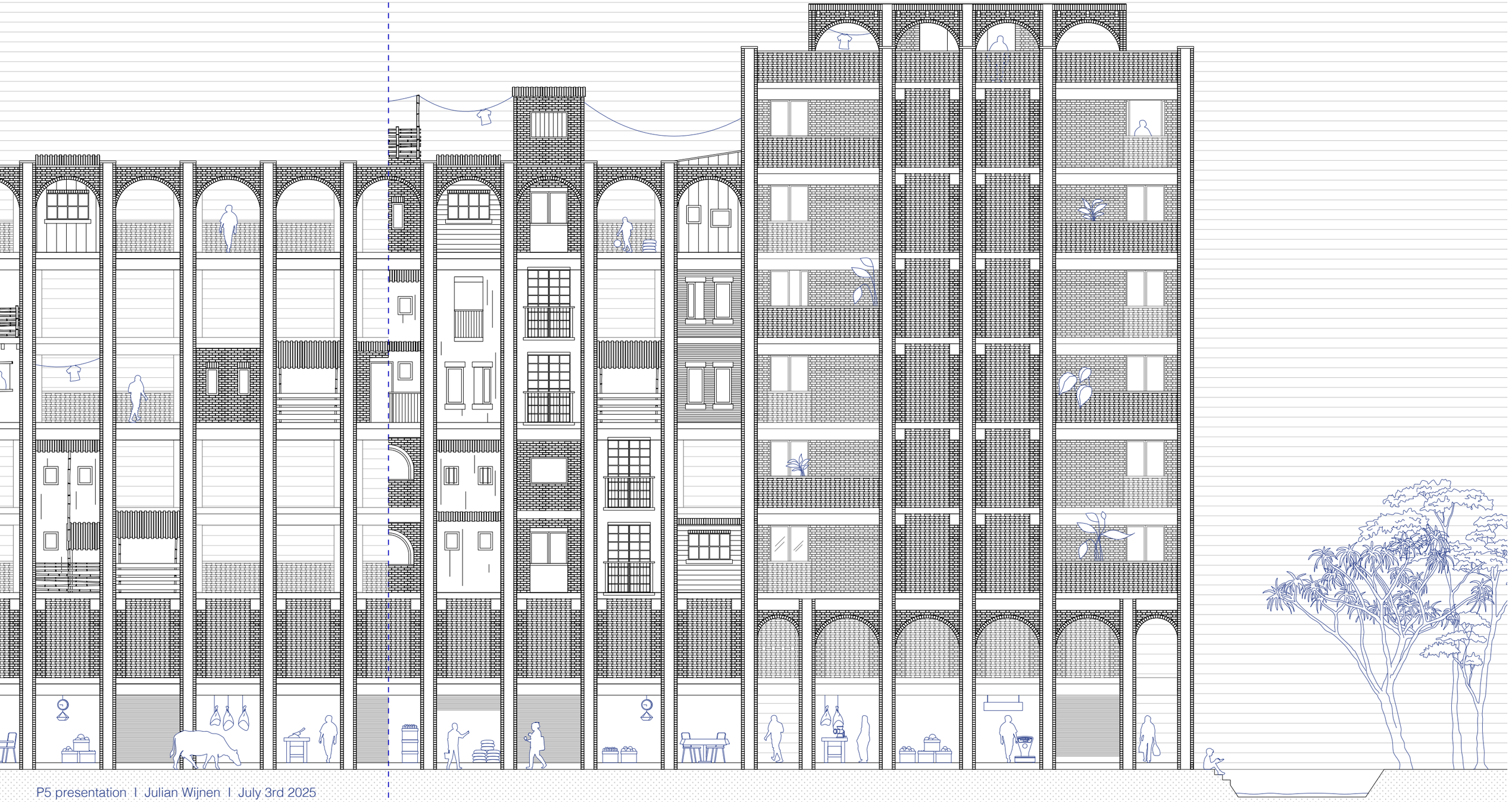
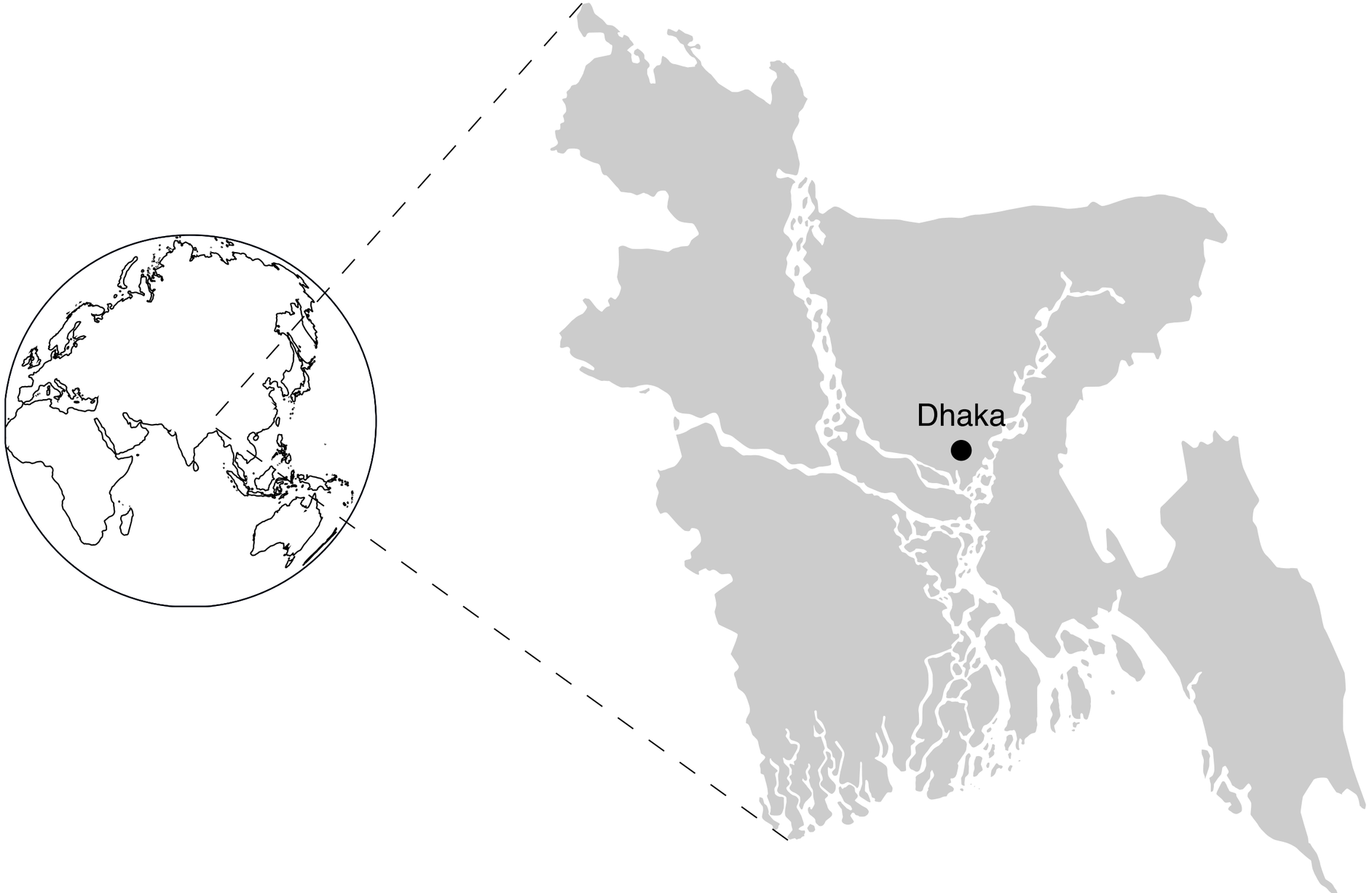
INCREMENTAL HIGH-RISE

Housing project for the Hawkers Market in Sylhet, Bangladesh



GLOBAL HOUSING

BANGLADESH

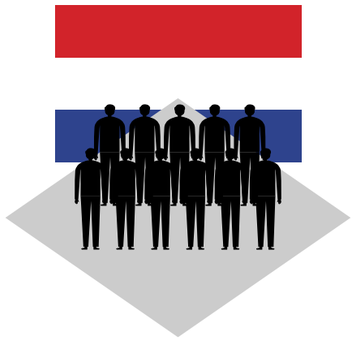

Dhaka

55 pers. / km²

55 pers. / km²

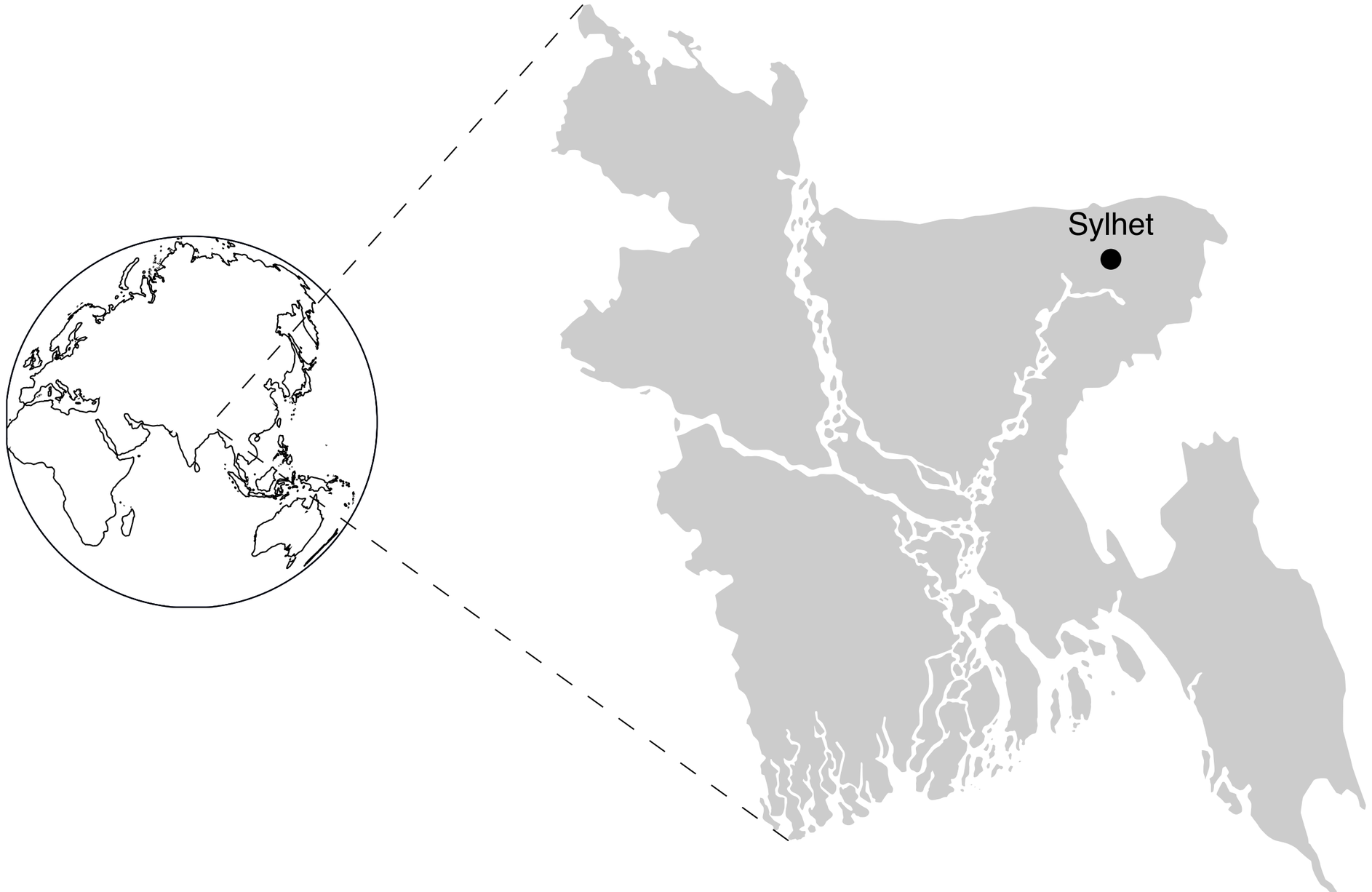
541 pers. / km²

55 pers. / km²



541 pers. / km²

1333 pers. / km²


Sylhet

Problem

Problem

Lack of space

Problem

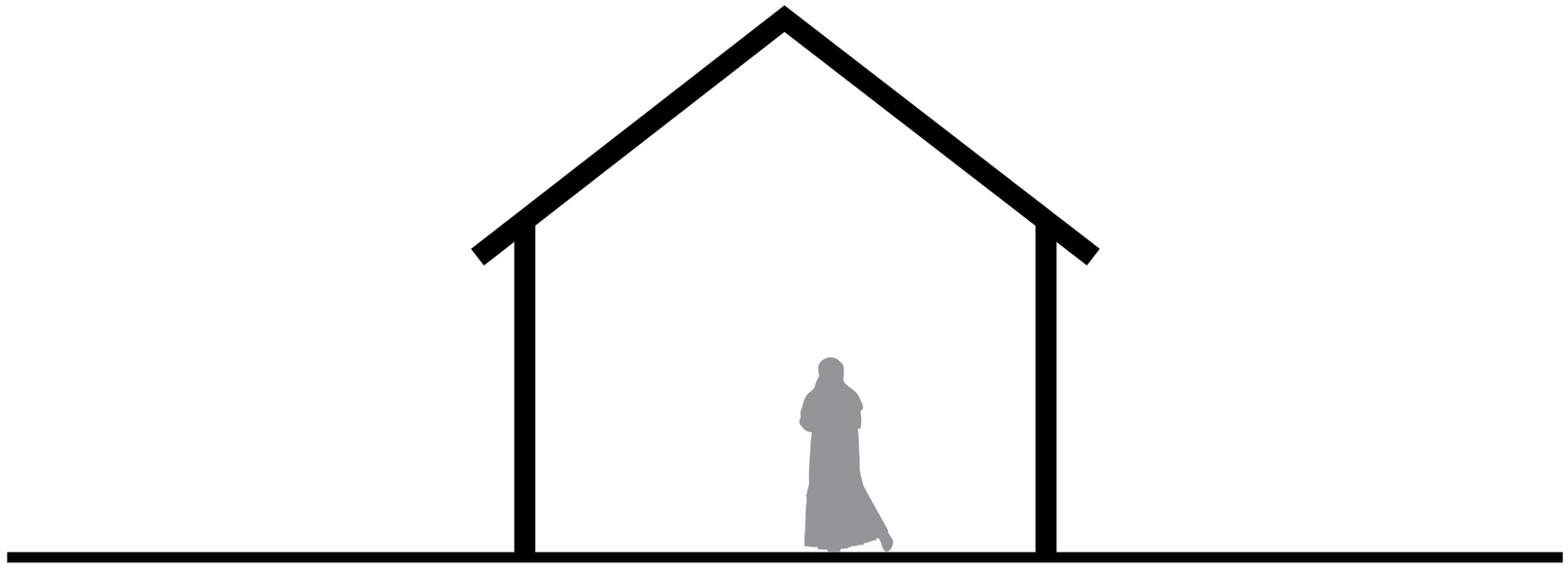
Lack of space

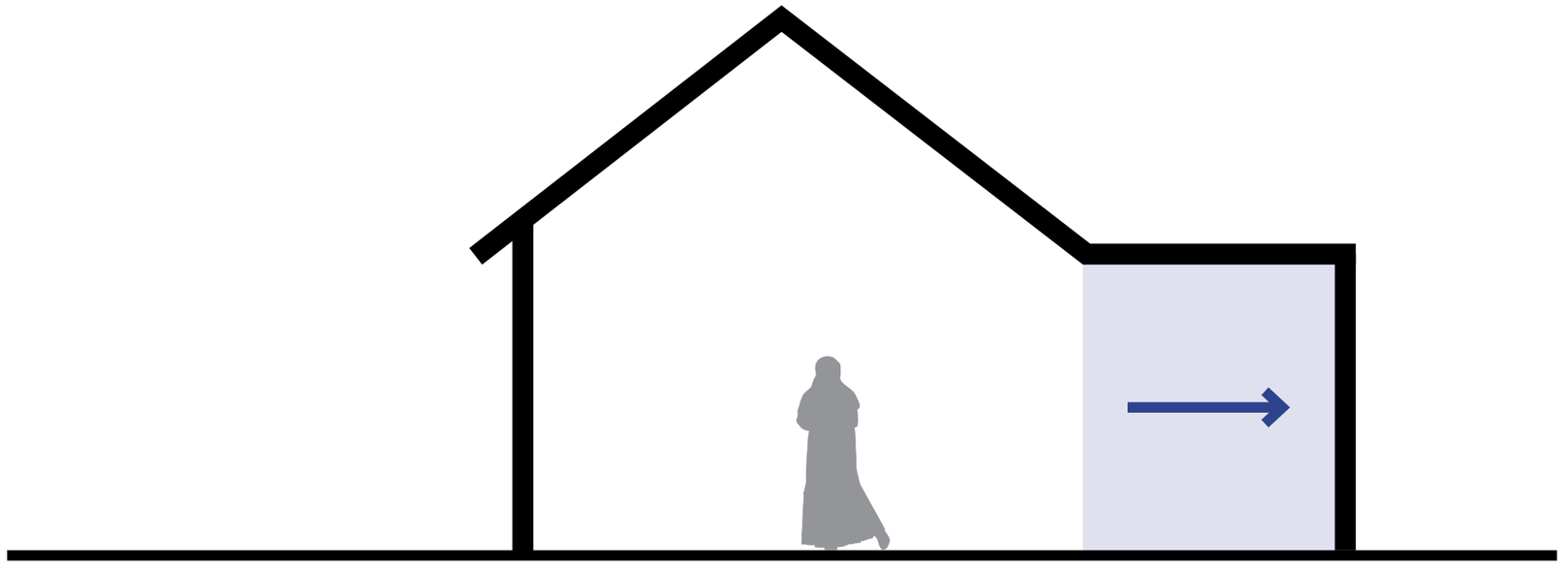
Informal growth

Problem	Solution
Lack of space	
Informal growth	

Problem	Solution
Lack of space	High-rise
Informal growth	

Problem	Solution
Lack of space	High-rise
Informal growth	Incremental housing





Left image: 'Quinta Monroy' incremental housing project by Elemental, Iquique, Chile
Right image: 'Villa Verde' incremental housing project by Elemental, Constitución, Chile

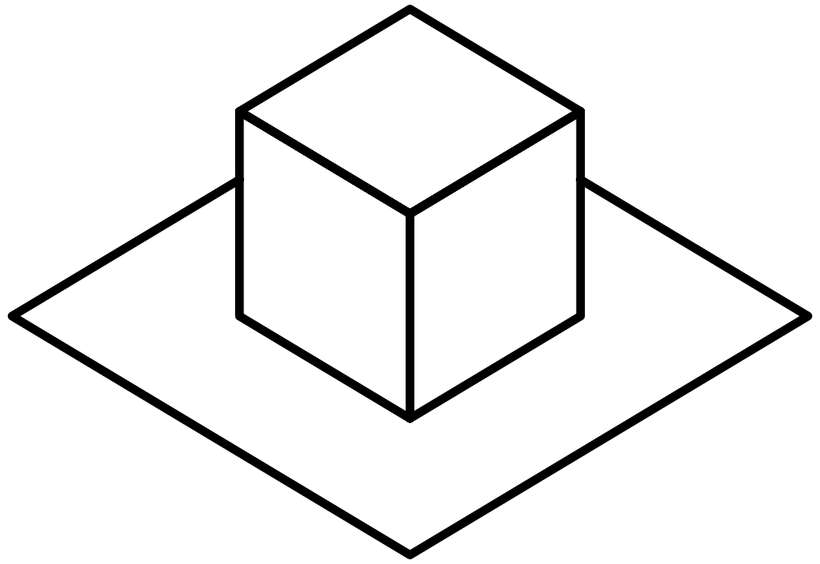
“Incremental housing has proved capable of giving low income home-seekers what they cannot provide themselves: well-serviced land, infrastructure, and foundational structures for a sturdy and extensible house.” (Wainer et al., 2016)

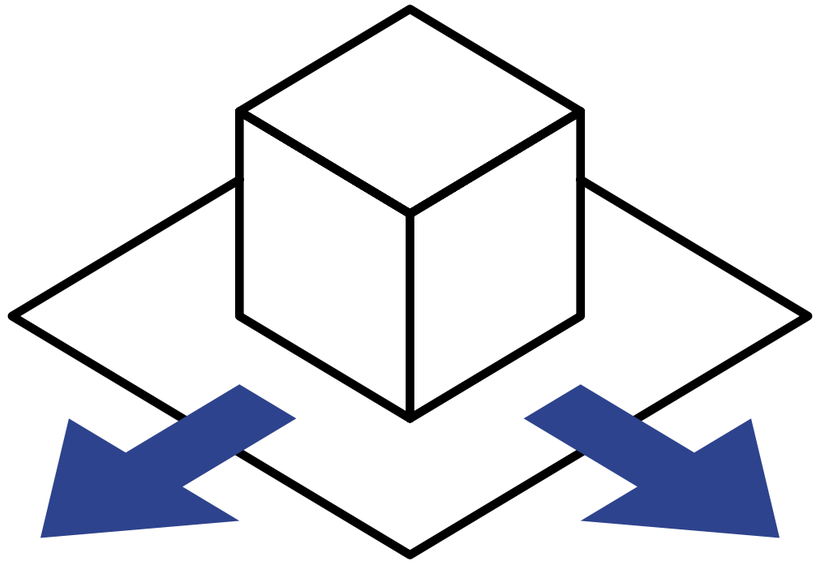
Wainer L. S. & Ndengeingoma B. & Murray S. (2016). Incremental housing, and other design principles for low-cost housing. Final Report. International Growth Center (IGC), C-38400-RWA-1

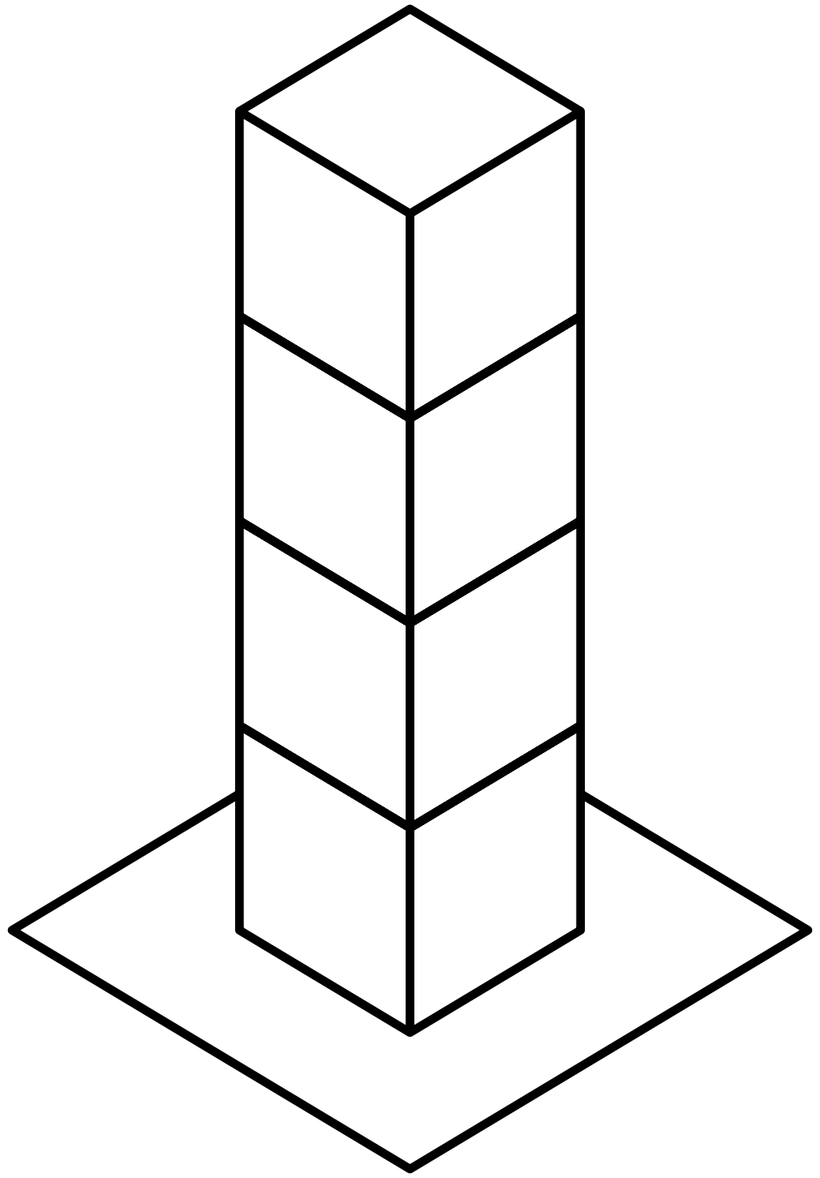
Problem	Solution
Lack of space	High-rise
Informal growth	Incremental housing

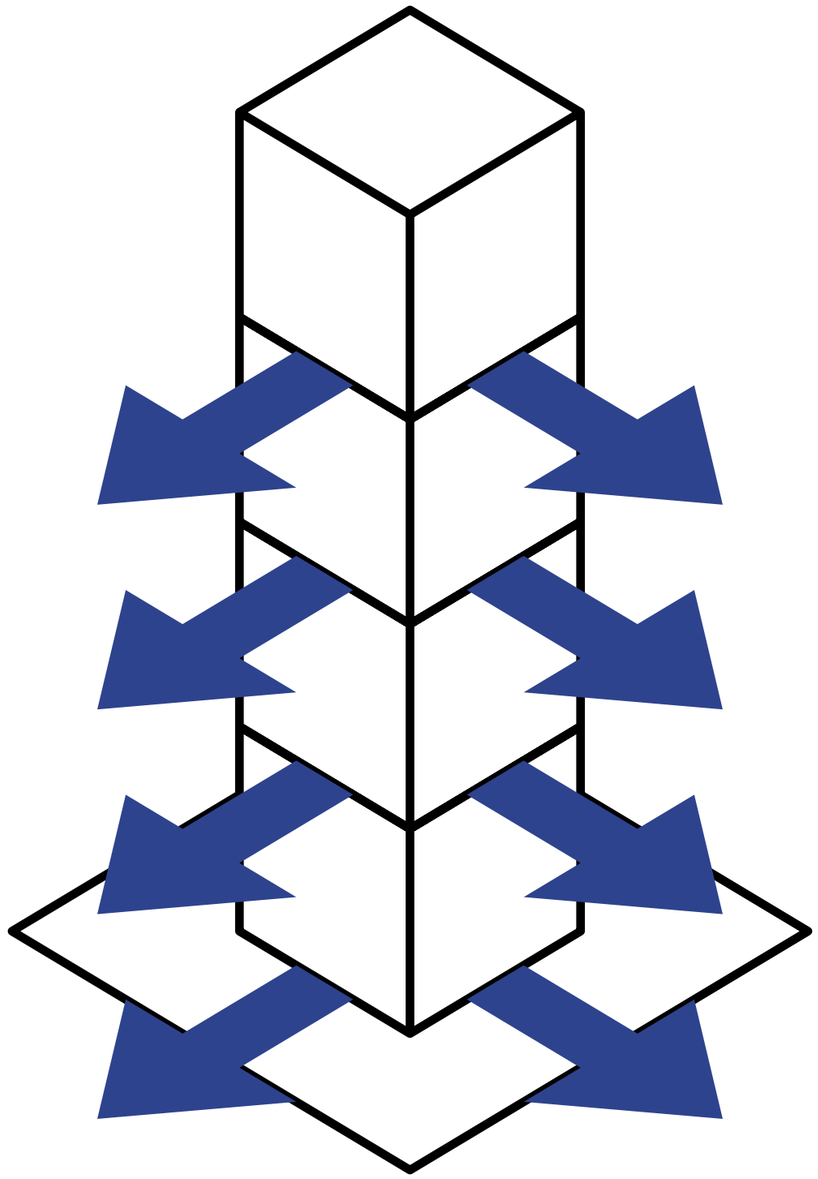
“How can incremental housing be integrated in a high-rise design for urban areas of Sylhet, Bangladesh?”

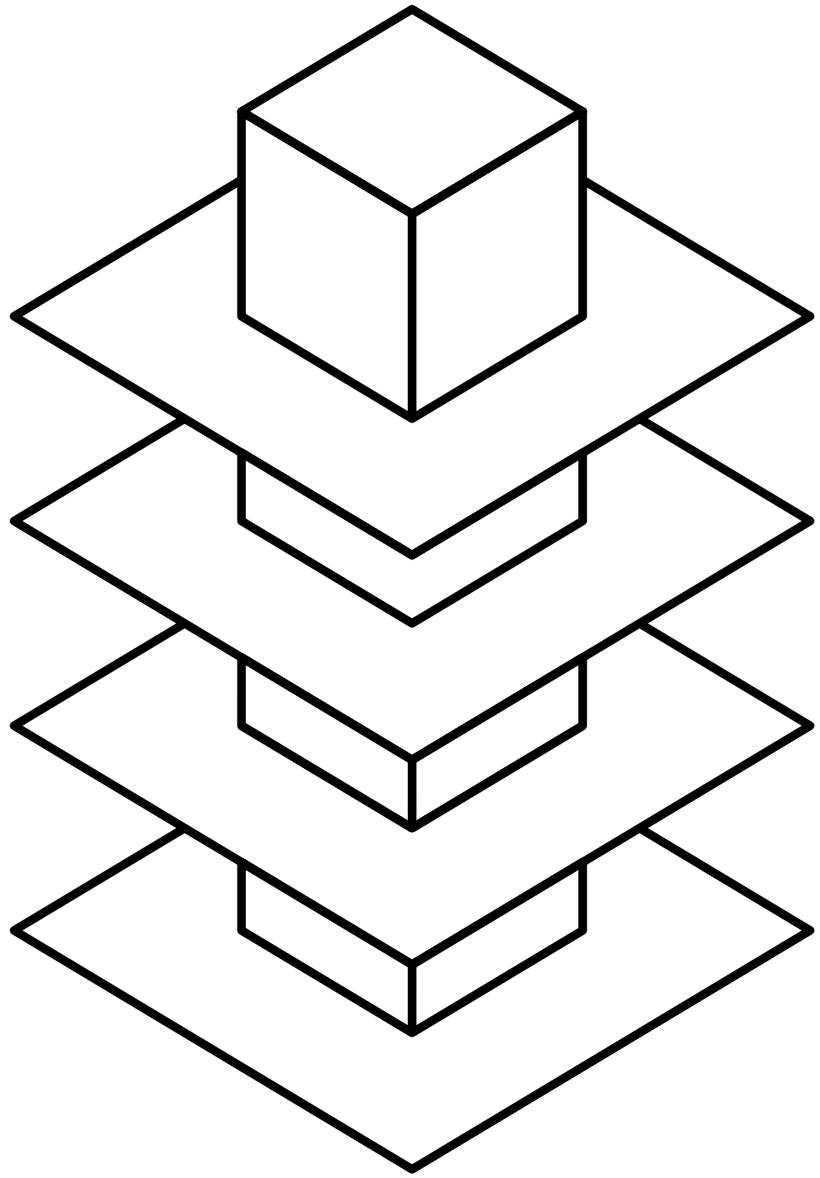
THE CONCEPT

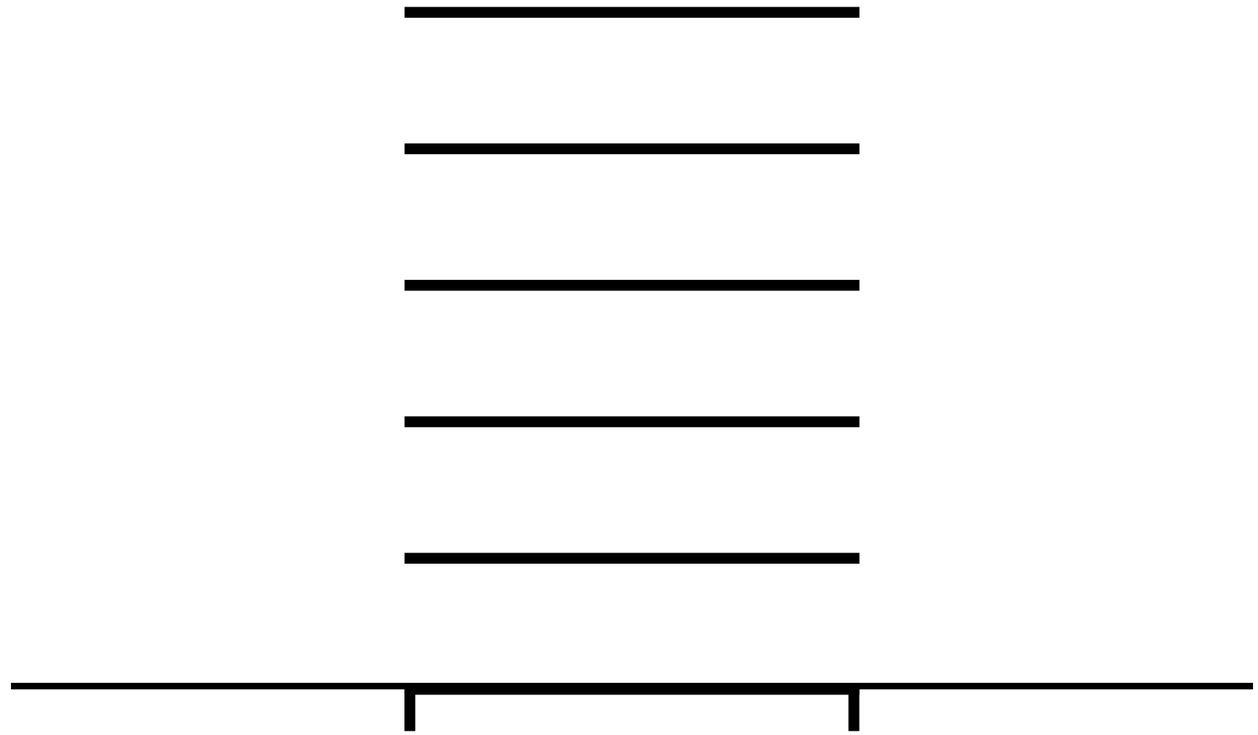


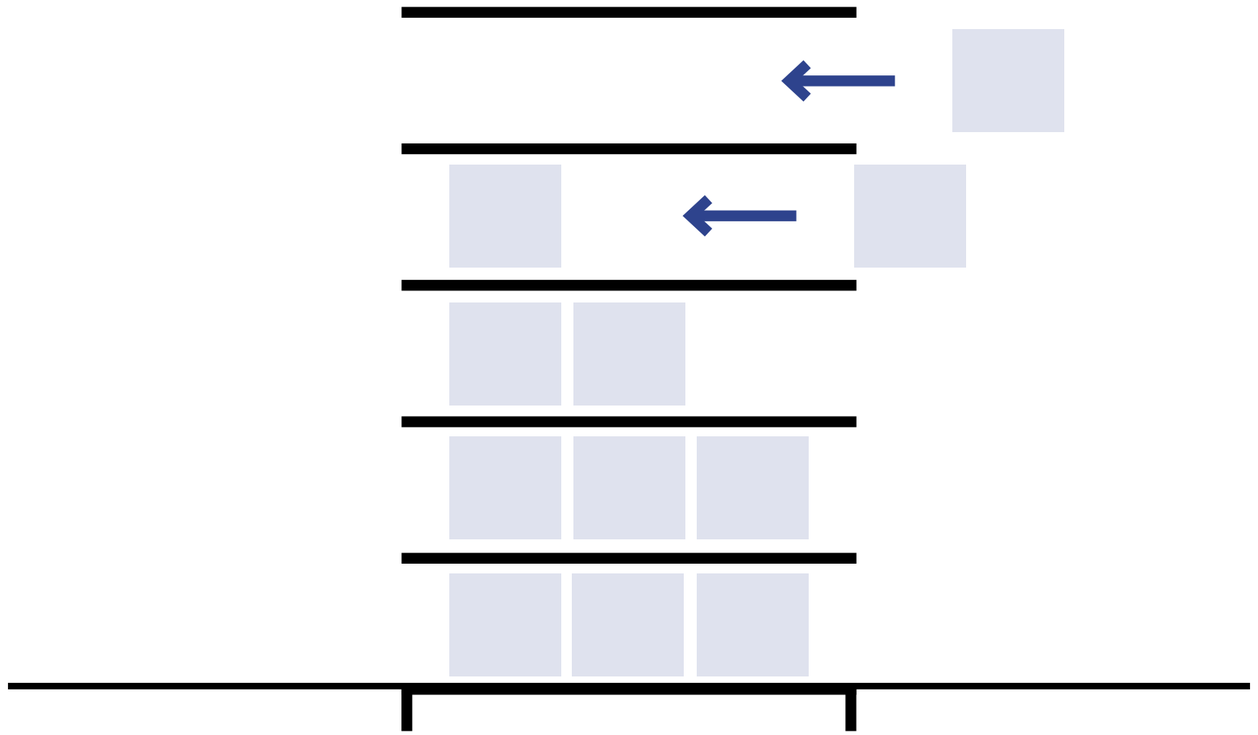












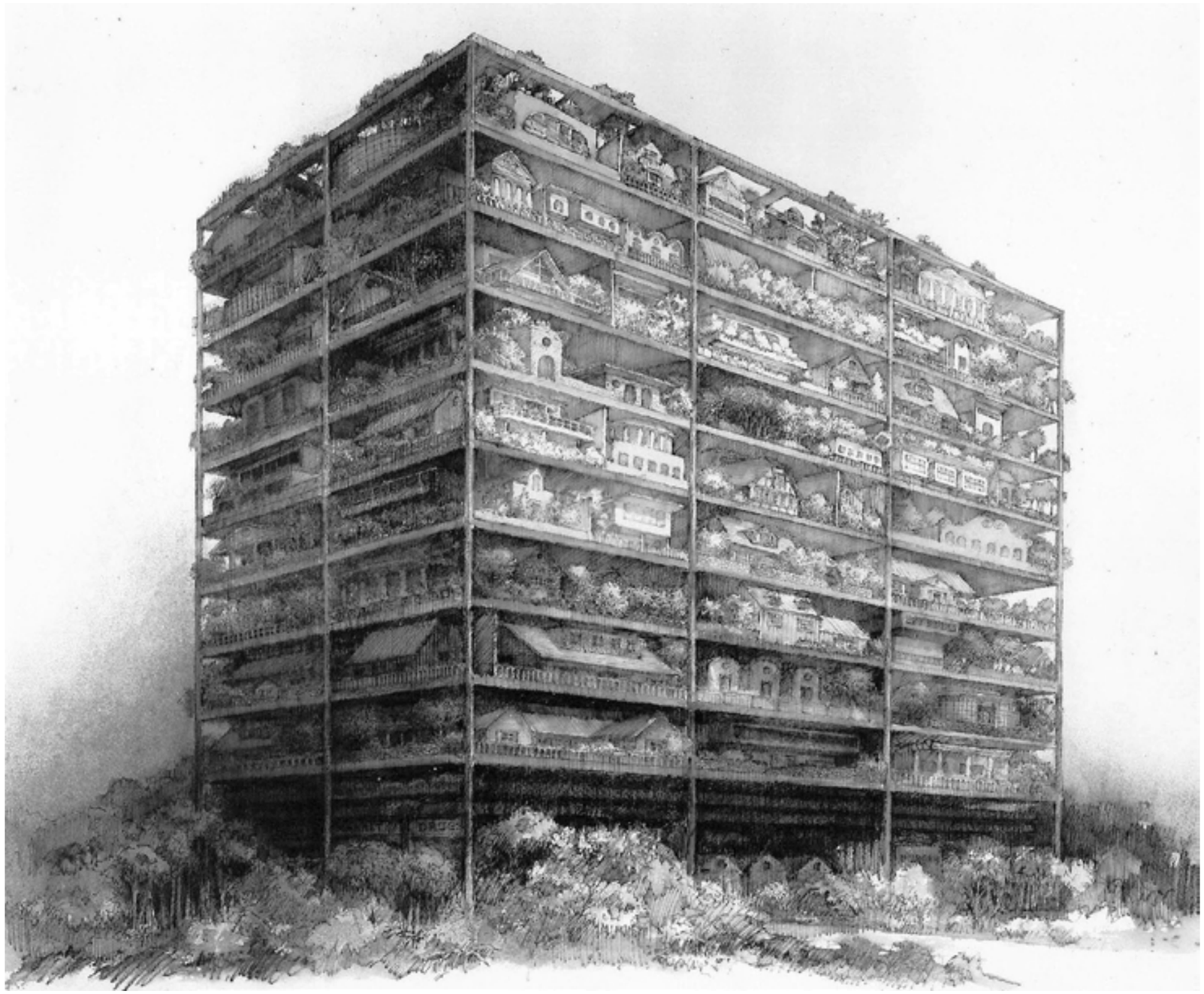
Incremental housing

Incremental housing

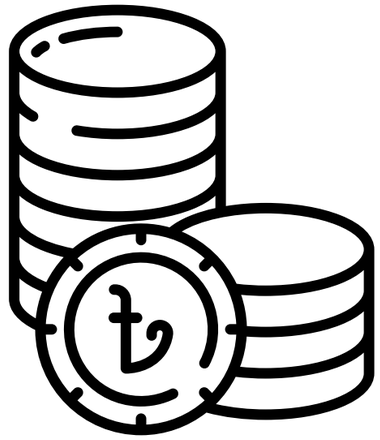
Infill housing

Incremental housing

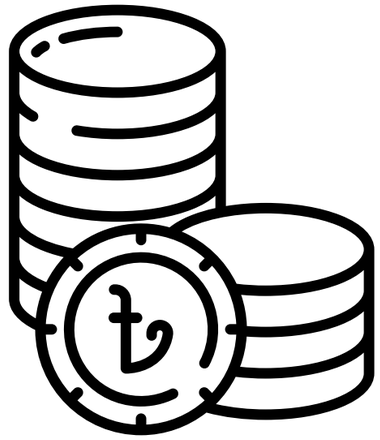
Infill housing



SITE (n.d.). Highrise of Homes; For location in a major American city. https://sitenewyork.com/portfolio-1-1/project-one-st6pn-2zj53-n3axs-z6tbr-flywe

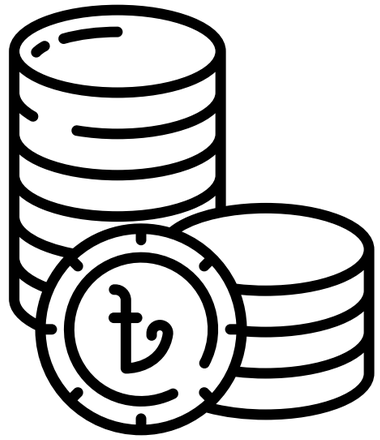


Structure



Structure

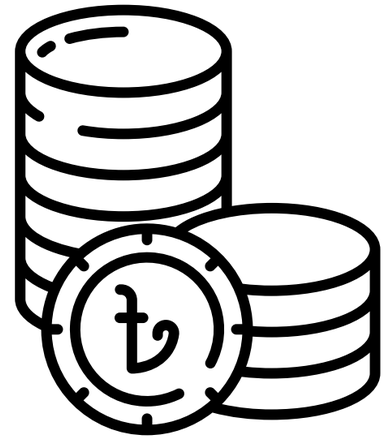
Services

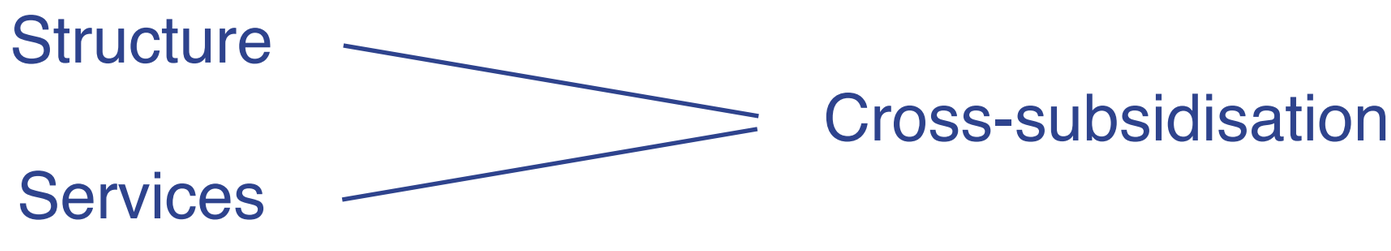


Structure

Services

Circulation



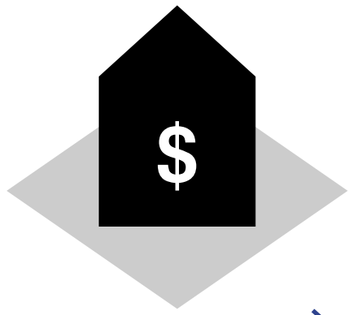


Circulation

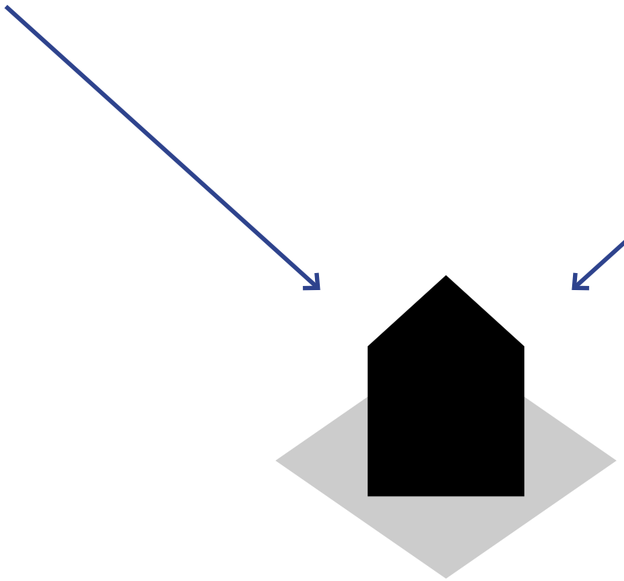
Low income segment (incremental housing)

