A Place to Breathe

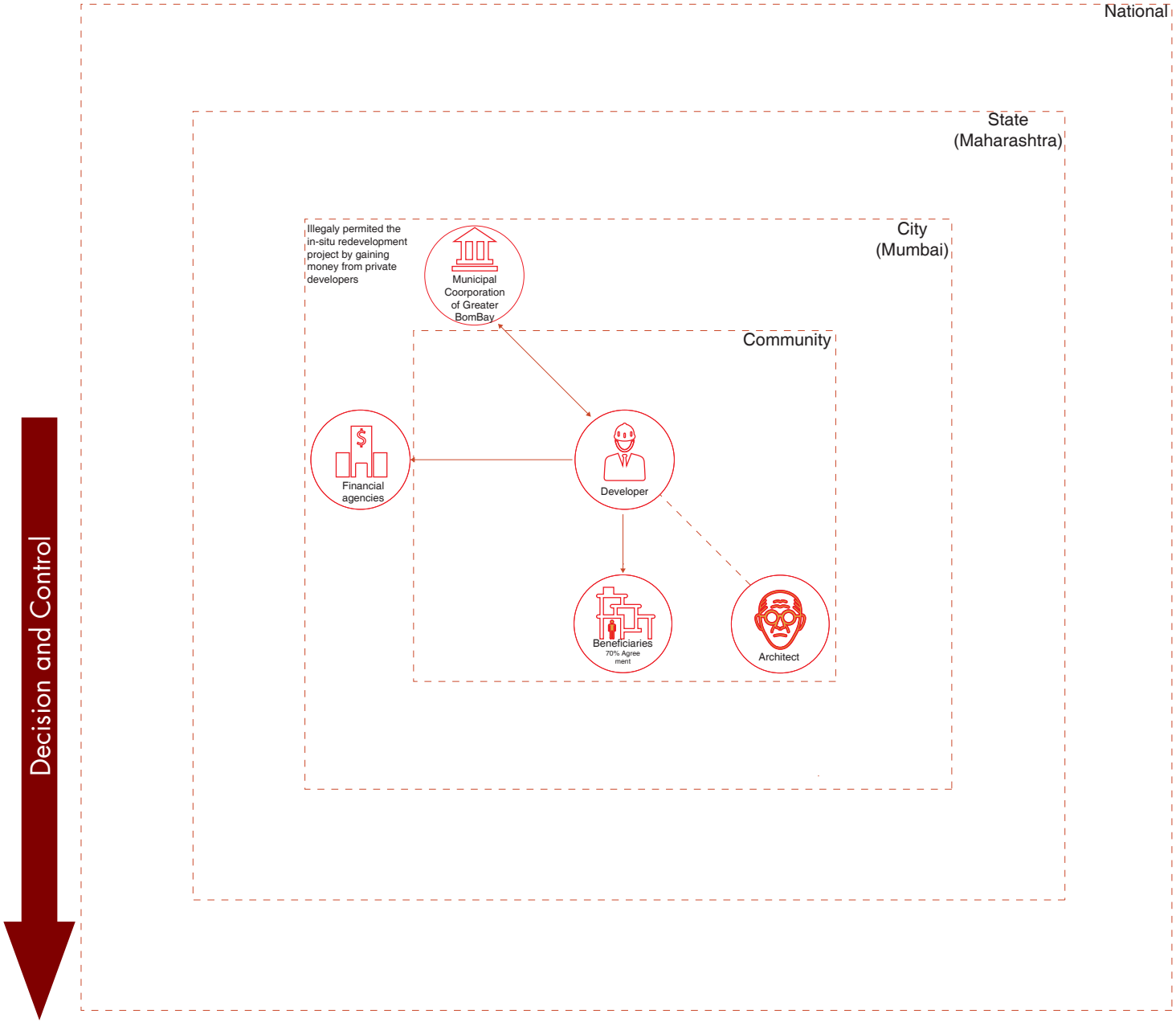
Global Housing Graduation Studio MSC4

Dennis Musalim
4736273

RESEARCH

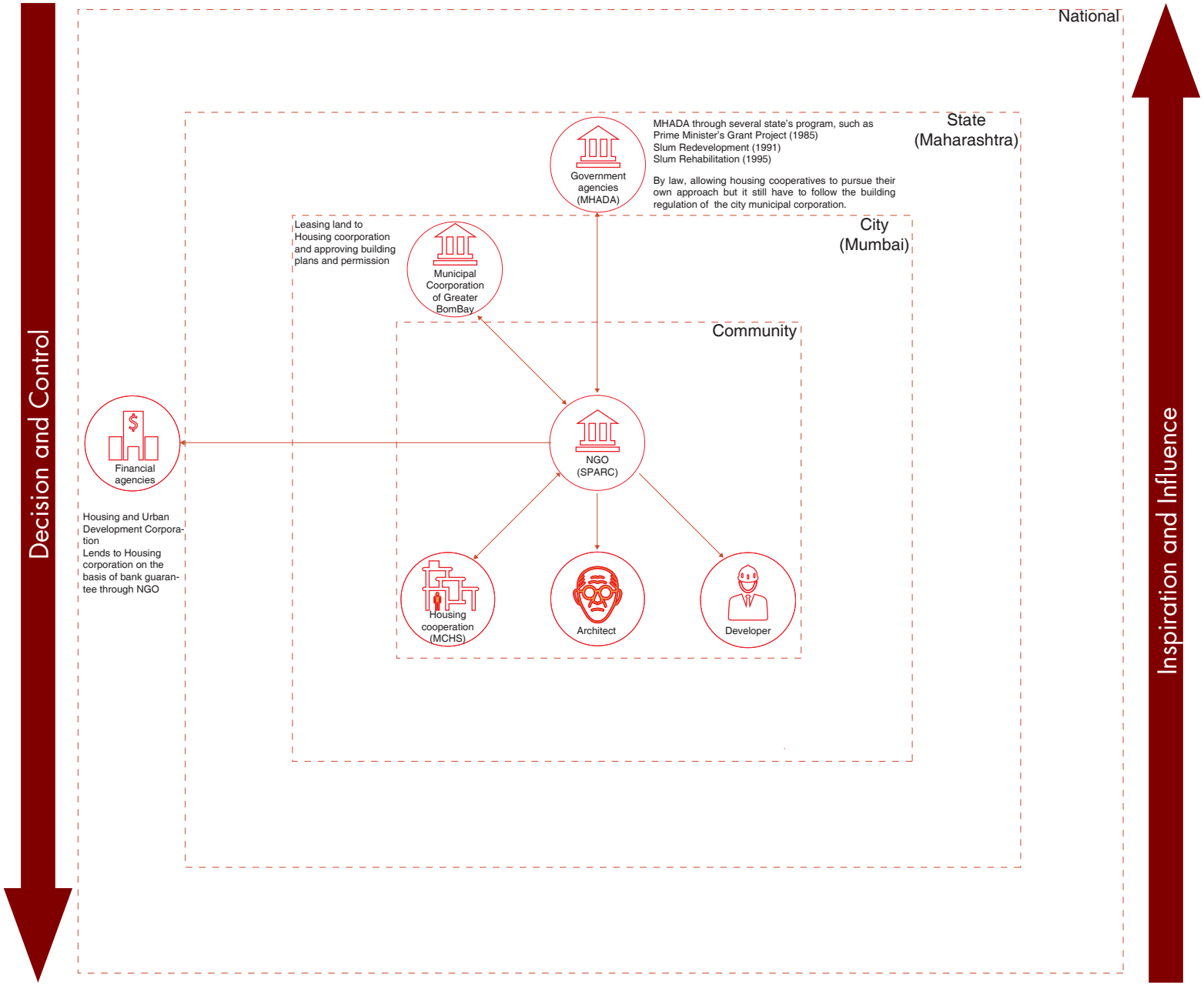
IN-SITU SLUM REDEVELOPMENT

CURRENT MANAGERIAL SCHEME



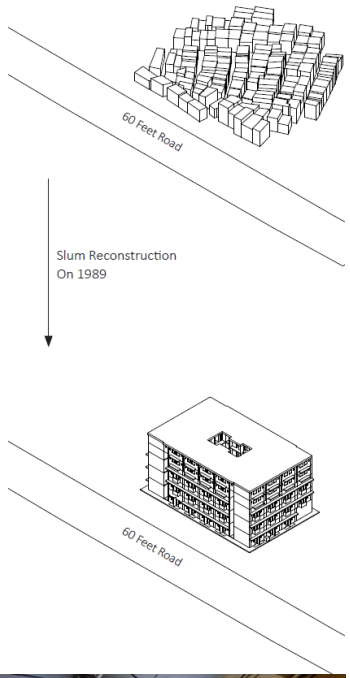
IN-SITU SLUM REDEVELOPMENT

MANAGERIAL CASE STUDY - MARKANDEYA SLUM REDEVELOPMENT (1980s)



MANAGERIAL CASE STUDY

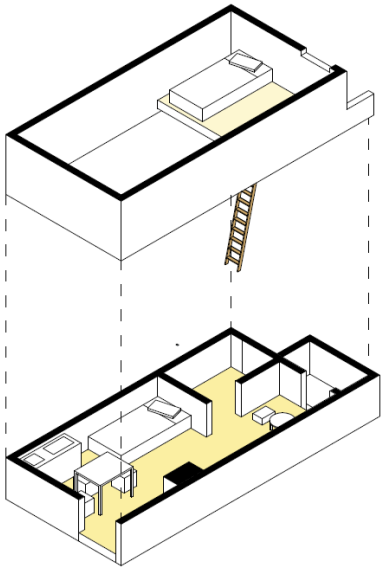
Case study: Markandeya, Dharavi slum redevelopment project by SPARC



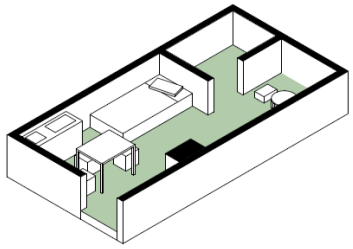
In one of Dharavi slum redevelopment project, SPARC, the NGO, responded with a new housing typology by adding 9 sq.m loft within the 16.7 sq.m unit.

The loft idea was based on the existing housing in Markandeya and **the poroposition made by a group of pavement dwellers working with SPARC**

This type of unit are then used for multiple purposes including living and working.

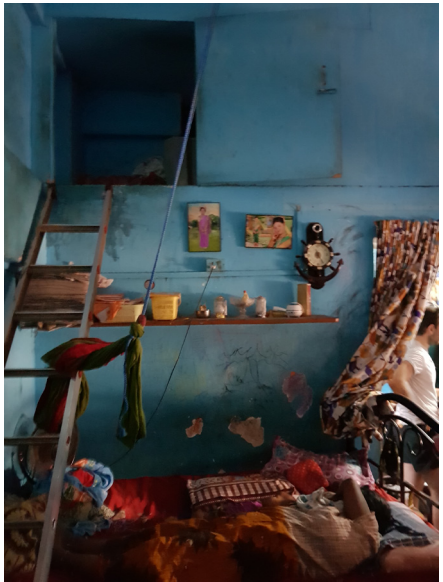


Unit 1 : 26sq.m



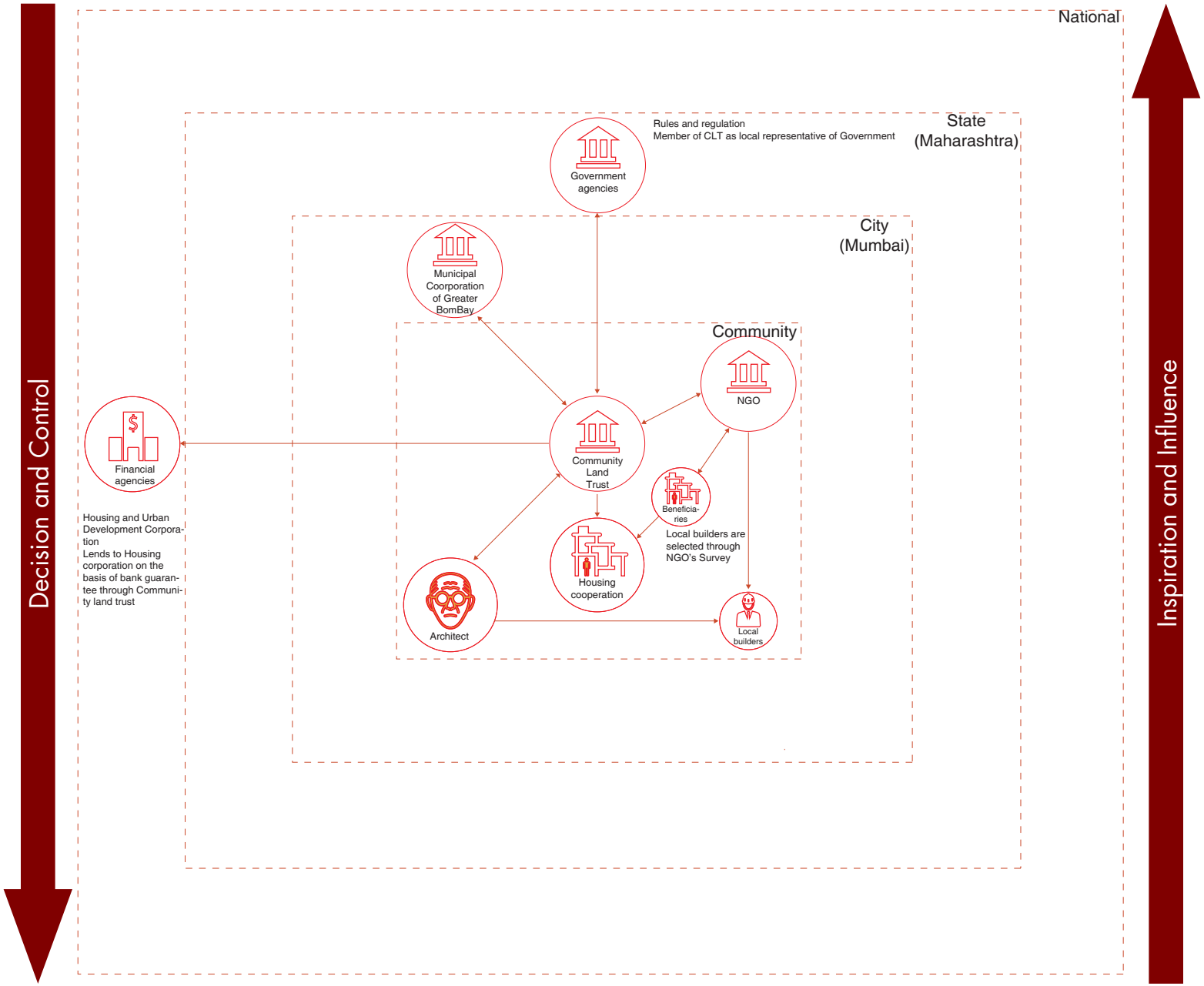
Unit 2 : 16.7sq.m

1 5



IN-SITU SLUM REDEVELOPMENT

PROPOSED PARTICIPATORY MANAGERIAL SCHEME



RESEARCH

DENSITY

FSI allowed in Mumbai according to The Mumbai Development Plan 2034

	FSI
Mumbai Island City	1.33
Mumbai Suburbs	2.5
Redevelopment scheme	4

$$\text{FSI} = \frac{\text{Floor space covered in all floors}}{\text{Area of the plot}}$$

FSI in Nala Sopara East

Baithi Chawls

FSI = 0.6, 1-2 Floors

Load Bearing Apartments

FSI = 3-4, 5 Floors

CIDCO housing Apartments

FSI = 2-2.5, 4-5 Floors

RESEARCH

DENSITY

What is the appropriate density for the development of affordable housing?

CIDCO apartments
(3-6 levels)
227 Units/ Hectare
1137 People/ Hectare

PK Das Suggestion
for Mixed-use development
400-550 Units/ Ha
2000-2500 People/ Ha
FSI=3
15% amenities
35% Open Spaces

Sangharsh Nagar
(8 levels)
540 Units/ Ha
2700 People/ Ha

Load bearing apartments
(4-5 levels)
837 Units/ Ha
4185 People/ Ha

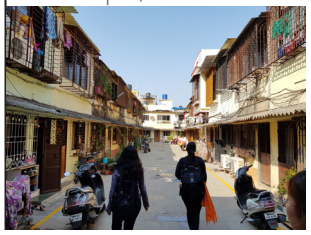
100 200 300 400 500 600 700 800 900

Optimum Density
sugested by
Charles Correa

50-200 Units/ Hectare
250-1000 People/Ha

Road = at least 25% of
land use

Charkop
(1-2 levels)
167 Units/ Ha
833 People/ Ha



Baithi chawls
(1-2 levels)
335 Units/ Ha
1675 People/ Ha

Density Aimed:

FSI = 2.0 - 2.5
Density = 400 - 550 Units/ Hectare
Floors = 4 - 8

RESEARCH

THEORETICAL RESEARCH

What kind of **mixed-use scheme that is appropriate for EWS and LIG**
to enhance their productivity and affordability**?**

The most low-income urban housing in India has been provided
by so-called **informal sector, which characterized by:**

decentralization and fragmentation,
flexibility and
by the small scale of its entrepreneurial activities.

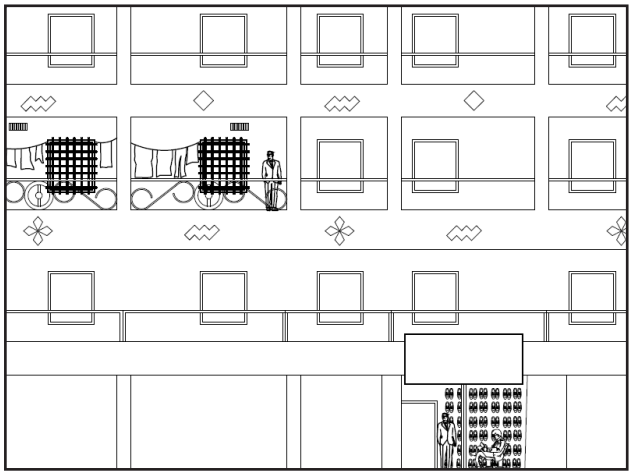
"Space takes precedence over permanence"

Bhatt, Vikram, Witold Rybczynski, Mohammad Alghamdi, Ali Bahammam, Marcia Niskier, Bhushan Pathare, Amirali Pirani, Rajinder Puri, Nitin Raje, and Patrick Reid. "How The Other Half Builds." Vol. Vol1: Spac. Montreal, 1984. Pg. 1,

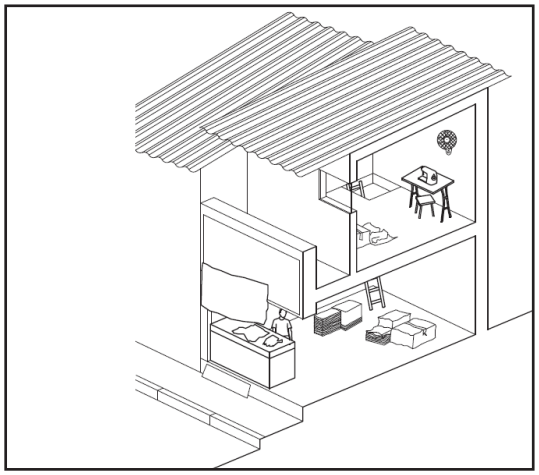
RESEARCH

THEORETICAL RESEARCH & PATTERNS OF INHABITATION

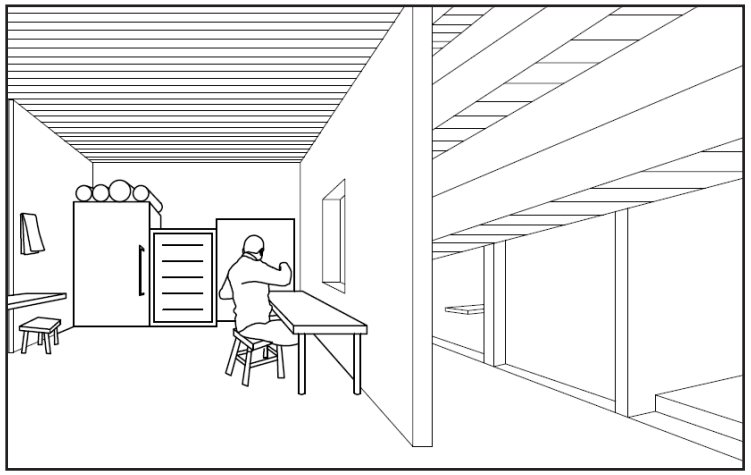
What kind of **mixed-use scheme that is appropriate for EWS and LIG**
to enhance their productivity and affordability**?**



Intimate working and living



Intimate production and consumption



Decentralized Industry

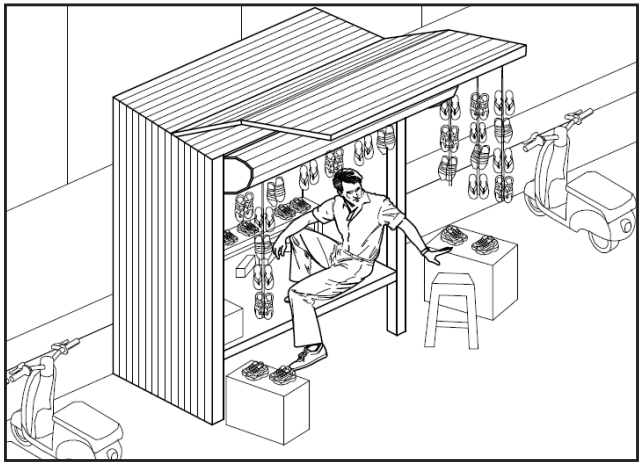
Unlike conventional housing, the housing of the poor almost always
combines living and working activities.

Bhatt, Vikram, Witold Rybczynski, Mohammad Alghamdi, Ali Bahammam, Marcia Niskier, Bhushan Pathare, Amirali Pirani, Rajinder Puri, Nitin Raje, and Patrick Reid. "How The Other Half Builds." Vol. Vol1: Spac. Montreal, 1984. Pg. 1,

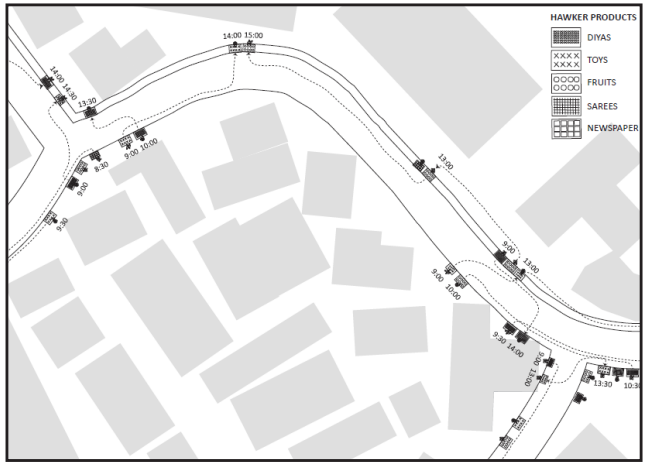
RESEARCH

THEORETICAL RESEARCH & PATTERNS OF INHABITATION

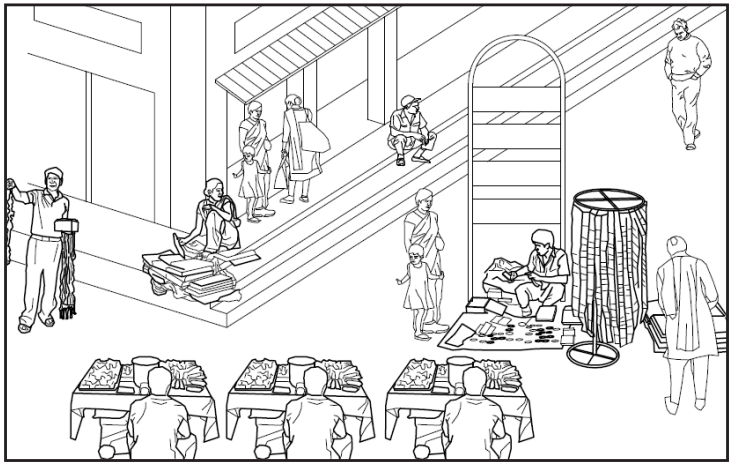
What kind of **mixed-use scheme that is appropriate for EWS and LIG** to enhance their productivity and affordability?



