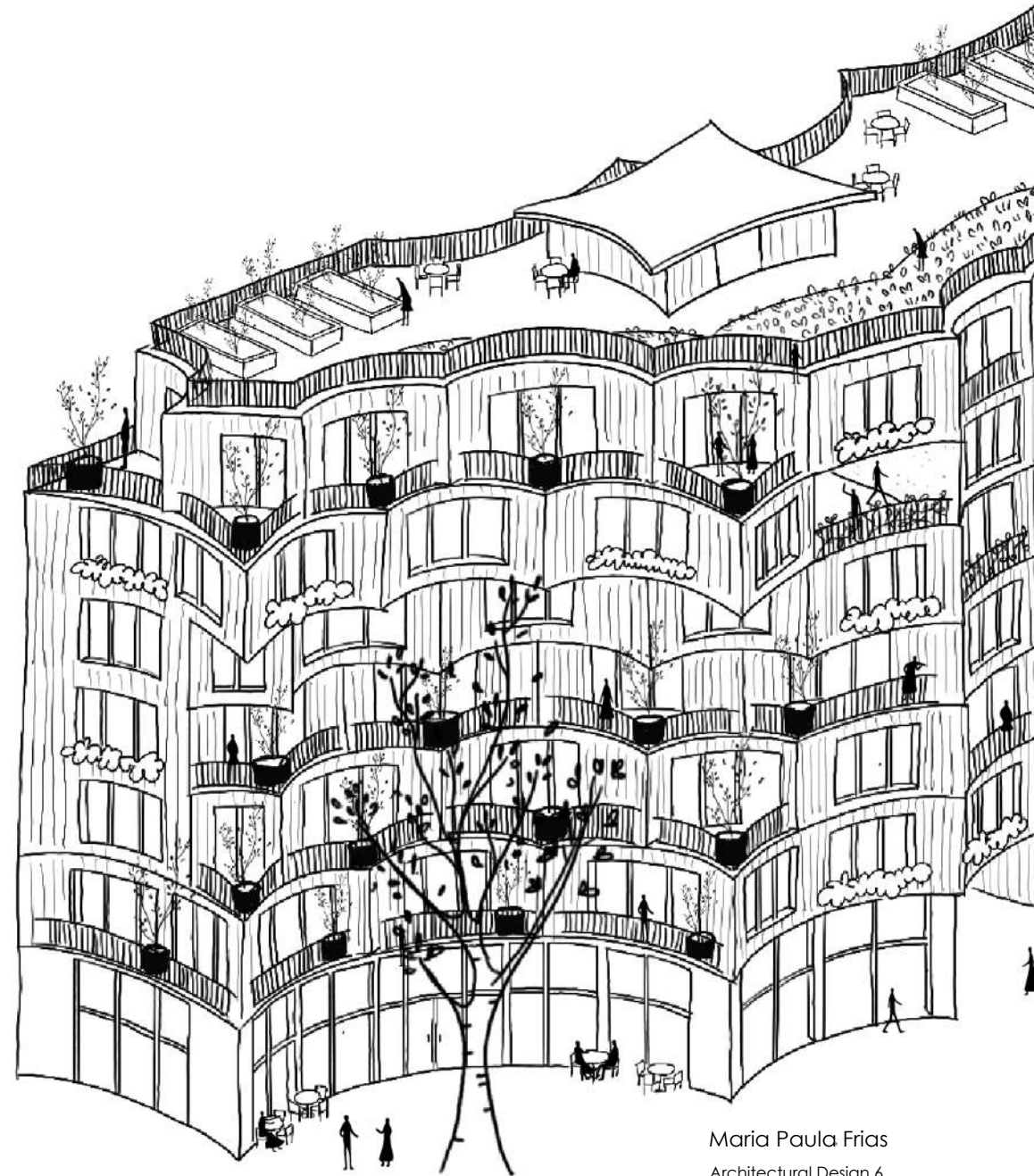


# U Zeleně

lofts



María Paula Frias  
Architectural Design 6  
Wertig / Kopecky Studio

2024



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2023-2024

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Title/theme of the project:

DENSITY INDUSTRIAL

## PROJECT BRIEF DESCRIPTION:

## BRIEF:

"A long-term empty house is a problem for its locality, it attracts negative social phenomena, deteriorates the quality of living of the neighbors, and also reduces the value of the surrounding properties. New and new areas are being built up, and it is not only in the city center that empty properties are waiting to be used. No one knows how many dilapidated properties there are in cities, because no database of vacant properties has existed until now." Says Empty Houses platform.

## MAIN GOAL OF THE PROJECT:

The project aims to reflect more broadly on the extent and impact of the empty house phenomenon. It should somehow identify a threshold when it is no longer worth renovating a dilapidated house and it is better to build a completely new house, including a redefinition of its function.

The project is thus divided into two parts. For the first 3-4 weeks, students analyze the phenomenon of empty houses in Prague (they classify the buildings into categories, estimate the approximate area occupied by each category, where each empty house is located, etc. They then compare the data with examples from other cities in the Czech Republic or abroad. This information will be used in the design phase.

### Local Context

The site is situated in the district of Libeň, specifically at the intersection of U Balabenky and Sokolovská streets. Libeň is mostly a residential area characterized like most neighborhoods in Prague by its mix of historical architecture and modern developments. The neighborhood is known for its diverse community, colorful streets and convenient access to amenities.

### Location

50° 6' 14.1", 14° 28' 45.1"

The site is situated in the district of Libeň, specifically at the intersection of U Balabenky and Sokolovská streets.

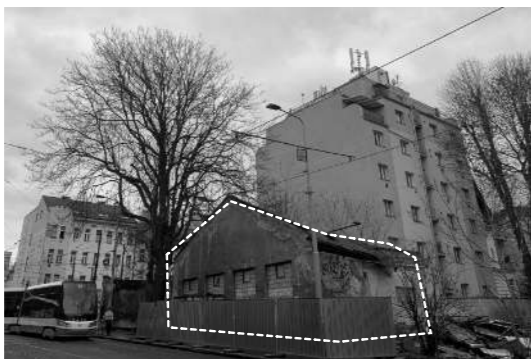
### Topography

The topography of the site is mostly flat terrain with a small slope starting from the southeast and descending towards the northwest corner of the residential block where the proposed building will be situated.

The residential block itself forms a rectangle, measuring approximately 102 meters by 112 meters, with the longer side oriented towards the south, primarily southeast.

### Accessibility

The site is accessible via a sidewalk on Sokolovska, with access for both cars and pedestrians into the courtyard. There's also a direct pedestrian access near U Balabenky street, close to Balabenka Tram station. To the north, it's near Palmovka Metro station and in front of Balabenka tram station. Additionally, Palmovka tram station and bus stations are nearby. Car access is available through the northeast entrance with parking behind the building.

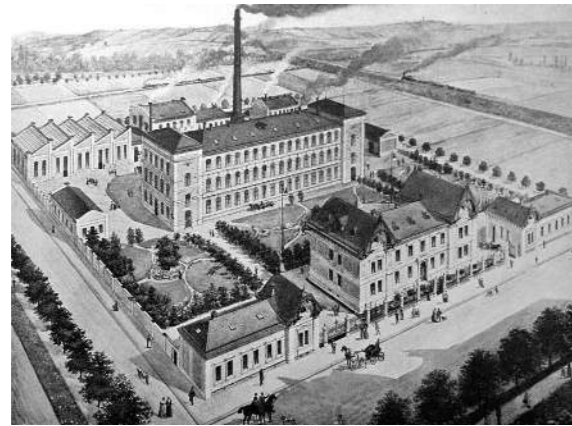


### Historical Context

The site is located in Prague's Libeň neighborhood in this specific block which has a rich history dating back to the late 19th century. Originally established in 1892, the area was a place for industrial activities. It was a Building of a branch of a Viennese factory called P. Ladstätter & Söhne, which focused mainly in hat production. The owner was Mathias Veider.

Throughout its history, the factory underwent several transformations and expansions, notably in 1903 with the addition of modern reinforced concrete monolithic extensions. Further renovations were done in the 1930s, with the site accommodating diverse functions, such as the Nalos and Mansfeld machine joinery.

Nowadays the block is mostly composed of residential developments and only a few shops.



P. Ladstätter & Söhne's factory, Libeň 1898.



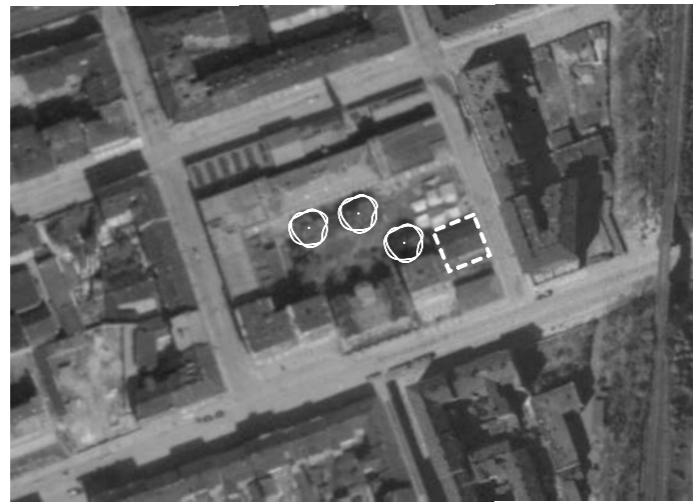
U Balabenky / Sokolovská square block 2024



Evolution of the site over the years



1938



1945



1988



2001



2010



2023

Site Plan




1:4000

Metropolitan map



Metropolitan plan overlaid

-  Buildable Residential
-  Buildable recreational

Transportation



STOPS AND PID LINES

Stops

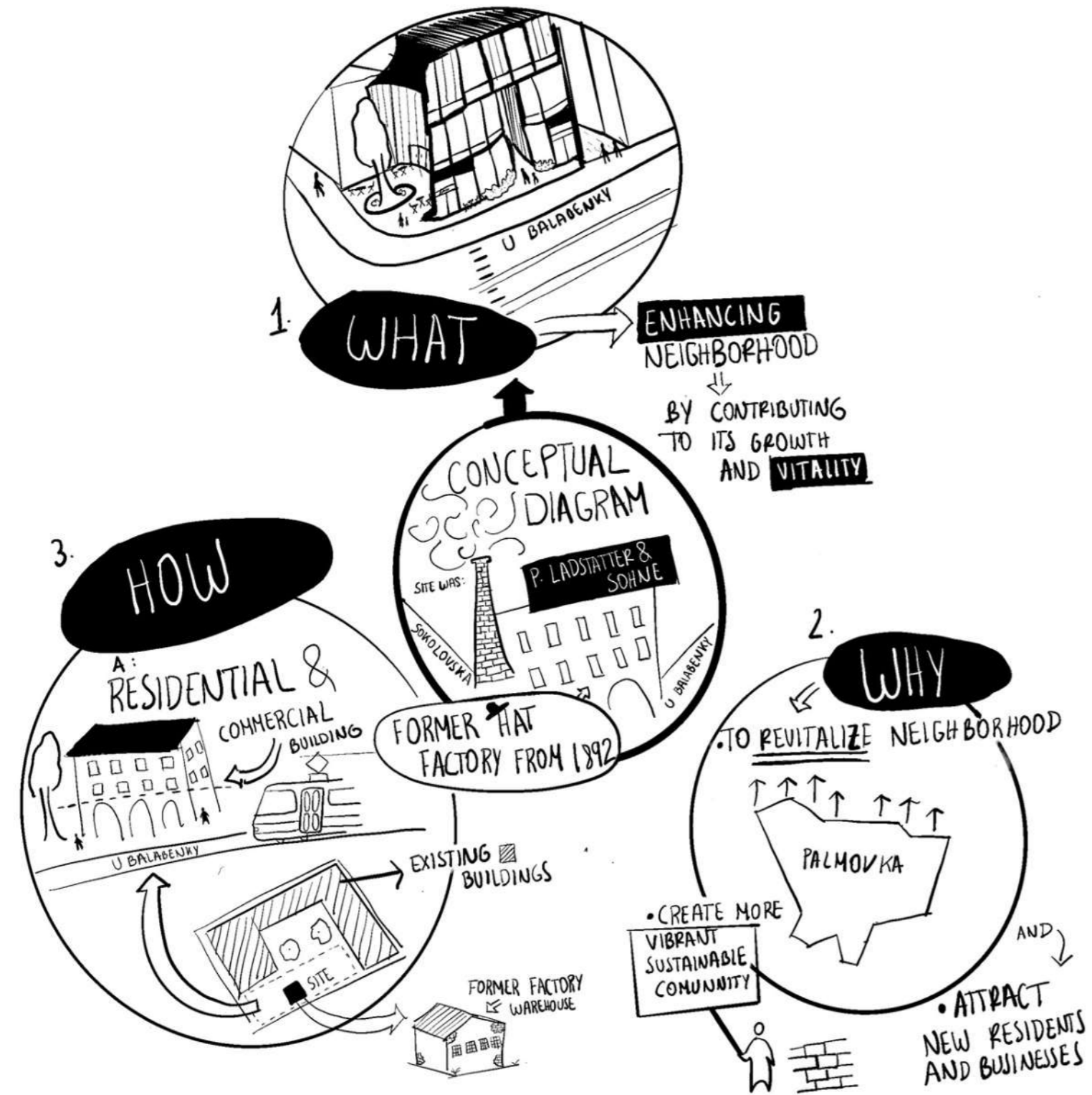
-  Tram stop
-  Bus stop
-  Metro entrance

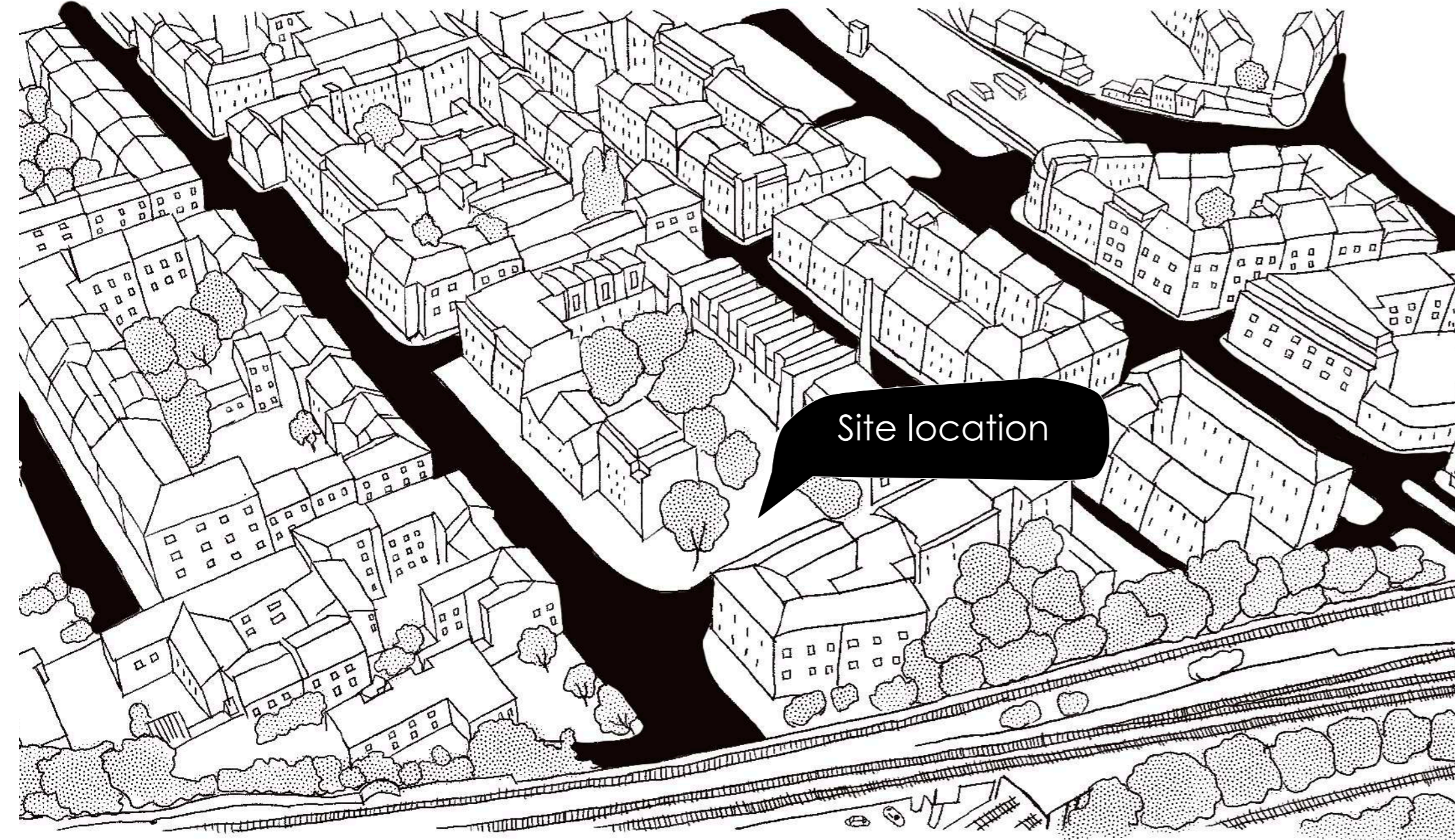
Lines

-  Tram Line
-  Bus Line
-  Train Line

Metro

-  Metro lines B
-  Metro station B



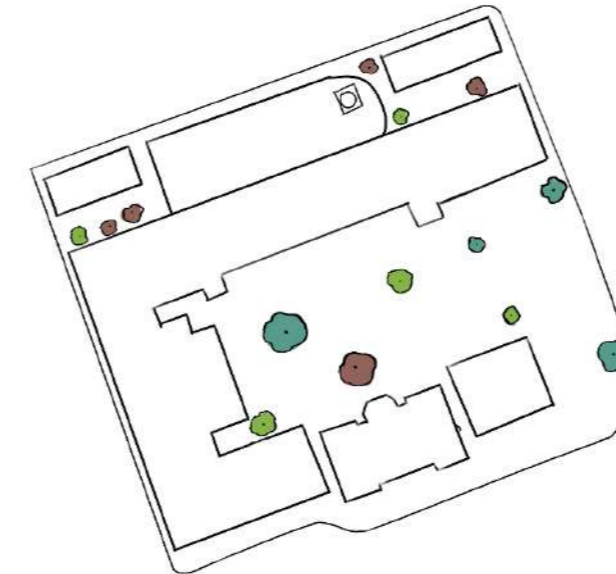


Site location

**BEFORE**

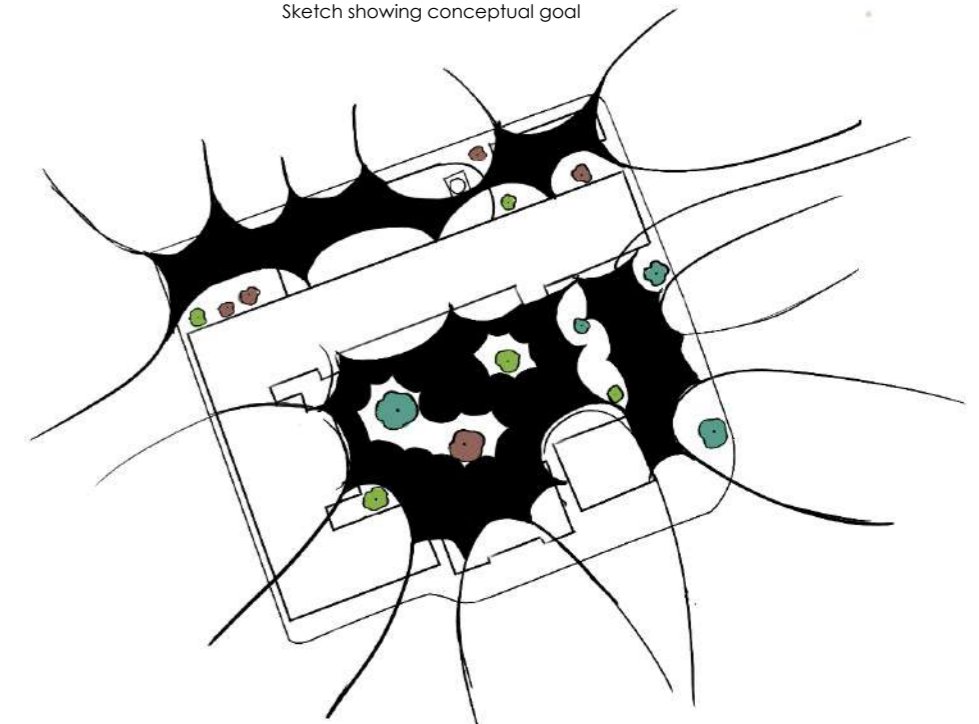
Concept development

Current residential block with existing greenery

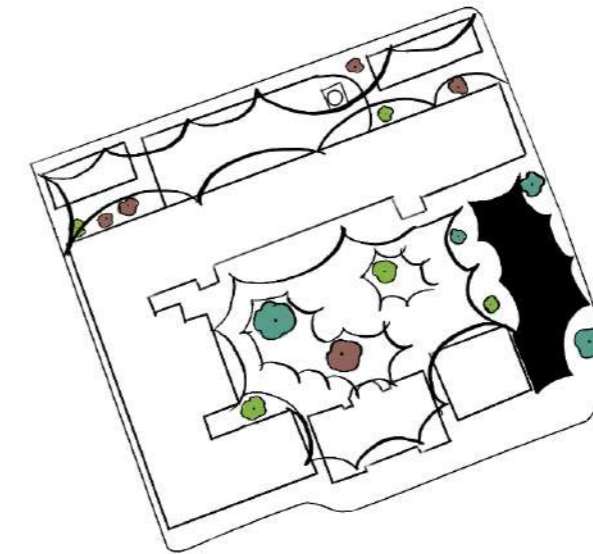


The main goal from the beginning was to design a building volume that wouldn't be a solid structure enclosing the entire residential block. Instead, the goal was to create a volume that would serve as a welcoming public space on the ground floor, avoiding the complete enclosure of the block.

