
DENSITY
COMPLEXITY

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D E N
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I T Y

M A S T E R A R B E I T

zur Erlangung des akademischen
Grades eines
Diplom-Ingenieurs

Studienrichtung: Architektur

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CONTENT

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I.
Take Me Somewhere Nice

INTRODUCTION

Some people say we still live in a post-modernist society. A society characterized by the lack of "big ideas", the end of great story-telling. We are actually facing the time of too many ideas, an explosion of thousands of micro ideas per day. Some of them stay forgotten while others grow into something that becomes reality, and then after their 15 minutes of fame, they get forgotten. A hyper productive society. Everything's changing in a matter of seconds. What we wear, music we like, cars we drive, phones we use, everything is just a trend for a second. Well, how about architecture? What is the current trend? Parametricism? Sustainable architecture? Organic architecture? Why don't we have a clear concept, the great story behind it? A story which influences generations to come and gives birth to new ideas? Express change is the concept of our time - adaptability. We can take technology as the best example. People embrace new technologies basically every day. The rate at which the technology is growing is unimaginable. Only a few years ago doing nowadays common things on your phone was impossible. Our world is growing too. Cities are getting bigger, they spread wider and sometimes they become more dense. Density, the problem of our time. Or the solution. Everything seems dense. We get too much information every day. We are overwhelmed by the amount of things that change every day and yet none of the changes seems good enough or worth remembering. What are the experiences worth remembering? How do we create these experiences? This is the exploration of architecture behind the experiences of city-dwellers, the ones that enjoy the "crowds",the rush, the momentum, the wow effect, the communication, interaction, confrontation and being part of the world.

Take me somewhere nice.

Do you enjoy your suburban way of life?

Do you really?

Why?

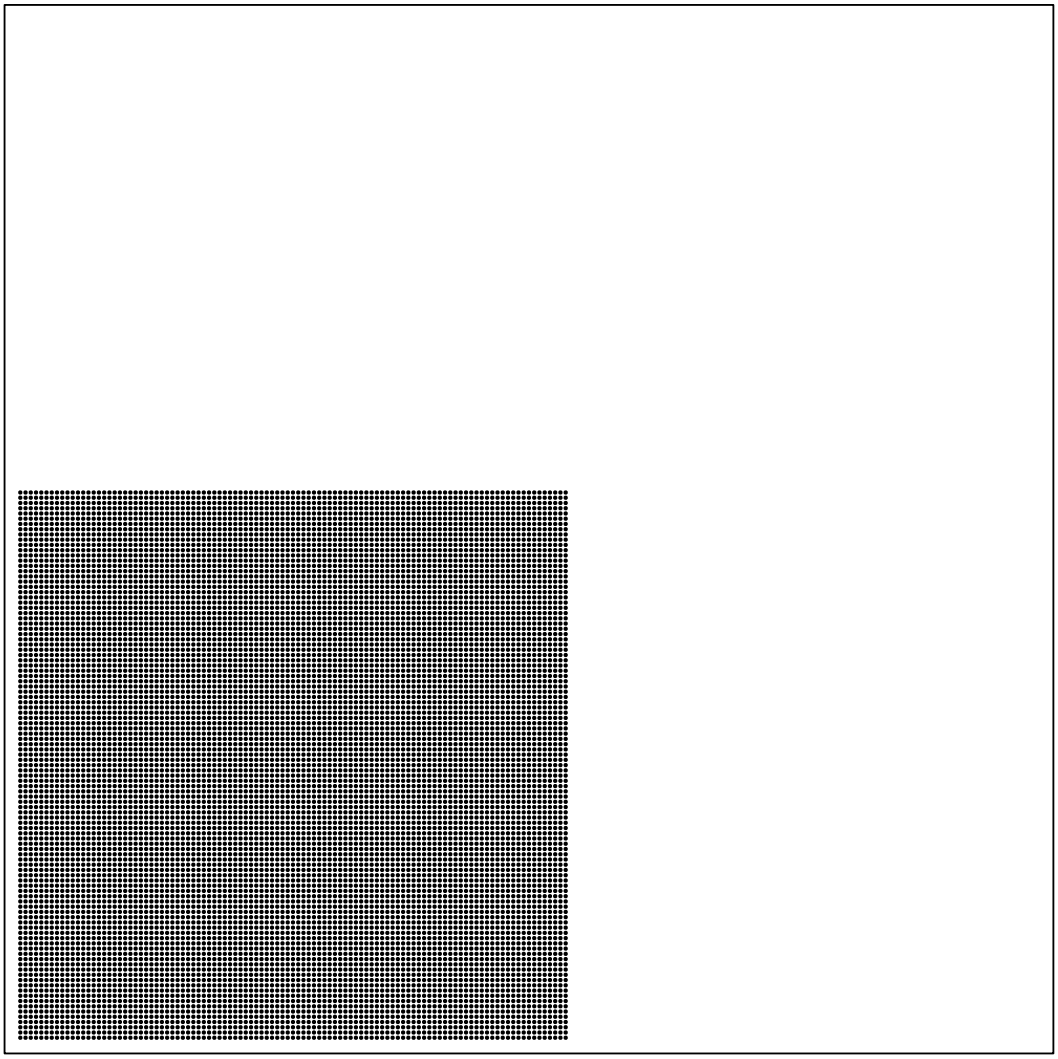
Ill. 2

II.
The Density Complexity

WELCOME TO SUBURBIA

If you ask someone what their dream home looks like, you're most likely to get the same answer from most of the people and it goes something like this - "A big house located somewhere quiet, with a big backyard, where I could enjoy a barbecue in the summer..." While the notion sounds nice, the long term consequences of this way of life are not nice at all. It has been over 50 years since the automobile dream conquered "America" and resulted in suburbia. The vastness of the American continent proved to be the perfect location for this "experiment". The tragic point in our recent history where architects and the "industry" felt like it was a great idea. The modernist ideology, of a city shaped for cars, finally succeeded and became reality, unfortunately on paper the theory worked better than in practice. Who doesn't want to own their own house with a nice backyard and a parking garage? The problem is that your house is the only place you'll feel well in the suburban desert. As soon as you leave your house you're bound to take the car for every single activity you'd like to do. The suburbia is characterized by the lack of diversity. Even single houses don't differentiate that much from one another. Other than different facade color, the car parked in the front and the number on your front door, there isn't much left to separate them. While suburbs in the architectural sense can be described as an American product, Europe has its own modernity sins. A tendency that started all the way back in 1924 with Le Corbusier and his "Ville Radieuse" project and lasted all the way till mid 80s in some parts of Europe. Especially in eastern and central Europe. Le Corbusier attempted to export his ideas outside of his continent a number of times, and although he failed in one of the "Americas"(unsuccessful attempt of bringing modernism to Manhattan) but he succeeded in the other. Brazilia, the capital of Brazil, planned and designed by Lucio Costa and Oscar Niemeyer, was heavily influenced by the modernist movement. While these plans looked great from the architect's point of view they proved to be unpractical for the people walking on the streets of these cities.

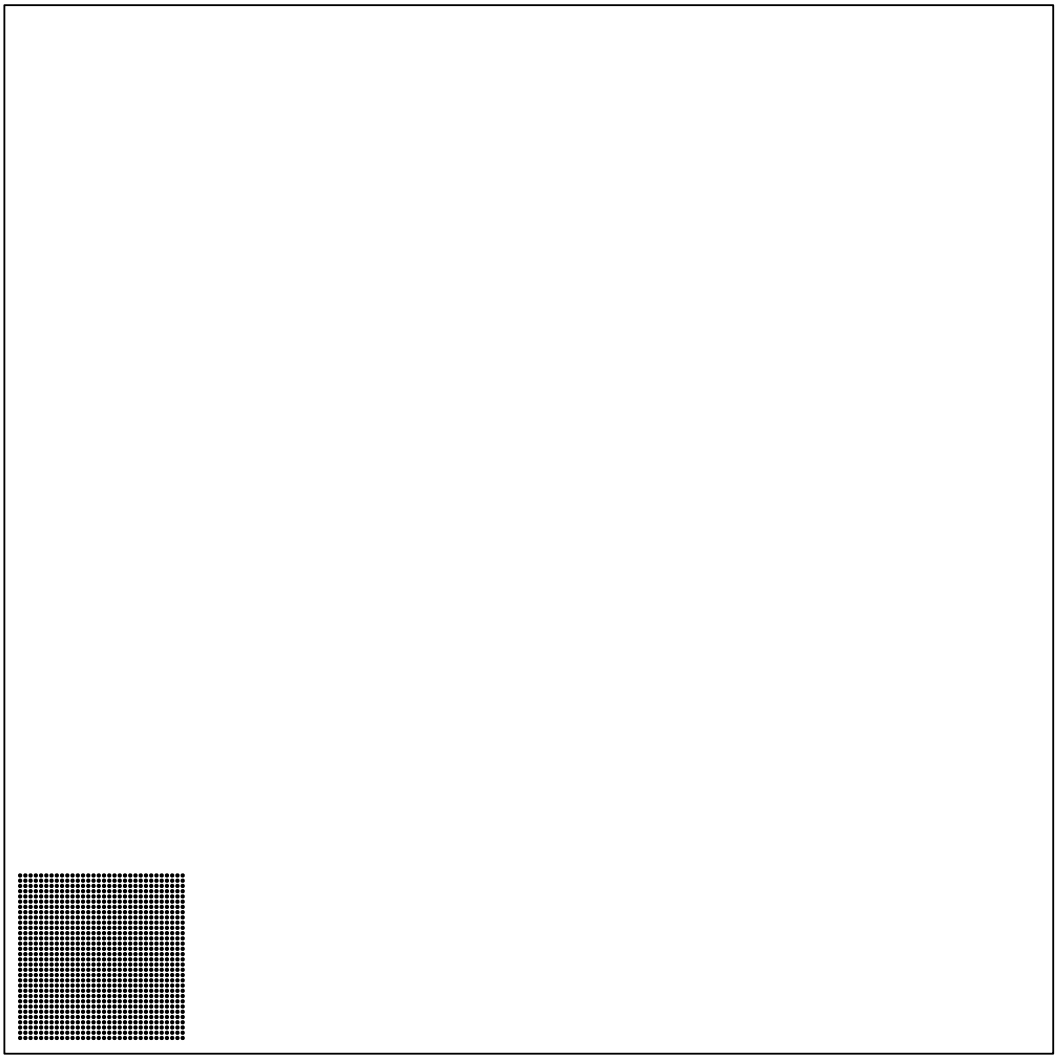
Walking? Why would anyone walk when we have cars?



10 725 people

1km²

Welcome to New York



1080 people

1km²

Welcome to Phoenix

THE AUTOMOBILE DREAM

Unfortunately we are still witnessing the sprawl of large cities and the growth of suburbia, although we have more than 50 years of proof of a nonfunctional model. Even worse, the model has spread across the globe. In Dubai, one of the fastest growing cities today, we can see developments like Emirates Hills, Jumeriah Heights and Arabian Ranches, all of which have the characteristics of sprawl. A dream which can only be sustained by the currently high flow of income due to the oil business of the United Arab Emirates. Located in the Arabian Desert it faces harsh climate conditions characterized by extremely high temperatures and long droughts. Again the sprawl was induced by the available space, which like in the case of the North American continent, seemed limitless. The monotony of these urban spaces is only justified by the cars driving fast through them so that the experience doesn't leave an imprint on the drivers' memory. In 2014 we still decide to ignore the oil problem although we can see the end of the automobile era as well as the fatal consequences of only one century of intensive usage. Some could argue that we already have electric cars which are more than good enough to replace our current vehicles. Still, even if we replace all the cars in the world with electric vehicles (other than cost of it being unthinkable) we still wouldn't have an argument for suburbia in classical sense. Transportation is only one of the factors which argues against this typology. Others are costs of living in single family houses, time consumption on travelling to the nearest grocery store/school/park etc., and lack of content.

Densification seemed pointless when you have so much space. It was the characteristic of geographically restricted spaces like Manhattan or areas with extremely high population growth - Indian cities like Dehli and Mumbai. As we can see from these examples, density has two extremes. The first one is the PLANNED DENSIFICATION and the other unplanned. The consequences are either extremely good and result in diverse and desirable urban space or extremely chaotic, resulting in low life quality. Low life quality? How is living in my three-bedroom house with a pool in the back considered low life quality?

Low life quality? How is living in my 3-bedroom house with a pool in the back considered low life quality?

Ill. 3

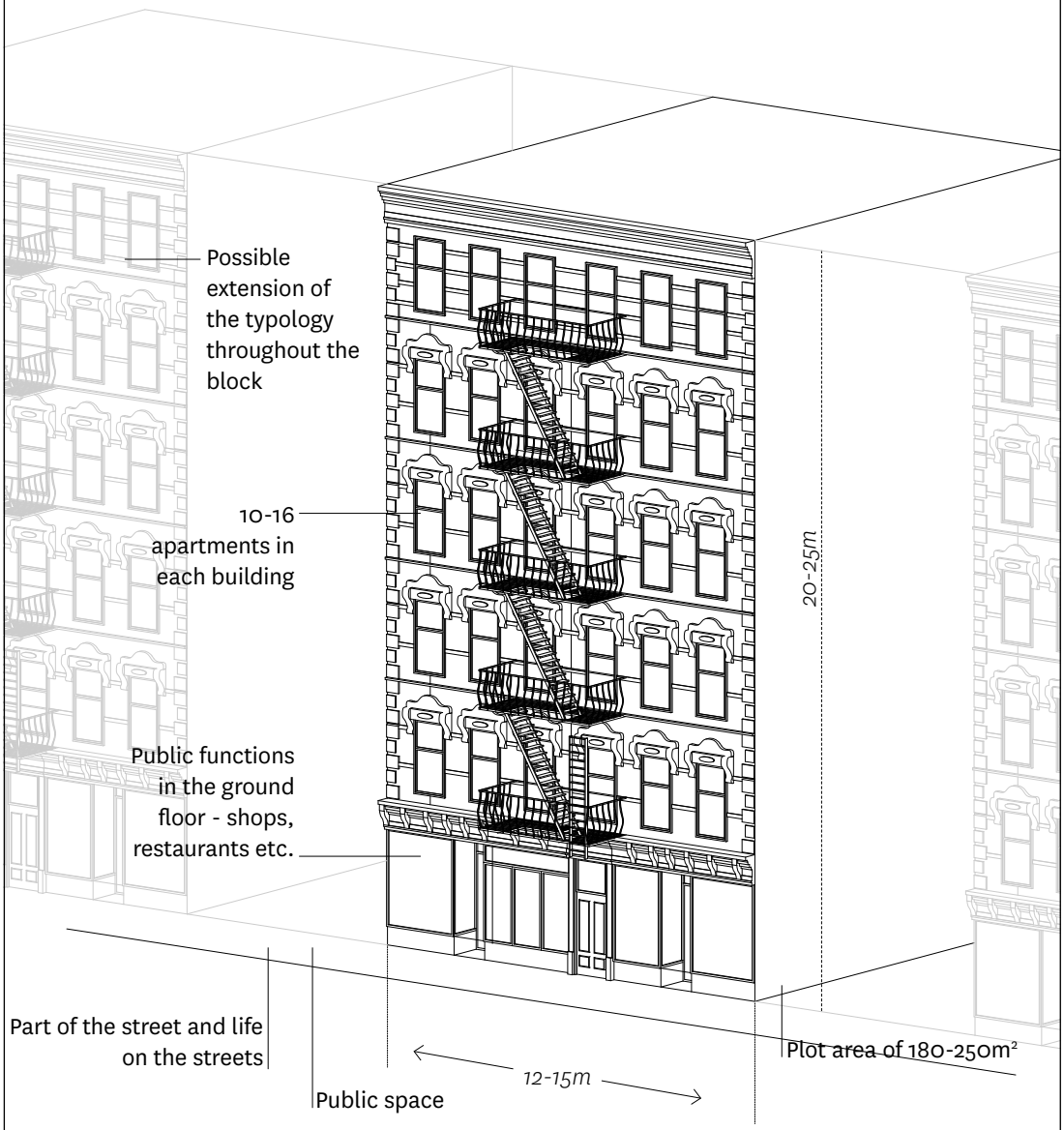
Story of X & Y

It's always hard to measure the quality of a certain space. There are various factors which influence the value of a property. Some of them are the location, age of the property, climate, architectural value, etc. And still at the end it's the personal preference that is the deciding factor in determining the quality/value. Most people start with the location, they take a look at the neighbourhood surrounding a certain property, they ask questions like - "How close is the nearest grocery store? School? Bus station?" and that pretty much covers it. As soon as the basic needs are covered, the rest of the needs are basically ignored since you can reach everything by car whenever you want. But how true is that prem ise? Let's imagine two persons, person X and Y. Person X is living in Manhattan, in the SoHo neigbourhood. X lives in a compact 30m^2 apartment which covers all his needs. The rest of the needs are covered by the city. The person Y lives in Phoenix,AZ, in the suburbs. To be more Specific, in Corte Bella neighbourhood. Y owns a big suburban villa, with a large garage and a pool in the backyard. Let's imagine their daily routines for a second. Accomplishing simple things like grocery shopping or going to work is an interesting experience for X, but not so much for Y. X passes by various historical and contemporary buildings on his way to work. He sometimes stops by in the New Art Museum when they have a new exhibition. He also likes to buy his groceries from the local stores rather than from big supermarkets. He sometimes fancies exotic foods like Japanese or Thai food. When the weather is appropriate he decides to ride his bike to work or take a walk. Y's life doesn't look so interesting, in order to go downtown he has to take his car. The same thing with going grocery shopping. On his way to work the thing he sees for 80% of the time are single family houses that look just like his, except that he believes that his front yard looks way better. He never stops by the museum, since he always decides to take the highway when he's in the car. Same with going to the theater, cinema, concerts, bars to meet friends or basically any social activity. Although X and Y are imaginary, they roughly represent two urban opposites. One more important factor is the sublime influence of the environment surrounding us. Even if X doesn't really go to museums or likes exotic food, he is still unconsciously influenced by all the things he passes by on his way to work. And these are the things that encourage social interaction and improve his way of life. On the other hand the disconnection of suburbs from

almost any social encounters creates a society of introverts, deprived of cultural and social richness. Even the architectural typology itself reflects the behavior of its inhabitants, or sometimes it forces a certain behavior. (see diagrams on the following two pages) The apartment building in the SoHo neighbourhood is placed right next to the sidewalk, it's basically on the street. The moment you leave the building you're part of a bigger collective, an urban community. An urbanite interacts with the world. On the other hand, a suburban house is almost always distanced from the street, it demands a certain level of privacy. The inhabitants also distance themselves from the life on the street and that results in basically empty streets. Cultural wasteland. A wave to a neighbour from a safe distance is all the experience you're going to get. Let's not be mistaken, there are also social interactions between suburbanites, but they almost always happen behind closed doors of their houses or behind tall fences of their backyards. A more recent phenomenon in suburbs is the gated community. This is where suburbia demands autonomy. The city becomes the slave to the suburbs, a temporary habitat. City is defined as place between the grocery store and the gates of the suburban paradise. It is ignored by the suburbs and it is only there to serve them. Although suburbs are mainly an American phenomenon, they exist in Europe too, but the real European equivalent of suburbs is the post-war housing block of the Eastern Europe. Concrete blocks rising from the green landscape. A city full of greenery, space, light and of course automobiles - the centerpiece of almost every urban plan of the first half of the 20th century. Seemingly ideal greenery suddenly becomes the reminder of the long walk you have to take for each and every little thing you wish to accomplish outside your apartment. They create the same monotonous, experience-less urban space. To ensure quality of a certain space, diversity has to be ensured. Both social and architectural. A certain density of content is required to create experiences.

Experiences you say. But I traveled to Europe once, and we have even been to Hawaii. That was a great experience!

