

Open Vernacular.

Exploring the Potential of an Autopoietic Framework
for Critical Dialogue between Tradition and Modernity
to Address Future Complexity in Addis Ababa

*“In particular, what’s missing in modern urbanism is a **sense of time** – not time looking backwards nostalgically but forward-looking time, **the city understood as process**, its imagery changing through use, an urban imagination **image formed by anticipation, friendly to surprise.**”*

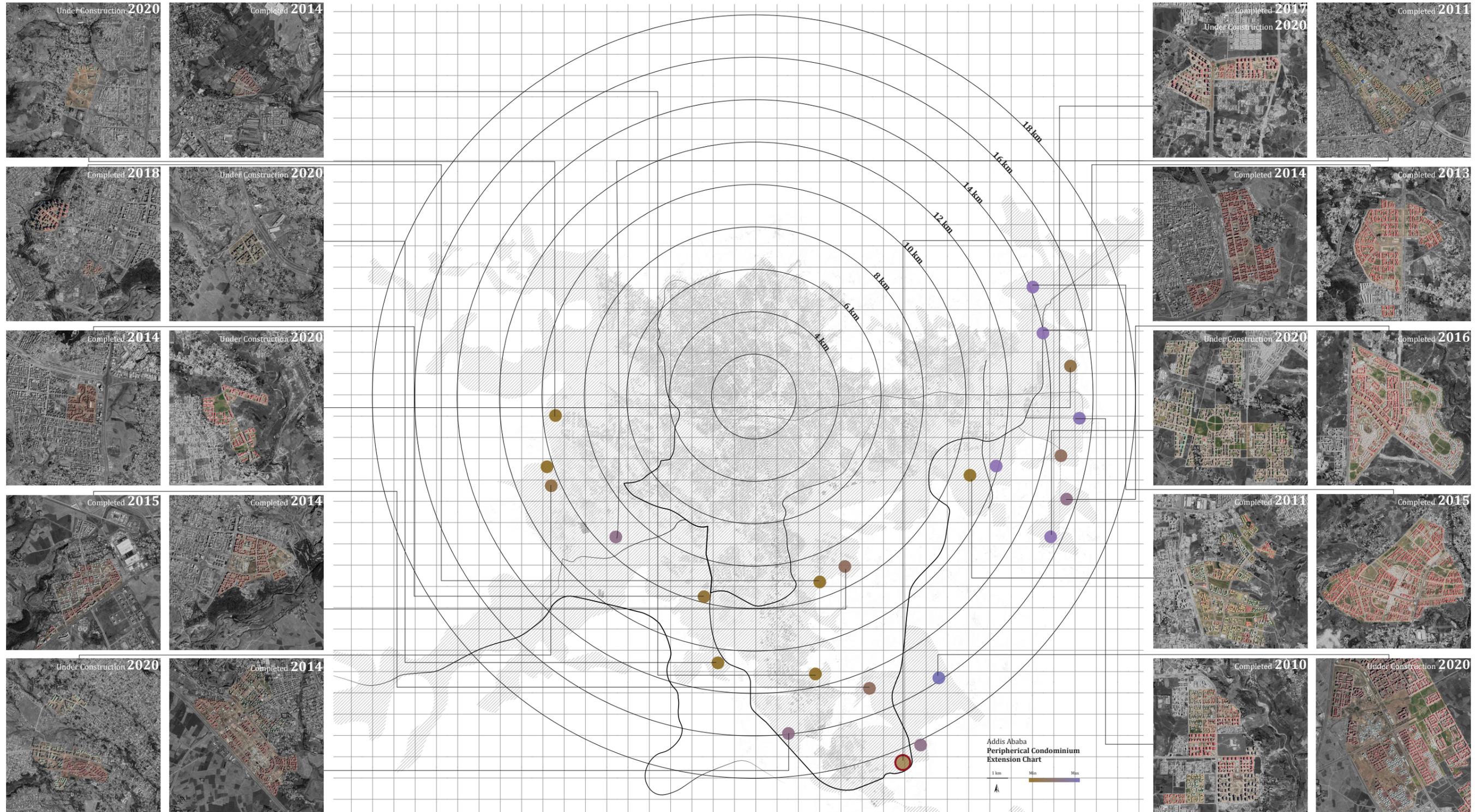
Richard Sennett, *The Open City*



**20:80-Condominium
Greenfield Developments**

A Critical Reflection

Urban Segregation



Location Overview
Condominium Greenfield
Developments



Ayat Condominium
Completed in 2010



Summit Condominium
Completed in 2011



Tafo Condominium
Completed in 2013



Gelan Condominium
Completed in 2014

Tulu Dimtu Condominium
Completed in 2014



Kilinto Condominium
Completed in 2015





Yeka Abado Condominium
Completed in 2015



Bole Arabsa Condominium
Completed in 2016



Koye Feche Condominium
Under construction



Gelan Condominium
Completed in 2014

Urban Segregation

Dormitory Villages in the
Countryside



Bole Arabsa Condominium

Completed in 2016



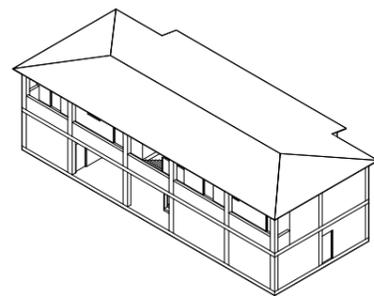
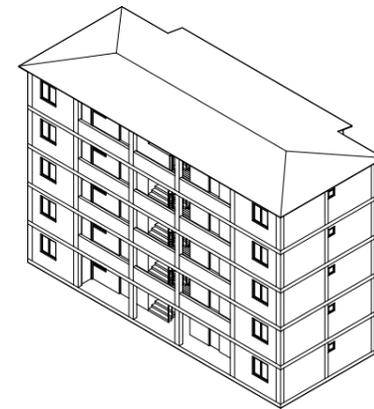
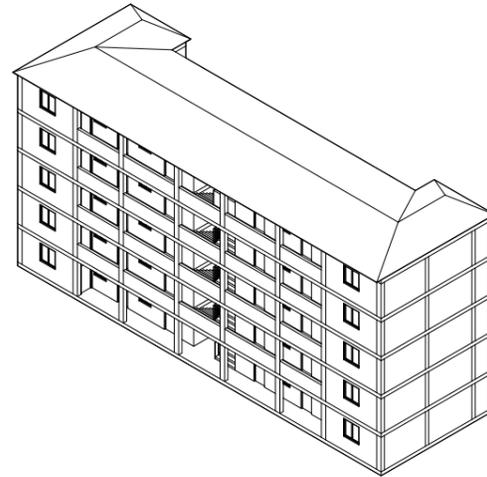
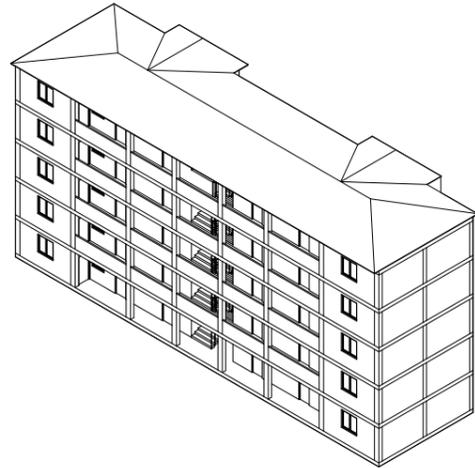
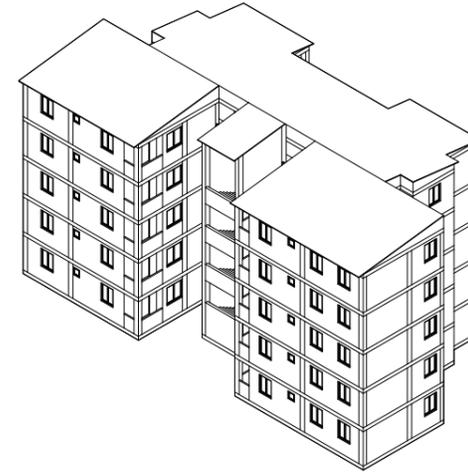
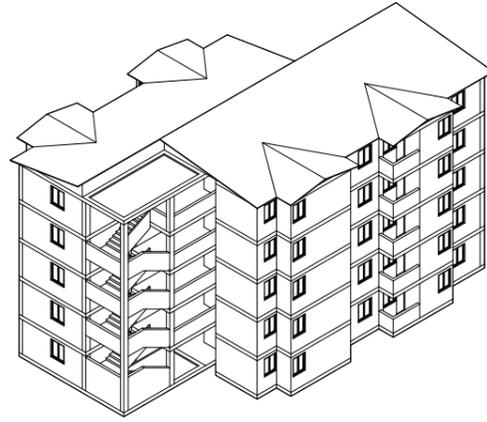
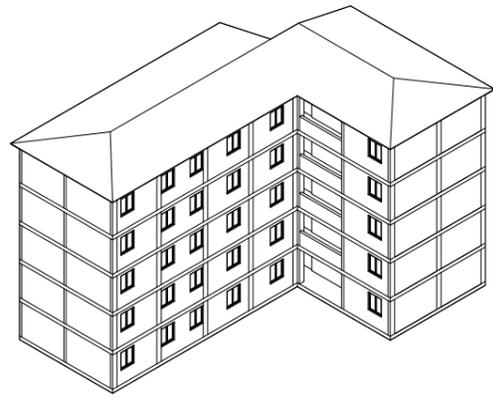
Bole Arabsa Condominium
Completed in 2016



Tulu Dimtu Condominium

Residual spaces turned
into dump sites

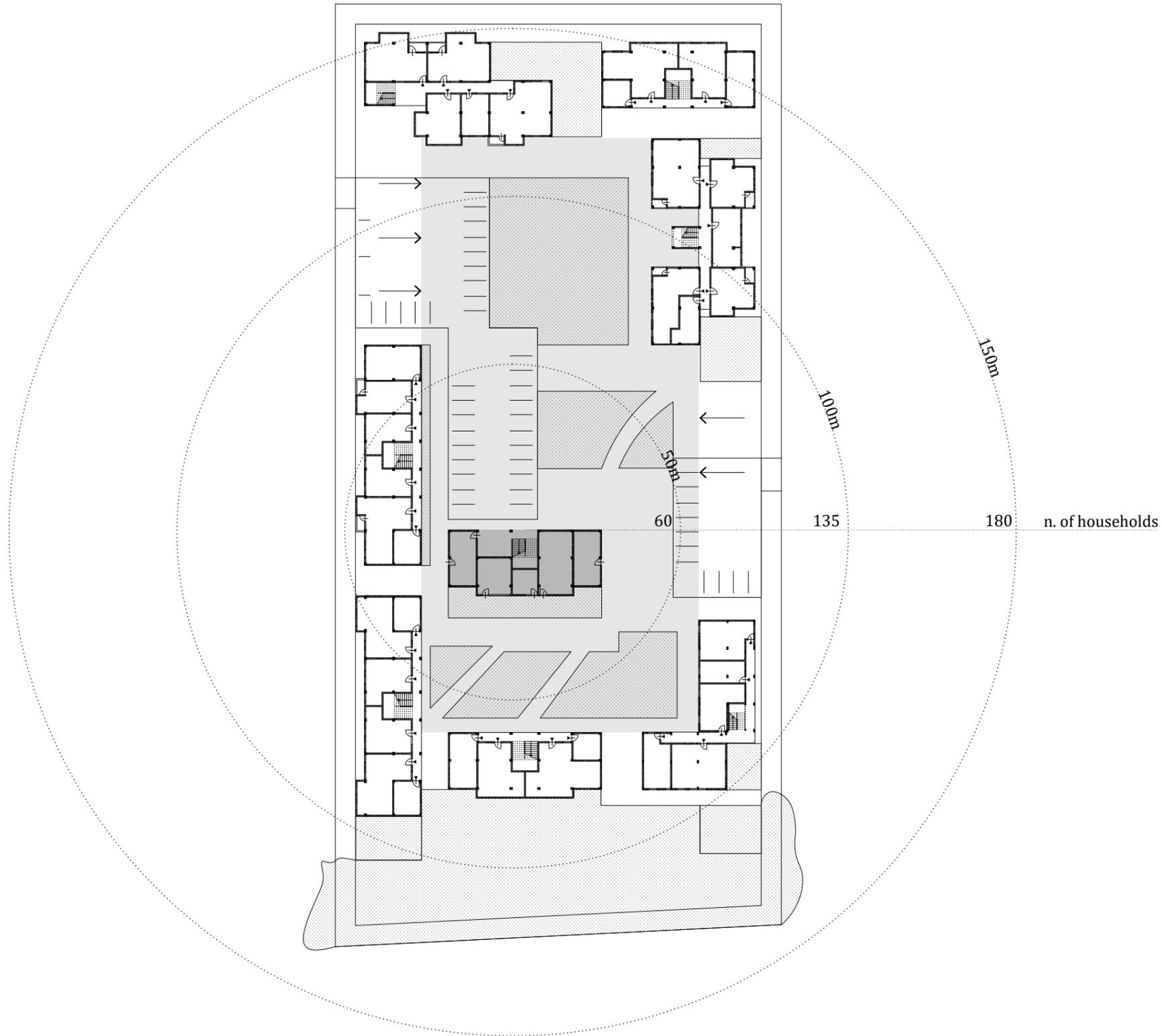
**Object-based
Reiteration**



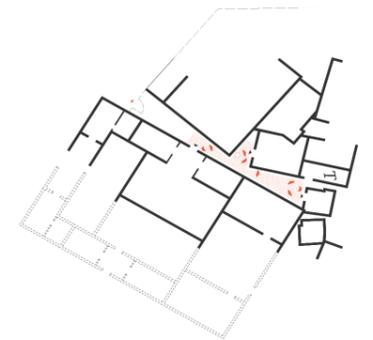
**Condominium Blocks
Configurations**

Spatial (in-)Definition

Scales of Associations



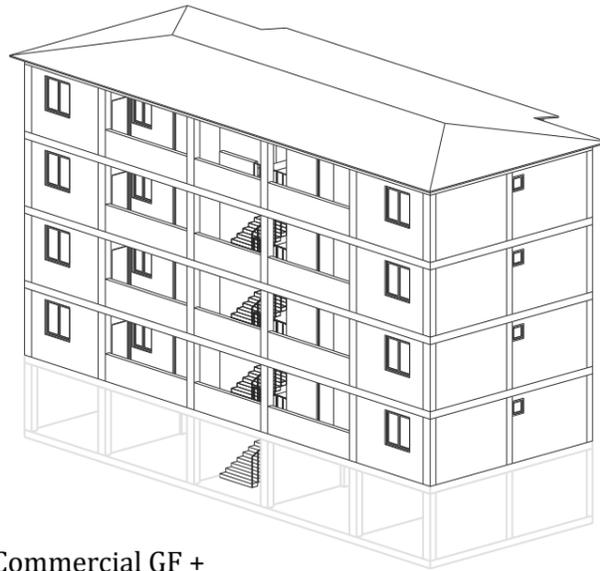
Typical courtyard sizes
in informal settlements



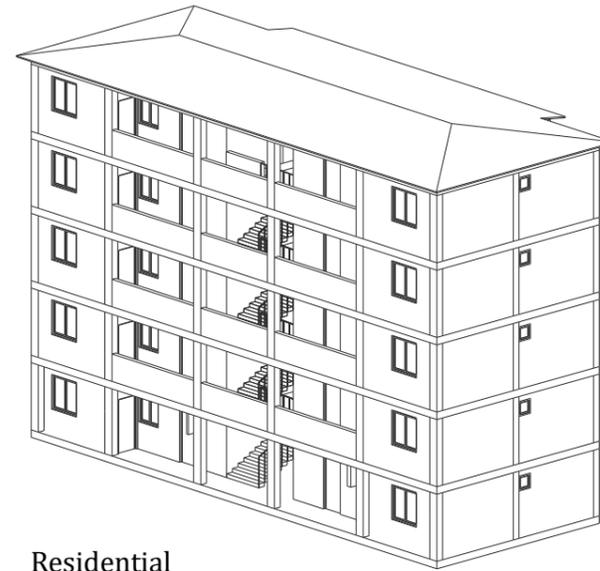
Operational Scale of Collective Spaces

Typical condominium plot floor plan

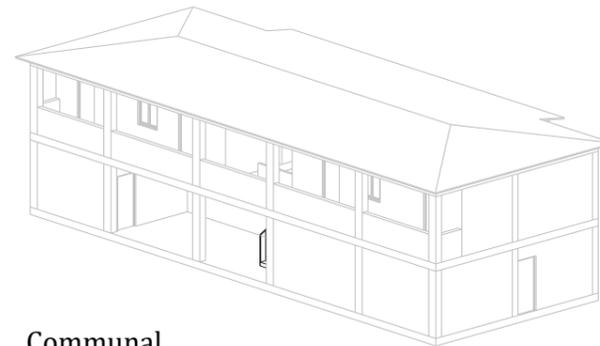
(mono-)Program



Commercial GF +
Residential (1-4)
Block

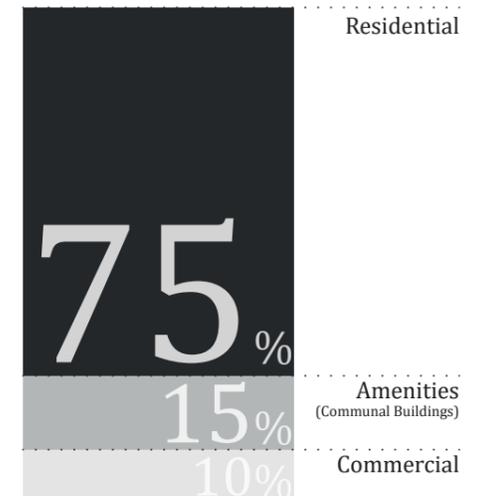


Residential
Block

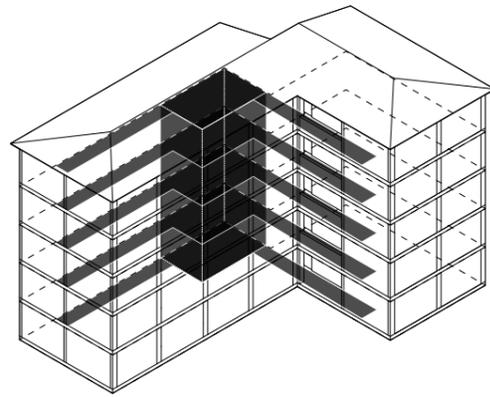


Communal
Block

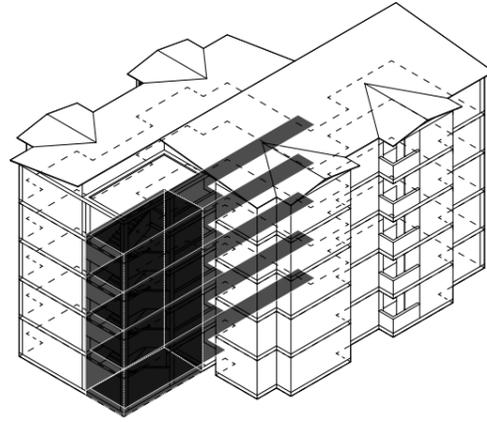
Typologies Analysis
Function-based



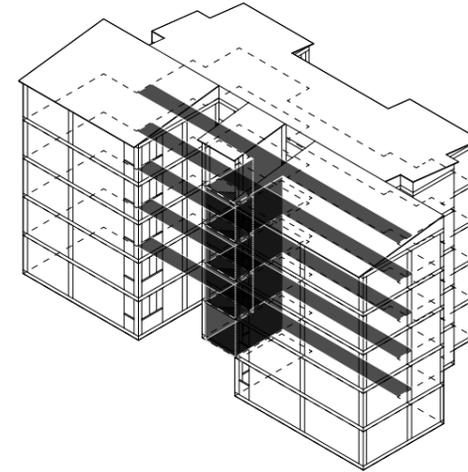
(mono-)Typology



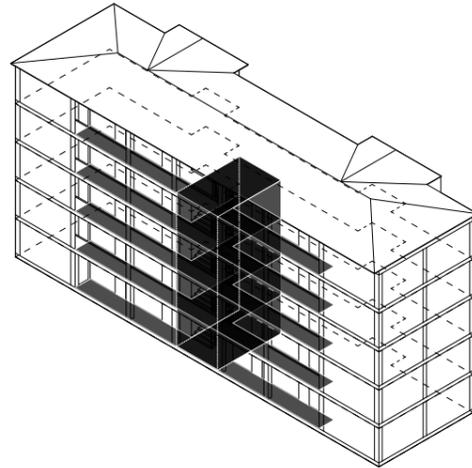
25 Units
Gallery Apartments



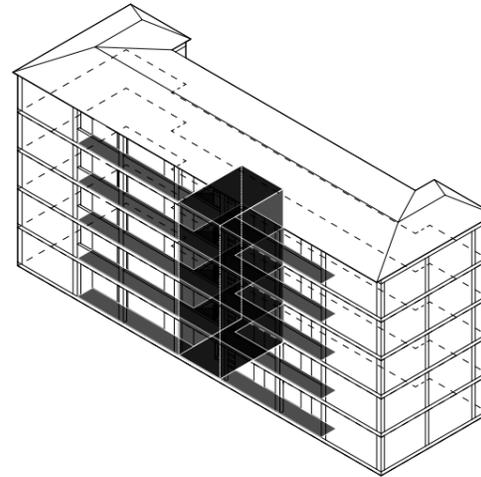
25 Units
Gallery Apartments



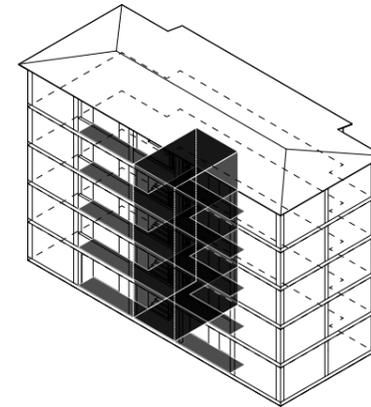
30 Units
Gallery Apartments



30 Units
Gallery Apartments



30 Units
Gallery Apartments

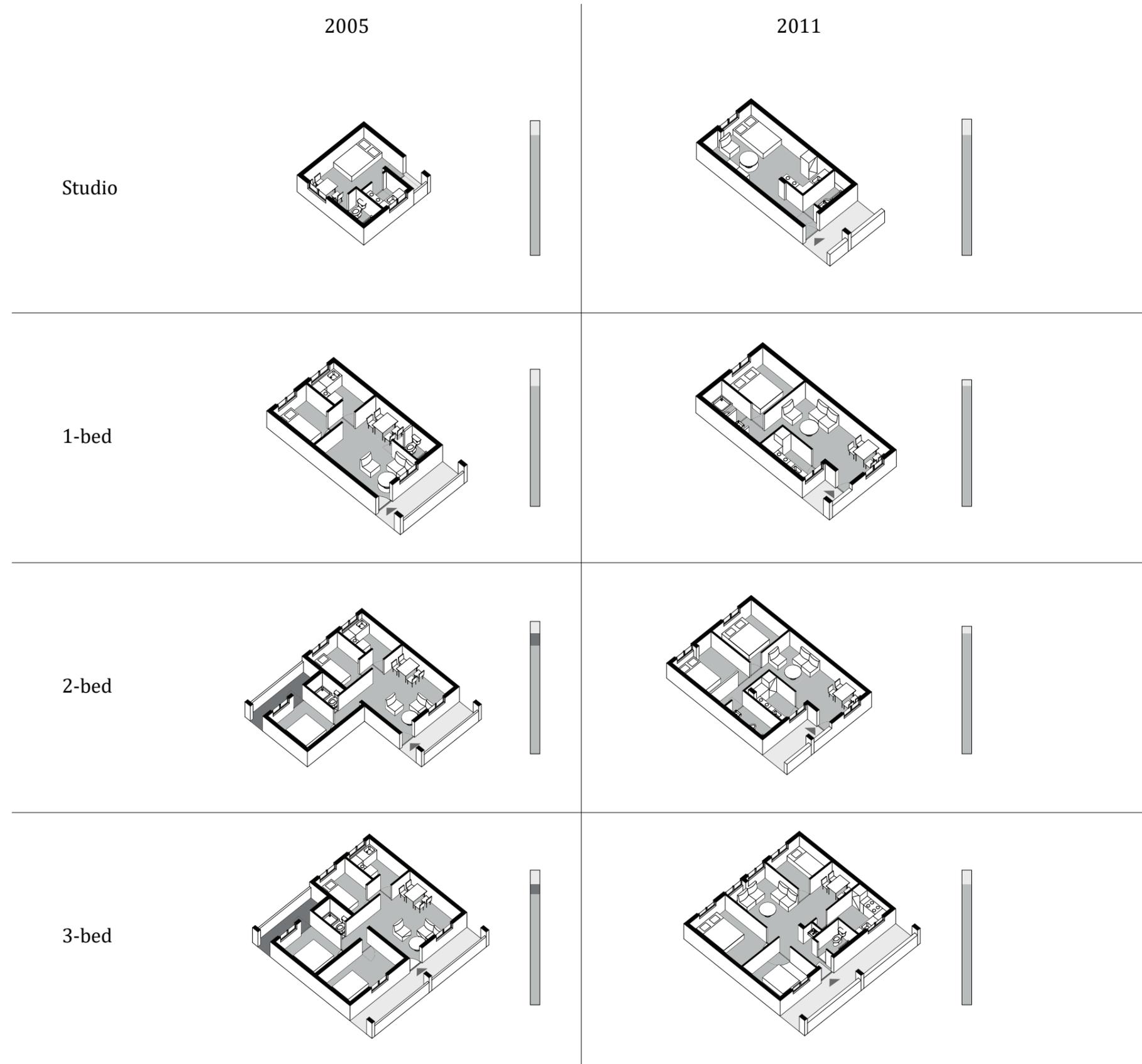


20 Units
Gallery Apartments

Form Variations

Spatial Relations

Dwelling Units



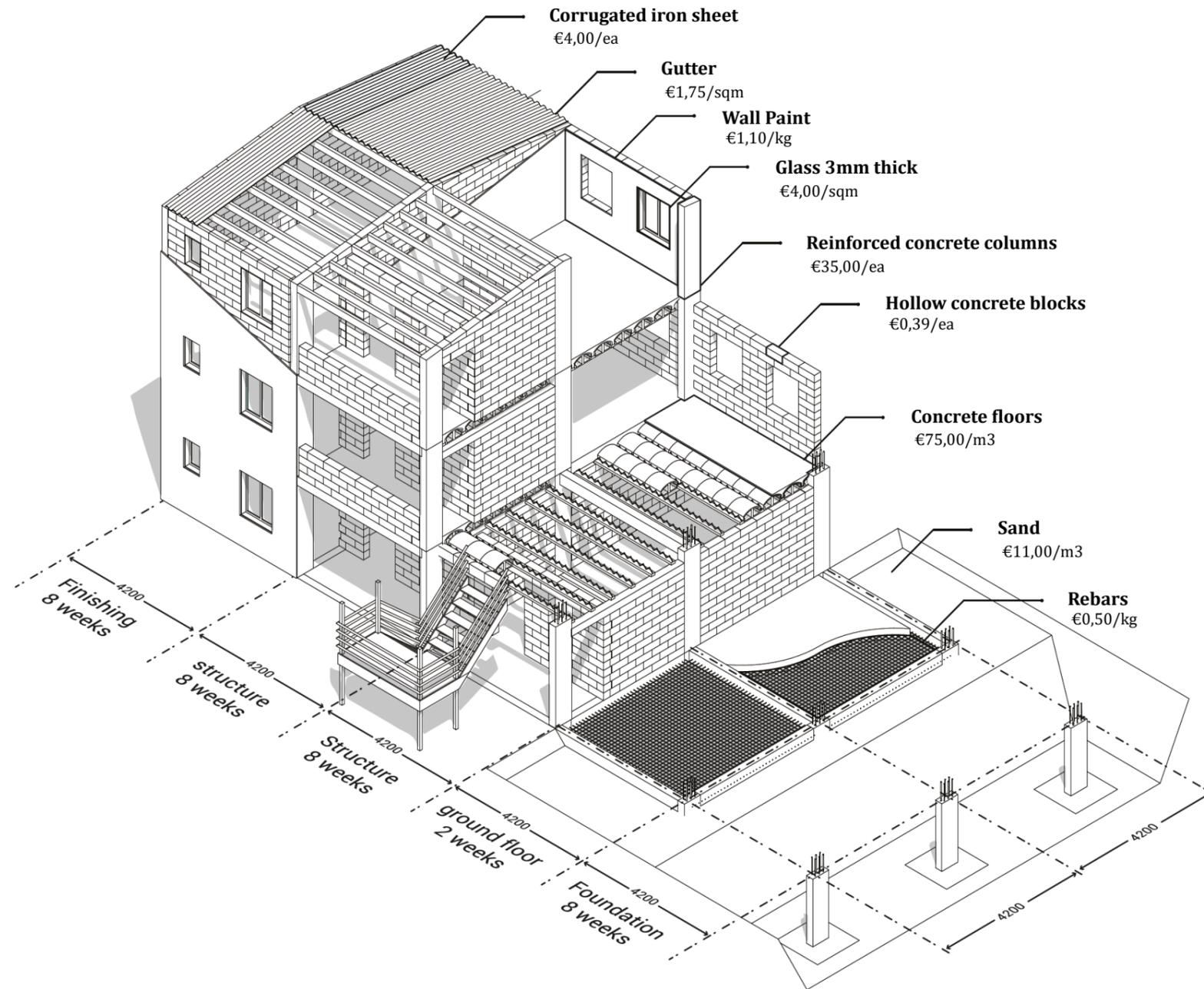
Indoor-Outdoor Ratio

Development through time

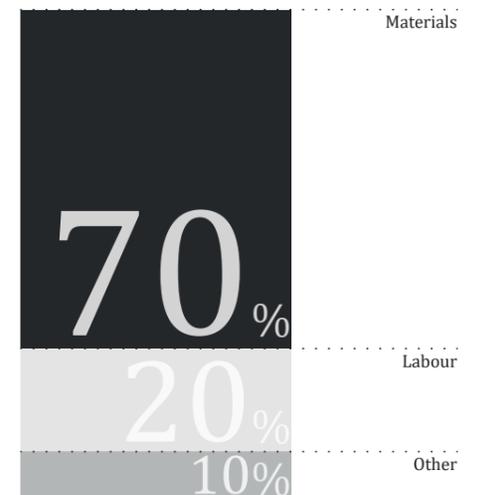


Construction

(in-)Efficient
 (in-)Affordable
 Use of Resources



Materials & Construction
 Cost-time analysis



Post-Occupancy

Long-term

(un-)Affordability

70%

condominium units
are rented out



Tulu Dimtu Condominium

Residual Spaces Turned
into Dump Sites



Jemo Condominium
Gated Communities



Yeka Abado Condominium

Abandoned Communal Block
and Open Spaces



Condominium
Courtyard turned into
Satellite Dishes Yard



Condominium Gallery
An alternative to the ground



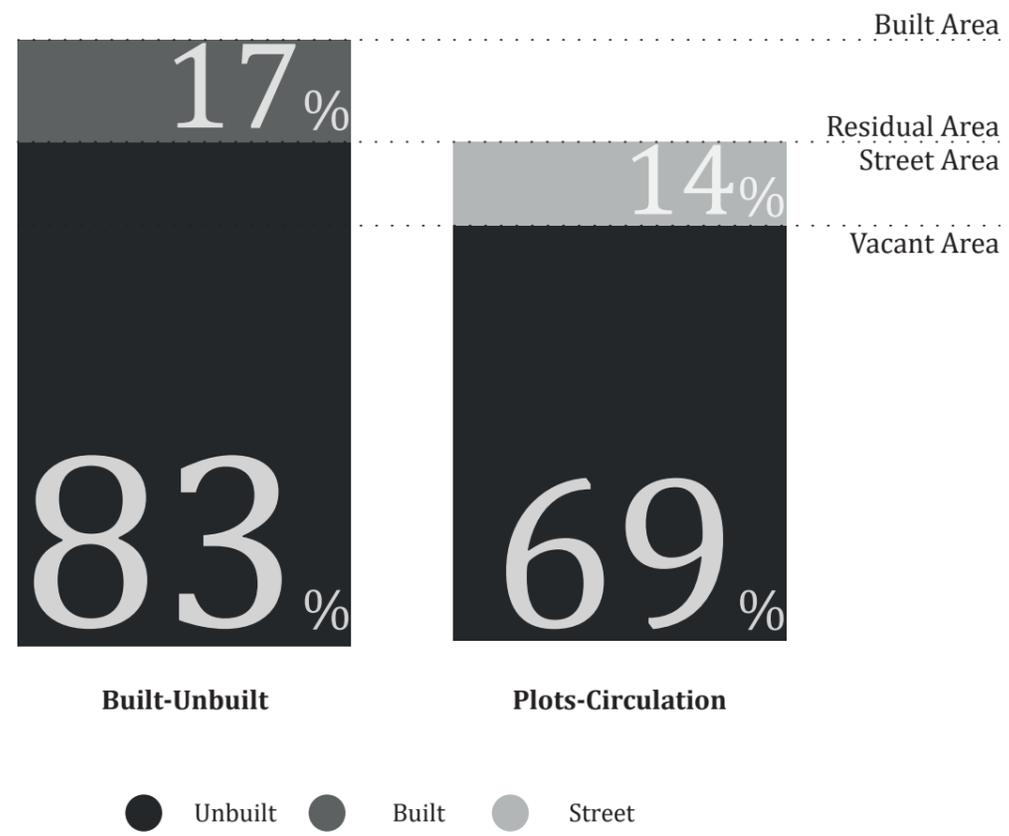
Condominium Gallery
Laundry space/cooking space/
storage space

Open Spaces

Vacant Spaces

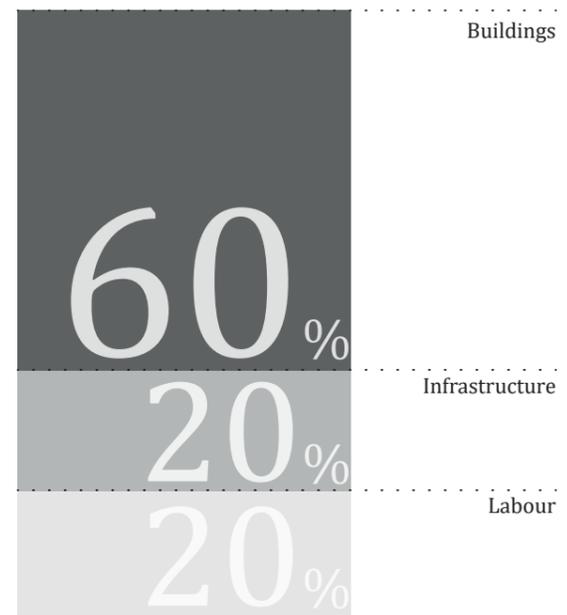


Vacancy



Ground Use Analysis

Urbanization Costs



Finance Allocation Analysis

How can we **turn the condominium** into an **active participant** in the process of city-making of an inclusive and **open Addis Ababa**?

