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ACUPUNCTURAL RENEWAL

Urban housing, Mumbai
Jose de la Torre



BACKGROUND



Figure 1
Urban Growth Mumbai

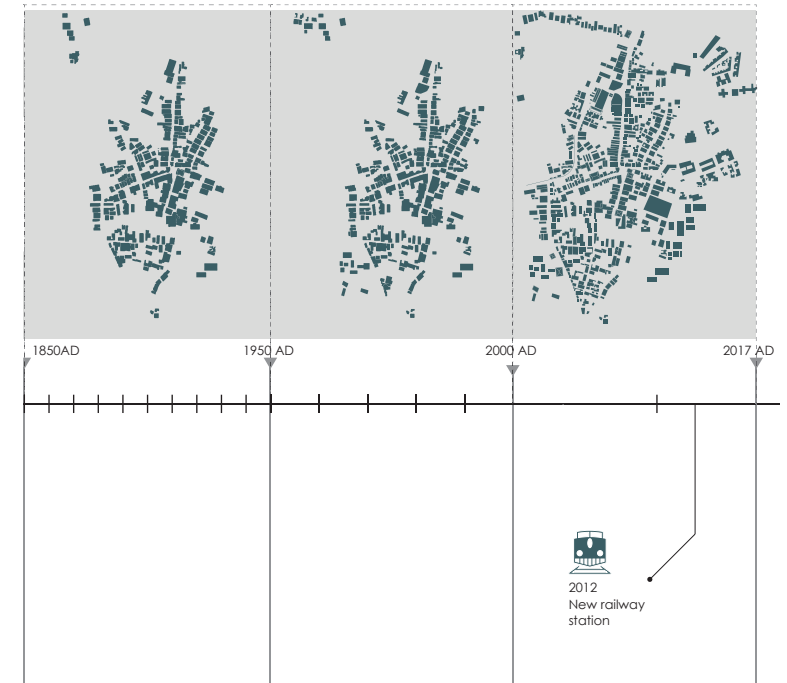


Figure 2
Urban Growth
Nalasopara

From the 1850's, Mumbai experimented a substantial population growth and urban expansion. This expansion was characterized by the specificity of the functions in every urban area; while the port activities were concentrated in the east coast, all the flourishing mill industry was allocated in the northern, newer neighbourhoods.

Every function (industry, government, commerce, leisure) was dominant in one specific area. Housing, however, experimented a different phenomenon: it grew all over the city, with new dwelling complexes erected next to every work area, intended to house workers and in some cases their families.

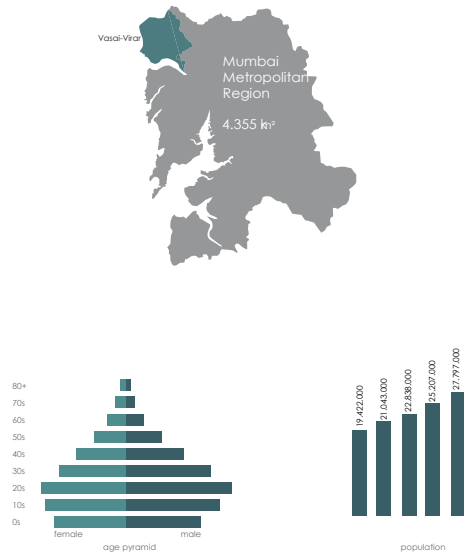


Figure 3
Population Mumbai

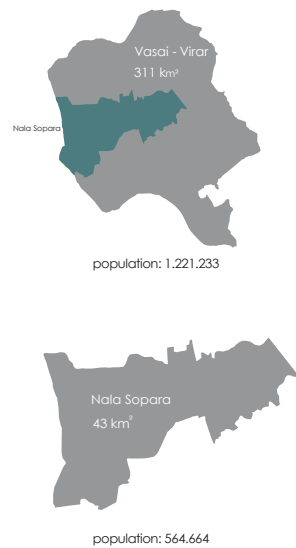


Figure 4
Population Nalasopara

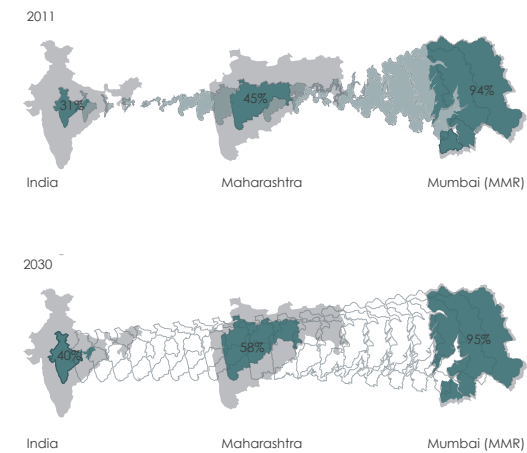


Figure 5
Urban Population

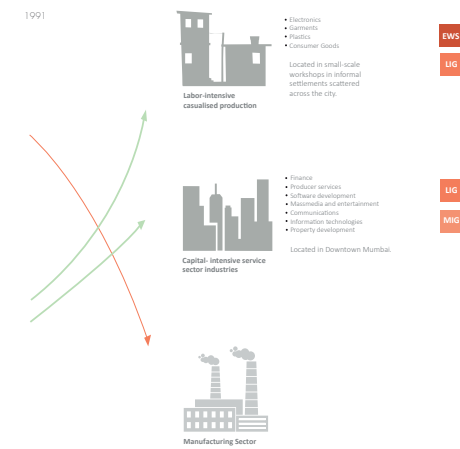
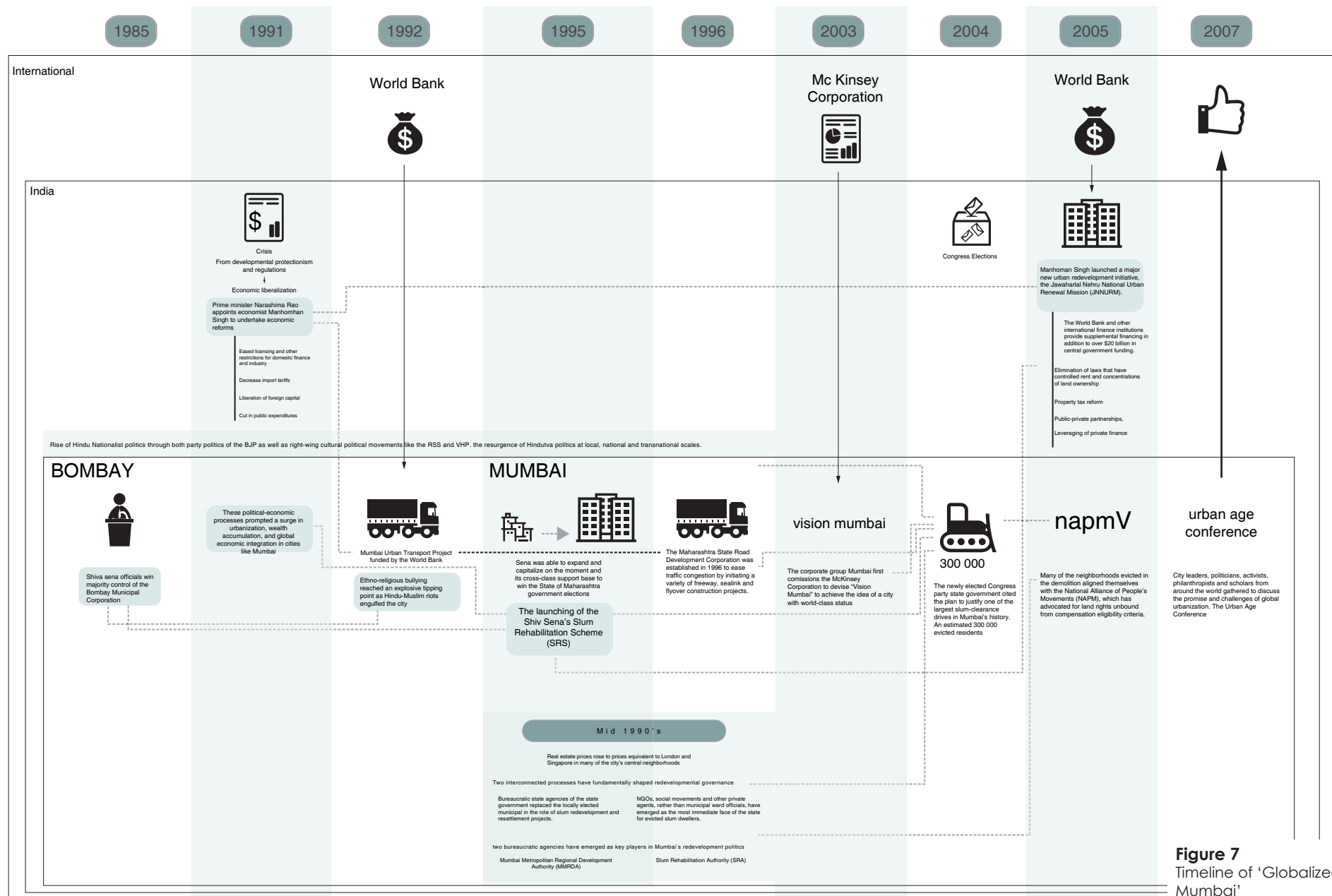


Figure 6
Economic Development in Mumbai



RENT PRICES

Rent prices of residential apartments in the Mumbai Metropolitan Region in rupee/m²

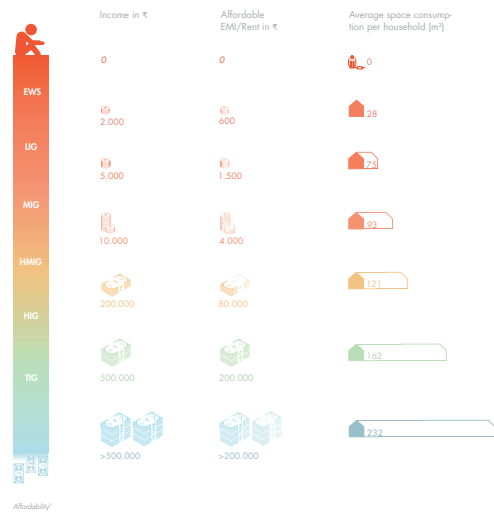
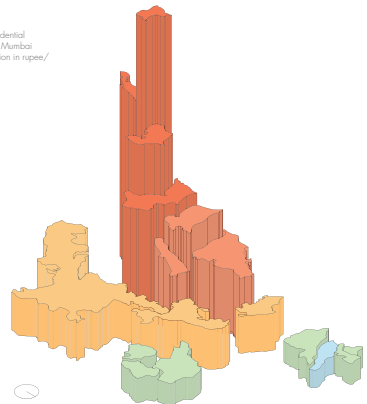


Figure 8
Housing numbers in Mumbai

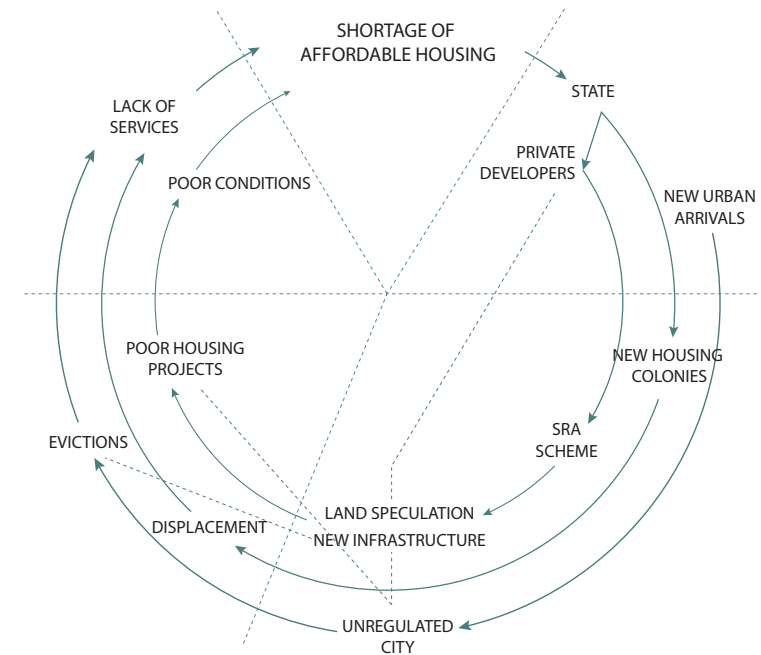


Figure 9
The shortage of affordable housing

Since 1190 Mumbai has seen an era marked by the fundamental shift towards an economically liberalized India. Mumbai is currently undergoing its third wave of modernization (preceded by colonialization and independence) catalyzed through post-colonial economic and cultural globalization.

The practice of contemporary urban development in the Mumbai Metropolitan Region is characterized by the prioritization of integrating with a broader economic system and its classification as a 'World Class' city. Part and parcel of the move towards liberalization was the shift in governments role in the production of housing: The State now takes



Figure 11
Skyline in Mumbai

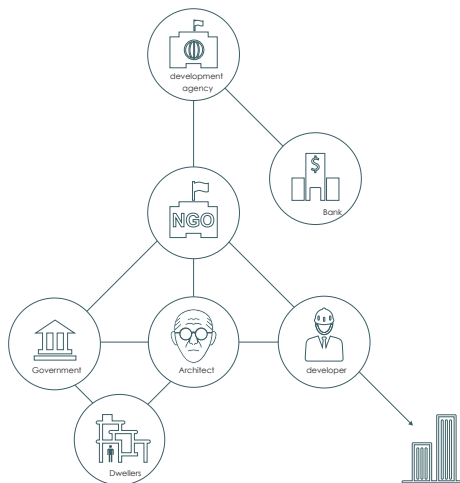


Figure 10
Affordable housing
strategies

up the role of facilitator to the private sector who would carry out the production of housing. This fundamental shift brought with it a web of incentives to encourage private sector participation.

What has come to pass is the unlocking of land in the name of capital not on the basis of housing provision, as well as the further marginalization and disenfranchisement of citizens at the bottom of the economic rung. These results entrench the conditions around which fragmented and disjunct development occurs. Contrasting trajectories of growth proliferate in these manifest conditions.



Figure 13
The 'informal' city.

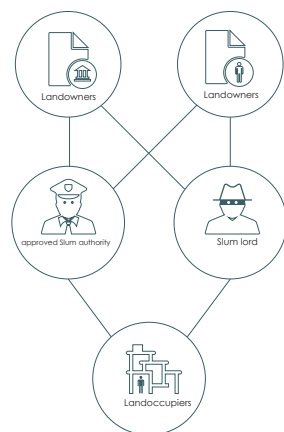


Figure 12
Land ownership

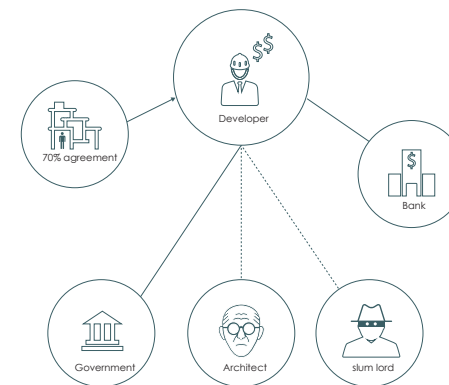


Figure 14
Private Housing supply



Figure 15
Urban sprawl
Nalasopara 2009



HOUSING IN INDIA

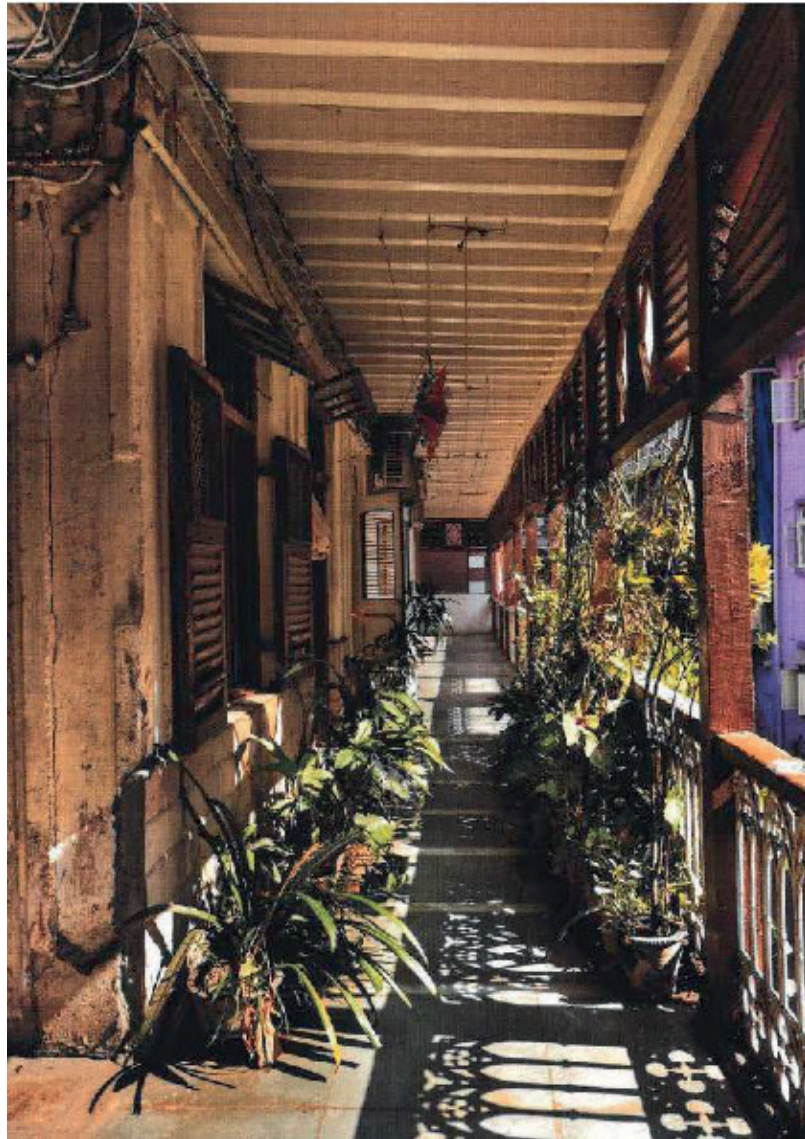


Figure 16
Comunal Corridor

MOTA MANDIR CHAWL 1865

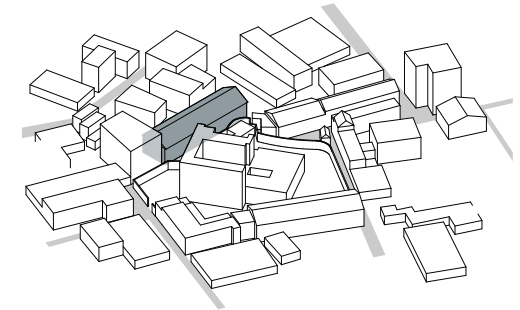


Figure 17
Urban location

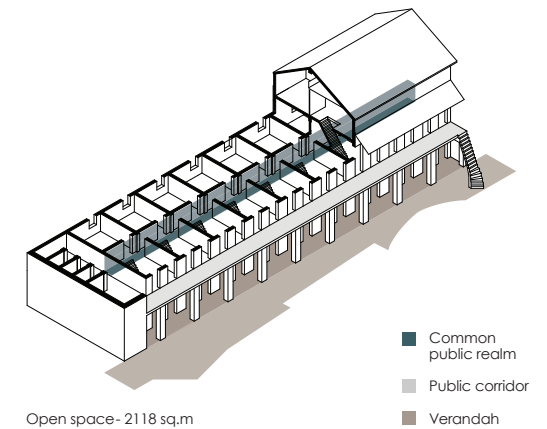


Figure 18
Program

The Mota Mandir Chawl is located in Bhuleshwar, a part of Mumbai's inner city fabric - an area with several temples, many of them centuries old. The first floor units are interconnected through doors that would allow the entire floor to be used as a common public realm in the case of festivals or weddings. The first floor corridor connecting the entrances of the foyers of the typological hybrid of the maisonette chawl. The verandah extends into the internal street, facilitating interaction between inhabitants and passersby. Services are common, although the uppermost level does not have an access to these shared facilities.