Sketch showing conceptual goal



To achieve this, existing trees on the site were used as a reference point. Additionally, it was essential to respect the greenery of the area, given its abundance within the residential block. Therefore, incorporating the trees into the design not only helped to preserve the greenery but also contributed to shaping the desired shape.



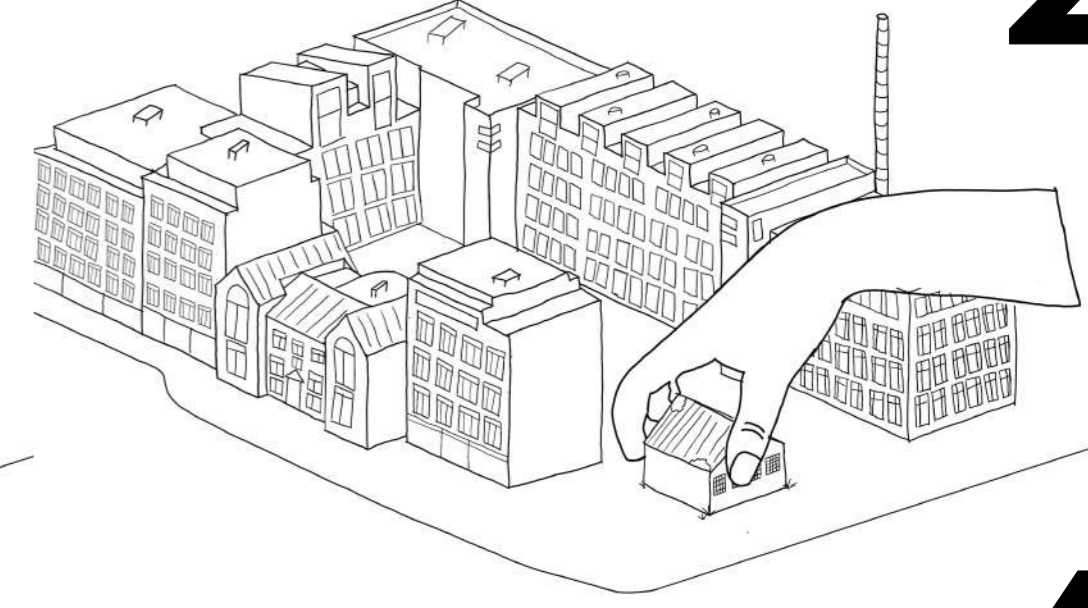
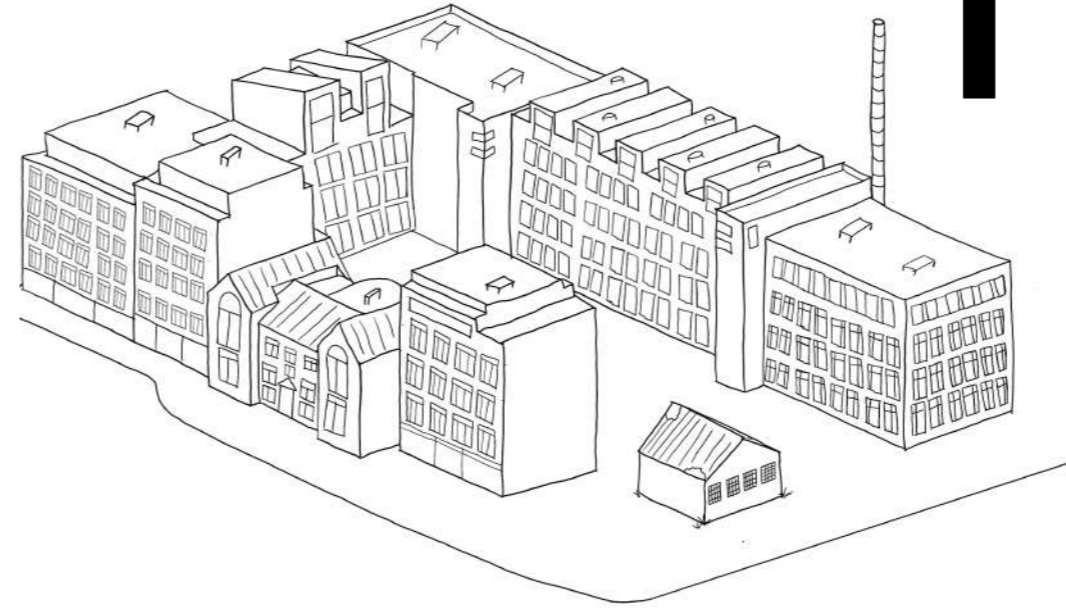
Top view of proposed project



Right now, there's an old warehouse in the site, The warehouse belonged to an 1800s factory but has no been possible to contact the owner in all this time and It is currently unused and to the border of collapse

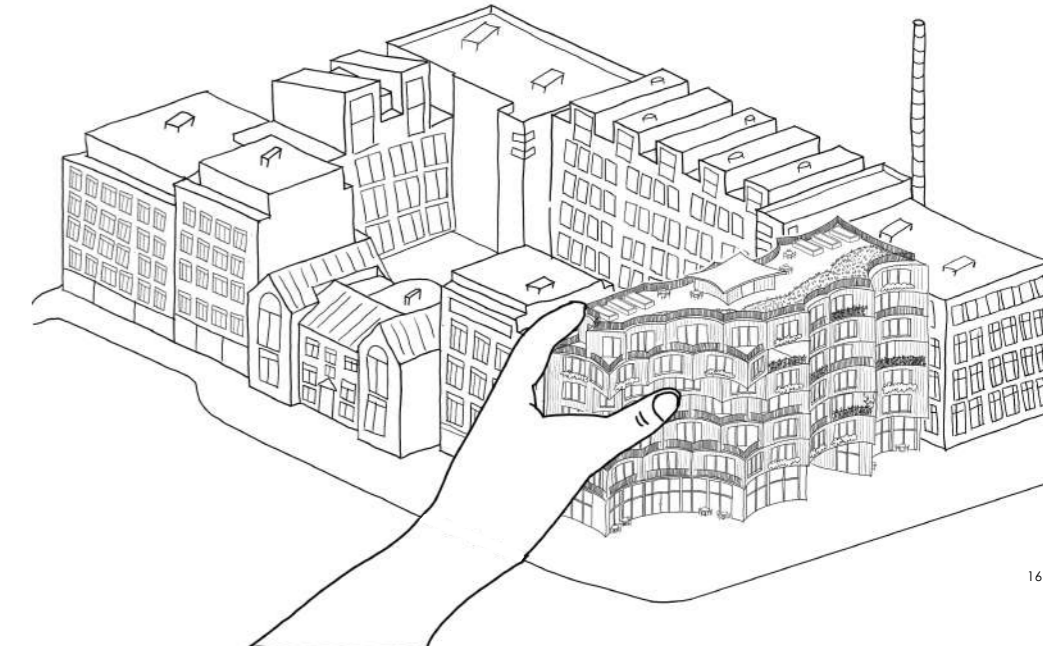
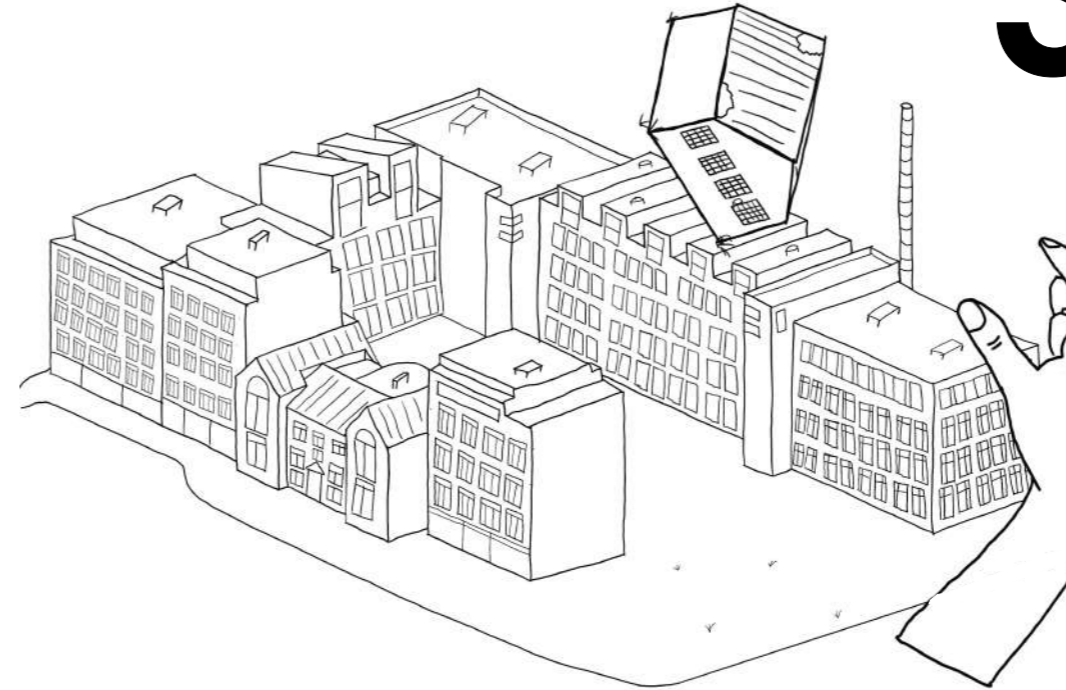
The plot eventually will become empty .

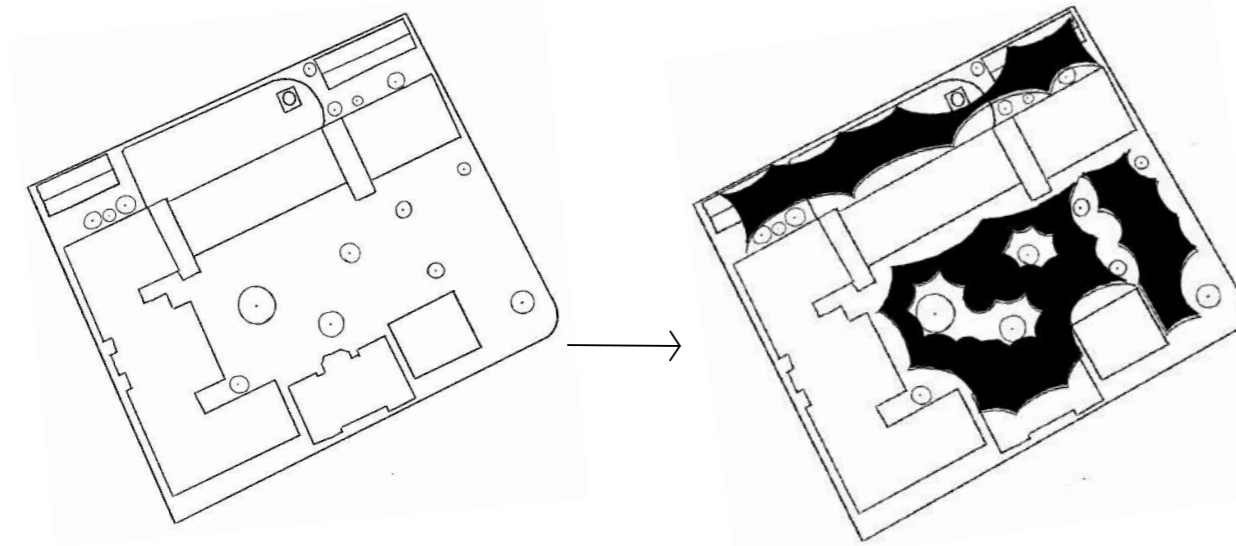
Plan



And one of the solutions for reusing the space and add to the community and the neighborhood will be to add a brand new building reusing the waste of the old warehouse.

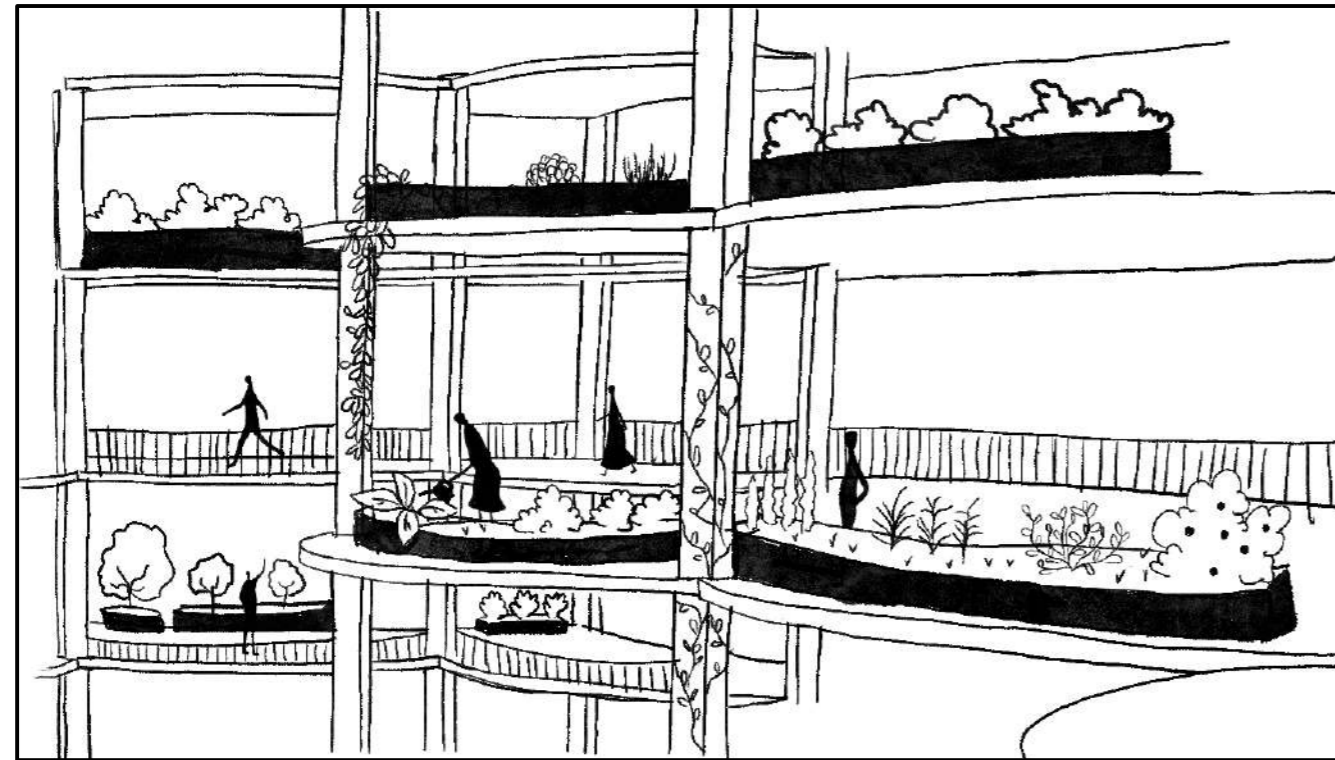
The new building will be a mixed-use building, with the overall shape designed to not enclose the entire block. Instead, it respects and incorporates the surrounding greenery, creating a welcoming atmosphere for both the site and future residents.



