



Condominium 3.0

Reinventing Addis Ababa's Mass Housing Projects
for the City and its Low-Income Dwellers



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Introduction and Problem Statement

Why Affordable Housing in the Global Urban South?



The vast amount of informal settlements in the Global Urban South is a pressing issue with mass rural-urban migration resulting in what is estimated by UN_HABITAT as a population of two billion urbanites living in inadequate conditions by the year 2030.





Addis Ababa, Ethiopia



Densification of Addis Ababa's Sefer Communities

Research



Urban Renewal in The Sefer Communities



Addis Ababa 2002 - Low Cost Housing Program (LCH)



Addis Ababa 2004 - Grand Housing Program (GHP)



Addis Ababa Present - Integrated Housing Development Program (IHDP)



Addis Ababa Inner City Condominiums



Overcrowded Sefer Neighbourhoods



Small-scale 'Informal' Businesses in the Sefers



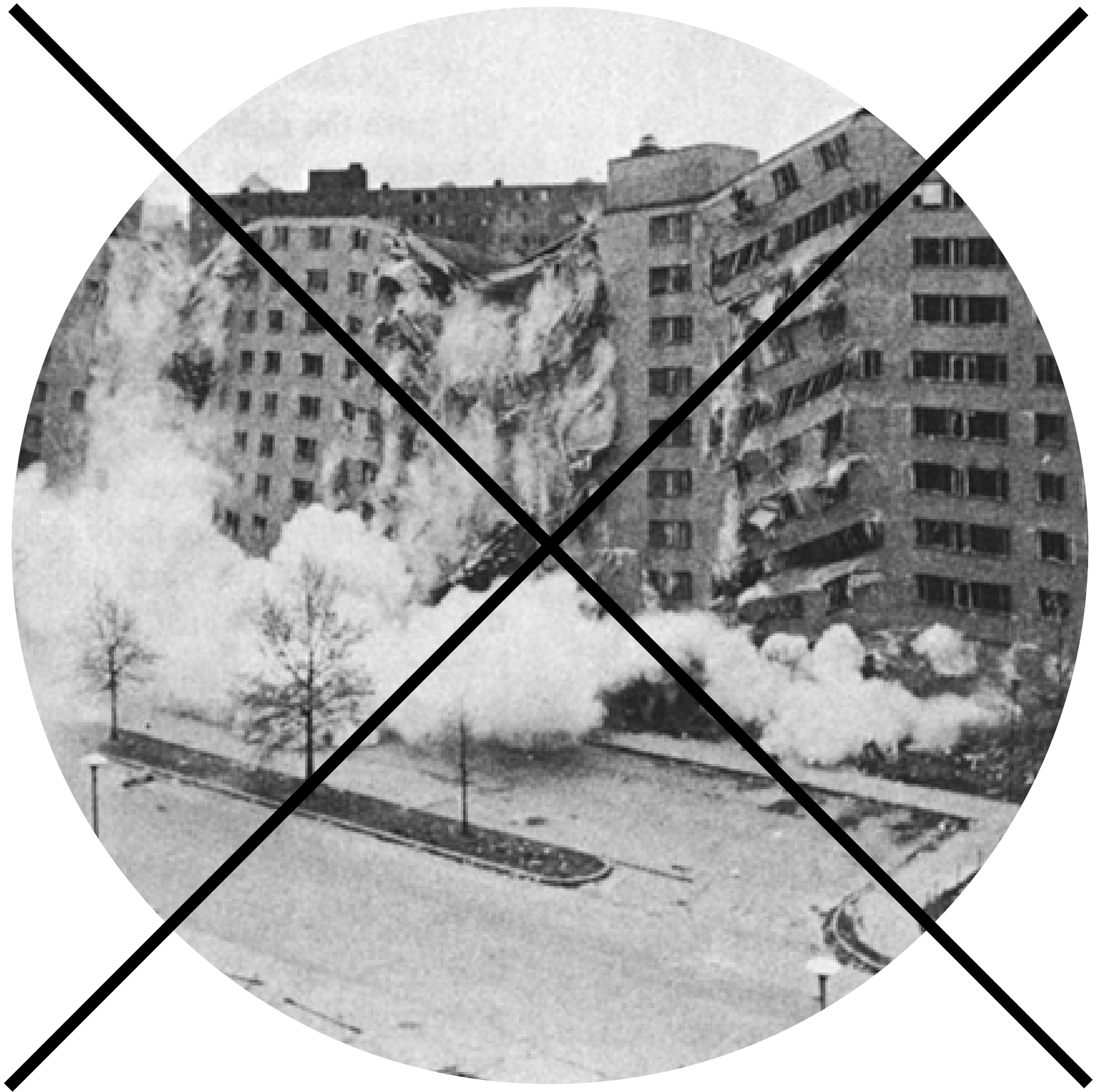
The Condominium Scare



Pruitt Igoe

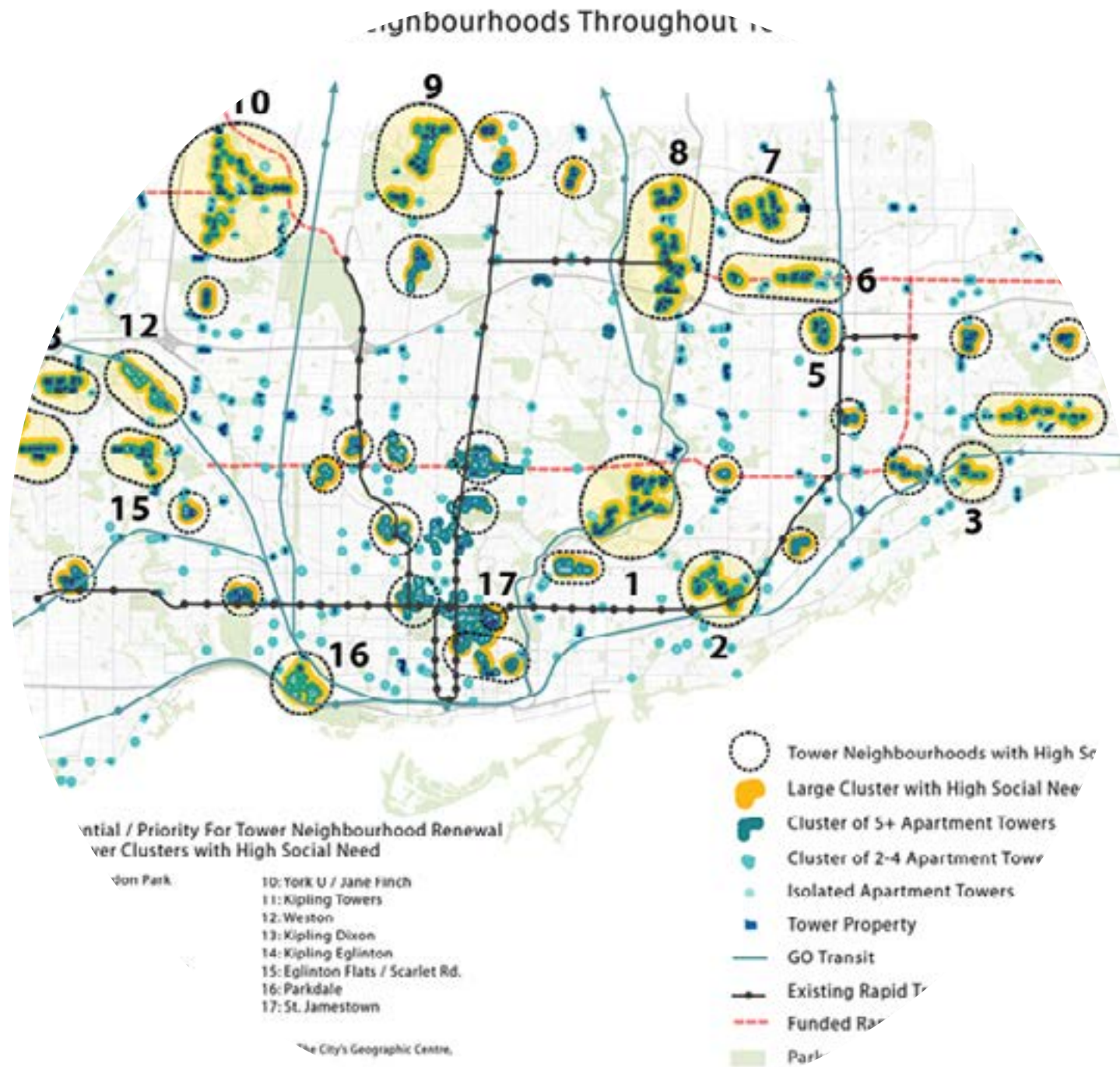


Pruitt Igoe, St. Louis





St. Lawrence Neighbourhood, Toronto



Map showing the distribution of the typology in Toronto and the social need in the area based on the overall size of the tower neighbourhoods

Tower Block Communities in Toronto



The Tower Renewal Program



The Tower Renewal Program in Action



Street Stalls in Geja Sefer



Economic Resilience in Geja Sefer



Social Resilience in Geja Sefer



Efficient Construction of Hollow Concrete Blocks



Social and Economic Infrastructure for the Middle Class

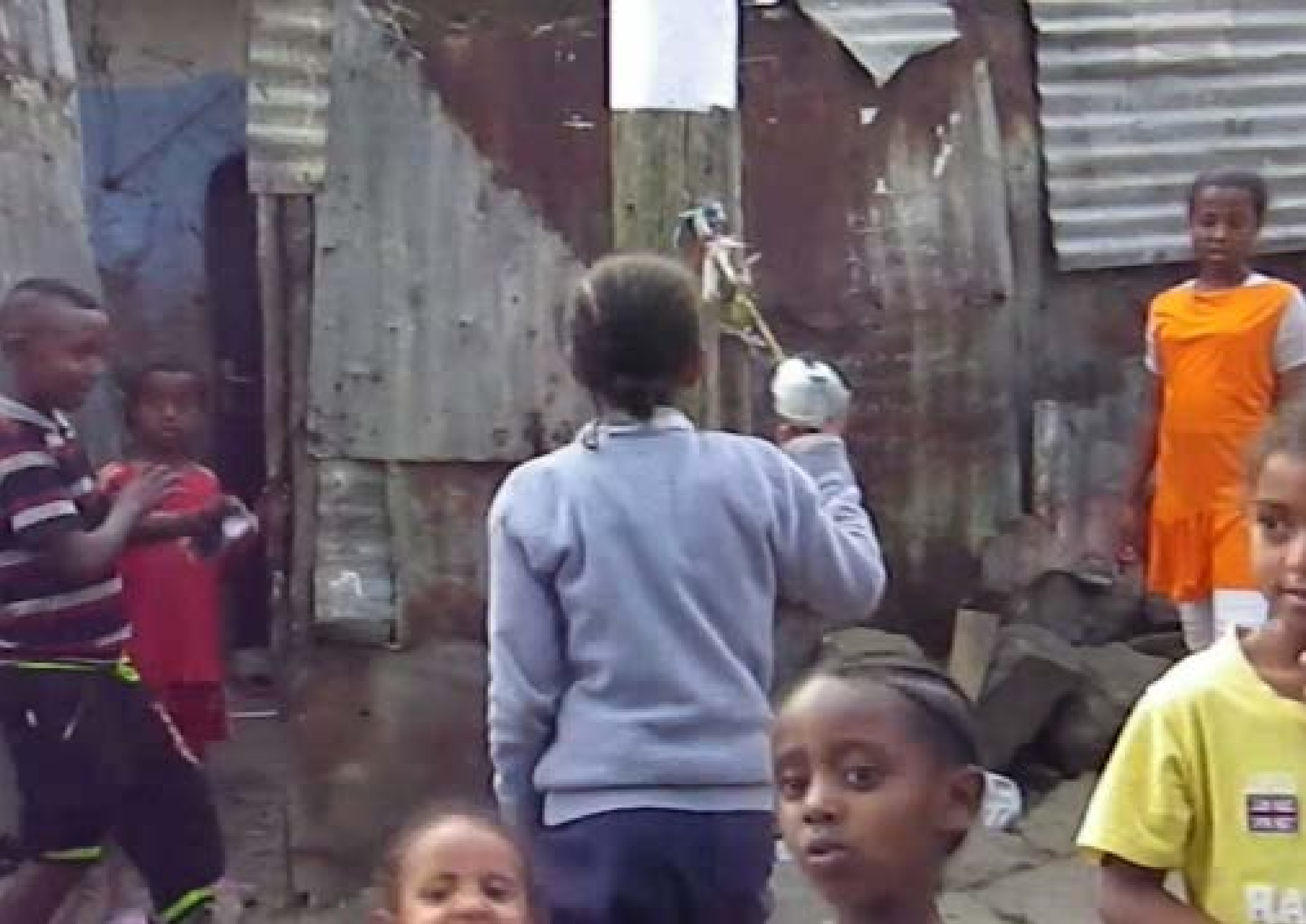


Research Question

If combined, can the resilience of the sefer's social/economic structures and the efficiency of the condominium block's built form render convivial and inclusively affordable communities for Addis Ababa?

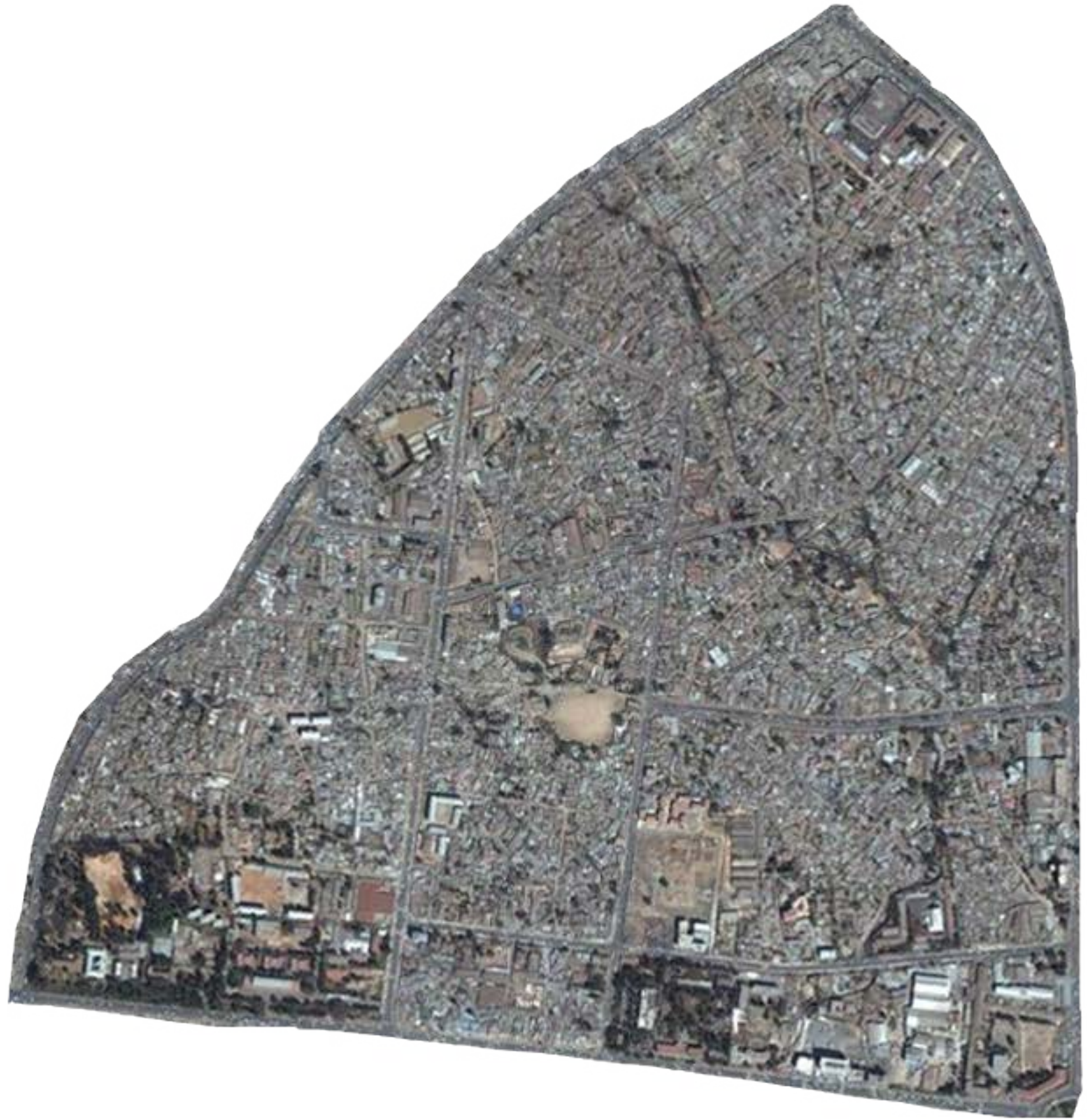
How can the Integrated Housing Development Program be altered in order to meet the needs of both low and middle-income inhabitants, creating further density, community conviviality, and economic inclusiveness while minimizing the displacement of citizens from informal settlements allocated for redevelopment?