Figure 19
Courtyard

BATHIA CHAWL 1920-1950

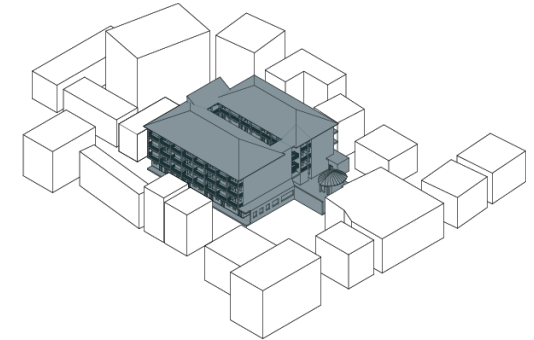


Figure 20
Urban location

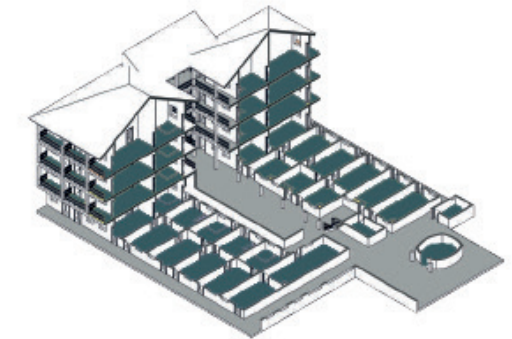


Figure 21
Program

The Bhatia chawl is located on Jagannath Shankar Seth Road in the heart of the populous inner city of Bhuleshwar. Due to the location of the building on a through road to the Fort area, the units on the ground floor facing this street have a commercial function. Surrounding buildings usually have commercial or service units on the ground floor with residential or offices on the higher floors. The shops on all have a front door on this street, whereas the dwelling units are accessed through the courtyard. This setup provides protection to the dwelling units as well as the courtyard from the busy street. As a result the courtyard has a more private character and forms the focus of activity within the building.



Figure 22
Common corridor

KHAR RAILWAY COLONY 1950-1960

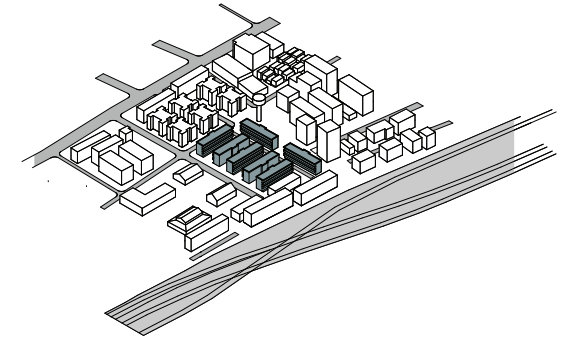


Figure 23
Urban location

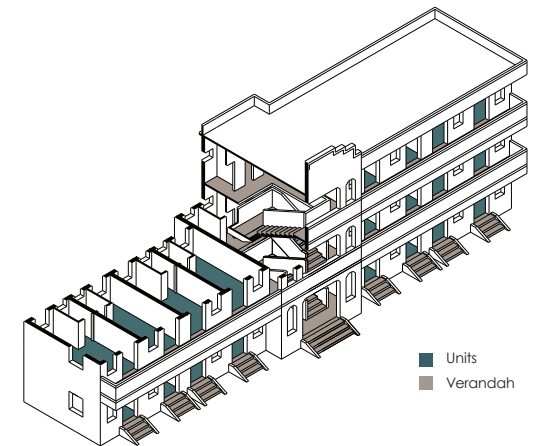


Figure 24
Program

Khar railway colony consists of rows of residential plots with the longer facades facing the east and west. The building is three-story high with an open corridor on the upper floor. Different directions of the entrance in these plots created in-between public space, which was used as a communal area for people who live there. To contrast, spaces between chawls became important community open spaces in the chawls developed by public agency.



Figure 25
Units around courtyard

BELAPUR INCREMENTAL HOUSING 1970-1990

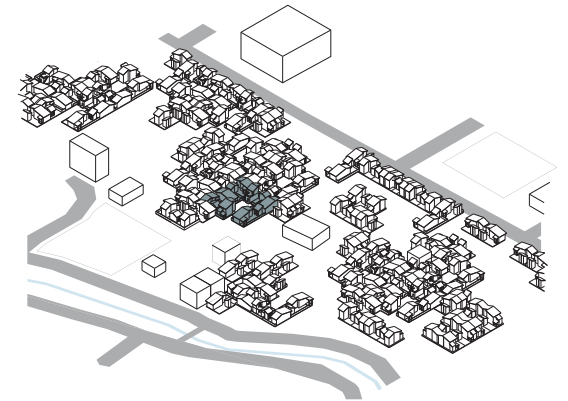


Figure 26
Urban location

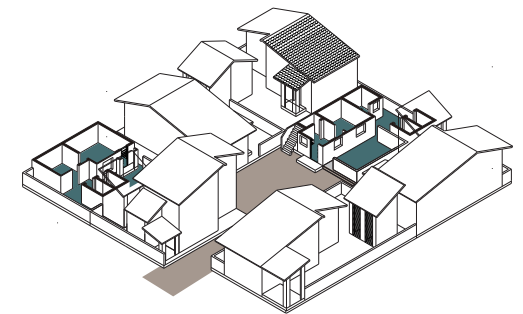


Figure 27
Program



Figure 28
Public courtyard

SANGHARSH NAGAR 1990-2010

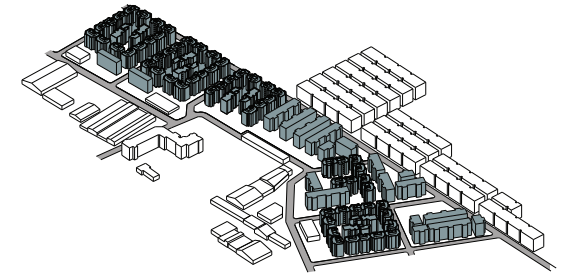


Figure 29
Urban location

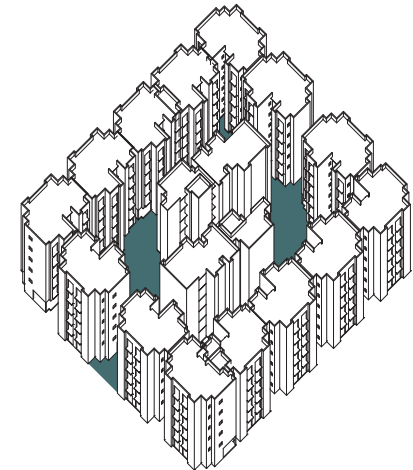


Figure 30
Common courtyards

Sangharsh Nagar is a project that gives a slightly different approach to the projects built as a response to the 1995 SRS scheme. Different from most other redevelopment projects, a great effort was undertaken to provide the residents with functional communal spaces in each single building of the project as well as in the neighbourhood scale created by the array of the clusters created by the buildings.



AFFORDABLE HOUSING NALASOPARA

The project explores then this struggle between the two realities, a struggle that takes place in the Middle Henri Lefebvre notions of the production and reproduction of space. Space, as defined by Lefebvre is both a precondition, and the result of social superstructures. In this process we find at play his ideas of the instrumental and operational role of space. Space that is constantly being used by hegemonic practices of the contemporary systems of production. As a result, everything that remains outside the hegemony of the system is unable to exert any kind of agency through space. The result for the built environment is the creation of these outside or informal spaces, where the disenfranchised are forced to dwell.

One of these peripheries is precisely Nalasopara, the area of study. The analysis that was carried away in this area also plays into the further definitions of space by Lefebvre. In one hand we have the purely physical space which can be mapped and assessed. However, it's not only the physical space that was analyzed as Lefebvre makes a claim for the importance of what he calls social space. Namely, a space that is being constantly created by the social relations it holds.

With this frame of reference, the project aims to answer the following research question: *How does a systematic open housing plan can help renew a decaying urban environment, without imposing external notions of space that negate or overlook the social structures and dynamics that produce the social space of Nalasopara?*



Figure 31
Area of intervention

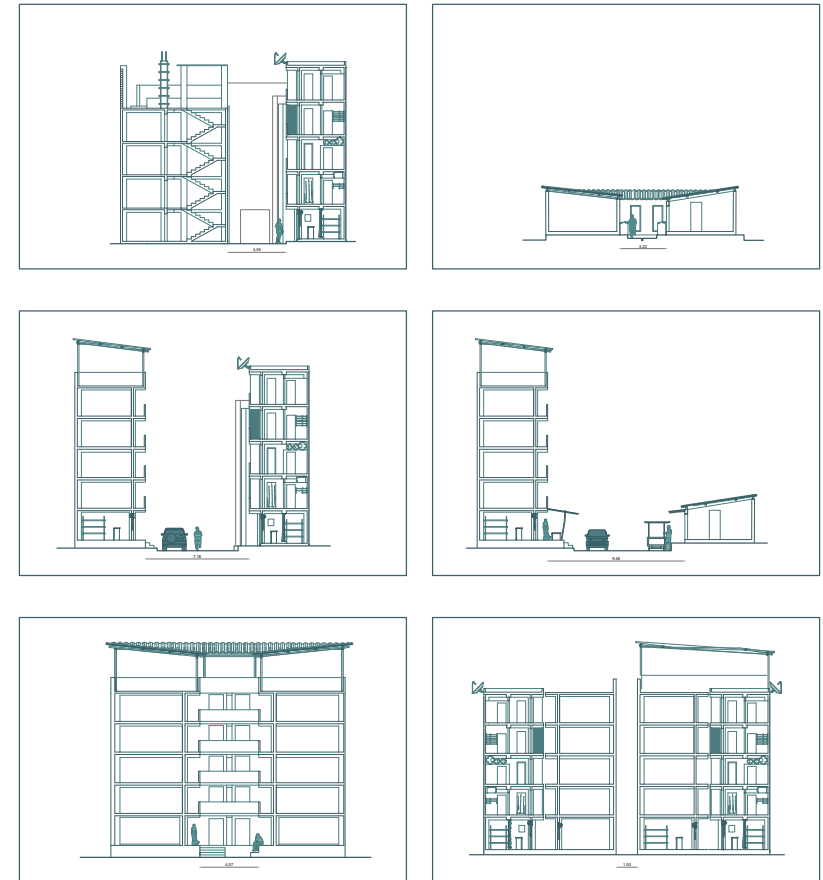


Figure 32
Street sections

After the studiotrip to Mumbai the analysis began to focus on the characteristics that make Nalasopara an "Arrival City"; that is, an area of the city that receives many migrants from rural India looking for better opportunities in Mumbai. The analysis was carried out through mapping and recording of the conditions of Nalasoparas built environment, and also, through the book of patterns realized by the studio. The latter documented the view point of the inhabitants through drawings, texts and photographs.

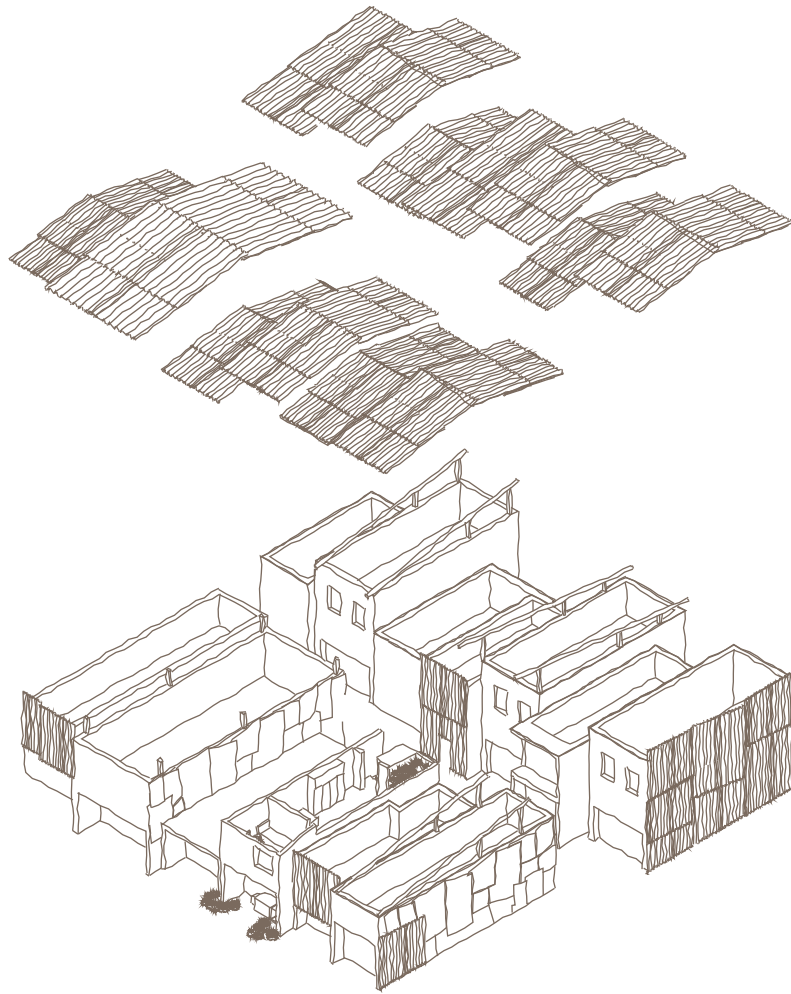


Figure 33
Baithi Chawls

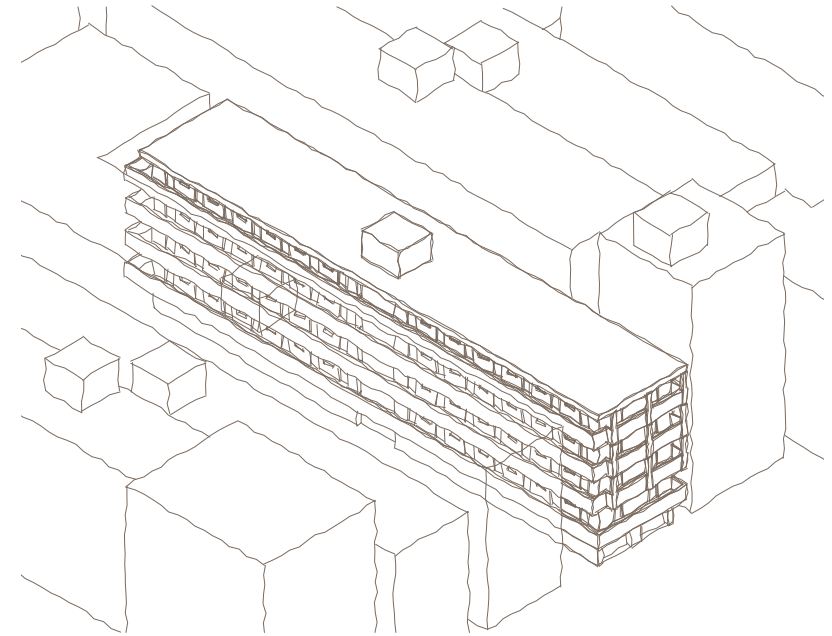


Figure 34
Handshake chawls.

The project analyzed the fragmented approach the City is taking towards urban redevelopment at present, whereby inherent spatial patterns in the city are undermined and the practices of citizens are disregarded. This leads us as spatial practitioners and human beings to ask, what spaces within the city are we forever erasing, and what kind of city are we creating in its place? How can we respond to the needs of this dense, rapidly growing city primarily concerned with the forces of globalization and global capital, while maintaining dignity of all citizens and respecting the history and memory associated with place?

