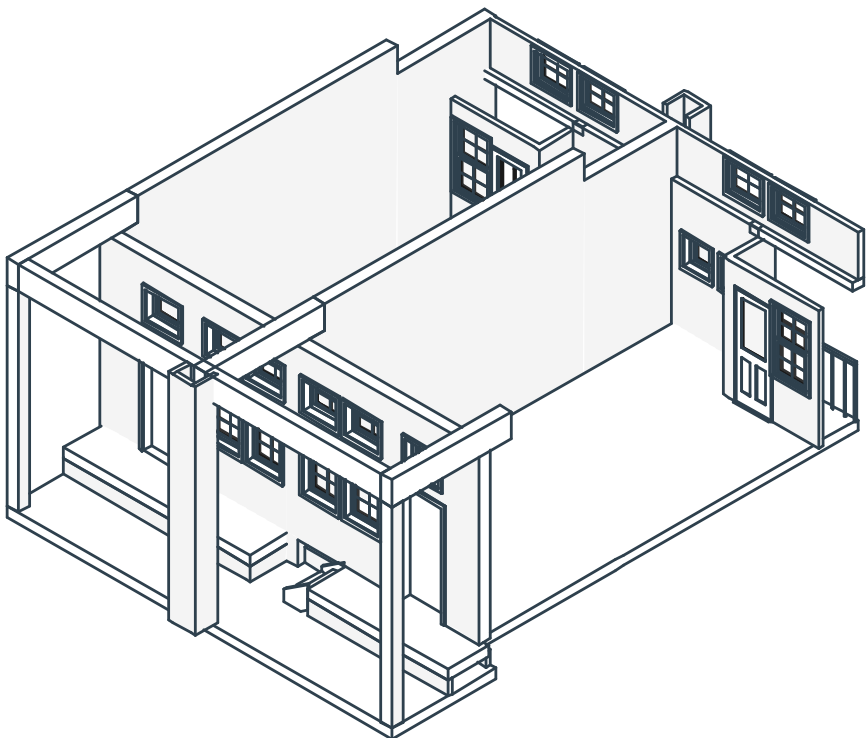
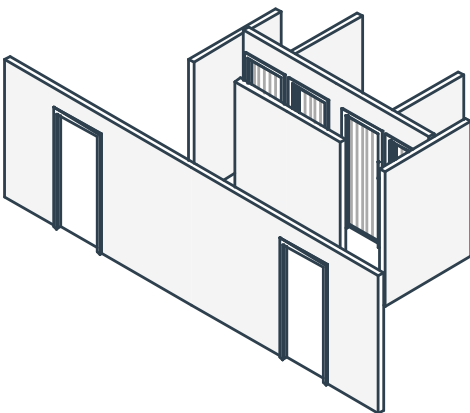
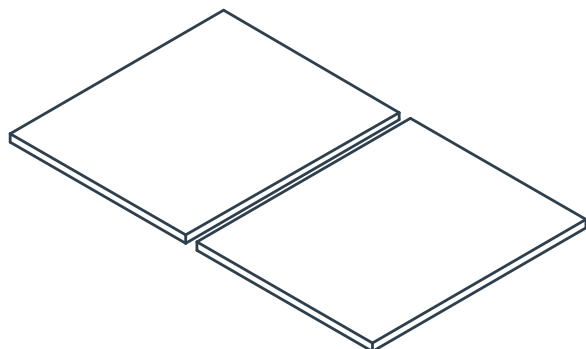


Replication

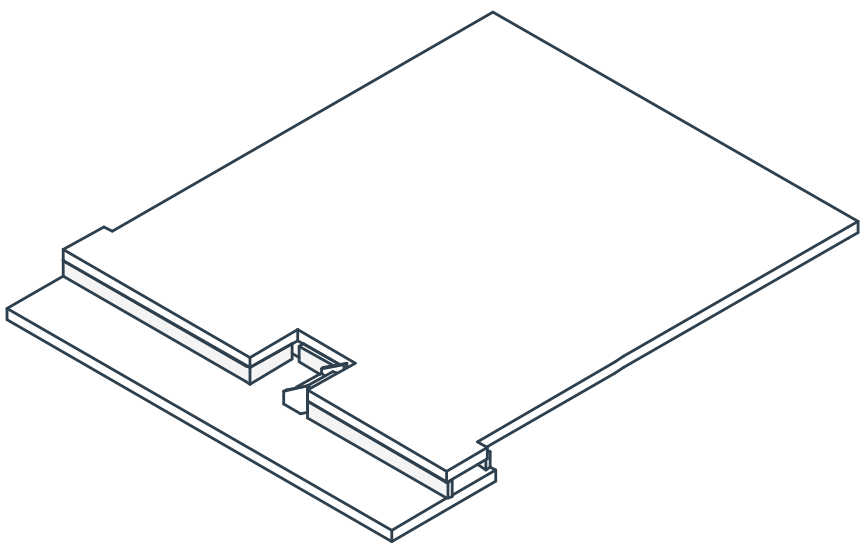
Minimised use of concrete beams
(to support the dwellings on top
of corridors)



Bamboo loft flooring



Load bearing walls



Reinforced concrete slab

LOW-INCOME GROUP

Construction

400x200x2300mm Concrete beam
235x140x140mm SCEB
140mm Lintel
600mm uPVC window
200mm Concrete lintel
uPVC Door

SCEB ballustrade with limestone top
200mm embeded beam with drip edge

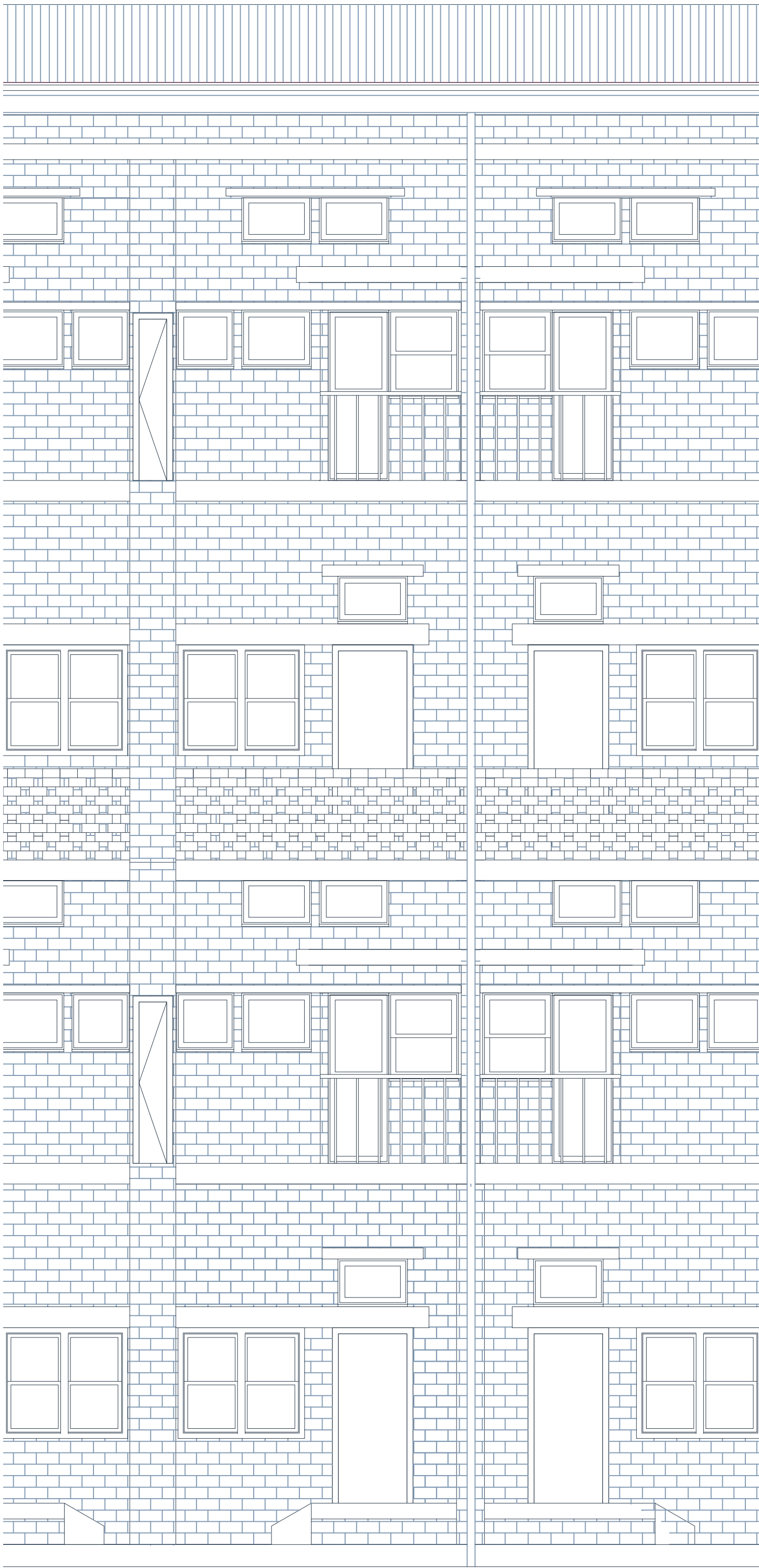
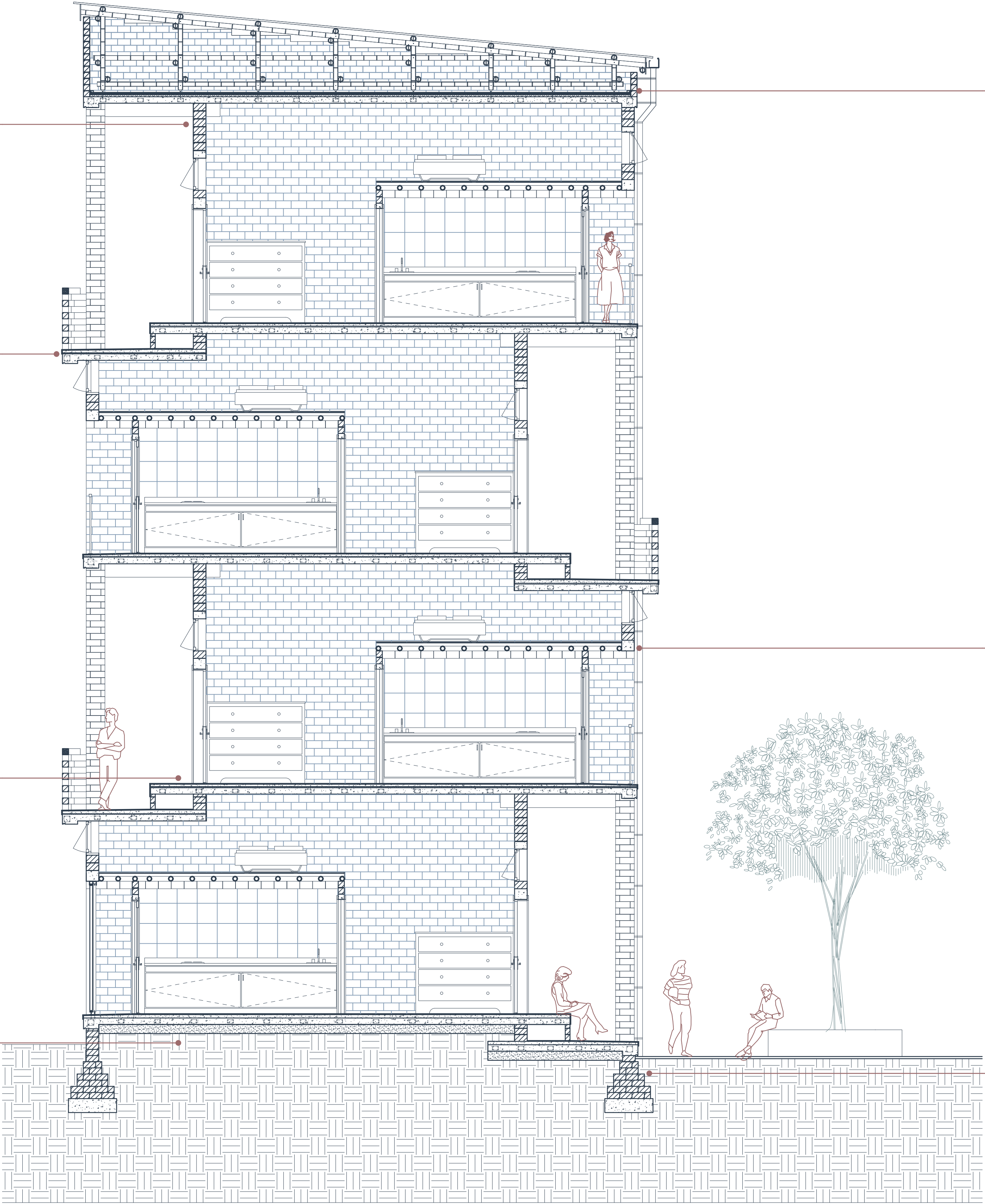
15mm Ceramic tiles finish
45mm Screed
20mm Extruded Polystyrene
Insulation
120mm Reinforced concrete slab

15mm Ceramic tiles finish
45mm Screed
120mm Reinforced concrete slab
Waterproof membrane (plastic)
170mm Sand

Corrugated bamboo roofing
sheets
100mm Bamboo posts,
purlins and rafters
Metal gutter and drain
Fascia Board
Screed
Extruded Polystyrene
Insulation
Damp-proof membrane
120mm Reinforced concrete
slab

600mm uPVC window
235x140x140mm SCEB
200mm Concrete lintel
20mm Bamboo floor finish
60mm Bamboo
90mm Bamboo
115x230x115mm SCEB

120mm Reinforced concrete
slab
Embedded beam w drip edge
Brick foundation
260mm Concrete footing



