A Reconnected World

——Housing Planning and Design for Blind people in Navi Mumbai

-P5 Presentation

/ Da Lian 5340500 /

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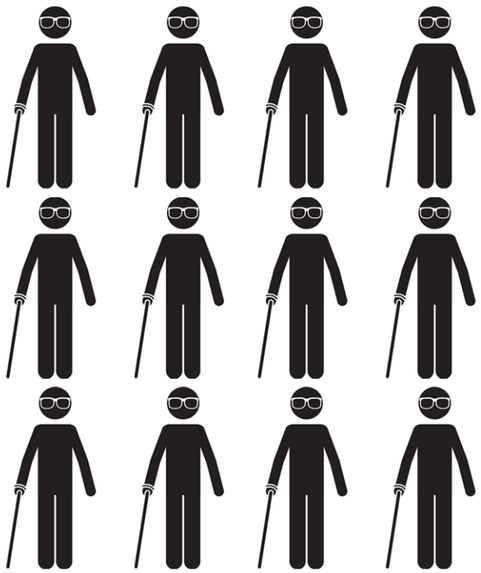
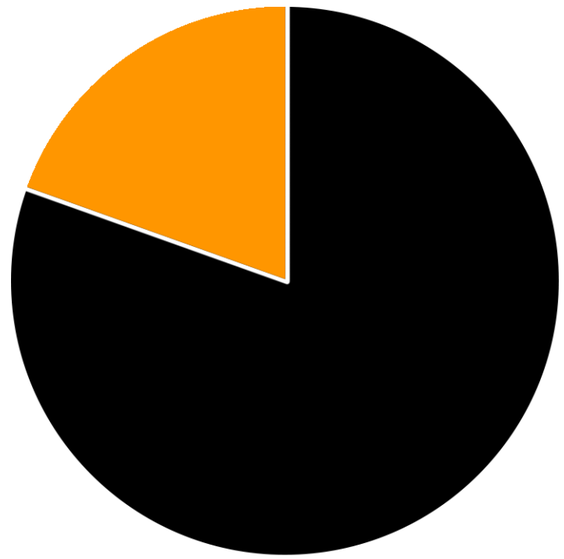
AR3AD105　Global housing Graduation Studio 2021/22

Visually Impaired Population in India in 2017



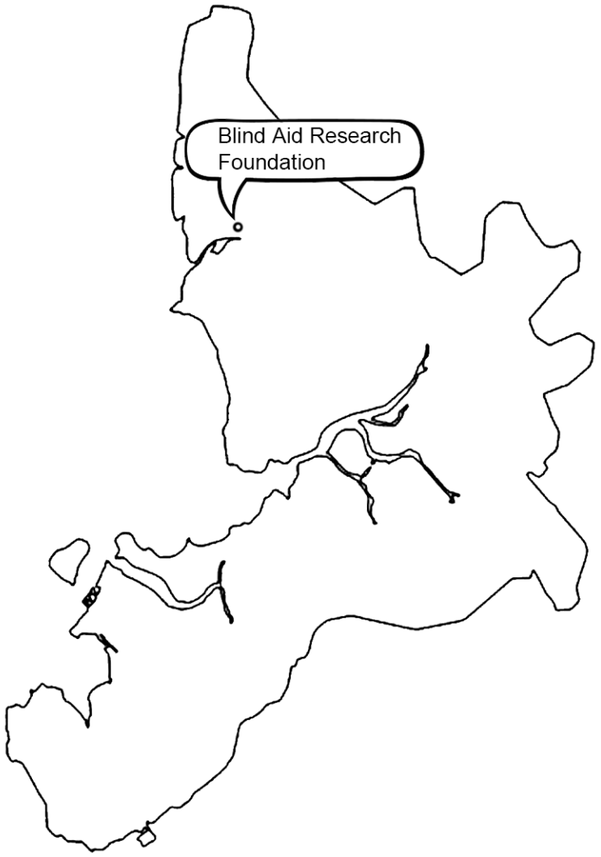
35,000,000

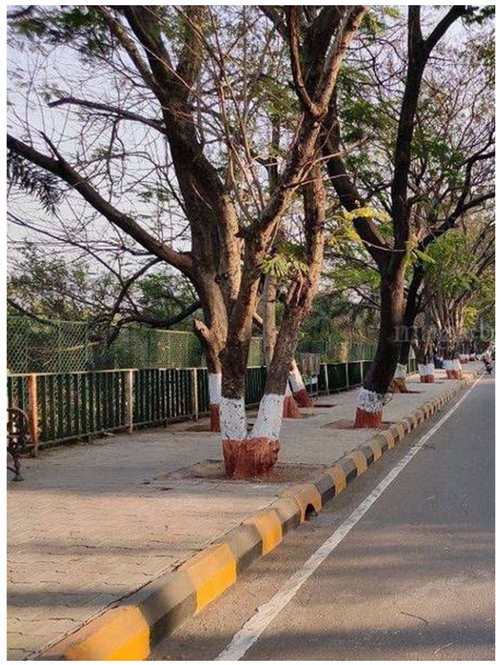


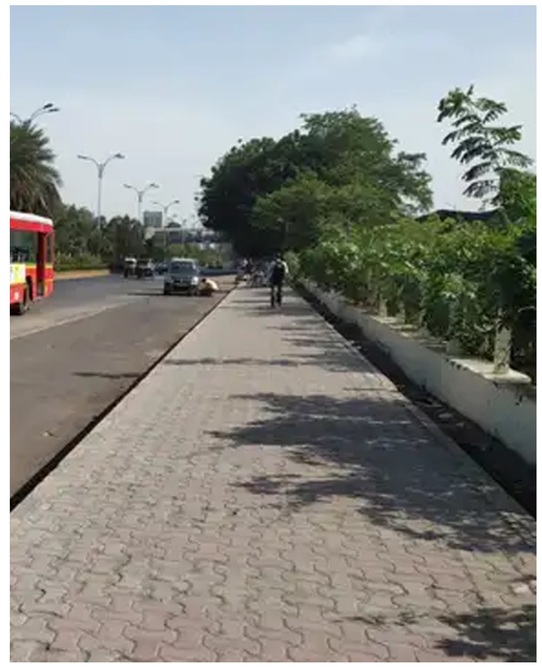
20%

Data: National Blindness&Visual Impaired Survey India 2015-2019

Scarce Blind Infrastructure in Navi Mumbai





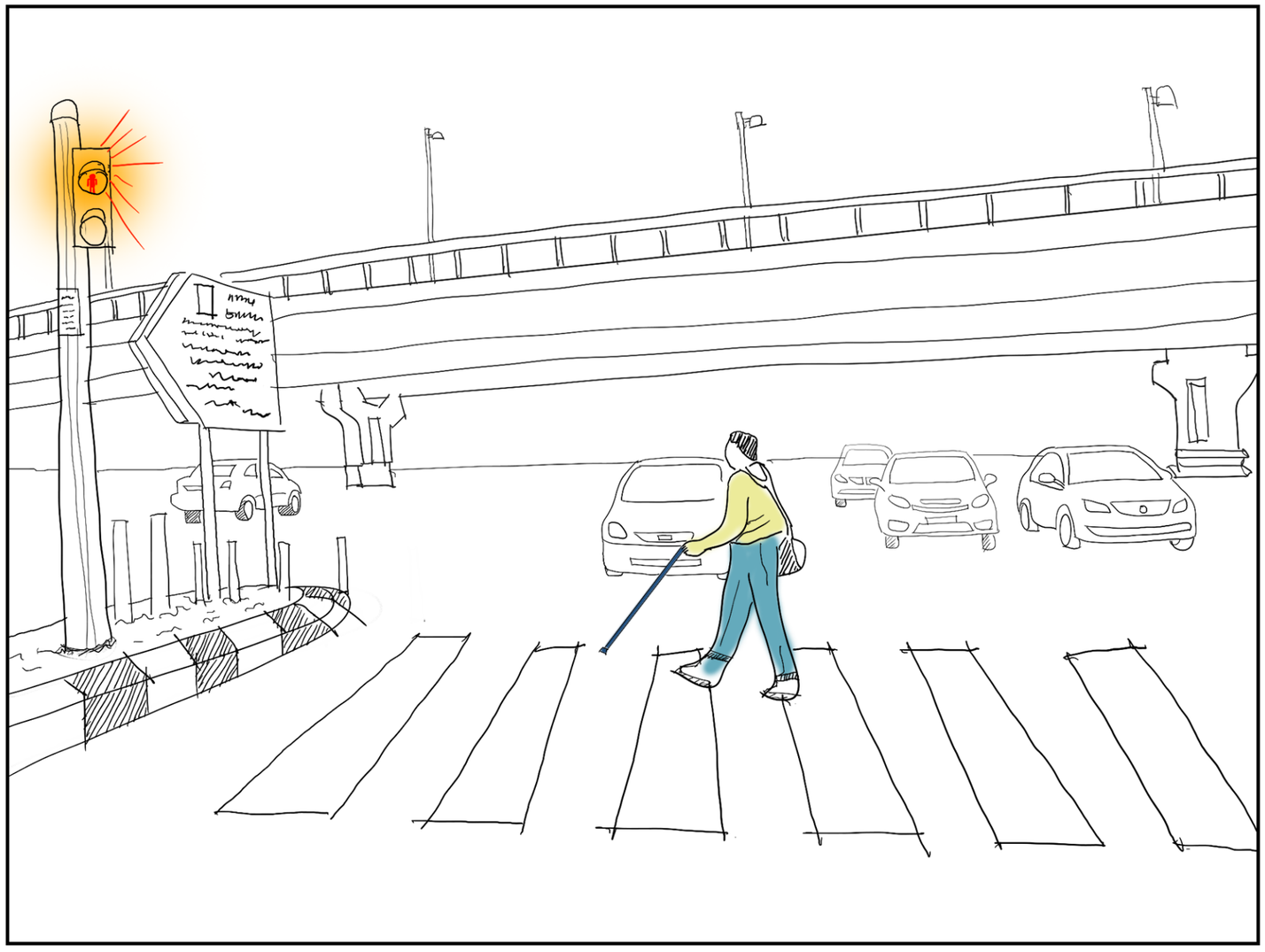


As a planned city, it should be relatively easy to plan a complete system of blind lanes and services for the blind in Navi Mumbai. But so far, there is only one blind institution serving Navi Mumbai and the blind lanes that should cover the city are only hard to find.

Image: Street View of Navi Mumbai,
https://www.magicbricks.com/Airoli-in-Navi-Mumbai-Overview

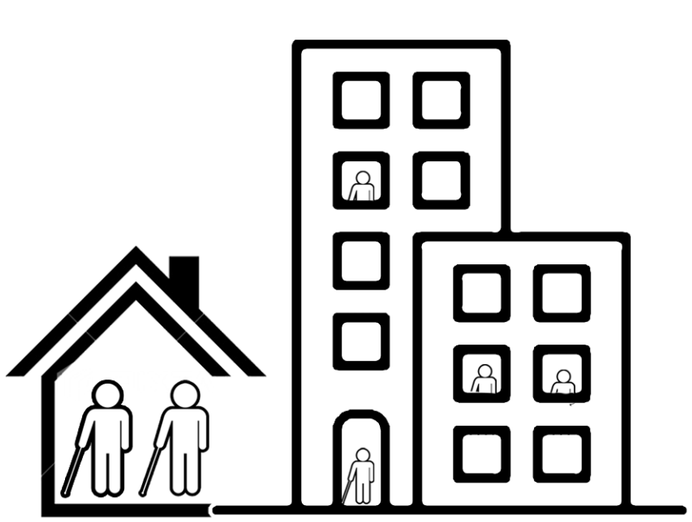
Drawing: Da Lian

A Blind Man is Crossing the Road



Drawing: Da Lian

Living Together and Share the Facilities



In the short term, it is difficult to expect that cities in India will be able to build a complete system of assisting the blind. Living together means they are able to have a highly accessible community.

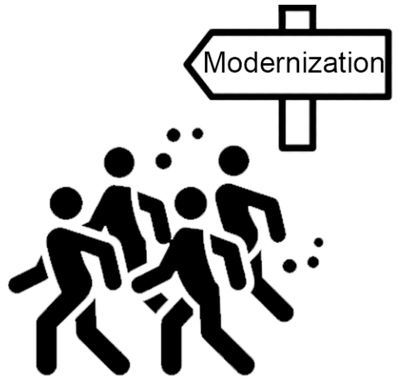
Drawing: Da Lian

Current Situation in Whole India

India

America

Alienated and voluntary Retreat



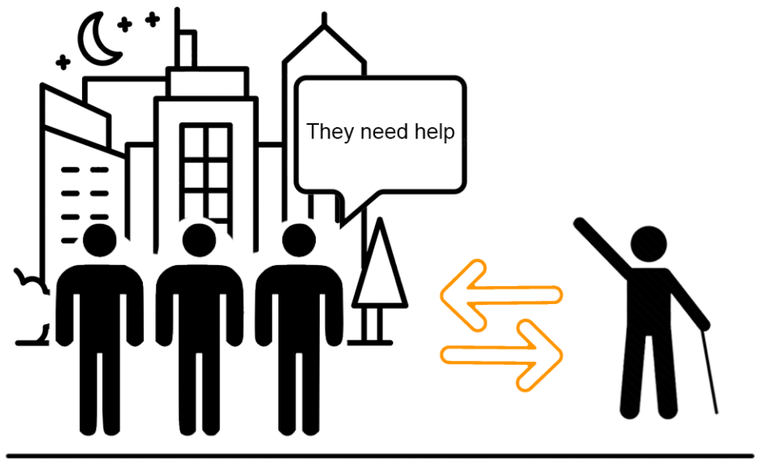
blind people are not given enough attention in Navi Mumbai. On the one hand, because of the lack of infrastructure for blind people, they try to avoid exposure to danger. On the other hand, some prejudice and discrimination make them withdraw from the public eye most of the time.

Fear of dangerous situations

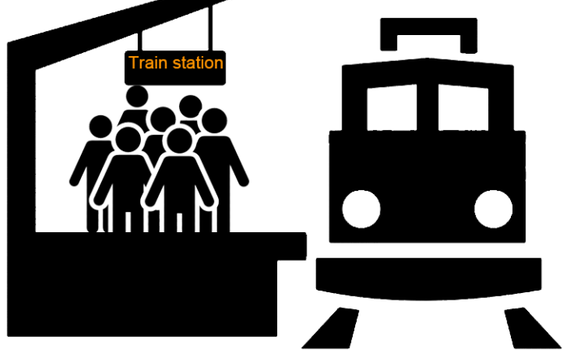
Fear of being discriminated against

How to build a highly accessible community in Navi Mumbai that connects the blind people and the non-blind people?