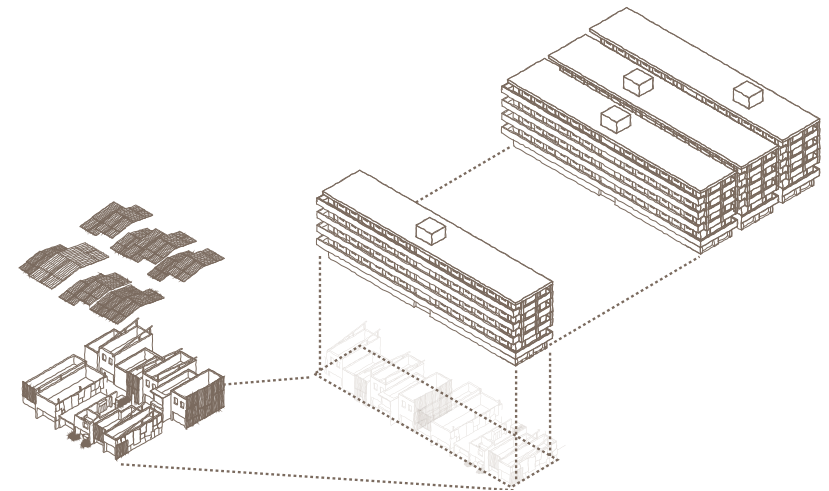


Figure 35
Urbanization process

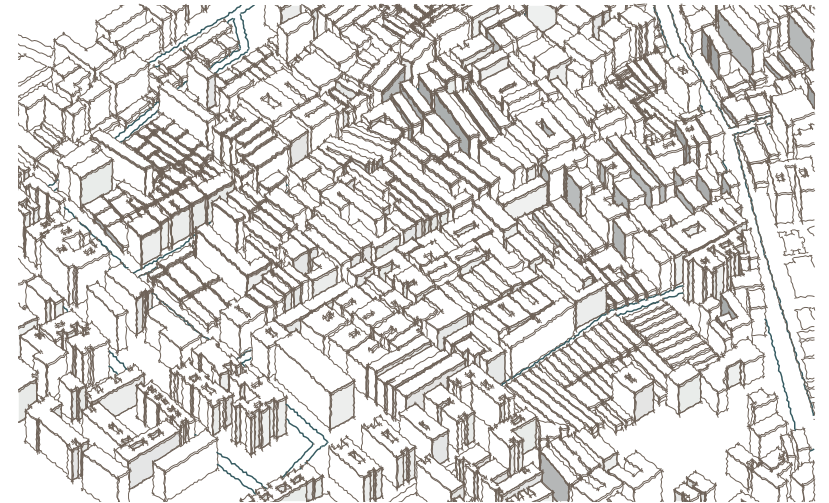


Figure 36
Present condition

Figure 37
Chawl under construction



Figure 38
A new middle-rise
chawl being built

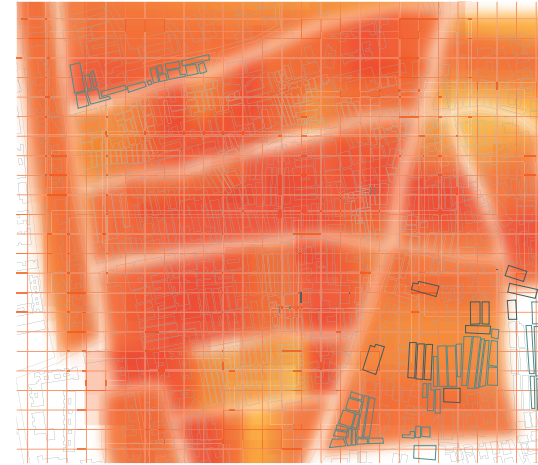


Figure 39
Density of area of study

THE VILLE

The result of the continuing rural migration and the new paradigm in the state's housing policies has expanded the conditions that created Dharavi to the peripheries of the city. Nalasopara located at a two-hour train ride from Mumbai's central station is one of these examples.

The landscape of this area has change dramatically in a time span of only sixteen years. In 2002, migrants from all over India started to settle in the empty land located at the east of the original fishermen's village with spontaneous constructions known in India as Baiithi chawls. A dense fabric of low-rise houses started spreading from the main roads that connected them with the city. Only six years later, the area started experiencing a growth in density when the demand for more housing created a market for developers to convert the low-rise chawls into middle-rise buildings.



Figure 40
Structural conditions



Figure 41
'Handshake' chawls
built separately



Figure 42
Inside the handshake
chawls



Figure 43
New developments

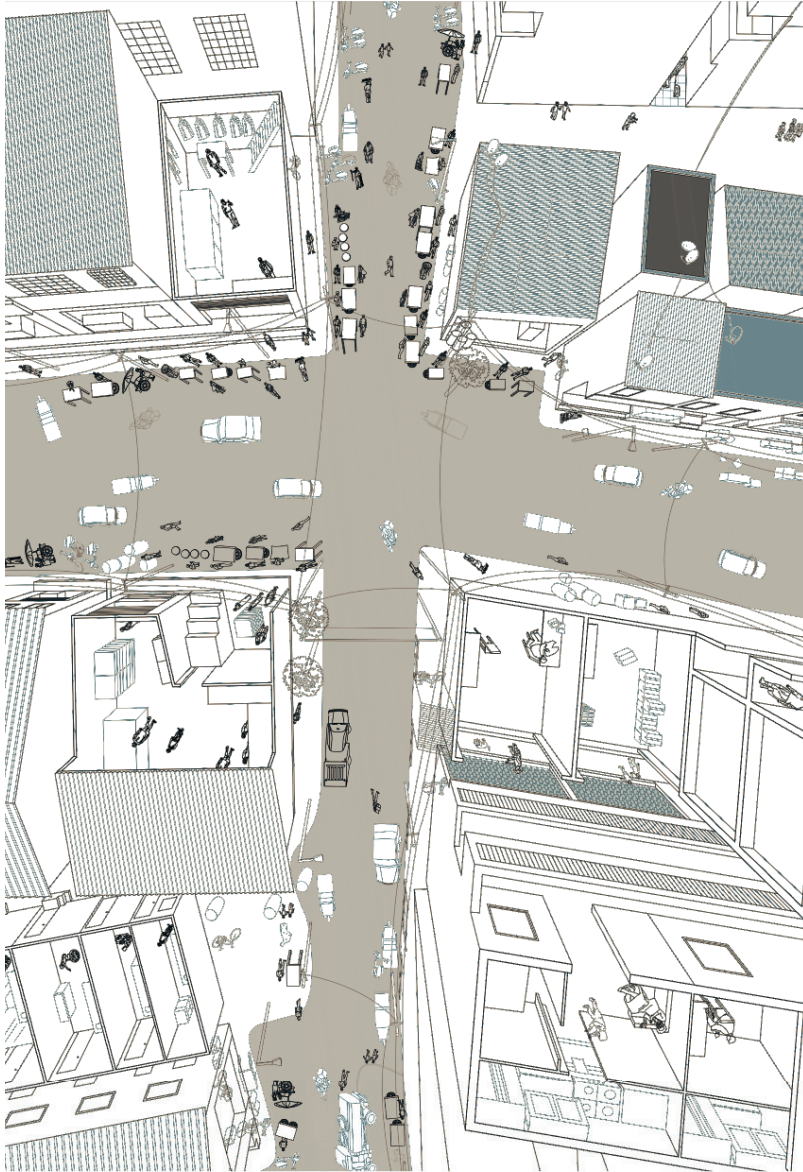


Figure 44
Patterns of inhabitation.
Income generation



Figure 45
The Cite

THE CITE

The new apartments, unlike the Baithi chawls, would have private toilets and services like water and electricity. When people agreed to be relocated, the developer would get the chawl's land as part of the payment and use it to build more middle-rise buildings. By building them spontaneously on top of the dense fabric of chawls, the fabric remained equally dense, with five story buildings separated from one another by only few meters.

The conditions created in this process resemble those of a slum: a dense fabric with no open spaces or clearly defined circulation network, an unhealthy ratio between density and build footprint, lack of sanitation infrastructure, dwelling units with no appropriate ventilation or sunlight, dangerous poorly constructed structures, illegal ownership status among others.



Figure 46
Patterns of inhabitation.
Ammenities

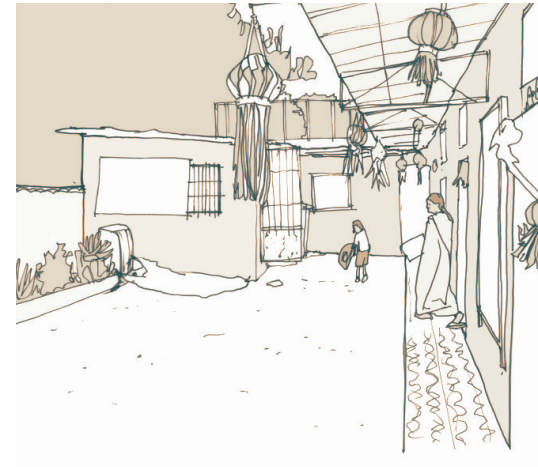


Figure 47
Patterns of inhabitation.
School



Figure 48
Patterns of inhabitation.
Food preparation

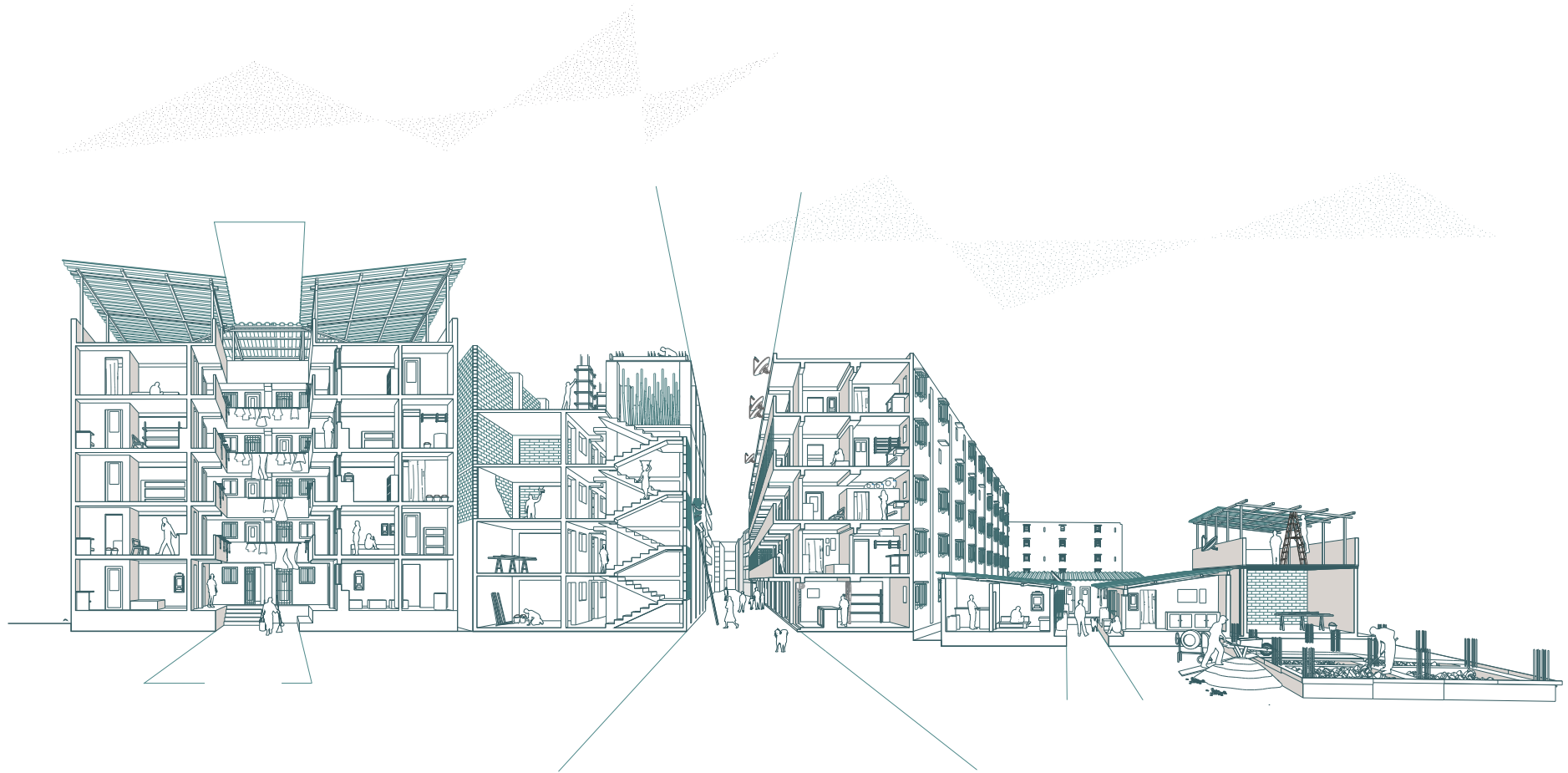


Figure 49
Patterns of inhabitation.
Building techniques

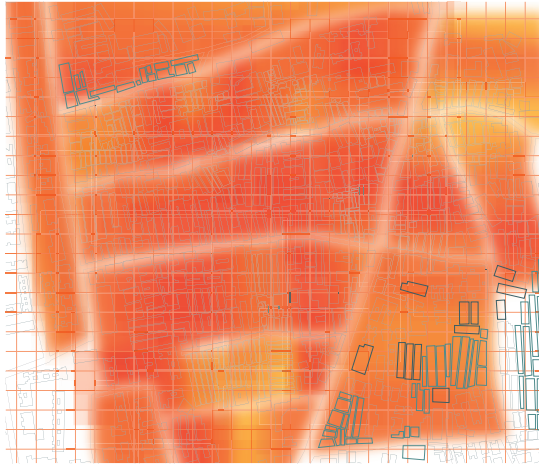


Figure 50
Density of the studied
area

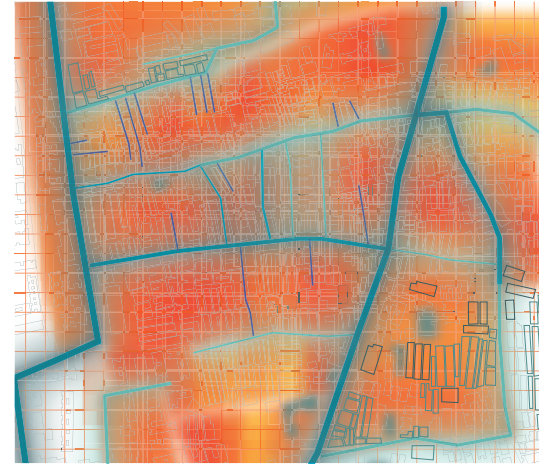


Figure 52
Overlapping realities



Figure 51
Public activities



Figure 53
Pockets of order

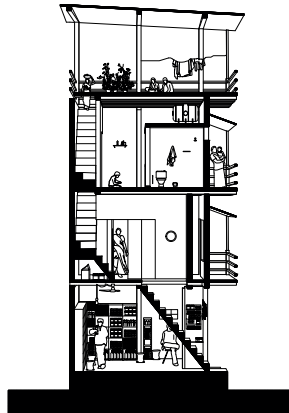
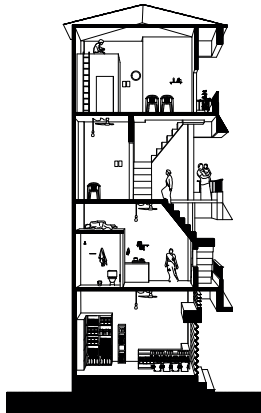
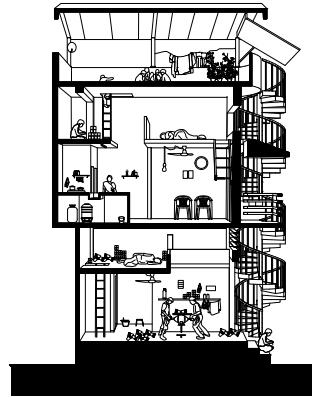
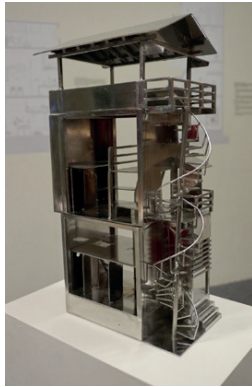


Figure 54
From the exhibition
Desgin comes as we
build



Figure 55
The main corridor of
the chawls

The new apartments, unlike the Baithi chawls, would have private toilets and services like water and electricity. When people agreed to be relocated, the developer would get the chawl's land as part of the payment and use it to build more middle-rise buildings. By building them spontaneously on top of the dense fabric of chawls, the fabric remained equally dense, with five story buildings separated from one another by only few meters.

The conditions created in this process resemble those of a slum: a dense fabric with no open spaces or clearly defined circulation network, an unhealthy ratio between density and build footprint, lack of sanitation infrastructure, dwelling units with no appropriate ventilation or sunlight, dangerous poorly constructed structures, illegal ownership status among others. But as with Dharavi, the conditions also resemble those of an arrival city, a place of transition where rural migrants enter the urban life, thus becoming part of the social and economic life of the city. In other words, the connection of these kind of areas with the 'regulated' city is stronger than it appears at first glance. Communities of new urban dwellers have been created, networks of production and commerce that create job opportunities and income generation have taken hold in the city and a constant exchange of goods and people between Nalasopara and Mumbai city has created bridges so that next generations can access education and better job opportunities in the future.

