Yunke Li
MSc3
2024/2025

interiors buildings cities

PROJECT JOURNAL

AR3AI022 INTERIORS BUILDINGS CITIES
PROJECT JOURNAL
(P5 VERSION)

YUNKE LI

MSc3/4 - 2024/2025
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INTRODUCTION

This project journal documents one academic year of work within the Interiors Buildings Cities graduation studio at TU Delft's Faculty of Architecture and the Built Environment. The studio brief tasked students with designing a new architectural archive for the Flanders Architecture Institute (Vlaams Architectuurinstituut, or VAi) within the existing cultural complex of de Singel in Antwerp, Belgium.

The brief
The assignment presented multiple, interconnected challenges:

The VAi currently operates from two different location: an office space within de Singel and a separate depot in Antwerp's city center. Both spaces have become insufficient for the institution's growing collection and evolving mission. The brief proposes to combine these functions into a single facility while reimagining what an architectural archive could be in the 21st century. The VAi explicitly stated their ambition to become "more public-facing" and to create "space for public and community engagement," fundamentally challenging the traditional model of archives as closed, specialist institutions.

De Singel itself suffers from profound disconnection. Built over 50 years through multiple additions by Leon Stynen (1963) and Stéphane Beel (2010), the complex has an introverted character that fails to engage its urban context. Located directly beside Antwerp's highway, de Singel occupies a site that should connect the historic city center to southern neighborhoods but instead feels like an isolated island surrounded by infrastructure. The assignment required addressing these disconnections at multiple scales, ranging from circulation to urban connectivity.

How does one design an extension to a complex, historically significant building ensemble while simultaneously solving its fundamental spatial problems? The new VAi building needed to serve its own programmatic requirements while also acting as catalyst for broader transformation of de Singel and its surroundings.

It is important to understand what an archive is today? Should archives remain protective containers prioritizing preservation over accessibility? Or can they become public platforms that actively engage citizens with architecture?

The studio's structure
The graduation year was organized into five distinct phases, each markedwith a formal presentation moment:

P1 (week 1-9): Initial research, precedent studies, and conceptual explorations. We investigated what archives are through case studies, developed research questions, and created speculative design proposals testing our ideas about what an archive should be

P2 (week 10-16): Initial urban and architectural proposal. We had to develop detailed strategies addressing site, program, and concept, producing complete designs showing building location, form, circulation, and relationship to context.

P3 (week 17-24): technical and architectural development. Focus shifted to materialization, structure, building technology, and detailed design of key spaces. We made facade studies, structural systems, and construction details. Finished this period with a facade fragment model.

P4 (week 25-40): Final refinement and presentation. Integration of all previous work into one coherent architectural proposal with emphasis on clear commu-

nication of concept, urban strategy, and architectural quality.

Throughout the year, we worked with a team of mentors: Daniel Rosbottom (head of the chair, later main mentor), Susanne Pietsch (main mentor), Elina Karanastasi (Building Technology mentor), Sam de Vocht, Jurjen Zeinstra. Up until P3, our mentors were rotating every week. From a certain moment on, we had more frequent tutorials with our main mentor.

The purpose of this journal
This project journal serves multiple purposes within the graduation process.

The journal records the evolution of ideas, decisions, and designs over fourteen months. It captures not just final outcome, but the entire process that takes place before. The unfiltered process becomes clear in the journal, with abandoned directions, productive failures, and breakthrough moments. Architecture is rarely linear; this journal reflects the actual complexity of design.

Beyond documentation, the journal requires critical reflection on process. Why did certain approaches succeed while others failed? How did research influence the design, and how did design reveal gaps in research? What did tutorials, feedback moments, and peer discussions contribute to project development?

Finally, the journal serves as evidence of design research, which is a form of research specific to architecture. It demonstrates that architectural design isn't just mindless designing, but systematic investigation of problems through spatial, material, and organizational exploration. The journal not only shows what was designed but how and why, situating the work within a broader discipline.