Helping the Blind Connect with the City



Connect the blind with the other citizens



Train station with crowded people

Drawing: Da Lian

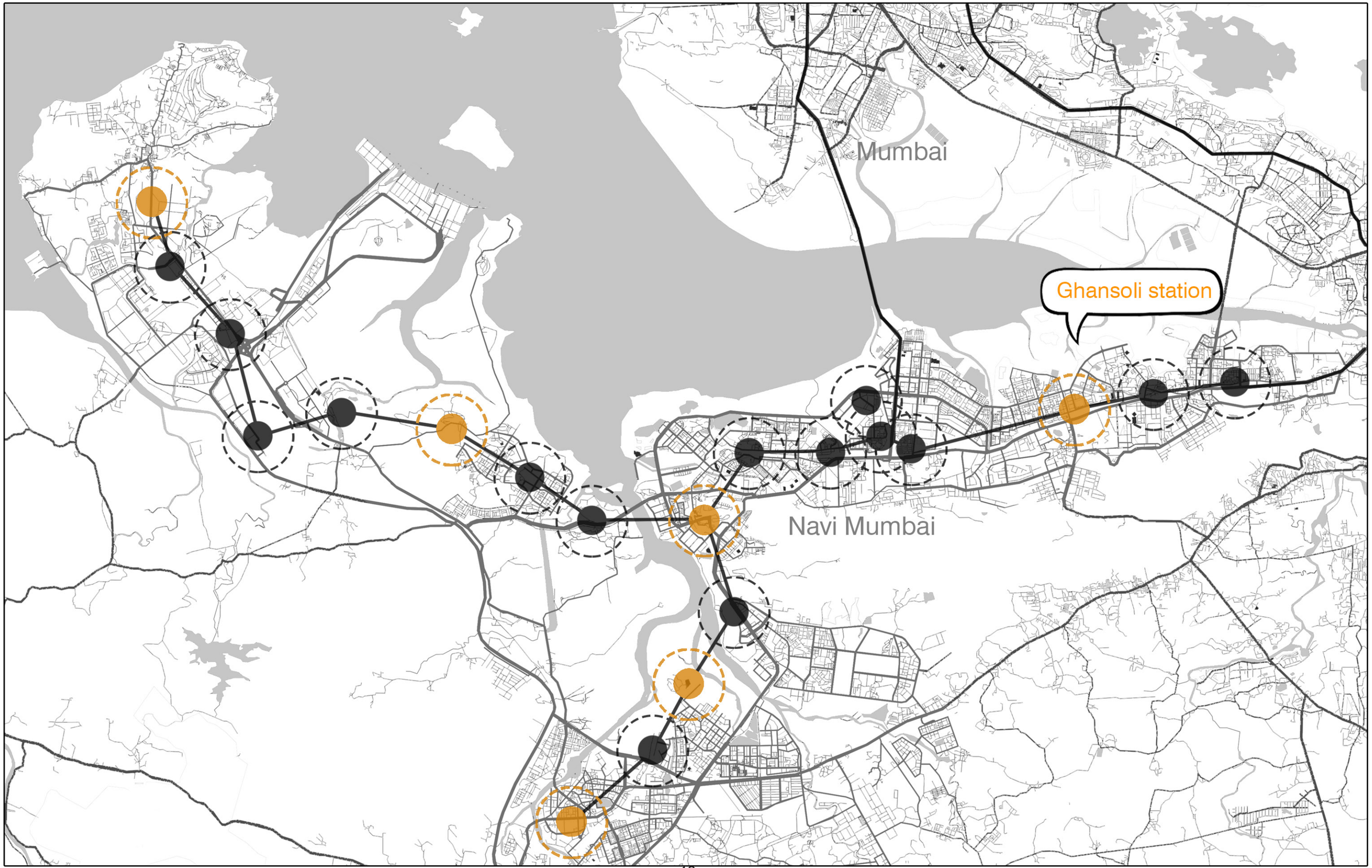
Urban Strategy

/ Planning in the future /

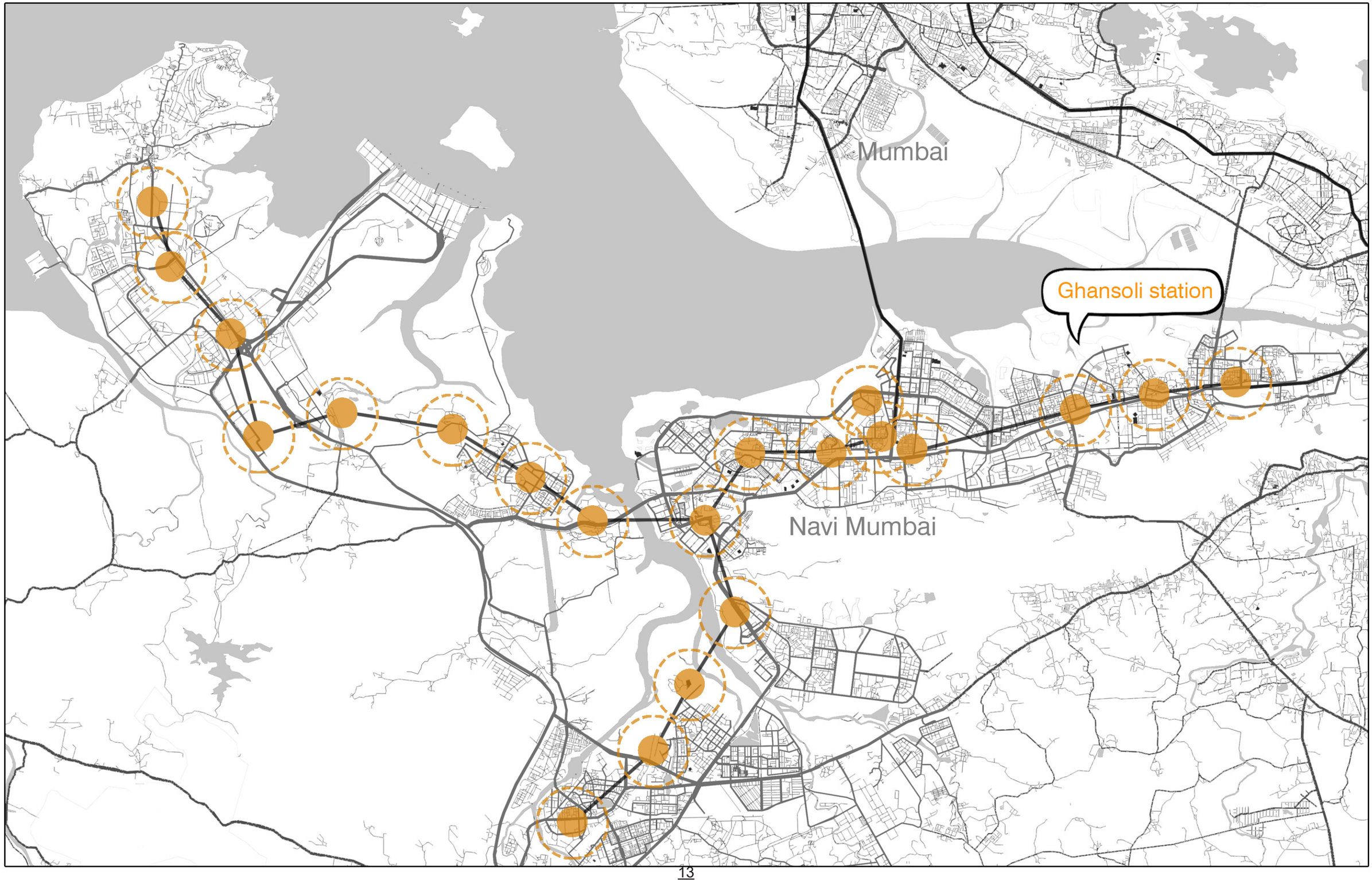
Future Planning of the Bind Communities

Drawing: Da Lian

Future Planning of the Bind Communities



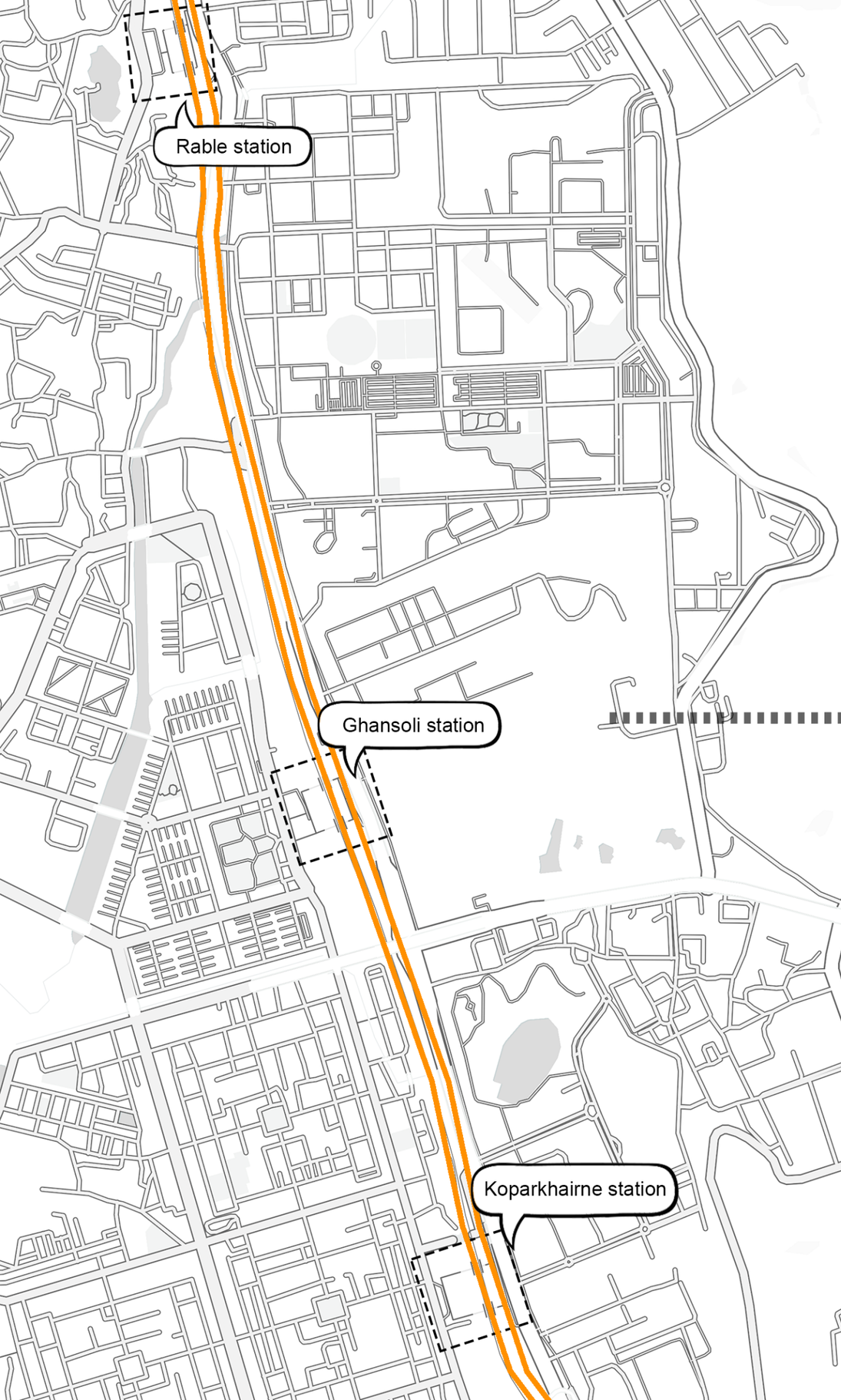
Future Planning of the Bind Communities

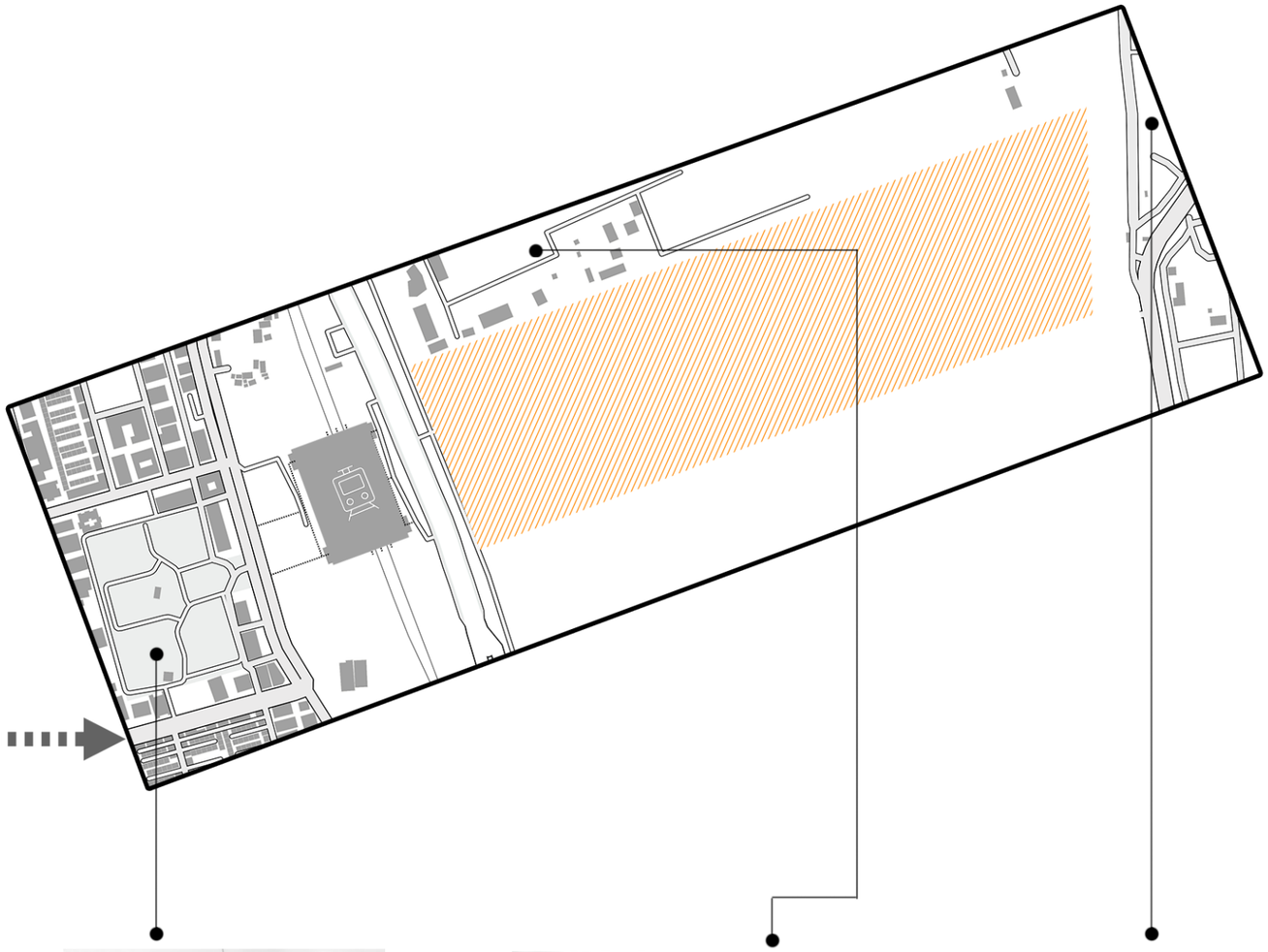


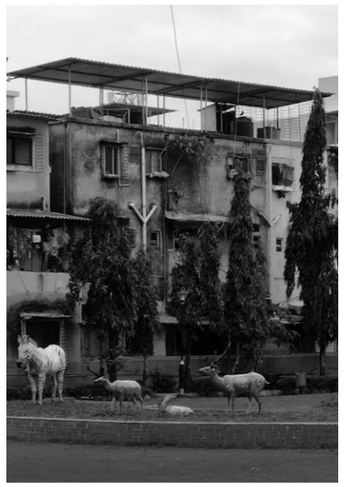
Site Planning

/ Planning of the site /

Site Selection: Ghansoli Station







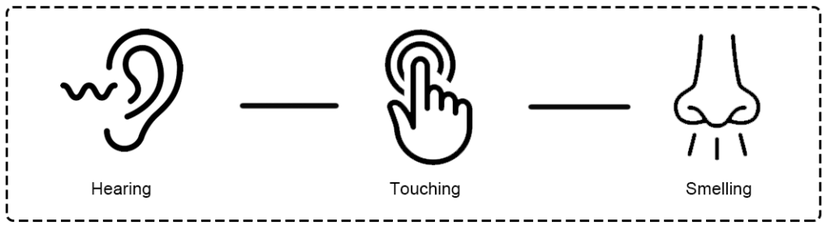
Sector

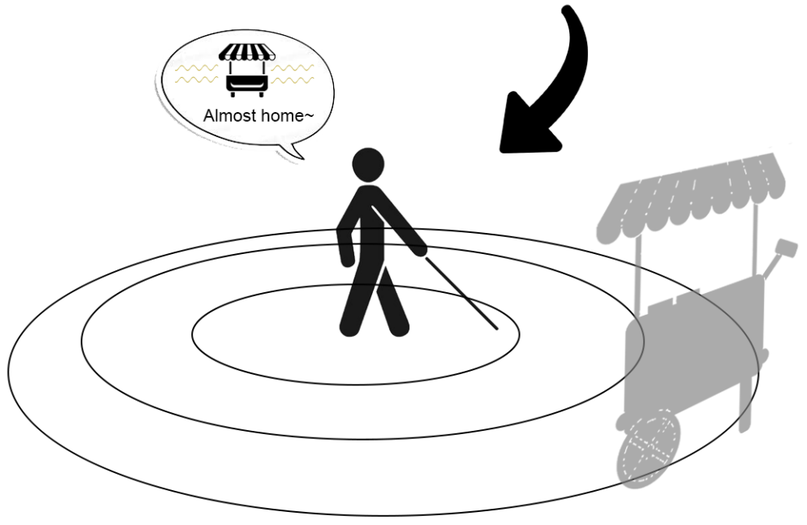
Commercial projects

Music hall

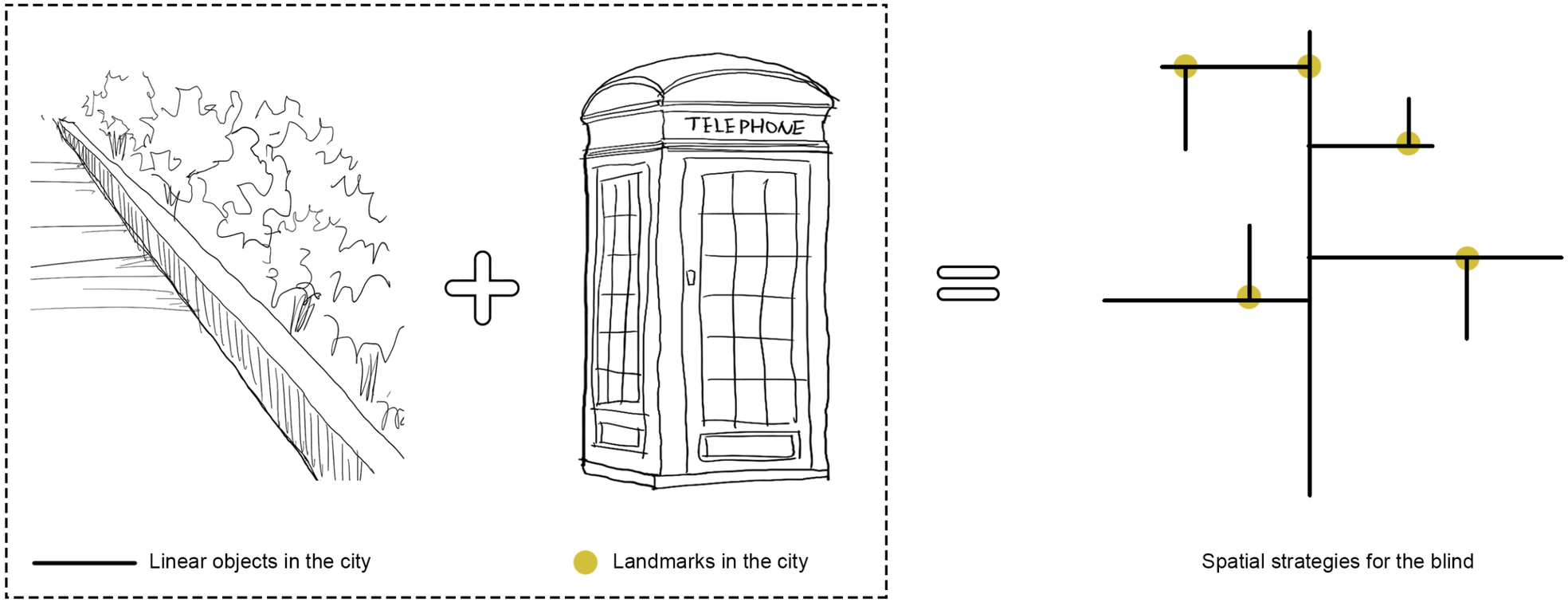
Drawing: Da Lian

The First step to FInd Their way



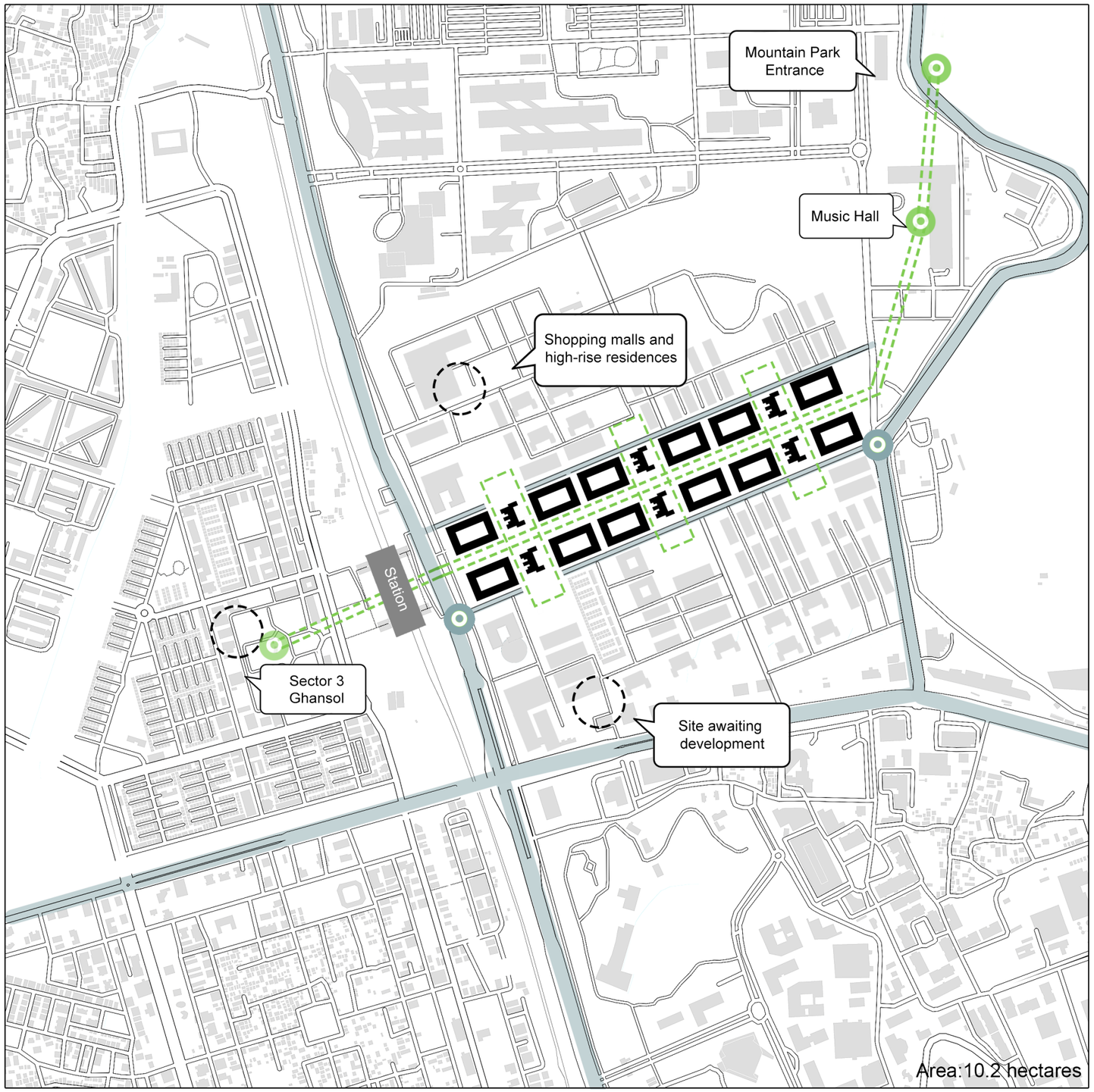


The Second step to FInd Their way

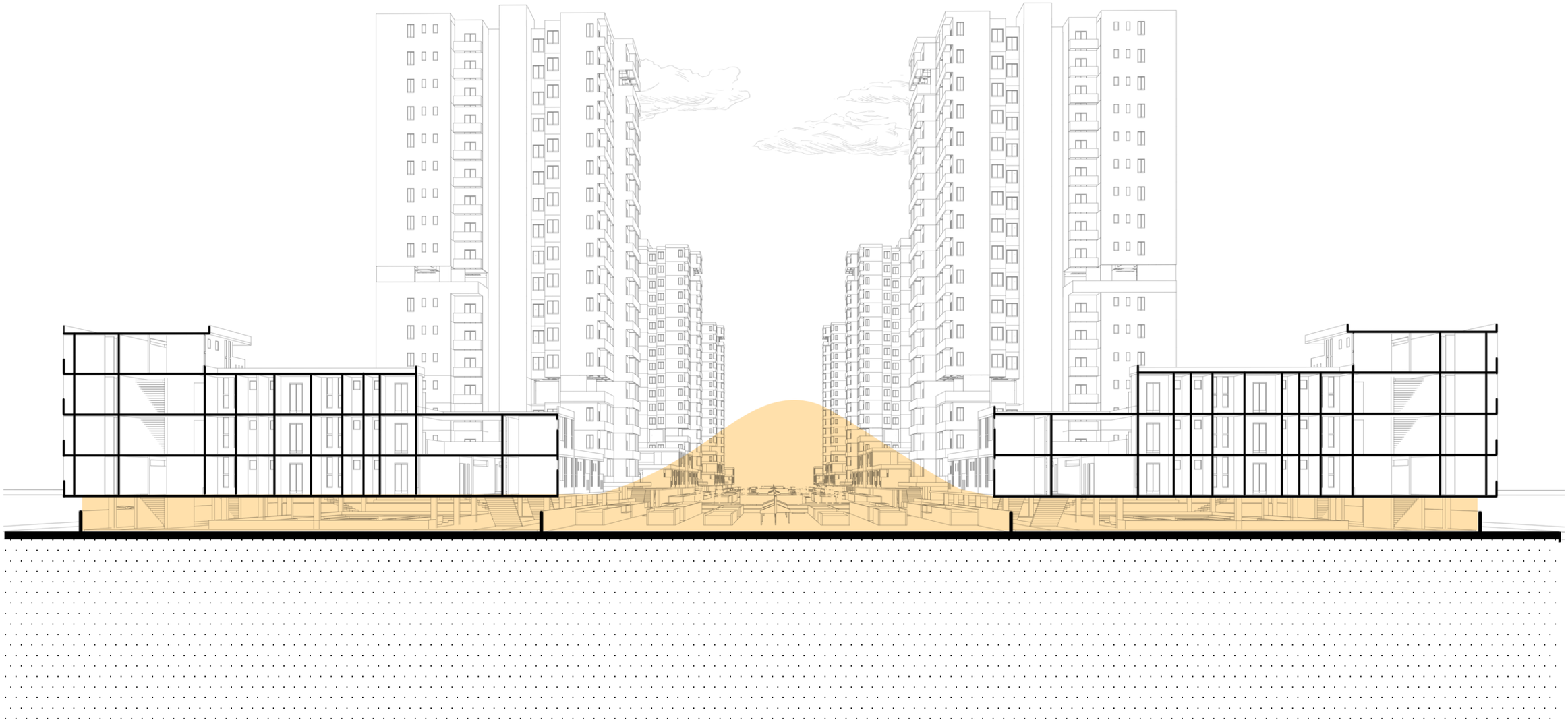


Theory: Sholl, M. Jeanne. "From Visual Information to Cognitive Maps." *The Construction of Cognitive Maps GeoJournal Library*: 215-246. doi:10.1007/978-0-585-33485-1_8.