Border typology section
Scale 1:50 on A1

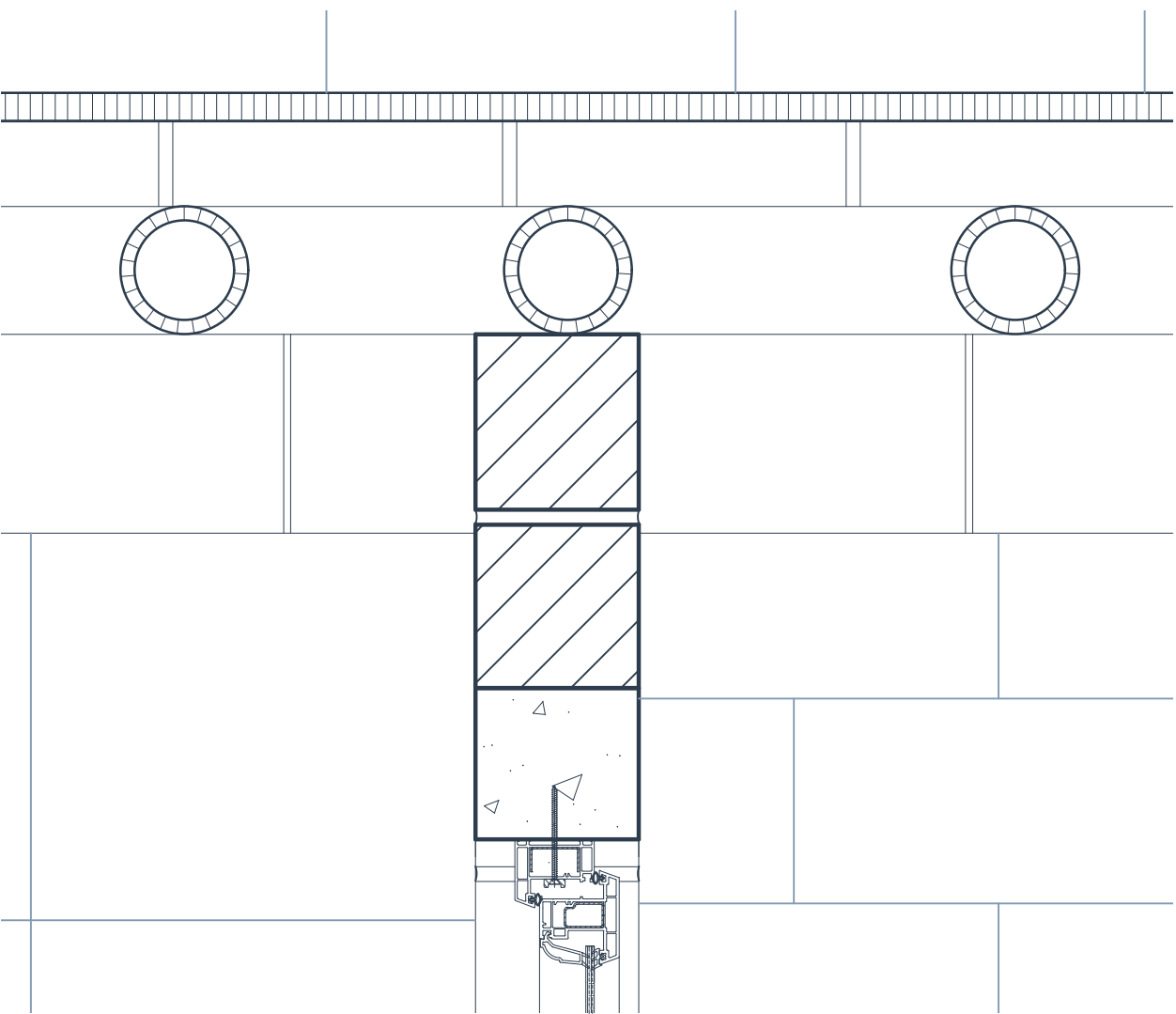
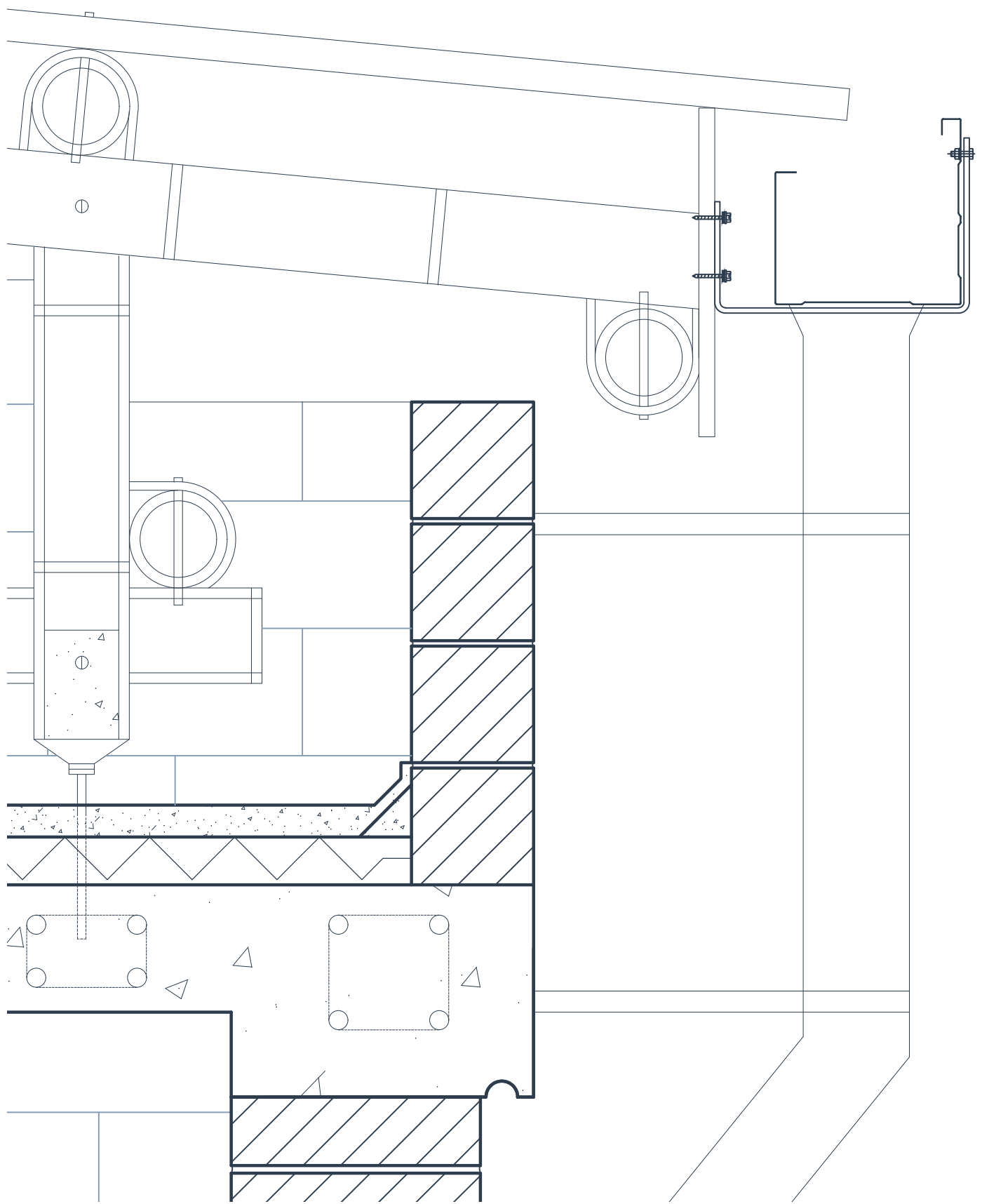
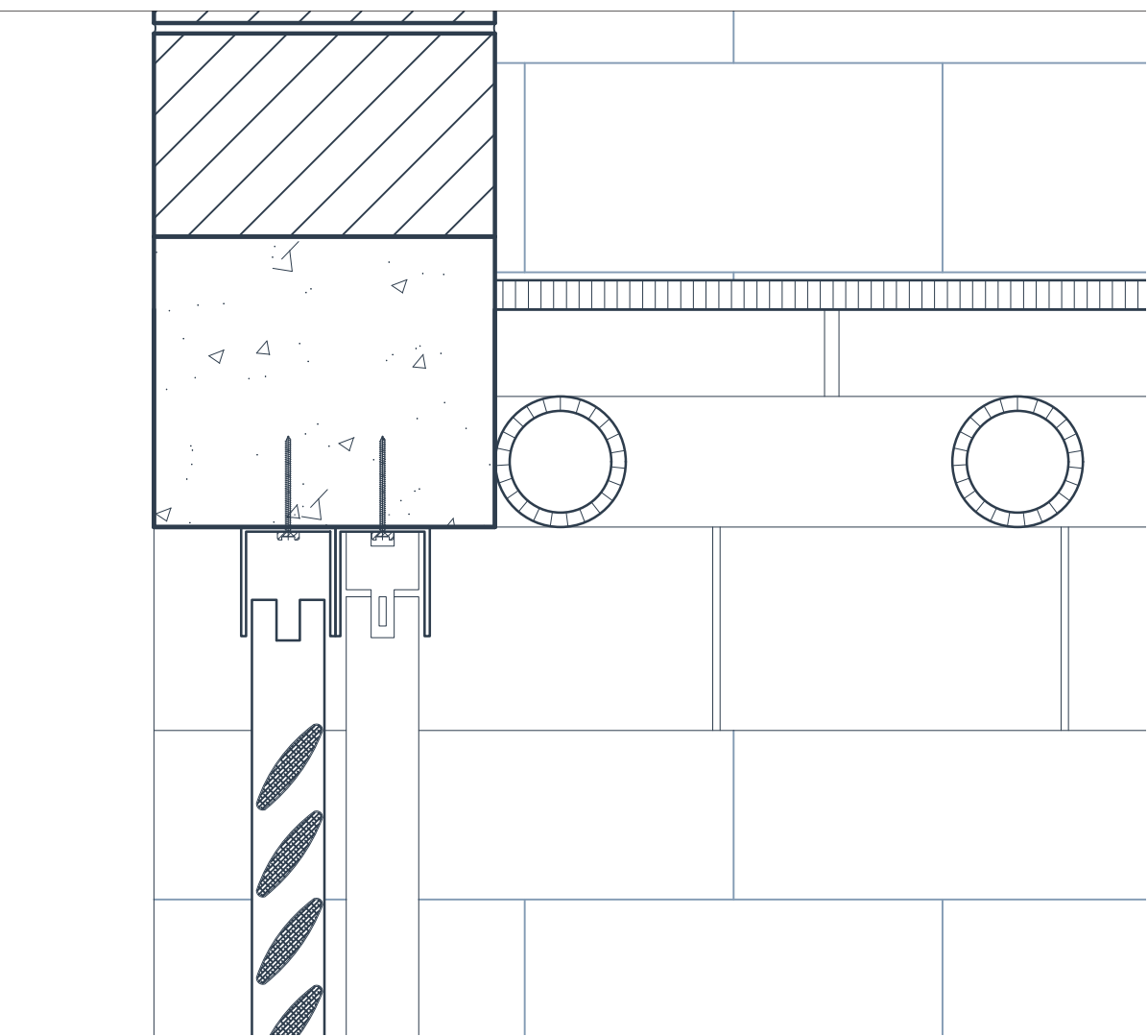
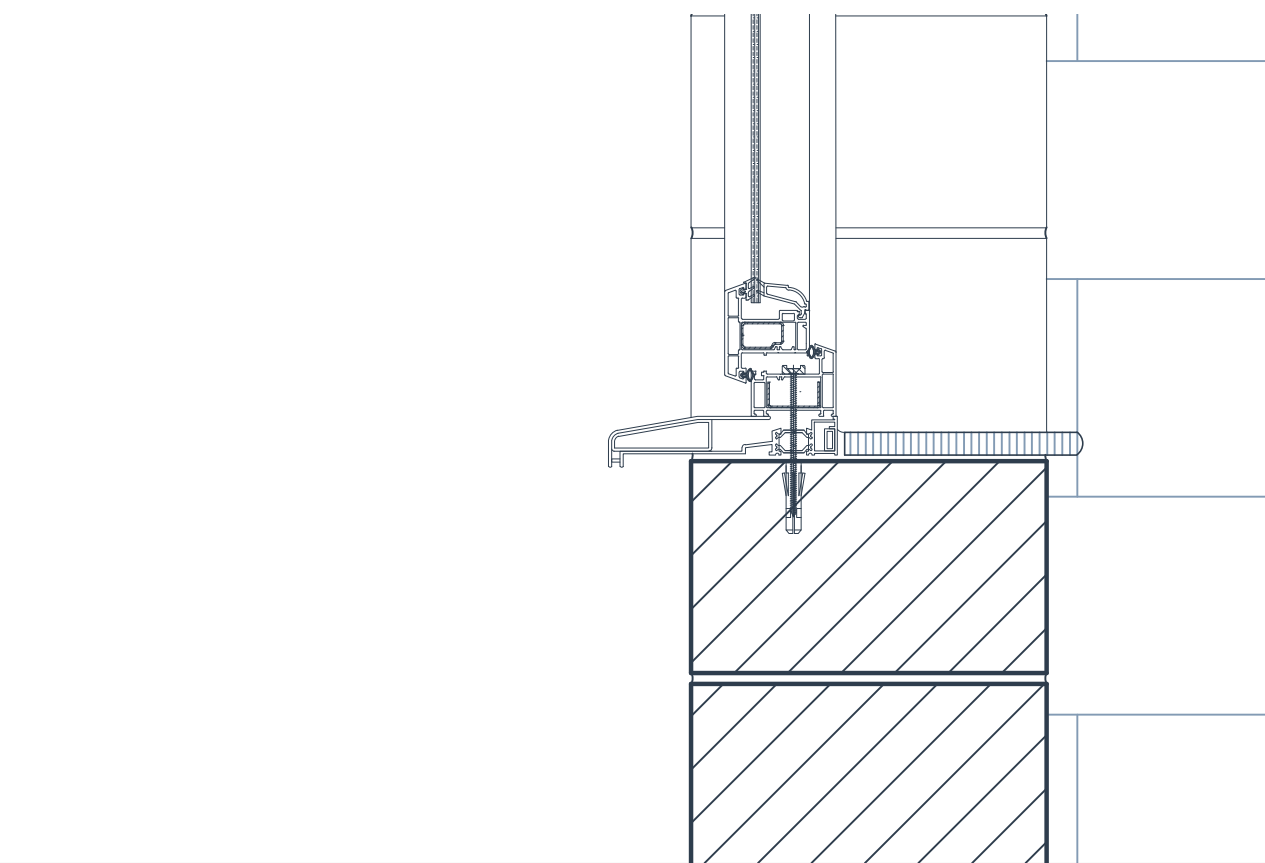
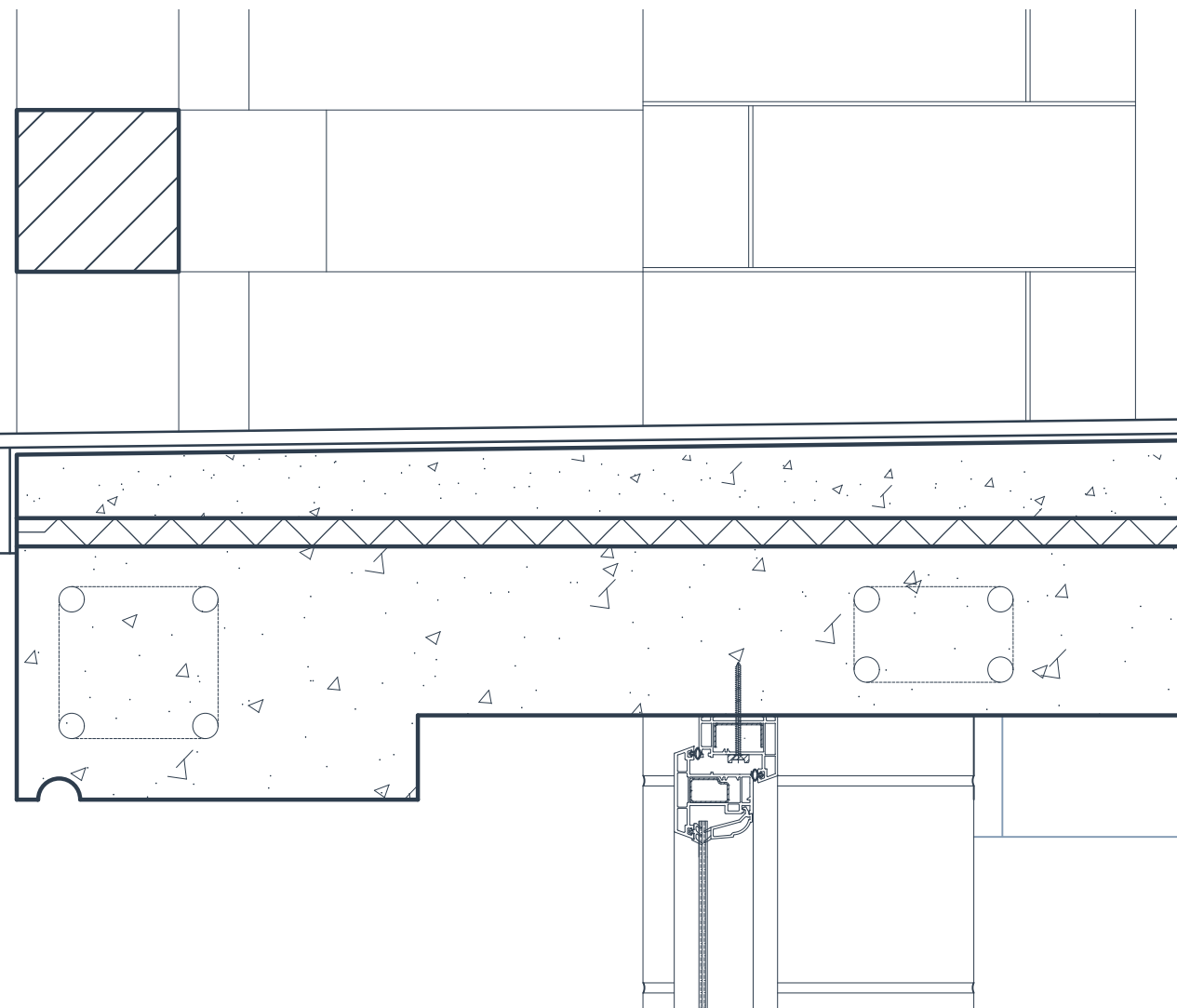
LOW-INCOME GROUP

Construction

15mm Ceramic Tiles Finish
45mm Screed
20mm Insulation
120mm Reinforced Concrete Slab
200mm Embedded Beam with Drip Edge
uPVC Window Frame

235x 235x 140 SCEB (stabilized compressed earth block)
Bamboo sill (inside)
uPVC Window Frame with Aluminum sill (outside)

200mm Concrete Lintel
Metal Louvres
20mm Bamboo Mat Finish
60mm Bamboo structure
90mm Bamboo structure



Corrugated Bamboo Roofing Sheets
100mm Bamboo Posts, Purlins, Rafters
secured with steel bolts with cement mortar filling
Metal Gutter and Rain Pipe
Fascia Board
115x 230x 115mm SCEB
30mm Screed
45mm Insulation
Damp-proof membrane
120mm Reinforced Concrete Slab



Playa Man, Shade Shelter
The Scarcity And Creativity Studio (SCS)

20mm Bamboo Mat Finish
60mm Bamboo structure
90mm Bamboo structure
115x 230x 115mm SCEB
100mm Concrete Lintel
uPVC Door

LOW-INCOME GROUP

Construction



Corrugated Bamboo Roofing Sheets
Bamboo Farm Office, Ingvartsen Arkitekter



Bamboo floor sturcture
Earthen School Tipu Sultan Merkez, Roswag Architekten



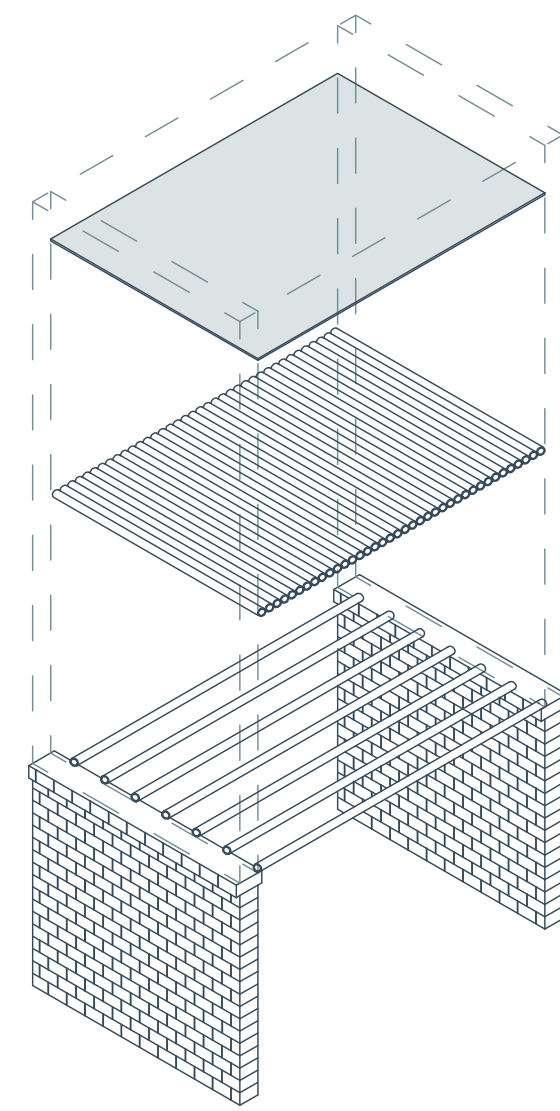
Compressed Stabilized Earth Blocks
School complex, Levs Architecten