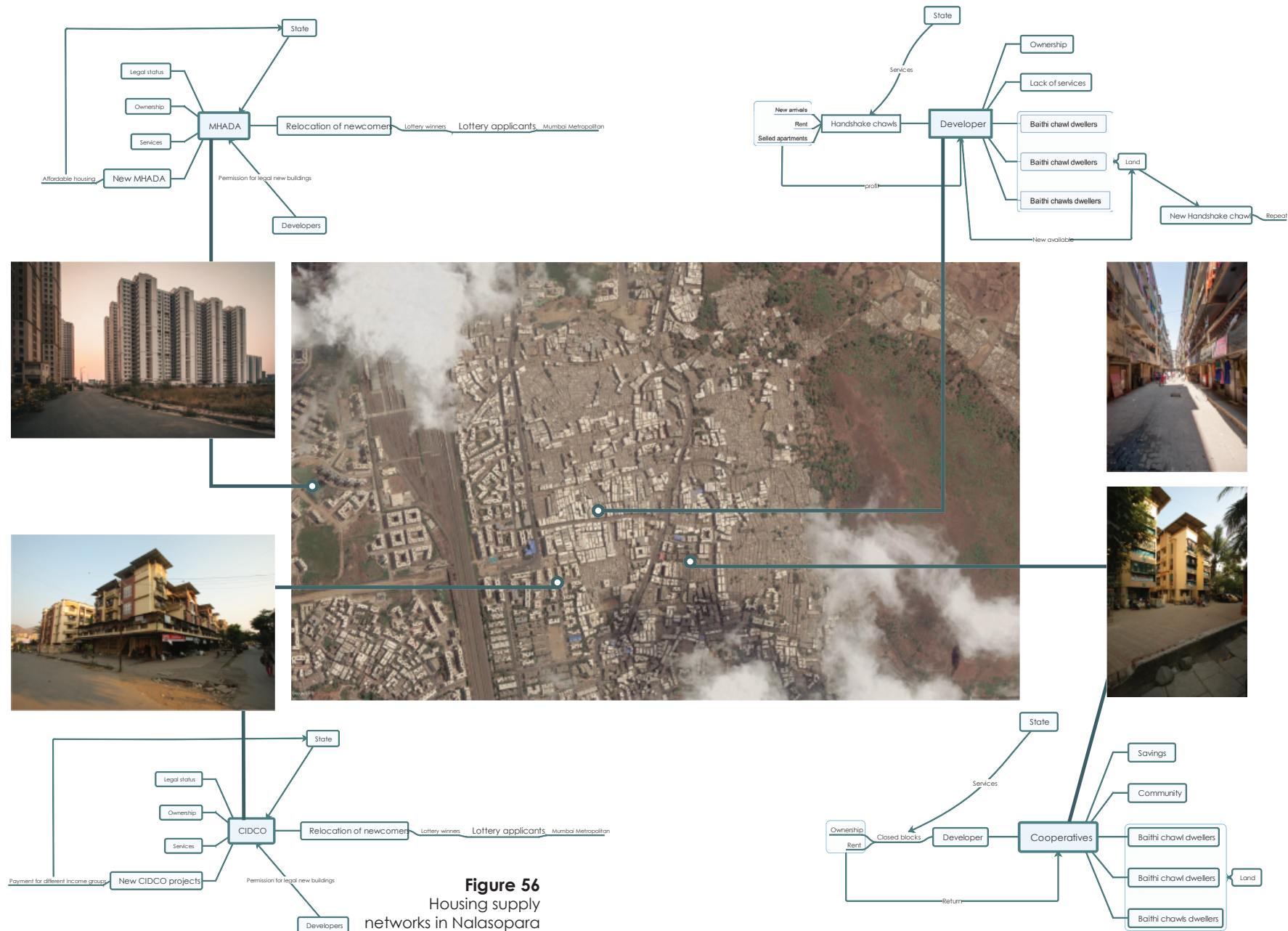


Figure 56
Housing supply
networks in Nalasopara

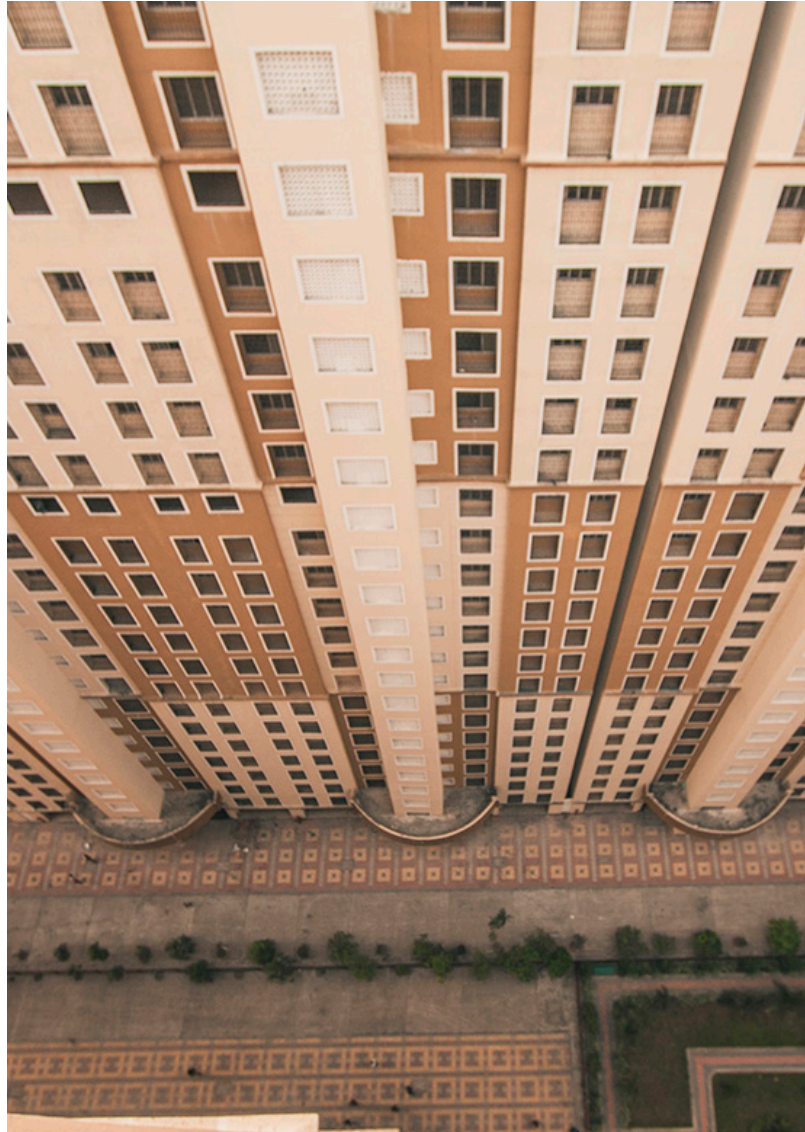


Figure 57
MHADA colonies



Figure 58
Building technique

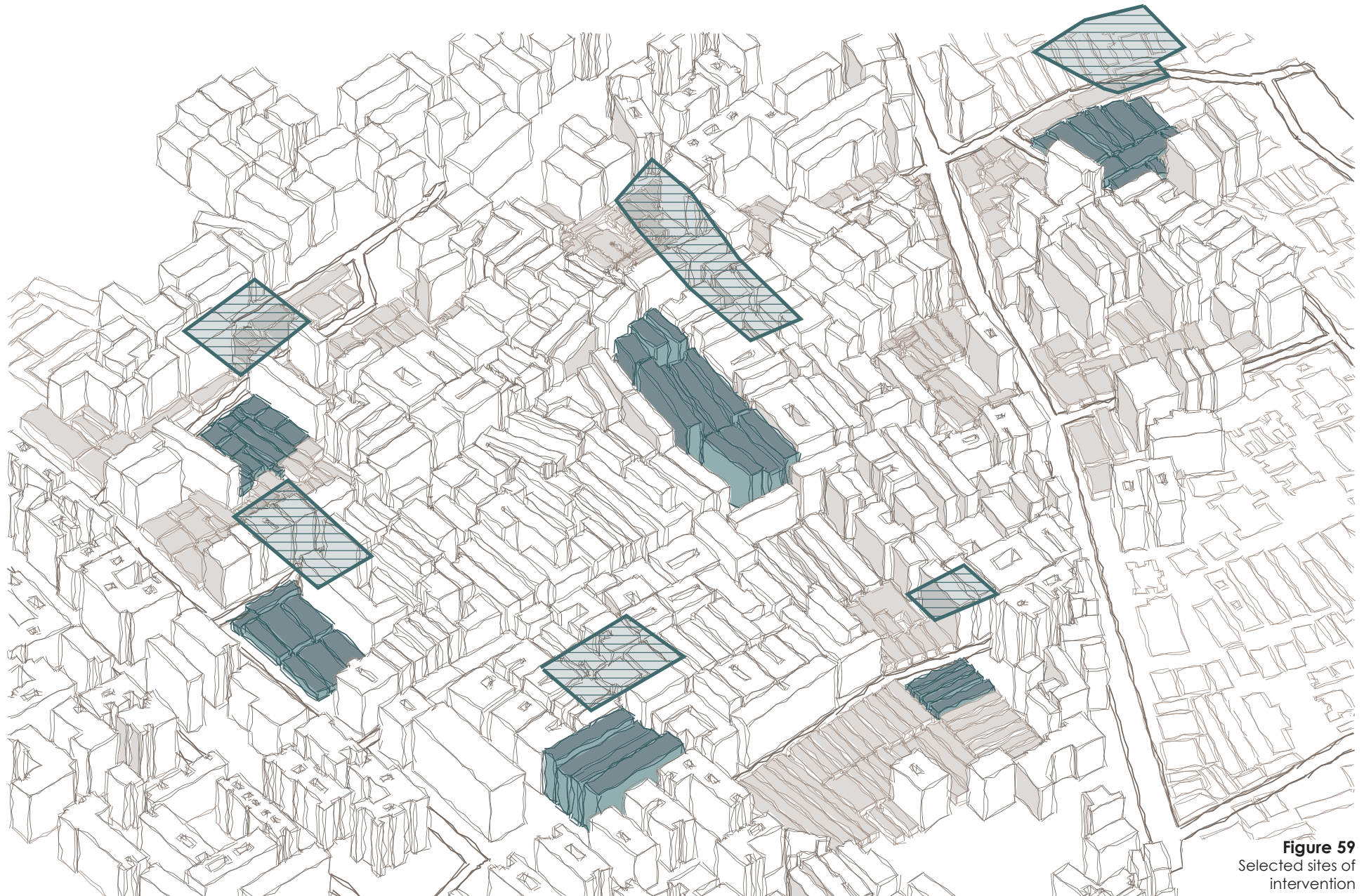
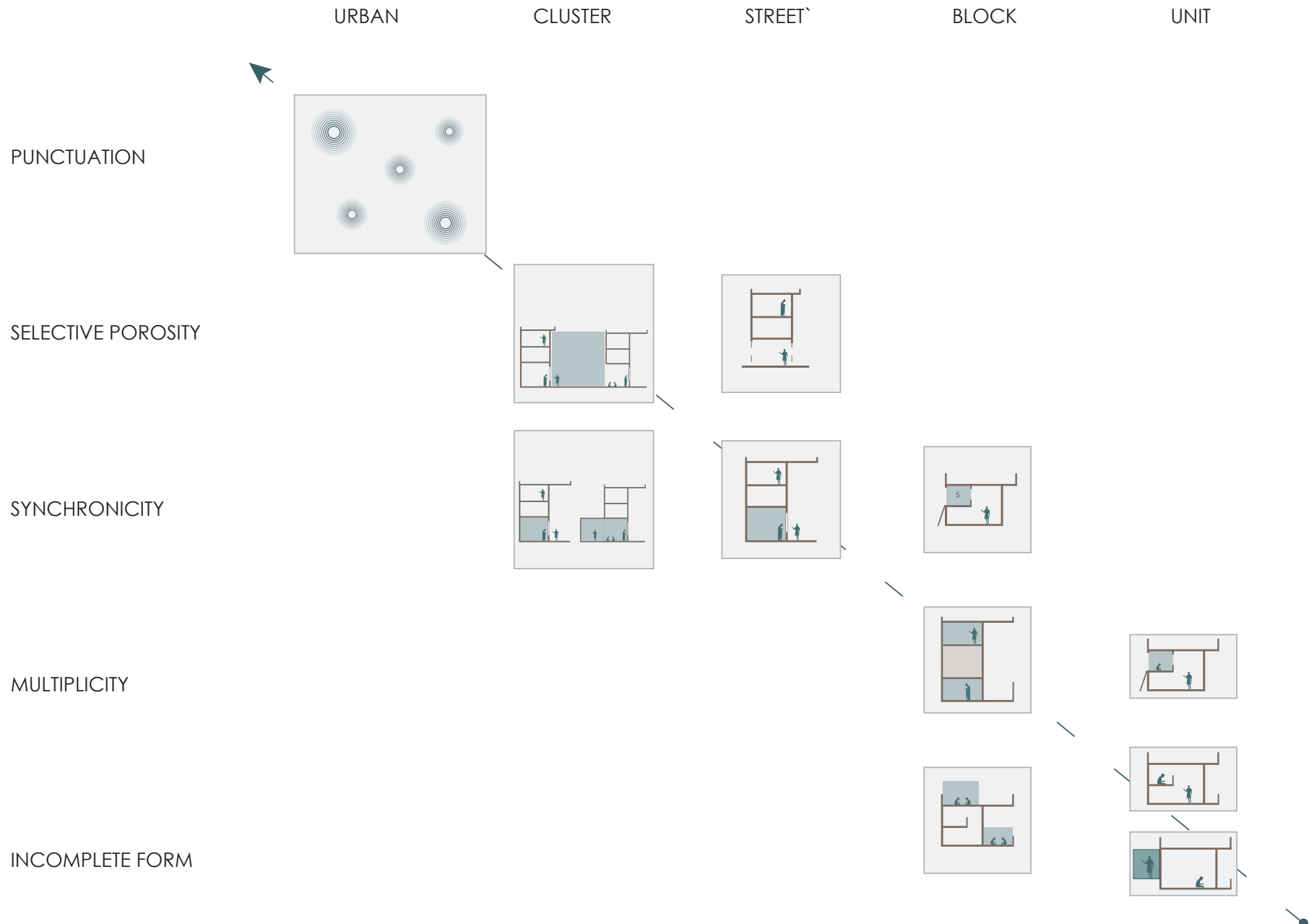


Figure 59
Selected sites of
intervention



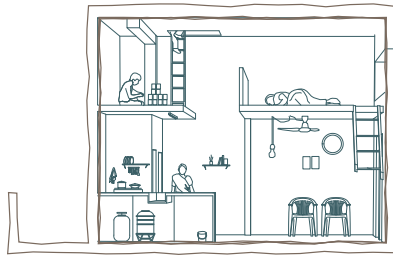


Figure 61
Incomplete form.
Flexibility

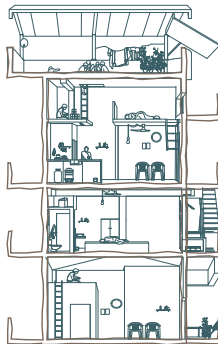


Figure 62
Multiplicity.
Various stories living
together

Figure 60
Selected sites of
intervention

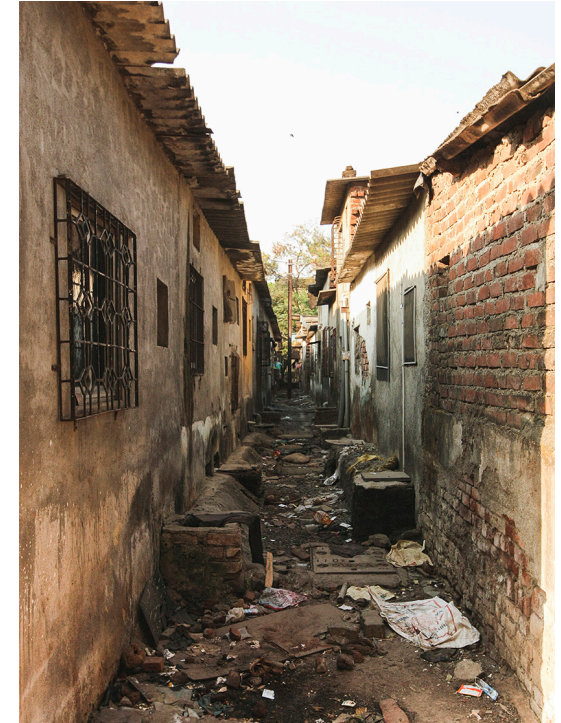


Figure 63
The back alley of the
chawls

RE-BUILDING FROM WITHIN

Richard Sennett gave a name to this dichotomy of both a poorly constructed build environment or Ville, and a lively complex urban life or Cité while arguing for an Open City. In his argument he assesses both dangers and the benefits of city planning. While he agrees with Jane Jacobs's stand that 'closed' city planning -that would conceive the ground as a tabula rasa- meant the ruin of the Cité and the spontaneous and serendipitous encounters found in slow-pace, people-made neighbourhoods; he also argues in favour of Lewis Mumford's conviction for planning the city in order to achieve a sustainable and healthy urban life. He reconciles both approaches by

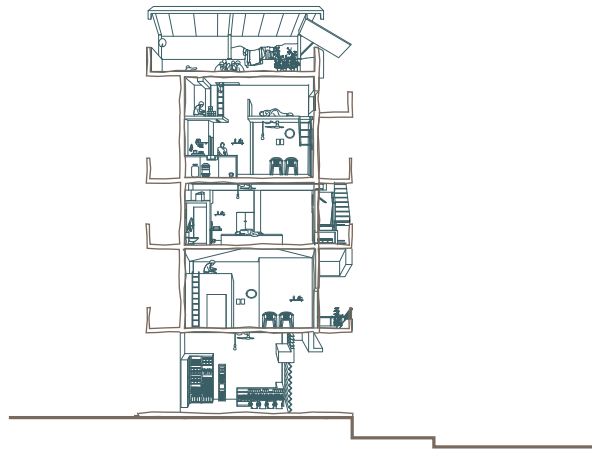


Figure 64
Synchronicity.
Multiple programs

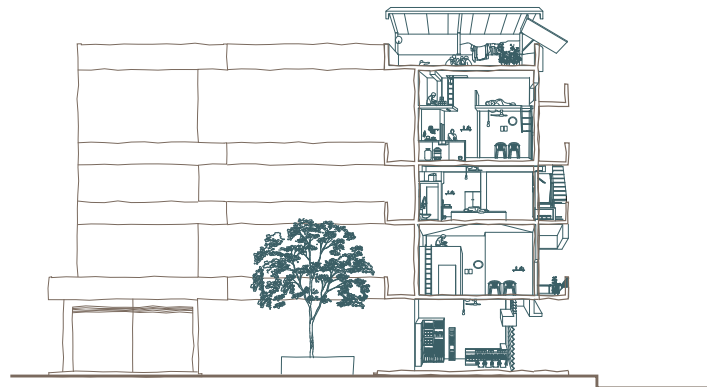
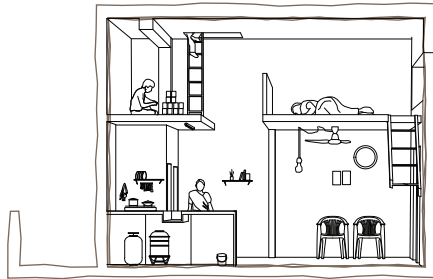


Figure 65
Selective porosity.
Community spaces.