Middle to high income housing segment

Low income segment
(incremental housing)



Middle to high income
housing segment



Combined design
(Cross-subsidized)

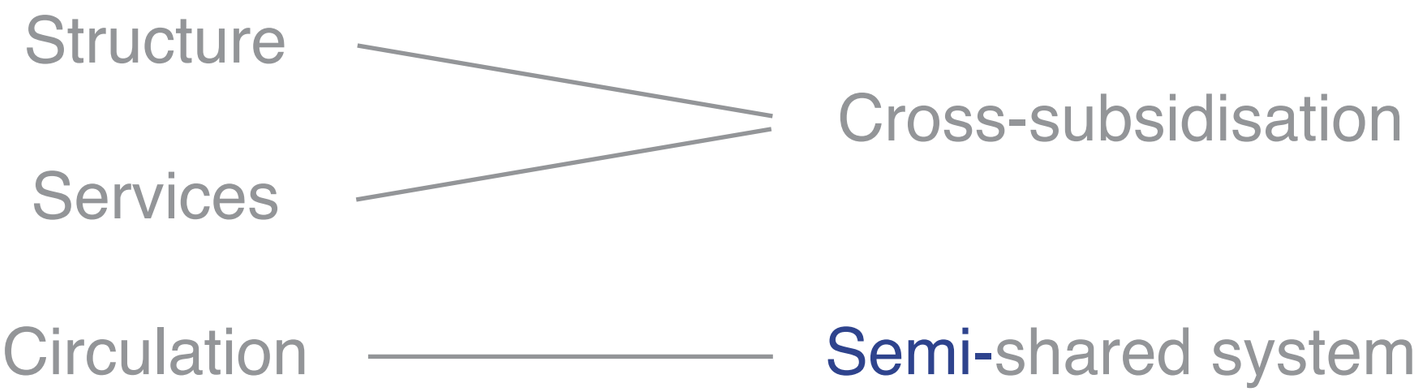
Structure

Services

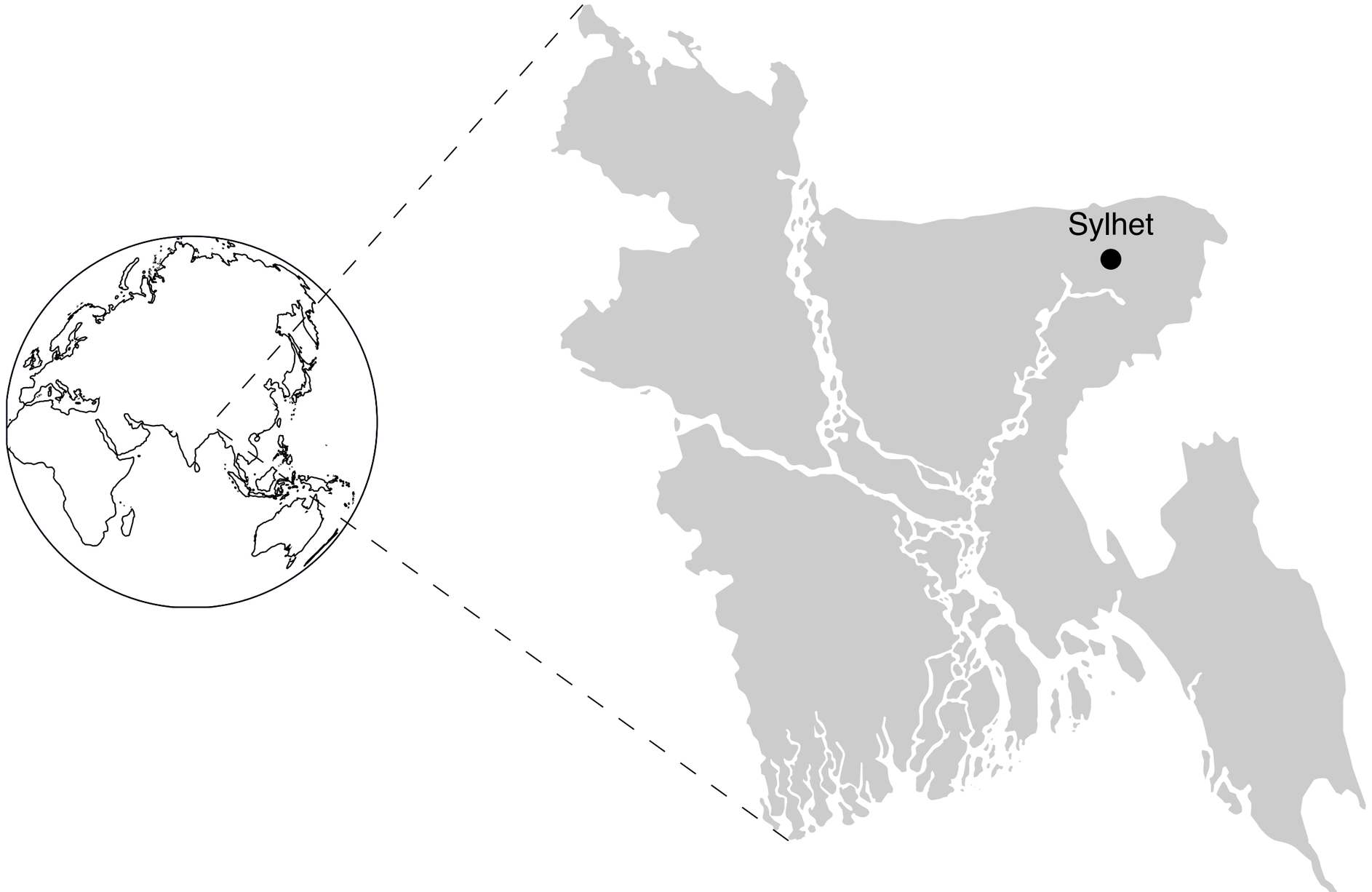
Cross-subsidisation

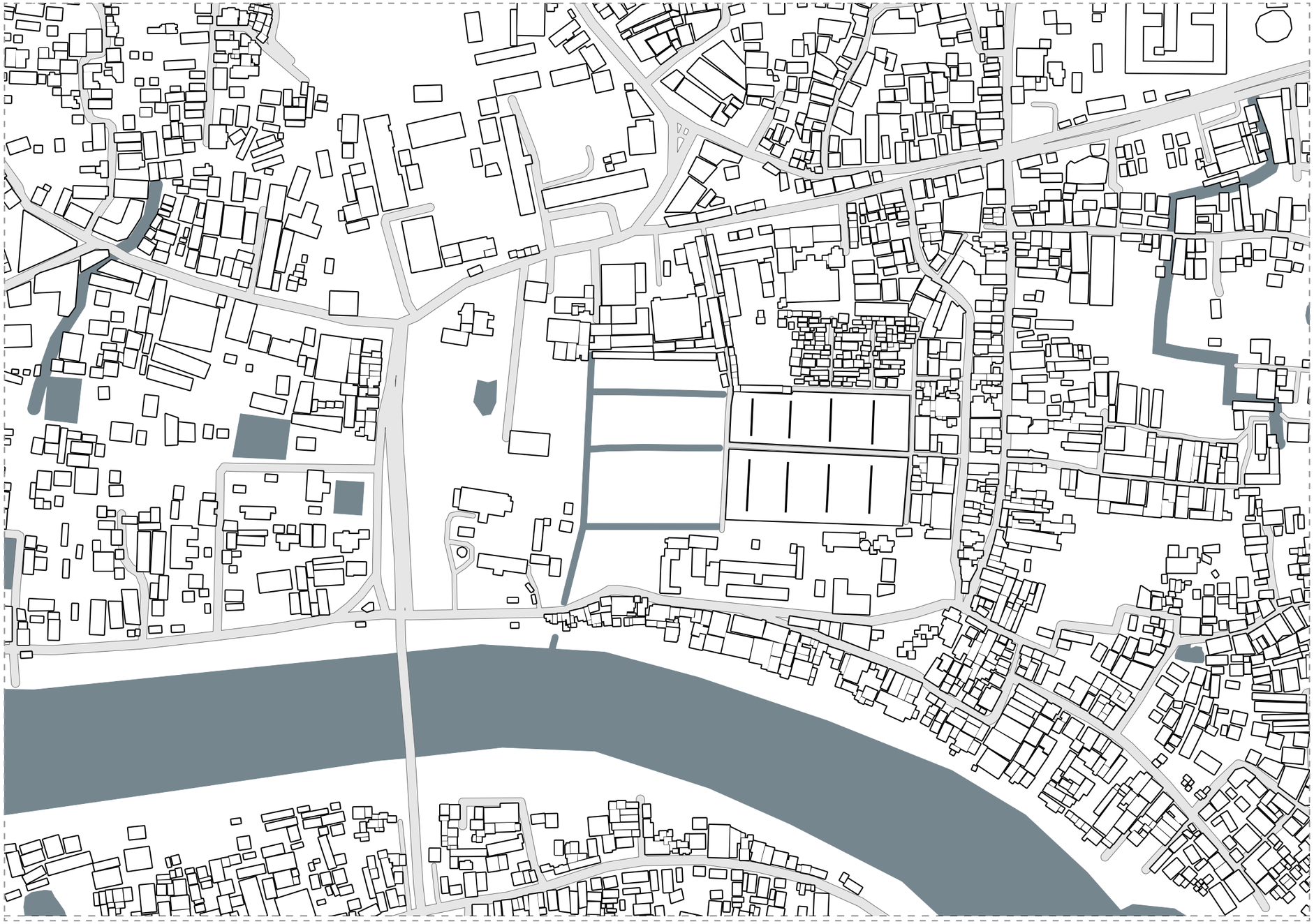
Circulation

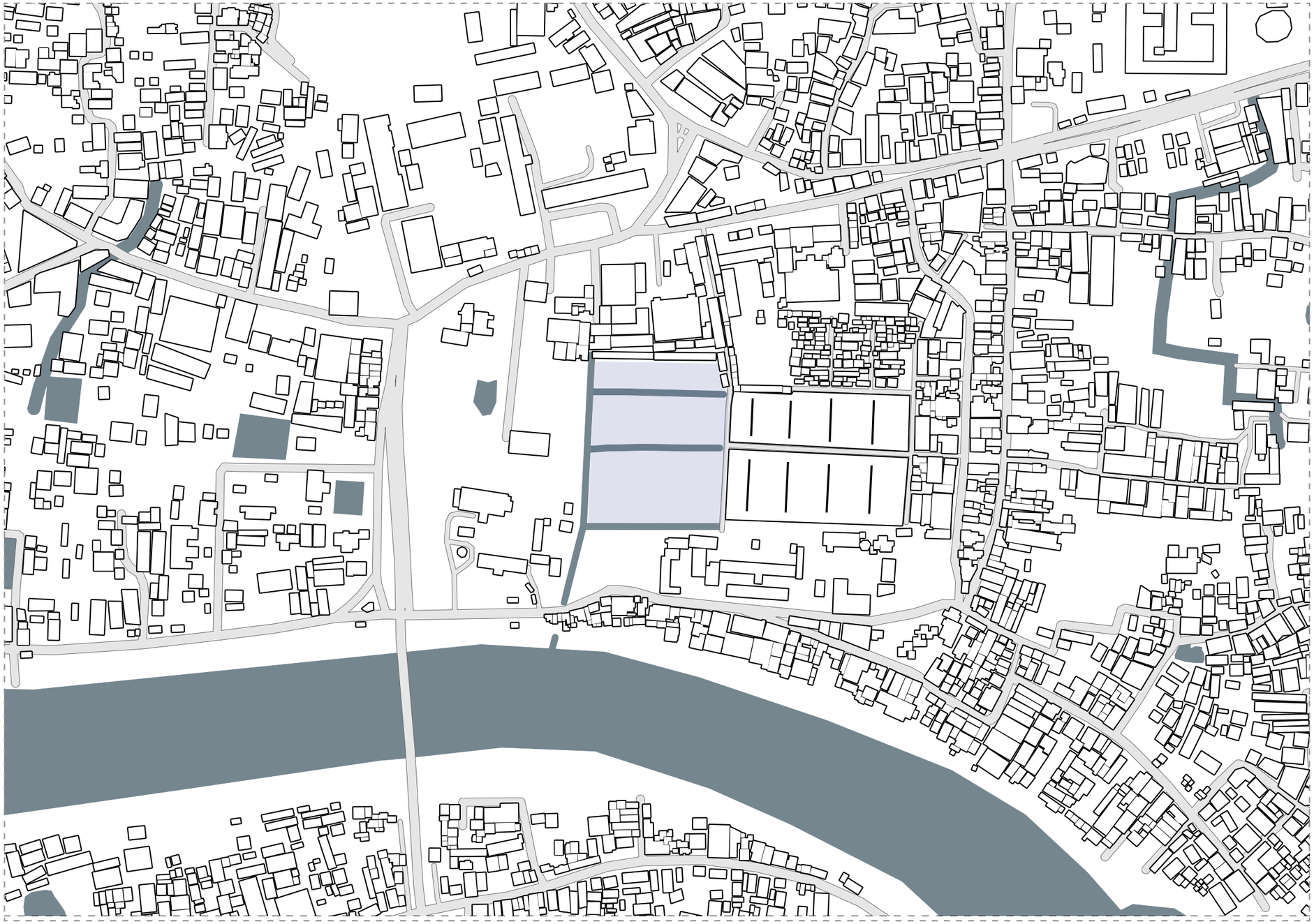
Shared system

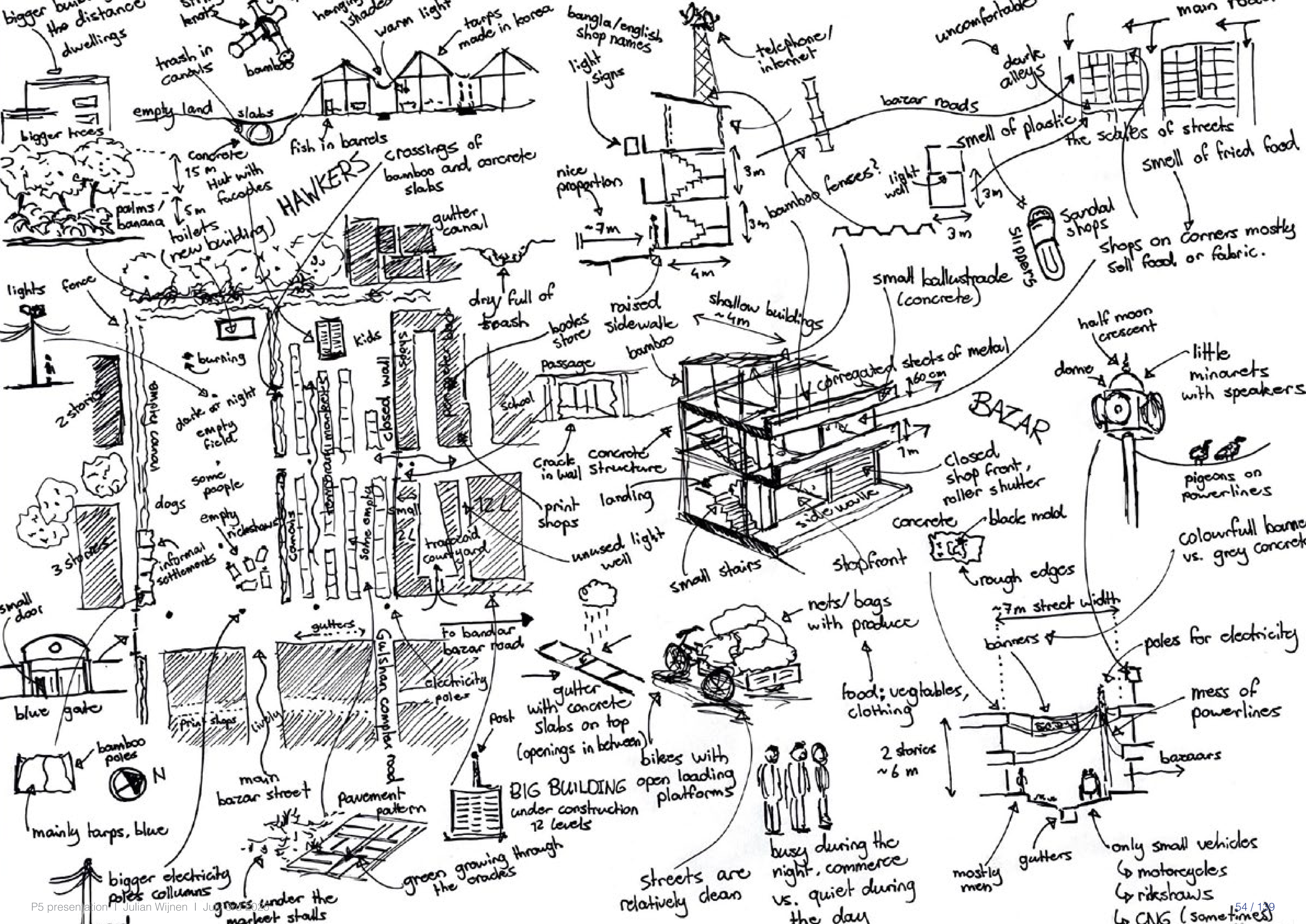

Structure
Services
Cross-subsidisation
Circulation
Semi-shared system

SITE & MASTERPLAN


Sylhet





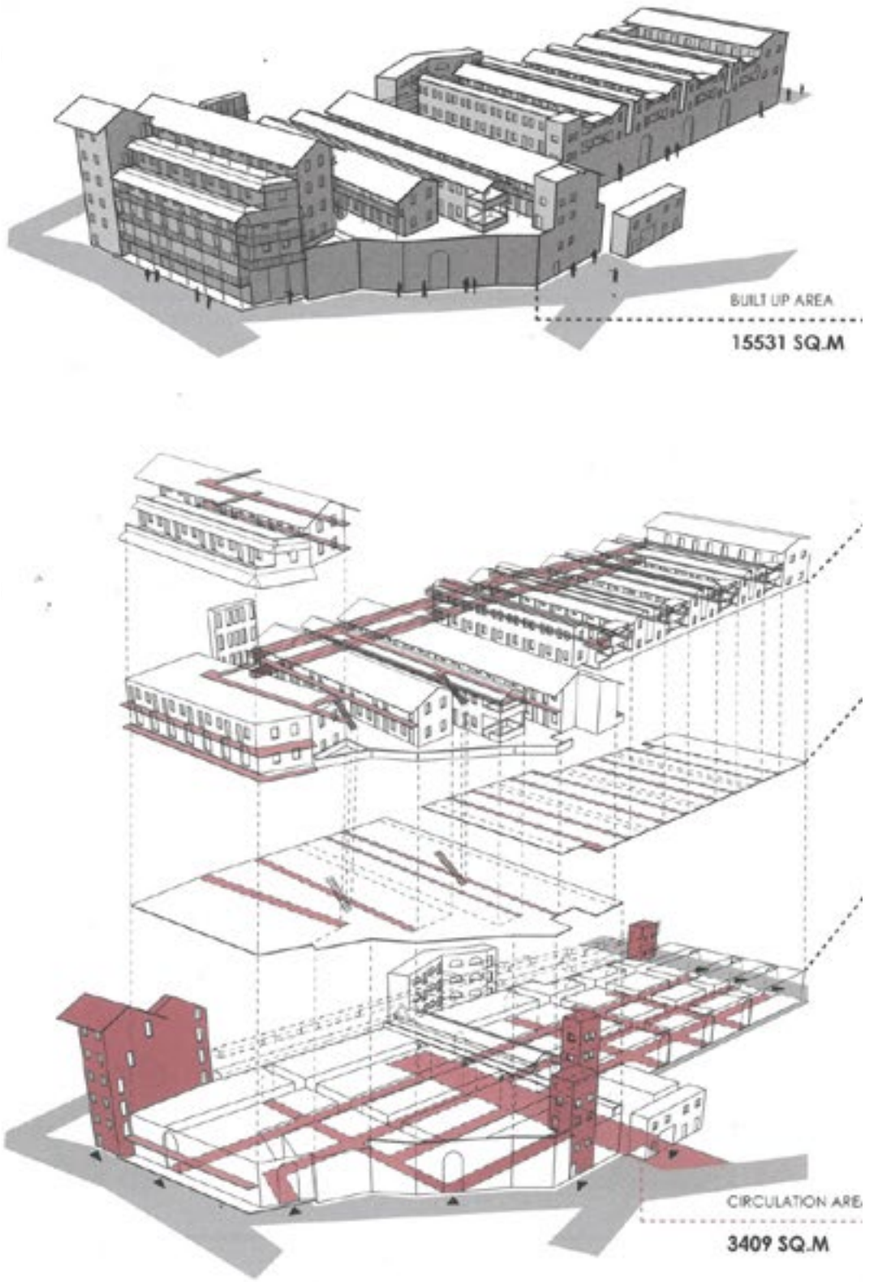


the distance
dwellings
knots
bamboo
trash in canals
hanging shades
warm light
tarps made in korea
empty land
slabs
bigger trees
fish in barrels
concrete
15 m
Hut with facades
5 m
palms / banana
toilets (new building)
HAWKERS
crossings of bamboo and concrete slabs
gutter canal
dry full of trash
lights
fence
burning
dark at night
empty field
some people
dogs
empty rickshaws
informal settlements
2 stories
3 stories
empty canal
Kids
closed wall
stairs
temporary market
some empty
small
12 L
trapezoid courtyard
2 L
school
passage
books store
raised sidewalk
bamboo
crack in wall
concrete structure
landing
print shops
unused light well
small door
blue gate
gutters
Gulshan complex road
to bandar bazar road
electricity poles
post
lively
print shops
bamboo poles
N
main bazar street
pavement pattern
mainly tarps, blue
bigger electricity poles collumns
grass under the market stalls
green growing through the cracks
BIG BUILDING under construction 12 levels
gutter with concrete slabs on top (openings in between)
bikes with open loading platforms
streets are relatively clean
bangla/english shop names
light signs
telephone/ internet
nice proportion
~7m
3m
3m
4m
bamboo fences?
light well
3m
3m
uncomfortable
dark alleys
bazar roads
main road
smell of plastic
the scales of streets
smell of fried food
sandal shops
slippers
shops on corners mostly sell food or fabric.
small ballustrade (concrete)
shallow buildings ~4m
corrugated sheets of metal
60 cm
BAZAR
7m
closed shop front, roller shutter
side walk
small stairs
shopfront
concrete
black mold
rough edges
half moon crescent
dome
little minarets with speakers
pigeons on powerlines
colourfull banners vs. grey concrete
nets/ bags with produce
food; vegtables, clothing
~7m street width
banners
poles for electricity
mess of powerlines
bazaars
2 stories ~6 m
busy during the night, commerce vs. quiet during the day
mostly men
gutters
only small vehicles
motorcycles
rickshaws
CNG (sometimes)

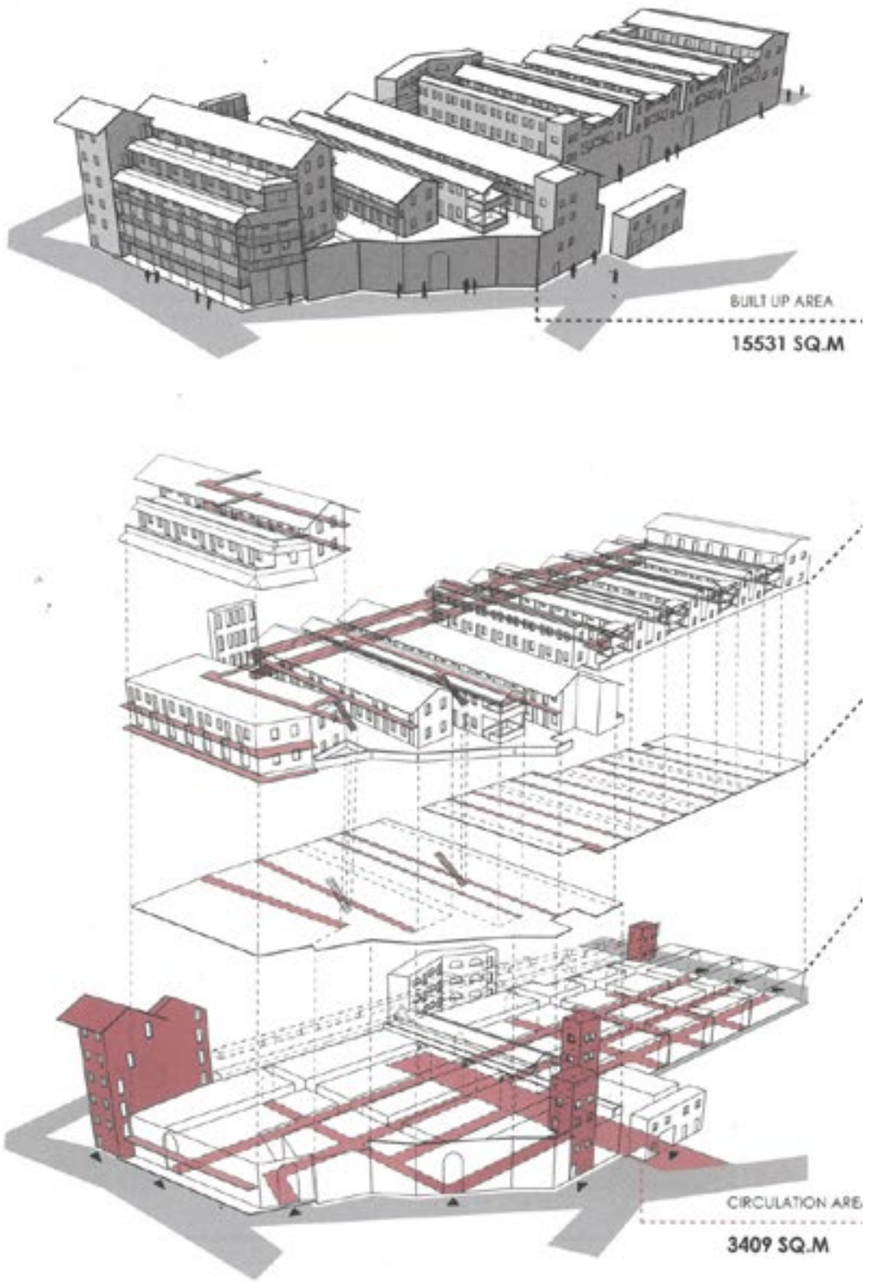

টাইটানিক আর্ট

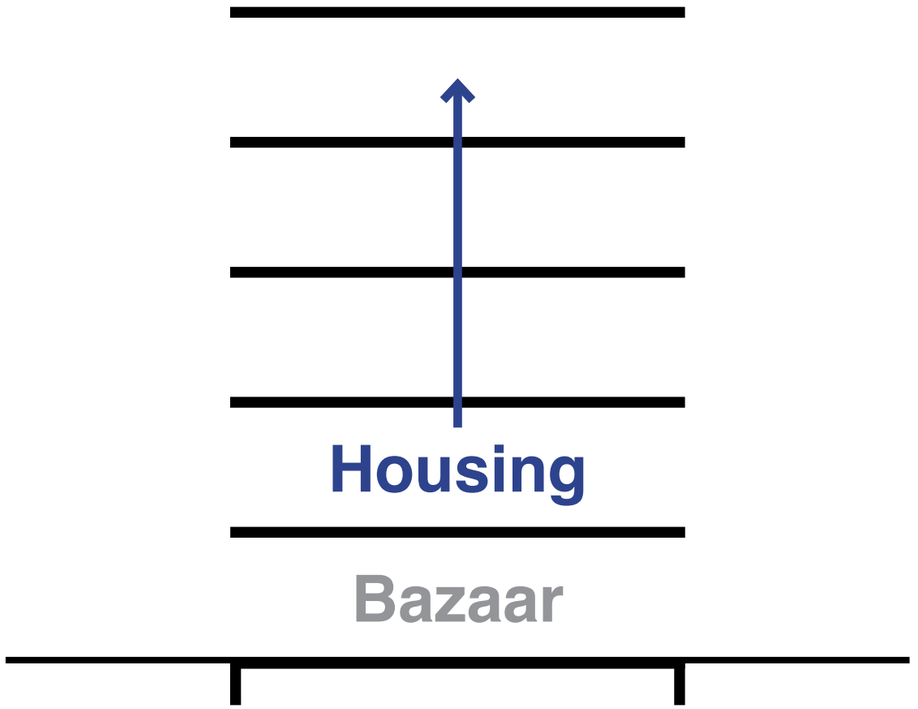
“...urban markets are a public space at the heart of communities.” (Rahman et al., 2016)

Rahman, Md & Islam, Shahidul & Hasan, Mohammad. (2016). A Redevelopment Approach to a Historical Market in Sylhet City of Bangladesh. Civil Engineering and Architecture 4(3): 127-138, 2016. 4. 127-138. 10.13189/cea.2016.040305.



Left Image: Swadeshi Market Chawl, Padora S. (2020). "How To Build An Indian House, The Mumbai Example". NAI010 Puplishers.
Right Image: Laldighi Hawkers Market bazaar street, image by Julian Wijnen

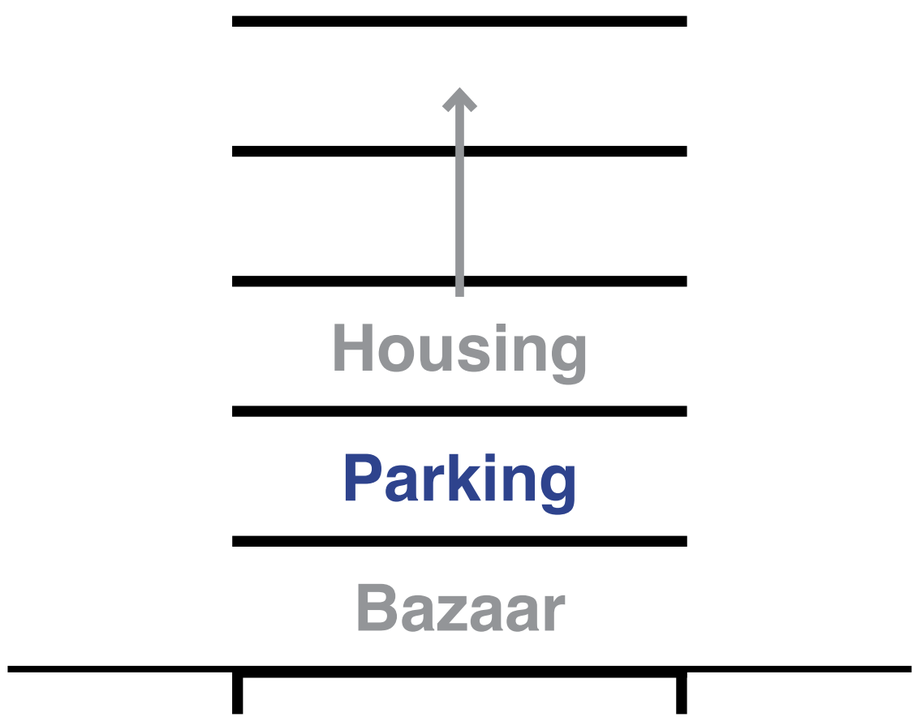




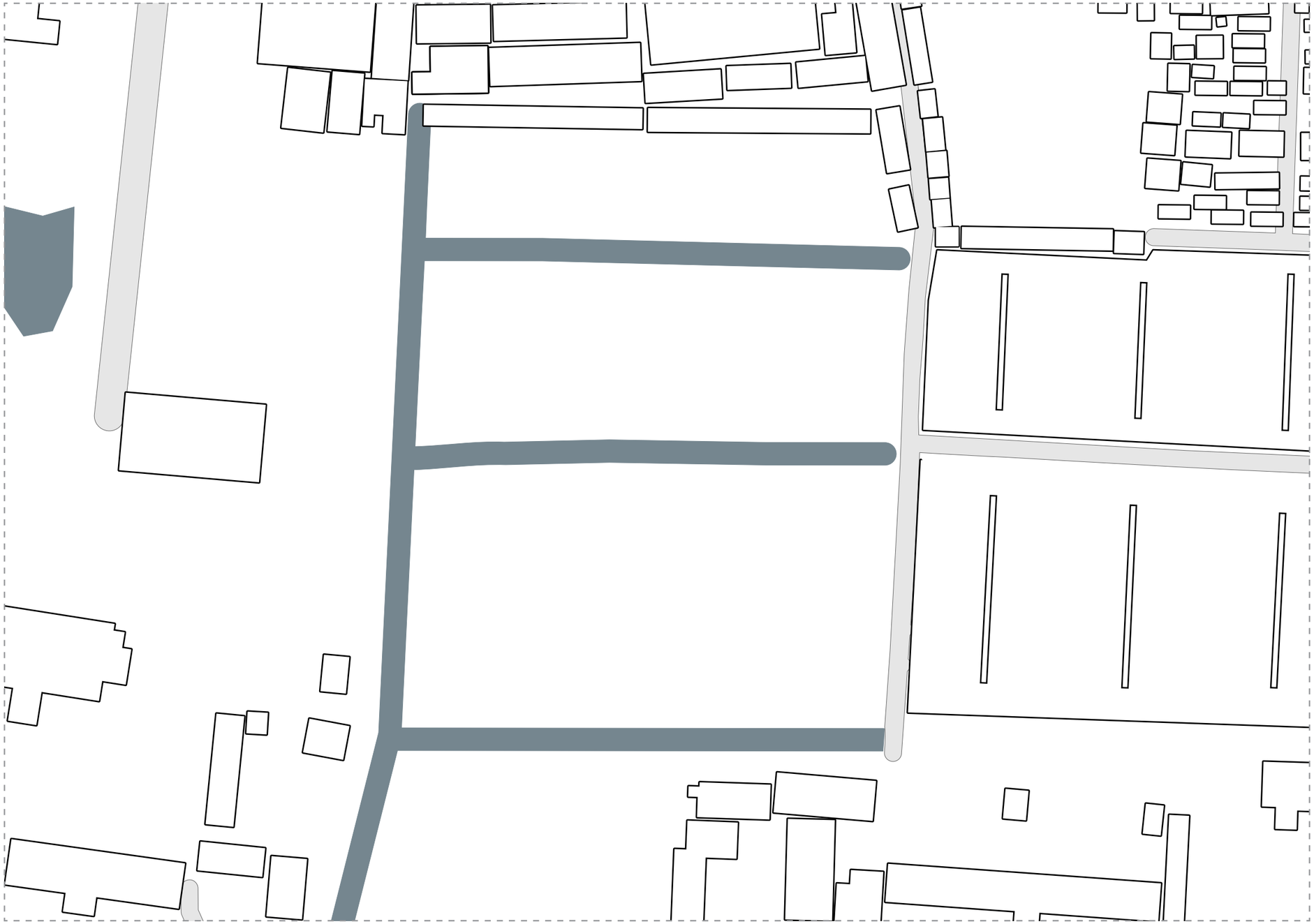
Swadeshi Market Chawl, Padora S. (2020). "How To Build An Indian House, The Mumbai Example". NAI010 Puplishers.

