Back to the ground life

Reconsidering the shift of living conditions for urban poor
during the chawl redevelopment in Mumbai

Mixing Mumbai_ Global Housing Studio

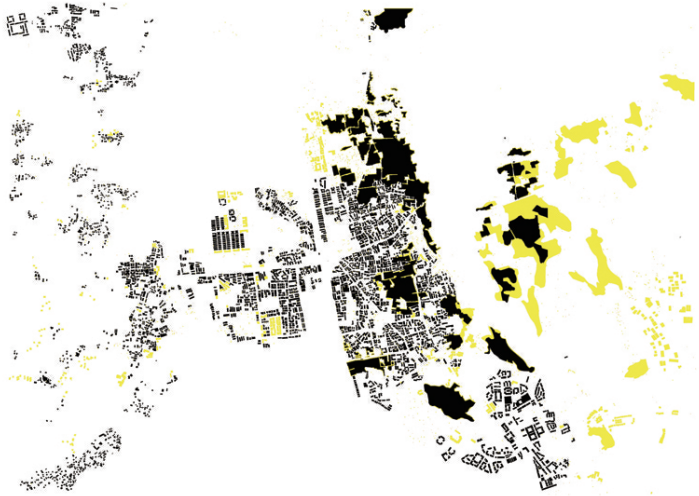
Sijia Wang 4729129

India

Mumbai

Nalasopara

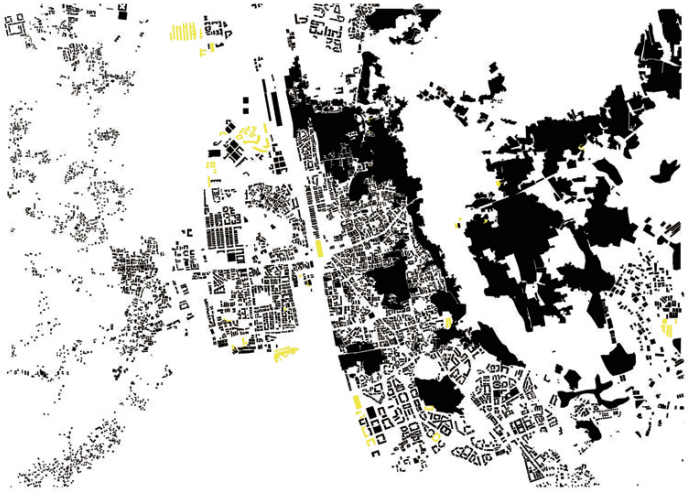
Development in Nalasopara



2005

2009

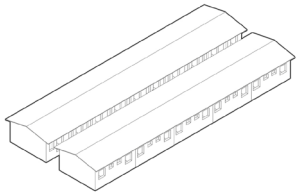
2013



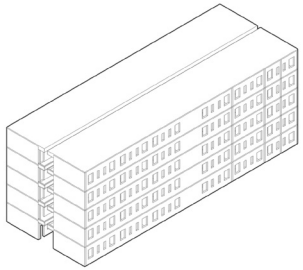
2017

Existing buildings&slums
New buildings&slums

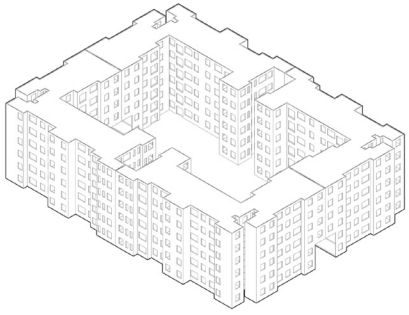
Different housing types in Nalasopara



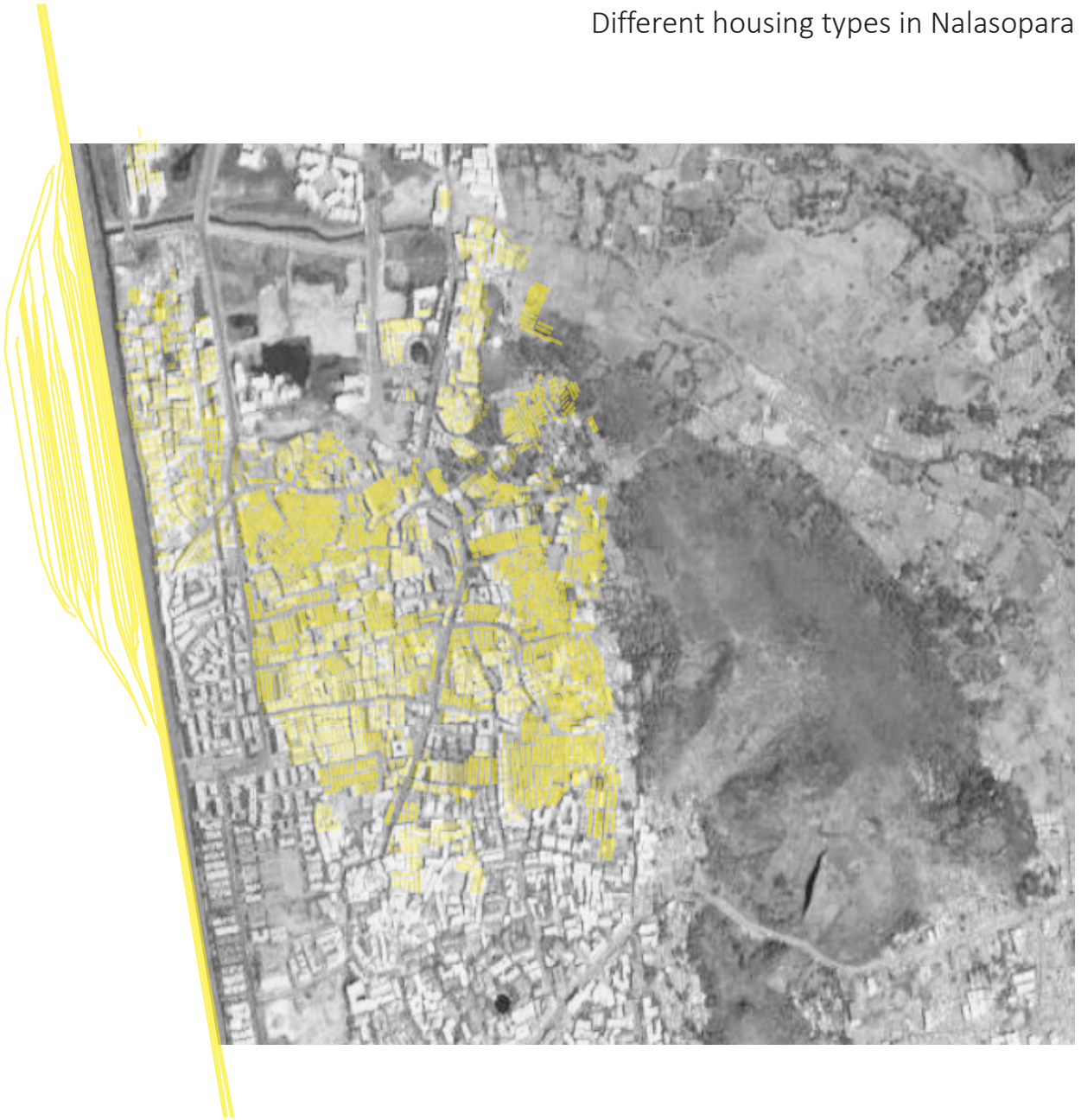
Baithi Chawl



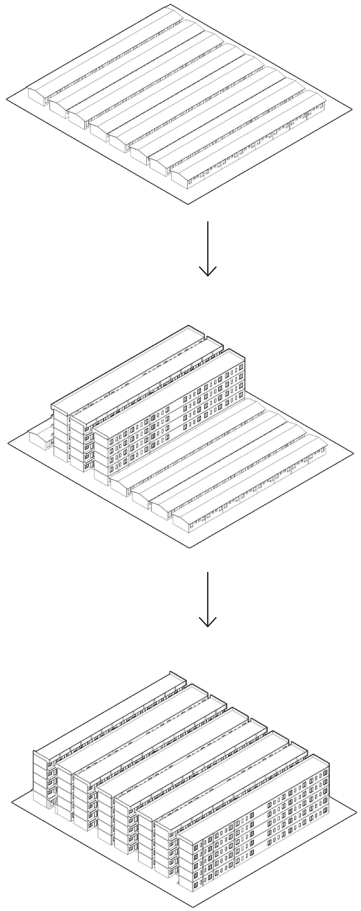
Mid-rise Chawl



Apartment



Redevelopment of Baithi chawls in Nalasopara East



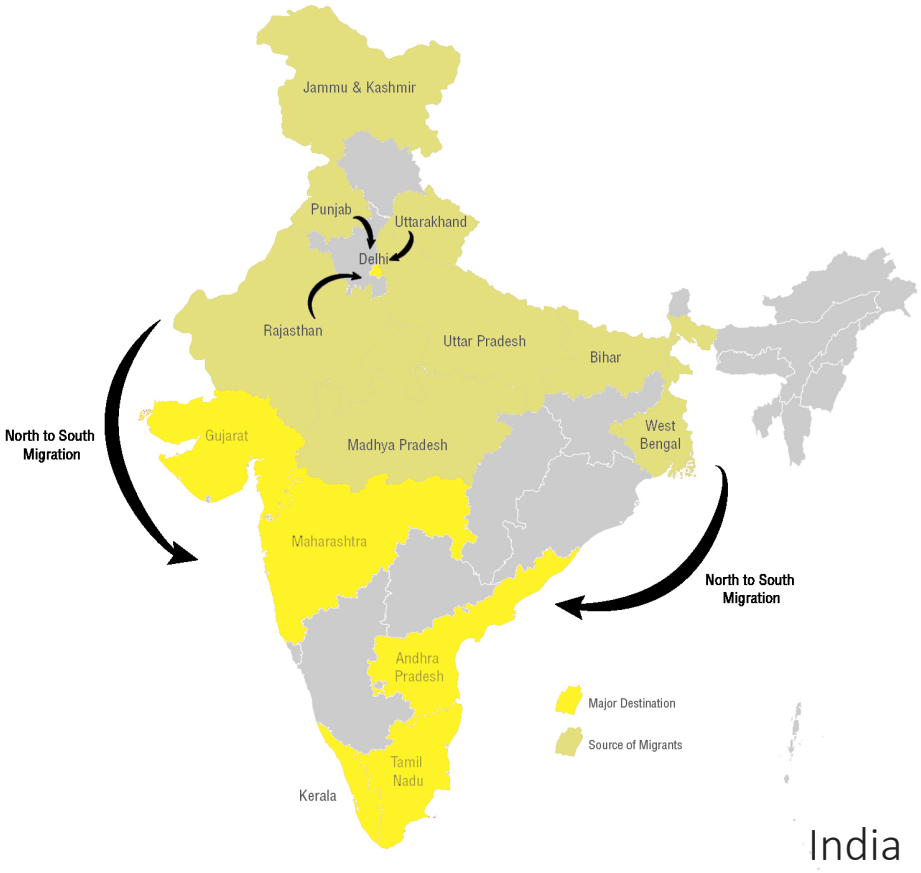
illegal private developers build with
70% agreement from residents

Typical street view of the mid-rise chawls

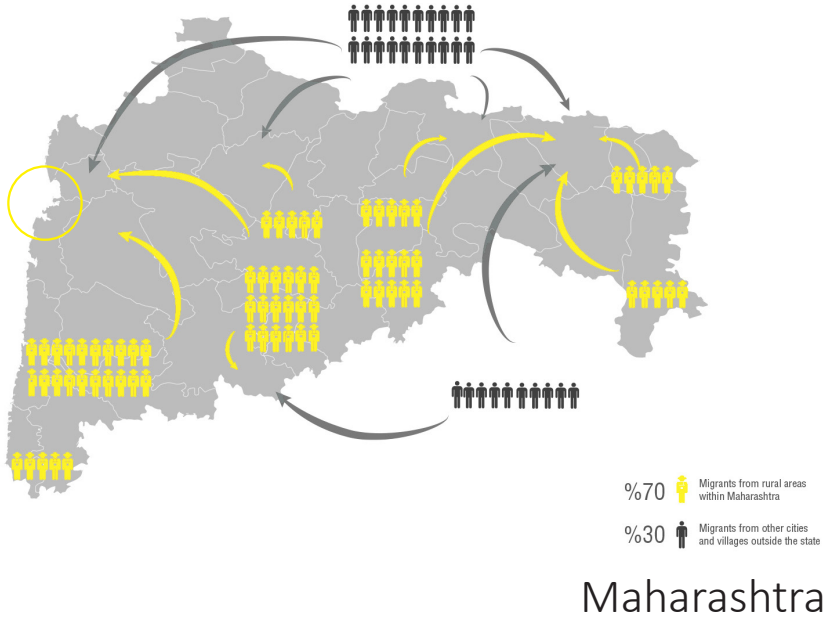
Problem Statement

Thinking in a larger scale,
looking at residents in these cramped mid-rise chawls, or high-rise apartments, most of them are rural imgrants outside Mumbai. What is the dilemma they are facing right now?

Migrantion in Maharashtra,India

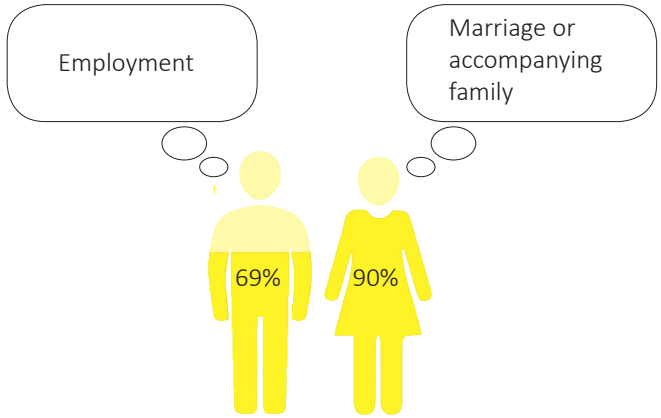


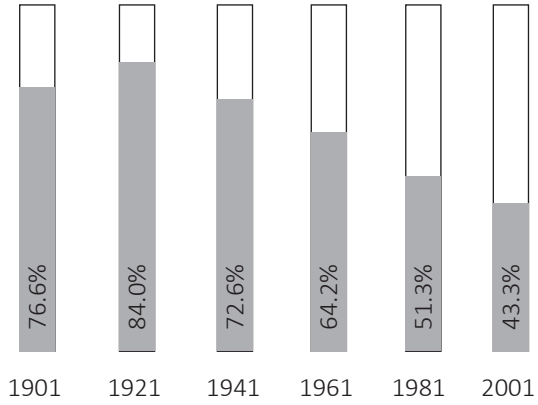
Major Destinations & Sources of Internal Migration in India



Migration within and into Maharashtra

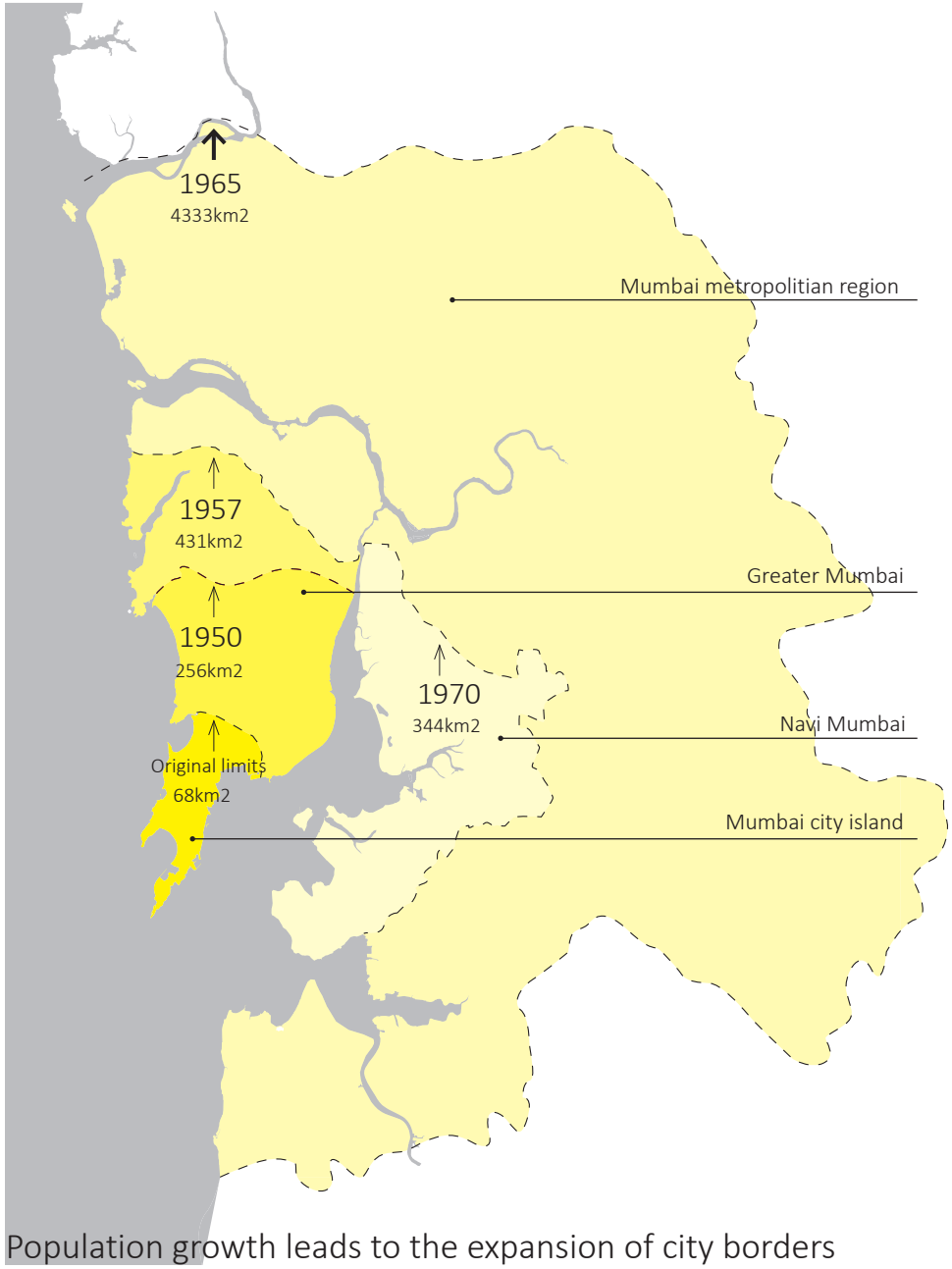
Migrantion in Mumbai





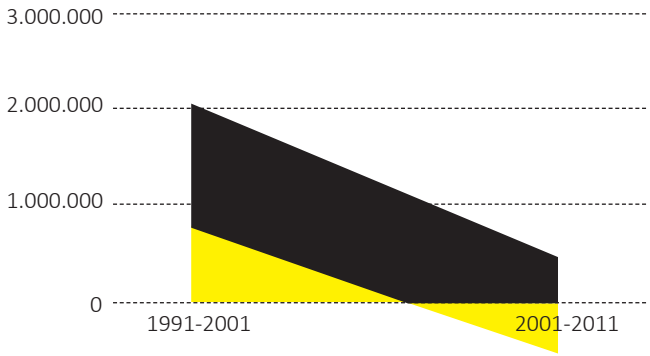
Migrants are defined based on place of birth.

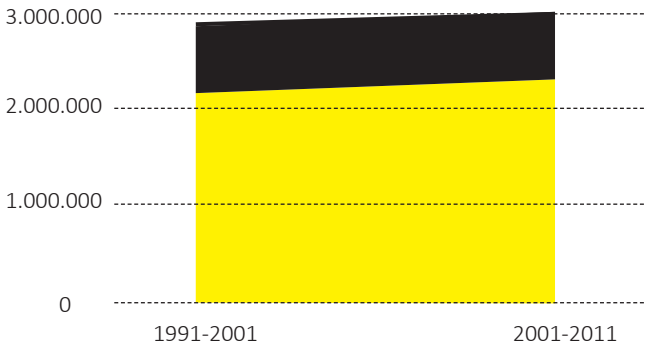
Percentage of Migrants in Mumbai UA



Population growth leads to the expansion of city borders

Outmigrantion within Mumbai

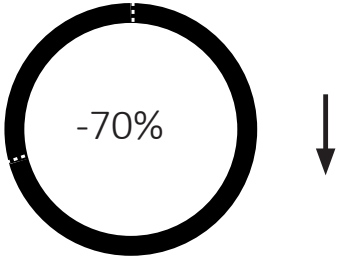




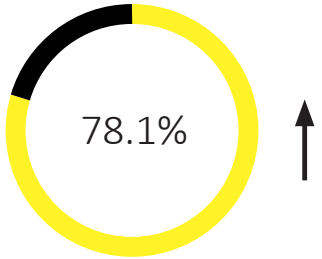
Whole population increase

Migrant population increase

Size of immigrant population increase



Mumbai island



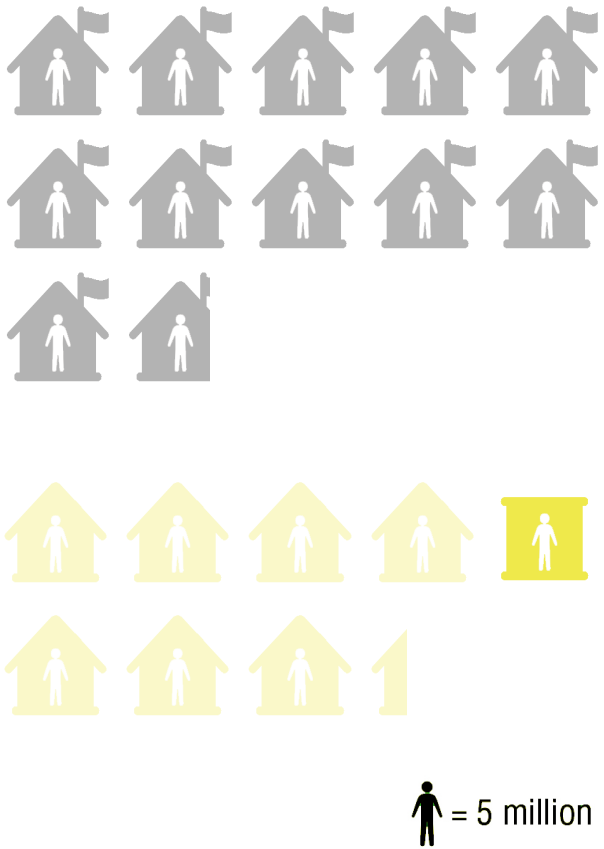
Mumbai suburb

Contribution of migrantion in whole population increase

Living conditons for migrants

Population live in formal settlements

Population live in informal settlements



Living conditions in Greater Mumbai

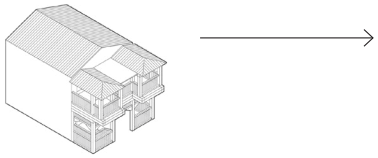
First and second generation migrants, mostly from Maharashtra.

