



*“...indirectly, and without any clear sense of the nature of his task, in making the city man has remade himself” (Harvey, 2003: 1).*







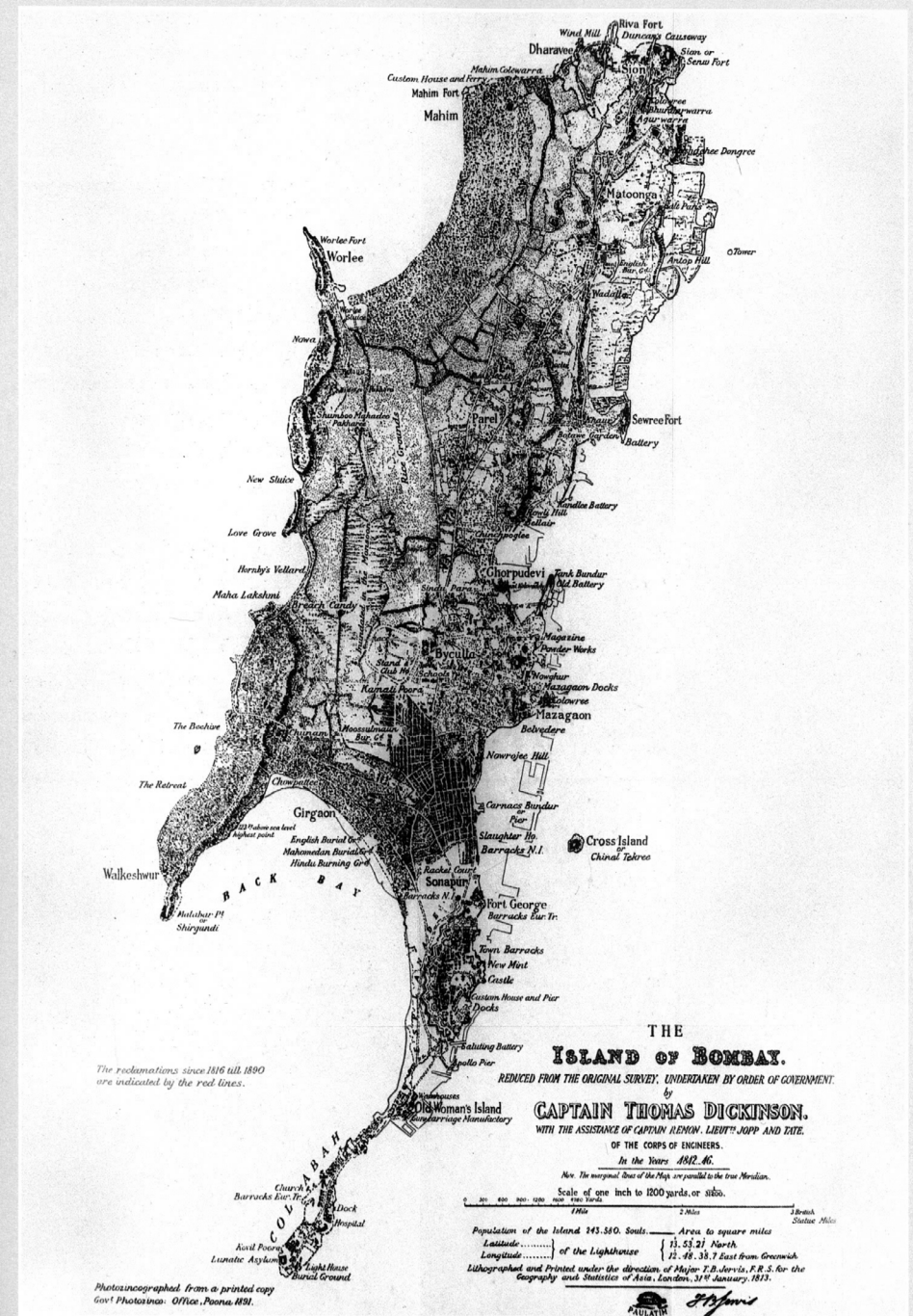






background

Mumbai an unplanned city, which developed organically from an archipelago of seven islands into a so-called urban megalopolis





1812



235.000

urban growth

De Jong, L. 2018, Leaving space



1909



1. 018 388

urban growth

De Jong, L. 2018, Leaving space



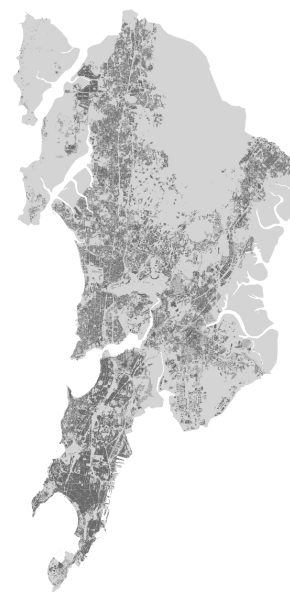
1812



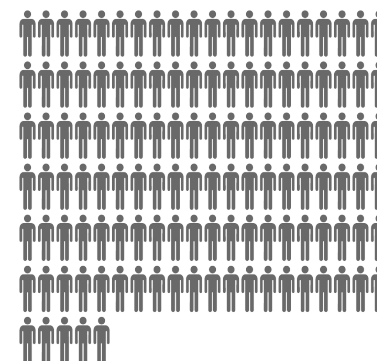
4. 152 056

urban growth

De Jong, L. 2018, Leaving space



2012



12. 442. 373

urban growth

De Jong, L. 2018, Leaving space

# Nala Sopara

*Rahul Mehrotra*

More specifically, forces of contemporary urbanisation plague the developing fabric of Mumbai's urban periphery: more specifically Nala Sopara East, in the case of this investigation. As described by Mehrotra, one of the great urban development challenges of traditional Indian towns or colonial settlements is the "integral logic" of their structure (Mehrotra, 2000). This logic is limited in that it is not easily able to be expanded upon in a coordinated manner. Evident in Nala Sopara, this uncoordinated development which is increasingly pressurised by migration and other forces of urbanisation, has produced an incoherent fabric, void of any guiding principles. Mehrotra refers to this inter-scalar phenomenon as 'the unfinished edge'. These urban conditions of illegibility and incoherence, too, dominate Mumbai's urban periphery as it sprawls, and it is within this existing urban reality that affordable housing for the masses must be developed.

The Research Project on the Ephemeral City  
[www.ephemeralurbanism.com](http://www.ephemeralurbanism.com)

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# Ephemeral Urbanism:

## Cities in constant flux

Rahul Mehrotra & Felipe Vera  
with Jose Mayoral  
Preface by Richard Sennett  
Afterword by Ricky Burdett

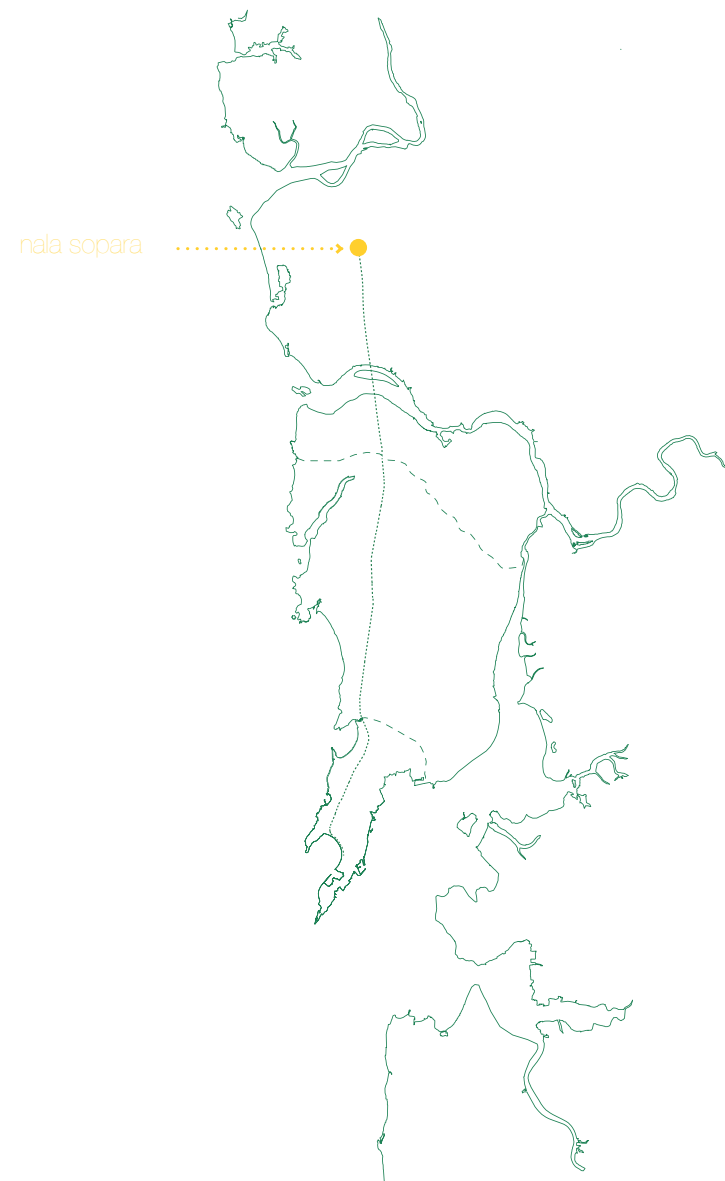
**ARQ**  
ediciones



In contemporary urbanism around the world, it is becoming clear that for cities to be sustainable, they need to resemble and facilitate active fluxes in motion rather than static material configurations.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100









# Nala Sopara

*Rahmat Nagar*

The effects of India's shift towards economic liberalisation, globalisation and privatisation in the mid 1990's has drastically altered the landscape of its cities. These powerful forces have imposed further spatial disjuncture on an unplanned city.

Nala Sopara lacks an adaptive, secure and inclusive physical identity, which is situated in, and modeled off the existing needs and practices of its locality.

2019





# 1\_baithi chawl reign

*Rahmat Nagar*

Baithi chawls reign the territory and large parcels of land remain natural and undeveloped.

2005





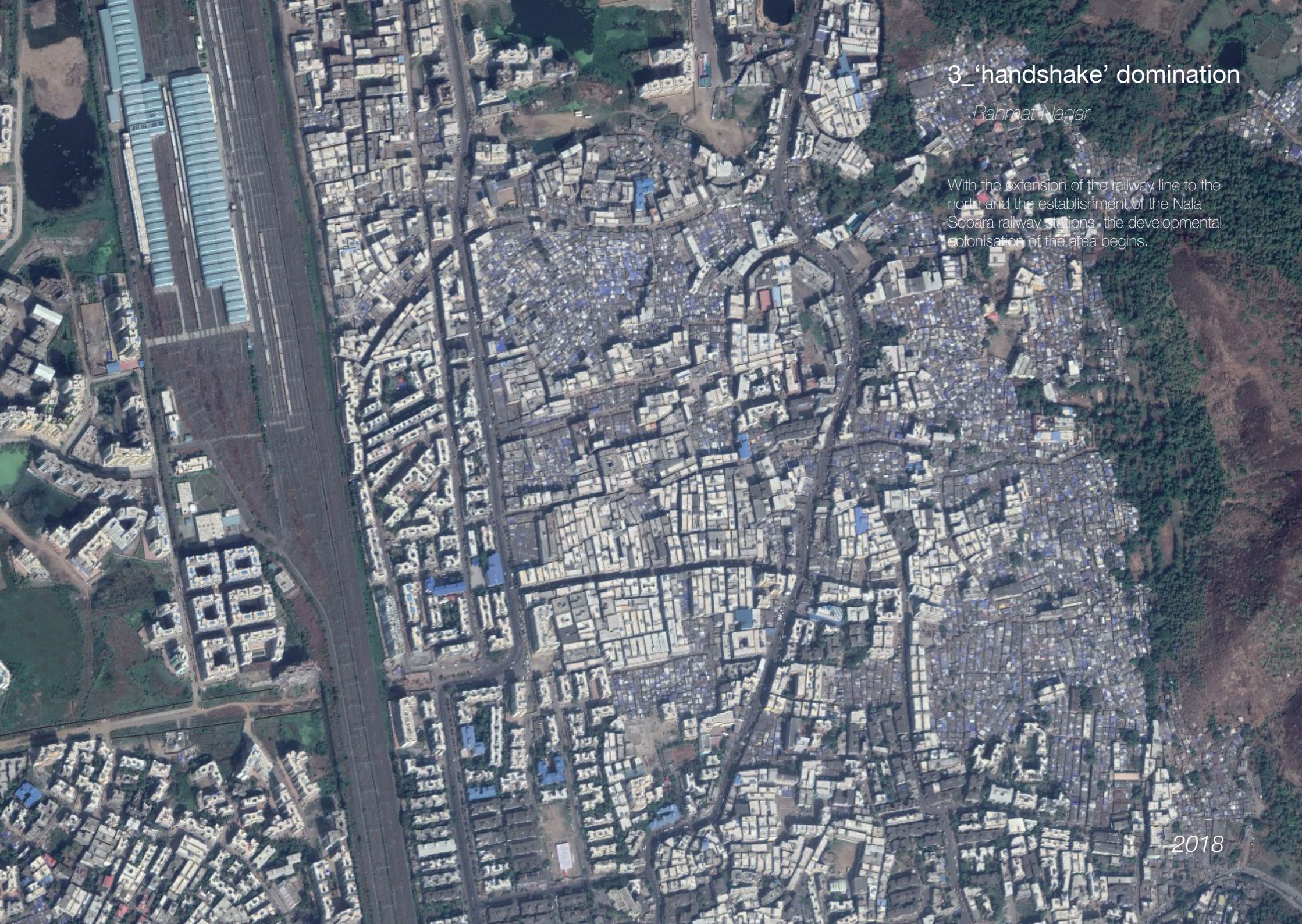
## 2\_railway line extension

*Bahmat Nagar*

With the extension of the railway line to the north and the establishment of the Nala Sopara railway stations, the developmental colonisation of the area begins.

2008





### 3\_ 'handshake' domination

*Rahmat Nagar*

With the extension of the railway line to the north and the establishment of the Nala Sopara railway stations, the developmental colonisation of the area begins.

2018



# urban growth

## *morphology*

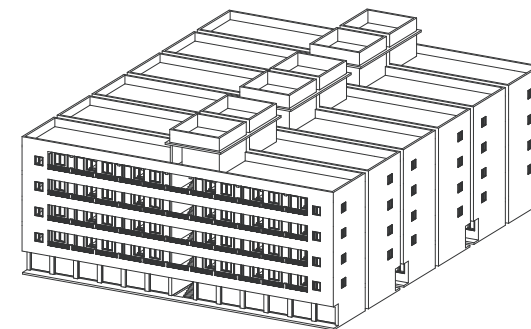
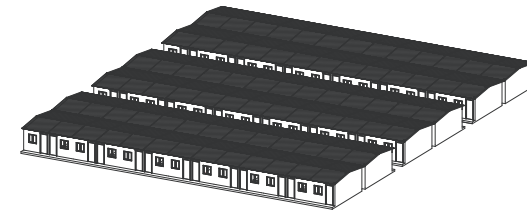
Nala Sopara lacks an adaptive, secure and inclusive physical identity, which is situated in, and modeled off the existing needs and practices of its locality.

The colonisation of the area by newly established 'handshake chawls' has become a dominant condition which disrupts and destroys existing domestic practices and patterns of habitation. These multi-storey developments are constructed by opportunistic local, small-scale contractors, capitalising on the proliferating housing shortage in the area. In addition to their disturbance of everyday practices, these developments stand in stark contrast to the existing low-rise baithi chawls and, as a result, articulate a disjunct urban fabric and agitated locality.

The relational proximity of these 'handshake chawls' and their conditions, chronically lacking natural lighting and fresh ventilation, deem these developments inadequate for sustained wellbeing and dampen realistic aspirations for upward mobility. In addition to these neglected basic needs, is an undeveloped range of quality, open-to-sky public spaces within the private realm.

The above conditions are acutely manifest in Rahmat Nagar which is the area of focus for this project.

baithi chawl



highrise 'handshake' blocks

problem statement  
& research question

*Urban change and growth are inevitable realities in the morphology of cities*

...

The current shift from **low-rise chawls** to **high-rise developments** seeks to respond rapidly and primarily to prevalent density requirements, under economic pressure.

As a result, these developments lack in their consideration of **established habitation practices**, resulting in the cultivation of an urban fabric dominated by **disjuncture** and **exclusion**.

*problem statement*



How can the design of **affordable multi-level, mid-rise** housing developments incorporate the inhabited **familiarity** and **intimacy** brought about through appropriative space-making practices, while responding to requirements of **density** and **economy**?

*research question*

How can a legible and coherent urban locality be reconstructed utilising established **endemic domestic practices** as a core driver in the design process?

*sub-question*

# patterns of habitation

*visual ethnography*

## domestic activities

### *patterns of habitation*

The Global Housing research studio introduced visual ethnography as an empirical research method through which to engage with the social ecology of a locality.

This locality is analysed according to its inter-relation with space, place and people. This technique draws reference from Christopher Alexander's A Pattern Language in the establishment of patterns of habitation, as well as Atelier Bow Wow's Harvard Graduate School of Design studio whereby "the act of drawing becomes an instrument of dialogue and engagement". Central to this research method is the translation of observed patterns of habitation into communicative drawings.

These drawings are organised according to five core themes: income generation, borders, building techniques, social spaces and domestic activities, these dwelling patterns inter-relate and inform each other iteratively.

### Doorstep food preparation



activity: socialising while prepping food  
element: household threshold

The intermediary buffer space at the threshold of the house facilitates the gathering of women in the late afternoon. This is a place where socialising happens while chopping onions and tomatoes in preparation for family supper, as well as watching over children playing both inside and outside the house.

## Invitation doorstep

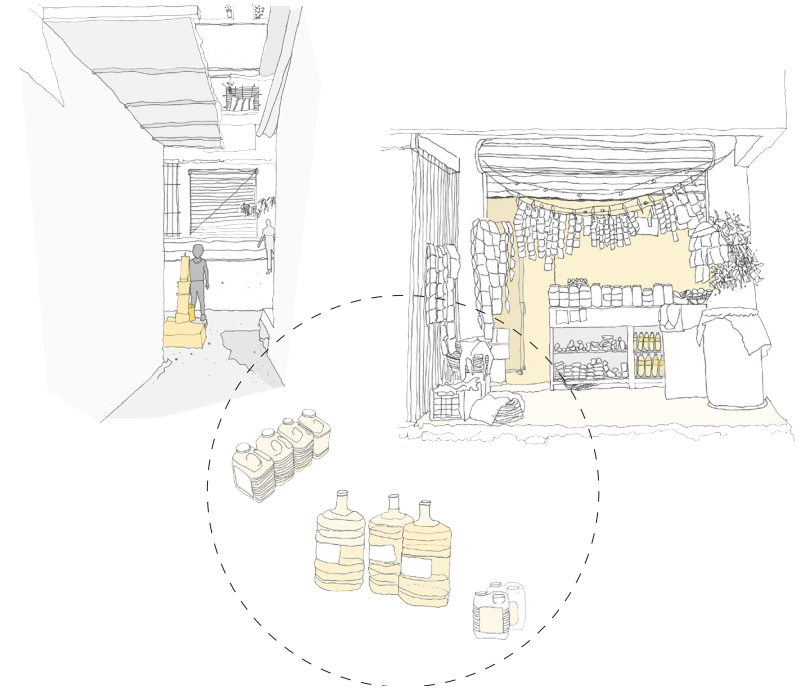


activity: and invitation to socialise  
element: doorstep

The threshold of the home is activated by the affordance of a step at the front. This step offers dwellers a position to sit at the boundary between the home and the public space beyond. This act becomes an invitation for afternoon socialising.

domestic activities

## Water acquisition



activity: acquiring of water  
element: various (locally positioned)

The acquisition of water in Nala Sopara is an important household activity which connects activities in the home to external locations within the neighbourhood. Water is retrieved from various places, including local boreholes where waterpumps (non-potable) have been installed and nearby markets where bottled water is available (potable).

domestic activities

## Curtains

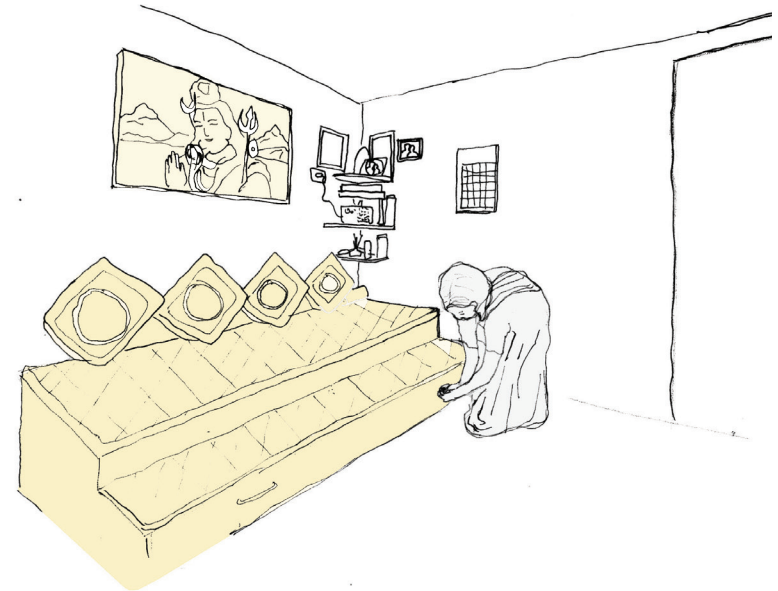


activity: resting, varying  
element: curtains

Curtains determine the level of privacy in the house rather than the door which is only closed when absent or at night. If the curtains are open, everybody passing is invited to connect or join, whereas a closed one is mostly observed while the resident is resting.

domestic activities

## Nighttime sleeping



activity: sleeping  
element: extendable sleeping couch

At night, the living room is transformed into a sleeping space for the family. An extendable sleeping couch and extra bedding stored underneath constitute the main elements which, especially in one room apartments, enable an optimized usage of space.

domestic activities

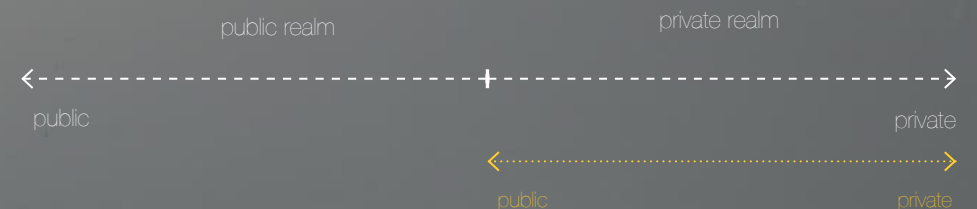
## domestic activities

### *synthesis*

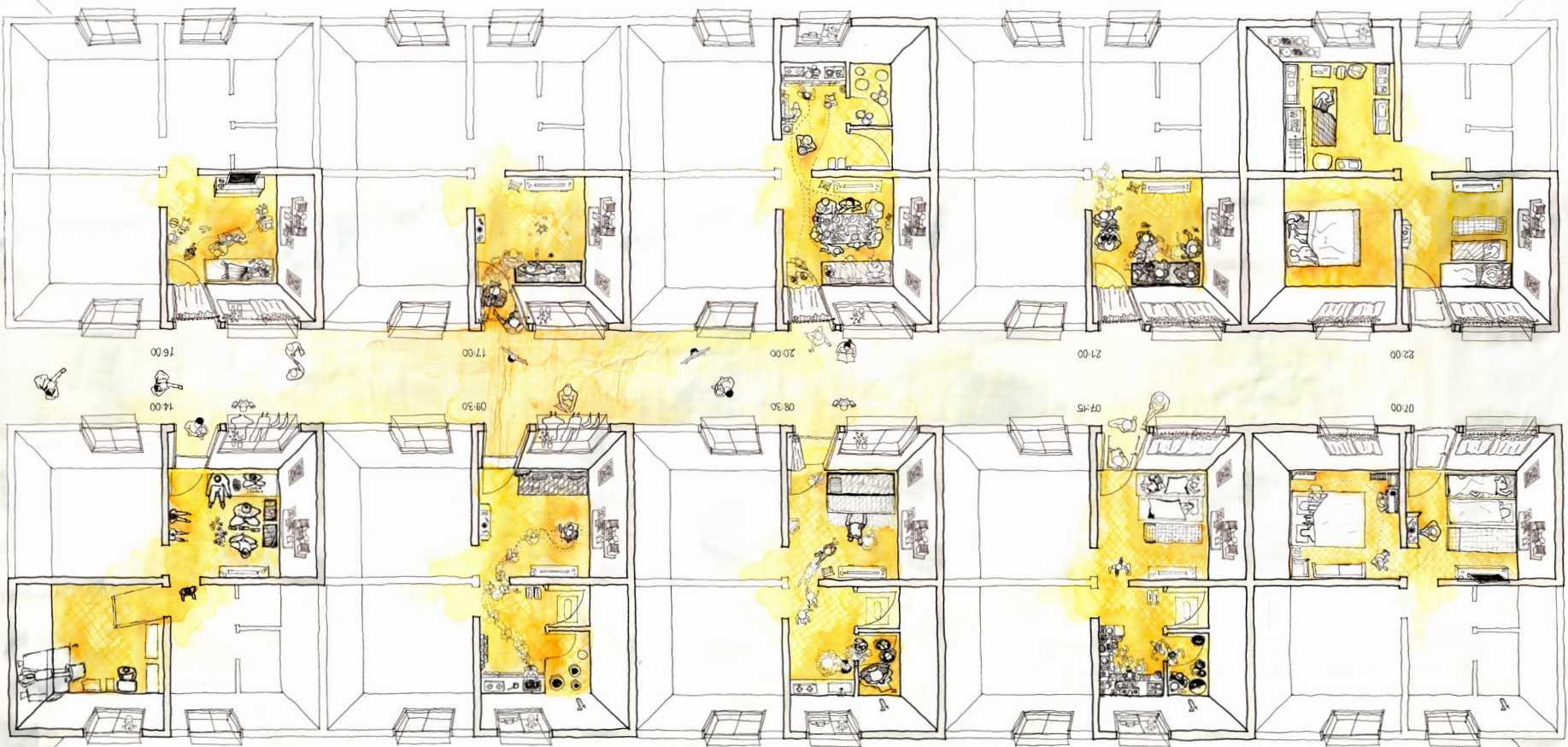
The ethnographic research phase of this project looks into uncovering and documenting existing modes of habitation in Nala Sopara and linking them to the physical attributes of typology. In engaging with this dual understanding of locality from such an early point in the research phase, a strong relation between research and design was predetermined by the studio.

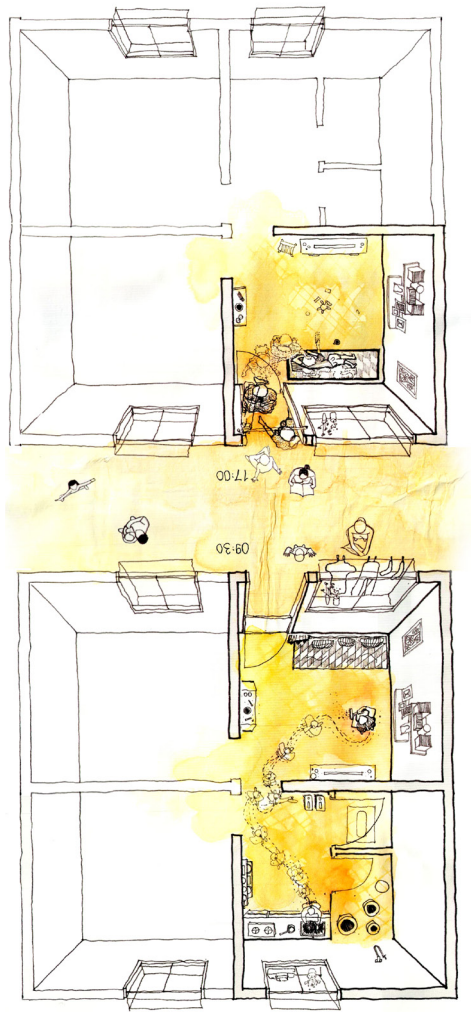
The synthesis drawings looks a day in the life of a typical Nala Soparan household, with special focus on the woman of the house. Domestic activities are related to the time of day, a room in the house, and the people involved in the activity. In this sense, the activities take on a temporal nature, whereby parts of the home transform from day to night.

Additionally, the differentiation between what is understood to be common public space, such as streets, and public space within the private realm, such as inner-facing courtyard alludes to a more complex spectrum of public and private space. This condition annuls the notion of a binary public/private relation, rather positioning the relation as a range of publicness within the private realm, and a range of privateness within the public realm.



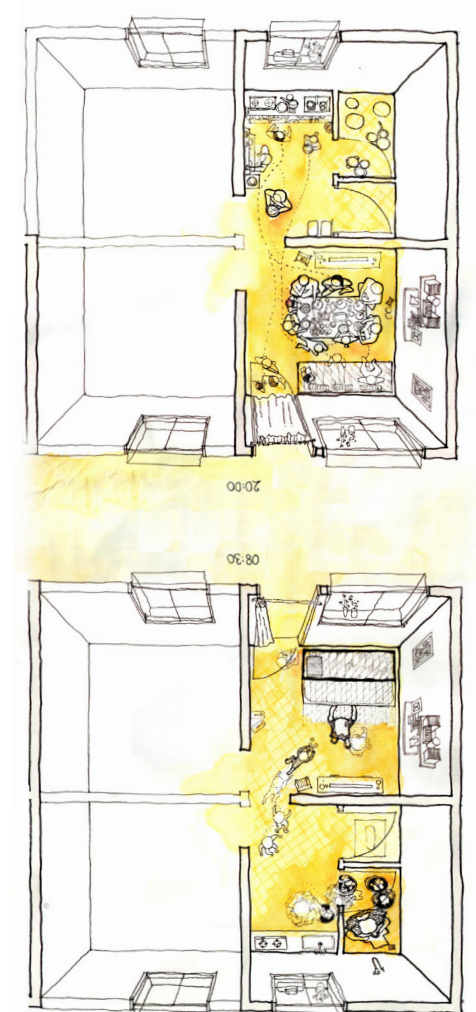






late afternoon outward-facing spill-out completion of chores

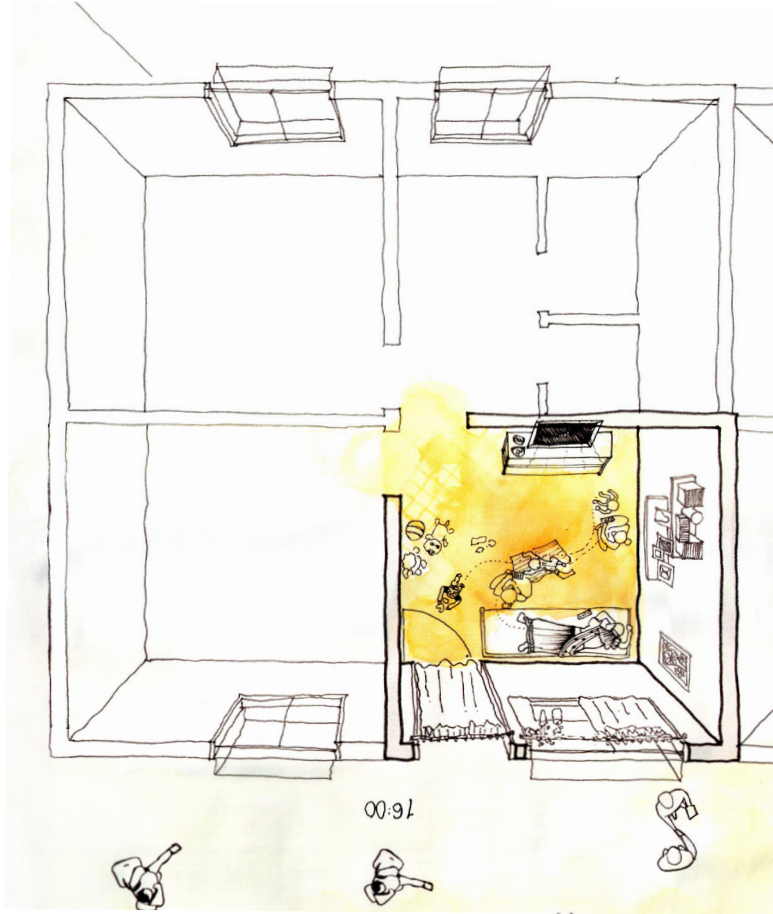
domestic activities



inward-facing home during evening family time

domestic activities

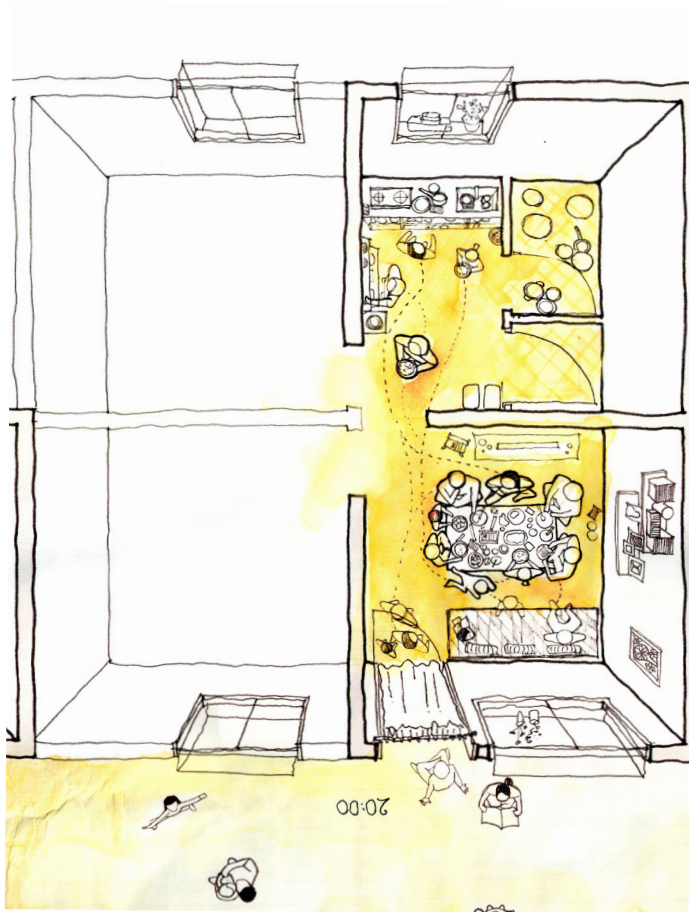




domestic activities



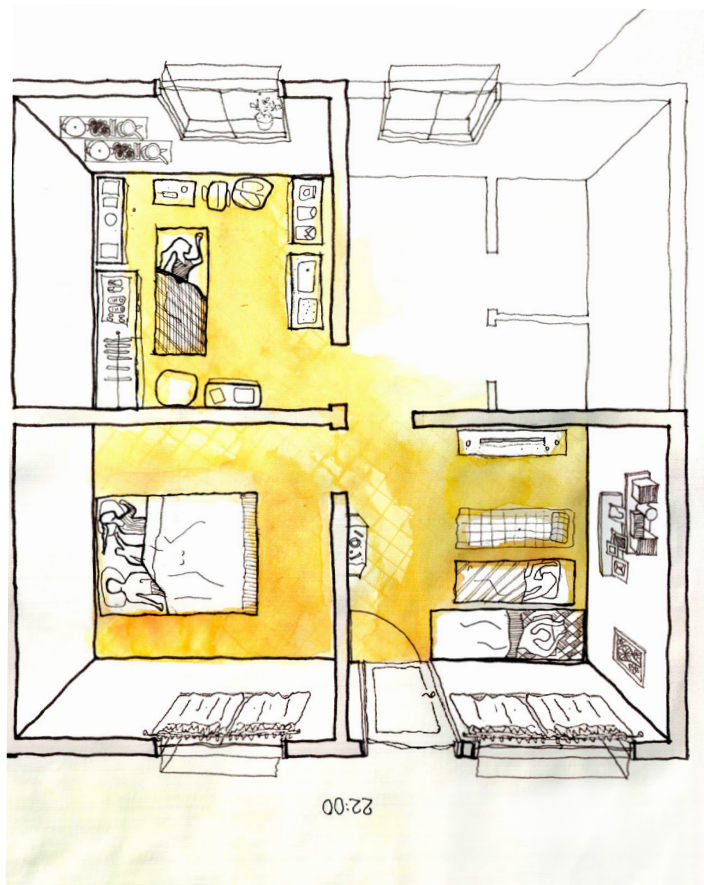
domestic activities



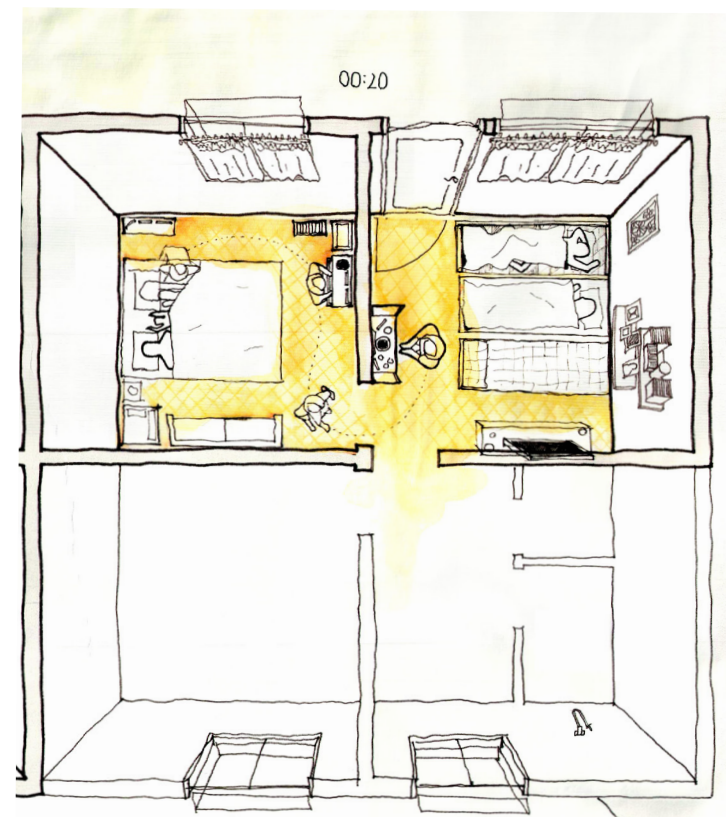
domestic activities



domestic activities



domestic activities

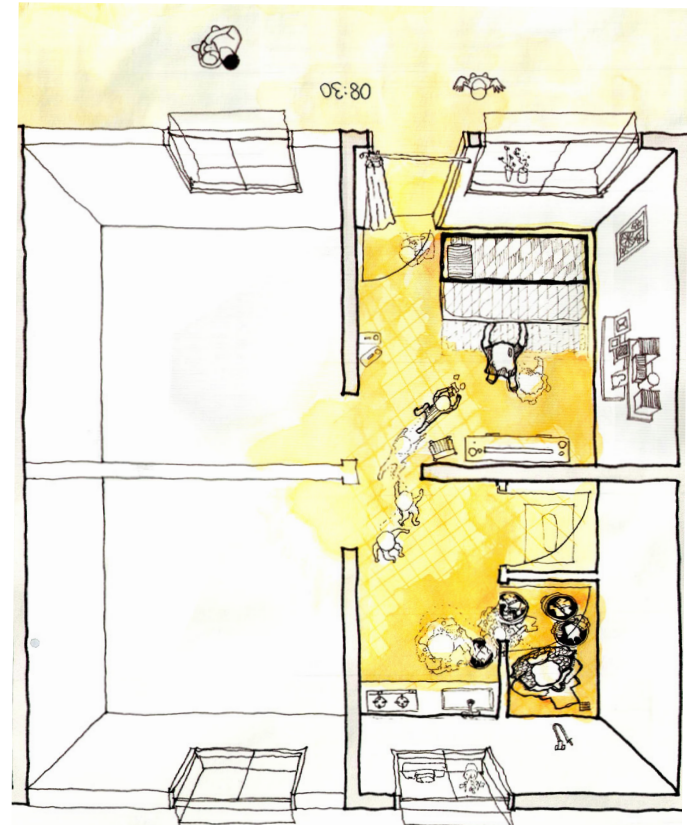


domestic activities

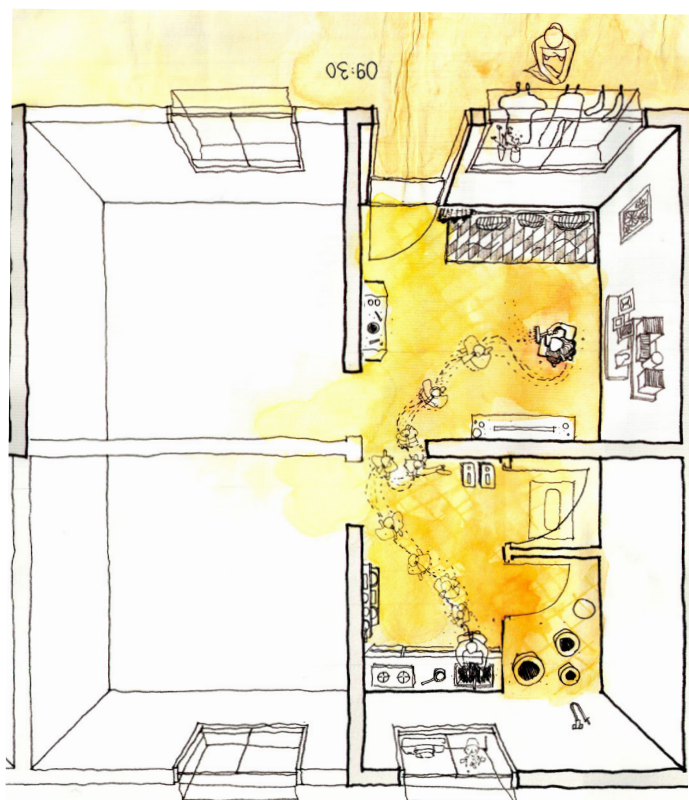




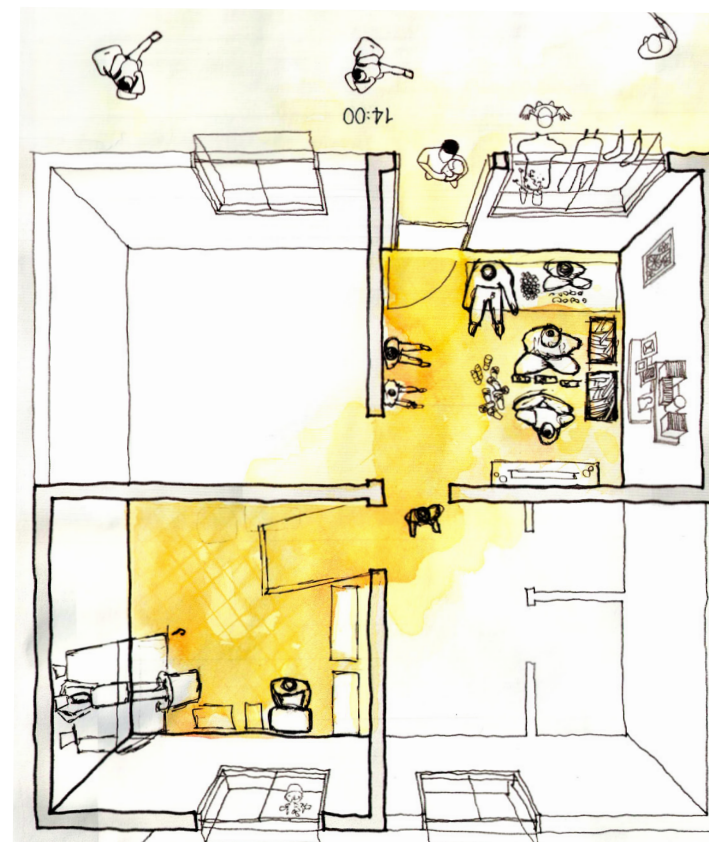
domestic activities



domestic activities



domestic activities



domestic activities

# architectural ethnography

*typological genealogy*

# typological genealogy

*architectural ethnography*

*typology*: a classification according to general type, especially in archaeology, psychology, or the social sciences.

