

Not a conventional courtyard

The interpretation of an unconventional courtyard in Gurzelen

HSLU FS20

Thesis book

Kai Chen

Abstract

This thesis book is part of the Master's thesis in the spring semester 2020 in Lucerne University of Applied Sciences and Arts, it is about a proposal for a densified housing complex in Gurzelen, Biel.

Courtyard is the keyword for this book and the project. The book is written in three parts: the historical research, the thesis and the application of an unconventional courtyard in Gurzelen. In the research part, this thesis book focuses on the differentiation of the city squares, the conventional courtyards and the unconventional courtyards, many examples of courtyards are listed and analysed. In the thesis part, a chart illustrates the crucial differences of the selected examples. The drawings of the thesis project in the last part show how the outcomes of the research are applied in the thesis project.

Thesis Book Spring Semester 2020

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Author
Kai Chen
Obermattweg 9
6052 Hergiswil NW

Mentor Thesis Book
Dr. Marcel Bächtiger

Mentor Thesis Project
Felix Wettstein
Ludovica Molo

Printing
Gegendruck GmbH
Neustadtstrasse 26
6003 Luzern

Binding
Buchbinderei Notter
St. Karli Strasse 71
6004 Luzern

Lucerne University of
Applied Sciences and Arts

HOCHSCHULE LUZERN
Technik & Architektur
Technikumstrasse 21
6048 Horw LU

Master in Architektur
Spring Semester 2020
12.06.2020

Lucerne University of
Applied Sciences and Arts

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FH Zentralschweiz

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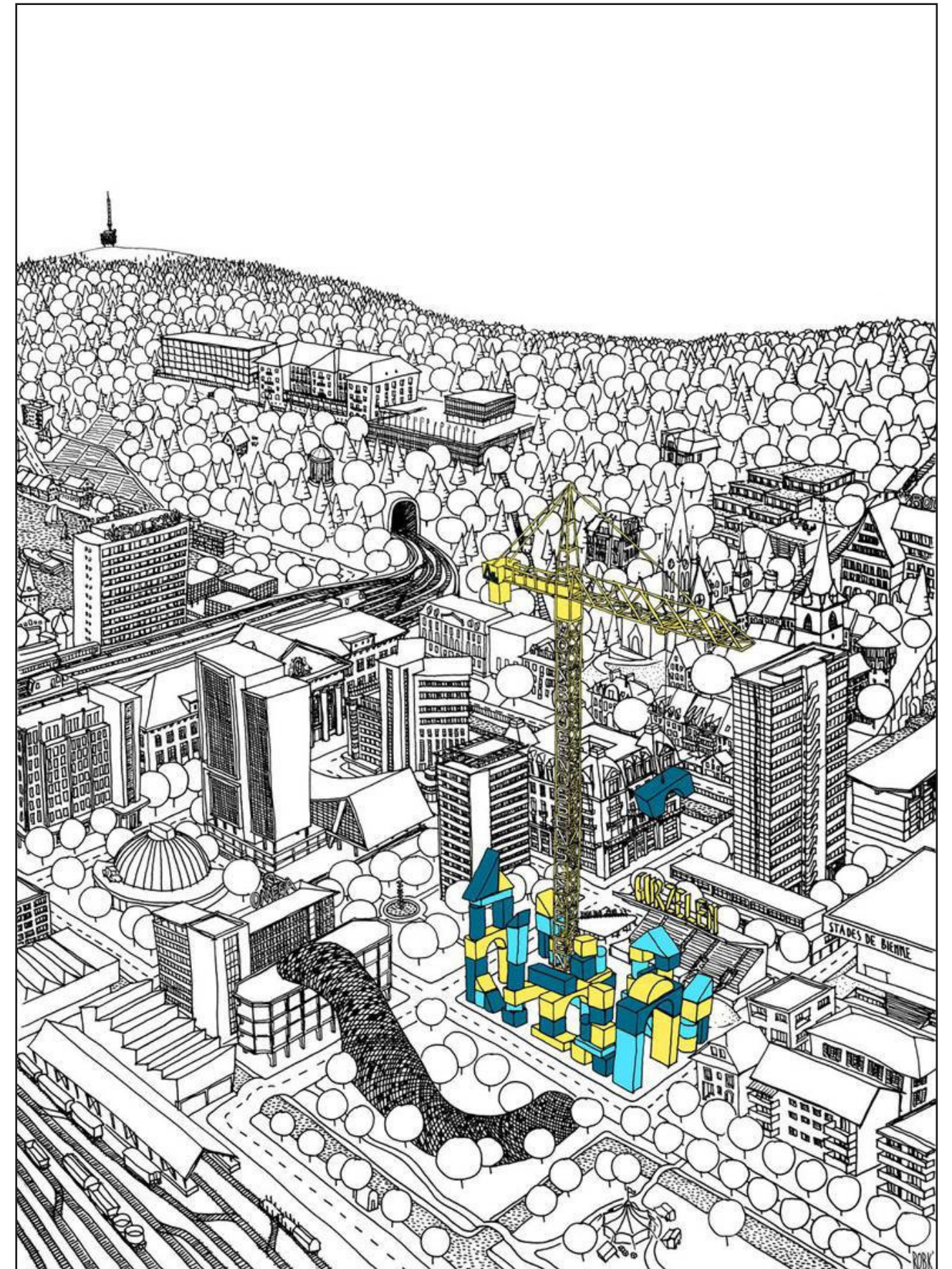
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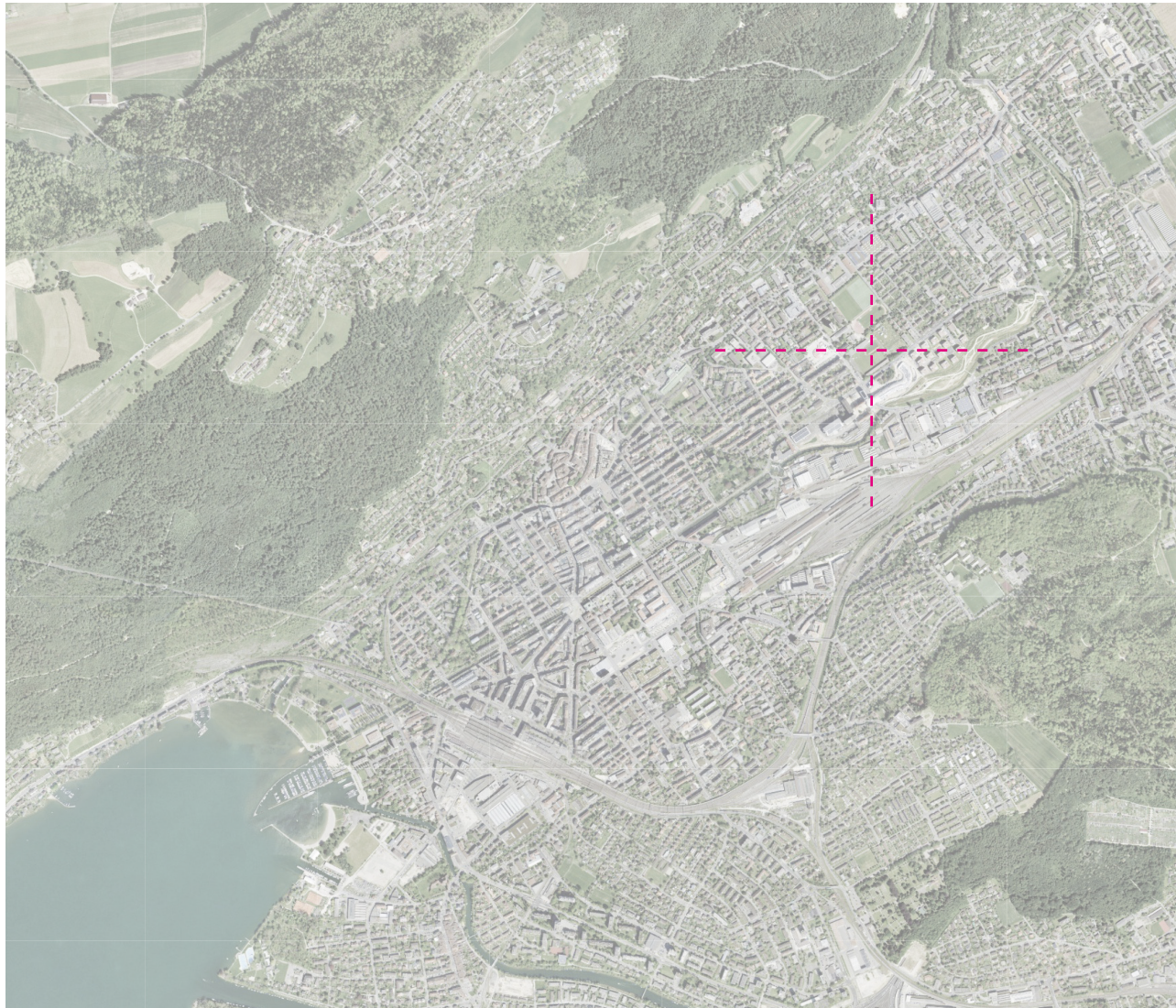
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1. Introduction





The City Biel/Bienne and the site

A complex housing project in a growing city in central Switzerland is the topic of this thesis project. With the rapid economic growth and the inevitable trend of urbanisation, many people have left their home and moved to cities, as a result, they need houses. Biel, where this thesis project locates, has also experienced a big population growth in the last decades. Numerous projects are being planned here and will soon be realised. The city Biel also wants to strengthen non-profit housing construction and increase the corresponding amount of all apartments by around a third to 20% by 2035. The Gurzelen area, which is an important part of the whole program, is where the thesis assignment takes place. The Gurzelen area locates in the periphery of the city Biel, and was an important sport field for the city, but after the construction of the Tissot Arena, it has been abandoned and now is under really bad condition. The surrounding environment of the site is very heterogeneous, there are the newly finished worm-shaped Omega Campus, the School La Champagne with its potential extension and many small private houses. The existing stadium on the site will be demolished and the city wants houses on this site. The image 01 is an image from the city for rebuilding this quartier. This project is not only about non-profit housing construction, but also about a mixture of different types of apartments, common spaces and areas, studios and some rooms for small business.

What does the city exactly want?