Licensed Location



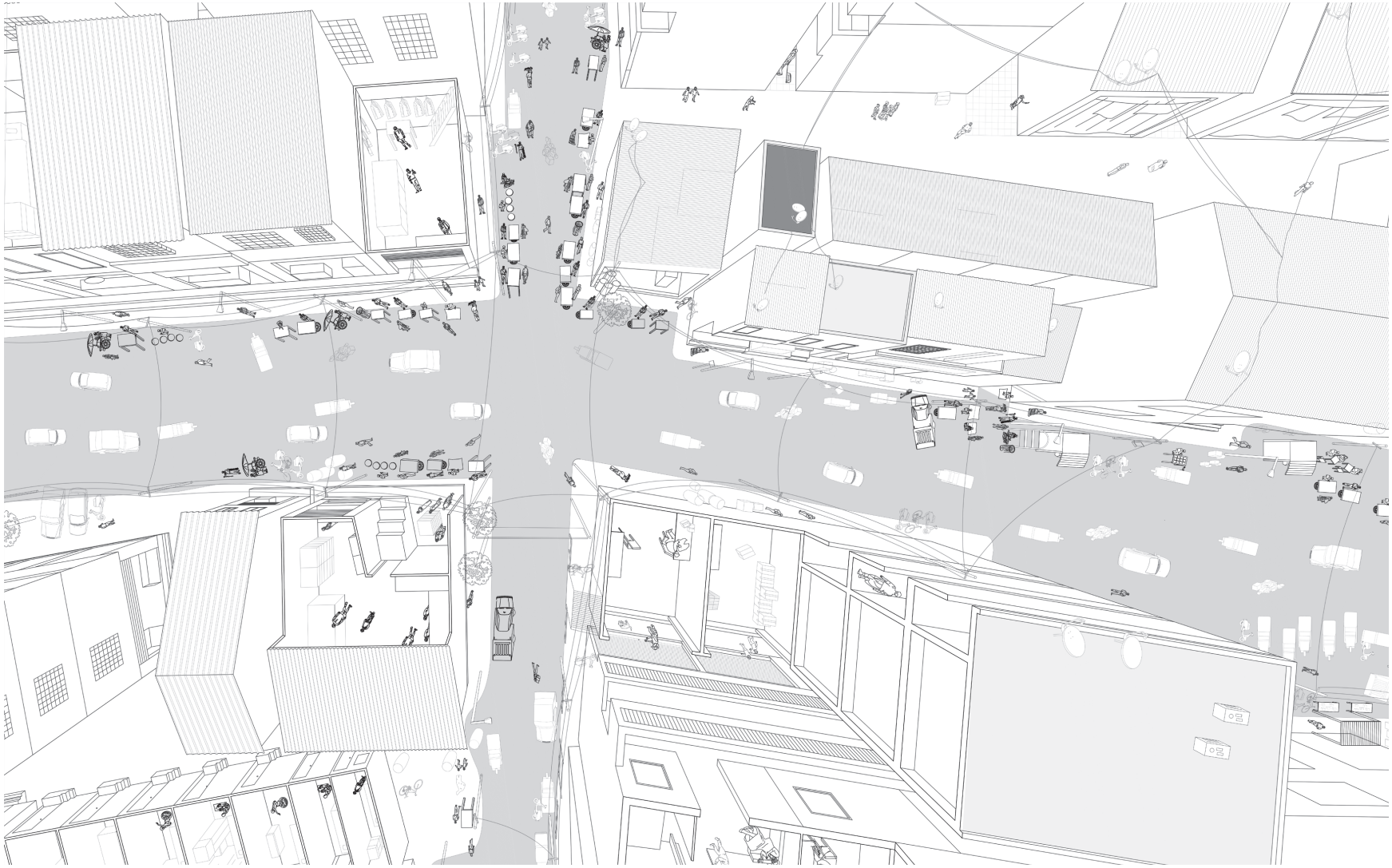
Hawkers on the move



Informal corner

"**The workplace is often mobile,** moving easily in and out of the house, and not requiring a fixed enclosure. **In most cases the workplace was either directly on the street or immediately in front of the house,** in what we have called house-extensions."

Bhatt, Vikram, Witold Rybczynski, Mohammad Alghamdi, Ali Bahammam, Marcia Niskier, Bhushan Pathare, Amirali Pirani, Rajinder Puri, Nitin Raje, and Patrick Reid. "How The Other Half Builds." Vol. Vol1: Spac. Montreal, 1984. Pg. 21



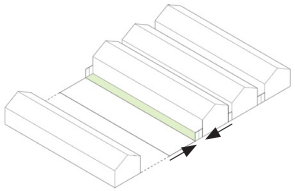
These patterns of inhabitation call attention to
the importance of streets, walkways as not just circulation spaces, and socializing spaces, but also as work spaces.

Bhatt, Vikram, Witold Rybczynski, Mohammad Alghamdi, Ali Bahammam, Marcia Niskier, Bhushan Pathare, Amirali Pirani, Rajinder Puri, Nitin Raje, and Patrick Reid. "How The Other Half Builds." Vol. Vol1: Spac. Montreal, 1984. Pg. 21
Source: Global Housing Research Seminar, The book of patterns in Nala Sopara - Income Generation.

THEORETICAL RESEARCH

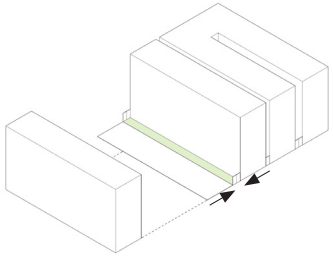
CLUSTER CONFIGURATION

How could the alternative in-situ redevelopment scheme **enhance socio-economic network**?



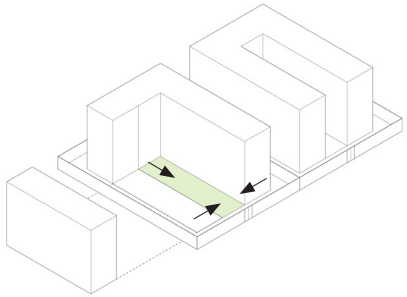
Baithi chawls

Focus on the centre
Neglected back alley
Neglecting edges



Load bearing apartment
(Current in-situ redevelopment approach)

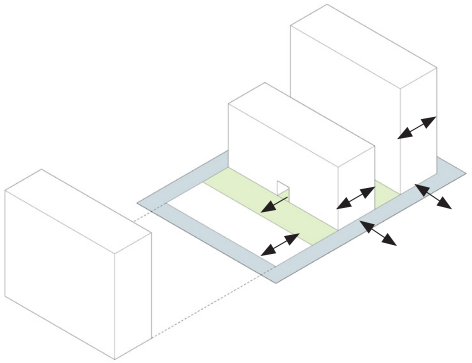
Focus on the centre
Neglected back alley
Neglecting edges



CIDCO housings and Cooperative apartments

Focus the centre
Gated edges

The building setback reducing the global F.S.I and make the building go higher
(Charles Correa speech at CTBUH 2010)



Proposed scheme

Face on both sides of a building
No back and front
No neglected alley
Connected open spaces

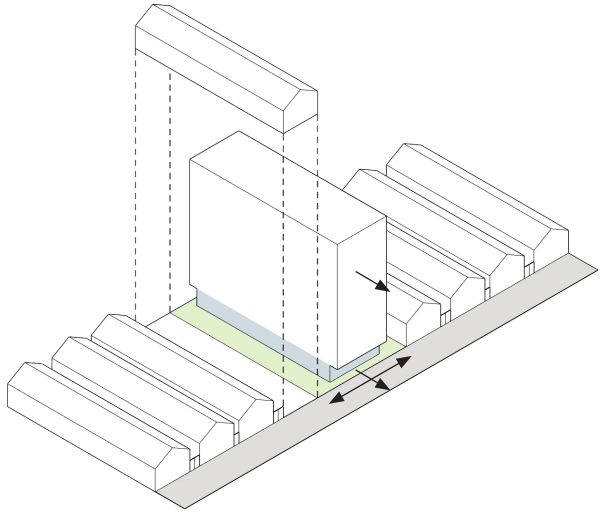
Utilizing edges as places for economic activities and building network with neighbohood

"When **people imagine where the life of a community** is to be found, they usually look for it **in the centre**, where planners try to intensify community life. **This means neglecting the edge;** the community turns inward as a result. **Which is an error.**"

Sennett, Richard. Building and Dwelling : Ethics for the City. London, United Kingdom: Penguin Books Ltd, 2018. Pg. 222-223

DESIGN HYPOTHESIS

BUILDING INTERACTION



Community street with mobile commercial activities

Commercial belt

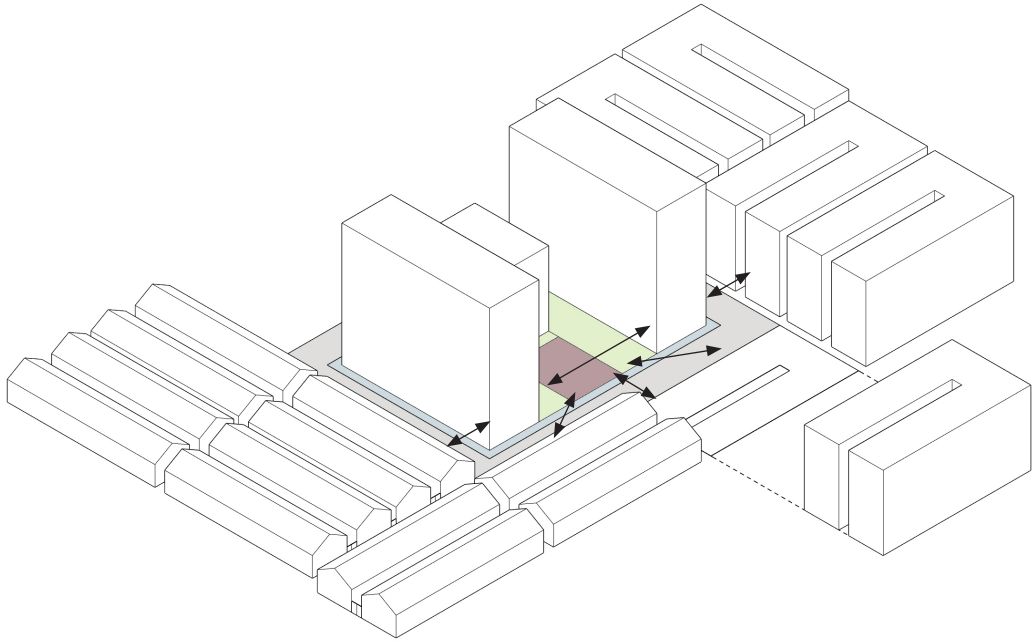
Amenities (openspace or multi-function building)

Interaction of one building with surrounding

The building is proposed to be an urban element which has face on both sides and complemented with community street for social, working, and mobile commercial activities.

DESIGN HYPOTHESIS

CLUSTER INTERACTION



Community street with mobile commercial activities

Commercial belt

Amenities (openspace or multi-function building)

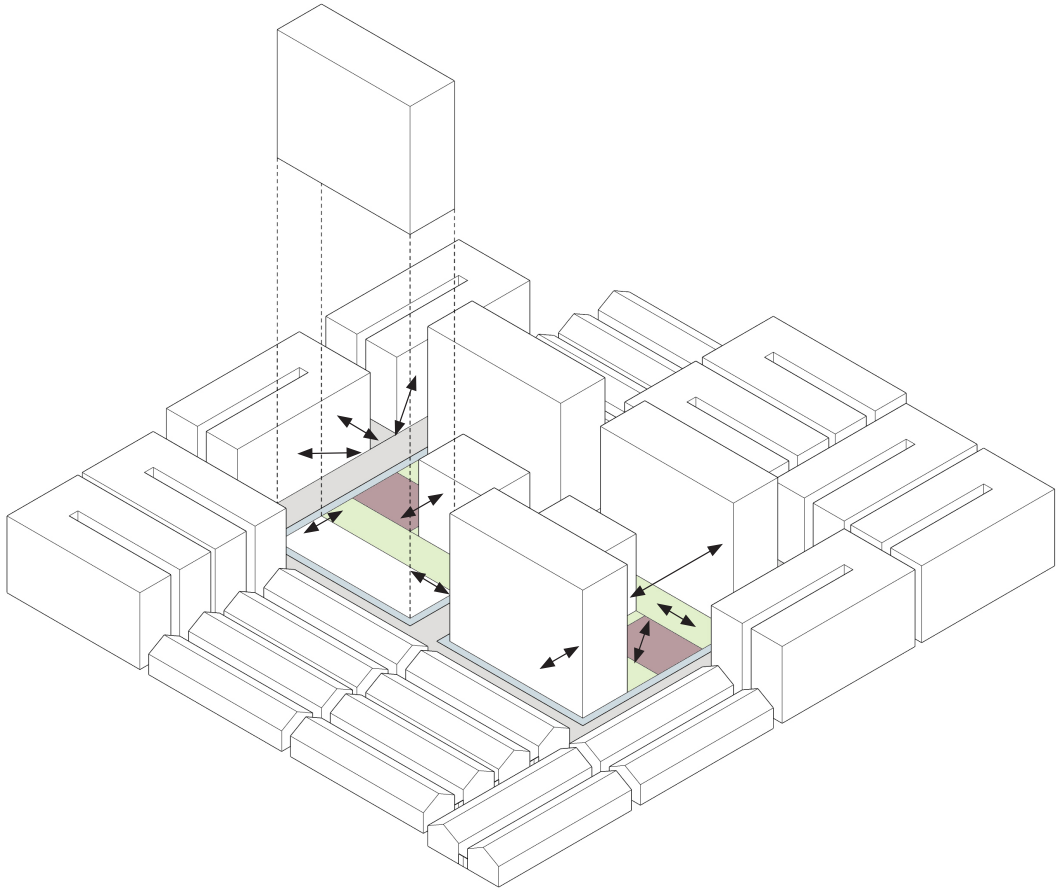
Interaction within one cluster with surrounding

"Had we located **the market on that street**, we might have **encourage activity which brought the rich and the poor into some daily commercial, physical contact.**"

Sennett, Richard. Building and Dwelling : Ethics for the City. London, United Kingdom: Penguin Books Ltd, 2018. Pg. 222-223

DESIGN HYPOTHESIS

INTERACTION OF CLUSTERS WITH SURROUNDING



Community street with mobile commercial activities

Commercial belt

Amenities (openspace or multi-function building)

Interaction of clusters with surrounding

"Wiser planners … have sought **to locate new community resources at the edges between communities in order to make a porous edge,** to open the gates between different racial and economic communities. Our imagining of the importance of the centre proved isolating; their **understanding of the value of the edge and border aims to create neighbours who mix casually.**"

Sennett, Richard. Building and Dwelling : Ethics for the City. London, United Kingdom: Penguin Books Ltd, 2018. Pg. 222-223

DESIGN PROPOSAL

URBAN STRATEGY

INFRASTRUCTURE

UNLOCKING RESOURCE

Connect the dead ends to the secondary and main road

INFRASTRUCTURE

UNLOCKING RESOURCE

Connect the dead ends to the secondary and main road

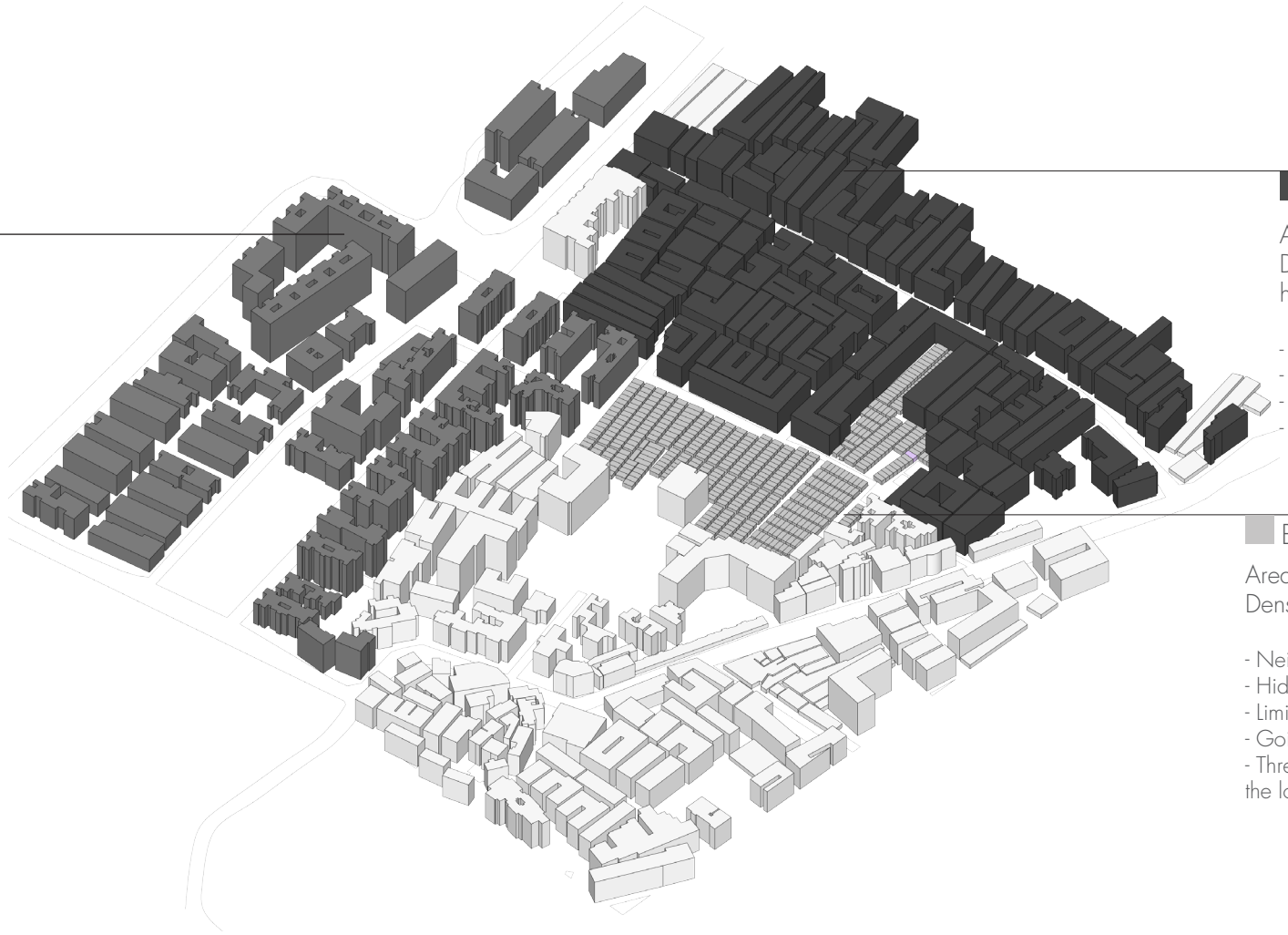
INFRASTRUCTURE

UNLOCKING RESOURCE

Site selection - Rahmat Nagar

SITE

VARIOUS DEVELOPMENTS



CIDCO housing

Area : 61547 m2
Density : 1137 people/ hectare

- Expensive commercial units become unused spaces
- Has open space within every housing
- Has collective open space

Mid-rise chawls

Area : 35845 m^2
Density : 4185 people/ hectare

- Over crowded
- Lack of open space
- Lack of light
- Poorly constructed

Baithi Chawls

Area : 15467 m2
Density : 1775 people/hectare

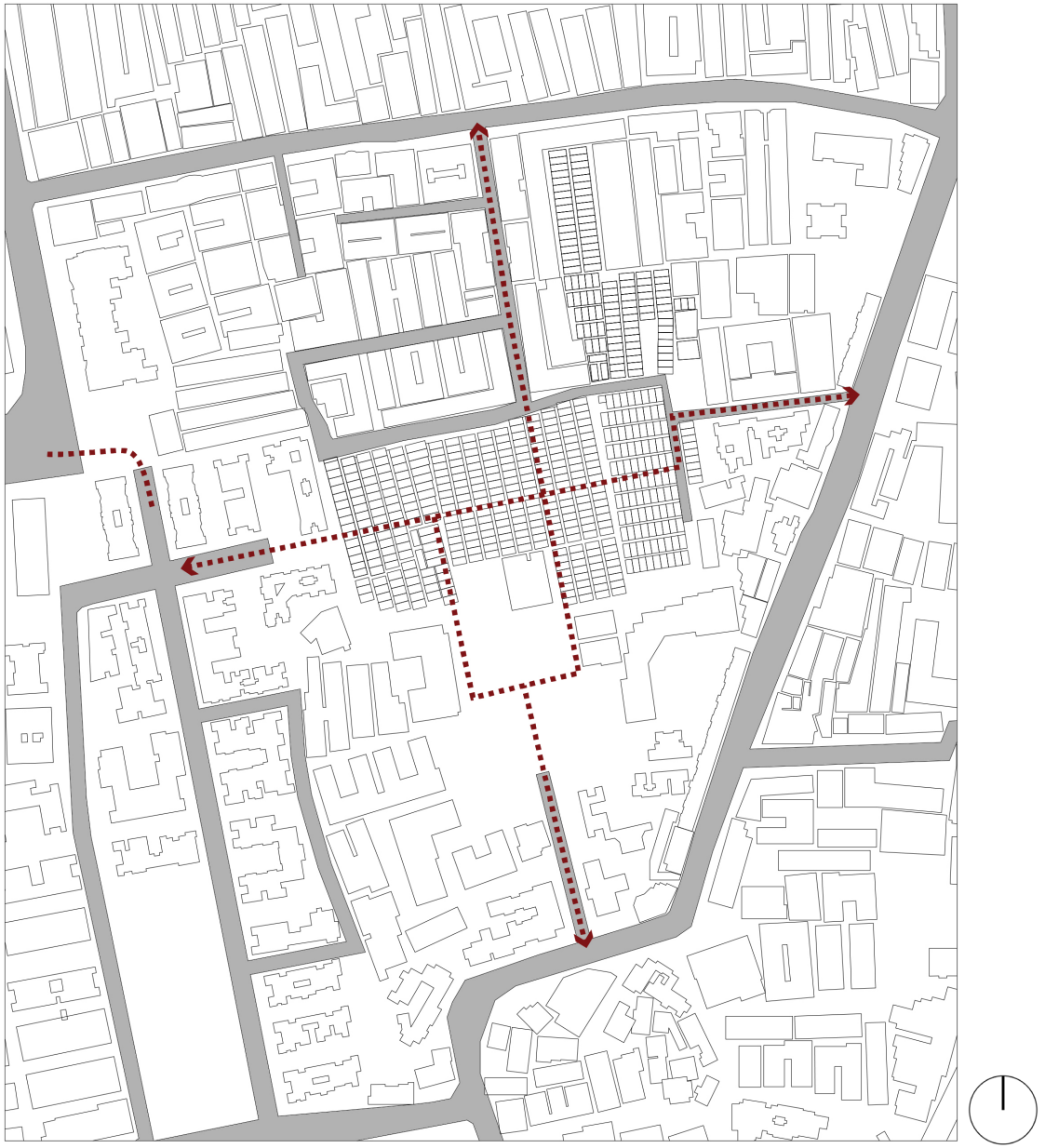
- Neighborhood has solid social life
- Hidden/ far from economy activity
- Limited community interaction
- Going to be demolished
- Threathened too be developed as the load bearing model