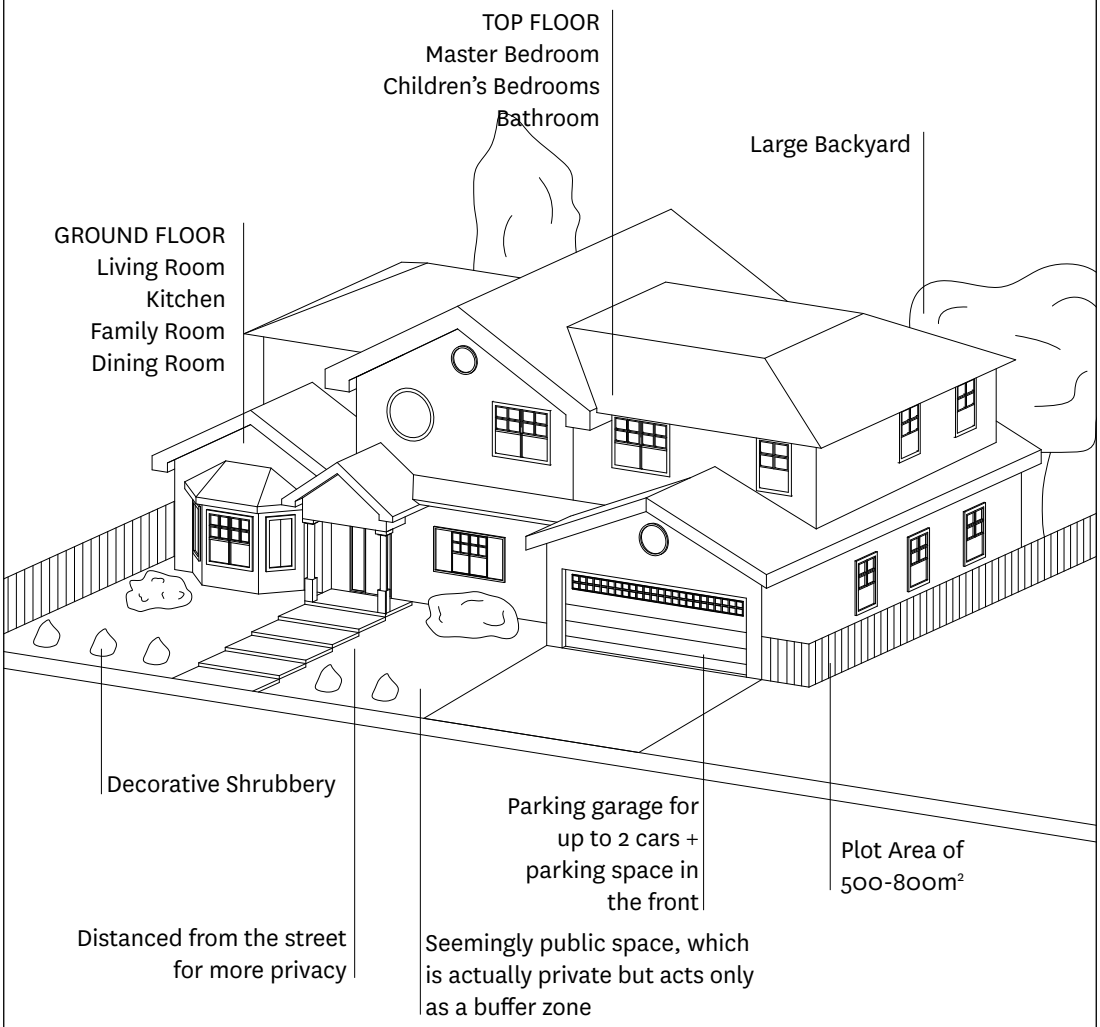
Ill. 4



Typical SoHo Apartment Building

Typology derived from the traditional European buildings found in Western Europe (Netherlands) and scaled to fit more apartments

Ill. 5



Typical Suburban House

Typology derived from the traditional
Colonial houses with the addition of parking
garage for the cars

Ill. 6

Ill. 7
Ill. 8
Ill. 9

Ill. 10
Ill. 11
Ill. 12

Ill. 13
Ill. 14
Ill. 15

Ill. 16
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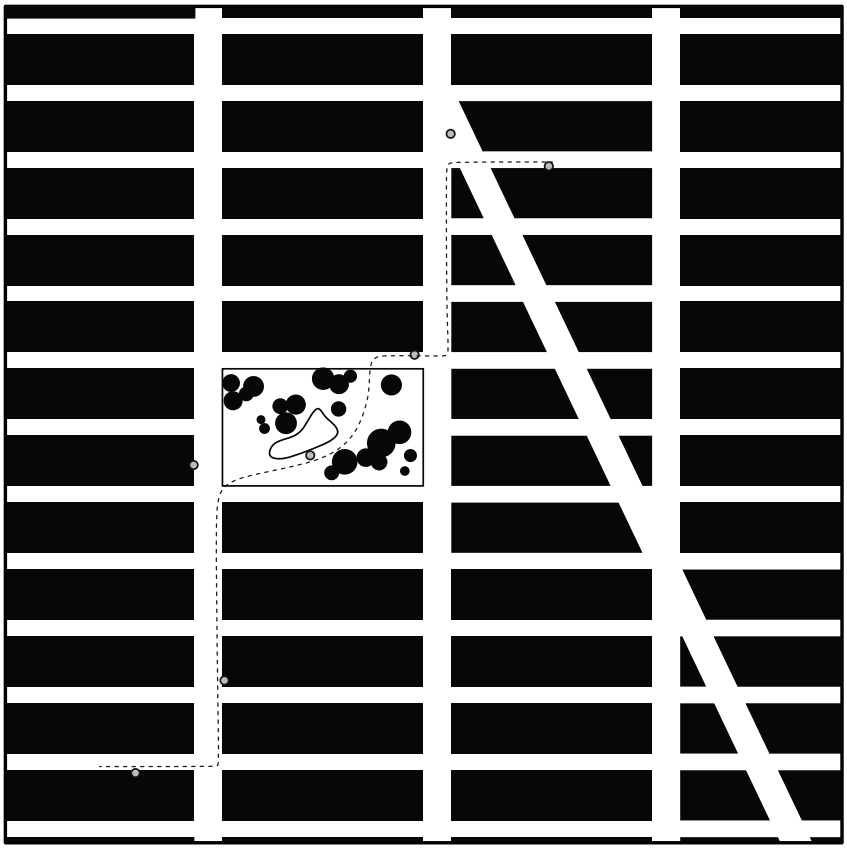
Ill. 18

HOW WAS YOUR DAY?

Throughout the day people encounter various events. They see many things, consciously or unconsciously. They participate and create the daily life of their cities. They meet people, hear the ambulance van passing by or music playing from their neighbors' window or maybe they smell the coffee coming from the coffee shop across the street on their way to work. We can describe these events as EXPERIENCES- regardless of how big or small they are. If the experience is meaningful, we remember it at the end of the day, we talk about it when we come home and when we share it with our friends. Experiences determine the quality of urban space. For these experiences to happen, a certain diversity of the urban surrounding has to be ensured. Diversity is a quality of many cities, especially their more developed districts populated by the middle and upper middle class. High diversity is also one of the characteristics of densely populated areas. We can actually measure the diversity, and therefore quality, by number of experiences (exp) that occur in a certain area or at a certain distance. The higher the number and diversity of these experiences is, the higher the life quality is going to be for the area. That way we can create "ROUTE QUALITY INDEX" to determine the quality of a certain route we take. For example - 10 exp/km. After a critical number of people determine the route quality index, an "AREA QUALITY INDEX" could also be determined. In this case only the sum of all unique experiences is taken into account. With this kind of evaluation method it is possible to compare the qualities of suburban and urban spaces.

If we we started compiling data using this method for different locations around the globe, we would come to the conclusion that densely populated cities provide better life quality for their inhabitants. Therefore, density would be a positive attribute of an urban environment. Still, as already mentioned, there are examples of densely-populated areas around the globe where density wasn't planned, but happened like a spontaneous combustion.

Oh my... Doesn't that mean more exercise? But I hate walking ...



Example of a daily route an urbanite could take.
Depicted route is 1km long with 7 unique "encounters/experiences" on the way so we have the ***route quality index of 7 exp./km***
The area quality index would be the sum of all the unique experiences in the depicted area, in this case 1km².

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EXP.

But what is an experience? Is a stroll to the local grocery store an experience? Well, it is, if the memory of it stays with you for a longer period of time. Although it is something you probably do every day, it can still be something special if something remarkable happens or is part of the way. We consider something remarkable when it's out of the ordinary, something that you liked or something that made you think. Although it has a certain predictable rhythm, a city is an unpredictable place. Two days can never be the same. The randomness and uncertainty of the city is what separates it from the suburbs. It's the basis of diversity and quality. Spending a few days in the suburbs means that you spent those days in your mansion or eventually in your backyard. Of course, spending a nice afternoon barbecuing with your friends and family is a nice experience, but it is a controlled event. It's initiated by the subject and occurs only on relatively rare occasions just like most of the suburban experiences do. On the other hand, hearing a street musician play your favorite song on the way to work is an unpredictable event which increased the quality of your day. The probability of these random events happening is determined by architecture, by the surrounding space. The space initiates random events. The space itself can act as the experience initiator or as the experience itself. Visiting a building can be an experience and not only a background noise. The city is characterized by large public areas, on the other hand, the suburbs are characterized by a lot of private and semi-private areas. Another phenomenon that occurs in the suburbs is the large amount of semi-public space which is not usable. By setting the houses back from the street it could seem like the front yards are part of the public space, the greenery next to the pavement. The front yards are, although seemingly open, in most cases private property. They are not intended for the general public use, nor are they used by the property owners (other than placing their decorations and cars on them). They are the buffer zones between public and private space. They generate no experiences, they only separate the owners from experiencing the public life.

Have you never seen those awful slums on the TV?


MANAGUA
GALÁPAGOS !!!
QUITO
LIMA
LA PAZ
ASUNCIÓN
SANTIAGO CHILE
MONTEVIDEO
BUENOS AIRES
KAP VERDE

Ill. 20

A R C H I T E C T U R E
INITIATES EXPERIENCES.
IT PROVIDES THE REQUIRED SCENERY FOR NEW EXPERIENCES
AND IMPROVES THE INEVITABLE EXPERIENCES.

E X P E R I E N C E
IS THE THING YOU REMEMBER AT THE END OF THE DAY,
IT IS SOMETHING WORTH SHARING,
IT IS BOUND TO A CERTAIN LOCATION,
IT IS INFLUENCED BY THE LOCATION
OR IT IS THE LOCATION ITSELF.

SUBJECTIVE EXPERIENCE
IS AN EXPERIENCE INFLUENCED AND INITIATED BY YOUR UNIQUE PERSONALITY.
IT IS THEREFORE HIGHLY UNLIKELY FOR OTHER PEOPLE TO EXPERIENCE IT THE SAME WAY YOU DID.

SHARED EXPERIENCE
IS AN EXPERIENCE WHICH COULD BE EXPERIENCED BY EVERYONE.
YOU SHARE THIS EXPERIENCE WITH OTHER PEOPLE WHO FOUND THEMSELVES AT THE SAME PLACE.

UNIQUE EXPERIENCE

IS AN EXPERIENCE WHICH OCCURED ON A SPECIFIC OCCASION ON A SPECIFIC PLACE AND IT IS HIGHLY UNLIKELY TO HAPPEN AGAIN AT THE SAME PLACE.

REPLICABLE EXPERIENCE

IS AN EXPERIENCE WHICH OCCURS OFTEN OR PERIODICALLY AT THE SAME PLACE. IT COULD ALSO BE A PERMANENT EXPERIENCE LIKE A BUILDING OR A STRUCTURE.

SUBJECTIVE + UNIQUE

AN EXPERIENCE LIKE THIS IS STILL INITIATED BY ARCHITECTURE AND IMPROVES THE AVERAGE QUALITY OF CERTAIN SPACE BUT IS HIGHLY UNLIKELY FOR ANYONE ELSE TO EXPERIENCE IT.

SHARED + REPLICABLE

IT IS THE MOST VALUABLE TYPE OF EXPERIENCE WHEN IT COMES TO DETERMINATION OF

Q U A L I T Y

OF URBAN SPACE

IT CAN BE EXPERIENCED BY BASICALLY EVERYONE THAT VISITS THE CERTAIN SPACE IN ALMOST THE SAME WAY.

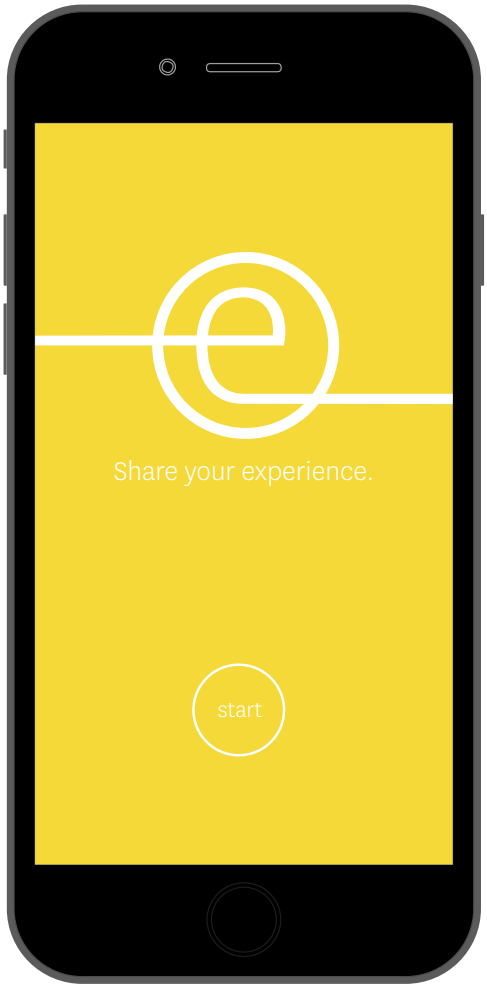
Exp. App VER 0.1

"Alles ist Architektur." [1]

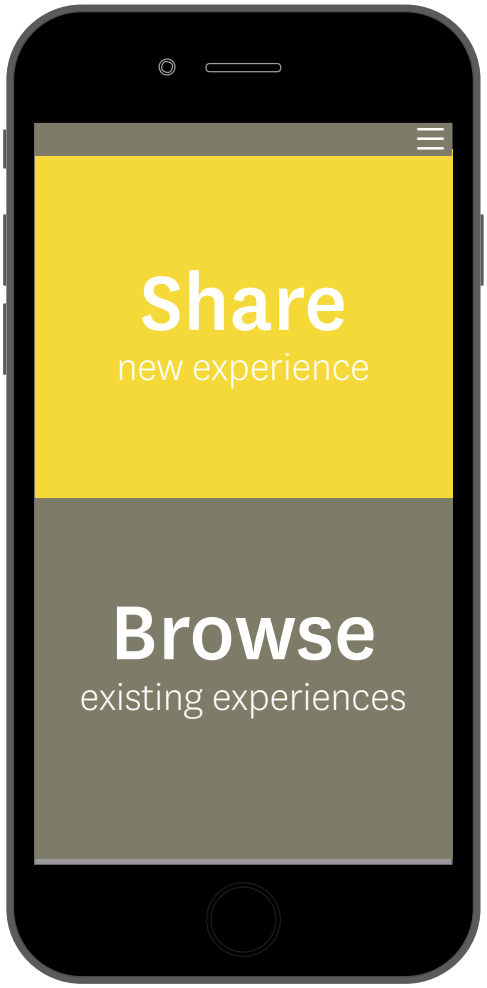
A famous quote by Hans Hollein that dates back to the 1960s is now even more true than 50 years ago. As architects we often have to leap into various other branches in order to achieve our goals. While trying to find the best way to test the EXPERIENCE THEORY, a solution basically presented itself. The analysis of different cities or even city blocks would be almost an impossible job since there is expected to be a massive amount of experiences in big cities. Still, even if it's only a few experiences per person, the effort would be immense. But the solution is actually really simple and kind of unexpected.

Apps are something we use everyday for incredibly different kinds of things. This is an amazing phenomenon since the word, in this context, basically didn't even exist less than a decade ago. Exp. App is a virtual tool that helps in determining something called the quality index of a certain area (exp./km^2). It is simultaneously a useful tool for scientific analysis as well as a useful app for every user looking for new experiences or wanting to share their own experience. The interface is simple, intuitive and reduced to the essentials. The app should be used by people of all ages who are eager to participate in this "research", experience something new and share experiences with the world. The following graphics show the basic concept which would then require further, more detailed development. Like, for example, filters for specific age groups, types of experiences etc.

1 Hollein 1967



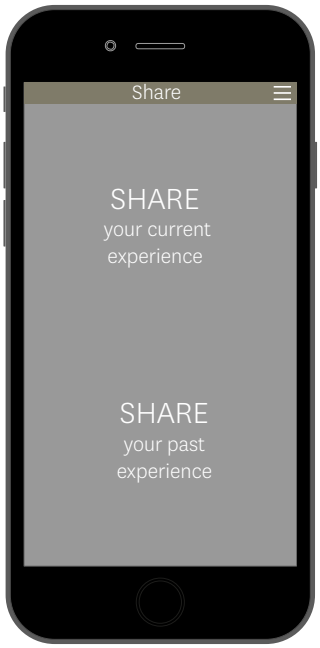
Ill. 21



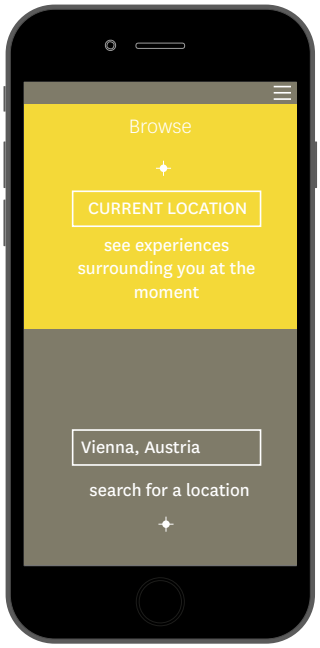
After starting the Exp. App and the welcome screen, the app presents the user two choices. First one - to share their own experience or to browse existing experiences that other users have shared.

Ill. 21

The user can choose to share something he experienced just moments ago or a experience he just remembered and would like to share.



The user can browse experiences surrounding him at the moment using GPS or search for experiences on any other location she/he is planning on going to.



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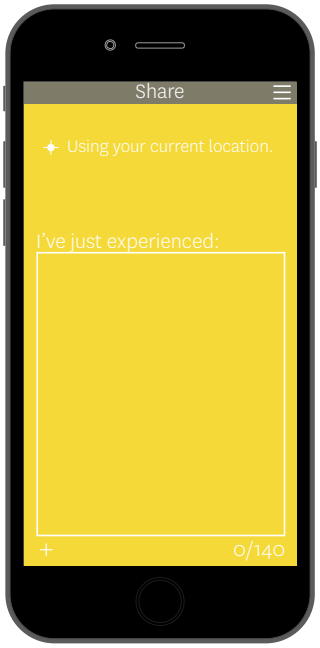
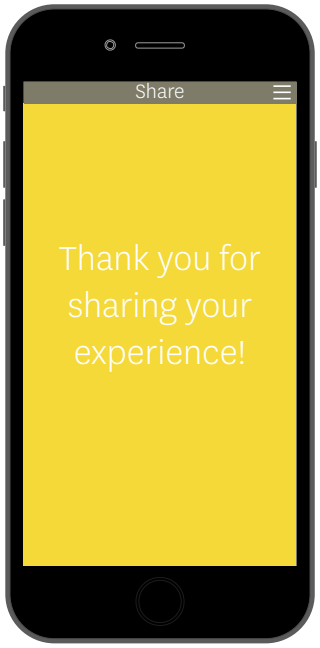


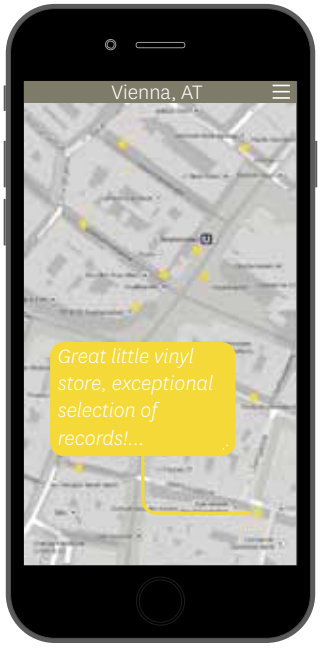
The user should then provide a short description of the experience and add a photo if he likes. The description itself is essential, since it helps in mapping same/similar experiences at the same location in order to prevent double entries, since only UNIQUE experiences are added to the quality index.

In this case the user searched for Vienna. The app provides the basic info about the population and size of the city as well as the overall quality index for the whole city. In this case it is 84 i.e. 84 experiences per square kilometer.

Ill. 21



If the user chose to see the experiences surrounding him at the moment, the app presents a map showing the current location and a small marker for each experience. The marker can then be touched in order to get a short description of the experience.



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Ill. 22
Ill. 23

DENSITY DUALITY

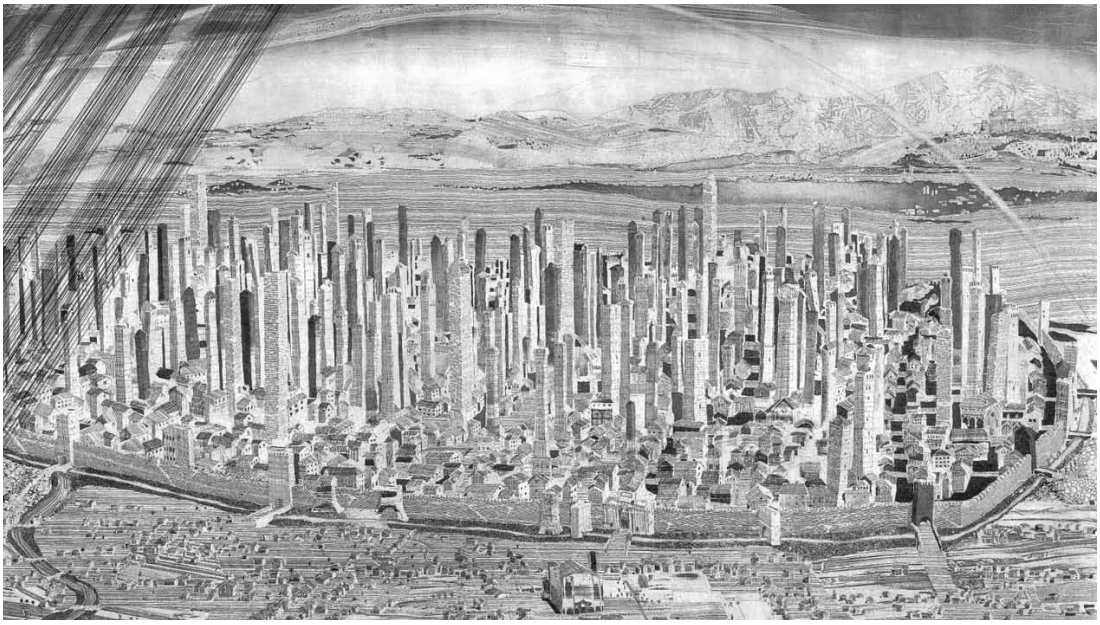
Density, like many things in life, comes with its perks and flaws. It sometimes decides to manifest itself unexpectedly in the strangest of places. It decides to grow as a result of human actions in certain locations. While controlled densification creates a pleasant urban environment, uncontrolled densification leaves almost fatal consequences behind. There are various examples of uncontrolled dense spaces around the globe. Most prominent ones being the favelas in Brazil and slums in India. Although often regarded as same, the two typologies differ from one-another. Favelas and slums often, but not necessarily, grow in suburbs of larger cities. They are generated when the city itself doesn't cover the housing needs of the lower-income citizens. Rejected by the city, the people decide to take care of the situation themselves. Architecture without architects is being created on a daily basis. Multiple families live on small plots of and. In favelas small, but multi-storey buildings are created. The ground floor is often occupied by an income-generating business. Other floors (often consisting of only one or two rooms per floor) are then used by one family per floor/ room. Additional storeys are added if necessary or to generate more income for the owner by renting them to other families. Slums operate in a similar way. Huge numbers of people live in a very crowded space. While favelas often follow the mentioned system and create a more or less comprehensible structure, slums create a chaotic labyrinth, almost incomprehensible for an outsider. They create a world of its own, a city inside the existing city. The population density say, in Mumbai is far higher than in Sao Paulo, therefore the consequences of uncontrolled densification are far more drastic. There is no recognizable building system in slums, the inhabitants use what they can get to construct their homes. Slums often merge with existing buildings. The existing buildings then loose their initial purpose and get a completely new one. Each small room of the building becomes a valuable property for the owner. Almost everything can be used (rented) as an apartment. An interesting phenomenon that occurs on both sides of the world is occupation of vacant lots in the city. When an opportunity presents itself to live closer to the city center, people use it. Vacant lots are occupied by countless inhabitants looking for better future in the city and soon the vacant lot is vacant no more. It creates an anomaly in the city structure. An opportunity for the lower class is the downfall of the upper class surround-

ingthe area. If not controlled, the newly grounded slum will influence the surrounding area. The value of surrounding property could fall and the slum could spread.