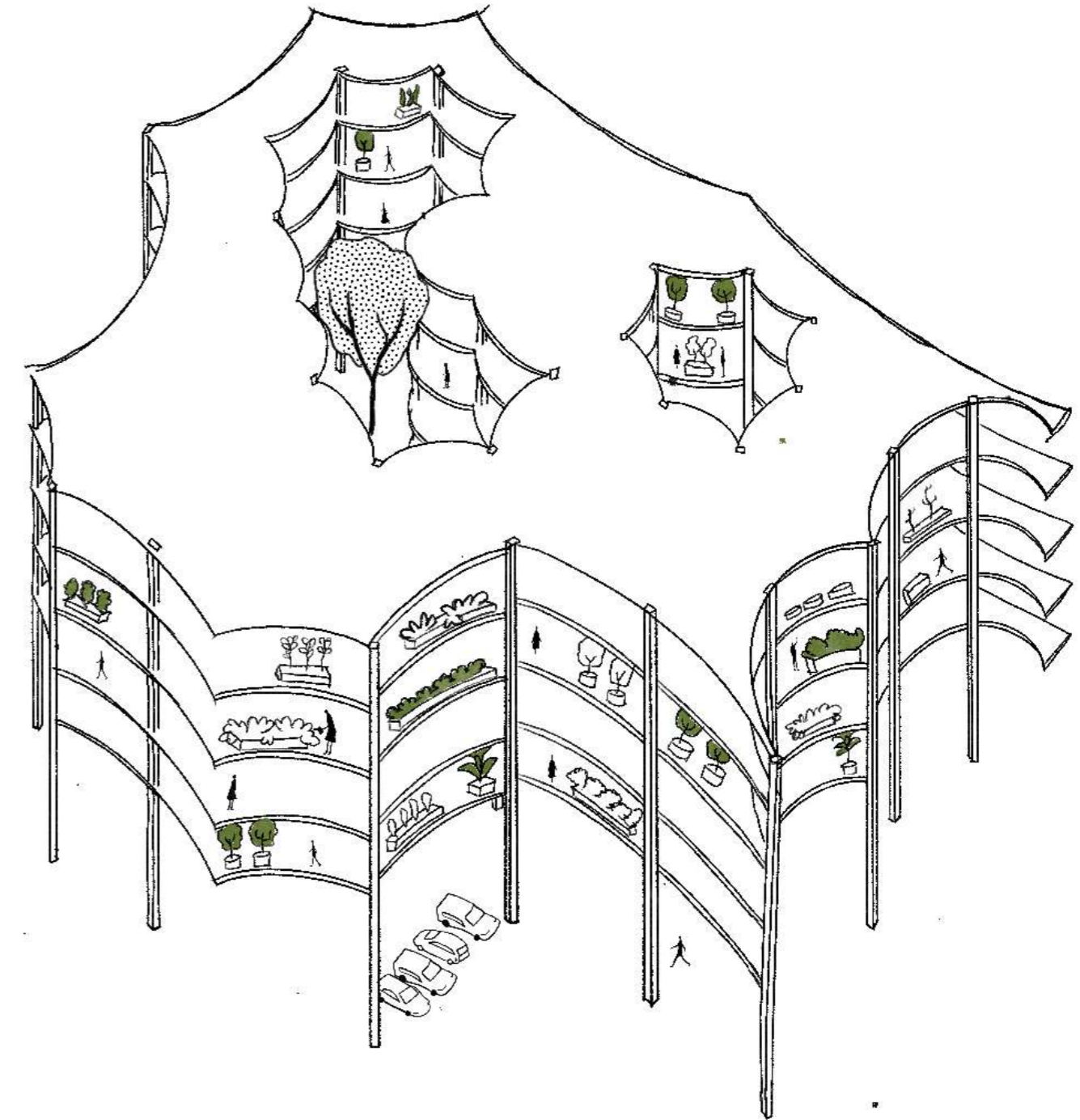


Existing block with existing greenery

Embracing trees and existing greenery in the site

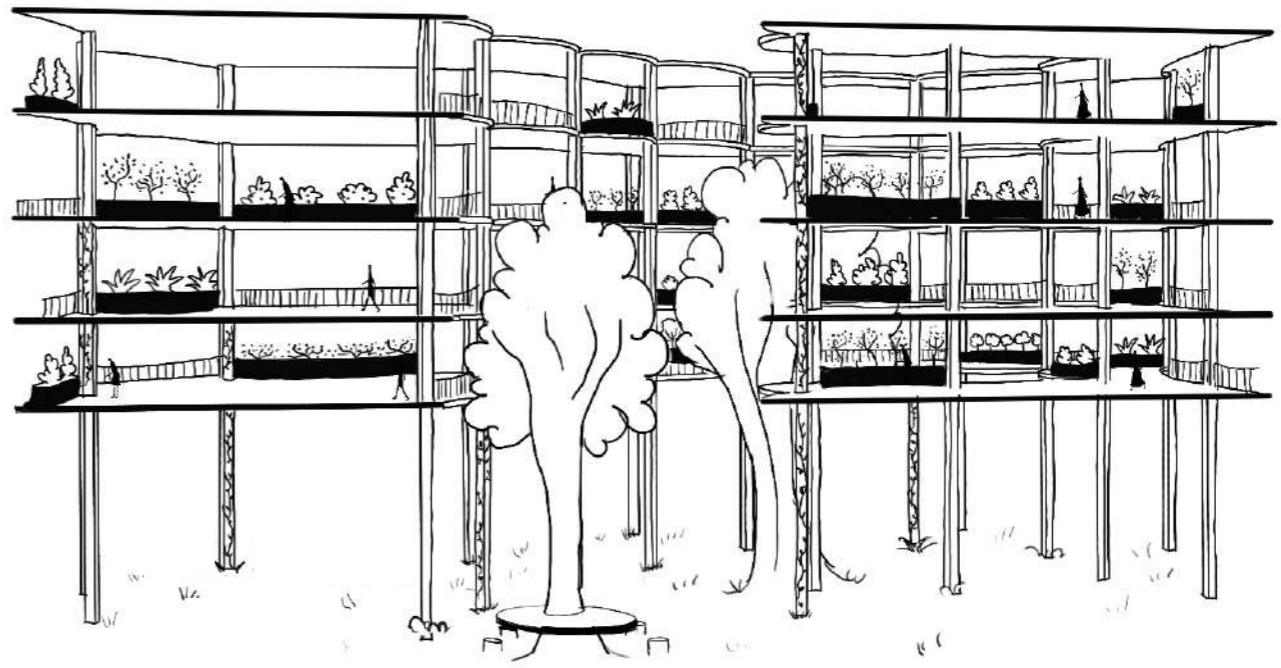
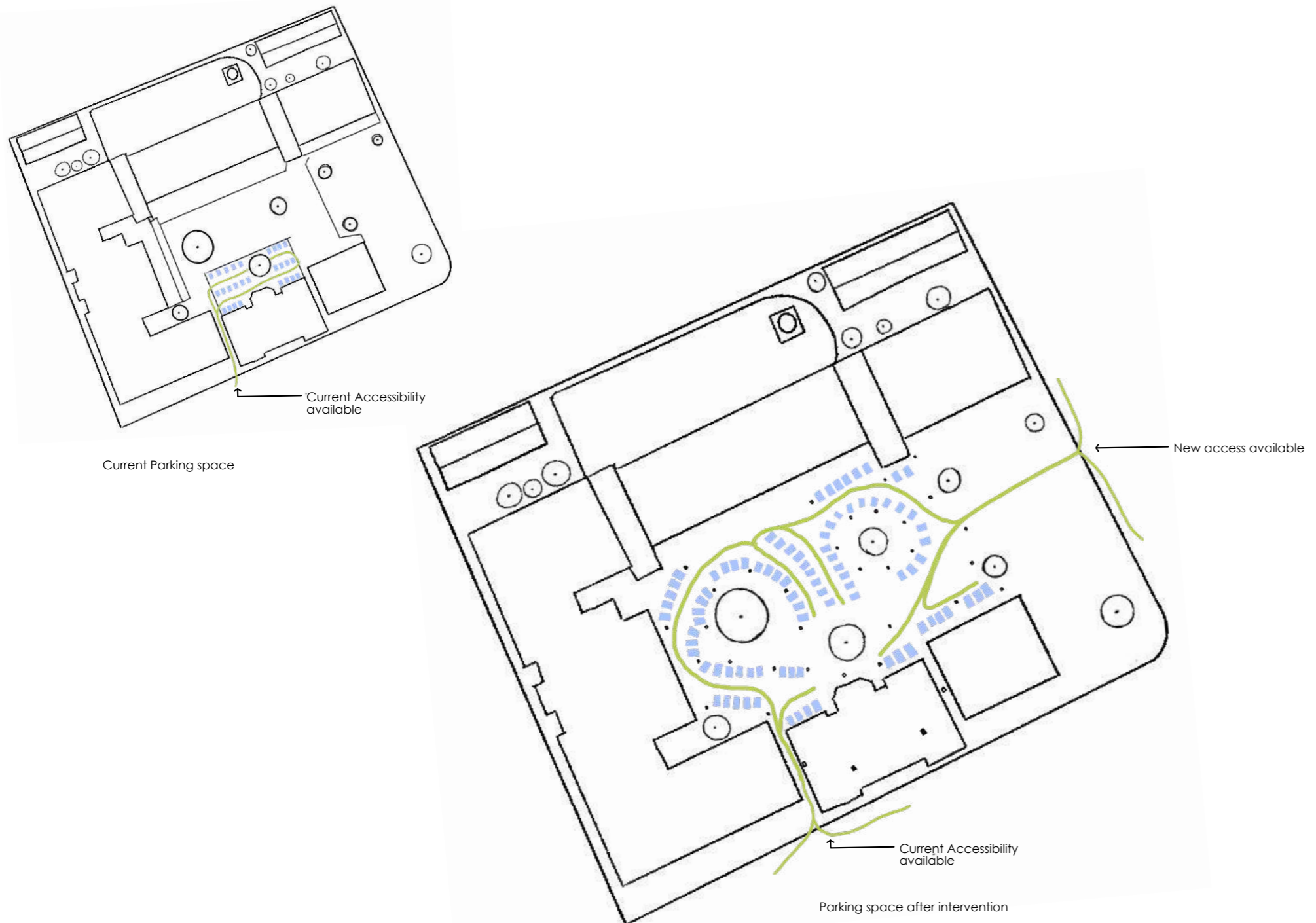


Ideally This platforms will turn into a vertical garden providing more space for greenery for the current residents so everyone can have an access to an outdoor area from now on!

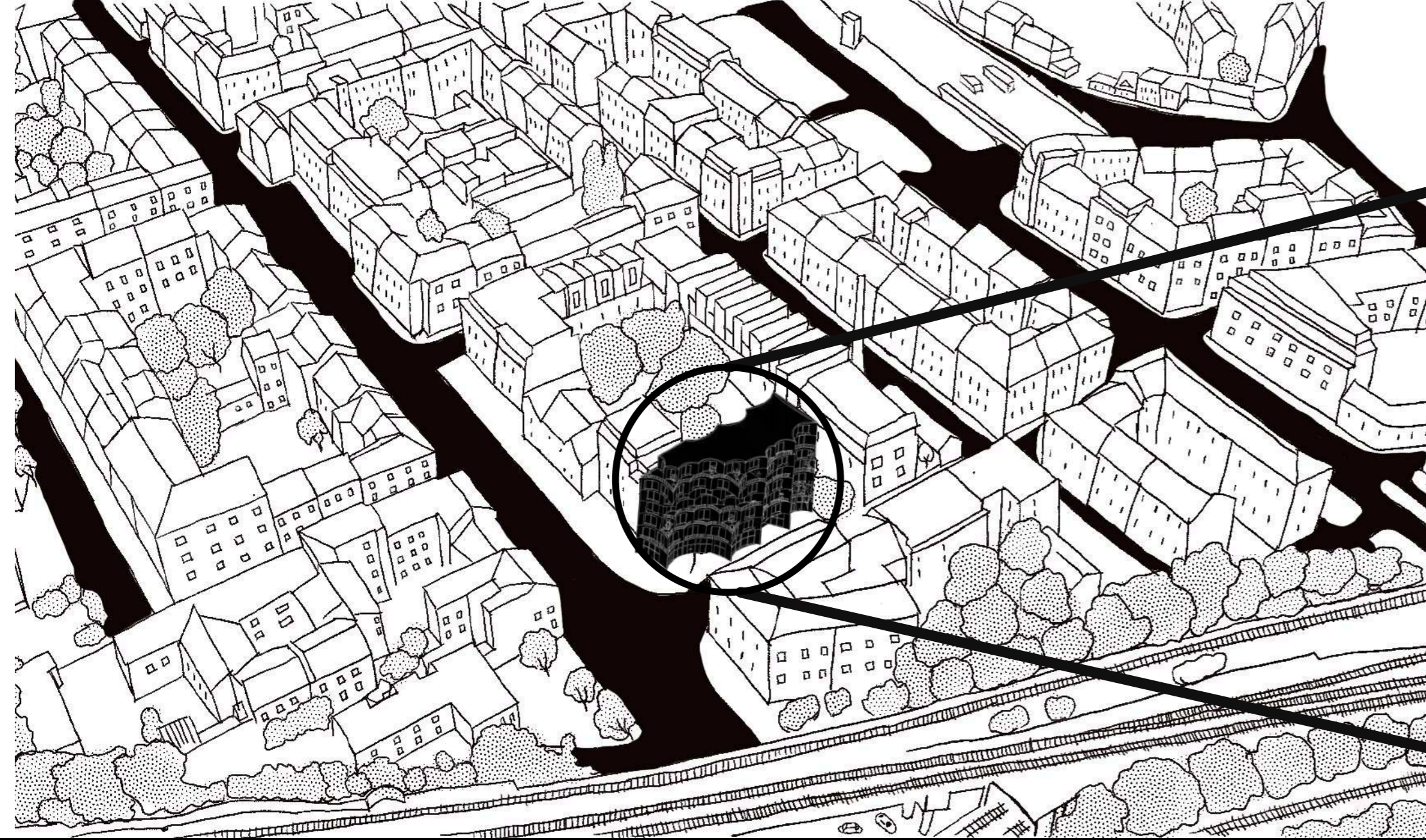


Axonometric view of vertical garden / outdoor Terraces

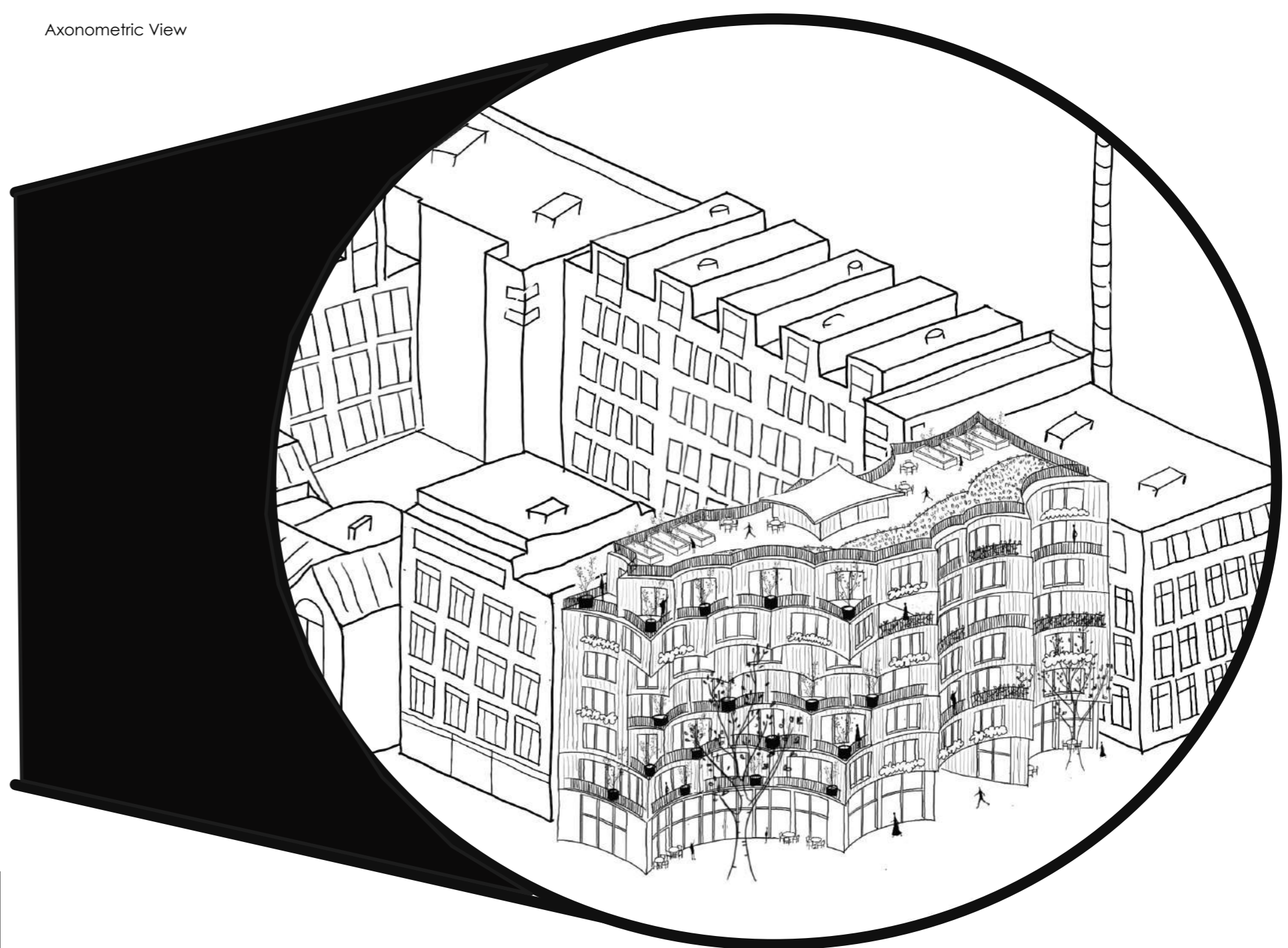




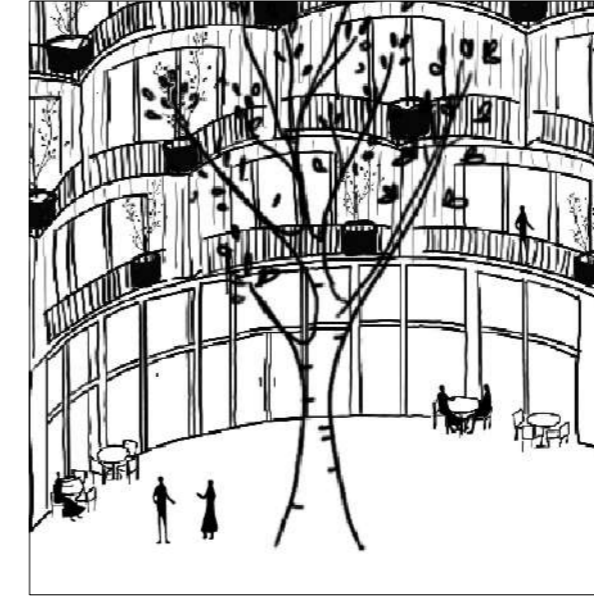
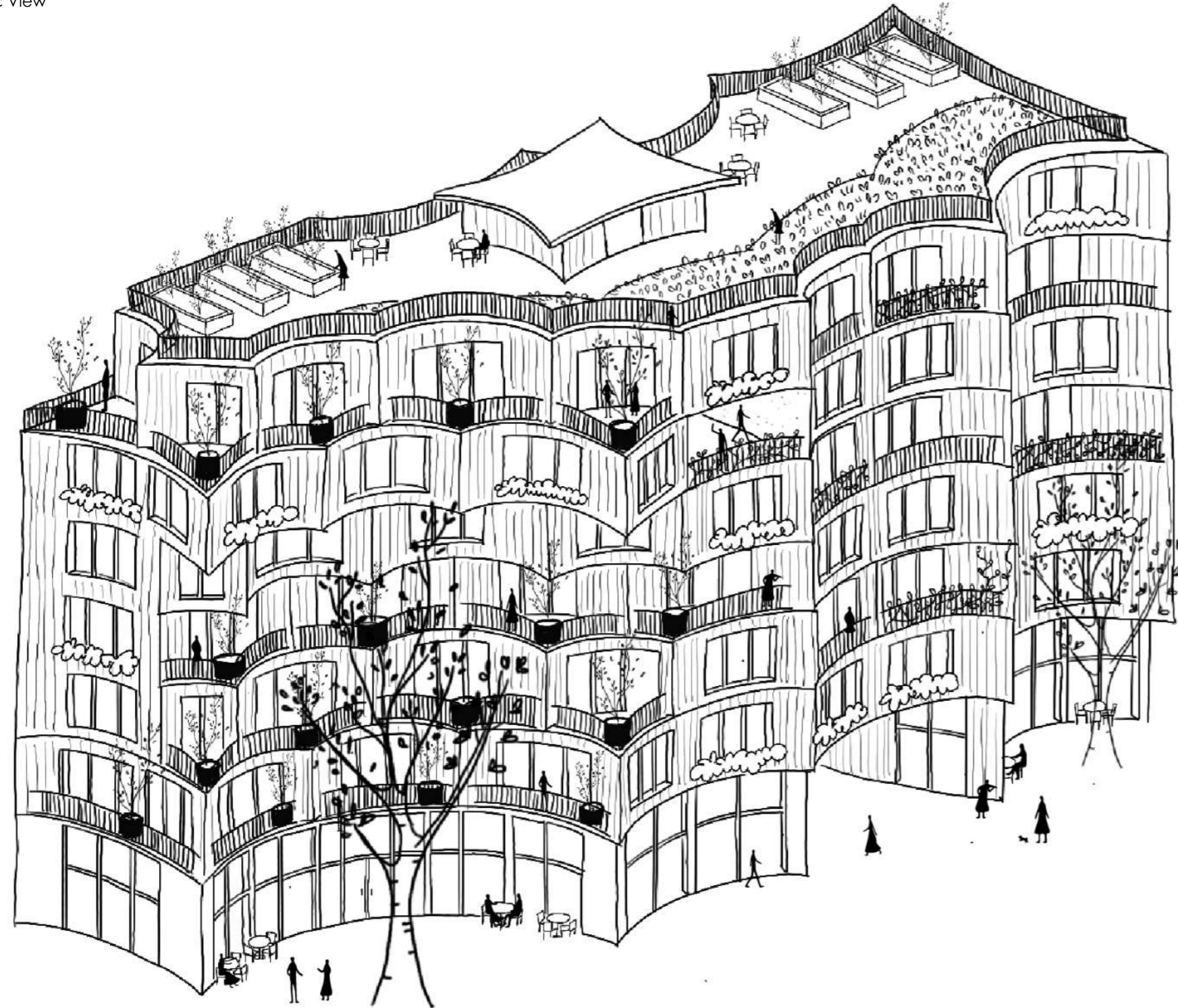
Sectional view of vertical garden