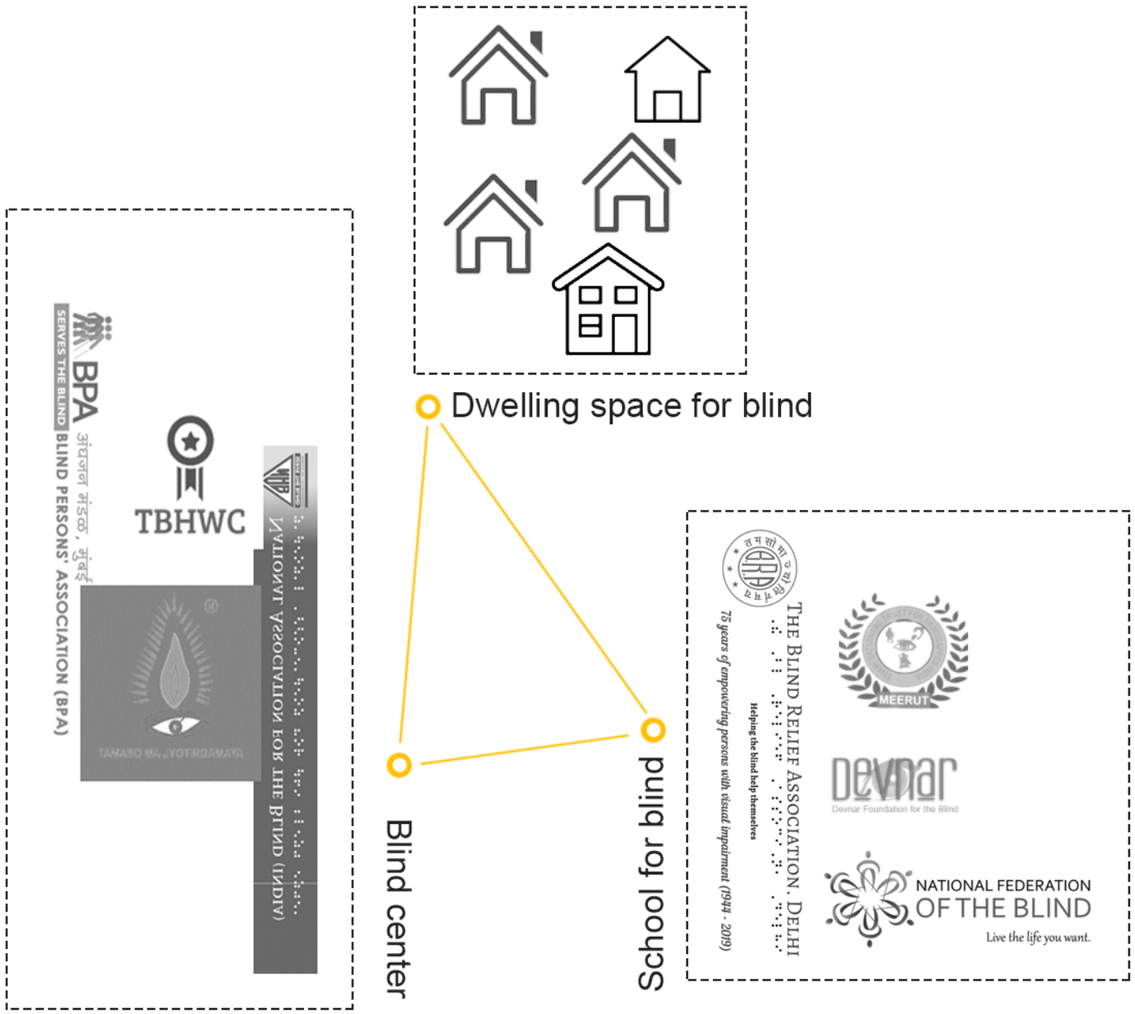
Public Space as the Connections



Flexible Ground Floor



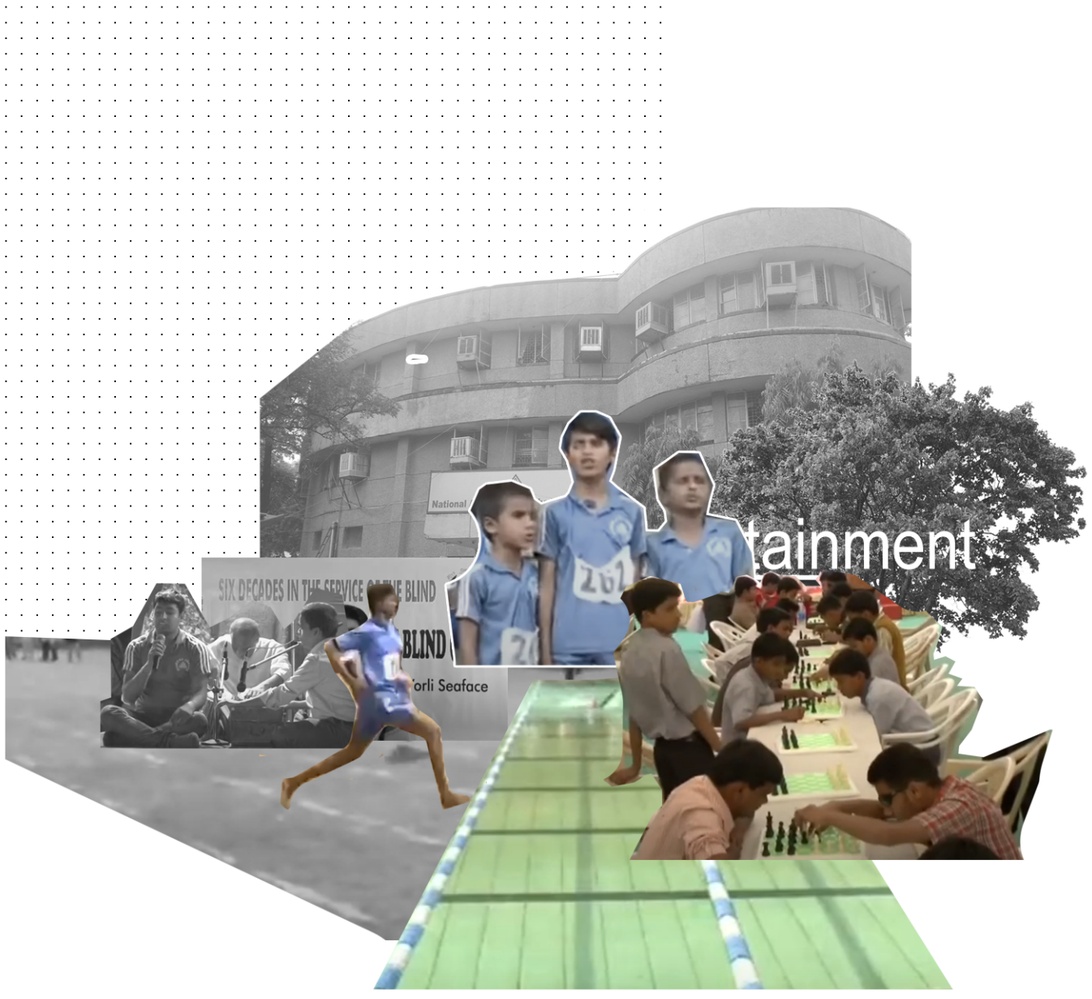
Blind Life Circle



Blind School

Blind Center

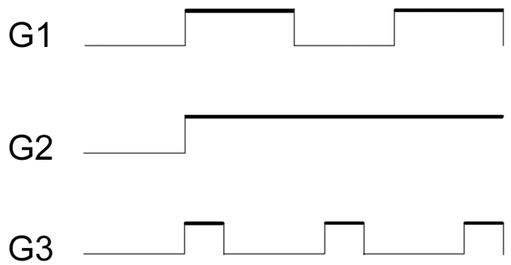
/ Employment /



/ Entertainment /

Planning of the Site

Fountain frequency

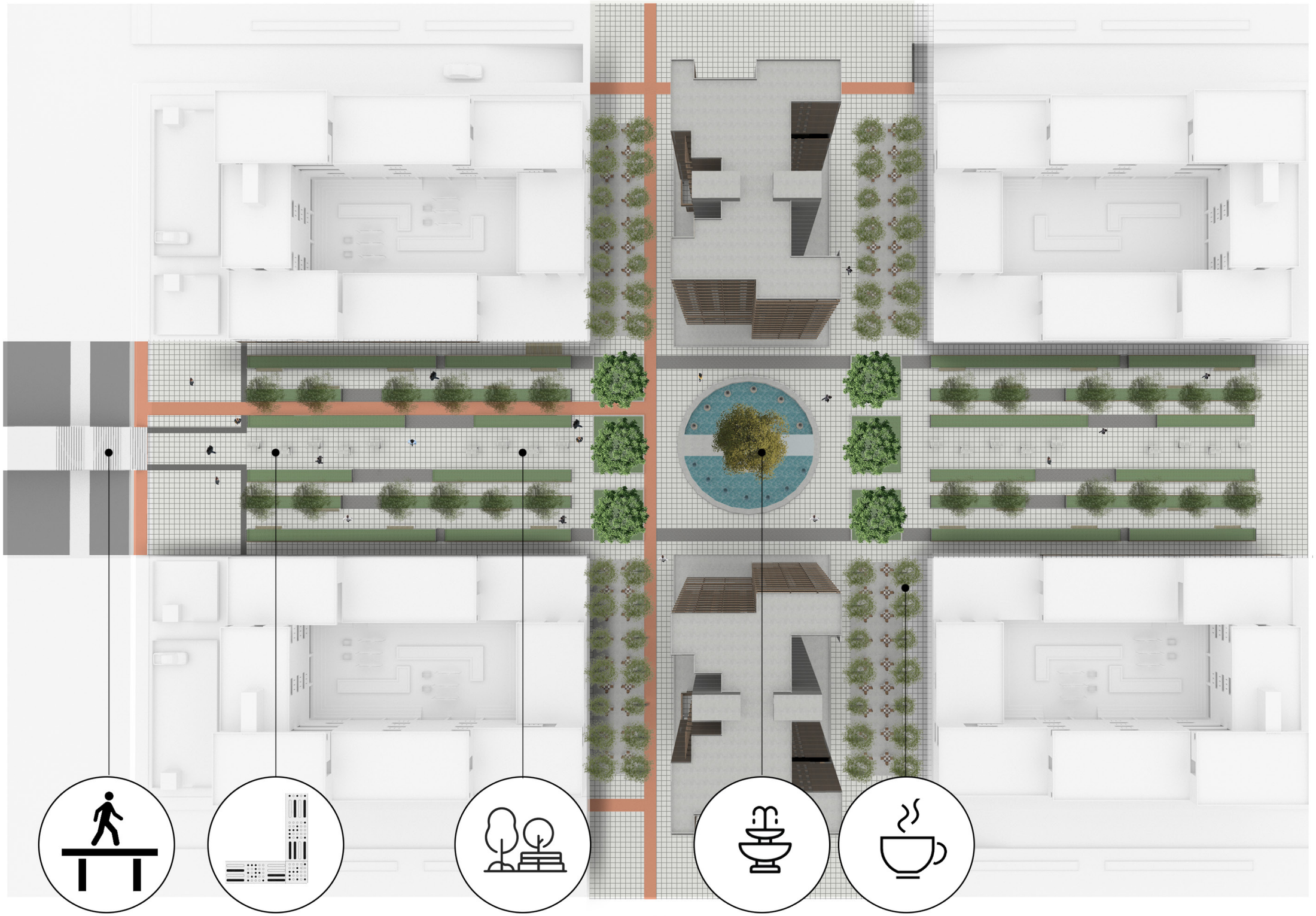


Group 1, Blind factory

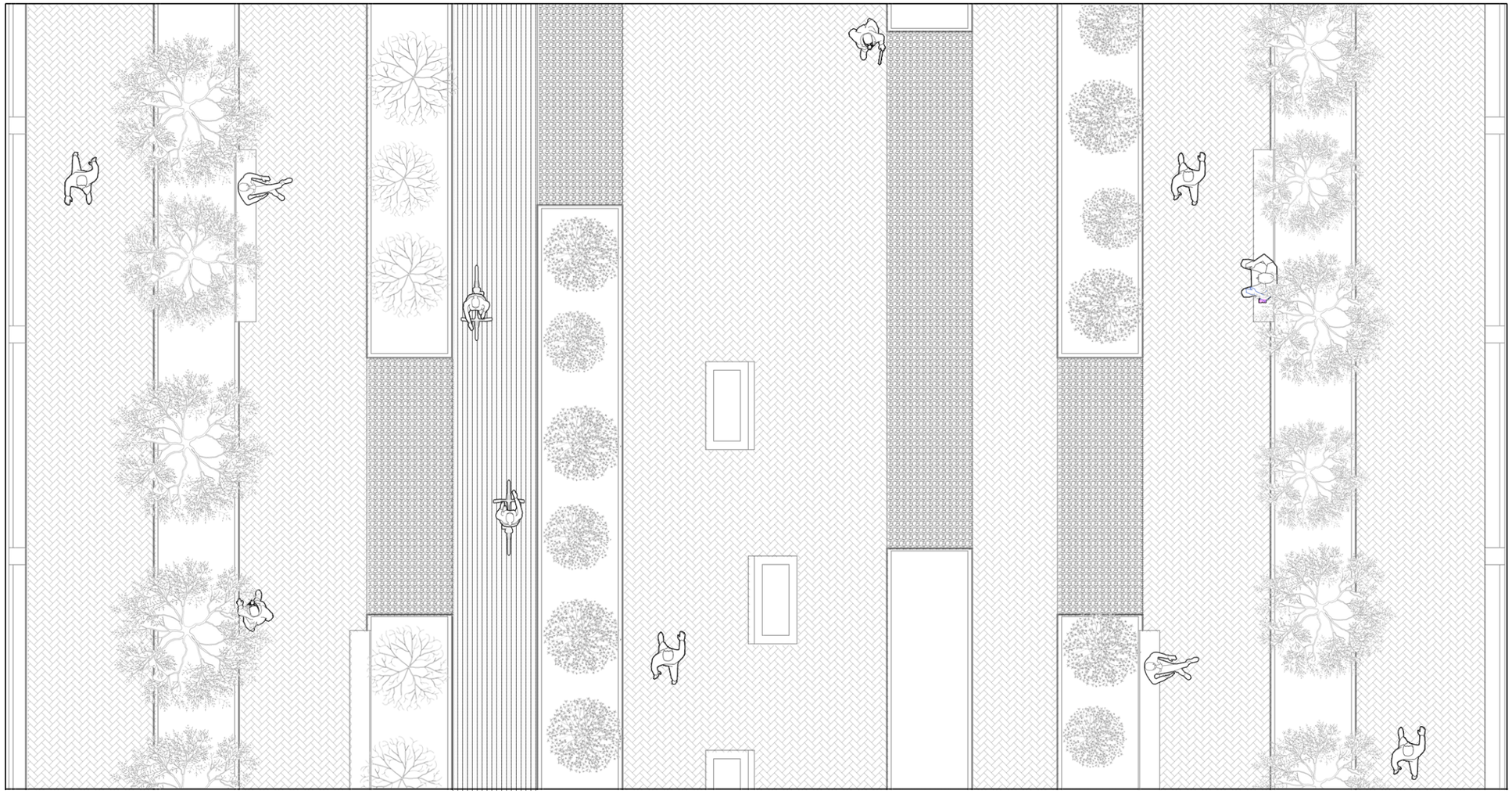
Group 2, Blind school

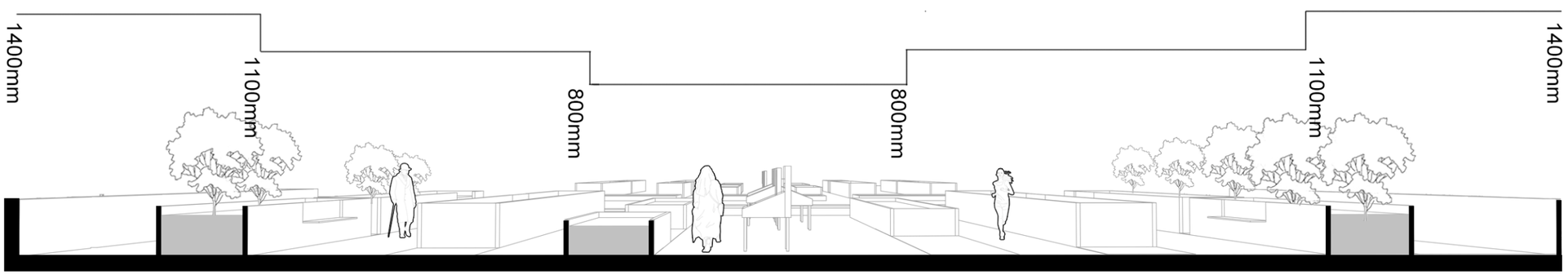
Group 3, Entertainment center

Public Outdoors of Group1

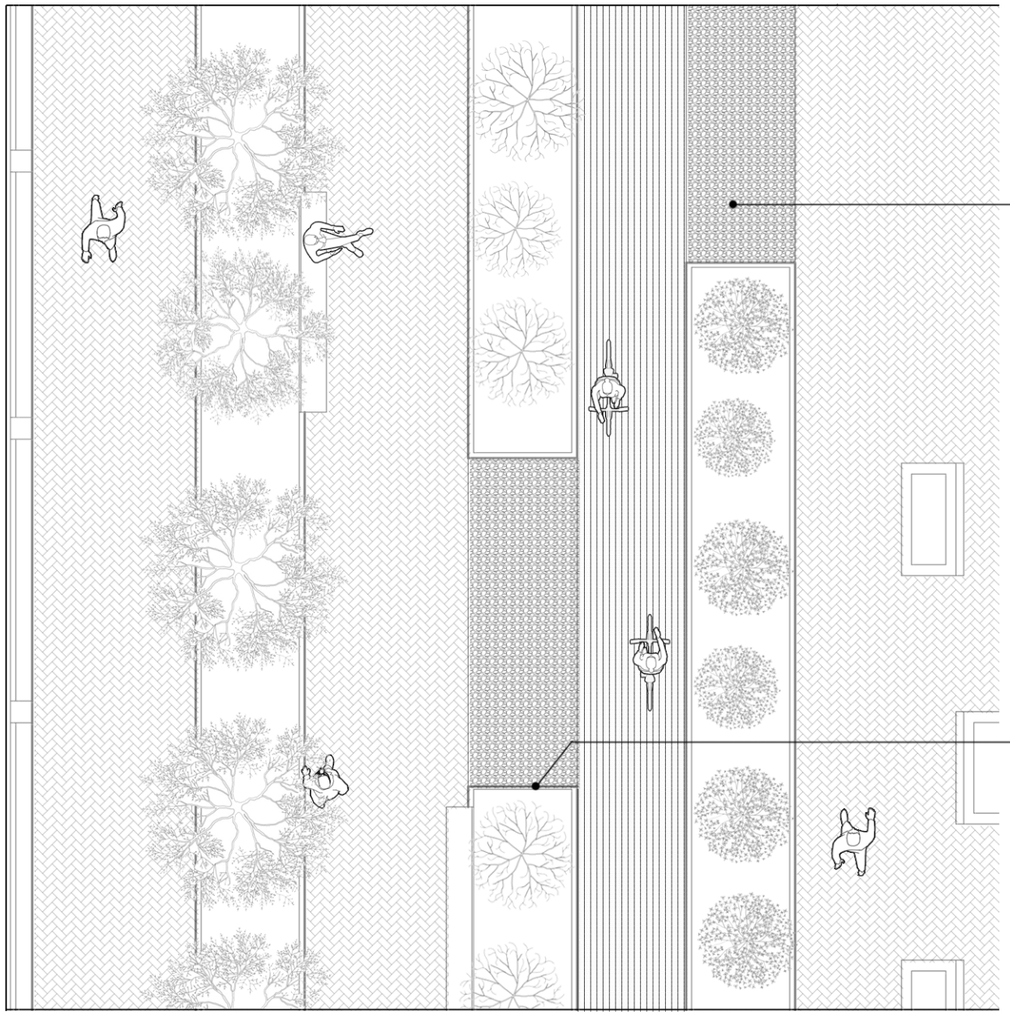


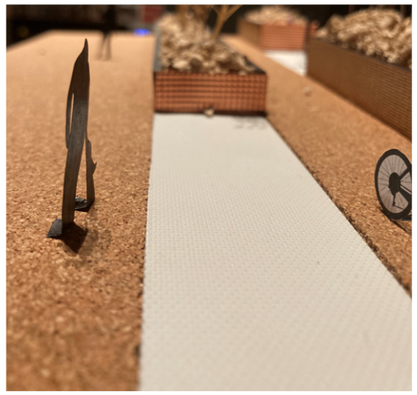
Detailed Planning of the Landscape





Boundaries by material

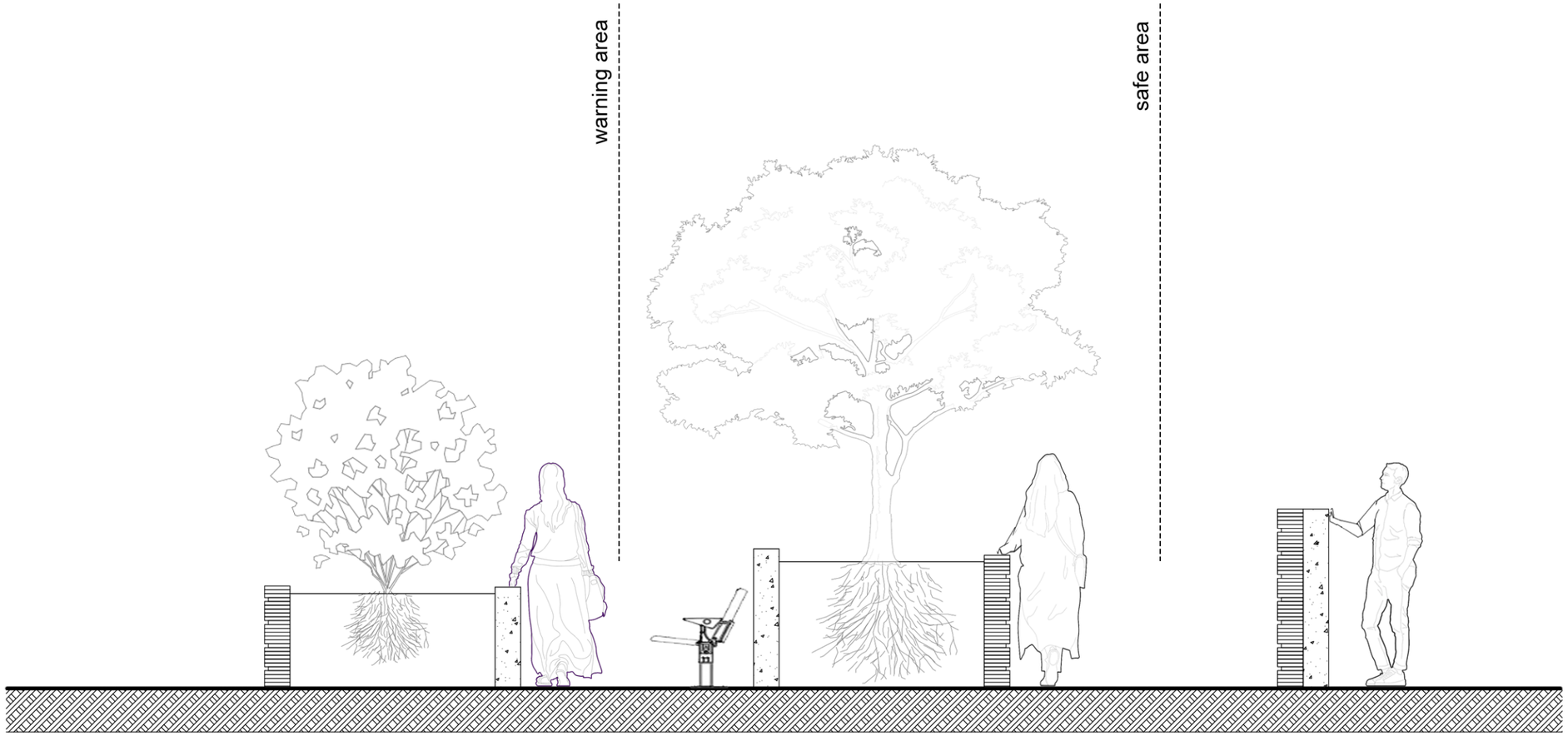




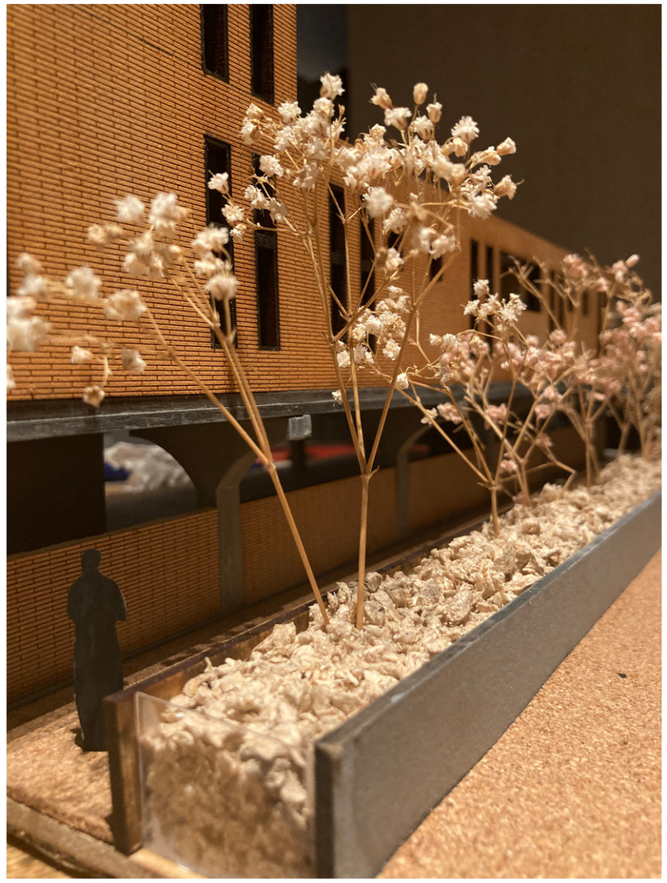
White pebble

Corrugated sheet metal

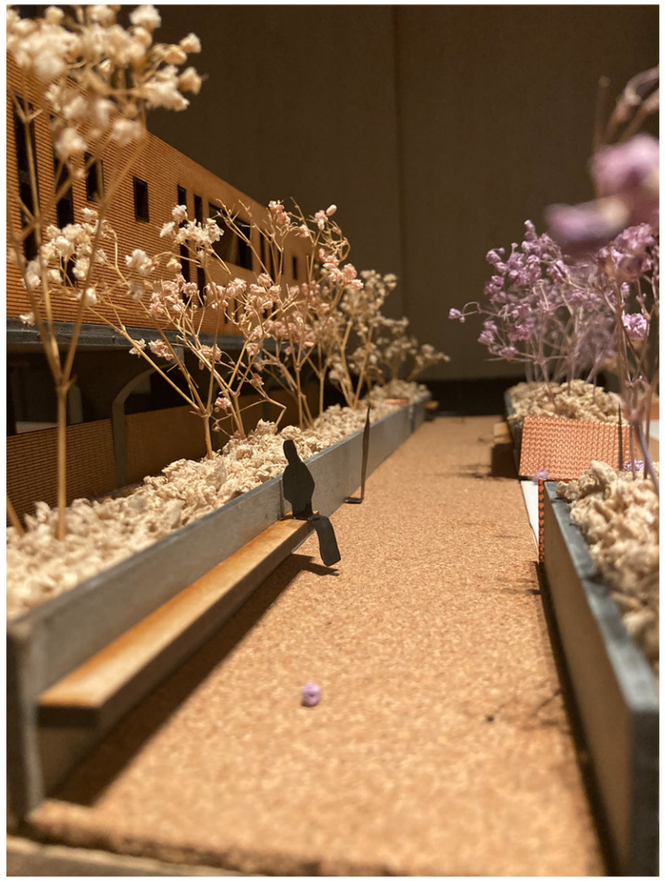
Walls as Guidance



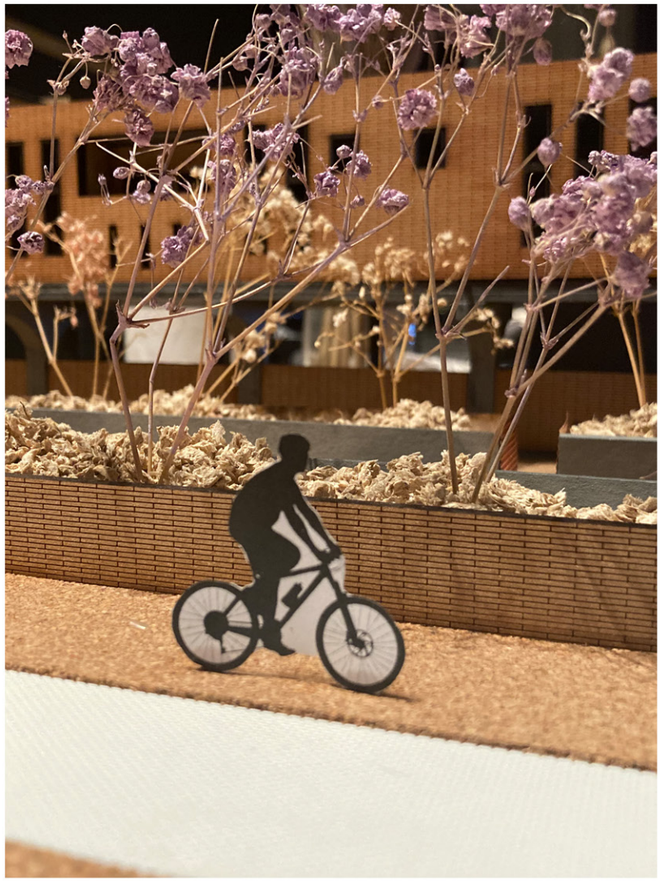
Different Space in Central Darden



The most continuous path



Pubilc space between the concrete walls

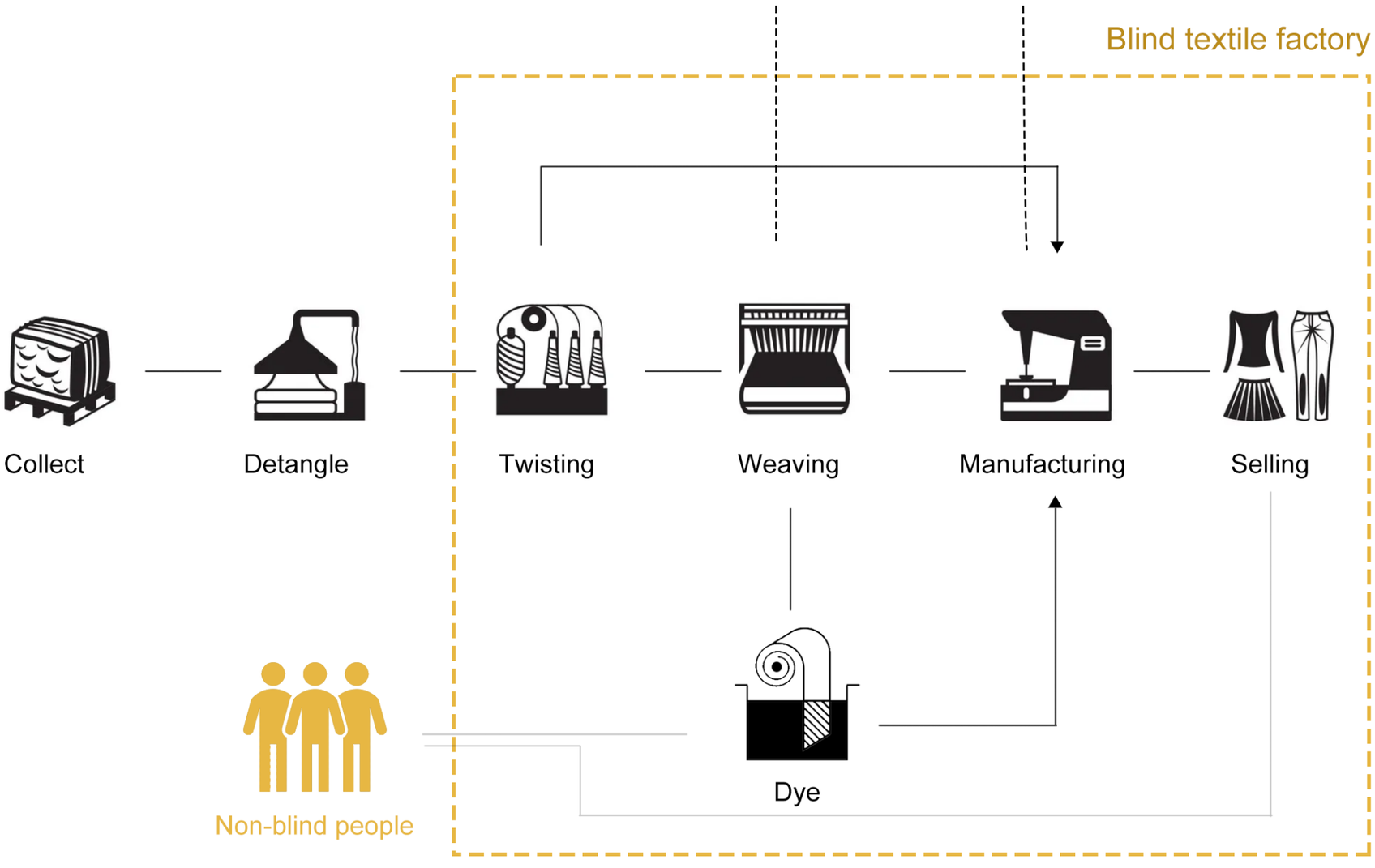


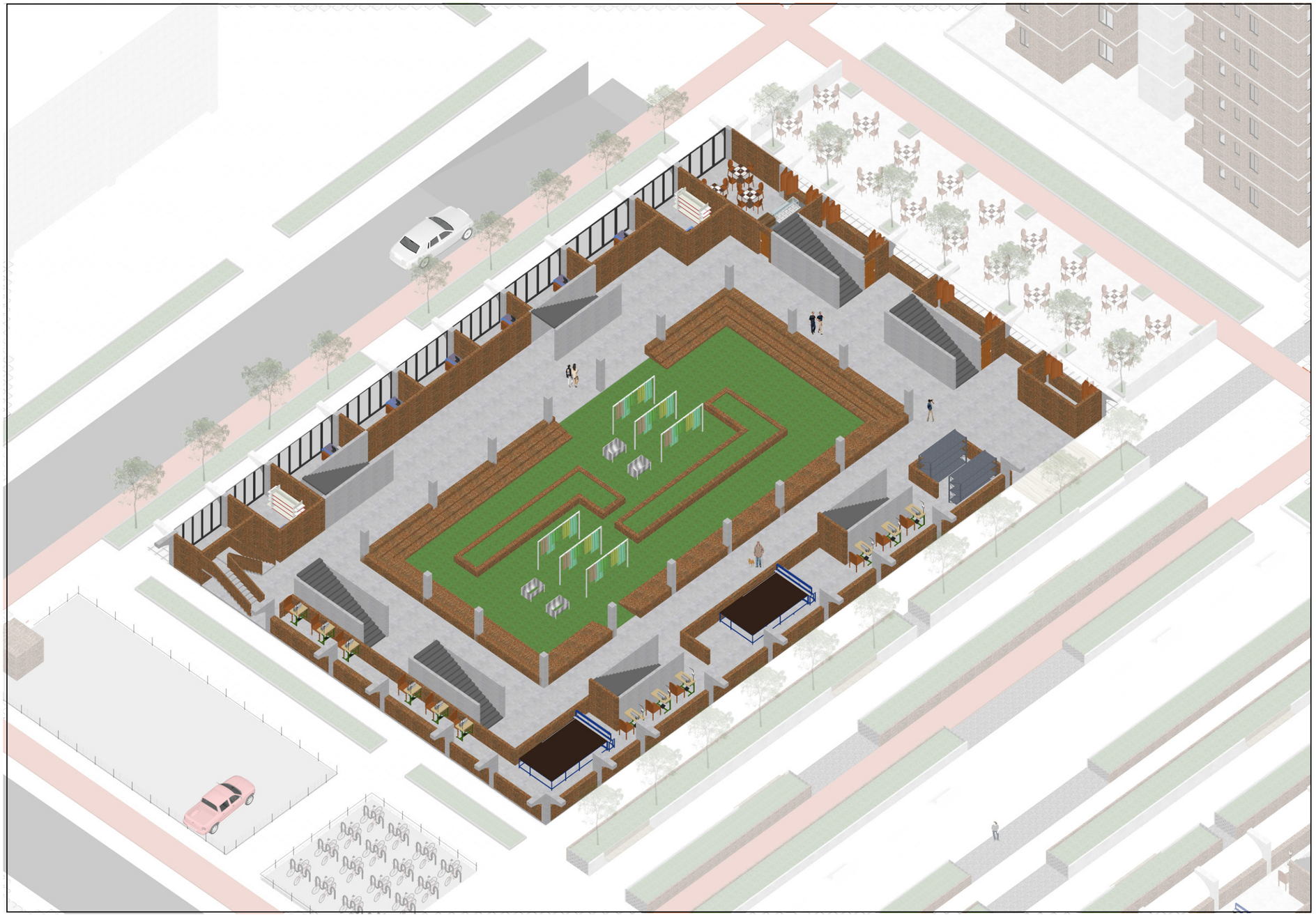
Path that allow bicycles to pass

Ground floor of the Group 1

Blind Textile Industry

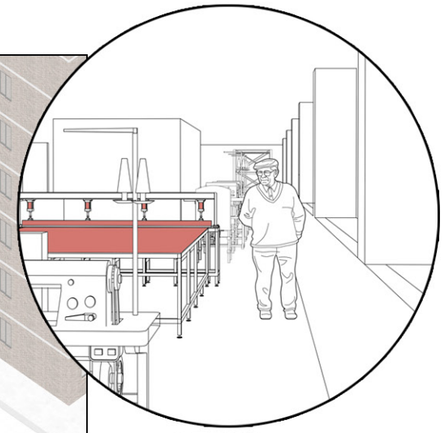
The current composition of the textile industry



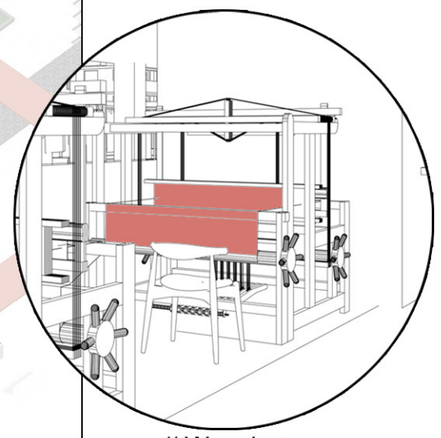


// Textile factory

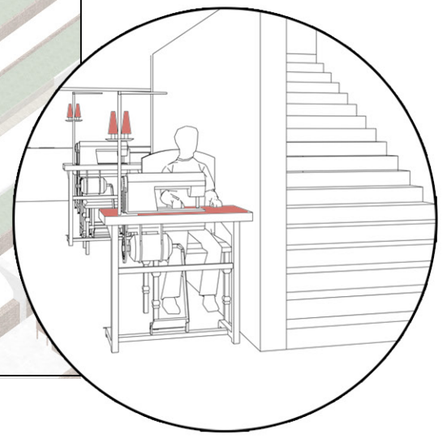
This is an axonometric view of a textile factory. The part near the central plaza will be used for workshops to show the public their production and fabrication process. The part near the street will be used for shops. These shops will be operated by blind people to sell blind people's products. Of course, these stores are open to anyone. This means that both blind and non-blind people can operate shops here.