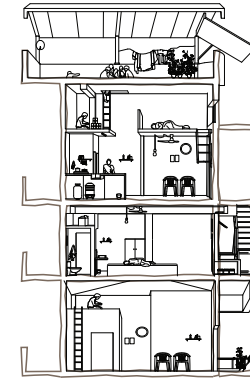
arguing that in city planning, urbanists and architects must understand the concepts behind open system programming. Open systems are summarized by Melanie Mitchell as entities 'in which large networks of components with no central control and simple rules of operation give rise to complex collective behaviour, sophisticated information processing, and adaptation via learning or evolution'. So too, the planner that aims for an open city would encourage complexity by planning interconnected small 'pockets of order' aimed to give coherence to the whole and to orient people within the city; while also opening the possibility for people to experiment and create their own urban experience.

The next phase of development in Nalasopara faces these challenges. The lack of planning of the poorly constructed Ville must be addressed to provide its inhabitants with appropriate living conditions; and at the same time, the complex and lively Cité that has been created spontaneously must be nourished and allowed to grow on its own.

The project works as an open system. Each scale tackled by the project behaves as a different level in the functioning of the system. In these levels the designed components work with basic rules of operation that can combine in multiple and complex arrangements and adapt to the different specific conditions of each intervention. These scales -or levels- go from basic dwelling units, to the block that combines them, the cluster that arranges the different blocks and finally, the relation of these clusters to the rest of the city. In each one, the basic rules of operation are grounded by an overlaying concept that relates back to the idea behind an open city. What Richard Sennett calls the 5 open forms.



INCOMPLETE FORM



MULTIPLICITY

PUNCTUATION

SYNCHRONICITY

SELECTIVE POROSITY

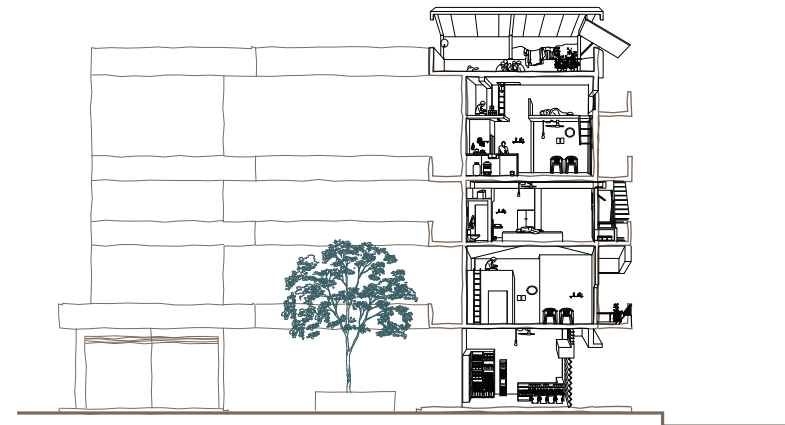
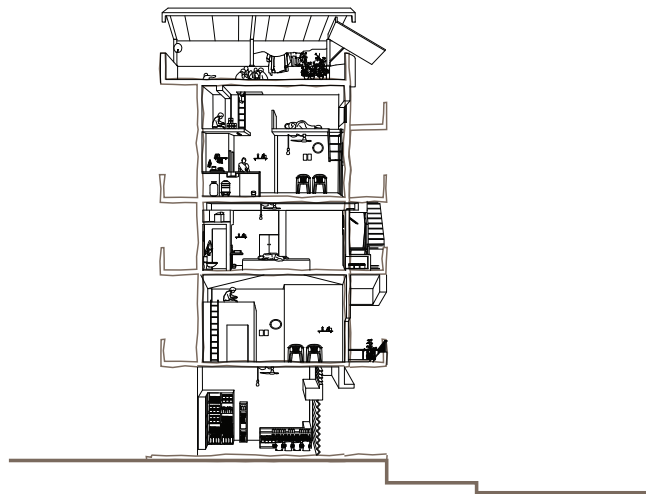


Figure 66
Open Forms

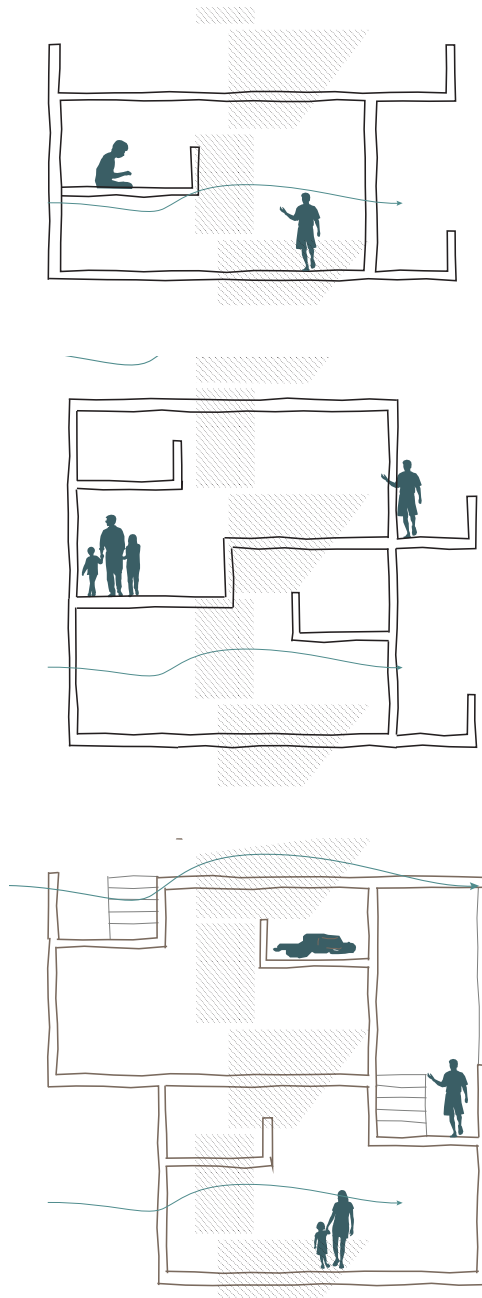


Figure 67
Section sketches

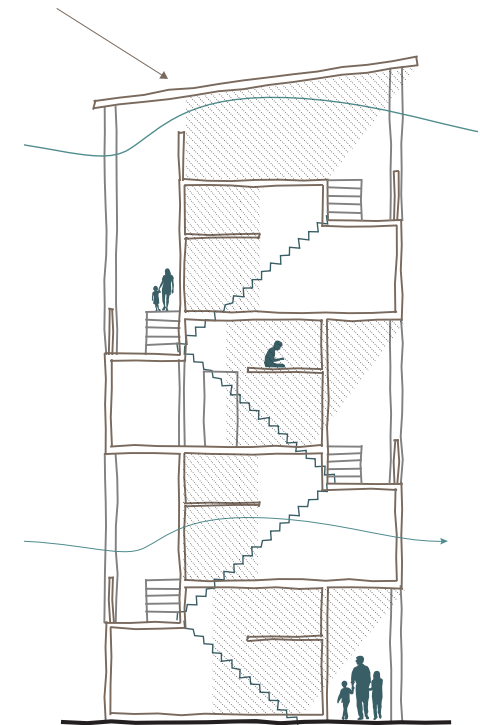


Figure 68
Sketch of the section of
the building

The incomplete form reflects in how the 'house' as a basic element can remain flexible enough to provide for the different needs of a family through the multiple stages of their lives.

When multiple house combines to form a unit block, multiplicity allows mixing different narratives to create a rich story. These different narratives consider the diverse set of social groups present in these environments and how to find ways for them to interact and relate to each other while also responding to their specific needs and desires. In this scale, the project begins to reflect on how architecture plays an important role in how social dynamics can be either fostered or discouraged.

The relationship between the unit block and the street

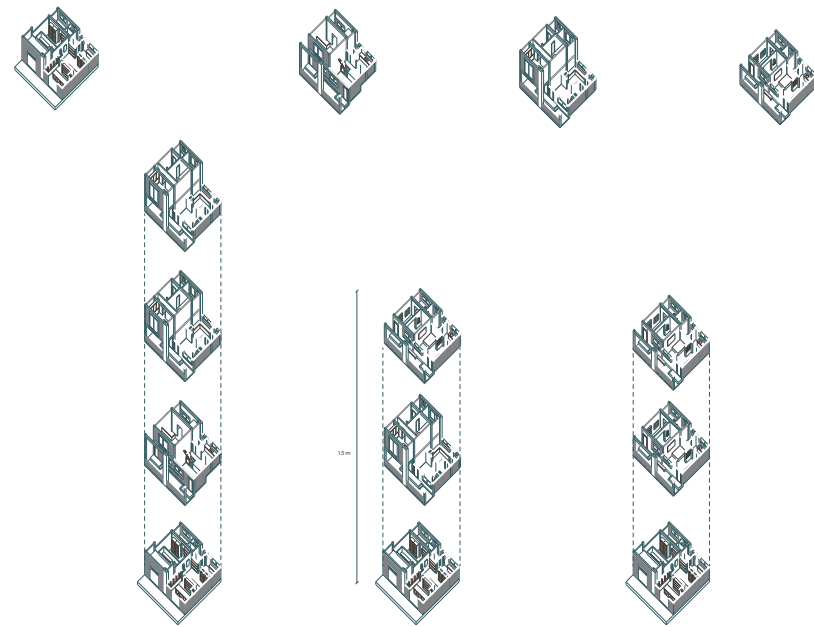


Figure 69
Possible arrangements

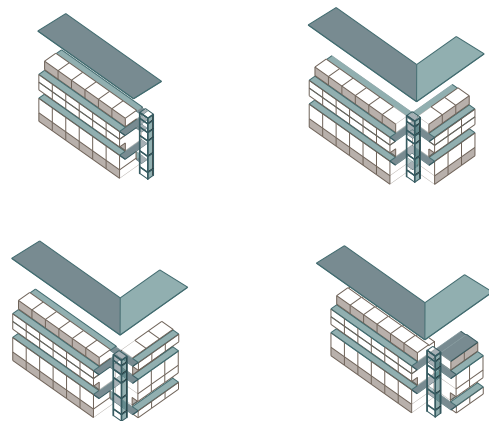


Figure 70
Phasing and
circulation

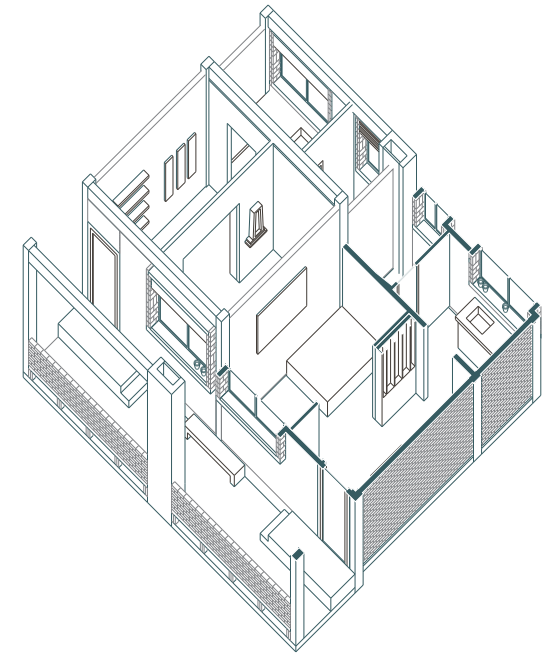


Figure 71
Basic Unit

where its located provides the ground to reflect on synchronicity. Housing is not merely the allocation of houses. "Housing is buttressed by local schools and jobs, health care facilities, water and sewer services, and transportation networks. This whole complex of necessities and amenities give value to property". All these elements are combined to create the clusters where the community life can find a space to grow.

Selective Porosity explores the ways in how the city to remains open. This openness speaks to the need to create and conserve public spaces where the people can safely gather themselves. Public spaces face constant pressure in the contemporary city by the interests of the market and the real-estate industry. Whatever public space you find in these spontaneous

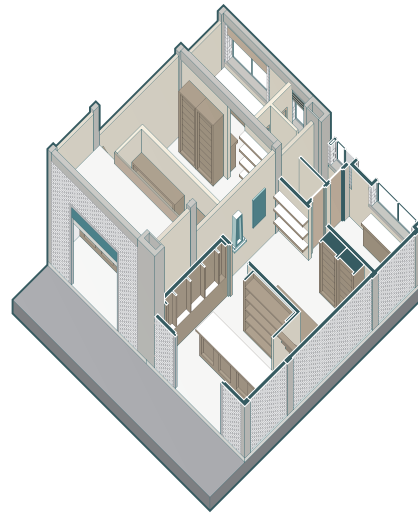


Figure 72
Unit types
Groundfloor

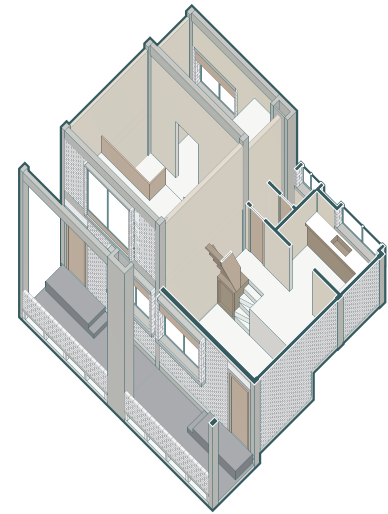
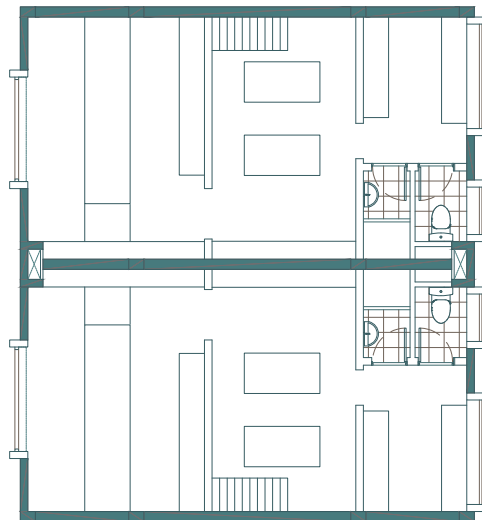
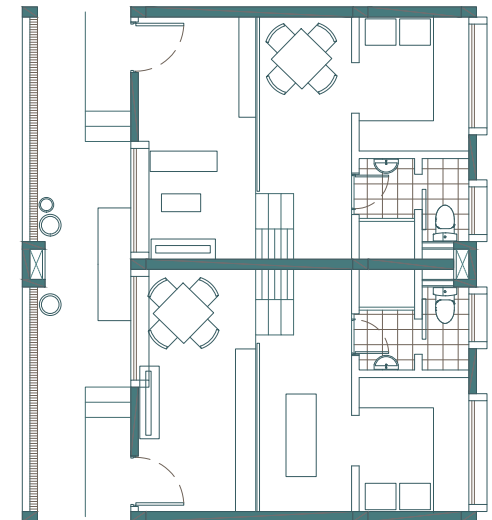


Figure 73
Unit types
Mixed unit



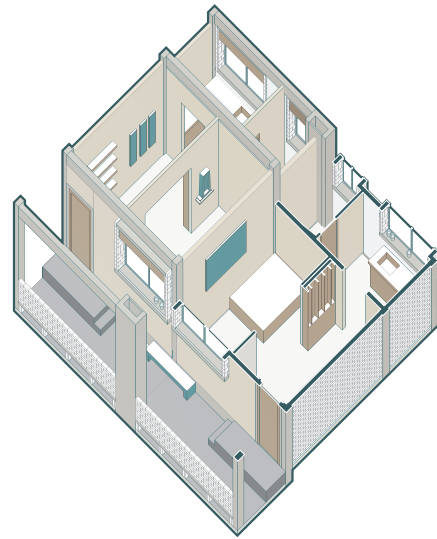


Figure 74
Basic unit EWS

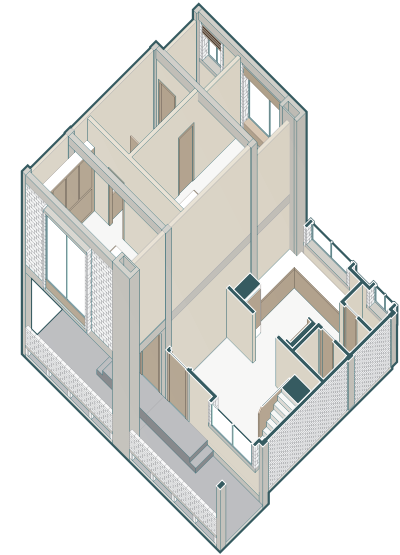
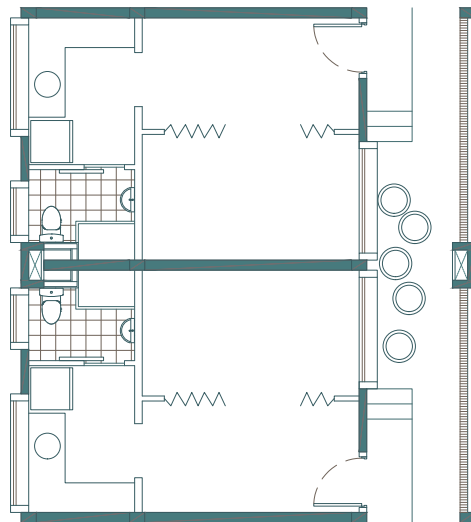
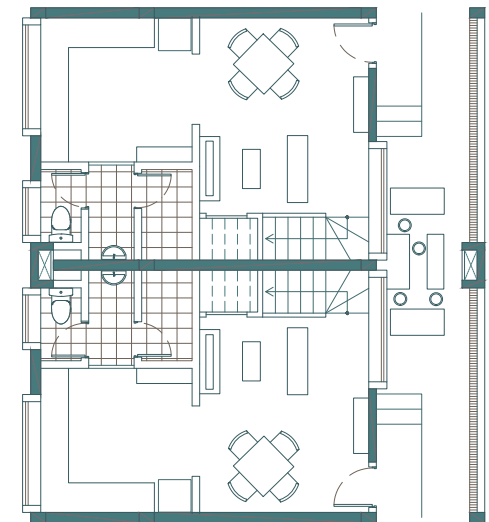