An urban planning competition was held in 2014 in order to put a brief developing envisagement to the site. Now they do not like it anymore. In May 2019, they decided to redo it. The following things are what they asked:

- Big open green space
- Use-mixed programmes on the ground floor
- An auditorium for the school
- A large amount of parking
- High quality living space

Img. 01: Cartoon of rebuilding Gurzelen

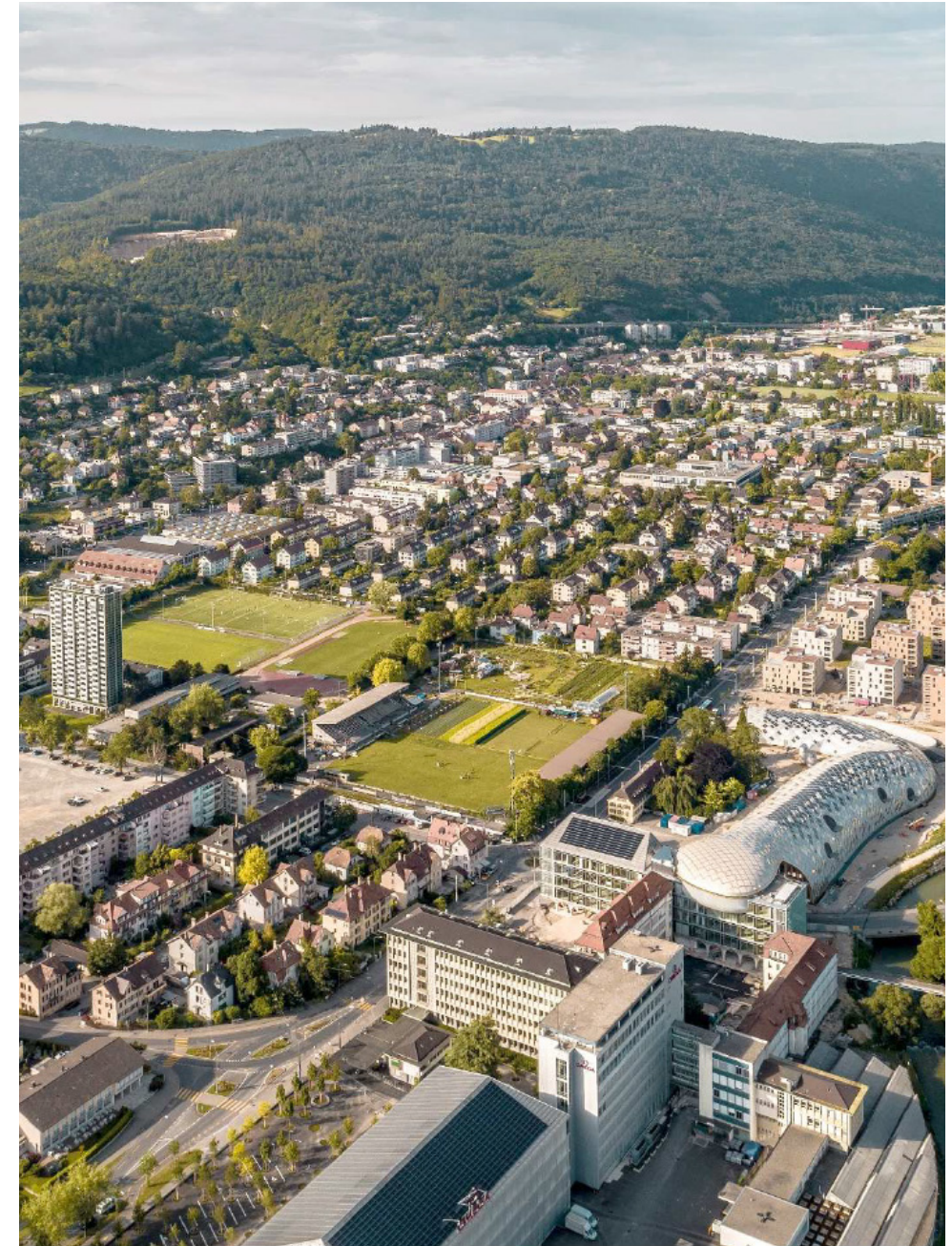
Img. 02: The city Biel

The approach of the thesis project

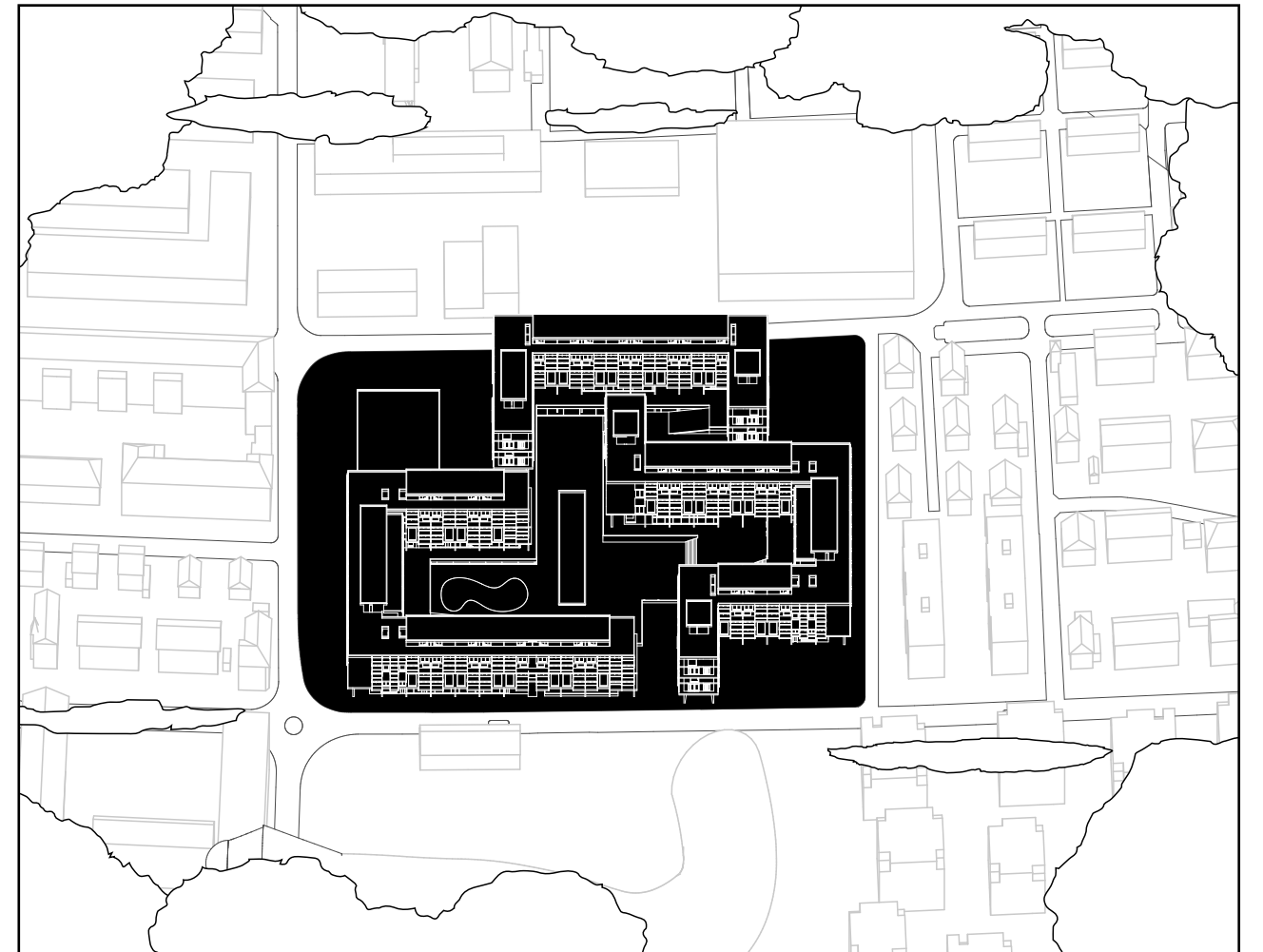
Courtyard housing is one of the oldest housing typologies which derives from Middle East. Courtyard housing is now occurring in a distinctive form in many regions of the world. A courtyard is usually a enclosed area open to the sky in the centre of a house or a settlement, where people usually plant trees and organize their public activities. Considering the needs of social living, the sustainable environment and the desire of access to nature, people do need a courtyard. After courtyard has come to Europe, things have changed a lot. In the past, such as in the 19th century, a courtyard was only meant to serve several families, for example the Eixample area in Barcelona, people living outside are exclusive. However after many years, the size and the form of courtyard have changed dramatically. Along with the rapid development of the urbanization, megahousing projects were realized in many cities, a bigger courtyard, which could serve more than 100 households, has become possible. The Hufeisensiedlung in Berlin from 1920s is a good example. Then some years later, the Barbican Estate in the city centre of London has went even further. Because of its location, size and diversity in function and space, the courtyard in this case has evolved to the next level. It is an unconventional courtyard.

The concept of having a big central courtyard which combines not only the inhabitants but also the city has inspired this thesis project. In the city Biel, in a residential area, this thesis project wants to offer the people a common space which is a courtyard and at the same time a "city square". This thesis book will start from analysing the history of courtyard and some previous examples in Europe. Then in the following sections it will discuss what differentiates a courtyard between conventional and unconventional, and how the differences are embodied in this thesis project.

Img. 03: The Gurzelen quartier



2. The Courtyards



The origin of courtyard

The idea of courtyard as a plan configuration goes back thousands of years to Neolithic settlements. In the very beginning, the logic behind this type plan was mainly to provide a protective area from outside forces, such as invasion by human and wild animals. Over time, it has developed into a solid, logical configuration that maximises the built-up area in the urban context and allows controlled sunlight, especially in regions where it is abundant.¹ Although courtyard housing can be found in every corner in the world, it has firstly become a generic housing typology in hot, arid climatic regions, such as Middle East, and it has formed the urban pattern in the madinas in the Islamic world. By having a courtyard in the middle of the house, people can maximise the use of the land and live very densely in a urban context. High density is then easily achieved by low-rise housing which also allows people to relate directly to earth and nature.

In Islam, the house and residence are very private realms.² Guests are welcome but are normally designated to a separate area. The courtyard is a private space only for the host family. For a variety of reasons, the courtyard is well defined by the high walls, and is considered as an extension in the outside space of their living area. People usually have a palm tree or a pond in their courtyard which would play an important role in offering comfort.

In many house types, the kitchen also opens to this space with an oven or a tandoor where the fuel is kept, and smoke is let out of the house immediately. Cooking is a major household activity for the women, and the preparation of food, cooking and, according to the season, food processing, like drying, pickling or other activities of food preservation, all take place in the courtyard.³

Img. 04: The Courtyard in Güzelen

Img. 05: Courtyard housing in Iran



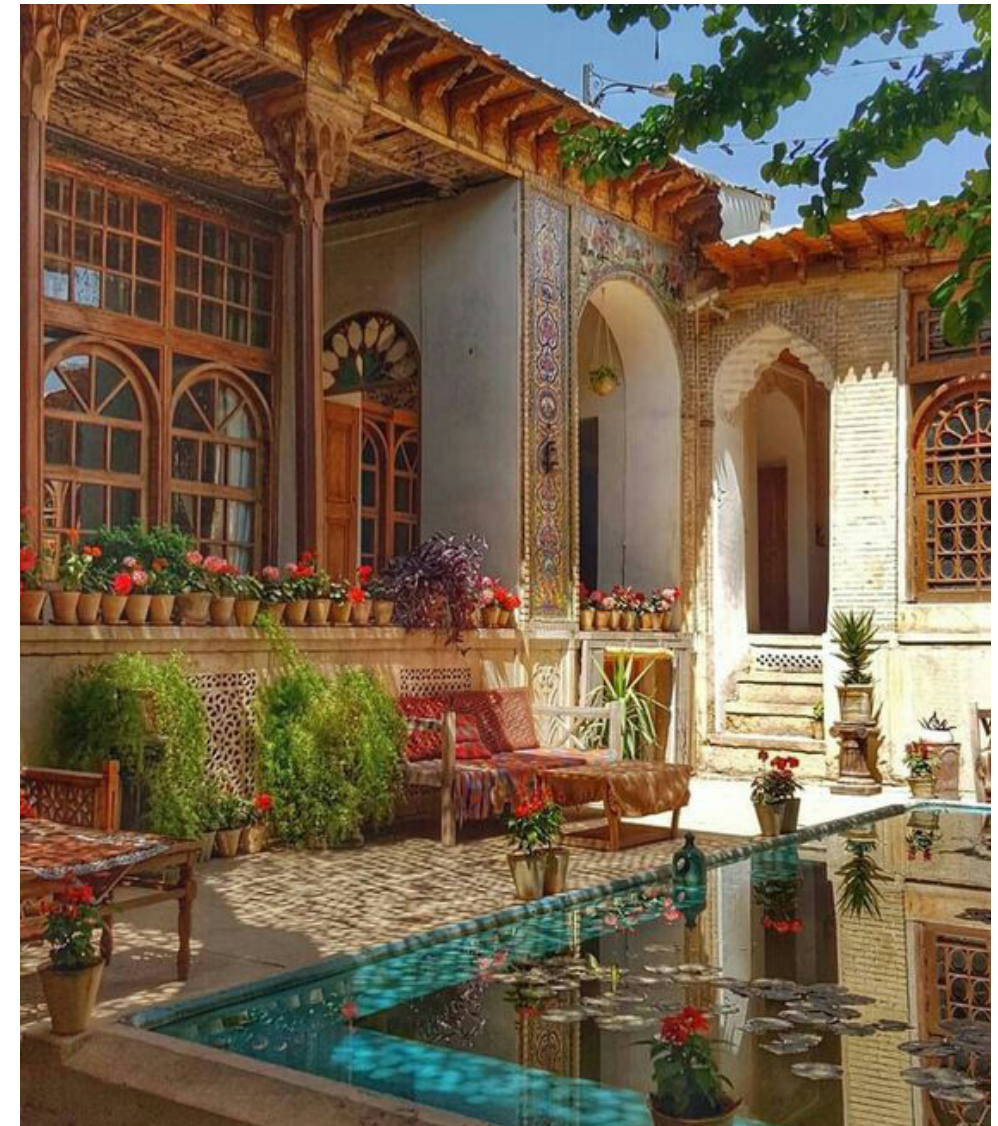
1. 2. Özkan (2005), P.15
3. Özkan (2005), P.16

As the city in Iran showed in the image 05, the form of the house, as the smallest component of the city form, has a fundamental spatial impact on the overall shape of the city. Residential building with a courtyard has been developed as a shelter to ensure a good microclimate for living and at the same time to provide protections from intensive sunlight or strong wind. The environmental factors have a huge influence on the shape of houses and cities.

