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Hybrid developments in high-density areas

Comparing Hybrid types for “Zone Zollamt” in Vienna

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**Hybrid developments
in high-density areas**

Comparing Hybrid types for “Zone Zollamt” in Vienna

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硕士学位论文

高密度地区的混合开发

以维也纳“Zone Zollamt”地区的混合模式比较研究为例

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Abstract

Mixed-use buildings are not a new invention, mixing different uses within one building or development has a long tradition. In former times it was quite normal that the ground floor area was used for shops and the upper floors for office space and housing. During the industrial revolution the urban areas were divided into different zones, every zone with a designated use. The invention of the automobile played a decisive role as it was now possible to travel longer distances quick and easy. Nowadays there is again a movement towards mixed-use buildings in order to avoid that some areas in the city are only used at certain times.

This paper examines the influence of mixed-use as well as the shape of the building on the environment and the city in general. An important question is: How can we positively influence the city life with hybrid buildings? Based on a description of the historical development the architectural changes of developments with mixed use are evaluated. The various aspects of mixed-use buildings are illuminated. Perceptions about this type of building are also determined by the observation of existing examples.

The aim of this study is to investigate various extreme versions of hybrid buildings at the area of “Zone Zollamt” in Vienna and thereby get also information for other properties. The work has the task of finding out what the benefits and disadvantages of the different versions are, in order to form a basis for the future development plans of the “Zone Zollamt” area.

Keywords: hybrid building, mixed-use development, Vienna, Zone Zollamt

Kurzfassung

Mixed-use Gebäude sind keine neue Erfindung, das Mischen von verschiedenen Nutzungen innerhalb eines Bauwerks hat eine lange Tradition. Früher war es ganz normal, dass die Erdgeschosszone für Geschäfte genutzt wurde und die darüber liegenden Geschosse als Bürofläche und Wohnraum verwendet wurden. Während der Industrialisierung wurden städtische Gebiete in verschiedene Zonen eingeteilt, welche bestimmte Nutzungen zugeteilt bekommen haben. Die Erfindung des Automobils trug dabei eine entscheidende Rolle, da es nun möglich war schnell und einfach längere Distanzen zurück zulegen. Heutzutage gibt es wieder eine Bewegung hin zu einer Mischnutzung in Gebäuden um zu verhindern, dass manche Gegenden in der Stadt nur zu bestimmten Zeiten von den Bewohnern der Stadt genutzt werden.

Diese Arbeit untersucht welchen Einfluss die Mischnutzung sowie auch die Form des Gebäudes auf die Umgebung und die Stadt im Allgemeinen haben. Eine wichtige Fragestellung ist: Wie kann man mit Hybrid Gebäuden das Leben in der Stadt positiv beeinflussen? Anhand einer Darstellung der historischen Entwicklung wird die architektonische Veränderung von Bauwerken mit Mischnutzung im Laufe der Zeit untersucht. Die verschiedenen Aspekte eines Mixed-use-Gebäudes werden beleuchtet. Durch die Betrachtung von Beispielen werden ebenfalls Erkenntnisse über diesen Gebäudetyp ermittelt.

Ziel dieser Arbeit ist es, zu untersuchen, welchen Einfluss verschiedene extreme Varianten von Hybrid Gebäuden auf das Gebiet „Zone Zollamt“ in Wien haben und dadurch auch Aufschluss für andere Grundstücke zu bekommen. Die Arbeit hat die Aufgabe, herauszufinden was die Vorteile und was die Nachteile der verschiedenen Varianten sind und somit eine Grundlage für die künftige Entwicklung des Gebiets „Zone Zollamt“ zu bilden.

Keywords: Hybrid Gebäude, Mixed-use, Wien, Zone Zollamt, Mischnutzung

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INTRODUCTION

1.1 Introduction

This paper deals with the theme “Hybrid developments in high-density areas – Comparing Hybrid types for ‘Zone Zollamt’ in Vienna” and was processed and submitted in the context of the Double Degree Diploma at the Institute of Urban Design and Landscape Architecture at the Technical University (TU) of Vienna and at the College of Architecture and Urban Planning at the Tongji University of Shanghai. In this work it should be evaluated how the mix of uses in a development is influencing the surrounding area and to what extent the architectural organization and design impact the public life.

Mixed-use developments and hybrid buildings are not an invention of the modern time the first settlements of humans were always with a mix of uses next to each other. This was the case because people had to walk from one place to another and therefore the distances between the uses could not be too big. Also after that cities had always a mix of uses and even within one building there were more than just one function. For example the medieval towns of Europe had a mix of uses, as the space within the city wall was limited. This was one of the reasons why people invented all different kinds of mixed uses. The Krämerbrücke in Erfurt, Germany is a good example the bridge was not just for the traffic, there are also buildings on it and in the end even a church.

During the industrial revolution zoning was invented for the cities. The main reason was to get the dirty and noisy industry out of the city center to have a more livable area. After that there were designated areas for housing, offices, industry and other functions. The invention of the automobile made it possible that everyone could travel long distances in a short time and it was not necessary that the everyday needs were in a walkable distance. Nowadays there is again a movement towards the mix of uses to reduce the car use in cities and to have the areas used 24 hours a day and not just during a special time of the day.

After the general history of mixed-use this paper is also reflecting what a hybrid building defines. As this paper is about mixed-use developments in high-density areas there is also a part

concerning the dense areas of cities were those developments are located. An important point for hybrid developments is, that there is a good working public transport system close by, which is also easy accessible for everyone living and working in the building as well as for the people visiting. The goal is to get developments that are used 24 hours a day therefor it is significant to have lively public spaces.

To get a better overview of the modern hybrid buildings there is an analysis of five developments after the historical part in this paper included. The first building is the Hysan Palace in Hong Kong, which was designed by Kohn Pedersen Fox. The next two mixed-use buildings are projects of Steven Holl Architects. One of the buildings, called Linked Hybrids, is located in Beijing, the Sliced Porosity Block is also located in China but in Chengdu. After those projects from Asia there is an analysis of the De Rotterdam building in Rotterdam and designed by OMA. The fifth project was a project for an exhibition organized by the Museum of the City of New York with the aim to get new approaches for housing types. The Block/Tower is not realized but would have been located in New York City.

The results from this research are then used for the design of different projects for the “Zone Zollamt” area in Vienna. For this part the city of Vienna is also analyzed. The history of the glacis area in Vienna and also the history of high-rise buildings as there are not a lot of them in the city center. The whole first district is a world heritage site and therefor has a lot of restrictions for new developments. The site of the project is located in the buffer zone.

1.2 Motivation

The motivation for a master thesis with this theme arose as a result of my interest in future city development. The younger generations are not using the car that often anymore, most of them are using public transportation, bicycles or walking. A good functioning public transportation is really important to improve the quality of a city. I think in the future more and more developments will have a mix of different uses and therefore it

is important to know how buildings with different uses function.

During the time I lived in China I visited a lot of hybrid buildings, some of them functioned well and others were not used a lot and not really accepted by the people. One of the problems is that some of those projects are not interacting with the surrounding area and the functions in the development are not really needed in that area. In Europe most of the mixed-use developments are a lot smaller than the ones in China but the mixing of uses is getting more and more important everywhere.

1.3 Goal

The aim of this paper is to show possibilities on how to design a mixed-use development by showing the advantages and disadvantages of different designs for the “Zone Zollamt” site. To achieve this goal it was important to reflect about the history of mixed-use developments. Furthermore the essential requirements for hybrid buildings are acquired. On the basis of existing buildings in Asia and Europe different approaches are shown and compared. Afterwards the acquired results are incorporated in the own design.

1.4 Leading question

How can the mix of uses in one development and the design of it help to activate dead areas within a city and make them more attractive for people, while decreasing the use of a private car?



2

HISTORY

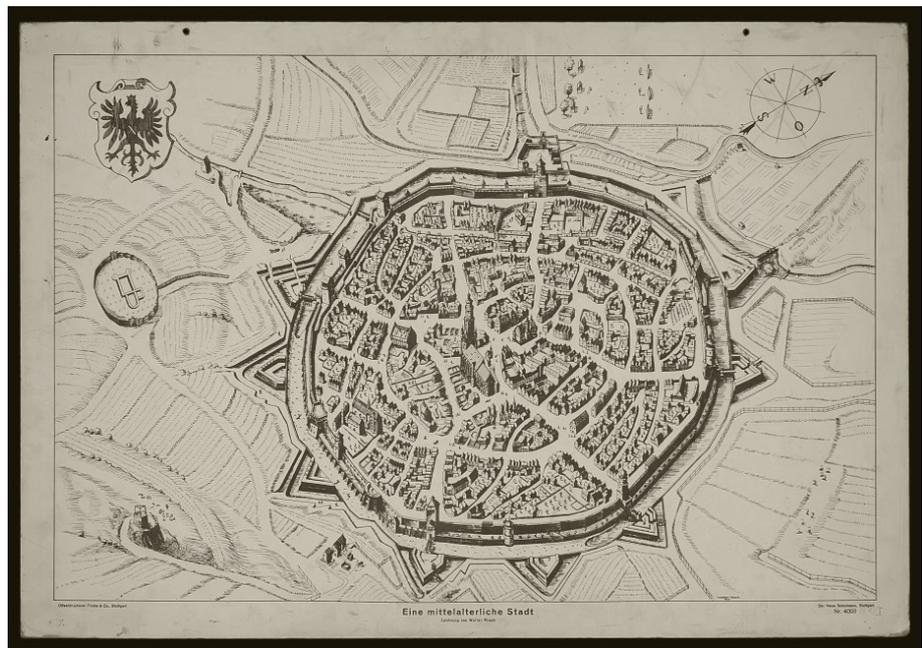


ill. 1: Krämerbrücke in Erfurt, Germany

2.1 History of Mixed-use

Mixed land uses within a single structure are a historical development in towns and cities, that has been repeated often. The house over the store, the apartment above the bridge and the Roman Bath are all examples of the tradition of combining two or more functions within the walls of a single structure.

During the Roman period in Europe the idea of planning towns was invented, instead of just letting them grow. Those towns and cities operated more efficient than any other that had been seen before. In the heart of the Roman towns was a civic square, called forum, which was surrounded by shops, offices and meeting rooms. Unlike the streets, the rest of the buildings seemed to be mixed together without a sign of planning, no matter the size or the importance of the different buildings.



ill. 2: medieval town

The ancient cities of the Greek and Roman period are much quoted for excessive mixed use structures but the medieval towns are more figurative example. In the pre-industrial cities throughout the world, the physical order of a typical Middle Age town or city still can be found. The most recognizable part was the wall, which encircled the city for protection and kept it rela

tively small. To be able to defend the city or town perfectly it was the best to keep the outer length of the wall as short as possible, the result was a city with high densities and all the different types of uses had to be integrated. Most parts of these towns were for pedestrians only.

In the center of these cities was always at least one central building like a castle or a cathedral to reflect the controlling power and when their influence decreased other buildings became important, particularly market buildings. The markets then were the place in the cities with the most life. They did not have to be at the central plaza anymore often they were just along the street.

A lot of the older cities in the United States showed similar mixed use features at this time. For example, in many areas in Manhattan different uses like residential, retail, hotel, office and entertainment exist either on the same block or on neighboring. This mixing of uses was not just in the big cities but also in many smaller towns in America. Ground levels housed retail and in the levels above were apartments and offices and on the back side of the block were either single family houses or apartments. Over all it can be said that mixing uses was not only typical throughout history sometimes it was just the best solution for the given circumstances.

Due to matters of public hygiene a re-arrangement of cities was taking place in the end of the fifteenth century. Businesses like butchers, fishmongers and tanners were blamed to be insanitary and therefore relocated to places with the least harm. Potters also had to build their business outside of the cities because of the fire risk of their craft this was especially a problem in towns with wooden buildings.

During the industrial revolution the cities changed even faster than before. Huge buildings were needed because many industries did not just produce in a domestic scale they traded with other cities and countries. The trade led to the creation of purpose-built office buildings. In large cities those areas grew fast and became the first commercial business districts.

The early cities were mostly limited in size by the walking distance but with the construction of the railways the cities expanded in drastic dimensions. This invention of railways allowed people to commute and work at a place far away from their home. Towns and cities started to spread out into the rural area surrounding them. In the centers different kinds of uses continued to exist next to each other surrounded by the residents of the new sub-urban areas.

One of the reasons for zoning was to preserve the land values and protect investments, which have already been made. Shopping was then mostly located in the outlying areas and road transport became more and more important for the people because the distances could not be reached by foot easily anymore. A lot of the commercial development which was build after World War II is located in huge malls far away from housing and workplaces. As everyone became more mobile the people also were less attached with both the work place and the place they lived in. The sense of belonging to a community was particularly lacking in the new housing estates on the outer rings.

The Athens Charter was published by Le Corbusier in 1943 and was about studies of urban planning. This Charter did influence the planning of urban areas after World War II on a large scale. Reconstructing towns and cities was the main concern in Germany after the Second World War. The people in charge also took the opportunity to implement new developments in policy, for example they recommended roads should have a hierarchy, linked to their function. For the first time in history land allocation maps covered the whole local authority area and all developments would be controlled. It was through the control of land use that post-war cities would be given their orderly structure; major activity zones, such as residential, commercial, industrial and open space would be sharply segregated from each other.

The increasing mobility of the population with the invention of the automobile and the higher production were two main factors for the growth of population in the urban areas. Due to fast rising land values and the given urban grid it was just the logic response to build hybrid buildings. The necessity of streets limited the horizontal movement, which led the buildings grow higher

Coupland (1997) Reclaiming the City - Mixed use development
Hall (1988) Cities of Tomorrow
Siegel (2001) Commercial and Mixed-Use Development – Code Handbook
Branson and Heinemann (1973) The Thirties
Cherry (1988) Cities and Plans
Fenton (1985) Pamphlet Architecture 11: Hybrid Buildings

and higher. It's only given rules were the orthogonal grid and the zoning laws. These enormous amounts of new floor space in each building were almost impossible to fill with just one function so different uses were mixed together and the hybrid building was invented.



ill. 3: Midtown Manhattan in 1932

In the 1970s and also the 1980s local planning policies still favored the zoning of sites. Every zone was given its own specific use, depending on the geographical region the areas were grouped into the same uses. Nonetheless, mixing different activities and uses was introduced in important sites and in redevelopments in the city center. The tendency towards huge areas with redevelopment had decreased. The rising worry about environment protection was one of the reasons because the new developments were occupying a lot of land and consumed enormous amounts of material, people wanted a city where the developments had a human scale. The residents of the towns and cities were now looking for more community and connection to their environment.

The zoning of the uses in cities has also intensified the increasing car use. Rising car use is causing problems for the health of the residents because of the air pollution generated by them.

The growing number of cars is not just causing polluted air it is also reinforcing traffic jams, this problem can not be solved with the construction of more roads it is a matter of planning cities and mixing uses so there is no more need to use the car for everything. Pedestrian friendly town and city centers are more attractive which means shopping and leisure activities need to be situated in the center to revitalize them shopping malls in the outskirts are not helping. The issues for the environment caused by car use have led to European, government and local policy initiatives that are starting to see superior residential development in the centers of cities and towns and also guidelines to claim a higher mix of uses.

Some of the problems caused by zoning can be solved by mixed-use developments. Examples for these problems were zoning is blamed for are urban sprawl, inefficient use of land and intensified dependency on the automobile. All these issues are created by the rigid differentiation between the various types of land use. After all the regulations of the zoning laws it is just logical that mixed-use development is increasing again. Traditional zoning is labeled by specific use in each area and regulation of height and density, the focus of new urbanism on the other hand is more about developing buildings at the neighborhood level. Preferred are developments that are pedestrian friendly and also affect the surrounding area in that way.

The old parts of the cities in the USA are now becoming more like the city centers in Europe they get denser and pedestrian friendly. Urban mixed-use neighborhoods got the reputation to be safe and vigorous which is the main reason for the change. This is not the first time that cities decline to adapt the strict hierarchy of uses and segregation caused by zoning, some cities already began to refuse these laws in the 1960s. The mixed use developments built in the early 20th-century were mostly associated to the garden city movement. In the past 20 years the mixing of uses and pedestrian friendly urban areas have become once again the state of the art, not just in the United States but also throughout the world.

There are quiet a few mixed use projects which were build in downtowns that are worth mentioning as they created a new



ill. 4: Rockefeller Center

benchmark for height and density in mixed use development. “They include the Cleveland Union Terminal complex in Cleveland, the Carew Tower complex in Cincinnati and Rockefeller Center in New York City. Each remains a landmark today in its city.”

The construction of the Rockefeller Center in New York City started in the year 1930. It was a privately built mixed use development with mostly offices but also including retail, hotel and art space for performances. Finished in 1939 it was one of the most innovative and successful developments with mixed use and therefore in the year 1987 it was declared a National Historic Landmark. The exceptional mix of uses and public spaces in one development made this project one of the earliest and most influential models for mixed use developments of the 20th-century.

Today Rockefeller Center is a huge business, retail and entertainment center, it had a concept, scale and physical design with no equal at its time. Despite the high density of the development almost twenty-five percent of the site is open public space to allow an adequate flow of light and air between the buildings. It is also providing enough space for the traffic stream and makes beautifully landscaped pedestrian areas available. The Rockefeller Center has influenced a lot of developers and architects planning other mixed use projects in high density areas of the city center. It has been a prototype for like developments around the world.

During the 1940s and 1950s mixed use developments were not really popular and almost none were built but in the 1960s they had a revival with new modern mixed use projects. Most of these developments were first located in the downtown areas of the cities with commercial uses as attractors and mixed with residential uses before they also spread out to other parts. The first high mixed use towers appeared during the same time period. A lot of these design proposals follow the international school of architecture and the common opinion is that they mostly did not age well. After all they were important experiences in building cities and large-scale developments, which still evolve till today.

The first appearance of this new era of modern mixed use developments was in the United States with the purpose of revitalization in the downtown. For many years the city centers were prosperous and diverse, that changed when the rich residents moved to the suburbs for better life quality and also caused by the newly build shopping centers which started to appear. Programs for revitalization had mostly a large scale with the ambition to bring back the vitality and to reactivate the downtown areas by implementing different kinds of uses.

After zoning and separation of uses these projects showed that there was a great interest by the public to redevelop downtown areas by mixing uses and creating a diverse space. This new or more precisely reinvented approach was the starting point that led to a change in the public planning theory and gave a boost to the mixed use development.

While commercial areas in the city centers experienced more and more revitalization there existed also mixed use projects for central districts which had a bigger focus on residential development. Those mixed use developments were mostly preferred at locations in downtown areas but with the wealthy residents in the suburbs the outlying areas got interesting for mixed use development as well. New transit systems connected the suburbs with the center, which also made these areas more attractive.

As the mixing of uses had a revival in the 1960s it was not surprising that during that time the first mixed use tower was erected. One of the earliest examples of a tower with different uses stacked upon each other is the John Hancock Center in Chicago. Till then it was mostly common to mix uses horizontally and not vertically.

The mixed use developments at this time did not just pioneer with the height they reached but also with their new design of internal public spaces like huge atriums and galleries as entrance space. These new established concepts were adapted to many other projects in America and other countries in the world. An example in China for this typology is the Jin Mao Tower in Shanghai with its soaring entrance hall in the hotel.



ill. 5: Jin Mao Tower

Other than the mixed use developments in the 1970s the projects in the 1960s had the main focus on residential space. Some of the projects even started as residential developments and the other uses were added during the design process. This quality got lost in most of the projects in the following decade. Another peculiar detail of these developments was that they were not enclosed they included the surrounding areas as well. Even though projects at this time were open to the area around them it did not mean that they always fit into the fabric, which was mostly caused by their size. The porosity helped them to still include the neighborhood so they did not become fortresses just like the projects that followed in the 1970s.

As mentioned earlier, most of the developments were built with

International style architectural principles. Creating beautiful pedestrian areas and squares was not the strongest quality of this architectural style. Rockefeller Center was an ideal many tried to copy, which is the reason why they embodied underground plazas and platforms, but the public spaces created by them never reached the vitality and liveliness. The public plazas often were not at the level of the streets around the site and therefore the pedestrians passing by were not included very good. Public areas were the weakest part of these mixed use projects mainly given by the bad design quality of them.

During the 1970s there was a growing movement towards internal orientation. In the decade before the developers tried to connect the new mixed use projects with the surrounding area but that changed in the years after. Enclosed malls became more and more popular with the result of fortresses without real relation of the neighborhood. This evolution of shopping centers had an enormous impact on mixed use projects.

The World Trade Center as one of the biggest mixed use developments to date opened during the same time, it instantly became an international landmark and symbol for New York City. If you ask people about the World Trade Center many think that it consisted of two skyscrapers because they were the most obvious part and visible from far away. This public opinion was not true in fact it consisted of seven buildings in total, six office buildings and one hotel. In the levels below ground they were connected by retail and transit connections. The site included quite a lot of open public space but there was no real connection with the surrounding, none of the streets were included. It created one big block that broke the fabric of the area around and created an island in the middle of the city. This island effect was intensified by placing shopping in the lower levels the whole project got isolated from the rest of the city. By leaving the streets for cars out of the project site they wanted to create a pedestrian friendly area, this did not work out well because the design of the towers made the plaza really windy.

Not just the World Trade Center in New York City has been criticized for excluding the surrounding area, there were several mixed use project around the world that did the same. The main

differences of developments with a mix of uses from the 1970s to the projects of the decade before are that residential use in mixed use developments was the main focus in the 1960s and in the 1970s it was most of the times a mix of offices, retail and hotel. Another one is that the projects of the 1960s included the surrounding city and tried to connect with area around them other than the enclosed projects in the 1970s.



ill. 6: New York City skyline with the old World Trade Center

Despite all the problems that were caused by some of the projects in the 1970s, developers and architects started to see that this was an important concept, which should not be turned down because of some problems that appeared. Developments with a mix of different uses earned a lot of recognition and applause but there were also many critics that caused other and new ways for mixed use developments.

In the 1980s the zoning laws were being re-evaluated. The policies of zoning got modified due to the increasing interest in mixed use buildings, which can be seen by the construction of

many new developments at that time. In this decade the focus of architects and urban designers was not just on the building itself but also on space that was created between the buildings. These new approaches did serve as an important change based on old models and forms that were precursors of the modernism. The movement began to change from designing mega-structures to developing mixed use districts where the space between the buildings was also created for the people working or living there.

In the United States the mixed use developments were mostly influenced by postmodernism design ideas but in other parts of the world modernist design continued to be the biggest impact, especially Asia. Large-scale mixed use projects were developed during the 1980s in Asia, for example Raffles City in Singapore and Pacific Place in Hong Kong. There was also a tendency in the decade to develop a huge number of mixed use projects in the suburbs and not just in the downtown areas anymore, most notably in America. A second difference to the years before was that the projects started in the 1980s had a significant reduction of the average size. In this decade it was once again popular to have residential use in the mix of different uses in one development.

In the 1990s the types of mixed use developments were further shaped and modified, during that time a lot of new mixed use developments in downtown areas and suburban areas were built. Mixing uses was now more and more established in the whole world and grew fast, especially in Asia. A lot of very large projects got developed all around the world. Most of these projects used a mixture of enclosed and open spaces for the public to create attractive mixed use compositions.

During the decade mixed use developments changed from just creating a building to also designing a place and from huge mega-structures to establish urban districts. All these important changes improved the quality and potential of mixed use developments and intensified the impact made by them.



ill. 7: Pacific Place in Hong Kong

2.2 This is Mixed-use Development

There are many different definitions for mixed use developments or hybrids, probably the most common is the one published by ULI (Urban Land Institute). The most important indicator for those developments is the mix of three or more main uses such as retail, entertainment, office, residential and hotel. If the project is well planned these different uses support each other. Uninterrupted pedestrian areas and connections are another crucial character indicating a good mixed use project.

Although many developments include more than just one use they can not always be counted as mixed use projects. The different uses should be significant attractors for various people, which should function on their own. Financial aspects play always an important role therefore primary uses in mixed use developments are mostly income producing uses such as retail, offices, residential and hotels. Convention centers, museums, performing arts facilities and other major public functions are also important uses that can be included in mixed use projects. The most important point is that all those uses should bring their own audience to the project for more diversity.

Intensive land use and a significant physical and functional integration of the different uses in the project are very important as well. The interconnection of the different parts of the project for pedestrians can be solved in different ways, either by vertically mixing the uses in one single building or tower, by arranging the main uses around a central public space or simply through pedestrian friendly pathways.

Essential for good mixed use projects is that they accomplish a sense of place, which will not be achieved without a good pedestrian circulation and orientation. This character of interconnecting the different uses determines the difference between mixed use developments and multiuse developments. Multiuse developments can have three or more uses as well but they are not integrated, they are less dense and more spread out with the result of more car use not walking.

The planning process for mixed use projects is far more complex than for most other real estate projects like single use development. Although there is a huge variety of mixed use developments there are some physical and structural models that can help to define them. Mixed use developments can be grouped into three main categories; mixed use towers, integrated multi-tower structures and mixed use districts. These categories also differ in their density, with mixed use towers having the highest density and mixed use districts the lowest.

In mixed use towers the different uses are most of the time vertically stacked upon each other. It can be just one single high-rise tower, a tower on top of a larger base structure or like in the case of the Jin Mao Tower in Shanghai a low-rise structure attached to a tower. The height generated by the vertical layering can give the project the needed identity to support marketing the development but creating fascinating outdoor public space is a disadvantage because there are not many options.

Multitower structures consist of different buildings or towers, which are connected with a common base that can be underground parking or also shopping. These mixed use types are mostly found in downtown areas and places with high density options.

Mixed use districts are arranged around public space, for example streets, parks, plazas or squares. This type is different from the other two because it does not function as a single building but more like an urban district. Many of the mixed use projects nowadays use this concept due to the possibility of adapting it to the existing structures.

Another popular definition mentioned in the literature is a co-production by the International Council of Shopping Centers, the National Association of Industrial and Office Properties, The Building Owners and Managers Association International, and the National Multi Housing Council. This survey done by them is supposed to help finding the crucial qualities of mixed-use development.

The results can be described with the following definition: A mixed-use development is a real estate project with planned integration of some combination of retail, office, residential, hotel, recreation or other functions. It is pedestrian-oriented and contains elements of a live-work-play environment. It maximizes space usage, has amenities and architectural expression and tends to mitigate traffic and sprawl.

Both of these definitions are quite similar, for example the project must always be comprised of multiple uses. The concept and size of each use should be significant enough so they attract their own crowd. Mixed use projects must also be pedestrian oriented and have to maximize space by intensive land use. Another one is that each part of the project must fit into an overall plan.

By overlaying the definitions it highlights the main difference between these two which are that the second one does not define a minimum of three uses for mixed use projects. The definition made by the ULI distinguishes between mixed use and multi use while the other one says that there is not enough disparity between both of them. After all there are still questions without reply but as this building type is evolving it is likely that the definition will change too.

This definition can be applied to mixed use projects with a wide variety of physical appearance. The projects can differ in size, the function of the land uses and in the mix of the uses in each development. External factors like regulations by the different governments or cultural differences also effect the form of mixed use developments. There is also no typical appearance for mixed use projects, they can focus on the horizontal dimension but also on the vertical dimension, or the different functions use the same space during a divergent period of time.

Hoppenbrouwer and Louw originated their typology from a spatial perspective and grouped by function, dimension, scale, and urban texture. In their model they only used residential and office space to make it easier to understand, but it's easy to change and extended by other uses. The dimension component consists of four elements, the shared premise dimension, the horizontal

Niemira (2007) The Concept and Drivers of Mixed-Use Development

Herndon (2011) Mixed-Use Development in Theory and Practice

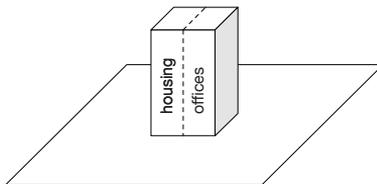
Rowley (1996) Mixed-use Development: ambiguous concept, simplistic analysis and wishful thinking

Hoppenbrouwer and Louw (2005) Mixed-use development: Theory and practice in Amsterdam's Eastern Docklands

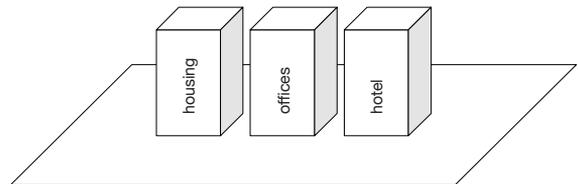
dimension, the vertical dimension and the time dimension.

In summary it can be said that mixed use developments can not be standardized. They can differ in the combination of uses, in the amount of different uses mixed together, in the size of the project and the urban texture which is created in the neighborhood and also in the development it self. Due to all the different factors that have an effect on the conceptualization of mixed use projects there is an enormous amount of possibilities for mixed use developments. This huge variety of mixed use developments is one of the main difference compared to other building types.

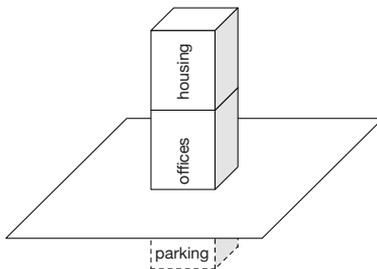
1.) sharing the space



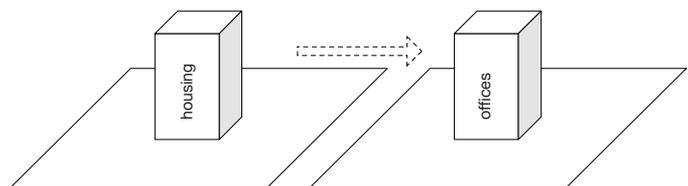
2.) horizontal mix of uses



3.) vertical mix of uses



4.) change the use over time



ill. 8: different versions of mixed use development

2.3 High-density areas

In the past few years, urbanists have taken more and more interest in a visible recovery of the downtown areas of cities, also called central business district (CBD). During the post-war period the population increased and therefore the metropolitan areas and suburbs grew as well. For this reason it was more and more uneconomical to rent or own an office or shop in the historical city center.

There is a worldwide trend to preserve existing buildings or bringing them back into use to have a mix of economic purpose. Several important mechanisms are involved in this process: a complicated cooperation of a new found civil identity with the privatization of city services; a new interest in density and high-rise buildings; an awareness to the interdependence of pedestrian accessibility, public transport and car usage; the comeback of residential living in city centers and the downtown areas; and a strong political movement towards embracing 'playfulness' and creativity.

Downtown areas or central business districts need cautious public branch guided retail planning to be able to compete with suburban shopping centers. The reasons are apparent: successful retail helps to promote a significant amount to the broad urban economy concerning employment and to city income through business tax. With good design of public infrastructure, improved public space and safety, and better public transportation, the property development can be influenced in a beneficial way.

Developers often claim extended development rights, zoning changes, amortization of land, financial assurance, or improvements so they are going to invest. In return for these favors, planners demand urban facilities or improvements, for example more public space, street improvements, public art and sometimes even day-care centers and housing space.

2.4 Hybrids and the transport system

Mixed use developments with high density and good access to public transportation help to reduce the dependency of automobile use. Putting residential uses together with non-residential uses encourages the use of public transit and walking, and therefore helps to decrease the use of private transportation. At places with good access to public transportation it is advantageous to have high density.

The better the access to the daily needs, and the closer they are to each other, the more likely it is that residents use public transportation, walking or cycling to get to those uses. But this only works if most of the uses are easily reachable by foot or if there is a good developed public transportation system close by, which is also affordable and reliable.

Mixing uses only, does not necessarily help to reduce private transportation. The uses added to residential developments have to be needed in the area and by the people who live in close by and at the same time public transportation should have a good quality. By providing a greater mix of uses, which are necessary for the daily lives of the residents, the goal is to make walking the most useful and efficient form of transport and therefore reducing the need to use private transport.

The existing studies about cycling-friendly designed communities show that, the residents in these places are more likely to travel by bicycle between home and work. Communities like this are defined by better street connectivity, small city blocks and by mixed land use.

This means that by combining improvements for cyclists with urban design it is most likely the most efficient way to get residents to use their bicycle for commuting. The strategies made to form a mixed environment might be particularly important for the large cities in China, as they tend to more and more erase the traditional form of mixed land use. The ongoing market-oriented reform in housing inclines to break down the work-life balance in the danwei (work unit) system.

Due to the fast expansion of suburban areas, large stretches of land are dedicated to one single use only and also segregated from each other. The enormous and rapid growth of the Chinese cities does not really favor commuting by bicycle. Hence strategies, which boost the development of independent areas in the suburbs, similar to the historic danwei system, could help since it is not possible to stop future urban expansion related to the fast urbanization.

These areas can also be called compact development. It means that all uses, including housing, office, transportation, parking, streets and public spaces, are developed that the trips are kept short, thus there is less dependence on private transport, thereby also reducing land consumption.

The best places for mixed use developments are in downtown areas, neighborhood-oriented centers, transit hubs and next to main streets. If different functions such as stores, offices, housing, public services, and recreation spaces are located in those areas within walking distance to each other it will promote the following things:

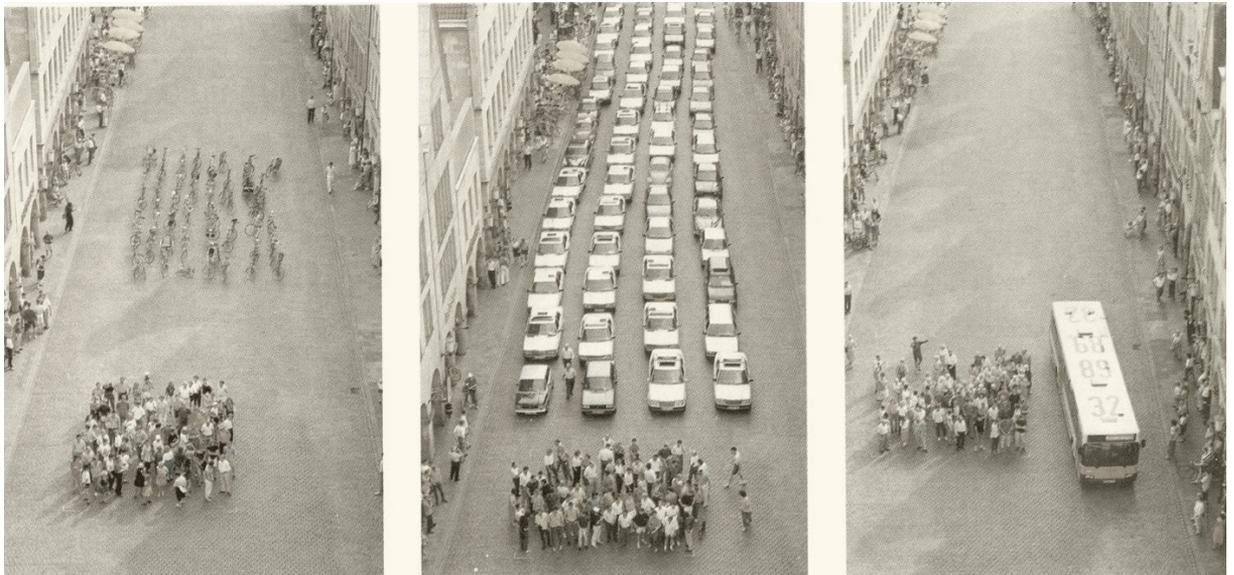
- Self-determination of movement, particularly important for younger and older people who can go everywhere by foot, bicycle or public transport
- Safety due to 24h presence of people
- Less private transport use, in particular for short trips
- Benefits for people who work at home, supported by nearby services and facilities
- Different housing options, for young and old, singles and families and people with different income, supporting a greater mix and a place for everyone

To get the best results of a mixed use development it is really important that the buildings have conveniently situated access to public transportation, streets and paths. People will still use their car for short and long trips if this seems more comfortable. Pedestrian accessibility gives the opportunity to residents to reach their destination by foot, bicycle or public transport.

But not just the accessibility is important people will also decide to travel by car if the streets or footpath is not attractive or discomforting. Activities hoped-for to create attractive pedestrian places, as for instance recreation, window shopping, children playing, and others, will not happen if the built environment for pedestrians is uncomfortable.

High density mixed use developments built for pedestrians call for a different approach to site planning and not the same approach used to design communities for people with automobiles. Mixed use developments which are integrated within a pedestrian-friendly center can help the city to reduce the need of private motorized transport, and at the same time providing appealing housing and work spaces.

In spite of the known gains of mixed use development, such as higher use of public transportation, more intensive social interactions and benefits for health, planners and policy-makers have to evaluate the public demand so efforts made for long-term transportation and land-use planning will be successful.



ill. 9: 72 people on bicycles, in cars and a bus

2.5 Public Space

A high density does not automatically have to mean that the accommodations are small and that there will be a lack of public space. With mixed use developments not only a higher density can be achieved, but also more amenities and more valuable and enjoyable open public space can be created.

Looking at mixed use projects from the aspect of the urban environment, they call for much more skillful urban design talent, otherwise these developments can become monolithic, dysfunctional, or unwanted additions to the existing urban fabric, caused by their size, diversity and density. In the past a few mixed use developments have been criticized because visitors felt lost, they destroyed the already existing fabric, created islands and fortresses, and did repeat suburban sprawl in city centers. To achieve good mixed use developments it is also necessary to have talented urban designers and not just talented architects.



ill. 10: what makes a place

Due to zoning, a lot of urban areas are dead during nonworking hours, introducing mixed use projects in those areas is one option to revitalize them. By creating new residential space, short-term, and leisure activities, they can also generate new urban places and other pedestrian environments for residents, tourists, working people and shoppers to enjoy their break or just to relax.

Creating a place, integrating the mixed use project into the existing urban fabric, and also the local culture and context – these are the most important aspects designers and developers have to keep in mind. Out of these issues the creation of place is the main thing. Especially high density mixed use projects need to have breathing space for people to relax and enjoy the outdoor life, this applies to mixed use developments all around the world. The projects can have a much friendlier and more appealing ambience through public plazas. For developers it is also interesting that they can promote the project better, by introducing the public spaces as a new created center of activity for the local people, and also with shows and events for everyone.

Some international developers still prefer single use instead of mixed use because of privacy, security, or exclusivity. This attempt can cause isolated islands that are not connected with the rest of the city.

It is also important to not just follow a style of architecture and design when building internationally, otherwise the development can be out of date before the mixed use project is even finished. If the project is supposed to be a success internationally, it must consider the local culture, context and community. It is a great idea that connects a project with its site and not the style.

As mentioned earlier, designing an attractive public space it extremely important for mixed use developments to succeed. User-oriented spaces should create a strong sense of place for the whole development, no matter if open or enclosed, large or small, green space or paved. These spaces substantially create the relationship between the development and the surrounding area, the interdependence of the different uses within the project, and also visual relation between spaces. Furthermore spac

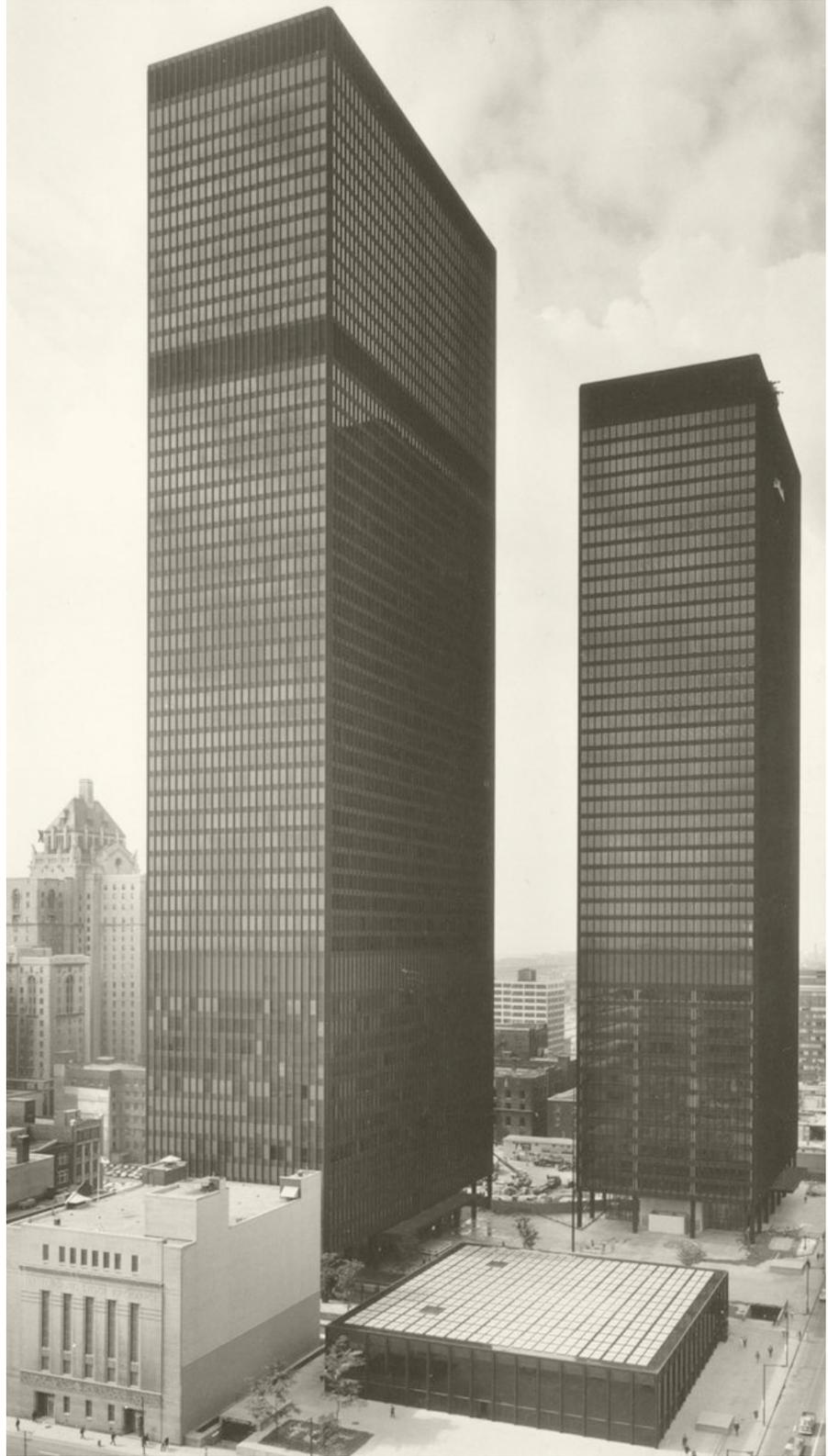
es like this can give an overall theme for the whole mixed use development.

In single use projects it is proven that attractive public spaces and other places build for people are a success. The size and the critical mass, different buildings and uses, and the much bigger development budget of mixed use developments, make it possible to create even bigger, more exciting and more sweeping public spaces. Sometimes these public spaces and people oriented places get so important for the development that they almost become an additional use on their own, they can be a bigger attractor for people then the other uses.