Axonometric View

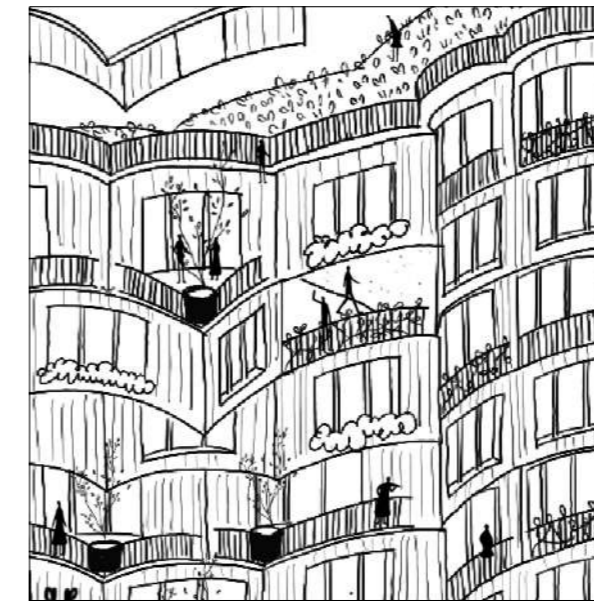


**AFTER**



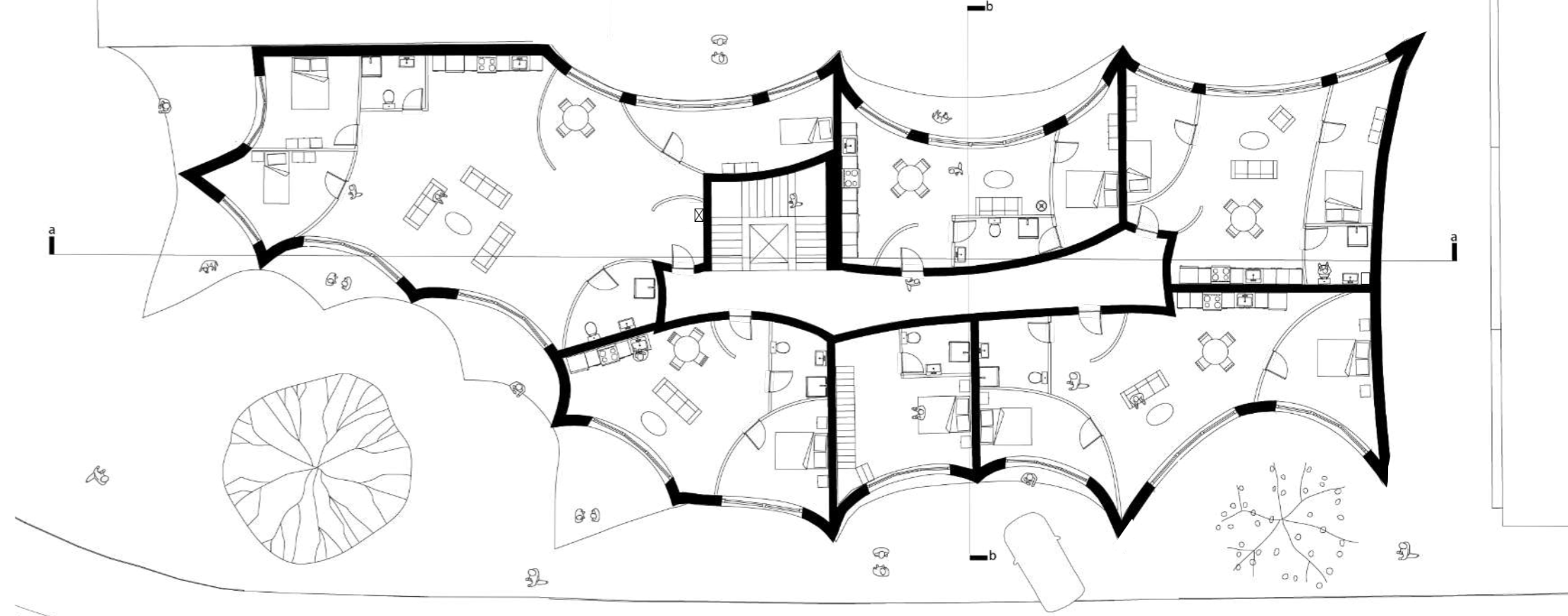
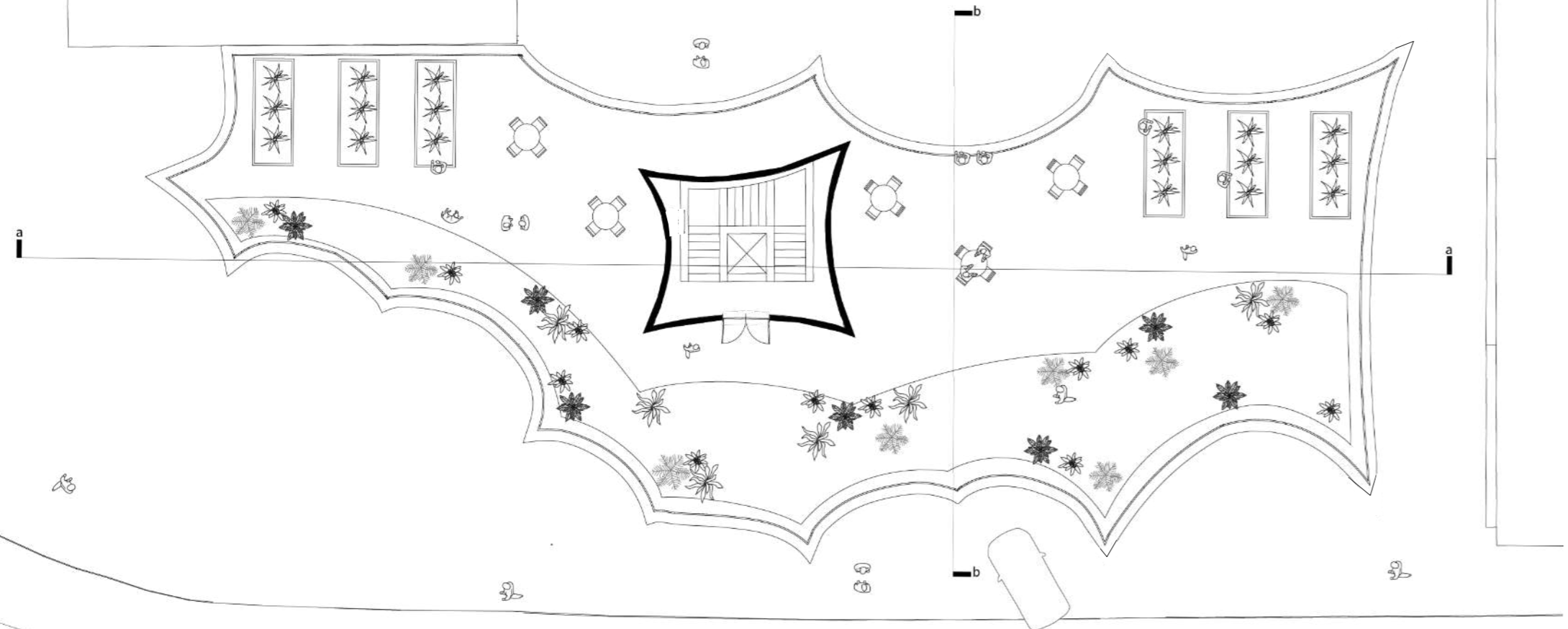
Commercial Space (Ground)

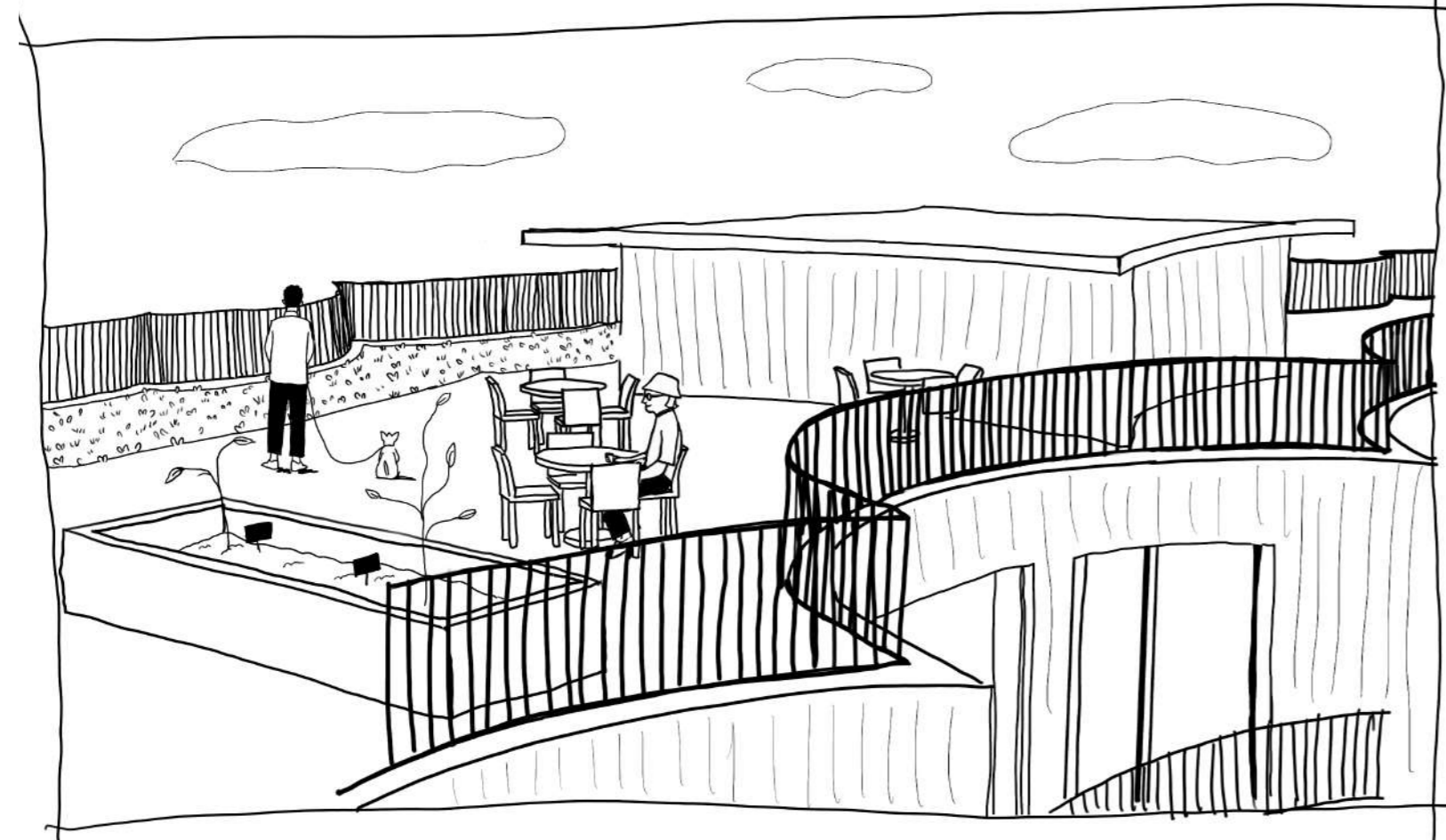
The commercial spaces are situated on the ground floor. They offer versatile opportunities, whether it becomes a cozy restaurant, or a vibrant café, or a convenient store, catering to the local community. This addition will enhance the appeal and value of this predominantly residential area.



Residential Space (Top)

Residential spaces consist of apartments ranging from spacious four-bedroom units to cozy one-bedroom homes. Each apartment is flooded with natural light. Additionally, all residents have access to a green rooftop and some apartments have exit to private balconies too.



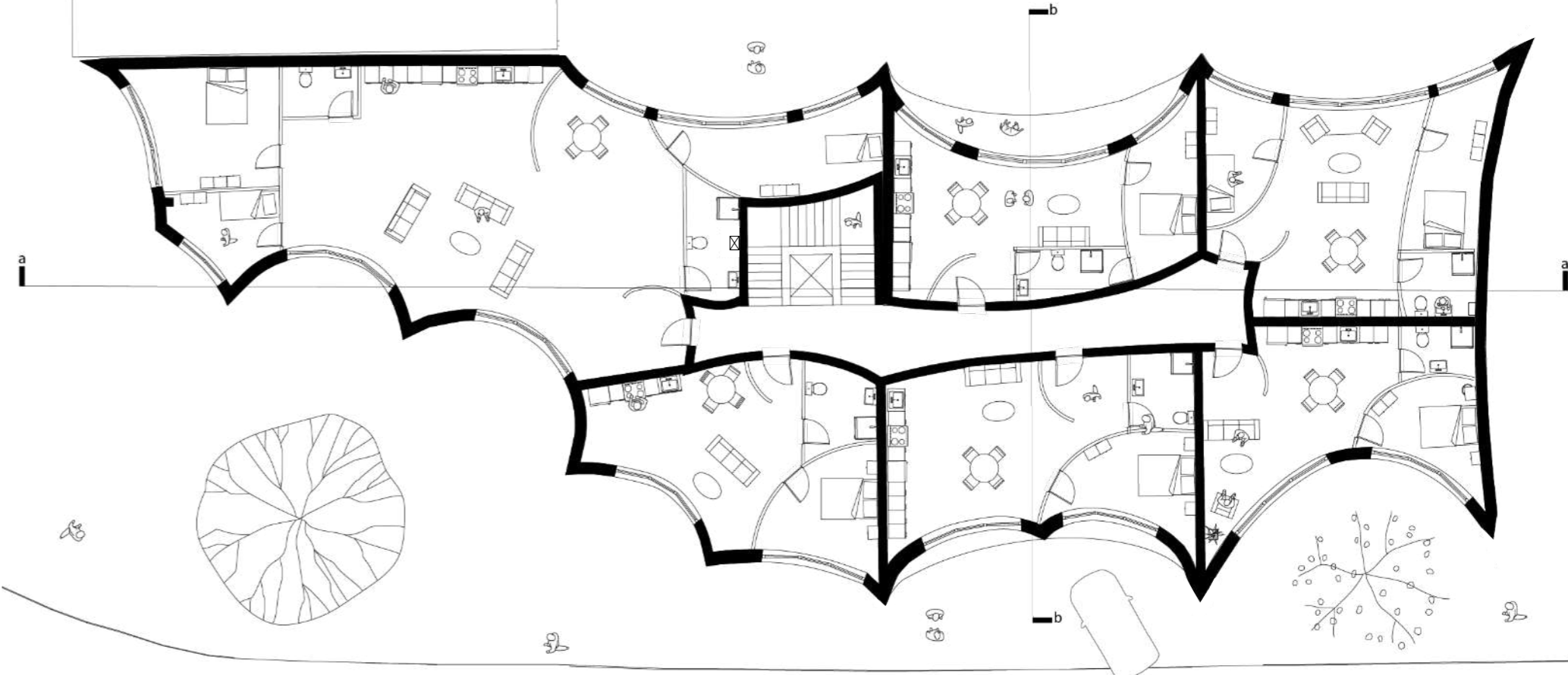
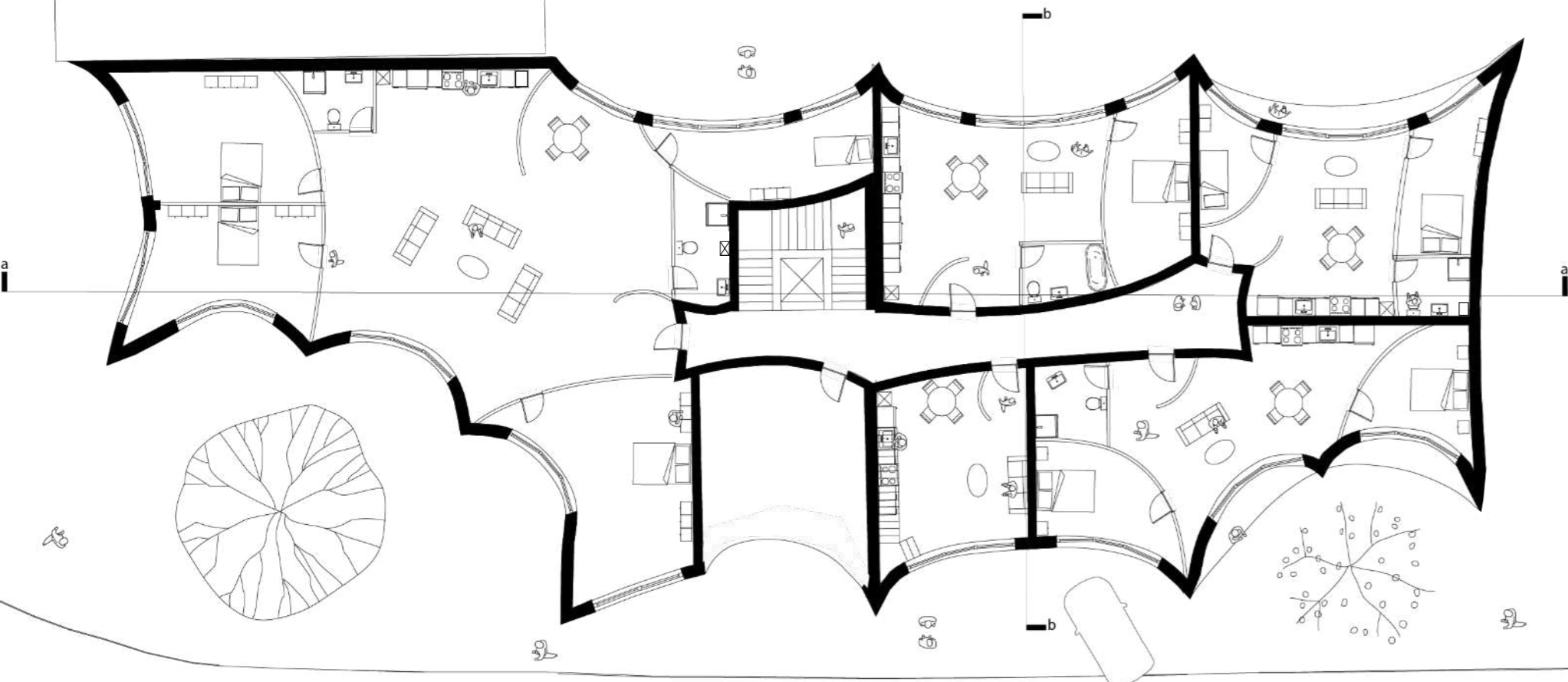