*genealogy*: the study of families, family history, and the tracing of their lineages.

The transformative typological variation and morphological potential of typology present in Mumbai, from the city's first settlement to present day developments, makes the impact of typology on domestic life clear. This process of typological renewal, termed typology genealogy by Atelier Bow Wow is interested in what the various typological shifts or variations afford or disallow their inhabitants.

This project aligns with their thinking, which poses the role of the architect as one who observes and applies the efficiencies of user appropriation in the creation of new typologies.

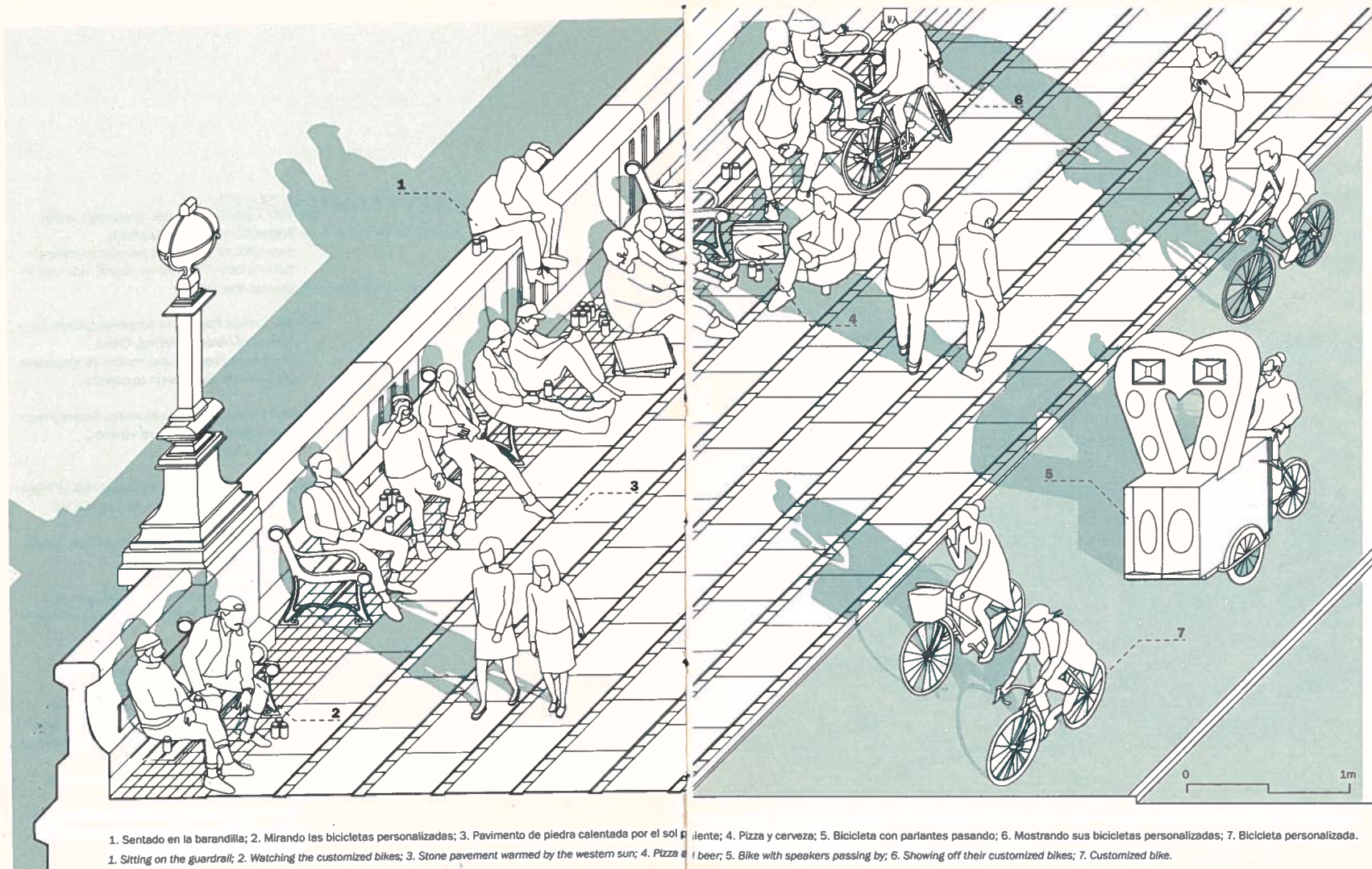
# ATELIER BOW-WOW

COMUNALIDAD ARQUITECTÓNICA:  
UNA INTRODUCCIÓN

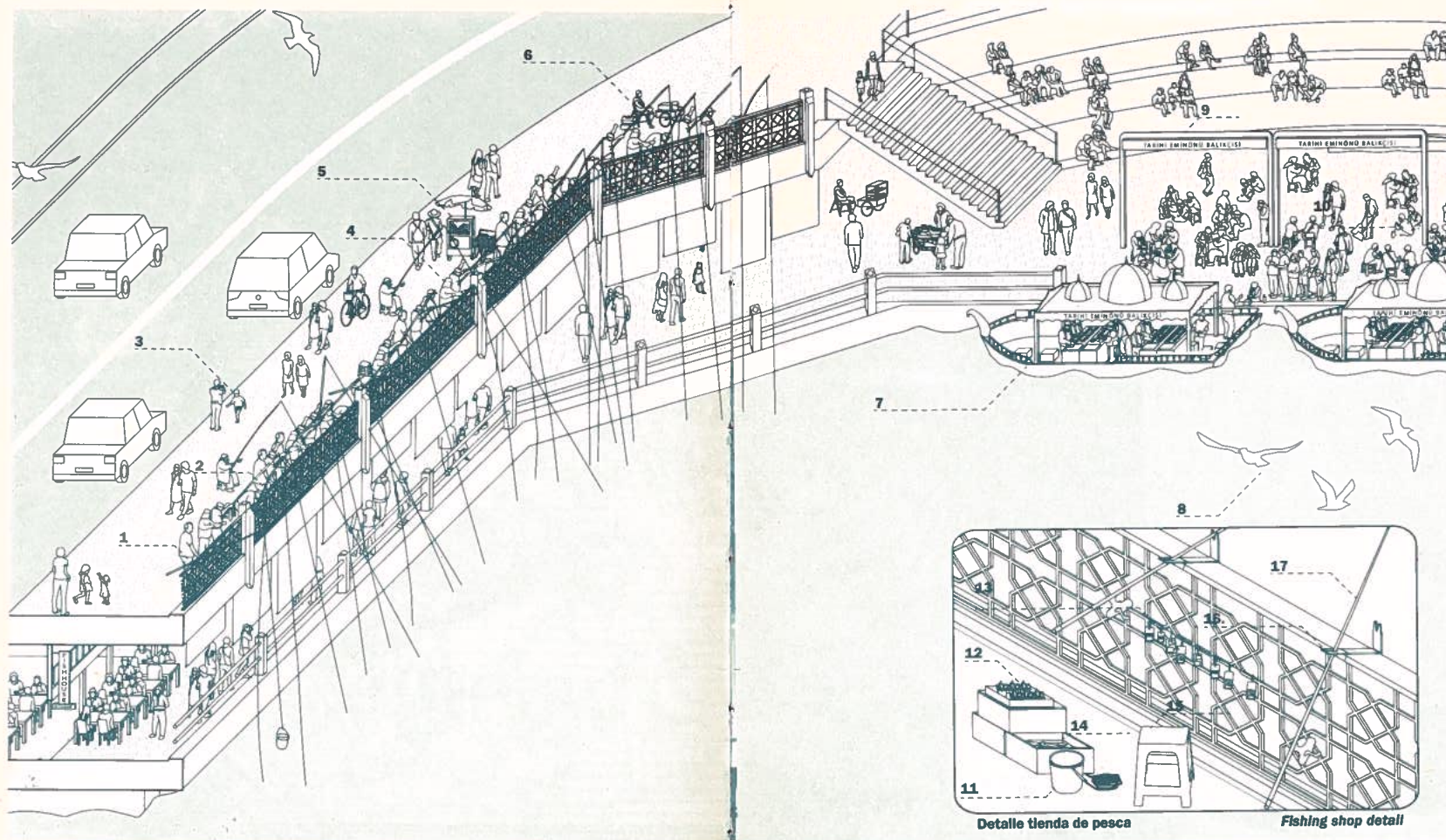
*Architectural Commonality:  
An Introduction*

**ARQ**  
ediciones









1. Barra de pesca fija al pasamanos; 2. Balde de agua; 3. Turista; 4. Pescadores apiñados; 5. Carro de pan; 6. Tienda de pesca; 7. Bote con cocina; 8. Gaviota; 9. Toldo; 10. Personas comiendo sandwiches de pescado; 11. Balde con cuerda; 12. Cebo; 13. Señuelo de pesca y cable colgando del pasamanos; 14. Pescados; 15. Banca plástica; 16. Soporte de caña de pescar; 17. Caña de pescar.
1. Fishing rod fixed to the hand rail; 2. Water drawn up in a bucket; 3. Tourist; 4. Fishermen squeezed together; 5. Bread cart; 6. Fishing shop; 7. Boat with kitchen; 8. Seagull; 9. Awning; 10. People eating fish sandwiches; 11. Bucket with rope; 12. Bait; 13. Fishing lure and wire hung from the handrail; 14. Caught fish; 15. Plastic stool; 16. Fishing rod holder; 17. Fishing rod.

0 3 6m

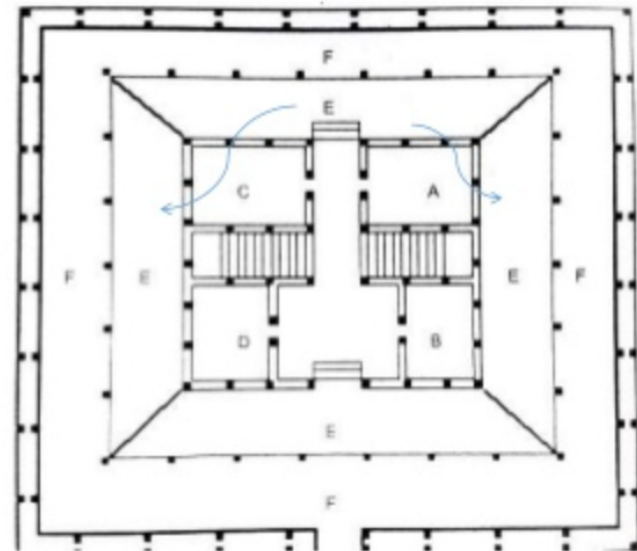
# chawl

*typological genealogy*

*chawl*: a large building divided into many separate tenements, offering cheap, basic accommodation to labourers.

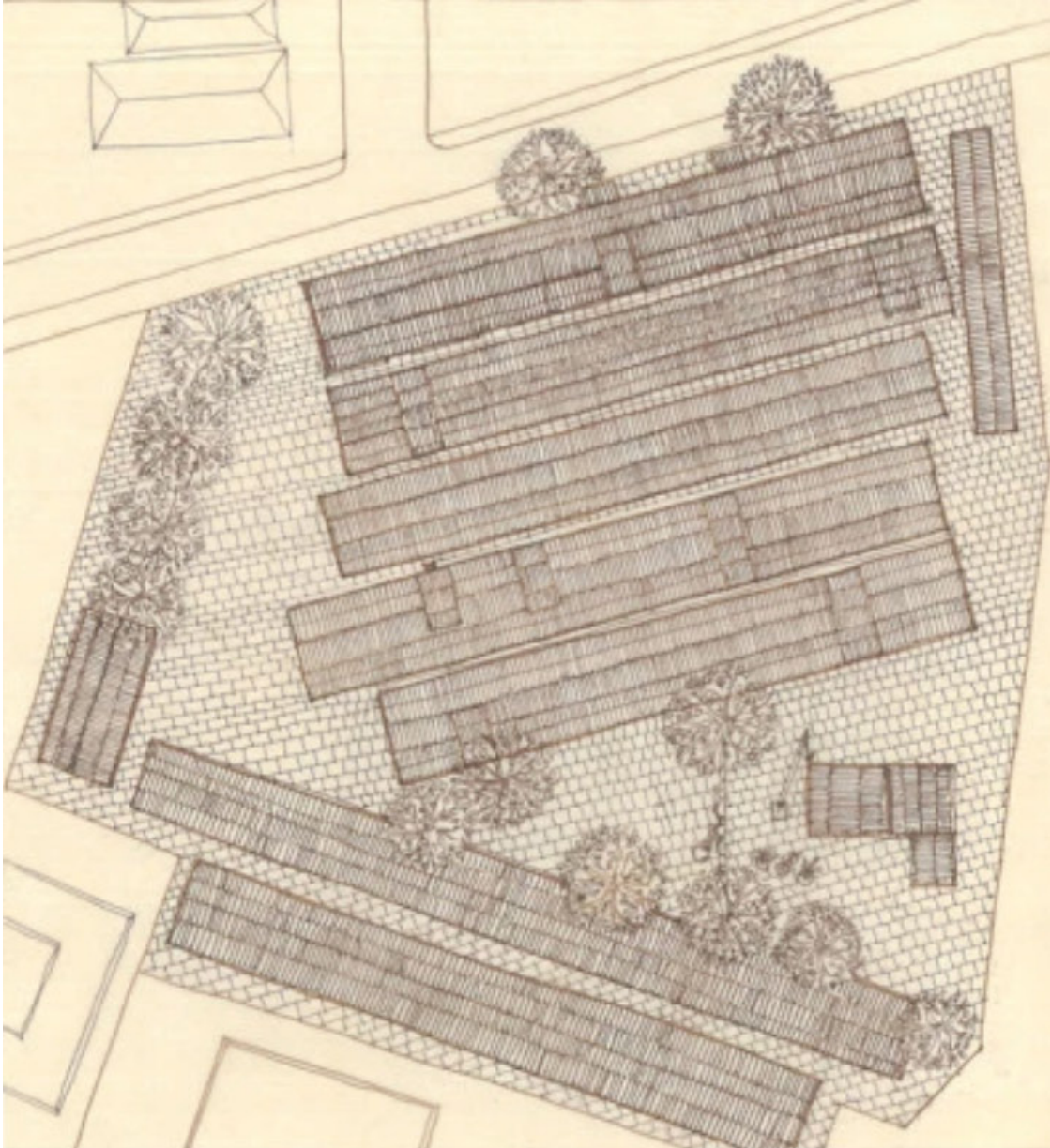


army barracks - string of rooms/beds off a central corridor



agrarian wada - open courtyard formed by surrounding by rooms

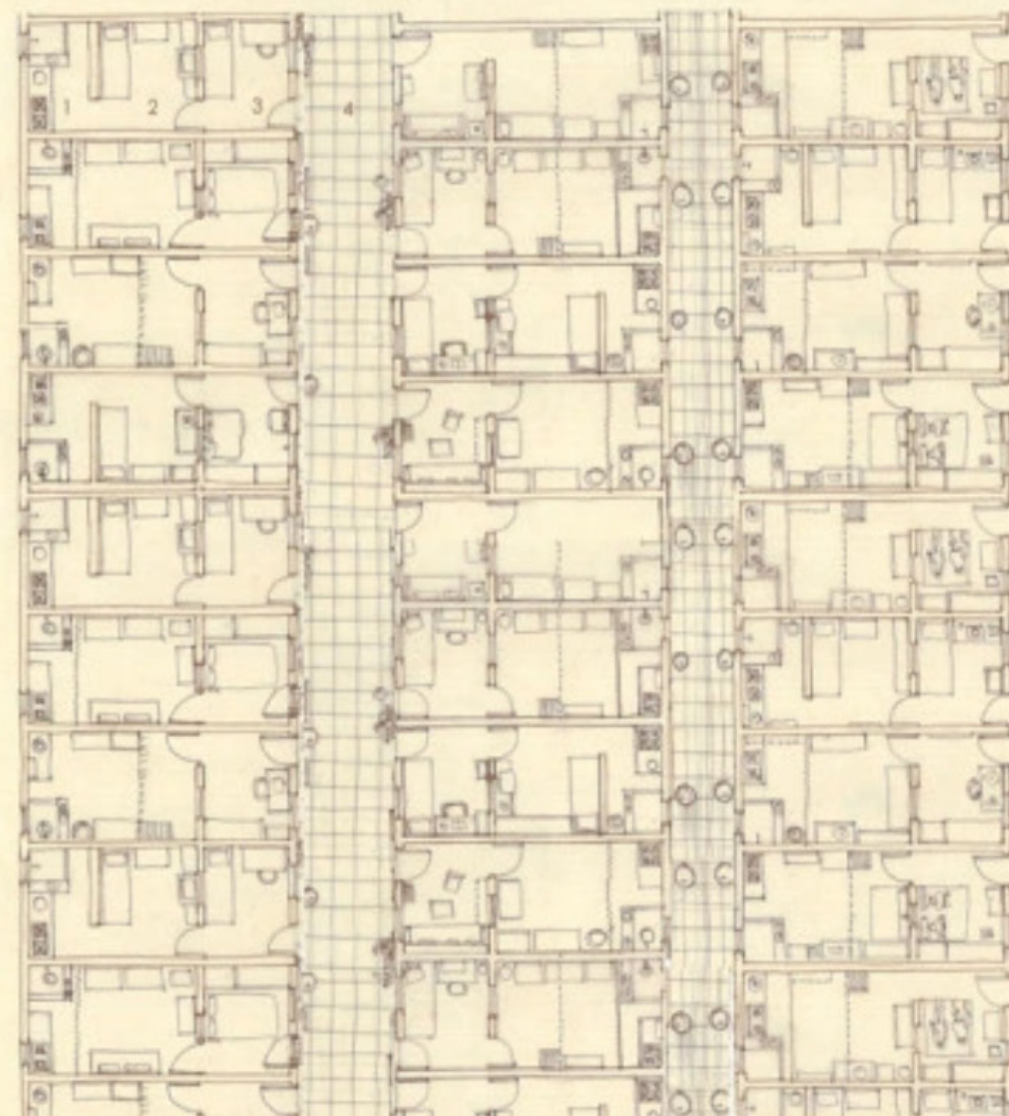




Baithi chawls were the first chawl typologies that emerged. They were generally ground storey structures with pitched roofs, in some cases they also went to ground plus one. They often formed parts of larger layouts as in the case of the Modern mills compound. Being low-rise, these structures had a particular relationship to the ground and allowed for a spill-over of everyday activities from the relatively small house to the outside space. Baithi chawls in most places have been demolished because of the low density they offered to make way for new higher density structures.

1 kitchen 2 multipurpose room 3 converted verandah 4 alley

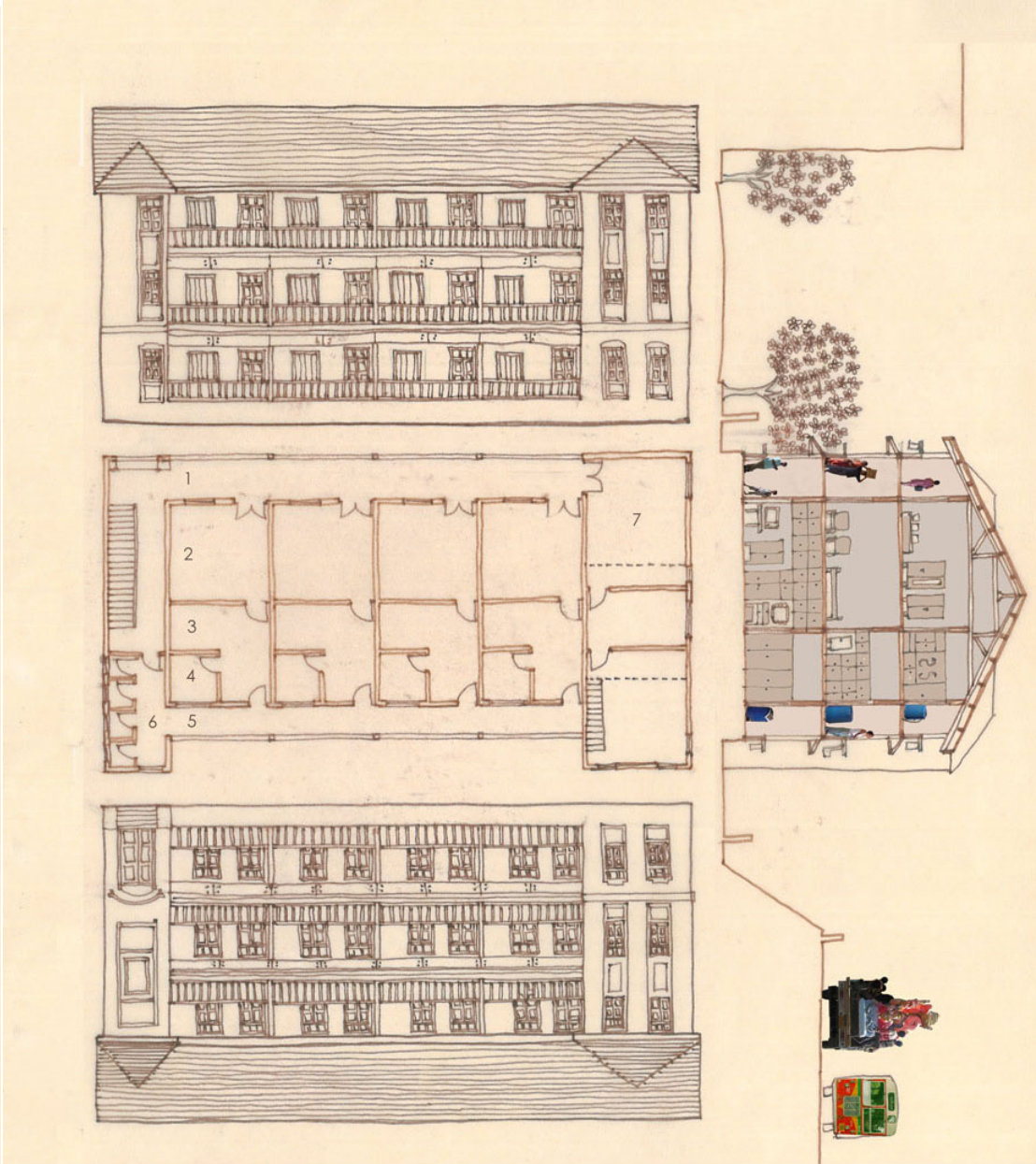
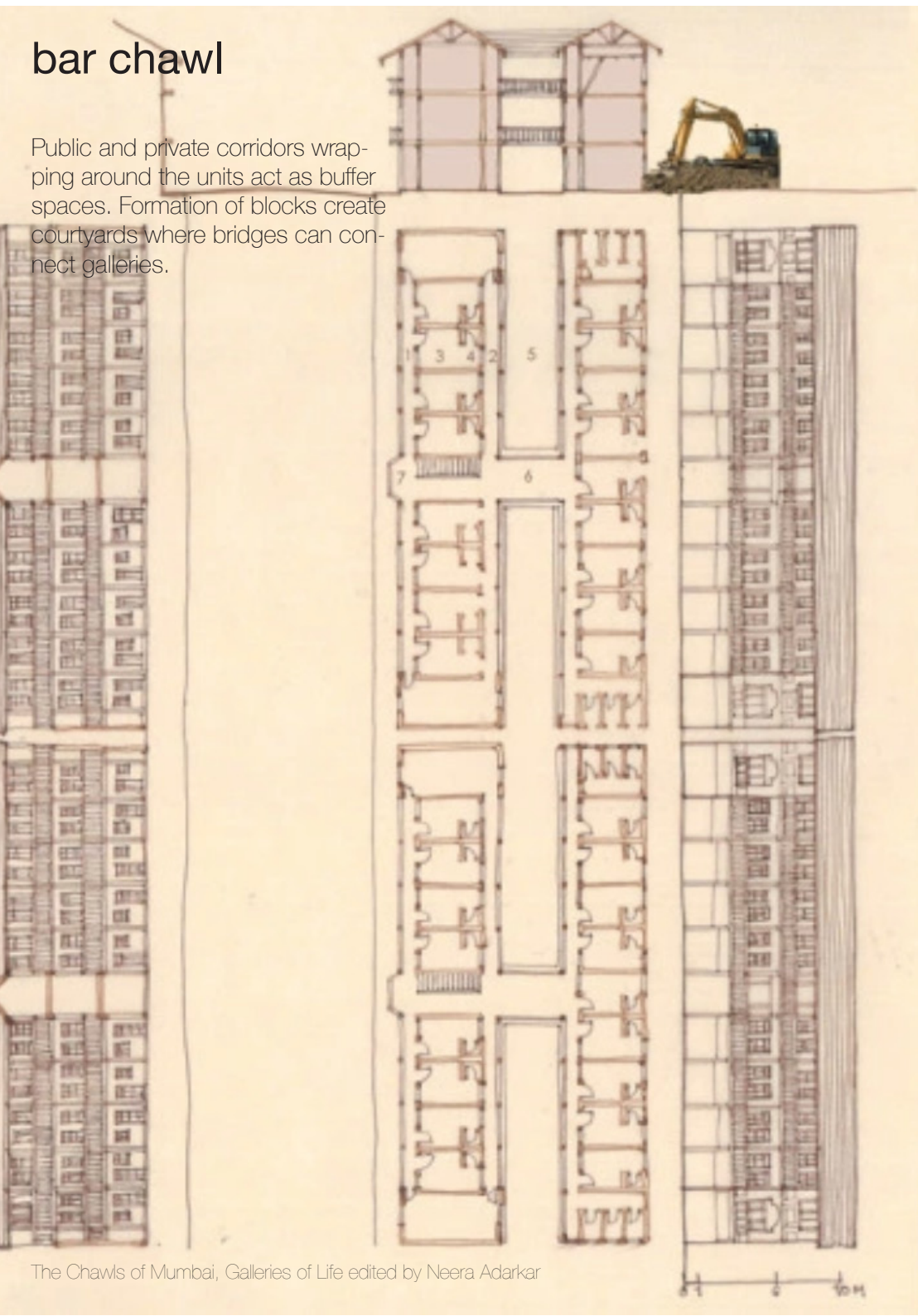
The Chawls of Mumbai, Galleries of Life edited by Neera Adarkar





# bar chawl

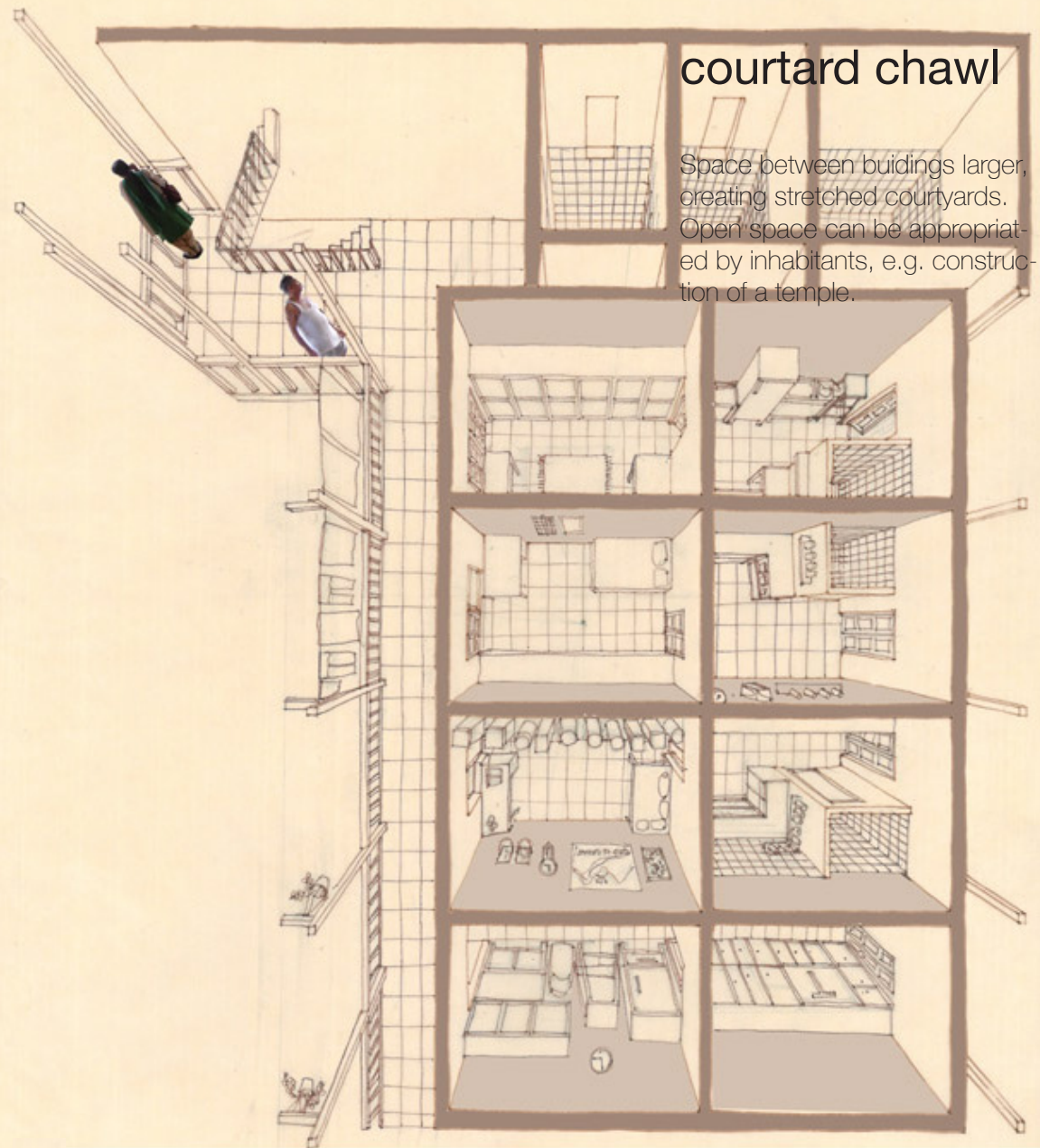
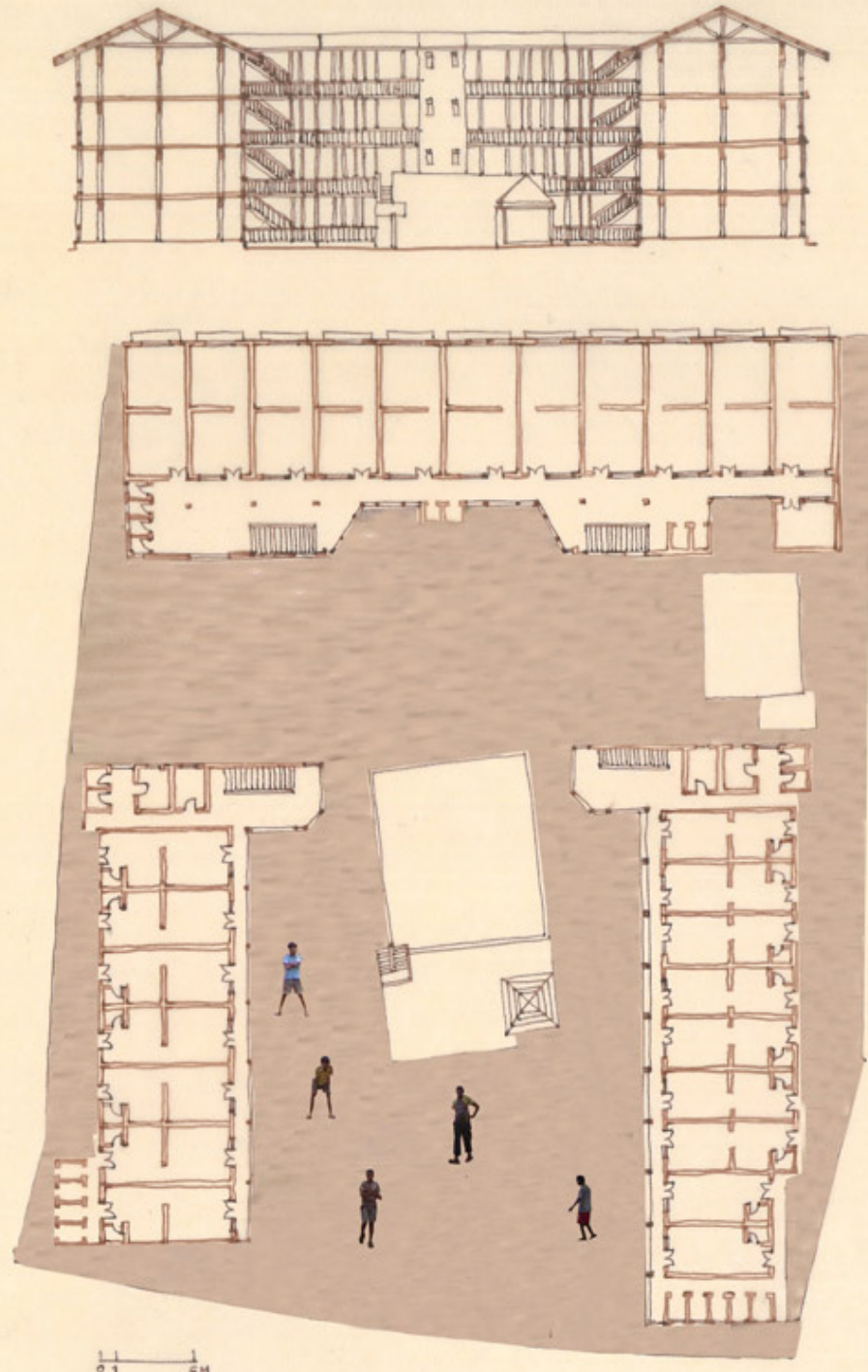
Public and private corridors wrapping around the units act as buffer spaces. Formation of blocks create courtyards where bridges can connect galleries.



