

FABIO BUONDONNO

On the Fringe

ADDIS ABABA LIVING LAB

“When I was a schoolboy, I discovered that a house alone does not exist, that it does not end at the outer limits of the ground floor, but continues on to the streets, the garden, then, to the house across the street. The house across the street itself continuous into what is in front of it, and so forth. To imagine one house is to imagine the whole world”.

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AR3AD132 | Dwelling Graduation Studio
Global Housing | Addis Ababa Living Lab

by F B

On the Fringe

Toward an Inclusive City



World's Housing Condition

A Global Crisis

During the last fifty years, many cities in the world have been developing and growing at a very high pace. The ongoing fast urbanization has been stressing the urban environment and the life which takes place. The structure of most of our cities, like Hong Kong, Sidney, and London, is now showing its fragility and weaknesses, having to face housing shortage, inequalities, and poor living conditions . An unmitigated market force has driven most of the recent urbanization developments, increasing builders' profits while lessening amenities per capita . Furthermore, this "speculative fever" has often activated processes of gentrification, thus destroying communities and intensifying social inequalities .

Therefore, the general problem of many contemporary metropolises has been the lack of sustainable strategies for urban growth combined with speculative market forces. The resulting image of this process is also currently shaping several developing cities throughout the world. Indeed, especially in the Global South, the importation of the western model of growth is resulting in the proliferation of top-down masterplans aiming at densification without considering local people and their modes of life, which Richard Sennett summarizes with the word "cité" . In India, Mumbai and Delhi are an example of this mindset and strategy as the government is evicting informal dwellers and demolishing some old low-rise development to build new high-rise and valuable buildings . Nowadays, these typologies, indeed, do not often suit residential purposes, destroying communities as Charles Correa argues . As a matter of fact, the problem is the lack of sustainable models for urban expansion, able to cope with the rapid urbanization occurring in many countries.

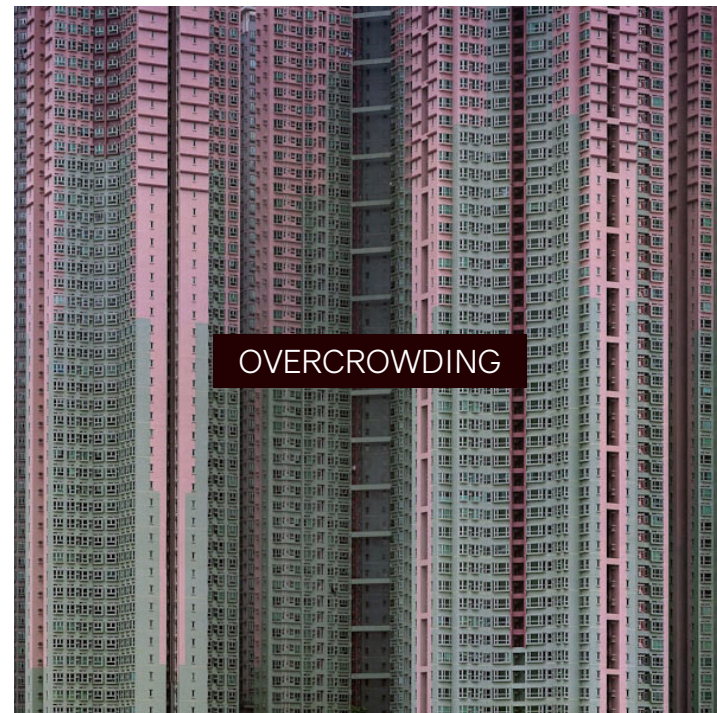
Actually, in the developing world, because of many factors such as food insecurity, wars, and climate change, migration and urbanization rates are still very high . Indeed, in the African Continent, waves of migration

are flooding from rural areas into the main cities. In fact, besides all the limits of the contemporary city, generally, it must also be acknowledged that it still represents the hope for many people, a gateway for a better future, especially for migrants, as Charles Correa asserted in an interview in 2014 .

The Problem is the lack of sustainable models for urban expansion, able to cope with the rapid urbanization occurring in many countries

Thus, according to several scholars like Richard Sennet, Esra Akcan, and Gert Urrah, a new structure of the city should be drawn. Hence, planners should aim at the design of an "open city" or "open architecture" where the cité is fostered, and not overwhelmed by the built environment (the "ville") . This system is focused on the process rather than the end-product, as past theories used to be. In fact, during the past century, many architects, especially the members of CIAM, aimed at an image of the city ruled by order, control, and equilibrium, nonetheless resulting in a static system . Hence, recognizing the limits of seeking an ordered and defined destiny, the open city is instead based on incompleteness and spontaneous urban planning, leaving the possibility for future generations to accommodate the space to their needs.

Also, a further issue is the widespread approach that neglects existing structures and networks. Indeed, several 20th-century theoretic approaches, like the ones proposed by CIAM, did not have any relation to the past and the environment. The modern ideal



Img 01.01-04: Images from all over the world regarding widespread issues. The pictures are showing views from Mexico (top-left picture), Hong Kong (top-right picture), and Dhaka.

Img 01.01-04: In the following page an axonometric drawing of Plan Voisin by Le Corbusier, 1925.

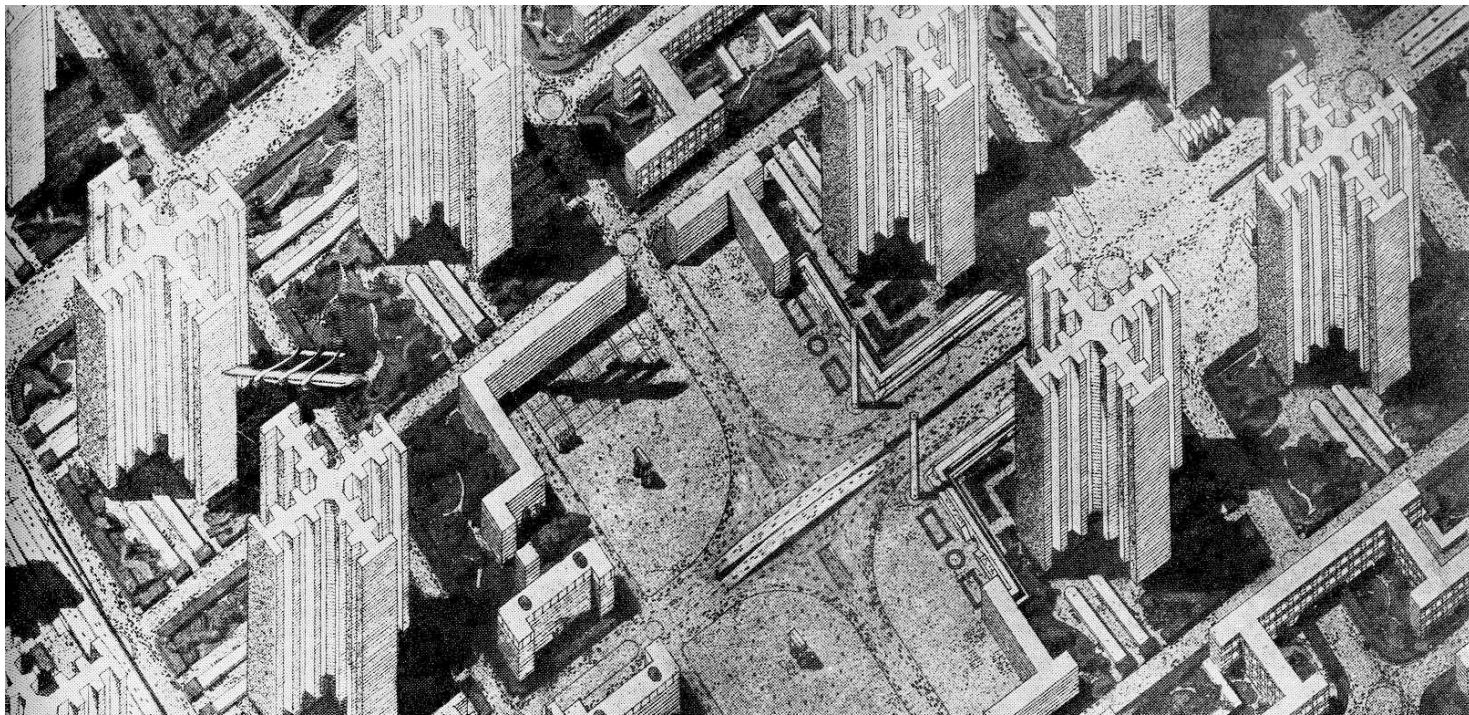
city, in the attempt to reach something new and keep pace with time, was denying its heritage. Likewise, in Plan Voisin, Le Corbusier “paint(s) the ville white”, by outlining a potentially infinite housing scheme, based on the repetition of a color-neutral tower typology . This attitude also comes from an antiquated conception of city and time. The obsessive and frenetic strive to reach the present, that has been pushing our system, is based on a linear and sequential notion of time, which does not correspond to reality . As the philosopher Hans Magnus Enzensberger, the architect Rafael Moneo and even before Colin Rowe suggest, our world and so the cities are complex stratified structures, whose layers should be recognized and respected.

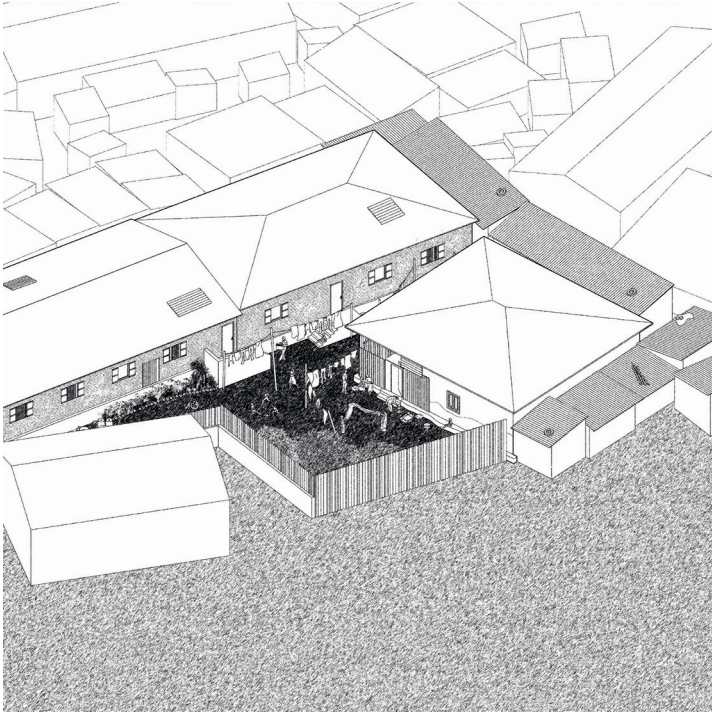
Hence this “modern city rush” is affecting different cities throughout the Globe, erasing their past and making them converge to the same form, despite their very different cultural and historical background. The aftermath can be seen in Shanghai, Bangkok, Tokyo, Singapore, and Dubai, which have drastically changed in the name of progress . Thus, the specific problem of cities

has been the loss not necessarily of specific and unique sites, but of ordinary people’s buildings, of physical and social structures which used to shape the broader cultural spectrum of society , destroying the collective identity. For instance, in Tokyo, the traditional type of house, known as “minka” progressively disappeared. Indeed, the Japanese architect Wajiro Kon analyzed and collected information about its spaces and dwellers’ habits during the 1980s, before its obliteration.

Having said that, it must be recognized that these cities need to go through a process of redevelopment to provide answers to several issues. First, it is the low quality of housing condition, due to overcrowding, lack of maintenance, and unsustainable sanitary conditions. These topics are often bound to the lack of affordable solutions and possibilities of income generation, which drive people to build informal housing, squat, or settle in unsuitable accommodations. Second, the inadequate infrastructure that involves sewage systems, accessibility to safe water sources, and lack of amenities.

A further issue related to the improper planning of





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Disequilibrium

Cité << Ville

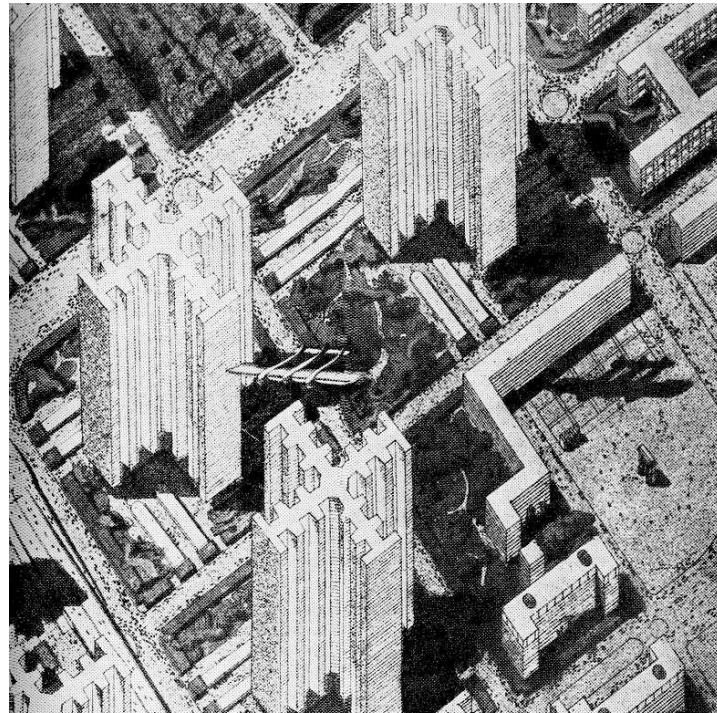
Ville << Cité

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Equilibrium

Cité ⊗ Ville

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Img 01.0n: Axonometry of a Compound in Addis Ababa, Ethiopia.

Img 01.0n: Image of Plan Voisin.

The digram stresses the need for a balance between “Cité” and “Ville” to achieve a resilient model of city.



Img 01.01-04: Images of Bangkok at different moment in time. The first picture was taken in 1989, while the second is from 2019. The city has mutated his face, progressively introducing high-rises building and replacing the existing urban fabric.



Img 01.01-04: Images from all over the world regarding widespread issues. The pictures are showing views from Mexico, Hong Kong, and Dhaka.

infrastructure is the dearth of security. Indeed, the scarce policing, combined with the lack of street lighting, can generate an unsafe environment, or the perception of it. Also, the presence of a hard border between streets and housing often leads to the lack of interactions and activities by the public space, increasing segregation, divisions, and “urban fear” .

Therefore, How can architecture use interstitial spaces to preserve the intangible values while negotiating the transition between public and private, merging with the current fabric, and upgrading the current living condition?

How can architecture use in-between spaces to negotiate the transition between public and private space, improving the current living condition, in synergy with tangible and intangible values of a place?

This question strongly relates to the situation of Ethiopia’s capital Addis Ababa which is now going through a rapid process of urbanization and, thus, toward a series of transformations that might threaten its residents’ lifestyle . In fact, after the first urban expansion toward the periphery and the outskirts of the metropolitan area, the new masterplan is now seeking the redevelopment of the inner areas and neighborhoods, called “sefers” . Indeed, albeit Addis Ababa is a relatively young city, it has been shaped by several layers of history, which can be traced down to its built heritage .

On the one hand, new constructions should consider the possibility of changing and adapting through time in order to make more growth options available to future generations . Furthermore, they shall work as a what

Sennett calls “type-form” , which is a basic unit of the urban fabric that can admit variations within certain limits, to target an extensive range of income groups. A strategy to achieve that can be the use of spontaneous and incremental systems, like the ones adopted by Doshi in Ahmedabad , Aravena in Chile , and for Previ low-cost project in Lima . They are based on unfinished forms, which can be extended and modified by the residents over time. It can also involve non-permanent structures, as the “kachcha” houses , informal or temporary constructions made of locally sourced materials with a limited-circular life cycle. Indeed, the open city should be thought as something sustainable in time, as it is suggested in France by calling the sustainable development “développement durable”. The whole system should also allow to host and integrate middle-income families (gentle “mixité”), which demand central accommodations.

On the other hand, the focus should be on improving living conditions by a gentle renovation of the area, aiming at densifying the neighborhood without erecting high-rise buildings and keeping the local communities, thus not erasing its cité . Also, especially regarding the Global South, a challenge would be preserving the modes of life of the compounds and gated communities while opening them to the city and reweave the fracture between residences and streets to improve security. Indeed, according to Jacobs and Mumford, enhancing social interactions and putting “eyes on the street” are the most effective ways to improve safety . Concerning the tangible values, instead, the existing historic structures should bridge with the past through their role of memory, while avoiding turning the city into a museum or a collection of simulations . They may be used as they have been working throughout the last decade, as “shells” , hosting different activities, both public and residential, which would be changed according to the needs.

Overall, the touched topics address the condition of a panoply of cities around the world. Thus, the design assignment and the following strategies can be distilled and adapted to different locations.



Img 02.01: Gathering of the findings of the site visit in Addis Ababa during the days of the workshop. From the left to the right there are Cassina L., Rancati C., and Paoletti A.. Each of us redraw one of the visited compounds trying to highlight the spatial and the immaterial qualities of the place.

The Methodology

An Open-End Approach

The first step of the research was to develop basic generic knowledge about Ethiopia through desk research. This process was not entirely a top-down approach from a totally exterior point of view, since it involved readings and articles by local professionals and architects⁶, trying to comprehend historical and cultural aspects through different lenses.

Therefore, the following stage of the research was the field trip to Addis Ababa. After the selection of the site, which was made shortly after our arrival and grounded on my interest in historical urban fabrics, we started the analysis using two different methodologies. On the one hand, together with my team, we conducted an architectural ethnographic research to discern the actual living patterns and the culture people share. On the other hand, we followed a participatory approach to grasp aspirations and acceptable changes in the current modes of life.

The first system involved several methods. In the beginning, we tried to map as much information as possible daily routines, habits, and past events. As a matter of fact, we set our strategy as an inductive discovery-based research process⁷. In such a way, it was possible to explore different aspects without precluding any possibility, thus setting the research question as something that could be changed along with the study, instead of being an axiom. In detail, we carried out interviews, took pictures, videos, and drawings. Each member of the team had a specific role assigned.

Some of the interviews were recorded, hence we needed a letter of consent. Also, the majority of drawings were floorplans, both of the houses and the compounds, to comprehend which action was performed, where it was executed, which objects were they using, and which spaces they had.

Regarding this last point, the switch of methodology to the participation of local people was significant, as we

could understand their priorities and what they needed. In order to discern these ambitions, our procedure involved the utilization of transparent paper that we used to place on top of the plans we just sketched. Hence, the participant used to draw a different plan or suggested some transformations we outlined, in the worst case.

The elaboration and translation of the data, that is still ongoing started already in Addis Ababa, redrawing plans more accurately, throughout the first sketches, the pictures, and the measurement we took (fig. 02.07-08). During this latter phase, we focused on finding what Christopher Alexander defined as “patterns of inhabitation”⁸ to understand the essential spatial functions and features of the area.

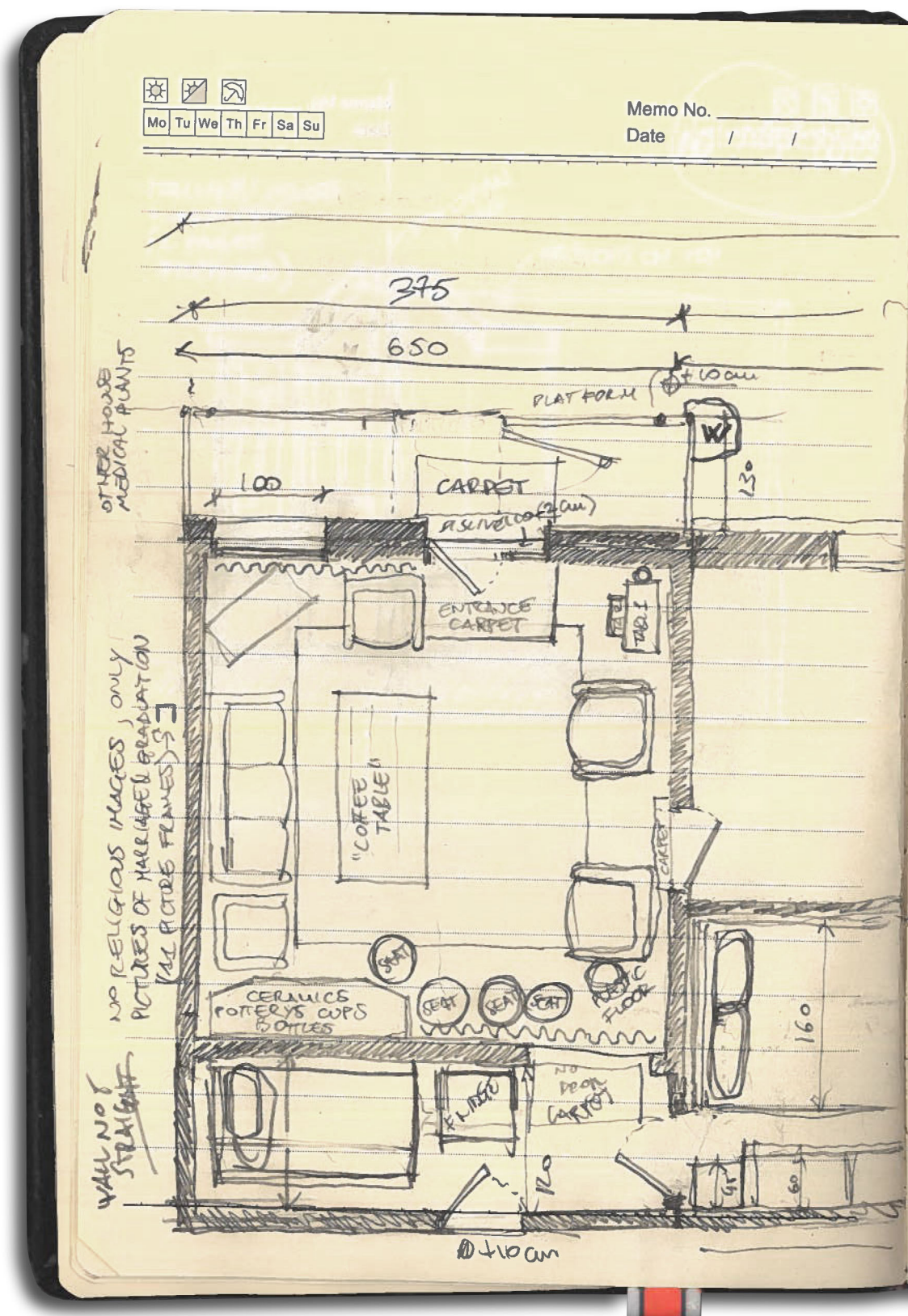
The research for the thesis was based on having an open position, thus not limiting myself to any possibility. Differently from the idea of performing a fixed role like the syndicalist, the populist, the activist, or the facilitator architect²⁴, I hold the opinion that as professionals, we should have a more holistic attitude. As Vitruvio stated that the architect should have a complete cultural background²⁵, in the same way, he/she should share different aspects of diverse positions to fulfill his/her research and design requirements better.

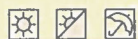
As a matter of fact, an axiomatic approach does not even often work, as in reality each architect has a wide range of belief systems, even unconsciously, that in the end bring to a difference between principles and designs²⁶. For the same reason, according to Venturi, this discrepancy should not be seen as problem but as something to acknowledge and consider²⁷. In fact, society is made of a complex set of layers, likewise the architect should be able to take various roles and assuming distinct points of view. Indeed, in the 20th century, one of the limits of CIAM was the excessive scientific approach, which was simplifying the form of experience²⁸.

Having said that, generally, an emic attitude should

be followed during the research as well as the design process. Although I agree with the opinion of Marieke Berkens, that during the second talk argued that the ethnographer is never a neutral observer, recognizing that every position lies between emic and etic perspective, the attitude should possibly be closer to the former one. Truly, this approach lowers the probability of incongruity between design and actual use. Regarding that, Berkens also stressed out how this aspect becomes important when involving social cohesion. In fact, during our study in Rotterdam, we could see how the different multiple-facing entrances of the buildings, designed as for the encounters of people, did not work as a space for social interaction, although they are also providing for a large covered shared space.

Regarding the participatory methodology, instead, I partially disagree with the position of many other professionals and the studio approach. We decided to use participatory design to grasp the ambition of people. Nonetheless, it should be considered the fact that, apart from seldom cases, the stakeholders were exchanging aspirations for expectations. In addition, another issue that might occur is that people often confuse requirements and needs. Therefore, I hold the opinion that the role of the architect should never be too external, but still have an active position in the process and not a marginal one, only as technical guidance as Kabir suggests²⁹. Despite that, I believe that his approach of moving in with the community he had to design for is a very effective way of understanding and developing knowledge about people. However, this inspiring procedure requires a great deal of time. Concerning this aspect, the general approach of the studio is to conduct a deep and participated research within a very limited time frame, however. The impossibility of pursuing the analysis for a longer period restricts the efficiency of the methodology. Thus, it occurs the risk of tending excessively to the ethic approach and to a consequent top-down design, which is opposed to the studio's principles.





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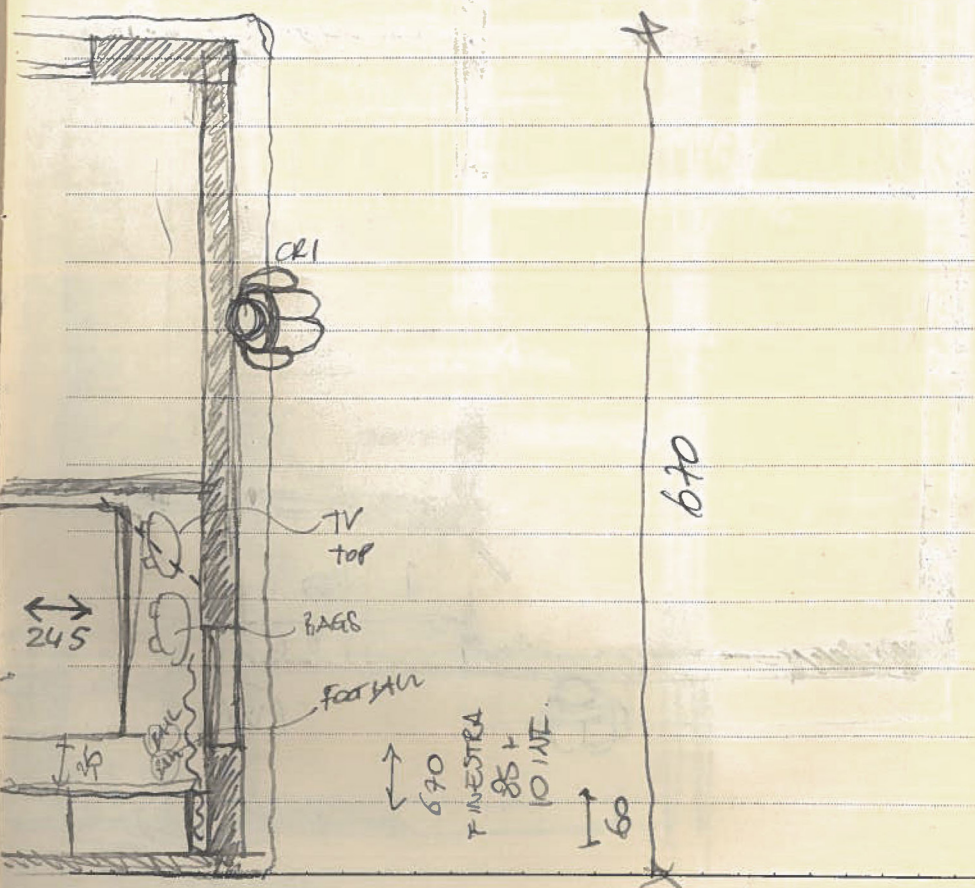
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Miyakasa

Flooring - Concrete

COLD


PLASTIC SHEETS


The lack of time though is an unfortunate common variable of our time. As Faust by Goethe passed from saying "In the beginning was the Word" to "In the beginning was Act"³⁰, likewise our society is working in a way in which the action is not the consequence of the thought. As a result, many pieces of research are superficial, and thus the designs are not matching the cities and their communities as Alexander pointed out, since the patterns are no more recognized nor used:

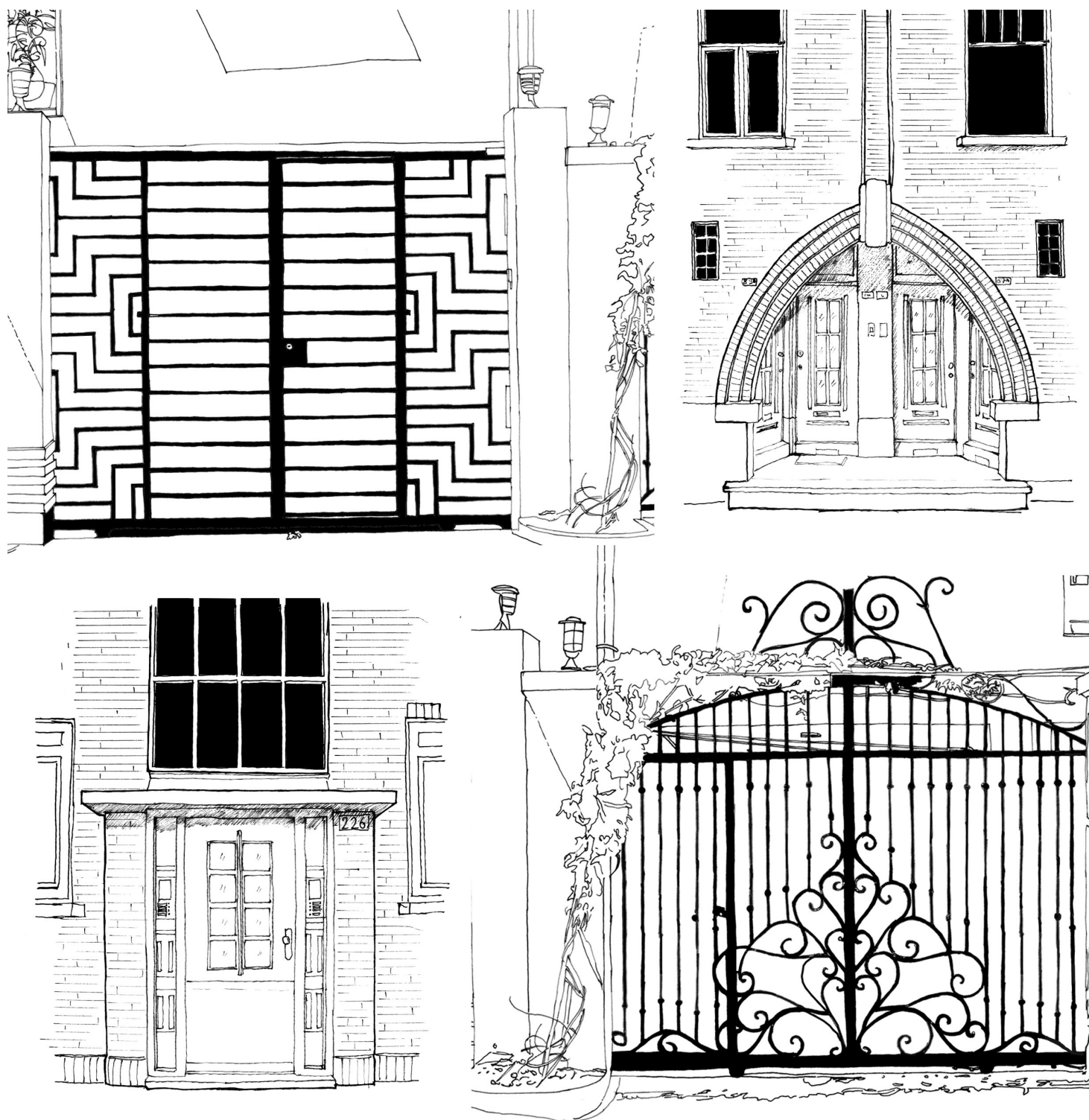
*"In our time the languages have broken down [...] it is therefore virtually impossible for anybody, in our time, to make a building live."*³¹

Christopher Alexander, "A Pattern Language"

Therefore, much dedication and time should be allocated to the research phase to develop a proper understanding of a place. This is also because the complexity of our world cannot only be comprehended through a rational approach but also an emotional one. Focusing on this feature was necessary to advance my research question, which started giving a higher significance to the physical dimension to later move into a more intangible and abstract sphere. The relevance of the emotive, irrational, and perceivable realm was especially accented by Klaske Havik during the third talk of the course, stressing out the importance of involving all our senses in architecture, in order to improve people's attunement.

*"Every touching experience of architecture is multi-sensory, quality of space, matter and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscle."*³²

Juhani Pallasmaa, "The Eyes of the Skin"



Img 02.0n: Drawings of thresholds from Addis Ababa (top-left and bottom-right) and Blijdorp (top-right and bottom-left).

Security and Community

A Matter of Boundaries

“The tendency to build on sites of difficult access can be traced no doubt to a desire for security but perhaps even more so to the need of defining a community’s border. [...] Although the walls present no hurdles to invaders, they help to thwart undesirable expansion”.

Bernard Rudofsky, “Architecture Without Architects”

Cities’ physical dimension, as well as their modes of life, are rapidly changing all over the world, often in a similar direction. The main driver of this transition is the exponential urban growth, which is occurring worldwide, increasing metropolis in size and population. The characteristics of this shift, though, should not be seen necessarily as something negative. Some alterations are indeed just the result of an evolution. Having said that, the aftermath is that even very different cities can share some aspects in the way they have been developing.

This personal position was triggered by the analysis pursued in the neighborhoods of Blijdorp in Rotterdam and Summit in Addis Ababa. Notably, the feature that associates these two places (and that at the same time is representative of the current urban situation), which interested me the most, was the condition of the boundary, both from an abstract-urban point of view and a more architectural one.

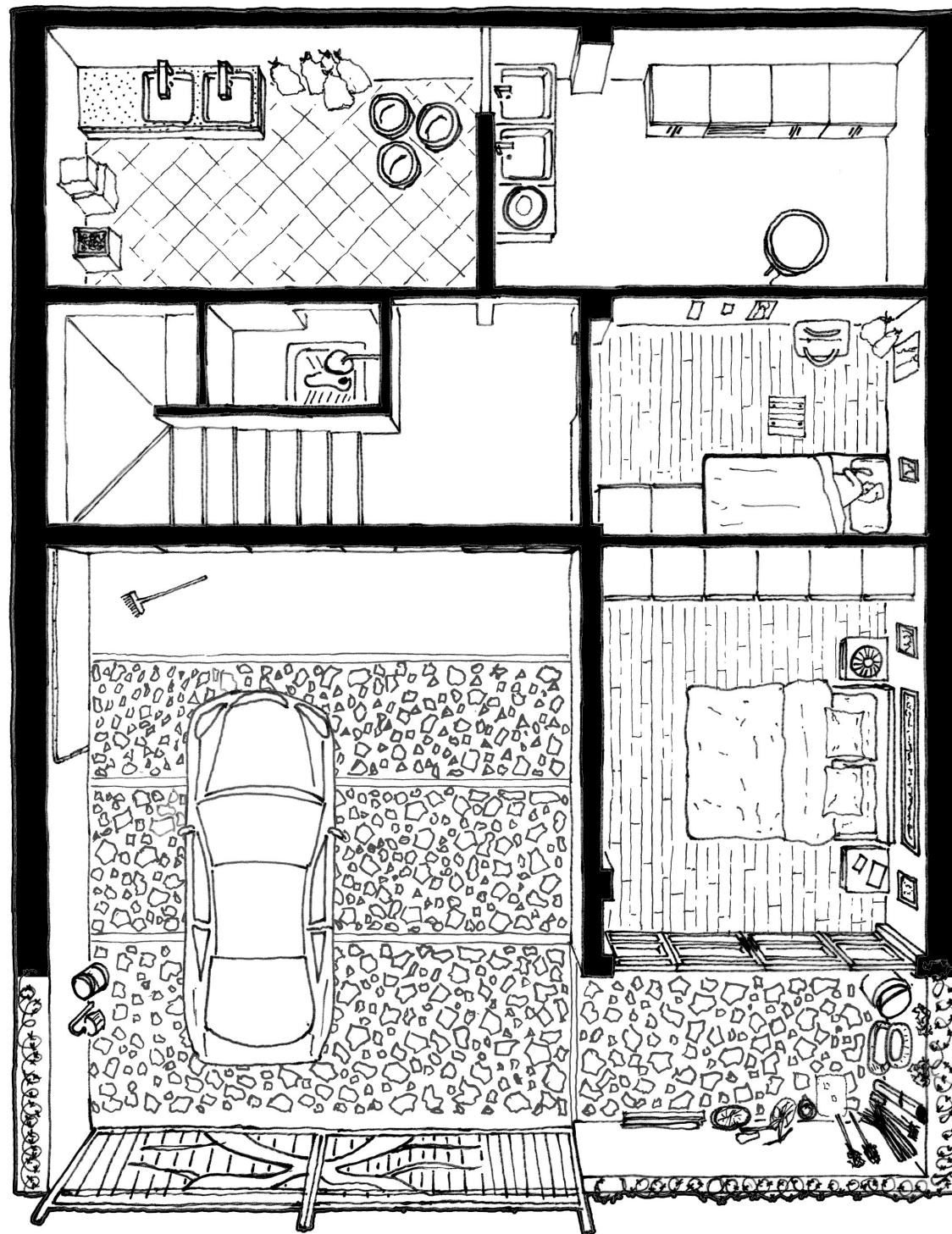
Regarding the first one, the expansion of cities and the parallel increase of complexity of the dynamics occurring within metropolitan areas have been shaping a new perception of space and domesticity among people. Both in Blijdorp and Summit, residents work far from their homes, having most of their interactions in central areas, while considering their district as a “sleeping” neighborhood. Meanwhile, many other people, belonging to different social and income groups, travel in the opposite direction, to run businesses and other activities in these areas. While in the case of Summit, the majority of dwellers commute to the city center, in Rotterdam, the situation is even scaled up: indeed, it is not unusual

for residents to work in different cities like Amsterdam or The Hague.