*“In particular, what’s missing in modern urbanism is a **sense of time** – not time looking backwards nostalgically but forward-looking time, **the city understood as process**, its imagery changing through use, an urban imagination **image formed by anticipation, friendly to surprise.**”*

Richard Sennett, The Open City

Could a **balance between** the excess **efficiency of the condominium** and the excess **resilience of informal processes** be achieved by introducing the **vernacular as a mediator**, this being by nature characterized by efficiency and resiliency as complementary components, in order **to turn the condominium** into an **active participant** in the process of city-making of an inclusive and **open Addis Ababa?**

*“Vernacular architecture comprises the dwellings and all other buildings of the people. **Related to their environmental context and available resources, they are customarily owner- or community-built, utilizing traditional technologies. All forms of vernacular architecture are built to meet specific needs, accommodating values, economies and ways of living of the culture that produces them.**”*

Definition of ‘vernacular architecture’, Paul Oliver

**T h e “ O p e n
C o n d o m i n i u m ”**

Strategies' Toolbox

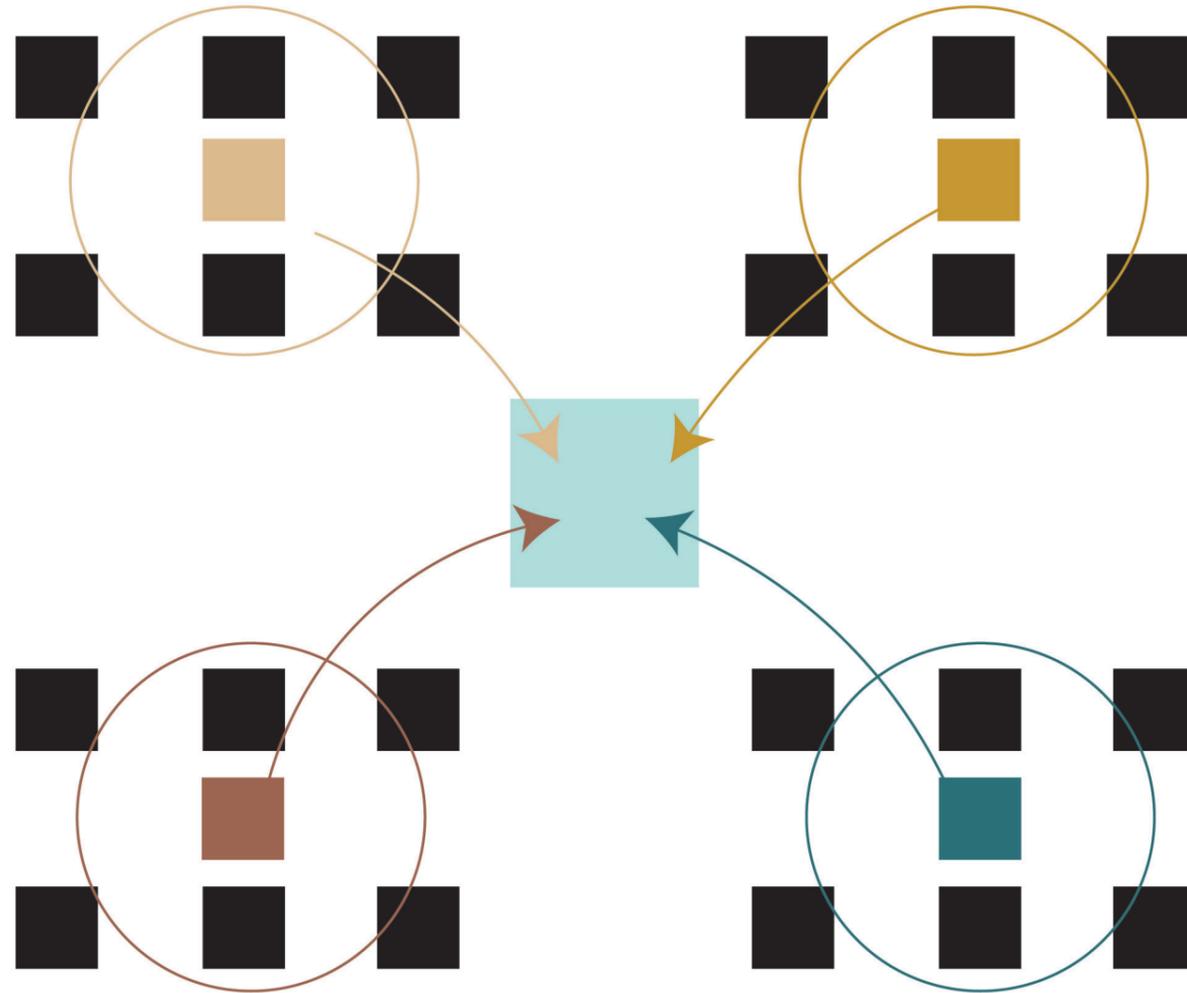
People & Program

Space

Resources

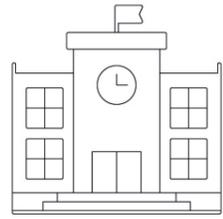
People and (re-)Program

People Association
Residents Association

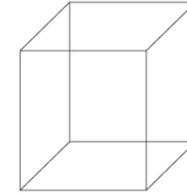


People Involvement

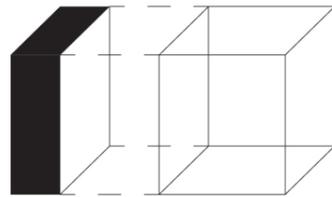
Condominium Residents → Residents Association ← New Residents



Public
Amenities



Unit Typology
and size



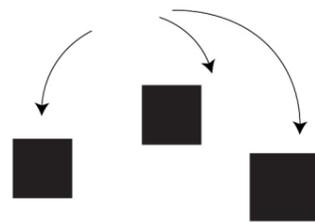
Block/Dwellings
Extensions



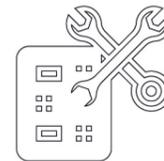
Construction



Self-building
and finishings

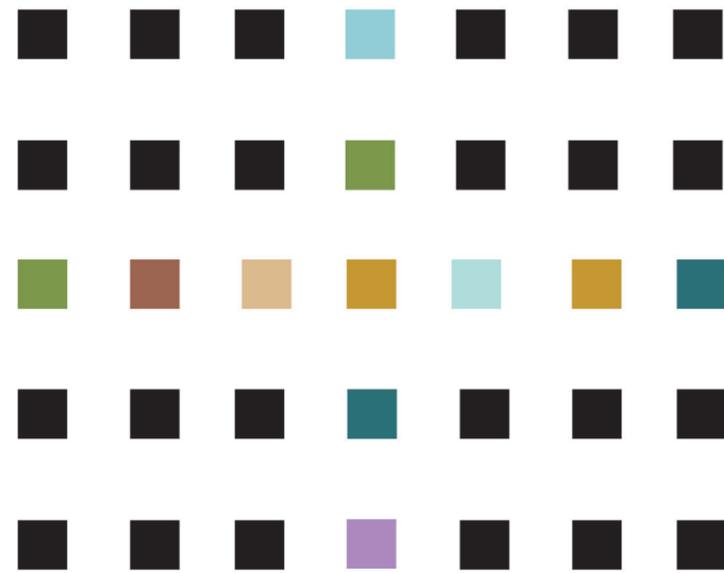
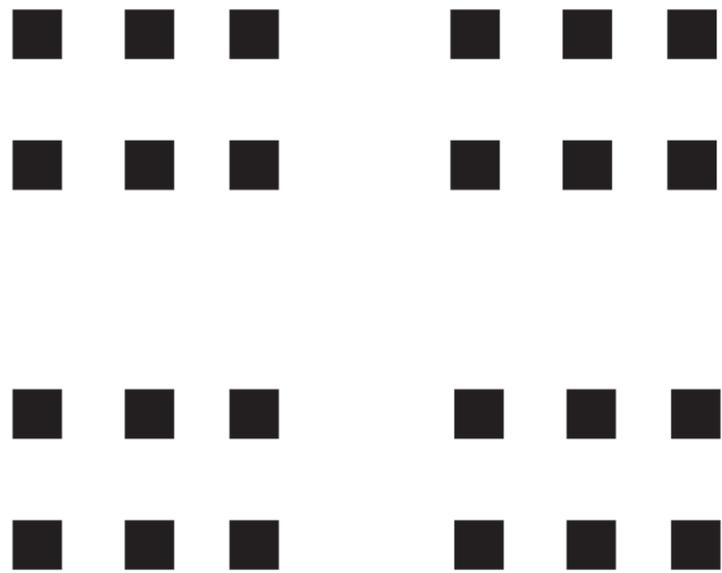