Pradhan building represents a single bar typology with two verandahs flanking its edges. The front verandah gives access to a multipurpose space leading to a kitchen behind. The back verandah leads to the common toilets. The kitchen has a small washspace called a mori. In many cases this space has been renovated to serve as a modern bathroom. The two verandahs become important semi public spaces, where much of the everyday household activity spills out

1 front corridor 2 multipurpose room 3 kitchen 4 mori converted to bathroom 5 back corridor 6 land-lord's house





## courtard chawl

Space between buildings larger, creating stretched courtyards. Open space can be appropriated by inhabitants, e.g. construction of a temple.

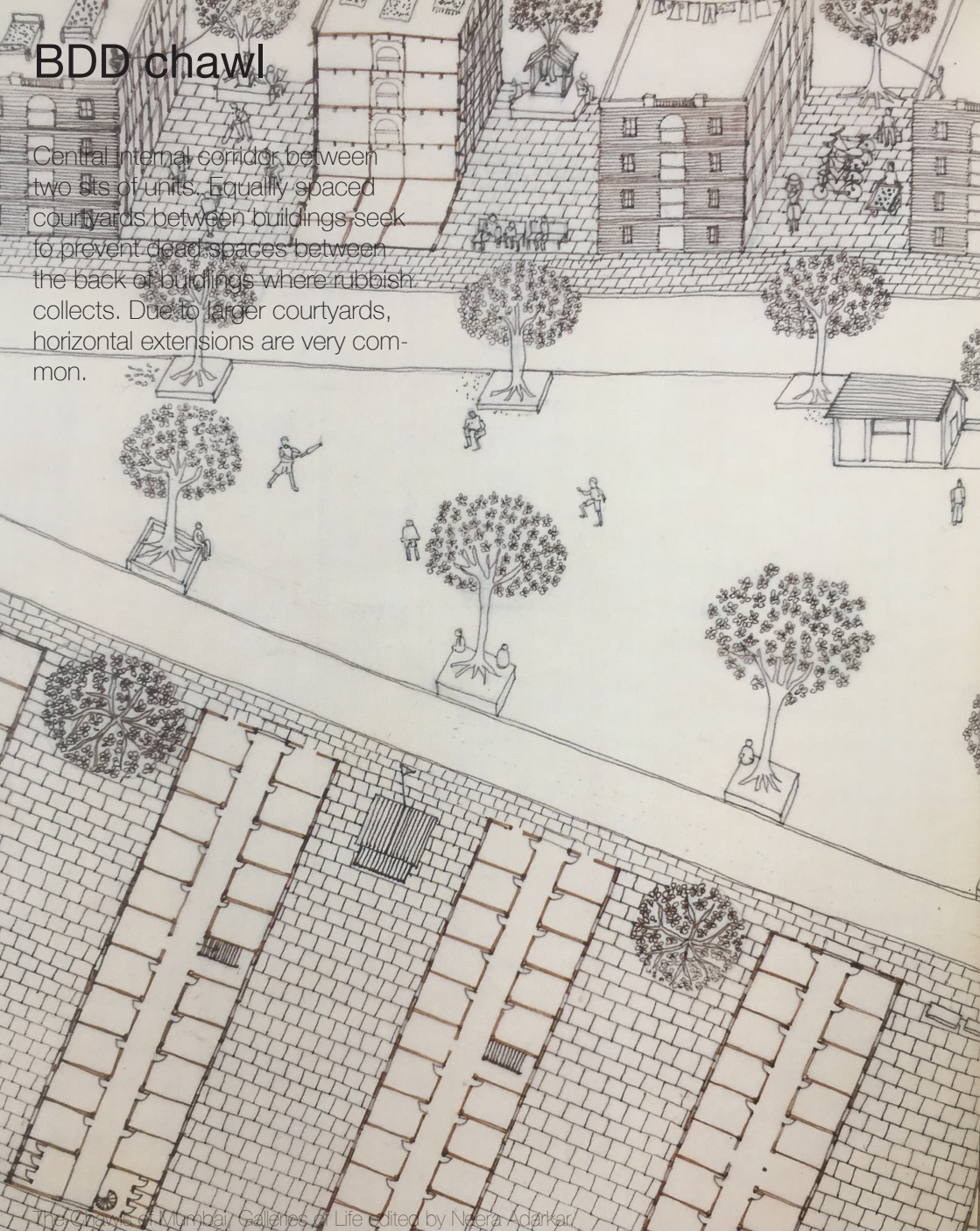
In the case of Kshatriya Niwas, internal courtyards were stretched to form generous central spaces with a 2:1 open to height ratio. This central space as the example shows, was then used to house the temple of the local deity. This facility expanded to accommodate multipurpose halls for various functions of the community. Here the common corridor terminates in a wide staircase block. This block is pulled out of the building profile and becomes an important feature of the built form. Its spacious landings double as gathering spaces.

chawl genealogy

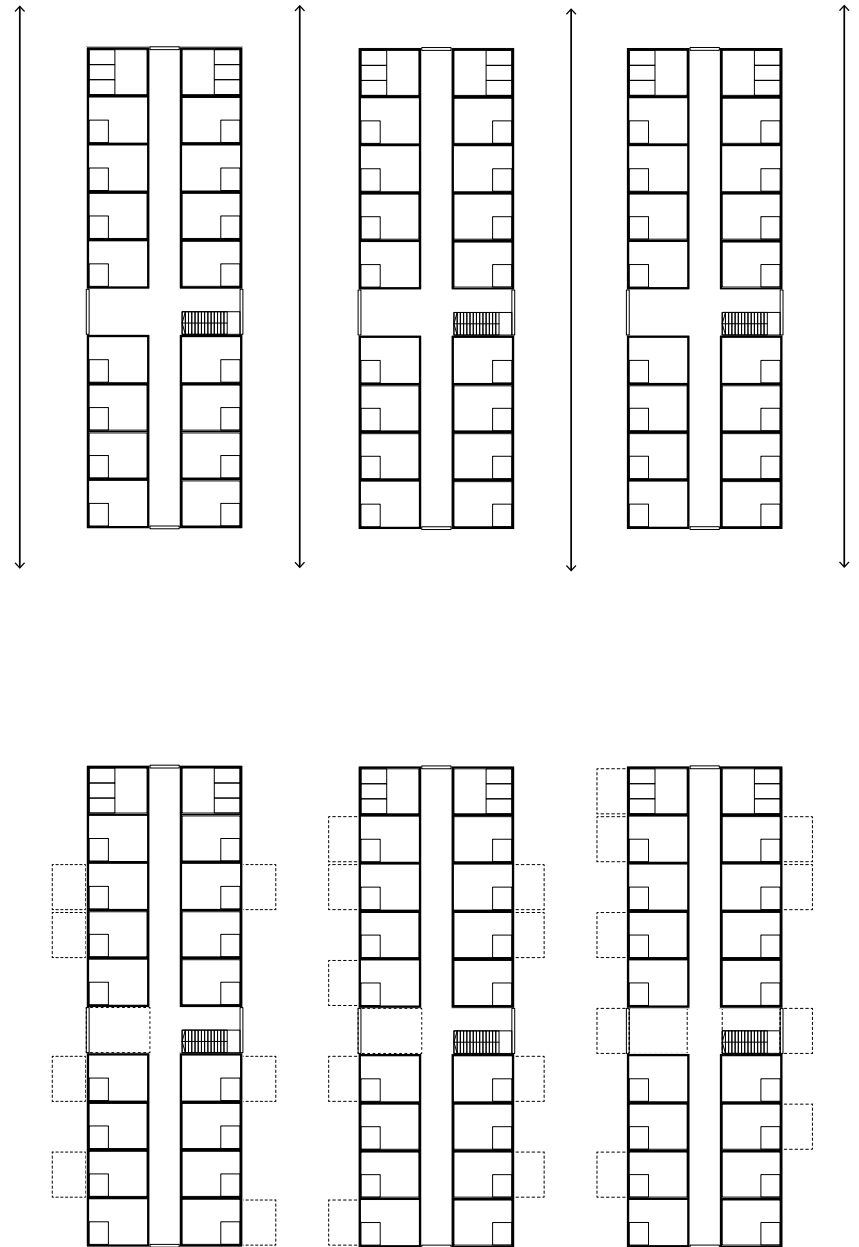


# BDD chawl

Central internal corridor between two sets of units. Equally spaced courtyards between buildings seek to prevent dead spaces between the back of buildings where rubbish collects. Due to larger courtyards, horizontal extensions are very common.

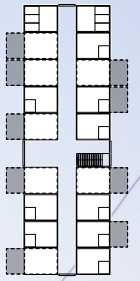


The BDD chawls represent a typological development where a wide central corridor gives access to single-room tenements on either side. Each tenement is serviced with an internal washroom, or mori. Common toilets are located at one end of the corridor. In many of these buildings one room facing the staircase was kept as a common room. These buildings often became part of a large planned layout with generous open spaces.

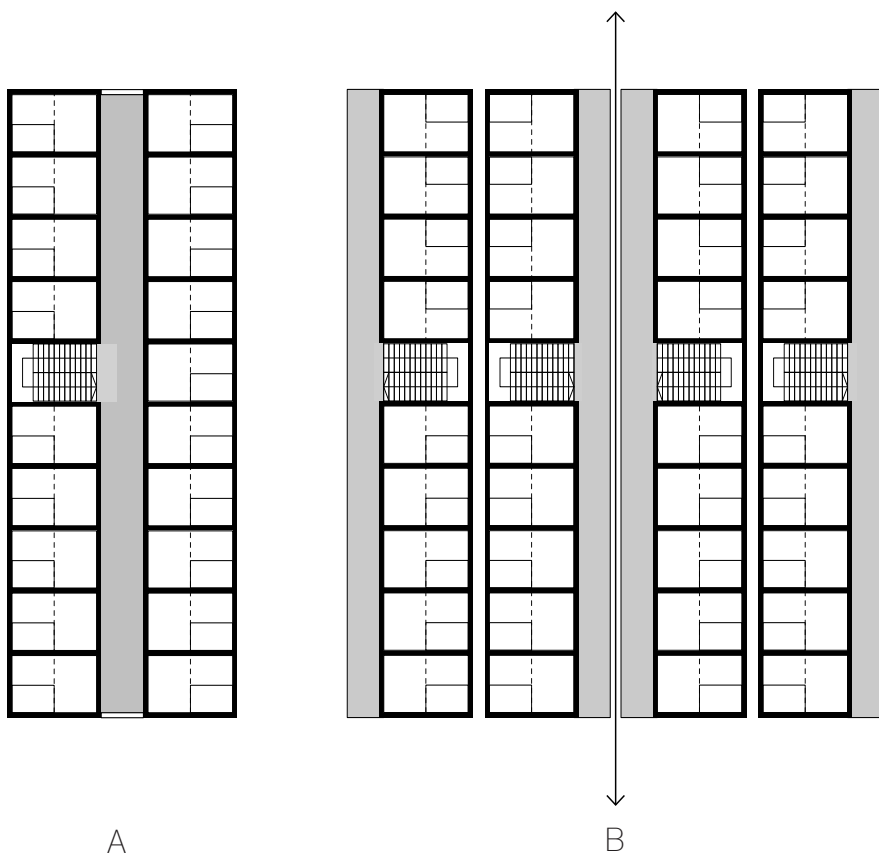




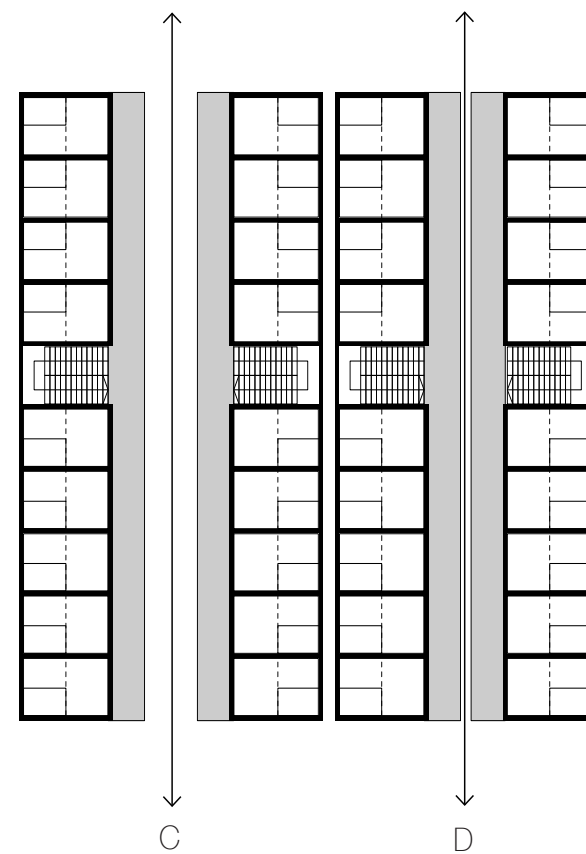
*Worli BDD chawls with extensions*







'handshake' developments in Nala Sopara



'handshake' developments situated back-to-back, creating the dead corridors that the BDD chawls sought to eliminate





B



between C & D



# affordable housing policy

*Mumbai*

- 1 Credit Linked Susidy Scheme (CLSS)
- 2 In situ Slum Redevelelopment (ISSR)
- 3 Affordable Housing in Partnership (AHP)
- 4 Beneficiary Led Construction (BLC)

- 1 Credit Linked Susidy Scheme (CLSS)
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min  
250 units