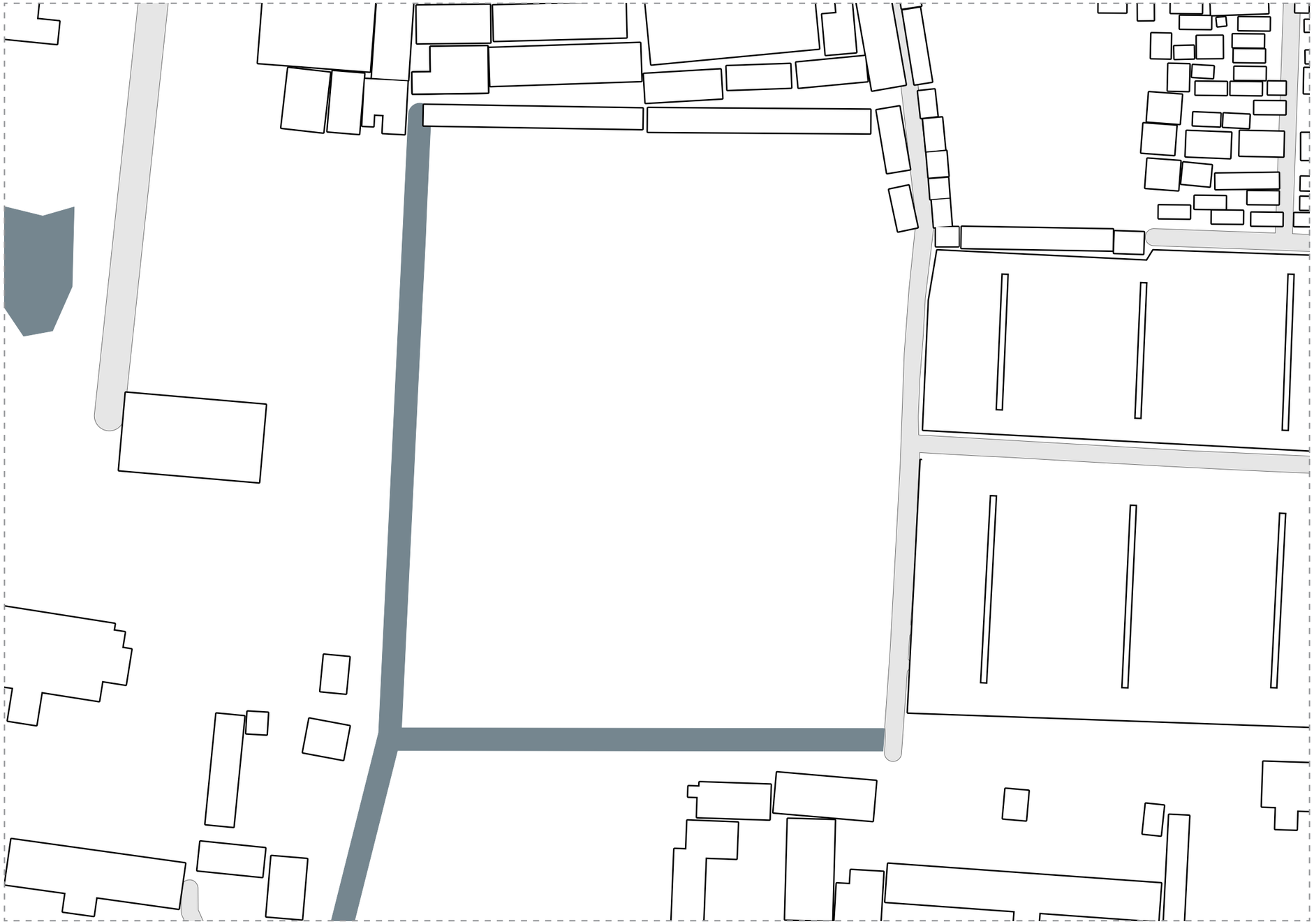
cars per household = 1 to 2

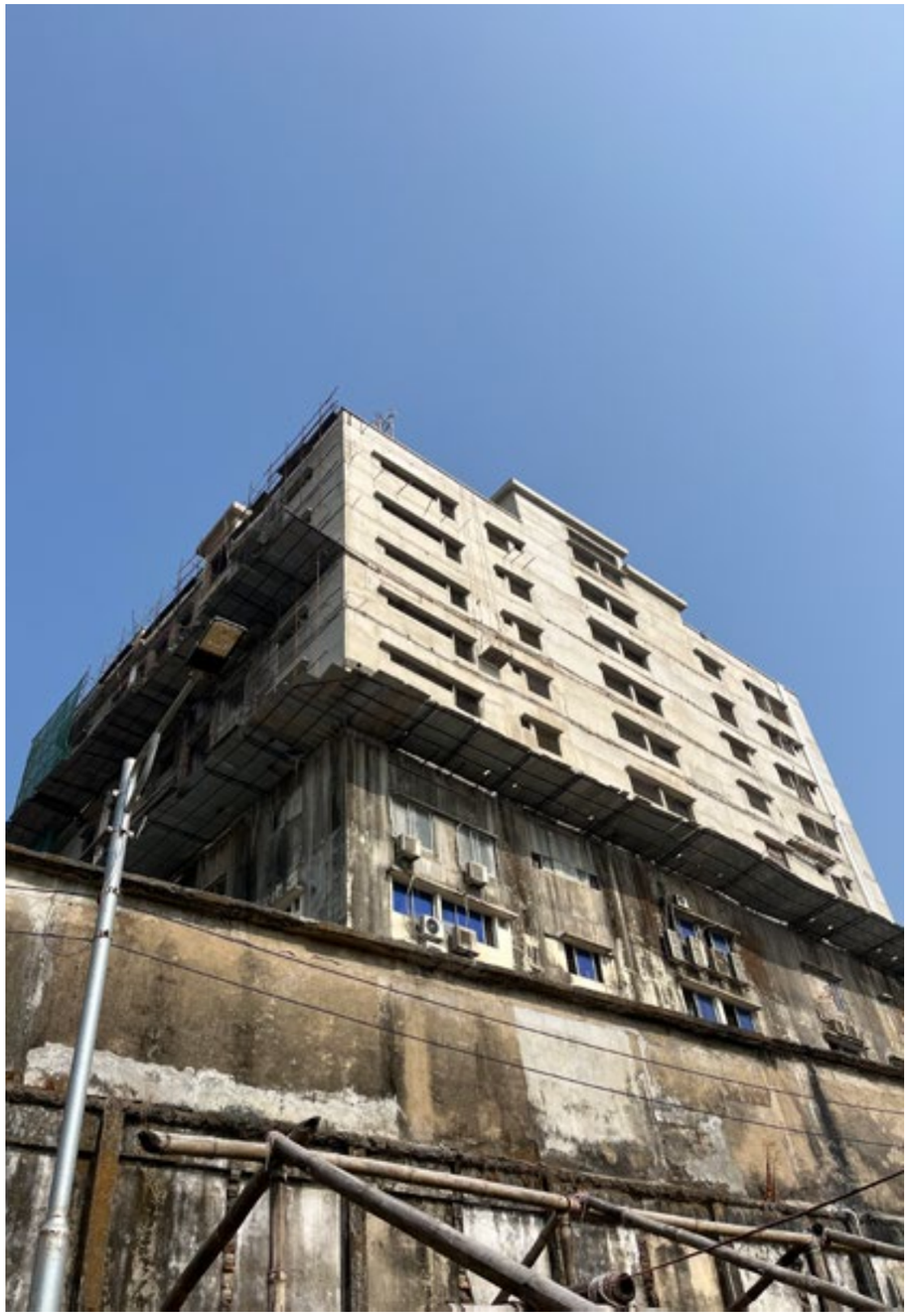
parking norm = 1.5

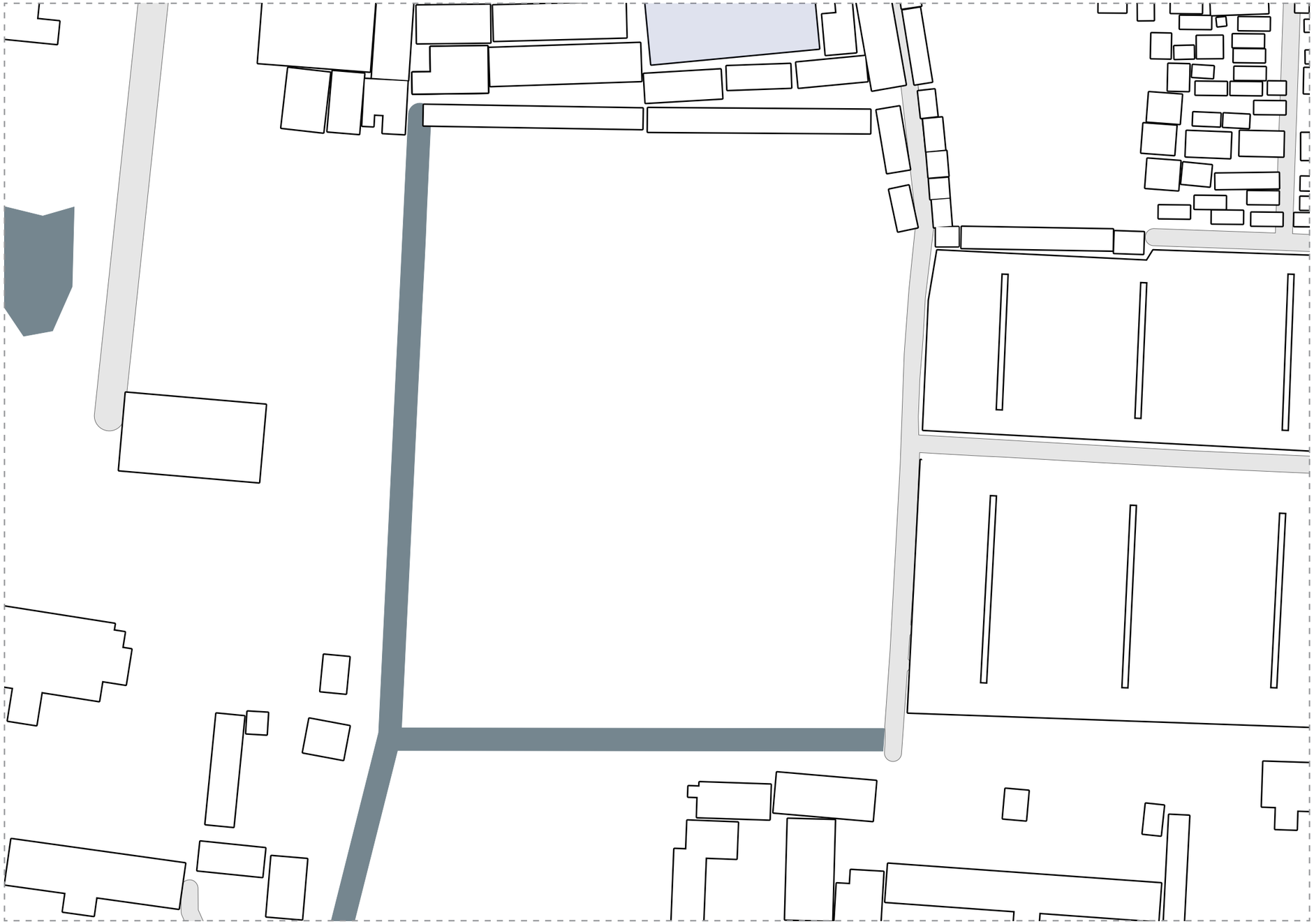


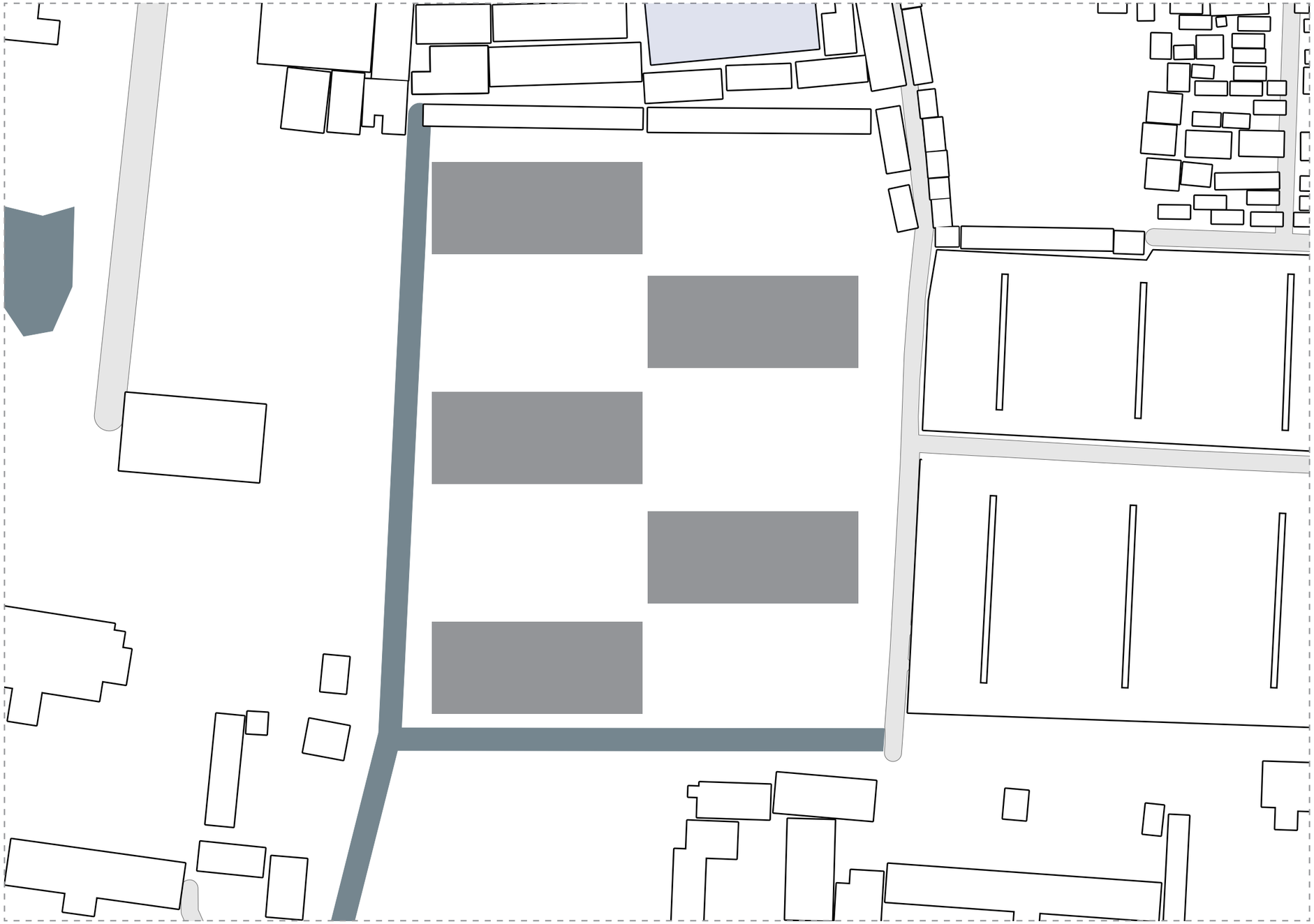
From conversation with Marina Tabassum

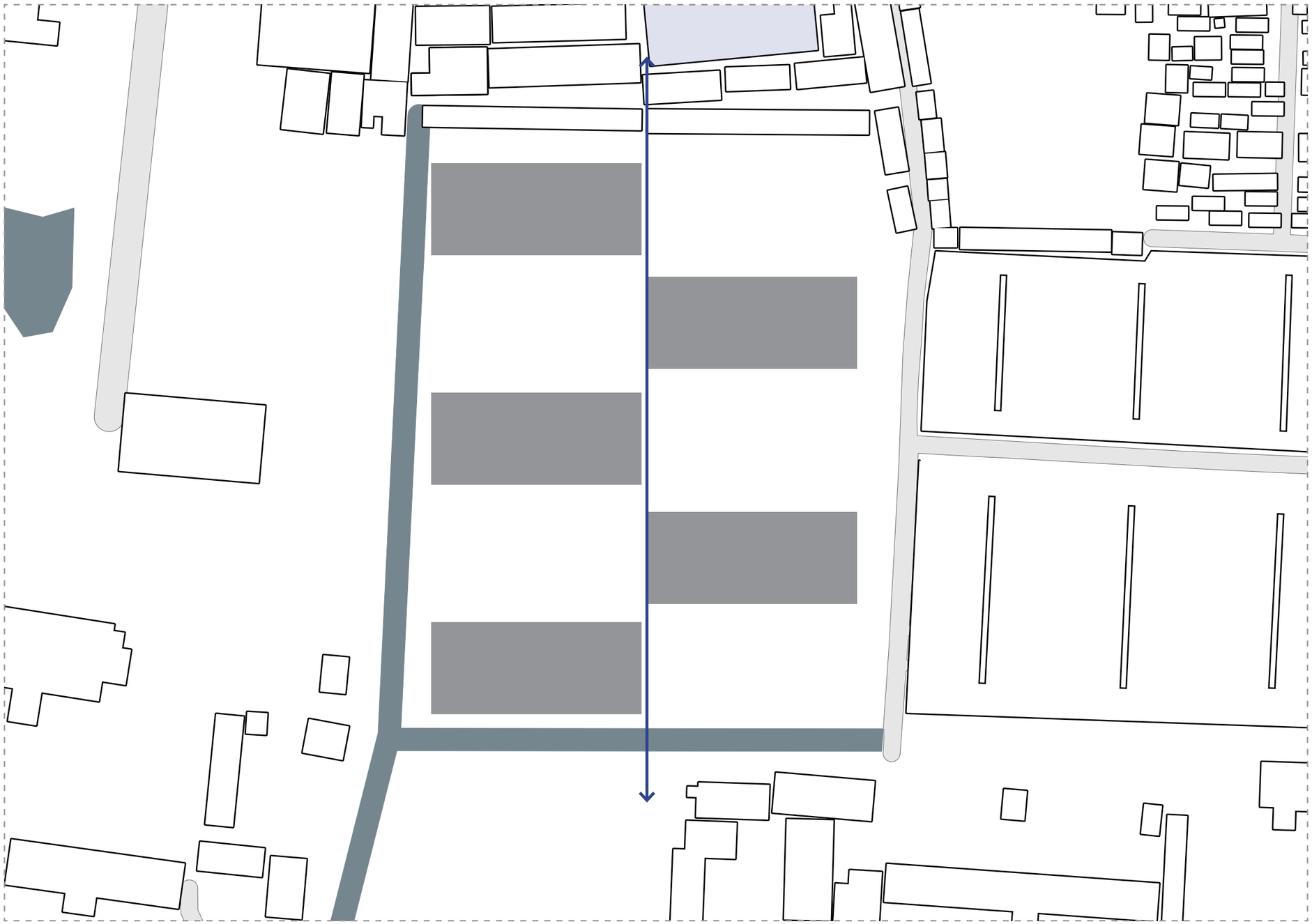


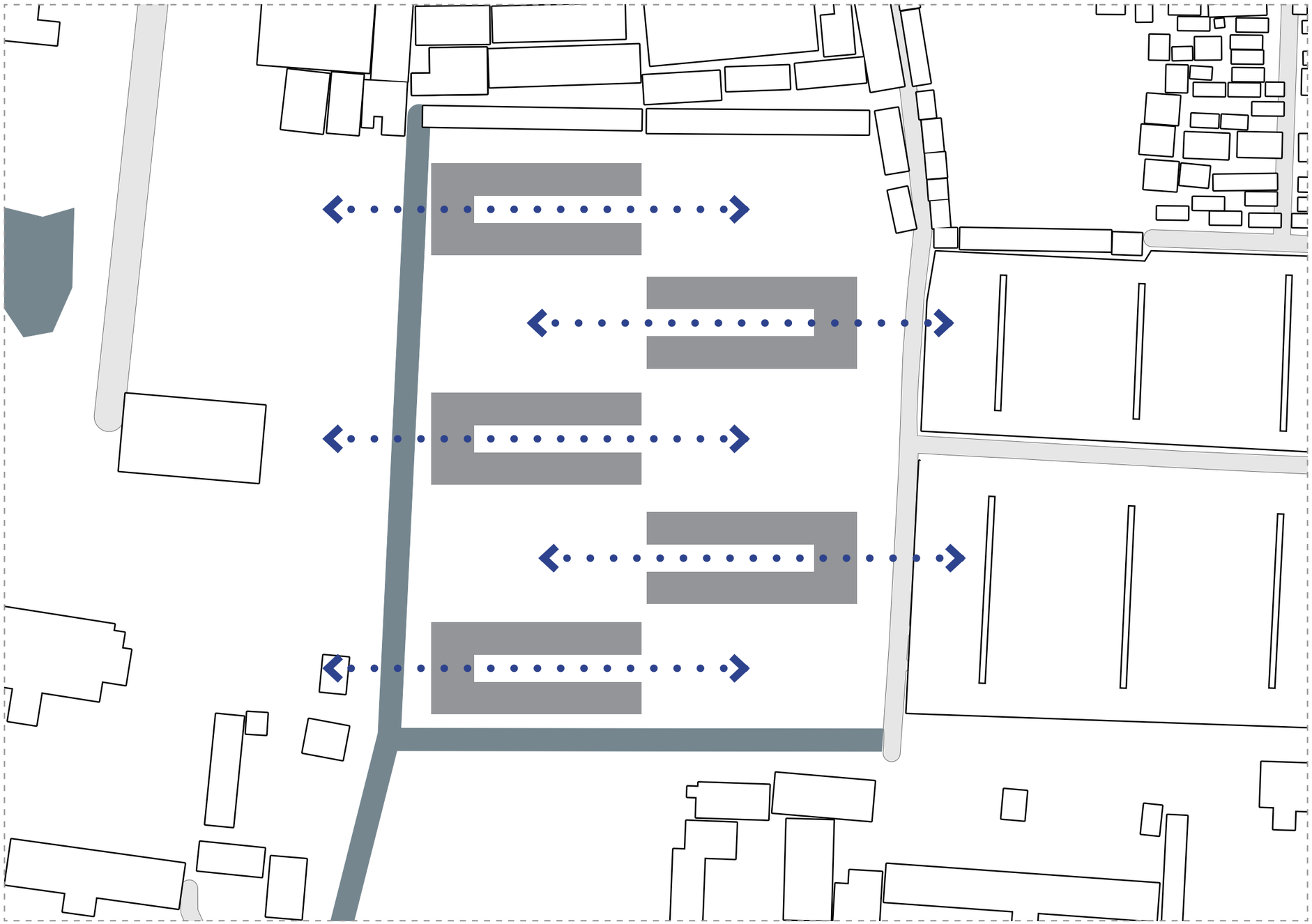


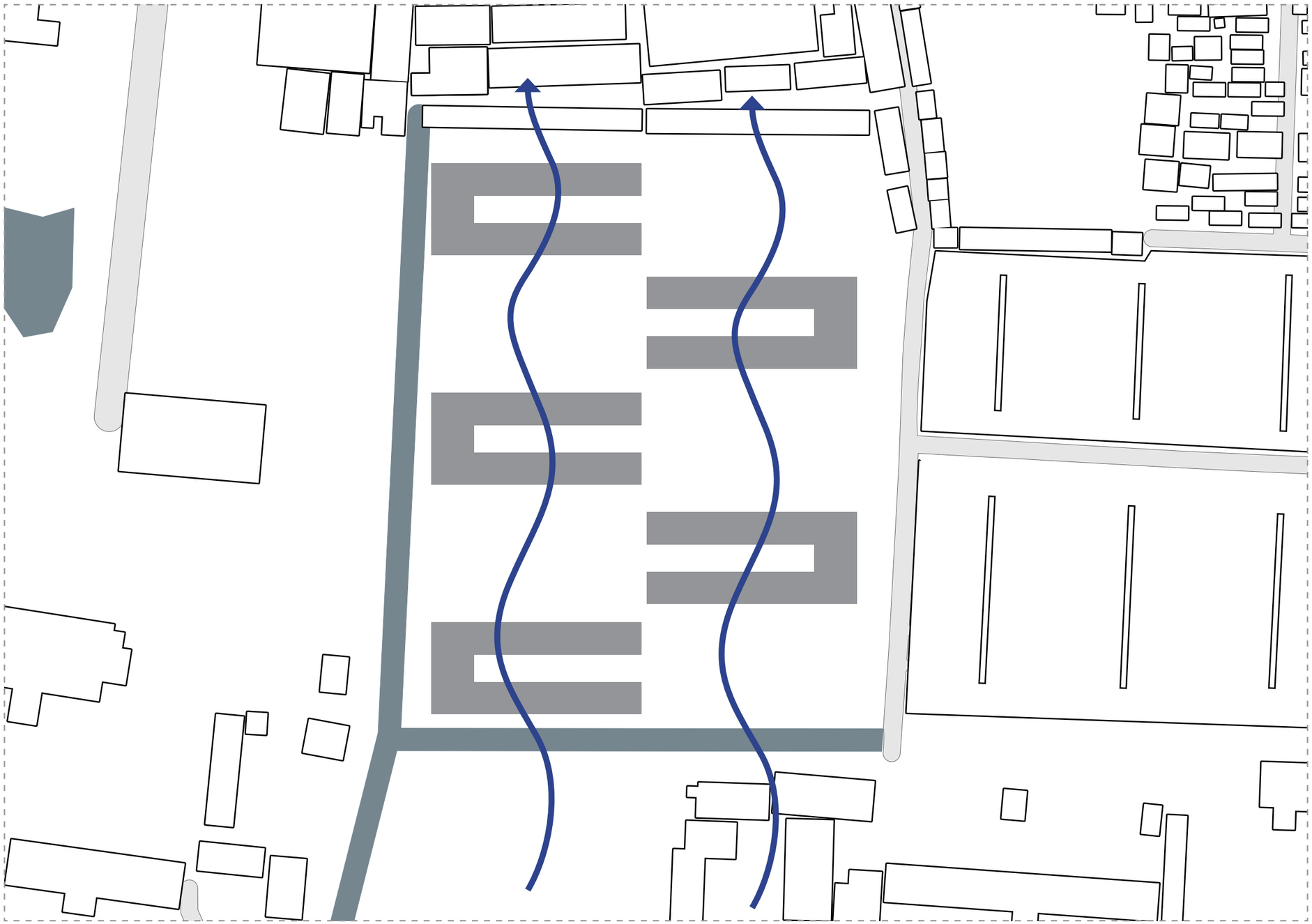


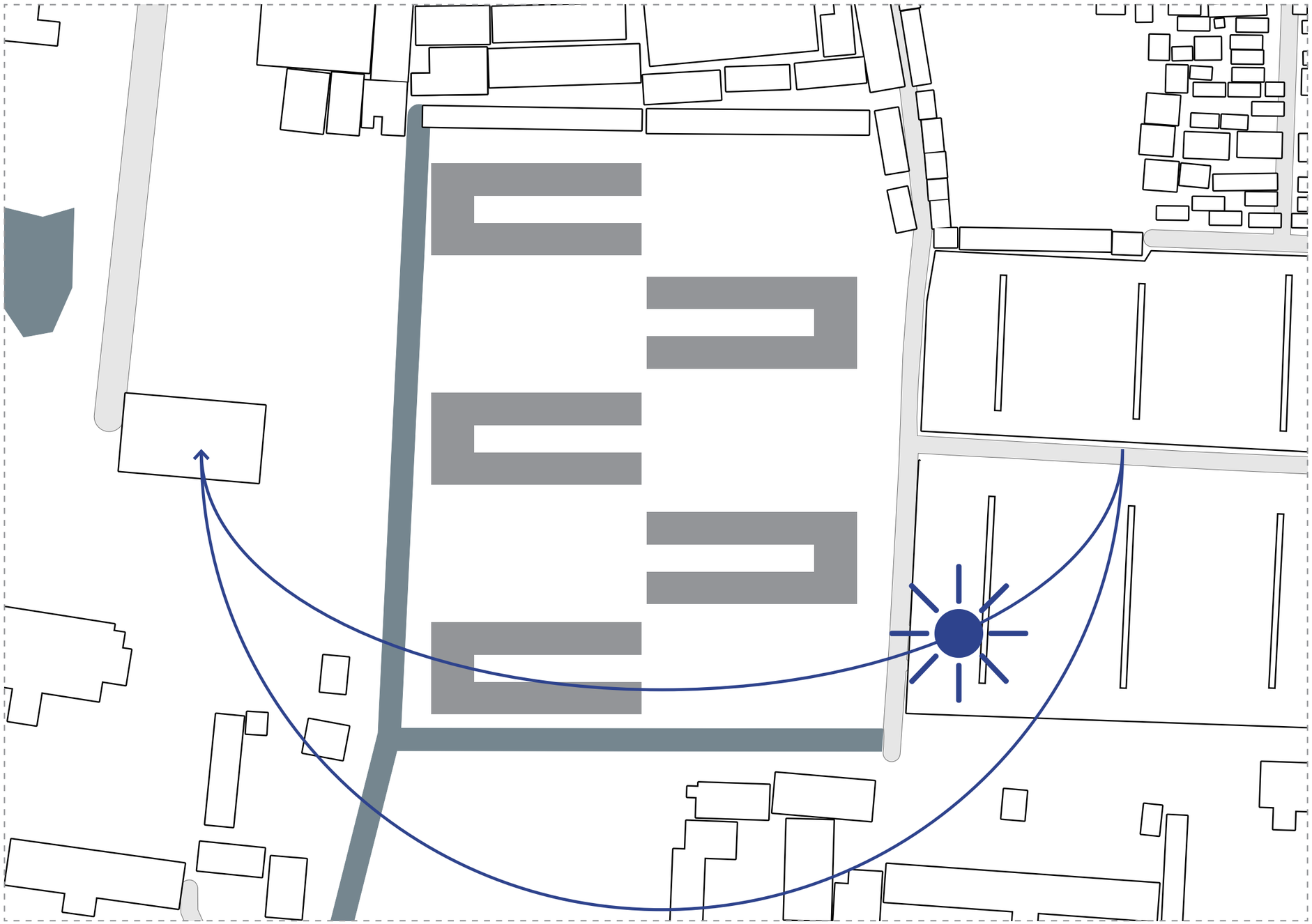


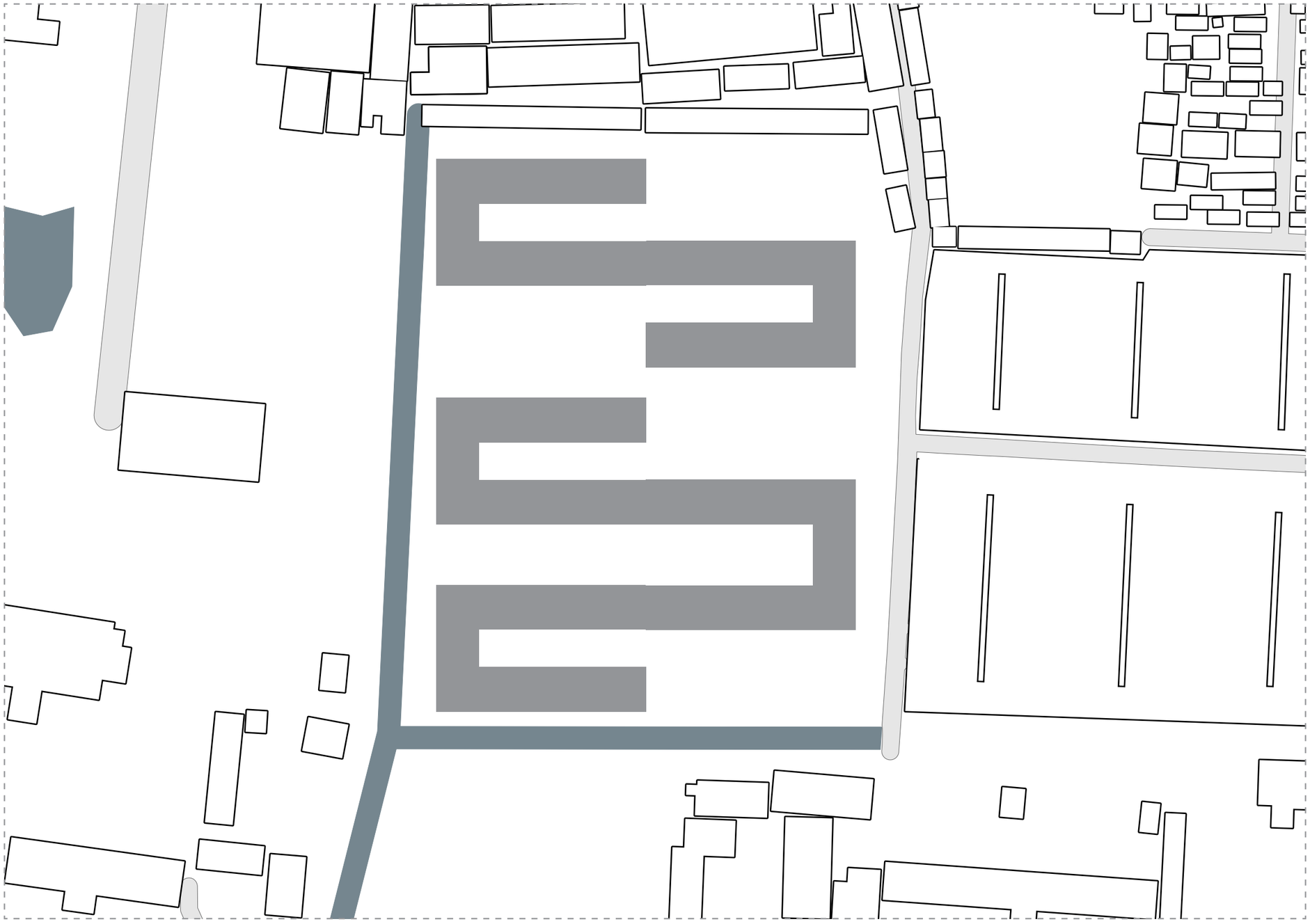


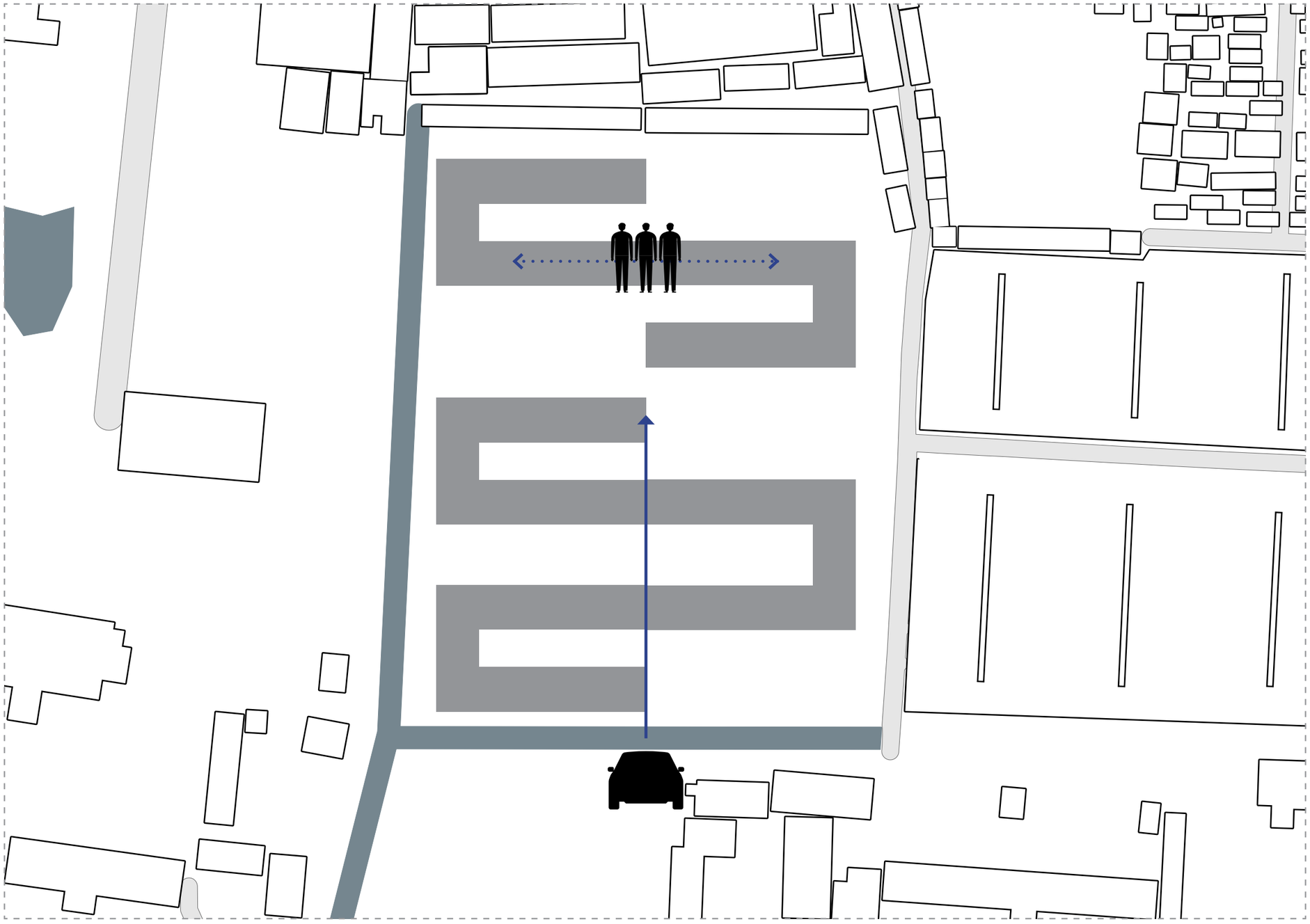






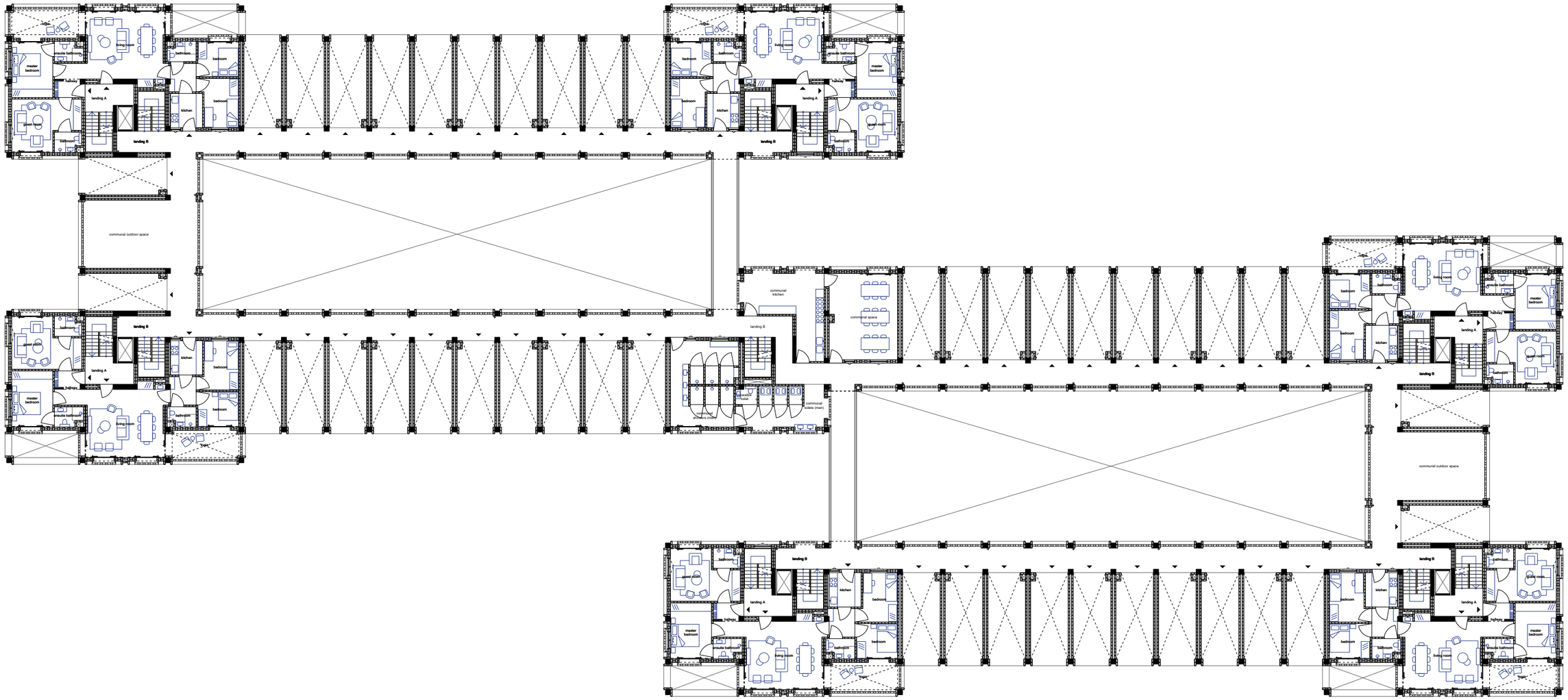


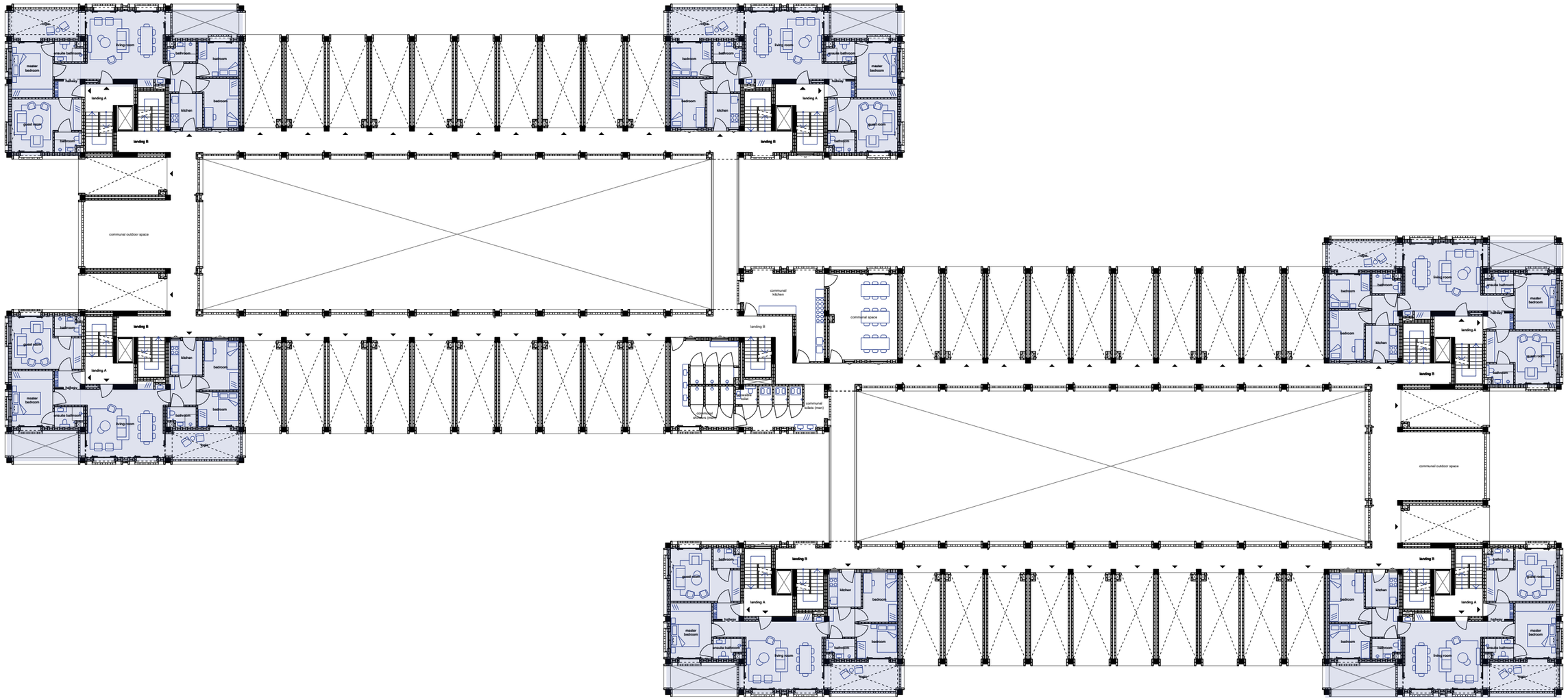


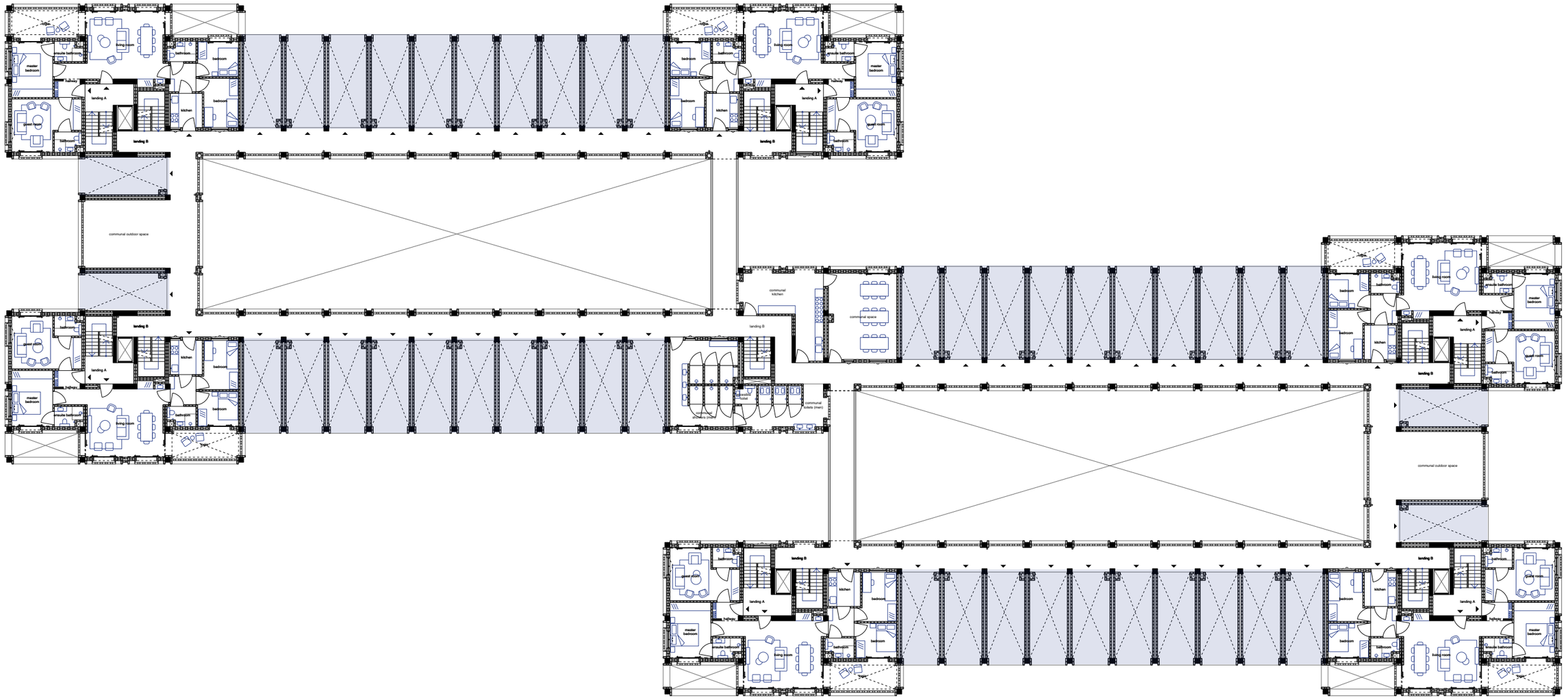



Hawkers park
mosque
Hawkers Market square
sports area
N

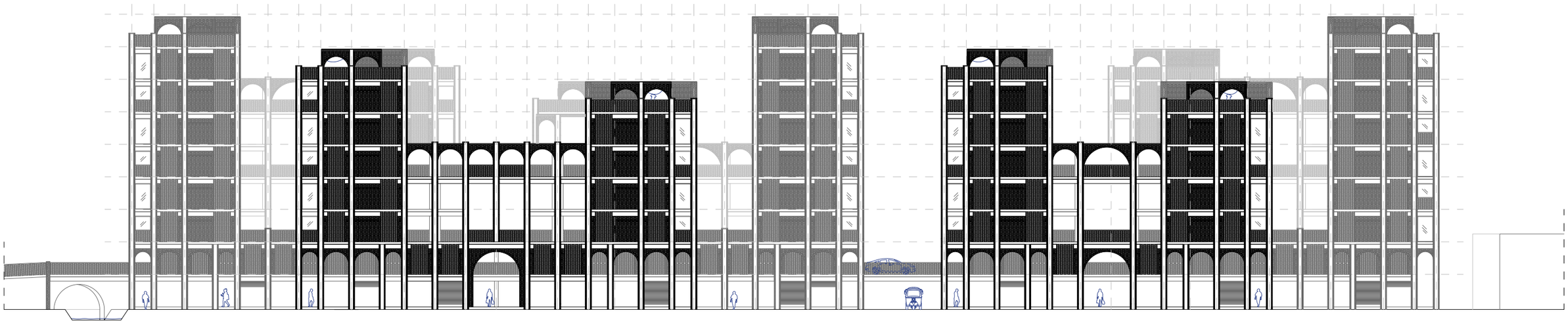
THE DESIGN


landing B
landing A
hallway
master bedroom
ensuite bathroom
living room
bedroom
bathroom
kitchen
guest room
communal outdoor space
communal kitchen
communal space
communal toilets (male)
communal toilets (female)
communal shower zone

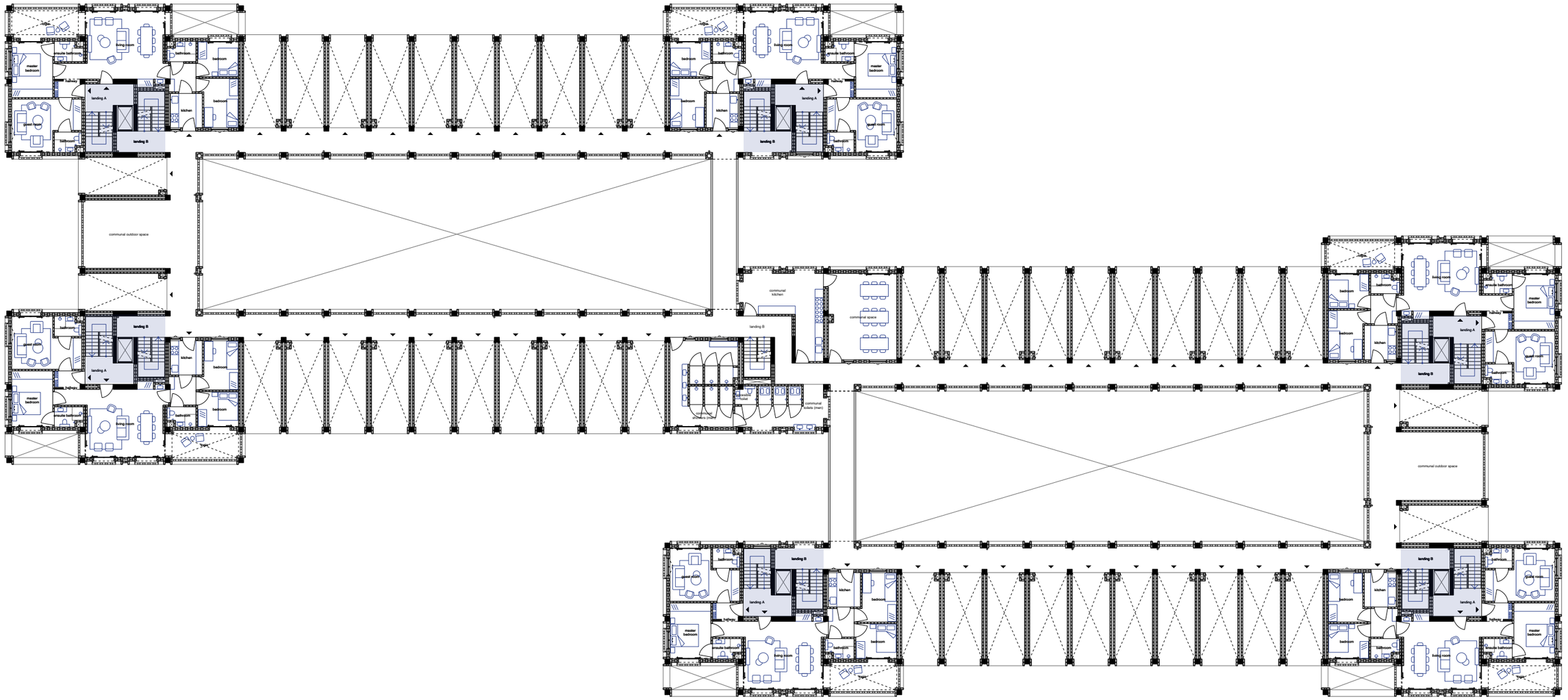

landing B
landing A
master bedroom
ensuite bathroom
living room
bedroom
bathroom
hallway
kitchen
guest room
communal outdoor space
communal kitchen
communal space
communal toilets (mixed)
communal shower zone
bathroom