These lifestyle patterns raise several questions regarding the concept of inhabitation: What does it mean to live in a place? Who are the actual inhabitants of an area, the official residents, or the people making use of its spaces and activities? Which are the boundaries of domesticity? In Blijdorp, people expressed different levels of perception of what they feel like a more domestic space: the house, the neighborhood, the city. As a matter of fact, someone commuting to Amsterdam for a job recognizes already the city of Rotterdam as a more homelike environment. In Summit, instead, the sense of belonging was detached from the neighborhood. In fact, it was merely related to the dwellings and the working areas.

The reason for such differences in the relationship with the environment can be better understood by studying both tangible and intangible boundaries that are influencing our society. For instance, in the Netherlands, the presence of a well-developed infrastructure allows the population to overcome the cities’ limits, thus redefining new larger ones. In Summit, instead, the widely spread individual buildings are closed behind shiny decorated gates, hence relegating outside the surroundings.

The presence of a boundary itself should not be considered as an obstacle to interaction, though. Indeed, the absence of limits would result in the deletion of identity and hierarchy. For this reason, Richard Sennett makes a difference between boundaries, which he sees as closed walls, and borders, which are membranes where



Img 02.nn: Drawing of the typical floorplan of an individual house in Summit. Own work.

The Absence of limits would result in the deletion of identity and hierarchy

interaction takes place . Therefore, communities are jeopardized only in the case in which there is a boundary instead of a border.

This is what is occurring in Summit. Each gate represents a non-porous edge between the dwelling and the outside world. This feature is also further perceivable by looking at them. While it is possible to see a degree of influence from building to building, regarding architectural features and the setting of the floorplans, this is not possible addressing the gates. Each one is unique, utterly different in form and color from the neighboring ones. It is the most personalized item of the house. As a matter of fact, it is the gateway toward an individual existence, separated from the surrounding community.

Communities are jeopardized only in the case in which there is a boundary instead of a border

This characteristic of Summit looks even more peculiar when studying the configuration of the houses. In fact, on the ground floor, there is always a multifunctional open space (where it is possible to park the car), the guests' room, the traditional kitchen, the maid's room, and a toilet. By contrast, the owners live in the upper stories. Therefore, there is already a transition between the core of the house and the public space. Nevertheless, because of the widespread urban fear (also visible from the panoply of guarding posts scattered throughout the neighborhood), the two opposite worlds of public and

private remain as mutually exclusive entities, fueling social and security issues. According to the architect Aldo van Eyck instead, the opposites, which he calls twin phenomena, should be joined by an in-between, thus interpenetrating and merging while keeping their own dimension and identity .

Nowadays, in Summit, the only transitional element is actually the car connecting the inside of the house to the job place and vice-versa. Furthermore, another layer of complexity is added by a more intangible boundary: the housemaid. Indeed, all the activities which would drive social interaction are delegated to the servants. However, they also do not feel a sense of belonging to the area, given the lack of independence, or control, imposed by their job.

The situation is apparently different in Blijdorp, even though the social condition is somehow similar. Indeed, the neighborhood is characterized as well by scarce interactions among the residents. Most of them work and have social interplays in various areas of the city and even outside of it, coming back home to rest and sleep.

Although a similar lifestyle, which sees the dwelling as a sort of shelter, disconnected from the outside, the spatial condition is different. The entrances of the buildings are designed to foster encounters, and thus a sense of community, not necessarily cooperative, though. Indeed, although there are several types of entrances, they all present a similar feature. Christopher Alexander would call it a pattern: the different doors to access the apartments, which can vary in number (from two to four on average), share the same in-between space, which can consist of a few steps, a partially enclosed open space, or a covered atrium. Sometimes, even if the width of the sidewalk allows to put a table, partly claiming some public space, it is hardly possible to see this happening. Hence, Blijdorp's design is characterized by borders instead of boundaries. Nevertheless, there is scarce communication and lack of community life. The reason, in this case, lies in the residents' need to escape the chaos of the city, craving calm and isolation .



Pictures of Blijdorp's thresholds taken during the survey for the Seminar. Although the buildings are apparently similar their entrance often changes, creating variety and different possibilities. Own work together with Meko Y. (picture in the bottom right corner).
 Img 02.nn-nn: In the following page the drawing of Summit's street facades from the graphic novel "Toward the Summit".



Having said that, what is the difference between Blijdorp and Summit? Furthermore, what is the role of the architect in such a complex scenario? The distinction lies in the possibility of social interplay, of people to come together. In Summit, as long as the residents would keep the gates, there would not be the condition to build a community. On the contrary, in Blijdorp, the situation

can change according to the group of dwellers and their needs. Likewise, the image of the city is different: boundaries infuse a sense of detachment and conflict, while borders represent openness. Thus, architects should always provide for this option, leaving residents the choice about the lifestyle they want to pursue, also leaving space for future possible changes and evolutions.

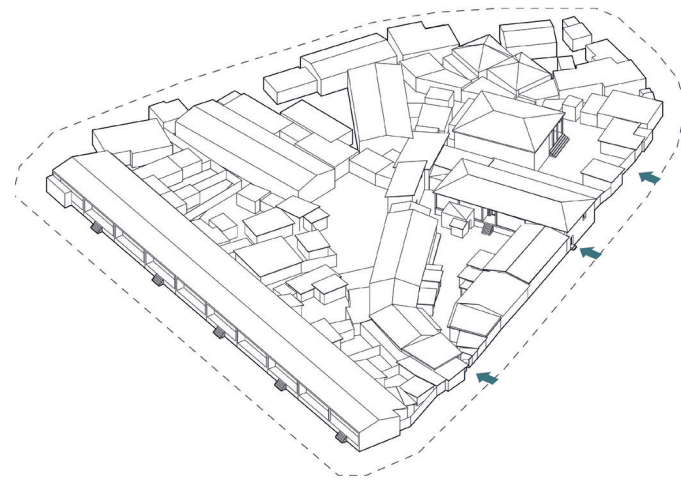
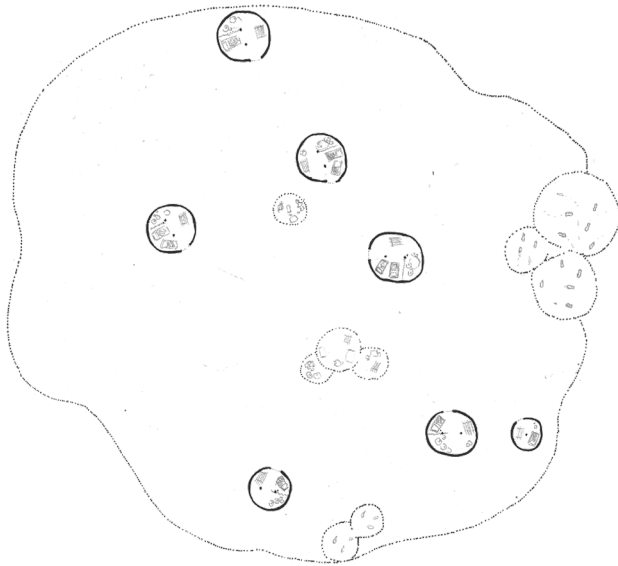
"The closed door in-between rooms [...] showing the possibility of communication".

Louis Kahn, "What Will Be Has Always Been"



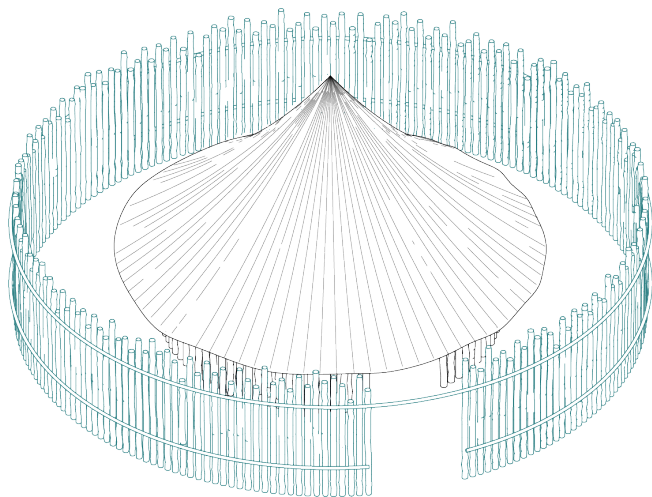
On the Fringe

Borders and Boundaries

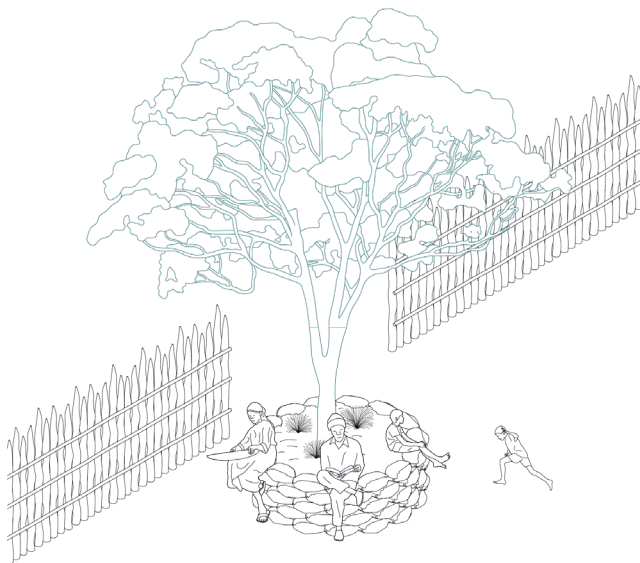


Urbanization in Ethiopia is a recent phenomena that has started since the beginning of the last century. Therefore the way of living are still rooted in the ethiopian's rural lifestyle. The need for protection and for claiming space led to the development in the cities of closed compound, hardly accessible. In some cases the street facade hace just a few opening, also barred for privacy reason. It result in the distruction of the connection between public and private space, affecting liveability and security. Furthermore the lack of openings to the street impedes the setting of shops reducing the possibility for income generation, especially for the the lower income groups

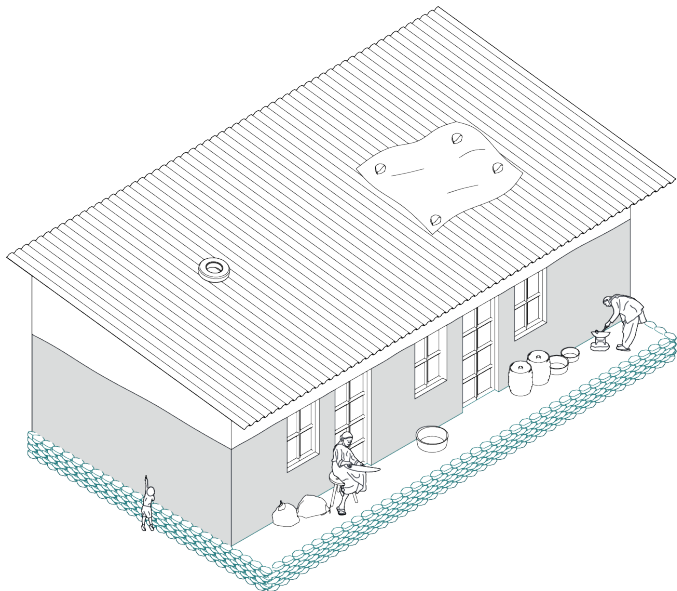
Rural Context



Enclosed Fenced Space



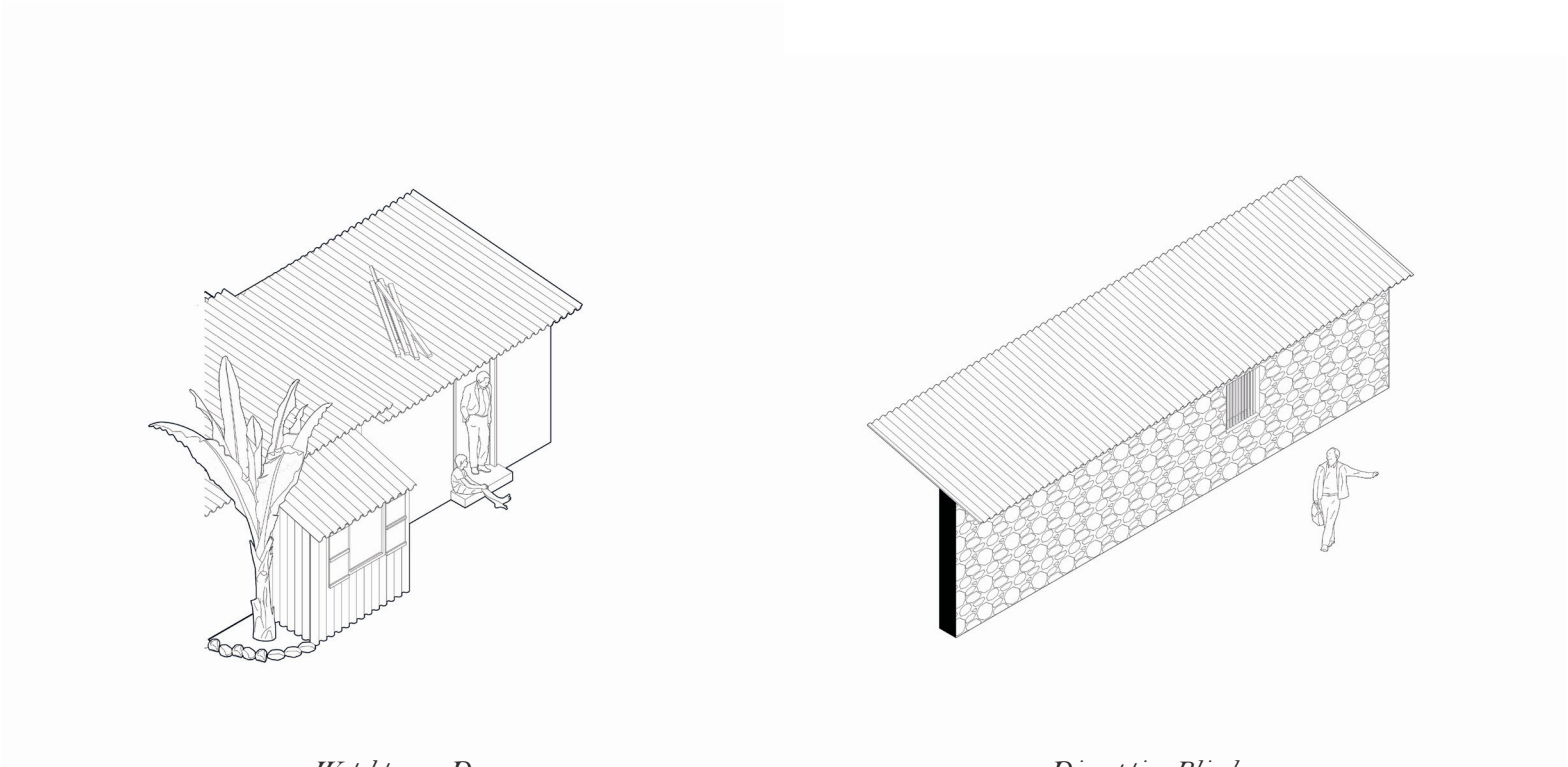
“Tree Gate”



Lived Step

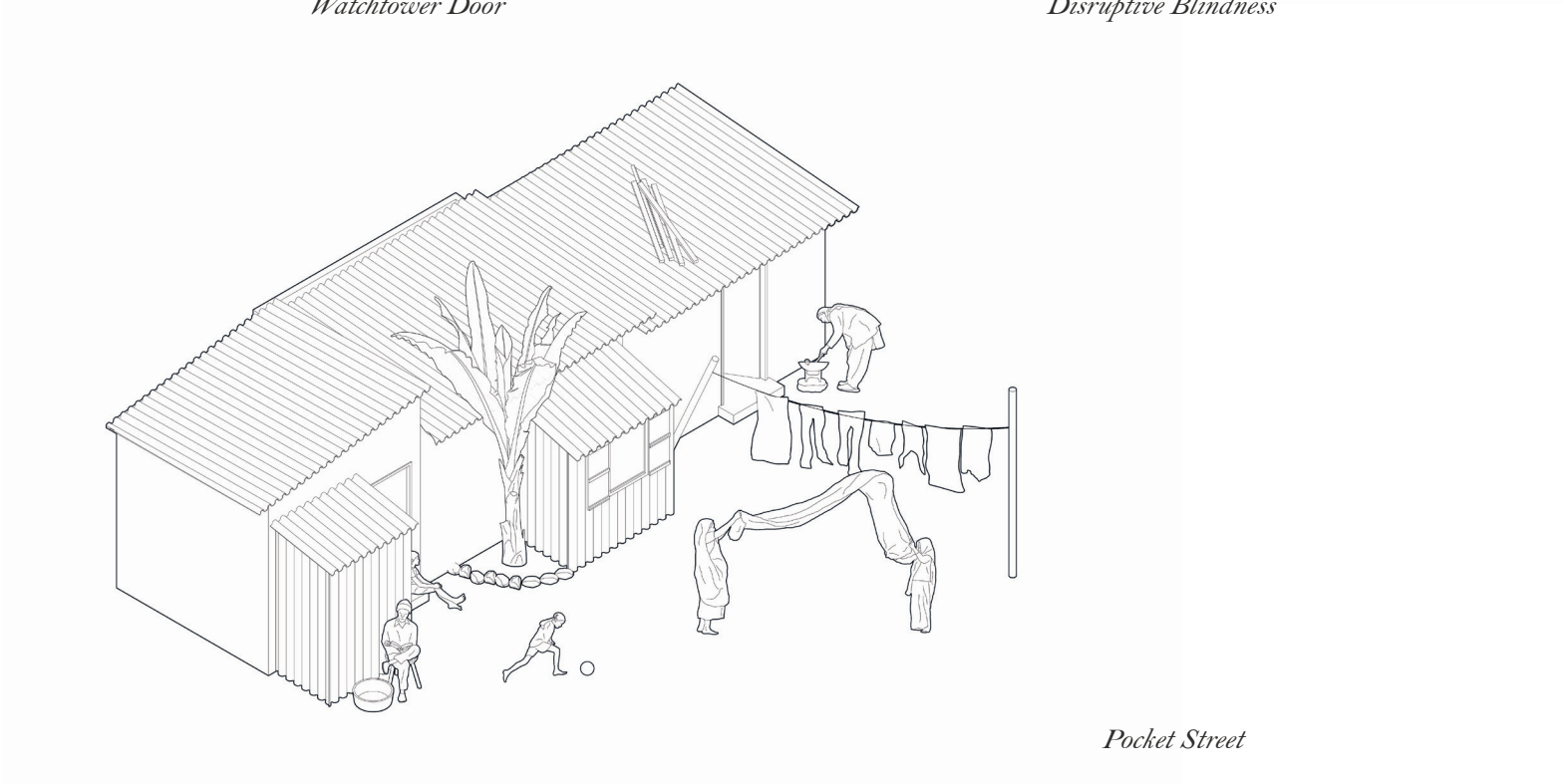


Urban Context



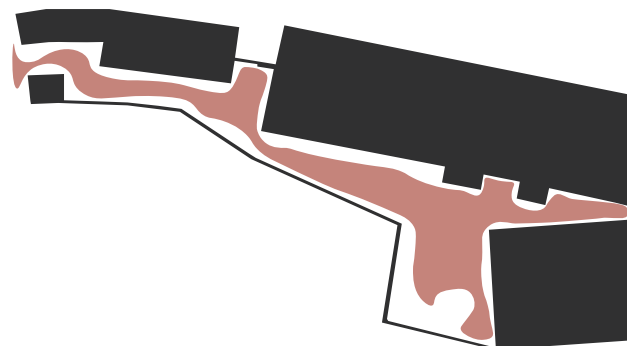
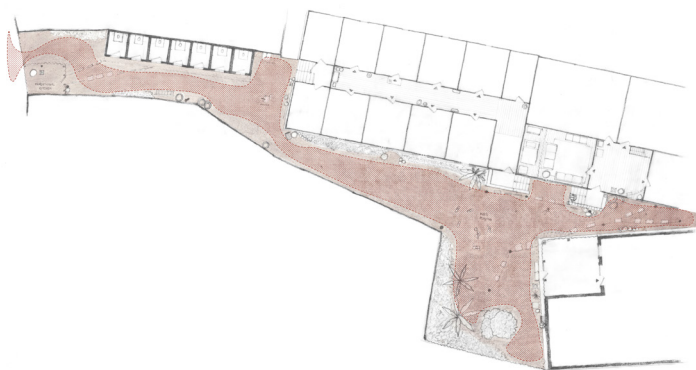
Watchtower Door

Disruptive Blindness



Pocket Street





Compression and Decompression inside the compound create pocket spaces which allow a more gentle transition from the communal space to the very private one.

Behind the Border

Inside the Community Nest

Life inside the compounds is very different from the one by the street. Behind the gates there is a living community living together. The communal space is used to dry seeds, clothes, to cook, to play, to cultivate plants and herbes, and to have social interactions. Reproducing a similar feeling in the public space will improve the quality of the neighbourhood as well as the life of the people. The pocket-like structure of the compound allows transitions in a gentle way.

Nevertheless, the need for provacy and private facilities had been highlighted as a strong requirement form the interviewed dwellers. Also, some of the compound had even barred window as the every single aspect of life is carryed out in same room, even having a shower, by entering a bucket placed in the middle of the room and using a smaller one to pour water and get cleaned.



Diagram of outdoor activities in Ethiopia



Diagram of outdoor activities inside one of the visited compound in Talian Sefer, Addis Ababa



Activities in the compound: A woman organizing the gallery space, which is used as an extension of the house as storage space, traditional coffee making, seeds drying.



Activities in the compound: Washing clothes, hanging clothes to dry, cooking on the gallery



Young woman making injera in a village



Interior view of the Compound

The Value Without a Name

A Community Rooted Tradition



Ethiopian food is strictly connected to tradition and also bound social interaction and thus also space. The traditional injera, coffee and tej are charged with community values indeed.

As a matter of fact, these activities are meant to be carried out with the community: injera is eaten from the same plate, traditionally placed on top of the *mesob*, coffee is drunk with guests and in great quantities and the tej room represents the community's meeting place where people discuss problems and possible solutions. These activities show a way of living strongly connected to the community, thus it should be preserved.





Income generation: from the false banana's leaf it is possible to make bread which is usually eaten with local honey and a spicy sauce. The woman from this village provides for herself selling the bread to the village

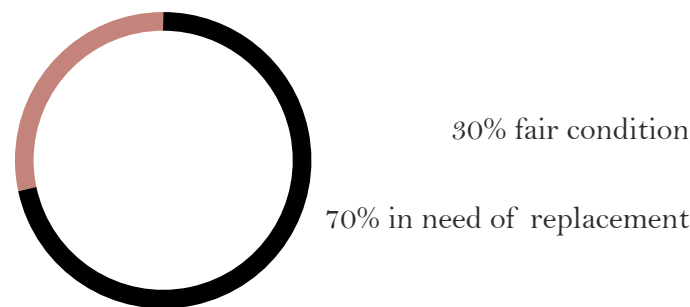
Income generation: weaving is an important activity in Ethiopia and a good source for income generation. Especially renowned are the fabric made in Lalibela.



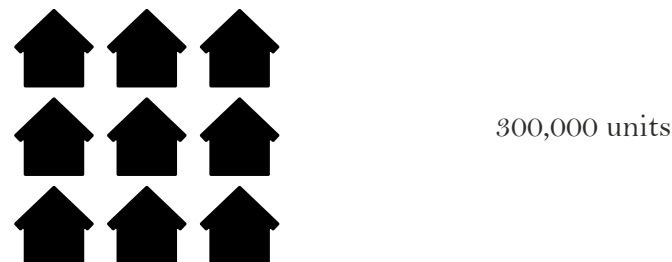
P o p u l a t i o n i n E t h i o p i a



A d d i s A b a b a ' s h o u s i n g
s t o c k i n 2 0 1 1



U n i t s n e e d e d i n A d d i s
A b a b a i n 2 0 1 1



Addis Ababa

A High-Pace Urbanization

At the beginning of the 21st century, Ethiopia was facing an extensive housing shortage, which was affecting all income groups, in Addis Ababa especially (French & Hegab, 2011a). Indeed, in 2005, about 80% of Addis Ababa's residential areas were considered "slums", according to UN-Habitat's definition (UN-HABITAT, 2007a). In 2004, the Urban Sector Millennium Development Goals Needs Assessment (2004) predicted that to meet the Millennium Development Goals (MDGs) in 2015, it required a total of 2,250,831 units, which equates to a considerable 225,000 houses per annum (French & Hegab, 2011b).

To cope with the housing backlog, Ethiopia signed a bilateral agreement for technical assistance with the German government, in 1999. As a result, together with Germany's official development agency GTZ (German Technical Cooperation), they developed a program divided into three stages: LCH technology (1999-2002); Addis Ababa Grand Housing Program (2002-2006); Integrated Housing Development Program (2005-2010) (Delz, 2016).

The Integrated Housing Program (IHDP) set several goals, among which: reduce slum dwellings by 50%, build 150'000-200'000 housing units, create 60'000 jobs, and improve training procedures for the domestic construction sector (Delz, 2016b).

The resulting strategy was to use a standard mid-rise housing block type (Mota, n.d.), a typology that could be cost-effective and drive densification, thus the condominium, a new structure made of reinforced concrete. As a matter of fact, until the mid-2000s, in Addis Ababa 97% of residential units were still single stories, while 75 % of units' walls were made of mud and wood (UN-HABITAT, 2007b).

The pilot project started in 2005, took place on brown-field in the area of Bole Gerji. The first master plan for the design of the project was drawn by Fasil

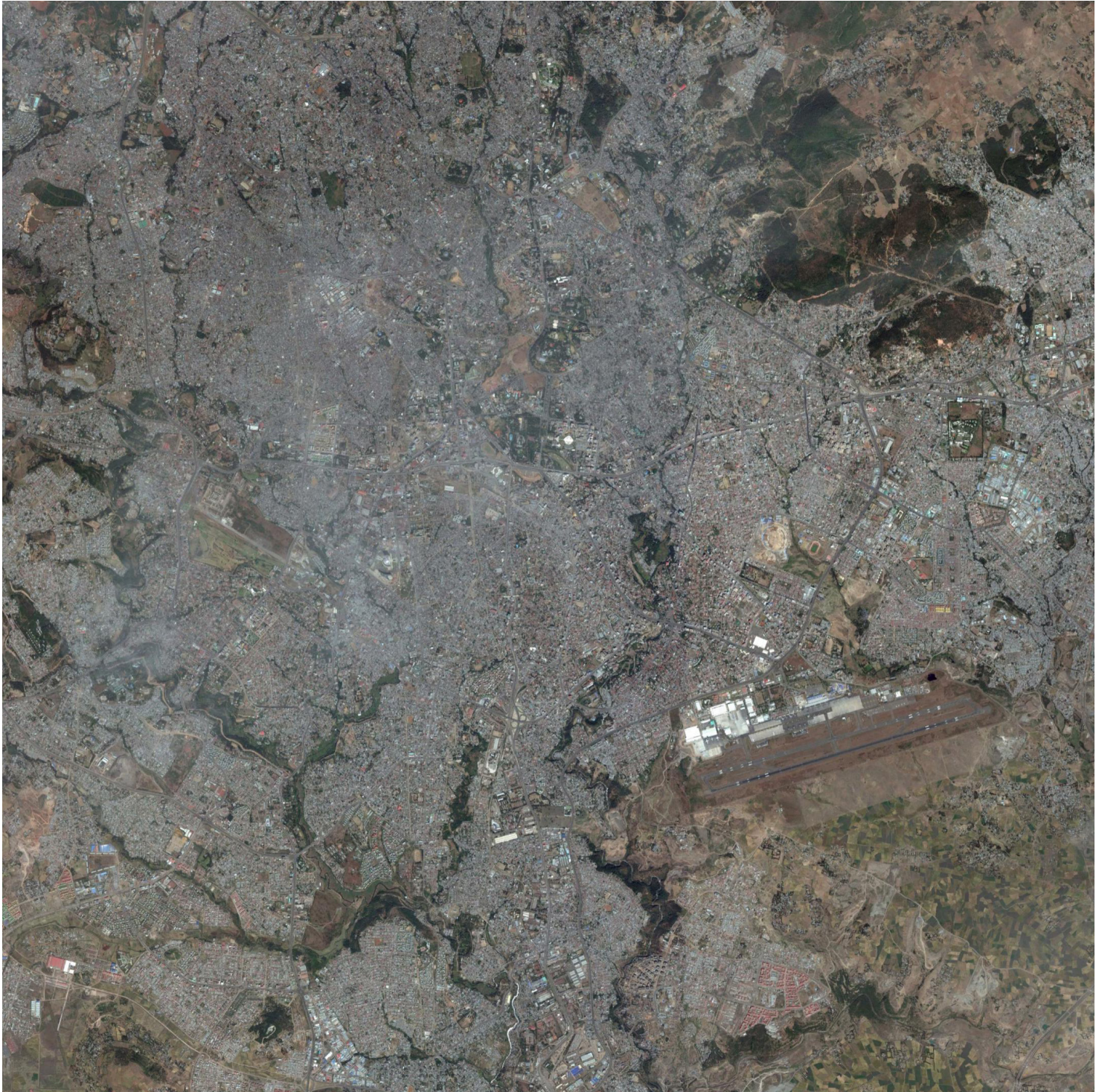
Giorgis (750 housing units: studios, 1 and 2-bedroom typologies, an office building, several commercial units). Government agencies were in charge of the water supply and electricity but were not effective (French & Hegab, 2011c). Regarding the cost of the construction, considering that the target was USD 61/m², they managed to achieve a cost of USD 68/m² (French & Hegab, 2011d).

After the successful pilot project, GTZ ceased the actual collaboration with the Ethiopian Government, taking an advisory role. Thus, under their recommendation, the Housing Development Project Office (HDPO) was created to have a specific office for housing development (French & Hegab, 2011e).

The success of the pilot project differs from the actual situation of condominium housing. Among the factors, the location, services, and affordability, which are all bound to economic issues. As a matter of fact, the first projects had a lower cost since were in brown or open fields in the periphery of the city, in order to avoid the cost and time of evictions. The social and economic effects of relocating people in areas far from the city center have been overseen by the government in the view of Addis' dwellers (French & Hegab, 2011f) though. On the contrary, as time went by, the necessity to build in the inner city grew (French & Hegab, 2011g) and thus costs.



Ortophoto of Addis Ababa in 2004



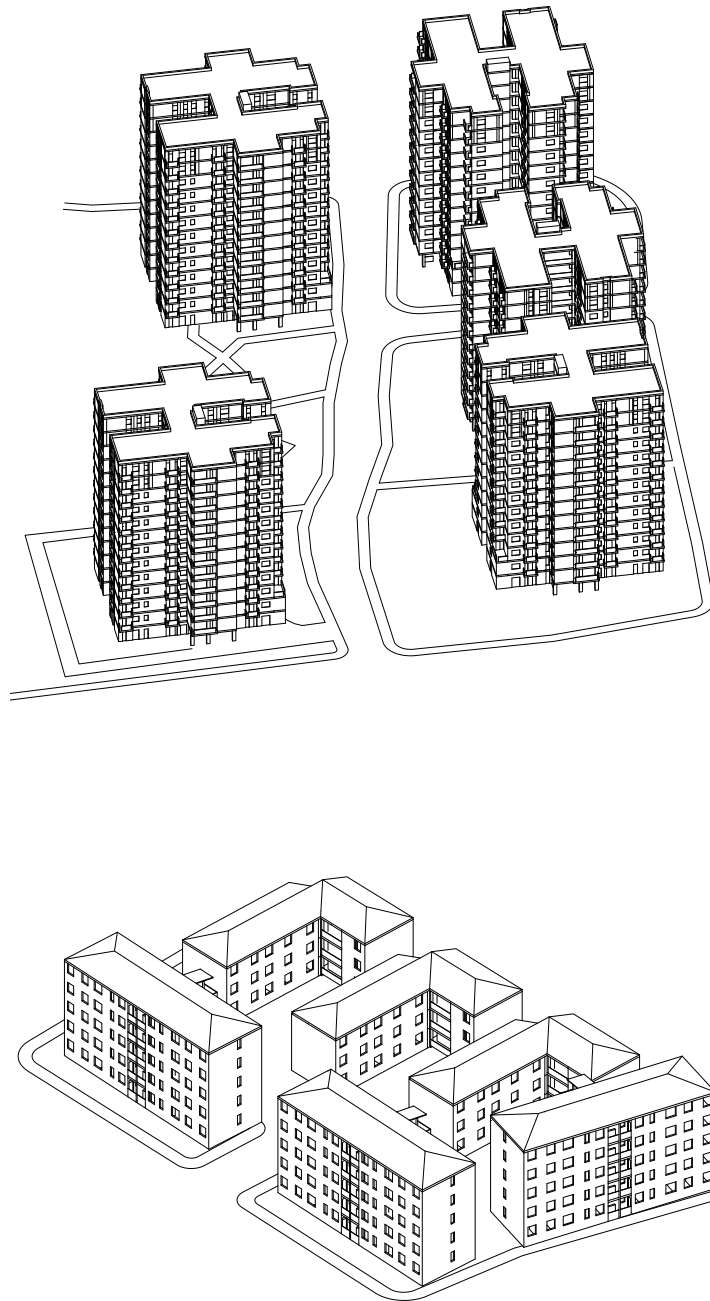
Ortophoto of Addis Ababa in 2016



Condominium construction site

Addis Ababa

The Condominium Housing



Axonometric drawings of Condominium 40/60 and 20/80

The core of the housing policy was to transform a housing sector historically characterized by rental occupation, into one based on private homeownership (Gardner, 2016).

In order to that, the IHDP was financed by public resources and a system of mortgages with the Central Bank of Ethiopia (CBE) (Tipple & Alemayehu, 2014a).

Although the plan was ambitious and in the long run managed to realize an impressive number of units, the housing demand has been so elevated that a computer-based lottery system was set to allocate the available apartments. When registering, applicants choose which condominium site, Sub-city and unit type they prefer. In case of relocation, though, people are not entering the Lottery system and are supposed to be compensated or moved to another place in the inner city. Also, the first 30% of the vacant places are available only for women and their children (French & Hegab, 2011h).

Although the planned policies, these were proved sometimes to be ineffective. First, the system forces people to become homeowners or leave the place where they were living. Indeed, in order to enter the condo and receive the loans from the bank, each dweller has to pay a down payment which is not affordable for all. Hence, the low-low income people are forced to move directly or to rent the condo to wealthier groups (Delz, 2016c). Also, many dwellers who agreed to move were given a 45-day time to leave their apartment while according to the law they should have 90 days (French & Hegab, 2011i). Furthermore, Addis Ababa's residents have been complaining about the amount of the compensation since it only takes into account the cost of the house at the time of the construction, thus not considering further investments (French & Hegab, 2011i). Finally, regarding affordability, the fact that low-income families can be numerous was overseen by a policy which has been making more affordable the smaller apartments.