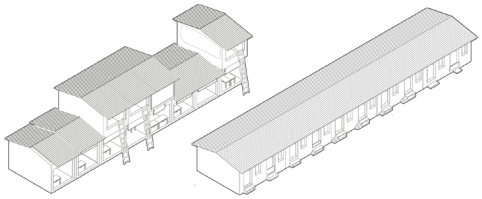
The economical resaon for migration, to find a job.

Most are wages workers in small factories or are daily wage workers, many face job insecurity.

About 85% of households report that they 'own' their dwelling even though many do not hold a title.

Change of living conditions





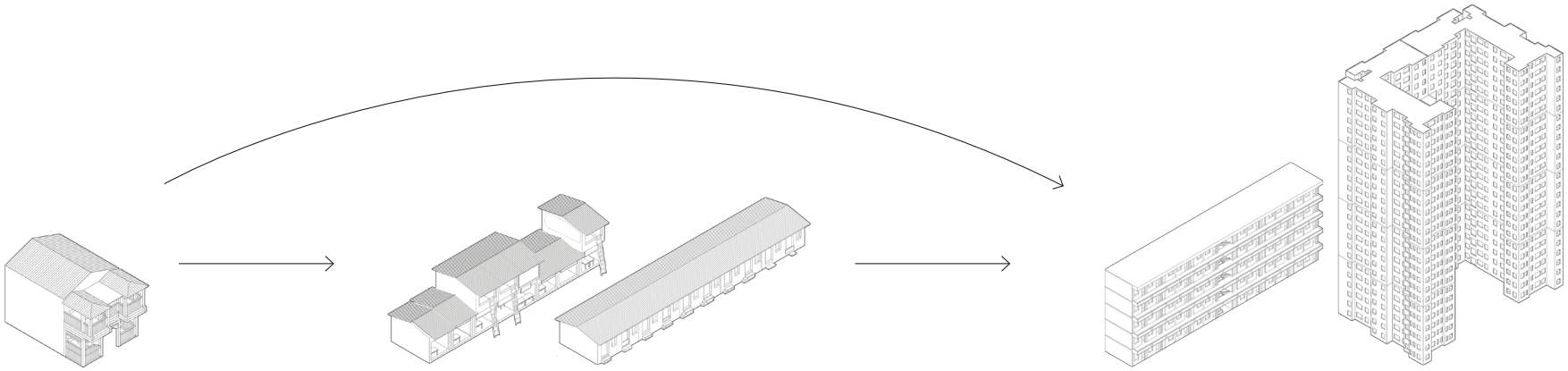
Bungalow

Village

Chawls, slums or homeless

Informal settlement

Change of living conditions



Bungalow

Village

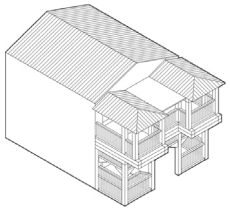
Chawls, slums or homeless

Informal settlement

Mid-rise chawl or high-rise apartment

Future ?

Village Life



Bungalow

Strong social network

Less income

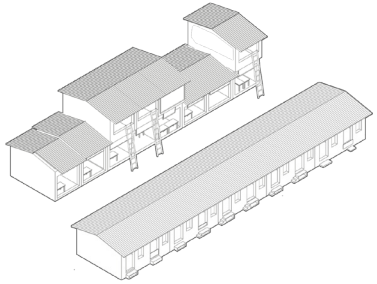
Accessible to street and all public space

Front door space, large indoor space, with courtyard

Self-built housing, free for extension

Village in Nalasopara

Urban Life



Slum or Baithi chawl

Strong social network

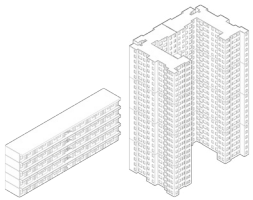
Housing is easier to be used to generate income

Accessible to street ~~and all public space~~

Front door space, ~~large indoor space, with courtyard~~

Self-built housing, ~~free for extension~~

Future Life



Handshake Chawl or high-rise apartment

Social segregation

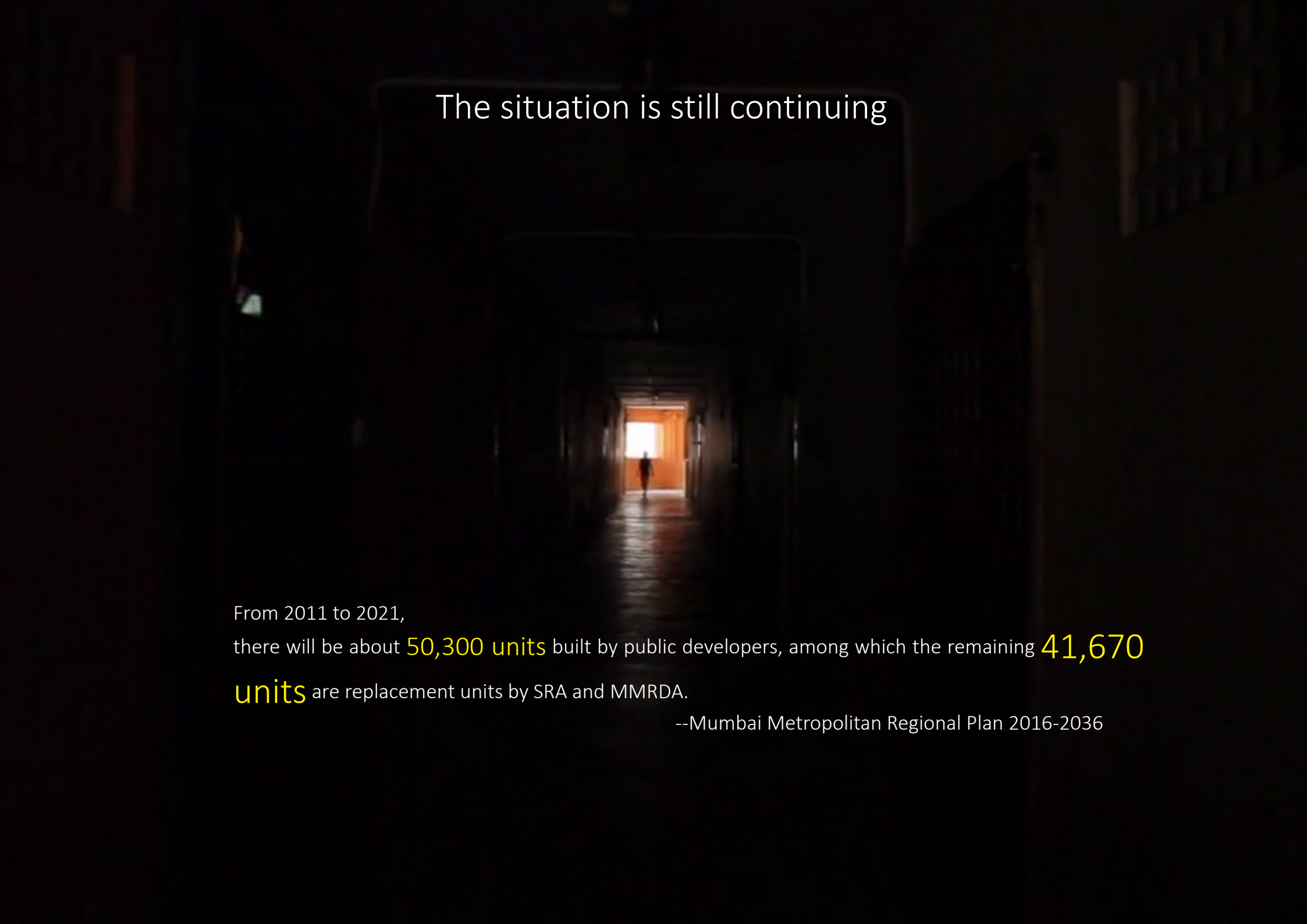
High maintenance fee for tax, lights, water,sanitation

Accessible to street ~~and all public space~~

Limited space

~~Self-built housing, free for extension~~

The situation is still continuing



From 2011 to 2021,

there will be about 50,300 units built by public developers, among which the remaining 41,670 units are replacement units by SRA and MMRDA.

--Mumbai Metropolitan Regional Plan 2016-2036

In an extent context

Support local and regional governments, in establishing frameworks that in establishing frameworks that enable the positive contribution of migrants to cities and **strengthened urban–rural linkages**.

--UN, New Urban Agenda (NUA)

"The first arrival-city function is the creation and maintenance of a network: **a web of human relationships connecting village to arrival city to established city."**

--Doug Saunders, Arrival City

Research question

How can a multi-story housing complex with a reasonable density,
establish a stronger connection to the ground life,
to improve the local living conditions of urban poor,
and simulate new possibilities for social interaction and income generation?

Sub-question

Urban level

1. What is the characteristic of ground life, and how to shape it?

Architecture level

2. How to establish strong connections between the upper floors and the ground?

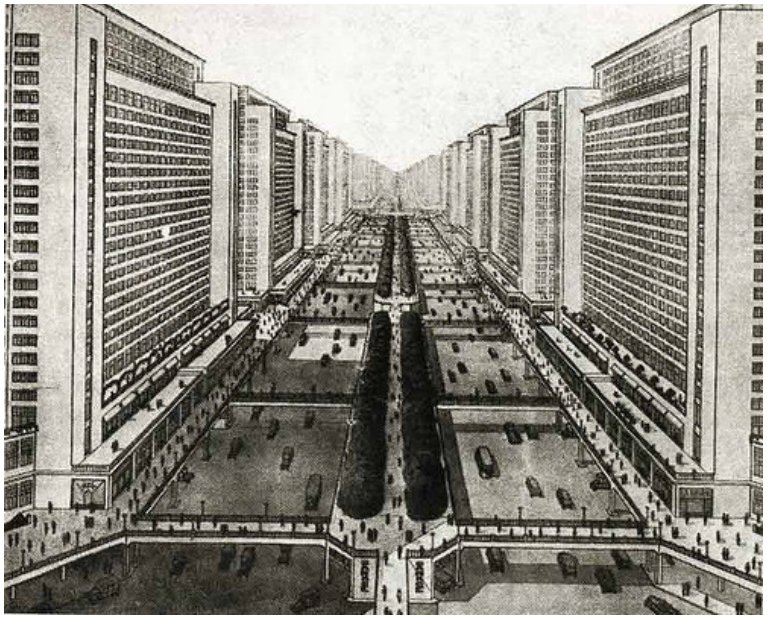
Domestic space level

3. How to leave more space within dwelling units?

Research

1. What is the characteristic of ground life?

Phenomenon: the open way of life



Plan Voisin

V.S.

Nehru Place

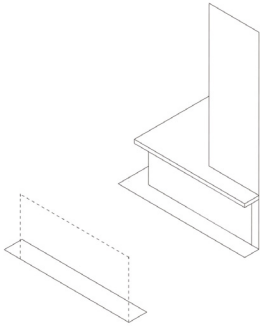
"You are under the shade of trees, vast lawns spread all round you. The air is clear and pure; there is hardly any noise ... For only 5-10 per cent of the surface area of its business centre is built over. That is why you find yourselves walking among spacious parks remote from the busy hum of the autostrada."

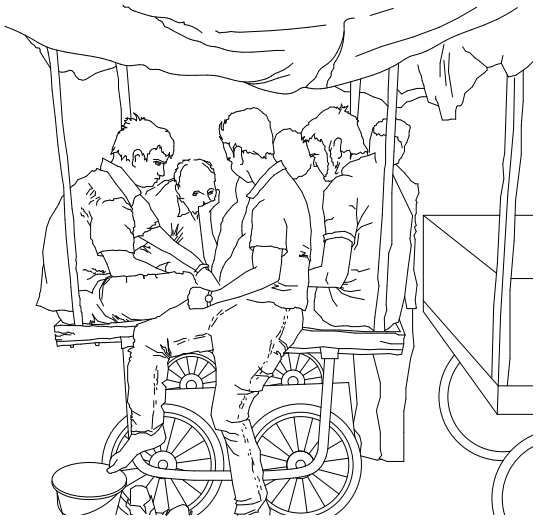
-- Le Corbusier, plan for Paris in the mid 1920's

"People mingle casually on this plateau... a very good food stand, for instance, is located outside the offices of a firm that has pulled off an IPO. Rather than lunch in an upmarket place, the sharp young men still hang out around this stand, eating off paper plates, gossiping with the stand's half-blind, motherly proprietor."

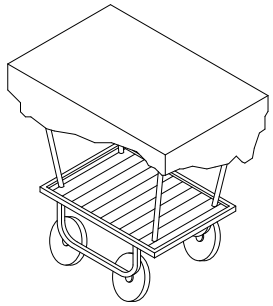
-- Richard sennett, Building and Dwelling

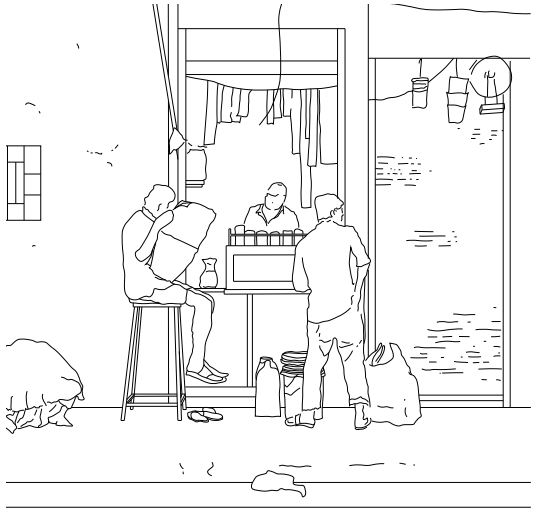
Activity: bargain in the market



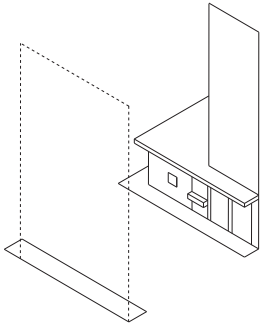


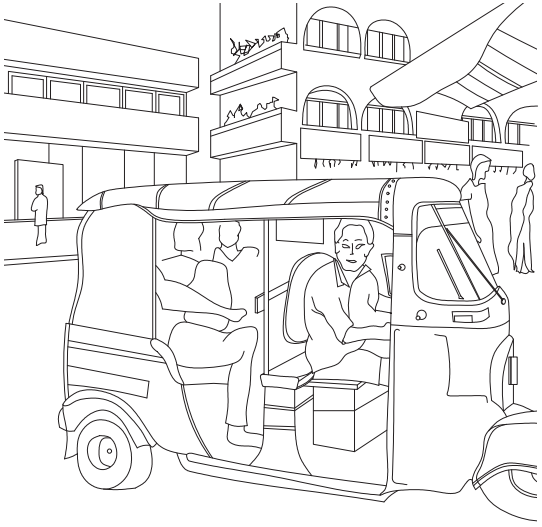
Activity: lunch in the shade



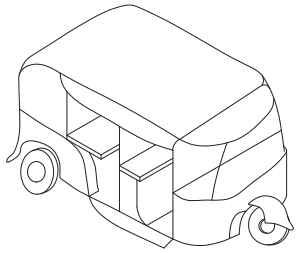


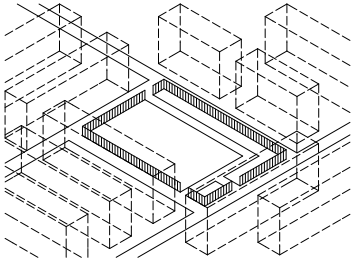
Activity: window chat



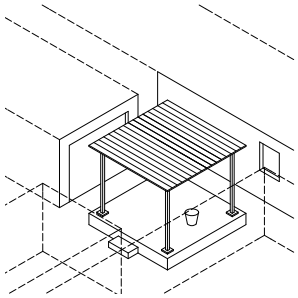


Activity: socialize on the go

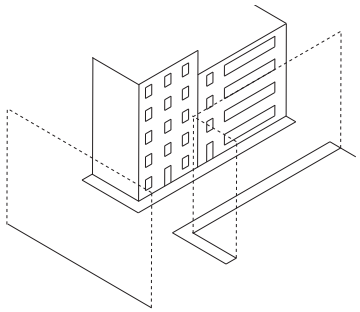




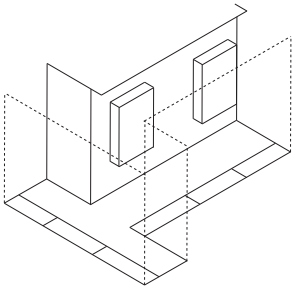
Activity: gully cricket



Activity: work in the multipurpose altar

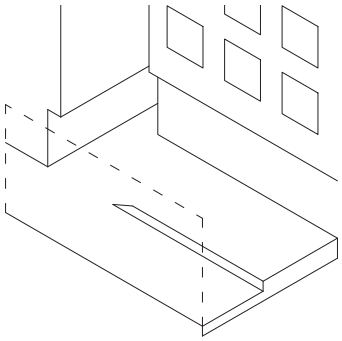


Activity: football

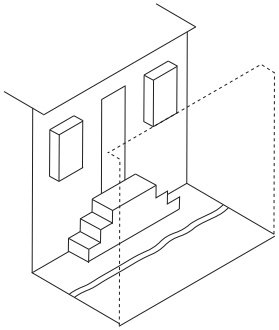


Activity: Productive intersection

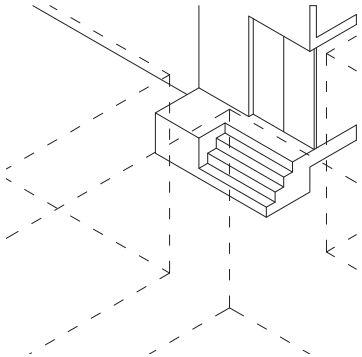
Activity: play in the exposive stroop



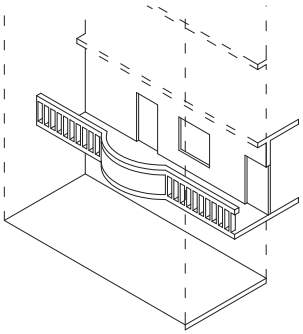
Activity: chatting in the alley



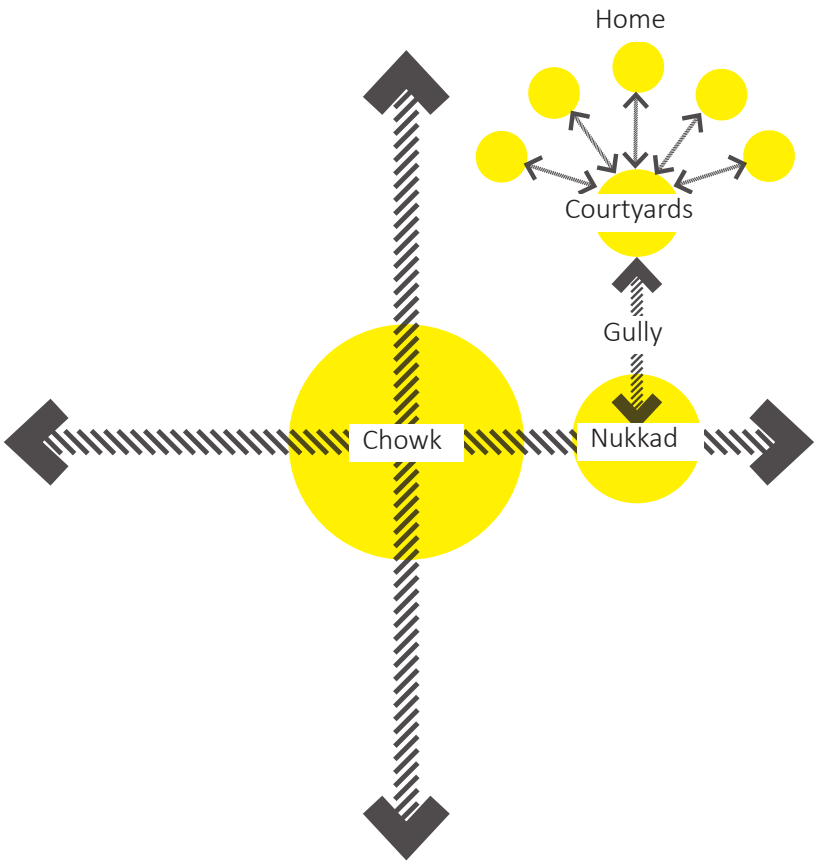
Activity: gossip at the corner



Activity: socialize in the corridor



Hierachial Spatial System



Courtyards: playground/ work space/parking

↓

Gully: shops/laundies/ flour-mills

↓

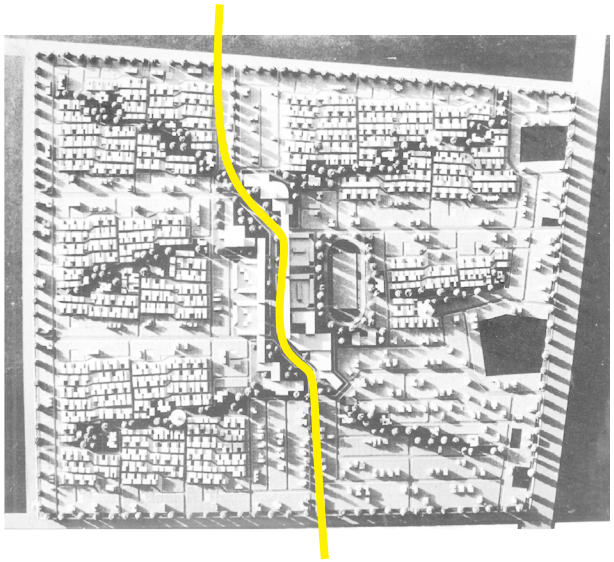
Nukkad: tea-stall/ newspaper stand/ sitout space

