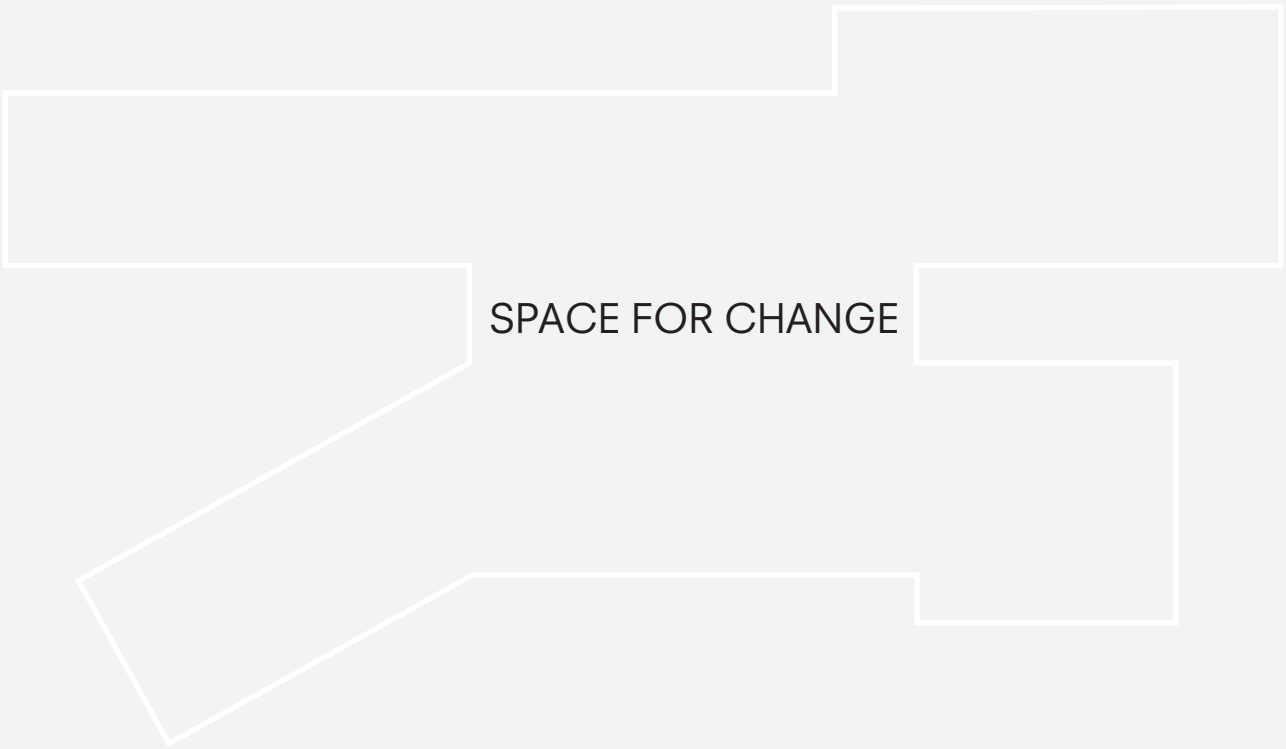

SPACE FOR CHANGE

MIDTOWN NEW YORK

GRADUATION STUDIO

FLORIS BUIJS

8 **01 Introduction**

22 **02 Site**

46 **03 Barriers in the city**

72 **04 Green hill**

86 **05 Urban renewal**

106 **06 Precedents**

138 **07 Space for change**

This book is a personal sequel to the group book and builds on the conclusions and findings that this produced. In this book, I compiled all of the research and products that have led to the final design and the answering of the research question.

I hope you enjoy reading or just flipping through this book. A book that contains the result of long days and short nights but most of all a lot of fun.

Floris



01 INTRODUCTION

Space for change

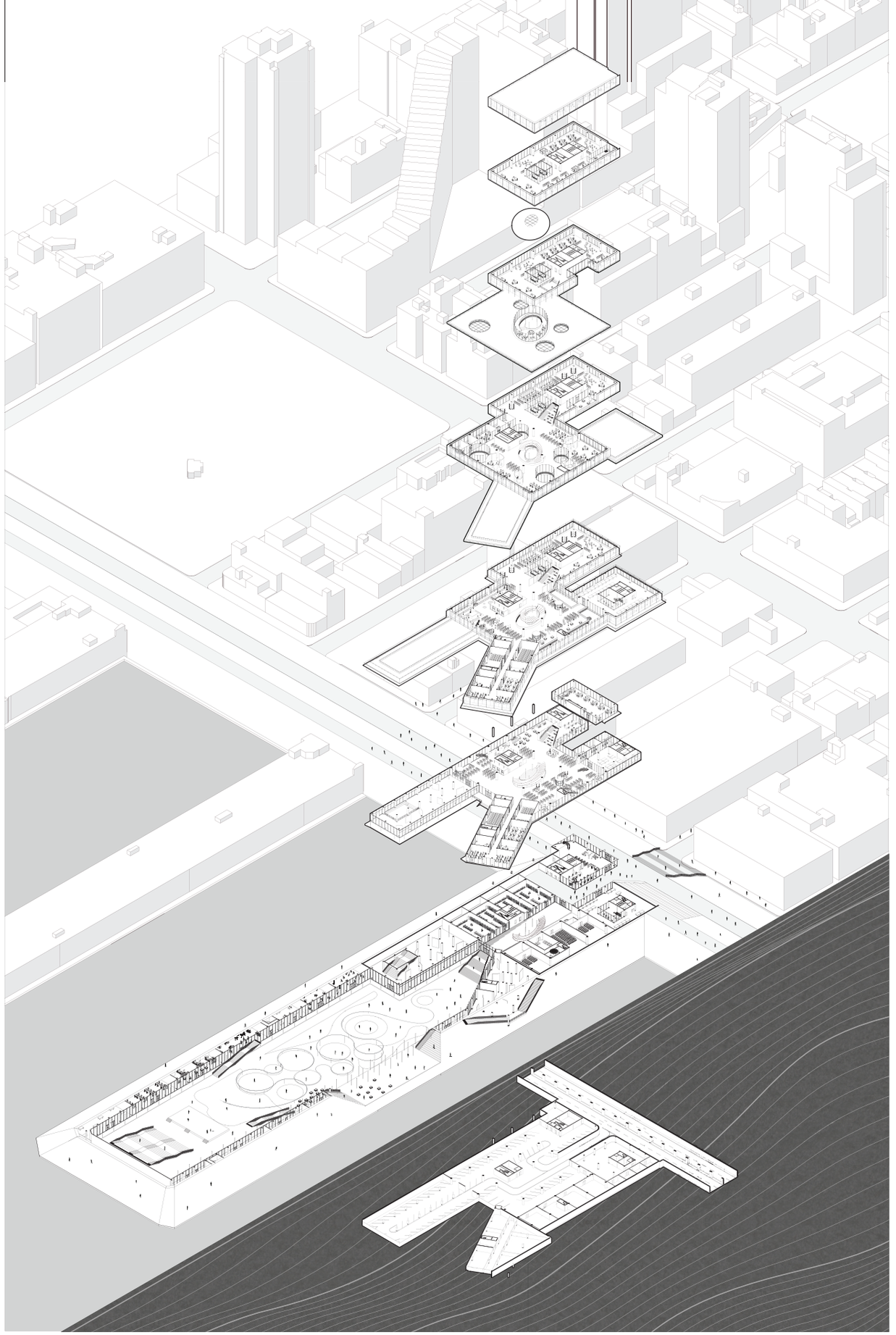
It is the year 2040 and the city of New York has redeveloped its post-industrial waterfronts to a new vibrant part of the city. Post-industrial area's continue to densify, fusing the waterfront with the rest of Midtown. The barriers that used to be have been diminished and transformed into new public space, connecting north to south and east to west.

At the core of this urban renewal is the Inspiration Lab, a space that creates a new covered urban plaza, inviting in all those that seek a place to come together and learn. The lab functions as a meeting place for locals, with space to meet, collaborate, create and learn through expositions, theaters, coffee shops and a large urban park.

The presented proposal is the result of an investigation into the use of culture as a driving force for urban redevelopment, focusing on the area of Midtown New York. In western cities, there is a growing tendency of using cultural institutions as a catalyst in the urban context. Most of these interventions are purely for marketing of the city and profit driven, rather that creating a holistic approach that benefits the city as a whole.
Creating a speculative narrative for a local approach to urban renewal, this project investigates the possibilities for a cultural institution as a facilitator between the urban renewal on the city scale and the development of a community of a local scale.

The inspiration lab is an evolution of the existing, traditional libraries. Taking the same model of a library as an open lace for everybody but adopting it to the current needs and keeping an open approach to the future. This new type of library provides flexibility in its spaces to be able to cater in programmatic changes that reflect the needs of the community.
The building is a collection of fragments, with each fragment corresponding to a different type of character. These characters influence the programmatic layout of the building. This approach creates more flexibility within the building while maintaining the atmosphere and character f the volume as a whole.

The project is an typological and architectural conclusion to the approach of using cultural institutions as a means of urban redevelopment of cities. While the project focusses on the area of Hells kitchen in Midtown, the idea's and conclusions put forth in this research can be repeated in other western cities around the world that deal with a similar issue of underdeveloped post-industrial zones.



Complex Projects

The research is developed within the Chair of Complex Projects. Complex Projects investigate settlements around the world with ambiguous developments and processes of change. Through a critical approach to different urban conditions, that generates the complexity of contemporary postmodern realities, a more analytical approach to the design process can be achieved to answer to current urban environments. Within this research context, students are free to develop their own vision and design scenario. However, such a vision is connected to and part of the larger discourse of the group as this will be the result of the overall understanding of the area of research.

The Complex Projects Graduation program is developed during two semesters and, in this case, is focused on the area of Midtown, Manhattan. This specific site is home to some of the most iconic buildings in New York and still, today remains the largest business district in the world as well as one of the most expensive sites for real estate. Recently, the role of the CBD (Central Business District) is changing as a result of a shift due to new developments such as Hudson Yard, which translates into a reorganization of the area, together with new urban challenges. The studio aims to pursue a critical examination also on the political, economical and environmental changes that the area will necessarily experience.

The methodology of the studio is rigidly structured and combines group and individual work. The group work is intended not only within the group itself but also in co-participation with a previous group of students that worked on the larger area in the previous semester.
The starting period of the process consists of gathering data and goes along with the production of a 1:1000 scale model. The model is the first step to gain a spatial understanding of the city of New York and the impact that the grid system has on the city structure. The rigidity of the grid shapes blocks of 61 m by 190 to 280 m wide imposing a framework that resulted in a hyper densified and unique fabric, yet such rigidity allows for three-dimensional anarchy defining a new balance between control and de-control that makes the city a metropolis of rigid chaos. Due to the rotation of the grid, relative to true north all the maps that are used in the book have a deviating orientation. This orientation is based on the grid (29 degrees), found throughout whole Manhattan, and therefore is called the Grid North.



The Complex Projects studio is divided into two parts, the studio itself that deals with the answering of the research question developed by students and the City of Innovations seminar. This seminar series consists of lectures given by practicing architects on topics related to the studio, with each lecture ending in a debate within the group to gain more knowledge and question the findings in the research.

The second part is the seminar, under which all of the research is structured. This research is divided into four phases with each phase ending with a presentation. The first and the third presentation mark the end of a group phase, two phases in which the focus is on the group interaction and the joint deliverable. The second and fourth phases are the individual parts where students focus on a problem that they have identified and develop that further.

01 Hard
In the first phase, hard data served as a means of collective gathering and exploration of objective data. This data is visualized in maps and a large scale model of the area of research. The results of this phase form the kickoff for the rest of the studio.

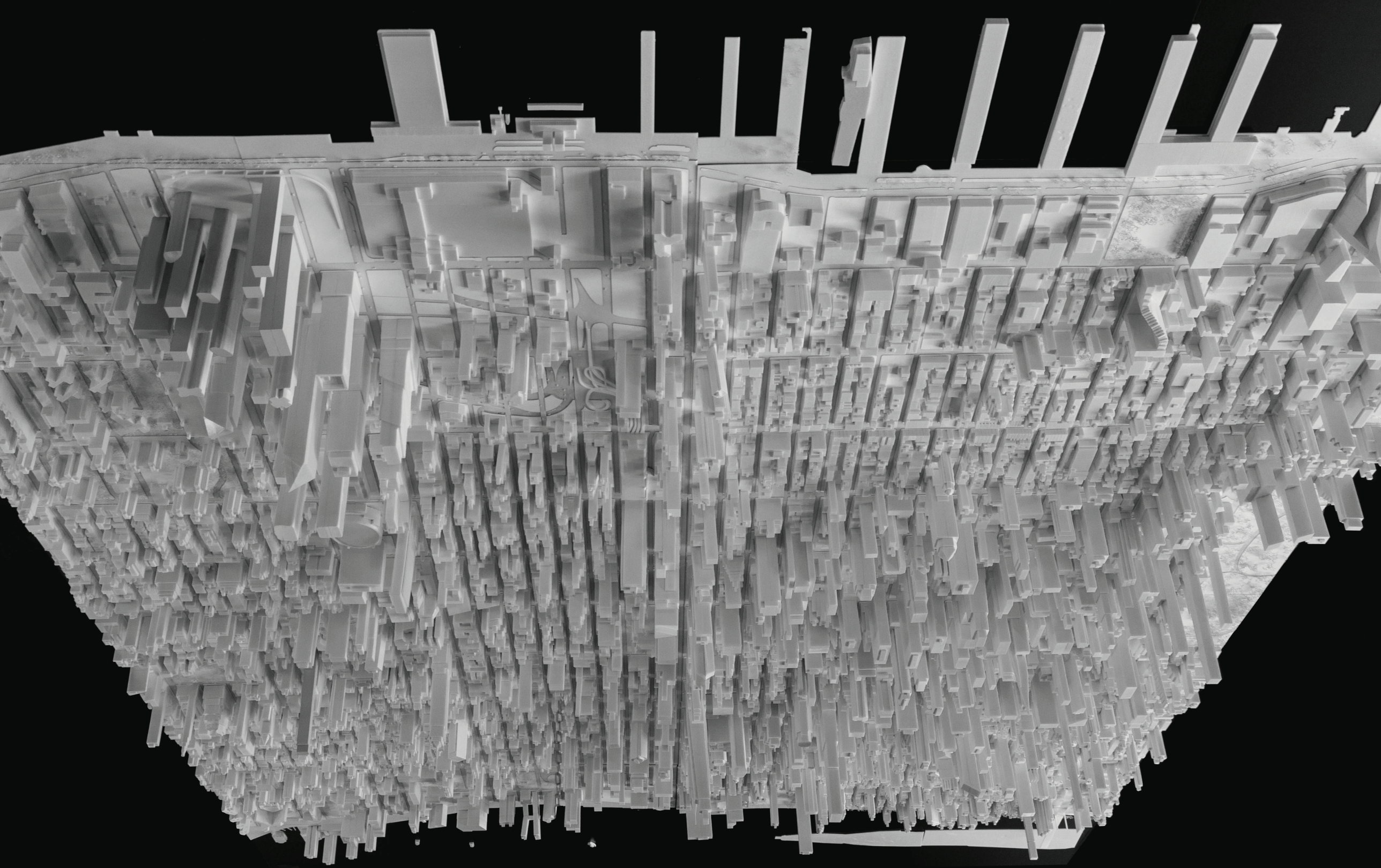
02 Soft
The second phase serves as a time for students to explore their personal fascinations in the context of Midtown New York. The goal is to propose a thesis topic that serves the studio part of CP.

03 Space
The third phase starts with the studio trip to New York to both experience the location first hand as well as verify the conclusions drawn in the previous weeks. The trip also serves as a way to understand the spatial characteristics, trends, and changes that the location is undergoing.

04 Brief
In the last phase, students conclude the research that has previously been done and translates this into a design brief. This design brief serves as the start of a design assignment with a defined location, program, organization, and ambitions.

The group book has been created as the conclusion of the City of Innovations seminar, this book contains the products of all these four phases.

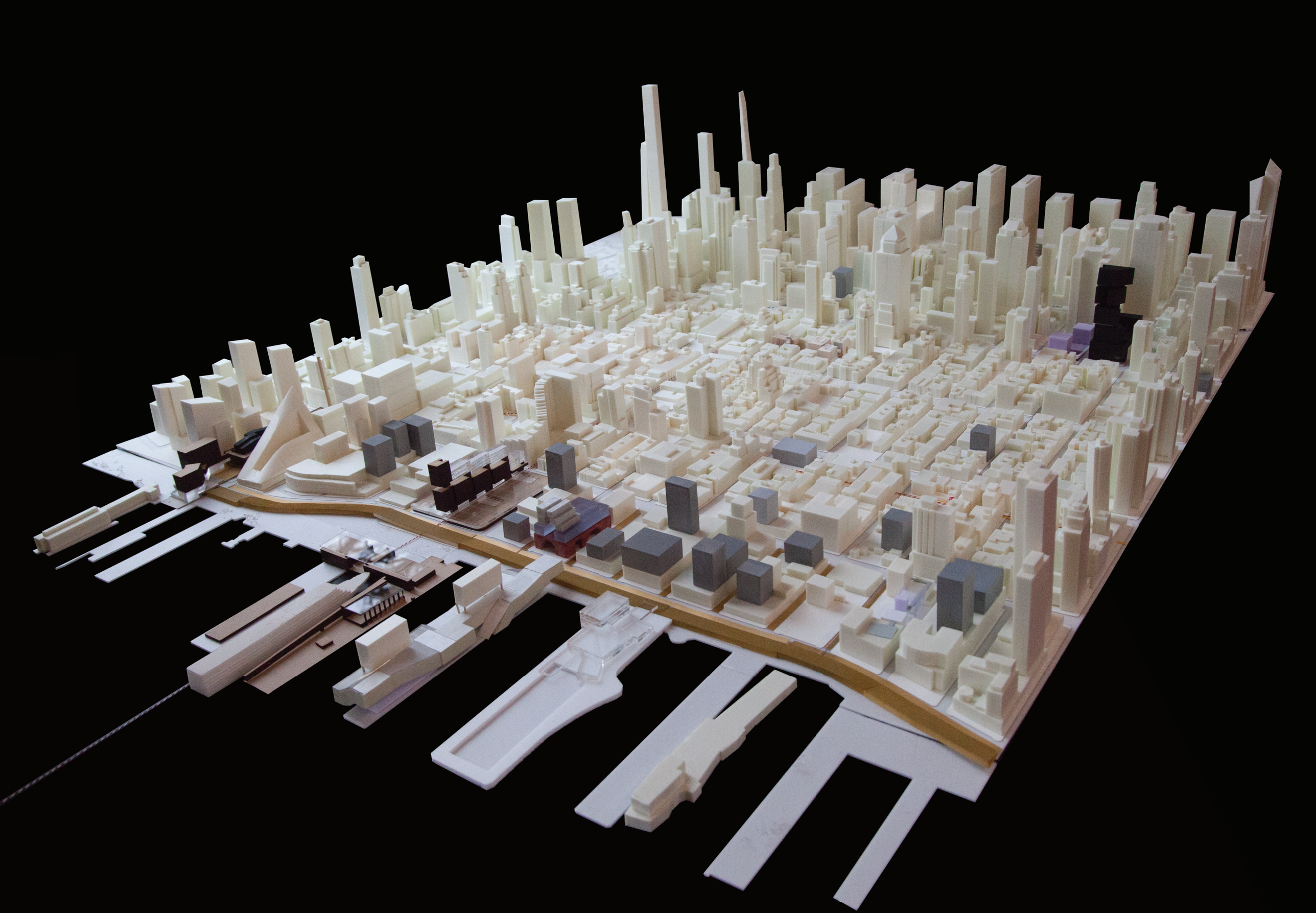




Together with the collection, analaysis and visualisation of data and maps, modelmaking is an extra method of investigation and study in Complex Projects. As a group, students work on creating a large 1:1000 scale model of their respective area of research.

At first, this model helps to understand the scale of the site and the buildings. After that, is is constamtely bing used throughout the research pahses and the developemnt of a group vision. This model is therefore continuously evolving by implementing the group vision and personal design projects.





02 SITE

Diluted Town

The research site of the Complex Projects studio is the whole of Midtown, Manhattan. This site extends from 22nd to 62nd street and is bordered by both the Hudson and East rivers. This part of Manhattan ha previously been examined by a previous group of students, the result of which forms the base from which this new group will continue its work.

To create a more detailed analysis and more encompassing site vision, the area of Midtown has been divided up into four quadrants. The four groups that make up the studio will focus on one of these areas for the duration of the studio.

These four districts, however, are not distant from each other and very much share characteristics and deal with tensions between them.

The quadrant in the Northeast is dubbed the "Valley of Giants", referring to the shift in offices from what once was the heart of Midtown with the landmarks, leaving behind a valley in an area of former giants.

The Southeast corner of Midtown has been named "Empire Village", a reference to the metropolitan aspects of the site, with landmarks, dense commercial and institutional developments versus the residential center, with a smaller, village-like character.

The Southwest section of the site is "Transitional Yards", "transitional" denoting the change the area has undergone in terms of the built environment as well as its social composition, and "yards" referring to the significant role transportation infrastructure has played in the site's history.

The area to the Northwest is the site that this group is analysing, it stretches from 62nd to 42nd street and from the Hudson River to 6th avenue. This area is rebranded as "Diluted town", a reference to the diluting impact that the waterfront has had on a large part of the site, lessening the possibility for developments and densification as well as the complete lack of a connection between the city and the Hudson River.








EST. 1890
ONE WAY
TRADITIONAL
JAPANESE
FULL CONTACT
KARATE
ADULTS
TEENS
KIDS
TINY TOTS
NYC
大山
HELL'S KITCHEN
754
SMOKE
LOTTO
SHOE REPAIR
BARBER SHOP
BUD LIGHT
Cajun Seafood House
TRIMMED
ALICE
BLKS
HK
SPA
PIZZA


NORWEGIAN ENCORE
NCL
NORWEGIAN
CRUISE LINE®
NORWEGIAN ENCORE


INTREPID


Allianz
90
88

Location

The location that came forth from the research to create a new building on to tackle the research question, is the current cruise terminal on pier 88. This pier is part of a total of three piers that together form the Manhattan Cruise Terminal along the waterfront of Hell's Kitchen.

The first row of blocks along the waterfront is characterized by an industrial character of warehousing, storage, and manufacturing. Even though the waterfront areas around it have radically changed since the shipping industry left Manhattan, the zoning of this part remained industrial.

Even though the current situation clearly shows a large amount of vacancy and signs of changing needs in the city, zoning laws have kept the area from evolving.

Between the row of blocks and the waterfront is 12th avenue, also known as the West Side Highway. This highway runs from 72nd street, just north of the research area to the southern tip of Manhattan. Although it is officially a highway, it does have traffic lights at every intersecting street and is thus only special because of its width.

And exactly this width and the presence of such a large road forms a great barrier between the city and waterfront.

The last part of this waterfront is the piers themselves. The cruise terminal is made up of three piers with simple two-story buildings that cover the whole pier. In front of these buildings is a two-level elevated road that facilitates the terminals and provides access to the parking decks on the roof.

For safety reasons, the whole area along the waterfront is fenced off with a large steel and concrete fence. At every opening, there are permanent security guards checking everyone that enters the premise.

There is, however, a lot of potential in this location. Looking past all of the large concrete structures and fences that deter anyone from going to the waterfront and enjoying the view, there is hope. The two piers to the south of the terminal have a more public character with a museum and park on it. Here, everyone can escape the busy city and experience the sea breeze and a spectacular view of New Jersey and the skyline of Midtown.

Manhattan Cruise Terminal

27 m

320 m

W 52nd Street

W 51st Street

W 50th Street

W 49th Street

W 48th Street

W 47th Street

W 46th Street

W 45th Street

W 44th Street

W 43rd Street

Green Hill

12th Avenue

11th Avenue

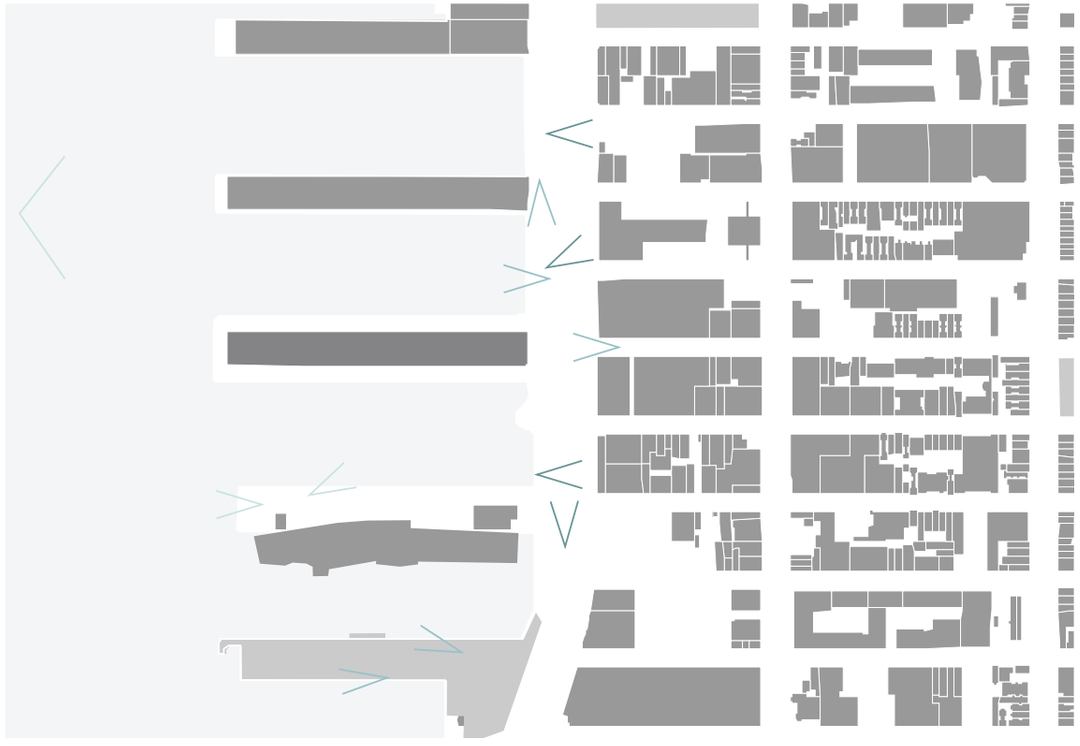
10th Avenue

USS Intrepid Museum

Hudson River Park

Preservation area

39





01 Anonymous warehousing



02 Closed carwash



03 Old parking fascilities



04 Guarded entrances



05 Busy highway



06 A view framed by fences



07 Fenced off



08 Public park



09 Area seen from New Jersey



10 Skyline of Midtown



11 View to New Jersey

30

BARRIERS IN THE CITY

CREATING A CONNECTION BETWEEN CITY AND WATERFRONT

Creating a connection between city and waterfront

Manhattan is an island surrounded by the East, and Hudson Rivers. These rivers were once the critical lifeline that transported goods and people both into and from the city over long distances. Throughout time the relationship between the water and Manhattan has changed quite a bit, to now having almost no connection with the water. The only time the city and its residents really deal with the water is when taking the ferry, or in extreme weather conditions that flood parts of the city. For an island with a density as high as Manhattan, with so little open and public space this seems like a big contradiction.

For Manhattan, the Hudson River used to be purely functional. A body of water that made transporting goods and people possible over longer distances. The coast of Manhattan was then characterized by piers that lined both sides of the island. To support the industry on the water, the first row of buildings in Hell's Kitchen was also lined with large industrial and warehousing facilities. Because the water was purely functional, the city never made any real effort to create a meaningful connection with the water.

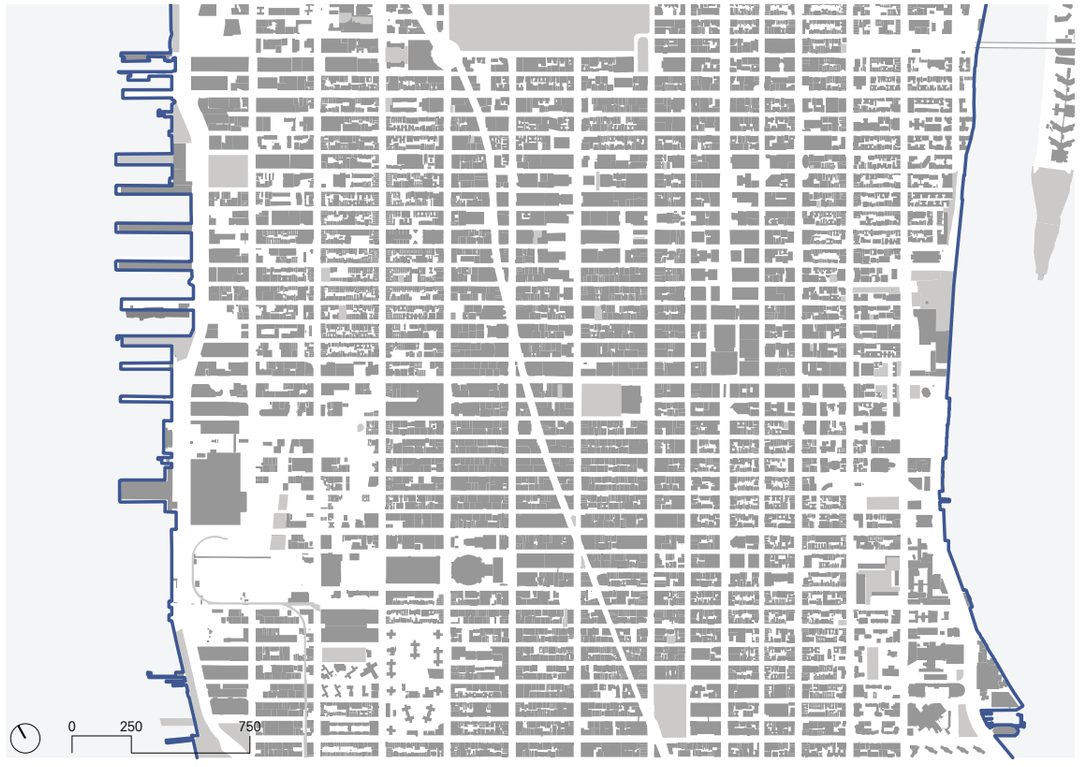
As the industries and the city of New York developed further, most of the harbor industries moved away from Manhattan towards the south, where more space was available. This development is seen in a lot more harbor cities such as Rotterdam and Amsterdam, where the harbor moved away from the city and towards areas with space to better accommodate the growing spatial requirements and demands of the harbor. In these cities, the harbor functions moving away from the center meant that the barriers to the water, either through visibility or in access were removed. Through these developments, these cities were now able to develop along the water and seek a connection with the water for its inhabitants, making it a quality in the living environment.