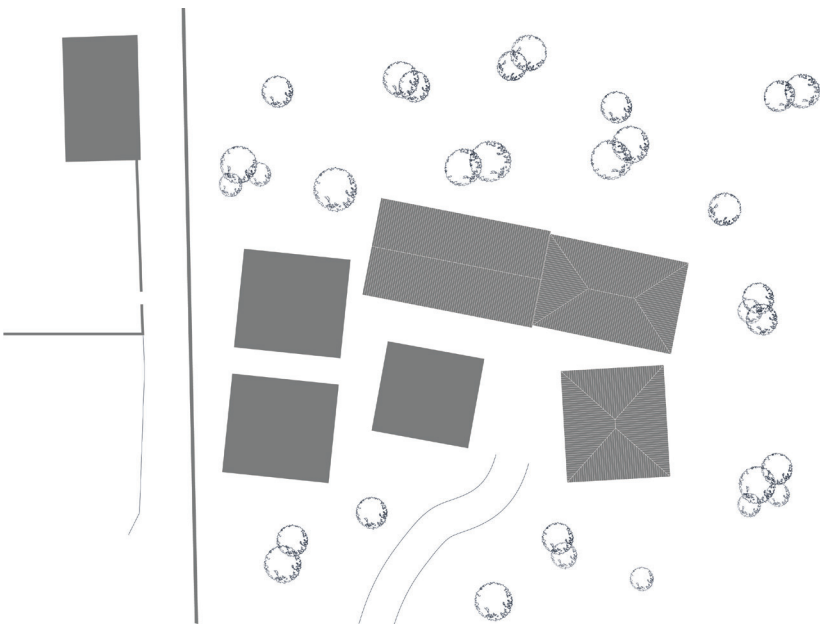
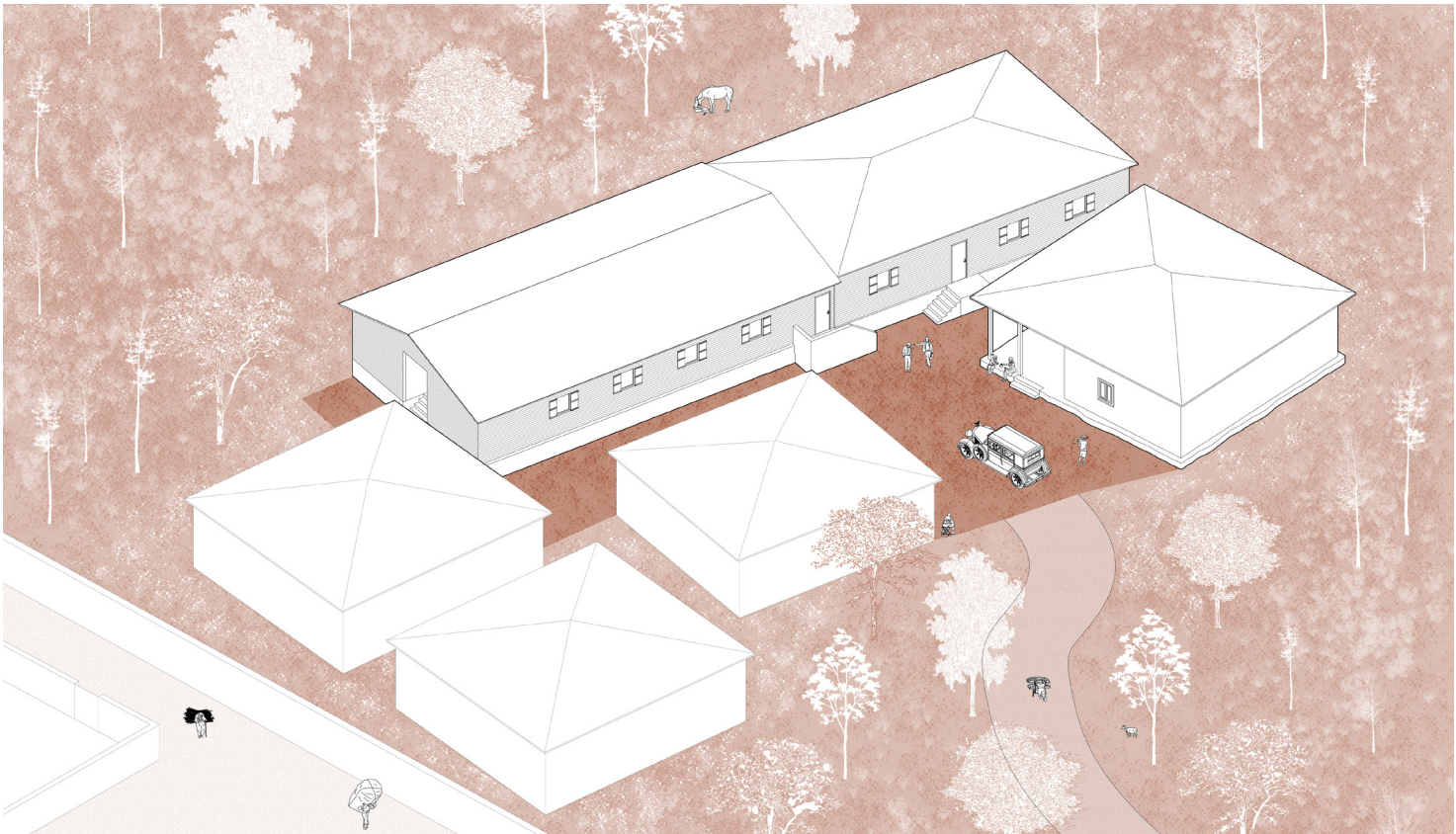
The Site Project

Talian Sefer



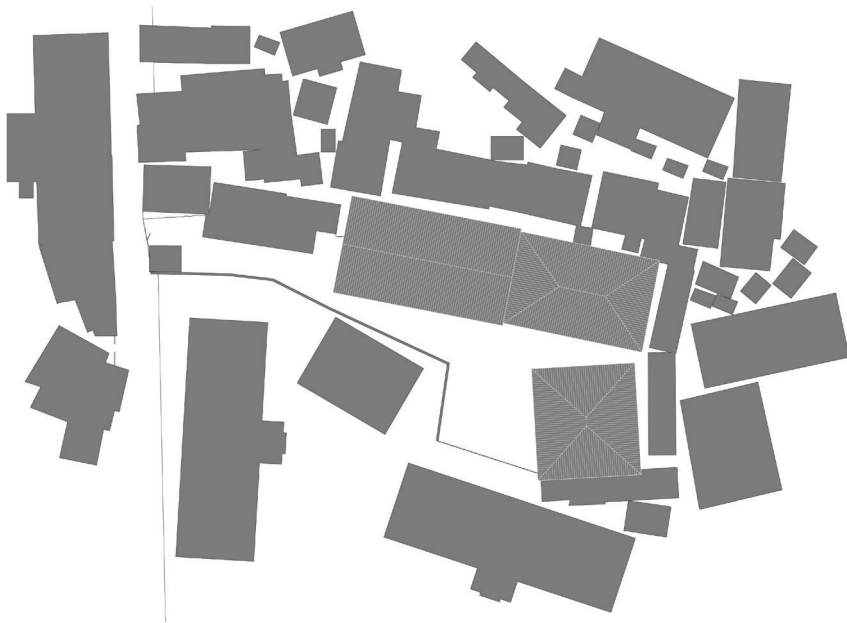
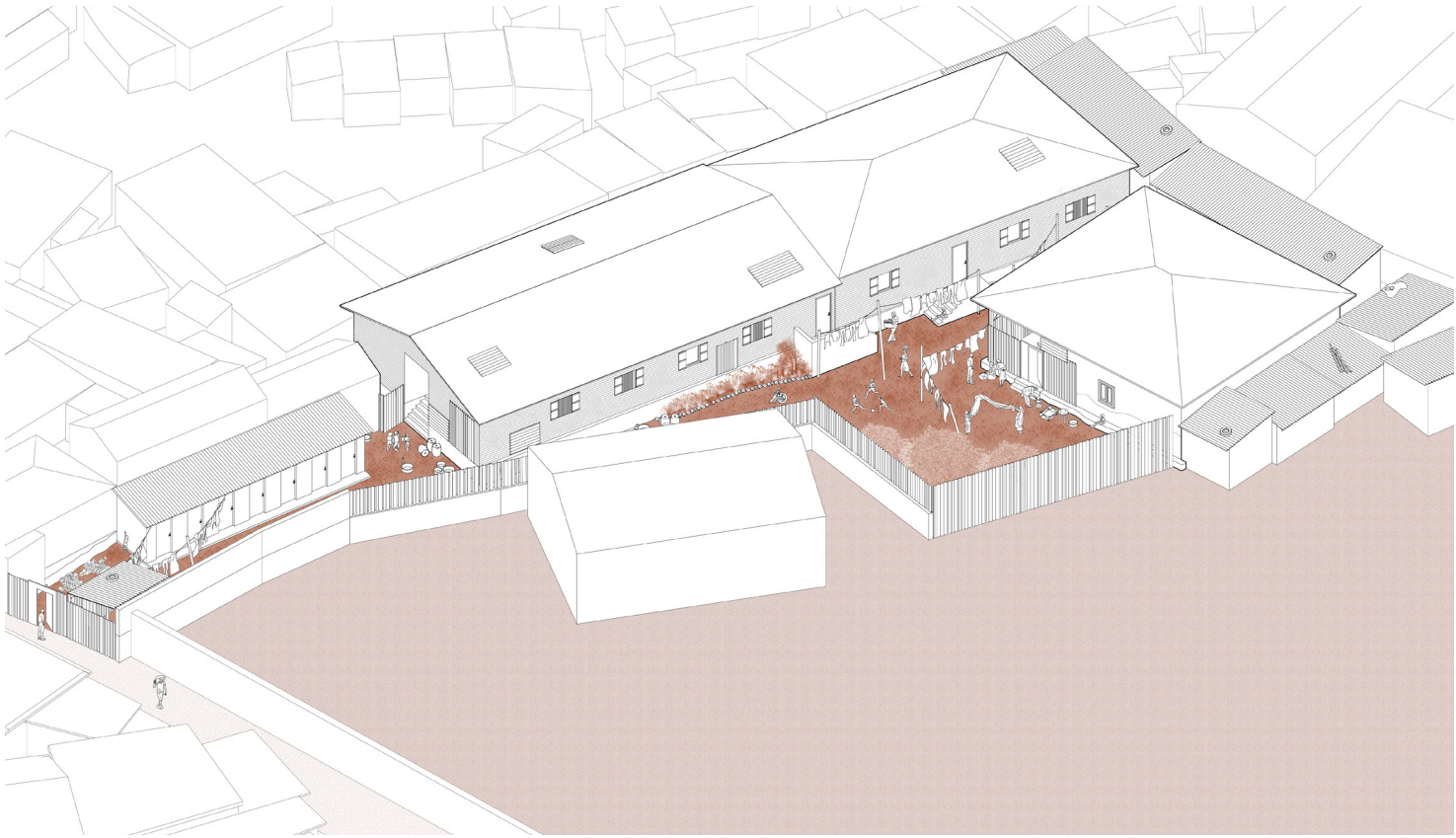


Changes in Addis Ababa



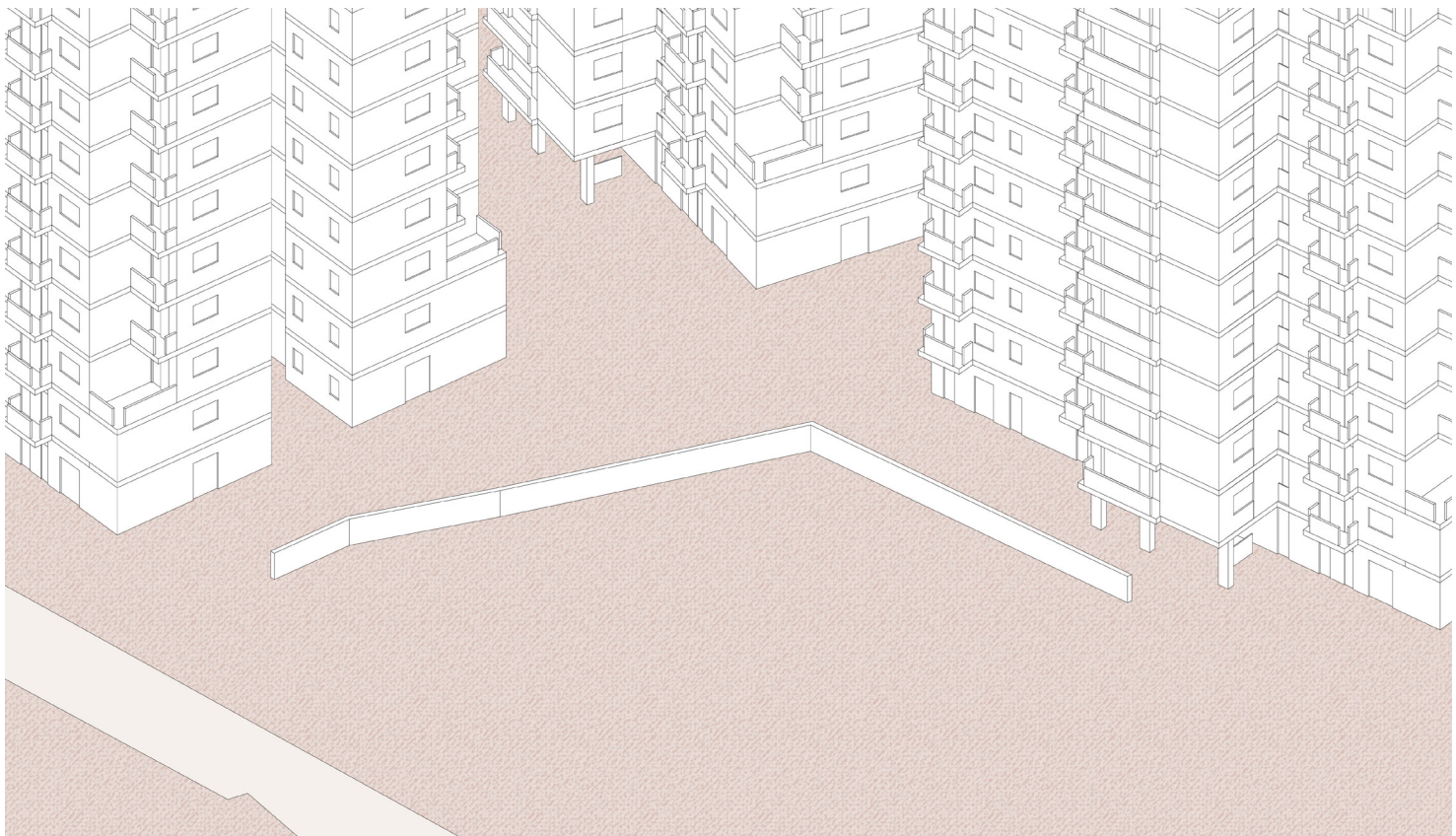
1930

Scattered villas
set in a prevailing
rural environment



2019

—
Urban growth
and escalation of
squatting



2030?

—
Evictions
and erasing
redevelopment



Drawing of Villa in Talian Sefer

Talian's Heritage

An Overlooked Possibility



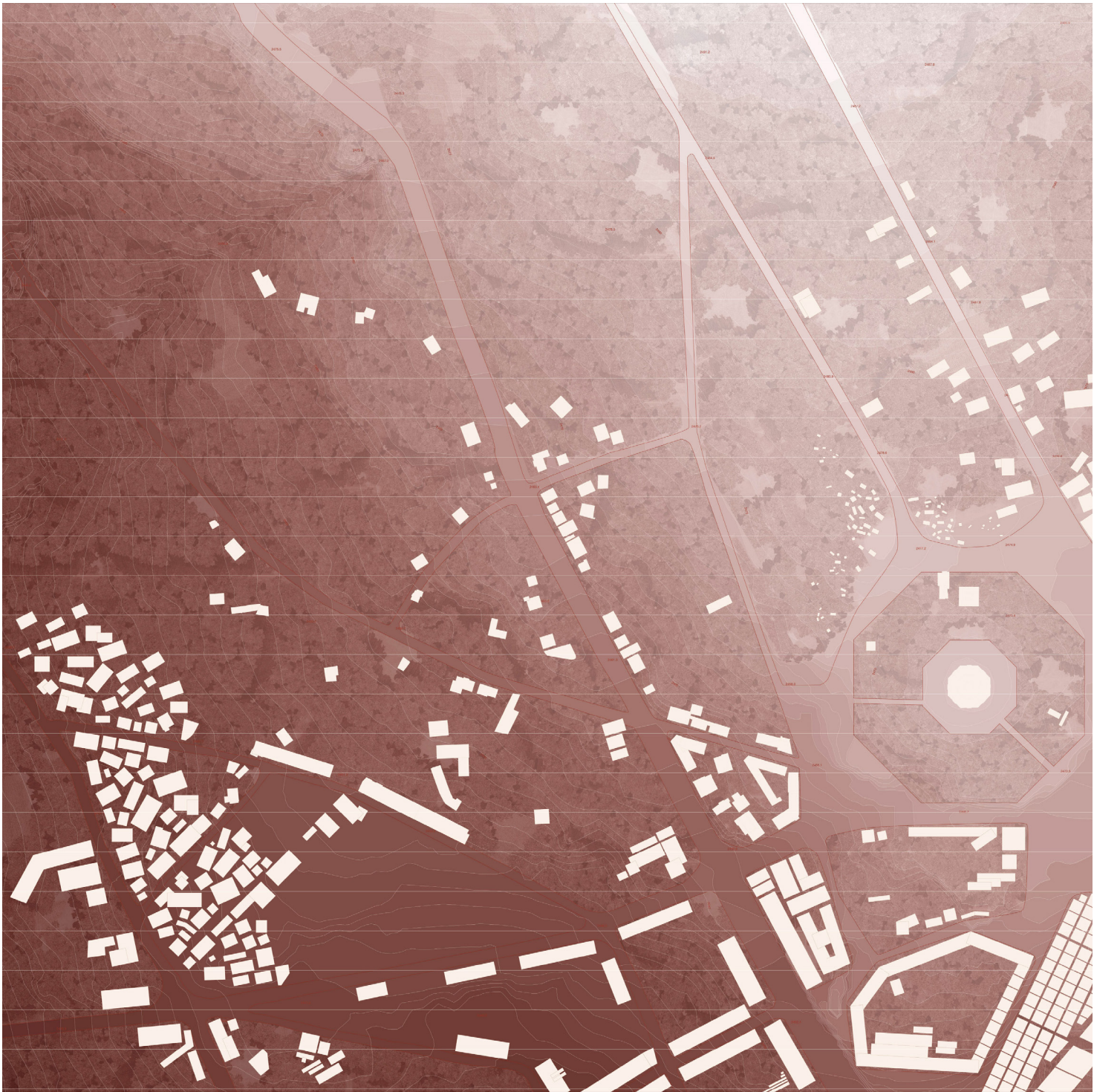
Talian Sefer is an old sefer of Addis Ababa. Its name is given by the settlements of italians in the area during the 1930s. Although the history appeared to be uncertain, as the interviews gave us several different scenarios, immigrated italians were allowed to stay in this area where they settled, even after the end of the fascist occupation, and were given the possibility to build their own buildings.

The resulting fabric of the first decades of the century comprises mainly three typologies. Together with the research team we identified these types and named after *villa*, *veranda house*, and *prison*.

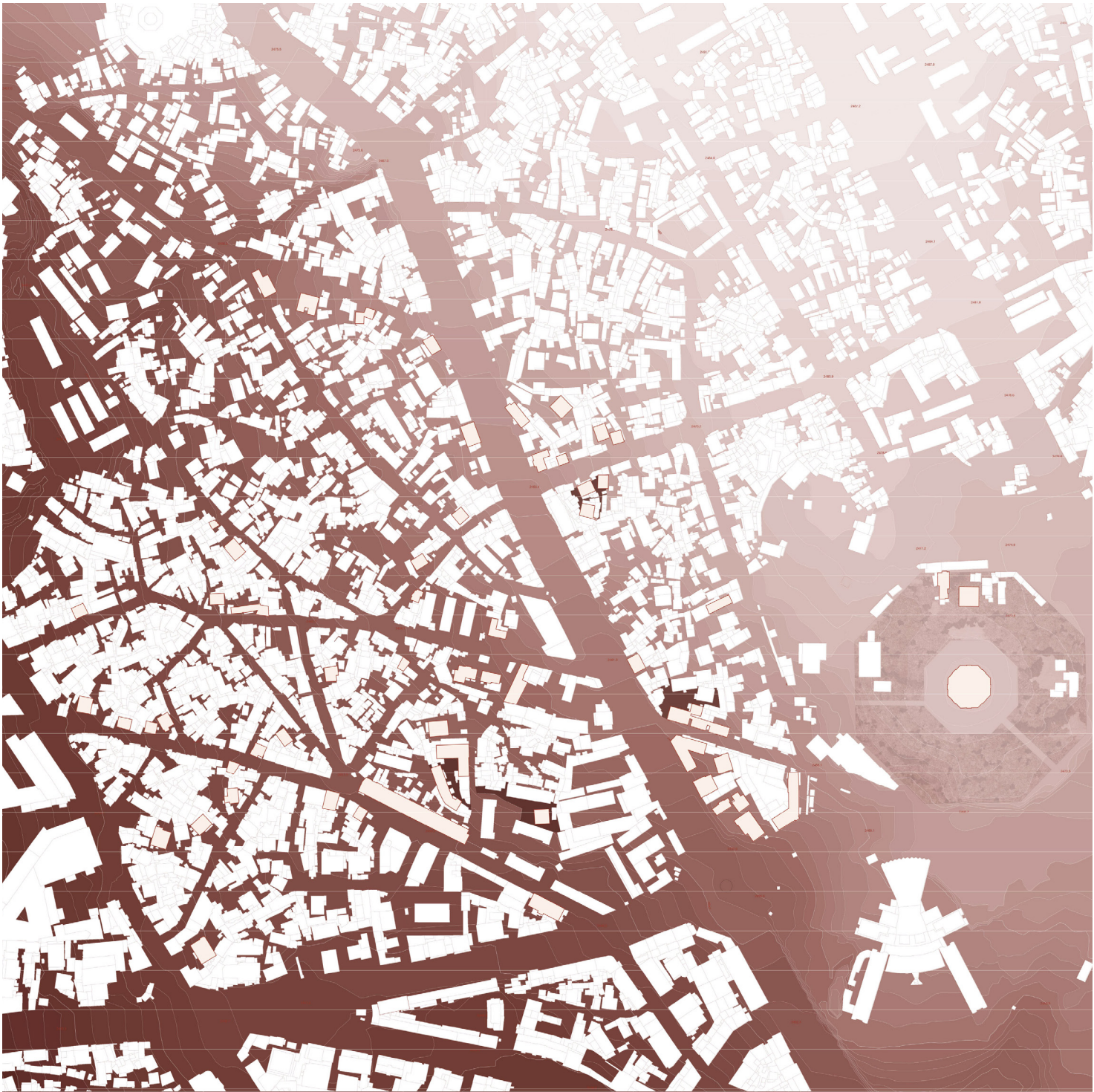
Regardless their original function these houses have been transformed and divided to make several dwelling units. Although the great potential of these construction, their status remained unseen from the local administration, left abandoned and not listed on any document.

The aim of the project is to take advantage of the aspect of the neighbourhood by making them meeting places like tej room, or other types of commercial-community activities like weaving, in order to sustain at the same time tangible and intangible heritage

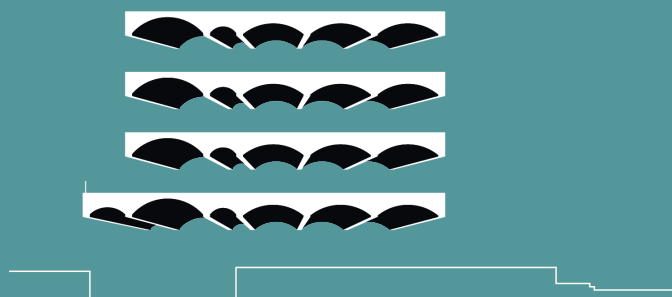




Hypothetical map of Addis Ababa in 1930



Map of Addis Ababa in 2019



T e c h n o l o g y

“Traditional architecture responds to climate; typically buildings are small implying that everyone is able to operate some form of maintenance. It means that when the question of building maintenance arises after the rainy season, everyone is able to tackle the repairs themselves. But when you begin to build “big,” this becomes a problem.

*What I propose to do is to ensure that buildings will last longer on the basis of traditional building systems, for example, transforming clay, experimenting with new compounds mixing cement, finding the most suitable construction solutions, building basements, using laterite or clay bricks for walls. These solutions are all available. We have the earth to make bricks; we just have to dig. **Our greatest resource is labor.** Many Africans emigrate in search of work; we must try to keep them at home, teach them to work, teach them to use local materials - traditional systems but also new techniques.*

I think that giving value to traditional building techniques is the way we can unite tradition and modernity. On the one hand, tradition, on the other, technology”.

Diébédo Francis Kéré



Adobe Mezcal

Technology Tradition and Modernity



In Ethiopia, and especially in Addis Ababa, the widespread condominium typology has imposed mainly the use of reinforced concrete for the load-bearing structure and concrete hollow blocks for the fillings.

Nevertheless, concrete is still expensive since the some of the raw materials, the coal for powering the factories and the steel have to be imported. Also, it requires specialized workers that are often foreigners. On top of that, any relation to the context, the history, and the heritage of the place seems to be lost.

Thus, the aim of the project was to find a balance between technology and tradition.

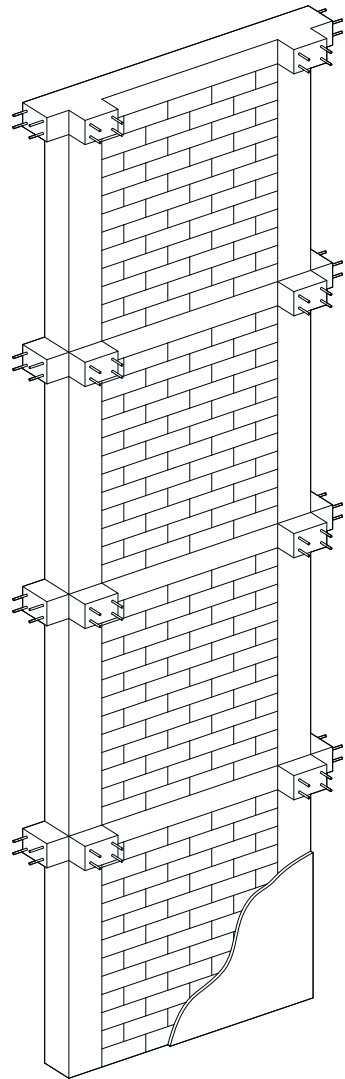
Therefore, the choice of materials and building

techniques was made in accordance to its local availability, cost and possibility for community participation.

As a result, the main construction material was selected among earth-based materials, since they can be locally sourced and local population can be involved in the process.

Modern Tradition

Concrete Structure
& Cement Blocks



Actual construction technique in Ethiopia

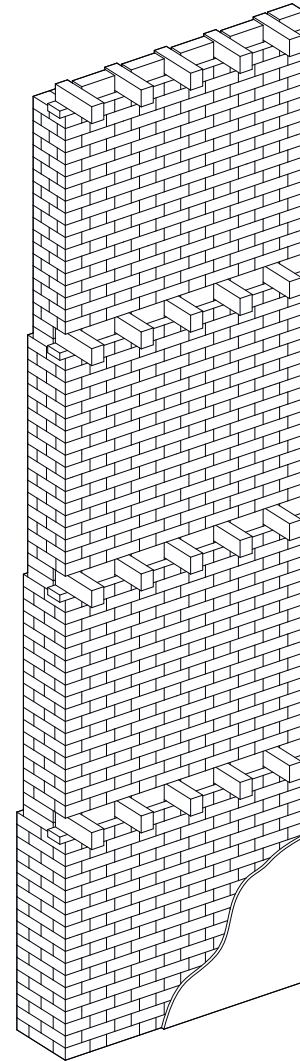
Imported materials

It needs insulation layers

It requires a layer of plaster

Ancient Tradition

Adobe Bricks
& Wooden Beams



Traditional construction (Yemen)

Local materials

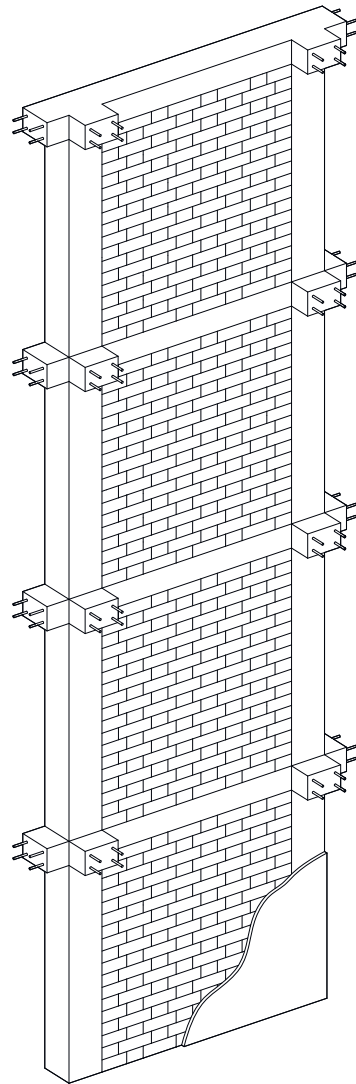
Fire hazard because of wooden beams

Thick walls to achieve structural balance

It requires a layer of plaster

Hybrid Approach

Concrete Structure
& Adobe Bricks



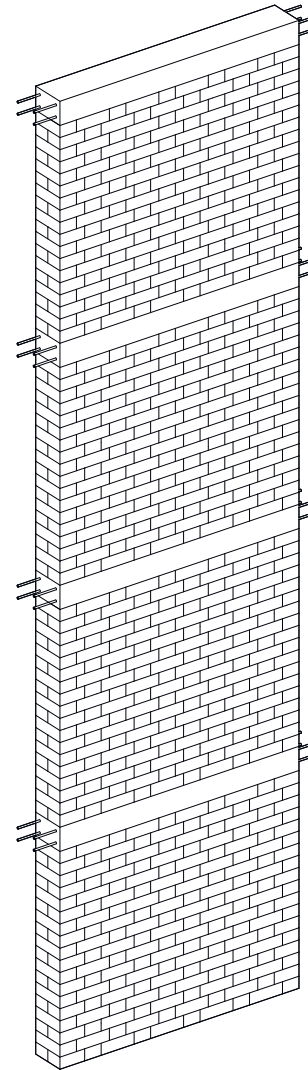
Adobe used as infill and not load-bearing

Local and imported materials

It requires a layer of plaster (erosion)

Hybrid Evolution

CSEB
& Concrete Beams

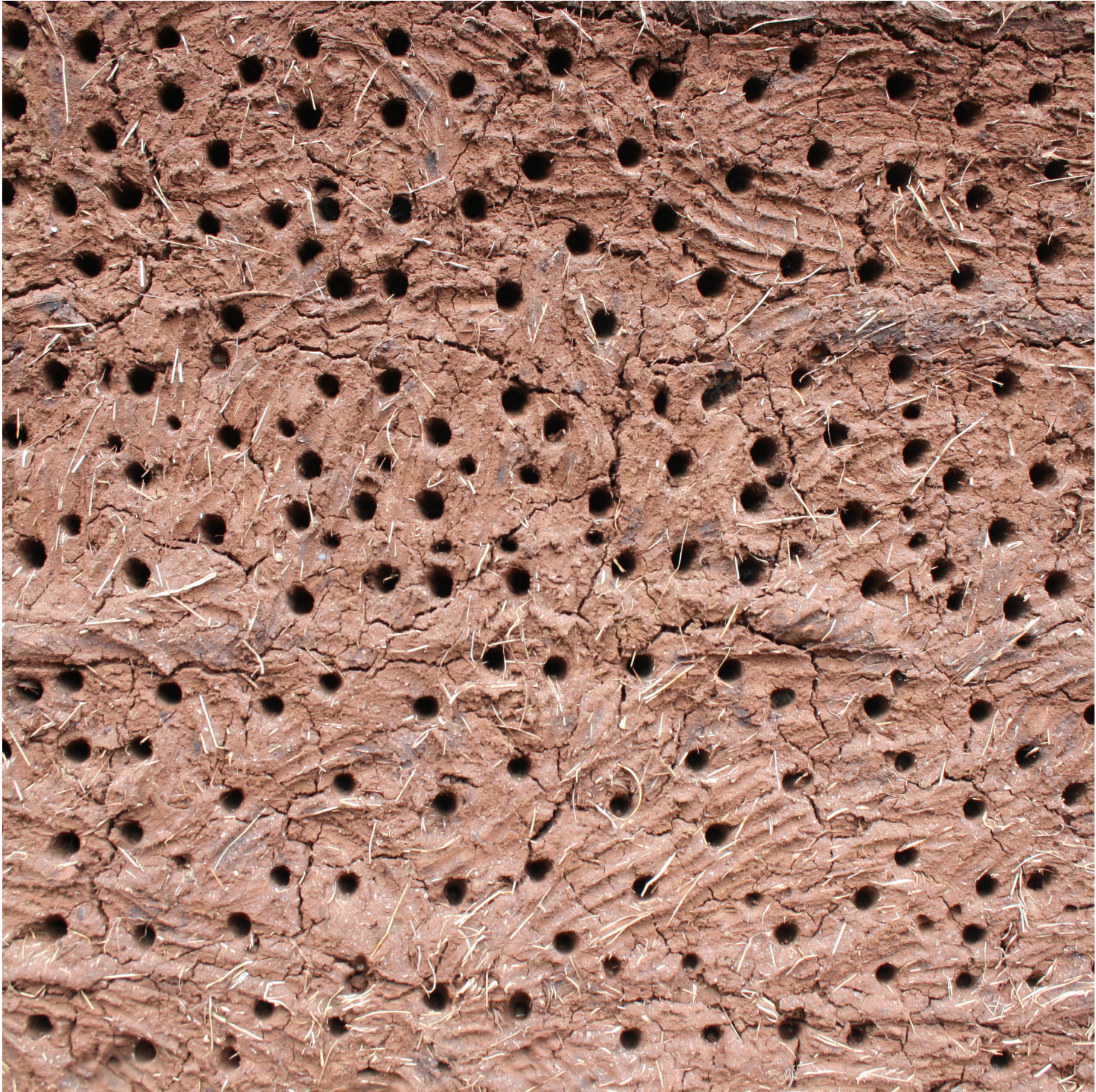


Load-Bearing bricks

Mainly local materials

It requires specific machineries

It doesn't need a layer of plaster (water-resistant)



Daub construction technique in Ethiopia. The wholes are made in order to facilitate the application of a plaster on top of it.

	Production	Construction Use	Fire Behavior	Water Resistance	Sustainability	Cost
Concrete	In local factories although the need for importing some raw materials from foreign countries	Load-bearing structure and filling blocks	Noncombustible	Waterproof, often used for protective plasters	Durable but not sustainable regarding production and circularity	Increasing because of the need of importing raw materials and coal for powering the factories.
Fired Brick	Industrial process which requires a good deal fo energy. At the moment it is not common practice in Ethiopia	Mainly used for filling it can also be load bearig. Also used for flooring in the form of tile	Noncombustible	Waterproof	It can be reused but its production requires energy and the process releases pollutants in the air	Not affordable. It is not common and its production requires coal to be imported for powering the factories
Adobe Brick	Manual or mechanised. The streghtening takes place by sun drying	Load-bearing and filling. In multi-storeys buildings It requires thick walls (up to 80-90 cm)	Noncombustible	It needs a protective layer or regular manutention	Natural, circular and doesn't require much energy for its production	Relatively affordable, depending if the production is manual or mechanized
CSEB	Mechanised, it doesn't need drying time, thus is easier to store compared to Adobe	Load-bearing and filling. Good compressive streght. Also used for multystorey buildings	Noncombustible	Depending on the quality, it can withstand rain without any protective layer	It doesn't require much energy for its production and it can be sourced directly on site	Costs are depending on the type of machinery
Bamboo	Locally avalilable and easy to source since it its high growth rate	The types available in Ethiopia do not have a remarkable tensile strenght	Normal combustibility	It can withstand rainwater and it can also be used for roofing. It needs maintenance	Easily sourceable in nature it grows fast and spontaneaulsy. Negative CO2 footprint over a full life cycle	Local bamboo is affrodable but not very suitable for construction. Thus the cost can change if imported
Eucalyptus	Locally sourced, not available as it used to be in the past	Load-bearing	Easily Ignited, it needs threatments	It can withstand rainwater. It needs maintenance	Sourceable in nature, generally it has a negative CO2 footprint over a full life cycle	Cost can be expensive, also as the scarce availability would require it to be imported
Stone	Locally sourced	Load-bearing, traditionally used for foundations and base layer	Noncombustible	Waterproof	Sourceable in nature, it can also be reused. A massive use would drastically reduce its availability	Costs are depending on the type of stone and its availability, generally it is not very affordable



Image of one of the houses built in Sahel

Building a Community

Tecnology Transfer in Sahel



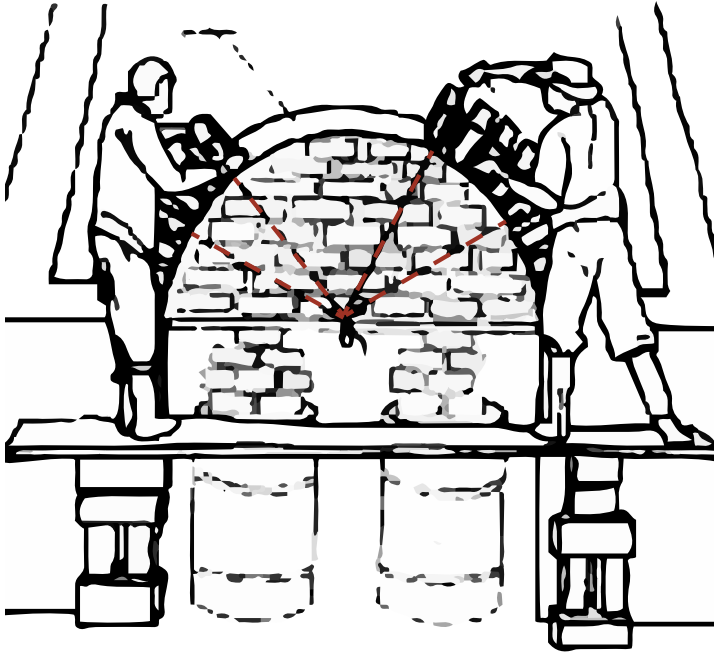
The Woodless Construction Project has been implemented since 1980 by the nongovernmental organization Development Workshop (DW). The aim was to introduce construction techniques that could replace the use of wood.

Hence, DW trained local population to use mud blocks for all structural elements. The program has been carried out in the Sahel region, below the Sahara Desert. In this area of the african continent, the communities' shift of lifestyle from nomadic to sedentary has placed high pressure on natural resources, especially on several species of trees, which have been gradually disappearing.

Therefore, the project was meant to start a process that would decrease deforestation, and at the same time provide the education and expertises to make use of other resources to build durable, affordable and decent shelters. The assimilation of this construction system would eventually create the possibility for income generation.

The technique was learned by DW during 1970s in the first place by working with expert Egyptian architect Hassan Fathy. Likewise, they assimilated another method coming from the Iranian culture. Consequently, they were able to carry out a "South-South" technology transfer.

The major challenges in the adaptation were the different climate, as Sahel is affected by torrential rainstorms, and the system of training. The response to climatic issue required a change in the design that would allow to rapidly evacuate rainwater. Instead, regarding the workers instruction a detailed plan was made to help them developing skills in a short time but slow enough to observe and practice.