Reading this journal
This document contains approximately 500 pages organized chronologically. However, design processes are never linear. Ideas from early weeks resurface months later; problems identified in P2 aren't resolved until P4. The journal's structure reflects this reality, with retrospective reflections providing understanding of how pieces connected. Some sections represent thinking-in-progress, explorations that led nowhere, proposals later rejected, ideas tested and abandoned. These aren't failures to be hidden but essential parts of design process. The journal also documents struggle, with moments of confusion, harsh feedback, and uncertainty about direction, rather than presenting false narrative of smooth progress.

The project
The following pages document my yearlong investigation into creating a new home for the VAi. The project proposes a triangular landscape bridge spanning the highway creating continuous green space connecting previously fragmented neighborhoods. The VAi building sits at the crucial corner where this bridge meets de Singel, functioning as operational home for VAi's collections and programs, architectural anchor for the bridge landscape, urban mediator between de Singel and the city, and catalyst for reimagining archives as distributed networks rather than isolated buildings.

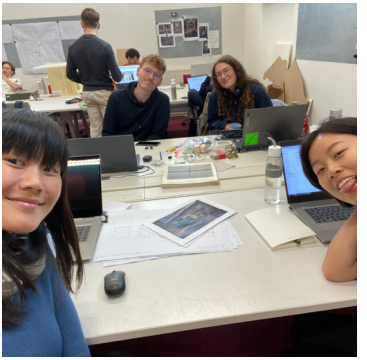
BRIEF 01. LO

week 1.1 - week 1.4

LOOKING CAREFULLY

CANADIAN CENTER FOR ARCHITECTURE (CCA)

CCA archive by Gabor Szilasi, 1989



the CCA group members: Jenny Fang, Daan Franken, Veronica Danesin, Yunke Li

The Canadian Centre for Architecture is an international research institution and museum premised on the belief that architecture is a public concern. We produce exhibitions and publications, develop and share our collection as a resource, advance research, offer public programs, and host a range of other activities driven by a curiosity about how architecture shapes, and might reshape, contemporary life. We invite collaborators and the wider public to engage with our activities, giving new relevance to architectural thinking in light of current disciplinary and cultural issues.

Physically anchored in Montréal by our building, park, and sculpture garden, we work within other contexts through our projects, programs, and collaborations that take place elsewhere. This website is also an extension of our activities, where you can encounter our thinking, work, and collection from wherever you are.

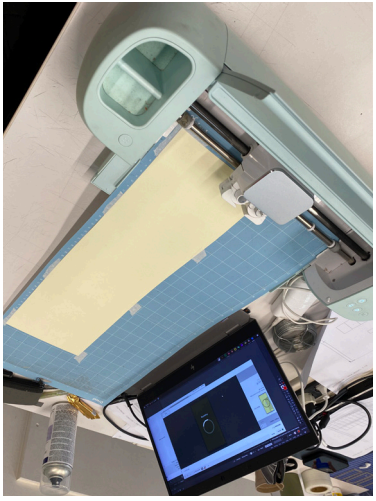
Founded as a new type of cultural institution by Phyllis Lambert in 1979, the CCA is currently directed by Giovanna Borasi and steered by the CCA Board of Trustees. To learn more about us, you can read about our history, refer to a timeline of our past activities, or explore the ways that we are working toward fostering affirmative relationships with Indigenous and other peoples across Tiohtià:ke/Mooniyang/Montréal through the process of creating a living land acknowledgment.

PHYSICAL MODEL

process photos

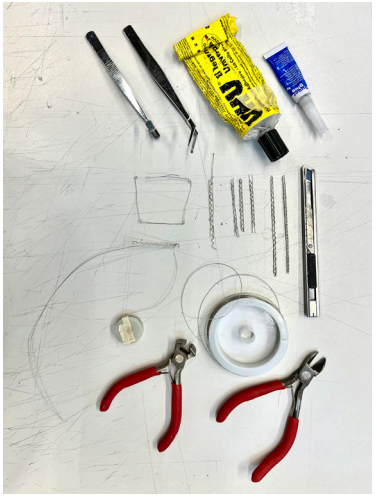
The first steps of our process was to decide the scale of the model. After much discussion with other groups, there were three scales decided for the whole group. In our case, a smaller scale would be needed to showcase all the details.