The two typologies show us the importance of social housing projects and control of population density. Extreme growths in population result in extreme social and architectural situations. Lagos in Nigeria is one of more recent examples of uncontrolled population growth. As highly adaptable beings, people will always find a solution to cover their basic needs, often disregarding the bigger picture or the consequences. These newly created areas build their own microcosm, they play by their own rules and disregard the existing city surrounding them. A historical example of such an "autonomous" area is the Kowloon Walled City in Hong-Kong. It was regarded as the densest place on earth. Around 33000 people lived on an area of nly 6.9 acres (0.028 km^2). The buildings in that area almost merged in one massive building providing all the needs of its inhabitants. The city wasn't needed anymore.Regardless of the method of densification the experience formula doesn't change. The quality of these urban spaces can still be measured in the same way. Although the areas are densely populated, they still don't provide enough "pleasant" experiences for their inhabitants. More or less every major city got through the same phase of "overpopulation". New York was saved by the grid. The grid brought order into chaos, a gesture which shaped Manhattan and resulted in dense but comfortable environment of high diversity.

Phew! Good thing I have my own house!

Ill. 24



Ill. 25
Ill. 26

THE TOWER PHENOMENON

The obsession of building tall structures has a long history and can be found in basically every civilization. The notion always had a spiritual and religious meaning but it also reflected power. The pyramids in Egypt, tombs of the pharaohs , showed the endless might they possessed. On the other side of the world the Aztec pyramids were used as a place for practicing their religious customs. They tried being closer to the gods. Then came all the churches, cathedrals, synagogues and mosques which not only became the symbols of religion but due to their imposing appearance, symbols of the cities they were located in. These structures used to reflect the well-being of the city. They were also used as orientation points but due to their highly spiritual meaning, rarely as living/working structures. There are couple of examples of structures resembling modern high rise buildings. In the medieval Italy, towers were built by rich families to show their power but also as matters of protection. One of these towers are the "Towers of Bologna" built in the 12th century. They had various functions across the years, ranging from housing to prisons and fortification elements, but only a mere 20 of the original 80-100 stood the test of time. The reconstructions de picting Bologna in 12thcentury bare stunning resemblance to the modern cities. One more example from the other part of the world is the city of Shibam in Yemen, also known as the "Manhattan of the desert". The city consists of densely built high rise buildings made out of mud and reaching over 30m in height. The reasoning behind this typology was the easier protection from the Bedouin attacks, but it is also clear that this typology provided highly valued shade from the desert sun.

Then came the skyscraper, the final step of our architectural development. For some the reflection of the ruthless capitalist society, for others the ultimate architectonic form, realization of a dream and reflection of our endless capabilities as human race. It has been both loved and hated since its beginnings. A story that started with the marvelous presentation of the "new" safety elevator by Elisha Otis at the Crystal Palace in New York all the way back in 1853. The invention that inspired generations of architects to come. Everybody was "starstruck" by the new form. The newspapers wrote about the new theory behind it. The "1909 Theorem" was published in the Life magazine showing the skyscraper as the utopian project ready to redefine the world. Endless vertical

multiplication of the site, that was the idea. And it did redefine the world indeed. Our cities grew vertically, each de fining their own skyline. The shape of the skyscraper has been influenced by many things in the past, most prominently by the 1916 zoning law in New York. A law that defined the shape of Manhattan's skyline as we know it today.

Now 161 years later, sky is not the limit anymore. We are striving for more, we still didn't reach the limit. Our buildings are getting taller and taller, but not much has changed. The initial idea of a vertical city with various functions on each floor died soon after projects like Downtown Athletic Club or the famous RockefellerCenter in New York. Soon every skyscraper became the slave of an idea called the TYPICAL FLOOR PLAN or "Minimalism for the masses" as Koolhaas calls it. An idea grounded in the USA that soon spread across the globe. A concept was made for a standard office building. The basis of the concept was the floor plan which consisted of mostly free space, interrupted only by the static structure of the building, and the building core which consisted of couple of elevators and a staircase. This floor plan was repeated throughout the height of the building. Only the foyer and the top floor remained there as a memory of a long forgotten idea. The building foyer and entrance were there to leave a good impression for the clients, as well as the top floor - the most exclusive part of the building. Top floors are reserved for the offices of the important staff members or restaurants providing the spectacular view of the surrounding. The housing skyscrapers have a similar program structure, only the restaurants at the top are replaced with expensive penthouse apartments reserved for the upper class of citizens. Although these skyscrapers often lacked the vertical diversity of program, they succeeded in creating a dynamic cityscape through its spectacular form. The form which, although it was strongly influenced by the zoning law, still managed to manifest itself in hundreds of different ways. Their ability to hold large amounts of people at one place combined with diversity-based ity planning techniques resulted in Manhattan as we know it. High rise is the ultimate population density amplifier. However, it doesn't guarantee quality of urban space.

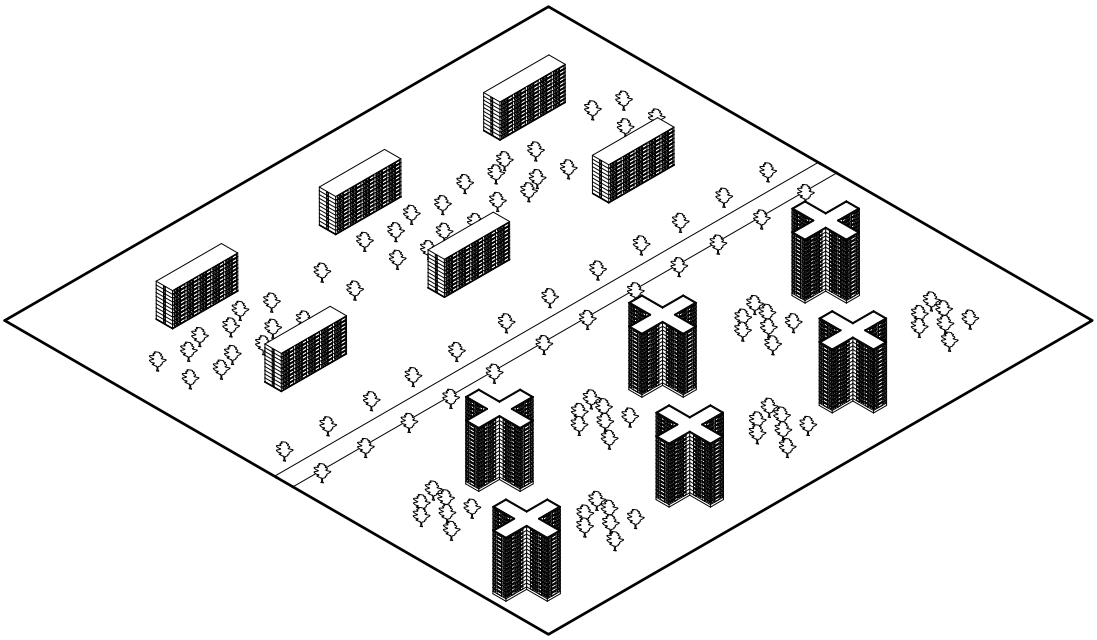
But I would have to live in one of those awful skyscrapers, and I hate heights...

Ill. 27

TYPOLOGY OF CHOICE

Vertical development is the inevitable step for every growing city. Most recently we have seen a boom of high-rise buildings in London due to lack of space in the city centre. But there have been various developments in the past 30 years which have been concentrated on vertical growth. Most famous one is for sure the La Defense in Paris, followed by the Canary Wharf in East London and more recently the Zuidas area development in South Amsterdam. La Defense created an urban counterpart to the old Paris. It's a welcoming addition and provides various experiences, while maintaining the communication with the historical city centre. The skyline blends from the distance with the Eiffel Tower and the old church towers while the Grande Arche creates the connection on the ground level. Although the heart of La Defense is the commercial district surrounding the Grande Arche, the surrounding area has developed into a diverse and vibrant city district. The upcoming additions to the area feature skyscrapers by sir Norman Foster and Thom Mayne of the New York office Morphosis. The Canary Wharf developed from the unused docklands in East London and grew into European Manhattan. It was built according to the master plan by Skidmore,Owings & Merill (SOM) who for sure strongly influenced the architectural style of the area and gave the American touch to it. The area strived to become the financial center of London, but it was always competing with its downtown counterpart - the financial district of London. The financial district consists of some of the most iconic skyscrapers of Europe, amongst others the 30st Mary Axe (The Gerkin) by sir Norman Foster and the intrigant Lloyd's building by Richard Rogers. Most recent additions to the London skyline are the Shard by Renzo Piano and Leadenhall building, again by Richard Rogers. The Shard is a mixed-use building featuring various functions ranging from offices to hotels, restaurants and residences. Although residences unfortunately occupy only a small amount of floor, public functions are located on the top floors. On the other hand, the Leadenhall building situated in the heart of the financial district is primarily an office building but features a large public space on the ground floor and the surrounding plaza.

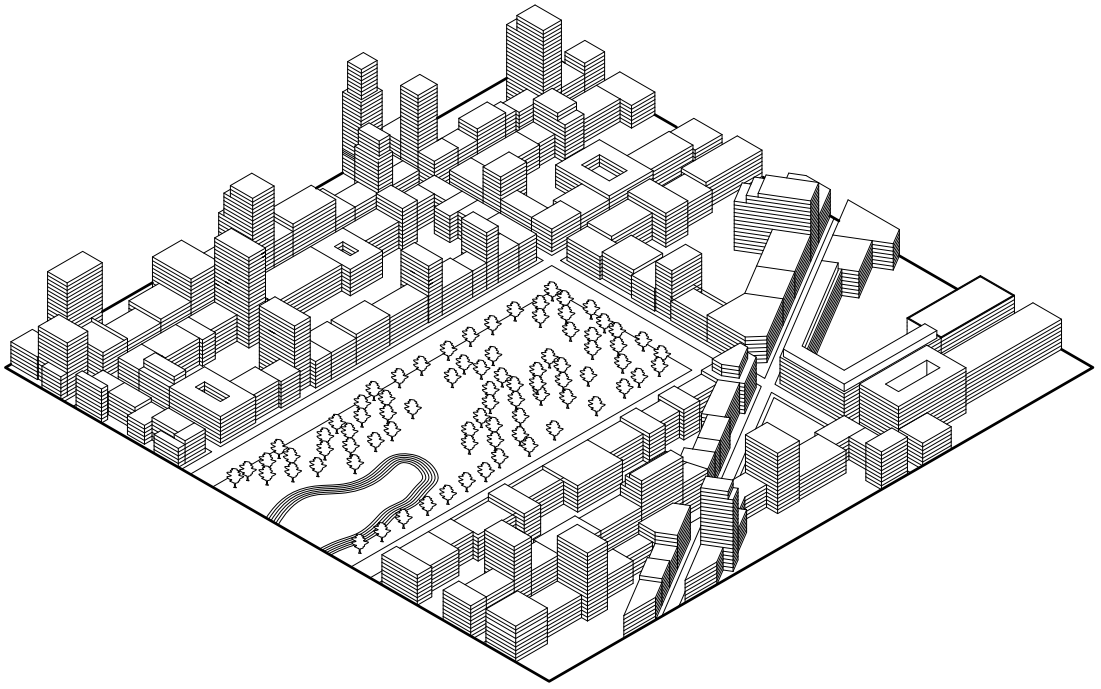
Ill. 28
Ill. 29



Modernist Principle City

- based on “Ville Radieuse” concept by Le Corbusier
- lasted till the 80s in some parts of the world (Eastern Europe)
- based on repetition of high-rise structures spread across green landscape
- the idea was that the invention of automobile made travelling easier, hence distances between interest points could be longer
- resulted in monotonous and unattractive city districts and traffic jams
- low number of EXPERIENCES

Ill. 30



Manhattan Principle City

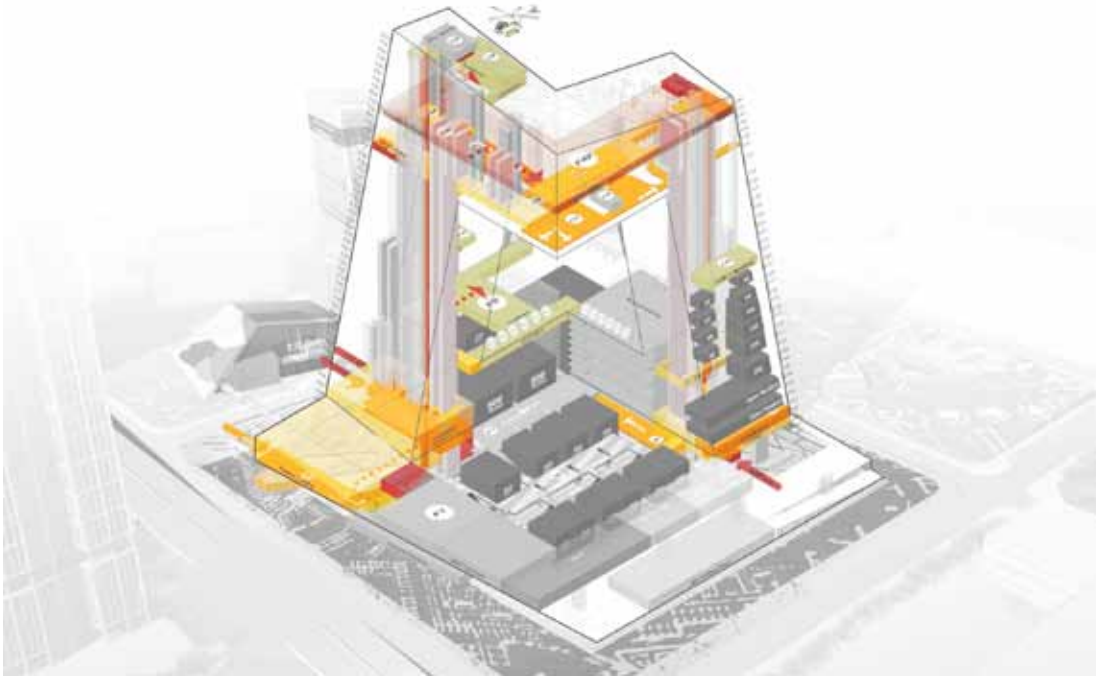
- result of dividing a city into a grid and creating city blocks
- blocks are a traditional urban element of almost every European city
- vertical growth of blocks due to lack of space to spread
- geographical borders encouraged densification and vertical growth
- large patches of greenery spreading across few city blocks
- division into walkable districts
- high number of EXPERIENCES

Ill. 31

Contemporary High Rise Deviation:

CCTV by OMA

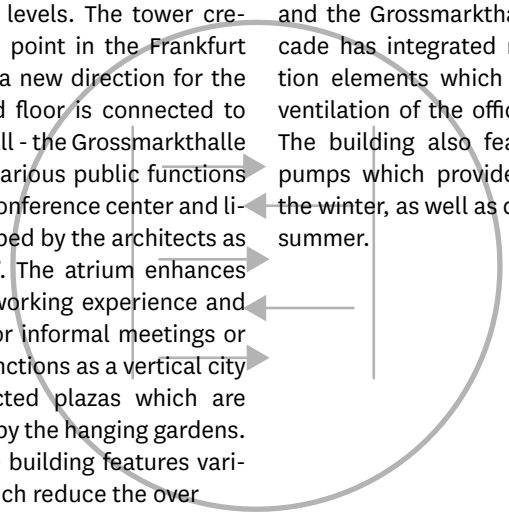
Designed by Rem Koolhaas and Ole Scheeren (former partner at OMA) the new CCTV building in Beijing is rejecting to become an icon. It doesn't provide an iconic photo opportunity for the spectator but rather confronts it with different shape from each angle of observation. The shape that creates new scenarios all across the city. It reacts with contemporary architecture in its close proximity as well as with traditional Chinese architecture. It's a complex building created for the TV station oriented on the future and development of the TV as an important media. As many other buildings by OMA, this one also consists of a rather complicated program solved in an innovative and unusual, yet at the end simple and understandable manner. The different working areas and studios are broken, or rather connected, by canteens, restaurants or lobbies at various levels. These areas provide places to meet and relax for the employees. The building features various other functions spread acrossthe floors ending with the sky lobby and restaurant at the top. Nevertheless, probably the most interesting feature of the building is the public loop. Starting at the plaza and the ground floor lobby, visitors are allowed to enter the building and experience the way it works. The loop takes them all the way to the sky lobby which provides a remarkable view of the area. The building is an example of deviation from the skyscraper norm. It creates a new typology of highly function-oriented design. It creates experiences for the general public and not only for the employees working in the building. It enhances the experience of the city regardless of the position of the spectator. Taking a photo of Beijing is never going to be the same again, and this building is never going to look the same in two photos. Additionally, to the main CCTV building, another building was built on the same site - the Television Cultural Centre. It provides more public-oriented content like cinemas, recording studios, hotels, conference rooms and exhibition space. This organization closely resembles a vertical city. It's an extension of the existing city and a welcome addition to the area. A building from which not only the CCTV building will profit but the whole city could enjoy.

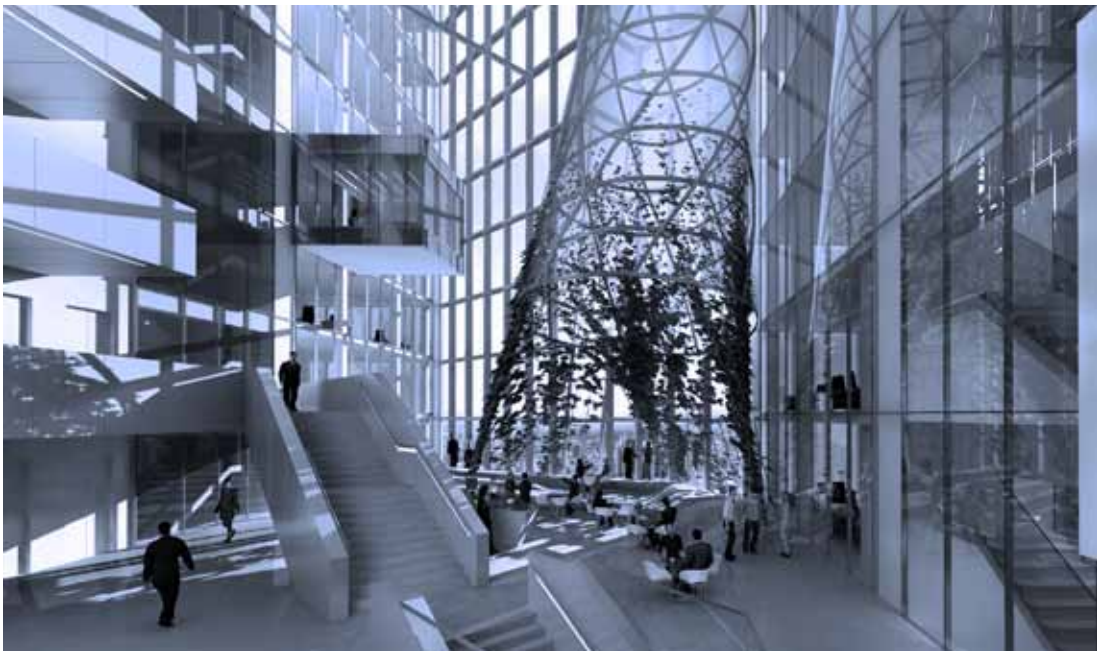


Ill. 32
Ill. 33

Contemporary High Rise
Deviation:
ECB by Coop Himmelb(l)au

The new European Central Bank Head quarter located in Frankfurt is the ingenious project by Coop Himmelb(l)au. The building consists of two towers, oriented towards the city centre and connected by a large atrium featuring sky lobbies on three levels. The tower creates a new focal point in the Frankfurt skyline and sets a new direction for the area. The ground floor is connected to the old market hall - the Grossmarkthalle and consists of various public functions like restaurant, conference center and library. It is described by the architects as an “urban foyer”. The atrium enhances the employees’ working experience and provides place for informal meetings or breaks. It also functions as a vertical city with interconnected plazas which are naturally cooled by the hanging gardens. Furthermore, the building features various solutions which reduce the over all energy consumption. The large roof of the Grossmarkthalle will be used to gather rain water which will be used for irrigation of the gardens and flushing toilets. It also features use of recycled heat generated by the computer centre. The heat will be used for heating the offices and the Grossmarkthalle. Intelligent facade has integrated motorised ventilation elements which make the natural ventilation of the office space possible. The building also features geothermal pumps which provide heated water in the winter, as well as cooled water in the summer.



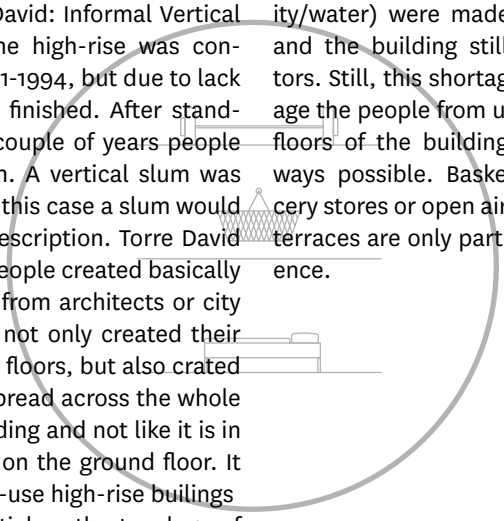


Ill. 34
Ill. 35

Contemporary High Rise Deviation:

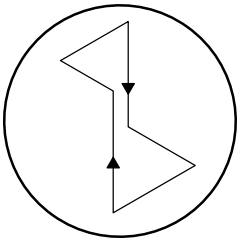
Torre de David

Torre David became a sort of cultural phenomenon in the last couple of years after gaining attention through marveous photographs by Iwan Baan and thorough analysis of the building by “Urban Think Tank” recently published in the book “Torre David: Informal Vertical Communities”. The high-rise was constructed from 1991-1994, but due to lack of finances never finished. After standing vacant for a couple of years people started settling in. A vertical slum was born, although in this case a slum would be a degrading description. Torre David is a vertical city people created basically without any help from architects or city planners. People not only created their homes across the floors, but also crated public facilities spread across the whole height of the building and not like it is in most cases, only on the ground floor. It shows that mixed-use high-rise builings have great potential as the typology of the future, as well as capability to create new and interesting experiences for their users. Even more interesting is that the high-rise still functions without any officially planned mechanical systems. All of the necessary installations (electricity/water) were made by the residents and the building still lacks any elevators. Still, this shortage doesn’t discourage the people from using almost all the floors of the building in most creative ways possible. Basketball courts, grocery stores or open air gym on one of the terraces are only part of the rich experience.