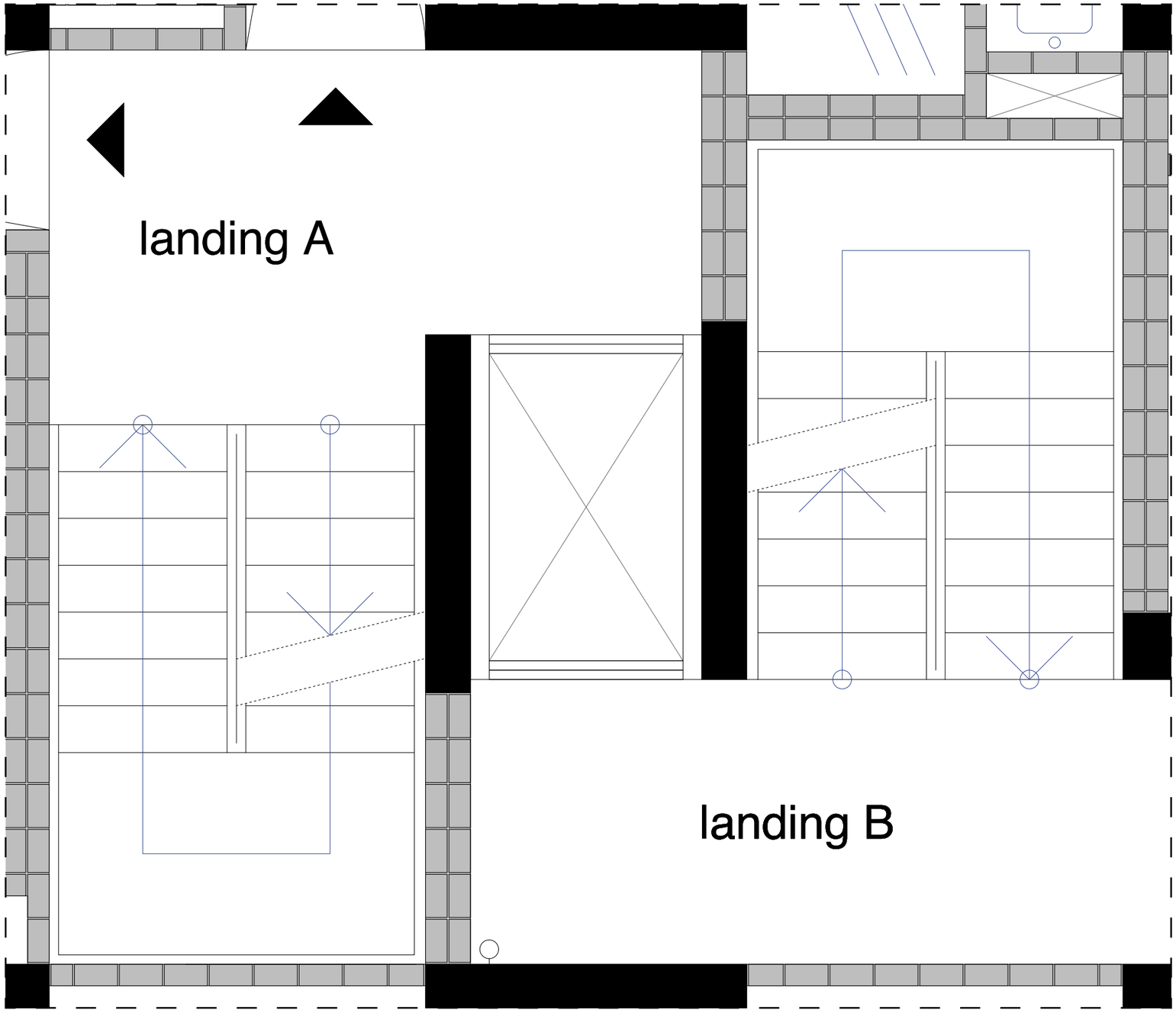

communal outdoor space
communal kitchen
communal space
communal toilets (men)
communal toilets (women)
communal outdoor space
landing A
landing B
hallway
bedroom
kitchen
bathroom
ensuite bathroom
guest room
living room
master bedroom

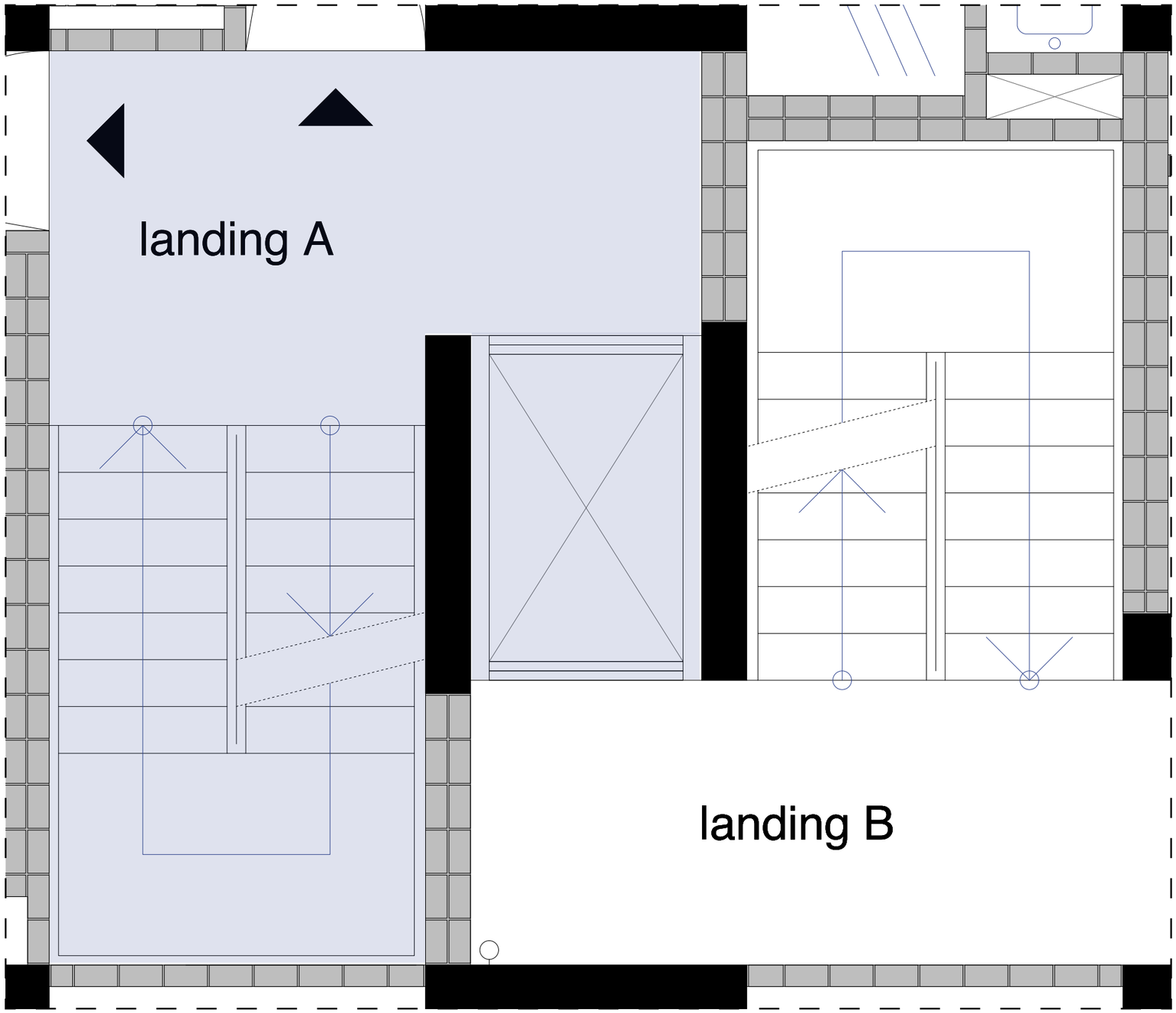
south facade

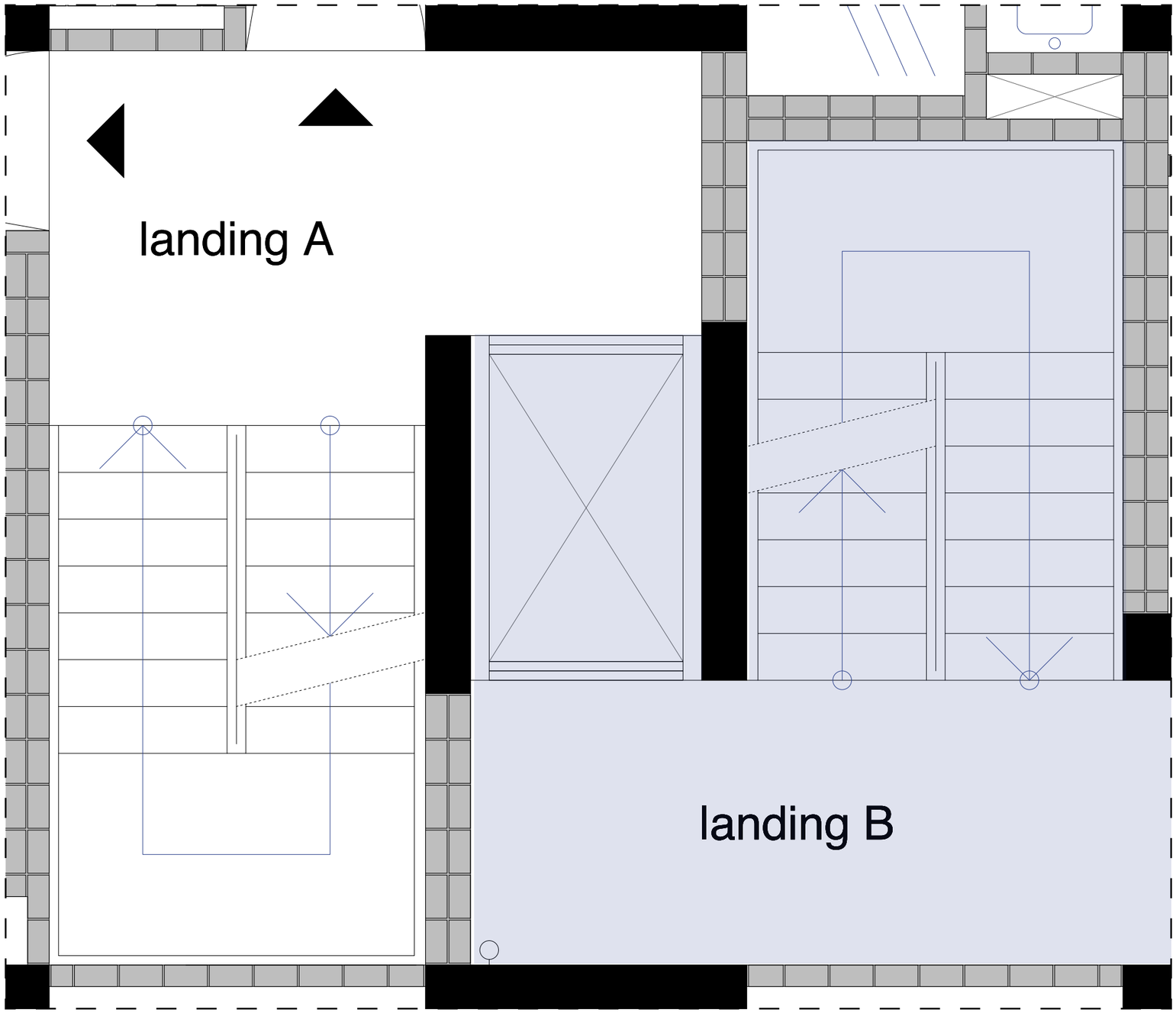


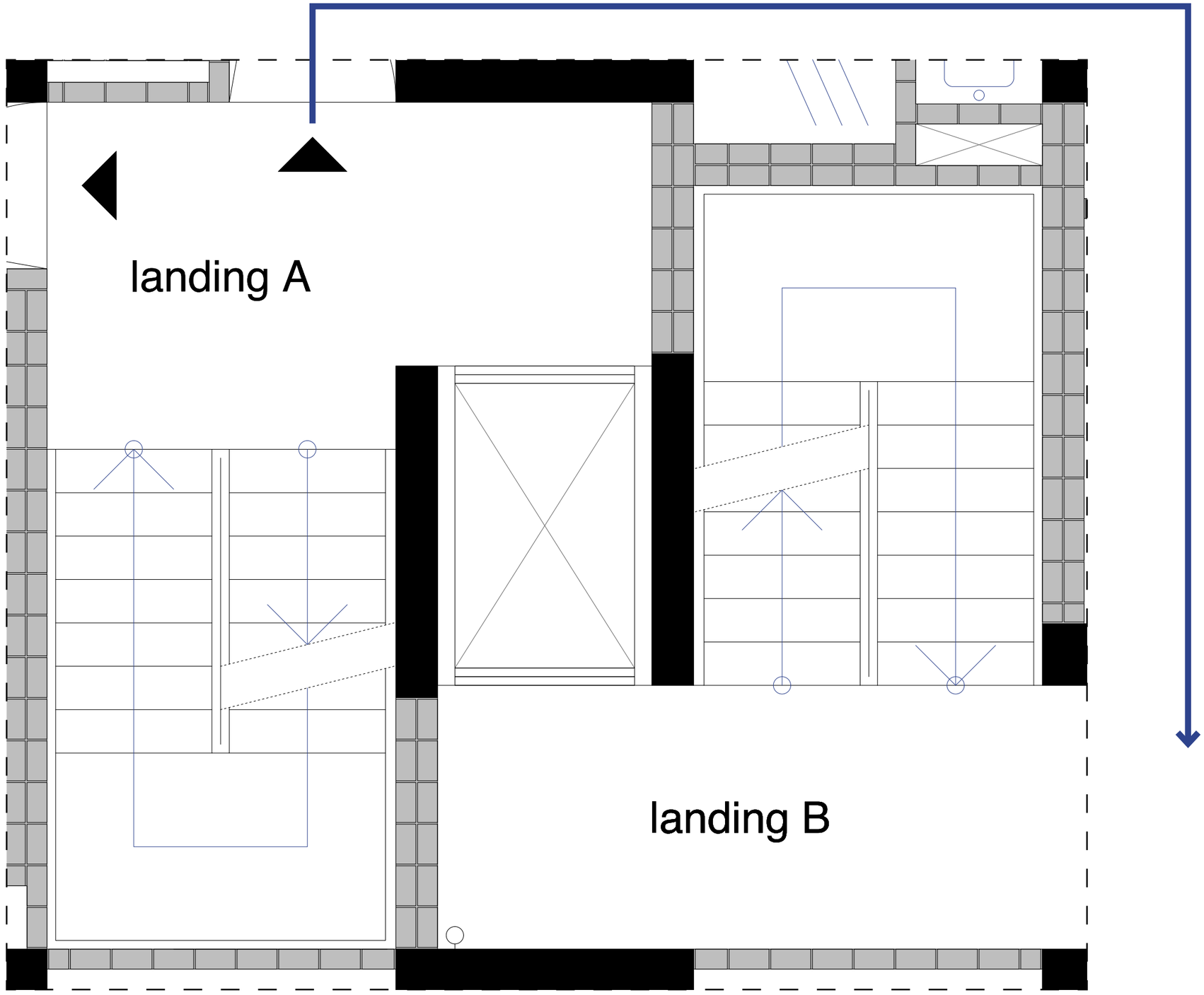
east facade

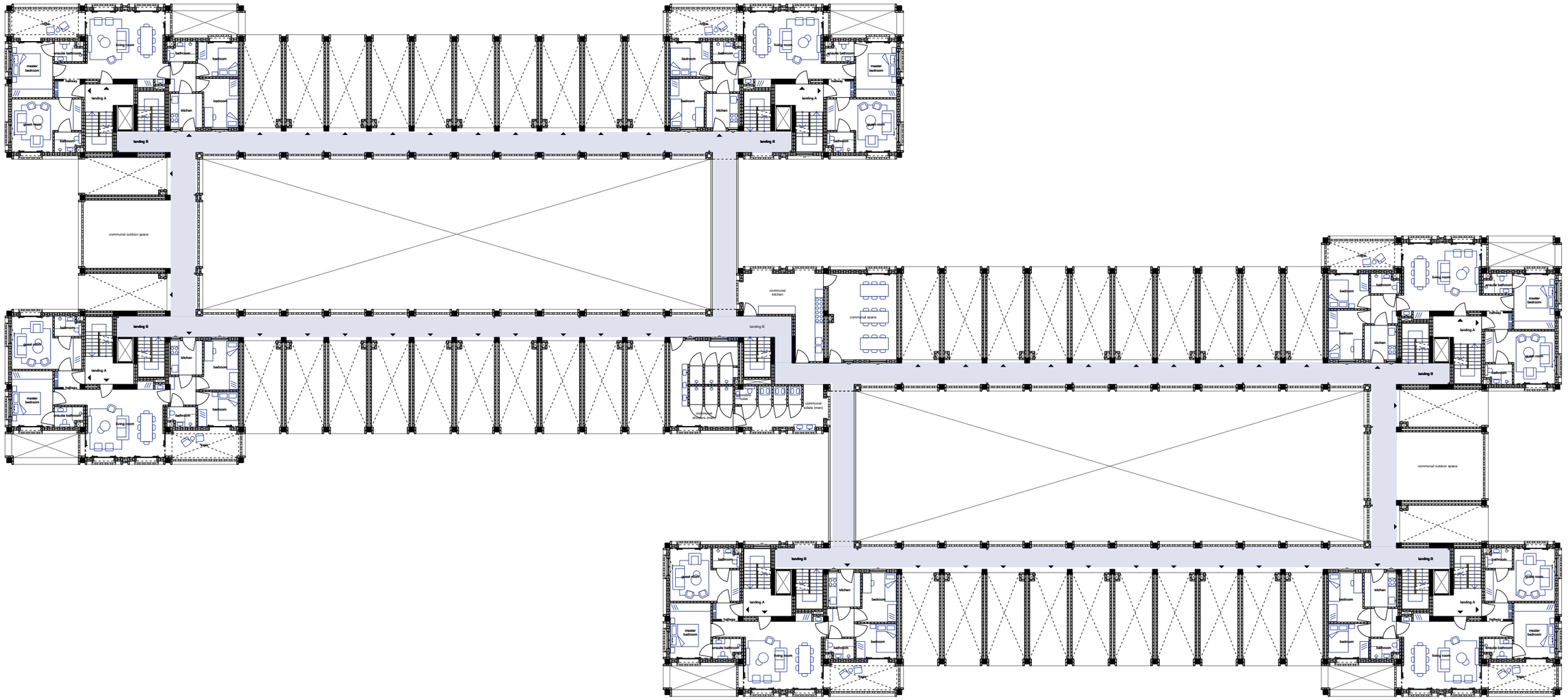

balcony
living room
ensuite bathroom
master bedroom
hallway
landing A
landing B
bedroom
bathroom
kitchen
guest room
communal outdoor space
communal kitchen
communal space
communal toilets (female)
communal toilets (male)
communal shower zone

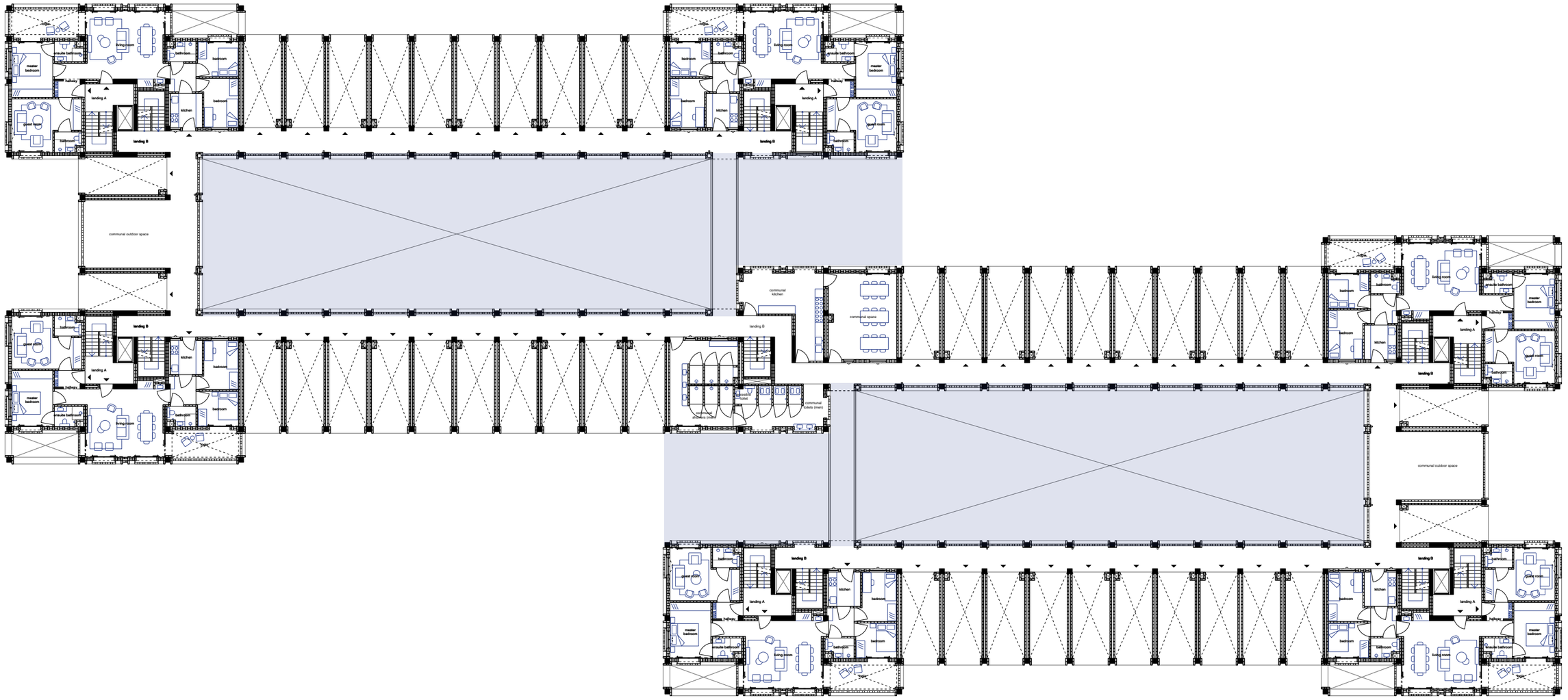

landing A
landing B

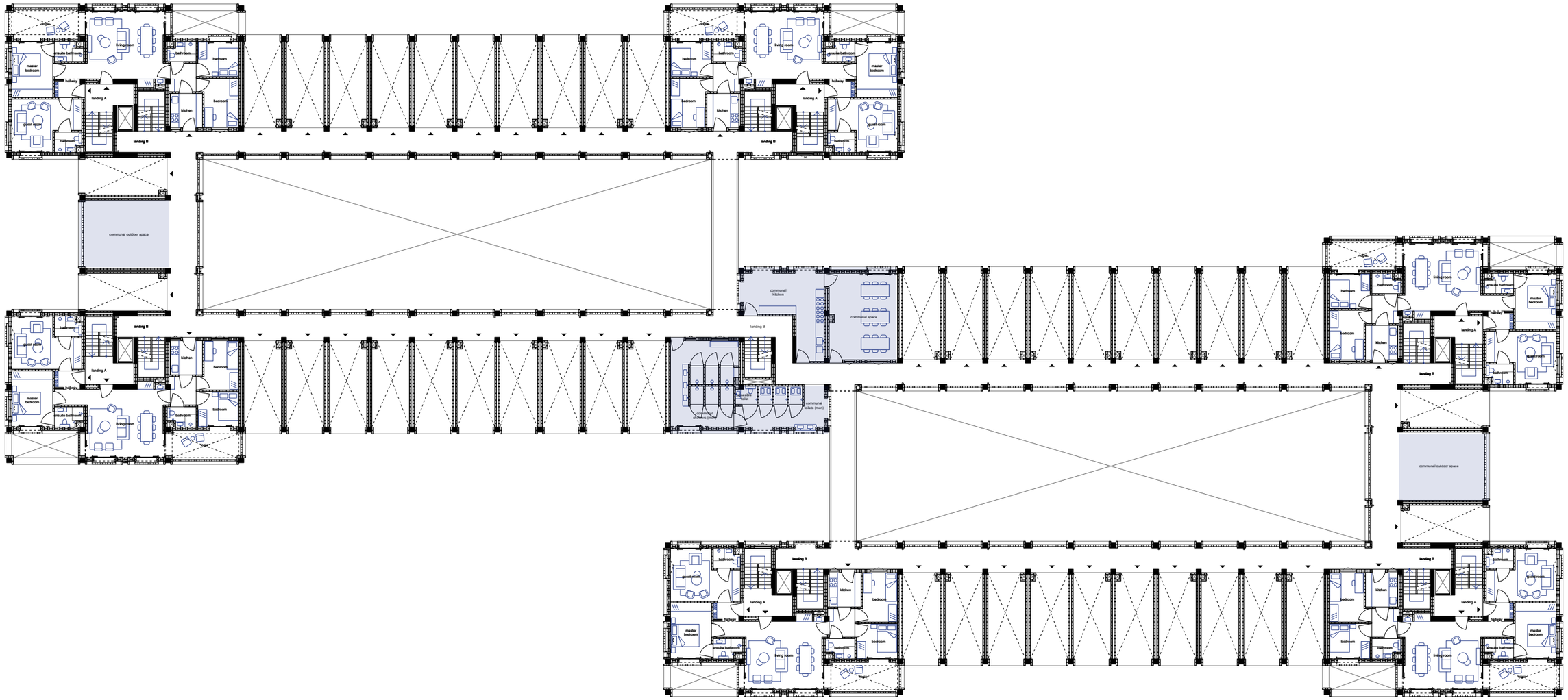

landing A
landing B

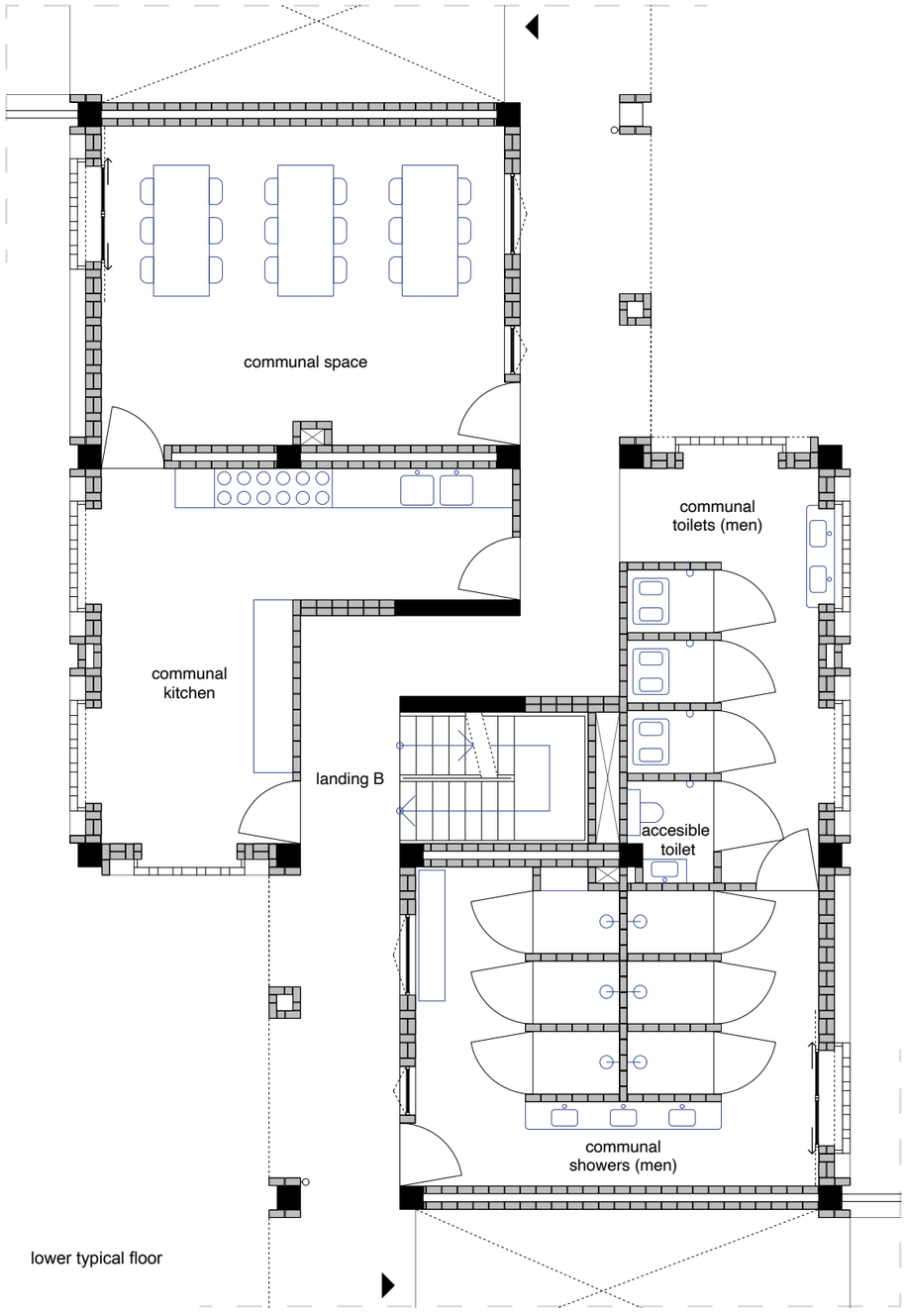

landing A
landing B

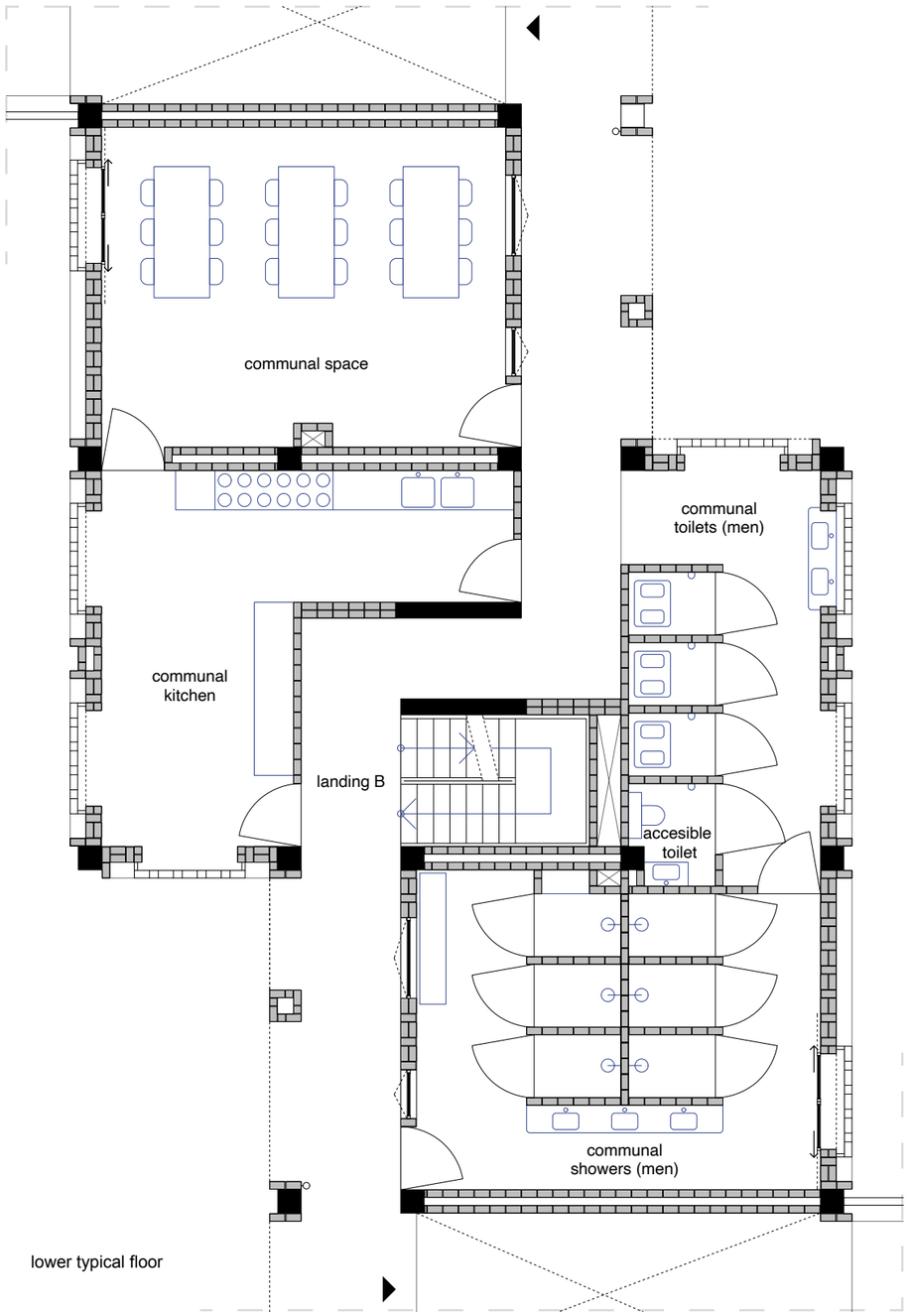

landing A
landing B


landing B
landing A
kitchen
bedroom
bathroom
ensuite bathroom
master bedroom
living room
guest room
hallway
communal outdoor space
communal kitchen
communal space
communal toilets (male)
communal toilets (female)
communal shower room

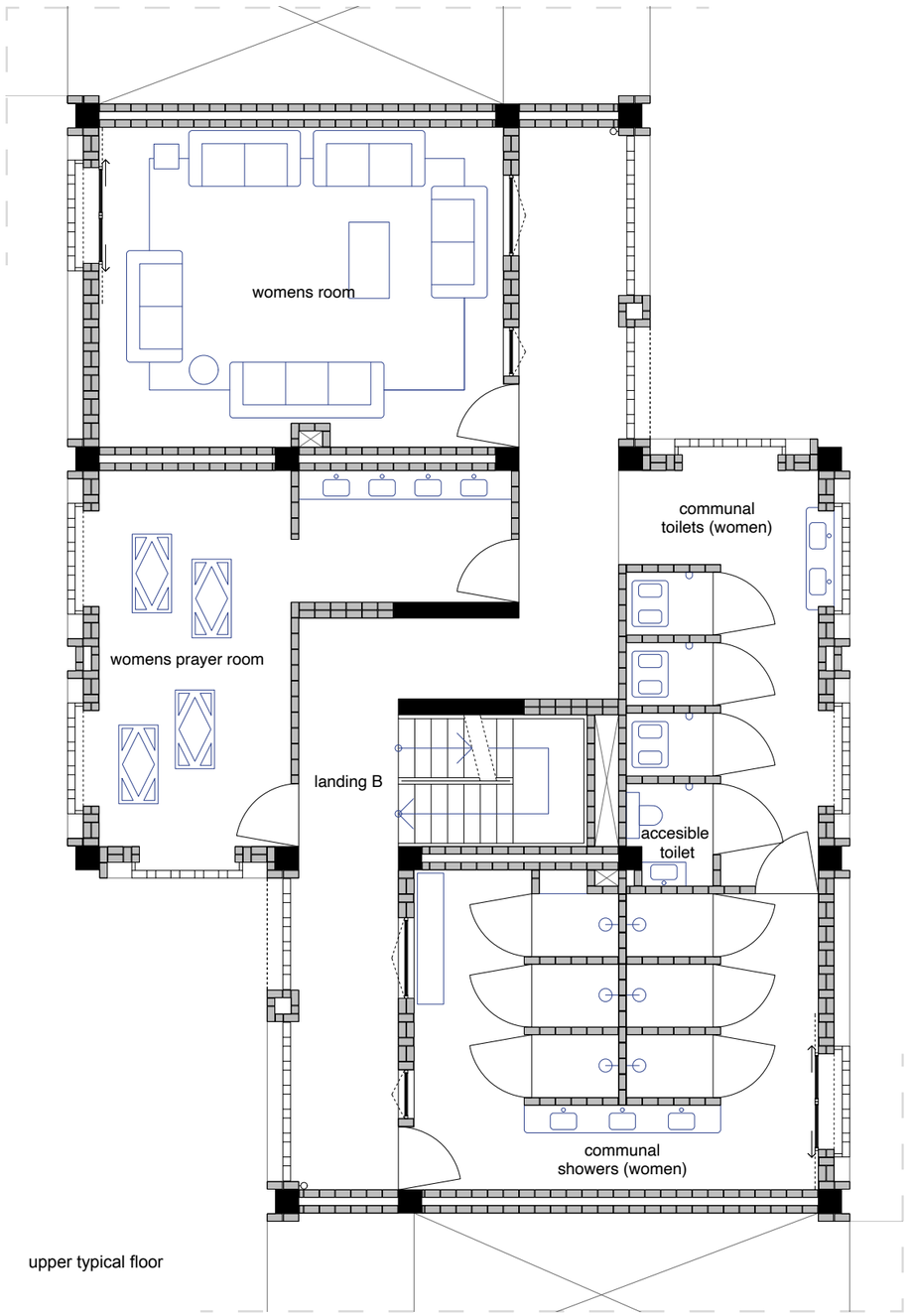

landing B
landing A
hallway
kitchen
bedroom
bathroom
ensuite bathroom
master bedroom
guest room
living room
communal outdoor space
communal kitchen
communal space
communal toilets (male)
communal toilets (female)
communal shower room


landing B
landing A
hallway
kitchen
bedroom
bathroom
ensuite bathroom
master bedroom
guest room
living room
communal outdoor space
communal kitchen
communal space
communal toilets (mens)
communal toilets (womens)
shower
shower room

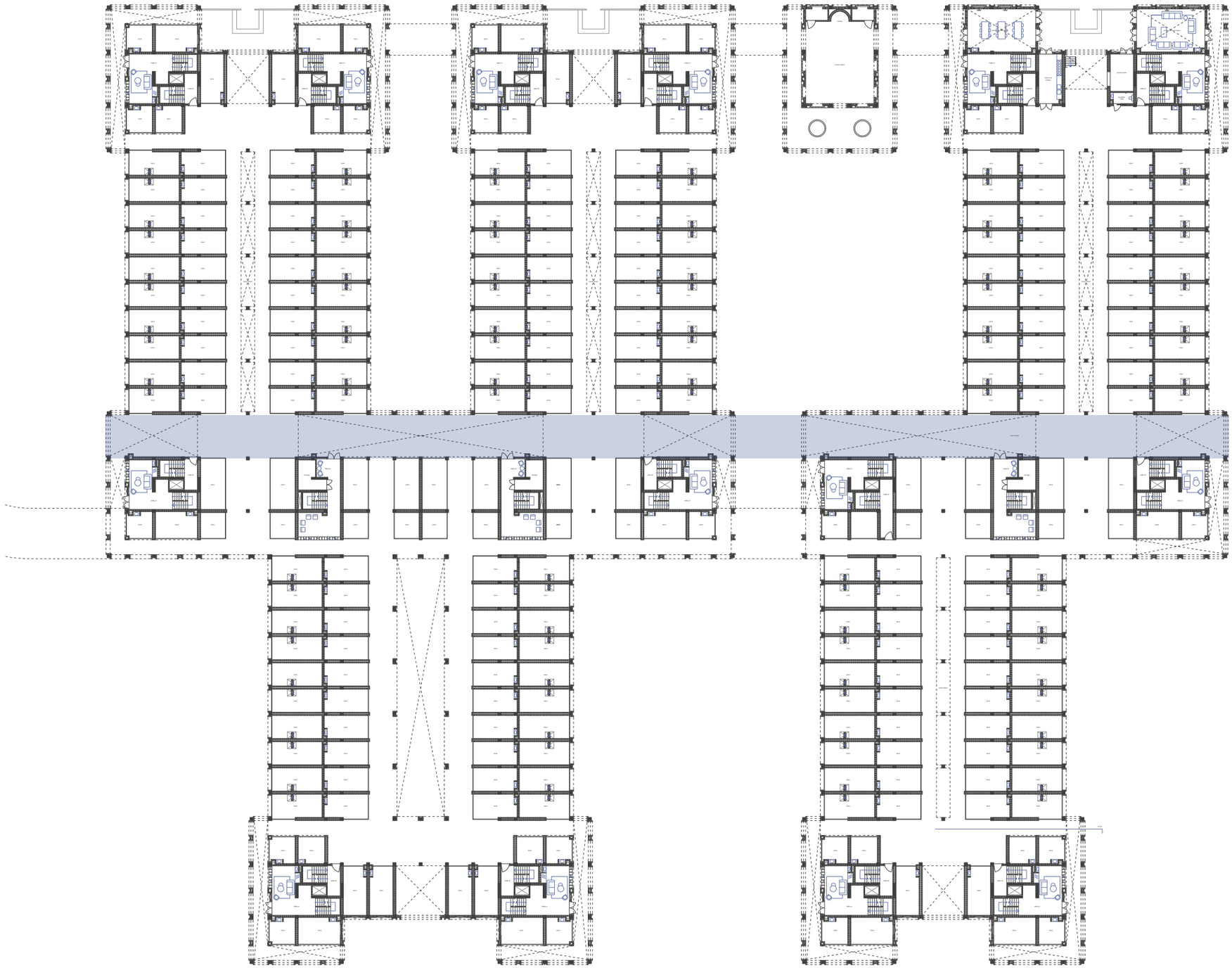

communal space
communal kitchen
landing B
communal toilets (men)
accesible toilet
communal showers (men)
lower typical floor