The majority of land in Iran is located in hot and dry climate. Many of Iranian cities have been developed near the hot desert, which shapes two third of land in the country. One of the main climatic features in this region is the significant difference between the day and night temperature and, as a result, most Iranian cities have very hot days and very cold nights.⁴

A courtyard house has then become a common respond to this climatic environment. All the living spaces and windows face towards this central courtyard, on the street side, there are usually only high walls, which are meant to provide shadows. The courtyard is then always in shade and therefore becomes a nice recreational area for the family, all the living spaces face this cool open space. In this way, the least amount of the building area will be exposed to the direct sunlight and minimizes the amount the building exposed to direct solar radiation, thus reducing the total heat gained. Although it showed that the living spaces around the courtyard usually only face to the courtyard because of the climatic reasons, this typology of housing also provides better privacy for the Iranian people. Demand for privacy also effects the entrance of house. The front door of the house works as a buffer zone which separates the inside from outside and usually has been designed as long corridor or covered passageway which allows limited view to the privacy.

Img. 06: Courtyard in Iran



4. Nikeghbali (2017), P. 2

The european perimeter blocks

The european variant of courtyard housing is the perimeter blocks, which can be easily found in Europe, such as Barcelona and Berlin. In the 20th century, in many cities, especially in the northern Europe, in order to accommodate the growing population and maintain the medieval streets, a number of housing blocks were redesigned, retaining the buildings on the street, but removing the interior buildings to create shared outdoor green spaces for the entire block. The buildings are mostly of similar height within each block. This allowed for the street fabric to remain the same, while providing residents a quiet place outdoors. An excellent example is the Eixample area in Barcelona.

L'Eixample, which means "the extension" in Catalan, is the upper part of Barcelona city center, and a complete opposite to the lower part, Ciutat Vella. While Ciutat Vella is filled with small curvy, narrow claustrophobic streets. Eixample neighborhood is a perfect grid of large boulevards surrounding building blocks of the exact same size.⁵

In the middle of 19th century, Barcelona was a very dense city with many problems such as traffic congestion and high mortality rate. At that time, Barcelona was enclosed within its city walls, the area where the Eixample of 7.46 km² exists today was a space without any buildings. People there needed an urban solution. The plan for the extension of Barcelona came from a Catalan civil engineer, Ildefons Cerdà. Cerdà's plan was revolutionary for its time, as it focused on planning for hygiene and ease of mobility and transportation in a grid like structure.⁶

In order to increase hygiene and decrease mobility rate, in 1856 Cerdà planned the city blocks in the size of 113.3m by 113.3m, each corner of a block was either cut in a chamfer, or rounded. Between these housing blocks are large streets and boulevards. The main goal of his plan was to allow goods and materials to be easily transported around the city, a necessity for an industrializing city.



Img. 07: Barcelona urban texture

5. Barcelona-home, 2019

6. Plan Cerdà, The Extension of Barcelona - Cerdà's Initial Plan of 1856

In despite of many problems with the government, his plan was approved. The construction took place. In the first twenty years after the approval, only 100 hectares were built. It took almost fifty years for just one main avenue to be built. However, although the construction went slowly, the outcomt is quite good. Every housing block is a housing unit with a courtyard in the middle. And the building blocks are oriented in a way to get maximum exposure to the sun. Originally, the buildings were supposed to be constructed until the height that the sun would hit all the storys, including the ground floor. But his suggestion was ignored. Buildings rose up to 24 meters, blocking the air and sunshine that was supposed to circulate. What we see right now, the beautiful courtyard housing typology in this area was not the initial thing Cerdà wanted, his goal was the rigid street grids in order to ease the transportation, the courtyard housing is just a byproduct of his plan.

The courtyards according to Cerdà were supposed to be open, green space covered with trees, recreational areas for the inhabitants. As showed in image 08, today some of them work well, some don't. Some courtyards are too small to allow sunlight to get in, on the ground floor it would be dark and less vivid. In 1856 Cerdà can not predict this situation. Over the last decades, big cities have become bigger, Barcelona also expanded a lot, the Eixample is now very crowded, it is good for economic and tourism, maybe not ideal for living. The shops and restaurants have expanded into the courtyard and occupied the space. Only in few examples, the courtyards were realised as Cerdà imaged.

While in Iran a courtyard is normally owned only by one household, the housing courtyard in Eixample has become way bigger and can contain more people. In Eixample area there are 56.3 housing blocks per km², and in each housing block there are 700–750 inhabitants. The purpose of the courtyard has also changed dramatically. In Iran, the courtyard is supposed to provide shadow and comfort, protect people from arid climate and their privacy, which in Barcelona, it is the opposite. Cerdà wanted an open space for people to come together. It supposed to be an enjoyable space shared by the neighbors.

Not only in southern Europe, in Germany, where people are used to live in rowhouses with big backgardens, they would also enjoy a courtyard. In the 19th and 20th century, they built many diffetent kind of courtyards in Berlin.



Img. 08: Courtyards in Eixample

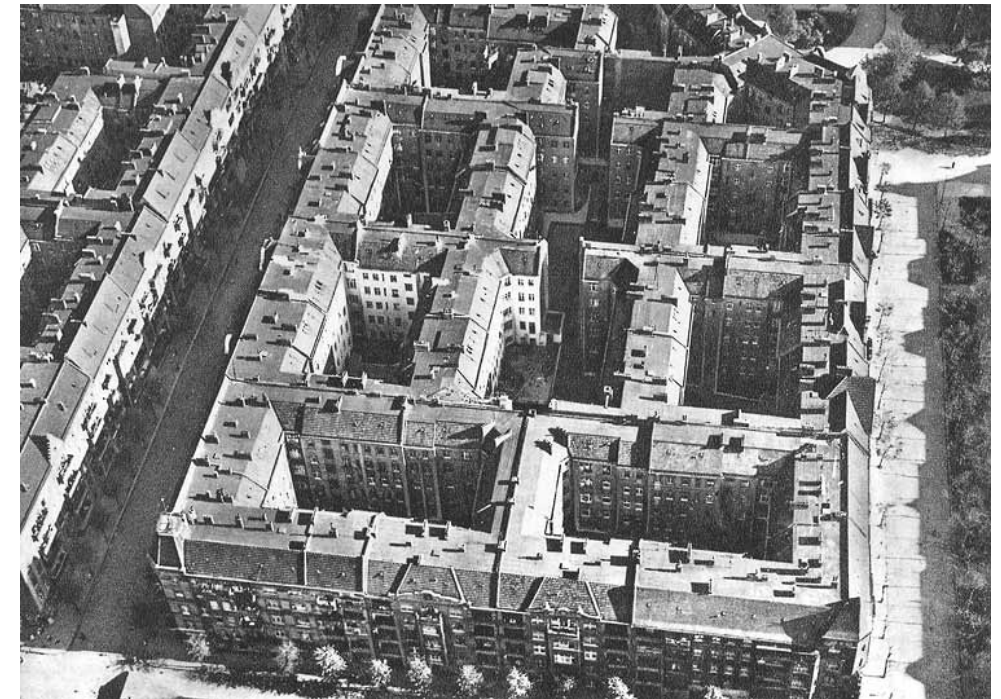
The Mietskasernen in Berlin

Berlin is a typical city made of perimeter blocks, all these began more than 100 years ago. Berlin with its continuous fabric of six-storey Mietskasernen (rental barracks) on James Hobrecht's extension plan from 1862 was not only the location of the densest urban development in Europe, it was also a centre of housing reform – already 40 years before the city became ultimately claimed as "the largest tenement city in the world".⁷ These tenements were typically built five or six-storey high for working class, these apartments were arranged in a series of blocks surrounding a central courtyard with minimum dimensions of 5.3 by 5.3m as specified by police regulations. As showed in the image 09, the courtyards are very crowded, they only provide the residents limited light and fresh air. The Mietskasernen then came to dominate housing typology in Berlin. Many theorists would suggest to build settlements in the outskirt of the city. But for the reason, why building these housings in the city, Berlin architect Theodor Goecke, a leading figure of tenement reform and later editor of the first journal on urban design "Der Städtebau", wrote: "No, the worker prefers to be surrounded by the hustle and bustle of the city. He enjoys the excitement of the streets, he takes full advantage of the size of the community in satisfying his needs and it is here that he finds his pleasures. For this reason many leave their work places in the countryside every year. Therefore, nothing would be a greater mistake than building lots of workers houses far from the city."

When building high-density residential blocks, the courtyard housing has been proved to be an effective approach. The Mietkasernen also laid the base for Berlin's urban texture. Some years later, one housing project in Berlin with the same approach has showed us another possibility of courtyard housing.

The Hufeisensiedlung

The Hufeisensiedlung situates in a peripheral area in south Berlin, built in 1925–33. The Hufeisensiedlung is probably the most



Img. 09: Aerial view Mietskasernen

Img. 10: The courtyard in Mietskasernen

7. Mietskasernen: Working Class Berlin, 1871-1922

outstanding example of innovative German town planning during the 1920s. One of the most urgent problems after the first World War was the huge demand of the affordable housing for the growing urban population. This was especially true for the capital of Germany, whose population had grown rapidly in the decades before 1920 and there was a shortage of more than 100,000 apartments. In order to meet this huge demand, numerous large housing estates were built within a few years. The Hufeisensiedlung in the Britz district designed by architect Bruno Taut was one of them. The complex covers an area of around 30 hectares and provides a total of 1285 apartments in three storey buildings along the streets as well as 679 terraced houses with gardens. The 350m long, horseshoe-shaped, curved main building in the center of the development is the hallmark of the complex.

Taut's concept of the horseshoe-shaped building was derived from his desire to fulfil the needs of its inhabitants for socialisation and nature. His intention was that the inhabitants of the estate would have direct contact to the nature and enjoy the fresh air, light and sun, if they want, they can just step out of their apartments and find themselves in the nature. Apartments on the ground floor have access to their own gardens, and in the middle of the housing there is a big lawn with a little pond, the lawn is not only for the residents, it is also open to the neighbors through a public square. The height of the houses and the openings to the courtyard are in an appropriate relation. Besides that, the color of the building is also carefully chosen, which indicates the different function and gives the centre park a very romantic atmosphere. Bruno Taut pushed the courtyard in this housing project further, by having a tranquil central courtyard, which is bigger than others and is purely nature, he reached the wanted high density, he made this project poetic and the living standard here is much higher. No doubt that this project is successful.

However, this courtyard of Hufeisensiedlung is still a conventional one like the ones we already know. The concept of the courtyard is the same, the exclusivity is still to be found.