URBAN STRATEGY

EXISTING CONDITION

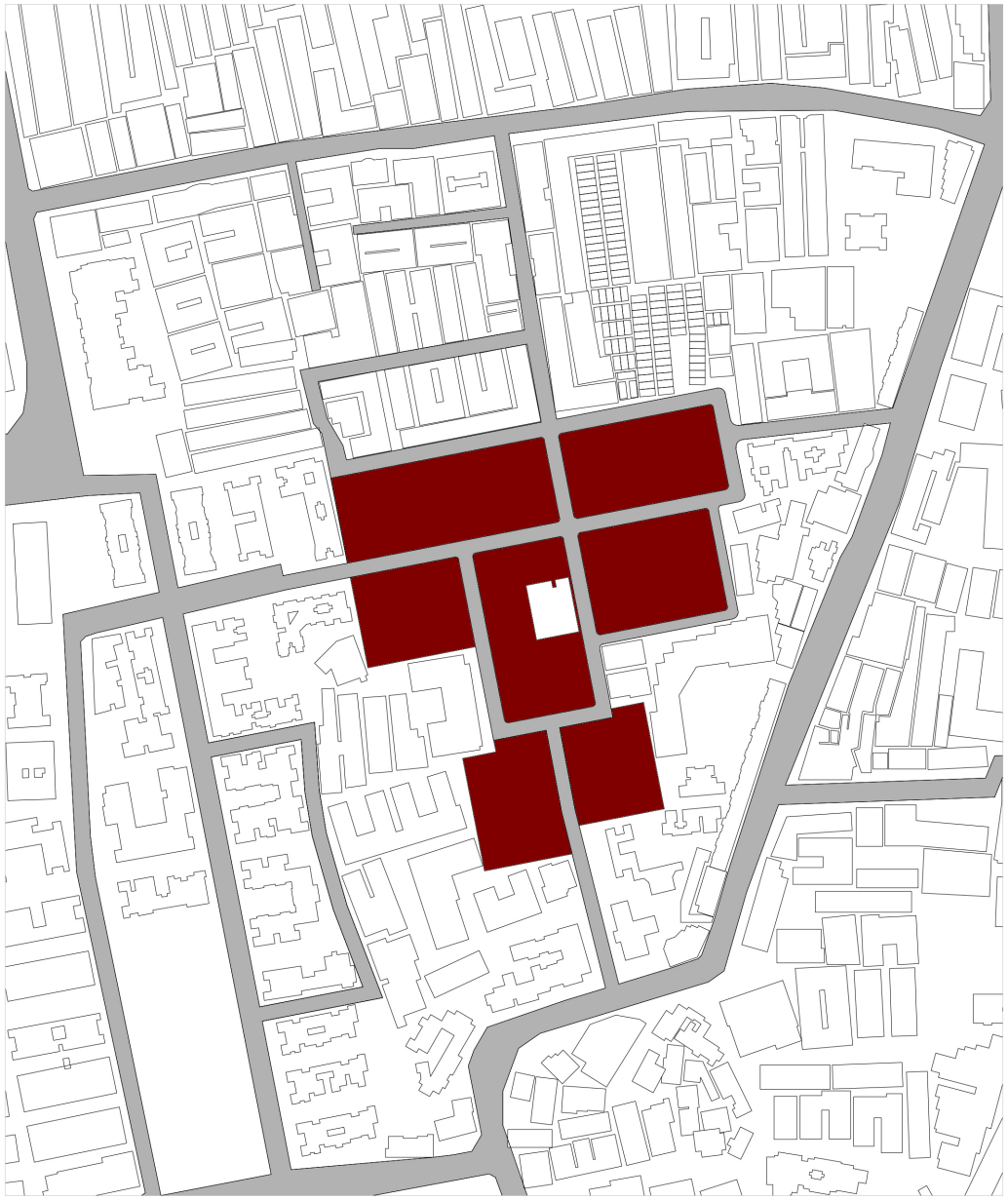
URBAN STRATEGY

UNLOCKING RESOURCE



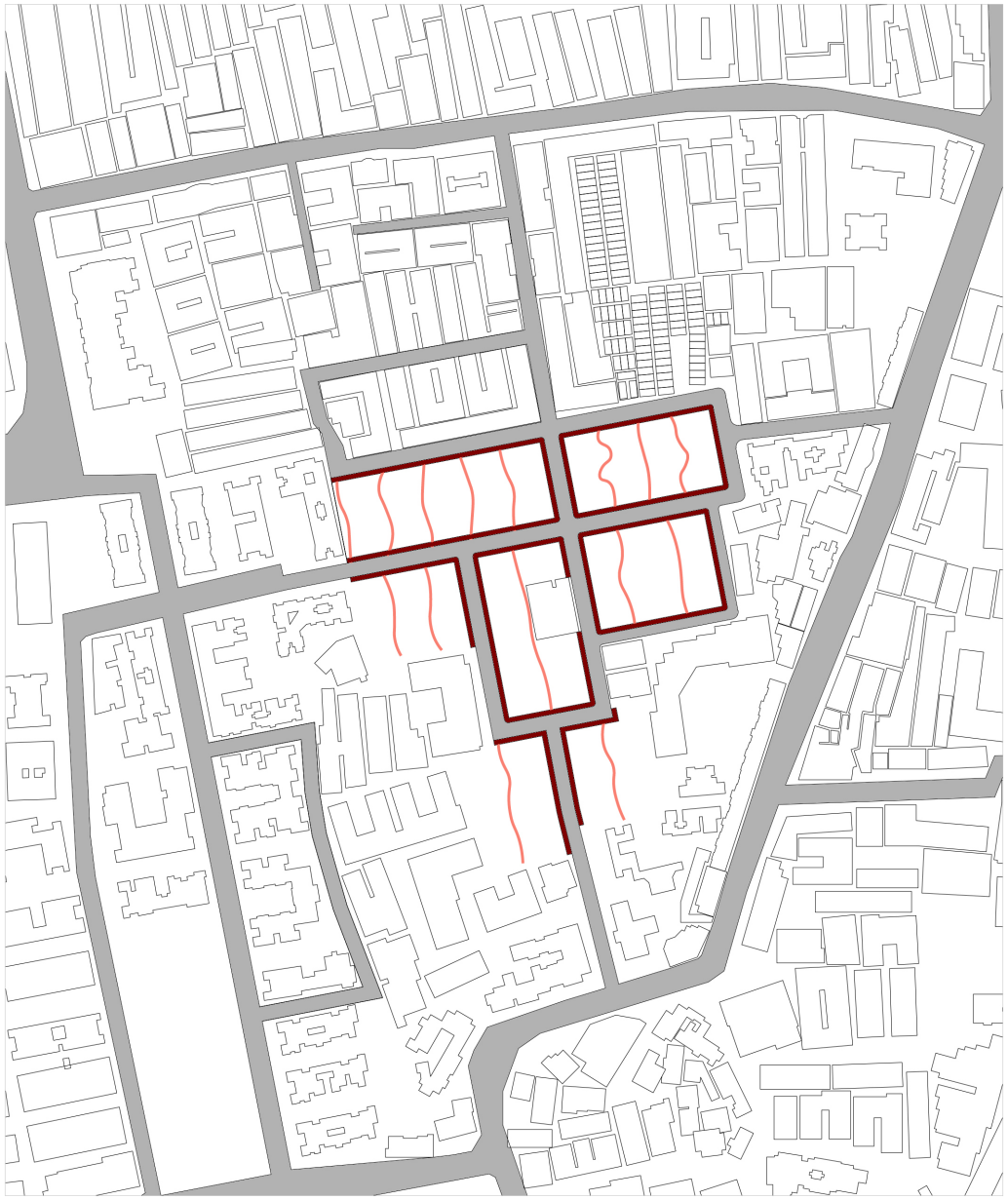
URBAN STRATEGY

CLUSTERING PLOTS



URBAN STRATEGY

CLUSTERING PROGRAMS



Commercial edges

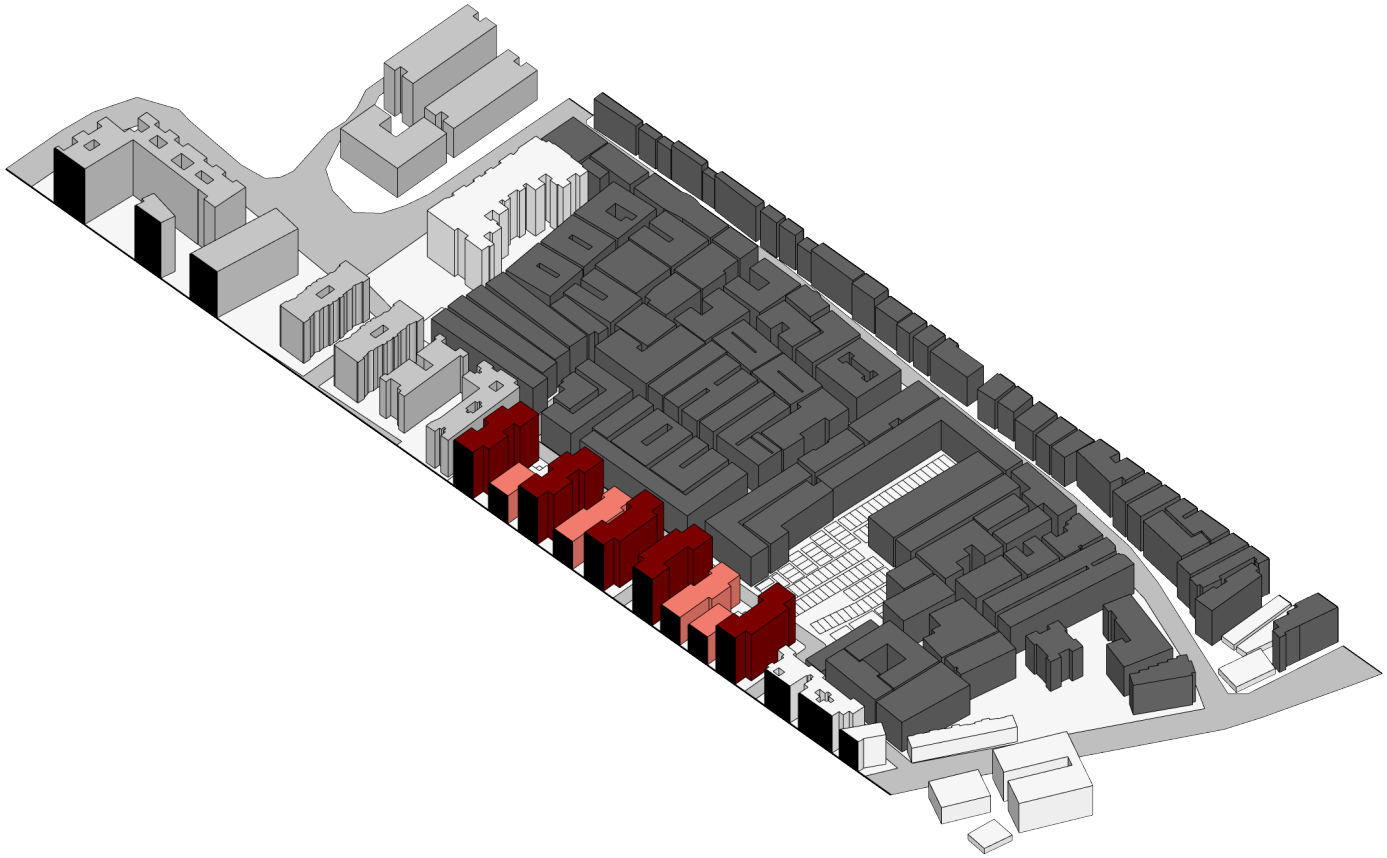
Mixed-use streets
(Mobile Hawkers,
working and socializing area,
community area)