The scale of the model is 1:15
and the box measurements: 500 x 600 mm



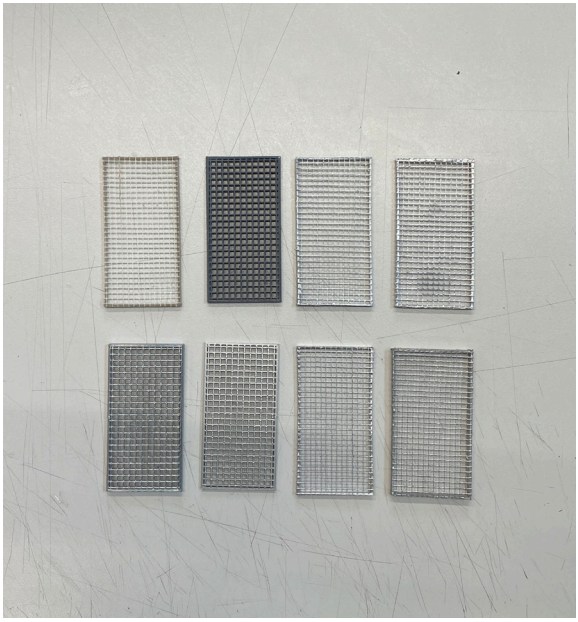
cricut machine for cladding shelves, outline of the shelves racks, wheels

soldering tools for metal racks



toolkit for metal racks

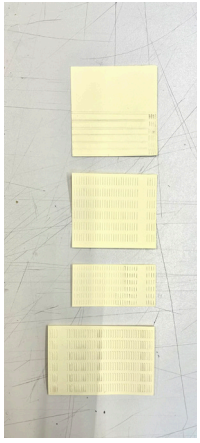
material tests



grid ceiling material tests, with variations of the following:

- 3d printed frames
- cardboard and grid tape frames
- different metalic/grey spraypaint

For the final model we used a combination of 3D printed frames in the front, where details are more prominent and cardboard/tape frames in the back. On top of the frames we did a second layer of tape to create a fuzzy effect with shadows.

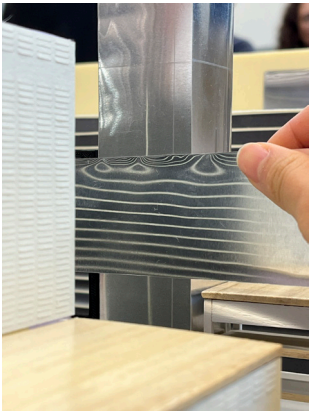


result cricut texture

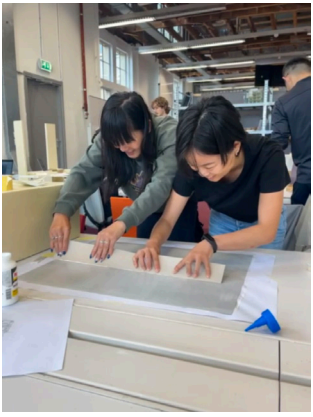
cricut pushing process

glossy wood finish tests

metal rack wires



We found out the reflection of the aluminium has a direction, as a result of the material being stretched out one way. The current direction doesn't work for the horizontal lines, so we had to redo it. This was something that we were only able to discover through the making of the model.



Here we are testing how to achieve the perfect reflection on the floor. We settled for a thin layer of woodglue and spreading this out in multiple directions with cardboard.

The big challenge when recreating an existing design and a photograph is the accuracy of all the objects.

A big part of the process was to test out the materials on a 1:15 scale and how they would look after being photographed. This was particularly challenging for smaller details, such as the metal racks and the metal wires.

We also focused a lot on the texture of different materials. For example, the wooden tabletops and how to achieve a realistic shine. We used different methods, like wood glue, plexiglass, clear tape and paint. The texture of the metal cladding was surprisingly an easy process, where we used a cricut to get the grid and a pin to push every singular profile for a 3D effect.

Through making this model, we had to think about every detail that was needed to create this room. We were able to understand the reason behind the use of certain materials, such as the sterile metallic rack, metal cladding, metal grid ceiling, and wooden countertops for hygienic purposes. We also discovered more about the way this space was being used with the grid on the ground enabling the rearrangement of the cabinets and the big handles used for this mechanism. Even outdated systems that we were unfamiliar with before, like the big blue tanks filled with gas to protect against fire. Most importantly, the method of archiving used in the CCA, with its precise organization this reflected in the interior of this space.