The shape, size and also the configurations of public spaces in mixed use projects are always different and went through some substantial changes in the recent decades. Most of the time there are different types of public space mixed together in one project. There are not just squares and urban plazas there are also parks, gardens, promenades, courtyards and also indoor spaces like atriums and galleria. Two public spaces, which are often combined, are a galleria in a mall with a main shopping street. Combining indoor and outdoor public spaces makes the projects less impendent of weather and climate and at the same time provides diversity for the users.

In the 1970s and 1980s it was very popular to have atriums and galleria as distinctive people places, nowadays the mixed use design projects tend more and more in the direction of creating open-air public spaces with a focus streets, squares, and greenery. It does not matter what kind of public spaces, they always have to be surrounded by appealingly designed buildings and uses that have an effect and influence to activate the open spaces, creating a tempting public sphere that becomes a central place for life and action.

The street level is important for all developments, no matter which kind, they all have to interact with it at some point. In recent years more and more designers and developers use the street itself as one of the main open spaces in their mixed use developments, particularly in town centers.



ill. 11: Public Plaza at Toronto-Dominion Center by Mies van der Rohe

By using the street as public space in downtown areas the new development has a great way to integrate itself into the surrounding urban fabric. In suburban areas this system can create an atmosphere of a town center, and makes it easier for other new development projects to connect with the urban pattern. Landscaping can be a major addition to the street urban space system, and give it a unique style. In this way the street itself can become kind of a park.

The most common kind of public spaces in mixed use developments are urban plazas and squares, sometimes with great benefits for the area and other times not that successful. For an urban plaza or square to be a success there are some crucial points developers have to be aware of. Public spaces need to have well-defined edges, be surrounded by restaurants, retail or other uses that attract people, have good landscaping and also sufficient sun exposure.



ill. 12: Westmount Square by Mies van der Rohe

Most people asked to describe a windswept plaza associate it most of the times with a freestanding tall office building. This example shows that it is really important to have the right place and design for a public place. For a plaza to be successful it needs to have thorough planning to create appealing spaces, and perhaps the most important thing in that case is its connection and relationship to the surrounding area. If the plaza is not efficiently formed by surrounding buildings or if it is away from street level and pedestrian activity it can effect the success of a plaza and even interfere the whole mixed use development.

Mies van der Rohe designed an early example of how to use a public plaza in a mixed use development with Westmount Square in Montréal after the international school. The plaza is surrounded by highrise buildings on three sides, at the street level is retail and shopping and the plaza itself is above it all, on top of the retail hall. In the original designs there were not a lot of seating and landscaping on the plaza, and as mentioned before the retail part is below it and does not surround it. The international style typically used plazas like this, but in recent mixed use developments there is a decreasing interest in this type as it is preferred to create more vivid and vibrant outdoor public spaces. The plaza of Westmount Square is not built as the people-oriented place in this project it is the retail concourse at the ground floor.

Nowadays mixed use projects have buildings and stimulating uses around plazas and use them more as a kind of urban square. The shape of an urban square does not really matter, but ordinarily they are very active places, with buildings on three or more sides. At least one side of the square got restaurants or shops to attract people and urban squares are mostly located in the center of activity.

In mixed use projects it is more and more popular to have town greens and squares, they often come together with main streets or town centers, and can be park-like and green. The biggest difference between town greens and urban plazas is on one side that they are mostly larger and on the other also greener than urban squares. Another disparity is that they are mostly not surrounded by large-scale buildings but rather lower-scale which



ill. 13: Atrium of Jin Mao Tower in Shanghai

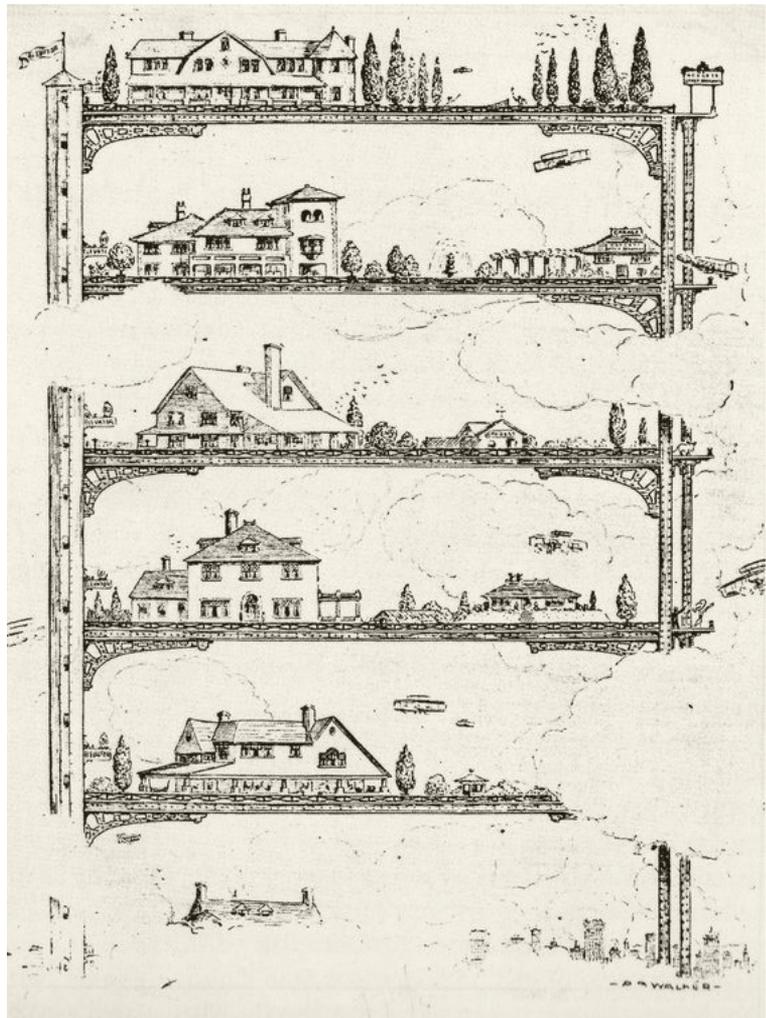
also indicates that they are commonly less urban. A similarity is that they both use fountains or other water features and have shopping and restaurants to invigorate the space. Even though greens are most of the time active spaces, they can also be silent places.

A lot of mixed use developments include next to the main public square also some smaller internal courtyards, promenades, and open-air spaces, away from traffic and the surrounding noises, much more quiet places. These places can have different shapes and are mostly a lot smaller. Promenades are most of the time long and linear places, which can also have open-air shopping, or they are next to a waterfront. Such hidden places can be used as a get away from the frantic city life, the noise, the traffic and streets.

In the early second half of the last century it was very popular to create large atriums in mixed use developments, this trend

continued for about two decades. Even though large atriums and other enclosed public spaces have decreased in popularity, there are still projects that include atriums and malls, mostly in Asia. A central atrium is one of the best ways to connect different levels in shopping centers and hotels, and allows people visual connections from one level to another.

If atriums are well designed, they can also provide an appealing central place, a space that is fun to be in. Although galleries and atriums have their advantages, most of the designers and developers are discovering that it is easier to create a sense of place with outdoor open-air spaces. Enclosed spaces just like these are becoming secondary public spaces, less central or do not even exist in new developed mixed use projects.



ill. 14: Theorem from Delirious New York



3

ANALYSIS OF HYBRIDS



iii. 15: Hysan Place

3.1 Hysan Place, Kohn Pedersen Fox, Hong Kong, Hong Kong 2009-2011

The Hysan Place is the first commercial development in Hong Kong that got the LEED Platinum certificate. This high-rise building is implementing a mix of office and retail spaces and providing outdoor spaces at the same time in one of the densest areas of Hong Kong.

One main goal of the project was the interaction between the different uses and a long-term flexibility for planning. The shape of the development was developed in countless models with changing forms, with the goal to optimize the inside space for the uses. The reason for those shapes was to form public garden on different levels of the tower to provide outdoor spaces for the users and also to allow the wind to pass through. If the wind can pass through it improves the ground level for pedestrians and also the area around the tower.

The retail podium is housing different planning models including public spaces for people to meet or for activities and at the same time combine it with the shopping experience. Between the shopping area and the office spaces there are five floors with an open layout, which allows them to have the flexibility to be used as retail spaces or as offices.



ill. 16: looking up at Hysan Place



ill. 17: Hysan Place

The design of the tower was not the result of a brilliant principle of the architects it was rather the conclusion they got out of the clients wishes. They were listening and adapting the tower in a design process. The client wanted to have the most sustainable building in Hong Kong were surrounding area could also benefit. Before the area of Causeway Bay had this high density the area was called Lee Gardens, it was the intention of the client to have this connection.

The floor space of the building is the same the only difference the breakthroughs and the turning of the cubes caused is that the tower is taller. Every single one of the blocks got its own outdoor space to give each box an identity. It does not mat-



ill. 18: Rooftop Gardens at Hysan Place

ter if it is someone shopping or a worker of an office, everyone can escape the indoor space and enjoy an urban garden with a great view of the city. These gardens prevented that this building would just be another monolith with just one single use.

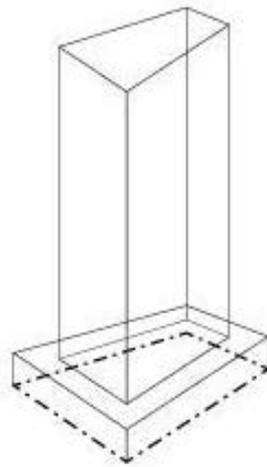
Hong Kong's fast urban development and the escalating land prices in the consequence of it sped up the architectural process, which led to a city of high-rises. Pedestrian bridges, which connect the buildings above the ground floor, are responsible for a higher value of the upper levels and establish the opportunity to have shopping not just at the street level but also in higher levels. As the high value retail spaces are now also on higher levels the buildings and the architecture in Hong Kong got more and more complex. Other than in cities in Europe, people in Hong Kong are used to arduous paths through buildings and accept them.

The site of the development is between a dense area in the north with a lot of commercial high-rise buildings and an even denser

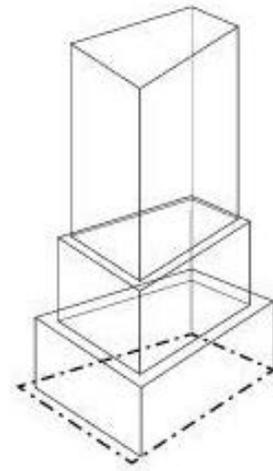
low-rise structure in the south. Another important aspect is the main subway line of Hong Kong running by the area with a stop in the east and west of the site. Ninety percent of the people arrive at the area via public transport therefore it is crucial that the building got easy access to the subway. Without this connection there would not enough people going into the building to make it work.

The functions of the lower floors are retail and the top levels are for office use, in between those are three floors for restaurants, which function as a connection. People from the lower floors have to go through the shopping area to get to the restaurants and the office workers have to go down to eat. The upper podium can be programmed depending on what the market needs most. Due to the flexible structure the floors can be used for offices or for retail, whichever is needed more. If the developer is going to buy air rights from the neighboring area it is not necessary to rebuild the whole tower, the structure of the top floors is structured that more floors can be added if the elevator core will be extended. This makes it possible that not just the functions of the building can change over time but the whole building can transform.

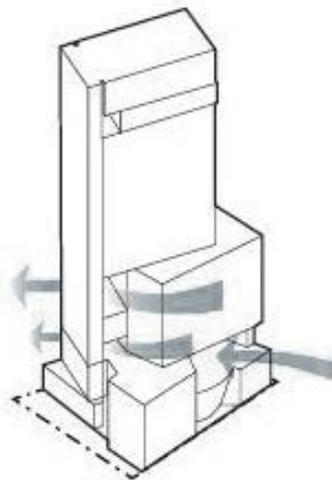
That the design of the tower is a success can be seen by the amount of visitors on the first day. In the first 24 hours about half a million people visited and that with a population of eight million people in Hong Kong. The whole building became a brisk urban place just as it was supposed to be.



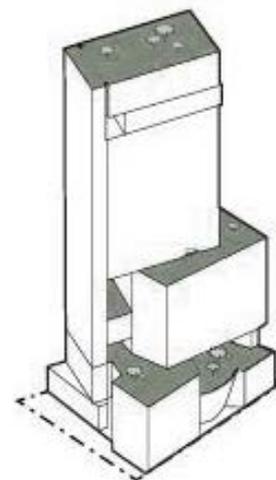
Traditional site coverage options



Setbacks allow increased site coverage

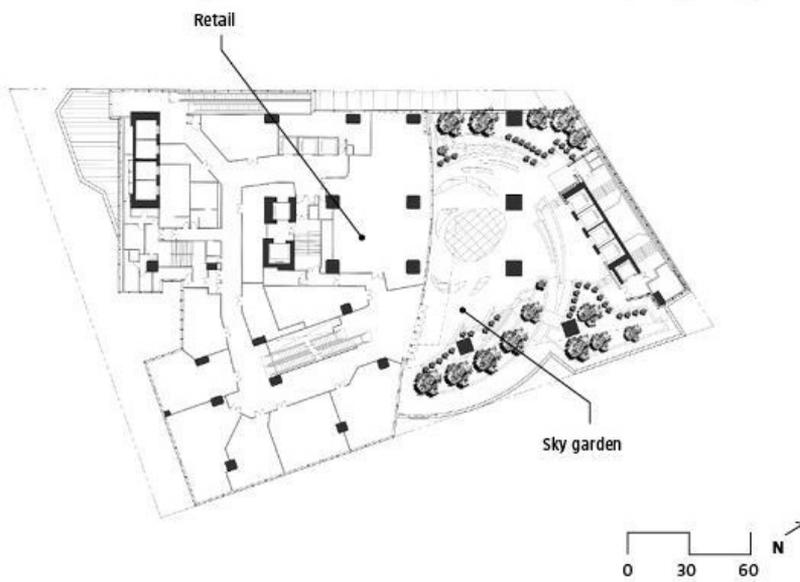
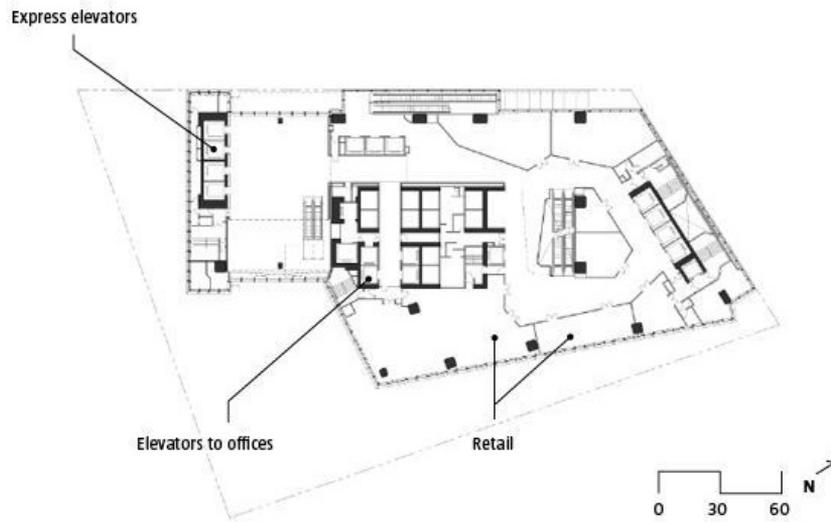
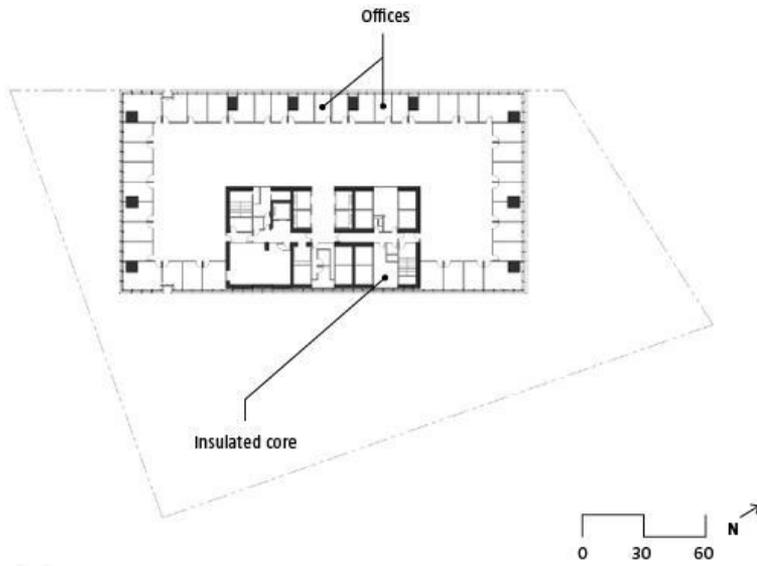


Added porosity induces ventilation

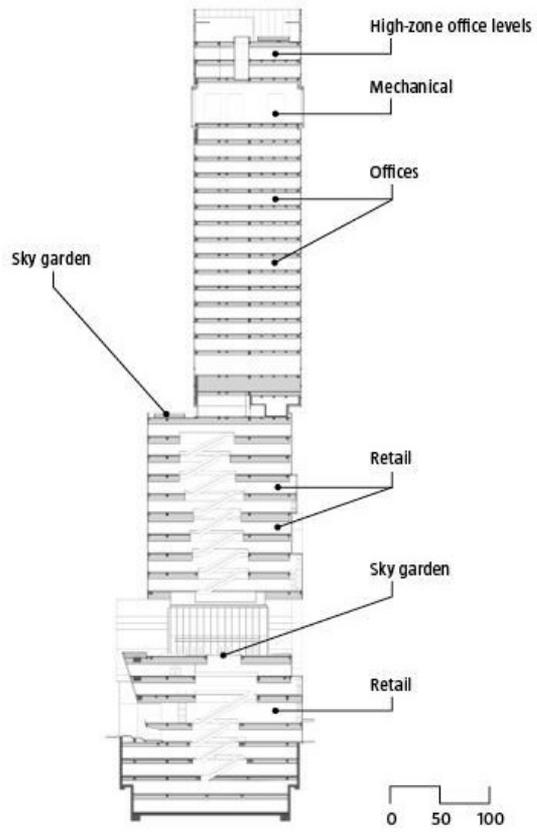


Public green space is reintroduced in urban setting

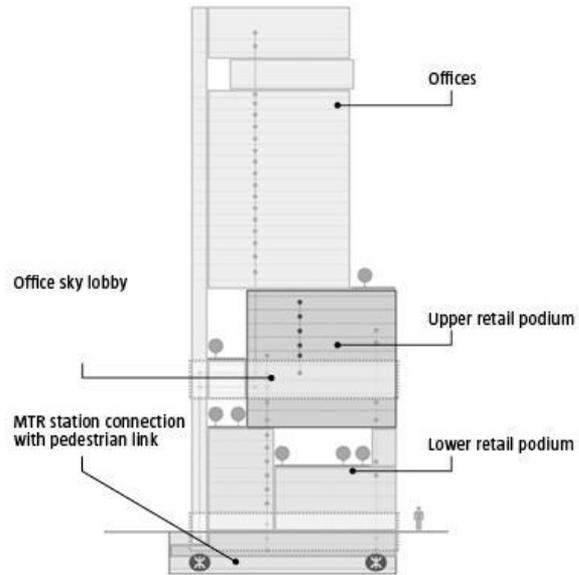
ill. 19: Volume Diagram



from the top: ill. 20: typical office floorplan
 ill. 21: sky lobby at level 9
 ill. 22: sky garden at level 4



ill. 23: Section



ill. 24: Program of the Tower



ill. 25: Linked Hybrid

3.2 Linked Hybrid, Steven Holl, Beijing, China 2003-2009

A base with business and leisure functions connects the eight towers to one building. The idea of the design was to have a self-sufficient residential development, which is enhanced with civic uses throughout the whole development and not just on the ground floor. The name Linked Hybrid refers to the bridges that connect all eight towers between the storeys 12 and 18. The functions of the bridges are for public use, such as sports and social uses. Normally in China complex buildings like this are isolated from the surrounding area but not here, the functions of the bridges are not just for the residents but also for visitors. Also the inside of the residential towers is different from the usual developments, there is a broad variety of housing types.

The whole development is functioning like a city but in contrary to other hybrid buildings it does not form a monolith, it is also including the area around the site. All the different connection at ground level, above ground or in the underground levels, strengthen the relationships between the various functions.



ill. 26: View of the Linked Hybrid



ill. 27: Bridges connecting the towers

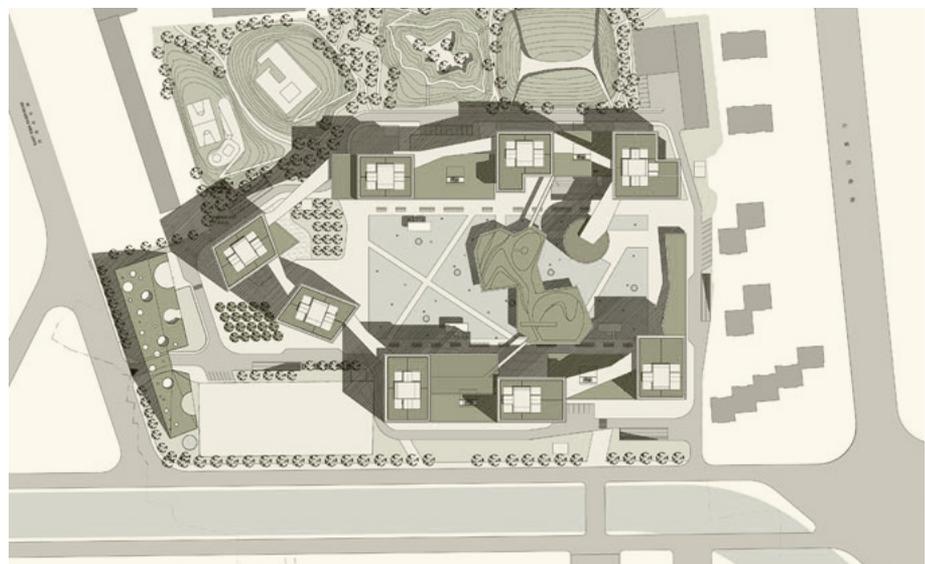


ill. 28: View of the Linked Hybrid from the street

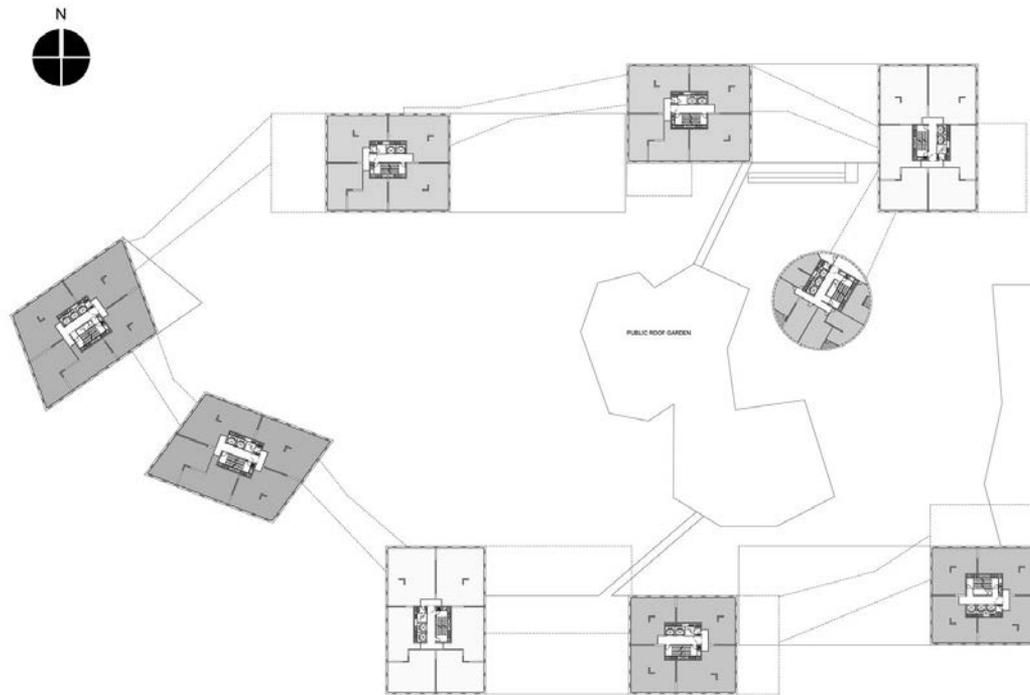
The complex is designed for pedestrians and located right next to the site of Beijing's old city wall. As mentioned before the privatized urban developments in China are really monolithic and enclosed spaces that are not including the surrounding area. Linked Hybrid is the opposite of that, the development is open to the public and invites everyone in from all sides it is an urban space for the twenty-first century. The uses of the development can interact with each other and the public space in between the towers stimulates encounters of all kind. The urban space of the complex is not just on the ground floor it is a three-dimensional space, which connects different levels.

There are a few walkways for the residents and visitors on the ground floor to walk through the site. To activate the urban space there are shops located around the water pond. The rooftops of the lower buildings provide public gardens and quiet green spaces, there are also roof gardens on the residential towers but they are for private use and just connected with the penthouses of the building. The school, kindergarten, restaurants and all other public functions of the street level are connected with the green spaces. Relationships between the functions and towers are strengthened by the skywalk and the loop on the ground.

In addition to that, the Linked Hybrid is also energy-saving due to the geo-thermal wells and therefore one of the largest green mixed-use residential projects built so far.



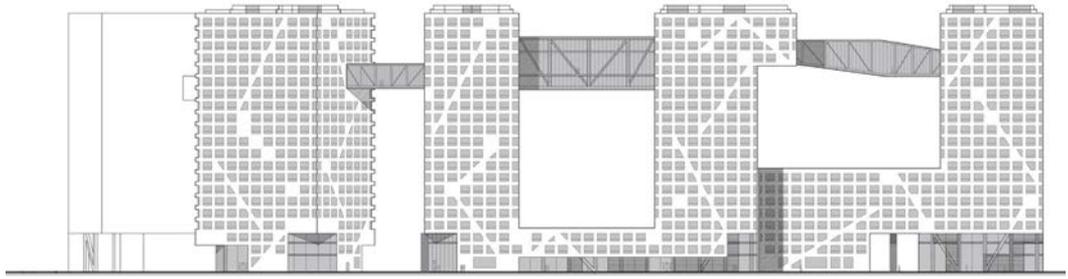
ill. 29: Roofgardens



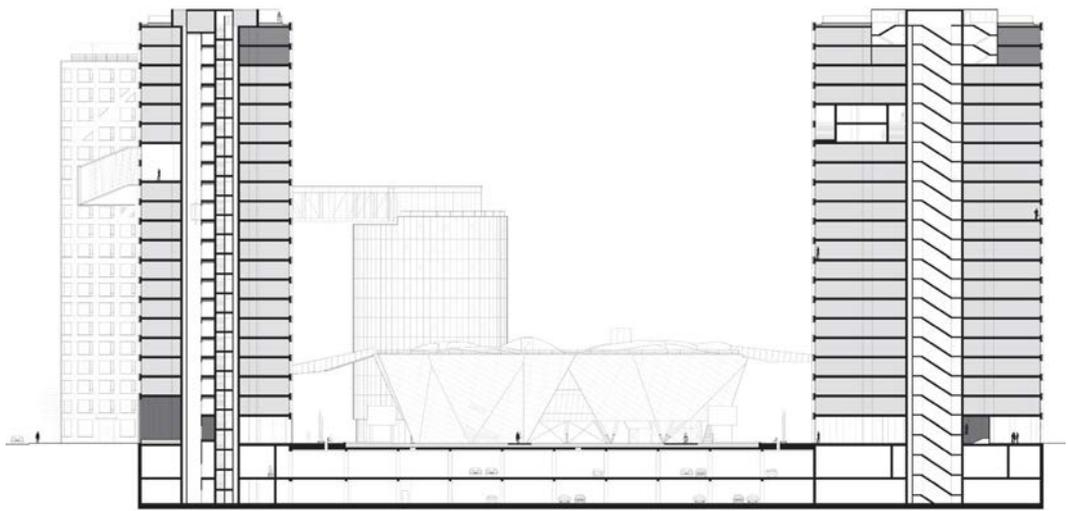
iii. 30: Floorplan of the towers



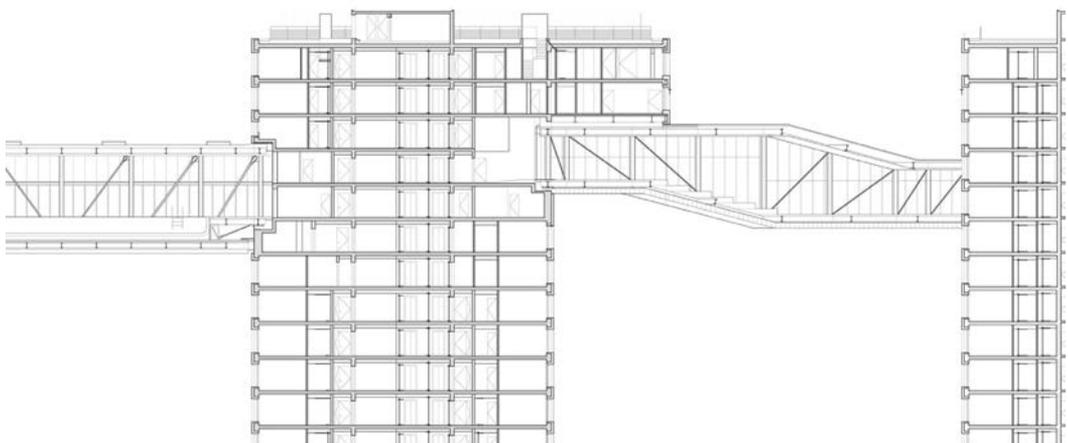
iii. 31: Developments in Beijing were horizontal before the 1980s
 Vertical after the 1980s
 The Linked Hybrid combines both



ill. 32: Elevation of the development



ill. 33: Section



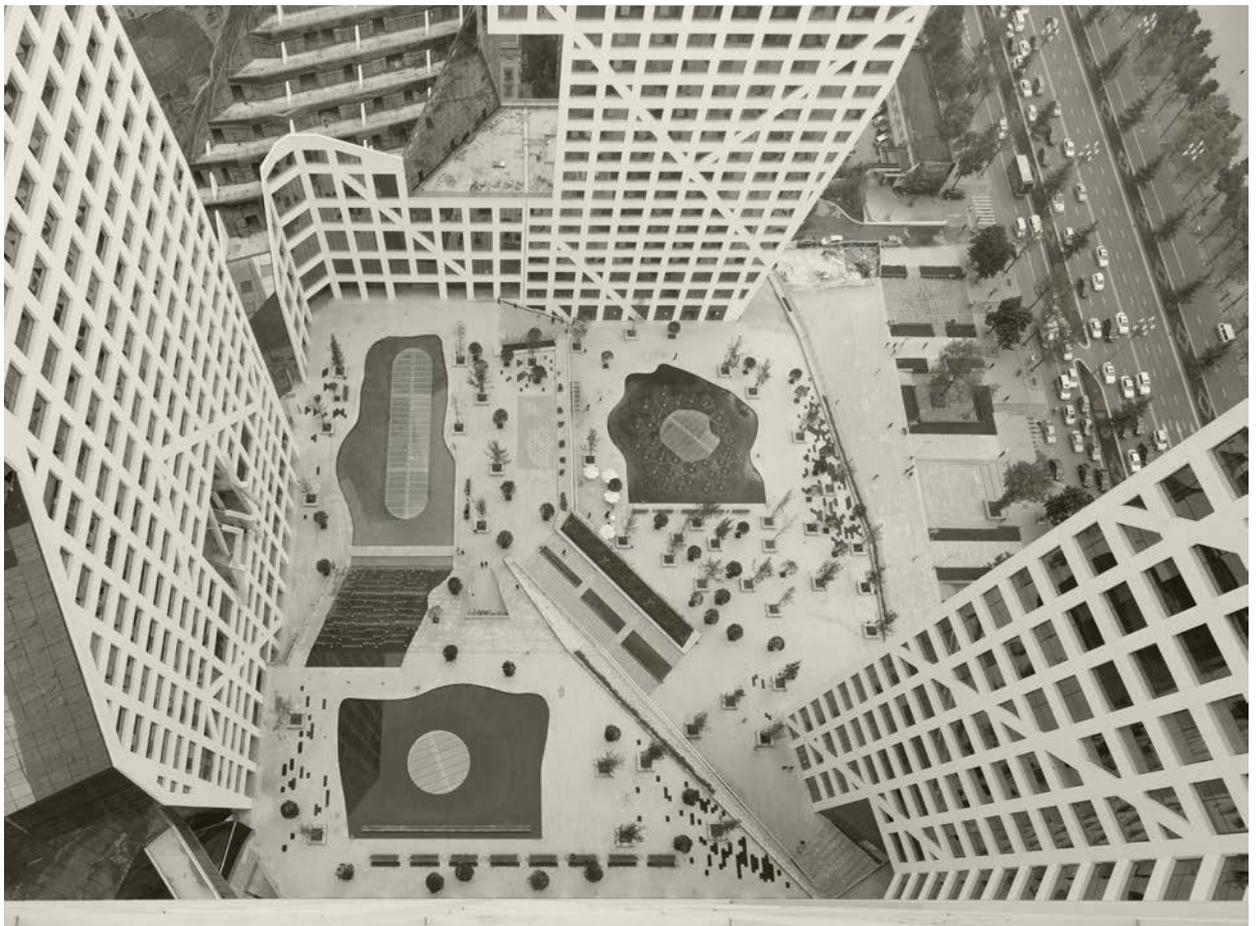
ill. 34: Detail of the bridges



ill. 35: Sliced Porosity Block

3.3 Sliced Porosity Block, Steven Holl, Chengdu, China 2007-2012

Sliced Porosity Block is a Hybrid building by Steven Holl in Chengdu, China and is located at the intersection of the Ren Ming Nam Road and the first Ring Road. In this project five towers, which are shaped by the angles of solar inclination sit on top of a commercial base. The roof of the commercial base is used as public space. Due to the elevation of the space for the public, it is protected from the bustling avenue right next to the site. The mix of uses in this development contains a residential program various commercial uses, a hotel, offices and car parking under ground. The towers are not just connected with the public space between them but also on the seventh and eighth floor. These two floors contain a variety of cultural and public uses and disrupt the independence of the five towers by linking them together.



ill. 36: Courtyard with the three waterponds

The residents and visitors of the complex are able to access it by the public transport system of Chengdu, as it is directly connected to it. Due to this connection there is no need for private transportation, which is really important for cities to reduce their air pollution. The mix of uses within the building forms a micro urbanism with shops open to the street as well as the shopping center. Instead of designing different skyscrapers for each usage the Sliced Porosity Block generates a public square surrounded by different functions.

The central public space of the block, which is surrounded by the five towers, is divided into three different levels. Each of those valleys contains a water fountain, one represents the Chinese Year, one the twelve month and the third for the days of the month. The shopping center is located underneath this central square and the three water basins function as skylights for this shopping area.

The Sliced Porosity Block does not only reduce the air pollution with its connection to the public transport system, it is also equipped with 468 geothermal wells for heating and cooling of the complex. Together with other energy saving methods implemented in the development this is reason why this project received the LEED Gold rating.

There are also three big openings cut into the towers, each one of them with a pavilion representing history, light and local art.



ill. 37: View of the Sliced Porosity Block with surrounding area



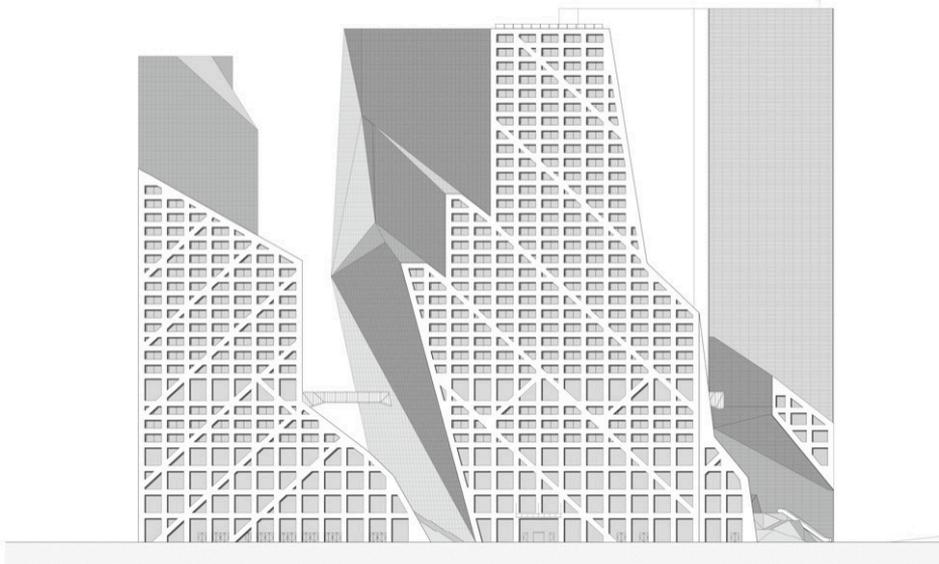
ill. 38: View from street level



ill. 39: Inside the Courtyard



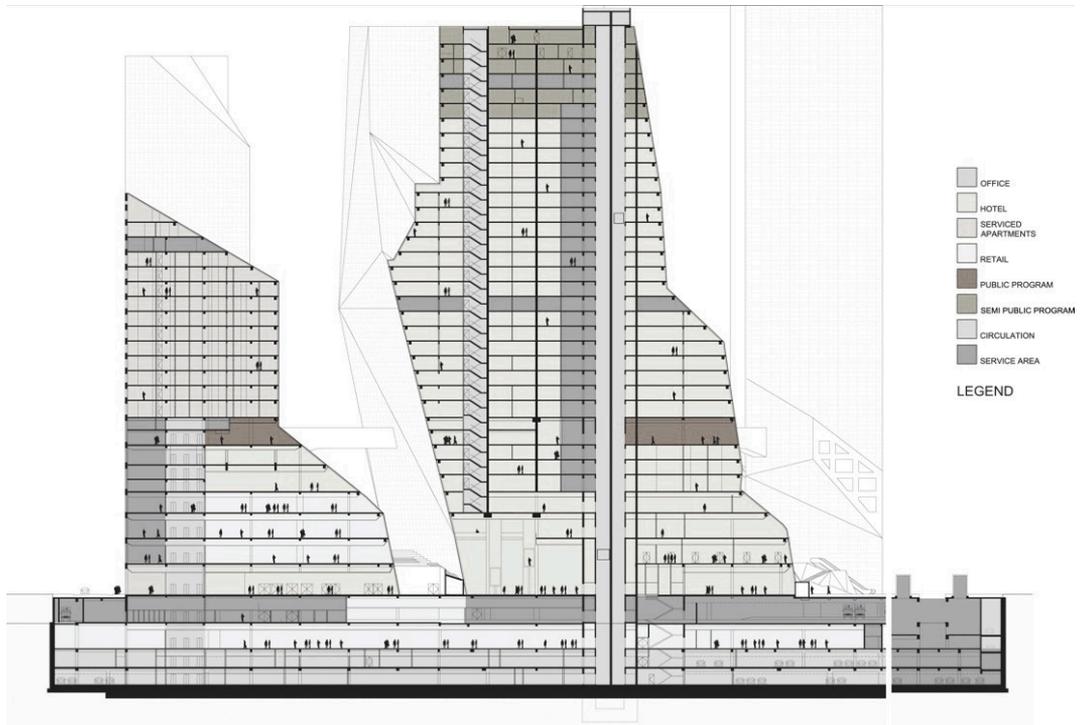
ill. 40: siteplan



ill. 41: Elevation of the development



ill. 42: floorplan of the courtyard



ill. 43: Section of the Sliced Porosity Block



ill. 44: De Rotterdam from the waterfront

3.4 De Rotterdam, OMA, Rotterdam, Netherlands, 1997-2013

The first design of the De Rotterdam development was designed sixteen years before the final design. The building is a mixed use complex located on the wharf. In the beginning there were also cultural uses foreseen in the development but the public initiative which was involved in the project withdrew, which is why they are not included in the now existing development. Three towers that are connected with each other form one hybrid building, which includes offices, apartments, a hotel, shops, restaurants and others. The mixing of uses in one development enables the possibility for a vertical city that is used by people 24 hours a day.

The whole district of the old harbour of Wilhelminapier is being redeveloped to bring back the vigorous urban life, which was in this neighborhood once before and the three mixed-use towers are a part of this project. The floor space of the development is about 162.000m² spread out in the three towers with a height of 150m those facts make De Rotterdam the largest building in the Netherlands. The concept of OMA was not about size the focus was to get urban density and at the same time also diversity and those principles mirror in the program as well as the form of

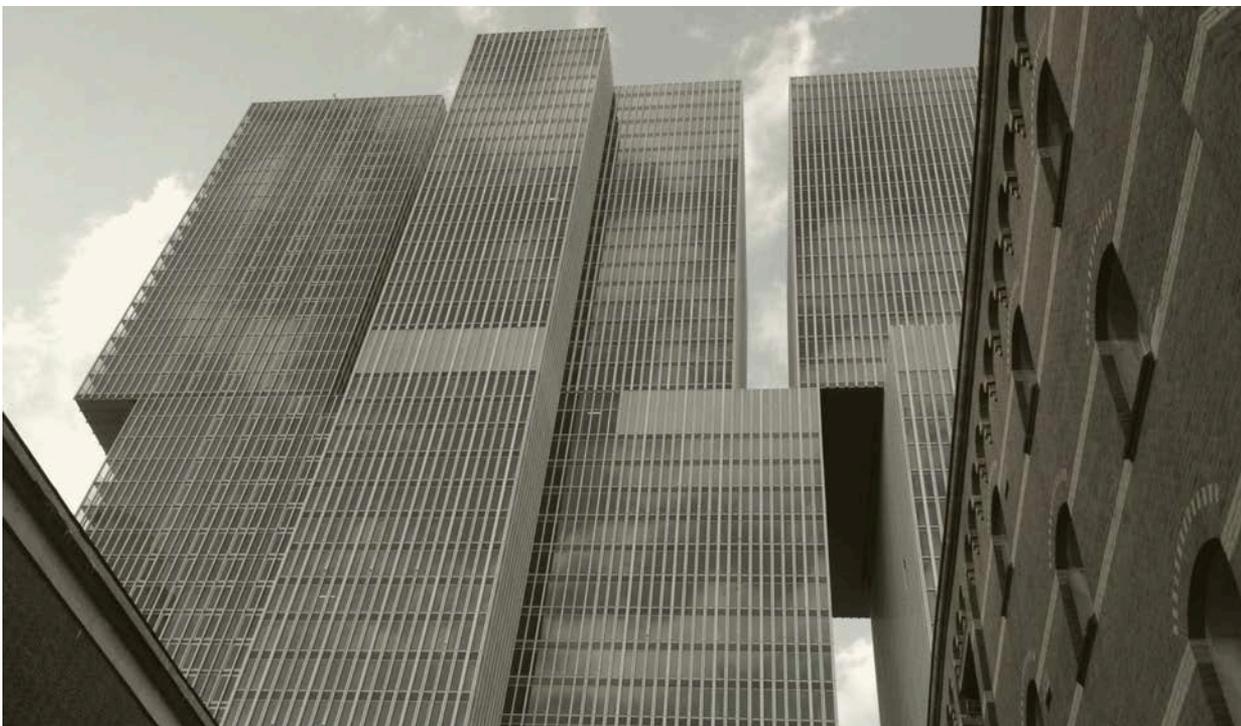


ill. 45: View of the development

the building. The building consists of boxes stacked above each other with spaces between them to enable new views of the city from various perspectives.