In New York, however, after the harbor functions moved away, some of the piers were demolished and the coastline was shifted by reclaiming land on the east side of the island. Because New York had always had a road along the coastline to transport goods to and from the water, it was limited in the number of new developments that were possible along the water. The only significant exception to this is the United Nations campus between East 48th and 42nd street. This campus spans over the FDR Drive but lacks a real connection or public access to the water. Most buildings closest to the water seem to be turning away from the water, as the presence of the large roads formed a nuisance, both in sight and sound.

In Hell's Kitchen, the development of the coast did not follow the same trend. The harbor functions stayed and are still present. Although the buildings are not up to date anymore, they are still being used as a cruise terminal, as the piers are the only ones with a significant length that can house modern cruise ships. The presence of the cruise terminal and industry meant that the waterfront is not as densely developed as the rest of Manhattan, creating an opportunity to develop more real estate along the waterfront, as well as creating a meaningful connection between the city and the water.



03.01.02 Pier structure 1900-1960



03.01.03 Pier structure now

Borders in the city

Hell's Kitchen and the neighborhoods around it are a kind of patchwork of different fragments that exist together but were never designed to work together. This fragmentation is also partly what keeps Hell's Kitchen from developing towards the waterfront. Moving from the residential part towards the water, one goes through an area of warehousing, then past a busy highway to end up in an industrial area with fences that keep you from going to the water. Through this movement, people run into both visible as well as experienced borders that keep them from going towards the water. As a result of the infrastructural and functional borders, the area is not attracting people towards the waterfront, creating a barrier between the city and water.
It is thus the fragmentation that creates borders in Manhattan and around Hell's Kitchen. The main barrier that this research will focus on softening is the old infrastructure, creating a visible and experienced border between the city and the Hudson River.

Around the world, there are numerous examples of infrastructural zones that have been redeveloped to form less of a border in the city. These transformations made use of different techniques, but all involve the use of green spaces to create a pleasant destination for people. The goal is to remove the unpleasant border and get people to use the transitional space and overcome barriers.

The first example is the aboveground train tracks of Delft that were running above ground through the city until 2015. Though the first thoughts of tunneling the train tracks stem from 1992, the plans were not finalized until 2007. In the old situation, the city had two tracks running above ground that created a separation between the old city and the expansion areas to the west. The idea for tunneling the train tracks came after the decision to add extra tracks that required more space than available on the ground level[1].

By removing the barrier that the train tracks formed, the city could redevelop the area by creating a mixed-use program with more space for greenery. With the removal of the sound and air pollution that came with the train tracks came an additional benefit for homeowners around the development area. Since the tunneling has finished, the price of real estate grew by an average of 15% within a 100-meter distance to the tracks[2]. In this example, it was not a goal for the city to create a new destination for people to make it more attractive to move through the border, but removing the border itself as a whole.

A similar redevelopment has changed the infrastructure in a part of Boston, where a large elevated highway was put underground. With the tunneling of the six-lane highway, the city sought to relief the surrounding neighborhoods from what they called the "green monster". Because the expressway was a poorly designed overpass with an escalating traffic flow that was well beyond the design capacity, a new road was necessary to get rid of the congestion and nuisance. The resulting area was developed into a 30-meter-wide and 2.4 km long park that provides relief to the area, as well as seeks the connection with the waterfront3. The winding park consists of plazas, fountains, landscaped gardens and has a road on both sides that caters to the smaller-scale movement of people. Here again, the city removed the border itself to make people be able to use a space that they were never able to make use of because of the infrastructure.

In Leiden, a study was done by M. Riedijk, N. Deboutte, and K. Geers into the infrastructural obstruction created by the train tracks that lay between the old city and the university. One of the options would have been to tunnel the tracks, like in Delft, but they opted to go a different route. They claimed that "removing and developing underground works like a magic wand: a presumed problem is eliminated by an inexplicable, magic – presumed – liberating deed" (Riedijk, Deboutte, & Geers, 2008, p. 39)5. Because of the qualities of buildings and the structure od the city, they researched the option of removing the physical appearance of the train tracks, instead of the barrier that is created. This approach creates a radical volume that acts not as a landmark but as an urban barrier, thus removing the nuisance that the border created. Rather than removing the border, they turn the border into a new one that forms a destination and marks the historical trainline.

Prominent in the area of research is the Westside highway, stretching from the top of Manhattan to the very bottom tip (figure 15). This six-lane highway, together with the FDR (Franklin D. Roosevelt) Drive on the east side of the island form the main roads for north-south oriented traffic. While the FDR Drive has certain sections that are tunneled in, the Westside Highway is always above ground. Like in the projects mentioned before, different options are possible to create a new connection that deals with the current barrier. This new connection car either includes dissolving the problem by tunneling it in like Boston or articulating the breach similar to the proposal in Leiden. Both proposals would have their ups and downs, but both remove the nuisance that the current border creates and creates new possibilities for the waterfront connection.



03.01.04 Delft - Old situation[2]



03.01.08 Boston- Old situation[4]



03.01.05 Delft - New situation[2]



03.01.09 Boston- New situation[4]



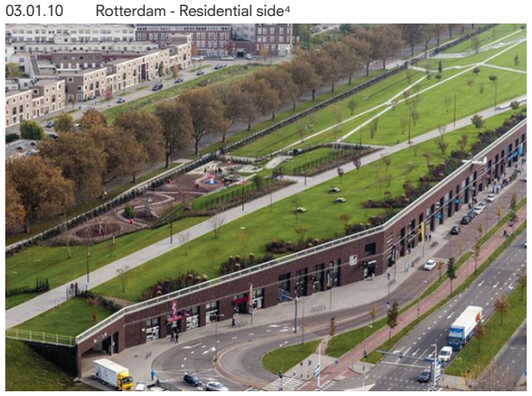
03.01.06 Leiden - Proposed plan[4]



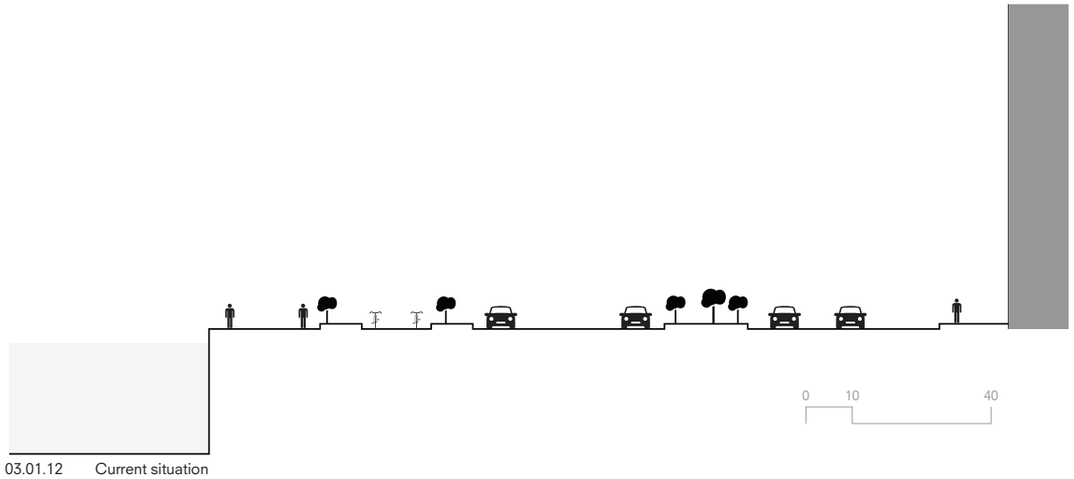
03.01.10 Rotterdam - Residential side[4]



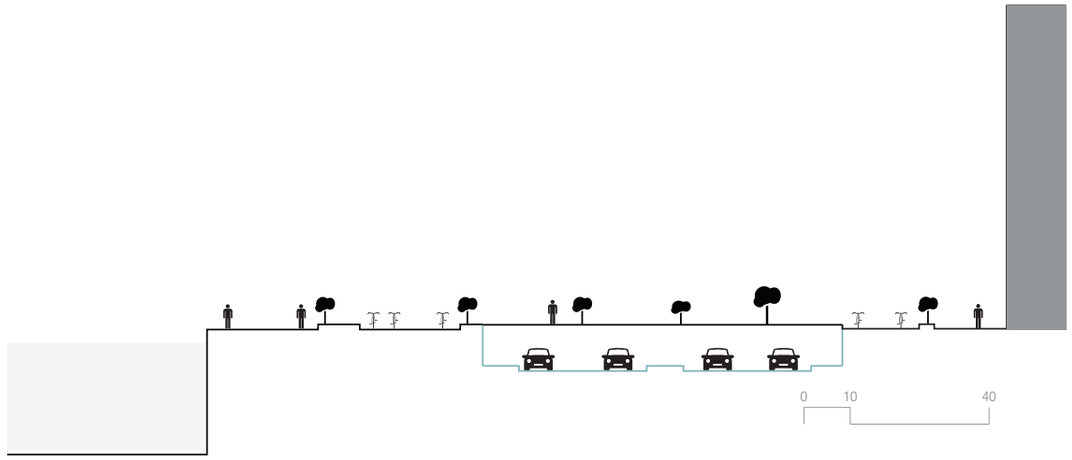
03.01.07 Leiden - Proposed plan[4]



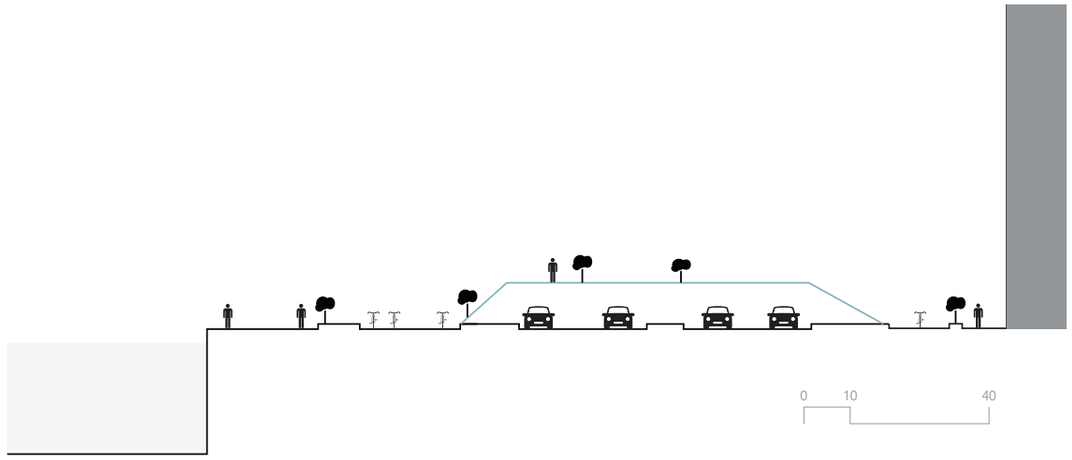
03.01.11 Rotterdam - Industrial side[4]



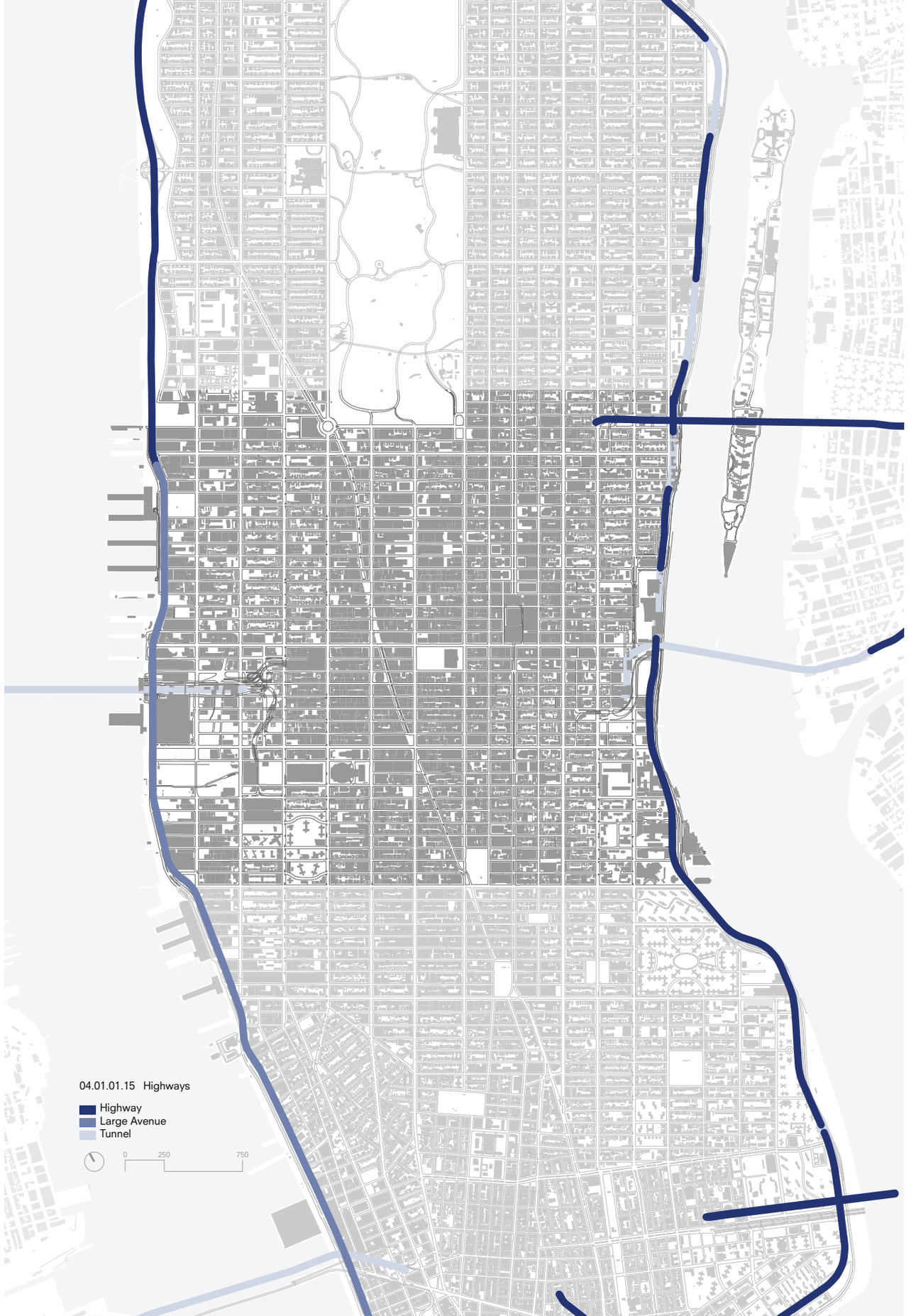
03.01.12 Current situation



03.01.13 Hiding the road



03.01.14 Articulating the road



While these previous examples of barriers are created by forms of infrastructure, there are also examples of borders that deal with programmatic and typological differences that are more experienced based. Sometimes, these borders are felt because of architectural differences, social-economic actors or programmatic differences.
In Rotterdam, this programmatic difference creating a possible barrier came up during the redesign of the railway yard next to the harbor area Merwe Vierhavens. The railway yard was moved out of the city, opening space for a shopping mall with large stores. To remove the nuisance the new situation would create for the neighborhood, a border in the form of a large park was designed. From the neighborhood, the park gradually slopes up to a height of 9 meters. This park makes the transition from residential to the busy harbor area more gradual and creates a pleasant destination.

Richard Sennett creates a distinction between borders and boundaries in the way they create divisions. In modern urban planning, these boundary conditions are no longer solid walls but are much more experienced as in the case with highways that create invisible walls. The problem with these conditions is the lack of porosity, creating withered spaces that lack development8.

As explained earlier, this section of Manhattan is a patchwork of different neighborhoods with each of them having a different characteristic. Along the water, as well as the first row of buildings is a very industrial area with anonymous warehouses. Along the road, these buildings are shaped with dead, monotone facades that are of a different scale level than the residential buildings. The fact that there are currently no reasons or destinations in this first row of blocks, keep people away. This patch of the neighborhood might not have a visible barrier like the Westside highway but is experienced as one due to the functional/programmatic and the related architectural differences (figure 21).

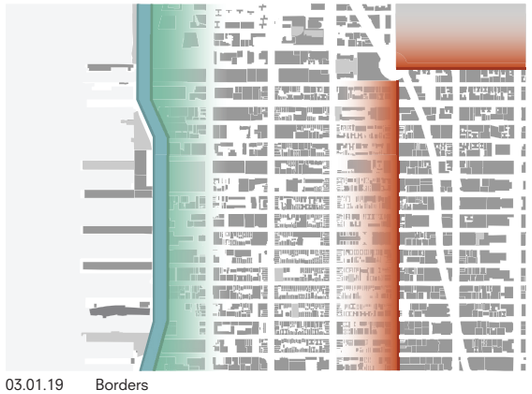
The other fragmentation in the area is a direct result of the special preservation area that aimed at preserving the Hell's Kitchen area. While the goal of the preservation area was to keep the characteristic neighborhood, it did nothing more than preserving the bricks that make up the neighborhood. Within this district, high-rise buildings are not allowed, creating a third type of border in the area of research, height.
Right next to this is the Midtown neighborhood, known for the high-rise towers and large office complexes. Between these two parts, exists a stark contrast in height that can be noticed both from street level as from birds-eye. On street-level, this creates a barrier when moving from Hell's Kitchen into Midtown, while it is more of a relief when moving the other way as the space seems to open up (figure 20). Along the edge of Central Park, on 59th street this contrast is even stronger and extreme. Here, one side of the street is lined with the highest towers of Manhattan, while the other side is a park with trees.



03.01.16 Infrastrctural border



03.01.17 Functional border



03.01.19 Borders



03.01.20 Height differences



03.01.21 Functional differences



Activating the waterfront

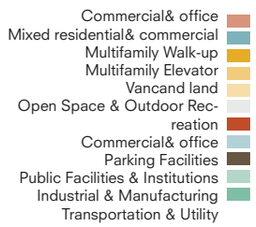
This part will go deeper into this relationship between the city and the water, looking at both the functional as well as spatial opportunities that exist in the area to create a better environment.

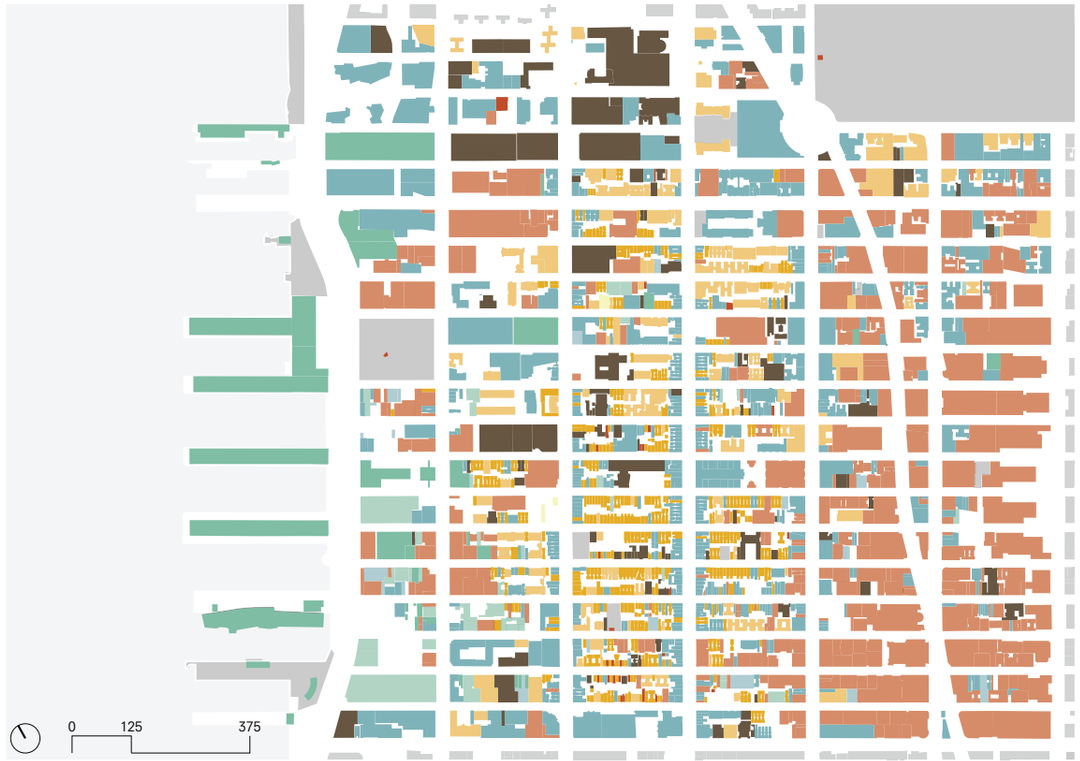
The three zones in the area each have a very different feeling, and are dominated by specific functions, with a lack of diversity. Jane Jacobs argues in her book that the ideal city should have a great variety of functions mixed in a street9. The current situation is the exact opposite of this, filled with only one function, industry that is becoming obsolete. One of the ways to bring back activity is through this variety to create a lively city that buzzes with activity all throughout the day.

This lack of different functions creates opportunities for redeveloping and rezoning of regions in Midtown and blocks in the area of research. Especially the industrial zone along the water is of interest as the current buildings are obsolete and largely vacant. These buildings form the image of the city from the water and work together with the highway to form a border that people experience.

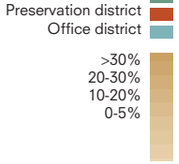
When observing the density or FAR (Floor area ratio) of the research area, these three districts come back again. The highest density is found in the office district of Midtown, where the tall and iconic skyscrapers are situated. The special preservation district of Hell's Kitchen is marked by 5 story walkup dwellings. The blocks with the lowest density are the old and obsolete industrial buildings in between 11th and 12th avenue.

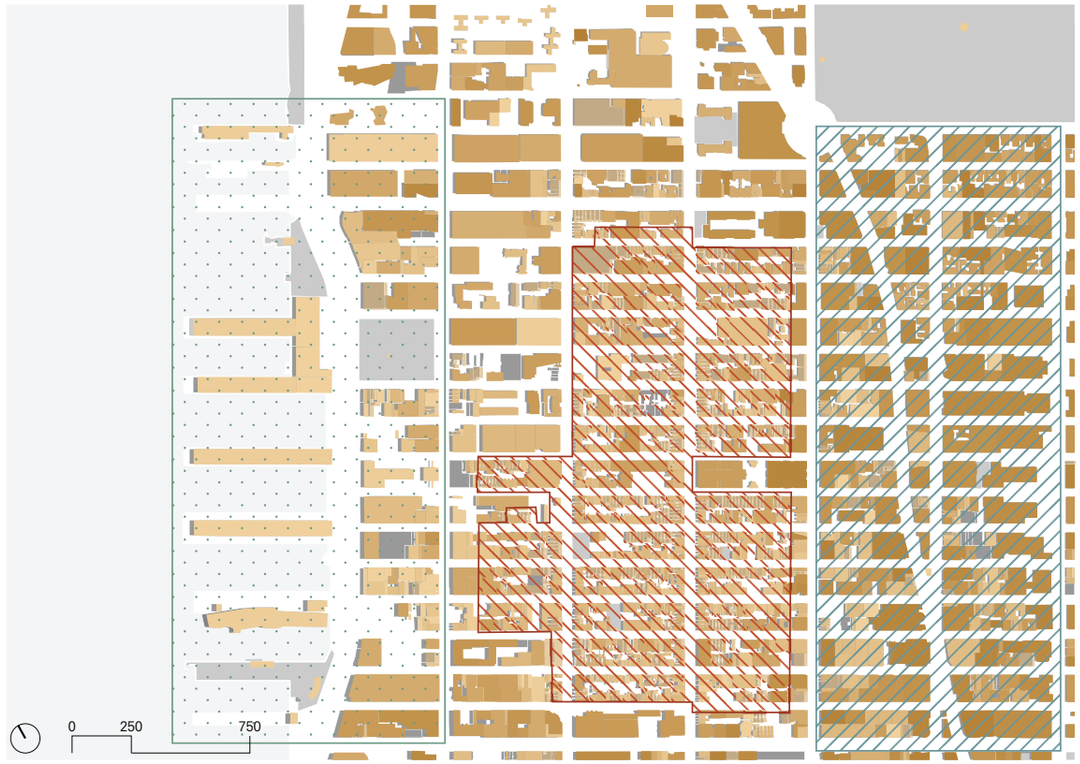
The lower density in Hell's Kitchen doesn't form big opportunities because of the special preservation district that is assigned to it. This keeps developers from densifying or drastically redeveloping the area. The waterfront along 12th avenue could become an opportunity if the zoning regulation changes to allow for a higher density.





03.02.23 Functional zoning regulations





03.02.24 FAR and zones

The grid structure of Manhattan has created a rigid plan with rectangular blocks in different lengths. The length of the block has a big influence on the activities happening along the plinth of the block. Towards the east side of Manhattan, blocks are shorter than on the west side. The shorter blocks create an area with better walkability. With shops, restaurants, etc. located all along the plinth, the surroundings keep changing., thus reducing the scale of the built environment around them.
The longer length blocks in Hell's Kitchen are monotone in function in the middle sections. Because of the difference in walkability, public functions such as restaurants and theaters are all focused along the avenues.

Because of the 12th avenue highway running along the water, there aren't any public functions close to the waterfront. Creating destinations along the waterfront gives people a reason to move towards the waterfront, through the industrial blocks. Creating destinations and opportunities for redevelopment puts more value and attention to the waterfront, creating a renewed appreciation for it.

When working on lessening this border between the city and the water, there are really two sides to the problem. The first one is the border itself that has been described before. The second is the piers that are completely private and fenced off to keep people away. The goal is to bring about change in this area by turning the pier into a place with a collective goal with a recognizable activity on it. Adding a public destination to the waterfront, creates a reason for people to move to the waterfront and cross the borders that exist.

Currently, most of the area along the waterfront is fully private or requires an entrance fee. This new place needs to be a truly public attraction for the neighbourhood. Throughout time and the economic forces that act upon Midtown, gentrification has made the community in Hell's Kitchen unstable and lacking in diversity. In a lot of places, cultural institutions have shown to be a measure to bring about urban regeneration. By means of using cultural institutions, people become familiar with an area. At the same time, this method of regeneration is very much two sides. Where it creates attraction for an area, is can also form the spark for more gentrification such as in Bilbao, Spain. A more local and open approach to culture can be used to spread prosperity to all levels of society, which helps with overcoming the barrier. Because the stable community is lost, as well as vital functions that are needed to support a community, culture is a way of bringing back the pride for the neighborhood and the sense of anchoring[10].



03.02.25 Public acitivities



03.02.26 Public/private

Redeveloping this area of Midtown with the goal of softening both the infrastructural and experienced borders will open up the possibility for a inviting and usefull connection between the city and the collective waterfront. By adding a destination in which this collectivity can be experienced and shared with other people in the neighborhood, it will become an area that people want to move to and use.

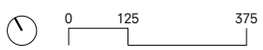
Hell's Kitchen used to be a low-cost residential neighborhood with tenement housing, known for the criminal activities throughout the roaring twenties and the age of prohibition. Throughout the years, Hell's Kitchen has proliferated itself to now being an area for the new upper and middle class with an abundance of retail and restaurants, where only the facades are reminiscent of what once was.

To combat the effects that gentrification on the community could have, the city created a special preservation district, aimed at preserving the community. This preservation area did not do such a thing and only the buildings that formed the neighborhood from demolition.

Though these policies were put in place, 40 years later there is not much of a community left in Hell's Kitchen. The people living in the area form quite a homogenous group, that is mostly white, single, and has a medium to high income. With this, they don't represent anywhere close to an average society. The second problem is that plagues Hell's Kitchen is the high turnover rate of houses. People that live in this area tend to only stay for a couple of years and then move to other areas, either within New York or towards New Jersey. This seems to be motivated by the lack of different housing types and sizes in the area. Therefore, people move away when they want to move into a larger or different type of home. As a result of this high turnover rate, more people decide to make use of new economic opportunities offered by companies like Airbnb to rent out their homes.

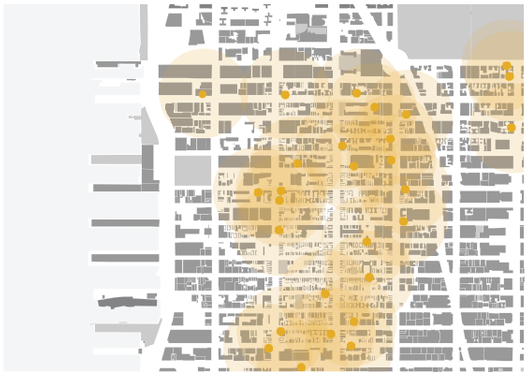
For a neighborhood, this means that fewer people feel like they belong to a community that they feel responsible for. Taking ownership over the space is, therefore, less common which could lead to a decline of the public space. These factors together make the Hell's Kitchen area into an unstable neighborhood that has been heavily influenced by gentrification and tourism.

By introducing vital functions that are needed for a community to be able to withstand, recover and respond to any type of adverse situations, the area could be made more attractive for residents to stay and create a more diverse group of inhabitants. Vital functions, in this case, are defined as those that are needed to support a community on both a short and long term. Some of these will include cultural functions, a variety of housing typologies, meeting places, and supermarkets. As illustrated, some of these functions are currently present within a short, walkable distance. These functions will not only make living in the area easier as functions are closer by, but they also create places where interactions between residents take place. Knowing the people in the neighborhood will create a better bond to the area, as well as supporting inclusion.