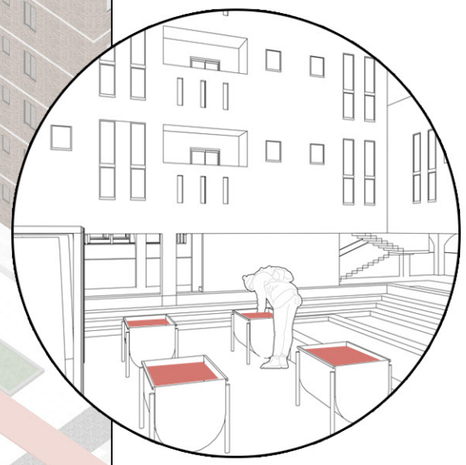
// Twisting



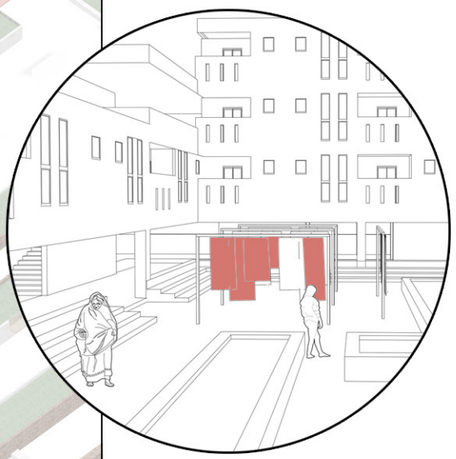
// Weaving



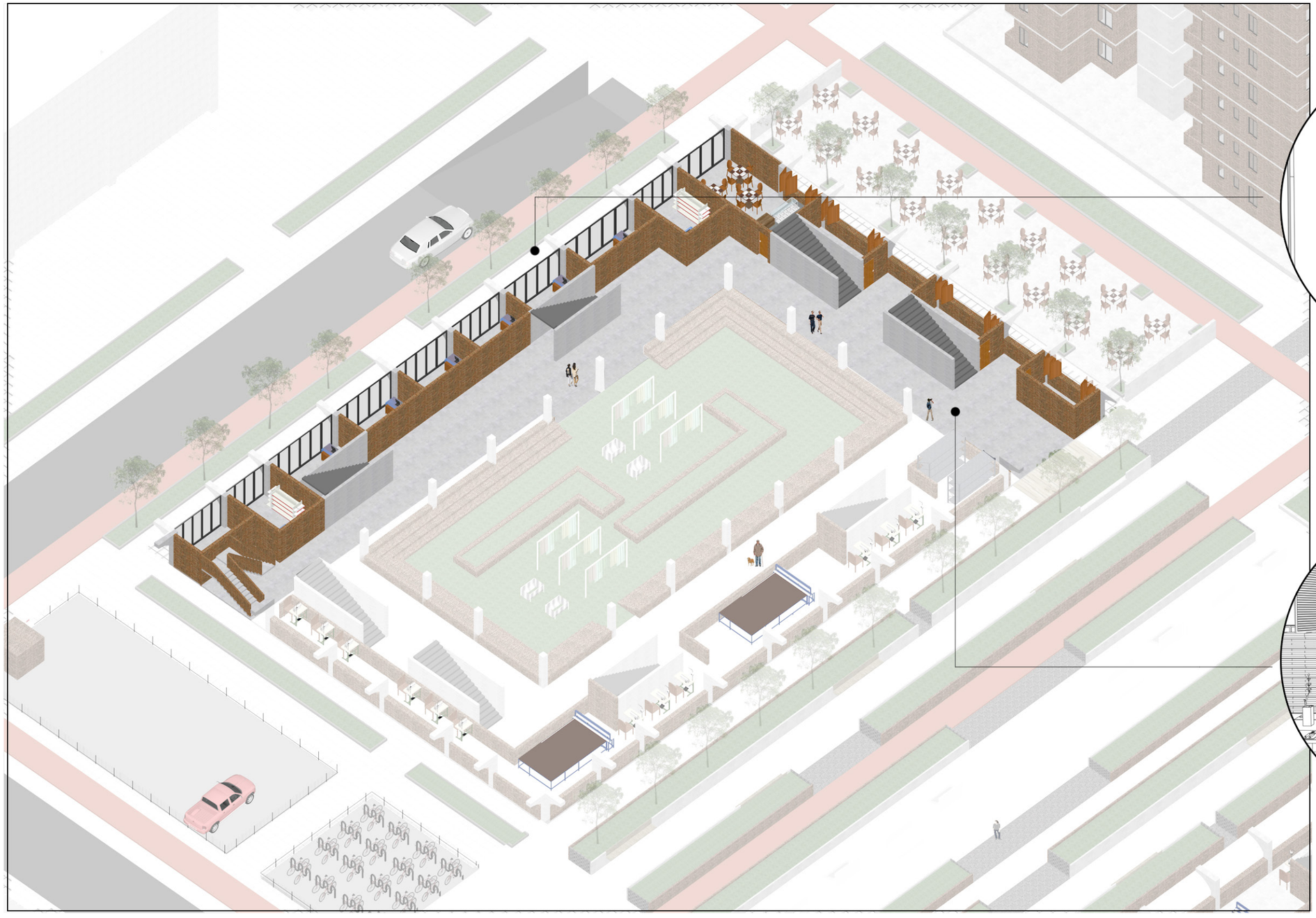
// Manufacturing

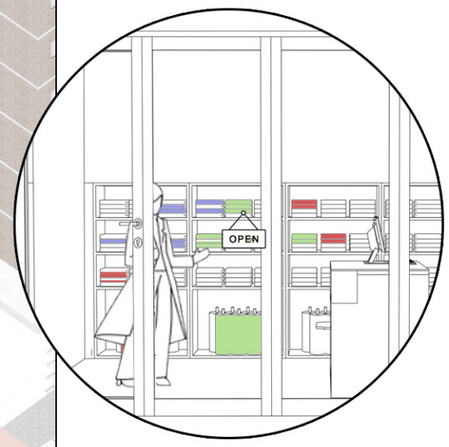


// Dyeing



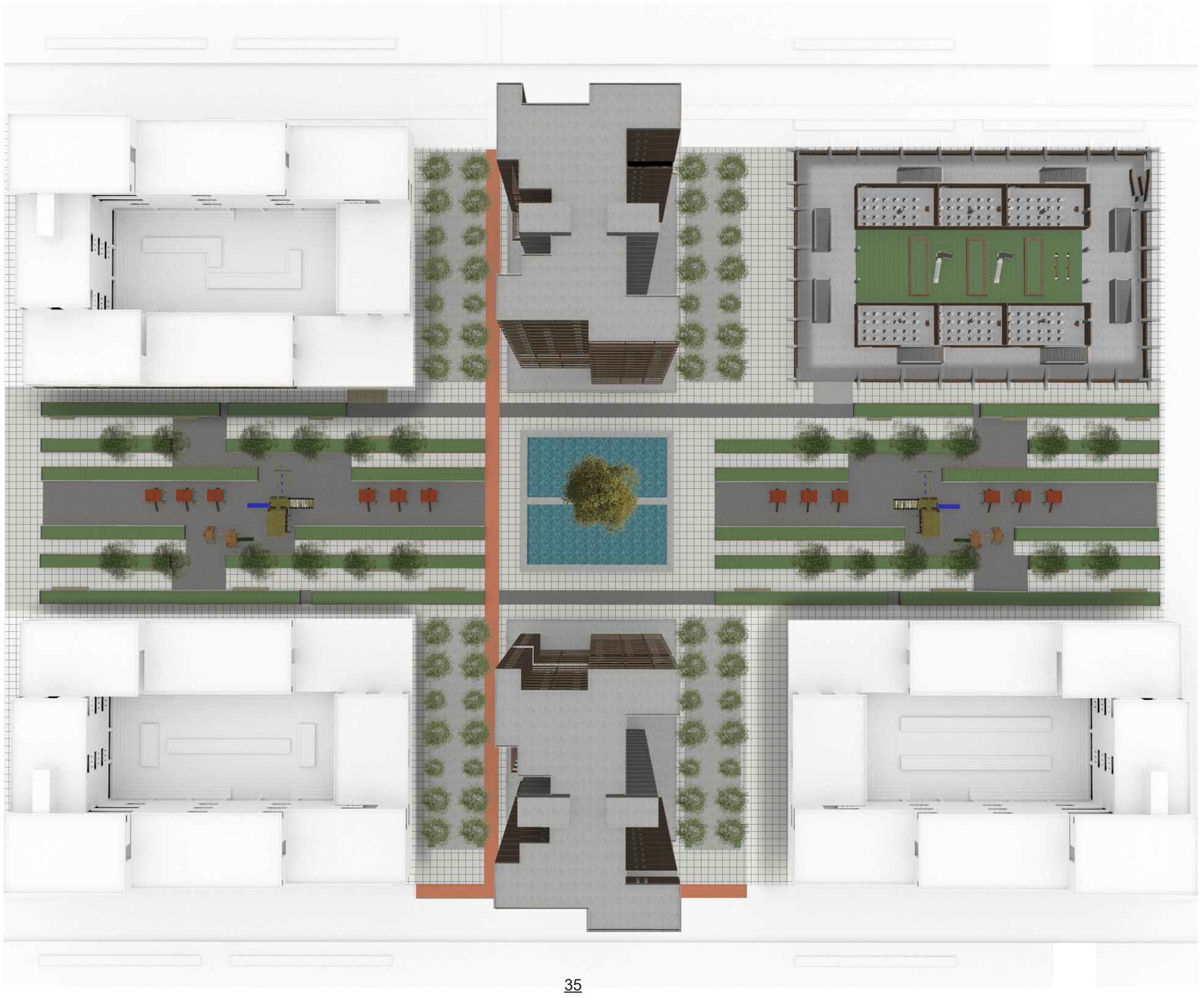
// Drying

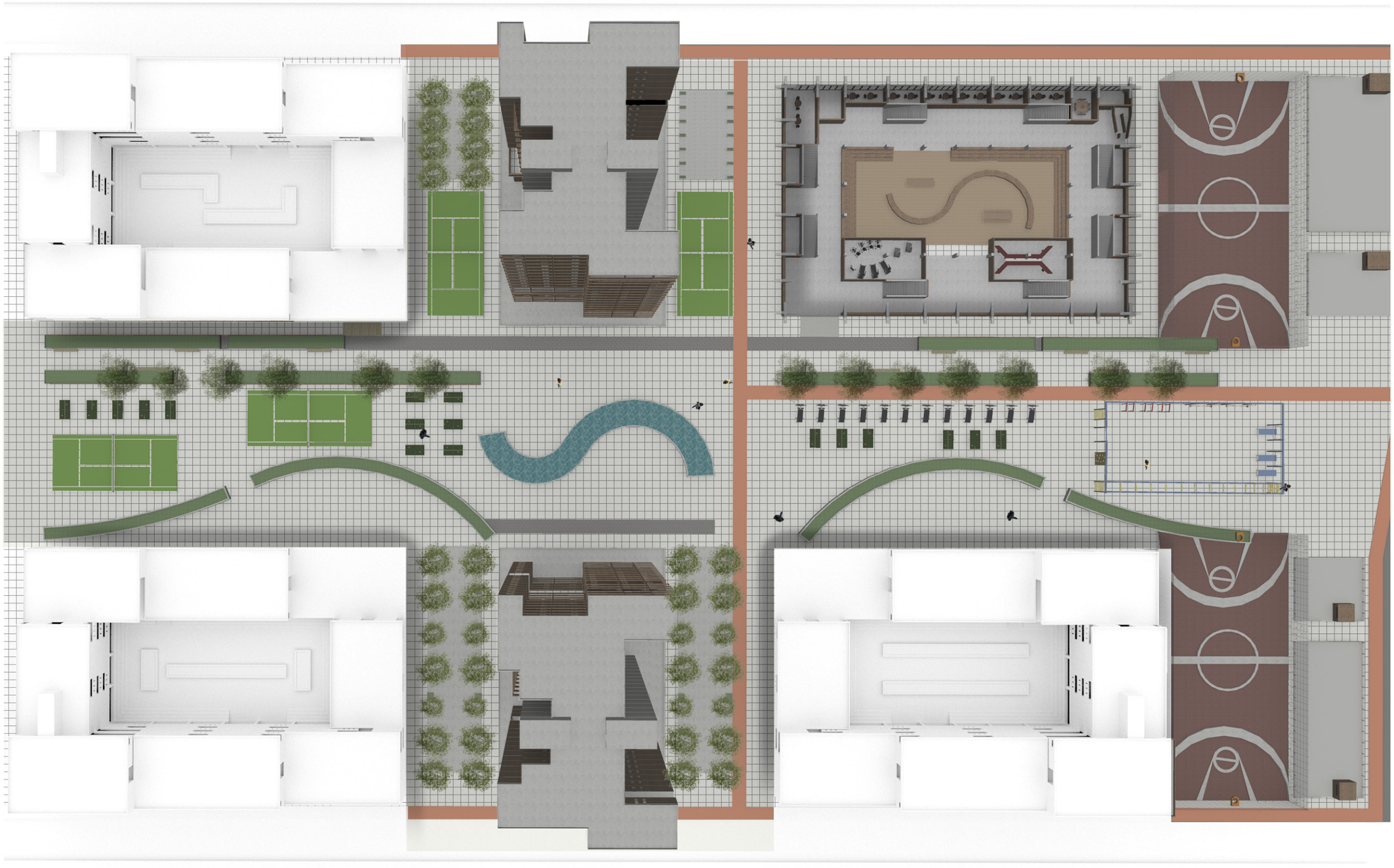




// Shops

// Snack

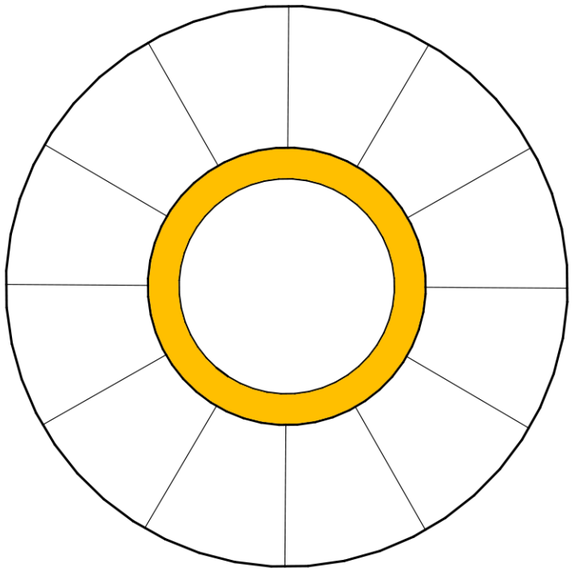


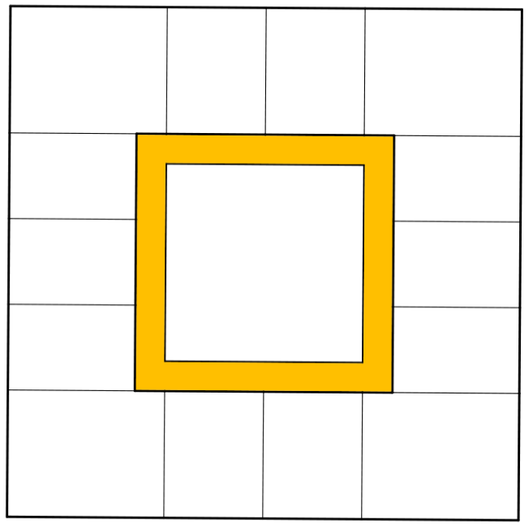


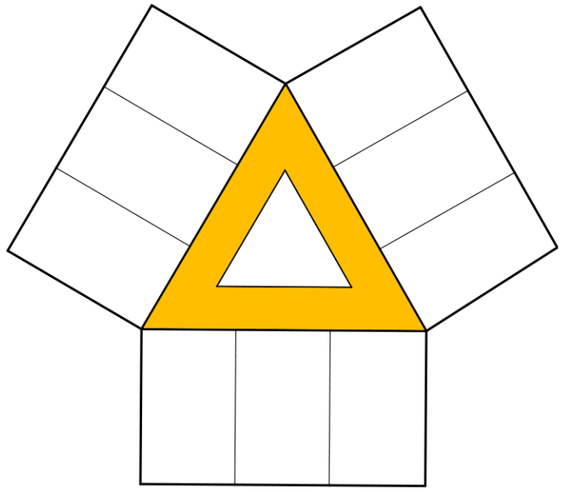
Clusters

/ Graded transportation and Linear connection and inclusive design /

Three Kinds of Linear Path



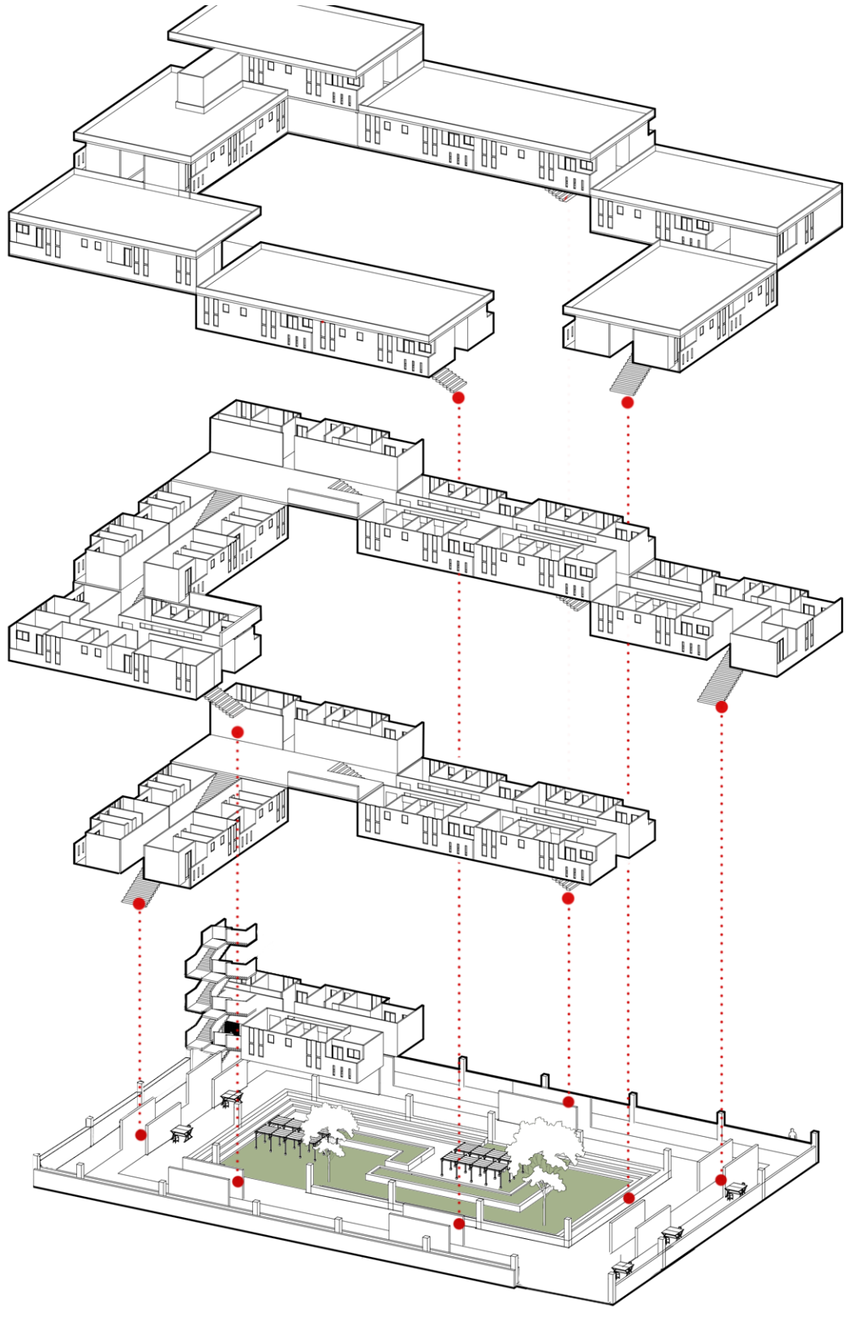




“Blind people are not good at performing variable rotations”

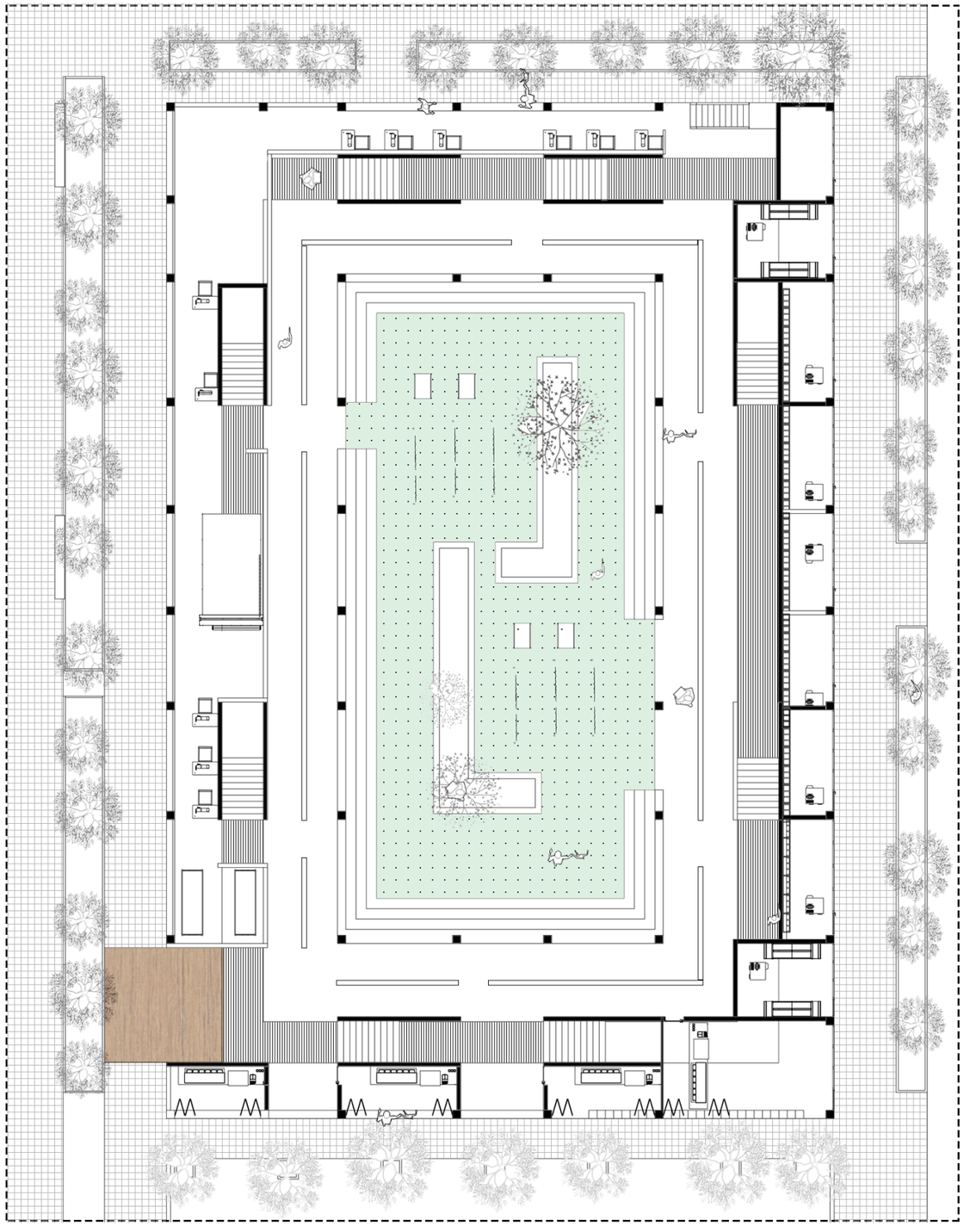
Theory: Sholl, M. Jeanne. "From Visual Information to Cognitive Maps." *The Construction of Cognitive Maps GeoJournal Library*: 215-246. doi:10.1007/978-0-585-33485-1_8.

Axonometric of the Block

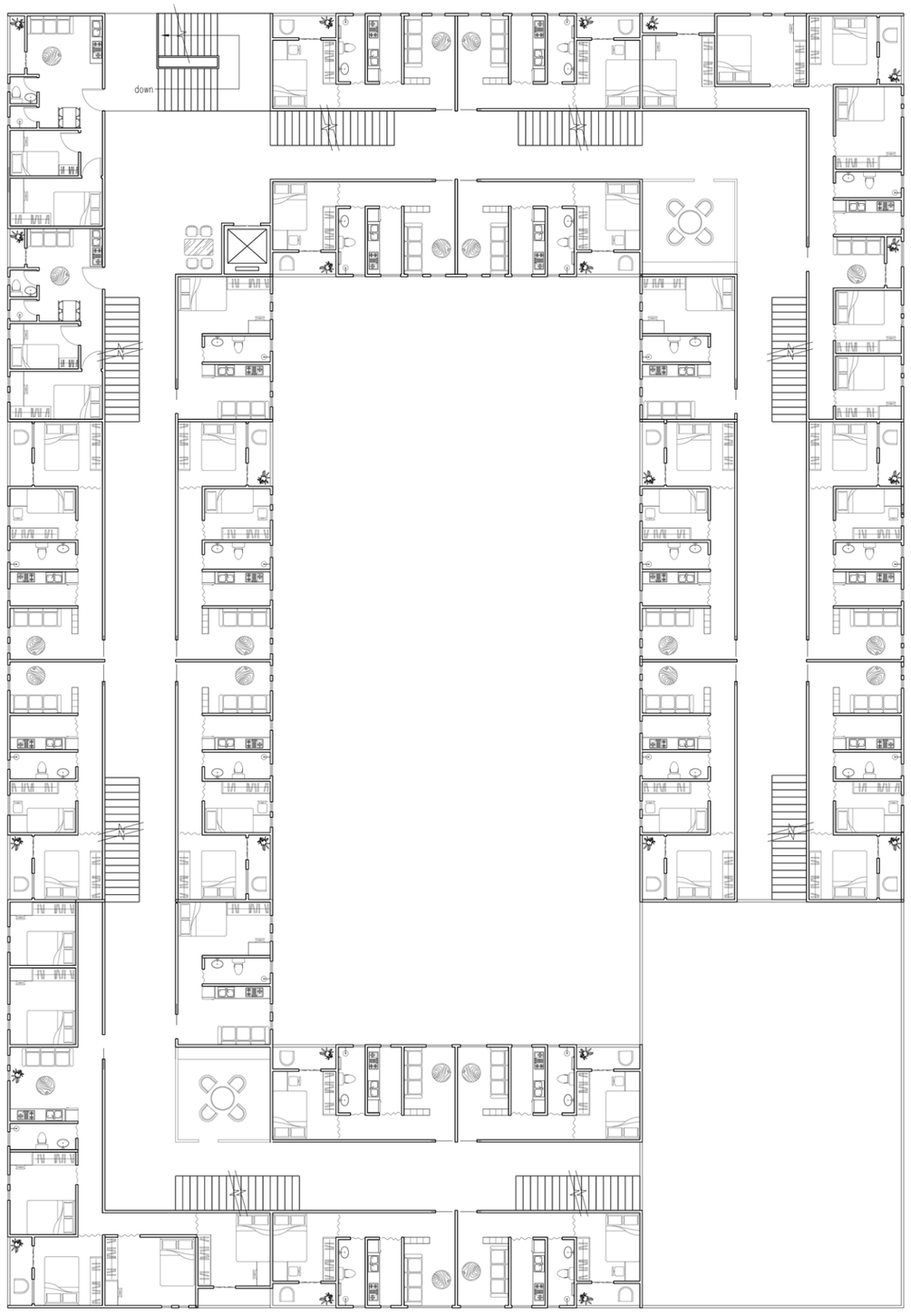


Units for blind people: 50
Units for non-blind people: 12

Ground Floor of the New Cluster



Floor Plan of the First Floor



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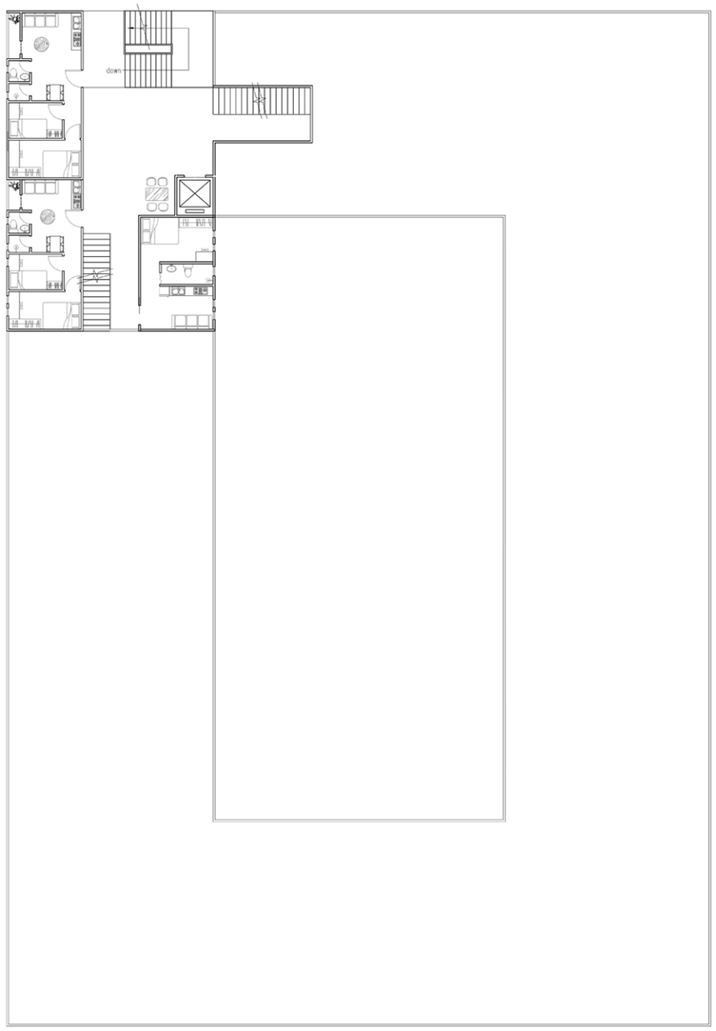
Floor Plan of Other Floors

Second floor

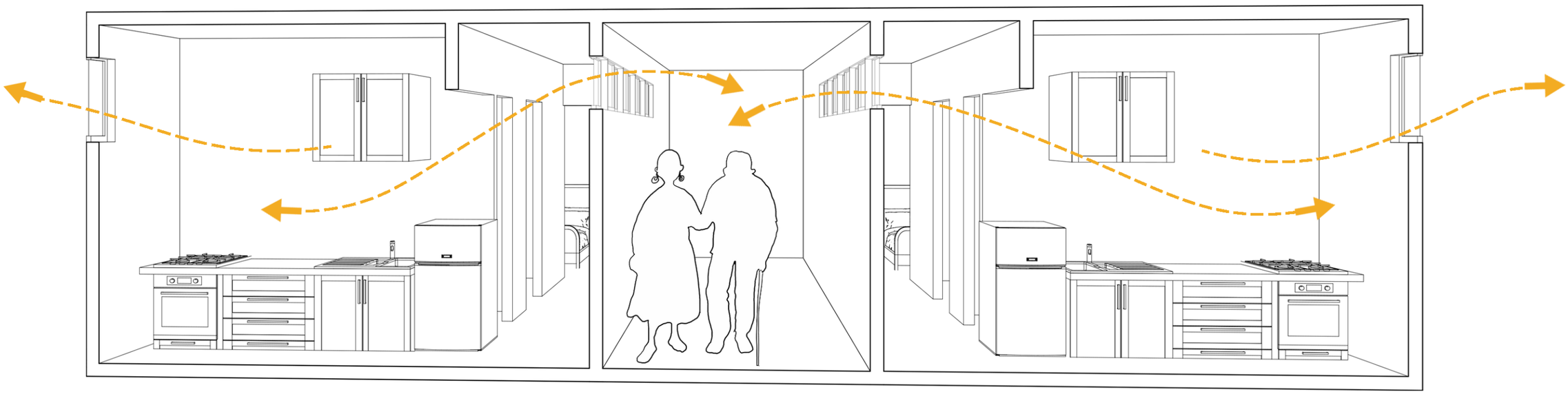
Third floor



Fourth floor

Active Ground Floor Space

Cross Ventilation



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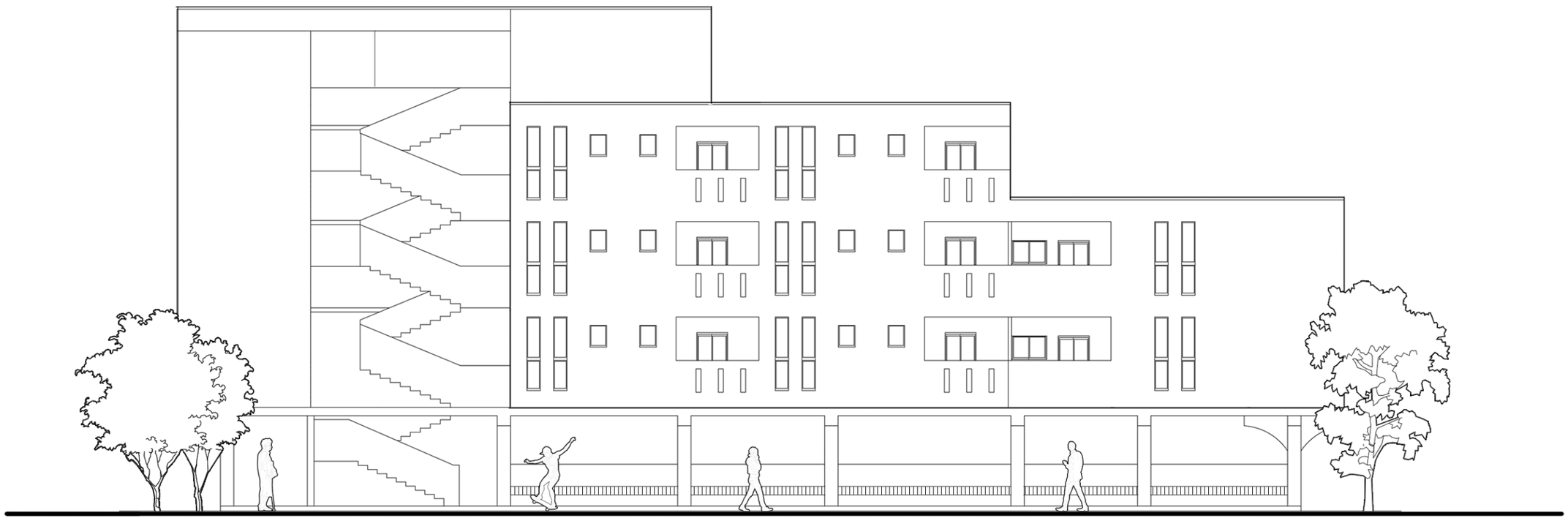
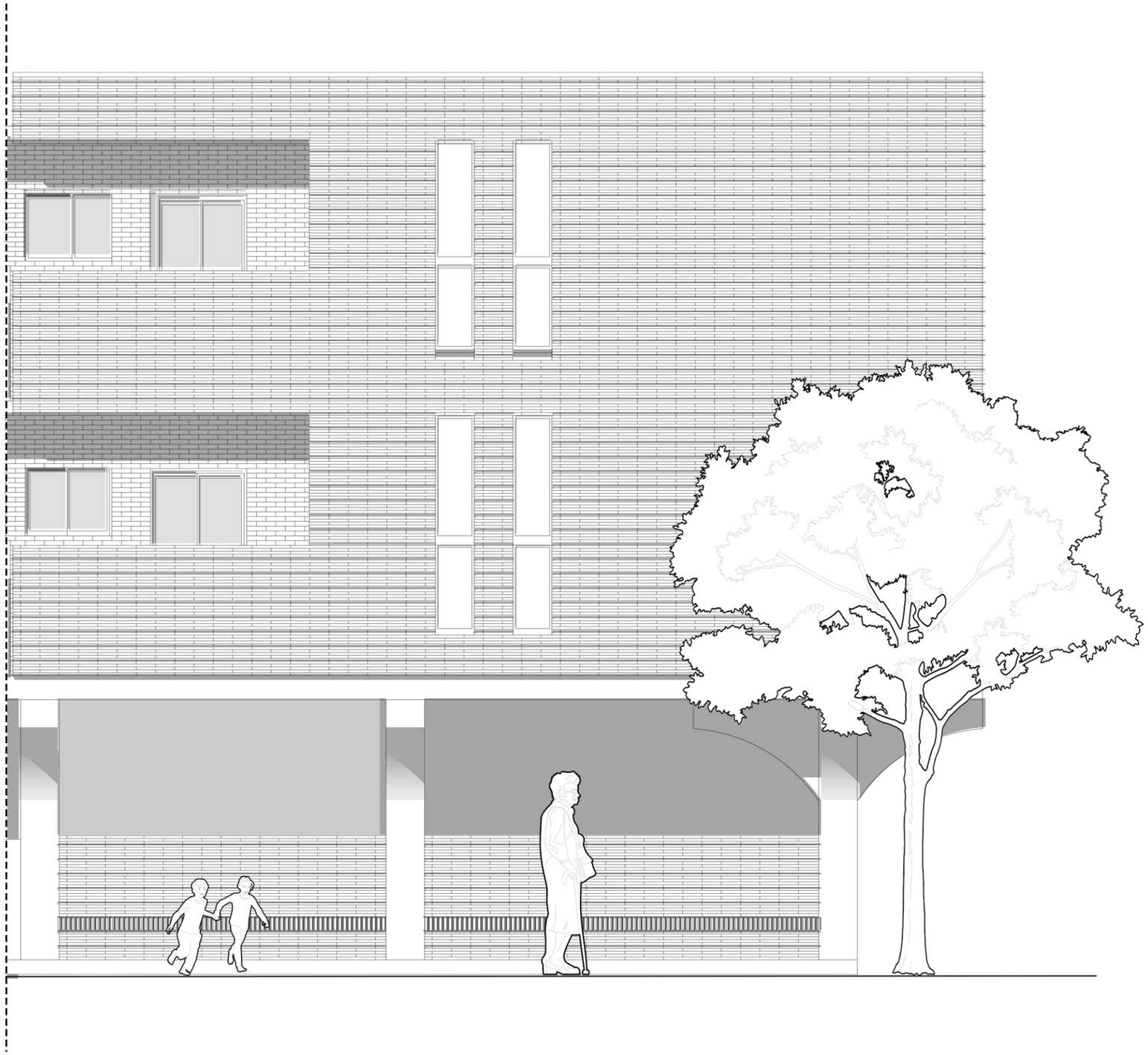
Facade of the Clusters