Figure 75
Basic unit LIG



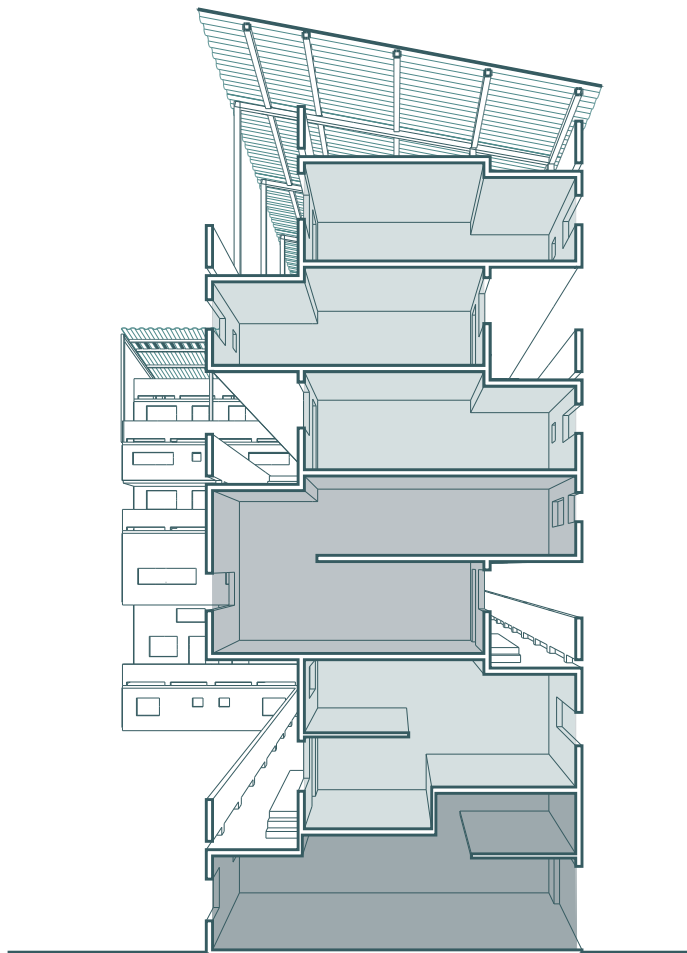


Figure 76
Perspective section of
the different unit types

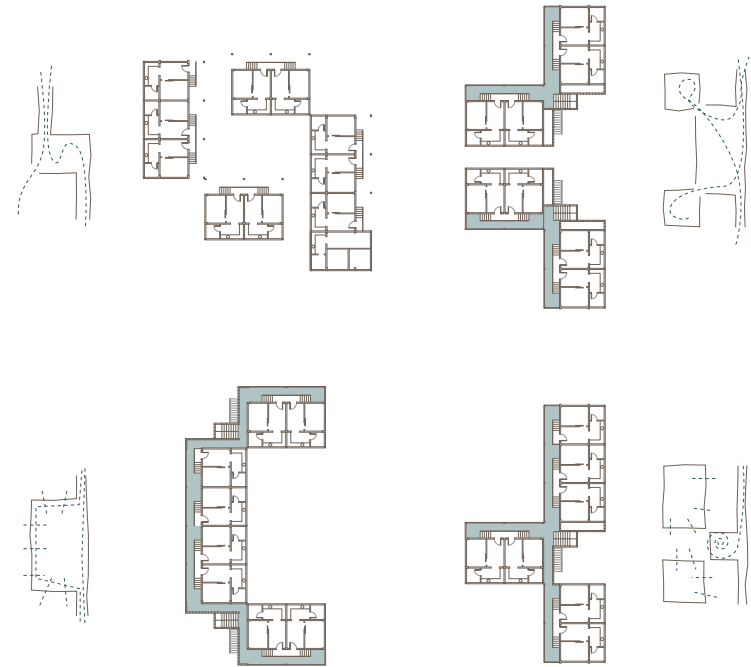


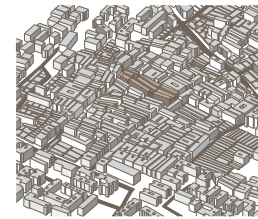
Figure 77
Clustering options and
analysis

settlements, is generally reserved for the car and so the quality of these spaces ends up hurting the natural environment instead of providing space for it in our cities. The selective part however is important when we consider that public space is not the same as open space, and that in order for public space to remain safe, maintained and dynamic is necessary to consider various degrees of openness for various different conditions.

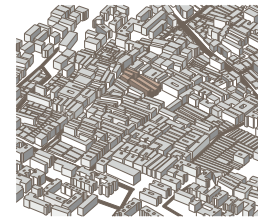
Finally, on how this plan reproduces and grows in the city punctuation reflects on how architecture can act as landmarks that help people orient themselves in the city.



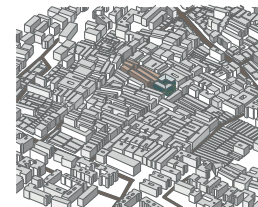
Figure 78
Localized interventions.
Before and after



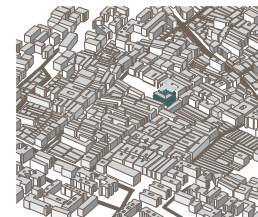
The project starts in an area with poor living conditions due to the high density and lack of planning.



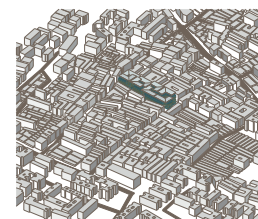
A partial demolition of the area takes place so that the ammount of people that need to be relocated keeps to the minimum possible



The phirst phase of the plan takes place in the empty land. It is important that these areas are located near big roads to facilitate the quick construction.

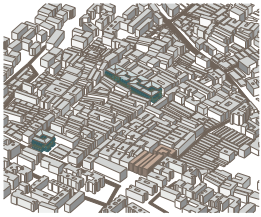


The next face of demolitions occur. The people are able to move to the new building thus preventing their disconnection to their communities.

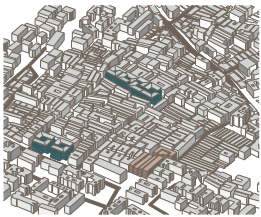


The project is completed with the same density founded in the original settlement.

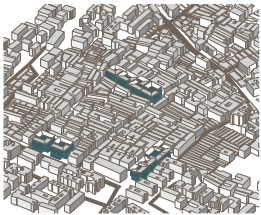
A new area is selected.



The project also increases density in lower-density areas to provide new housing stock



With the new housing stock, new areas can be intervened without the need for relocation



The idea is that the project grows incrementally. Ensuring that the social relations of the people are conserved and nourished

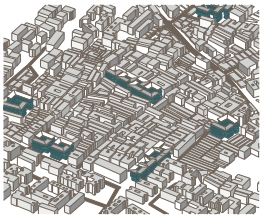


Figure 79
Renewal process

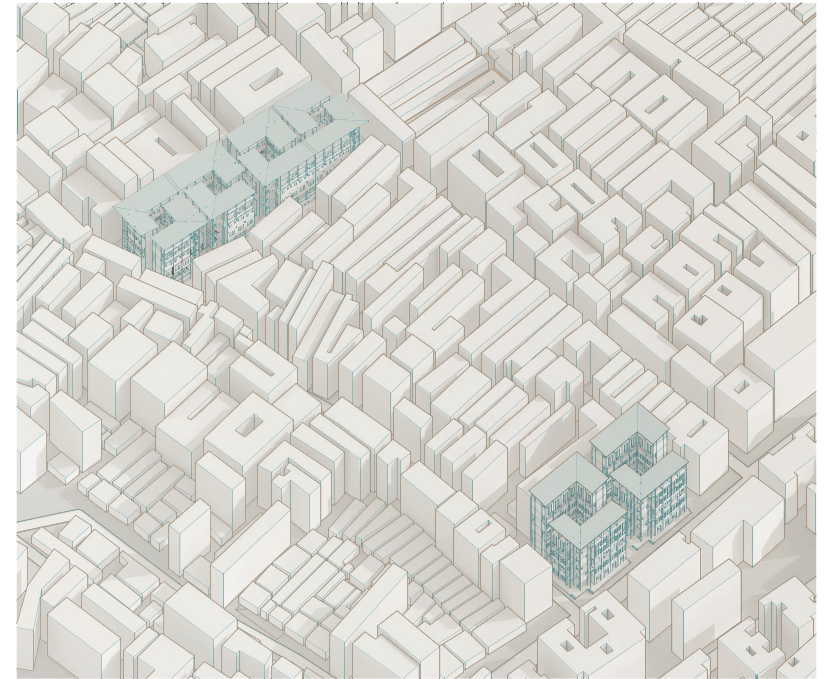


Figure 80
Selected interventions

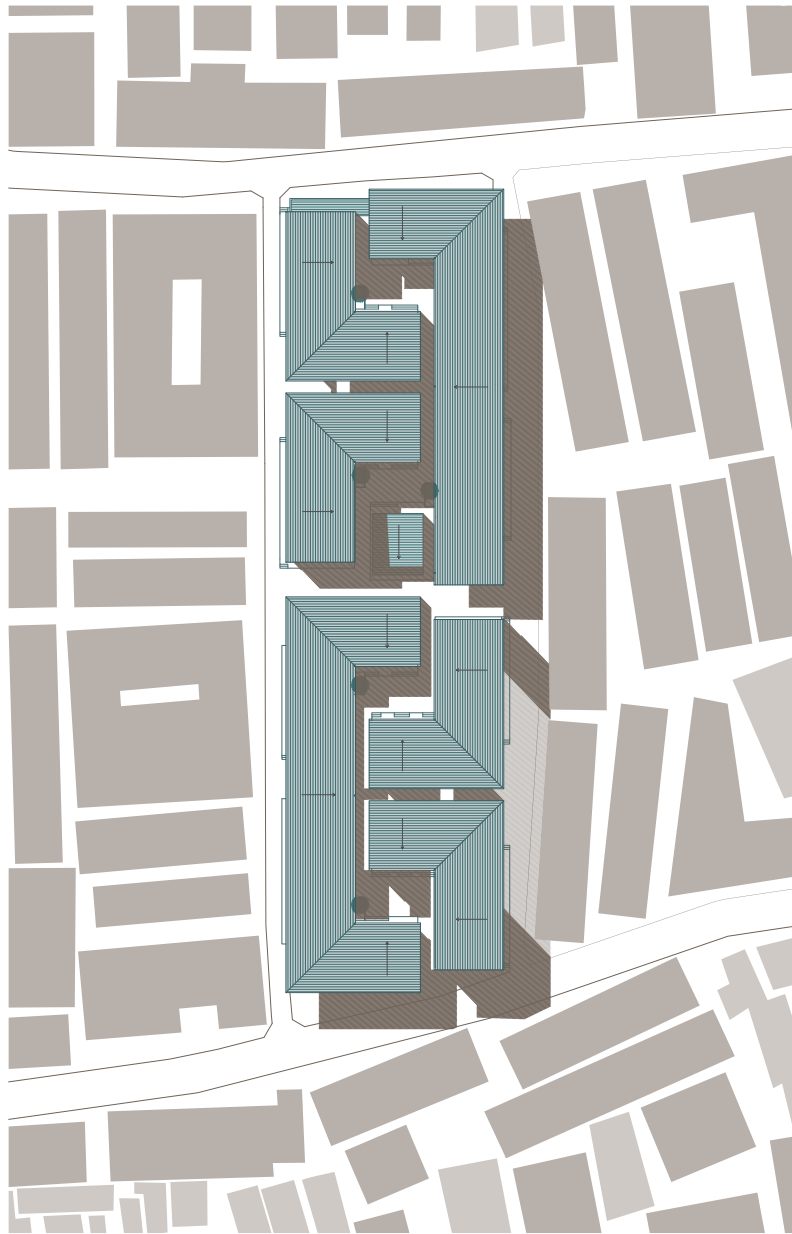
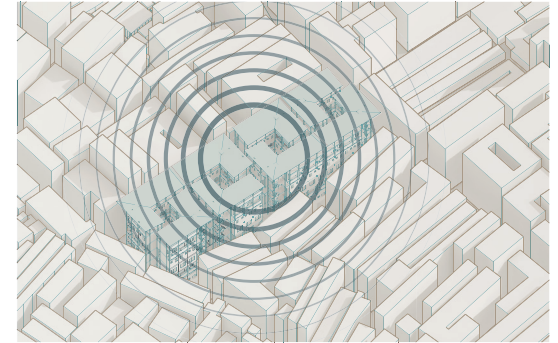


Figure 81
First intervention
Site plan



POCKETS OF ORDER

There are three relevant aspects tackled by the project. The first one addresses the shortage of affordable housing. In India, as in many other regions of the Global South, the sudden increase in urban population surpassed the capacity of the public agents to provide access to housing for the most vulnerable section of the population. The project in this regard tackles the issue of affordability by considering not only suitable densities, dwelling patterns, local materials and building techniques; but also, more importantly, the sensible allocation of resources to localized interventions. This is important because the interventions are not only going to have proper housing conditions in themselves, but they are also going to improve the conditions of the immediate conserved surroundings. In doing so, the project understands affordable housing not just as dwelling units, but as an interconnected environment meant to foster inclusive and lively communities.

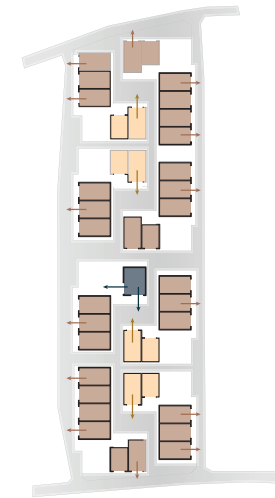
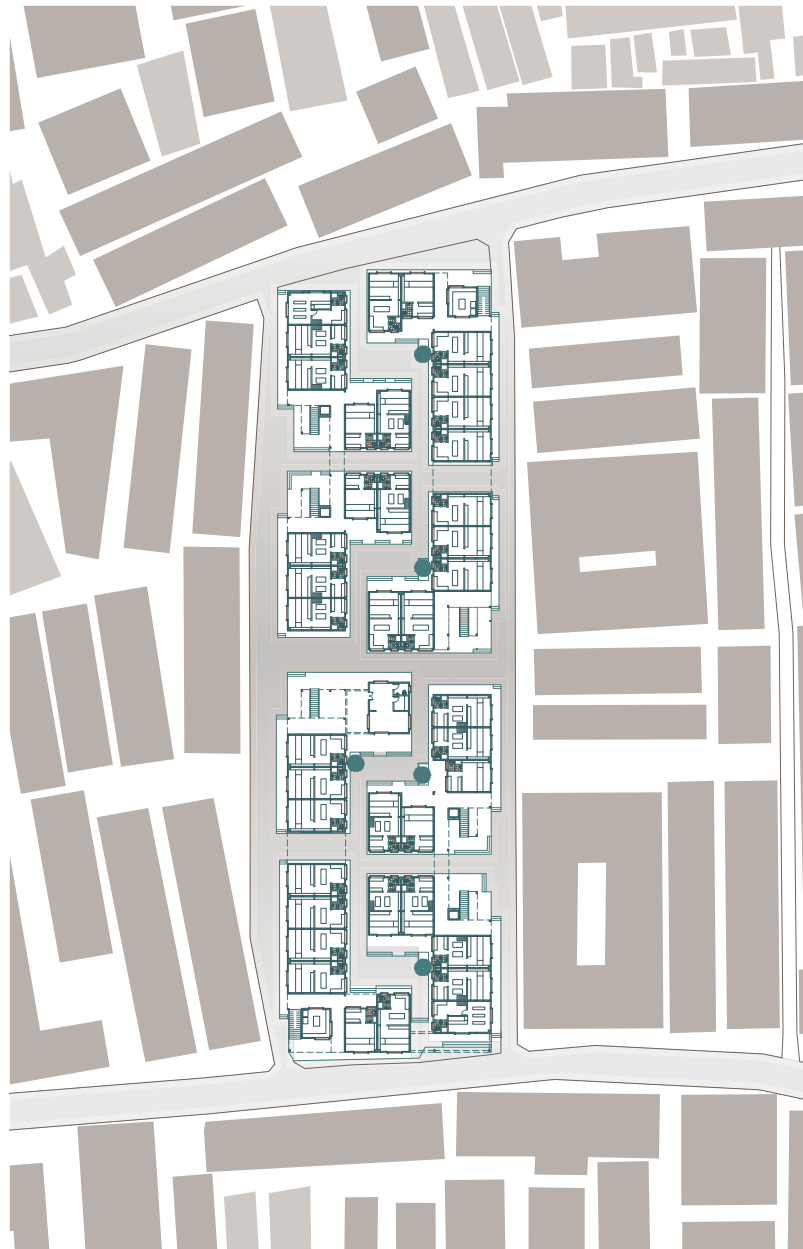


Figure 83
Program diagram

Figure 82
First intervention
Groundfloor plan

The second one deals with the ethics behind redevelopment schemes. In the past as well as today, the government in India has created new social housing projects aimed to the low-income groups. However, the current pressure over well-located land by private capital has induced the government into moving the vulnerable population further and further away from the centre of the city. Leaving the population with difficult -or non-existent- access to services, transportation and job opportunities. On the other hand, the redevelopment schemes created after 1995 which involved the private developers, proved to give priority to new high-end developments while leaving the urban poor in poorly built, cramped slab buildings. Incidentally, the project seeks to work in between these two scenarios. By understanding redevelopment as a series of localized interventions, the relocated population remains close to the centres of production and

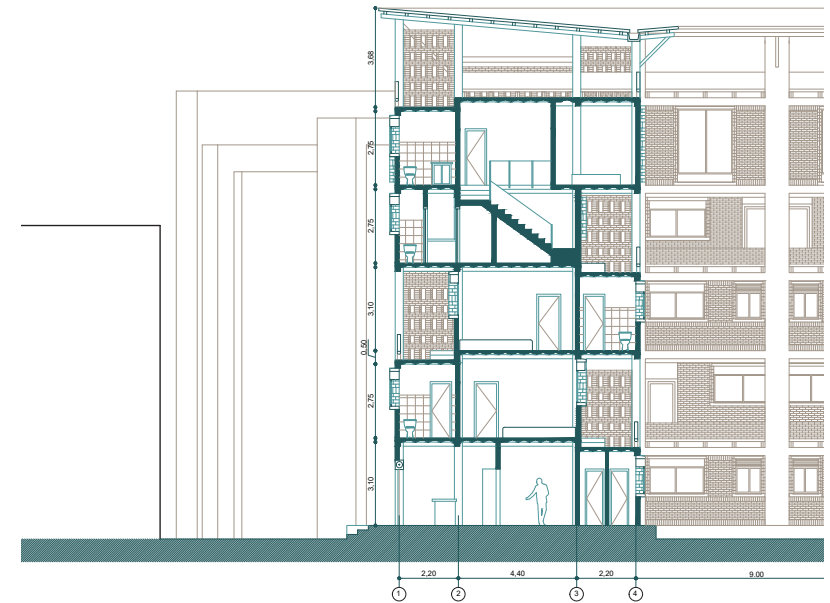


Figure 85
Section of the building

the services provided in the city. And by creating a systematic planning approach, the different stakeholders can take part in the process as long as they respond to the elemental principles of the proposal as a way to ensure equal conditions for different population groups.