↓

Chowk: post office/ community center/ clinics

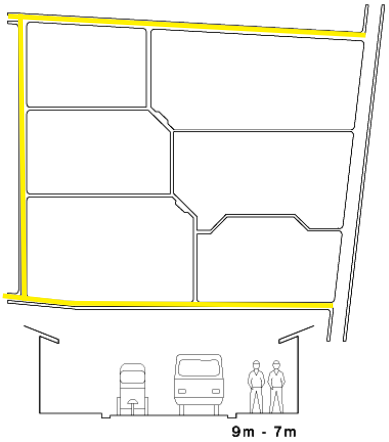
Exisiting social space in old chawls

case study 1

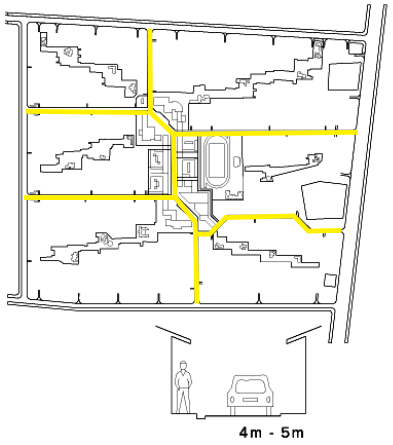


Aranya Group Housing

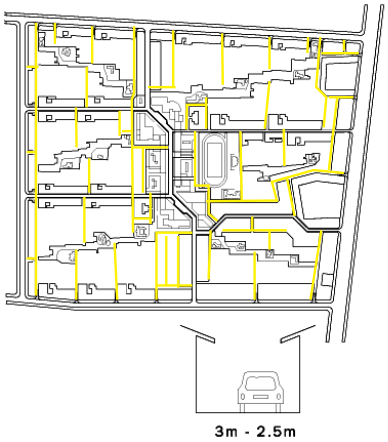
Year	1989
Floor	1-2
Site area	85 HA
No.of dwellings	6500 plots/6 sector
Population	60,000
Units/HA	141



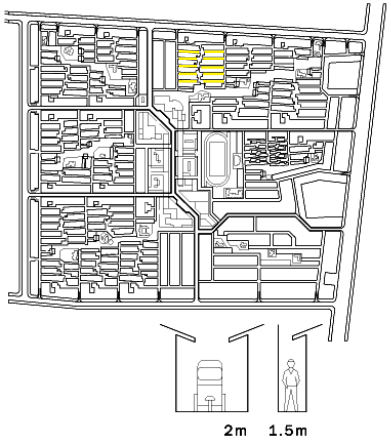
Outer streets



Main streets



Narrow streets

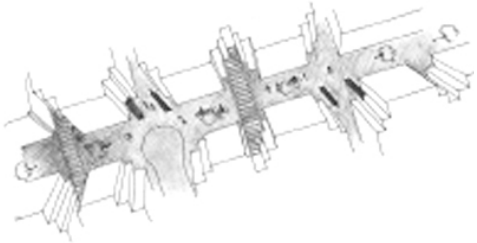


Narrow alleys between plots

case study 2

Sangharsh Nagar

Year	2002-now
Floor	8
Site area	34 HA
No.of dwellings	
Population	100,000
Units/HA	735



Pedestrian road

Street with self-built shops

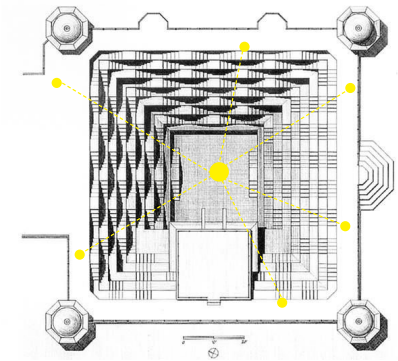
Entrance

Commercialized entranace

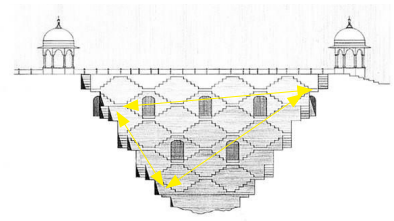
Interlocked courtyard

Courtyard

2. How to establish connections between the upper floors and ground?



Accessible from all direction



Multi-levels of looking

Chand Baori – Jaipur, India

3.How to create ground life within dwelling units?

Multi-funtional space
--front door alley

Socializing

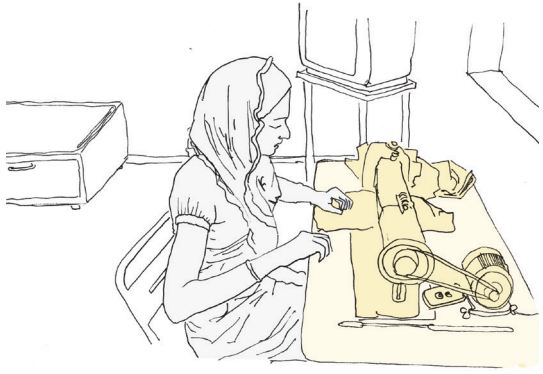
Preparing food

Dry washing

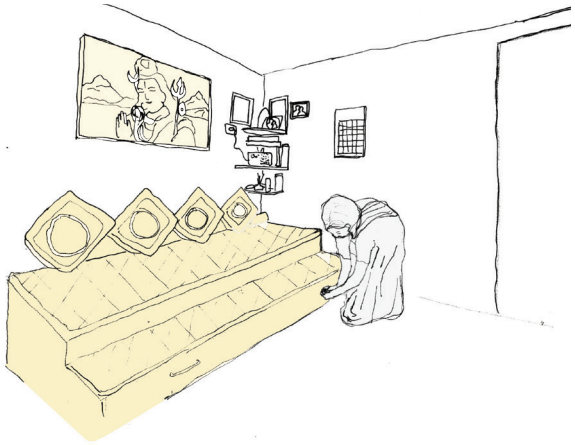
Storage

Eating together

Watching TV

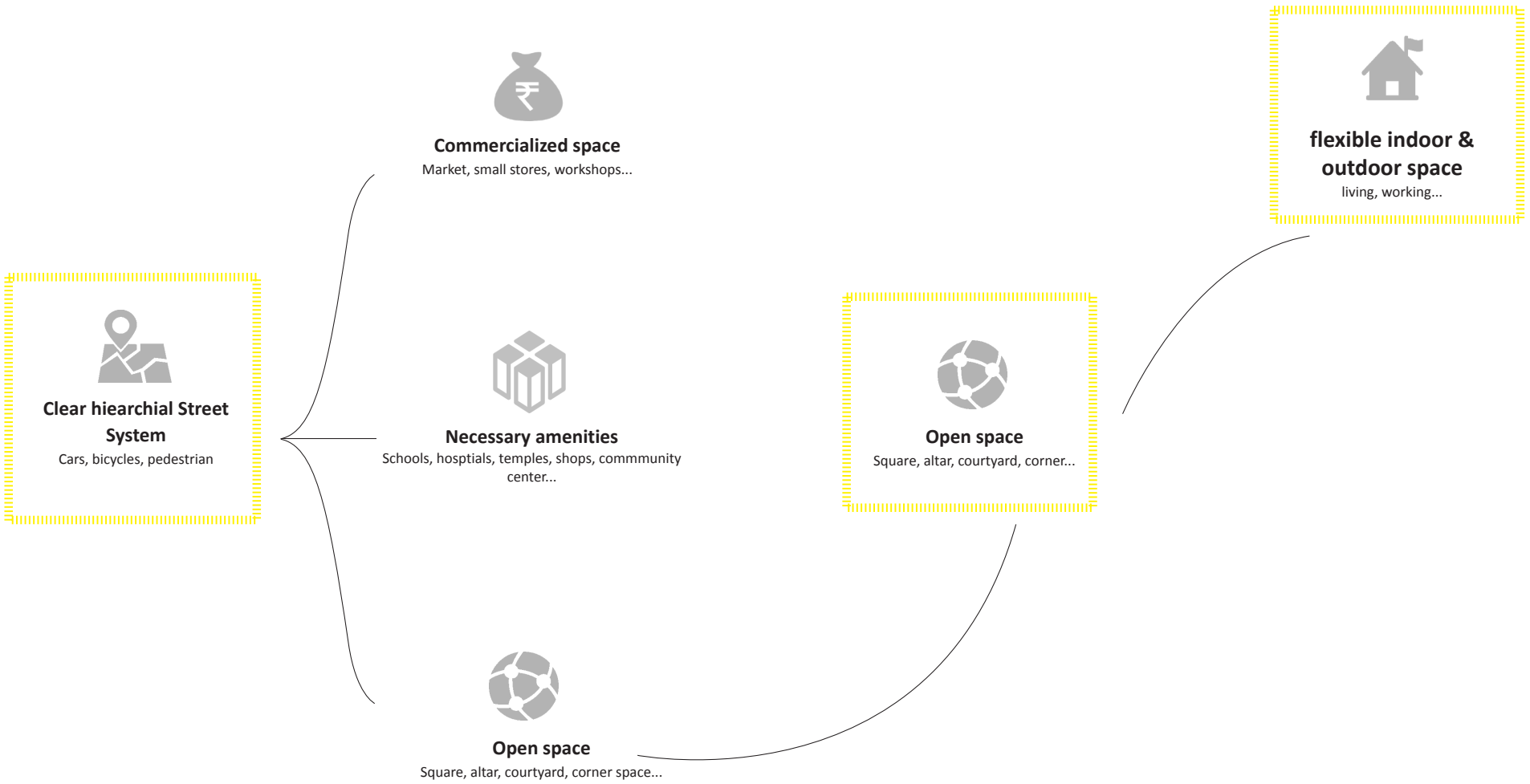


Working at home



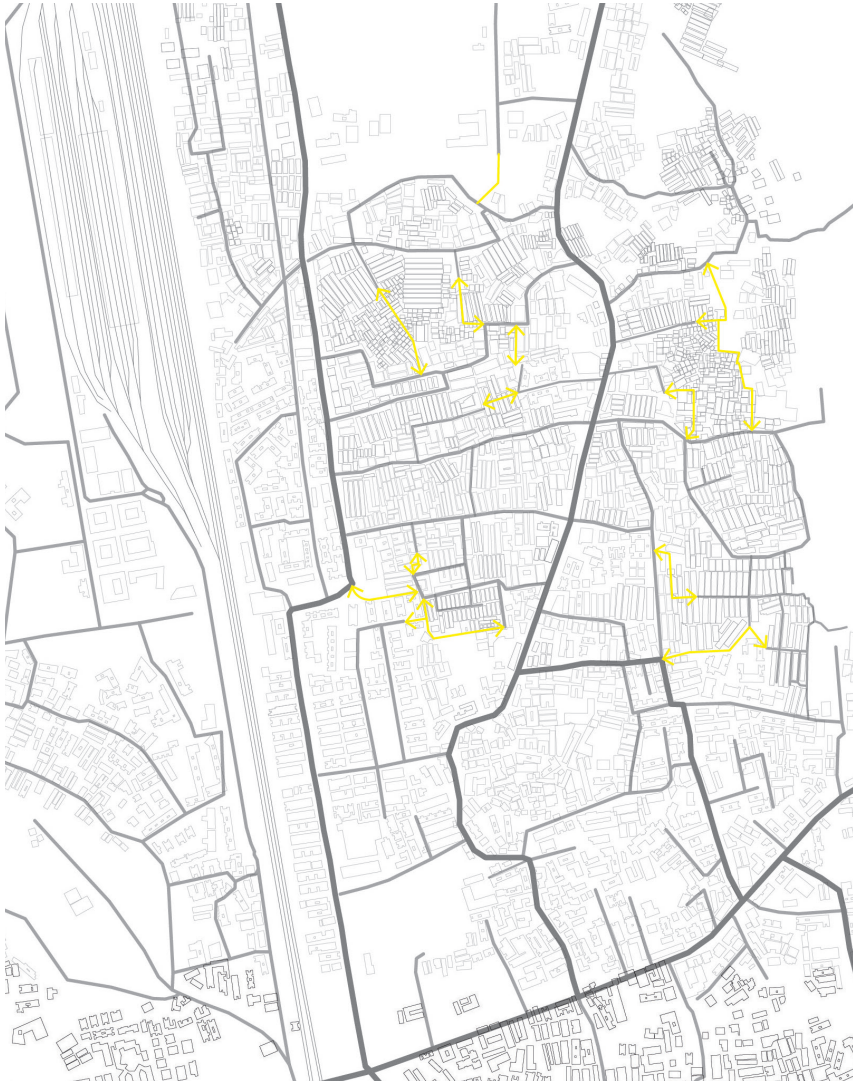
Sleeping at night

Summary


Commercialized space
Market, small stores, workshops...
flexible indoor & outdoor space
living, working...
Clear hiearchial Street System
Cars, bicycles, pedestrian
Necessary amenities
Schools, hosptials, temples, shops, commmunity center...
Open space
Square, altar, courtyard, corner...
Open space
Square, altar, courtyard, corner space...
Urban level
Communal level
Domestic level