EWS

LIG

MIG

*CLSS nullifies interest on banks*

EWS

LIG

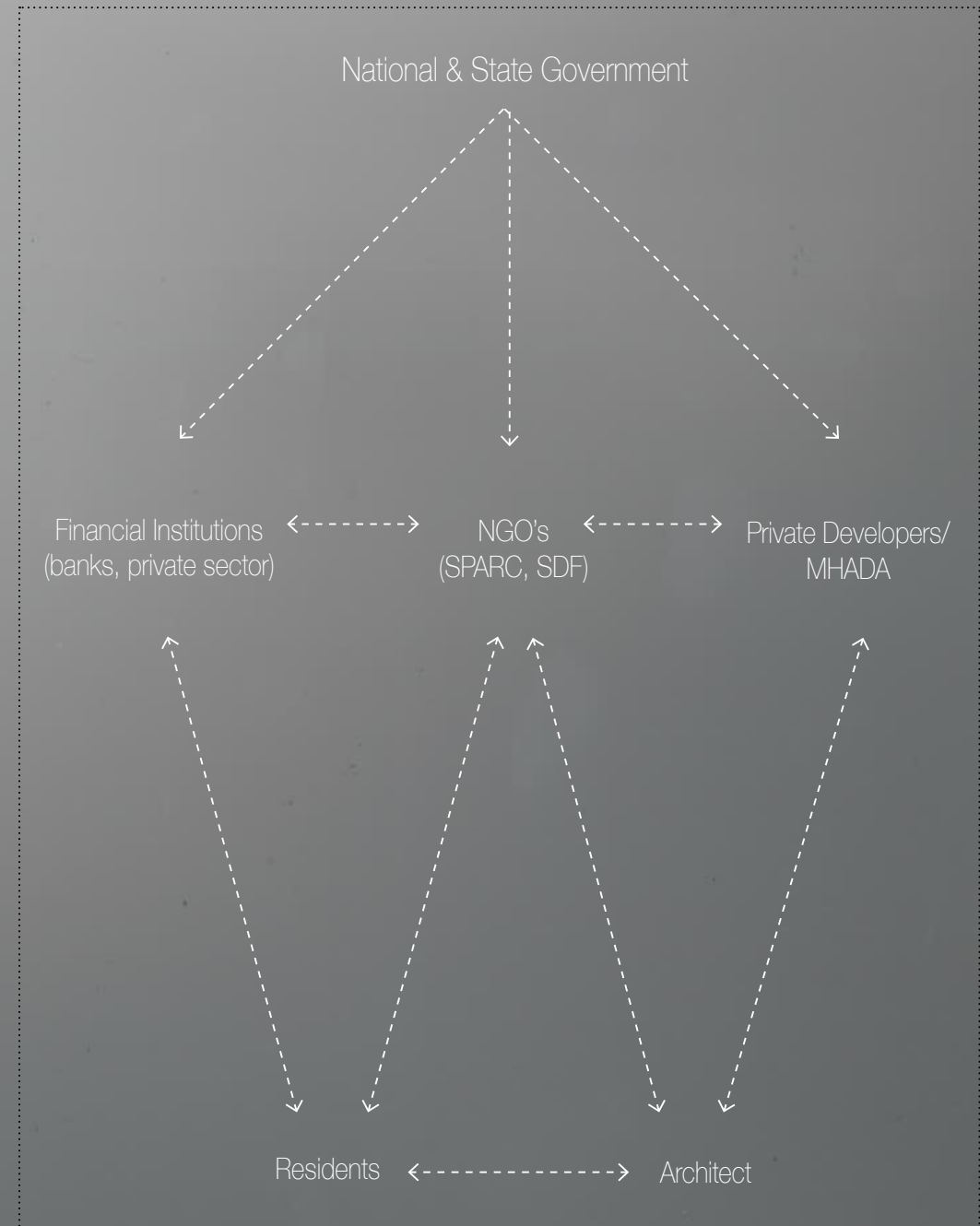
MIG

min 35%

unlocks **AHP** Central fund-  
ing of **1.5 lakh/house**

AHP

AHP & CLSS

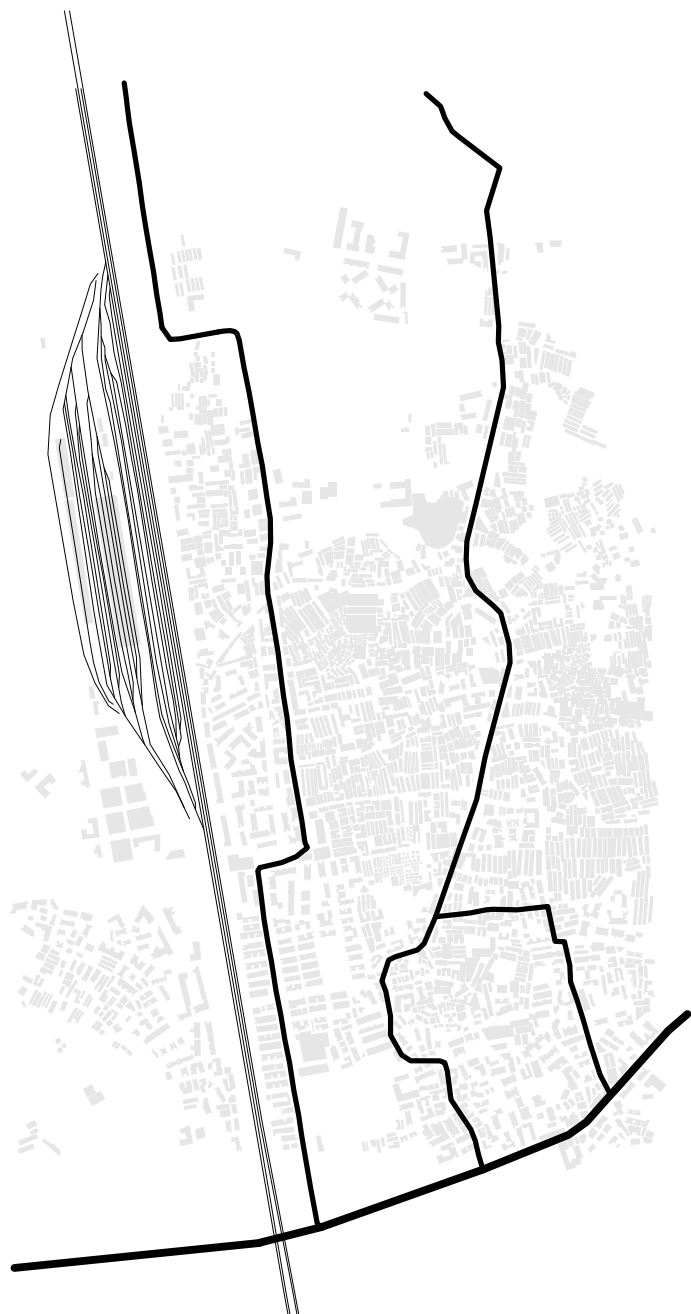


stakeholders

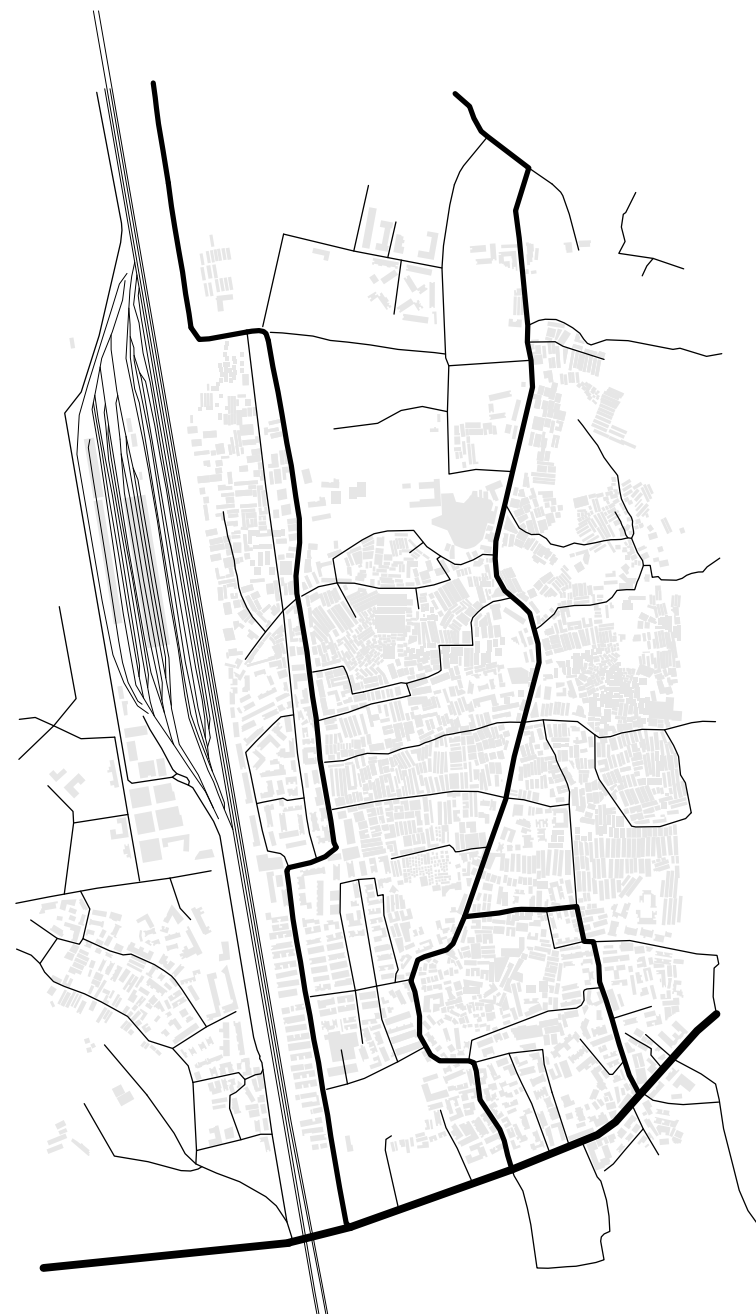


# urban strategy

*rahmat nagar*



core infrastructure



core infrastructure







fabric figure ground

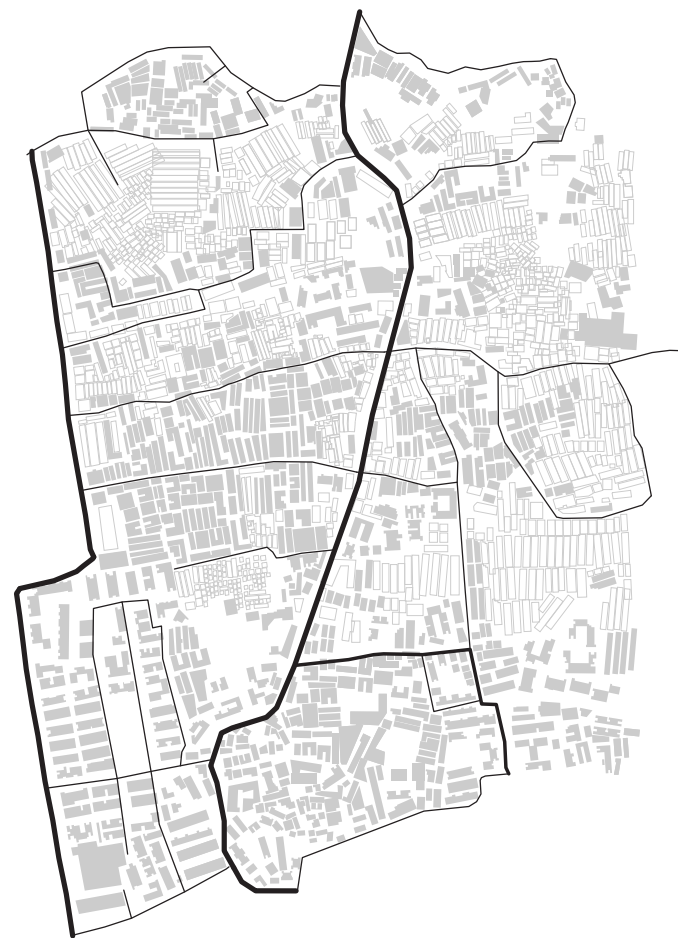


baithi chawl versus 'handshake' developments





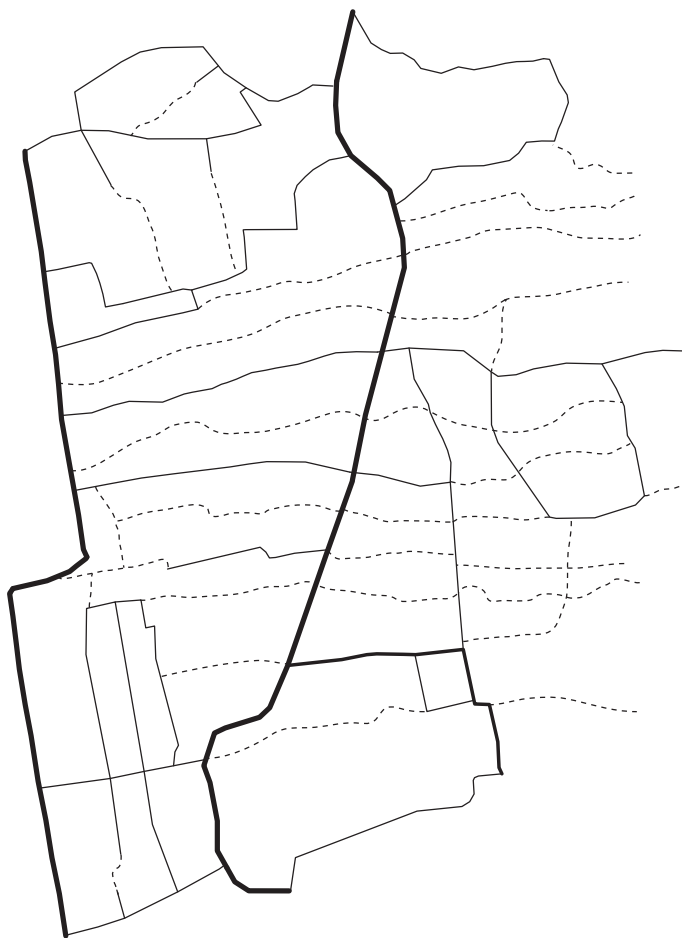
existing road network



existing road network





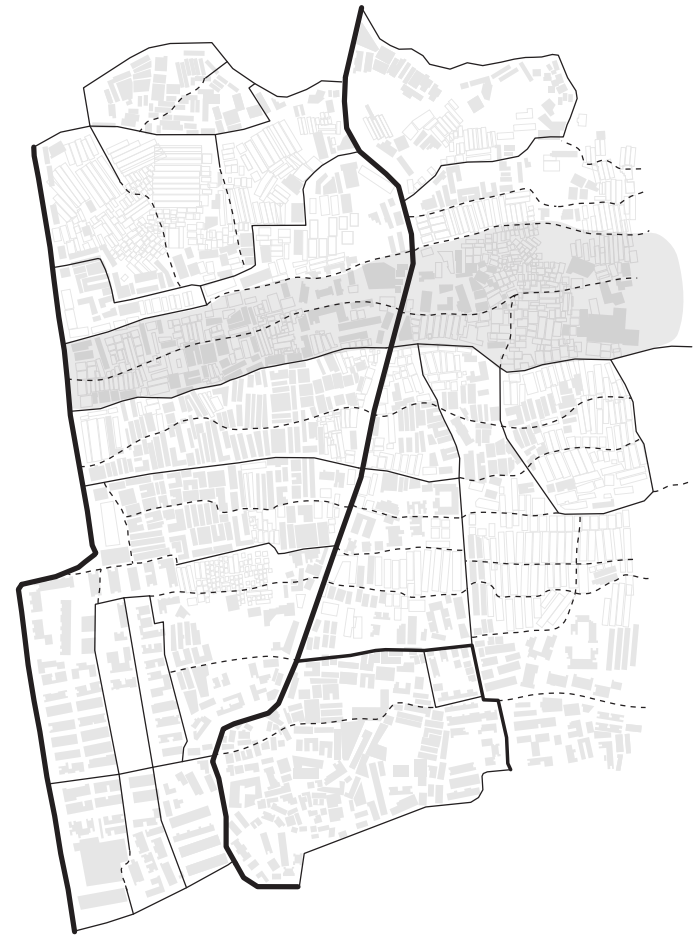


proposed connections



proposed connections

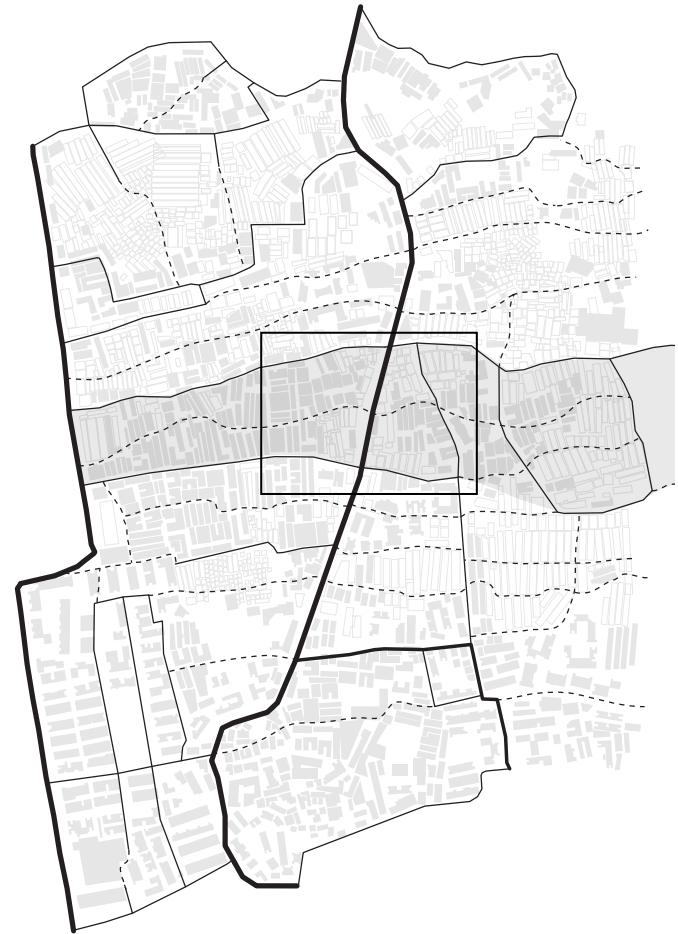


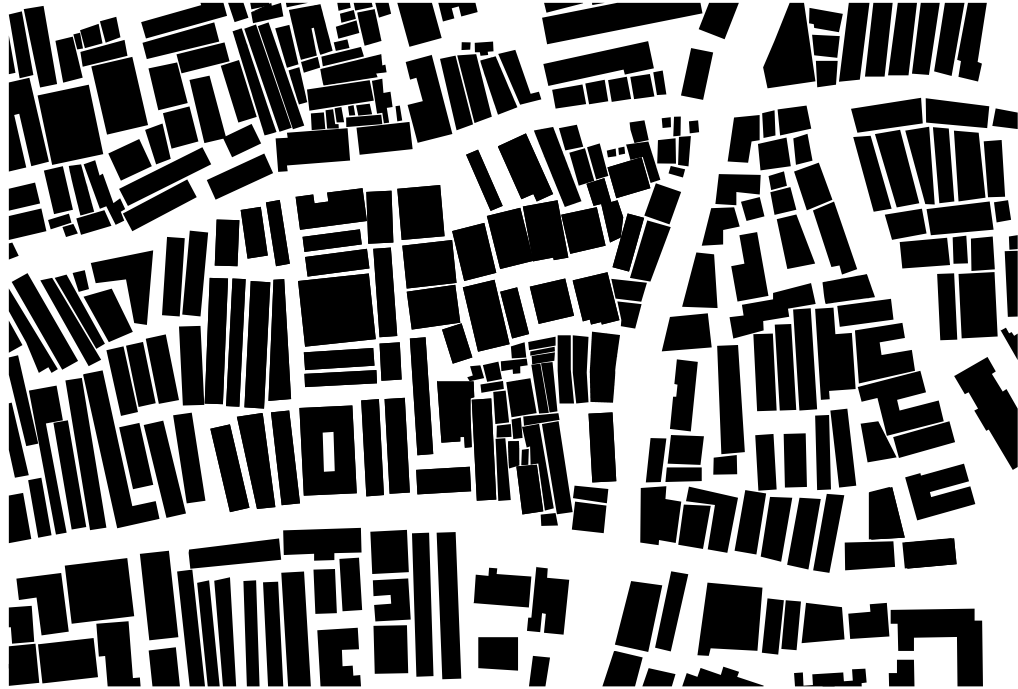




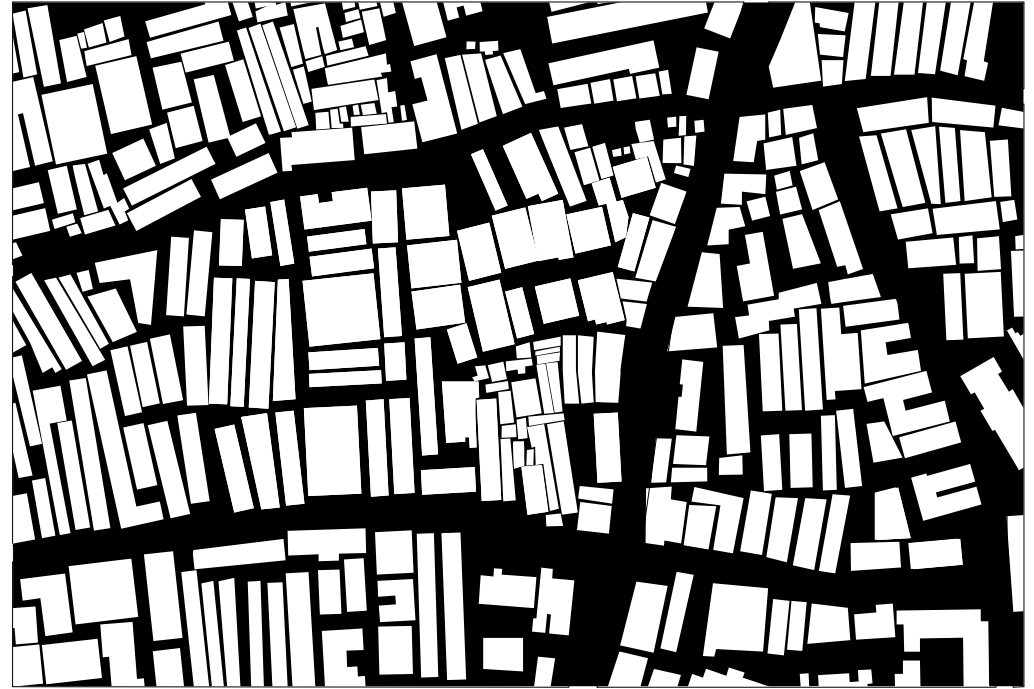


focal band intersections





built space



open space





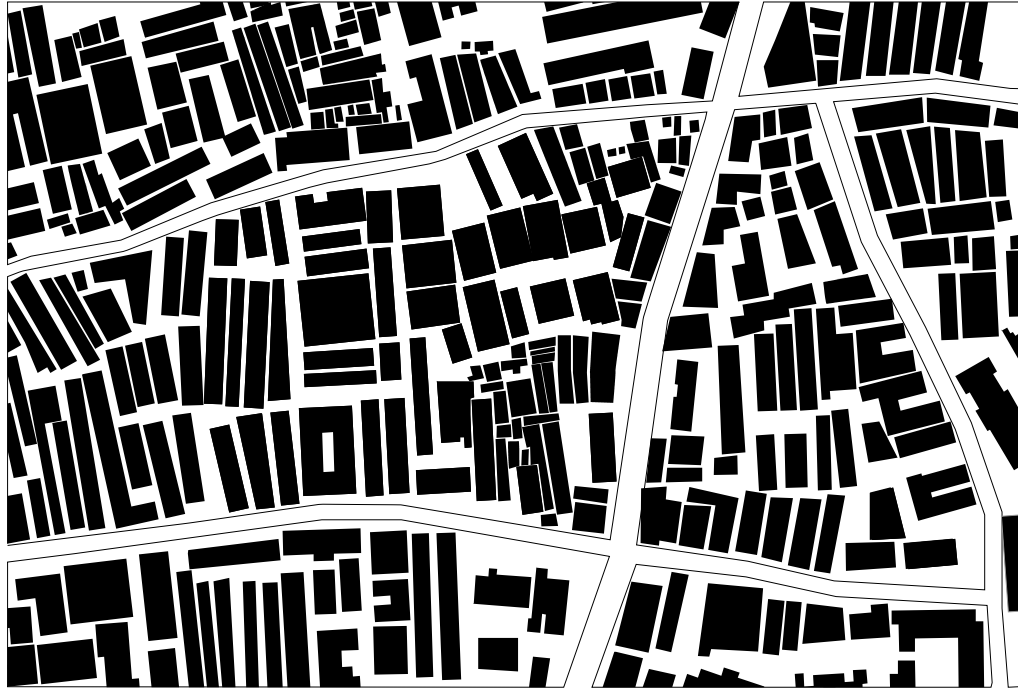


figure ground

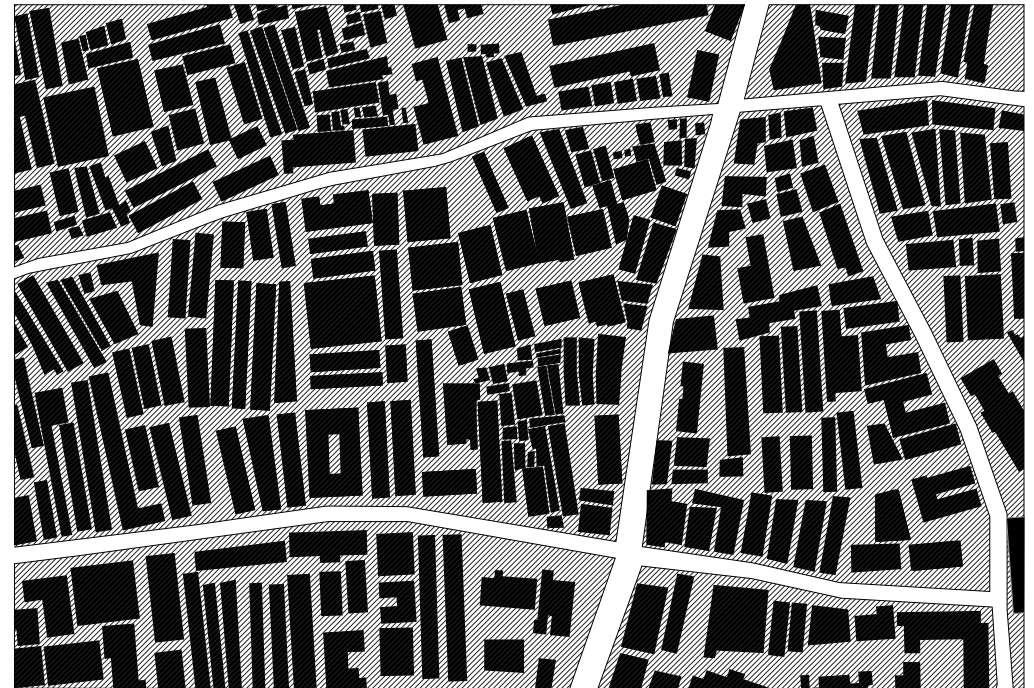


baithi chawl versus 'handshake' developments





urban blocks



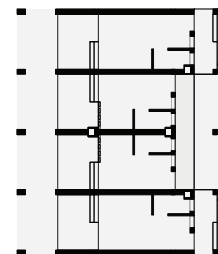
urban blocks



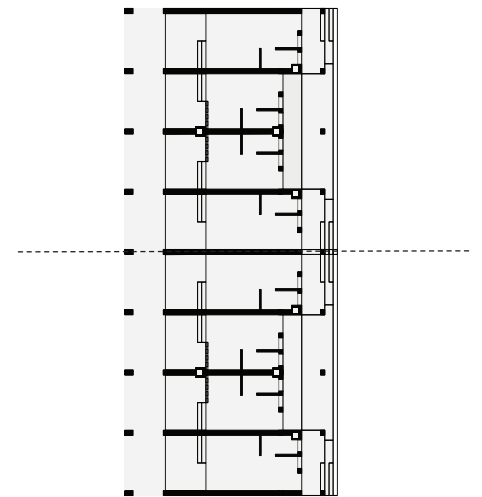
## clustering

*breaking down the urban block*

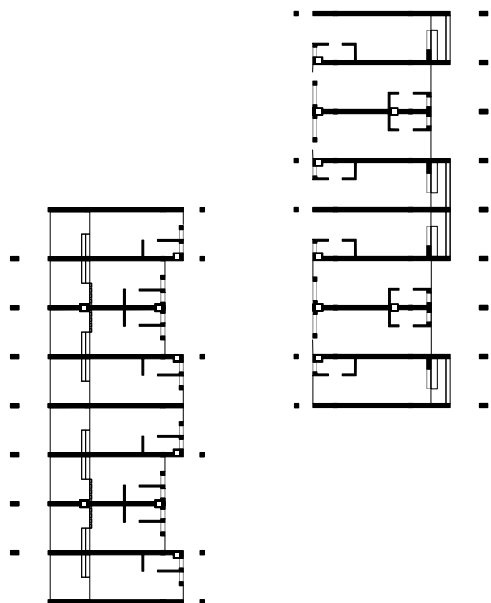




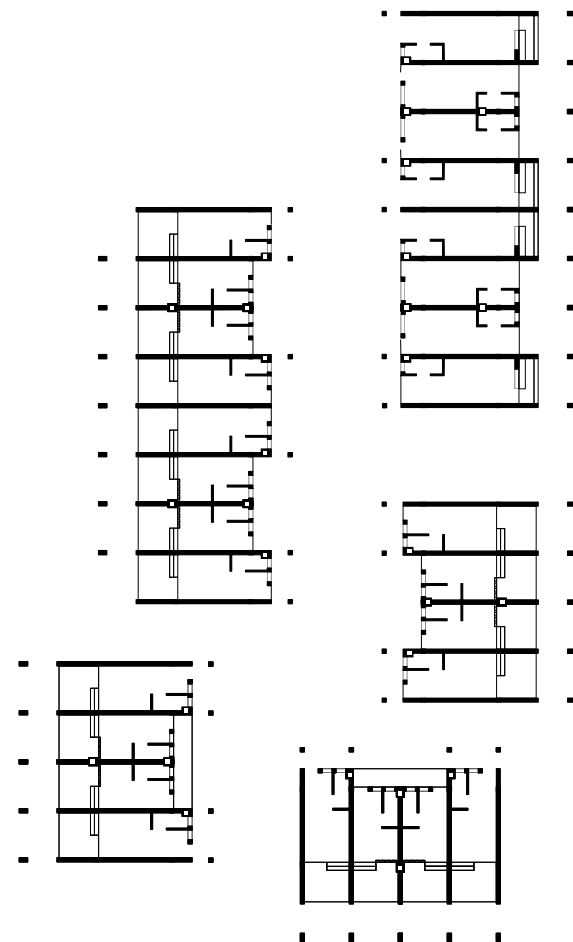
basic block



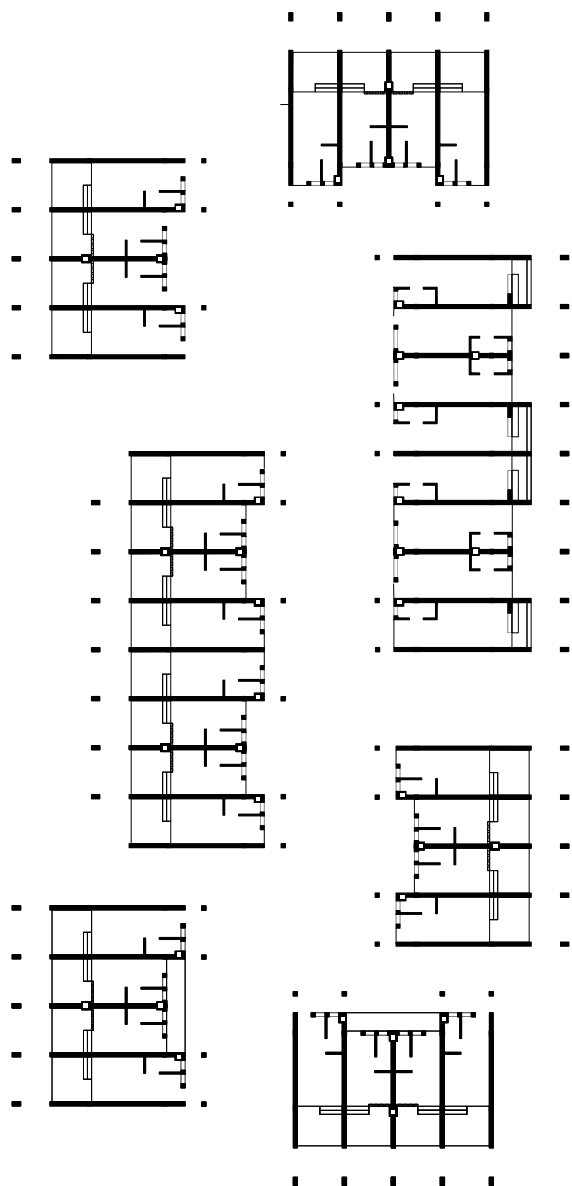
mirrored



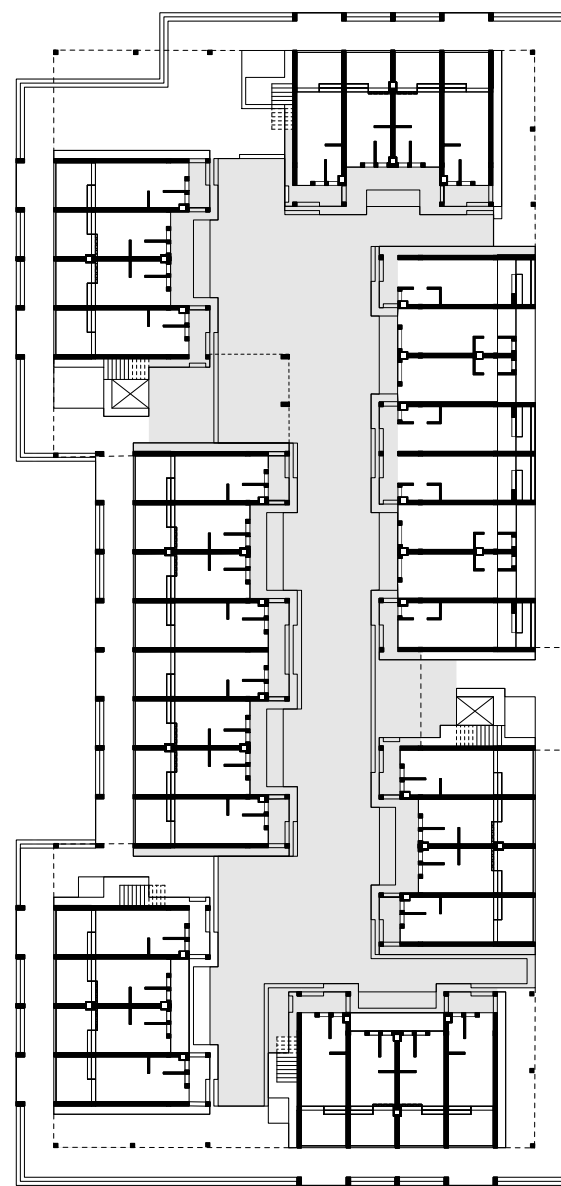
basic cluster



basic cluster

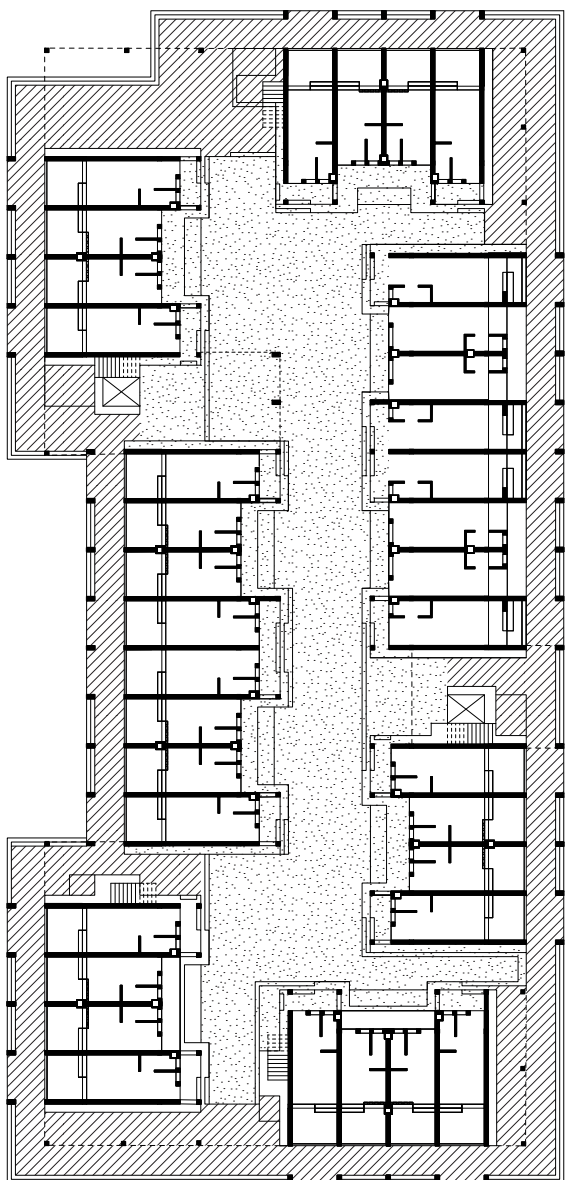


basic cluster

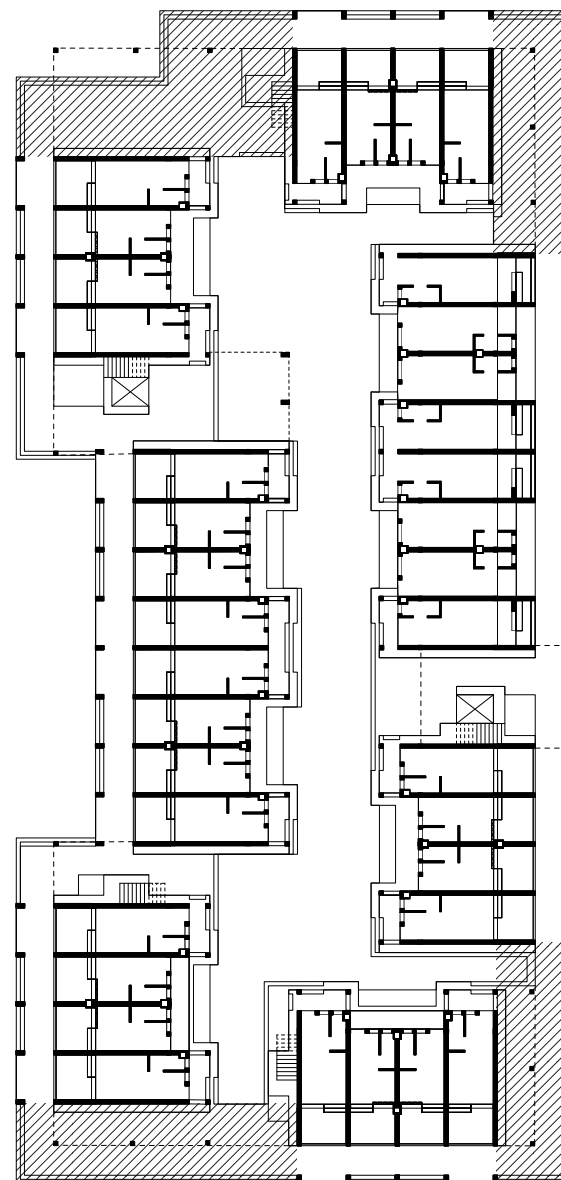


domestic corridor & courtyard

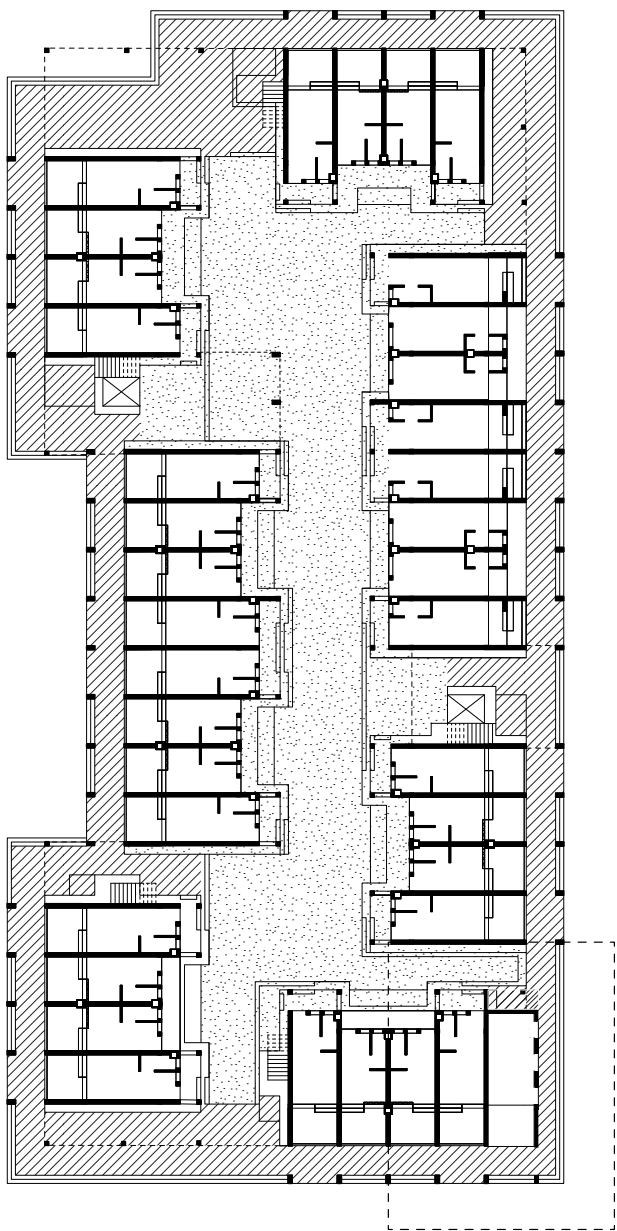




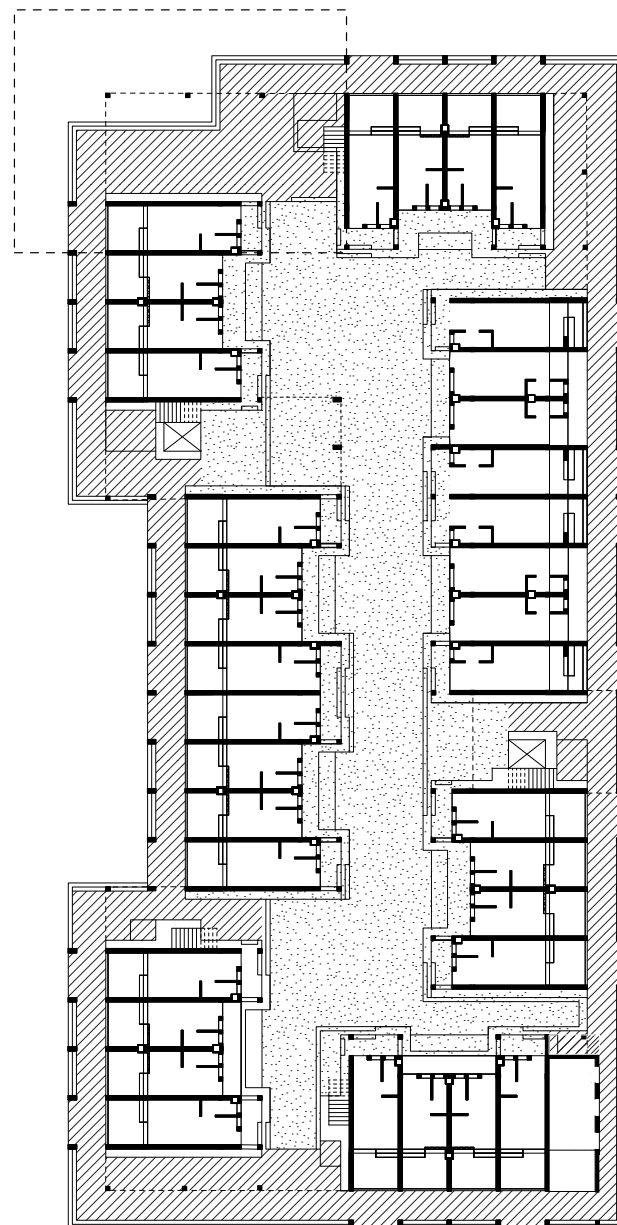
public plinth



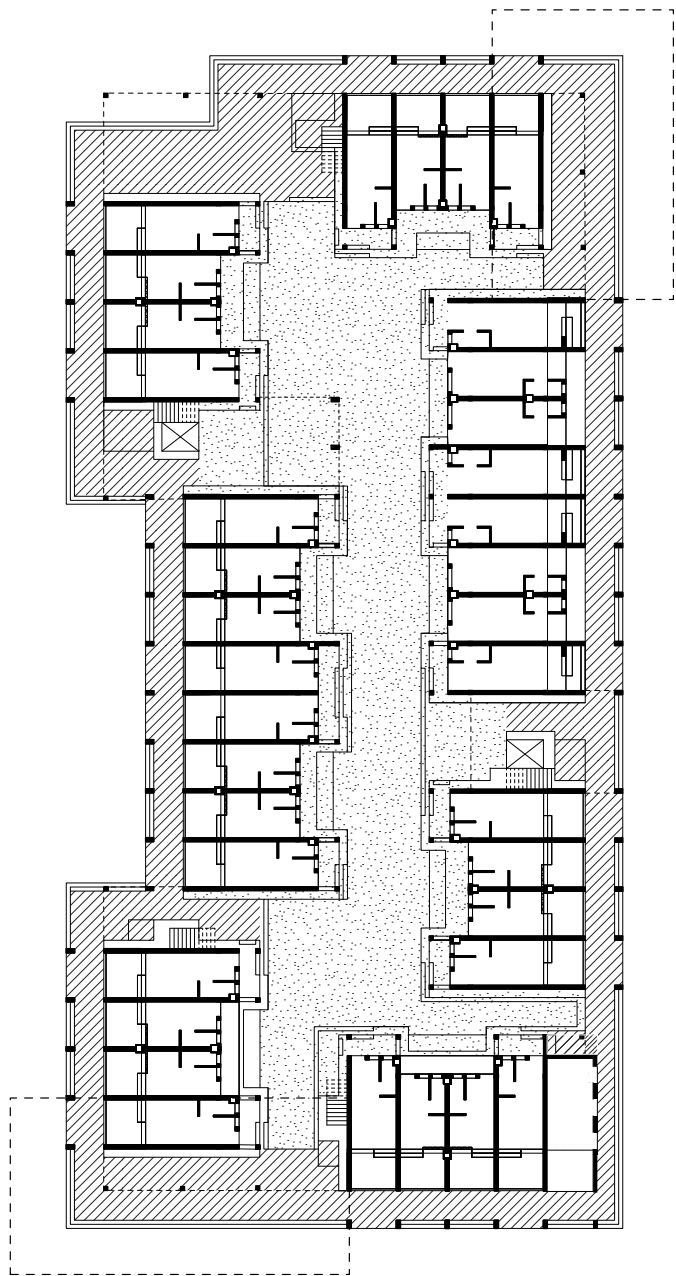
corner conditions



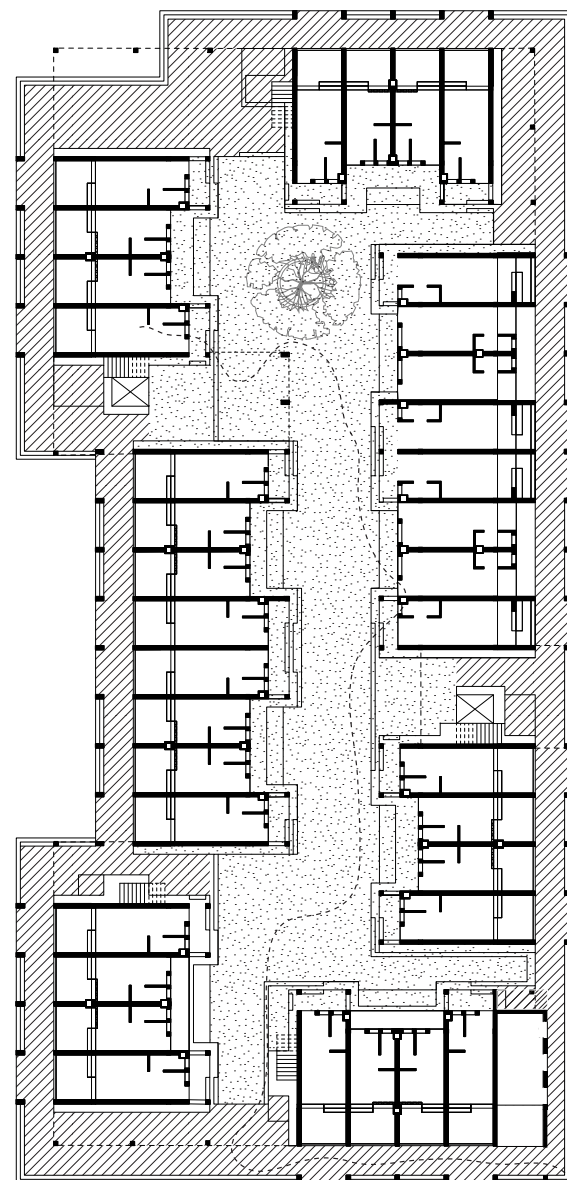
fill corner



amenity

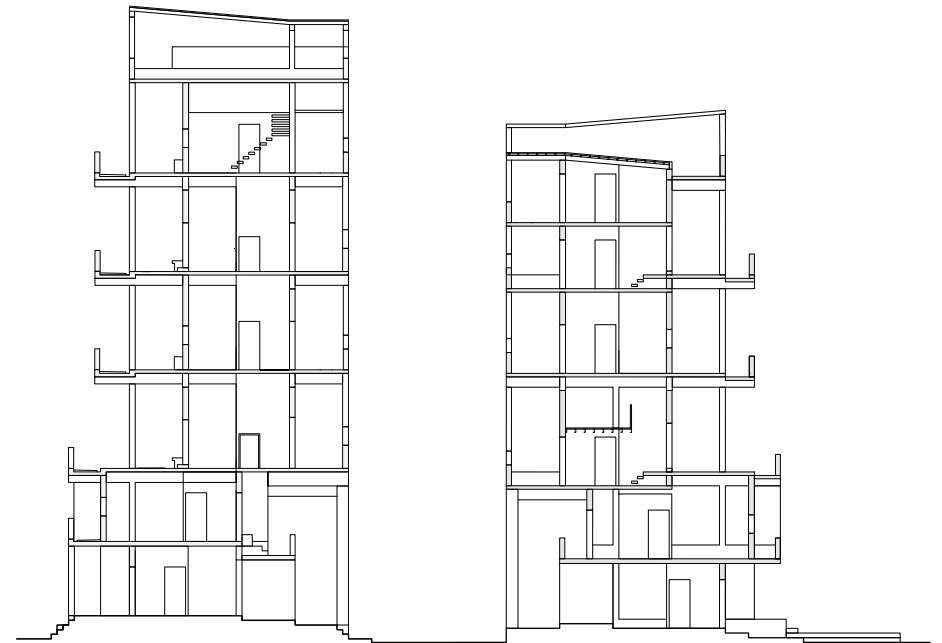
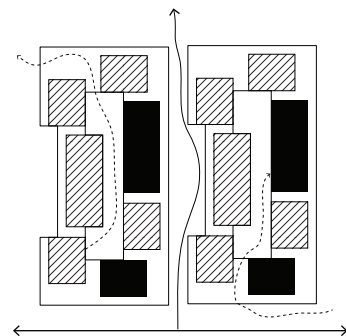


open plinth



domestic corridor

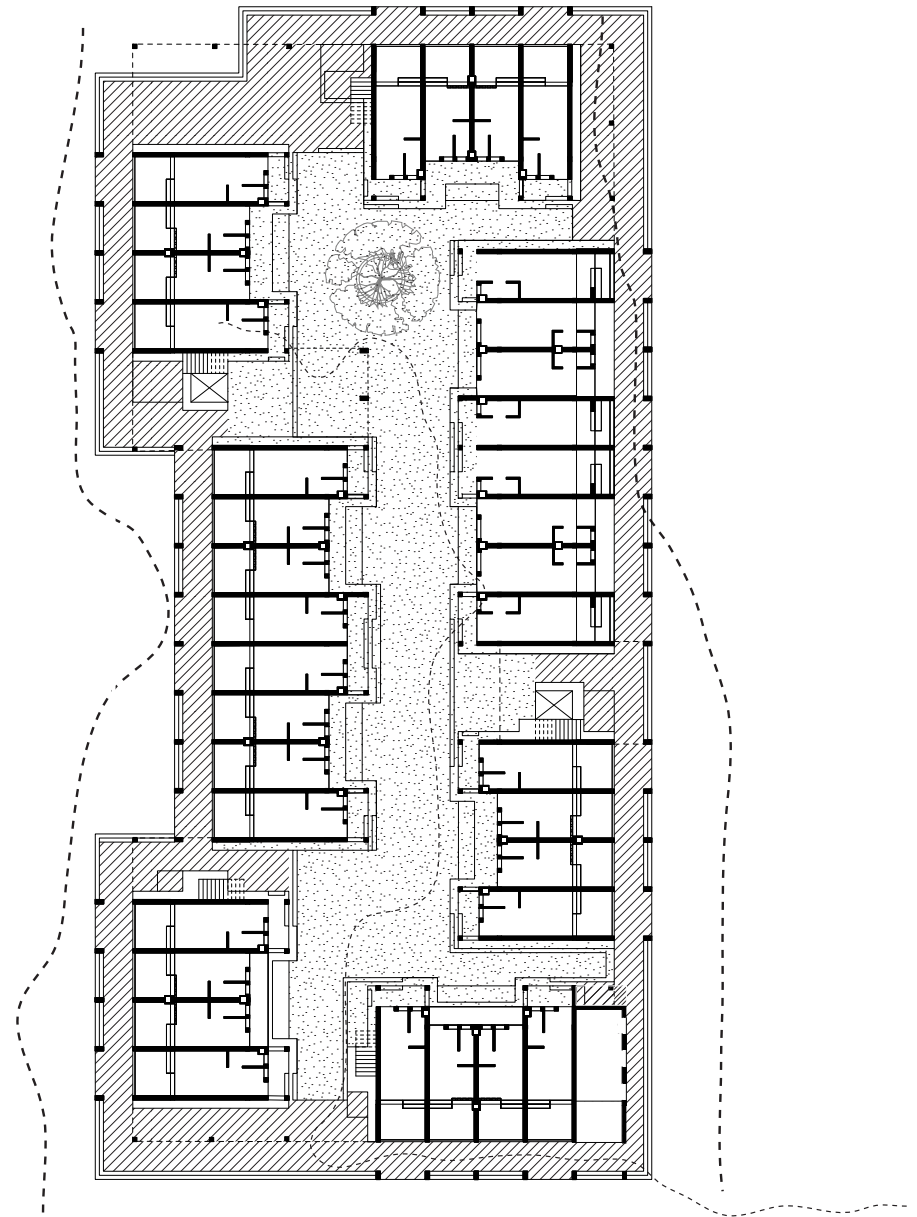
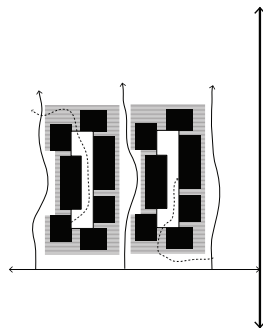




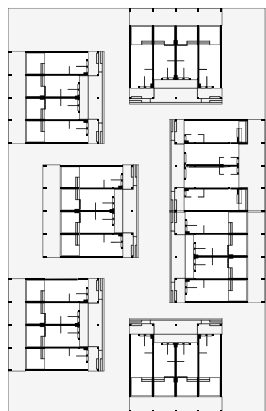
height variation

## CLUSTER

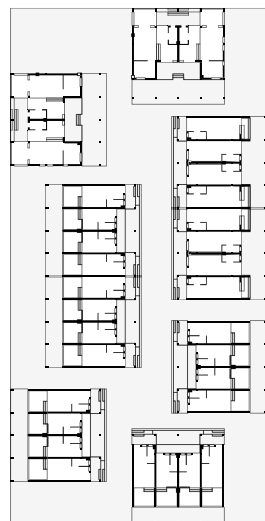
FSI: 2.4  
 dwellings: 148  
 people: 504  
 built form/cluster: 1683 m<sup>2</sup>  
 open space: 1062 m<sup>2</sup>