Each block contains a distinct program, which makes it easier for people to orient within the complex and provides synergy at the same time. The public functions such as fitness, restaurants and conference rooms of the hotel can be used by residents and by office workers likewise. Everyone that visits the complex private can use the public functions on the ground floor as for instance the cafes on the waterfront. A long hall in the base of the development conduces as distributor for the traffic in the building and all of the lobbies are located a long it.

The whole development is built very compact despite the mix of uses of the building as the different functions are organized in block that overlap each other. In this design it would also be possible to replace on part with another one if needed. The fact that the blocks are shifted creates a less monolithic appearance of the building and gives it a dynamic look. The completion of the De Rotterdam building established a critical mass in this harbour district and is the starting point for a second city center.



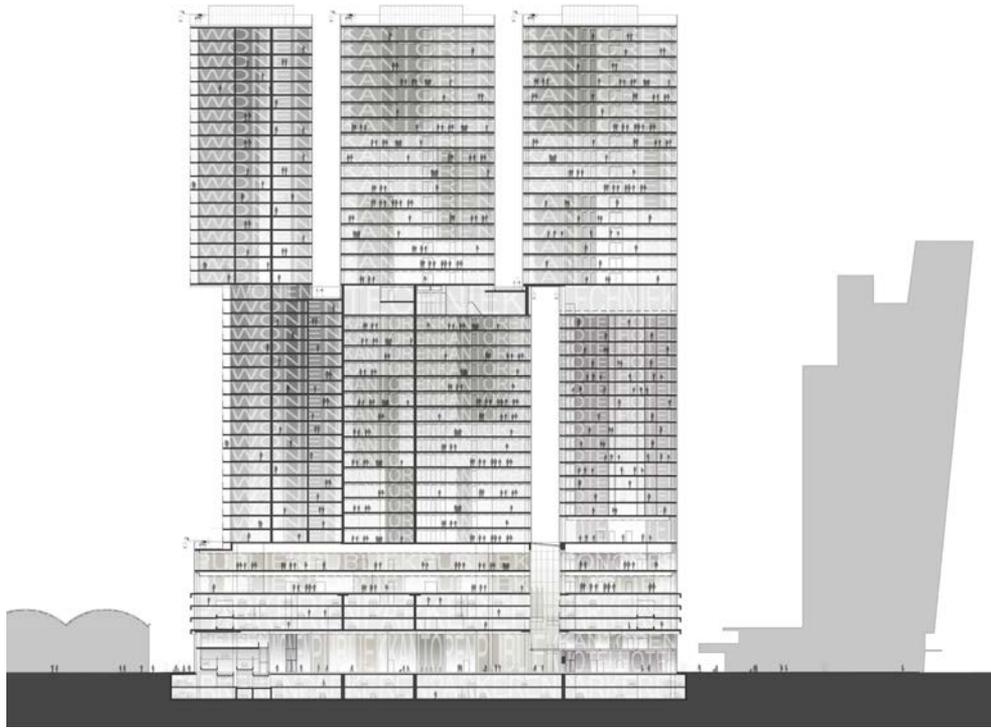
ill. 46: looking up De Rotterdam



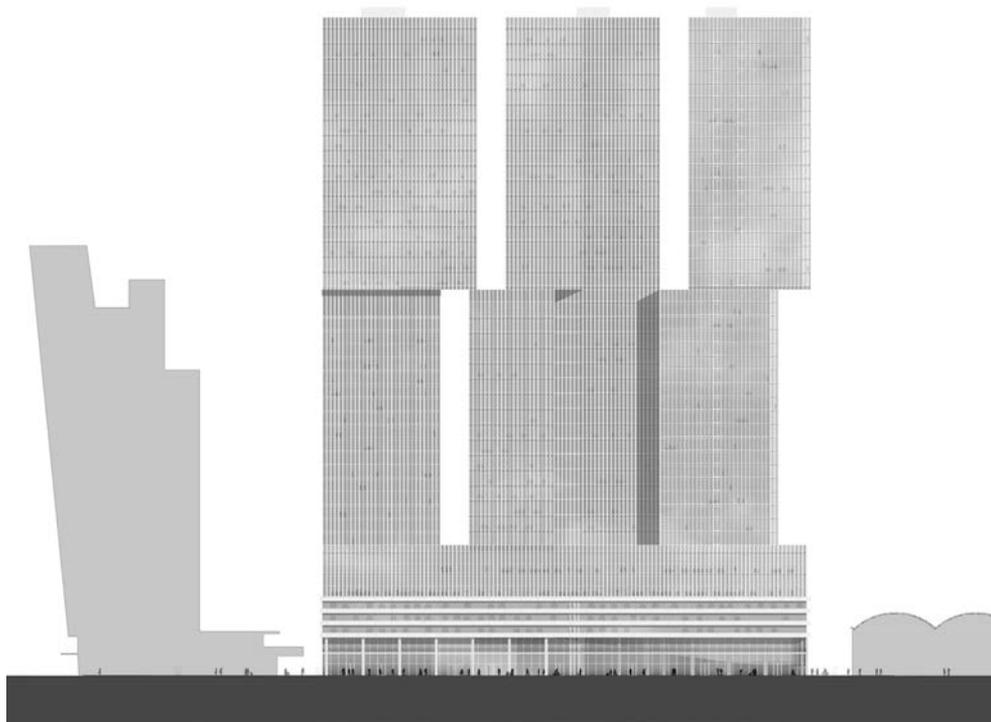
ill. 47: Skyline of Rotterdam



ill. 48: View of the blocks stacked above each other



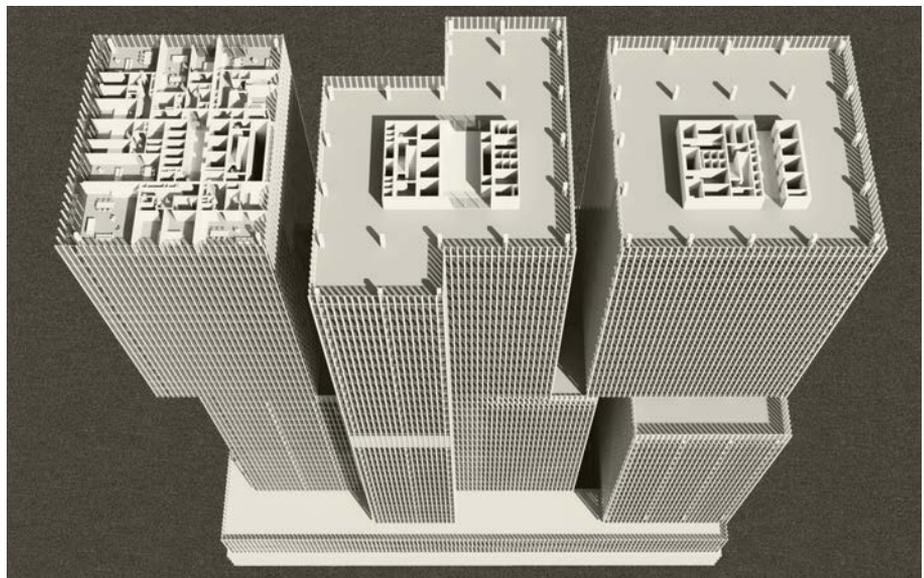
ill. 49: Section of De Rotterdam



ill. 50: Elevation of De Rotterdam



ill. 51: Functions of the different blocks



ill. 52: Cut through the 3D model

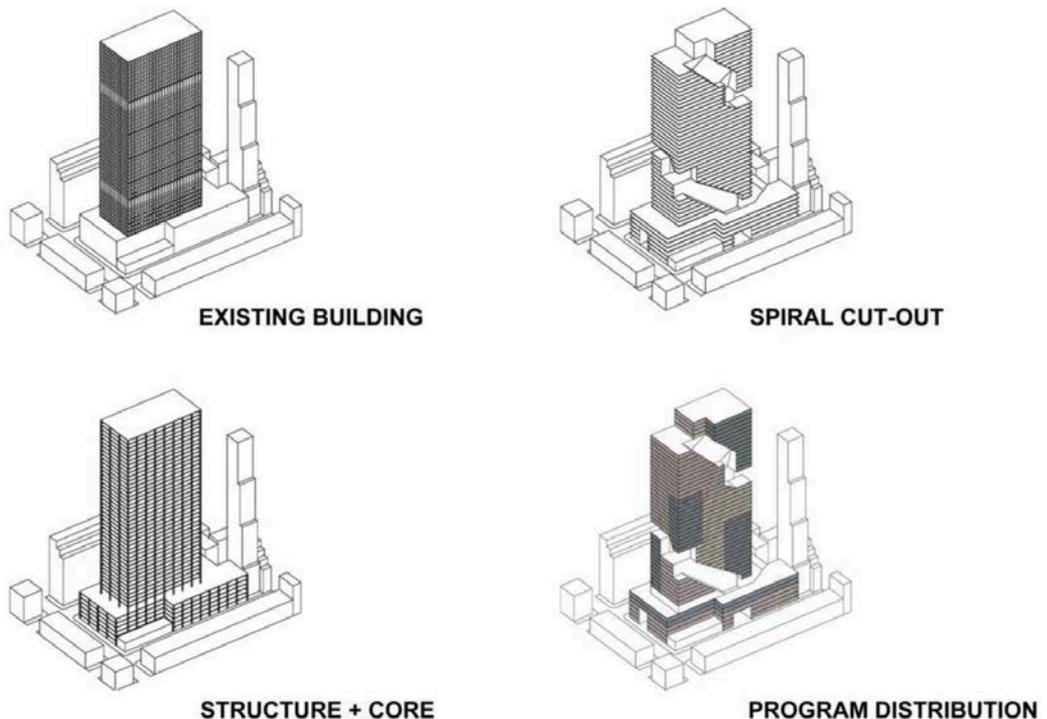


ill. 53: Rendering of the Block/Tower

3.5 Block/Tower, Stan Allen, Rafi Segal, New York City, USA 2011-2013

“Making Room: New Models for Housing New Yorkers” was the title of an exhibition organized by the Museum of the City of New York and the Block/Tower was one of the projects. The aim was to get new approaches how to work with the already build volume in New York and promote housing types that fit better to the new lifestyles of the residents as they are very different from the traditional family. The Block/Tower deals with a tower in central Manhattan, which is exclusively used for offices and modifies it by adding residential space to it. Two regular floors with office use can be changed into three storeys for housing.

New uses were added to the tower but that was not the only change made the facades were upgraded to be more energy efficient. The common spaces stretching out through the whole building are linked with the open spaces and the other uses of the development. To realize a project like this the urban planning regulations of New York would have to be changed then it would be possible to transform office towers into new mixed-use towers.

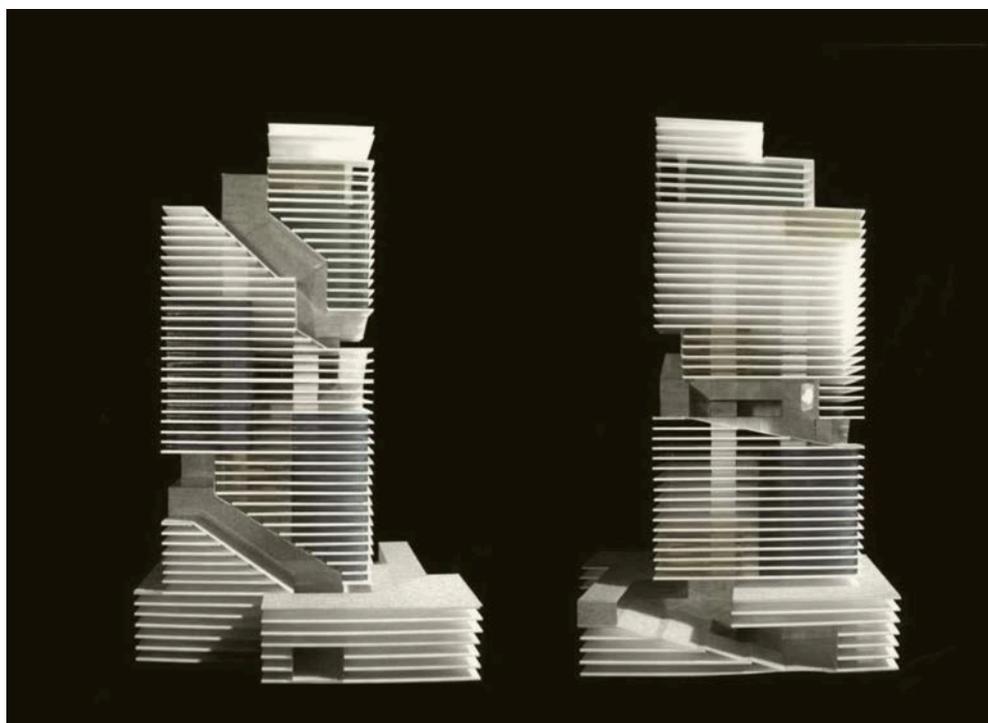


ill. 54: Concept of the development

The city of New York one of the most diverse cities in the world but compared to that the types of housing available are not fitting to this diversity. The housing market needs to adapt to the citizens and not the other way around. About 17% of the apartments in New York City are occupied by traditional families and yet more large units are getting build. The Block/Tower is a start to get also more diversity in the housing types and a more dense and efficient city.

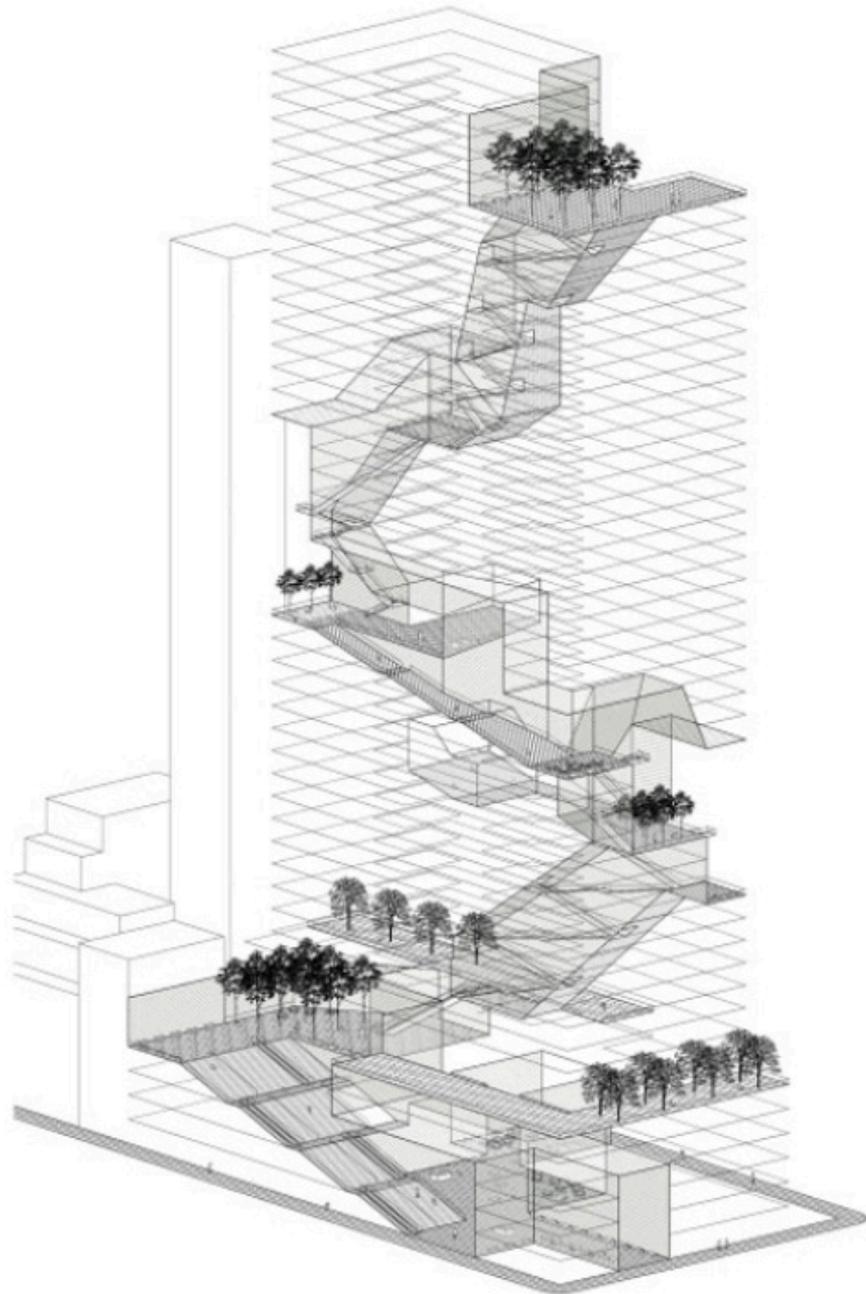
The Block/Tower deals with the outdated commercial office spaces that were constructed in the 1960s and 1970s, which are a huge resource of millions of square meters. Those buildings were built in a different era and are not really useful anymore. The project uses the existing structure as a platform to create a new mixed-use tower for residents and workers.

In the new design the old existing cores are kept for the economic and functional organization of the tower while a new second system is implemented around the building. The second system consists of gardens spiraling from the ground floor up to the top of the tower. These gardens and public spaces can be used for leisure and as connections of the different levels.



ill. 55: Model

There is a broad variety of housing types realized in the project and a lot of different relationships between all the uses. The residential spaces can be on the same floor as the offices but they are not depending on each other. In the lower levels Urban Cabins are foreseen by the architects, those single units are connected with common spaces.



ill. 56: Public spaces spiraling around the tower



4

SITE ANALYSIS IN VIENNA



ill. 57: St. Stephen's Cathedral

4.1 History of the City of Vienna

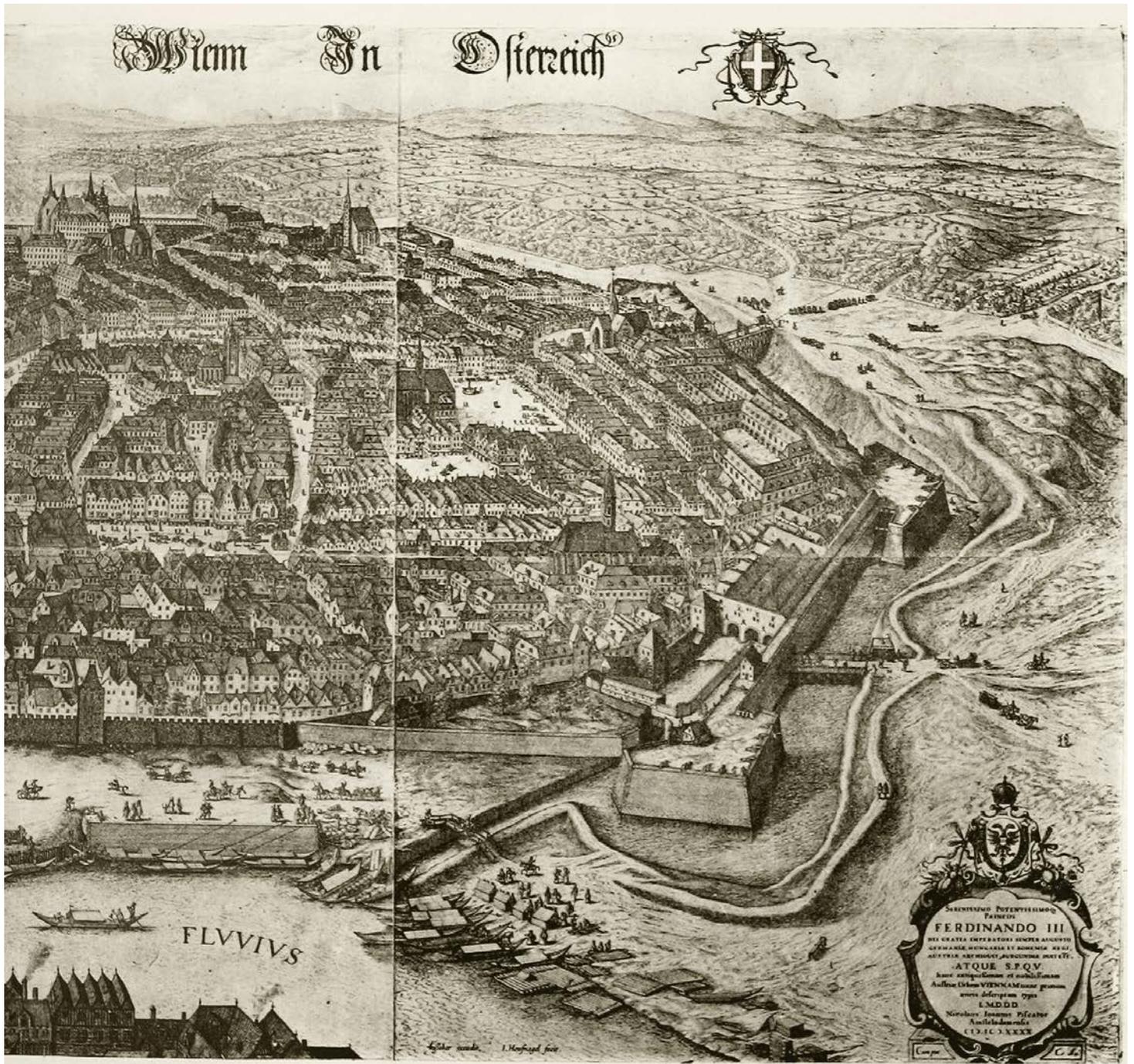
The city center of Vienna reflects the continuity of two millennia of settlement history. The most important criterion for the choice of location was the location next to the breakthrough of the Danube at the edge of the Eastern Alps at an intersection of continental trade routes. The first Roman military camp developed into a medieval trade and residence city then in the Baroque era the imperial city of the modern era and in the 19th century in the Glacis area into the still existing Ringstrasse.

However, the history of the Vienna Glacis begins with a near disaster. When the Ottomans under Sultan Süleyman I. lifted the siege of the city and started their fallback on October 14, 1529 the medieval city wall was considerably demolished in some places. Due to the destruction of the “Lucken”, a late medieval suburban area just outside the city gates, a devastated free area was created. After the hostile actions were overcome limpingly this area was banned from construction.

As a result the city center of Vienna has been converted into a fortress. Little by little a new city wall according to the rules of the Italian fortress architecture of the time was built. The expansion of that town fortification took more than 140 years. This expansion included a flat terrain in front of the trenches of the fortification without vegetation and buildings. In the technical terminology of the fortification this undeveloped and unplanted forecourt is called “Glacis”. The opponent should not have any chance to entrenchment and at the same time a clean shot offer for the defense.

To achieve this, the destroyed suburbs were only rebuilt partly and with some distance to the city walls. 1588 an imperial order defined the width of the area with a construction ban in front of the wall with converted 95m. This area was extended in the course of time: in 1632 to 150m, 1662 to 380m and 1683 the year of the second Turkish siege finally to 450m. However that was not possible without the repeated resettlement of the residents of suburbia, the grinding of existing buildings and agricultural land becoming deserted. Until the mid-19th century the edge of the Glacis was largely unchanged. The edge of the





ill. 58: St. Vienna in 1609-1640

Glacis led to the city next Danube arm, today's Danube Canal. Due to the protection by the Danube arm the developments of Leopoldstadt approximated much closer to the fortification.

After the second Turkish siege and the successful relief in 1683, Vienna gradually got out of its vulnerable geopolitical position at the edge of the empire through the military successes of Austria in the Balkans. In the 18th century Vienna became a prestigious residence city and the administrative center of the Danube monarchy. The construction of fortresses dominated the 17th century but now gradually lost its importance, which is why it has been repeatedly suggested to discontinue the fortification and develop urban infrastructure at the Glacis. However the plans were not realized. The Glacis experienced the first major change in the second half of the 18th century. As from 1753 the markets of the inner city had to be moved outside the city walls and were settled in the Glacis area. Joseph II. had then regulate the Glacis in 1770. Avenues and new designed promenades were created which is why the Glacis area, now also called "Esplanade", became an important recreational area for the city's population and soon after that amusement facilities were originated.



ill. 59: Ringstrasse at Burgring 1872



ill. 60: Glacis in Vienna 1840

However the system of separate footpaths and driveways also contributed to the increased volume of traffic. Till 1800 the suburbs were greatly increased due to the improved political situation. The importance to the Glacis for merging and distributing traffic flows increased since it now partially had to accommodate the growing traffic between the suburbs. Already at this particular time a polygonal street around the city similar to the “Ringstrasse” got more and more important for the city’s structure.

In 1809 the fortress between Kärntnertor and Schottentor was blown up by Napoleon. This was not just the first major redesign of the fortified area but also an indication that a bulwark of this kind nowadays only had a limited military value. However the walls were completed again but some changes were made. In the area of the Hofburg the Burgbastei was moved a bit out



wards and 1818-1824 a representative square with castle garden, people's garden and a castle gate was created. The People's Garden was the first park in Vienna created for the public. Now that the bastions were publicly available and the People's Garden was built the recreation function of the space between the city and suburbs was strengthened.

In the first half of the 19th century the desire for a softening and a generous expansion of the city continued to grow and became an ongoing debate of many urban expansion projects. The first punctual developments already existed in the decades before the demolition of the entire city walls and the construction of the Ringstrasse. After the failed revolution of 1848 the Franz-Joseph Barracks and its counterpart the Rossauer Barracks were built in the Glacis area to secure the inner city. The construction of the monumental Votiv Church on the Glacis in front of Schottentor, which started in 1856, was probably the strongest sign that the general building ban outside the city walls would not last much longer. Already since 1848 there has been a freight depot with the name "Hauptzollamt" in the drained docks of the



ill. 61: Panorama of the Glacis area 1858

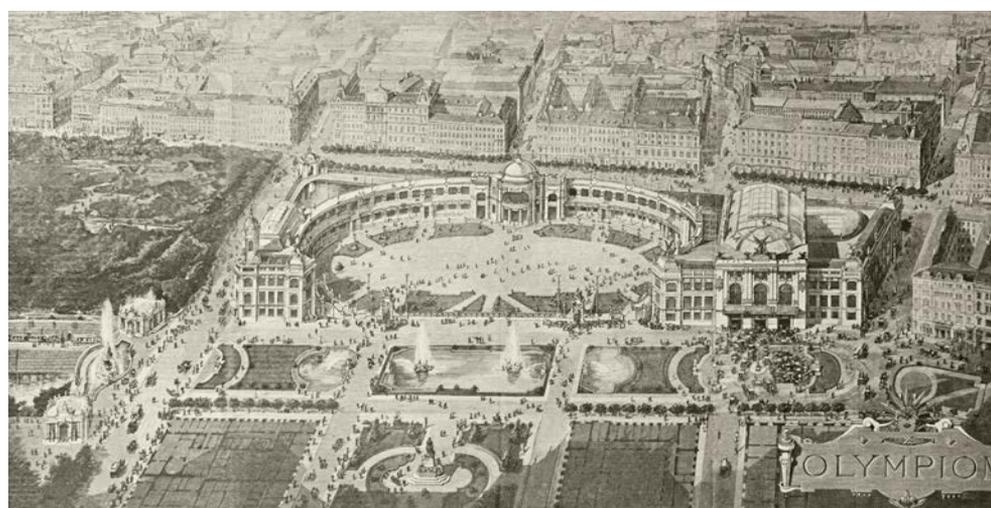
Wiener Neustadt channel built to bring food and fuel easier into the city via railway line – the precursor of today’s train station Wien Mitte.

The early modern fortification and the Glacis are two integral parts of the same defensive approach. Their realization did result in very specific urban circumstances for Vienna: Starting in the 17th century the residence town grew rapidly, which resulted in a vast agglomeration in the inner city because it was constricted to its late medieval area. After 1683 the rapid growth of the suburbs took course structurally decoupled from the city center. This circumstance offered a unique situation at that time because two different urban facades were facing each other on the Glacis: the fortified view of the downtown and since the 18th century the increasingly magnificently equipped suburban edge. However the fortress prevented the development of a representative architectural program. At the latest with the onset of industrialization the demand for residential and administrative buildings was so high that it seemed urgent to transform the Glacis at least partly into land for building.

Compared to other European cities, the softening of Vienna took place very late. One reason for that could be the double siege by the Ottomans. There was, however, also the fear of a violent discharge of internal social contradictions.

On December 20, 1857 Franz Joseph issued an autograph letter to the Interior Minister von Bach that the inner city may be extended and connected with the suburbs. Thereby the already long foreseeable demolition of the fortification and over a century panned expansion of the city between downtown and suburbs could take its origin.

In January 1858, shortly after, the tender of an urban planning contest was carried out which met with the interest of architects from all over Europe. The projects of the architects Ludwig Förster, August Siccard von Siccardsburg and Eduard van der Nüll as well as Friedrich Strache won the competition. However, since none of the plans were assessed ready for assembling Emperor Franz Joseph assigned an interministerial commission to draw up a “basic plan” including the awarded projects along with specific state requirements. In 1859 the result out of it was approved by the emperor that was the base for the realization of the extension of Vienna’s inner city. This urban extension should last for about 50 years. Due to the political change of 1860 the “basic plan” already had the first significant alteration in a long series of changes, now it also had to accommodate the House of Representatives.



ill. 62: Ludwig Baumann planned the Olympion 1890



ill. 63: Modern Version of the Canaletto View

At the Rotenturmtor the demolition of the city walls started already in March 1858 before the launch of the competition because the quay on the Danube Canal was created first and a section of it opened as early as 1860 several years before the Ringstrasse. This was followed by Stubentor, Kärntner Tor then Fischertor and Schottentor. 1863 the Burgbastei was demolished as one of the last. With the demolition of the Löwelbastei during the course of the construction of the Burgtheater in 1875 the demolition operations finally came to an end (Raith).



ill. 64: Bernardo Bellotto's famous Canaletto Picture

The 1860 newly created Ringstrasse, is an about 4 km long boulevard with approx. 56m width which is lined with long stretches of double avenues. The Ringstrasse surrounds the city center on three sides on the fourth side the Danube Canal and the also newly created quay with a length of about 1.6 km is located. The various sectors of the polygon were installed in a grid system, which was typical for the time and generally oriented orthogonal to the respective section of the Ringstrasse. The sectors were realized at different points in time and form self-contained urban units, which are characterized by monumental public buildings. The first built-up sections of the Ringstrasse were the area Opernring – Kärntnerring – (inner) Schwarzenbergplatz – Schubert- and Parkring (1861-1877) as well as the simultaneous built area of the Schottenring and the development around the Rudolfsplatz (1860-1886).

Starting in 1871 the development of the axis Hofburg – Hofstallungen was realized. The obstruction of the former parade ground with the monumental ensemble city hall – Burgtheater – University – Parliament followed from 1872 to 1888. The plan for the area around the new city hall had not been included in the basic Plan, as well as the development between the Votivkirche and the suburbs, designed by Heinrich von Verstel (1876-1884). This place was originally designated for the University. Some years later the buildings at Stubenring were developed from 1902 to 1913 after the discontinuation and demolition of the Franz-Josephs-Barracks. This section was realized according to a regulation plan of Otto Wagner and the last part of the Ringstrasse. At the same time it was also the only segment that deviated from a strictly orthogonal system.

The urban morphological factors are not the only significant aspects of the Glacis area. The Baroque era already created far-ranging spatial axes and axes of meaning. Those axes did reach across the open and undeveloped Glacis from the suburbs to the city center and beyond.

The Karlskirche, built according to the plans by Johann Bernhard Fischer von Erlach, is located in the extension of the old Herrngasse to the residence of the Habsburger. The Schwarzenberg Palais, build according to the plans by Johann Lucas von Hildebrandt, is located in the extension of the old Herrngasse to the residence of the Habsburger.

debrandt and J. B. Fischer von Erlach, refers to the Peterskirche which is also built by Hildebrandt at the same time. The summer residence of Prince Eugene according to the plans by Hildebrandt also reveals reference points to the core area of the city.

Bernardo Bellotto, also called Canaletto, documented precisely this urban spatial tension and identity in his famous painting from the upper Belvedere in 1759. Although this veduta is verifiably manipulated in measure relations and building positions it captures the basic characteristic of Vienna's cityscape using artistic idealization and compression in a distinctive way. This quality is still comprehensible from the forecourt and the ceremonial rooms of the Upper Belvedere today and all relevant plans considered it almost every time.



ill. 65: Unesco World Heritage Site with the Buffer Zone around

4.2 History of the Site

The “Zone Zollamt” area of the former Glacis is especially interesting from a morphological point of view. On the one hand there are functions in the area that have been there for a long time already and at the same time there have been really radical transformations of the built structure. This area of the city somehow seems to be entirely in the shadow of urban planning attention and the potential of the site is not used in any way. That implies that this location offers one of the biggest opportunities for a development so that the hardly perceived area becomes a high-quality urban space with vital urbanity.

One of the permanences is that the place is used for offices of state organizations. Due to the lack of space within the city walls the representative public buildings were built on the edge of the suburbs and stayed there till today. Another permanence is the role of the area as a transshipment center. Next to the building complex Hauptzollamt/Finanzdirektion there was another large structure, the railway station “Hauptzollamt” together with the market halls. In 1900 there was a major transformation of the area when the elevated railway line was converted into a low-lying railway line. Although hardly any of the old building fabric is left today, the functions are still broadly obtained. One of Vienna’s largest traffic intersections is located on the site of the former railway station “Hauptzollamt”, together with “The Mall”, the largest shopping center in the inner city.

The development of the new railway station had led to enormous professional and political discussions, while the neighboring area of the “Zone Zollamt” is completely shielded by the public. The viaduct district between the “Zone Zollamt” and the railway line is also isolated from the rest of the city. The entire area despite its location in the center of the city is anything but urban. This fact is very surprising as there is hardly a location with more attractive conditions in the Glacis area. Some of these attractive conditions are for example the immediate proximity to the already mentioned traffic hub “Wien Mitte”, the closeness to the city center, the location on the river Wien and the Danube canal as well as the proximity to the city park.

Nowadays the entire area between the Vordere and the Hintere Zollamsstraße is to be rated very critical. It is also surprising that the largely unchanged functions were not able to create permanence in the structural and spatial structure. The present building structure consists of new large building complexes and federal buildings of the 1970s and 1980s. Although the entire area has a dense building structure, the mono-functionality and the introverted architectural approach do not create an urban situation. Another point is that there is no relationship with the surrounding area. Even the internal potentials are not used as almost all of the existing large courtyard areas are sealed and serve as parking spaces. These factors devaluate the quality of the location.

All these unused exceptional urban structural conditions suggest a fundamental transformation of the “Zone Zollamt”. In order to make the area more attractive and to help that it is noticed in the city zone, the development of a highly urban milieu with the corresponding functions would be important. One factor that can contribute to this is the expansion of the permeability in the area. A mix of uses would ensure a better exploitation of the area. Relating to the current high-rise concept of Vienna an appreciation and advancement could take place since the area is already a location for high-rise buildings.



ill. 66: Vienna city plan 1858



ill. 67: Vienna city plan 1912



ill. 68: Vienna satellite photo

4.3 High-rise Buildings in Vienna

Since the 1950s high-rise buildings are urban development policy and city planning factors. Earlier structural developments that were higher than the conventional buildings included next to steeples, aristocratic buildings and military buildings and special industrial buildings only a few individual objects inter-war period. Examples are the buildings of social housing of Red Vienna or the high-rise at Herrengasse. High-rise developments during the postwar period were restricted to prestigious locations such as the Ringturm, the Hotel InterContinental, the Gartenbaugründe or the Hilton Hotel. In other words, till the 1990s Vienna was anything but a skyscraper city.

Since the opening up of Eastern Europe in 1989 the situation of Vienna changed around the turn of the millennium. A boom in the construction of commercial buildings, office buildings and



ill. 69: High-rise buildings close to the city center

service buildings began to affect the high-rise development positively. With this background the recommendations developed under the title “City planning guidelines – skyscrapers in Vienna” were put into effect in 2002 by the City Council. This paper underlines the importance of Vienna’s urban continuity and permanence, its physical-spatial qualities and density. These qualities should always be kept in mind for the evaluation of high-rise projects. Based on these requirements and in addition to today’s conditions of a future-oriented urban development, which is also characterized by strong population growth within the next years, a new high-rise concept was elaborated.

If someone wants to develop a high-rise building in Vienna they always have to consider this high-rise concept. Skyscrapers are highly visible architectural landmarks of the urban landscape, which is why the city can claim considerations. Profits made with the rededication of land should be returned to the general public. One way to do that is that high-rise developments have to contribute to a sustainable way to actively enhance the surrounding area.

Buildings higher than 35 meters count, according to § 7 passage f of the Vienna building regulations, as high-rise buildings. Increased requirements apply to buildings with a higher alignment level than 22m based on the guidelines from the fire protection. If the buildings have a higher alignment level than 32m additional provisions become due.

Vienna should not suspend future transformations using high-rises but rather acquire strategically considered concepts. Basic requirements are relevant added values for the general public and a majority of the cities population in favor. There are only key requirements for current and future residential tower projects included in this high-rise concept. This includes essential requirements for mixed use and flexibility, for socio-spatial additional benefits and carefully designed open spaces and of course high-quality architectural planning at all scales.

Basis for this mentioned high-rise concept are the topographical, structural and morphological characteristics Vienna that were already mentioned in chapter 4.1 of this paper. The future



ill. 70: First high-rise building of Vienna at Herrengasse

prediction of a population growth of about 230.000 inhabitants to 2025 and the prediction of the structural development in the next 10-15 years are also considered. Vienna is growing quantitatively but more importantly Vienna should grow qualitatively. Against this background high-rise developments are to be considered only as exceptions under special circumstances.

Skyscrapers should exert a catalyzing urbanistic effect and contribute significantly to sustainably improve the urban qualities in the immediate and wider environment. Without such a compensatory, the community serving role it is not possible to realize high-rise buildings in Vienna.

Depending on the urban context of the skyscrapers their part is completely different. Therefore the city is divided into six city areas in the high-rise concept with site-specific different requirements. These areas accrue from urbanistic viewing of Vienna, which is determined for each zone described in the high-rise concept. The boundaries between these districts are not strict but more transitions. Within these areas rules are formulated adapted to the particular Situation to guide the development of high-rise buildings.

The Glacis is part of the consolidated city area described in the high-rise concept, which is why this paper will only concentrate on this one area out of the six. Next to the Glacis this area also includes the compact grown Inner City and the neighboring extension areas of the Wilhelminian era. Characteristic for this area is the high structural and social density, morphological conciseness and traditional space creation with clear edges between open spaces and buildings. The typological readability as well as a constant height of buildings that is only overtopped by very special high points, for example steeples and military buildings are also distinctive for this part of the city. Public spaces, streets and courtyards are literally in a real tension to the building blocks and their individual buildings. Open space is most of the times highly compressed and expands only in a few places into larger connected sequence of spaces. One area with major public space is the Glacis area and the area of the former railway and industrial areas.

The consolidated area of the first district and adjacent districts of Vienna grew over centuries and is an outstanding monument of European urban development. When developing high-rise buildings in the consolidated area of the inner city this always has to be kept in mind.

The most important for high-rise developments in the consolidated city is respect and reservation towards the quality of the already existing. The accentuation in the height of the cityscape in distinct spatial areas can be a desirable enrichment. These distinct areas include urban structural interfaces, city borders, points of high activity, urban development areas and many more. Some keywords that outline possible urban practices for

the implementation of high-rise buildings in the area of the consolidated city are the highlighting and strengthening of prominent points and city edges within the already existing building structure by high buildings (up to 35 meters high) and high-rises (more than 35 meters high), the specific setting of priorities, cautious vertical development in the second and third row and nonetheless purposeful system discontinuities that revitalize the surrounding environment. High-rise buildings can be justifiable if they consider a sense of scale in relation to the existing buildings. In addition they should serve as local urban enrichment, spatial and functional clarification, help to compensate structural deficits and support the public acquisition of urban space. The integration of public institutions for education, social and health can represent essential added value in areas with a deficit of social infrastructure.

The actual demand is to be identified through a detailed analysis of the particular environment. There is a special emphasis on a structure of uses that is harmonized with the neighborhood in the area of the consolidated city. In particular the ground floor level of the buildings should contain publicly accessible non-commercial facilities in interaction with the surrounding public space. Ideally the demand of those facilities is to be determined on basis of a well-founded socio-spatial analysis.

High-rise developments have to meet particularly high programmatic and contextual requirements because of their huge impact in urban development. Particularly multifunctional concepts should be supported in the interest of a vibrant city at a programmatic level. At a contextual level on the other hand particularly compensatory concepts with exceptional added value for the general public are to be supported. Generally high-rise developments offer great opportunities for multiprogramming. Those different programs can operate enriching and stimulating for the environment and thus also have a high added value for the general public.

At the same time an extensive mix of uses in high-rise buildings can cause some structural difficulties as well as in terms of building technology and organization. There is a broad possible range of mixing uses, for example a combination of residential



ill. 71: Ringtrum 1955



ill. 72: DC-Tower the highest building of Austria

and hotel use within one skyscraper. Due to similar spatial and structural conditions this type is implemented easy. There is no limitation of the mix in a multiple use building it can be living and working or living, working and other special functions.

Flexible floor plans and a usage openness as high as possible which is ideally already existing in the basic design of the building can contribute to the long-term sustainability of the high-rise building as this building type is mostly associated with very high construction costs. Ways to include this flexibility already in the design are adequate ceiling heights, the strategic separation of the primary and secondary structure of the building, the load-bearing and non-load bearing elements and not least through the use of intelligent building technology.

The ground floor or rather the lowest floors of a skyscraper should primarily be considered as a part of the urban space and accordingly to be programmed as a part of the public space and form a whole. Due to the prominent position the top floor is just like the ground floor a suitable area for a special and publicly effective use.

