ANCHORED

THROUGH TIME

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Graduation Global Housing
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Introduction

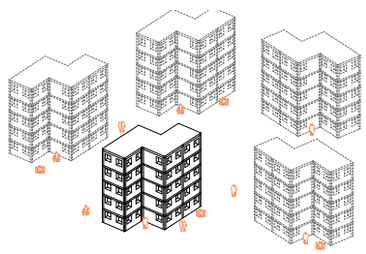
In today's modern urban world, the search for constant improvement in efficiency is something very present. This is very evident in the way in which we have developed systems of production and organization. This is partly influenced by the way our societies are formed with the use of bureaucracy to keep a systematic organization, coordination and overview to develop our cities. Different actors involved, have different responsibilities and concerns, which can create conflicts between different parties that often result in compromises.
With fast growing cities in the world, governments and developers are looking for solutions to house these large numbers of people in the city. Growing cities give many opportunities for development but also create a lot of change that needs to be considered. With the constant trend of developing efficiency, problems and solutions are often made quantifiable to aim for objective reflections that are translated into success rates.

Housing stock Issue

Several consequences of this rapid urban growth in countries such as Ethiopia are urban sprawl, high rates of unemployment, and expansion of slums of which more than half need replacement due to the bad living conditions. Because of this rapid tempo of growth, solutions need to be found quickly. One of the responses towards these issues is the application of solutions that come from the Global North. It shows that situations and issues are standardized to fit the also standardized solutions, often not adapted to the local situation. Examples of this are that the issue of the population growth is quickly seen as an issue of numbers, resulting into a thinking process focusing on creating as many dwelling units as possible. We have seen these situations before in the post-war period, where efficient solutions were demanded to solve the post-first world war housing shortages. This approach included research and finding building materials and construction methods that would allow for this efficiency. In Ethiopia, construction technologies are imported from abroad to make this quick and easy way of building possible. Additional to the Global North's development in construction methods, the modernized design approach has also been used as a reference by the Global Urban South. This mainly affected factors such as dwelling layouts.
Since the approach from the Global North is also taken as a reference in Ethiopia, the implementation is not put into the same context. Not only do these kinds of solutions not connect to their urban context but they also therefore do not meet the lifestyle and daily needs of its users. It becomes an issue of disconnected standardized housing blocks that have not considered the urban fabric, isolating itself from also social and economical structures.

80% of the urban population lives in sub-standard housing
- UN Habitat 2003

rural to urban migration for job opportunities



increasing housing demand- densification

City developmental Issues

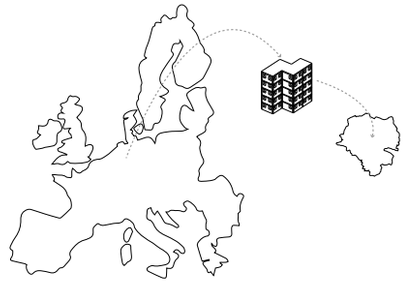
Alongside the aforementioned process of finding a solution due to the high demand of housing stock, there is another motivation for the government to develop and revitalize the capital city of Ethiopia. Addis Ababa has an important political position within the continent and on top of that many foreign investors see many opportunities in the country. This situation demands a progress of the city where developmentalism becomes associated with modernization. With the political position of the city, its image is also of great importance. Therefore this factor contributes to more pressure for an improving progress of the city's development.

The current pursuit of the government of Ethiopia to develop the city as mentioned above, may not have resulted in the best outcome. Various issues show that the current approach of efficiency comes with many consequences.
To name a few, there is an affordability issue of the new housing scheme of condominium blocks as the low-income group cannot afford to rent them. This creates a great social segregation. It is especially a shame for a city that was characterized by its tolerant coexistence.
Secondly there is a sustainable issue, as the newly designed housing projects are not appropriate in the long run it shows conflict with its durability. This is observed as its users are currently already finding themselves not fitting with the way the programme of the housing is designed. Additional to this, the construction materials used are imported from abroad, which means that it would have a much larger carbon footprint than locally sourced materials. Thirdly, there is an issue with the living quality of the dwelling units designed. Due to the standardization there is a lack of dwelling type differentiation and also no possibility of flexibility implementation within the unit layout. This is also linked to the issue, that due to the referencing of design solutions from the Global North, the local way of living is often lost. Lastly, in relation to the city's identity, the sefers, which take a large part of the city, will be demolished. Sefers gave its residents a sense of belonging and gave the people a mental group that had its own identity. With these standardized developments, the identity is often lost and cultural, traditional and social characteristics are also either lost or become unrecognizable.

There are clear motivations for the city to further develop, which makes it important to find a suitable approach and solution to the development of housing in Addis Ababa. There are however many factors to be taken into account as we see that the current approach that focuses much on standardization as part of efficiency, comes with many consequences and the elimination of qualities resulting in shortcomings. This approach mainly focusing on efficiency therefore fails to result in a housing scheme that provides qualities to meet de demands of its users. It can therefore be concluded that an urgent change of this current approach needs to be found to improve its results in housing.

the headquarters of the African Union are located in Addis Ababa making devlopment and revitalization of the city of great importance

tolerant coexistence



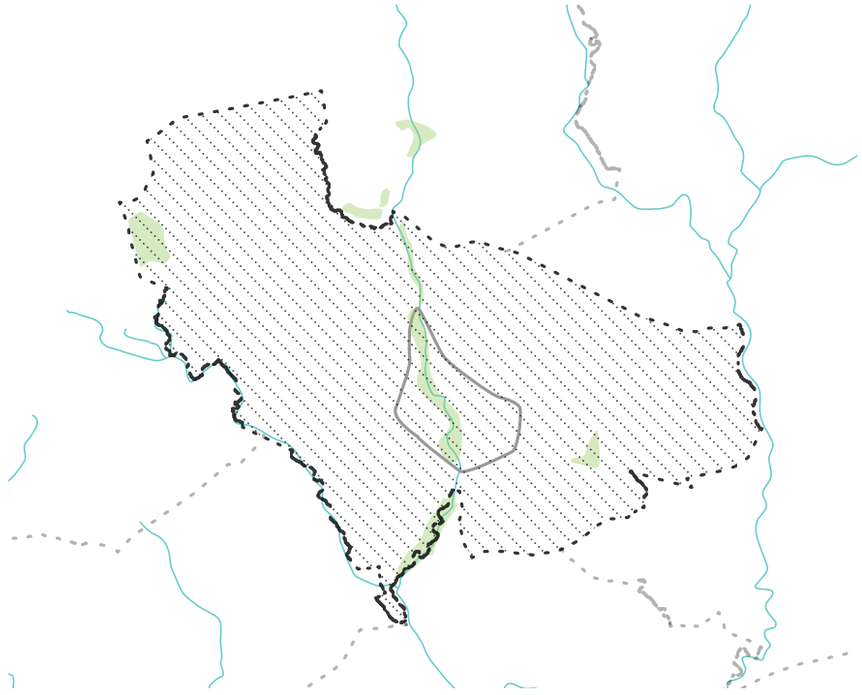
imported building methods and dwelling layouts

SITE ANALYSIS

-ADDIS ABABA -
ARADA

Our site is located in the Arada region in Addis Ababa. This is one of the many hearts of the city that is very lively with many commercial functions.

-ARADA -
GREEN SPACES



The image above shows that our site includes one of ther very few green spaces within this lively region of the city as also a river is located right through the middle of our site, bringing a lot fertility and a natural scenery. The river Kechene flows through the site from North to South.

- SERATEGNA SEFER
& BASHA WOLDE CHILOT SEFER -

Once upon a time a well known righteous judge walked the streets of Addis Ababa. His name was Basha Wolde, an army ranked figure and the right hand of Menelik II. It cannot be a coincidence that nowadays a sefer located northwest of the imperial palace is still named after this man. The story goes that he travelled each day on the back of a donkey from the courthouse, located north of the Basha Wolde Chilot, to the Gebbi, southeast of the sefer. During his travels, which presumably crossed this area, the residents of the newly founded city would throw themselves in front of him and his donkey with their dilemmas. Upon which he listened and gave his judgement, as the myth continues, under the shadow of large tree.

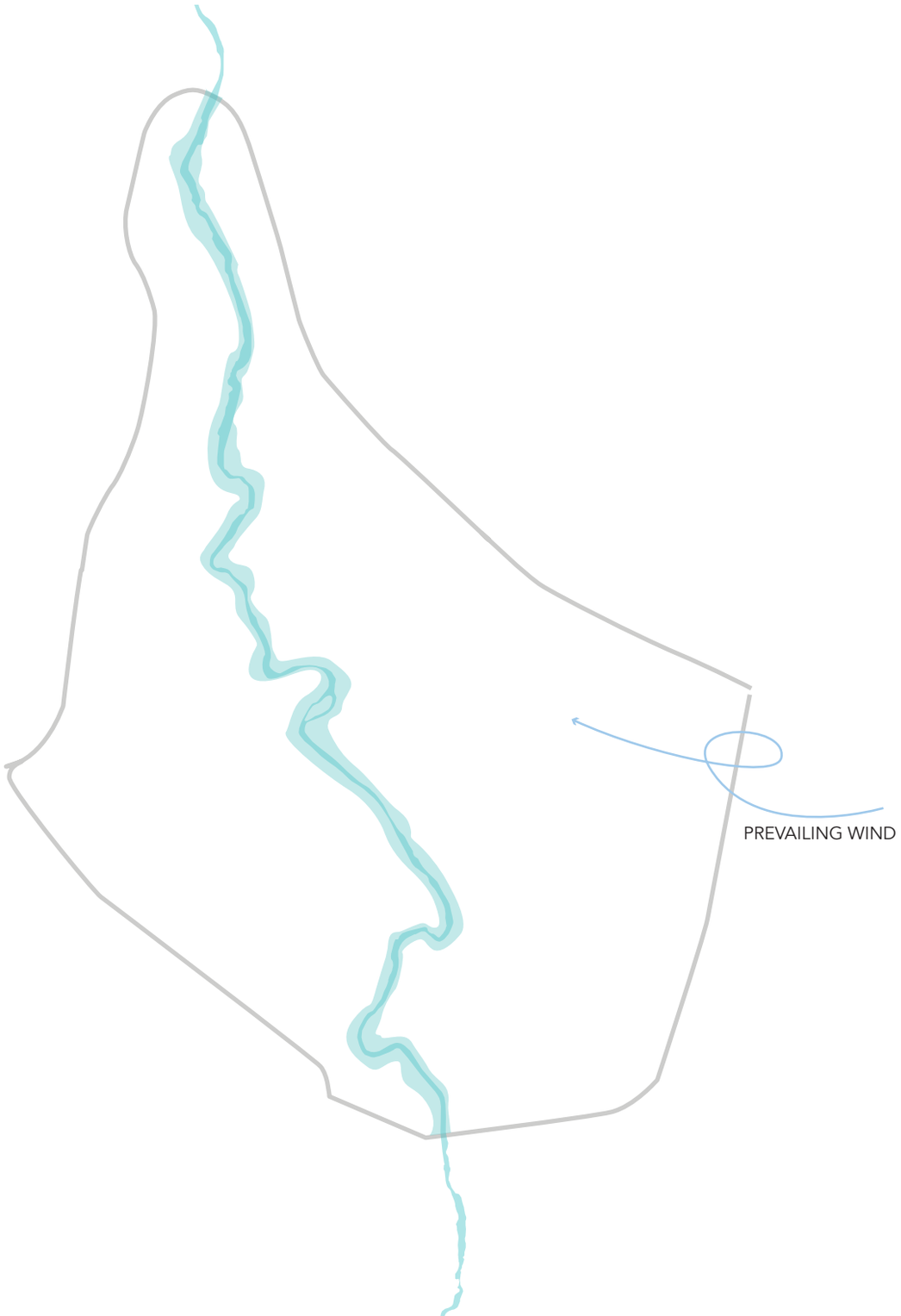
After the Gebbi and Addis Ababa were founded in 1886, followers and servants settled around the area of the palace of Menelik II. Most of the workers of the emperor lived clustered together with their colleagues. Whereupon the sefers in which they lived were named after their profession. This explains the name of the Seategna sefer which lies on the other side of the river, west of the Basha Wolde Chilot. Seategna means 'workers' in Amharic, the prevalent language spoken in Addis Ababa. Strangely enough the Basha Wolde Chilot was not named after the profession practised within the area.This particular area was dominated by mattress makers and saddlers.

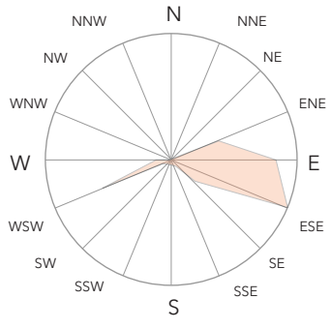
These two sefers were, and still are, located between two big influential centres of the city, the political centre to the southeast and the commercial centre, Arada, to the northwest. One of the oldest streets of Addis Ababa runs along the Basha Wolde Chilot, currently carrying the name of Haile Selassie (Haile Selassie Road, HSR).

As these sefers did not develop around the palace of another king, they are not situated on the flanks of a hill, but rather in a lower situated area. They lie in the valley of the Kechene river, a place which has been (naturally) more difficult to inhabit. The size of the river and the amount of water it traffics differs quite a lot from rainy seasons to dry seasons. The river has been an ever present topographical feature and border between these two sefers. The water has seemed to split the area in two, due to the lack of bridges. However during dry season the water level drops so much that it becomes possible to cross the river. Unfortunately due to the lack of basic infrastructure and this densely populated area, the water here is not perceived as a public space but rather as an area where you can dump your garbage.

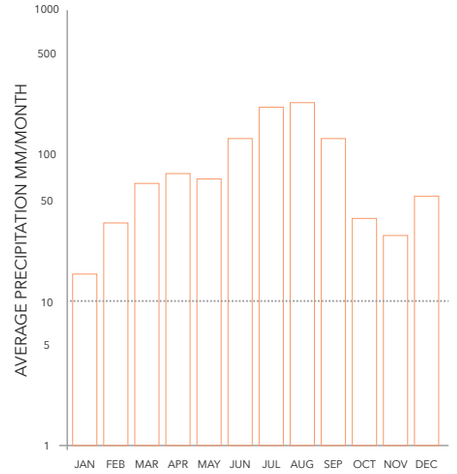
Nowadays Basha Wolde Chilot and the Seategna sefer are sefers located in the centre of the city, a prominent historical part, still amid important structures. This causes the location to be a premium site for the development. In the coming years a new Ethiopian Parliament building will be constructed southeast of the Basha Wolde, what presumably will lead to a fast increase of the value of the land. In 2011 the government started the redevelopment of the eastern sefer. The tabula rasa approach of this redevelopment has caused a demolition of the original settlements of this area. The municipality asked the EiABC to help them in rethinking their strategy for this project. The outcome was a masterplan full of different housing typologies, functions and a network of open spaces. Unfortunately the municipality eventually did not implement the design as it was designed by the EiABC. The southeast of the sefer is dominated by new commercial buildings, a part of the proposed masterplan for the whole eastern part. The area west of the commercial area is currently empty, without any informal housing or other structures. The Seategna sefer still remains as it was, with some small new housing projects from around the seventies and zeros.
The redevelopment of the last six years have led to an 'open' and less dense urban fabric. However they have also caused a disruption in the social structure which underlies both sefers, as people have been evicted from not only their homes but a social network.

- SITE CHARACTERISTICS -

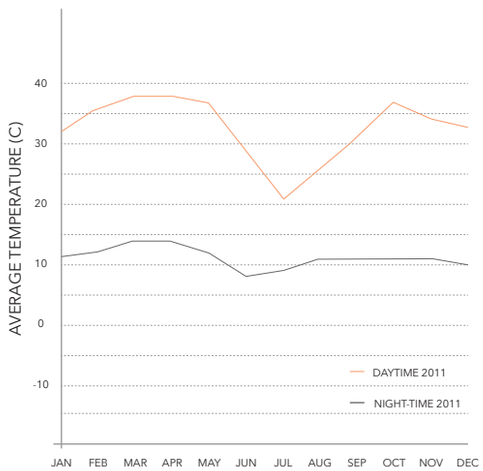




WIND DISTRIBUTION

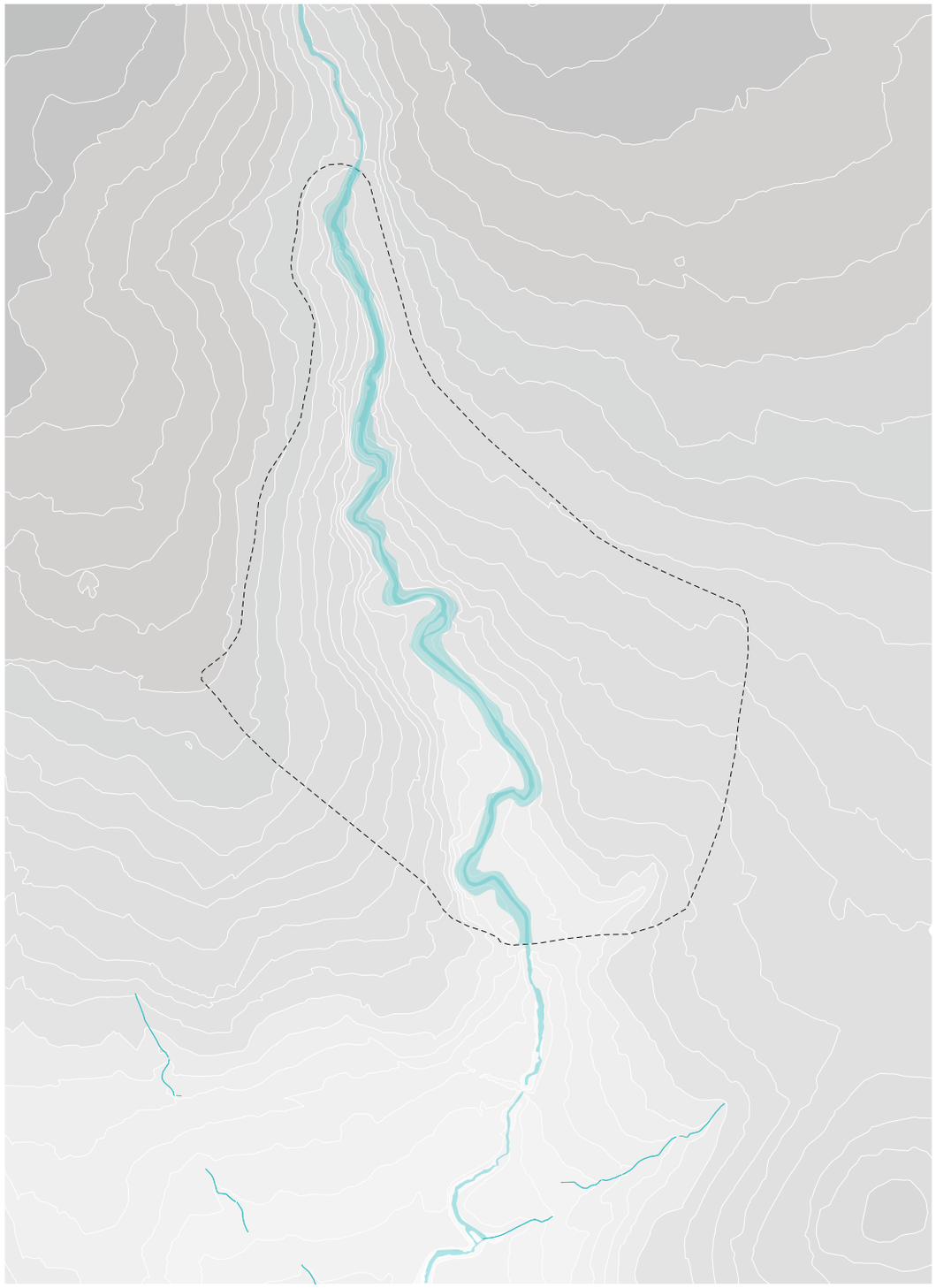


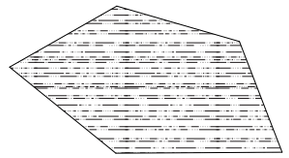
PRECIPITATION



TEMPERATURE

- HISTORICAL DEVELOPMENT -
1860

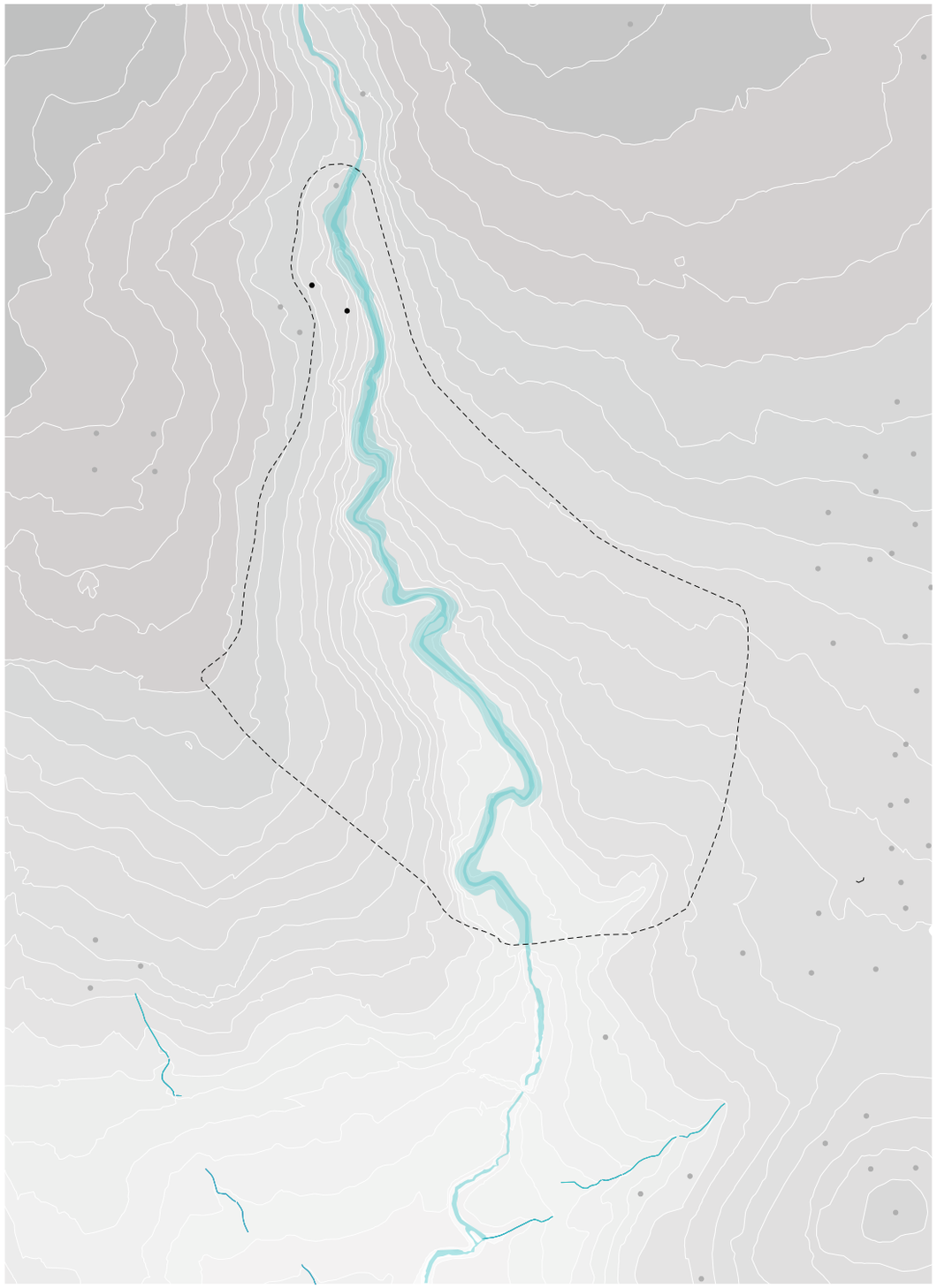


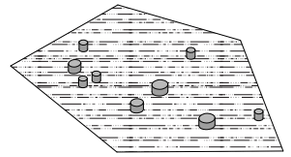


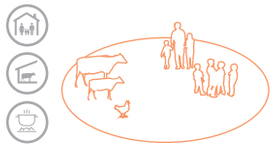
Periphery: 3648.8 m
Acreage: 62.05 Hectare
River width: 7-13m rain period 13m or more
Lowest point: 2388.5m
Highest point: 2441.8m
Height difference: 53.3m

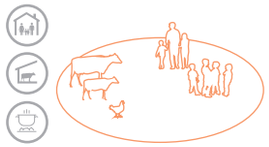
Due to the heavy rainy season in Ethiopia, the river widens. Annually 1800mm of rain falls. Of which July and August are most rainy.