Site Analysis





Geja Sefer



Geja Sefer - 2010



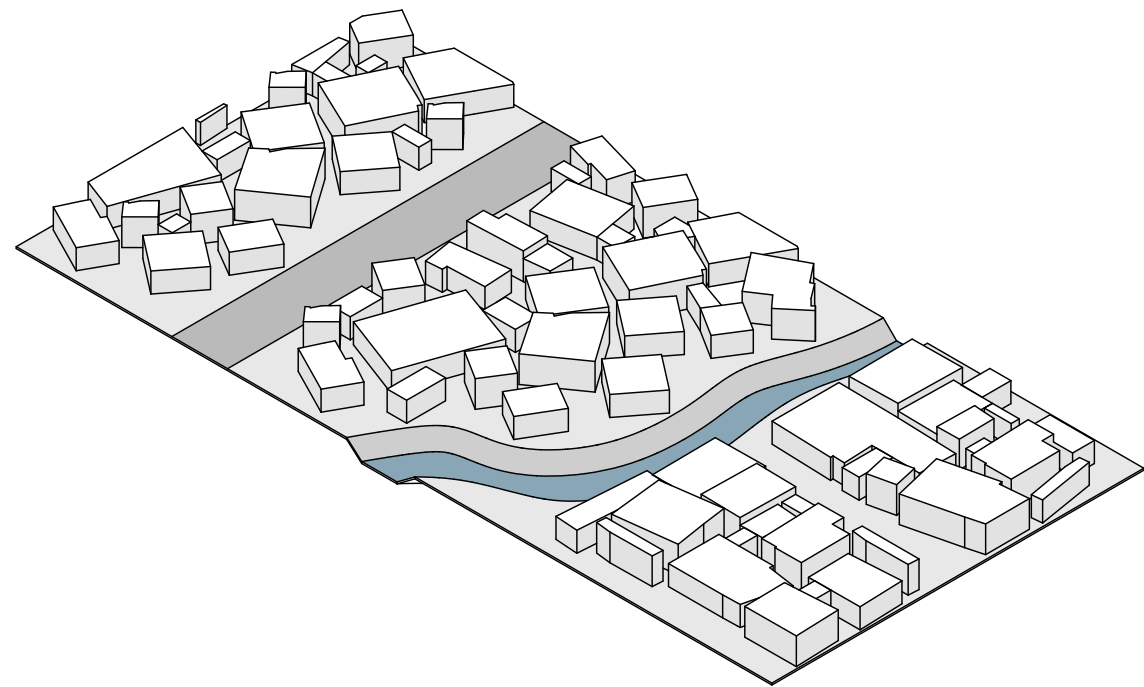
Geja Sefer - 2017



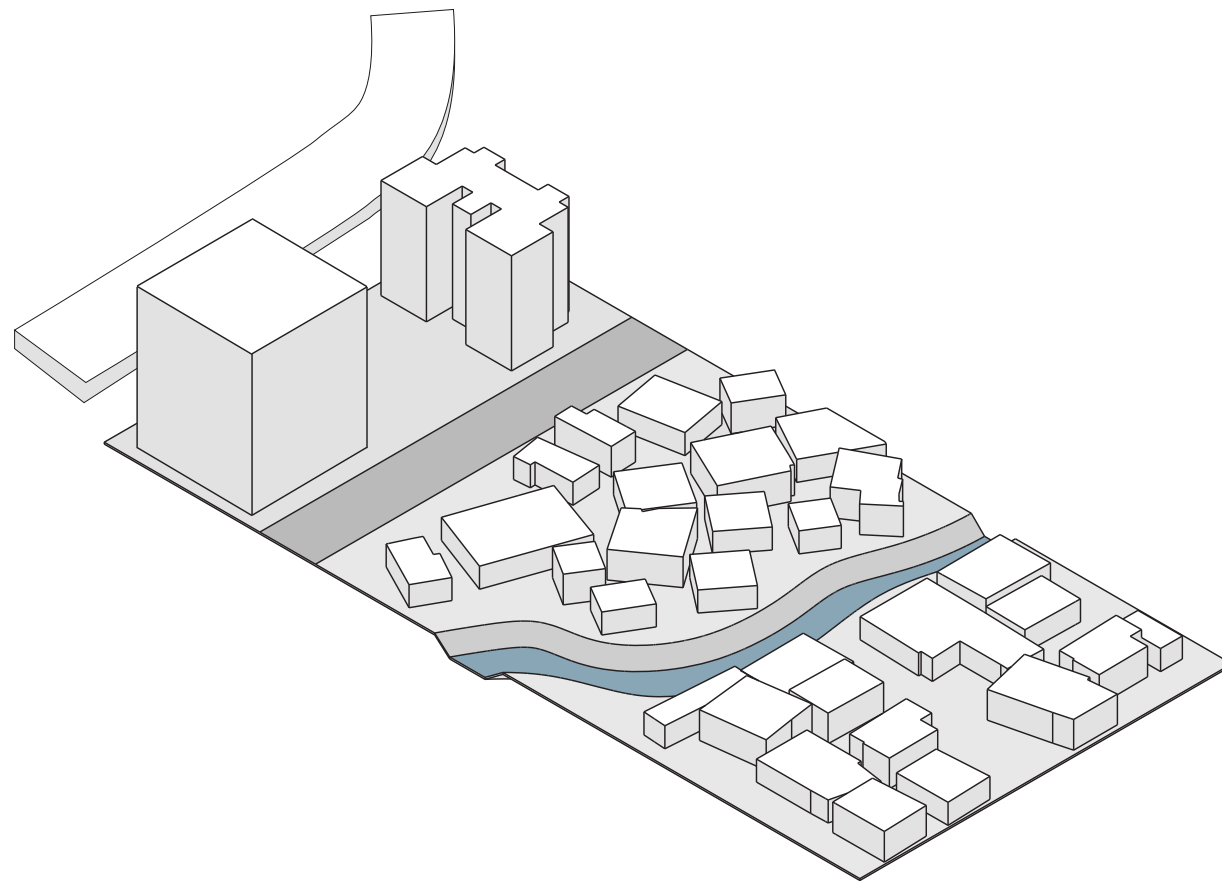
Geja Sefer - Project Site



Geja Sefer - Project Site

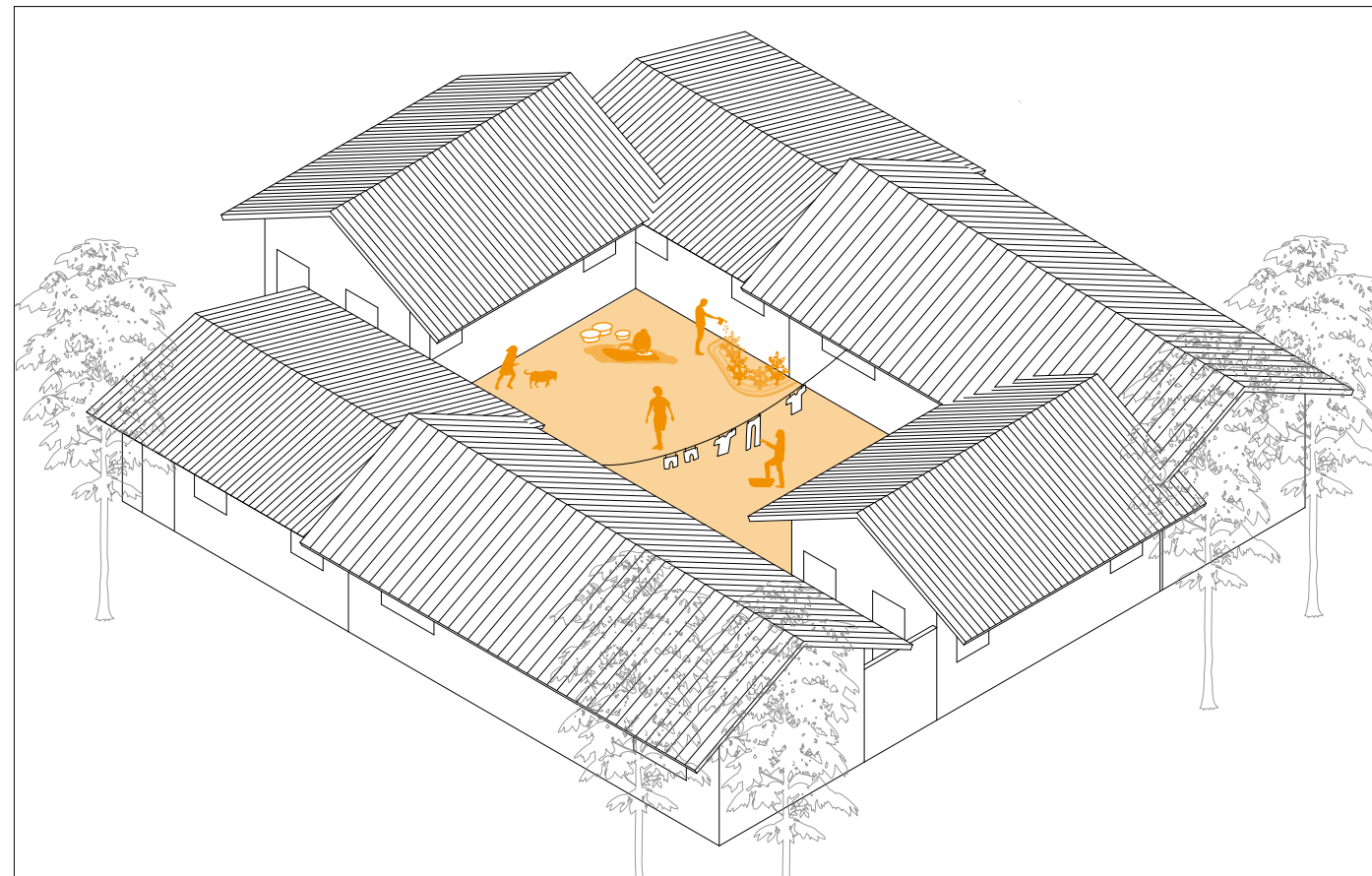


The Site in 1990

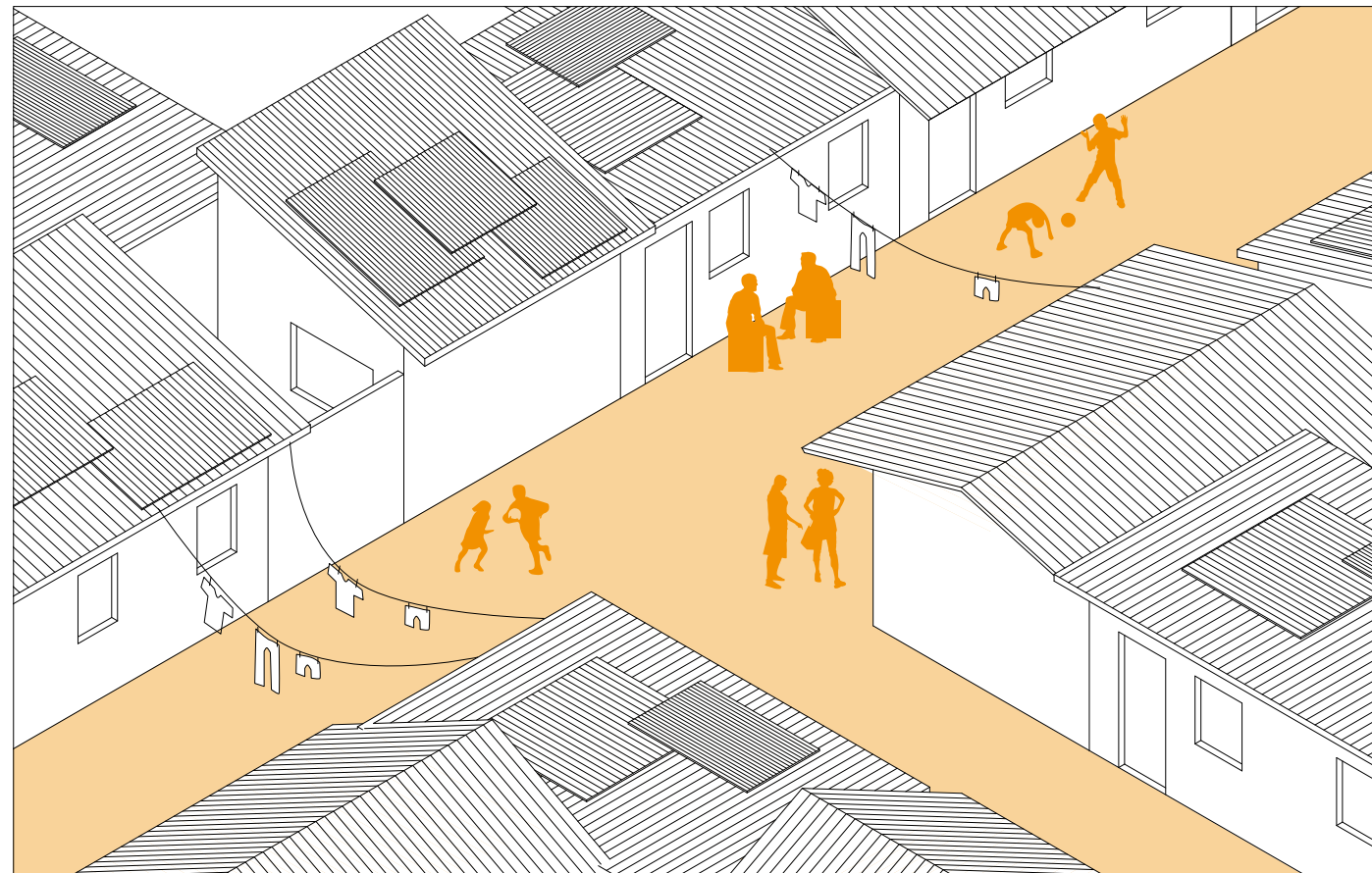


The Site in 2011

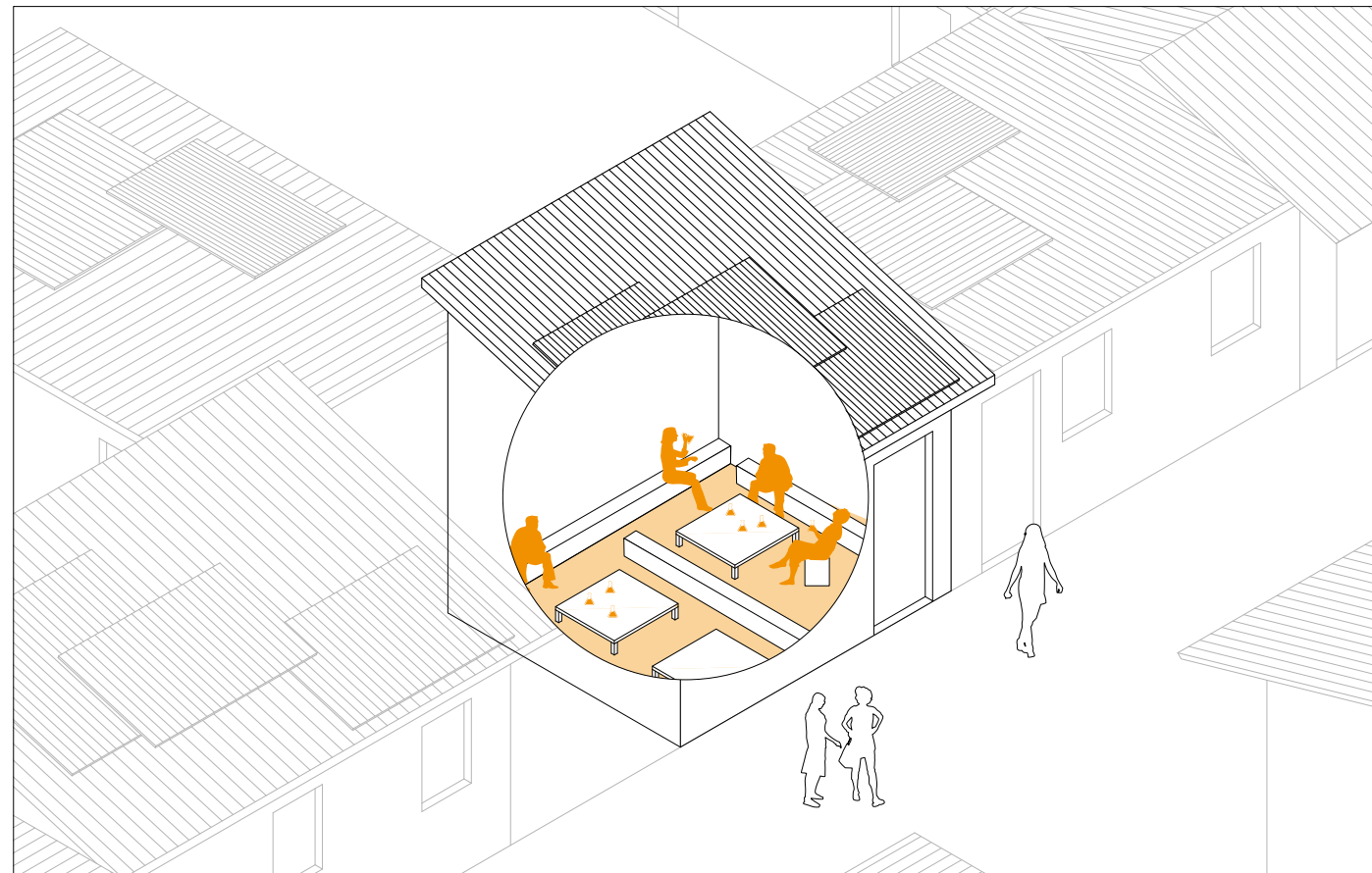
Qualities of the Sefer Side



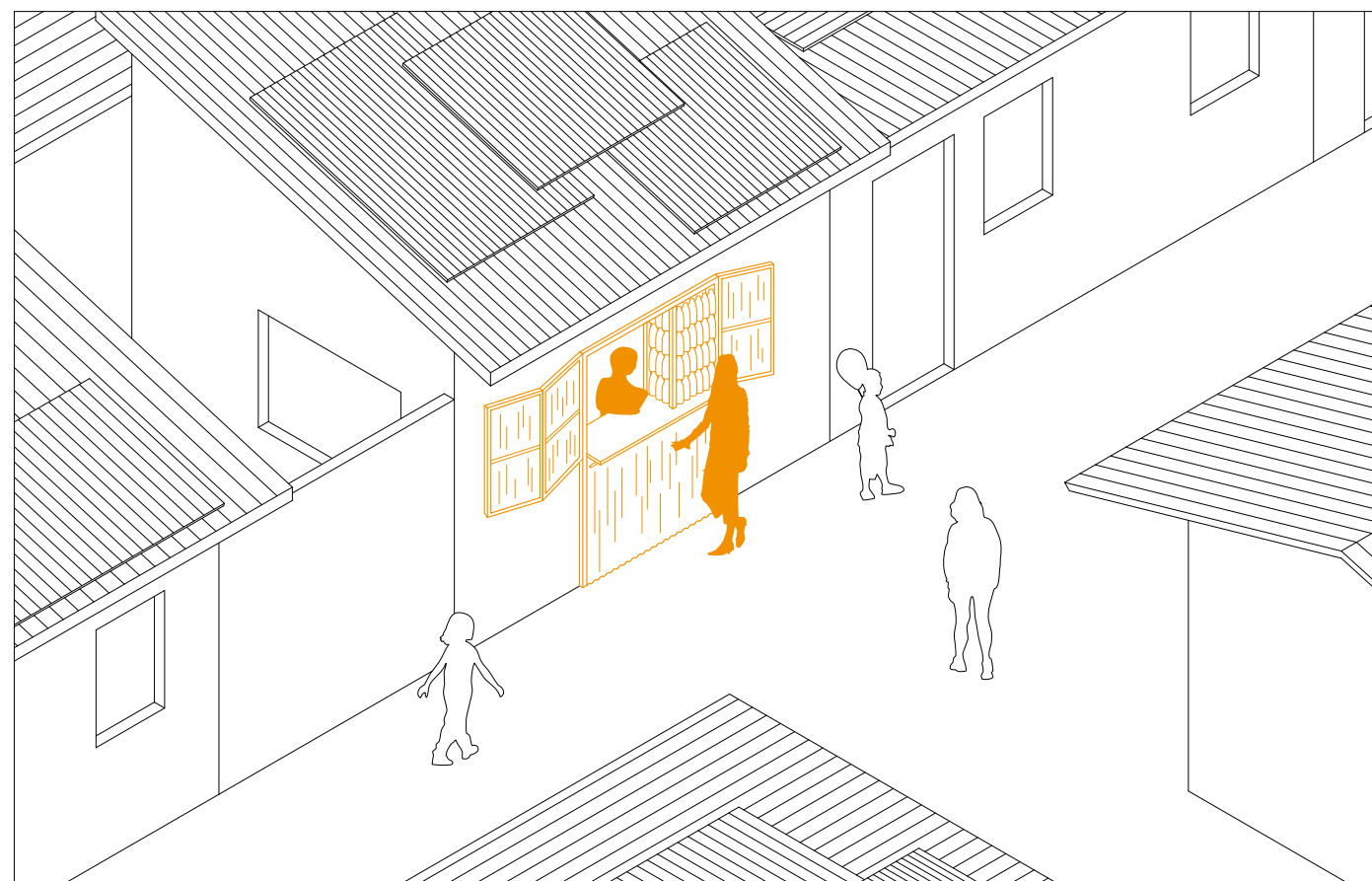
Social Spaces - Compound Courtyard



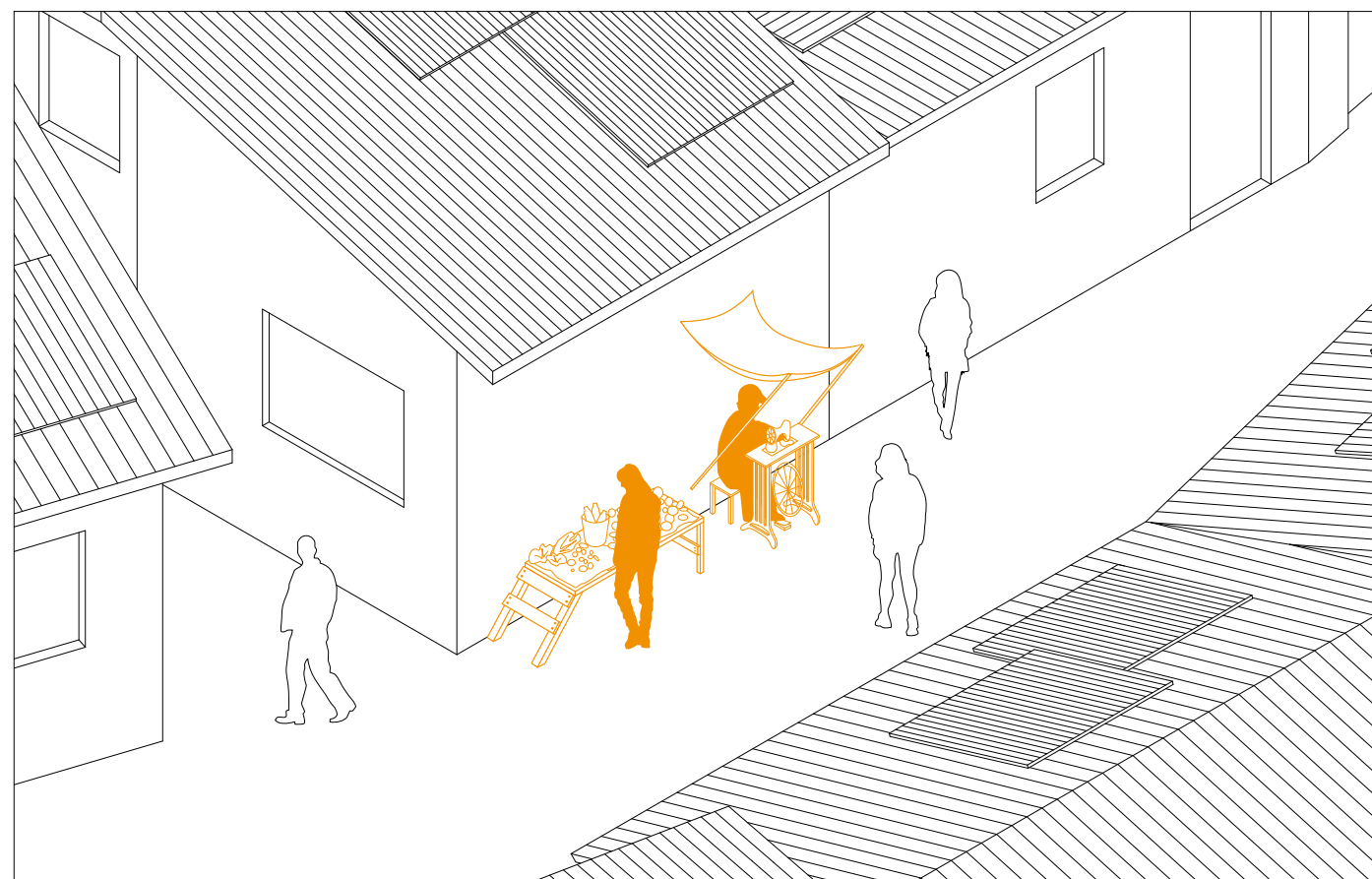
Social Spaces - Inner Streets



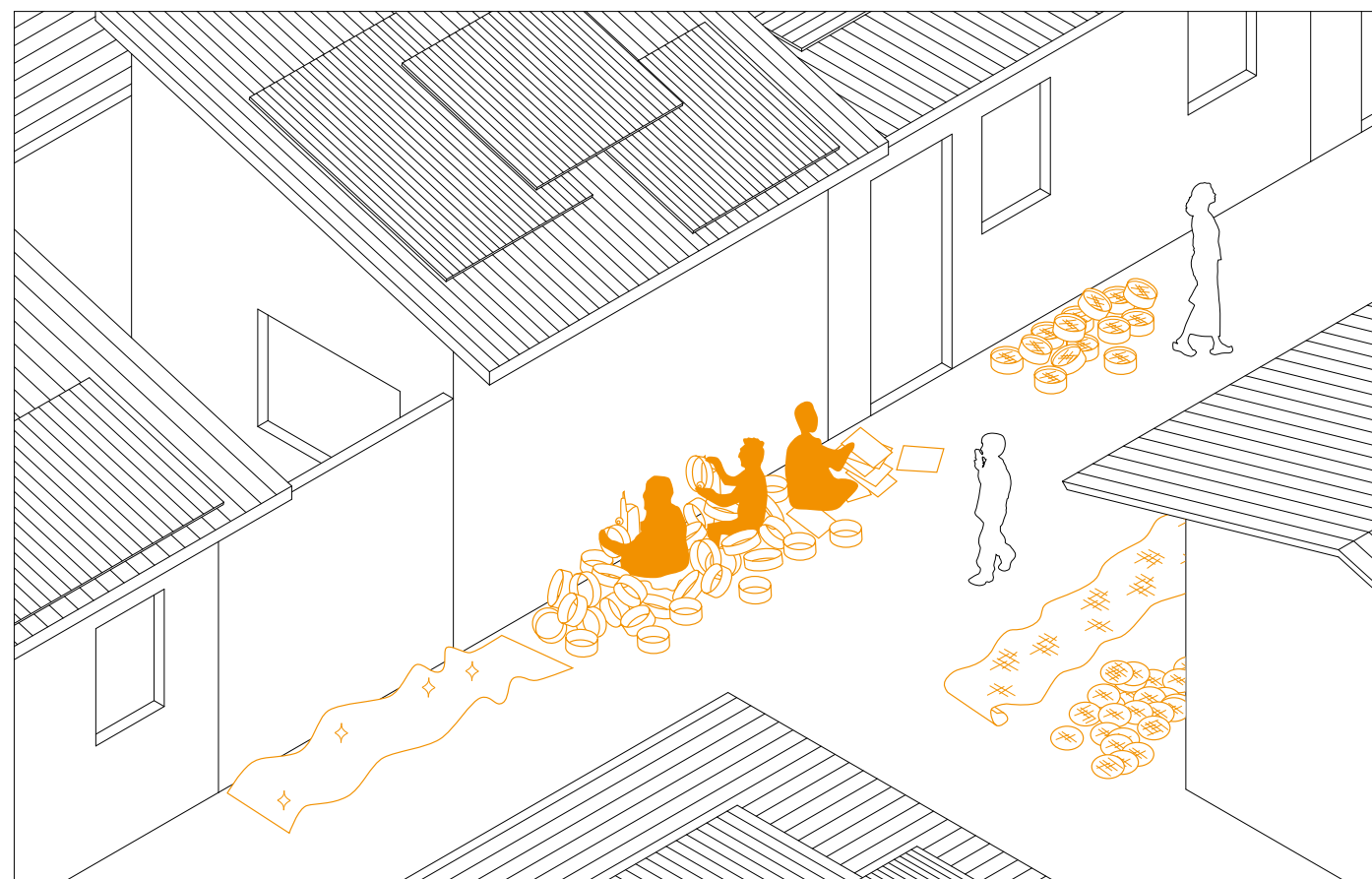
Social Spaces/Income Generation - Tej House