10 september

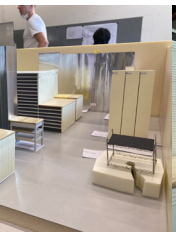
13 september

18 september

18 septem

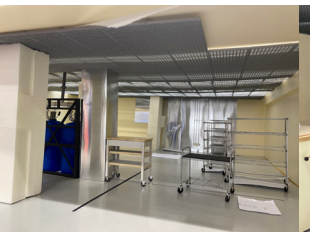
timeline of the process of the model

eptember



19 september

23 september



24 september

photograph tests

test setup for the camera and marking the angle

test photographs in the studio space

final test photograph in the studio

PHOTOGRAPHS

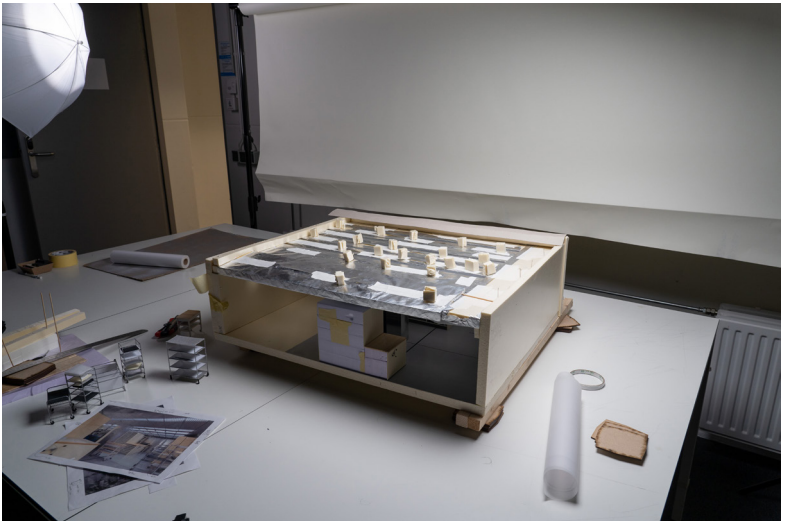
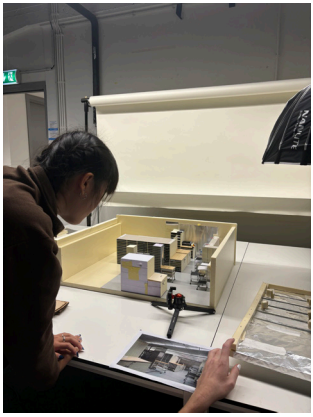
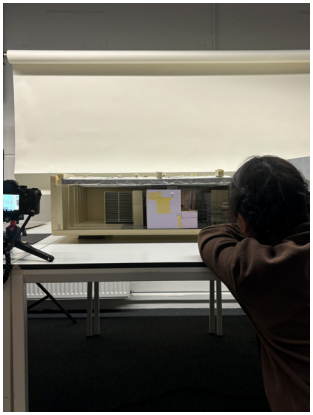


photo studio day





process photographs of the making of the final photographs

On the photo studio day we reserved the studio for 2 hours. Because we did some test photos before, it was easier to set the model up. In the end, the lighting worked directly in the way we wanted it to work. The most time-consuming part was finding the exact angle for the camera. As we made a mockup of the space in rhino and used angles to calculate the size of all the objects, these measurements were not completely accurate. This inaccuracy became apparent when trying to find the right angle and objects were not perfectly aligned. Nevertheless, these differences are minor in the final photographs when being compared.

Besides the original photograph, we also photographed two variations for this. The archive when it is stripped down and in an empty state. We removed all movable objects except for the furniture. And one version where all movable furniture is in a different location, changing the perception of the space.

photo studio day

remake original photograph

archive in empty state

archive in reorganized state

Gabor Szilasi, 1989

model photgraph, 2024

REFLECTION

What did the CCA teach me about archives?