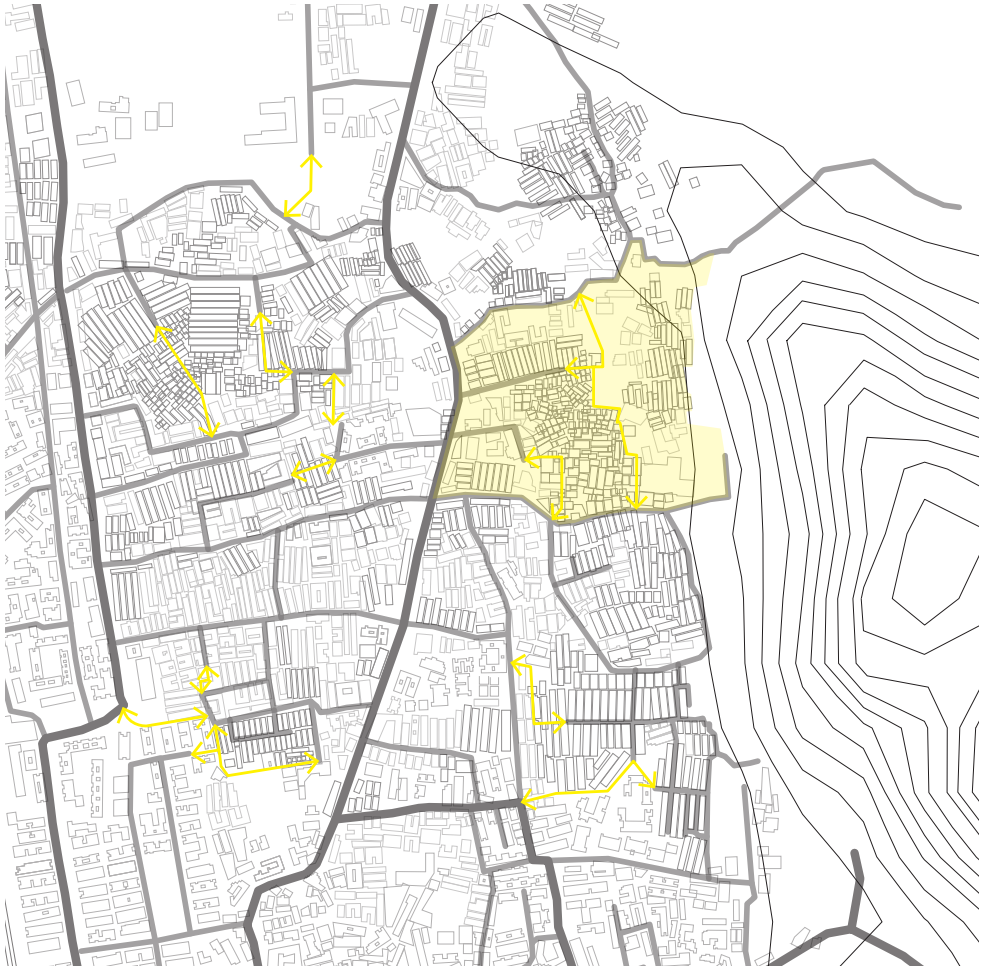
Urban strategy

Problem: Dead ends in tertiary roads



Urban strategy: connect dead ends in tertiary roads

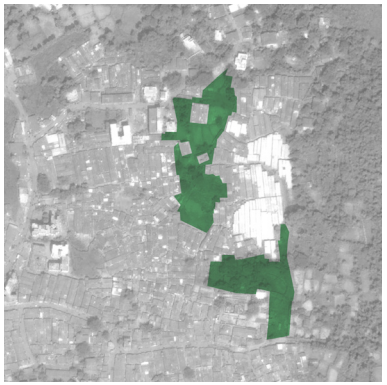
Urban Scale



Site location

Site Selection

2002

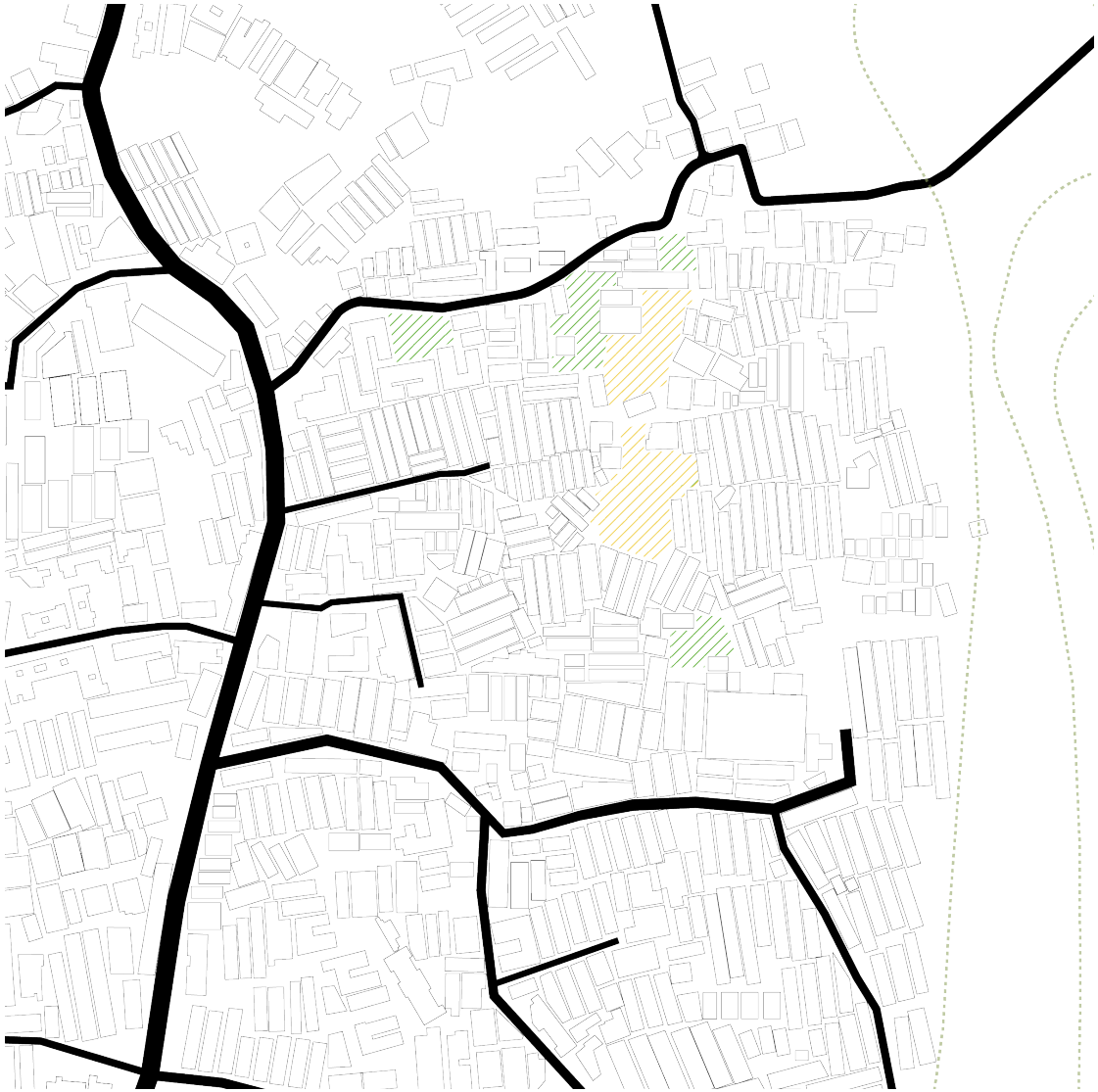


2006

2009

2013

Urban Scale



Existing dead end roads with unused space

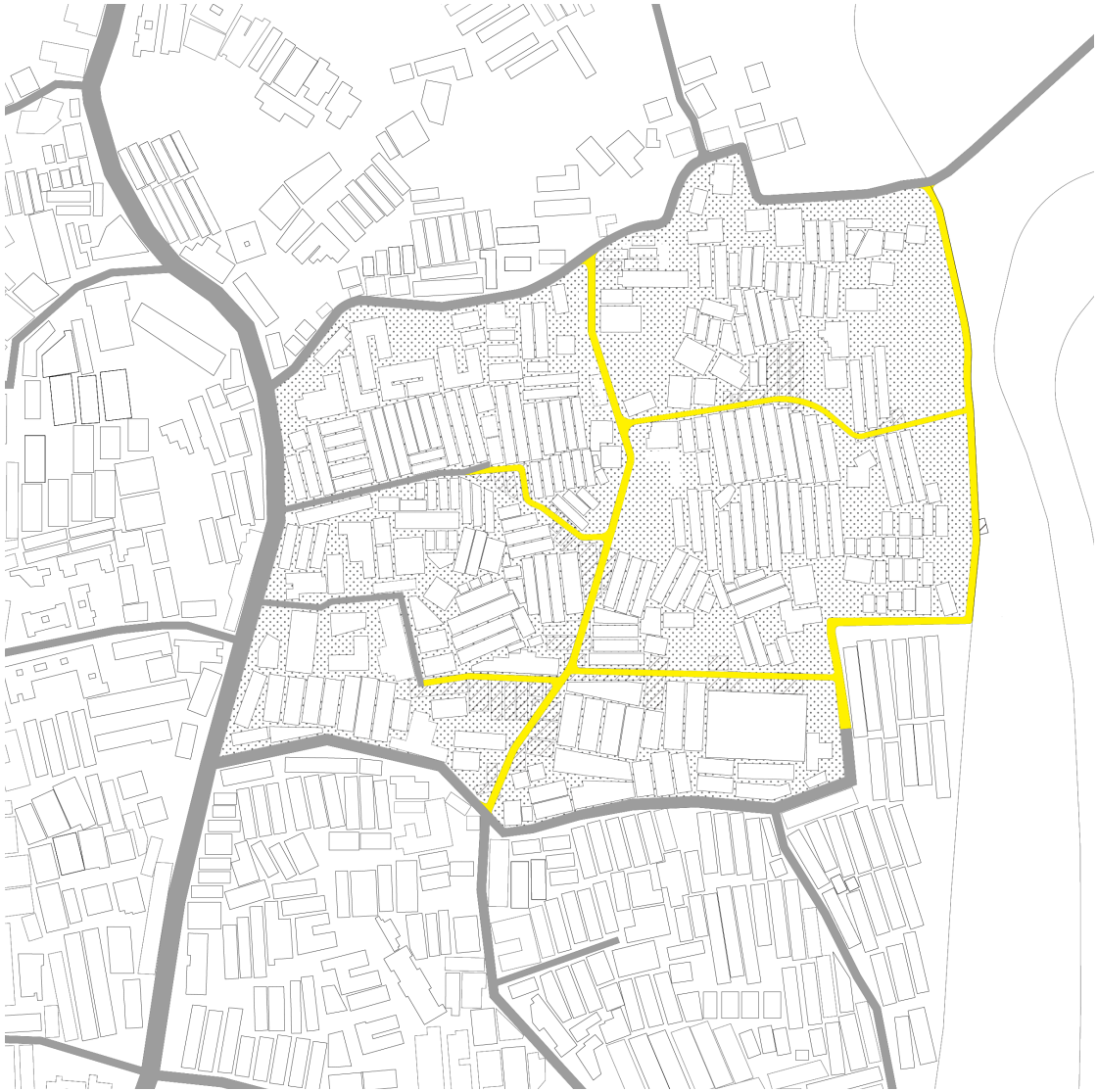
Urban Scale

Lack of amentities

Urban Scale

Baithi chawls and mid-rise chawls, possible for redevelopment

Urban Scale

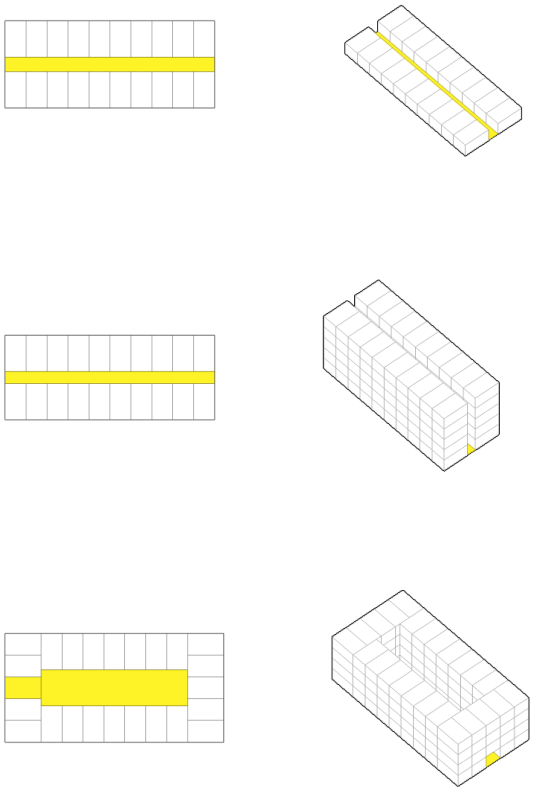


1.Connect tertiary roads

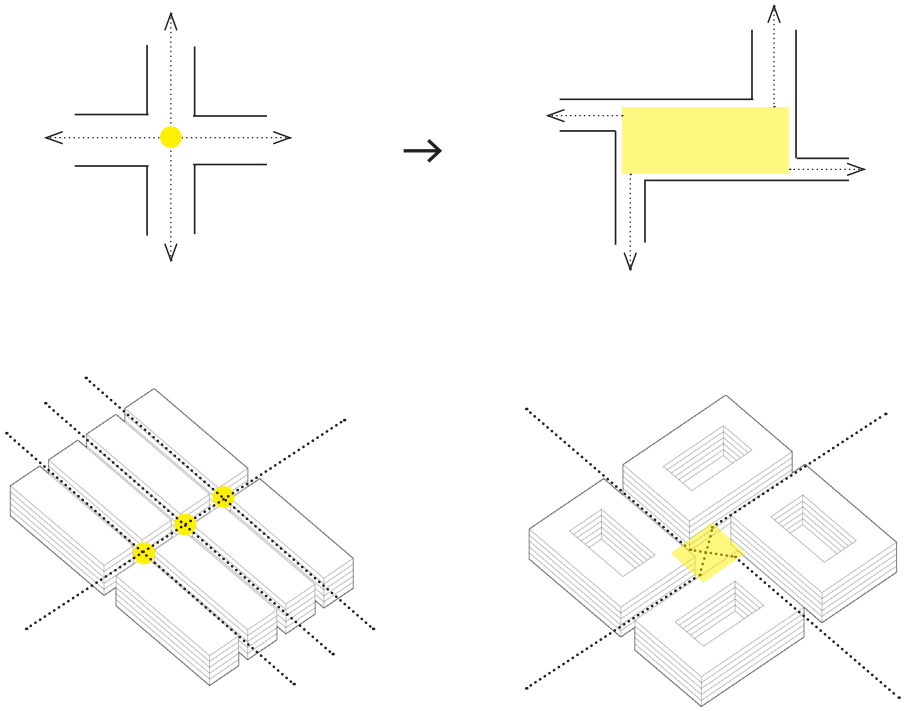
Urban Scale

2. Add communal facilities, market space & open spaces

Custer design



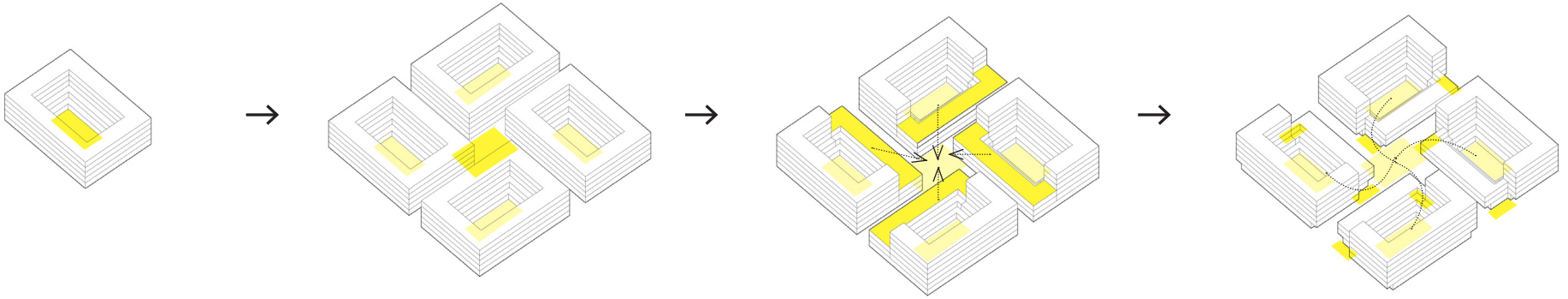
Comparison of different types of courtyards



Proposed open space

Cluster Scale

Massing operation

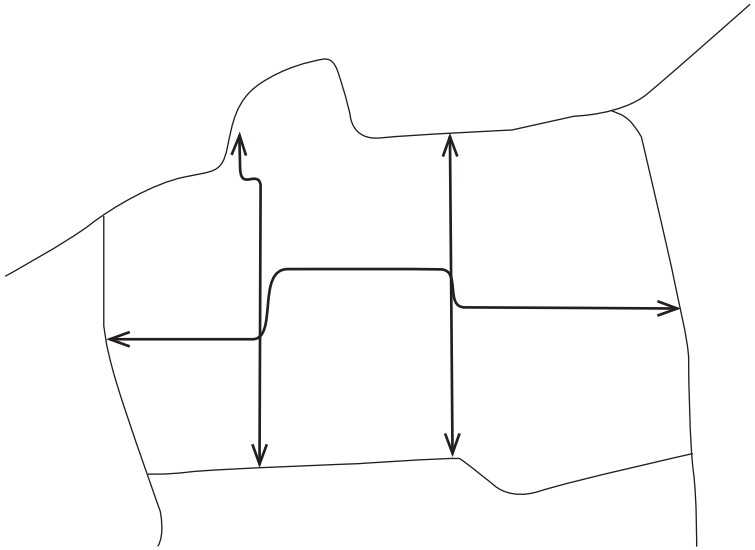


One block with inner courtyard

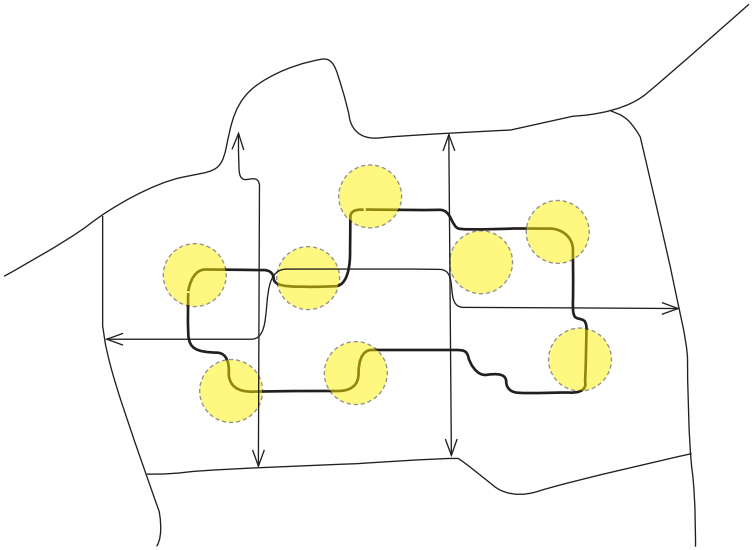
Four blocks together form more public open space

Break the block into lower and higher parts, connect the single block to the central open space

leave space for the entrance on the ground floor, create extra space for the pedestrian street.

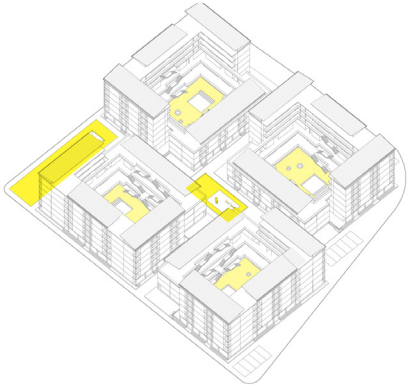


Street hierarchy

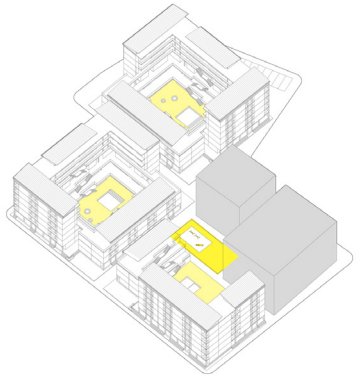


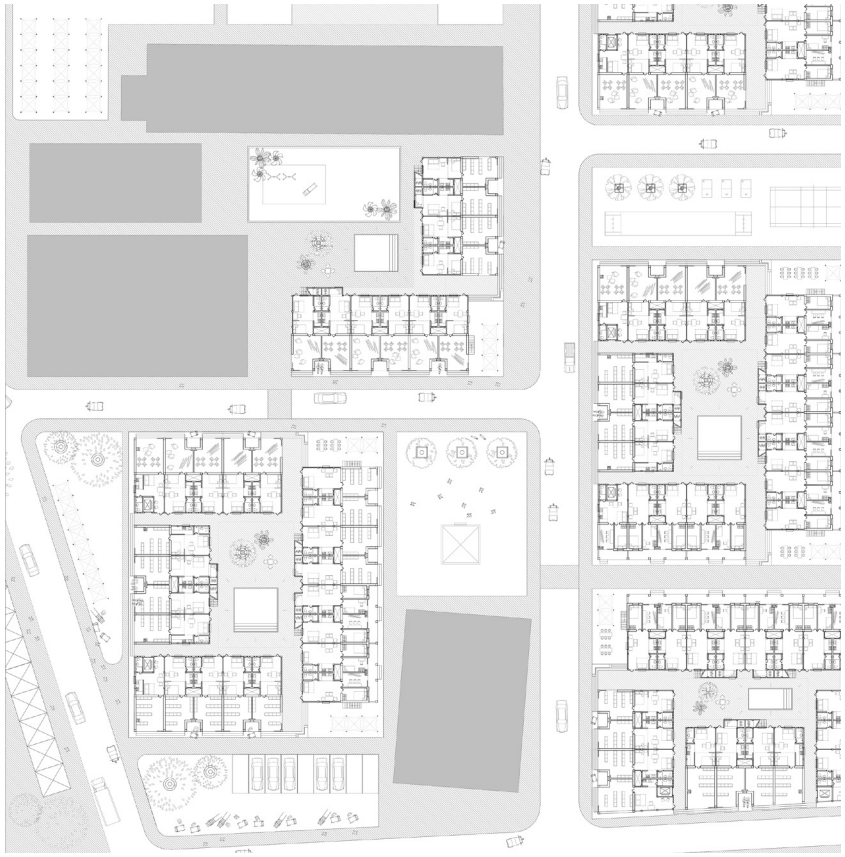
Connected open space

Open space formed by new blocks



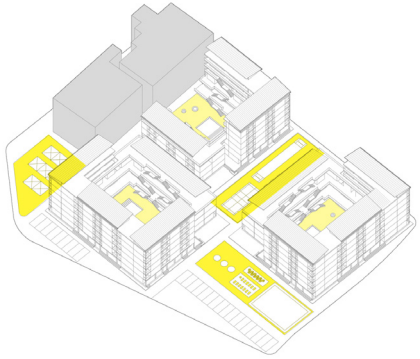
Open space formed by new blocks and existing apartments





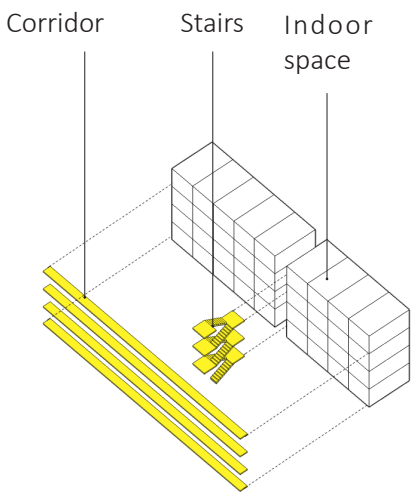
Open space formed by new blocks and exisiing apartments