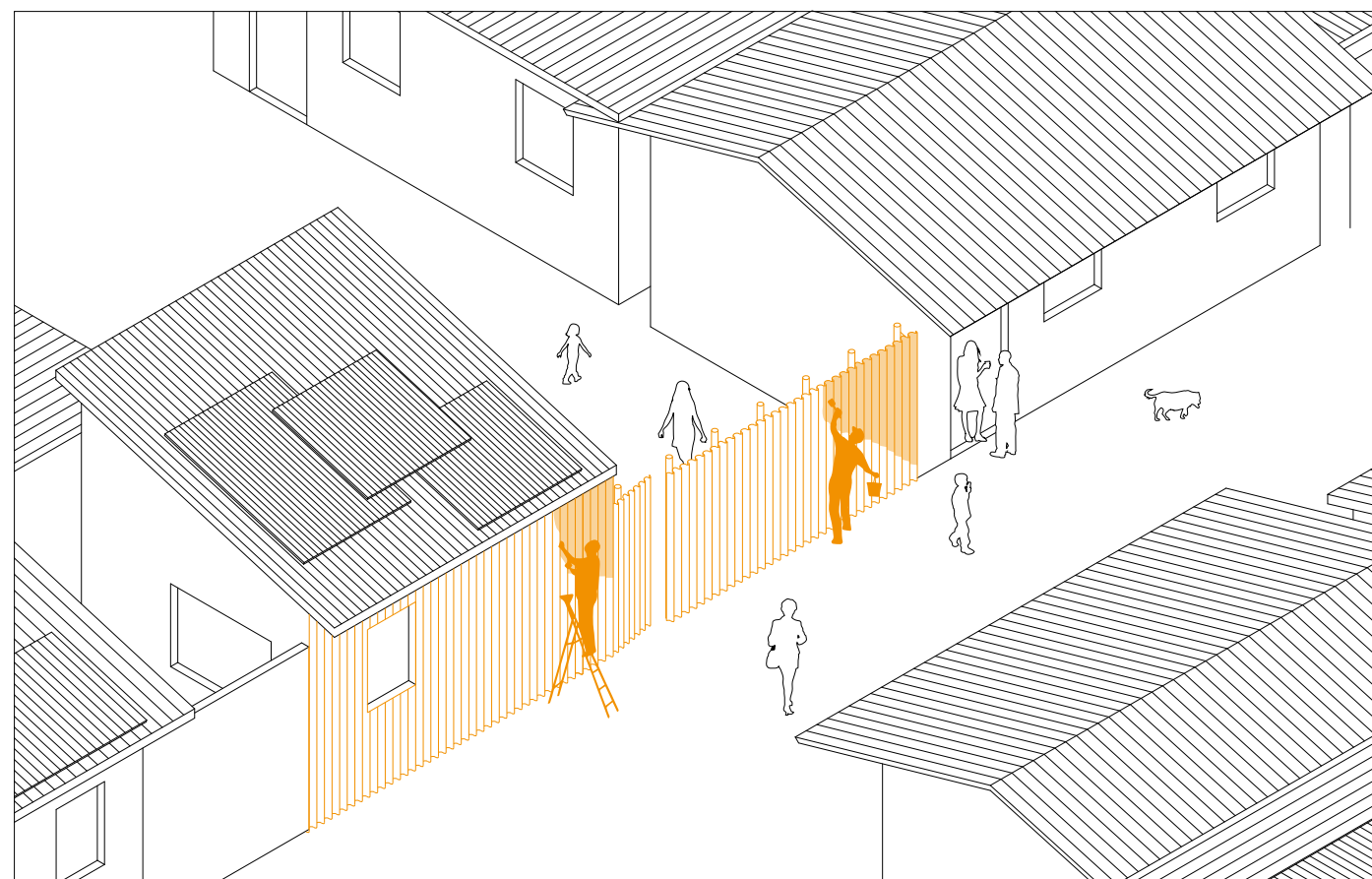
Income Generation - Shop Windows



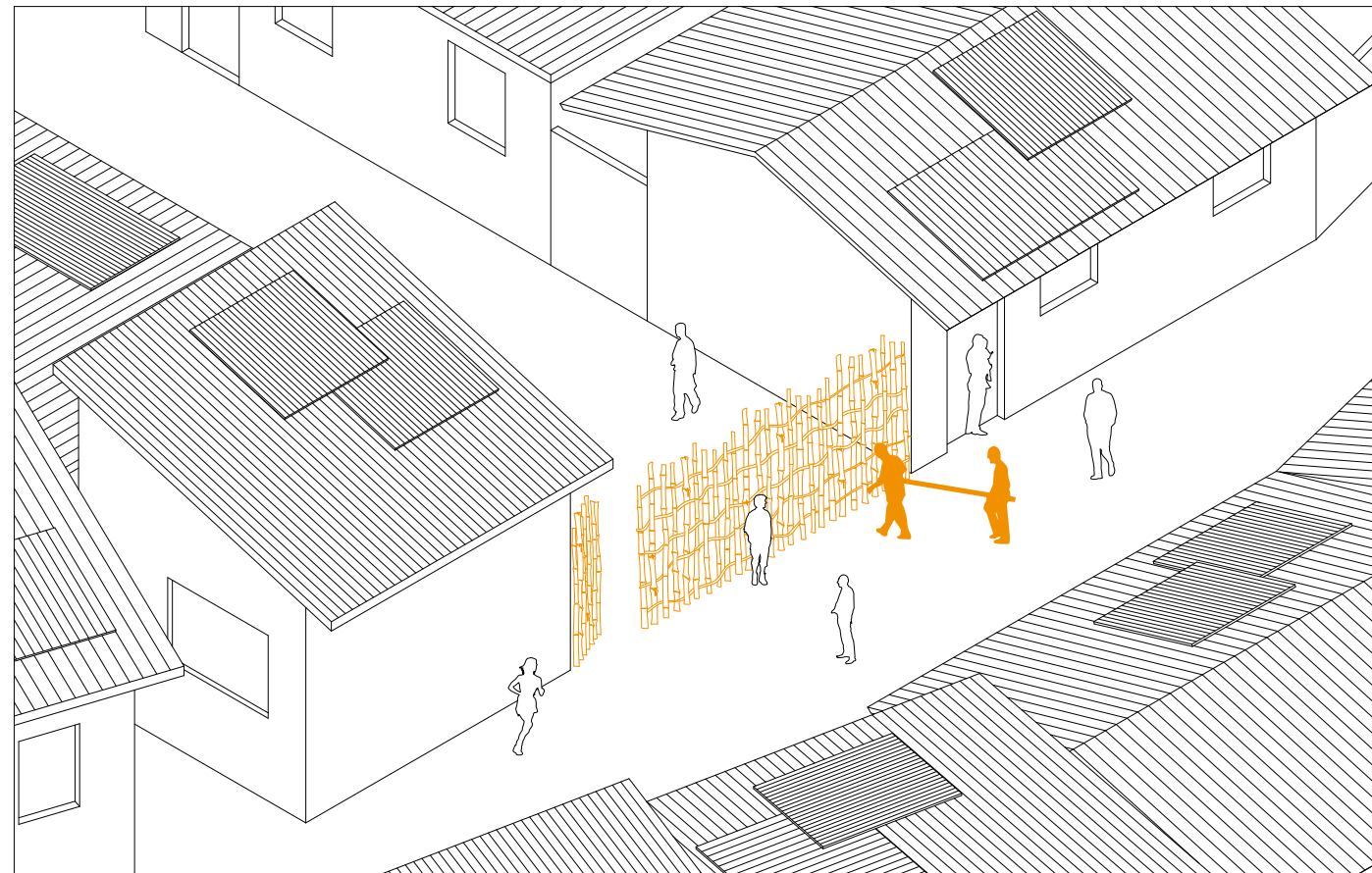
Income Generation - Street Stalls



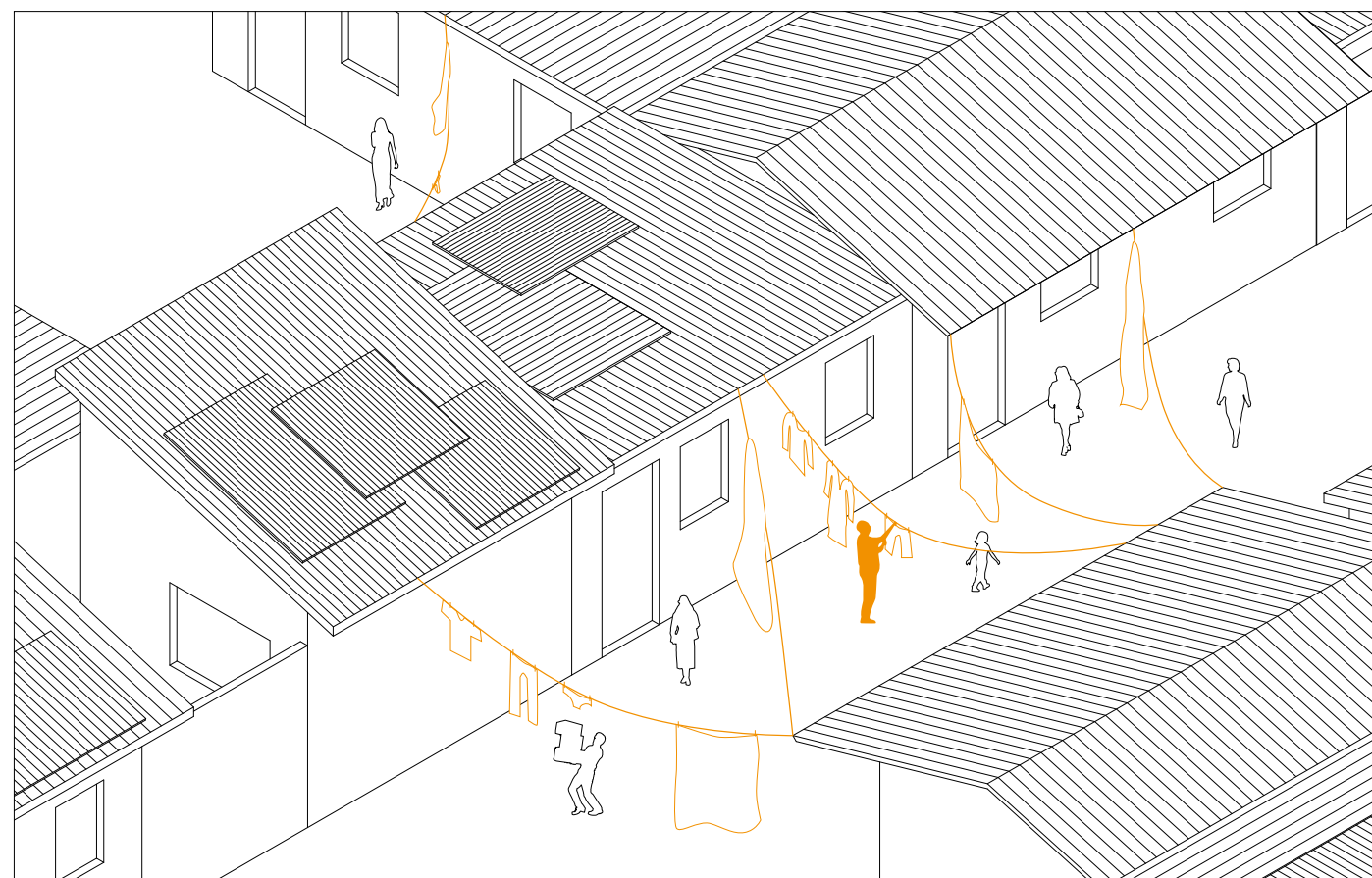
Income Generation - Recycling



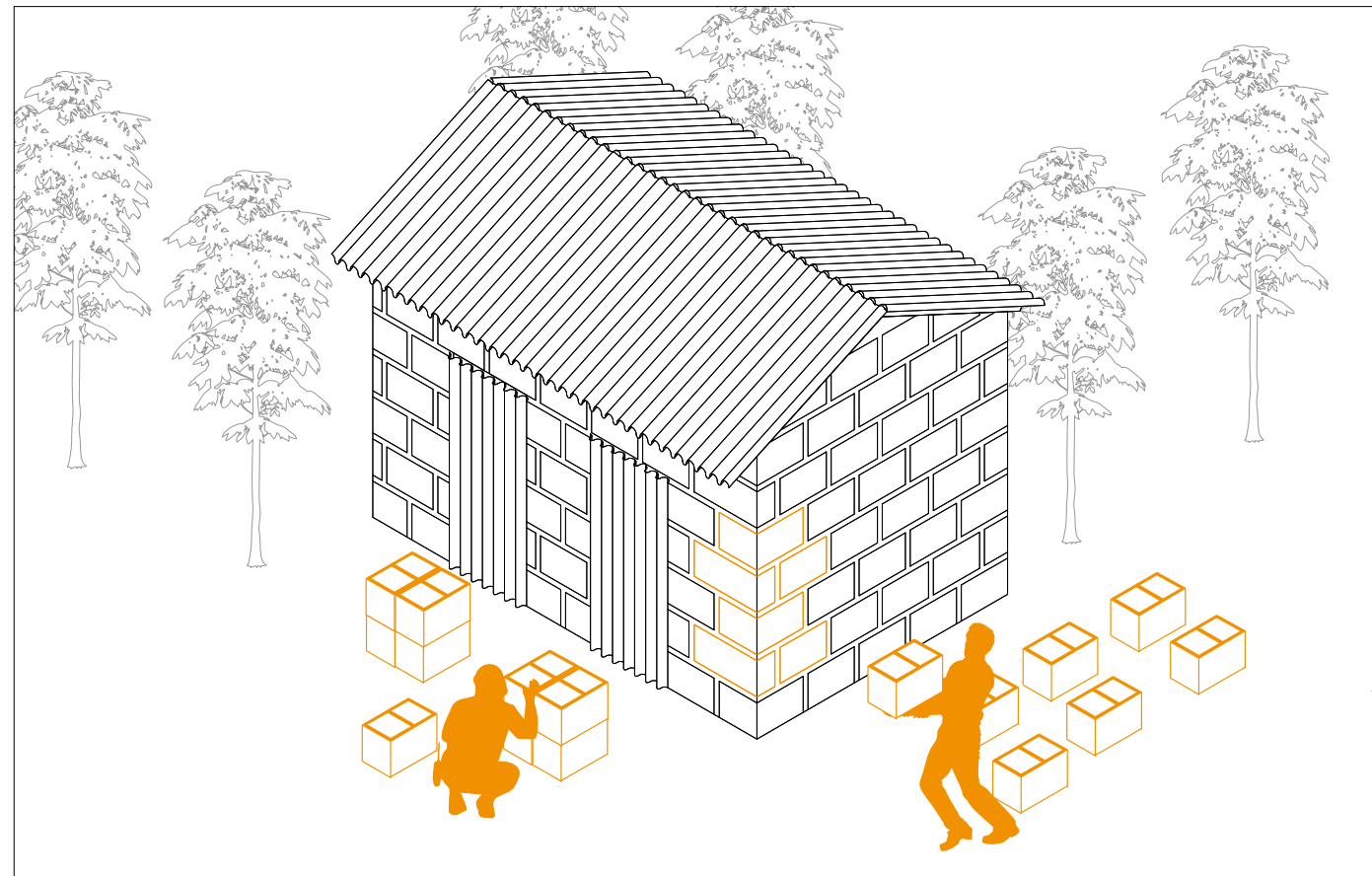
Borders - Corrugated Metal Fencing



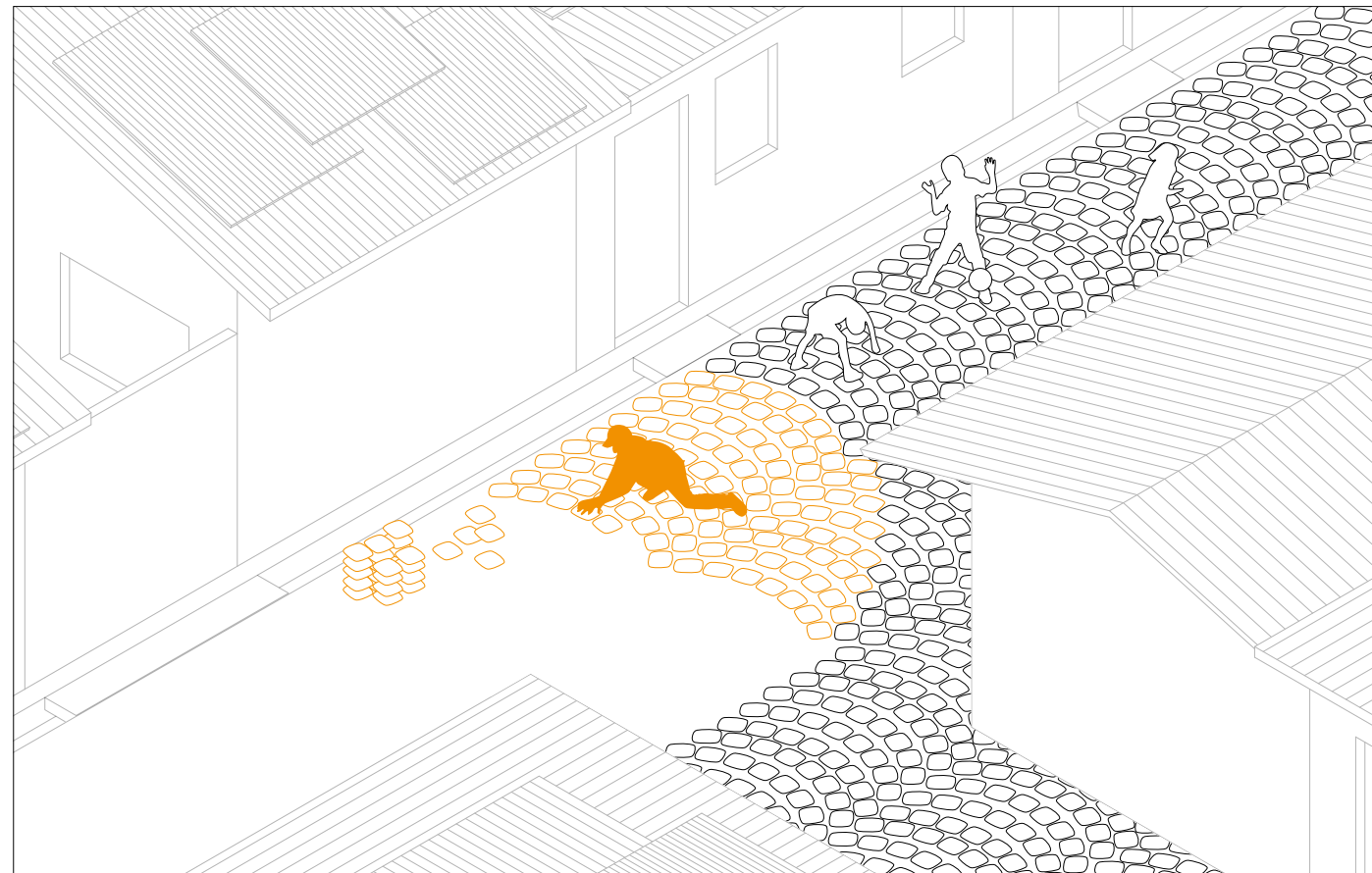
Borders - Bamboo Fences



Borders - Clothes Lines

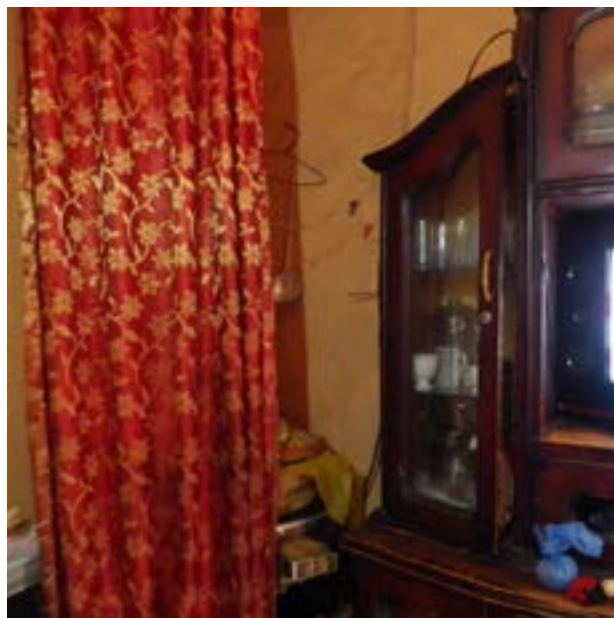
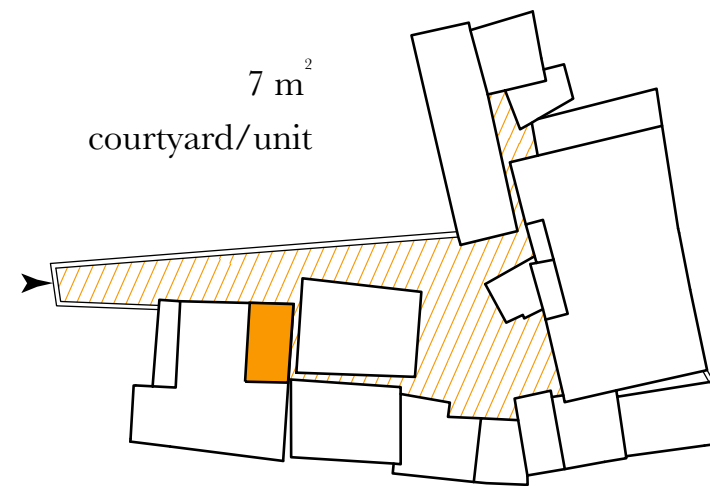
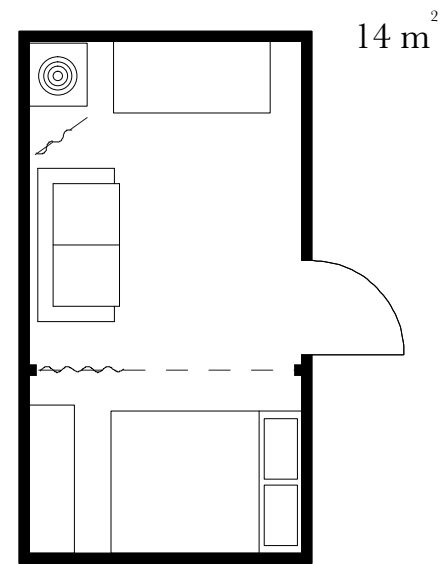


Building Techniques - Concrete Block



Building Techniques - Stone Paving

The Geja Community

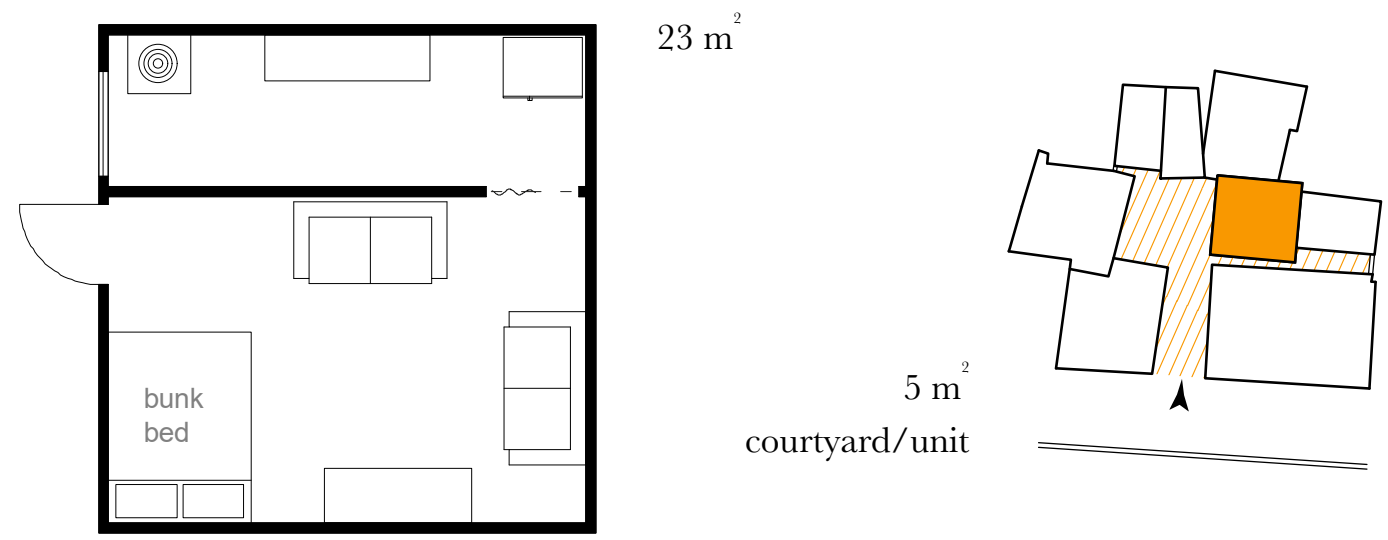


Single Father with Daughter

Community Representative in a compound of 40 families

Average of 5 people [er family

Wants more personal space for families



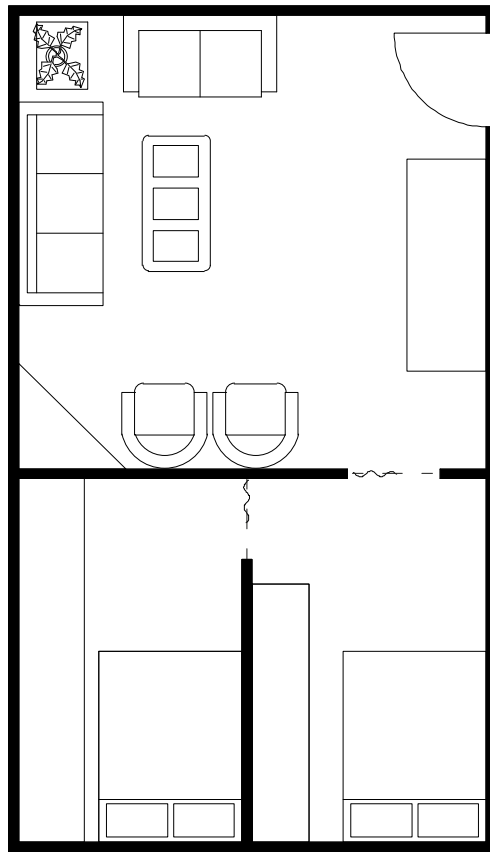
Yared Abera, metal worker

He has a family of three, with two daughters

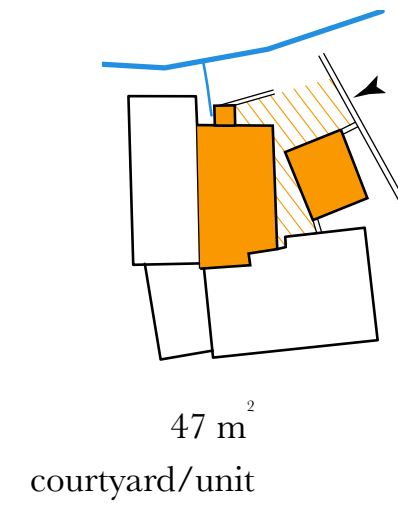
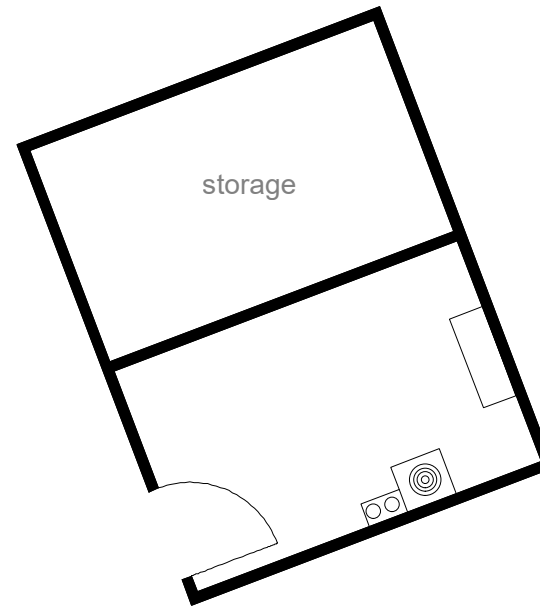
He likes living in Geja