Img. 11, 12: The Hufeisensiedlung



What is a Courtyard

When talking about courtyard, one has to ask himself, what exactly is a courtyard. According to Wikipedia, the definition of courtyard is simple. It is a circumscribed open area, that is surrounded by buildings and is open to the sky. People do activities in the middle and live or run business around the central open area. Actually we can find many examples that meet this definition, however we never call them a courtyard, such as the city squares in Europe. Almost every city in Europe has a open square in the city center, the square meets the definition perfectly, but people would never call it a courtyard. Why is that?



Img. 13: The Plaza Mayor

In the image 13 is the Plaza Mayor in Madrid. Architect Juan de Herrera did the original design, it was completed in 1619. Unfortunately, it then suffered several times from fire and was last rebuilt in 1854. Nowadays, people can find pleasant outdoor cafes and restaurants there. Many special events occur in the plaza as well. The question is, why would nobody call it courtyard?

One important reason is that people expect a courtyard to be tranquil and quiet. The Plaza Mayor is fully commercialized, too many tourists come across the square, there is no quiet time in the

day. Apart from the shops and restaurants, the size is also crucial. A courtyard has to have a human-friendly dimension. The Plaza Mayor measures 129m in length and 94m in width, with no shelters in the middle. People are fully exposed to the sky. It is maybe good for a city square, but not for a courtyard. Another issue is the materialization. A courtyard is usually seen as a recreational space. The hard pavement in the Plaza Mayor relates less to that.

The Courtyards we know

The courtyards house in Iran possess some very important and attractive features which are inherent in its concept and shape. The inward looking courtyards offer the family privacy. The enclosed house effectively excludes the noise, dust. The courtyard is a space that offers the family a quiet private area. In Barcelona, the courtyards became bigger and more public, it is no more for one household, but for many. The courtyards were designed to be a enjoyable space for the inhabitants. Although the outcome of the courtyard is not what Cerdà wanted initially, the Eixample area has become an exceptional example of courtyard housing. The Mietskasernen was the first try of the german courtyard housing, not successful but laid the basis for the city's future housing development. The Hufeisensiedlung in Berlin then went bigger and had a special shape, a poetic garden, the living standard is then much higher. In a more contemporary context, the courtyard housing is still a widely applied approach when designing large settlements, especially in Europe. The danmark office BIG did a lots of courtyard housings in a more modern way, they have achieved a lot of successes. Nevertheless, these courtyards were still done in an imaginable way and were playing by rules. These courtyards are just a garden, they are meant to serve certain people, they are only an appendage to the housing, they can not stand on itself.

These are the courtyards we always know. They have done what we expect from a courtyard. But then people would question, is this enough, what is the potential of a courtyard, what else can be done within a courtyard?



The courtyards we didn't know

On the night of 29 December 1940, the German aircraft bombed an area in the heart of London that comprised a Roman wall called Barbican. After the war, London was in need of high-density apartments in Barbican. In 1957, the Court of Common Council agreed on an ambitious project that included not just apartments, but an entire complex that would include schools, gardens, museums, shopping centers, offices, restaurants, and a performing arts center. Joe Chamberlin, Geoffrey Powell, and Christoph Bon were asked to design this project. The Barbican Estate took more than ten years to construct and first opened its doors to the public in 1982. The Barbican Estate was designed more than 60 years ago, and it is still revolutionary.

According to Le Corbusier in *la Ville Radieuse*, symmetrical, prefabricated concrete structures would be built for housing, commerce, education, etc., and would be spread out across large spaces. These spaces would be elevated on raised platforms and bridges for pedestrians, above the traffic of trains and vehicles. The Barbican Estate was designed exactly by this principle. The Barbican comprises a network of elevated pathways and a platform to serve pedestrians and separate them from cars; all the parkings are put underground; this would allow people to walk without an anxious awareness of fast-moving vehicles and in circumstances where conversation is not drowned by traffic noises, though the pathway is higher than surrounding land, it appears to be the ground once people are on it.

“The best example of a city where foot and service traffic is completely segregated is Venice where all supplies are carried to the city on canals, while pedestrians walk on pavements which cross the canals by bridges. This segregation has worked admirably for many centuries and there is no good reason why the principle should not be applied equally effectively in the City of London.”⁸

Chamberlin, Powell & Bon, April 1959

Img. 14: The Barbican Estate

Img. 15: The Courtyard

Img. 16: The Apartment

8. Traffic segregation





The Barbican Estate includes thirteen terrace blocks and three towers. In addition to the blocks, there are two mews, which are small houses composed of two floors, and a number of townhouses.⁹ The residential units were designed to ensure that all rooms get fresh air and daylight. So the housing blocks are arranged in perpendicular directions, windows and balconies are open to both sides. Living spaces and bedrooms are located externally, while kitchens and bathrooms are confined internally.

The visual and spatial scenery is arranged in a very diverse way. When people walk in Barbican, they can experience the building itself as an exceptional example of Brutalism, different programs are put in different levels, going up and down they will bump into artificial ponds, theatre hall, art gallery and even a botanical garden. A variety of spaces with distinct qualities, many with a relationship to water, can be found in the area. Despite being invisible from the street, the lakeside terrace is Barbican's best public space. The Barbican Centre is in the near, the café and the lake provide intimate and communal spaces for enjoyment. The majority of the green spaces in this area is closed to the public. However, these gardens are often visible from different spaces or pathways. These green spaces provide quiet oasis, allowing the sounds of human activities to be heard. The green spaces in Barbican are greatly valued and considered as a defining part of its unique character.



Img. 17: The lakeshore

Img. 18: The garden

Img. 19: The Courtyard

9.The Barbican Complex: A Brutalist Post-War British Icon

The courtyard in Barbican Estate is the one we didn't know. It was designed as an urban microcosm, with residential blocks arranged around the inner communal spaces. It is not anymore a courtyard which only provides peaceful garden and separates the housing apart from the rest of the city. It is the opposite. Although lacking of clear entries, once getting out of the Barbican metro station, people meet with a busy junction and blank walls, only those who are familiar with this area would know that by crossing a road or a bridge, they can access an alternative route which leads to the Barbican. People first come here would always lost their way, the Barbican invites the city to come into the courtyard not by the openings but by its diverse spaces and activities in the courtyard. The Barbican has brought new lights to courtyard, a courtyard can do way more things than what a normal garden does.

It is easy to distinguish the courtyard in Barbican from the others. It is very different from the Plaza Mayor in Madrid and the conventional courtyards. The Plaza Mayor and the conventional courtyards are always built in a regular form, mostly in rectangular shape. The one in Barbican is an interconnected space made of small courtyards. Within the courtyard, people do not feel monotone. The materialization of the ground of the courtyard is more interesting, there are brick pavement, grass surface and artificial lakes. The public functions are organised in a "podium" space.

"Podium" is normally used for the raised stage on which an orchestra sits. In the Barbican, it is the raised stage on which an entire village-within-a-city sits. It became a fundamental design element of the proposed development.¹⁰

Not only spatially, functionally it is also diverse. Within the Barbican Estate, people can find both tranquil, quiet and more loud, vivid space. These make the courtyard in Barbican different from the others, an unconventional courtyard.

The inhabitants in Biel was about 55,120 in 2018. Compared to London, Biel is way smaller and less urban. When building a housing project in the outskirts area of Biel, one has to consider the existing situation and adapt the concept of unconventional courtyard properly into the existing urban context.

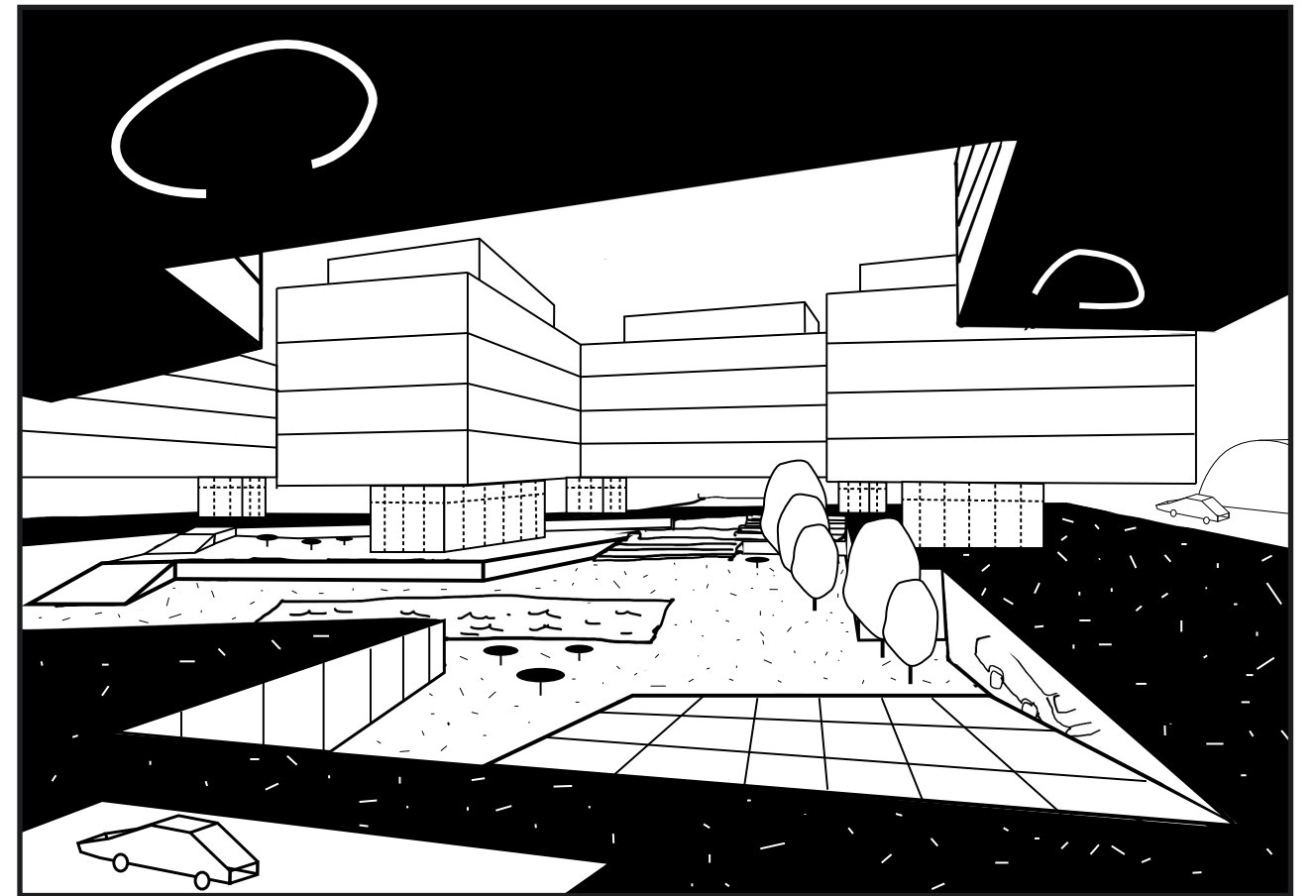
10.Traffic segregation



Img. 20: The Facade to the street

Img. 21: The Pathway

3. Thesis



People have a strong desire for social and cultural exchange in their free time. A central courtyard is possible and very desirable in a contemporary housing project in Europe, it can offer technical, planning and design solutions that allow housing to meet a variety of social and commercial need in our modern life. By doing a housing project with the target of around 350,000 m², it is a good chance to fulfil this goal — a diverse urban life within an unconventional courtyard.

Courtyard as an element of architecture has a very long history. Typical characters of a courtyard are the surrounding buildings and the inner open free space. As analysed before, not every thing meets this definition can be called courtyard, such as the city squares. People would ask, what differentiates the city squares and a courtyard, and what are the differences between a conventional and an unconventional courtyard? The chart on the right side lists some keywords for the distinguishment.