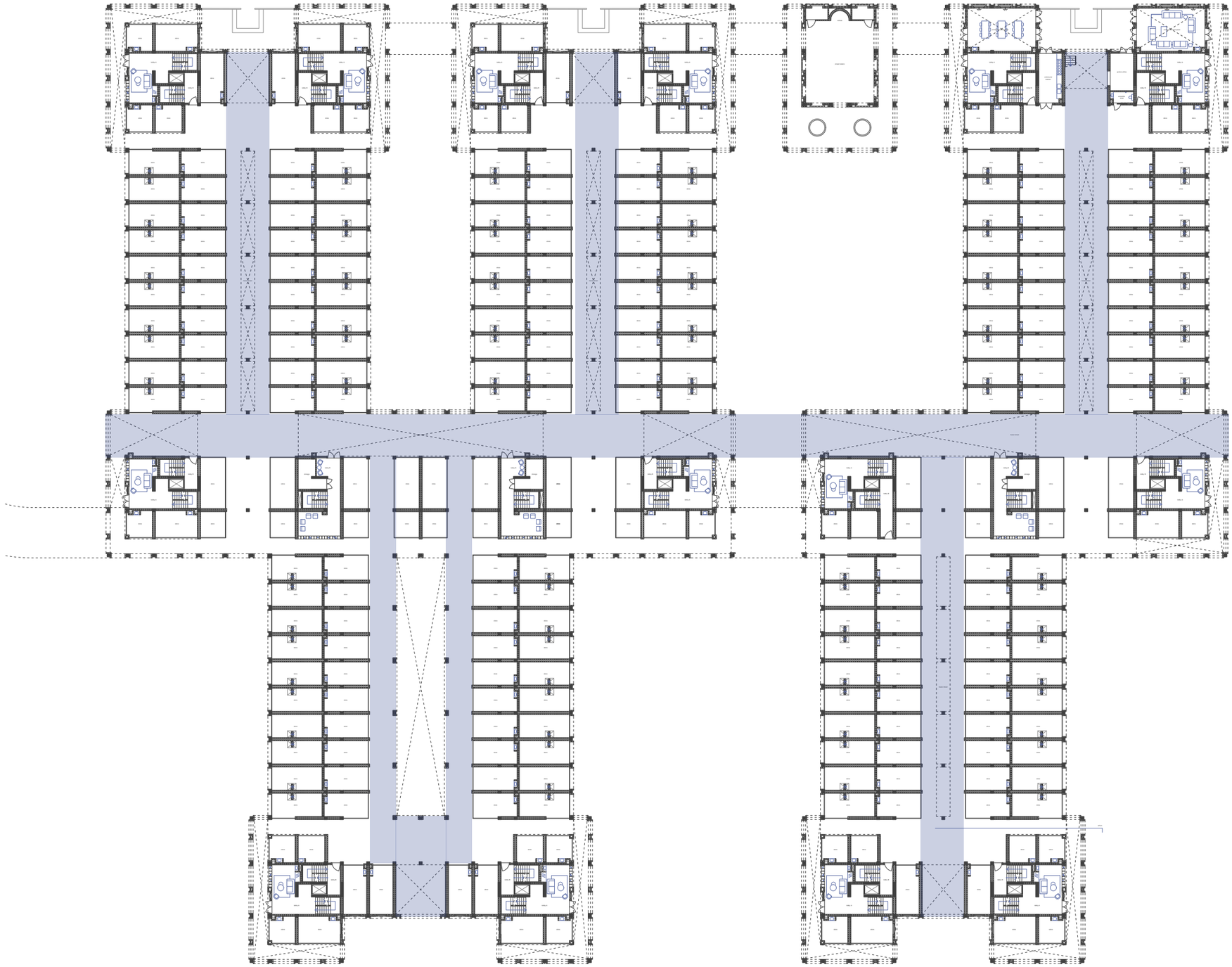


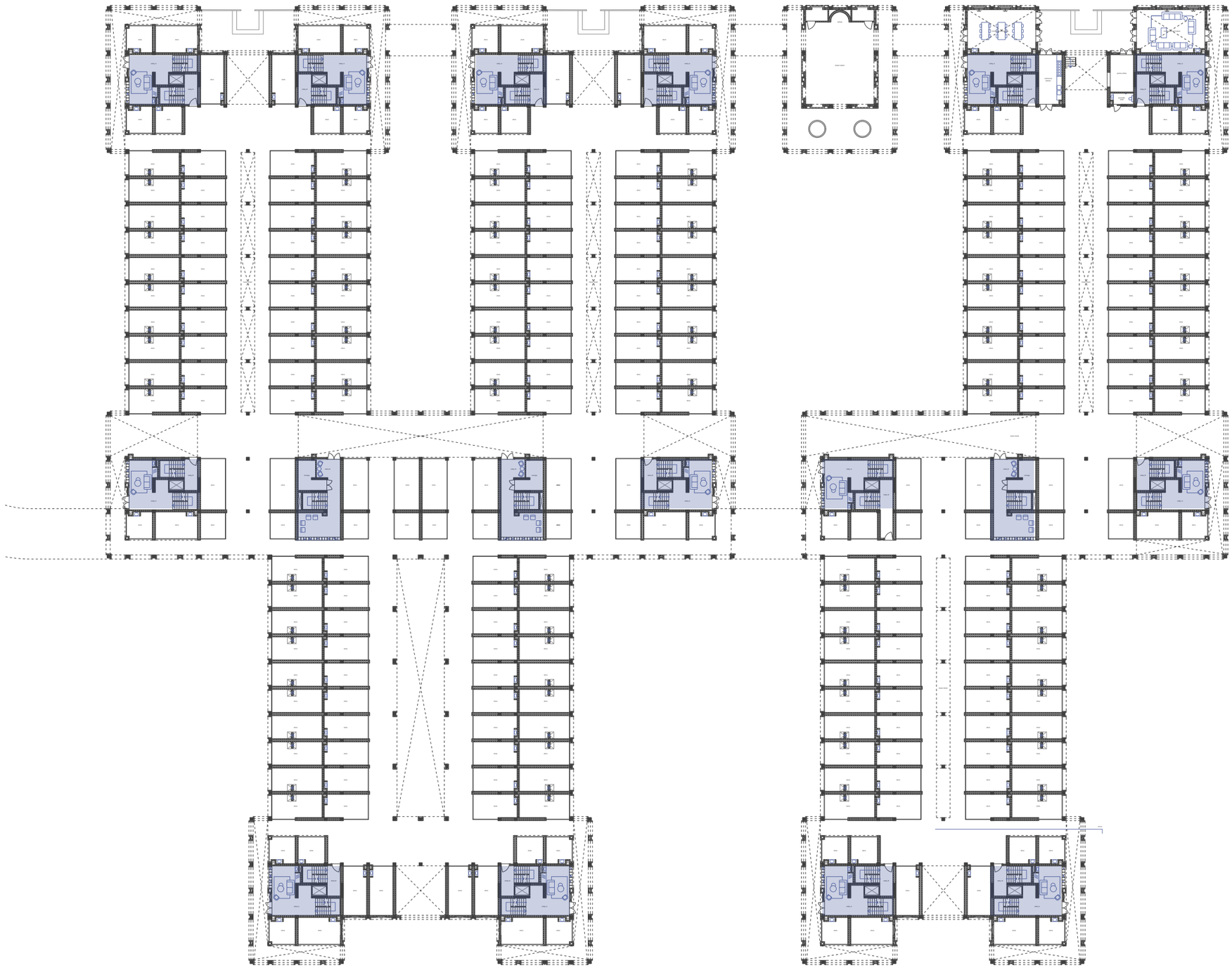
lower typical floor

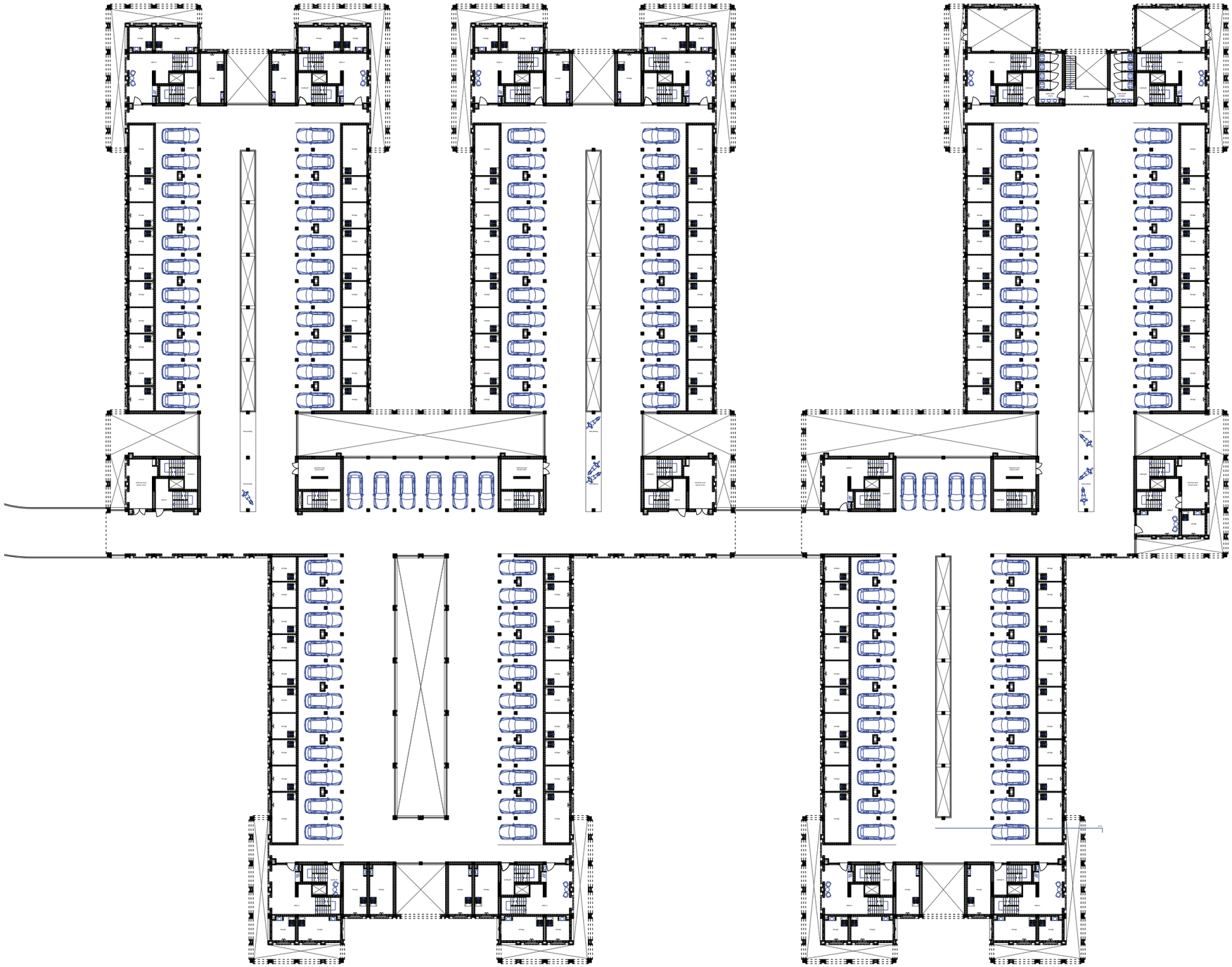


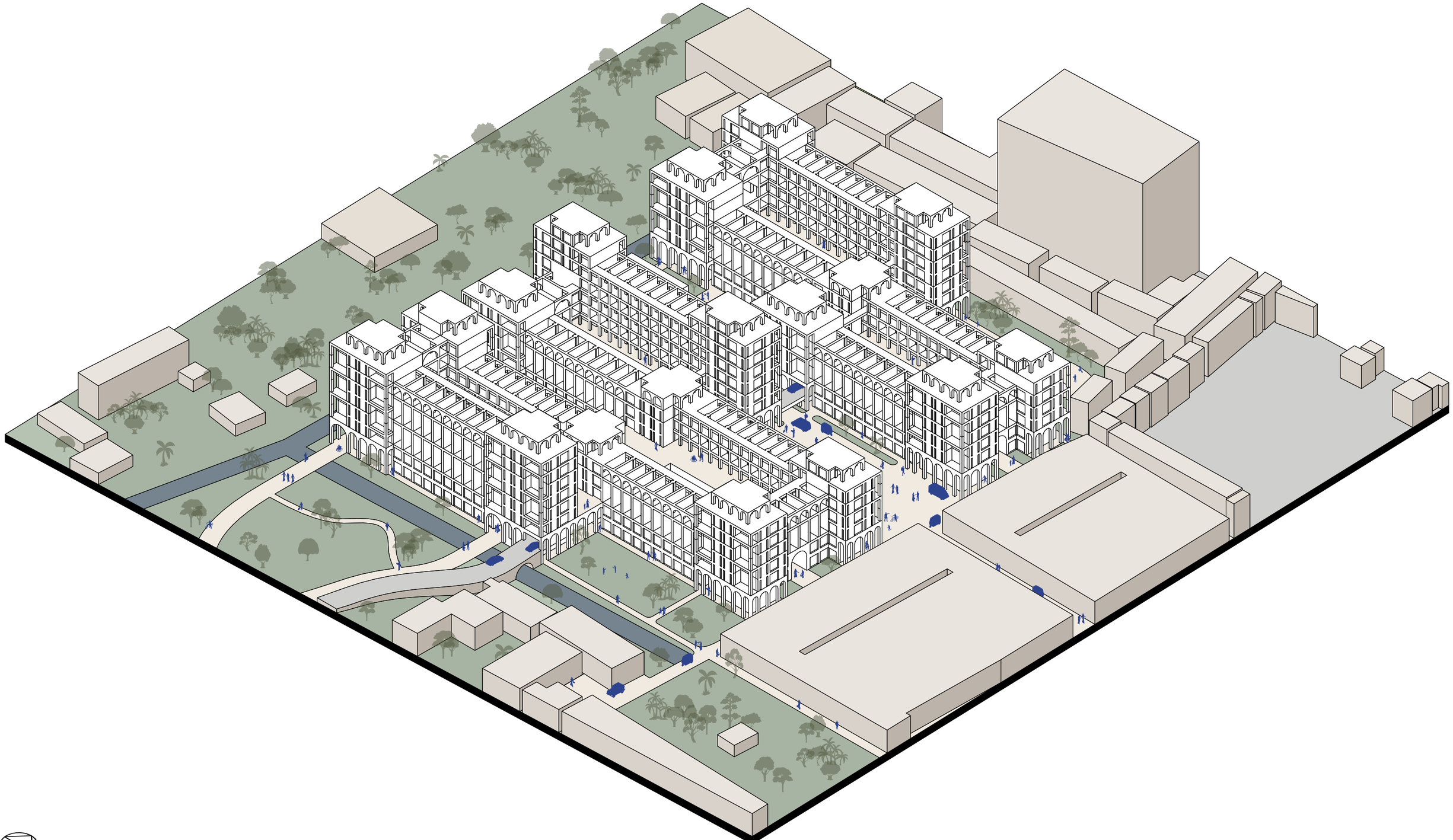
upper typical floor

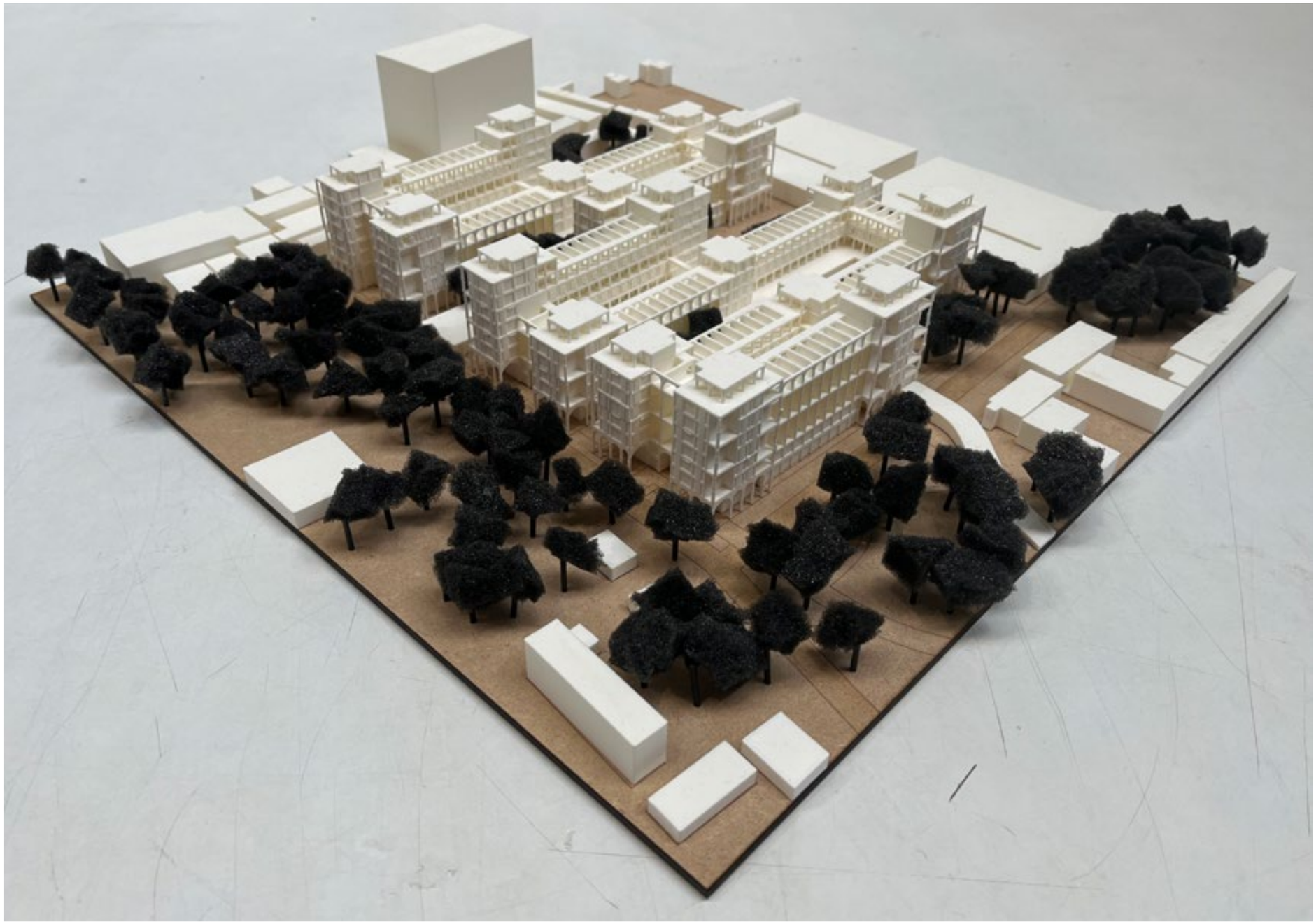




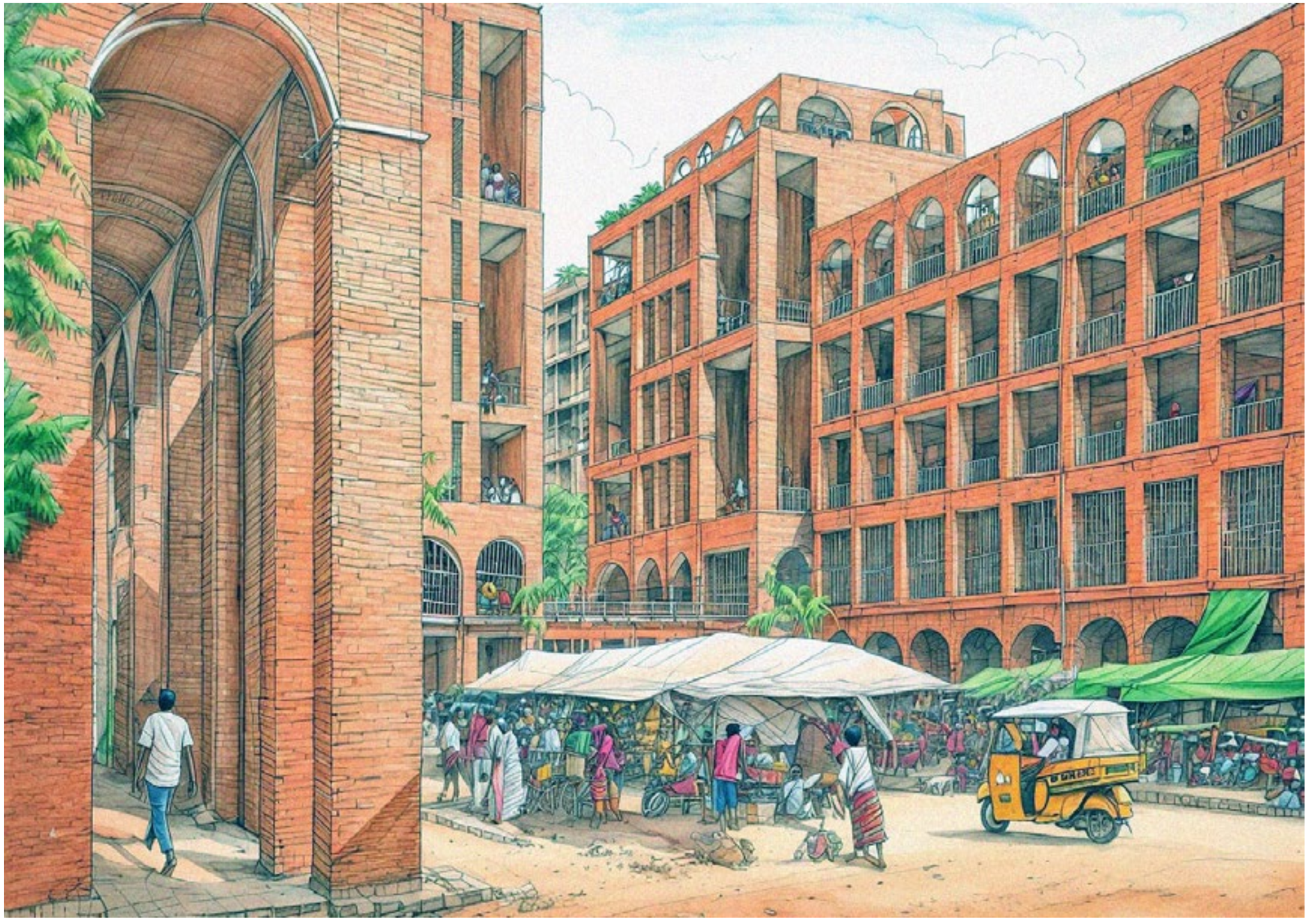









3628
1189
11231
1189
26576
1189
1500
16084
1500
1189
21367
1189
11231
1189
rainwater channel
ceramic tiles
fine gravel
soil



DWELLINGS

Type A:

interior floor area = 98 m²

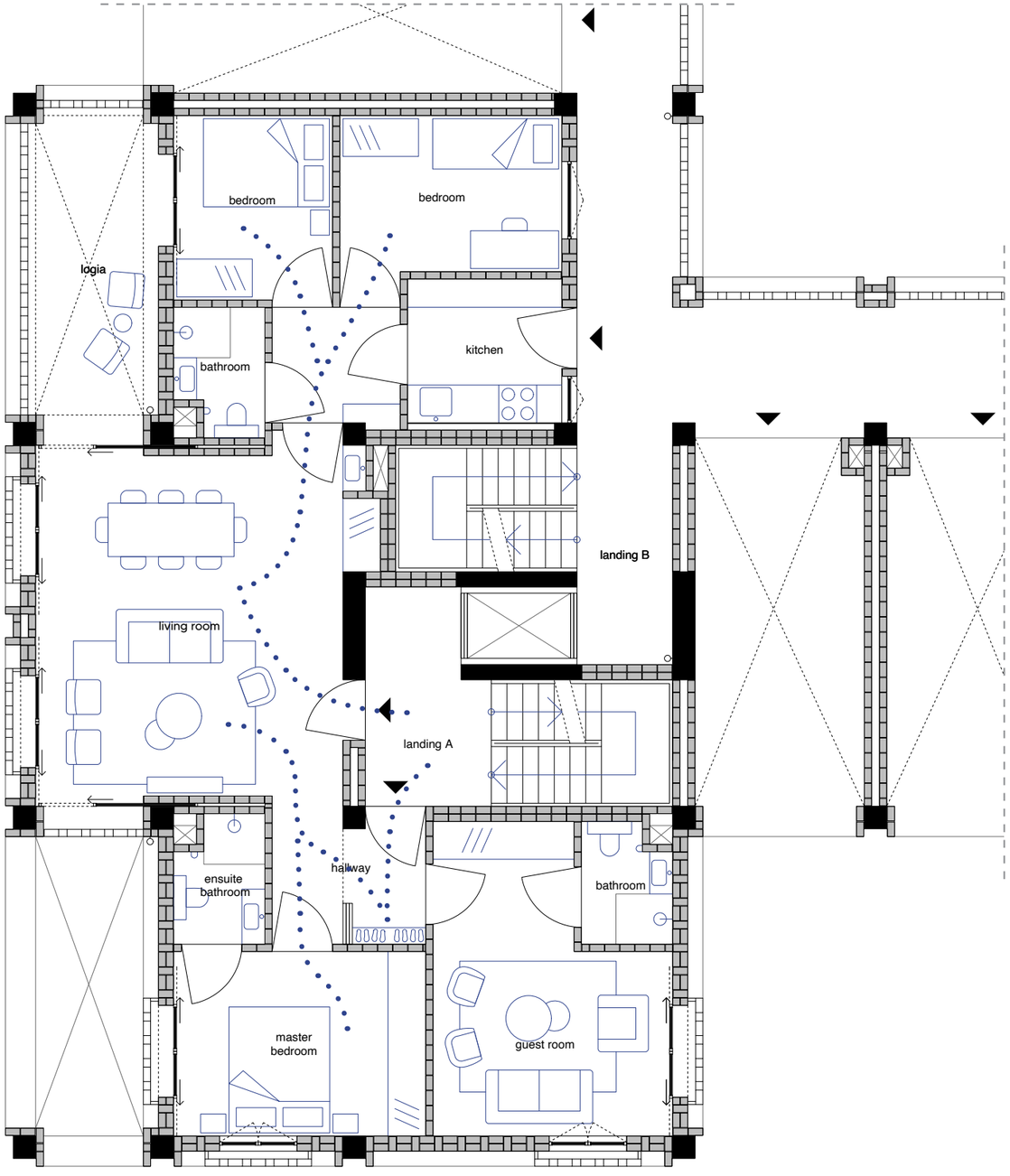
exterior floor area = 12 m²

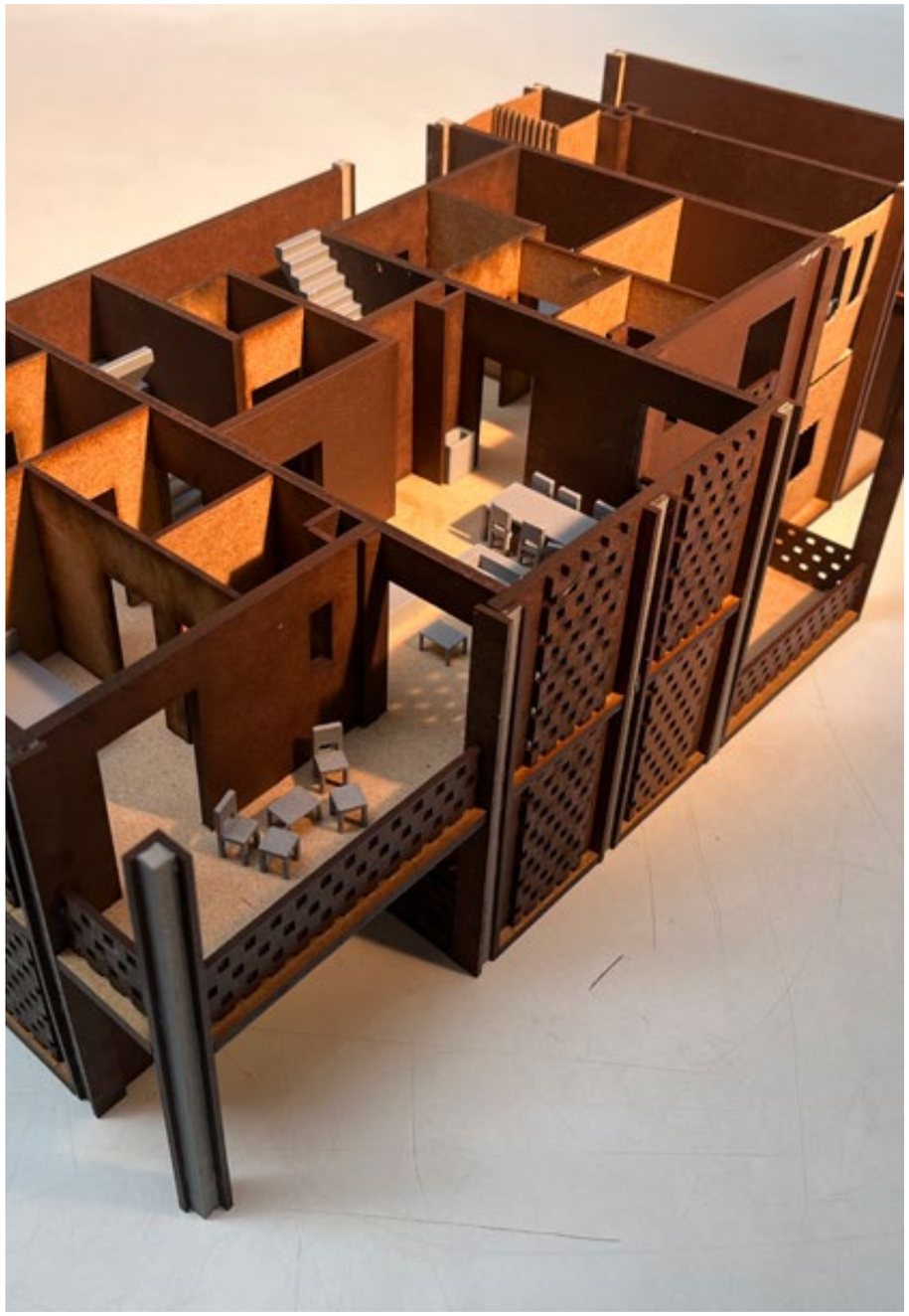
guest room / extra bedroom

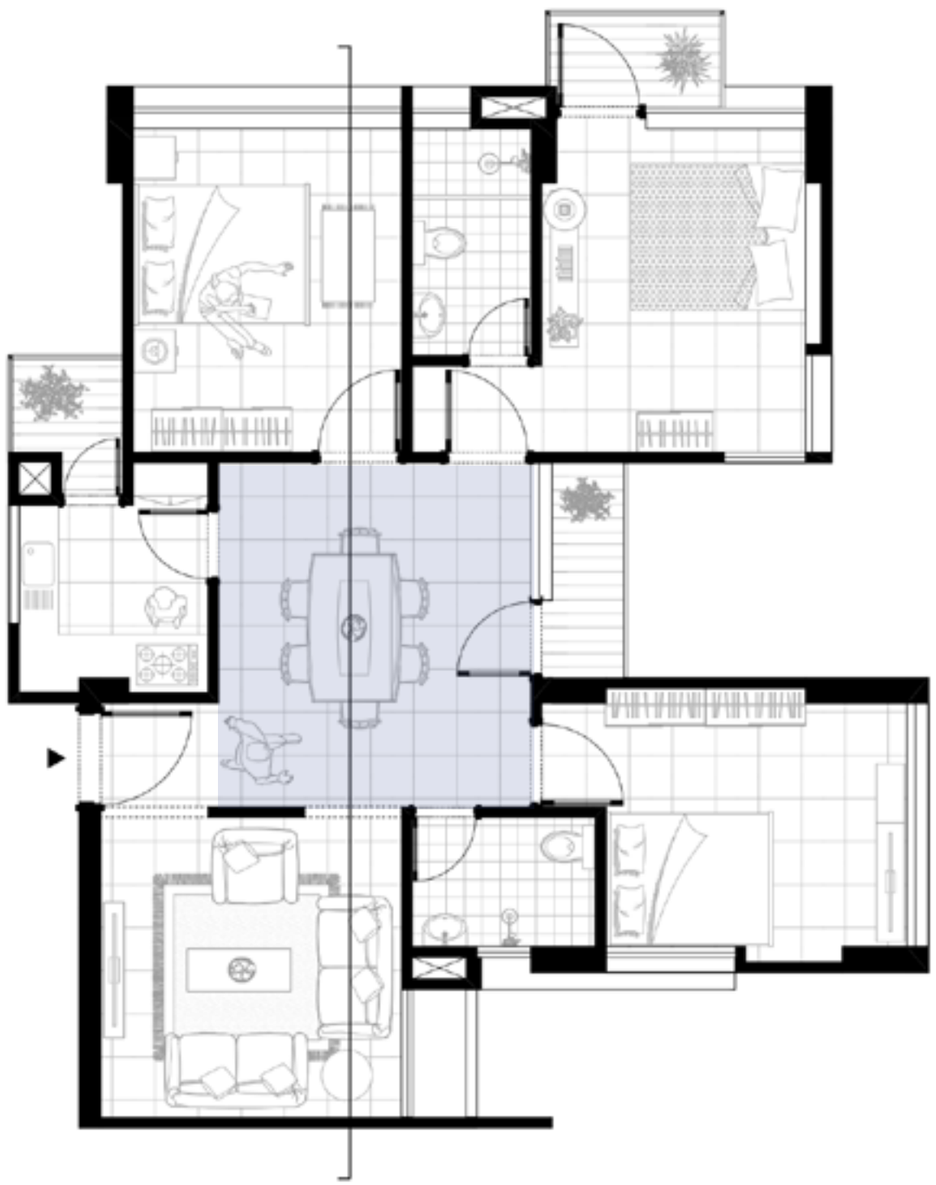
bedrooms = 3 / 4

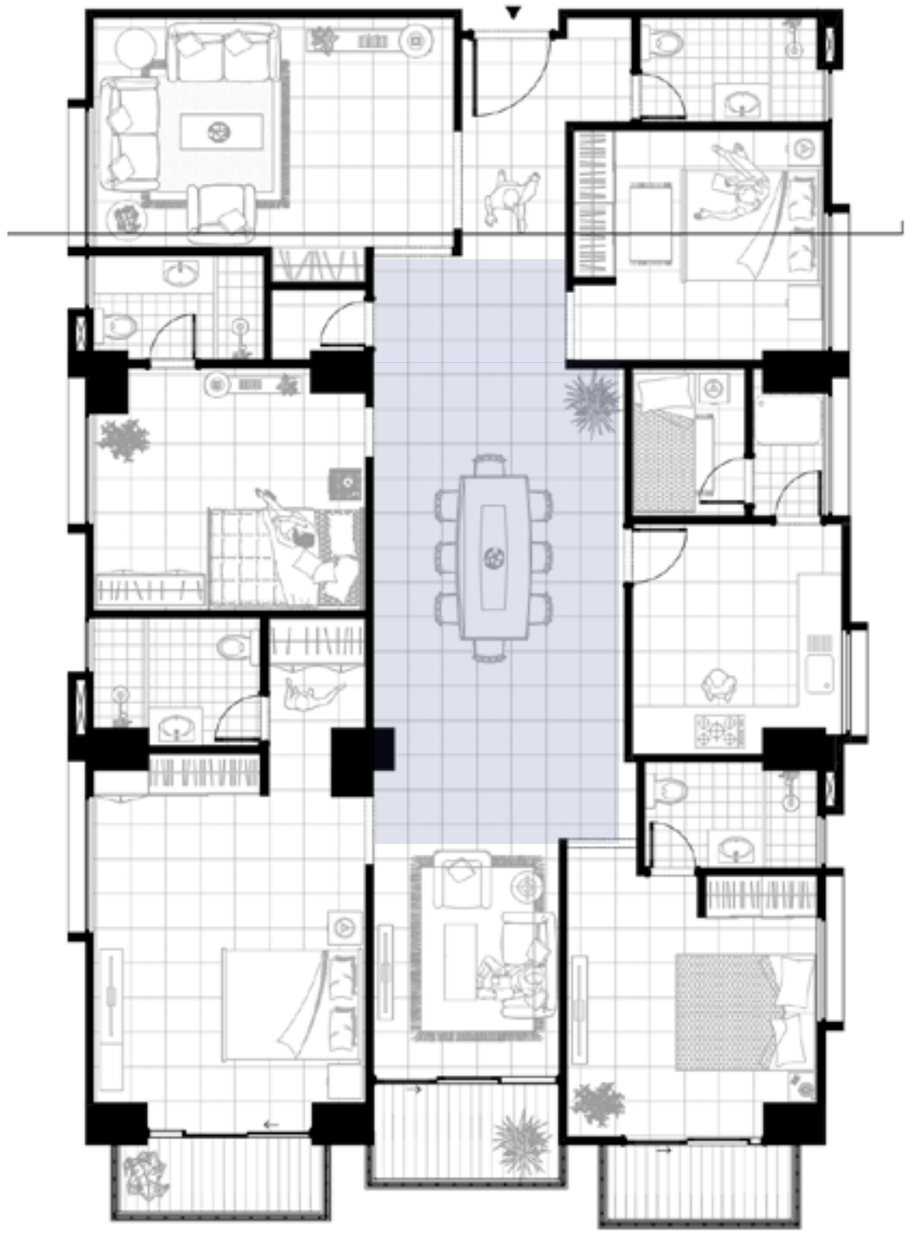
bathrooms = 3

price = ~7.200.000 tk (€ 50.000)









Left image: ‘Soia Housing’ in Sylhet Bangladesh, architect unknown, drawing by J. Ambagts
Right image: ‘Dream Valley’ Cooperative housing project by doctors in Sylhet Bangladesh, architect unk, drawing by J. Ambagts

Type A:

interior floor area = 98 m²

exterior floor area = 12 m²

guest room / extra bedroom

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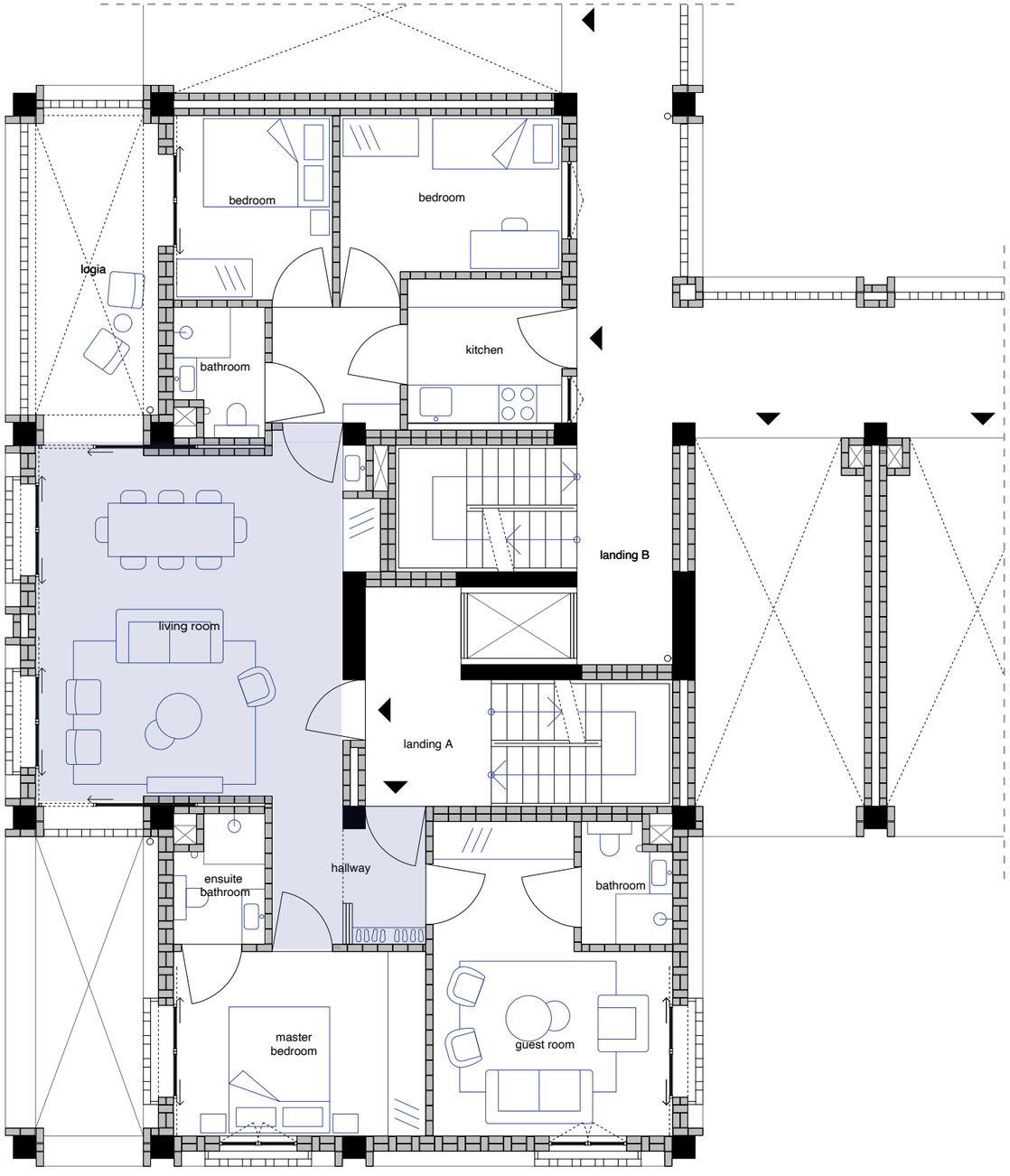

Type A:

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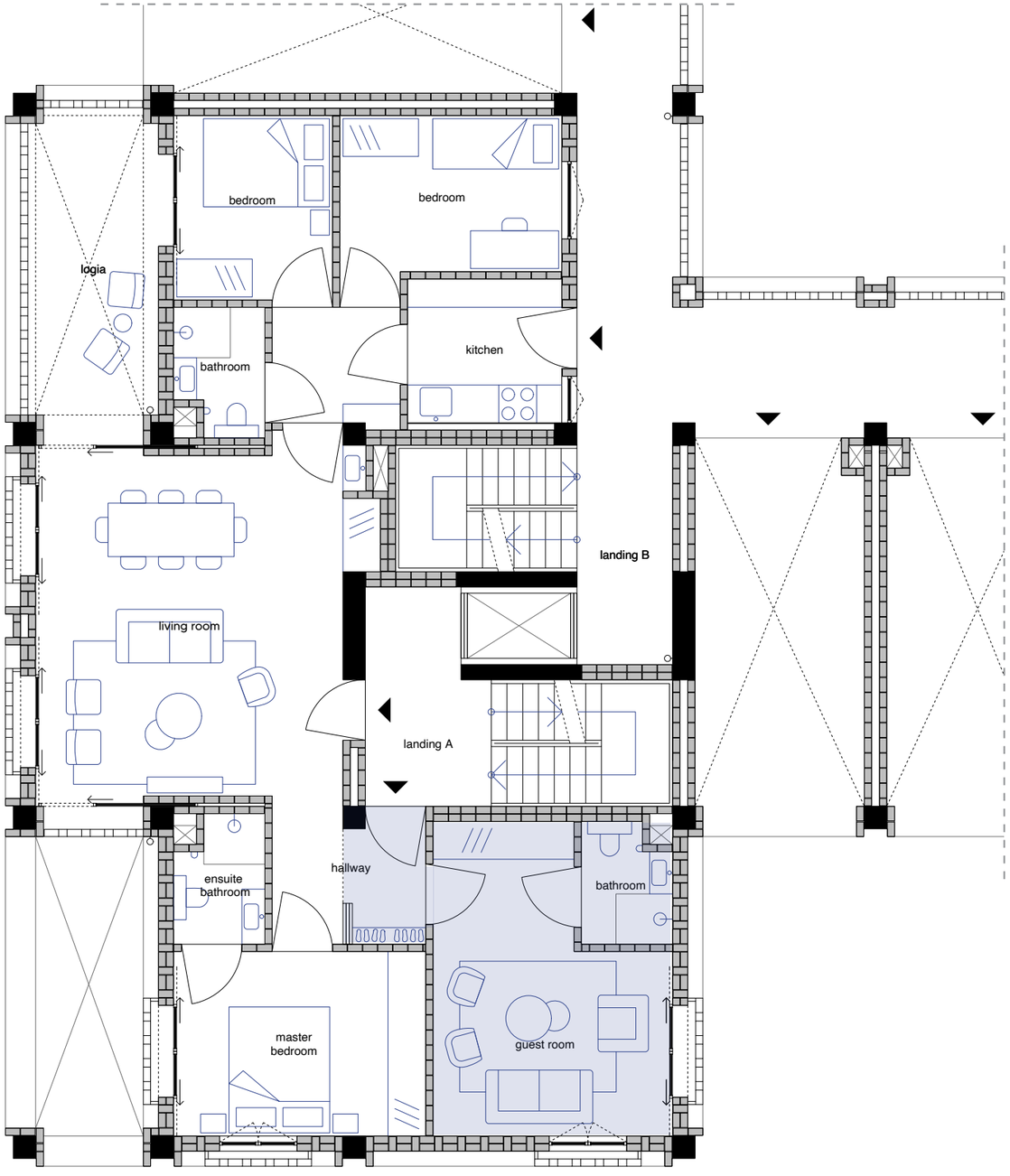
exterior floor area = 12 m²

guest room / extra bedroom

bedrooms = 3 / 4

bathrooms = 3

price = ~7.200.000 tk (€ 50.000)



Type A:

interior floor area = 98 m²

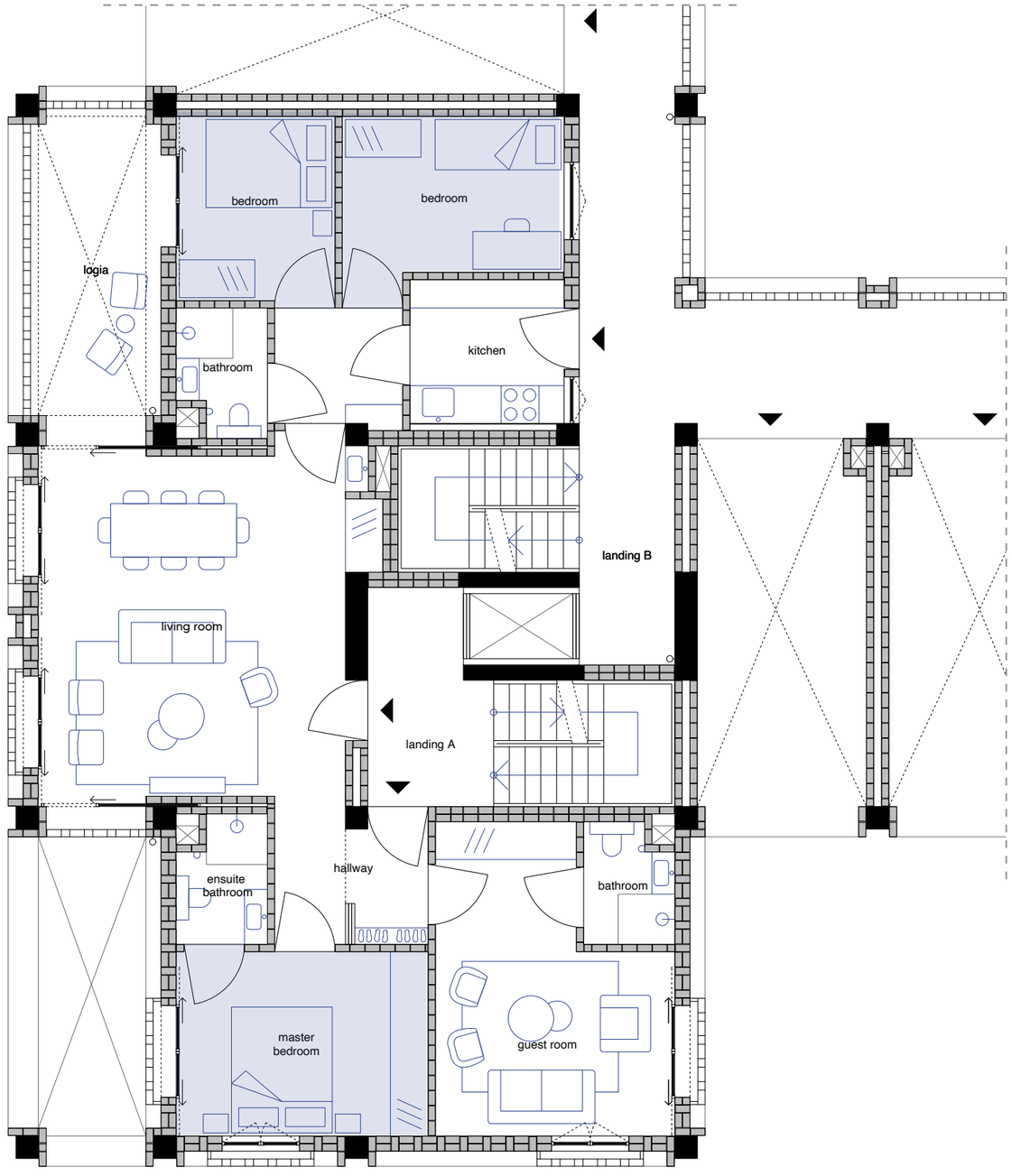
exterior floor area = 12 m²

guest room / extra bedroom

bedrooms = 3 / 4

bathrooms = 3

price = ~7.200.000 tk (€ 50.000)