People from a community building Nubian vaults

Construction Process Following Static Equilibrium

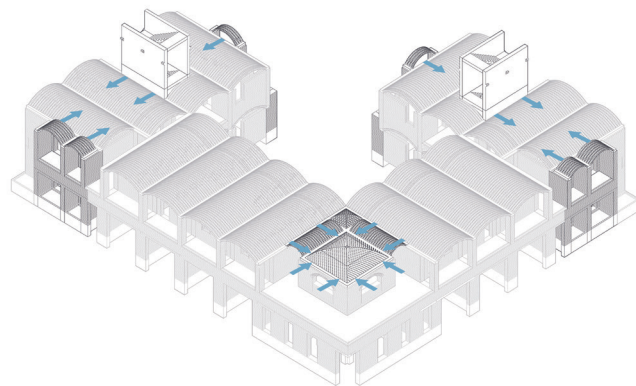
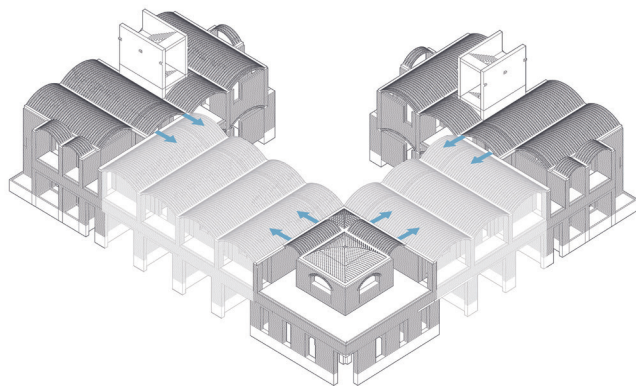
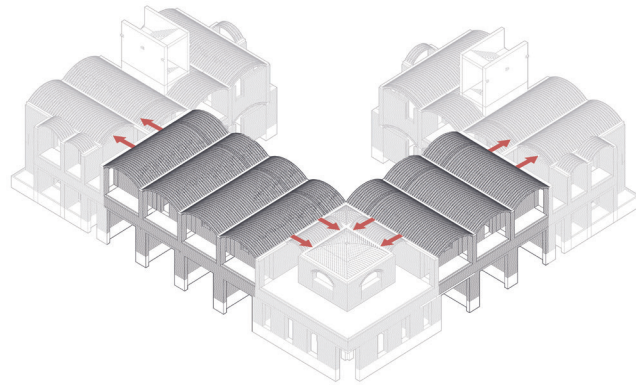
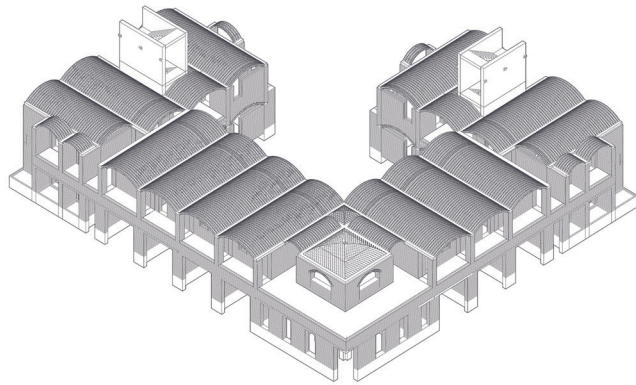
The building was designed taking into account its structural equilibrium. As a matter of fact, the horizontal component of the stress imposed by the vaults needs to be balanced as the walls themselves cannot hold it. Generally, tie rods, buttresses and ring beam are used for this purpose.

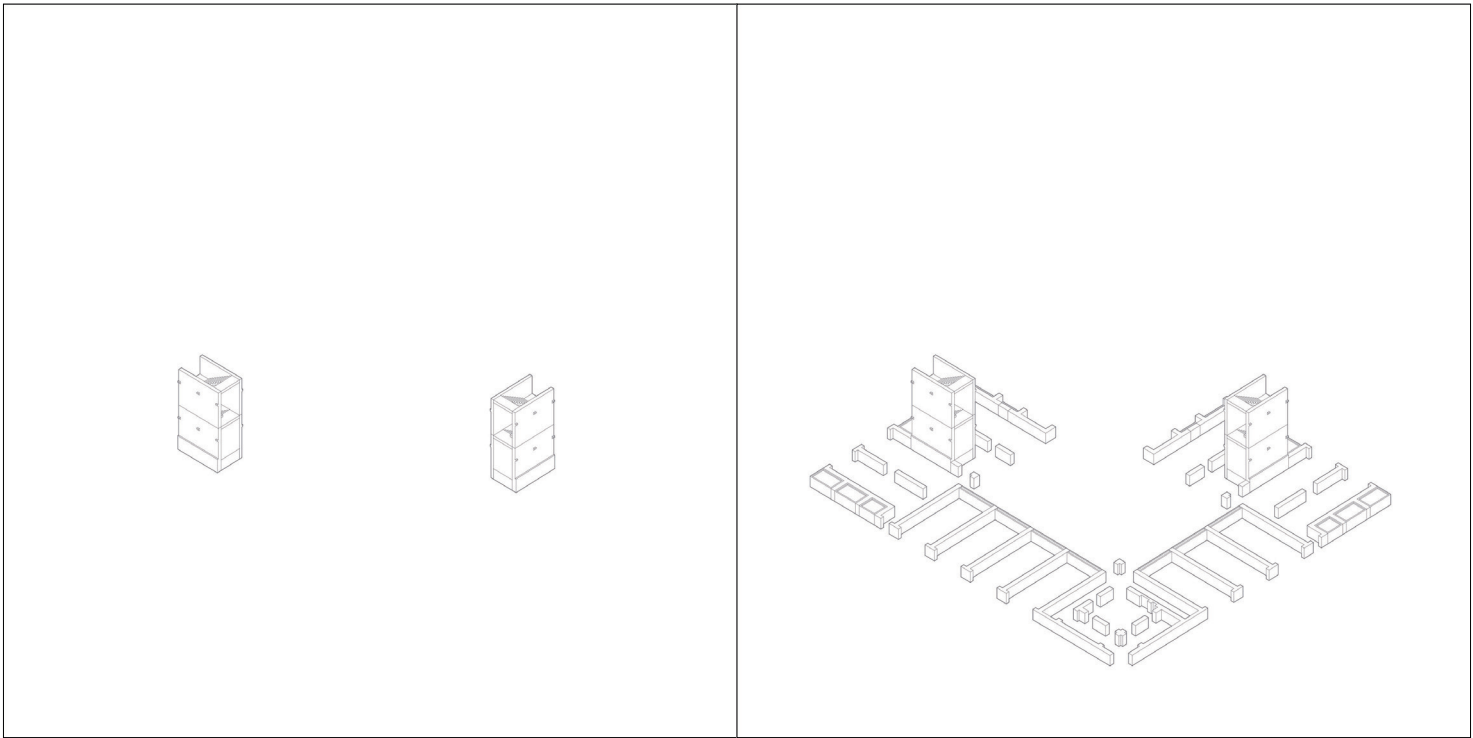
Therefore, the design was conceived to reduce the use of these elements aiming at a geometrical equilibrium given by the configuration of the typology.

The self-standing portions of the building are at the corners, where the stability is obtained with ring beams (pavillion vault), buttress-balconies, and the stairs' core.

Consequently the central bodies, which have identic vaults, are hold together between the corners without the need for further structural elements.

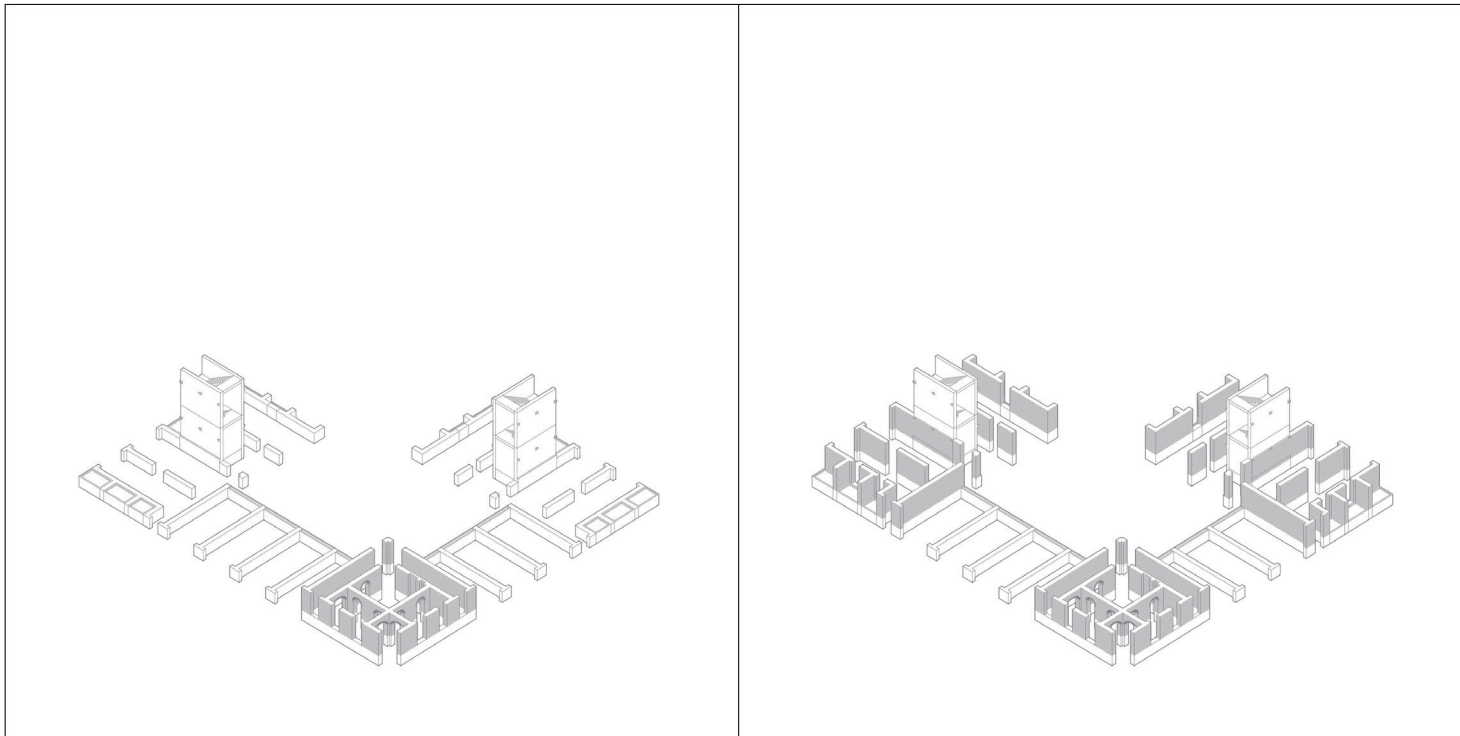
Accordingly to the structural behaviour the latter part are also the last one to be build at each floor.





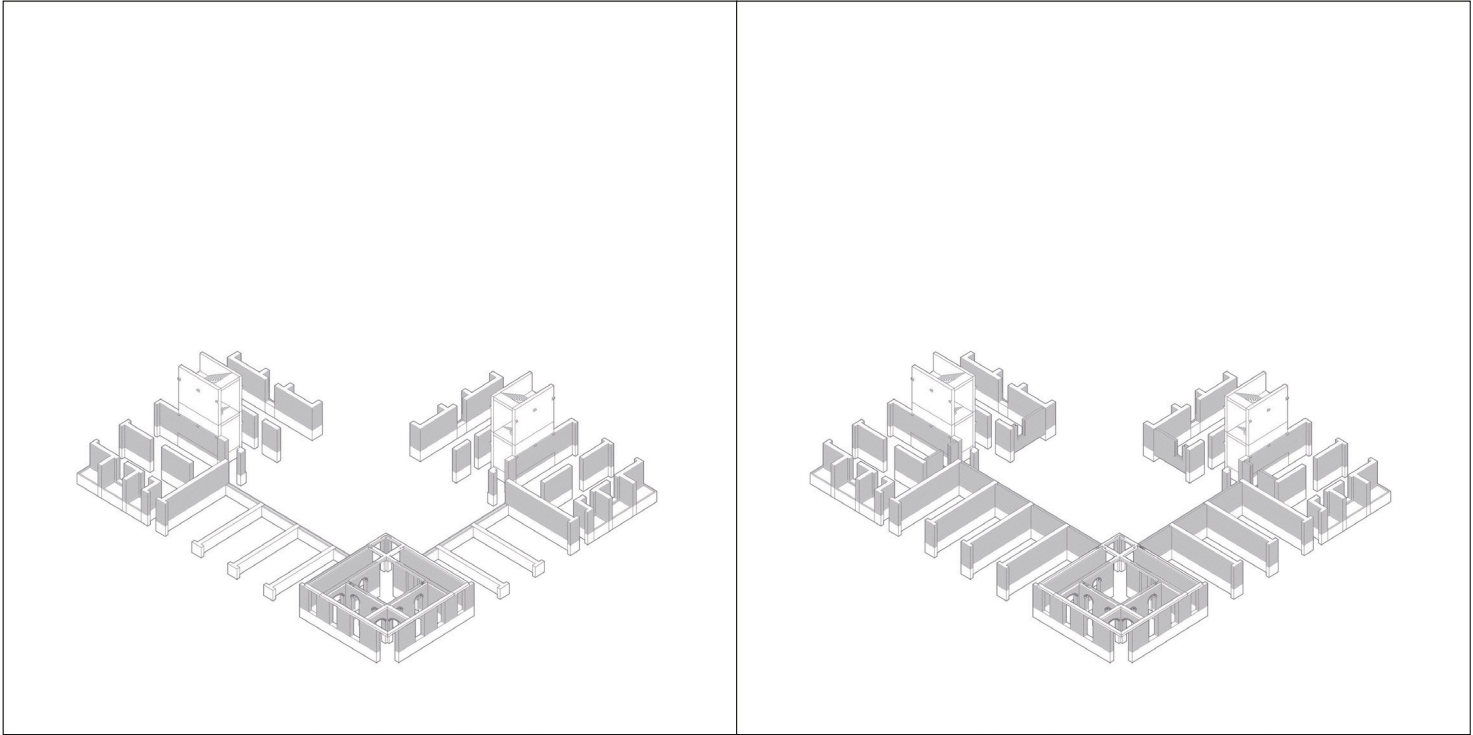
First the concrete stairs core are build. They will serve as structural support for the system. Also they will help the construction process

A plinth made of concrete to avoid any raising damp from the ground to the brick structure



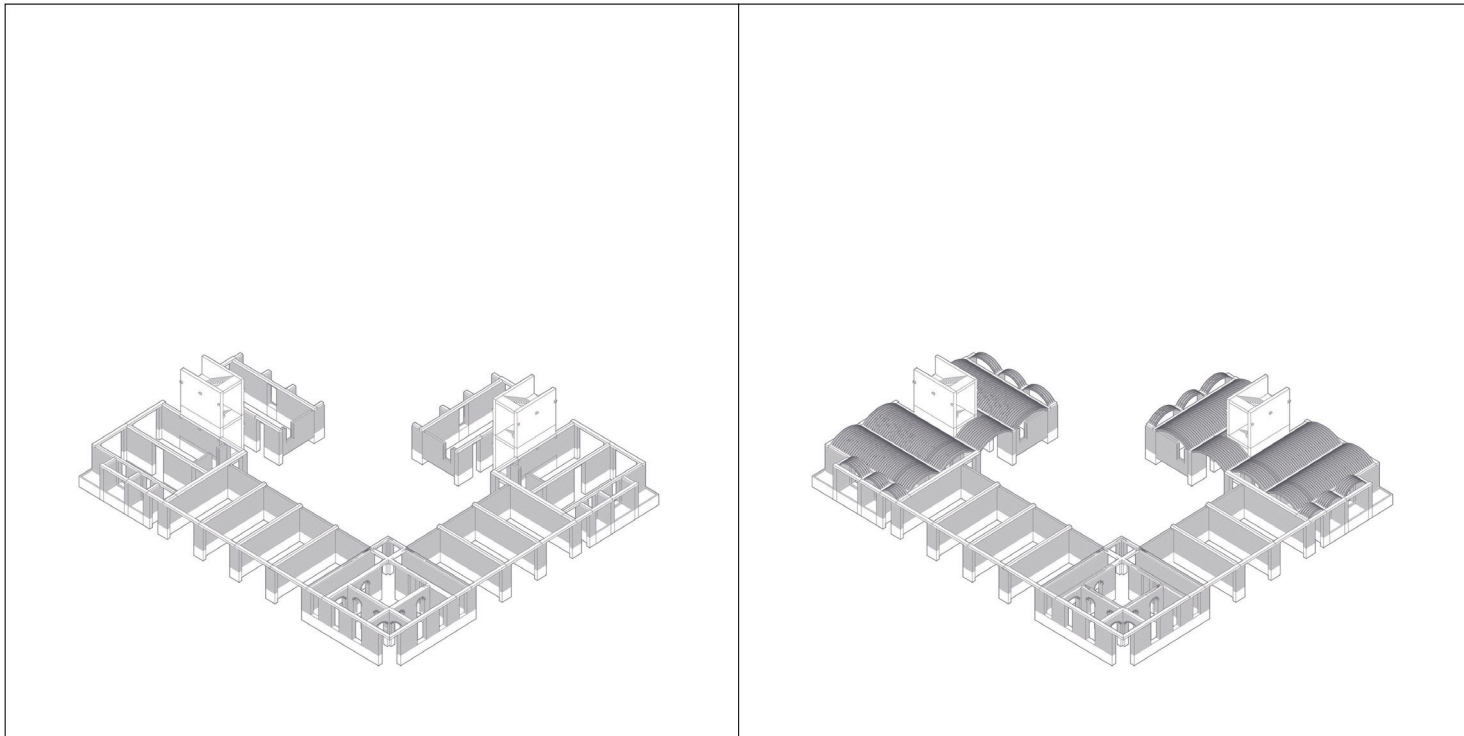
The corner structure, topped by regular vault and pavillion vault will be the first part to be build as it requires to have its beam made cast on site

the construction of the other independently structural corner will be build



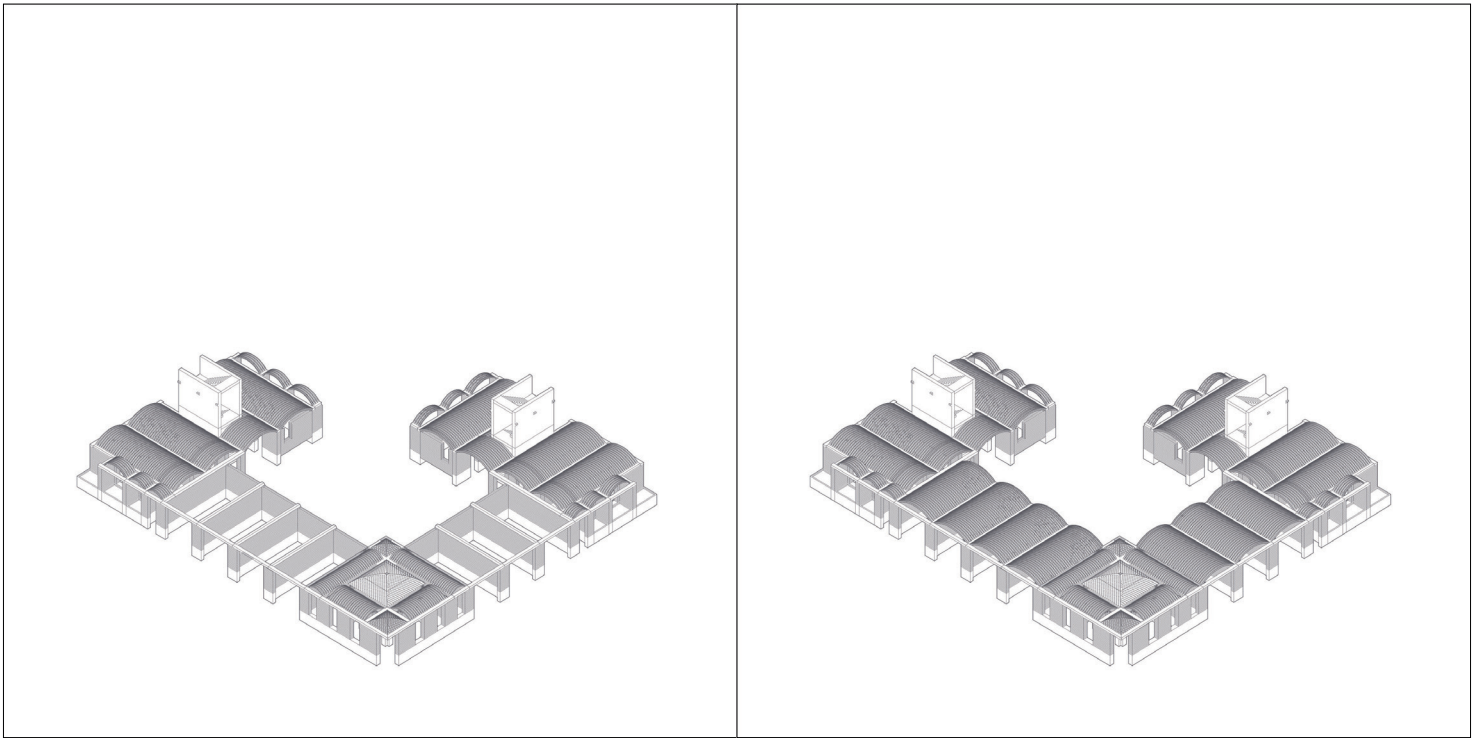
Beam cast on site in the corner

construction of all the brick wall of
the building



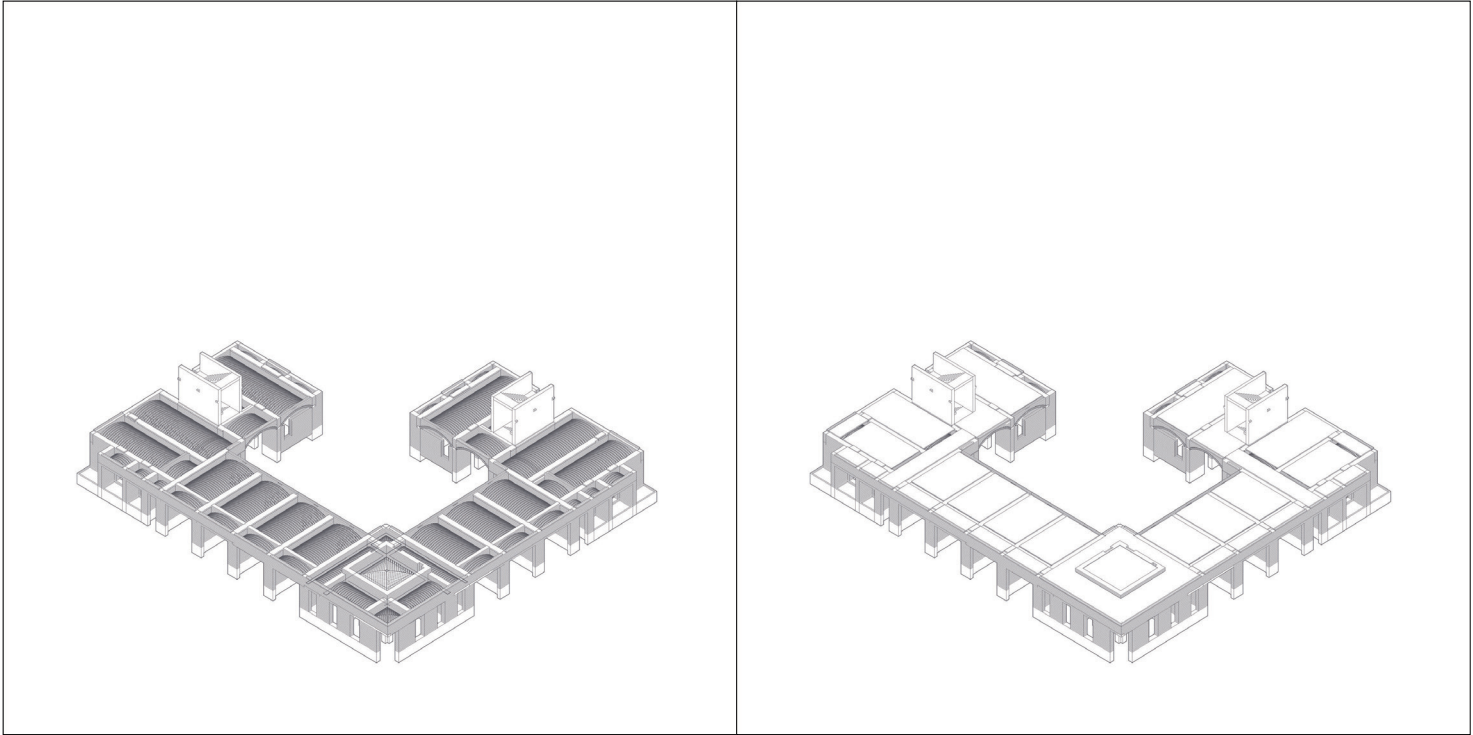
The pre-cast beam will be placed
with the help of a crane

The first vault will be build in the
strucurally independent corner
while the cast on site beams are
hardening in the other corner



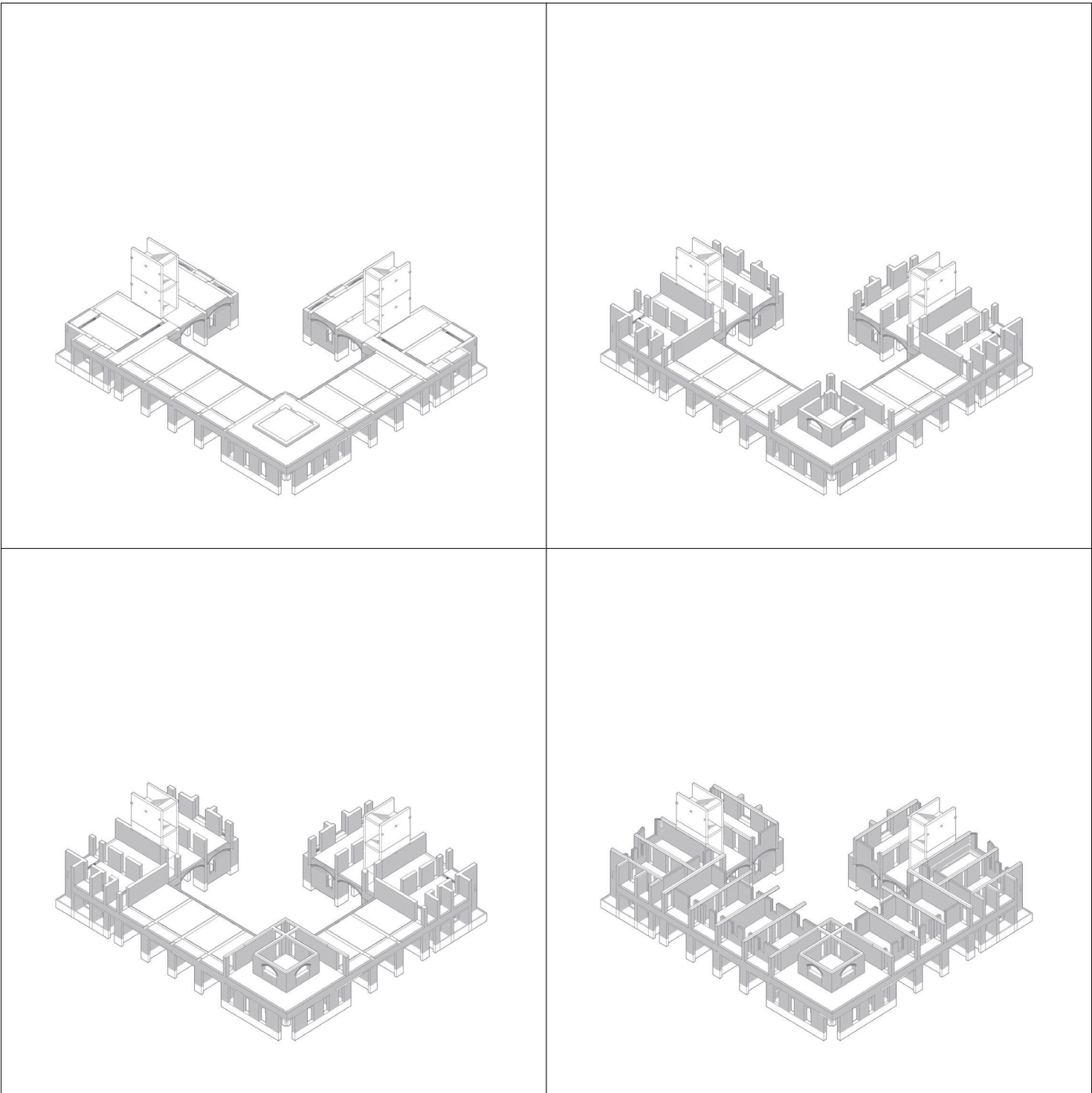
The vault of the corner are realized

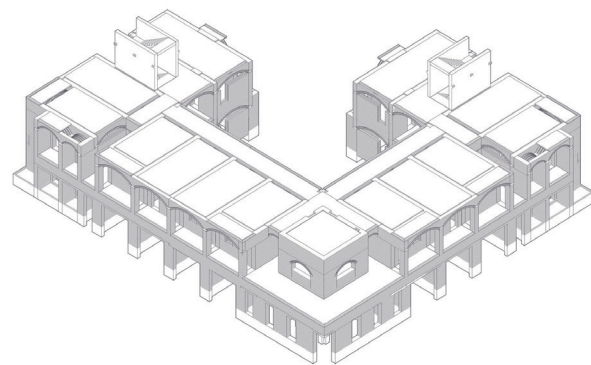
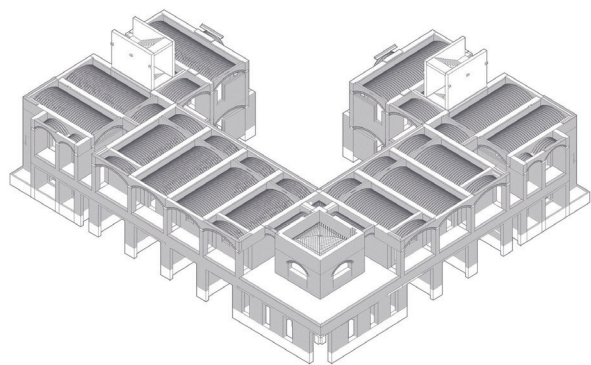
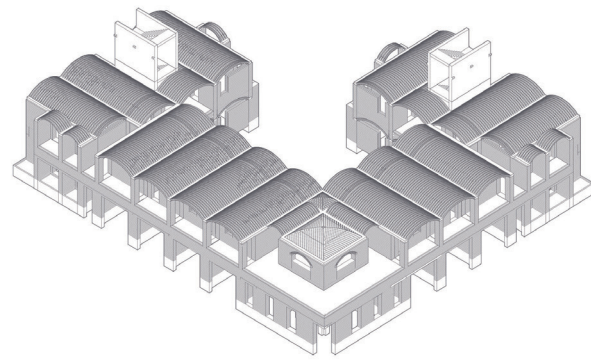
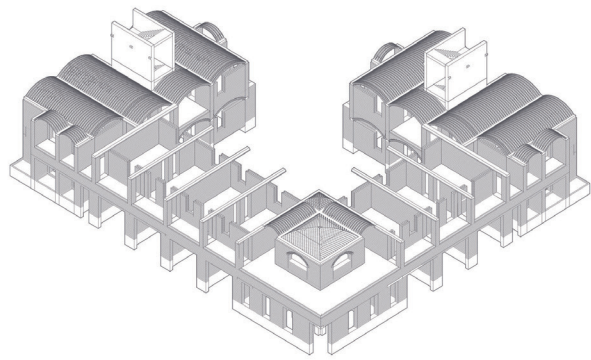
The last vault of the floor are build,
after the corner are finished, as the
horizontal stress of the central part
need to be balanced

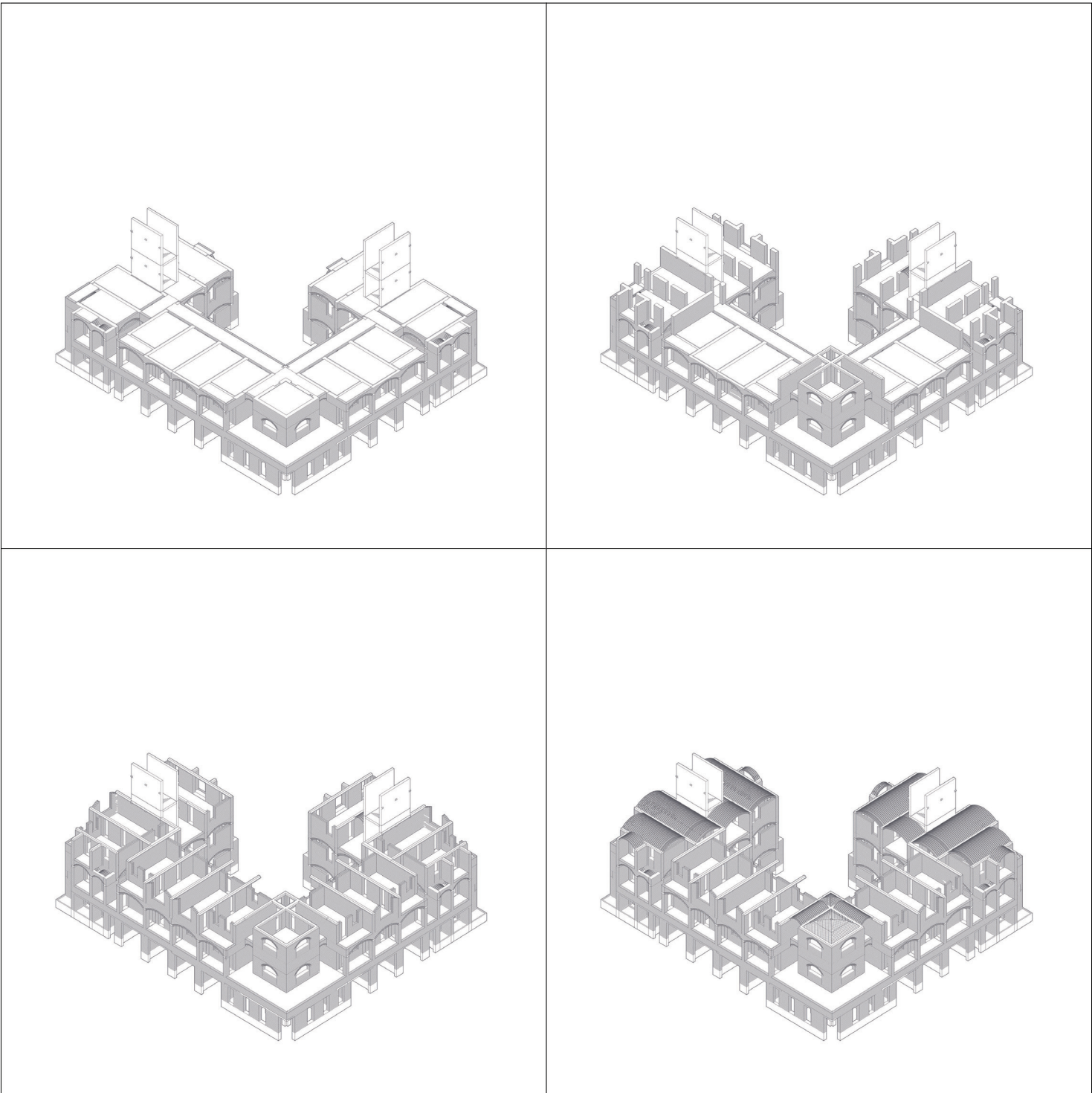


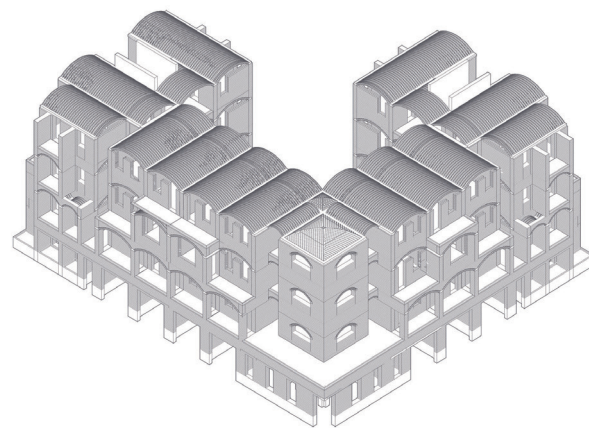
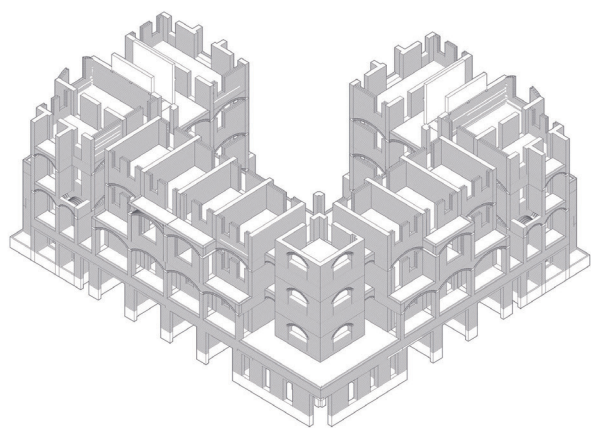
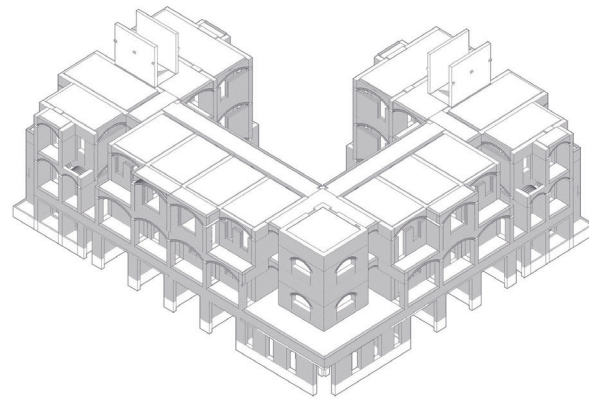
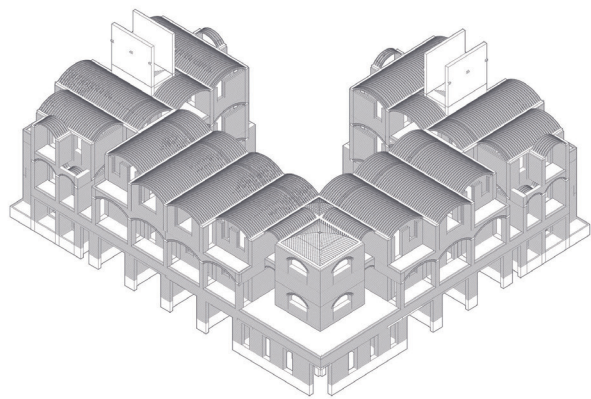
the base for the flooring and the new
walls are build