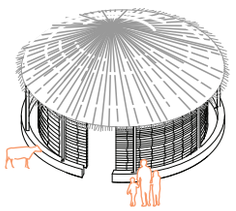
- HISTORICAL DEVELOPMENT -
1897

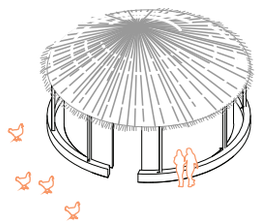








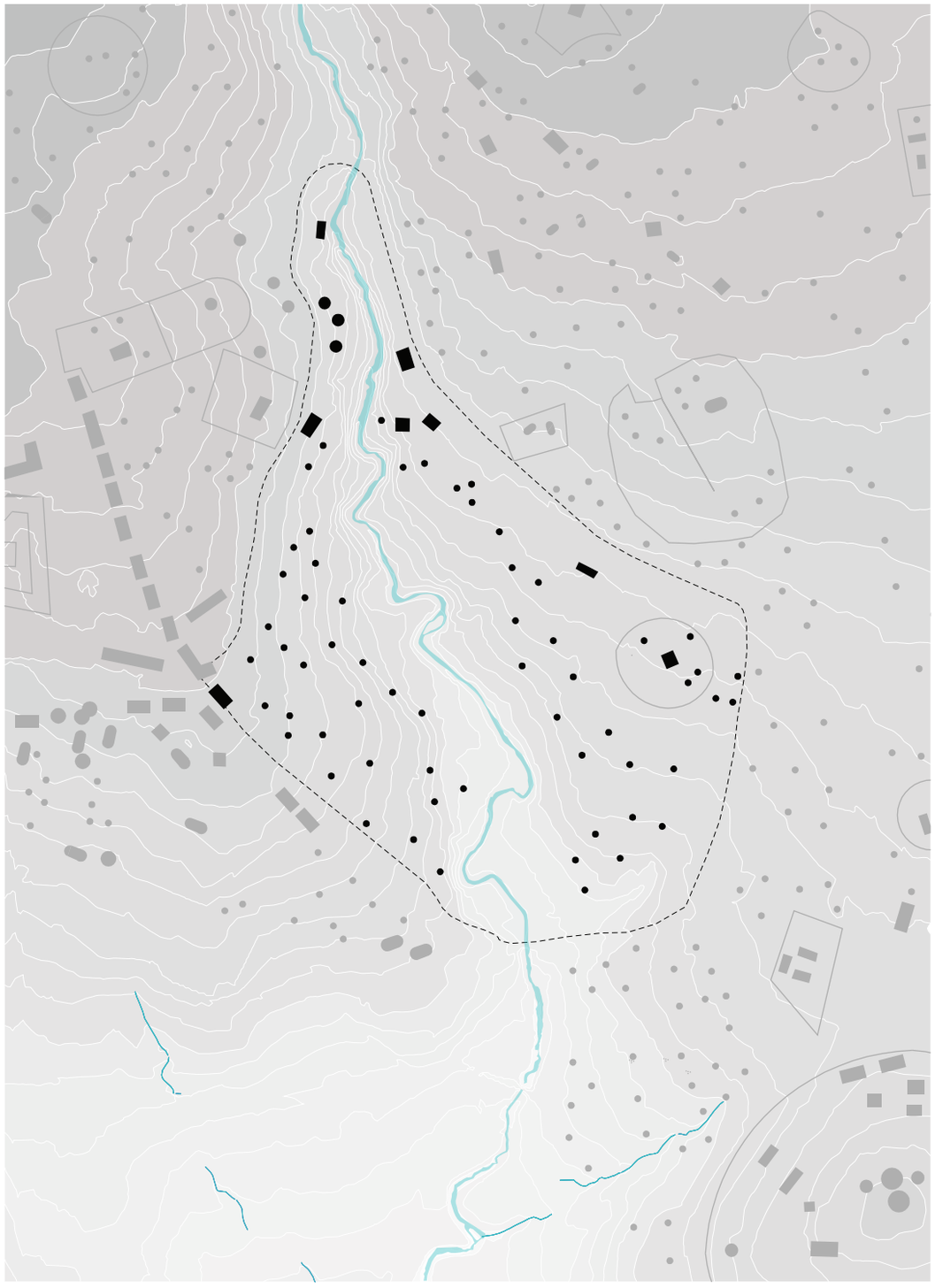


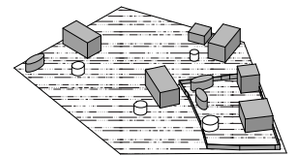


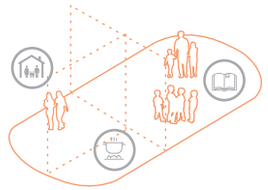
The Tukul huts in our area are a type that were used by the Oromo people in Western Ethiopia. This type typically is made of woven bamboo and covered with dry grass and banana leaves. The developed type makes use of plastered outer walls.

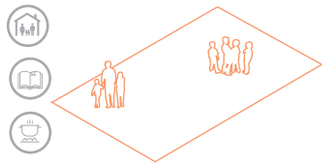
- HISTORICAL DEVELOPMENT -

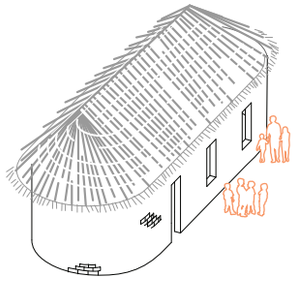
1912

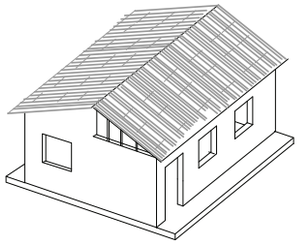








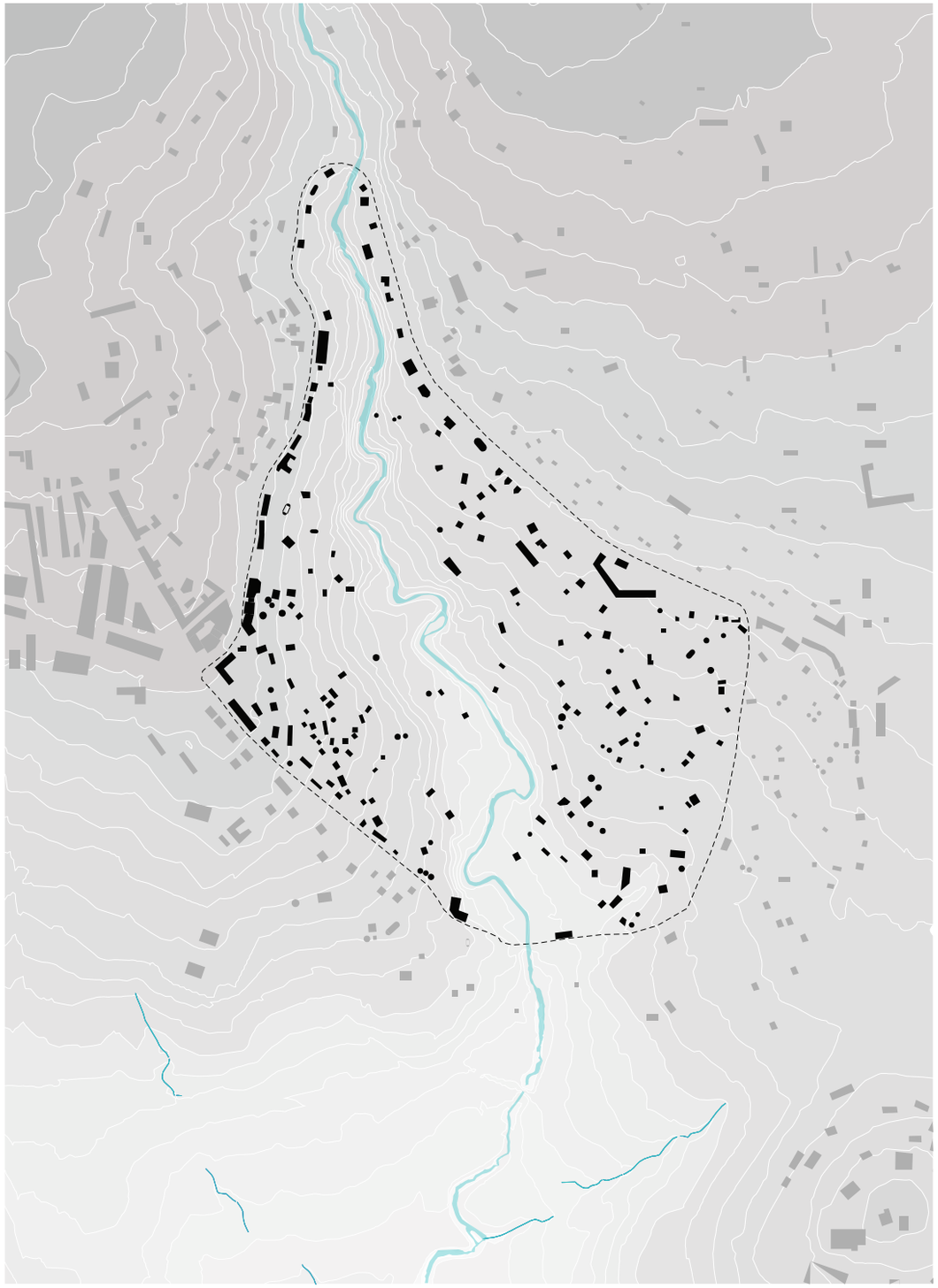


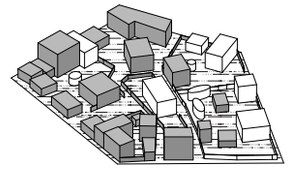


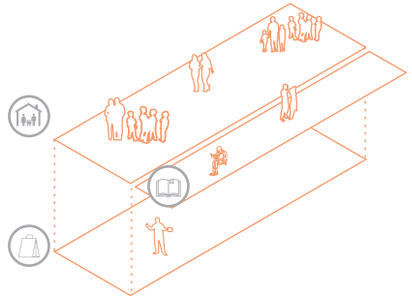
During this period, foreign influences were visible in the development of the huts. Building materials developed to plastered walls as well as a change of shape from round to oval occured.

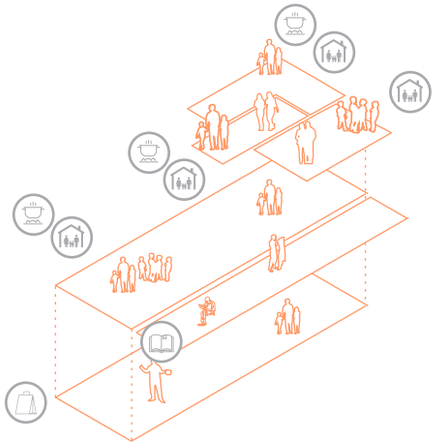
- HISTORICAL DEVELOPMENT -

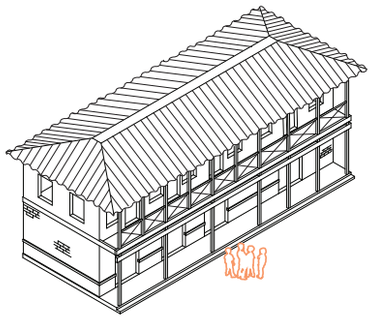
1938

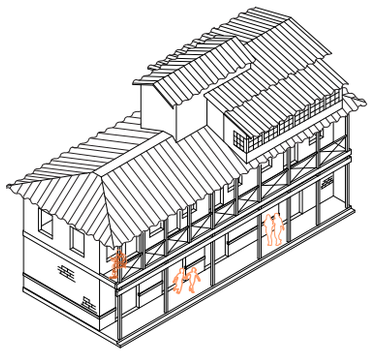








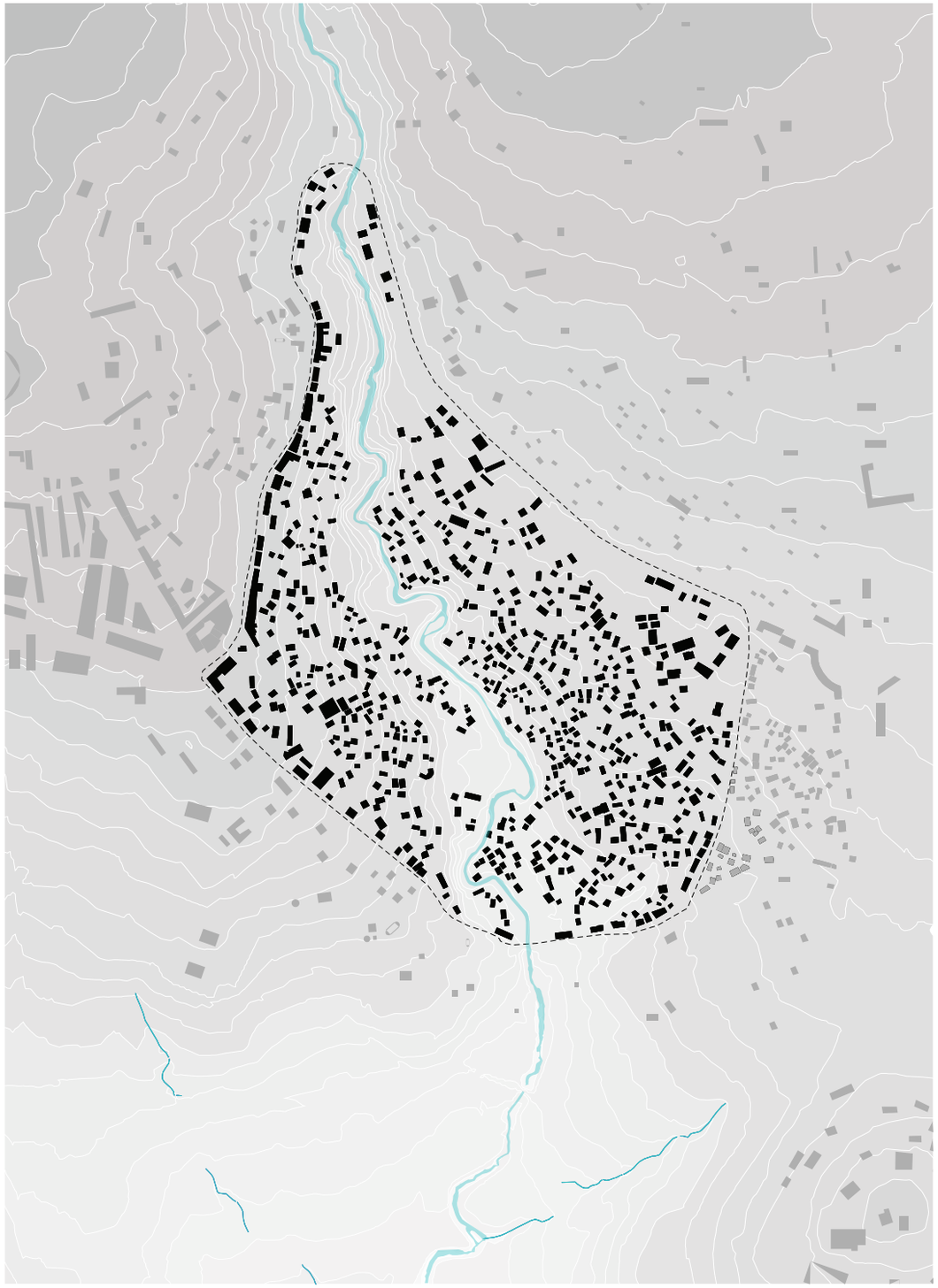


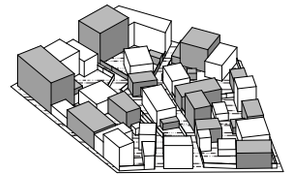


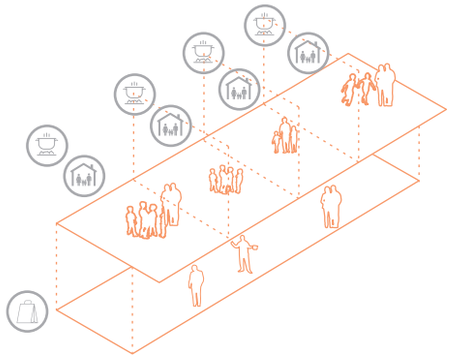
This type depicts the Armenian influenced dwellings. Outdoor spaces are introduced by veranda's and the ground floor walls are often built from stones giving it a heavier appearance.

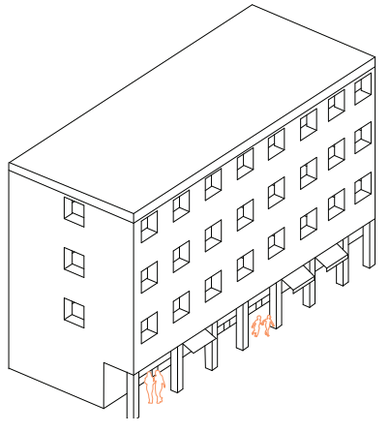
- HISTORICAL DEVELOPMENT -

1970





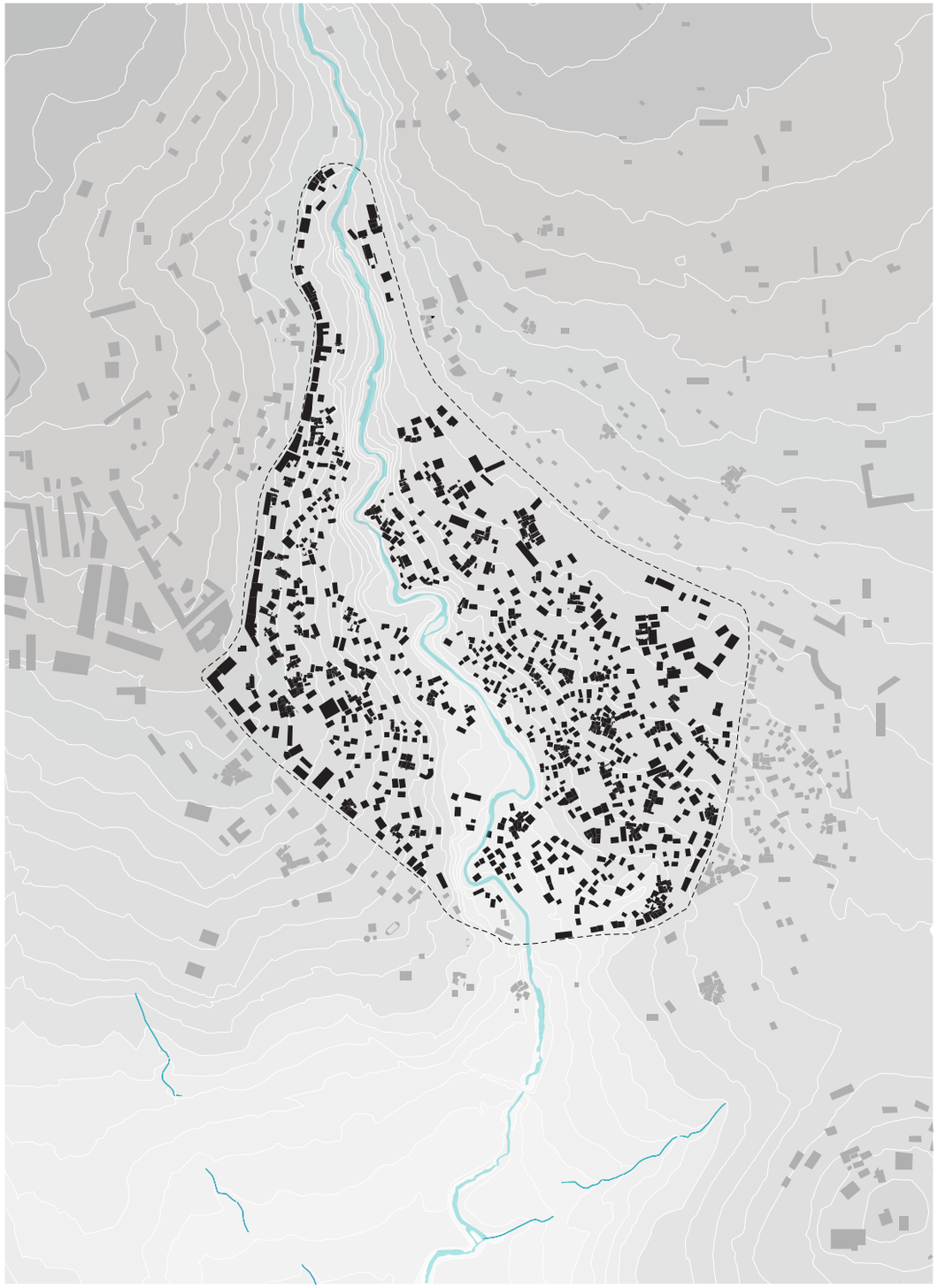


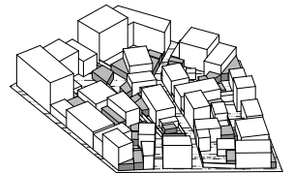


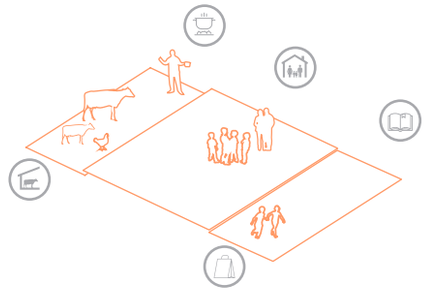
In 1970 larger building blocks were established with simple structures and use of stone blocks and concrete. The plinth often functions as public functions such as commercial space and services.

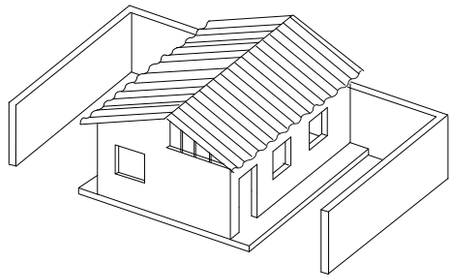
- HISTORICAL DEVELOPMENT -

1990





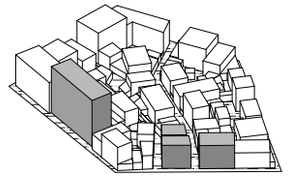


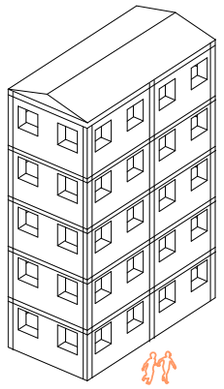


The typical sefer dwellings started to expand their spaces and adding outdoor spaces by building exterior walls claiming land. Outdoor spaces were used for cattle as well as traditional cooking which lets out a lot of smoke.

- HISTORICAL DEVELOPMENT -

2005

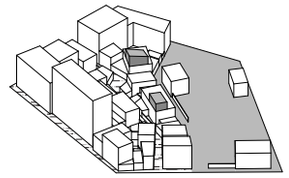


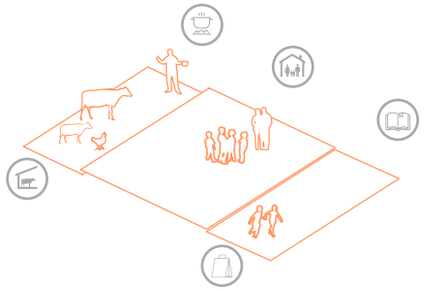


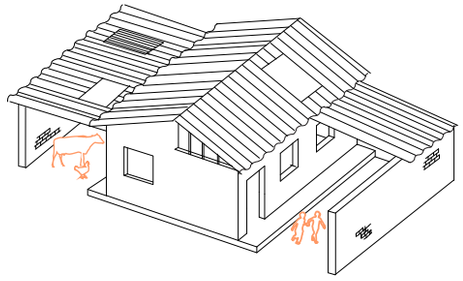
The first condominium blocks were built in 2005 from simple structures with concrete and concrete hollow blocks. These usually consisted of around 5 floors.

- HISTORICAL DEVELOPMENT -

2011

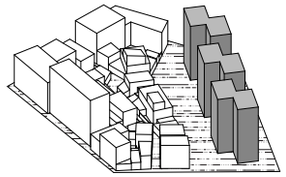


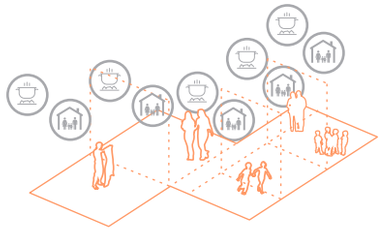


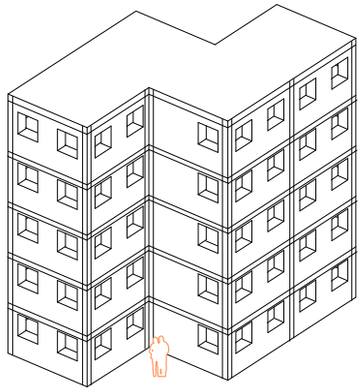


The typical sefer dwellings started to expand their spaces and adding spaces with corrogated roof. Outdoor spaces were used for cattle as well as traditional cooking which lets out a lot of smoke.