Type A:

interior floor area = 98 m²

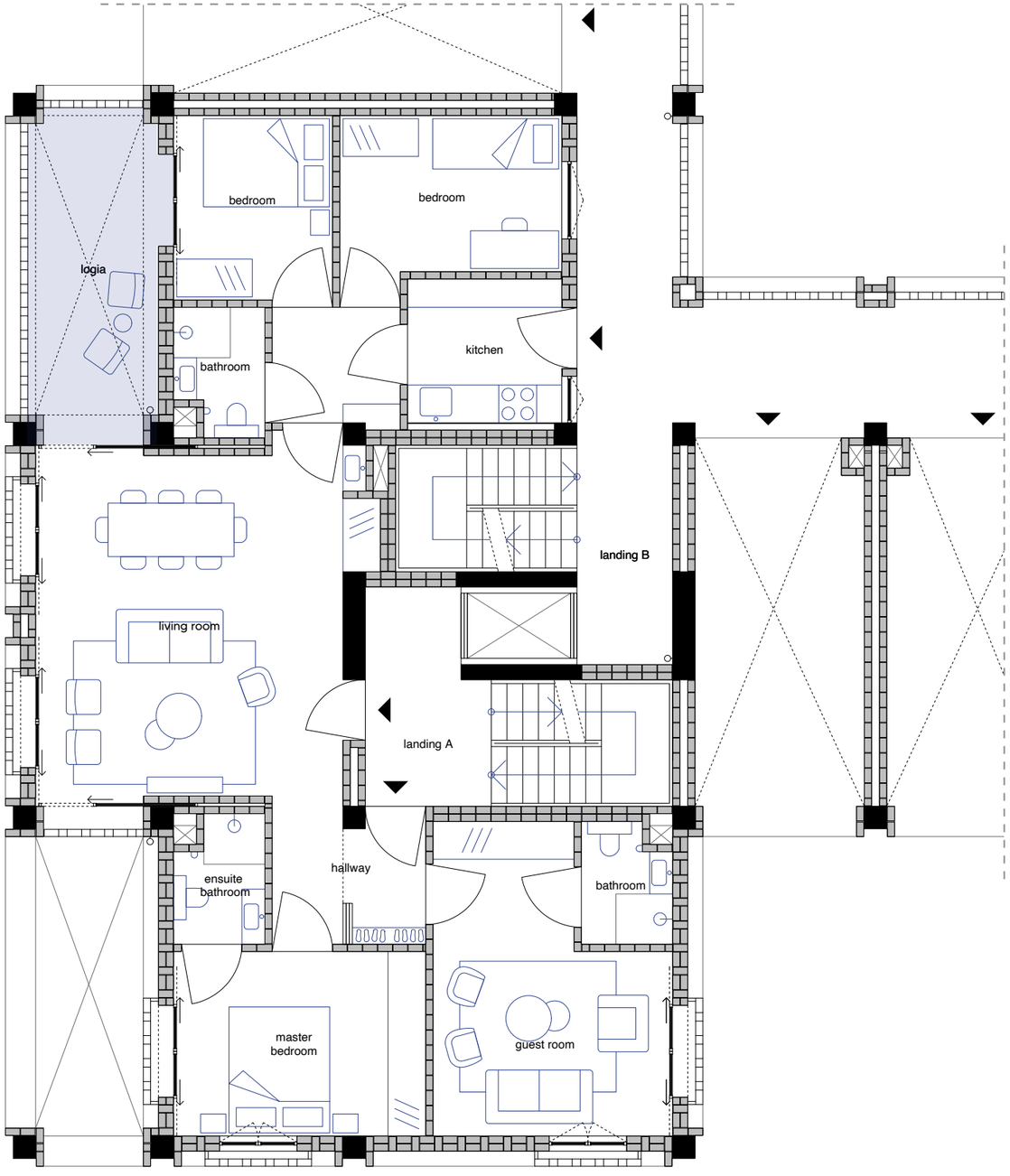
exterior floor area = 12 m²

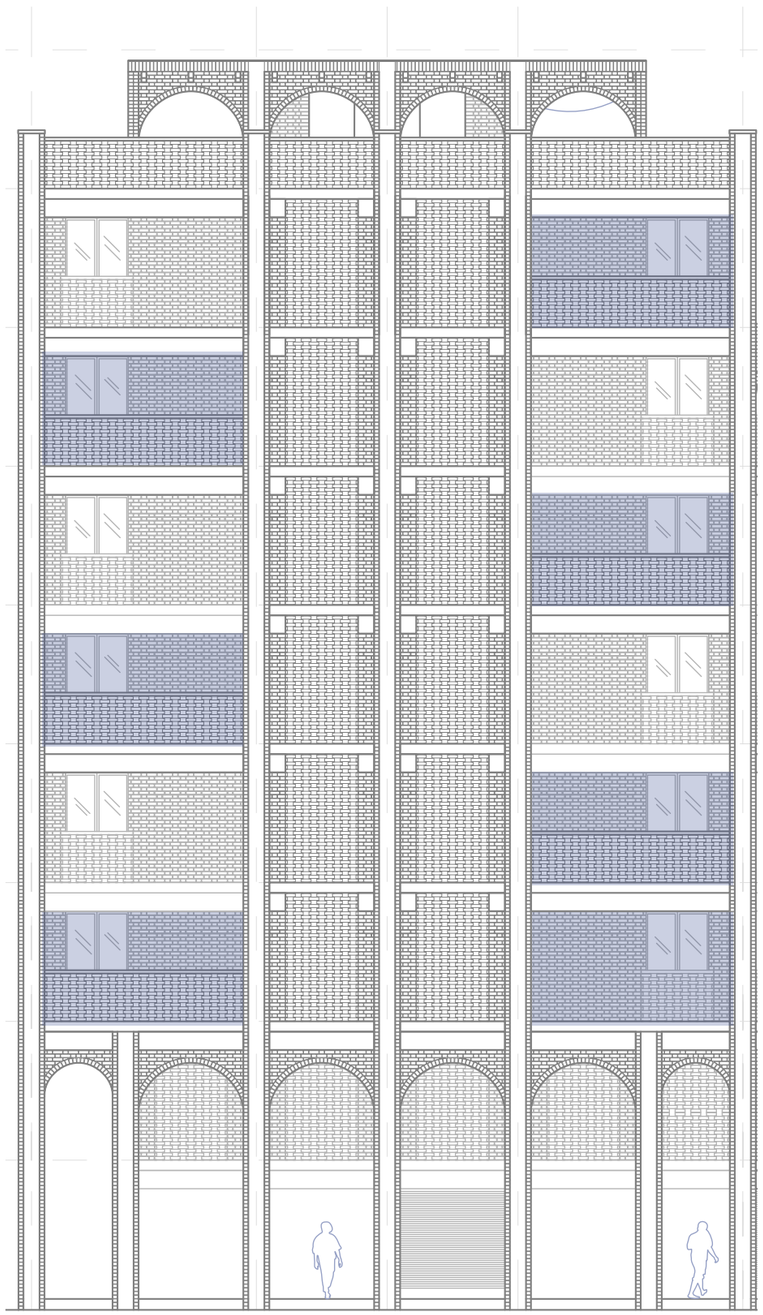
guest room / extra bedroom

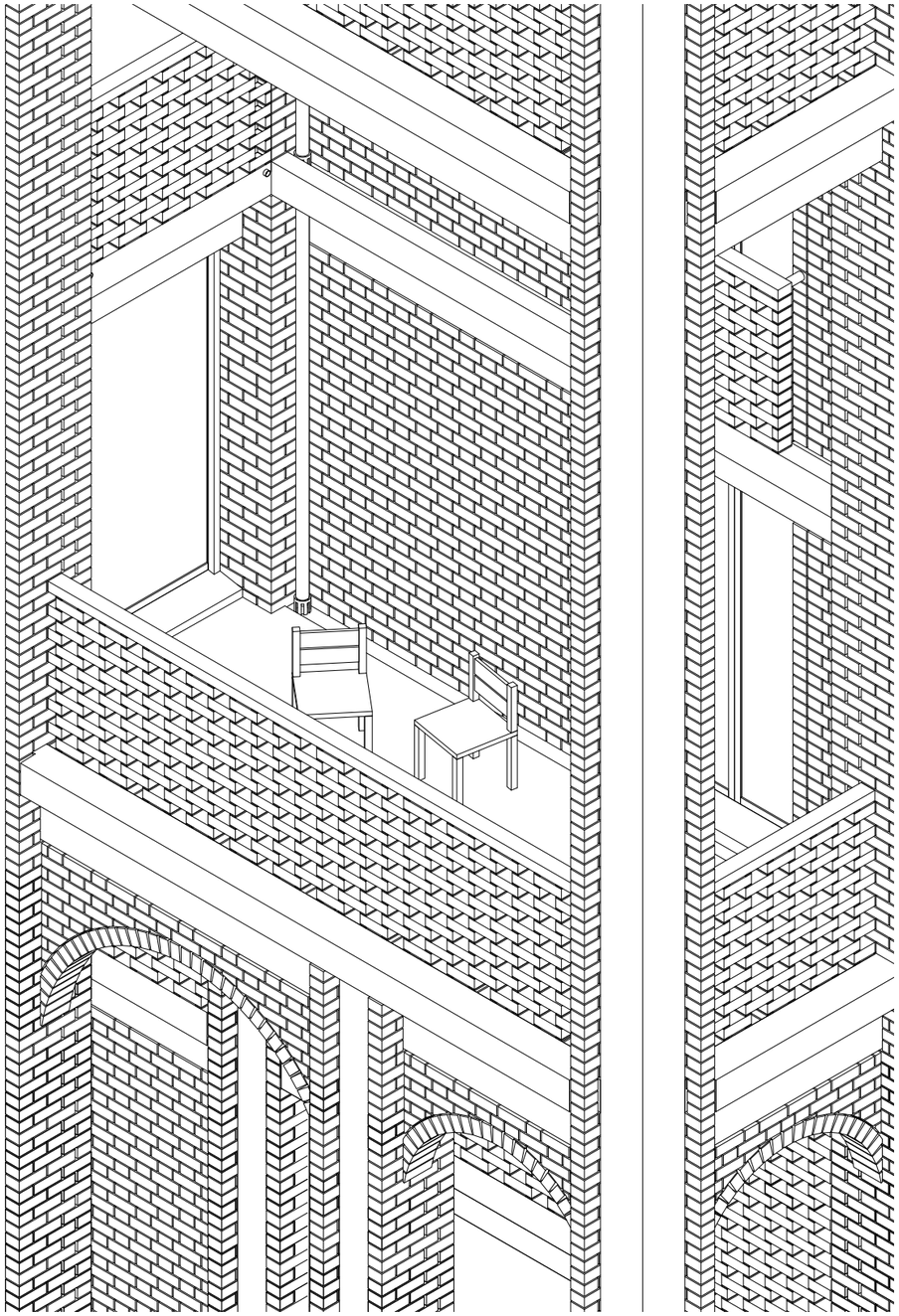
bedrooms = 3 / 4

bathrooms = 3

price = ~7.200.000 tk (€ 50.000)







Type A:

interior floor area = 98 m²

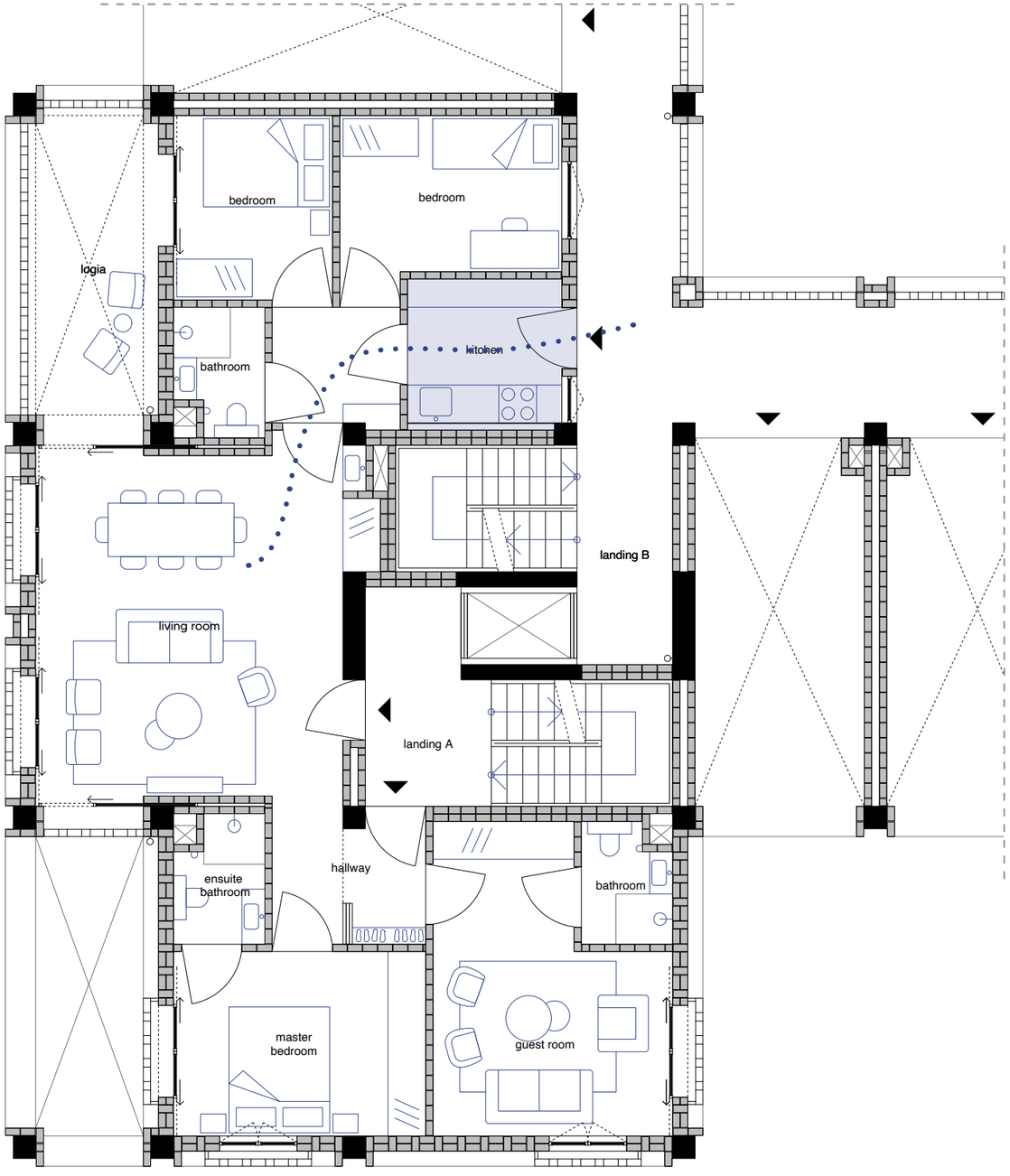
exterior floor area = 12 m²

guest room / extra bedroom

bedrooms = 3 / 4

bathrooms = 3

price = ~7.200.000 tk (€ 50.000)



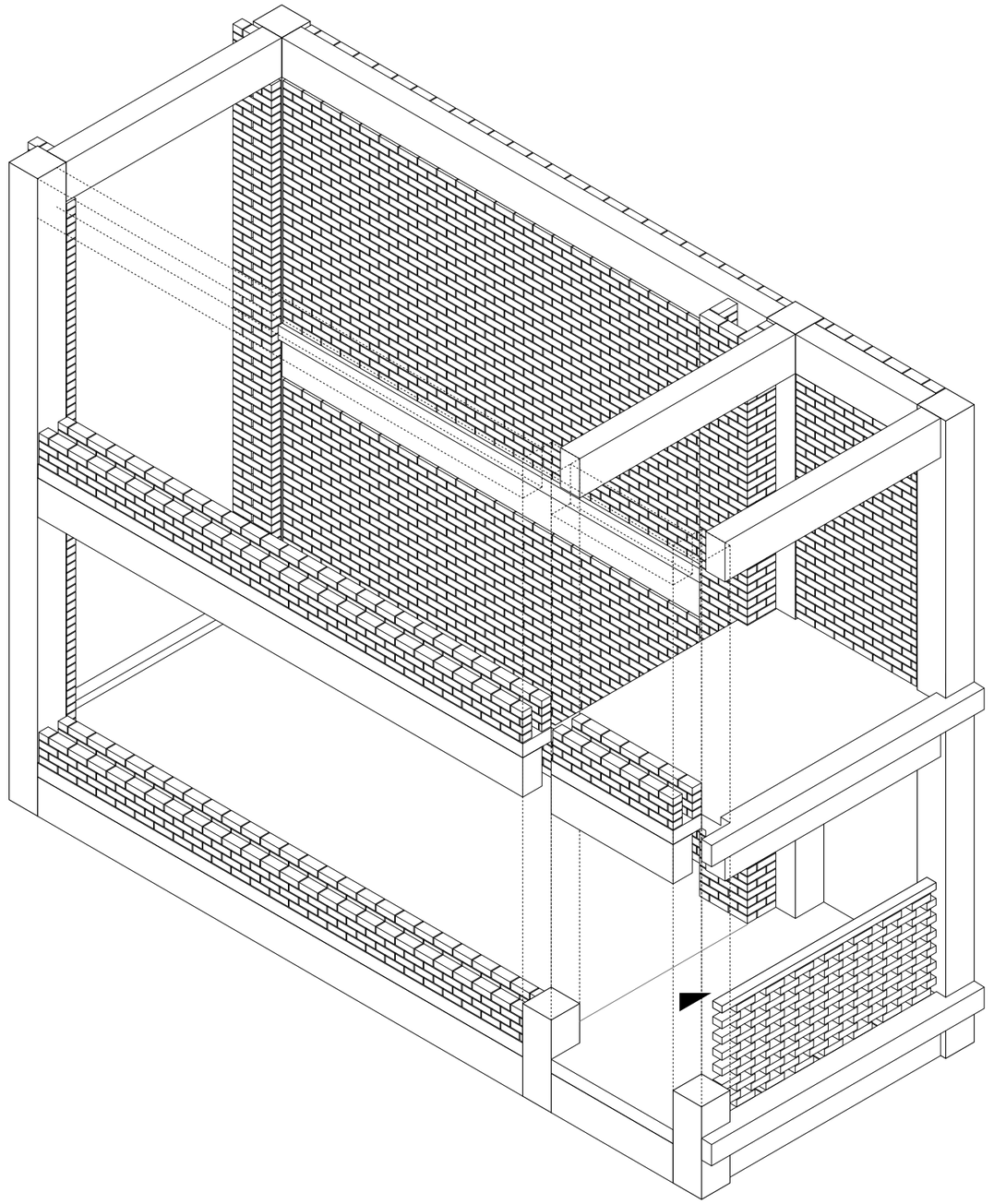
Type B:

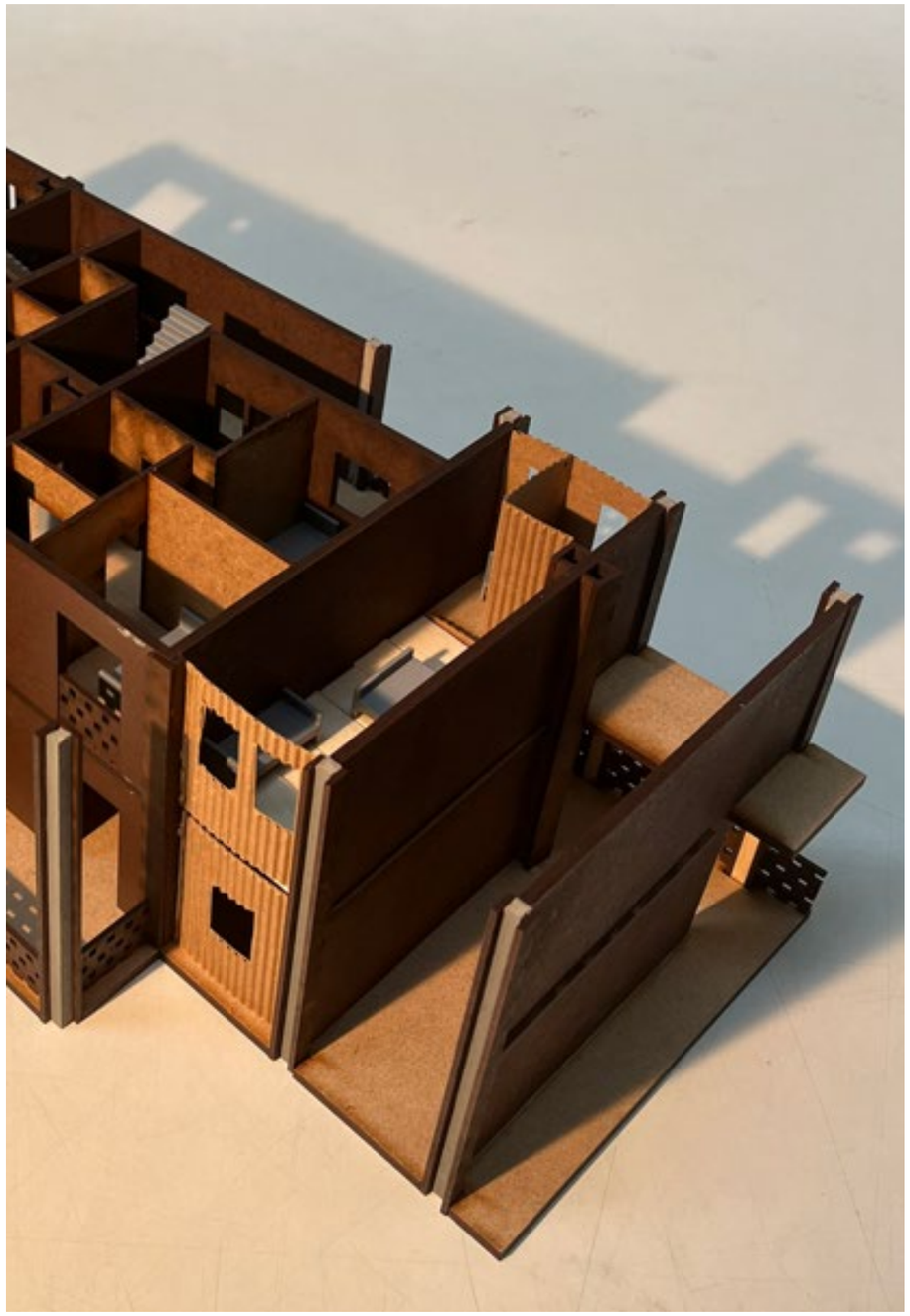
floor area = 17.5 - 41> m^2

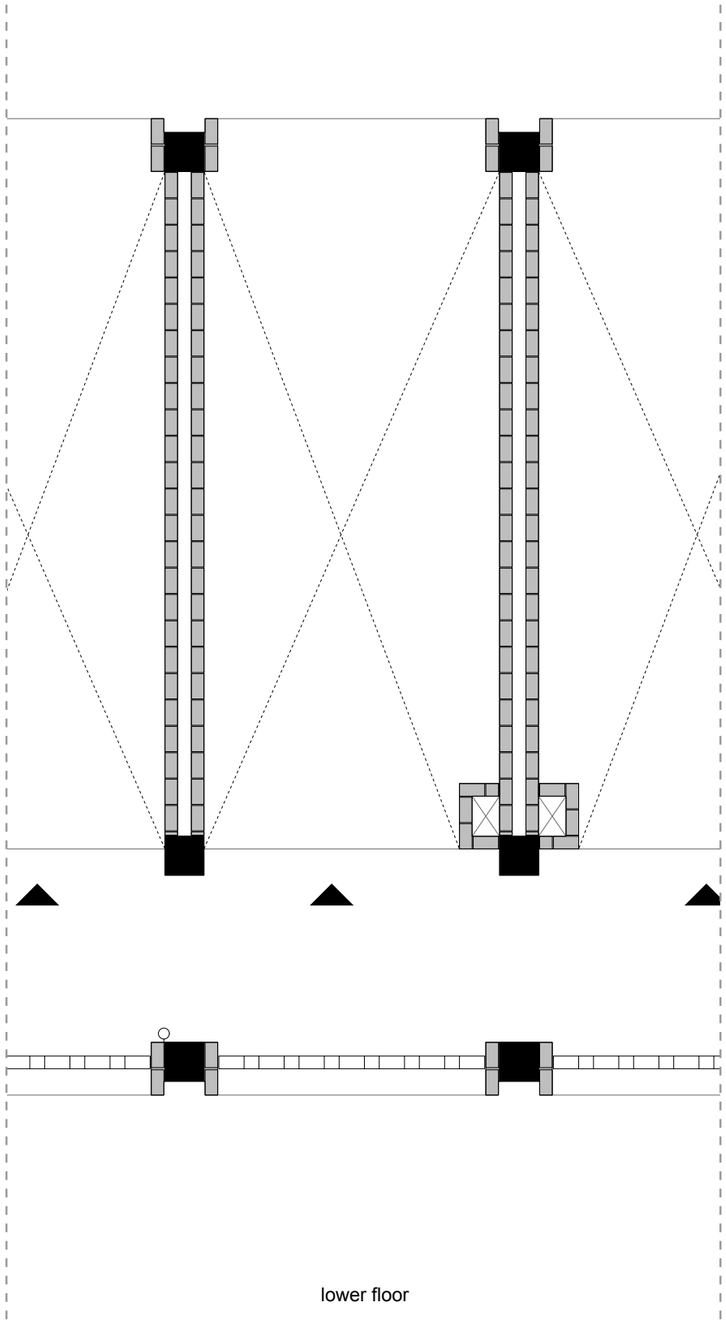
bedrooms = 0 >

bathrooms = 0 >

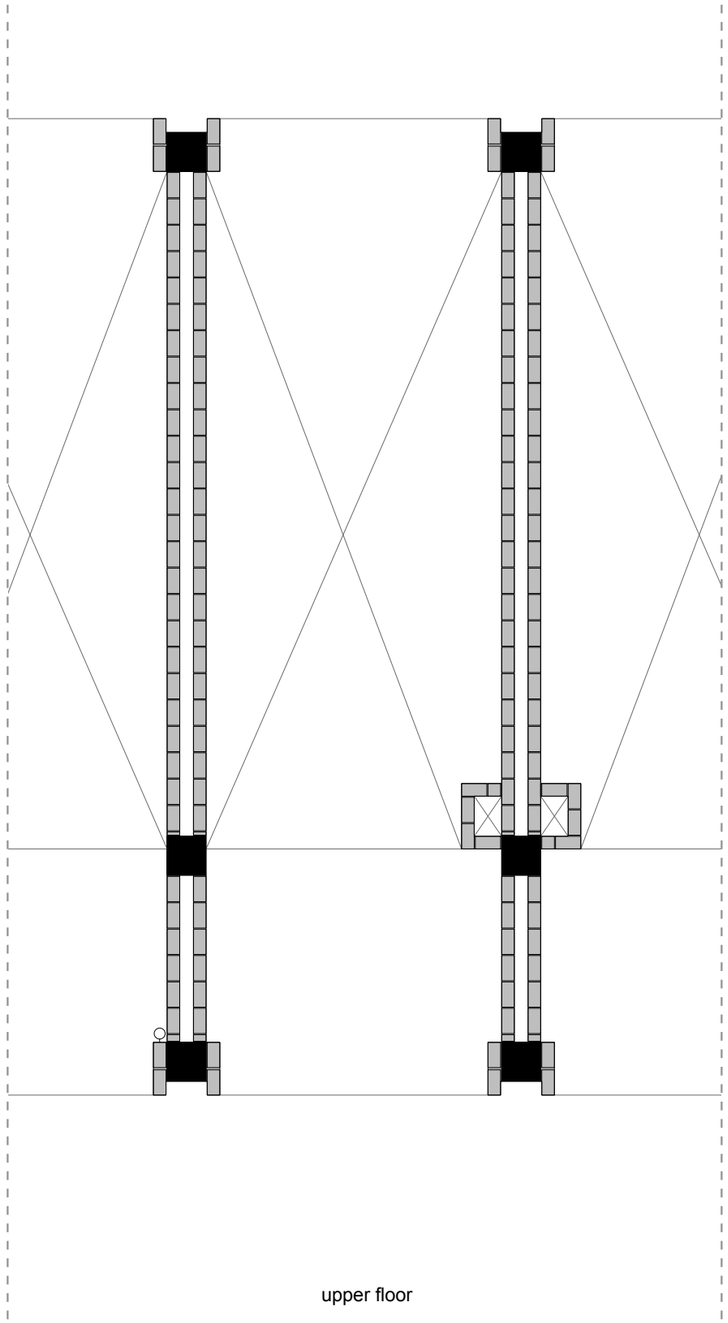
price = ~50.000 tk (€ 3.450)