Living in a high-rise building

In the past residential towers were not very common in Vienna therefore there is no relevant practical experience in this regard available. For this reason specific requirements must be considered when planning and constructing residential towers. Living requires not just in terms of building technology and typology utmost attention but also in social and cultural aspects.

In contrast to the office tower the utilization structure of a residential tower becomes apparent in the facade. The access area with natural lighting and individual outdoor spaces like balconies are only two examples that do appear externally in residential high-rise buildings. As mentioned earlier the sustainability of the intended use and the flexibility of the building structure with regard to unforeseen changes in use should be promoted through greater ceiling heights. Natural lighting in the access area is desirable on all floors of the building.

The highest-possible share of affordable housing within the high-rise building offers the chance to make living in skyscrapers accessible to a wider section of the population. Particularly a high-quality enrichment for residential towers are attractive common areas in the upper levels of the building. Such facilities support a reasonable variety of uses and a vertical mixing. A residential tower can be seen as sort of a vertical city quarter and should therefor offer similar urban qualities.

The higher utilization of the subsoil results in a higher frequency of motion in the ground floor level and the levels close to the ground floor. For this reason the lowest levels should house common rooms, cycle storage and other necessary adjoining rooms for joint use. There is a very high utilization pressure on the whole ground floor. The quality requirements especially for residential towers regarding maintenance costs, renovation friendliness and open space design have to be considered as well.

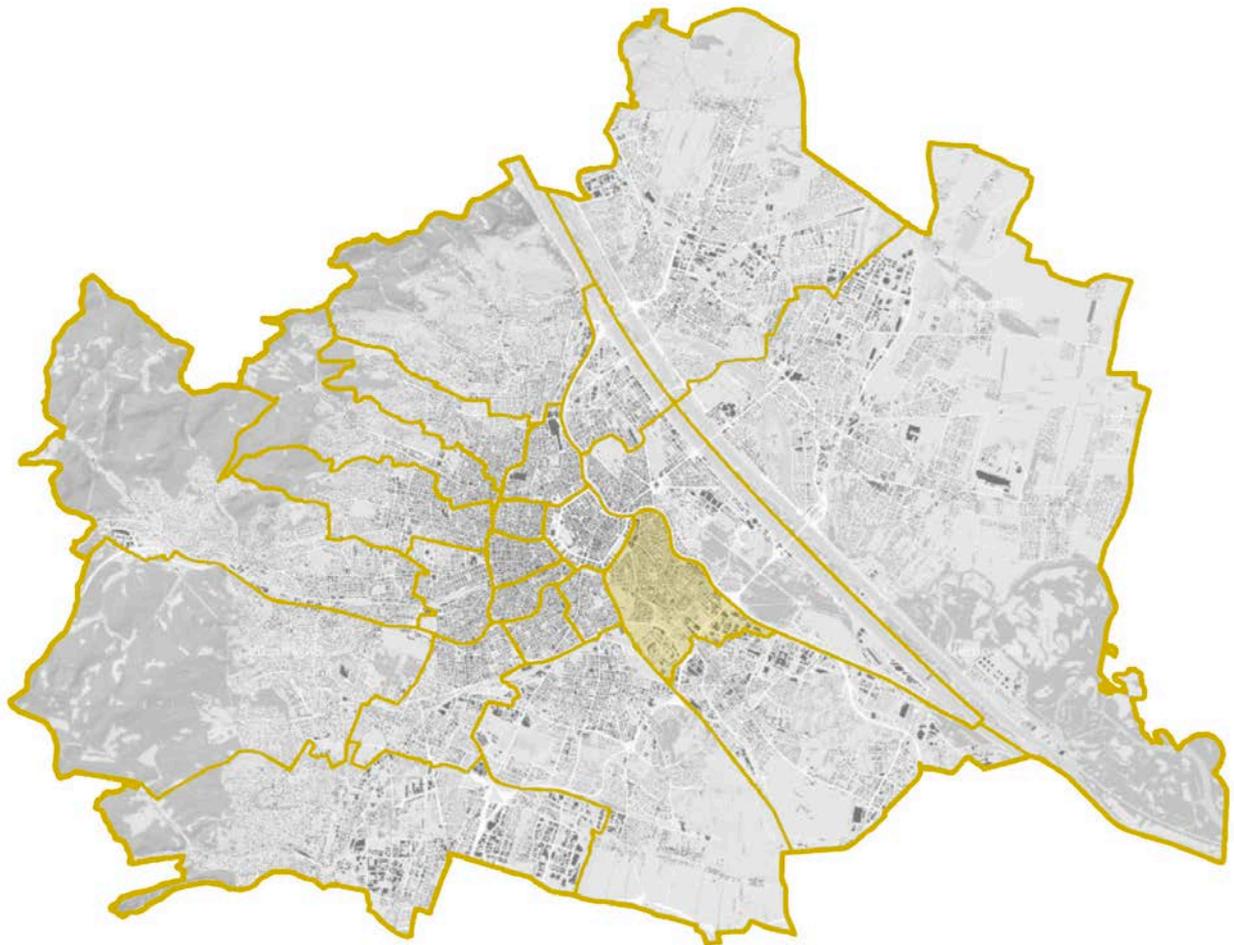
There are certain things to consider for developers if they want to build a high-rise building in Vienna. Possible skyscrapers should be evaluated on their potential to enhance the environment as part of a quality assurance process. One of the declared goals is that high-rise projects should help to significantly improve the surrounding environment. The public accessibility and permeability of the base zone is the rule.

The program of the ground floor as well as the other levels of the building is essential. In particular the establishment of attractive social and educational facilities is an infrastructural necessity. Buildings with this size are kind of a “vertical city” and therefore the social terms and conditions of the city also have to be fulfilled in the vertical.



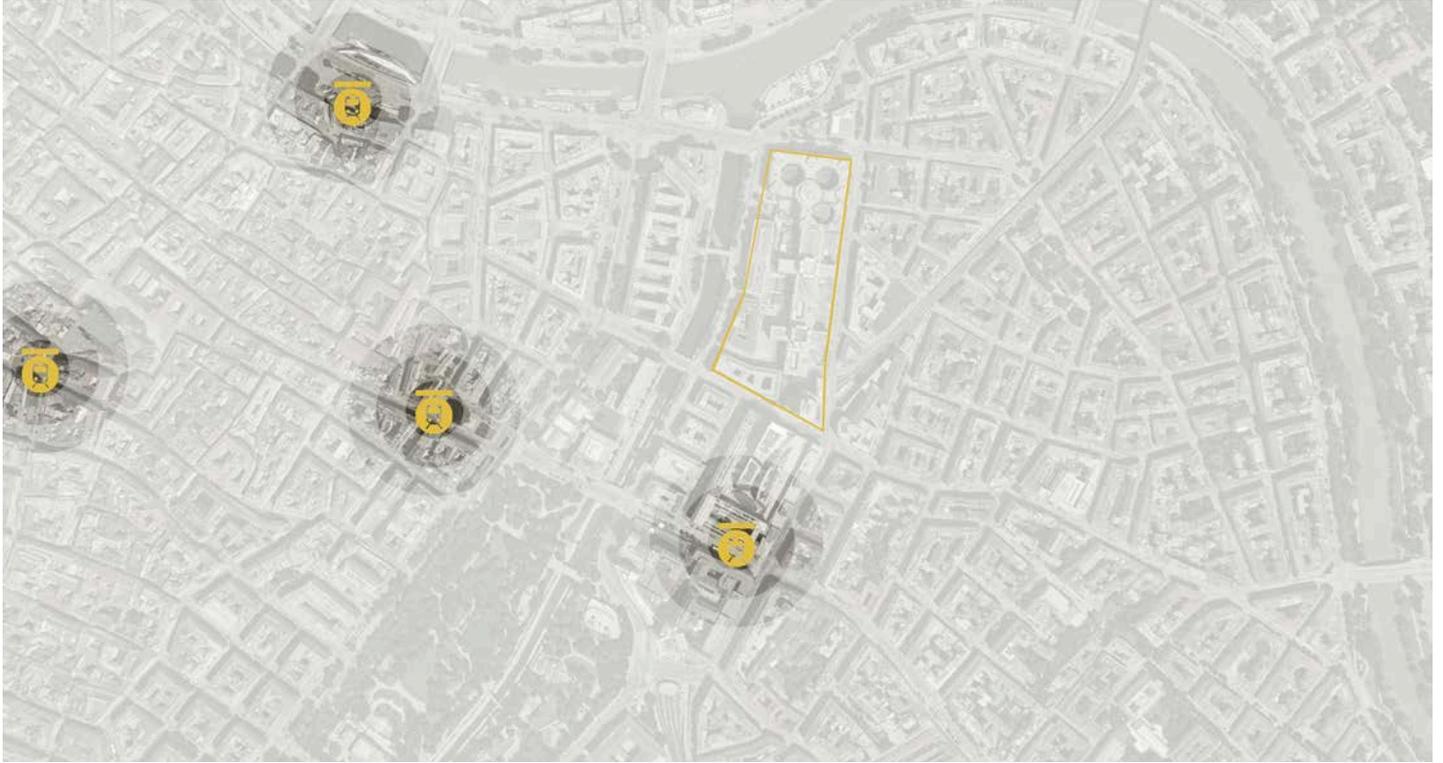
ill. 73: Proposal for the new InterContinental in the center of Vienna

4.4 Analysis of the surrounding area

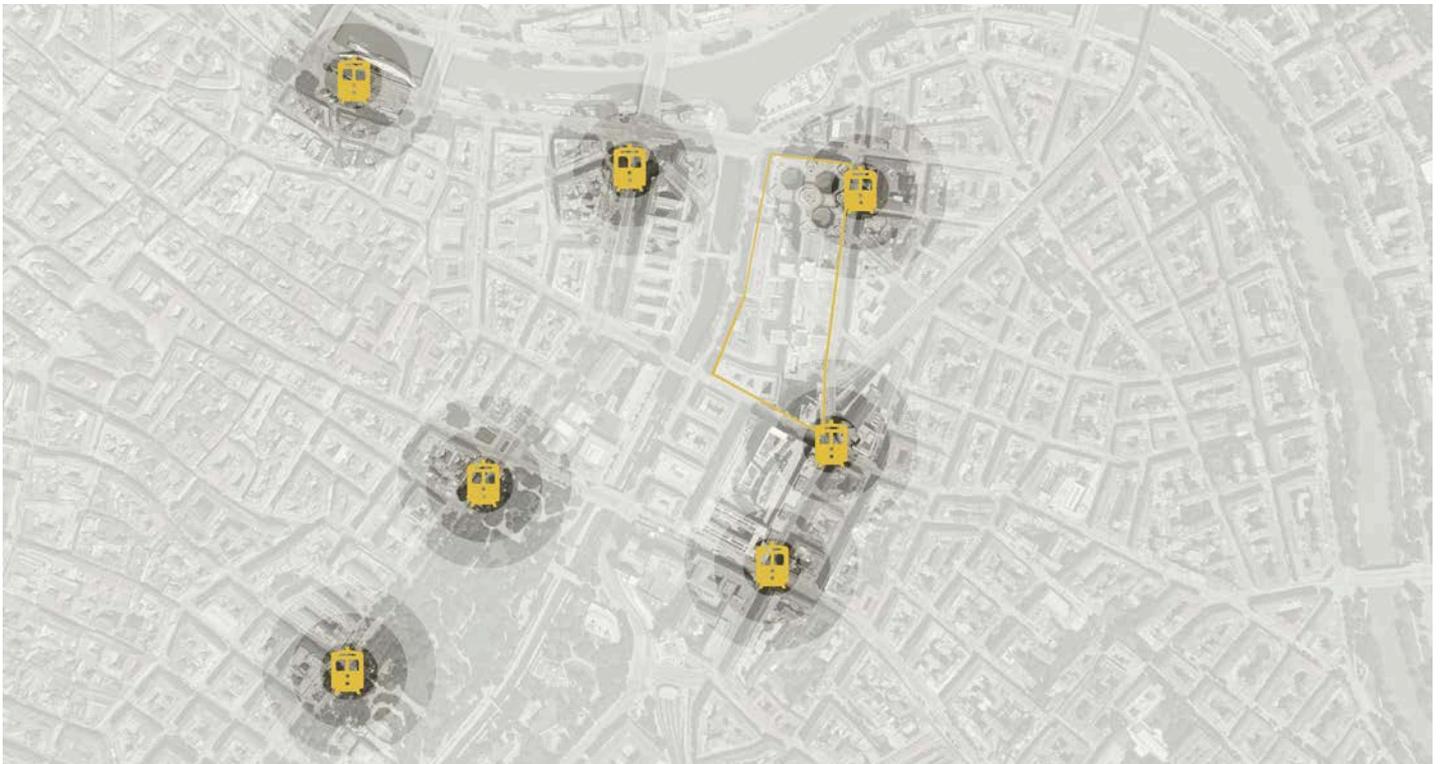


ill. 74: City of Vienna

The site is located in the third district of Vienna right at the border to the first and second district.



ill. 75: Metro stops close to the site



ill. 76: Tram stops close to the site

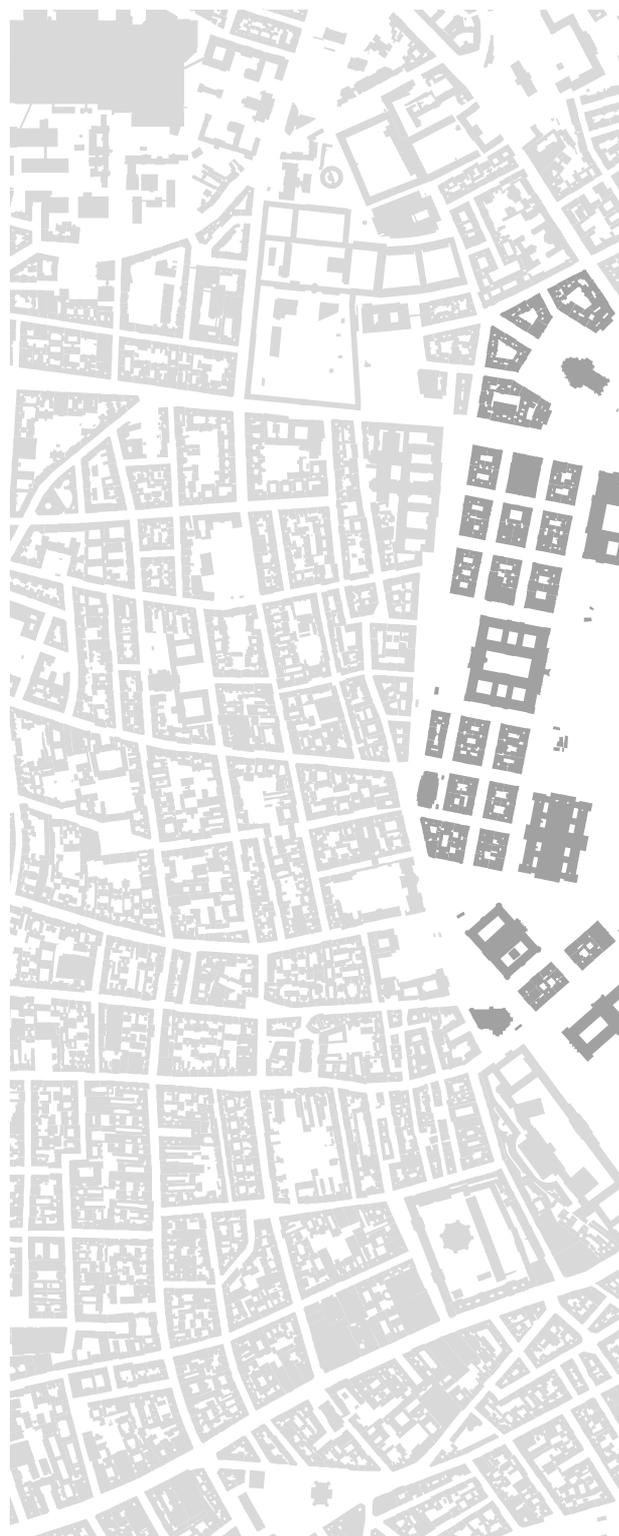
Glacis area of Vienna



Buildings of the
Glacis area



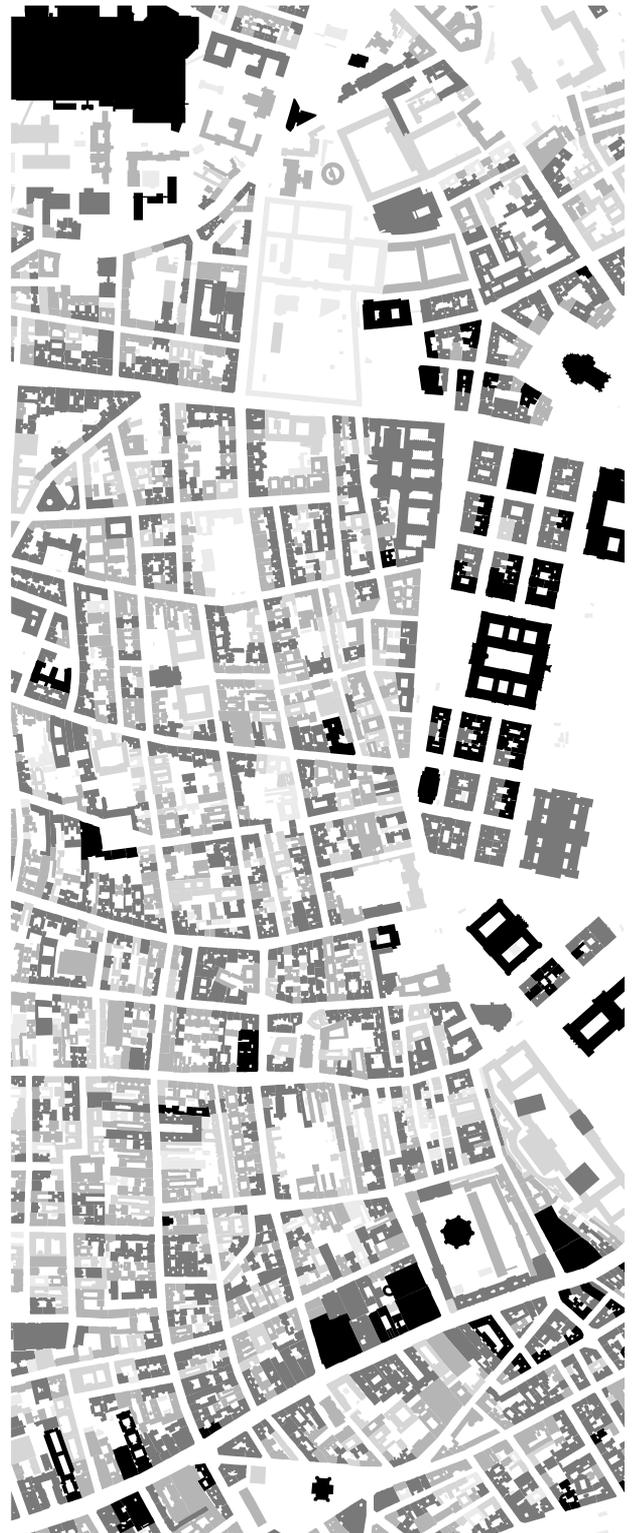
Buildings of the
rest of Vienna





iii. 77: Glacis area of Vienna

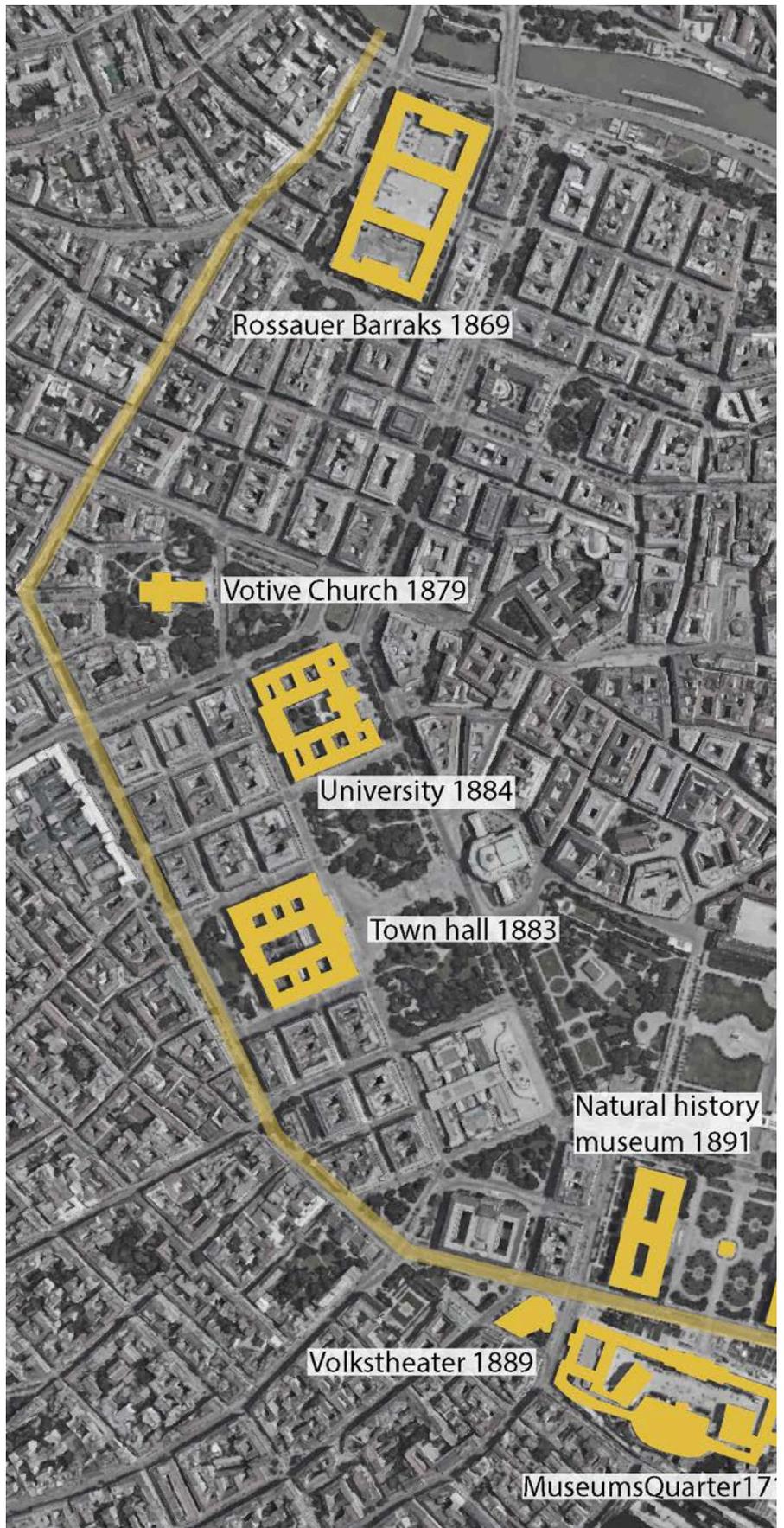
Building height

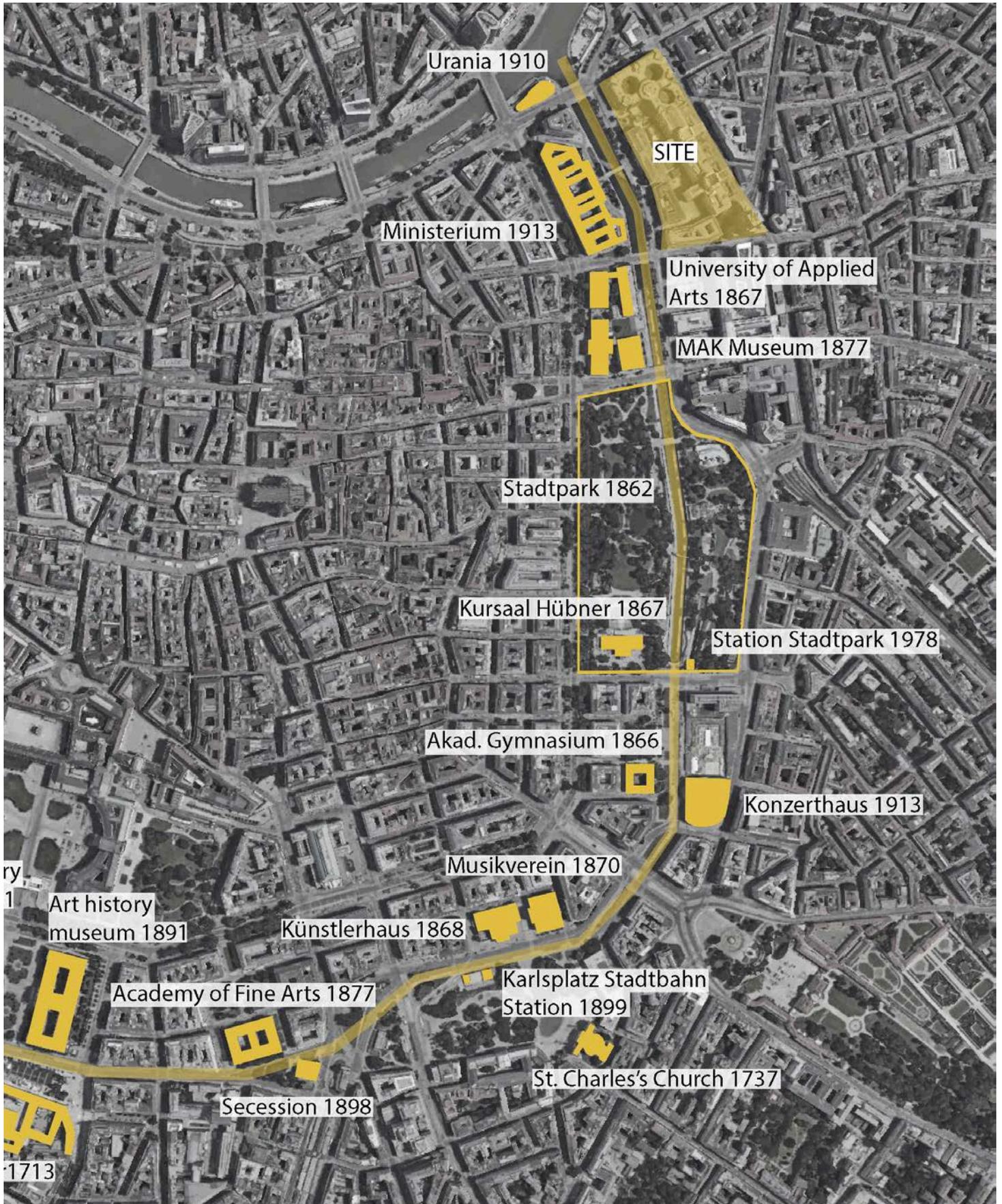




ill. 78: Building heights of the glacis area and surrounding

Vienna pearl necklace





ill. 79: Most important buildings along the glacis area

Public buildings



ill. 80: Hofburg



ill. 81: Town hall





iii. 82: Public buildings

University buildings



ill. 83: TU Vienna



ill. 84: University of Vienna





iii. 85: University buildings

Metro lines

-  U1
-  U2
-  U2 new
-  U3
-  U4
-  U5 under construction





ill. 86: Metro lines and stops



ill. 88: Tram lines

Public squares and parks



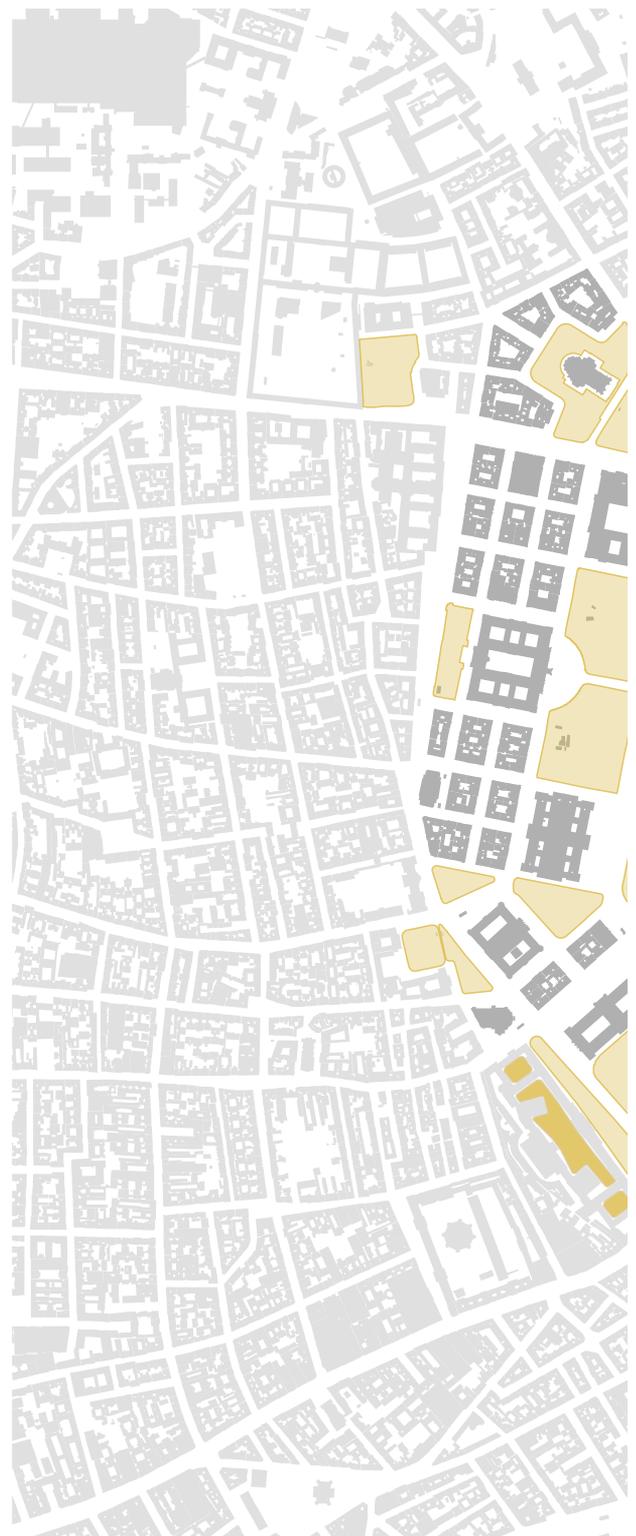
Public squares

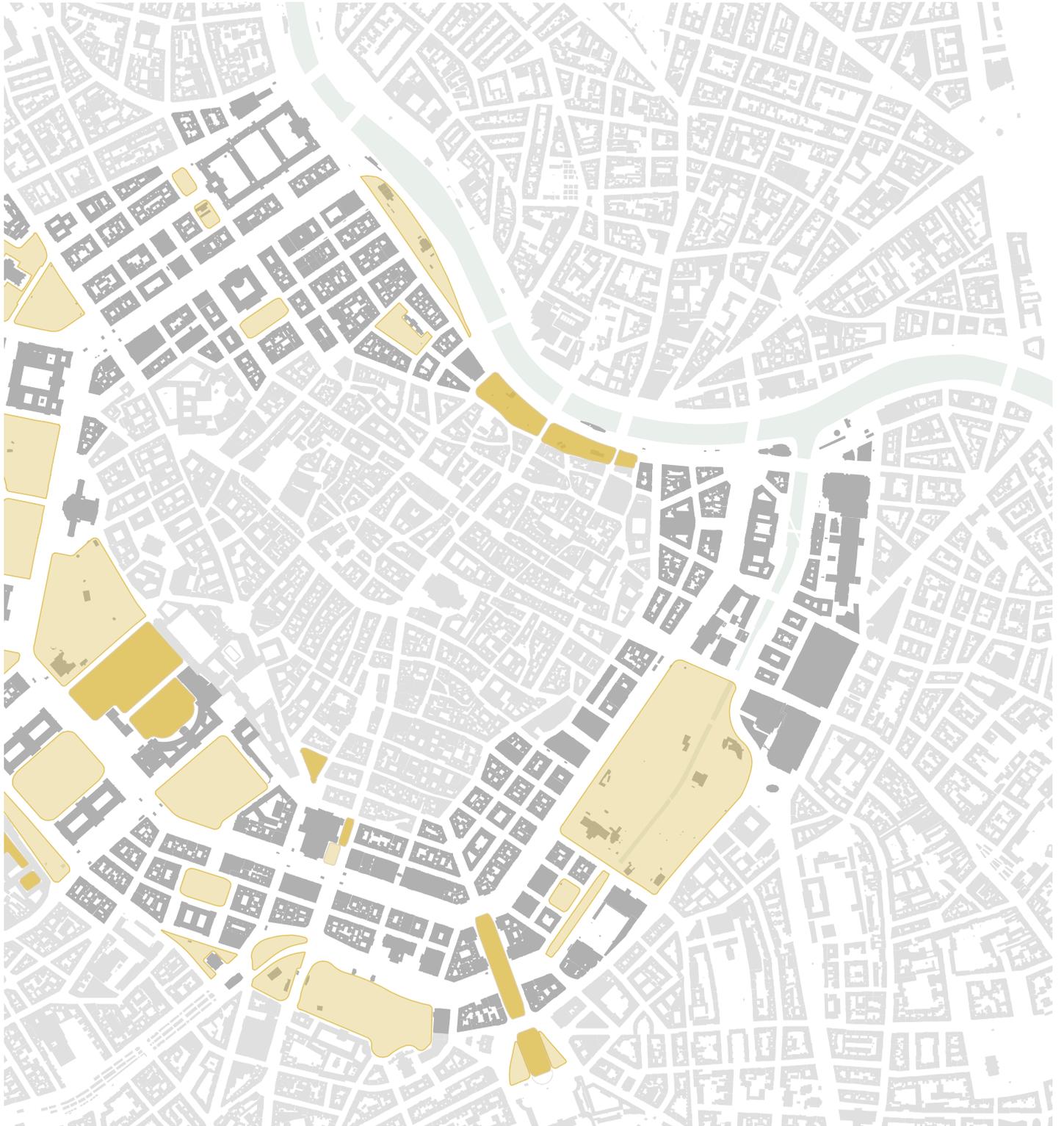


Public parks



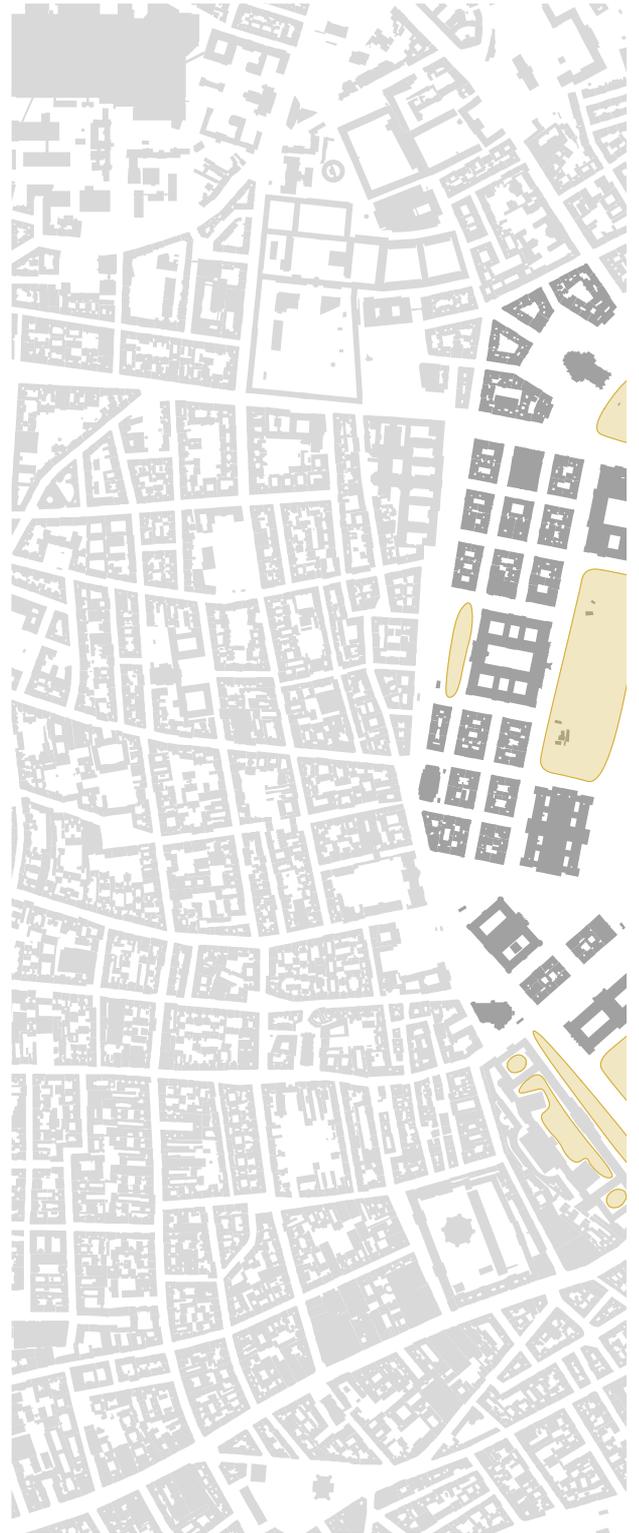
ill. 89: New design for Schwedenplatz





iii. 90: Glacis area with its parks and squares

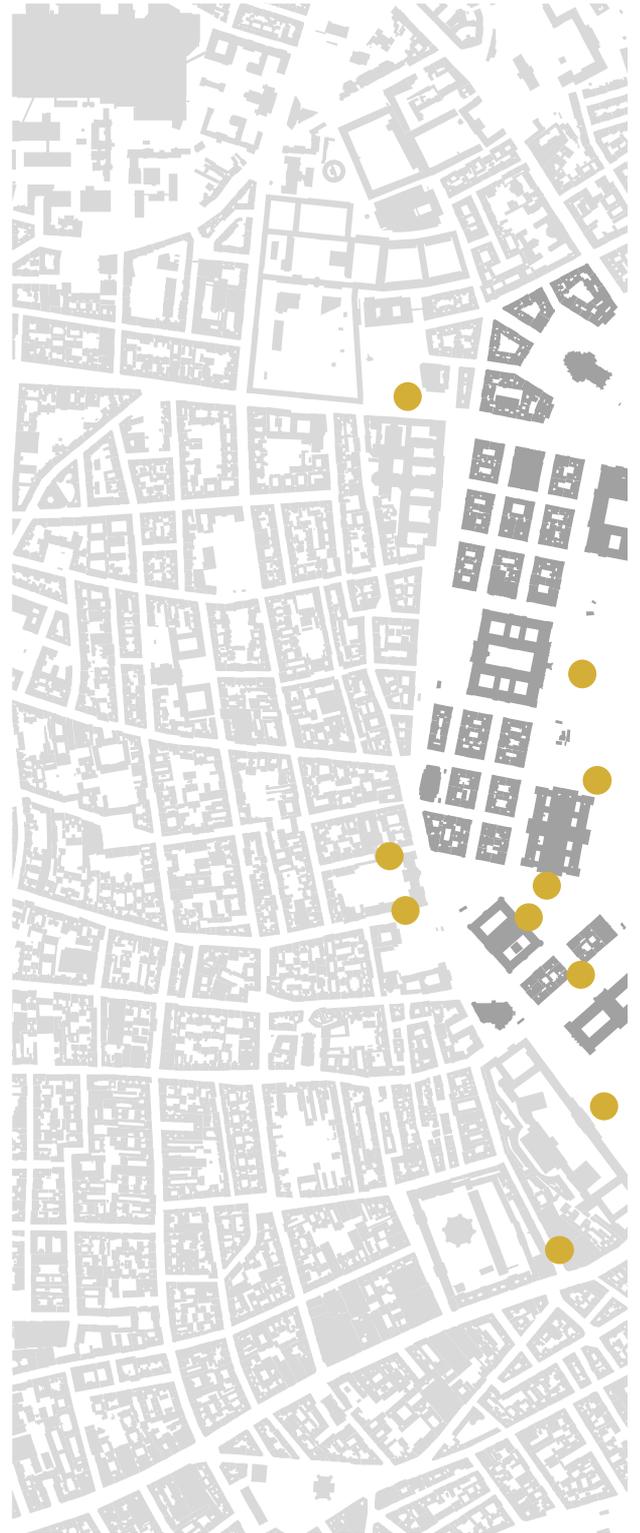
Event-areas





ill. 91: Event areas are located along the glacia area

Underground parking





ill. 92: Underground parking for public

Taxi stands





iii. 93: Taxi stands

Citybike spots



ill. 94: One of the many Citybike stands





ill. 95: Citybike spots

Carsharing spots



ill. 96: Car-sharing spot



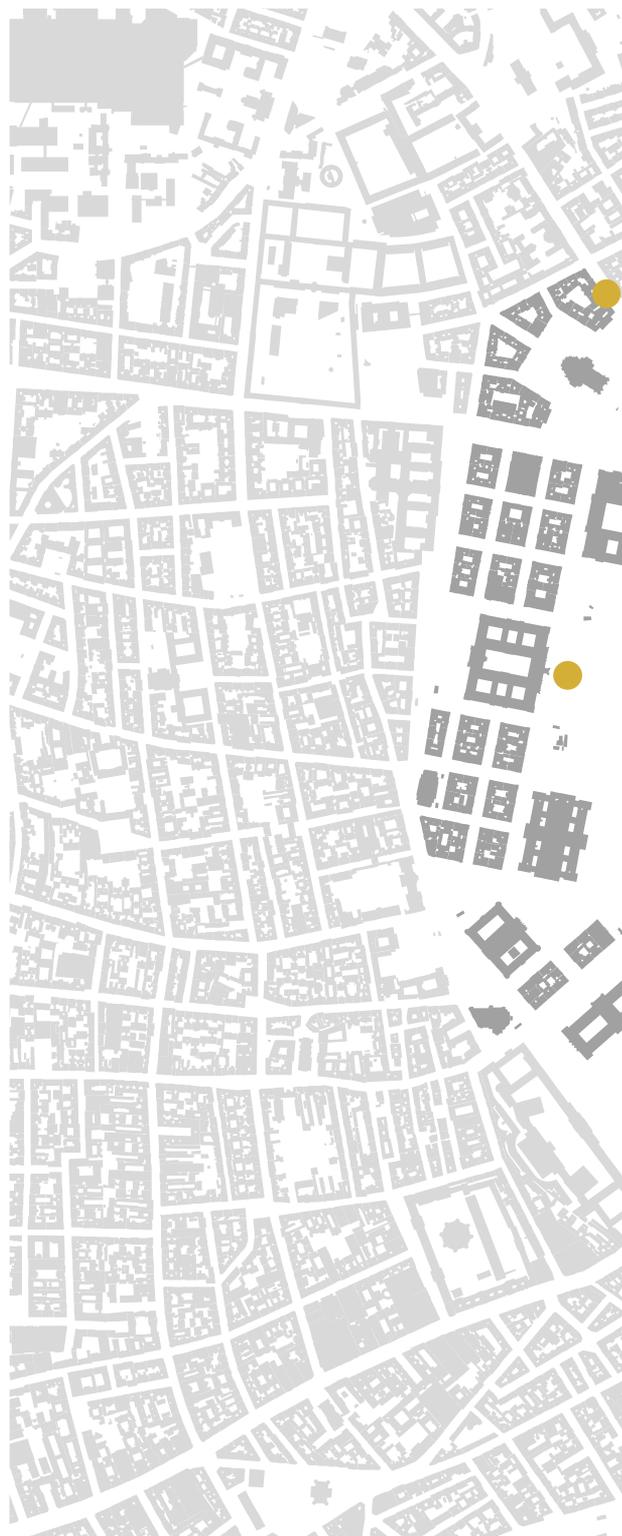


ill. 97: Carsharing stands

Public Viewing areas duringng EURO2016



ill. 98: Public viewing area infront of the town hall





iii. 99: Public viewing areas during the EURO2016



CONCLUSIONS

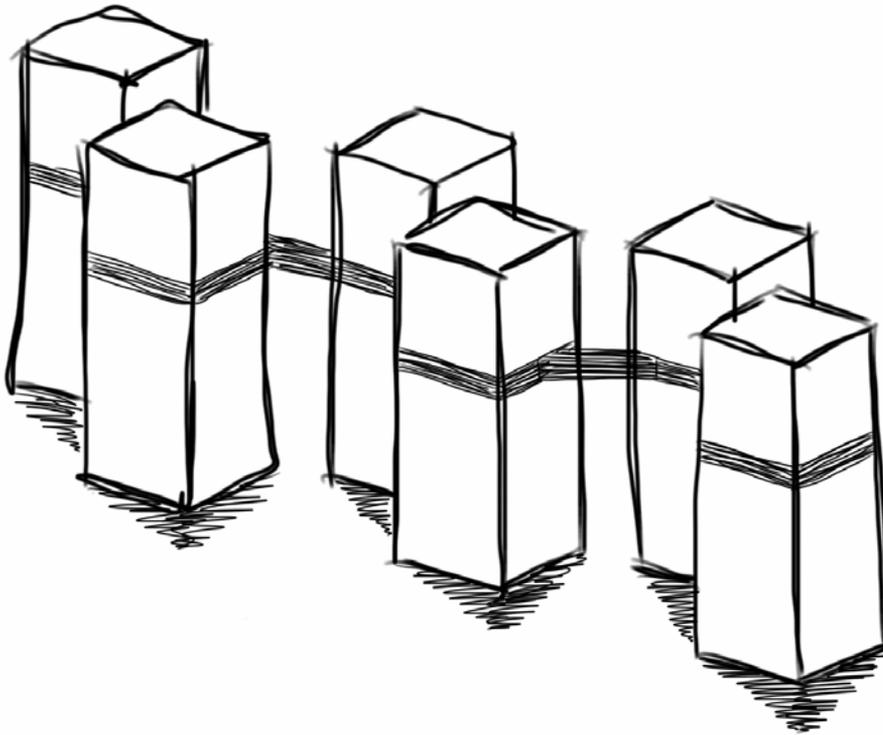
5.1 Comparing Hybrid types for “Zone Zollamt” in Vienna

The “Zone Zollamt” site is at the moment not really open to the public. The existing building contains different Federal Ministries and is blocking the way for pedestrians between the third district and the city center. A hybrid building at this high-value area will connect the two districts and create a space for the residents, workers and also for tourists. To show the potential of this premium site I chose to compare nine different hybrid designs. All of them have the same amount of square meter, which is about 200.000 m².