He welds bunk beds locally but he has a limited space for working

WC



55 m²



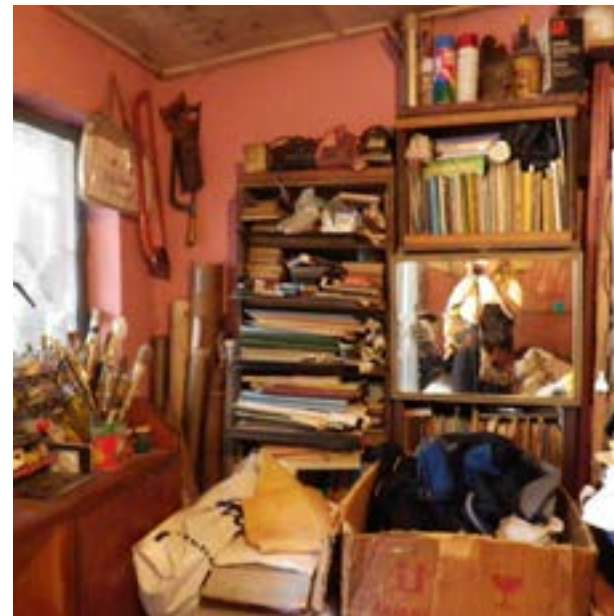
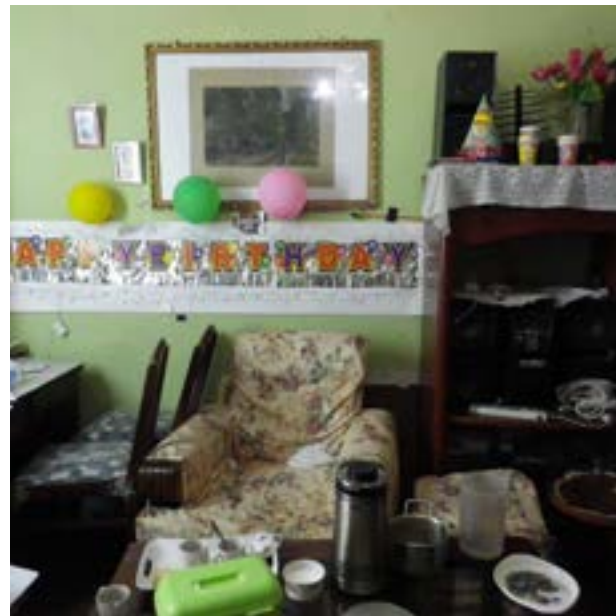
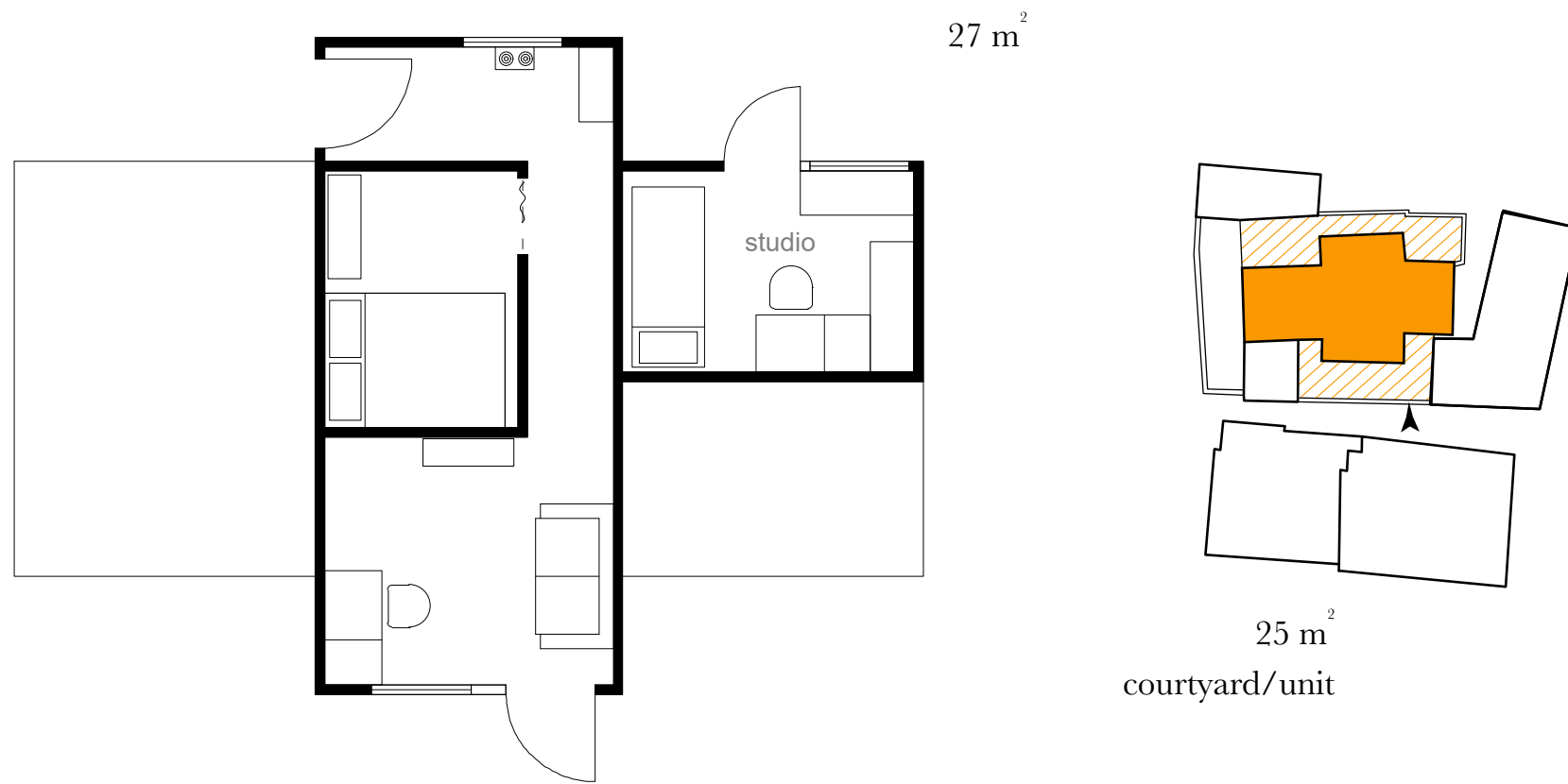
47 m²
courtyard/unit



Assefa, technician, works for the QATAR Embassy

3000 birr rent for five years with wife (works in Black Lion Hospital) and two children (go to Churchill School)
He Welds bunk beds locally but he has a limited space for working.



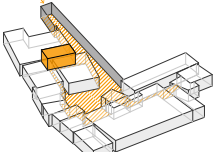
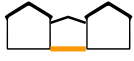


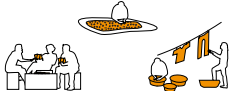
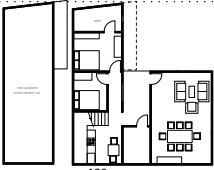

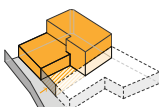






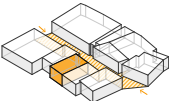







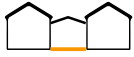





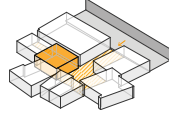
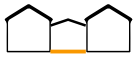





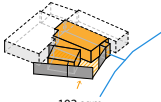




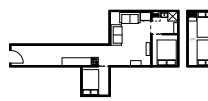

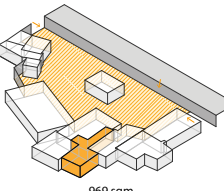



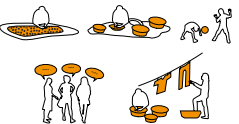
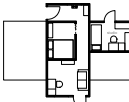

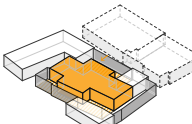
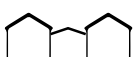


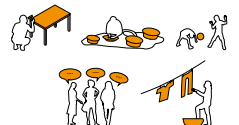
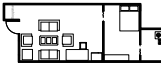

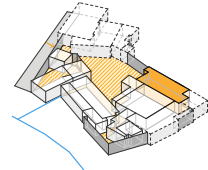
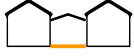





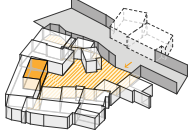







“the neighbourhood is not safe for a diplomat worker, but it’s close to work (Meskel Square)”



Art teacher with a studio in the house

House with fenced entrance

Family of five including one daughter and two sons

GEJA SEFER	UNIT LAYOUT	NO. OF PEOPLE/ AREA PER PERSON	COMPOUNDS	SPATIAL CONDITION	OPEN-TO-SKY SPACE	NO. OF HOMES	OPEN-TO-SKY SPACE PER HOME	ACTIVITIES
A	 14 sqm	 7 sqm/person	 739 sqm	 compound courtyard	 178 sqm	 25 homes	7.12 sqm/home	
B	 128 sqm	 25.6 sqm/person	 165 sqm	 private courtyard	 36 sqm	 3 homes	12 sqm/home	
C	 18 sqm	 3 sqm/person	 414 sqm	 alley	 84 sqm	 12 homes	7 sqm/home	
D	 68 sqm	 13.6 sqm/person	 34 sqm	 private courtyard	 14 sqm	 1 home	14 sqm/home	
E	 23 sqm	 7.67 sqm/person	 368 sqm	 compound courtyard	 71 sqm	 13 homes	5 sqm/home	
F	 55 sqm	 13.75 sqm/person	 102 sqm	 private courtyard	 47 sqm	 1 home	47 sqm/home	
G	 35 sqm	 5 sqm/person	 969 sqm	 open-to-street courtyard	 348 sqm	 10 homes	34.8 sqm/home	
H	 27 sqm	 5.4 sqm/person	 630 sqm	 private courtyard	 75 sqm	 3 homes	25 sqm/home	
I	 42 sqm	 8.4 sqm/person	 477 sqm	 private courtyard	 201 sqm	 10 homes	20.1 sqm/home	
J	 17 sqm	 4.25 sqm/person	 463 sqm	 open-to-street courtyard	 160 sqm	 12 homes	13.3 sqm/home	
	42.7 sqm	9.37 sqm	436 sqm	   central open-to- street street/ alley	121 sqm	9 homes	18.5 sqm/home	206 units/hectare

Qualities of the Condominium



G+7 Condominium in Lideta



G+4 Condominium in Lideta - Leftover Spaces



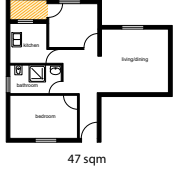

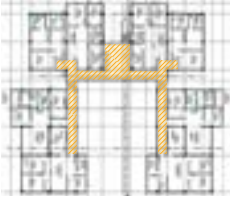
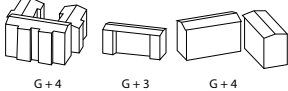



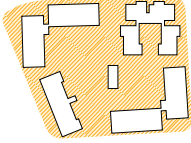







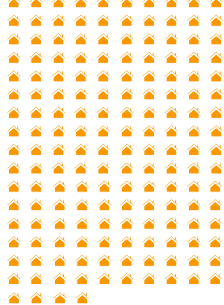



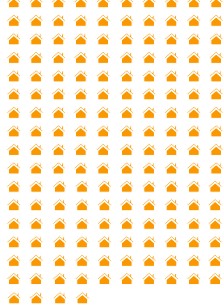







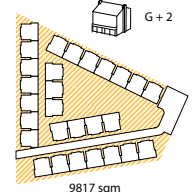
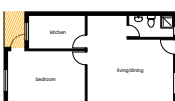

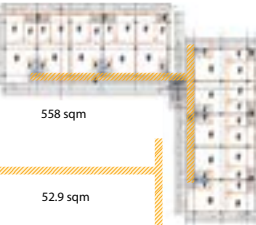
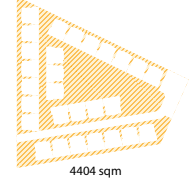
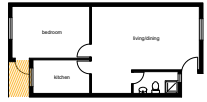


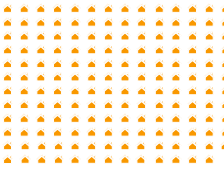





Retail Locations in G+4 Lideta



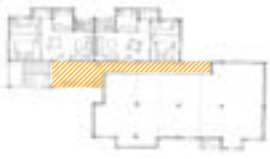




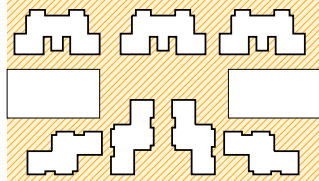
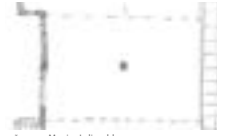


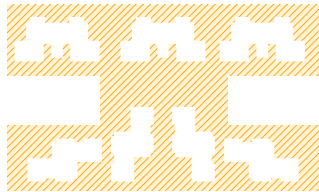


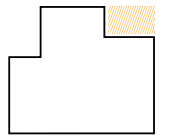

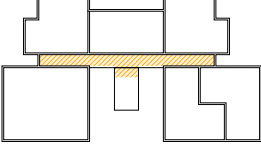
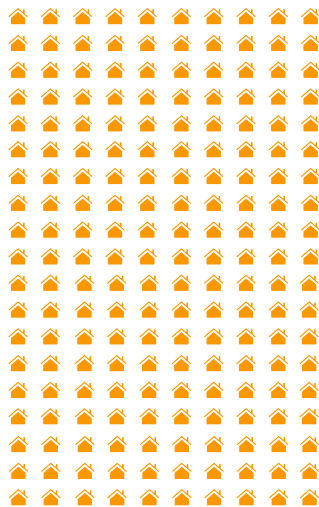



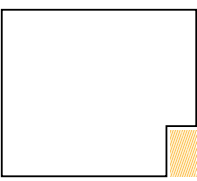


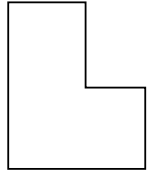




Informality in Lideta



Park in Lideta

2006 DESIGNS	UNIT LAYOUT	SPECULATED NO. OF PEOPLE/ AREA PER PERSON	PRIVATE OPEN-TO-SKY SPACE	COMPOUNDS	BLOCKS
A	 47 sqm	 19.6 sqm/person	2.3 sqm/home	 483 sqm	 5524 sqm
B	 52 sqm	 10.8 sqm/person	0 sqm/home	 64 sqm	 5524 sqm
C	 34.5 sqm	 14.4 sqm/person	0 sqm/home	 8 homes	 3610 sqm
D	 41.7 sqm	 12.2 sqm/person	0 sqm/home	 8 sqm/home	 164 homes
E	 22.9 sqm	 17.2 sqm/person	0 sqm/home	 315 sqm	 164 homes
F	 57.8 sqm	 12 sqm/person	4.7 sqm/home	 29.3 sqm	 22 sqm/home 297 units/hectare
G	 36.9 sqm	 15.4 sqm/person	0 sqm/home	 6 homes	 9817 sqm
H	 41.8 sqm	 17.4 sqm/person	2.3 sqm/home	 558 sqm 52.9 sqm	 4404 sqm
I	 46 sqm	 19.2 sqm/person	2.3 sqm/home	 10 homes	 168 homes
J	 60.6 sqm	 12.6 sqm/person	0 sqm/home	 157 sqm	 26 sqm/home 171 units/hectare
	44.1 sqm	 15.1 sqm/person	1.16 sqm/home	6.35 sqm/home	24 sqm/home 234 units/hectare

LIDETA	EST. UNIT LAYOUT	SPECULATED NO. OF PEOPLE/ AREA PER PERSON	PRIVATE OPEN-TO-SKY SPACE	COMPOUNDS	BLOCKS
A	 49 sqm <small>*source: Monica Lelleveld</small>	 16.3 sqm/person x2	3 sqm/home	 363 sqm	
B	 54 sqm <small>*source: Monica Lelleveld</small>	 18 sqm/person	0 sqm/home	 32 sqm	 G + 4 9084 sqm
C	 34 sqm <small>*source: Monica Lelleveld</small>	 25.5 sqm/person	0 sqm/home	 5 homes	 5159 sqm
D	 88 sqm <small>*source: Monica Lelleveld</small>	 22 sqm/person	2.3 sqm/home	6.4 sqm/home	
E	 38 sqm	 19 sqm/person x2	3 sqm/home	 370 sqm	
F	 41 sqm	 17 sqm/person	0 sqm/home	 30 sqm	
G	 78 sqm	 19.5 sqm/person	3 sqm/home	 6 homes	
H	 45 sqm	 18.75 sqm/person x2	0 sqm/home	5 sqm/home	
	53.4 sqm	 19.1 sqm/person	1.6 sqm/home	5.8 sqm/home	27 sqm/home
					200 units/hectare

GEJA SEFER

42.7
sqm

9.37
sqm

121
sqm

9
homes

18.5
sqm/home

206
units/hectare



CONDOMINIUM
AVERAGE

EST. UNIT LAYOUT

SPECULATED NO. OF PEOPLE/
AREA PER PERSON

PRIVATE OPEN-TO-SKY
SPACE

COMPOUNDS

BLOCKS

48.8
sqm


17.1
sqm/person

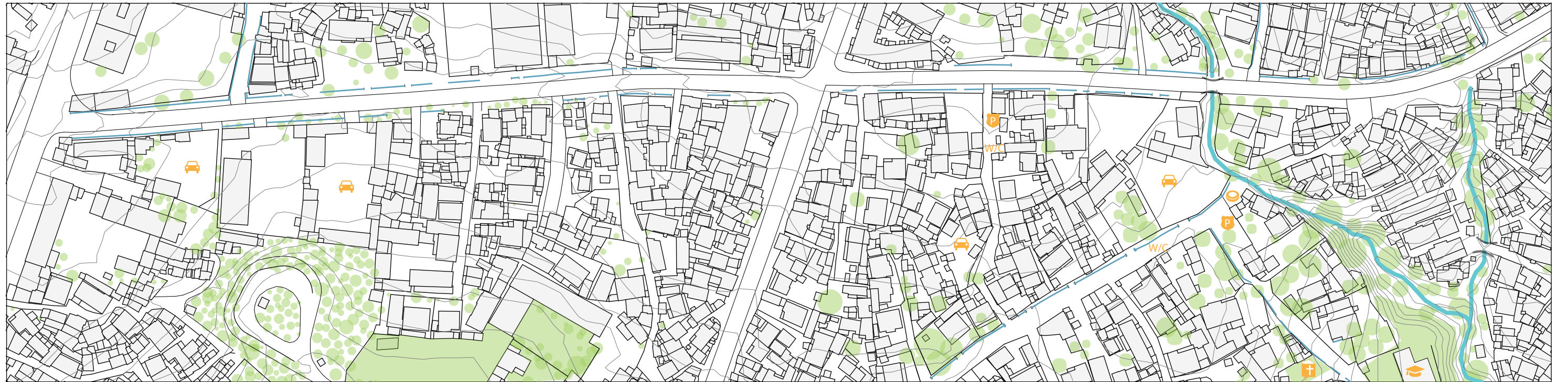
1.4
sqm/home

6.1
sqm/home

25.5
sqm/home

217
units/hectare





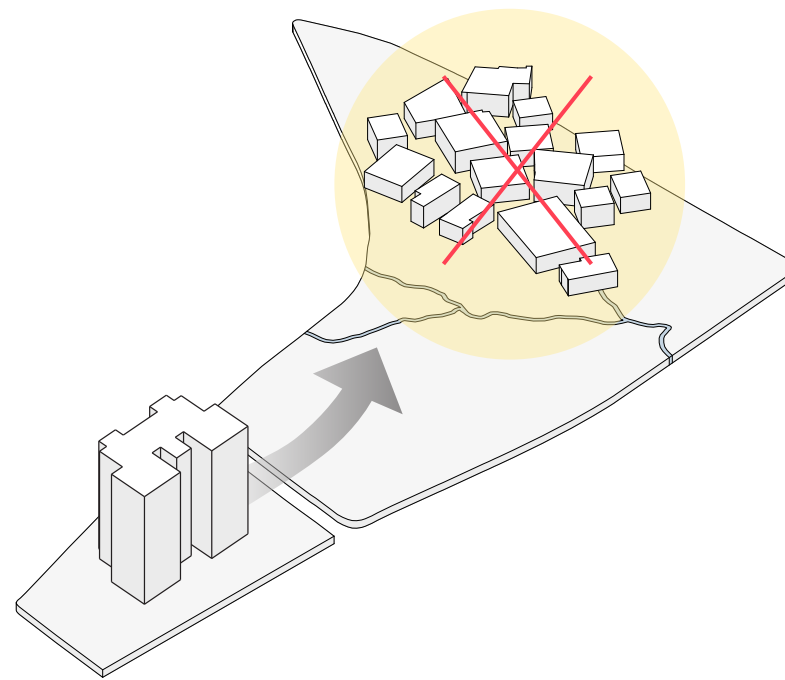
The Site in 2010

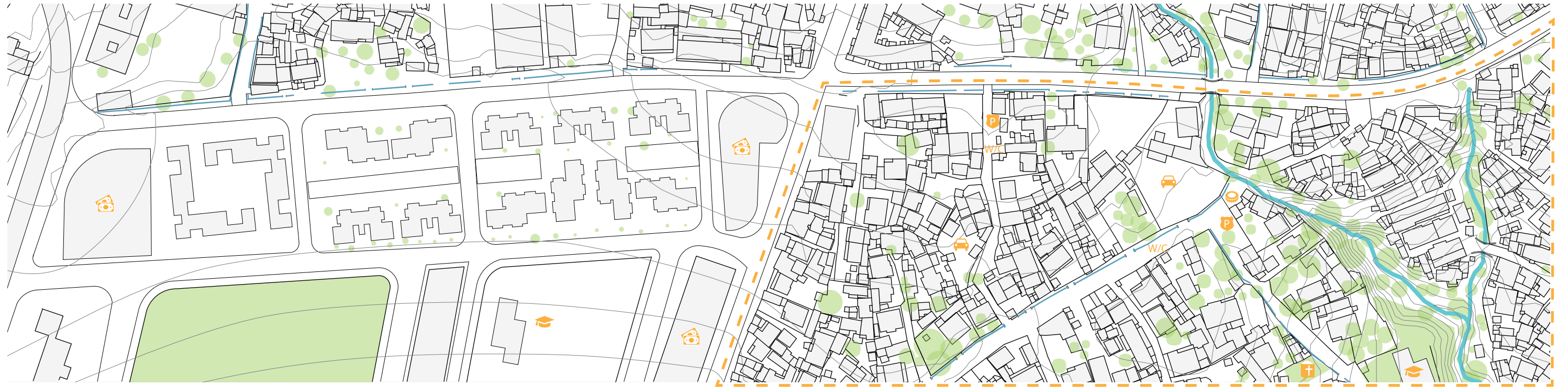




The Site in 2011







Area: 5.9 hectares
Units: 390
Density: 206 units/hectare

The Site in 2011



Area: 5.9 hectares
Units: 1238
Density: 217 units/hectare

105% increase

If Development Progresses in the Current Manner...



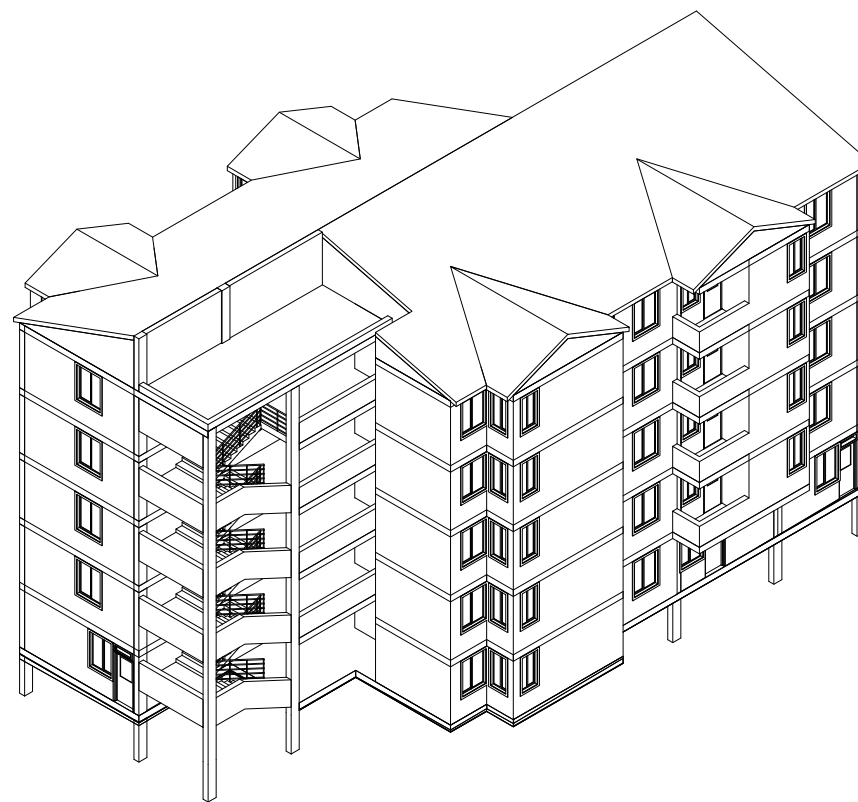
streets

courtyards

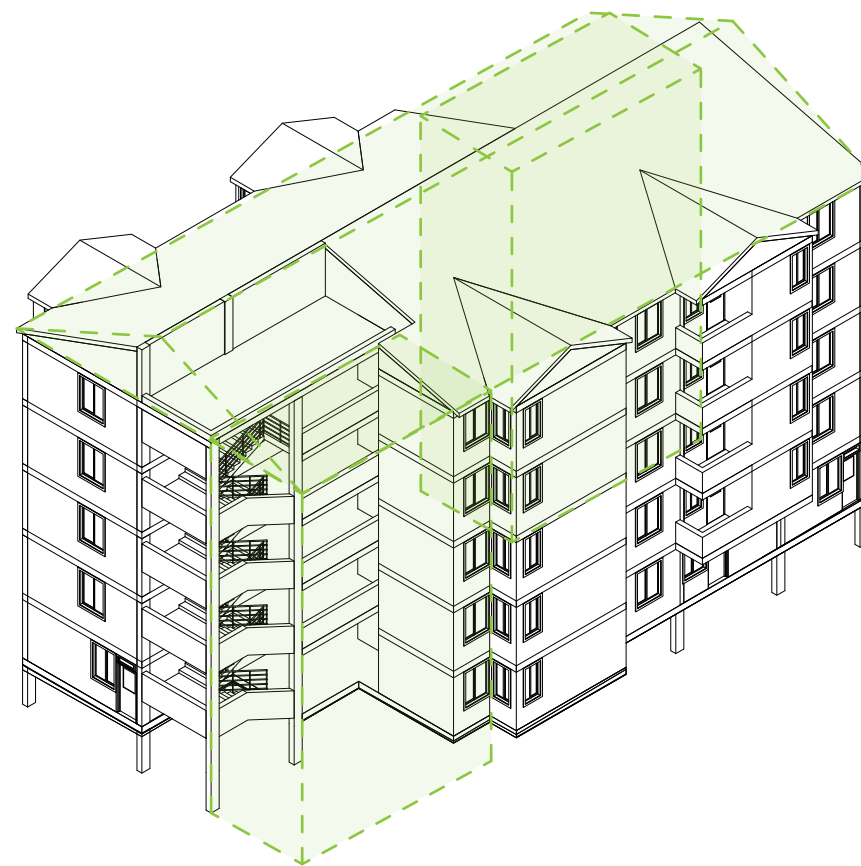
ground plane

Site Issues

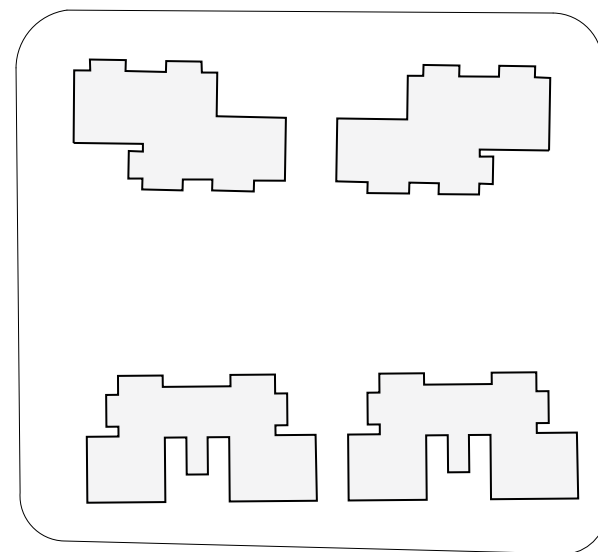
Design Statement



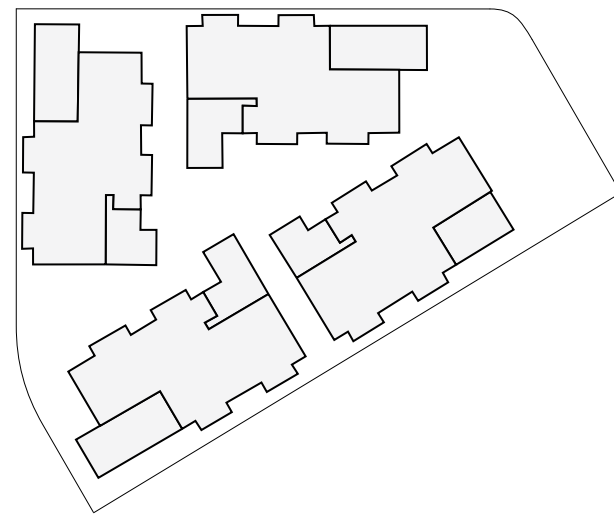
Existing Condominium Typology



Additions



Existing Condominium Block Plan



Site Specific Block Plan

Development Phases



Step 3: Phasing



Phasing.