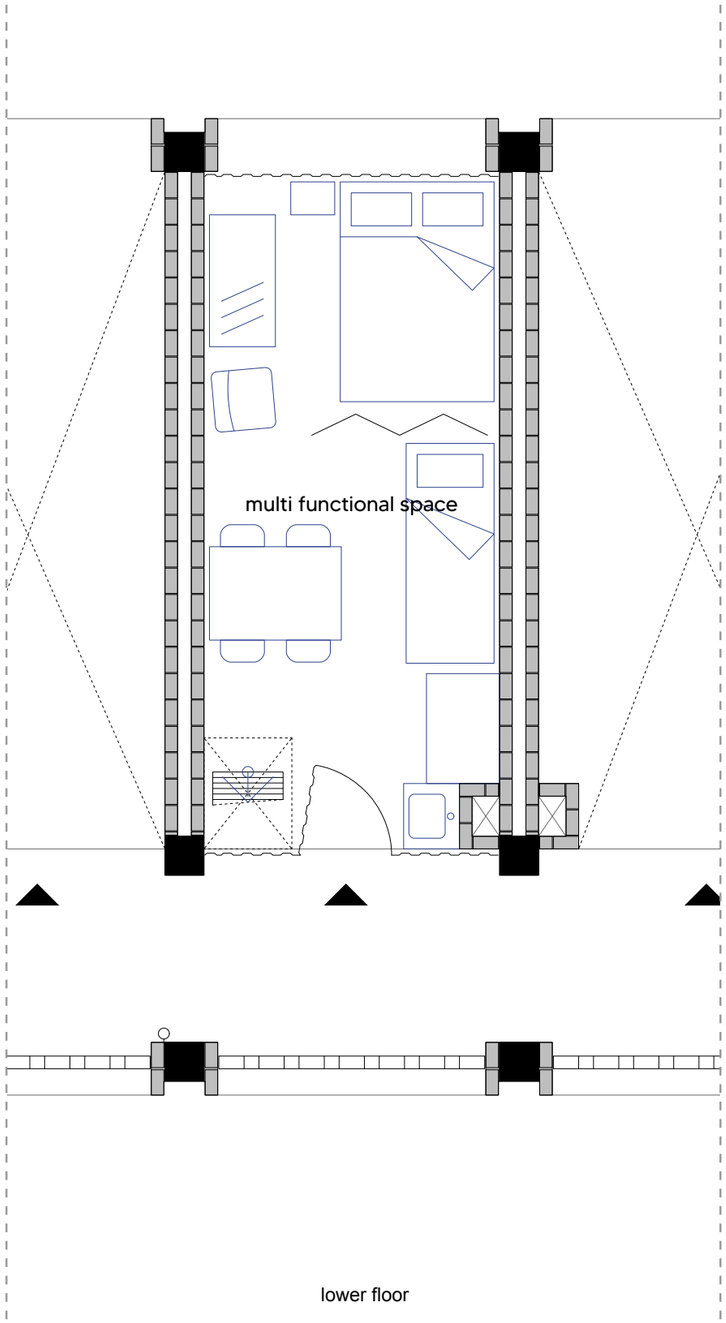




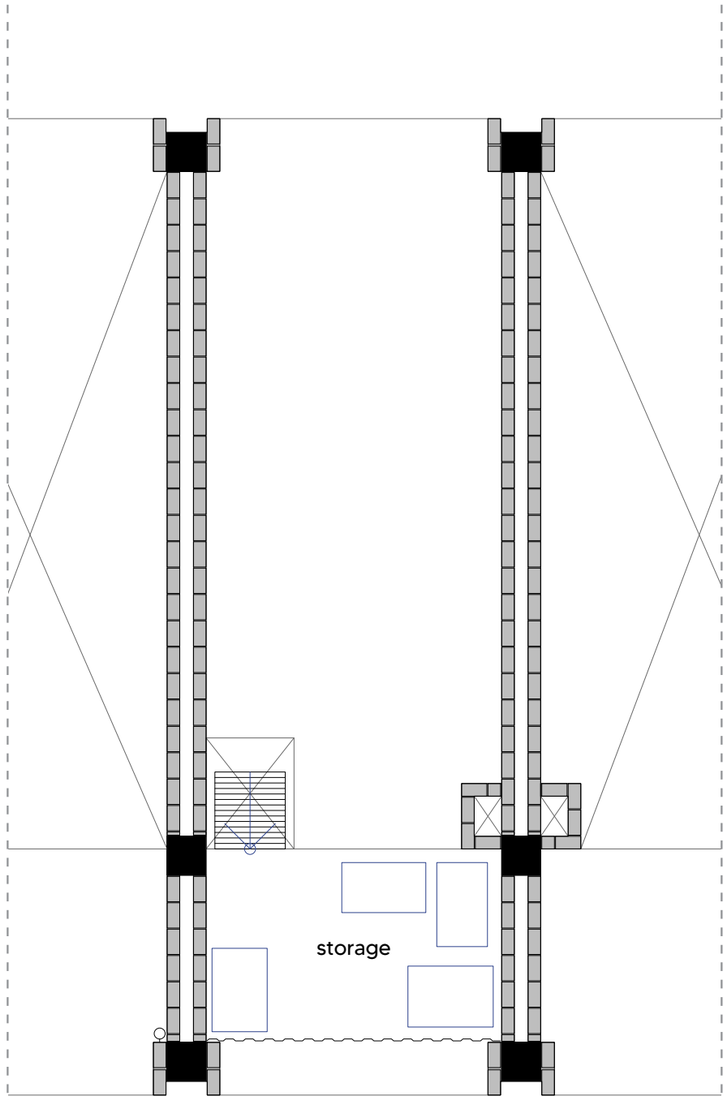
lower floor



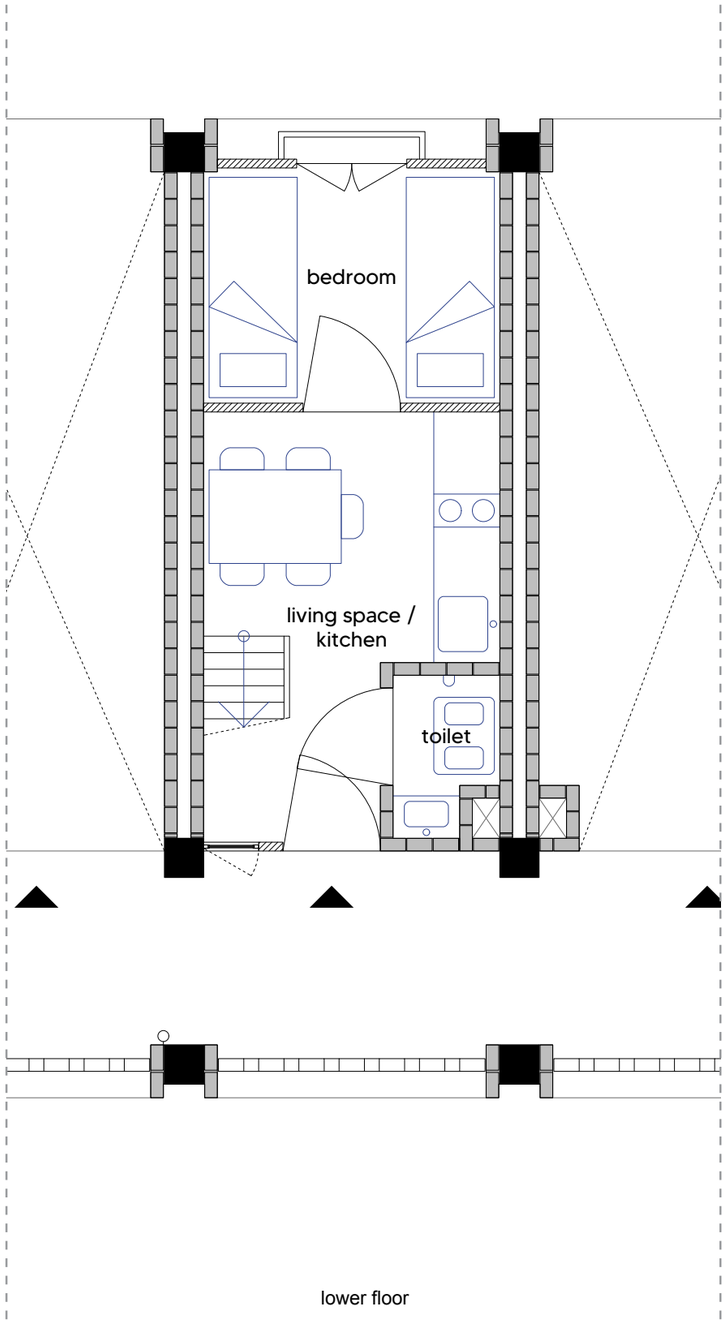
upper floor



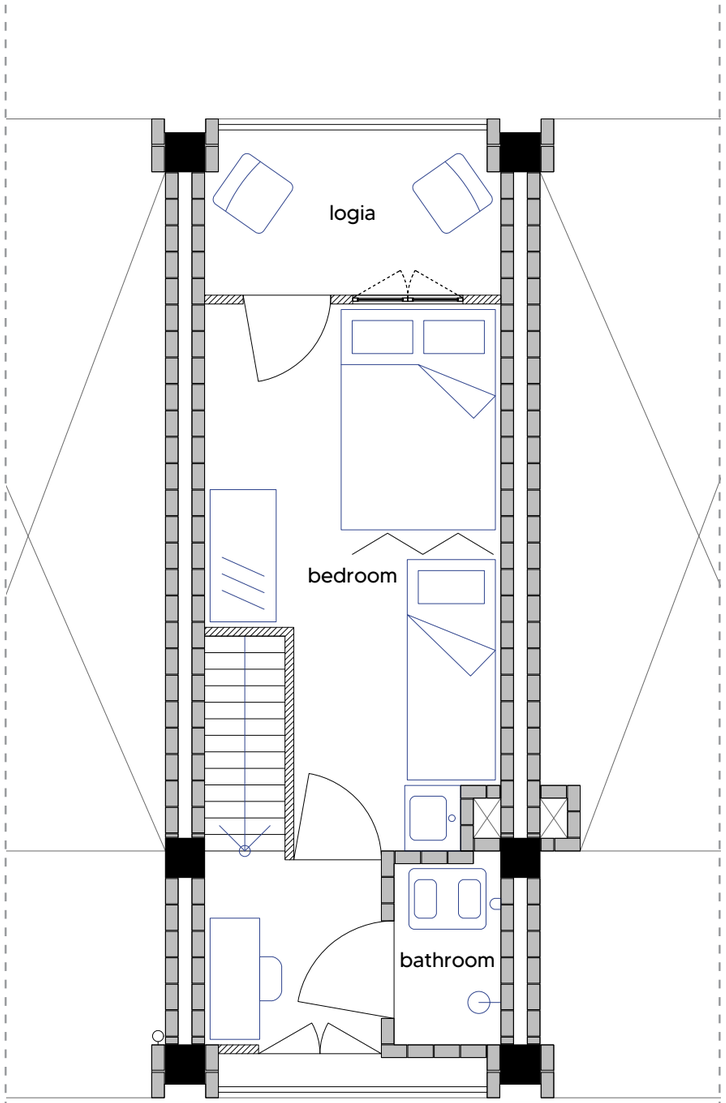
lower floor



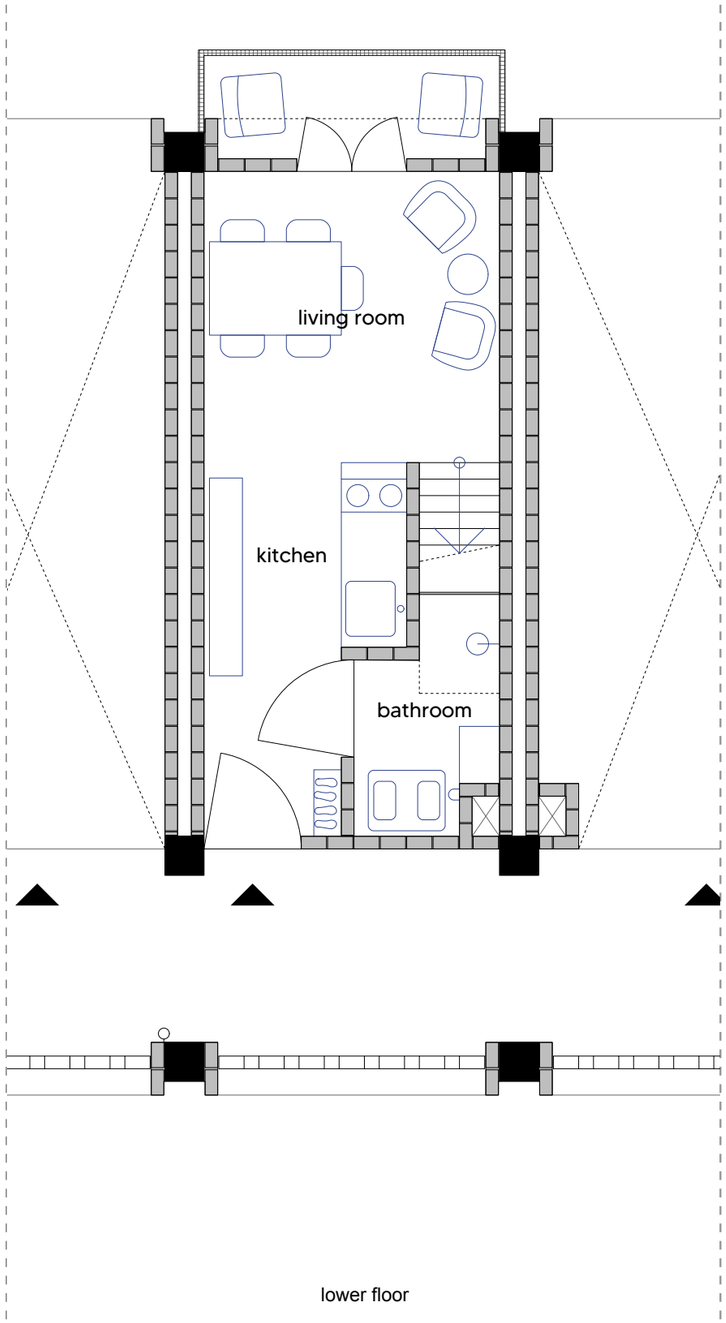
upper floor



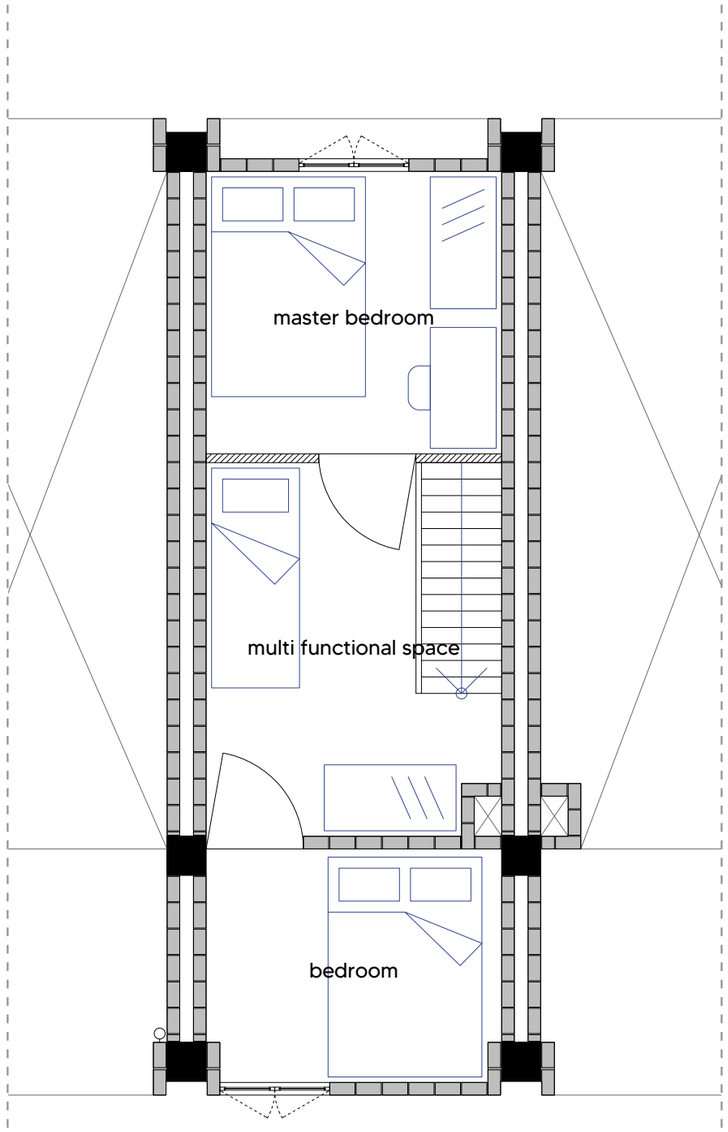
lower floor



upper floor



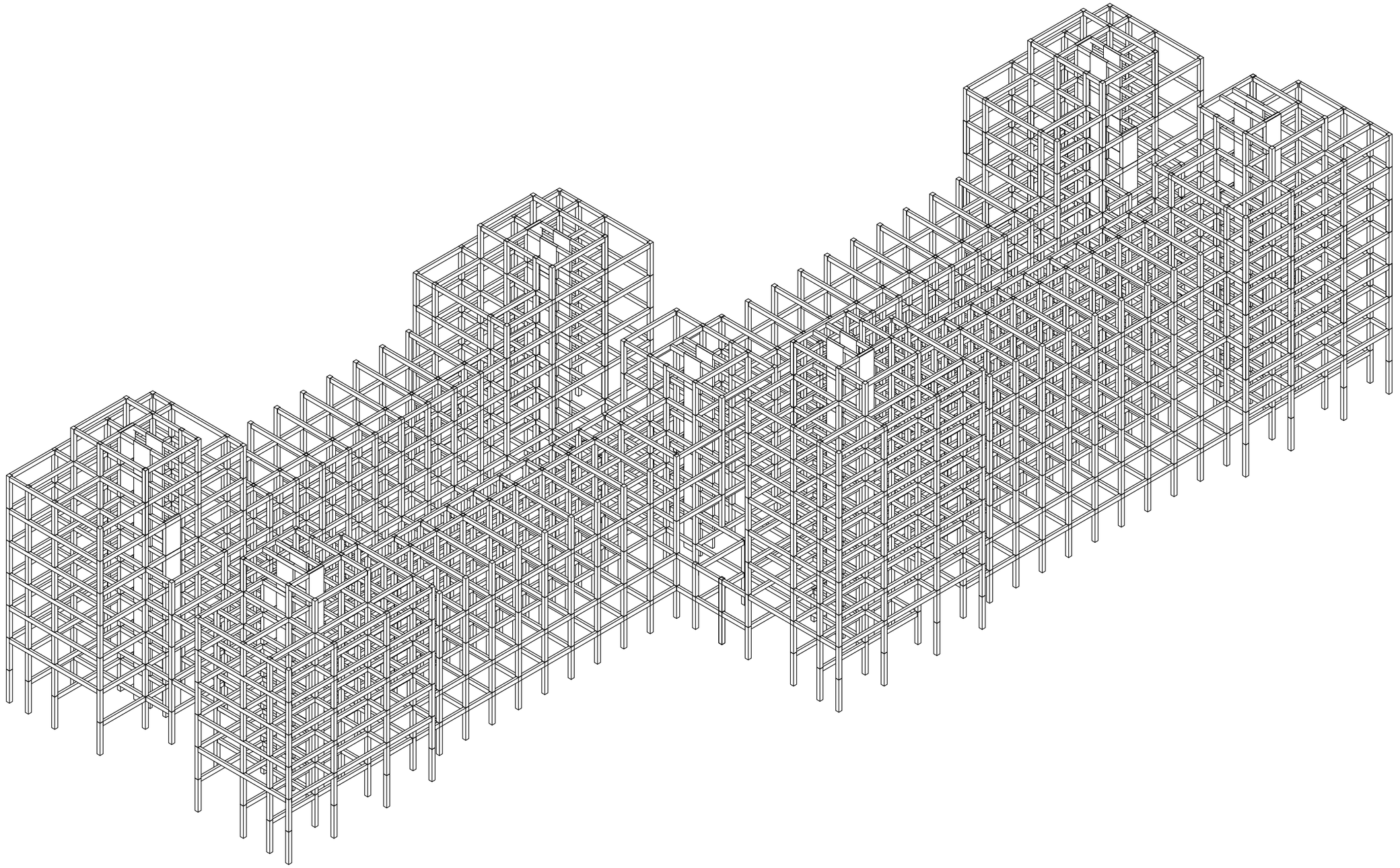
lower floor

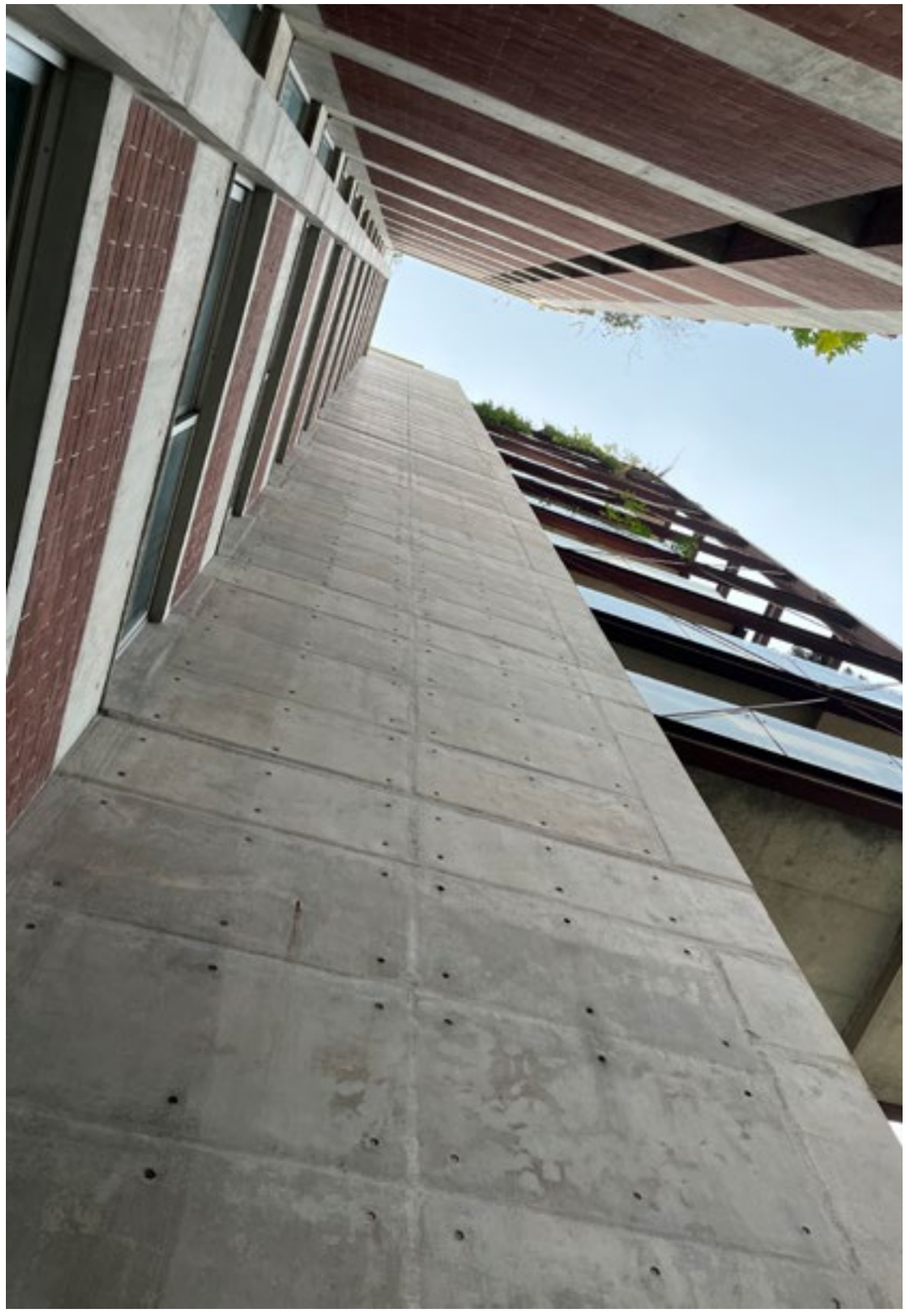


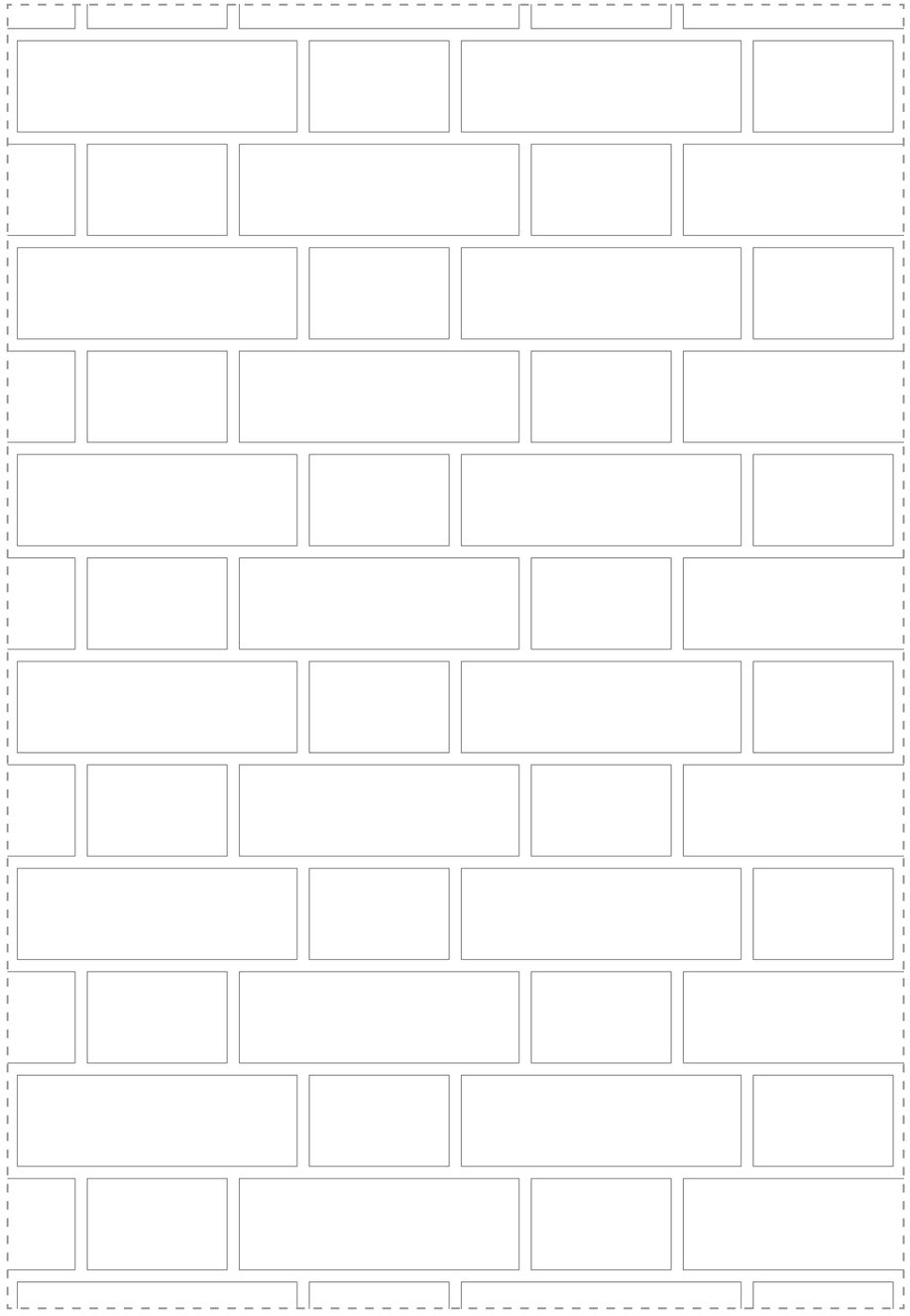
upper floor

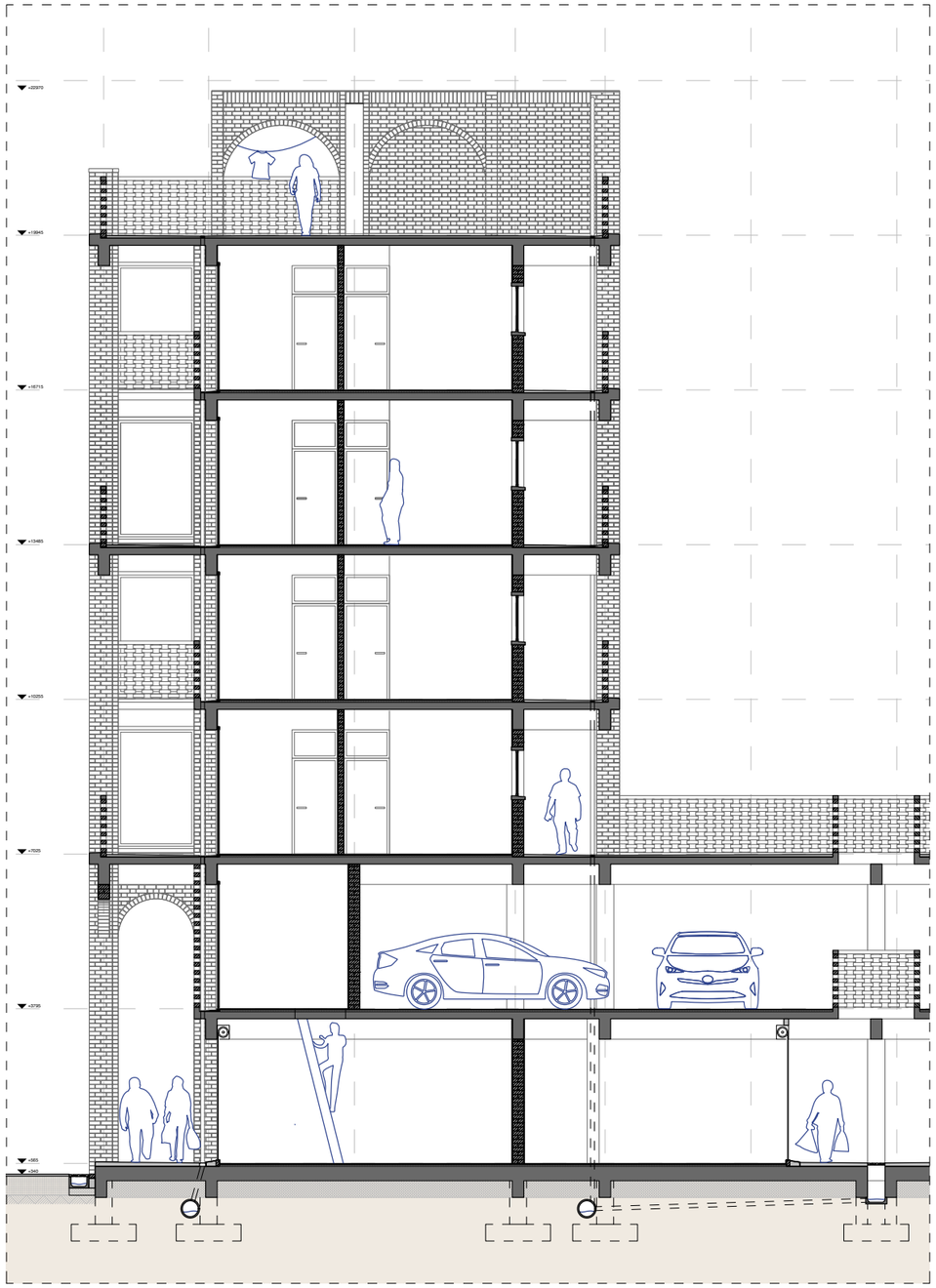
TECHNICAL DESIGN

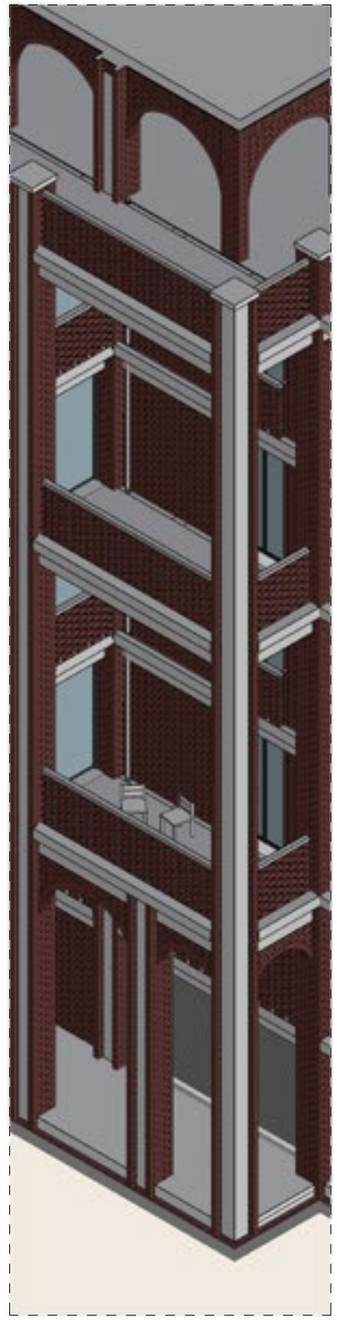
Costruction site in Dhaka, picture by Julian Wijnen

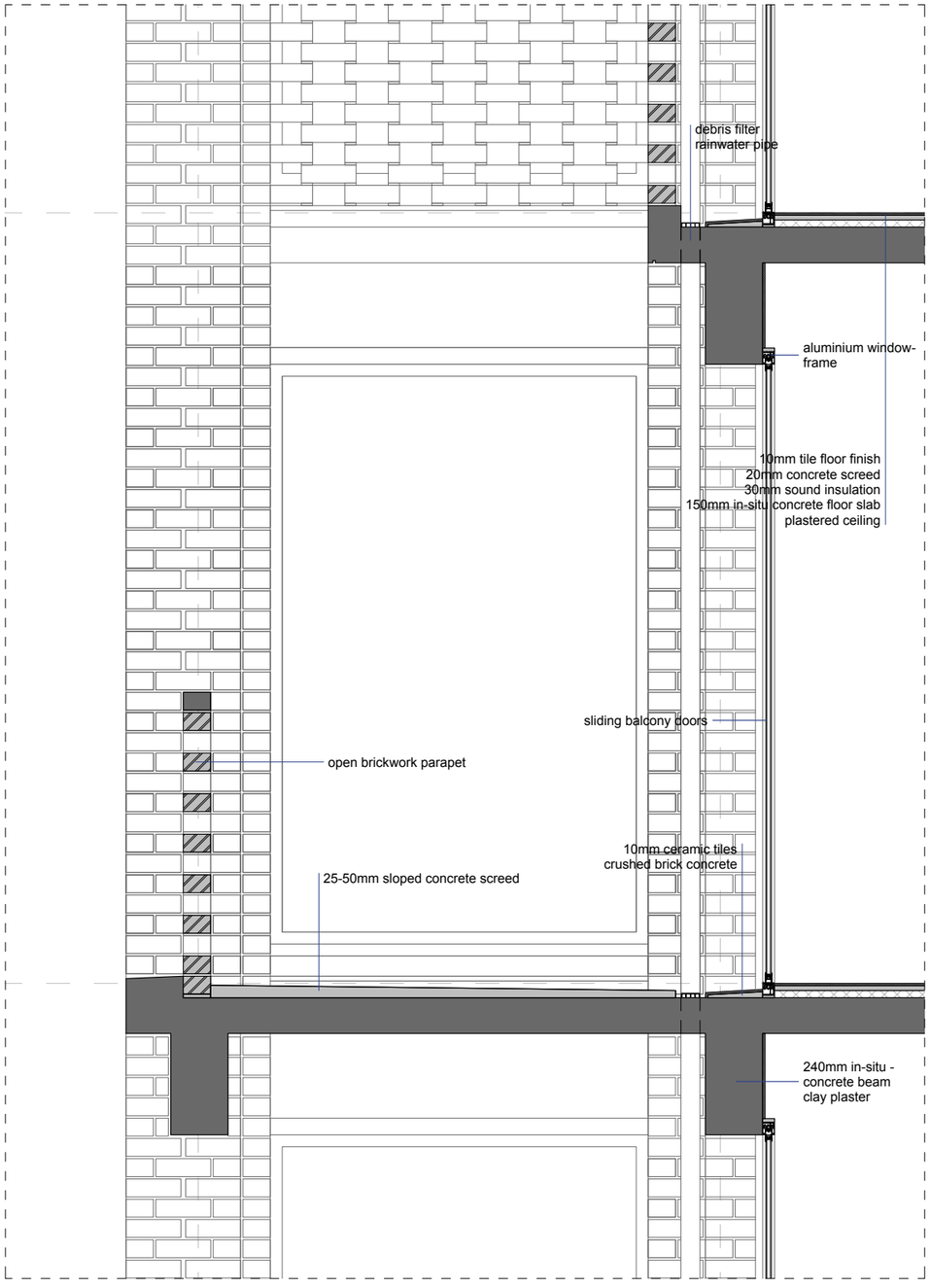


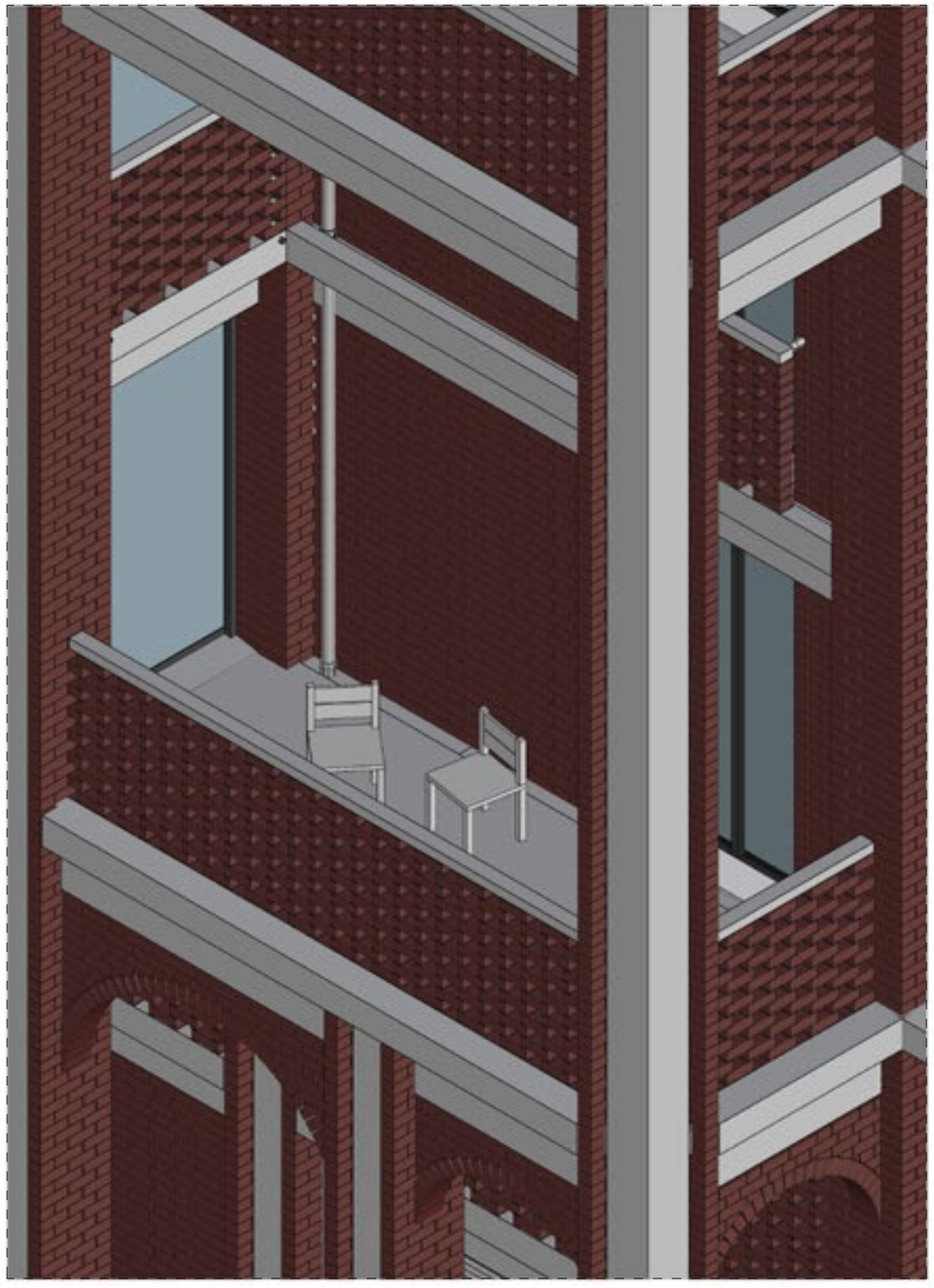


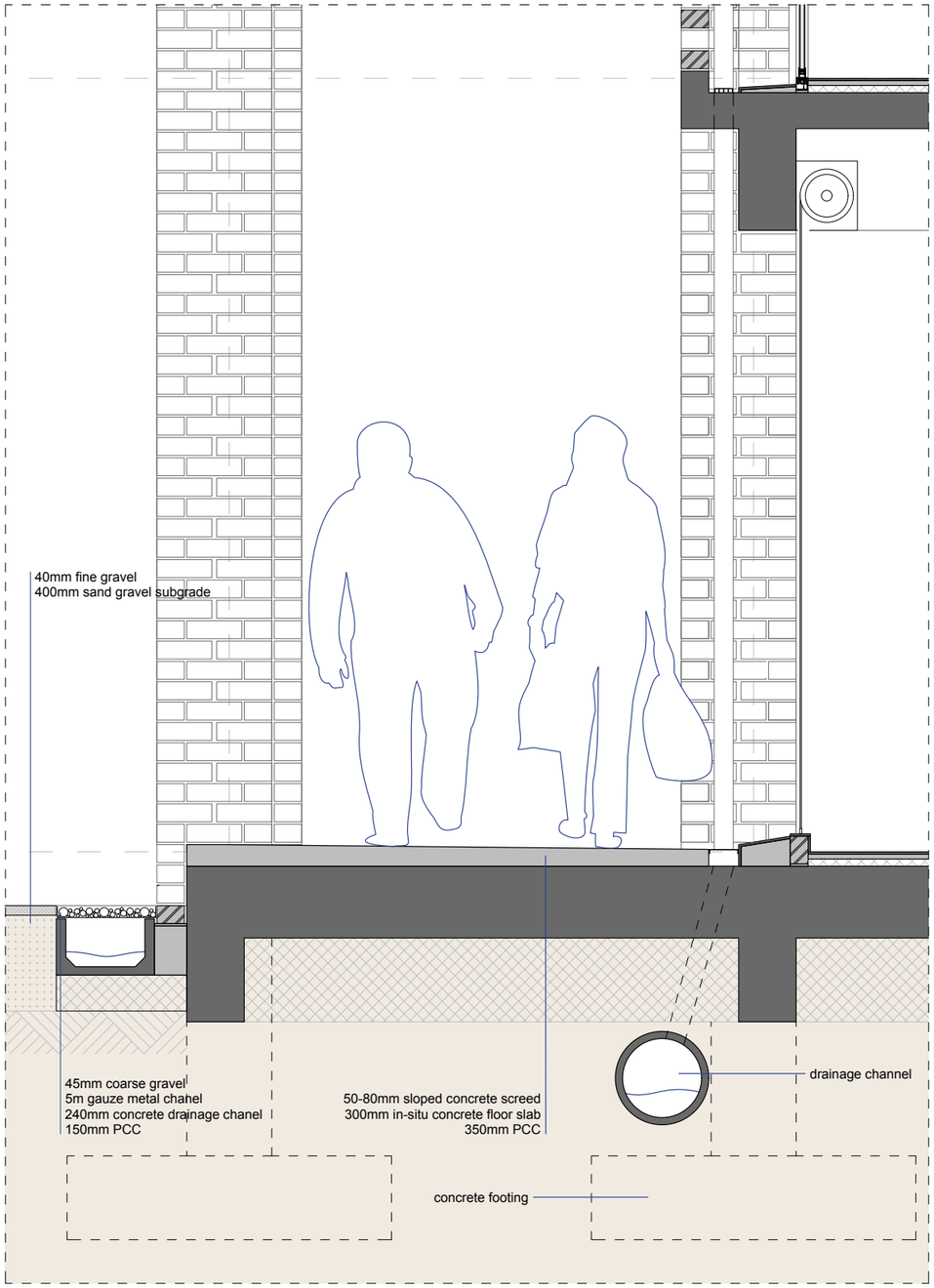


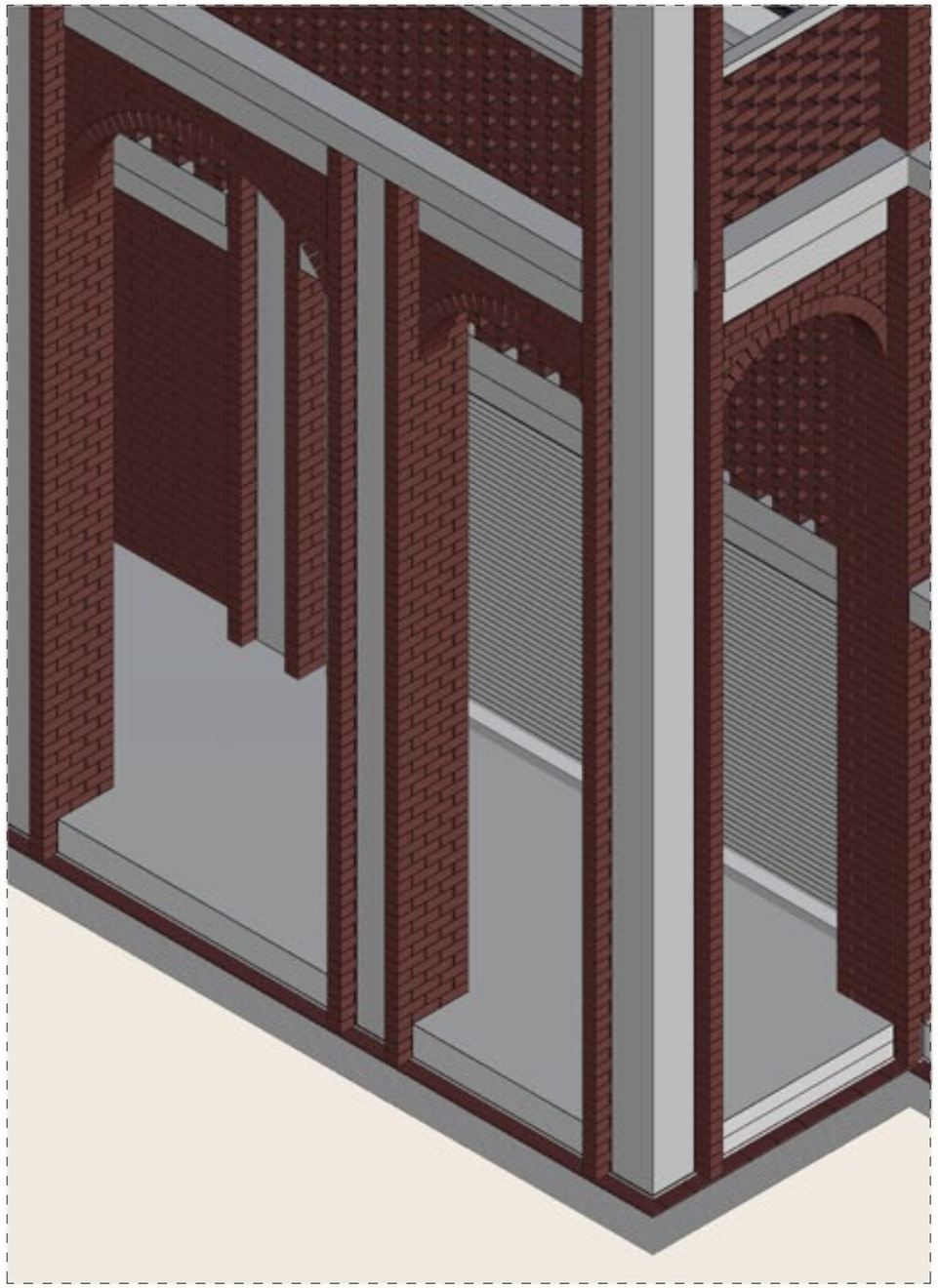

+10370
+10045
+10715
+10485
+10255
+9725
+365
+260

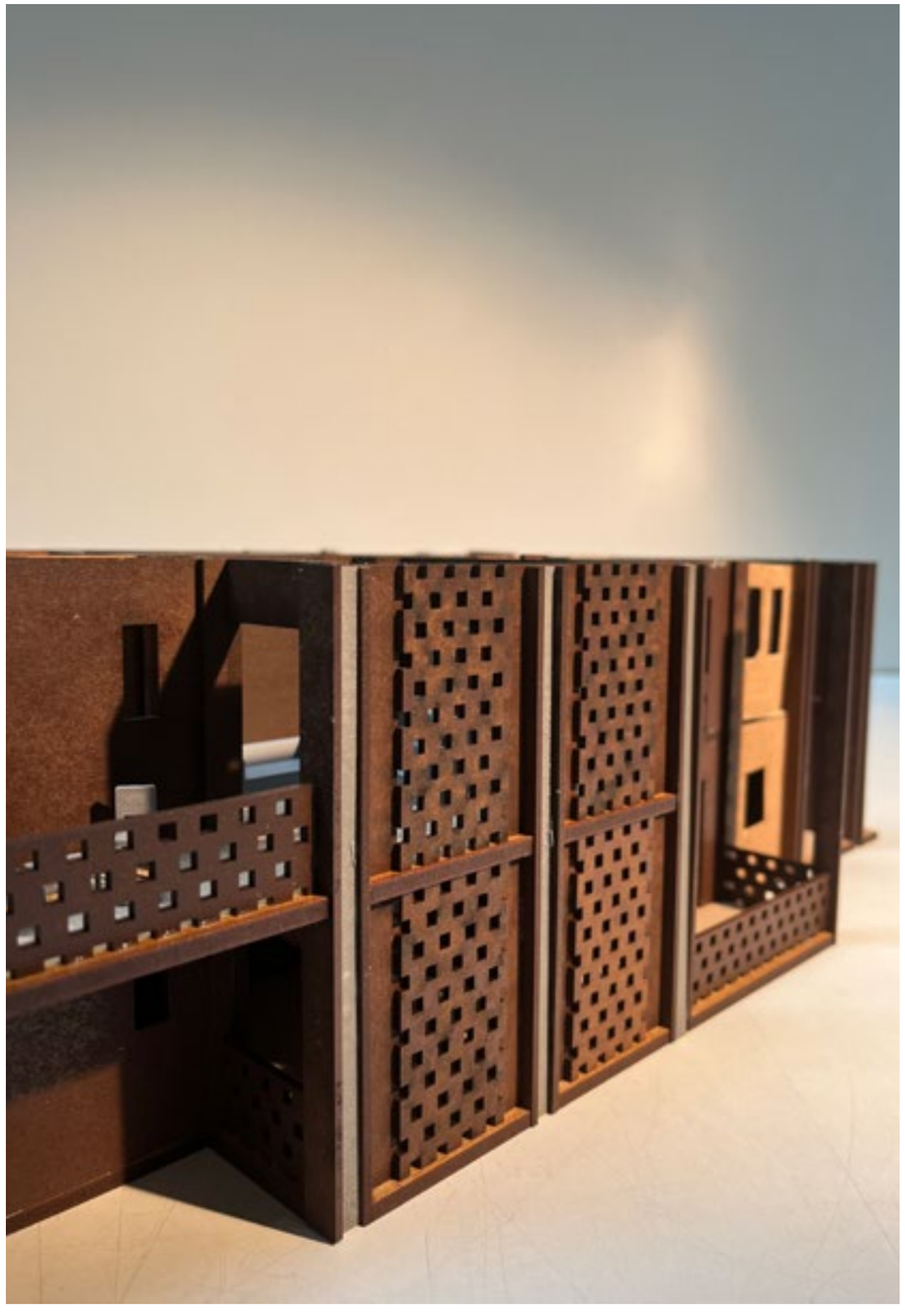


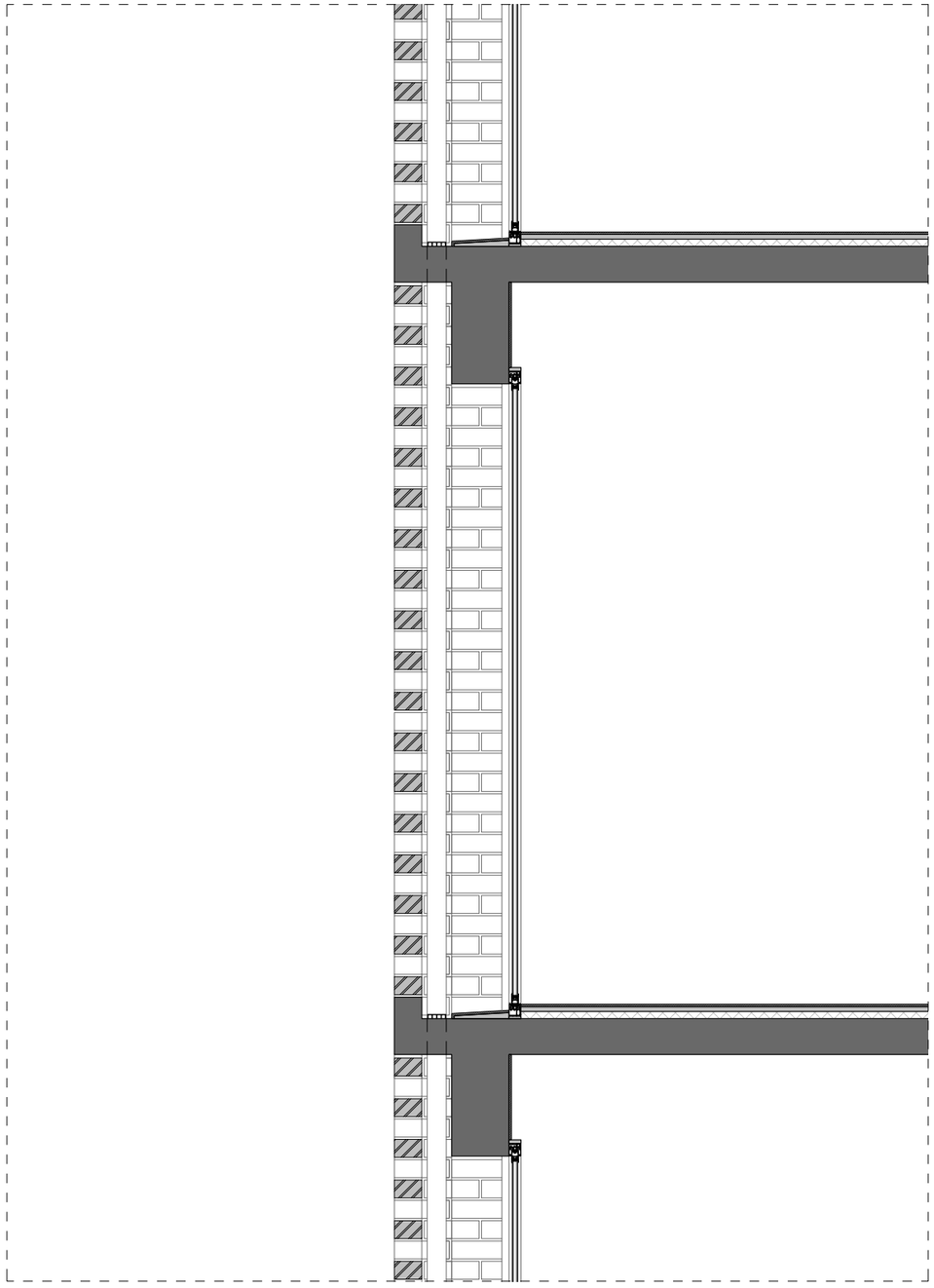

debris filter
rainwater pipe
aluminium window-frame
10mm tile floor finish
20mm concrete screed
30mm sound insulation
150mm in-situ concrete floor slab
plastered ceiling
sliding balcony doors
open brickwork parapet
10mm ceramic tiles
crushed brick concrete
25-50mm sloped concrete screed
240mm in-situ -
concrete beam
clay plaster