Open space formed by new blocks and existing apartments

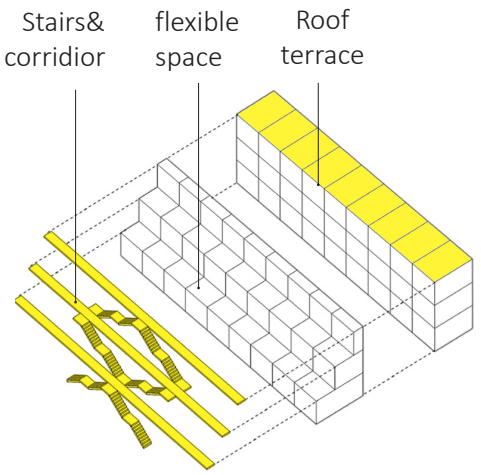


Architecture design

Building Scale

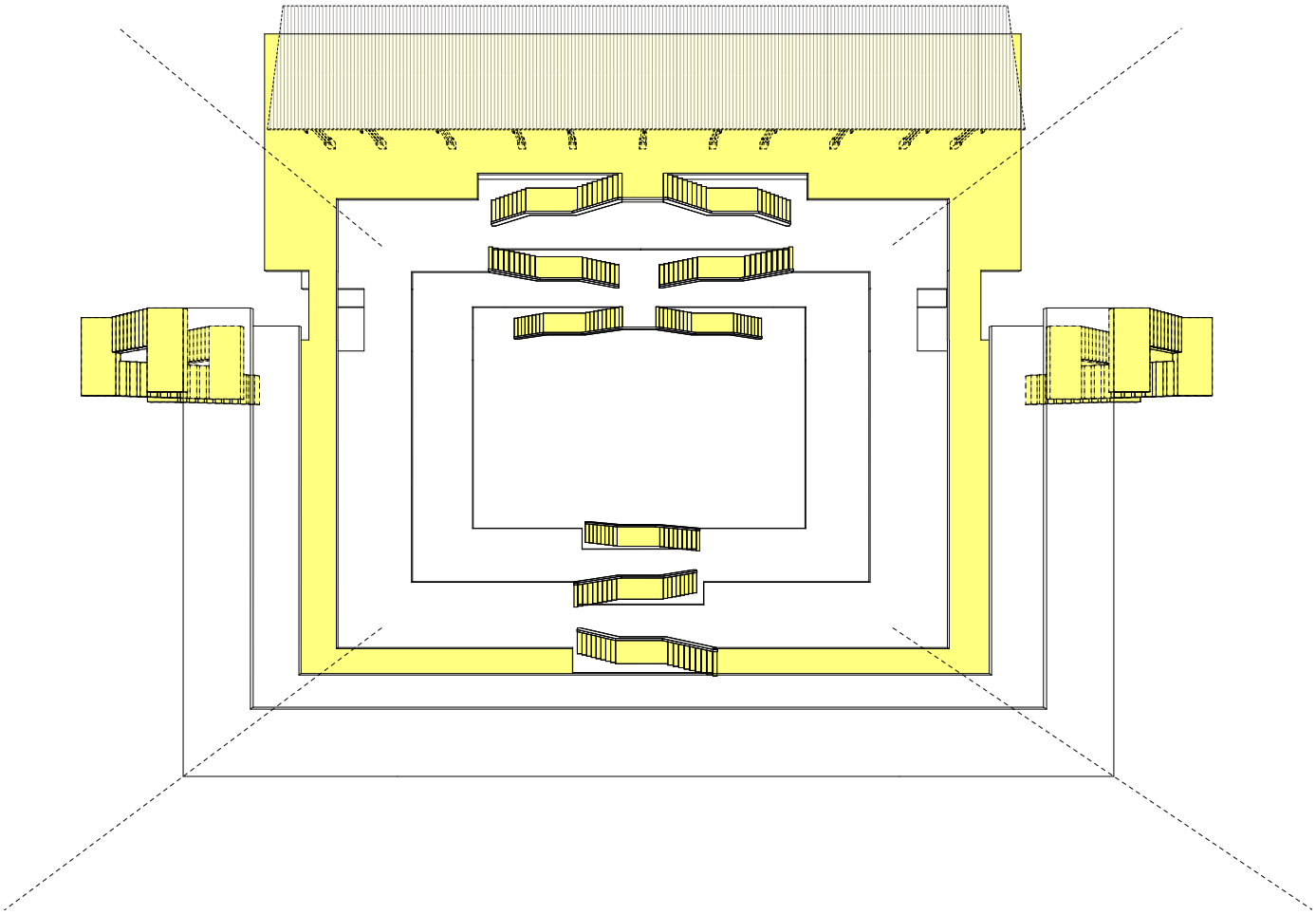


Exisiting mid-rise chawls

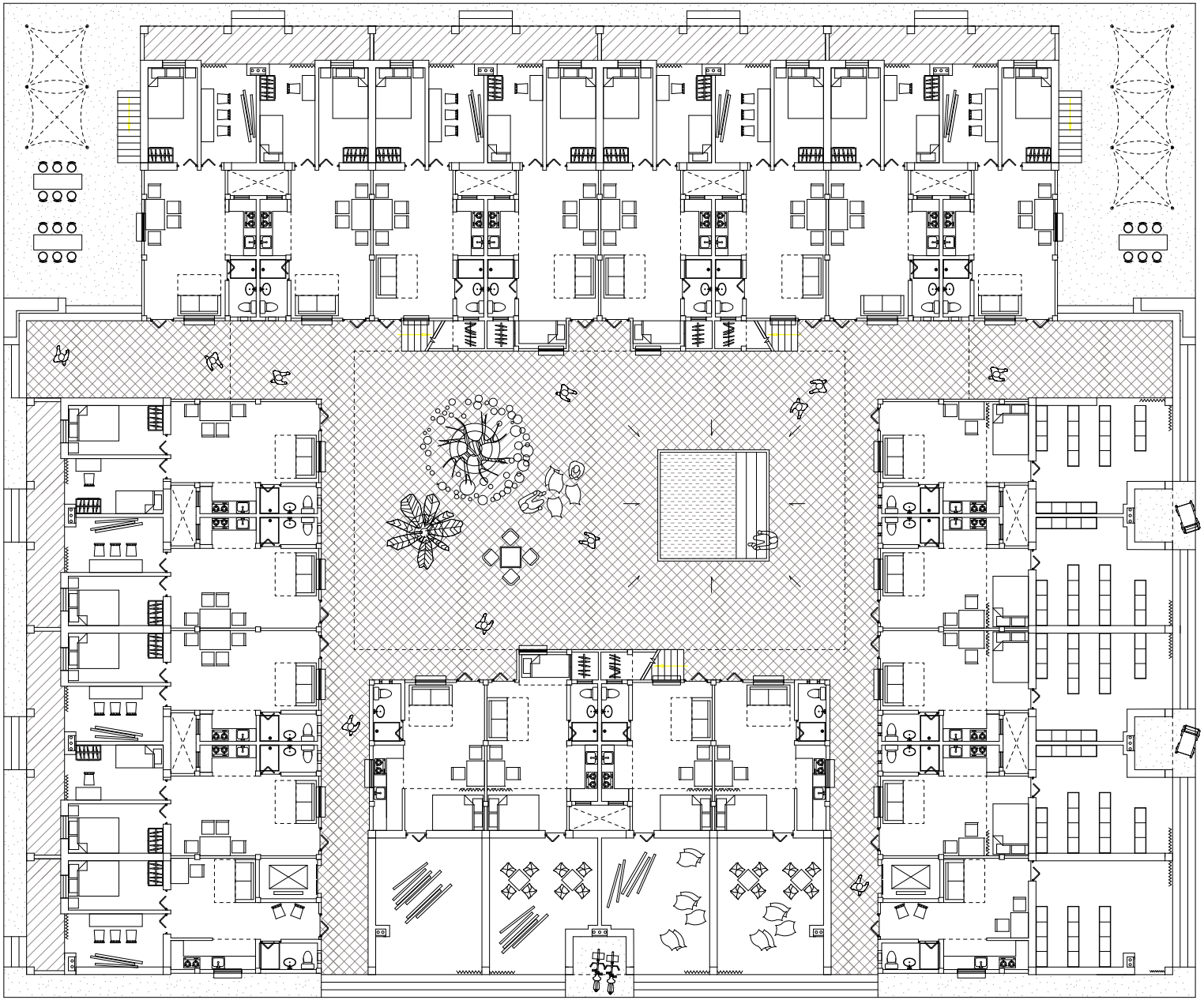


Proposed housing type

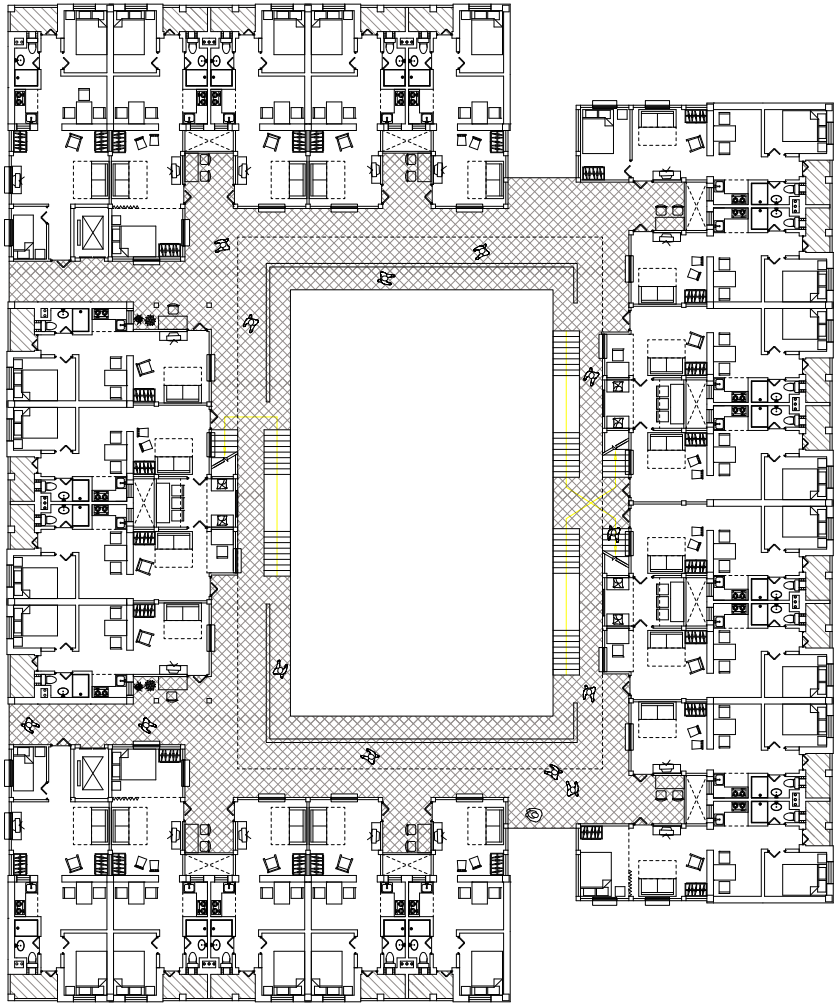
Building Scale



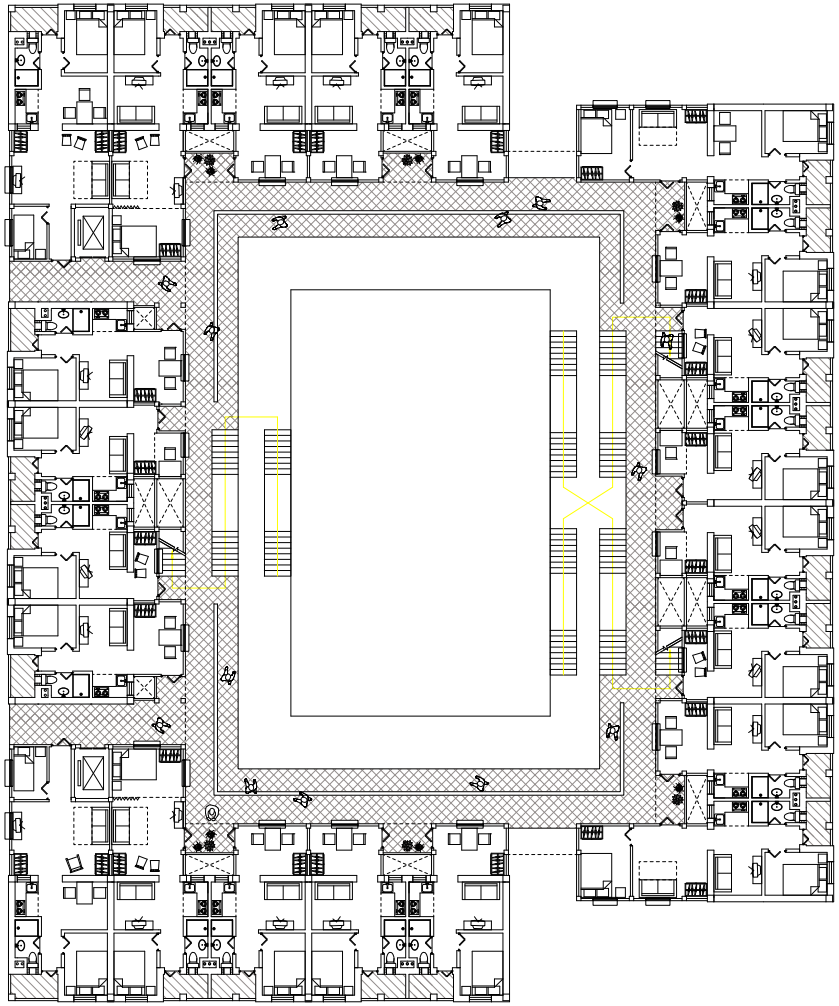
Circulation



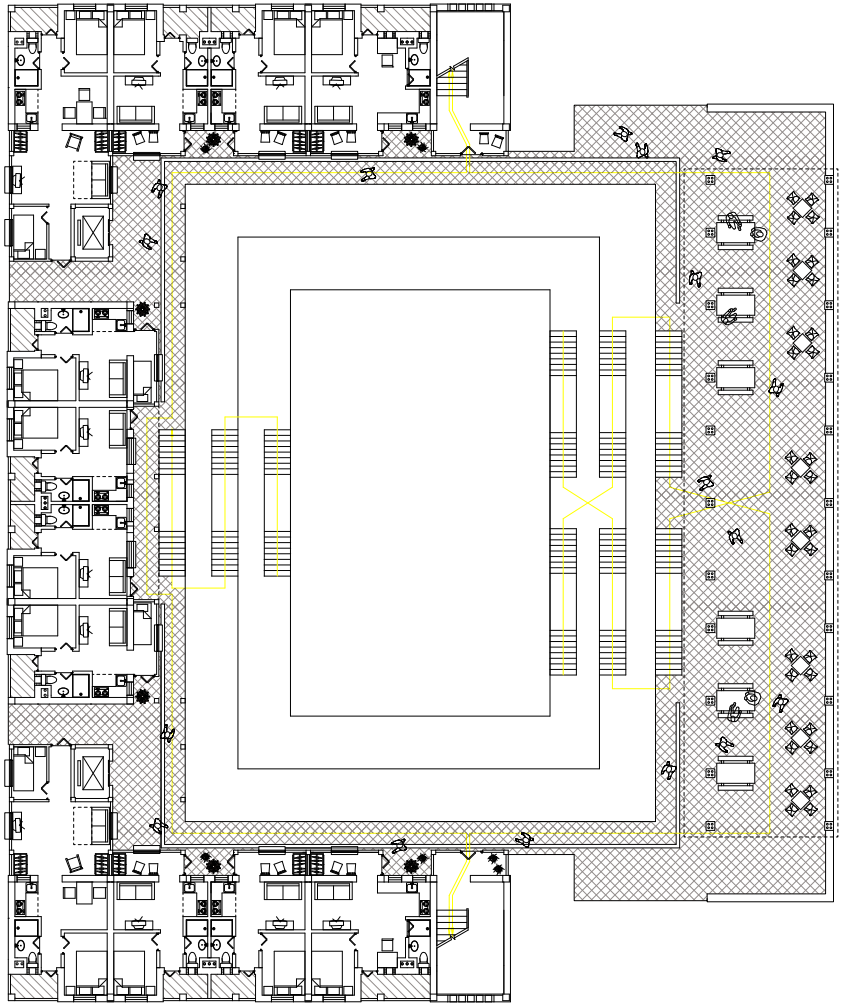
GF plan



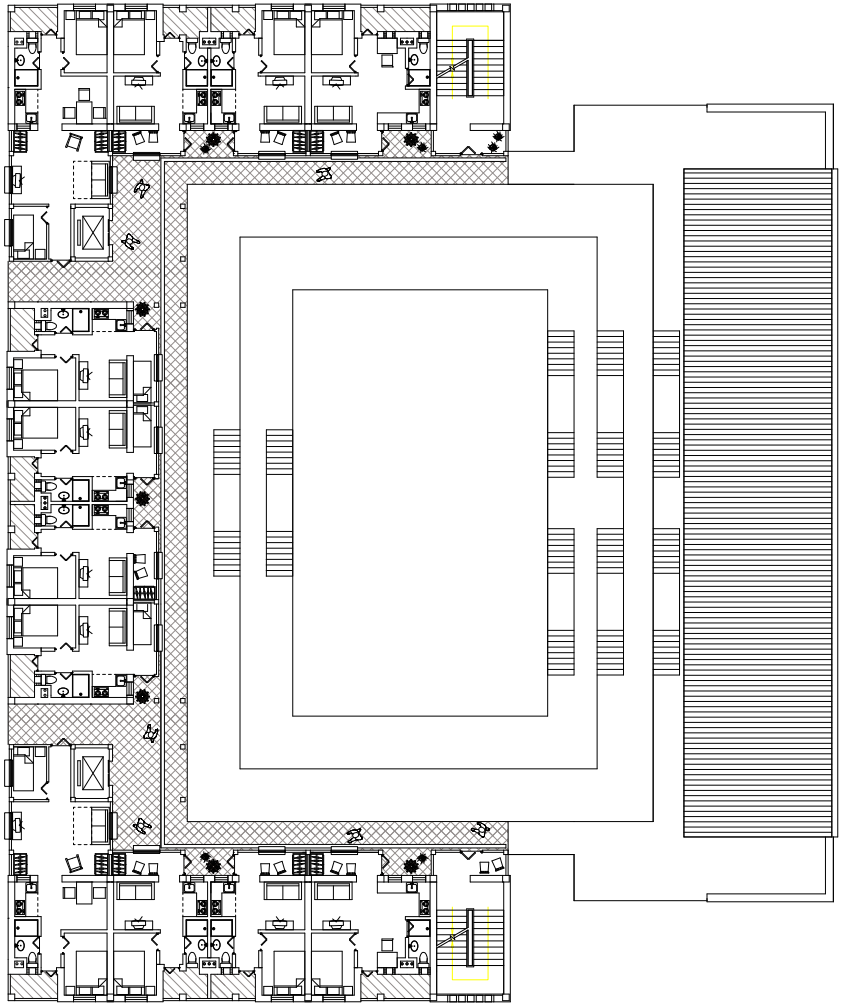
1F plan



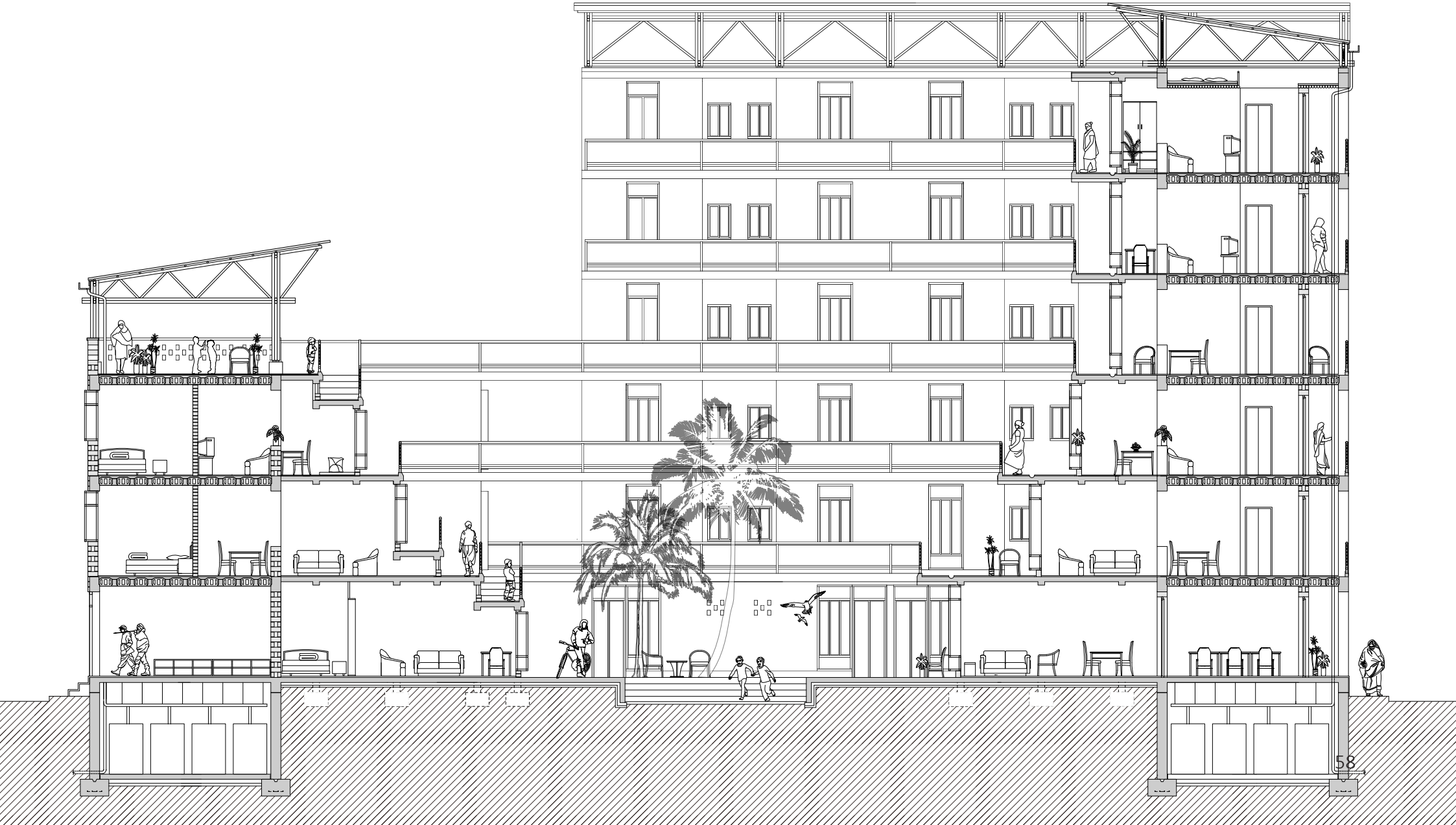
2F plan



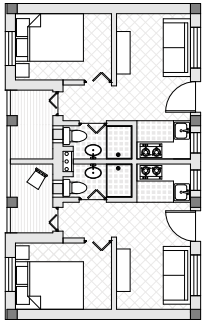
3F plan



4F plan

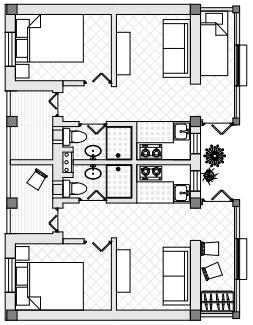


Unit design

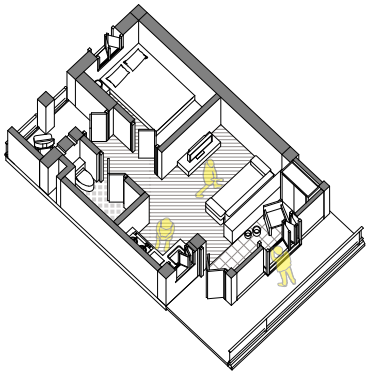


Basic Units

5.4x4.5=24.3m2

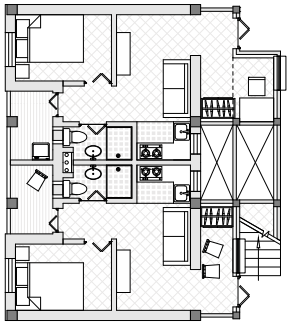


3-5F units

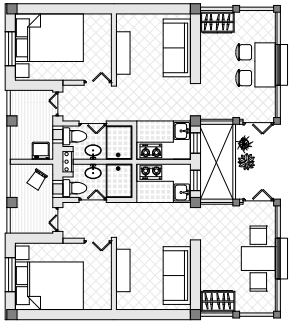


3-5F unit

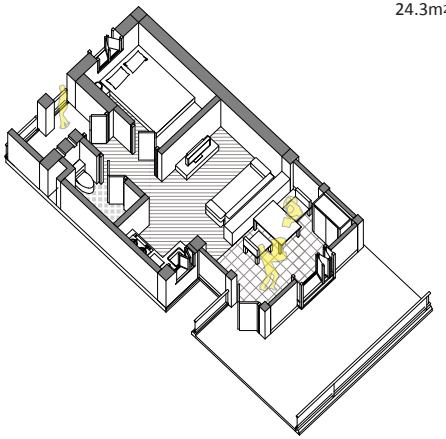
24.3m²+3.96m²=28.26m²



Stair type

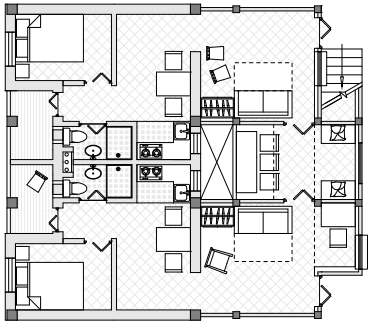


2F units

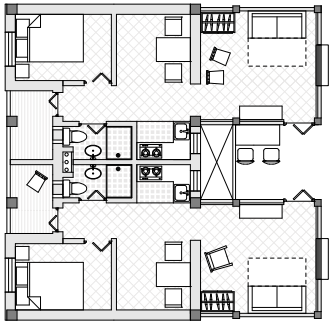


2F unit

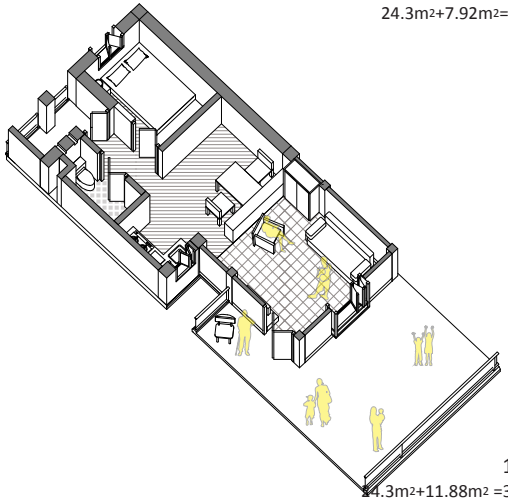
24.3m²+7.92m²=32.22m²



Stair type

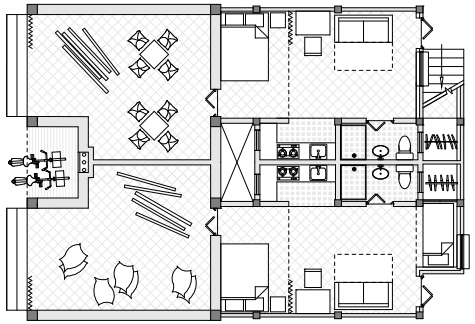


1F units

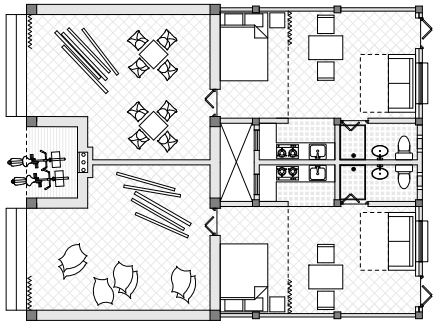


1F unit

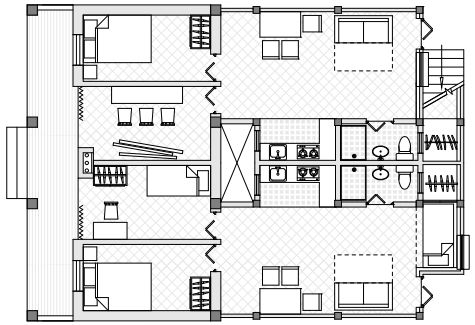
24.3m²+11.88m² =36.18m²



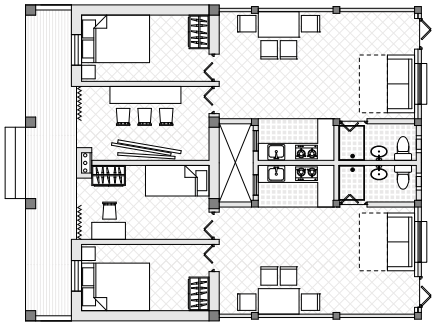
Stair type



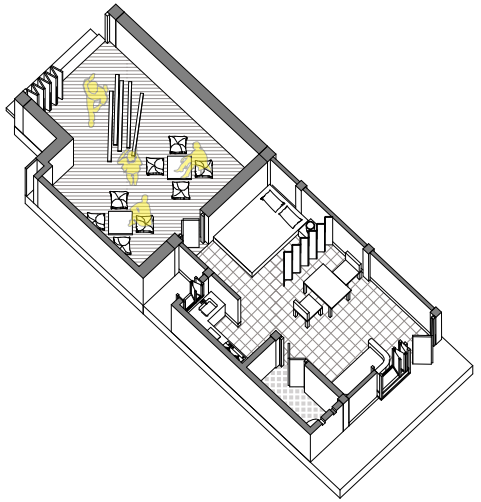
Ground floor units with shops



Stair type

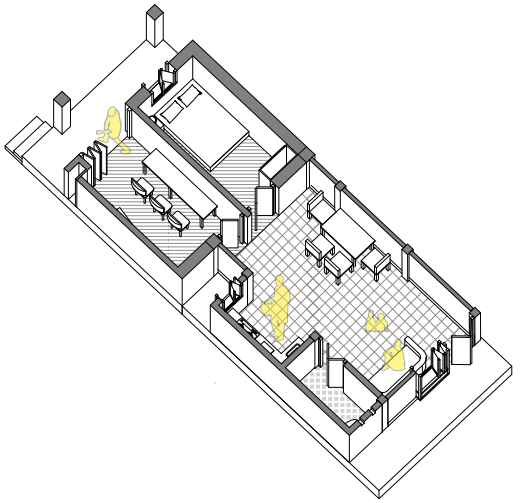


Ground floor units



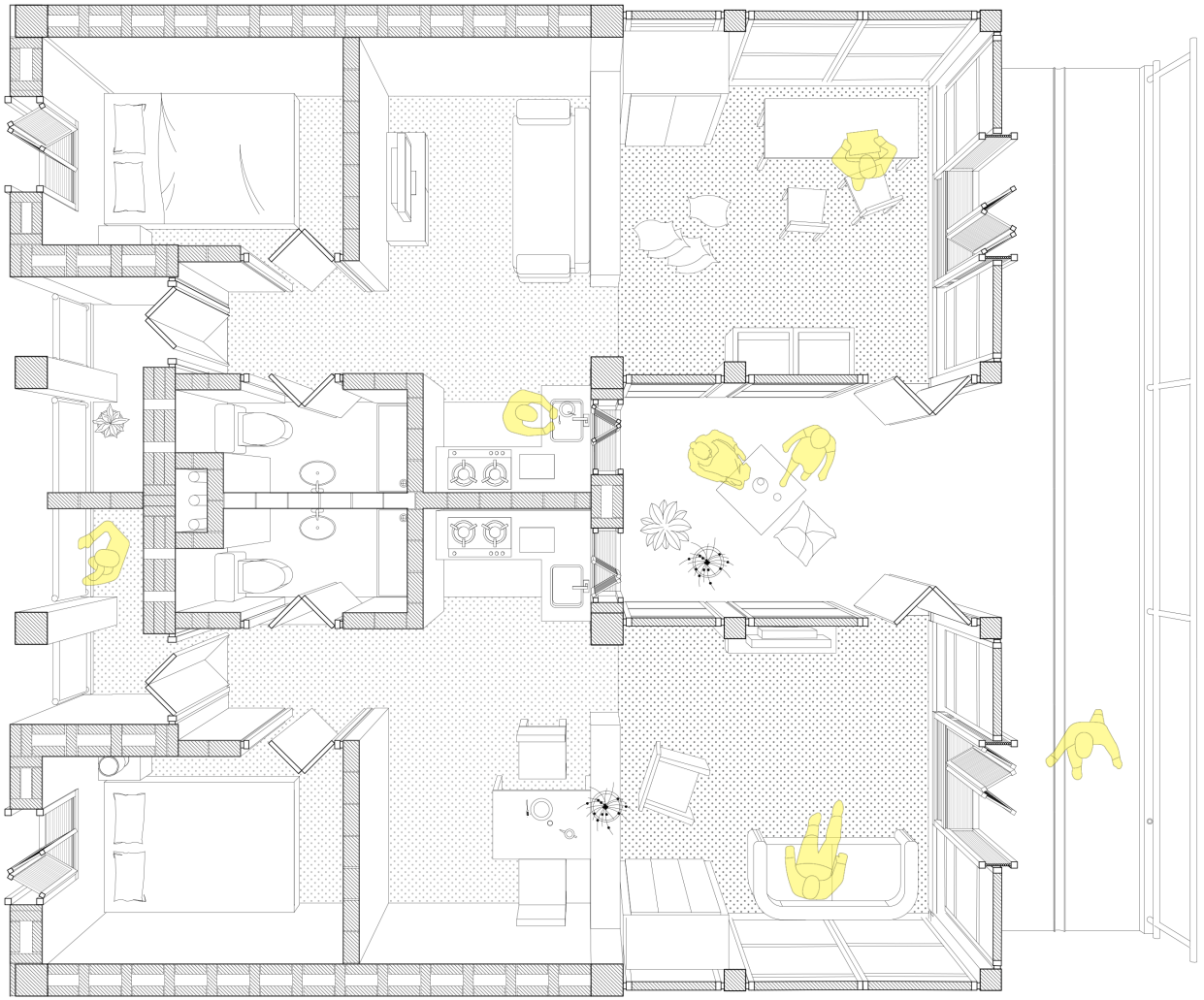
Ground floor unit with shop

24.3m²+19.8m²=44.1m²