basic cluster

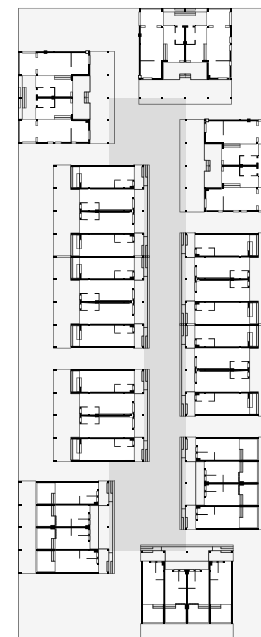


A

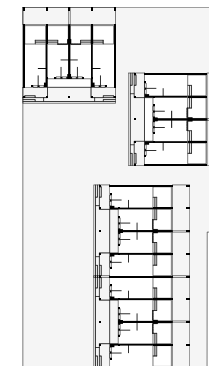


B

cluster variations



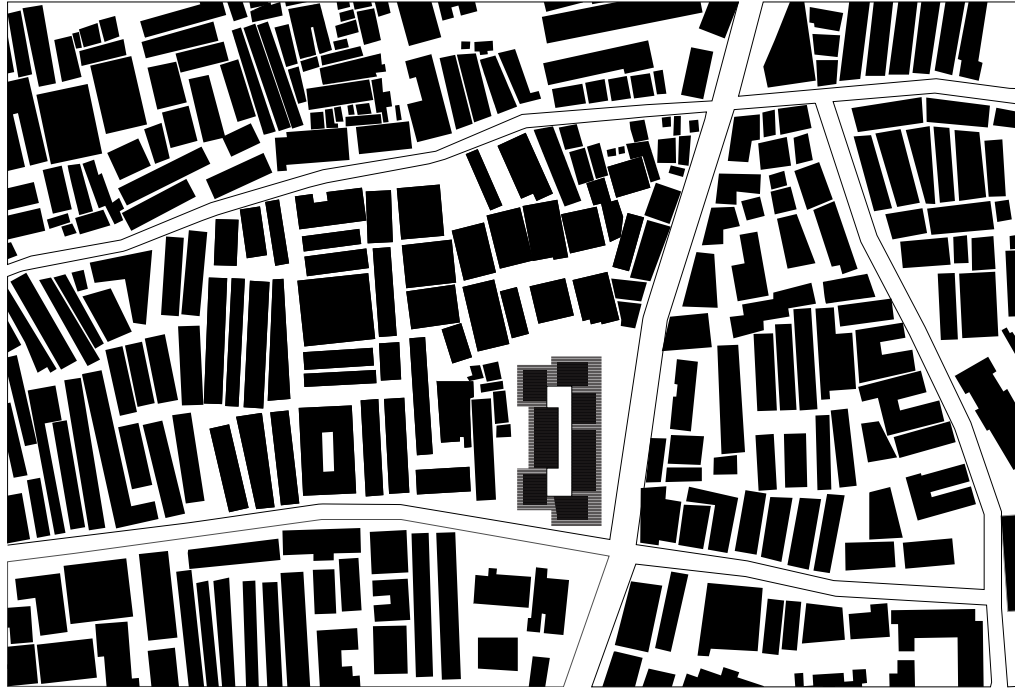
C



D

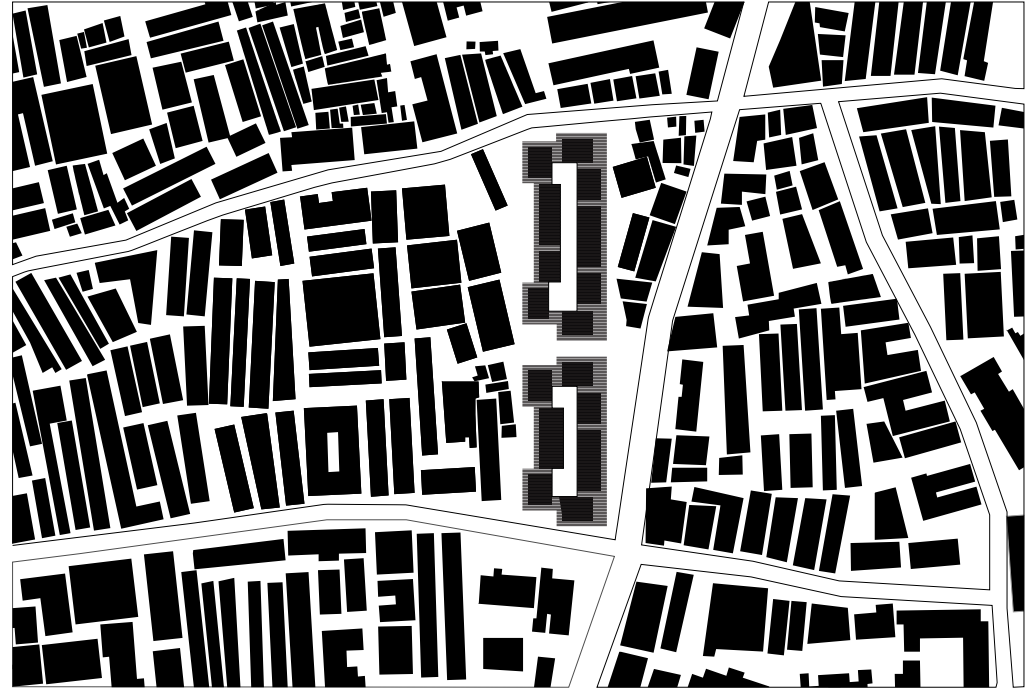
cluster variations





phasing

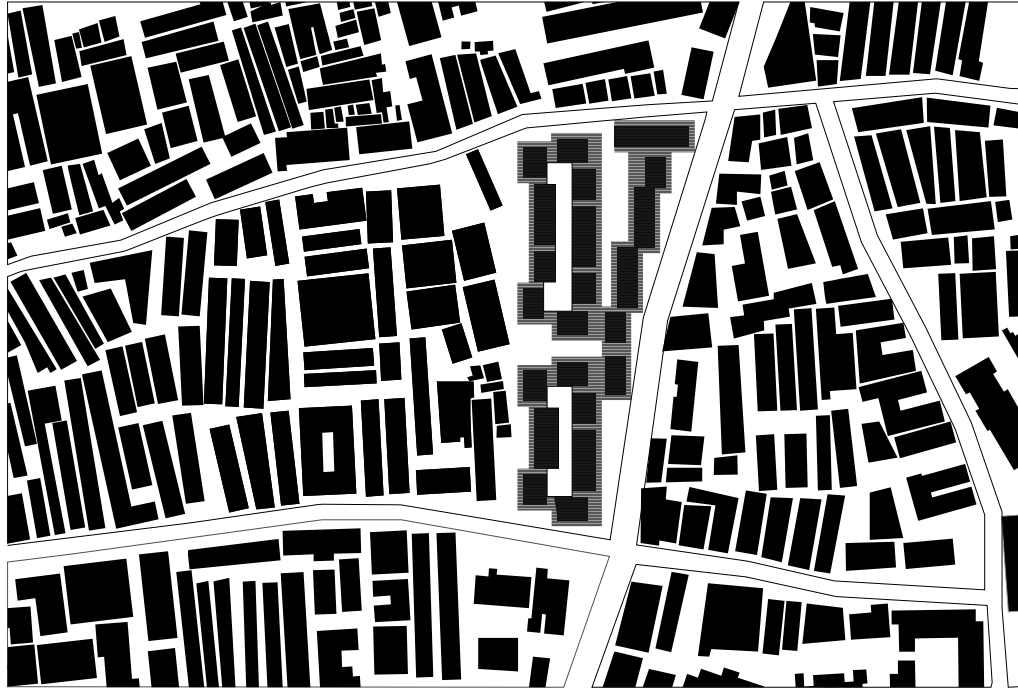
138



phasing

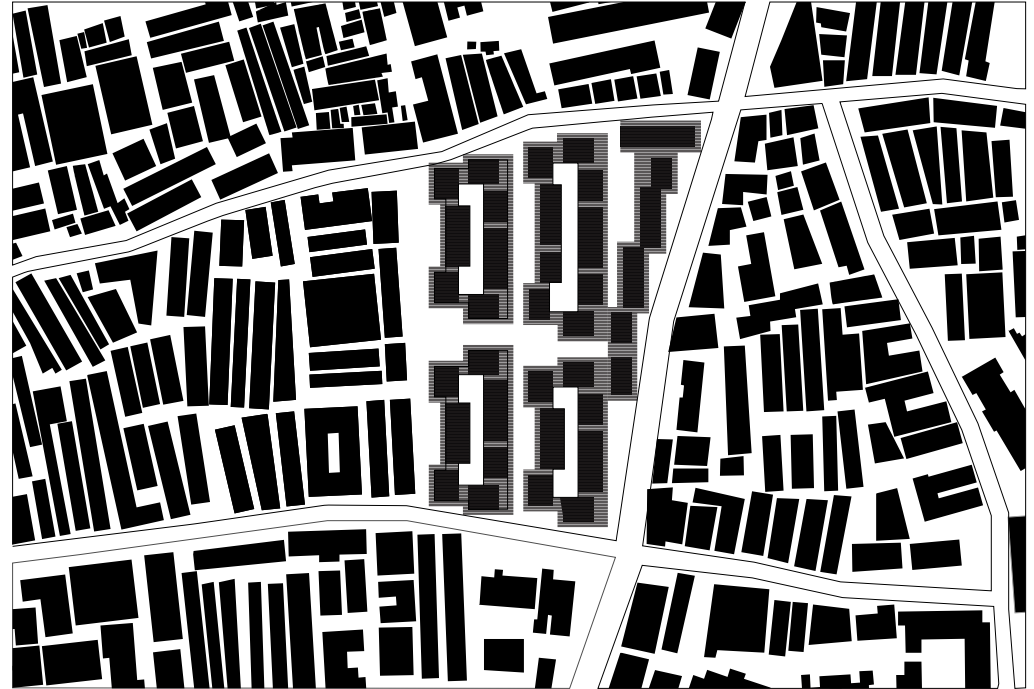
139





phasing

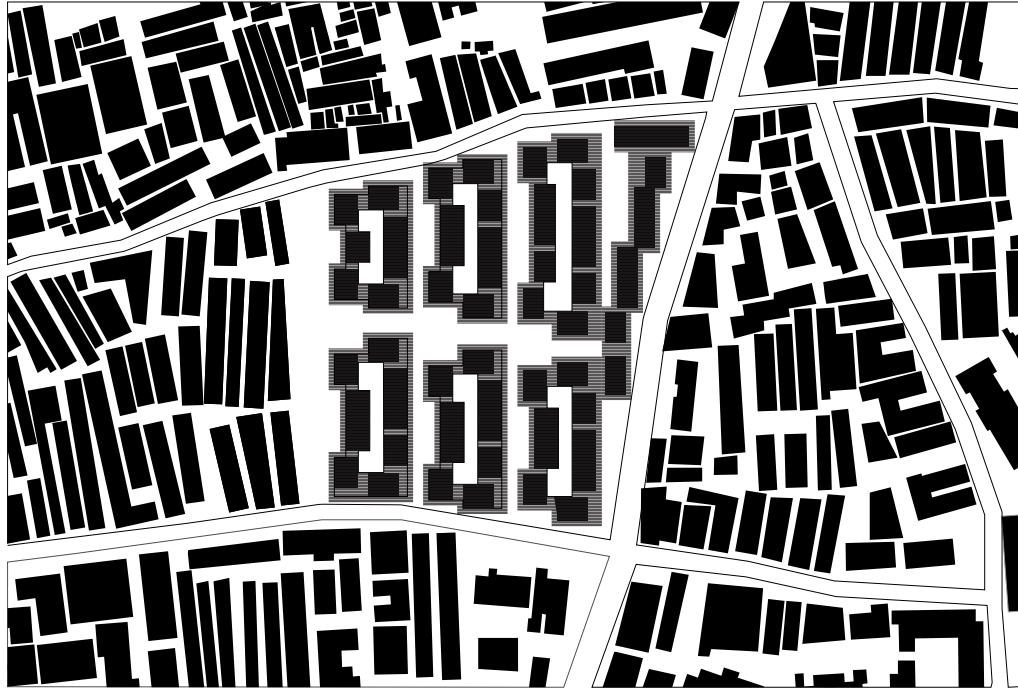
140



phasing

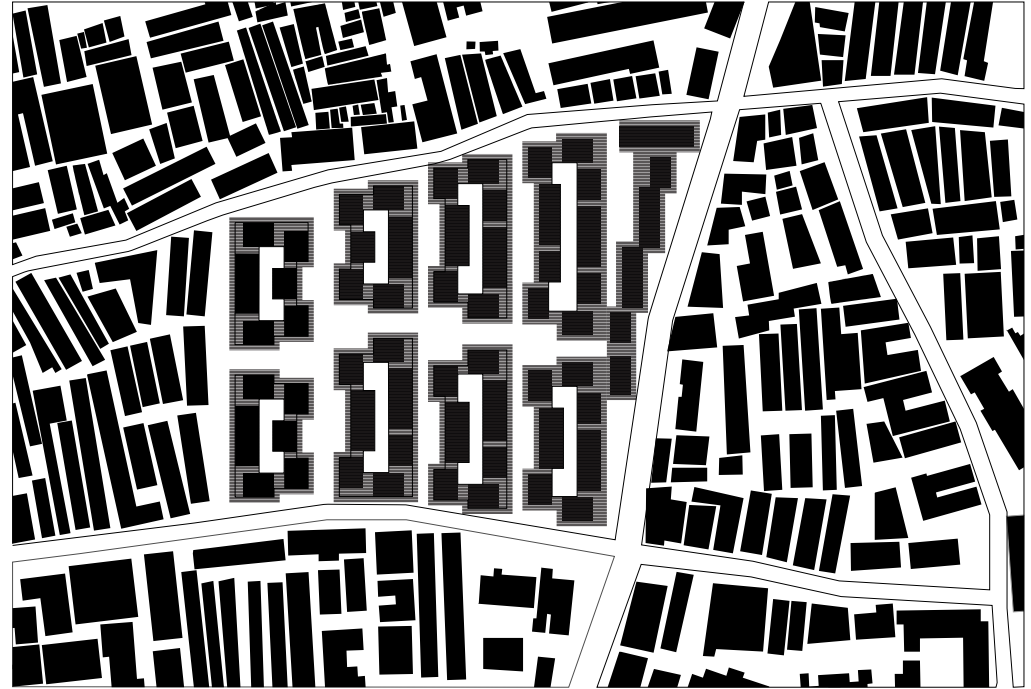
141





phasing

142

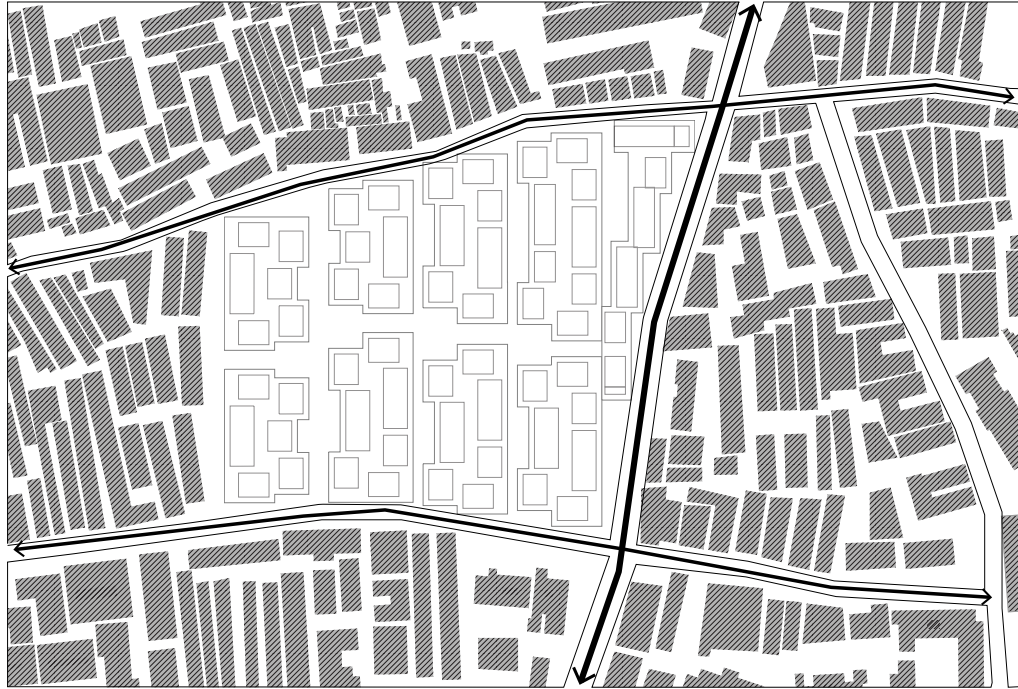


phasing

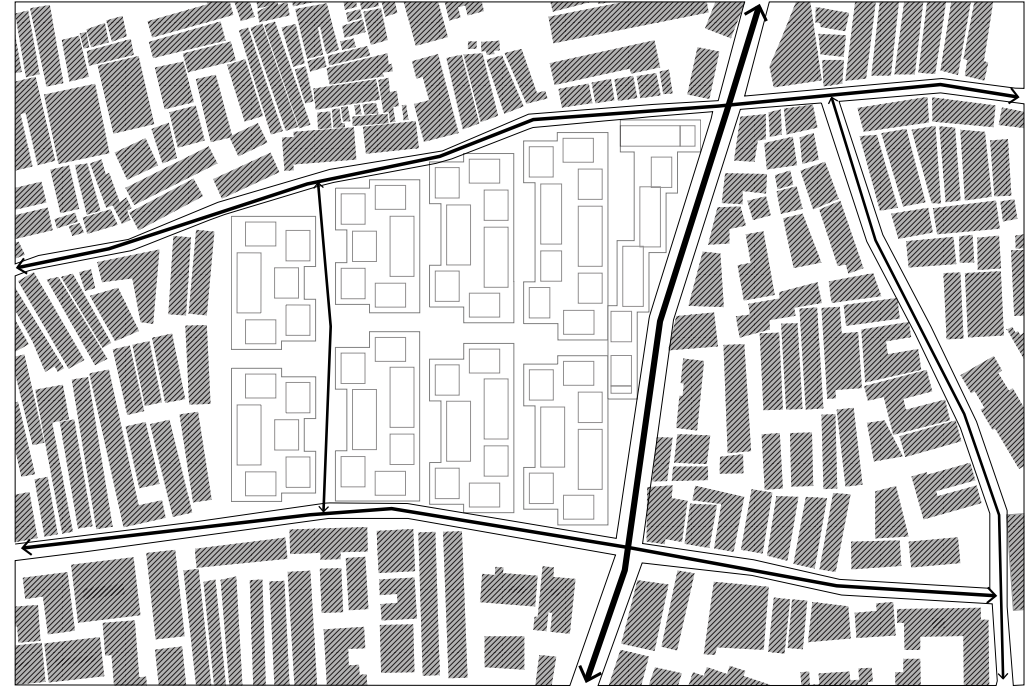
143





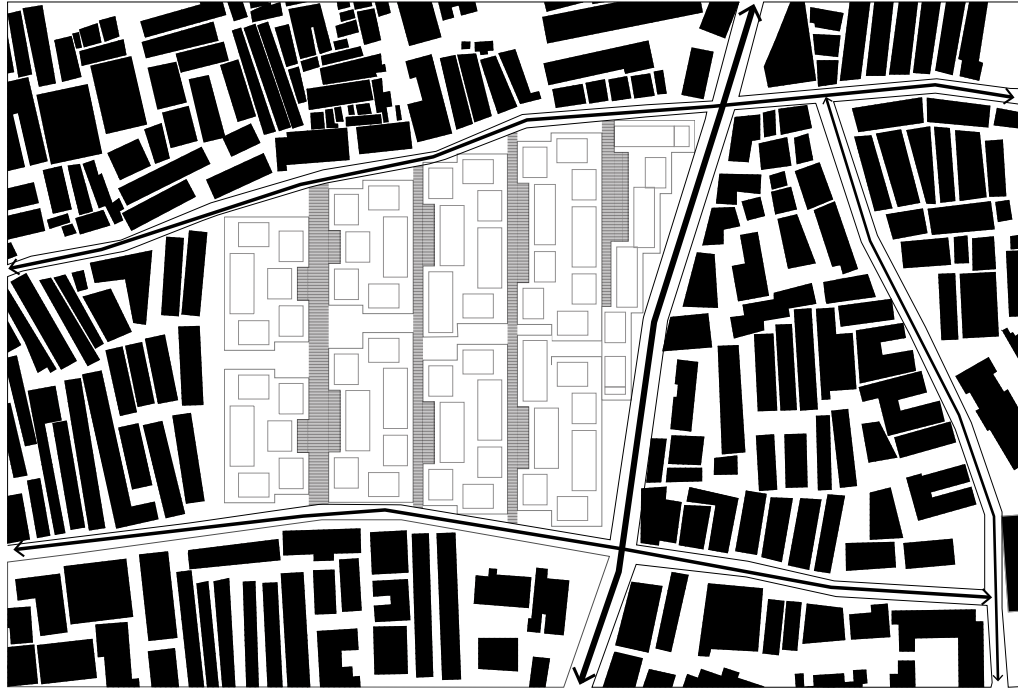


primary & secondary roads

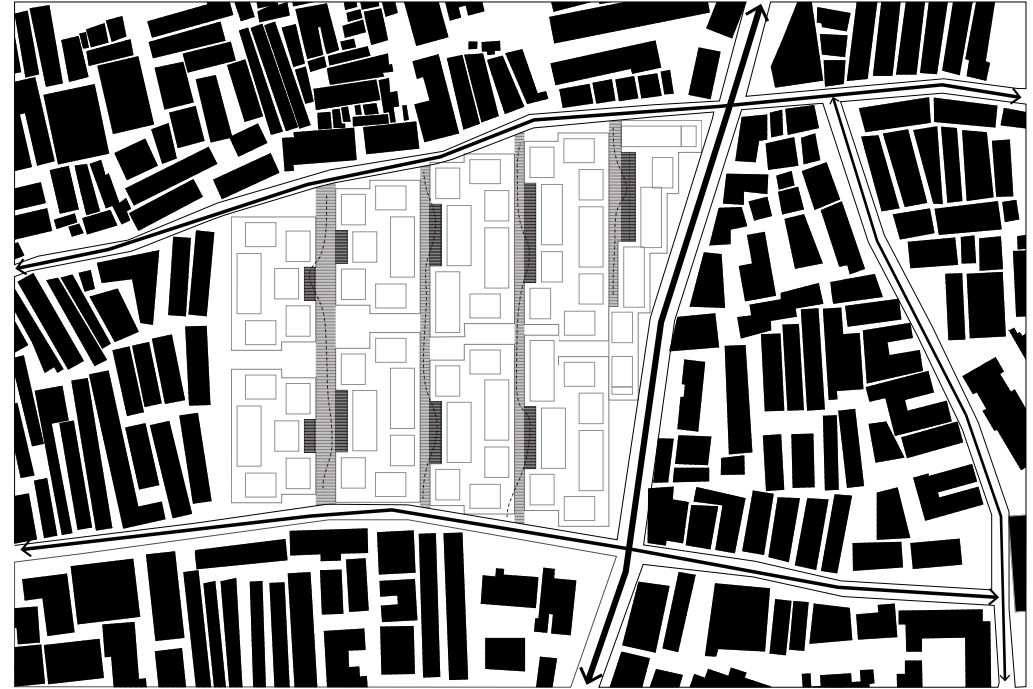


primary, secondary & tertiary roads



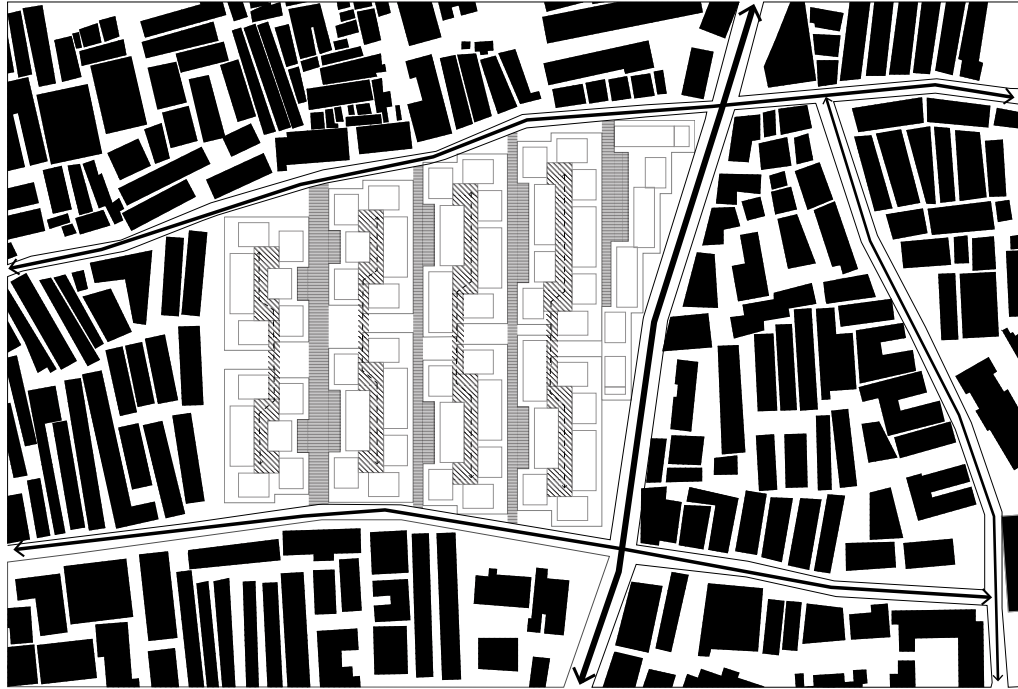


public corridor

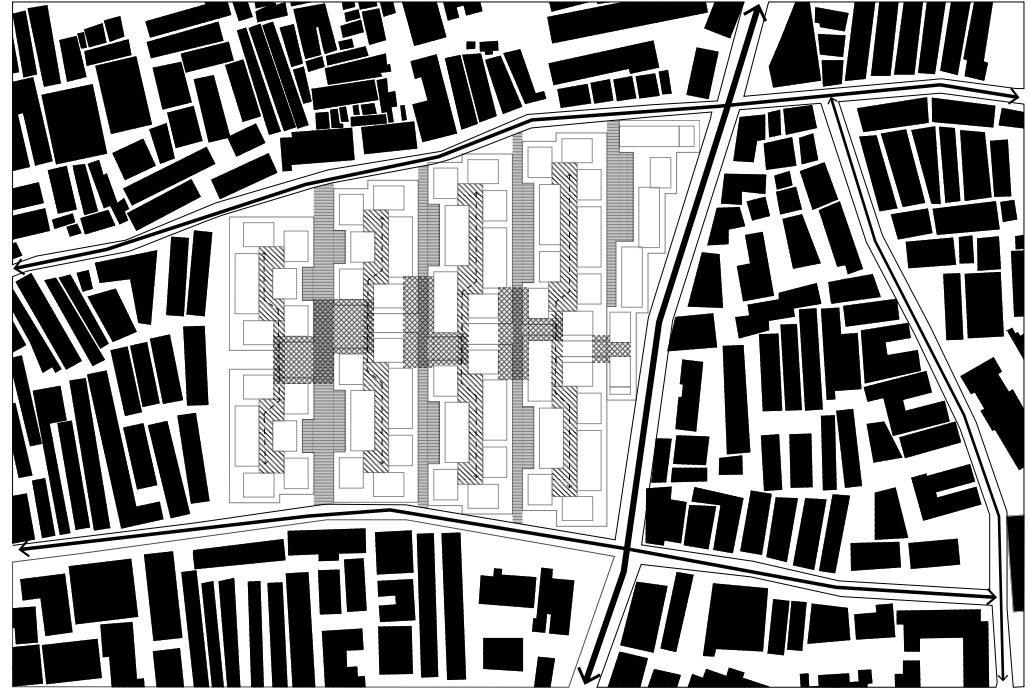


pull-over zones





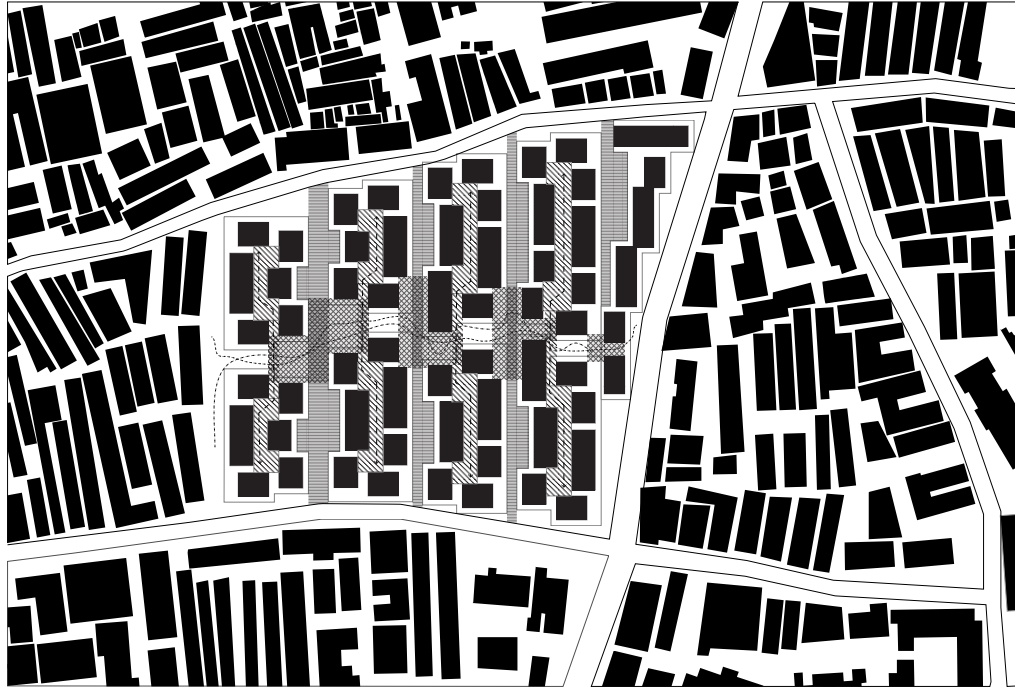
domestic corridors & courtyards



public intersections







pedestrian community spine

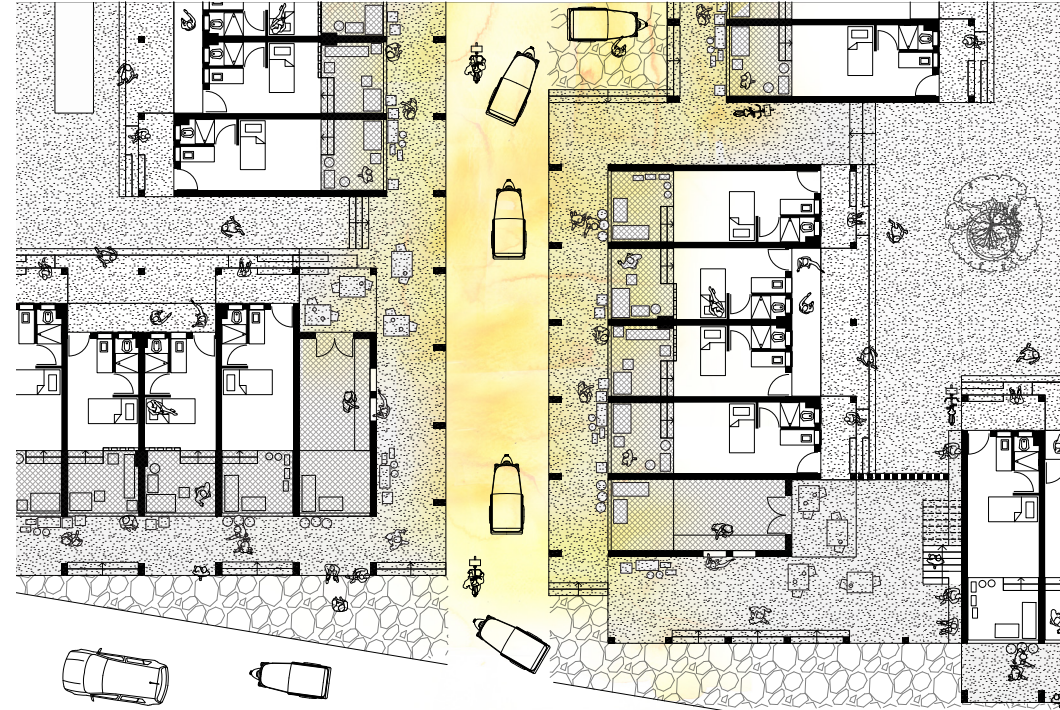


pedestrian community spine

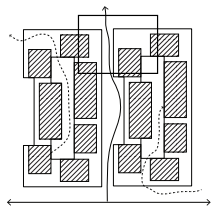


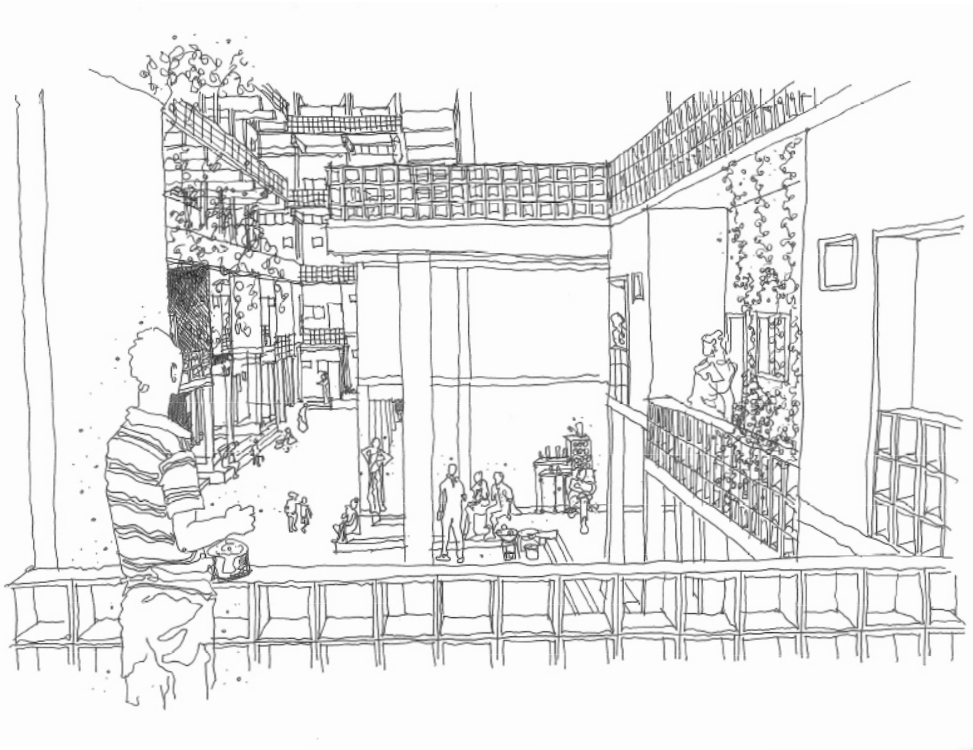


cluster access point via community spine

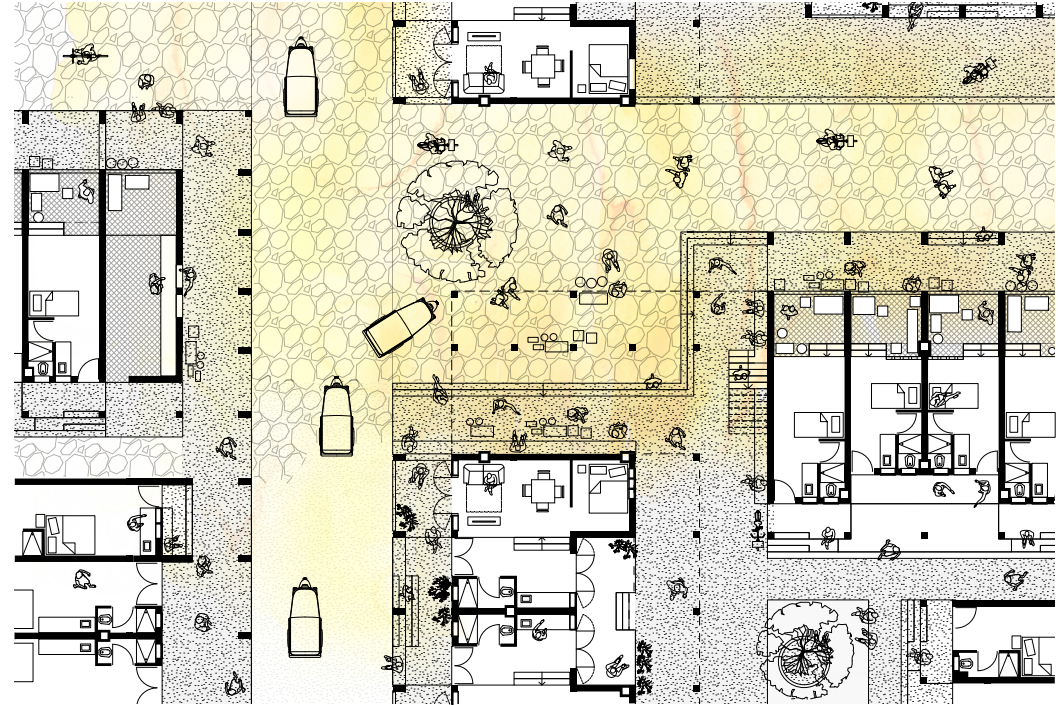


secondary road and public corridor intersection

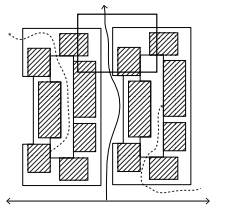




cluster access from secondary road

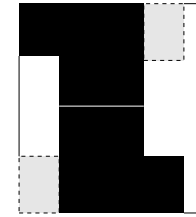


public corridor and pedestrian route intersection

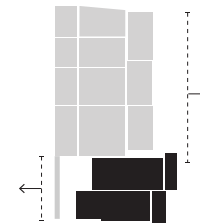




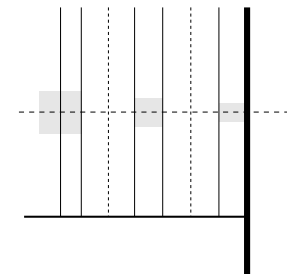
design



growth through flexibility

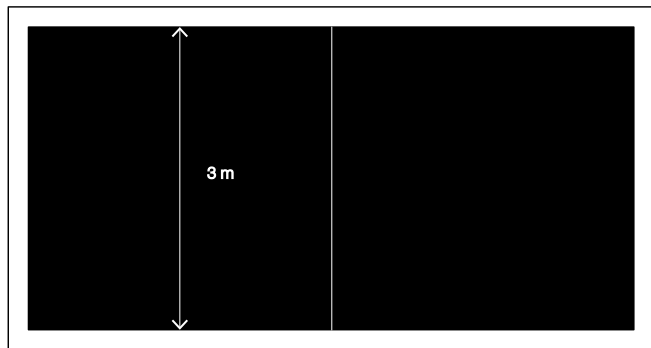


mediating public/private spectrum

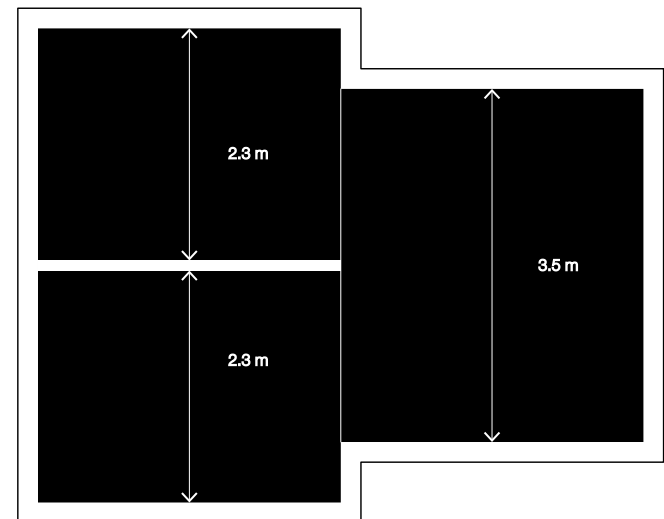


hierarchy of open space

design aims



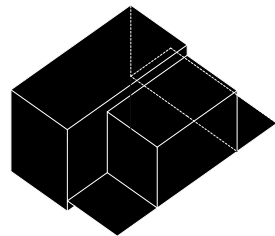
standard section



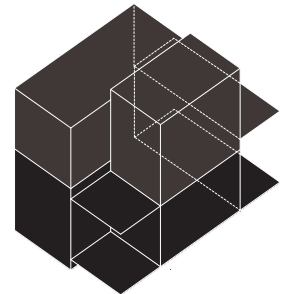
level variation allows for mezzanine space