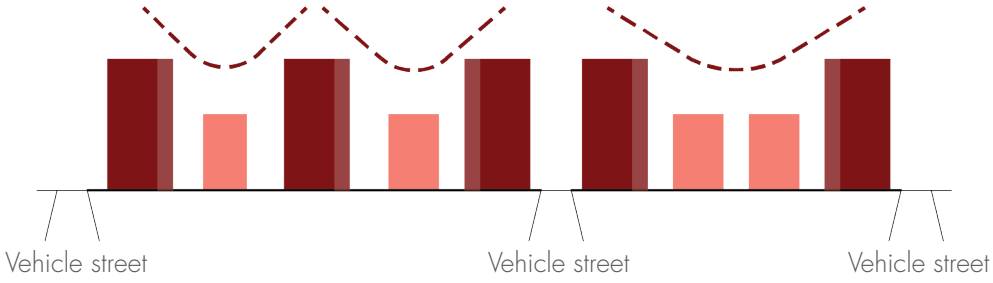
URBAN STRATEGY

BUILDINGS

URBAN STRATEGY

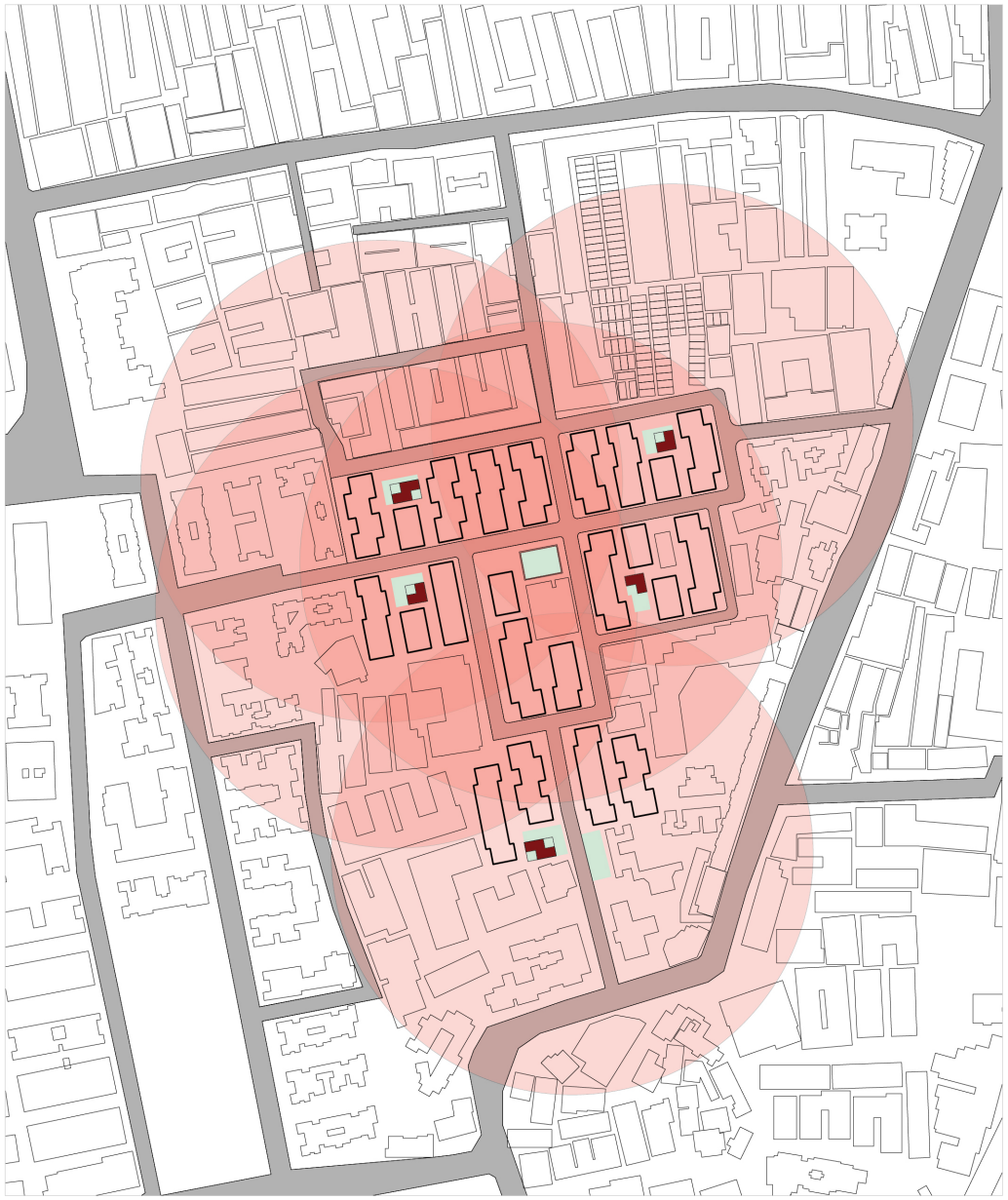
BUILDINGS SETTING





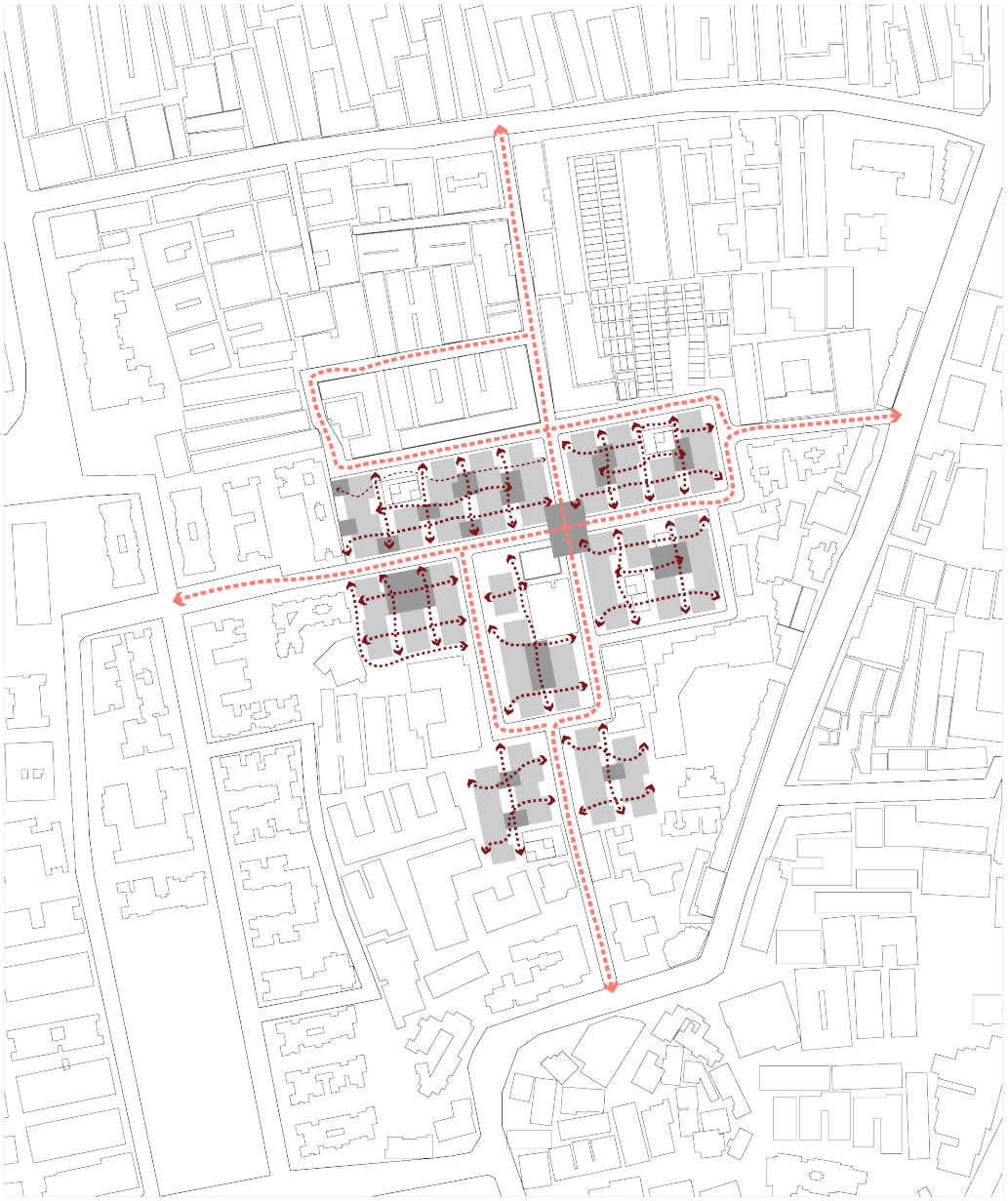
URBAN STRATEGY

AMENITIES

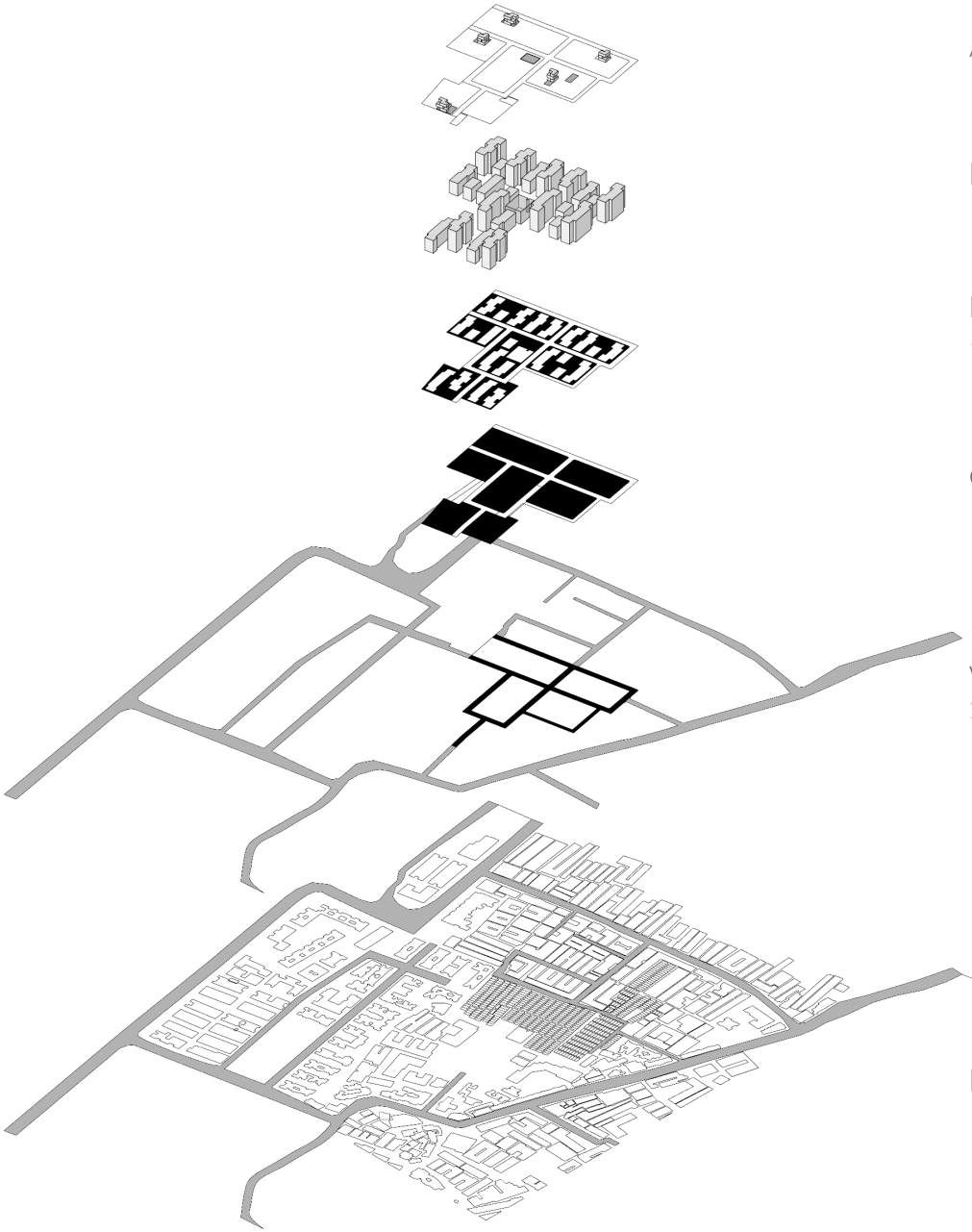


URBAN STRATEGY

GROUND POROSITY



URBAN STRATEGY



Amenities

Housing

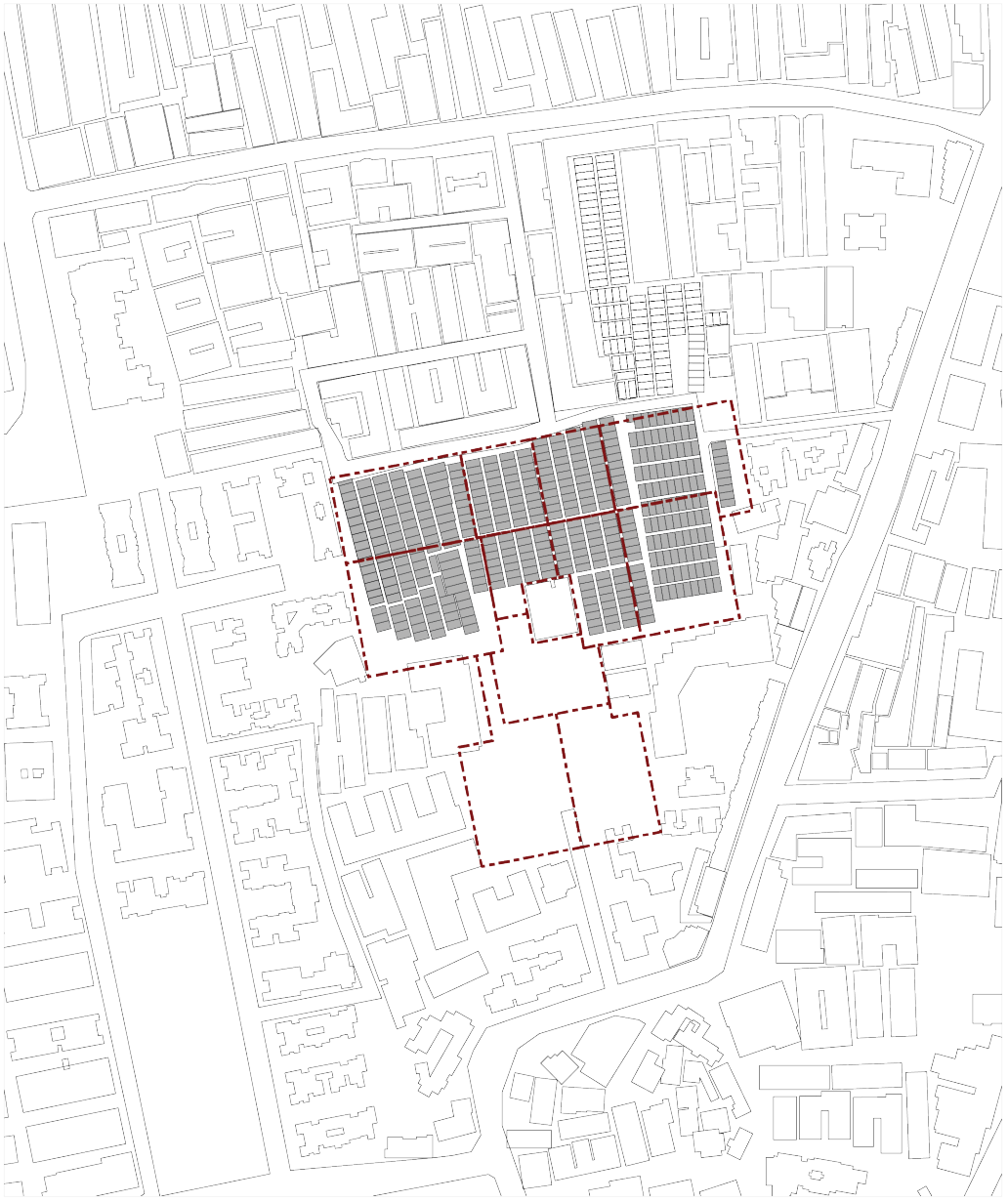
Pedestrian streets
35.8%

Clusters

Vechicle street
22%

Existing

DEVELOPMENT DIVISION



DEVELOPMENT PHASES

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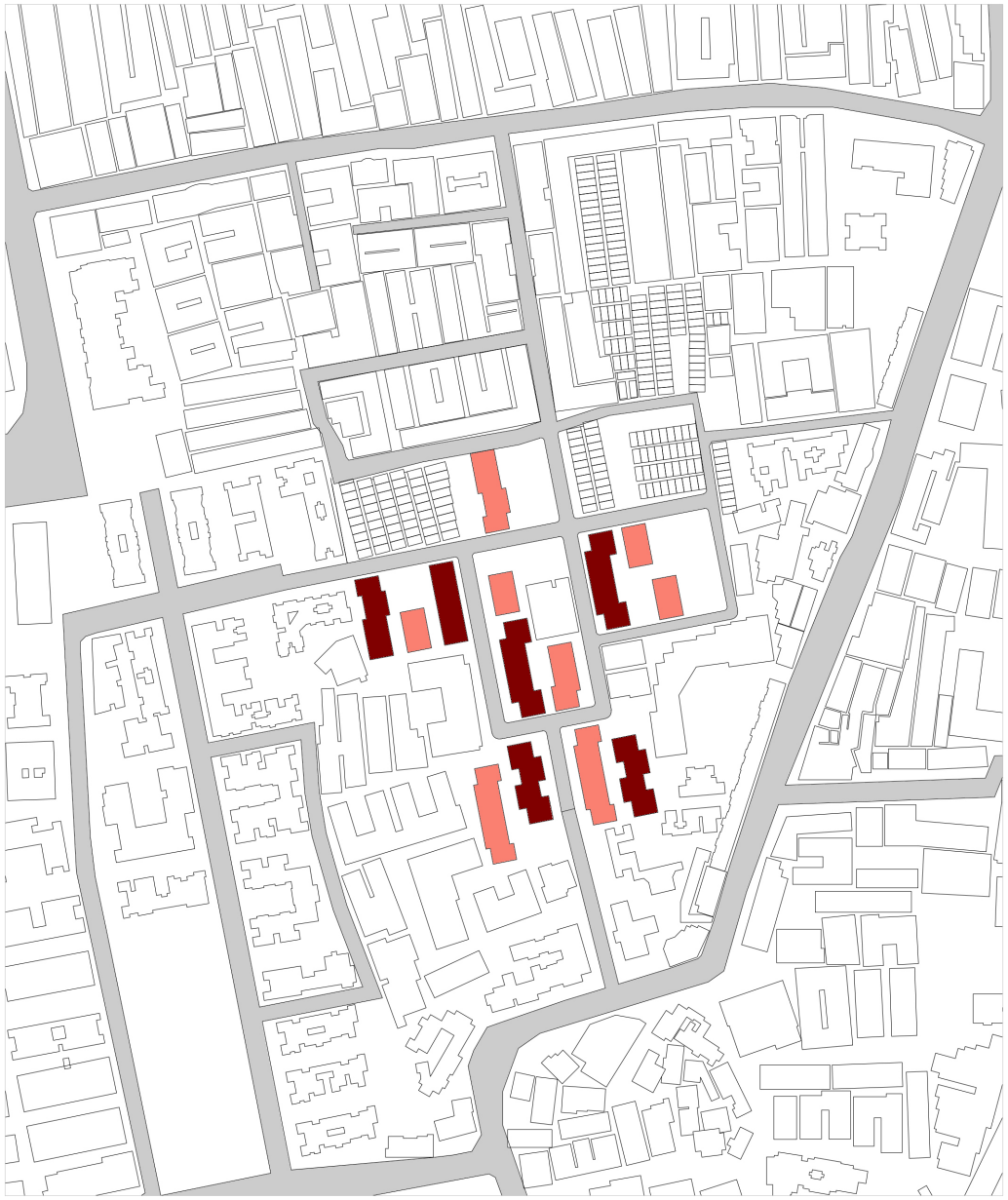

DEVELOPMENT PHASES

DEVELOPMENT PHASES

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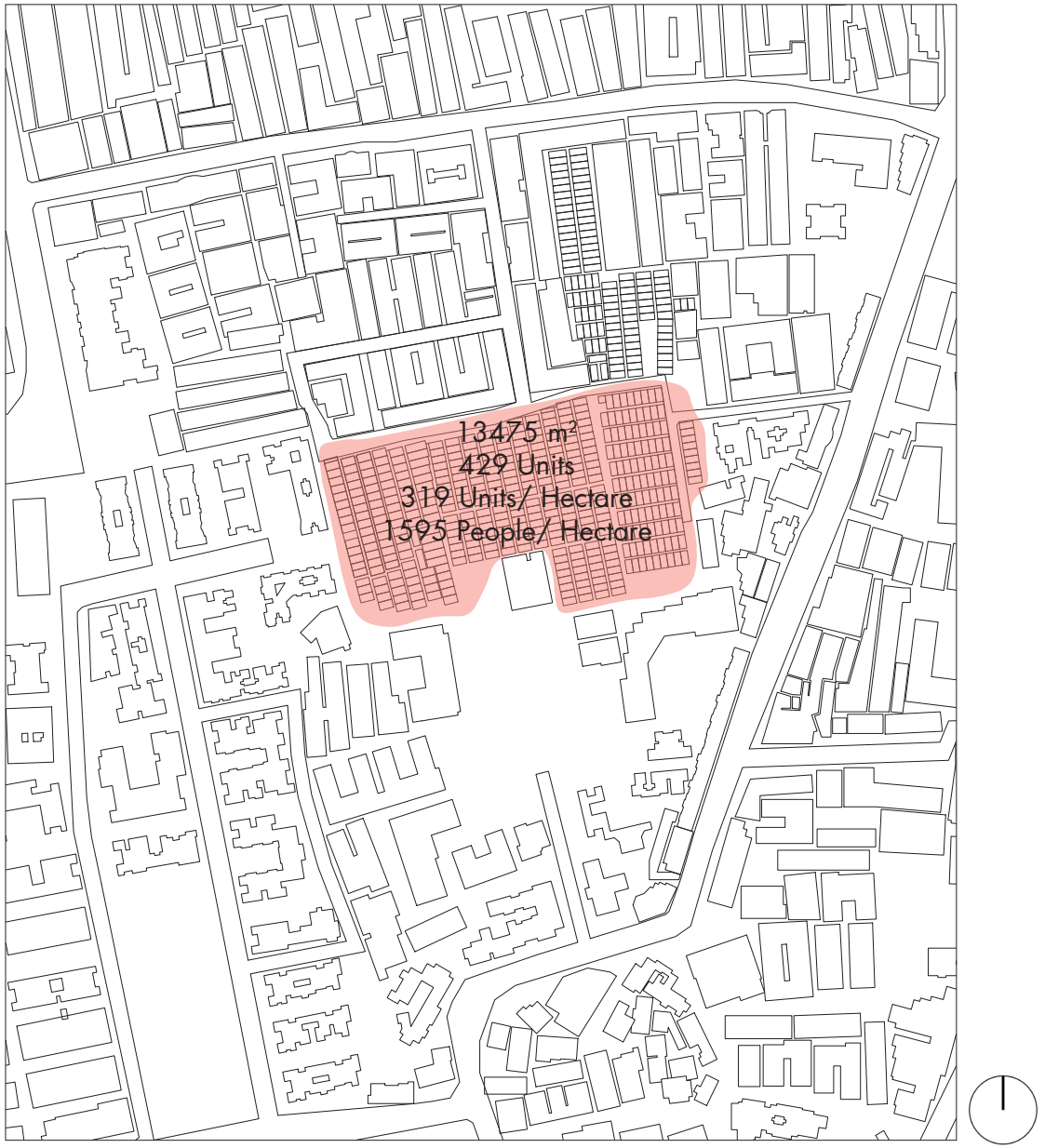
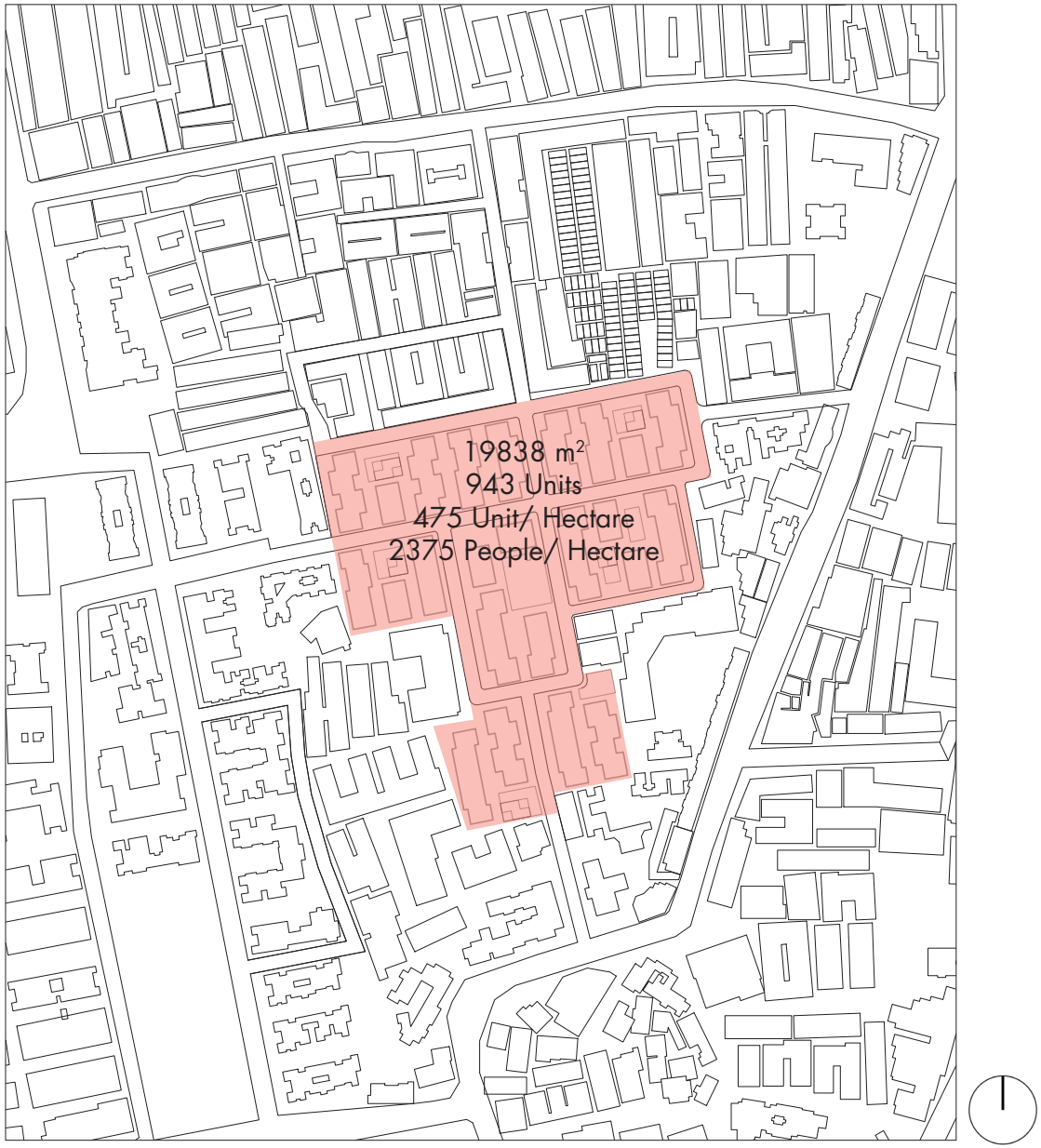
DENSITY