03.02.27 Health and human services



03.02.31 Dry cleaning



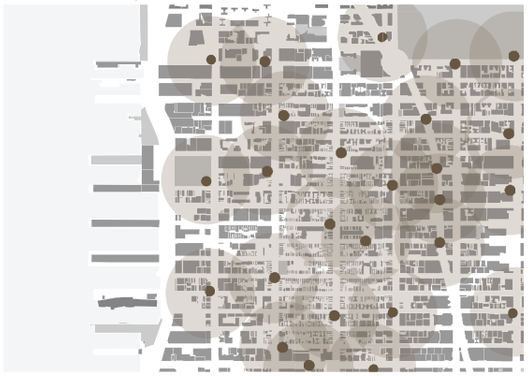
03.02.28 Education



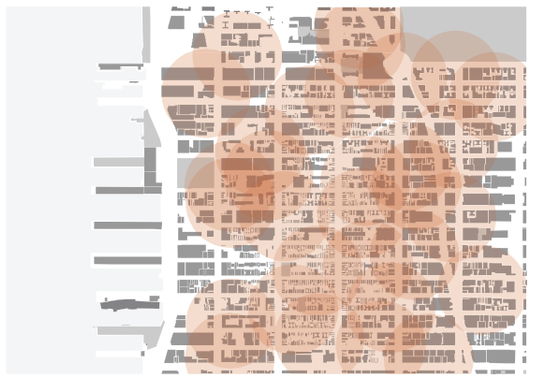
03.02.32 Paid sports venues



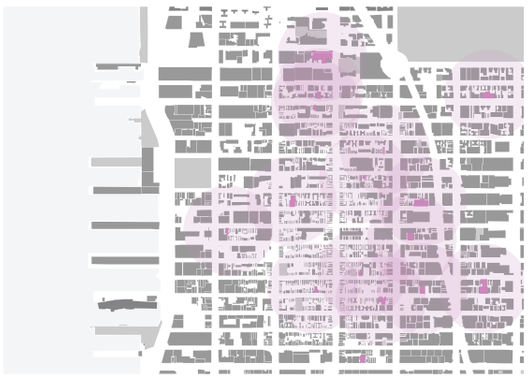
03.02.29 Parks



03.02.33 Citibikes



03.02.30 Cultural programs



03.02.34 Places of worship

Next to public functions, cities also house different types of public, cultural institutions. These include libraries, theaters, museums, and movie theaters. When all of these are mapped in Midtown, the theater district sticks out as a large concentration within the area of research. Although this is a large concentration of cultural institutions, it lacks diversity and truly public spaces, as there is still an entrance fee.

The rest of the area is almost a desert that lacks some of the more daily used places like libraries. For a residential area such as Hell's Kitchen, this lack thereof seems strange. Because of the benefits that different kinds of culture bring, this could be a good starting point for creating that connection between city and water as well as between people.

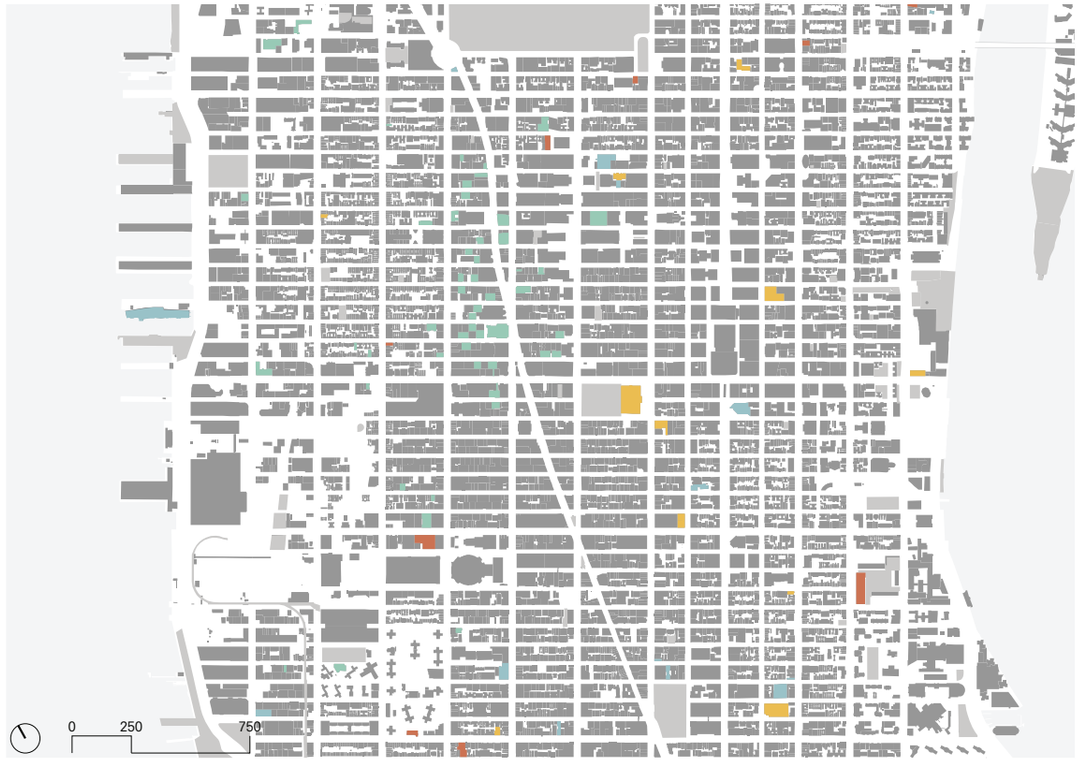
Looking at the previous conclusions that identify opportunities for the area of research, the waterfront area keeps returning. Developing a new public institution could be the way of initiating an urban redevelopment along this waterfront. By initiating true public space along an area that is not developed up to its full potential, it could get the public familiar with this underdeveloped area. This institution could become the spark that is needed to create a vibrant waterfront along the Hudson River.

There are some challenges when using cultural institutions with the goal of redeveloping an area. The focus and scale of the institution could promote a more globalized culture, one that would make sense in a city like New York. Bailey et al (2004)[11], however, argue that this focus could also cause a location to become more anonymous. To achieve a more successful regeneration in an urban scale the institution should have a more local focus that creates a stronger involvement with the current community. They also argue that the institutions should not try to focus on creating the widest variety of opportunities, as this will not help in the placemaking and creating the sense of belonging that the regeneration relies on.

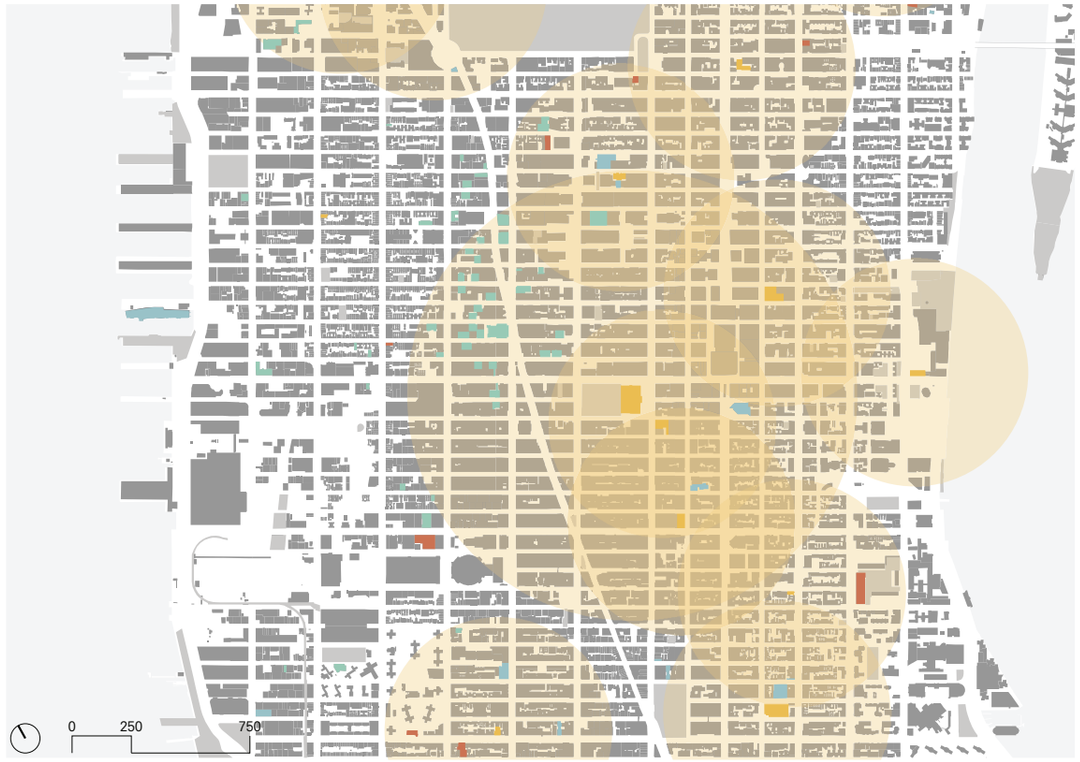
A lot of the cultural institutions that New York is known for, target the short-term visitors of the city. These people that only spend a short time in the city (tourists, business people) usually have a higher spending capacity as compared to the local community. For a city, these larger attractions are important places that attract people to that specific city. The focus on the short-term retention of people and high spending patterns works on a larger scale but underestimates the community around it that should be building a long-term interaction with the institution even though they have a lower spending capacity[12]. Especially when the goal of the cultural institution is to create a sense of belonging within this metropolis, the focus should be on this long-term interaction and involvement with the local history and community.

In an area like Hell's Kitchen, one of the targets of the institution is to serve the deteriorating community. A library is one of the few truly public places where people can come together, regardless of their background. By designing a place where all people can come, interaction between other people from the community can be fostered. Although a traditional library might have the image of a place that stores books for people to read, the library in this area should serve a much wider purpose. The goal of bringing people together can be achieved both in programmatic solutions, as well as a design that fosters creativity and unexpected interactions between people.

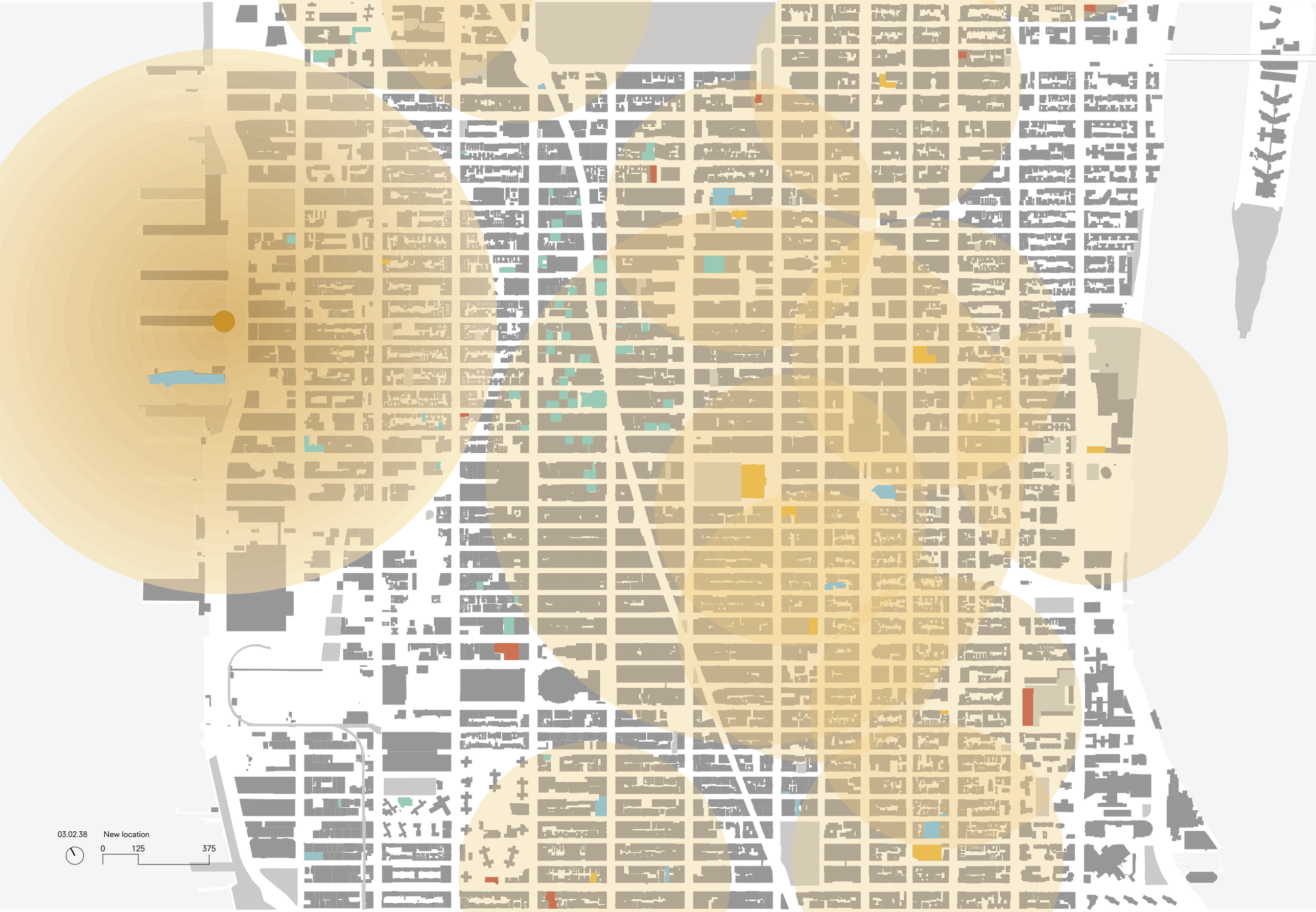
Through reducing the borders between the city and water, as well as adding a destination and reason for being along the waterfront, the quality and the image of the area around the waterfront will greatly improve. Upgrading this waterfront area will create the possibility for urban revitalization and densification. This area along the Westside highway is one of the few areas in Midtown where new developments can take shape and densify and improve the character of the neighborhood.



03.02.36 Cultural desert



03.02.37 Library reachability


03.02.38
New location
0
125
375

Sources

01
Spoorzone Delft. (n.d.). Over het project. Retrieved October 7, 2019, from https://www.spoorzonedelft.nl/over_het_project/nut_en_noodzaak/.

02
van Ruijven, K., & Tijm, J. (2019). *De leefbaarheidseffecten van Spoorzone Delft.* De leefbaarheidseffecten van Spoorzone Delft. Centraal Planbureau.

03
Flint, A. (2015, December 29). 10 years later, did the Big Dig deliver? - The Boston Globe. Retrieved November 7, 2019, from https://www.bostonglobe.com/magazine/2015/12/29/years-later-did-big-dig-deliver/tSb8PIMS4QJUETsMpA7SpI/story.html.

04
yiseowl. (2019). *Big Dig before & after.* photograph, Boston. Retrieved from https://www.reddit.com/r/boston/comments/bmnozn/big_dig_before_after/

05
Riedijk, M., Deboutte, N., & Geers, K. (2008, June 1). Leiden. *OverHolland 7: Projects for the Dutch City,* 4(7), 37–50. doi: https://doi.org/10.7480/overholland.2003.7

06
Rotterdam Architectuurpijs. (n.d.). *Speeltuinloge Dakpark*. photograph. Retrieved from https://www.rotterdamarchitectuurprijs.nl/vorige-edities/2014/speeltuinloge-dakpark.html

07
Buro Sant en Co Landschapsarchitectuur. (n.d.). *Dakpark Rotterdam*. photograph. Retrieved from https://www.santenco.nl/nl/portfolio_page/dakpark/

08
Sennett, R. (2017). The Public Realm. *The SAGE Handbook of the 21st Century City,* 585–601. doi: 10.4135/9781526402059.n32

09
Jacobs, J. (1961). *The death and life of great American cities.* New York: Random House.

10
COMEDIA (2003) Releasing the cultural potential of our core cities: culture and the core cities (http://www.corecities.com/coreDEV/comedia/com_cult.html).

11
Bailey, C., Miles, S. and Stark, P. (2004) Culture-led urban regeneration and the revitalisation 1176 ROBERTA COMUNIAN of identities in Newcastle, Gateshead and the north east of England, *International Journal of Cultural Policy,* 10(1), pp. 47–66.

12
Comunian, R. (2010). Rethinking the Creative City. *Urban Studies,* 48(6), 1157–1179. doi: 10.1177/0042098010370626

04.01.01.01
The armory show. (2019). *The piers*. photograph. Retrieved from https://news.artnet.com/app/news-upload/2015/03/68-image-1080-966-fit-1024x679.jpg

04.01.01.16
Buijs, F. (2019). *Infrastructural border.* photograph.

04.01.01.17
Buijs, F. (2019). *Functional border*. photograph.

04.01.01.18
Buijs, F. (2019). *Westside highway.* photograph.

04.01.01.20
Buijs, F. (2019). *50th street.* photograph.

04.01.01.21
Buijs, F. (2019). *11th avenue.* photograph.

04.01.01.22
Buijs, F. (2019). *Pier 84 park*. photograph.

04

GREEN HILL

Flooding

The climate is changing due to human activity, this will influence the global sea levels. These changes form an amplified risk for all the coastal populations across the world. To put this risk into perspective, in 2000 approximately 400 million people live along or within 20 km of the coast1. In the United States, coastal floods that were the result of storm surges are one of the most dangerous and destructive natural hazards. Between 1963 and 2012, it was responsible for half of all hurricane-related mortalities[2]. The number of extreme water level increases are the result of an ever-increasing mean sea level3. Besides the larger floods that make the news, the rise in sea level has also increased the number of "nuisance floods", shallow floods in low-lying neighborhoods that mainly form a nuisance rather then mortalities[4].

New York's development has always been tied to the water, with 2400 km of shoreline and quick access to the ocean, in developed from the shore, land inwards. Four out of the five boroughs are islands, and more than 200 bridges and tunnels connect New York and the mainland. With major infrastructure elevated less than 3m above the sea level, the city is at risk with rising sea levels[5].

The aim of this chapter is to research the trends in sea-level rise, combined with the extreme weather events that the city is prone to face in the coming decade. By evaluating how climate change will change the risk of flooding from both storm and tides, we can analyze the current infrastructure along the waterfront in Midtown to see if measures need to be taken. In the end, based on the future scenario sketched a recommendation will be formed on how the city can deal with extreme weather events towards the future.



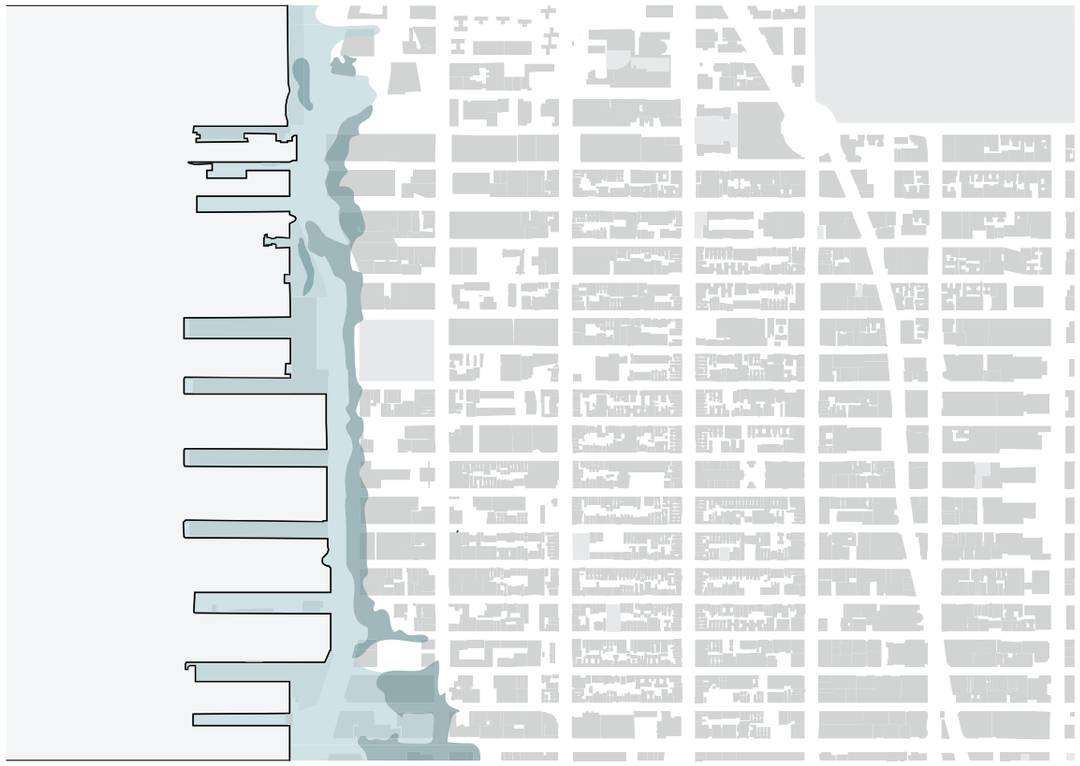
Current risk

With a coastal city that has as a coastline as long as New York does, as well as the amount of people living as close to the water, sea level rise and flooding's form a high risk for the population. Because of the density that New York has developed, some of the major infrastructural facilities are close to this shoreline. Facilities at risk include airports, power plants, wastewater treatment plants, and infrastructural tunnels.

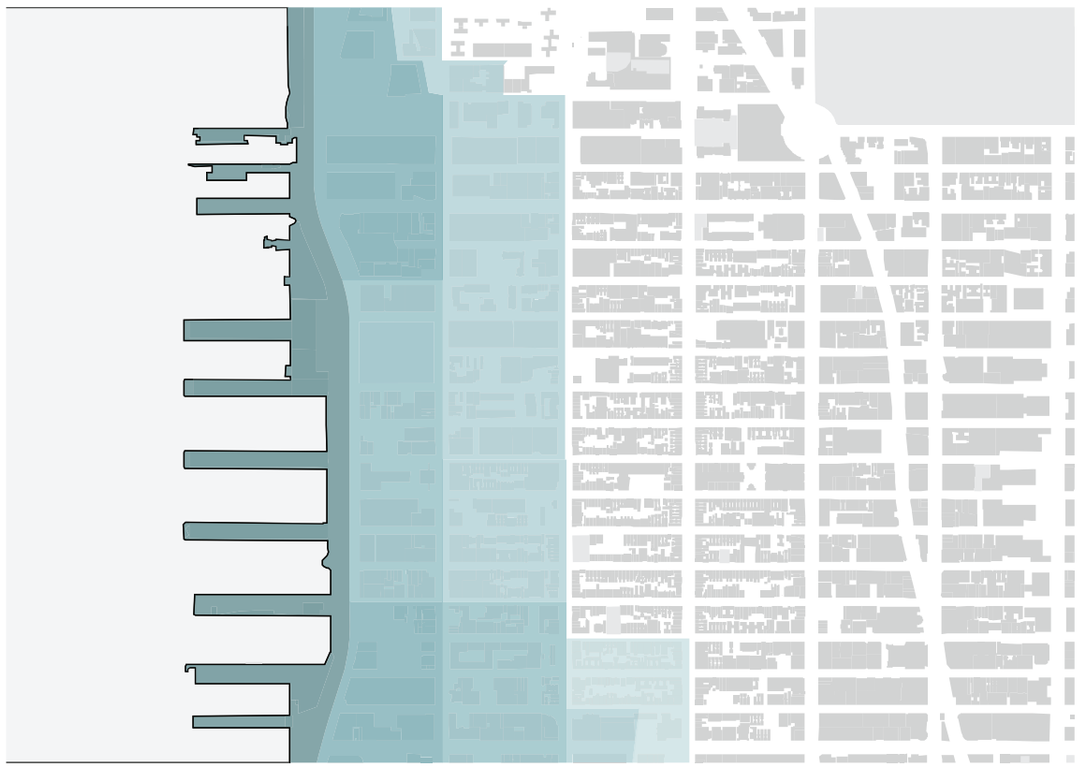
The federal government has created special flooding zones to indicate the current risk of an area flooding in case of extreme weather (rain and wind). In the area of research, there are two zones designated to be at risk, respectively a 0.1% and 0.02% risk. These percentages show the chance of a flood happening during a year[15]. The confusing thing is that these areas are sometimes called 100- and 500-year storms, linked to the chance of flooding happening. This does not, however, mean that flooding will, or can only happen once every 100 or 500 years.

The city has also created evacuation zones that are used to indicate which area of the city needs to be evacuated in case of a storm or high water. Designating specific zones along the water makes it easier to communicate to residents who exactly should be leaving the area to find the nearest evacuation center or leave the area altogether. The zones in the area of research are labeled one through five, one being the first zone to be evacuated and five the last. In some parts of the city, there are special evacuation centers, buildings that are located on higher grounds and specifically designed to withstand hurricanes. These places are large enough to house large groups of people for a short period of time when an evacuation is ordered by the government. Often, these centers are junior high and high schools, as these have both large spaces to shelter people, are accessible for everyone (also in wheelchairs) and have a large cafeteria where food can be prepared and distributed in case the shelter stays open for a longer period of time[16].

Even coastal storms that don't reach the water level of hurricanes like Sandy have historically flooded the lowest lying neighbourhoods in New York. The primary factors in these storm surges it both the speed of the wind and the distance over which it blows[16]. A second factor form flooding's in NY is the high tide relative to the storm surge. Rainfall typically has a negligible effect on the storm surge and flooding caused by the rivers, it can however increase problems through direct flooding of streets and neighbourhoods[17].



04.01.01 Predicted flooding

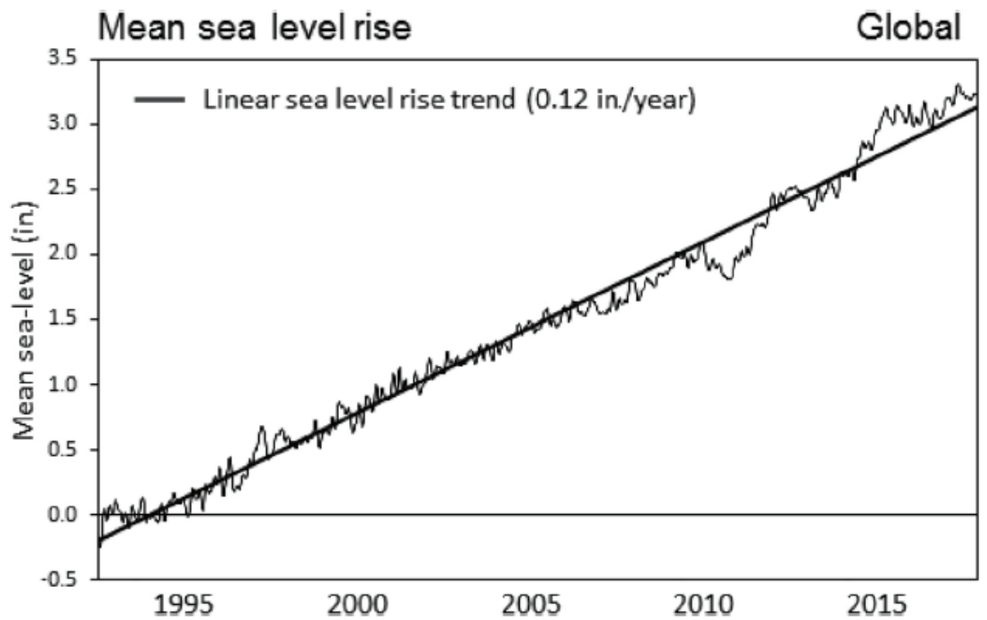


04.01.02 Evacuation zones

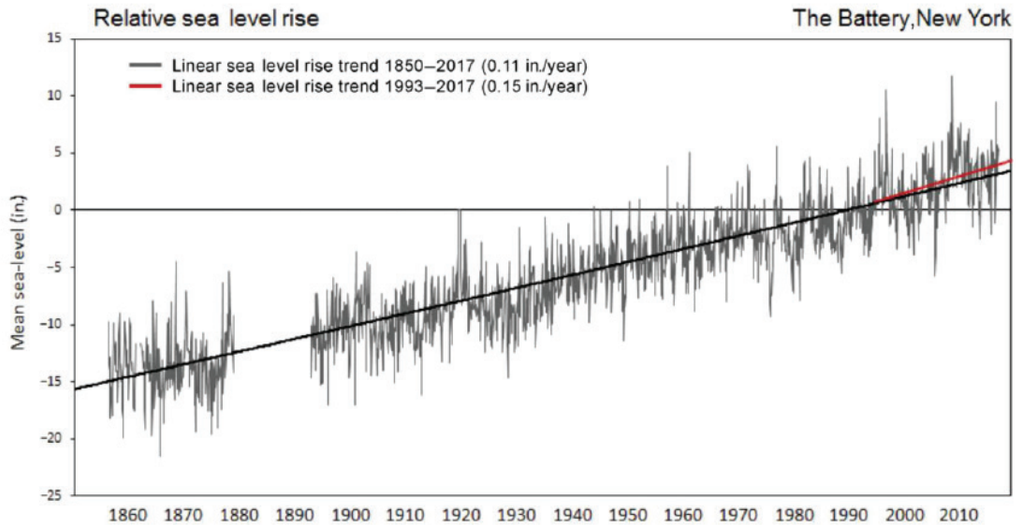
Trends in sea level rise

One of the most significant consequences of the climate changing is the rising sea level. Over the last decades, ice caps and glaciers that have melted account for half of the total rise we have observed so far[6]. A number that will likely increase further in the coming decade with rising temperatures on earth.
Studies on the global sea level rise over the last century (1900-1990) have found a steady increase of a rate between 1 and 2 mm per year[7]. In the period after this (1993-2017), the rate of global sea level rise has increased to 3 mm per year[8]. Even when considering large natural phenomena such as the volcanic eruptions and the stronger El Nino that critics have claimed to be the reason for the change, the accelerated speed at which ice melts still remains[9]. Between 1992 and 1996, melting ice by itself has resulted in 0.3 mm rise and a 1.85 mm rise between 2012 and 2016[10].

New York City has experienced a larger increase in sea level rise than the global mean average. Between 1850 and 2017, the sea level has risen with an average of 2.5 mm per year at the Battery (southern tip of Manhattan), nearly double that of the global average between 1900-1990[11]. The reason that some parts of the world experience a larger increase in sea level rise has to do with the enhanced warming of the western Atlantic, melting ice caps in Greenland and other biological and physical phenomena[12].