The city squares are normally big, loud, paved with hard stones and fully commercialized. It is more about gathering adn assembly than recreation. A courtyard is expected to be a quiet spcae. A conventional courtyard is normally enclosed by the perimeter walls, in the middle is the free green space, which is smaller than the city squares and offers a quiet, tranquil atmosphere. The neighbors and the city are not welcome to come in. It is exclusive. However an unconventional one is more open and diverse in the space and function, can be quiet or not. People are welcome to join, the ground floor is shared by both the inhabitants and the city. The unconventional courtyards are more public—oriented than the conventional ones.

Inspired by the Barbican, this thesis project wants to archieve the goal with an unconventional courtyard: firstly, provide comfortable and interesting apartments; secondly, on the ground floor and in the central courtyard, in a diverse space, different things would be offerd to the inhabitants and the city.

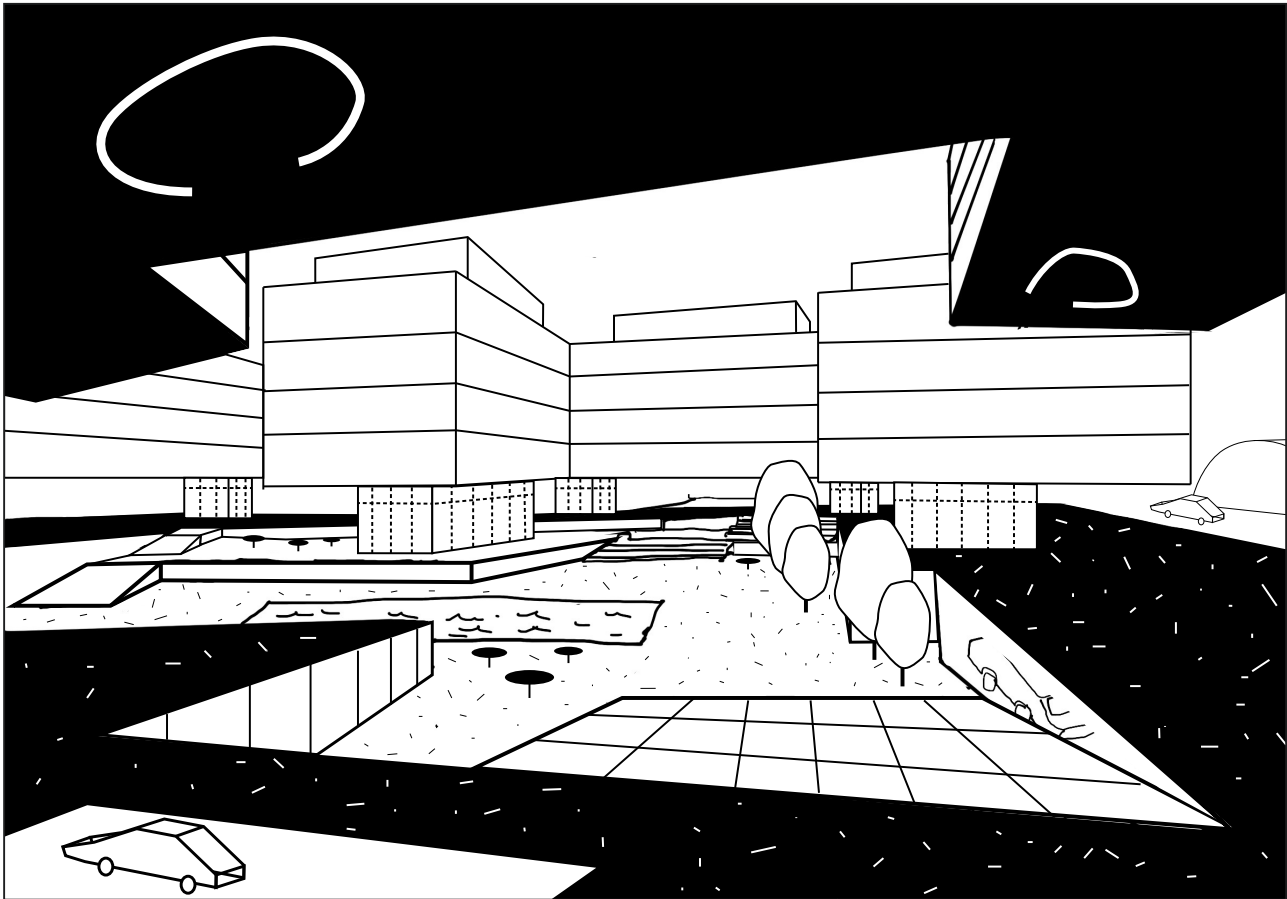
Img. 22: Sketch, the Courtyard

	City Square	Conventional Courtyard	Unconventional Courtyard
Example	Plaza Mayor Madrid	Hufeisensiedlung Berlin	Barbican Estate London
Size	big	small	big
Form	regular	regular	irregular
Space	single	single	interconnected
Privacy	public	private	semi-public
Commercialization	high	low	middle
Acoustic	loud	quiet	loud / quiet
Materialization	monotone	monotone	diverse

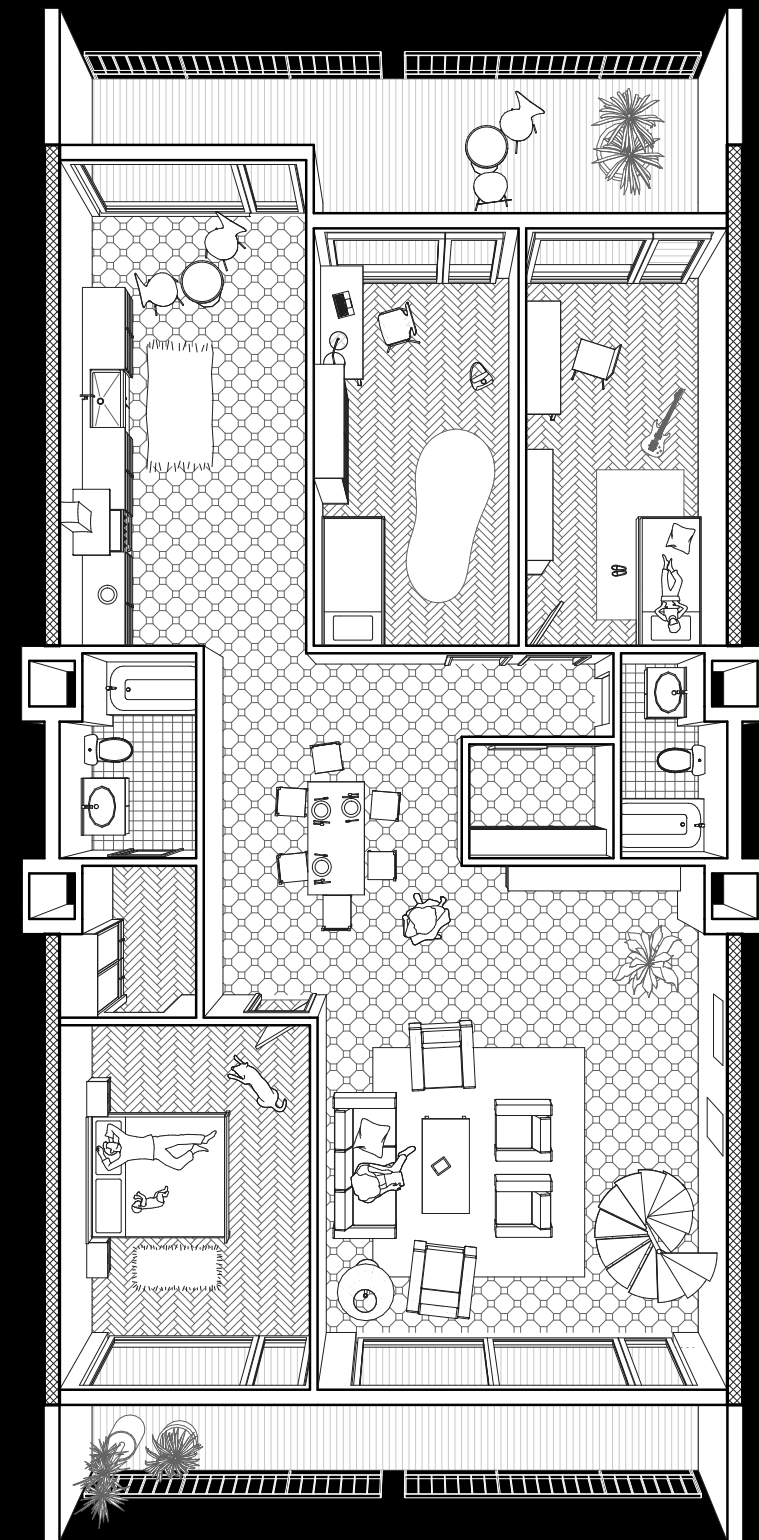
The sketch below and the rendering on the right side illustrate the spatial idea of this thesis project. The ground floor would be free and open, people would have accesses to the courtyard from many directions. Once coming in, people can go down to the sunken plaza which is the courtyard, different activities can be organised there, a library, the exhibition room and the garage are arranged along the sunken plaza. The apartments are in linear structure and are elevated from ground floor.

Img. 23: Sketch, the Courtyard

Img. 24: Rendering, the Courtyard



4. The Courtyard in Gurzelen



Img. 25: The Apartment

The Gurzelen area is experiencing a comprehensive redesign. This includes the "Jardin du Paradis" residential park, the new Swatch Campus with the "Cité du Temps" museums and the Schüssinsel public park. Among the goal of a high-quality urban densification in this quartier, the focus in Gurzelen is the construction of a settlement with mainly cooperative housing and the design of public space. Both will take place on the site of a former football stadium. The City of Biel is not only the planning authority, but also the owner of the entire site. This gives every opportunity to promote high-quality development with a large proportion of non-profit housing construction. This thesis project aimed to resolve these problems with the concept of an unconventional courtyard. An unconventional courtyard is different to a conventional one in many criteria. In this section, the thesis project would be fully analysed in all these places.