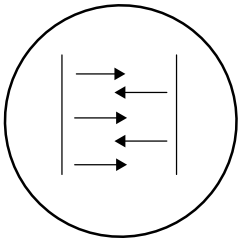


Ill. 36
Ill. 37
Ill. 38

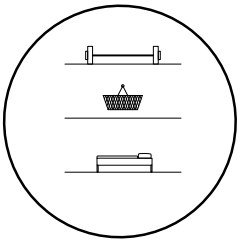
Contemporary High Rise
Deviation:
SPECIFIC QUALITIES



CCTV
The quality of this project is the public loop which enables the people to experience the buildings and their various aspects, observe the people who work there and enjoy the view of the neighborhood.



ECB
The ECB building features plazzas for the employees located in the atrium between the two towers. The plazas encourage interaction and create a “vertical city”.



Torre David
This project proves that public life isn’t bound to the ground floor. Common people, not architects, intuitively created these spaces which can now be observed as a great example of vertical programing.

Ill. 39

Ill. 40

“This land is mine, this land is free
I’ll do what I want but irresponsibly
It’s evolution, baby “ [2]
-PJ

Ill. 41

2 Vedder,Gossard 1998

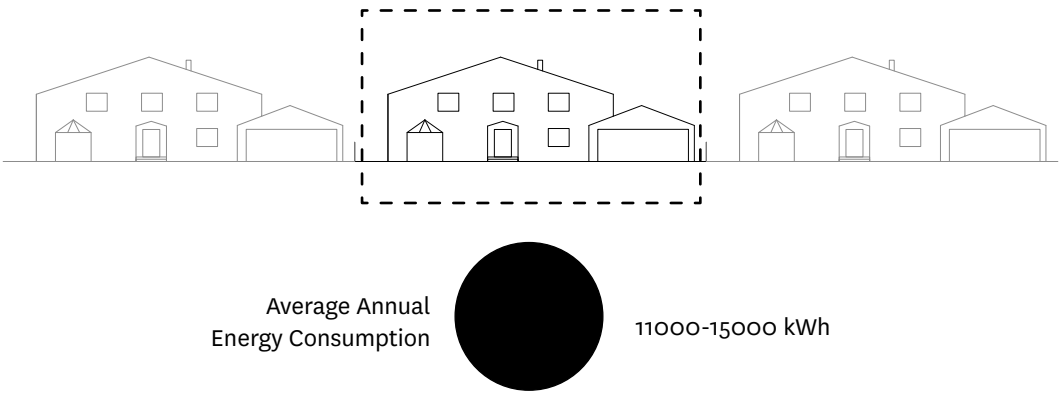
III.
The Clean Solution

PROGRESS

In the past fifty years the way we live and use technology has dramatically changed. We interact with each other in new ways, we travel faster to far-away destinations and at any given moment we are only a couple of clicks away from all the knowledge in the world. Yet somehow it seems that we don't really use this knowledge enough. The fact itself that we know how easily reachable this knowledge is has slowly made people care less about it. Our environment has been struggling with this sudden technology boom too and although there were various movements started to increase the awareness about the problems of pollution and energy consumption, no permanent solution was found. The reason is simple, there isn't one solution to fix our problems but it's rather a combination of hundreds of small solutions, improvements and changes we have to make in the way we live. Fortunately, the topic of sustainability is becoming more popular each day. Engineers, scientists, designers and architects find creative solutions without compromising our quality of life.

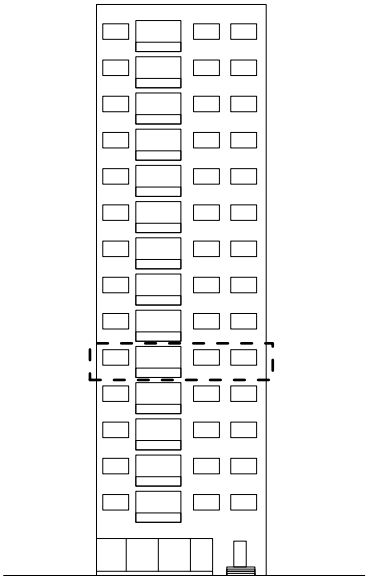
Average energy consumption per household has been steadily increasing for the past couple of decades, therefore we had to build more power plants, use more resources and find new sources of energy. The problem is that by this rate we will soon reach the limit of our planet. While switching to clean energy sources is possible, it would still be a long and expensive process. Therefore, the energy consumption has to be stabilized or decreased if possible. Even small changes like more efficient coffee machines have abig impact in a long term. Architects and city planners play a very important role in this process of change. Energy consumed by buildings sector makes out almost 48% of the total energy consumption.* Another 28% is consumed by the transportation sector. These two combined make more than 3/4 of total energy consumption in the world and both of them can be effected and improved by architects and city planners. Cities have often been cited in negative context as large energy consumers. This is the result of flaws in design of these cities, and these flaws have to be corrected.

Single Family House



Ill. 42

3-4 Room Apartment



Average Annual
Energy Consumption

5000-8000 kWh

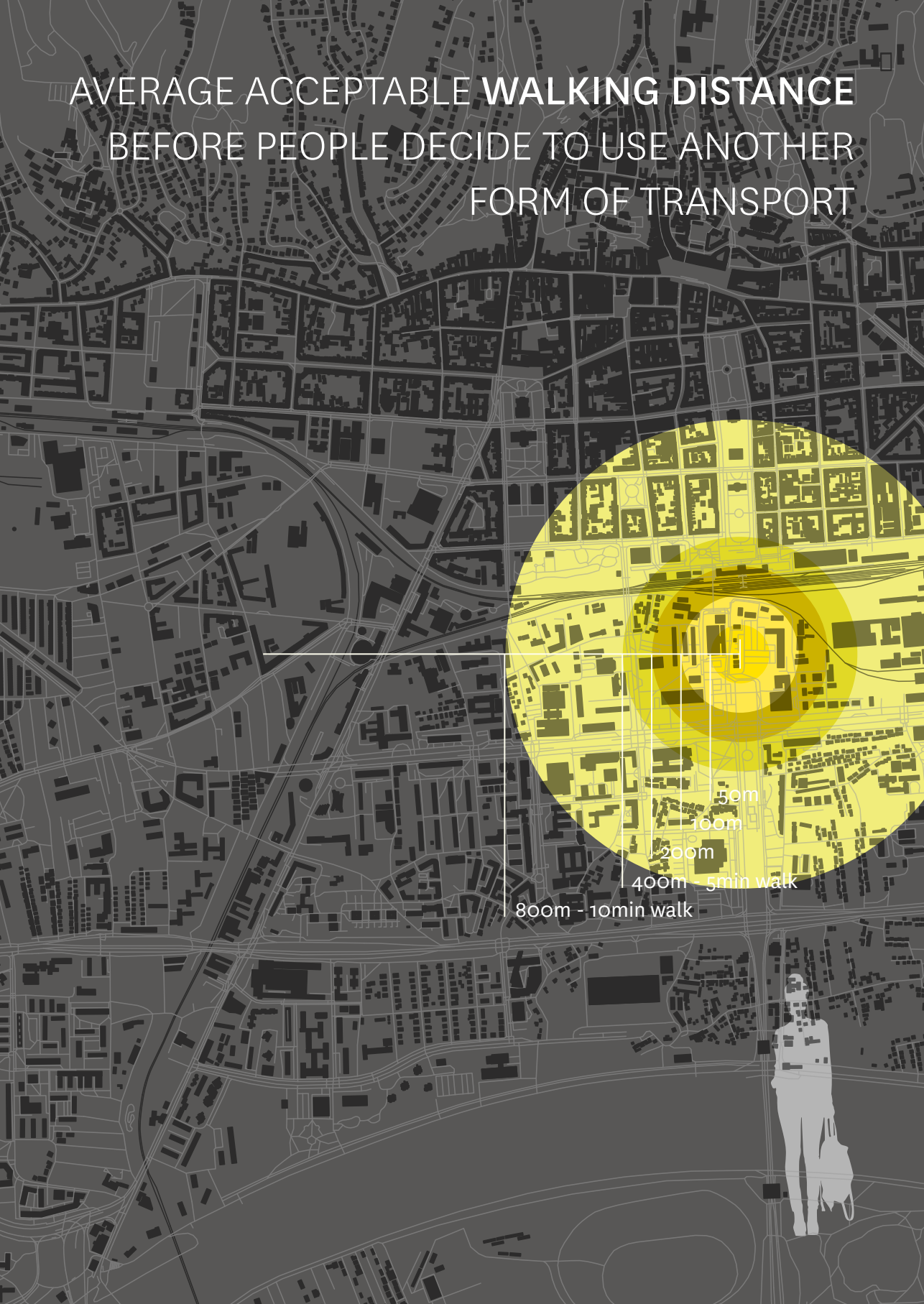
Ill. 43

GREY AREA

It's great to have all that you need at a walking distance from your home. It's the ideal surrounding, the ideal neighborhood. While this is possible in some densely populated areas rich with content, sadly, it is almost impossible for most people. Therefore, fasterways of transportation are required. The average walking speed of an adult is 400m per 5min. Evry walk longer than 10min is in most cases considered long and makes a reason to take the bus or use the car. Everything outside the 10min walk radius is the grey area for the pedestrian - it's basically outside of reach and the pedestrian is looking for faster alternatives. Although walking is the most natural and healthy way of transportation there is one more way of travelling which has only positive effects on the human body as well as on the environment -
The bicycle.

Ill. 44

AVERAGE ACCEPTABLE **WALKING DISTANCE** BEFORE PEOPLE DECIDE TO USE ANOTHER FORM OF TRANSPORT



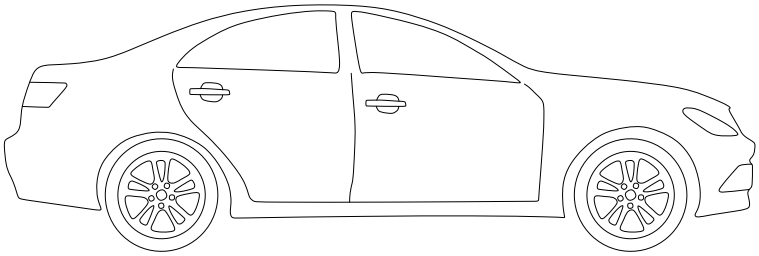
GREEN AREA

The bicycles have had a big comeback in the last 5-10 years and they are getting more and more popular each day. Almost all of the larger cities with sustainable goals have invested in bicycle lanes. It is a vehicle which has an immensely postive effect on people and the city. Pedestrian and bike-oriented city areas become more vibrant, more content comes out of the buildings to the streets and people interact more. They also require a lot less storage space: therefore, they eliminate the need for parking garages. An awful typology which has been a characteristic of the city development in the past 50 years.

Ill. 45

AVERAGE ACCEPTABLE **BIKE DRIVING DISTANCE**
BEFORE PEOPLE DECIDE TO USE ANOTHER FORM
OF TRANSPORT

Average Car



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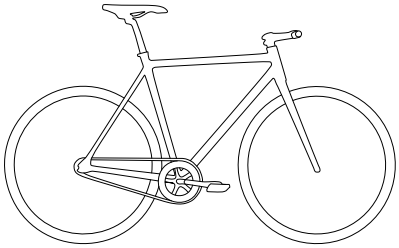
- fast travel
- basically unaffected by weather conditions
- up to 4/5 people per vehicle

—

- high cost
- requires lot of energy/resources to be produced
- has negative effect on the environment (if not fully electrical)
- relatively high maintenance costs
- in most cases runs purely on on gas (oil)
- requires a lot of space (driving & parking)
- has negative effect on urban planning (car-orieneted cities instead of people-oriented)
- mostly used by only one person

Ill. 46

Every Bicycle



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- relatively fast travel
- clean/ doesn't effect environment negatively
- cheap
- has positive effect on its user's health
- requires little storage space
- adaptable to urban conditions
- requires little energy/resources to be produced

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- affected by weather conditions

Ill. 47

METROPOLIS
IS THE URBAN TYPOLOGY OF CHOICE

SKYSCRAPER
IS THE BUILDING TYPOLOGY OF CHOICE

DIVERSITY
IN EVERY POSSIBLE ASPECT, FROM FUNCTION TO AESTHETICS

Z - AXIS
IS THE NEW EXPERIENCE FRONTIER

DECENTRALIZATION
OF METROPOLIS AS A NECESSARY STEP IN DECREASING THE TRAFFIC CONGESTION

DENSIFICATION
OF EXISTING AREAS, AS NECESSARY STEP IN OVERALL IMPROVEMENT OF LIFE

GREEN AREAS

SHOULD BE BIG ENOUGH TO SUSTAIN AN ECOSYSTEM AND PROVIDE A DIVERSE ENVIRONMENT, RICH WITH EXPERIENCES FOR ITS USERS

PEDESTRIANS

HAVE THE HIGHEST PRIORITY, AS IT IS THE MOST NATURAL WAY OF GETTING AROUND

BICYCLES

ARE THE VEHICLE OF CHOICE. THEY DRASTICALLY INCREASE YOUR REACH, IMPROVE YOUR HEALTH AND DON'T AFFECT THE ENVIRONMENT

AUTOMOBILE

USAGE IS REDUCED TO ABSOLUTE MINIMUM

SUBURBS

ARE BANNED FROM THE METROPOLIS

SINGLE FAMILY HOUSES

ARE BANNED FROM THE METROPOLIS

Ill. 48

Ill. 46

"Modernity,
once blessing,
now curse"[3]
-RK

3 Koolhaas R. 1996, 525

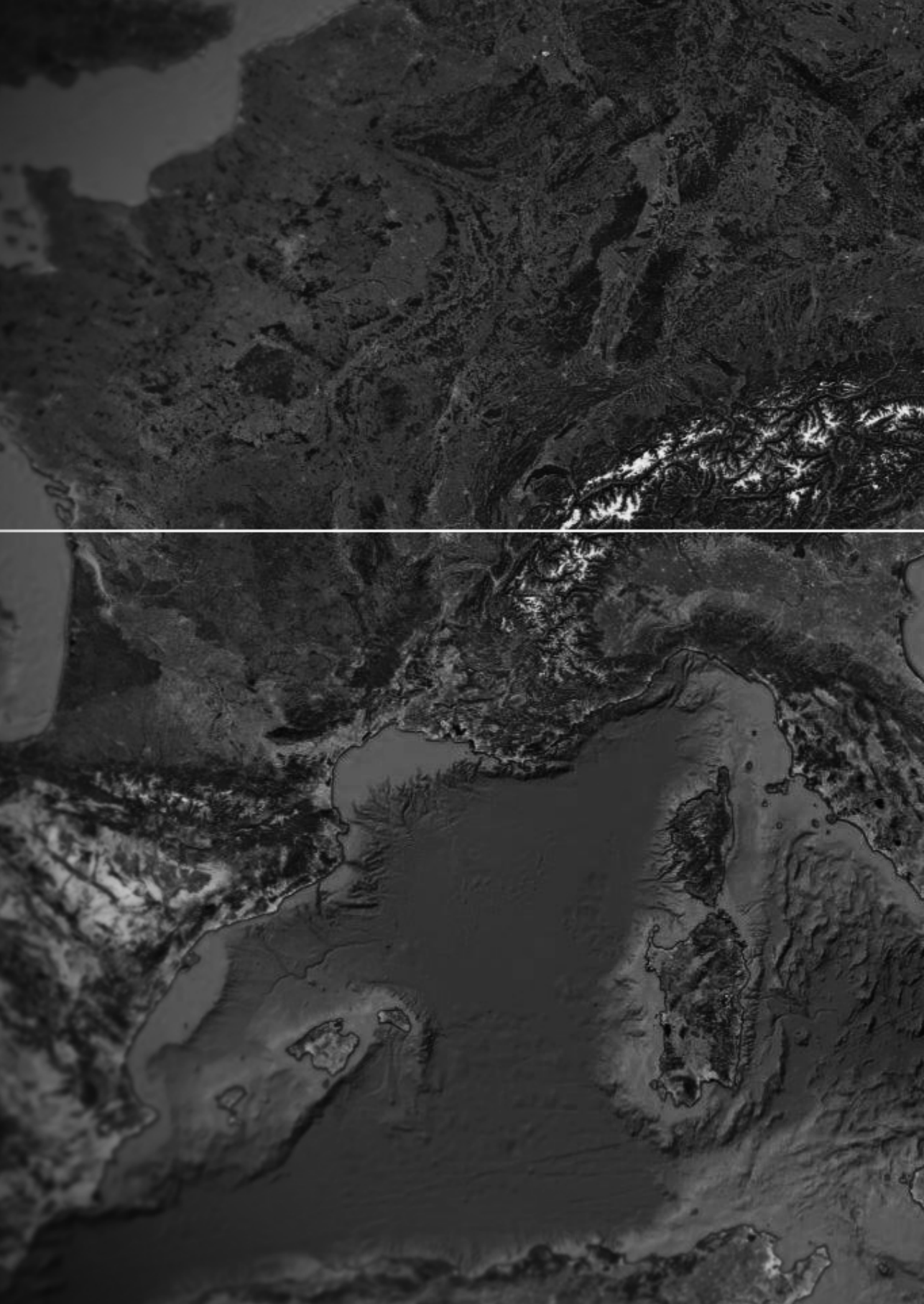
IV.
The Past Dense

THE LOTTERY WINNER

Only a hundred and fifty years ago it was a mere town of less than 20,000 inhabitants, and then Zagreb won the lottery or at least it seemed so. Suddenly the location became interesting for the Austro-Hungarian Empire. It became a crossroads. Railway was built and the population started rising by thousands per year, reaching its peak of almost 800,000 inhabitants that we have today in the urban area. But just like most of the lottery winners, blinded by the sudden income and growth, Zagreb didn't know how to handle it, or maybe it just didn't have enough time. Starting from the Upper Town consisting of Captol and Gradec, Zagreb started spreading south towards the railway crossroads. By the 1920s The Lower Town had been built. It consisted of typical European blocks, mostly inspired by the capital of the empire – Vienna; it featured various urban interventions - most important one being the "Green Horseshoe". The problem was that the town became a city too soon and people didn't have time to accommodate to a new and dynamic lifestyle. City blocks were often broken or used in untypical but sometimes ingenious ways. Life started booming, but often at a cost of public space - like in the case of the Green Horseshoe, where various institutions and buildings were built at a high cost of sacrificing the leisure areas of the city center. The railway, which had been the reason of the sudden "wealth" and growth, now became a restriction. A clear division between the "old" city core and the field for new modernist experiments. Constant political changes in the first half of the first half of the 20th century finally came to an end after World War II and theformation of "Federal People's Republic of Yugoslavia". For the next 40 years Zagreb was a textbook example of modernist (socialist) town planning. It started spreading in almost every direction, not bothered by geographical boundaries other than Medvednica Mountain in the North and the Sava River in the South. Although the constant population growth still wasn't stopping, the density started falling reaching its current and rather low value of 1,200 inhabitants per km2in the urban area. Socialist architecture shone in all its splendor, high-rises were getting built far away from the old city core and even far from each other. Each standing alone and proud of itself. Density was the enemy. By the beginning of the 1970s Zagreb crossed the Sava River. Newly developed areas were constantly being divided by the new nerves of the city buzzing with countless automobiles. A new rail junction construction in the 1970s strongly

influenced the further development of New Zagreb south of the Sava River. The spread continues and density is still falling. Most of the people are living in small apartments far from the old city core featuring rich cultural life and various public spaces. Only few can afford to live in the Lower Town and a large part of the old apartments is being converted to office spaces. All the important meetings are happening in the Lower Town, it is the focal point of the city, although various business areas are spread across the city. The center is often overwhelmed by the influx of people and lack of space for all the cars. Public transport consisting of buses and trams is also struggling to cope with all the traffic congestion happening on the street. Recent developments don't seem to react properly to this problem. Rather than decreasing the number of cars in the center, additional garages are being built which only encourage their usage. After more than 100 years of development and growth, Zagreb is still a child.

Ill. 49



Ill. 50

DEVELOPMENT PHASES

The growth that started with small villages, Kaptol and Gra dec, joining into the Upper Town still continues today. We can ob serve four important phases of growth. The first being the phase prior to the 1860s which includes the construction of Kaptol and Gradec. The second phase, from the 1860s-1920s is the first maor growth in the history of Zagreb and it includes the construction of the Lower Town in a traditional European way - a city comprised of blocks featuring “private” courtyards in their center. At this point Zagreb grew from 20,000 to 100,000 in the 1920s. The third phase, from the 1920s-1950s, is the start of the large spreading of the city and construction of a car-oriented city based on mod-ernist ideas. The last growth phase, which still continues today, is characterized by crossing of the Sava River. Although Zagreb reached its peak population of almost 800,000 people, which is 20 times more than 100 years ago, its density is for example almost three times as low as that of Vienna.

Ill. 51

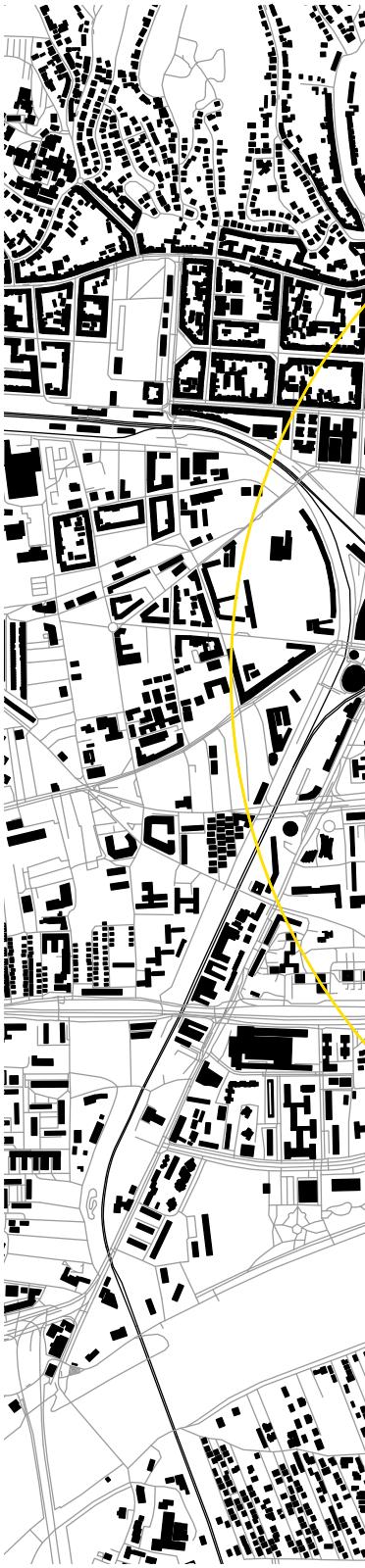
PUBLIC GREEN AREAS

The most important of the parks in Zagreb is for sure the “Green Horseshoe”, a project which was based on Vienna’s Ringstrasse, but never completely succeeded and was partially destroyed by private investors and projects. The part of it that still remains as a very important leisure spot for Zagreb’s inhabitants are the Zrinjevac and Tomislavac Parks located right in front of the Central Train Station. Other important leisure areas are relatively far away from the city center. Maksimir Park (upper right corner ofthe map) is the home to the Zagreb Zoo which is a very popular destination for schools and families. Jarun park (lower left corner) is a popular destination for sport enthusiasts as well as youth, because of its various nightclubs and a music festival happening in the summer. On the other side of the Sava River it is important to mention Bundek Park which is also a beloved destination. It features a lake and is the location of many music events. It is also important to mention Šalata, which is located relatively close to the city centre and features various sport courts, as well as an open swimming pool.