04.01.03 Global sea level rise



04.01.04 Local sea level rise

Future risk

Climate change is realm, although some people might argue, scientists all over the world agree that the influence of humans has made the temperature on earth rise. The only thing we can do now is to try and minimize the number of degrees that the temperature will rise with. For this, 196 countries signed the Paris Climate Accord, which sets a goal for minimizing the temperature rise to 2 degrees Celsius (as compared to pre-industrial times). The long-term goal is to stay under the 1.5 degrees rise, as that would significantly reduce the effects of climate change on our daily lives[13].

The current flood scenarios are all based on the events that took place in history and base a future scenario on that. These do thus not take into account changes in the climate that results in more frequent storms and a rising sea level.

Developments in the simulation and new observations have shown that the current flood scenarios are not encompassing the significance of the future rise. Scientists have used these new measures to create a new scenario, the Antarctic Rapid Ice Melt (ARIM) that better predicts the future.

In the world, the sea level will rise, but physical processes will cause differences in the actual water level rise. These include: "(1) ocean density changes (involving temperature and salinity); (2) changes in ocean currents and circulation patterns; (3) ice mass losses from glaciers, ice caps, and ice sheets; (4) redistribution of ocean water in response to changes in the Earth's gravitation, rotation, and deformation caused by current ice mass losses; (5) past ice mass losses (i.e., glacial isostatic adjustments); (6) other vertical land movements caused by ongoing tectonic activity, sediment compaction due to loading, and subsurface extraction of water, oil, gas; and (7) changes in landwater storage, for example, in dams or from groundwater mining" . These processes make it so that the sea level in New York will rise more then the global average.

The new scenarios predict a middle range for the flooding at 0.99 meter, with the high end at 1.91 by 2100 as compared to 2000. Even though these estimates differ greatly, they are important to keep in mind for future planning and strategies to protect the city not for the short term but for the long term where an underestimation could lead to future risks.

The ARIM scenario predicts that the normal high-end estimates are too conservative and suggest that the trend of melting ice sheets will raise the previous estimates of sea level rise. The melting of these ice masses makes up more then half of the total sea level rise that we have seen in the last decades. For 2100, the high-end estimate comes down to a 2.9-meter sea level rise in New York. The map shows what this rise will entail for the neighbourhoods if no comprehensive programs are initiated to stop the temperature rise or protection for the city against this rise.

	NPCC2 2015 sea level rise projections[a] Projections of record for planning			NPCC3 ARIM scenario[b] Growing awareness of long-term risk
Baseline (2000–2004) 0"	Low estimate (10th percentile)	Middle range (25–75th percentile)	High estimate (90th percentile)	ARIM scenario[a]
2020s	0.17 ft	0.33–0.67 ft	0.83 ft	–
2050s	0.67 ft	0.92–1.75 ft	2.5 ft	–
2080s	1.08 ft	1.50–3.25 ft	4.83 ft	6.75 ft
2100	1.25 ft	1.83–4.17 ft	6.25 ft	9.5 ft

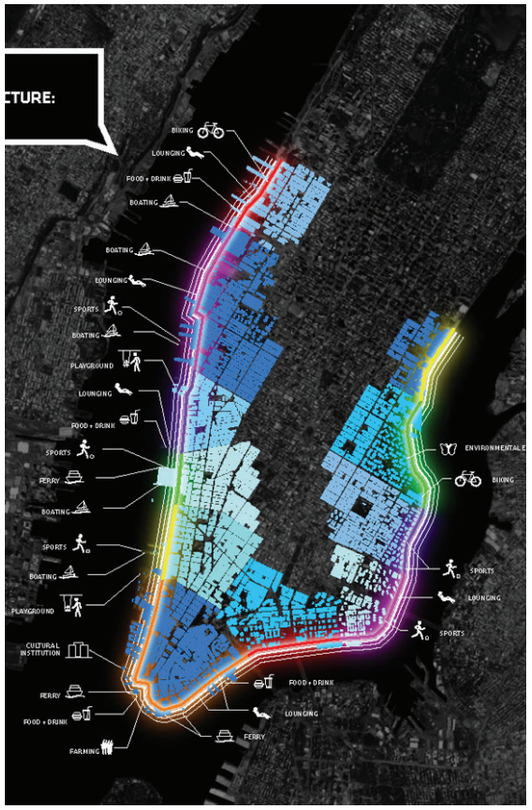
Protective measures

As visible in the section, this area does not have any protection against rising water levels or large waves on land that keep the water from reaching the blocks along the westside highway, it's the slightest of elevation change towards the blocks that are supposed to keep the buildings dry during a storm.

New York has always been vulnerable to water and large storms. Hurricane Sandy showed exactly how vulnerable the city and its 520 miles of coastline is. Throughout time, the coastline of New York has further developed but not all of these developments have made the city safer. Looking towards the future, climate change is adding even more risk to the future of the city. This prospect has forced the city to create comprehensive plans and initiatives that guarantee the safety of its residents.

Before Hurricane Sandy, the city did not have any coastal protection plans that were all-encompassing enough to reduce the risk of flooding and sea-level rise. The current FEMA flood zones that indicate the flooding risks, for example does not take into account the sea level rise over time.

In the new program, the city has plans that are supposed to improve coastal resilience by creating new coastal protection measures[17]. For the Manhattan area, the focus is on the lower east side, the area that is most at risk. The largest project that has been greenlighted so far is the big U by the Bjarke Ingels Group, a program that creates a new coastline that is able to deal with changing weather conditions[18]. On the east side of Manhattan, two more projects are greenlighted that will have to improve the resiliency and keep the city dry in cases of flooding. In Manhattan, there are also two neighborhoods (Chelsea and Lower East Side) that are areas of study for the resilient neighborhood program. In Brooklyn, a local storm surge barrier has been approved that will protect all of the lands behind it.



Sources

01
Small, C., Gornitz, V., Cohen, J.E. (2000). Coastal hazards and the global distribution of human population. *Environmental Geosciences*. 7, 3–12.

02
Rappaport, E. N. (2014). Fatalities in the United States from Atlantic Tropical Cyclones: New Data and Interpretation. *Bulletin of the American Meteorological Society,* 95(3), 341–346.

03
Marcos, M., F.M. Calafat, A´ . Berihuete & S. Dangendorf. (2015). Long-term variations in global sea level extremes. J*ournal of Geophysical Research: Oceans*, 120(12), 8115–8134.

Marcos,M., P.L.Woodworth. (2017). Spatiotemporal changes in extreme sea levels along the coasts of the North Atlantic and the Gulf of Mexico. J*ournal of Geophysical Research: Oceans*, 122(9), 7031–7048.

Menéndez, M., P.L. Woodworth. (2010). Changes in extreme high water levels based on a quasi-global tide-gauge data set. J*ournal of Geophysical Research: Oceans*, 115(C10).

04
Strauss, B.H., R.E. Kopp, W.V. Sweet, K. Bittermann. (2016). Unnatural coastal floods: sea level rise and the human fingerprint on US floods since 1950. *Climate Central Research Report.* Climate Central, Inc.

Sweet, W., J. Marra. (2014). *State of Nuisance Tidal Flooding*. National Oceanic and Atmospheric Administration.

05
U.S. Army Corps of Engineers, FEMA, National Weather Service (1995). Metro New York Hurricane Transportation Study. Interim Technical Data Report.

06
Dieng, H.B., Cazenave, A., Meyssignac, B., Ablain. M., (2017). New estimate of the current rate of sea level rise from a sea level budget approach. *Geophysical Research Letters,* 44(8): 3744–3751.

Rietbroek, R., Brunnabend, S., Kusche, J. (2016). Revisiting the contemporary sea level budget on global and regional scales. *Proceedings of the National Academy of Sciences*. 113(6): 1504–1509.

07
Dangendorf, S., Mudersbach, C., Wahl, T., Jensen, J., (2013) Characteristics of intra-, inter-annual and decadal sea-levelvariability and the role of meteorological forcing: The longrecord of Cuxhaven. *Ocean Dyn*amics, 63, 209–224.

Hay, C. C., Morrow, E. , Kopp, R. E., Mitrovica, J. X., (2015). Probabilistic reanalysis of twentieth-century sea-level rise. *Nature.* 517, 481–484,

08
Watson, C., White, N., Church, J., King, M., (2015) Unabated global mean sea-level rise over the satellite altimter era. *Nature Climate Change.* 5(6)

Dieng, H., Cazenave, A., Ablain, M., (2017) New estimate of the current rate of sea level rise from a sea level budget approach. *Geophysical Research Letters*. 44(8)

Beckley, B., Callahan, P., Hancock, D., (2017) On the 'cal mode' Correction to TOPEX Satellite Altimetry and its Effect on the Global Mean Sea-Level Time Series. J*ournal of Geophysical Research: Oceans*, 122(12)

09
Chen et al., (2017) Impact of climate change on heat-related mortality in Jiangsu Province, China. *Environmental Pollution*, 224, 317-325

Dieng, H., Cazenave, A., Ablain, M., (2017) New estimate of the current rate of sea level rise from a sea level budget approach. *Geophysical Research Letters*. 44(8)

Nerem, R. S., Beckley, B. D., Fasullo, J. T. , Hamlington, B. D., Masters, D., Mitchum, G. T., (2018) Climate-change–driven accelerated sea-level rise detected in the altimeter era. *Proceedings of the National Academy of Sciences,* 115 (9) 2022-2025

10
Bamber, J., Westaway, R., Marzeion, B., Wouters, B., (2018): A new synthesis of annual land ice mass trends 1992 to 2016. *PANGAEA, 13(6)*

11
National Oceanic and Atmospheric Administration (2017) *Global Climate Report - Annual 2017*

12
Krasting, J., Dunne, J. P., Stouffer R. J., Hallberg, R. W., (2016) Enhanced Atlantic sea-level rise relative to the Pacific under high carbon emission rates. *Nature Geoscience,* 9, 210–214

Yin, J., Goddard, P., (2013) Oceanic control of sea level rise patterns along the East Coast of the United States. *Geophysical Research Letters,* 40(20), 5514-5520

13
Schlanger, Z. (2019). Sea level rise will flood the neighborhood around the UN building with two degrees warming. Retrieved from https://qz.com/1700769/sea-level-rise-is-set-to-flood-un-headquarters-as-soon-as-2100/

14
NYC Planning. (n.d.). NYC Flood Hazard Mapper. Retrieved from https://www1.nyc.gov/site/planning/data-maps/flood-hazard-mapper.page

15
New York City. (n.d.). NYC Hurricane Evacuation Zone Finder. Retrieved from https://maps.nyc.gov/hurricane/#

16
Orton,p., Lin, N., Gornitz, V., Colle, B., Booth, J., Feng, K., Buchanan, M., Oppenheimer, M., Patrick L., (2019) New York City Panel on Climate Change 2019 Report Chapter 4: Coastal Flooding. 1439(1) 95-114

17
NYC Environmental Protection. (2010). *NYC green infrastructure plan: a sustainable plan for clean waterways.* New York City.

50

URBAN RENEWAL

INNOVATION LAB

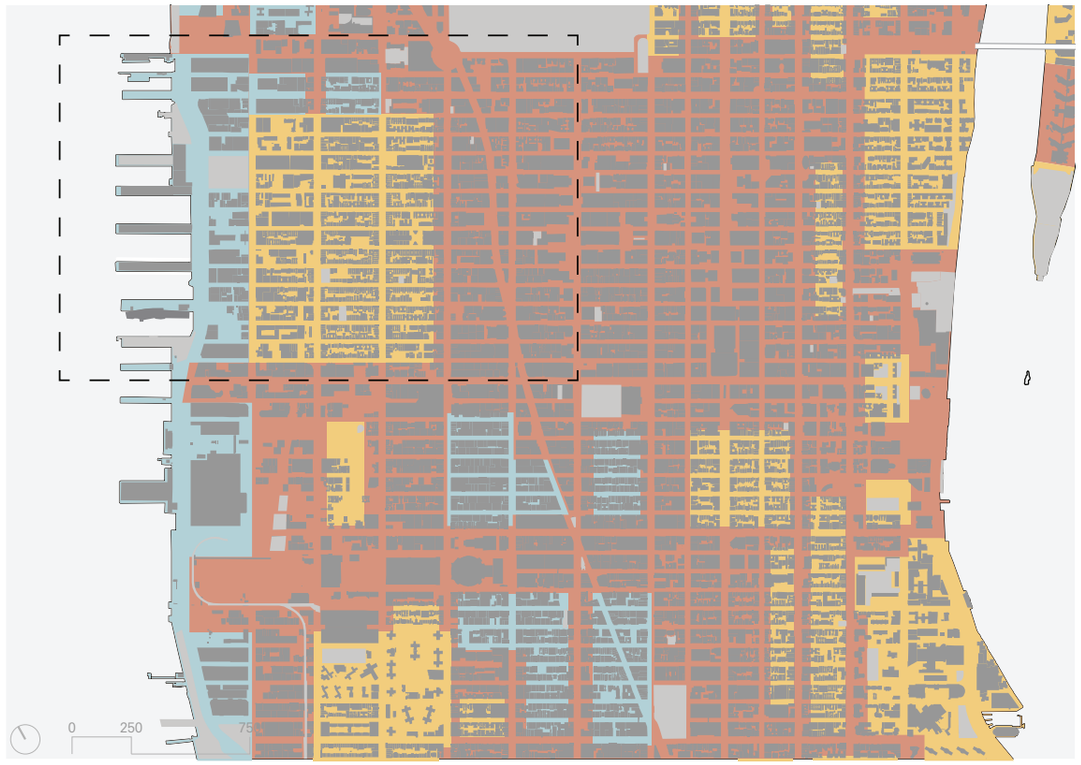
Innovation lab as a connecting element in the city

For New York, the rivers have always played a role in the development of the city. Manhattan specifically, as it is surrounded by two rivers (East and Hudson) formed the ideal place to start a city and focus on industry and transportation by water. In the time when water was the only viable method of transport, the rivers formed the gateway to the city. With new modes of transport gaining in popularity, New York faced a growing decline in the number of manufacturing jobs. With this, the number of piers declined which allowed the city to develop and grow towards the waterfront.

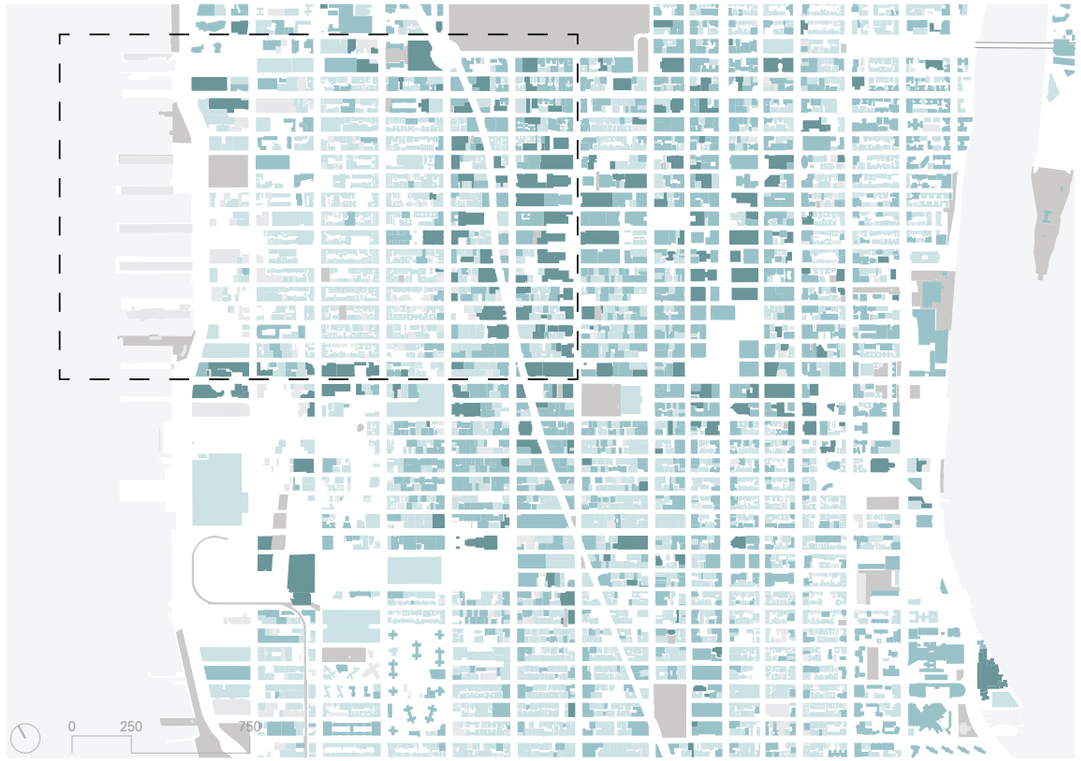
The city of "Hell's kitchen", a suburb in Midtown, however, forms an exception to this trend in that the industry stayed and still is present. In the city, this industry has created borders, that are visible and can also be experienced as they isolate the waterfront from the rest of Midtown. There is a huge opportunity to develop it further because it is the only area where a true change can be brought about in Manhattan. The area is characterized by low-rise buildings with a very low FAR, an industry that is gradually becoming obsolete, a lack of public transport, infrastructure that blocks access to the water and part of a region that is at risk of flooding in the future.

The problem of flooding is a problem that the whole lower Manhattan area deals with and is, therefore, part of a larger plan initiated by BIG architects. This plan calls for the creation of floodproofing measures in the form of green hills and parks. Creating such a green hill in this area, will create the opportunity to integrate a tunnel is this hill, it will eliminate the current hinder from the highway and will facilitate an easy access to the waterfront.

On the transportation front, the strategy is to create a new metro line on the current railroad tracks to maximize reachability through public transportation methods.



05.01.02 Current zoning regulation



05.01.03 Current building height

Industry
Housing
Office

> 1 stories
> 3 stories
> 13 stories
> 39 stories

Cover: 05.01.01 Midtown waterfront

In order to bring about the change in development in the area, my plan calls for the creation of an inspiration lab in this waterfront area. This lab forms the trigger for the mixed-use densification of this industrial zone by attracting people from all walks of life to come together and provide a place to form a community. This trigger has the ambition to activate the waterfront, promote equal access and reduce the divide of the city and inspire people to interact and share knowledge.

In the post-industrial time, New York started to successfully shift its focus from industry towards tourism (60 million visitors in 2018). Tourism became a new way for the city to attract different people and investments. To spark this tourism boom, the city heavily relied on marketing and promotion of the city as a whole. In this, New York is not the only one, cities all around the world have done this and used cultural institutions to create this new city image (Guggenheim in Bilbao)[1]. The institutions build for this purpose create an image of a global city and opposed the local culture[2]. In Midtown NY, this shift has been visible in the loss of a great number of local theaters that had their roots in the community.

In this post-industrial time, the traditional methods of attracting companies to a district by for example tax incentives are also changing. With the growth of the creative class, local economic growth is no longer driven by attracting companies but rather the workers[3]. Companies have found that they need to be more volatile and flexible to go after talent and settle themselves in areas where the that talent is located, rather than the other way around. This creative class also demands a different kind of city, one that is inclusive, open and diverse, one that suits their lifestyle and cosmopolitan identity. As this group of workers is becoming a significant part of the workforce, Hell's kitchen can proliferate itself in facilitating the desires that this creative class has.

One of the ways to facilitate in this cosmopolitan identity and lifestyle is through the introduction of cultural institutions[4]. Creating a creative city using cultural institutions is biased and favors a very specific class of people, contributing to and displacement of local institutions, there is a quest for a more inclusive institution that is able to provide direct benefits to the community[5]. In the current situation, there is a significant lack of any type of cultural institutions, making this waterfront a good location to deal with the cultural desert. Through this new type, the main goal will thus not be to create (direct) economic growth but more to reduce economic and social disparities and raise the standard of living through redistributive policies to reach its ultimate goal of an inclusive and equal access neighborhood.



05.01.04 Activating the waterfront



05.01.05 Promote equal acces and reduce divide



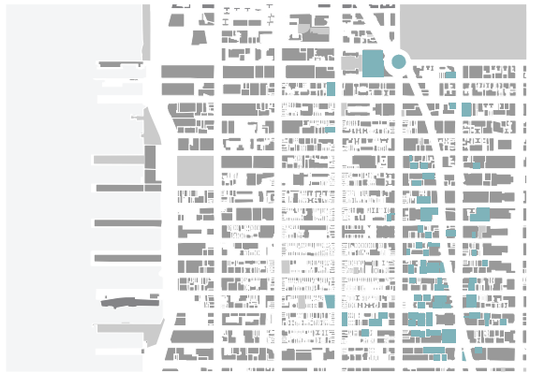
05.01.06 Inspire people to interact and share knowledge



05.01.07 Old theaters



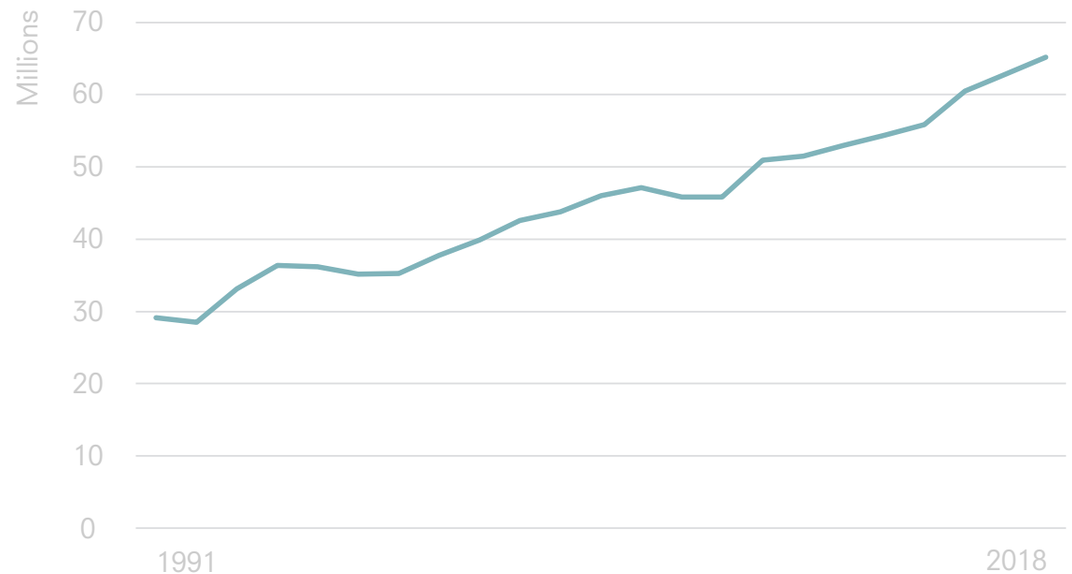
05.01.09 Current theaters



05.01.08 Theaters in 1960



05.01.10 Theaters in 2020



05.01.11 Number of tourists

Libraries

Traditionally, this strengthening of the community identity and revitalization that this building will aim at could be done through libraries[6].

Libraries, however, are traditionally known as being nothing more than repositories of print materials[7]. When looking at current public libraries in New York, this is exactly what their focus is on. They feature large reading rooms, vaults for the storage of books, study space and rows of books that people can take home. Their main focus is on creating a connection between people and books.

We live in a time where next to our home and work, we have a lot more time and freedom to choose where we hang out and spend our free time. Places like bars and coffee shops have changed to be able to facilitate this third-place concept. Traditional libraries are not able to fulfill this role because of their "limited" focus on books. If these libraries are able to change their role and focus, they can make a transition towards helping form a community.

Libraries should, therefore, transition to "learning commons", in which they bring together different functions next to the library such as labs, lounges and seminar areas into a gathering place for the community[8]. Research into European examples of these new types of "libraries" revealed a much more diverse building that next to books, house different functions, create inspiring spaces that are flexible. The trend for these new types of space is to be much more open, interactive and inclusive, this way they are able to draw in a bigger and more diverse group of visitors, such as the creative class[9].

These European examples are much more flexible on their programming and what its functions are integrated under the same roof as the library. Their goal is much more about facilitating the connection between people in the community. Some examples that made this transition successfully are: Rozet, Dokk1, and LocHal, they are also not called libraries anymore. The term library is not applicable anymore because the traditional books are part of a much larger concept in which the building becomes an accessible learning environment that promotes interaction between people and a sense of community.



05.01.12 New York Public Library



05.01.13 New York Public Library



05.01.14 Yorkville Library



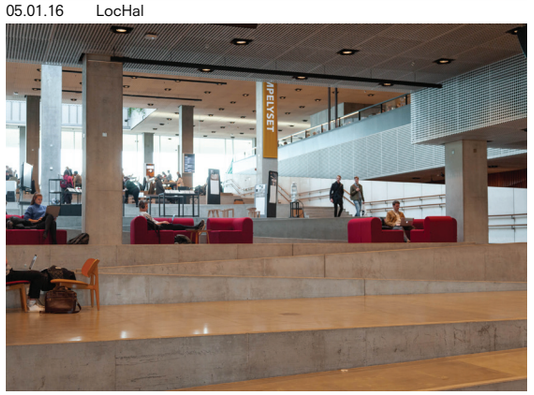
05.01.15 Yorkville Library



05.01.16 LocHal



05.01.17 LocHal



05.01.18 Dokk1



05.01.19 Dokk1

Design brief

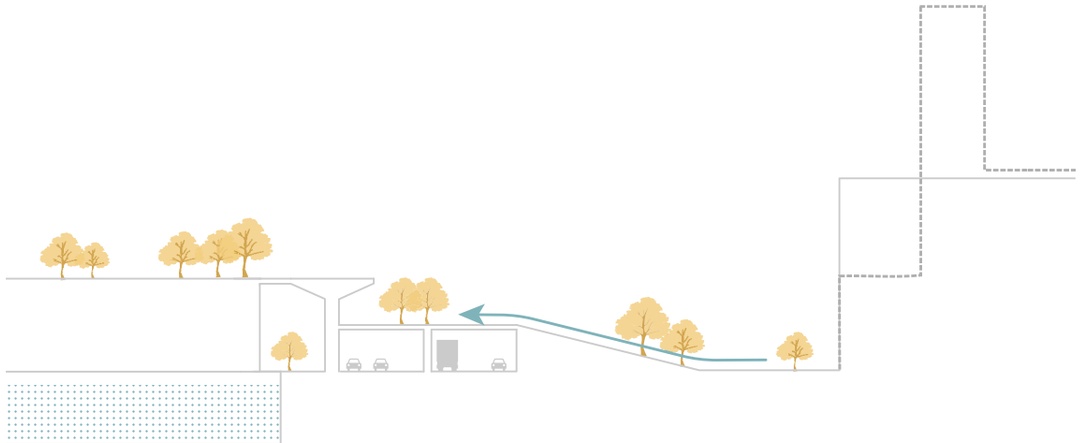
Manhattan is known for its very rigid grid, designed in 1811, but does have quite a few exceptions in it. These exceptions form a shift in the structure, and form nodes or strategic spots that create focus and the “epitome of a district” [10]. The piers in Hell’s Kitchen also form these exceptions to the grid but are not considered to be of any value with their current utilization . Creating this new type of inspiration lab on one of these piers displays the shift that New York has gone through, from manufacturing to a knowledge society. It makes these piers of significance and value again by creating a place for community meetings, sharing of knowledge and creativity for the surrounding.

The chosen site is the third pier in a row that is becoming public, with the USS Intrepid museum (aircraft carrier) and a park to the south of it. The site also forms the endpoint on the route from the touristic Times Square towards the waterfront. In the current situation, the waterfront is completely closed off for the general public with large fences set up by the cruise terminal. This cruise terminal is deterring people from going to or even being able you see the Hudson River. Only in the peak season, there are a couple of days that see all piers in use, creating obsolescence during most of the year.

Where the building will form a meeting place for people in the city, the location forms a meeting place between the city and the water. It is also the place where all the streets either start or end in Midtown. With the introduction of the green hill, the location will see a lot more pedestrians and bikers passing by as the public space will be extended towards the waterfront.



05.03.20 Location



Site
Museum
Park
Times Square

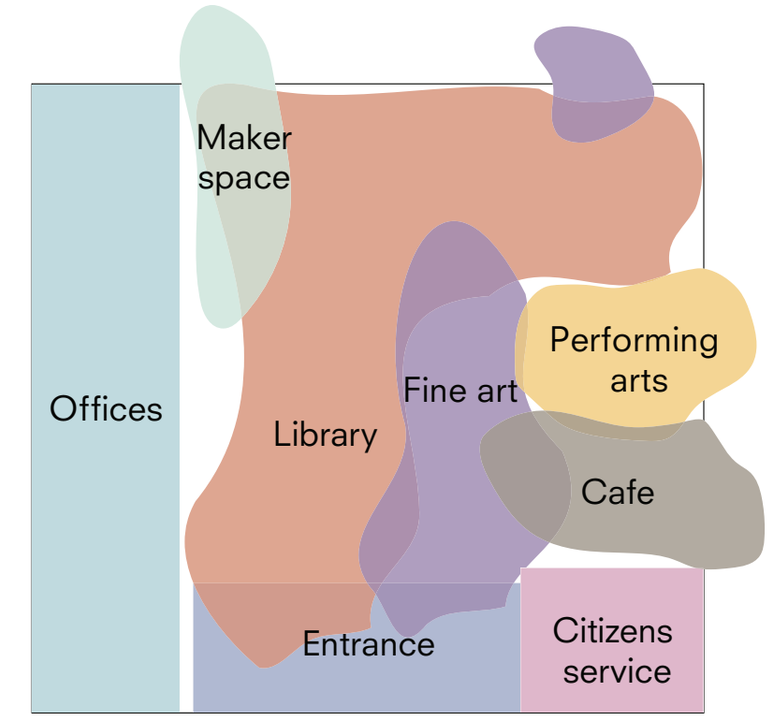
05.03.21 Green hill

As explained, the examples of libraries in New York focus on books and have hardly any variety in their functions, complexity or in their layout, as a result of this most of their space is dedicated to the book collection with some having extra space for the community in the form of an auditorium. The European examples show a much different image, the program is split up into many different functions with a much more complex floor plan. These floor plans have spaces that are not bound by walls but allow for flexibility and changes in the short term program.