BEFORE



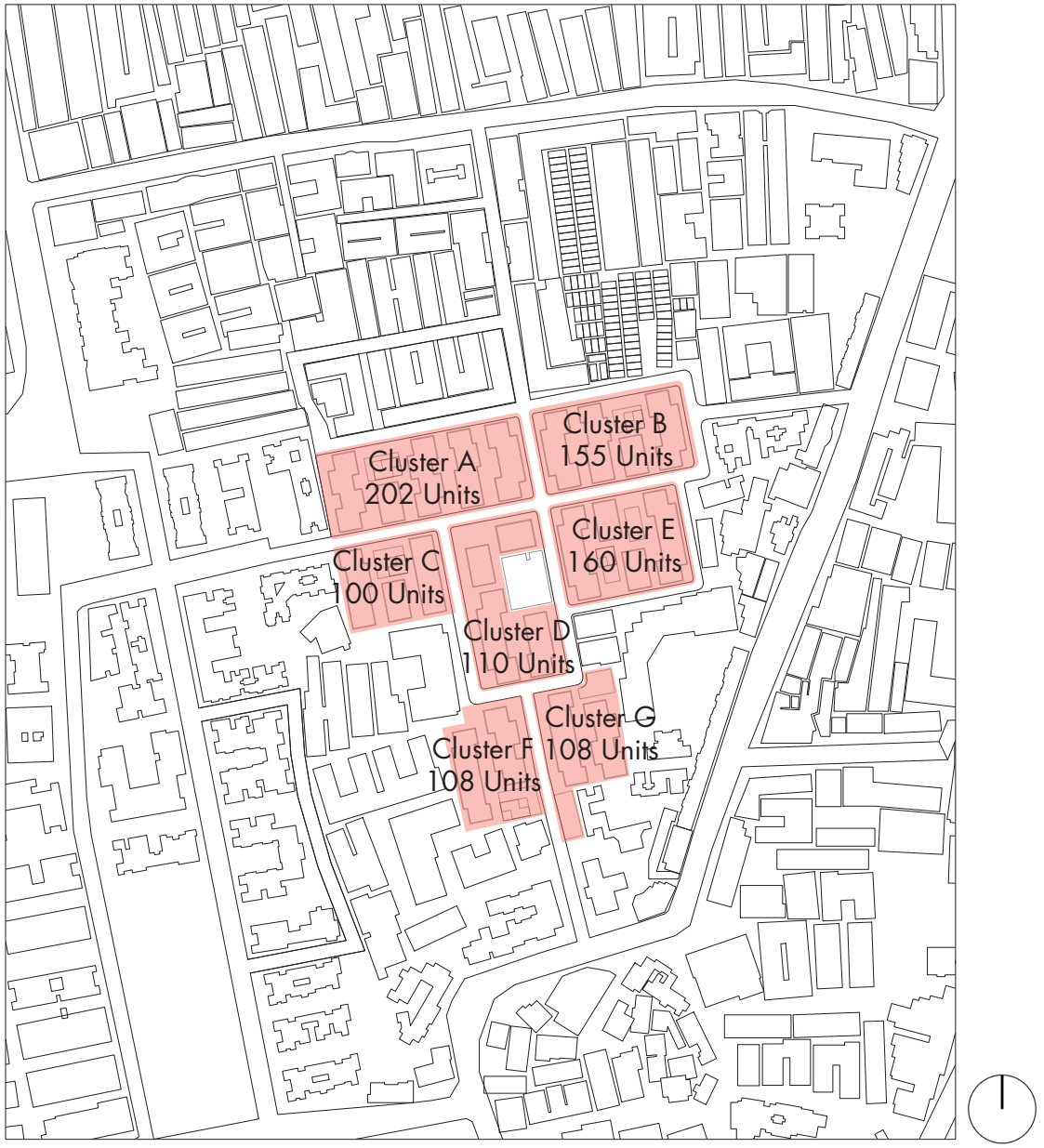
DENSITY

AFTER



DENSITY

IN CLUSTERS

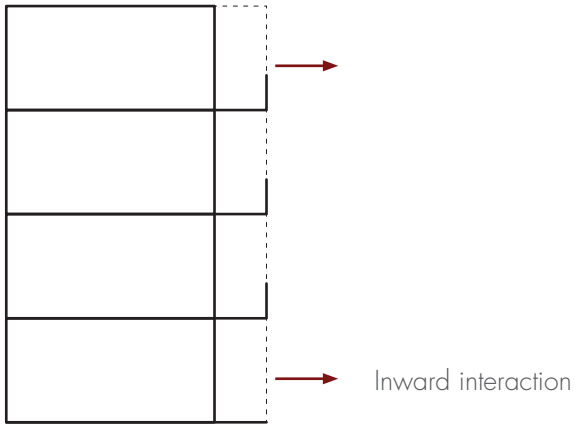


BUILDING STRATEGY

DESIGN APPROACH

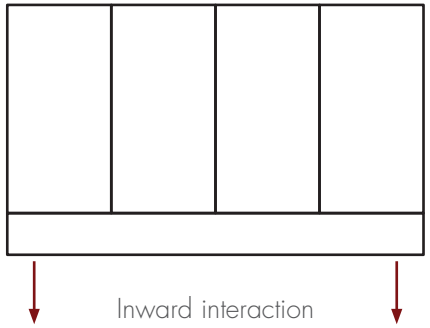
ENHANCING SOCIAL INTERACTION

BAITHI CHAWLS AND MID-RISE CHAWLS BUILDING TYPE



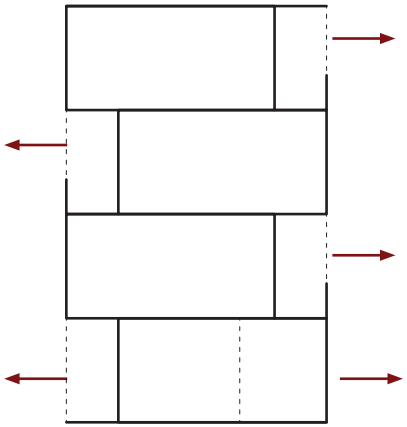
SECTION

One side interaction



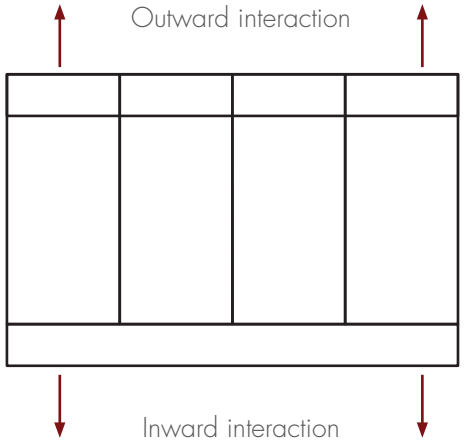
PLAN

PROPOSED BUILDING TYPE



SECTION

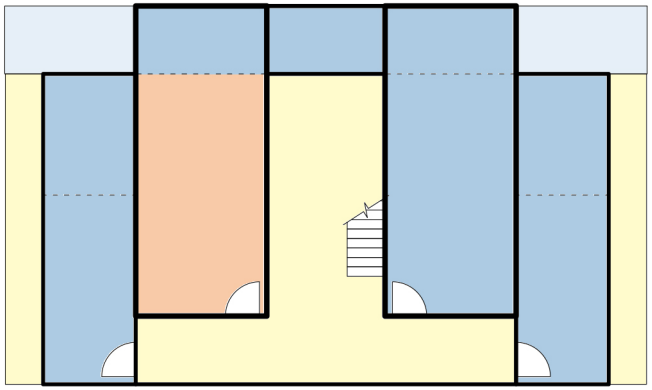
Both sides interaction



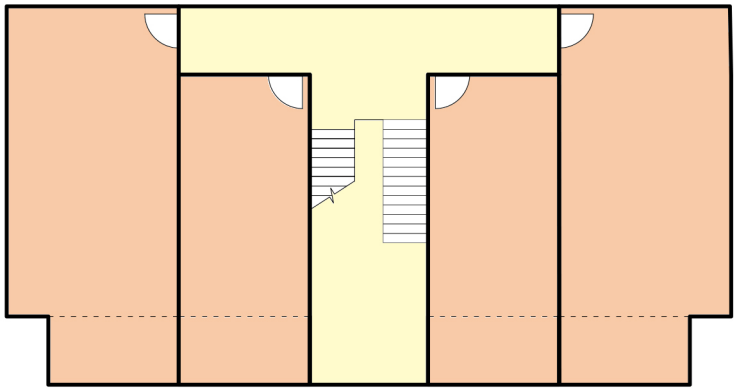
PLAN

BUILDING

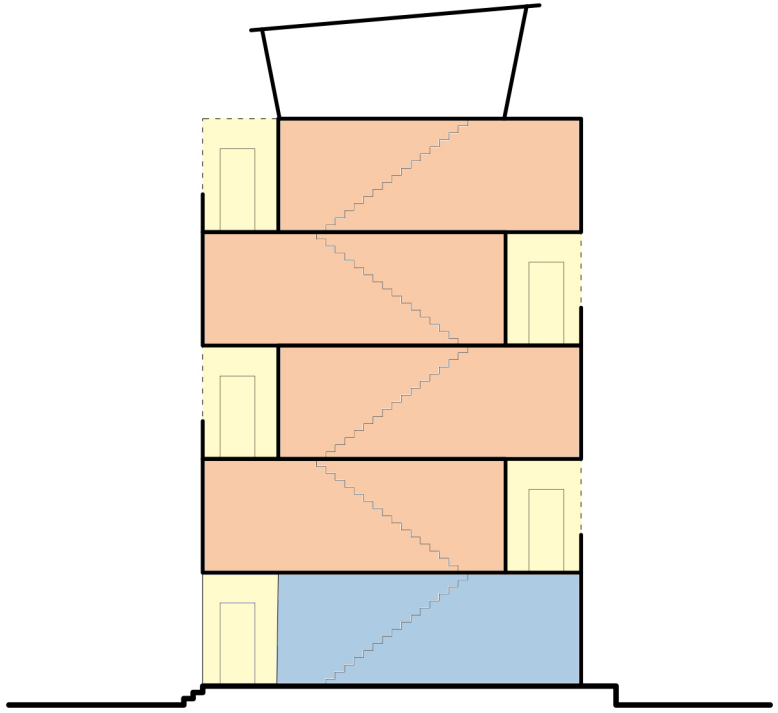
PROGRAM (TYPE 1)



Ground floor plan



Typical floor plan



Section

Circulation

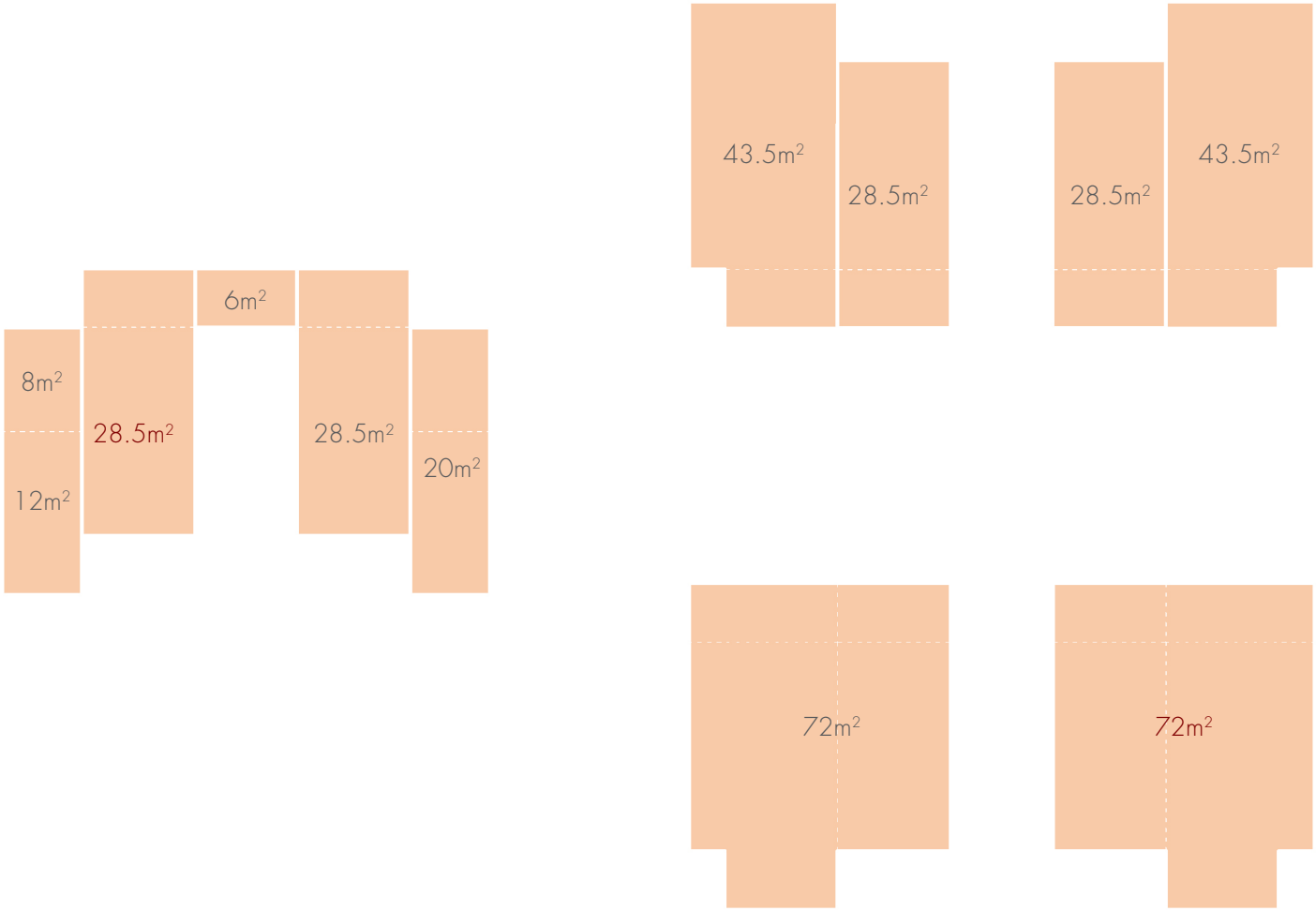
Dwelling units

Commercial units

Open space for informal commercial activities

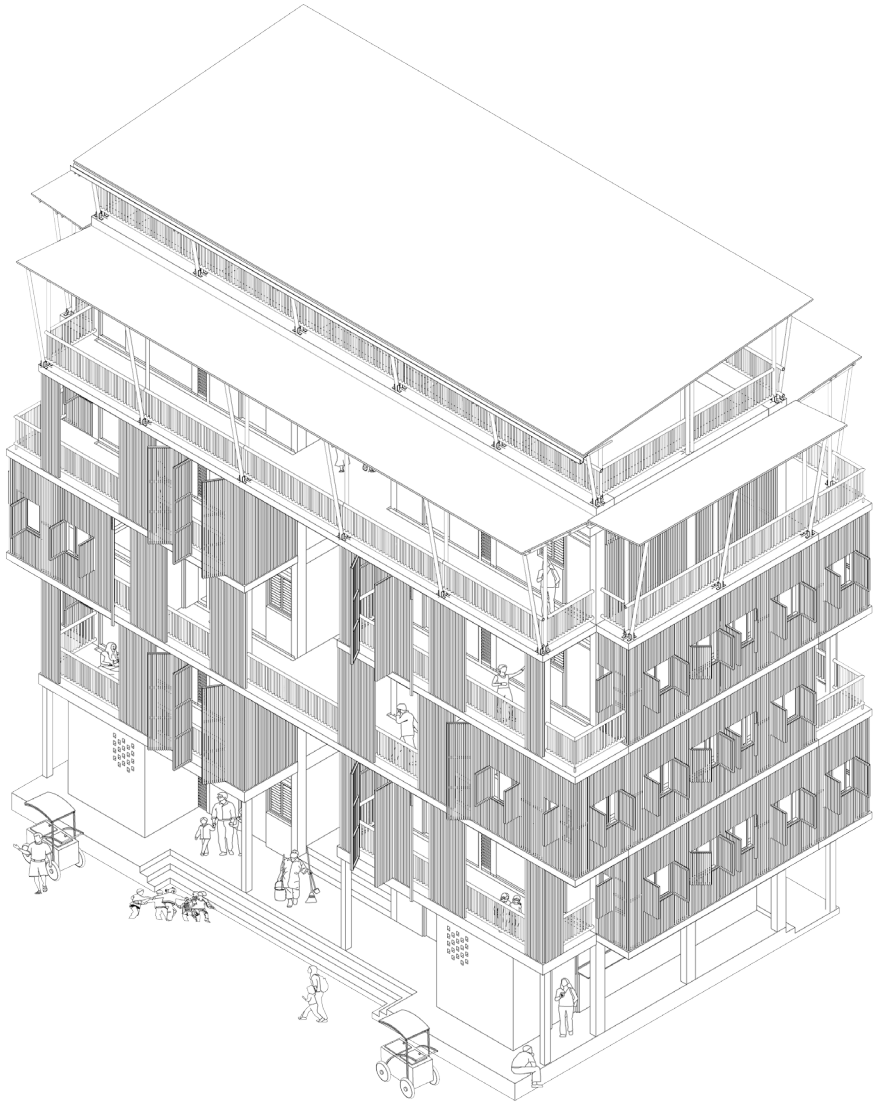
BUILDING

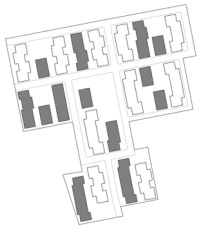
AREA (TYPE 1)