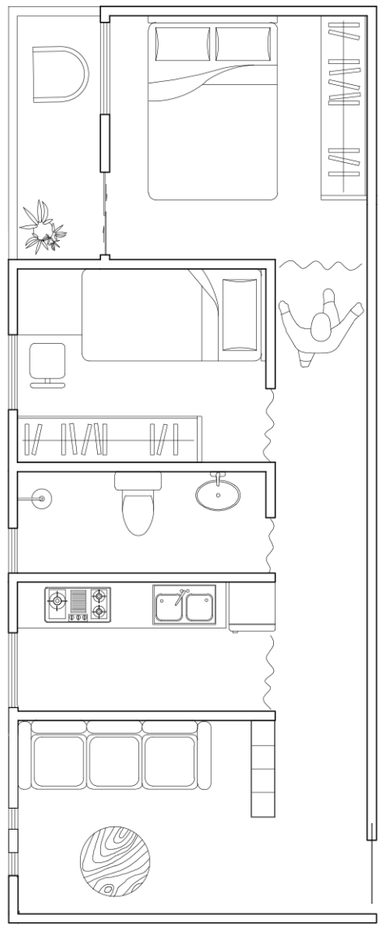
Detailed Facade



Units

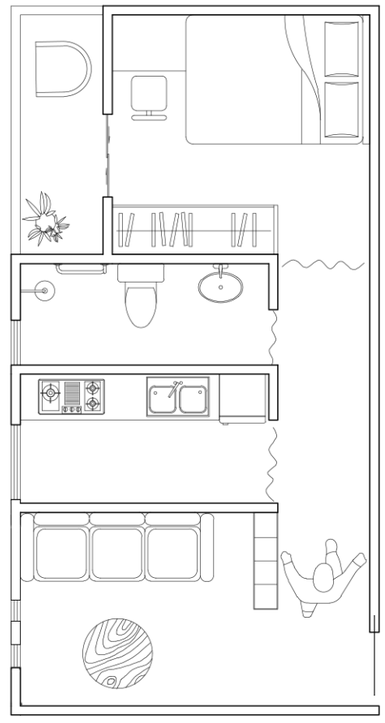
/ Linear connection and inclusive design /

Type of the Units-Families and Couples



Unit A for a family

40m2

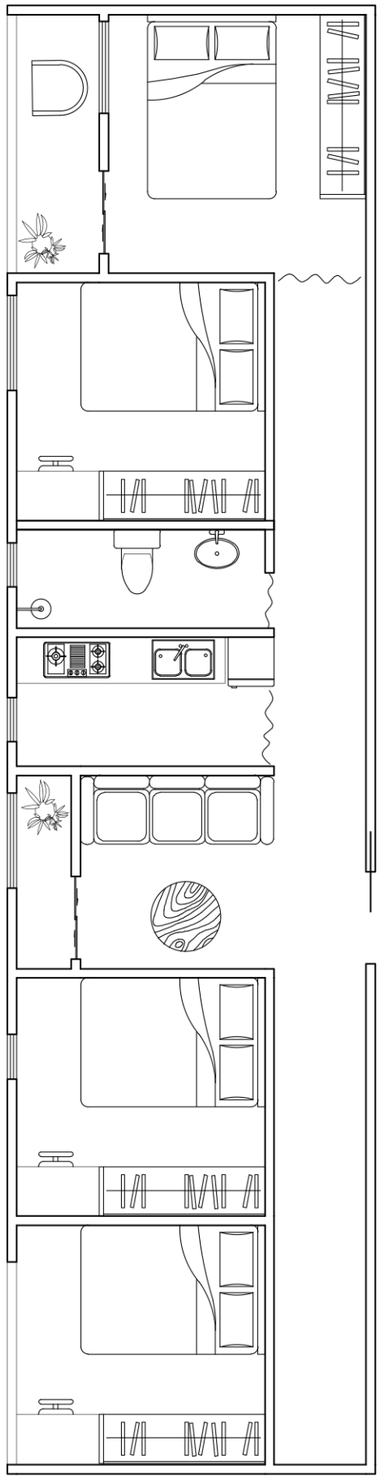


Unit B for a couple or an indicidual

32m2

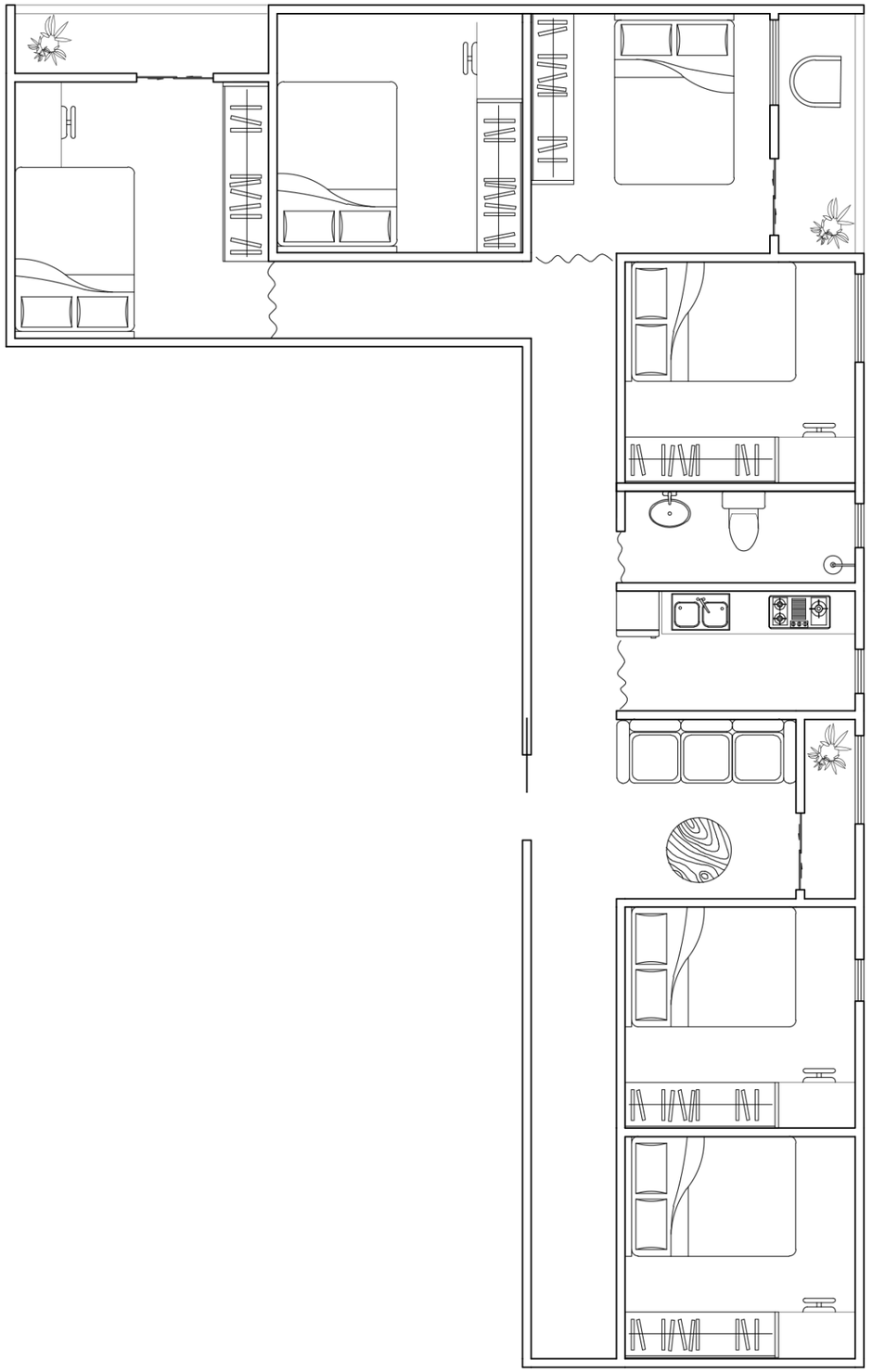
0 1 2 4

Type of the Units-Individual



Unit C1 for individuals

55m2 4 bedrooms

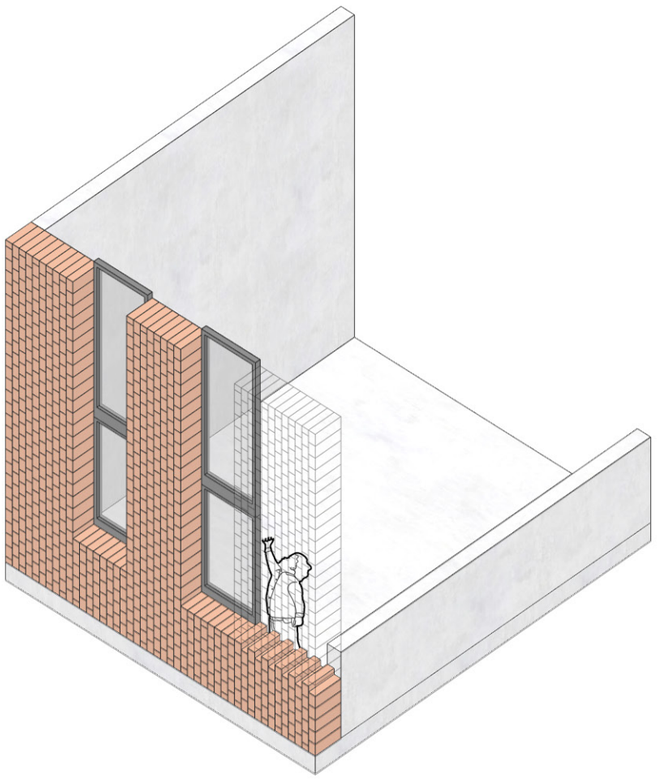


Unit C2 for individuals

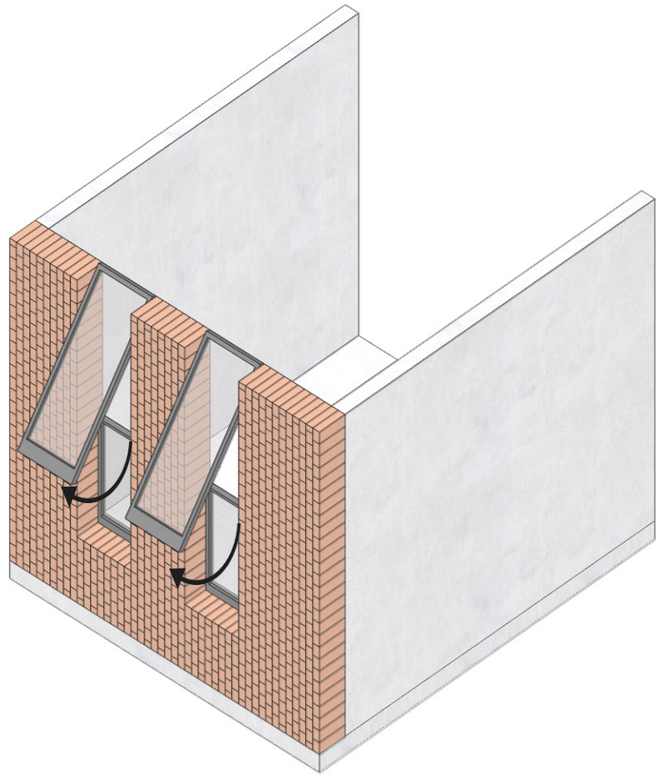
55m2 6 bedroom

0 1 2 4

Desgin of the Window

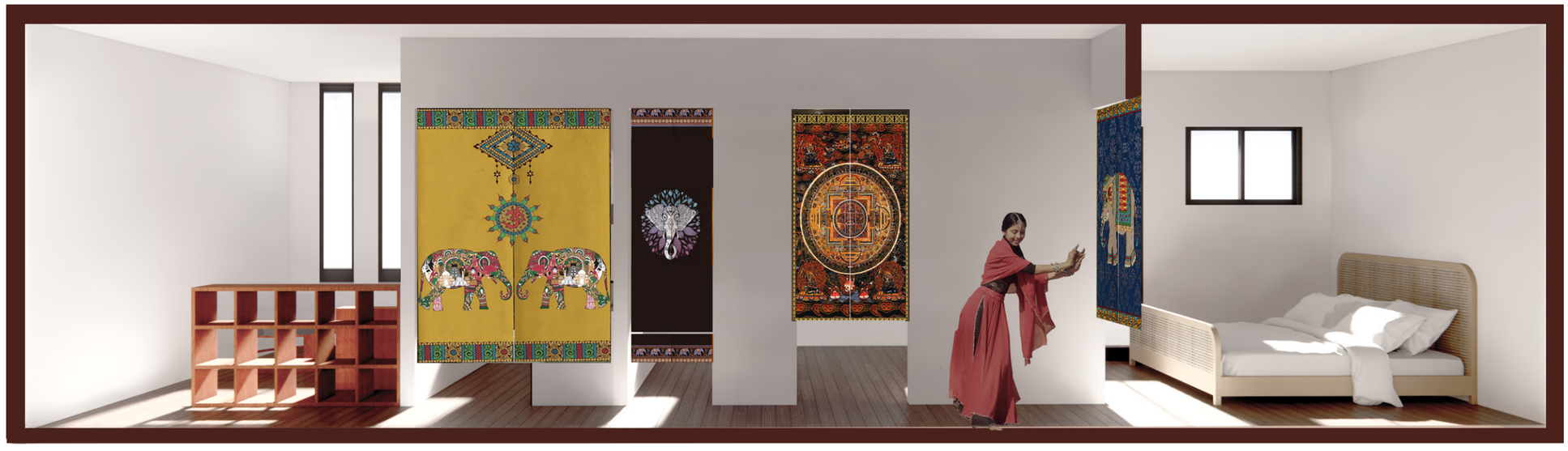


Design for the Children



Safe way to open windows

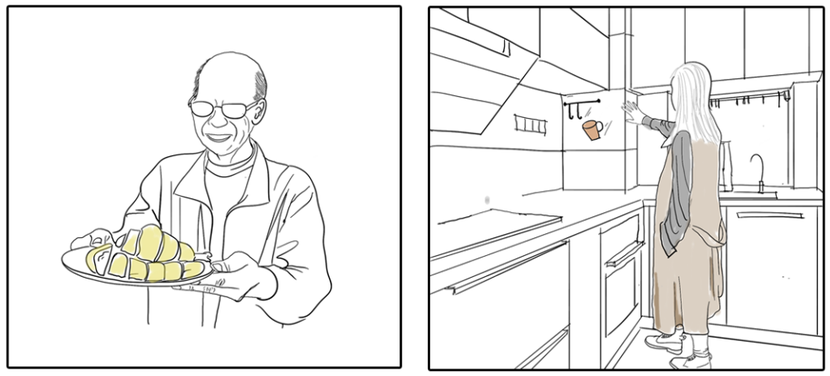
Section of the Units

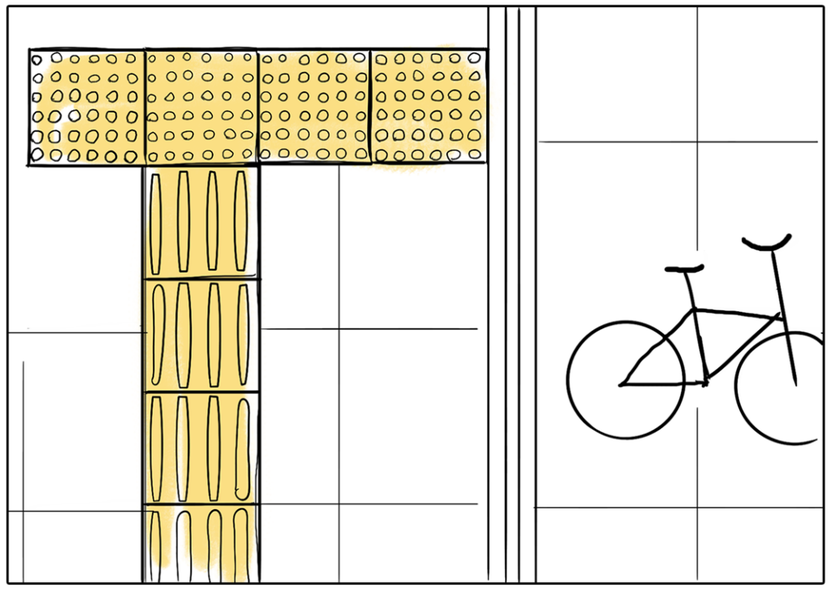


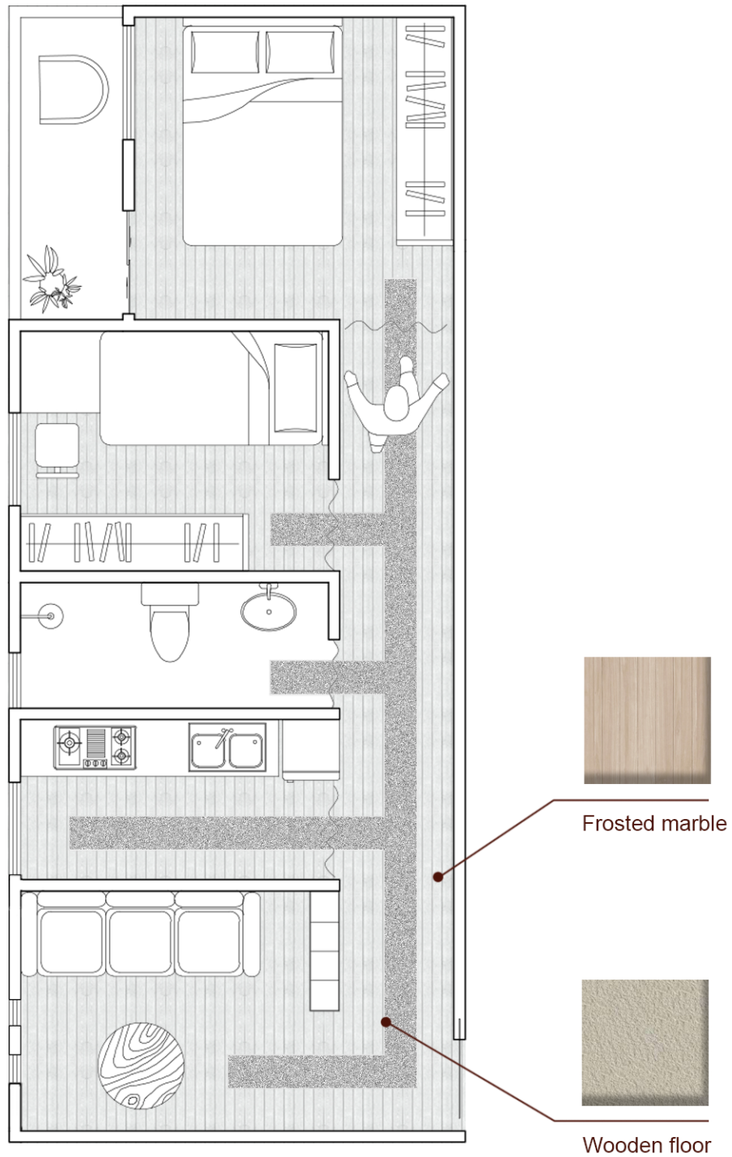
0 1 2

Interior Guidance

In interior space, they usually use their hand to do other things. This system is based on the blind way in the city. But it’s more simple with just one signal to help them avoid crash.







Unit A

Drawing: Da Lian

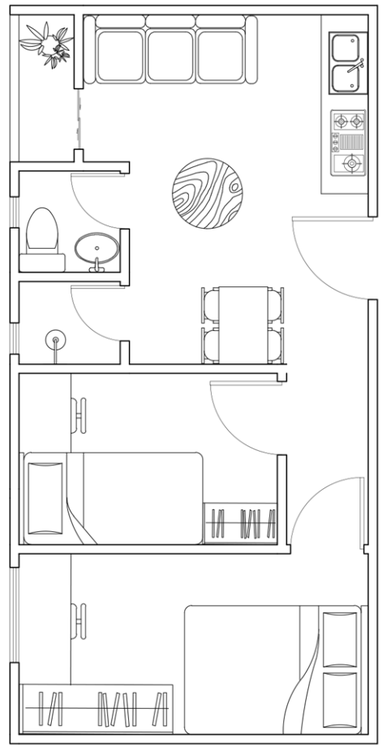
Non-blind Residential Area

Unit for the Non-blind People

Ground floor plan (Type C1)

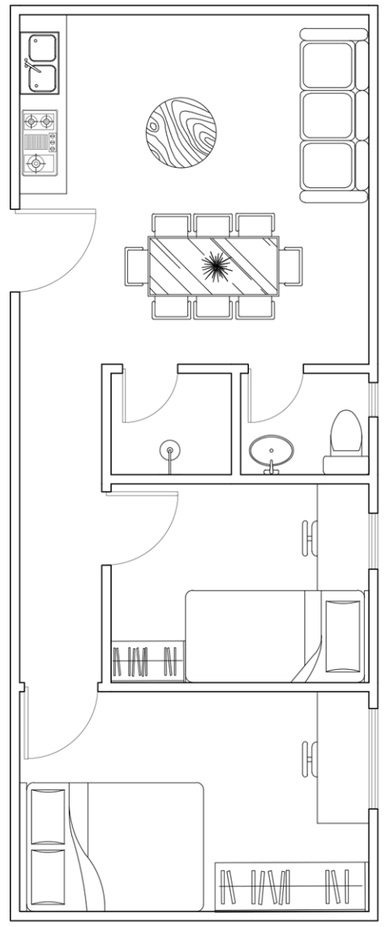
1 Living room
2 Kitchen
3 Bedroom
4 Bath
5 Toliet
6 Store

The units fot the non-blind people are located next to the shortcut stairs,because it's easier for them to reach there.The unit for the non-blind people is based on our research on the housing type of the Indian housing. Compared with the unit for the blind people, it It takes the whole living room as the core of the unit instead of the hallway. All of the window and the doors will use the common window in India.