New Units
Allocation



Maintenance

Public Amenities

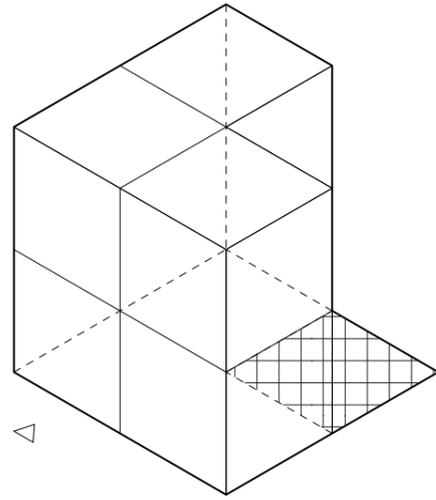


Social Mix

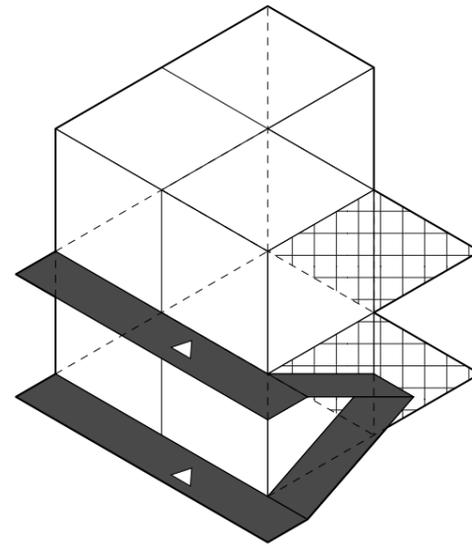
(middle)High-Income

Middle-Income

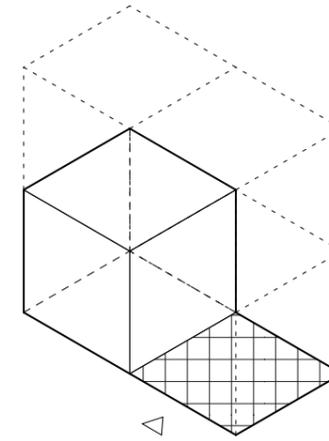
Low-Income



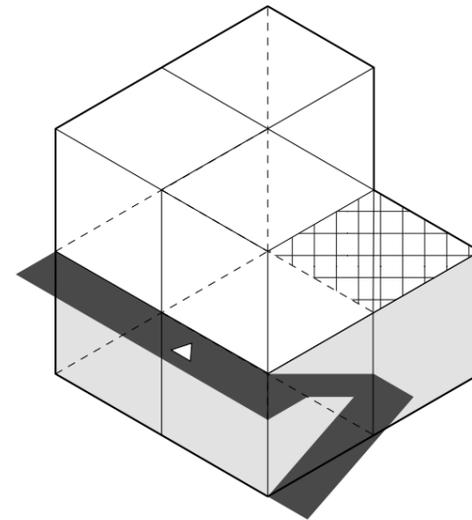
Villas



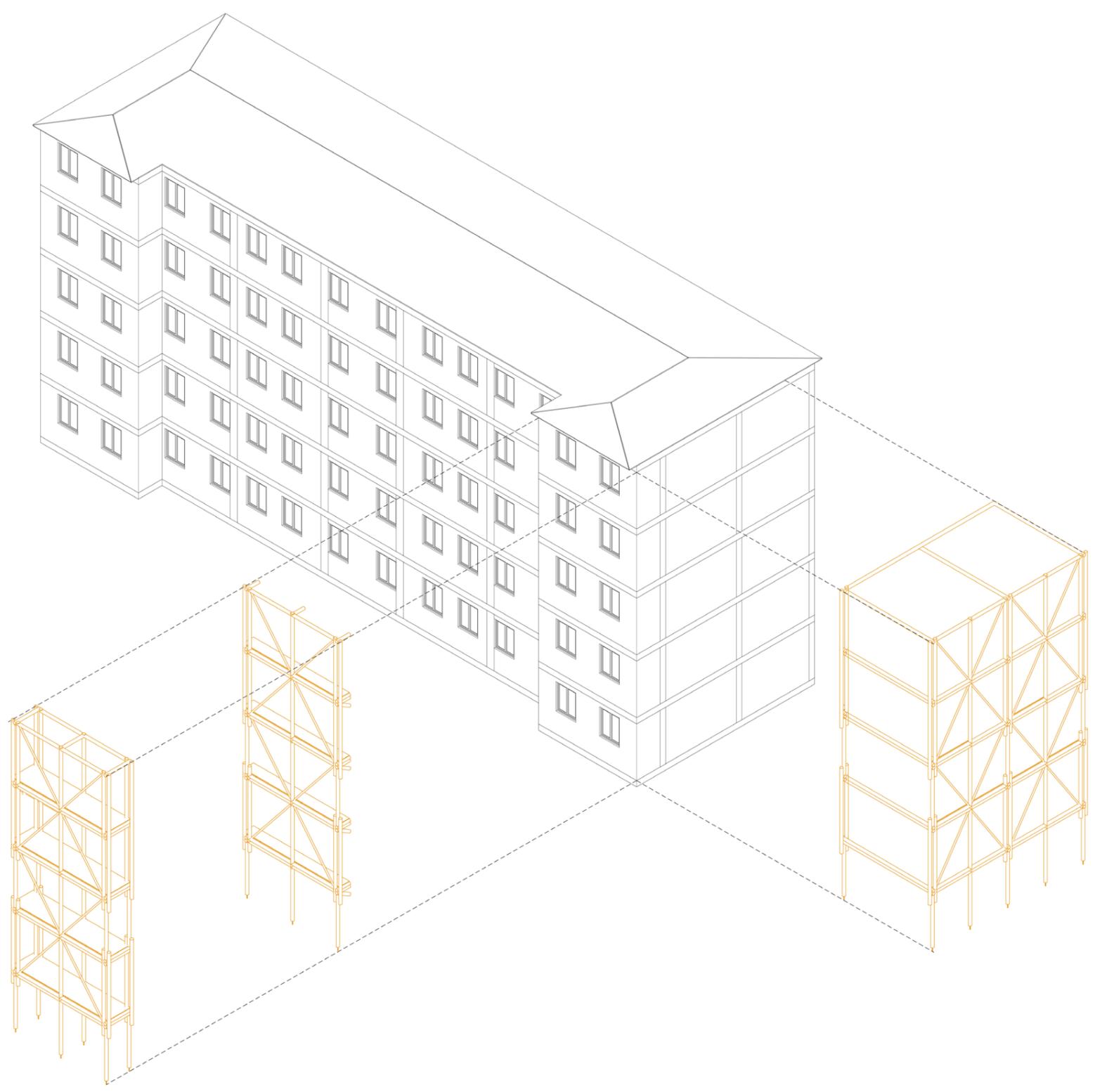
Gallery Apartments



Incremental Units

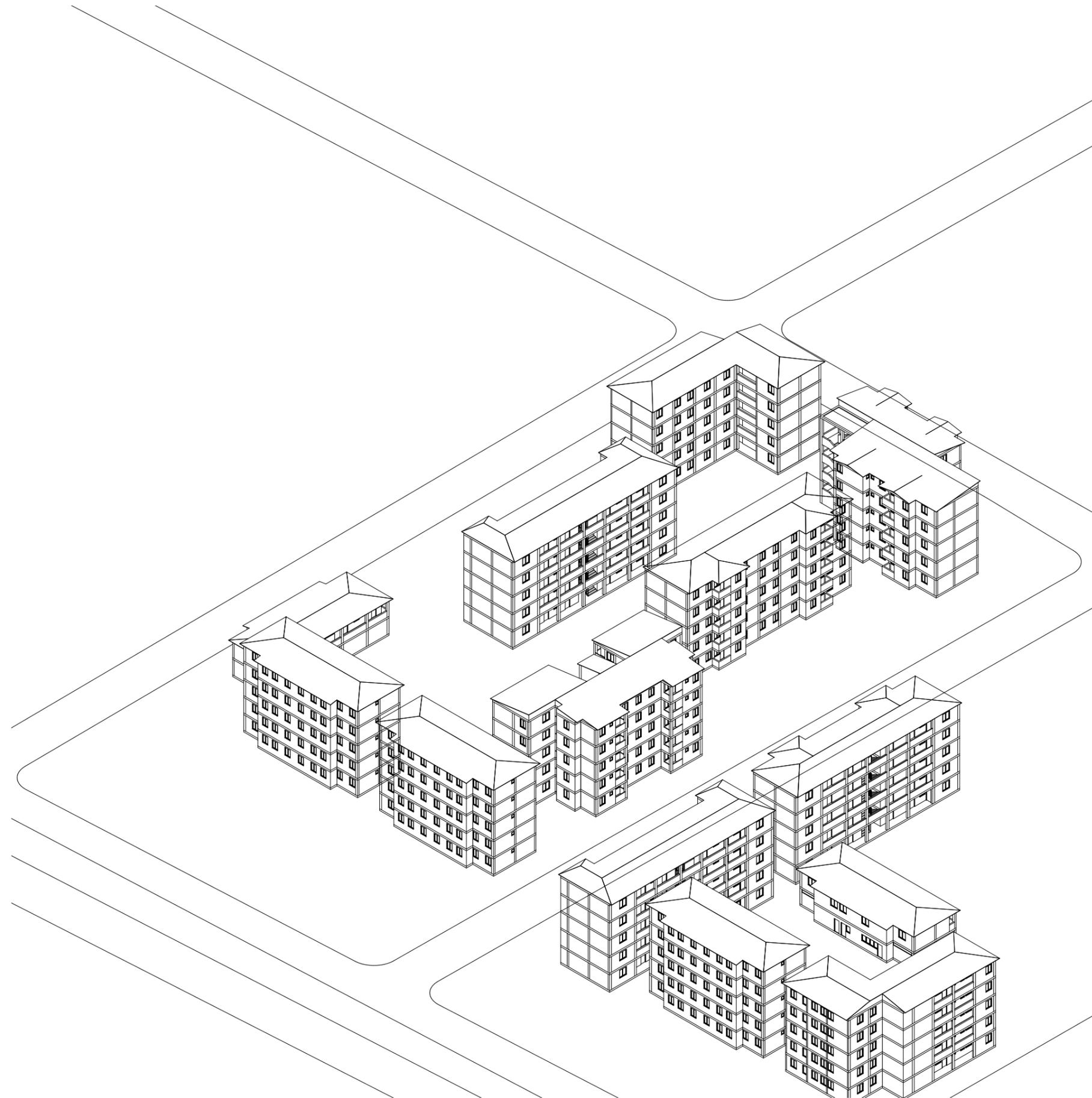


**Gallery Apartments
+ Commercial Ground Floor**

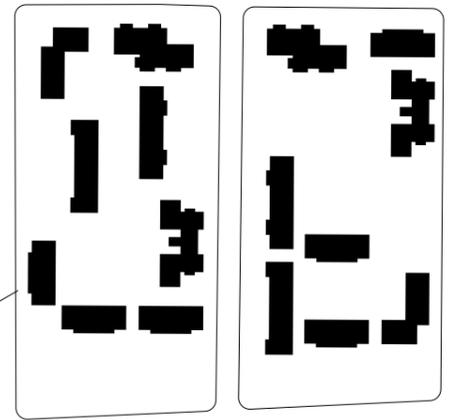


(re-)Definition of Spaces

Re-Definition of Open Spaces

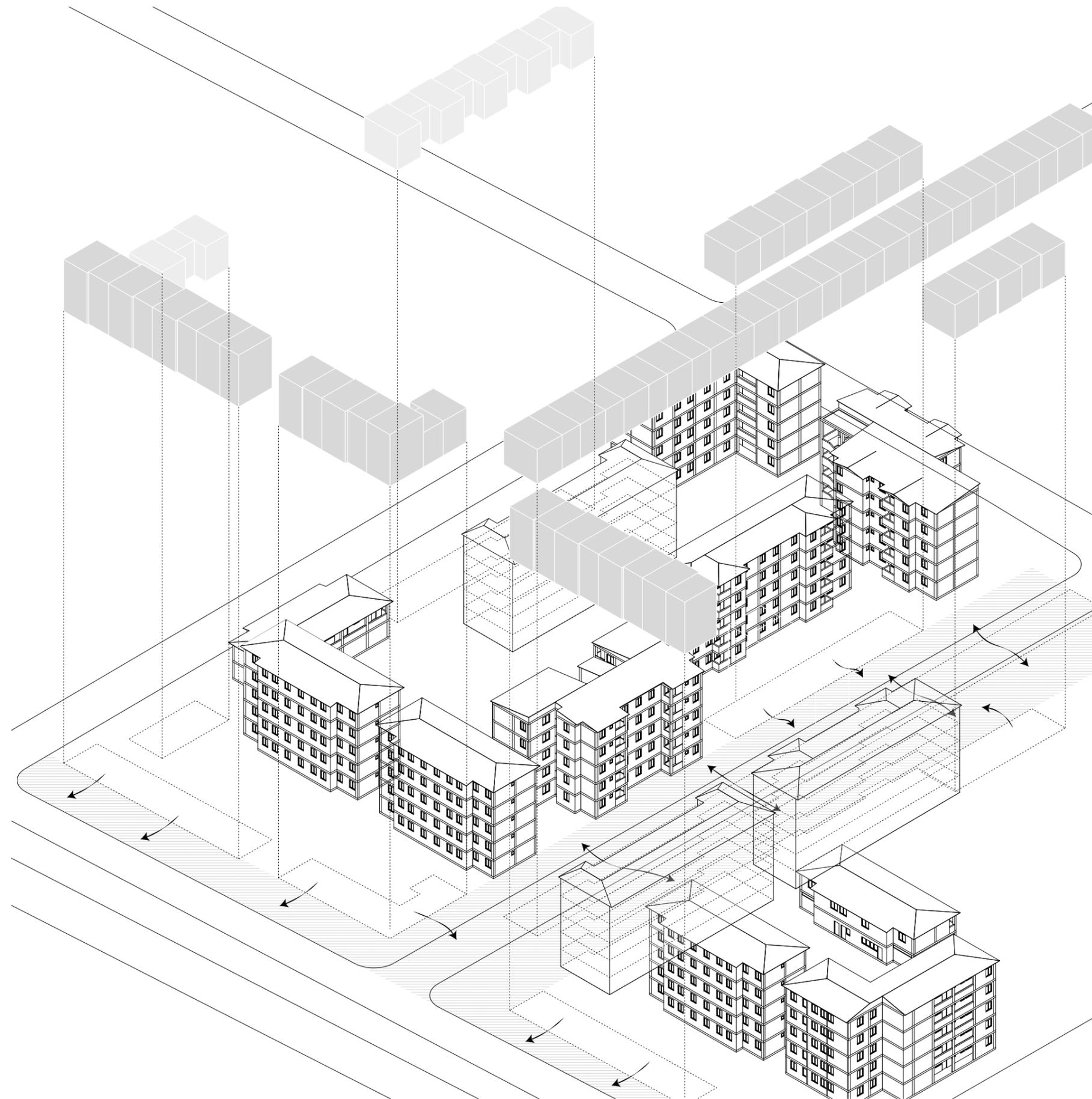


Typical Condominium Plot

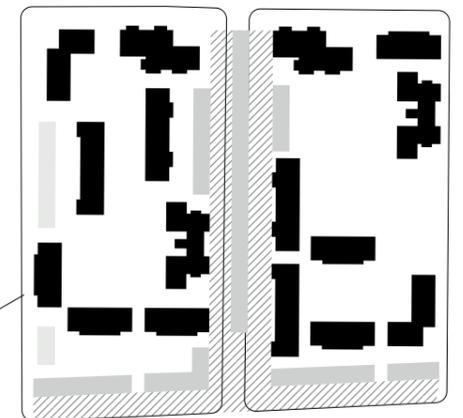


Re-Definition of Open Spaces

Borders

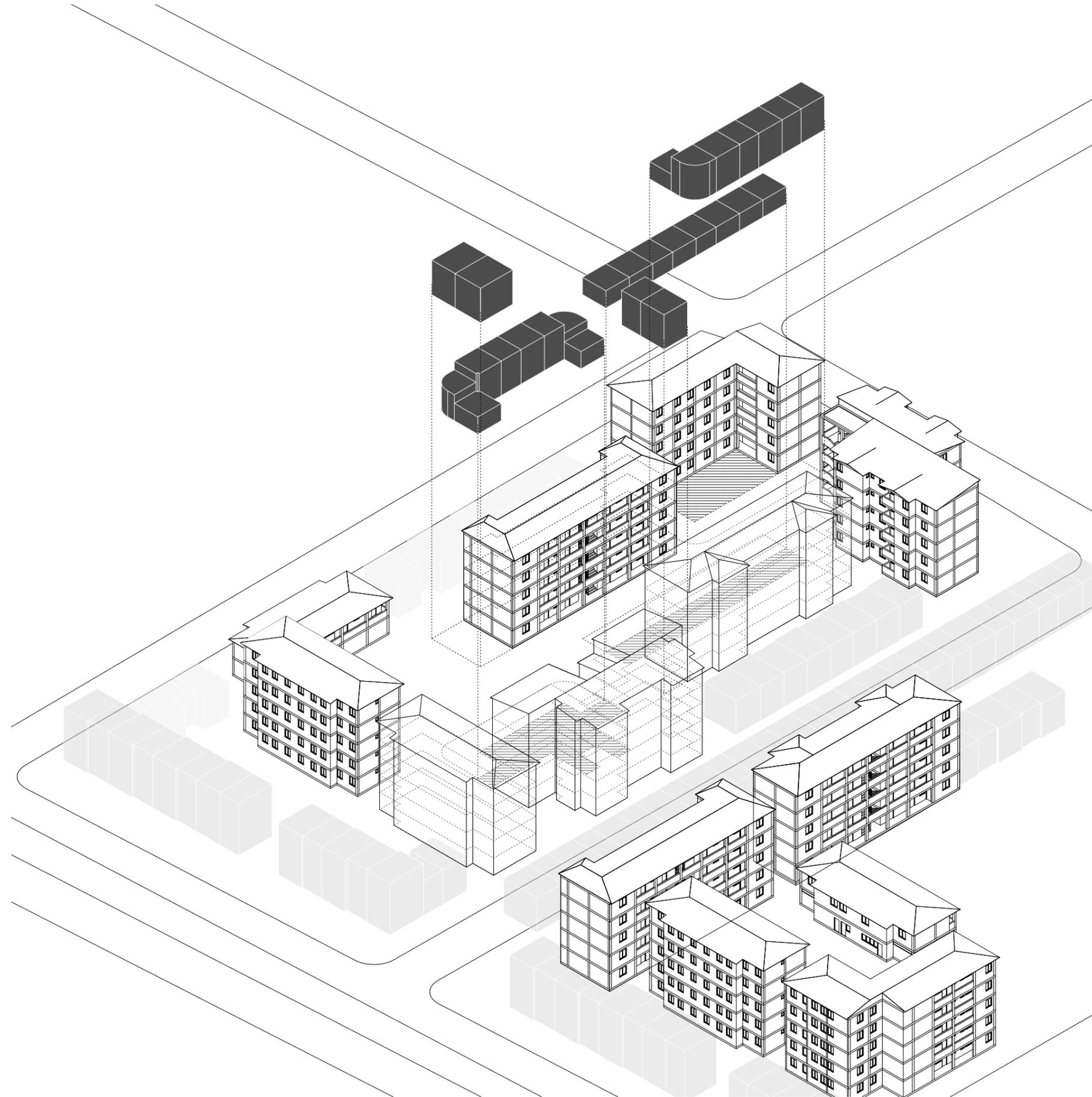


Definitions of Permeable
Borders through
Densification

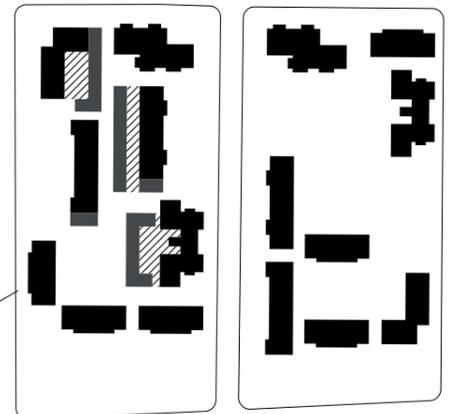


Re-Definition of Open Spaces

Courtyards

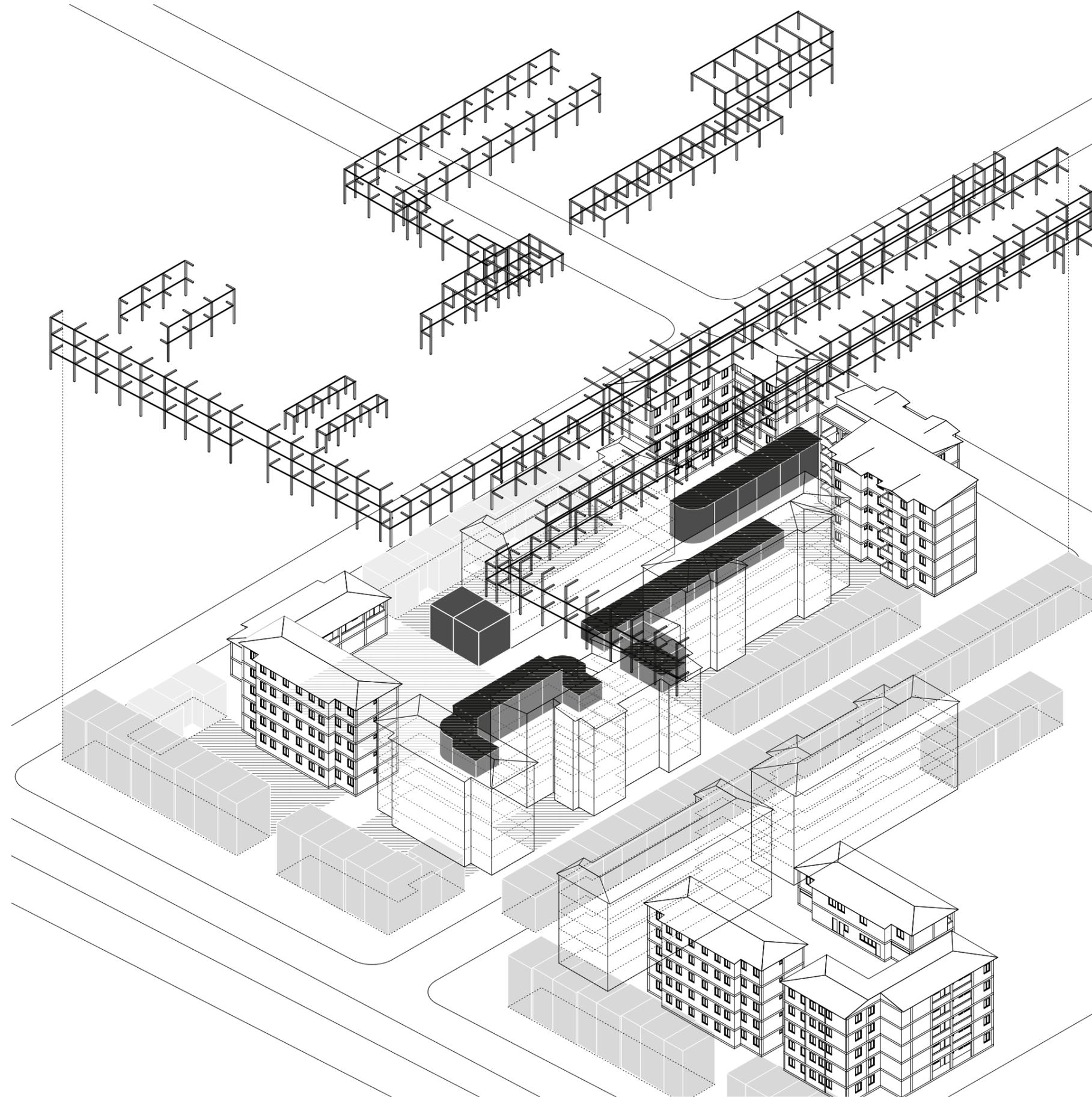


Definition of Private
Courtyards through
Densification

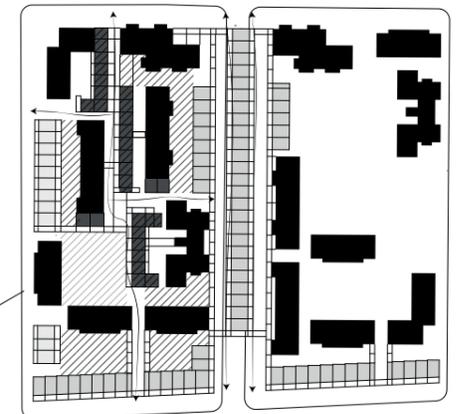


Re-Definition of Open Spaces

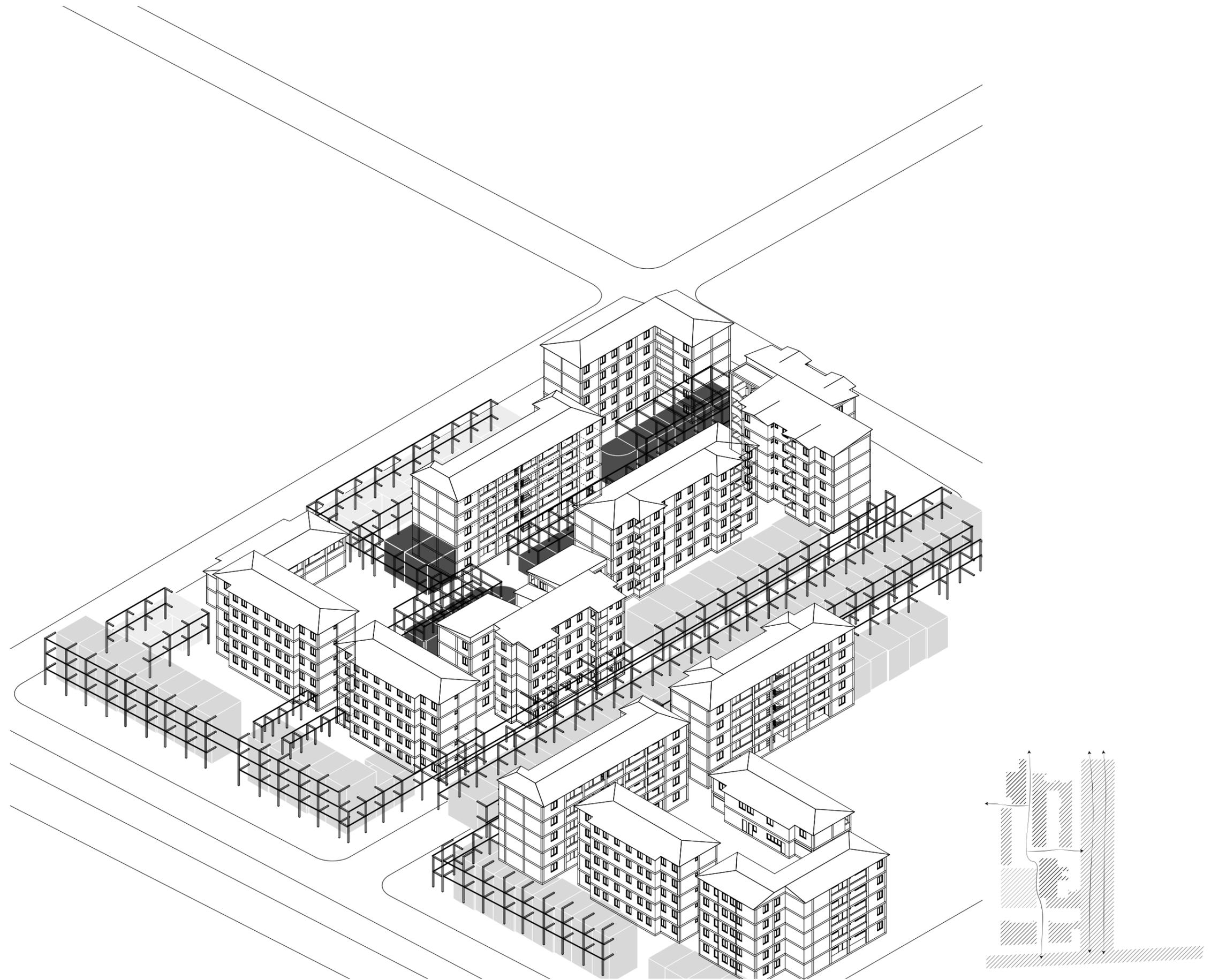
Roofs and In-between spaces



Unifying Infrastructure
for in-between Spaces



Re-Definition of Open Spaces

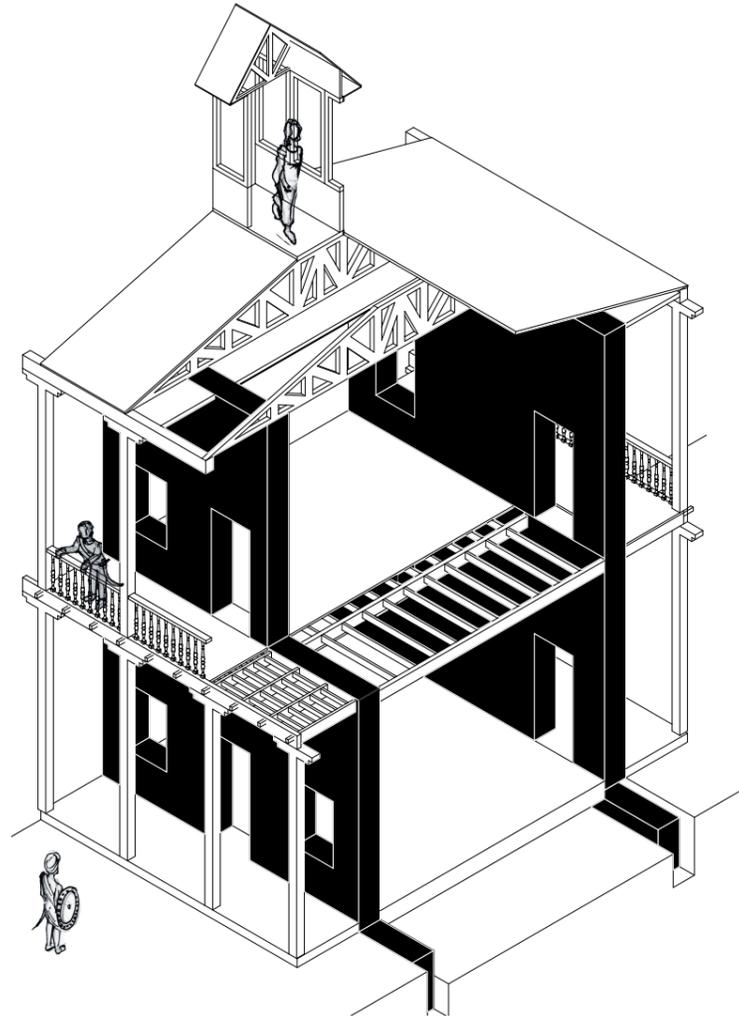


Open Spaces (re-)Defined

(re-)Use of Resources

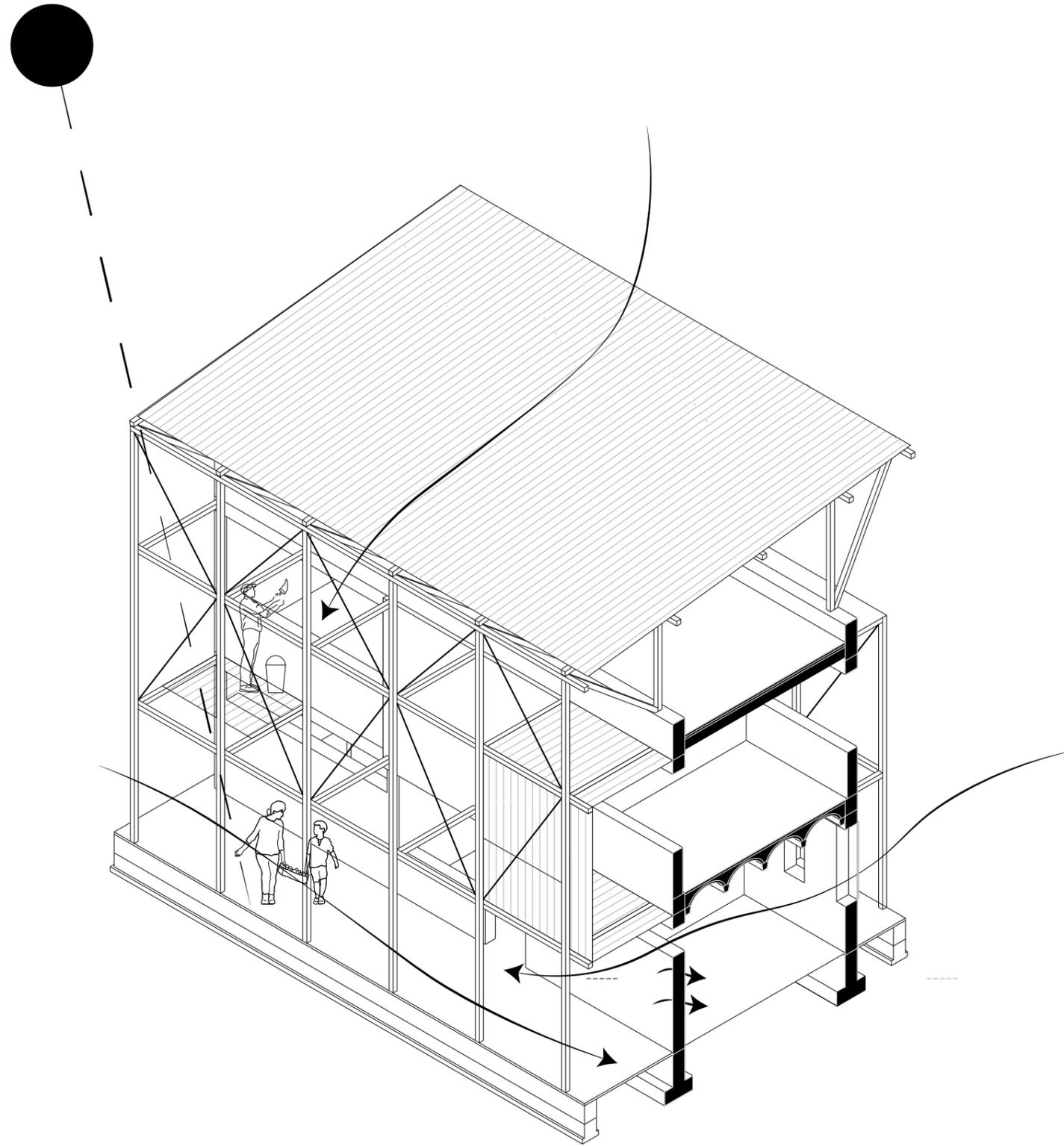
Ras Palace

Climate Solutions



Ras Plalace
Typical Section

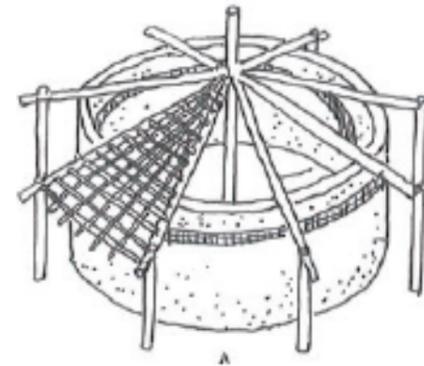
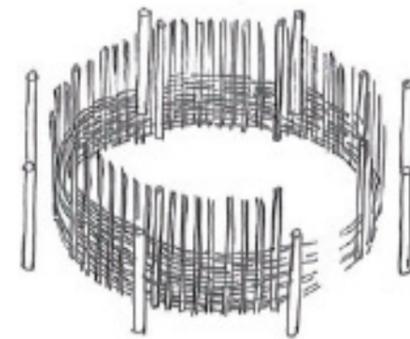
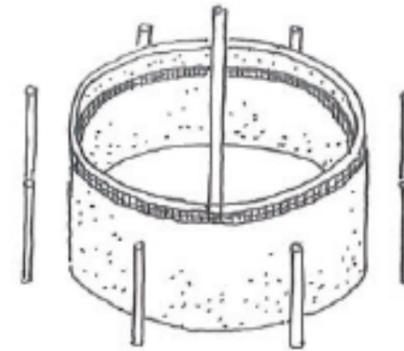
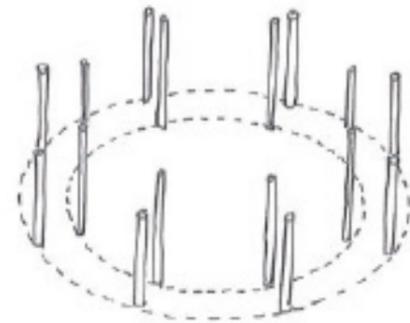
**Heavy Core and
light membrane**