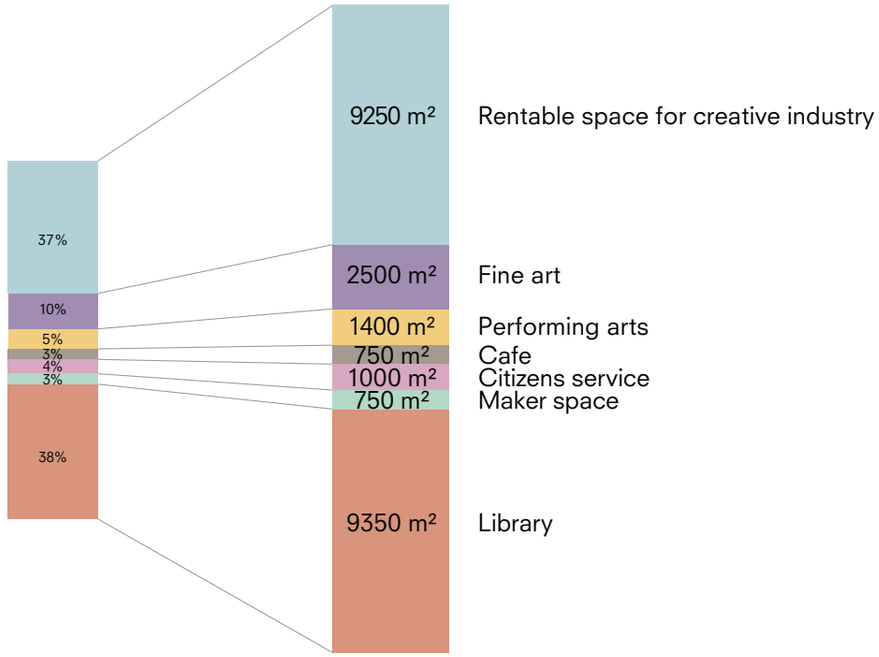
The new inspiration lab that I am proposing for Midtown should have a total floor area of 25.000 square meters that is divided into six different functions, library, maker space, performing arts, fine arts, café, citizens service and rentable space for the creative industry. The previous European examples of new types of libraries have helped me in creating the division of spaces and the program bar as presented. The building is mixing these different functions together under one roof to create a focus on both learning and gathering.

The layout of the function in the building should be understood to be as fluid and flexible. This flexibility should create the possibility for the growth and shrinkage of spaces in the building. This, however, does not mean that the functions are bound by the facades of the building. The flexibility should allow functions to spill out of the building to be displayed in the public space. The floor area's given should, therefore, be read as the current understanding of what such a new type of library would look like, with the understanding of an unknown future, which requires a flexible approach. In the long term, the building should be able to adjust the division of program types. The spaces are also overlapping and fluid as the boundaries of these different functions should not be thought of as walls but redefined to allow for the blending of functions.

Within each of the programs given, there are targets set to further specify the use of the floor area. With these, targets are again set for the current needs with ranges within which the functions should be able to adjust in the short term when there is a need for more or less space. The infill for these flexible spaces is of set dimensions. These can therefore not be fluid in size but rather the number of those present. They will be strategically placed as not to create hard borders that create obstructions in the fluid and open space.



05.03.22 Organisation

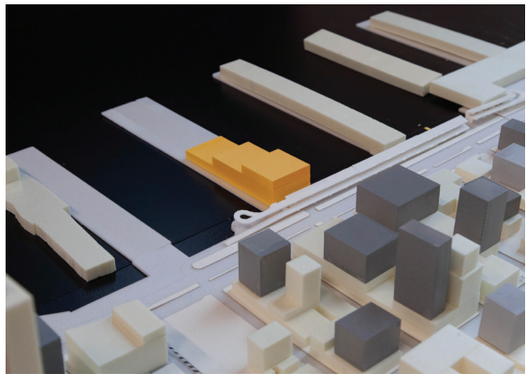


05.03.23 Programm bar

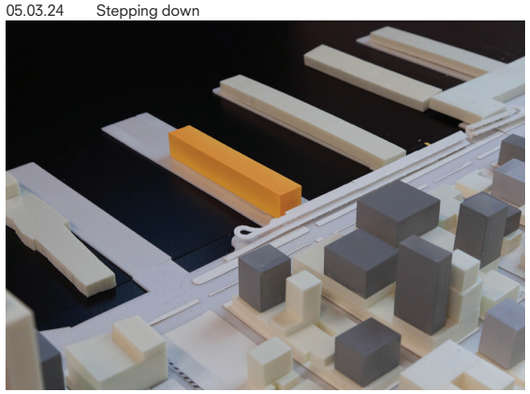
The site itself, on “pier 88” measures 67 by 325 meters. Because of the characteristics of the site, there are three design principles that the design and development of the building should take into account. These are the direction of the sun, the one directionality of the site and the rising water level. With these in mind, 6 massing studies have been created that tested the size of the building program in different typologies. Each of these typologies creates a different image and treats the location differently. These studies have also resulted in the creation of three urban rules that the future building has to follow, a max height of 30 meters, a connection with the green hill and a maximum built area of 35%.

Finally, six architectural ambitions are set up for the building that helps in realizing the mission and goal of the project in the surrounding context. These ambitions are; approachable, visible, adaptable, fluidity of spaces, expressed sustainability and inspire people.

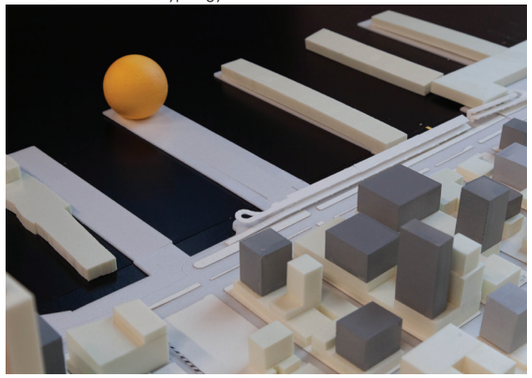
To conclude, the building should be all of the following:



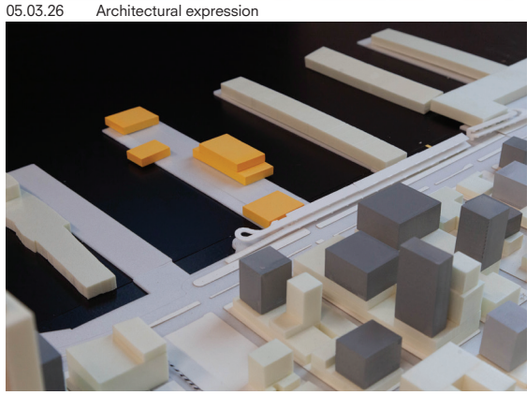
05.03.24 Stepping down



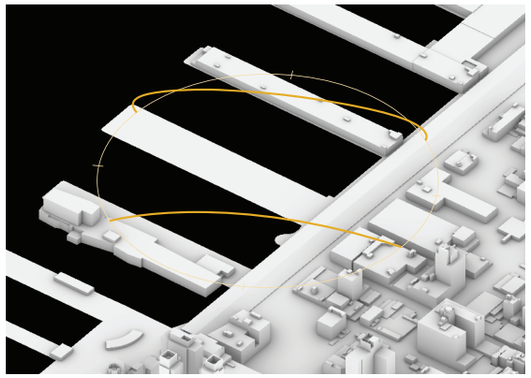
05.03.25 Historical typology



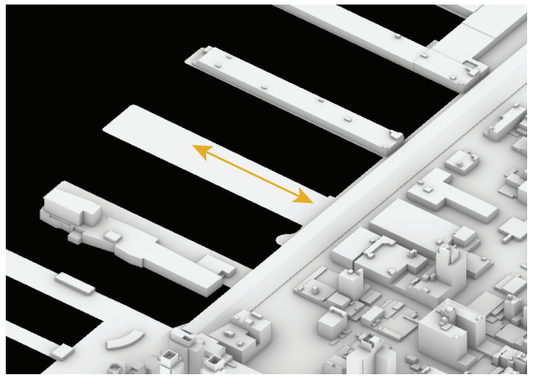
05.03.26 Architectural expression



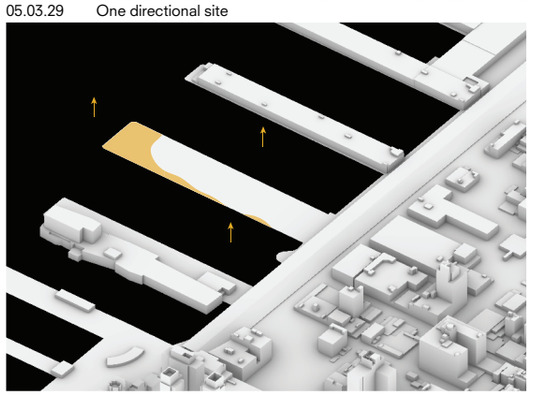
05.03.27 Spreading out



05.03.28 Sun direction



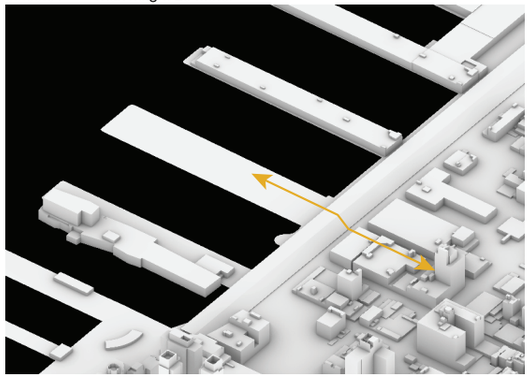
05.03.29 One directional site



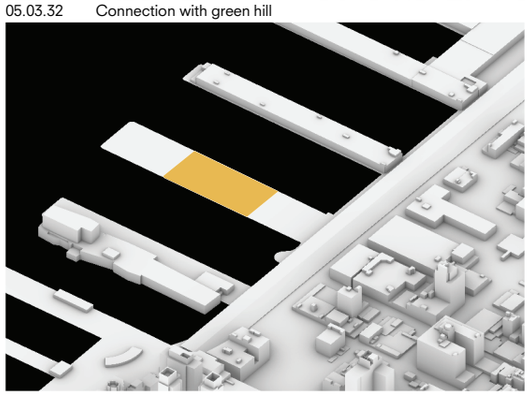
05.03.30 Rising water level



05.03.31 Max height 25 meter



05.03.32 Connection with green hill



05.03.33 >35% built area

A **fantastic** space,
literally: for wild
imagination and the
telling of stories;
for **dialogue** and
cooperation; for
music and **creativity**;
for what is familiar and
what astonishes us;
for what is familiar and
what opens our eyes.

It must be an
attractive place - with
inviting rooms bathed
in light and congenial
to the senses, with
room to look at each
other and to look out
on the world.

Sources

01
Holcomb, B. (2001). Place marketing: Using media to promote cities. *In Imaging the City: Continuing Struggles and New Directions*, Edited by: Vale, L. and Bass Warner, S. New Brunswick, NJ: Center for Urban Policy Research.

02
Rodríguez, A., Martínez, E., & Guenaga, G. (2001). Uneven Redevelopment. *European Urban and Regional Studies,* 8(2), 161–178. doi: 05.1177/096977640100800206

03
Florida, R. (2002). *The rise of the creative class: and how its transforming work, leisure, community and everyday life*. New York, NY: Basic Books.

04
Grodach, C., & Loukaitou-Sideris, A. (2007). Cultural Development Strategies And Urban Revitalization. *International Journal of Cultural Policy,* 13(4), 349–370. doi: 05.1080/10286630701683235

05
Ley, D. (2003). Artists, Aestheticisation and the Field of Gentrification. *Urban Studies,* 40(12), 2527–2544. doi: 05.1080/0042098032000136192

06
Labovitz School of Business and Economics, University of Minnesota Duluth, & Bureau of Business and Economic Research. (2011). *Minnesota Public Libraries' Return on Investment*. American Library Association. Retrieved from: http://www.ala.org/tools/research/librariesmatter/minnesota-public-libraries-return-investment

07
Burrell, R., & Coleman, A. (2005). *Copyright exceptions: the digital impact*. Oxford University Press.

08
Lippincott, J., & Greenwell, S. (2011). *7 Things You Should Know About the Modern Learning Commons*.

09
Lampert, L. D., & Meyers-Martin, C. (2019). *Creating a learning commons: a practical guide for librarians*. Lanham: Rowman & Littlefield.

10
Lynch, K. (1960). *The image of the city*. Cambridge, Mass: MIT Press.

0501.01
Buijs, F. (2019). *Midtown skyline*. photograph.

05.01.07
Astor Theatre - The Great Ziegfeld, New York City. Broadway & 45th St. (1963). photograph, Washington D.C. Retrieved from https://www.loc.gov/pictures/item/2003677446/

05.01.09
Buijs, F. (2019). *Times Square theaters*. photograph.

05.01.12
Buijs, F. (2019). *Rose main reading room New York*. photograph.

05.01.13
Buijs, F. (2019). *Bill Blass catalog room New York*. photograph.

05.01.14
Buijs, F. (2019). *Yorkville Library New York*. photograph.

0501.15
Buijs, F. (2019). *Yorkville Library New York*. photograph.

05.01.16
Buijs, F. (2019). *Lochal Tilburg*. photograph.

05.01.17
Buijs, F. (2019). *Lochal Tilburg*. photograph.

05.01.18
Buijs, F. (2019). *Dokk1 Aarhus*. photograph.

05.01.19
Buijs, F. (2019). *Dokk1 Aarhus*. photograph.

06

PRECEDENTS

Precedents

To get a better understanding of what it means to design a library, how libraries work and how libraries differentiate from each other, this project relies heavily on research into precedents. Therefore, different libraries have been visited throughout this project to get a better understanding and see what elements can be incorporated into a new library.

The libraries that are featured in this book can be categorized into two groups, local examples (New York) and European examples. This topographical distinction is not just made because of their respective locations but this separation is also clearly visible in the understanding of what a library entails.

The libraries in New York have a very traditional understanding of what a library is, a collection of books and information. Everything in the building revolves around the collection and all other elements serve a supporting role in getting people connected to information.

European examples have developed a much more diverse concept in which the program in a library is evolved and diversified. The goal of the building is no longer to connect people with information but to bring people together in an open and free space in which interactions are fostered.



New York Public Library

New York City has a public library system that serves Manhattan, the Bronx, and Staten Island. For the other two boroughs of the city, Queens, and Brooklyn, there is a separate organization. The New York Public Library system has a total of 92 locations, and the second largest collection of items (55 million) in the country, only behind the library of Congress in Washington DC[1].
The system as a whole includes different types of libraries that serve different target groups or have a different goal. Most of the libraries in the system are normal branch libraries that serve no particular group, but rather the whole community. Most of these libraries have a separate section for children and adults, which are different in terms of furniture and program to better serve its users.
The other type of library is the research library, more focussed on academic and scientific research based on the large collection that the New York Public Library system owns. Mainly these research centers make the public library system so special as well as add value for a larger part of society.

The Public Library system that started in 1895 has always been funded by the city government together with the help of philanthropists[2]. Since the research libraries such as the main branch had always had a more prominent stature, they are largely funded with private donations. In return for large donations, names of rooms or even buildings are renamed to include the name of the donor name. A recent example of this is the $100 million gift by philanthropist Stephen A. Schwarzman, for whom the main branch building was renamed. The smaller branch or neighborhood libraries are financed primarily by the city to provide access to information for all of the communities around New York.

The mission of the Public Library system is to "inspire lifelong learning, advance knowledge, and strengthen our communities" (New York Public Library, n.d.)[3]. By providing access to both information and resources, the library system forms a large passive opportunity for anyone in a community to not only learn but also create connections with other people in the community. Annually, it serves 18 million people that visit the physical locations, as well as 32 million online visitors.

During the field trip to New York, location visits have been done to better understand the physical impact of libraries. Where the literature put into perfective the effect that a library can have on a community, the location visits proved a valuable insight into the working and spatial strategies that libraries work with. To analyze libraries further, some of the ones that were visited have been included in this book, which is used to draw conclusions for the design brief. Together with the literature review, this will inform both spatial and programmatic decisions that feed the design process.



New York Public Library Main Branch - Stephen A. Schwarzman Building

The Stephen A. Schwarzman Building is the main branch of the New York Public Library system. The building is in Midtown New York and serves as one of four research libraries within the system. Located along 5th avenue, the building is iconic for its beaux-arts facade as well as the two marble lions that guard on either end of the stairs. Both the outside and some of the rooms on the inside are market as landmarks by the city because of their historical significance.

Because the library serves as a research library, is does not offer the same kind of circulating collection that the normal branch libraries have. The program, as well as the layout of the library, is therefore very different. Most noteworthy is that the library offers multiple locations where books can be requested from the closed stacks. These books are kept in controlled circumstances to prevent damage and preserve them longer, they can therefore not be taken out of the library. This library, therefore, mainly consist of book vaults as well as reading rooms.

Most well known of these reading rooms, and one of the publicly accessible ones is the Rose Main Reading Room. This 2100 square meter space with 16-meter-high ceilings offers a designated for research and quiet study in the vibrant city of New York. The room is divided into two by the offices of the librarians that can assist anyone in accessing the vast collection of the library. The Northside of the room is dedicated purely to study, while a small section of the South room can also be visited by tourists.

The room right before this reading room is the Bill Blass Public Catalog Room. The main focus of this room used to be filing requests for books from the libraries' vaults but is currently used as another reading room. As this room forms the passthrough between the McGraw Rotunda (hall on top of the stairs) and the main reading room, it is always crowded with people walking in and out.

Due to the iconic image of the library, it attracts a lot of tourists. Inside the library, this creates friction between the short-term visitors that come for the aesthetics and the intended users that come to study and research. The masses walking in and out of rooms, constant sound of pictures being taken and visitors not keeping noise level down makes the stay more unpleasant for people studying. This duality raises the question of organization and hierarchy levels in a building that is open for everyone but has the goal of advancing knowledge.



06.01.01 Rose Main Reading Room



06.01.02 Bill Blass Public Catalog Room

53rd Street Library

The 53rd street library is the latest addition to the public library system in New York, as such, it looks more towards the future than trying to fix problems of the past. This location consists of three floors, two of which are in the basement of the building. Though most of it is below ground, the library still feels spacious and bright, thanks in part to the high ceilings and glass façade on street level. This façade gives visitors a look into the basement levels that can be accessed through the large wooden bleachers. These bleachers evoke interest from passers-by that look down into the library space. From inside the library, it offers a split-level vista, a rat-eye perfective onto life on the street as well as a large screen that shows a variety of pictures and videos.

The bleachers create an informal space to collaborate, an activity for which a lot more space is created in this library compared to others in the system. On the -1 level is a large community meeting room that can house 120 people, without creating a distraction for people in the reading room.

On this same level is also the main reading room, combined with the book stacks and a row of computers. This reading space consists of an open area with comfortable chairs that invites all kinds of people to sit down. As it is a lot more informal, compared to the Rose reading room in the main branch, different kinds of people (more homeless) use the space differently (sleeping, using the wifi). Iris Weinshall, COO of the NYPL noted that this is the sort of library that New York needs to facilitate the people with because "People are relying less on materials and more on programming. They're spending more time in our locations, and engaging with us in new ways: do a job search, look for an apartment, go online."[4].

The lowest level houses all the books and activities for teenagers and children. Here, furniture and layout of the space are more flexible to allow for different activities during the week, organized by the library.

Overall, the variety of spaces and furniture in this library gives people more freedom in what they do in a library, and how they want to do that. People can find both the quiet spaces to focus, as well as the vibrancy to collaborate with others. Risa Honig, responsible for capital planning and construction of the New York library system, summarised the library in a digital age best: "A great place to be alone together."[5].



06.01.03 Multifunctional staircase



06.01.04 Reading area

Jefferson Market Library

The gothic style Jefferson Market Library is housed in a former courthouse in Downtown Manhattan. After a thorough renovation in 1967, the building was transformed into a public library. The basement, that once was a holding area for prisoners is now used as the reference and reading room. The brick arches that shape this space add a lot of character to the library but does not create a comfortable space. Low ceilings and the lack of natural daylight make this space feels very cramped, even more so for people that are slightly taller than average. In the reading room, most of the tables are lined with computers, leaving little space for reading or study.

On the ground floor is the children's room, once the police court, outfitted with both a library and a reading section. Large windows on both sides provide enough daylight for a comfortable and cozy space. To make the space more usable for children, smaller furniture, as well as play areas have been added.



06.01.05 Kids area



06.01.06 Reading room

Hunters Point Library

The Hunters Point Library is part of the Queens library system and sits on the bank of the East River. It is the latest addition of a public library in New York City, which is both getting a lot of praise as well as heavily criticized. With new times comes the need for a modern interpretation of what a library is. The openness of the library combined with gathering spaces for different age groups foster interaction between people.

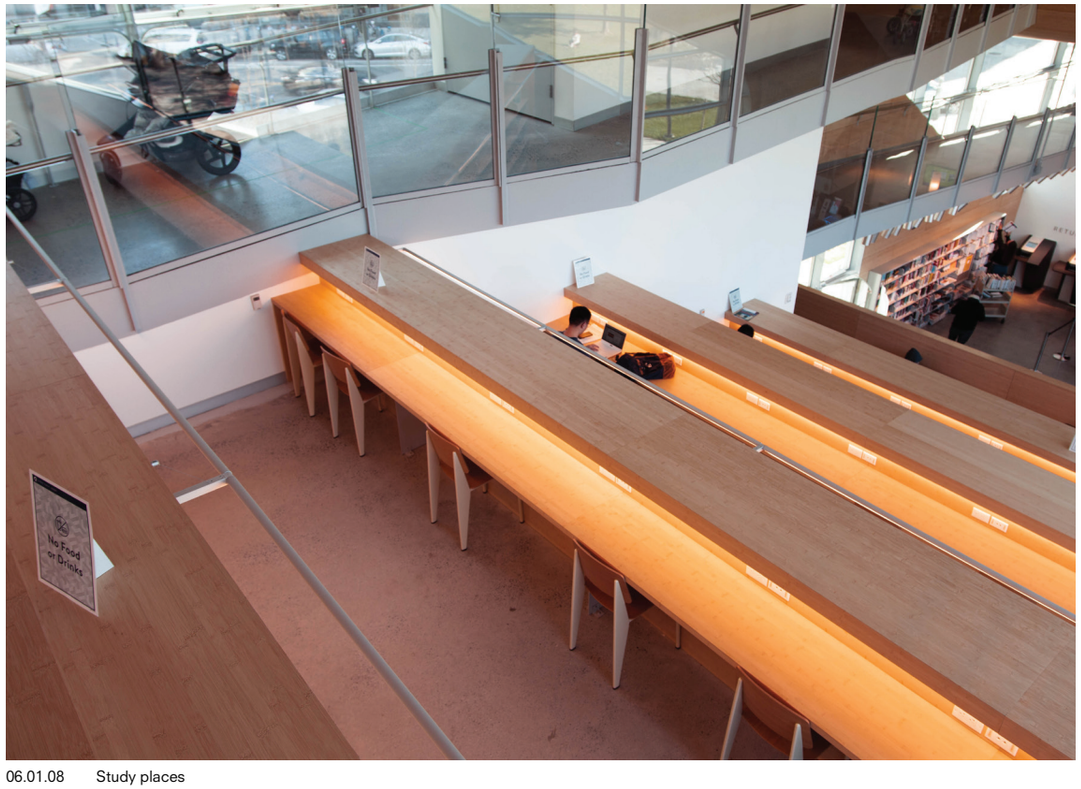
Program wise, the focus of this library is on kids and teenagers, with designated areas for these groups. On the highest level is the children's section with bleachers that are used by kids to play and read on. Carpet and soft furniture make it a good area for kids and parents to be comfortable and inviting.

On the lower levels are sections for teens that put more focus on school with standardized tests preparation, college applications and the use of digital means. From the ground floor to the first floor are terraces with bookshelves and study places that overlook the East River towards Manhattan. The focus of the library on children, combined with the open character makes it more difficult to use as an active study space for other users. The openness doesn't keep the sound of playing children out of the study area.

The other critique on the library is the accessibility issues. Since the library hosts a number of activities for toddlers during the week, a lot of parents come in with strollers. Both the parking of strollers and the vertical movement using the only elevator form problems during the week. The terraces between the ground and first floor can only be accessed through the stairs on the side. Less mobile people were therefore not able to make use of these study spaces or look at the books that were stored there. To combat the second issue, librarians first assisted people but have now moved away most of the books to places with better accessibility.



06.01.07 Reading spaces



06.01.08 Study places

Yorkville Library

The Yorkville Library is used as a reference and example of how most of the branch libraries in the New York City Library system function and look like. They mostly offer an adult reading section and library downstairs and an area for children upstairs. This separation of functions creates a clear divide and a good place to study and focus.

In general, these branch libraries are slightly dated and have a dark interior. The dark interior doesn't create a comfortable and cozy interior, further exemplified by the large mirrors that are used to keep an eye on everyone.



06.01.09 Book storage



06.01.10 Kids area

European libraries

The European libraries featured here are not related or connected in a similar system such as the examples in New York. They should be understood much more as standalone locations that all serve a similar purpose but try archiving their goal in different ways, in correlation to the local conditions and needs.



Boekenberg - Spijkenisse

The public library in Spijkenisse is dubbed the Boekenberg or Mountain of books in English. This building literally creates a mountain of books with a program inside the mountain as well as wrapping around it. Creating this type of mountain exposes the books to the city and all those that pass by.

Since the library is located in a part of the country where the literacy rate is lower than the average, the library serves an important role in the community. Putting the books on a display like a mountain creates a visual connection with the books at all times, the library becomes an advertisement for reading.

The idea of fully exposing the books in a mountain is continued in the materiality of the building. The building is shaped like a glass bell jar that is placed over the mountain to protect the books inside.

This library is more traditional in its program in the fact that its main goal is still connecting people with books. Other than study spaces, there is little space for other types of activities that draw in more people or diversifies the types of visitors.



06.01.11 Book mountain



06.01.12 Study spaces

Rozet - Arnhem

Rozet is the new cultural cluster in the city of Arnhem, combining different types of cultural programs under one roof. The concept behind the building is to continue the public domain by creating an interior street that connects all of the different spaces and functions. Because of the limited space, this street is not horizontal but takes shape in a stair that wraps along the facade up to the roof.

This staircase starts as a normal staircase but slowly transitions into much more than a wat to move between levels. along the first staircase, large frames create a temporal exposition for events, happenings in the building or to display significant objects. Small study places create an overview of this public street that transitions into a landscape style study place. Further on, the stair transforms into theater seating where lectures and talks can be given.

Next to a library function, this building also houses an expo space, an art shop, classrooms, dance rooms, and an auditorium. This diverse program brings in people with all kinds of activities planned that all make use of this public promenade. The functions themselves, however, are very much is designated areas and have little interaction or overlap with each other.



06.01.13 Book shelving



06.01.14 Multifunctional staircase

LocHal - Tilburg

The LocHal in Tilburg is a former industrial warehouse that had been transformed into a “living room for the city”. The building is part of a larger effort of transforming a former industrial part to become part of the city. With that, this building almost creates a cover square with large open stairs that connect different levels.

In principle, the space is just a large steel industrial hall with different floors. Most of the spaces don’t have any walls to eclose them but are defined by the placement on different levels, by bookshelves or with flexible partitions in the form of curtains that can enclose the space on the stairs.

This fully open floor plan gives a new perfective and shows the interaction between different functions and people. The lack of partitions creates interactions between different types of people and a sense of community.

The program that is housed in the building is also focussed on the public rather than the individual. Coworking spaces, an art collective, a restaurant all create possibilities for either production or consumption of knowledge.



06.01.15 Study spaces



06.01.16 Blending of functions

Dokk1 - Aarhus

Dokk1 is located in the post-industrial waterfront of Aarhus and challenges very similar conditions as those in New York, a desolated waterfront that keeps the public from enjoying the waterfront. Similarly, a cultural center is used to attract people to the new public waterfront and create a space for people to enjoy the view over the water.

The goal of Dokk1 is to create a safe space for everyone in the city in which the exchange of knowledge takes place as well as provide opportunities for a multicultural meeting point in the city.

This multicultural aspect of the building is partially created by its diversity in the program, as well as a very open program. The building has very little partition walls that close to large spaces. The only spaces with walls are used for silent study and even those have glass walls to provide a clear overview through the building.

The functions are much more overlap[ping and flow into each other. This is also possible because the infill of the building is very flexible. Being able to adjust to changing needs and wishes of the community helps this building maintain its relevance towards the future.



06.01.17 Book shelving



06.01.18 Multifunctional staircase


Auditorium
5

Comparison

These examples of different libraries or cultural centers that are shown have all been analyzed to get a better understanding of their respective layout and organisation of space. These organisational diagrams show a clear difference between New York and Europe.

The older versions in New York are very structured and have a clear overview of what is what. Solid walls mark a space and a space is only meant for one function that remains the same. One moves from space to space through hallways and stairs to accessible parts. Within these buildings, there is also a clear distinction between public and private areas.

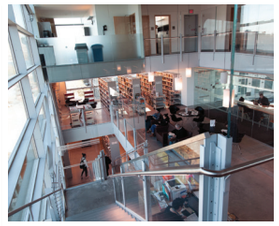
The European examples shown here have a much more dynamic organisation where spaces are not necessarily enclosed by a series of wall but are open and overlapping. Partitions are mostly created through the infill of the program and thus flexible in their presence. The floorplan itself is therefore also a lot more flexible and can move functions around. This building is a lot more open and thus feels more public. There are of course always parts that can not be accessed but those are not as clear or even visible to the public.

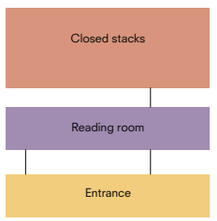
In terms of the program itself and the functions in the building, a similar contast appears. The examples in New York are very focussed on books and thus do not add any program that takes away from books.

The european examples on the other hand have diversified their program to create more interactios between people.

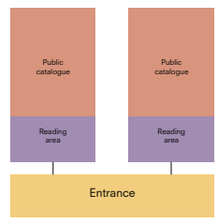
These examples of different types of libraries have been used in the process of creating the design brief. They form the base for the division of program, the layout, and organization that has been specified for the new building.