- HISTORICAL DEVELOPMENT -
2016

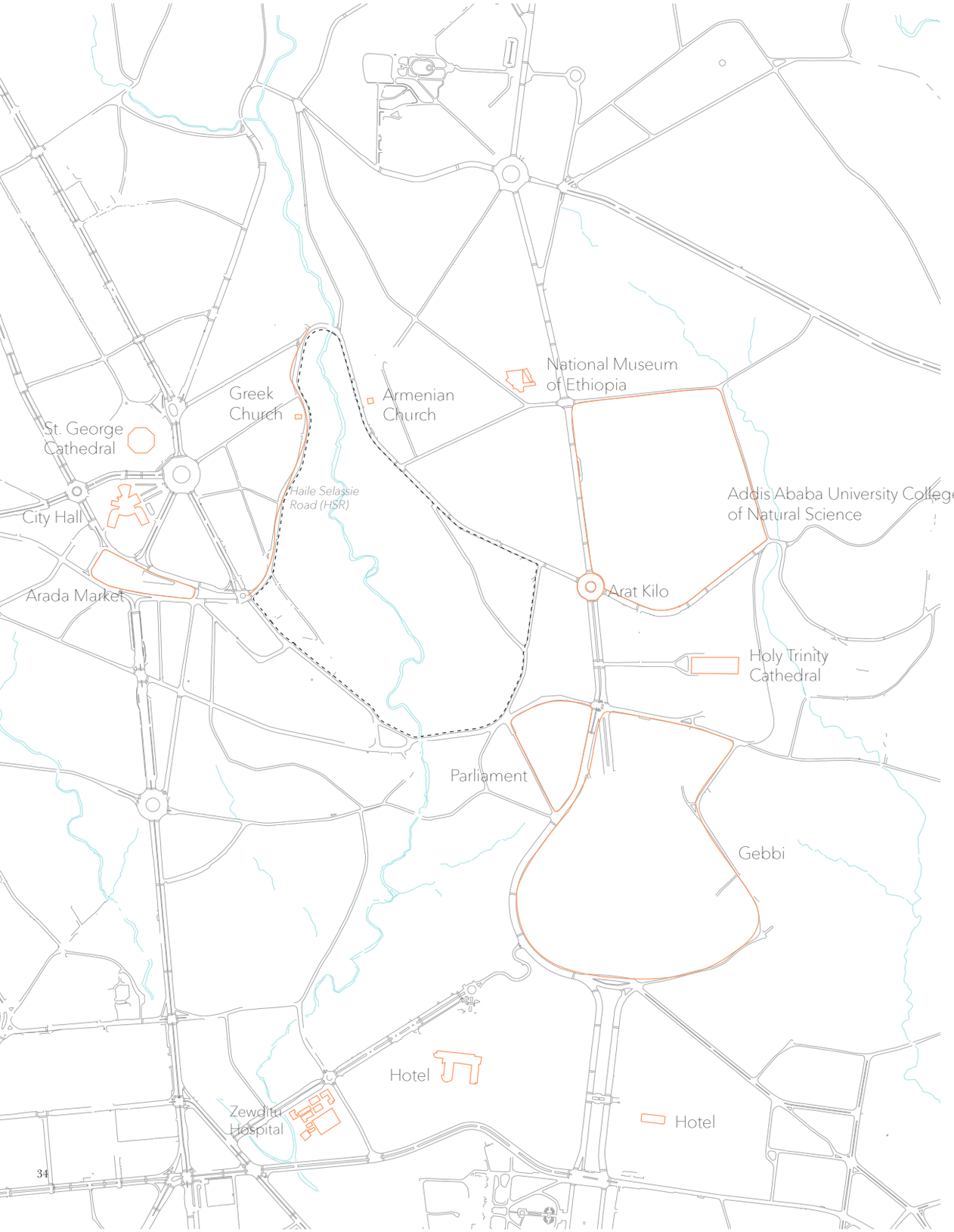




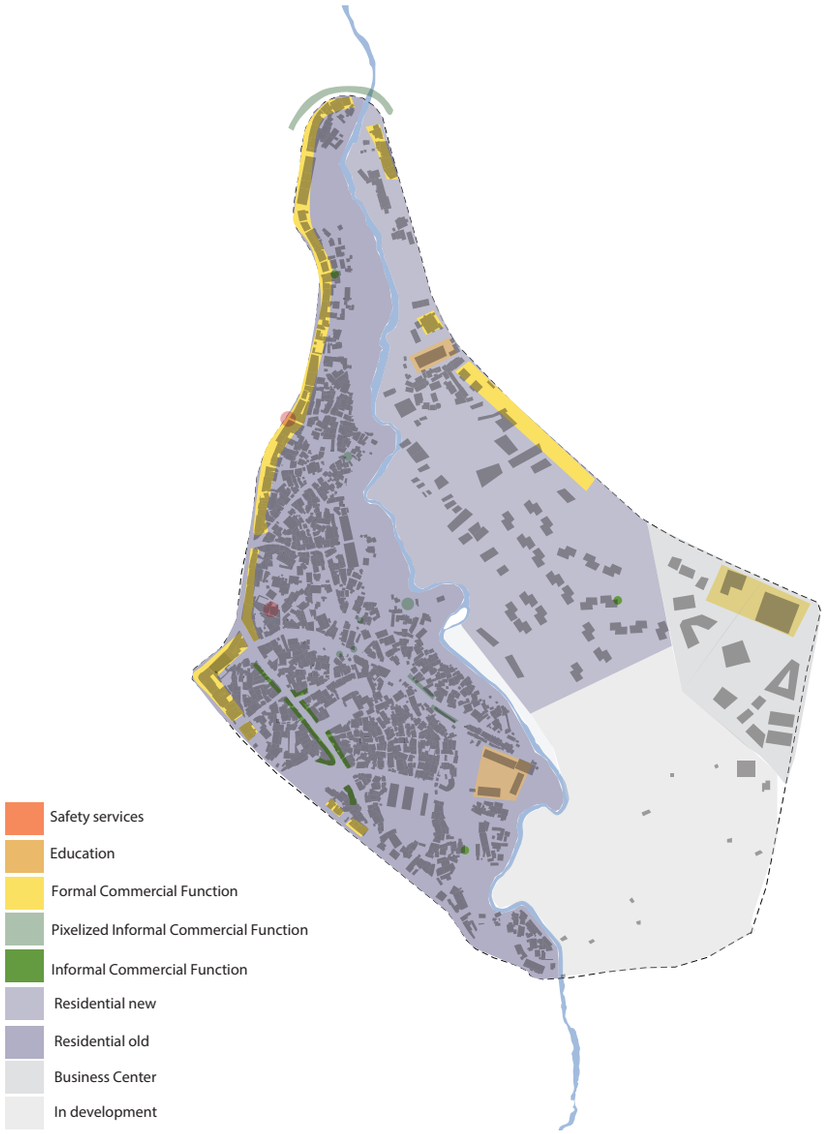


The condominium block depicted here is part of a large development in 2016. These also consisted of around 5 floors and are surrounded by green communal space.

- LANDMARKS AROUND SITE -

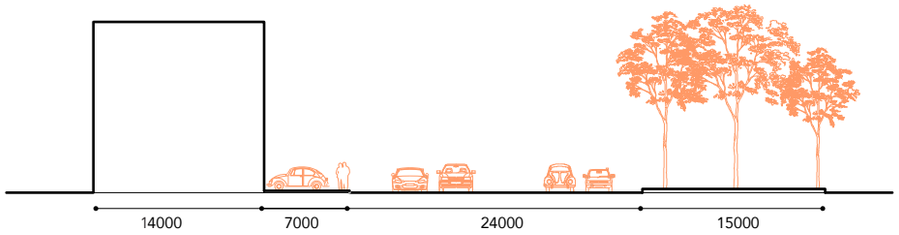


- FUNCTION ANALYSIS -

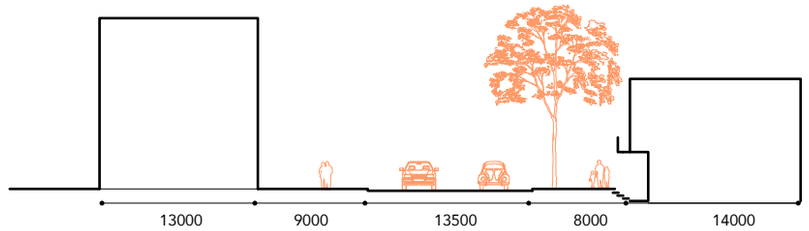


- EXISTING INFRASTRUCTURE -

A



B



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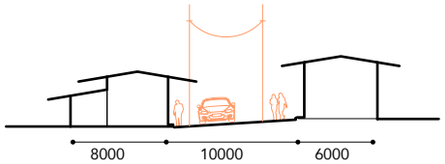

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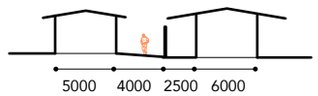

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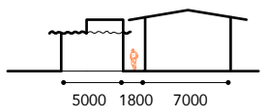

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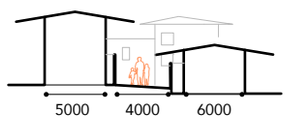
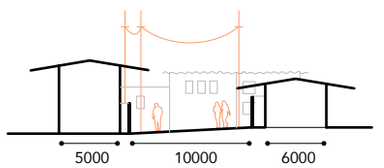
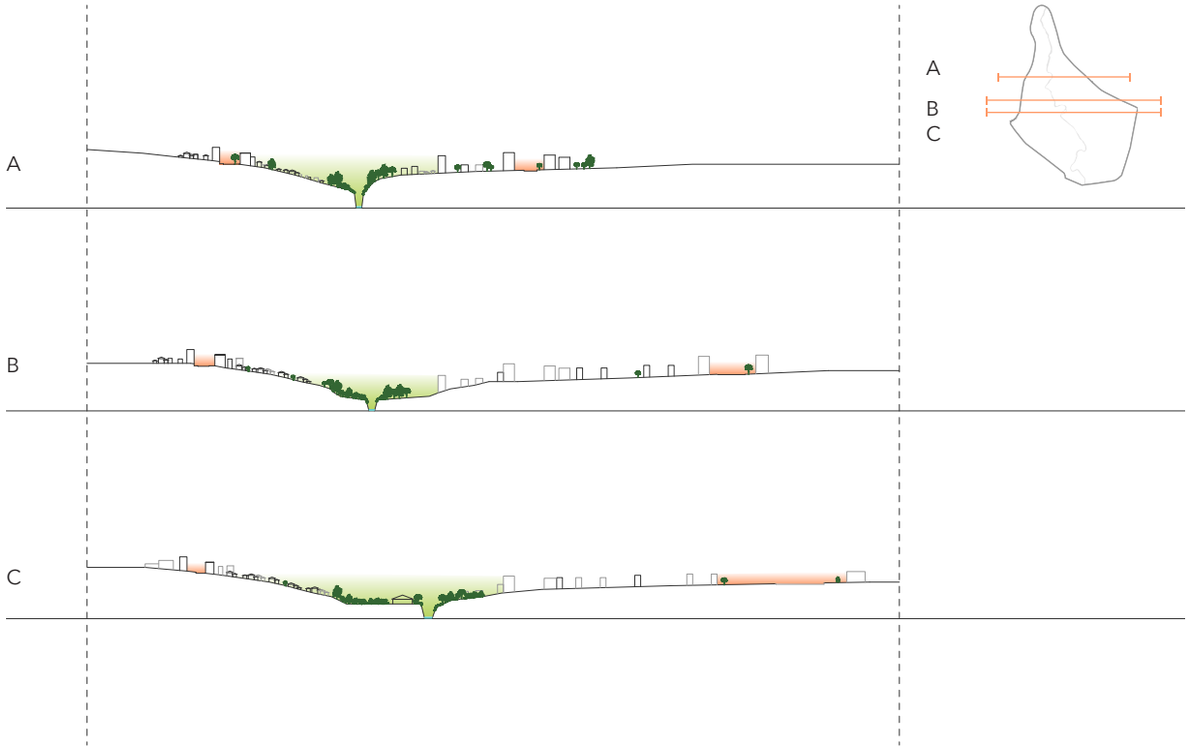


G



- THE INVISIBLE RIVER -



I

II

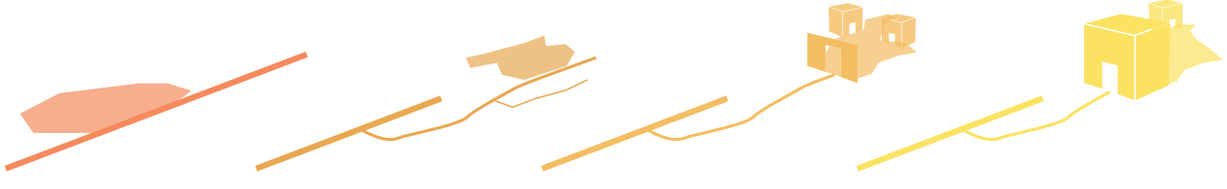
III

IV

As we've seen the two very different parts are divided by a river. Interesting enough this river is not very visible at many places. There are however a few connections to this river that come to a plateau kind of landscape. currently not much happens at the river. But it can be seen as a window of opportunity and fertility. What's more is that a growing city like Addis Ababa will need more food production which is also linked to income generation.

The sections above show a green valley with various steepnesses due to the river called Kechene coming from up North, and dividing the two sefers. The river brings a lot of fertility and therefore creates these extremely green places in the centre of the busy city. What is interesting is that the surrounding commercial roads have a very different atmosphere, where the green valley is close to invisible.

- SOCIAL SPACES -



- THE CONTRAST-

DWELLING ENTRANCE SCALE

IN-BETWEEN BLOCKS SCALE

NEIGHBOURHOOD SCALE

SERATEGNA

DWELLING ENTRANCE SCALE

IN-BETWEEN SPACE SCALE

NEIGHBOURHOOD SCALE

BASHA WOLDE CHILOT

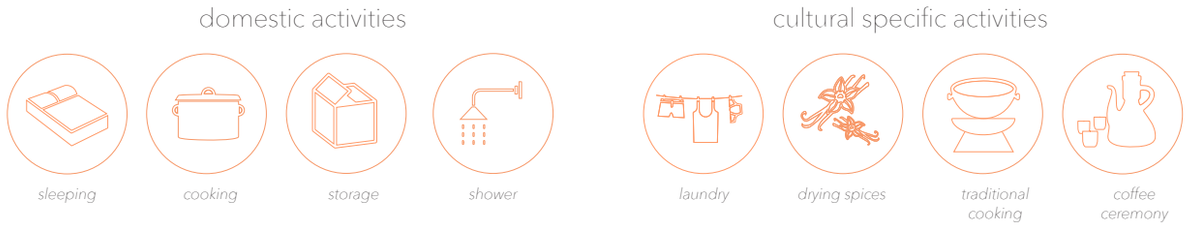
- THE CONDOMINIUM -

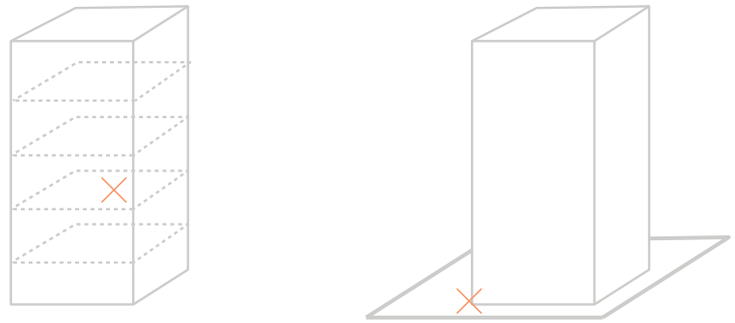
Condominium blocks in Addis Ababa

The newly built condominiums in Addis Ababa, often show a shortcoming in providing a living environment demanded by the low-income group who are largest income group within the population growth. Dwellings, which have been designed with the use of a structural grid for efficiency reasons, have the potential to implement flexibility. This is however not put to use as a beneficial possible option for the users. These dwelling units have been designed as standard layouts, not providing many designed outdoor spaces. The low-income group in Ethiopia is however accustomed to their daily activities taking place outdoor, a few examples of these activities include drying of spices, drying laundry and cooking. Due to these shortcomings, the condominiums result in being surrounded by poorly organized and non-functional immediate outdoor spaces. This is just an example of how the designed standardized system demonstrates not to be suitable for its users' lifestyle. According to Harvey (2012) , it is also the daily human interactions and activities taking place in the different spaces of the city that give it the unique character, identity and quality. This shows the importance of the use of spaces, and that therefore these outdoor spaces should also be designed with high consideration to both suit its beneficiaries but also to contribute to the city's dynamic image and identity.

From Delz's (2016) paper we see that the daily activities of the users which were not accounted for spatially in the dwelling units, moved to the immediate surrounding space of the condominium block. It shows how there is a lack of resilience within the design of the condominium block. This can be said, as the designs of the condominium blocks do not allow for an adaptation of the way that daily actions are executed. Instead the possibility of the execution of certain activities is not given at all. If the blocks were so designed to be somewhat resilient, the essence of the qualities of way of living from the sefers should have been preserved while undergoing slight adaptability and flexibility within the new housing blocks. With the way of living in the sefers is meant the way that activities such as laundry, cooking and drying spices took place outdoor, in private or communal spaces. The immediate surrounding space of the condominium block to which the not facilitated activities, could be said to be moved to, can be seen as the transitional space between the private and the public space.
We can make a distinction between the activities that were facilitated within the dwelling unit and the activities, which were not taken into account. The cooking for example is a basic need that is also relevant to Global Northern cultures. The other activities however, are activities, which may not be as relevant to the Global North and be of more local character of Ethiopia. We therefore see that the domestic basic needs are facilitated, however these local activities are not. These local daily activities such as the drying of spices and the drying of laundry are something very specific to the Ethiopian culture and can be carried out in semi-private spaces. It can therefore clearly be seen how the referencing of Global Northern solutions can create conflict.
It would therefore be interesting to see how this space facilitating cultural specific activities could be integrated into the new housing developments, which nonetheless will be a contribution to the development of the city with the implementation of efficiency. In this way there will be a combination of resilience and efficiency.

DISTINCTION OF ACTIVITIES

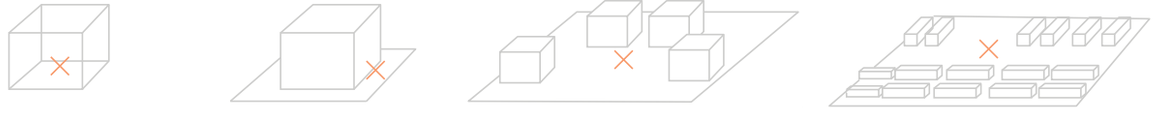


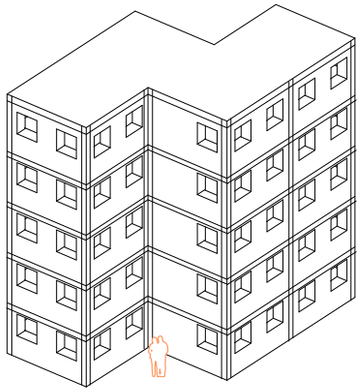


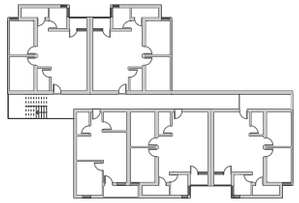
The domestic basic needs are facilitated within the condominium block, however the cultural specific activities are often not provided with a space within the block and therefore occur in its immediate surroundings.

Cultural activities show to bring the community together at different scales. They are important because they bring the people together, which is a big part of Ethiopian Culture

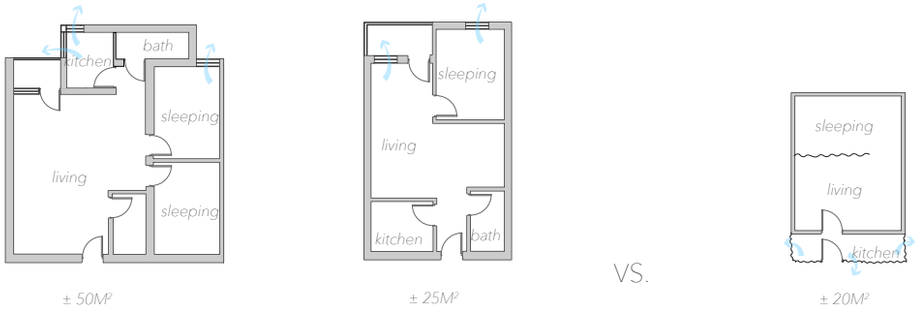
SEQUENCE OF SCALES





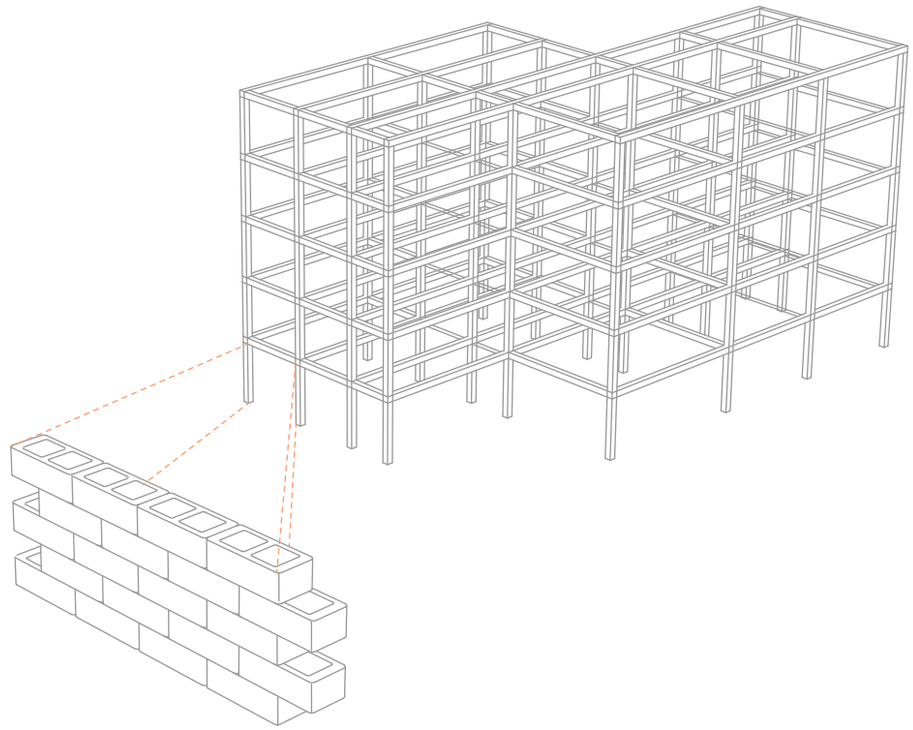


The typical condominium block has 5 levels (Ground +4). With this number of levels the block does not need to be facilitated with an elevator. Typically, the blocks do not have any space integrated for communal functions. As can be seen from the image above, this type has five units distributed over one level.



TYPICAL CONDOMINIUM UNIT AND INFORMAL SETTLEMENT FLOORPLAN

The floorplans above show the typical floorplans and layout of both the condominium block as the typical informal settlement. What is interesting to note is that the typical condominium unit has a very small outdoor space relative to the rest of the apartment. When this is compared to the informal settlement, you can see that the proportion is quite different. This space is essential to various cultural activities, which have evidently been moved to occur at the immediate surroundings of the block, because of the lack of outdoor space provided per unit.



CONDOMINIUM BUILDING TECHNOLOGY

The Condominium blocks implement a straightforward building method, allowing for efficiency in time and material use. This is done by using a concrete framework structure and an infill that exists of concrete hollow blocks often manufactured manually somewhere on site. The hollow blocks allow for a light-weight structure that also saves material. It is a straightforward building method, allowing construction workers who have not been trained very much or had much experience to be able to still construct these structures.

- RESILIENCE AND EFFICIENCY -

Balancing Resilience and Efficiency

From the observations made earlier, it becomes clear that aspects of the current approach to housing developments can be categorized qualitative and quantitative. According to the notion discussed by Smets, Bredenoord, and van Lindert, finding equilibrium between the two would be the ideal solution. They speak of a model with the two spectra; efficiency and resilience, which in equilibrium should achieve the optimum balance that results in sustainability. These two spectra are set in relation with one another and defined distinctly. Resilience is defined as 'the capacity of a system to absorb disturbance and reorganize while undergoing change so as to retain essentially the same function, structure, identity, and feedbacks' .
Efficiency: is used in this context as an organized system that decreases the diversity of things to standardize the different aspects to a certain extent with the purpose of growth and development. It is further discussed that resilience is the pole of the model that provides for diversity and connectivity that therefore also gives character. Efficiency is the pole that allows for the provision of growth and coherence. Therefore finding a balance between these two poles, can result in a situation that contributes to the city's growth and yet meets demands of citizens by providing diversity and connectivity to their context.
It is also mentioned that when there is too much efficiency, it will lead to little diversity and fragility leading to destruction, whereas too much resilience can be recognized by too much diversity, lack of coherence, and little purpose of growth. This way it can be assessed what the proportions are of the combination of the two poles.

Reflecting on the term resilience, the diversity in a setting, is correlated to character and identity. With this understanding, the correlation should be adaptable and flexible towards external factors, while maintaining its essence. So putting this term into context of the housing situation in Addis Ababa, resilience can be related to the way that the character of the way of living in the sefers should to a certain extent be capable of being adapted due to external factors, which in this case would be the rapid development of the city and the replacements of housing units. Efficiency in this context is clearly depicted by the system of standardization found in the condominium housing schemes, which lack diversity as the condominium tower blocks seems to be applied to the site as stamps.