Ill. 52

DISTANCES

Zagreb is comparable in its area to Vienna, but its population is almost three times lower. The “old city” is rather dense and built in typical 19th century European style and therefore it’s quite walkable. The rest of the city is built according to the modernist ideas and standards from the mid-20th century. The distances between most points of interests are long and consume too much time for pedestrians, making the cars the most beloved choice of travel in Zagreb. There is also a network of public transportation consisting of trams, buses and trains. The network is rather inefficient and obsolete because of the constant traffic jams that are created by cars. Bicycles are mostly the vehicle of choice for younger people and students, although the network of bicycle lanes isn’t developed nearly enough as it should be for a city that size.



Ill. 53

RELEVANT HIGH RISE BUILDINGS

The tradition of building high-rise buildings in Zagreb is short, and that of skyscrapers even shorter. It's actually hard to tell if-these buildings could actually be considered as skyscrapers. Compared to other modern cities around Europe and the world, Zagreb is still waiting for its high-rise boom. Skyscrapers in Zagreb are scattered across the city and don't have much to do with one another. Most of them are typical examples of socialist-modernist architecture or reinterpretations of other skyscrapers from around the world like the Lever House or Dreischeibenhaus. Most recent development, the Strojarska skyscraper, is also the highest skyscraper in Croatia currently, with mere 96m. An interesting fact is that the Zagreb Cathedral is still the tallest building in Zagreb (and Croatia), taller than all the skyscrapers, with 108m. This fact tells a lot about the state of things in Croatia and the local government, but the reasons for constructing high-rise buildings are sure to become more obvious in the future. On the following pages there's an overview of the more important high-rise buildings and the current state of affairs.

Ill. 54

Löwy's High-rise

1:1000

Architect: Slavko Löwy

Construction year: 1933-34

Height: 35,00-40,00 m

Function: mixed use - commercial/housing

First high-rise in Zagreb

Ill. 55

Ill. 56

Ibler's Skyscraper

1:1000

Architects: Drago Ibler

Construction year: 1958

Height: 51,00 m

Function: housing/commercial

Also known as the wooden skyscraper because of its distinctive wooden loggias/facade.

Ill. 57

Ill. 58

1 Ilica Street

1:1000

Architects: Slobodan Jovičić, Josip Hitil, Ivan Žuljević

Construction year: 1958/2007 (renovation)

Height: 70,00 m

Function: mixed use

Located on the Ban Jelačić Square and part of a larger multi functional city block. First competition was held in the early 30s but the project was realized after the second competition held in 1955.

Ill. 59

Ill. 60

Richter's "Rockets"

1:1000

Architects: Centar "51"

Construction year: 1968

Height: 70,85 m

Function: housing

Initial design was altered to make the buildings able to sustain earthquakes after the tragic earthquake in Skopje in 1963.

Ill. 61

Ill. 62

Vjesnik skyscraper

1:1000

Architect: Antun Ulrich

Construction year: 1972

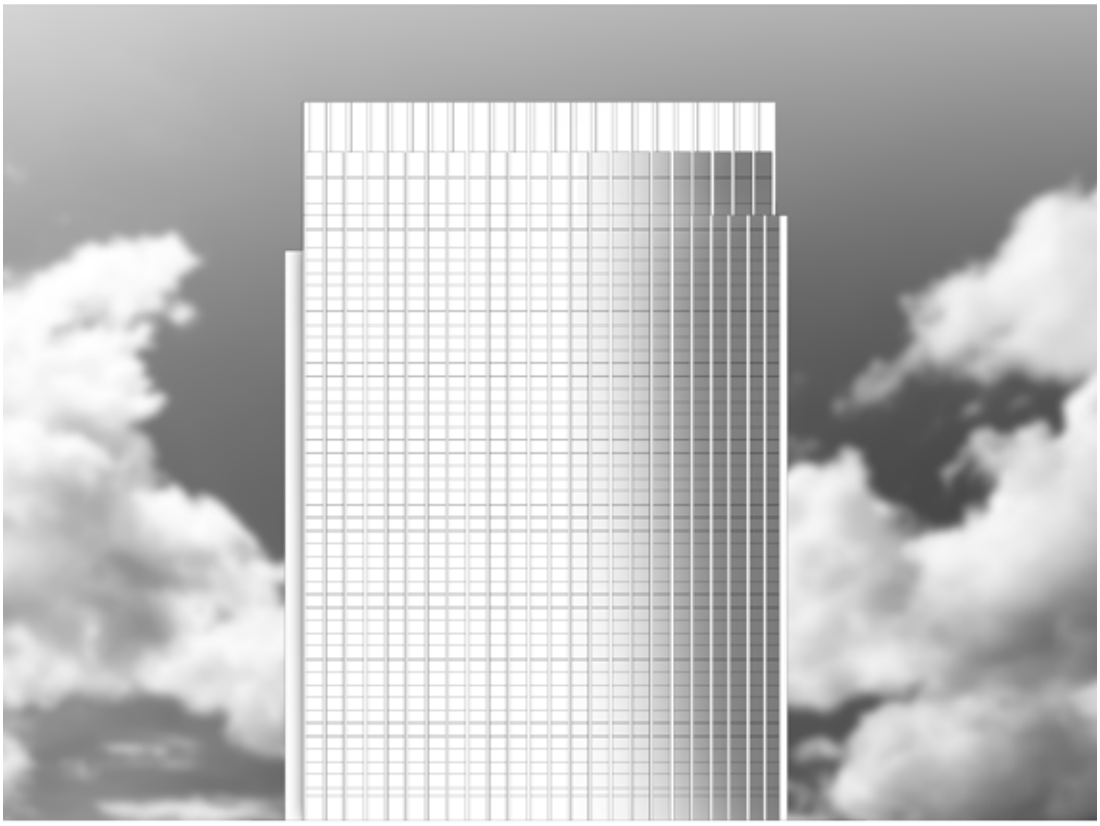
Height: 67,00 m

Function: offices

Inspired by the Lever House in NY. Also consists of a horizontal and vertical element.

Ill. 63

Ill. 64



Zagrepčanka

1:1000

Architects: Slavko Jelinek & Berislav Vinković

Construction year: 1976

Height: 94,60 m

Function: offices

Consists of three volumes which make the building
look very elegant from the profile.
It was inspired by the famous Dreischeibenhaus
(Thyssen-Haus) in Düsseldorf.

Ill. 65

Ill. 66

Prisavlje skyscrapers

1:1000

Architect: /

Construction year: /

Height: 73,00 m

Function: housing

Ill. 67

Ill. 68

Cibona Tower

1:1000

Architect: Marijan Hržić

Construction year: 1987

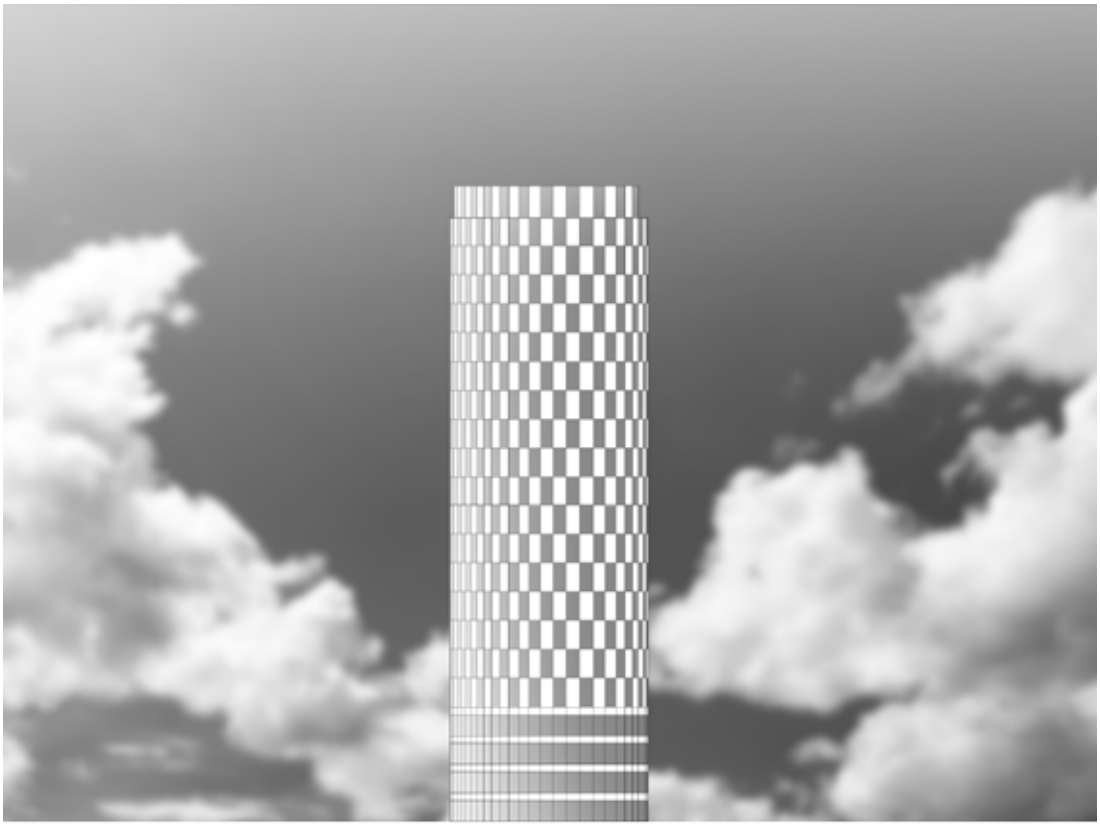
Height: 92,00 m

Function: offices

Part of a larger complex consisting of a basketball hall and a few lower buildings. Most recognizable high-rise in Zagreb.

Ill. 69

Ill. 70



Zagreb Tower

1:1000

Architect: Otto Barić

Construction year: 2006

Height: 82,50 m

Function: offices

Ill. 71

Ill. 72

Eurotower

1:1000

Architect: Marijan Hržić

Construction year: 2008

Height: 97,00 m

Function: offices

Currently tallest skyscraper in Croatia,
about to change soon because of the “Strojarska” project.

Ill. 73

Ill. 74

Double Tree by Hilton

1:1000

Architects: BIF STUDIO

Construction year: 2011

Height: 70,00 m

Function: hotel

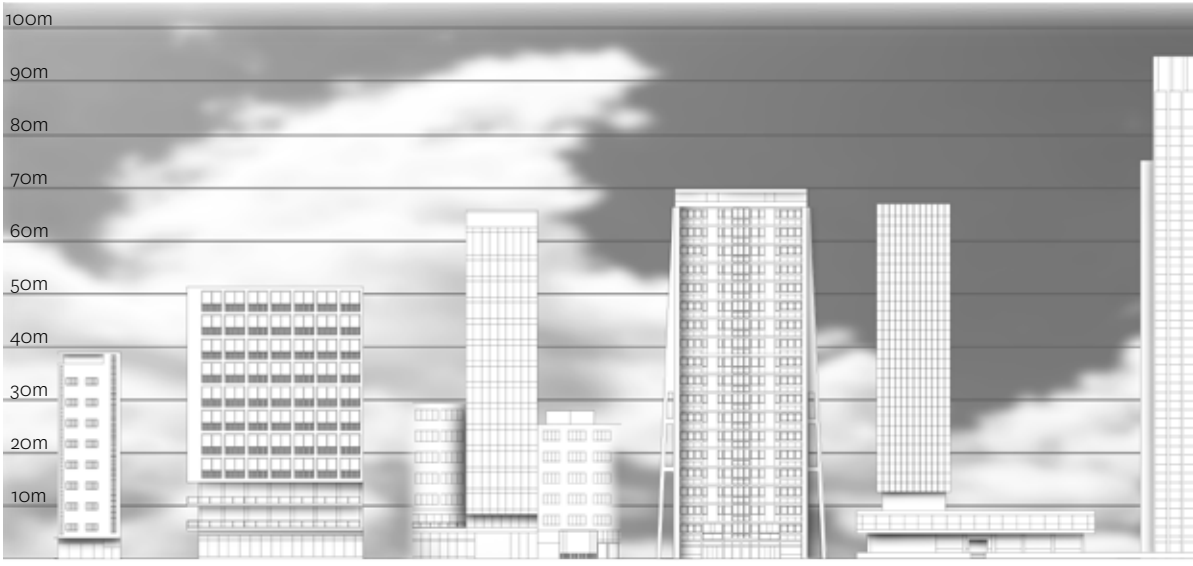
Part of the “Green Gold” business/shopping complex.

Ill. 75

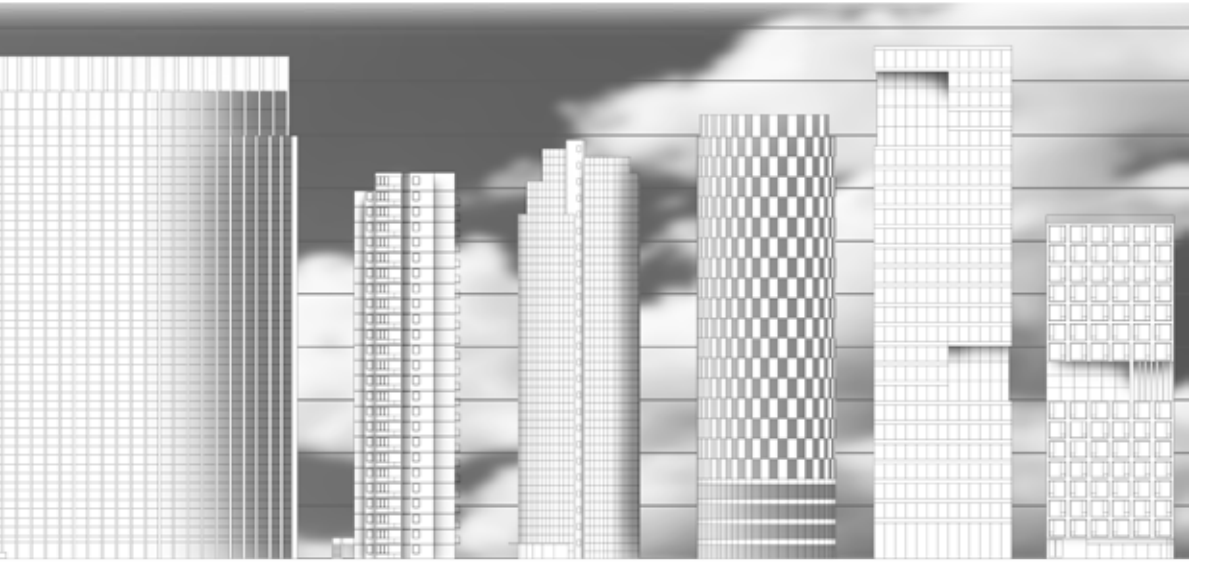
Ill. 76

ZAGREB SKYLINE

Zagreb lack's contemporary skyline developments and continues to spread in all directions. With exception of Strojarska District there haven't been any relevant high rise constructions worth mentioning recently. The skyscrapers presented in this research show the current state. In some cases they show creativity, in other the lack of it but the typology of a real 21st century skyscraper has been avoided in Zagreb.



Ill. 77



Ill. 78

V.
Somewhere Nice

Paromlin Zagreb. One of the most famous ruins in Zagreb in the last couple of decades. The mill (paromlin=steam mill) gained its current form (or at least what's left of it) at the beginning of the 20th century and it was designed by architects Hönigsberg & Deutsch with various additions by other construction firms and offices afterwards. The building "survived" three heavy fires in its lifetime. In 1906 it was almost completely destroyed by the first fire, in 1925 the warehouse was burned down and then again the main building caught fire and sustained heavy damage in 1988. Still the hardest it got hit was by the bulldozers in July 2014 when almost the wholemain building was leveled with the ground floor. History - destroyed, ignored and sent to oblivion. Reason? To make more parking spaces available. Seems logical. After the mill stopped working in the late 80s attempts have been made to convert the building into an art gallery, public baths, etc. Competitions have been organized by various corporations, but due to the exceptional Croatian bureaucracy, nothing happened.

The building's location is very interesting in many ways. It is located right on the border of the Lower Town and "modern" Zagreb, or basically on the edge of modernism. This border, created by the railway and the Central Station also presents the end of the pedestrian way of life. As soon as you find yourself on the other side of the Central Station you'd betterenter your car or bus if you want to get anywhere in human amount of time. The scale changes and distances you need to cross in order to get somewhere soon become way too long for walking. The shift in density and building typology is also strongly noticeable.

ANTI**MONUMENT**

anti: *one that is opposed* [4]

monument: *a lasting evidence, reminder, example of something great* [4]

4 Merriam Webster Dictionary

“The Monument”

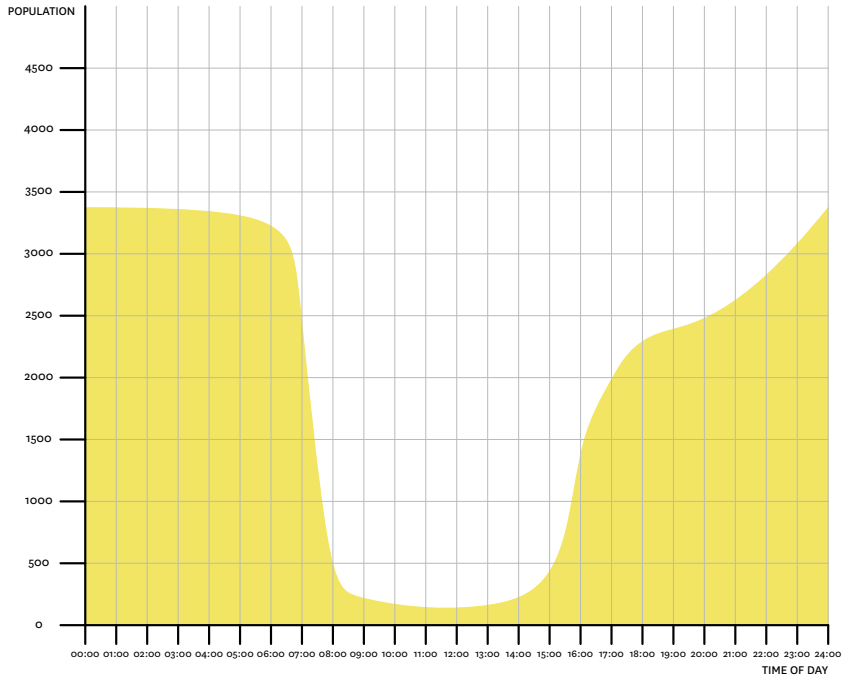
The Program

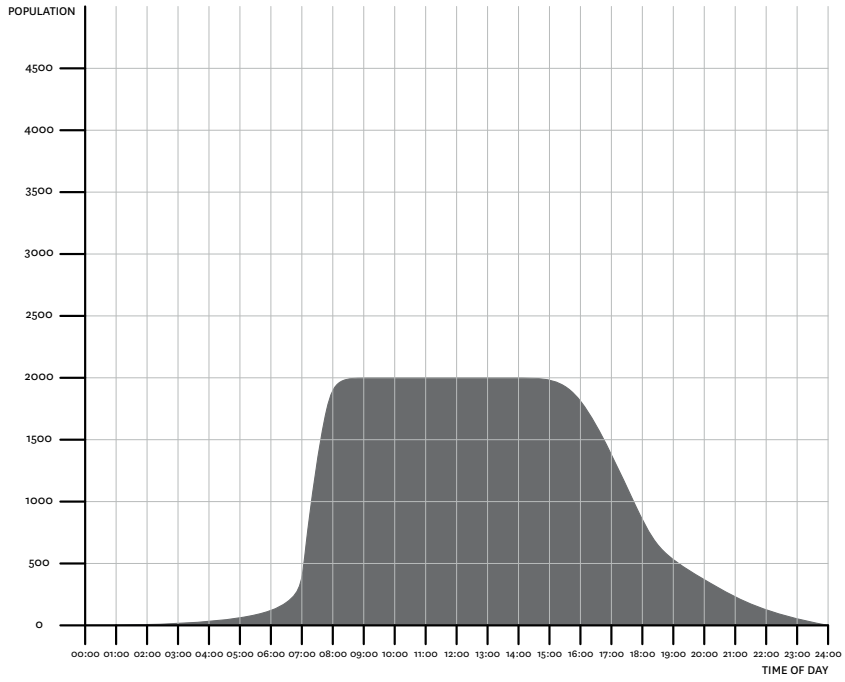
In order to sustain high density and ensure high quality of life an appropriate program for the site has to be made. The site should turn into a mixed used district consisting of a wide range of functions but the primary function will be housing. This kind of program would allow to bring a large number of people closer to the city center and therefore reducing their travelling times, energy consumption and improving their life quality. The surrounding functions also have a big effect on the resulting program. The Lisinski concert Hall, south of the site, is one of the most famous concert venues in Croatia. This project would extend the functions of Lisinski hall by providing various node theaters on the Paromlin site. Mixed use development also ensures that the site is occupied for almost the whole day by a large amount of people. This makes the site vibrant and secure, unlike the modernist mono-functional developments.