**Proposed
Climate Solution**

Chicka House

Construction Materials



Chicka House
Construction Process

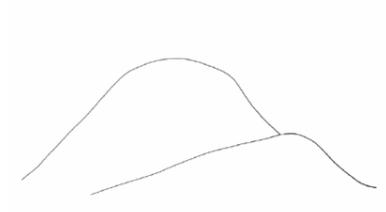
Adobe & Bamboo

Enhancing Local Resources



Construction

Material Production



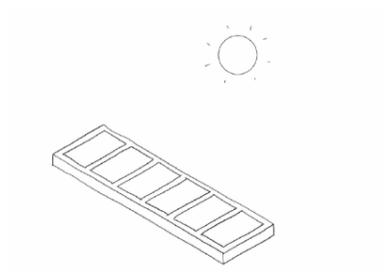
1. Situ sandy loam subsoil



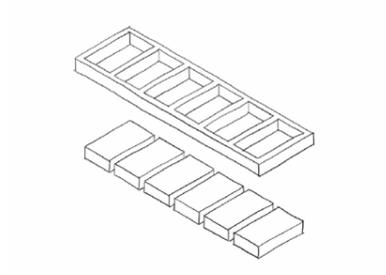
2. Mix of clay, water, sand and straw



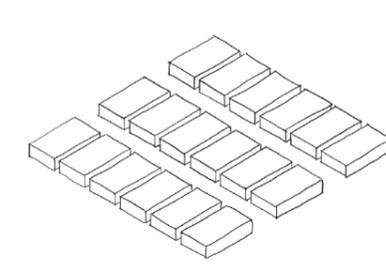
3. Fermentation period



4. Pour mix into the formwork



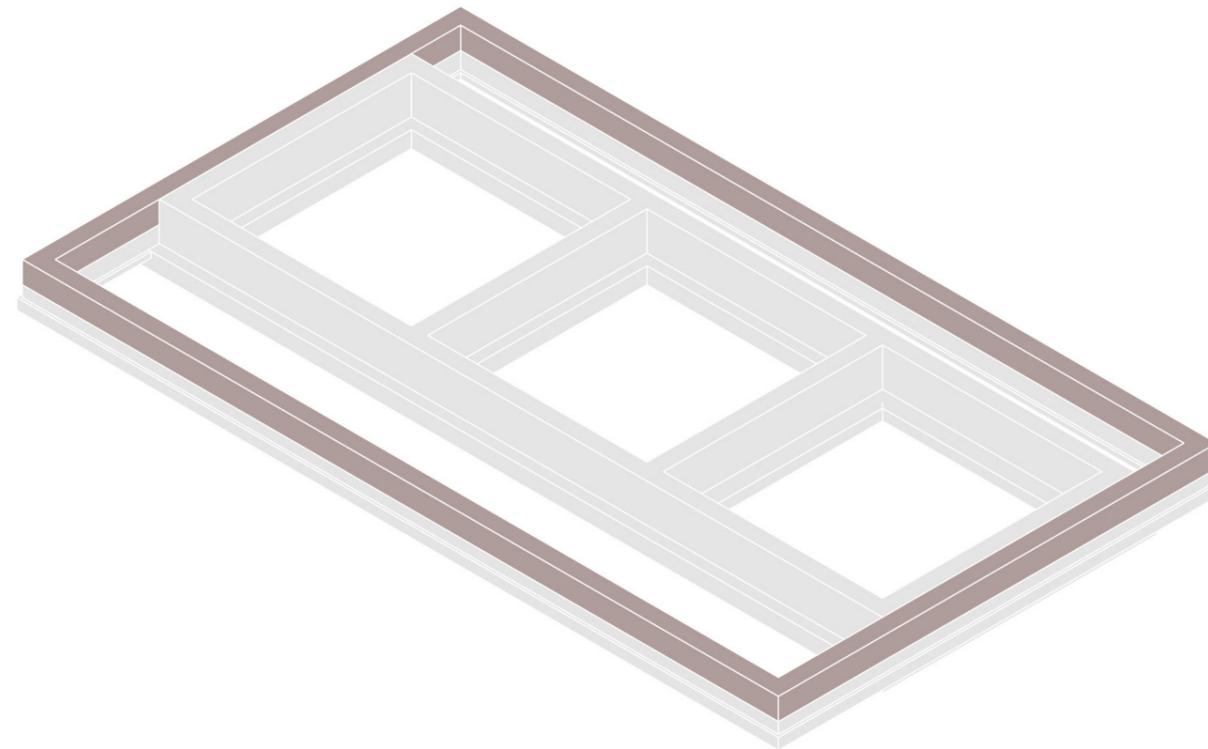
5. Formwork removal after 1 day



6. Sun-drying up to 4 weeks

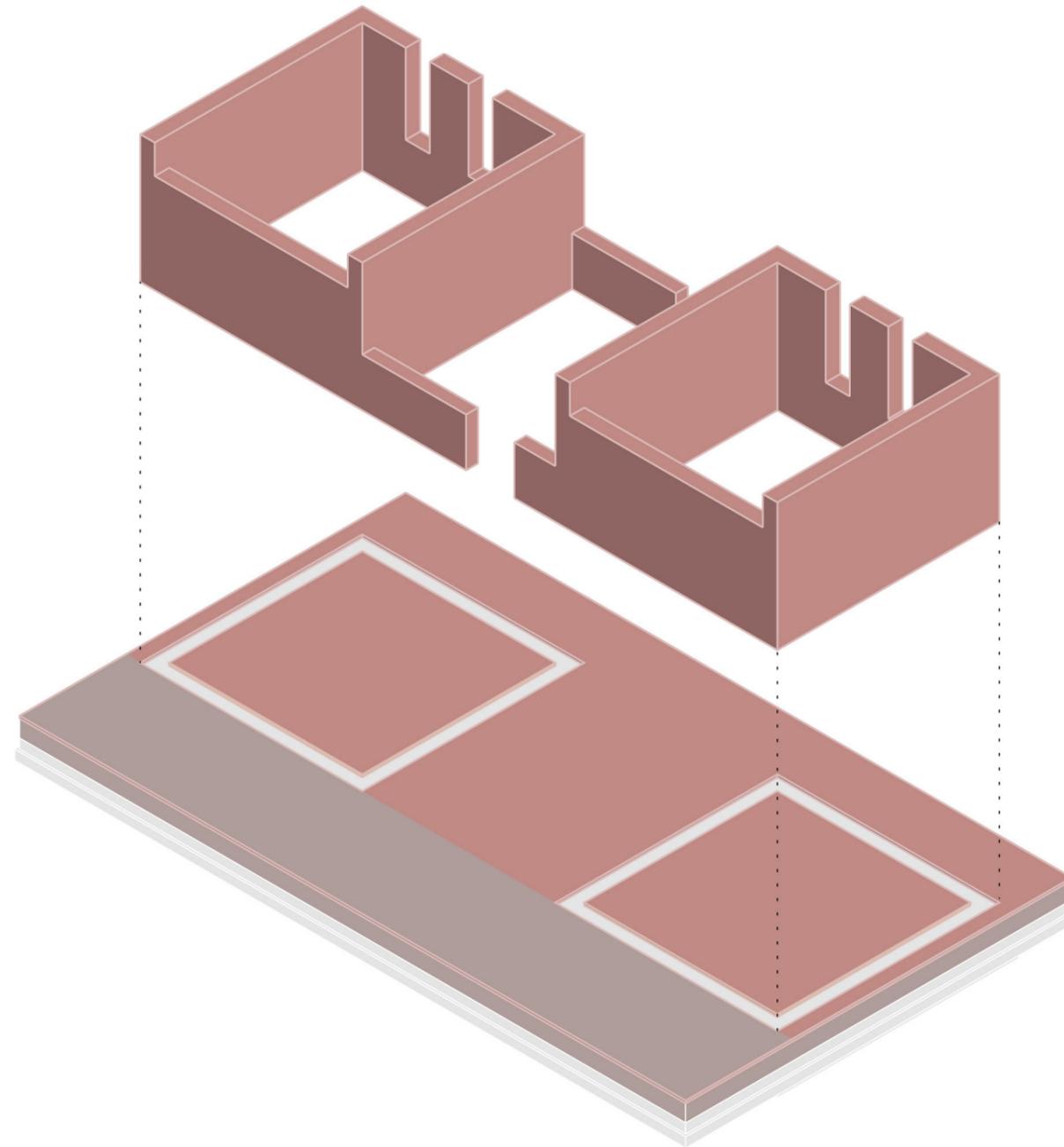
Construction

Concrete Foundations and
Natural Stone Plinth



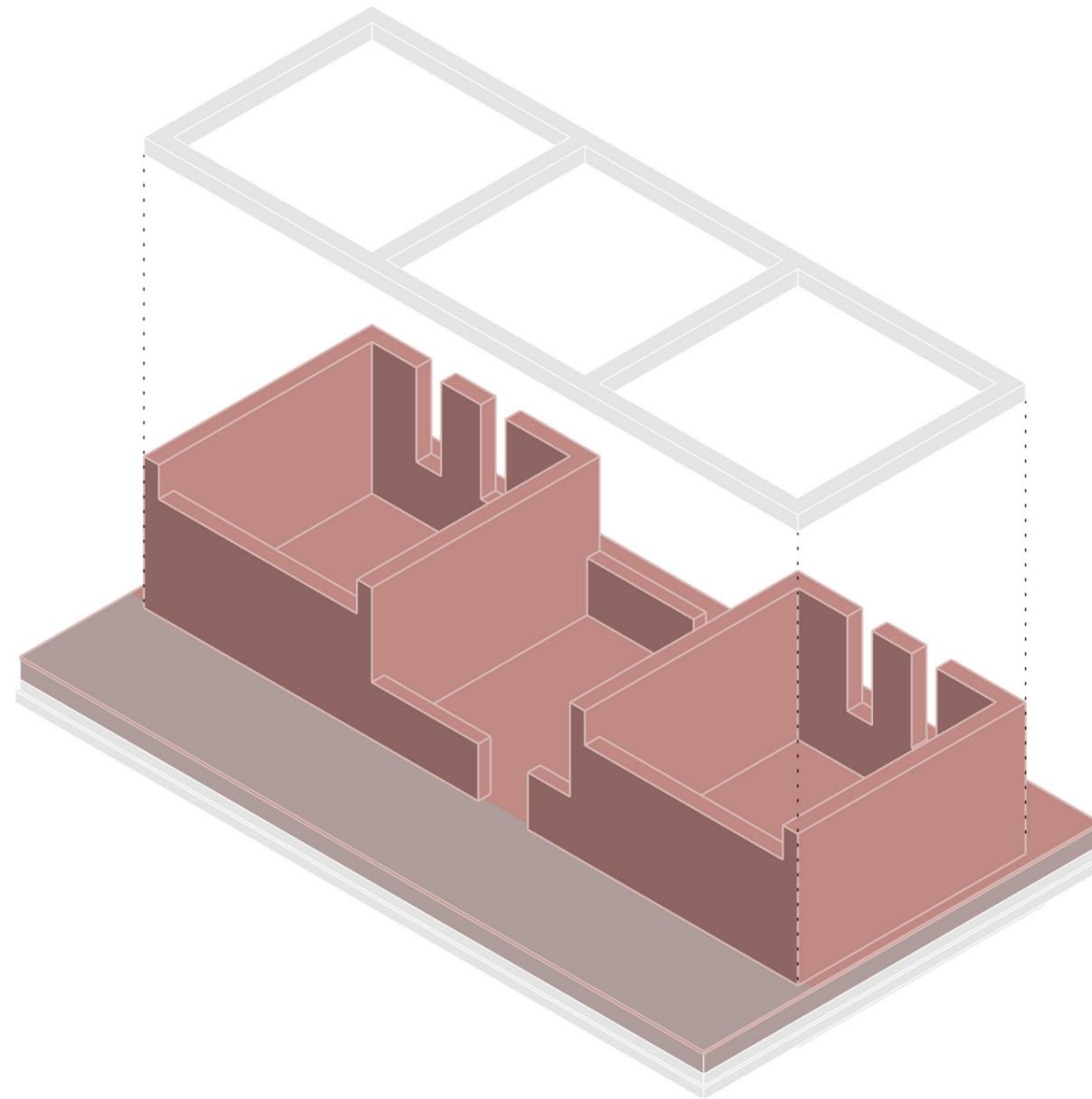
Construction

Adobe Walls Construction



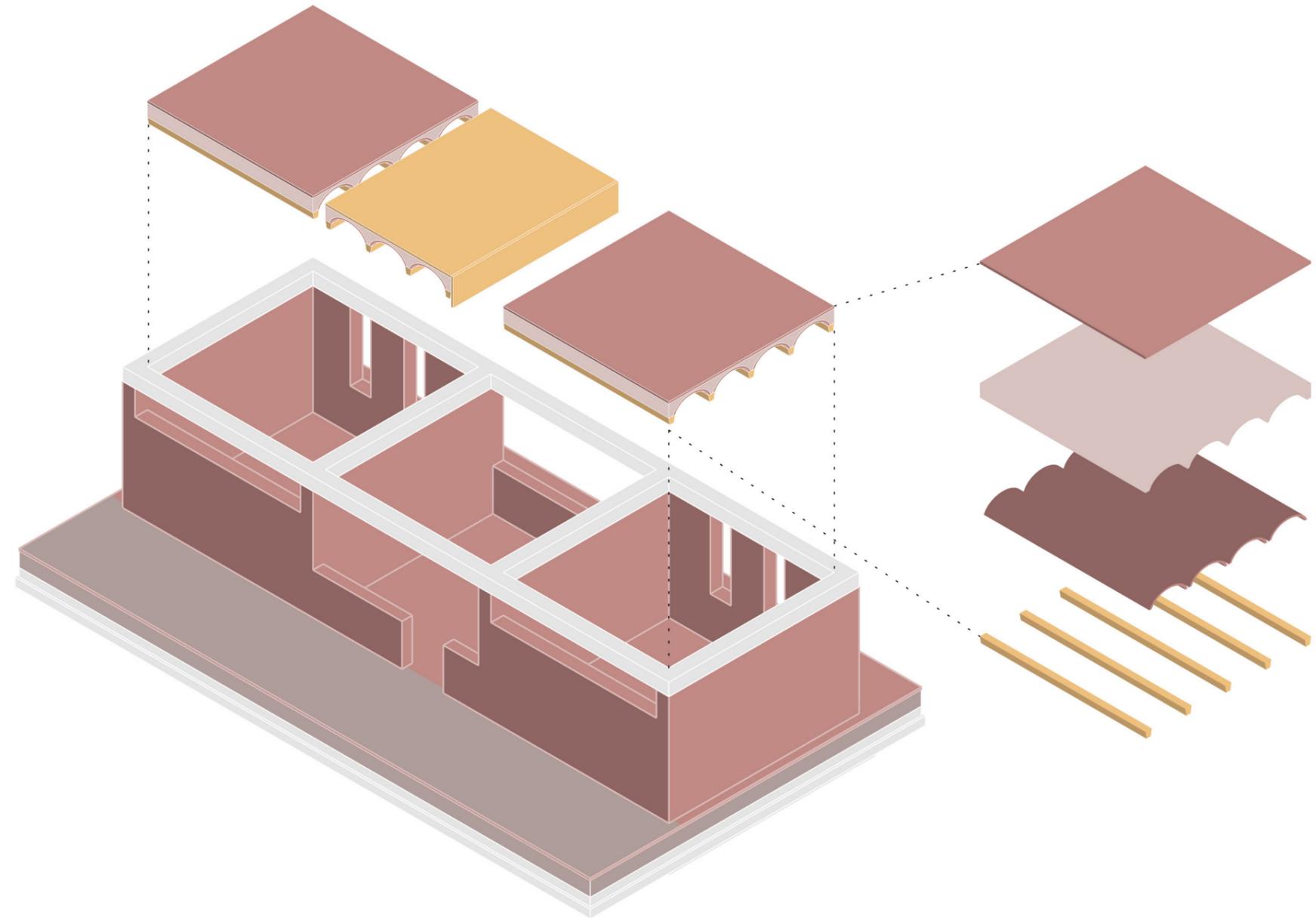
Construction

Concrete Ring-beam

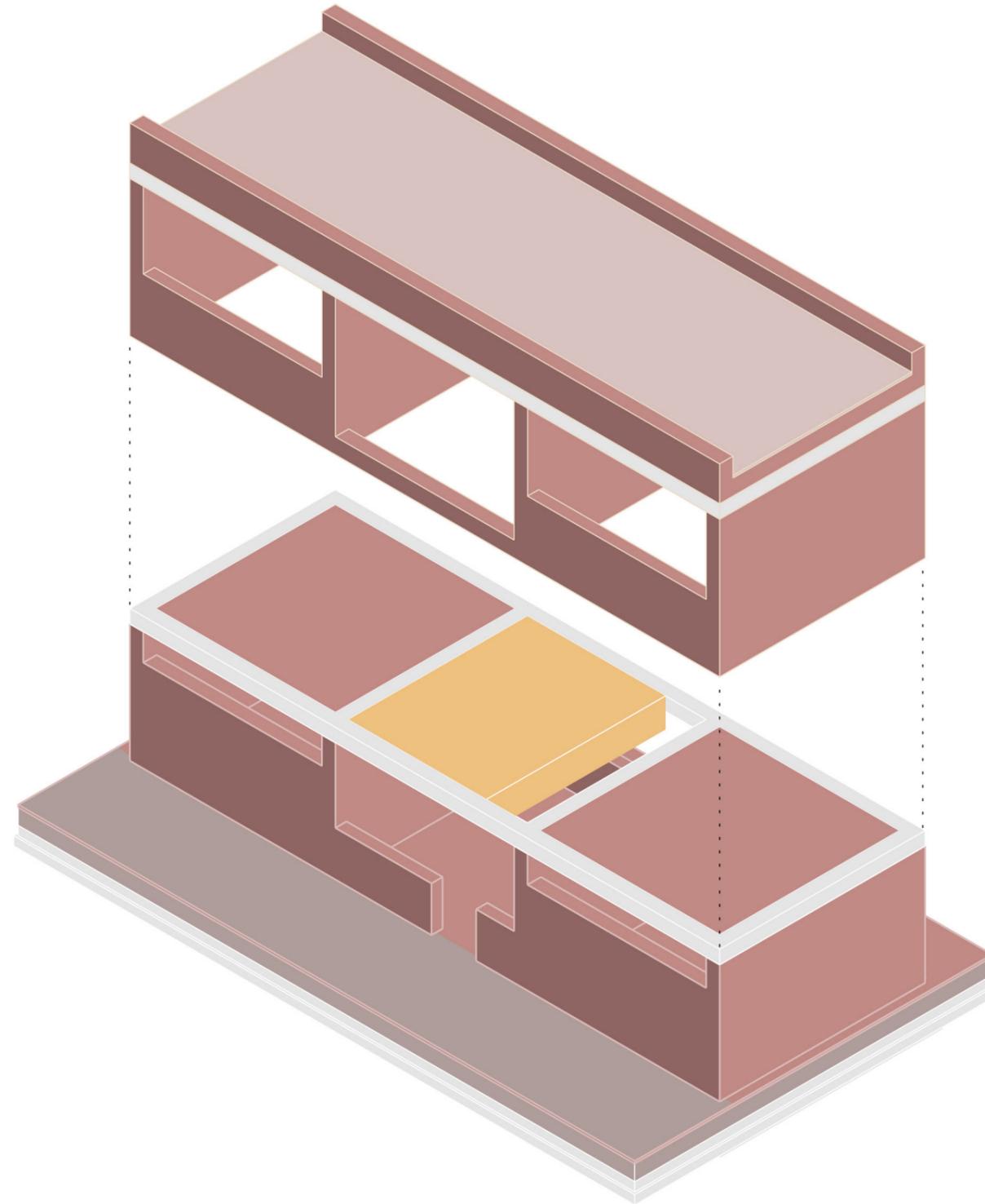


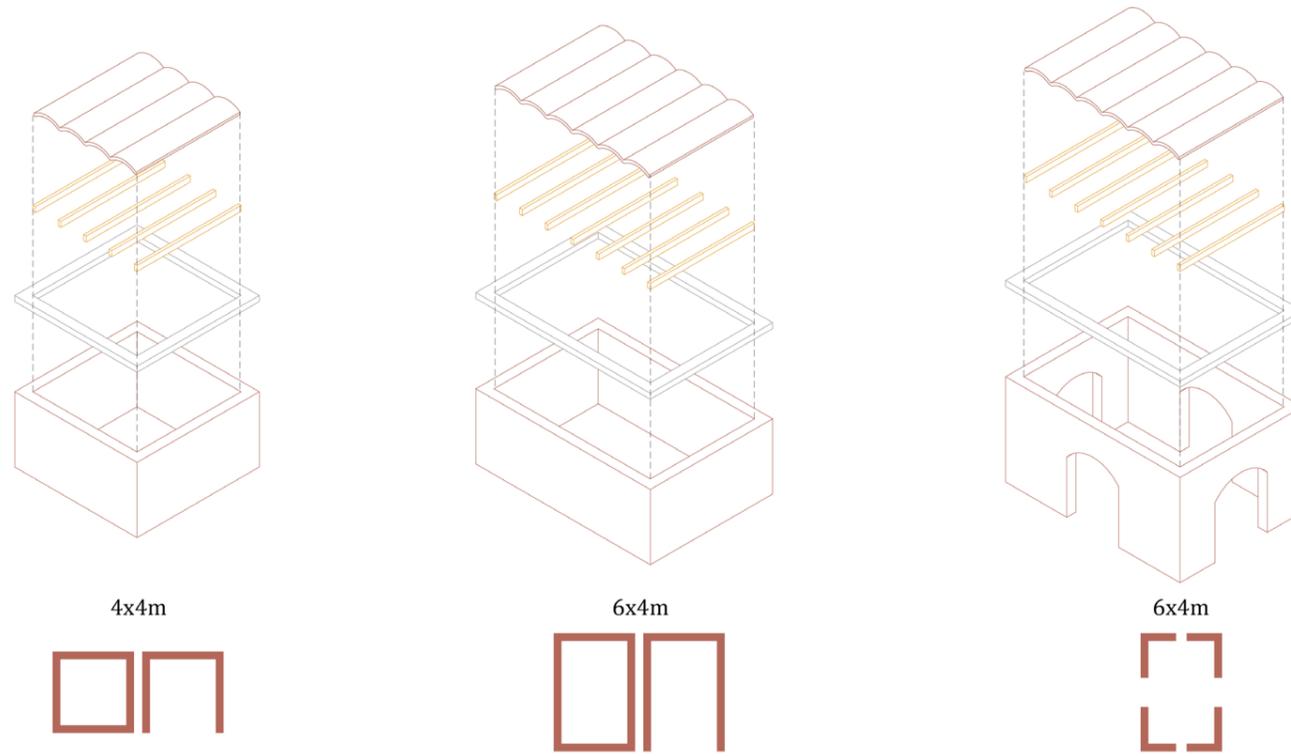
Construction

Horizontal Partitions



Construction





4x4m

6x4m

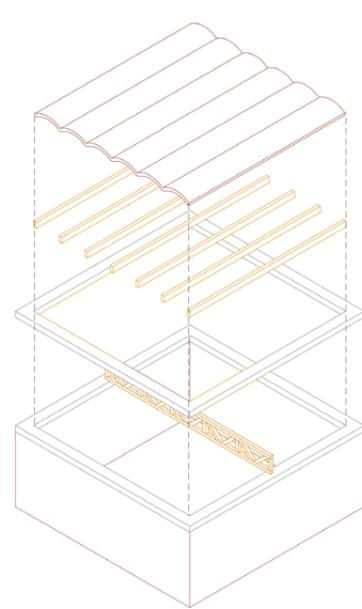
6x4m

Stabilized CEB vaults

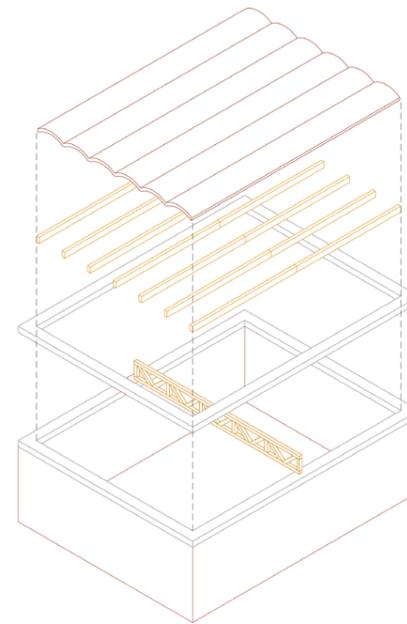
Eucalyptus beams

Concrete ring beam

Adobe wall



6x6m



6x8m

Stabilized CEB vaults

Eucalyptus beams

Concrete ring beam

Timber truss

Concrete ring beam

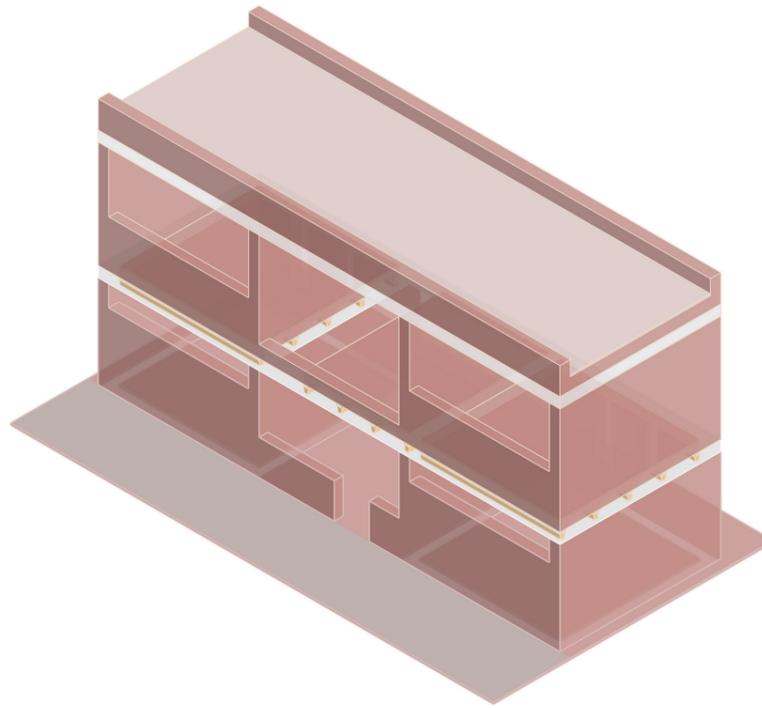
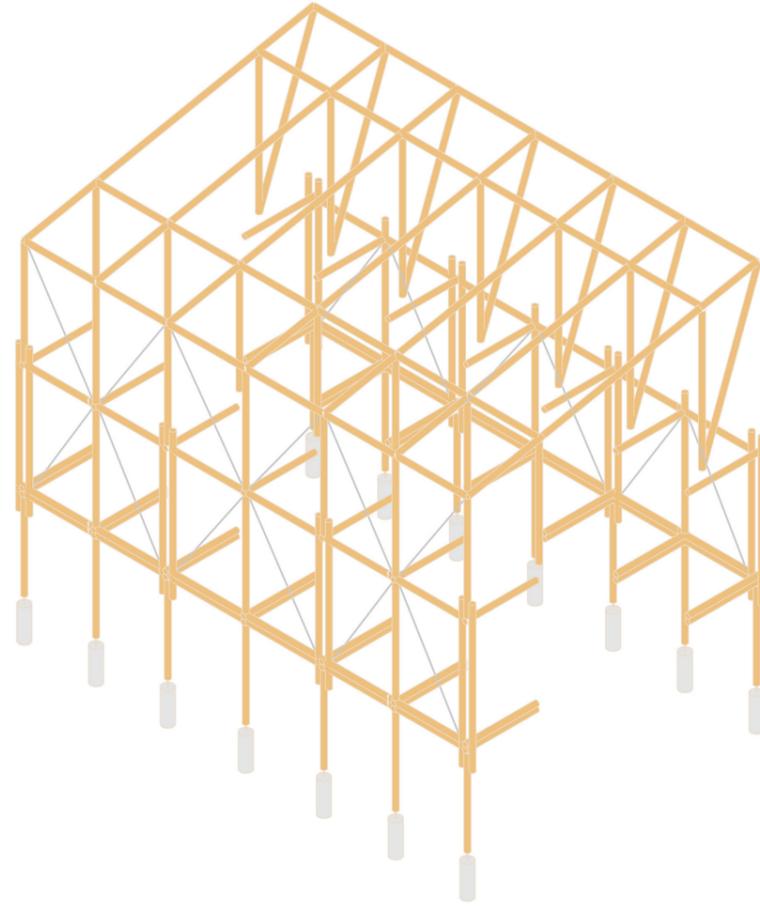
Adobe wall

**Adobe Modules
Variations**



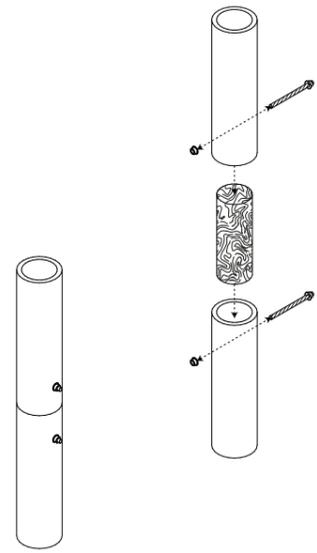
Construction

Bamboo Membrane

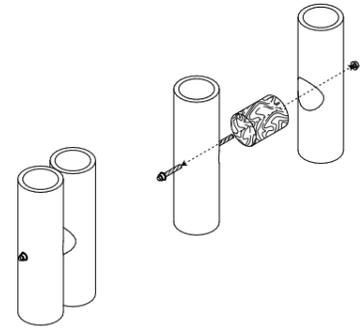


Construction

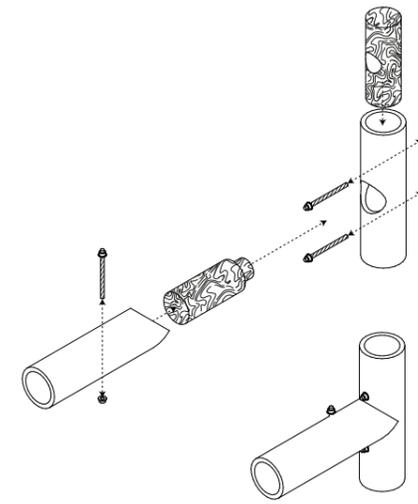
Bamboo Joints



vertical connection



horizontal connection



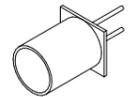
90° connection



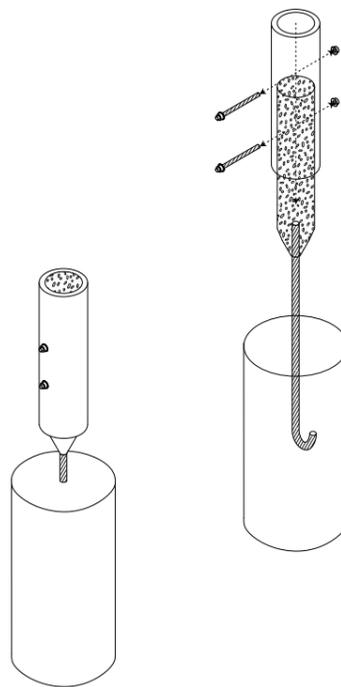
Nut-Bolt-Threaded Stud
12mm



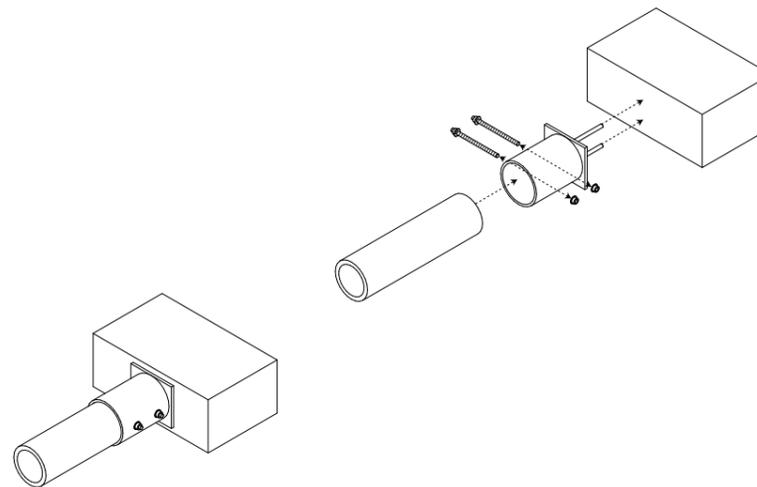
Threaded Hook Stud
12mm



Galvanized Post Bracket



**bamboo to concrete
foundation**



**bamboo to concrete
beam connection**



Hardwood Bars
(same diameter as bamboo culm)



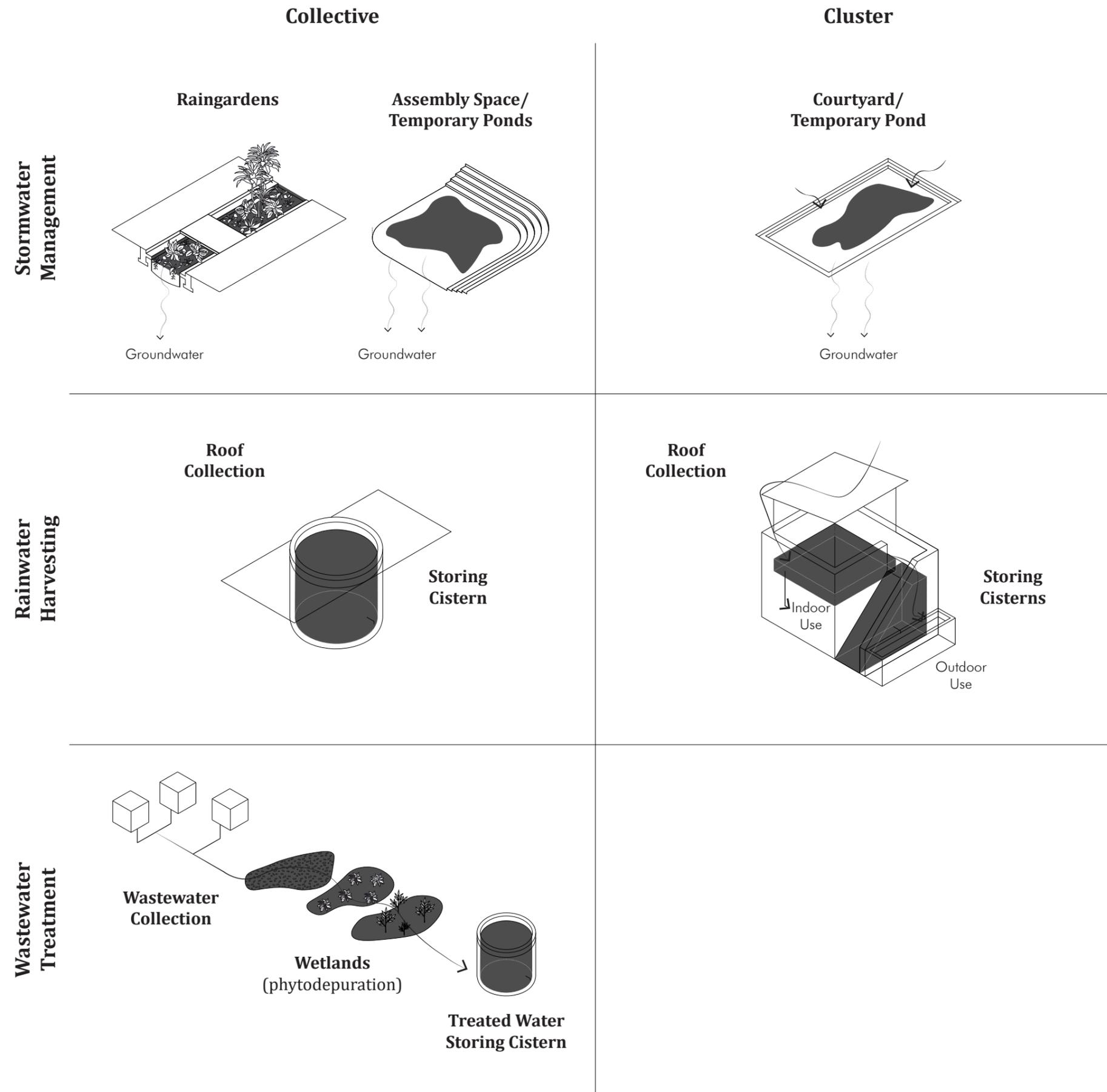
Concrete
(pured on site)



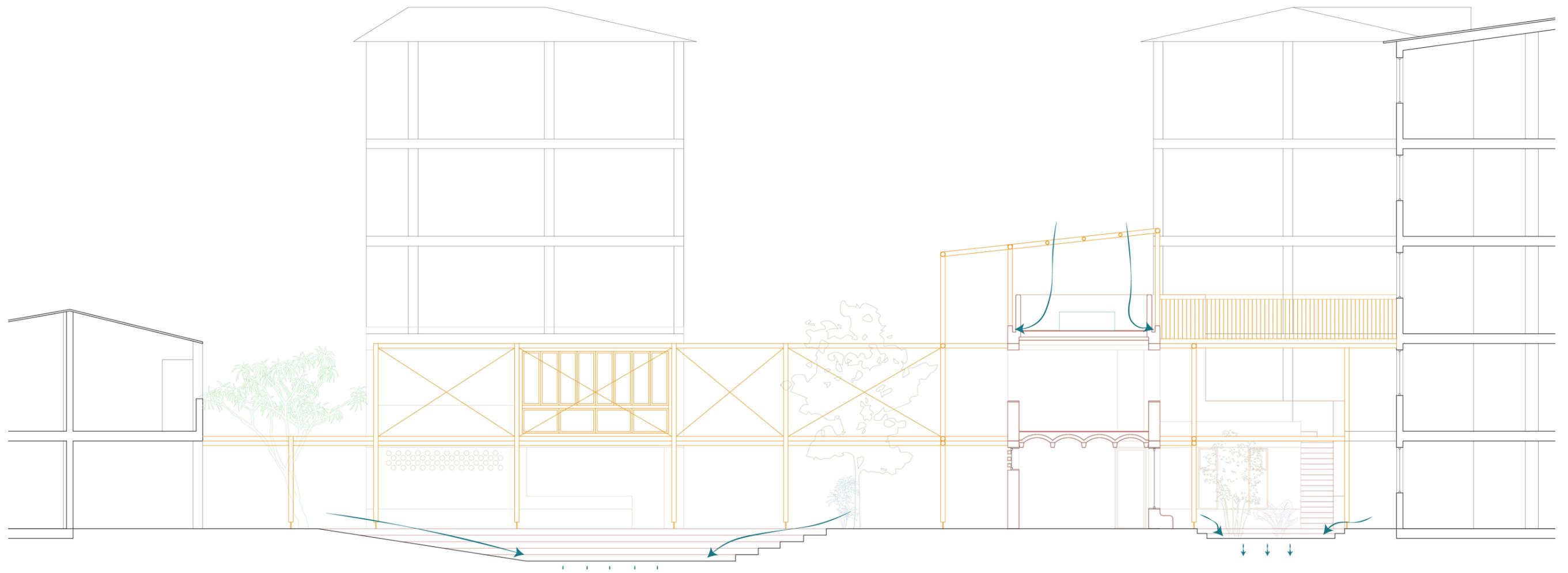
Plastic Bottle Cone

Water

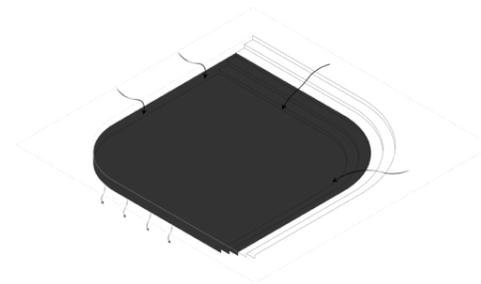
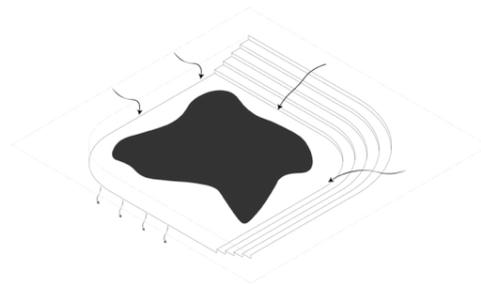
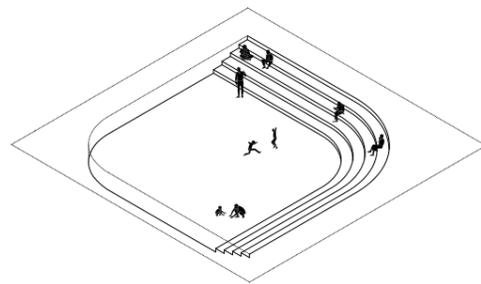
Manage, Collect, Recycle



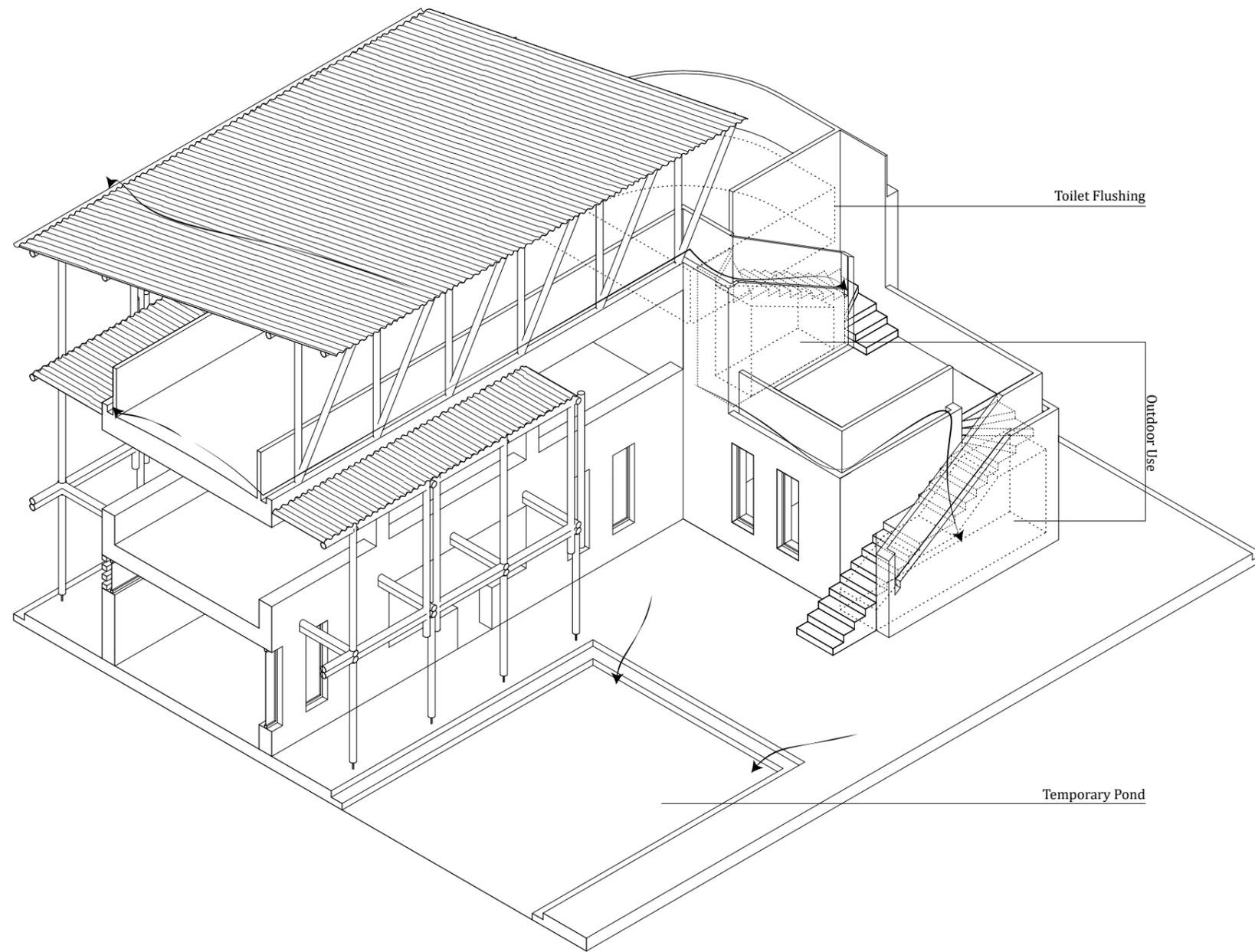
Management and Collection



Water Strategy
Urban Scale



Management and Collection



Water Strategy
Cluster Scale



A k a k y - K a l i t y
C o n d o m i n i u m - S i t e

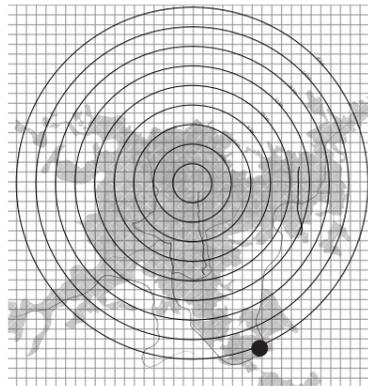
Testing Ground

Akaky Kality Condominium

20/80 Condominium Scheme

Greenfield Development
(18km ca. from the city centre)

Construction Years: 2012-2015



Site Location





Current Masterplan



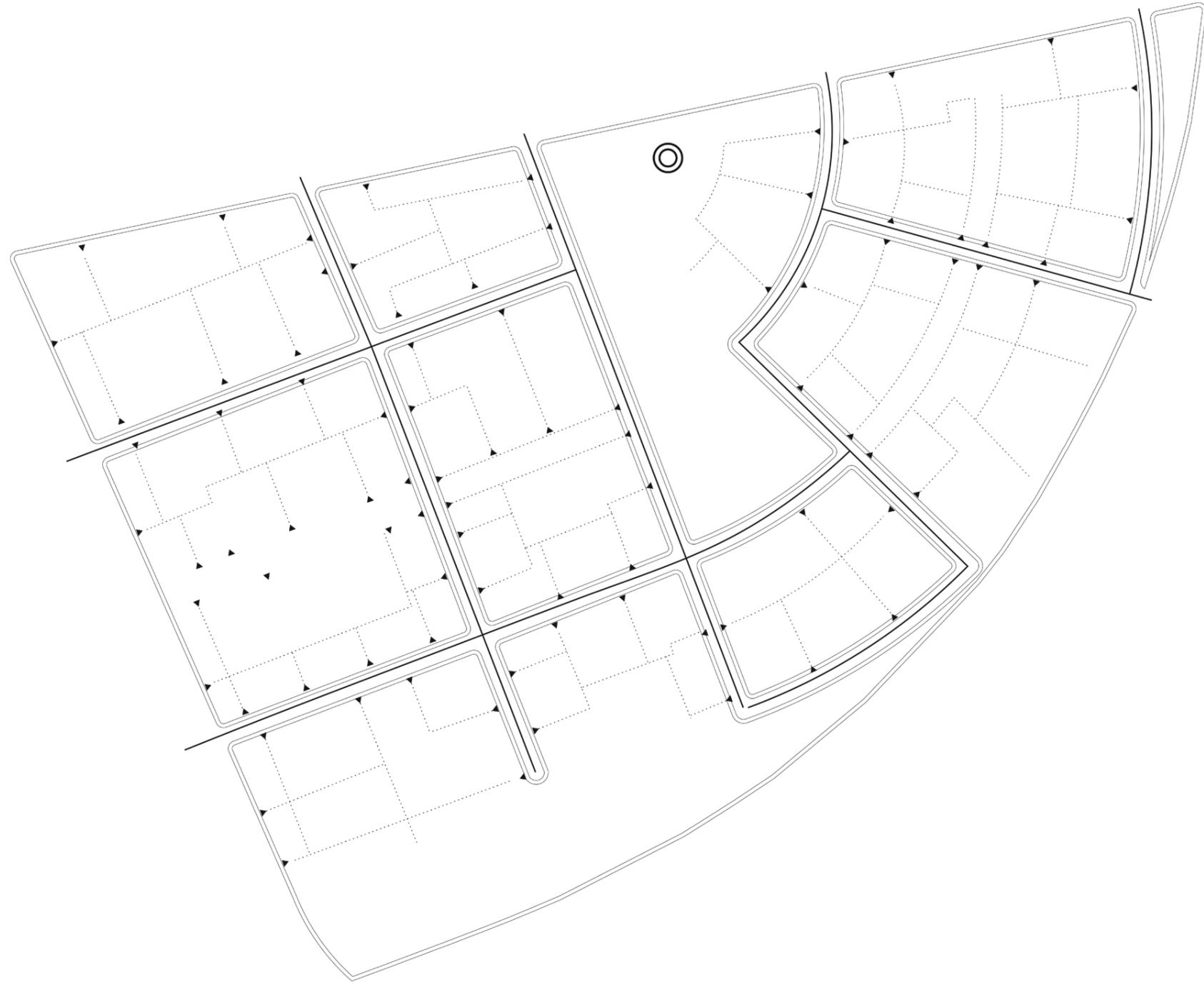
Proposed Masterplan

FSI 0,78
GSI 0,17
N. of Dwellings 1925
Density (dw/ha) 105,2

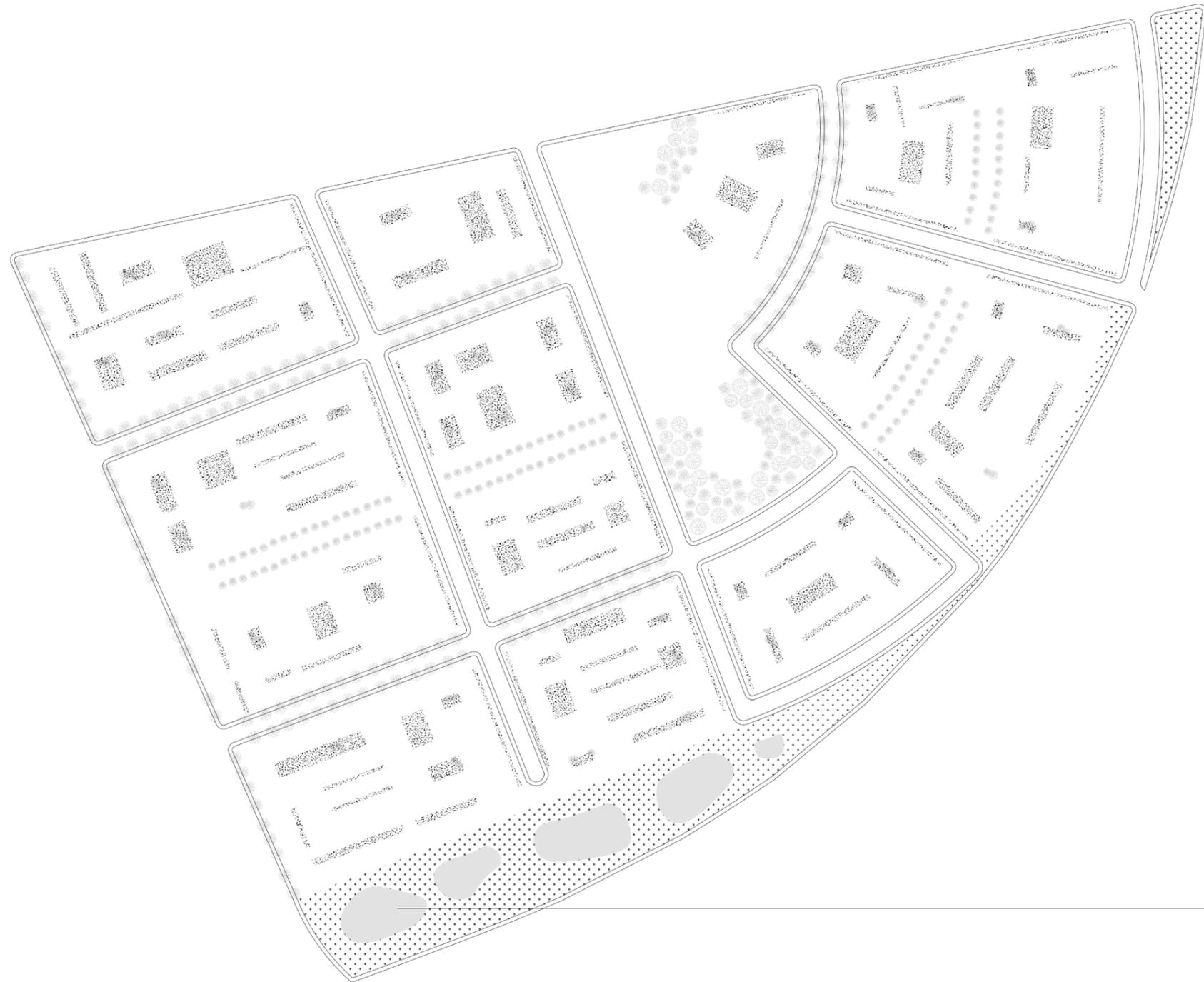
1,02
0,25
2410 **+485(+25%)**
131,7 **+26,5(+25%)**