The CCA model exercise was not only a technical assignment to replicate a photograph, but it became my first direct encounter with the spatial and material logic of archival institutions. Through the process of reconstructing this processing room at 1:15 scale, I began to understand archives not as abstract concepts but as specific spatial and material conditions that embody institutional values.

The most interesting discovery was the location itself. The CCA's archival processing happens in the basement, literally underground, hidden from public view. This is not accidental. In the CCA, the visible (galleries, reading rooms) is seperated from the invisible (processing, storage). The photograph we replicated shows a space that 99% of CCA visitors will never see. The processing space is a pristine, clinical environment where conservators handle fragile materials away from environmental public disruption and daylight.

Making the model forced me to understand why this separation exists. The sterile metal furniture isn't aesthetic choice, but chosen for hygiene. Metal doesn't attract insects or release acids that damage paper. The modular shelving on wheels allows reconfiguration of the space depending on the needs. The perforated metal ceiling conceals the climate systems.

What became clear through material testing was how completely this space prioritizes preservation over experience. From the cold metal surfaces to the absence of windows to the institutional scales shows that this is a space for objects and not people.

This raised a research question: Must archives be designed primarily for objects rather than people? In the CCA the collections are irreplaceable and the visitors are temporary. But this creates a paradox: if archives exist to make knowledge accessible, why design them to be inaccessible?

Three Design Principles Emerged:

1. Visibility vs. invisibility: The CCA makes archival work invisible, reinforcing the archive as specialist domain. My project would need to consider if processing can be visible without compromising preservation? Can the public understand archival work without accessing restricted areas?

2. Materiality: The materials chosen inside of the CCA accurately reflects the archival functions. But what if the VAi wants to communicate openness, not protection, would different materials be chosen without ignoring the conservation properties?

3. Threshold: The CCA has clear thresholds between public and restricted space. These thresholds protect collections but also exclude people. How can the VAi create spaces where different publics experience different levels of engagement with the archive?

The VAi brief explicitly states they want to become "more public-facing" and create "space for public and community engagement." This is fundamentally different from the CCA's model. If I were to apply the CCA's spatial program, with processing staying hidden, I would be creating an archive image that the VAi wants to move away from.

The model exercise taught me that archive design is ideological. The CCA's basement processing room embodies a particular position: preservation is crucial, expertise is specialized, access is controlled. VAi is asking for a different position where preservation enables engagement, expertise is shareable, and access is generous.

This exercise therefore wasn't about learning to make models. It was about learning to read institutional values through spatial and material choices.

From the brief...
The task was to begin by engaging with the VAi (Flanders Architecture Institute) archive. Rather than treating the archive as a collection of perfect drawings or monuments, we were asked to approach it as a set of relationships between many different types of material: drawings, models, letters, contracts, photographs, collages, publications, and samples. These objects form ensembles that not only preserve architectural practice but also suggest stories, influences, and conversations across time.

As part of the assignment, each of us was given a curated ensemble of archival objects from Belgian architects, both living and dead. The brief was to research the practice connected to our material and then design an environment in which the objects could be stored, protected, and presented. This included considering technical conditions such as light, air, temperature, humidity, and fragility, as well as how visitors or researchers might encounter the work.

The outcome was to be a physical model supported by drawings, images, and a short written statement. The aim was not only to design for preservation but also to ask whether the ensemble itself could speak: could it reveal a narrative, highlight silences, or point to a different way of understanding the role of the archive?

BRIEF 02
A

week 1.5 - week 1.9

02. FIRST THOUGHTS, A PLACE TO ARCHIVE

SITE VISIT: ANTWERP (1 OCT - 3 OCT)

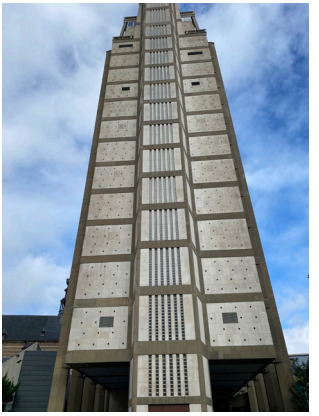
program for three days

Tuesday 1 October
10:00 meeting Dirk Somers at the main hall of Antwerp Central Station for a city walk
Lunch on the go
14:00 meeting at entrance De Singel for a walk of the surroundings
18:30-19:00 transit to Standard Pizza (Regine Beerplein)
19:00 communal dinner