Potential Functions

Apartments (60-70%)	Media Centre
Theater	Bike repair stations
Bars	Basketball Courts
Restaurant	Square
Rehersal Space	Playgrounds
Open Stage	Pub
Movie Theater	Bakery
Studios	Fruit Shop
Fitness	Vertical Garden
Yoga	Coffe Shop
Wellness	Hotel
Gym	Hostel
Basketball Courts	Skate Park
Offices	Gallery Space
Park	Ice Rink
Workshops	Plaza

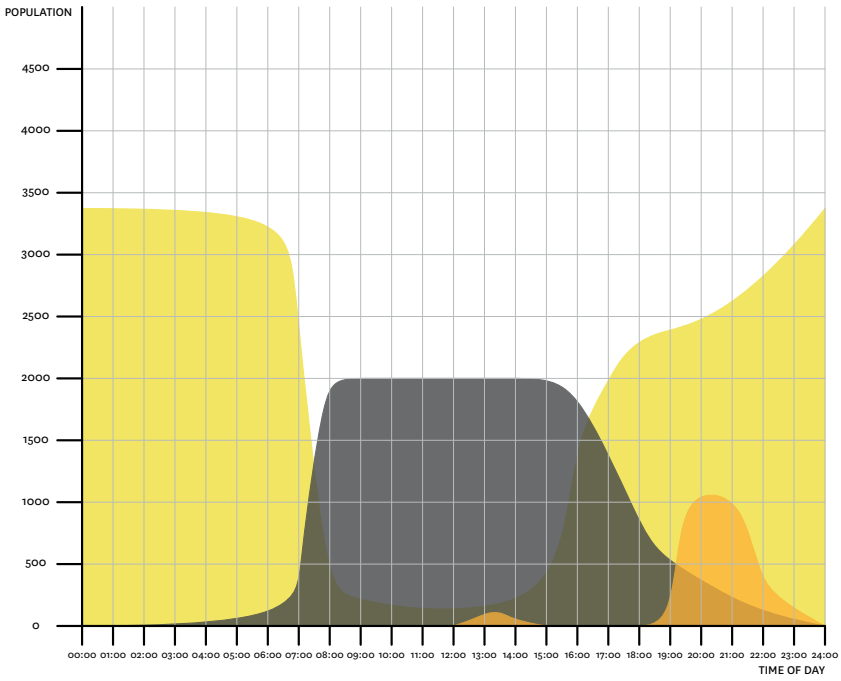
Single use development





Ill. 80

Mixed use development



residents

employees

visitors

DENSITY VARIATIONS

The city of Zagreb is currently divided into 17 city districts making up total of 641 km². This huge area, the size of Vienna is populated by only 790,000 inhabitants, which results in a quite low density of 1232 inh./km² . The “lower town” district is the most dense with its 12.341 inh./km². (Although it is also the smallest in area - only 3km²)The lowest densities are found in districts of Podsljeme (319 inh./km²), Sesvete (424 inh./km²) and Brezovica (95 inh./km²) on the outskirts of Zagreb. The three of them make up a total of 352 km². These areas are the indicators of urban sprawl and poor urban development. Coming back to the theory of densification we can conclude that a far better and efficient option would have been the densification of existing older areas of Zagreb instead of spreading it. Currently only 26 km² of 641 km² have a density higher than 5000 inh./km² .

TRNJE DISTRICT

Trnje is the district South of the Lower Town (city centre). The two are divided by the railway and the central station. Although being right next to the densest of the city areas, the density shifts here for 50% - dropping from 12341 to 6040 inh./km². It is characterized by modernist developments, wide streets and open spaces. These modernist interventions constantly collide with single family houses which occasionally date back to pre-modernist era. Poor urban development decisions lead to a rather chaotic situation that we have today. It’s a patchwork of various ideas from different eras which never fully came to realization.

Ill. 81

STATUS QUO

Currently the site is occupied by the remaining parts of the Paromlin, a large parking lot at the centre and mostly abandoned houses on the borders of the site. The Paromlin and its silo are the highest structures on the site (since the chimney was destroyed a couple of years ago). Paromlin building is in very poor condition and hardly usable in it's current state. It is home to an underground music club called "Sirup" and that is the only function it currently has.

SITE AREA: 0.38 km^2

POPULATION: 0-20

GROSS FLOOR AREA: unknown

Ill. 82

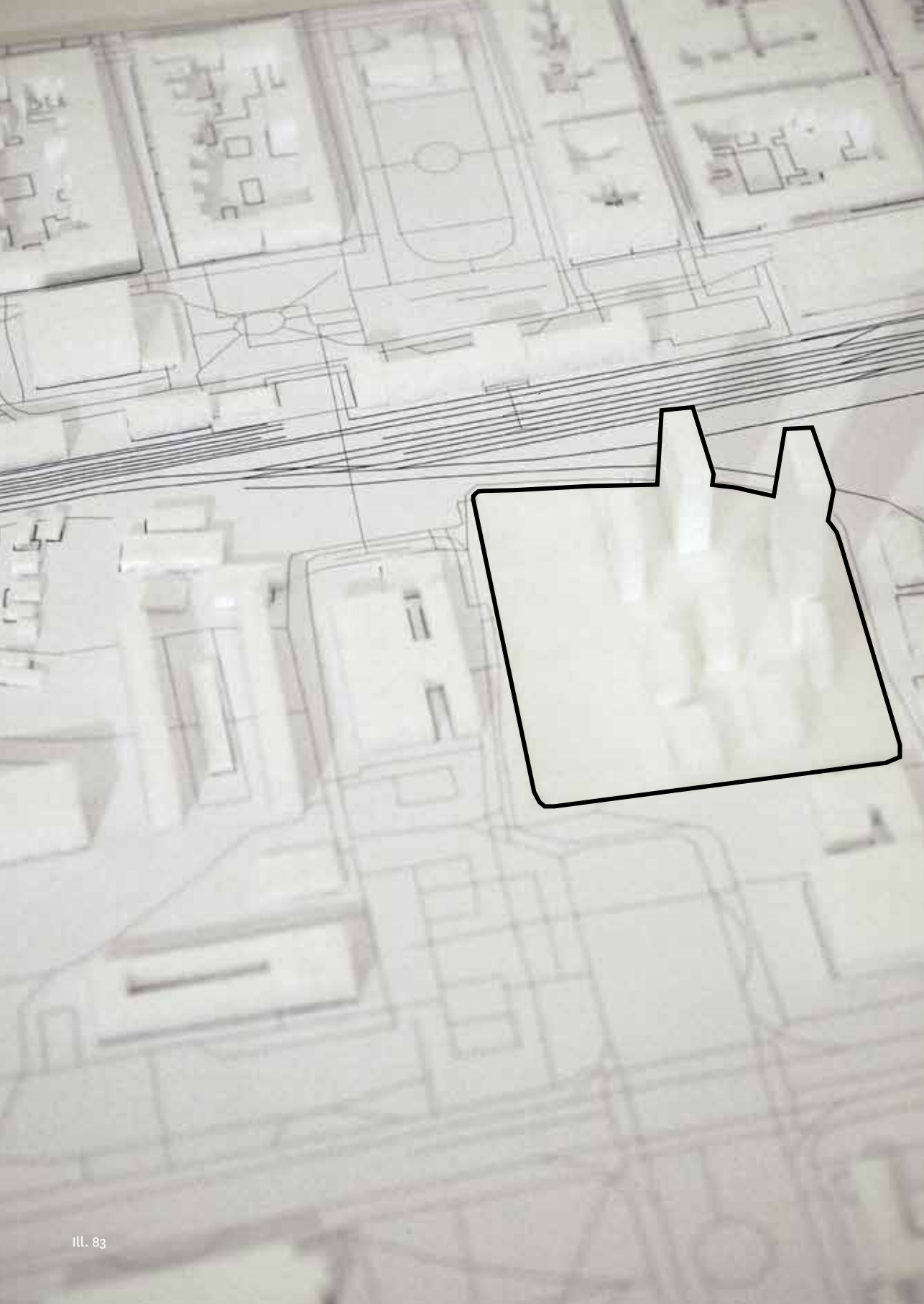
VARIATION 1 -Vienna

First variation is creating the density comparable with Vienna, that is 4000 inhabitants per km^2. It is a density similar to a lot of European cities. Although it is a lower density that density of Trnje District, this process would bring 1520 to the district and on this site. The site is now occupied by mostly lower buildings, Paromlin extension being the only one reaching higher than 50m.

SITE AREA: 0.38 km^2

POPULATION: 1520

GROSS FLOOR AREA: 50-60 thousand m^2



Ill. 83

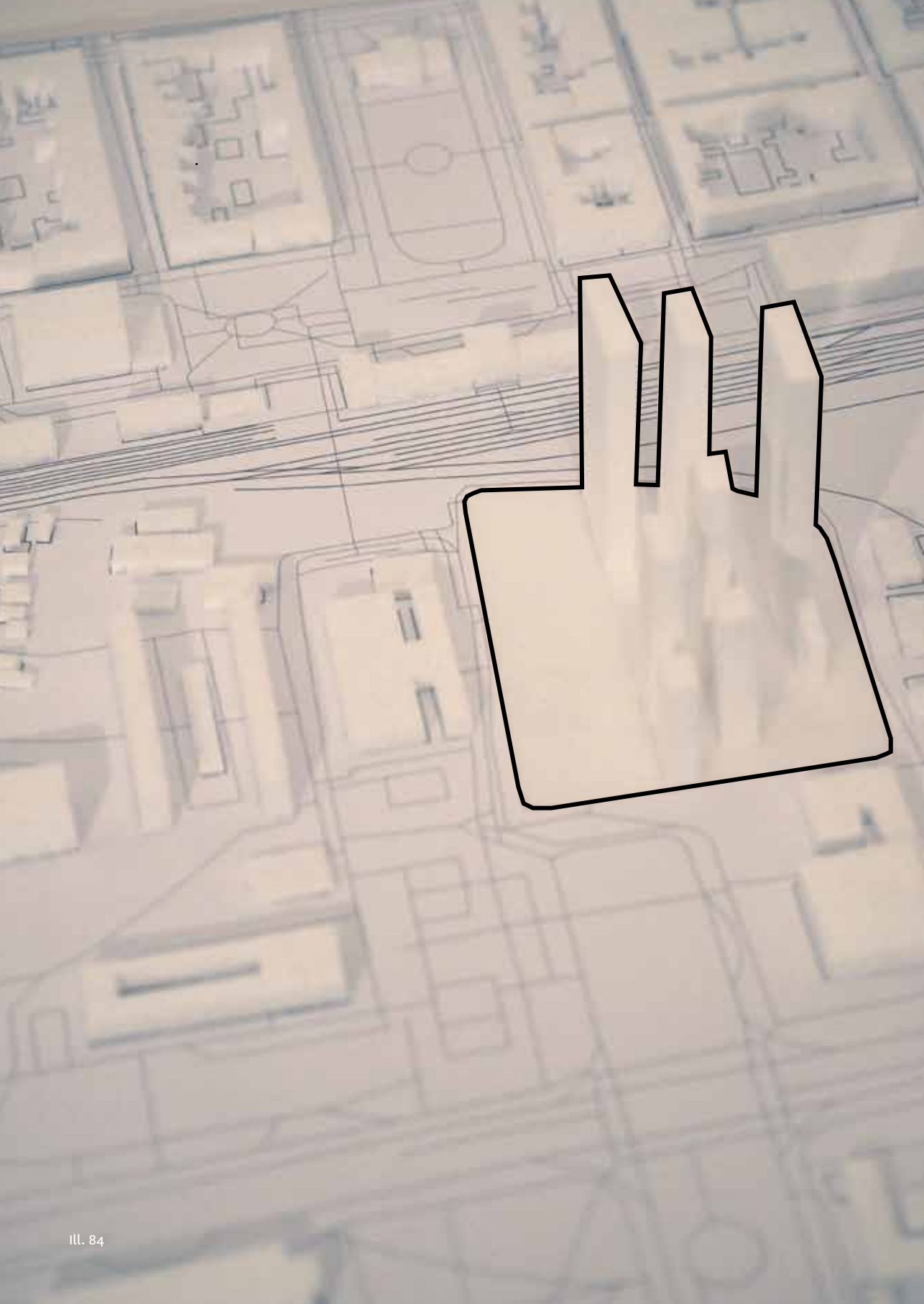
VARIATION 2 -Brooklyn

Second variation is testing the density of Brooklyn on the site, in other words that means 14 182 inhabitants per km^2. This density would bring 5389 inhabitants to the site. The resulting typology is made out of high rise buildings ranging up to 150m in height.

SITE AREA: 0.38 km^2

POPULATION: 5389

GROSS FLOOR AREA: 175-190 thousand m^2



Ill. 84

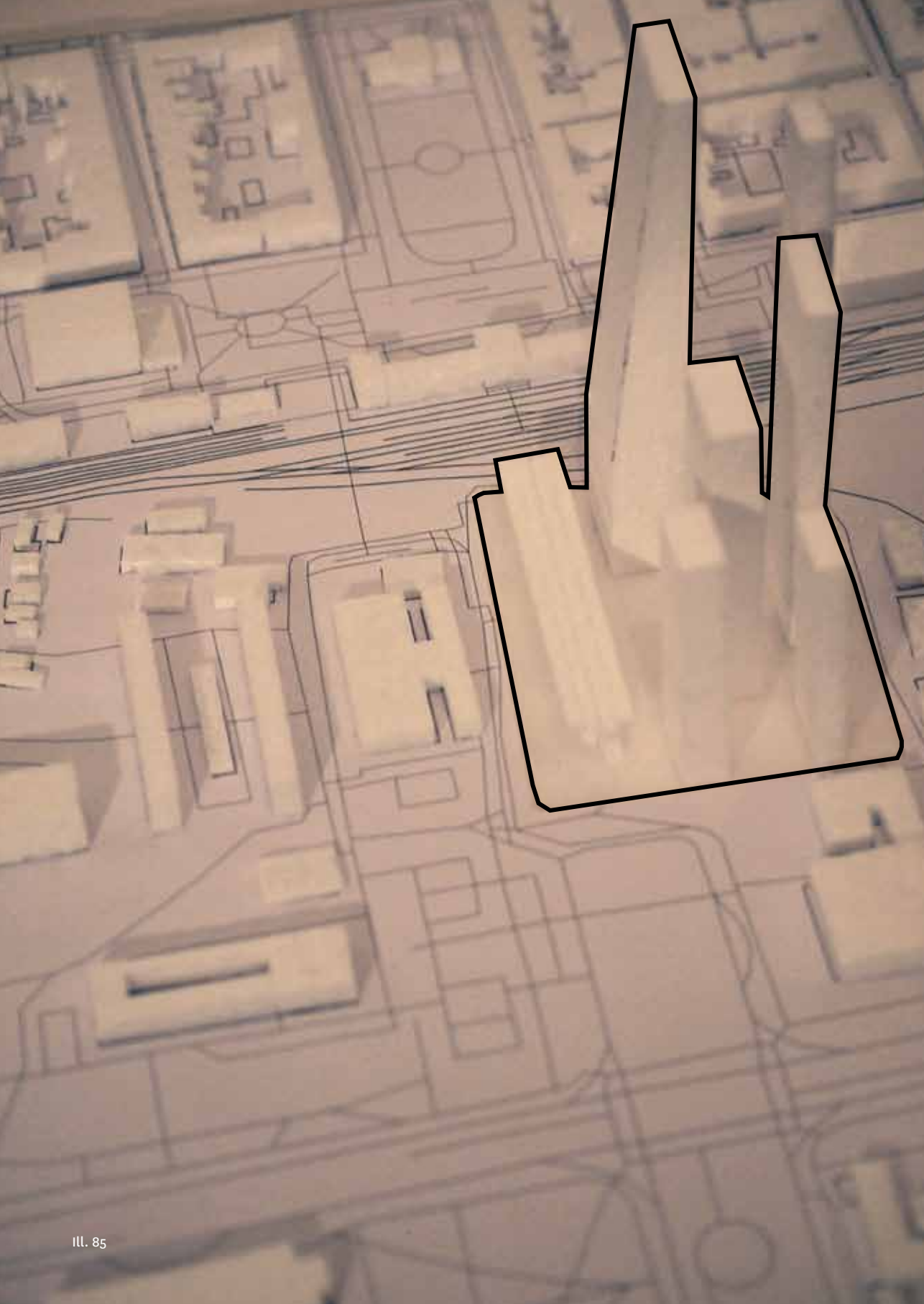
VARIATION 3 -Manhattan

This variation tests the limits of the site and brings it to an extreme density we can find on Manhattan - 27 345 inhabitants per km^2. This would mean bringing up to 10391 people to the site. The resulting typology makes the surrounding context inferior. The tallest building comes up to 300m which makes it 3 times taller than any building in Zagreb.

SITE AREA: 0.38 km^2

POPULATION: 10391

GROSS FLOOR AREA: 365-380 thousand m^2



Ill. 85

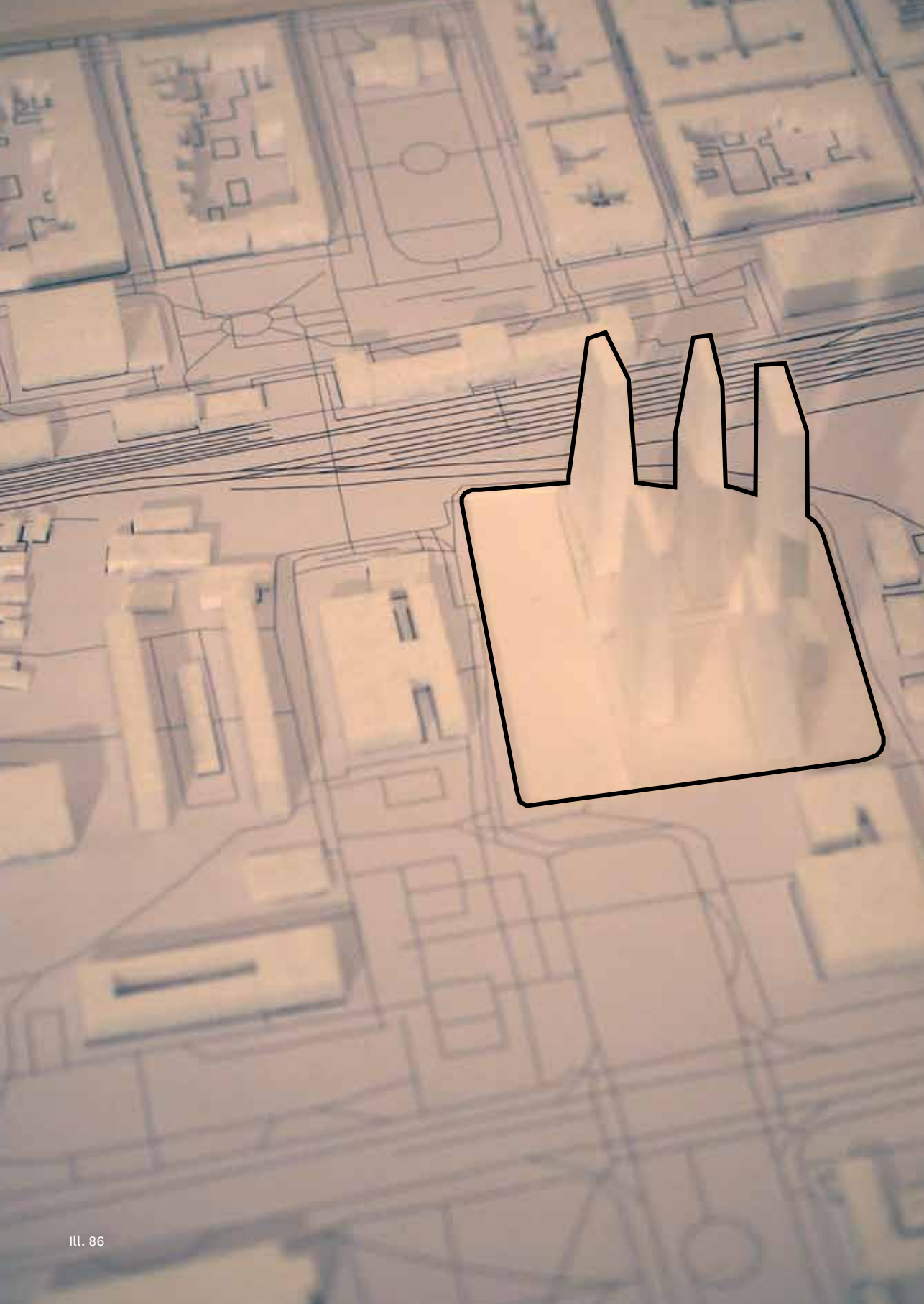
VARIATION 4 -Desired Density

Desired density for the site was determined by observing the former variations and considering their effect on the context. It is also the density which allows a large functional program planned for the site. This variation considers the density of 9000 inhabitants per km^2 and it results in site population of 3420 inhabitants. The resulting typology consists of high rise buildings ranging from 110-180m in height. This typology leaves enough space on the site to be utilized for public activities, it sets a new urban scale for the city and pushes it forward (upwards). It breaks the current "imaginary" height limit of 100m and challenges the rest of the city to follow the same steps.