Figure 84
First intervention
Groundfloor cluster
plan

And the third one addresses the ideas behind open planning. The project is trying to reconcile two different approaches represented in the thoughts of both Jane Jacobs and Lewis Mumford. On the one hand, the importance of bottom-up approaches and the recognition of the value behind slow-made, serendipitous, day-to-day

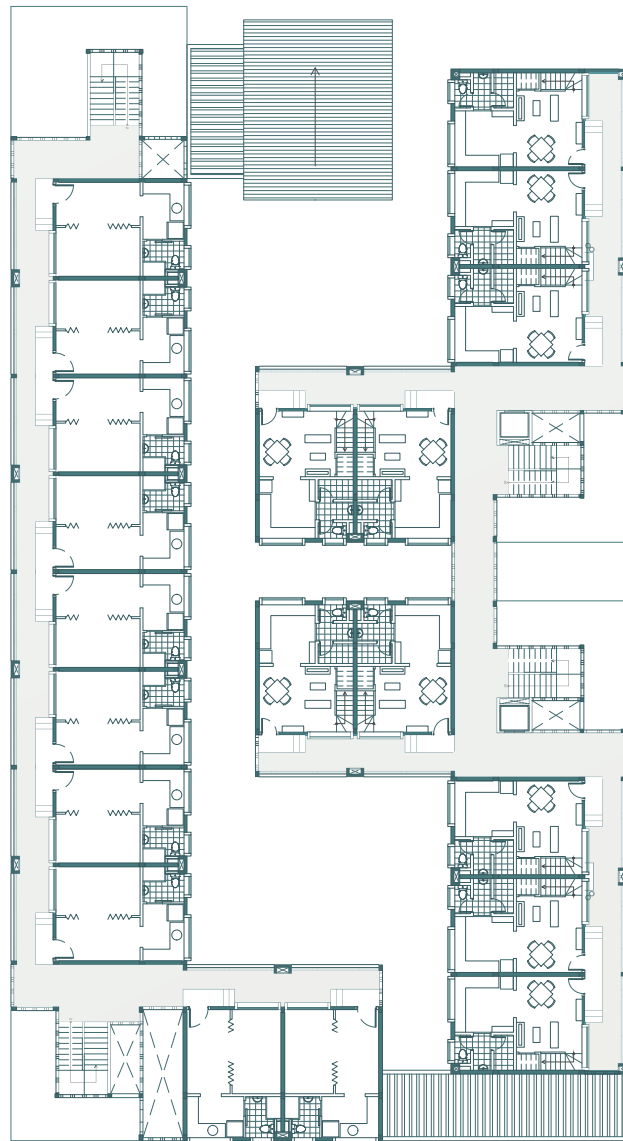


Figure 87
Section courtyard

Figure 86
First intervention
Type plan

interactions. And on the other hand, the need to have a conscious purposeful design that can cater for the problems that arise and foster the value already present in the city. In this regard, the project claims for a seed-planning approach. Where each intervention is meant to give rise to different outcomes depending on the ground where it is implanted. In doing so, the project would never be a complete, equilibrated intervention. It would rather aim to be complex, adaptive and synchronous.

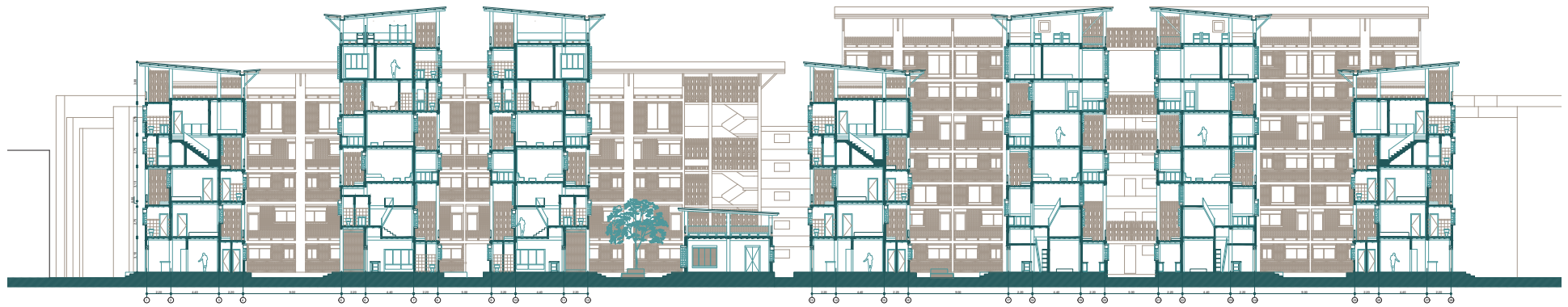


Figure 88
Complete section



Figure 89
Facade

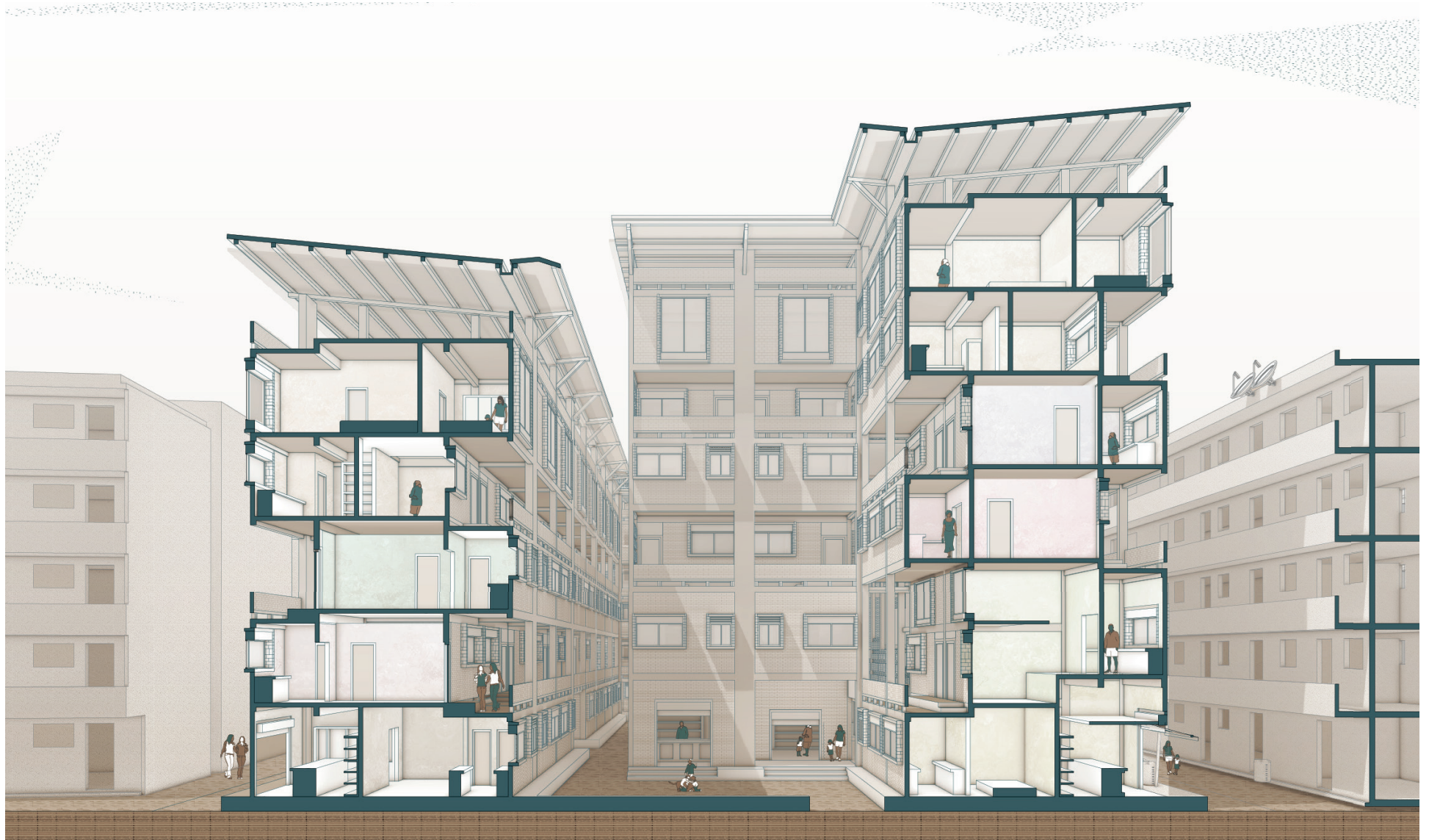


Figure 90
Perspective section.
Courtyard

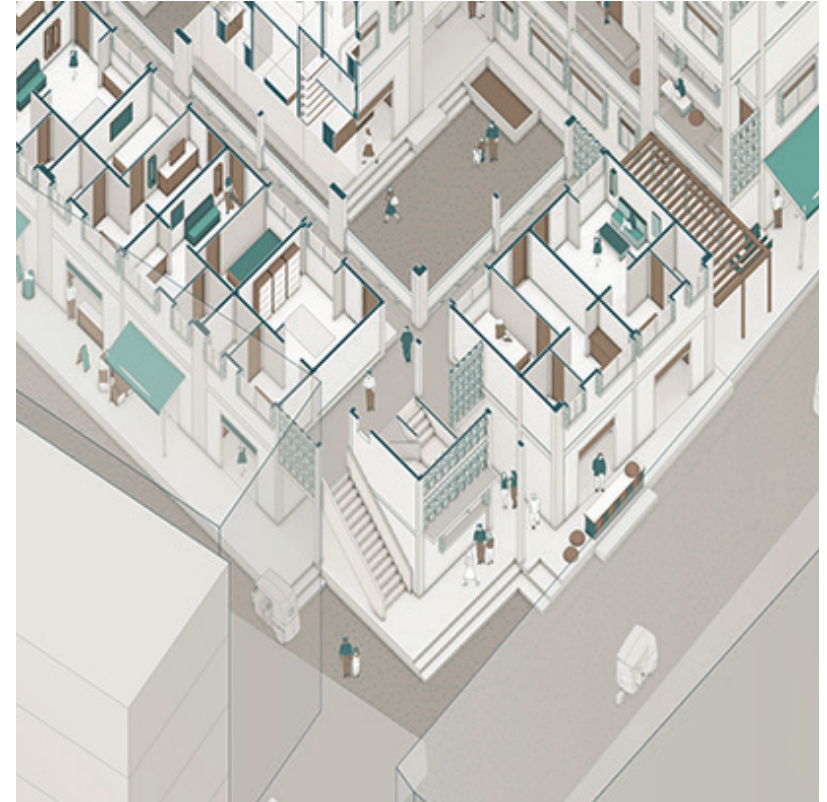


Figure 92
Section isometric

Figure 91
Section isometric

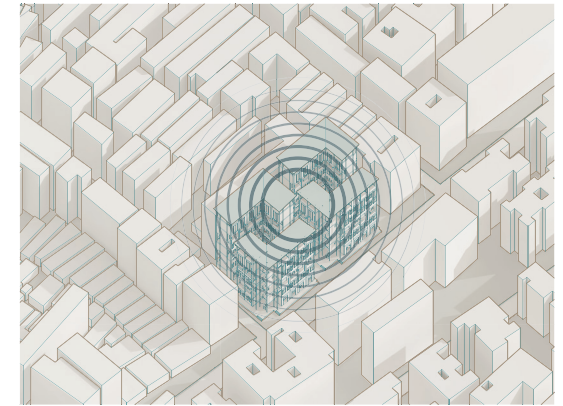


Figure 93
Second intervention
Site plan

The pockets of order tackle on the important issue of our contemporary cities and how to plan them for the future. Faced with a fast-growing population in the Global South, cities that keep expanding and increasing levels of urban inequality, the project seeks to provide an alternative to urban expansion and the relegation of population to the peripheries of our cities. In many cases the allocation of affordable housing units is either insufficient or relegated to the peripheries of the city, creating displacement of people and destroying lively communities. The project questions the traditional conception of the ground as a tabula rasa and instead recognizes how in these seemingly informal

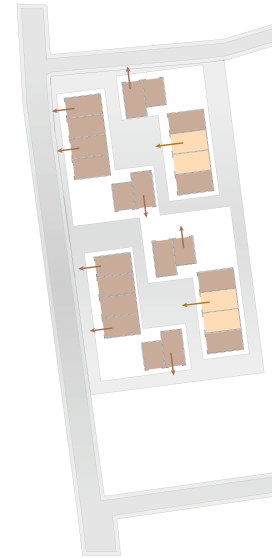


Figure 95
Program diagram

Figure 94
Second intervention
groundfloor plan

environments a lively and complex Cite is formed by its inhabitants. It also questions the ability of architecture to intervene in the urban environment without creating constraints for these existing social relations develop on their own. Finally, the issue of transferability was tackled as well, the shortage of affordable housing is a reality that spans many different realities across the Global South and as such there is a need for models that can be transferred across multiple scales and environments.



Figure 96
Second intervention
Groundfloor plan

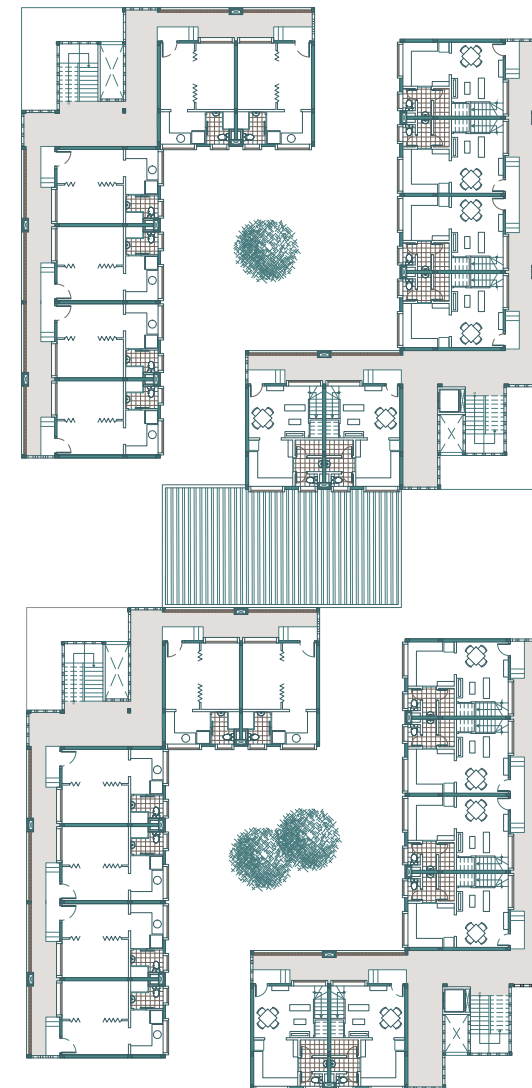


Figure 97
Second intervention
Type plan



Figure 98
Detail section facade.



Figure 99
Detail section facade.