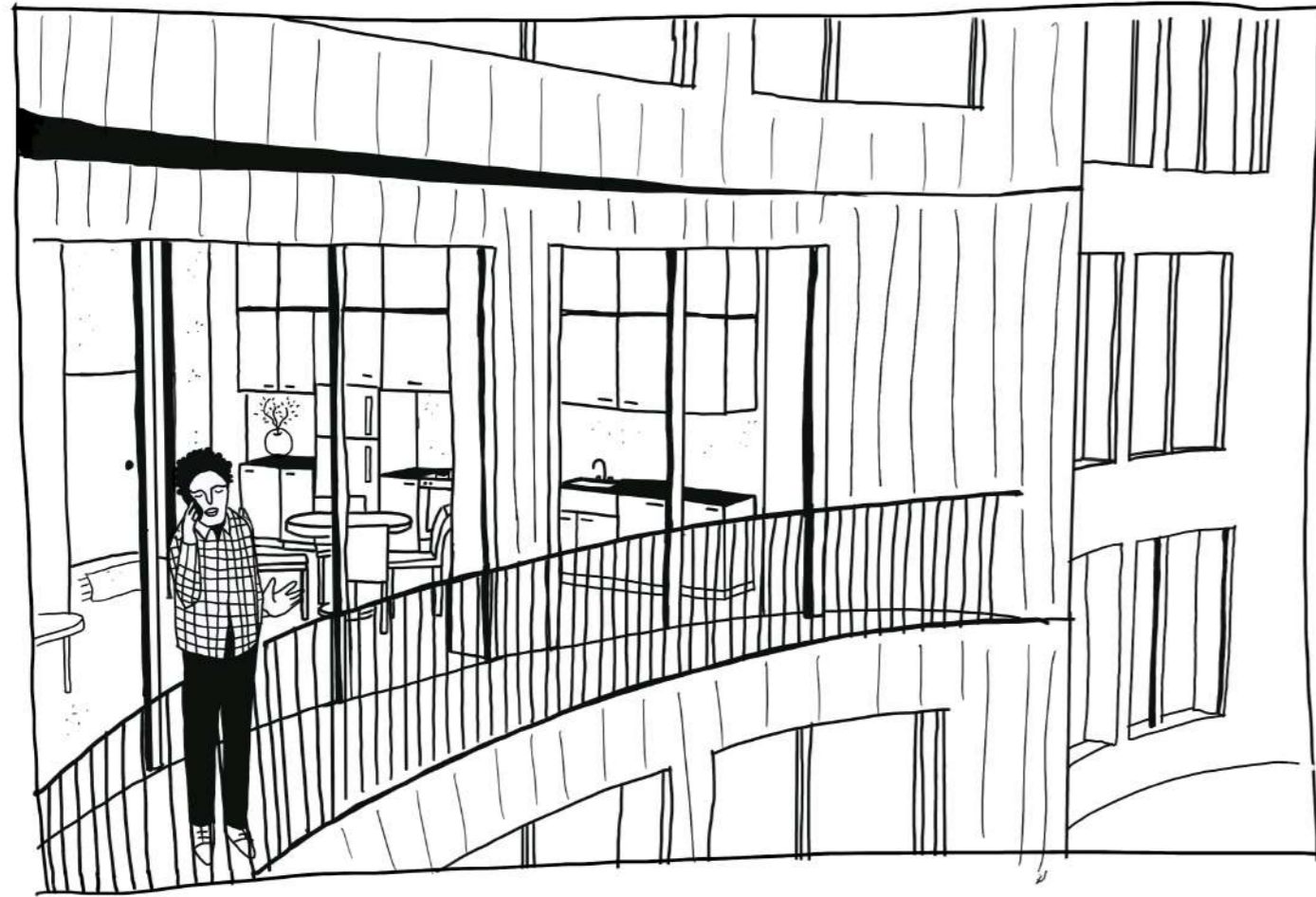
Rooftop scene



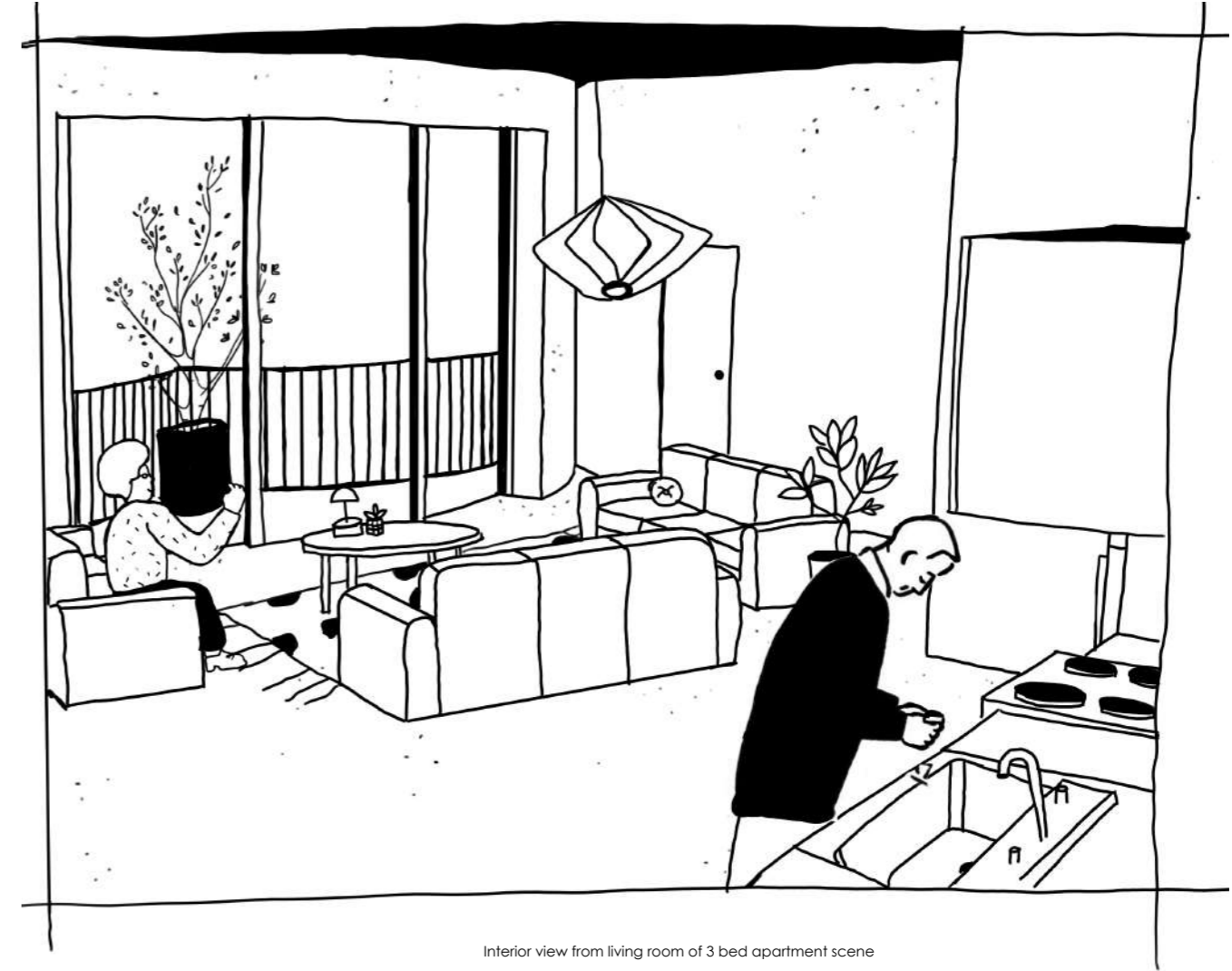
1 Bedroom apartment living room scene





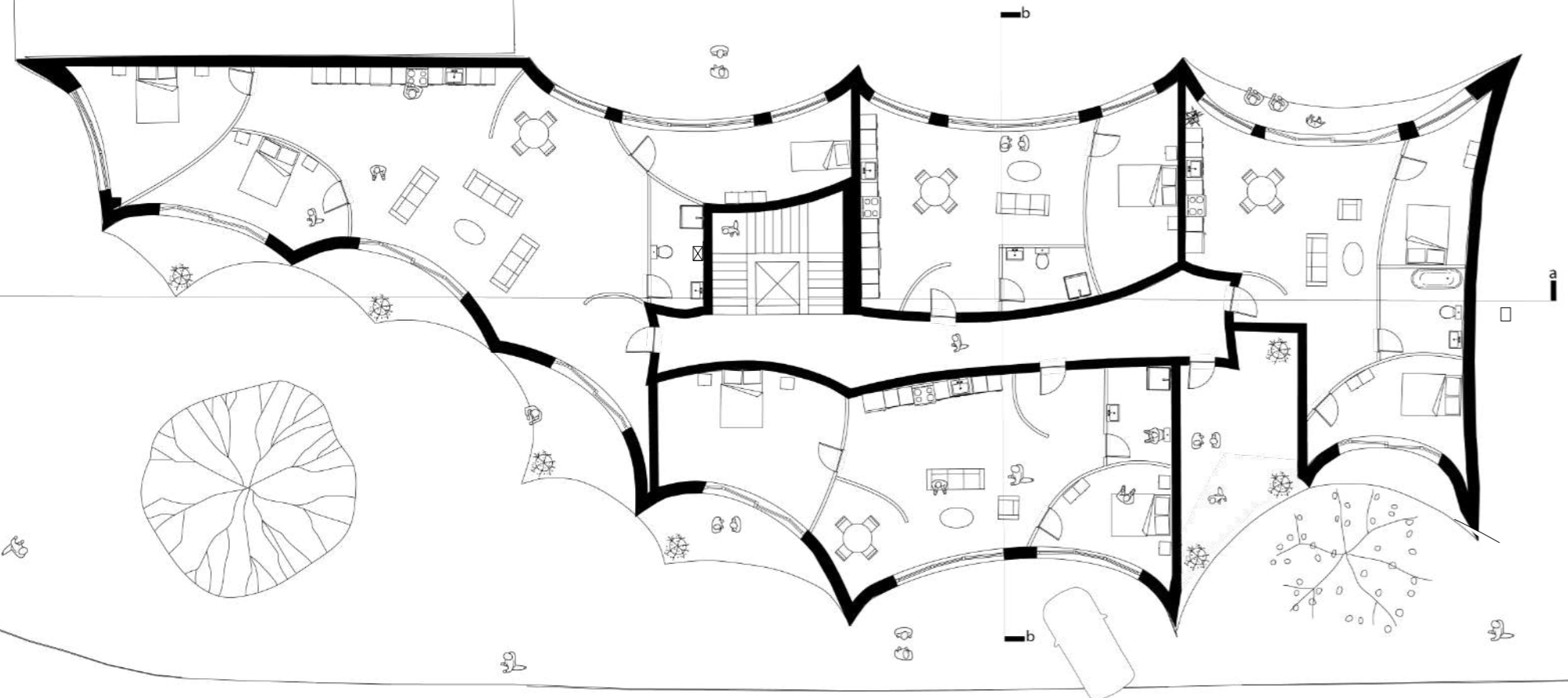


West facade balcony scene

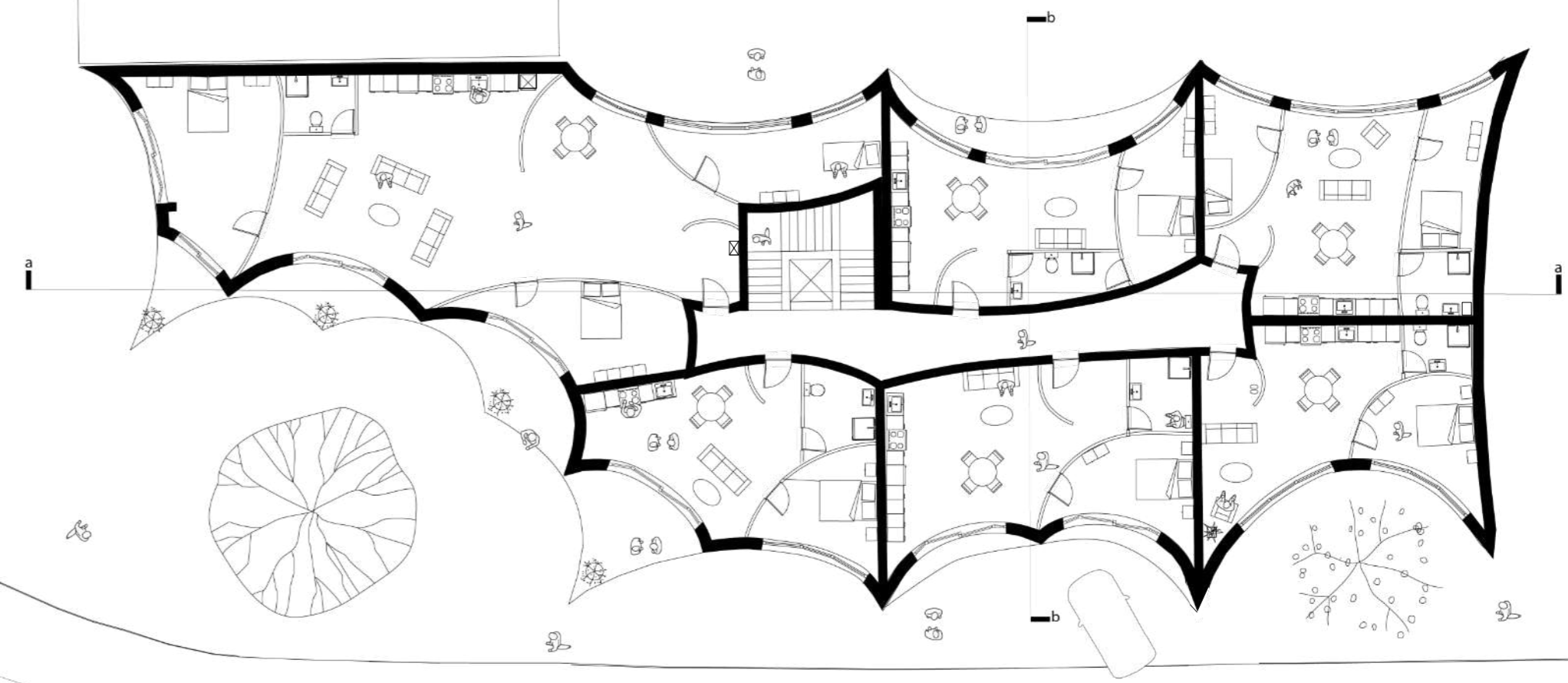


Interior view from living room of 3 bed apartment scene

Third floor plan



Second floor plan

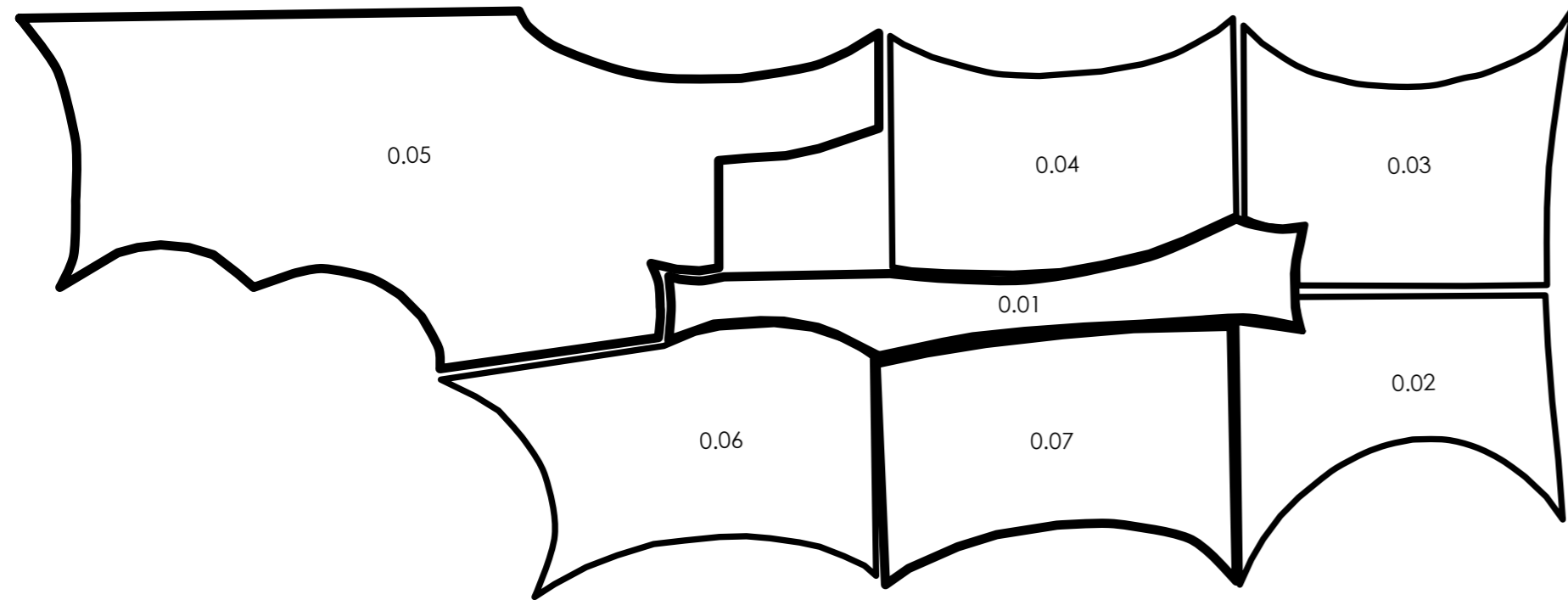




Ground floor restaurant Interior space scene

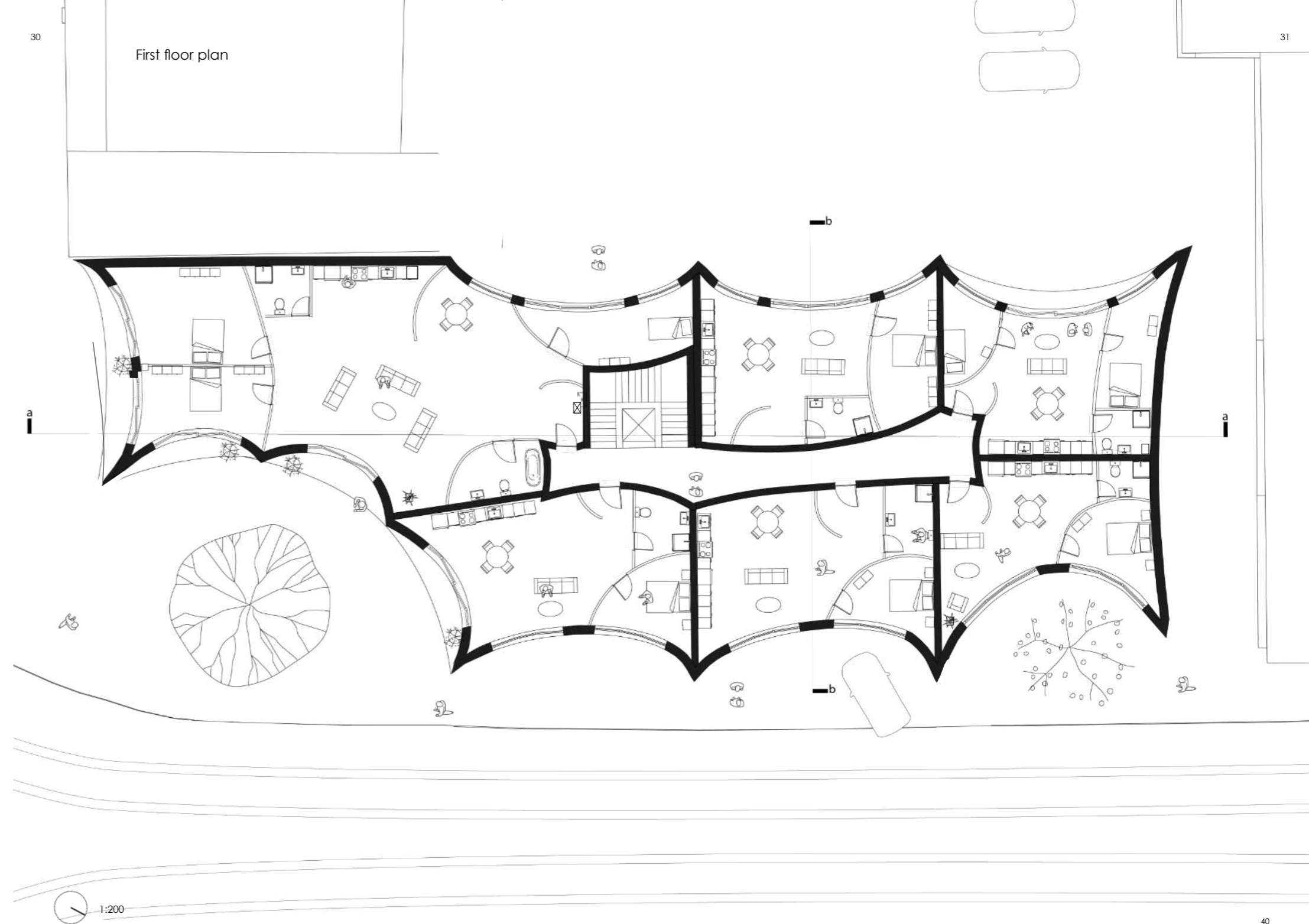


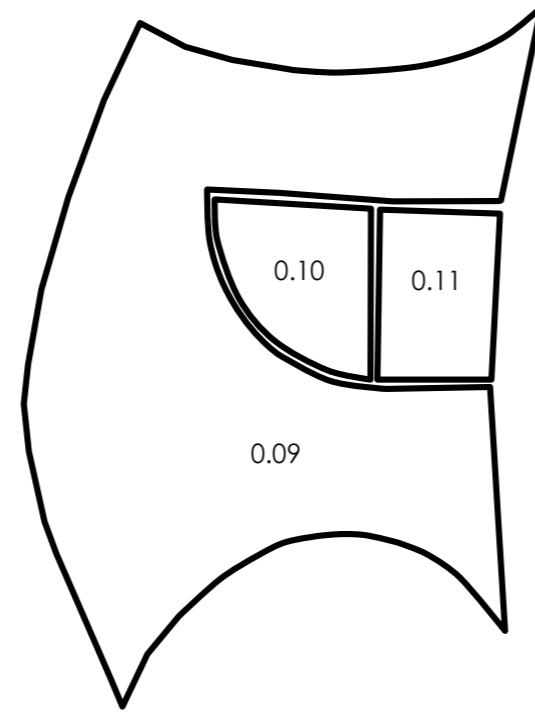
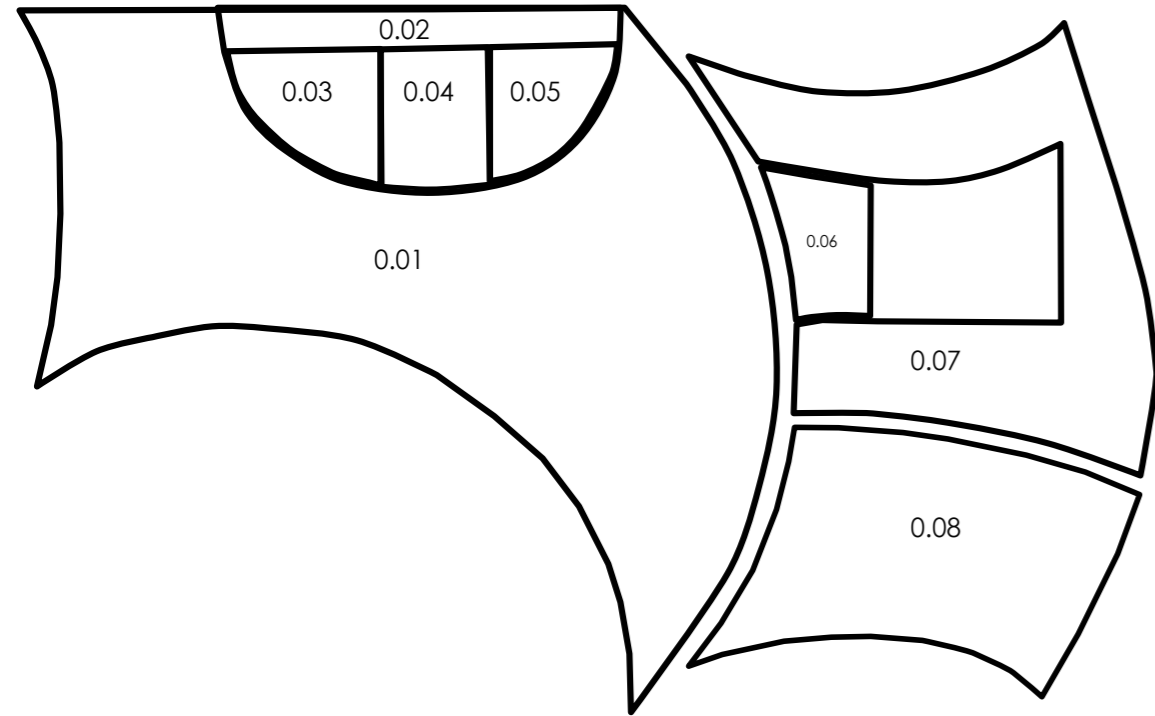
Ground floor restaurant exterior space scene



First floor apartments

0.01	Hall	38.60 m <sup>2</sup>
0.02	1 Bedroom apartment	53.81 m <sup>2</sup>
0.03	2 Bedroom apartment	62.84 m <sup>2</sup>
0.04	1 Bedroom apartment	68.09 m <sup>2</sup>
0.05	3 Bedroom apartment	192.1 m <sup>2</sup>
0.06	1 Bedroom apartment	71.29 m <sup>2</sup>
0.07	Bedroom apartment	69.25 m <sup>2</sup>