Size, Form & Space

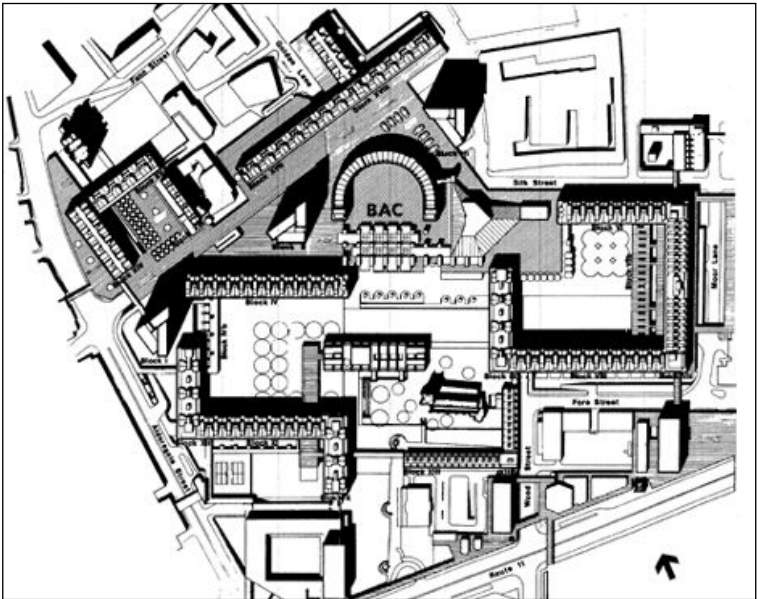
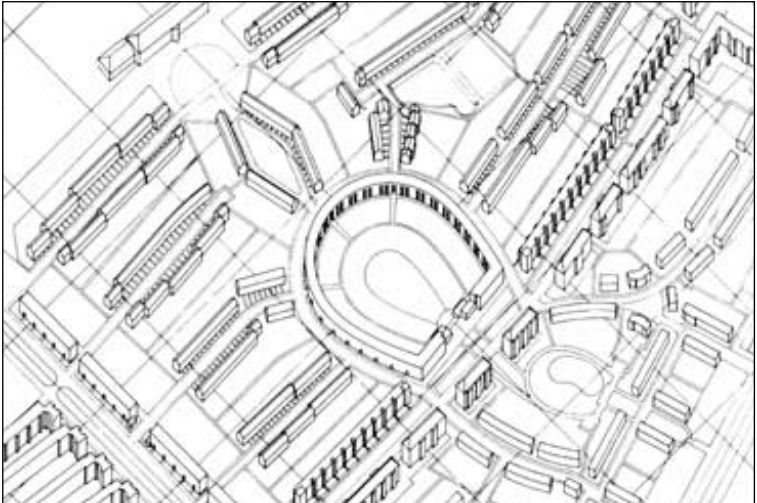
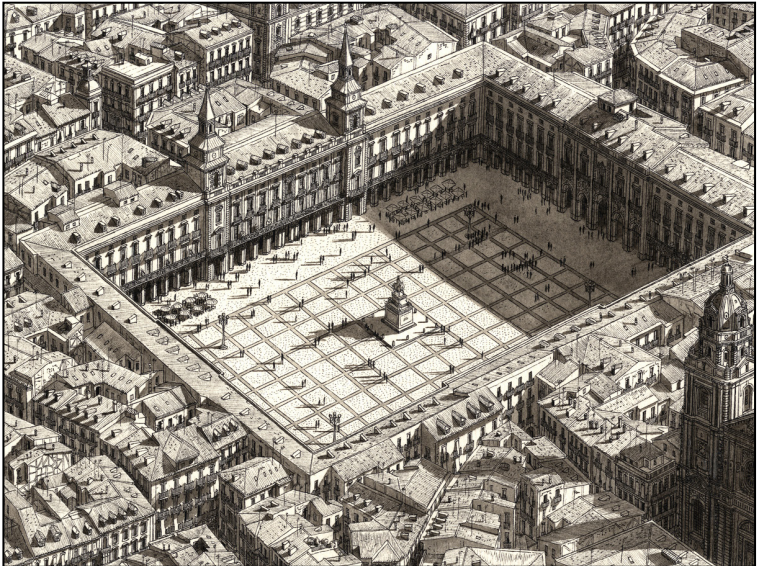
Every city and town in Europe revolves around a beautiful square, which most of the times, represents its beating heart, history and culture. The same is ture for the Plaza Mayor. Throughout the years, the Plaza Mayor has been used for a variety of different purposes. It was once the centre of old Madrid and used as a market place for food and other goods. It has also been the site of many events like bullfights, public executions and trials during the spanish Inquisition.¹¹ Due to its unique location, function and historical status, the square is rectangular in shape and has a good size to accommodate a large amount of people. And to enter and exit there are nine gates. The Plaza Mayor works very well till today, on every Sunday and holiday it hosts collecting market in the morning. The courtyards in Hufeisensiedlung and Barbican are both radical and revolutionary. They are big and not in a common shape. The horseshoe-shaped courtyard in Hufeisensiedlung is poetic and is almost like a city park. Because of its unique location and ambitious plans, the Barbican Estate is huge and has multiple small courtyards which are interconnected. These small courtyards are already big enough in themselves. That is what makes the Barbican courtyard unconventional: no more a single courtyard in a common shape.

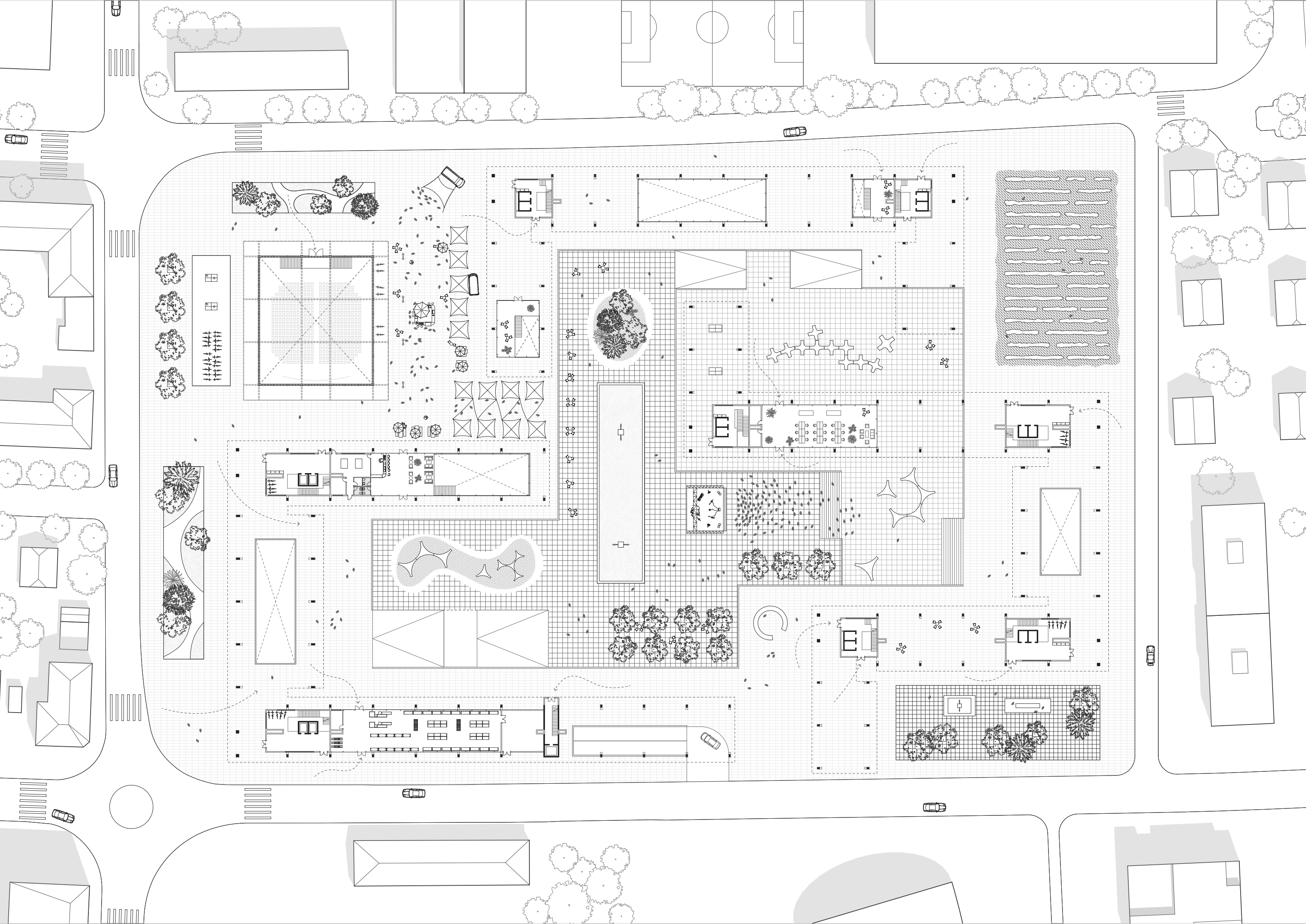
Img. 26: The Plaza Mayor

Img. 27: Hufeisensiedlung

Img. 28: The Barbican Estate

11.A Brief History of the Plaza Mayor





Img. 29: The ground floor

Inspired by the Barbican, although due to the urban context the size is way smaller, the courtyard in Gurzelen has a courtyard which is also interconnected by many smaller ones. These smaller courtyards are enclosed by three linear housing blocks and are on two different height levels. People can directly go to the deeper one, which is 3m lower than the ground floor, or they can first walk to the -1.5m level, then go to the -3m level. The openings of the courtyard to the city and the stairs or ramps which lead to the lower levels are abundantly wide. The ground floor surrounding the central courtyard is 4.2m high, very flexible and walkable, there are only the necessary auxiliary functions on the ground floor, the rest of the space is free to use. That makes the courtyard very accessible.

Privacy & Commercialization

People in Europe have a long history of gathering in the city center. Early in ancient Greek, the city square was called Agora. It is the best representation of city form's response to accommodate the social and political life. The literal meaning of the word is "gathering place" or "assembly". The Agora was the center of the athletic, artistic, spiritual and political life in the city. Later, the Agora has become a market place, where merchants kept stalls or shops to sell their goods.¹² Because of the influence of ancient Greek and the location, it is not surprising that all the city squares in Europe are accessible from every direction and are fully commercialized. While the city squares are open and are meant to serve the citizens, the prime target of the conventional courtyards is the people who live in the settlement. Even though the courtyard in Hufeisensiedlung has a big opening to the street, it is still a private one in some extent. Because it is too far from the city, it locates in the outskirts of Berlin, not too many people would visit the courtyard. But as an unconventional courtyard in the historical and commercial center of London, the Barbican Estate keeps its privacy for the inhabitants very well while is accessible for everybody. Firstly, all the loud, public functions are centralized on the lakeside. Secondly, there is no apartment on the walking level. In order to go to their apartment, people first have to go to the staircase core, then go either up or down.

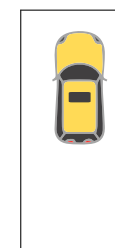
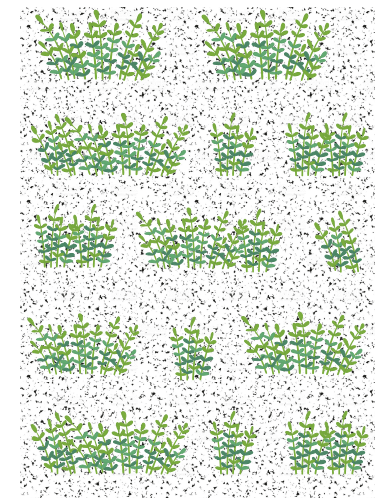
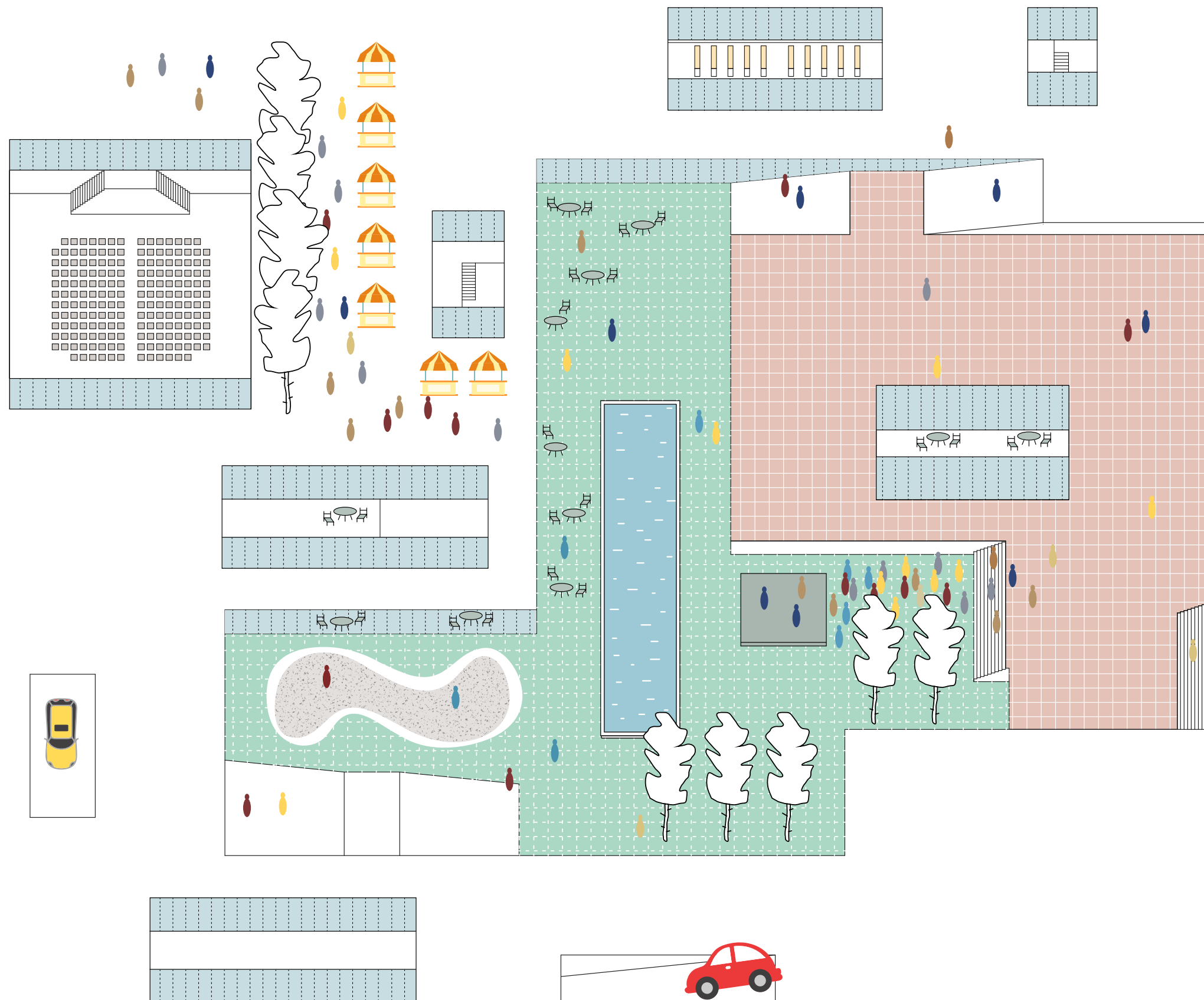