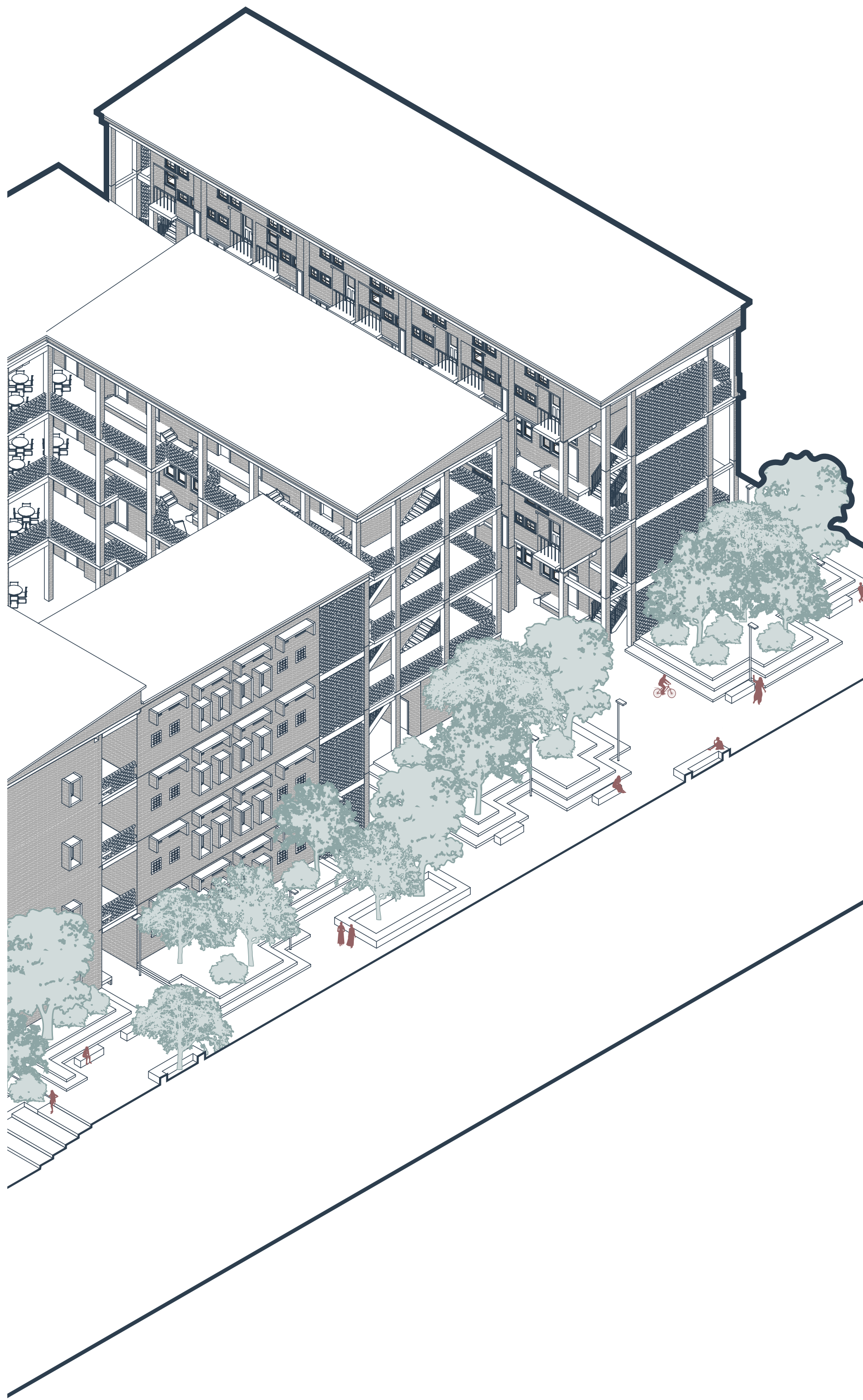
Quarry tiles



Ceramic tiles

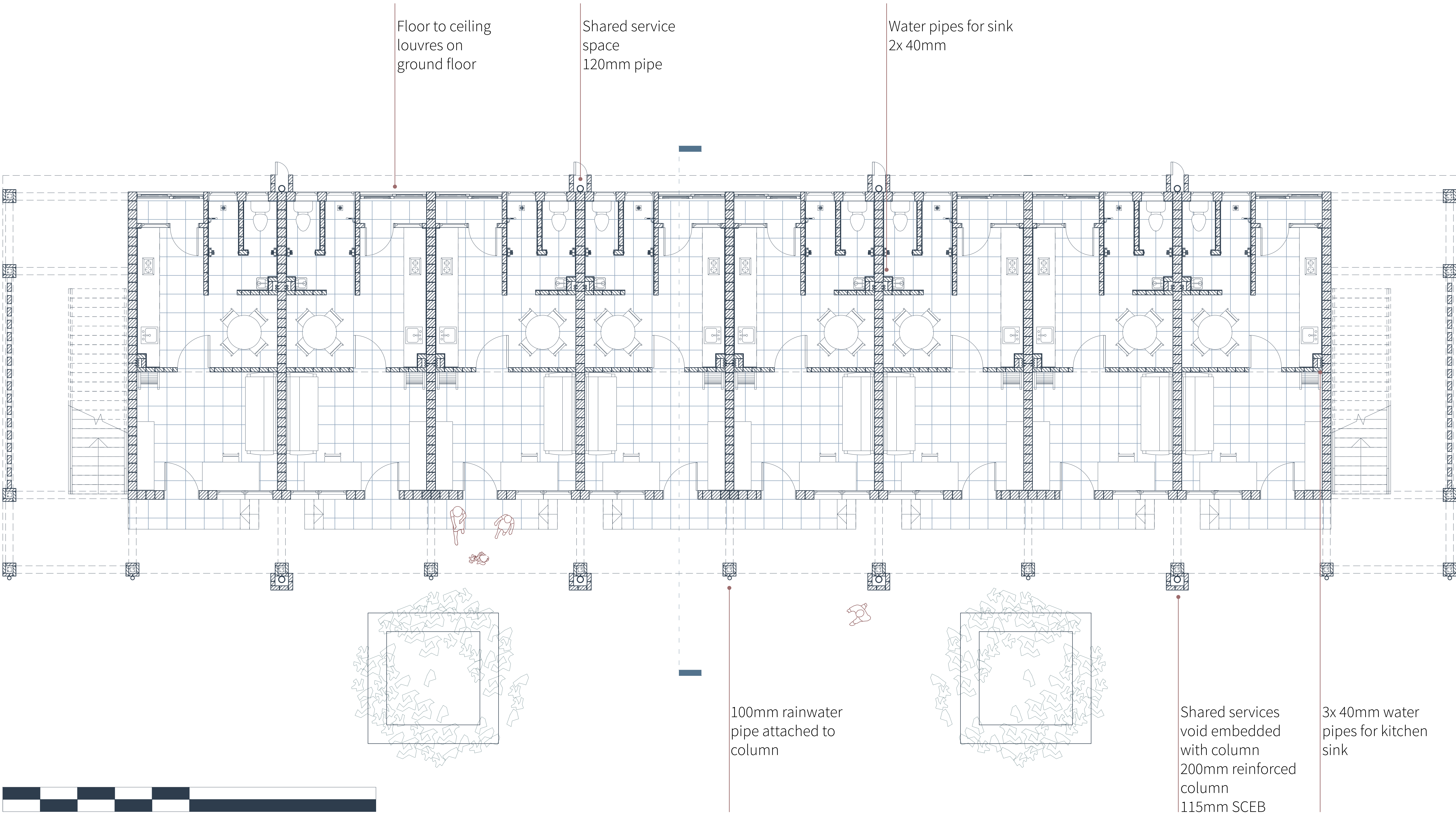


Loft structure axonometry
Not to scale



LOW-INCOME GROUP

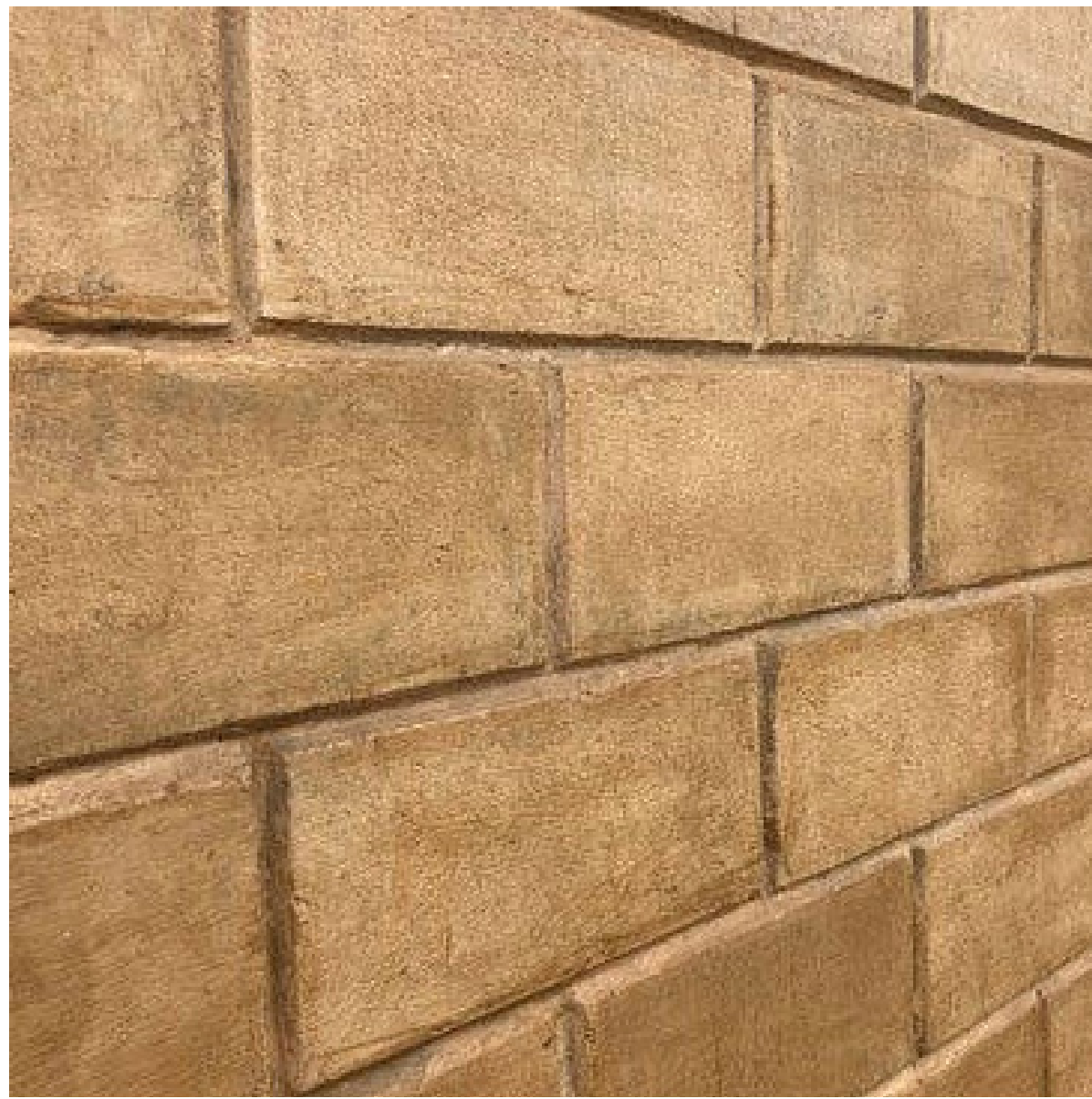
Construction



Border typology plan
Scale 1:50 on A1

LOW-INCOME GROUP

Otla space materiality - proposed



1 Compressed Earth Bricks



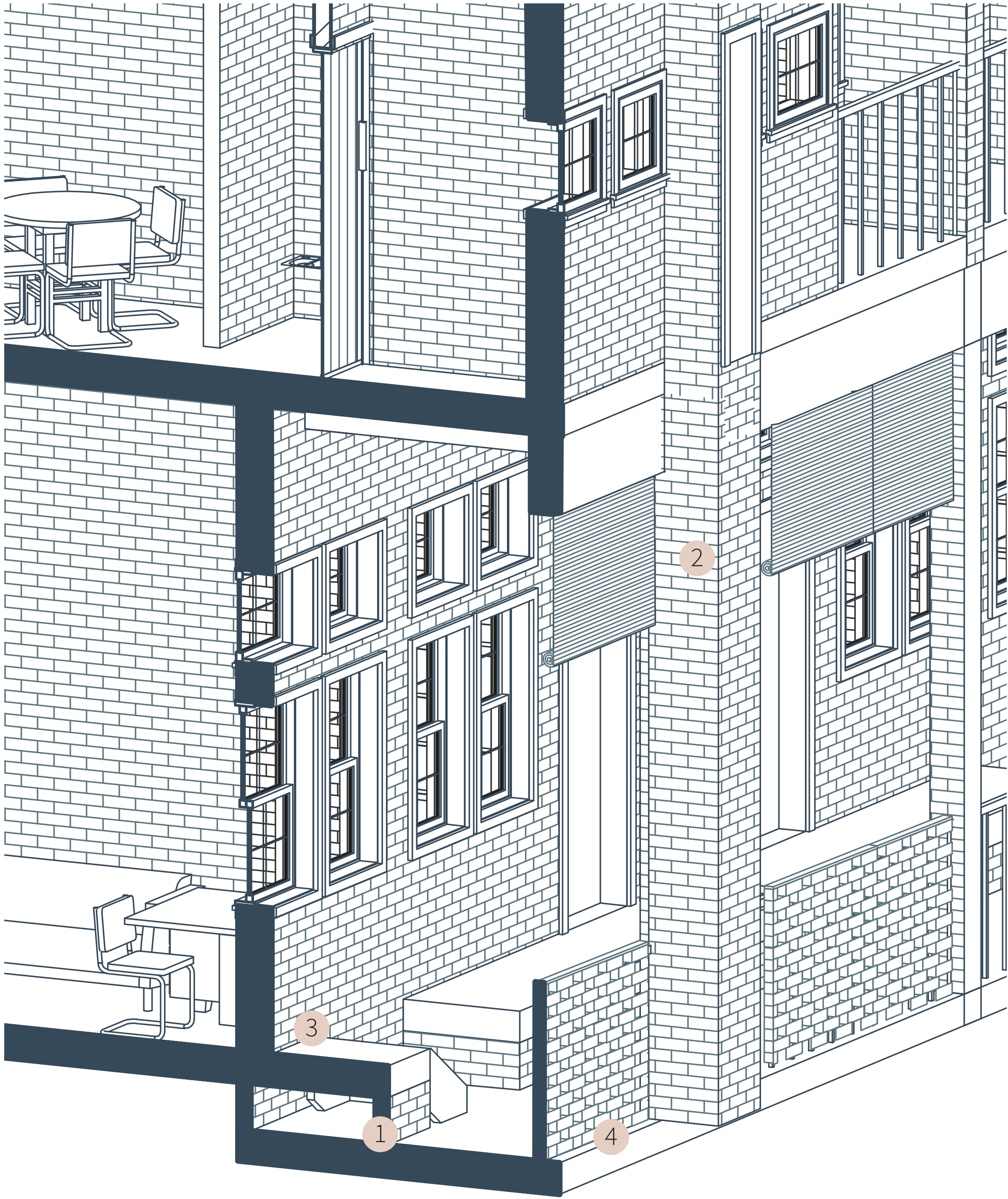
2 Bamboo roller blinds



3 Ceramic tiles



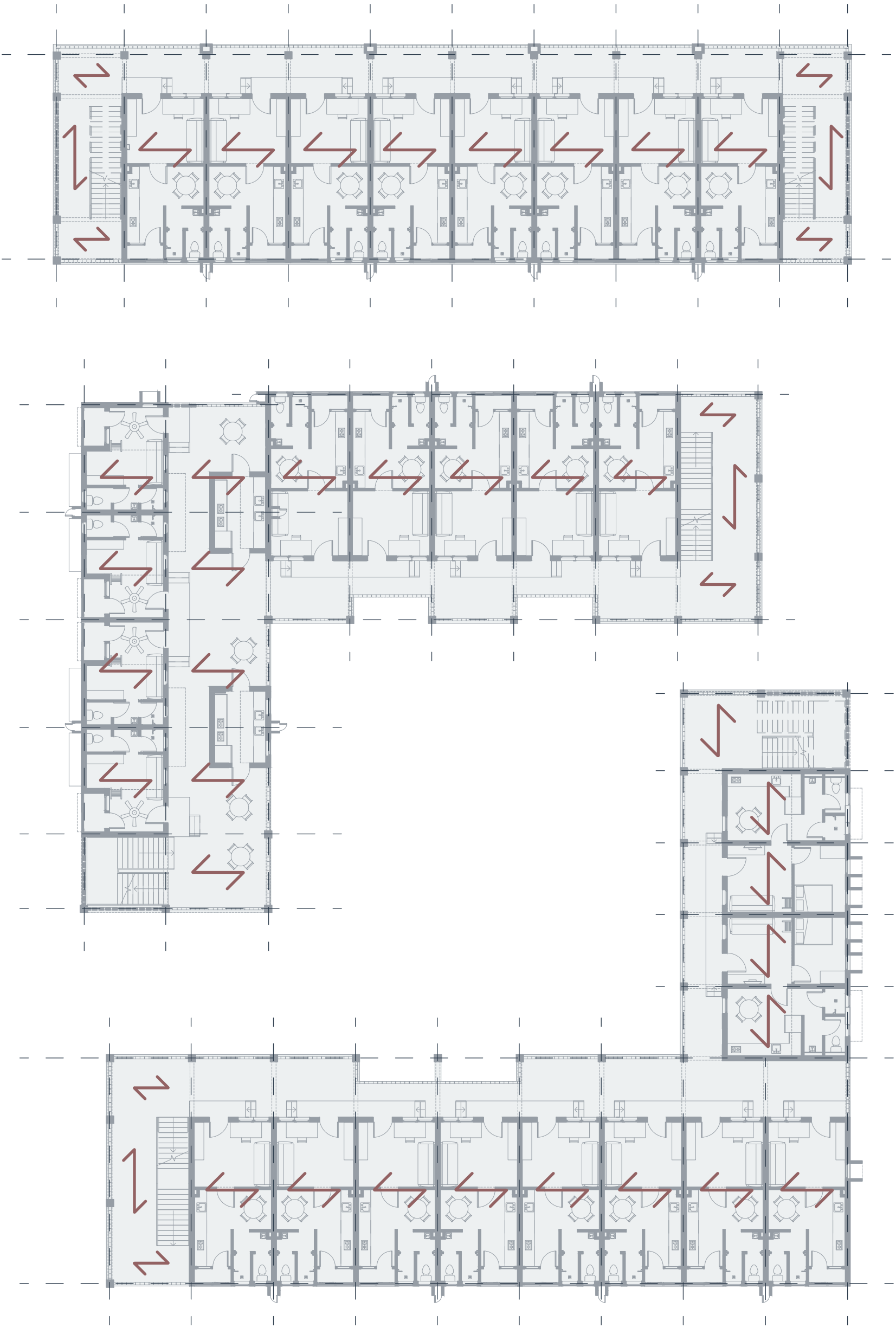
4 Railing



Proposed *otla* space
Ceramic/Quarry tile finish
Compressed Earth Block
Bamboo roller blinds
Storage space (under *otla*)
Railing