Densification

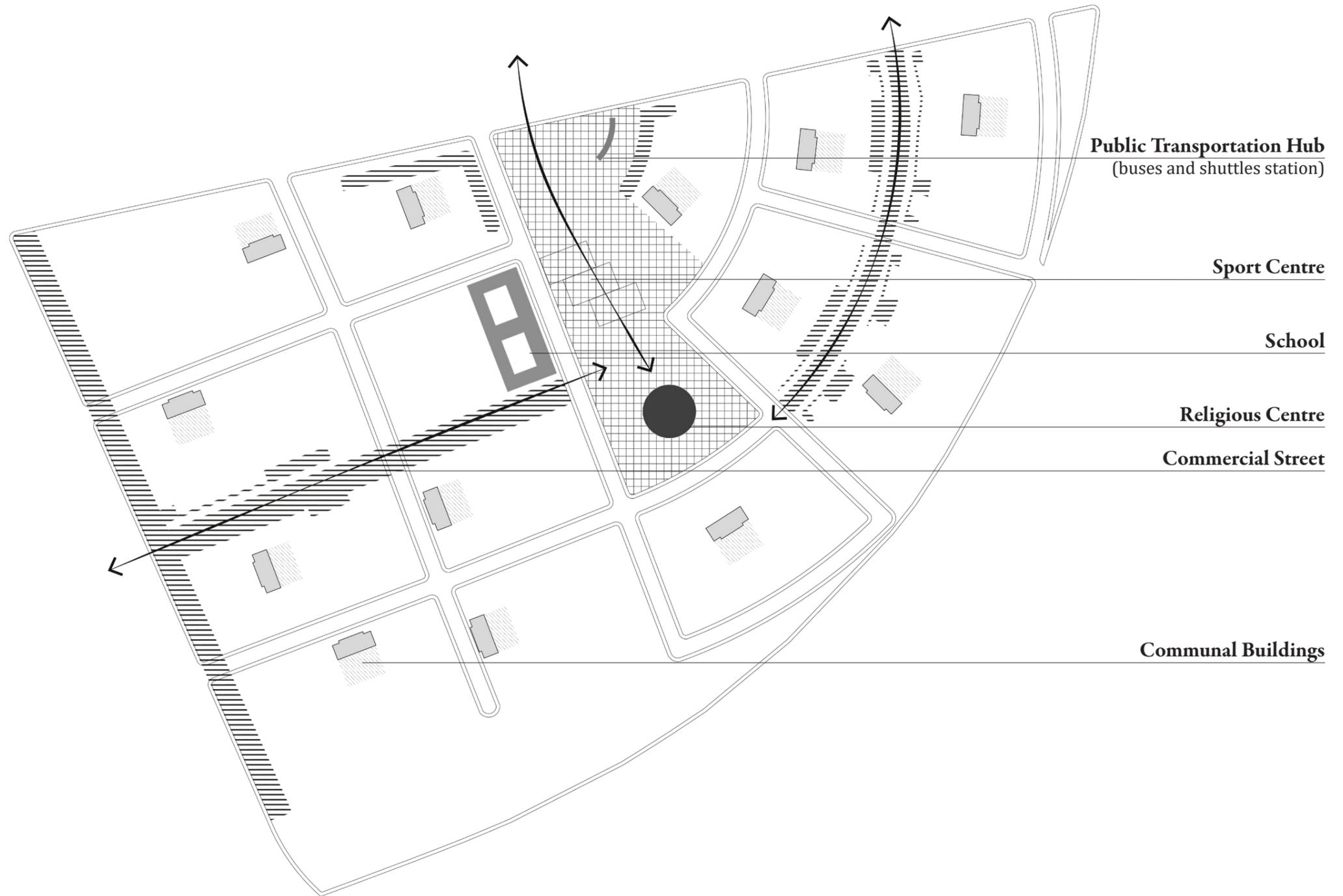


**Re-Definition of
Mobility Infrastructure**



Water Treatment Plant

**Re-Definition of Green
and Water Infrastructure**

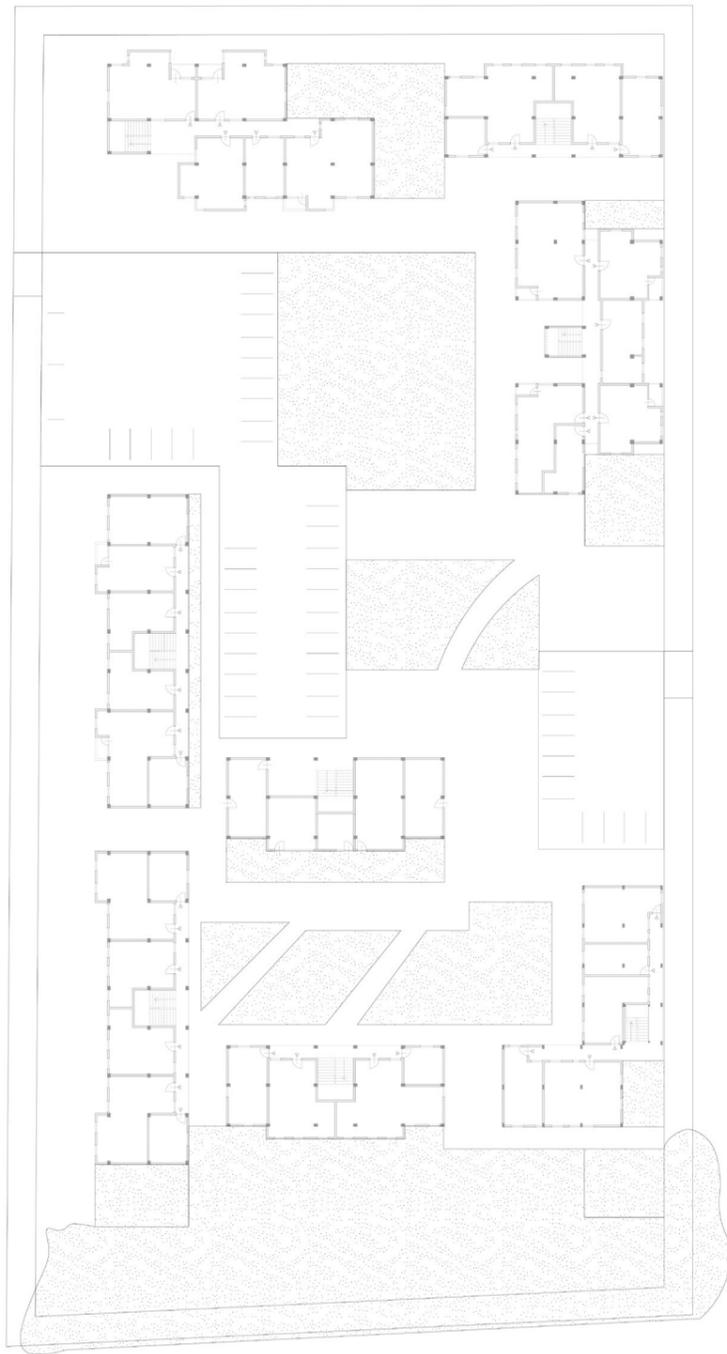
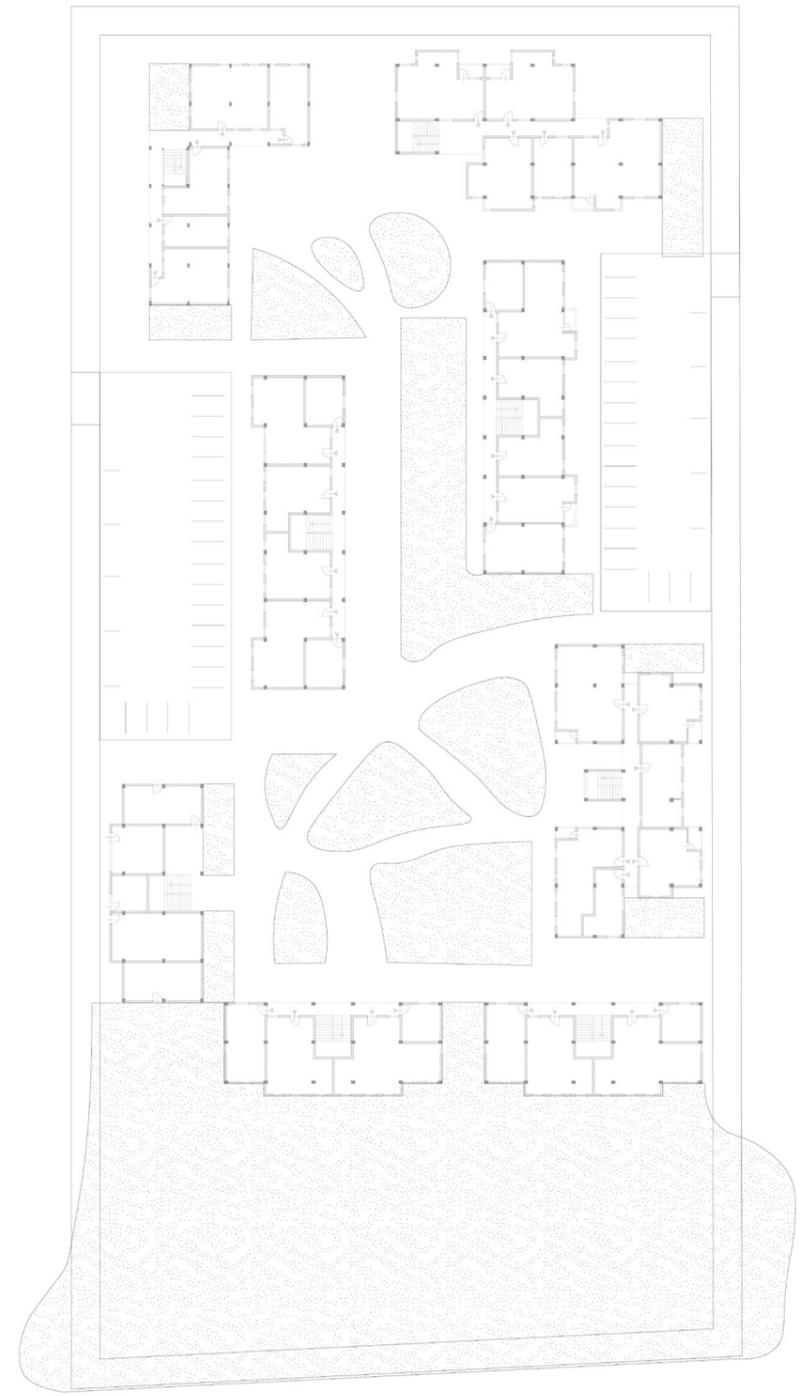
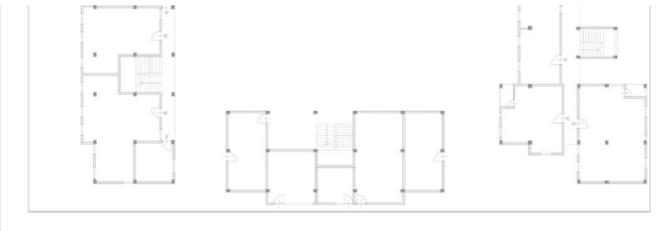


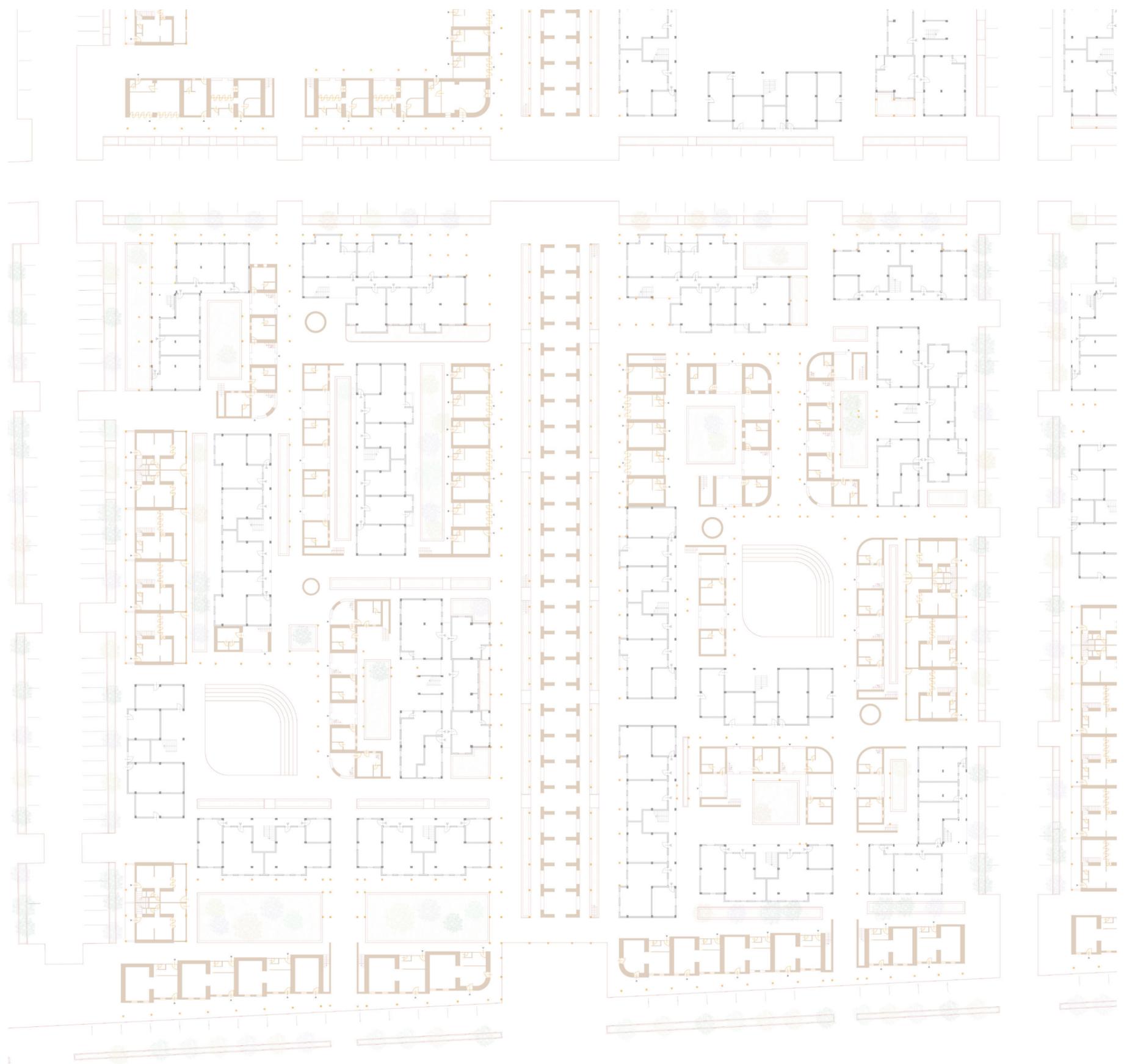
**Re-Definition of
Public Program**



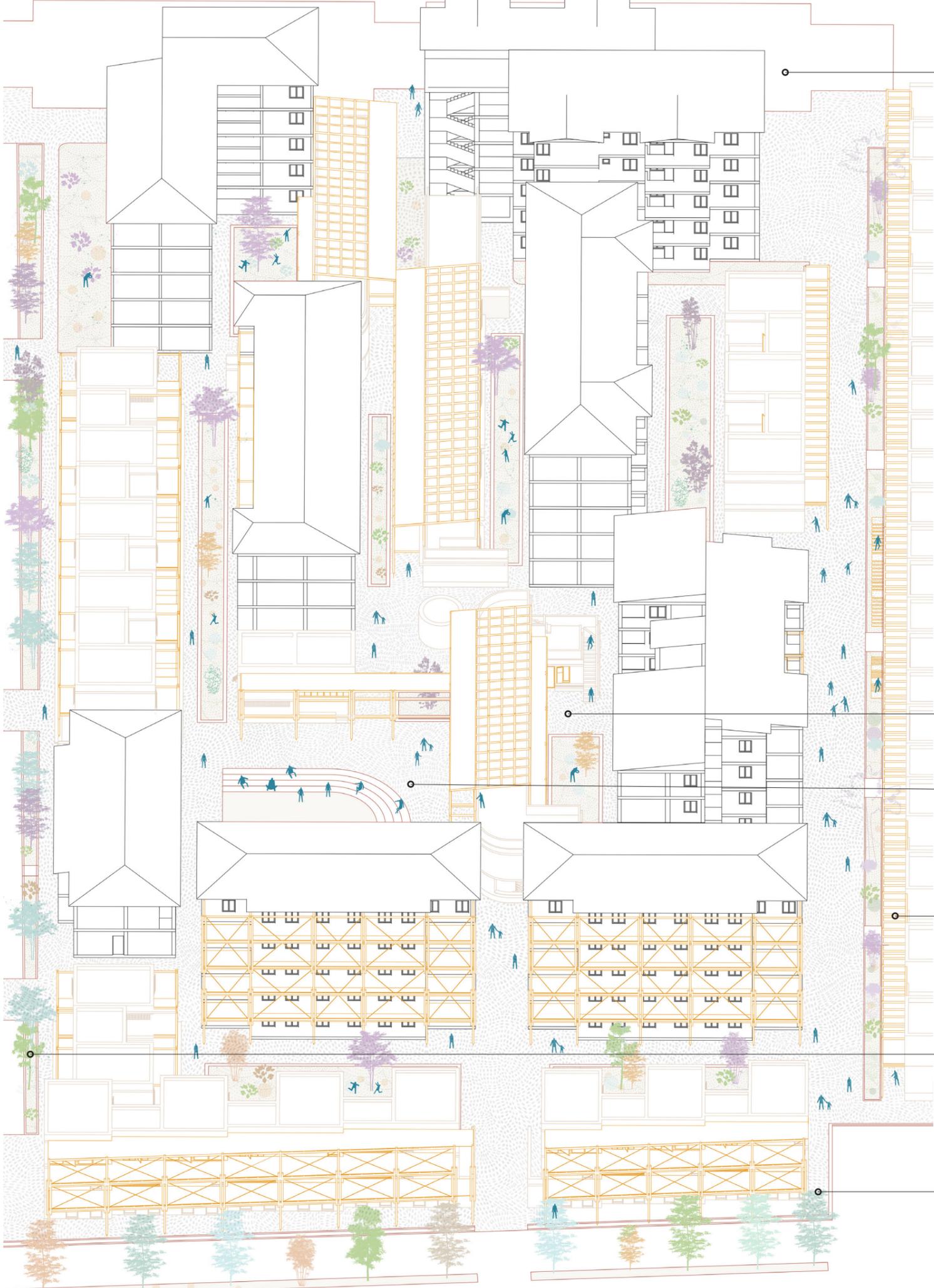
- Low-income
- Middle-income
- (middle)High-income

**Re-Definition of
Social and Typological Mix**





Space Index



2. Around: Active Street

6. Inside: Shared Courtyard

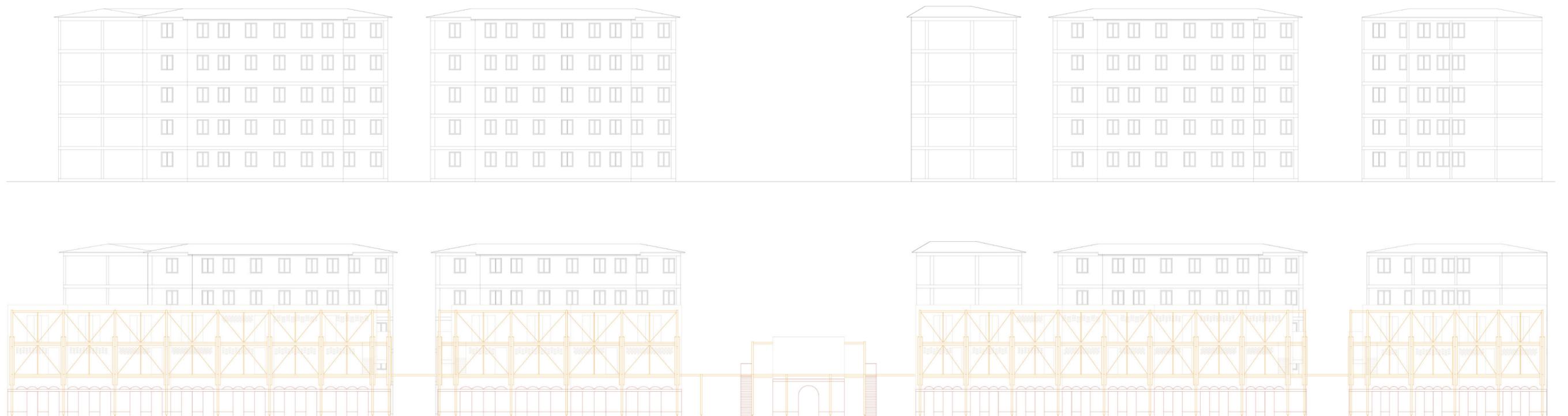
5. Inside: Collective Plaza

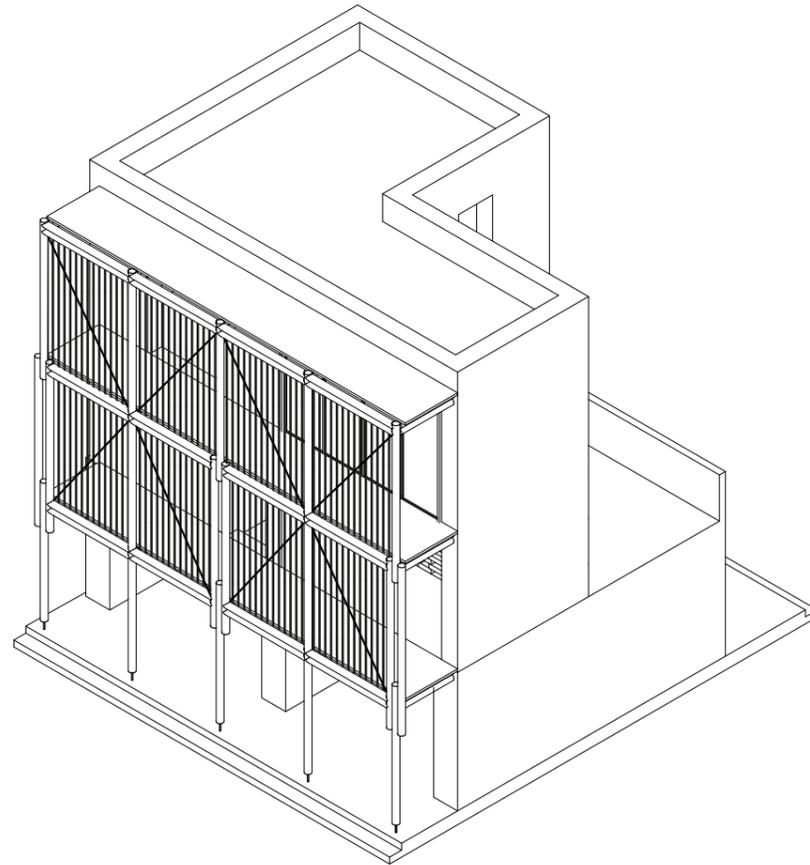
4. In-between: Market Street

3. Around: Residential Street

1. Around: Edges

Around

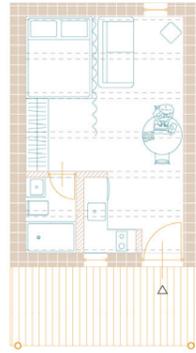




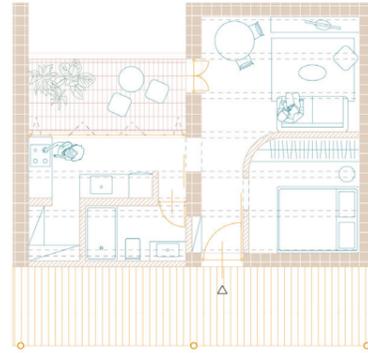
Mixed Typology

Residential

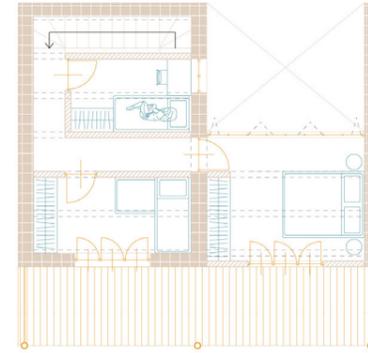
Studio
25 m²



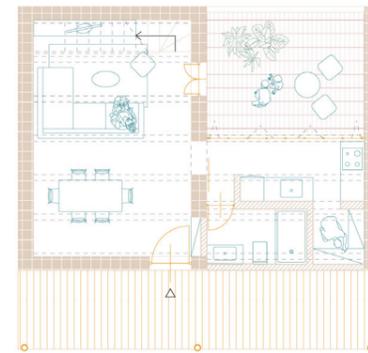
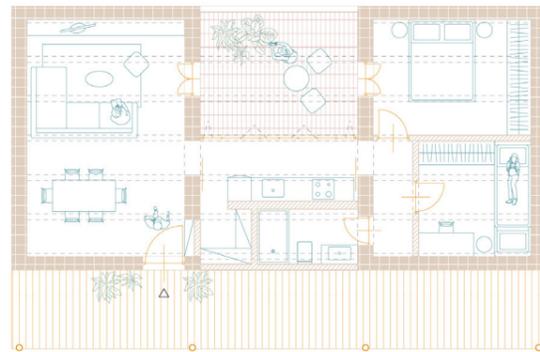
1-bedroom
42 m²



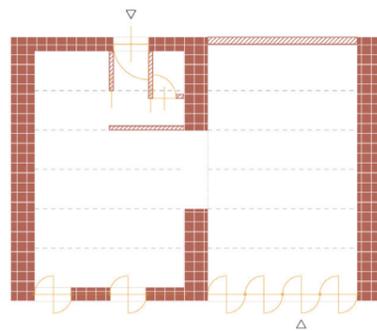
3-bedrooms
110 m²



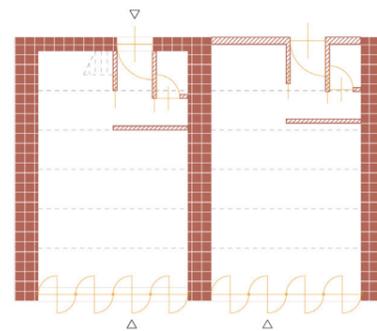
2-bedrooms
75 m²



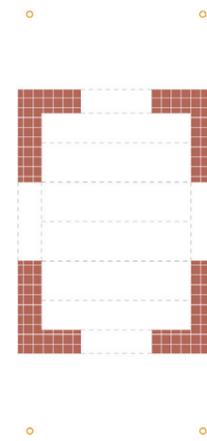
Commercial



2 modules
48m²

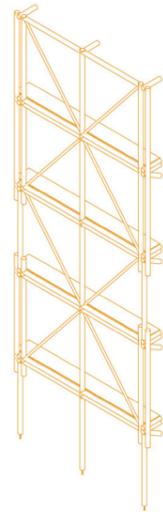


1 module
24m²

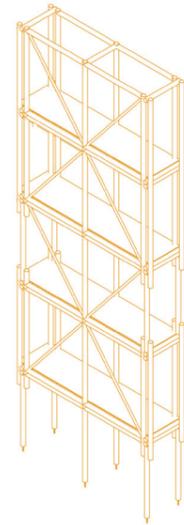
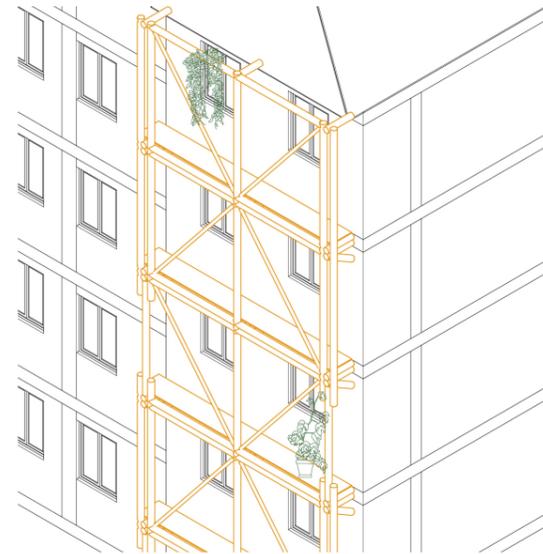


1 module
24m²

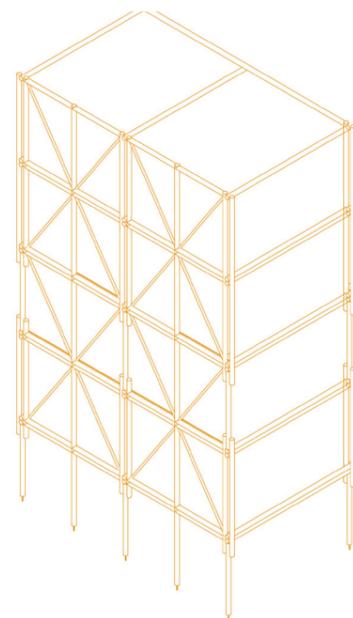
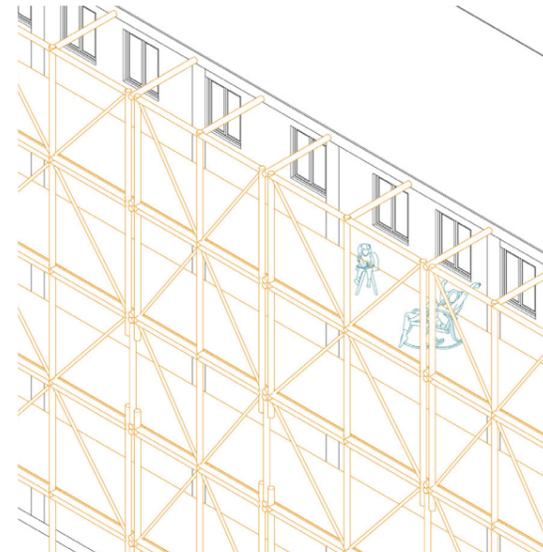
Mixed Typology



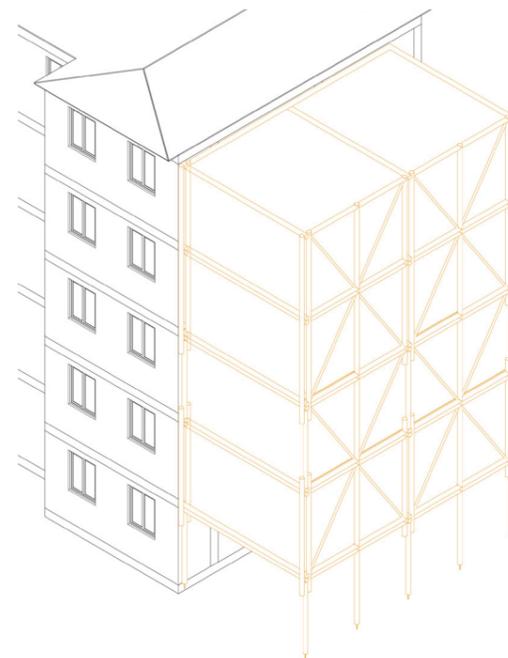
French balcony/Solar screen



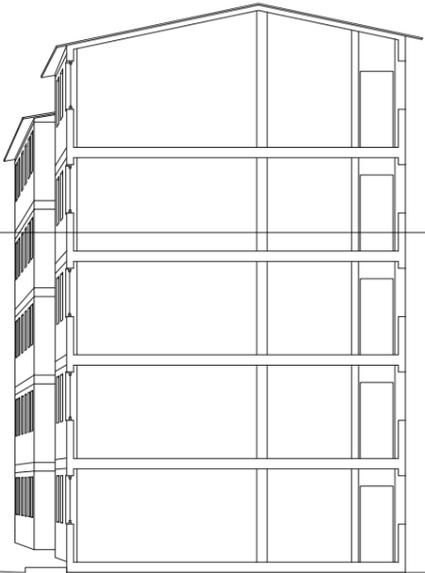
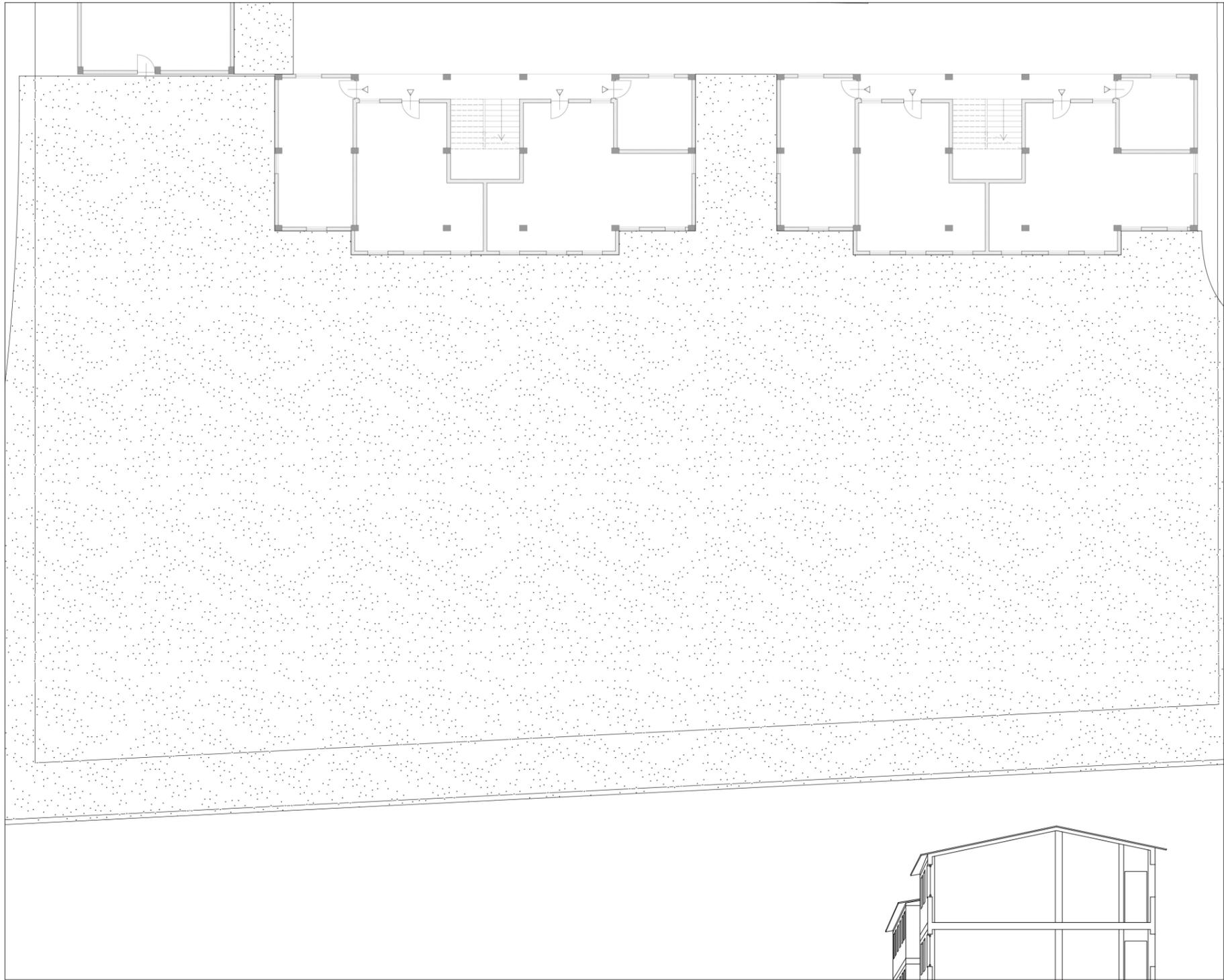
Balcony/Veranda