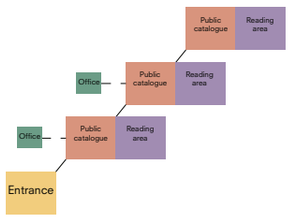




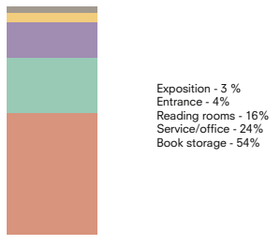
65000 m²



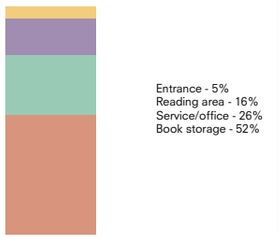
700 m²



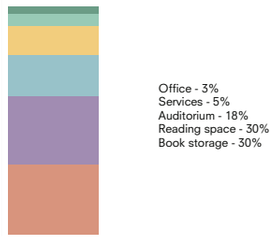
2050 m²



Exposition - 3 %
Entrance - 4%
Reading rooms - 16%
Service/office - 24%
Book storage - 54%

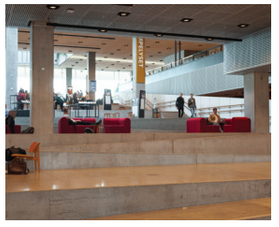


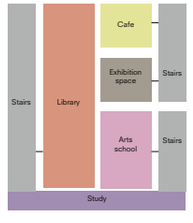
Entrance - 5%
Reading area - 16%
Service/office - 26%
Book storage - 52%



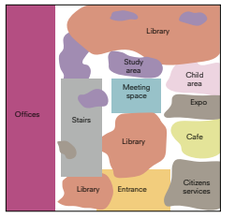
Office - 3%
Services - 5%
Auditorium - 18%
Reading space - 30%
Book storage - 30%

06.01.19 Traditional libraries

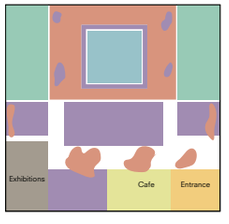



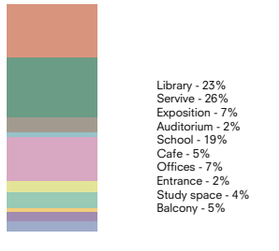
12000 m²



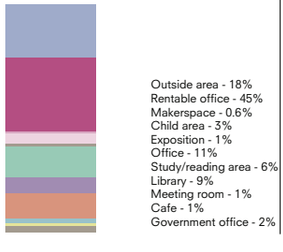
28000 m²



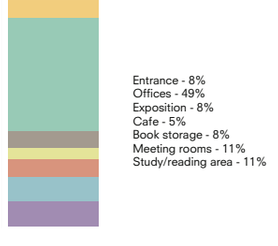
11200 m²



Library - 23%
Servive - 26%
Exposition - 7%
Auditorium - 2%
School - 19%
Cafe - 5%
Offices - 7%
Entrance - 2%
Study space - 4%
Balcony - 5%



Outside area - 18%
Rentable office - 45%
Makerspace - 0.6%
Child area - 3%
Exposition - 1%
Office - 11%
Study/reading area - 6%
Library - 9%
Meeting room - 1%
Cafe - 1%
Government office - 2%



Entrance - 8%
Offices - 49%
Exposition - 8%
Cafe - 5%
Book storage - 8%
Meeting rooms - 11%
Study/reading area - 11%

06.01.20 New libraries

Sources

01
The New York Public Library. (n.d.). Collections: The Heart of the Library. Retrieved from https://www.nypl.org/help/about-nypl/collections

02
The New York Public Library. (n.d.). History of The New York Public Library. Retrieved from https://www.nypl.org/help/about-nypl/history

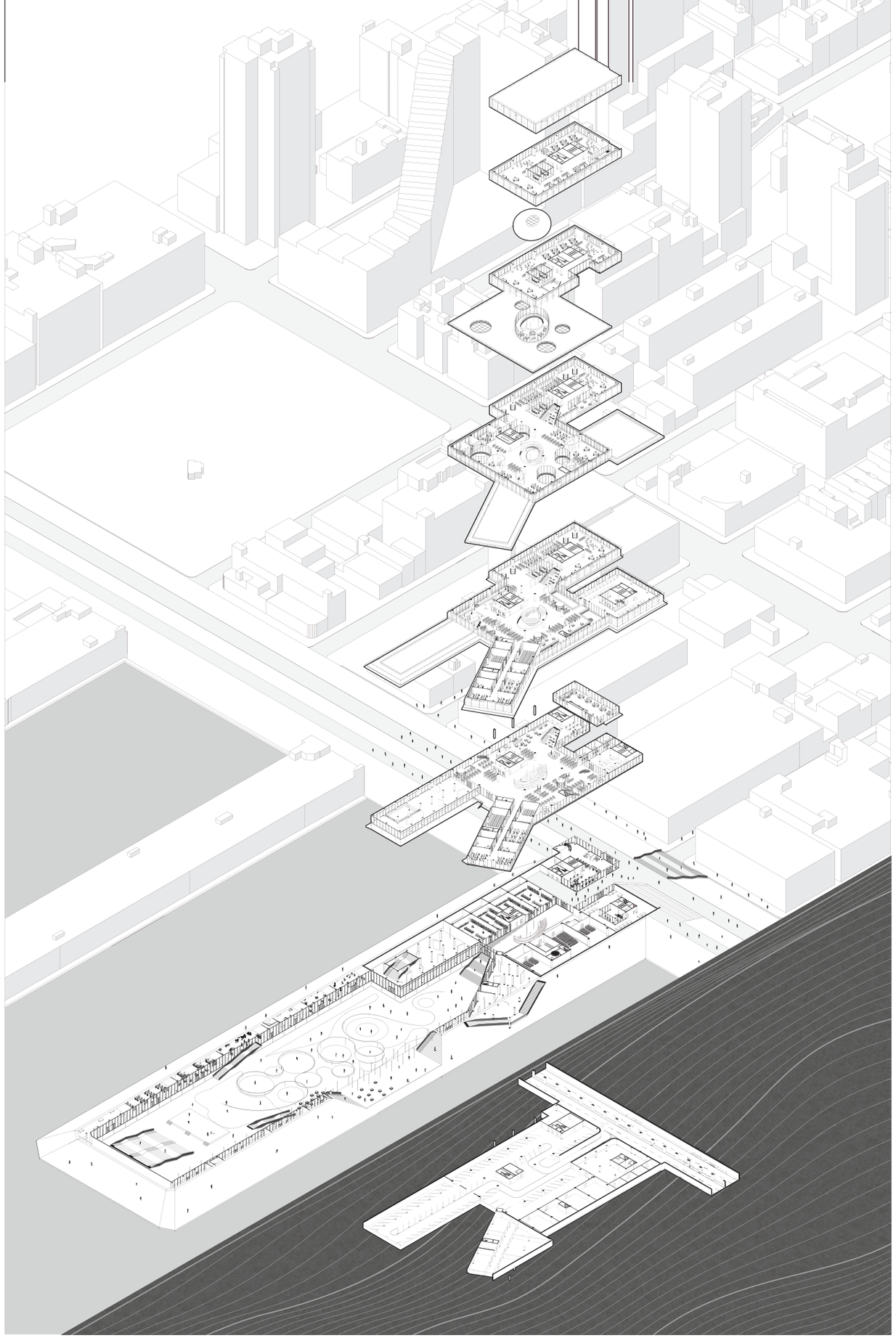
03
The New York Public Library. (n.d.). NYPL's Mission Statement. Retrieved from https://www.nypl.org/help/about-nypl/mission

04
Blanc/NYPL, J. (2016). The New 53rd Street Library Is Nice, Unless You Like to Read Books. Retrieved from http://nymag.com/intelligencer/2016/07/53rd-street-library-okay-if-you-hate-books.html

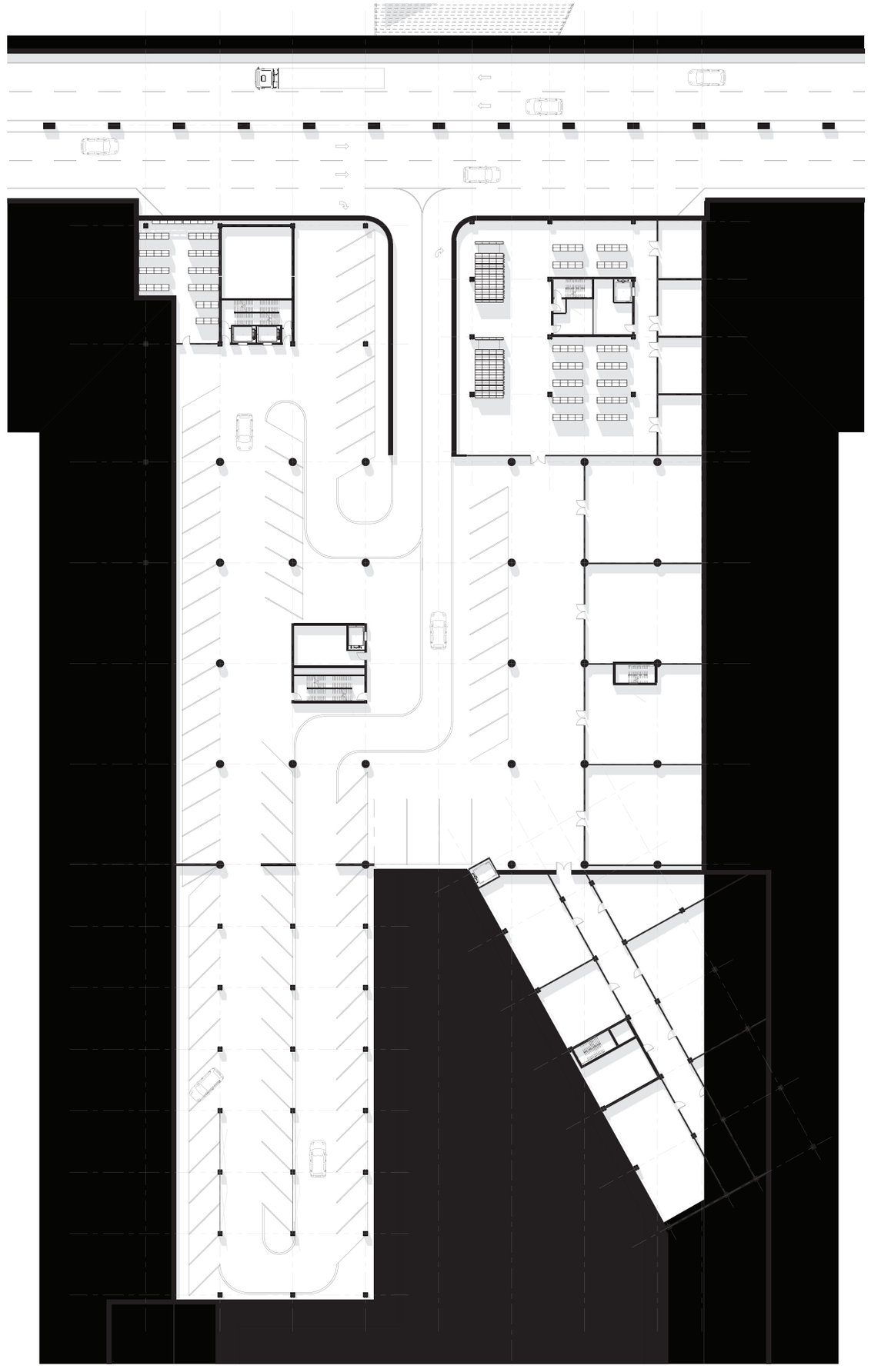
05
Dunlap, D. W. (2016). An Amphitheater. A Laptop Bar. It's a New York Library Like No Other. Retrieved from https://www.nytimes.com/2016/06/21/nyregion/an-amphitheater-a-laptop-bar-its-a-new-york-library-like-no-other.html