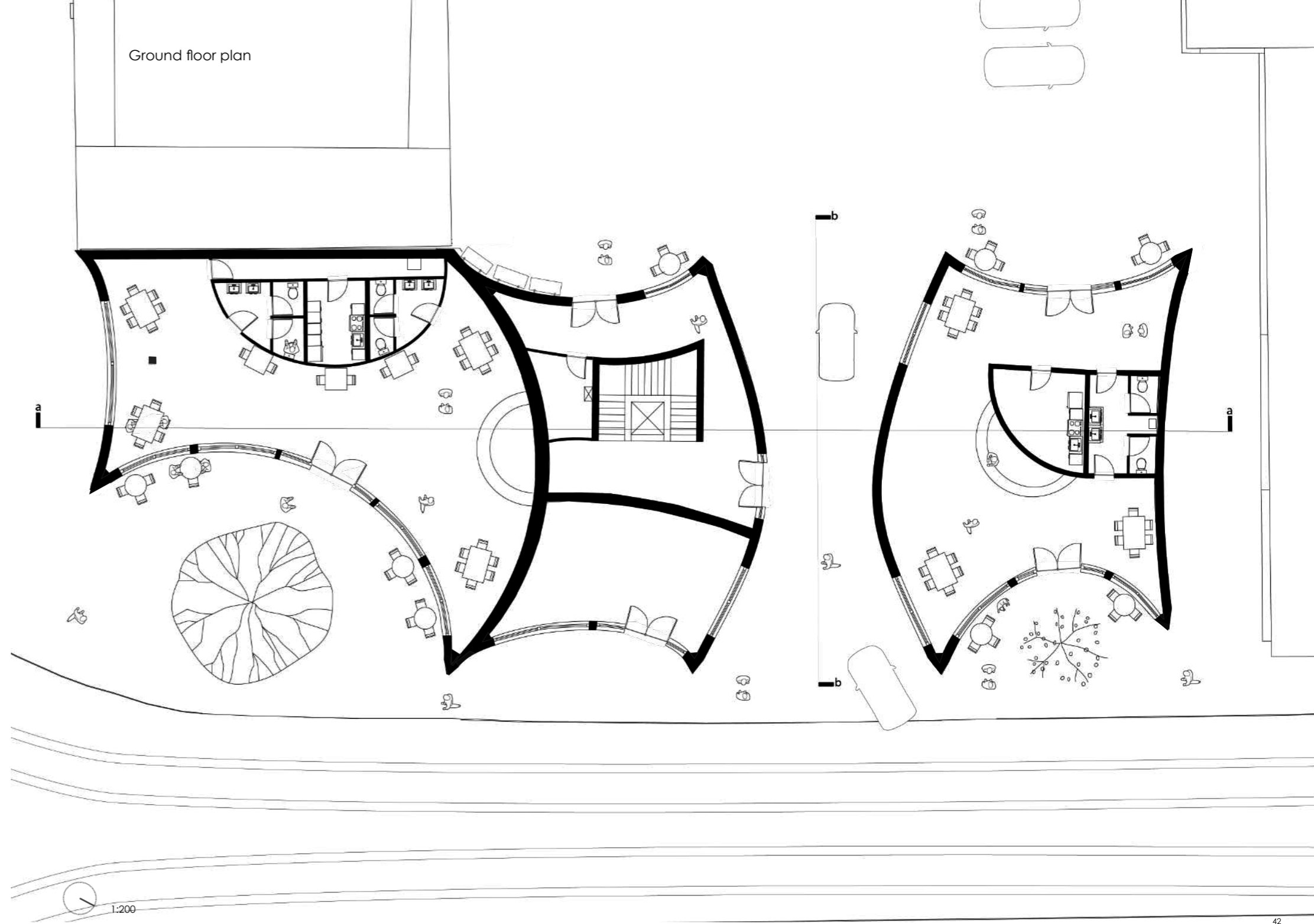




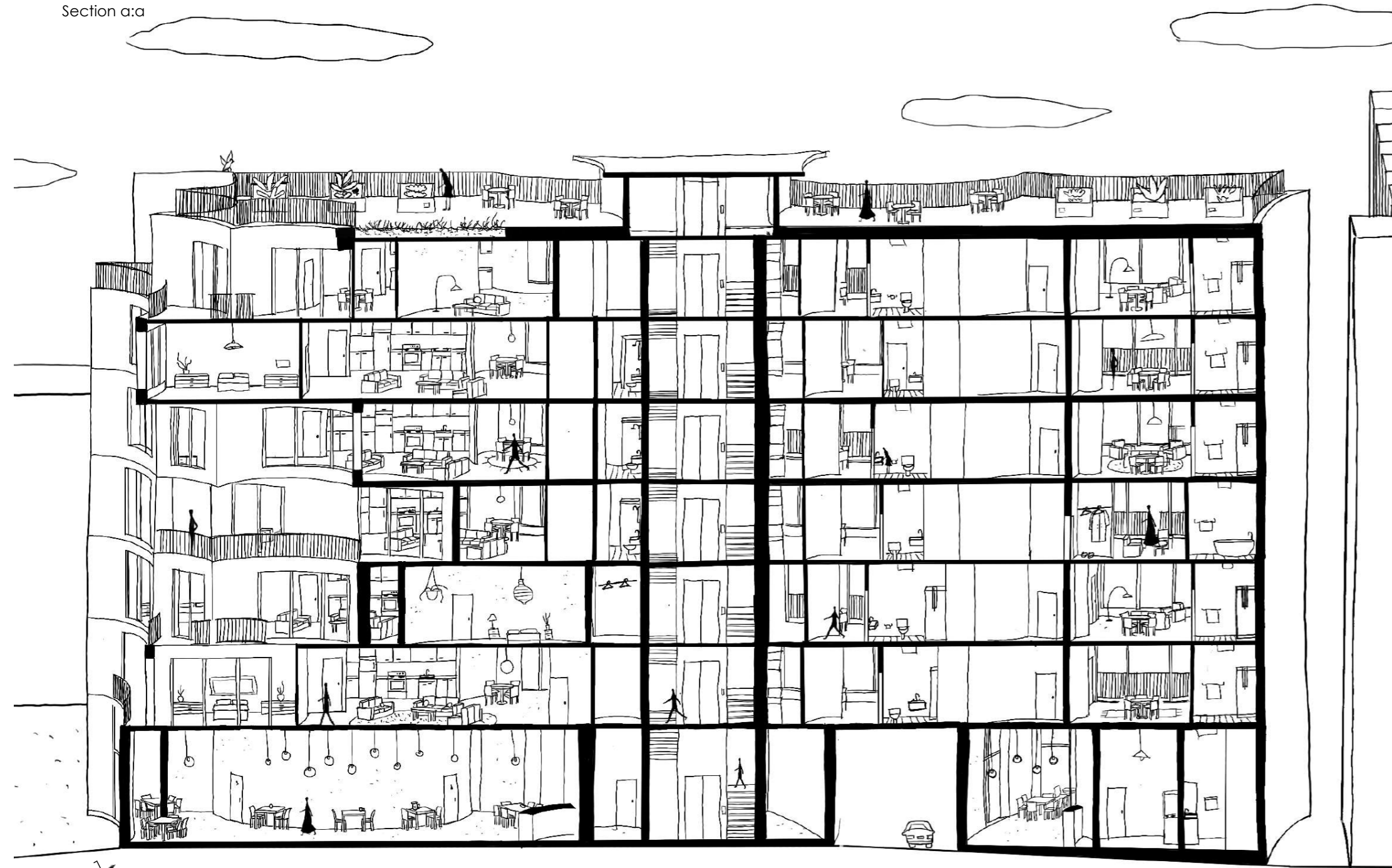
Ground floor public spaces

- 0.01 Restaurant space
- 0.02 Hall
- 0.03 Toilet
- 0.04 Kitchen
- 0.05 Toilet
- 0.06 Technical room
- 0.07 Hall
- 0.08 Store
- 0.09 Restaurant space
- 0.10 Kitchen
- 0.11 Toilet

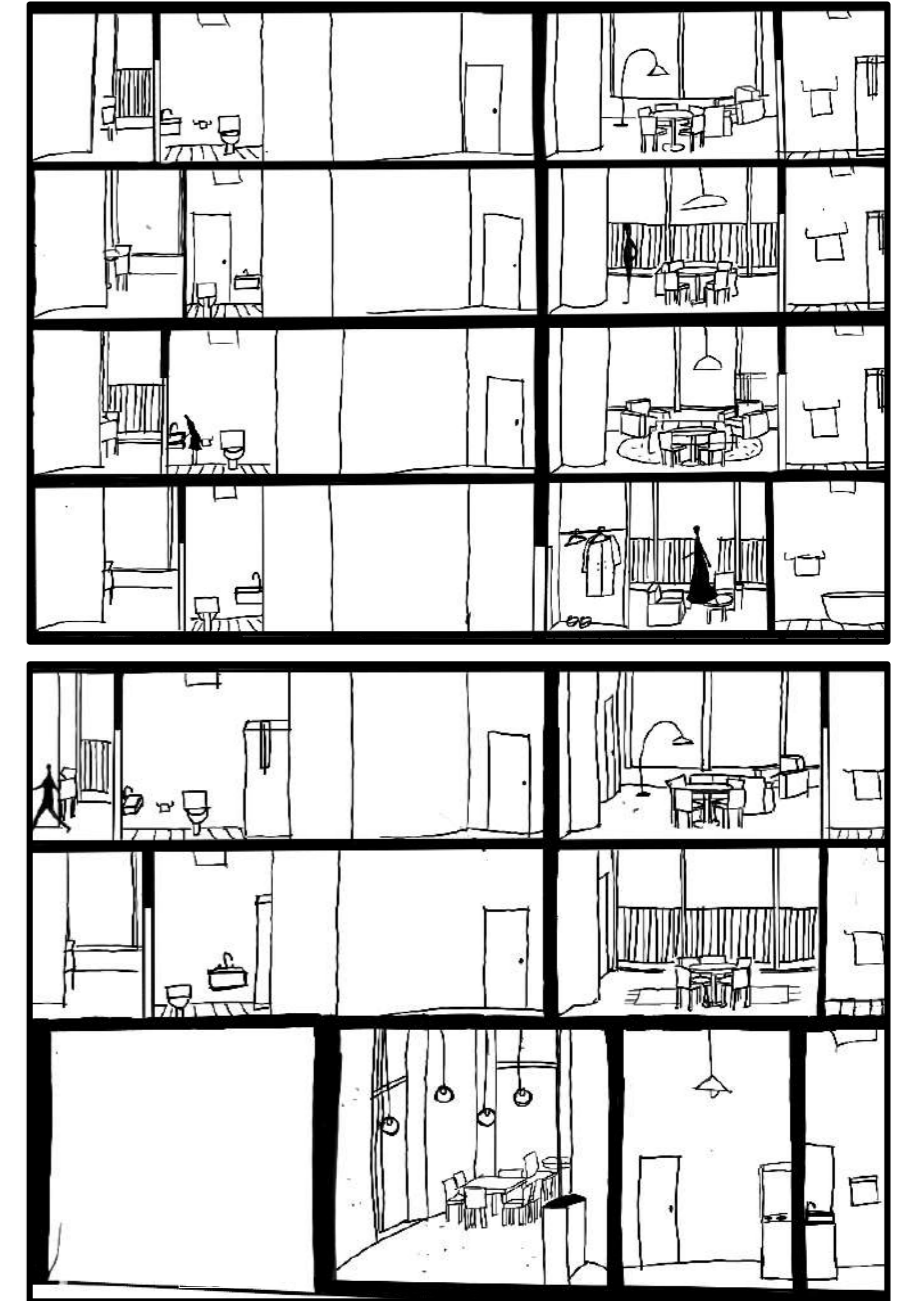
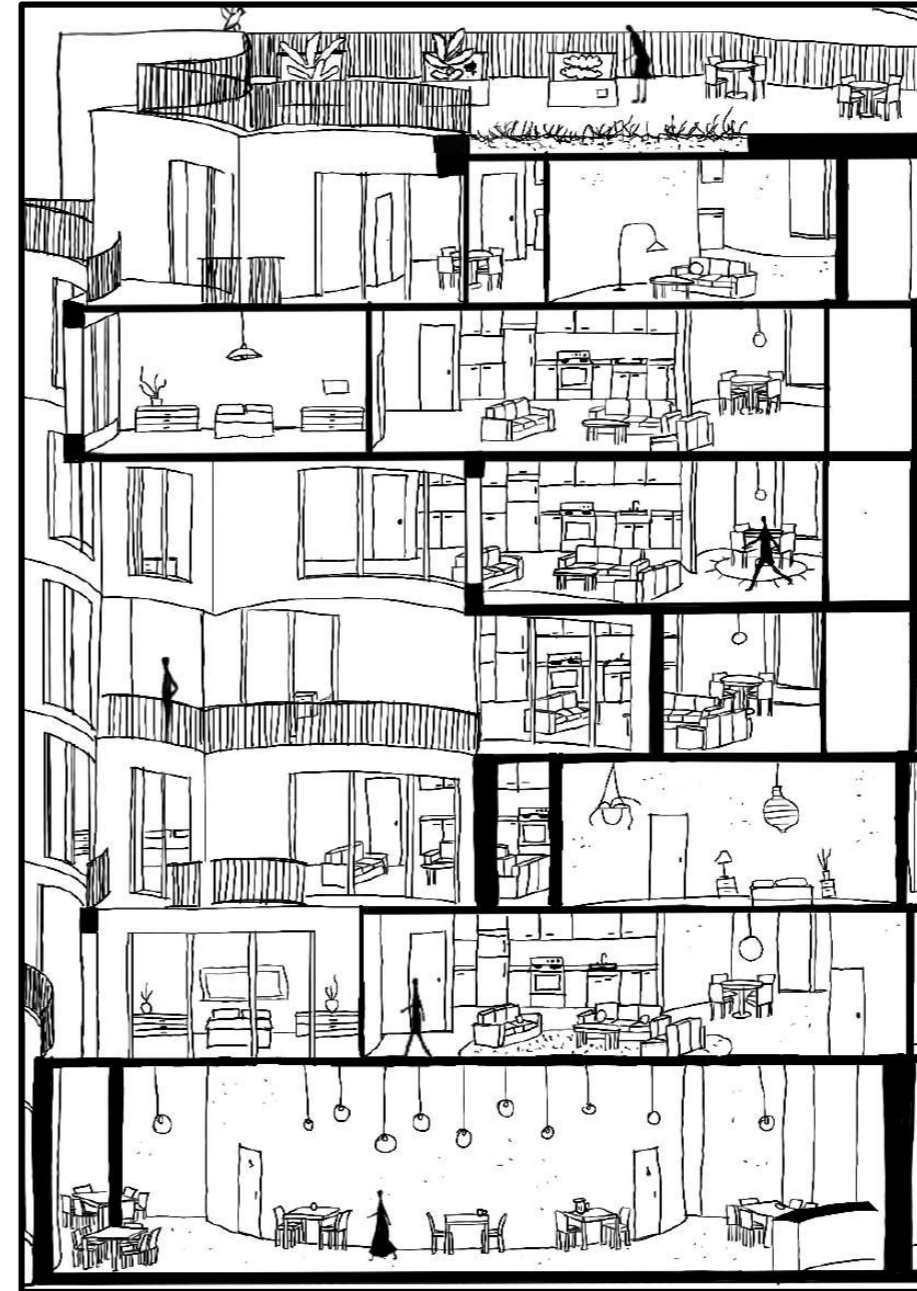
Ground floor plan

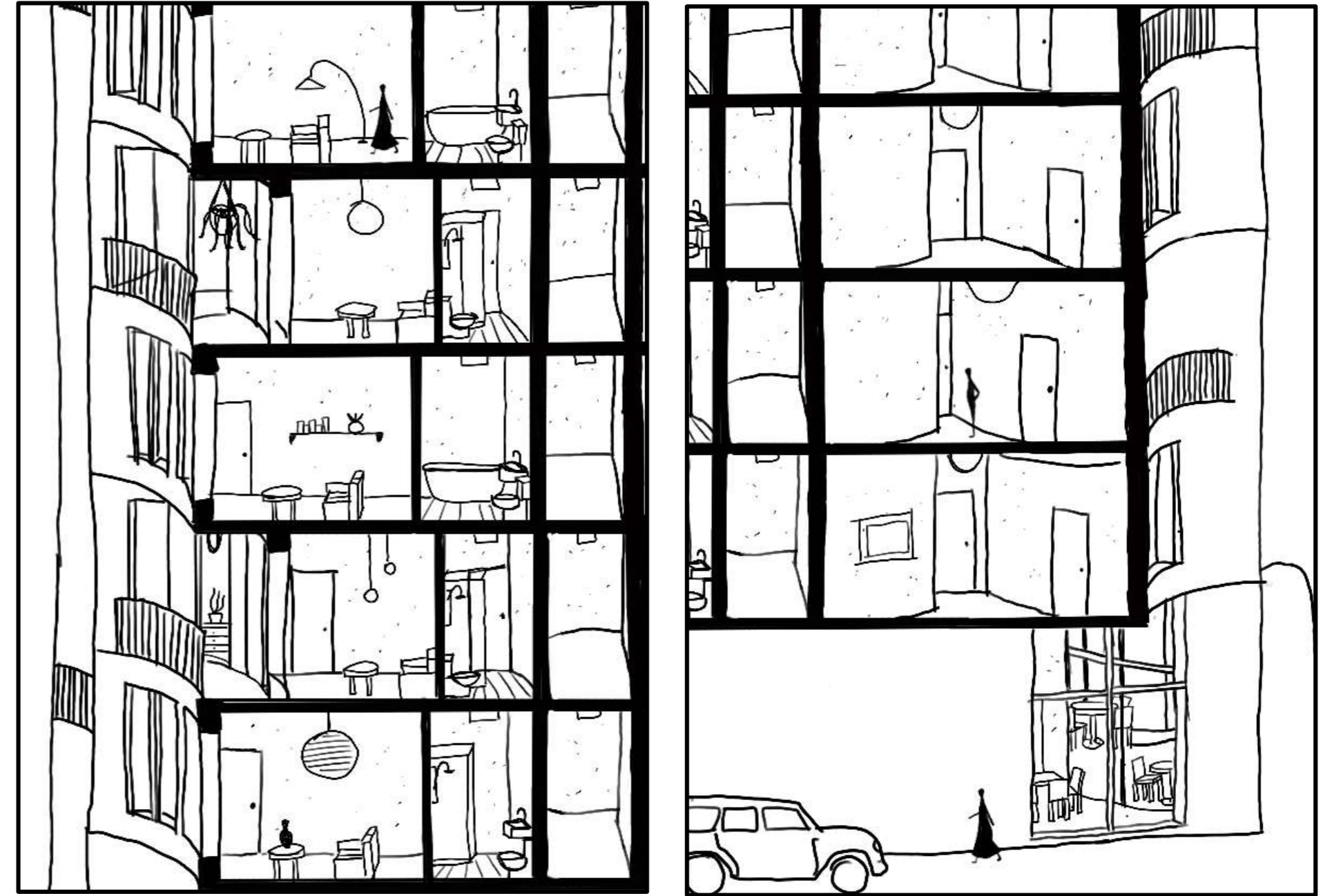
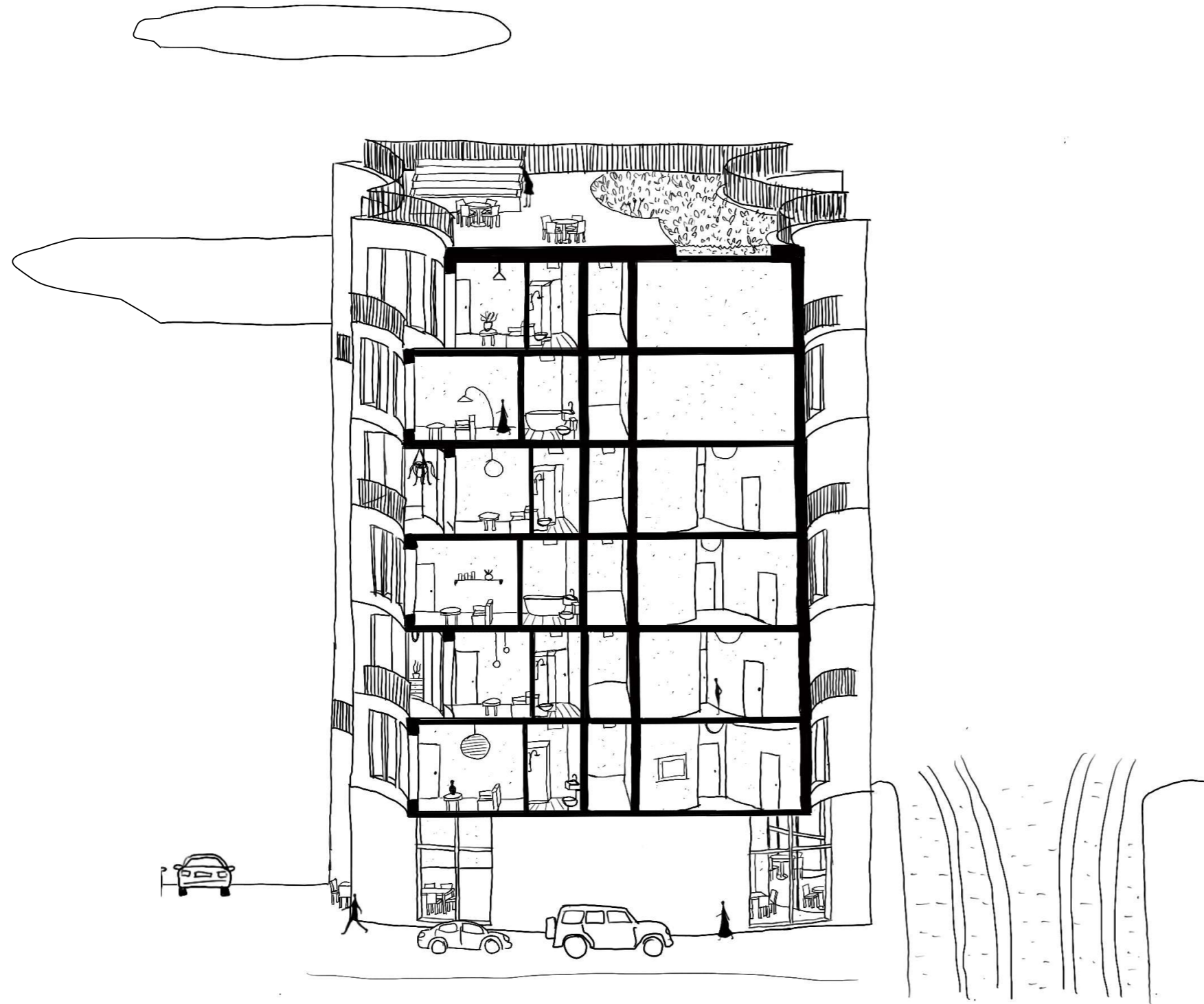