BUILDINGS

TYPE 1

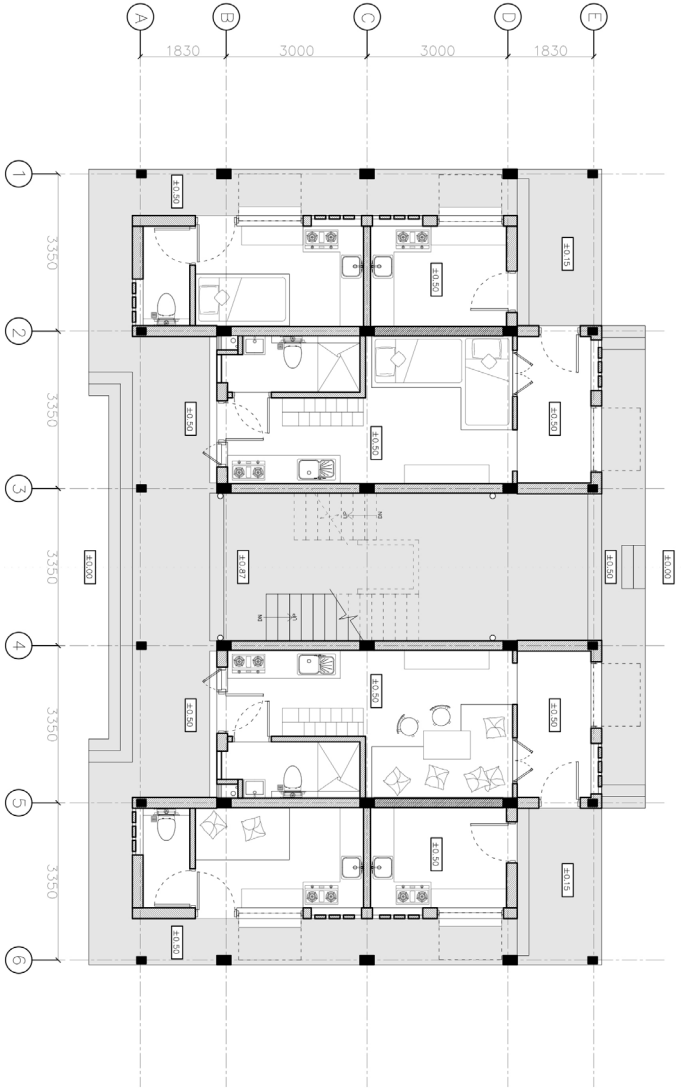




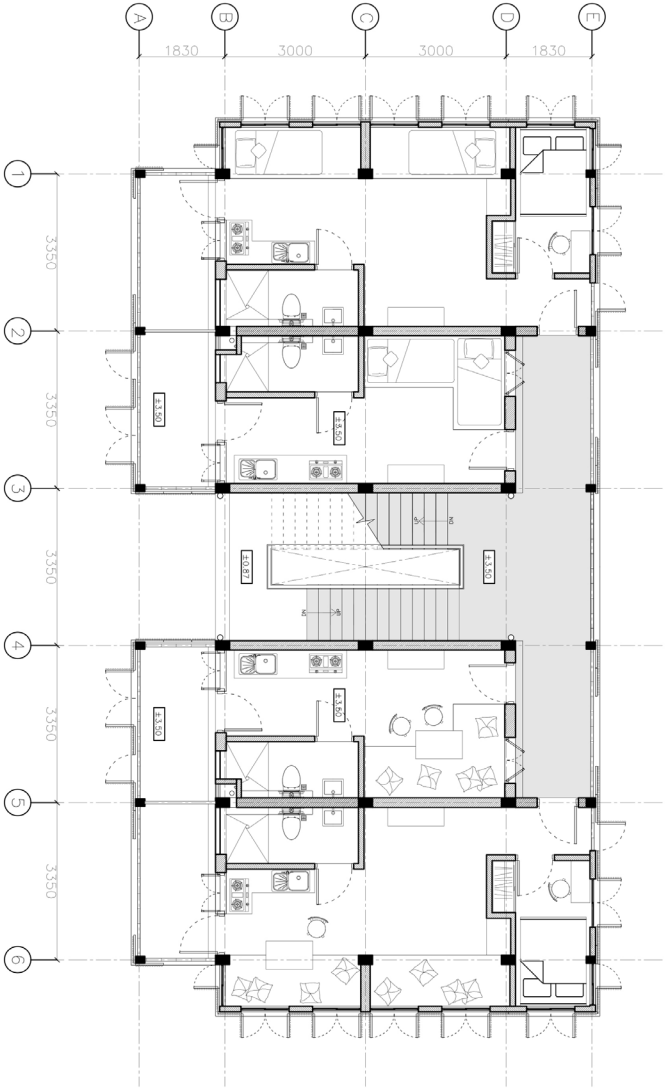
Mid-rise

BUILDINGS

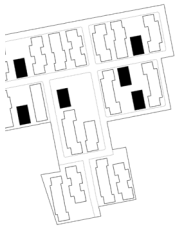
MID-RISE



Ground Floor Plan

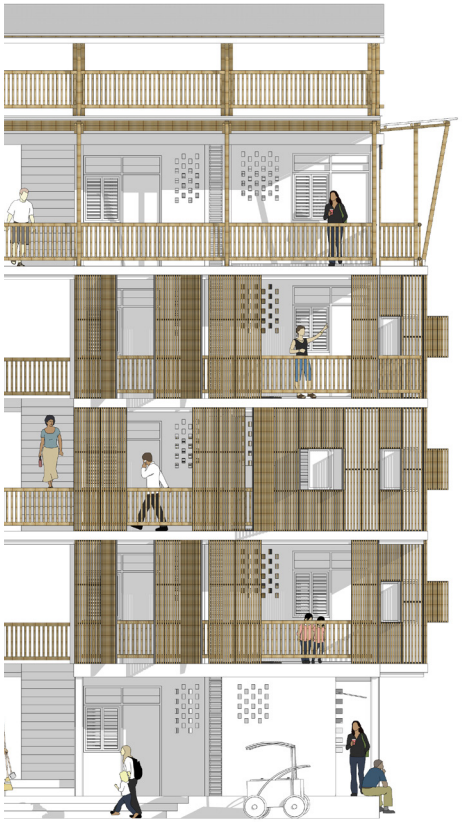


First and Third Floor Plan

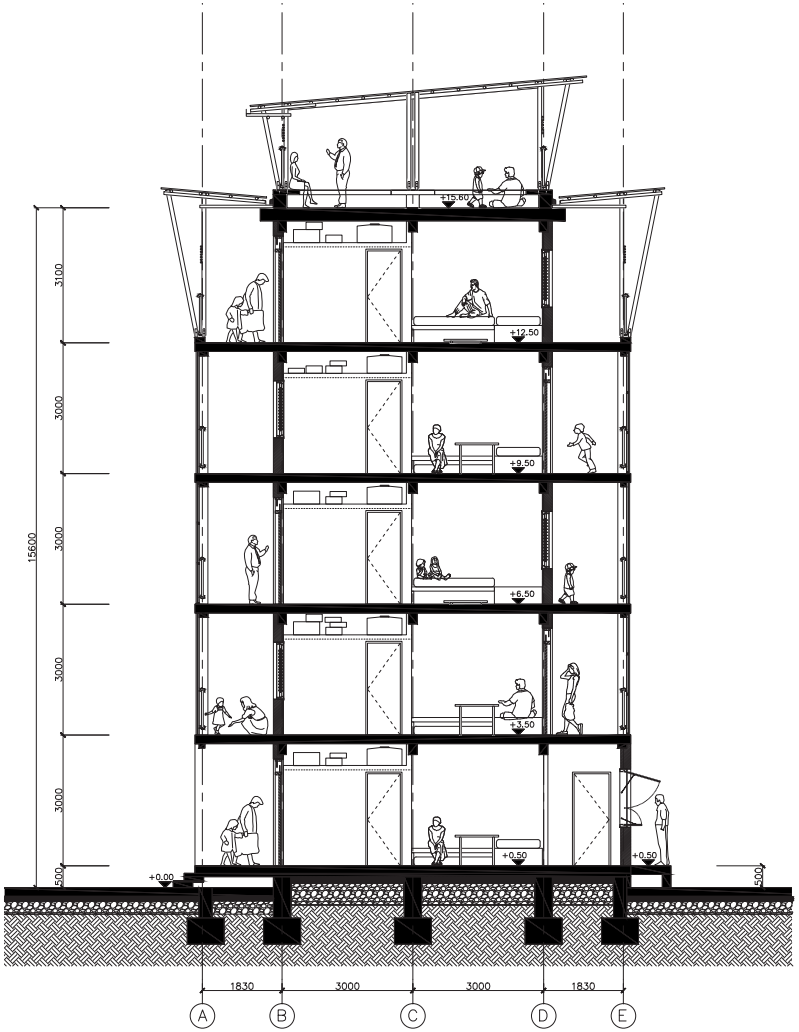


BUILDINGS

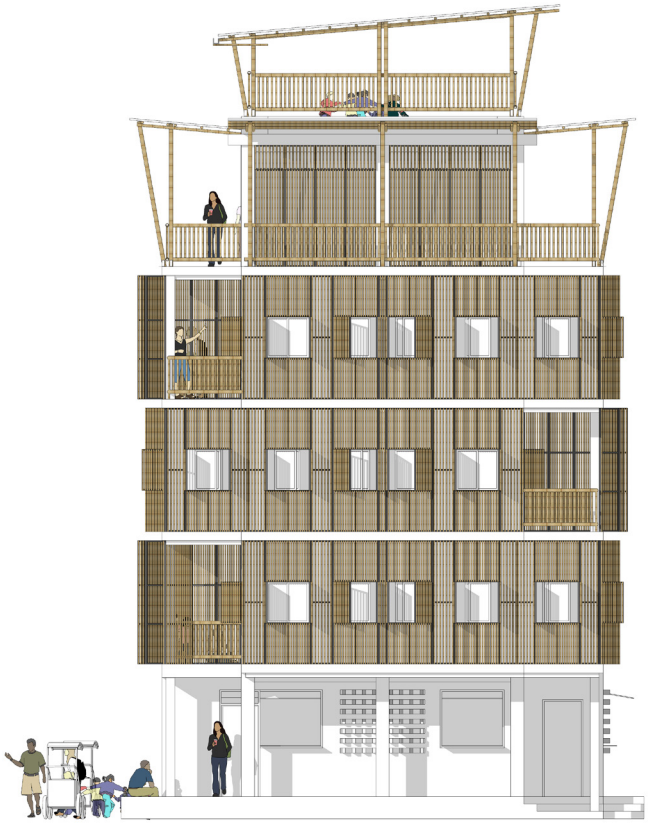
MID-RISE



East and West Elevtion



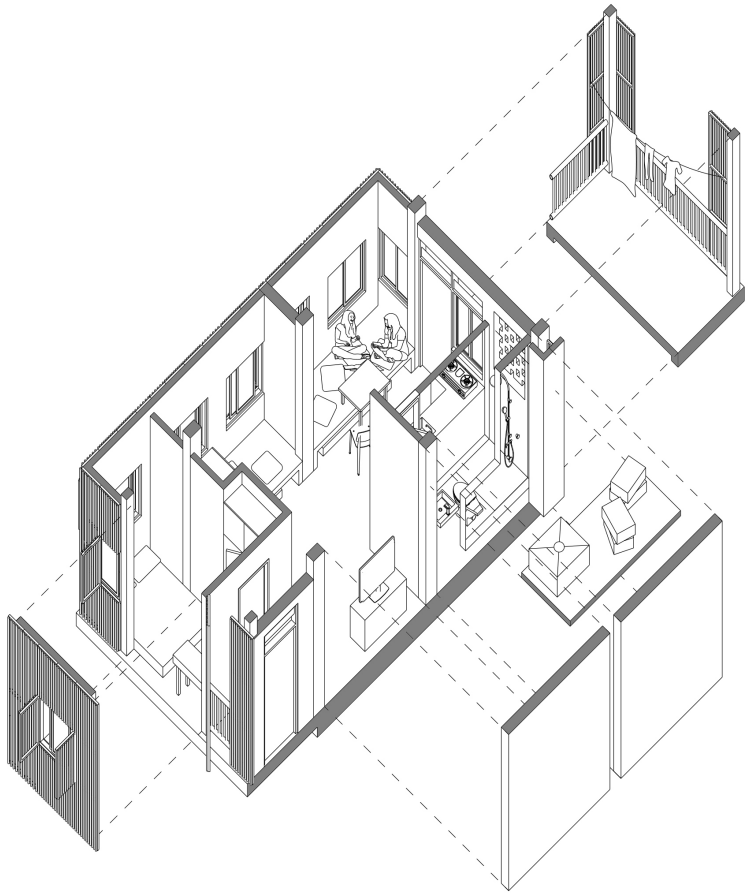
Section A-A



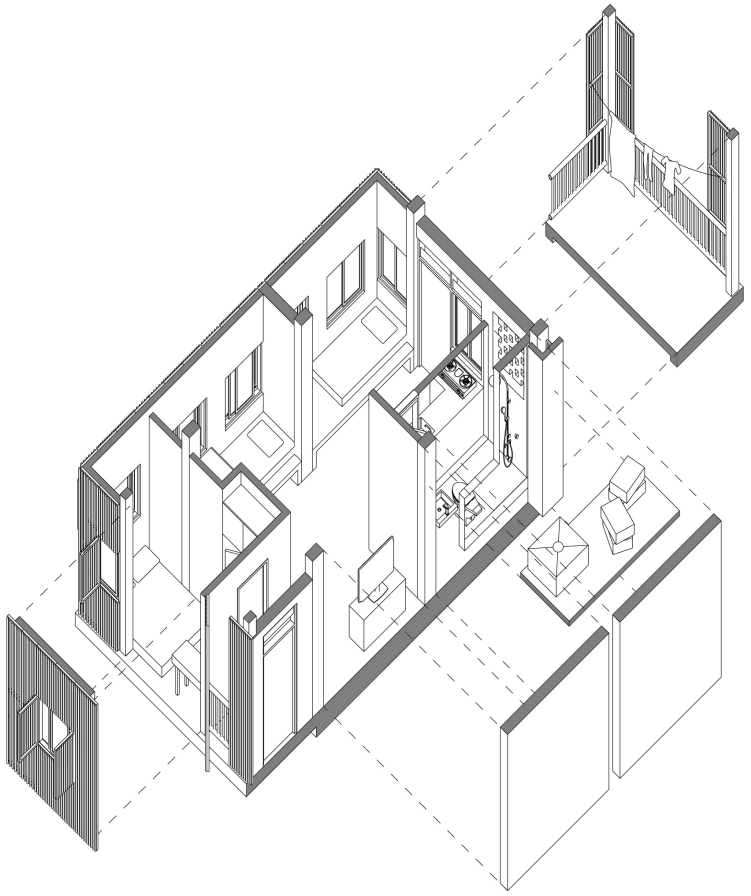
North and South Elevtion

BUILDINGS

MID-RISE



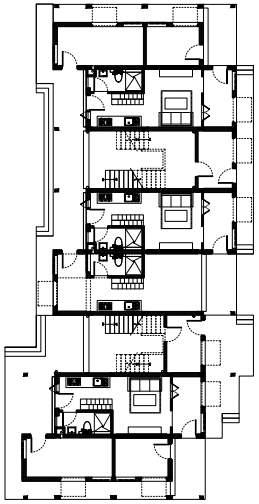
Day



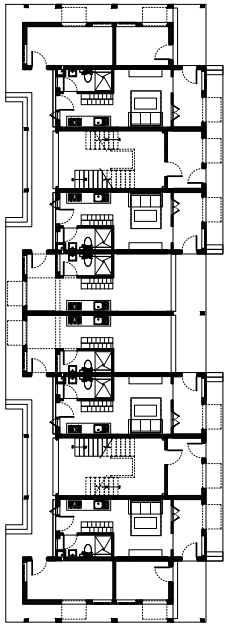
Night

BUILDINGS

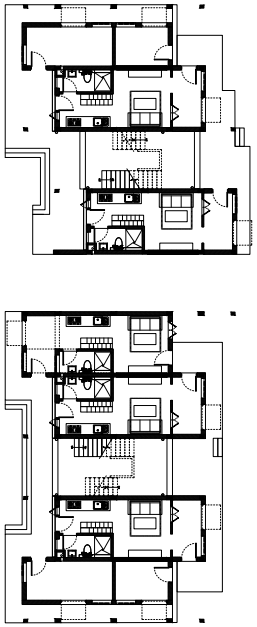
MID-RISE



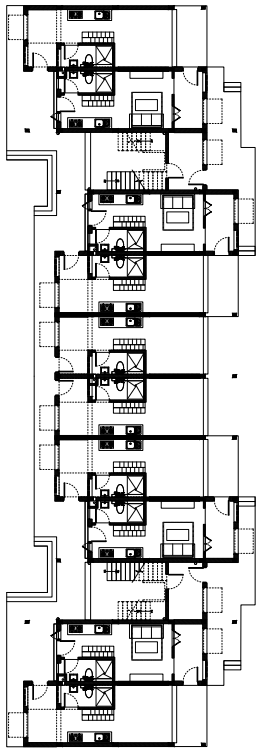
1.5 Module



2 Modules



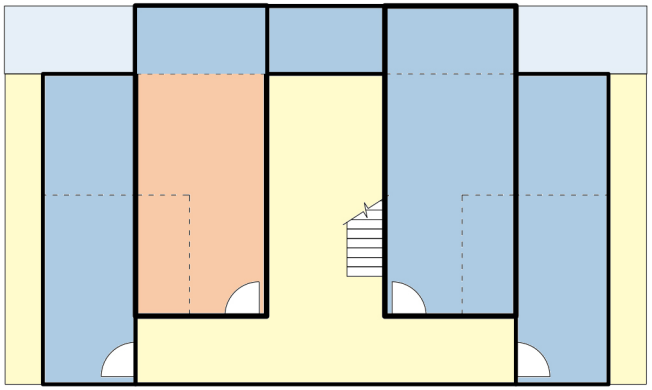
Shifted module



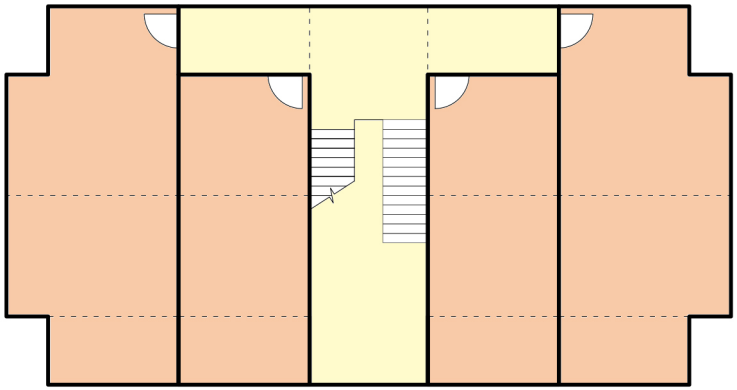
Extended module

BUILDING

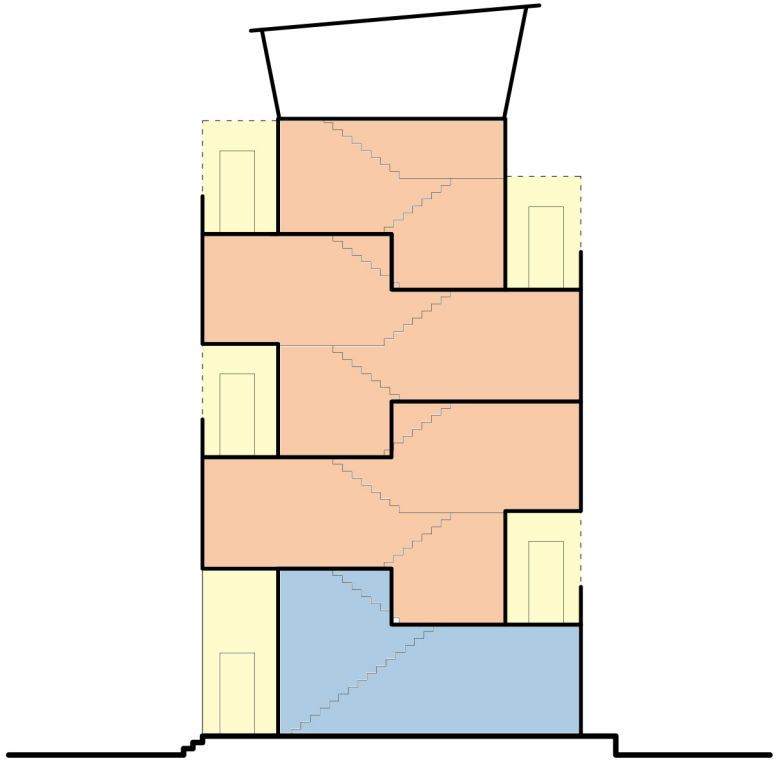
PROGRAM (TYPE2)



Ground floor plan



Typical floor plan



Section

Circulation

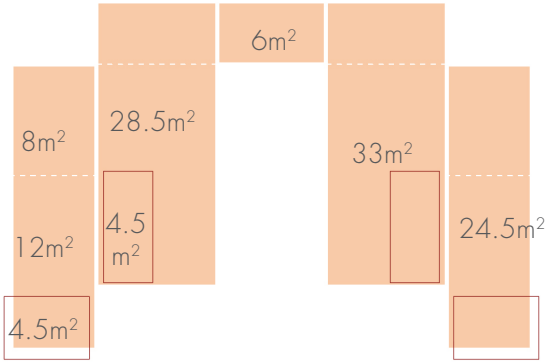
Dwelling units

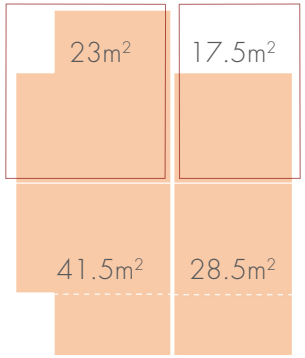
Commercial units

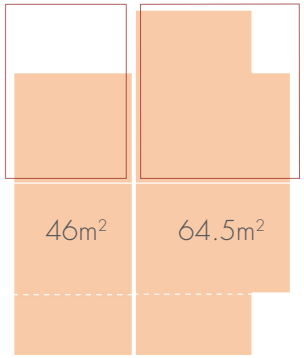
Open space for informal commercial activities

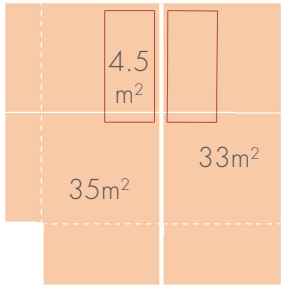
BUILDING

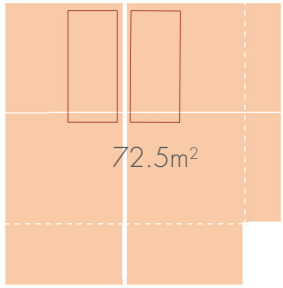
AREA (TYPE2)