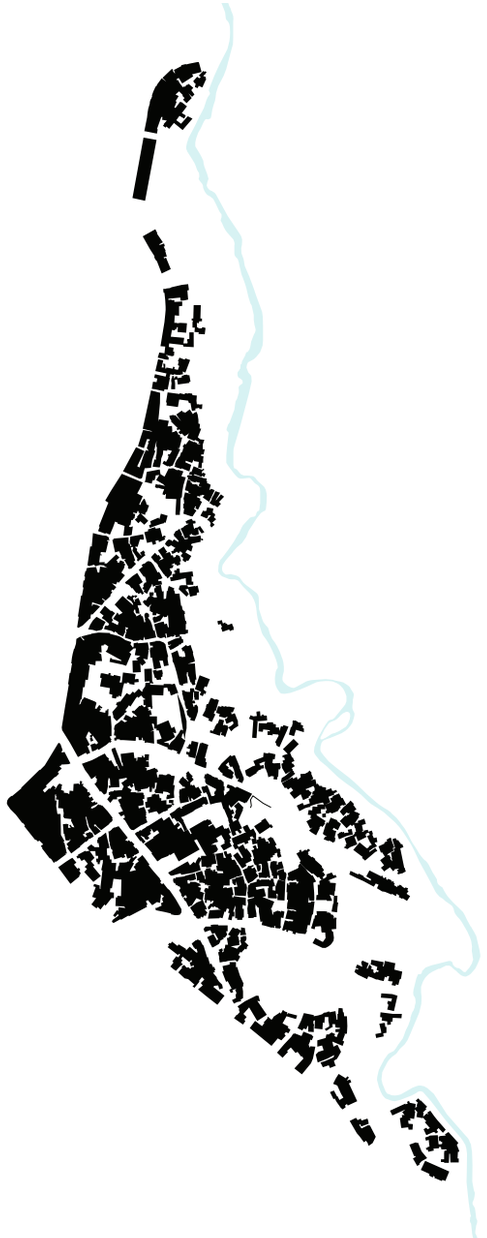
RESILIENCE	EFFICIENCY
Attaining diversity	Coherence
Connectivity	Purpose of Growth
Identity	Development
Character	Reapplicability
"The capacity of a system to absorb disturbance and reorganize while undergoing change so as to retain essentially the same function, structure, identity, and feedbacks" (Walker, et al., 2004)	is used in this context as an organized system that decreases the diversity of things to standardize the different aspects to a certain extent with the purpose of growth and development.

According to the notion discussed by Smets, Bredenoord, and van Lindert, finding equilibrium between the two would be the ideal solution. They speak of a model with the two spectra; efficiency and resilience, which in equilibrium should achieve the optimum balance that results in sustainability.

PROBLEM STATEMENT

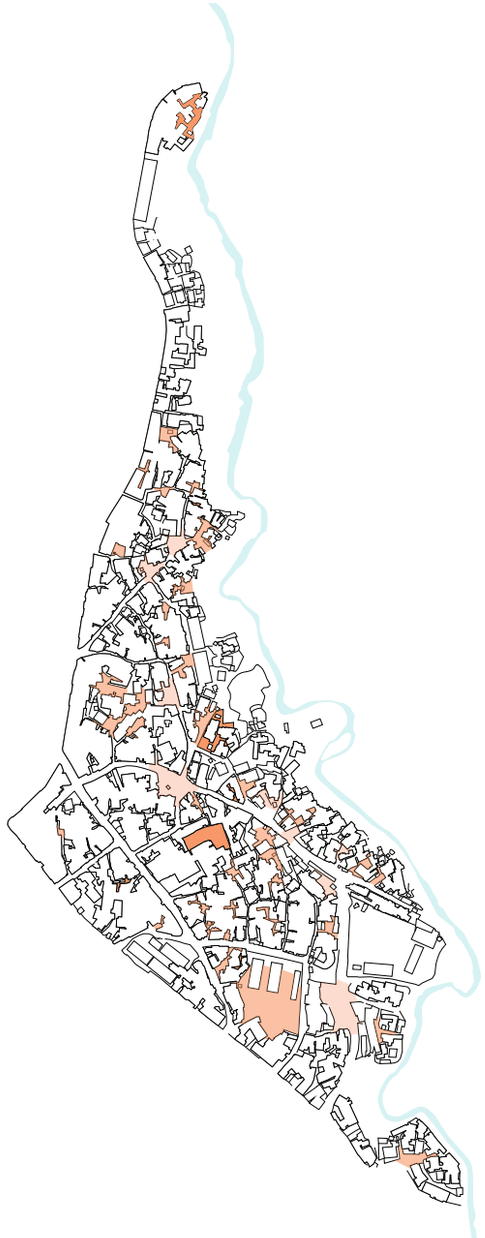
There is a big issue with fast growing and developing cities in urgent need of housing, where the efficiency of the housing model outbalances the identity and core values of the culture and place

THE SEFER



Built Mass vs. Open Space

Above can be seen how the built mass is distributed in the Seratega sefer. As we look from West to East it can be seen that the spaces become more porous. This shows how the open space is connected more to the circulation, allowing for more activities to be visible along the streets and alleys.



Gradient of Open Spaces

This image shows the various permeabilities of the open spaces. The darker coloured spaces are closed off spaces whereas the lighter colours are spaces more visible and experienced through the semi- public circulation of the neighbourhood. What is interesting is that the more closed off spaces are located near the commercial Haile Selassie Road, in contrast to the visible spaces, being closer to the river.

Negative Space

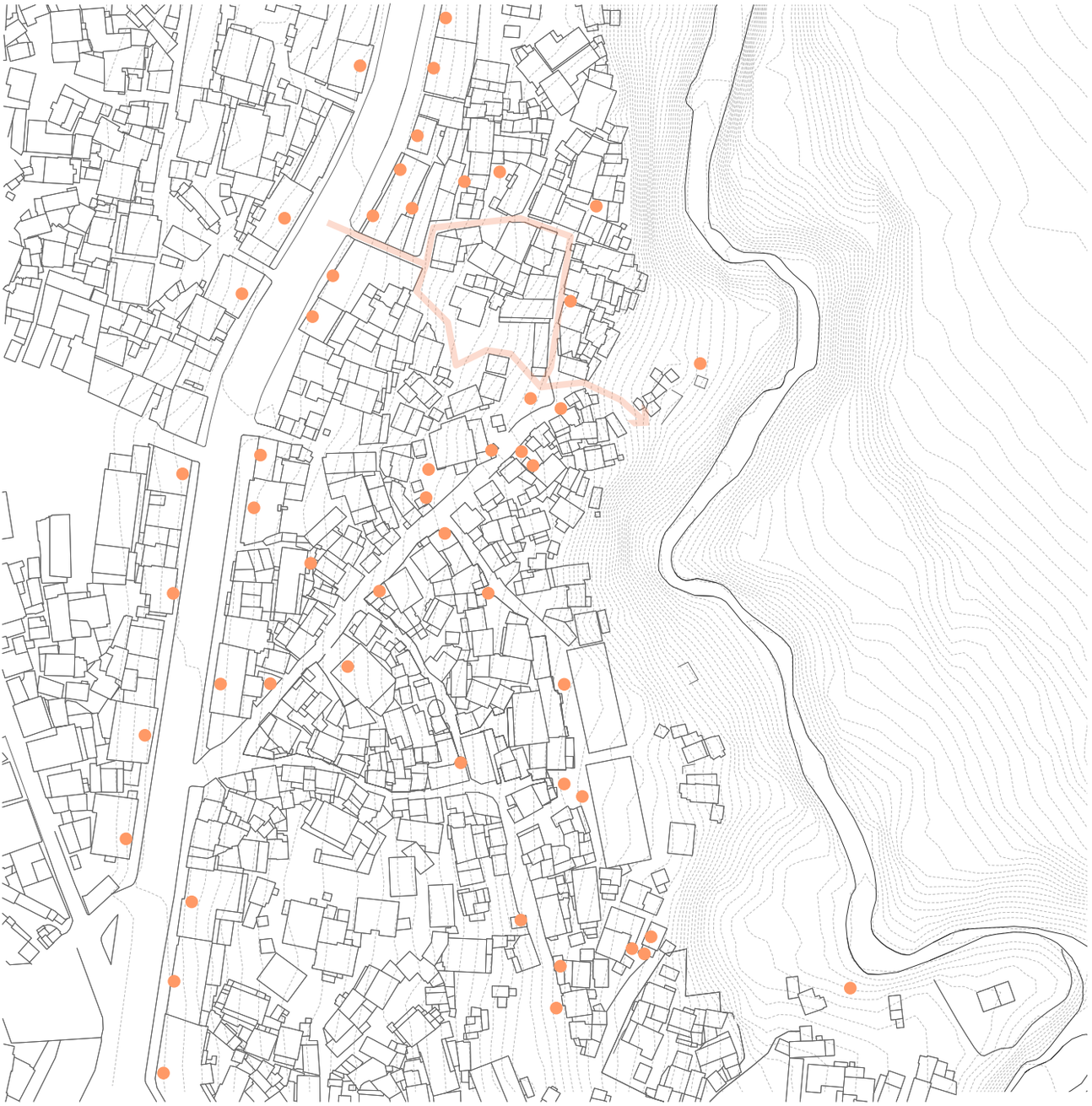
The negative space image above clearly shows how the porous open spaces are located in relation to the circulation. Moreover, the circulation and connections from West to East become very visible. These connections interesting enough often connect to a plateau type of topography along the river. This could be explained by the fact that this kind of landscape is more accessible for activity and programme.

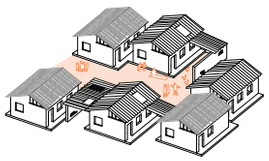
Connections

Various connections are shown here that go through different layers creating a progressive journey from commercial street to the green valley. These different layers do all occur similarly at all connections. To understand the qualities of these diverse layers, we will focus on one connection, namely the one located most Northern and zoom in, into this area.

- MAPPING QUALITIES -

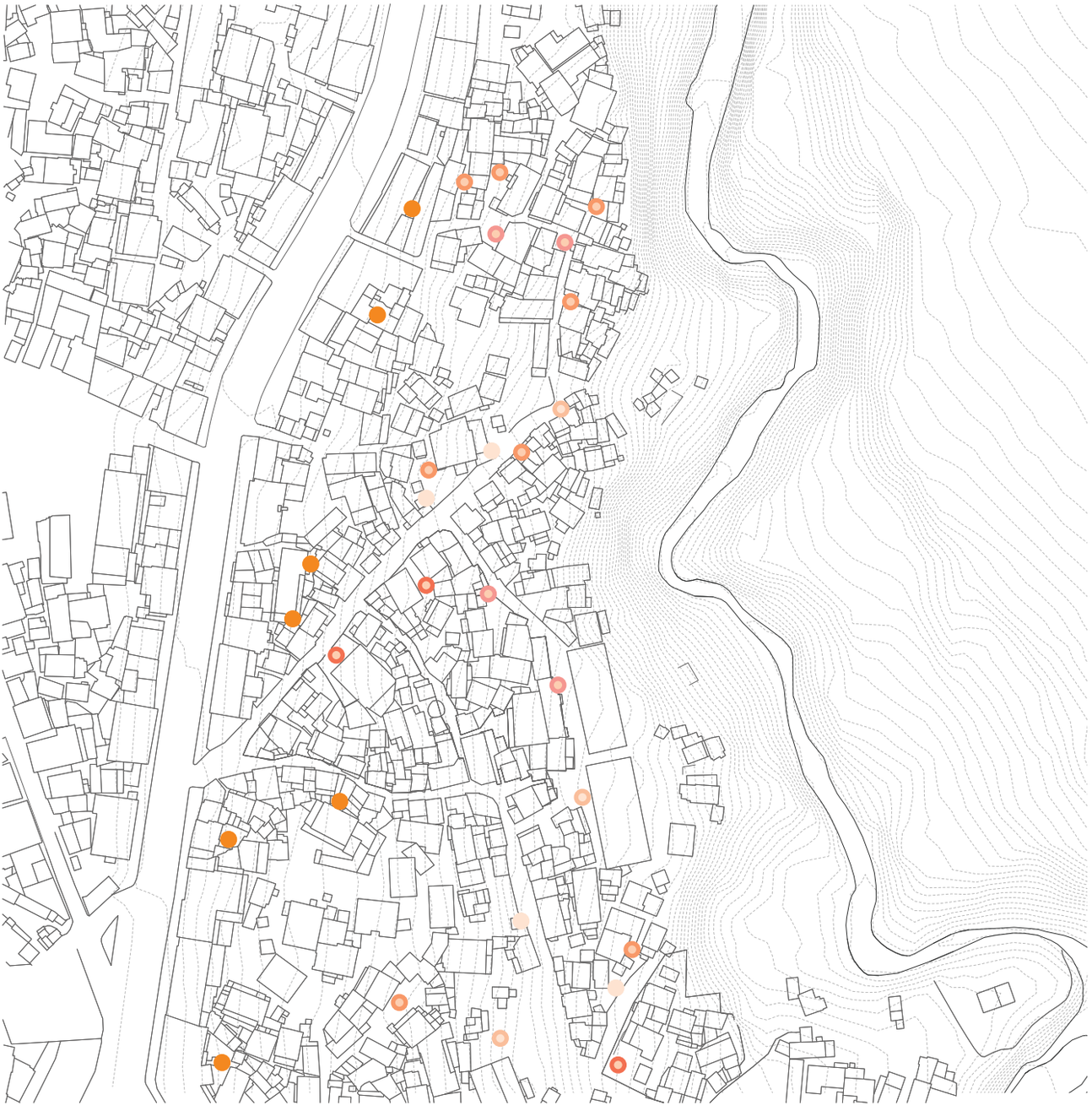
THE PATTERN BETWEEN HSR AND THE INVISIBLE RIVER





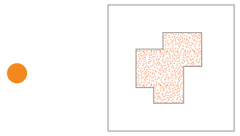
SOCIAL SPACES PATTERN

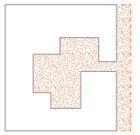
- SOCIAL SPACES PATTERN -

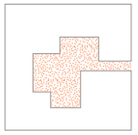


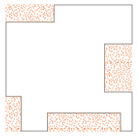
- SOCIAL SPACE -

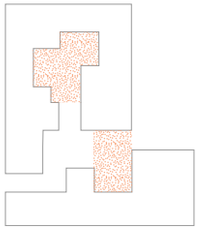
THE GRADIENT OF PERMEABILITY

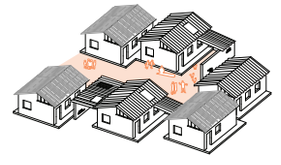


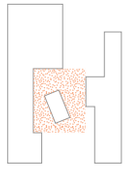


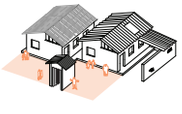




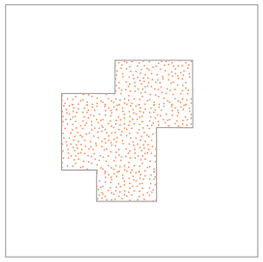


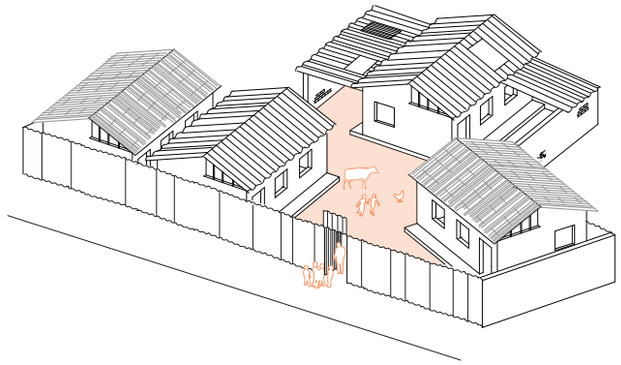






- SOCIAL SPACE -
THE CLOSED COURTYARD





laundry

drying spices

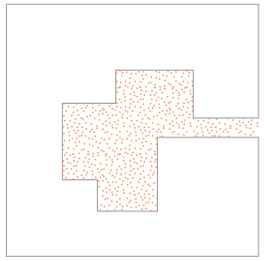
traditional cooking

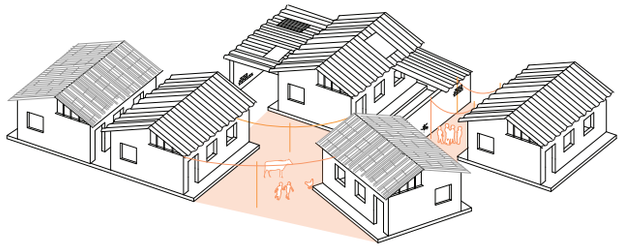
playing children

socializing

accessible through building block only
fenced off from the outside
anonymous appearance
inside courtyard the atmosphere is much more lively and personalized

- SOCIAL SPACE -
THE VISIBLE COURTYARD





laundry

drying spices

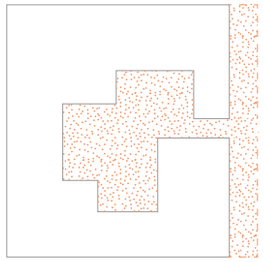
traditional cooking

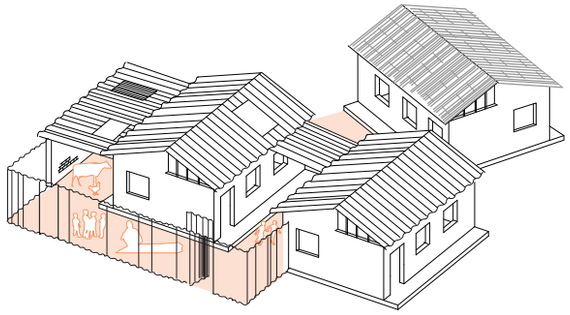
playing children

storage

accessible through narrow alley or open space
no physical boundary present.
courtyard is visible from outside the compound

- SOCIAL SPACE -
THE PHYSICAL BARRIER





laundry

drinking coffee

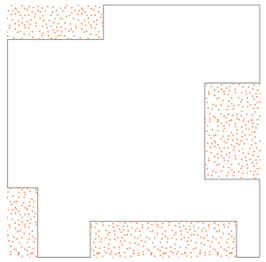
traditional cooking

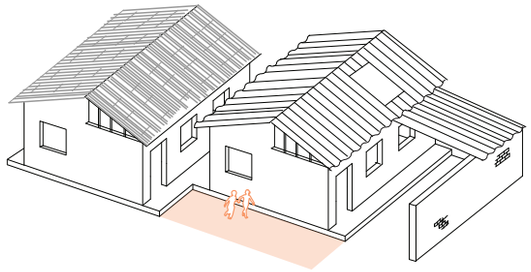
storage

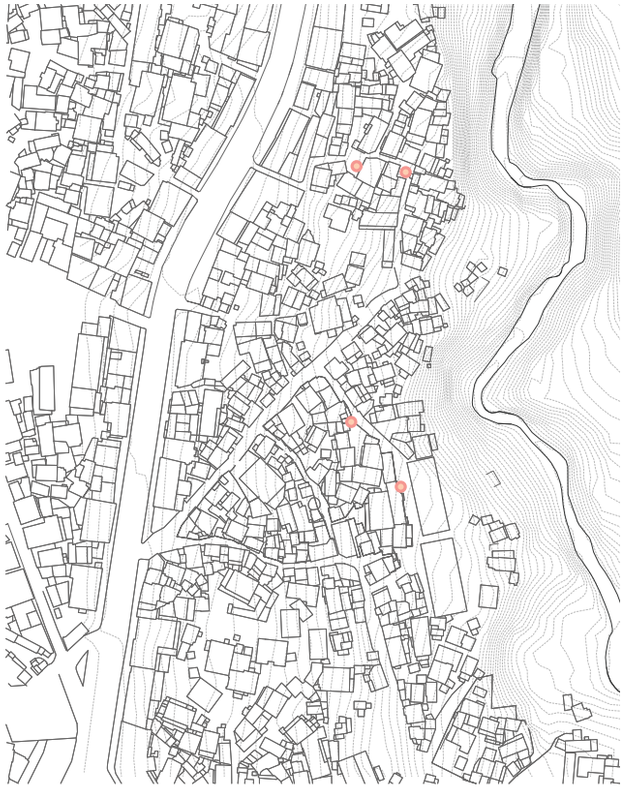
socializing

not accessible for outsiders
visible physical border
the buildings (mass) as well as fence used as a border
courtyard not visible from outside

- SOCIAL SPACE -
THE OPEN TO SKY SPACE NICHE







laundry

playing children

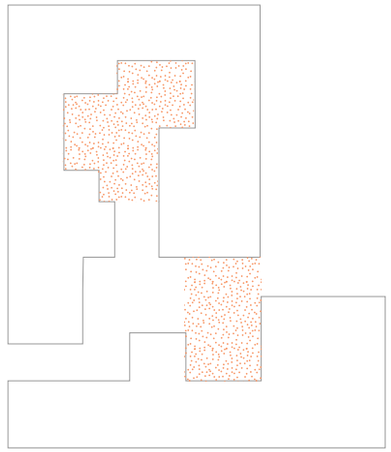
traditional cooking

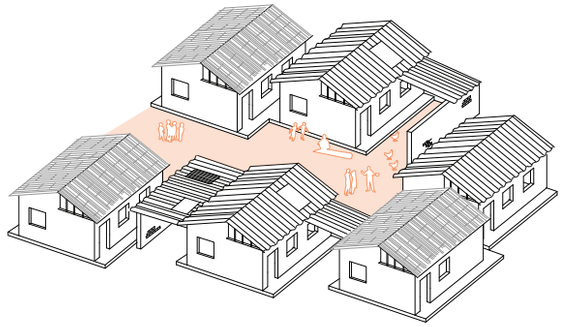
storage

drying spices

only the buildings as border
more visibly permeable
a layer of lively activity as an outer edge
social-cultural spaces bordering to (a usually semi-private) street

- SOCIAL SPACE -
THE WIDENED PATH





laundry

coffee drinking

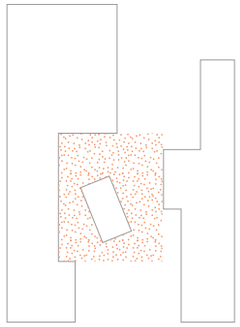
traditional cooking

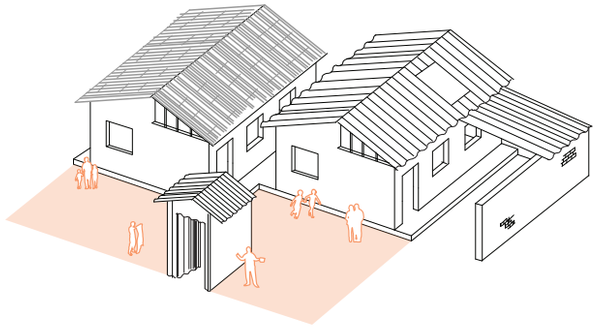
playing children

vegetable garden

at a street widening
or at the end of a street
the front (entrance side) more expressive appearance

- SOCIAL SPACE -
THE COMMUNAL FACILITY





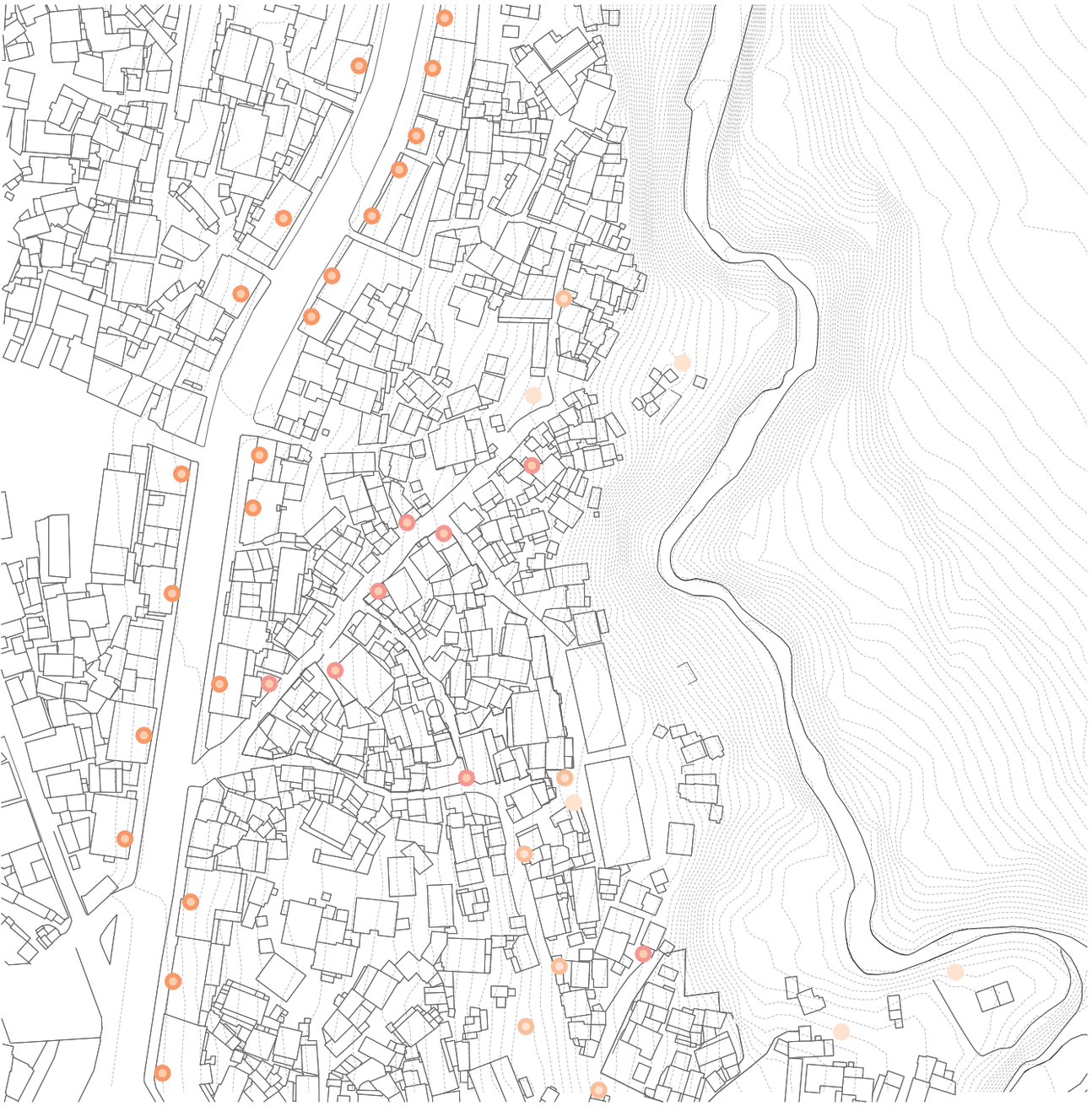
playing children

socializing

the area surrounding communal facilities
e.g. watertap, toilet, idhir building, temporary tents, guard houses,
this becomes a place to meet: associated with daily tasks

INCOME GENERATION PATTERN

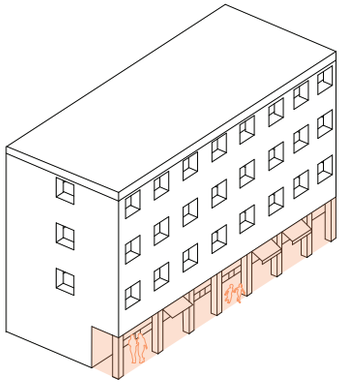
- INCOME GENERATION PATTERN -



- INCOME GENERATION -

THE GRADIENT OF FORMALITY

- INCOME GENERATION -
THE FORMAL SHOP



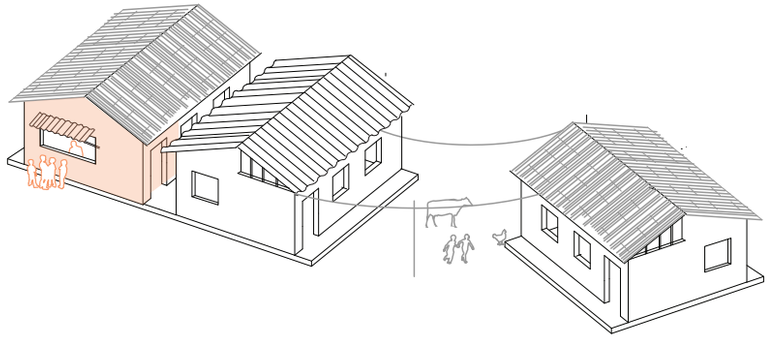
formal

imported

clothes

Located at the outer edge main streets, these formal shops are clustered by what they sell. Around the Serategna and Basha Wolde Chilot Sefer, the formal shops sell clothing, shoes, luxurious jewelry, opticals and printing services. The majority of these stores on the WEst are often located on the ground floor. On the East side the scale of the commercial functions are larger than on the West. These bigger scaled commercial functions are often compiled into a kind of shopping mall.