LOW-INCOME GROUP

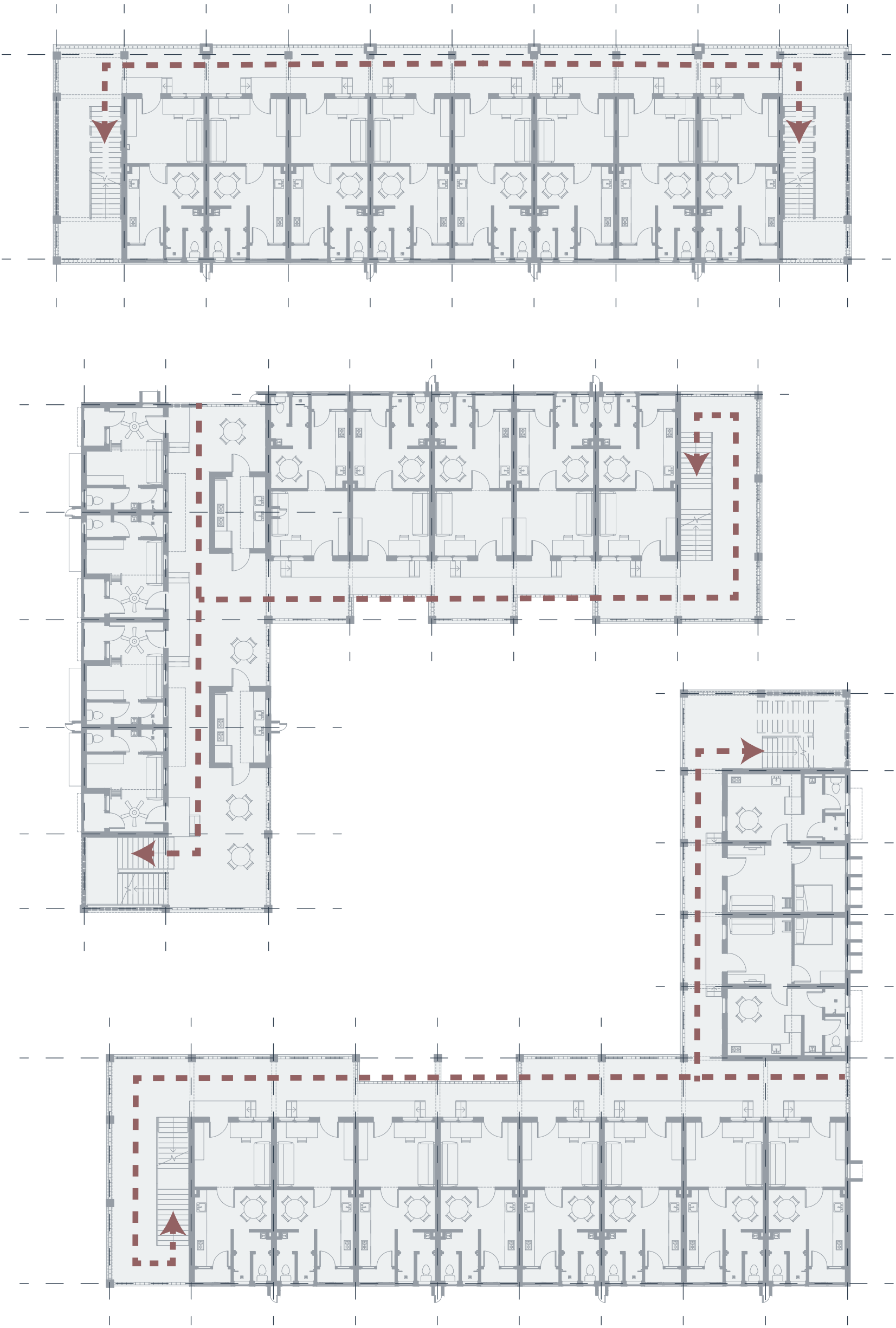
Construction



Spanning plan, first floor
Scale 1:200 on A1

LOW-INCOME GROUP

Construction

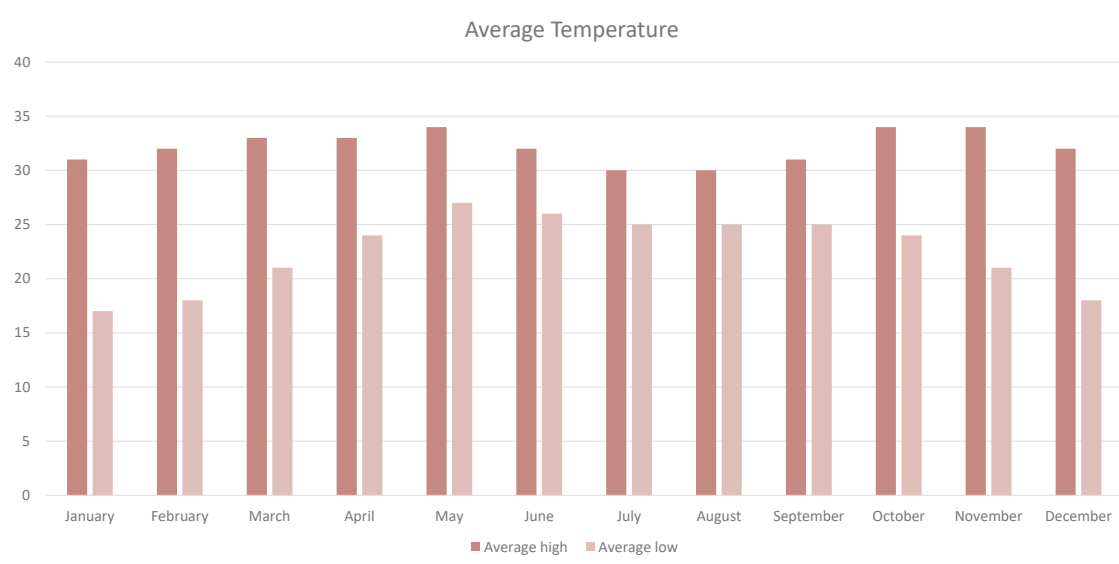


Escape plan, first floor
Scale 1:200 on A1

SITE | ANALYSIS

Climate | Temperature

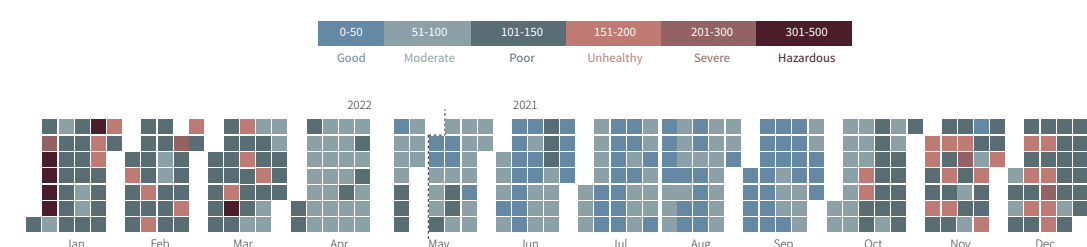
TEMPERATURE & AIR QUALITY



Mumbai and Navi Mumbai are located in an area of hot and humid climate.

Mumbai and Navi Mumbai have 2 seasons: wet and dry. During the wet season, conditions are oppressive, windy and overcast. During the dry season, the weather is muggy and mostly clear.

The monthly max temperatures stay above 30°C, while the average low varies between 18 and 28°C.

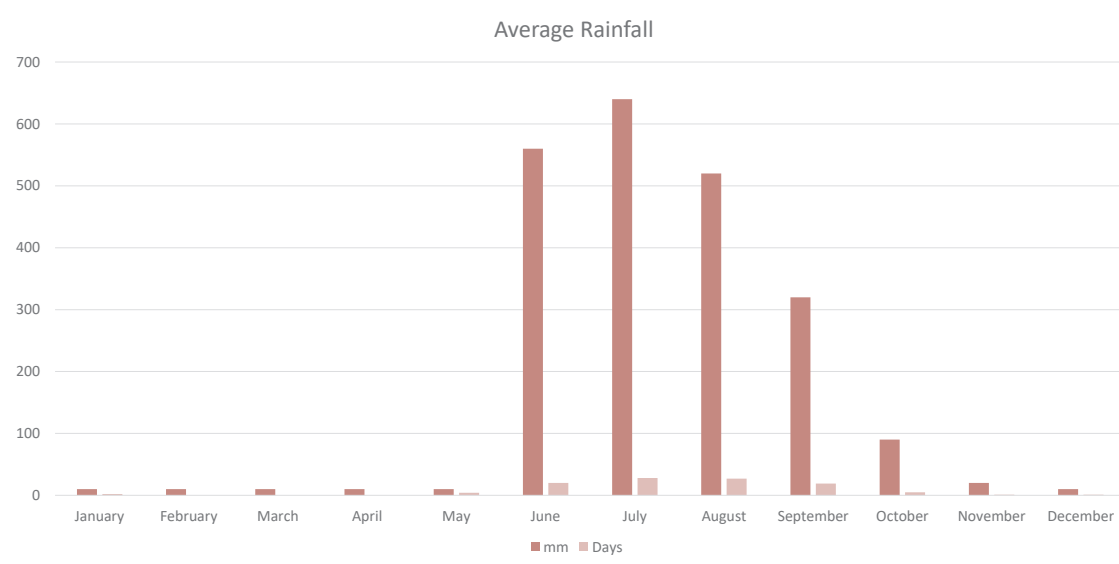


Mumbai and Navi Mumbai suffer from air pollution, with most days having a general quality of Moderate/Poor AQI (Air Quality Index).

The AQI factor identifies few days in which the city is qualified as Unhealthy/Severe and even Hazardous, mostly in November/December/January.

The city has plenty of days in which the air is qualified as Good (AQI between 0-50), mostly in May/June-September.

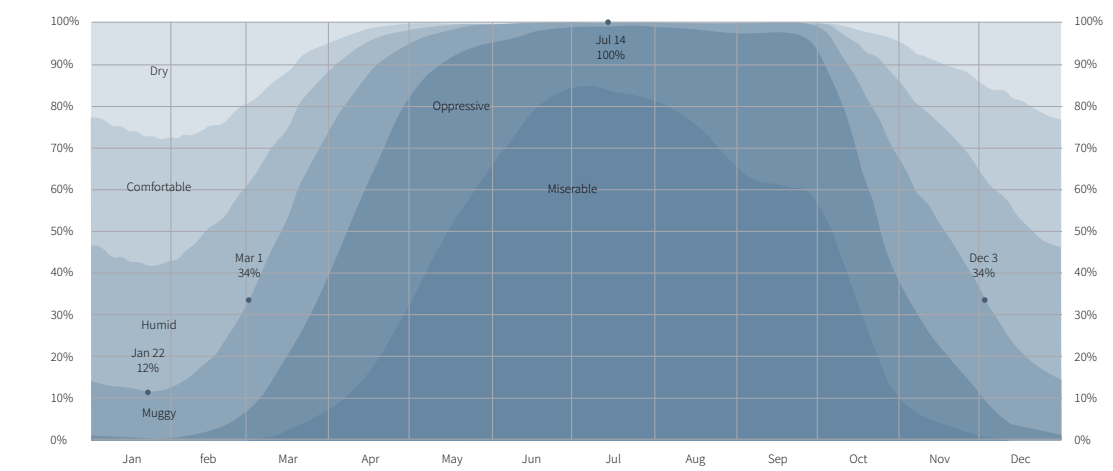
RAIN



The wetter season lasts 4 months (June-October), and 8 months for the drier season (October-June). There are extreme seasonal variations in monthly rainfall. The rainy and rainless periods are roughly 6 months each, with the most rain in July and the least rain in January.

The monsoon usually hits the city in June.

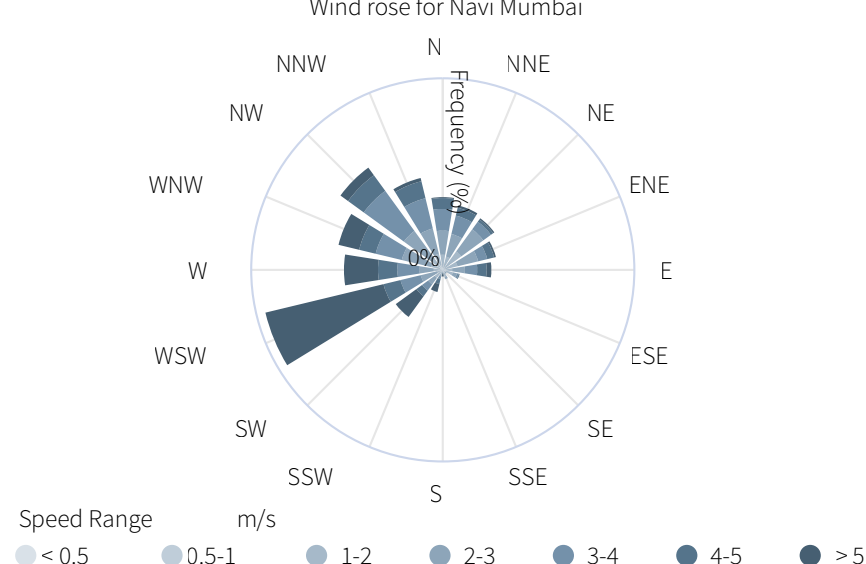
The cloud coverage is mostly clear for about 7.5 months, from October to May.



Navi Mumbai has a monthly relative humidity above 55%.

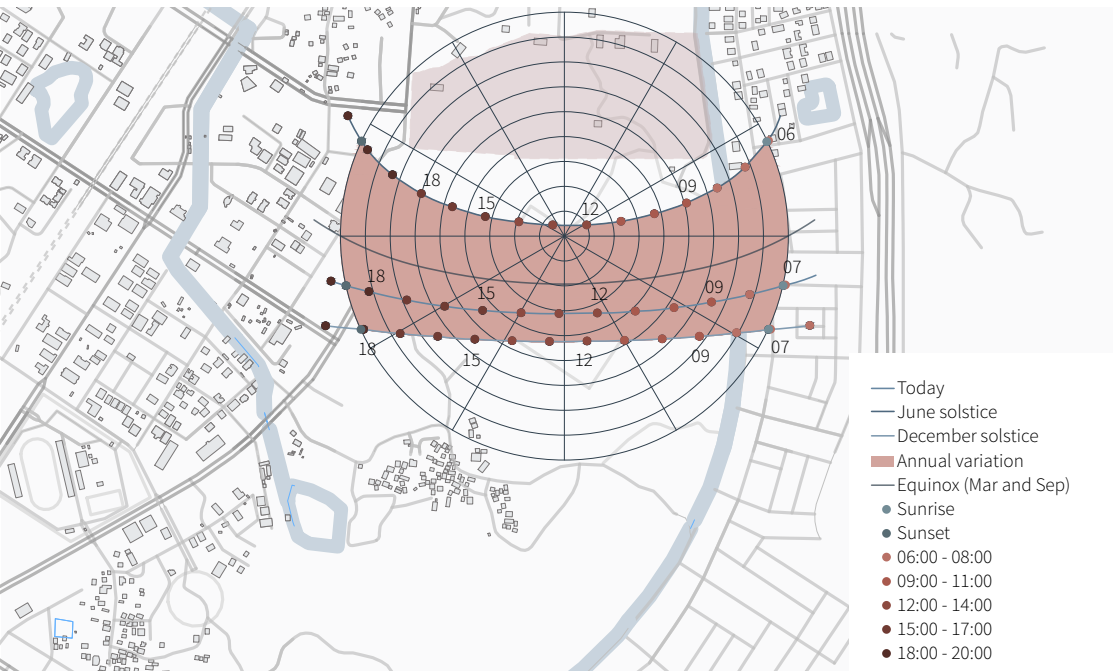
Together with the high temperatures, the humidity influences the comfort levels, with a short period being comfortable.

WIND



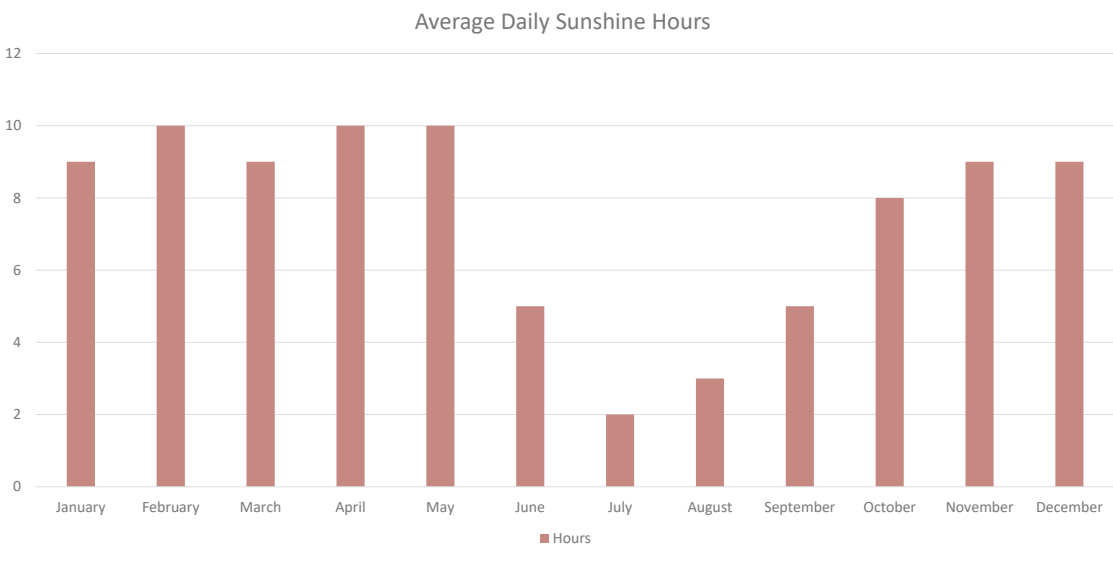
The wind in Navi Mumbai blows mainly from the South-West, from Thane Creek.

SUN



Located in the Northern and Eastern hemisphere, India lies about 2,5 km away from the Equator. Because of this proximity, the sun forms acute angles, with a 3° in summer and 30° in winter.