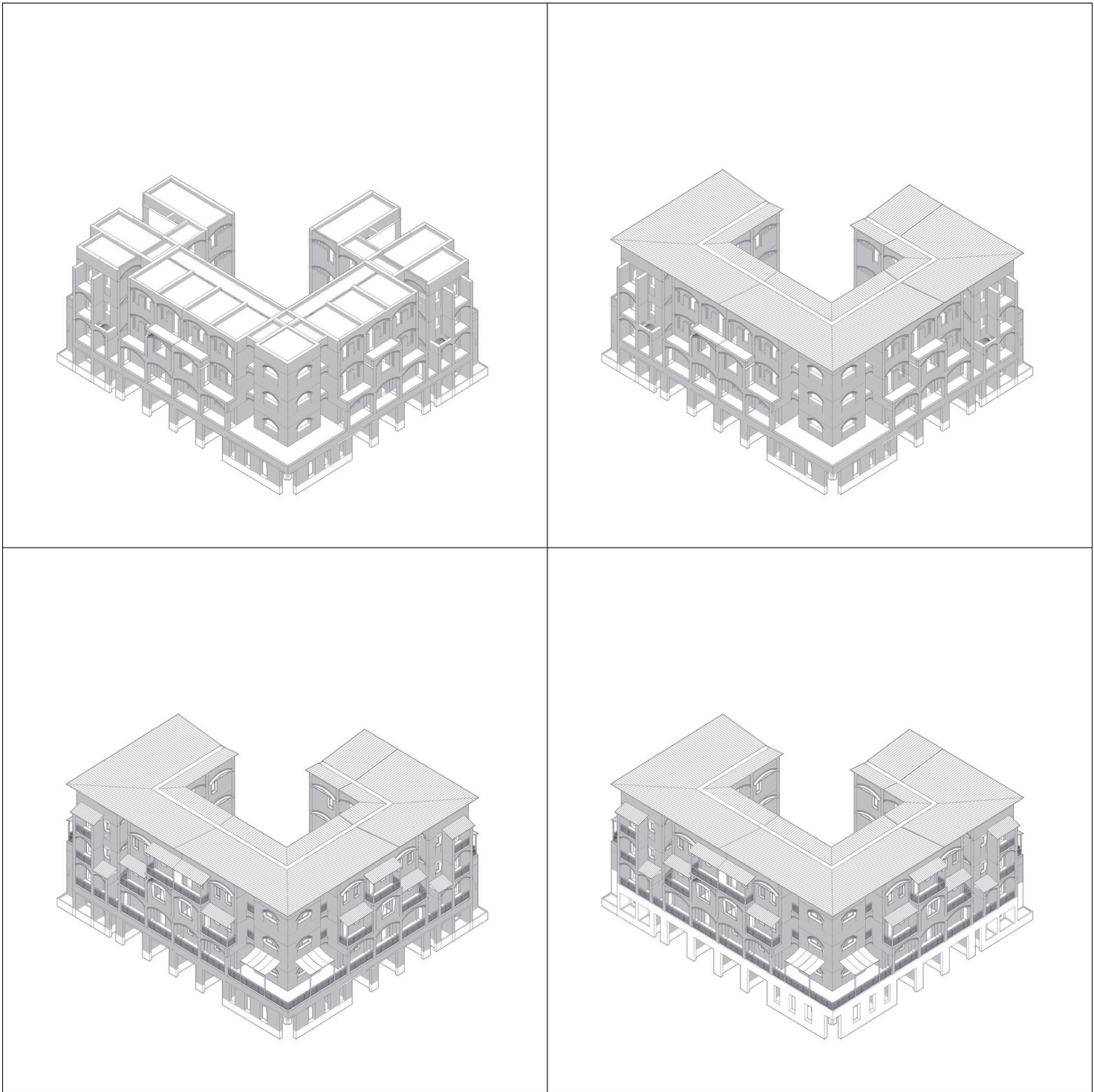
realization of temporary floors



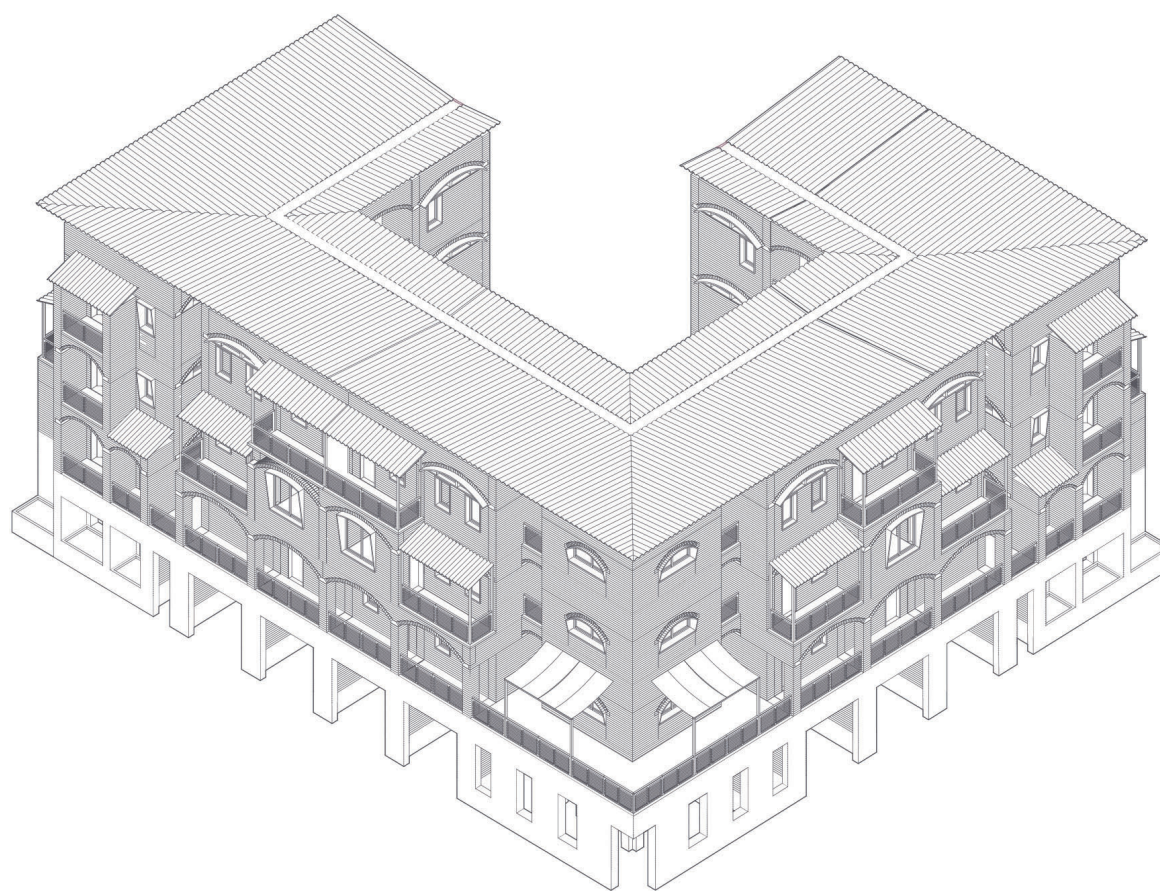




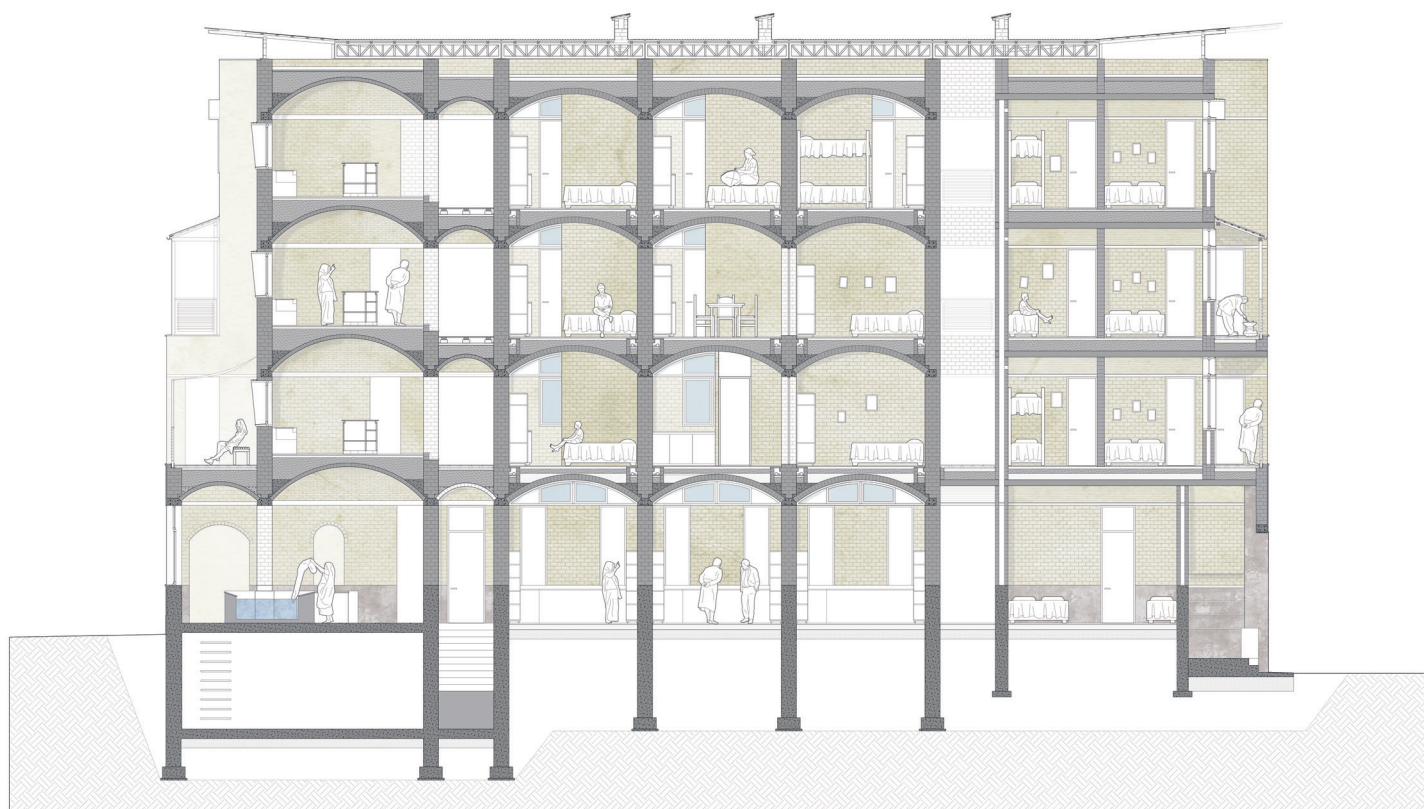




Last phases, the construction of the roof and the finishes

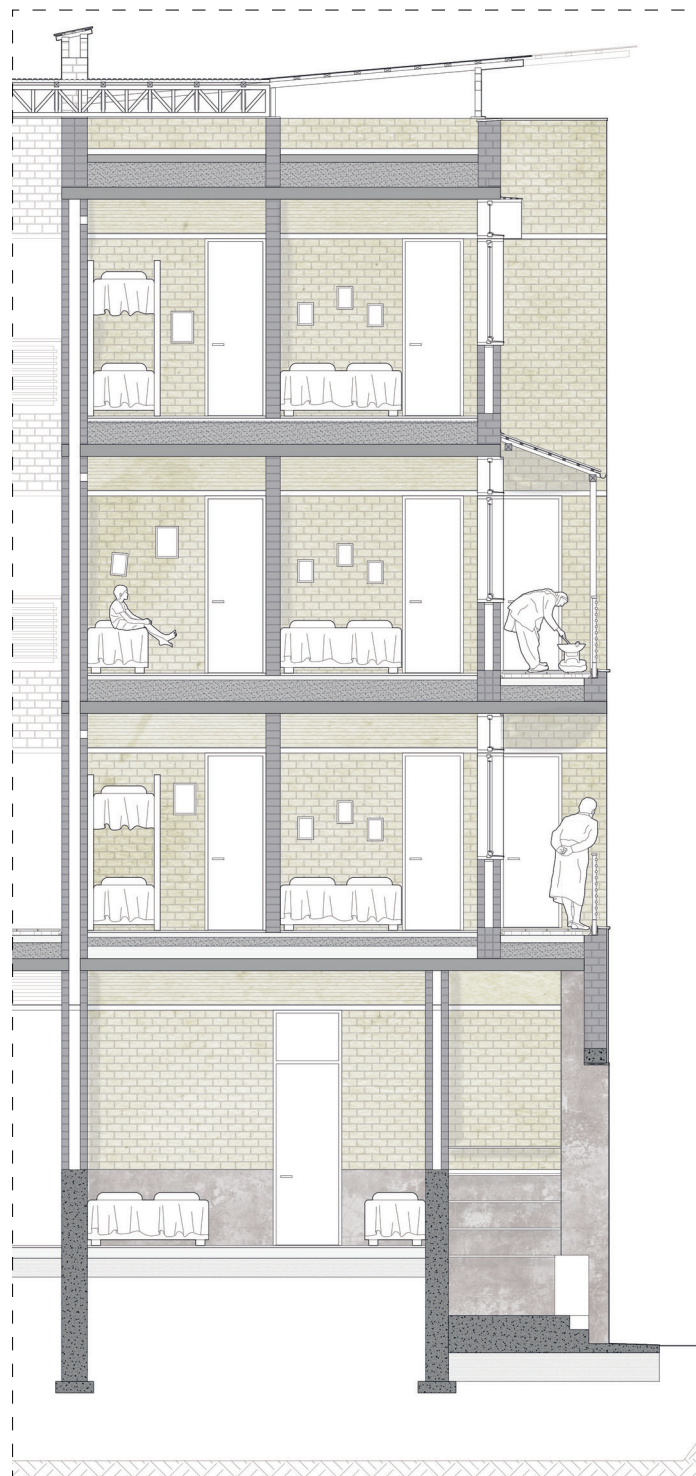
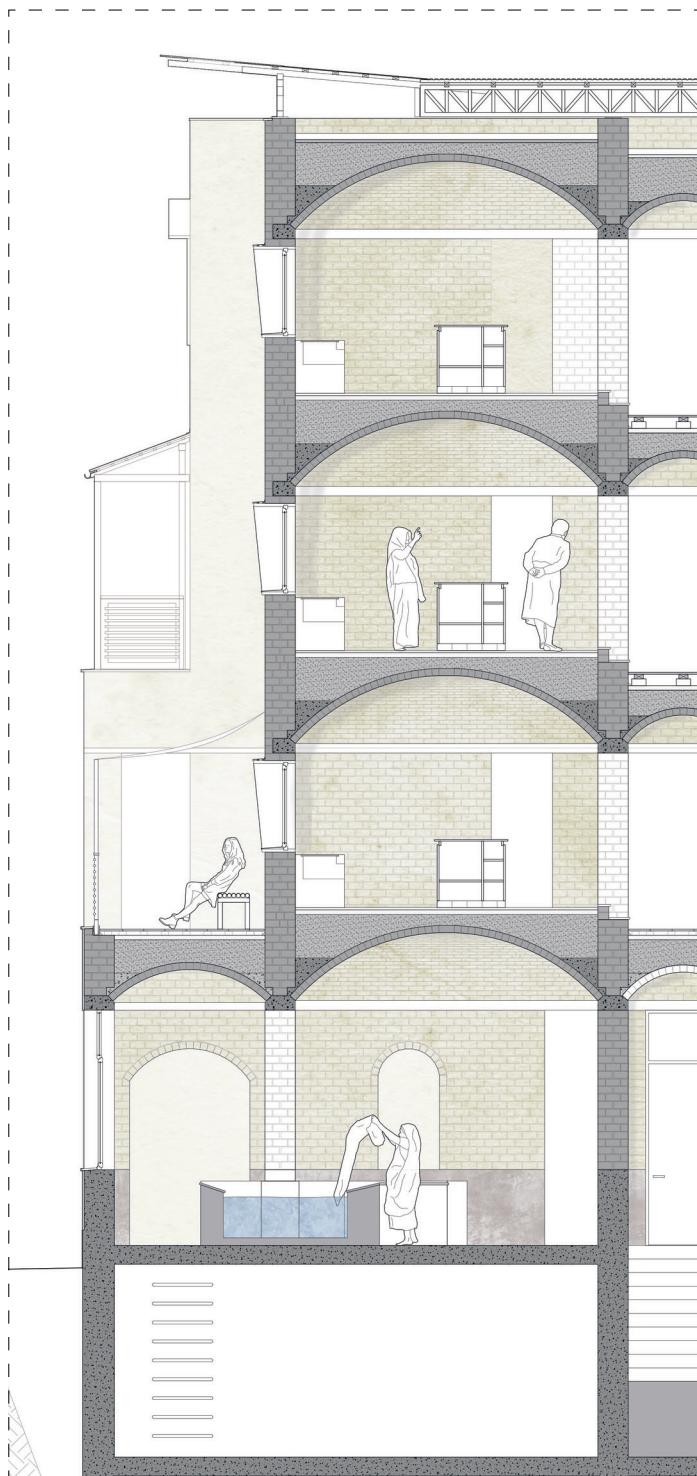


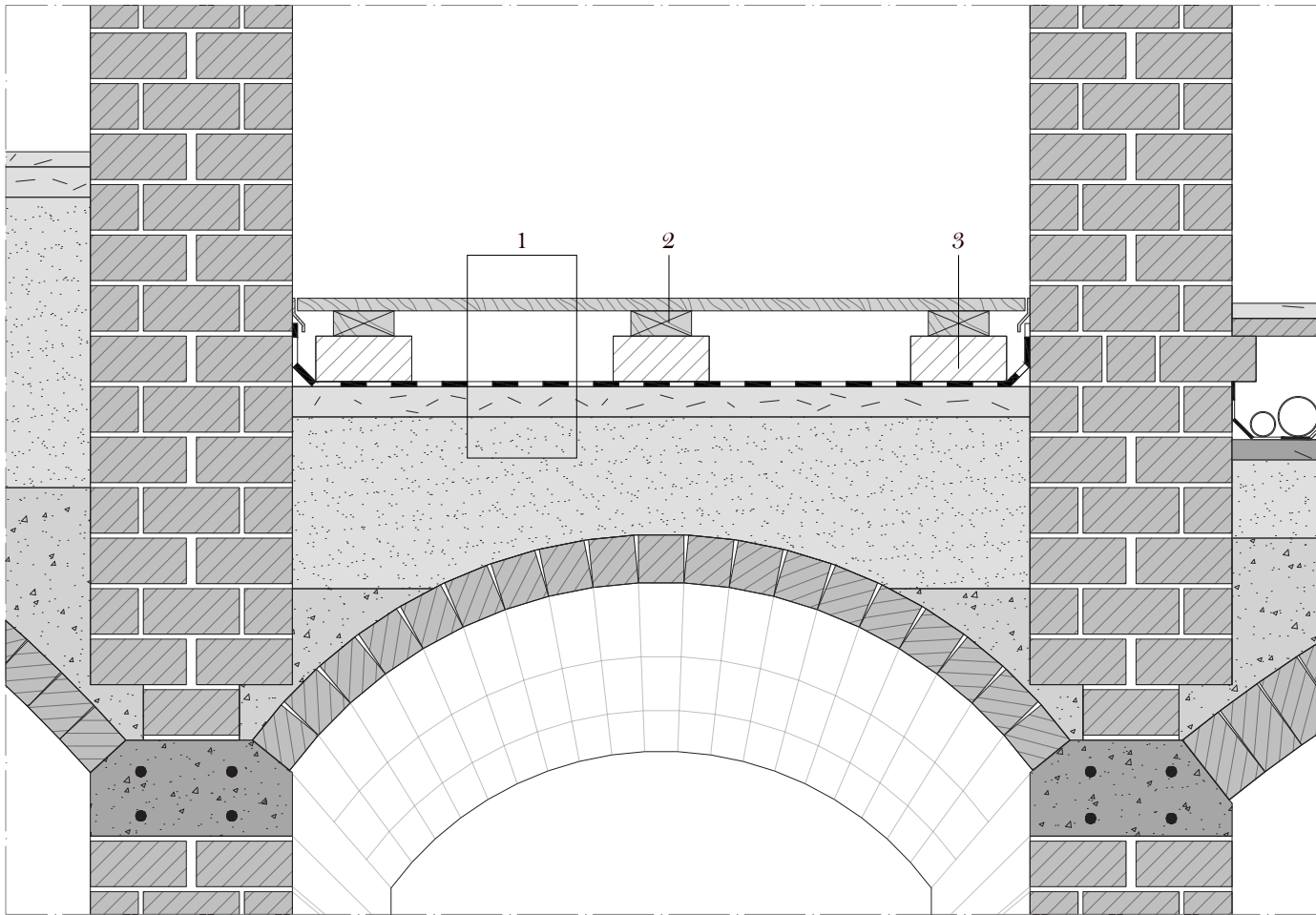
In the last phases the frames will be installed and the plaster at the groundfloor will be applicated



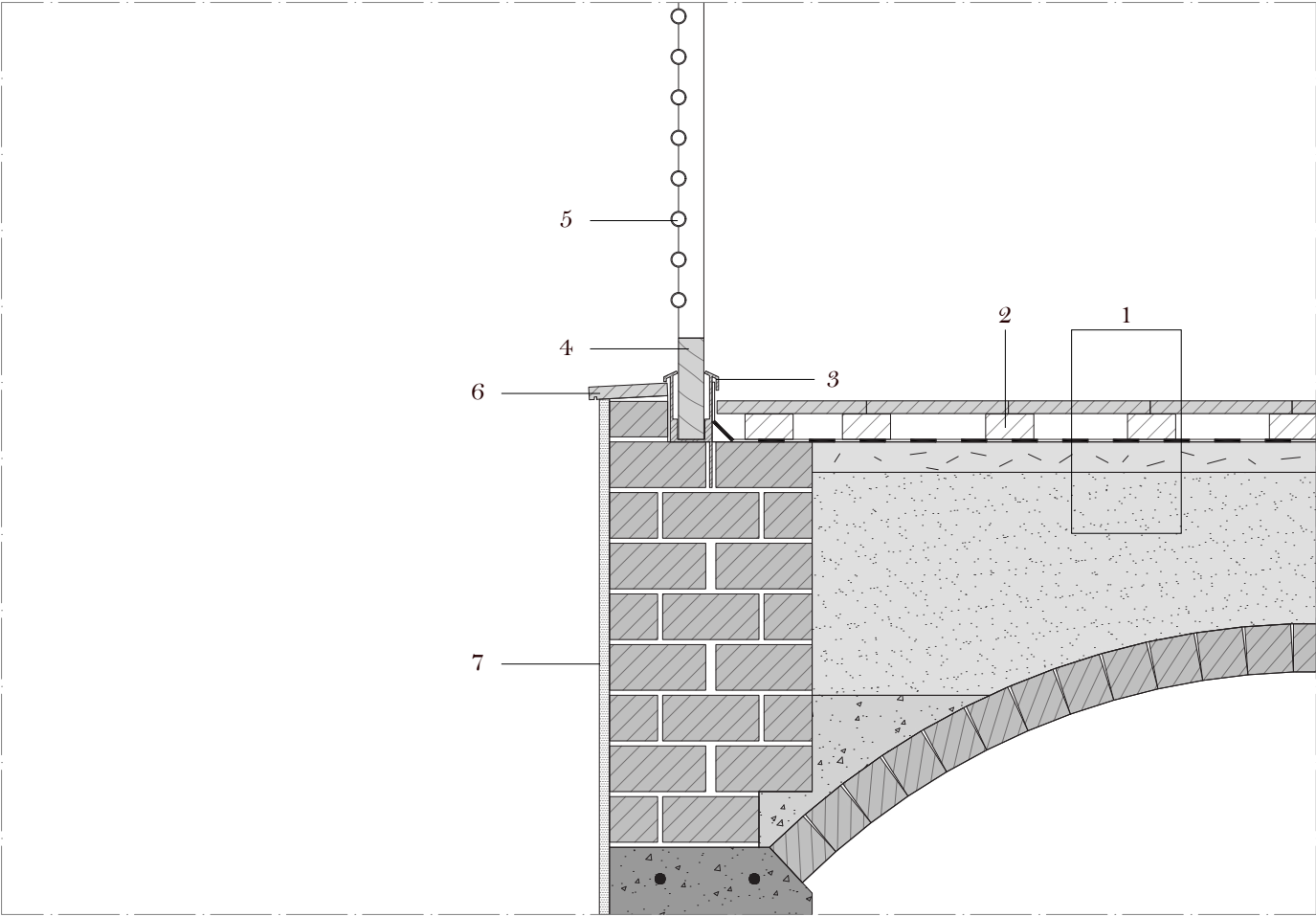
Typology
1:200

Details





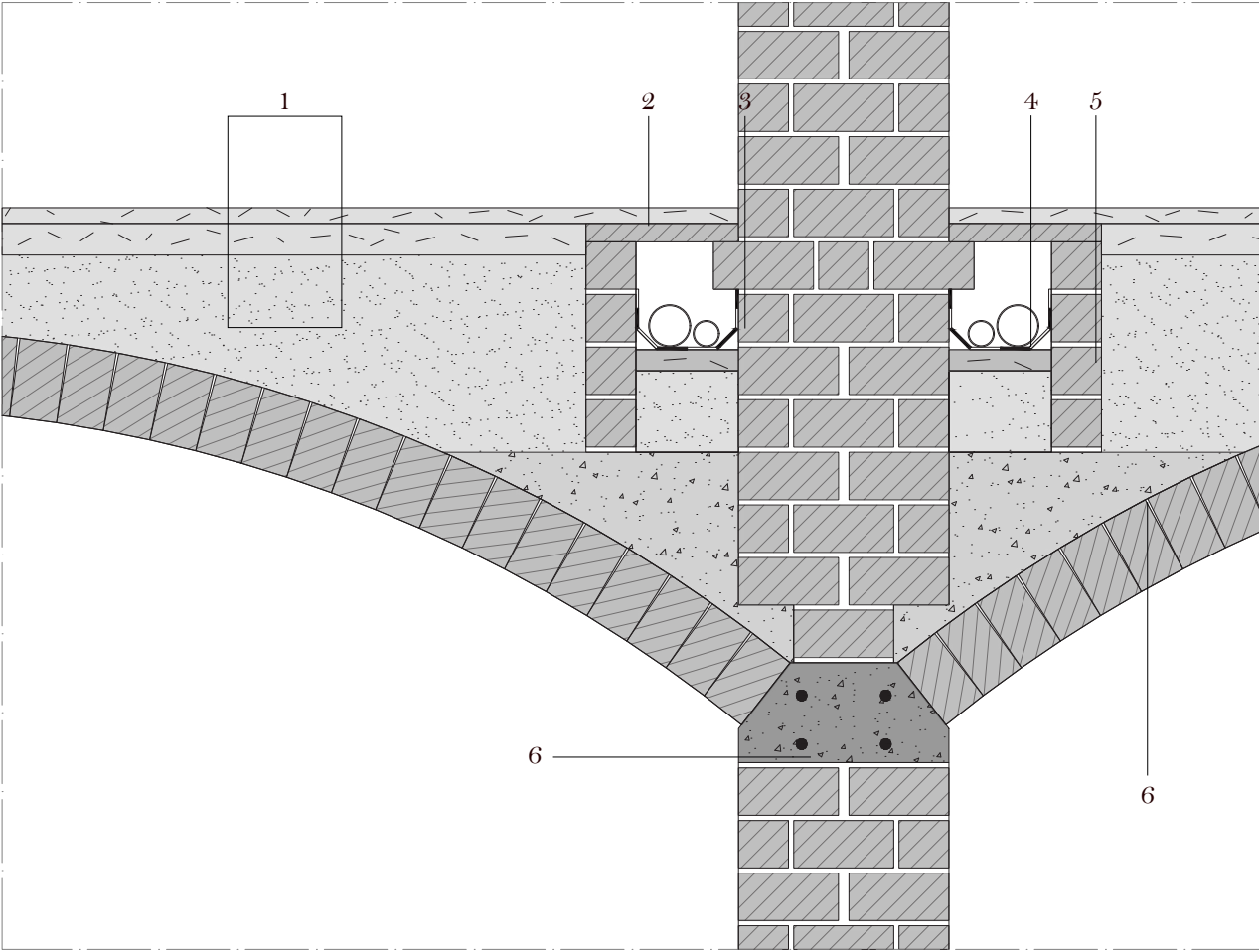
- 1 25 mm wooden flooring
battens
Waterproofing membrane of
bitumen felt
60 mm lightweight mineral
loam
Sand filling
Slope 2%
- 2 Wooden beam
- 3 Brick



- 1 25 mm wooden flooring
battens
Waterproofing membrane of
bitumen felt
60 mm lightweight mineral
loam
Sand filling
Slope 2%

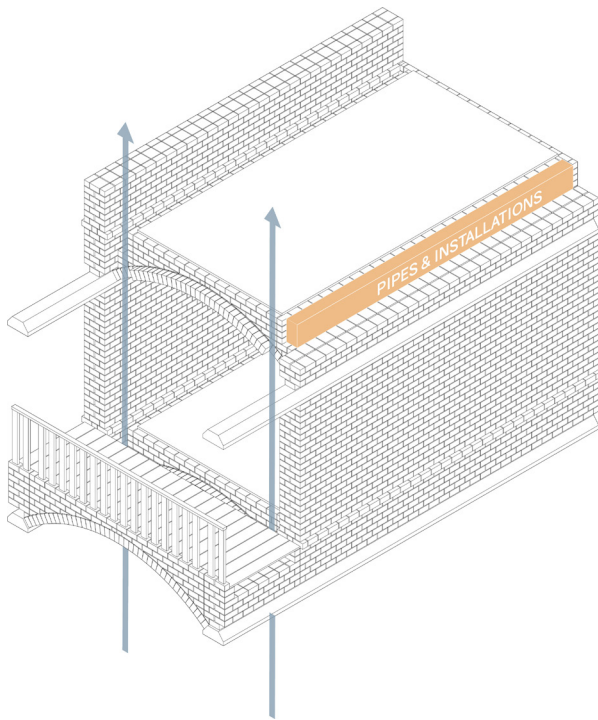
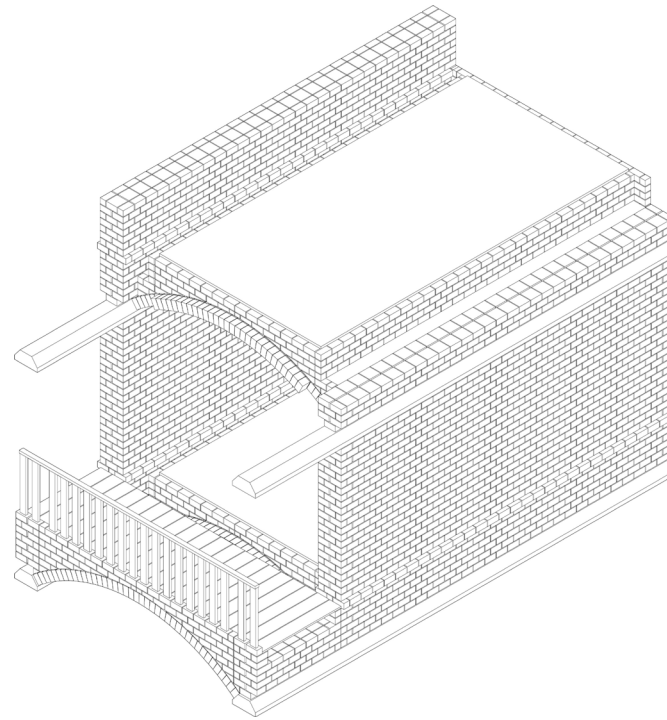
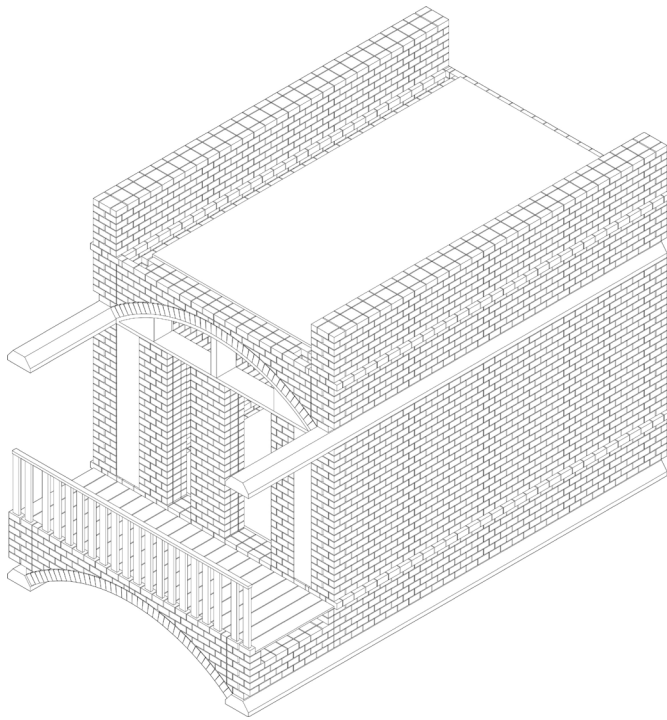
- 2 Brick

- 3 Mellallic Profile
4 Balaustrade
5 Bamboo railings
6 Clay Tile
7 Earth-cement plaster



- 1 30 mm Earthen Floor coated
with linseed oil
60 mm mineral lightweight
loam
Sand filling
- 2 Clay Tile
- 3 Installations and Tubes
- 4 Waterproofing membrane of
bitumen felt

- 5 40 mm lightweight mineral
loam
Sand filling
- 6 Cement filling
- 7 Concrete Beam



The gap between the non-load-bearing walls is used to host the rainwater gutter and as a cavity to create natural windflow. As a matter of fact, it is connected to a solar chimney on the

Plinths

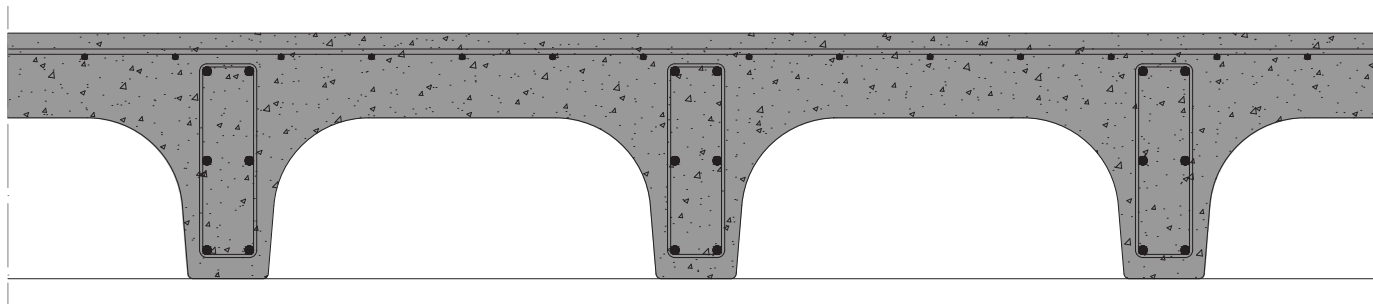
Further Evolution

The plinth of the typology targetting low income dwellers is made of a concrete wall 100 cm height topped by a CSEB brick wall, which on the outside is plastered.

In the case of the third typology, allocated for middle or high income groups the need for parkings and the higher number of stories required a change. Indeed, the building needs a stronger base and on top of that a major

distance between the structural elements to allow cars to move and park.

Therefore, the solution was the design of a waffle slab on top of concrete pilars, as the base of the typology. Also, in most of the cases is possible to avoid excavating excessively as these typologies are carefully placed to get advantage of the topography of the site.