- INCOME GENERATION -
THE CORNER SHOP



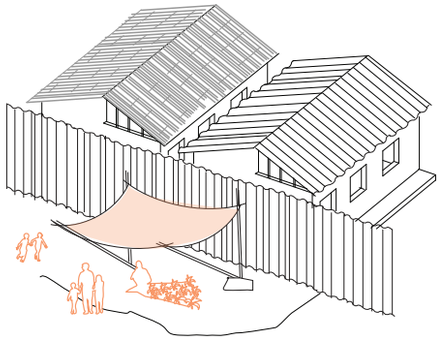
semi-formal

imported

consumables

Additional to the dwellings in the sefer, families often have functions located beside their home to genereate income. These additional functions are often settled in fixed and covered areas, but do take shape semi-formally. This also allows mothers to work while being able to keep an eye on their children. A frequently seen function is the corner shop that is attached to a family's home. These cornershops provide consumables and other small objects for daily life within the sefer for the people around the neighbourhood.

- INCOME GENERATION -
THE VEGETABLE STREET VENDOR



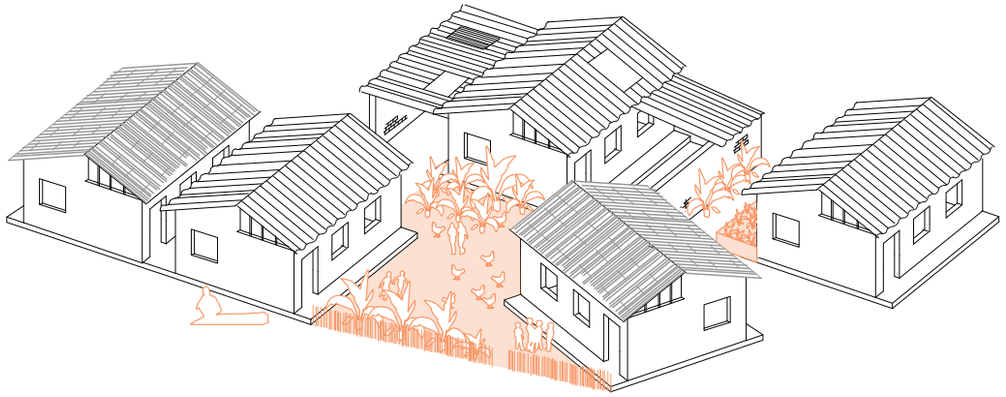
informal

imported

vegetables

Street vendors can be found in various places around the site. Since the vendors do not have permanent structures they can be found at different locations. These vendors mainly also sell vegetables. They often use a blanket or plastic canvas to display their products on. These vendors can be found on smaller roads within the sefer itself.

- INCOME GENERATION -
THE VEGETABLE GARDEN



informal

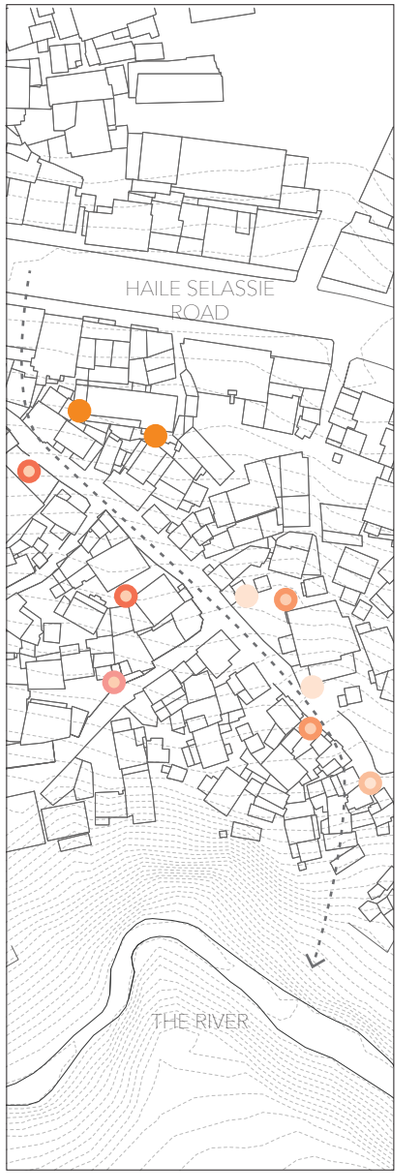
self cultivated

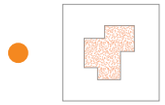
vegetables

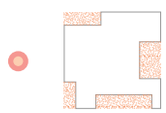
The vegetable garden is something that a family on their own or a few families together work on together to generate extra income. The plants are cultivated byt he owners themselves and can be sold for various uses. Several gardens were prominently situated along the river, possibly for fertility of the soil reasons. A common plant cultivated, called the false banana plant is used for its leaves to use for packaging. Also some of the herbs grown are used to make tej, the local alcoholic beverage. Another interesting fact, is that in one of the gardens chika was also produced for a house renovation.

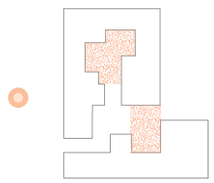
- GRADIENT OF PERMEABILITY PATTERN -
SOCIAL SPACE GRADIENT

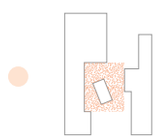
The analysis earlier depicts the many layers between the progressive journey of the Commercial Haile Selassie Road towards the River and the valley. These two pages depict the gradual change of types of social spaces and income generation manners. This gradient is a very interesting quality to take into account.



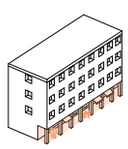








INCOME GENERATION
FORMALITY GRADIENT



- SCALES OF CHALLENGES -

ADDIS ABABA

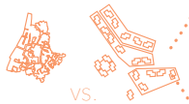
Efficient Housing System
Housing demand and Slum upgrading requires an increase in densification

Giving the river back to the city
Revitalisation of natural resources such as water. Perceiving water in a different way.

SEFERS

Preserving the existing social structure
Neighbourhood character is not retained by the new Condominium development and does not show any relation to the existing urban fabric.

Giving the river back to the city
The river on site is a big character with a lot potential bringing fertility, food production opportunity, and an opportunity for income generation

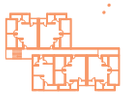


VS.

CLUSTER

Preserving the existing social structure
The Condominium blocks do not facilitate local and cultural activities. This contributes to the individualistic lifestyle as well as a lack of opportunities to meet within communities.

Efficient Building System
Construction methods are efficient, however there are still quite a few materials which are imported from abroad, which means that there is a larger carbon footprint opposed to using local materials.



DWELLING UNIT

Preserving the existing social structure
The Condominium unit layouts lack flexibility, suitable outdoor space and do not accommodate for different socio- economic groups.

RESEARCH QUESTION

How can the social structure and income generation opportunities in the sefer be preserved to retain its existing qualities in modern affordable housing while simultaneously contributing to the city's urban and housing development plans?

1. Preserving the existing social structure & income generation opportunities
2. Developing an efficient housing system
3. Giving the river back to the city

THE APPROACH

- URBAN STRATEGY -

The Urban strategy involves the earlier mentioned three focus points. The diagrams on the right show the approach of the intervention, which the masterplan as well as the design of the housing projects will be revolved around. It addresses the approach of making a connection of the commercial HSR and the green valley at specific points where the existing connections already exist. The intervention will also contribute to a cleaner water filtering system to achieve the revitalization of the river so that this becomes a more accessible place also providing space for cultivation and harvesting.

the commercial roads as a border

using existing connections to articulate the HSR and the river

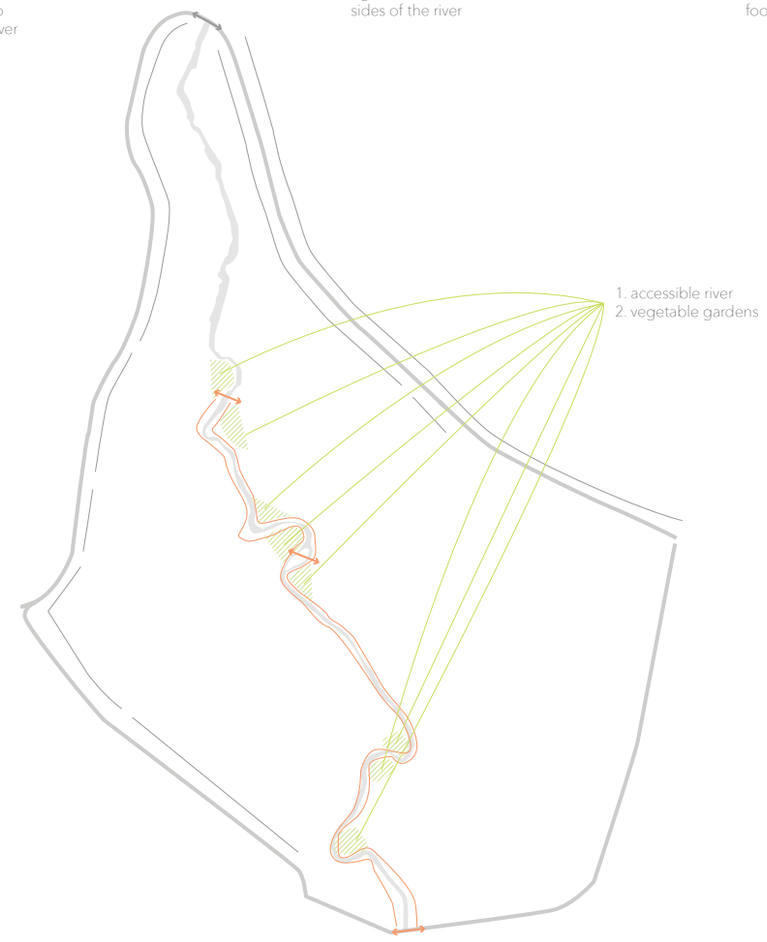
the intervention contributing to revitalizing the river

bridges connect both sides of the river

creating a scenic footpath along the river

At these connections, the intervention should preserve the social spaces gradient from the HSR towards the river. As the existing connections already lead towards plateau like topography, this is an ideal place for accessible land in the valley.

The programme of these plateaus will be vegetable gardens as well as places for leisure where its users can socialize and enjoy the natural scenery in a busy part of the city.



DESIGN HYPOTHESIS

The design of an integrated network of various types of social spaces within an affordable housing model preserves the existing gradient of visible social and cultural activity and creates an inviting route towards the river.

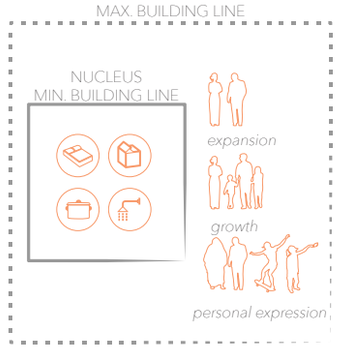
- THEORIES OF INSPIRATION -

"...THE CREATION OF A SYSTEM OF PRODUCTION AND DISTRIBUTION IN SUCH A WAY THAT THIS SYSTEM COULD GIVE EVERY HUMAN BEING ON EARTH THE MATERIAL CONDITIONS THAT ARE NEEDED FOR THE DEVELOPMENT OF A PERSONAL VIEW OF LIFE. THIS SOUNDS PARADOXAL IN A PERIOD CHARACTERIZED BY NORMALIZATION AND STANDARDIZATION...."

"...ENSUING PERSONAL BUILDING INITIATIVES, WHICH, IN THEIR TURN, COULD MAKE ARCHITECTURE THE EXPRESSION IN SPACE OF THE VARIATIONS IN HUMAN BEHAVIOUR. IN THIS WAY WE COULD BUILD THE NUCLEUS OF A HOUSE IN WHICH WASHING, HEATING, LIVING AND SLEEPING AS A MINIMUM PROGRAMME WITHIN MINIMUM BUILDING-LINES...
OUTSIDE THESE MINIMUM BUILDING-LINES TWO MAXIMUM-LINES COULD BE FIXED AND THE EXPANSION OF THE NUCLEUS CAN OCCUR..."
- BAKEMA , J.B. , 1962

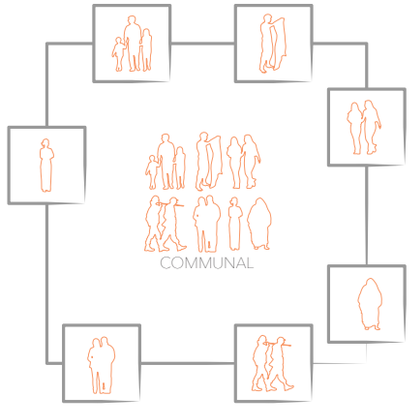
"... STRUCTURE MORE IMPORTANTLY IS ABOUT GUARANTEEING SHARED INTERESTS AND, THEREFORE, GUARANTEEING THE DIFFERENCE BETWEEN INDIVIDUAL AND SHARED AREAS AS WELL AS THE RELATIONSHIP BETWEEN THE TWO."

" BUT TO STAY ABREAST OF THE TIMES IN OUR DYNAMIC CULTURE WE CONSTANTLY REQUIRE SPACE FOR CHANGE AND, THEREFORE, ADAPTATIONS: CALL IT SPACE FOR TIME."
- HERTZBERGER , H. , 2015



BAKEMA, J.B.

In *FORUM* 1962 Bakema has written about the issue of standardization and normalization in housing, and states that the sector tended to insufficiently cater for the individual's personal exploration of variation and relation to space. He discusses that a balance needs to be found between facilitating the essentials of housing within the minimum building line, which he calls the nucleus, but also to provide space within the maximum building line for personal freedom such as; growth, personal expression and expansion.



HERTZBERGER, H.

Herzberger discusses the equal importance of the social and the private parts of architecture in his book '*Architecture and Structuralism*'. The social and communal spaces that unite people and let people meet others to find a sense of belonging and make a communal claim are according to him as important as the possibility for the individual to make private transformations that are specific to the individual and create a space for the personal position and make individual claims. He describes it as finding the right balance between what needs to retain and what needs to change. As he finds that the communal is often what a greater group believes in and therefore more permanent, whereas the individual may want to practice personal freedom and therefore express different interpretations which means that this is therefore more adaptable and temporary.

THE DESIGN

DESIGN STRATEGY

The affordable housing model introducing ‘anchors’ and ‘space for time’ create a cluster boundary which is part of a network of various types of social spaces per cluster. At the same time a balance is achieved between resilience and efficiency creating a sequence of a gradual permeability creating an active and inviting route towards the river.

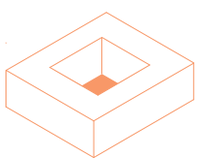
Approach to these 3 elements:

1. The design of an integrated network of various types of social spaces.
social spaces gradient of permeability preserved through different typologies of compounds
a. system of ‘space for time’ (personal freedom/ resilience)
b. communal space

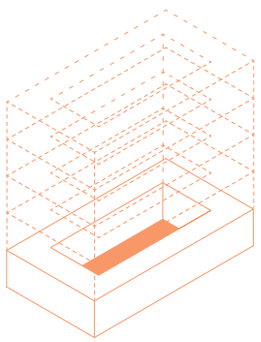
2. Balance of resilience and efficiency
system of ‘anchors’ / ‘nucleus’ for the basic needs
reapplicability of the system

3. River related programme tieing the community together providing opportunity:
socially
income generation opportunity (economically)
sustainability, water filtering system (environmental revitalisation)
public route connecting the HSR with the river

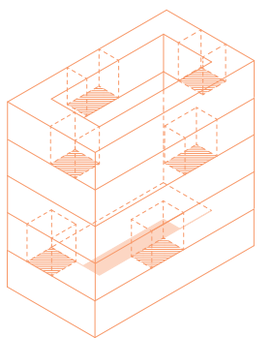
- TYPOLOGY CONCEPT -



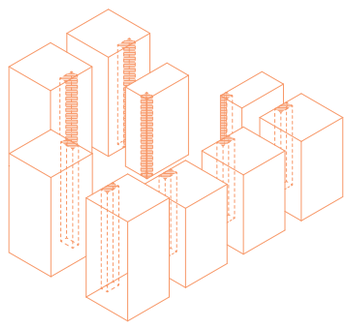
Courtyard typology
Sense of Community



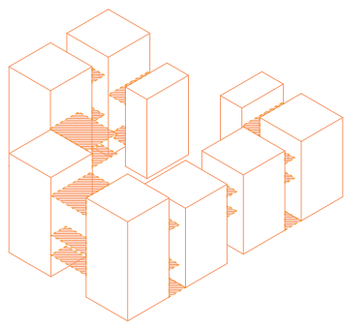
Densification G+4
Ground Relation and Contact
Larger courtyard space needed