During the dry season, Navi Mumbai has an average of over 8 hours of daily sunlight.



LOW-INCOME GROUP

Construction



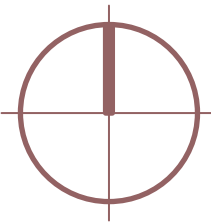
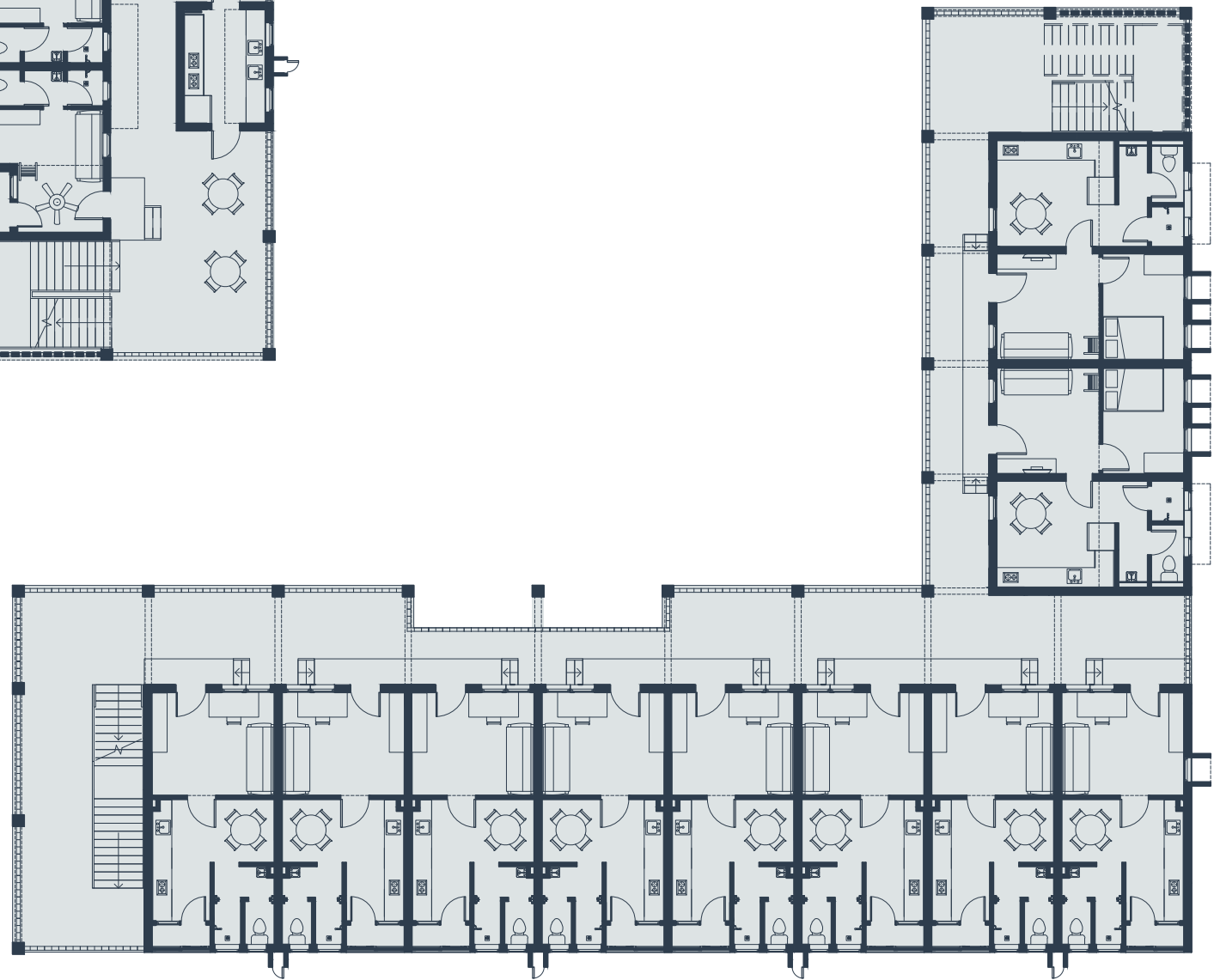
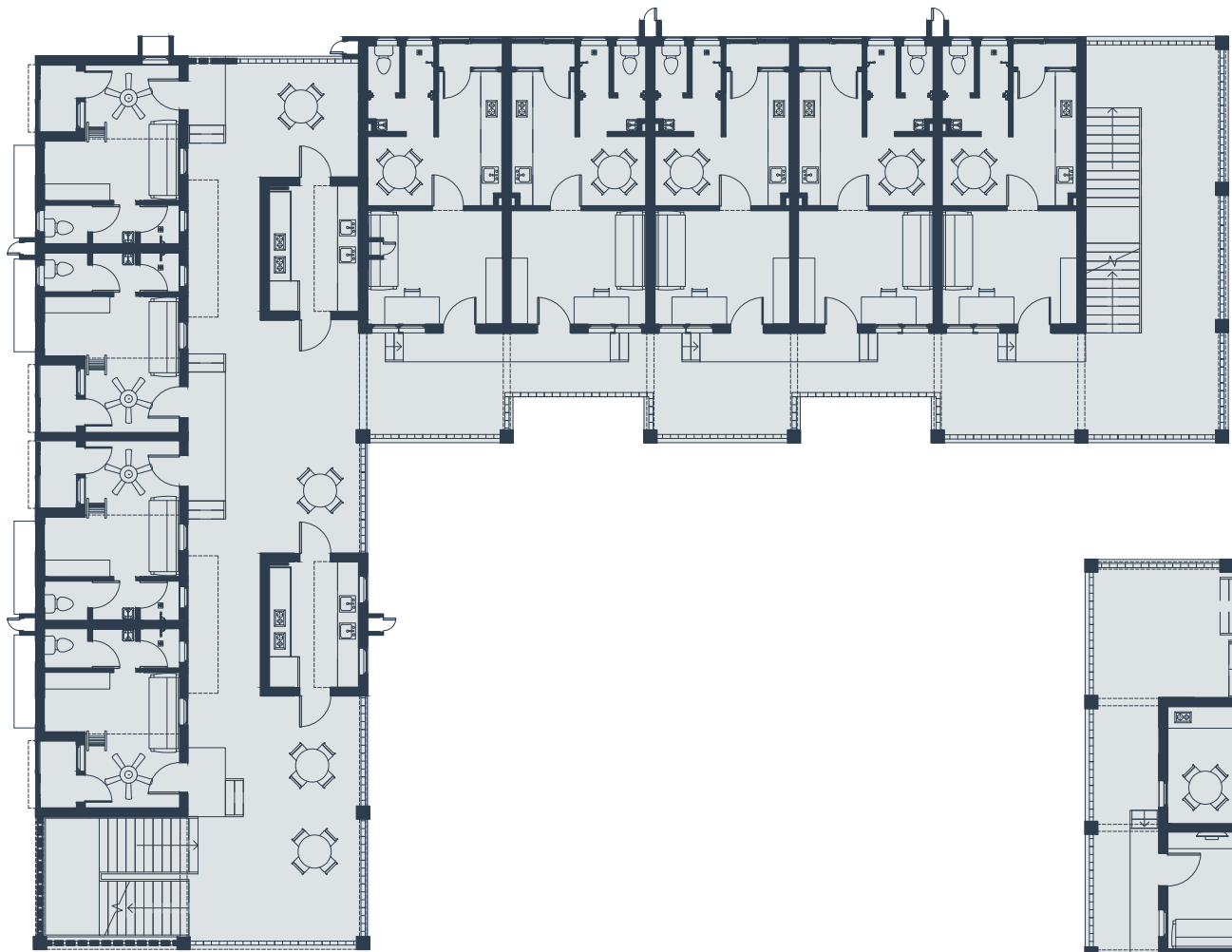
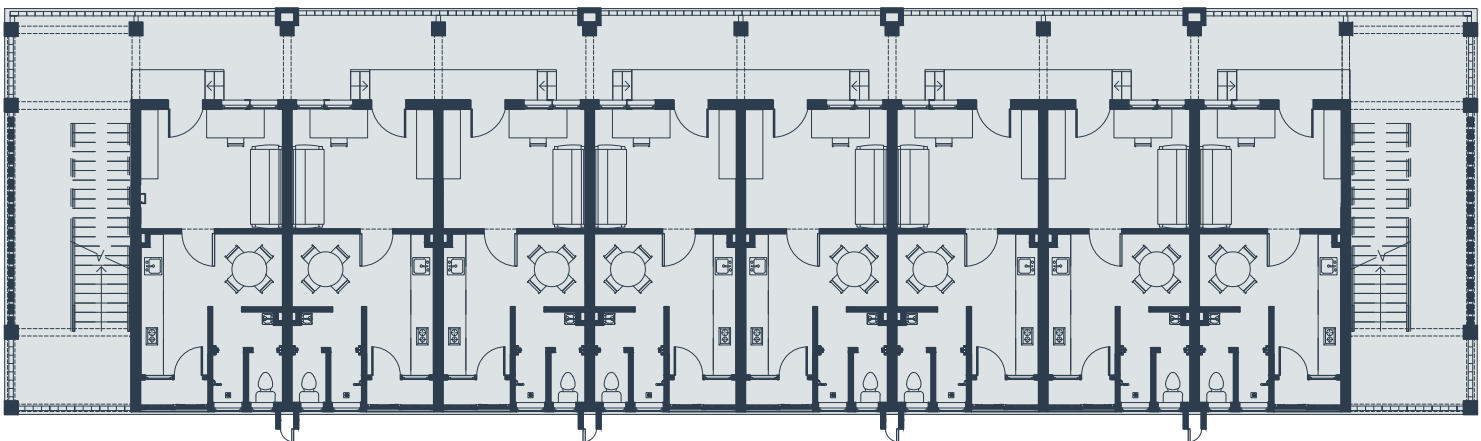
Low-income group building axonometry
Not to scale