staggered section

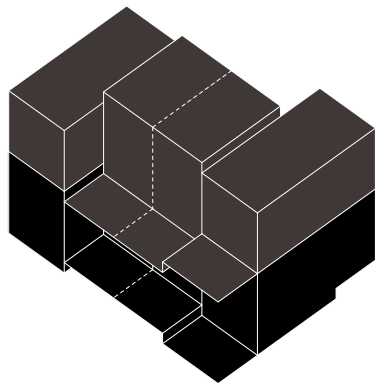




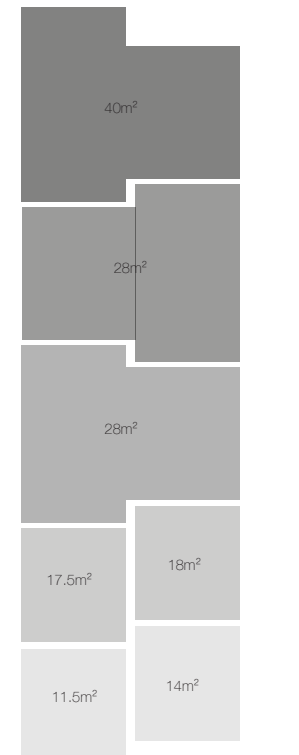
section stacking



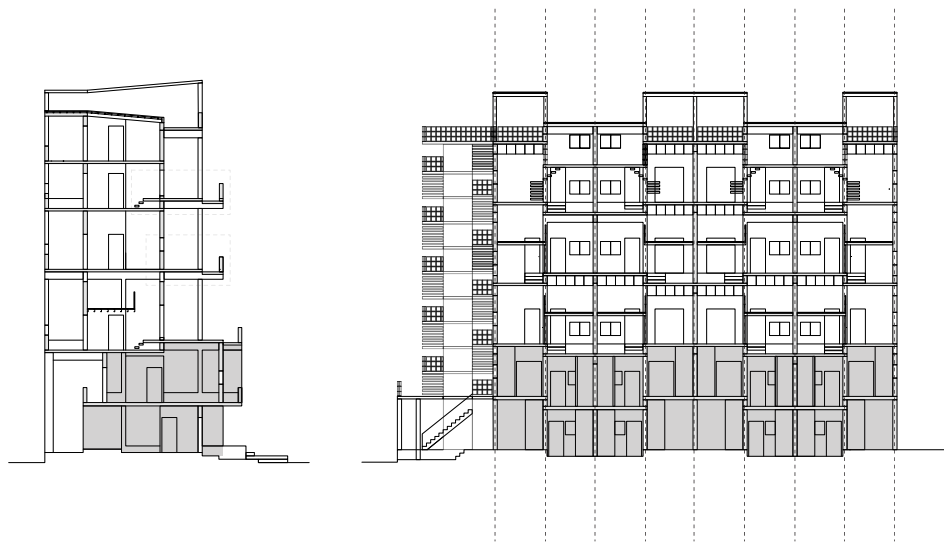
section stacking



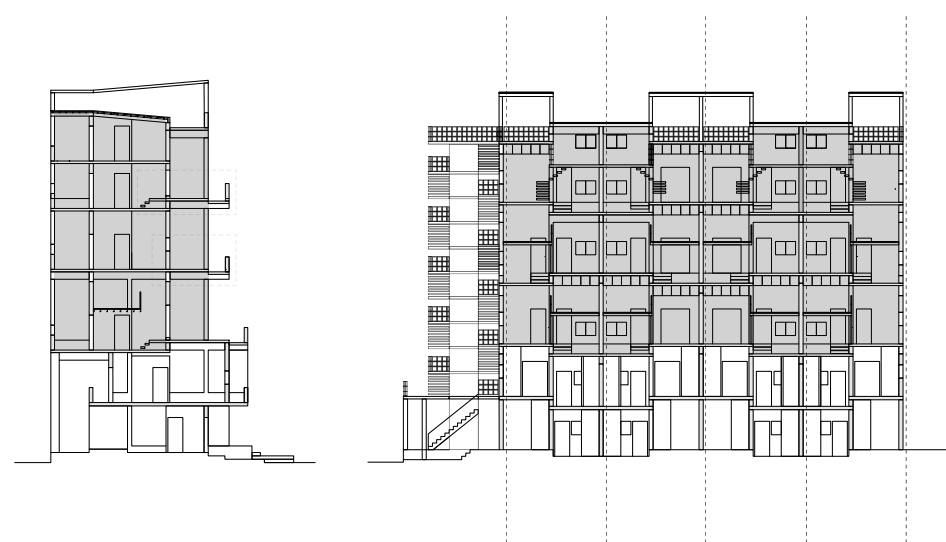
section stacking



section stacking

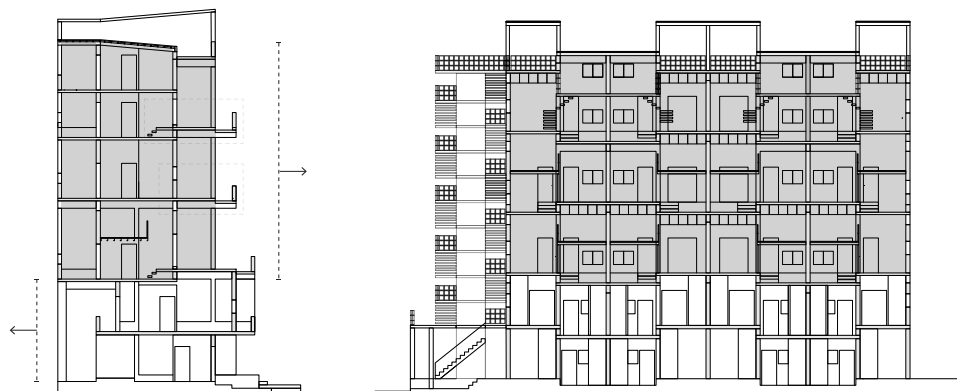


rental model

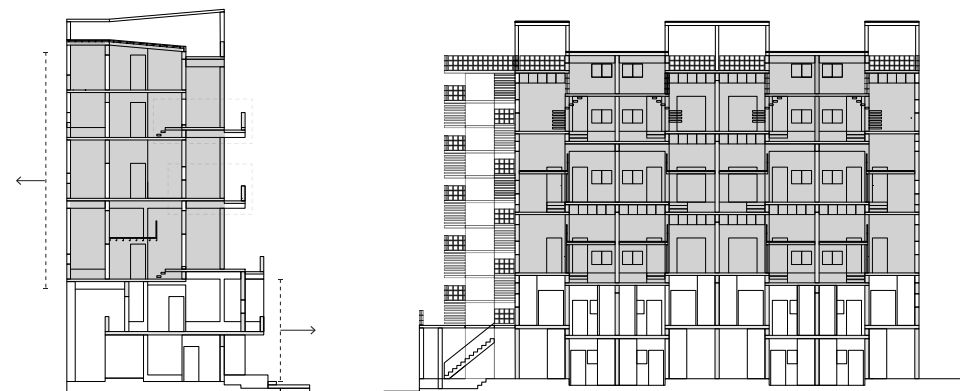


ownership model





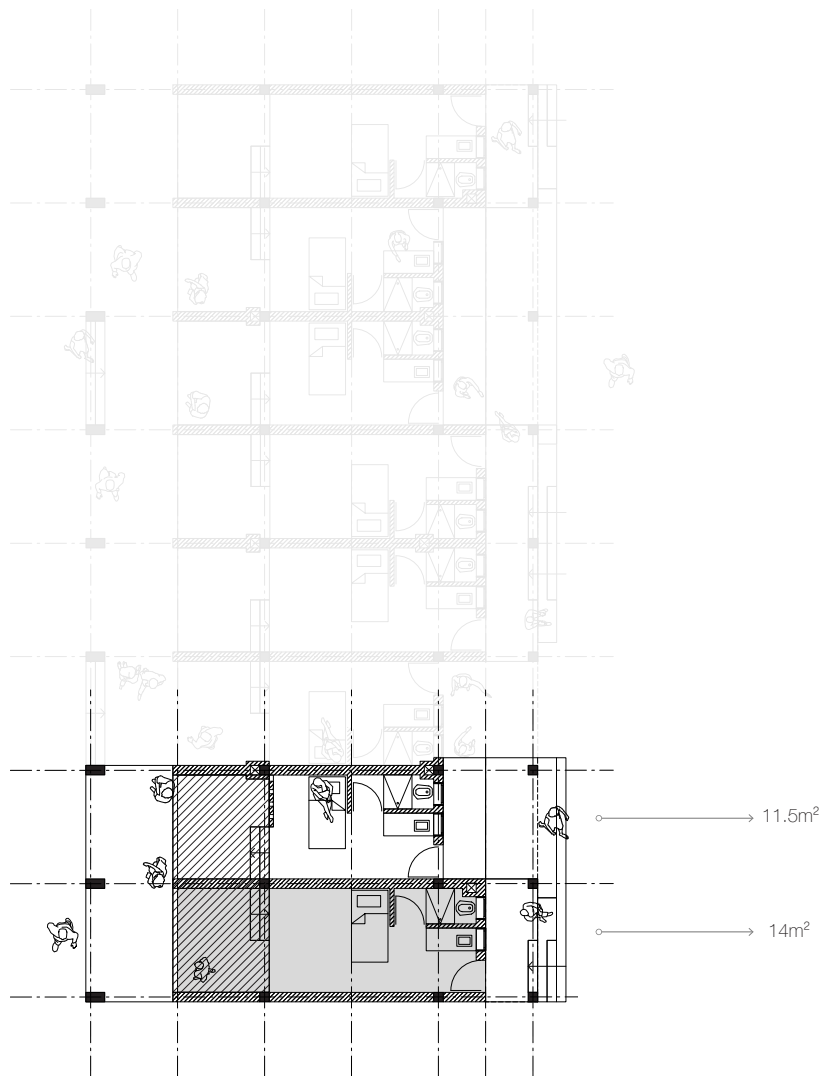
public face



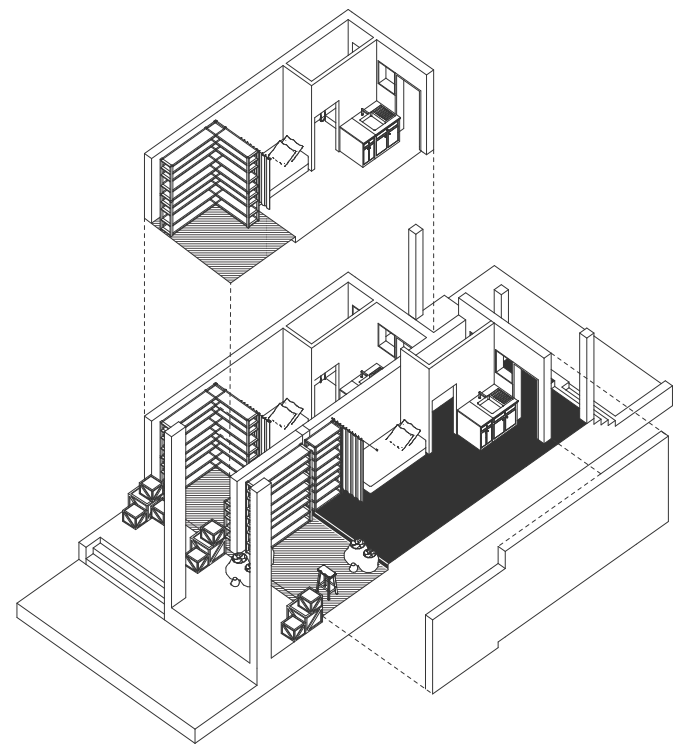
private face

dwelling units

*EWS & LIG*

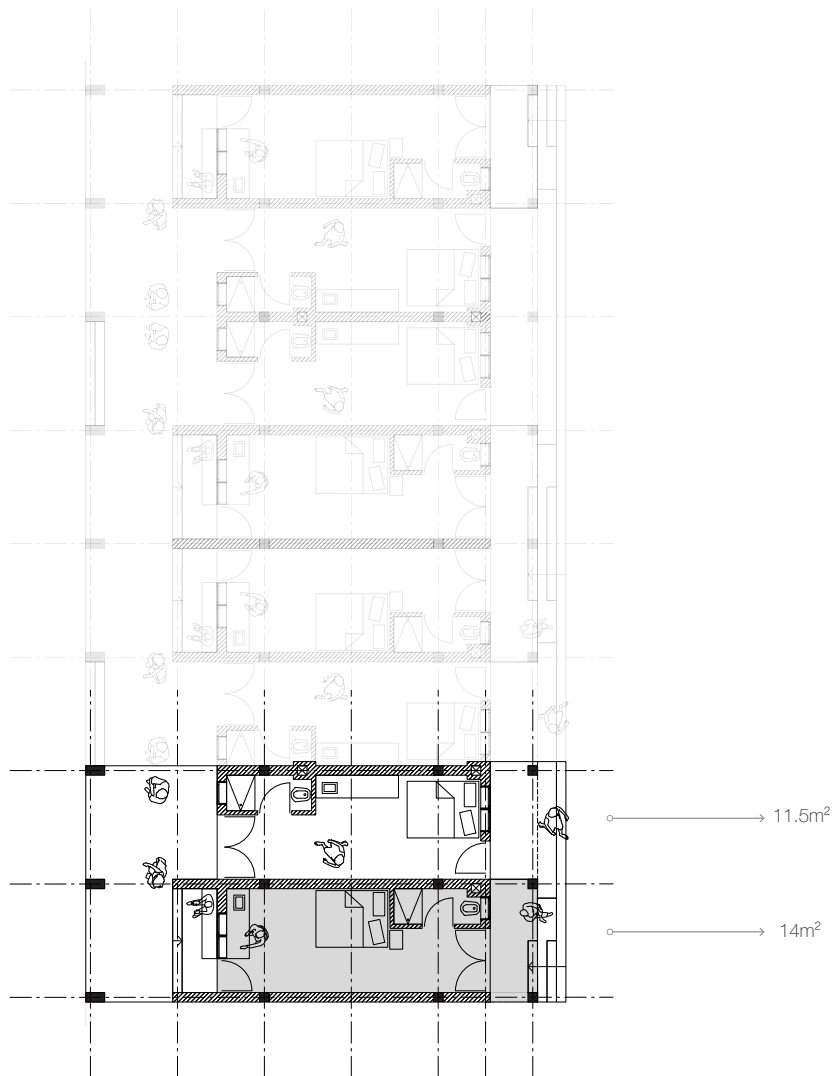


ground floor\_variation 1\_live & work (rental)

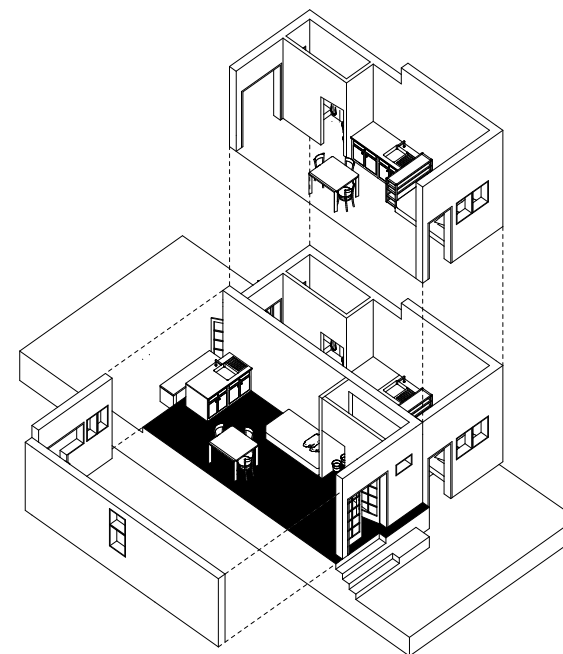


ground floor\_variation 1\_live & work (rental)

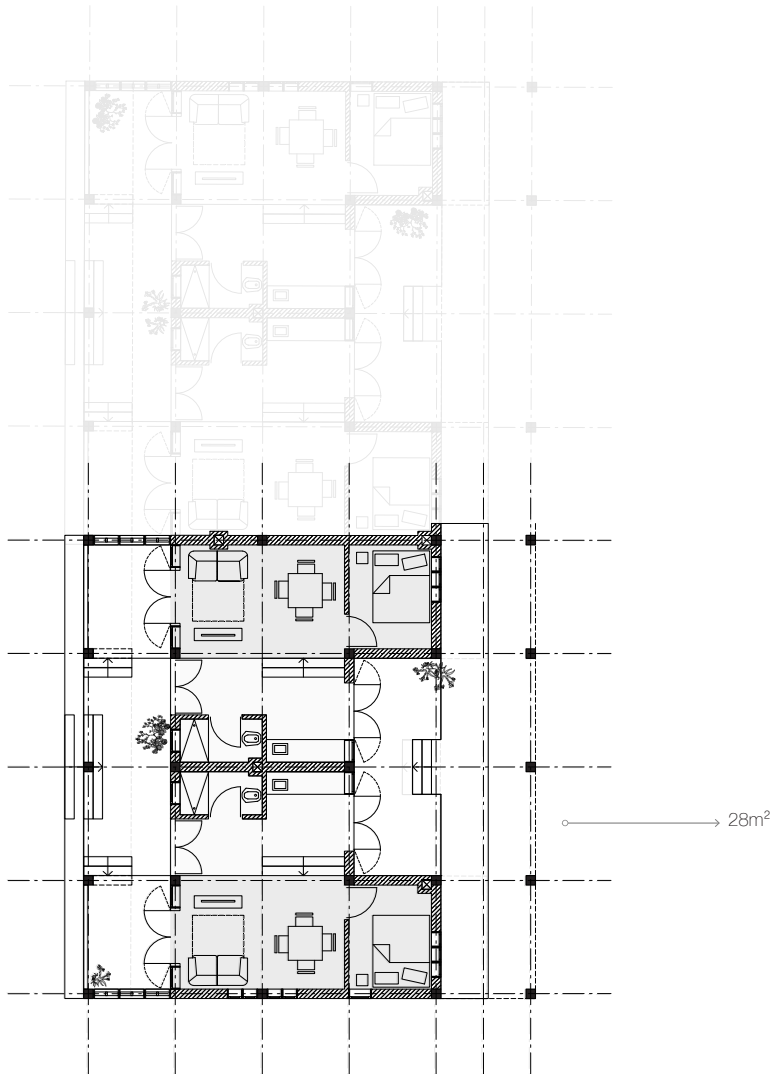




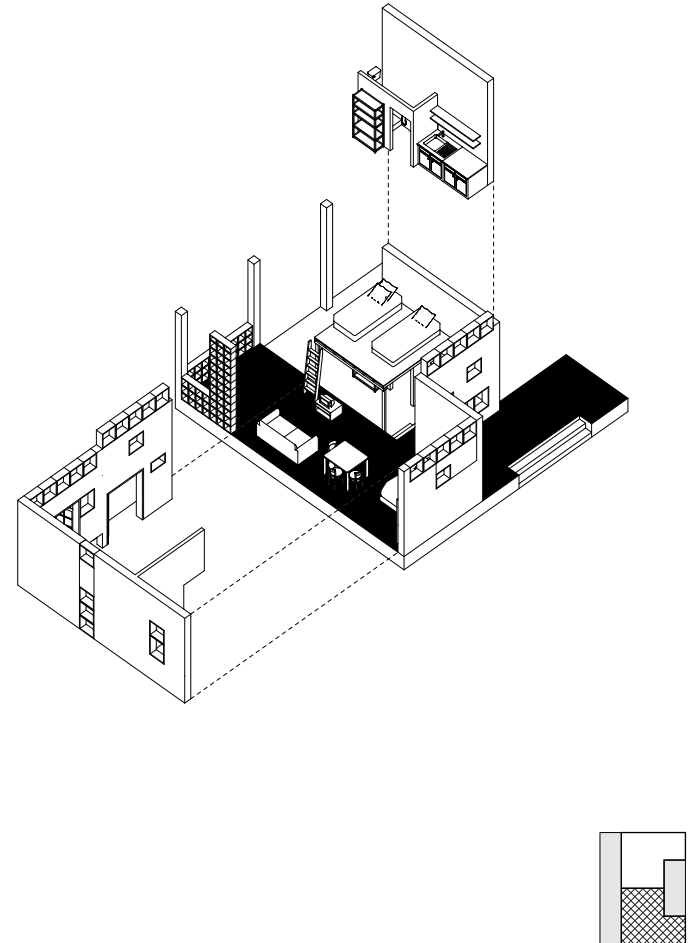
ground floor\_variation 2\_live (rental)



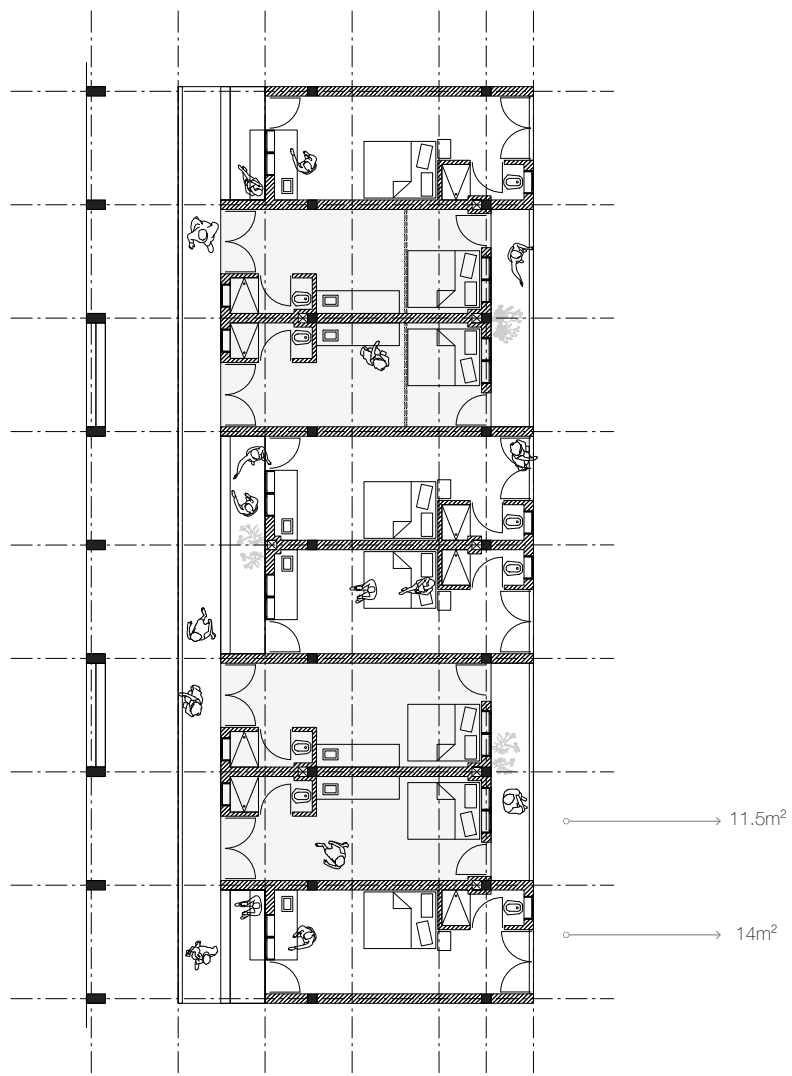
ground floor\_variation 2\_live (rental)



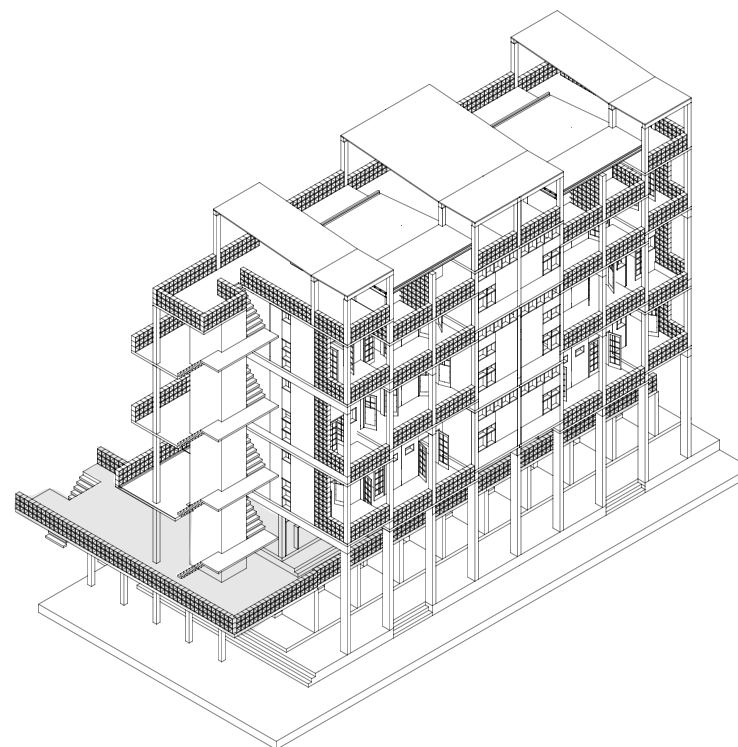
ground floor\_variation 3\_EWS (ownership)



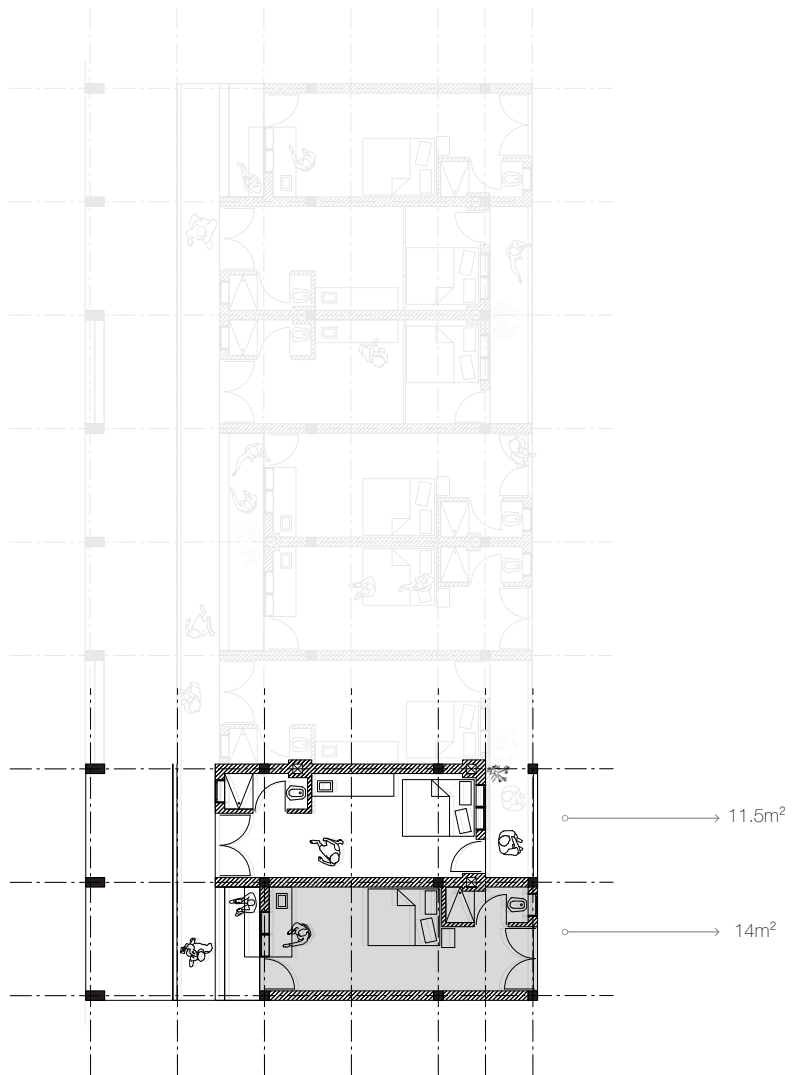
ground floor\_variation 3\_EWS (ownership)



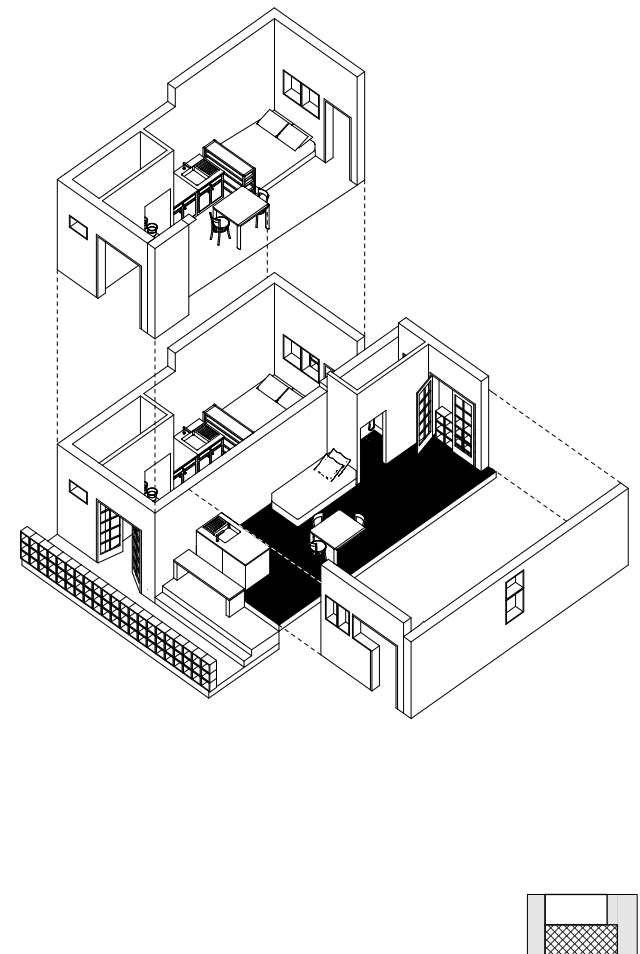
first floor\_rental



first floor\_rental

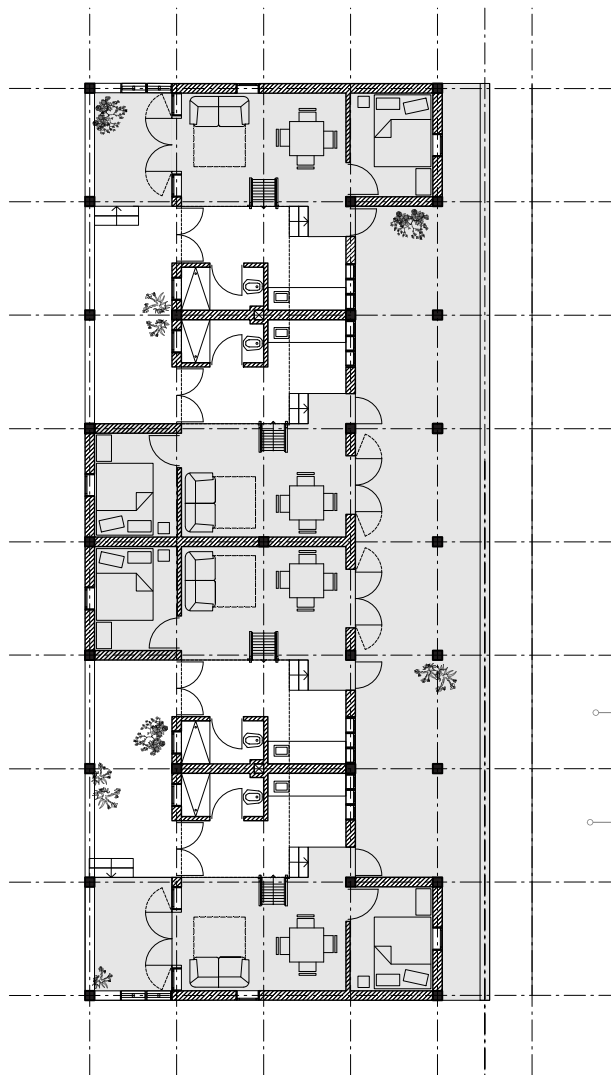


first floor\_rental



first floor\_rental

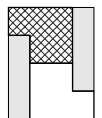
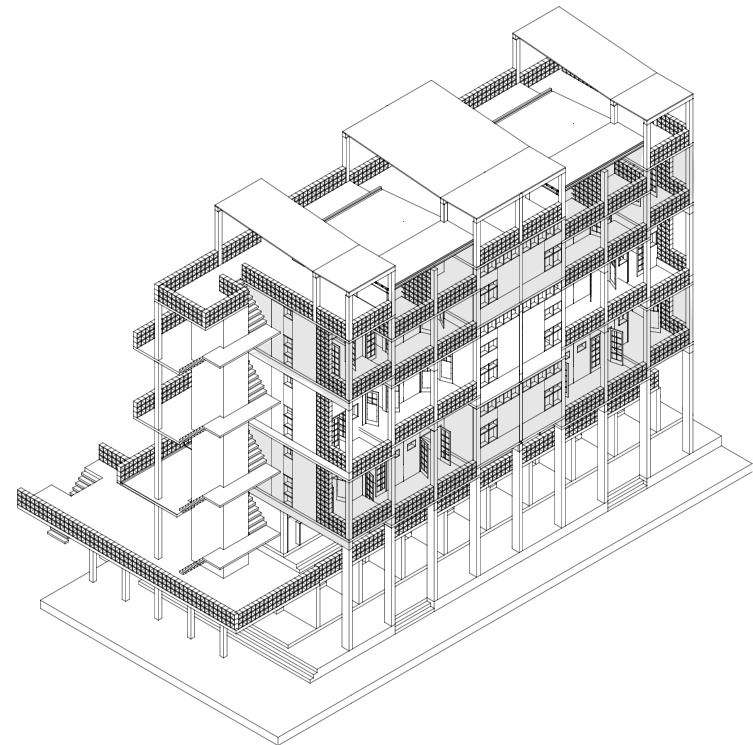




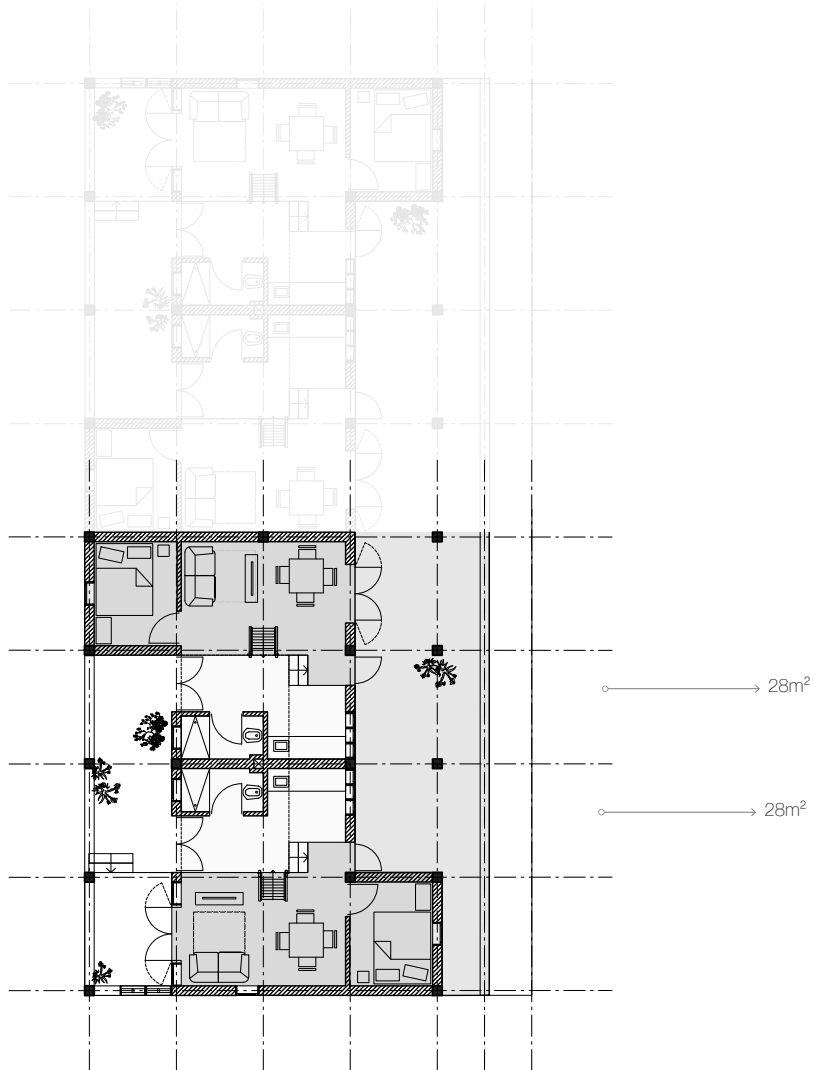
○ → 28m<sup>2</sup>

○ → 28m<sup>2</sup>

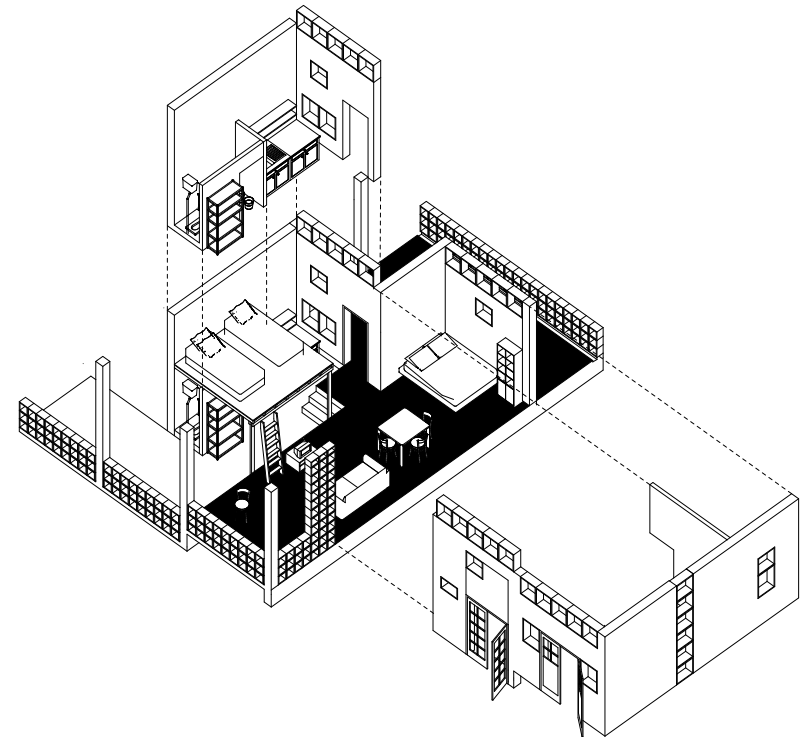
second & fourth floor\_EWS\_ownership



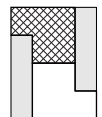
second & fourth floor\_EWS\_ownership

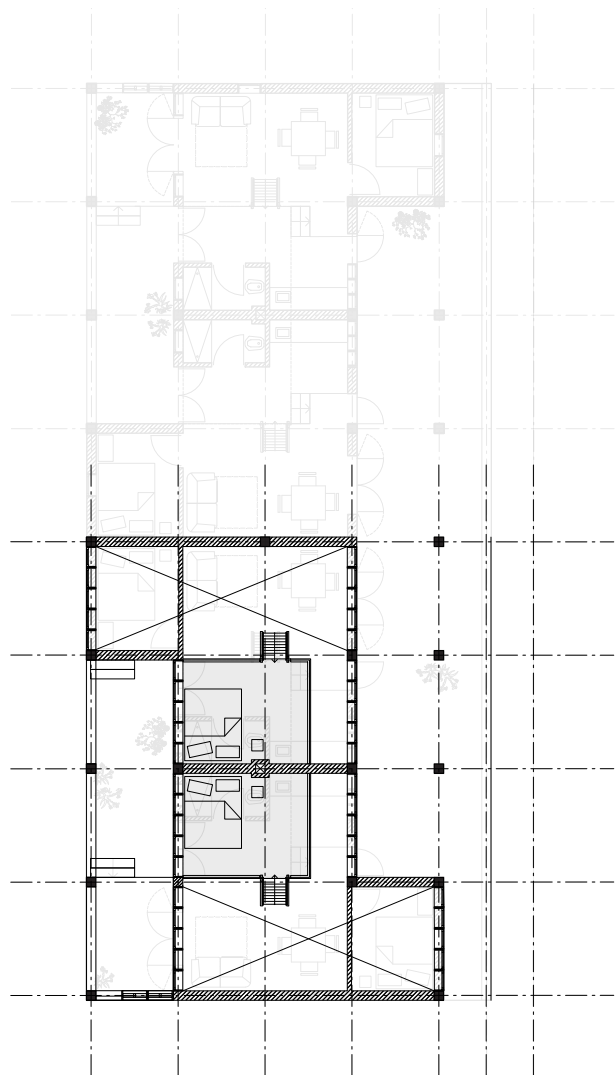


second & fourth floor\_EWS\_ownership

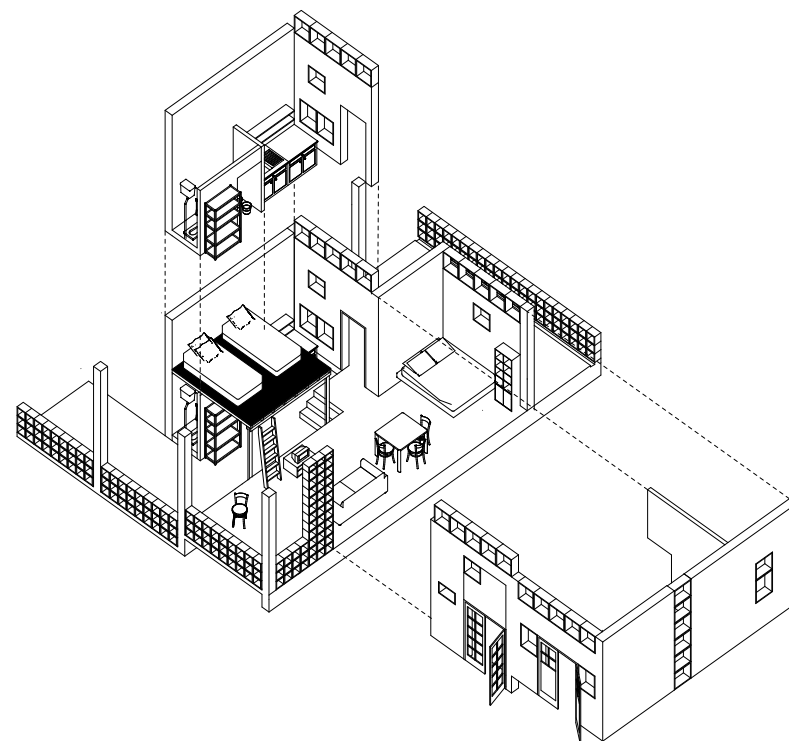


second & fourth floor\_EWS\_ownership

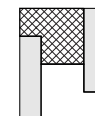


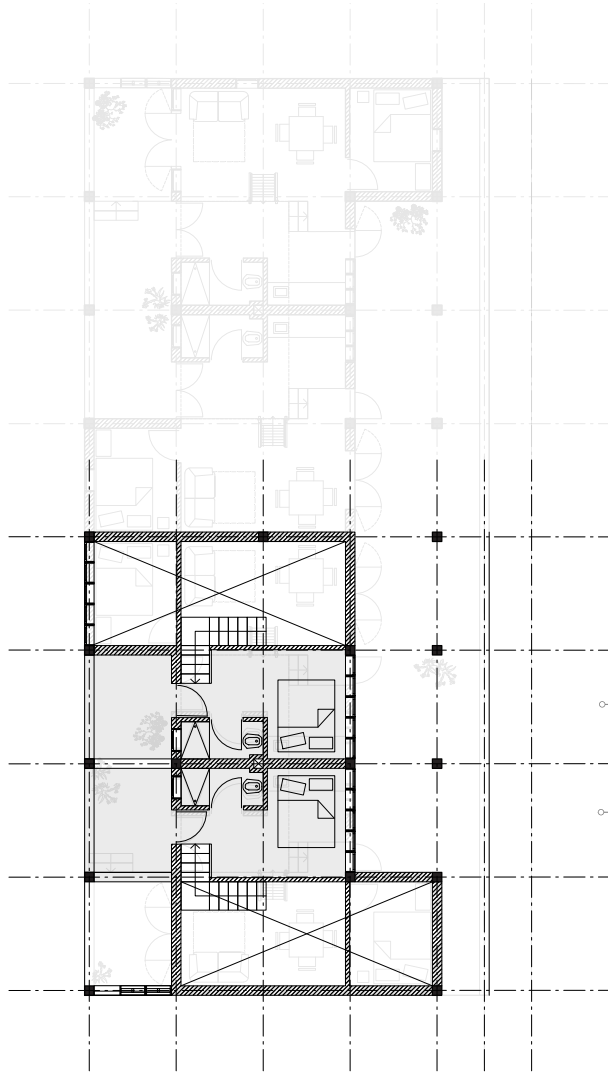


second & fourth floor\_EWS\_ownership



second & fourth floor\_EWS\_ownership

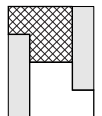
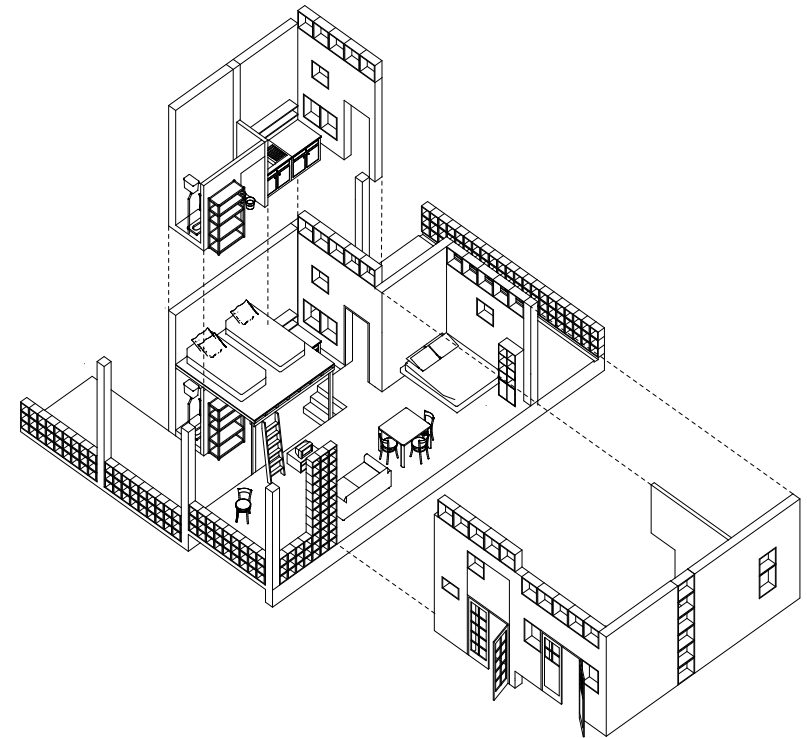