Collective space on each level

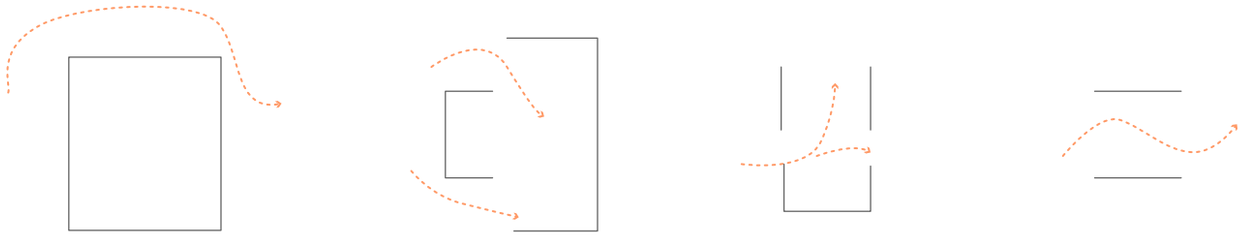


Anchors catering for Essential functions

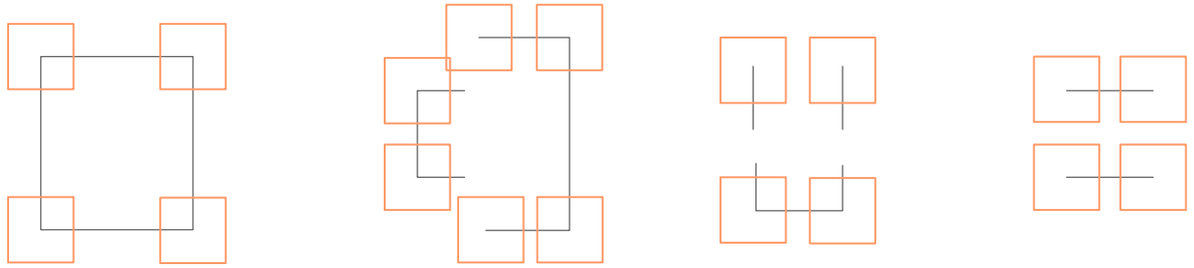


Space for time meandering between anchors

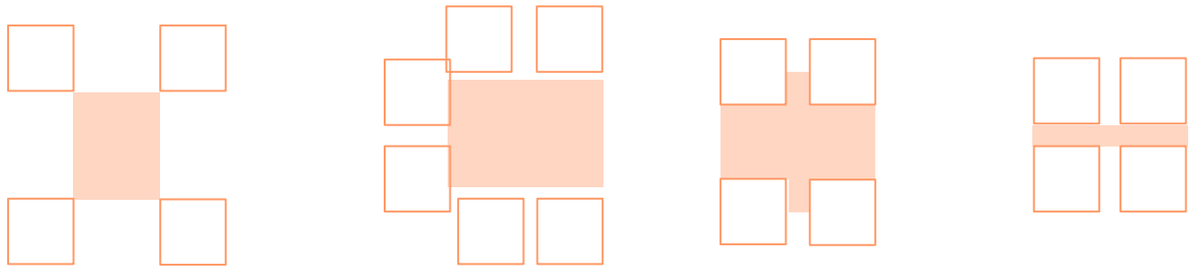
- CLUSTER SEQUENCE -



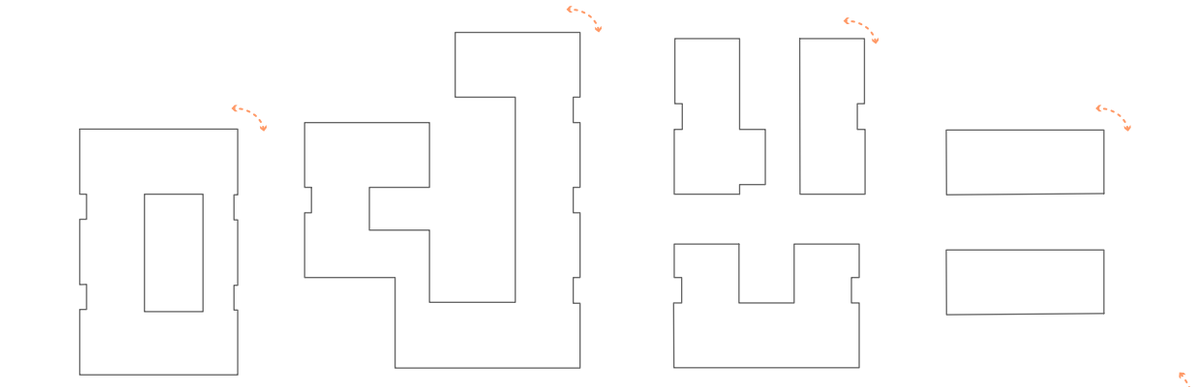
Permeability of clusters



Anchored clusters



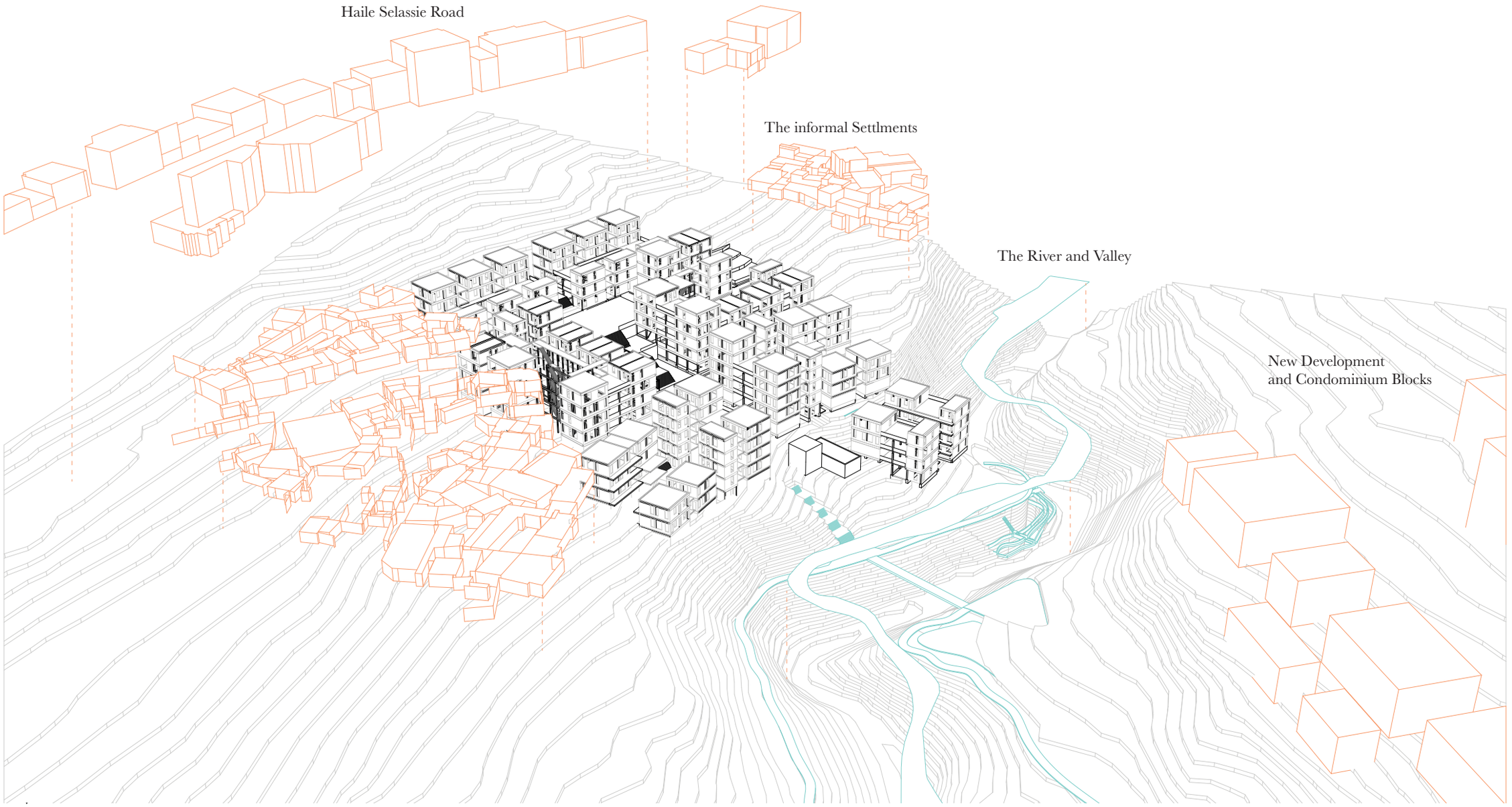
Anchored communities



Response to topography

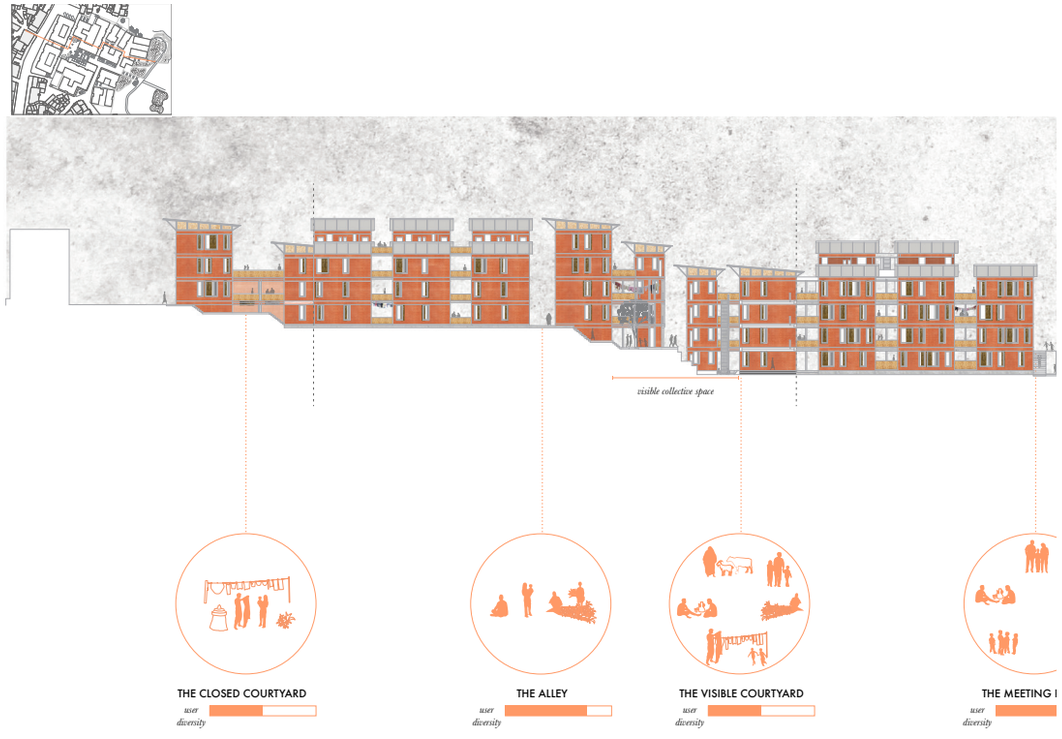
- THE MASTERPLAN -

- THE FOUR ENTITIES -



- THE ROUTES -

The Public Route



The Residential Route

- MASTERPLAN PLACES -

The Public Axis

The River

The In between Space

The Meeting Place

- MASTERPLAN PHASING -

PHASE 0

The existing situation of the site occupied by the informal settlements

PHASE 1

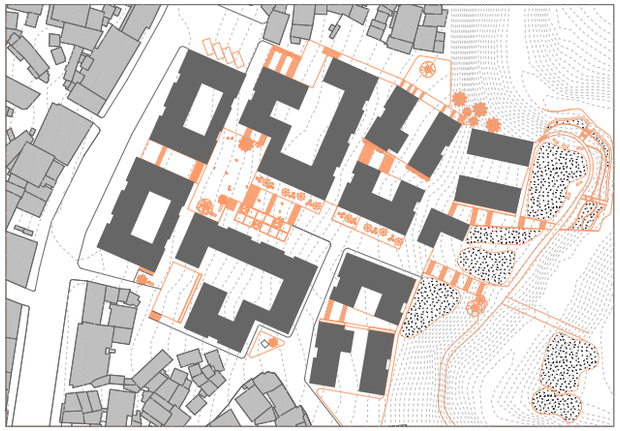
The first blocks are built on empty ground, to start the phase of relocating inhabitants of the existing sefer.

PHASE 2

To introduce the public main axis, public functions are implemented such as a public square and a market structure, where vendors but also the owners of the existing vegetable garden can generate income.

PHASE 3

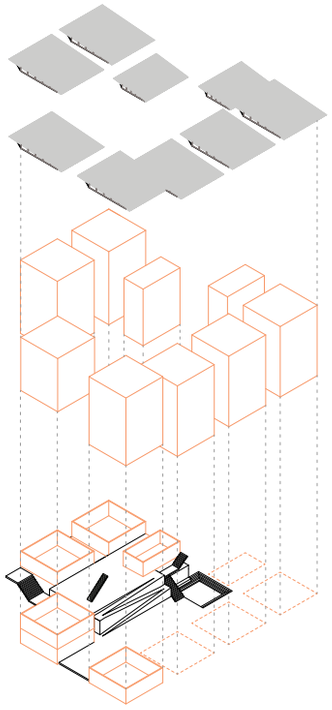
The cluster blocks along the main axis are built together in construction phases,
connecting the neighbouring informal settlements to the new plan and also
providing them with the connection from the HSR to the river. At the same time the revitalization of the river is occuring.



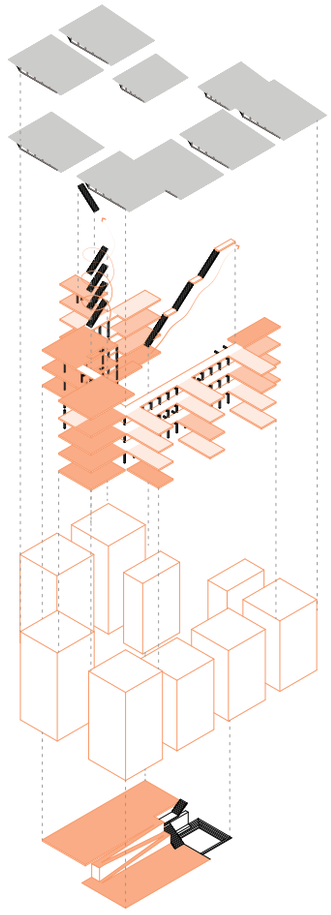
PHASE 4

The cluster blocks bordering to the informal settlements are now completed, finishing the last phase of the masterplan.

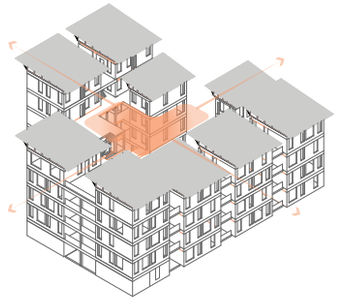
- FOCUS CLUSTER -



Ground floor exception function
Commercial Plinth & Storage



Hierarchy of ‘Space for Time’



Organization of collectivity and privacy

LEVEL 0
+1200

LEVEL 1
+4500

1:200

LEVEL 2
+7800

+7800
+6630
+5630
+4500
+5630
+7800
+7800
+4500

LEVEL 3
+11100

+11100
+7800

LEVEL 4
+14400

+14400

LEVEL 5
+17700

+17700

- CLUSTER ELEVATIONS -

East Alley Elevation

Courtyard Elevation

West Entrance

Collective circulation area

East Entrance

Meeting Place

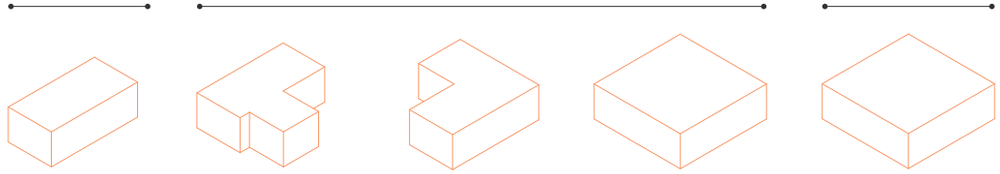
Courtyard- South

Courtyard- North

The Module

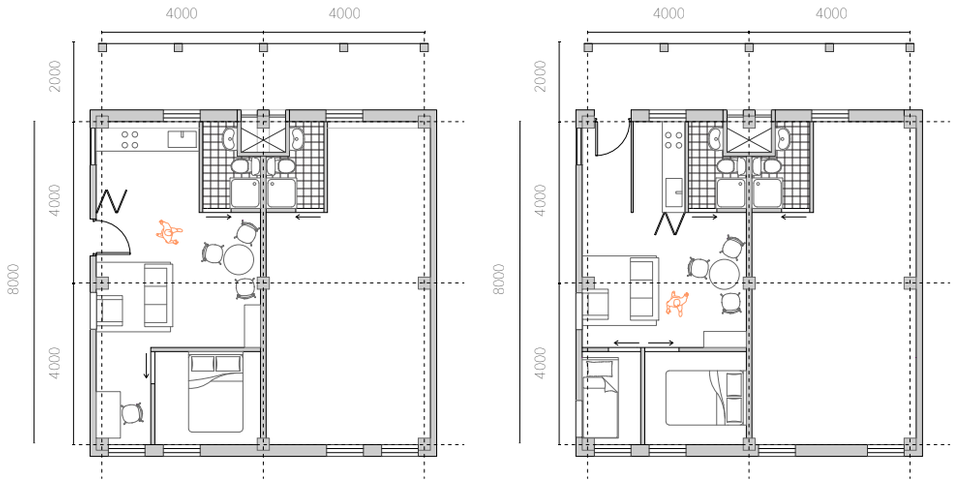
Module +

The Anchor



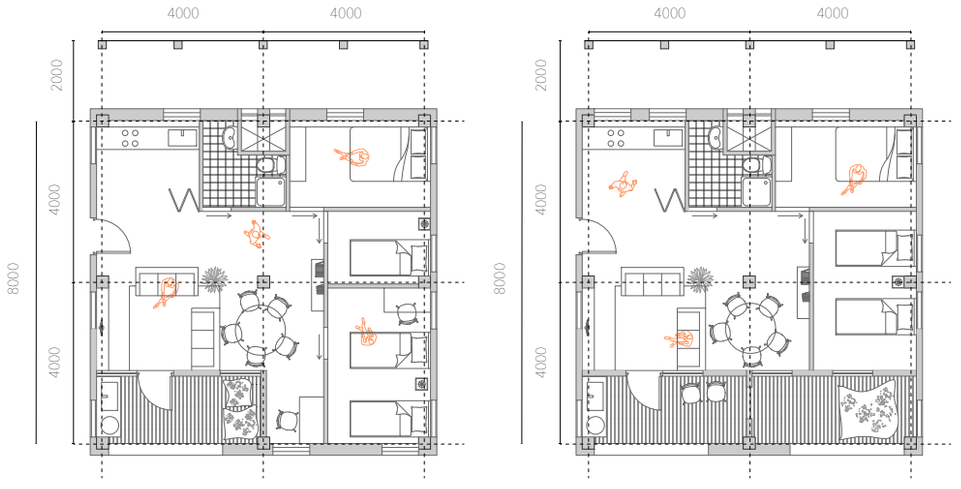
THE MODULE

32m²



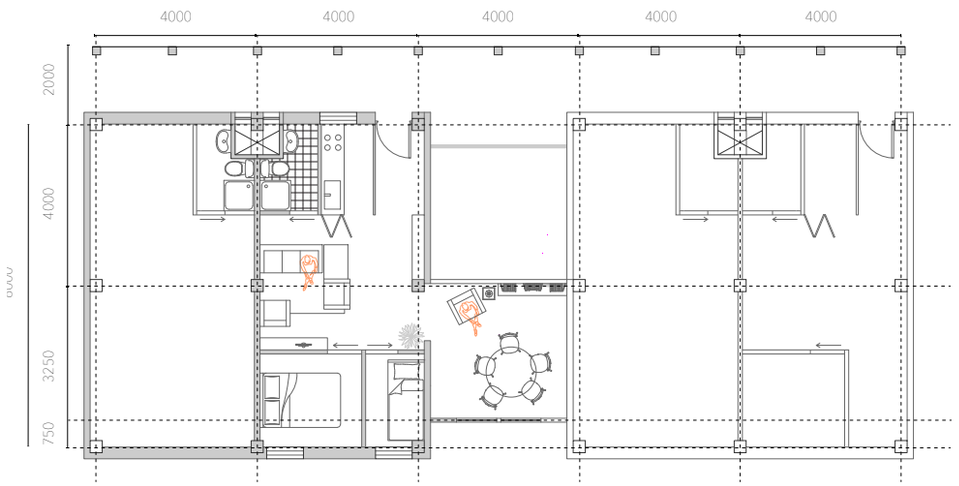
THE ANCHOR

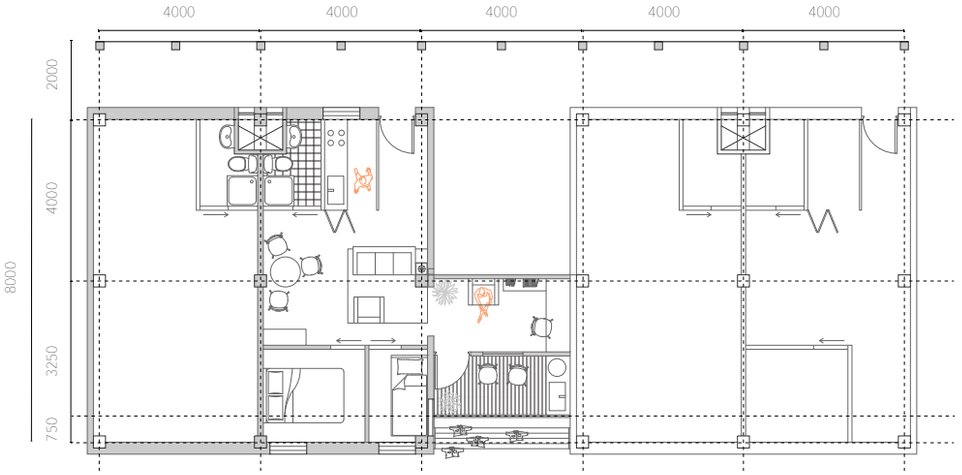
64m²

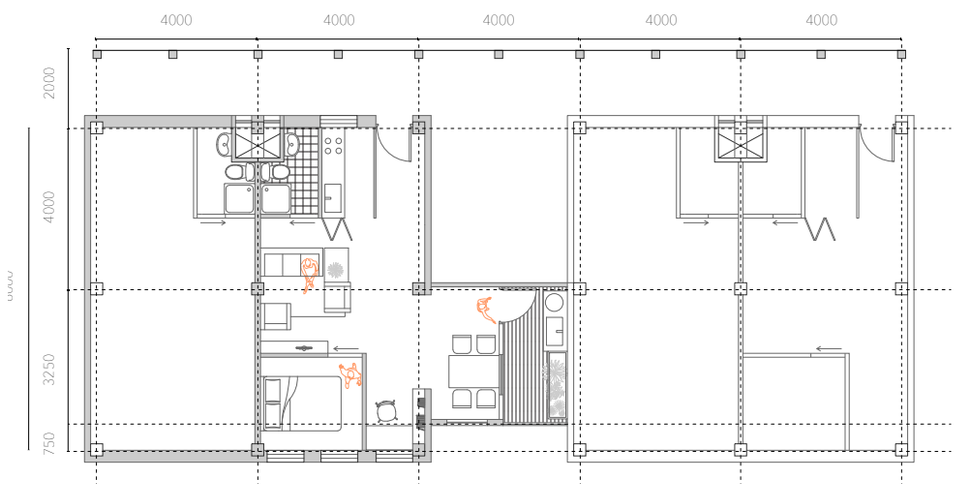


THE MODULE + A

59m²

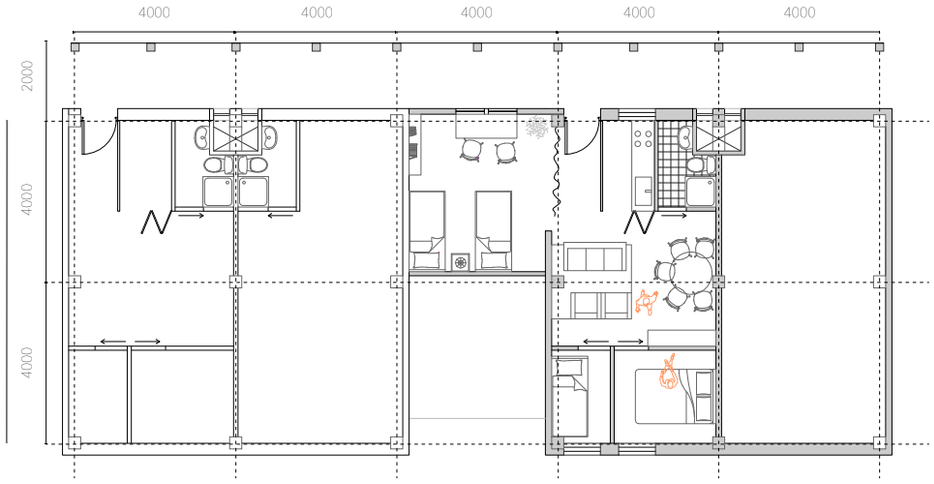


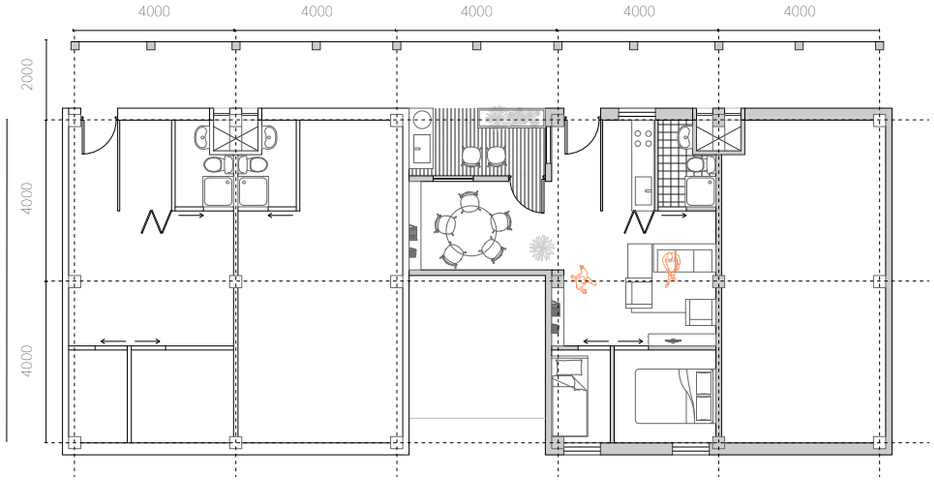


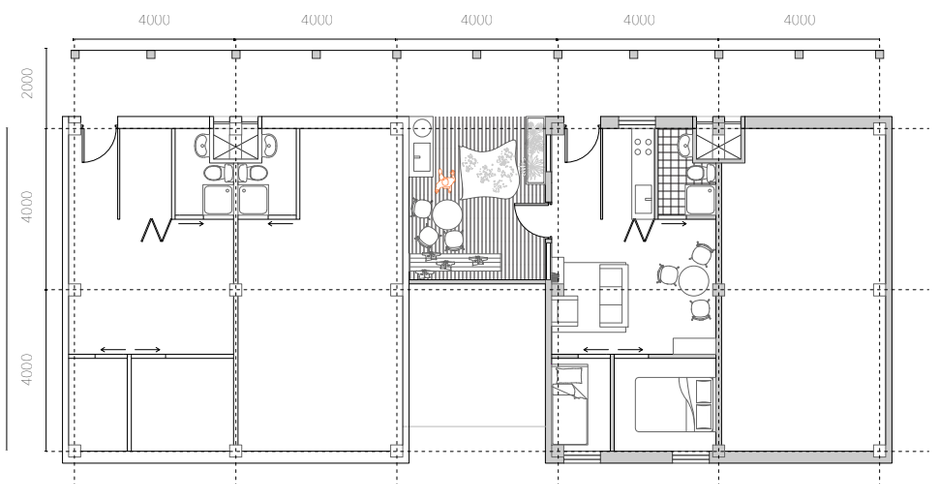


THE MODULE + B

47m²

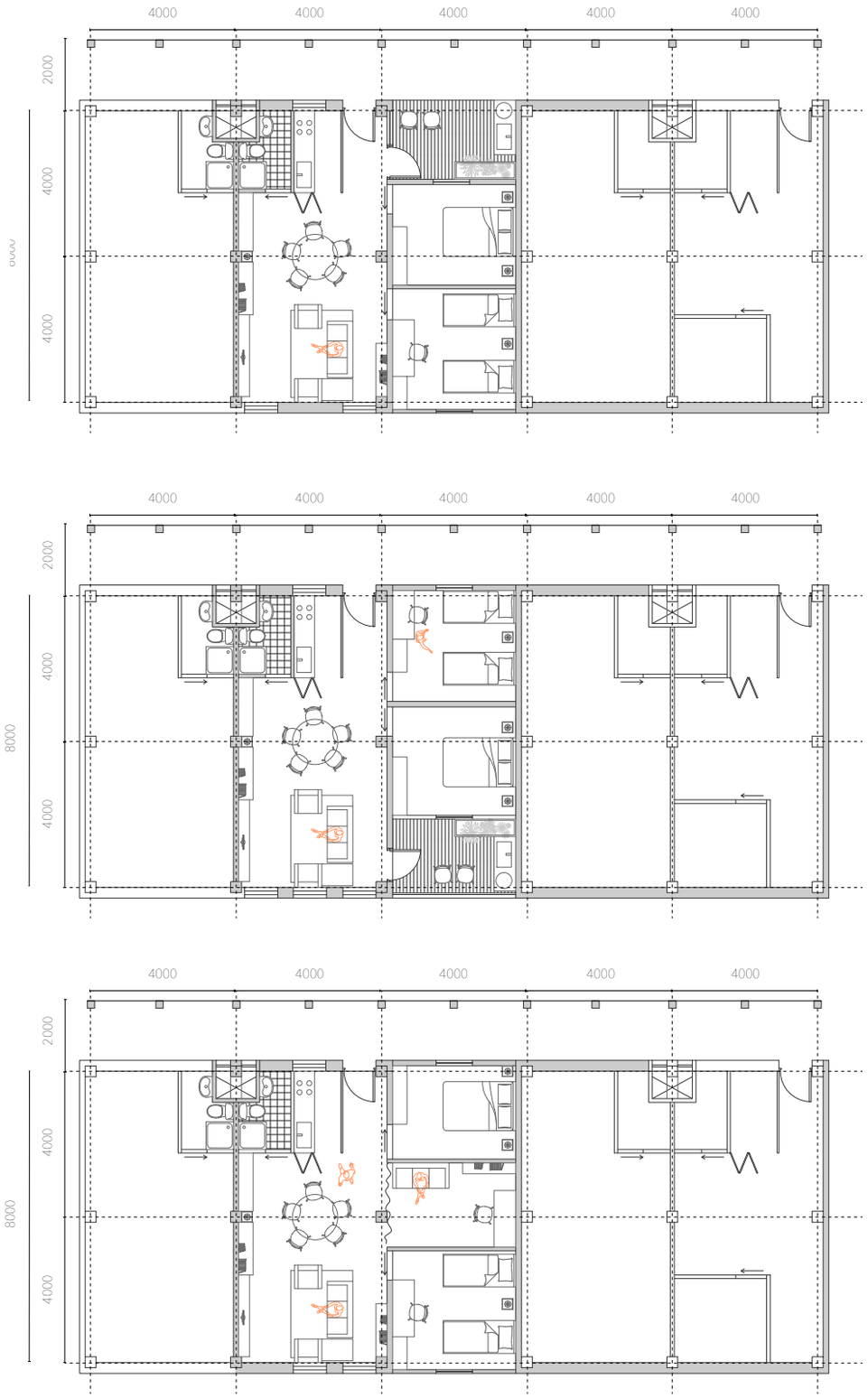




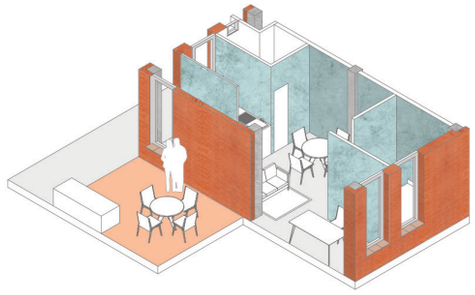


THE MODULE + C

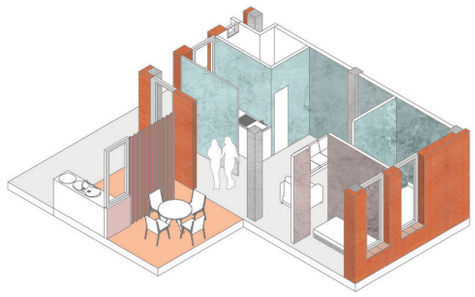
64m²



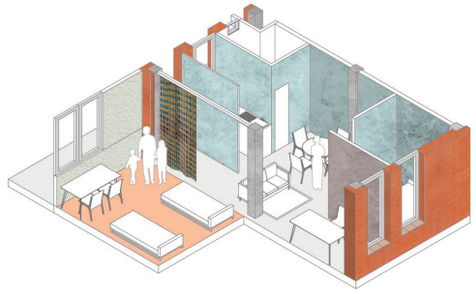
- DWELLING SCENARIO -
MODULE + B



young couple
'space for time' initial appropriation- simple use of oudoor space
floor area: 47m^2
23.5 m^2 p. person