Unit Extension



Condominium Add-ons

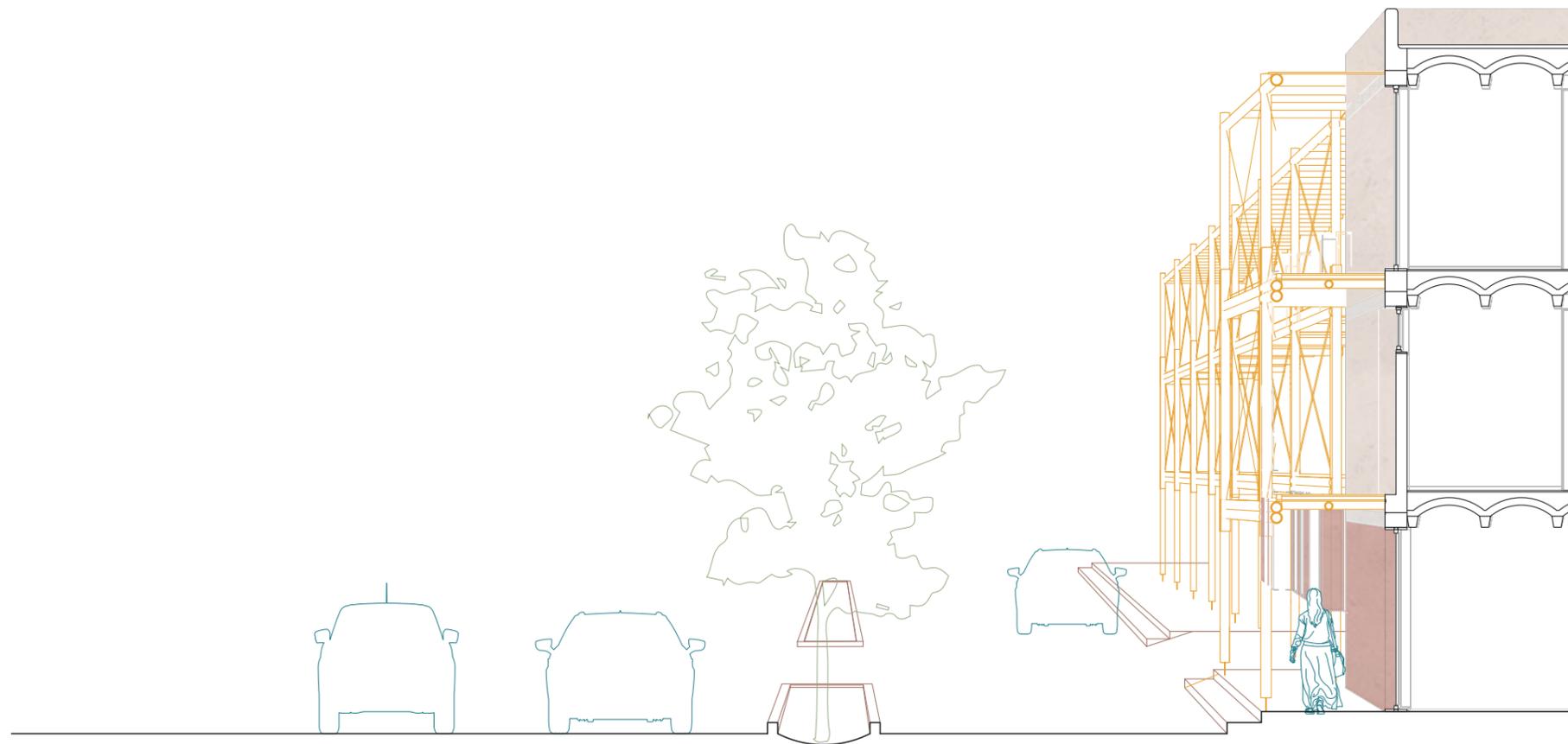


Edges





Re-defined Edges

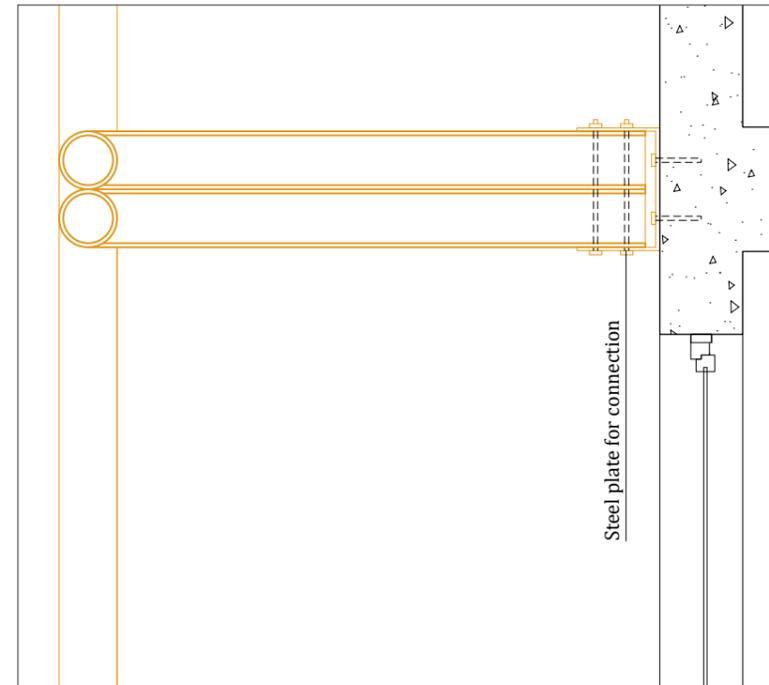
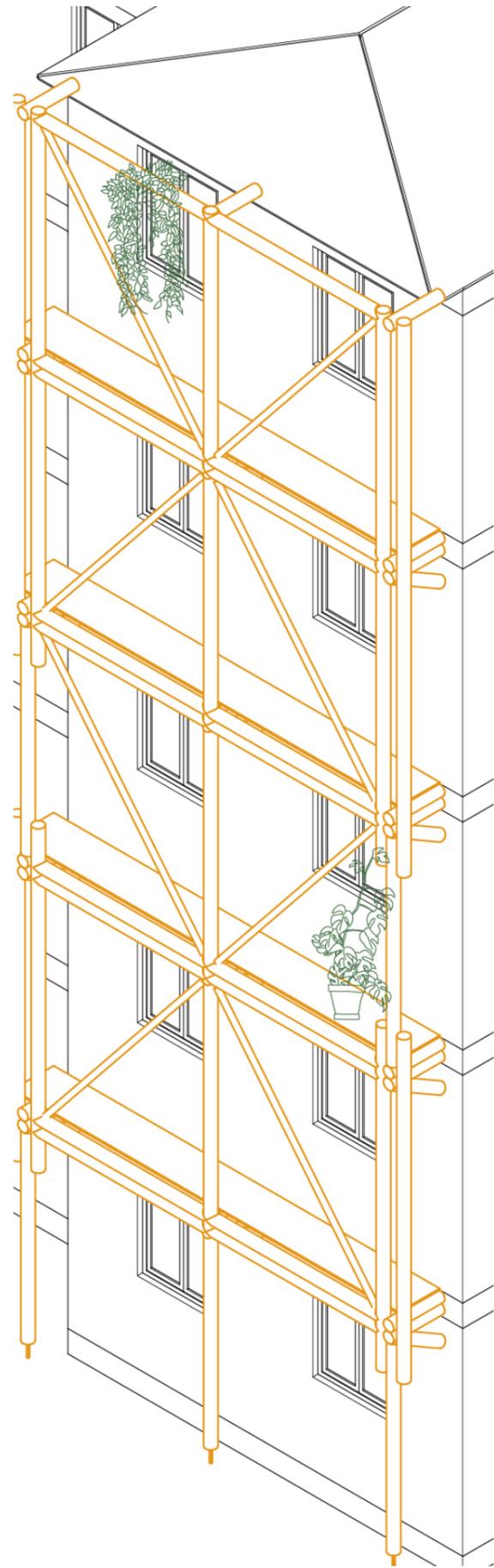


Activated Street

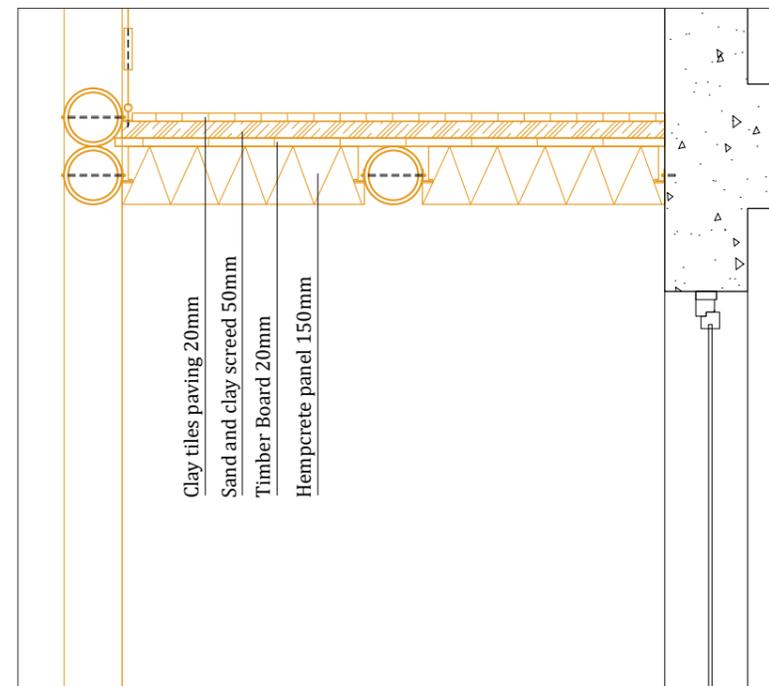


**Courtyard
as Filtering Space**

**Condominium Add-on
as a Filter**

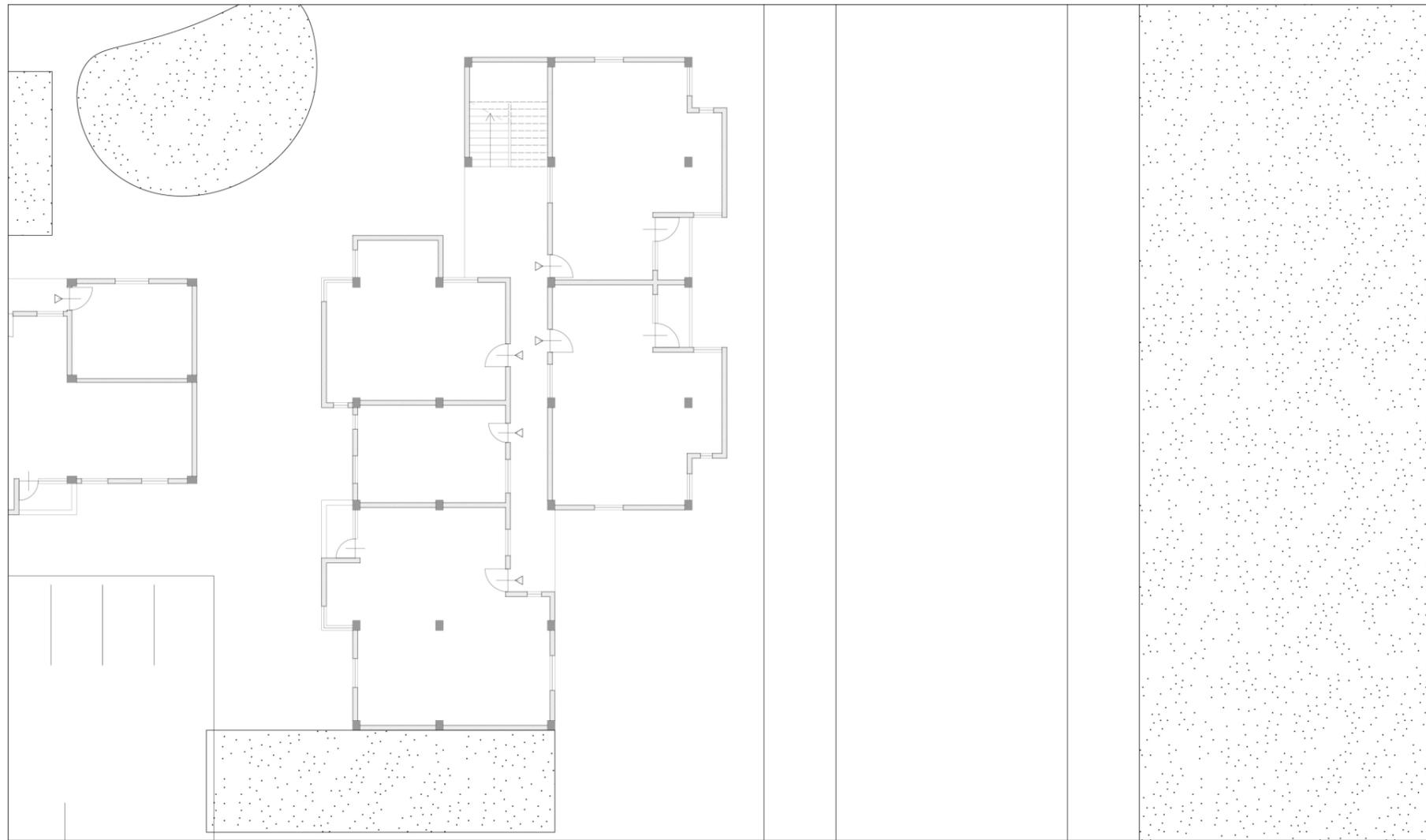


Connection to existing building

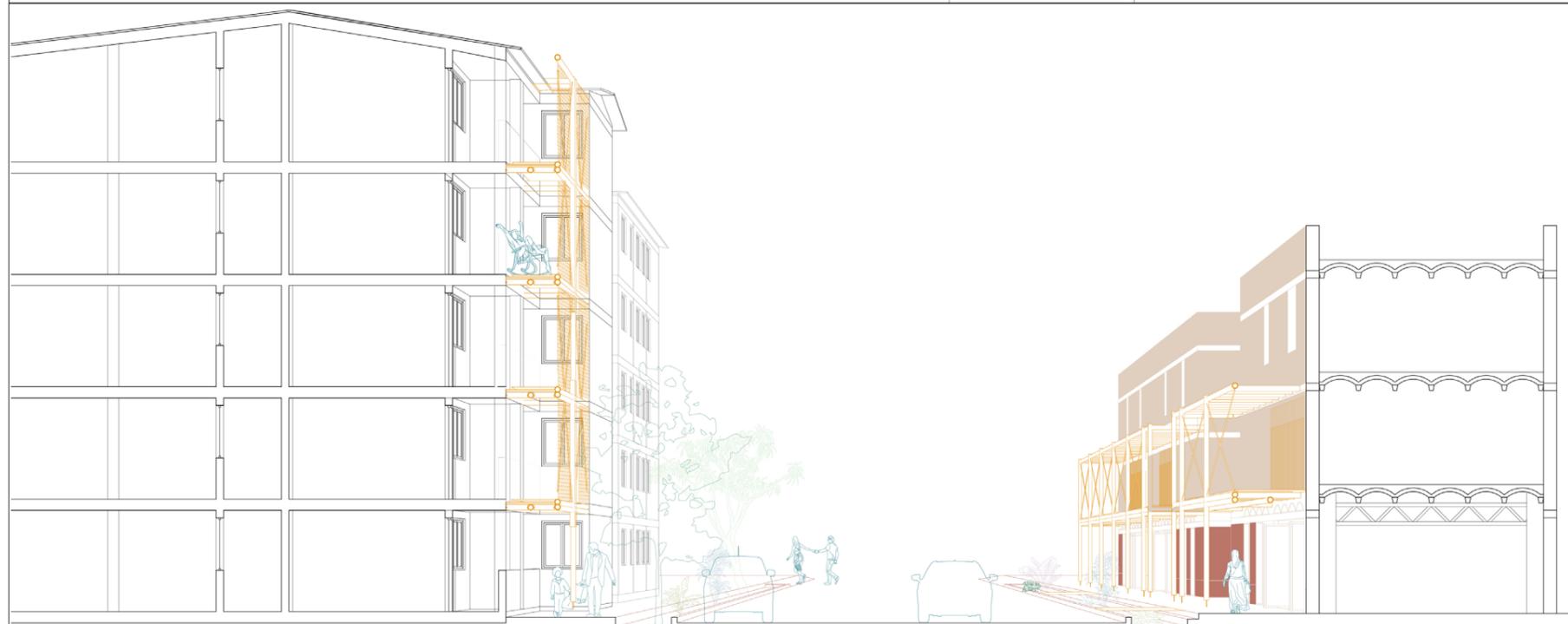
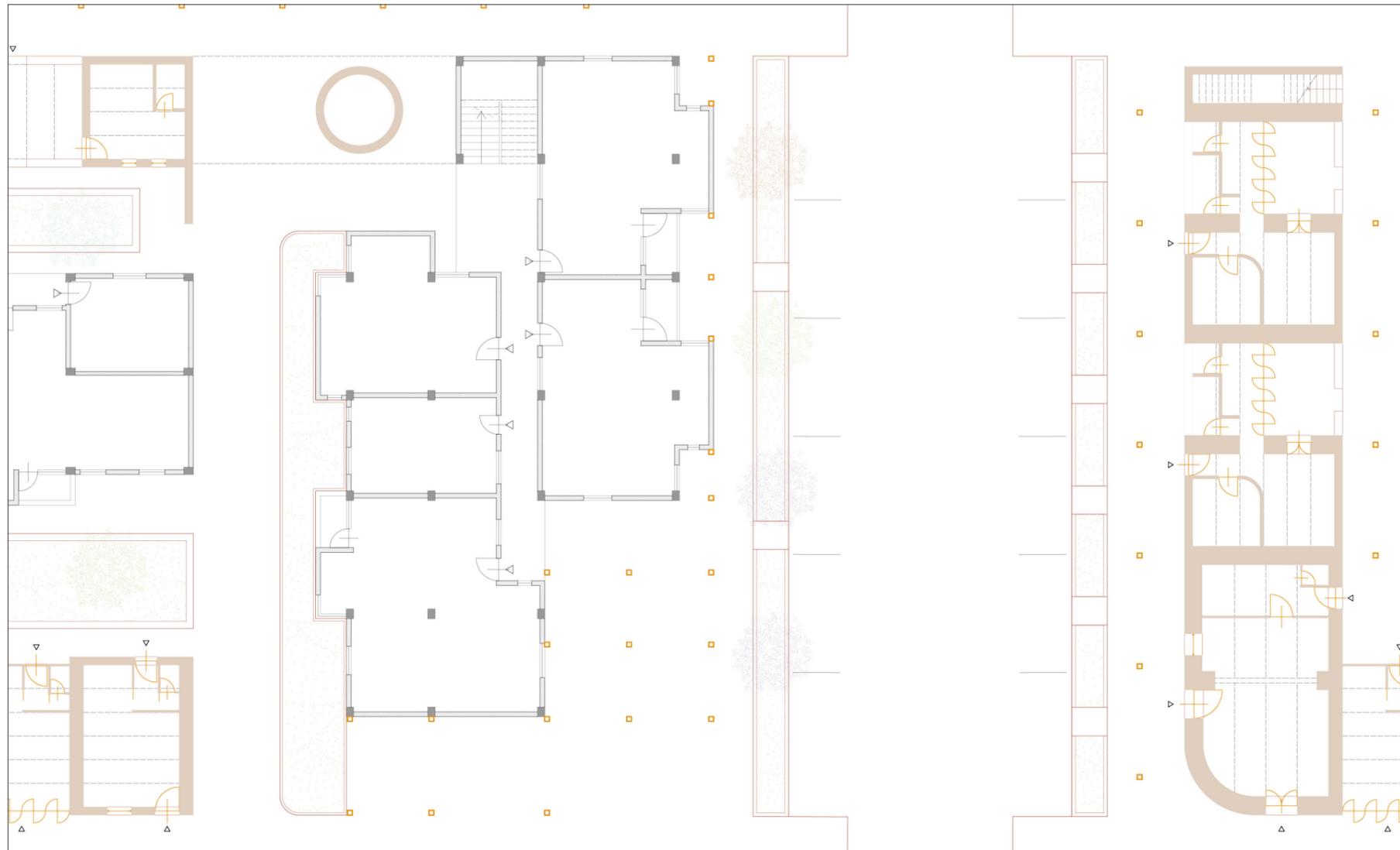


- Clay tiles paving 20mm
- Sand and clay screed 50mm
- Timber Board 20mm
- Hempcrete panel 150mm

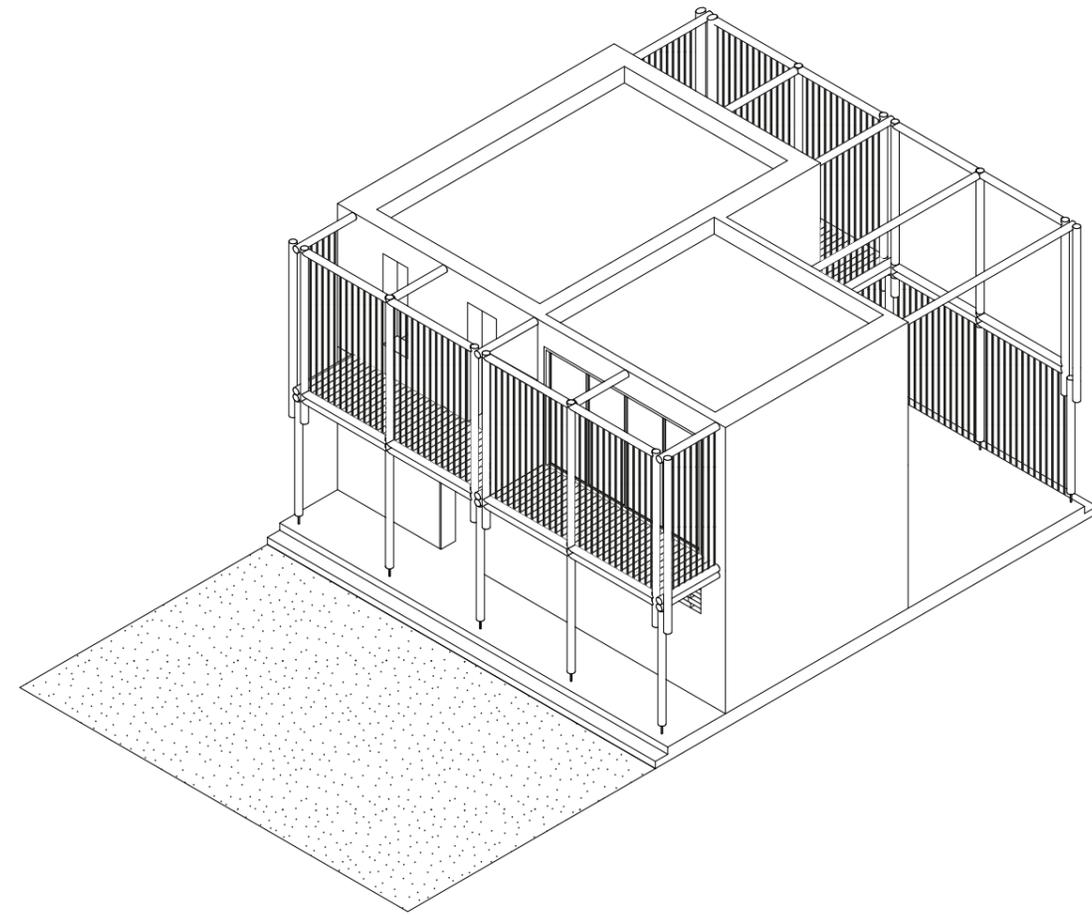
Bamboo structure fire-proofing



Inner Street

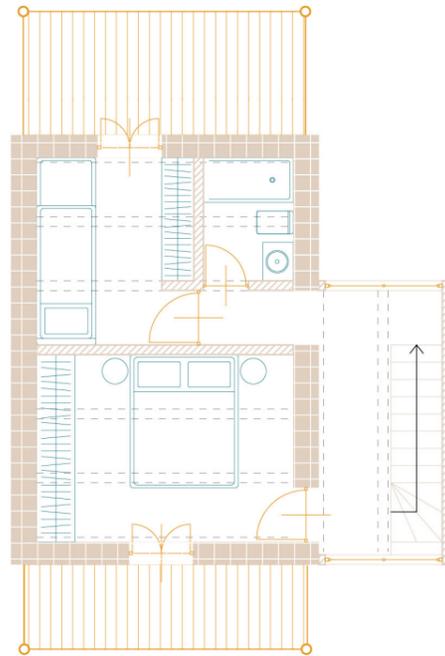


**Re-defined Active
Inner Street**

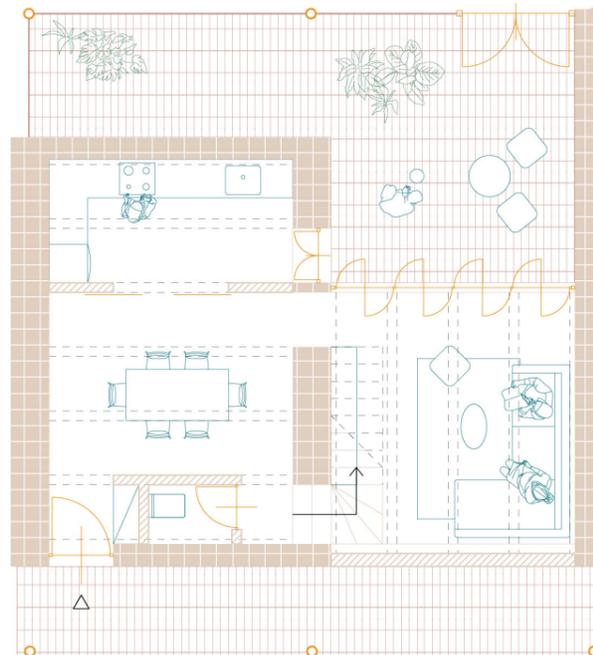
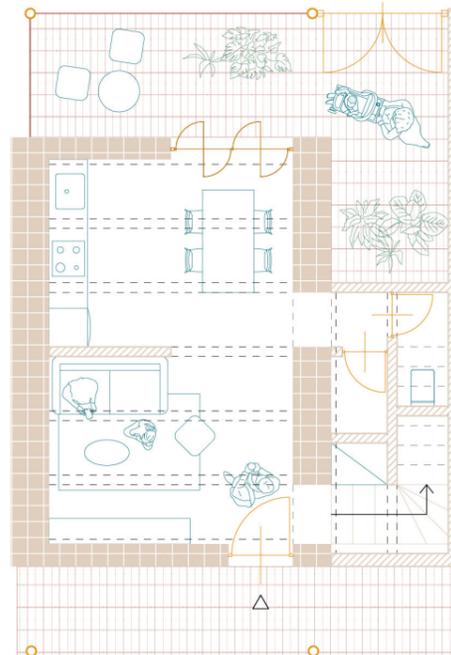
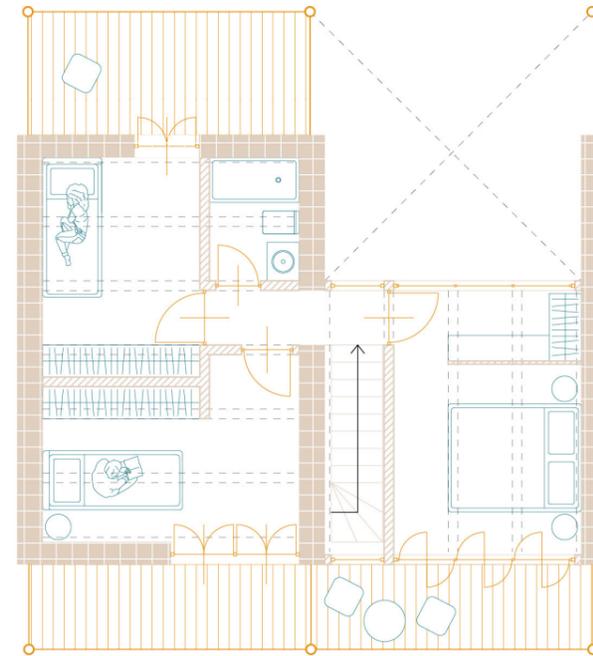


**Row House
Typology**

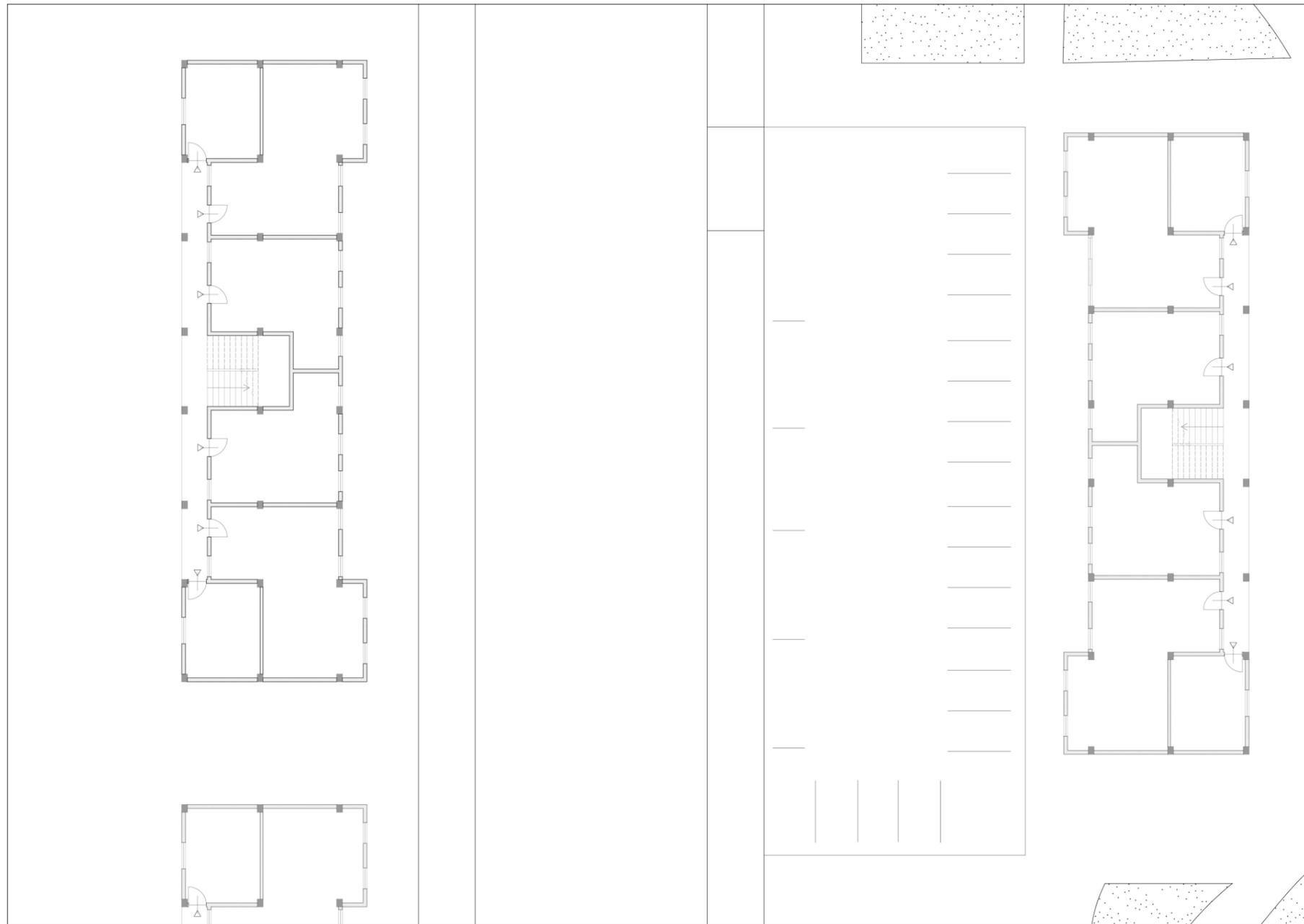
2 bedroom
120 m²
(70 indoor+50 outdoor)