→ 40m<sup>2</sup>

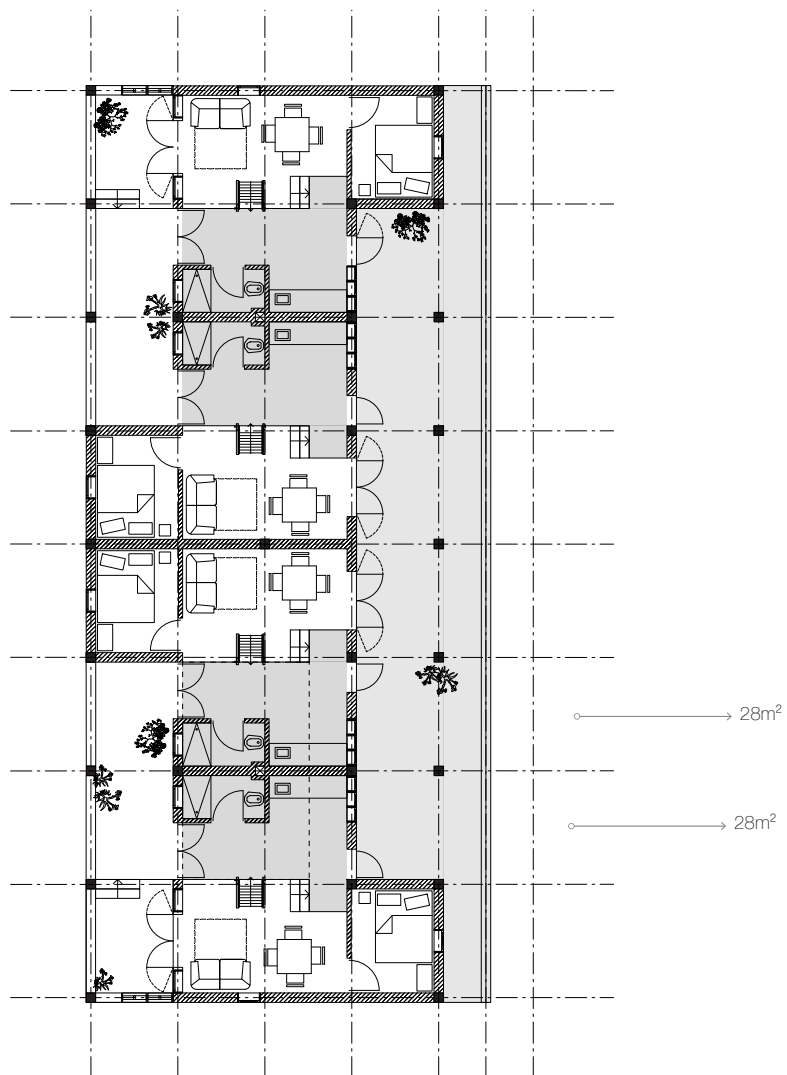
→ 40m<sup>2</sup>

second & fourth floor\_LIG\_ownership

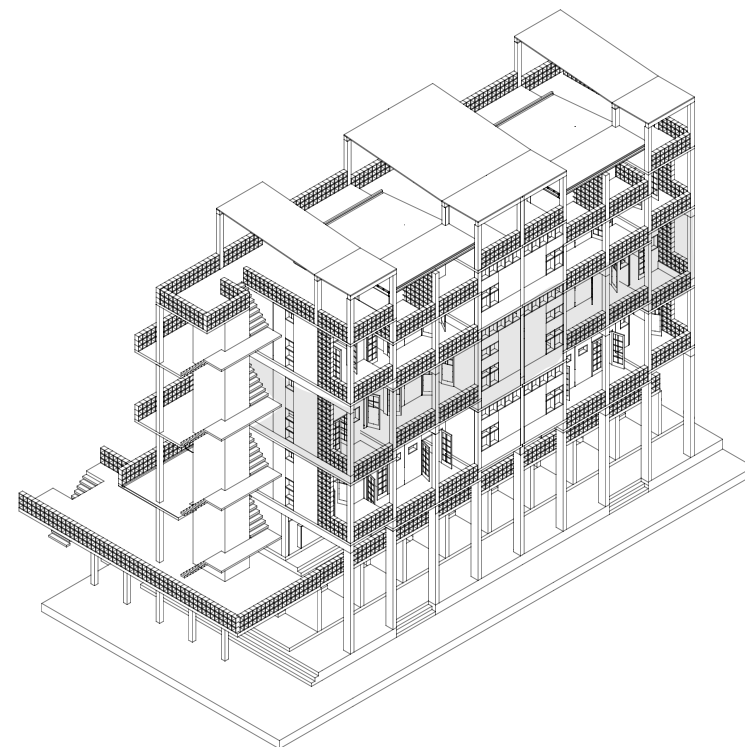


second & fourth floor\_LIG\_ownership

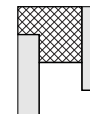


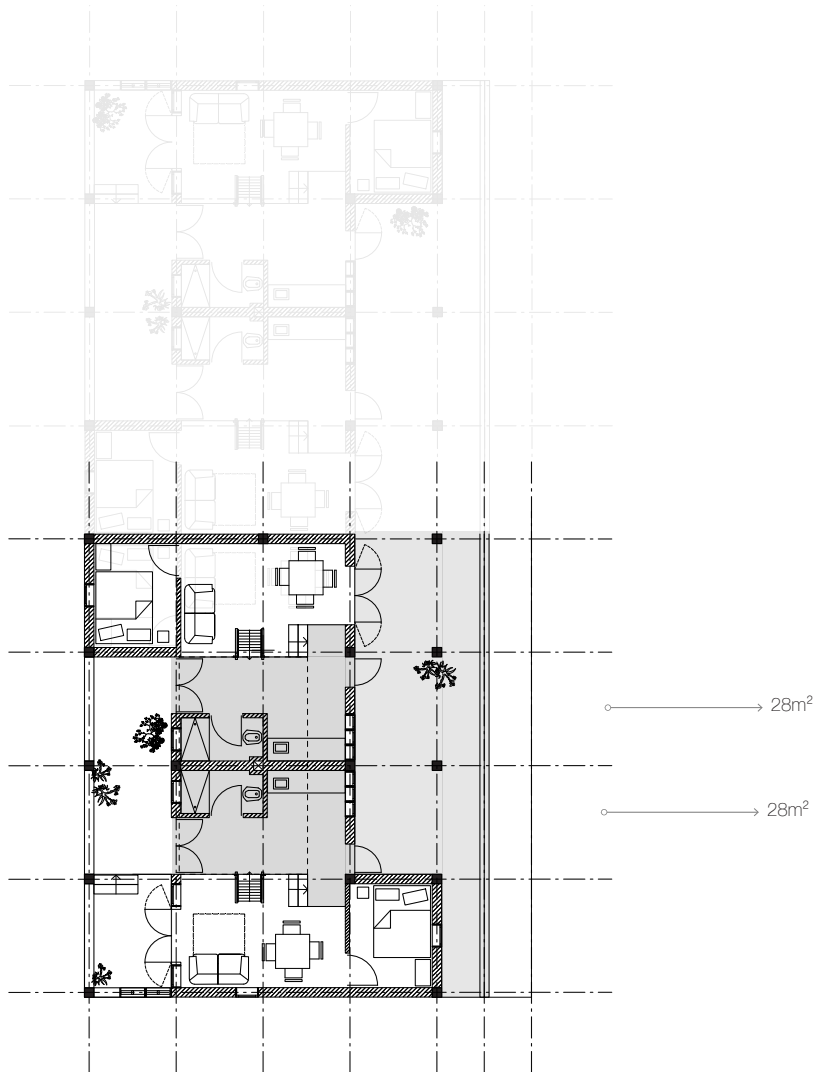


third & fifth floor\_EWS\_ownership

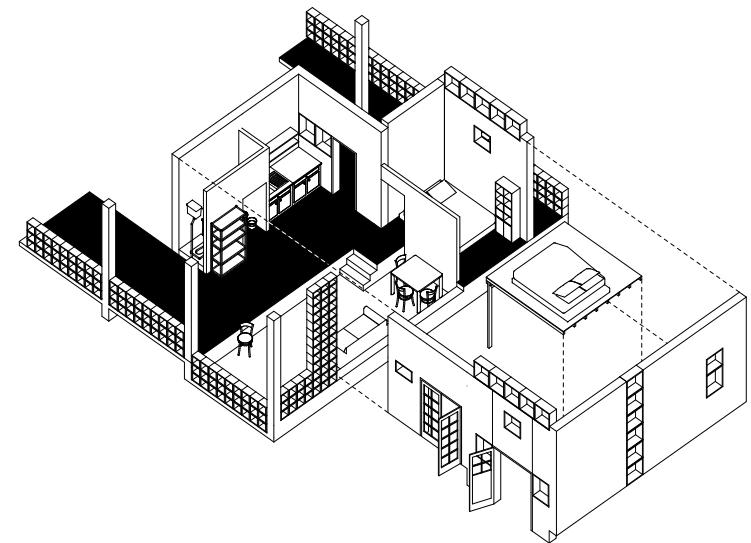


third & fifth floor\_EWS\_ownership

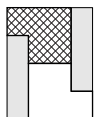


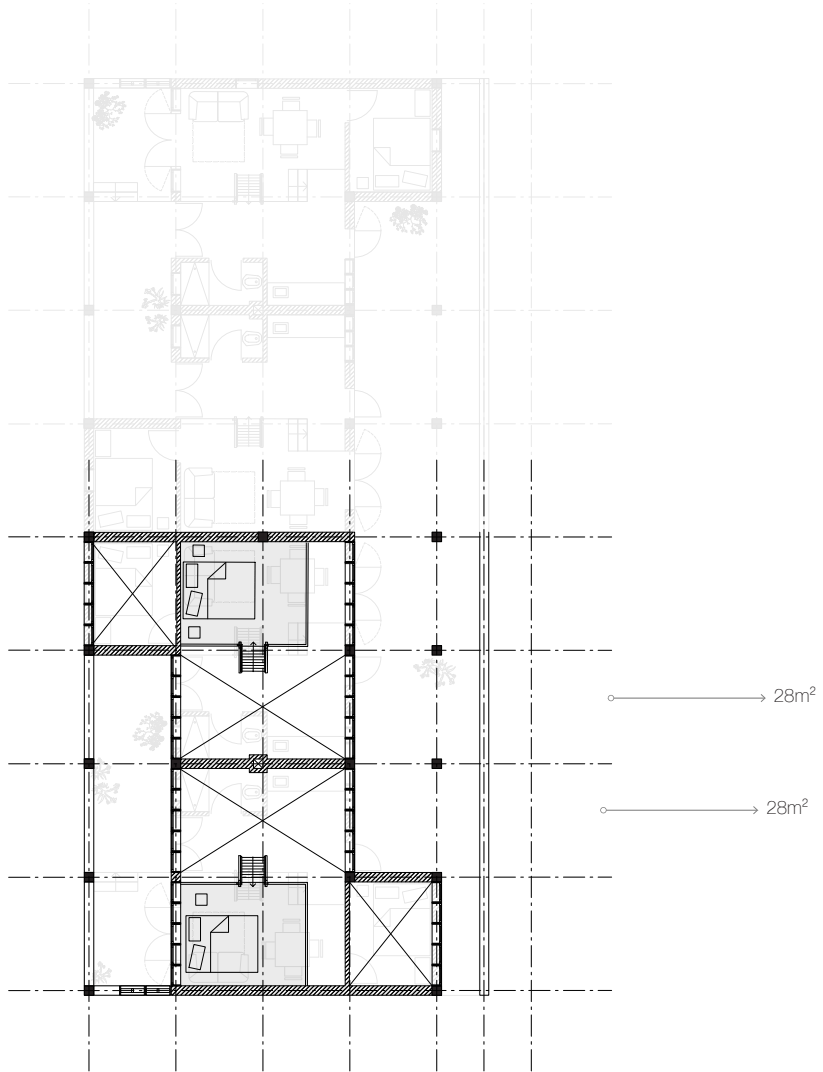


third & fifth floor\_EWS\_ownership

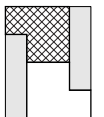
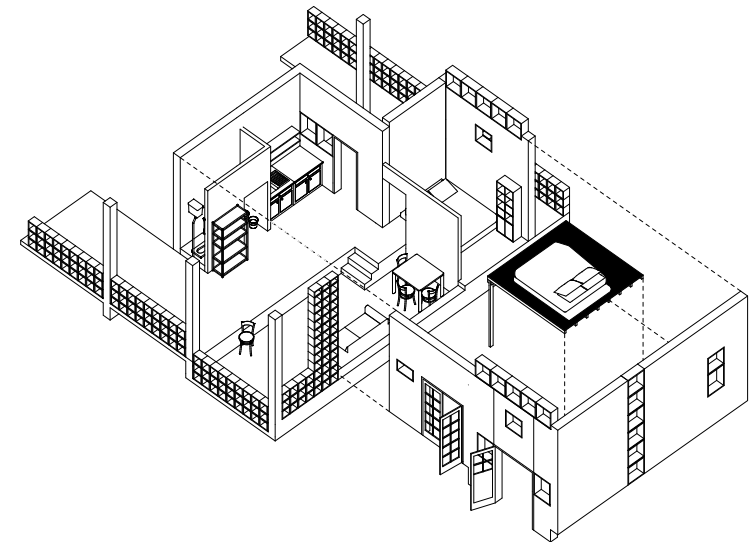


third & fifth floor\_EWS\_ownership

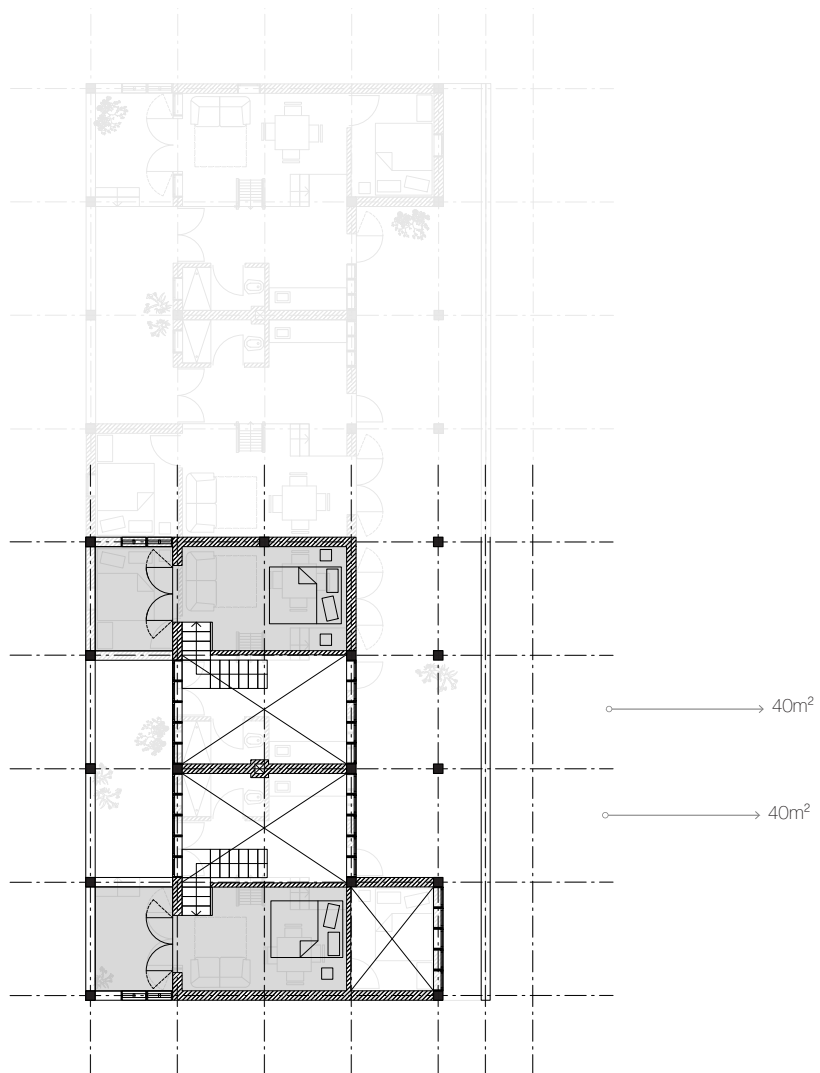




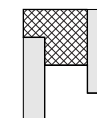
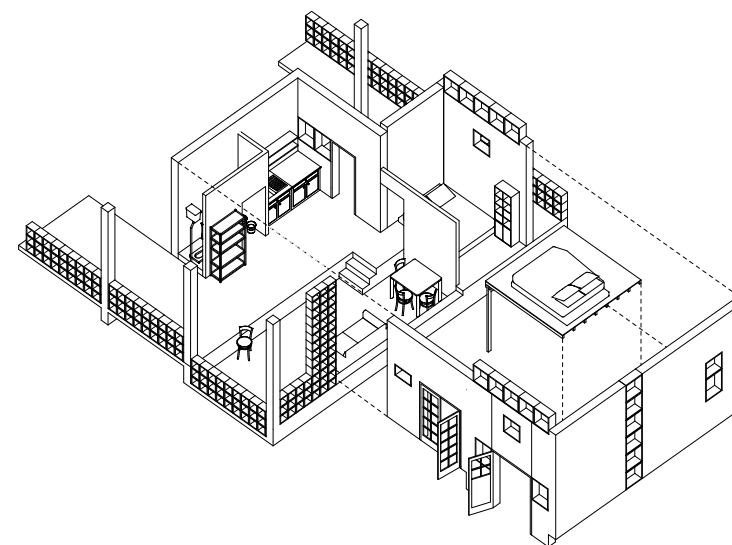
third & fifth floor\_EWS\_ownership



third & fifth floor\_EWS\_ownership

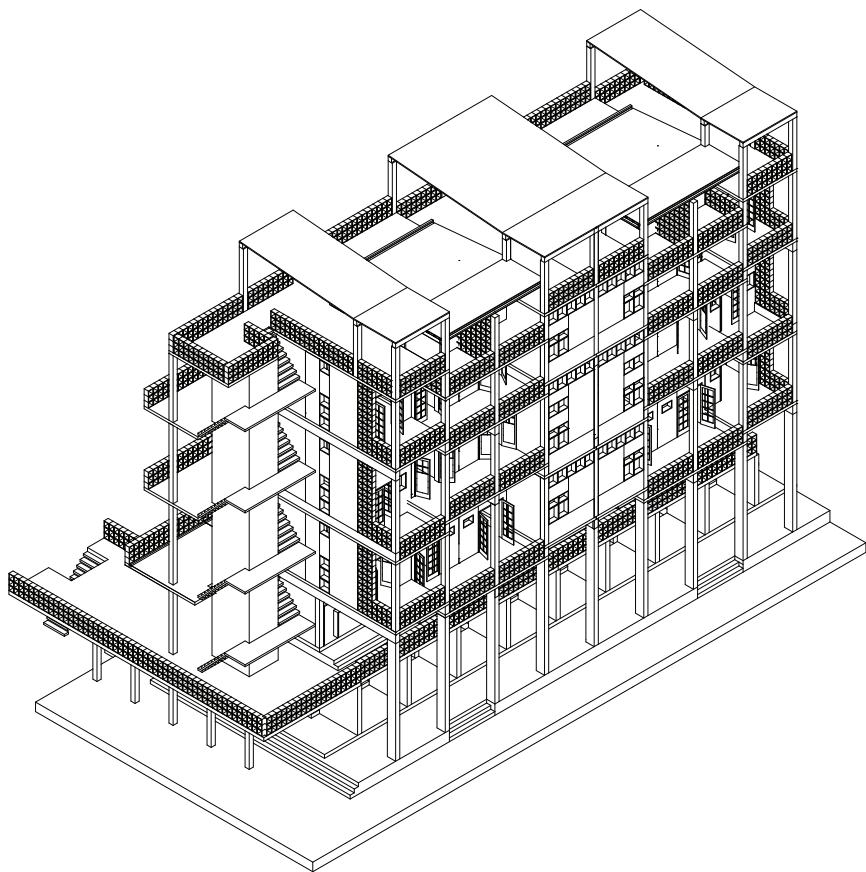


third & fifth floor\_LIG\_ownership

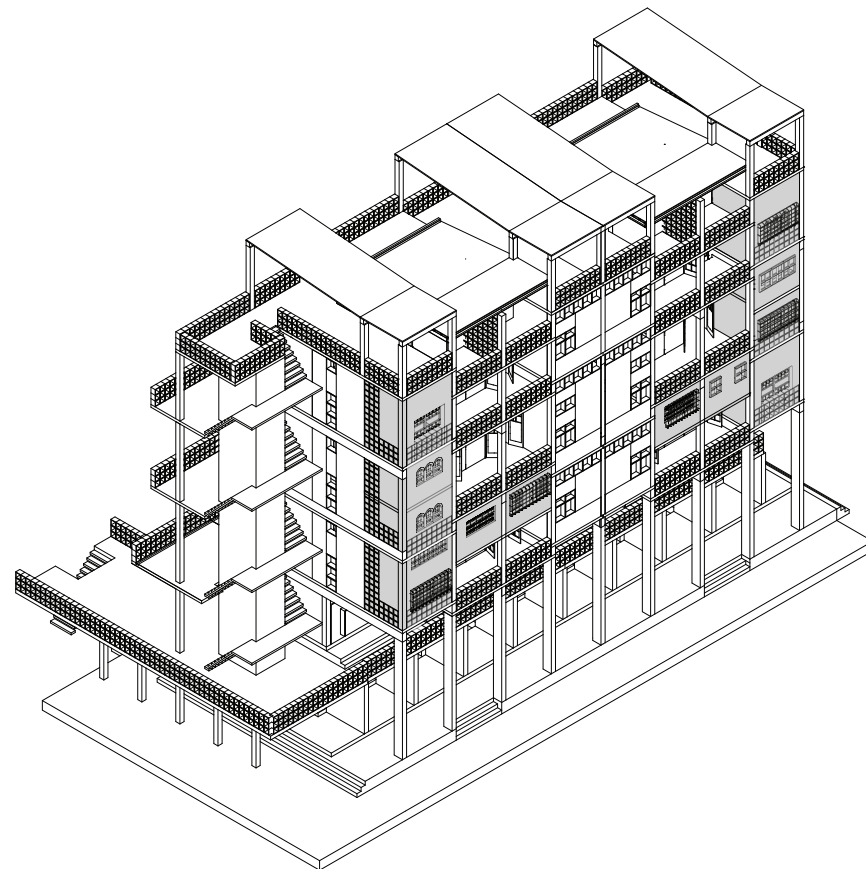


third & fifth floor\_LIG\_ownership

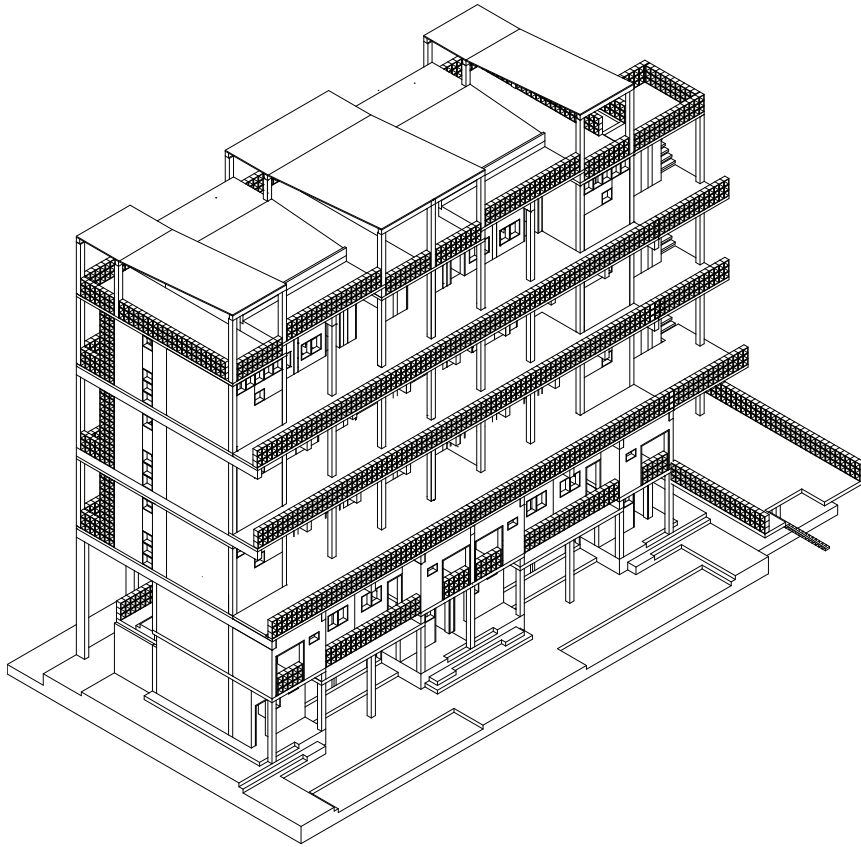




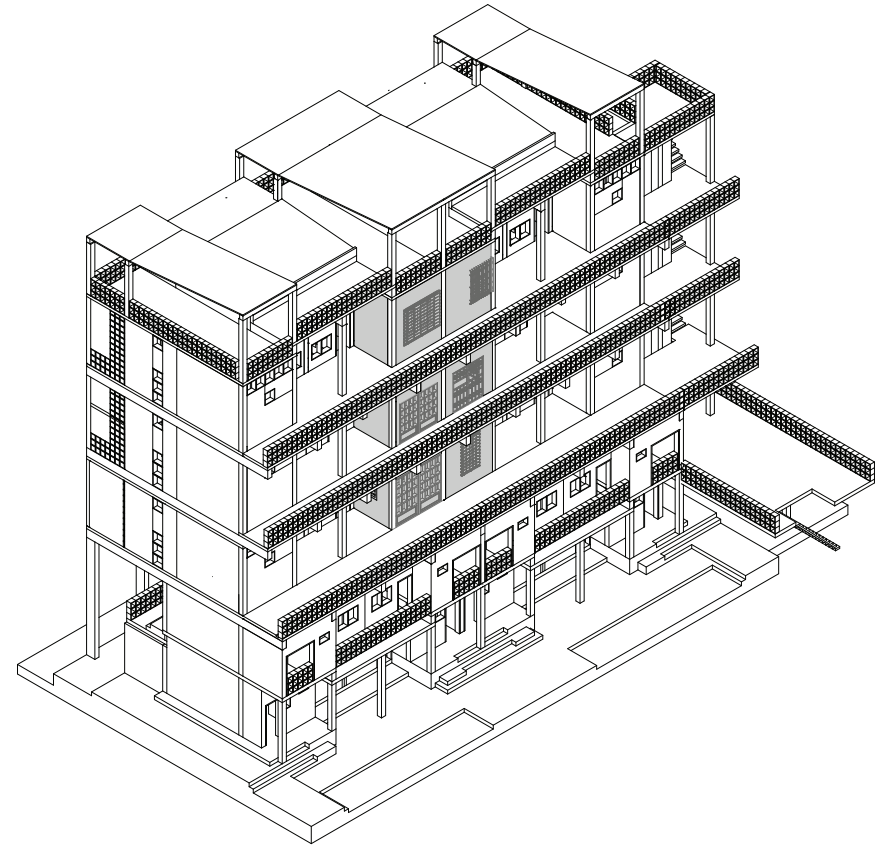
public street-facing facade - as-built



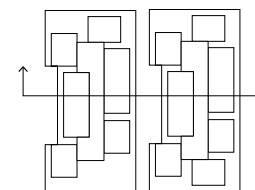
public street-facing facade - extensions



private courtyard facing facade - as-built

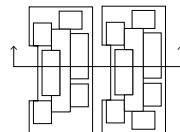


private courtyard-facing facade - extensions

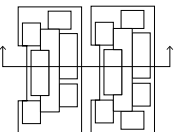




public corridor & domestic corridor



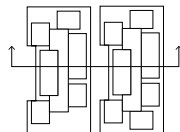
public corridor & domestic corridor



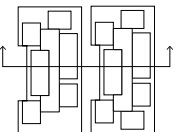


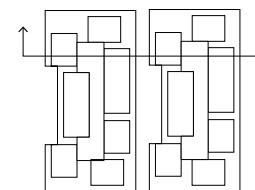


public corridor & domestic corridor



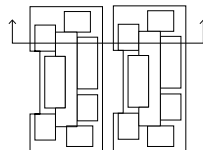
public corridor & domestic corridor



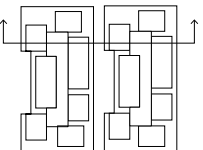




pull-over zone & domestic courtyard

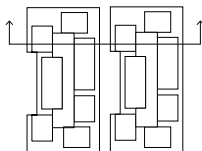


pull-over zone & domestic courtyard

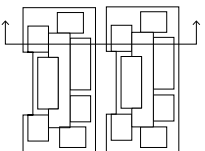




pull-over zone & domestic courtyard



pull-over zone & domestic courtyard



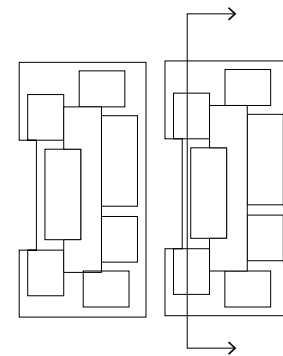


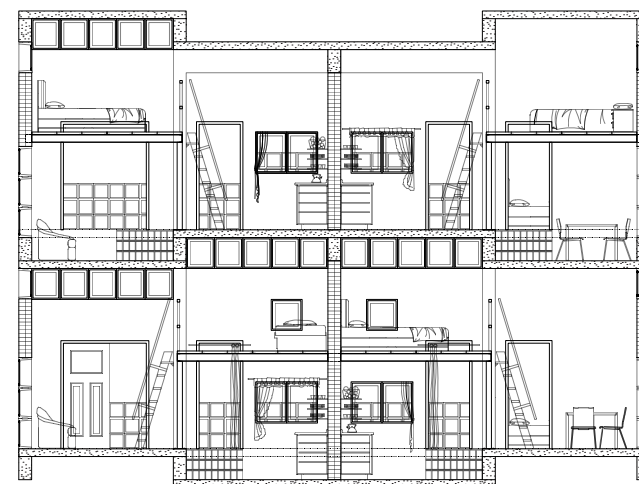
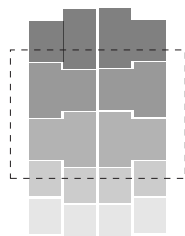


pull-over zone & domestic corridor

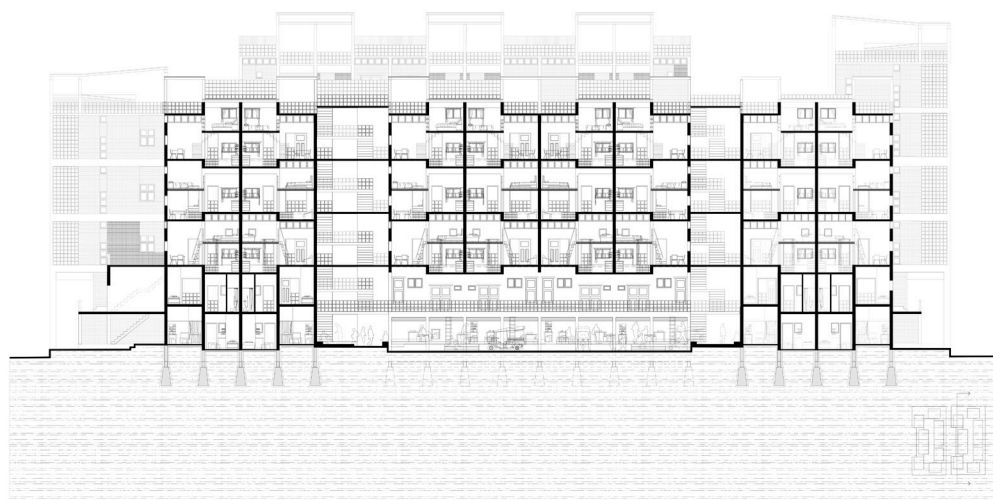


public corridor & domestic courtyard

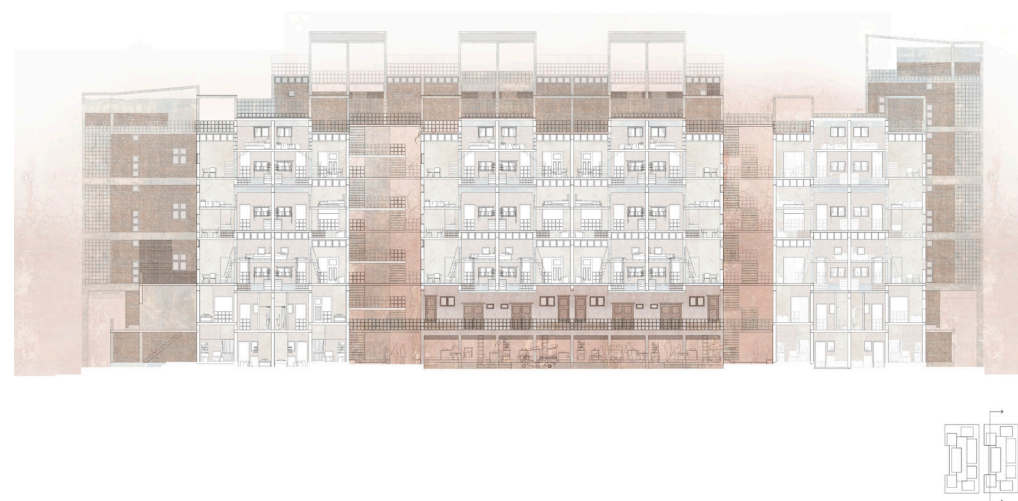




basic unit - mezzanine



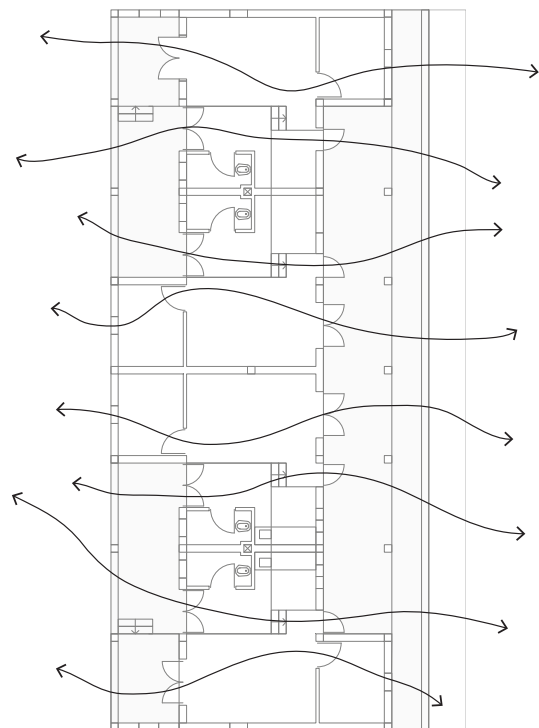
public corridor & pull-over zone



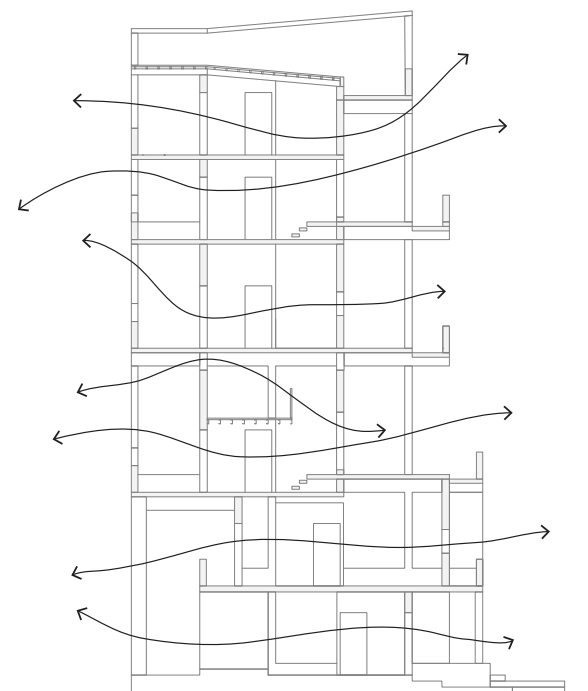
public corridor & pull-over zone



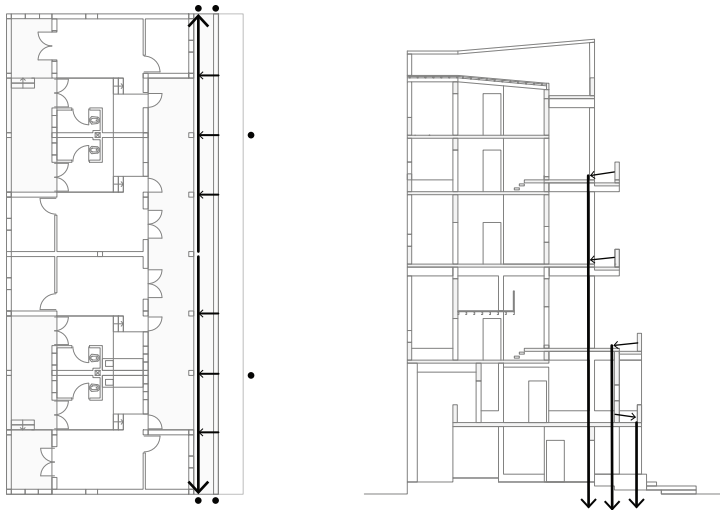
building technology



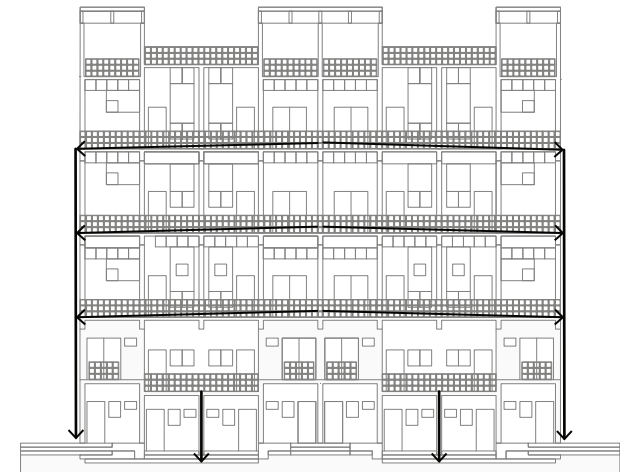
cross-ventilation



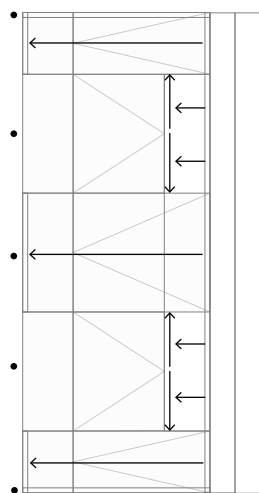
cross-ventilation



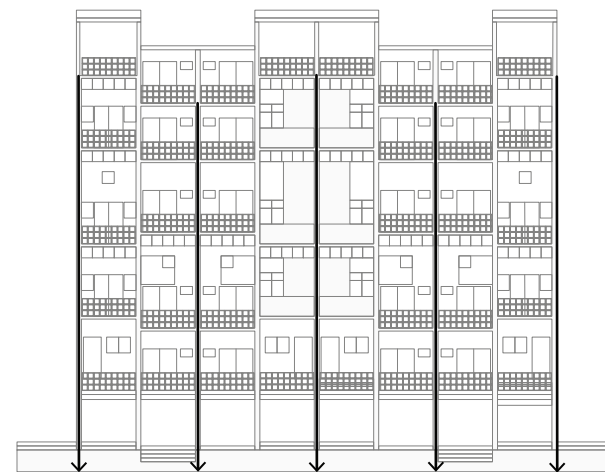
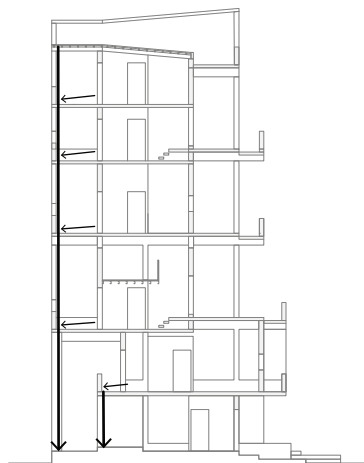
rainwater drainage