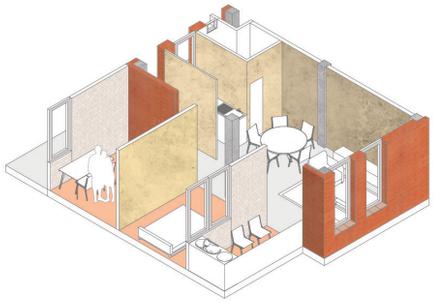


young couple- first child
extra sleeping room,
'space for time' as partial in and out-door space
floor area: 47m^2
16 m^2 p. person

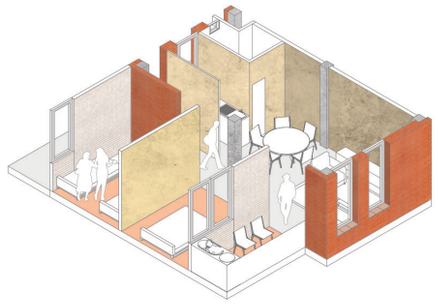


young couple- two children
'space for time' as complete indoor space for extra sleeping room
floor area: 47m^2
11.75 m^2 p. person

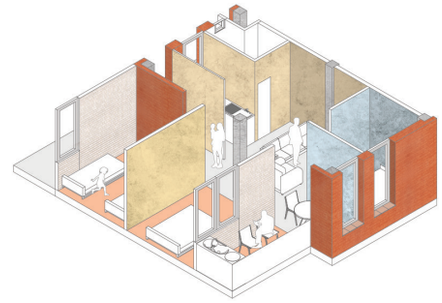
- DWELLING SCENARIO -
MODULE + C



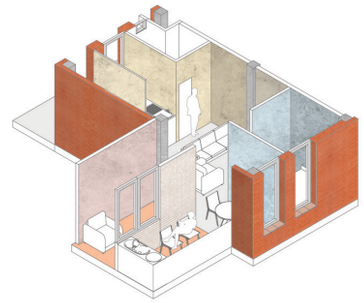
couple- planning to start family
‘space for time’ 2 rooms and a private outdoor space
floor area: 59m²
29.5 m² p. person



couple- two teenage children
‘space for time’ extra sleeping room and a private outdoor space
floor area: 59m²
14.75 m² p. person

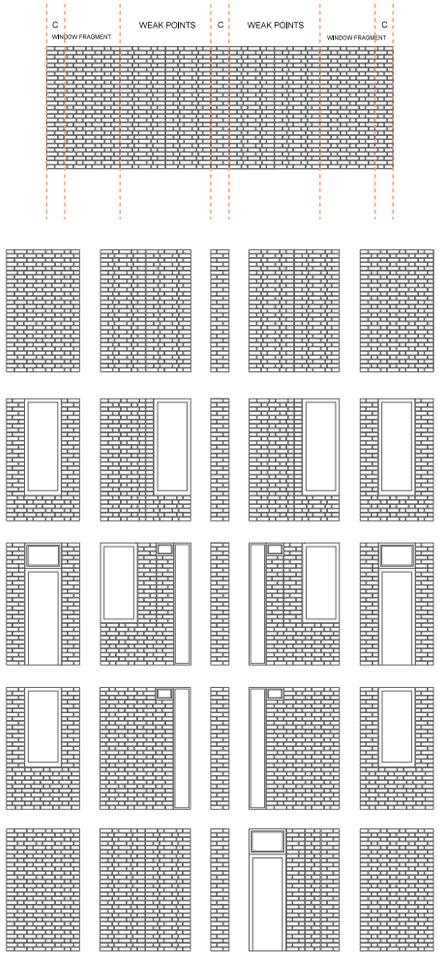


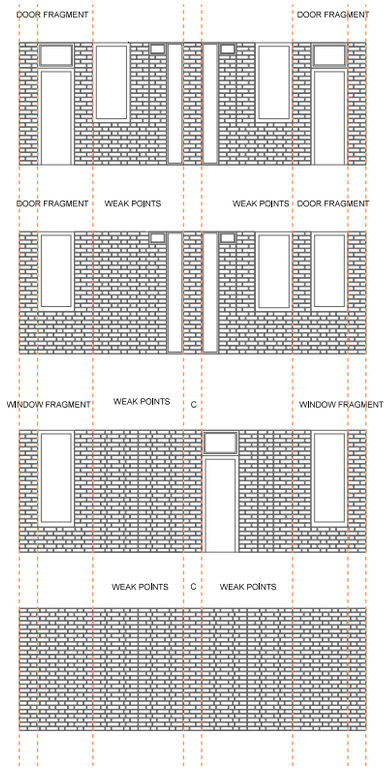
older couple- children and grandchildren
‘space for time’ two sleeping rooms and a private outdoor space
floor area: 59m²
9.8 m² p. person

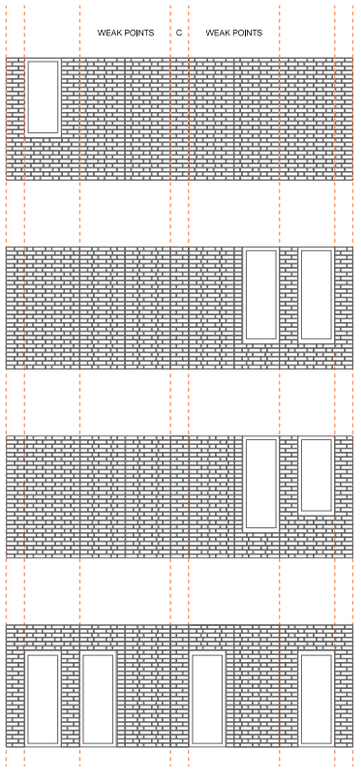


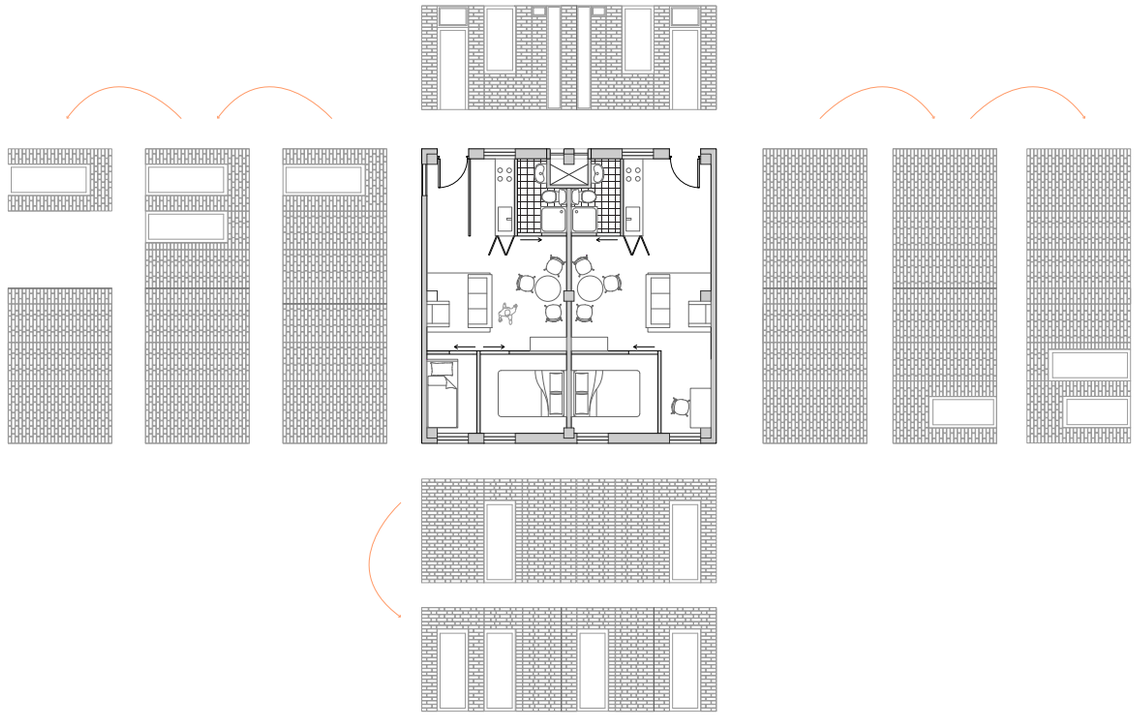
older couple- moved out children
‘space for time’ partially sold back - partial in and out-door space
floor area: 59m²
22 m² p. person

- FACADE SYSTEM -



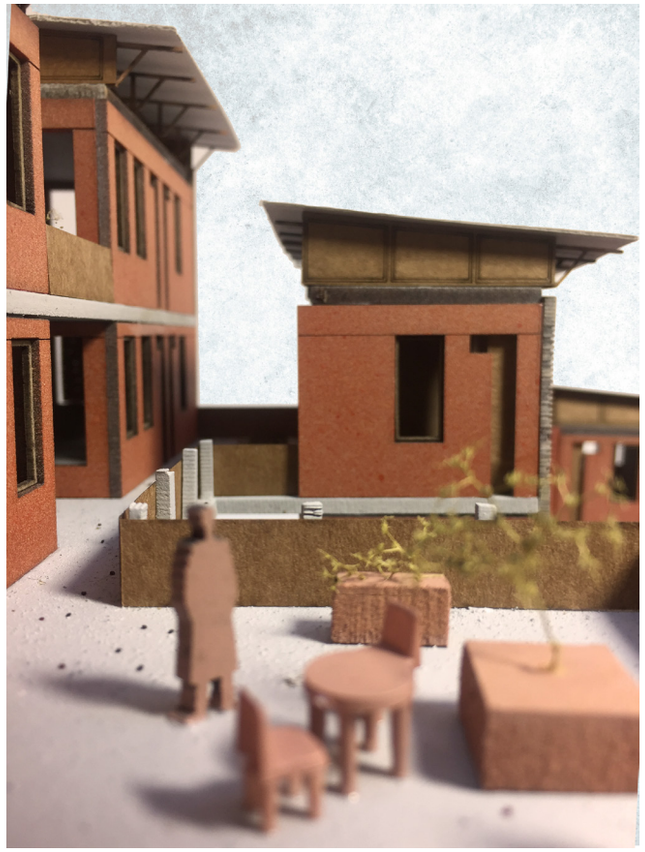




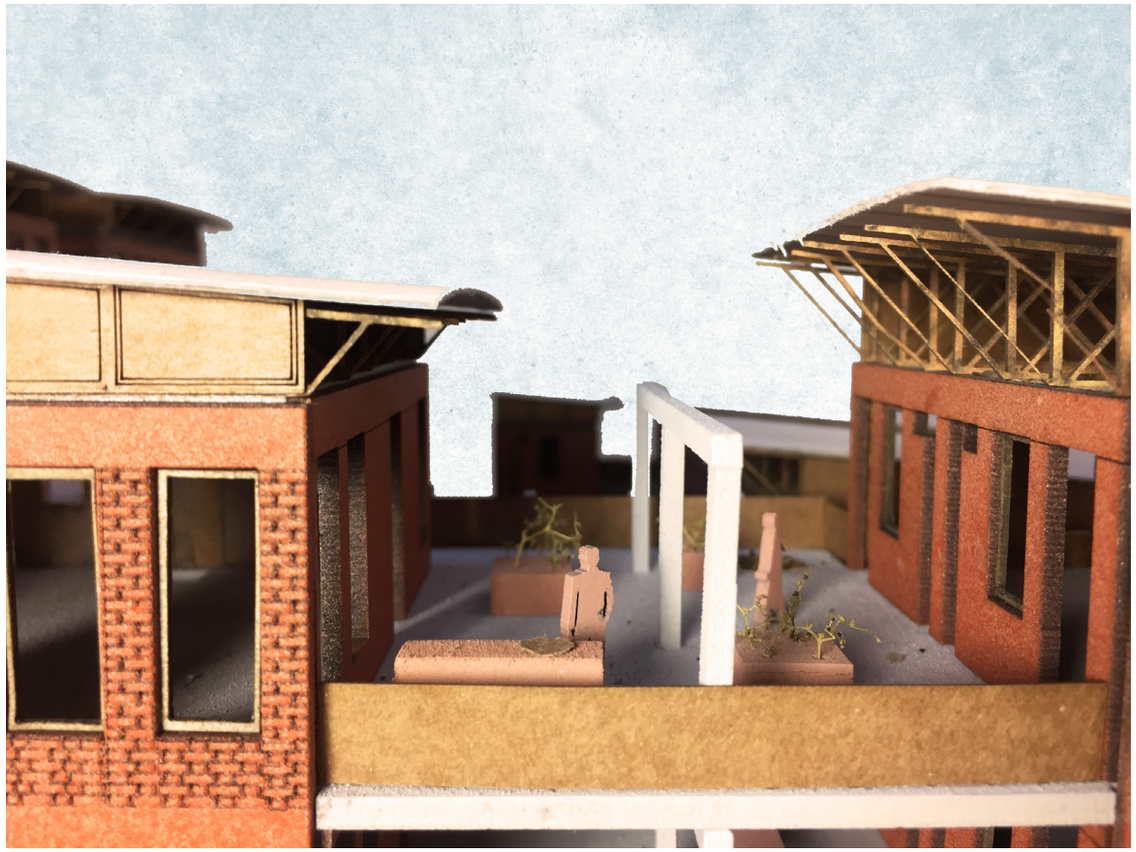


- SHARED 'SPACE FOR TIME' -

Shared Space
Neighbours



Collective Space
Group



Shared Space
Neighbours

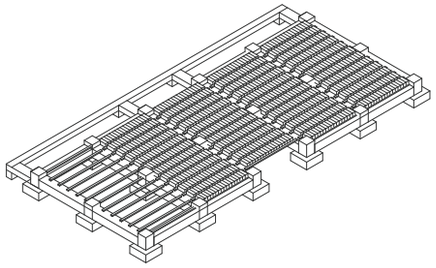
- PRIVATE ‘SPACE FOR TIME’ -

Private outdoor space

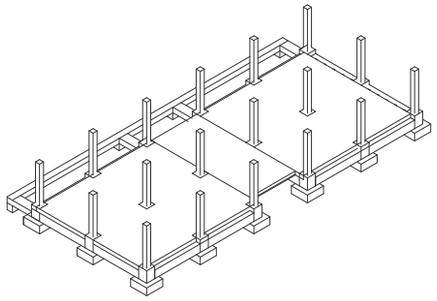
Private indoor space

Private outdoor space

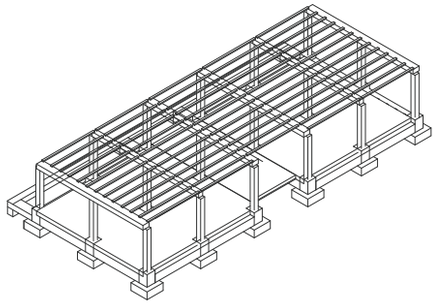
- BUILDING SEQUENCE -



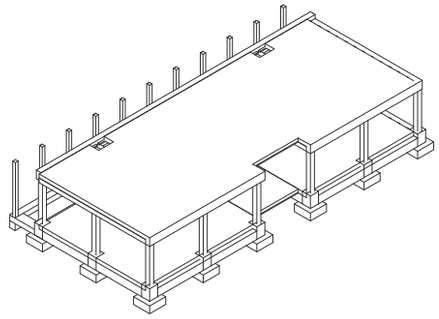
Foundation and Prefabricated floor elements



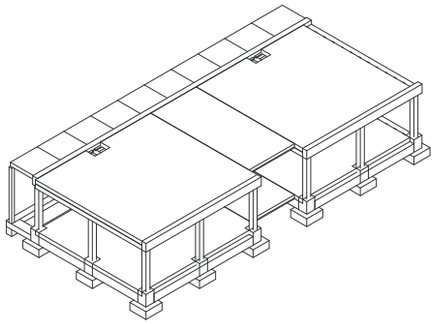
Concrete poured floor and In-situ casted columns



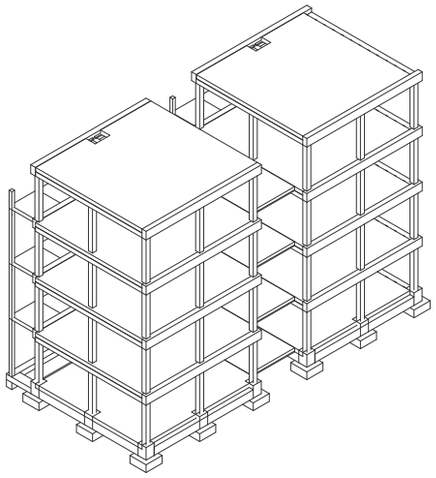
Prefabricated floor elements mounted



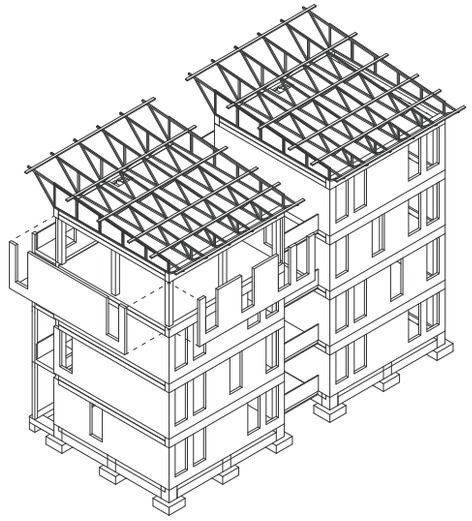
Concrete poured floor, with shaft opening



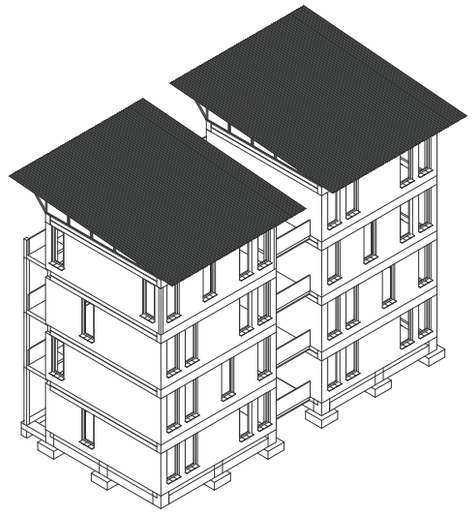
Prefabricated Gallery floor slabs



Construction repeated on 4 levels

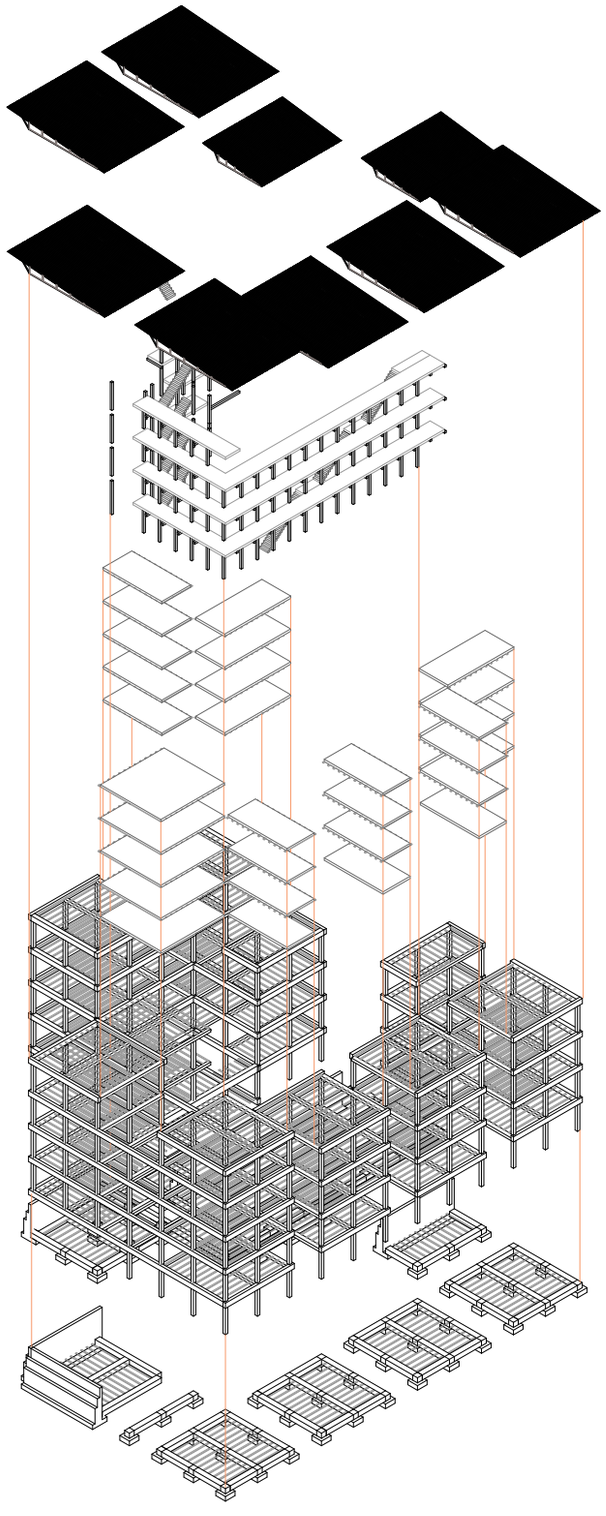


Compressed Earth Blocks as facade infill and construction of Eucalyptus roof trusses