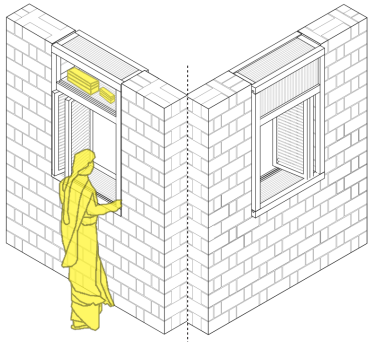


Ground floor unit

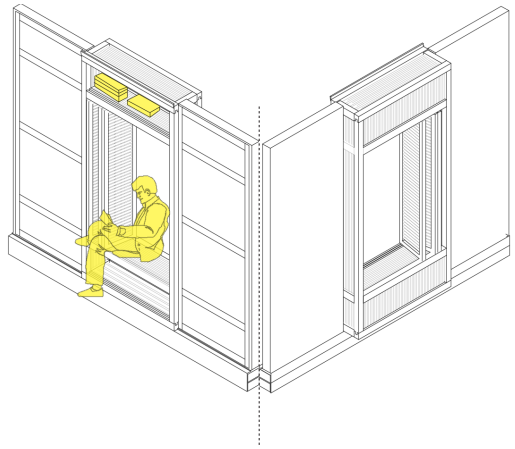
17.55m²+19.8m²=37.35m²



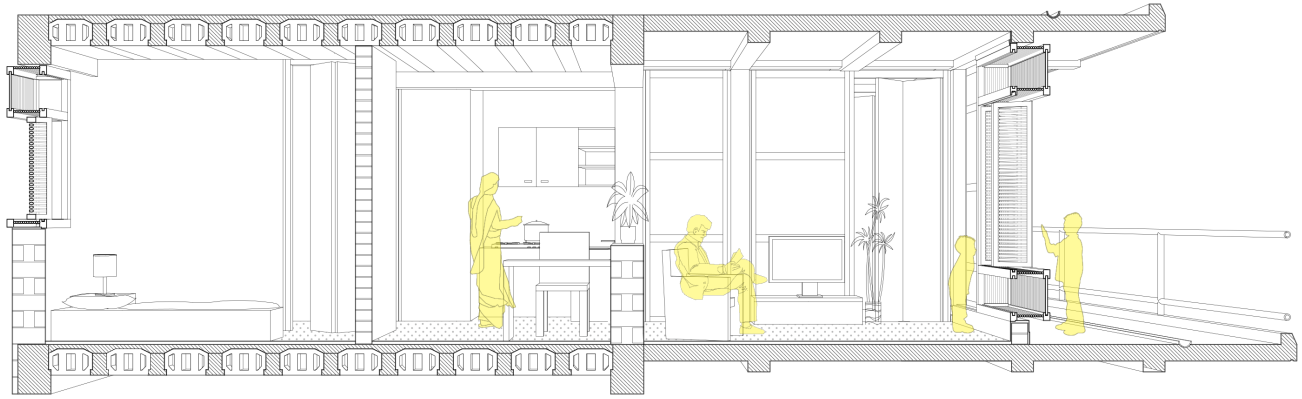
1F units plan perspective



Window towards street



Window towards courtyard



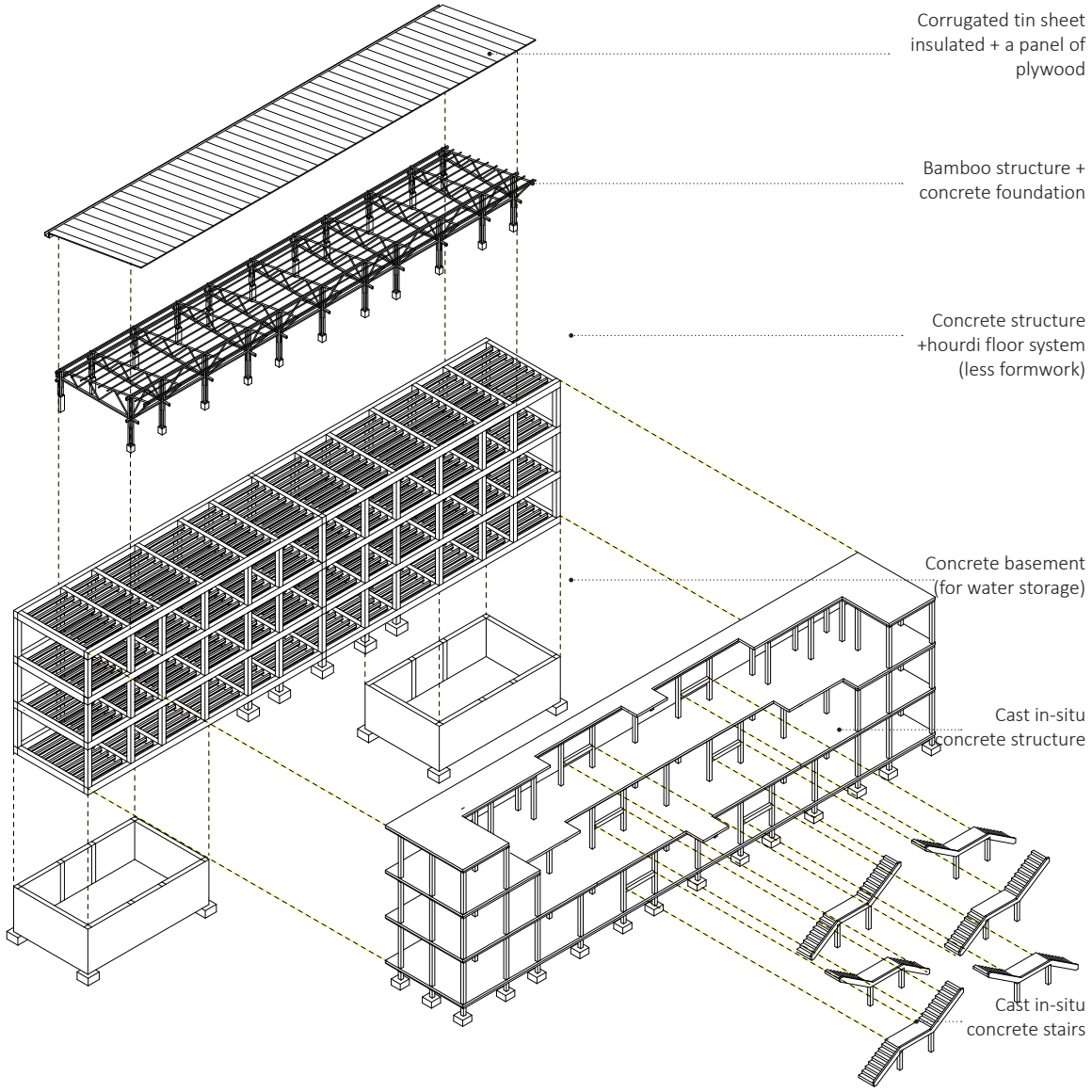
1F units section perspective

Defined dinning and living space

Defined living and working space

Building Technologgy

Structure and materialization



Corrugated tin sheet

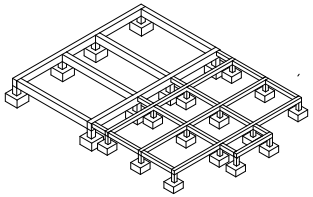
Bamboo roof structure

Compressed stabillzed earth block (CSEB)

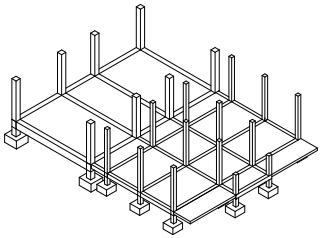
Hourdi floor system

Concrete structure

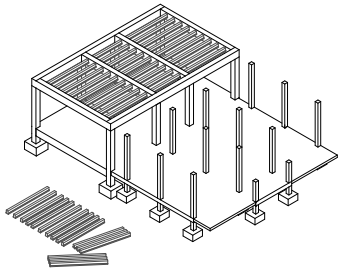
Construction Process



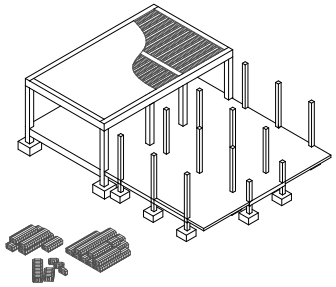
1.Concrete foundation



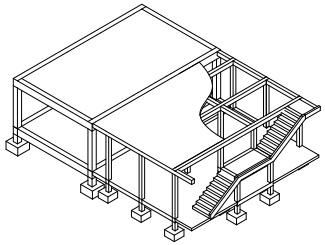
2.Concrete floor+cast in-situ columns



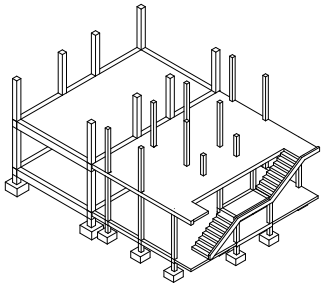
3.Prefabricated beams



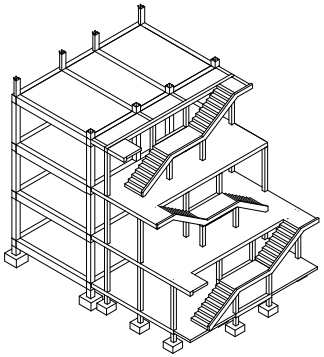
4.Hourdi blocks(CSEB) + a layer of concrete



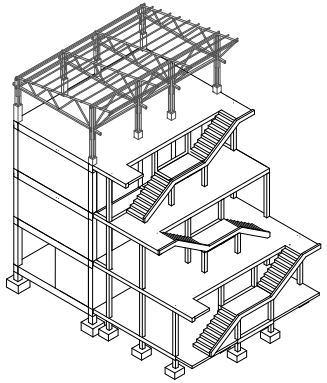
5.Cast in-situ floor and stair



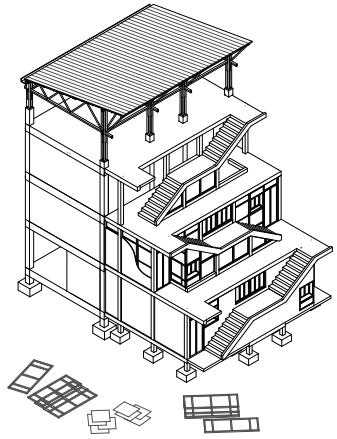
6.Continue the first floor



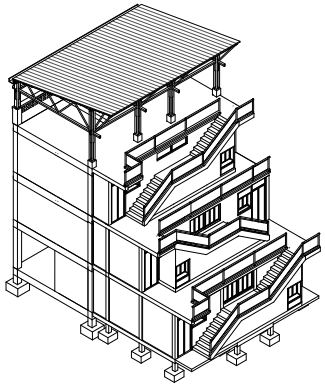
7. Repeat for third level



8. Bamboo roof + CSEB infill for outer facade

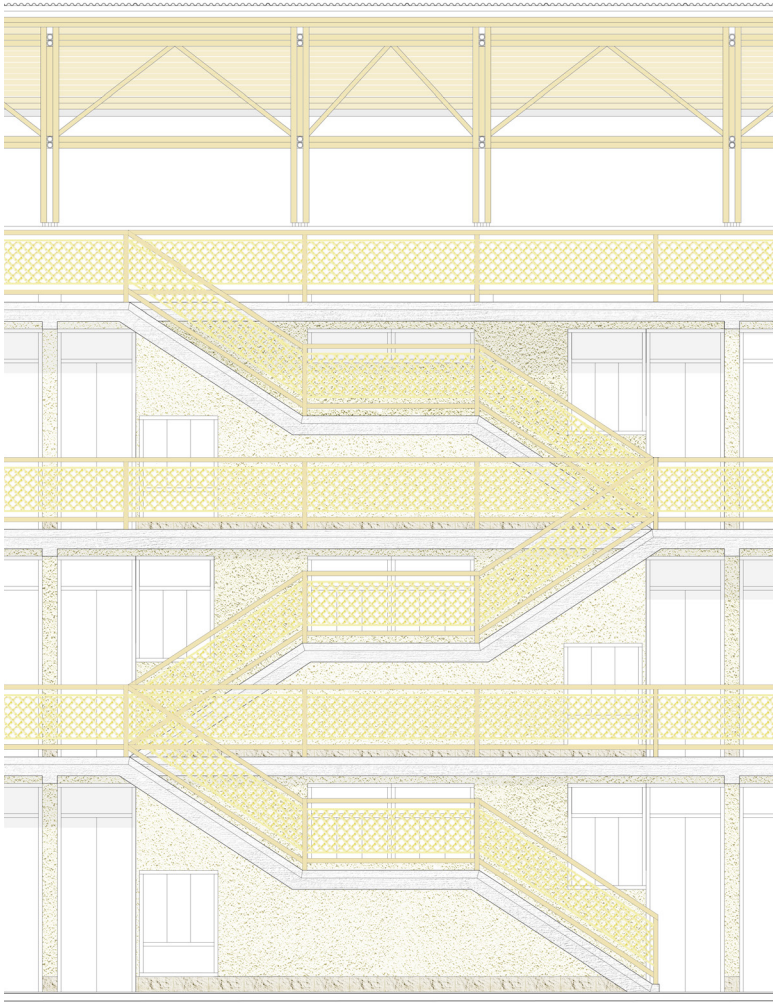


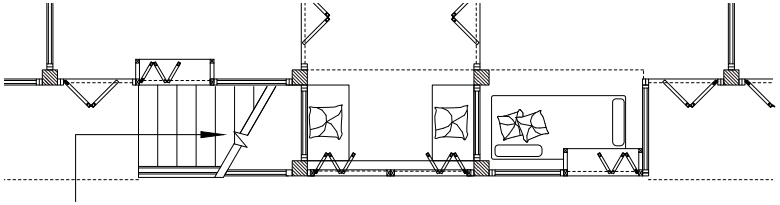
9. Finish bamboo roof + Bamboo panel and window for inner facade(build by dwellers themselves)

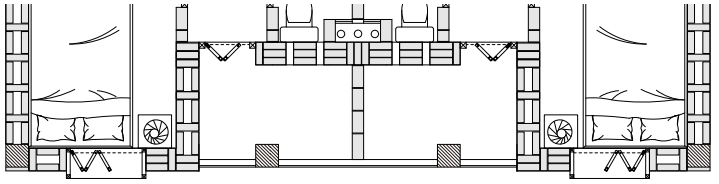


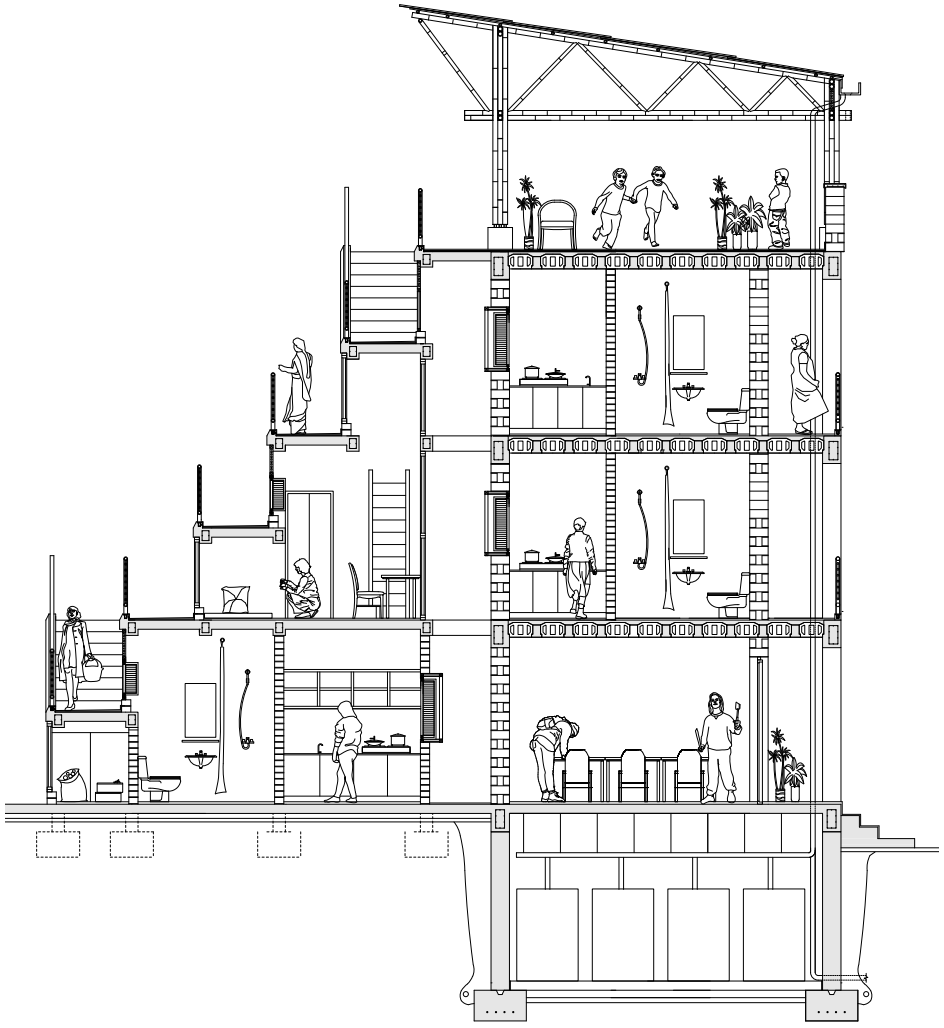
10. Plaster the inner facade + add bamboo handrails