Chhajjas

Jaalis

Perforated brick wall

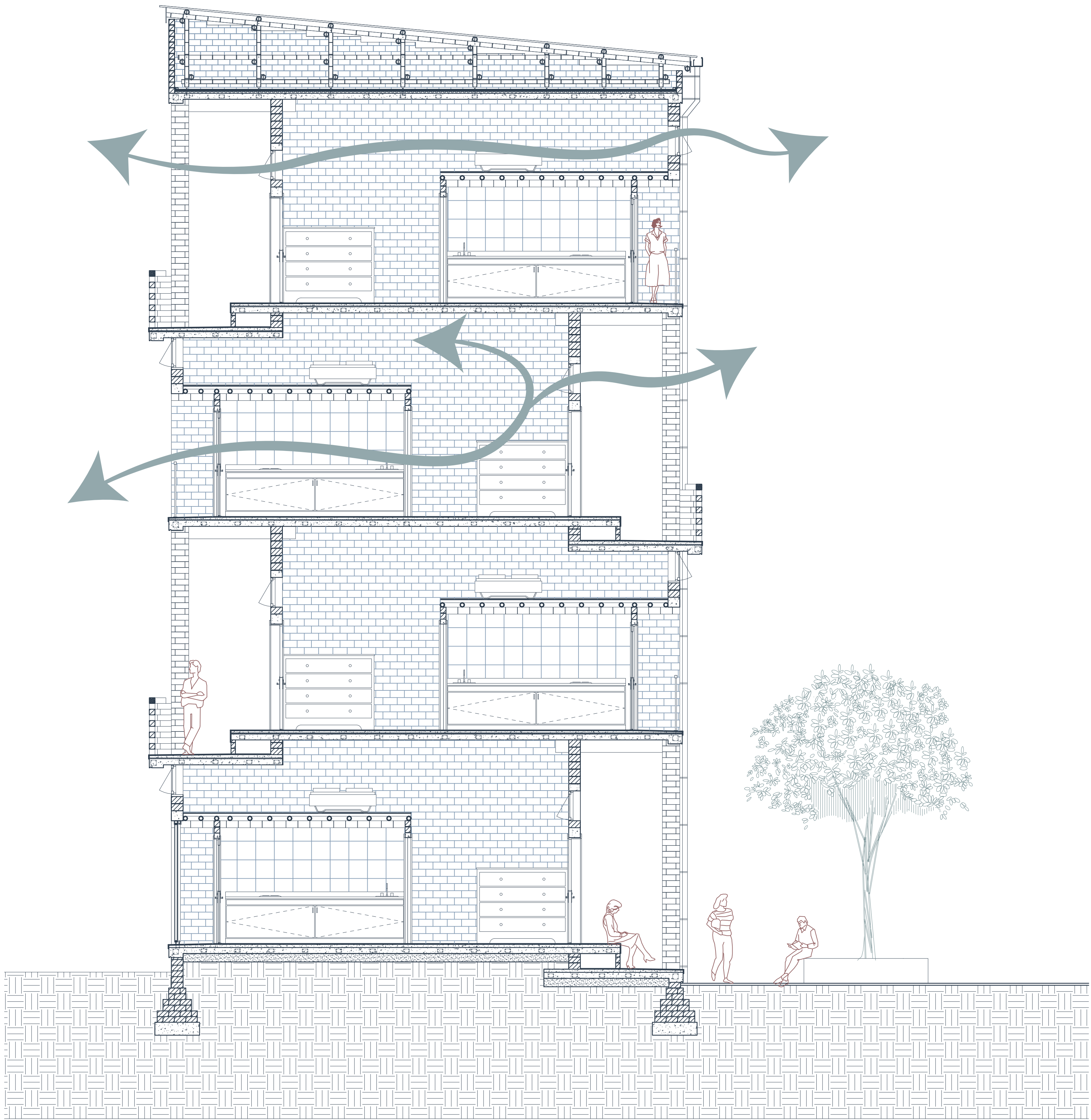
Green pedestrian path



Cluster orientation plan, first floor
Scale 1:200 on A1

LOW-INCOME GROUP

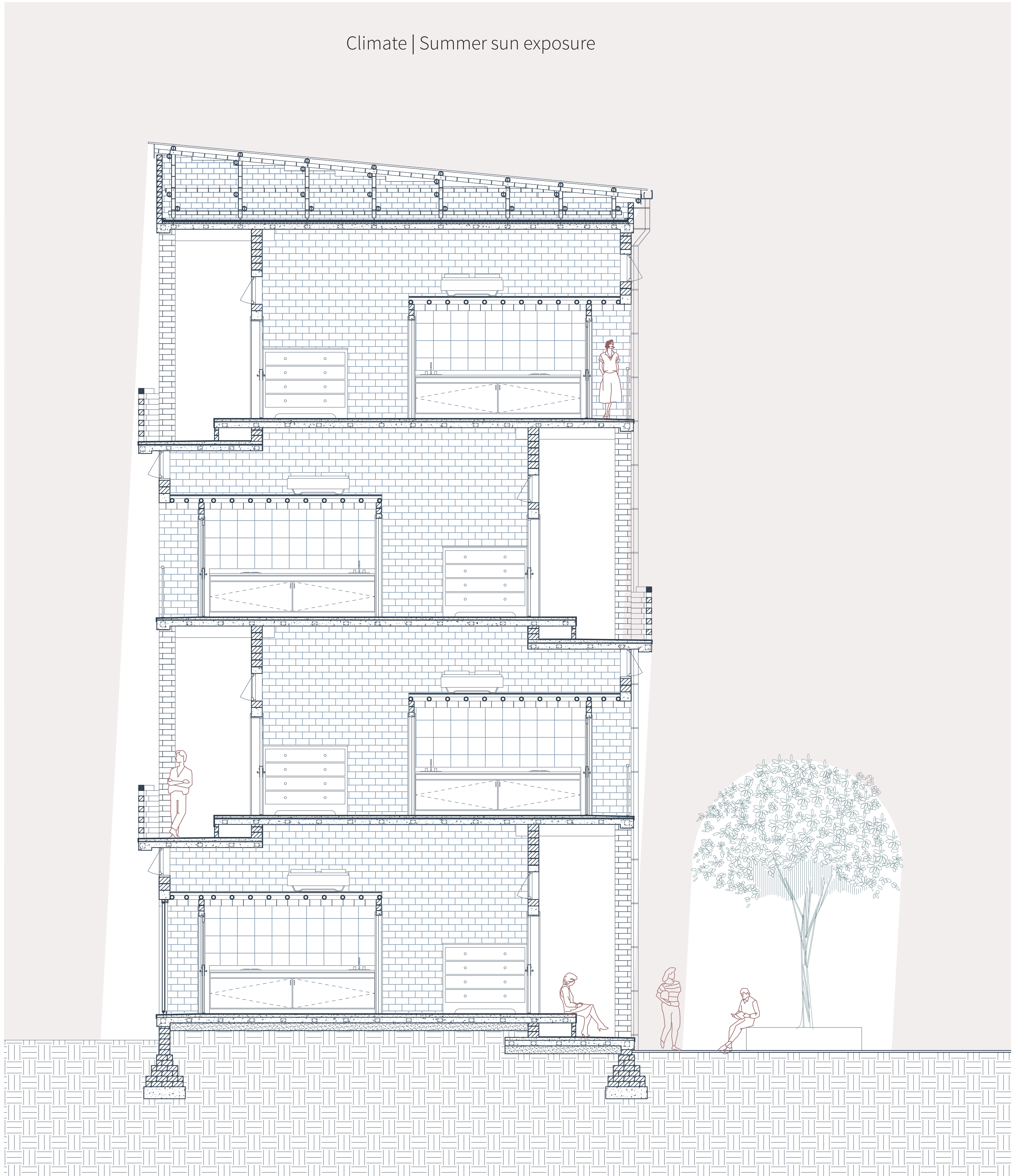
Climate | Air flow



Border typology section
Scale 1:50 on A1

LOW-INCOME GROUP

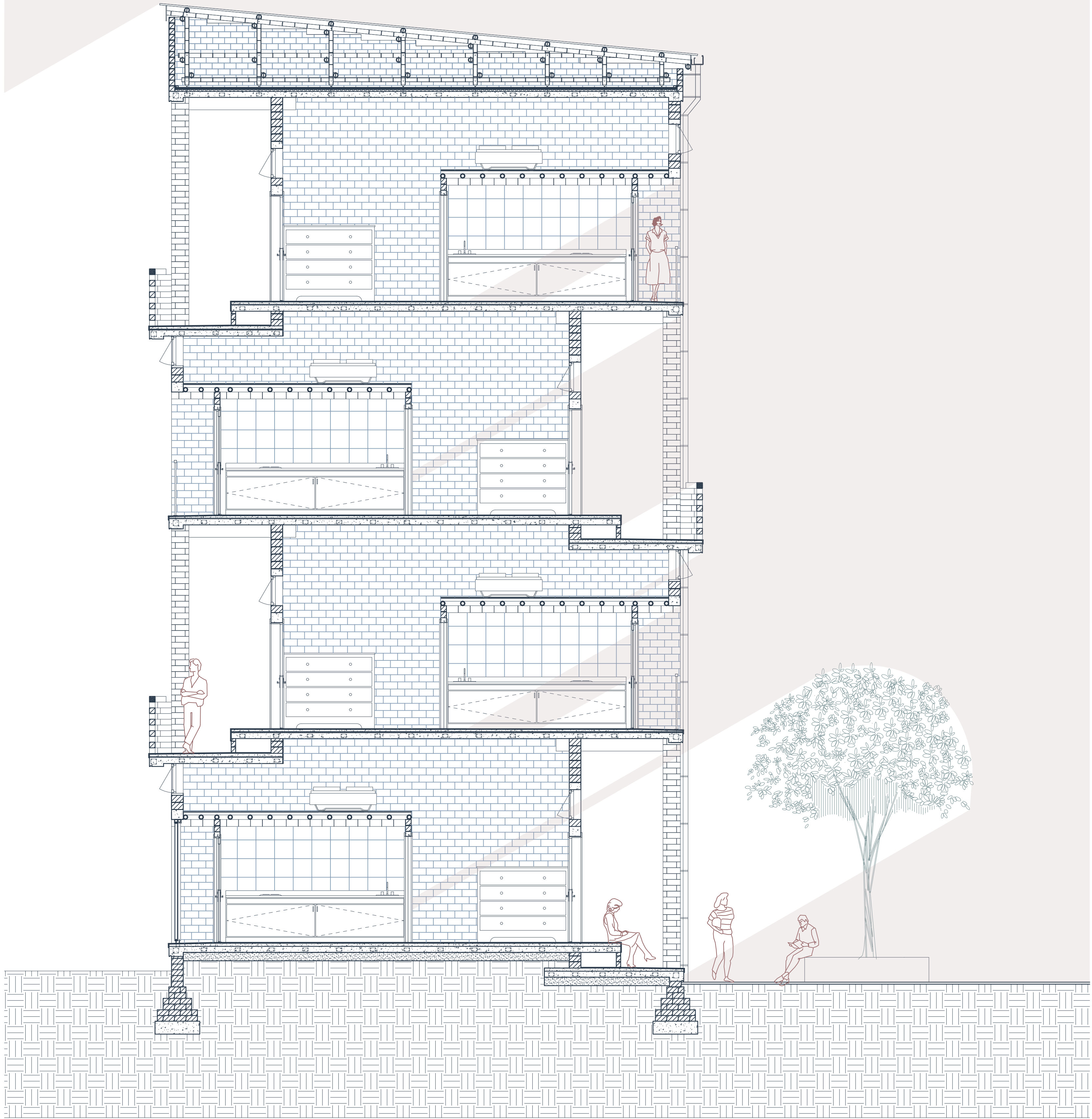
Climate | Summer sun exposure



Border typology section
Scale 1:50 on A1

LOW-INCOME GROUP

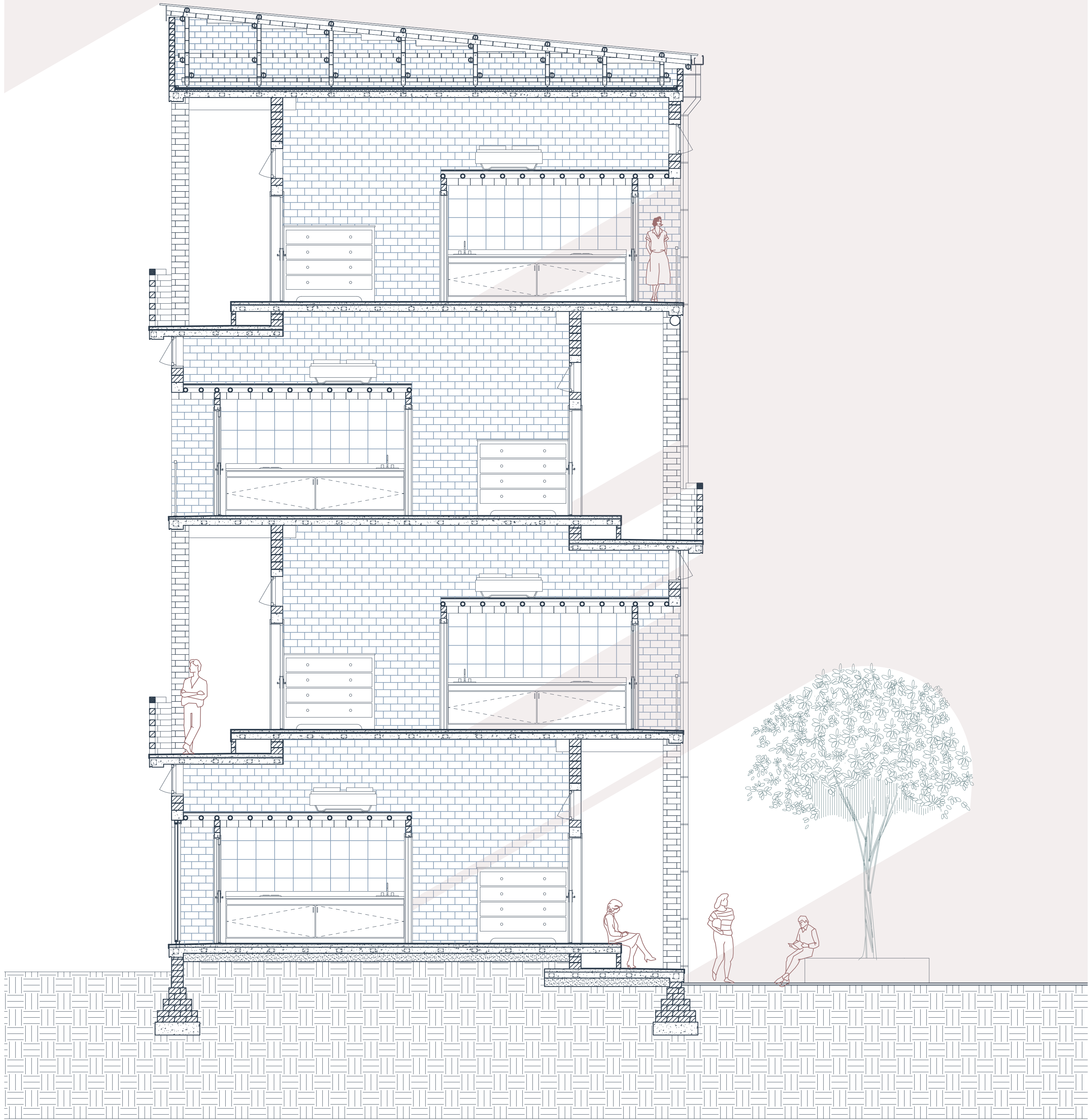
Climate | Winter sun exposure



Border typology section
Scale 1:50 on A1

LOW-INCOME GROUP

Climate | Winter sun exposure - additional shading

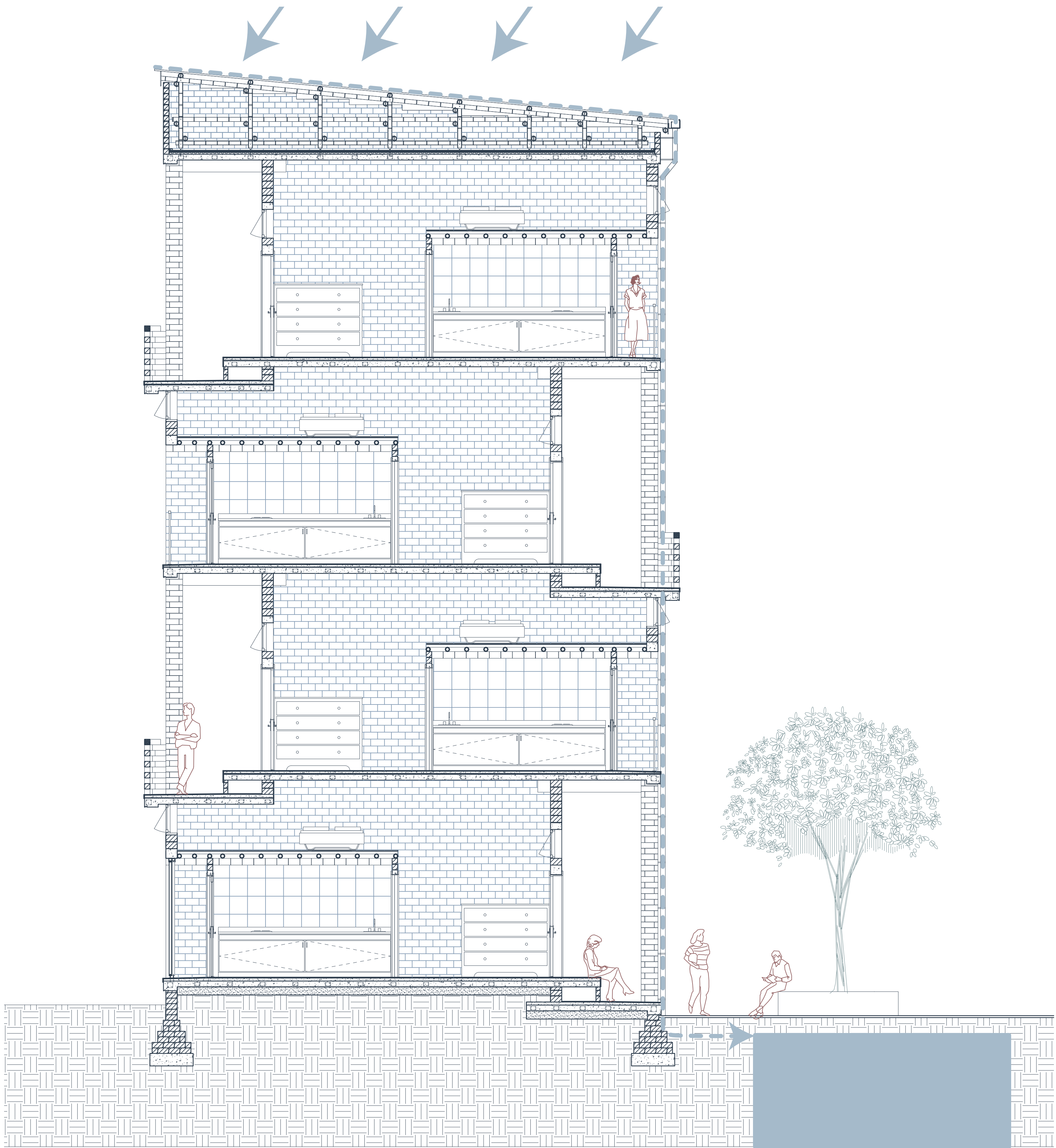


Bamboo roller blinds shading

Border typology section
Scale 1:50 on A1

LOW-INCOME GROUP

Climate | Rainwater collection



Border typology section
Scale 1:50 on A1

LOW-INCOME GROUP

Climate | Rainwater collection



Cluster plan
Scale 1:200 on A1

50

MIDDLE-INCOME GROUP



Cluster amenities

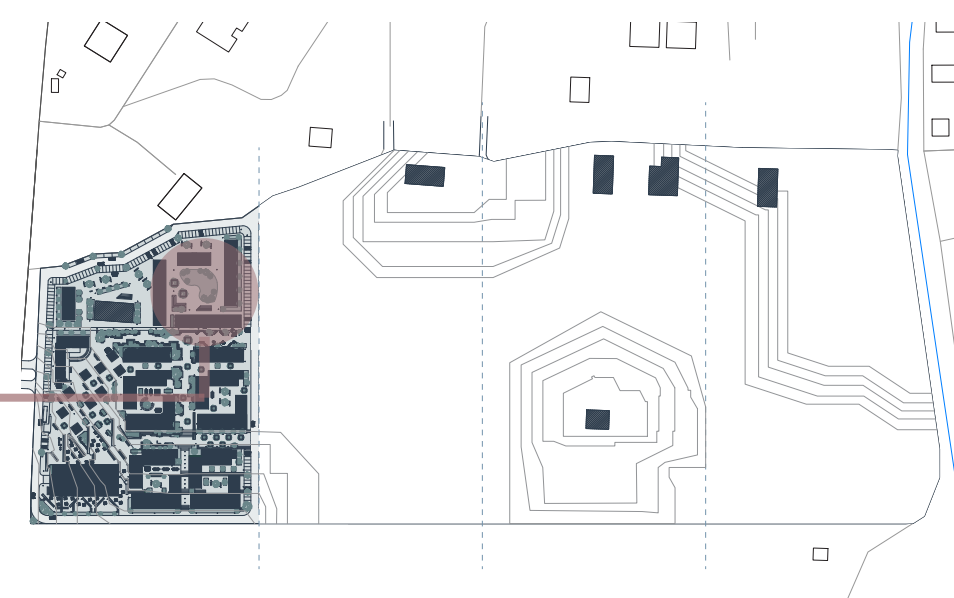
Maidan

Katta

Bakda

Dwellings

Location



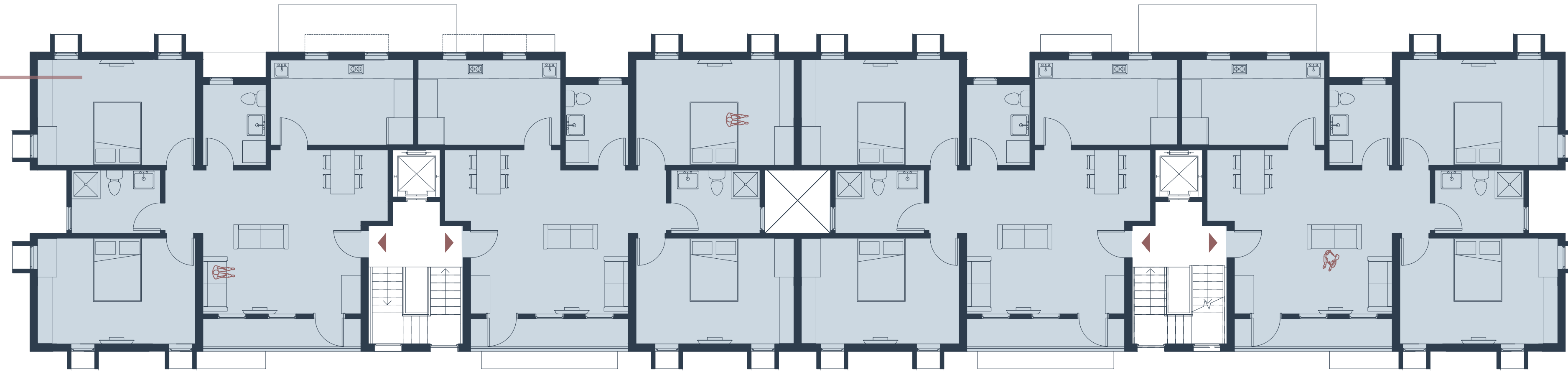
Middle-income group cluster plan

Scale 1:200 on A1

MIDDLE-INCOME GROUP

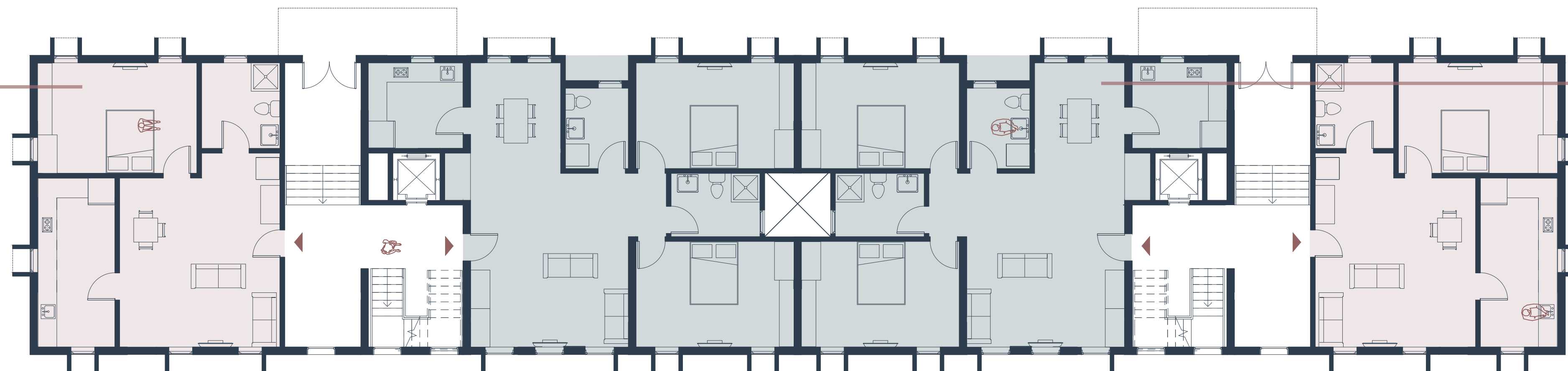
Apartment types

Type A
2 bedrooms
94 m²

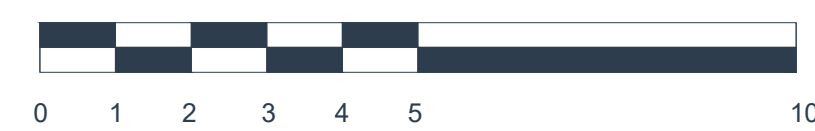


First floor

Type B
1 bedroom
69 m²



Type C
2 bedrooms
98 m²



Ground floor

Building plans
Scale 1:100 on A1

MIDDLE-INCOME GROUP