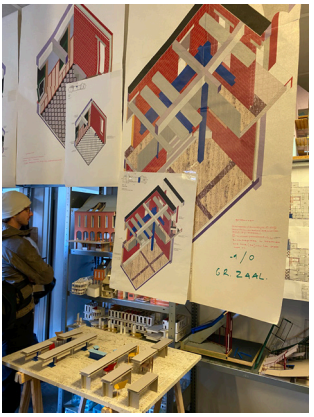
Wednesday 2 October
10:00 visit to the Flanders Architecture Archives: Parochiaanstraat 7
12:00-13:00 lunch at university restaurant Instroom (tbc) or Komida
13:00-13:30 transit to Camille Huysmanslaan for a visit to Leon Stynen's house
13:30-14:30 visit to Leon Stynen's house
14:30-15:00 walk to De Singel
15:00 Welcome at De Singel by Dennis Pohl, director of the Flanders Architecture Institute
15:30 Tour of the buildings with Wouter Roels, director of infrastructure De Singel
16:30 Tour of exhibition in the making on the work of Dogma by Hülya Ertas

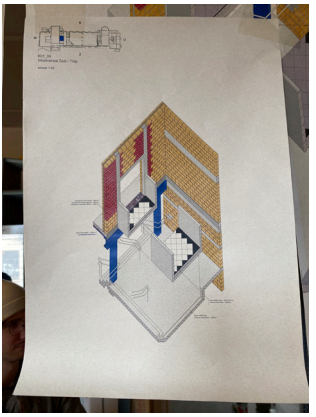
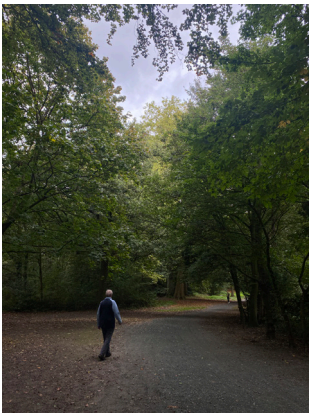
Thursday 3 October
09:00 Student visit of the archives (Parochiaanstraat 7) in two groups of 7.
Exact hours will be communicated on Wednesday during our visit
12:30 Lecture by Sofie De Caigny in a room of Antwerp University: Rodestraat 14 room S.R.231
14:00 Student visit of the archives (two groups of 6)
20:00 Free activity: opening of the Dogma exhibition with lecture (free activity, reservation obligatory)
https://www.vai.be/en/press/dogma-urban-villa

TUESDAY 1 OCTOBER

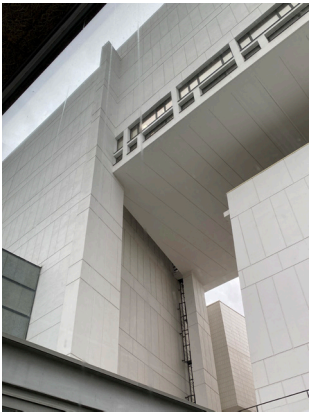
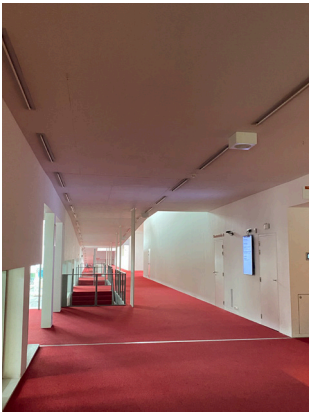