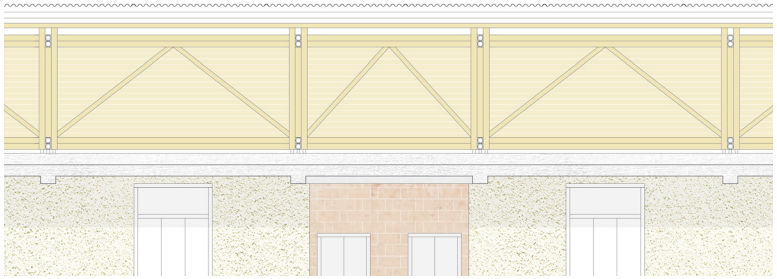
facade detail

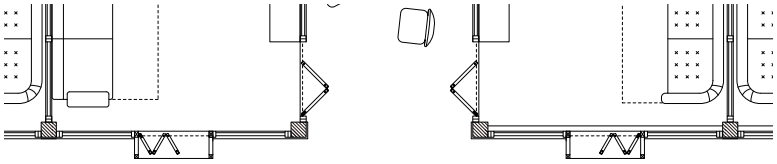


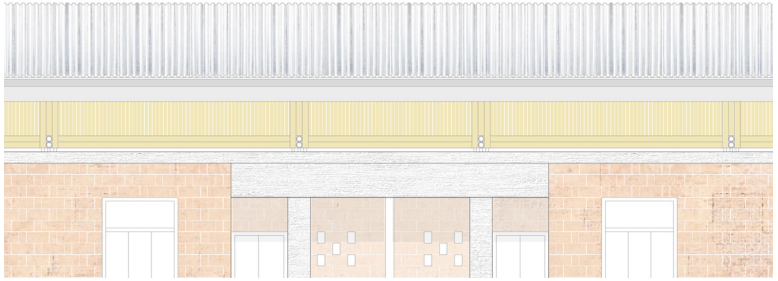


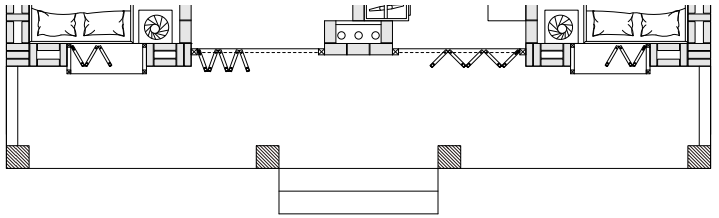


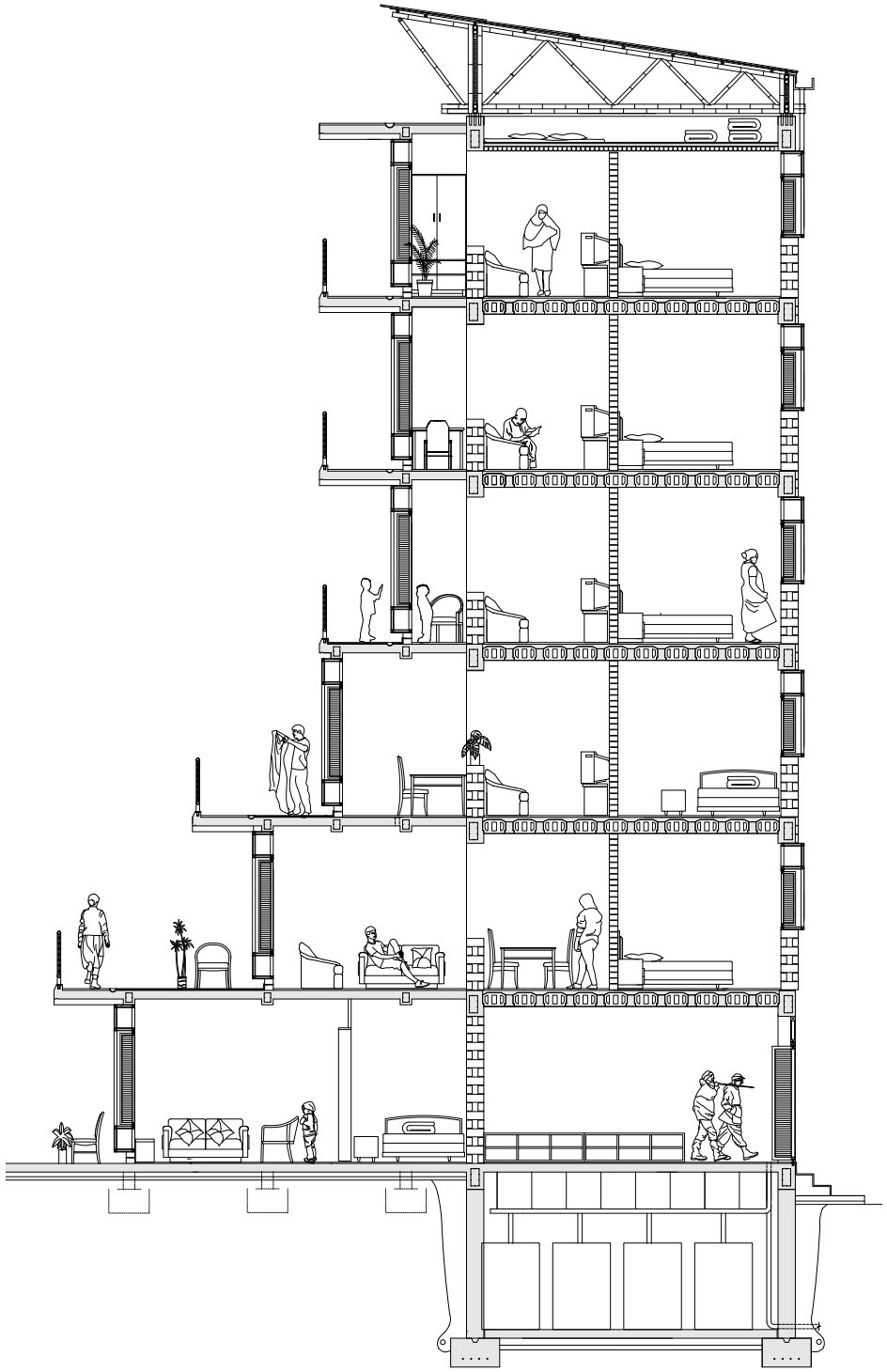


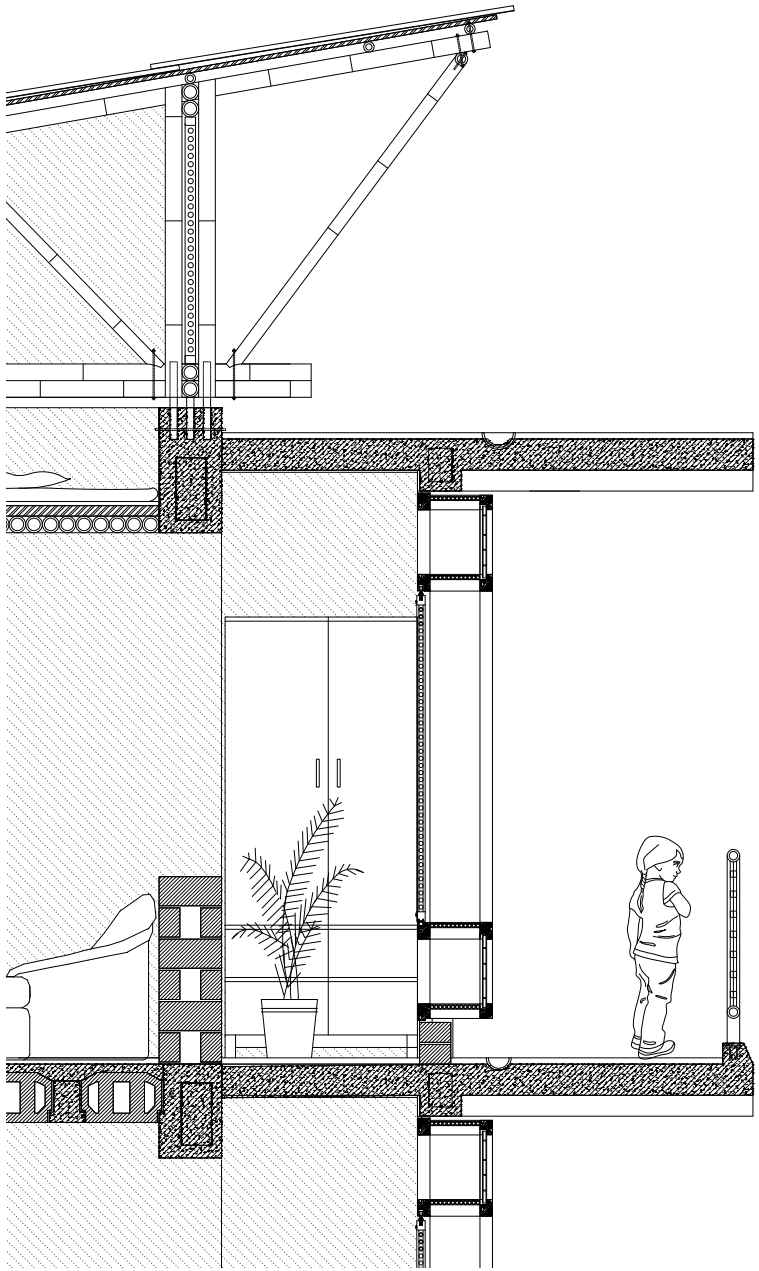


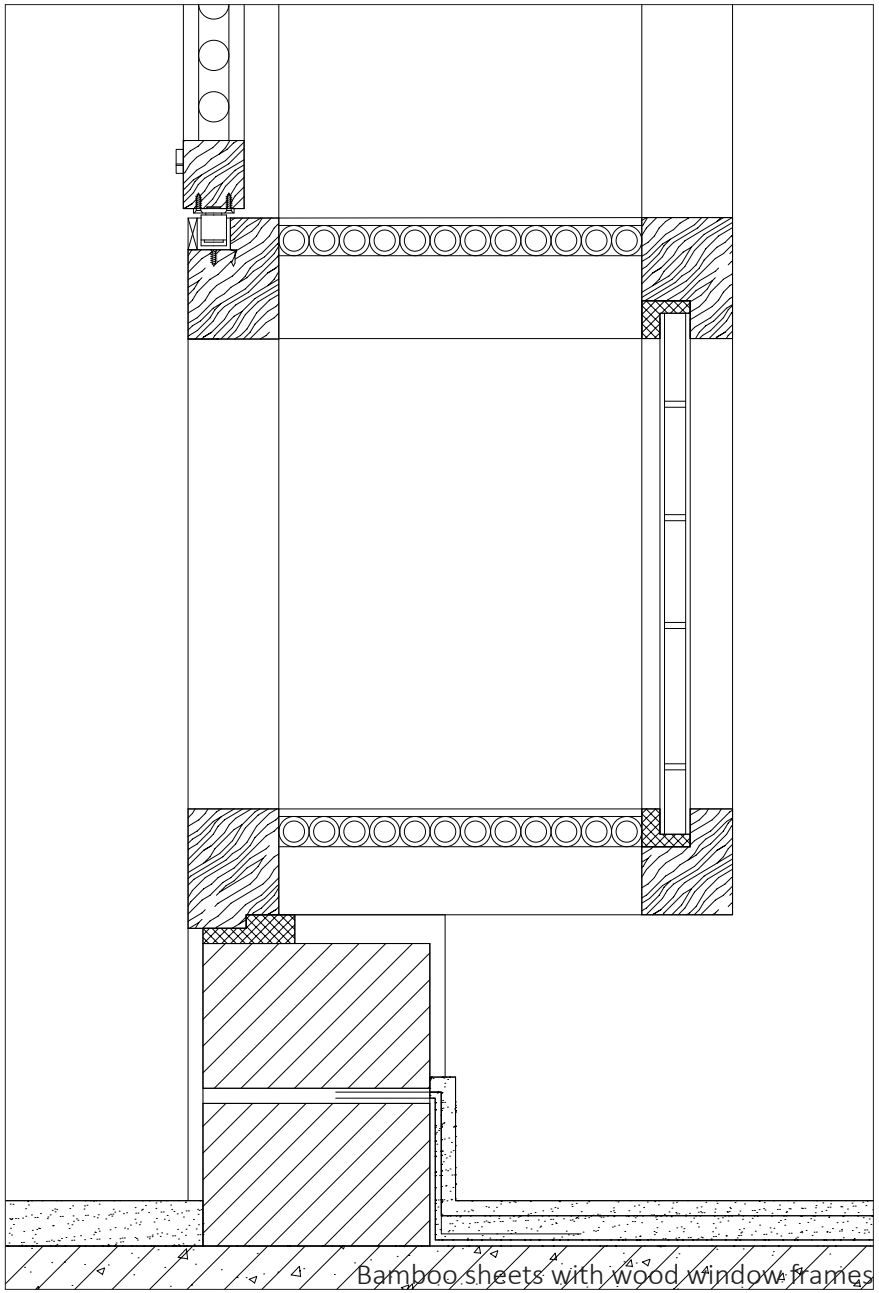




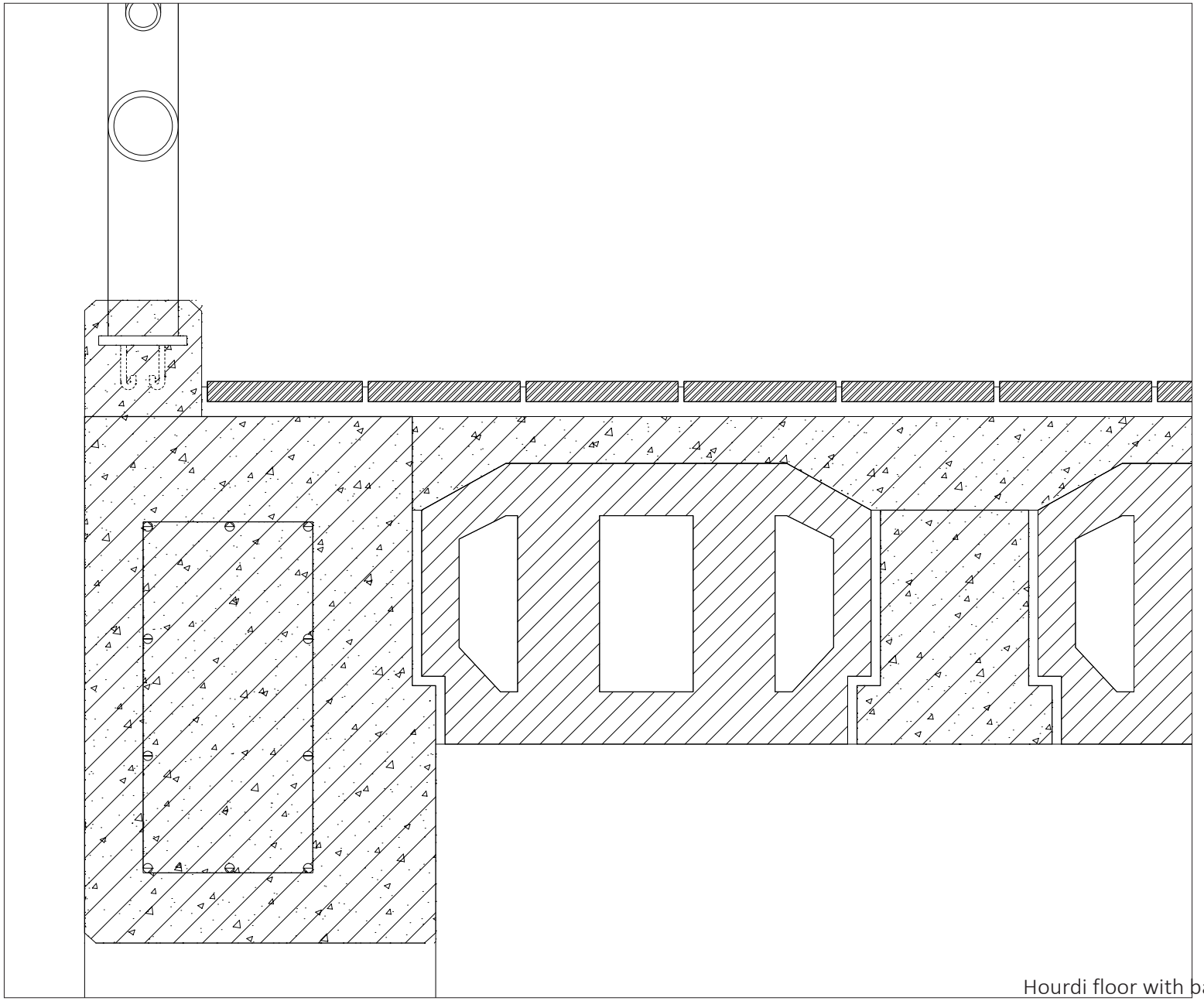




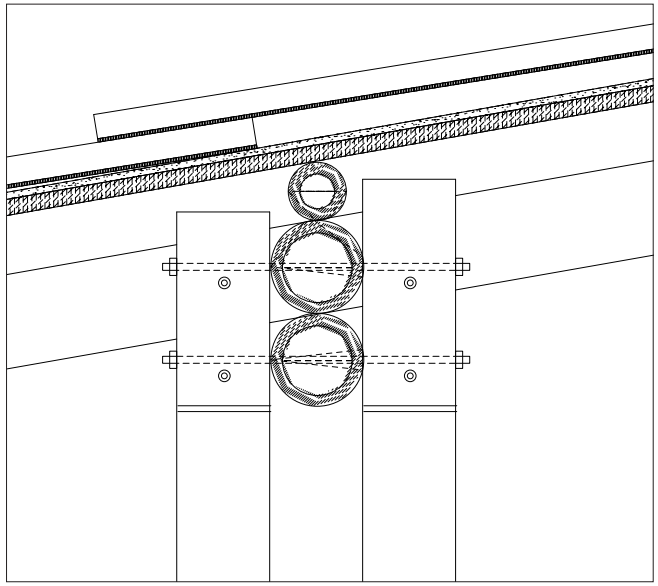


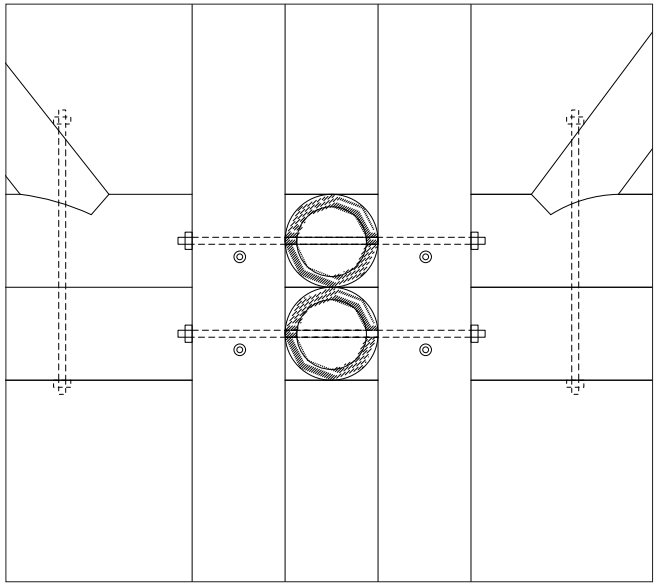


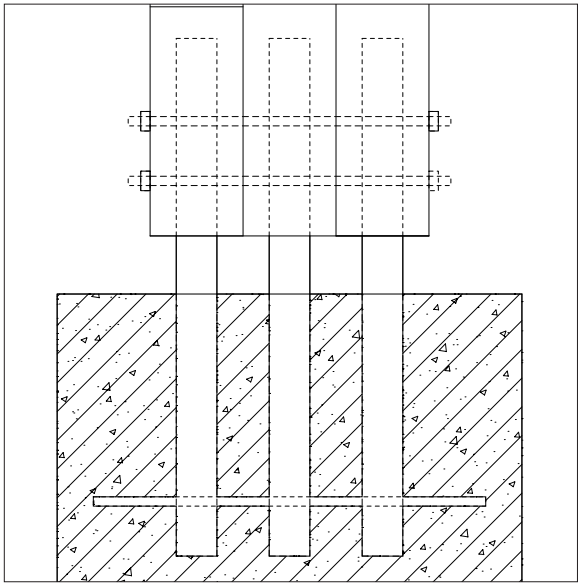
Bamboo sheets with wood window frames

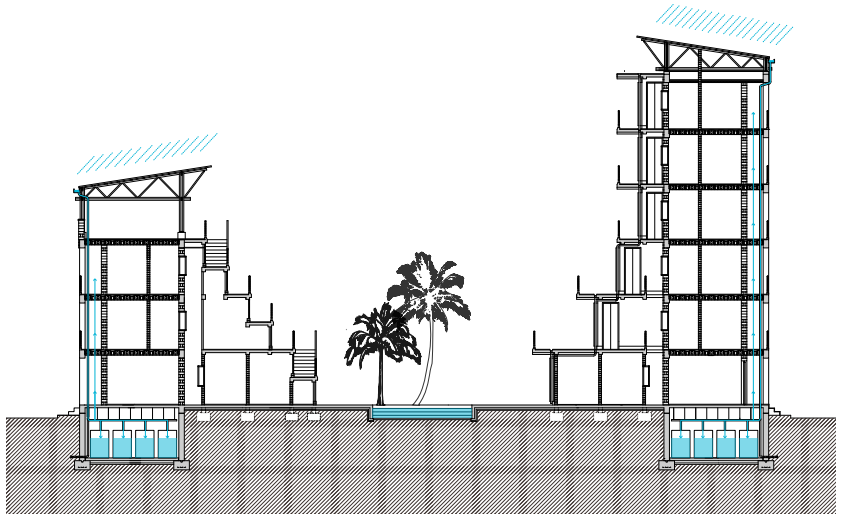


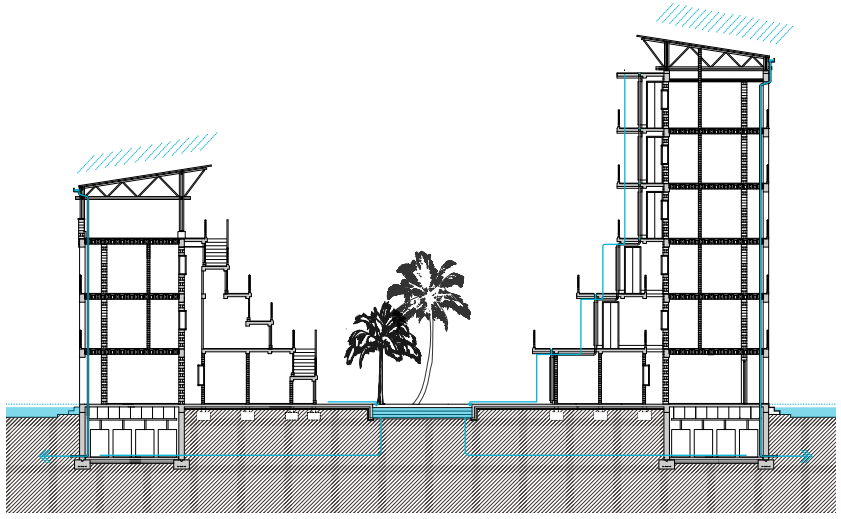
Hourdi floor with bamboo handrail



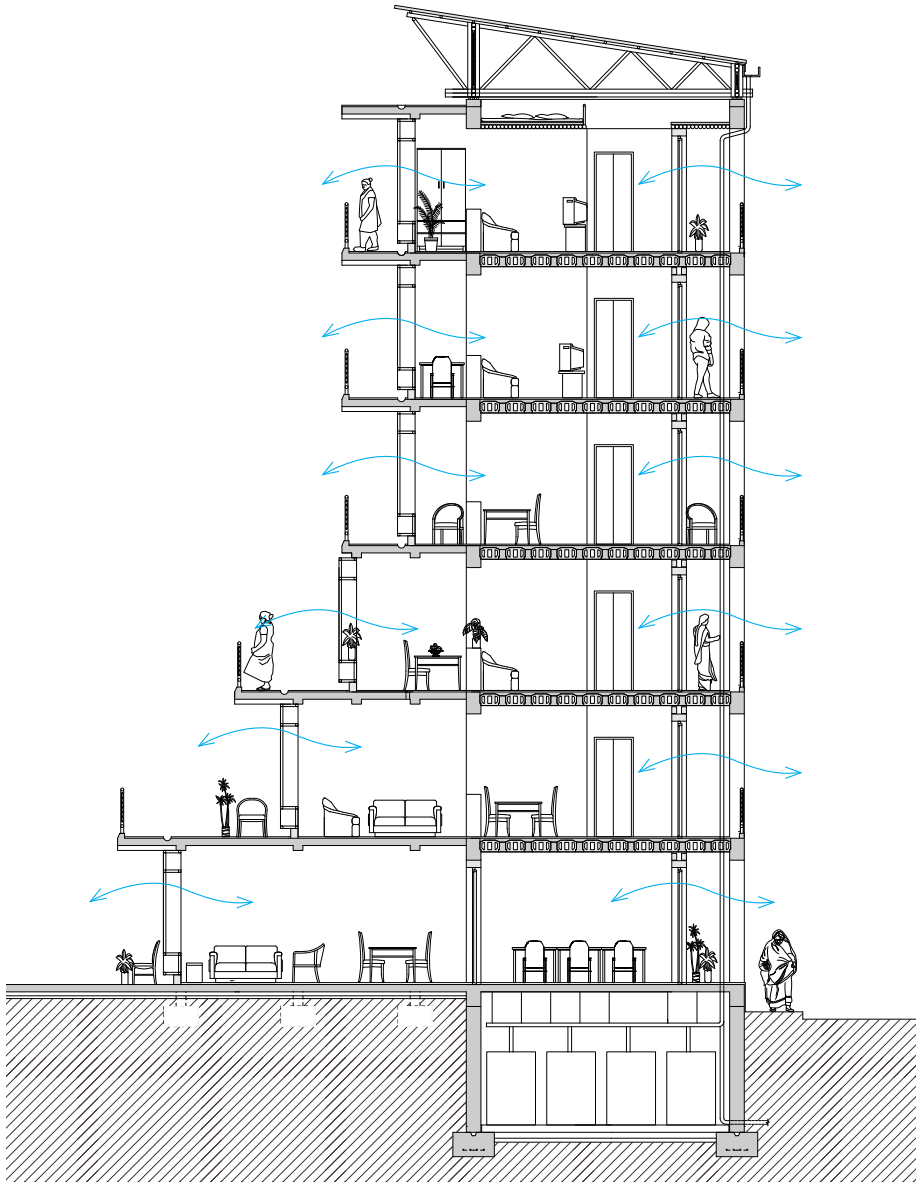


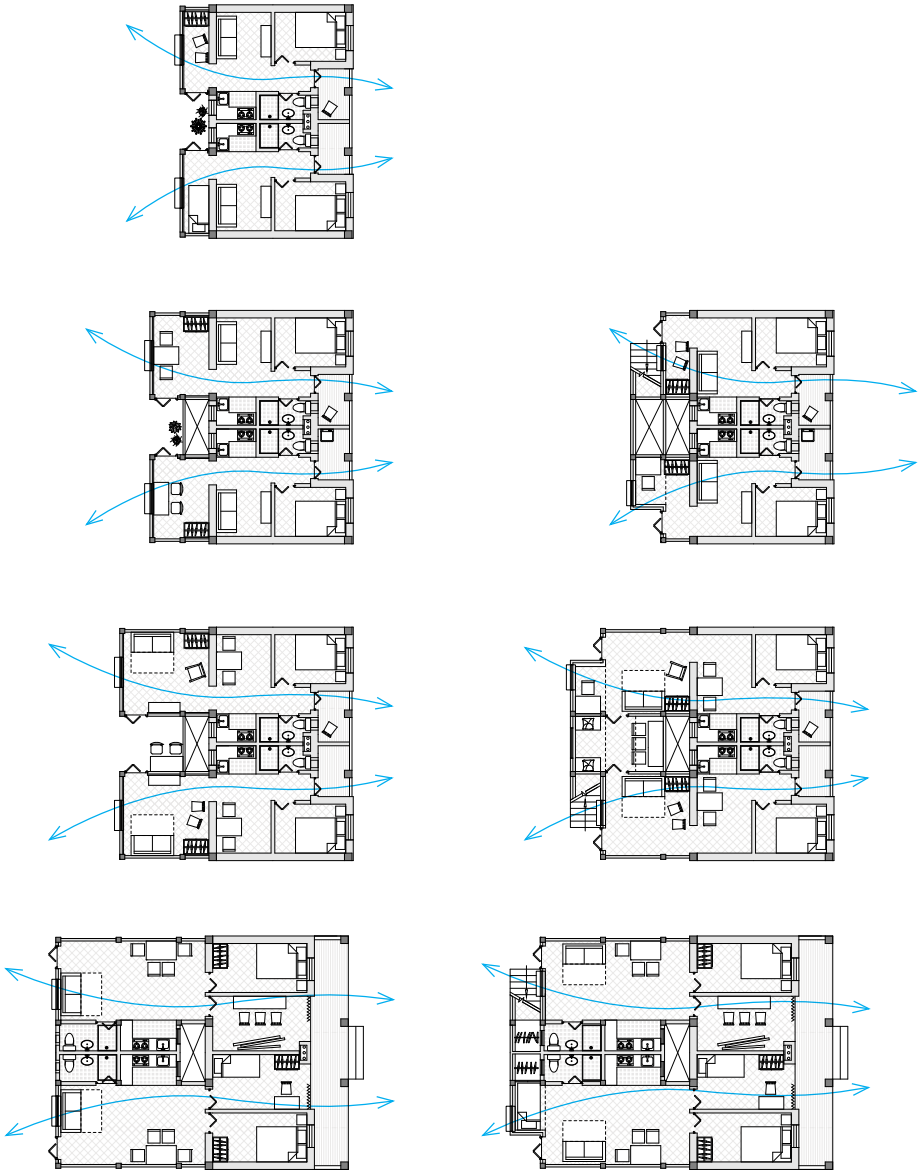




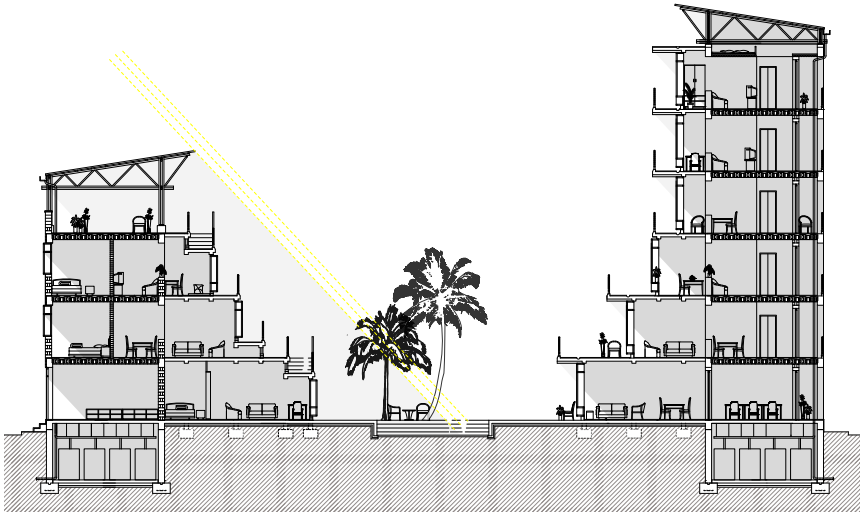


rainwater management



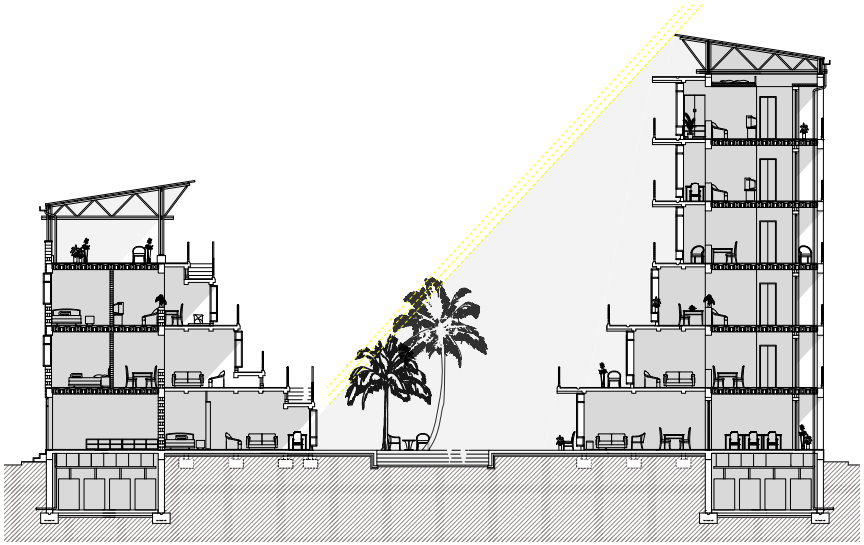


Cross-ventilation



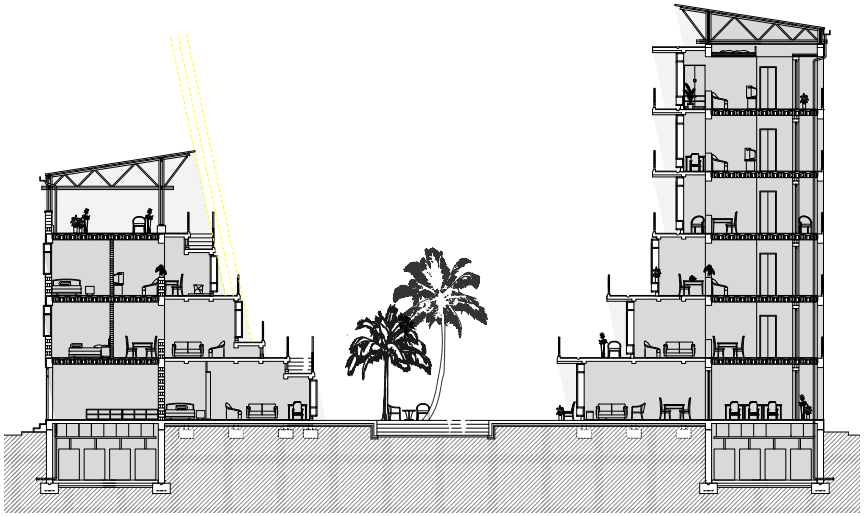
December 21st 47°at noon