Middle-income group cluster
Axonometry

MIDDLE-INCOME GROUP

Private Public Sequence



CLUSTER AMENITIES

COURTYARD

DWELINGS

GREEN PATH

SEMI-PRIVATE

SEMI-PUBLIC

PRIVATE

PUBLIC

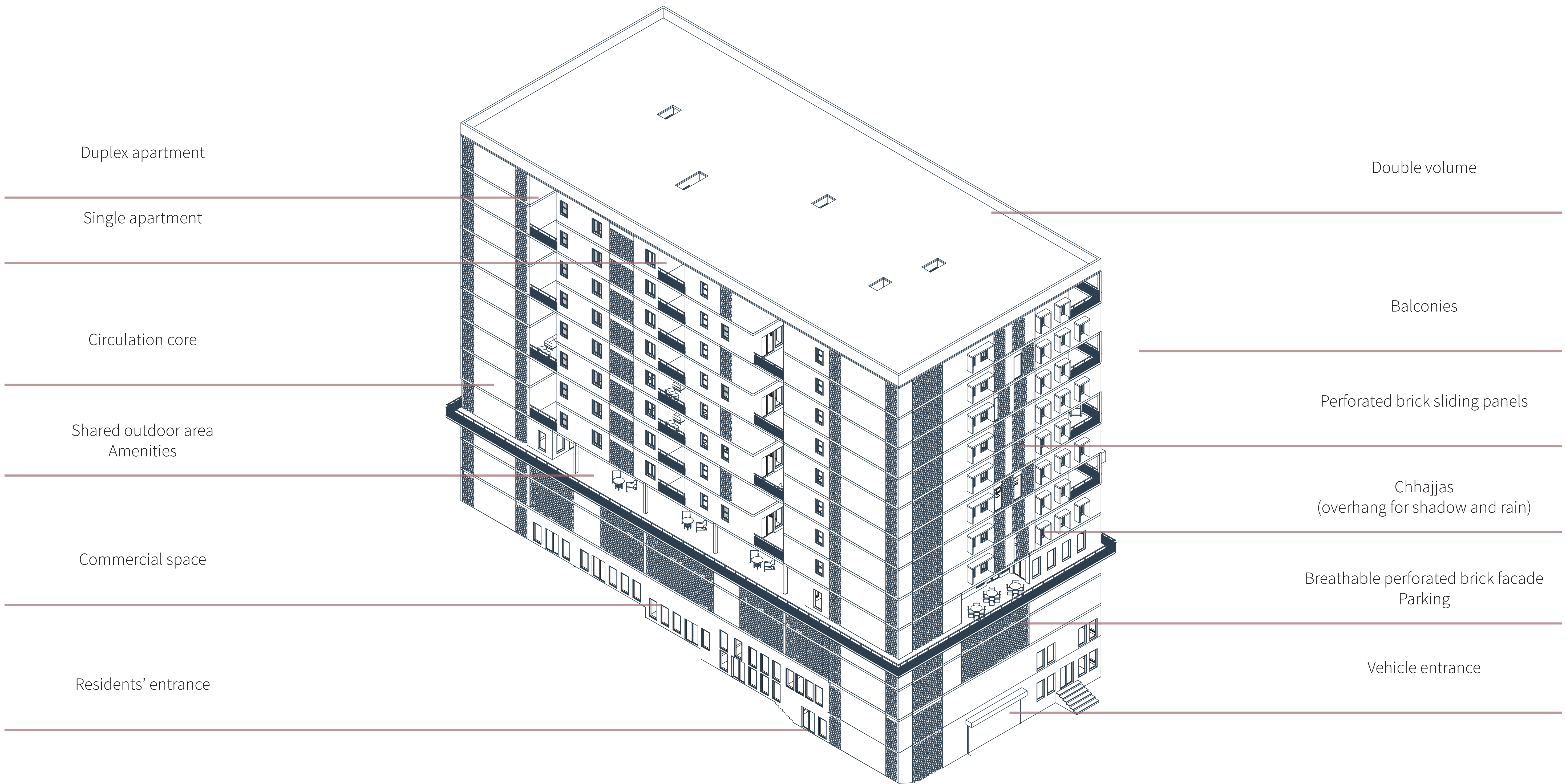
Middle-income group cluster section

Scale 1:100 on A1



Middle-income cluster view

HIGH-INCOME GROUP



High-income group
Axonometry

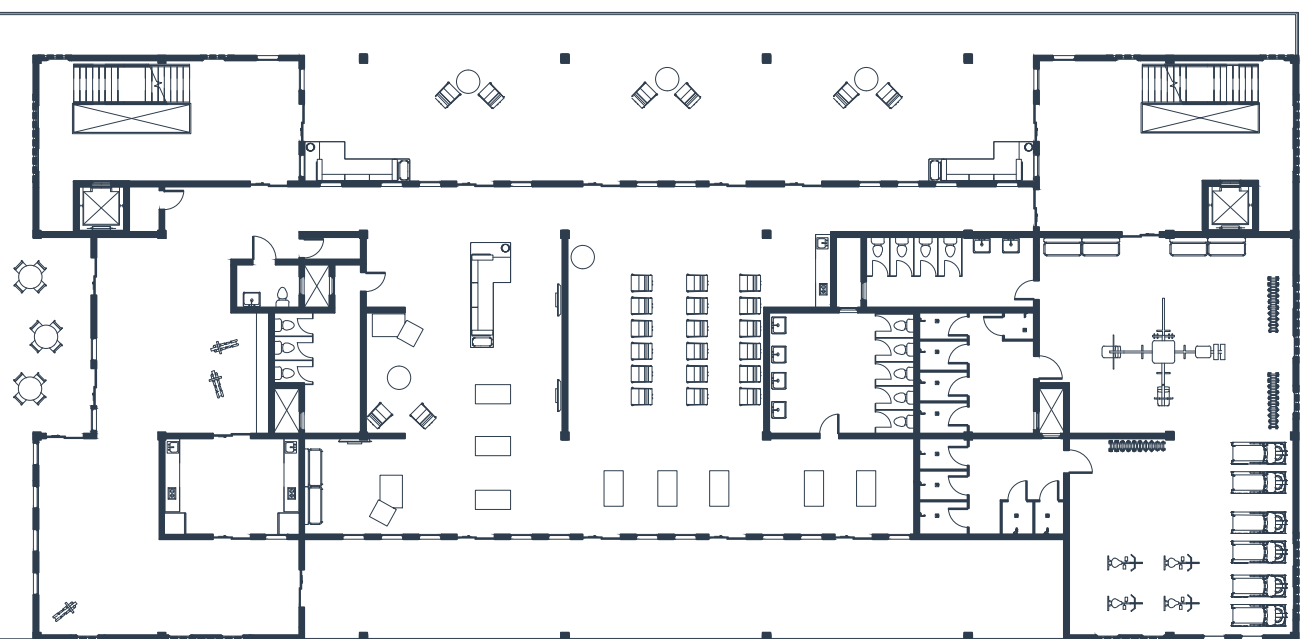
Scale 1:300 on A1



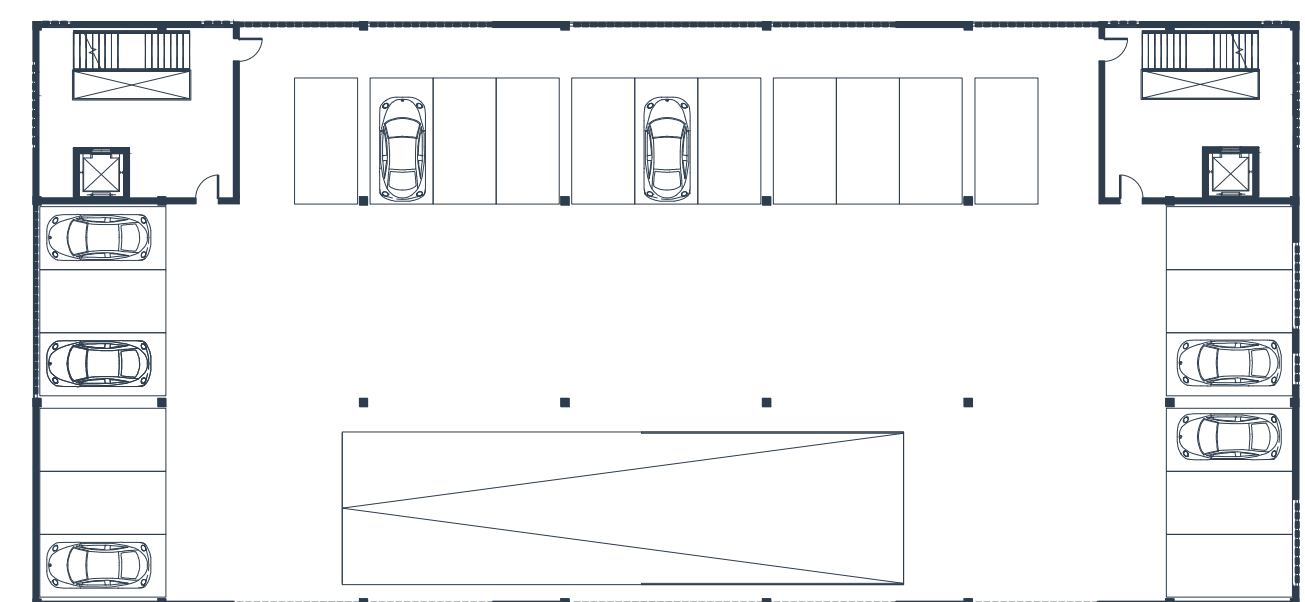
Levels 5,7,9



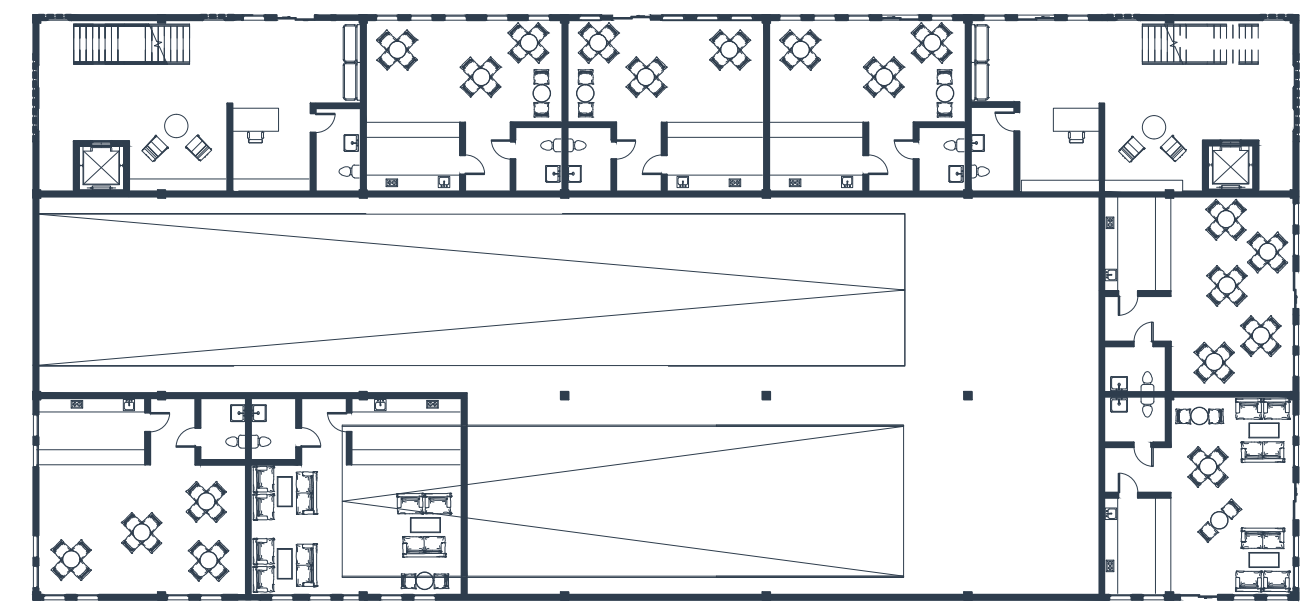
Levels 4,6,8



Level 3



Levels 1&2



Ground floor





High-income group view

HIGH-INCOME GROUP

Apartment types

Levels 5/7/9

Type D

Duplex apartment
3 bedrooms
176 m²

Type E

Corner apartment
2 bedrooms
125 m²

Type F

Single apartment
2 bedrooms
160 m²

Amenities

- Gym
- Daycare
- Outdoor terrace space
- Social space
- Play area

Type A

Duplex apartment
3 bedrooms
222 m²

Type B

Single apartment
1 bedroom
105 m²

Type C

Duplex apartment
3 bedrooms
177 m²

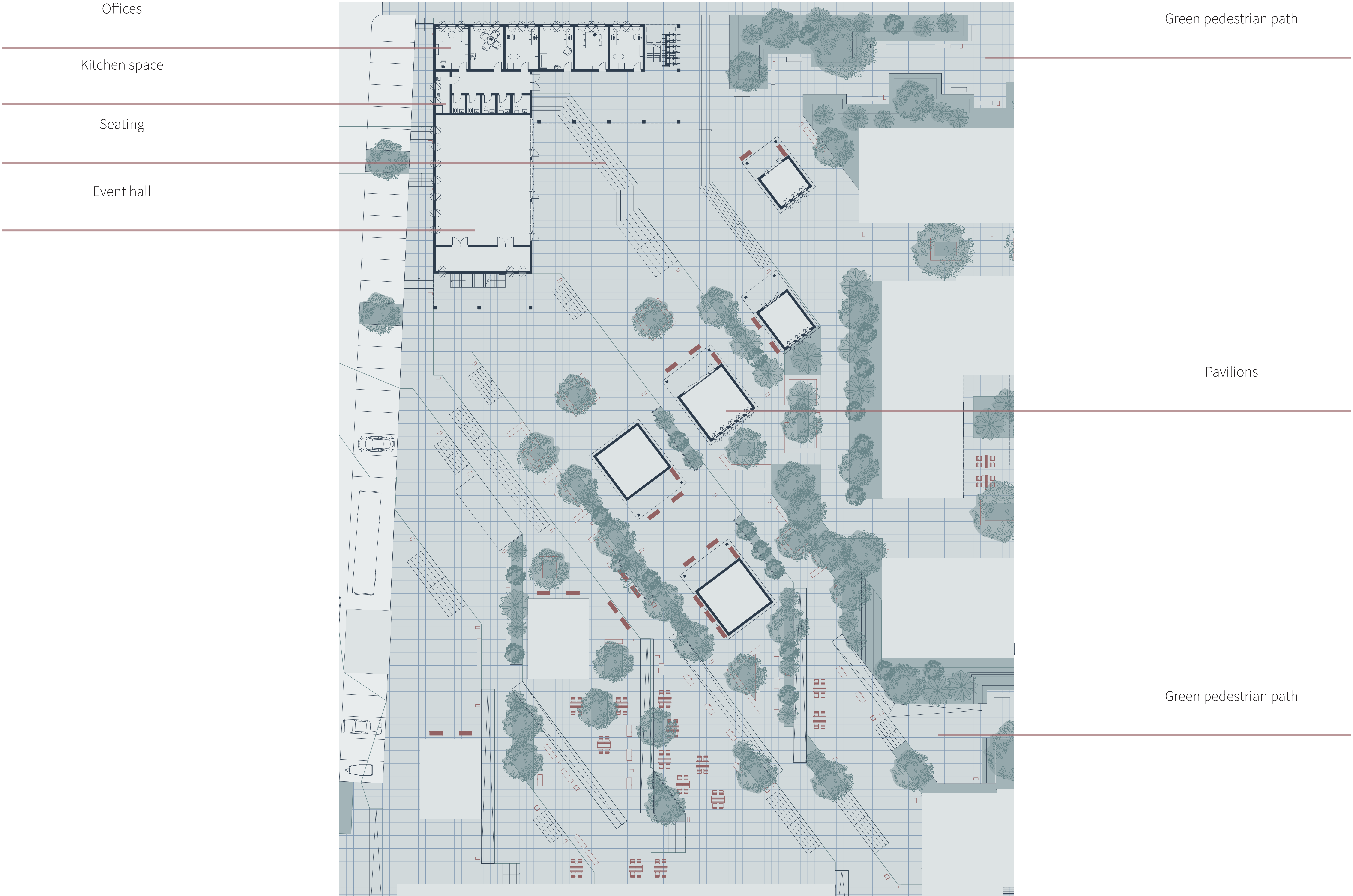
Levels 4/6/8

Level 3

High-income group floor plans

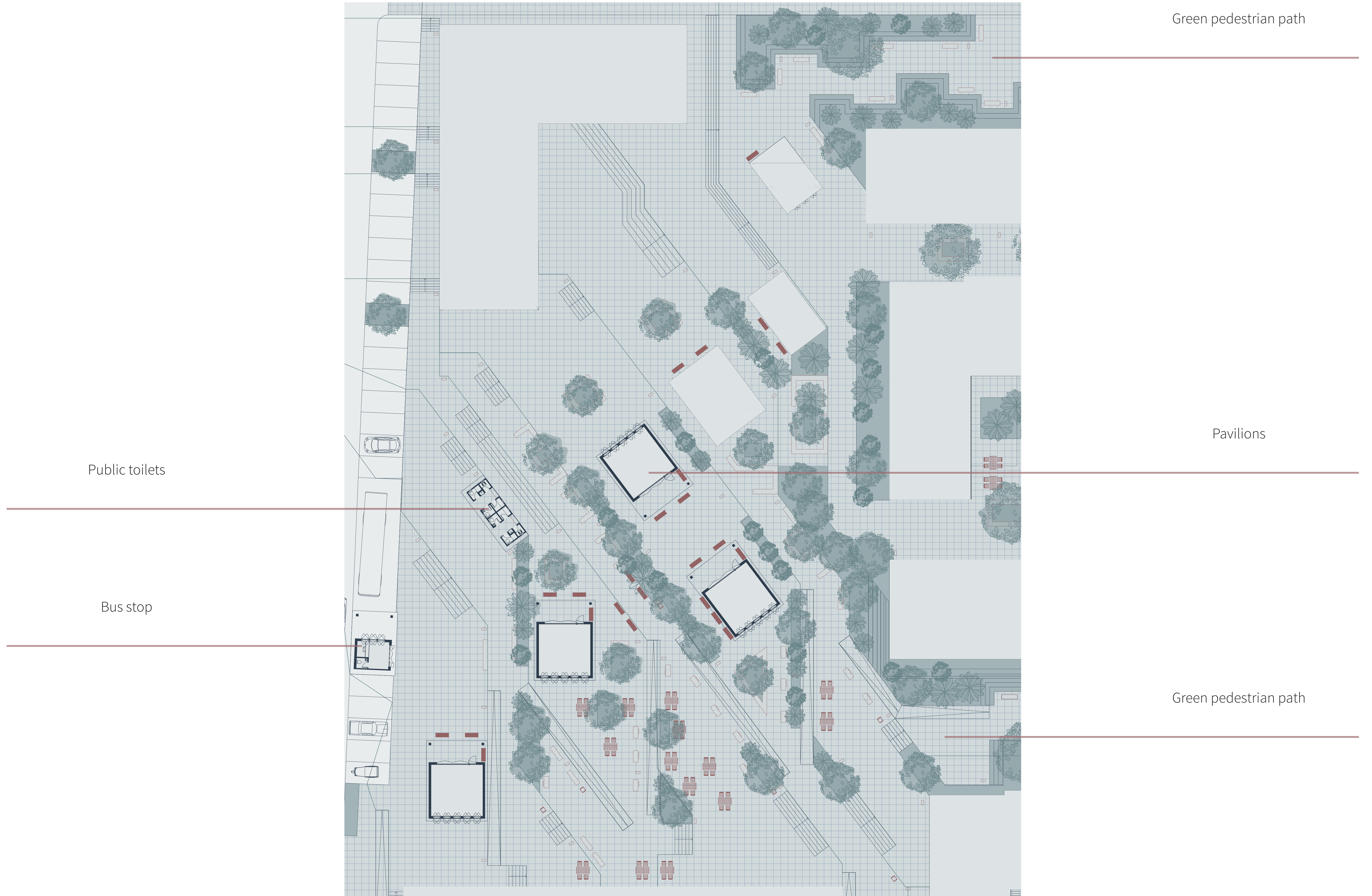
Scale 1:200 on A1

COMMUNITY BOOSTER



Community booster ground floor plan
Scale 1:200 on A1

COMMUNITY BOOSTER



Green pedestrian path

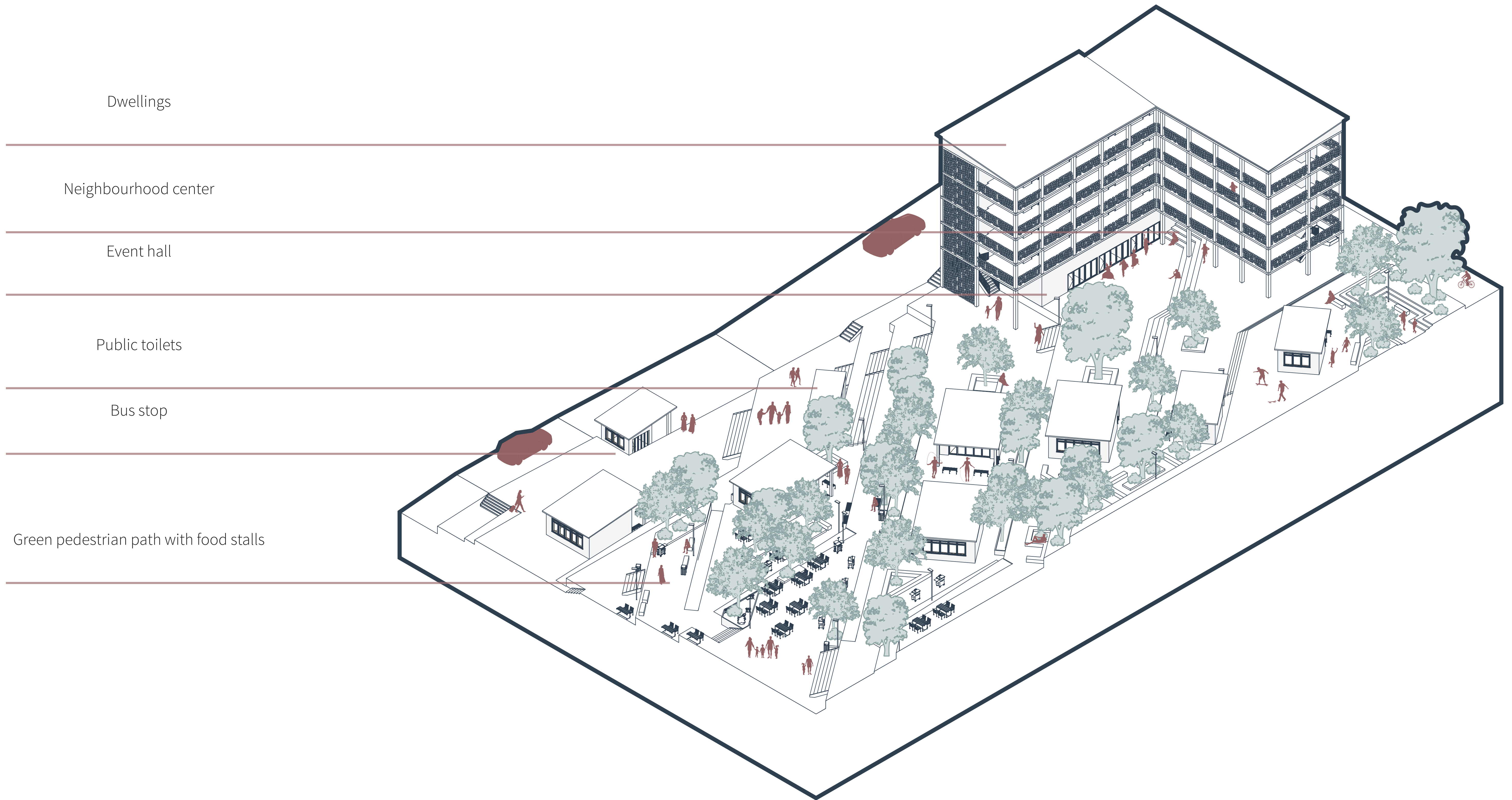
Pavilions

Green pedestrian path

Community booster level -1 plan

Scale 1:200 on A1

COMMUNITY BOOSTER