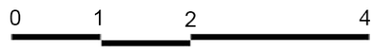
Unit for non-blind people A

32m2



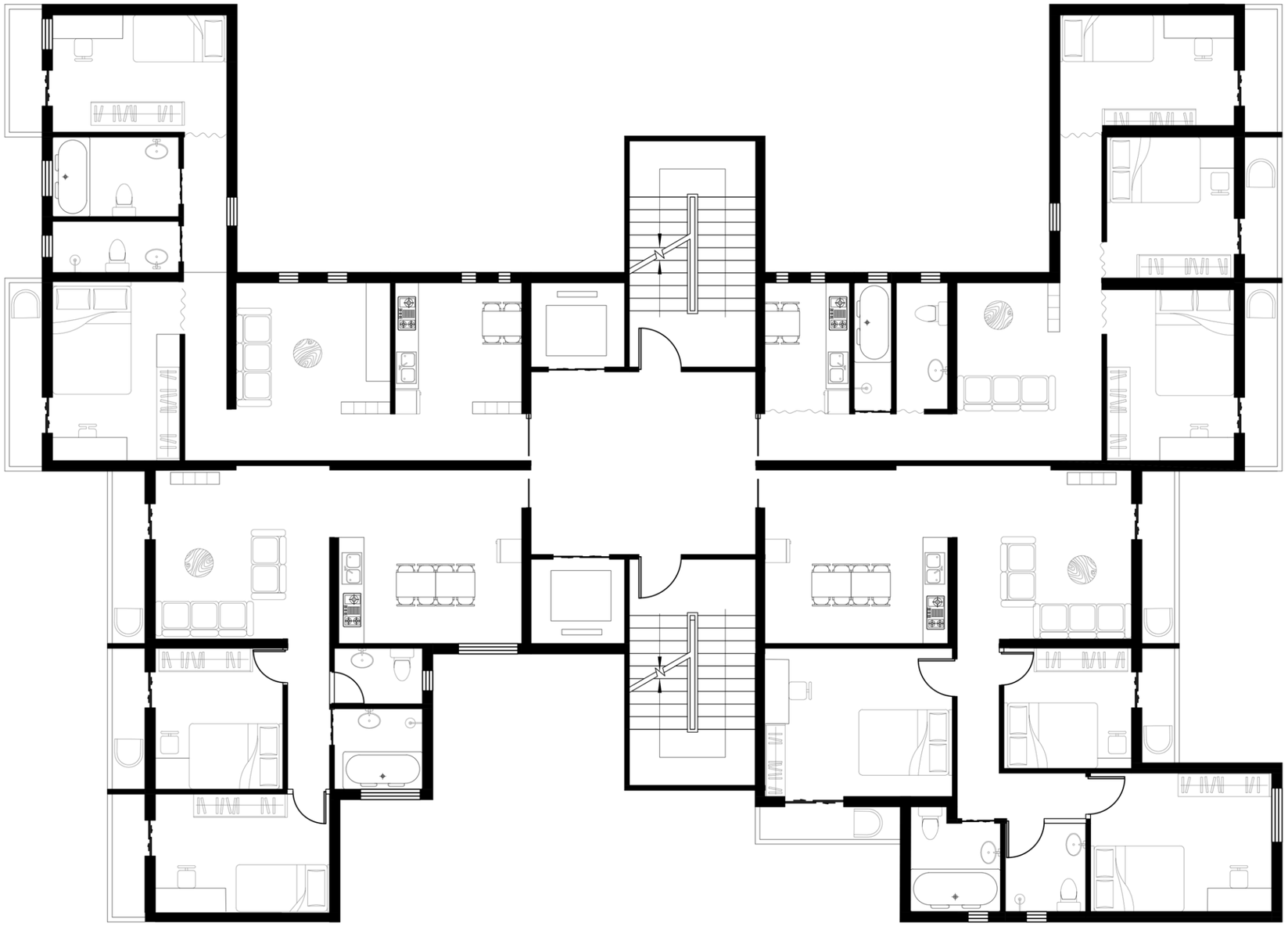
Unit for non-blind people B

40m2



Sources: P1 drawing form Jacky and Stijn

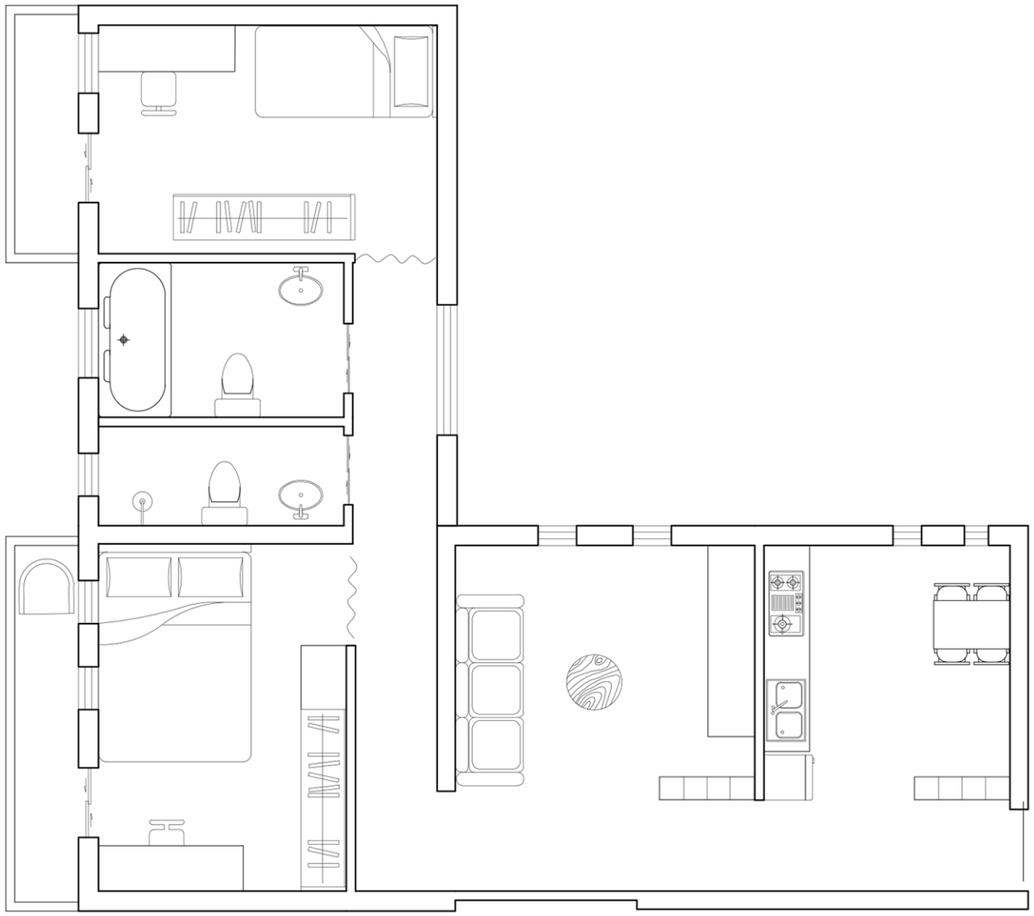
Floor plan of HIG: 2-24 Floors



0 3 6

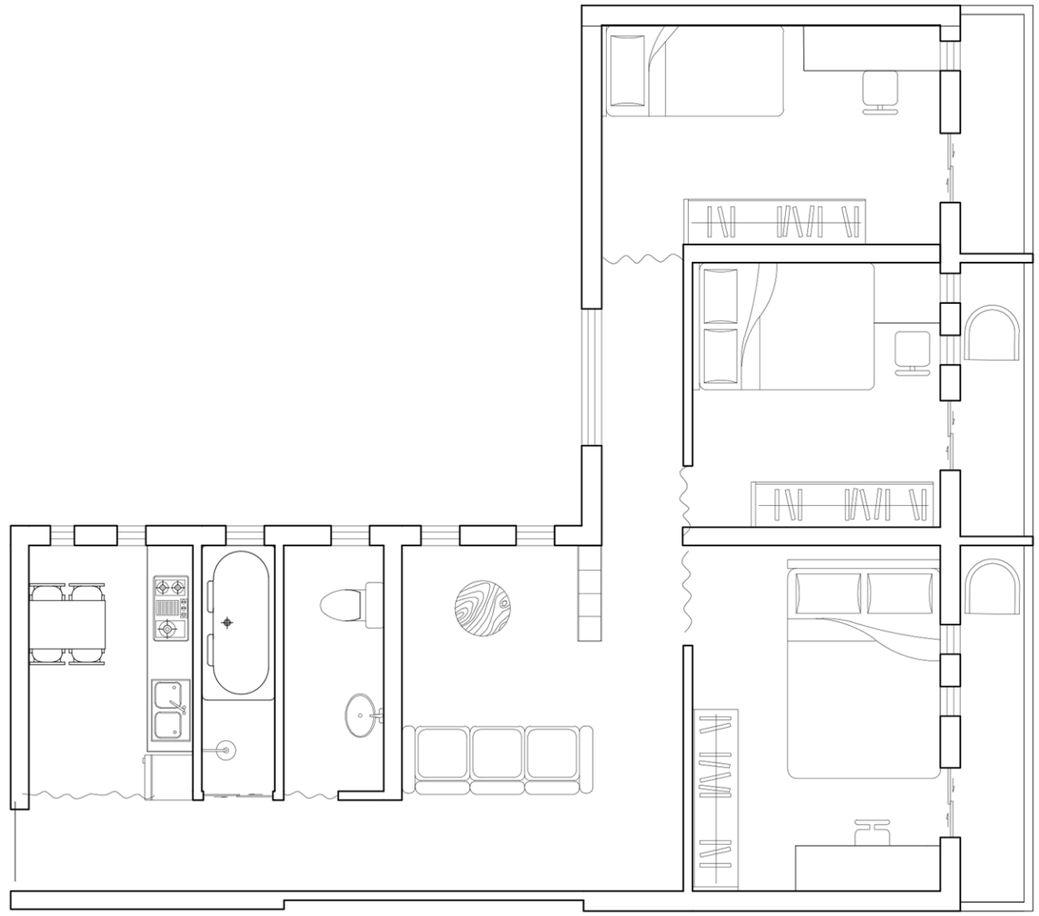
Units for blind people: 34
Units for non-blind people: 34

Type of Units for HIG(blind)



Unit for blind people A

72 m2

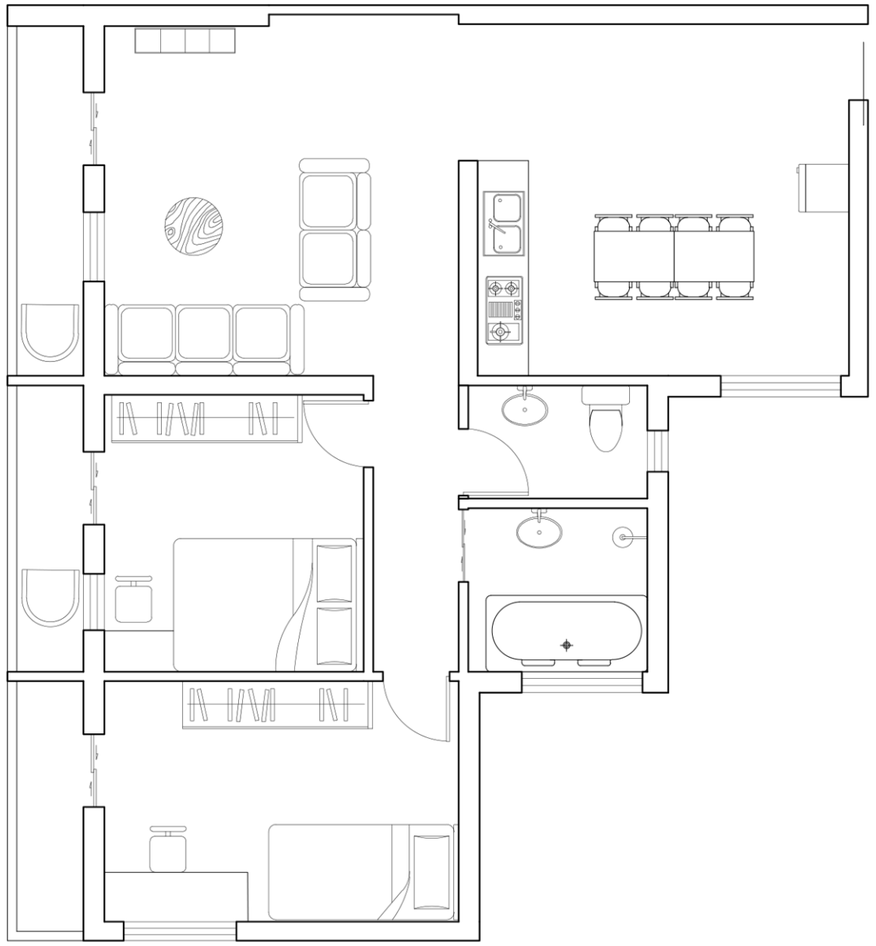


Unit for blind people B

75 m2

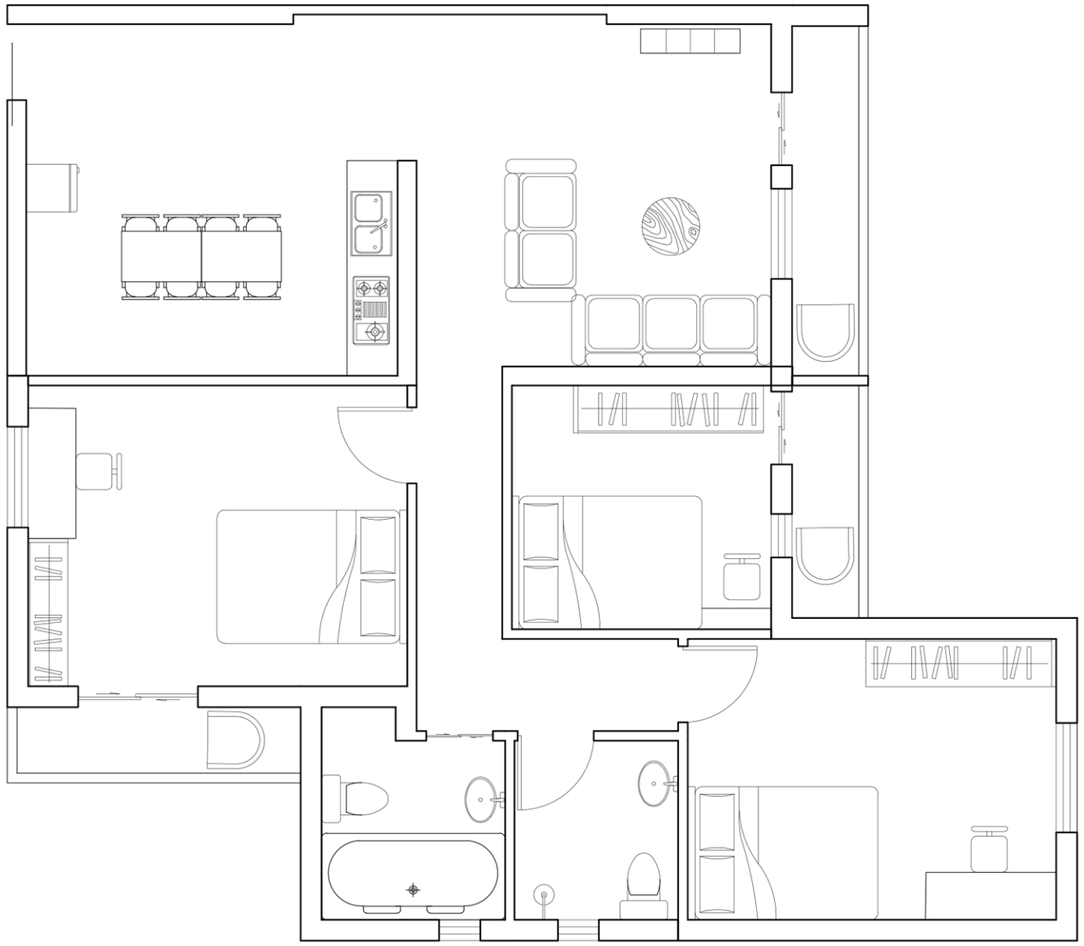
0 1 2 4

Type of Units for HIG(non-blind)



Unit for non-blind people A

72 m2



Unit for non-blind people B

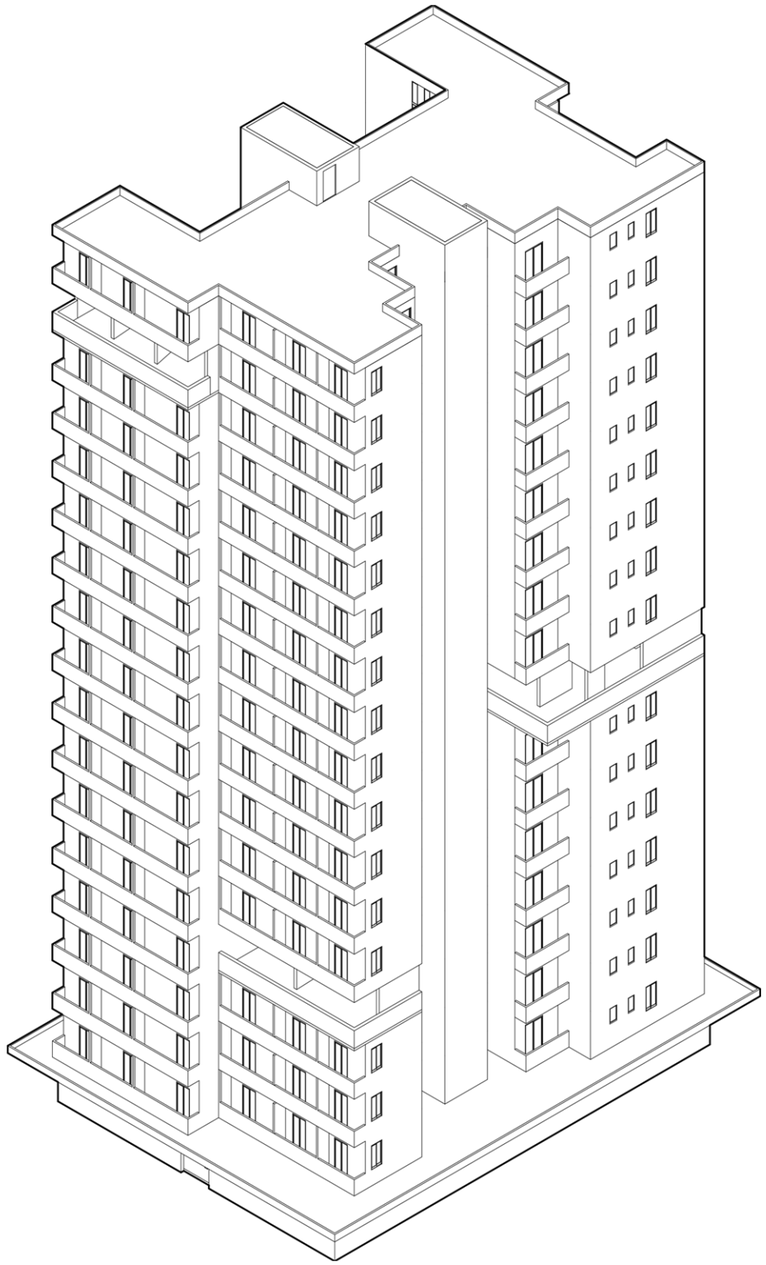
92 m2

0 1 2 4

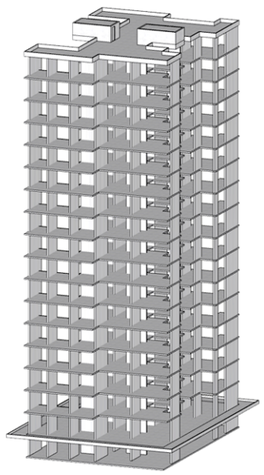
Structural Strategy

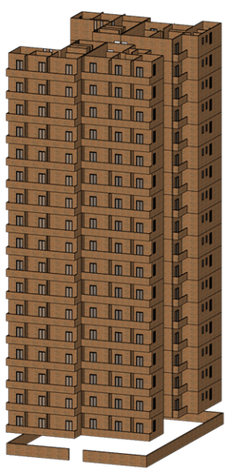
/ Basic structural types of different buildings /

Structure of the High Rise Building



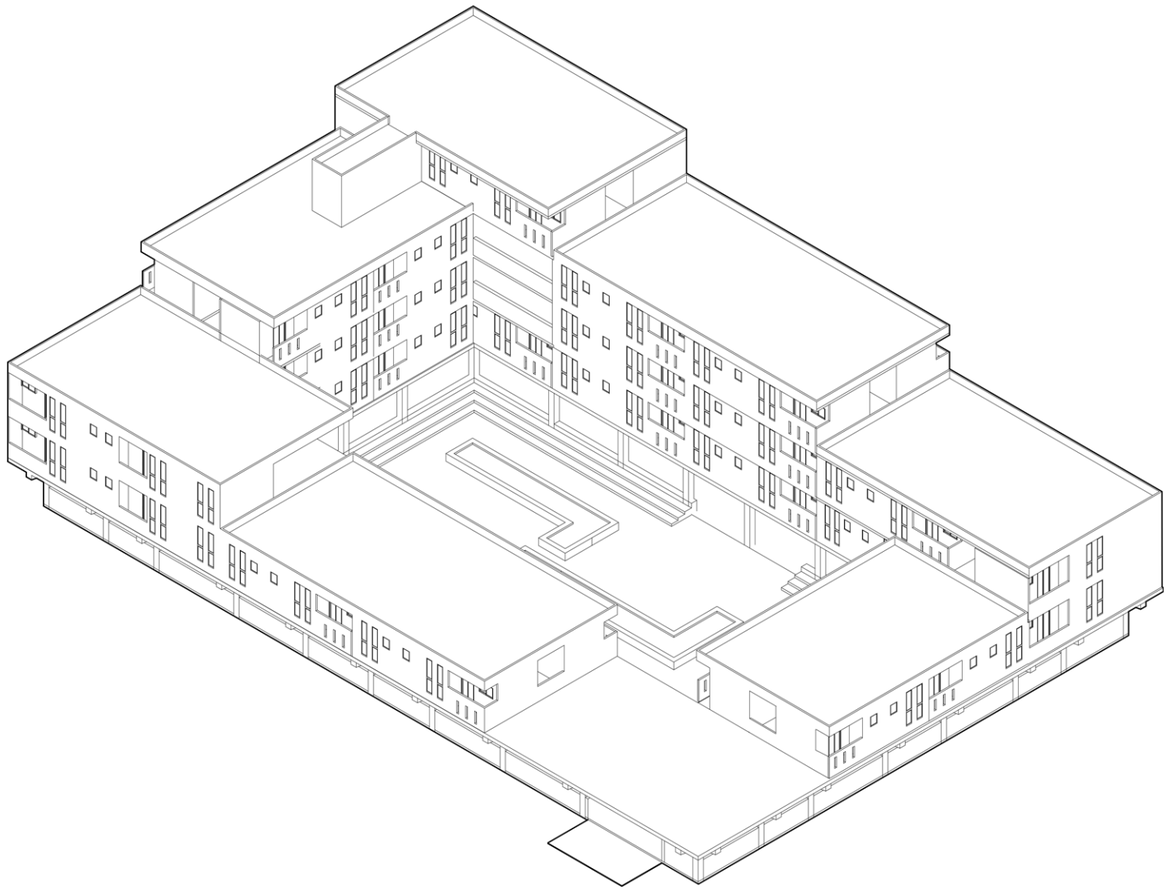
Structure-shall walls

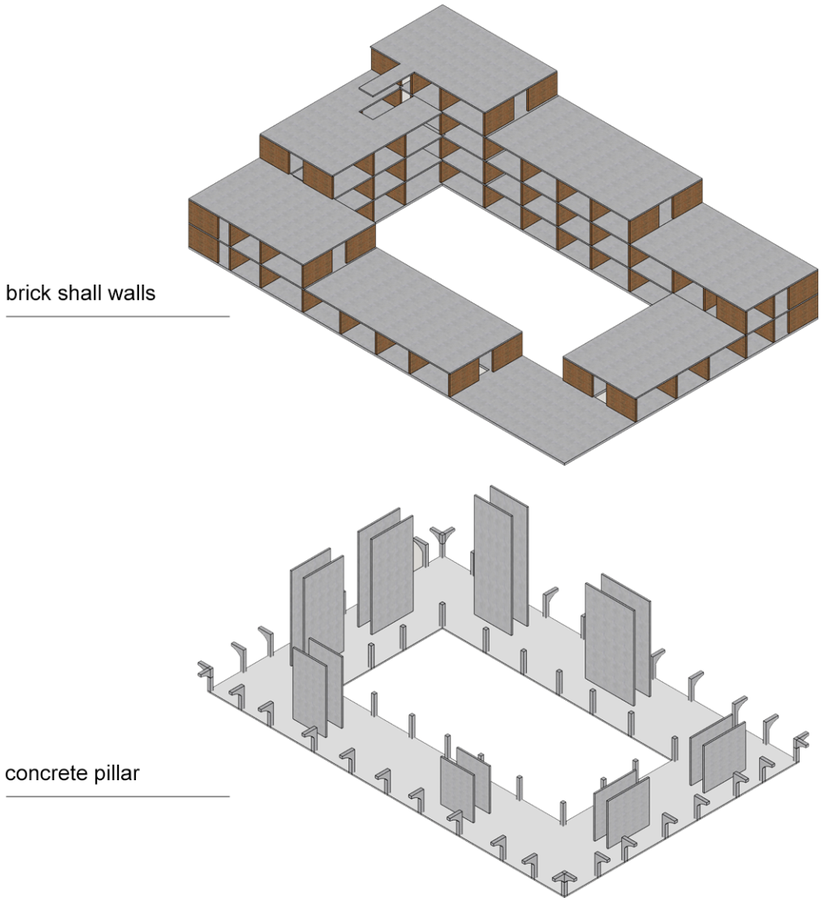




Material-concrete and brick

Structure of the Low Rise Building

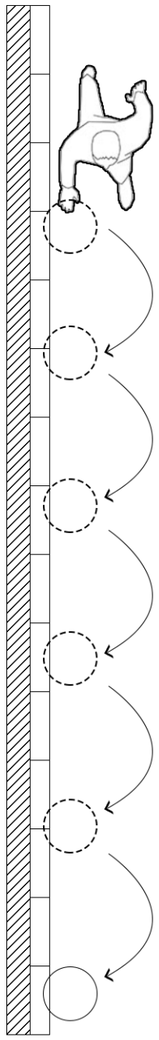




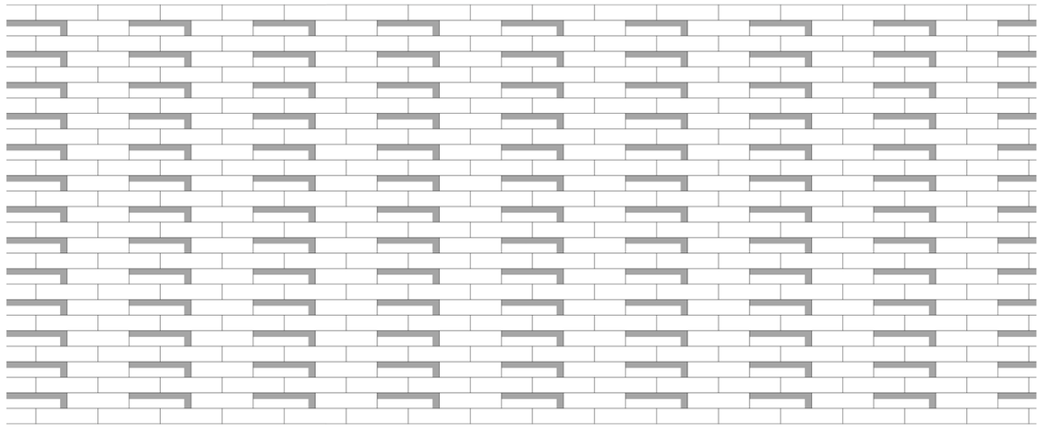
Material & Construction

/ Material selection and type of construction /

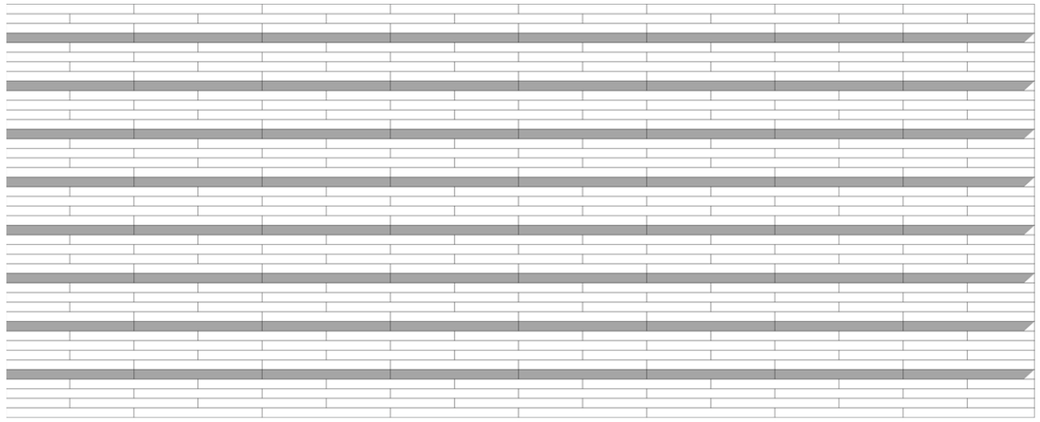
Touching Mode of the Blind People



Touching mode

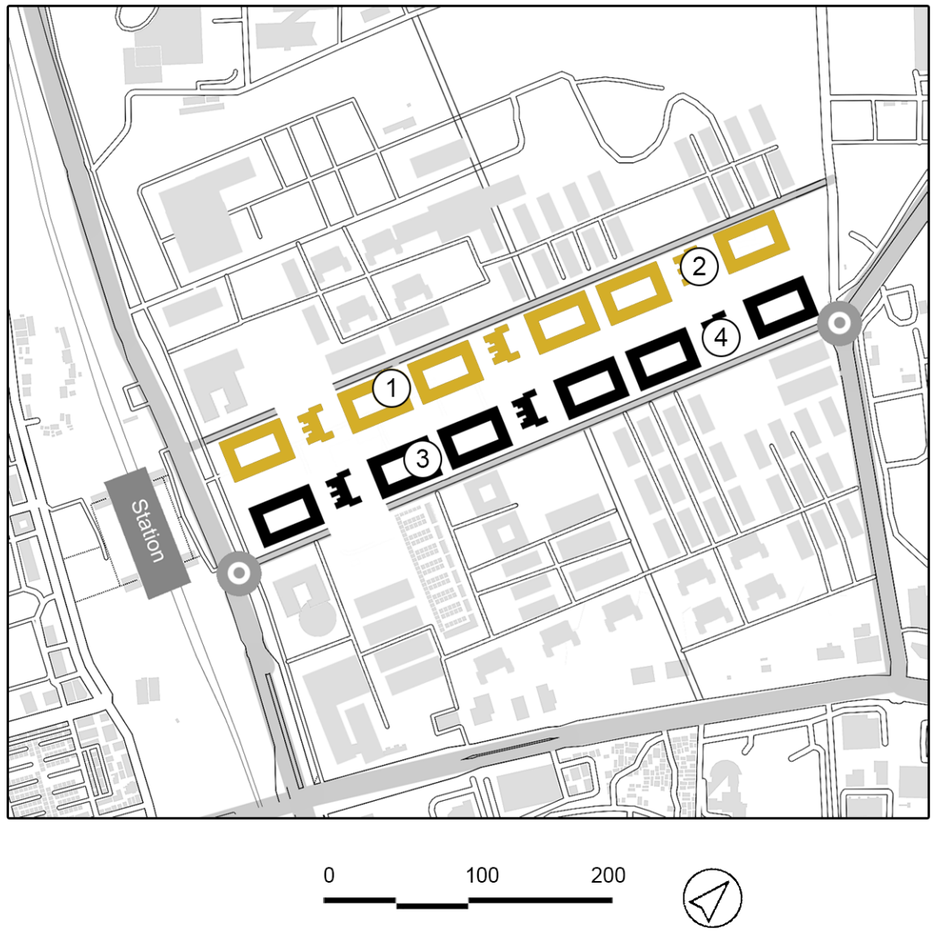


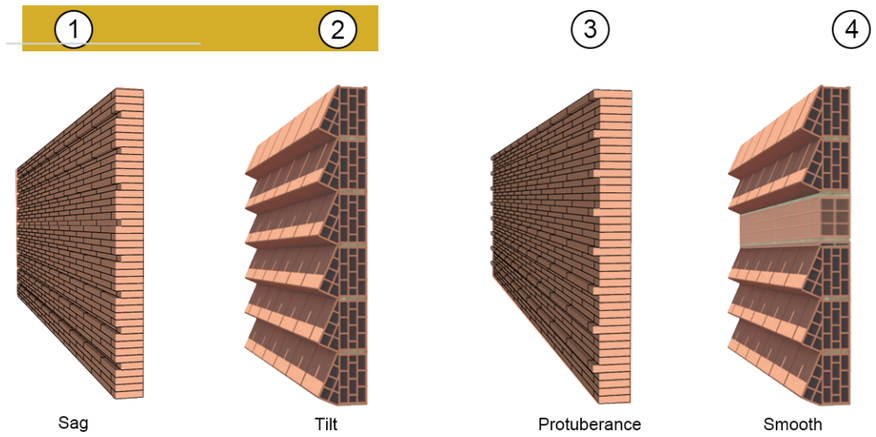
Discontinuous texture



Horizontal continuous texture

Walls of Different Constructions of the Bricks

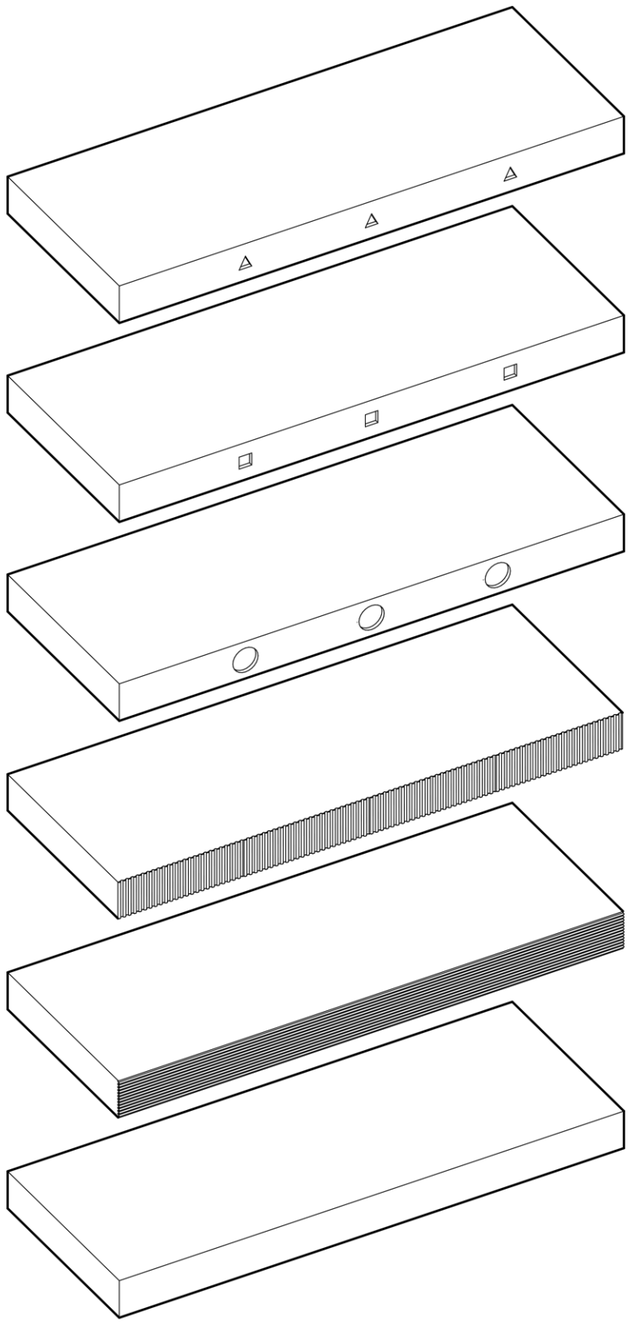




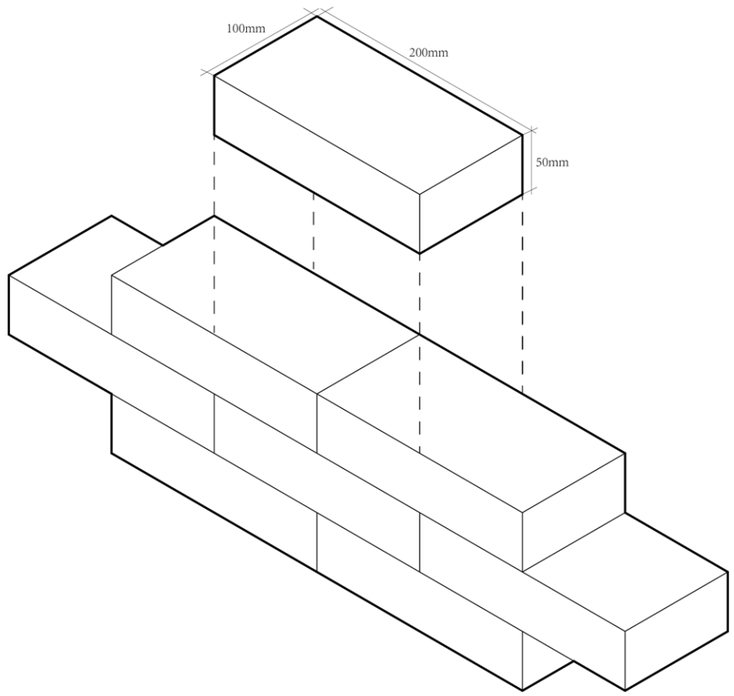
Different Kinds of construction of bricks will be used in diffenent area of the community. Brick1and 3 are the brick with special scale while brick 2 and 4 are the cooling bricks. All of them can create different textures in a building surface but the bricks of part 2 and 4 are higher effevtive than the other in terms of thermal insulation performance. However, it too expensive to use it all over the community, but just for the cluster for the high income group.