Phasing..



Phasing...



Phasing....



Phasing.....



Phasing.....



Phasing.....



Phasing.....



Phasing.....



Phasing.....



Phasing.....



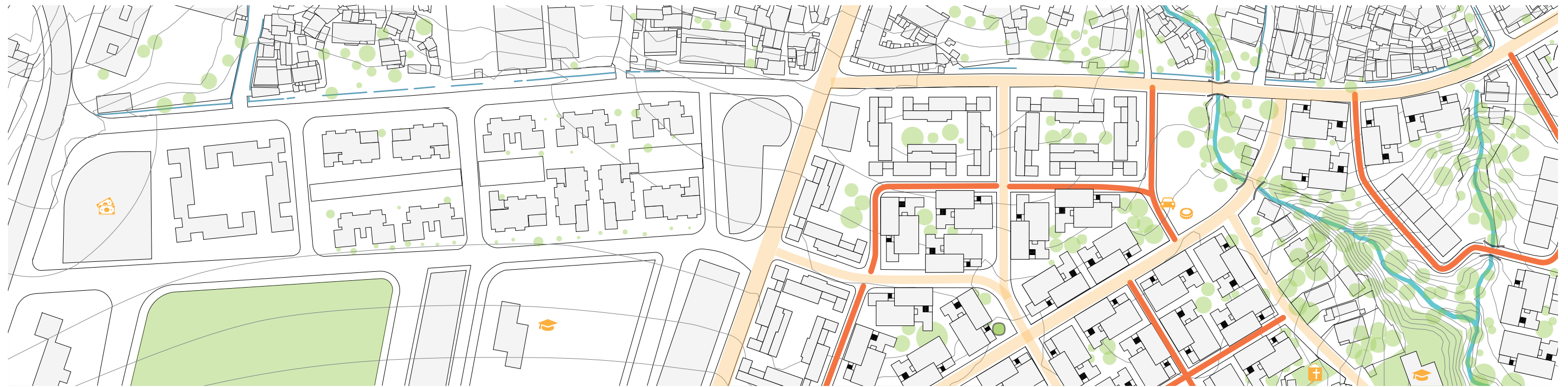
Condominium 3.0



Condominium 3.0 - Major Surrounding Roads



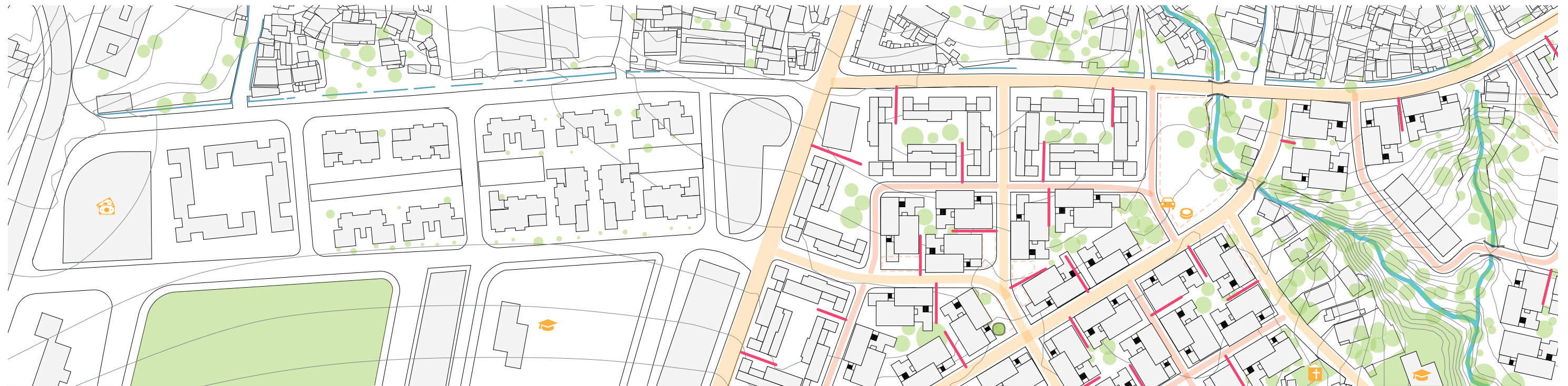
Condominium 3.0 - Through Traffic



Condominium 3.0 - Local Streets



Condominium 3.0 - Public Spaces



Condominium 3.0 - Courtyard Access



Condominium 3.0 - Courtyards

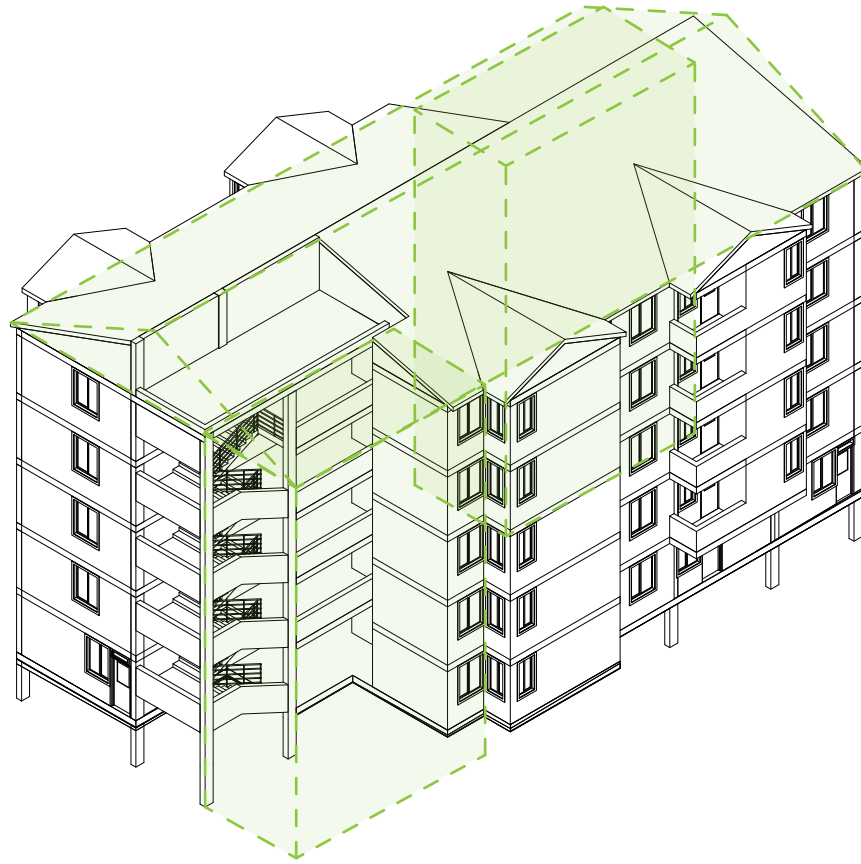


Area: 5.9 hectares
Units: 1594
Density: 270 units/hectare

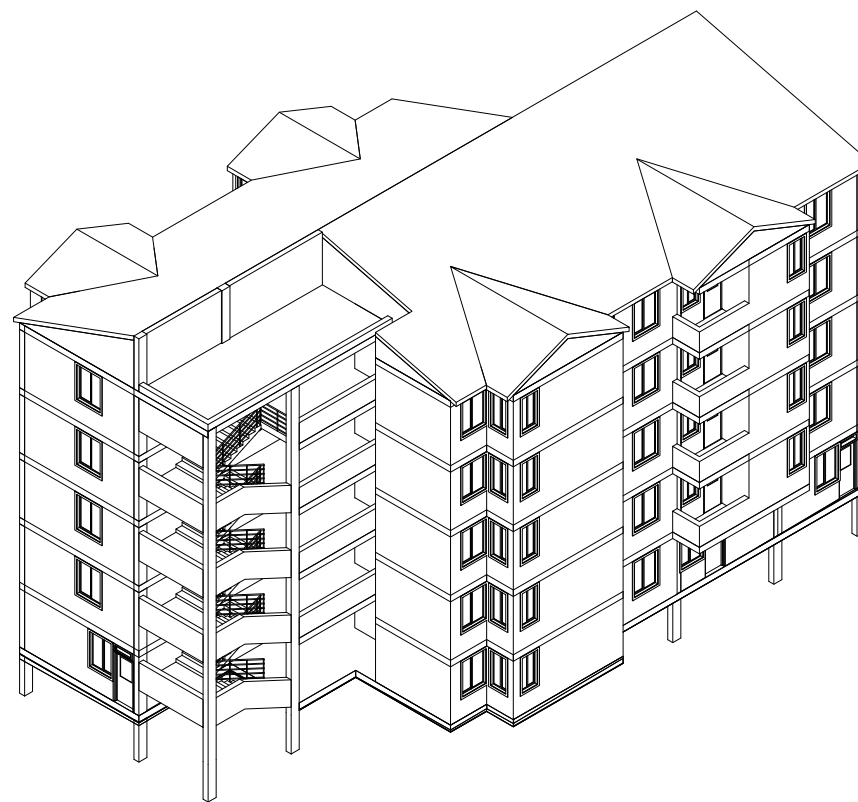
130% increase in density

Step 3: Condominium 3.0

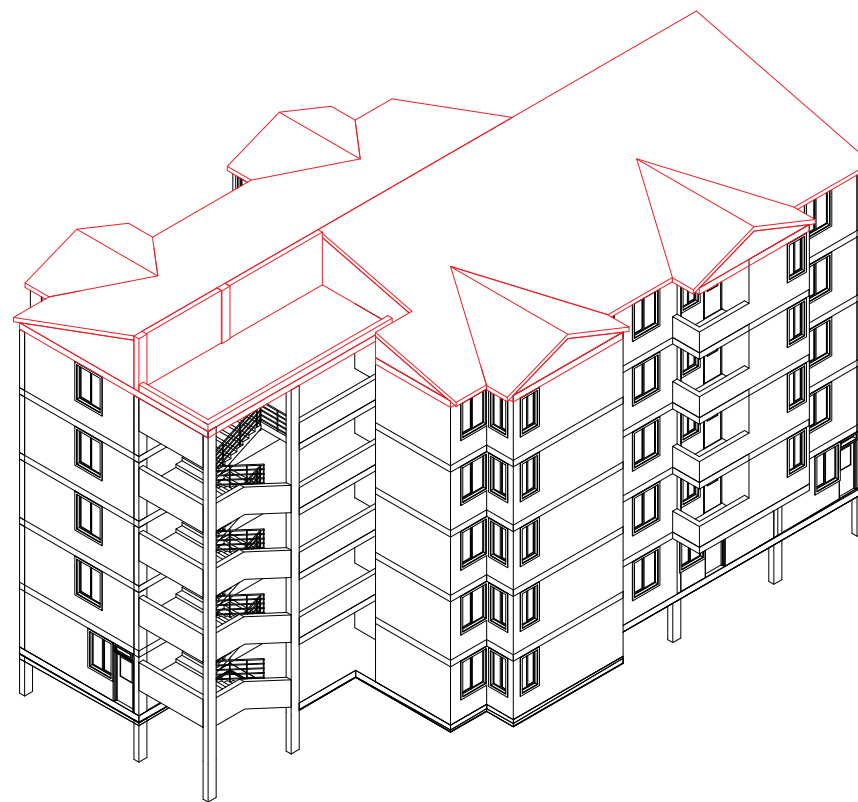
Site and Building Design



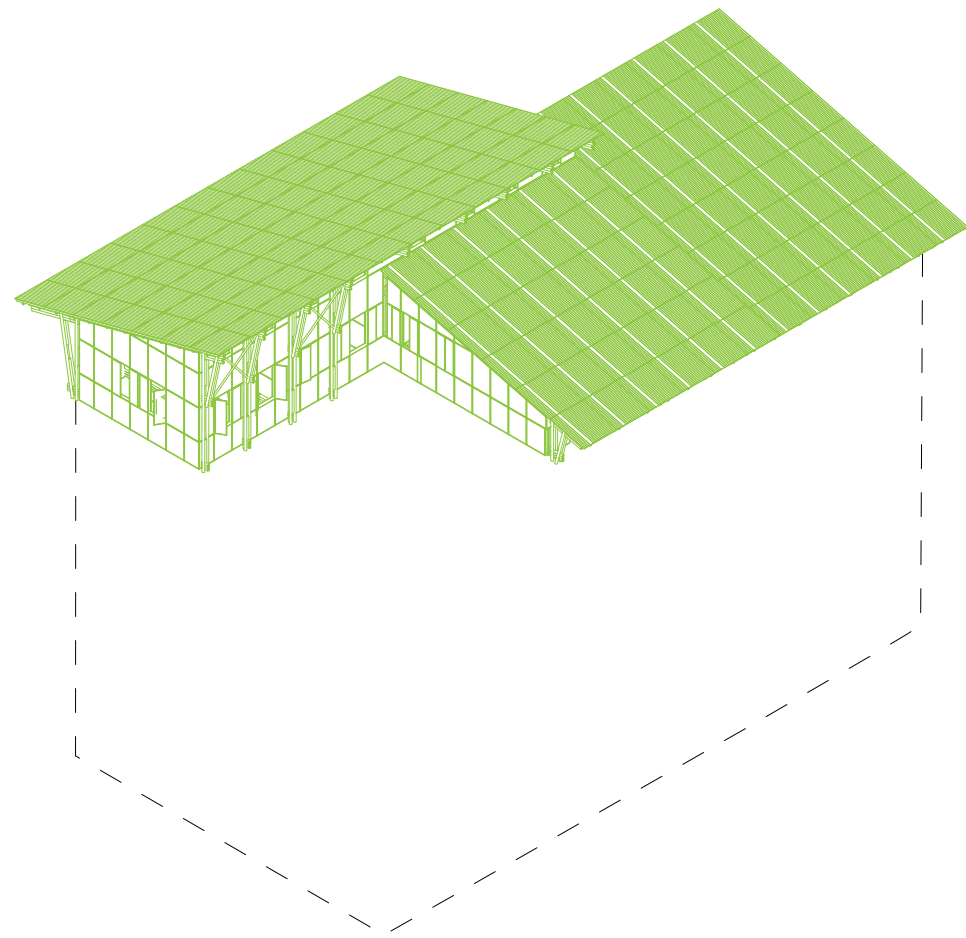
Additions



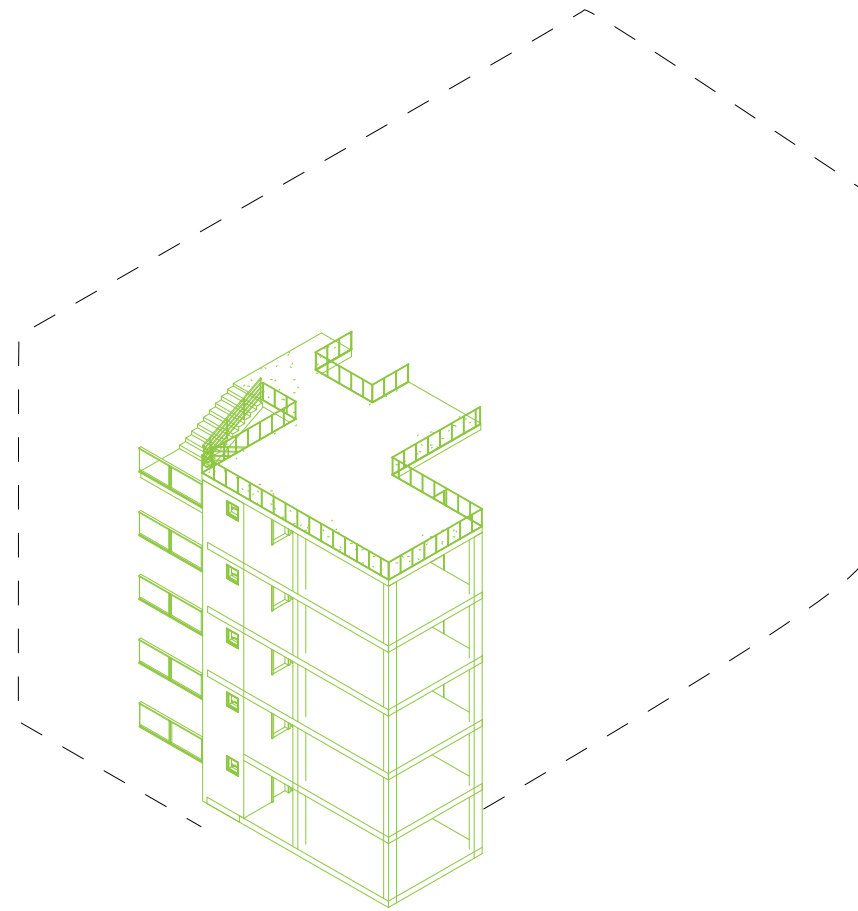
Existing Condominium Typology



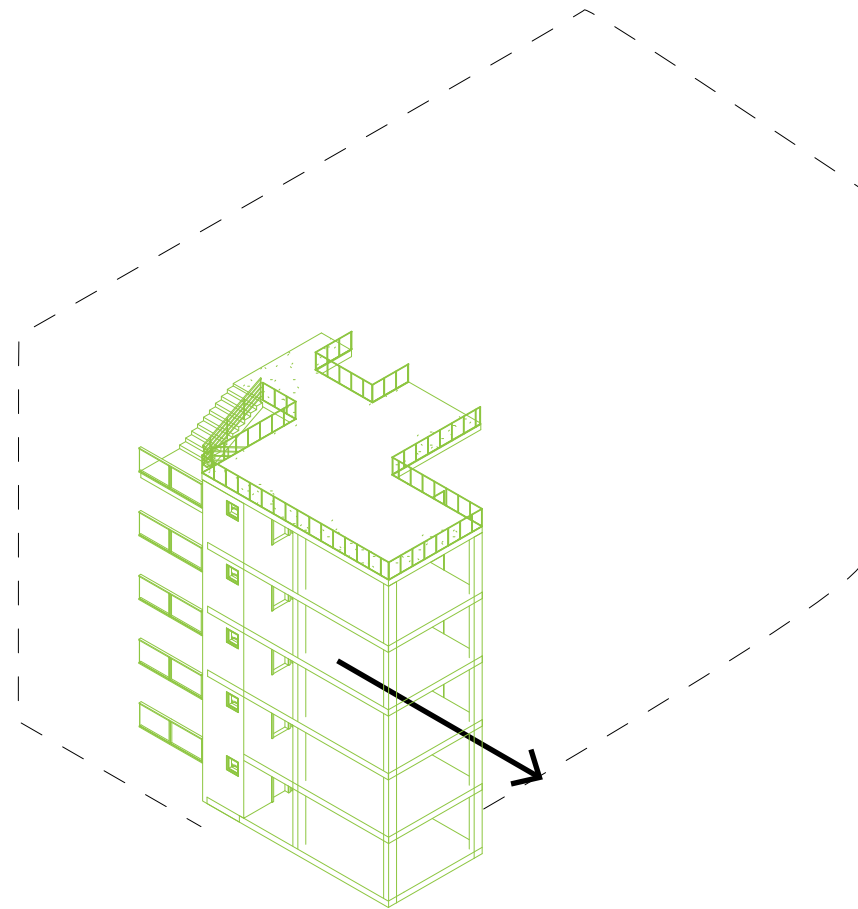
Existing Roof Demolished



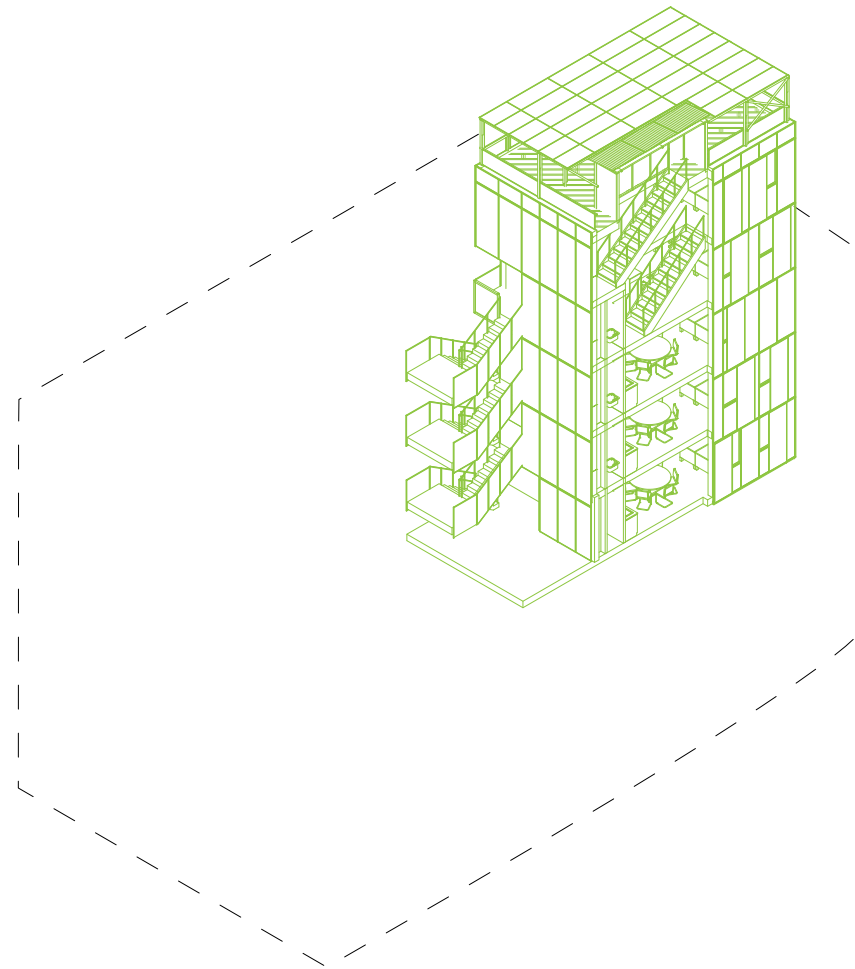
Penthouse Roof Addition



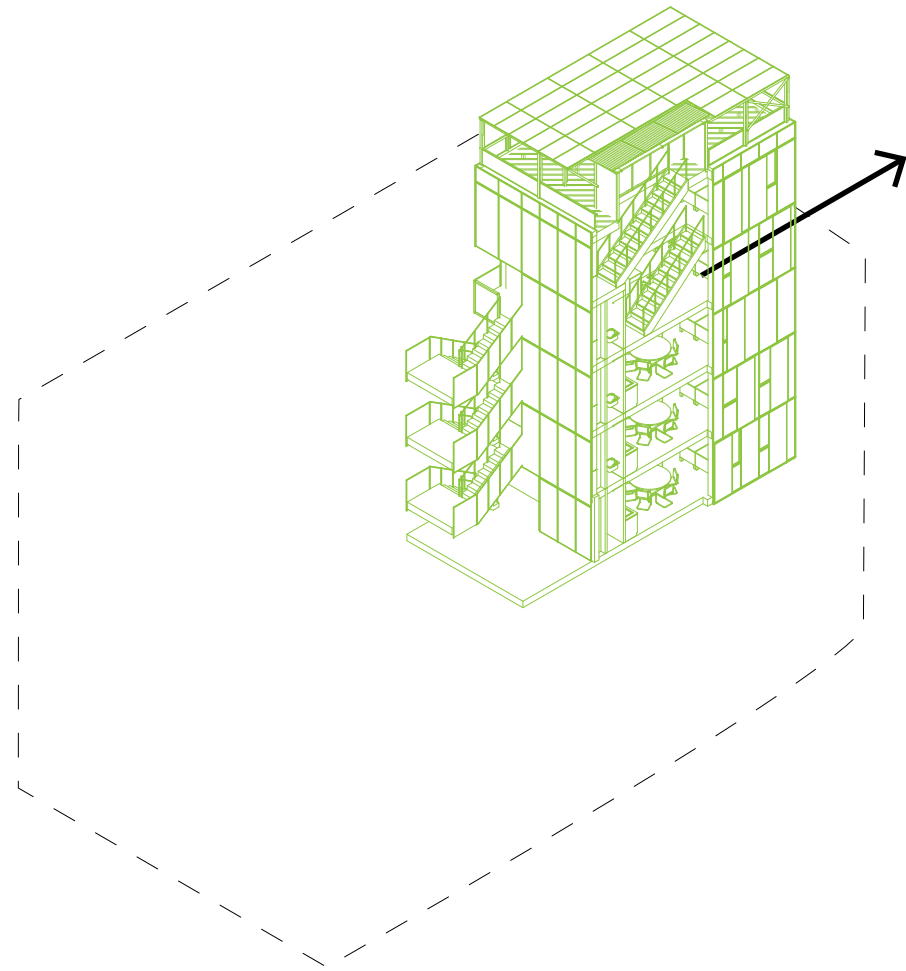
Slab and Service Addition



Slab and Service Addition



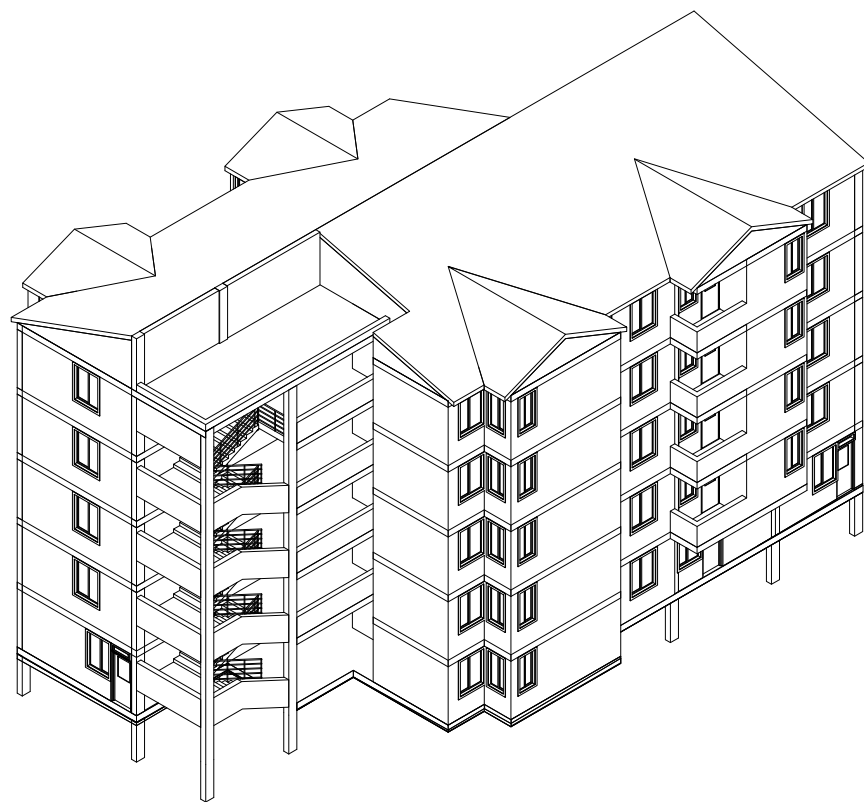
Office Addition



Office Addition



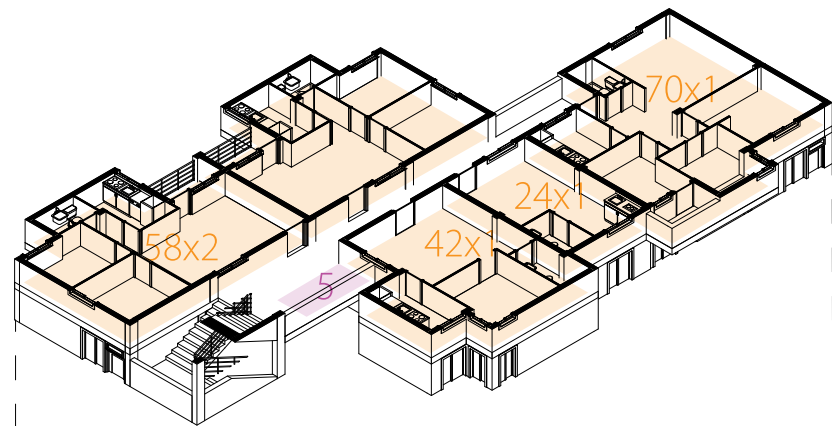
Condominium 3.0



Existing Condominium Typology

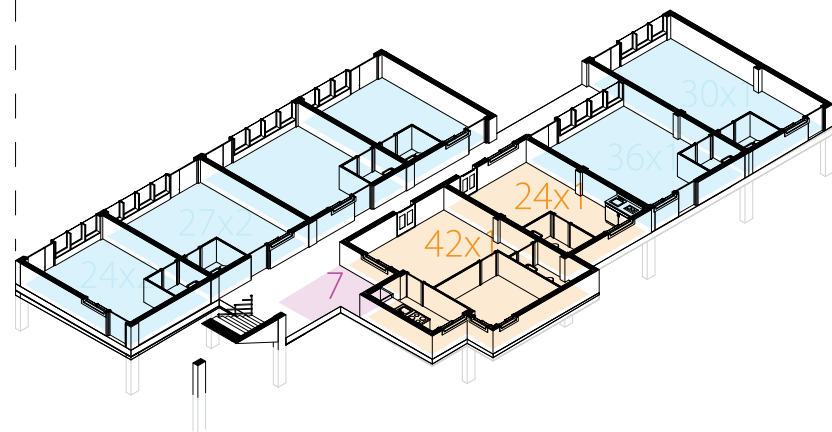


Condominium 3.0



x4 = 1008

=5



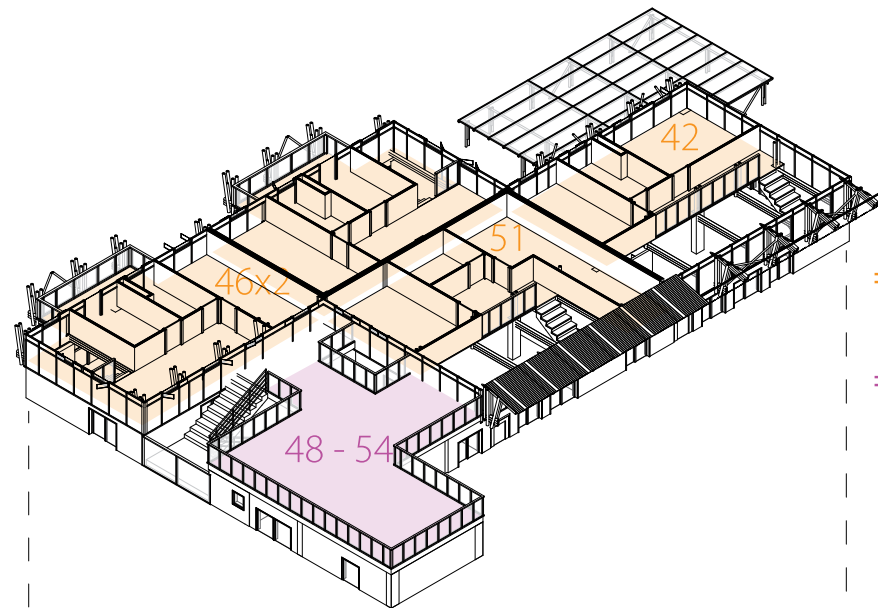
=66

=168

=7

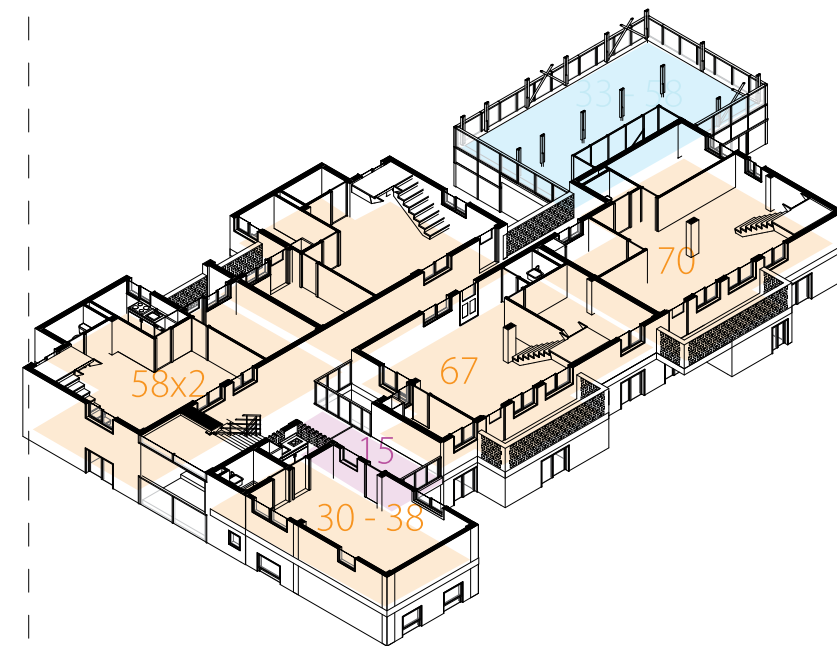
T=1074 residential
T=168 commercial
T=12 communal