shadow in winter



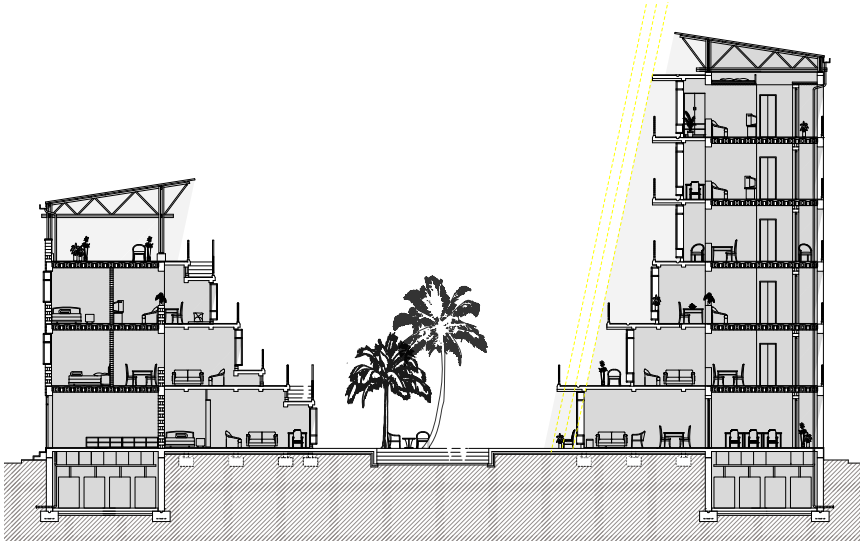
December 21st 47°at noon

shadow in winter



June 21st 78°at noon

shadow in summer



June 21st 78°at noon

shadow in summer

Shadow

Redevelopment process

Existing condition

Step 1

Step 2

Step 3: build in empty land

Step 4

Step 5

Step 6

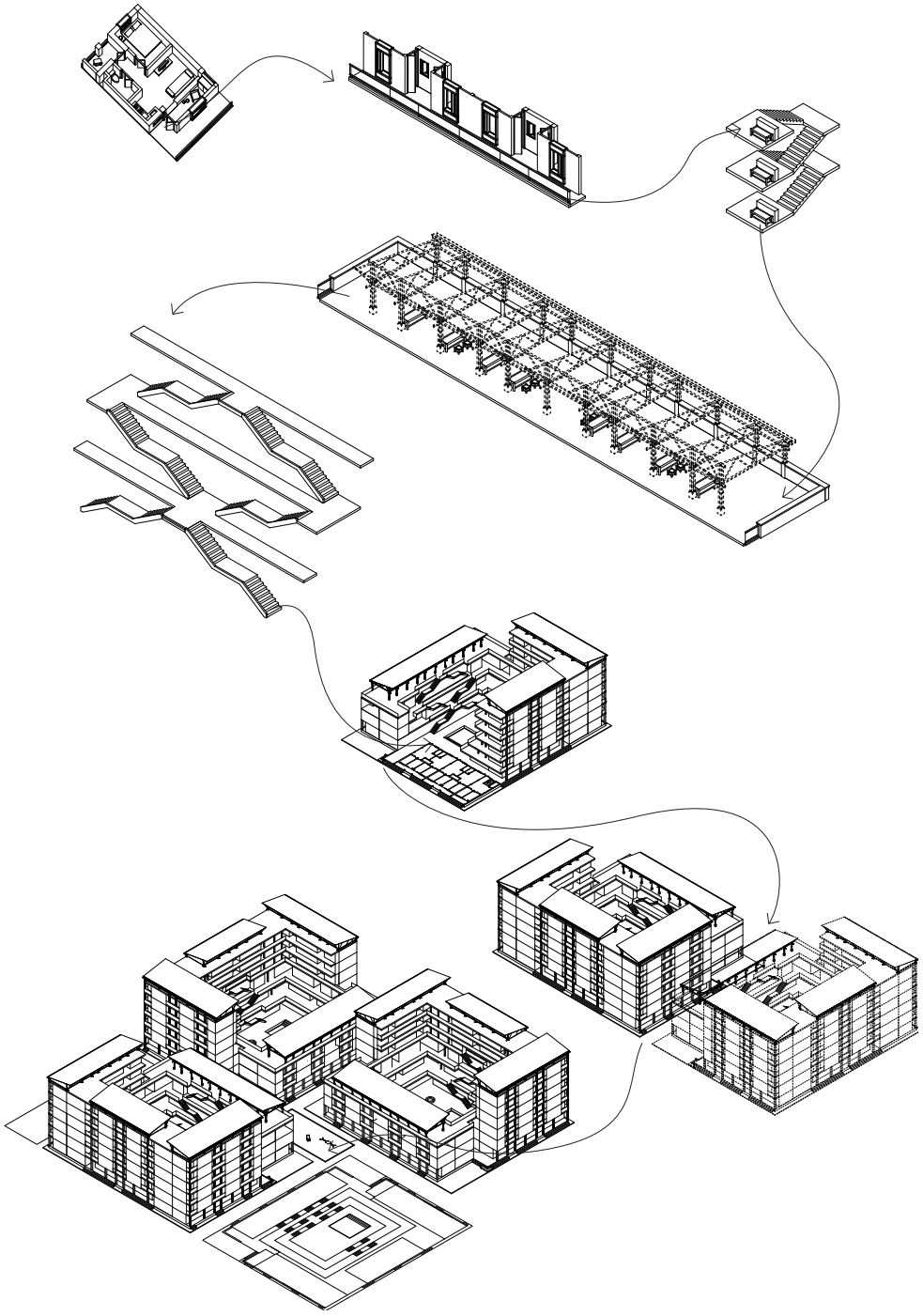
Step 7

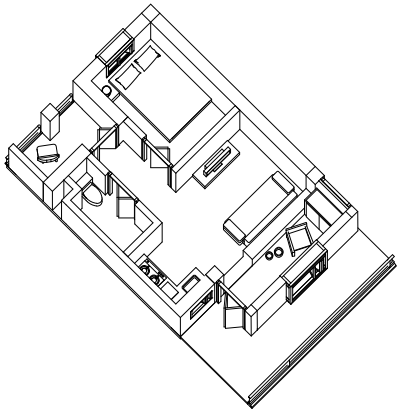
Exisiting Units in Baithi Chawls: 784

New units: 1485
Add: 89.4%

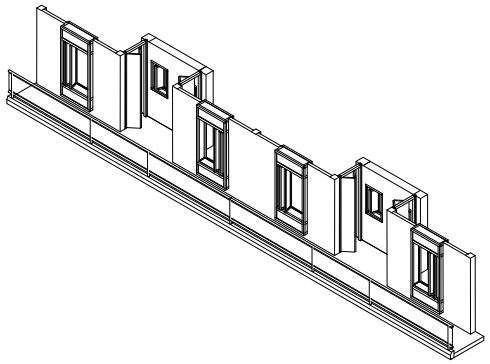
FSI:2.3
Density: 413 units/
hectare

Spatial Atmosphere

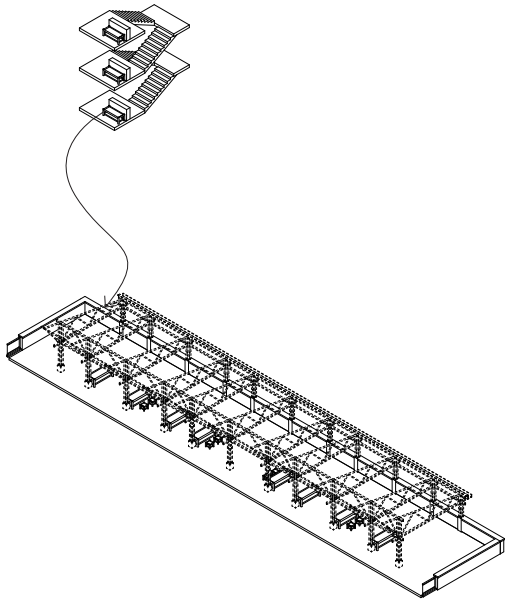




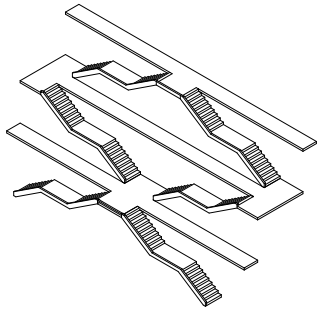
Domestic space



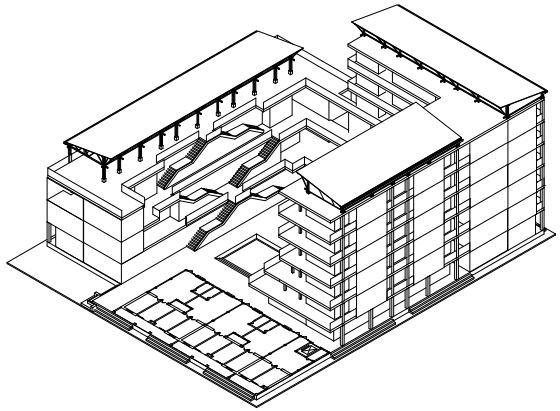
Corridor



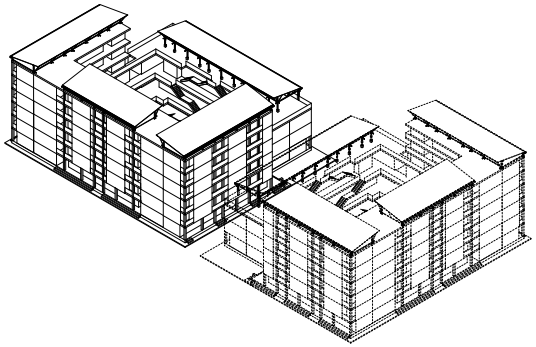
Roof terrace



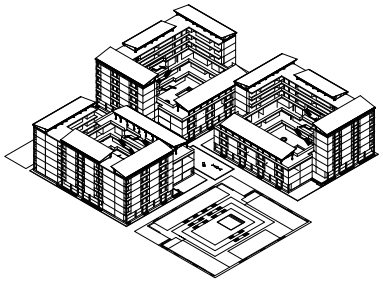
Stairs towards roof terrace



Inner courtyard with stairs



Commercialized corner



Open space in the pedestrian street