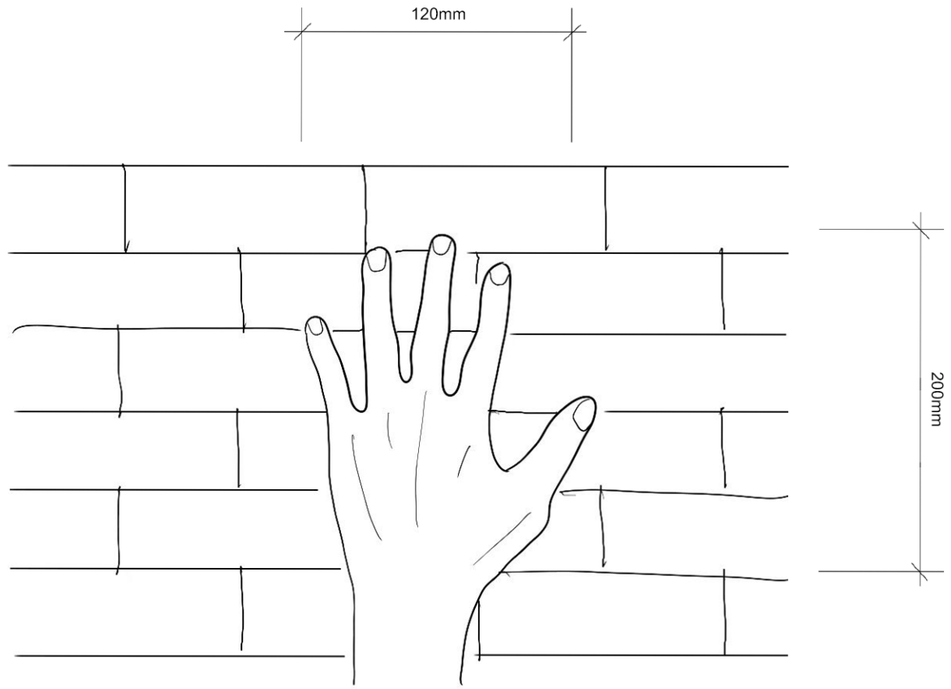
Cooling brick referance: https://www.archdaily.com/778158/in-detail-heat-dispersing-brick-developed-in-colombia https://docplayer.nl/106876600-4-nieuwe-verbanden-en-andere-laagpatronen.html