Figure 100
Cluster section



Figure 101
Street facade



Figure 102
Perspective section.
Cluster and main street



Figure 103
Isometric section.
Cluster and main street

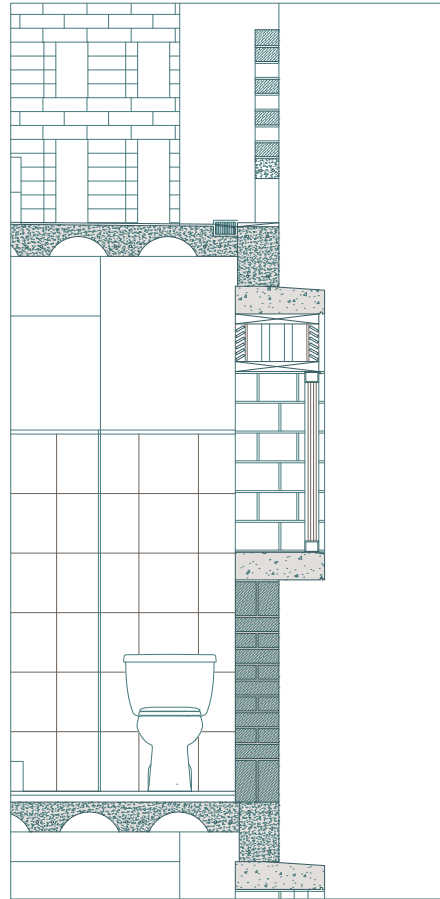


Figure 104
Detail window frame



Figure 105
Detail facade

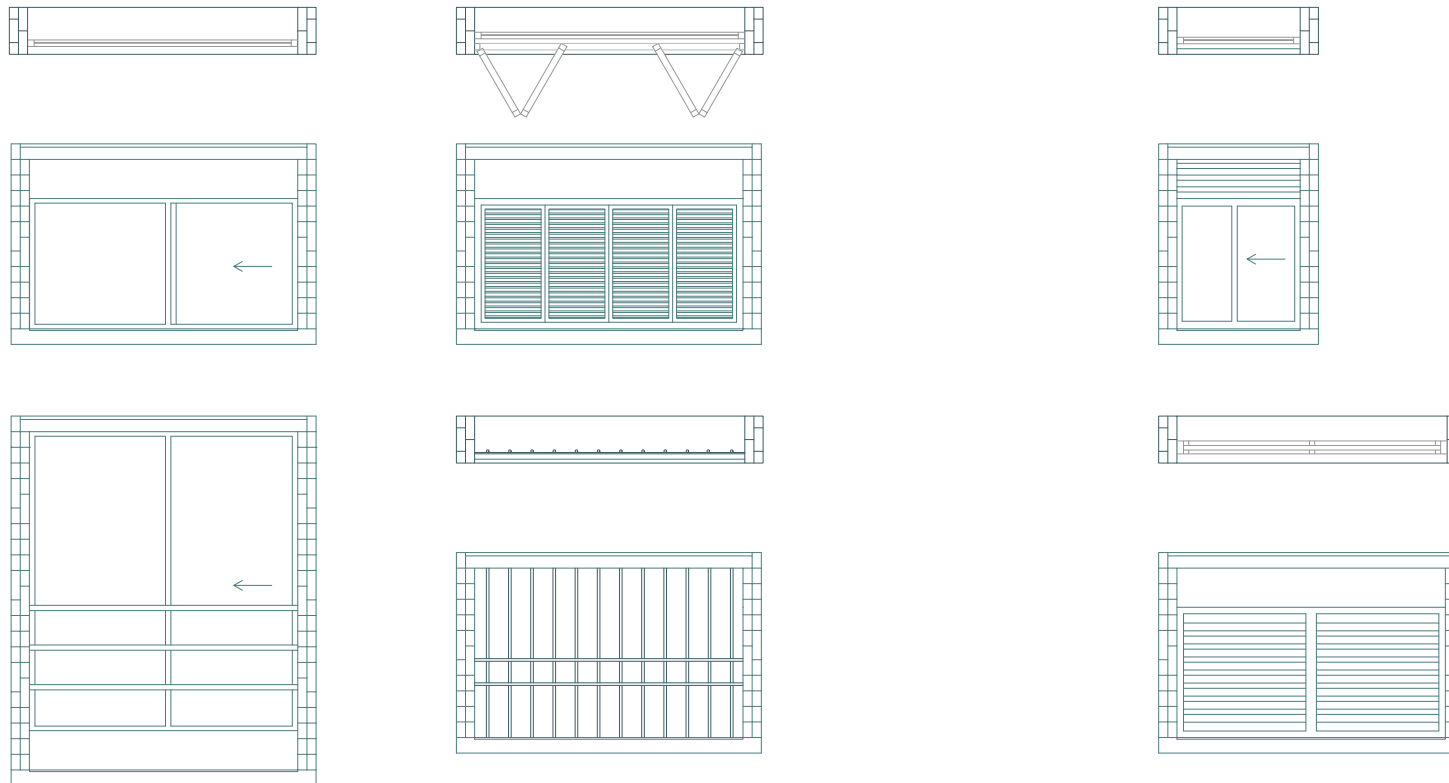


Figure 106
Options within the
window frame

The facade of the project is solved by providing a frame instead of a mere opening. This would allow the users to use this element as it best suits their needs.

It is common in Mumbai for people to 'expand' their house with fences around the windows, people use them in different ways, from just providing security all the way to providing extra storage space. In the same way, the project allows for these multiple options

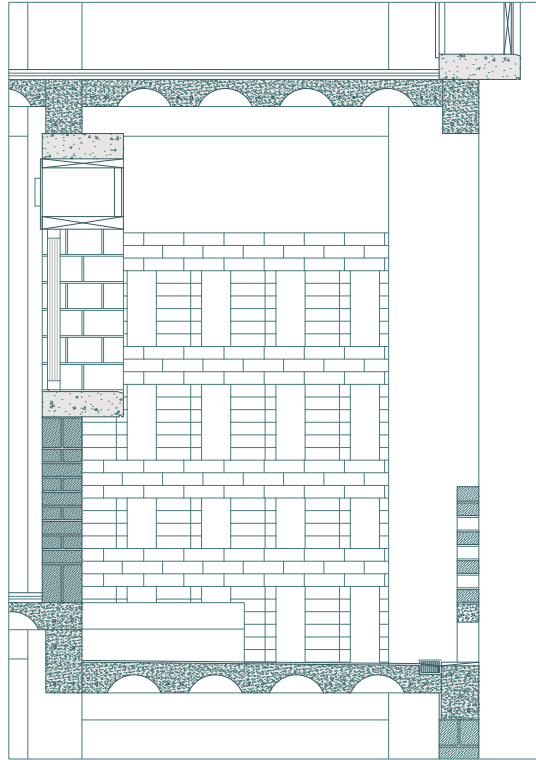


Figure 107
Detail communal
corridors

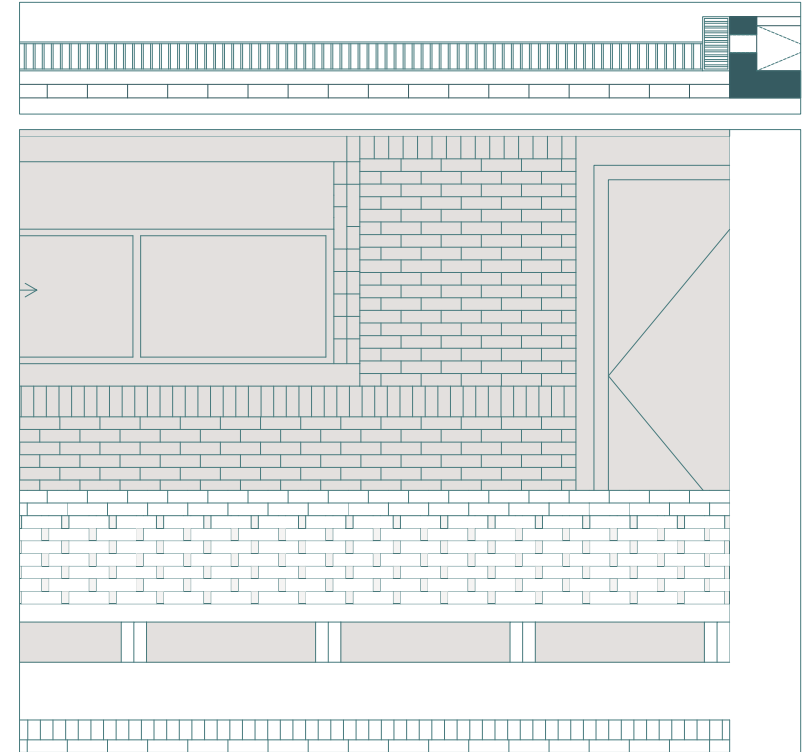


Figure 108
Detail facade

An important detail for the project is how the collective corridors are solved. Due to the alternating nature of these corridors in the section of the building, usually they end up being on top of usable spaces. During the moonsoon season in Mumbai these corridors must be able to recollect all the water that falls in them and direct it to the drainage systems. If the drainage would fail, the idea is that water can safely flow outside of the building preventing the flooding of the units.

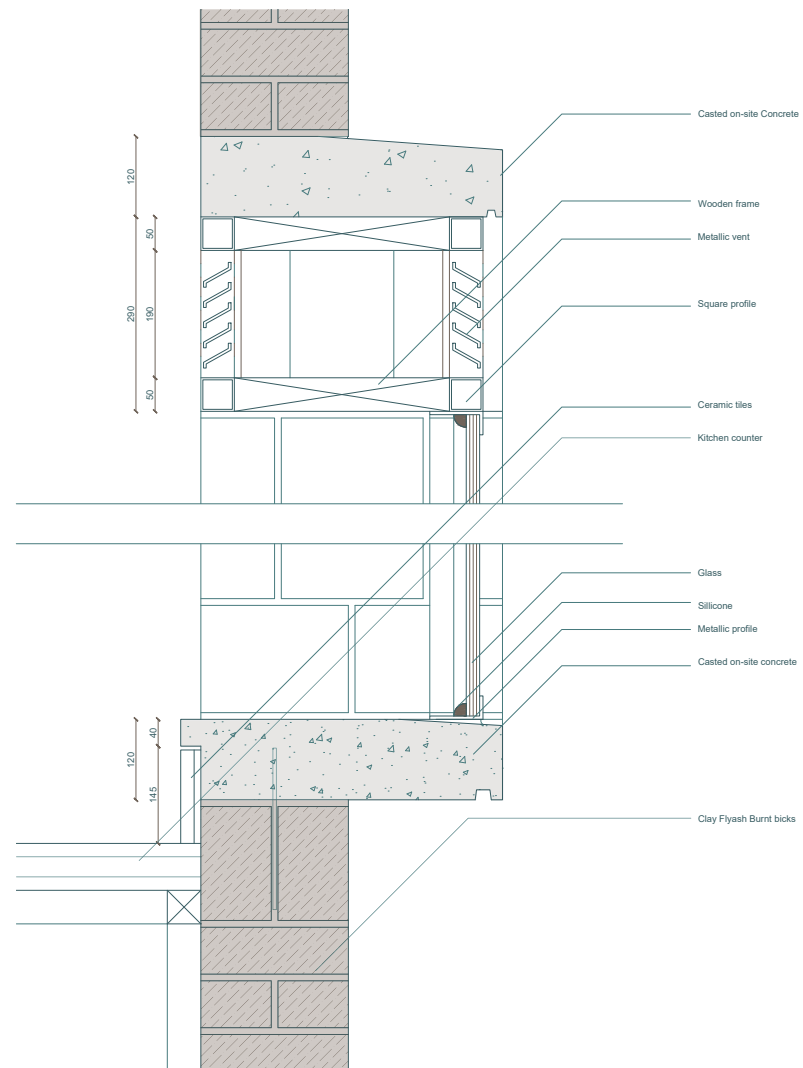


Figure 109
Detail brick bay
window

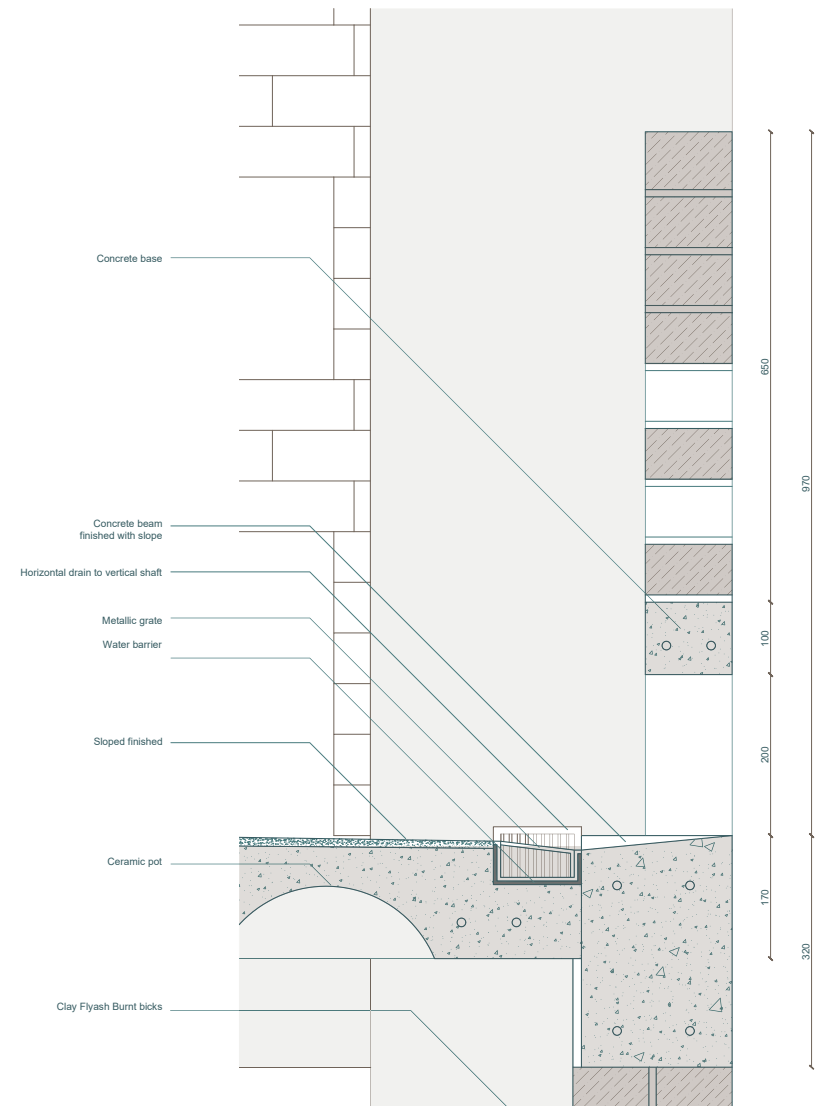


Figure 110
Detail. Corridor
drainage

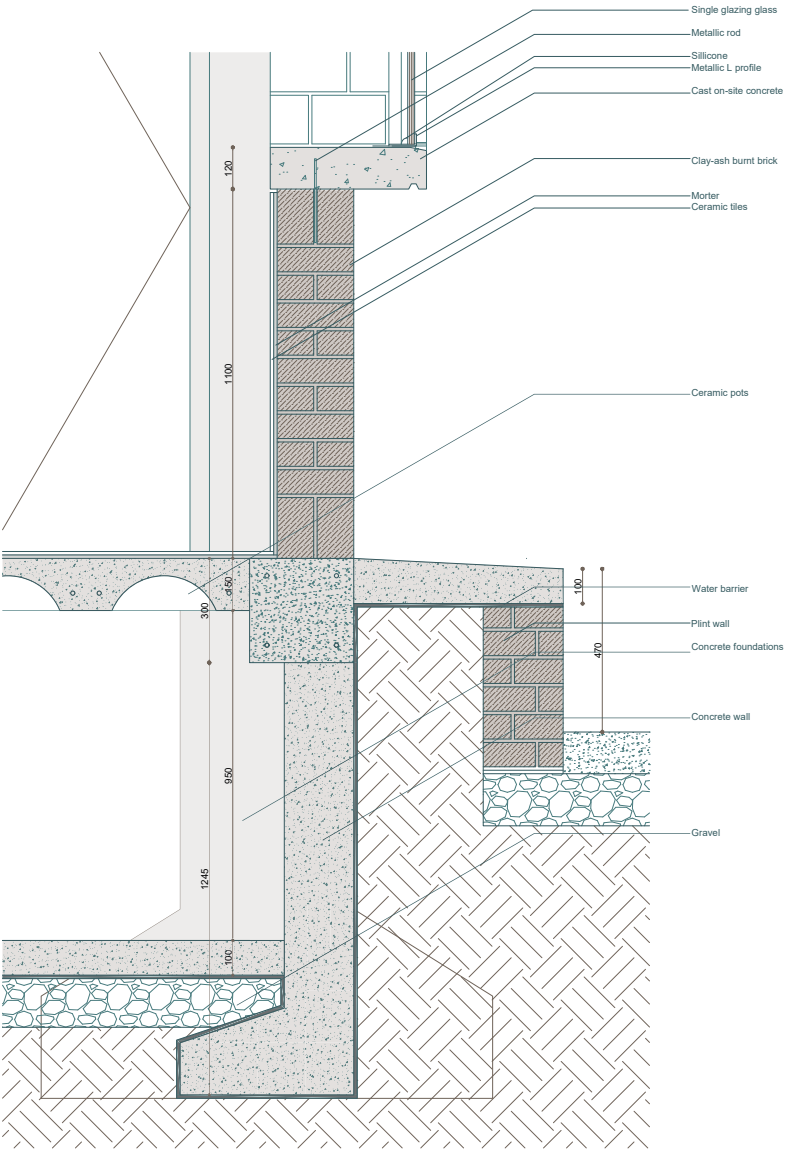


Figure 111
Detail.
Foundations

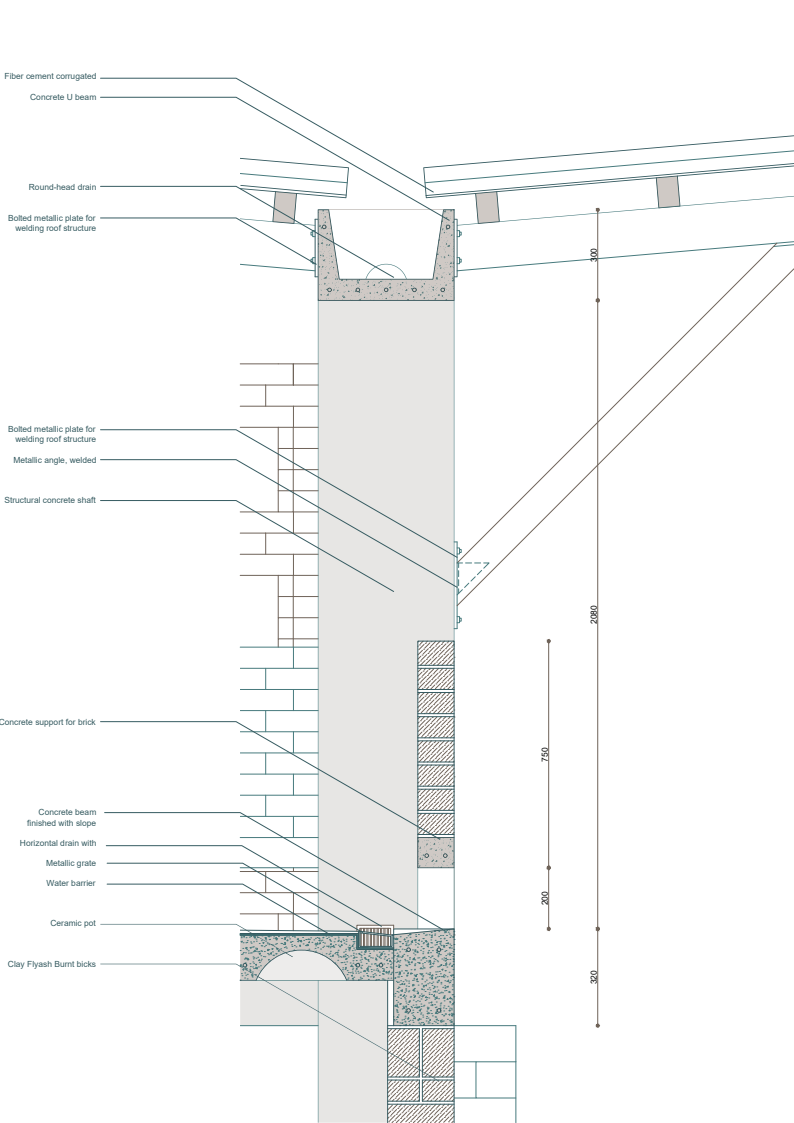


Figure 112
Detail.
Roofing

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