SITE AREA: 0.38 km^2

POPULATION: 3420

GROSS FLOOR AREA: 150-170 thousand m^2



Ill. 86

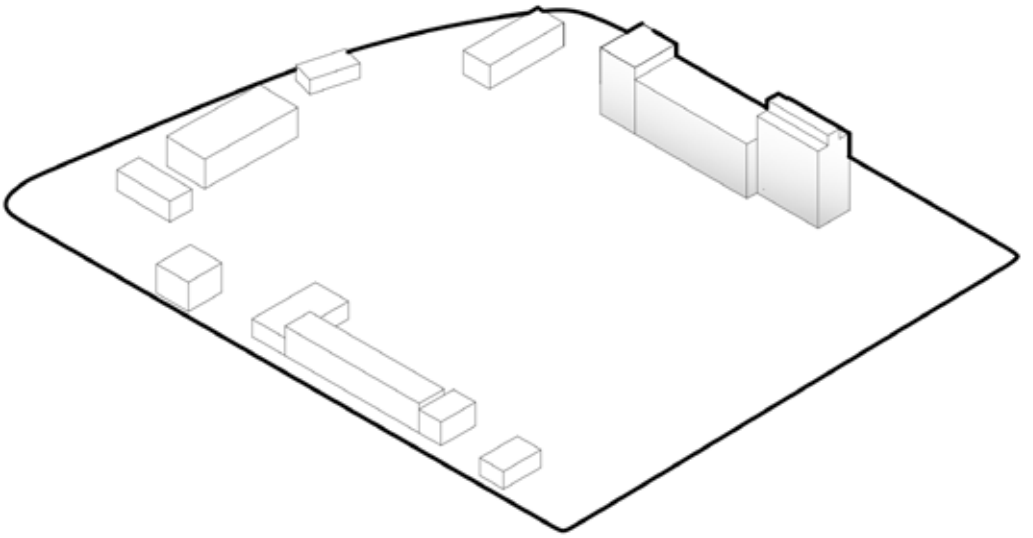

Paro
Dist

mlin

trict

THE SITE

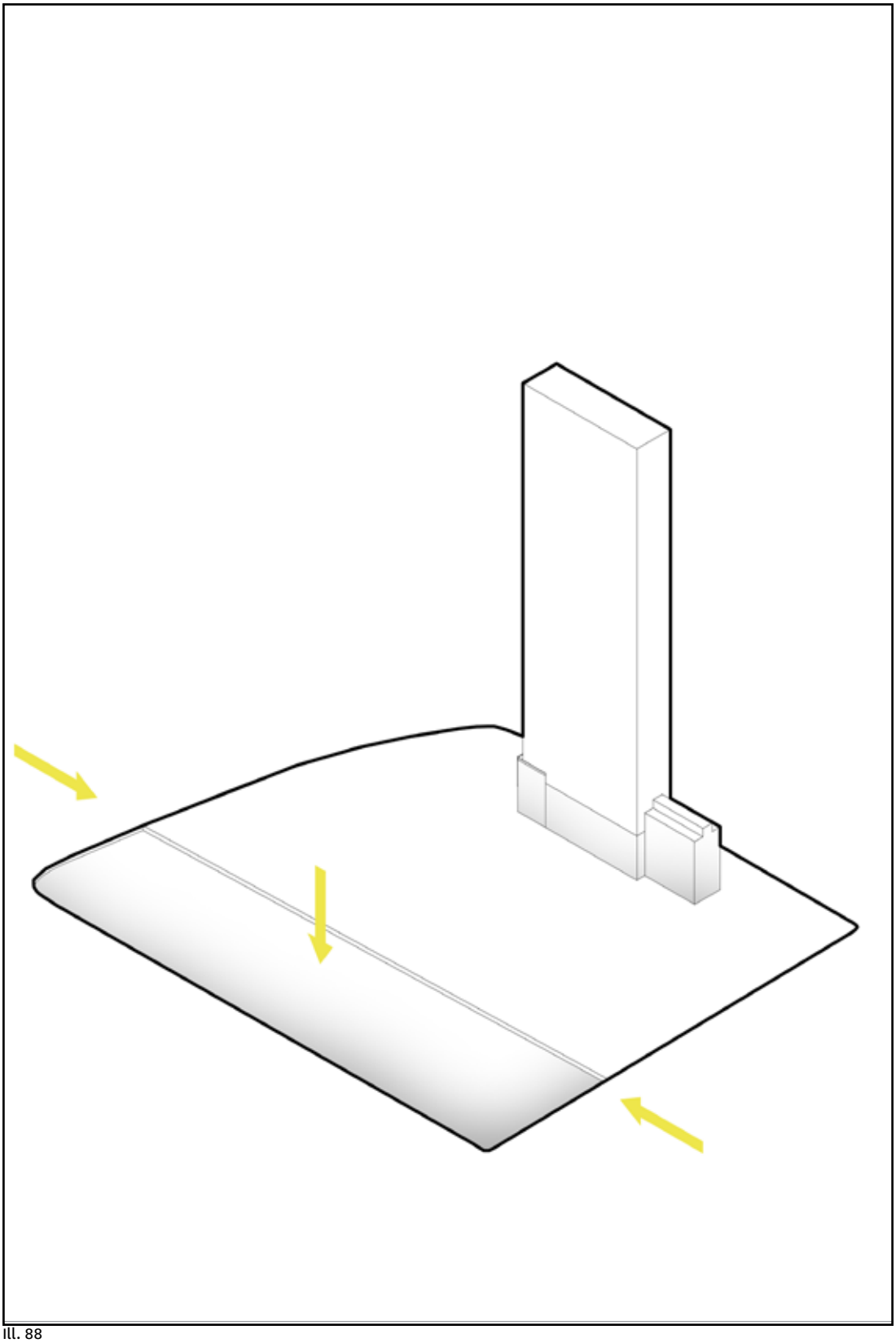
The site in its current state. It offers little, and takes a lot. Primary function - car parking. Correction, the only function. It longs for a change. The monument will soon become its counterpart, the antimonument and initiate the transformation into the PAROMLIN DISTRICT.



Ill. 87

THE FIRST STEPS

The first part of the program is placed into the monument. It exceeds its current size and therefore it grows into the height reaching over 180m. The rest of the site is cleared of the obsolete buildings. West end of the site acts as an extension of the green axis and creates a public plaza for the upcoming district.



Ill. 88

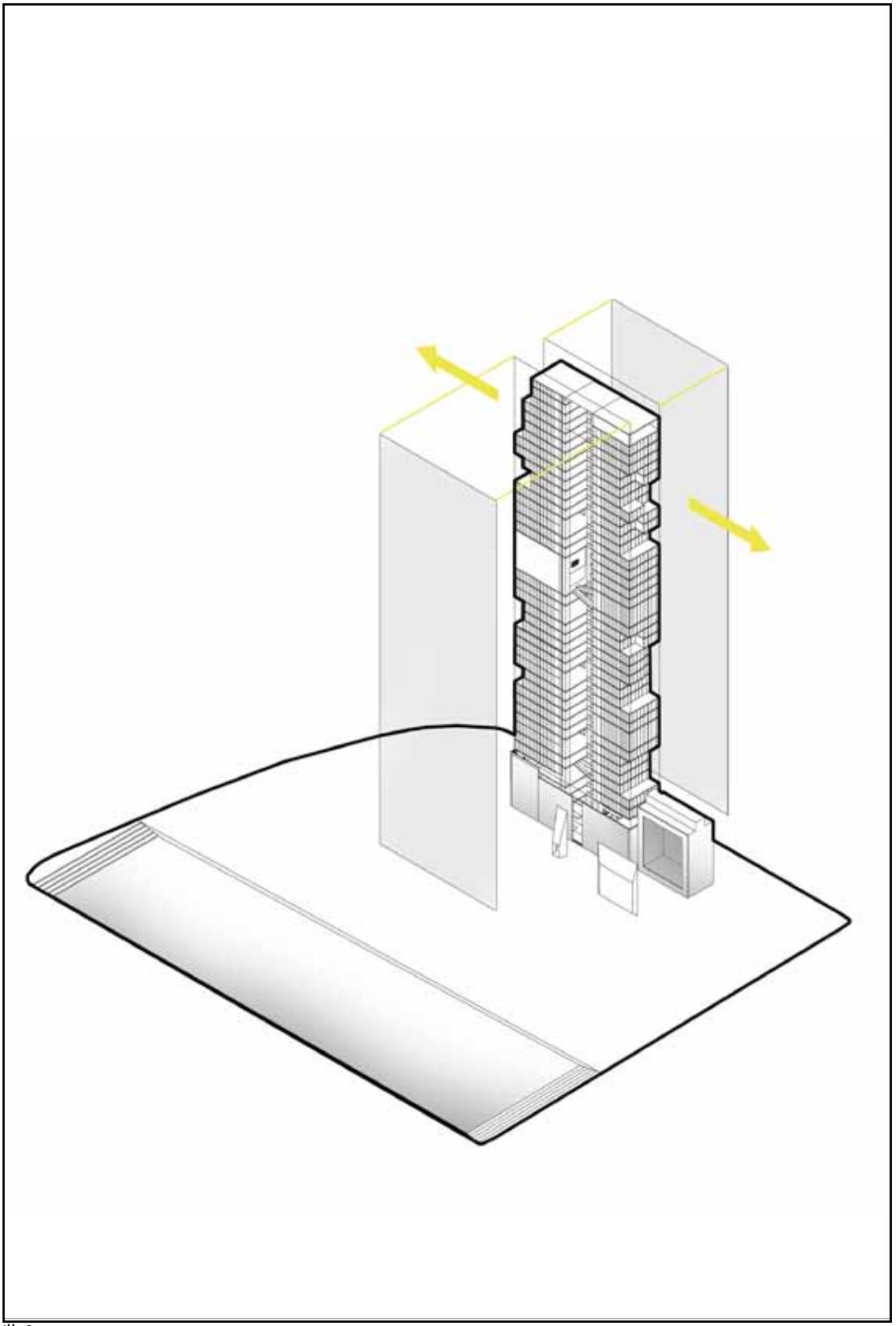
THE ADAPTATION

The volume is adapted to the program. In order to reduce overheating and ensure better performance of the building a second skin is added to the east and west facade. It drops down like a curtain. It protects the building from direct light and ensures a better working and living environment. It is made out of tinted Plexiglas panels and it also works as a buffer zone in the winter reducing the heat loss. Due to the facade and it's large atrium in the middle, the whole building can be naturally ventilated using the chimney effect.

The north and south facade remain open, symbolically connecting the new and old town.

The old silos is converted into an theater that opens to the exterior. It functions both as a movie and performance theater.

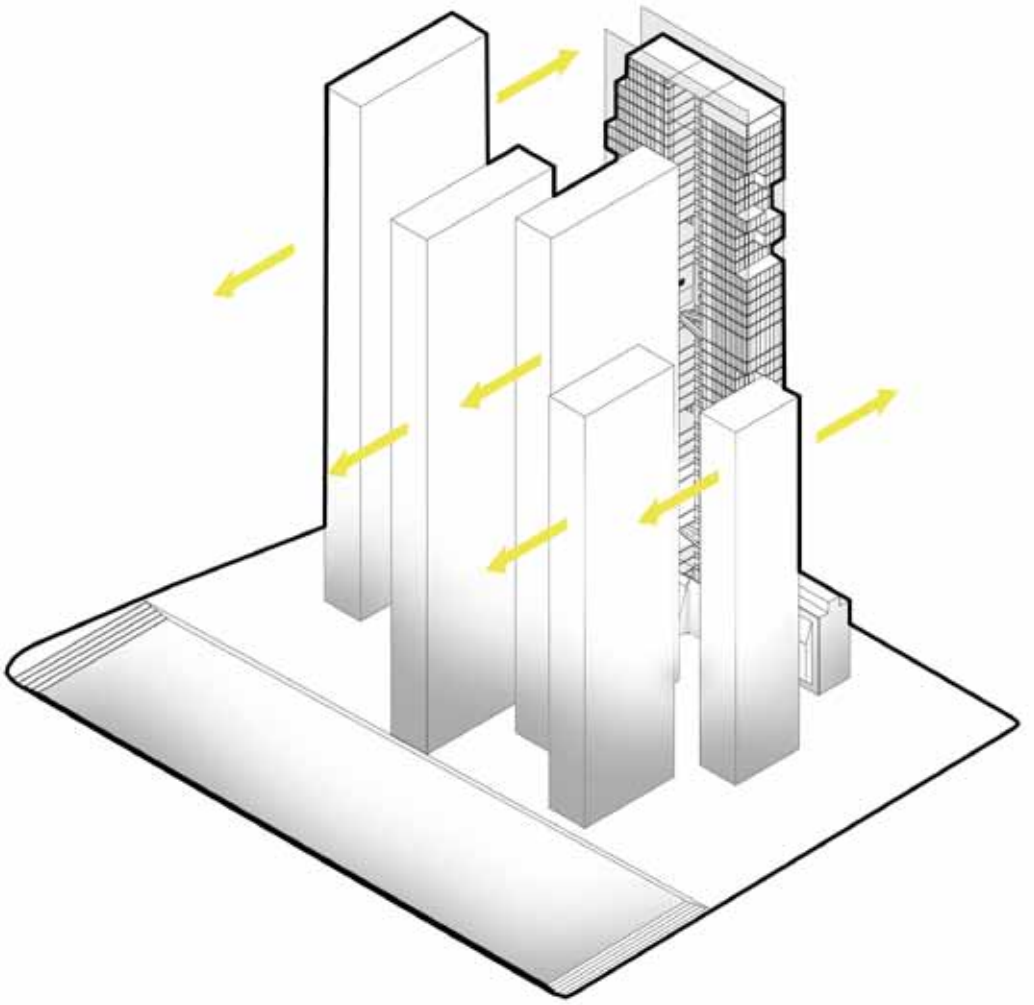
The transformation to antimonument is almost complete.



Ill. 89

THE DISTRICT

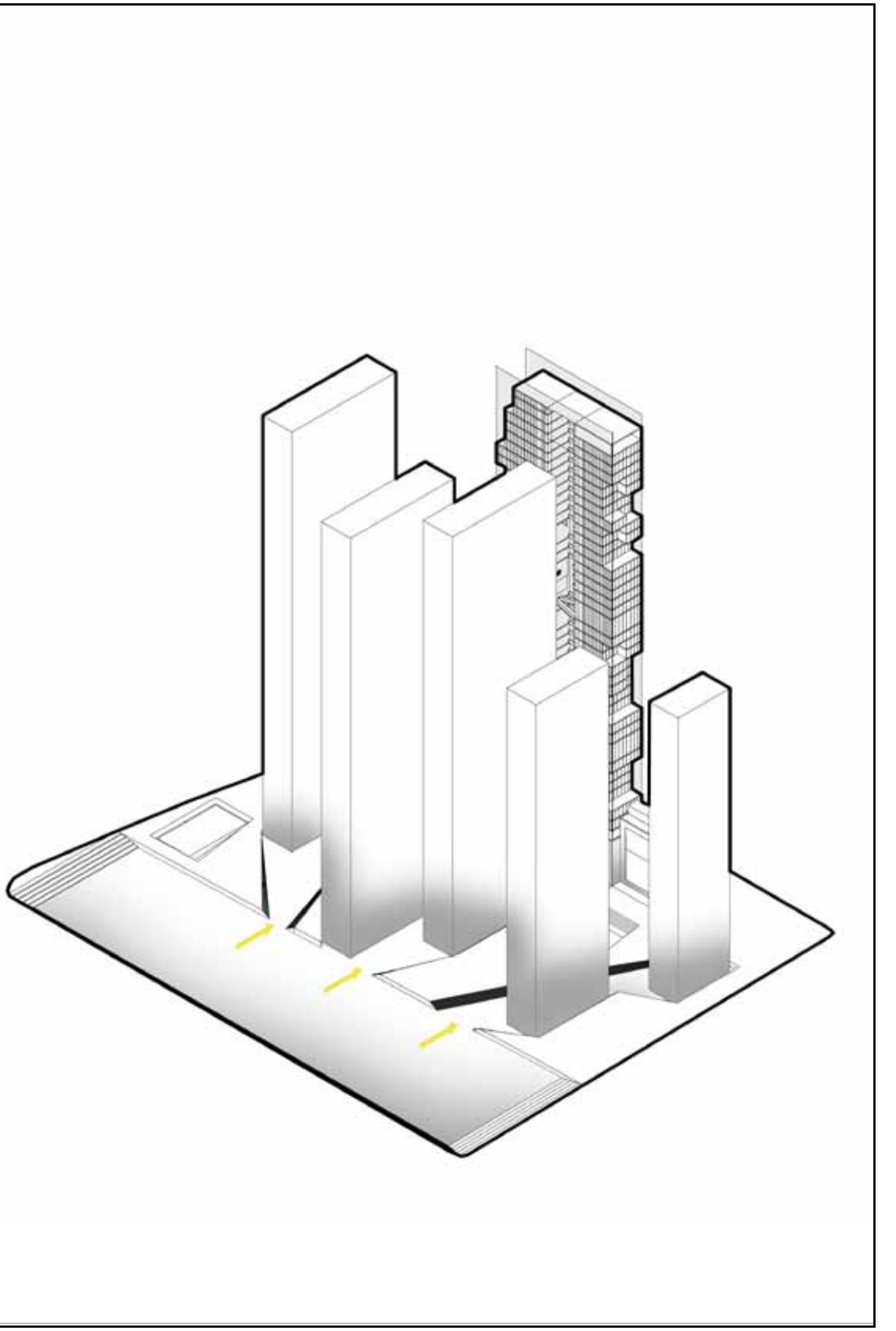
The rest of the program is spread into addition five towers added to the site. The towers spread in east-west direction to ensure better energy performance (reduced overheating).



Ill. 90

PUBLIC/PRIVATE

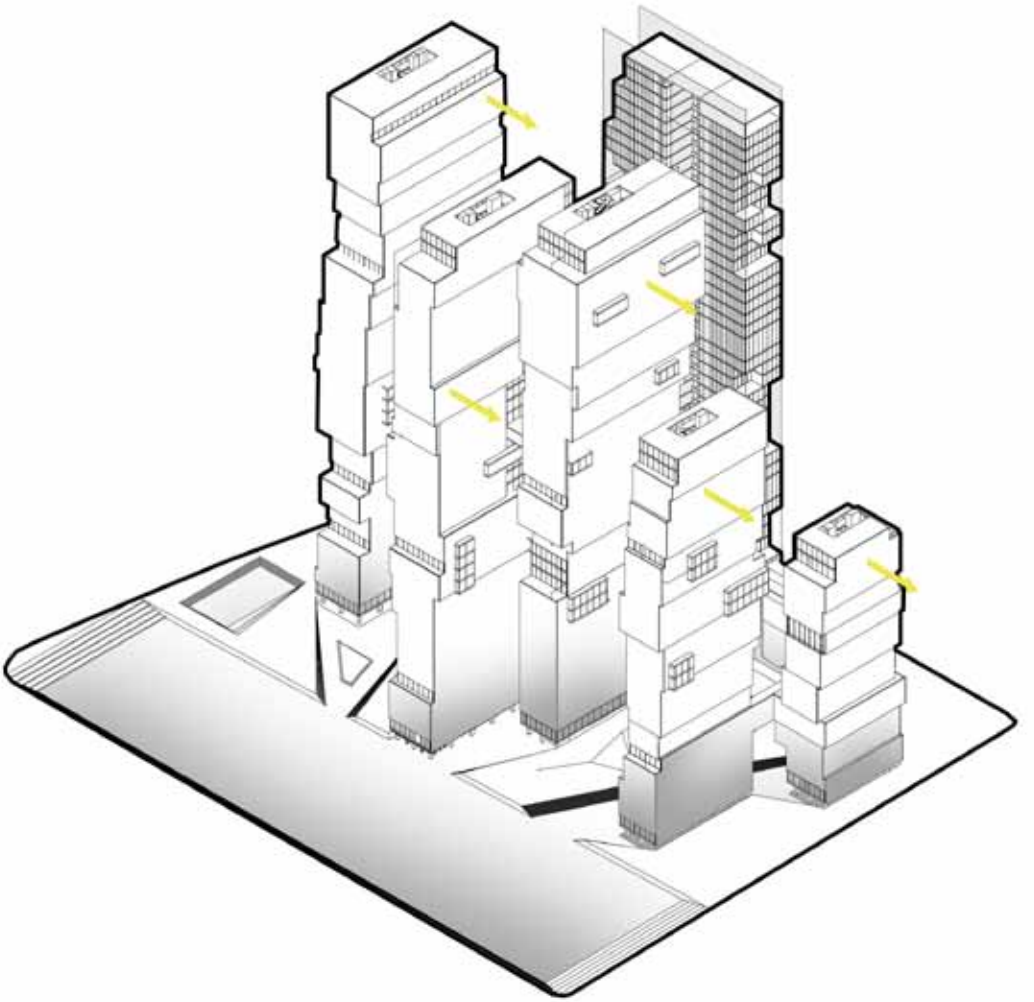
The skyscrapers are connected to the plaza. Ground floors become public space and invite the visitors to explore the rest of the buildings vertically. Rest of the functions are spread on different levels, always mixing between public and private. By positioning the private apartments between f.e. offices a symbiosis is created between them. An office is cooled/heated during the morning and the afternoon, while the apartment requires it the rest of the time. They absorb the heat from each other which results in mutual energy consumption reduction.



Ill. 91

THE FINAL TOUCH

The skyscrapers are adapted to the sunlight and fitted with a second skin and atrium. The atrium provides the towers with natural ventilation, while the second skin on the south, east and west protects them from direct sunlight. The skin is made of steel mesh. It reduces overheating in the summer but also provides necessary privacy for the inhabitants of the building.