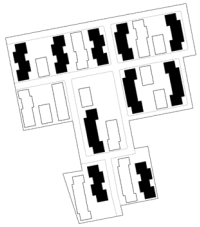






BUILDINGS

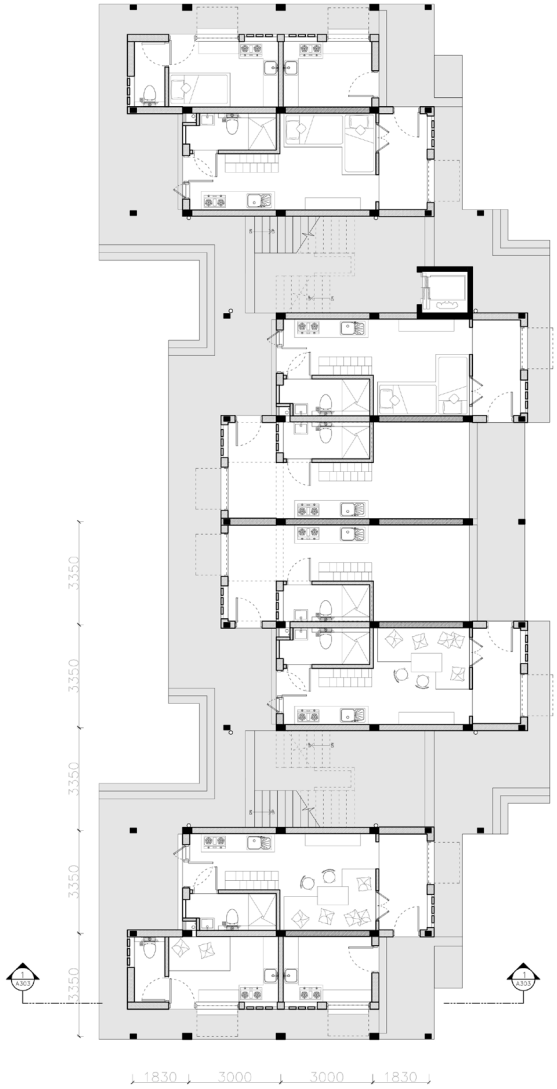
TYPE 2



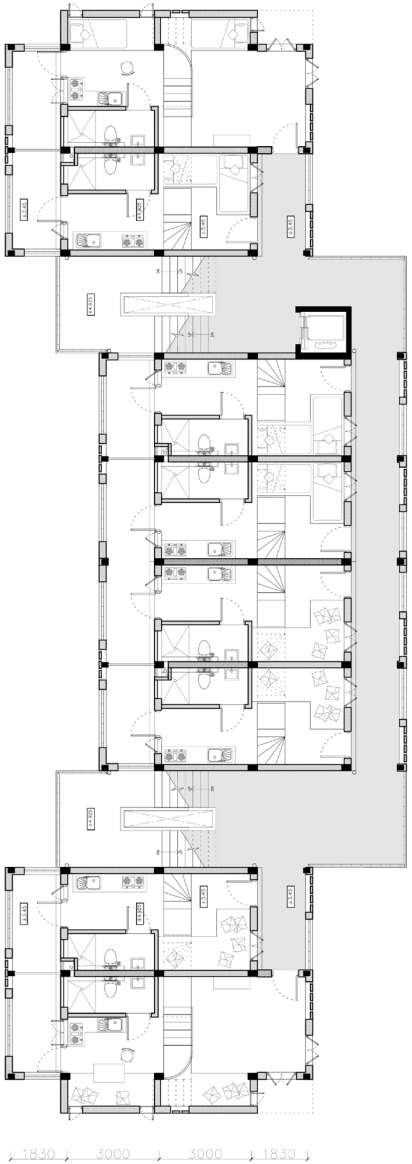
High-rise

BUILDINGS

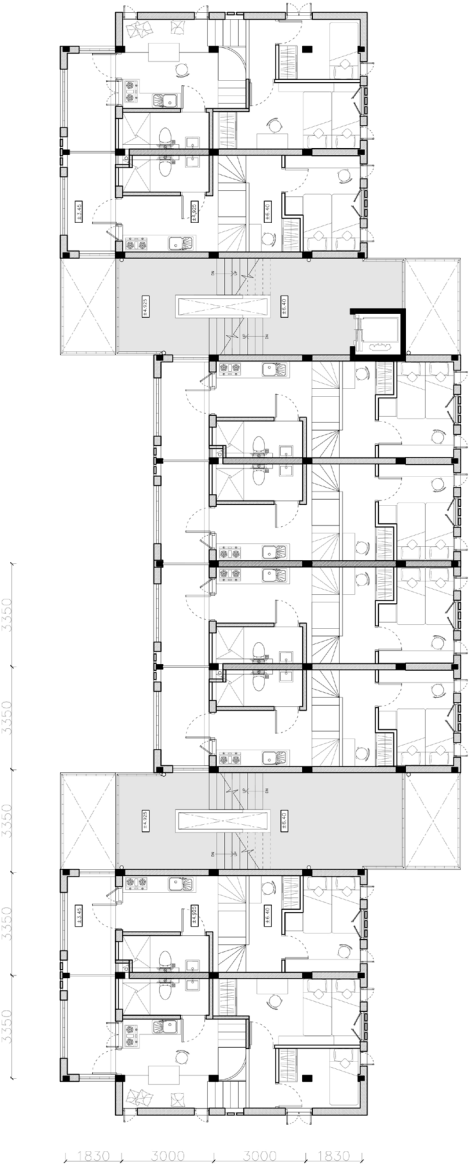
HIGH-RISE



Ground Floor Plan



Typical Floor Plan

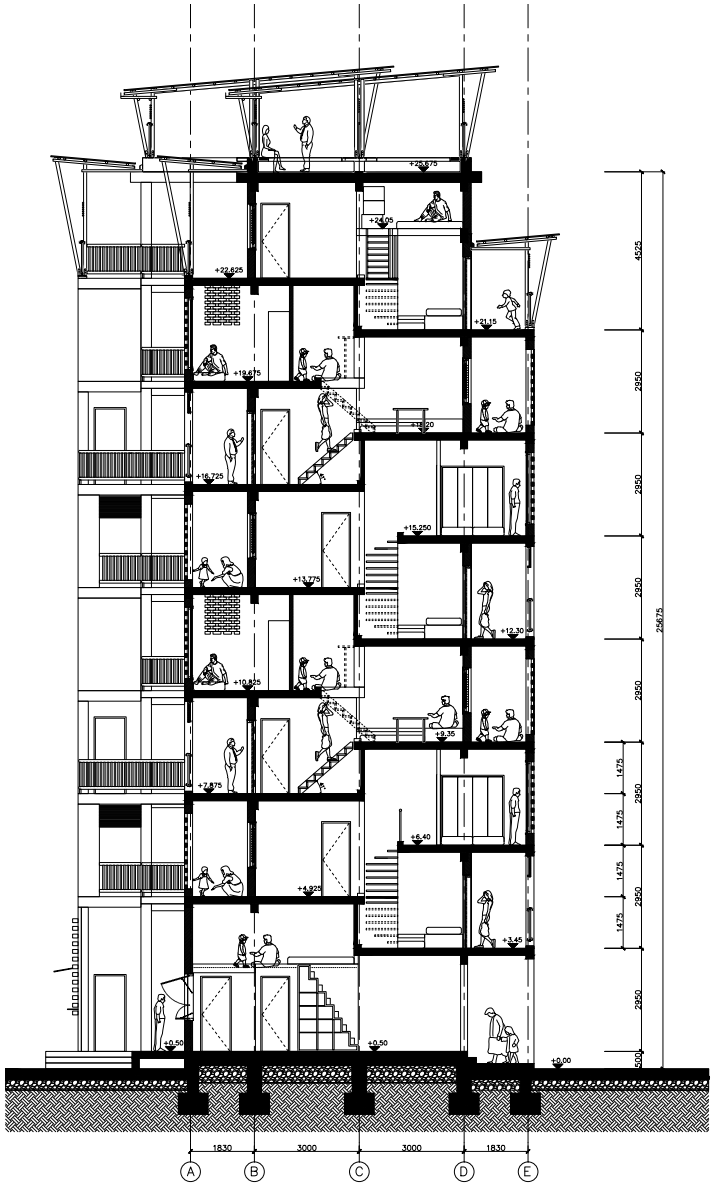


Typical Mezzanine Floor Plan

BUILDINGS

HIGH-RISE

East and West Elevtion

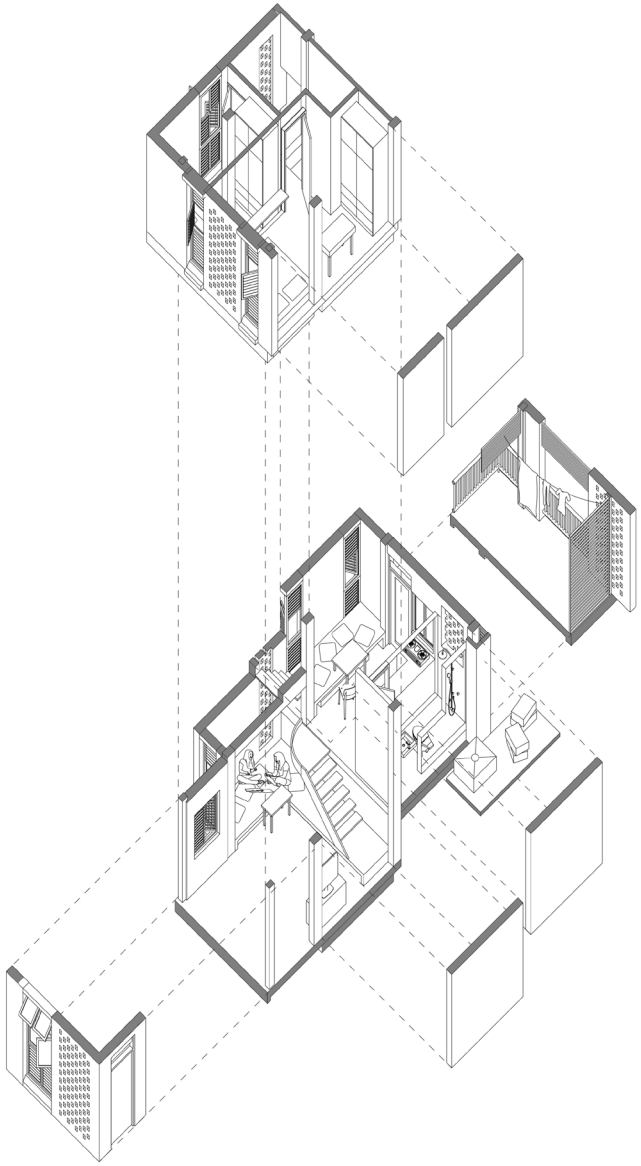


Section A-A

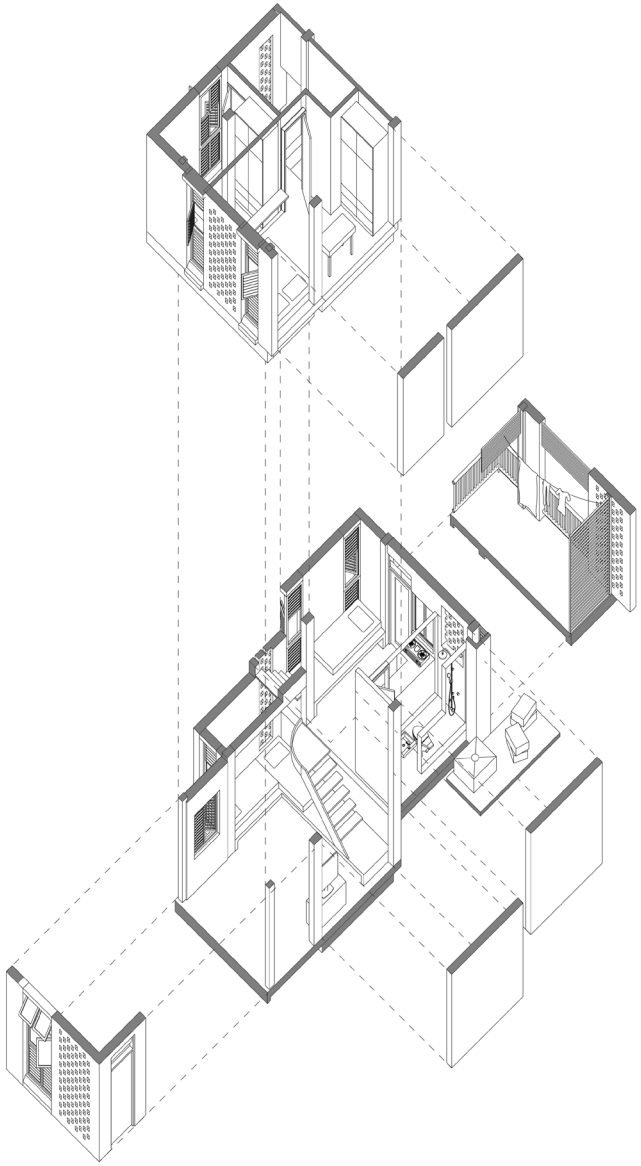
North and South Elevtion

BUILDINGS

HIGH-RISE



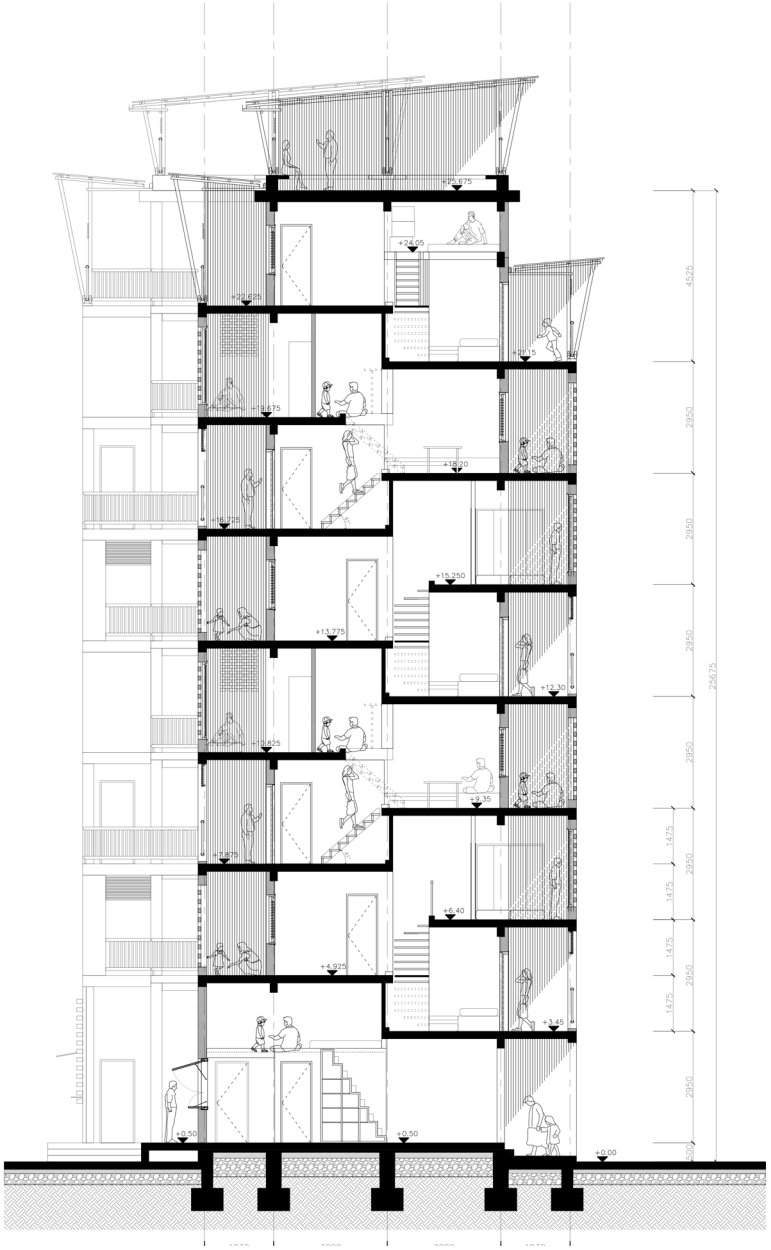
Day



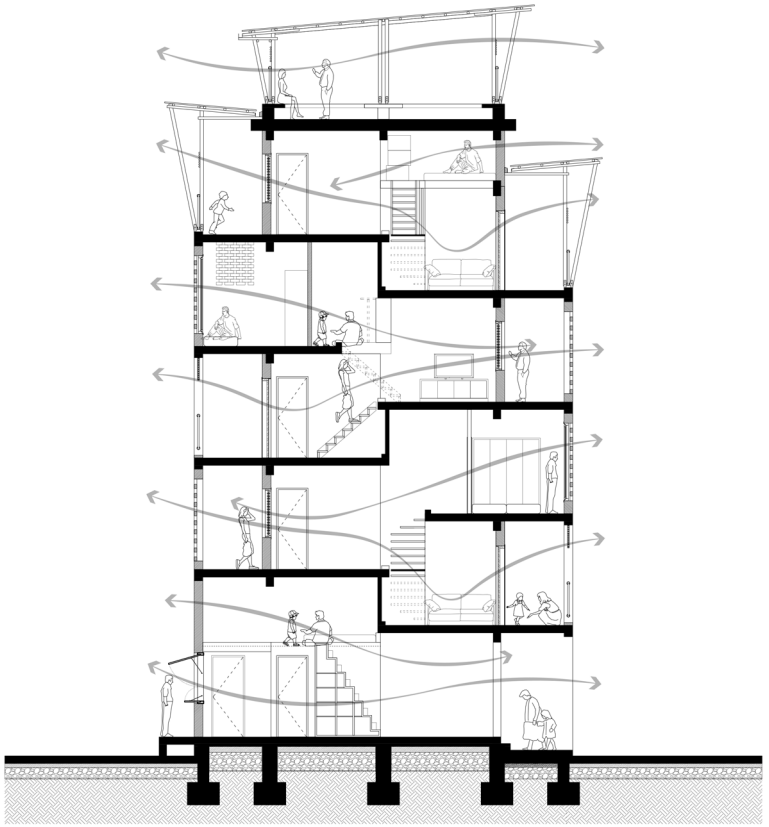
Night

BUILDINGS

CLIMATE DESIGN



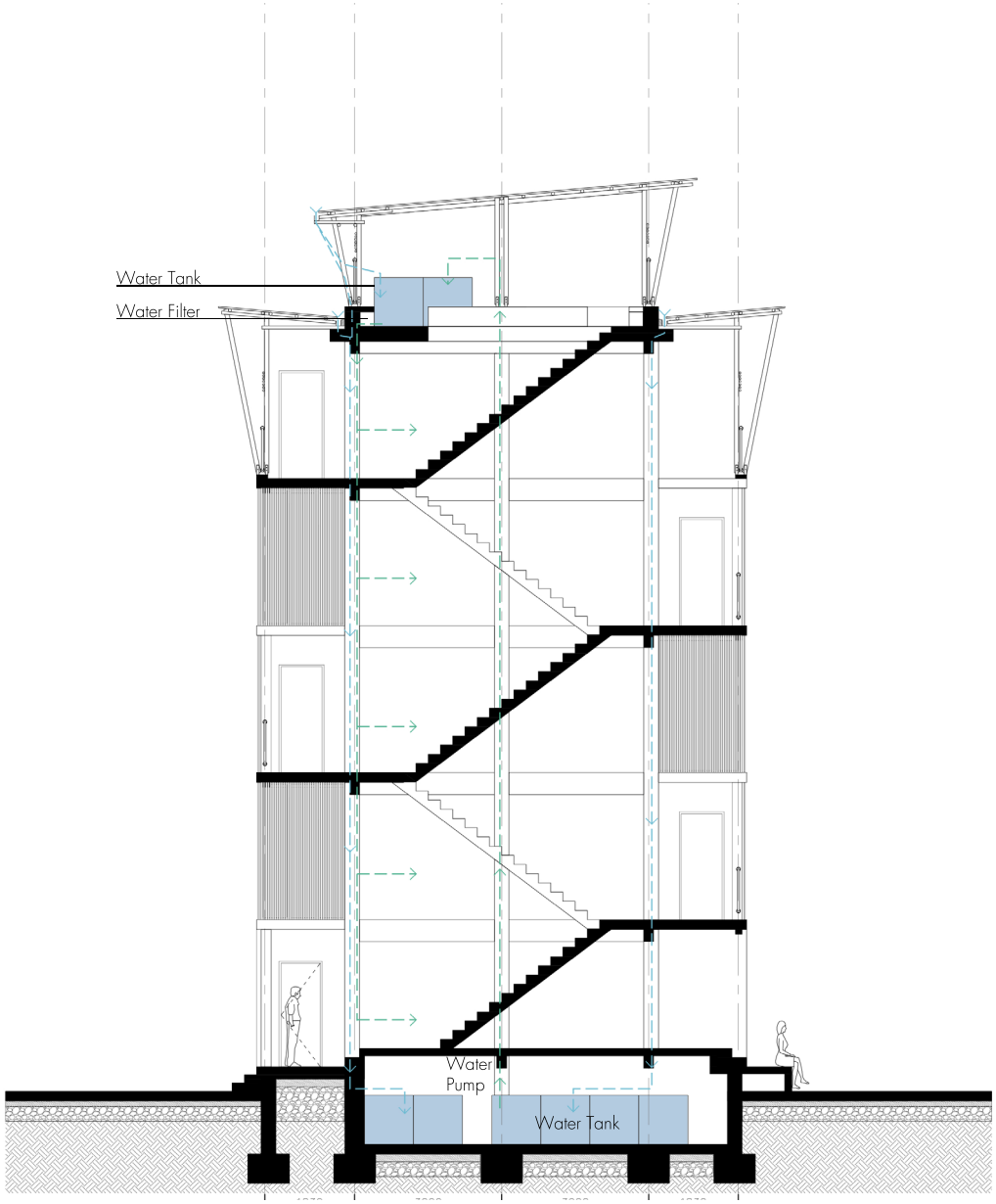
Shaded area



Natural ventilation

BUILDINGS

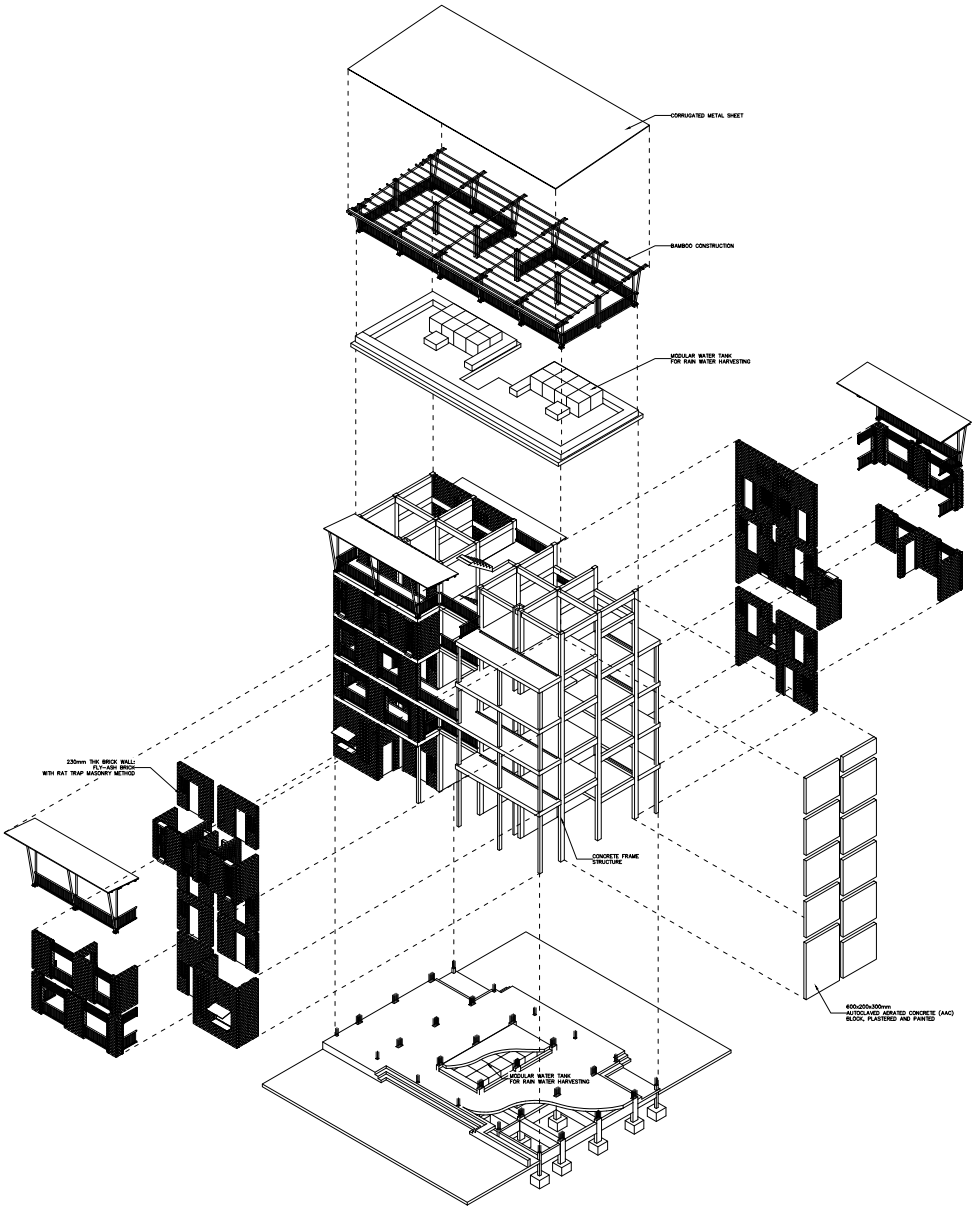
WATER MANAGEMENT



Shaded area

BUILDINGS

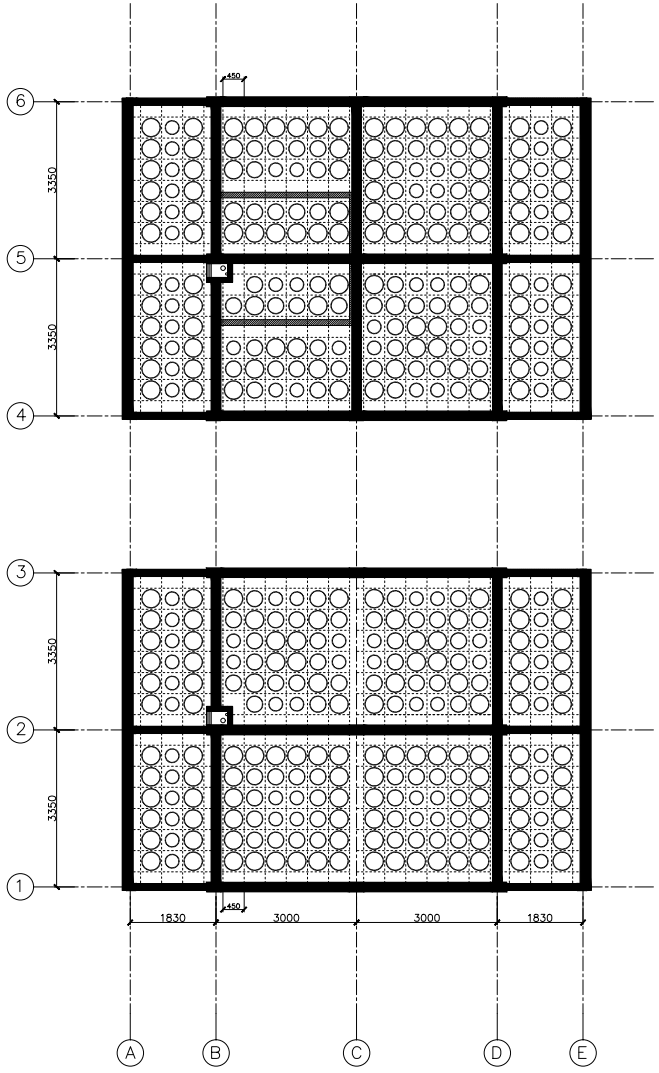
CONSTRUCTION METHOD



Concrete skeleton and brick infill construction

BUILDINGS

CONSTRUCTION METHOD

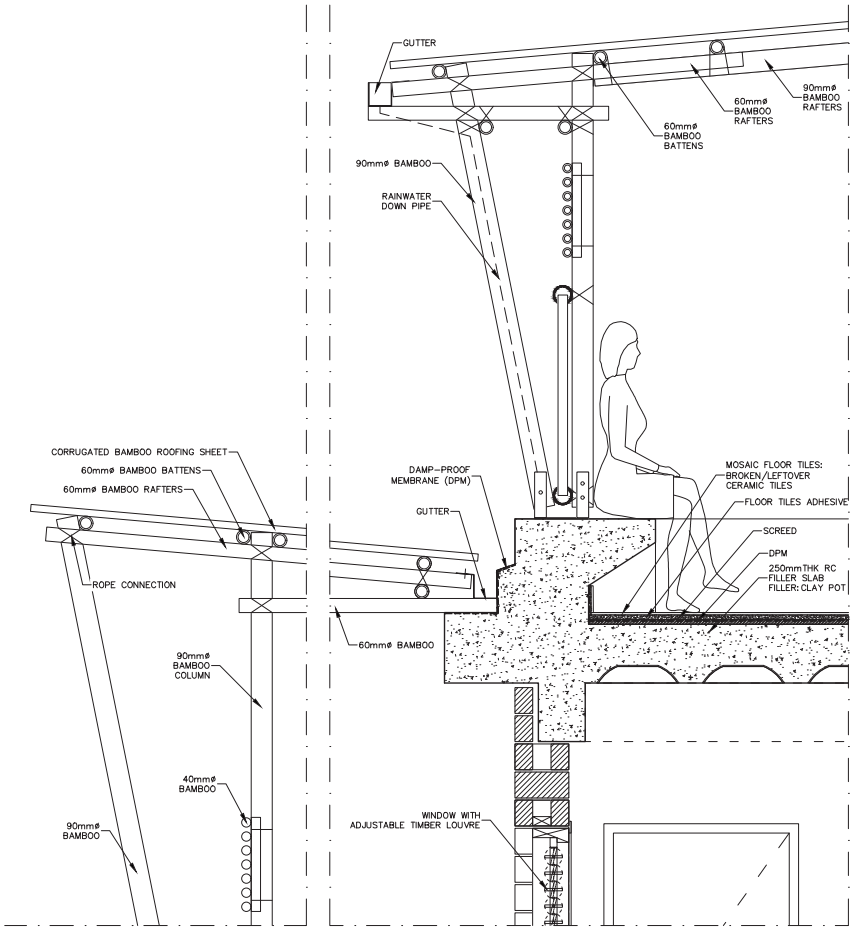


Ceiling Plan

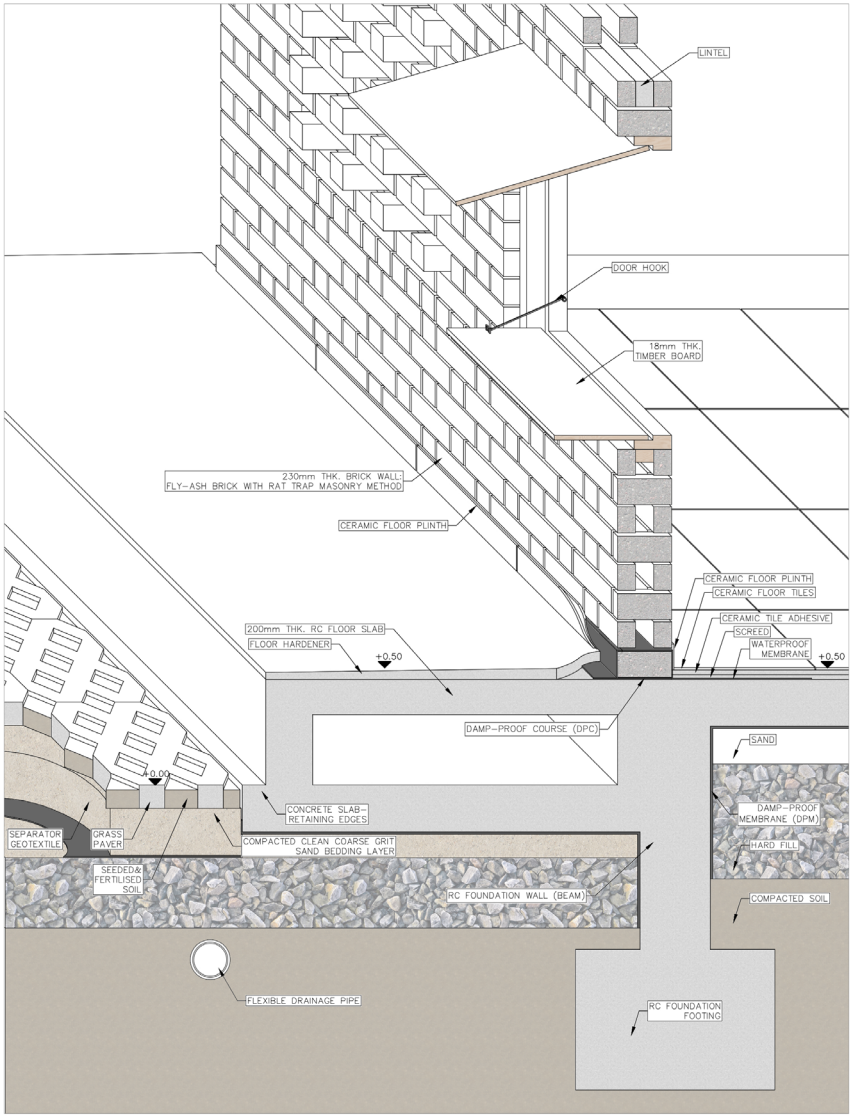
Concrete filler slab (Clay pot)