Existing Condominium Typology



=185

=51



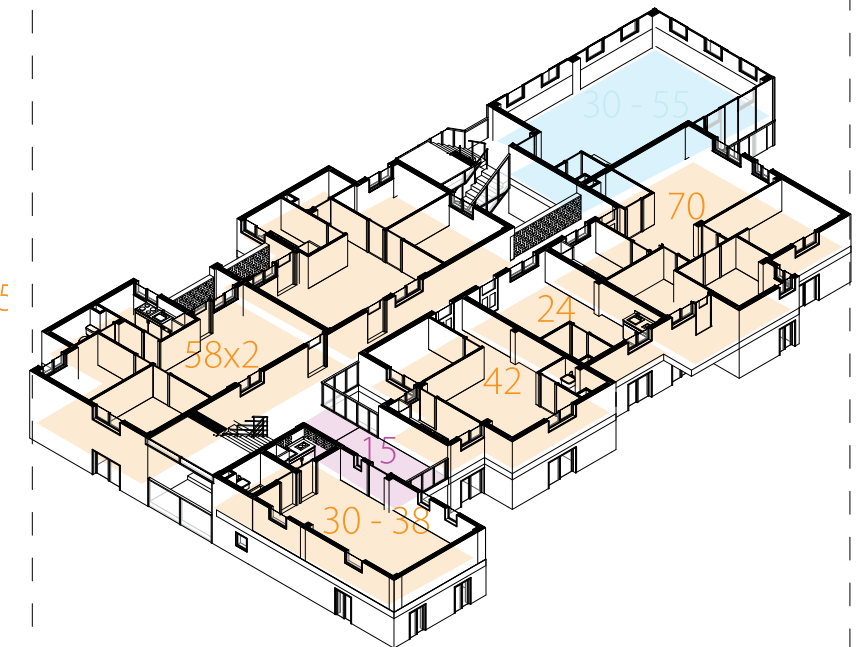
=28

=45

=15

T=1500 140% increase
T=294 175% increase
T=146 1217% increase

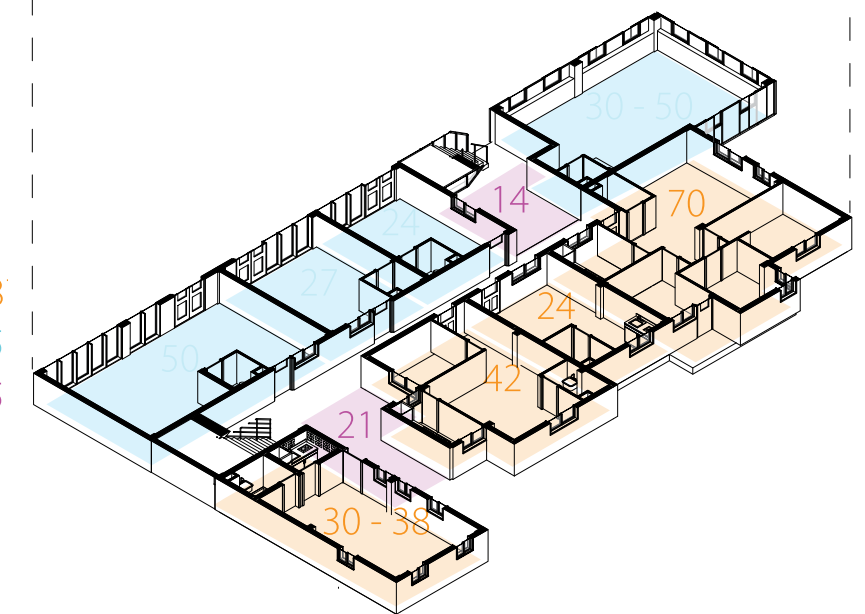
Condominium 3.0



x3 = 85

x3 = 12

x3 = 45



=170

=121

=35



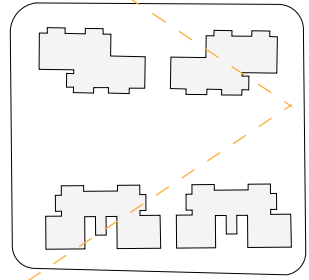
Condominium 3.0 - Focus Block

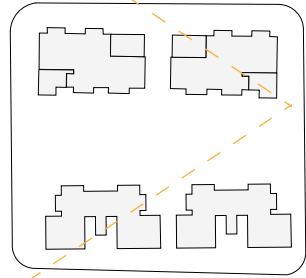


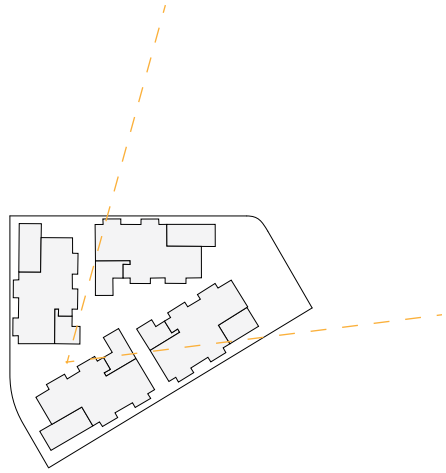
Condominium 3.0 - Comparative Block

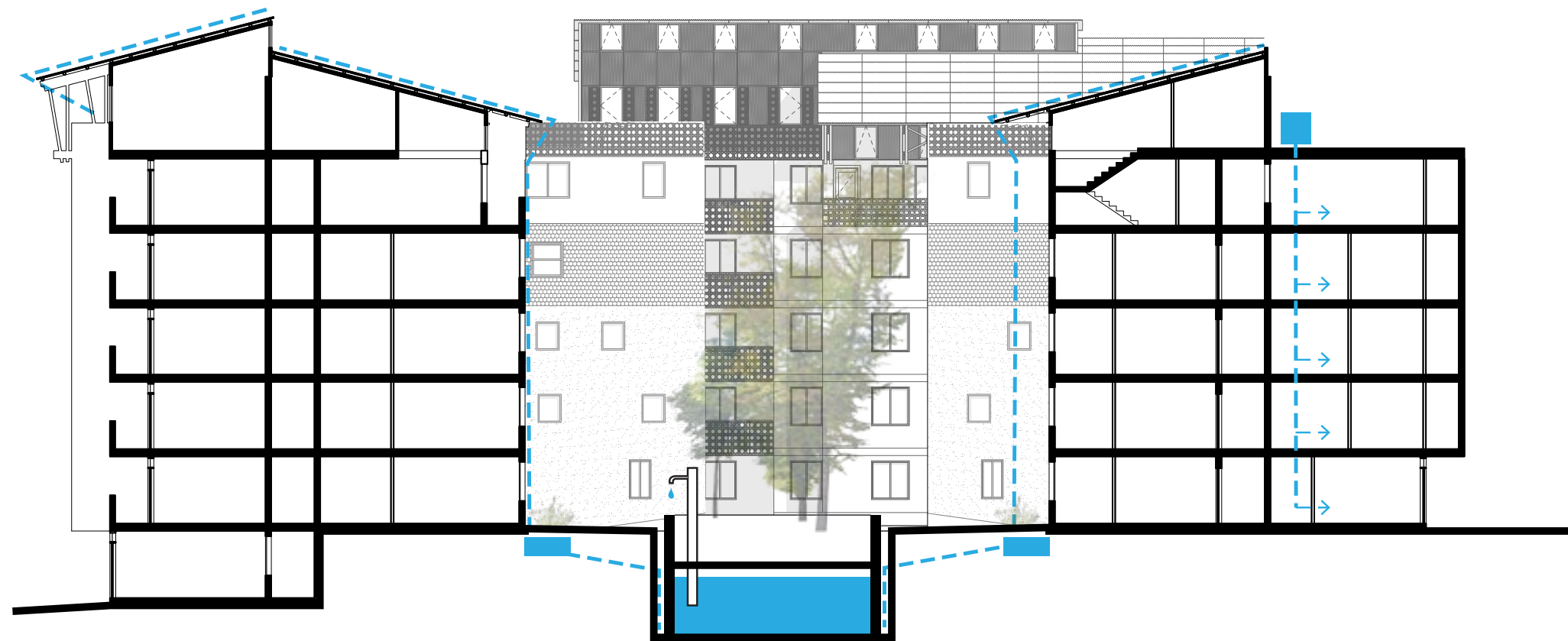


Block Plan Level 0

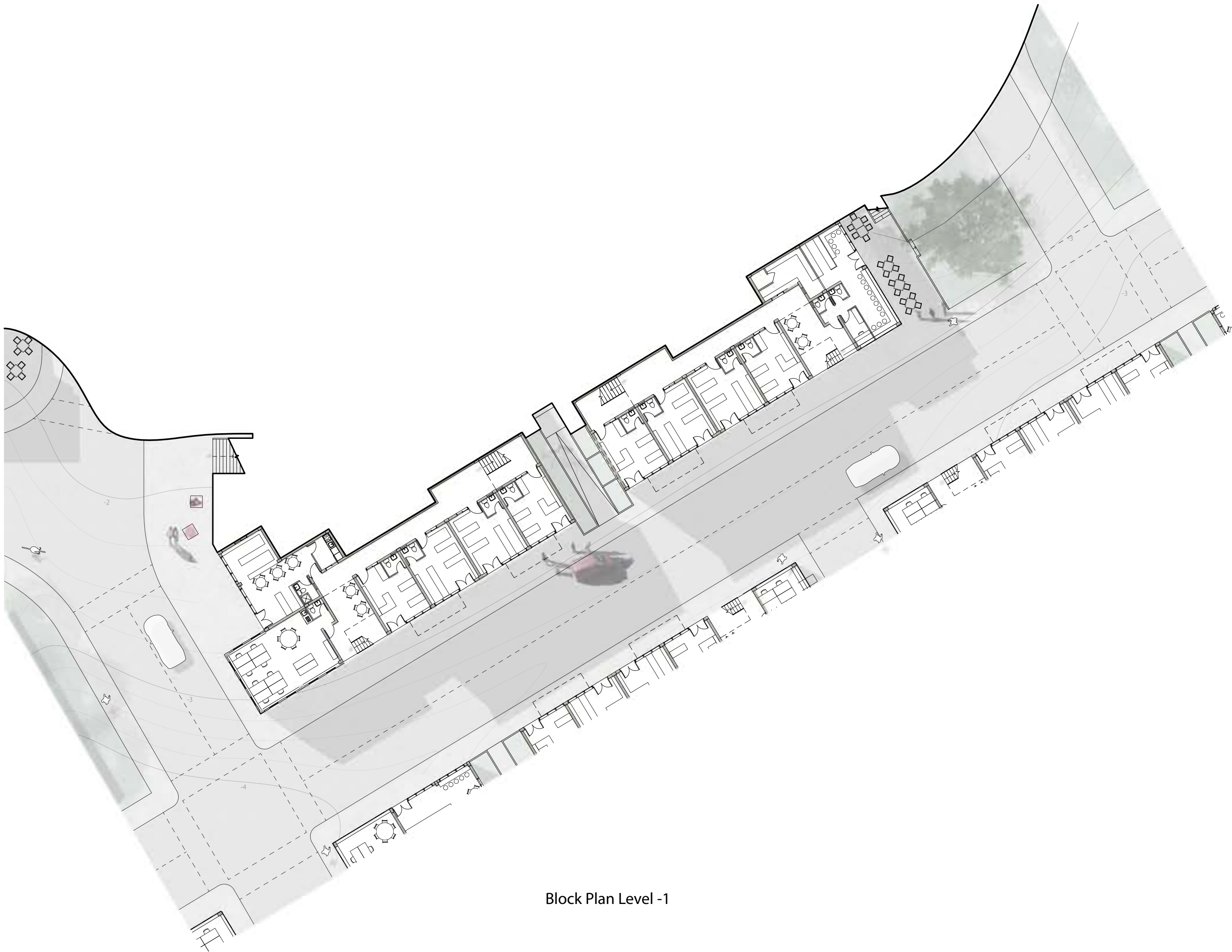




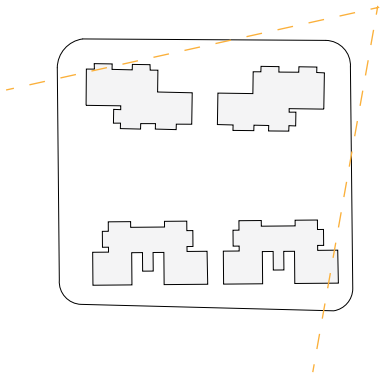


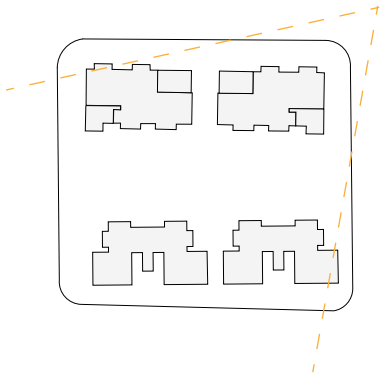


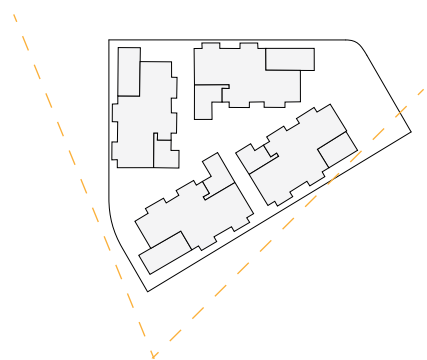
Rain Water Management

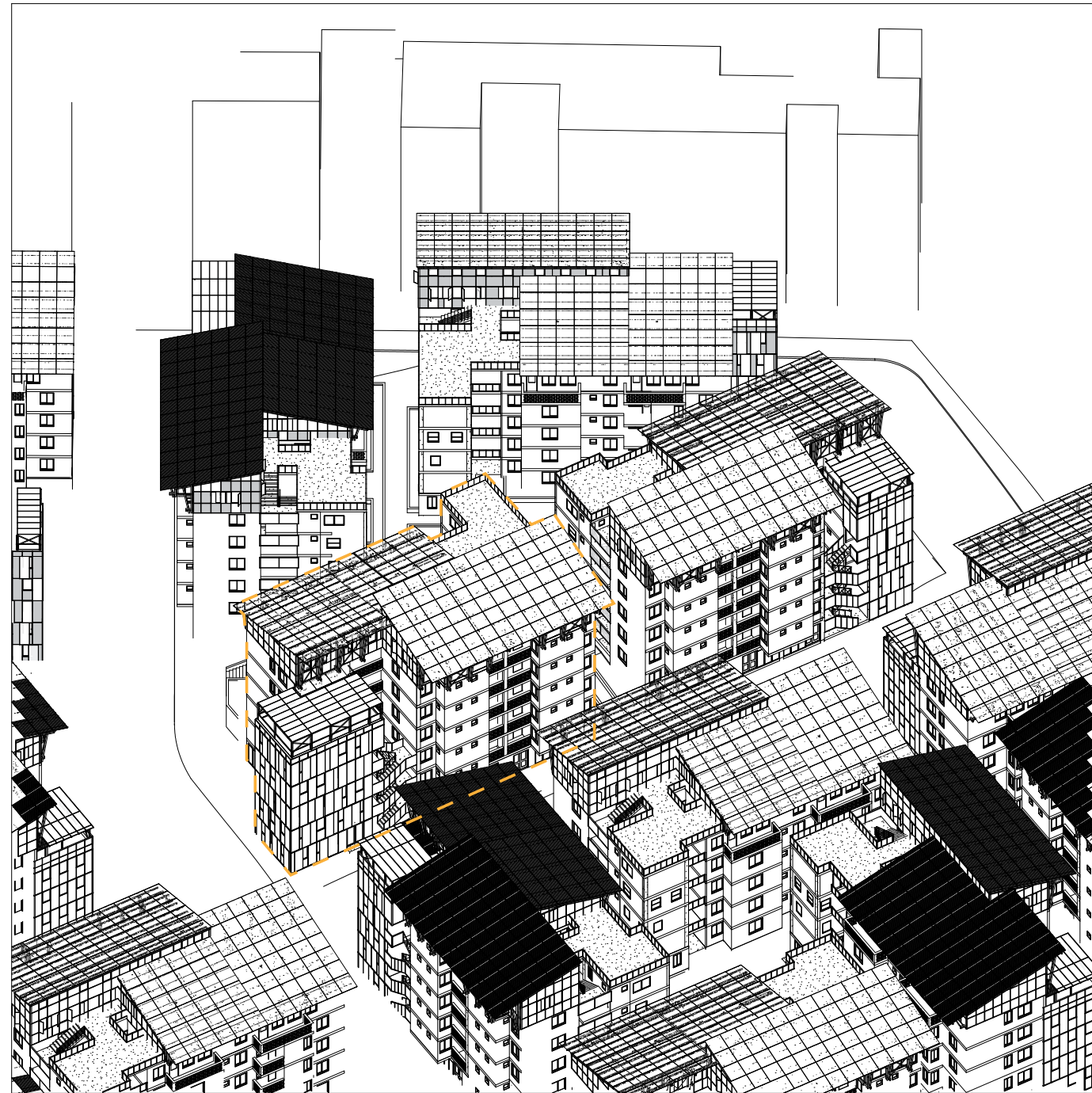


Block Plan Level -1