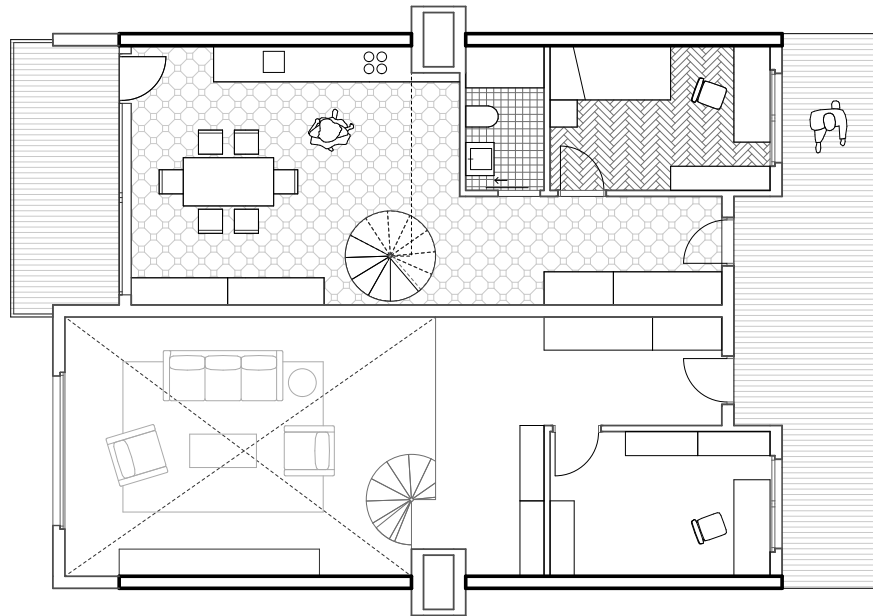
Img. 30: The Barbican Estate

Img. 31: Rendering

12. Agora



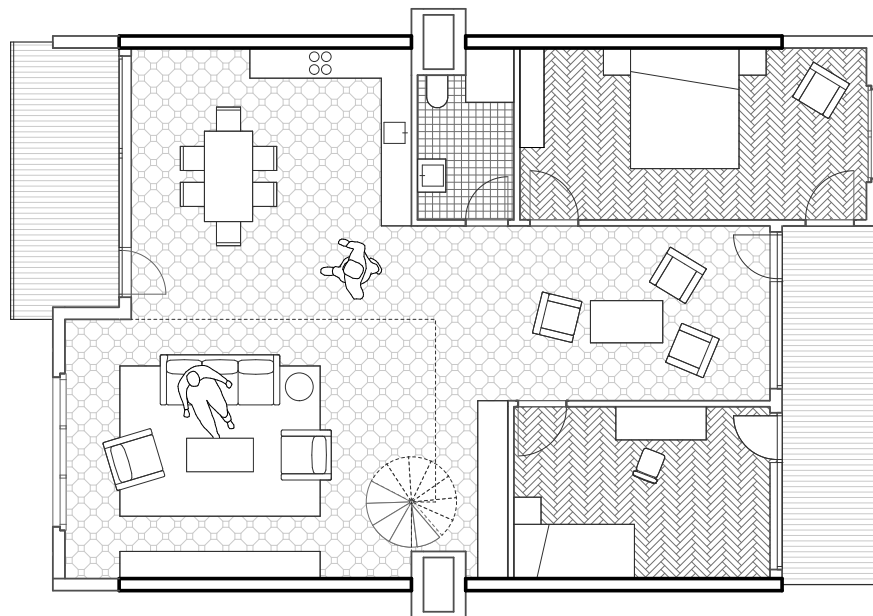




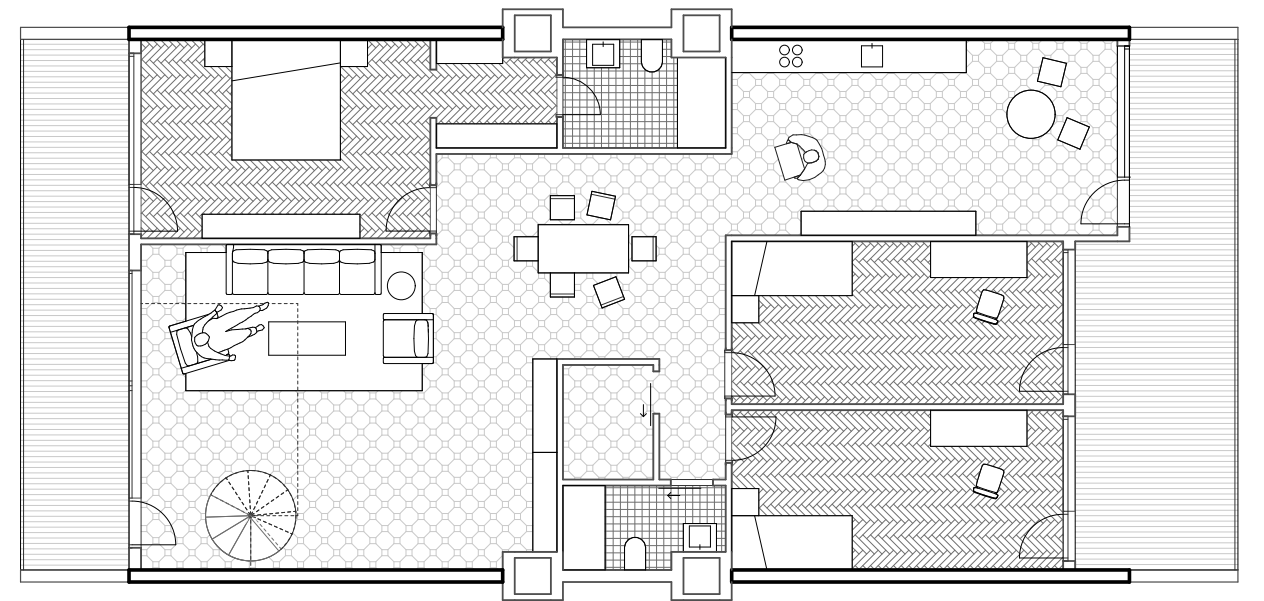
2. Floor



2. Floor



1. Floor



1. Floor

Img. 32: The Courtyard

Img. 33: Apartment layout

Img. 34: Apartment layout

The Gurzelen project applied the same strategy. The ground floor is on the same level to the street. The public functions, such as the auditorium for the school, the café, the garage, the shop, the restaurant and most importantly the courtyard are either on the ground floor or on the -3m level. People have their apartments from the first floor on. By having exterior corridors, there are only limited staircase cores at the corners of the housing blocks. So people can have their privacy on the upper floors and the ground floor can be kept open and flexible.

Acoustic & Materialization

The sense of auditory and tactile is crucial for feeling the atmosphere of one space. The city squares are meant to be loud, and for being able to hold a variety of activities the ground should be flexible. Stones or marbles are always chosen as the paving material. But for a courtyard it is very different. A courtyard is where people can renew their health and spirits. Grass and trees are the common material of a conventional courtyard. People tend to create an artificial nature in the conventional courtyards. For the unconventional ones, the material can be more diverse. In the Barbican, there are hard pavements, water, and green. These different materials have enriched the atmosphere of the space very much.

Same for the Gurzelen project, in the central courtyard there are sands, grass, trees and a little artificial pond. These materials in the courtyard tend to achieve a more recreational space for the people and the diverse materials can also make the space more alive and attracting. That is another character of an unconventional courtyard. The garage, the café and the exhibition room have a direct relationship to the courtyard. After parking, people can take the lifts to go up to their apartment, or they can go to the exhibition room or to the courtyard. At the northeast corner on the ground floor, there is a little field for growing crops. That what happens right now on the site in Gurzelen. People like to grow their own tomatoes, that is to inherit the spirit of Gurzelen. The little field near the auditorium is paved with stones, that is for organizing events for the school or can be used for weekend market for the inhabitants.