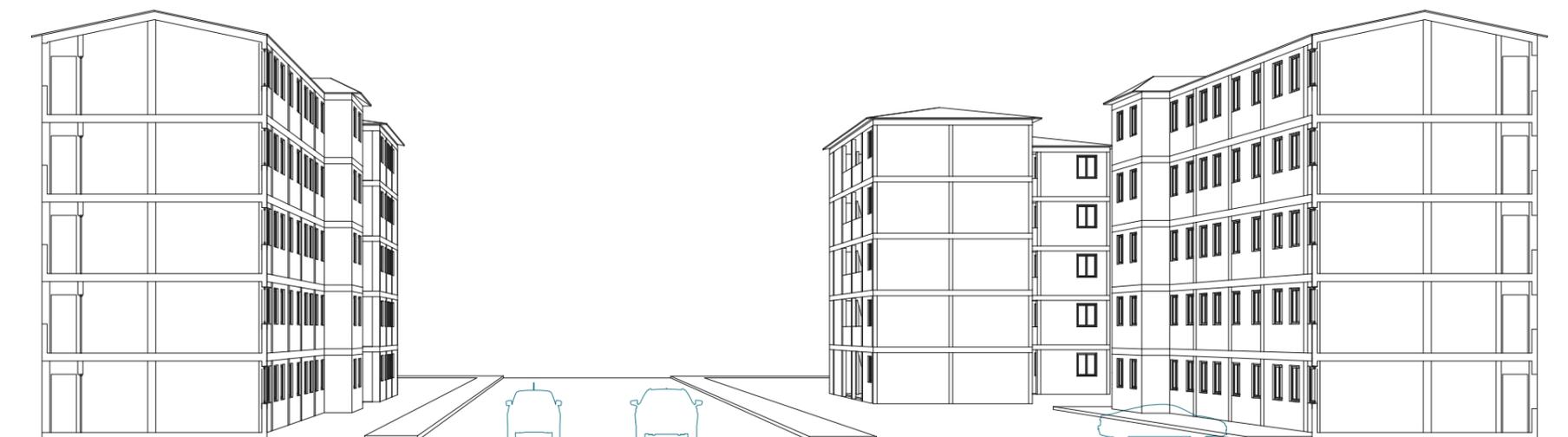
3 bedroom
145 m²
(85 indoor+60 outdoor)

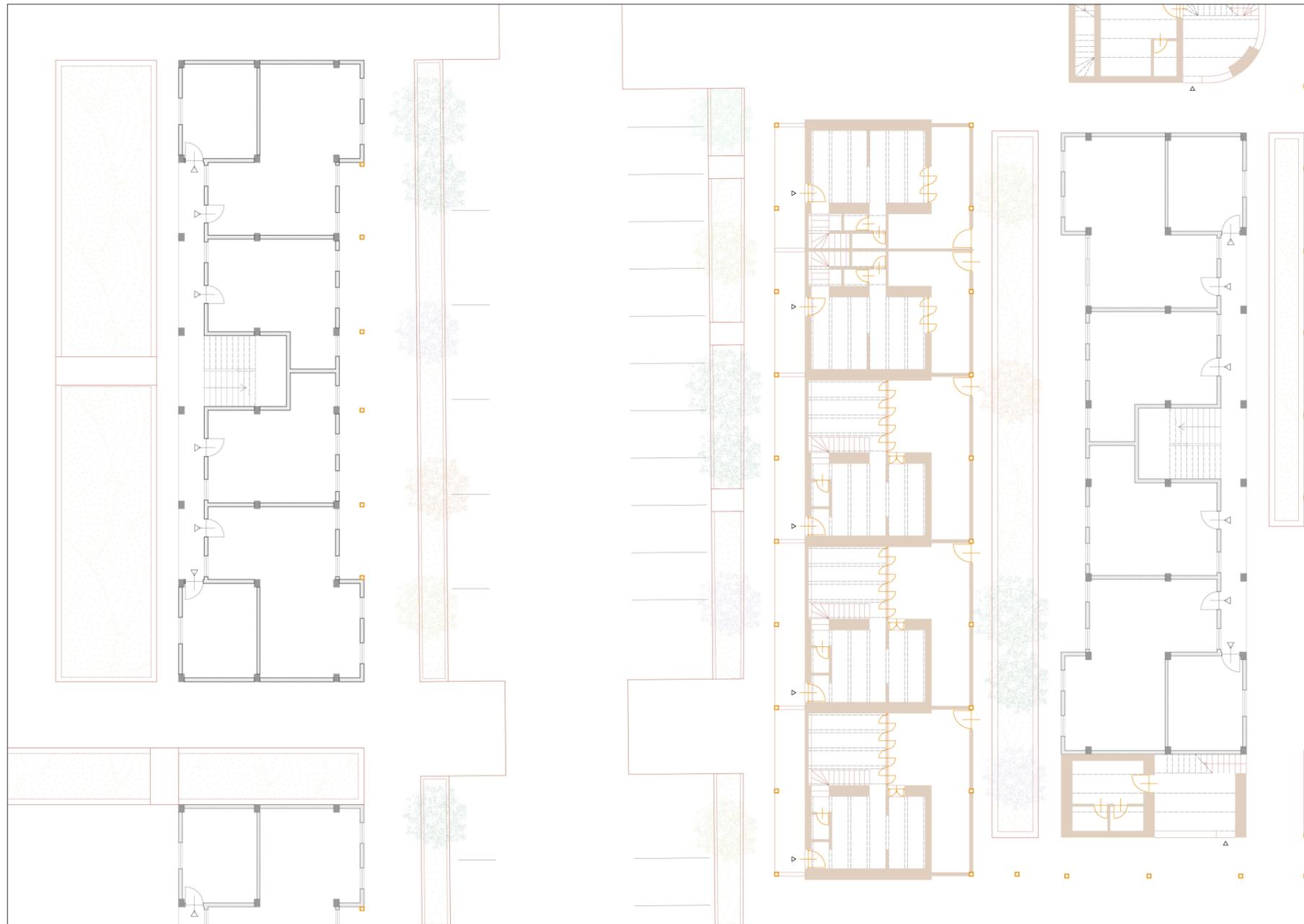


Row House
Typology



Inner Street



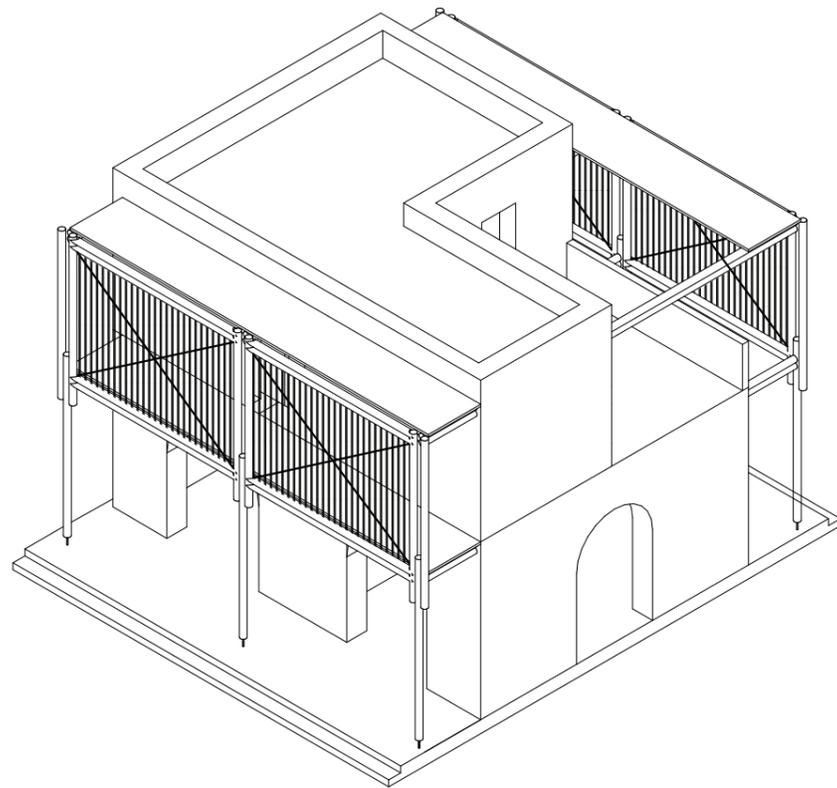


**Re-defined Residential
Inner Street**



Activated Street

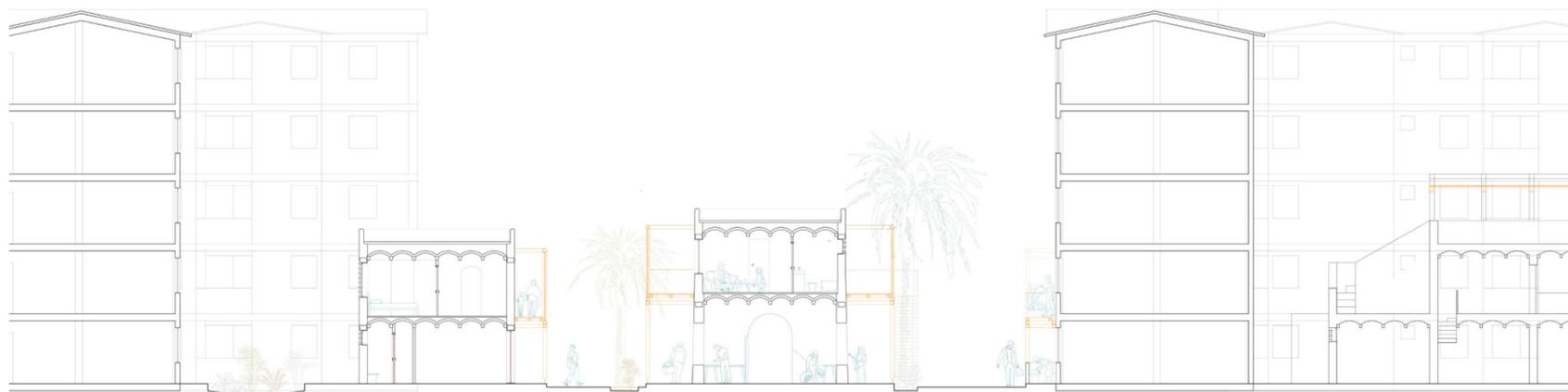
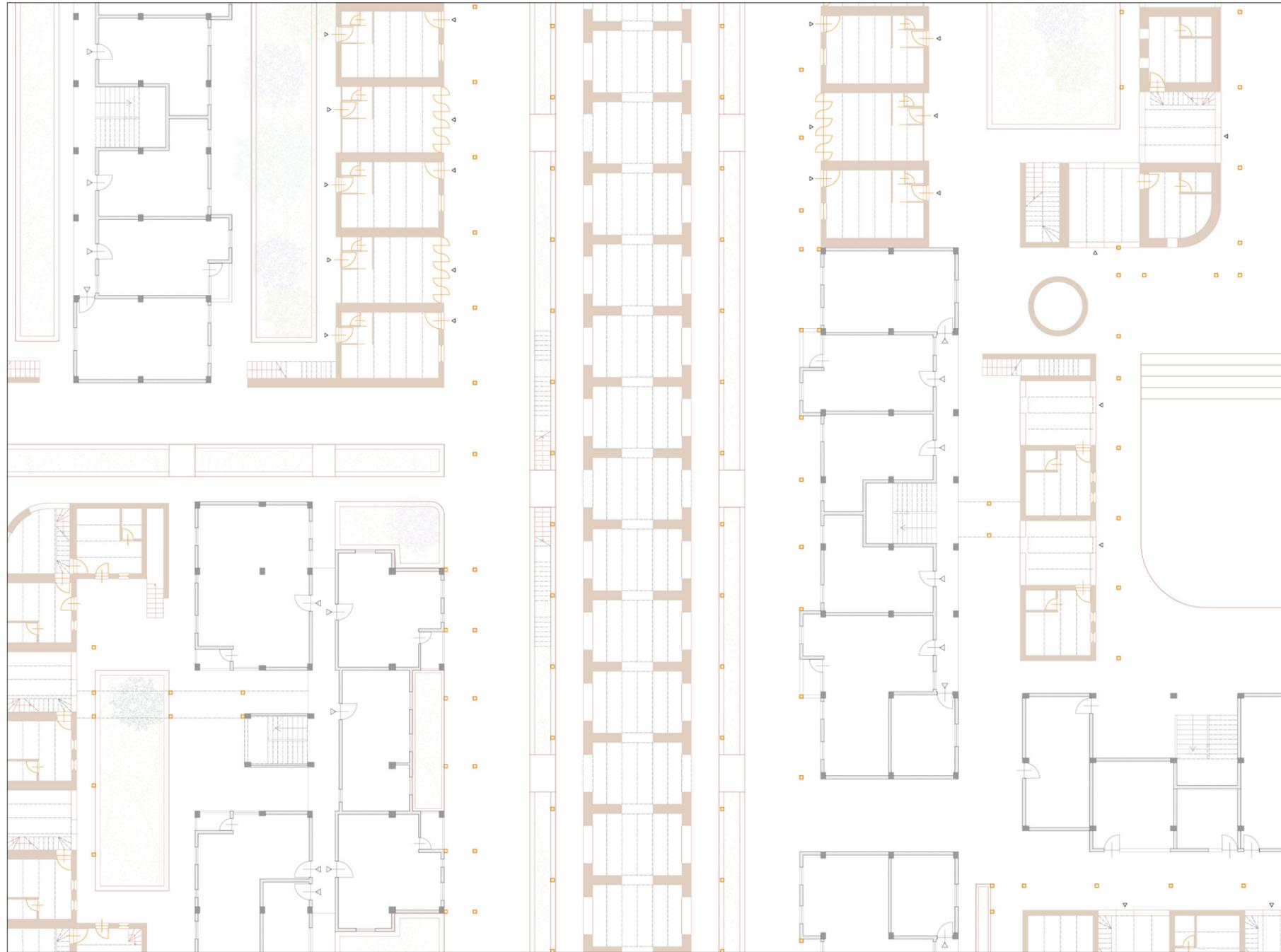
In-between



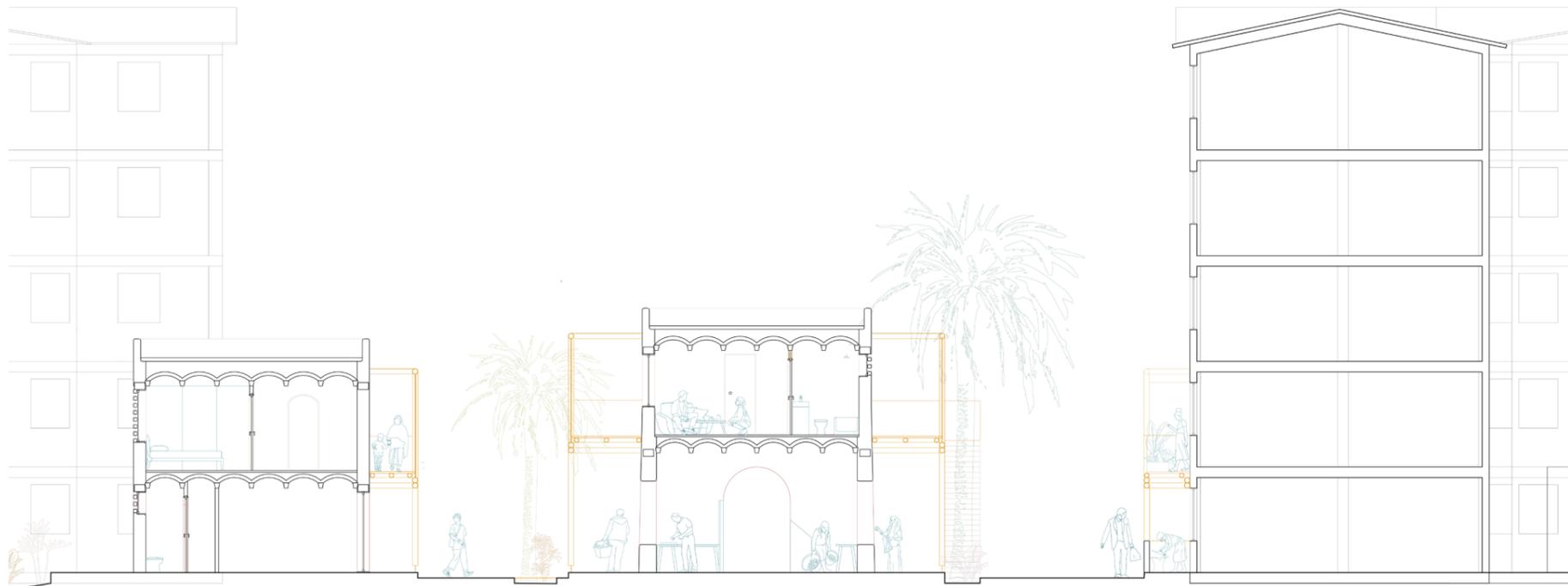
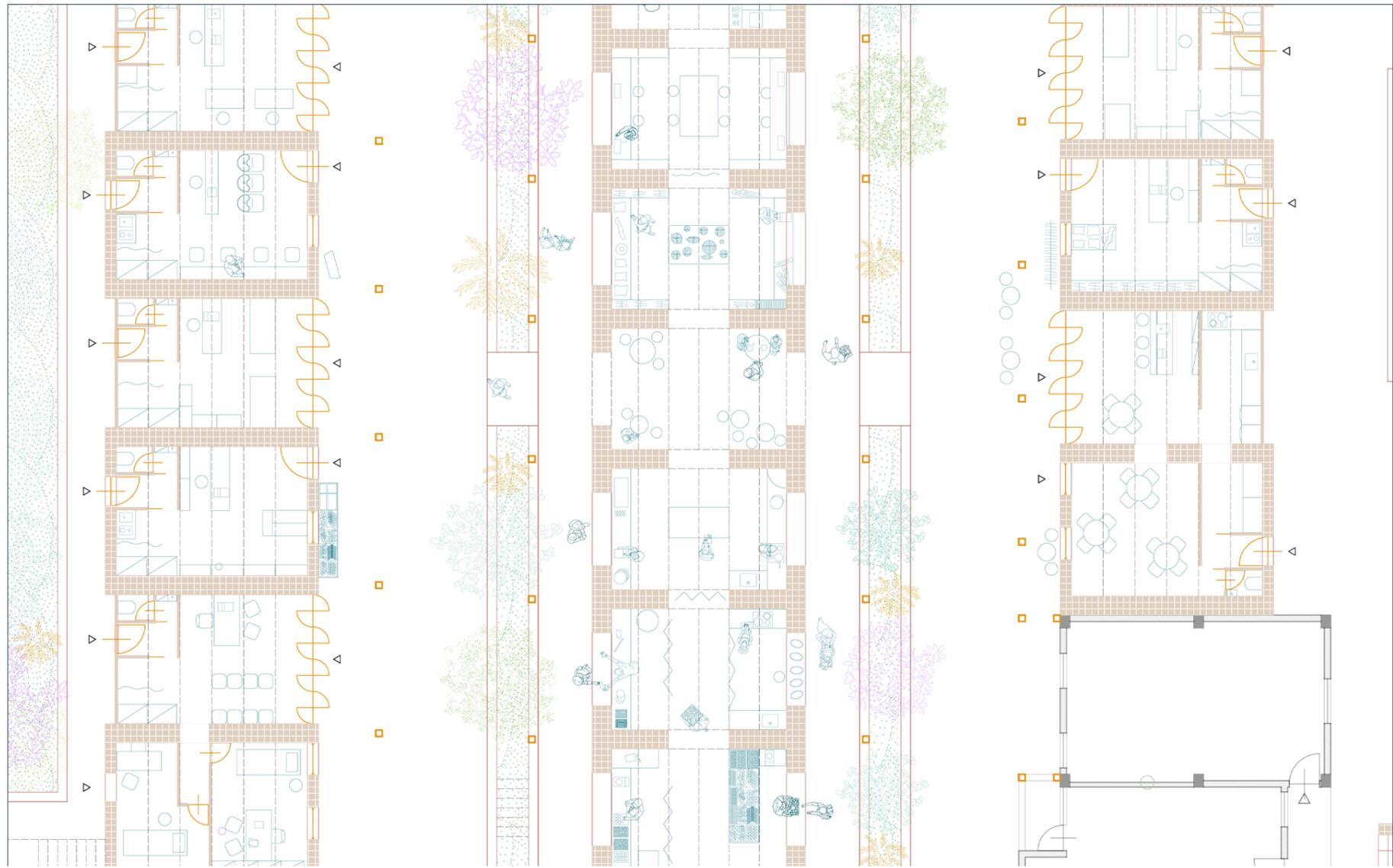
Mixed Typology



Inner Street

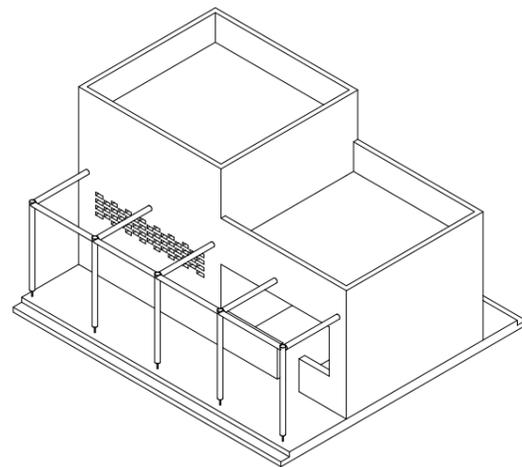
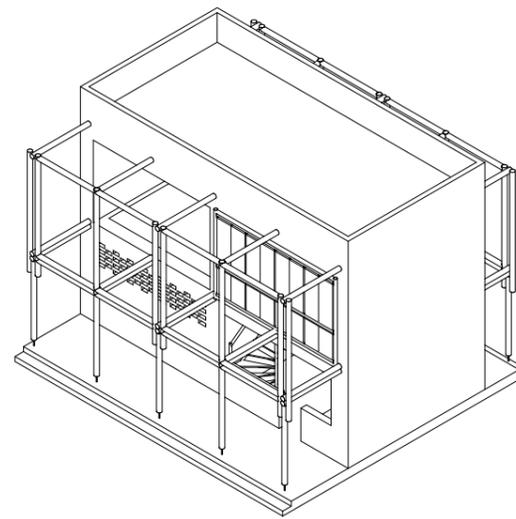
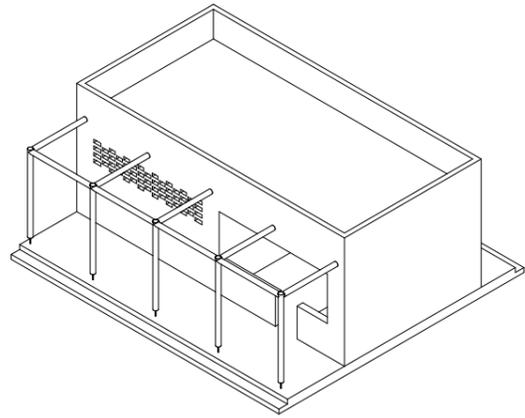


Re-defined Market Street

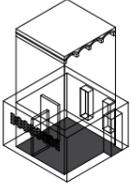
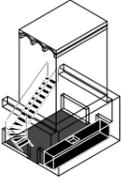
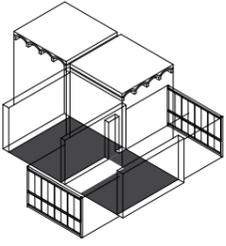
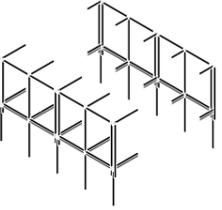
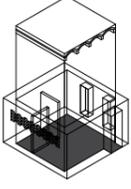
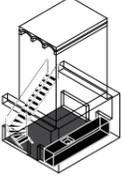
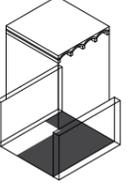
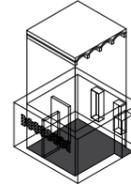
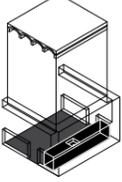
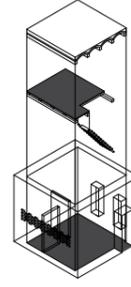
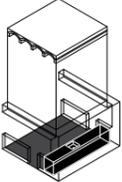
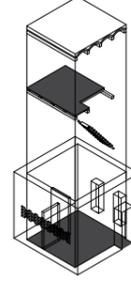
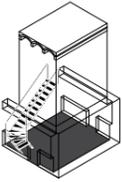
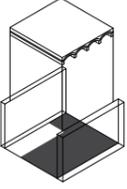


Flexibility

Inside



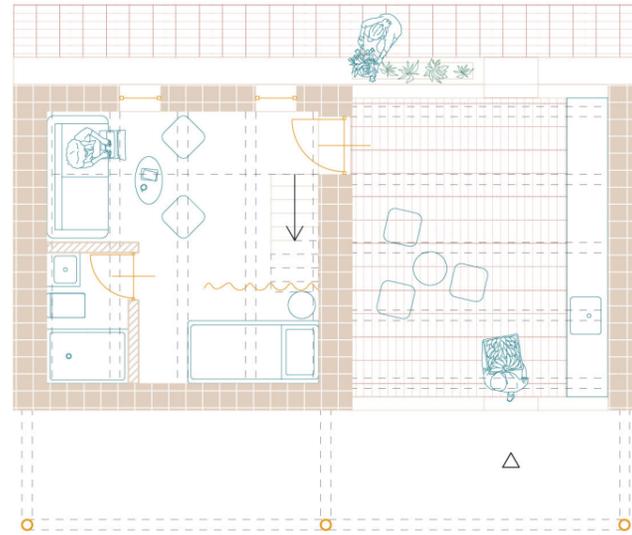
Incremental Typology

	Enclosed Unit + Toilet	Open Unit + Kitchen	Vertical Connection	Mezzanine	Undeveloped Unit(s)	Veranda
Basic Unit + 2						
Basic Unit + 1						
Basic Unit						
Basic Unit + 1/2						
Basic Unit + 1/2 + 1						

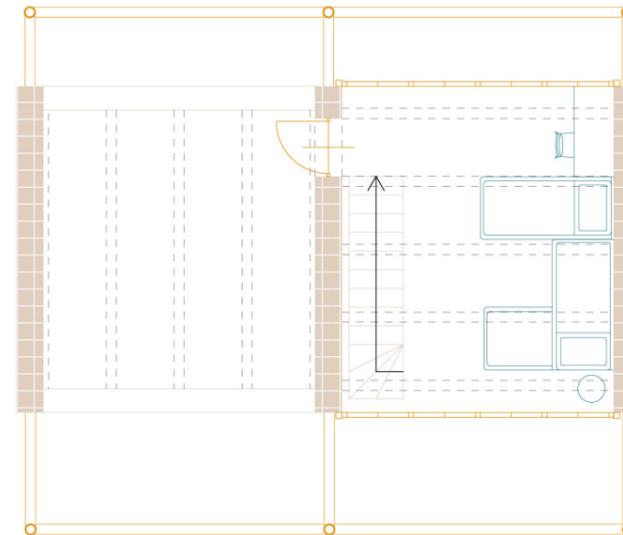
Incremental Typology
Abacus

Basic Unit
Growth Tools

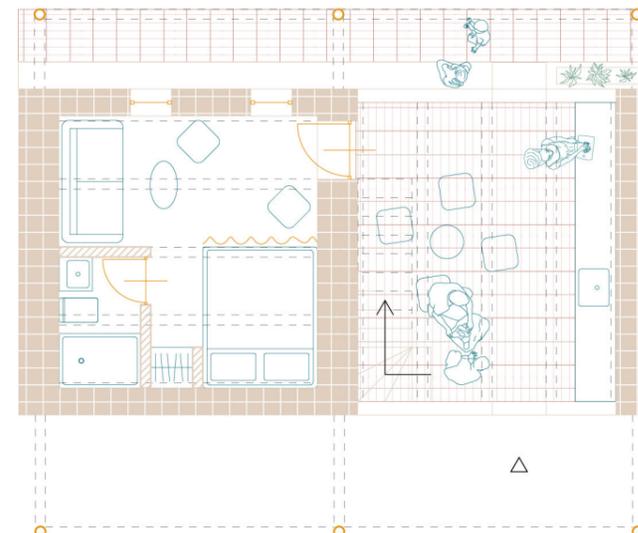
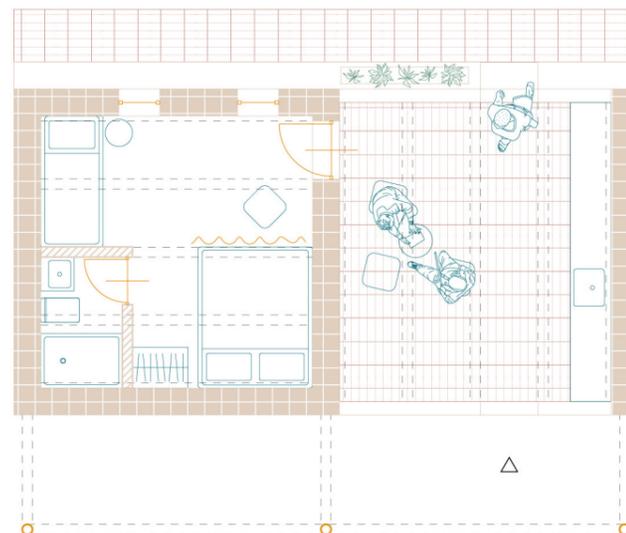
Basic Unit with mezzanine
44 m²

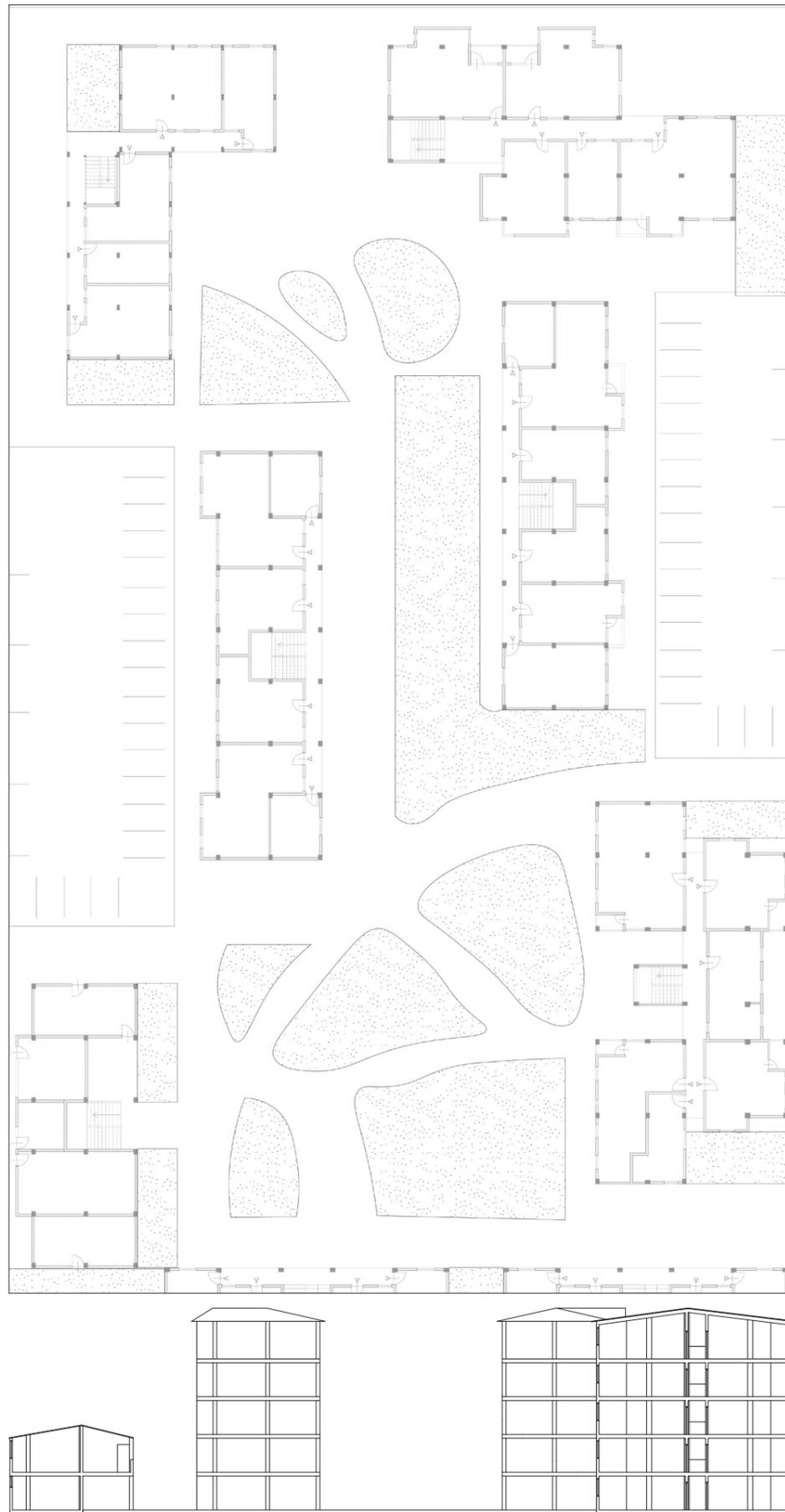


Basic Unit + 2
64m²(+25)