visits to various architecture landmarks in Antwerp



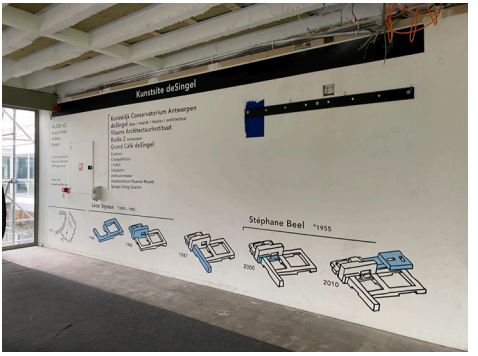



visit to architecture firm and Domein Hertoghe park

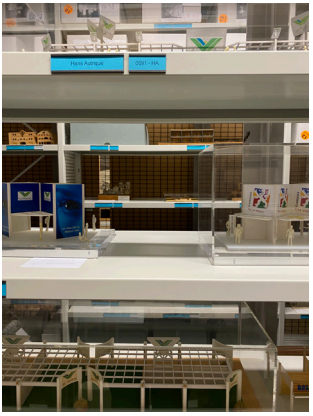



de Singel site visit

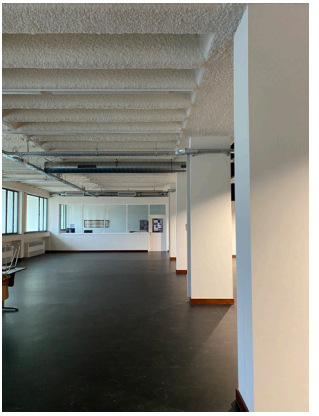
de Singel site visit exterior



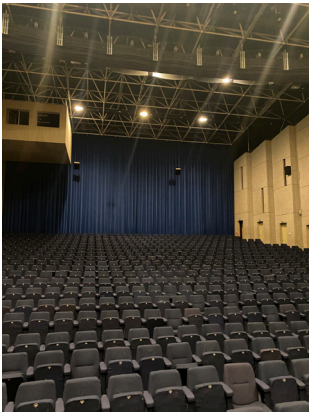
WEDNESDAY 2 OCTOBER



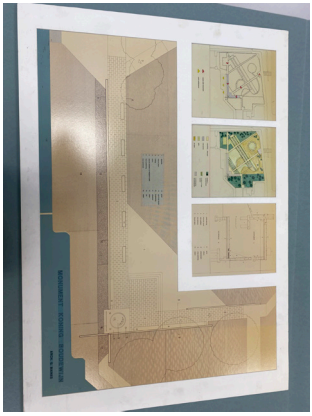
VAi archive visit with tour



dogma exhibition preview



THURSDAY 3 OCTOBER



VAi archive material visit

Georges Baines archive material

GEORGES BAINES RESEARCH

The architect I got assigned to research was Georges Baines. The material we received during our visit to the VAi in Antwerp was quite limited and repetitive. Each of us received one box with material for us personally. However, it was a bit unclear during the visit if this meant that we could not use any of the other materials. Collectively for my group, there was a physical model of Maison Guiette by Le Corbusier. In my box, I found photographs of his projects, including this Maison Guiette. Besides the photographs, some documents were related to Georges Baines and one section drawing.

As there was limited information and no project documentation about the architect online, we were determined to find an offline source about him. Luckily, we were able to find a book in the city library that included a few of his projects. One of these was the renovation of Maison Guiette. I immediately felt interested in this project and wanted to have this as my starting point for my design.

Belgian artist and art critic René Guiette asked Le Corbusier to design his studio-cum-residence in Antwerp, after seeing the architect's Pavilion de L'Esprit Nouveau – a temporary structure installed in Paris in 1925.

The house has had several owners over the years. Architect George Baines restored Maison Guiette for Belgian fashion designer Ann Demeulemeester, who bought the house in 1983 but was always said to despise the crowds of architectural tourists who gathered outside the property. It was made a protected monument in 1978.