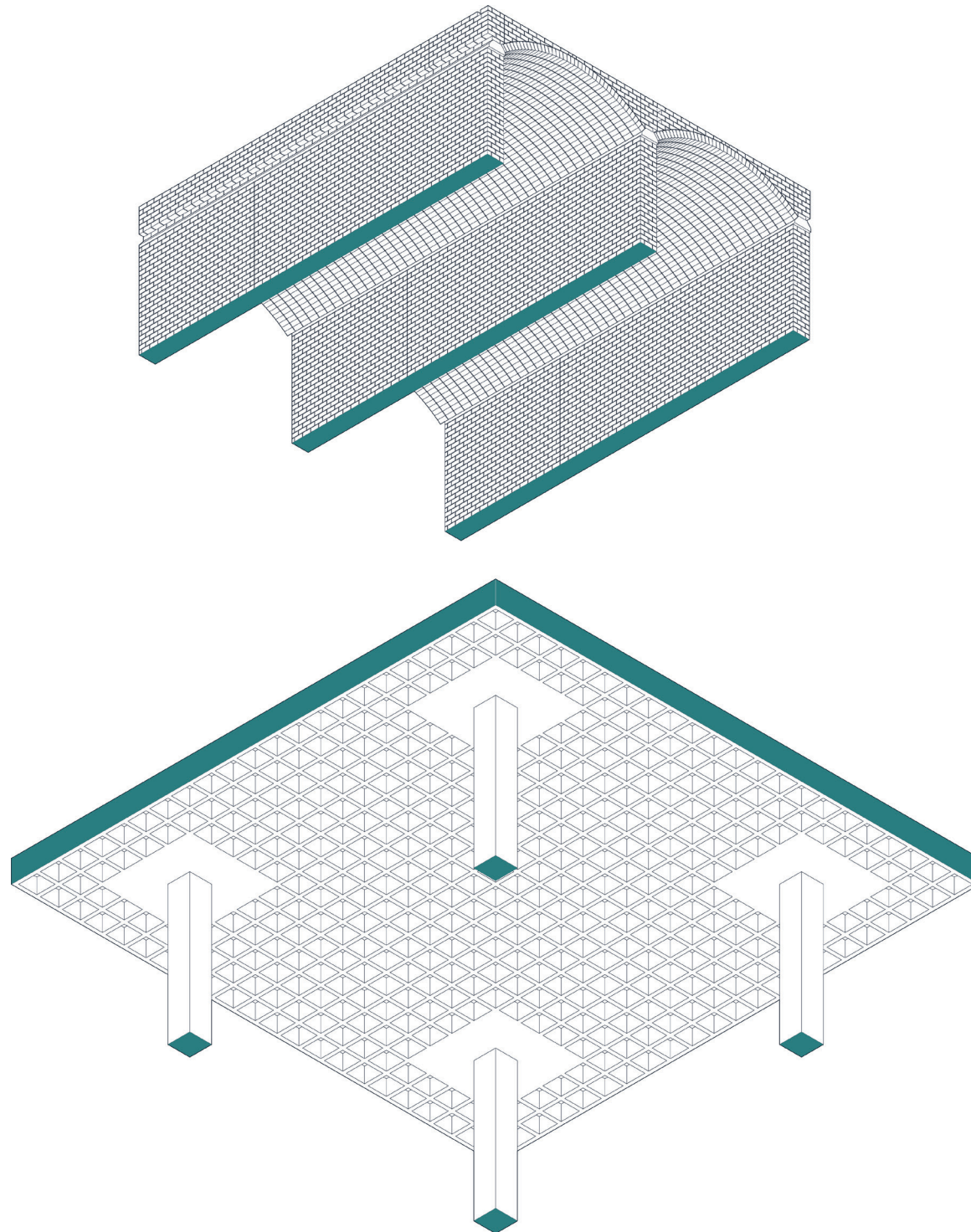
Waffle Slab

Depth: 160 mm

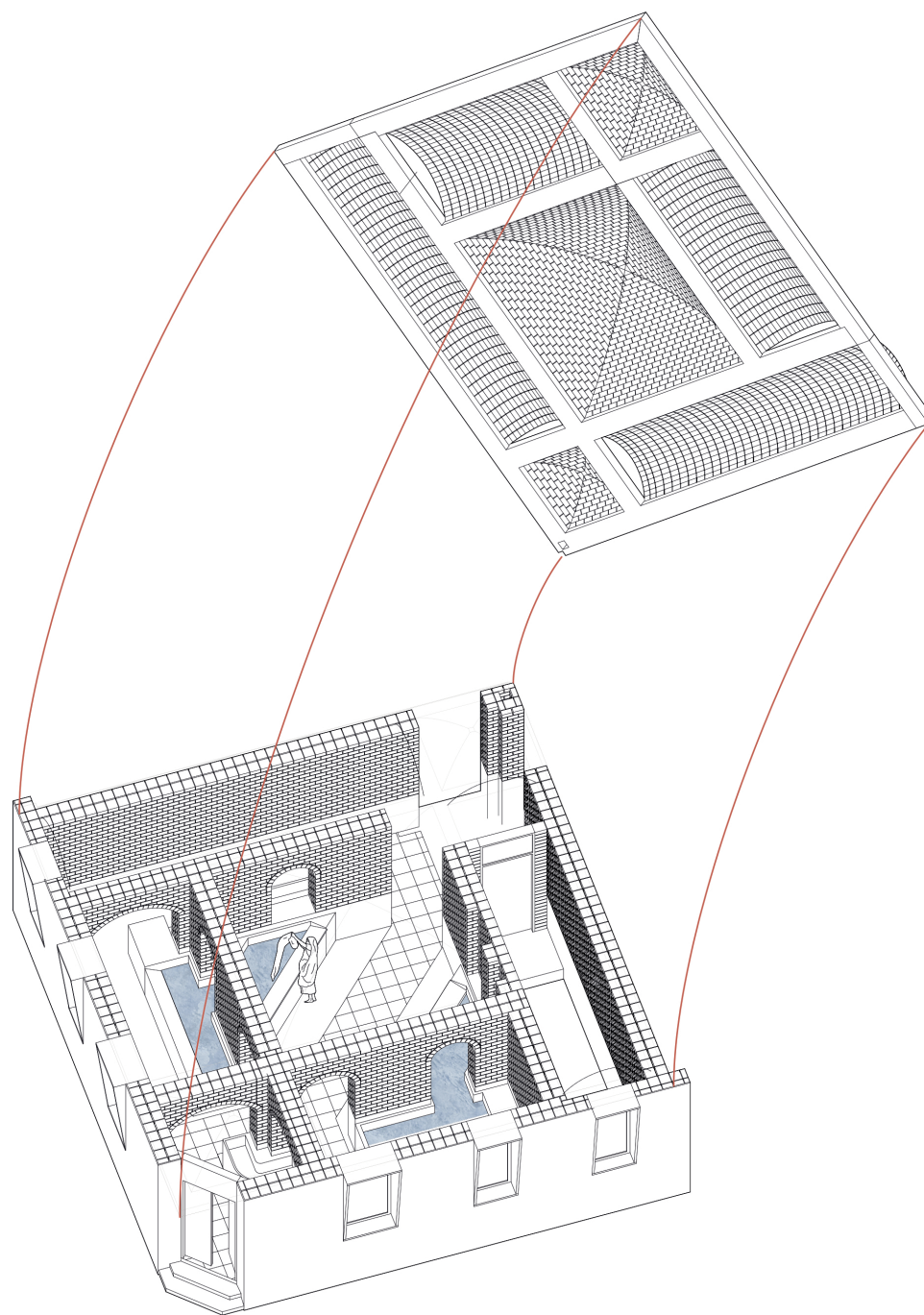
Rib Depth: $1/25$ Span = 304 mm

Total Depth: 464 mm





Diagrammatic drawing of the middle income typology's groundfloor structure. The earth construction lies upon a concrete plinth which hosts the garage.



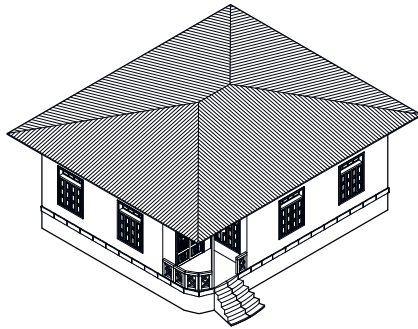
Exploded axonometric drawing of the lavoir



D e s i g n

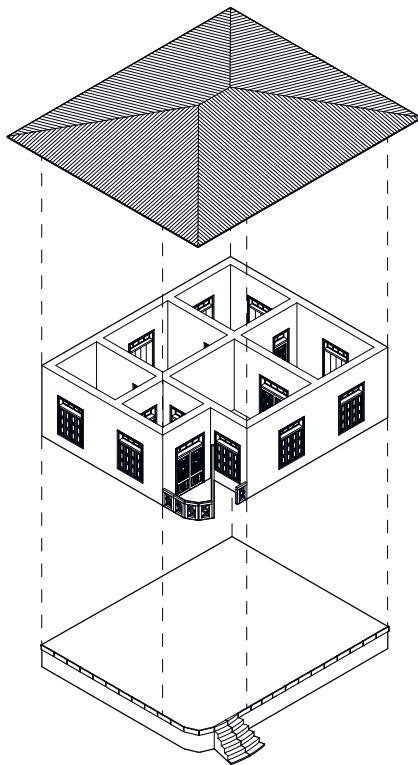


The Plinth Translation

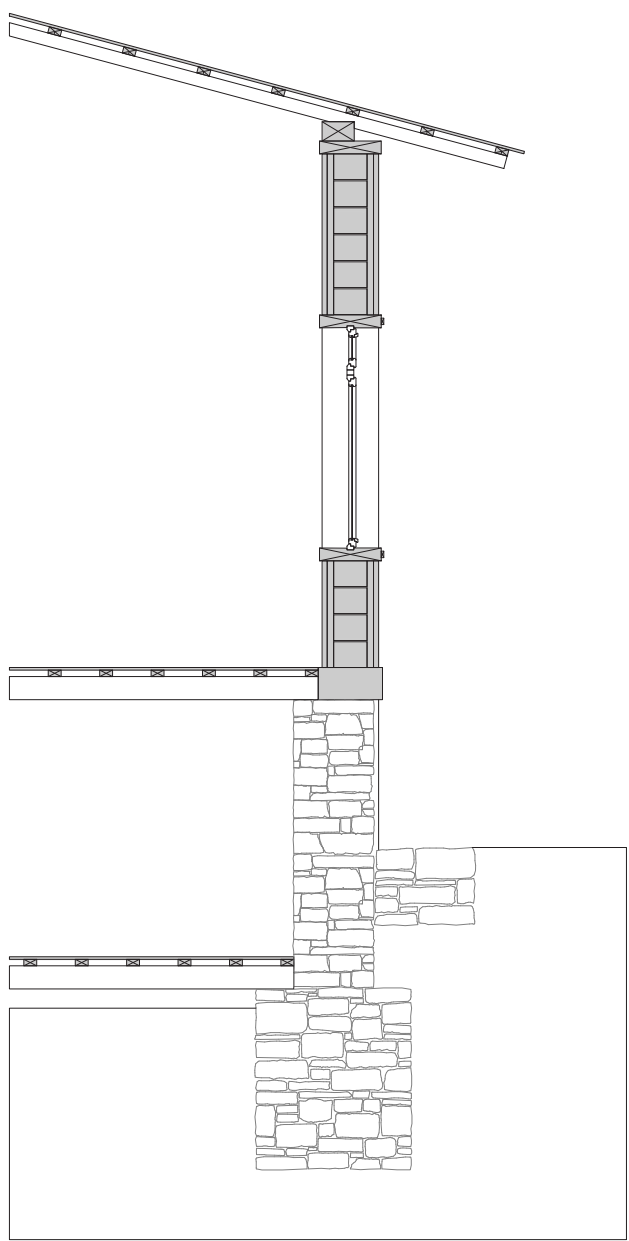


In Ethiopia traditional construction techniques are based on earth construction. For this reason there is always a damp-proof layer in contact with the ground, often made of stone. The plinths, as I could observe, generates the possibility for other purposes and needs: it is used to mitigate and manage space transitions, to sit, to place objects, to let food dry, and especially to overcome problems given by the topography gaps.

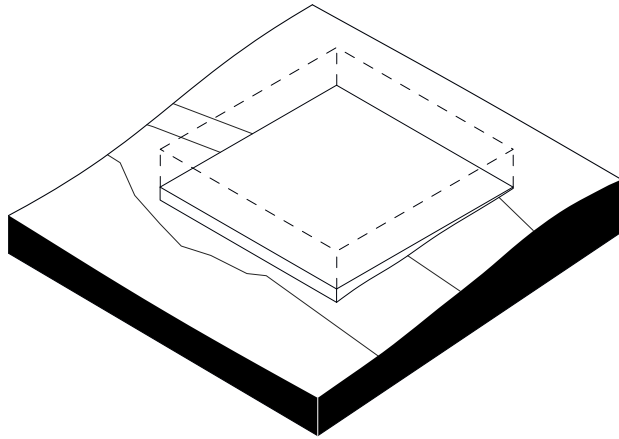
Therefore the project aims at reinterpreting this feature by realizing a one-storey lived-in plinth at the ground floor. This level helps the transition from public to private, hosts sitting and spaces for plants to grow, as in many compounds we visited we discovered they need them for cooking and medical purposes.



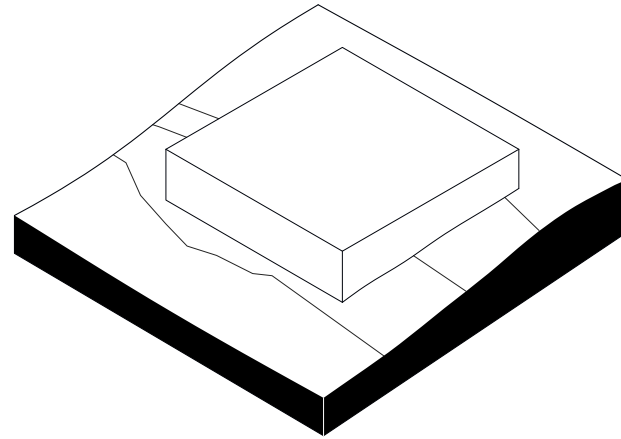
Axonometric drawing of a villa in Talian Sefer



Hypothetical detailed section to understand the construction system

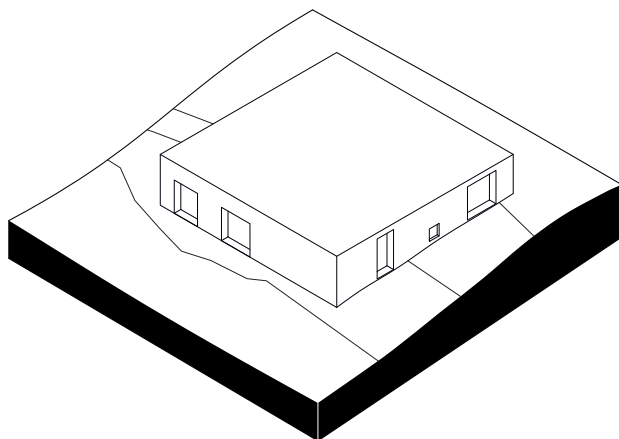


Base Plinth

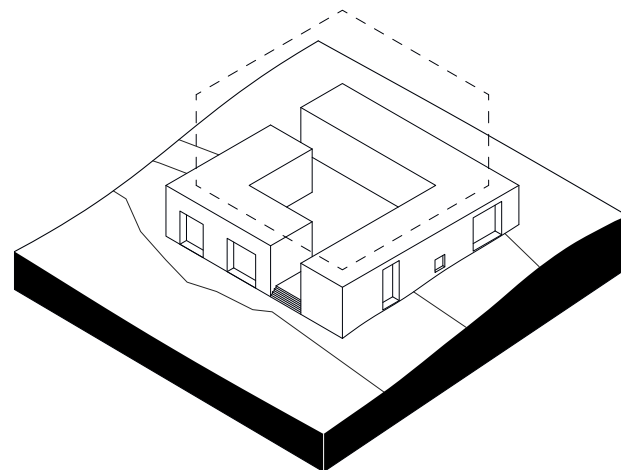


One-Floor Plinth

On top becomes a Plateau



Pockets
for
Different Activities



Protected Court
&
Public-Private Transition

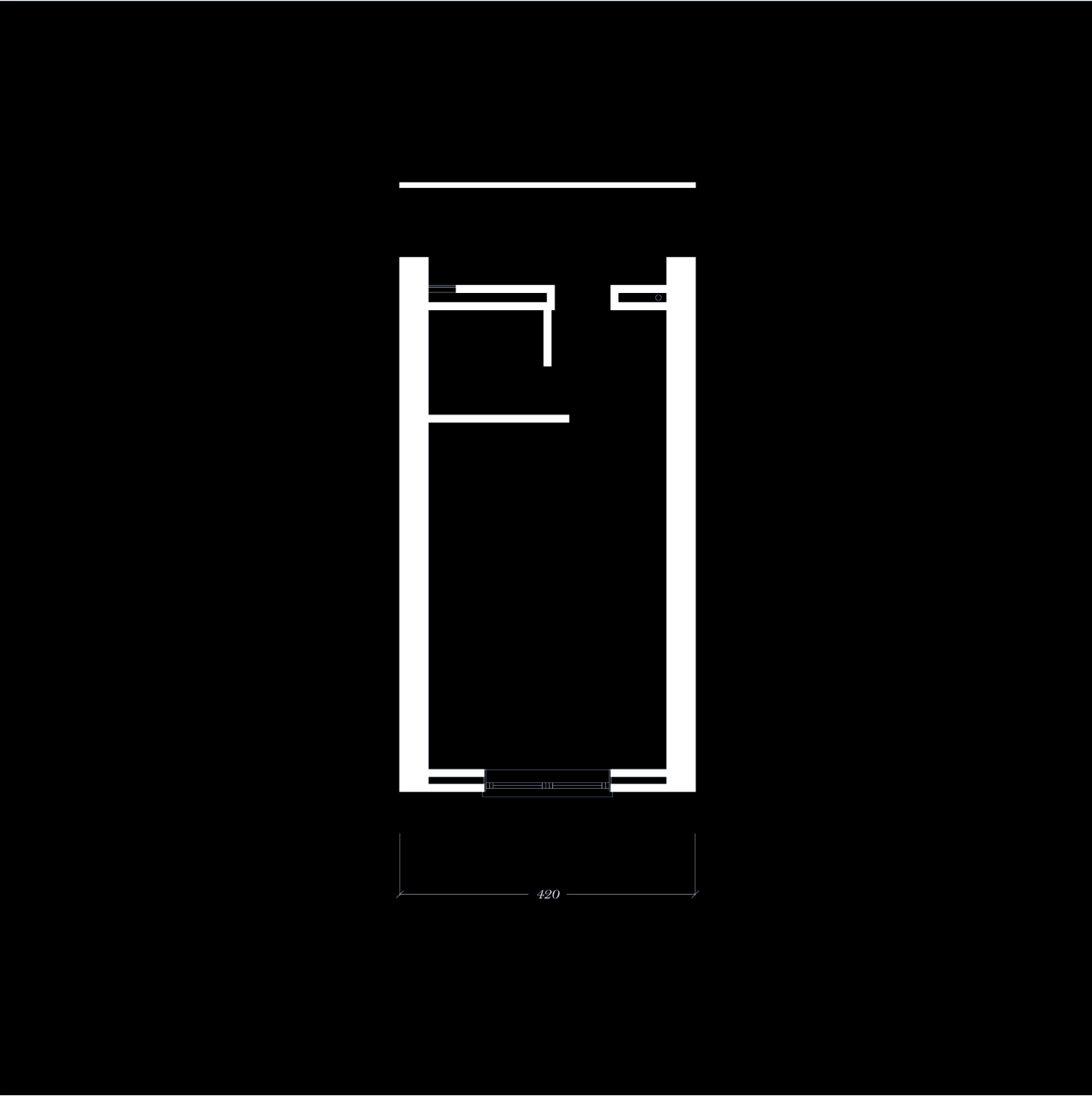


Diagram of the basic unit plan

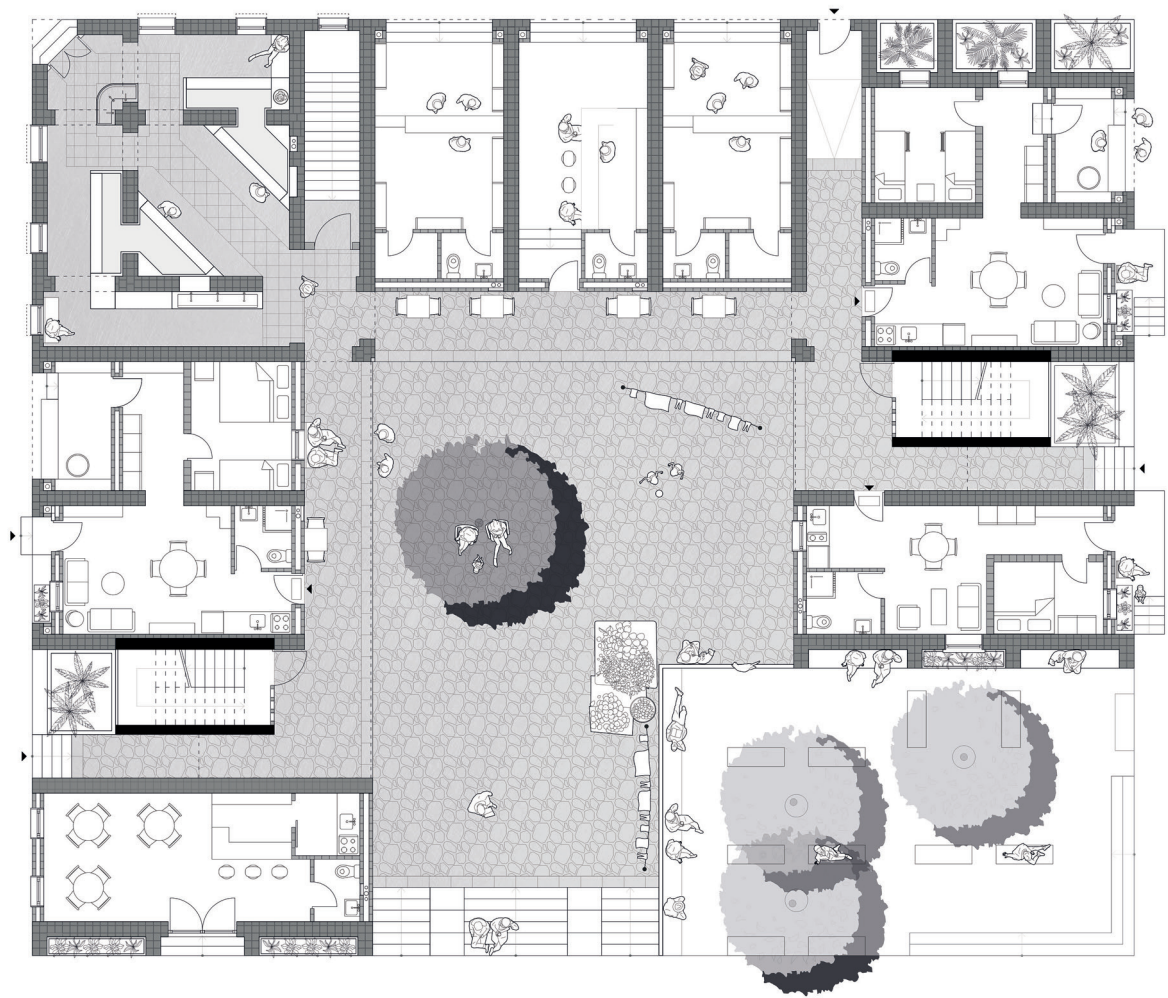
Typologies

Plans

All the typologies are based on the same unit, a sort of DNA of the whole project. A space comprised between two structural wall and covered by a vault, spanning 420 cm. The difference between both apartment and building types is given by the materiality of the finishes and the number of joined units. Indeed there are about seventeen types of apartment going from a single unit studio of 17 sqm in the low income typology to 140 sqm in the middle/high income typology.

All the apartments are self-contained, trying to answer to the requirements of the local dwellers interviewed and aiming at doing a step forward from the past year project in Bangladesh. As the community plays a relevant role in the life of Talian Sefer, and in general of low income groups, the former typologies are also provided with common kitchen at each floor and lavoir at the ground floor. This last space is not limited to washing clothes as it is also meant as a place to rest and shelter from the heat as the evaporating water will lower the temperature of the room especially and of the courtyard also.

The common kitchen instead answers to a requirement common in Ethiopia which has been shaping space in a relevant way: traditional food is often cooked outside or in a separated part of the house as it produces a very intense aroma. Thus, the common kitchen is placed in a highly ventilated place out of the apartments. Instead, in the case of the high-income apartments, there is a peculiar feature, typical of middle/high-income families: the house is provided of two kitchens, one for the traditional food cooked by a maid, and the other, modern looking, for more immediate use (coffee for example) which has more importance for its image rather than its usage.