rainwater drainage

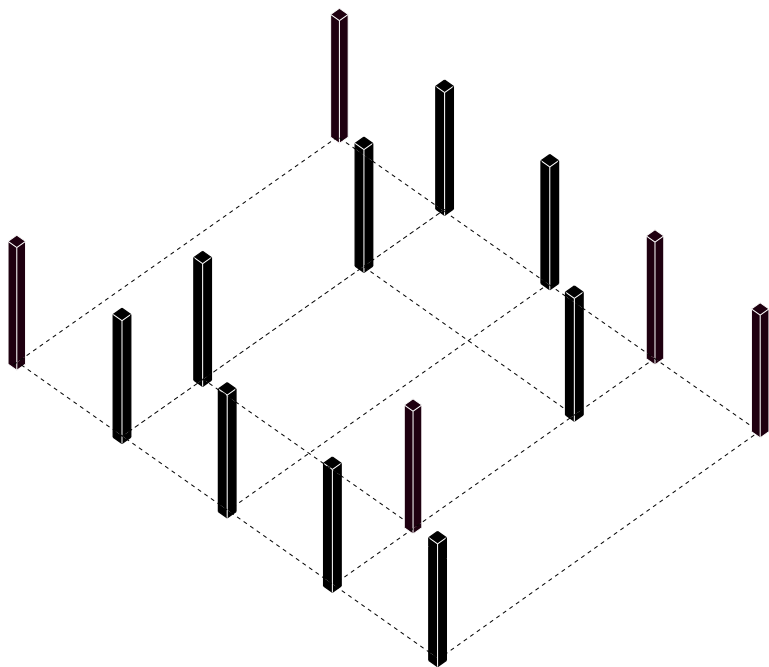


rainwater drainage



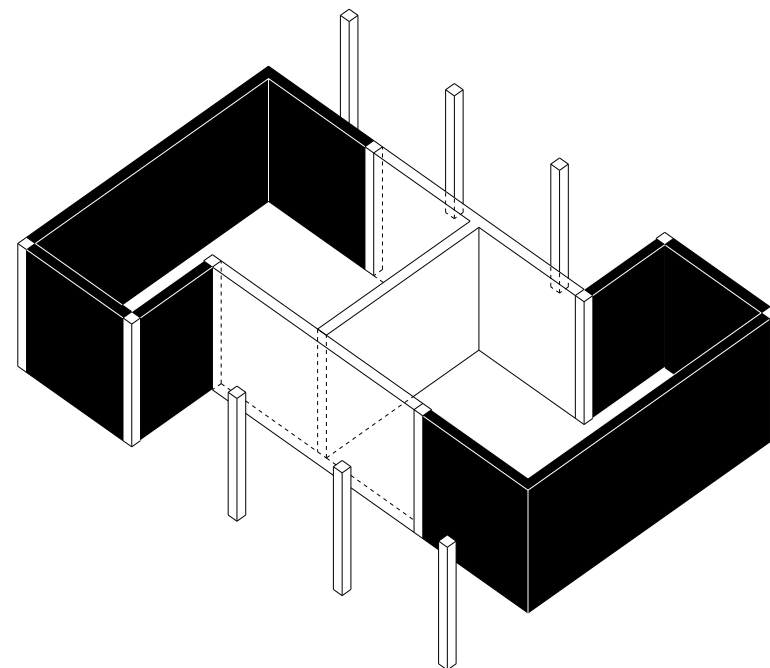
rainwater drainage





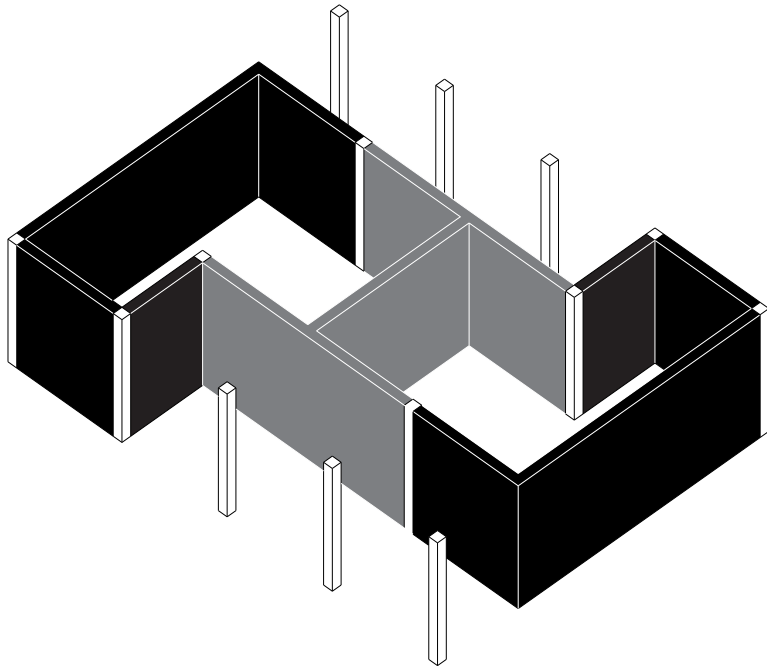
250 x 250 mm cast in-situ concrete columns

structural build-up



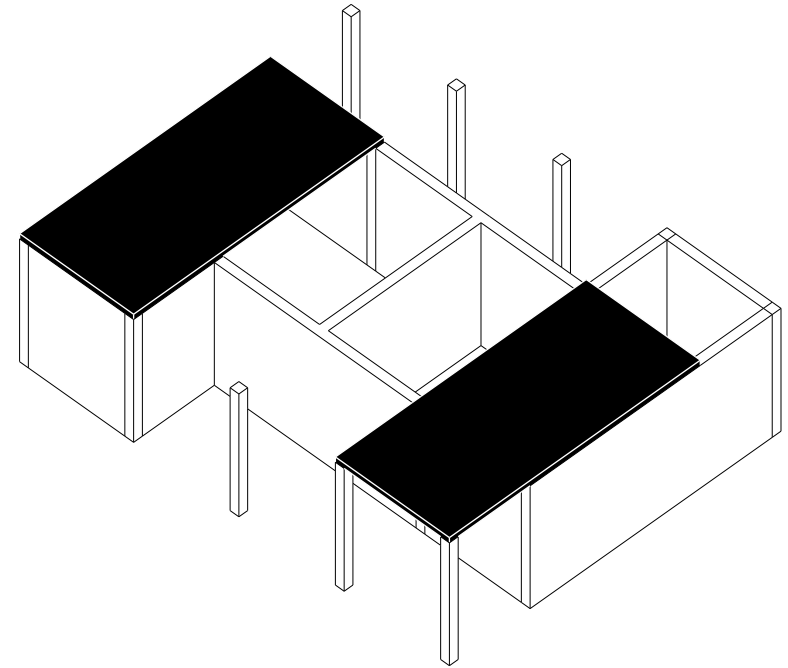
exposed or plastered primary brick infill

structural build-up



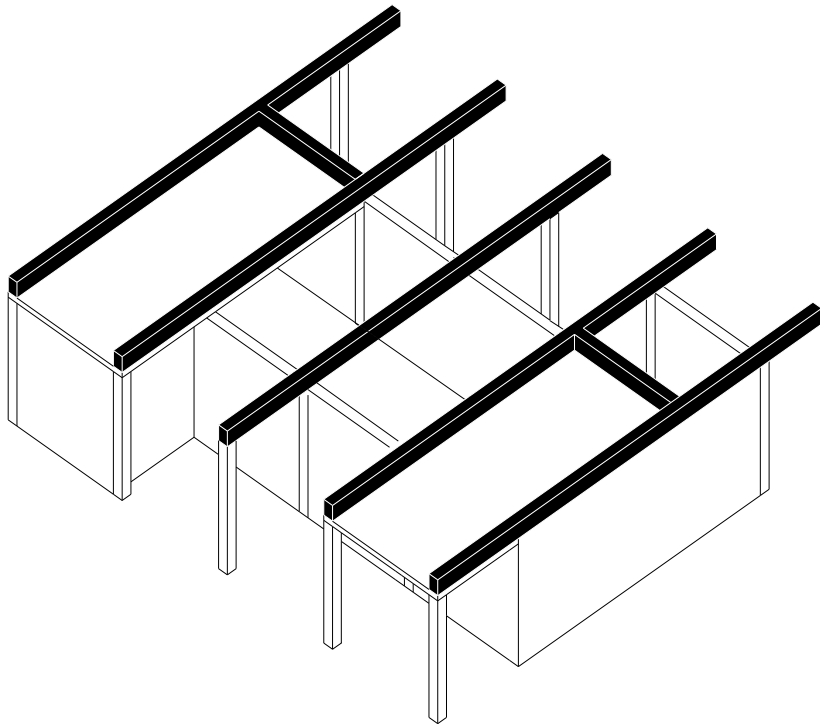
exposed or plastered secondary brick infill

structural build-up



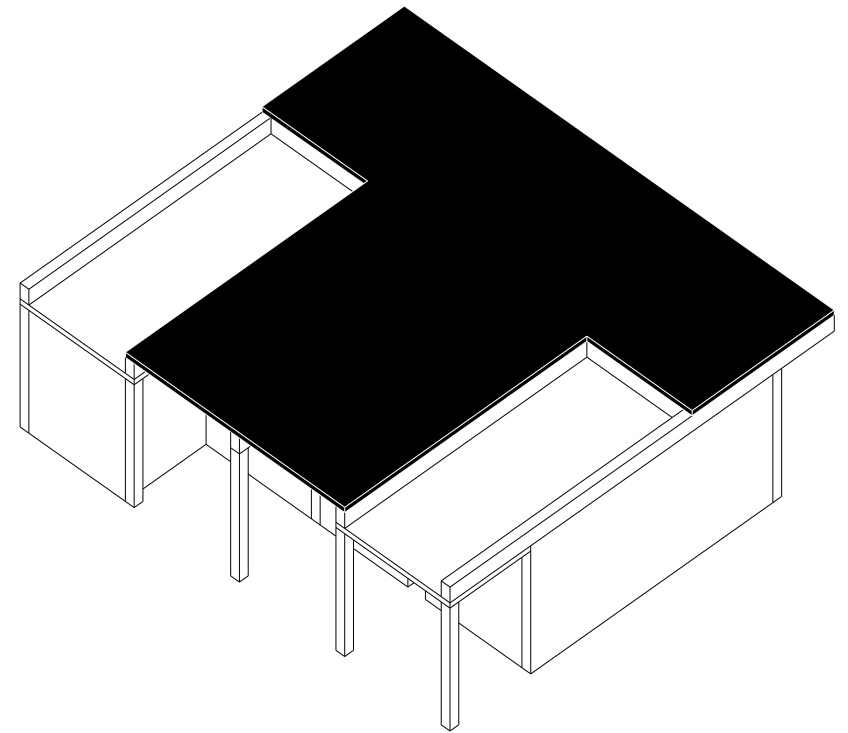
150 mm cast in-situ concrete floor slabs

structural build-up



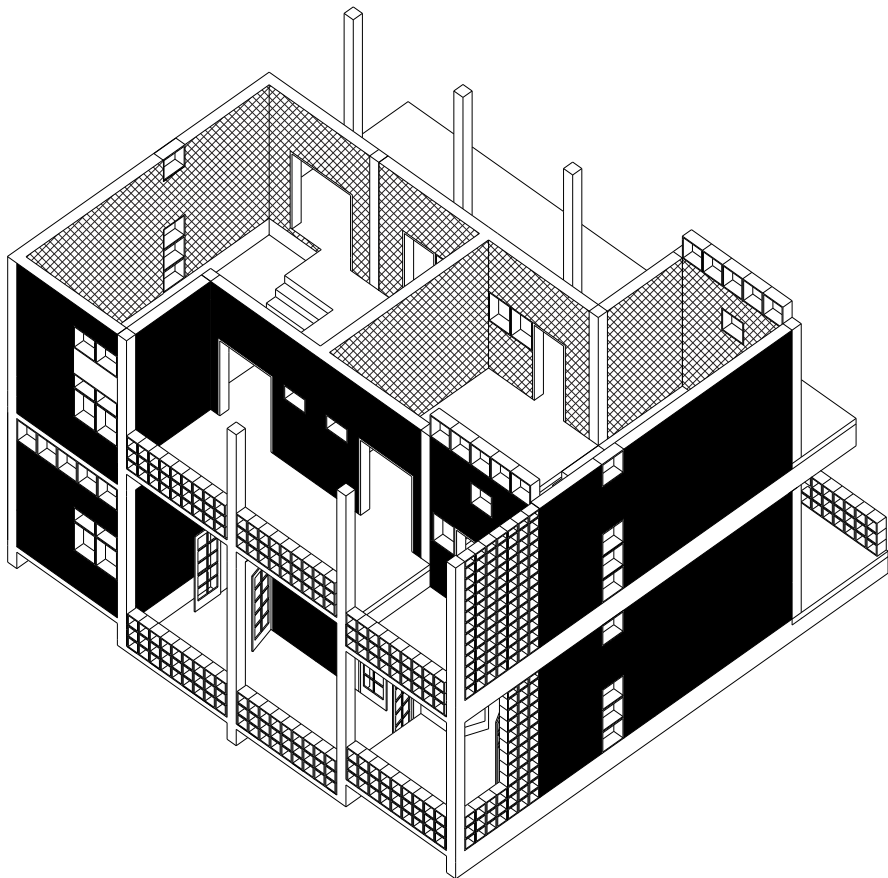
250 x 450 mm cast in-situ concrete beams

structural build-up

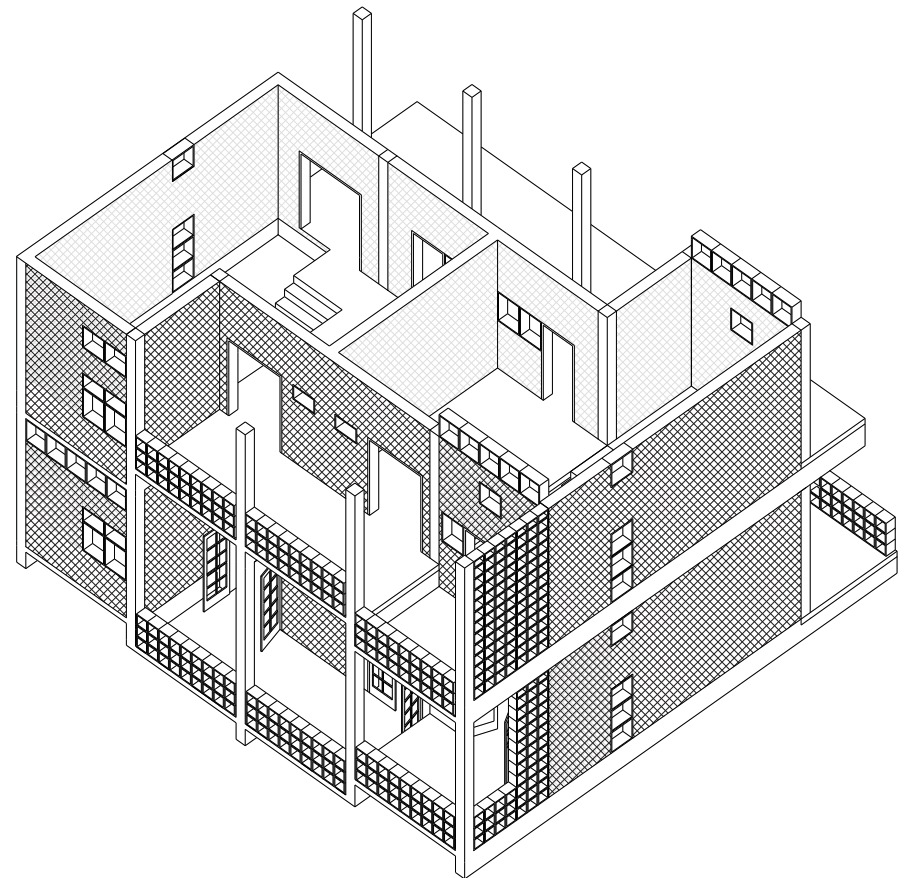


150 mm cast in-situ concrete floor slab

structural build-up



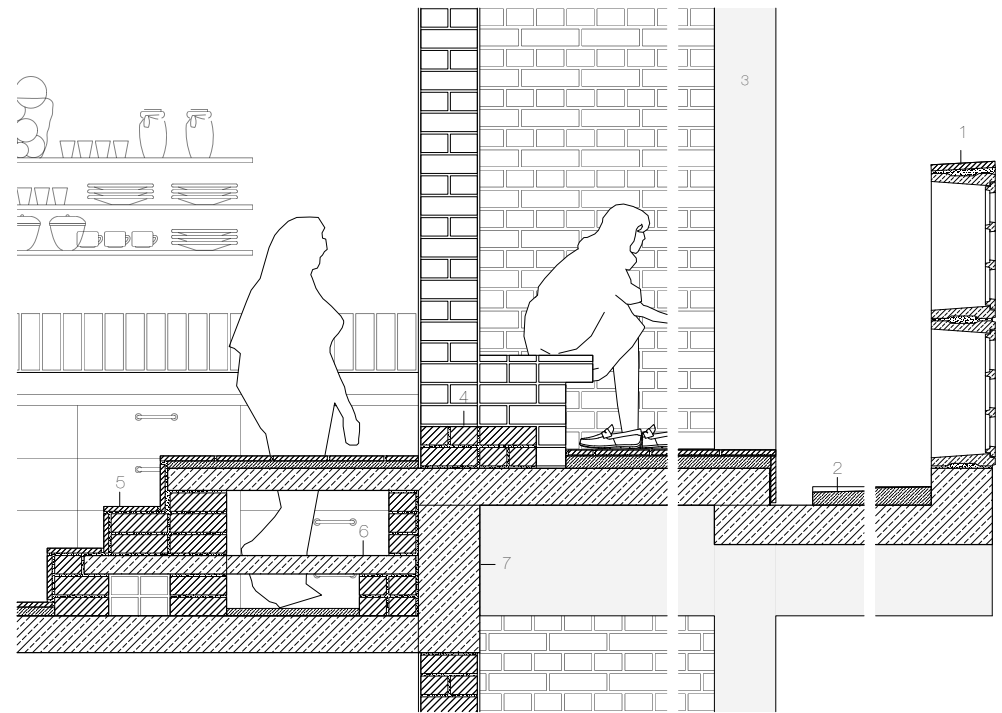
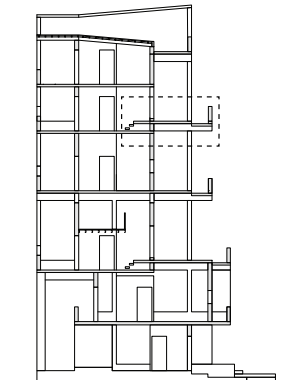
structural build-up



structural build-up



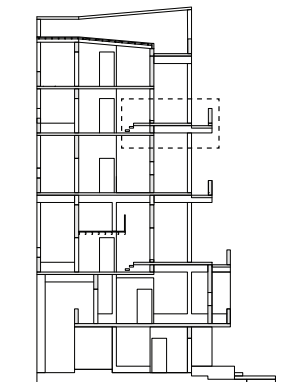
- 1 25 mm ceramic tile cover  
precast concrete frame element without reinforcement
- 2 50 mm sloping cement screed
- 3 250/250 mm reinforced concrete column
- 4 four leaf brick step
- 5 25 mm ceramic tile flooring  
brick stair
- 6 75 mm precast concrete element
- 7 250/450 mm reinforced concrete beam



kitchen 600mm below gallery

threshold one - cut one

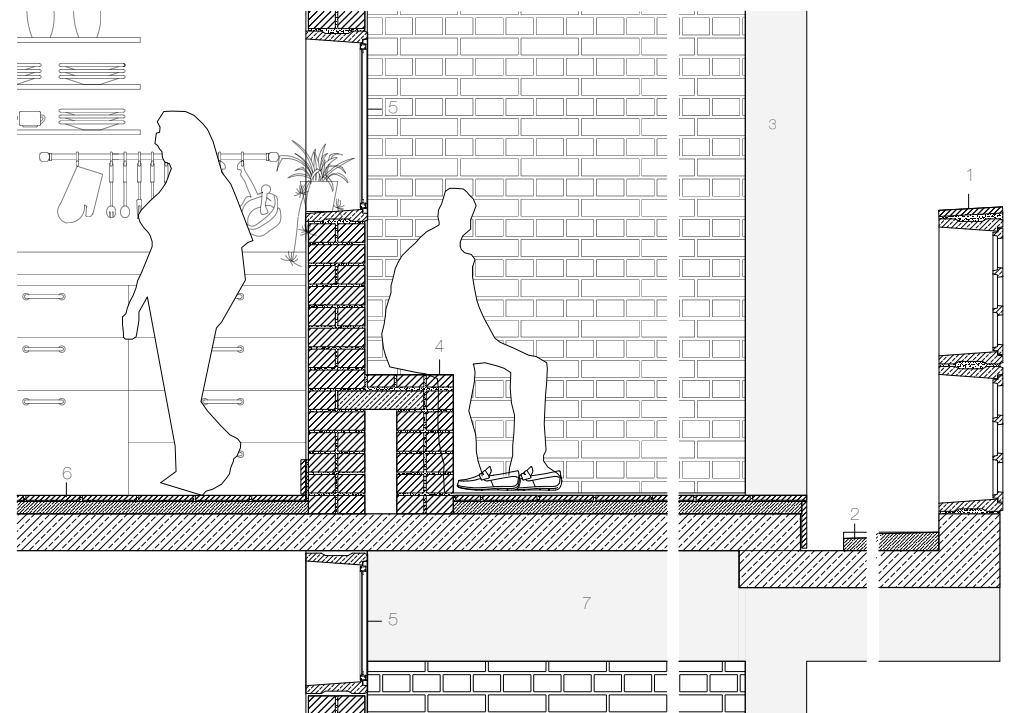
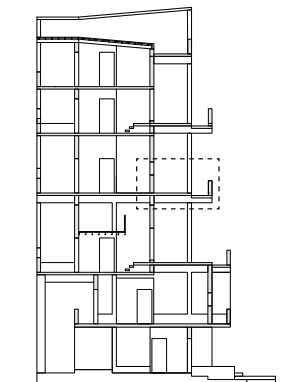
- 1 25 mm ceramic tile cover  
precast concrete frame element without reinforcement
- 2 50 mm sloping cement screed
- 3 250/250 mm reinforced concrete column
- 4 25 mm ceramic tiles  
220/110/75 mm brick  
75 mm prefabricated concrete element
- 5 25 mm ceramic tile flooring  
30 mm cement screed  
150 mm reinforced concrete floor slab
- 6 250/450 mm reinforced concrete beam



kitchen 600mm below gallery

threshold two - cut two

- 1 25 mm ceramic tile cover
- precast concrete frame element without reinforcement
- 2 50 mm sloping cement screed
- 3 250/250 mm reinforced concrete column
- 4 50 mm brick flooring
- 75 mm precast reinforced concrete element
- 5 window: precast concrete frame element with aluminium frame
- 6 25 mm ceramic tile flooring
- 30 mm cement screed
- 150 mm reinforced concrete floor slab
- 7 250/450 mm reinforced concrete beam



kitchen on level with gallery

threshold two

impressions





public corridor intersection - as-built



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domestic corridor - over time





domestic corridor - as-built





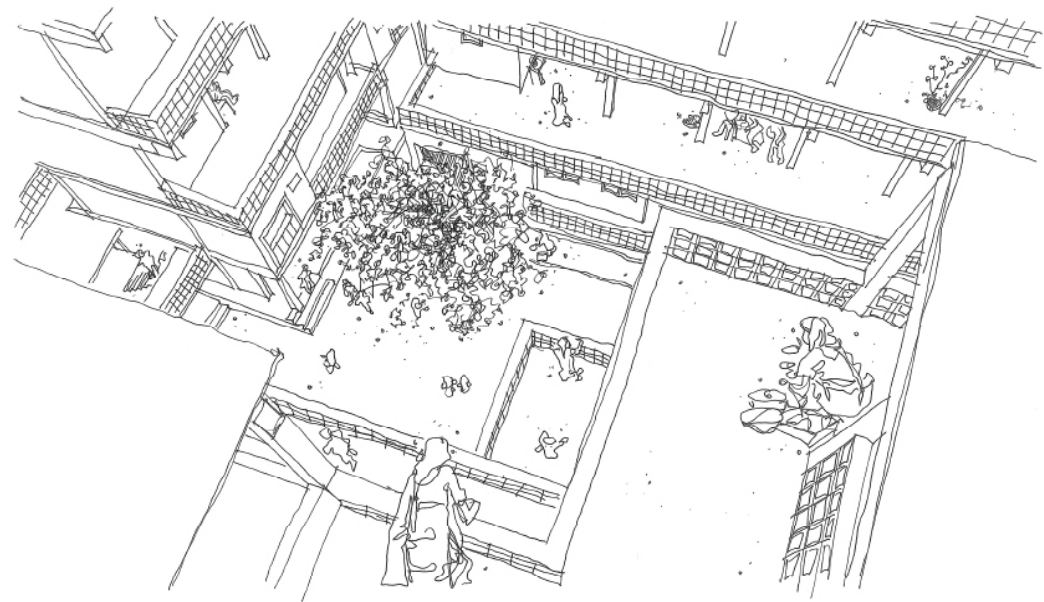
domestic niche - as-built



domestic niche - over time



domestic courtyard

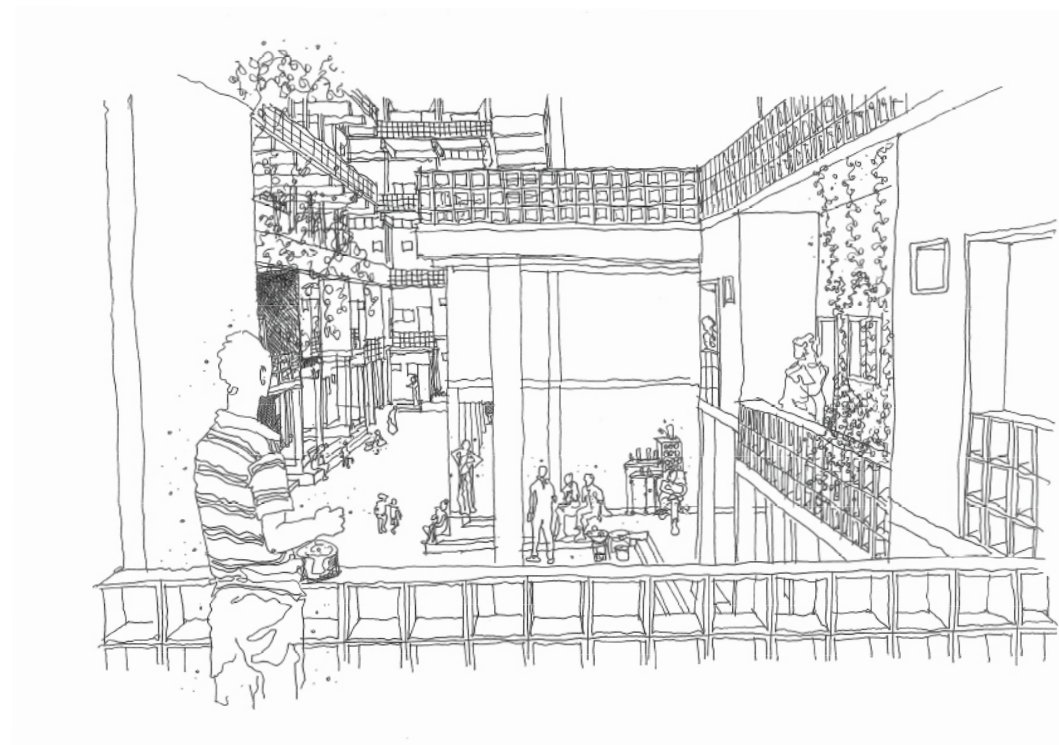


domestic courtyard





cluster access from secondary road



cluster access point via community spine



reflection

The effects of India's shift towards economic liberalisation, globalisation and privatisation in the mid 1990's has drastically altered the landscape of its cities. These powerful forces have imposed further spatial disjuncture on an unplanned city.

More specifically, forces of contemporary urbanisation plague the developing fabric of Mumbai's urban periphery: more specifically Nala Sopara East, in the case of this investigation. As described by Mehrotra, one of the great urban development challenges of traditional Indian towns or colonial settlements is the "integral logic" of their structure (Mehrotra, 2000). This logic is limited in that it is not easily able to be expanded upon in a coordinated manner. Evident in Nala Sopara, this uncoordinated development which is increasingly pressurised by migration and other forces of urbanisation, has produced an incoherent fabric, void of any guiding principles. Mehrotra refers to this inter-scalar phenomenon as 'the unfinished edge'. These urban conditions of illegibility and incoherence, too, dominate Mumbai's urban periphery as it sprawls, and it is within this existing urban reality that affordable housing for the masses must be developed. Since its establishment in 2013, the Global Housing chair has mainly directed its interests and research efforts towards the challenge of affordable housing in two cities; namely Addis Ababa in Ethiopia and, more recently, Mumbai in India.

Nala Sopara lacks an adaptive, secure and inclusive physical identity, which is situated in, and modeled off the existing needs and practices of its locality. The colonisation of the area by newly established 'handshake chawls' has become a dominant condition which disrupts and destroys existing domestic practices and patterns of habitation. These multi-storey developments are constructed by opportunistic local, small-scale contractors, capitalising on the proliferating housing shortage in the area. In addition to their disturbance of everyday practices, these developments stand in stark contrast to the existing low-rise baithi chawls and, as a result, articulate a disjunct urban fabric and agitated locality. The relational proximity of these 'handshake chawls' and their conditions, chronically lacking natural lighting and fresh ventilation, deem these developments inadequate for sustained wellbeing and dampen realistic aspirations for upward mobility. In addition to these neglected basic needs, is an undeveloped range of quality, open-to-sky public spaces within the private realm. The above conditions are acutely manifest in Rahmat Nagar which is the area of focus for this project.

The Global Housing studio primarily approaches architectural design with a typological mindset, focussing on the translation of social aspirations into architectural strategies. Through the process of design, these strategies are translated into clustered dwelling layouts which seek to address practicalities such as density, affordability and feasibility. Despite the stringent design constraints set by the social, political and economic forces at play on site, the studio ultimately strives towards creating an improved quality of life utilising architecture as a tool. This project adopts the above interpretation of the studio's approach, in which aspirational qualities are imbibed through a typological approach. However, where design and research meet, the working method becomes more intrinsic, focussing on the small scale creation of domestic space and its responsiveness to change. The observation and study of human actions in India, in general, contributed towards a reading of the city, where acts of appropriation and the physical environment are equal informers in the morphology and development of the urban fabric. A deep recognition and respect for the nuances of the intimate scale of domestic life is sought to be reflected in this project.

The Global Housing research studio introduced visual ethnography as an empirical research method through which to engage with the social ecology of a locality. This locality is analysed according to its inter-relation with space, place and people. This technique draws inspiration from Atelier Bow Wow's Harvard Graduate School of Design studio whereby "the act of drawing becomes an instrument of dialogue and engagement". Central to this research method is the translation of observed patterns of habitation into communicative drawings. The process of studying housing developments in the Netherlands assisted in developing an observant eye during on-site analysis and data collection, in preparation for site work in Nala Sopara. Through interviewing, cognitive mapping, sketching and domestic practice pattern identification, an insight into domestic activities in Nala Sopara was gleaned. Observing these practices led to the consideration of a new Nala Soparan housing genealogy, informed by the processes of habitation specific to her locality.

The transformative typological variation and morphological potential of typology present in Mumbai, from the city's first settlement to present day developments, makes the impact of typology on domestic life clear.

This process of typological renewal, termed typology genealogy by Atelier Bow Wow is interested in what the various typological shifts or variations afford or disallow their inhabitants. This project aligns with their thinking, which poses the role of the architect as one who observes and applies the efficiencies of user appropriation in the creation of new typologies.

In Mumbai, various housing projects were visited, discussed and verbally compared. Strategies around incremental, fractal clustering and variation in public, open-to-sky space were brought to light. The case study visits afforded us the opportunity to experience the manifestation of these strategies ourselves.

In summary, the prevailing response to rising density requirements in this area lacks severely in social sustainability. In combining ethnographic research with a typological approach, the project seeks to primarily address three core themes: [1] flexibility and growth; [2] the urban public/private space spectrum; [3] open space hierarchies. These three inter-related motives work towards creating an urban domestic fabric which is informed by and empowers endemic habitation practices.

### 3\_Research & Design:

The ethnographic research phase of this project looks into uncovering and documenting existing modes of habitation in Nala Sopara and linking them to the physical attributes of typology. In engaging with this dual understanding of locality from such an early point in the research phase, a strong relation between research and design was predetermined by the studio. Additionally, in analysing and visiting case study project in Mumbai, a further understanding of the spatial results of physical relationships and the inhabitation of these schemes was instilled.

Working within the limits set by the existing road infrastructure, the urban proposal seeks to transform and develop the public and private spatial qualities within urban blocks. In choosing sites with irregular edges, site responsive cluster have been developed. Responses to various hierarchical movement intersections are developed, these include [1] primary and secondary roads; [2] secondary and tertiary movement routes; [3] inner community spine and public/private domestic corridors. The argumentation for this approach lies in its ability to produce results which are site responsive but also define distinct relational contributions to the urban fabric which can proliferate elsewhere in the area, creating a more inclusive urban network.

Inherent in this approach is the requirement for architectural configuration flexibility, as well as a distinct layering of levels of publicness and hierarchical arrangement of open space. These core themes of interest carry through the project from the research phase, and into the design elaboration of the proposal.

### 4\_Wider Social Relevance and Transferability:

The project situates itself within a contemporary urban condition and discourse which Mehrotra refers to as Ephemeral Urbanism. This urbanism recognises that the constantly changing conditions and fluctuating practices which make up the 'kinetic city', are embedded in the planned, 'static city'. The 'static city', driven by capital investment and accumulation, refers to the formal structures and practices of city making (Mehrotra & Vera, 2016: 17). Posing an alternative view on the urban condition, is the 'kinetic city', whose elasticity is increasingly enacted through patterns of occupation and habitation which give shape to the urban landscape. This ever-present duality between the static and the kinetic has come to govern the nature of the city. The proposal recognises this duality and chooses to work with these forces by accounting for inevitable change over time, thus cultivating the upward mobility of families in tandem with the growth of their home. With the core principle of endemic practice inclusivity, small-scale in-situ upward mobility can catalyst the upward-mobility of Nala Sopara while simultaneously creating a more fluid and coherent urban fabric. Through the above explanation of the wider discourse, the project exemplifies the translation of distinct local social aspirations into an architectural and urban strategy, which contributes to a body of knowledge which can be drawn upon in future.

### 5\_Ethical Dilemmas and Applicability:

The core ethical dilemma faced when approaching a project of this nature is the severe lack of understanding associated with working in a distant and foreign environment. The two and a half weeks spent in India, one week of which was in Mumbai and the two days on site, is a severely insufficient period of time to grasp the complexities and intricacies of any new place. In this sense, attempting to produce a design project with a research question centered around creating an urban fabric underpinned by endemic habitation practices is hugely aspirational. However, the project succeeds at isolating specific endemic practices that are worthy of empowerment and inclusion in the design process.

By situating the project within a typological genealogy discourse, the proposal develops a strategic response to isolated problems. In this sense, the project project manages to successfully respond to the limits of this theoretical scope.

A further challenge was finding a balance between creating a site responsive project and the studios aspiration for typological replicability. An attempt to marry these requirements was found through the development of a basic block which can retain its integrity and function effectively as a singular block, or cluster, however, brings greater strength to the existing fabric when implemented incrementally as an urban block development. In responding to irregularity on site, the proposal has proven flexible enough to reconfigure to various site limits while retaining its core design principles.

With the above in mind, it is fair to say that the proposal embodies a trans-scalar level of flexibility capable of withstanding a range of varying applications in the real world. Additionally, by situating itself within the discourses of ethnographic study and typological genealogy, it contributes to established bodies of knowledge.



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