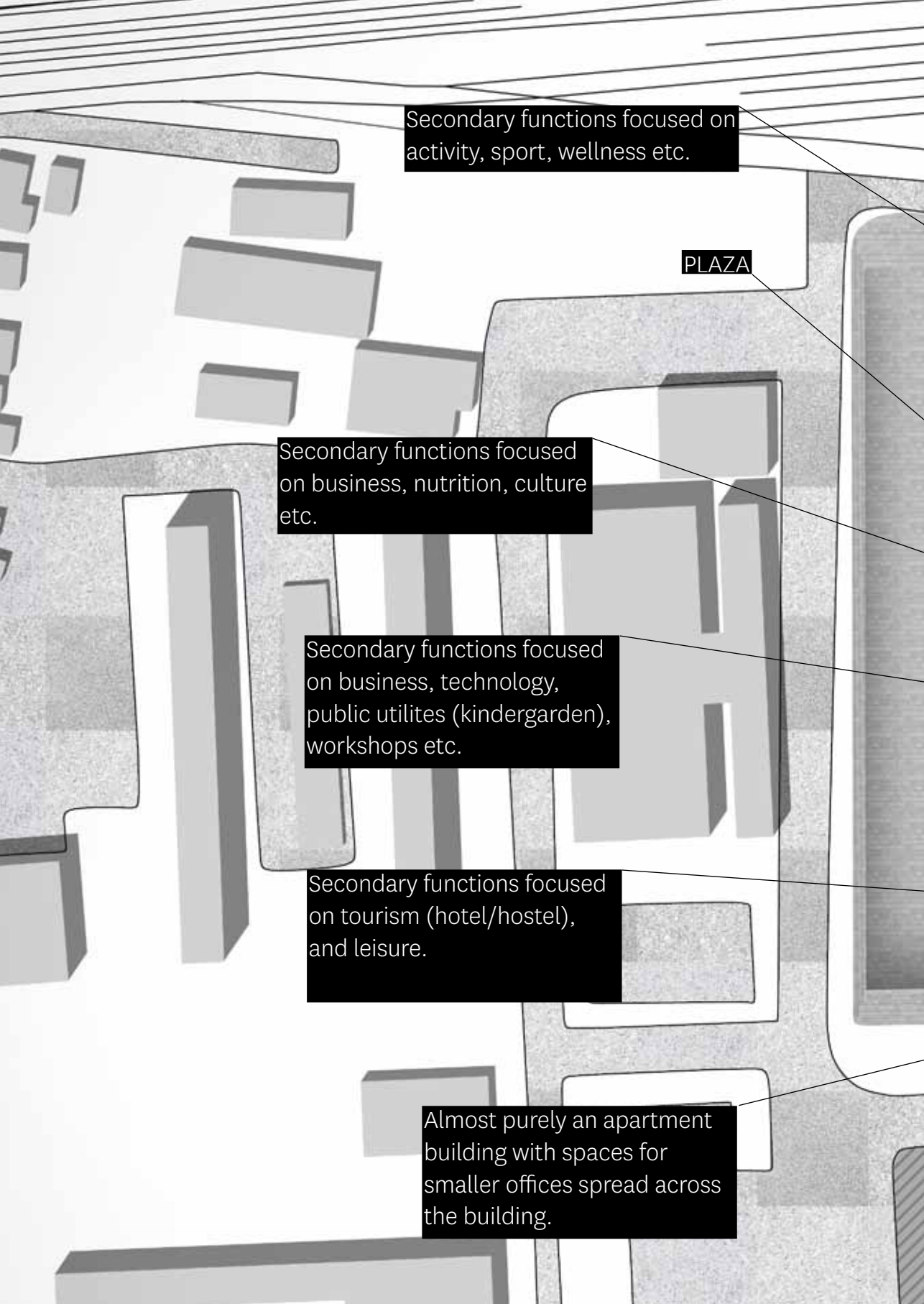
Ill. 92

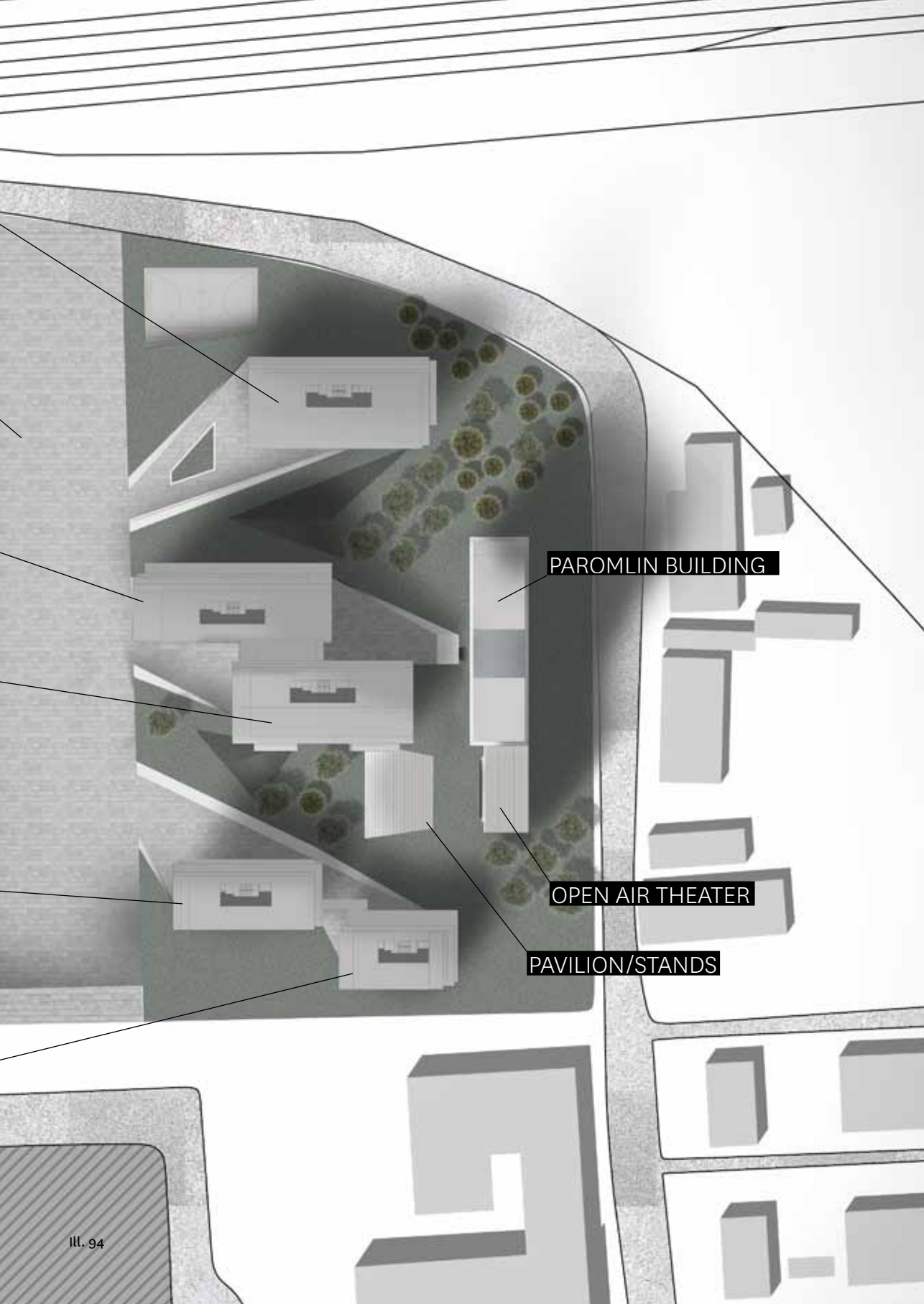
THE CONTEXT

The new district has a big effect on the whole surrounding are. The new plaza is connected with the existing “square” west of the site and therefore connected with the lower town via an underground passage. (Importanne passage). The plaza is also a public transportation hub which ensures the connection with the rest of the city. Cars are eliminated from the site. Bicycles and public transportation are now the main arts of getting around. The plaza offers large space for various experiences like concerts in the summer or ice skating in the winter. Contrasting the plaza is the greenery on the other half of the site. The landscape works with the buildings and provides fresh air for the natural ventilation. It’s also a place to rest, enjoy a show or play a basketball game.


Art Pavillion
Part of the
Green Horesshoe
Importanne Underground
Passage
Edge of Modernism
Central Station
City Hall
Lisinski Concert Hall
Ministry of Economy
Civil Court
N

Ill. 93


Secondary functions focused on activity, sport, wellness etc.
PLAZA
Secondary functions focused on business, nutrition, culture etc.
Secondary functions focused on business, technology, public utilites (kindergarden), workshops etc.
Secondary functions focused on tourism (hotel/hostel), and leisure.
Almost purely an apartment building with spaces for smaller offices spread across the building.



Ill. 94

Ill. 95 VIEW FROM THE TOP

Ill. 96 BEHIND THE MAIN STATION

West Elevation

Ill. 97

Ill. 97

Ill. 98 View From the street

East Elevation

Ill. 99

Ill. 99

EXTREME CONDITION

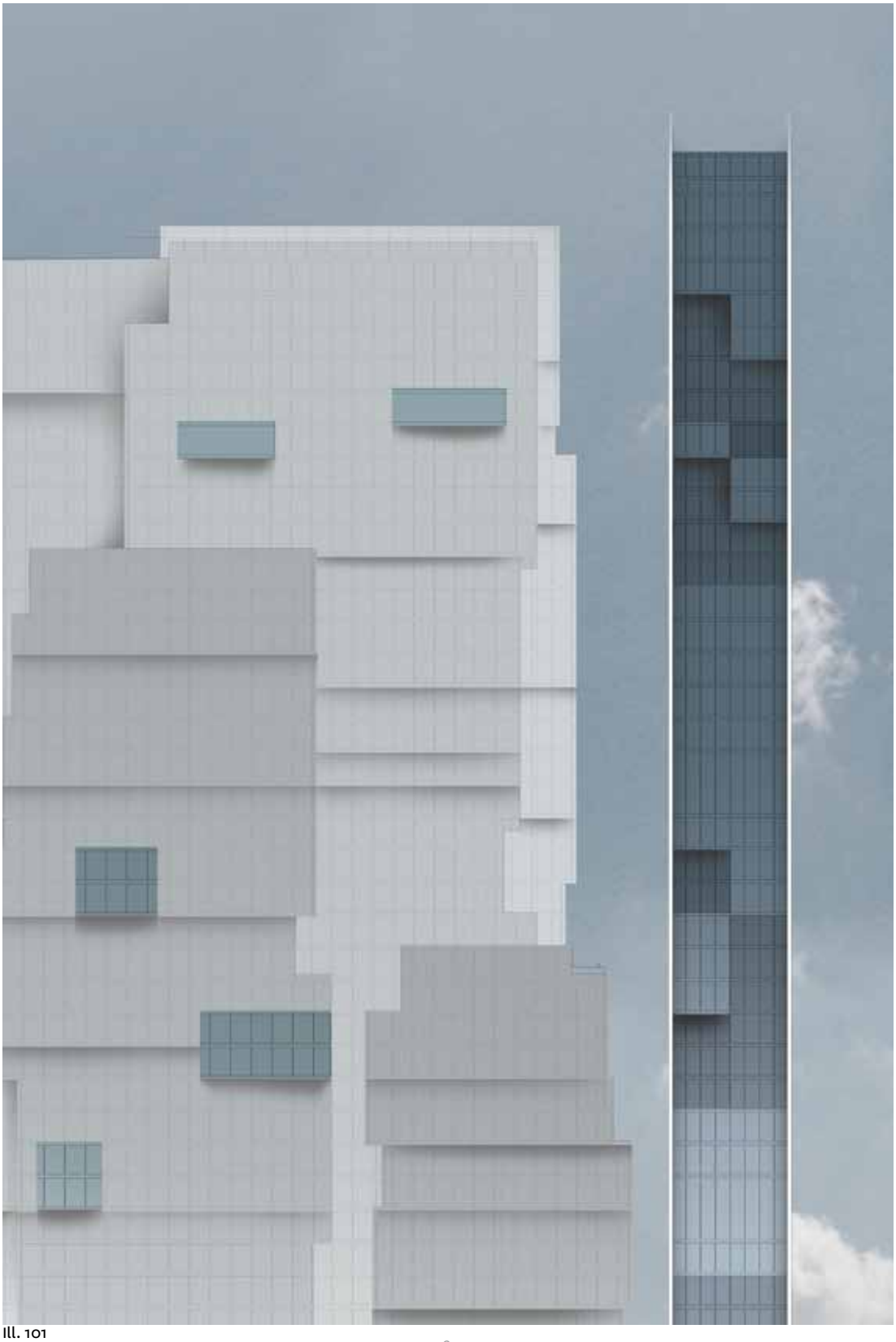
The Paromlin District is an extreme condition for Zagreb. What started as one-building project became a urban intervention. It sets a new scale and standard. It redefines the high rise typology in Zagreb. This condition should spread across Zagreb with goal of reaching a higher average density of the whole city, thus improving the way the city works.

The monument is no more. The ruin is resurrected.

Ill. 100 NEW PAROMLIN

South Elevation

Ill. 101

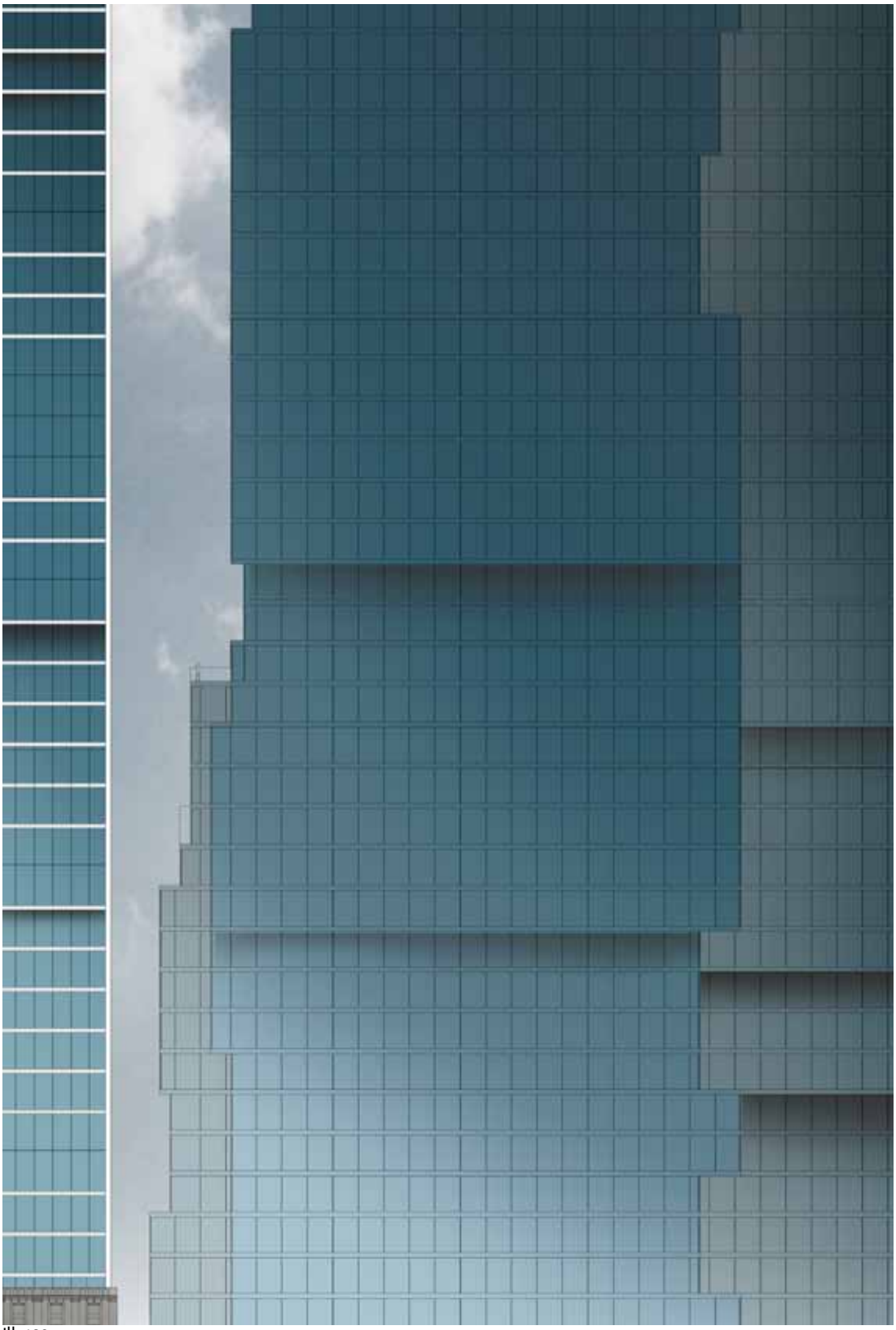


Ill. 101

Ill. 102 LOOKING AT THE NEW DISTRICT AND LOWER TOWN

North Elevation

Ill. 103



Ill. 103

Ill. 104 INBETWEEN THE TOWERS

Paromlin Section

Ill. 105

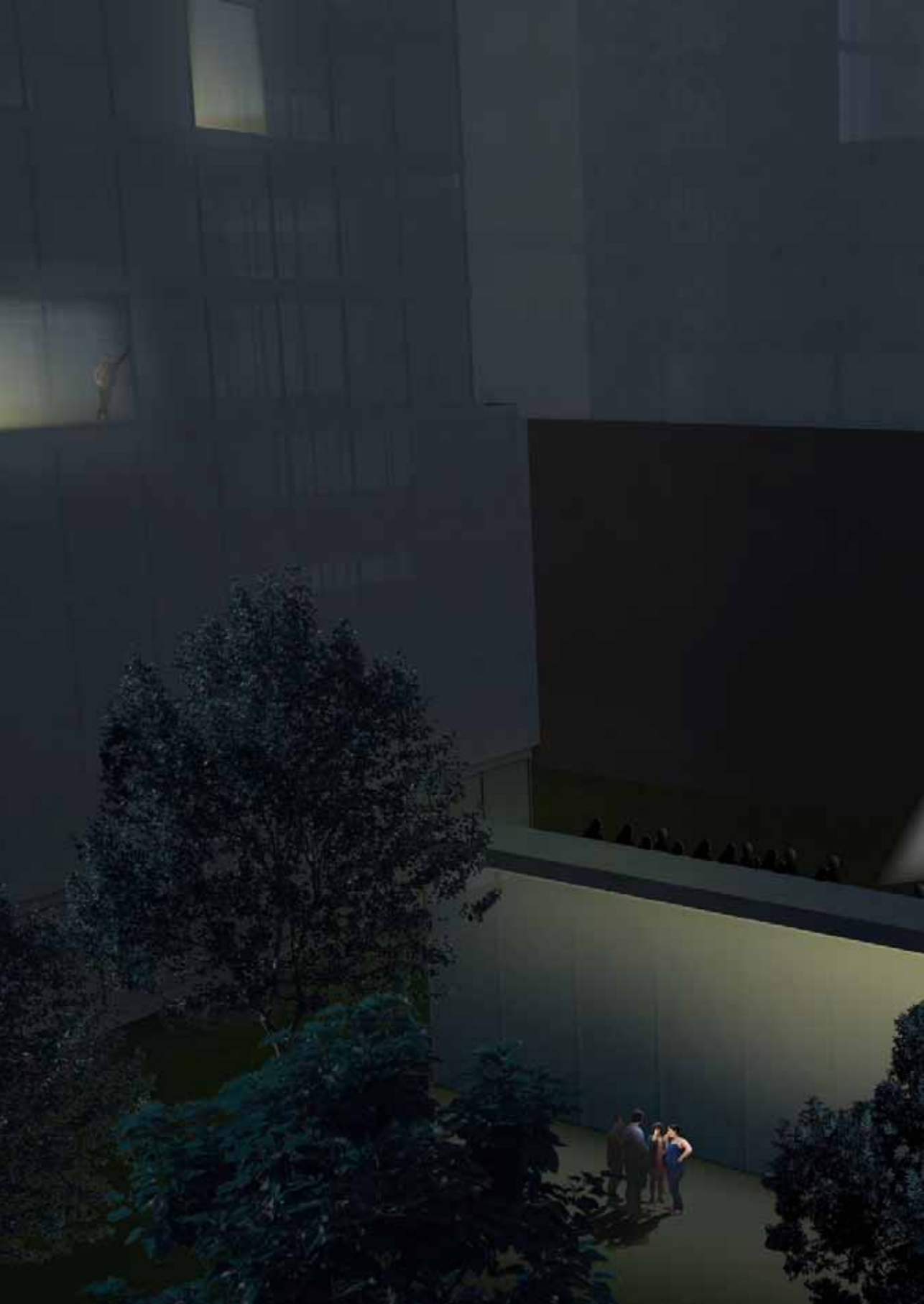
Ill. 105

Ill. 106 PAROMLIN DISTRICT SKYLINE

District Section

Ill. 107

Ill. 107



Ill. 108

Apartment Interior Ill. 109

Apartment Interior Ill. 110

PAROMLIN DISTRICT PLAZA Ill. 111

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25 Bologna - http://upload.wikimedia.org/wikipedia/commons/thumb/d/da/Medieval_Bologna.jpg/1280px-Medieval_Bologna.jpg
26 Shibam Yemen - http://en.wikipedia.org/wiki/Shibam#mediaviewer/File:Shibam_Wadi_Hadhramaut_Yemen.jpg
27 Original from Google Maps: https://maps.google.at/maps?ll=40.75874,-73.978674&z=15&cid=3734087314244816034&q=rockefeller+center&output=classic&dg=ntvo
28 La Defense Original from Google Maps: https://maps.google.at/maps?cid=17404099655073822857&q=La+D%C3%A9fense&output=classic&dg=ntvo
29 London Original from Google Maps: https://maps.google.at/maps?cid=5951008119559891609&q=London,+UK&output=classic&dg=ntvo
30 Personal Illustration
31 Personal Illustration

32 Movie Screenschot http://www.remdocumentary.com/remvideos.html
33 CCTV http://ad009cdnb.archdaily.net/wp-content/uploads/2012/05/1337358396-diagram.jpg
34 ECB https://www.ecb.europa.eu/ecb/premises/intro/downloads/html/index.en.html
35 ECB https://www.ecb.europa.eu/ecb/premises/intro/downloads/html/index.en.html
36 Torre David http://stocktown.com/wp-content/uploads/2014/04/65-Venice-Archi-Biennale-torre-david-Confinanzas.jpg
37 Torre David http://stocktown.com/wp-content/uploads/2014/04/65-Venice-Archi-Biennale-torre-david-Confinanzas.jpg
38 Torre David http://tedconfblog.files.wordpress.com/2013/10/08-confinanzas-0925-1.jpg
39 Personal Illustration
40 ECB https://www.ecb.europa.eu/ecb/premises/intro/downloads/html/index.en.html
41 Personal Photo
42 House Personal Illustration
43 High Rise Personal Illustration
44 Personal Illustration that includes content from OSM (OpenStreetMap)
45 Personal Illustration that includes content from OSM (OpenStreetMap)
46 Personal Illusrtation
47 Personal Illustration
48 Personal Photo
49 Personal Photo
50 Original from Google Maps
51 Personal Illustration that includes content from OSM (OpenStreetMap)
52 Personal Illustration that includes content from OSM (OpenStreetMap)
53 Personal Illustration that includes content from OSM (OpenStreetMap)
53 Personal Illustration that includes content from OSM (OpenStreetMap)
55 Personal Illustration
56 Personal Photo
57 Personal Illustration
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71 Personal Illustration
72 Personal Photo
73 Personal Illustration
74 Personal Photo
75 Personal Illustration
76 Personal Photo
77 Personal Illustration
78 Personal Photo
79 Antimonument - Personal Illustration
80 Personal Illustration
81 Personal Photo
82 Personal Photo
83 Personal Photo
84 Personal Photo
85 Personal Photo
86 Personal Photo

87 Diagram - Personal Illustration
88 Diagram - Personal Illustration
89 Diagram - Personal Illustration
90 Diagram - Personal Illustration
91 Diagram - Personal Illustration
92 Diagram - Personal Illustration
93 Siteplan - Personal Illustration
94 Siteplan - Personal Illustration
95 Rendering - Personal Illustration
96 Rendering - Personal Illustration - Contains content from Google Street View
97 Elevation - Personal Illustration
98 Rendering - Personal Illustration - Contains content from Google Street View
99 Elevation - Personal Illustration
100 Rendering - Personal Illustration
101 Elevation - Personal Illustration
102 Rendering - Personal Illustration
103 Elevation - Personal Illustration
104 Rendering - Personal Illustration
105 Section - Personal Illustration
106 Rendering - Personal Illustration
107 Section - Personal Illustration
108 Rendering - Personal Illustration
109 Rendering - Personal Illustration
110 Rendering - Personal Illustration
111 Rendering - Personal Illustration

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