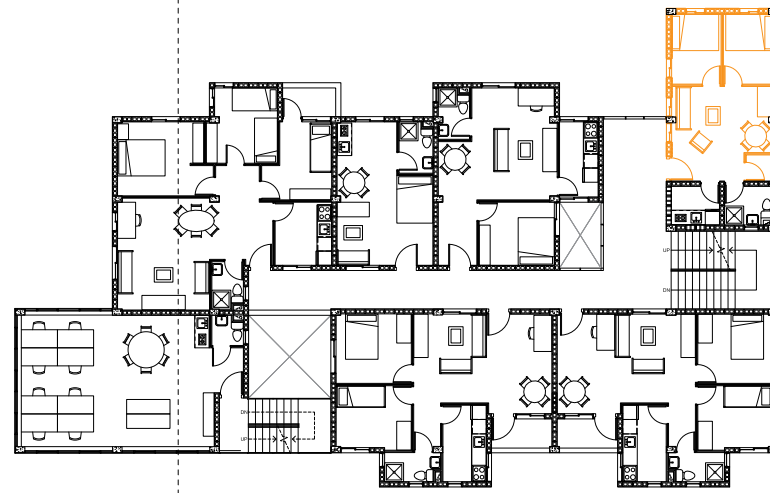




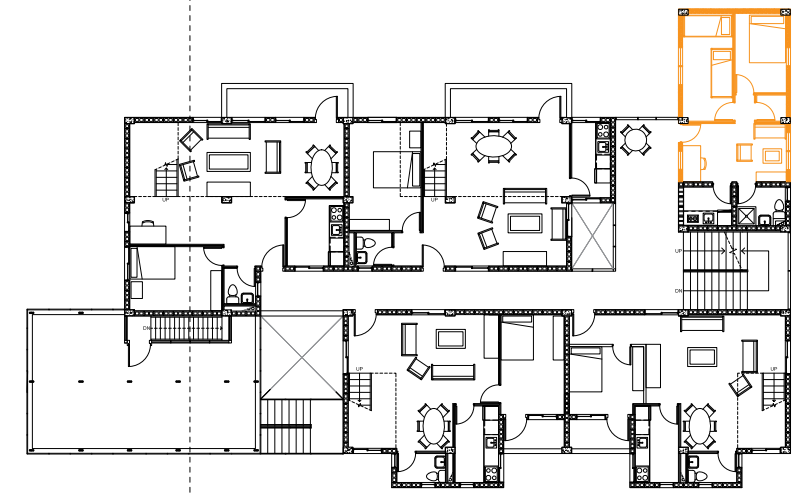




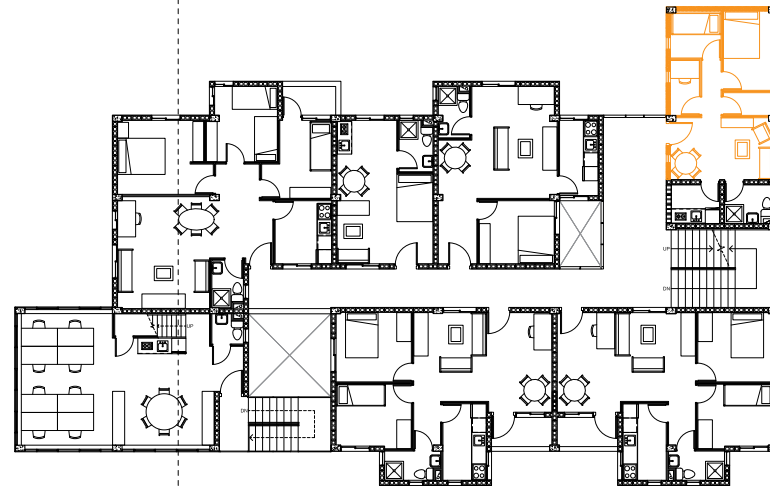
Focus Building



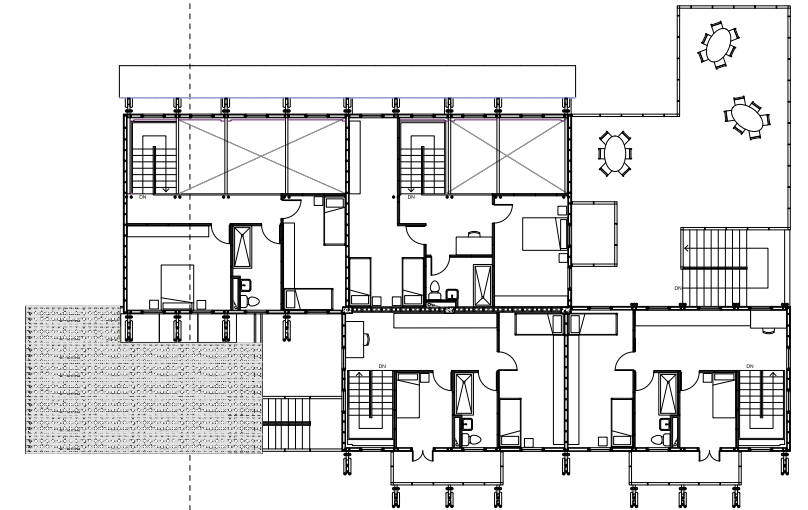
Level 1



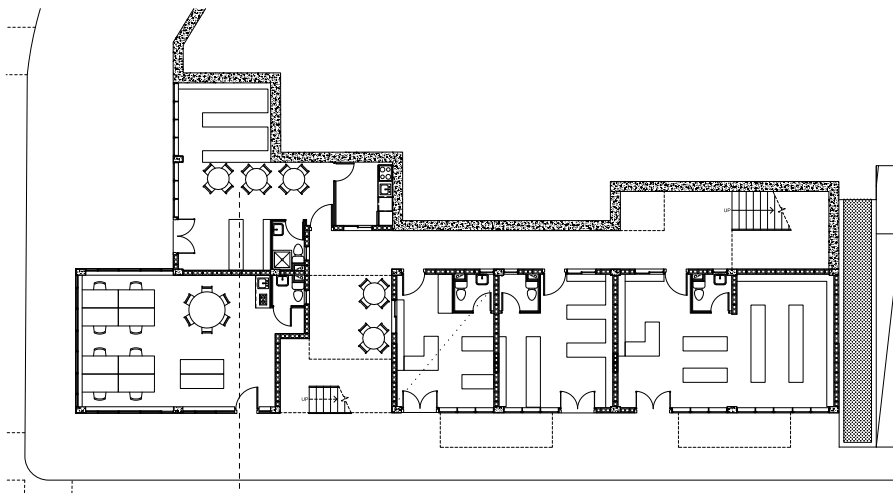
Level 4



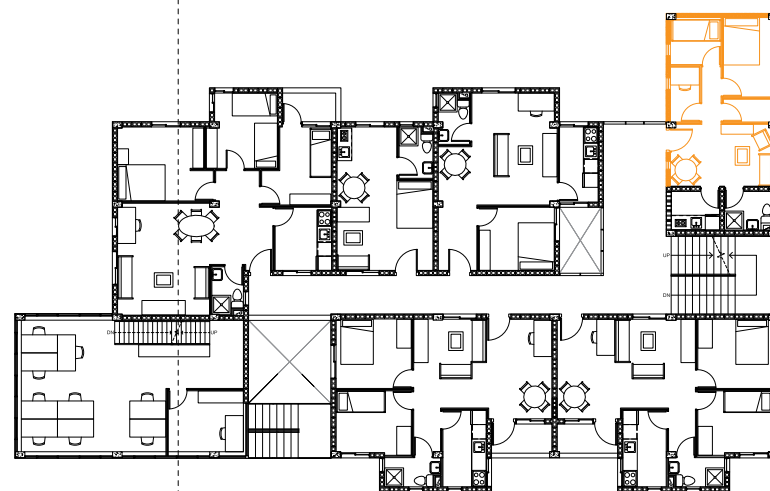
Level 2



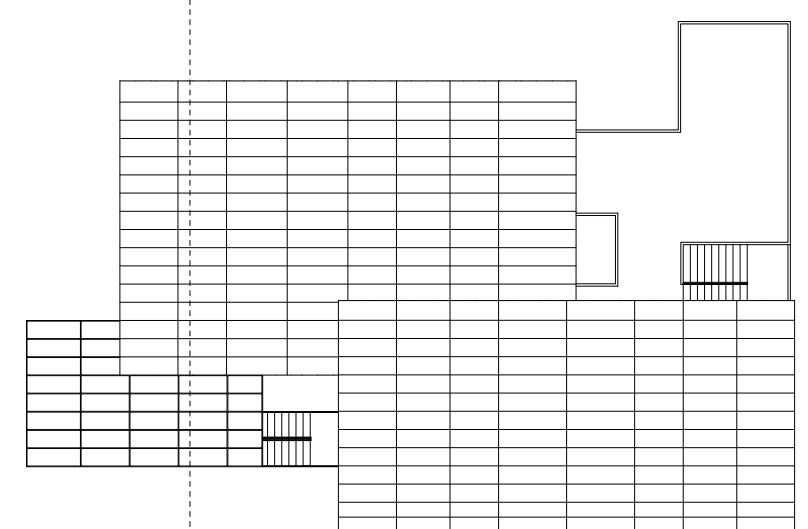
Level 5



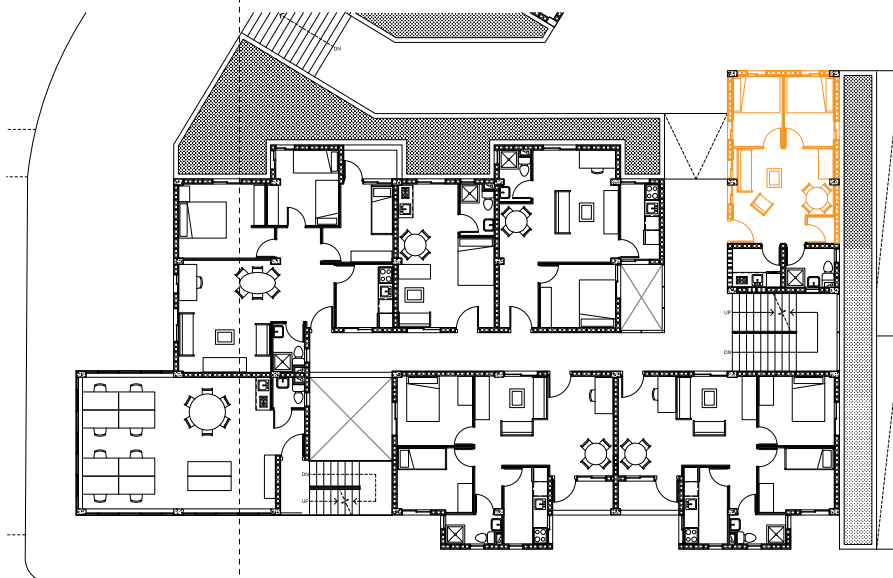
Level -1



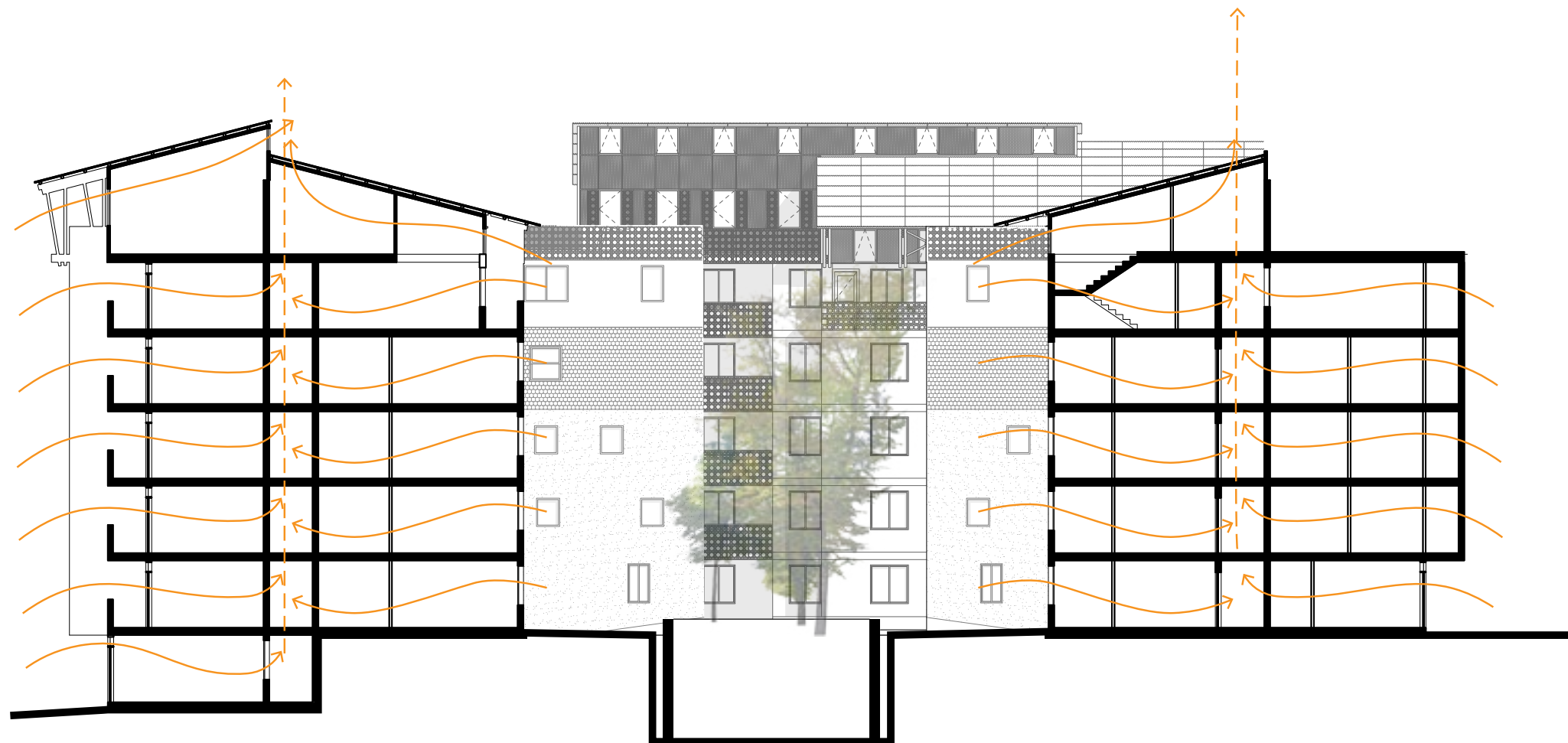
Level 3



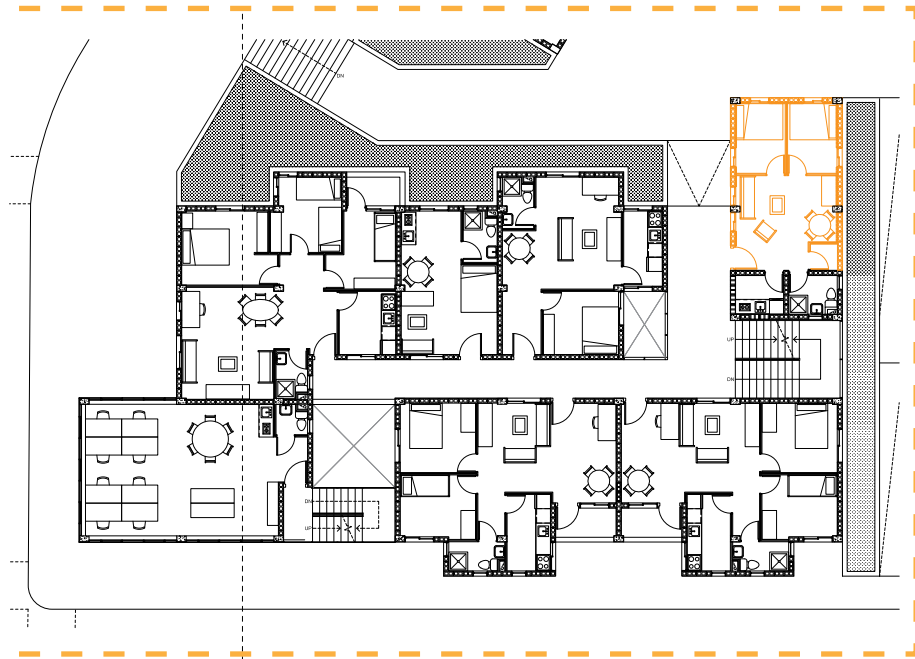
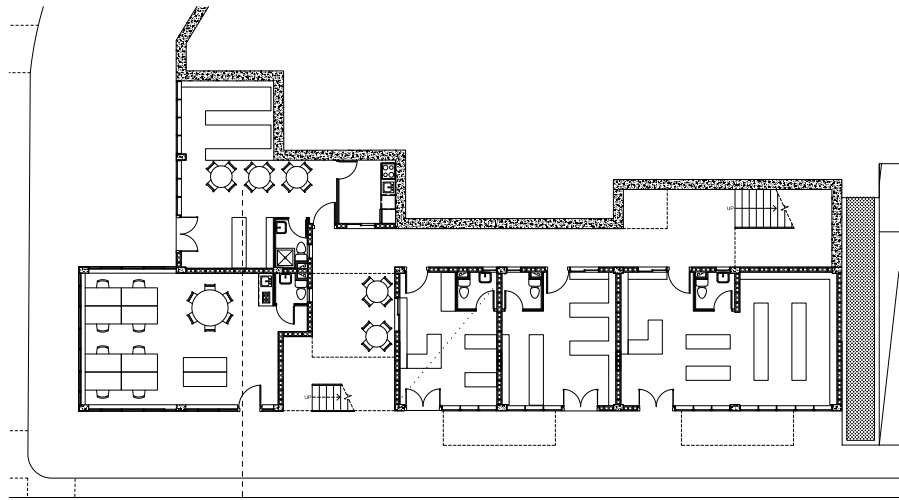
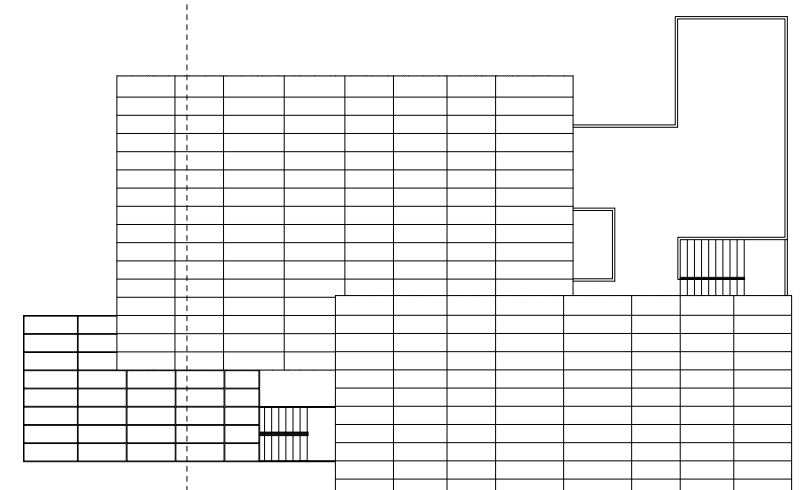
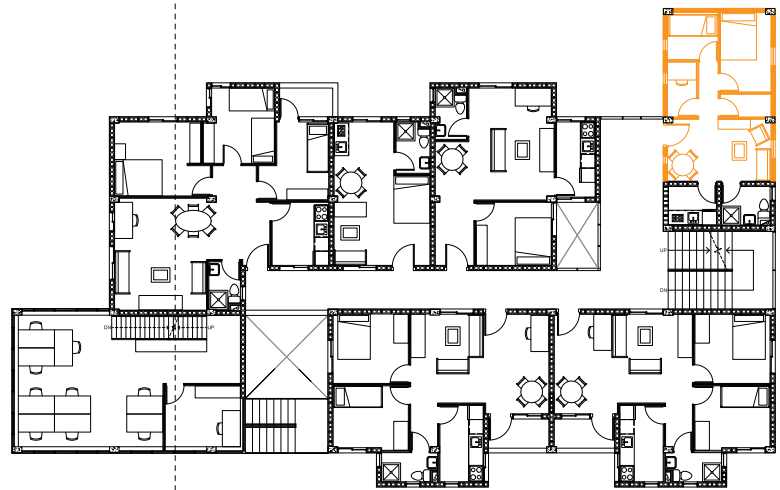
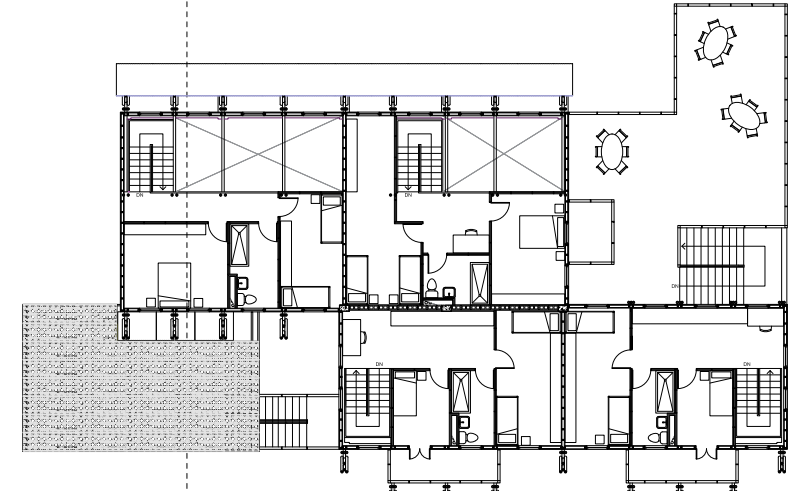
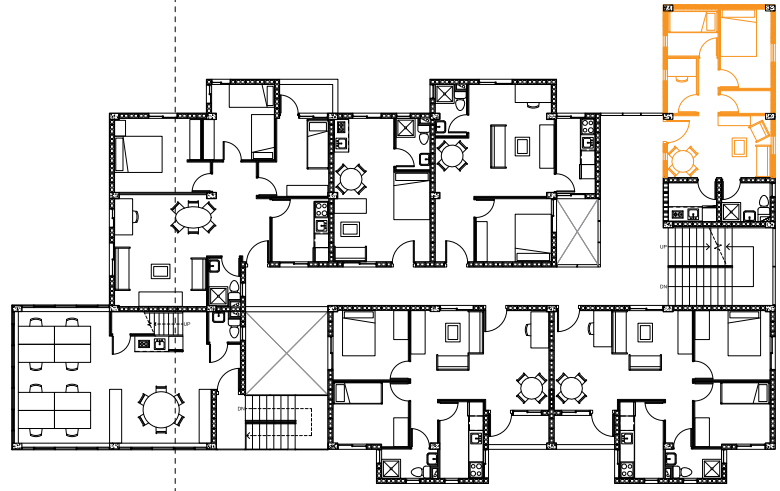
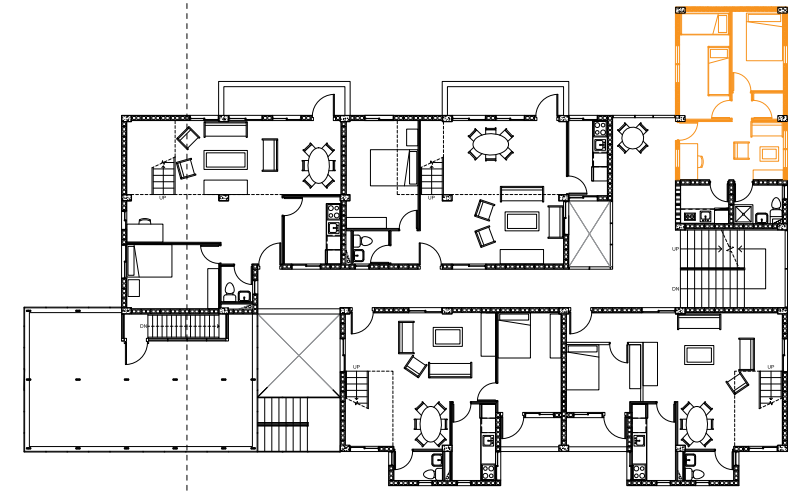
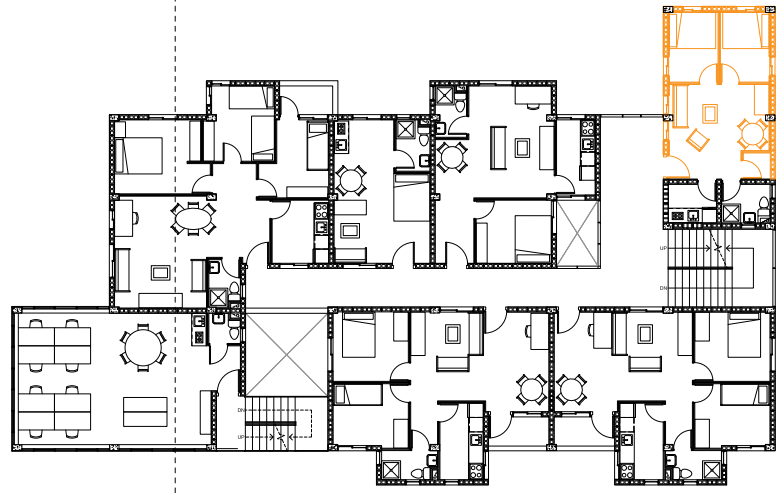
Roof