As a base for a future development at this site this paper will show a spectrum of possible development scenarios. These scenarios can be compared in regard to their potentials, risks and chances. There is not just one type of a Hybrid building every type got its advantages and disadvantages.



ill. 100: View of the site from above



ill. 101: Sketch of the six towers

The six Towers

City planning and construction:

This hybrid development consists of six towers, which are situated next to each other.

Each tower is 100 meters high and got 28 floors.

On the 18th and 19th floor all of the towers are connected with bridges.

The area where the six towers are situated is part of the buffer zone for the world heritage area.

The six towers function as one building, but can also function alone. Therefore it is possible that the towers are not built at the same time.

The towers will be the highest buildings along the Ringstrasse.

Due to the height of the buildings this development can be a new landmark for the city of Vienna.

As a result of the height new visual relations will be made.

The shifting of the towers creates better views for all of the towers and into all directions.

It is possible to have natural lighting in all floors of the buildings.

There can be conflicts regarding the height of the towers concerning the world heritage area.

The development provides a higher density compared to the existing building and got more public space at the same time.

The modern architecture of the development is adding to the already existing various time periods.

Function and Usage:

The two floors connected with bridges contain public functions such as gardens, fitness areas, kindergarten and many more.

High-rise buildings with public functions reflect the high value of this premium site much better.

The whole ground-floor is filled with public functions and will be accessible for everyone.

Due to the mix of the functions in the towers and the different people attracted by them, the area is used 24h a day.

The functions in the towers are interchangeable depending on which functions are needed. This is possible because of the open layout of the building.

None of the towers will be mono-functional, each high-rise got a mix of different usages.

The car parking for the whole site will be situated in the underground floors to keep the ground-floor attractive for pedestrians.

Above the public functions in the building it is possible to have subsidized housing and offices while luxury living will be situated in the top floors.

One of the towers accommodates a hotel.

An observation deck at the top provides new views of Vienna for residents as well as for tourists.

Open space:

The open space is divided into six different public squares, one in front of each tower.

Compared to the already existing building, the street level in this development includes paths through the whole site, from east to west as well as from north to south.

The public space of the site is free of cars and just accessible by pedestrians and cyclists.

Due to the openness of the street level the first district of Vienna will finally have a better connection with the third district.

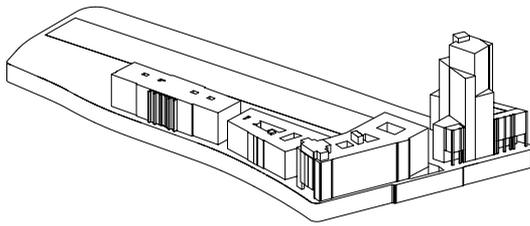
At the moment this part of the city center is sort of a dead area where nobody really wants to go, especially at night.

The range of the activities in this design will invigorate this part of Vienna.

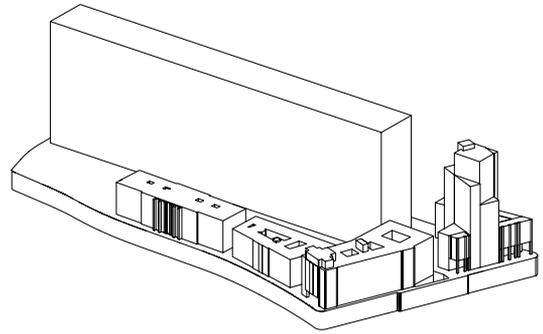
Restaurants and shopping in the lower levels activate the outdoor space.



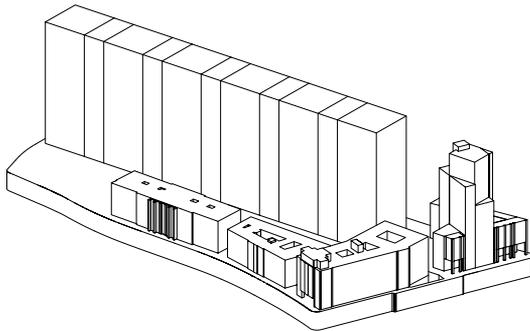
ill. 102: The design within the context



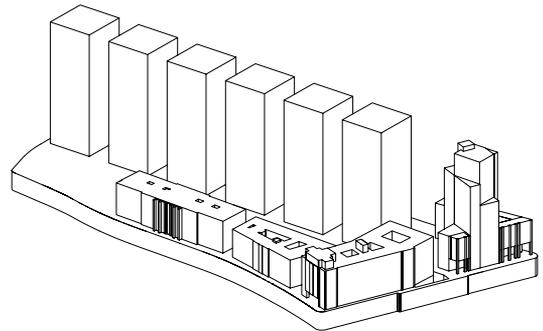
iii. 103: Footprint of the building



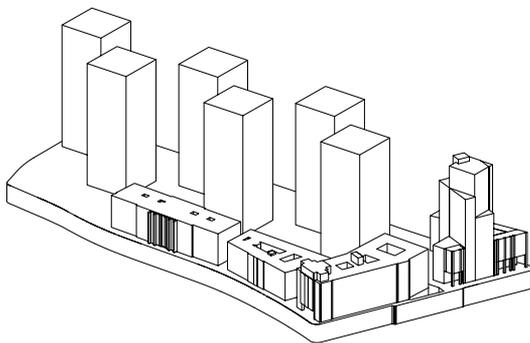
iii. 104: One tower dividing the site



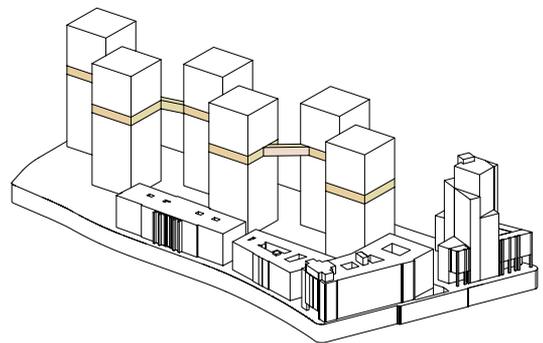
iii. 105: Cutting the tower



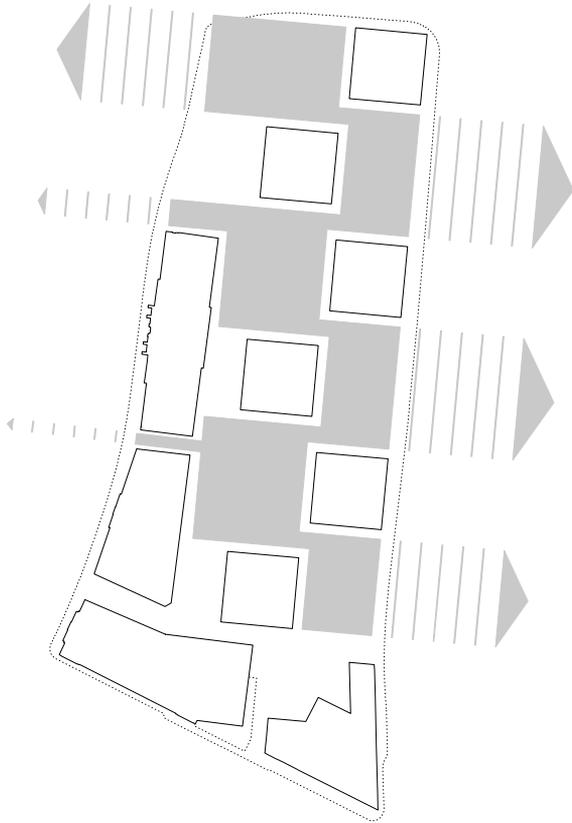
iii. 106: Dividing the tower into six individual towers



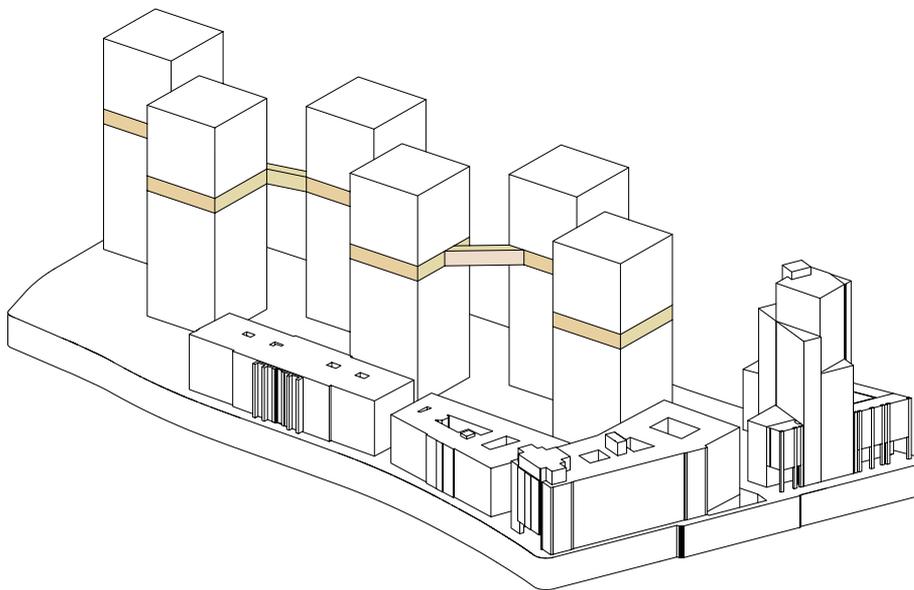
iii. 107: Shifting the towers for better views



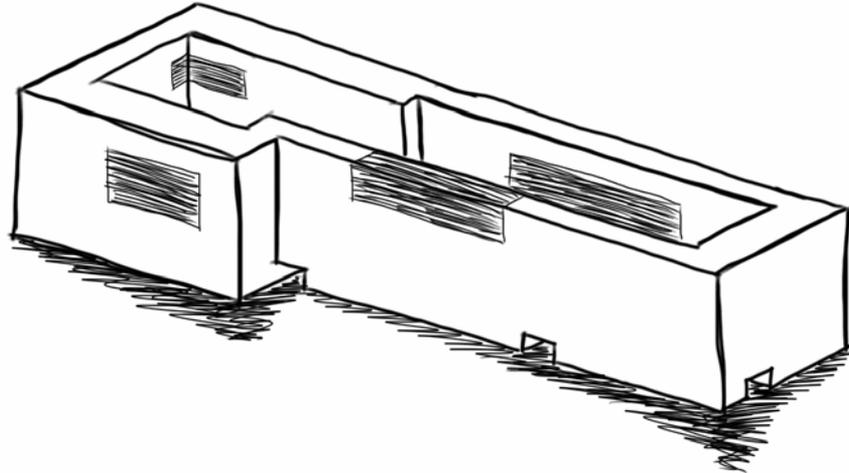
iii. 108: Connecting the Towers with public functions



iii. 109: The open public space on the site connects the two districts with each other.



iii. 110: 3-dimensional view



ill. 111: Sketch of the courtyard

The Courtyard

City planning and construction:

This development is one block with an open space in the center. The building is 56 meters high and got 16 floors.

The new design is not higher than the already existing building at this site.

That being the case there should not be any conflicts regarding the world heritage of the city center.

The site can be divided into different parcels of land.

Each plot will be designed by a different architect to prevent a huge monolithic building.

All floors of the new development are able to have natural lighting.

The density of the new building is higher than the current building but at the same time it provides more open space for the public.

There are buildings from different time periods along the Ringstrasse, this development will be an addition to that.

Function and Usage:

There will be public functions throughout the whole development.

Apartments at a premium area like this is much more suitable than Federal Ministries.

The functions of the ground-floor are public and should be accessible for the residents as well as visitors.

As a consequence of mixing the functions in the development the site will be used 24h a day and also attract different people.

The open layout of the development will result in interchangeable functions in the whole building, responding to the needs in the area.

To activate the whole site the different functions should not be divided and put into different parts of the development. This will ensure that the distances for the daily needs of the people are as short as possible.

The street level is just for pedestrians and cyclists, therefore the car parking is located in the floors underground.

The floors just above the public functions of the development can be used for subsidized housing and offices.

Luxury apartments are situated in the higher floors, providing better views.

To have a greater mix on the site, there will be a hotel included in the building.

On the roof of the building it is possible to have an observation deck.

Open space:

The open space of the site is divided into two different parts.

The development is surrounded by a public area, which can be used by restaurants and other public functions.

The public courtyard in the middle of the site will provide a much quieter space, away from the traffic running by the site.

At first this design looks like it is blocking the whole area, but there are walkways and paths through the development that provide good connections into all directions.

The openness of the development with all the paths will provide a much better connection between the first and the third district of Vienna.

The courtyard is free of cars and just accessible for pedestrians and cyclists.

The atmosphere in the courtyard is totally different compared to the outside as it is enclosed by the building and separated from the rest of the city.

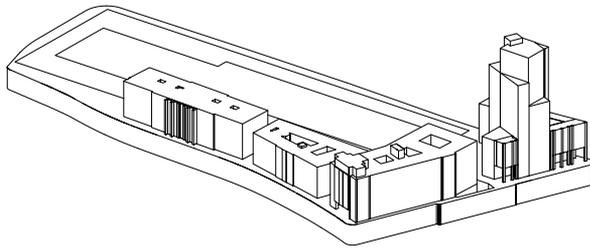
People using the open space in the middle are just able to see the development itself, the rest of the city can't be seen due to the height of the building.

All those different utilizations are going to invigorate this part of the city including the surrounding area.

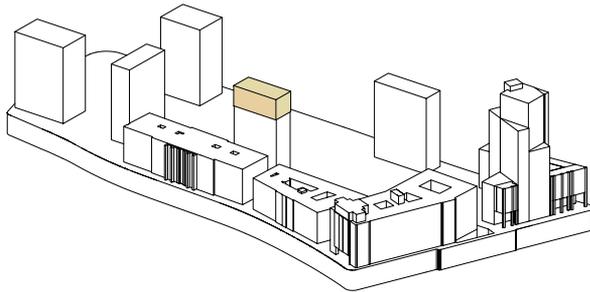
Public functions in the lower levels such as restaurants and shopping will activate the outdoor space.



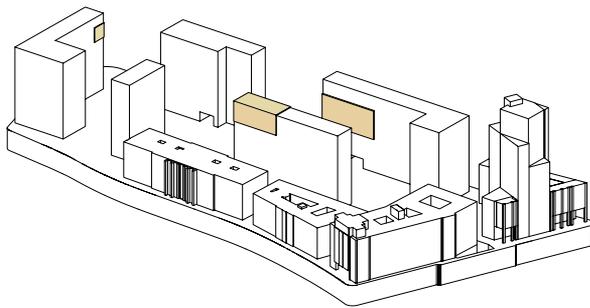
ill. 112: The design within the context



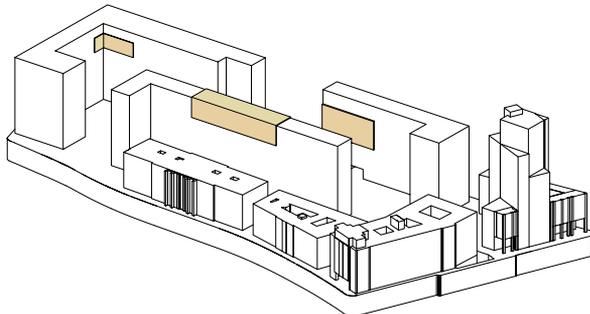
ill. 113: Construction site



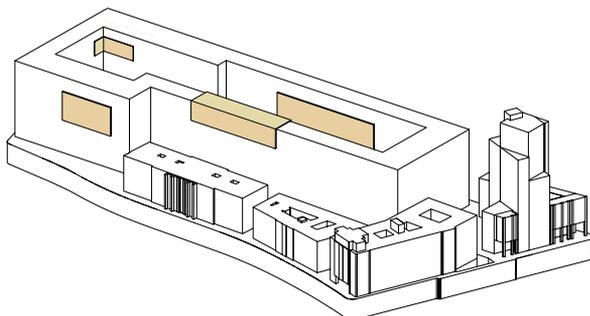
ill. 114: First parts being constructed



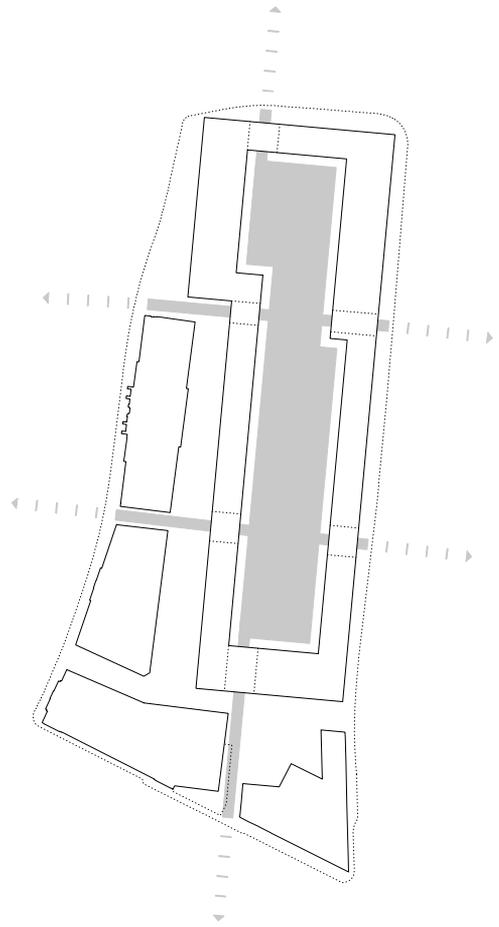
ill. 115: Second step of construction



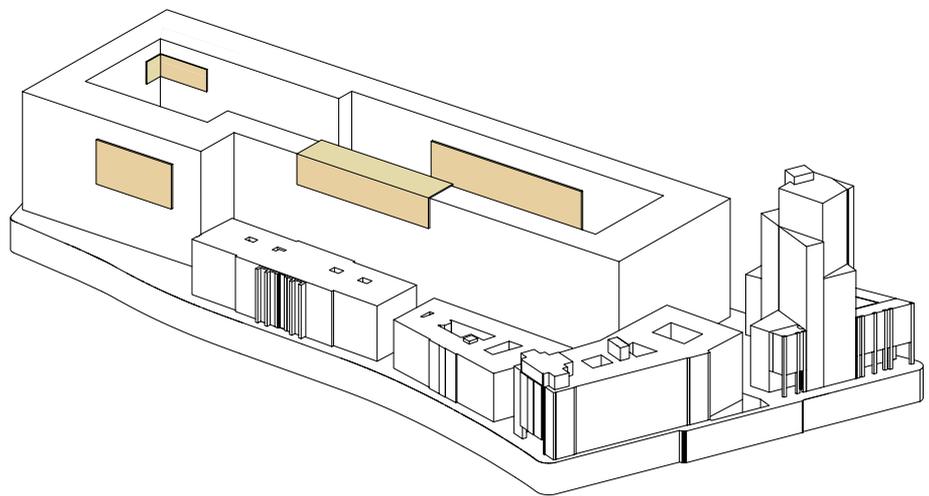
ill. 116: After the third part it is almost finished



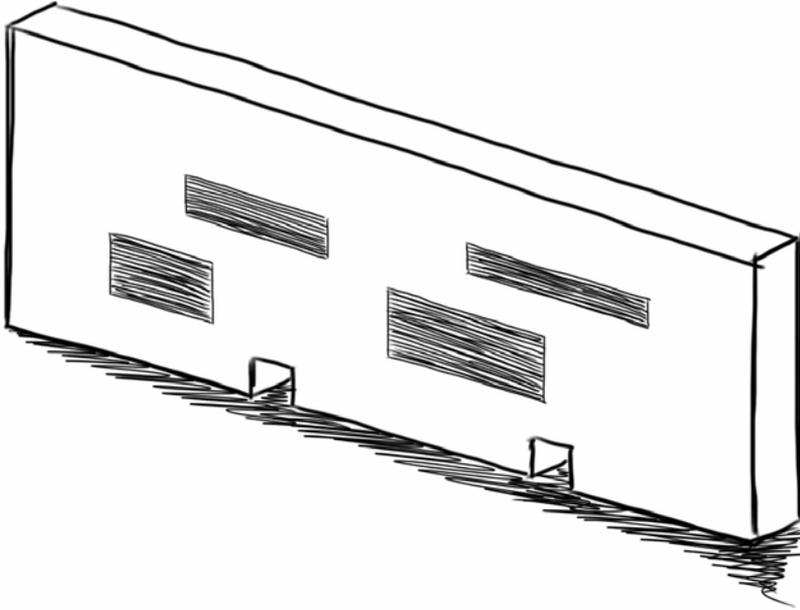
ill. 117: The finished project



iii. 118: The court is open to the public and creates a quiet open space away from the traffic running by the site.



iii. 119: 3-dimensional view



ill. 120: Sketch of the wall

The Wall

City planning and construction:

This building 100 meters high and got 28 floors.

The development consists of one building stretching across the whole length of the site and divides it into two parts.

The finished building will be the highest one along the glacis area.

As the site is with in the buffer zone of the world heritage area there can be conflicts regarding the height of the construction.

Due to the size of the building it can function as a new landmark for Vienna.

The height also enables new visual relations in the city.

The views from the third district to the center are partly blocked by the wall.

As it is one building it needs to be built all at once.

All rooms will either have natural lighting from the east or from the west.

The development provides a higher density than the existing building and will also have two huge open spaces for the residents or tourists.

As there are buildings from a lot of different periods of time at the Glacis the development is another addition.

Function and Usage:

Public functions will not just be located in the ground-floor but throughout the building.

Public gardens are placed in different levels so they are easy to reach.

The building can live up to the expectations for such a premium site, it got a higher density and huge open spaces at the same time.

The ground-floor contains public functions such as restaurants and shops and are accessible for everyone.

Since all the functions attract different users at different times, the area will be used by people 24h a day.

The open layout of the wall enables the possibility to change the functions of each floor if needed.

To keep the distances for the residents and workers as short as possible the uses should be mixed throughout the building.

If people want to arrive with the car they have to park it in the levels underground, as the ground-floor level is a car-free zone and just for pedestrians.

In the lower floors of the development it is possible to have offices and subsidized housing.

In consequence of the better views in the higher levels they will house luxury living and a hotel.

The roof of the building can be used as an additional public space and as an observation deck, so everyone can enjoy the views.

Open space:

There are two different open spaces, one big in the east and a smaller one in the west.

The eastern public space is the more quiet one, because the building it self blocks the noise of the big street in the west.

Restaurants are more likely to have their outdoor space on the bigger square.

The views might be blocked but on the ground-floor the building is open and it is easy to get from one side to the other.

Walkways and paths connect both open spaces for pedestrians and cyclists.

Due to the openness on the street level the connection of the third district and the city center is given.

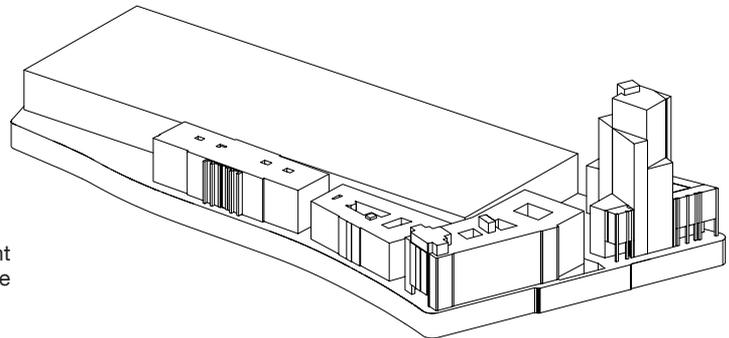
The mix of uses in the building is going to invigorate the site and the surrounding area.

To connect the outdoor space better with the building, the functions of the ground-floor are restaurants and shopping, and at the same time those functions will activate the outdoor area.

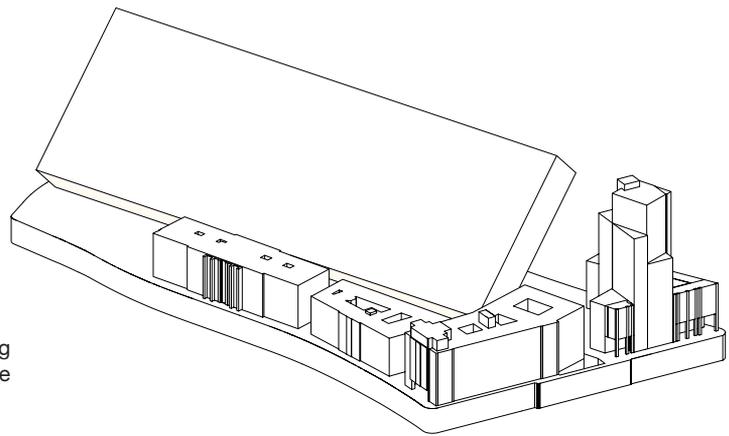


ill. 121: The design within the context

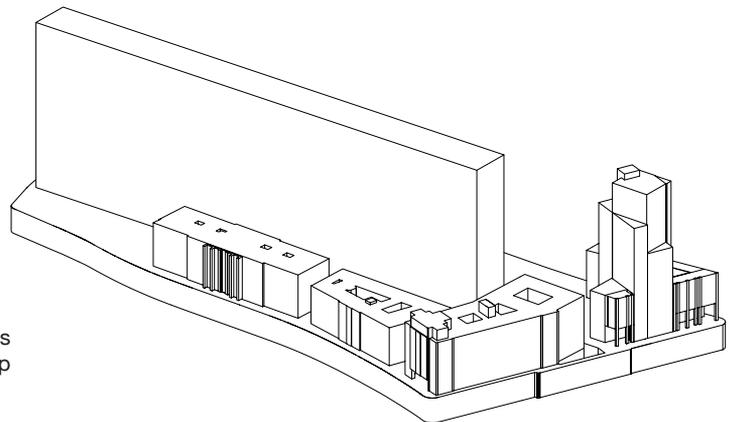
ill. 122: The whole development is flat on the site



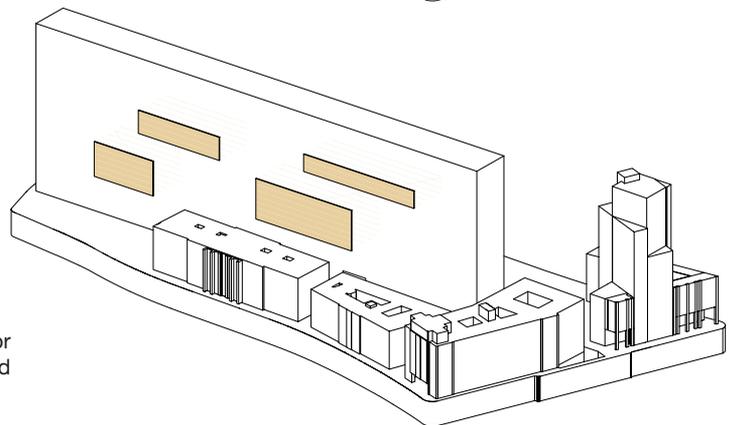
ill. 123: Lifting up the building to gain public open space

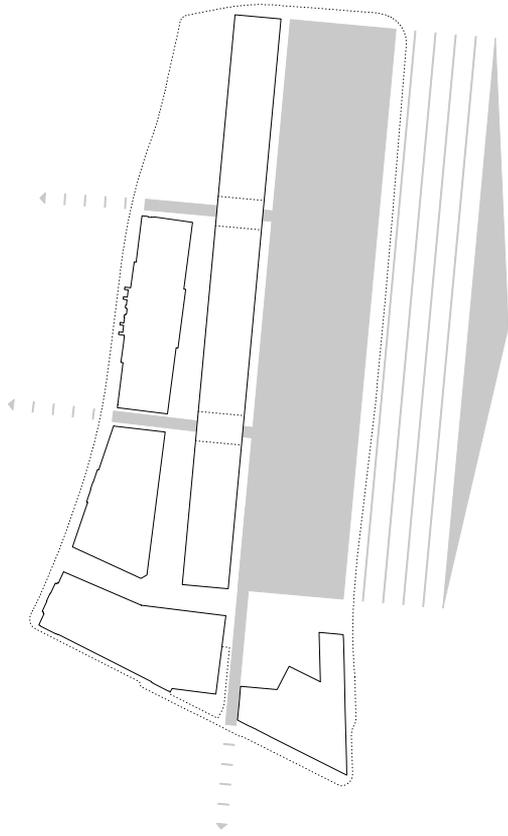


ill. 124: The building is standing up

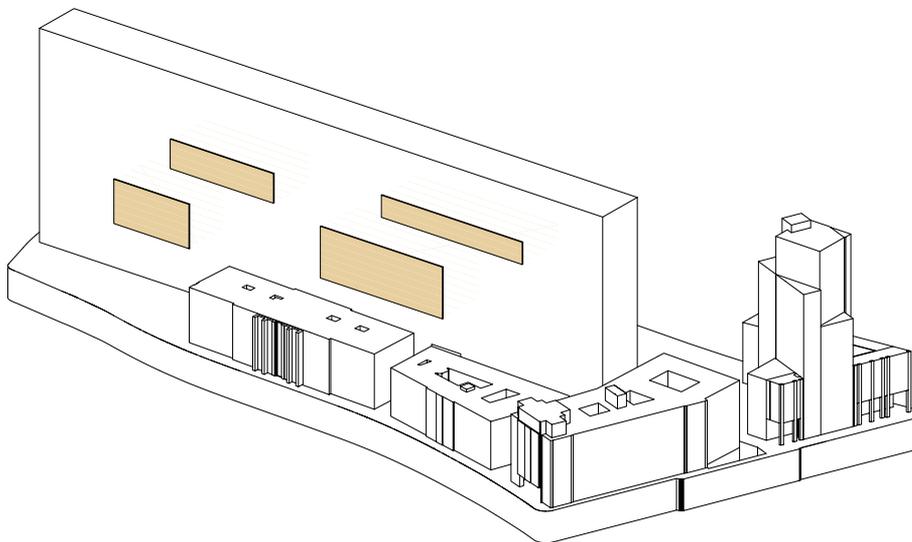


ill. 125: Walkways and indoor green-spaces are added

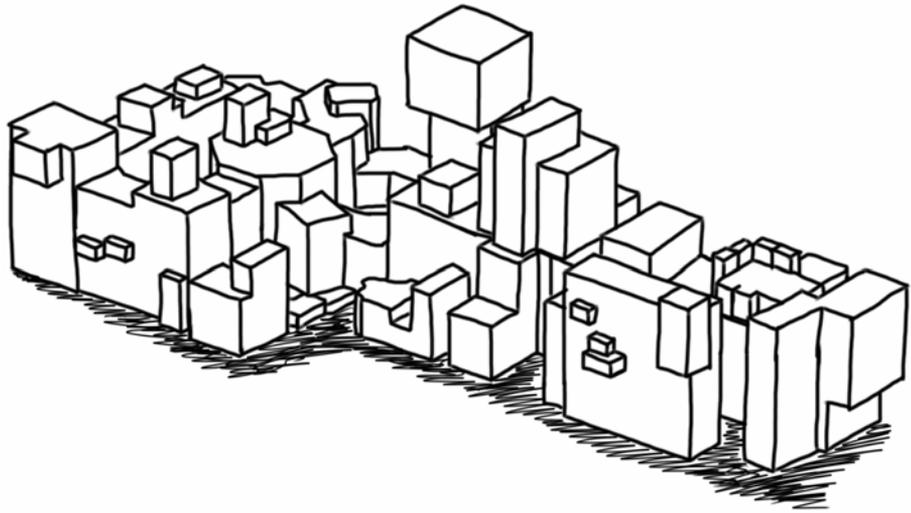




iii. 126: The open public space is located in the eastern part of the site and is connected with the surrounding area.



iii. 127: 3-dimensional view



ill. 128: Sketch of the wall

The Growing

City planning and construction:

The starting point of this project is the already existing building.

Over the years new parts will be added to the building.

Parts of the existing will be demolished and reconstructed in a different way.

The development is always changing.

Only the outline of the site is given.

There is no final design for the development.

Ground-rules will be set in the beginning regarding lighting and the way of construction.

As the project is constantly changing, there should not be a problem concerning the world heritage area.

The changes will just be seen over the years.

The density of the project will be higher then in the beginning

but it will take a few years till it reaches the same amount of floor space then the other projects.

Function and Usage:

The Federal Ministries will be relocated at a different part of the city.

The empty building will be filled with new functions.

The people moving into the development decide what they want to do there.

A guideline will make sure that everything is in the building, and the mix of uses is given.

The functions change over time in the beginning there will not be that many people living there.

Parking spaces have to be included in the parts that will be constructed.

After a few years it will be a city with in a city with its own rules.

The functions are constantly changing.

As everyone can buy a part of the development and construct it the way they want this type will probably have the greatest mix of uses.

Restaurants, shops and other public functions will be located throughout the whole building.

The floor-plan can be confusing for people that go there for the first time.

Open space:

There will be no huge open space but many smaller ones.

The guideline will specify where open spaces need to be and how many.

To get an attractive open space some restaurants will be located around them.

At the moment there are no walkways for the public through the building.

New paths will be formed over time.

Just like the building it self, the public open space is also constantly changing.

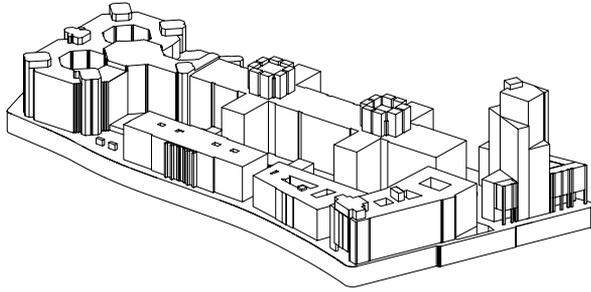
In the beginning there will be parking on the site but after a few years there are going to be less and less cars till the whole site is car free.

Parking will just be located under ground.

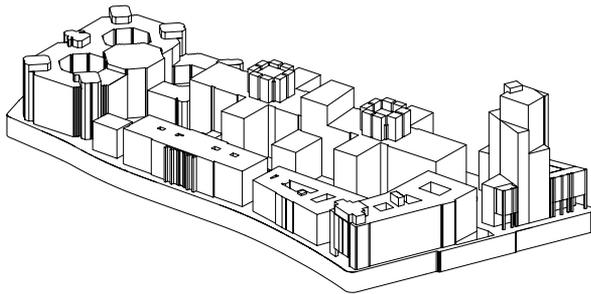
In the best case the residents will not have an own car as everything they need is in the development.



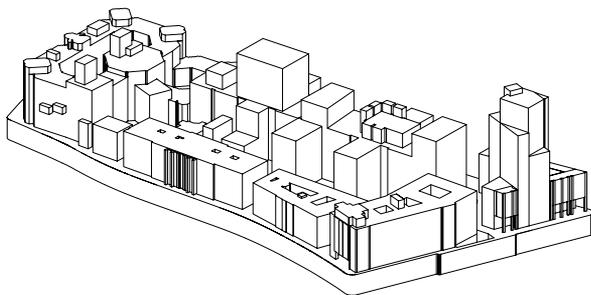
ill. 129: The design within the context



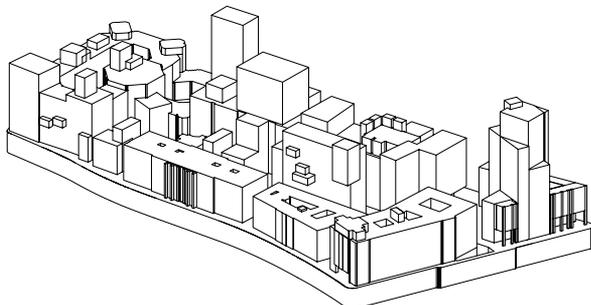
ill. 130: Starting point



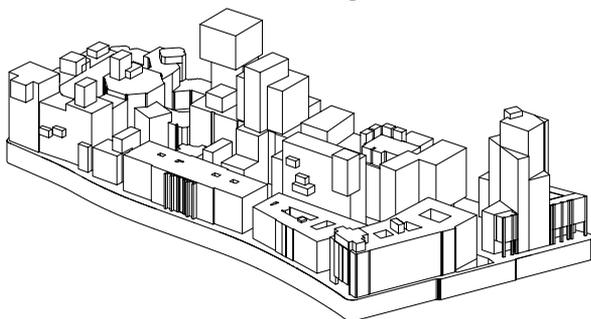
ill. 131: after five years



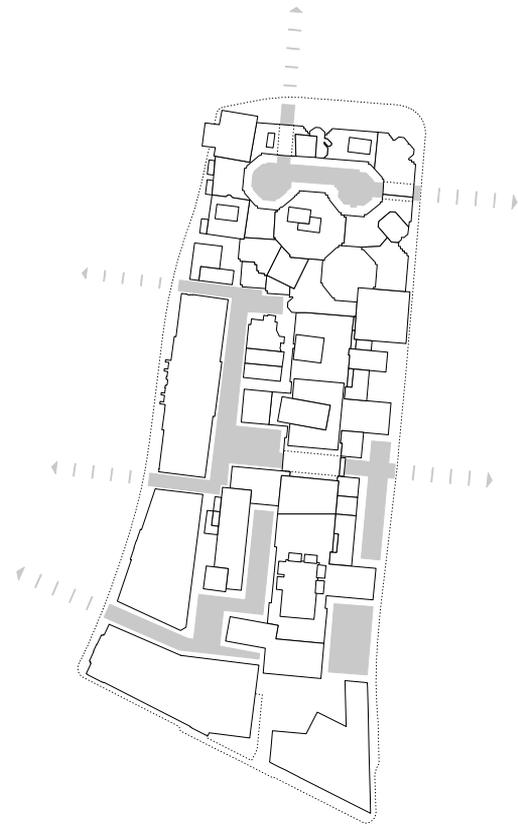
ill. 132: after ten years



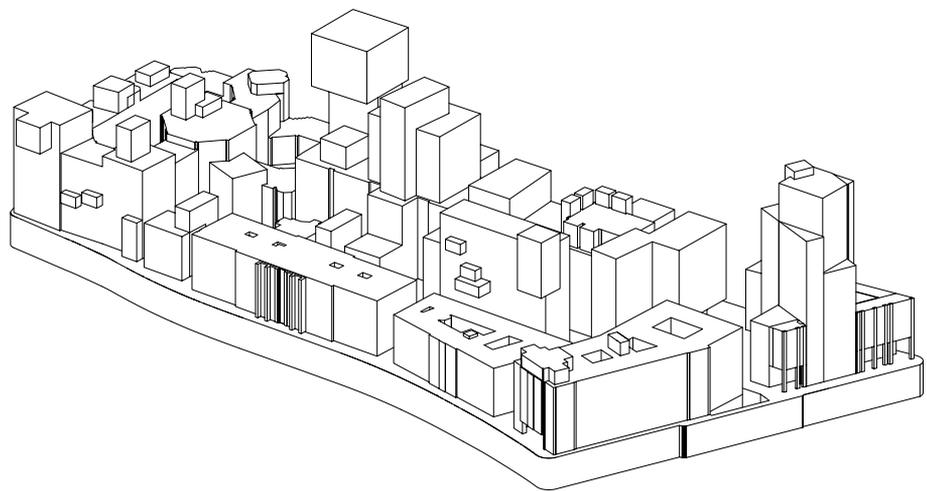
ill. 133: after 15 years



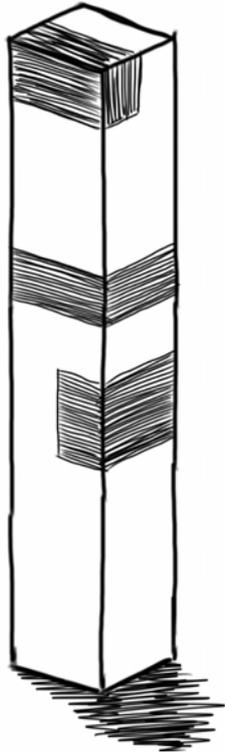
ill. 134: after 20 years



ill. 135: The development is constantly changing. Volumes are added to the existing building and also can be taken away, for example to allow walkways through the site.



ill. 136: 3-dimensional view



ill. 137: Sketch of the tower 1

The Tower 1

City planning and construction:

The development consist of one high-rise building in the north of the site.