Bricks in Different Textures

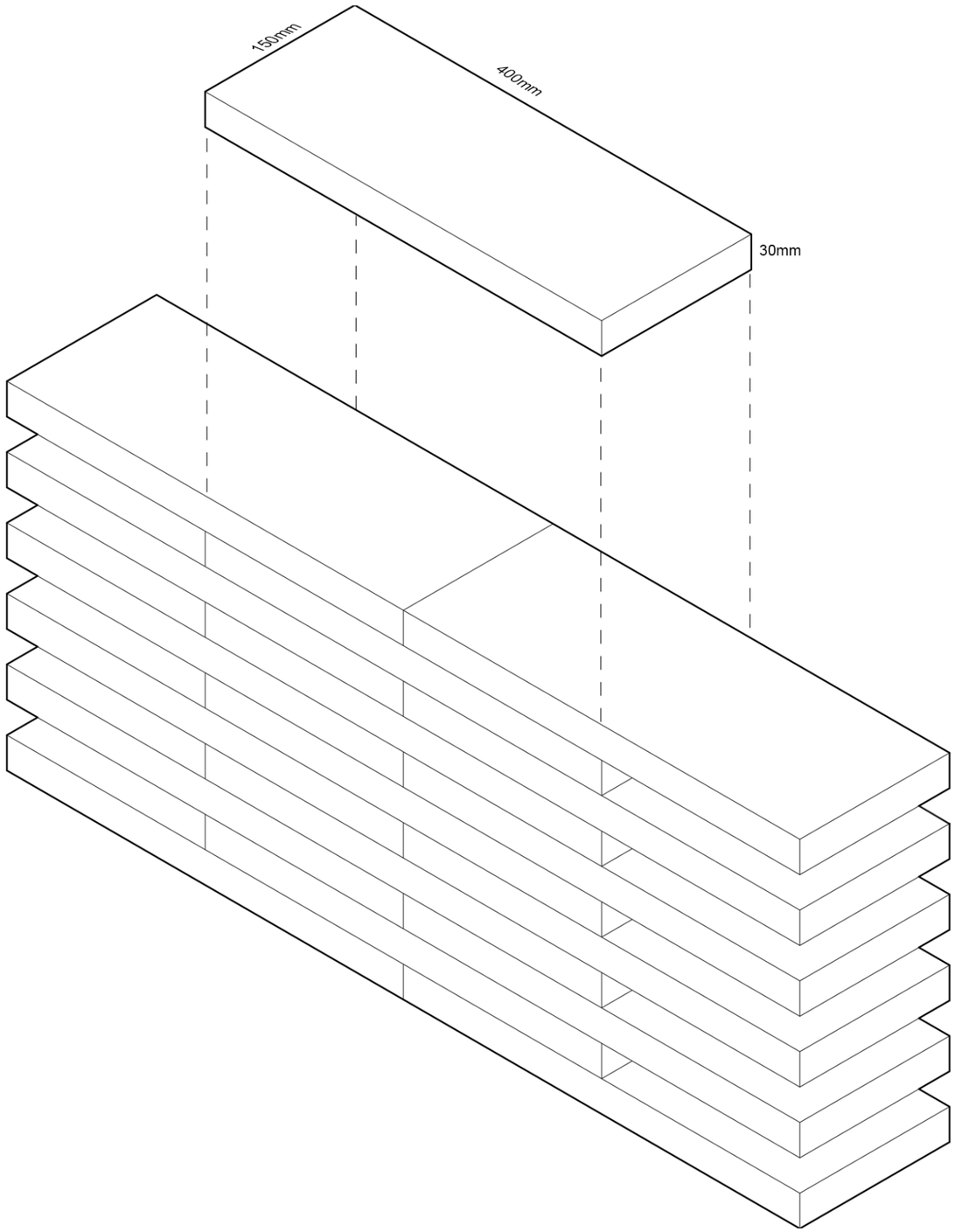


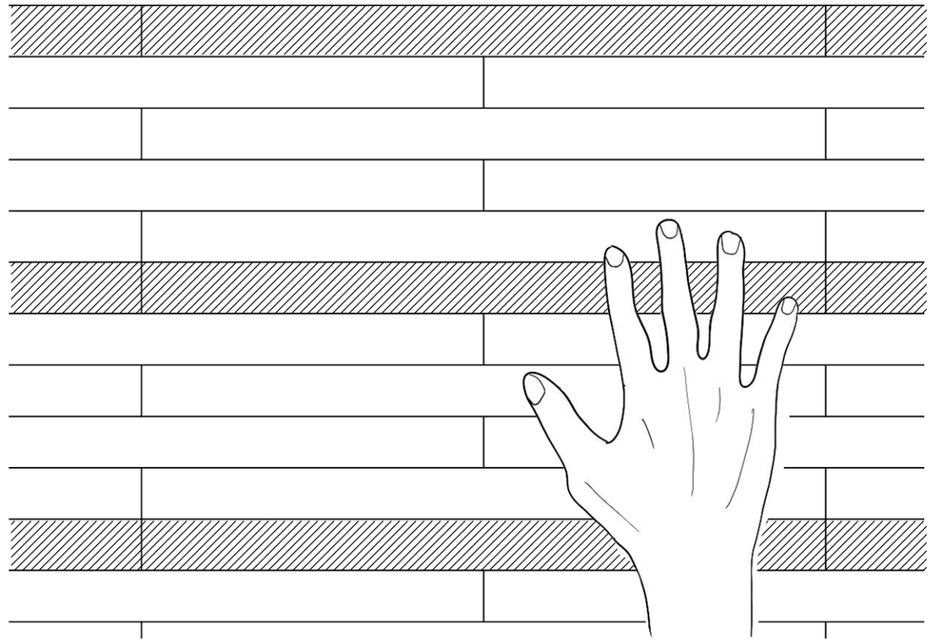
Common Scale of the Bricks





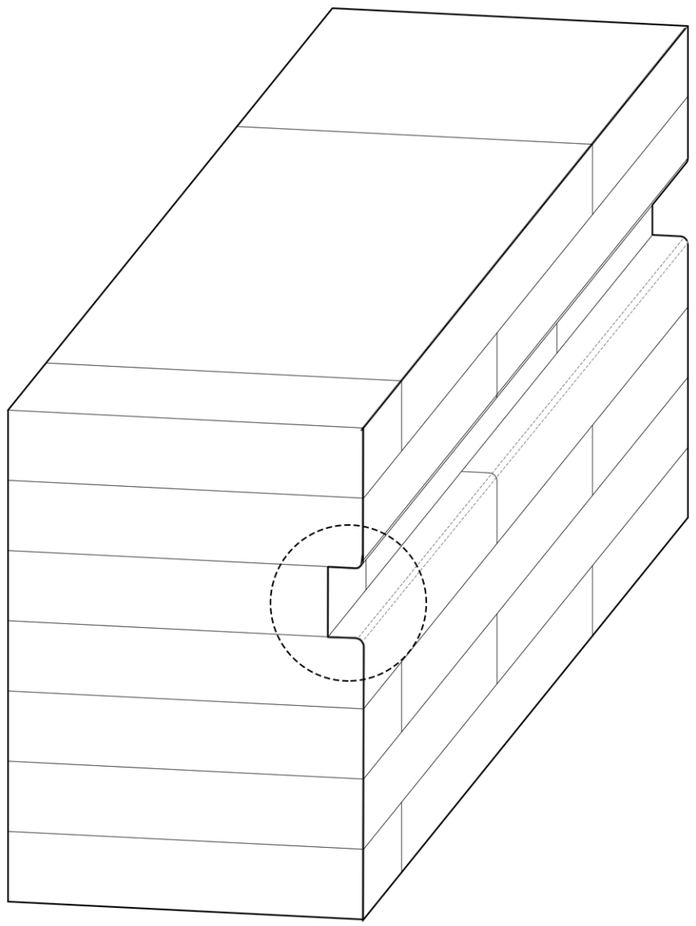
Redefine the Scale of the Bricks



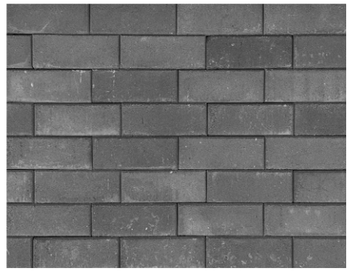


When It Becomes a Daily Life of Touching

Brick with Rounded Corner



Aggregate Size-Materials selection



Clay brick

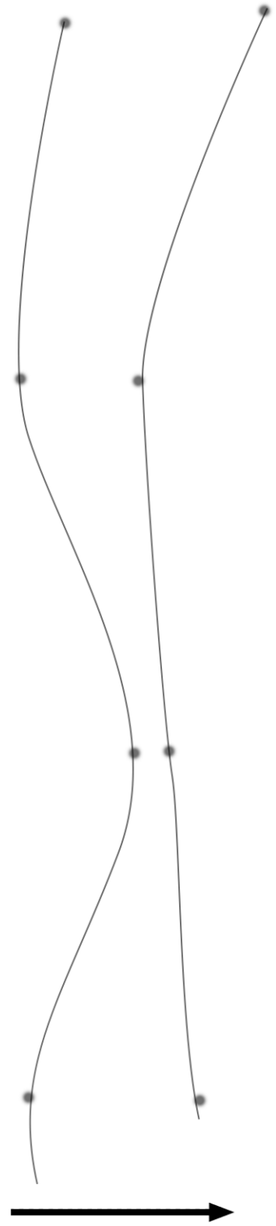
Mud brick

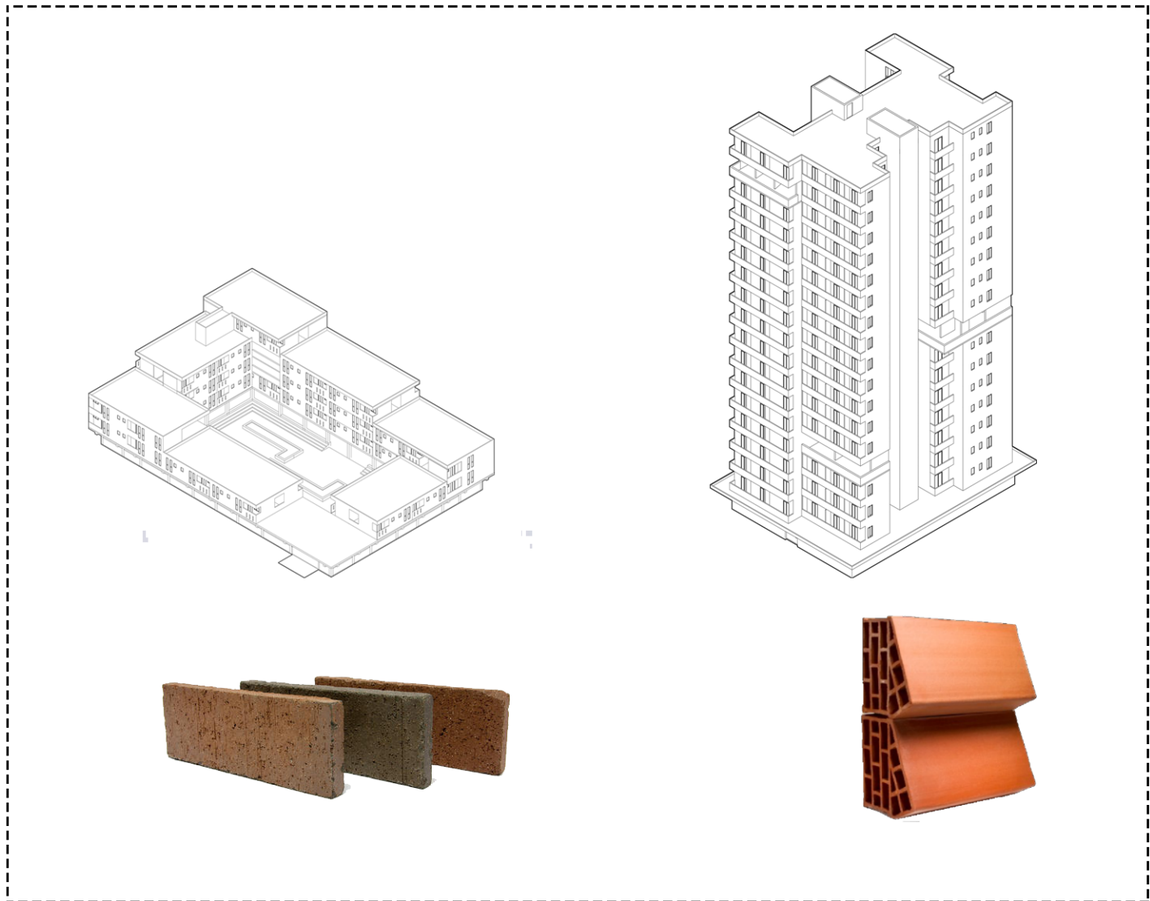
Fly ash brick

Paper brick

Fineness

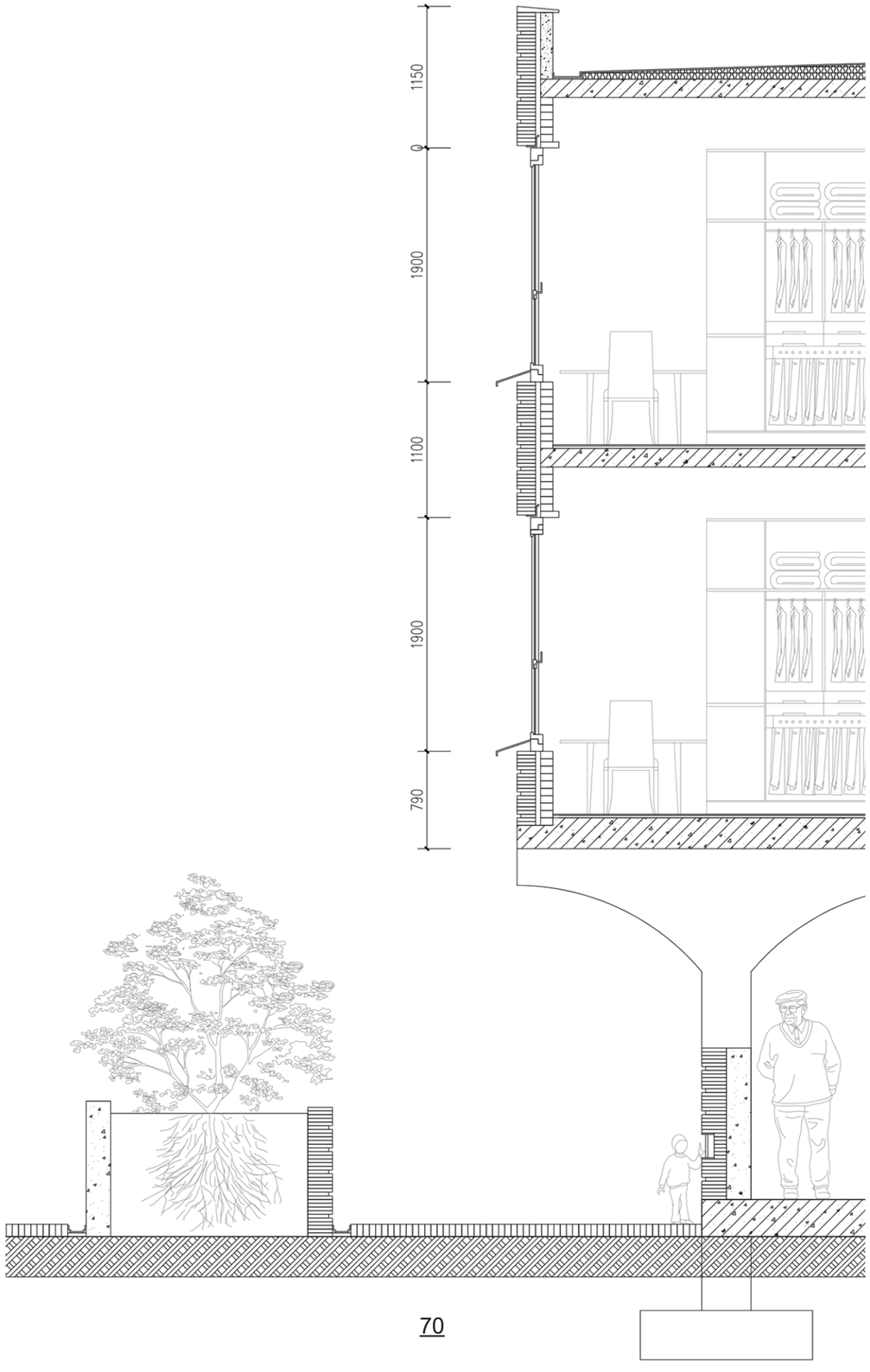
Stability



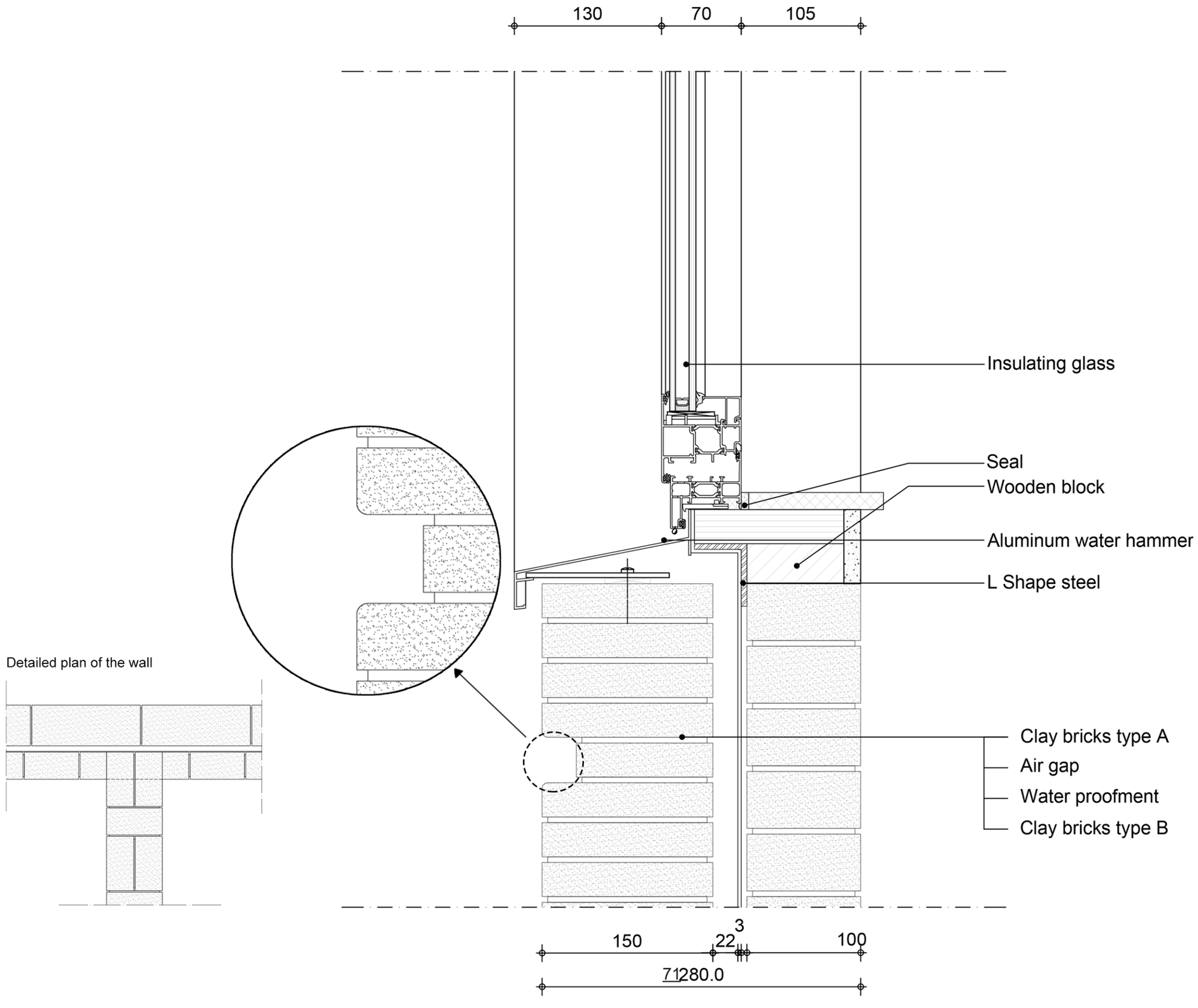


https://ijirt.org/master/publishedpaper/
IJIRT150039_PAPER.pdf

Fragment of LIG Cluster

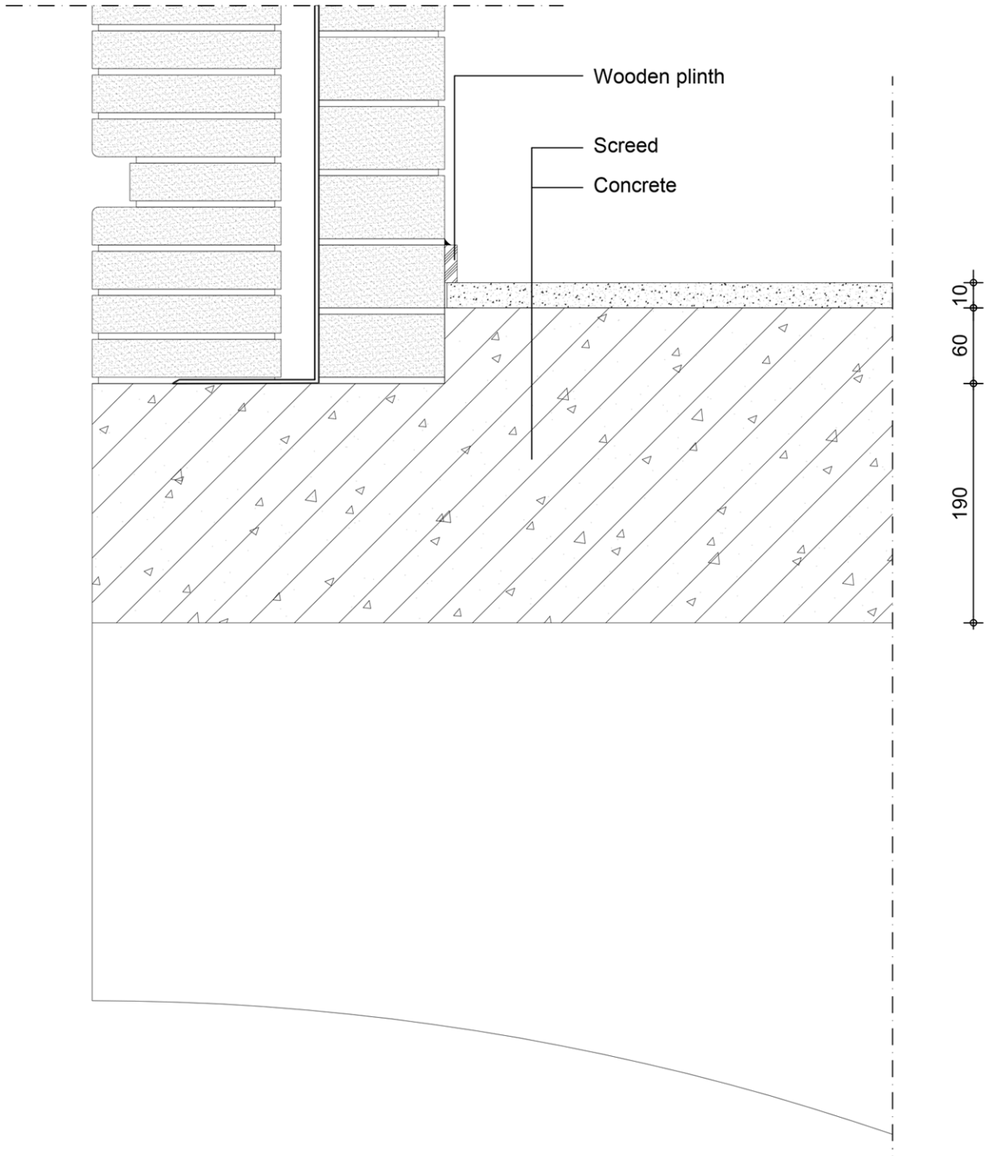


Detail of the Brick Wall

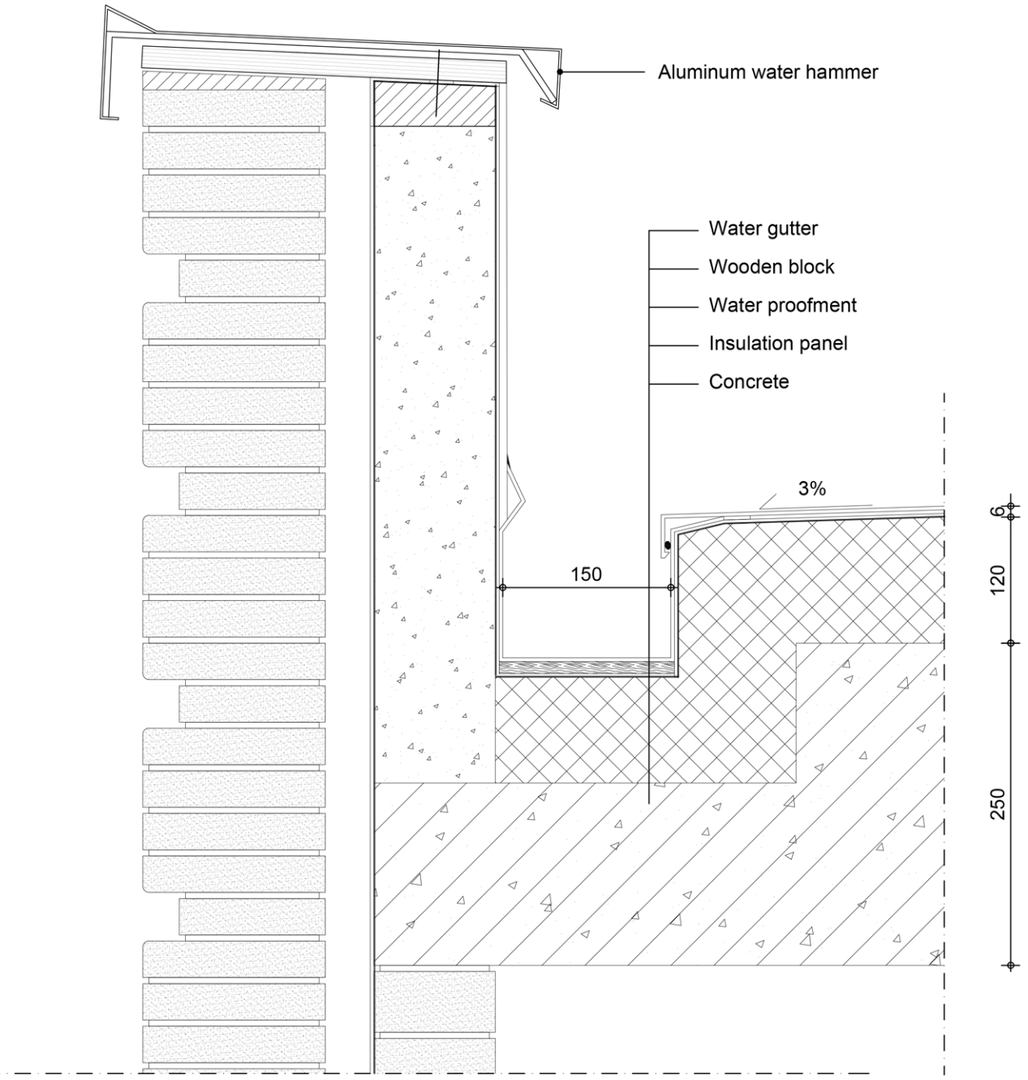


Detailed plan of the wall

Detail of Other Parts

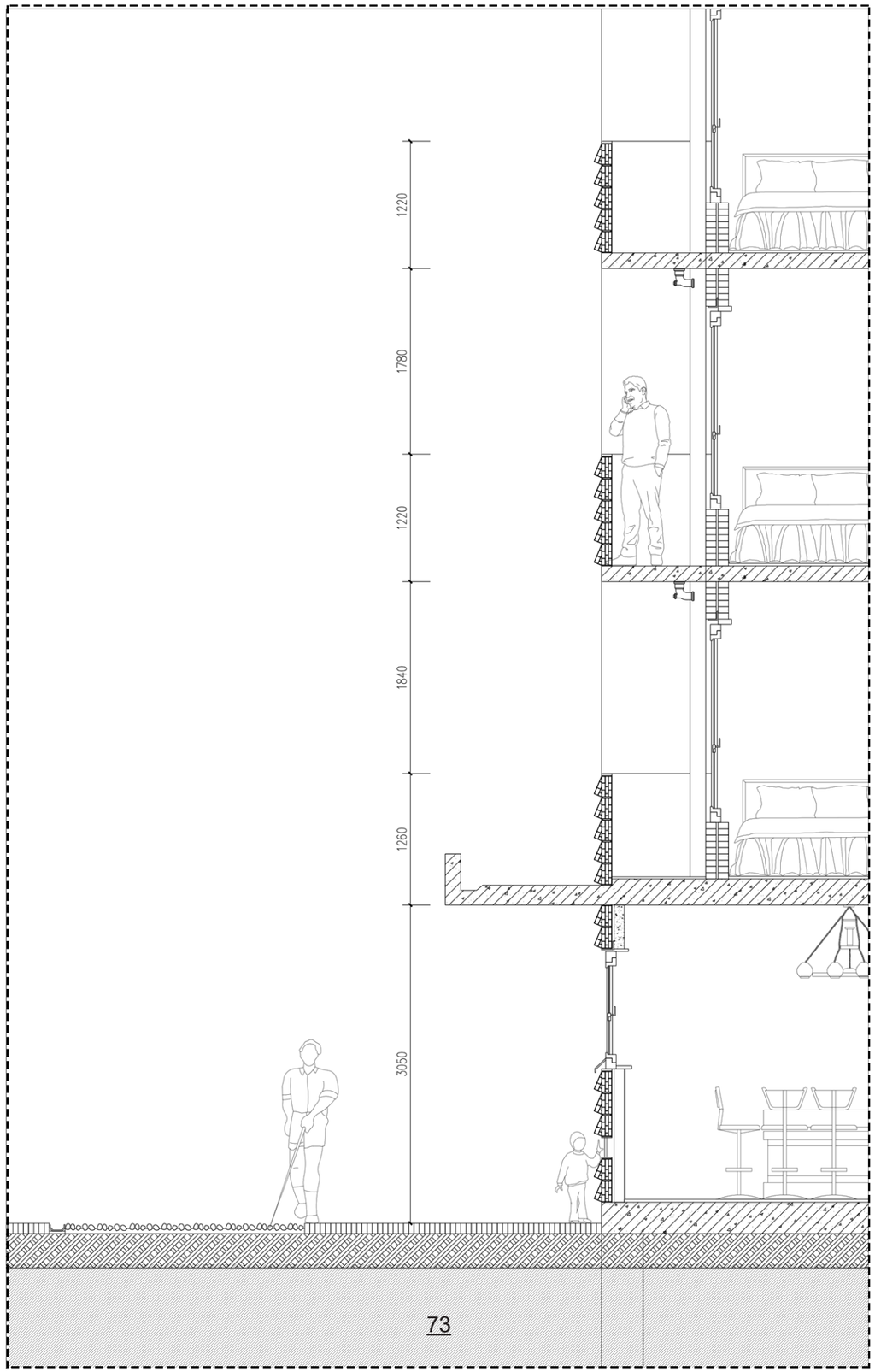


Detail of the bottom corner of the first floor

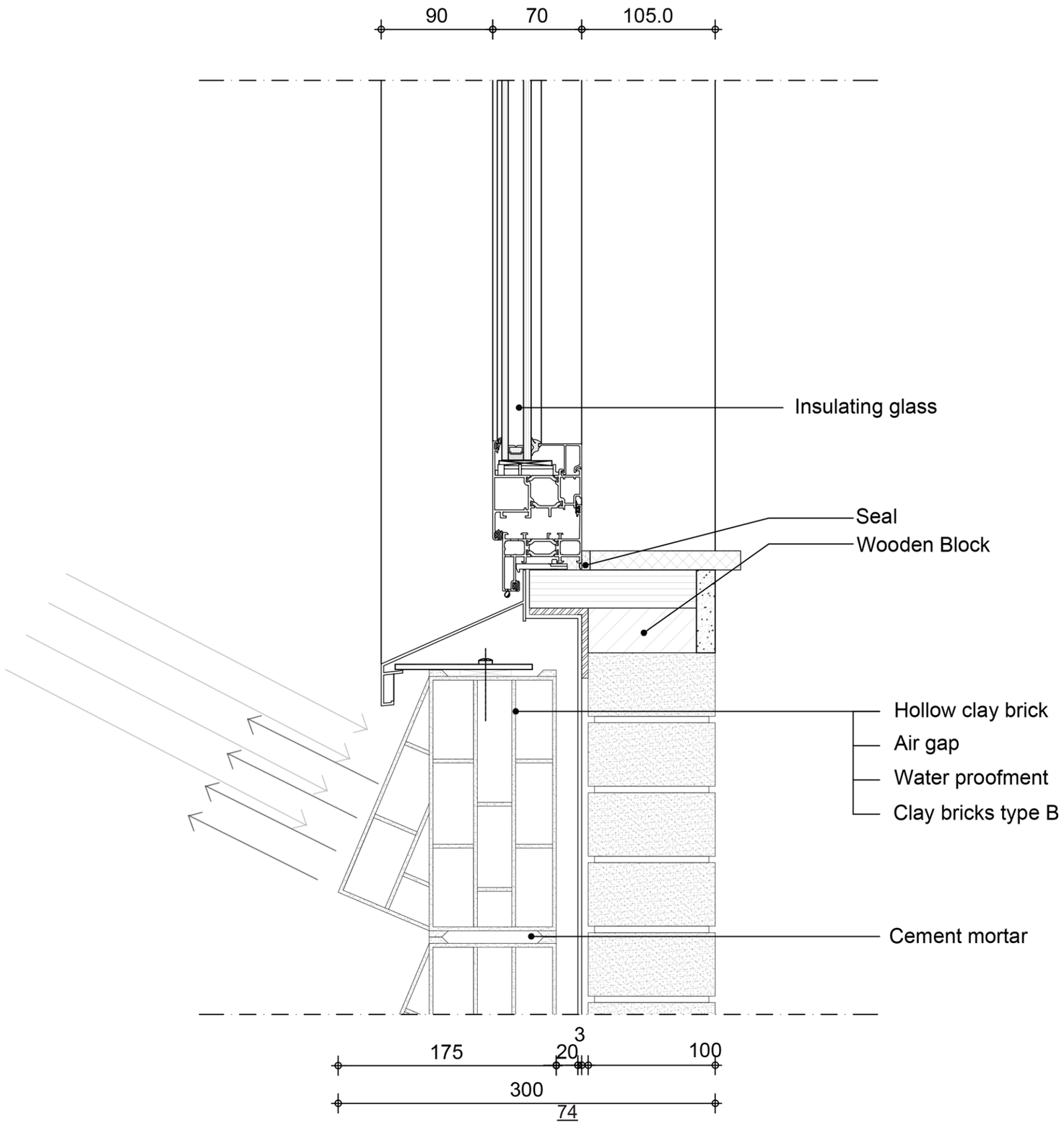


Detail of the roof gutter

Fragment of HIG Cluster



Detail of the Brick Wall



Managerial Strategy

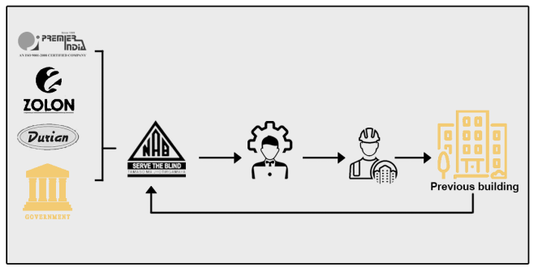
/ Participation of the blind and staged construction /

Managerial Strategy

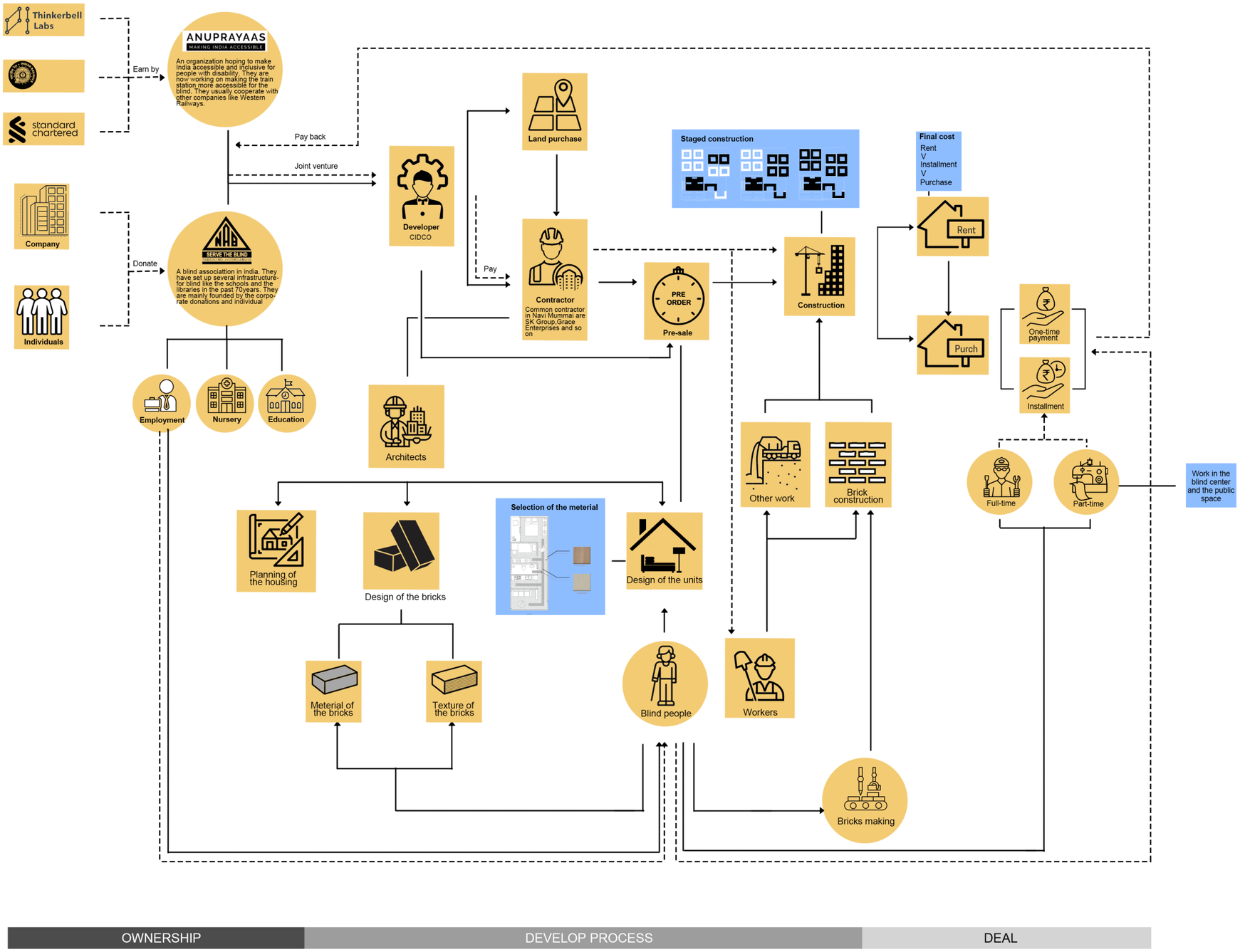
Unlike other usual residences, I hope that the owners of this community are blind institutions rather than some commercial institutions. I have planned an entire ecosystem of blind people, and this ecosystem needs a leader to help them integrate information and follow-up operations. An agency for the blind is a good leader. Here I list two broad categories of institutions for the blind. Institutions like NAB have considerable experience in managing infrastructure for the blind, such as medical centers, employment centers and schools, and they rely mainly on corporate and social donations to complete the operation of funds. Organizations like this, they mainly help some construction projects to publicize and provide corresponding technical support. For example, they and the train department have completed the blind transformation of several stations in Mumbai. I hope that these two types of institutions can jointly own this community, because after the community is built, they can promote the organic improvement of the whole community in different ways.

Throughout the process, they will look for suitable developers such as CIDCO or Goodwill Developers. After acquiring the land, the developer will look for a suitable contractor for construction. After the city construction house confirms the construction information, the construction starts, and the developer will release the housing pre-sale information on various media. The pre-sale period is three months, and the blind people who come to participate in the pre-sale can choose the paving material of their housing floor in advance (as mentioned before, each unit will provide a foot-based guide system, different materials is used to help distinguish between normal ground and blind ground). Four months later, the construction will be completed (the size of the house will be rounded up, and the extra units will be constructed according to the standard parameters), and the second phase of pre-sale will begin. Unbooked properties will continue to be available for sale and rent. Blind people who have already booked a house can choose to pay the remaining funds in one lump sum or in installments. Instalment funding can be obtained either through their full-time life in the community, or through participation in community labor. (such as the blind industry I mentioned earlier). The above is the development process of this community. In the future, as more and more people know about the blind, I hope that more capital will be invested, especially by government departments, because I have a further goal and hope that the government can incorporate blind design into future buildings. In the specification, it becomes a unified standard for all buildings. In addition, the experience and feedback from the previous community construction will also be absorbed by NAB and implemented into the new community construction. This is the profile of the residents of this community.

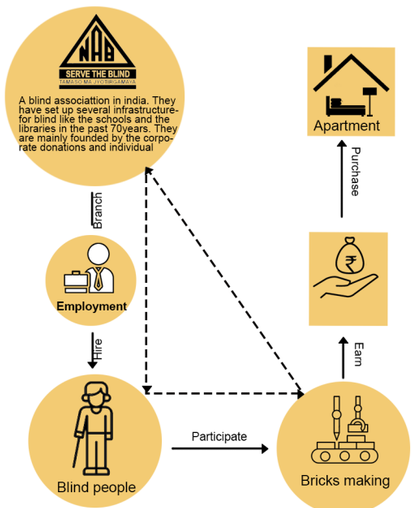
In the furture(50 years)



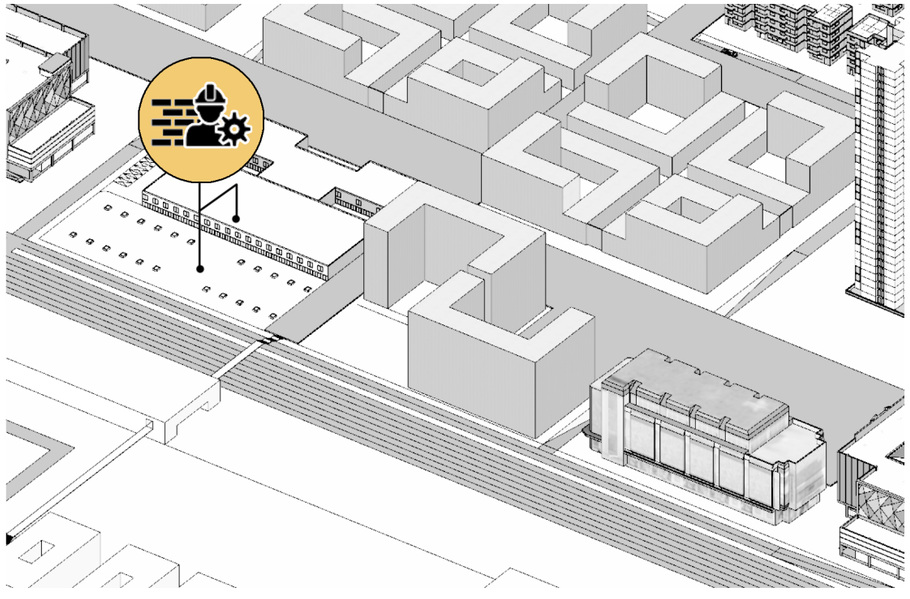
Process chain
Affiliation
Main capital chain
Blind Institution Block
General Institution Block
Other(Interpretation)



Brick making process 1



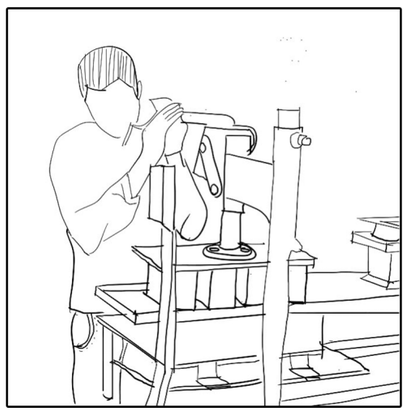
This is the whole process of blind people participating in brick making. As mentioned earlier, they are employed by organizations for the blind and in this way receive part of the money to pay for the home. This brick making process will take place directly on the site, in the originally planned plaza. The site is next to the station, which is more conducive to increasing the contact between the blind and the sighted at the beginning of the project. Brick making can be divided into four steps in total. Aggregates such as fly ash are stirred, the aggregates are pressed into bricks, and the bricks are transported to the open field and dried. The whole process requires a total of 4 blind people and two machines to complete.

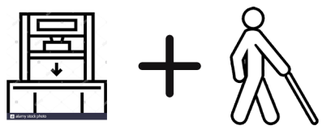


Referance: https://www.youtube.com/watch?v=PbzyqZnCmlY

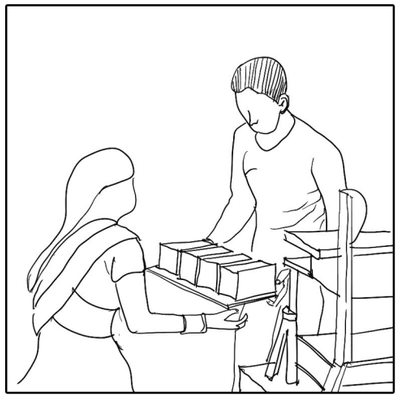
Stir

Compression





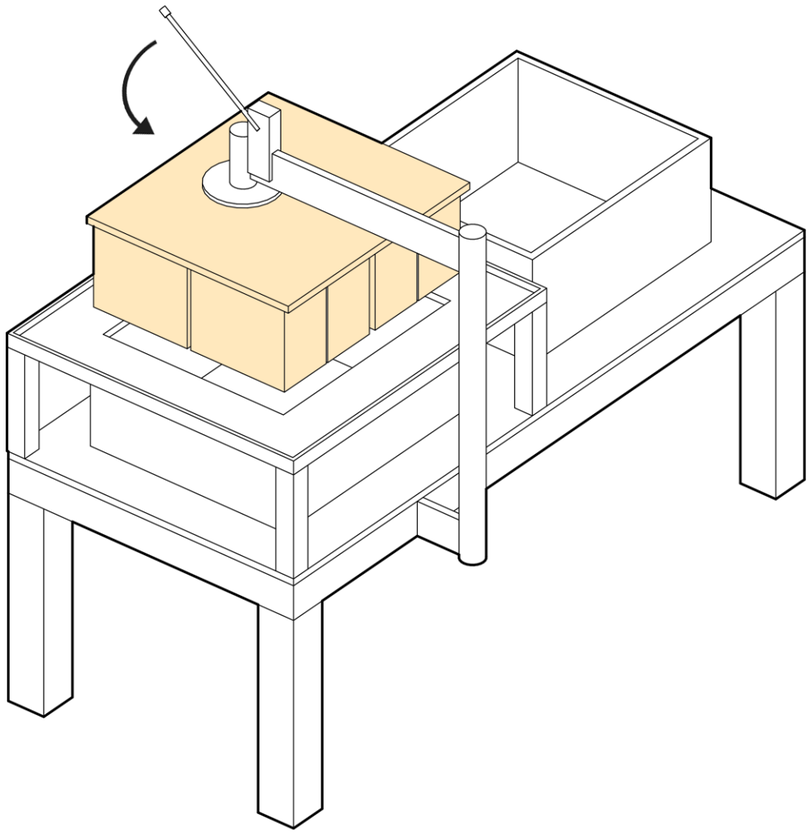
Transportation



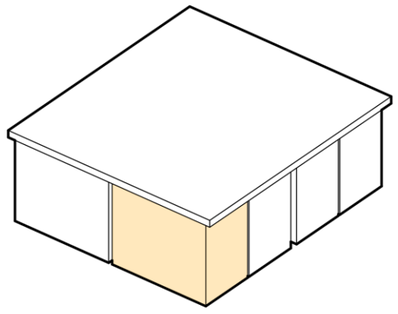
Drying

How to Make a Fly Ash Brick with Textures

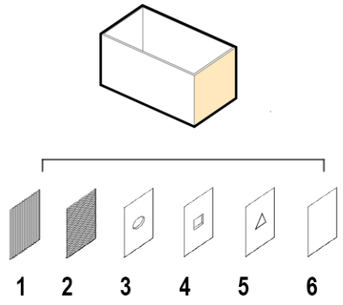
Manual brick making machine



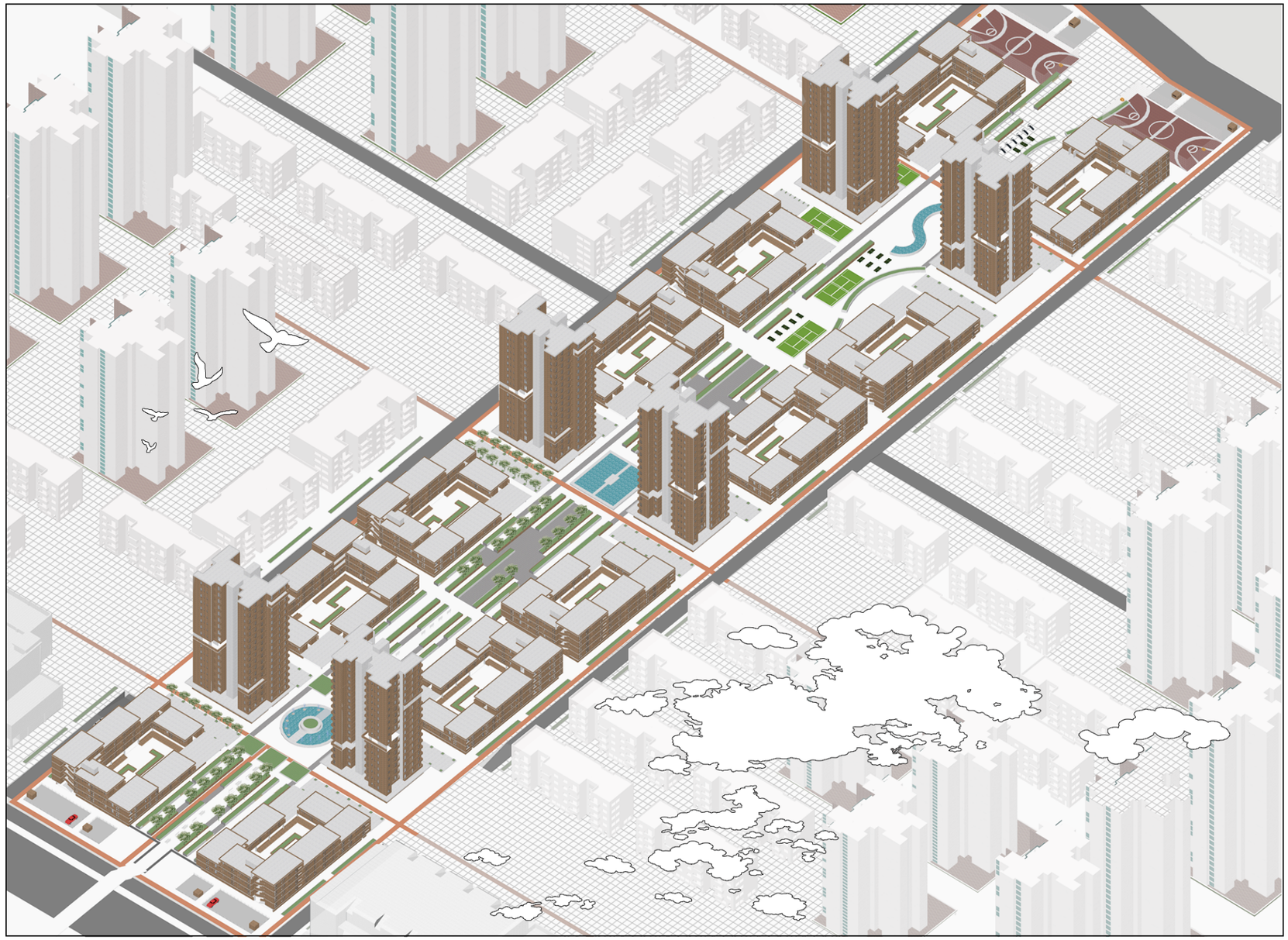
Brick boxes group



Brick box



This is a model of a brick making machine, which can be simply divided into a waiting area and a pressing area. The suppression zone consists of a moment arm and brick boxes. Each suppression zone consists of 8 brick boxes. The brick box determines the size of the turn, and its surface determines its texture, so just changing the side of the brick box can create bricks with different textures



After That……