07

SPACE FOR CHANGE



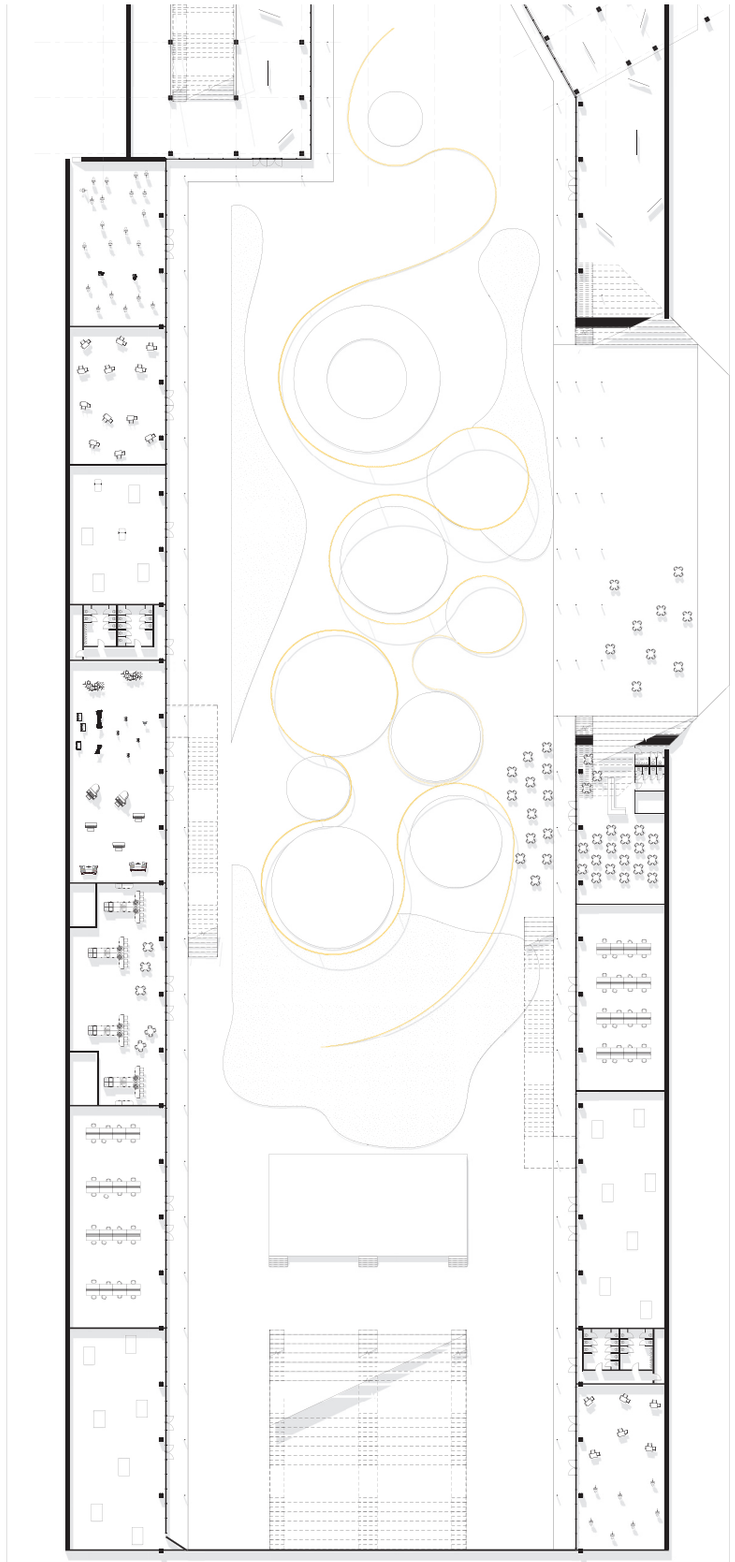
Level 0
Parking



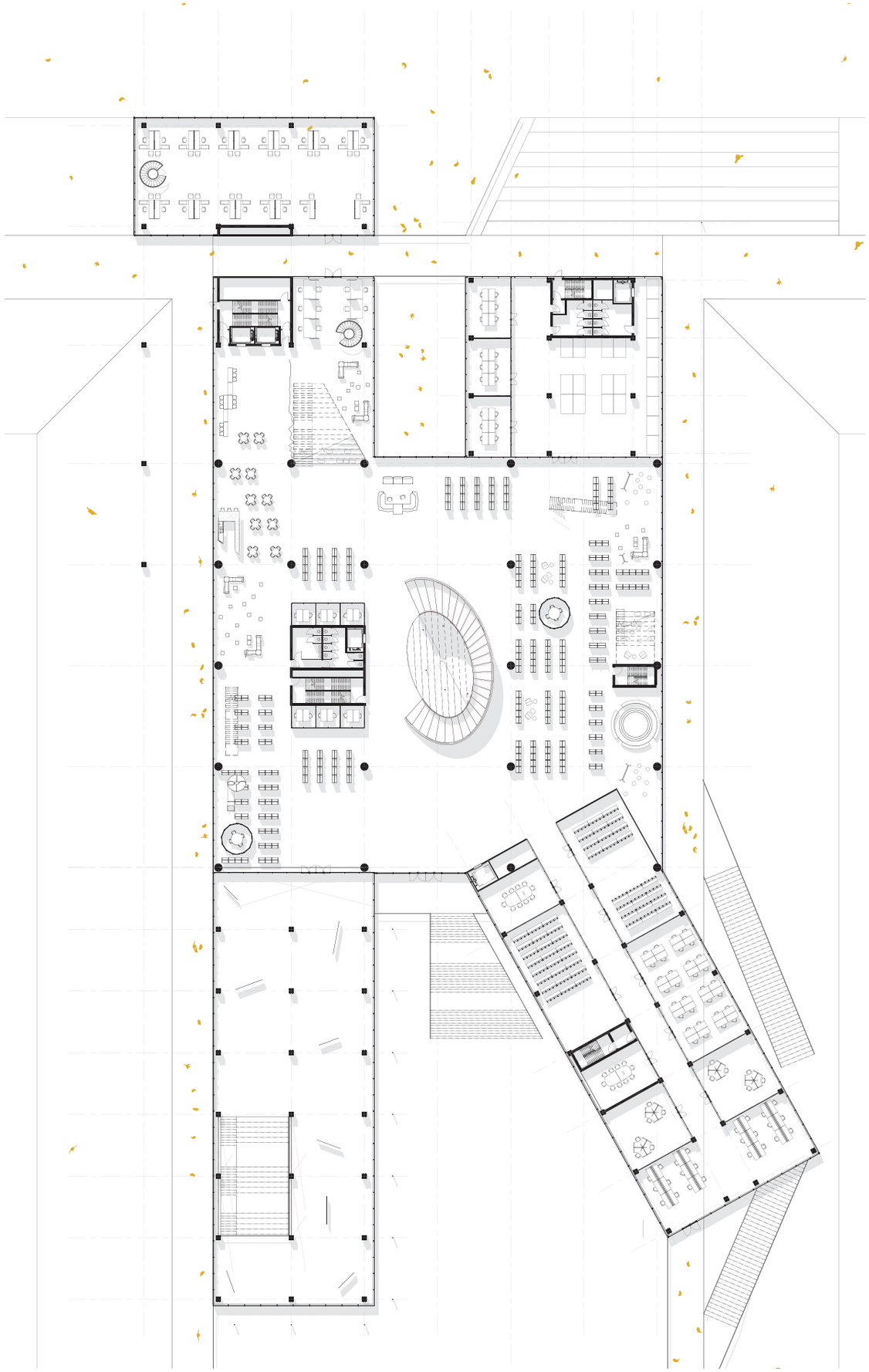
Level 1
Connecting passage



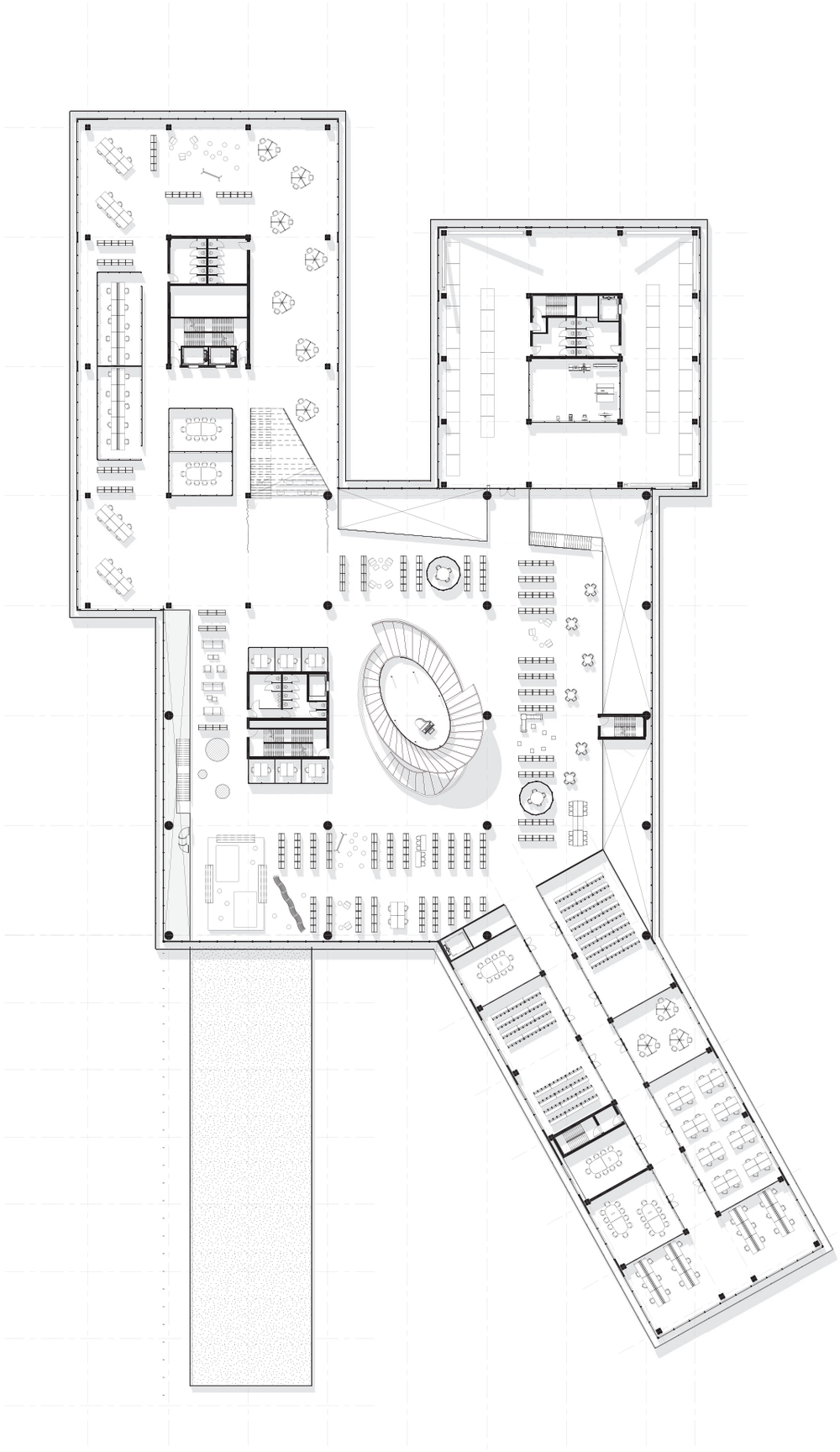
Level 1
Public park



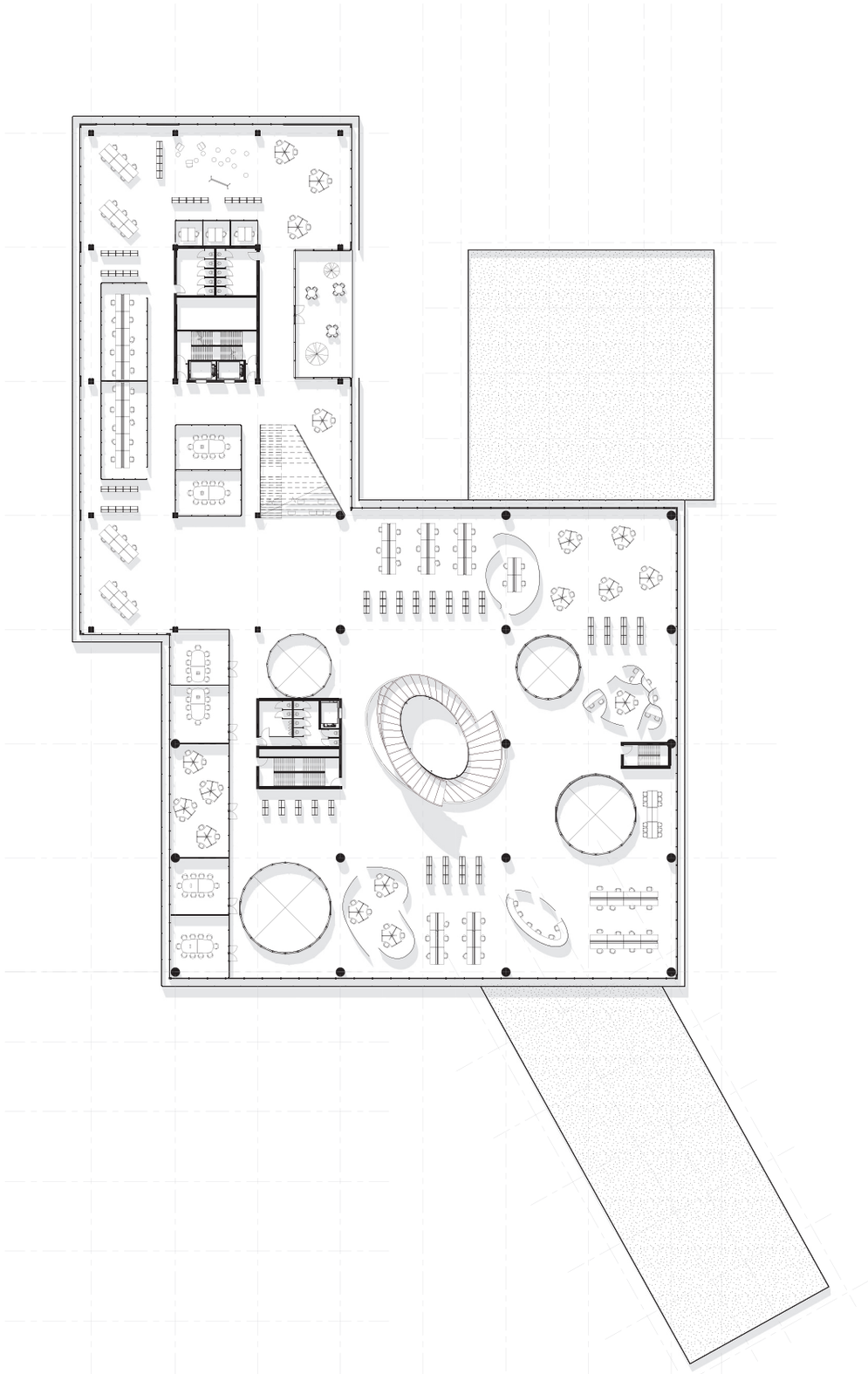
Level 2
Public ground floor



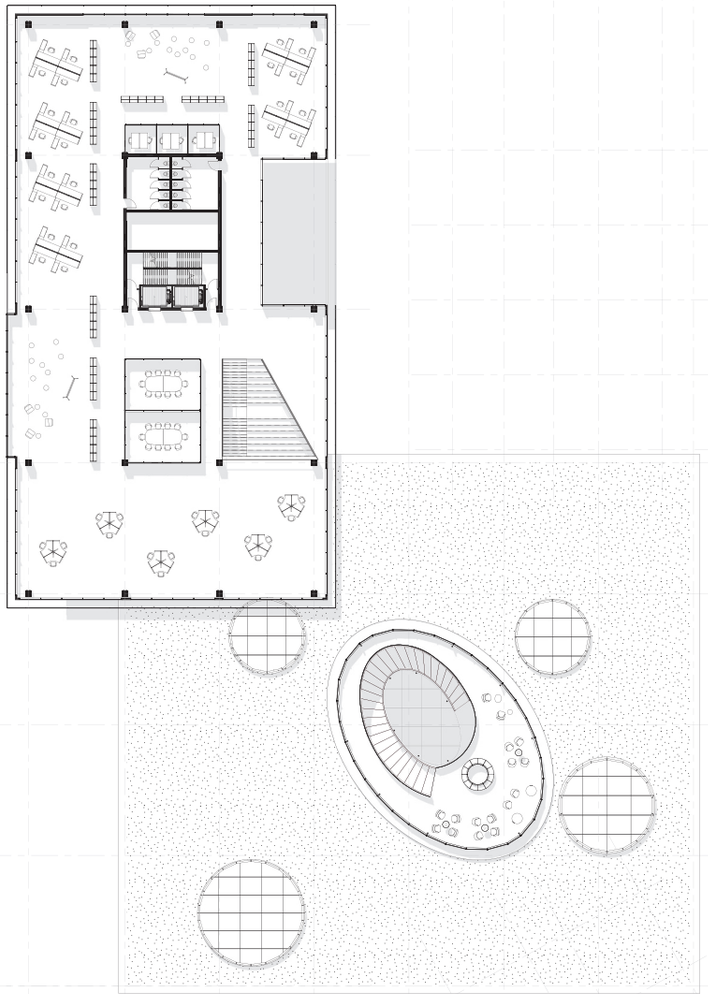
Level 3
Public urban plaza



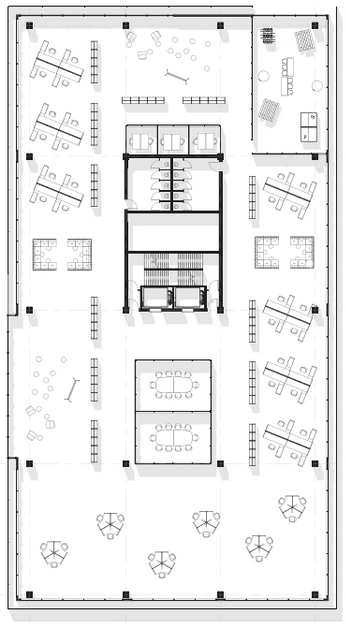
Level 4
Study landscape

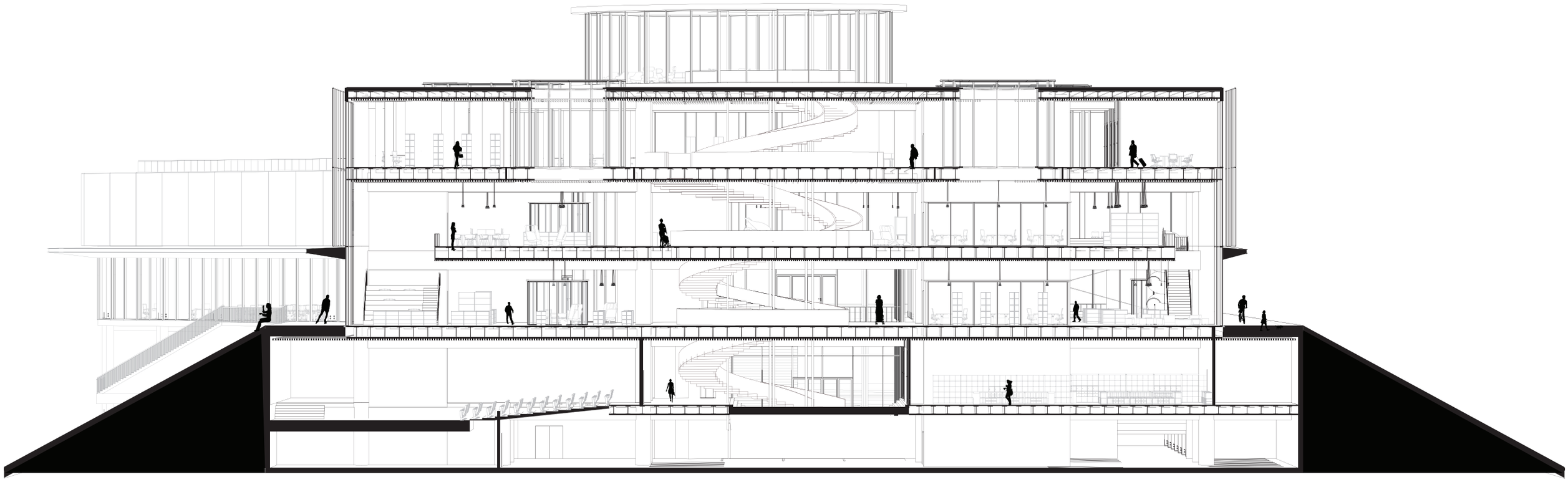


Level 5
Rooftop lounge and rentable office space



Level 6/7
Rentable office space

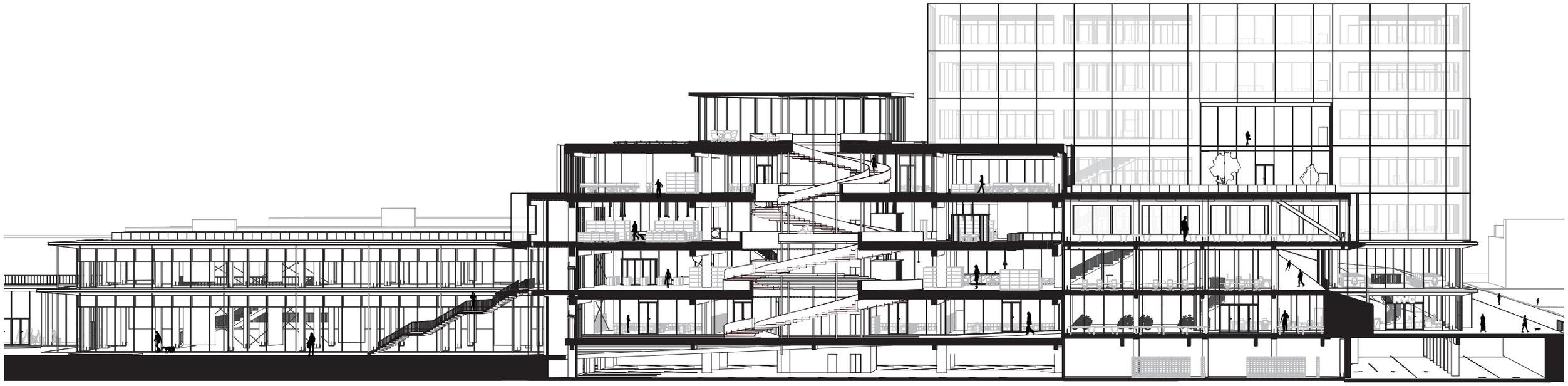




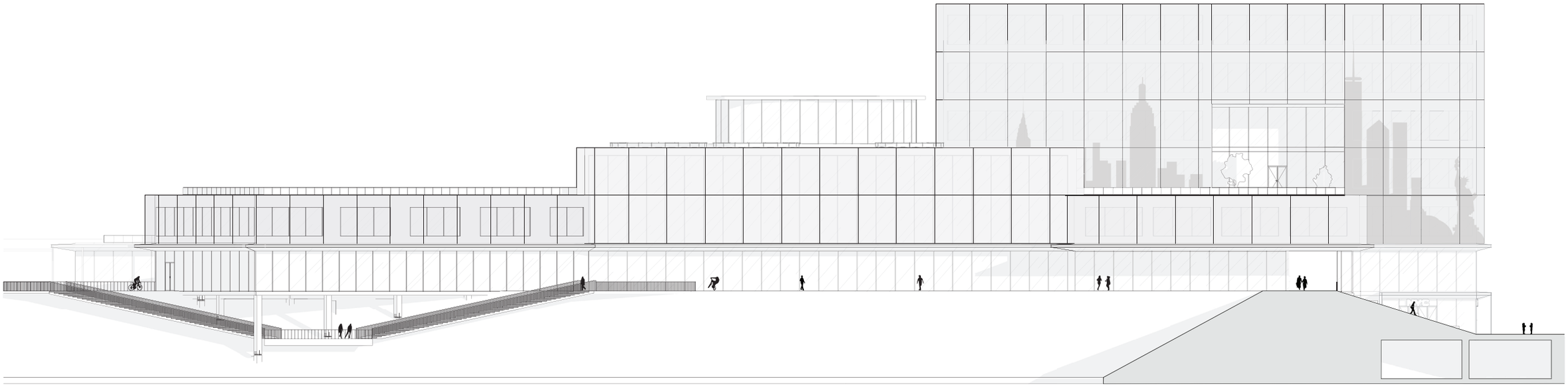
Cross section
Connection between levels

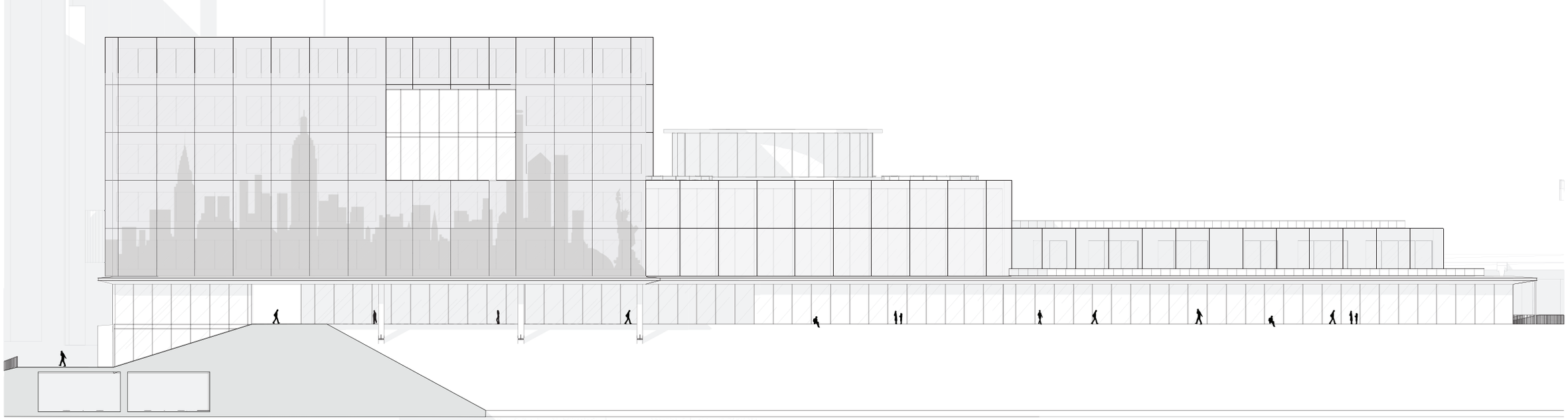


Cross section
Entrance and pedestrian paths

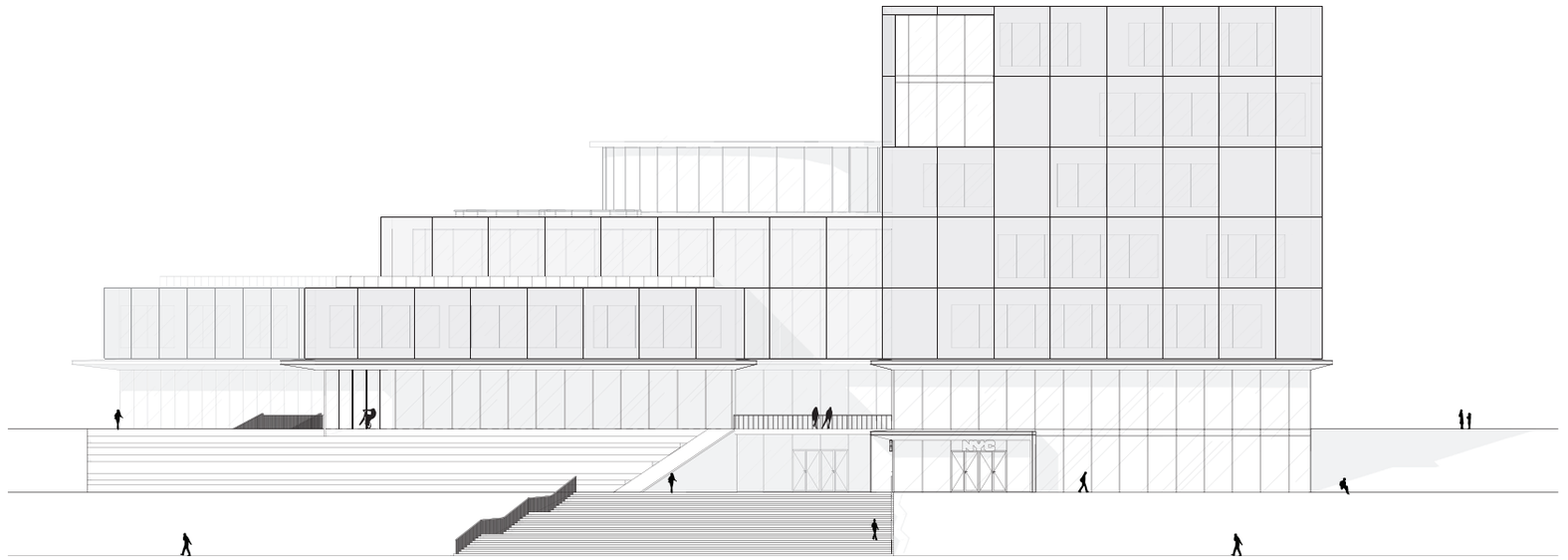


Longitudinal section
Central staircase



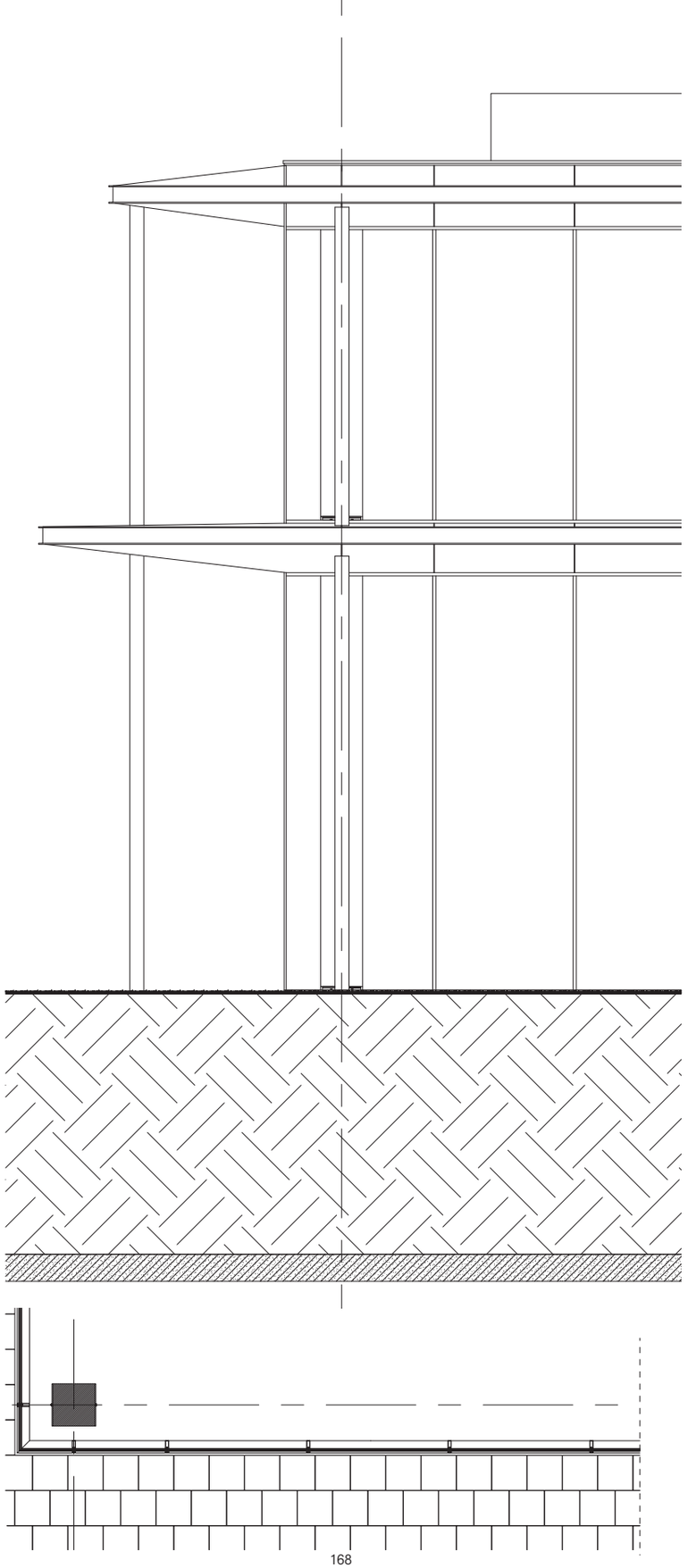


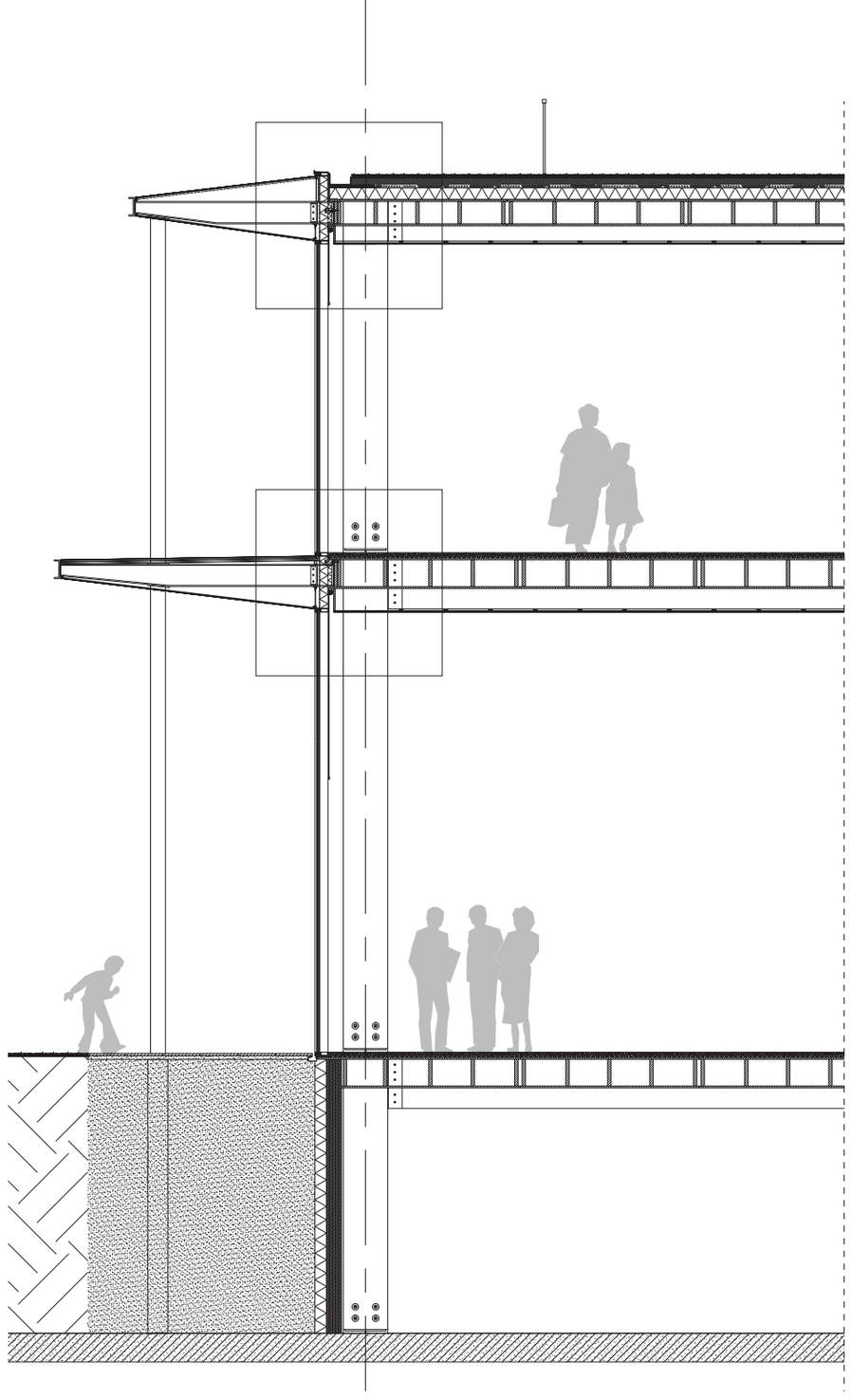
South and north elevation

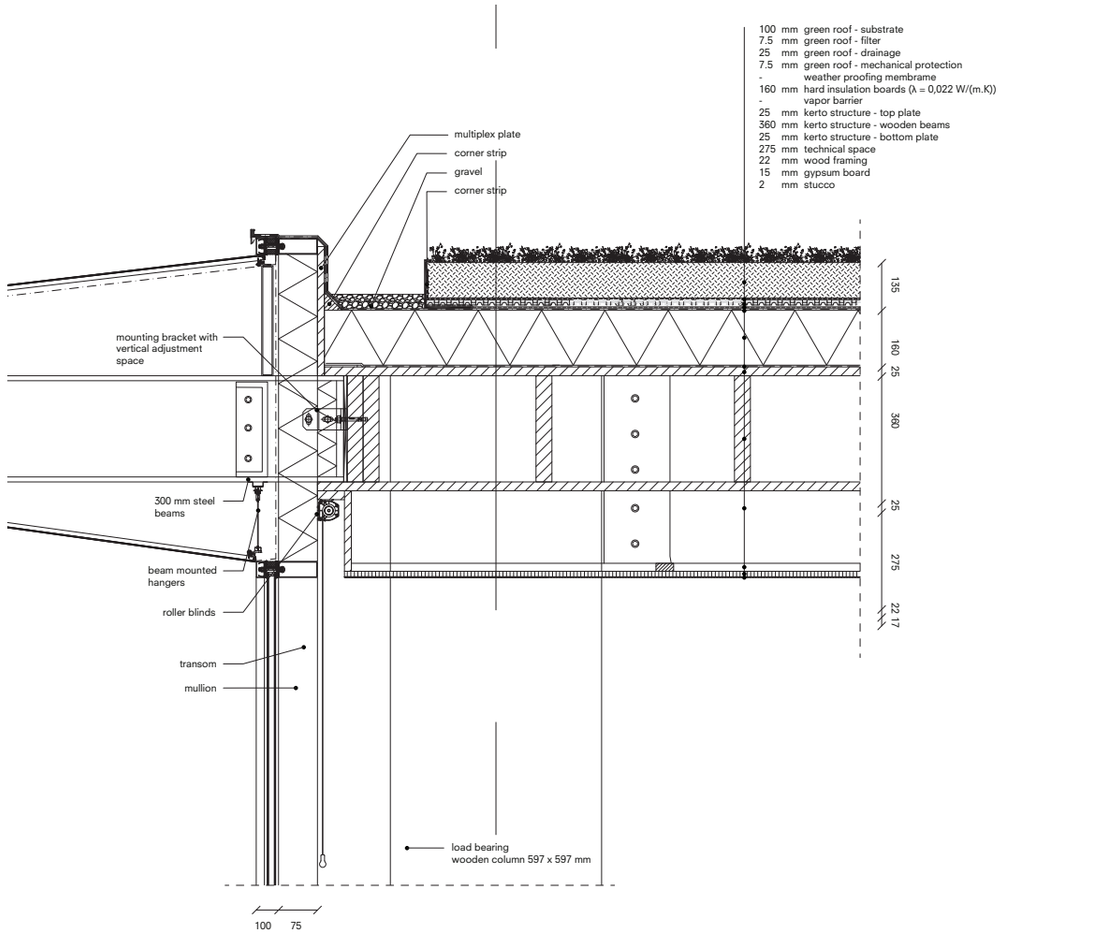


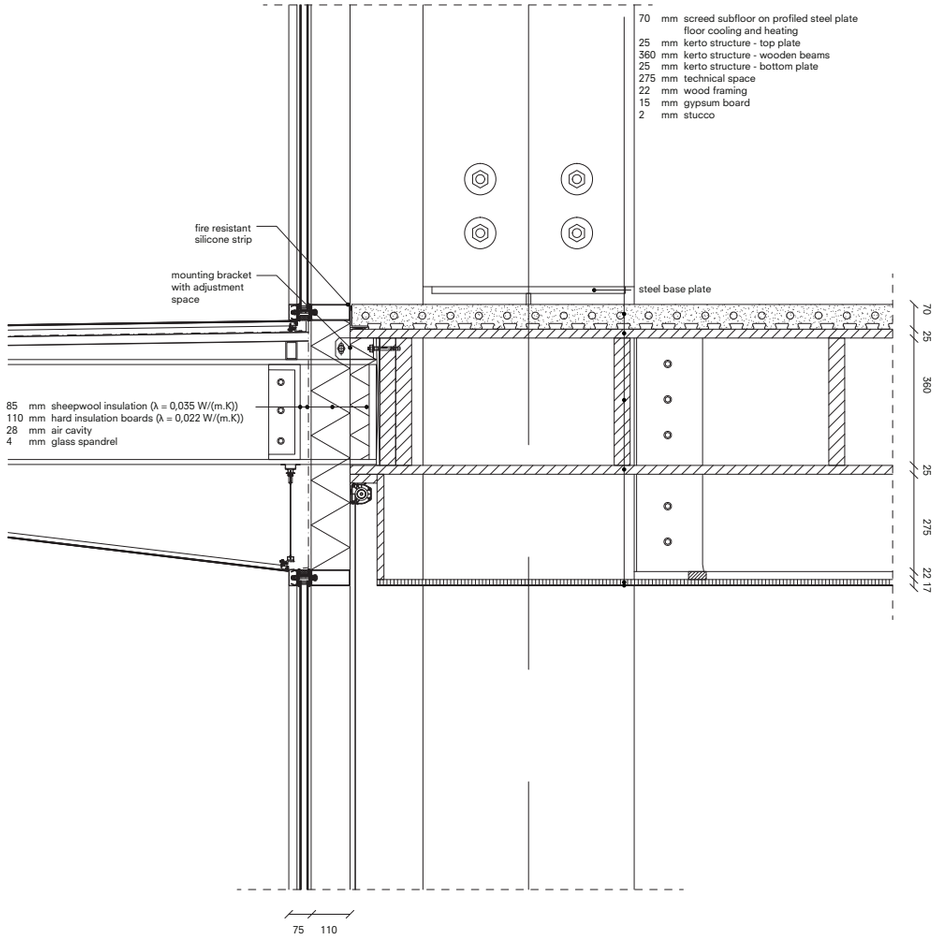


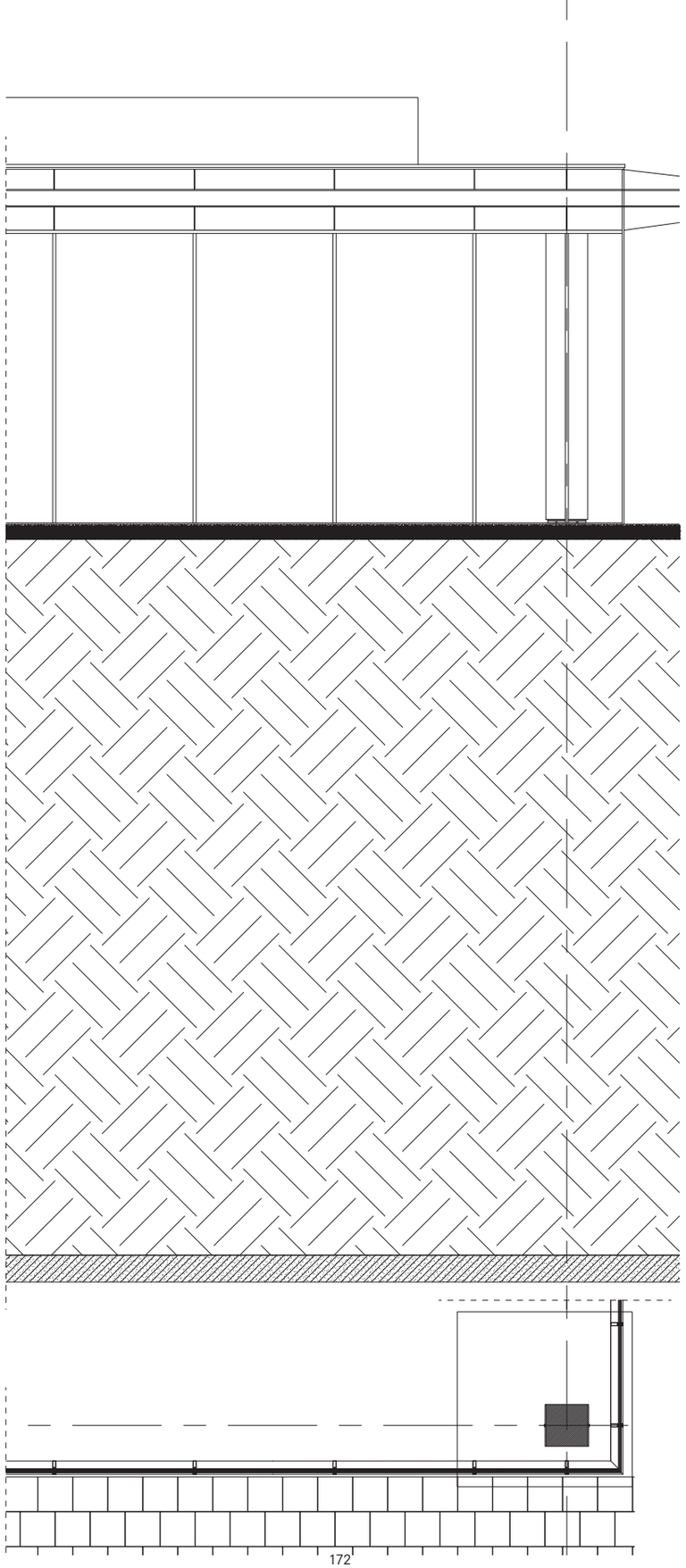
South and north elevation

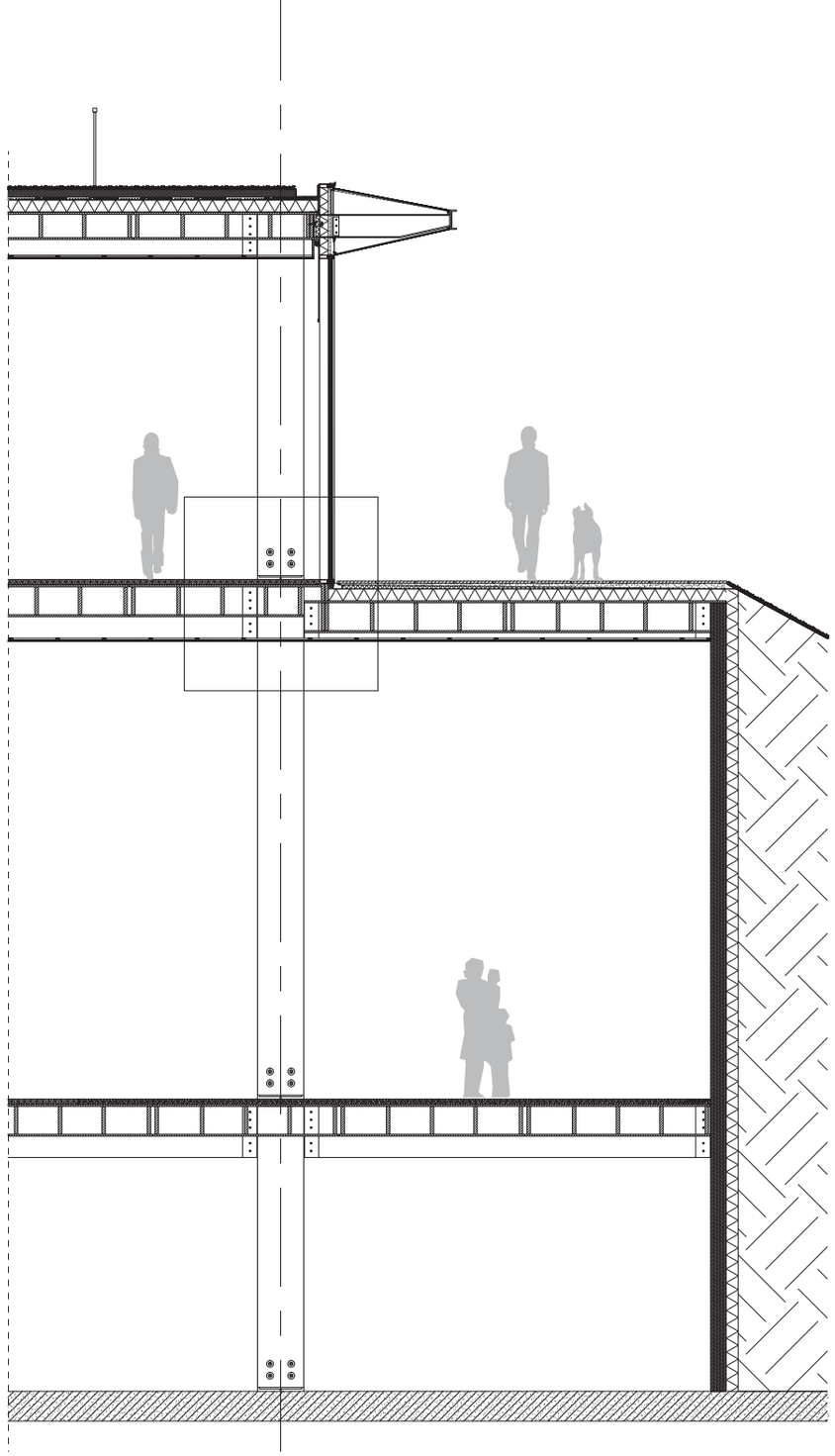


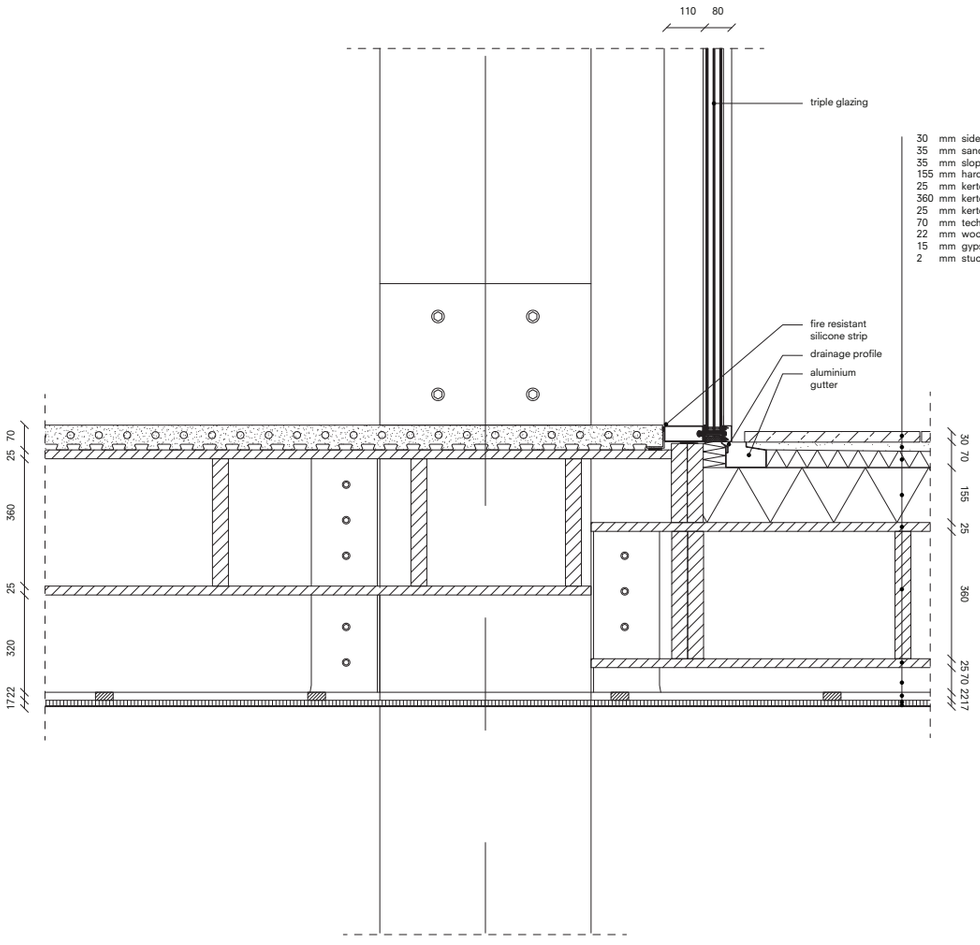


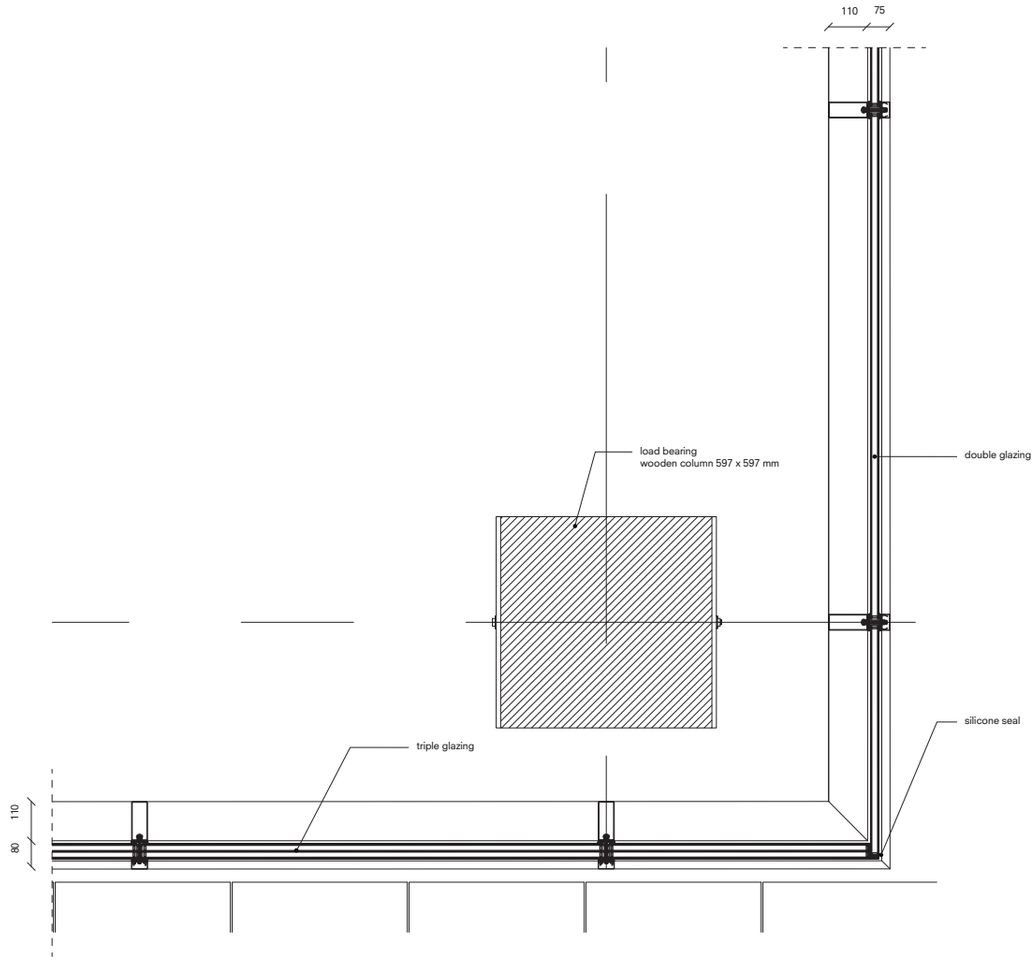

100 mm green roof - substrate
7.5 mm green roof - filter
25 mm green roof - drainage
7.5 mm green roof - mechanical protection
- weather proofing membrame
160 mm hard insulation boards (λ = 0,022 W/(m.K))
- vapor barrier
25 mm kerto structure - top plate
360 mm kerto structure - wooden beams
25 mm kerto structure - bottom plate
275 mm technical space
22 mm wood framing
15 mm gypsum board
2 mm stucco
multiplex plate
corner strip
gravel
corner strip
mounting bracket with vertical adjustment space
300 mm steel beams
beam mounted hangers
roller blinds
transom
mullion
load bearing wooden column 597 x 597 mm
135
160
25
360
25
275
22
17
100
75

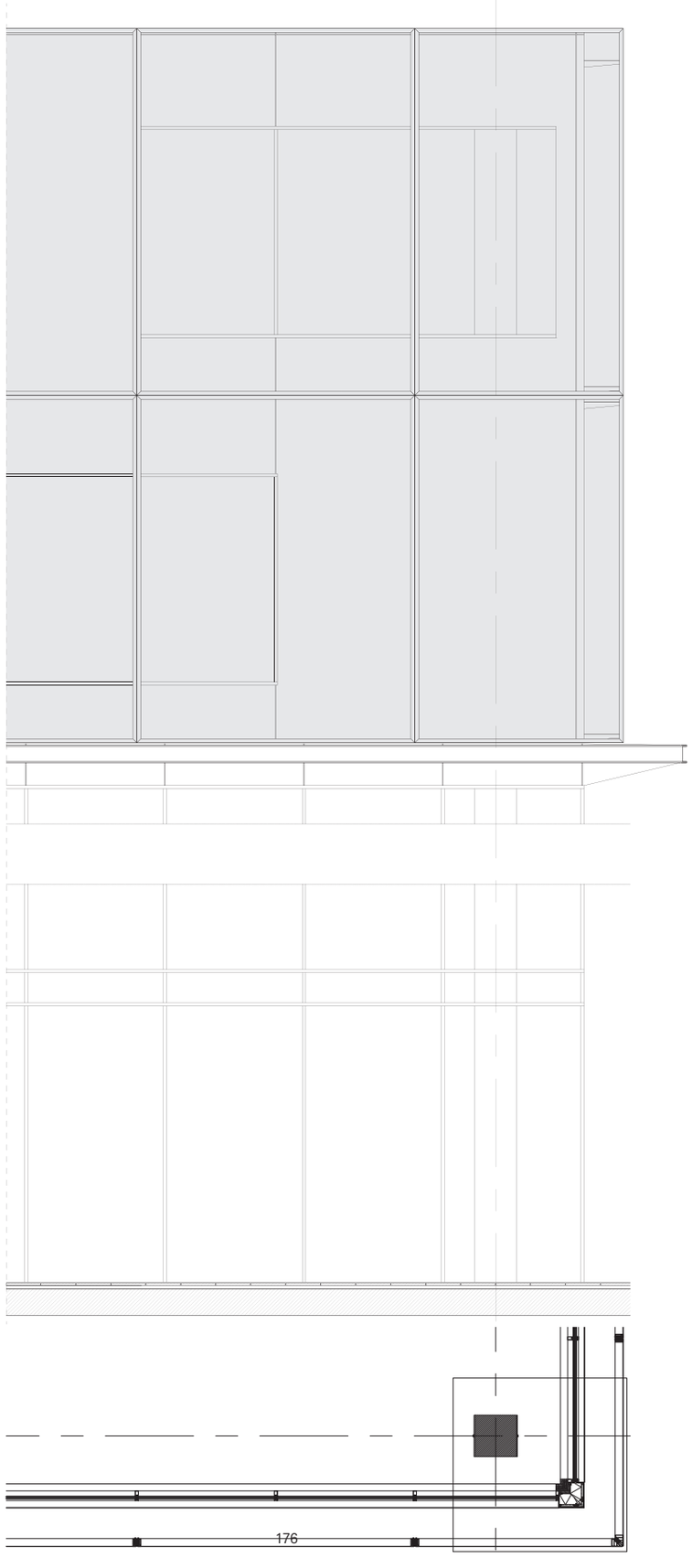

70 mm screed subfloor on profiled steel plate
floor cooling and heating
25 mm kerto structure - top plate
360 mm kerto structure - wooden beams
25 mm kerto structure - bottom plate
275 mm technical space
22 mm wood framing
15 mm gypsum board
2 mm stucco
fire resistant silicone strip
mounting bracket with adjustment space
steel base plate
85 mm sheepwool insulation (λ = 0,035 W/(m.K))
110 mm hard insulation boards (λ = 0,022 W/(m.K))
28 mm air cavity
4 mm glass spandrel
70
25
360
25
275
22
17
75
110

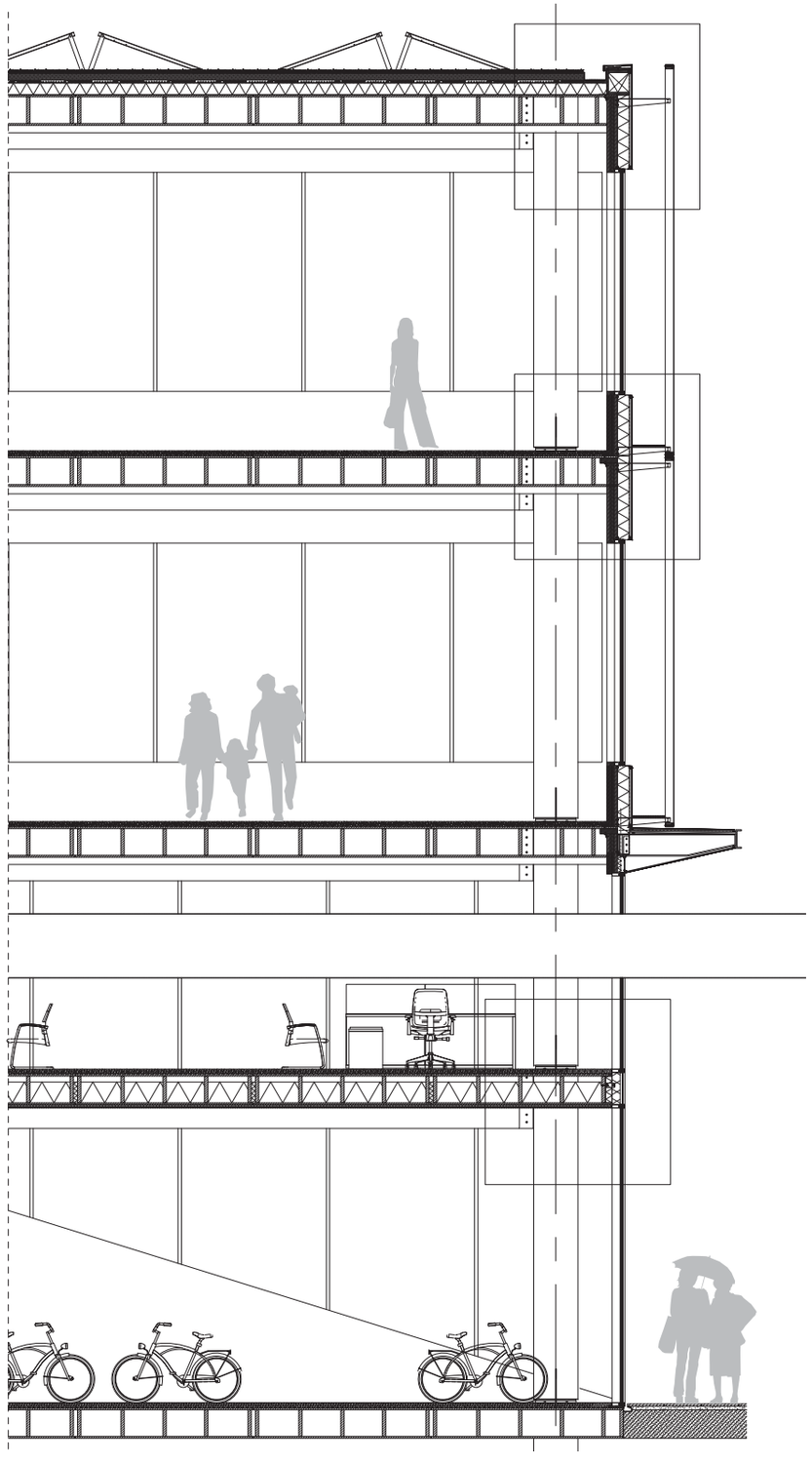