Corrugated metal sheet roofing and steel window frame placement

- CONSTRUCTION COMPONENTS -



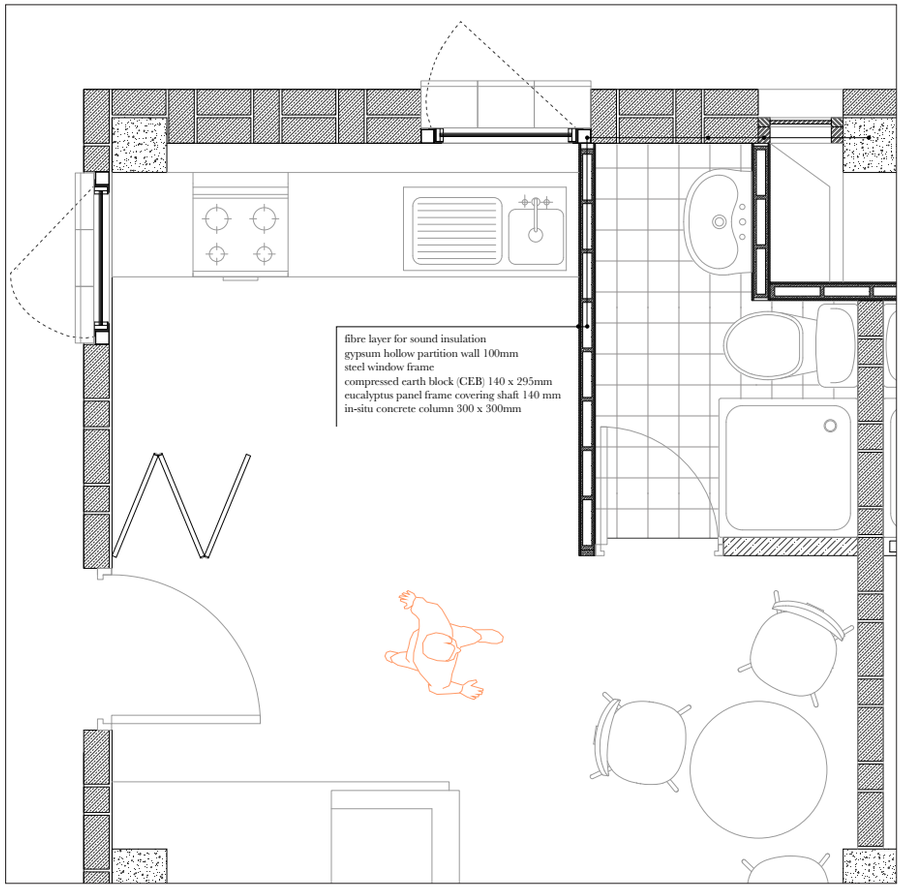
Corrugated Metal Sheet roof

Eucalyptus timber light structures

Woven Palm leaves panels

Compressed Earth Blocks

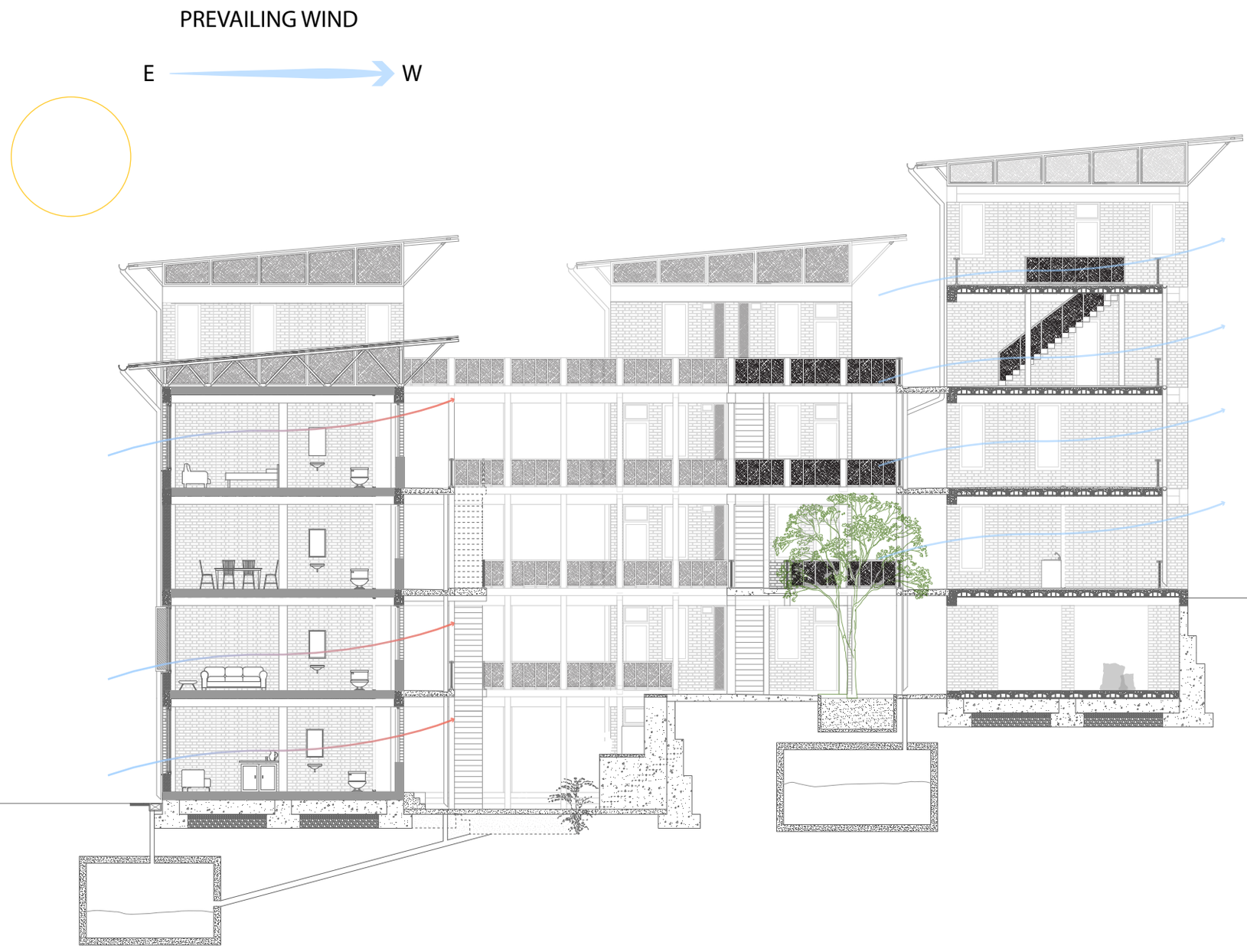
Concrete Structural framework



Horizontal Section

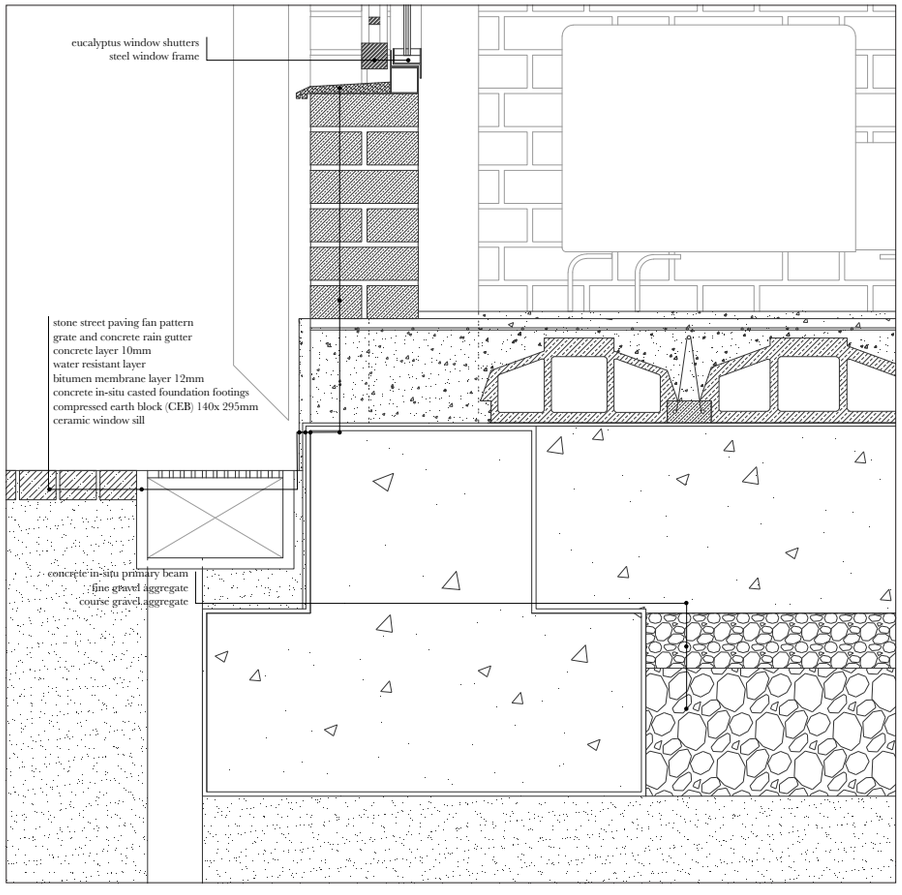
- CLIMATE CONCEPT -
AIR FLOW - VENTILATION SHAFT

- CLIMATE CONCEPT -
CROSS VENTILATION

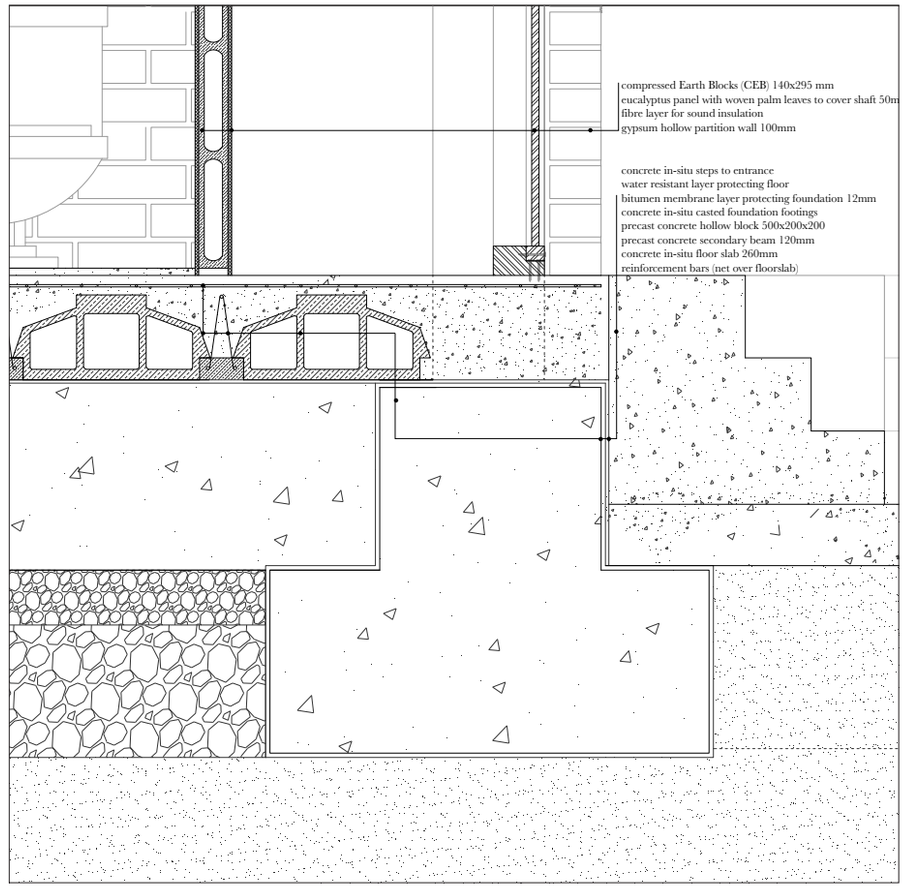


- CLIMATE CONCEPT -
WATER MANAGEMENT

- 1:20 DETAILS -

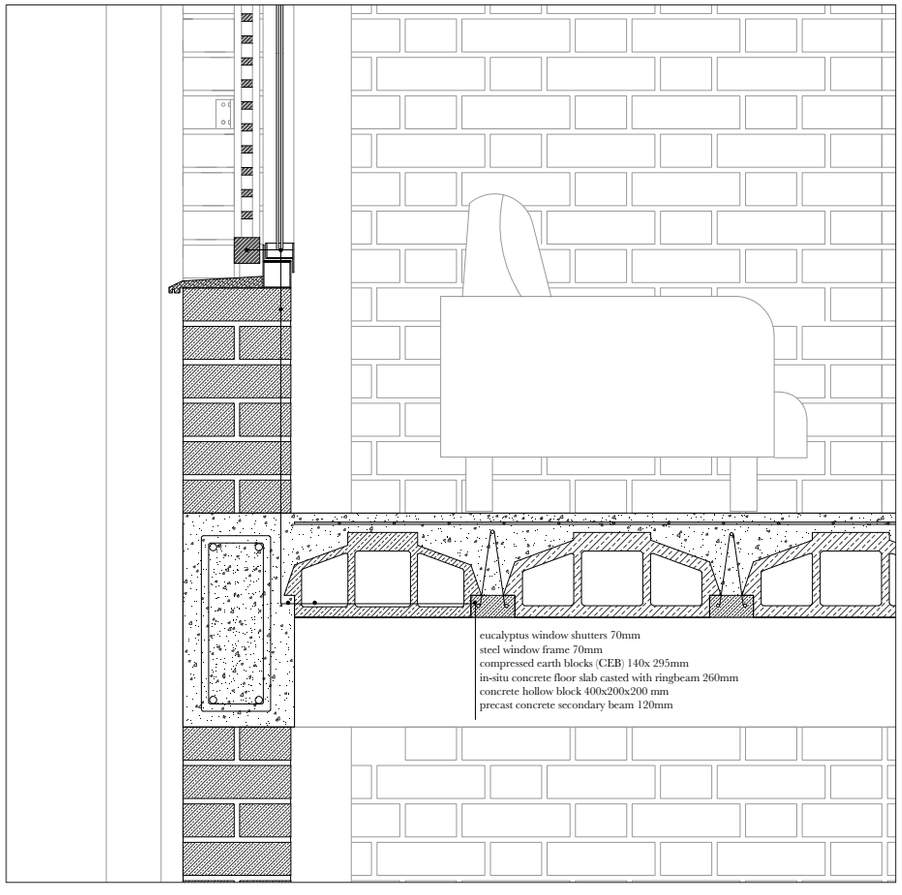


Foundation Detail- street side

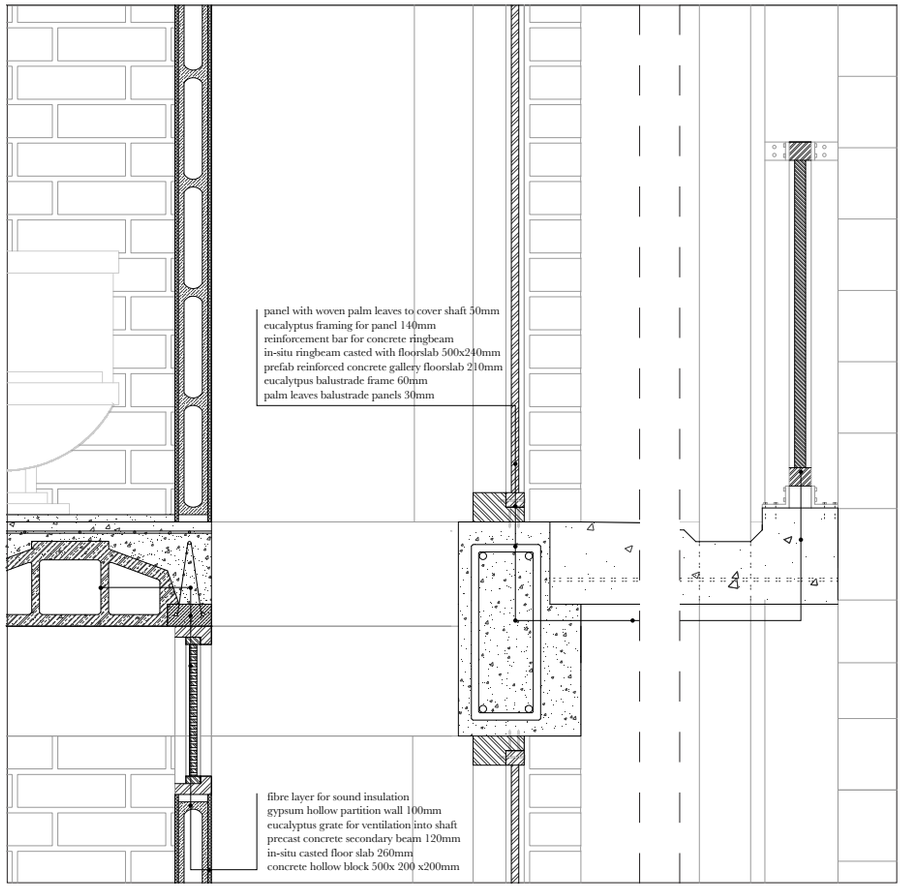


Foundation Detail- courtyard side

- 1:20 DETAILS -

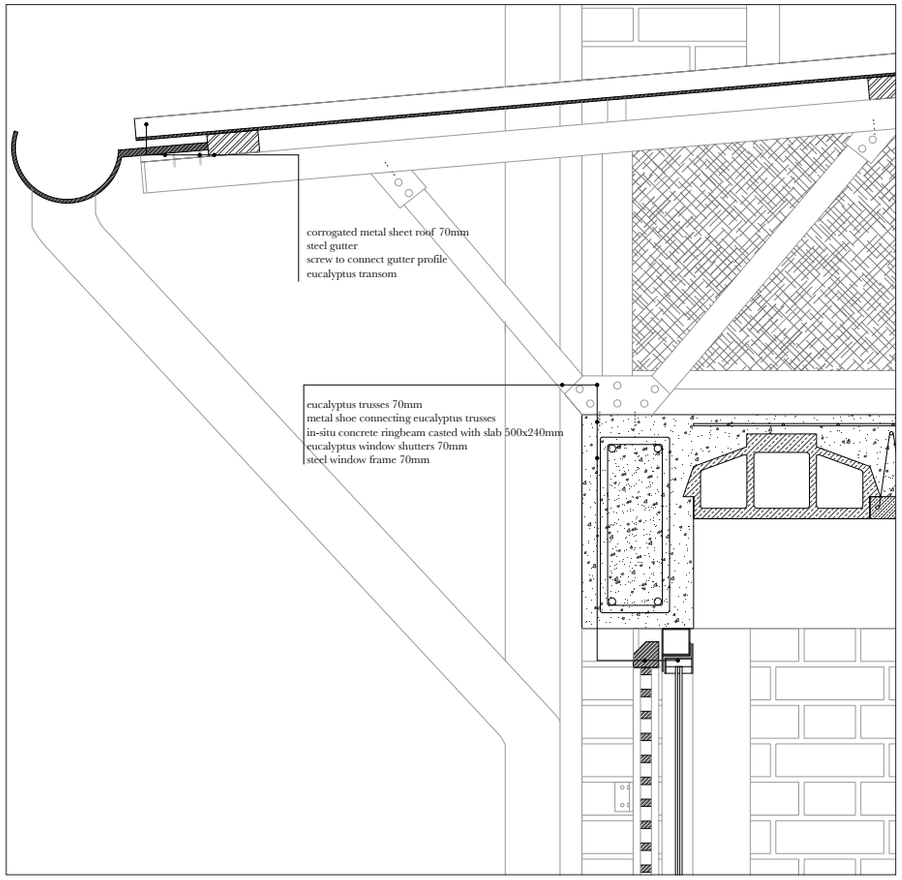


Facade - Floor connection

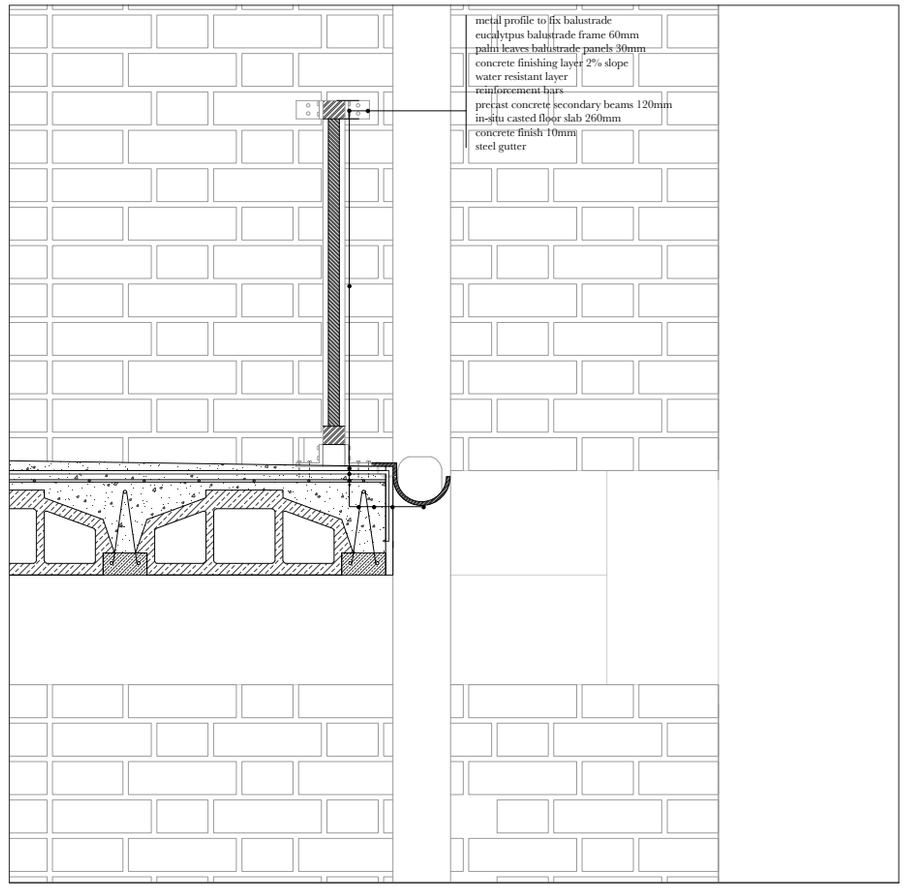


Gallery connection

- 1:20 DETAILS -



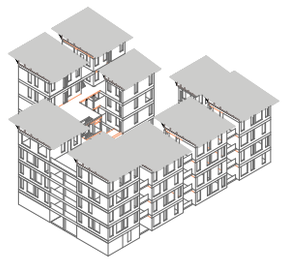
Roof Detail



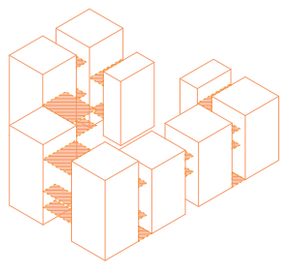
'Space for Time' floorslab

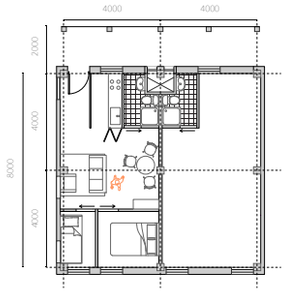
- DATA COMPARISON -

THE ANCHOR



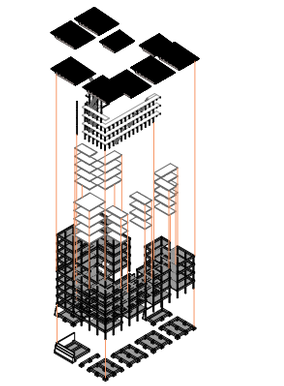
- densification: maximum 5 levels
- outdoor space facilitated on each level
- immediate outdoor space - sufficient at different scales
- living, sleeping, wet cell function
- unit layout: privacy at the back
- concrete framework, compressed earth blocks as infill, concrete slabs, corrogated steel roof
- density 270 units/ ha



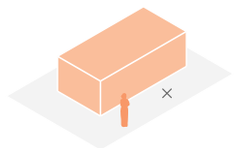


DATA (averages)

3 inhabitants p. house
3 rooms per house
32 m2 average area
11 m2 per person



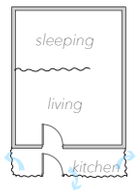
THE COMPOUND



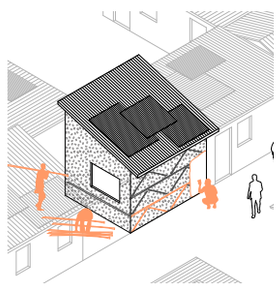
- ground floor contact, outdoor space use compound courtyard
- immediate outdoor space - sufficient
- living and sleeping function
- unit layout: privacy at the back
- corrogated steel roof and chika building method
- density 70 units/ ha

DATA (averages)

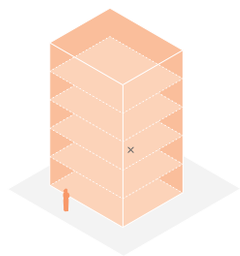
5.74 inhabitants p. house
2.75 rooms per house
23.83m2 average area
5.11m2 per person



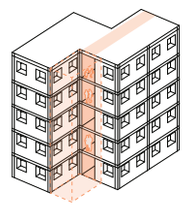
± 20M²



THE CONDOMINIUM

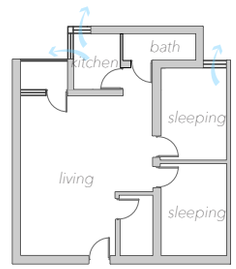


- densification G+4 (5 levels)
- cultural activities take place in corridors and stairways
- immediate outdoor space - NOT sufficient
- living, sleeping, wet cell function
- unit layout: privacy at the back
- efficient building method; concrete framework
- density 212 units/ ha

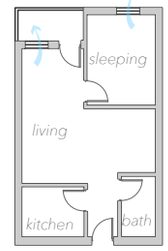


DATA (averages)

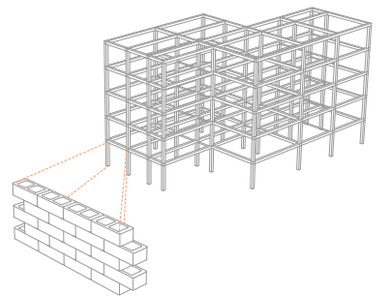
4.13 inhabitants per house
4.35 rooms per house
49.71m2 average area
14.8m2 per person



± 50M²



± 25M²



- TRANSFORMATION OVER TIME -

Day 1

After 5 years

- REPLICABILITY-

- BIBLIOGRAPHY -

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