The height of the building is 300 meters and got 85 floors.

As it is one building it needs to be constructed as once.

The ground plan is 50x50 meters.

This development got a higher density then the existing one, and at the same time almost the whole site is an open public square.

The building will not just be the highest in the glaxis area but also the highest of Austria.

It will be a new landmark right in the middle of the city.

New unexpected views of the city are possible.

As the development is in the buffer zone of the world heritage site, there can be some conflicts whether the building is too high or not.

Due to the small ground plan almost no views from the third district to the center are blocked.

All of the floors can get natural lighting from all four sides.

The new architecture of the building will fit into the already existing different architecture styles in the glacis area.

Function and Usage:

In this development the public functions are not just located in the ground-floor, they are going to be spread out in the whole building to keep the distances short.

Public outdoor spaces and gardens are placed in different levels so that the people working and living in the building do not always need to go all the way down.

As it is a premium site a mixed use high-rise lives up to the expectations much better than the Federal Ministries building.

The uses of the tower are not depending on each other, they attract different users and operate at different times during the day, this means the area is used by people 24h a day.

The floor plans got an open layout, which makes it easy to change the functions of each floor if it is needed.

There are residents that also work in the building but it is also possible to just work or just live in the development.

The whole site is a car free public space, which is why the car parking is located in the underground floors.

The lower levels of the development contain subsidized housing and offices.

The higher levels in the tower got a better view and therefore include luxury housing and a hotel.

The top floors of the development are for public use, including an observation deck and restaurants.

Open space:

Most of the site consists of a big open public space, which can be used by everyone.

There need to be activities happening on the square to activate the public space.

The glacis area is a green belt around the city center with a lot of green spaces, this square can be a part of it.

In this development the connection for pedestrians and cyclists between the third district and the first is really good.

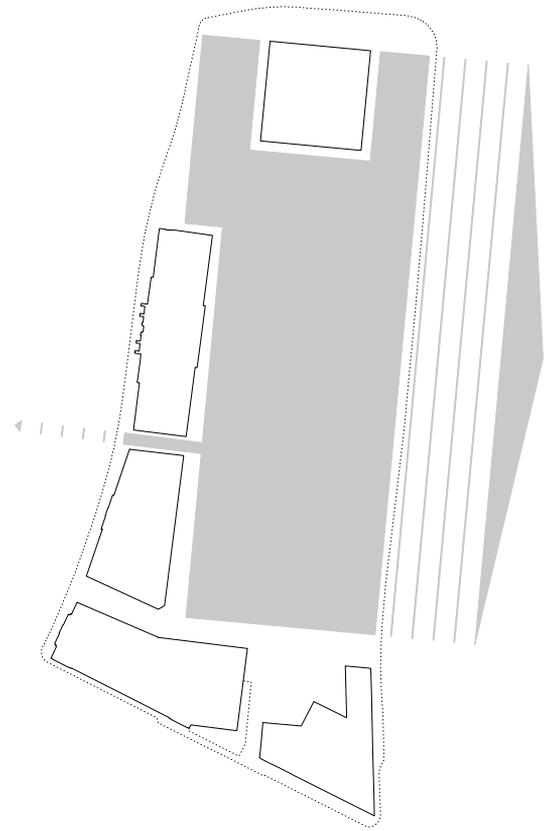
Walkways are connecting the whole area.

The mix of uses and all the new people of the development are going to invigorate all of the surrounding area.

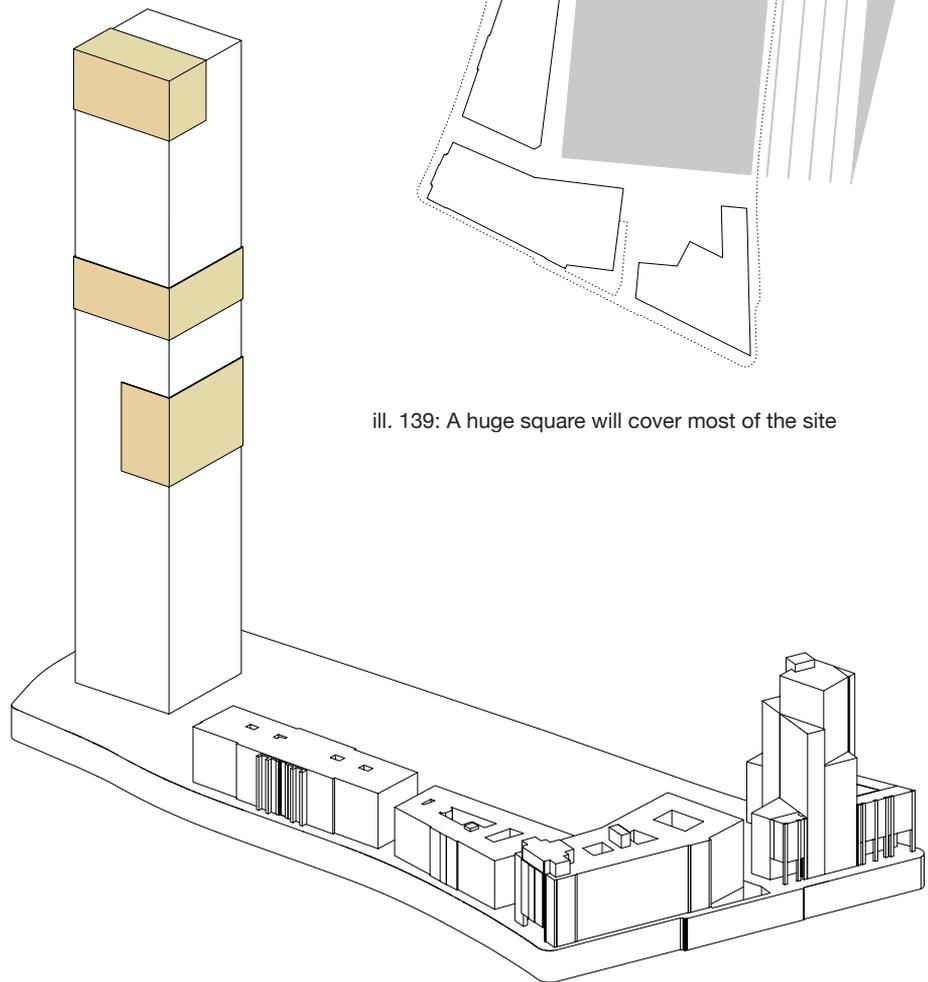
The ground-floor of the tower contains public functions to have a better connection with the public outdoor space.



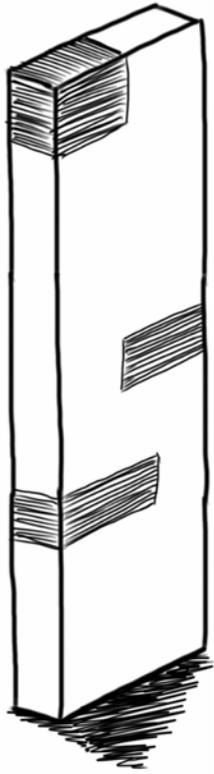
ill. 138: The design within the context



iii. 139: A huge square will cover most of the site



iii. 140: The tower will allow new views of Vienna and contribute with its public places to the city life while connecting at the same time the third district with the first.



ill. 141: Sketch of the tower 2

The Tower 2

City planning and construction:

Just like the Tower 1 this development also consists of one high-rise building in the north of the plot.

The tower is the size of the plot area erected in an angle of 90 degrees.

The development is 300 meters high and consists of 85 storeys.

The whole building needs to be constructed at once.

Most of the site is an open public square but at the same time the total density of the development is higher than before.

This development would also be the highest building of Austria.

Due to the height of the tower it is also a landmark in the center of the city.

There are new visual relations from the top of the tower.

The site of the development is part of the buffer zone around the world heritage area therefore the height of the construction can be a problem.

As the building is facing north and south it doesn't block views to the city center.

Natural lighting is possible for all of the rooms in the development.

There are already a lot of buildings in the glaxis area from different time periods so this tower can be an addition to those.

Function and Usage:

Public functions are located throughout the whole building.

Gardens and outdoor spaces are also on different levels in the tower to have resting places for workers and residents always close by.

A high-rise mixed-use tower fits better for such a premium site in the city center than a Federal Ministries building.

All of the functions can also work on their own and do not depend on each other to attract people, therefore it is possible to have people using the area 24h a day.

Due to the open layout the floor plans of every storey can be changed for the functions needed the most.

Cars are not allowed on the site, it is just for pedestrians and cyclists. The parking space for cars is in the underground floors of the building.

Subsidized housing and offices are suitable for the lower levels of the development.

The great city views in the higher levels are more qualified for luxury living and hotel use.

To have as many people as possible enjoying the views from the top of the tower there are public uses like restaurants and an observation deck located there.

Open space:

There is one big open public square.

Since the tower has a small footprint, most of the site is used as an open public space.

There need to be suitable uses for the whole site, so the open space will be used well.

Paths for pedestrians and cyclists connect the two districts.

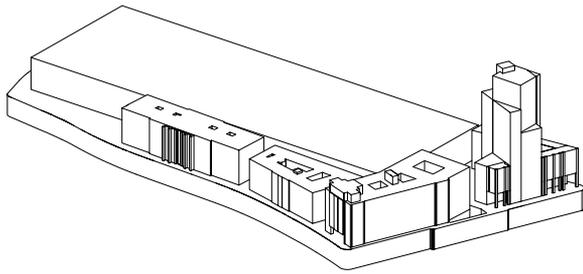
The ground-floor of the high-rise contains public functions to connect the inside of the tower with the rest of the site.

The people living and working in the tower will invigorate the site and the surrounding area.

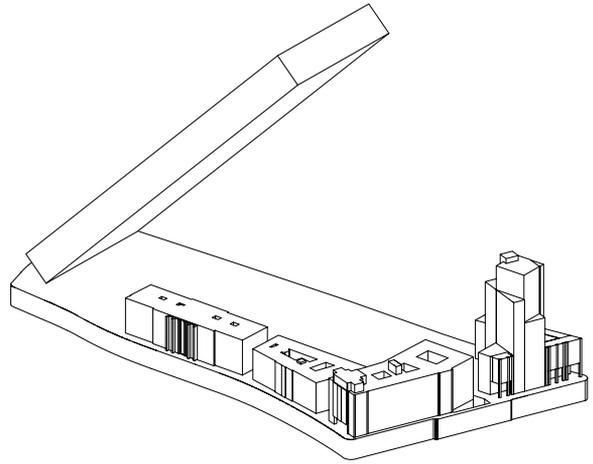
The outside space is car free and just for pedestrians and cyclists.



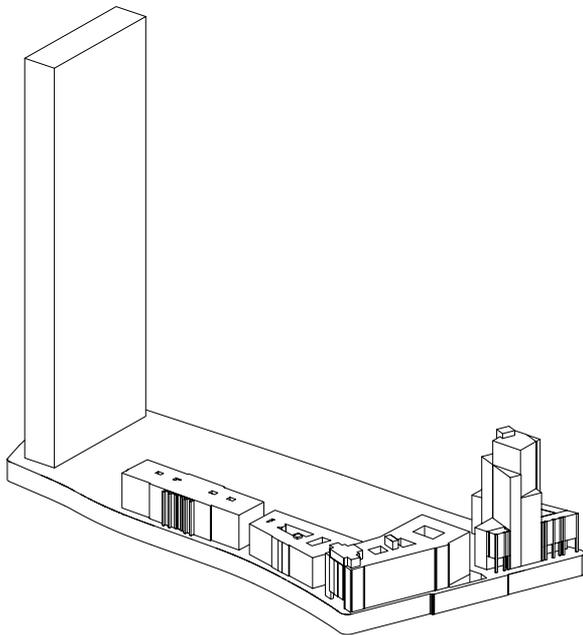
ill. 142: The design within the context



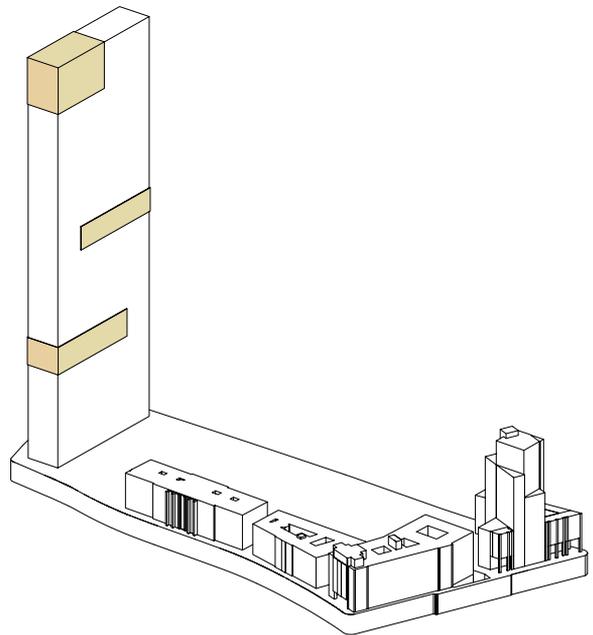
ill. 143: The whole development is flat on the site



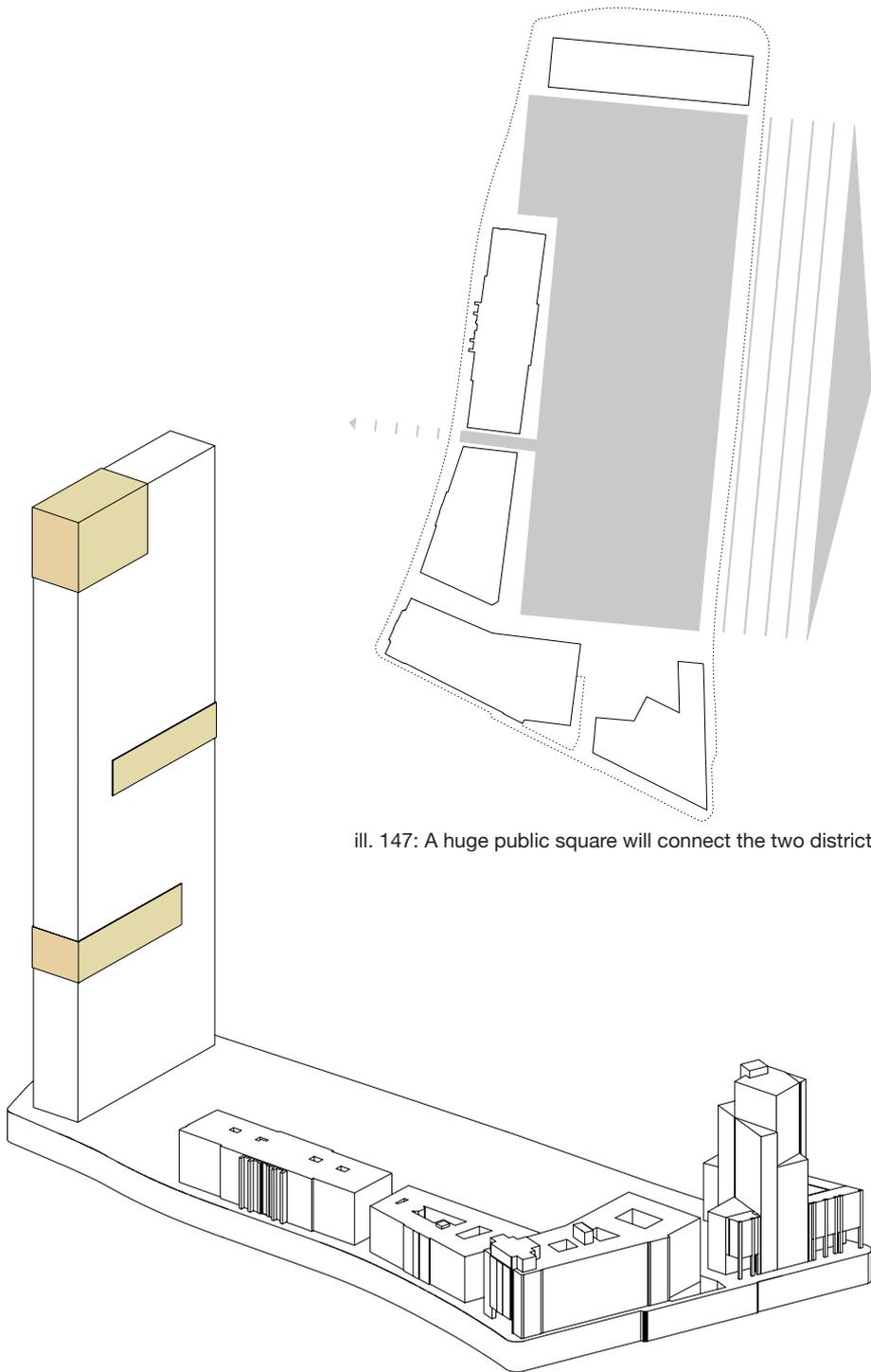
ill. 144: Lifting up the building to gain public open space



ill. 145: The building is standing up in the northern part

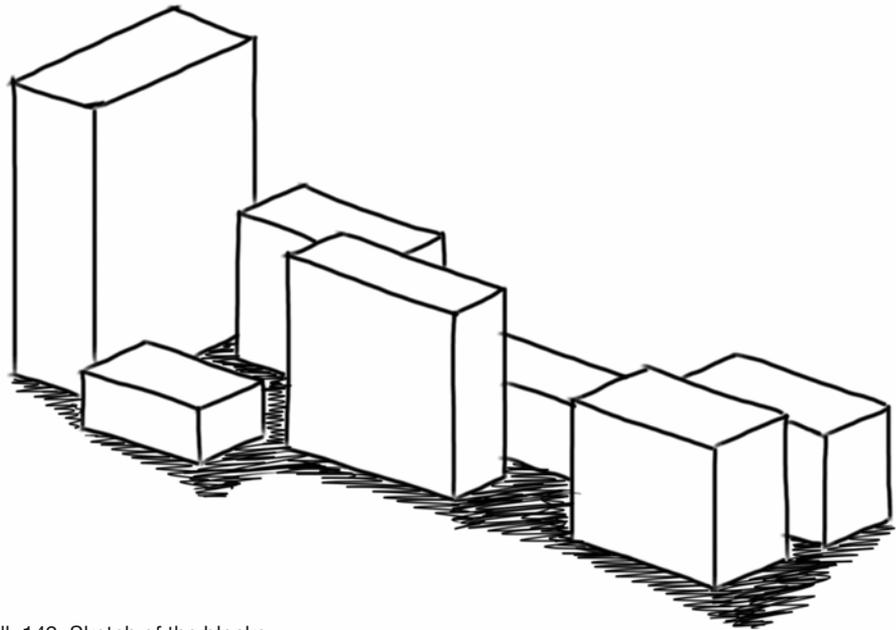


ill. 146: Indoor green-spaces and public-spaces are added



ill. 147: A huge public square will connect the two districts

ill. 148: Just like the first tower new views of Vienna are possible in this development. Most of the site will be opened up for a big open public space.



ill. 149: Sketch of the blocks

The Blocks

City planning and construction:

The development consists of seven buildings connected by underground floors.

The height of the buildings is different.

The highest block is 105 meters high and the lowest 21 meters.

Two public squares are formed in the center of the site by the buildings.

It is possible to construct one building after another.

The density of the site is higher than before but it feels more open at the same time.

This development is easy to integrate in the existing grid of the area.

Every building can be designed by a different architect to avoid a monolithic look.

Between the seven blocks there are walkways throughout the whole site for pedestrians and cyclists.

As there is a world heritage site right next to the construction area and the development would be in the buffer zone of it there can be concerns about the height of the tallest building.

The views of the neighboring houses should not be affected, as the buildings are not much higher than the existing development.

Natural lighting for living is given for all of the buildings but it might be better in some than in others.

Function and Usage:

There are public gardens on the top of each building.

The utilization of the ground floor in each building is public.

Restaurants and shops help to activate the public area.

The functions of all the blocks are mixed.

There can be subsidized housing in the lower blocks.

Luxury living and hotel use can be placed in the highest tower.

The top of the tall tower in the north is used as a public observation deck, which is open for everyone, not just the residents.

The mix of uses will help that the area is used by people 24h a day and also by different people, as the functions are not depending on each other.

An open layout for the floor plans ensures that the functions in every floor can be changed easily.

The car parking is located in the connecting underground floors as the street level is car free.

Open space:

There are two public squares in the center of the site.

As the ground level is just for pedestrians the open spaces are quiet and away from the traffic.

There are walkways throughout the whole site to connect the open spaces with the surrounding area and also to connect the two districts.

The uses of the ground-floor contain public functions to activate the outdoor spaces and connect it with the indoor space.

The people attracted by the development will invigorate not just the site but also the surrounding area of it.

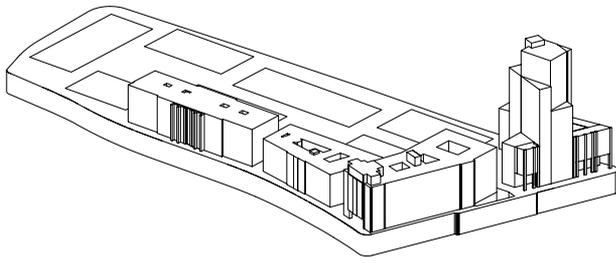
The development is also surrounded by a public area, which can be used by restaurants as well.

All of the development is open to fill this dead area of the city with life.

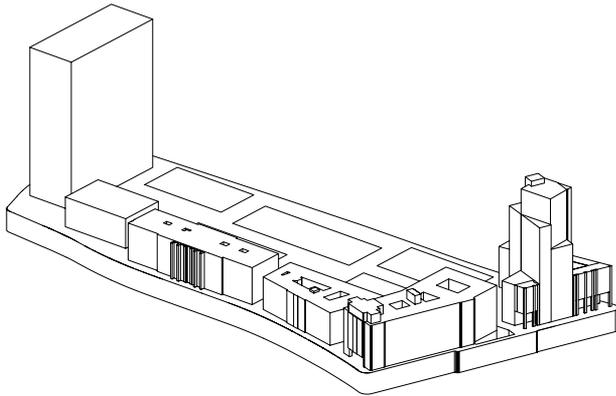
The squares form an urban space to make the area more attractive for pedestrians.



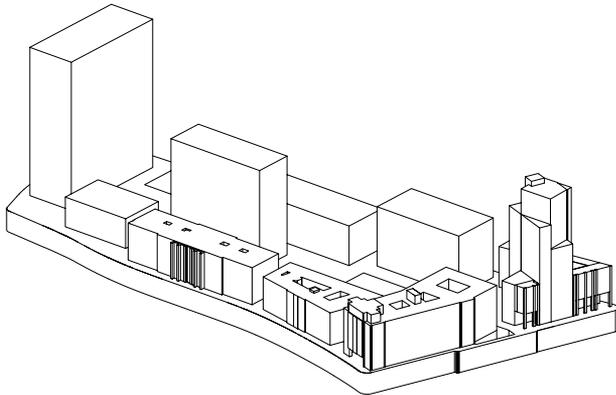
ill. 150: The design within the context



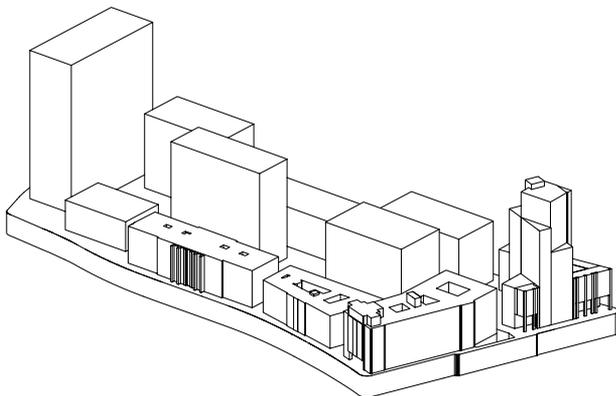
ill. 151: footprints of the buildings



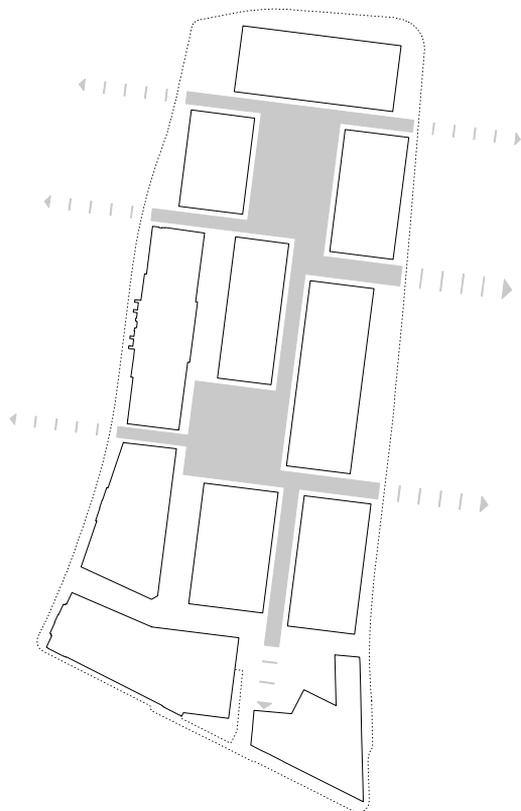
ill. 152: constructing the first blocks



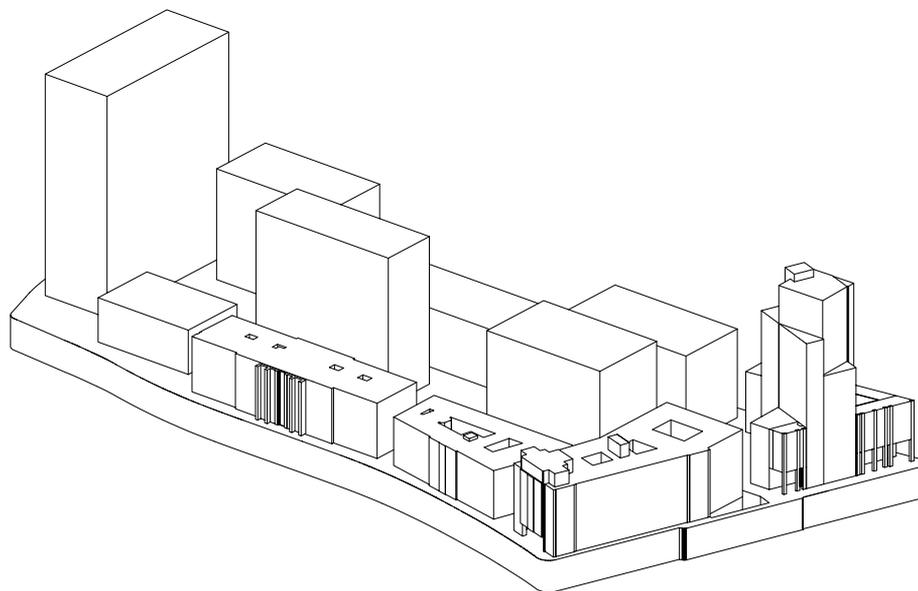
ill. 153: the blocks are constructed one after another



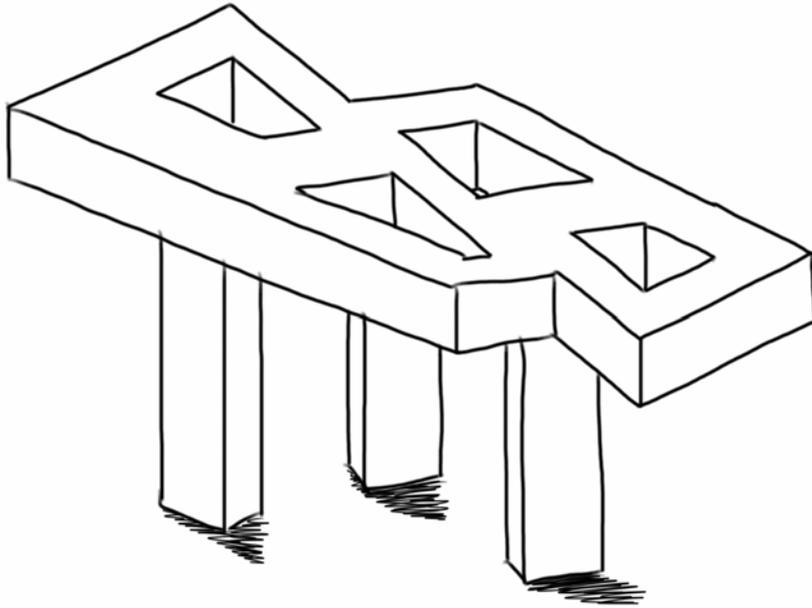
ill. 154: finished development



iii. 155: The blocks are forming two public squares in the center. The developments allows different walkways through the site, connecting the third with the first district.



iii. 156: 3-dimensional view



ill. 157: Sketch of the cloud

The Cloud

City planning and construction:

The whole development is one building flying above the site.

It is placed on three pillars.

The flying part got a height of 28 meters and got 8 storeys.

As the building is above the site all of the street level is used as a public open spaces.

The development is not just above the site but also above the buildings right next to it.

It is more a city flying above the city and not connecting with the surrounding.

Despite a higher density in this project there is also a lot more open space for public use.

Walkways throughout the site connect the third district with the city center.

The building will be in the buffer zone of the world heritage site,

therefore the height of the development can cause concerns.

Views from the buildings in the surrounding area should mostly not be affected as the development is above the city.

Natural lighting will be given for the building.

The shadow of the building can affect the light situation of the surrounding buildings and also of the square below.

Function and Usage:

The roof of the construction can be used as a public square above a public square.

The pillars of the development contain the elevators and staircases and on the ground floor some public uses like shopping and restaurants.

The function in the cloud is mixed throughout the whole building to keep the distances short.

Subsidized housing will be placed in the center, facing the yards.

The hotel and luxury living is going to be in the outer parts to have a great view of Vienna.

The roof will be accessible for everyone, not just for the residents of the building.

The development is not well connected with the surrounding.

The ground-floor needs to be activated and attractive as it is below the building.

If it is necessary to change the functions in the building it is possible to do so really easy due to an open layout for the floor plans.

The cars need to be parked in the underground, as the site is car free.

Open space:

There are two public squares, one at street level and one on top of the development.

Both squares are free of cars and other traffic.

The open space on the ground level is very well connected with the surrounding area.

As there is not much space for public functions in the pillars of the development the open space needs to be activated in a different way.

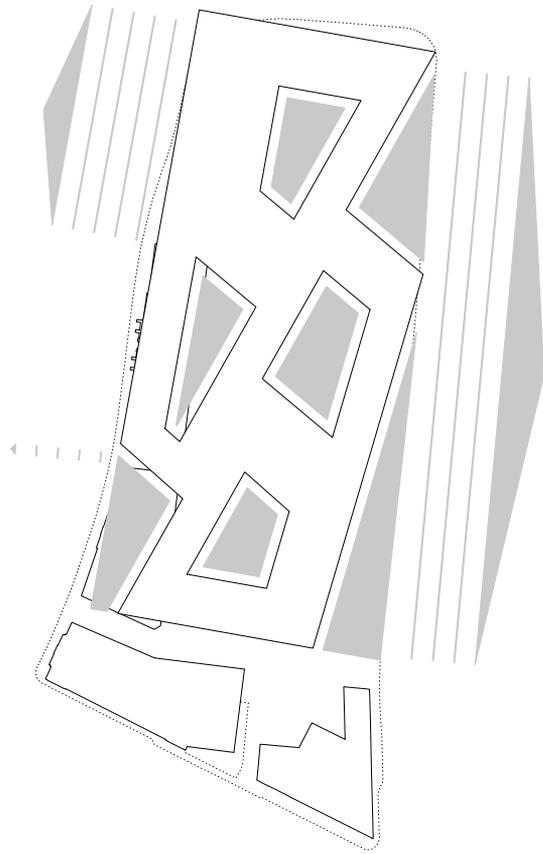
Due to the openness of the site the traffic running by will be heard.

Different small interventions at the street level can help to keep the open space attractive for everyone.

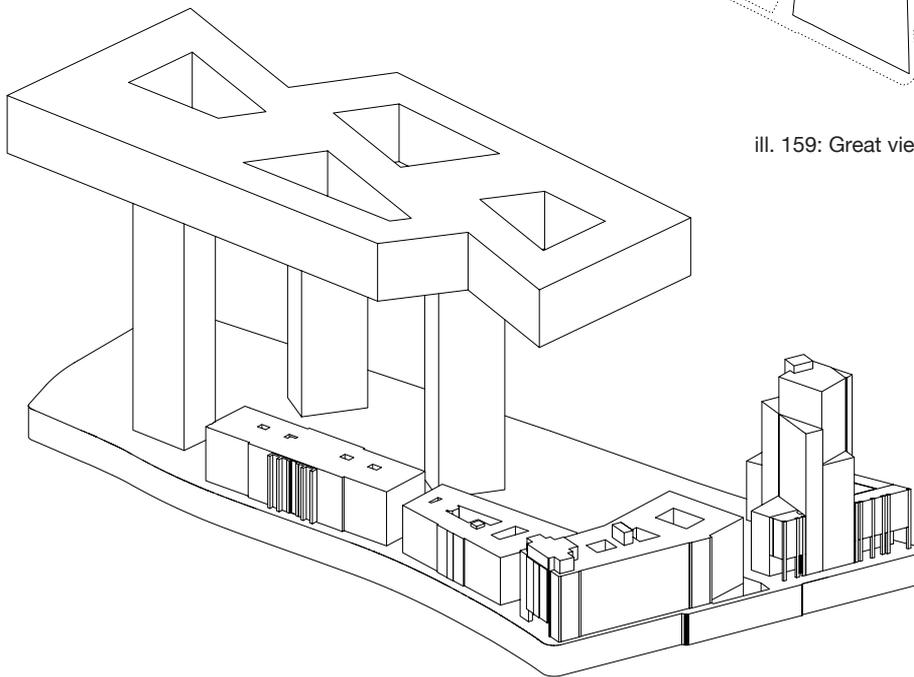
In this development there is a lot of open public space available due to the elevation of the building.



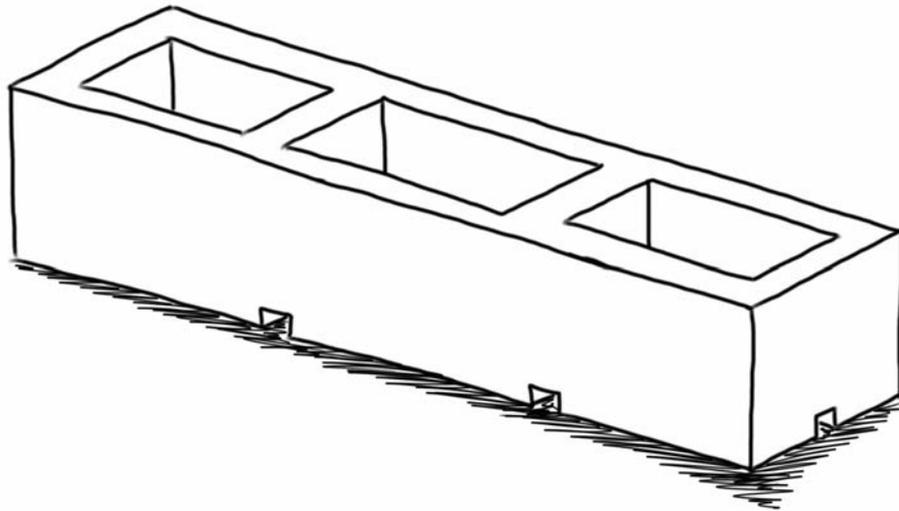
ill. 158: The design within the context



ill. 159: Great views in all directions



ill. 160: The elevated building allows a good connection between the two districts and most of the site can be used as a public open space.



ill. 161: Sketch of the three courtyards

The three Courtyards

City planning and construction:

This development looks from the outside like one big block.

The inside of this building contains three enclosed courtyards.

With a height of 60 meters and 17 floors the construction is not much taller than the existing building.

The building is located in the buffer zone of a world heritage site.

As it does not interfere with the existing visual relations, there should not be any conflicts regarding the world heritage area.

The building can be divided into different constructions designed by different architects.

All of those constructions form one whole development.

The outline of the development got similarities to the Rossauer barracks, which is located on the opposite side of the glacis area.

There is a great amount of open spaces provided in this development while the density is higher than it is now.

Function and Usage:

The ground-level will contain public functions to connect the indoor space with the outdoor.

Public functions are also spread throughout the whole development in different levels.

The development is accessible for everyone.

The mix of uses in the development will result in a high frequency of people visiting the area, using the site 24h a day.

With an open layout of the floors it is guaranteed that the uses in the building can be changed if needed.

As the different functions are spread out all over the building it ensures that the whole area is used at the same time.

The street level is just for pedestrians and cyclists the use of cars is not permitted on the site.

Car parking is located in the underground floors of the development.

The lower levels of the development also include subsidized housing and offices.

The top floors are reserved for luxury living and hotel use due to the better views.

The roof of the building is also used as a public space and is also used as an observation deck.

Open space:

The open space in the development is divided into three courtyards and a public space surrounding the building.

As the ground floor of the building is used for restaurants and shops the outdoor space around can be used by those functions.

The three courtyards provide an enclosed and quiet public space away from traffic and the hectic city live.

The first impression of the design might be that it is blocking the area just like the existing development, but walkways and paths

throughout the whole site provide connections in all directions.

All of the open space, including the courtyards is just for pedestrians and cyclists.

Due to the paths through the development both districts in this area will be connected.

The functions of the courtyards can be diverse from each other.

People inside the courtyards will experience a different atmosphere as the space is enclosed and they are just able to see the development they are in and the rest of the city is not visible.

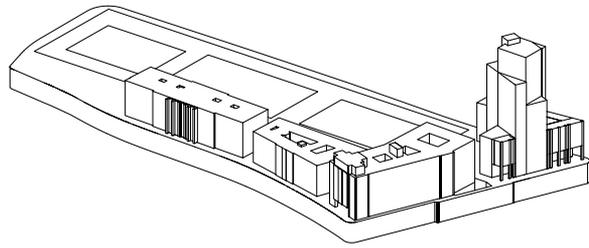
Nowadays the area is dead at some times of the day but with all the different utilizations in the new development the whole area will be invigorated.

The outdoor space of the development is vitalized by restaurants and bars located in the ground floor.