BUILDINGS

CONSTRUCTION METHOD



Roof Connection

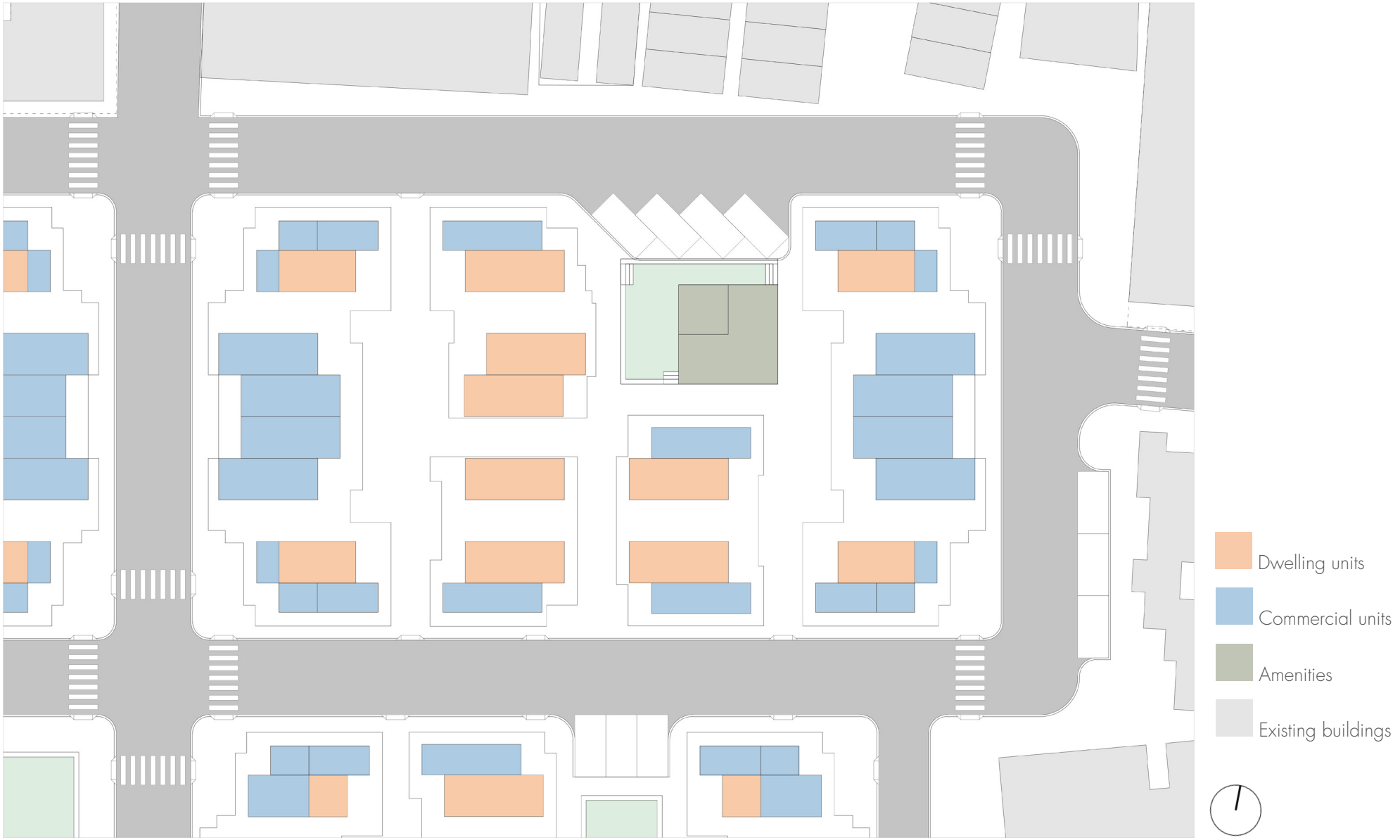


Ground Connection

CLUSTERING

CLUSTERING

PROGRAM



CLUSTERING

HIERARCHY OF PEDESTRIAN

CLUSTERING

PLACE TO SIT/SOCIALIZE

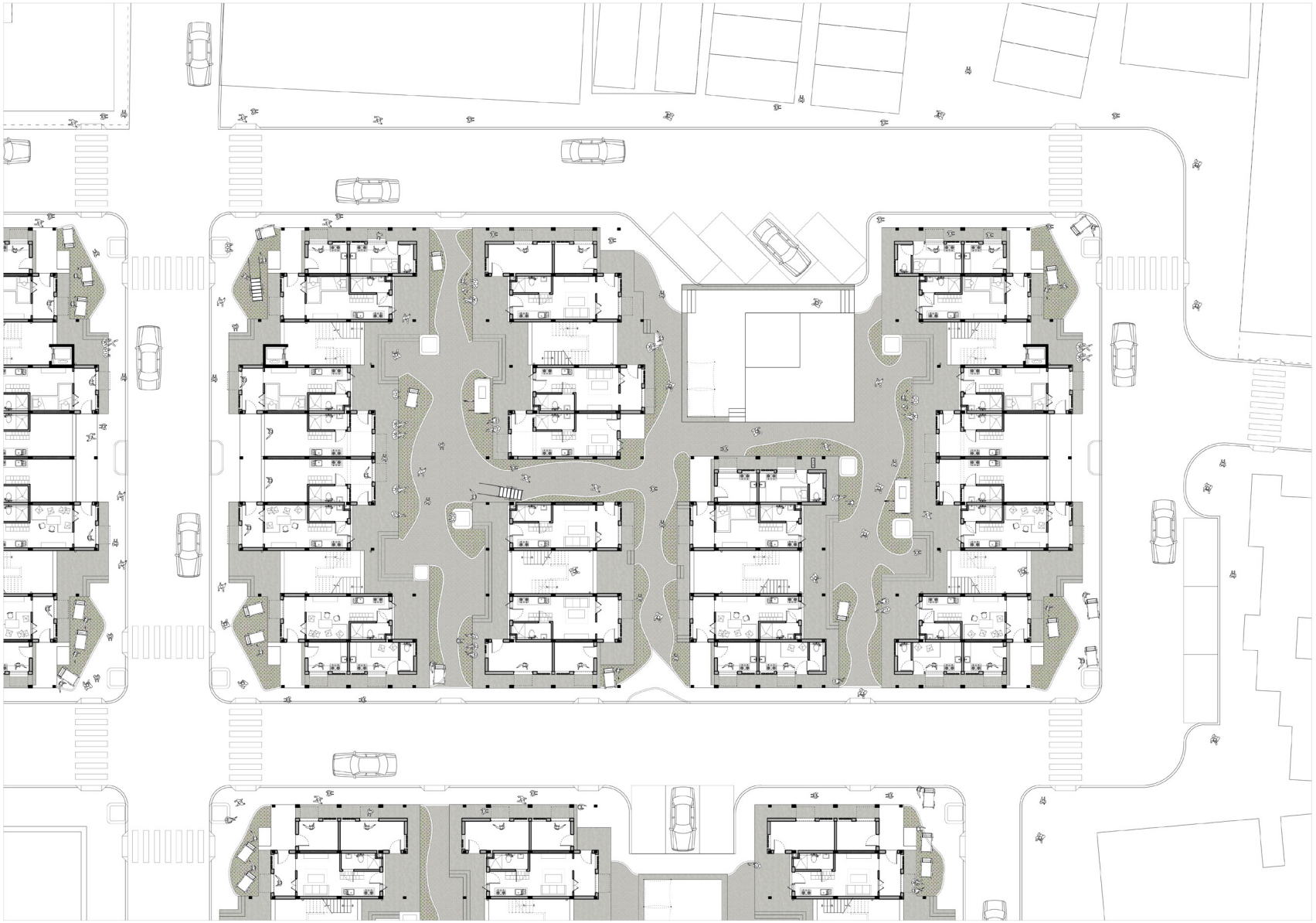
Platform

Staircases

Platform around tree

CLUSTERING

PLACE TO WORK



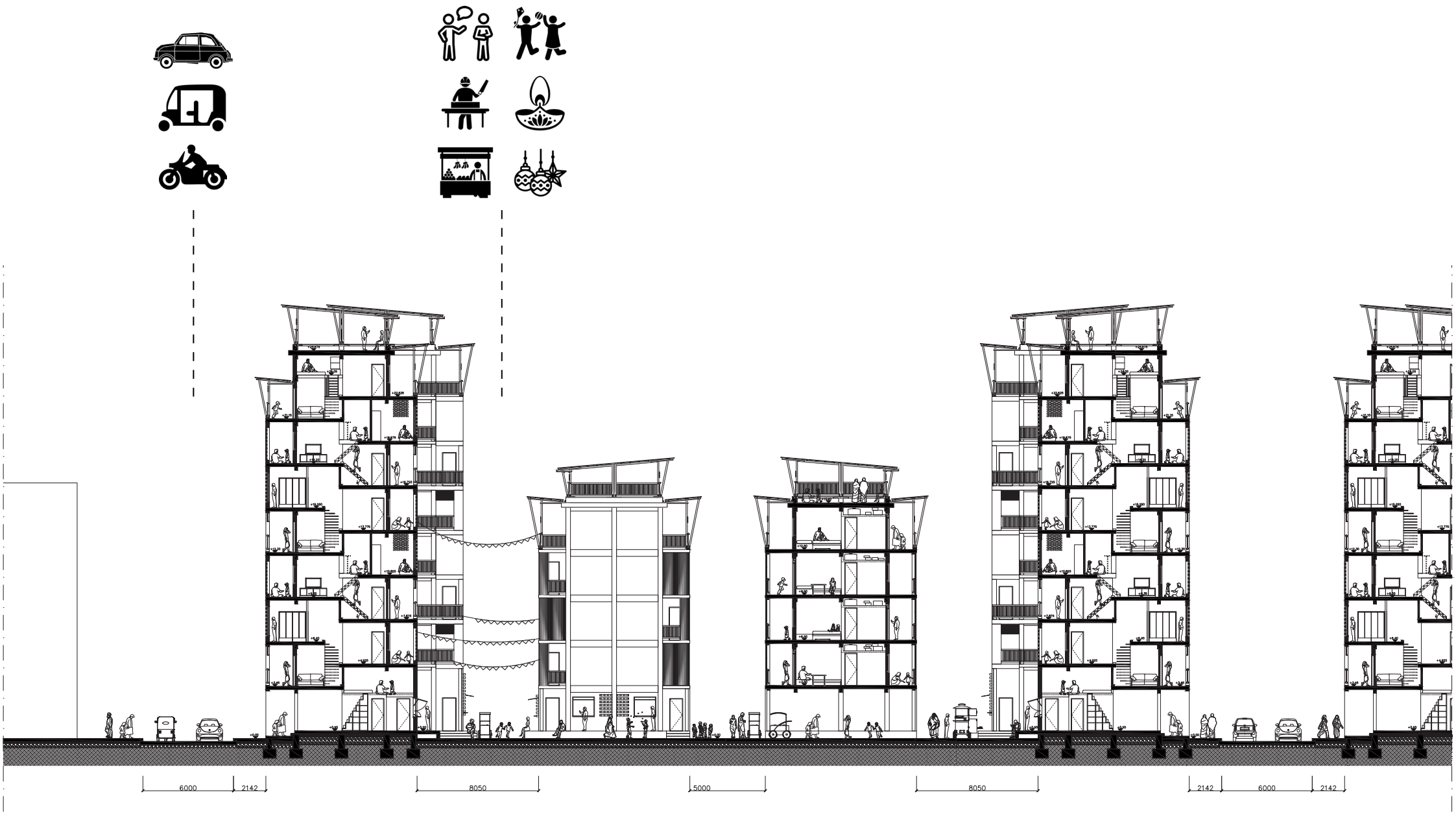
Carpenter

Metal work

Hawkers

CLUSTERING

ACTIVITIES ON VARIOUS STREETS

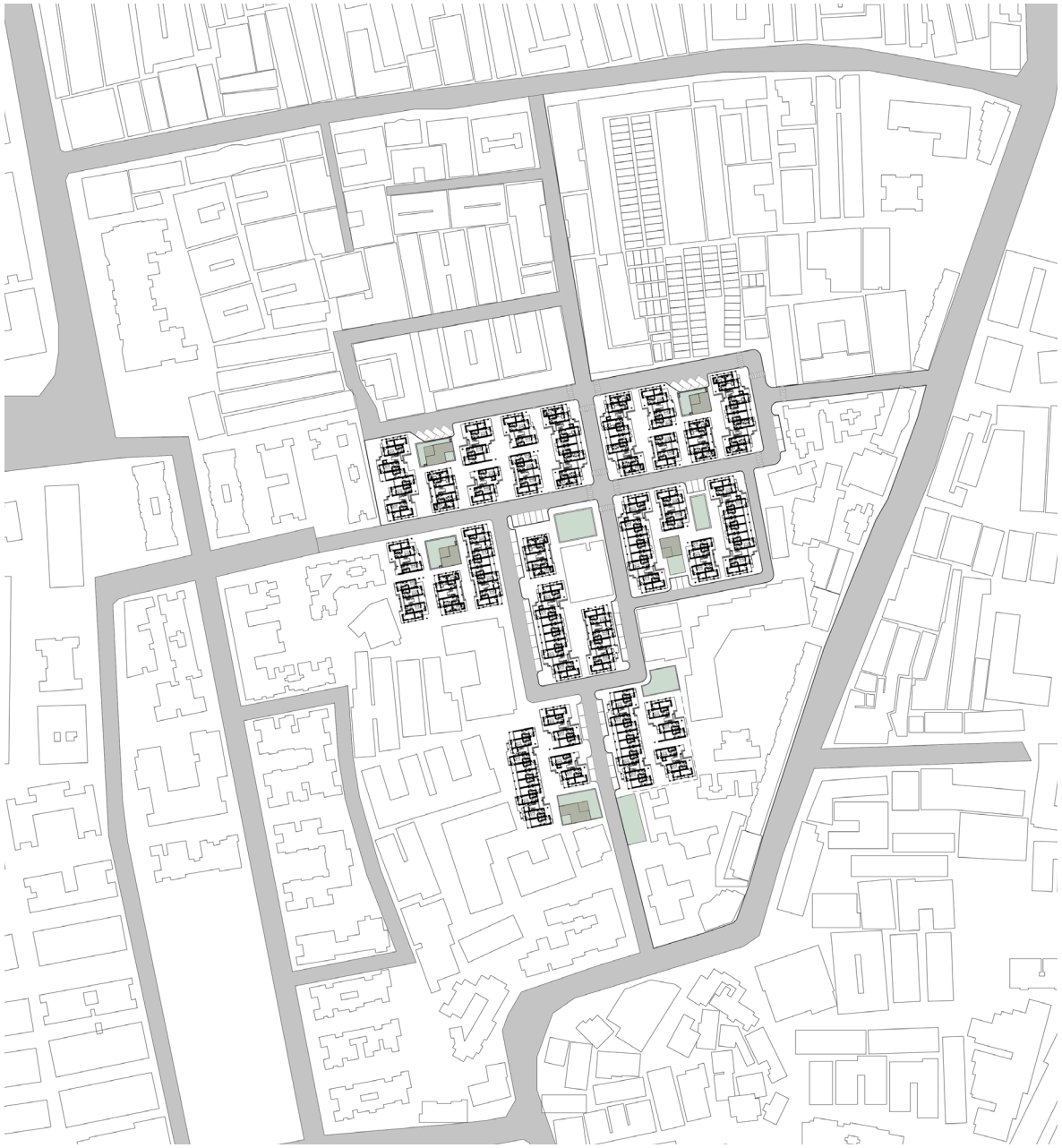


CLUSTERING

RELATION BETWEEN CLUSTERS

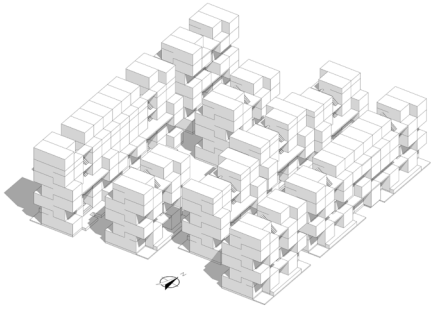
CLUSTERING

URBAN PLAN

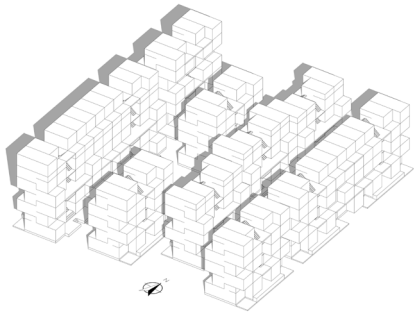


CLUSTERING

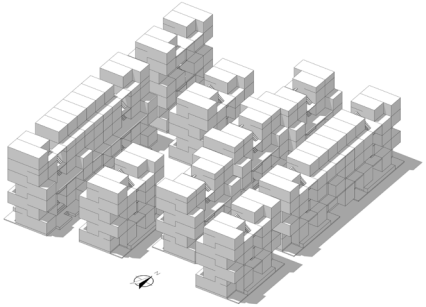
CLIMATE DESIGN



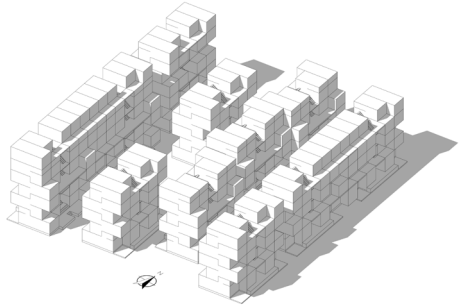
Summer 10 a.m.



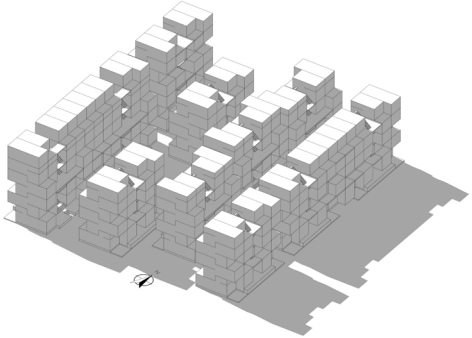
Winter 10 a.m.



Summer 1 p.m.



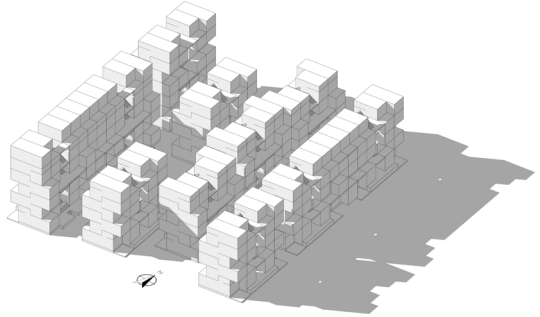
Winter 1 p.m.



Summer 4 p.m.

Building as Shading Device

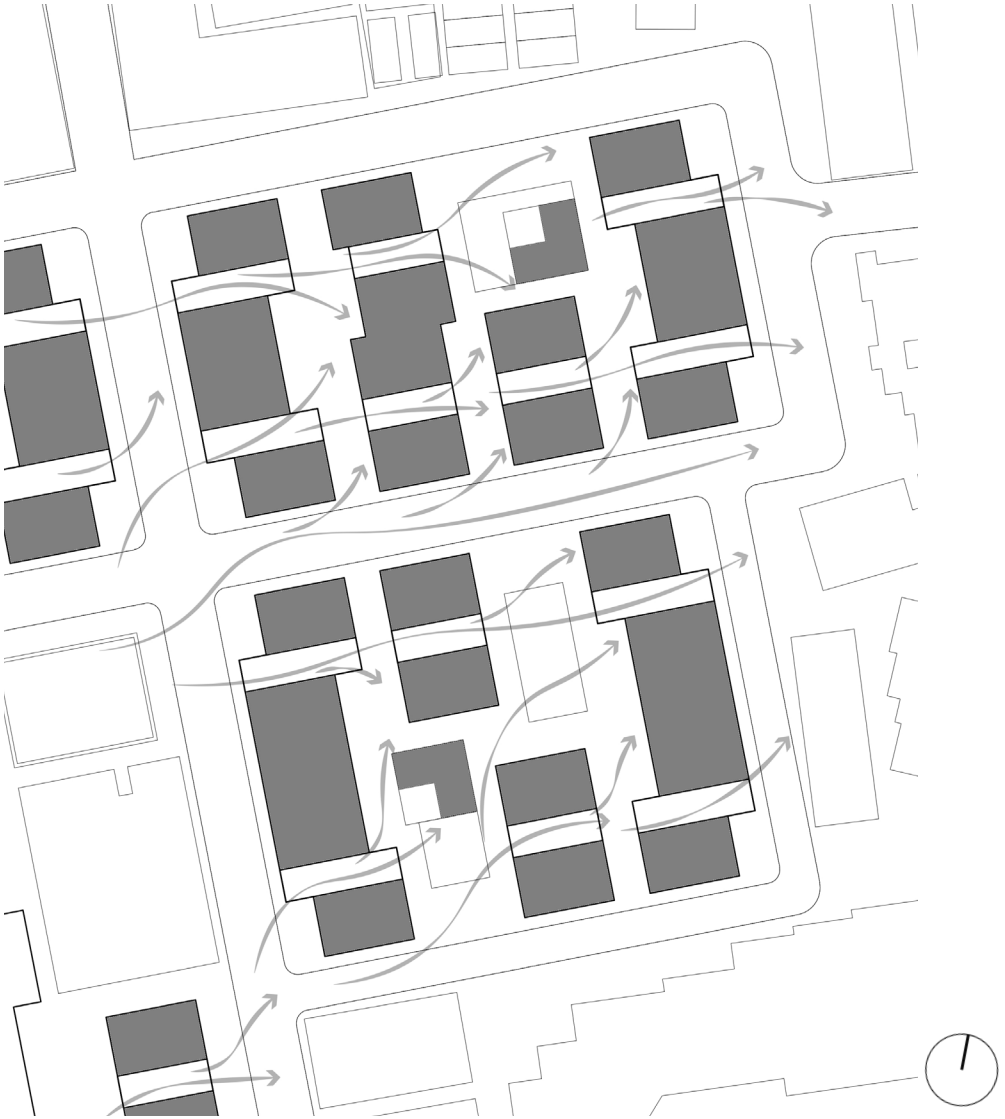
The streets are oriented North-South direction,
thus they are shaded by the buildings.



Winter 4 p.m.

CLUSTERING

CLIMATE DESIGN



Urban Ventilation Scheme

The prevailing wind direction in Mumbai is mostly from the west. The prorosity of the scheme allows wind moves through the building complex.

CLUSTERING

ATMOSPHERIC IMPRESSION

CLUSTERING

PERSONALIZATION AND OPTIMIZATION OF SPACE

ATMOSPHERIC IMPRESSION

MEETING THE EXISTING BUILDING

ATMOSPHERIC IMPRESSION

COMMUNITY STREET

ATMOSPHERIC IMPRESSION

COMMUNITY STREET

ATMOSPHERIC IMPRESSION

GALLERY

A Place to Breathe

Global Housing Graduation Studio MSC4

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