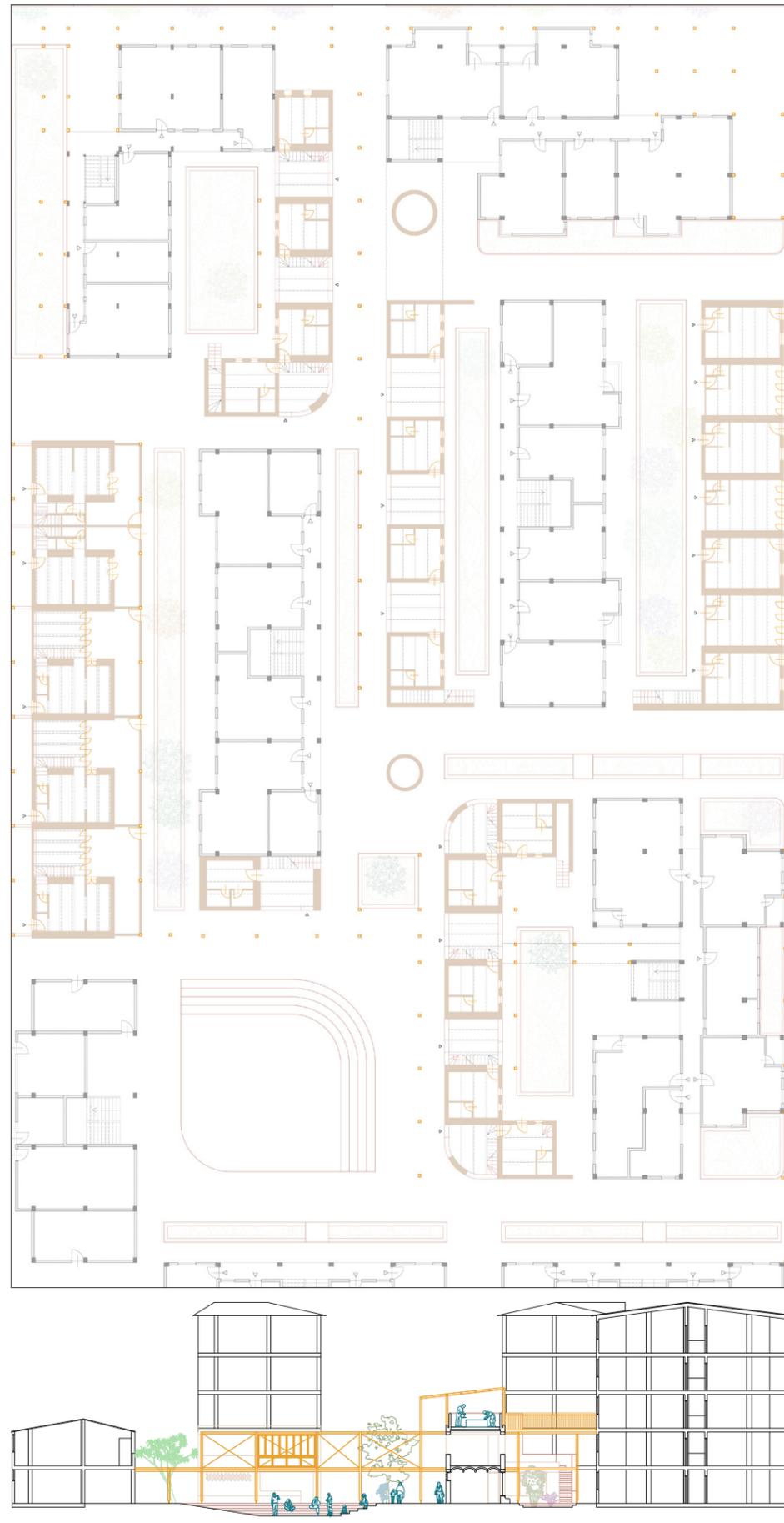
Basic Unit
32m²





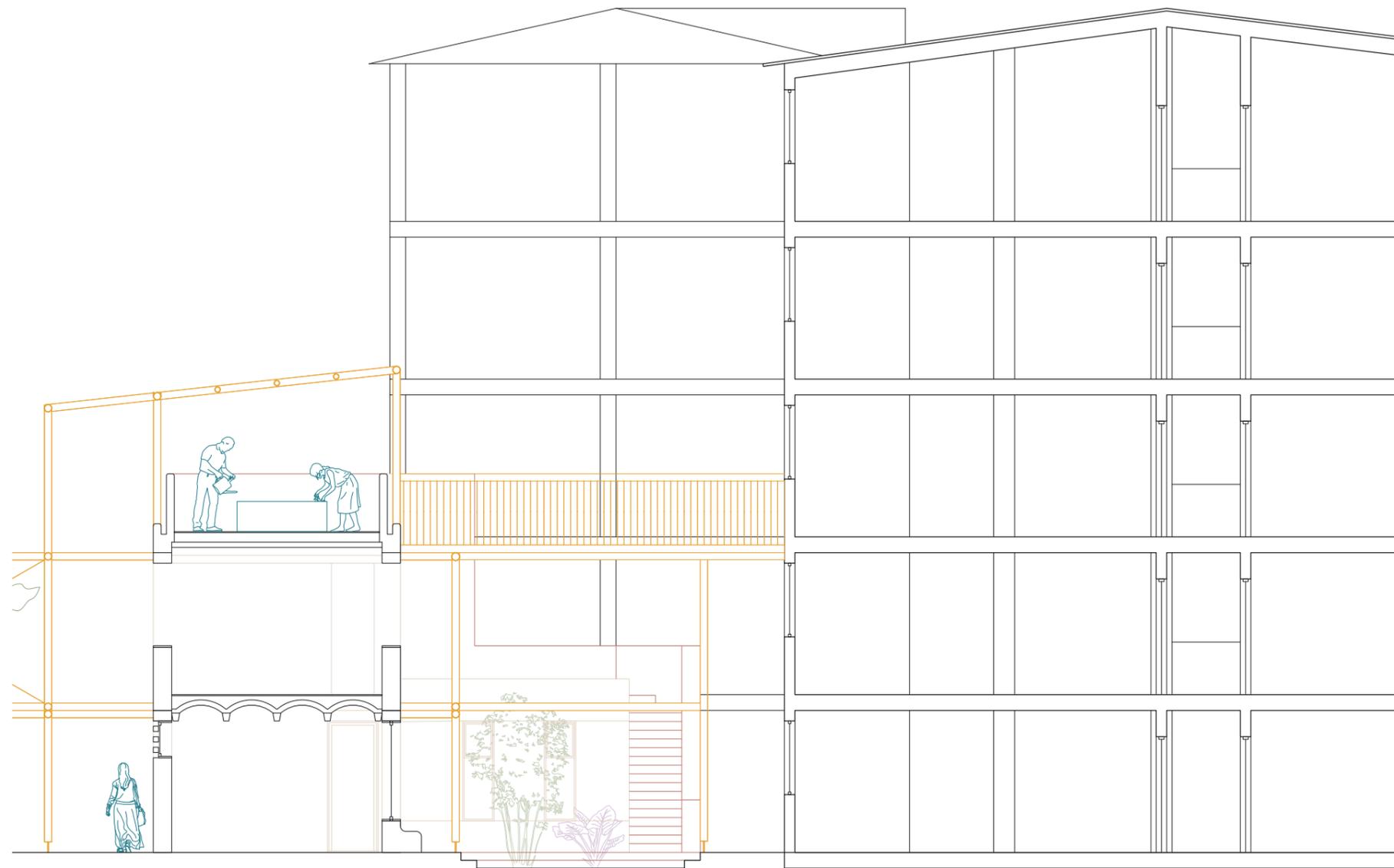
Inner Courtyard

**Re-defined
Inner Courtyard(s)**

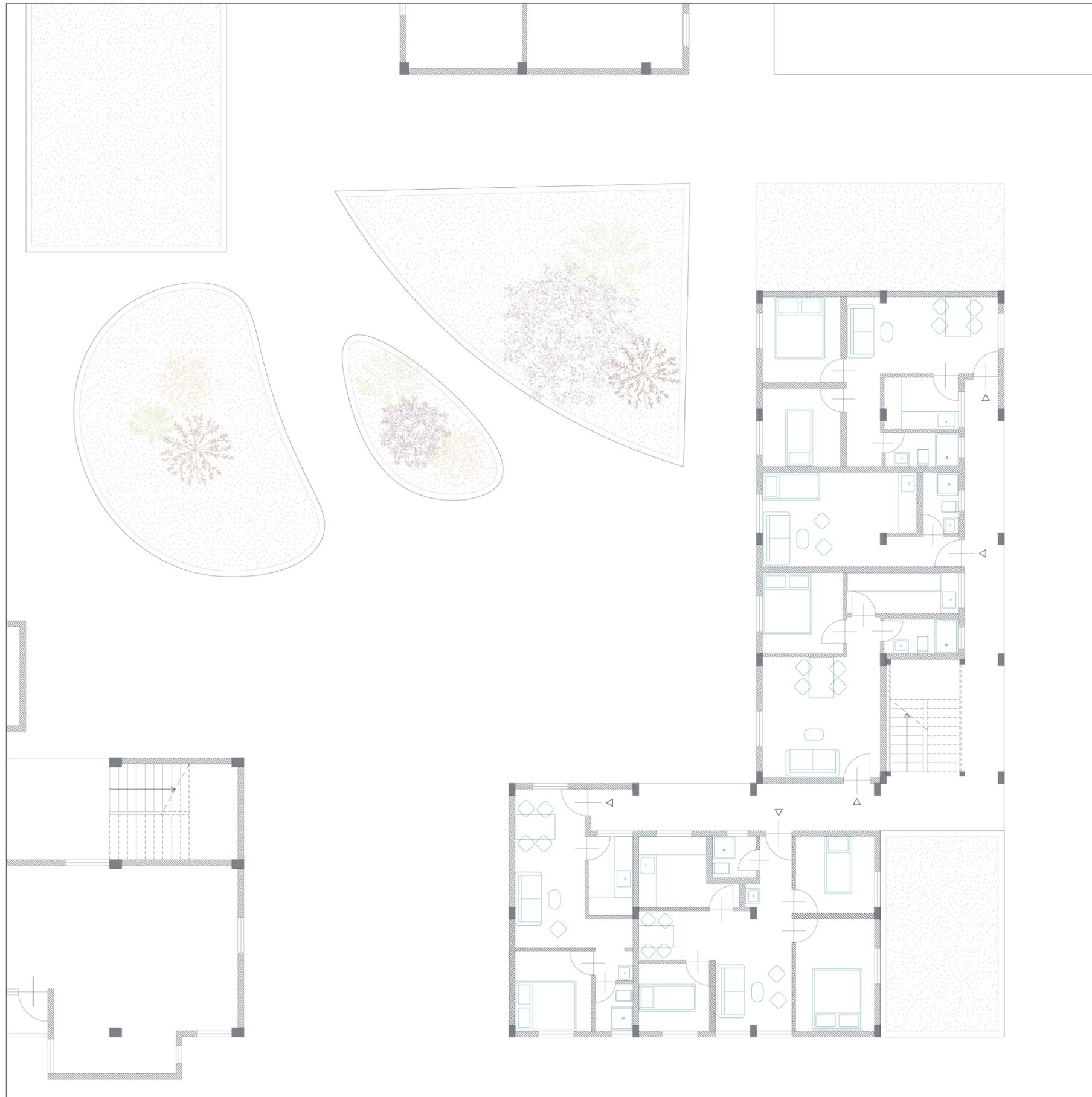




Collective Plaza



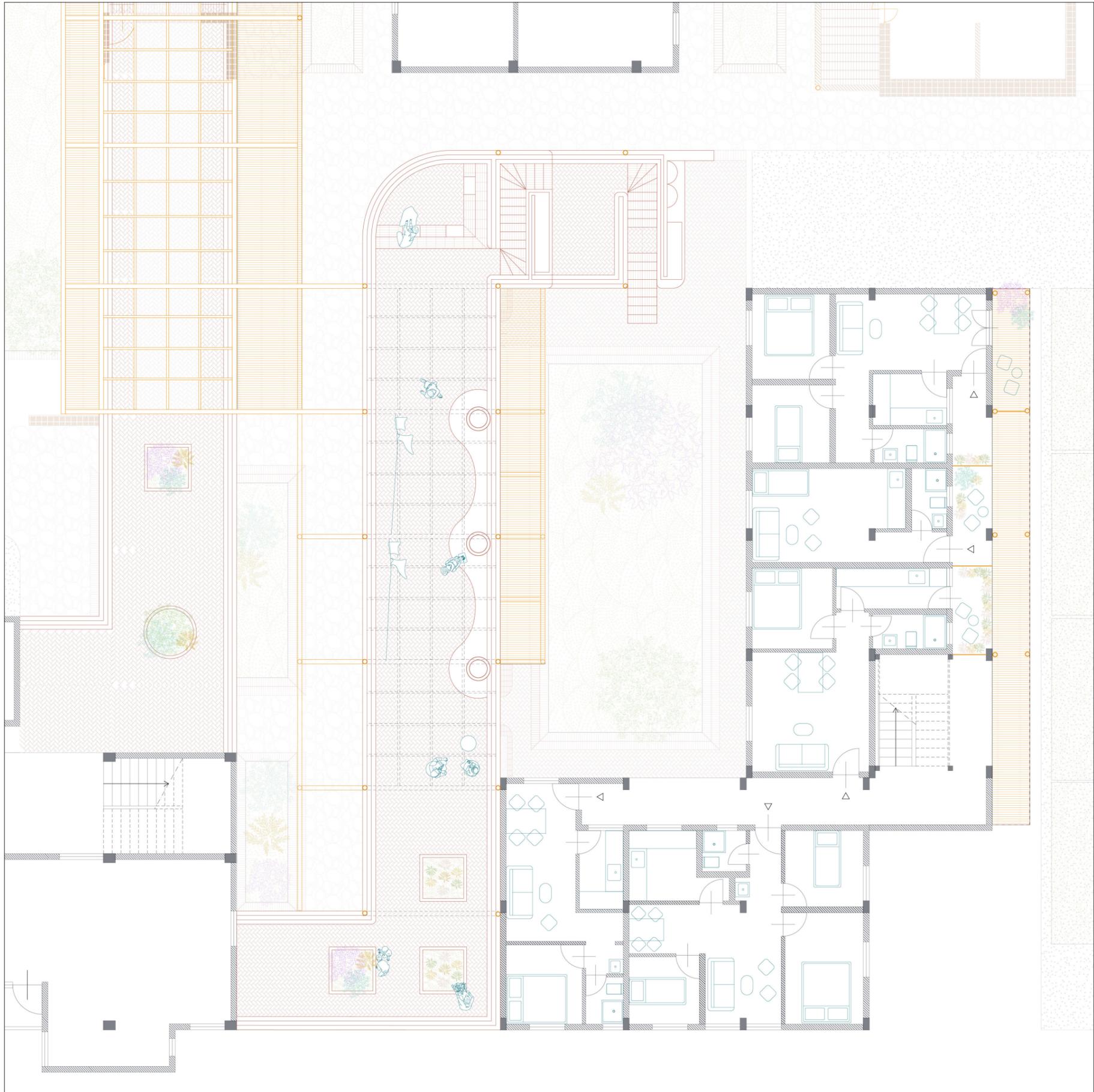
Shared Courtyard



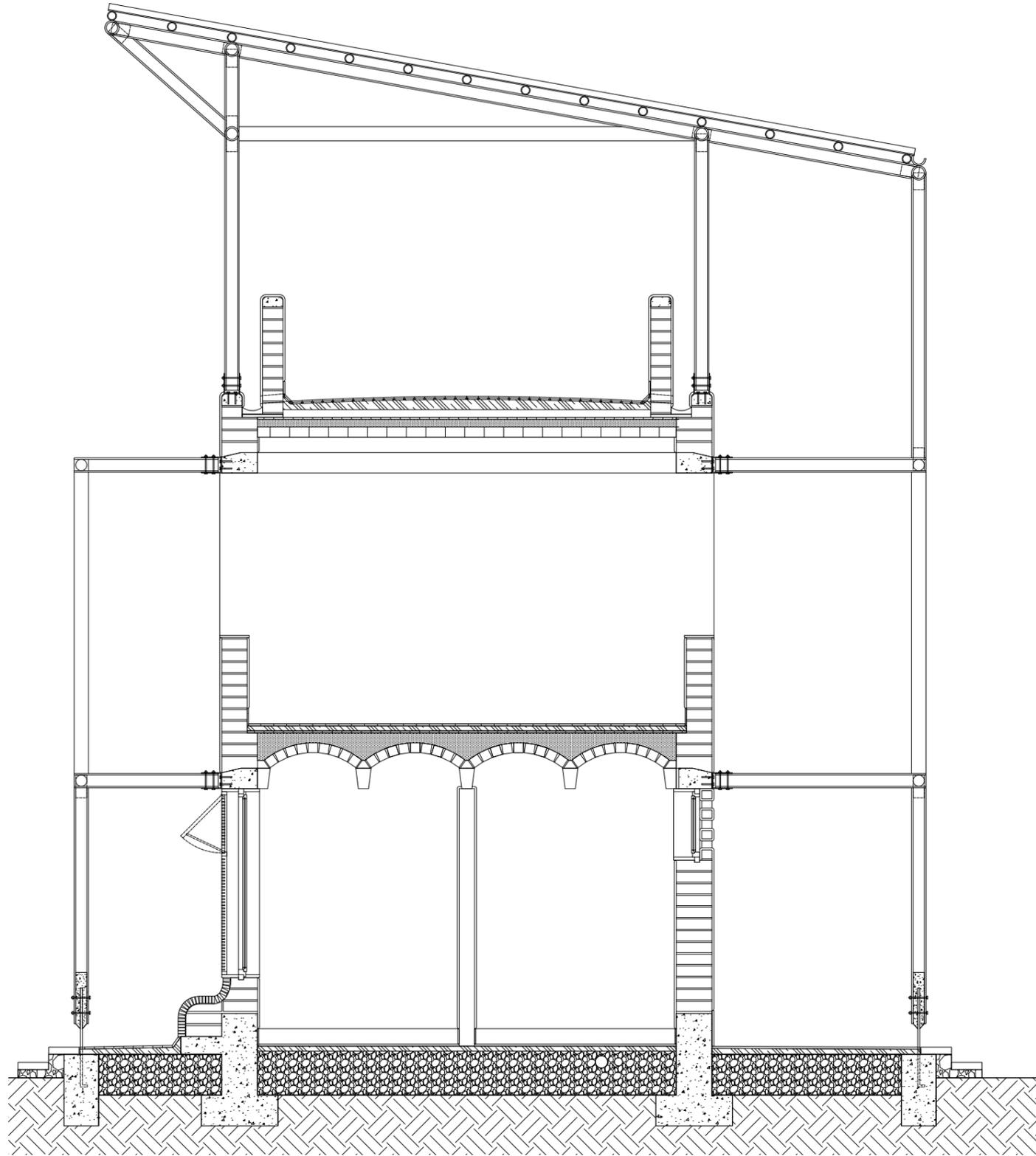
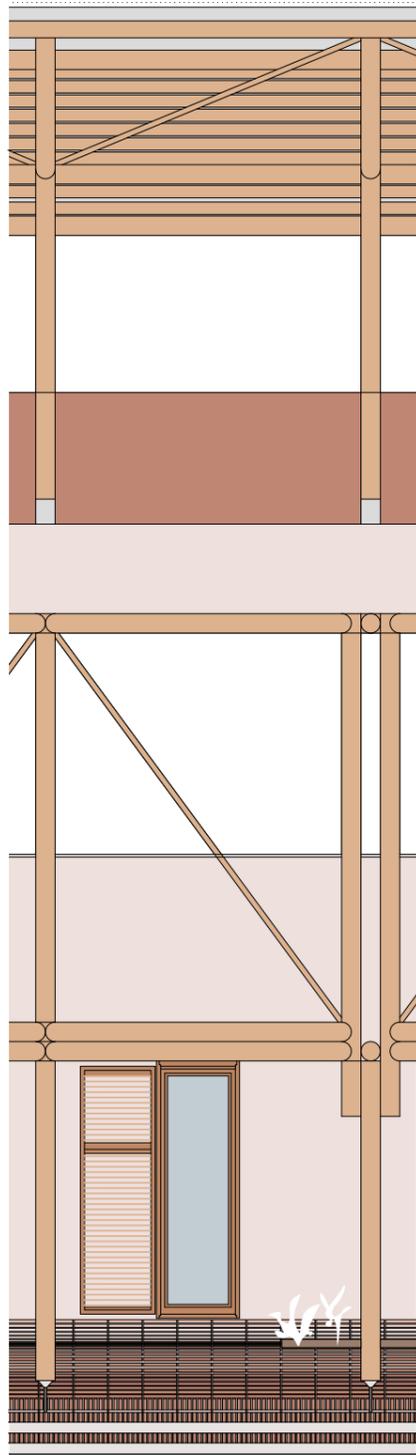
Inner Courtyard



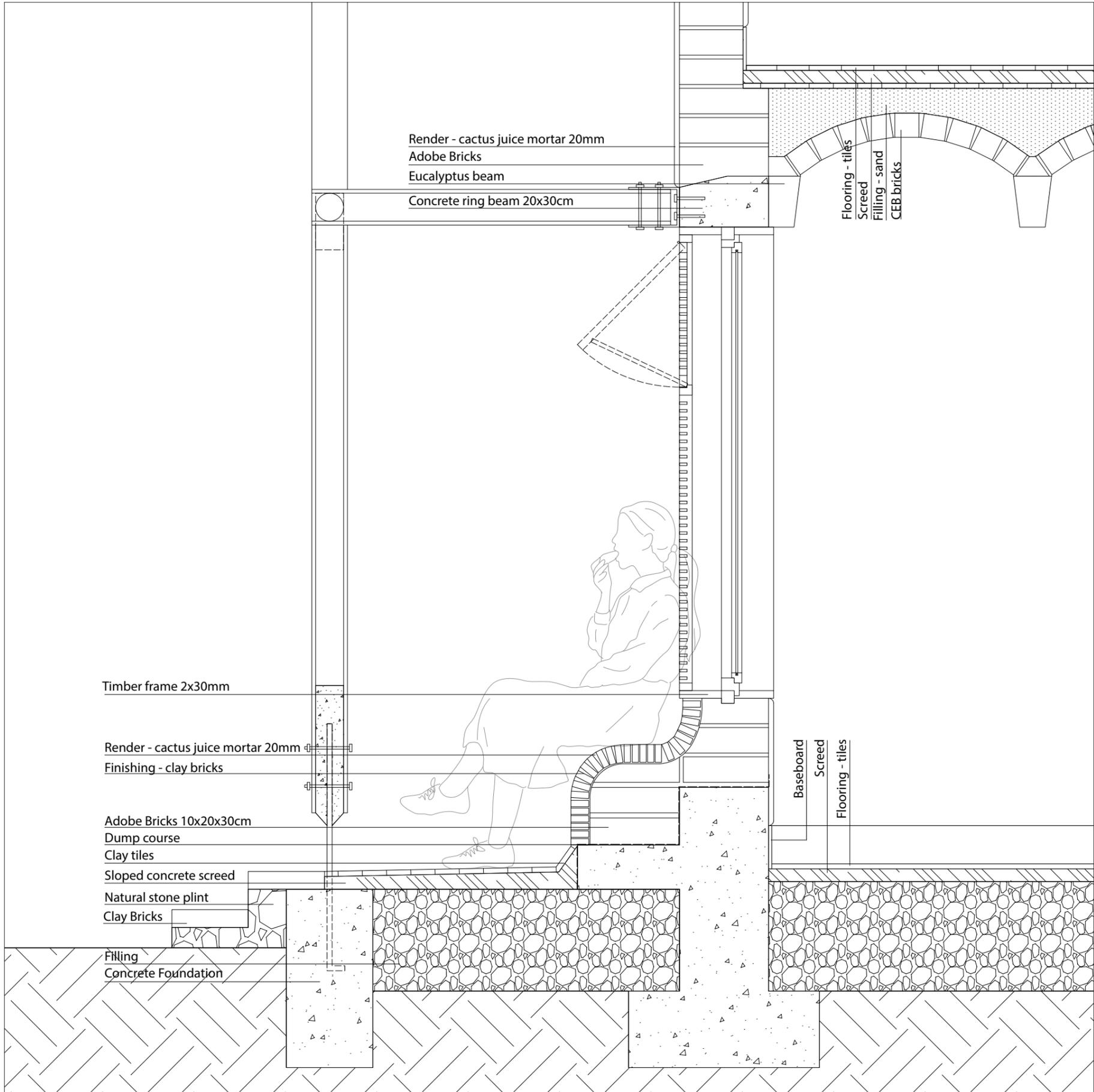
**Re-defined
Inner Courtyard**



Activated Roof



Section Adaptation



Render - cactus juice mortar 20mm
 Adobe Bricks
 Eucalyptus beam
 Concrete ring beam 20x30cm

Flooring - tiles
 Screed
 Filling - sand
 CEB bricks

Timber frame 2x30mm

Render - cactus juice mortar 20mm
 Finishing - clay bricks

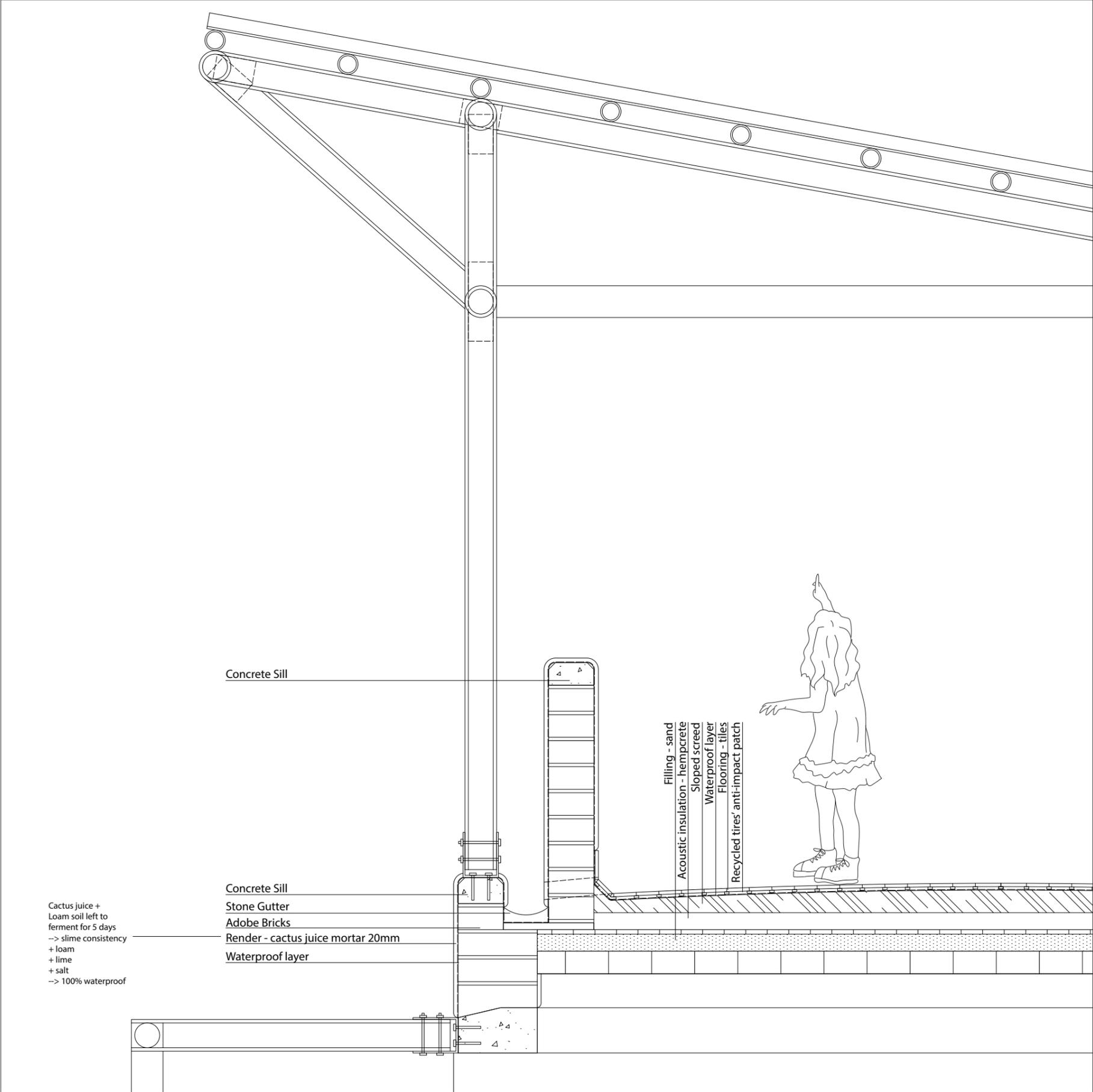
Adobe Bricks 10x20x30cm
 Dump course
 Clay tiles
 Sloped concrete screed

Natural stone plint
 Clay Bricks

Filling
 Concrete Foundation

Baseboard
 Screed
 Flooring - tiles

The Bench



Concrete Sill

Filling - sand
 Acoustic insulation - hempcrete
 Sloped screed
 Waterproof layer
 Flooring - tiles
 Recycled tires' anti-impact patch

Concrete Sill
 Stone Gutter
 Adobe Bricks
 Render - cactus juice mortar 20mm
 Waterproof layer

Cactus juice +
 Loam soil left to
 ferment for 5 days
 -> slime consistency
 + loam
 + lime
 + salt
 -> 100% waterproof

Collective Roof

Sequence of Spaces



Bordering Spaces
Street-scapes



Places of Exchange
Market Street



Places of Exchange
Pedestrian Street



Places of Aggregation
Collective Plaza



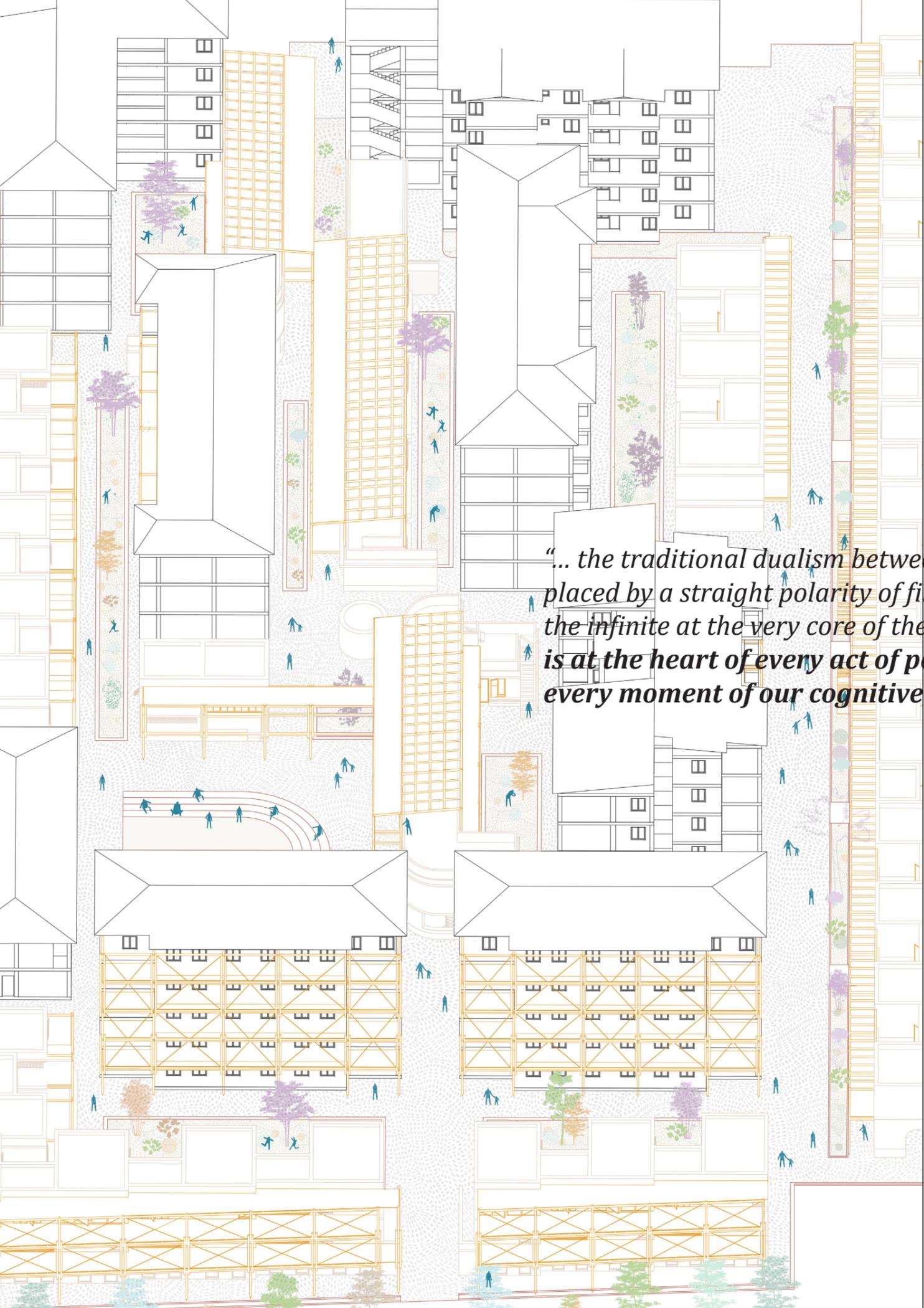
Places of Aggregation
Shared Courtyard



Places of Aggregation
Shared Courtyard

*“... the traditional dualism between being and appearance is replaced by a straight polarity of finite and infinite, which locates the infinite at the very core of the finite. This sort of **“openness”** is at the heart of every act of perception. It characterizes every moment of our cognitive experience.”*

Umberto Eco, Opera Aperta



*“... the traditional dualism between being and appearance is replaced by a straight polarity of finite and infinite, which locates the infinite at the very core of the finite. This sort of **“openness”** is at the heart of every act of perception. It characterizes every moment of our cognitive experience.”*

Umberto Eco, Opera Aperta