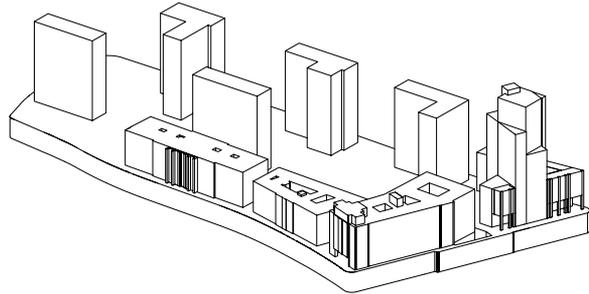


ill. 162: The design within the context

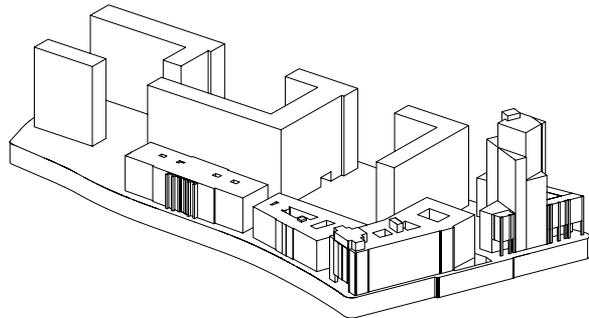
ill. 163: Footprint of the building



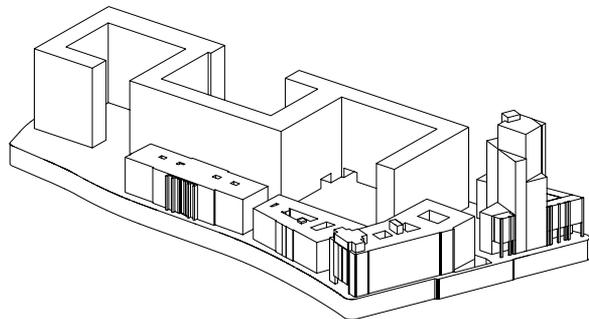
ill. 164: First parts being constructed



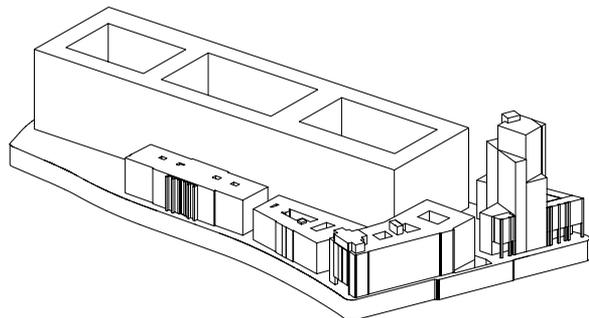
ill. 165: Second step of construction

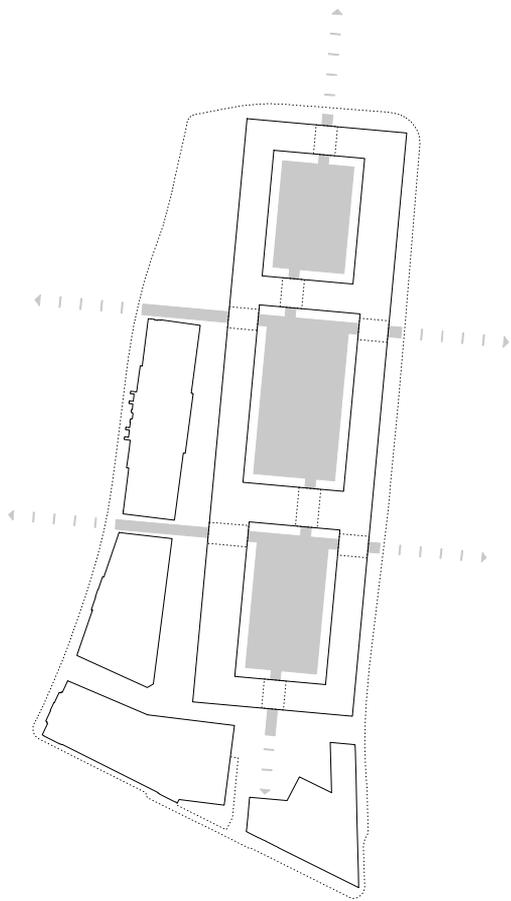


ill. 166: More parts are finished after a few years

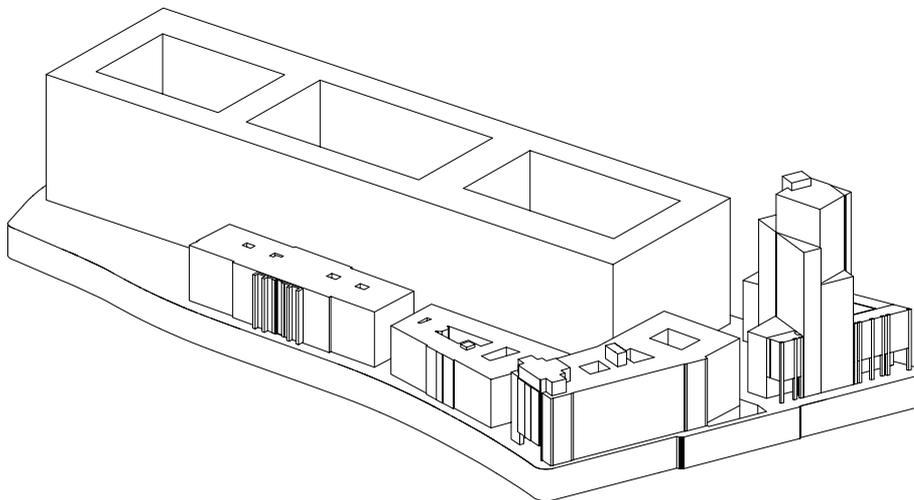


ill. 167: The finished project

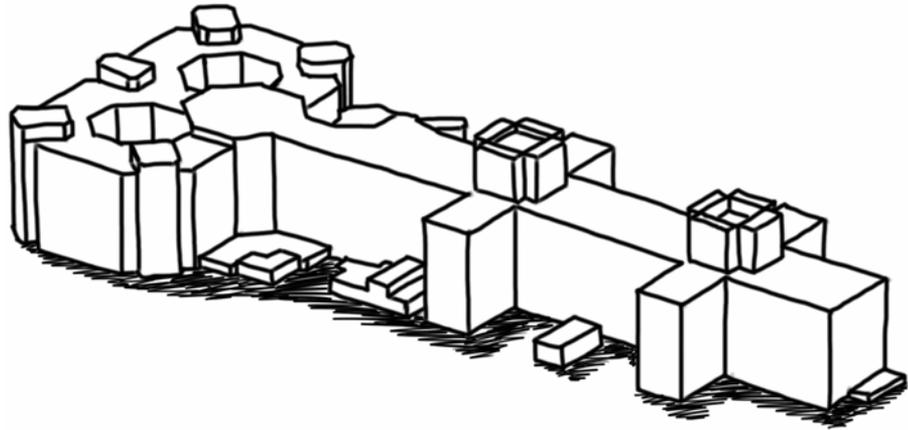




ill. 168: The development allows connections between the two districts and forms three courtyards that are quiet, enclosed spaces away from the hectic city life.



ill. 169: 3-dimensional view



ill. 170: Sketch of the existing

The Existing

City planning and construction:

This development is one huge block consisting of different buildings connected with each other.

All of those buildings form one big construction.

There are three courtyards in the northern part of the site.

The height of the construction varies the highest parts are between 40 and 60 meters.

The development is part of the buffer zone of the world heritage site.

The building divides the third district from the first, as there are no connections throughout the site.

There are not a lot of open spaces for the people working on the site and the residents of the surrounding buildings.

Function and Usage:

The main functions of the building are Federal Ministry offices.

The development also contains one kindergarten in the west of the area.

On the eastern part there are a few restaurants which are for the public but they are not used very well, most people that go there are office workers from the Federal Ministries.

A canteen is also included in the building.

There are almost no public functions in the development.

Most parts of the development are just accessible for employees of the Federal Ministries.

When the staff leaves the building after their working hours the area is mostly dead and not used very well.

The street level is accessible for pedestrians and also by cars.

Car parking is located underground and also on site.

Open space:

The few open spaces provided on the site are divided into small areas in the east and west of the area.

The open spaces in the east are located in front of the restaurants but hardly used.

Backyards in the western part of the site are mostly used for car parking.

The three courtyards are mostly just used to provide natural lighting for the offices.

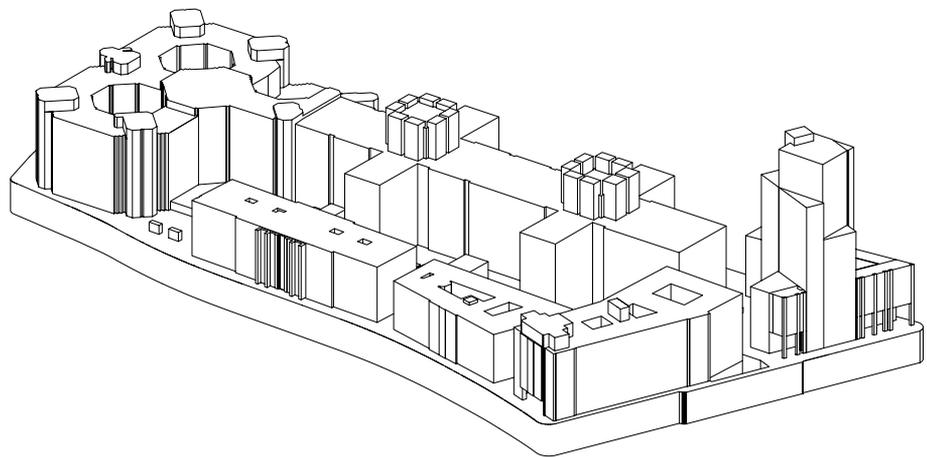
The first impression that the building is blocking the area can be verified when entering the site there are no public walkways through the area.

Surveillance cameras area placed all around the building, as a consequence of this people do not feel very welcome there.

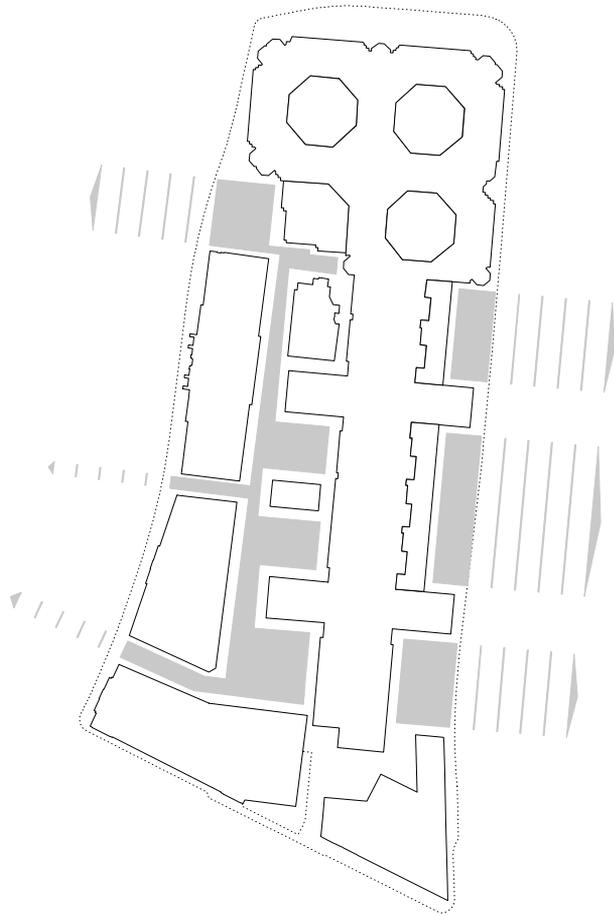
Most of the outdoor space is not used in a good way this is why the area is really dead at some times during the day.



ill. 171: The design within the context

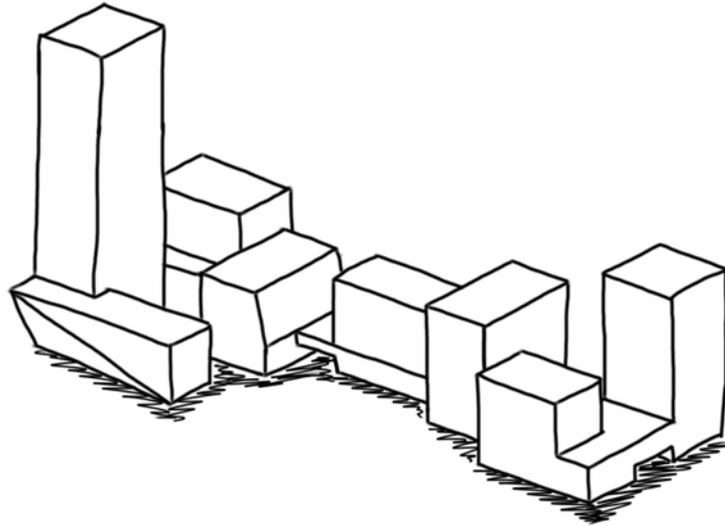


ill. 172: 3-dimensional view



iii. 173: The existing building forms a few public spaces but the development does not allow people to walk through. The third and the first district are not really connected in this area.

5.2 Final mixed-use development



ill. 174: Sketch of the final design

City planning and construction:

The development consists of a few buildings but they are all connected underground.

The height of the buildings is different.

The construction will be the highest in the Glacis area.

The development can function as a new landmark in the center of the city.

The shifted buildings allow views into different directions.

Natural lighting is possible in all floors of the development.

It is possible to construct the buildings one after another.

The footprint of the construction will be smaller than the building to gain more public space.

Different public spaces and some of them away from the main traffic to have more quiet areas.

The development has a higher density than the existing but at the same time it is more open and porous.

Function and Usage:

Public functions are placed throughout the whole development.

The groundfloor functions are public to get a better connection between the outdoor and indoor space.

All of the buildings will have a mix of uses and will not be monofunctional.

Car parking will be located in the underground levels.

The top level of the highest tower contains an observation desk so everyone can enjoy the views.

Due to the mix of uses the whole site will be used 24h a day.

The floorplans have an open layout so the functions can be changed if needed.

The mix of uses enables short distances for the residents and visitors of the development.

Some of the levels above the groundfloor contain subsidized housing.

The whole street level is car free and just for pedestrians and cyclists.

The higher floors of the towers include luxury housing and hotel use.

Public gardens are placed on the roofs of the buildings and also on different levels within the towers.

The development got good connections with the surrounding area and invites everyone in.

Open space:

The towers form different public squares.

Paths for pedestrians and cyclists make sure that there is a good connection between the first and third district of Vienna.

All public spaces on the site are without cars.

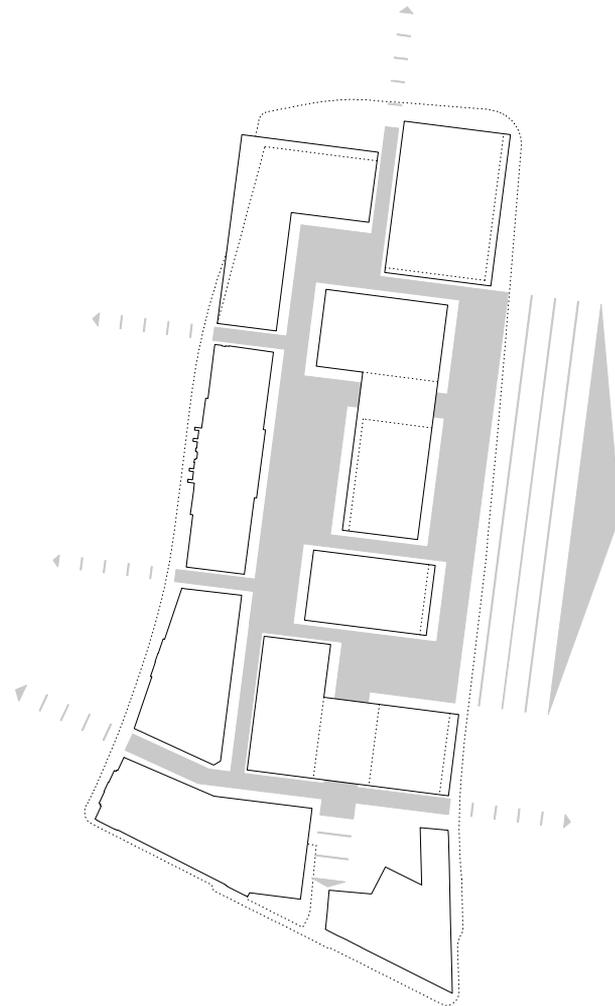
The outdoor space will be activated through the functions of the groundfloor.

The development invigorates all of the surrounding area.

Restaurants and shopping in the lower levels activate the outdoor space.

The development fills a dead area in the city center with life.

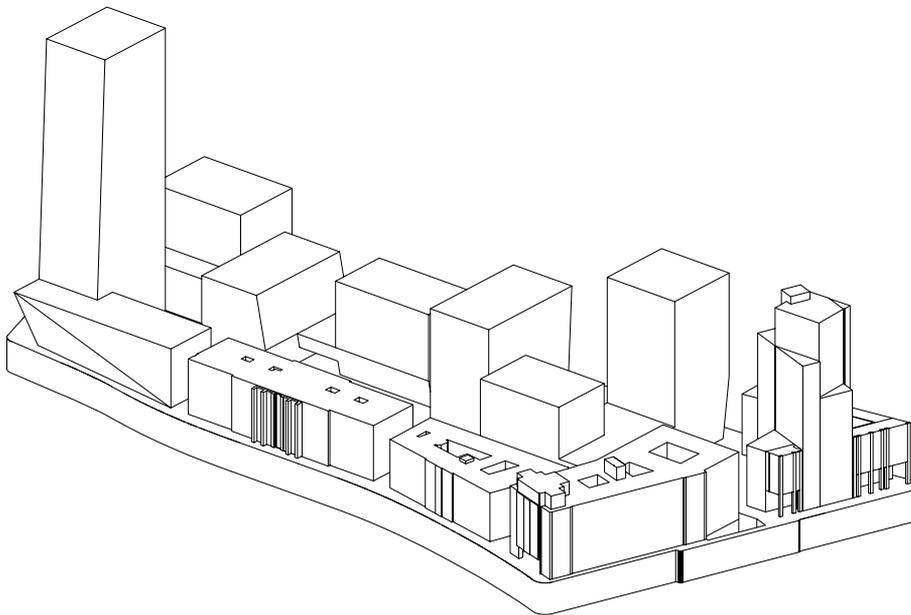
Due to public functions in the groundfloor the indoor space will be connected with the outdoor.



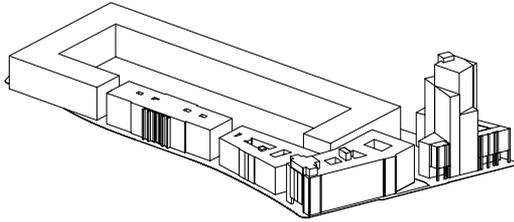
iii. 175: The blocks are forming different public squares in the center and in the eastern part of the site. The developments allows a lot of walkways through the site, connecting the third with the first district.



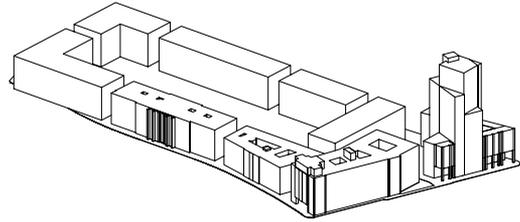
ill. 176: The design within the context



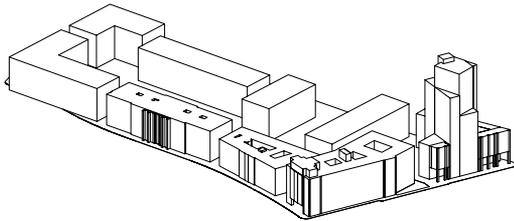
ill. 177: 3-dimensional view



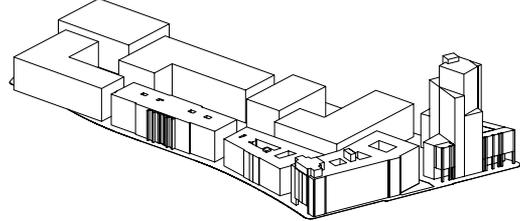
ill. 178: one block with courtyard



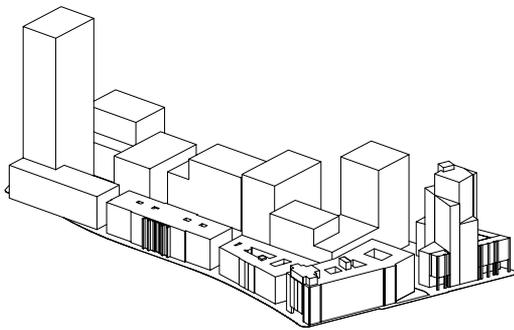
ill. 179: walkways cut through the mass



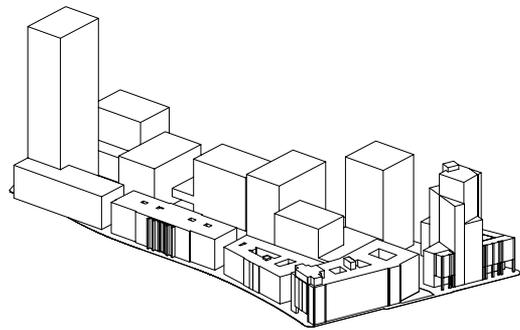
ill. 180: moving the blocks to get different public spaces



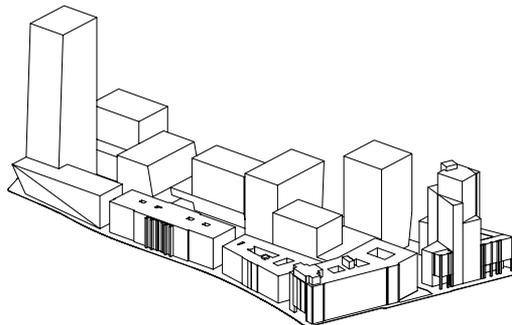
ill. 181: re-shaping the blocks



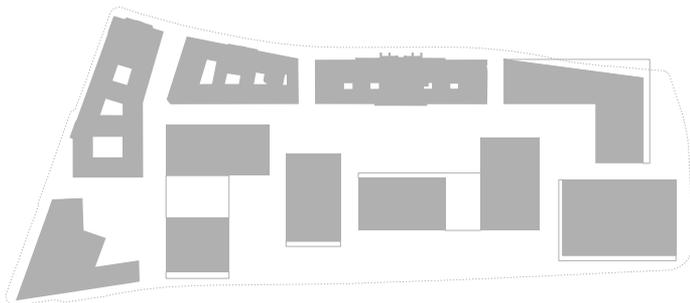
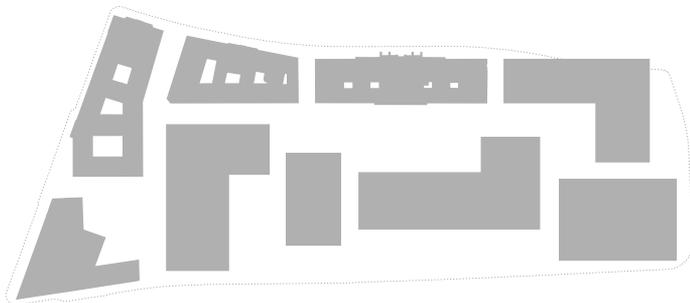
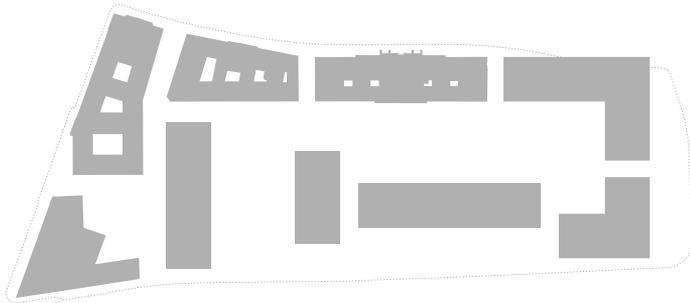
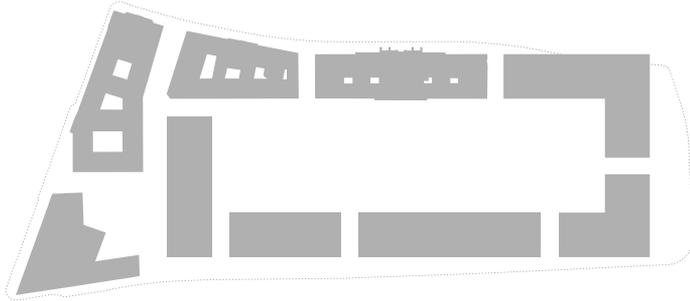
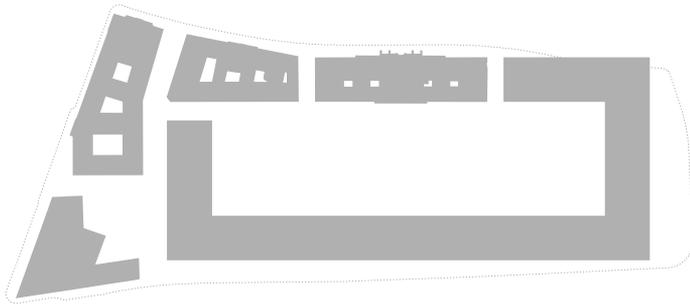
ill. 182: extracting the towers



ill. 183: shaping more walkways through the site and lower the connecting parts between the towers



ill. 184: re-shaping the towers

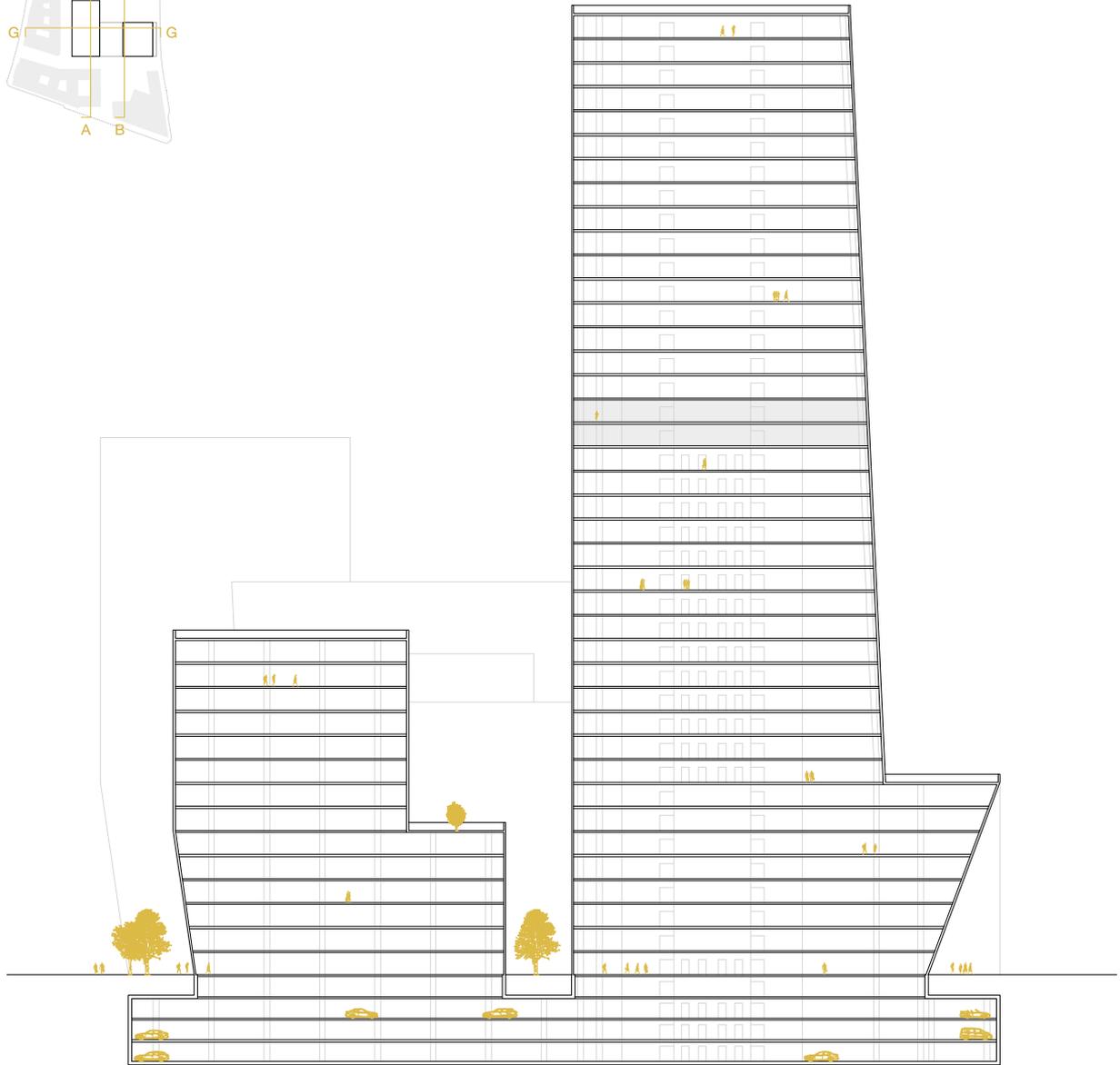
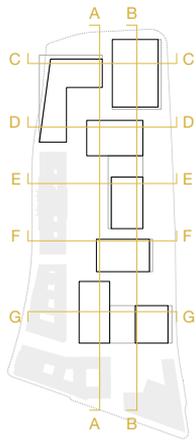


ill. 185: shaping the development



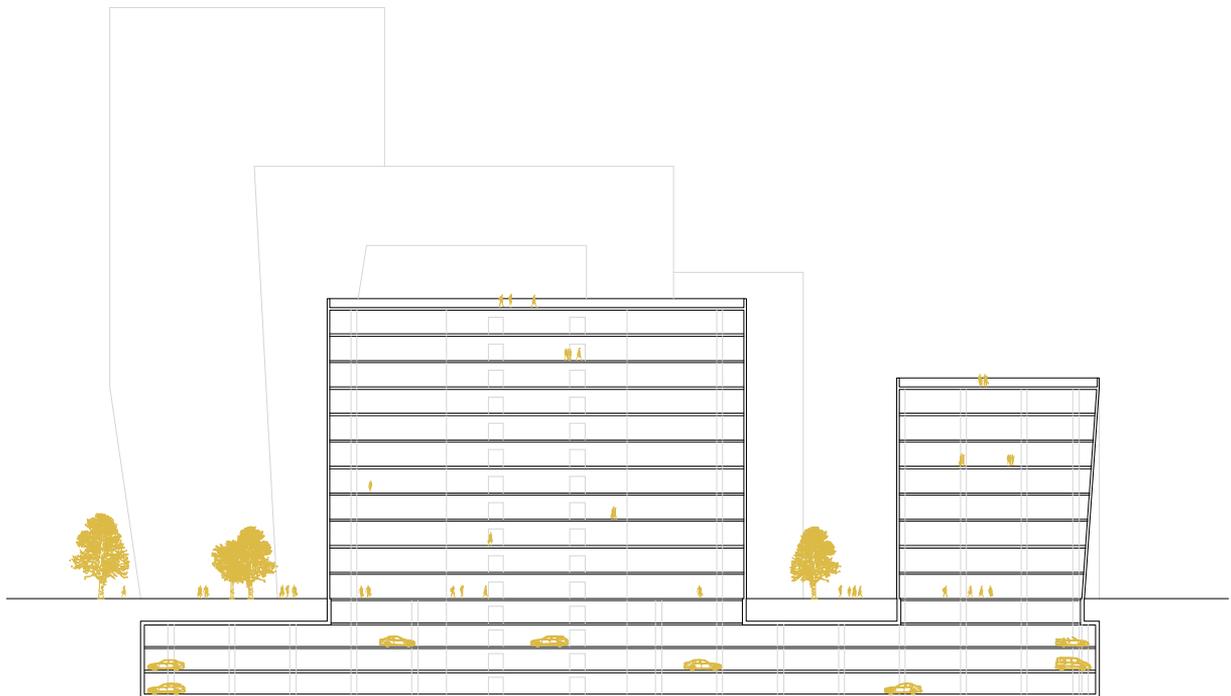
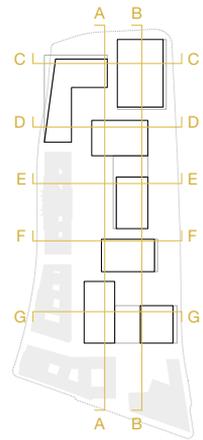
ill. 186: Section G

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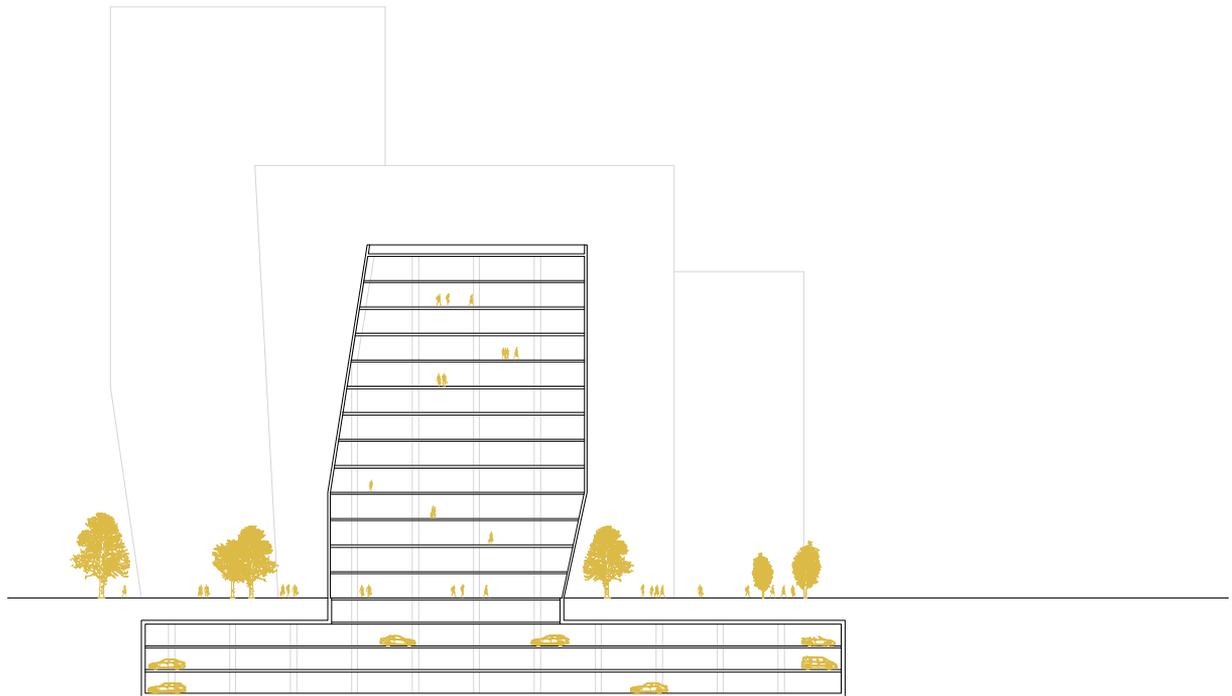
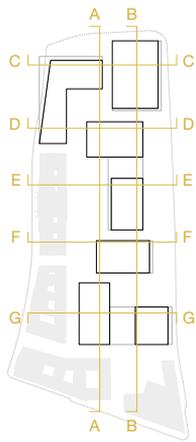
ill. 187: Section C

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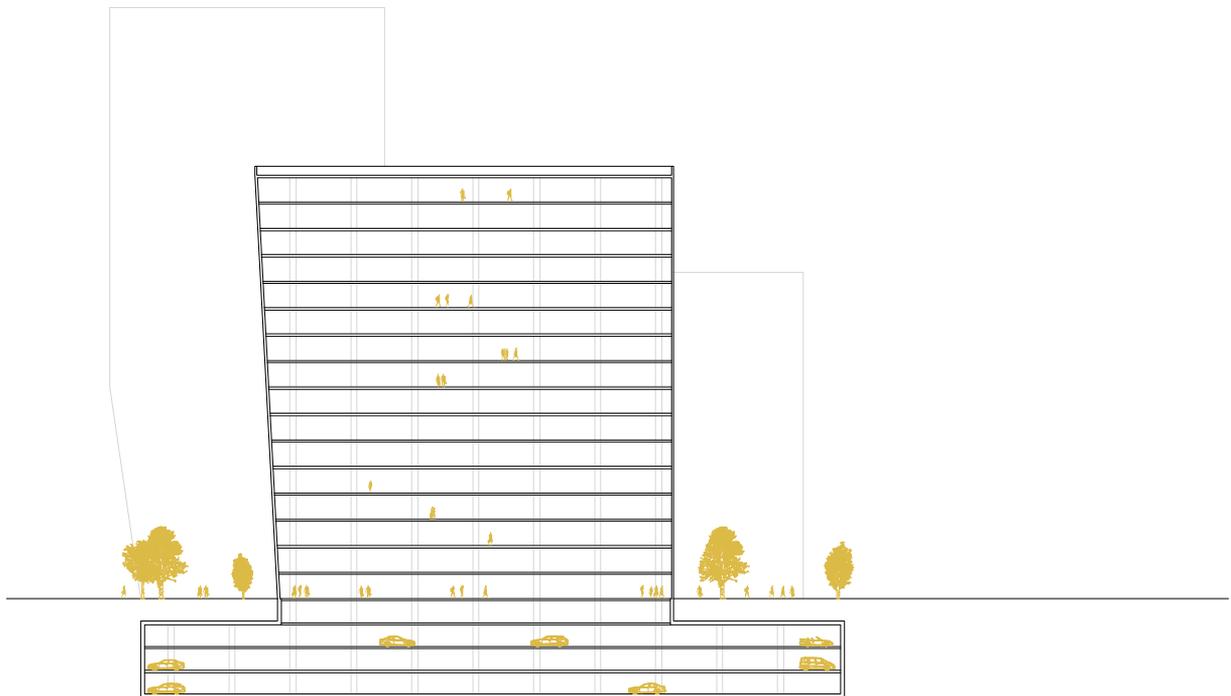
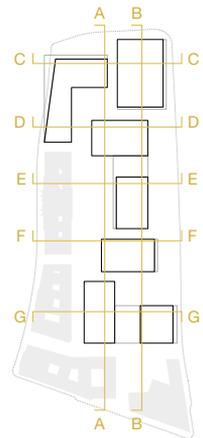
ill. 188: Section D

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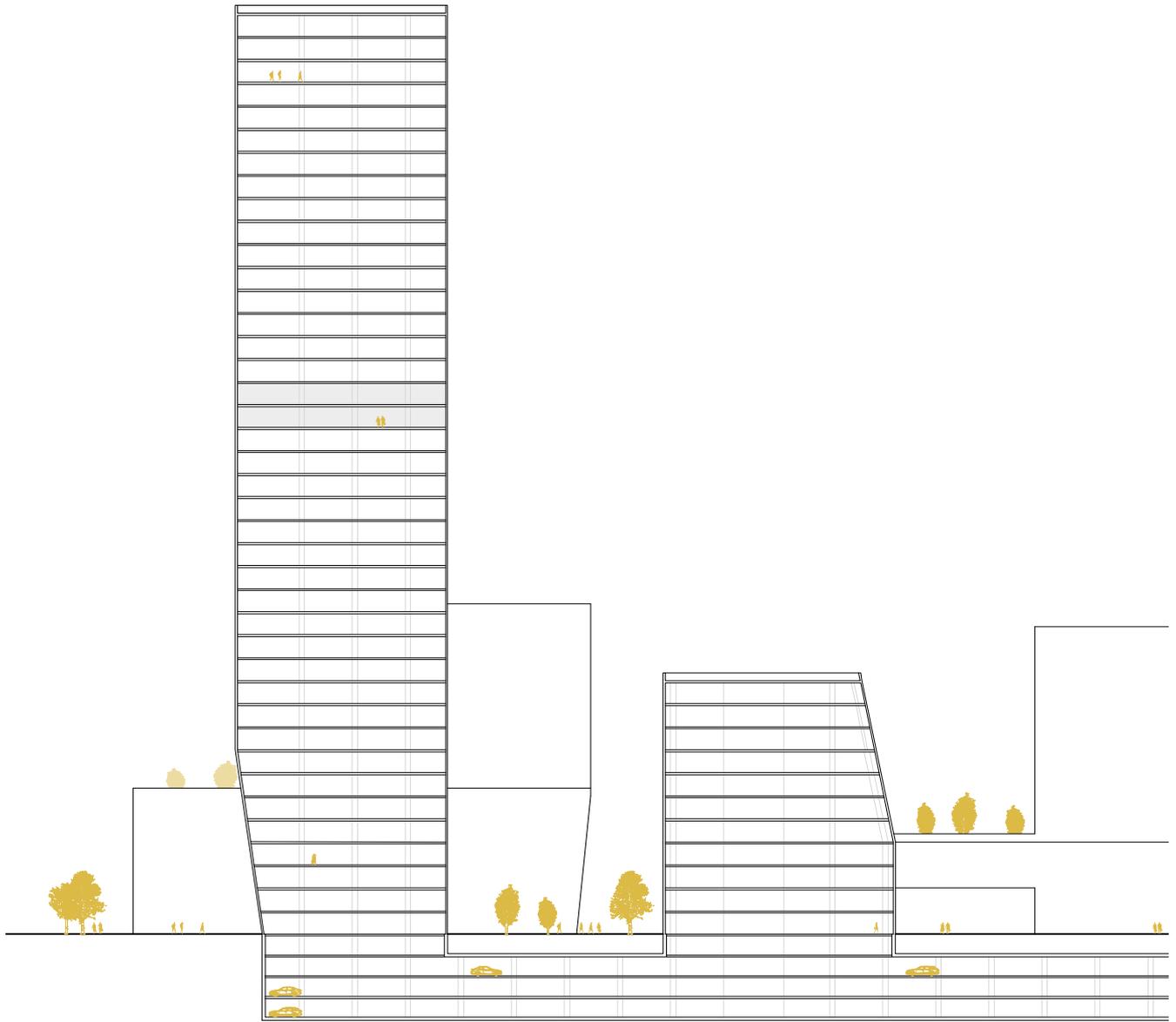
ill. 189: Section E

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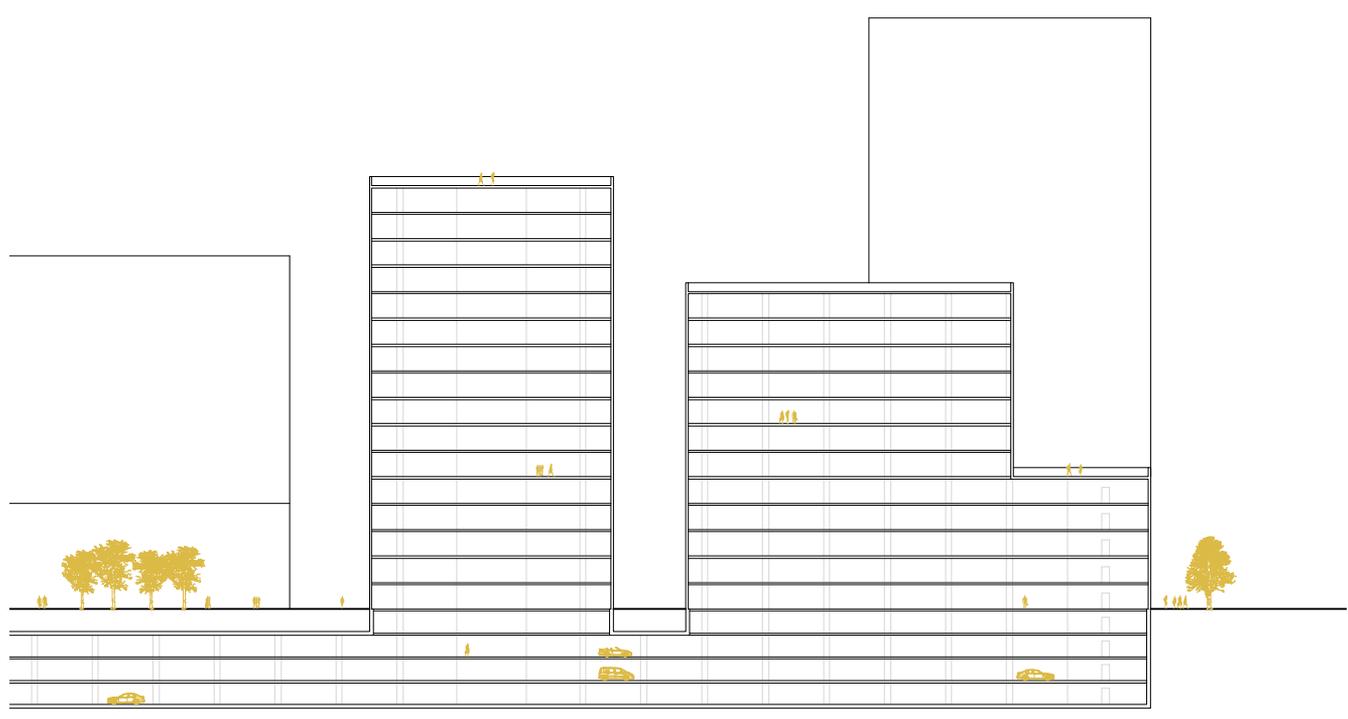
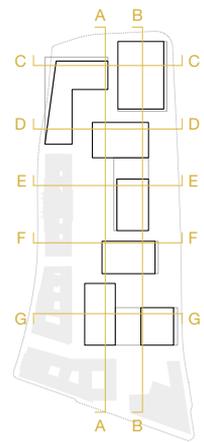
ill. 190: Section F