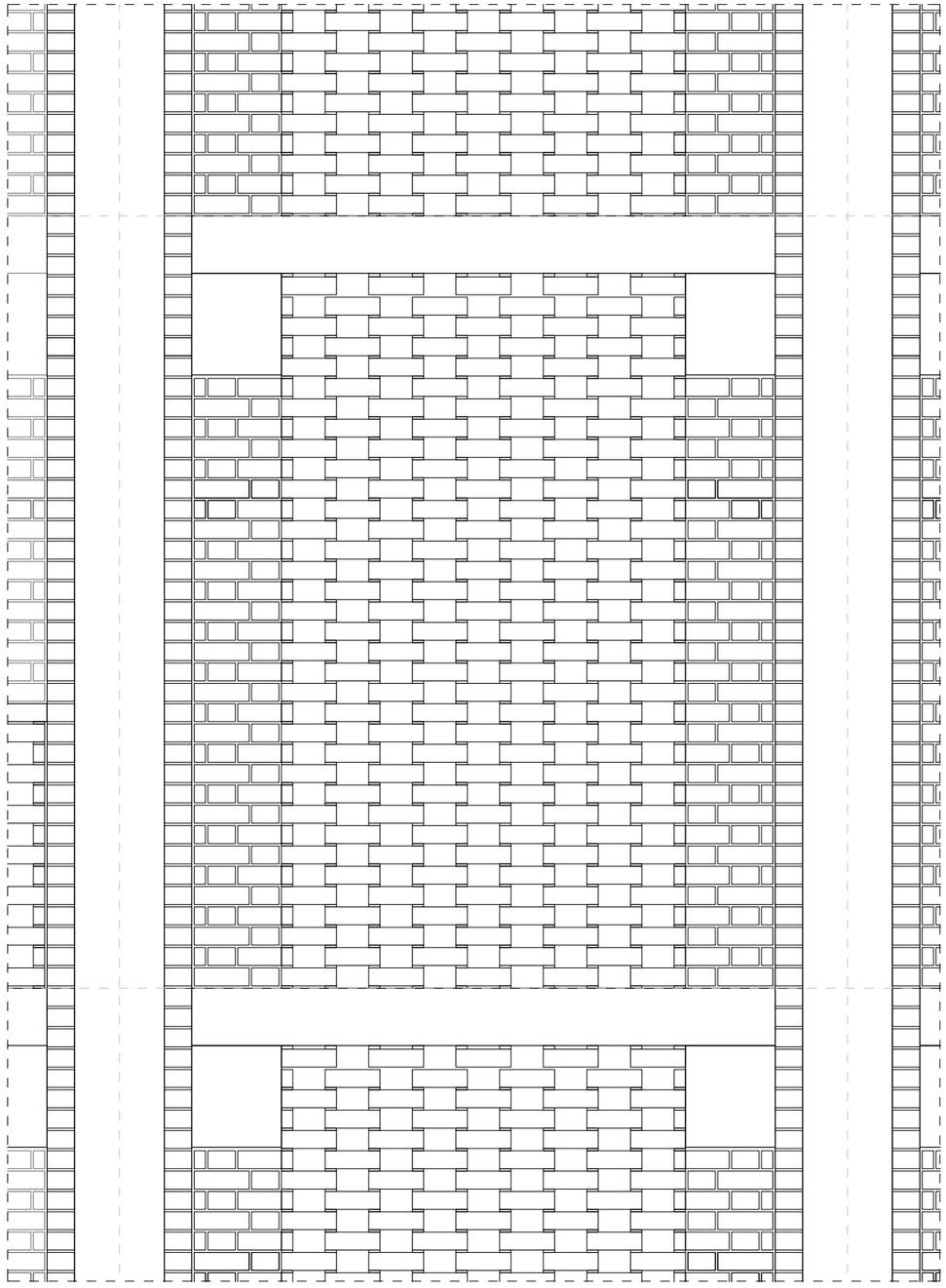


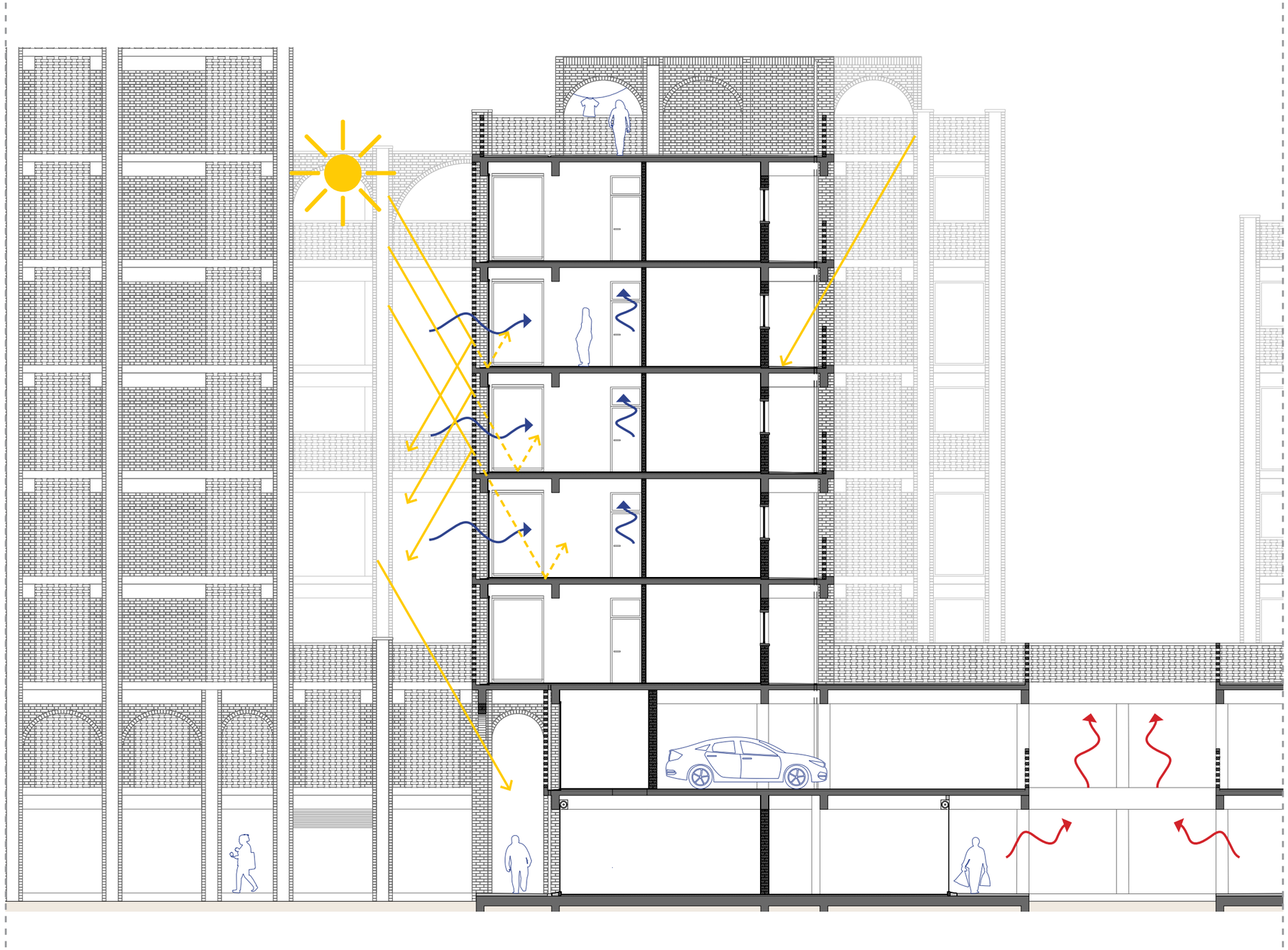

40mm fine gravel
400mm sand gravel subgrade
45mm coarse gravel
5m gauze metal chanel
240mm concrete drainage chanel
150mm PCC
50-80mm sloped concrete screed
300mm in-situ concrete floor slab
350mm PCC
drainage channel
concrete footing

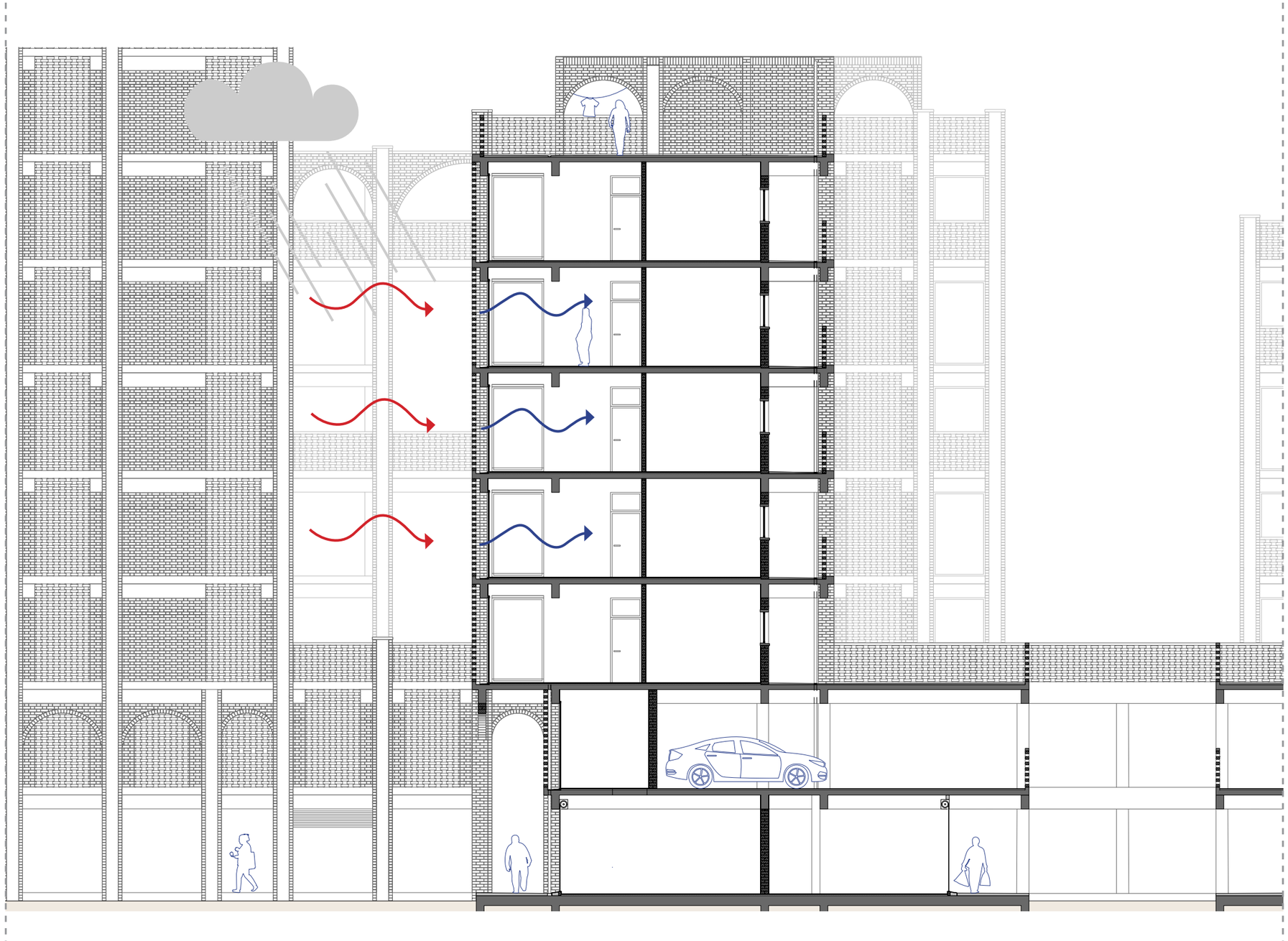


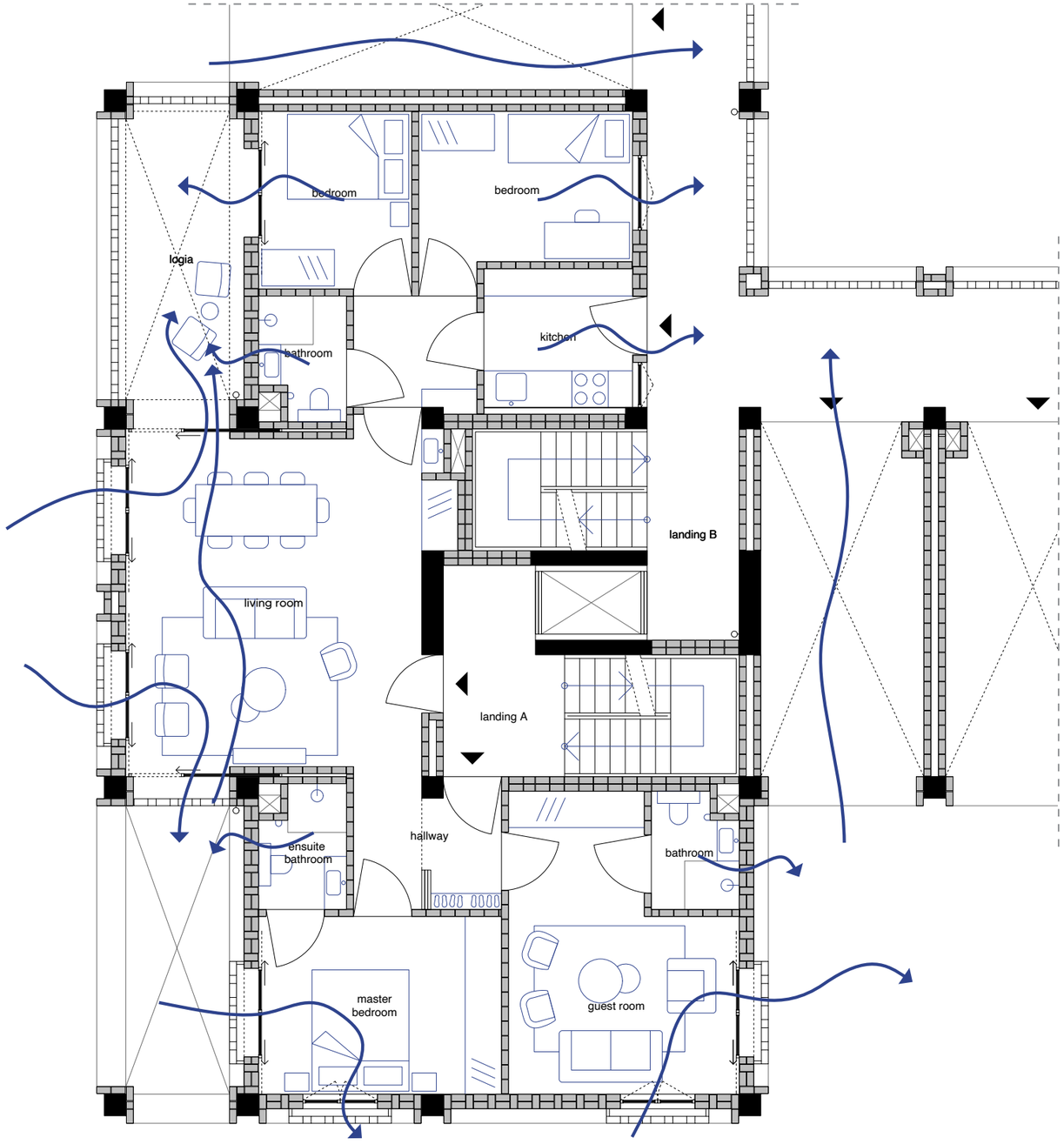


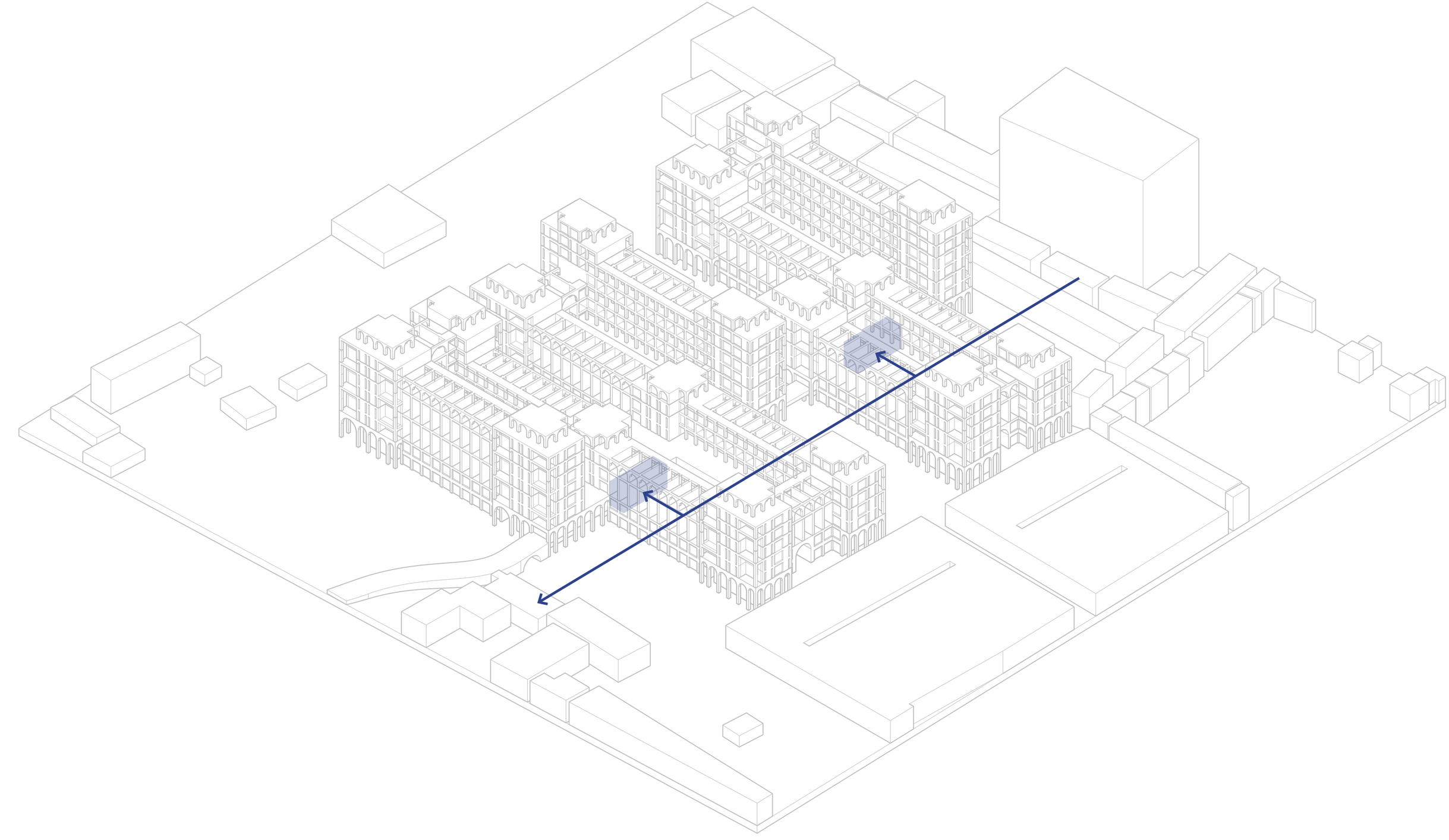


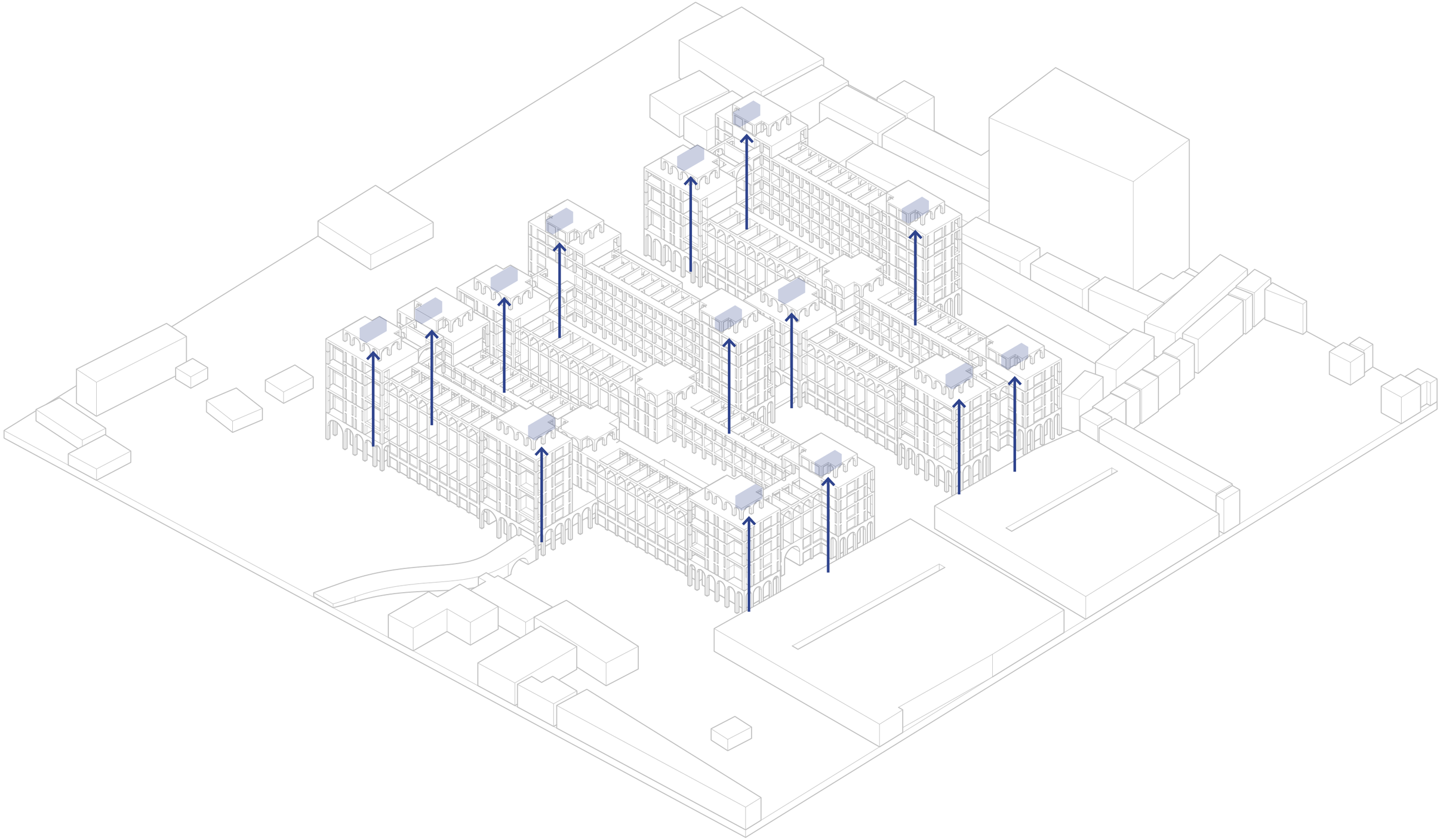


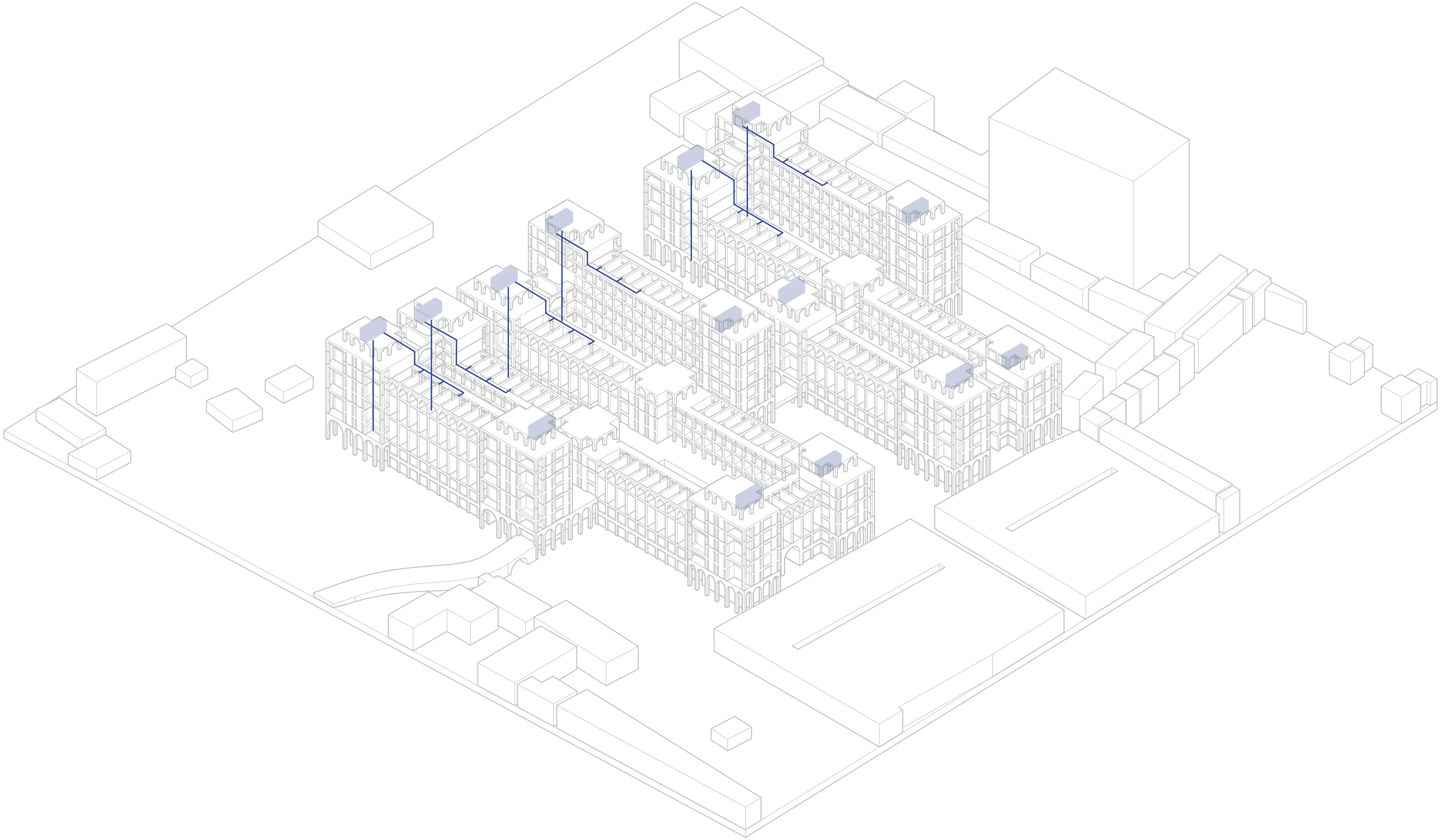


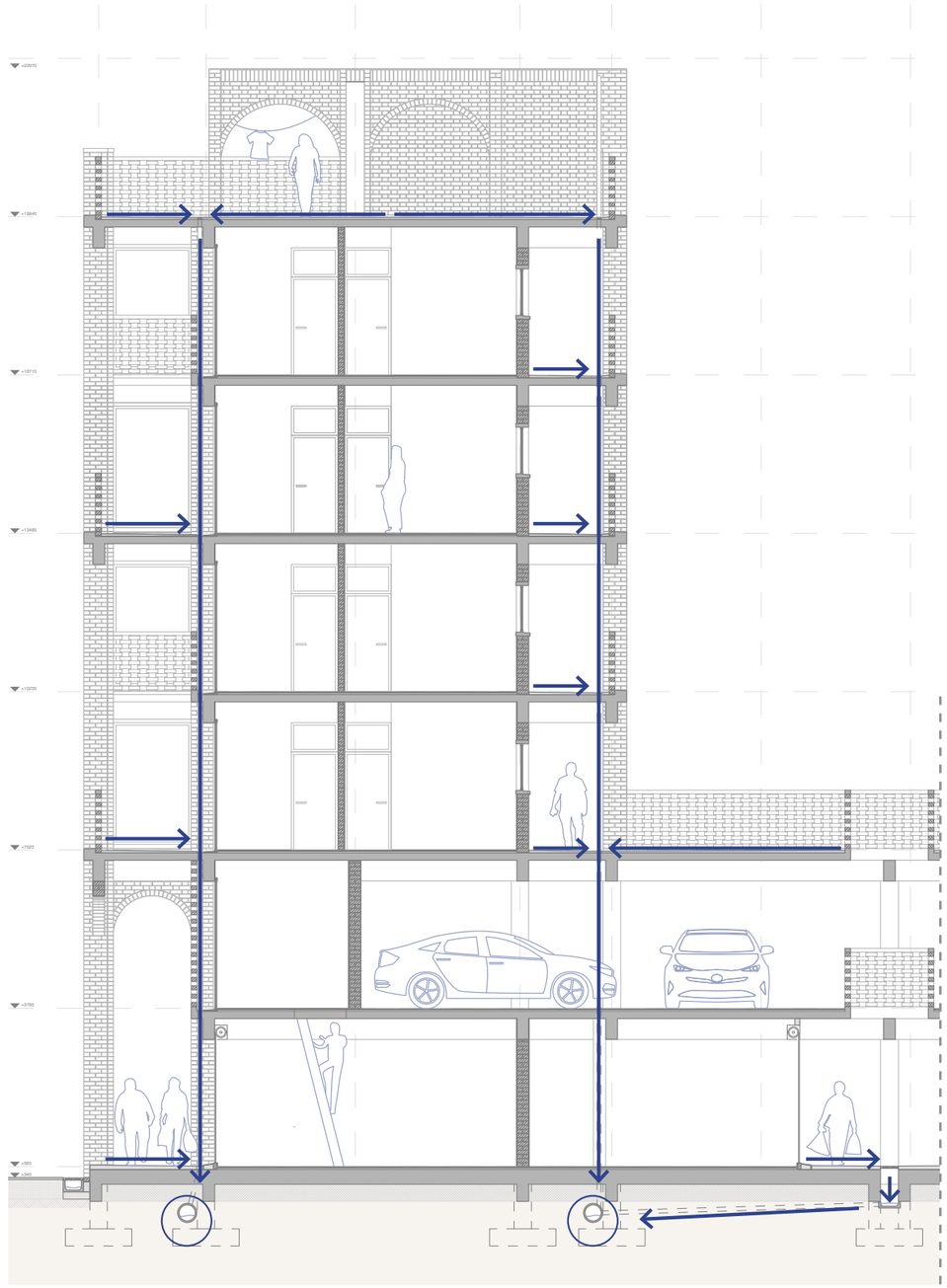



bedroom
bedroom
loggia
kitchen
bathroom
landing B
living room
landing A
hallway
ensuite
bathroom
bathroom
master
bedroom
guest room





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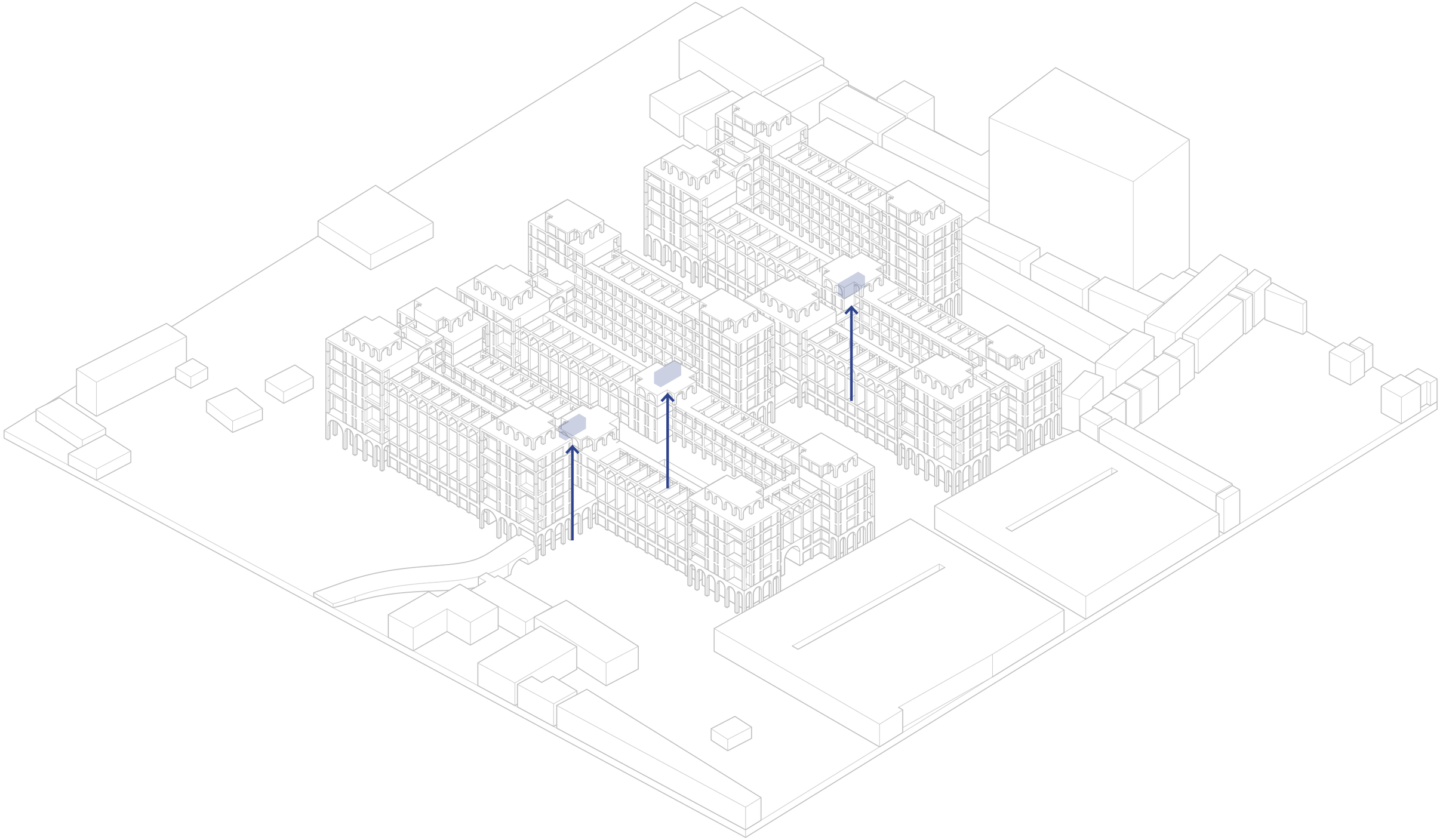
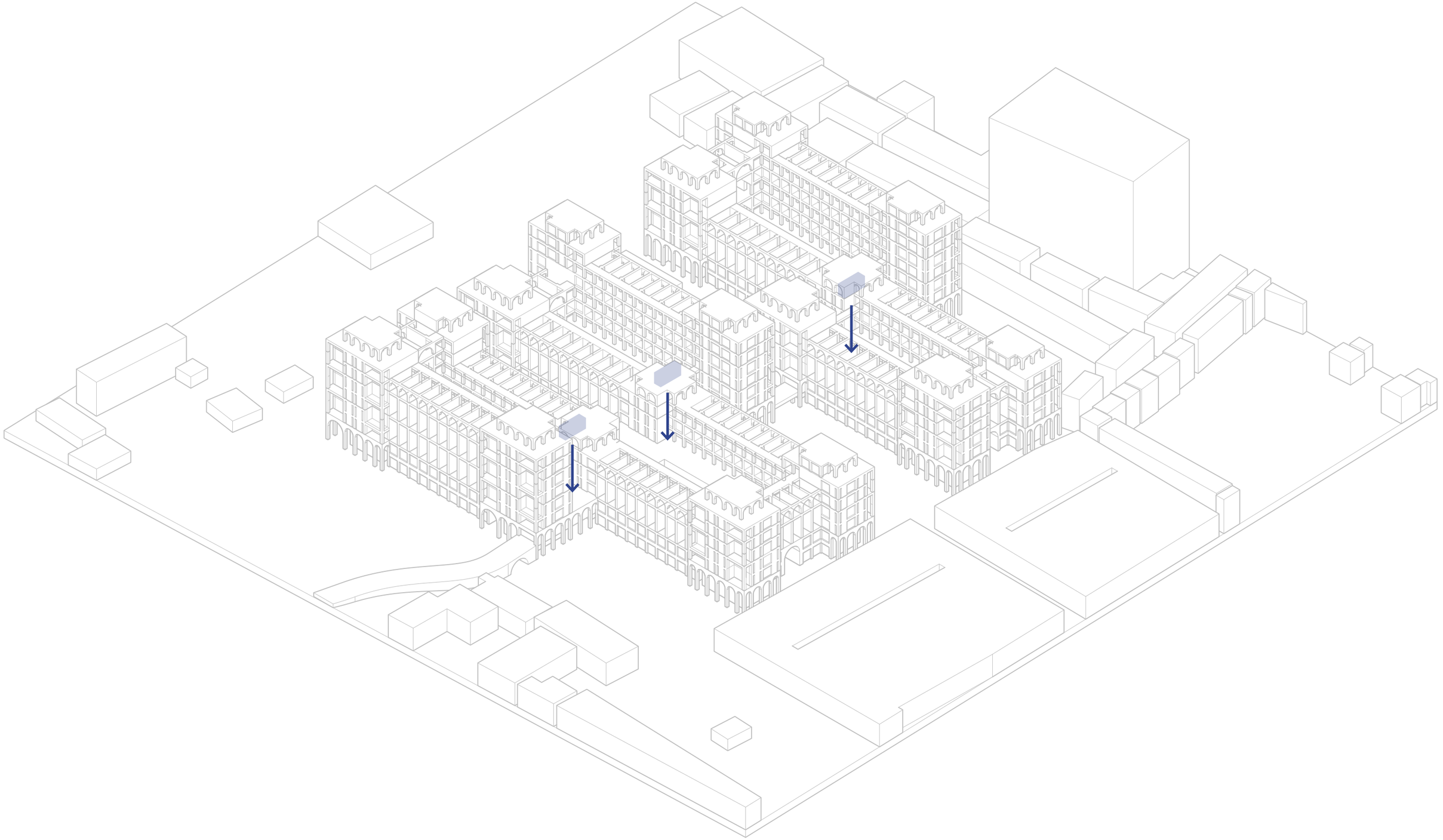




PROJECT SYNTHESIS

plot = 1.52 ha

total floor area = 43310 m^2

FSI = 2.78

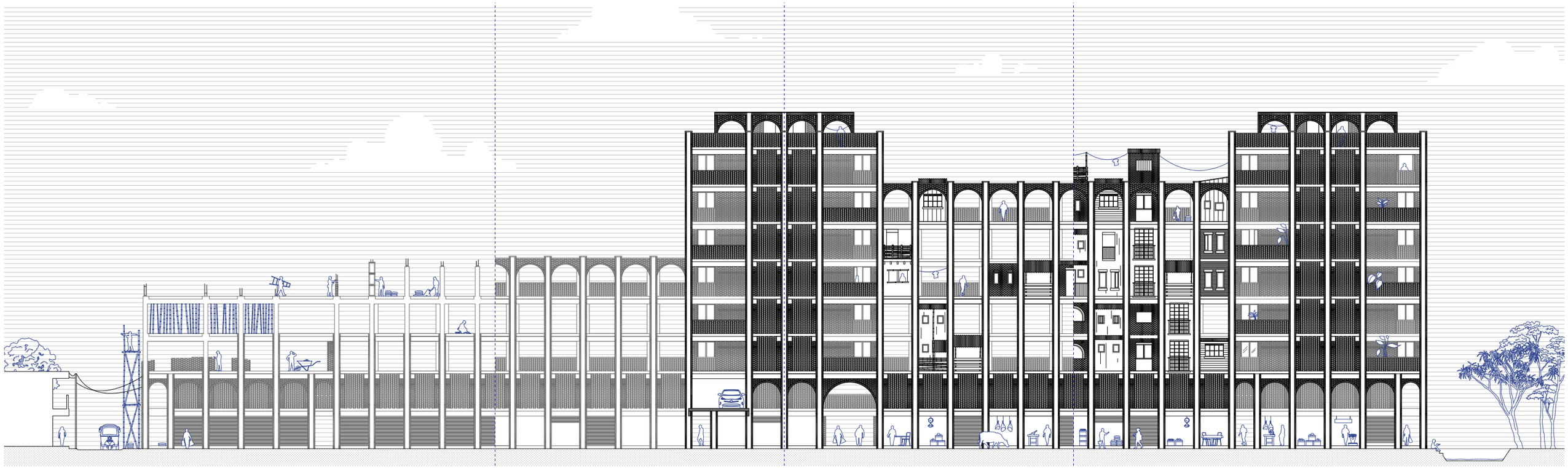
GSI = 0.51

high-end dwellings = 72

low-end dwellibgs = 254

total dwellings = 326

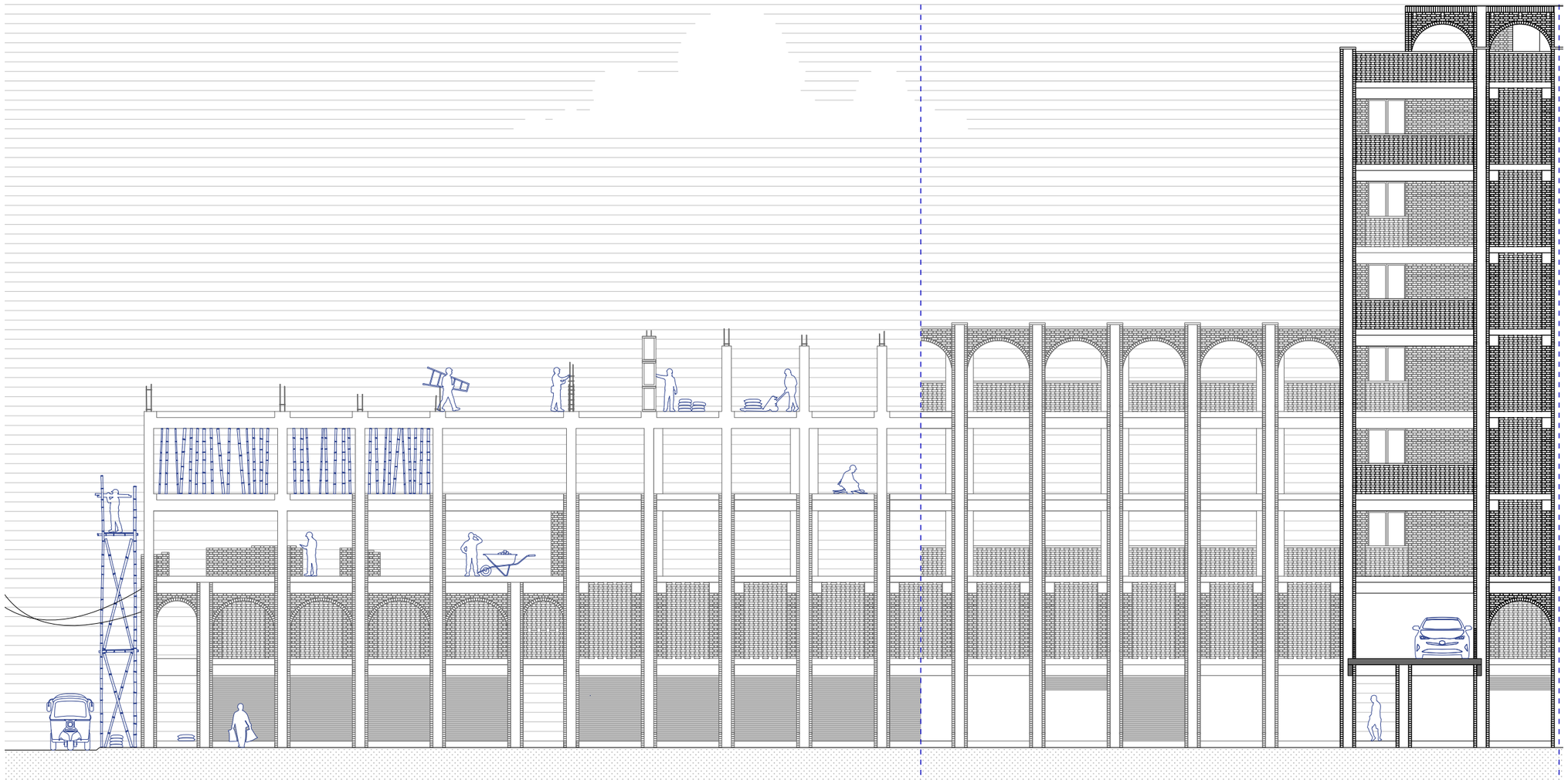
density = 215 dw/ha



time

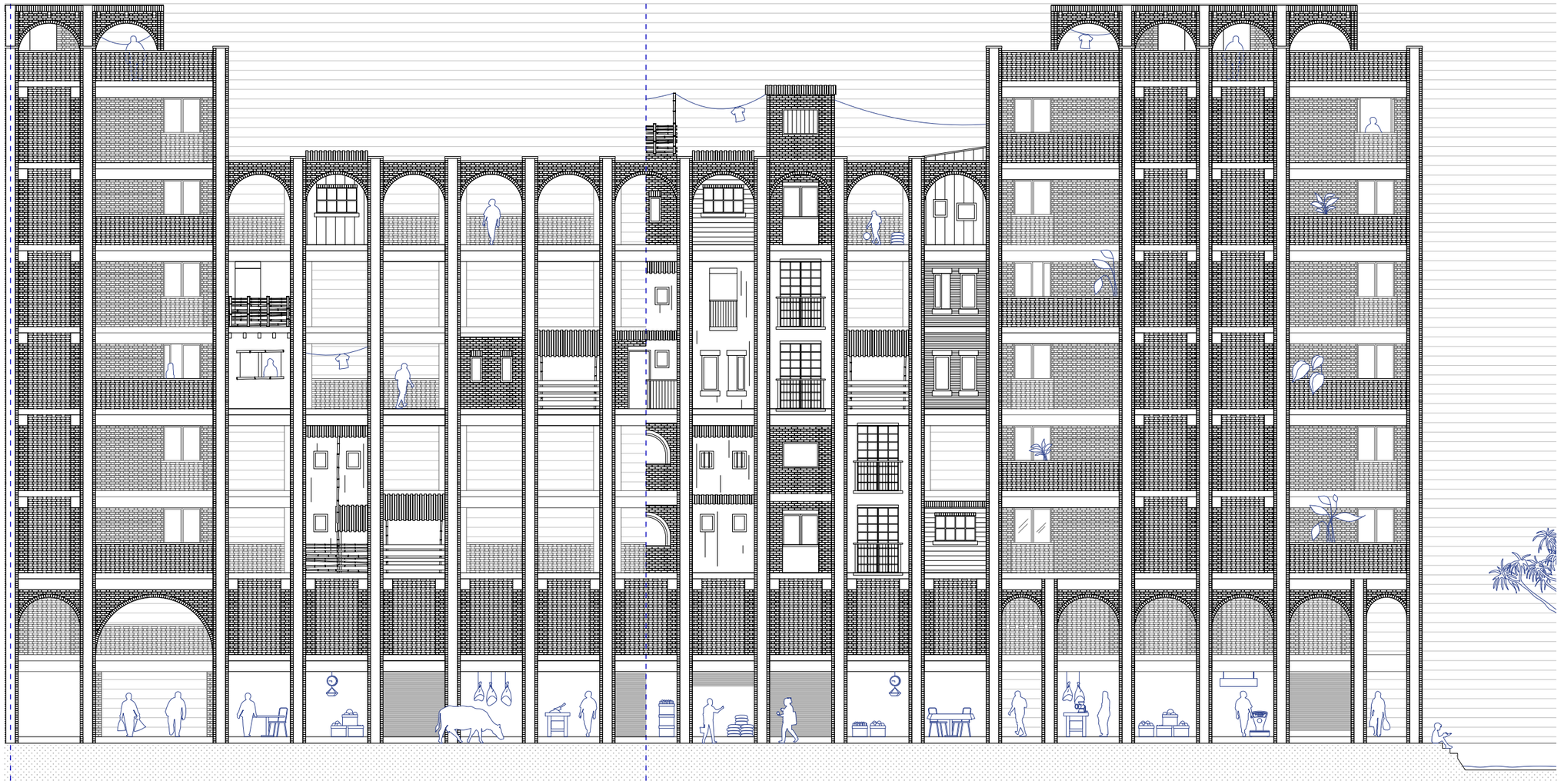
construction phase

building completion



+1 year

+5 years




THANK YOU