Type A | Groundfloor



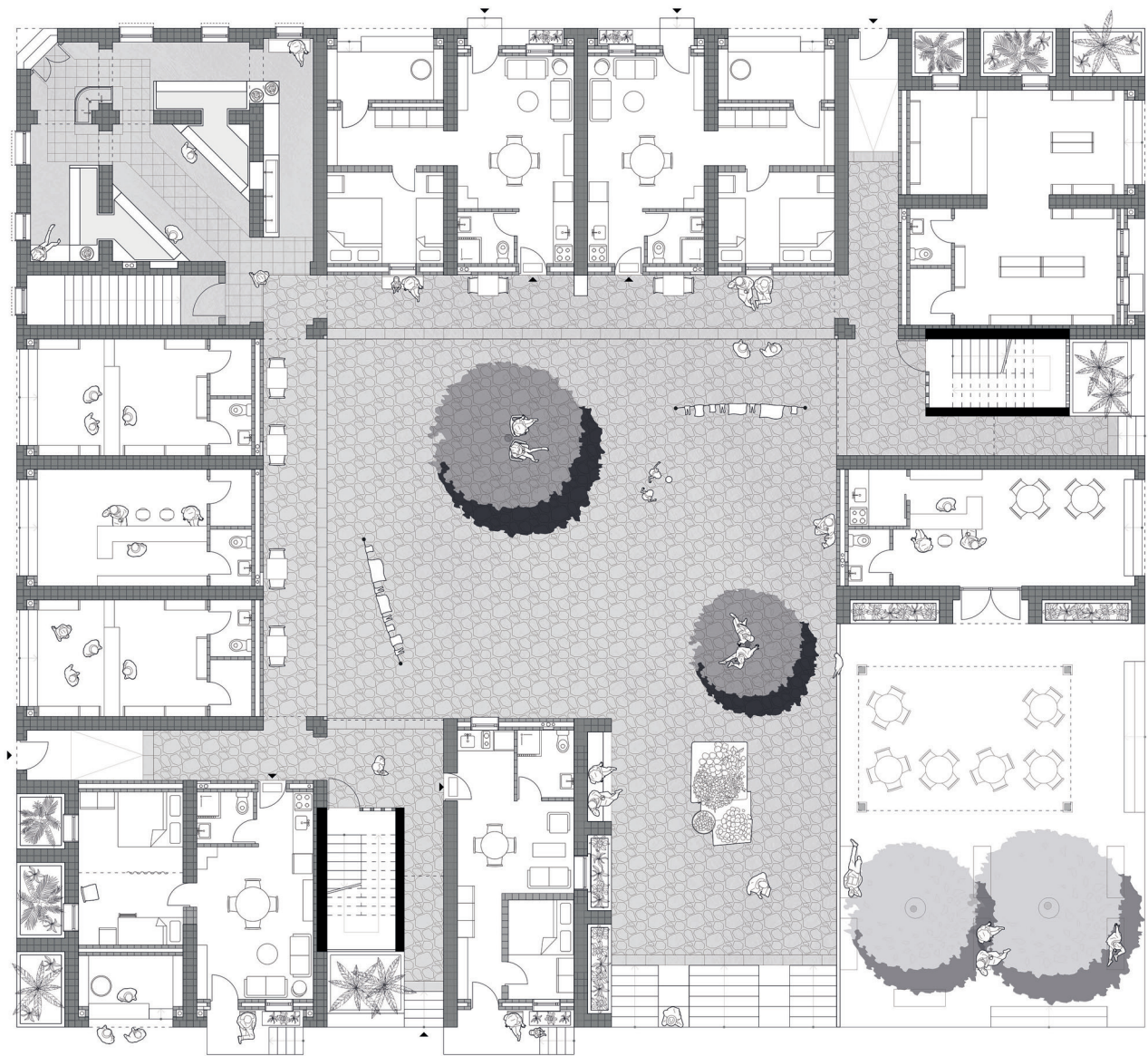
Type A | 1st floor



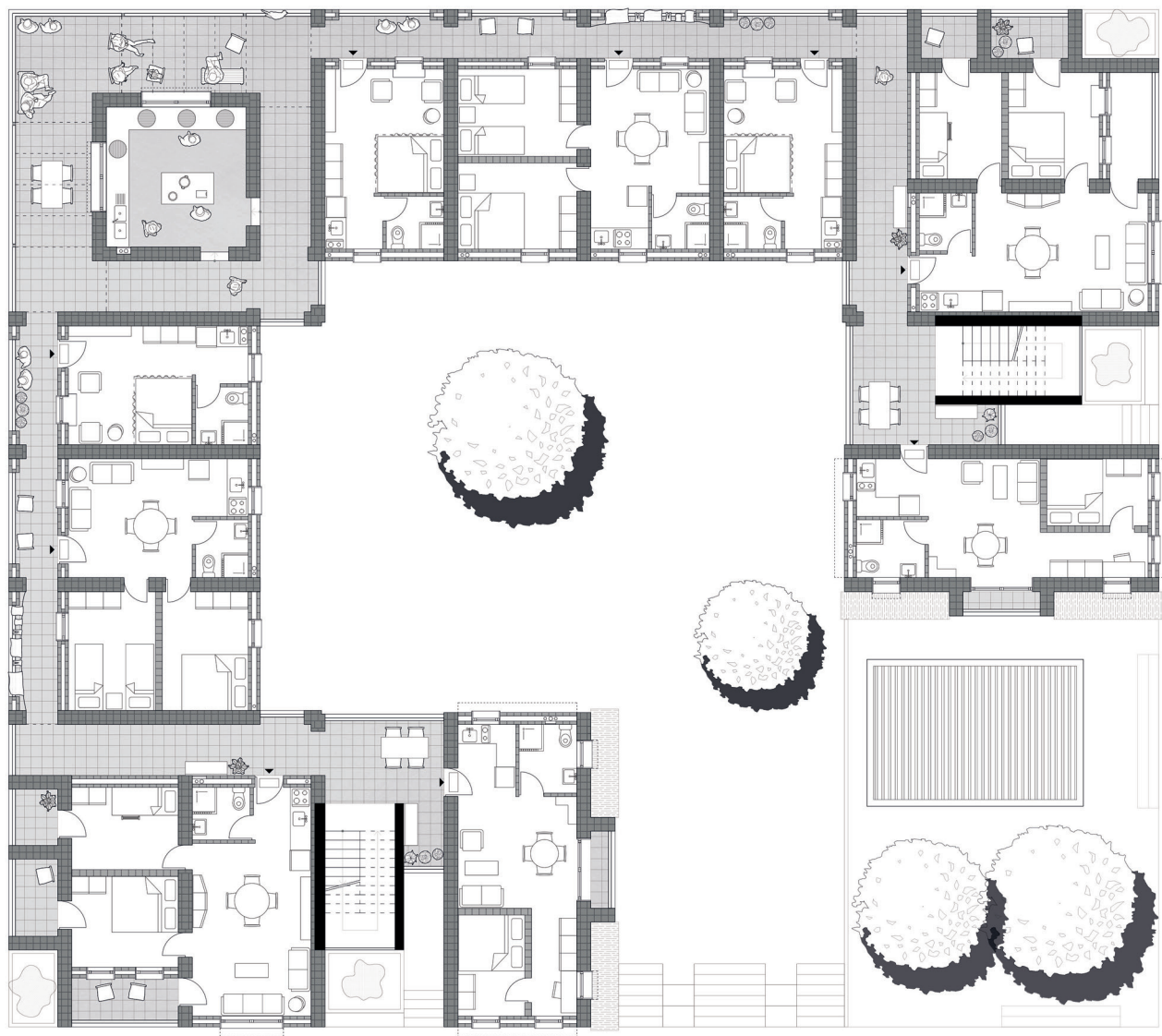
Type A | 2nd floor



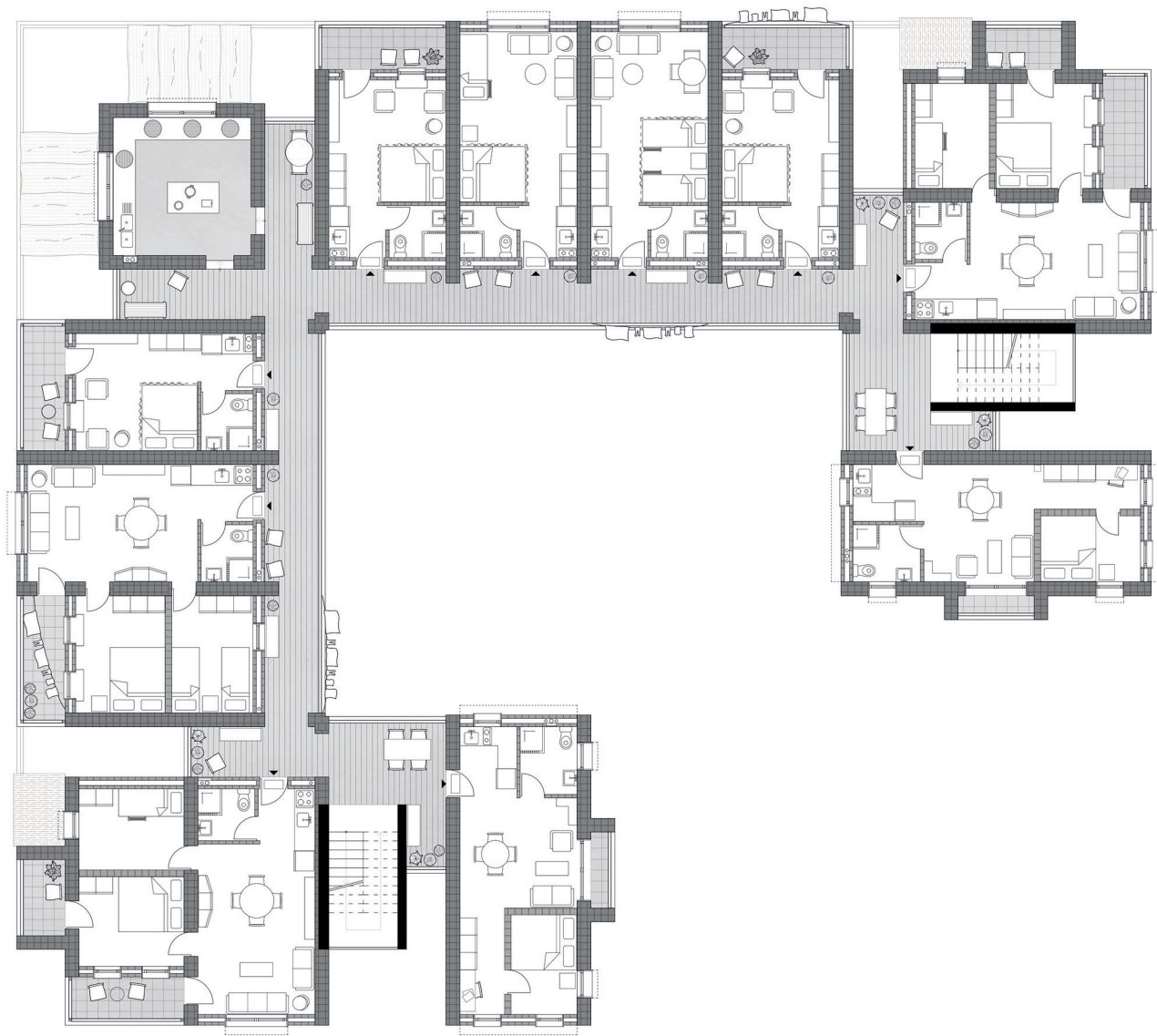
Type A | 3rd floor



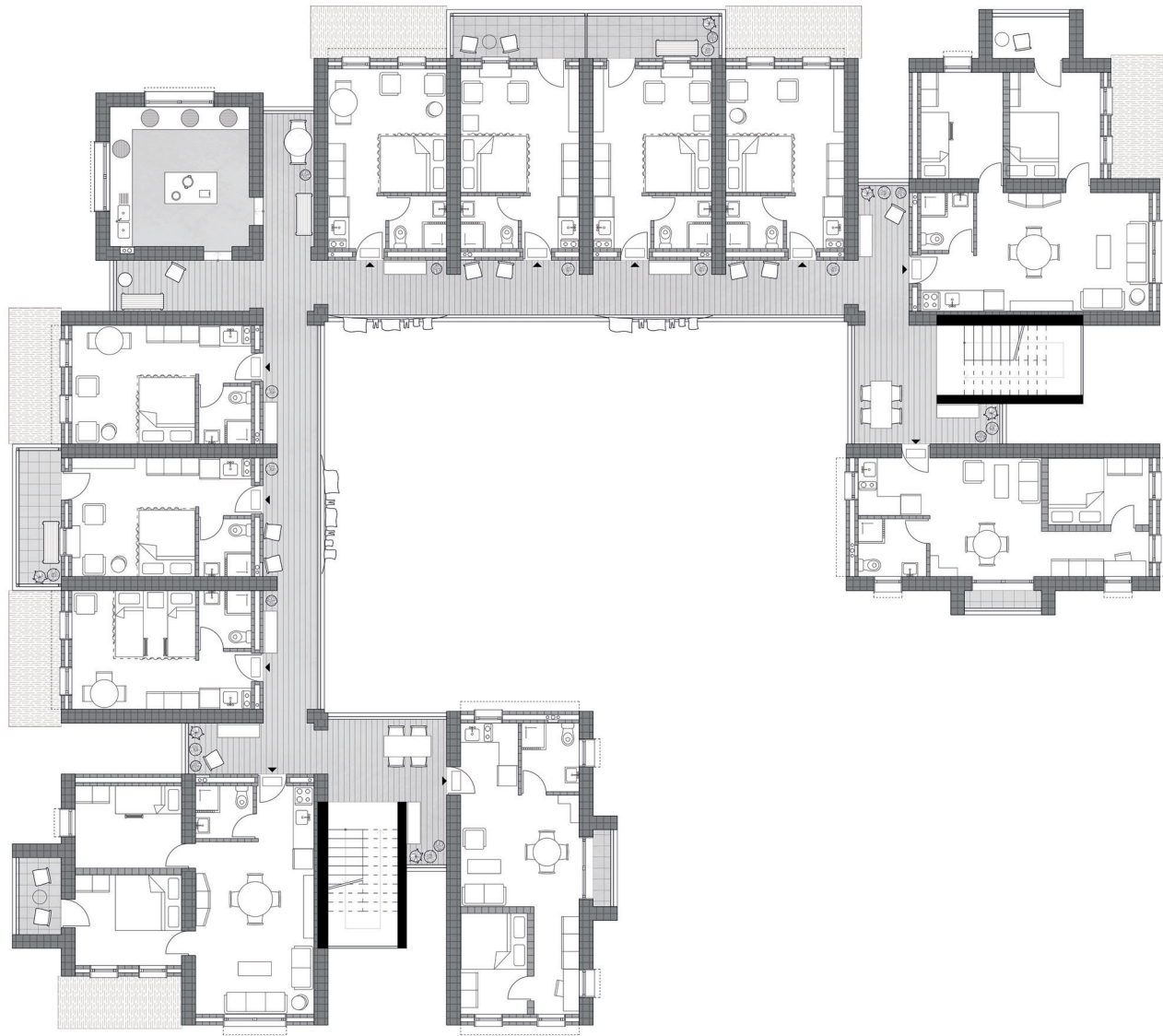
Type B | Groundfloor



Type B | 1st floor



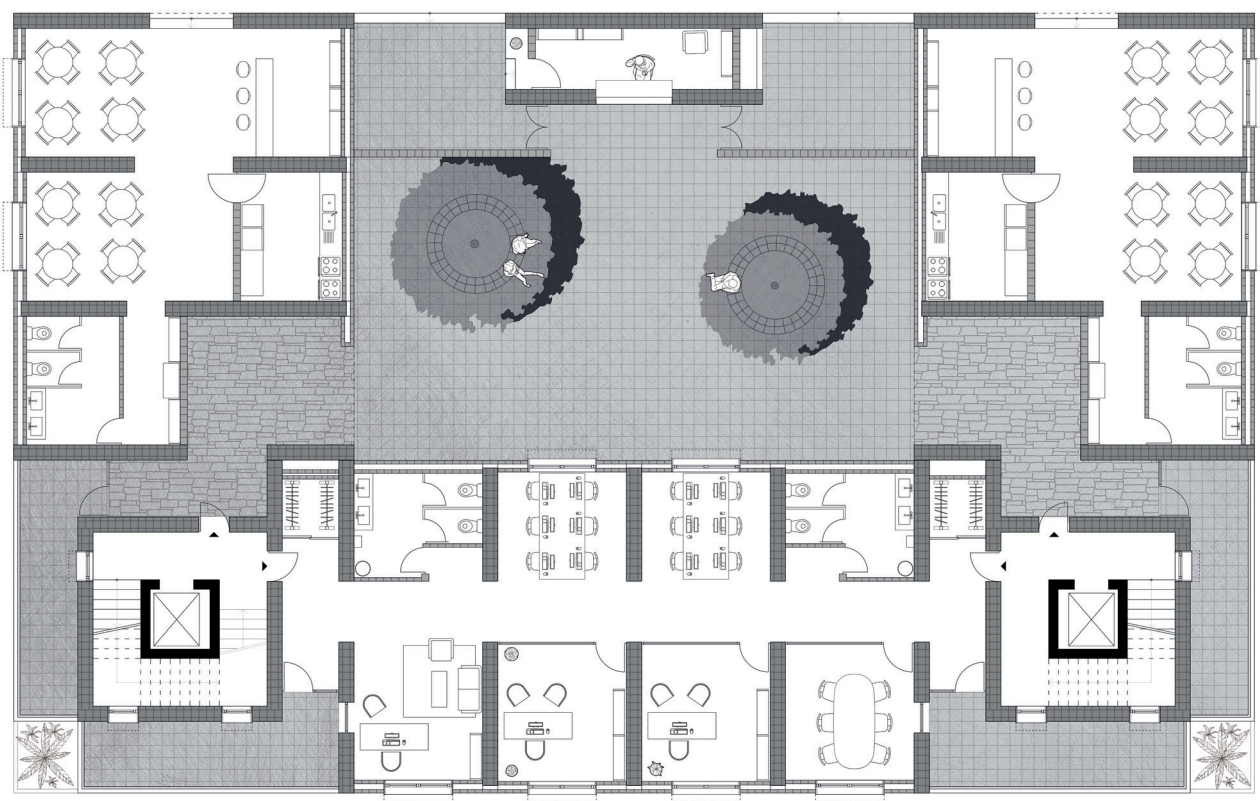
Type B | 2nd floor



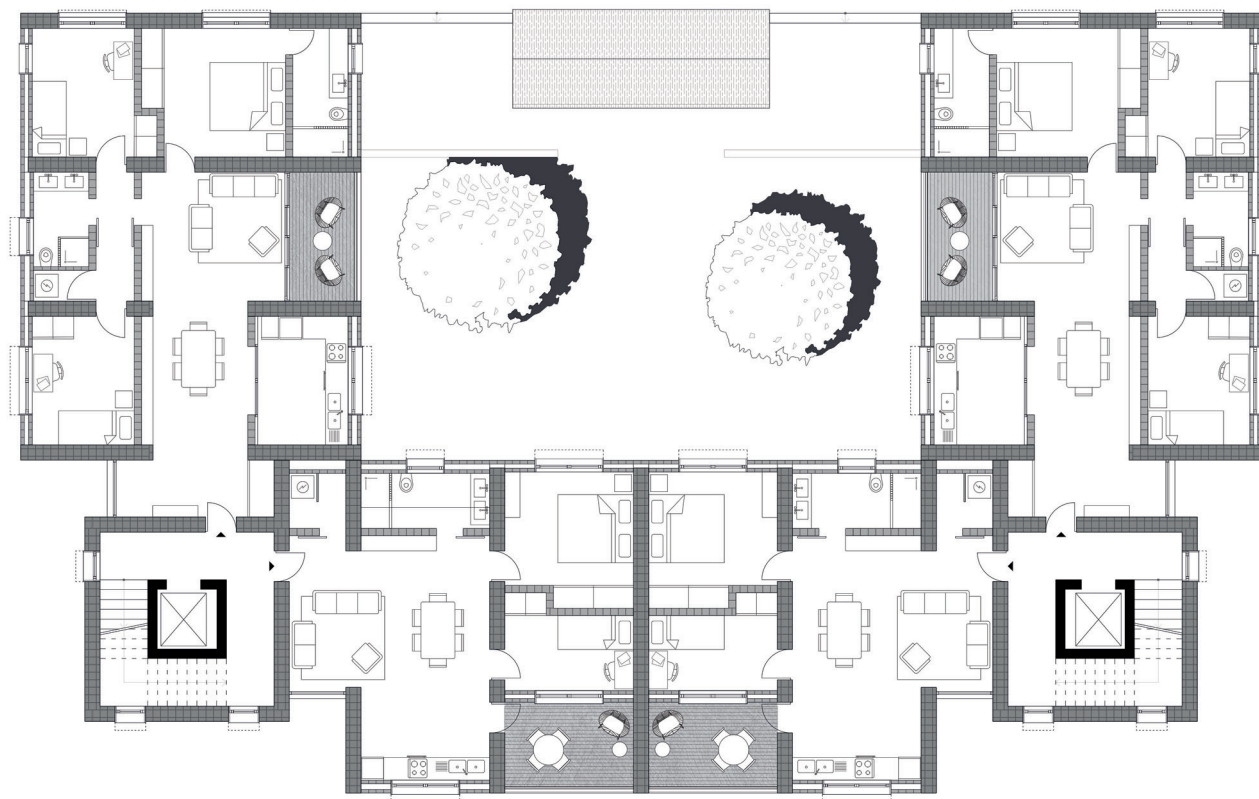
Type B | 3rd floor



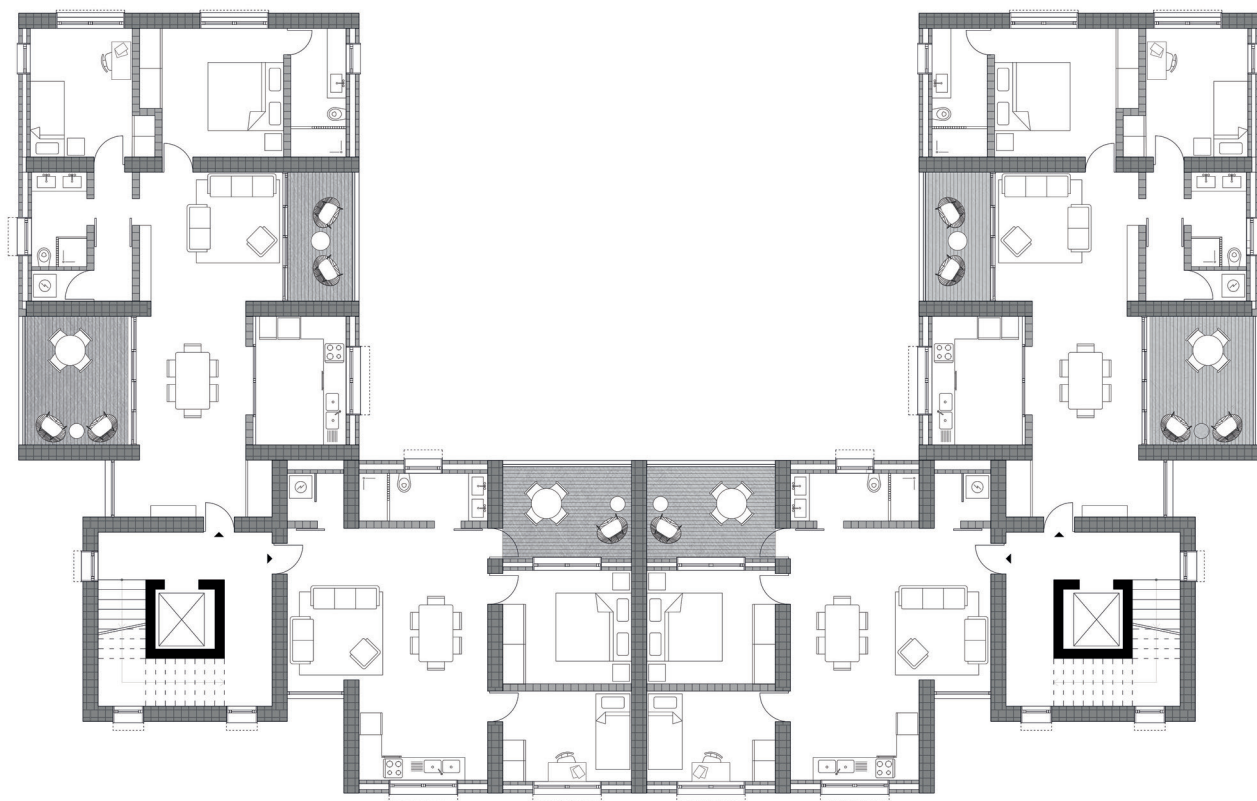
Type B | 2nd floor



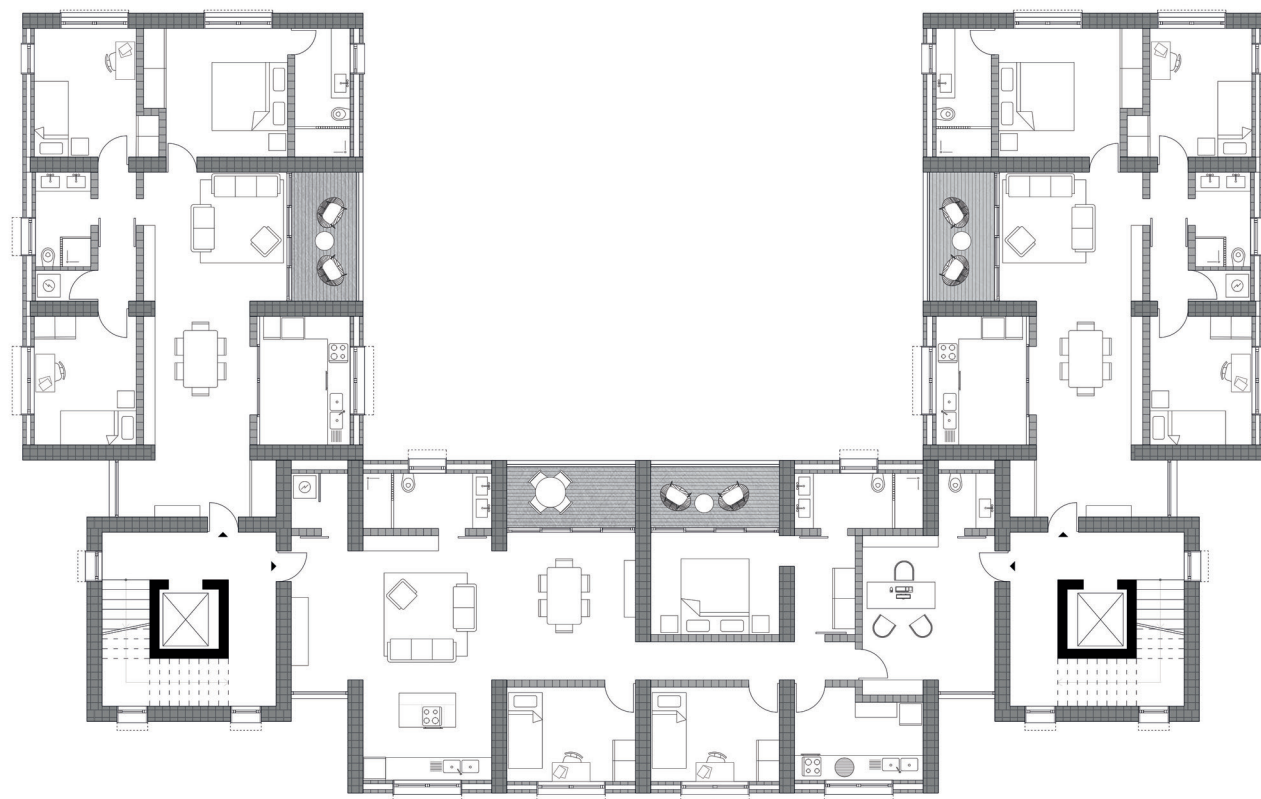
Type B | 3rd floor



Type B | 2nd floor

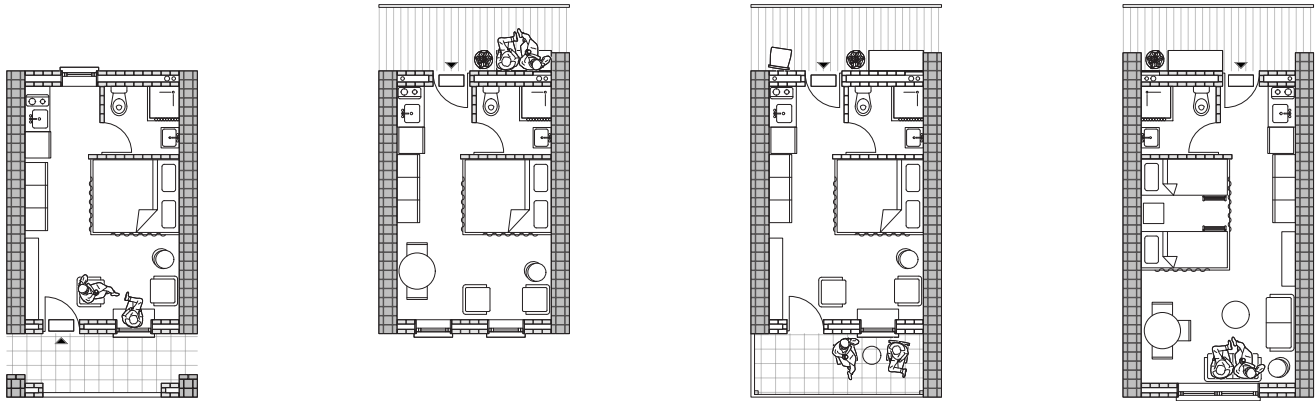


Type B | 3rd floor



Type B | 2nd floor

Studios



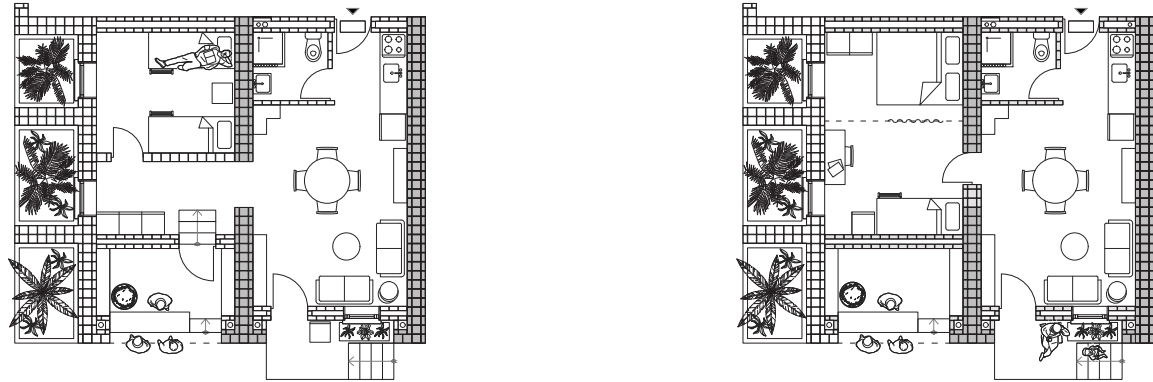
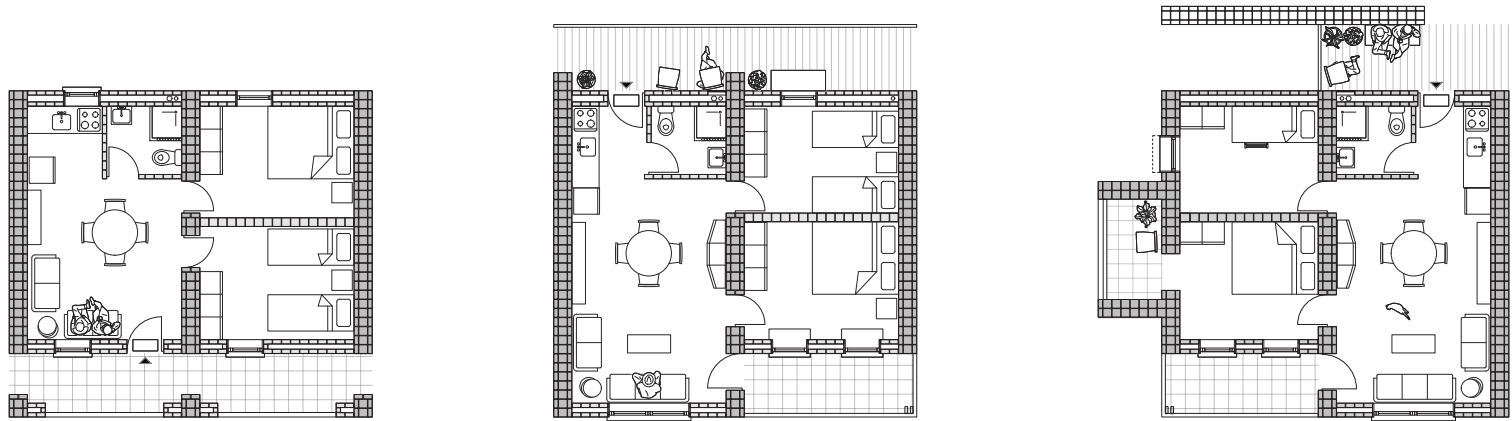
1 BHK



0 1 2 5 10 20 m

The Typology
1:100

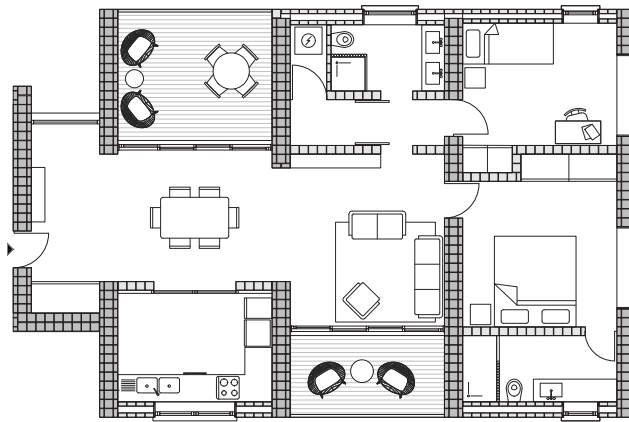
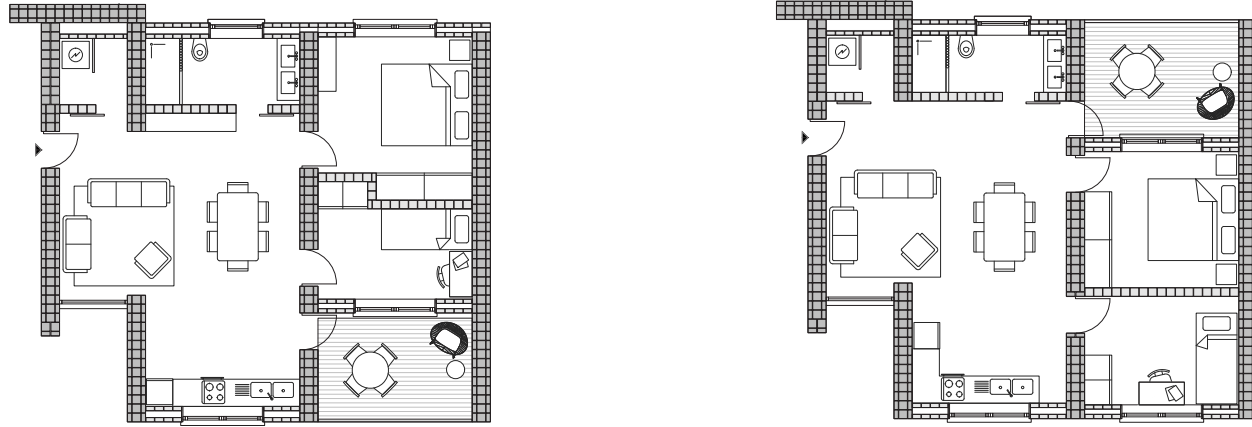
2BHK



0 1 2 5 10 20 m

The Typology
1:100

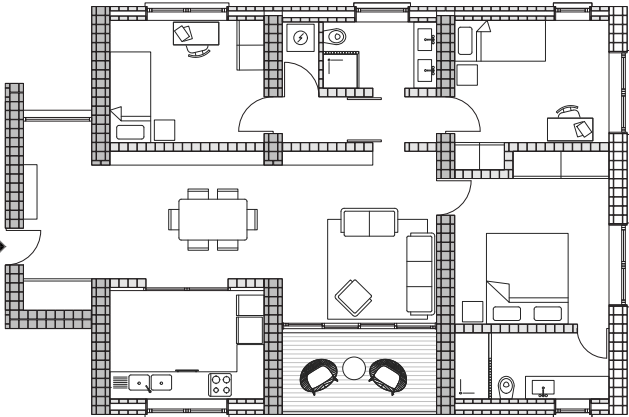
2BHK



0 1 2 5 10 20 m

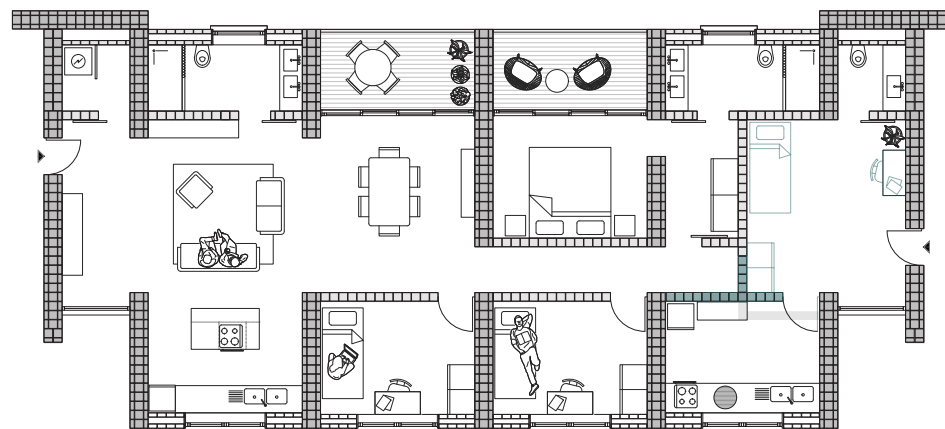
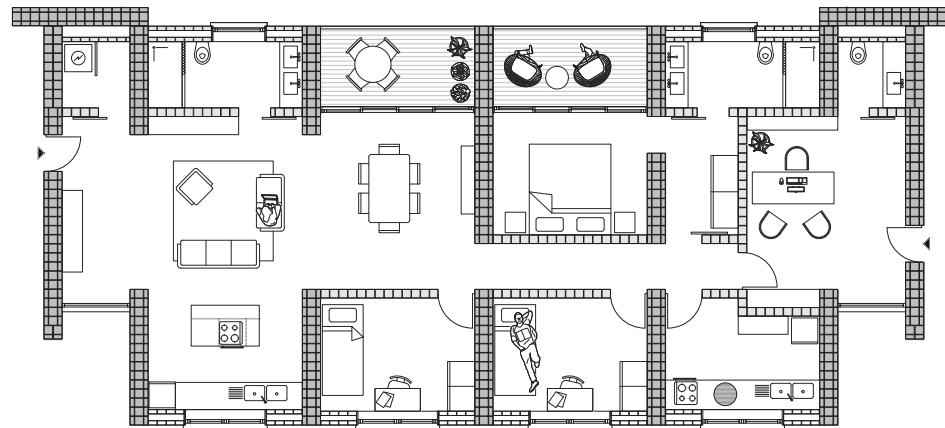
The Typology
1:100

3BHK



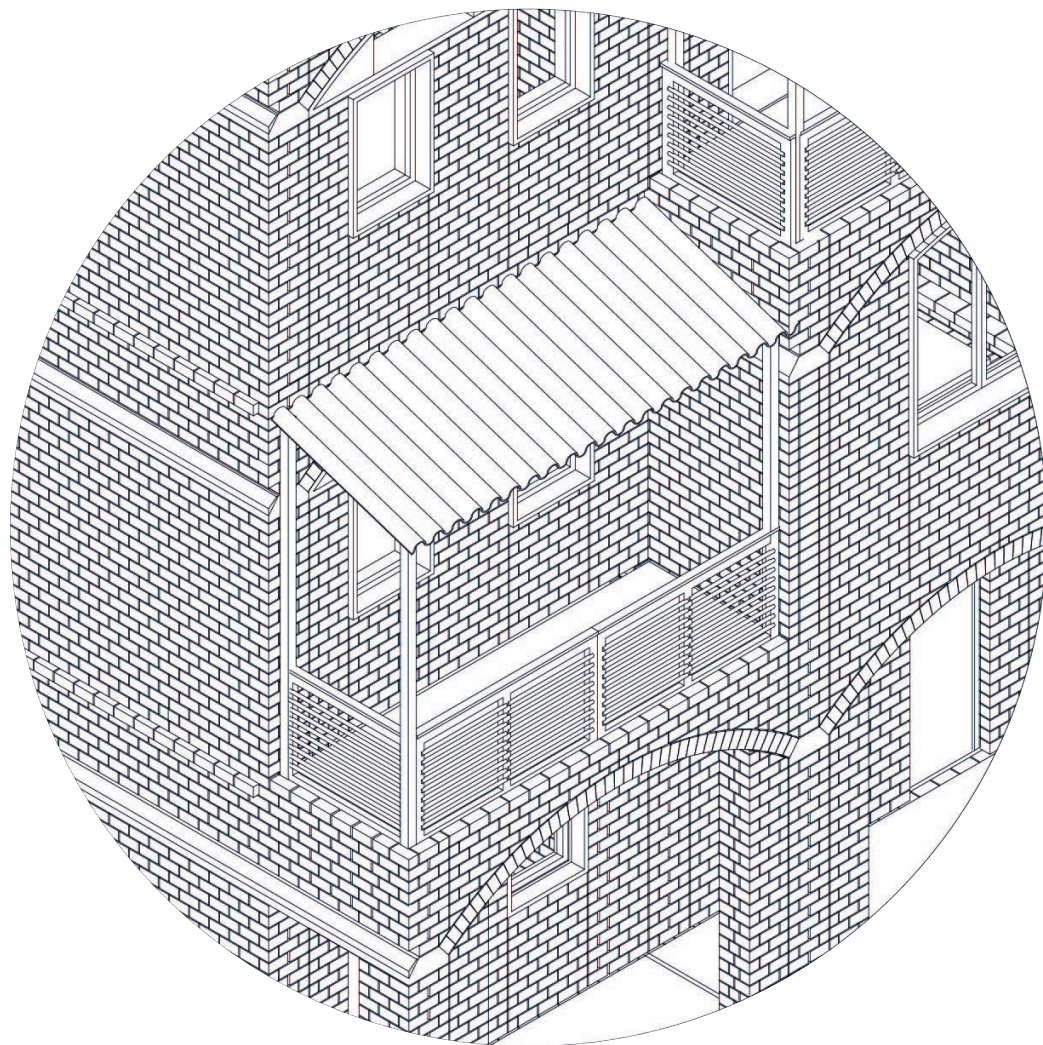
The Typology
1:100

4BHK

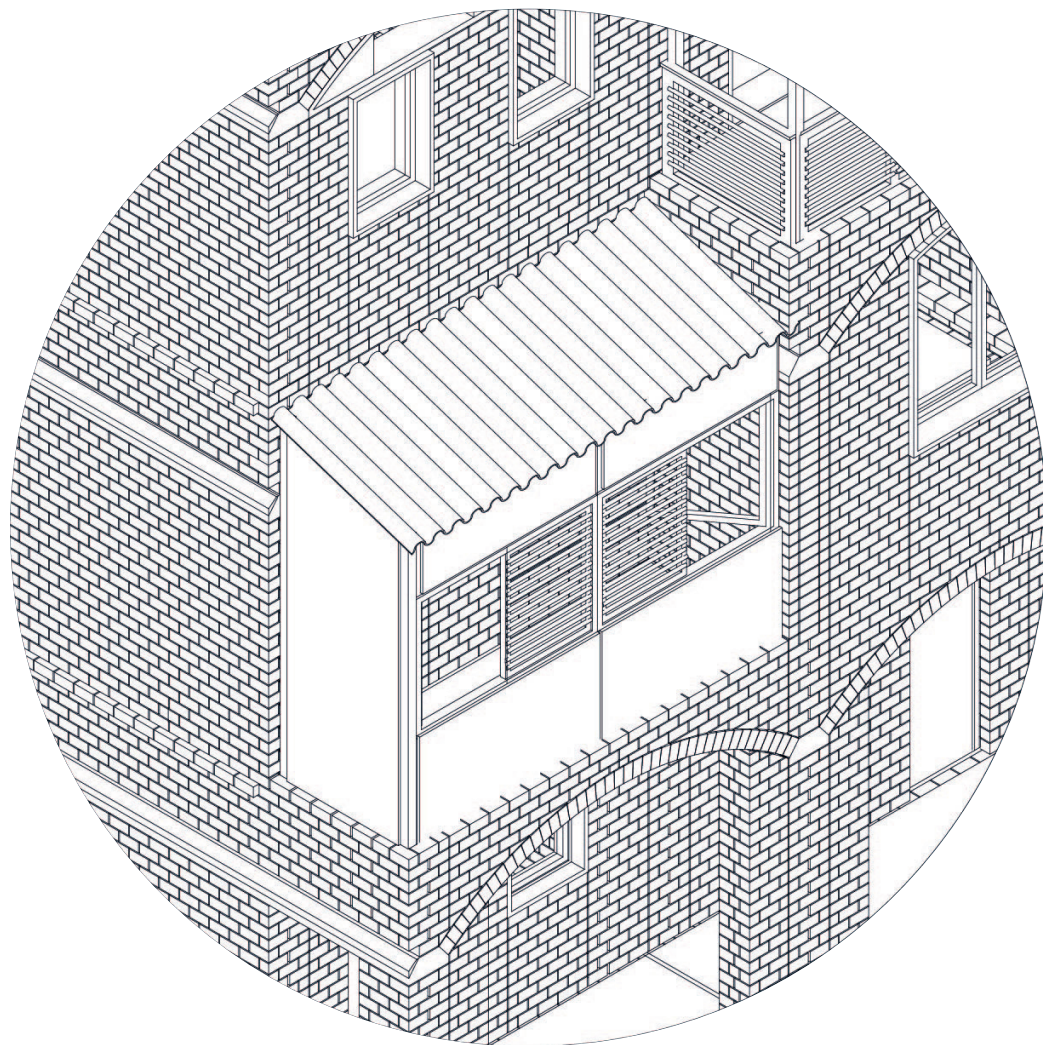


0 1 2 5 10 20 m

The Typology
1:100



Original Veranda



Incremental Veranda

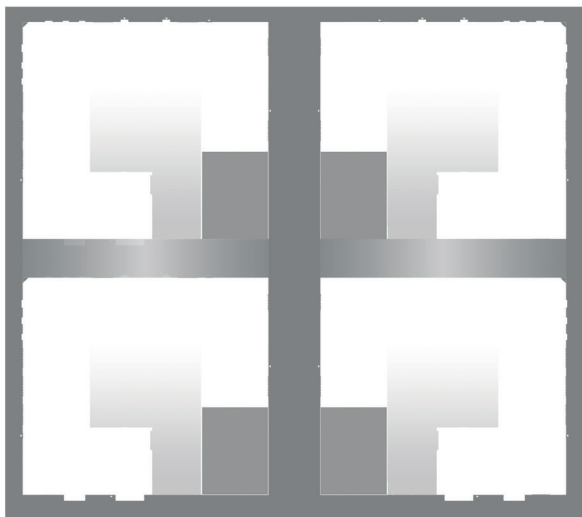
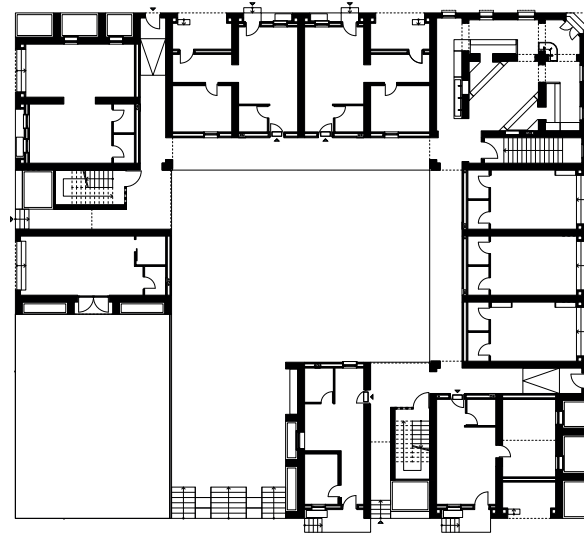
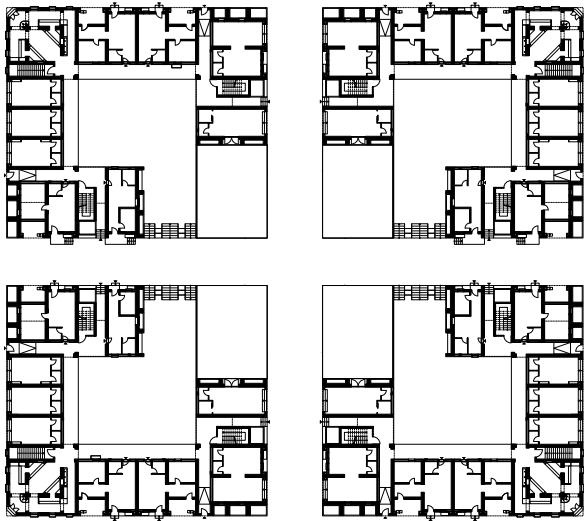
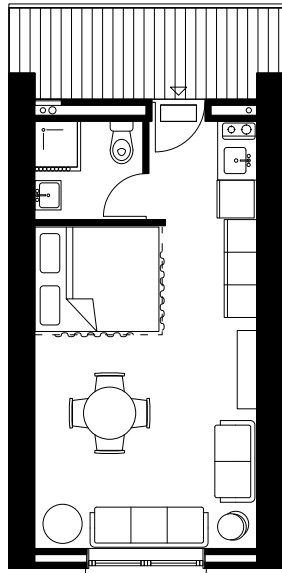


Diagram of transitions from the streets to the housing units. At each step in-between elements provide transition to different spaces

Urban Strategy

A Hierarchy of Privacy



The urban strategies followed several aspects to answer to the current condition in Talian Sefer. These features, though are often shared by many cities in the Global South, therefore similar system could be applied elsewhere, especially in the African continent.