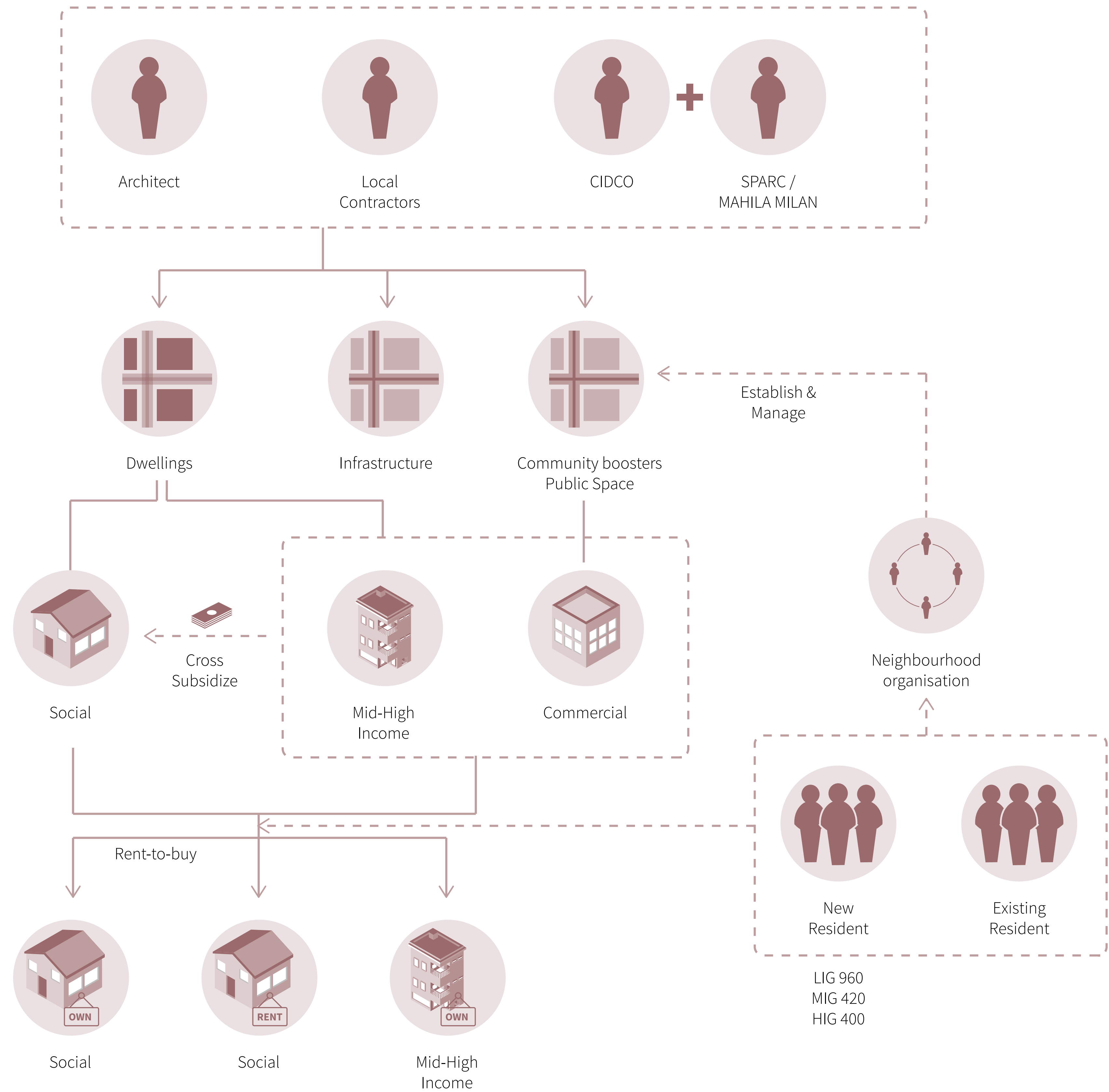


Community booster axonometry
Not to scale



Community booster view

MANAGERIAL STRATEGY



Managerial Structure Diagram

MANAGERIAL STRATEGY

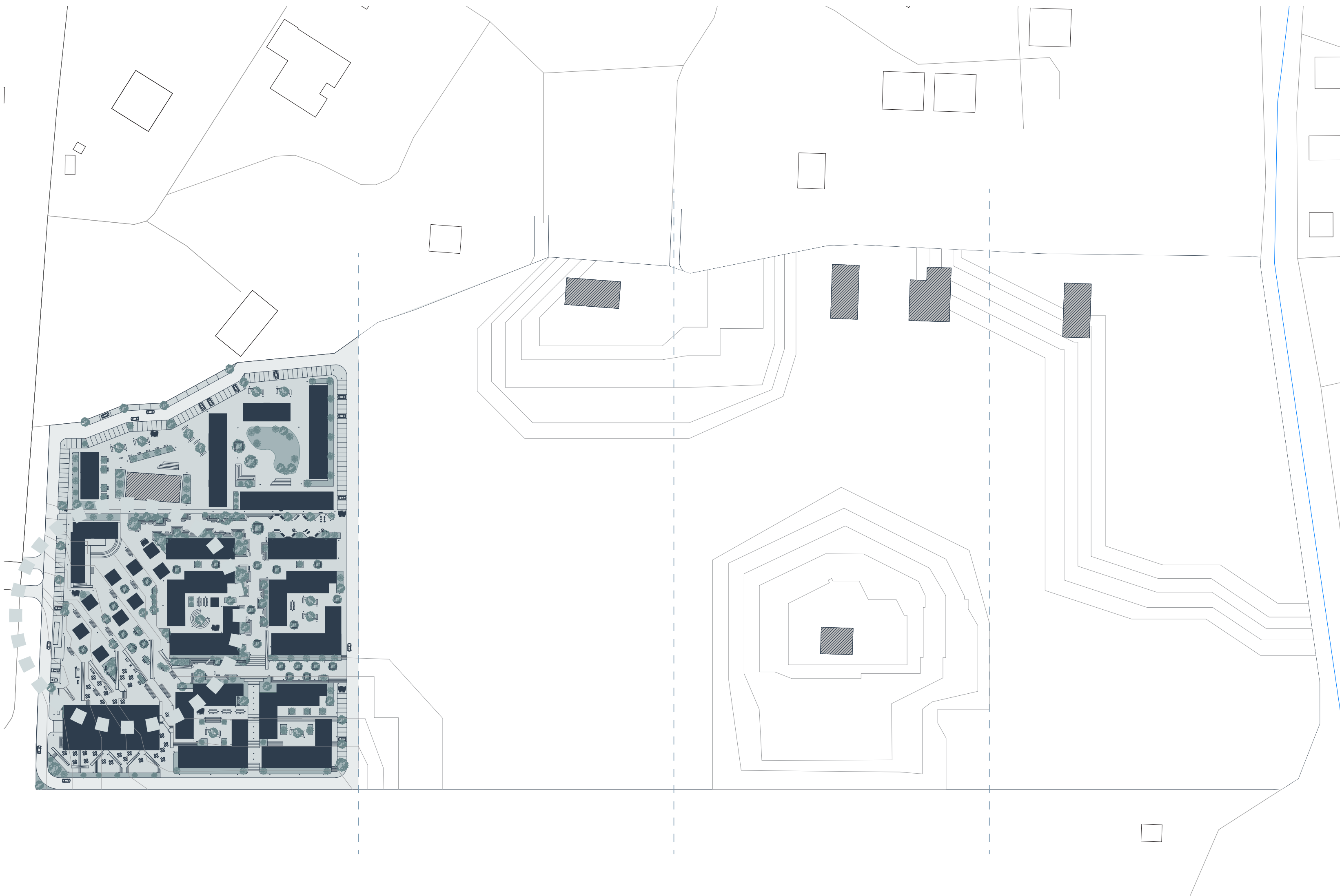
Stakeholder Analysis | Community booster

Neighbourhood Organisation Structure



Direct involvement of residents at all scales of the Neighbourhood Organisation allows them to have easy and direct impact on their surrounding environment.

50% women - 50% men division
The involvement of women in these organisational structures gives them power to influence the public environment, manage and care for their neighbourhood, and establish what activities take place and what amenities are included in the community boosters.



Masterplan with Phase I implemented - Community booster highlighted
Scale 1:1000 on A1

MANAGERIAL STRATEGY

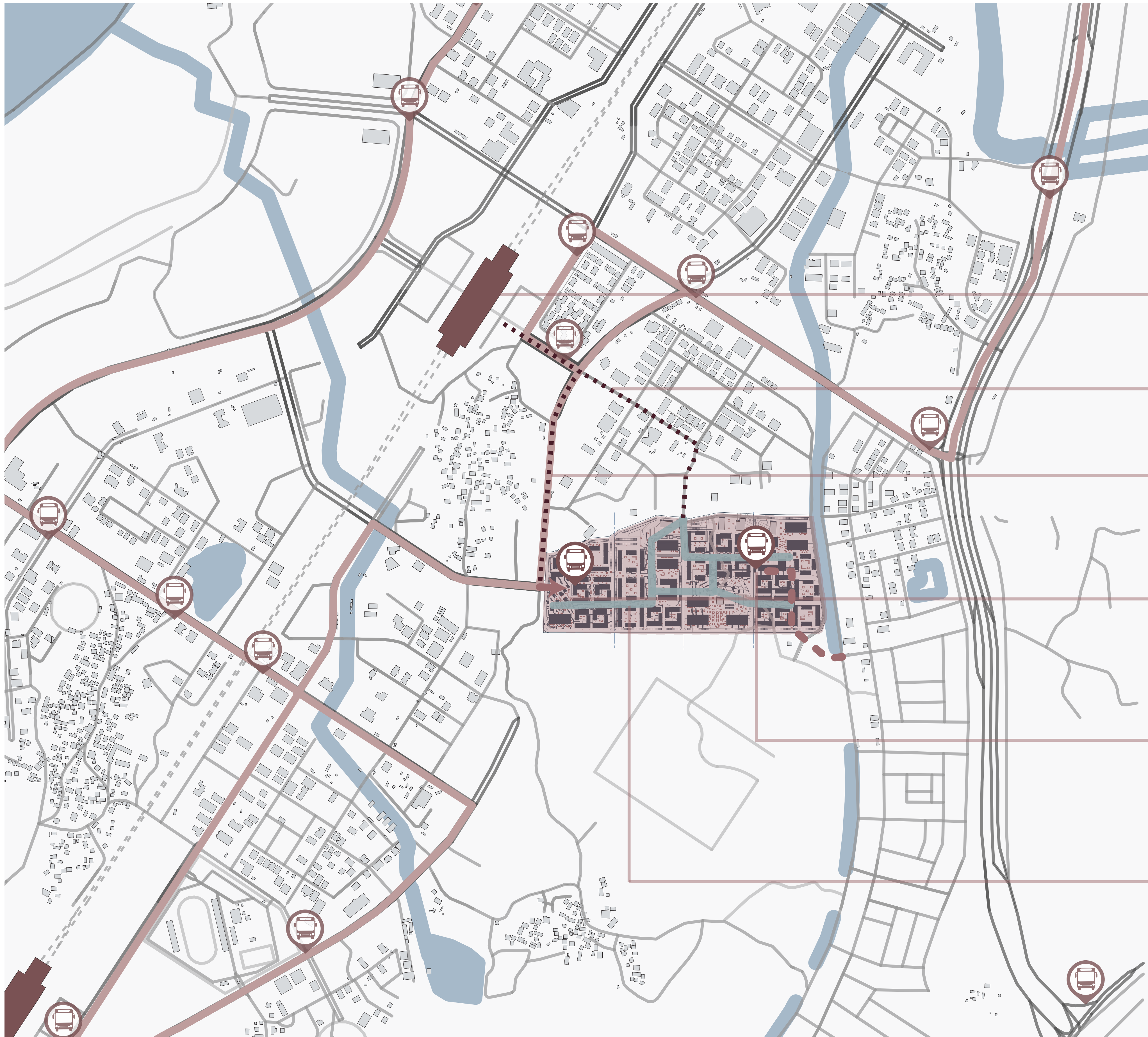
Stakeholder Analysis | Managerial strategy



Phasing

DESIGN | PROJECT CONNECTIONS

Proposed transport connections



Bamandongri Railway Station

Walking route 2 15 min

Walking route 1 10 min

Proposed bus stop 1
entrance of the neighbourhood

Proposed bus stop 2
connection benefiting wider Ulwe residents

Green pedestrian path
connecting to walking routes
extension towards the train station

Proposed transport links
Scale 1:5000 on A1

PROPOSED MASTERPLAN

PHASE I



Phase I axonometry
Not to scale