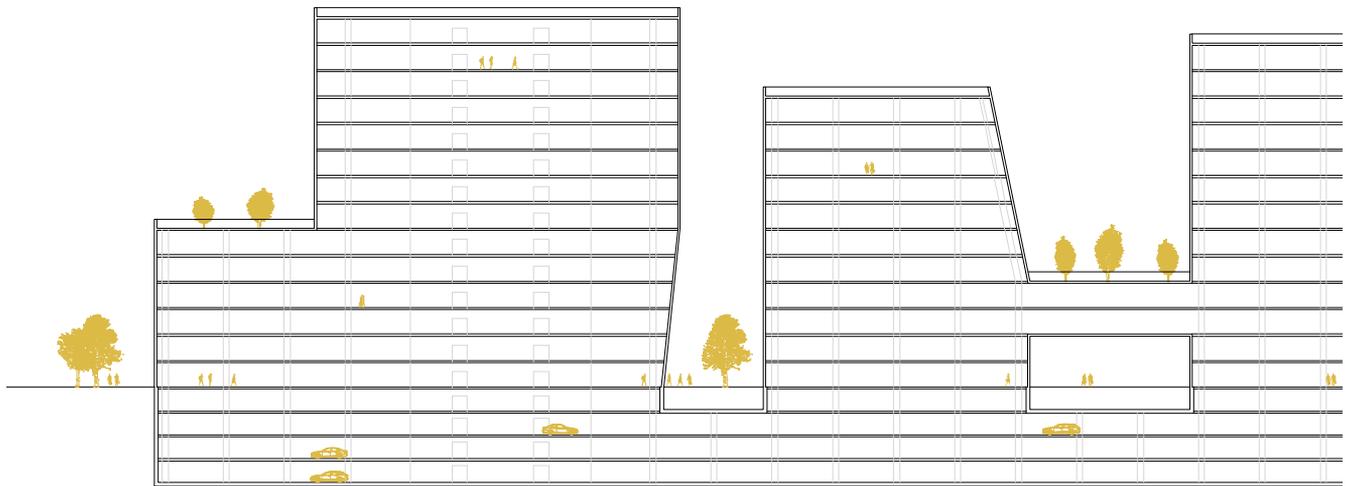
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ill. 191: Section A

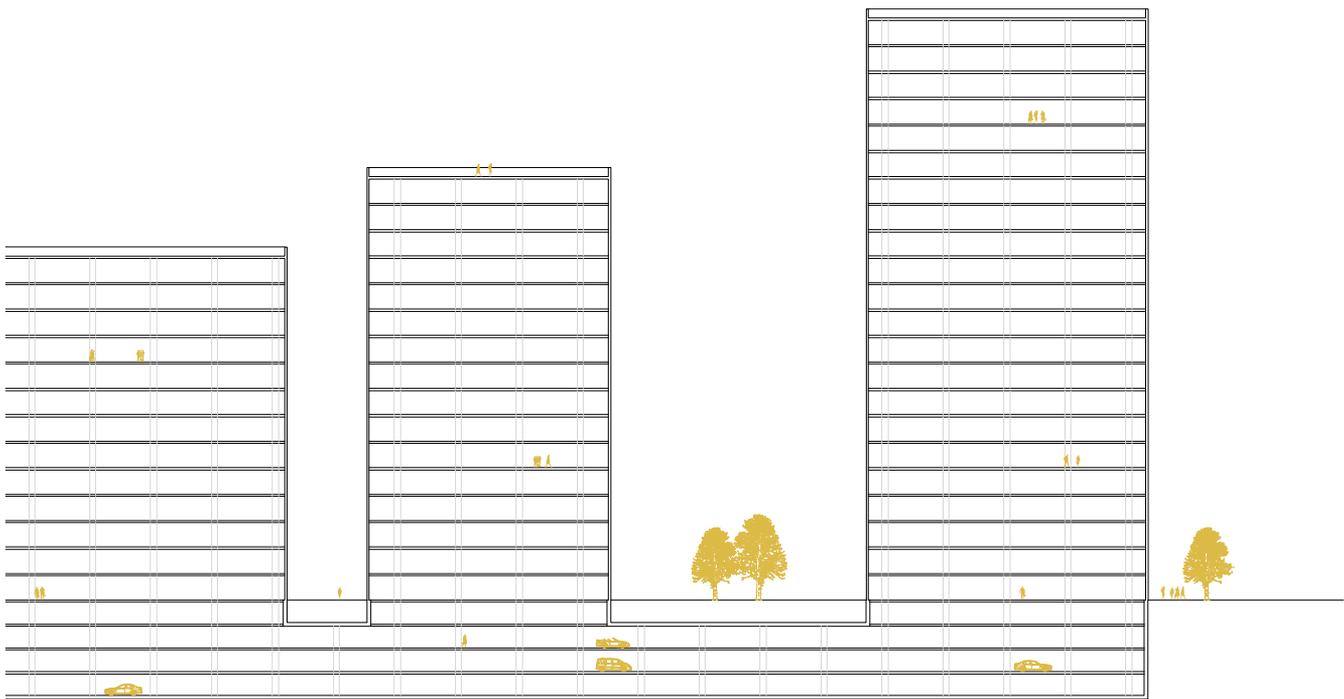
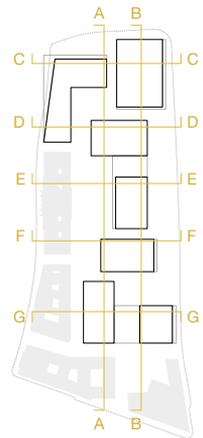
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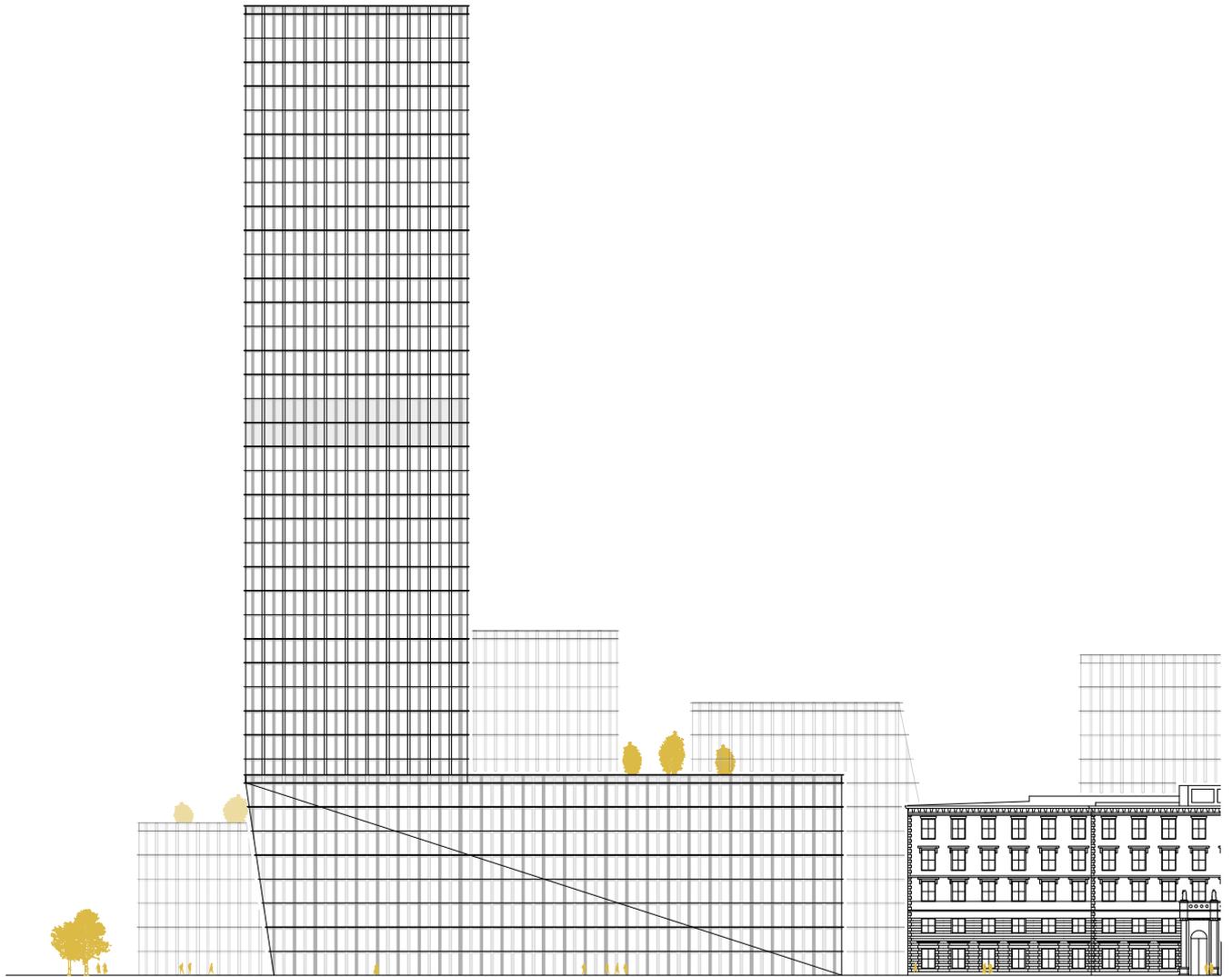




ill. 192: Section B

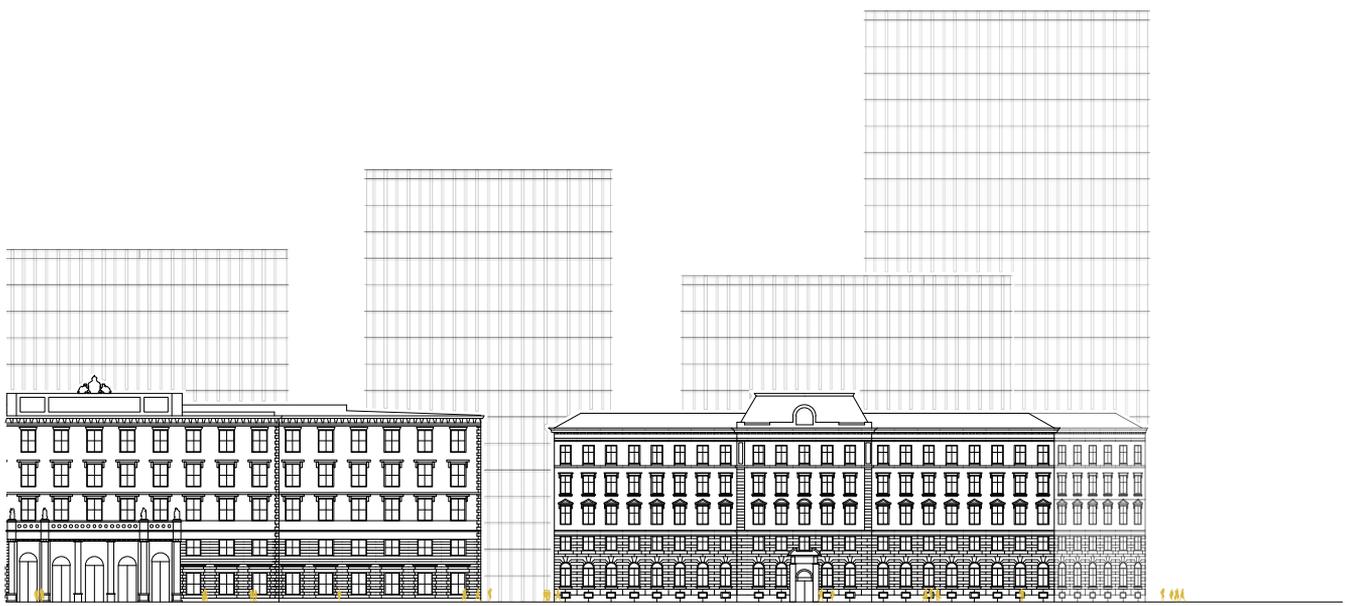
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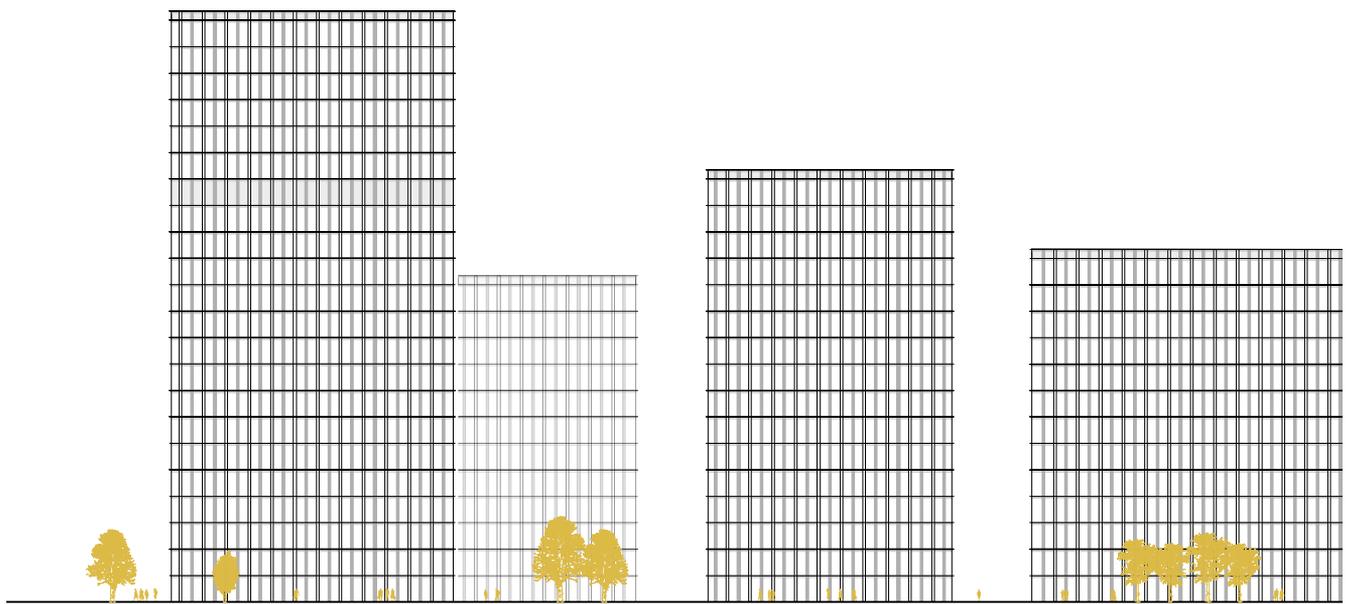




ill. 193: Elevation west

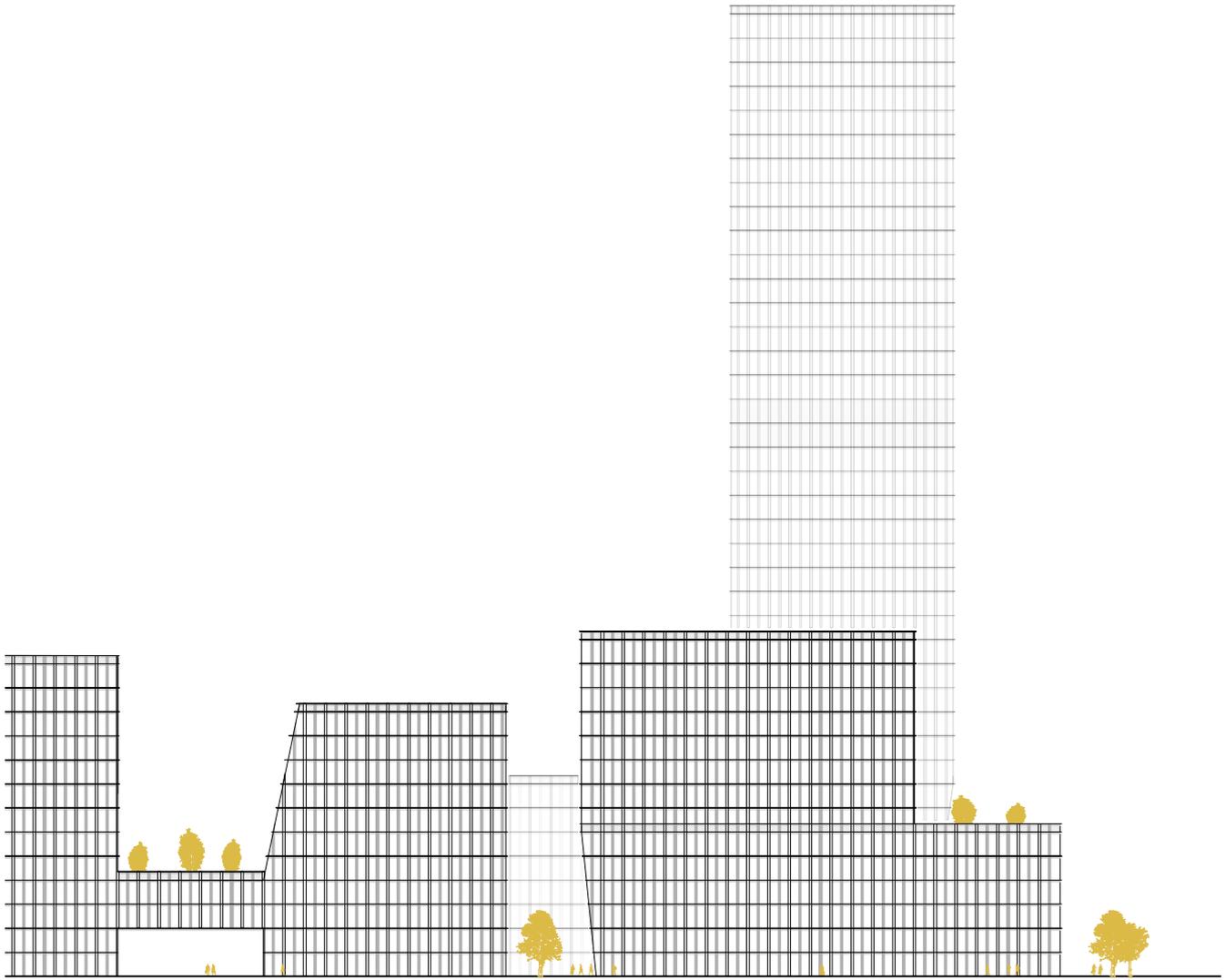
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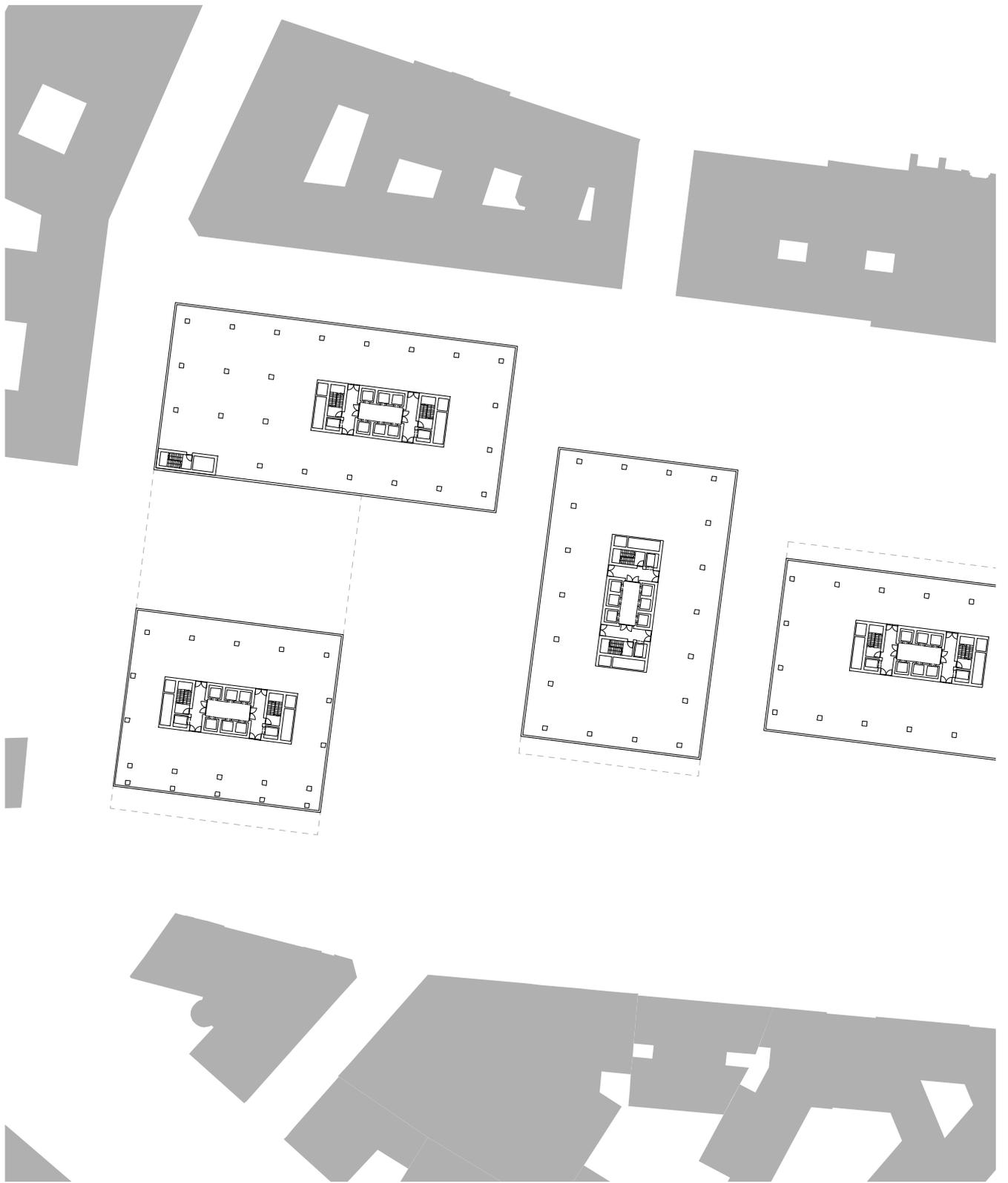




ill. 194: Elevation east

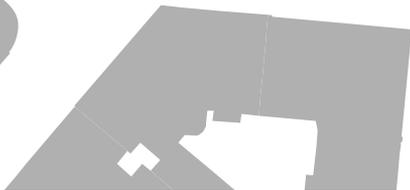
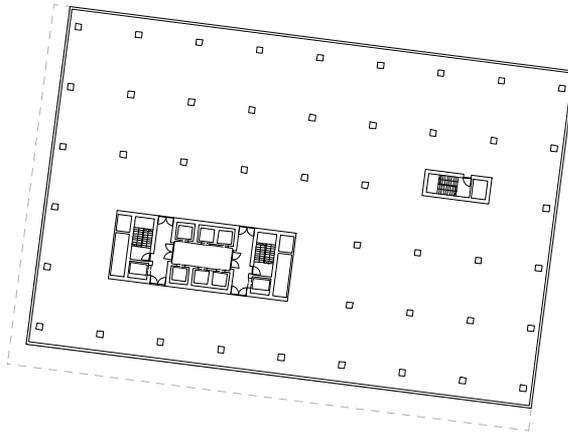
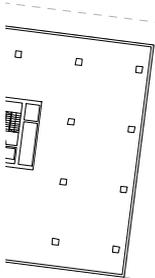
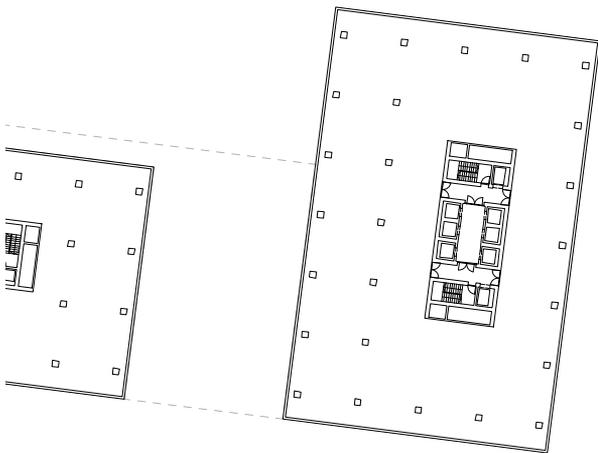
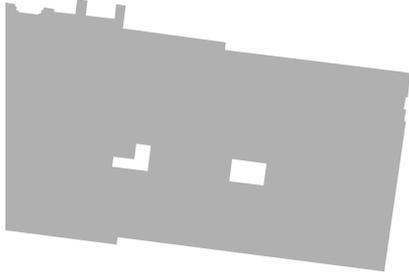
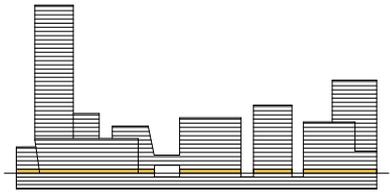
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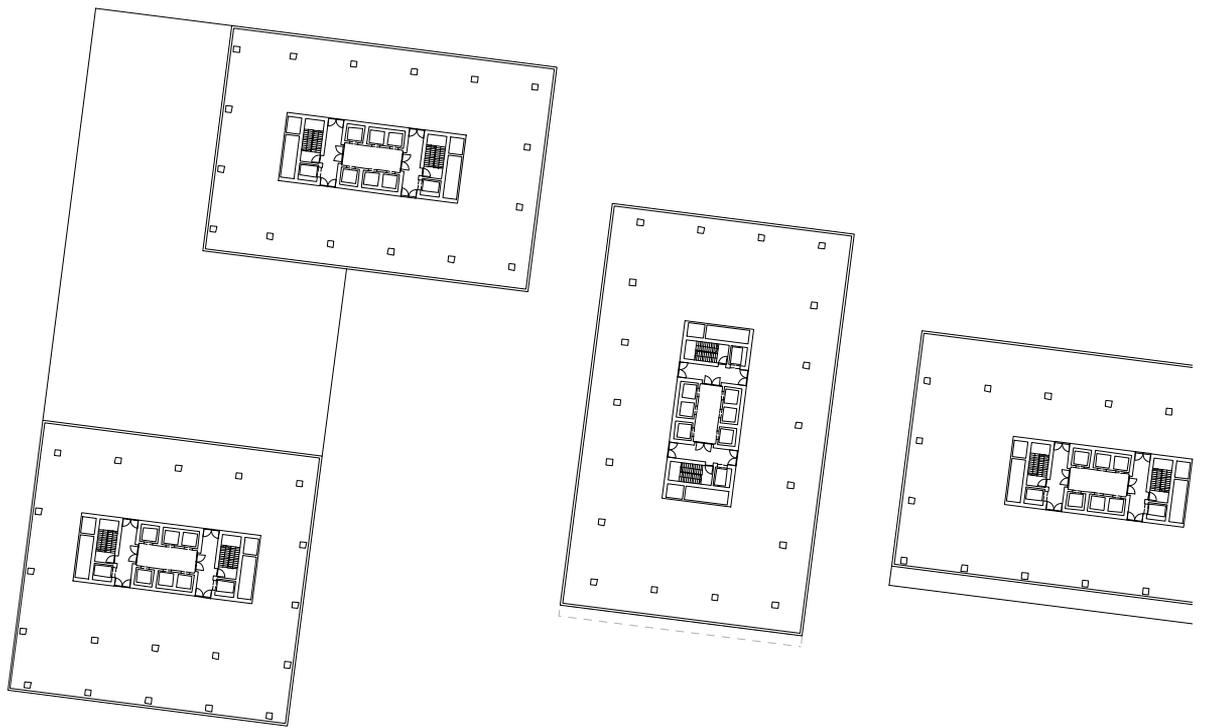




ill. 195: Groundfloor

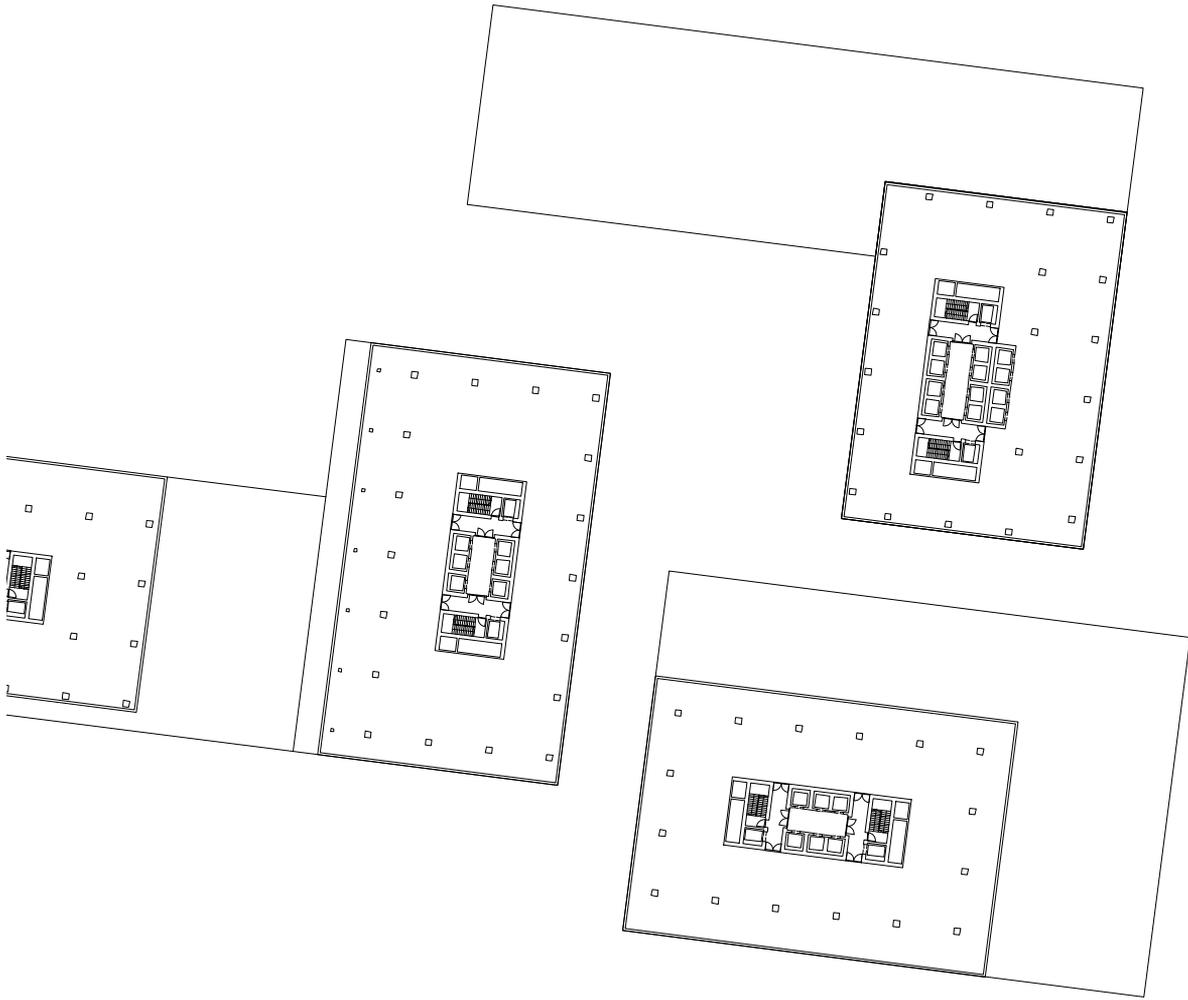
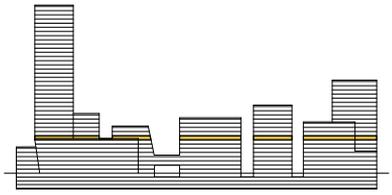
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ill. 196: 9th floor

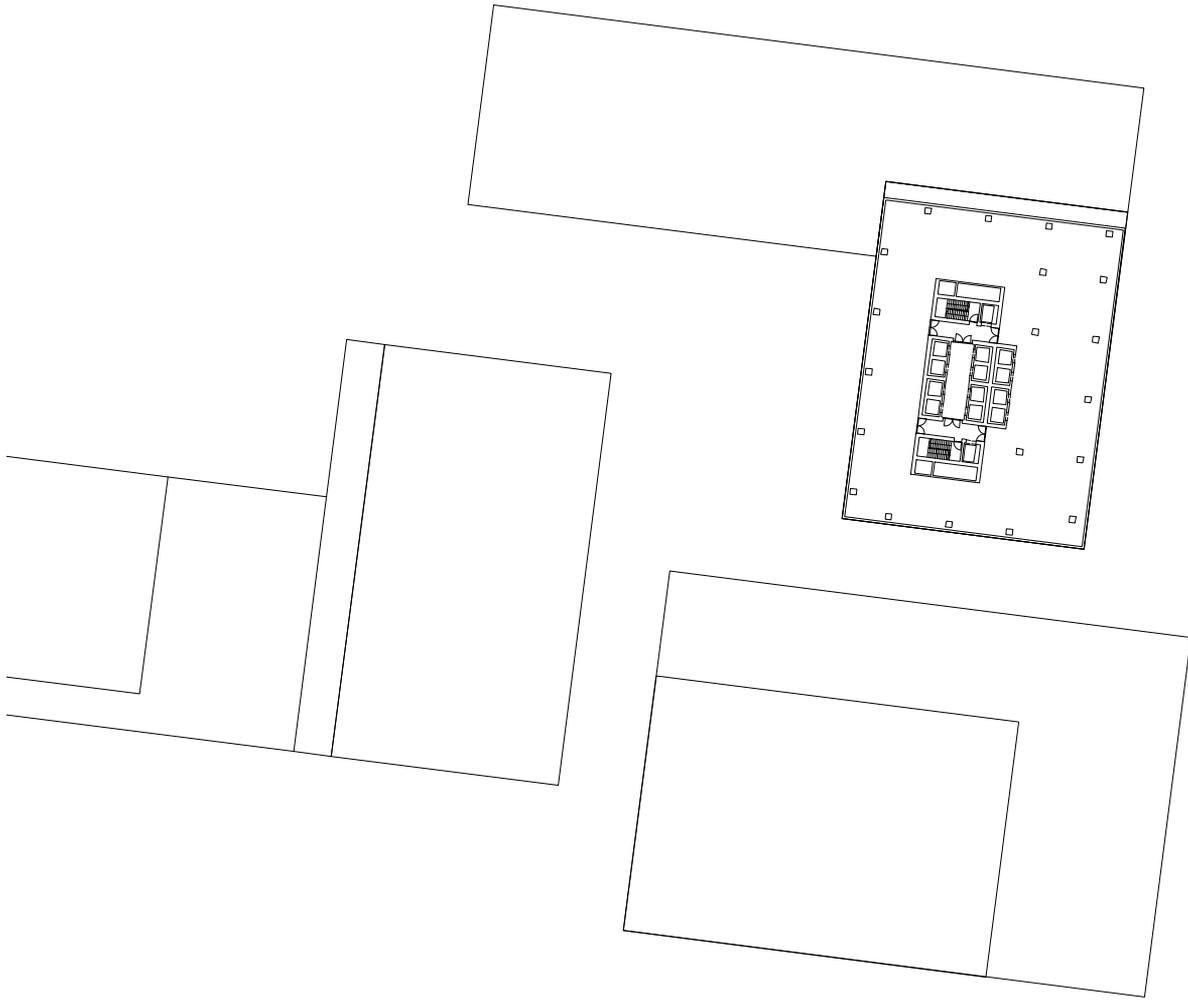
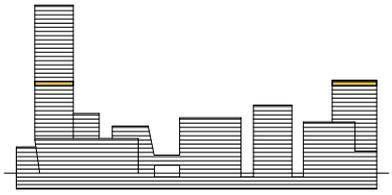
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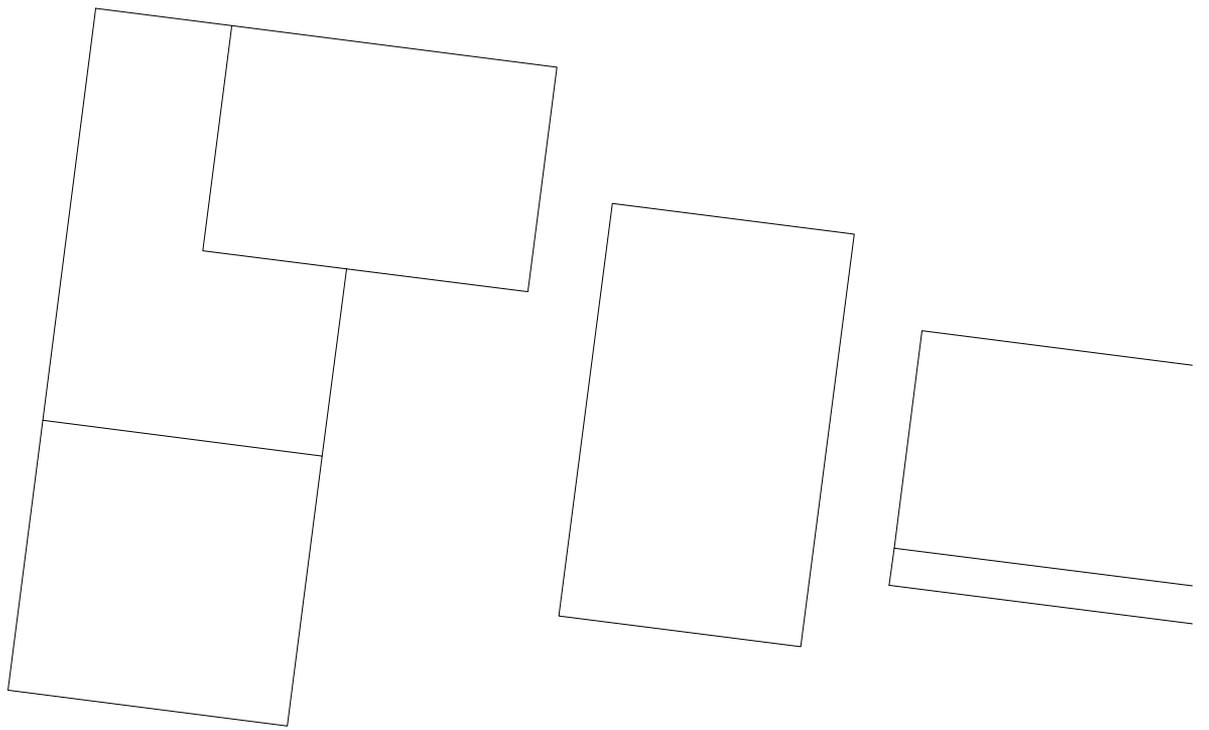




ill. 197: 22nd floor

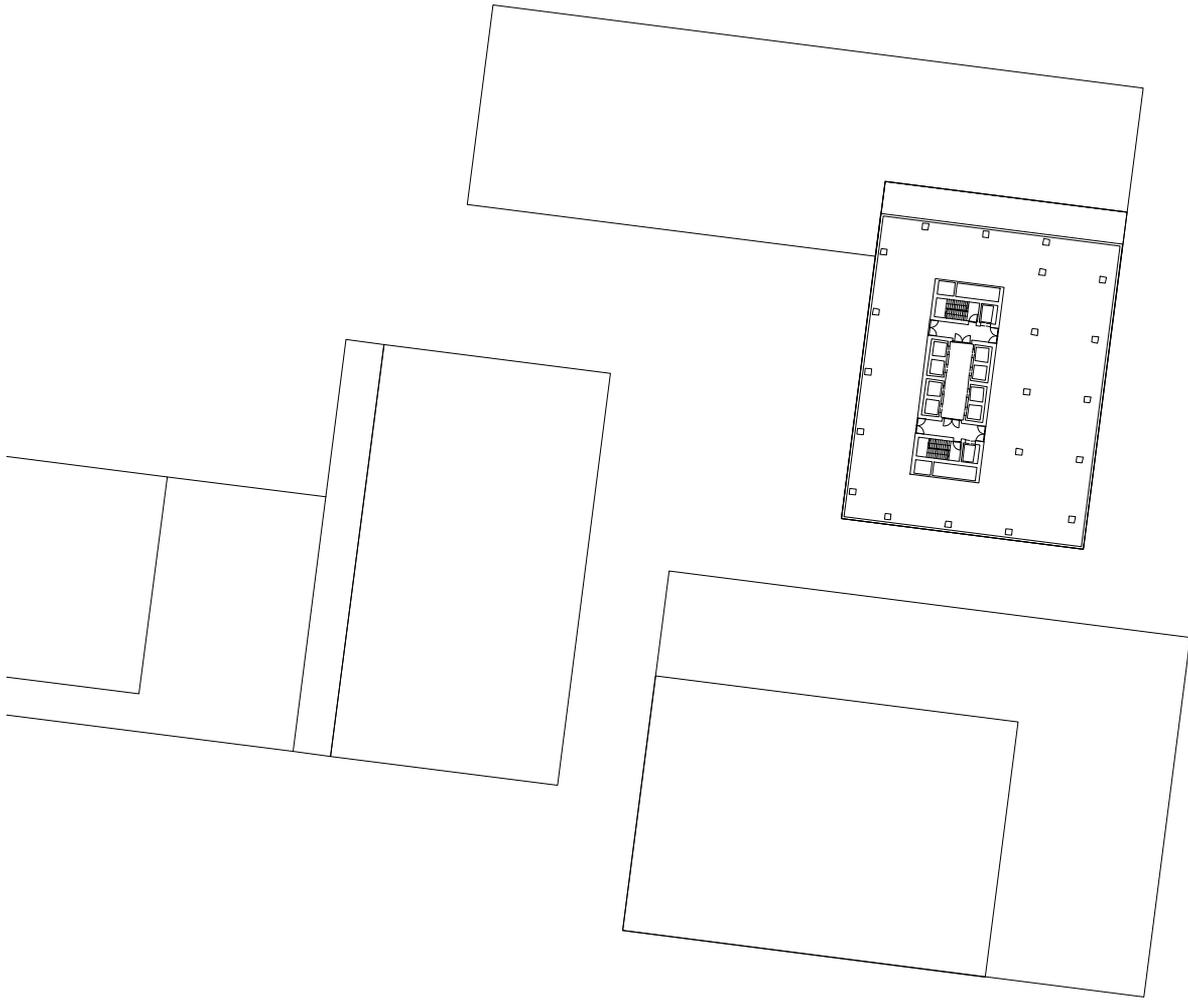
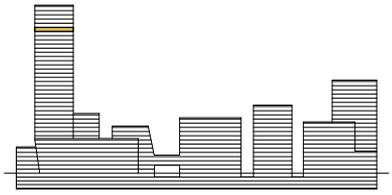
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ill. 198: 35th floor

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ill. 87: https://en.wikipedia.org/wiki/Trams_in_Vienna
[26.09.2016] edited

ill. 88: own drawing

ill. 89: <https://kurier.at/chronik/wien/schwedenplatz-soll-autofrei-werden/131.634.988>
[26.09.2016] edited

ill. 90: own drawing

ill. 91: own drawing

ill. 92: own drawing

ill. 93: own drawing

ill. 94: https://de.wikipedia.org/wiki/Citybike_Wien
[26.09.2016] edited

ill. 95: own drawing

ill. 96: <https://wierus.wordpress.com/2012/10/11/carsharing-wird-immer-trendyshare/>
[26.09.2016] edited

ill. 97: own drawing

ill. 98: own picture

ill. 99: own drawing

ill. 100: Google Earth picture edited

ill. 101-198: own drawings