Section a:a



Section a:a







Northeast Elevation

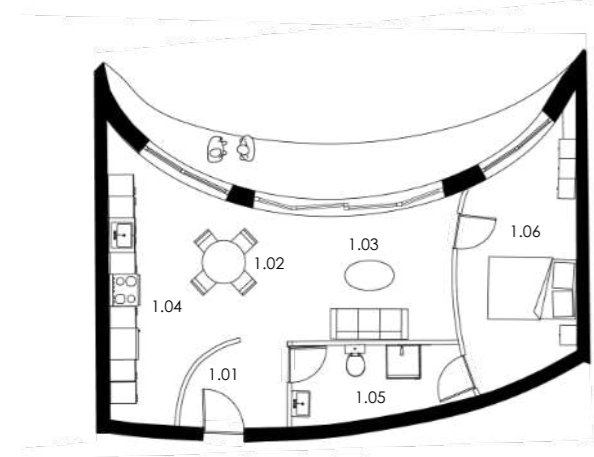


1:200

Southeast Elevation

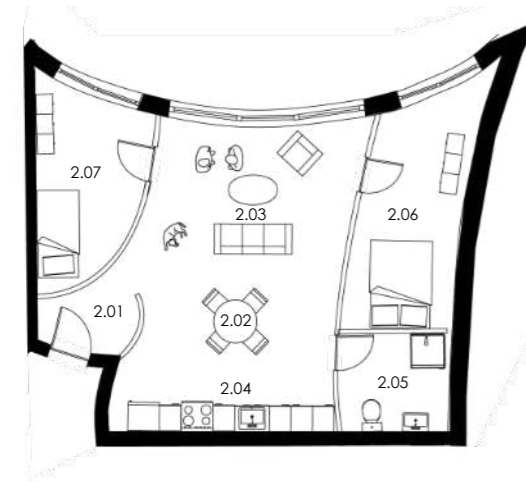


1:200



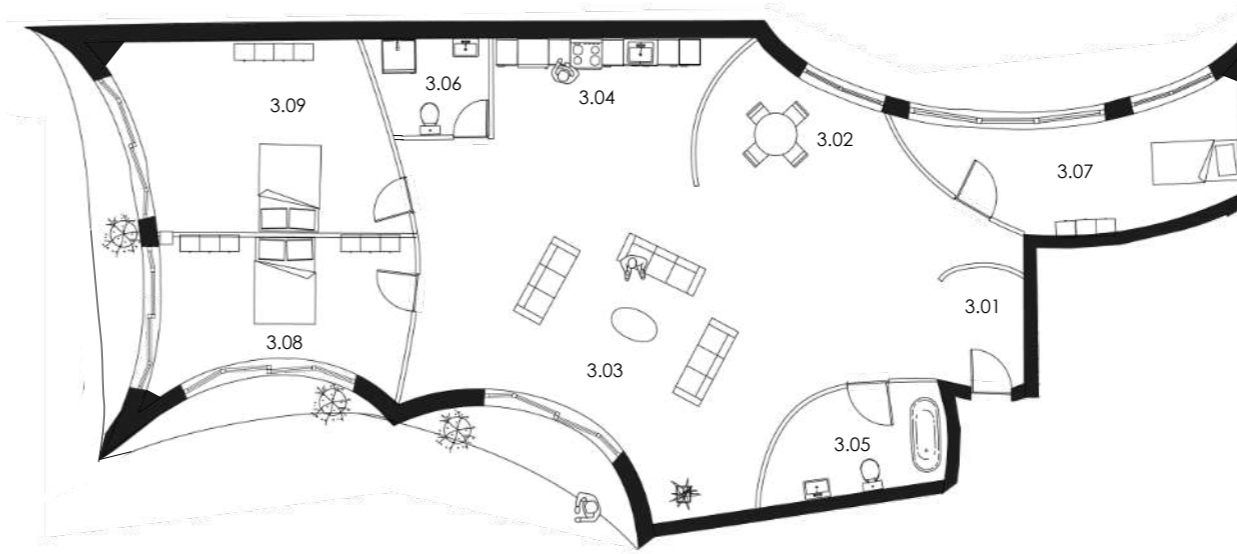
1 Bedroom apartment

1.01	Entrance	4.35 m2
1.02	Dining room	7.91 m2
1.03	Living room	11.85 m2
1.04	Kitchen	9.82 m2
1.05	Bathroom	6.67 m2
1.06	Bedroom	13.46 m2



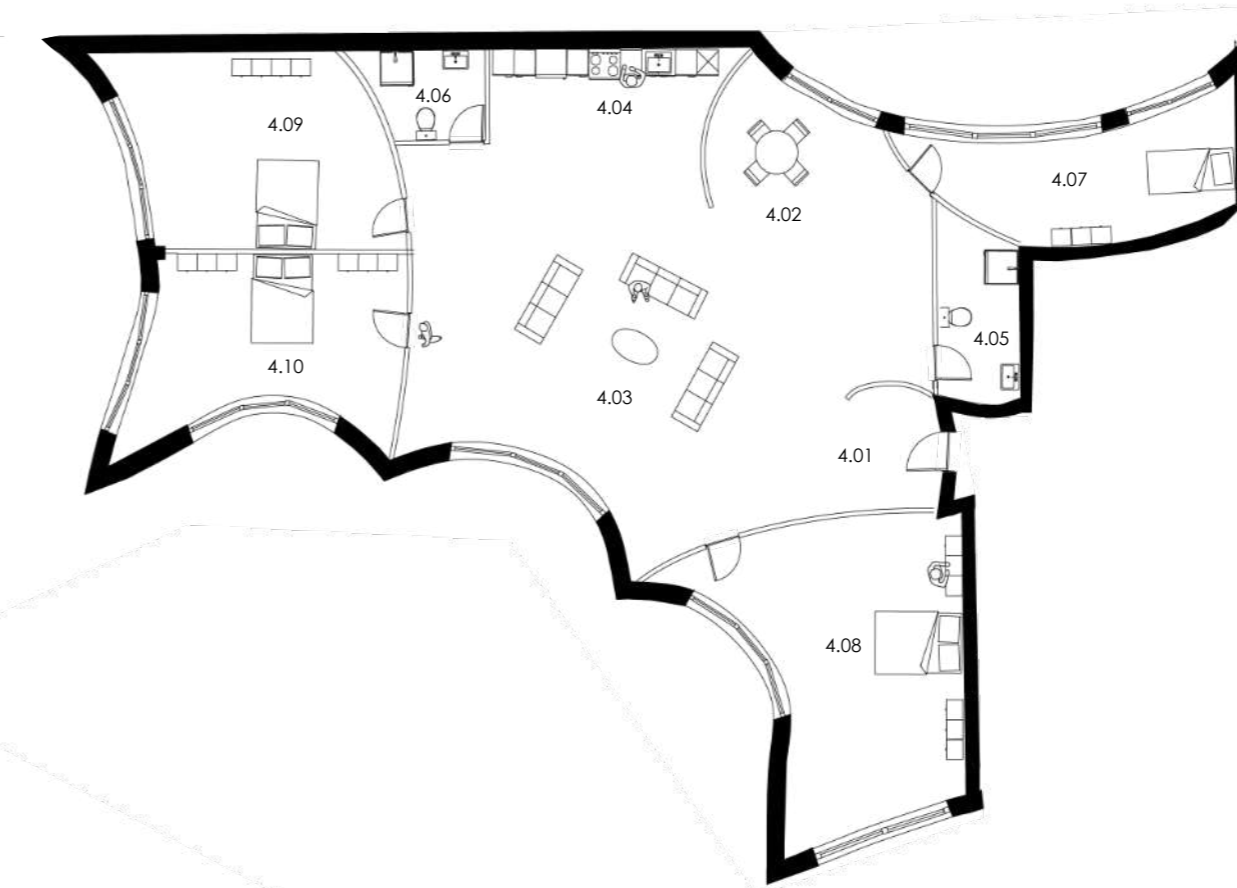
2 Bedroom apartment

2.01	Entrance	3.45 m2
2.02	Dining room	8.46 m2
2.03	Living room	18.16 m2
2.04	Kitchen	7.51 m2
2.05	Bathroom	5.79 m2
2.06	Bedroom	13.07 m2
2.07	Bedroom	10.24 m2



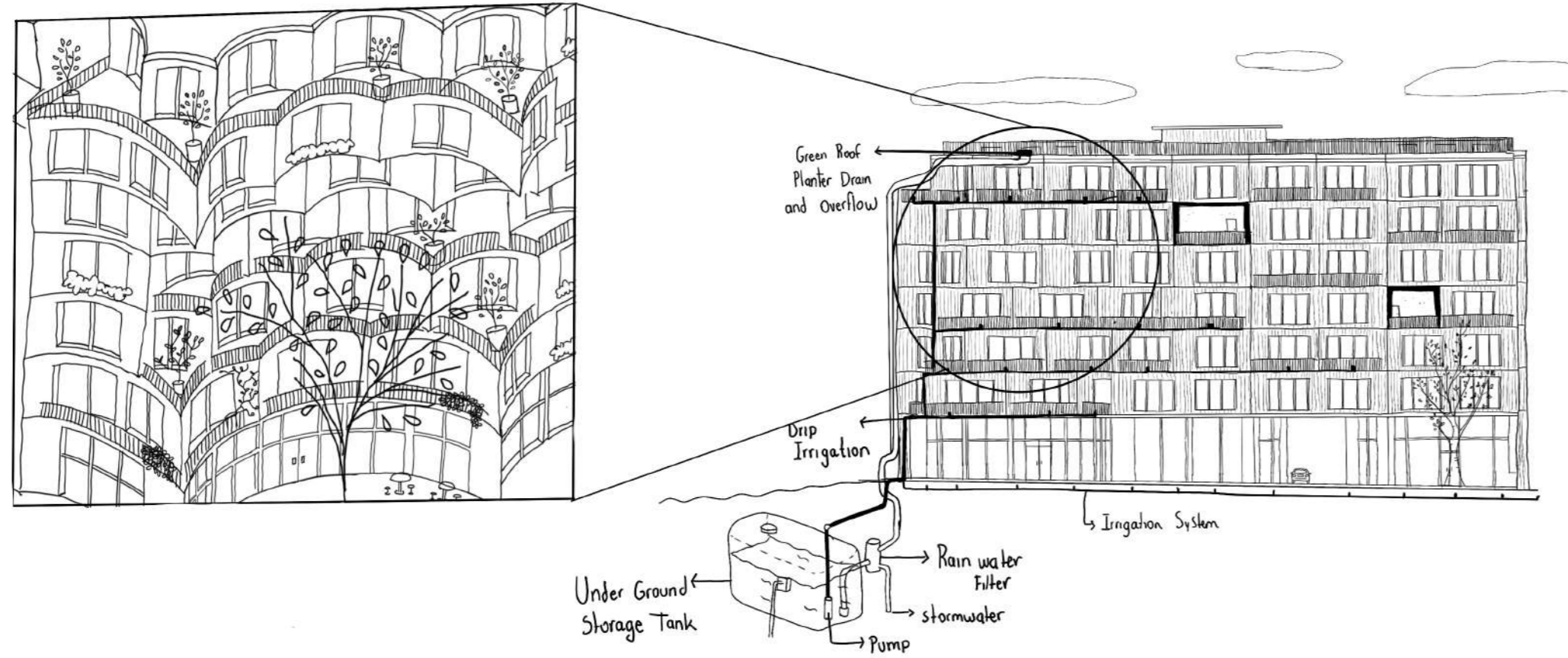
3 Bedroom apartment

3.01	Entrance	4.29 m2
3.02	Dining room	14.91 m2
3.03	Living room space	74.73 m2
3.04	Kitchen	12.19 m2
3.05	Bathroom	9.39 m2
3.06	Bathroom	5.81 m2
3.07	Bedroom	18.12 m2
3.08	Bedroom	18.22 m2
3.09	Bedroom	26.25 m2

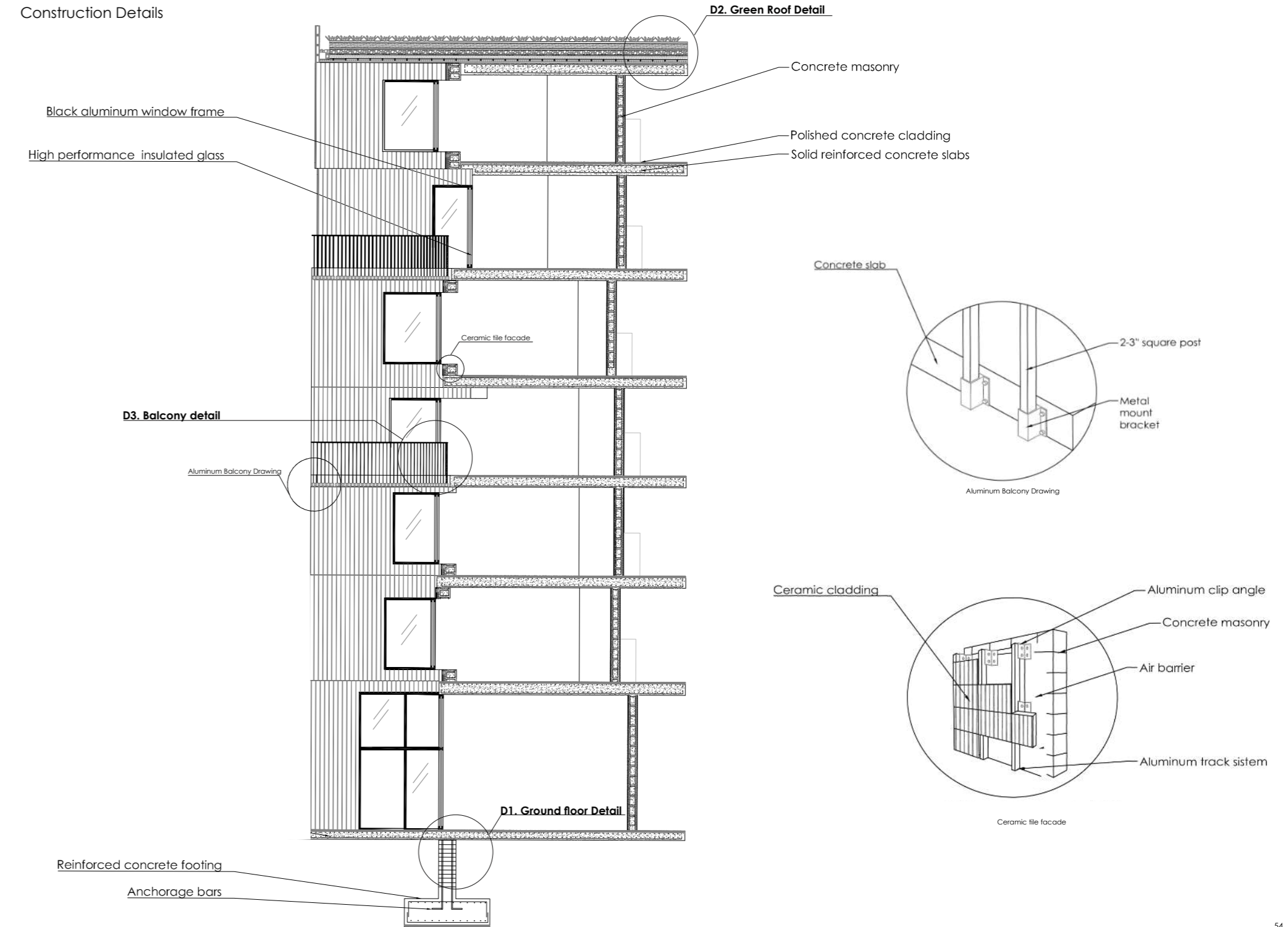


4 Bedroom apartment

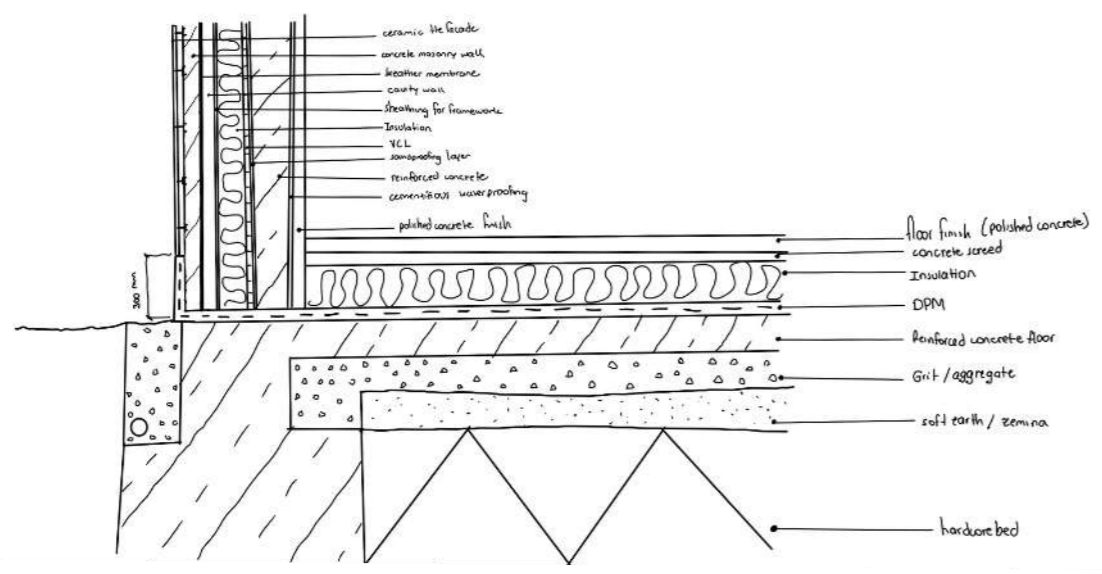
4.01	Entrance	6.78 m2
4.02	Dining room	12.97 m2
4.03	Living room	83.88 m2
4.04	Kitchen	11.53 m2
4.05	Bathroom	7.60 m2
4.06	Bathroom	5.38 m2
4.07	Bedroom	18.12 m2
4.08	Bedroom	33.93 m2
4.09	Bedroom	26.48 m2
4.10	Bedroom	23.11 m2