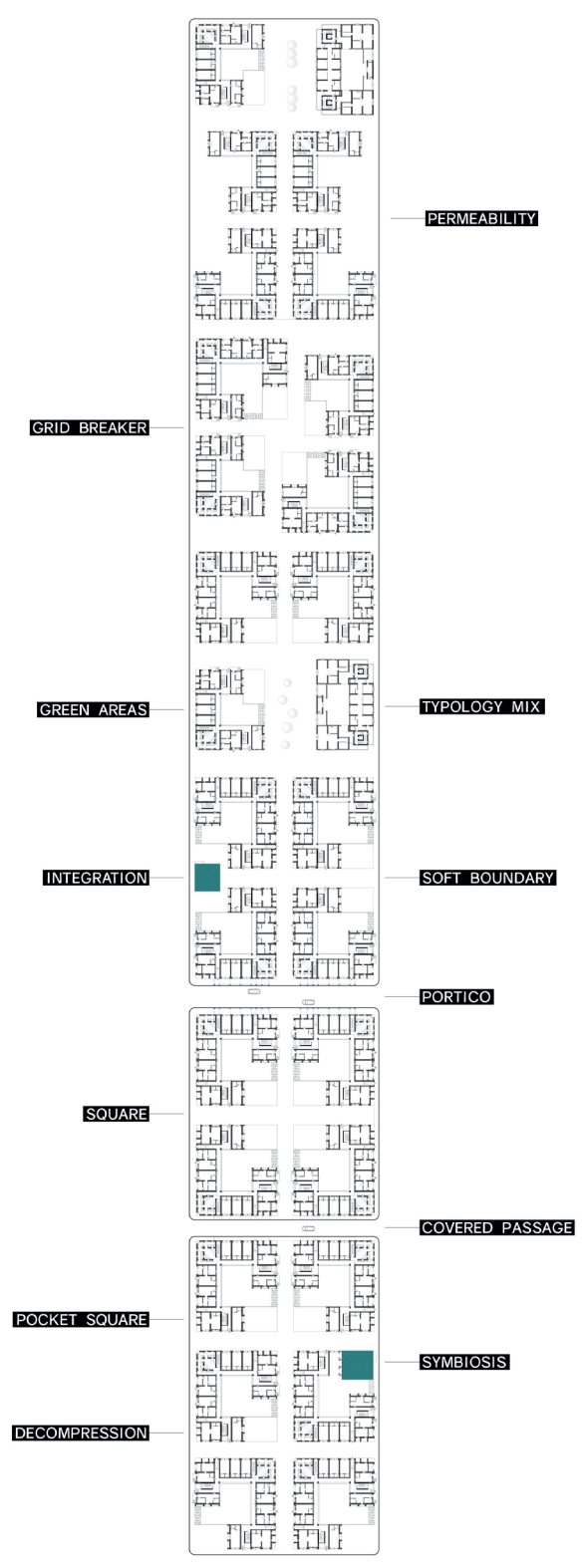
First, the lack of connection between dwellings and public space: The groundfloor is often blind to the public space. On the one hand, the lack of transition between spaces generates a strong border and thus a fracture. On the other hand the great deal of dwellings at the ground floor impedes the setting of shops, reducing possibilities for income generation and the level of interaction by the street. As a result, public space is jeopardize, lacking security and care. Consequently, the idea of the plateau and terraces was conceived to establish a visual and physical contact between dwellings and streets while providing privacy. On top of that, at the ground floor the transitional elements were re-interpreted to provide a more gentle connection while also space for shops, both formal and informal is provided.

Regarding the bigger picture of transition, at each step toward the the dwelling, attention was drawn onto always providing privacy. The reason lies in the fact that the transition Public-Semipublic-Semiprivate-Private is more complicated than a continuous linear process. Indeed, the status of space is not stable, as moving toward a more private place the one at the origin becomes less intimate as it used to be before reaching it. As a matter of fact, the status of a place depends from a relative system.

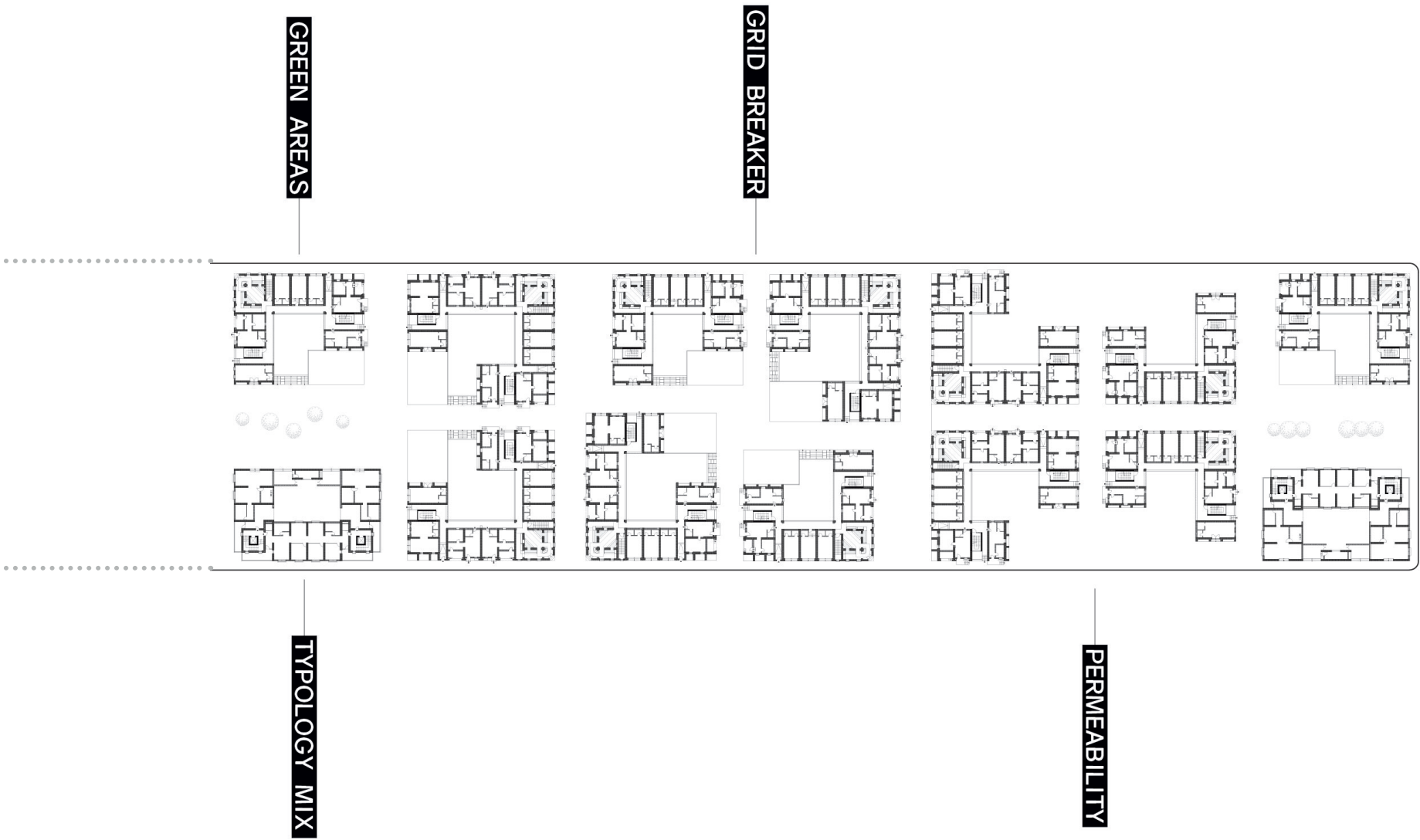
Therefore, this aspect has to be taken into consideration when designing.



Social and Visual contact between the street and the upper floors of the typology.



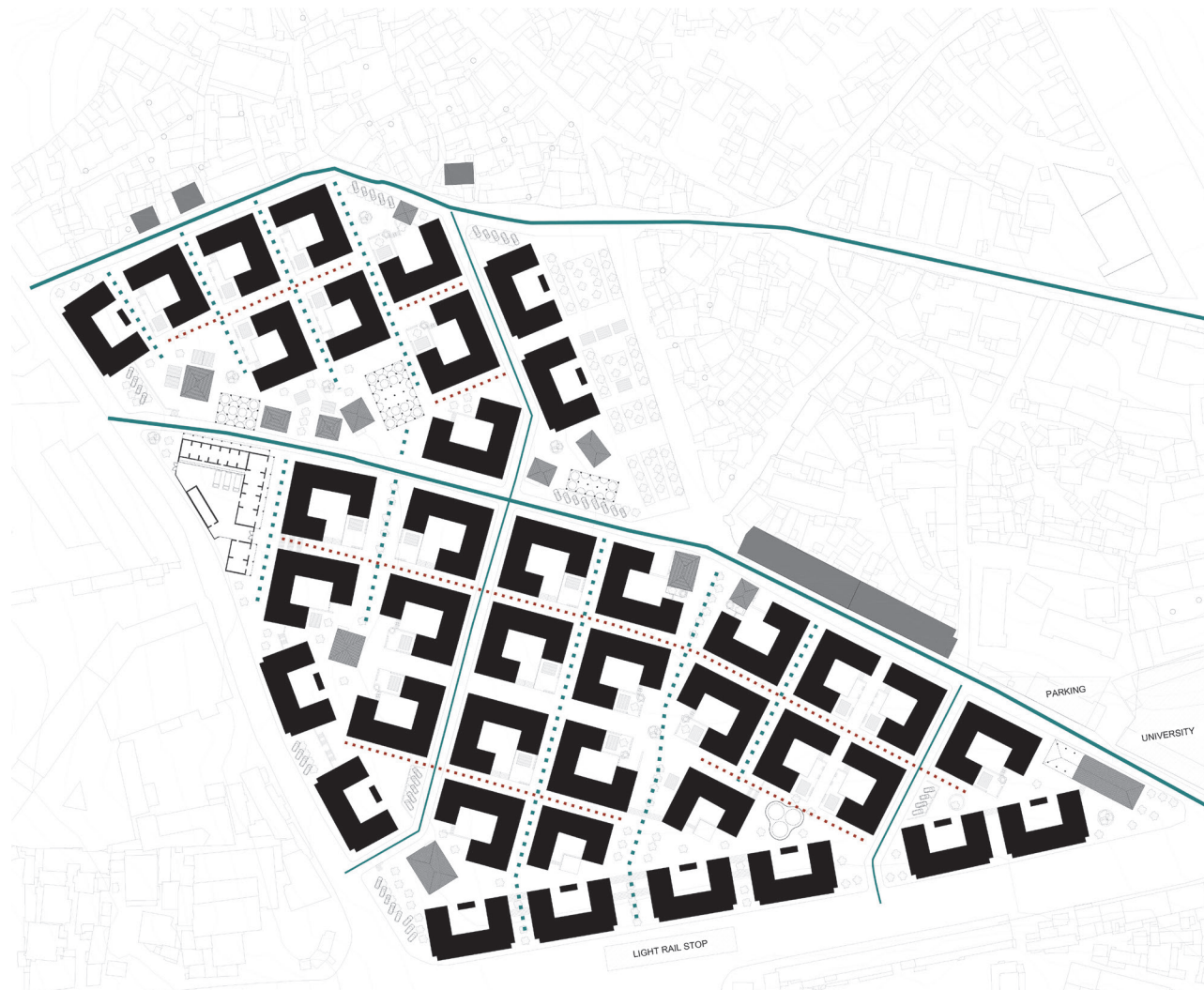






Cutting Through

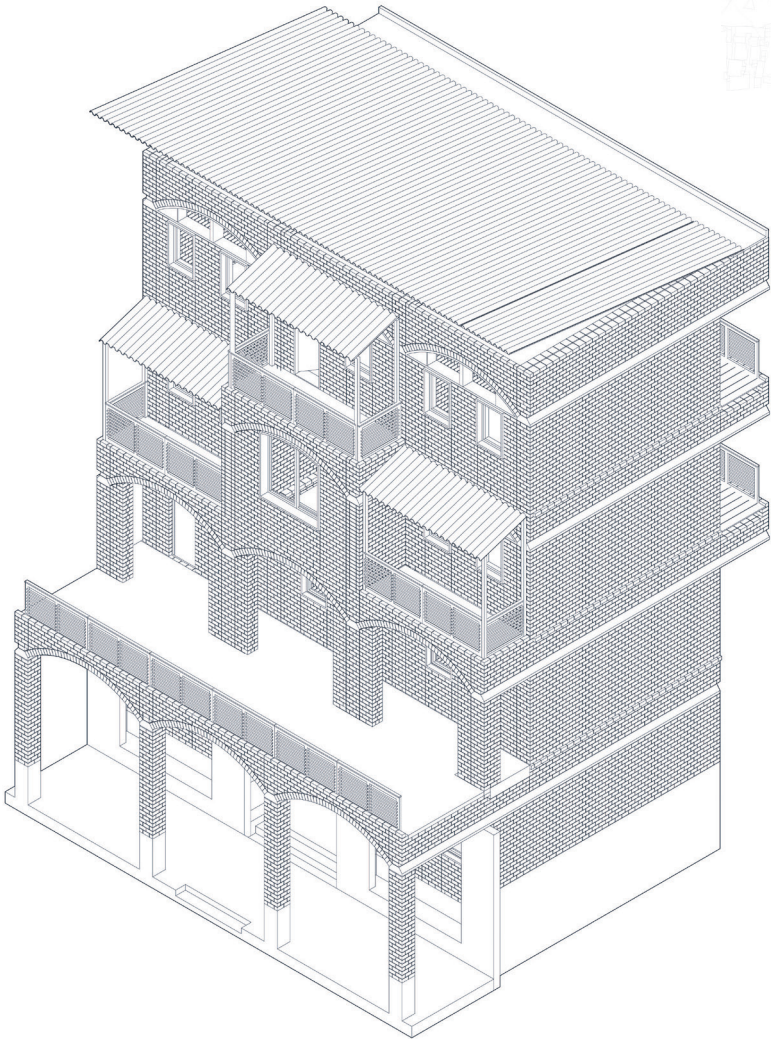
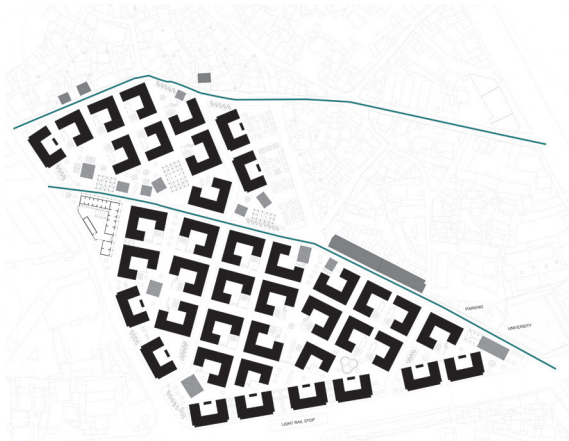
Main accesses to the hearth of the block



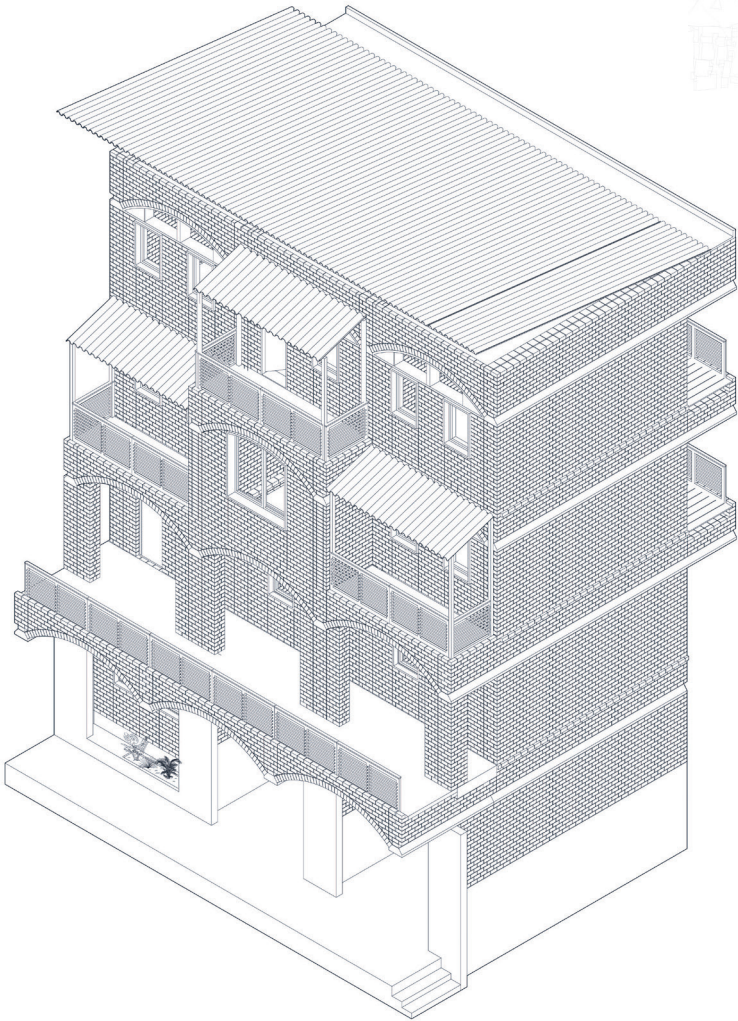
Streets:

5 different conditions

Primary Road



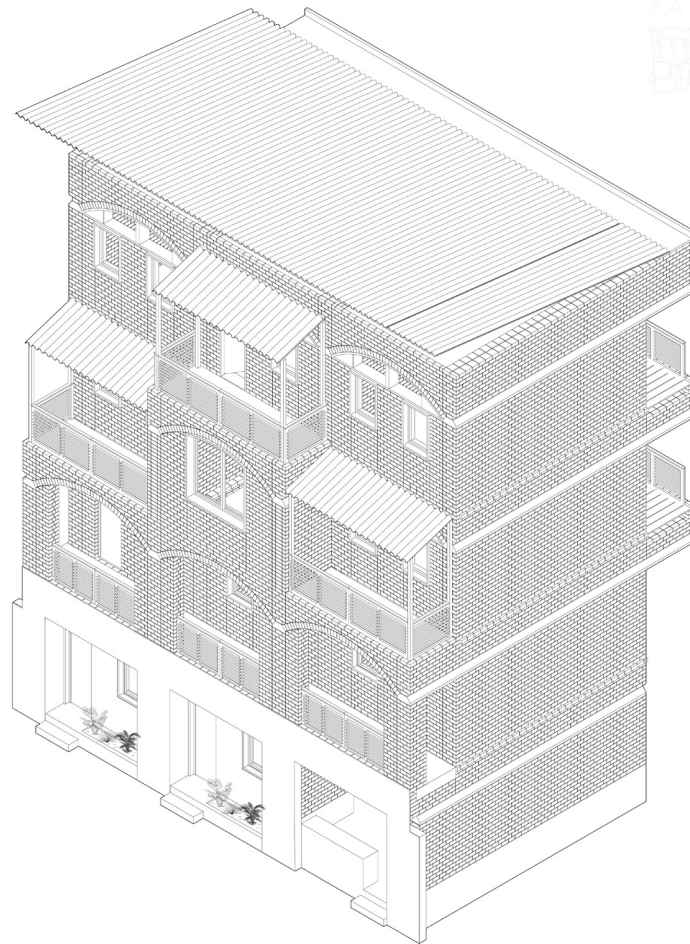
Secondary Road



Commercial Road



Residential Road



Phasing

The development of the whole projects takes into consideration the possibility of its stop, of ways to recover the funding faster, and to avoid a massive eviction of the current dwellers.

Thus, it starts from the main roads of the neighbourhood, where commercial activities will be placed and started from the very first step to pay the project back. The following phases aim at developing independent blocks that can work in combination or independently from the surrounding ones.





















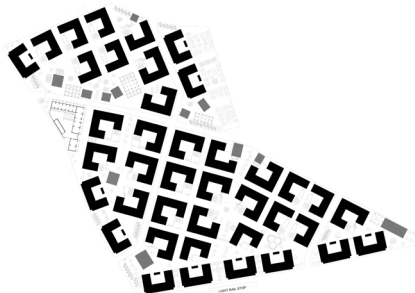


Talian Sefer Today



Surface:	27.2 ha
Units/ha:	80 u/ha
FSI:	0.6
Building height:	1-2 storey

Talian Sefer 2030



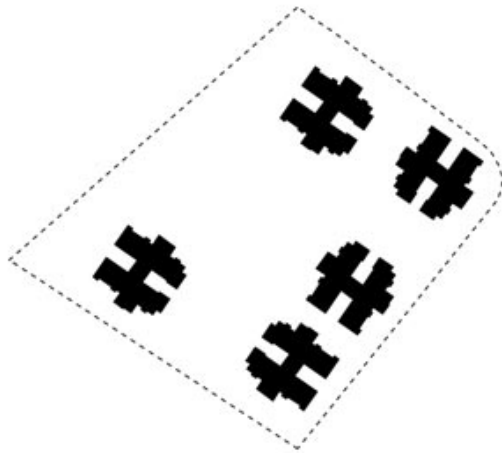
Surface:	5.7 ha
Units/ha:	179 u/ha
FSI:	1.6
Building height:	4-7 storey

Mickey Leland 20/80



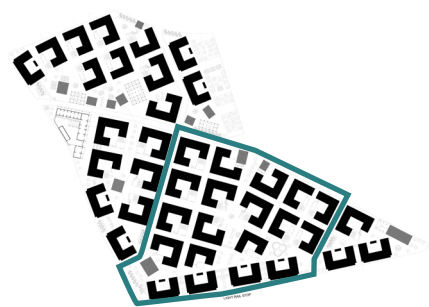
Surface:	21 ha
Units/ha:	90 u/ha
FSI:	1
Building height:	5 storey

Sengatera 40/60



Surface:	2.6 ha
Units/ha:	144 u/ha
FSI:	1.85
Building height:	13 storey

Talian Sefer 2030

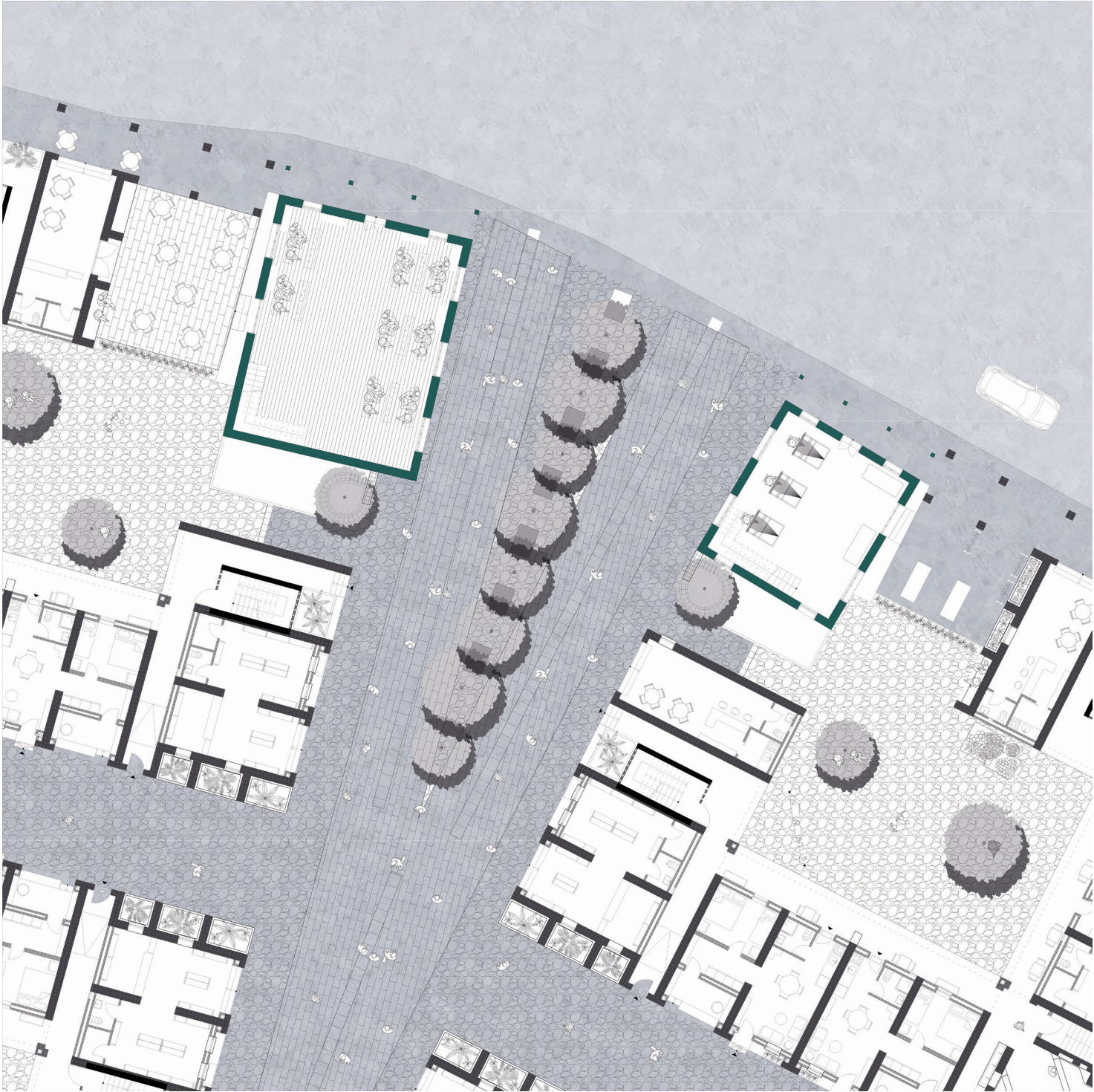


Surface: 2.54 ha
Units/ha: 203 u/ha
FSI: 1.68

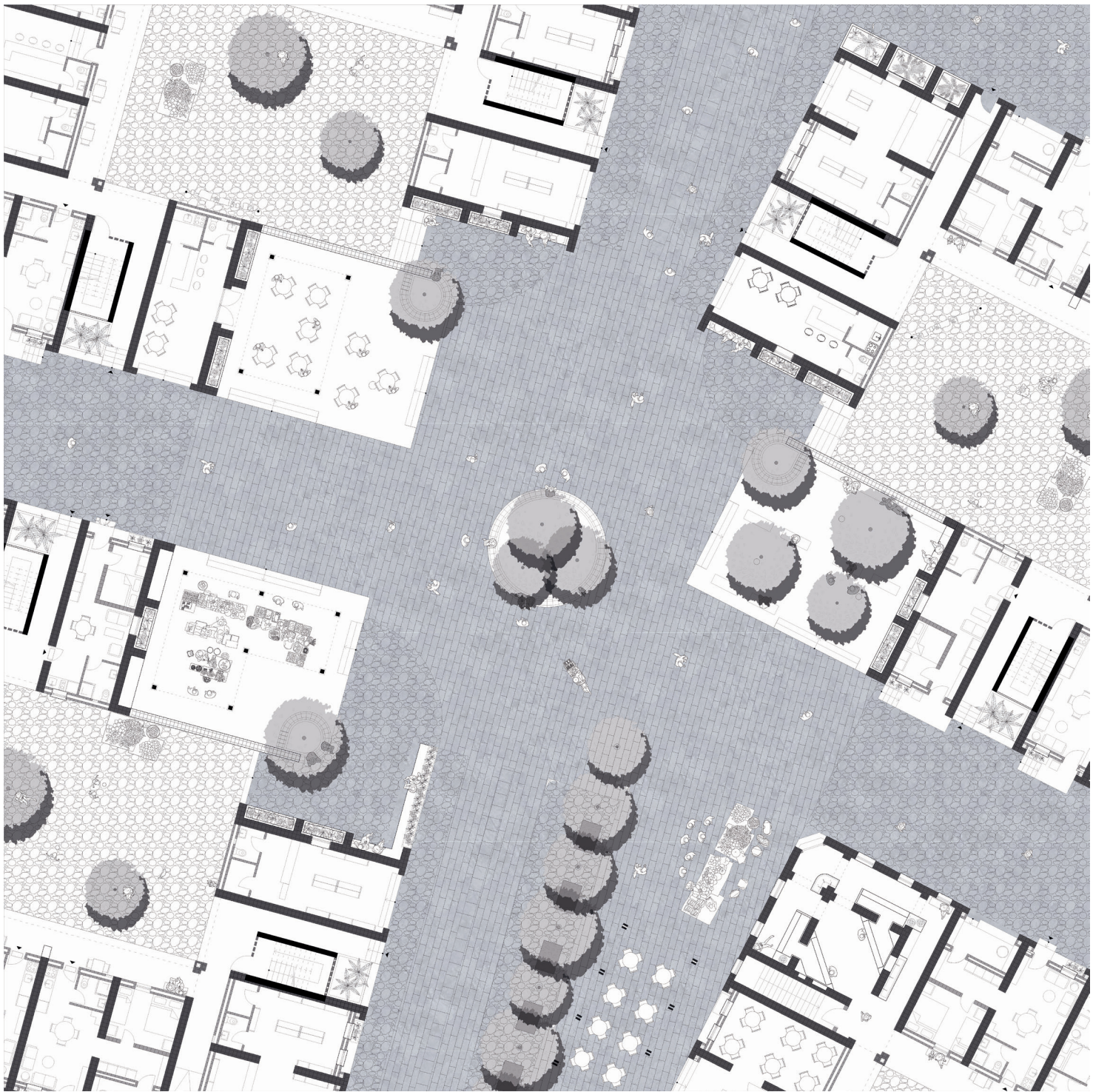








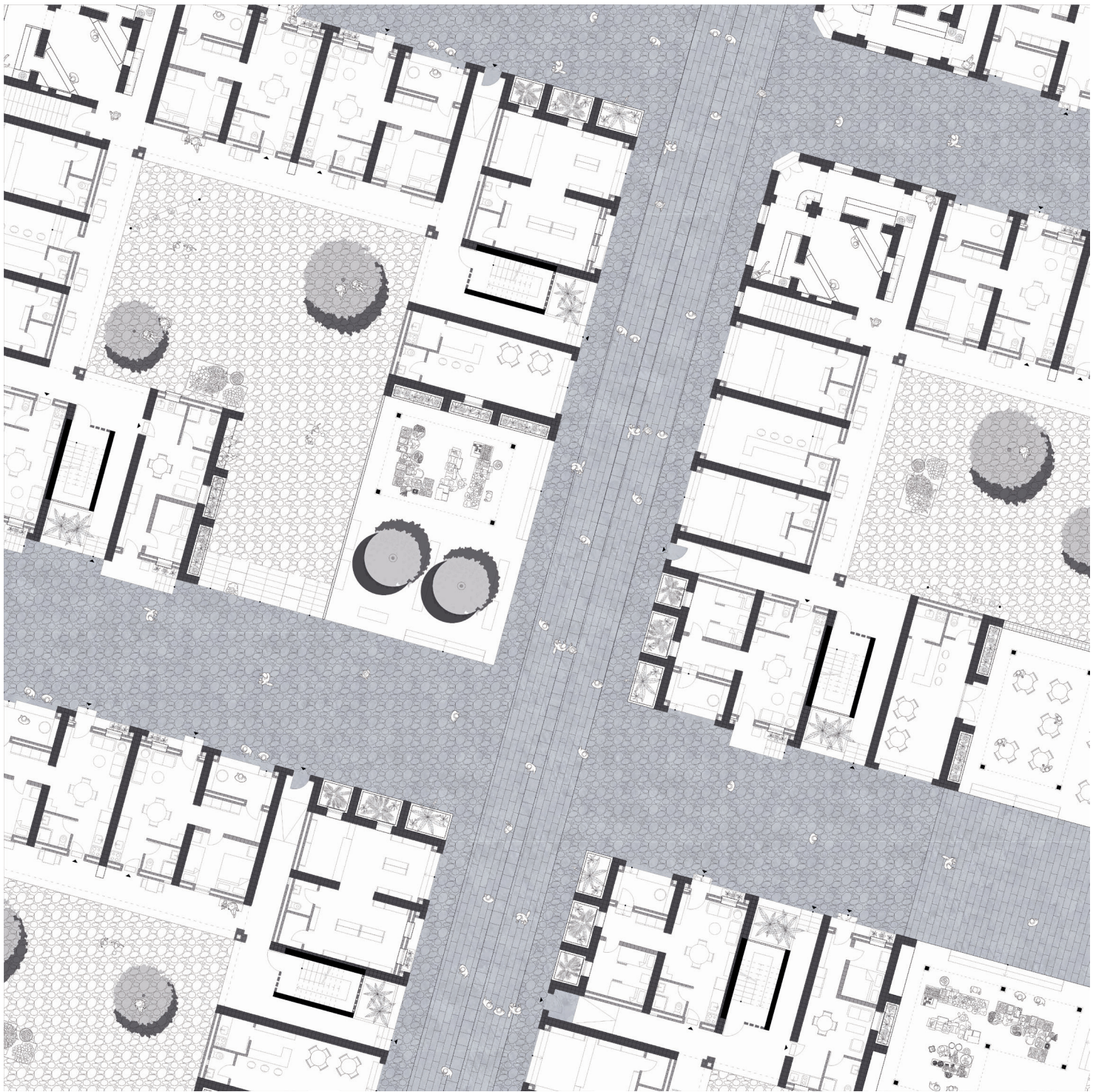
“The Columns of Heritage”



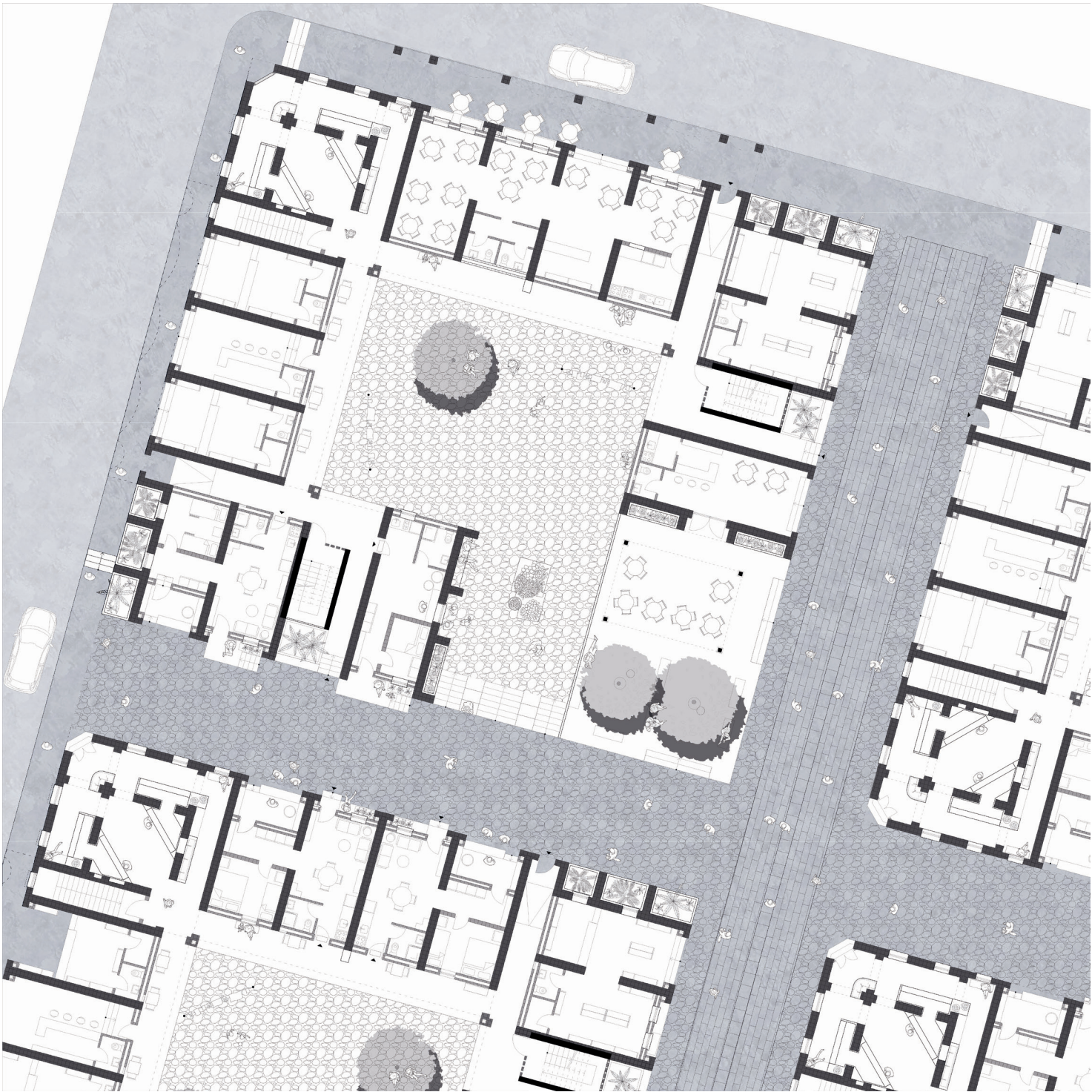
Talian's Main Square



Axonometric Drawing of the Square



Residential-Commercial Crossing



Porticos

The Image of the City



Talian's Main Square



Transitional Steps - Start



Transitional Steps - Future



Low Income Apartment - Interior



High Income Apartment - Interior



New & Old