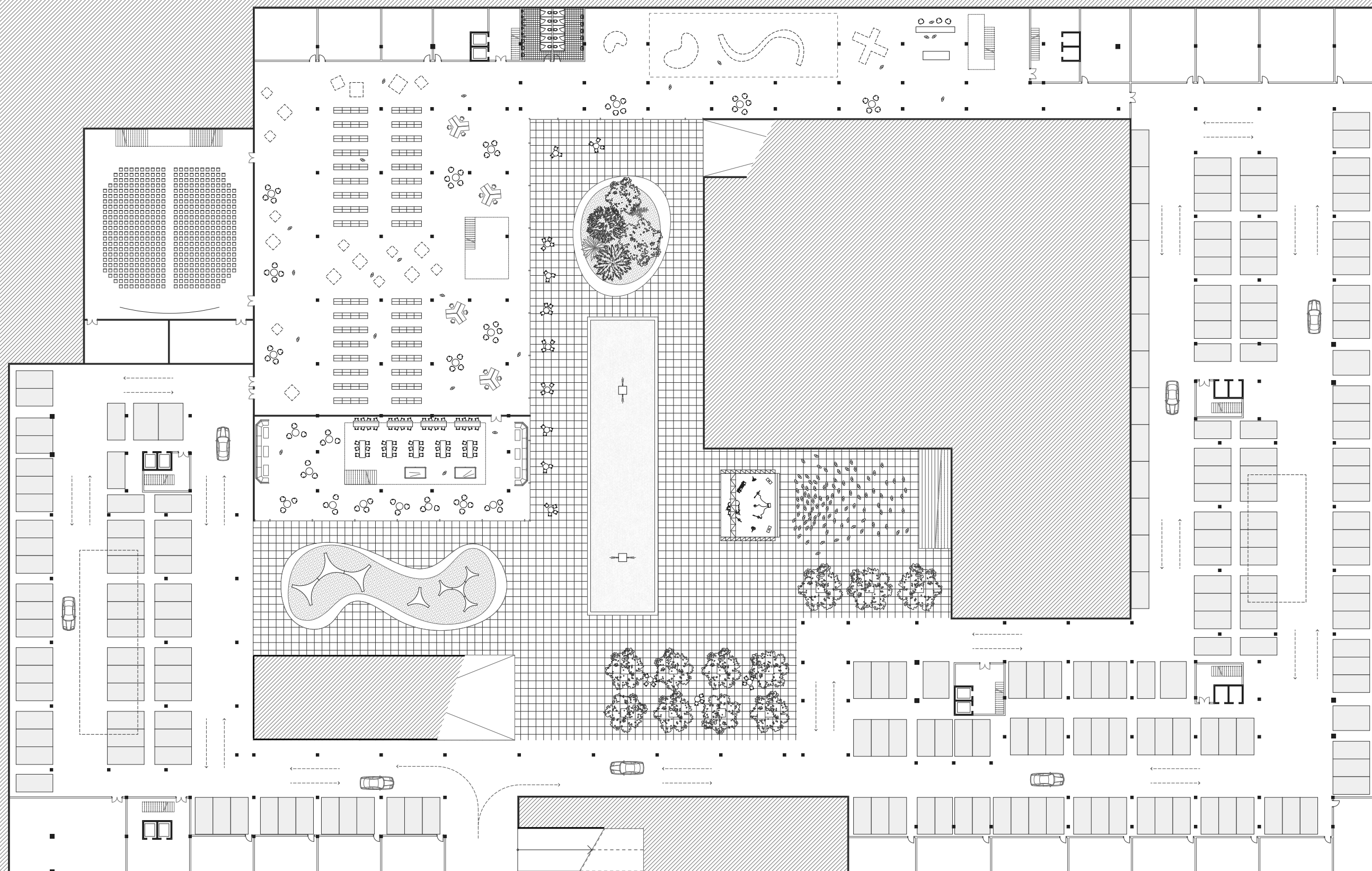
Img. 35: Rendering

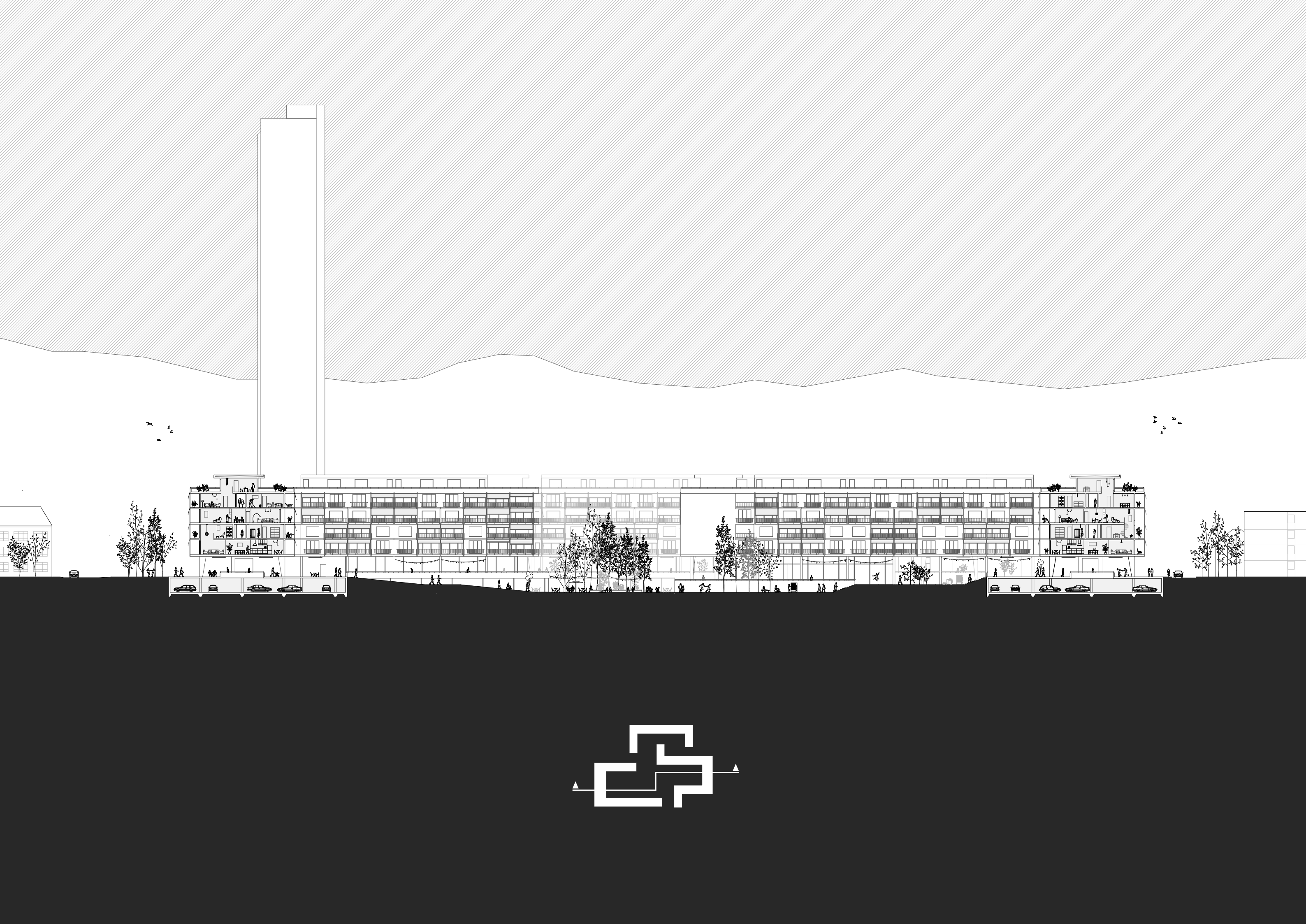
Img. 36: Garage

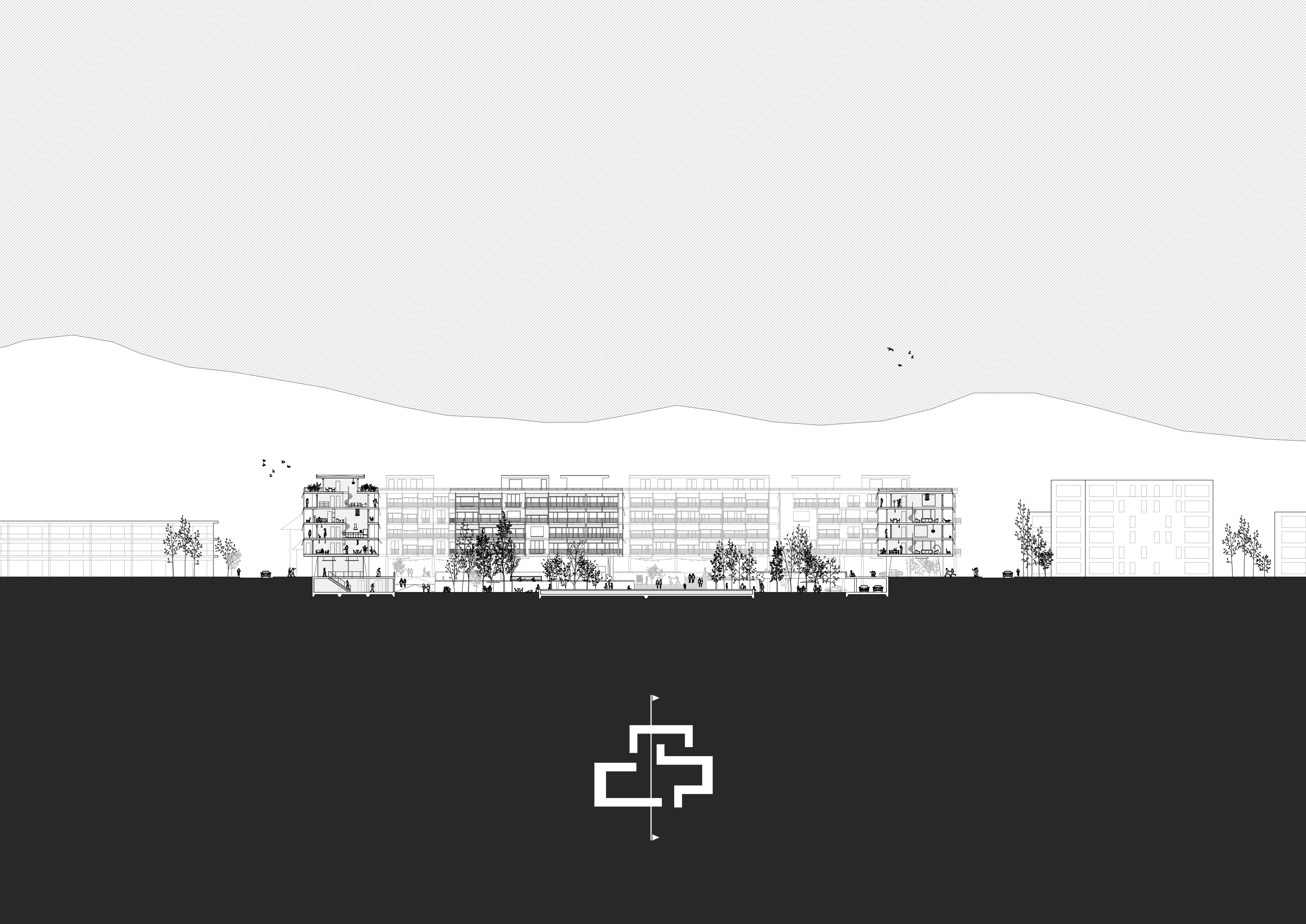
Img. 37: Section

Img. 38: Section









5. Summary

When building a courtyard, one has to keep in mind that it has to be a quiet, tranquil and recreational space. The windows of surrounding buildings towards inward to the courtyard have to enjoy a peaceful atmosphere. Not having a peaceful atmosphere distinguishes the city squares from a courtyard. In the recent years, many architects like BIG have tried to apply the courtyard for housing projects in a more contemporary way. But they did it in a superficial way. A mountainlike silhouette does not make the courtyard much different to the conventional ones. Lacking diversity in space and function distinguishes the conventional courtyards from the unconventional ones. Even designed more than 60 years ago, the unconventional courtyard in Barbican Estate is still exceptional, inspiring and can not be copied anywhere else.

An unconventional courtyard requires some objective conditions as the basis, the location, the size and the programmes are crucial as well. Based on what the city needs, this thesis project envisaged how an unconventional courtyard can integrate itself into a less urban context in Biel. By having an unconventional courtyard which is rich in space and function and satisfies the needs for physical and psychological health, the inhabitants in this settlement would have a more attracting courtyard in front of their doors, the diversity and quality of the Gurzelen quartier have been increased.

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Img. 01: Cartoon of rebuilding Gurzelen

Img. 02: The city Biel

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Img. 05: Courtyard housing in Iran
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Img. 09: Aerial view Mietskasernen
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Img. 10: The courtyard in Mietskasernen

Img. 11, 12: The Hufeisensiedlung
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Img. 13: The Plaza Mayor
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Img. 14: The Barbican Estate
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Img. 15: The Courtyard
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Img. 16: The Apartment
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Img. 17: The lakeshore
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Img. 18: The garden

Img. 19: The Courtyard
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Img. 22: Sketch, the Courtyard

Img. 23: Sketch, the Courtyard

Img. 24: Rendering, the Courtyard

Img. 25: The Apartment

Img. 26: The Plaza Mayor
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Img. 27: Hufeisensiedlung
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Img. 28: The Barbican Estate
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Img. 29: The ground floor

Img. 30: The Barbican Estate
<https://divisare.com/projects/416176-chamberlin-powell-and-bon-lorenzo-zandri-the-barbican-estate> (08,06,2020)

Img. 31: Rendering

Img. 32: The Courtyard

Img. 33: Apartment layout

Img. 34: Apartment layout

Img. 35: Rendering

Img. 36: Gargage

Img. 37: Section

Img. 38: Section

Declaration of honesty

I hereby declare that this thesis book with title:

Not a conventional courtyard

The interpretation of an unconventional courtyard in Gurzelen

is independently written by myself and has mentioned all used sources, without deliberately copying the work of others and will take full credit for it.

Kai Chen
Obermattweg 9
6052 Hergiswil NW

12.06.2020