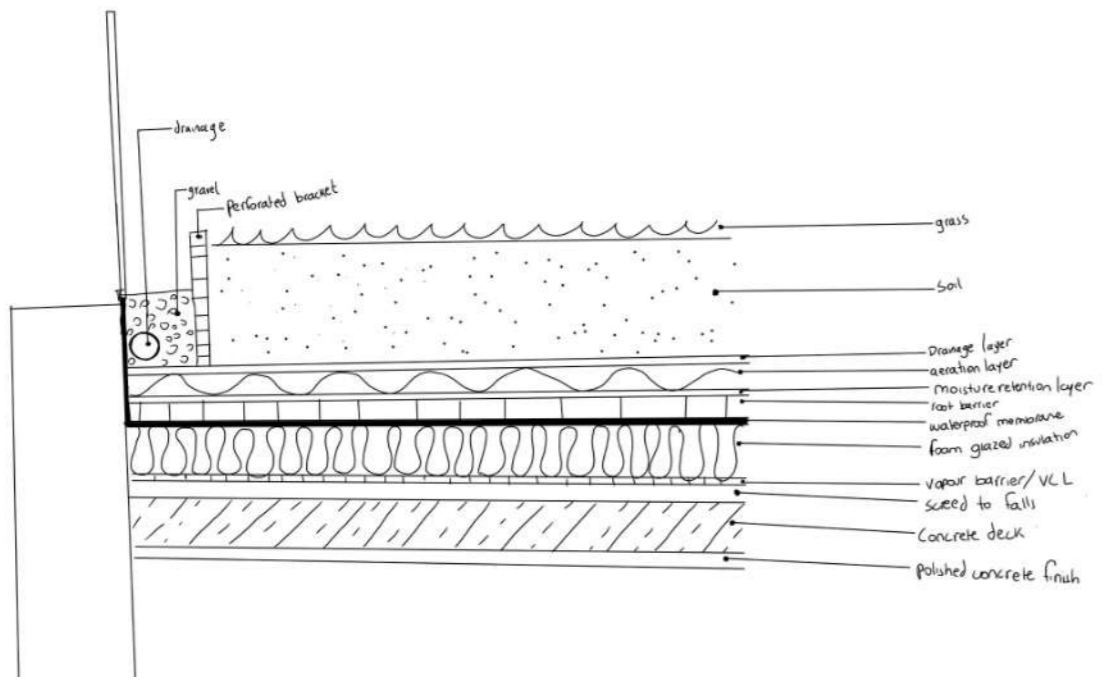
Exterior view from southeast elevation



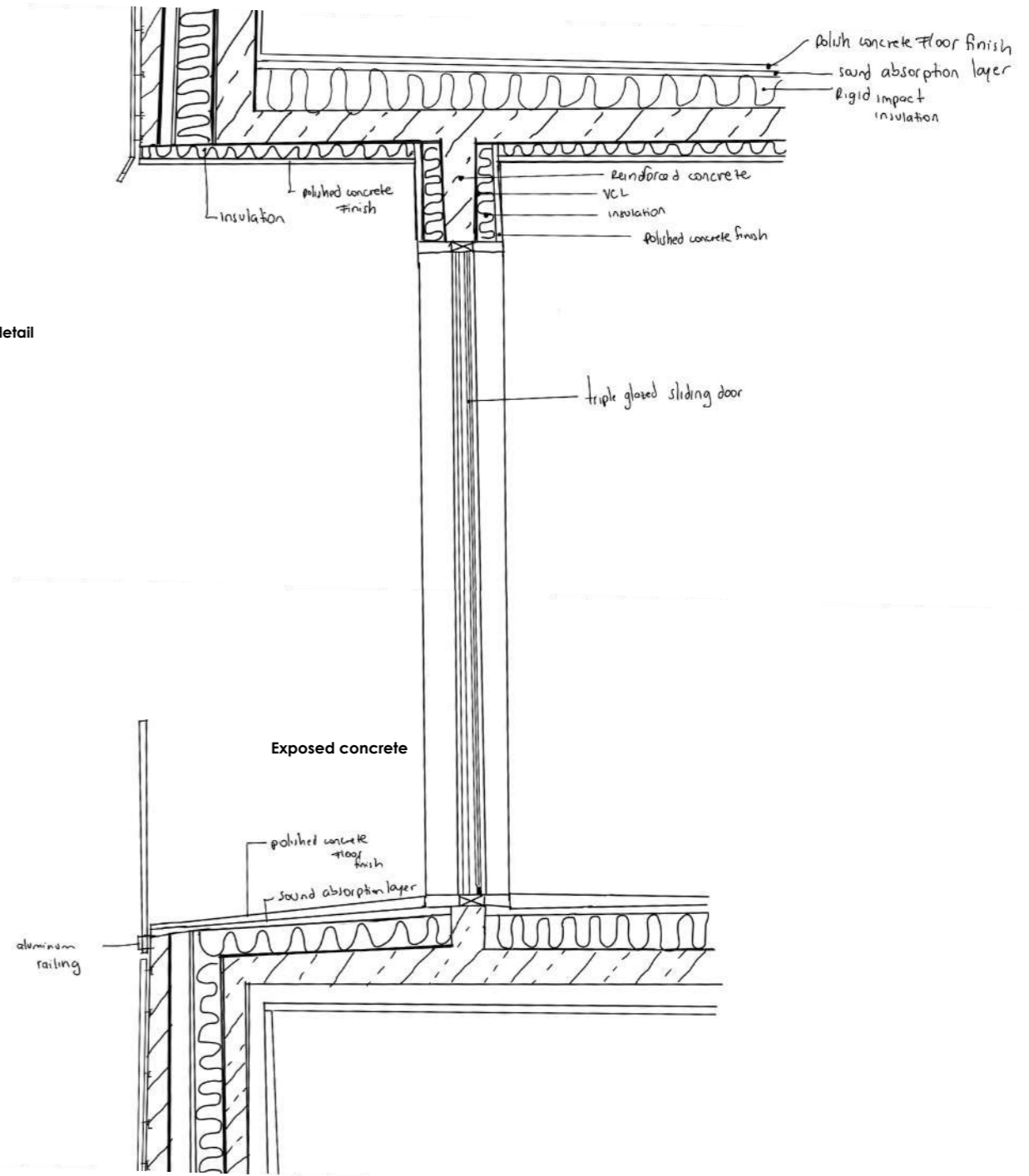
D1. Ground floor Detail

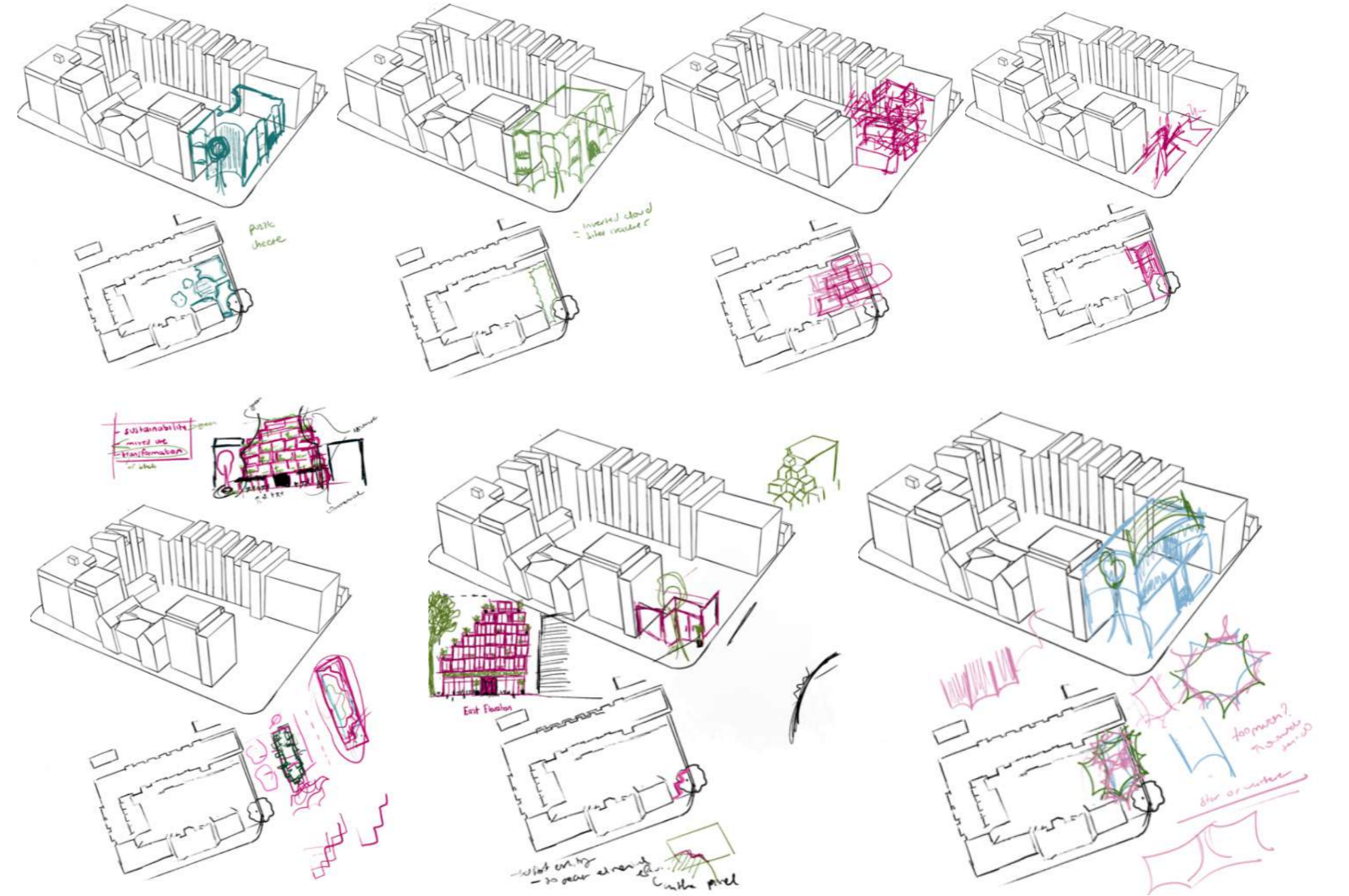


D2. Green Roof Detail



D3. Balcony detail





BACHELOR DIPLOMA PROJECT	AD6 PROJECT BRIEF
Student name and surname:	María Frias
Academic year:	2023-2024
Bachelor program:	Architecture
Studio leaders:	JAKUB KOPECKY
	JARDA WERTIG
Title/theme of the project:	DENSITY/ INDUSTRIAL

## Introduction

### Project brief description

"A long-term empty house is a problem for its locality, it attracts negative social phenomena, deteriorates the quality of living of the neighbors, and also reduces the value of the surrounding properties. New and new areas are being built up, and it is not only in the city center that empty properties are waiting to be used. No one knows how many dilapidated properties there are in cities, because no database of vacant properties has existed until now." Says Empty Houses platform.

The project is thus divided into two parts. For the first 3-4 weeks, students analyze the phenomenon of empty houses in Prague (they classify the buildings into categories, estimate the approximate area occupied by each category, where each empty house is located, etc. They then compare the data with examples from other cities in the Czech Republic or abroad. This information will be used in the design phase.

### Main goal of the project

The project aims to reflect more broadly on the extent and impact of the empty house phenomenon. It should somehow identify a threshold when it is no longer worth renovating a dilapidated house and it is better to build a completely new house, including a redefinition of its function.

## Context

### Local Context

The site is situated in the district of Libeň, specifically at the intersection of U Balabenky and Sokolovská streets. Libeň is mostly a residential area characterized like most neighborhoods in Prague by its mix of historical architecture and modern developments. The neighborhood is known for its diverse community, colorful streets and convenient access to amenities.

## History

The site is located in Prague's Libeň neighborhood in this specific block which has a rich history dating back to the late 19th century. Originally established in 1892, the area was a place for industrial activities. It was a Building of a branch of a Viennese factory called P. Ladstätter & Söhne, which focused mainly in hat production. The owner was Mathias Veider.

Throughout its history, the factory underwent several transformations and expansions, notably in 1903 with the addition of modern reinforced concrete monolithic extensions. Further renovations were done in the 1930s, with the site accommodating diverse functions, such as the Nalos and Mansfeld machine joinery.



## Staircases

There is one straight staircase in each floor with two landings made out of aluminum stainless steel starting from the ground floor located in the common area for residents right next to the elevator shaft that connects the building only for residents from ground floor to the rooftop.

### Roof structure

The roof is a flat roof. The structure is a reinforced concrete slab. The roof is partly decking and also has green grass with drainage located right next to it that gathers rainwater from the rooftop and redirects it to the water tank for irrigation purposes and allows excess water to drain.

### Green roof

The green roof is made of layers like thermal insulation, draining layer, root barrier, moisture retention, aeration layer, draining layer, soil, and grass. Along the roof's edge, there's a roof drain that helps drain water in case of heavy rain.

### Materials

For the walls, it will be mostly reinforced concrete with ceramic tiles for the exterior and sand blocks for the interior. Insulation for temperature control and sound absorption, along with layers for moisture control and waterproofing. The finish inside will be gypsum plaster or polished concrete. For the floors, it's reinforced concrete with insulation underneath. Windows will be triple-glazed glass with aluminum frames.

Doors will be made of polished black aluminum for apartments and triple-glazed glass with aluminum frames for balconies and facades.

## MEP

### Mechanical

Mechanical services are to be routed through technical shafts which are placed vertically

between some apartments, as well as large shafts placed next to the elevator shafts.

### HVAC

Ventilation system is located on the bottom floors in the technical rooms of each building. The structure uses cooling through the ventilation system. Heating is provided through a geothermal heating system, with underfloor heating and thermostats in the bathrooms.

### Lift

The lift will be an MRL (machine room less elevator type) to save as much space as possible in the building and money too.

### Electrical

The building is connected to the local electrical grid.

### Power

The building will be powered by electrical power.

### Lightning

During the day the building will have enough natural daylight and Light-emitting diode (LED) for artificial light.

### Internet connection

The building is connected to the local internet network.



## Location

50° 6′ 14.1″ N, 14° 28′ 45.1″ E﻿ / ﻿50.10308° N 14.47919° E﻿ / 50.10308; 14.47919

The site is situated in the district of Libeň, specifically at the intersection of U Balabenky and Sokolovská streets.

## Topography

The topography of the site is mostly flat terrain with a small slope starting from the southeast and descending towards the northwest corner of the residential block where the proposed building will be situated.

The residential block itself forms a rectangle, measuring approximately 102 meters by 112 meters, with the longer side oriented towards the south, primarily southeast. This orientation coincides with the higher elevation at street level, which is where the slope starts, which gently descends towards the opposite side of the block. The slope is no more than 2 meters, likely around 1.5 meters, as it traverses from the elevated southeastern edge to the lower northwestern boundary.

## Accessibility

The site can be accessed by the sidewalk located on the Sokolovska sidewalk of the block since there is an access suitable for cars and pedestrians into the courtyard of the residential Block. Another more direct pedestrian access to the front of the proposed building (north east facade) is right next to U Balabenky street which is where Balabenka Tram station is located. To the north, the site is very close to the Palmovka Metro station where line B goes through and the site is located right in front of Balabenka tram station where trams 2, 7, 8, 13, 18, 25, 31, 92, 93, 94, and 95, pass by. As well as Balabenka bus stop with line 109.Also, Palmovka tram station is located nearby with trams 2, 3, 6, 7, 8, 10, 12, 13, 14, 15, 17, 18, 19, 24, 25, and 3. And Palmovka bus stations with line 109. The proposed building can also be accessed by car through the northeast entrance of the proposed building in the shape of a passage since the parking will be located behind the proposed building.

## Site

The site is located in the space between one residential building and one residential and commercial. The residential building is called "lofty Palmovka" located in the north side of the site facing Novakovych and Vacinova streets, and the commercial/residential building located in the south facing south right in the plot facing Sokolovská street. Which means the proposed building will face U Balabenky street right in between these two buildings.

## Area

The site measures approximately 50 meters from northeast to southwest and 17.8 meters from Southeast to northwest which is a total of 890 square meters.

## Landscape

The landscape on the site in the courtyard of the block where the new addition will be placed has some existing trees of more than 60 years. These trees are surrounded by the existing buildings that range from different styles such as Neo Classical and modern architecture.

## Parking

Extra spots for parking will be provided in the existing courtyard of the block since the space occupied by the residents of the block as gardens will be removed and replaced by a vertical garden structure with several levels allowing more residents to have an accessible garden from their homes and the ground space can be used for more parking. This parking area can be accessible by the sidewalk located on the Sokolovska sidewalk of the block since there is an access suitable for cars. It can also be accessed by car through the northeast entrance of the proposed building in the shape of a passage since the parking will be located behind the proposed building .

## Design Description

### Building Parameters

The structure of the proposed residential building is designed to take shape based on existing trees and greenery. This principle will go around the entire building as the main concept since the shape will give a subtracted volume impression resembling the perforated/subtracted area being the space left for existing greenery. One of the main aims of this consideration is to create a building that would not necessarily enclose the entire residential block but mainly also create an open access for the public and also residents of the zone. The project aims to be mostly made out of concrete reusing the existing waste of the previous warehouse that was located in the site of the proposed building.

### Footprint

The total area of the site is 890 square meters. There are two separate volumes in the ground floor mostly dedicated for commercial use .This two volumes add up to a total of 363 square meters in total dedicated to the public and 144 square meters dedicated to residents to come into their homes. In between the two volumes of the ground floor there is a space gap of 4.7 meter for 20 meters long for pedestrian access and car access to the parking space on the courtyard of the block or to the residential part of the building as well. Taking in consideration the concrete wall part of the two structures gives up a built area of 595.5 square meters if you subtract the gap in between the two volumes for cars and pedestrian use. The built up area on site covers 66,9 % of the area.

## Utilization

The utilization of the space is divided into two parts with commercial functions in the ground open for the public, and residential use in the top levels only for residents. The rooftop is open to all residents of the building. The structure has six floors and a fully accessible roof.



## Programme

The programme is mainly focused on mixed housing. In the ground level there will be two spaces completely dedicated to the public, one restaurant, and a cafeteria but could also be used as a shop. Also a space only dedicated to residents as a common space to hang out close to the elevator and stairs that lead to the residential part of the building.

## Residential

Residential functions are located from the first floor up to the sixth floor. The apartments range from 1 to 2, 3, and 4 bedroom family apartments. All residents have access to shared open balconies in the third and fifth floor and of course access to the common rooftop. There is one staircase that leads to the rooftop that starts from the ground floor and one elevator that connects the ground floor to the rooftop. Most of the apartments have triple glazed sliding doors and some have large openable windows facing the south, east and west. Most apartments have access onto a small balcony. Some apartments have larger balconies than others.

## Circulation

The residential apartments can be accessed by a staircase and an elevator, they are located in the ground floor of the building. Next to the common space for residents where the elevator and stairs are located which is accessed by walking in between the two separated structures of the ground floor that is located in the Northeast facade. The stairs go all the way to the top of the building to the rooftop as the elevator.

## Rooftop

The roof surface is a combination of greenery and decking, with parts featuring grass and others with deck materials. It is a place meant for residents to engage socially surrounded by greenery and planting crates for residents to use.

## Commercial

Commercial spaces are located on street level right next to the pedestrian paths that face U Balabenky and Sokolovska streets. Both spaces occupy part Of the outdoor space as well.

## Structural Design

### Foundation

The foundations are reinforced concrete strip foundations. Drainage is placed at the bottom next to the footing.

### Outer walls

The outer walls are mainly reinforced concrete with breather membrane, thermal insulation and the outer facade composed out of ceramic tiles. The structure of the inside of the wall is divided by a cavity wall, VCL, a sound absorption layer, cementitious waterproofing, and the interior finished which is polished concrete.

### Interior walls

The interior wall consists of two layers of normal plasterboard with a steel frame separating them. The steel frame is filled with thick mineral wool insulation for soundproofing and thermal resistance. For a more industrial aesthetic a layer of polished concrete can be applied directly to both sides of the finished wall.

### Floors

The ground floor is a reinforced concrete slab with a rigid floor insulation and a DPM/waterproof membrane. The upper floors are composed of reinforced concrete slab, insulation and a sound absorption membrane. The height between the slabs is 3.5 meters.

### Windows and doors

The placement of the windows in the apartments prioritize maximizing natural light. All windows are openable and feature triple-glazed glass with aluminum frames. For aesthetic appeal, the ground floor windows in public spaces have curved glass.

The doors between the apartments are made of polished black aluminum located in the corridors. The balcony access doors are also triple-glazed glass also framed with black aluminum and openable from the inside. Despite the curved walls, these doors are straight glass. Additionally, the doors on the facade are openable glass doors too, placed within the curved walls.





## **Plumbing**

The plumbing uses variable speed pumps and pressure-reducing valves to adjust water usage and pressure based on real-time basically the more water is demanded the more the pumps accelerate on speed.

## **Irrigation system**

The residential building has a green roof and balconies with greenery. The green roof has an irrigation system that uses drip irrigation. This system waters both the green roof and the balcony plants.

The underground storage tank gathers rainwater from the rooftop. It's placed under the building to collect rainwater efficiently. When it rains, water will flow from the rooftop through the green roof planter drain and go into the underground tank.

## **Water**

Water supply is provided from the local water network. The water is pumped using a pipe system that is connected all the way in the technical room where the cylinder of the heat pump is located. To minimize energy consumption, the heat Pump System is utilized also to heat the water.

## **Fire protection**

Fire escape route is provided through the main circulation shaft accessible from all floors that leads to the ground floor exit.

Fire trucks can access the building from the street, From Northeast to South.

## **Conclusion**

The project offers a functional and well-designed solution for the underutilized space. The main goal is to respect existing greenery and integrate it into the shape of the design, creating a unique and sustainable addition to the neighborhood that offers a contemporary take on urban living that would also honor the blocks industrial heritage.