Level 0



Natural Ventilation

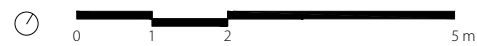
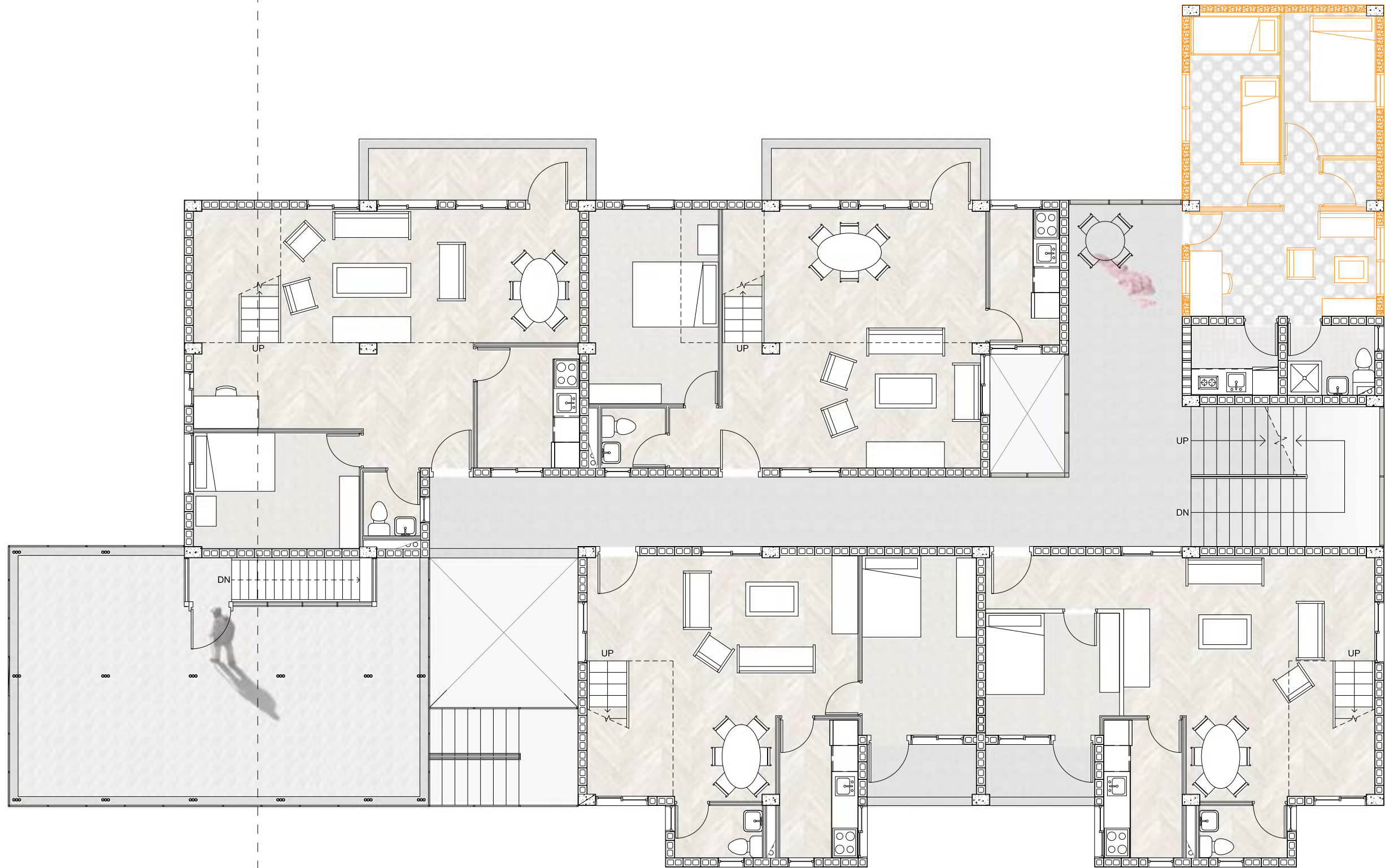




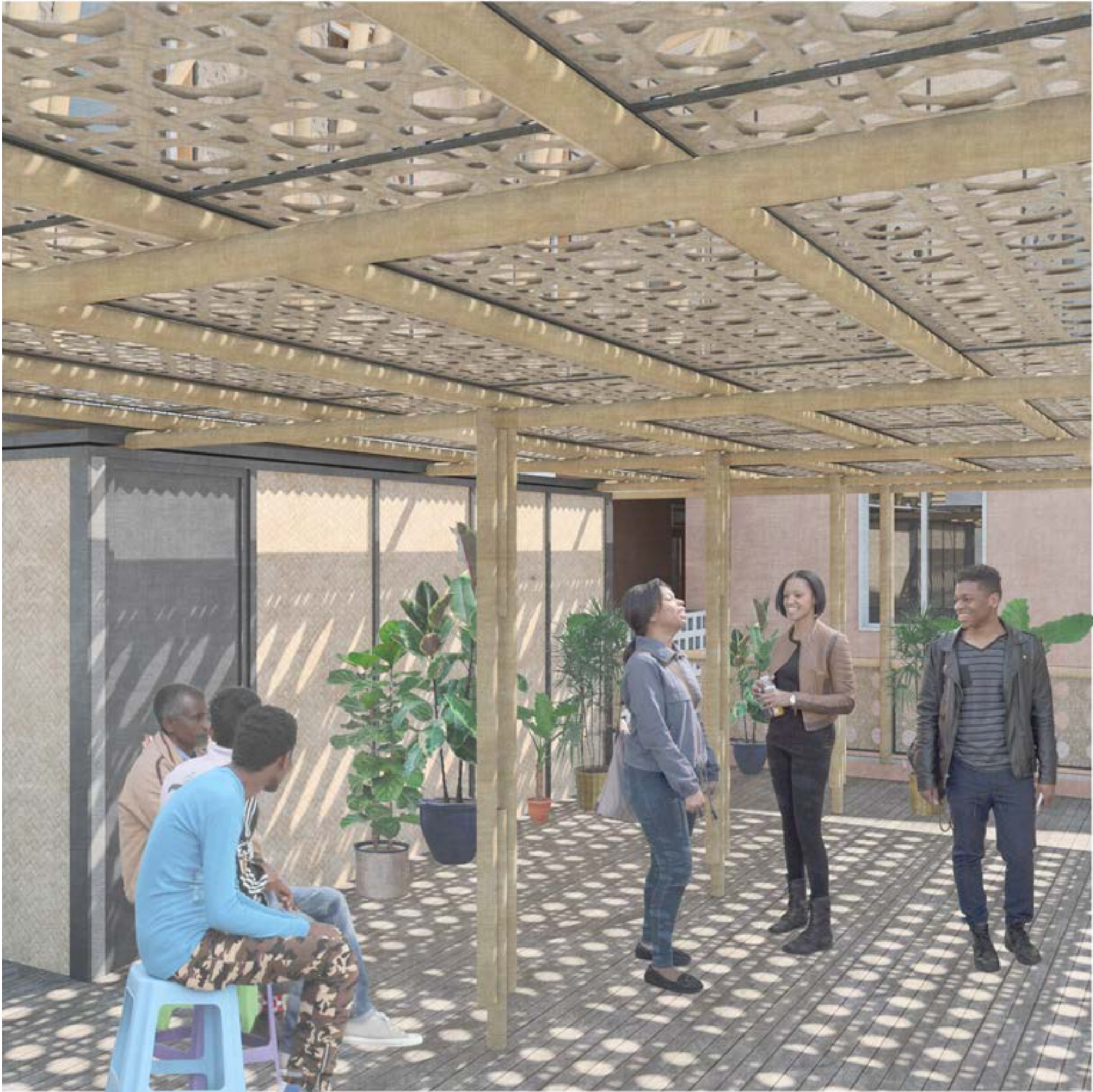
Level 0 Plan 1:50
Level 0



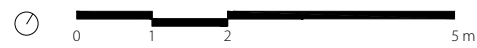
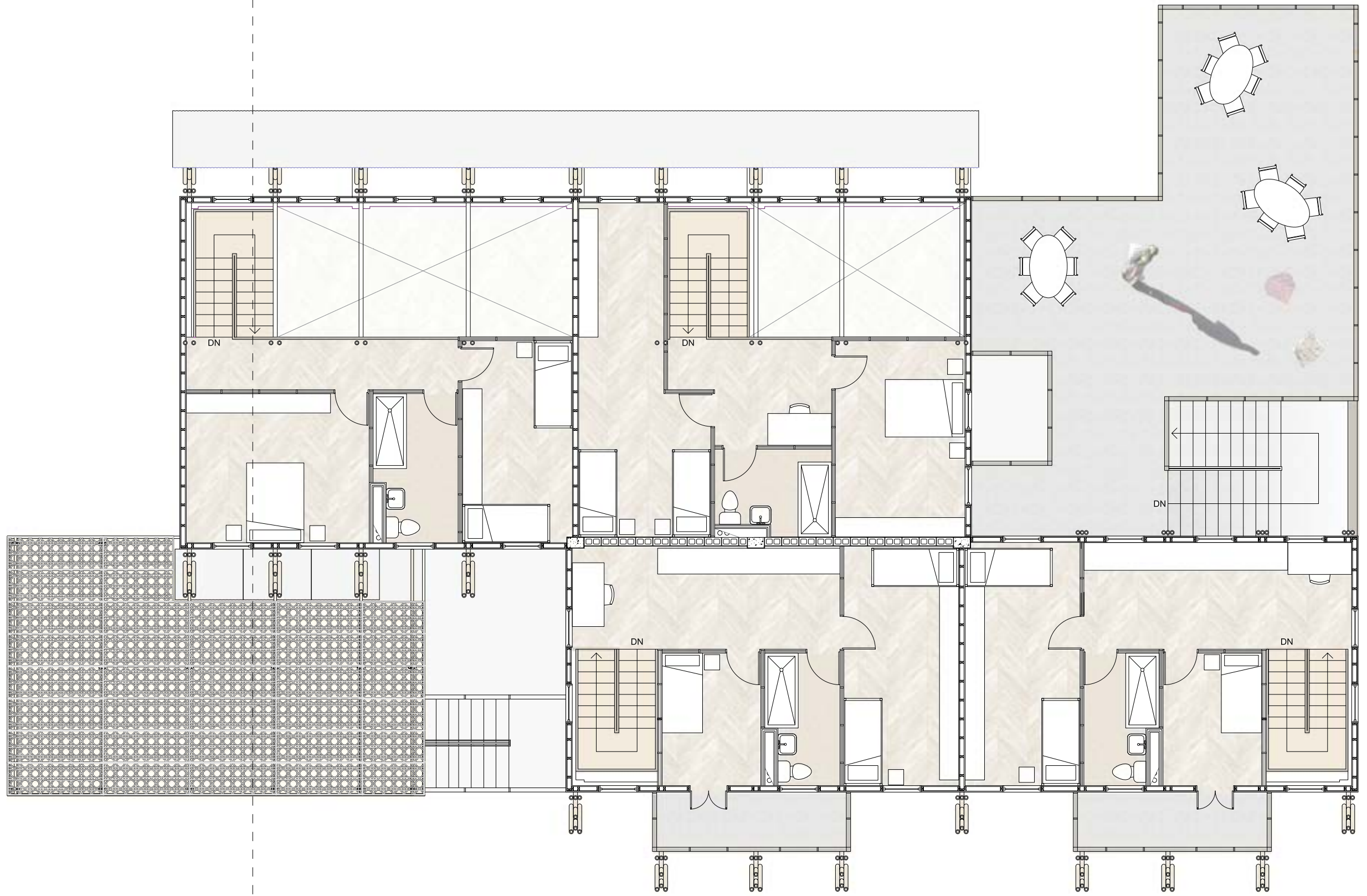




Level 4 Plan 1:50







Level 5 Plan 1:50







level 5
14.1 m

level 4
11.2 m

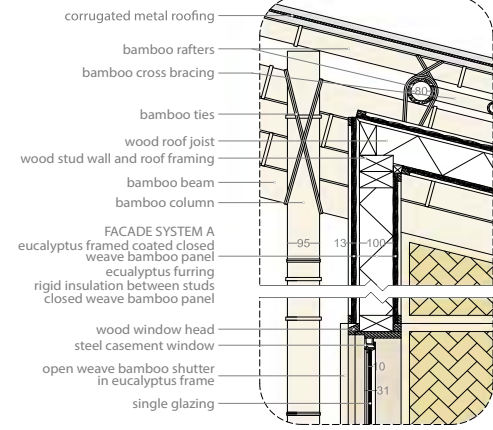
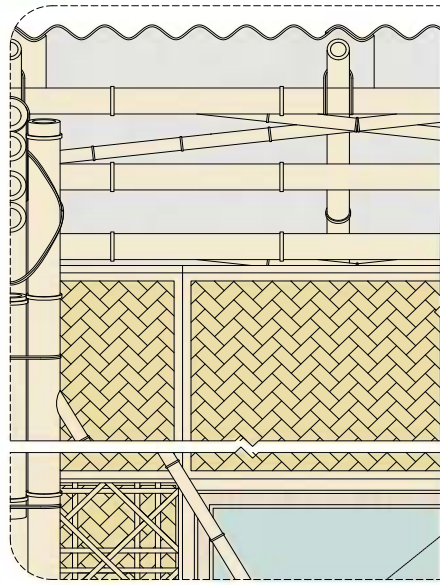
level 3
8.4 m

level 2
5.6 m

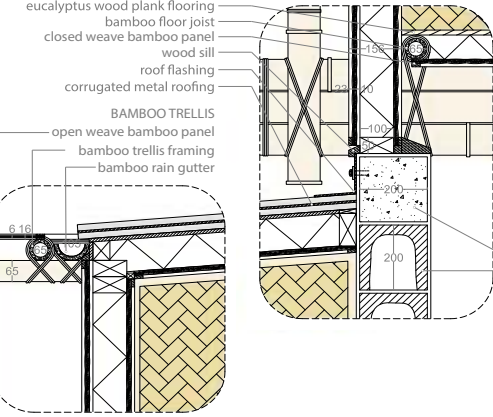
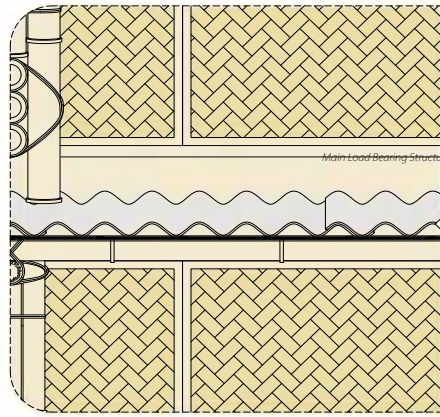
level 1
2.8 m

level 0
0 m

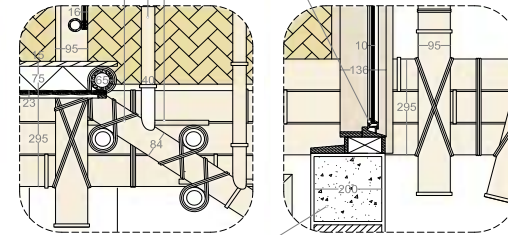
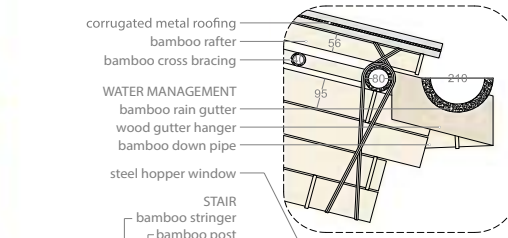
level -1
-2.8 m



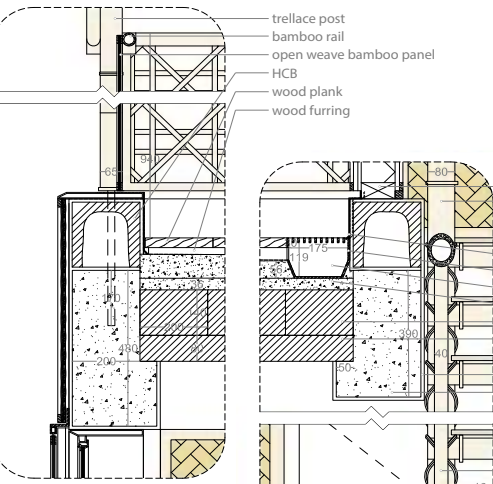
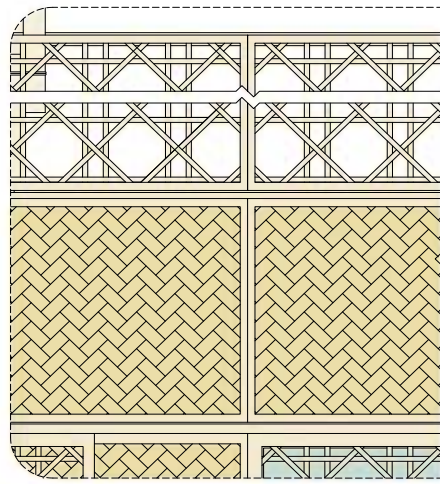
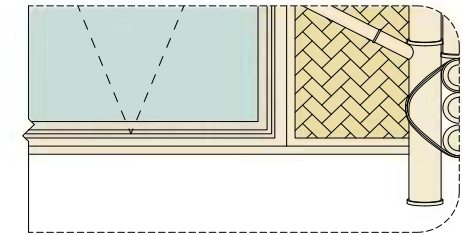
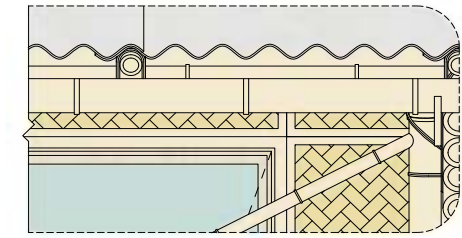
- corrugated metal roofing
- bamboo rafters
- bamboo cross bracing
- bamboo ties
- wood roof joist
- wood stud wall and roof framing
- bamboo beam
- bamboo column



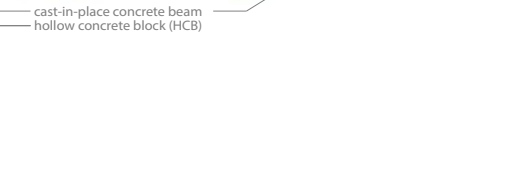
- FACADE SYSTEM A
- eucalyptus framed coated closed weave bamboo panel
- eucalyptus furring
- rigid insulation between studs
- closed weave bamboo panel
- wood window head
- steel casement window
- open weave bamboo shutter in eucalyptus frame
- single glazing



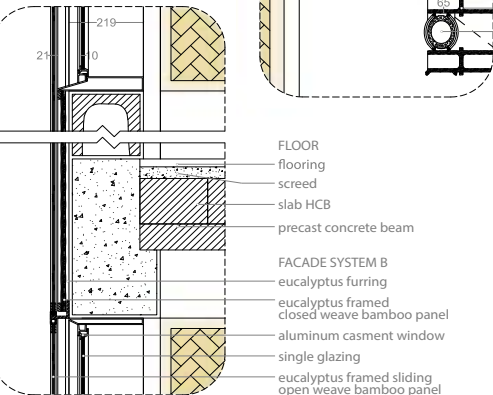
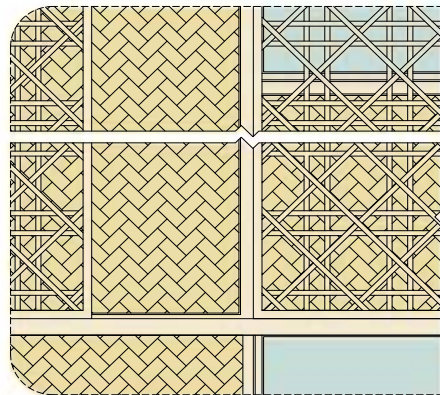
- corrugated metal roofing
- bamboo rafter
- bamboo cross bracing
- WATER MANAGEMENT
- bamboo rain gutter
- wood gutter hanger
- bamboo down pipe
- steel hopper window
- STAIR
- bamboo stringer
- bamboo post
- wood tread



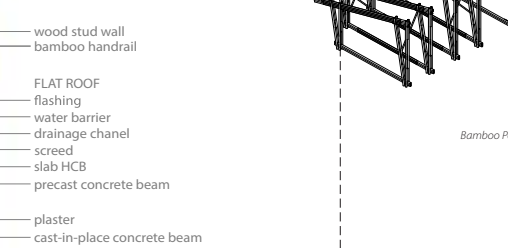
- eucalyptus wood plank flooring
- bamboo floor joist
- closed weave bamboo panel
- wood sill
- roof flashing
- corrugated metal roofing
- BAMBOO TRELLIS
- open weave bamboo panel
- bamboo trellis framing
- bamboo rain gutter
- trellace post
- bamboo rail
- open weave bamboo panel
- HCB
- wood plank
- wood furring



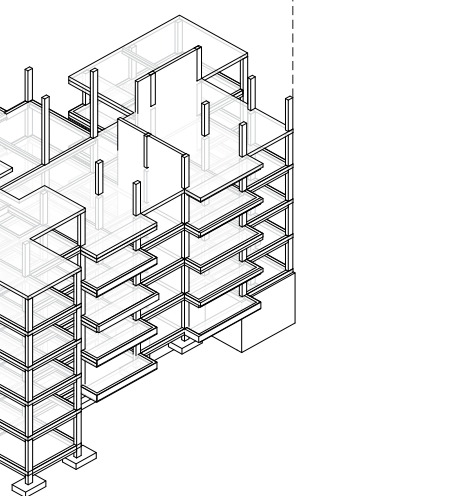
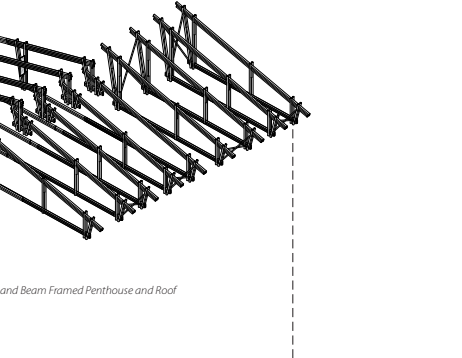
- cast-in-place concrete beam
- hollow concrete block (HCB)



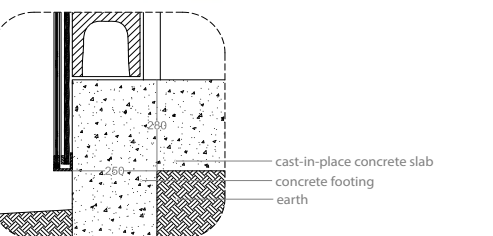
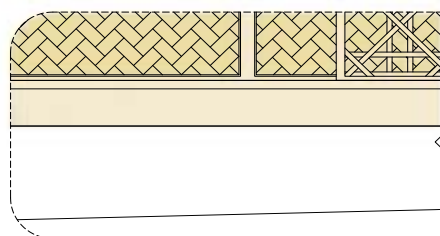
- FLOOR
- flooring
- screed
- slab HCB
- precast concrete beam
- FACADE SYSTEM B
- eucalyptus furring
- eucalyptus framed closed weave bamboo panel
- aluminum casement window
- single glazing
- eucalyptus framed sliding open weave bamboo panel



- wood stud wall
- bamboo handrail
- FLAT ROOF
- flashing
- water barrier
- drainage channel
- screed
- slab HCB
- precast concrete beam
- plaster
- cast-in-place concrete beam



- STAIR OPTION
- bamboo post
- wood tread
- bamboo stair joist
- bamboo stringer



- cast-in-place concrete slab
- concrete footing
- earth

- Cast-in-Place Foundations and Slab
 - Existing Cast-in-Place Concrete Columns and Beams
 - Precast concrete Floor Beams and Slab Hollow Concrete Blocks (HCB)
 - HCB Walls

Main Load Bearing Structure



Conclusion