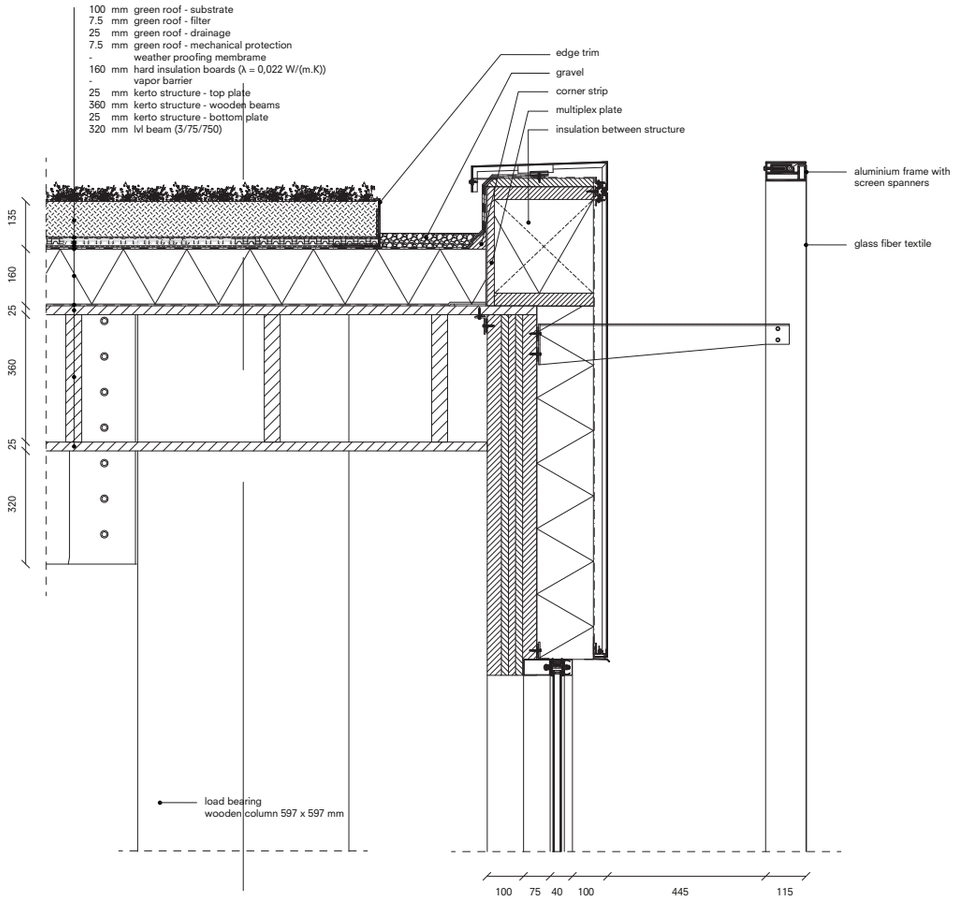


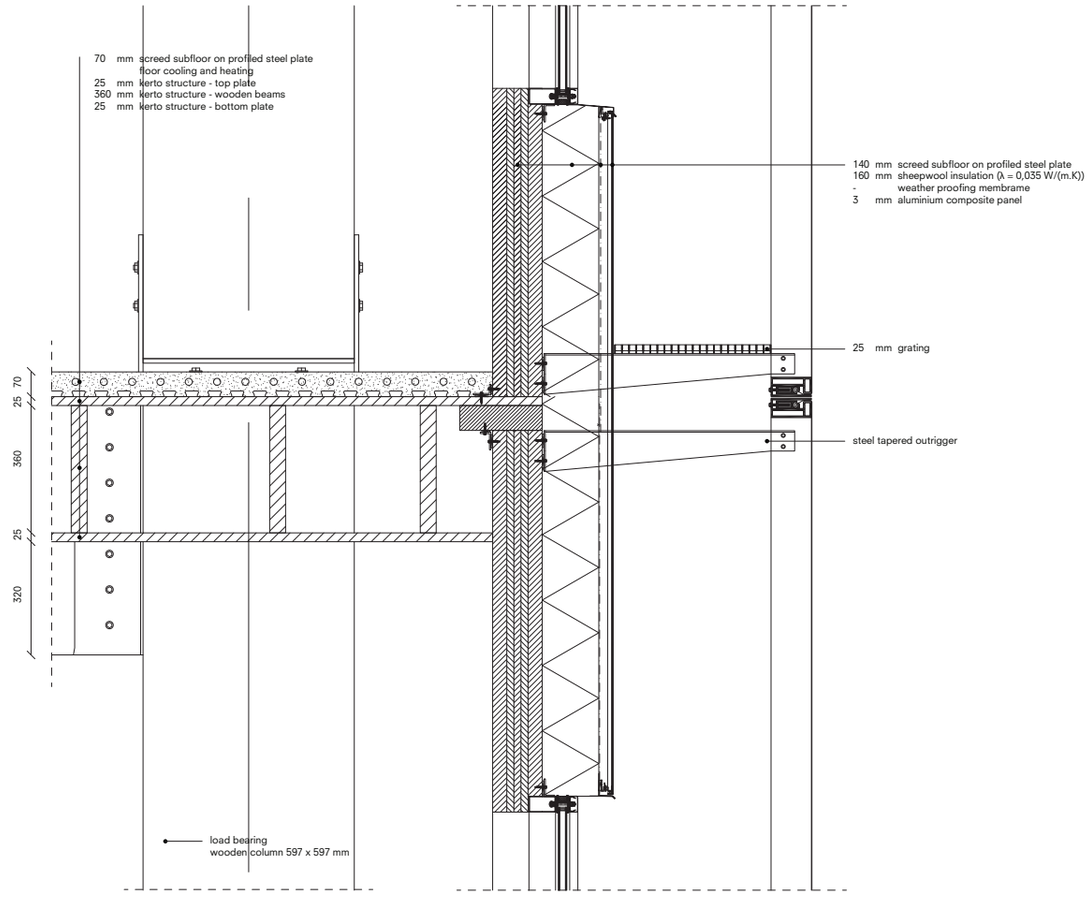

110
80
triple glazing
30 mm sidewalk tiles
35 mm sand
35 mm sloped hard insulation
155 mm hard insulation boards (λ = 0,022 W/(m.K))
25 mm kerto structure - top plate
360 mm kerto structure - wooden beams
25 mm kerto structure - bottom plate
70 mm technical space
22 mm wood framing
15 mm gypsum board
2 mm stucco
fire resistant
silicone strip
drainage profile
aluminium
gutter
70
25
360
25
320
1722
30
70
155
25
360
25
70
2217

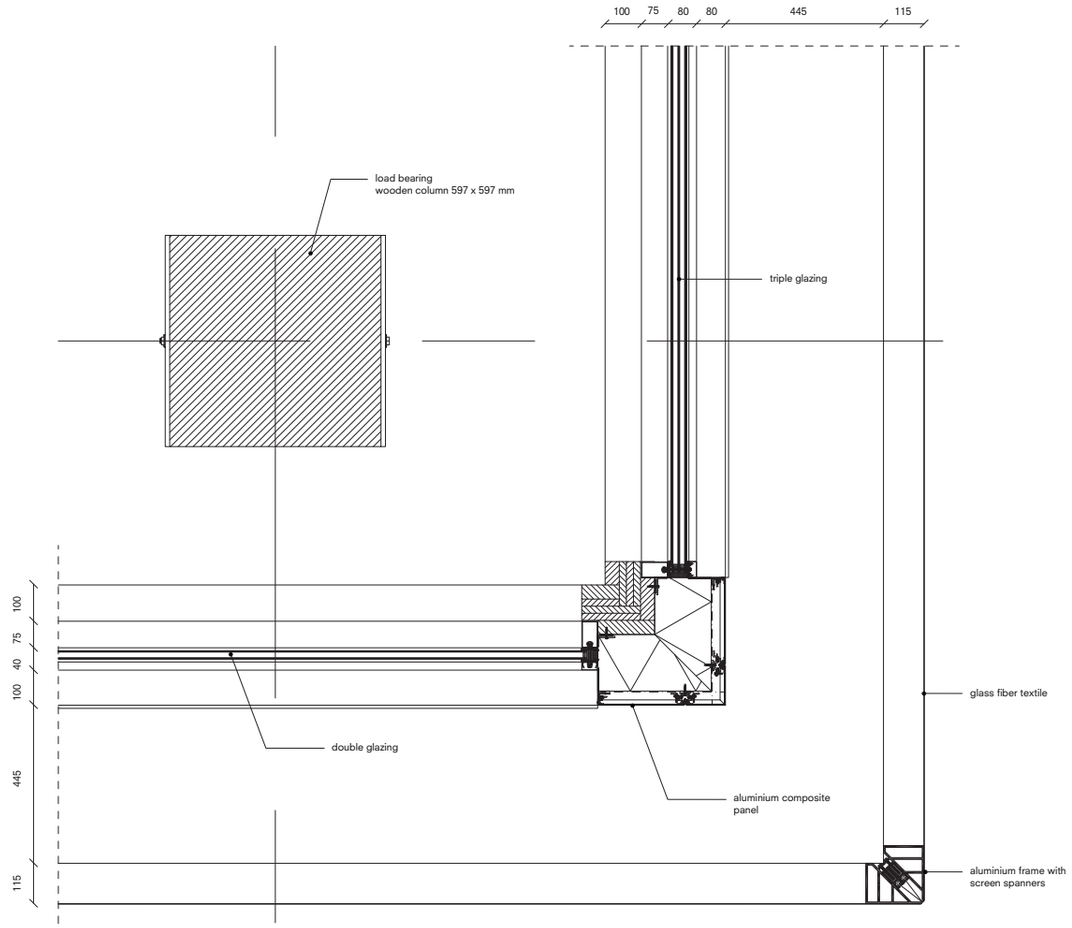

110
75
load bearing
wooden column 597 x 597 mm
double glazing
triple glazing
silicone seal
110
80





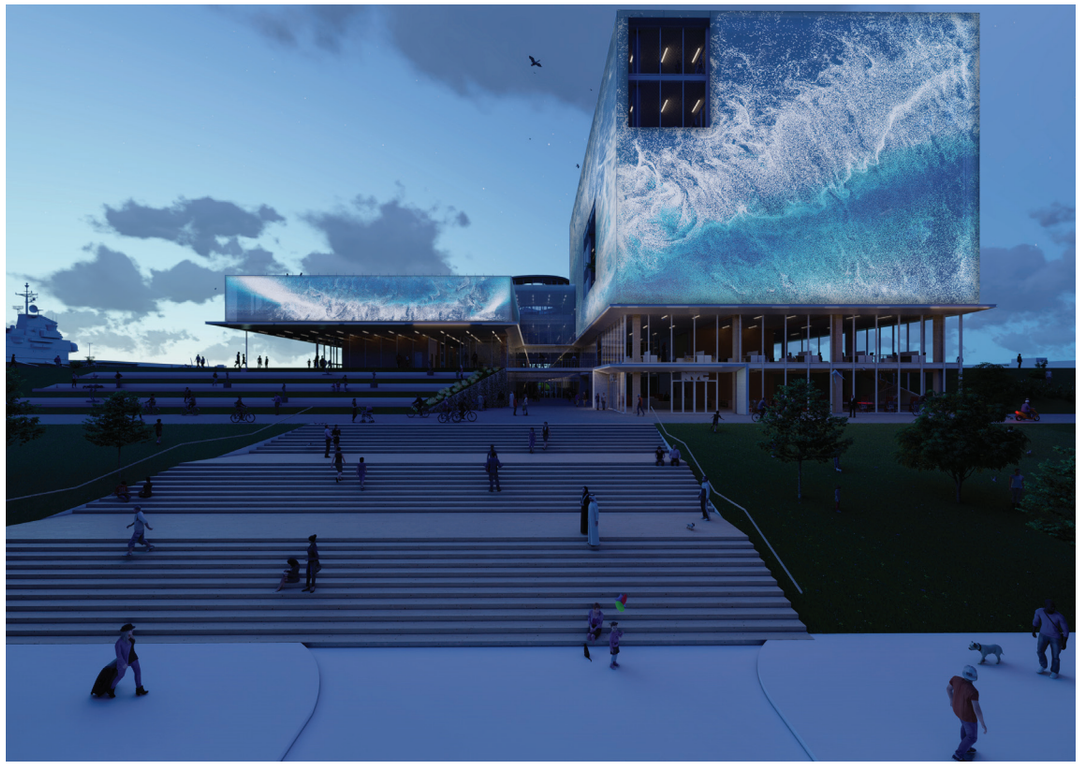

100 mm green roof - substrate
7.5 mm green roof - filter
25 mm green roof - drainage
7.5 mm green roof - mechanical protection
- weather proofing membrame
160 mm hard insulation boards (λ = 0,022 W/(m.K))
- vapor barrier
25 mm kerto structure - top plate
360 mm kerto structure - wooden beams
25 mm kerto structure - bottom plate
320 mm lvl beam (3/75/750)
edge trim
gravel
corner strip
multiplex plate
insulation between structure
aluminium frame with screen spanners
glass fiber textile
load bearing wooden column 597 x 597 mm
135
160
25
360
25
320
100
75
40
100
445
115


70 mm screed subfloor on profiled steel plate
floor cooling and heating
25 mm kerto structure - top plate
360 mm kerto structure - wooden beams
25 mm kerto structure - bottom plate
140 mm screed subfloor on profiled steel plate
160 mm sheepwool insulation (λ = 0,035 W/(m.K))
- weather proofing membrame
3 mm aluminium composite panel
25 mm grating
steel tapered outrigger
load bearing wooden column 597 x 597 mm
25
70
360
25
320


100
75
80
80
445
115
load bearing
wooden column 597 x 597 mm
triple glazing
100
75
40
100
445
115
double glazing
aluminium composite
panel
glass fiber textile
aluminium frame with
screen spanners







Changing character of the facades between day and night time.



Entrance into the building



Passage between city and park





Programmable spaces in the green hill



Showcase of innovation



Public podium



Urban plaza





Citizens service entrance



Citizens service





Expo space



Child play area



Connection between levels



Hallway with view towards the Concorde



Open view over the Hudson River



Central staircase for performances



Presentation staircase



Flexibility and fluidity of space through fabrics



More perminant divisions



Floris Buijs
TU Delft, 2020