model of Maison Guiette by Georges Baines

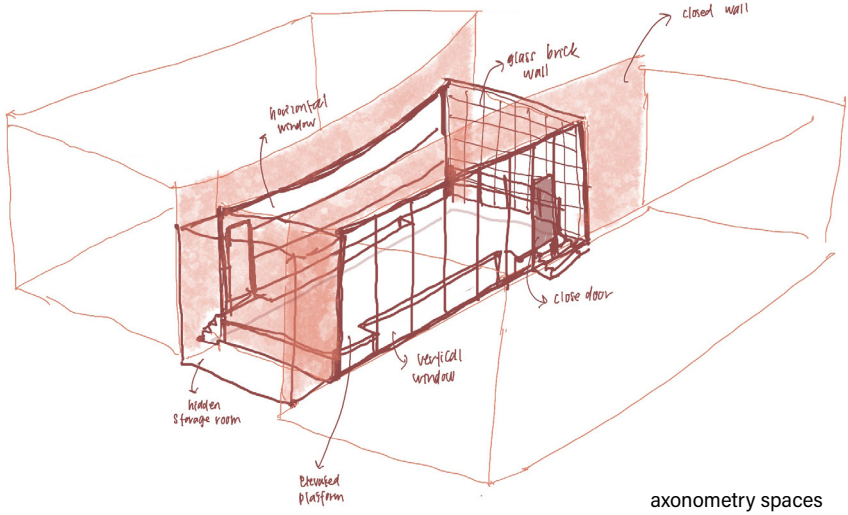
model of Maison Guiette and Baines extension

Kenneth Frampton, Georges Baines (2006)

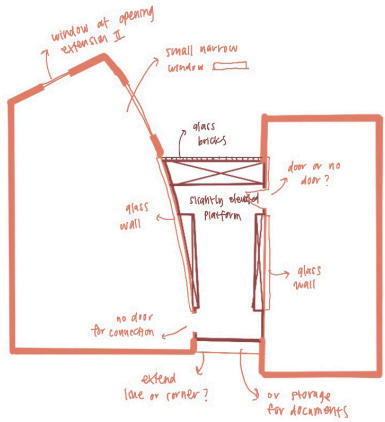
I am particularly interested in this part of the building. Where the extension of the George Baines design meets the old design by Le Corbusier. How did he approach this difficult combination? Did he try to take over the design language by Le Corbusier or go in the opposite direction of? How did he manage to respect the old, but also stay true to his design approaches?

GEORGES BAINES DESIGN

first sketches



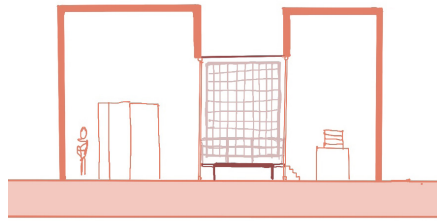
axonometry spaces



floor plan sketch

I started out analyzing Maison Guiette and understanding its history. How it became such an important piece of modern architecture and how this building evolved over time. What the relationship between Le Corbusier and Georges Baines was and how this was reflected in the building?

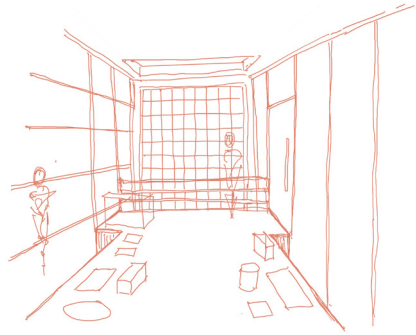
The space created here is inspired by the floor plan of these three volumes: the original building, the transportation space in between, and the new curved building. The volumes are scaled down to retain their spatial qualities but on a smaller scale.



section and relation between the two spaces

To create a similar experience to the sky bridges, the space in between will be on an elevated platform. The visual connection between the two spaces by the use of curtain glass walls.

The elevated platform will be used as a display area. Visitors in the rooms on each side will look onto the platform, with signs under the objects. There is a glass brick wall facing the outside, and a shelves system connecting to a storage area. These shelves can be interacted with and opened.



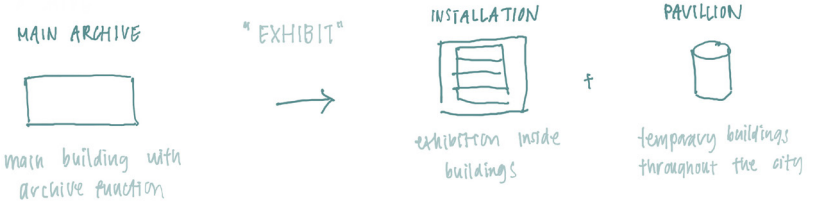
impression of elevated platform exhibition

PRE-P1 PRESENTATION

After the tutorial of last time, Daniel made one comment that stuck with me.: "Why do you have to remake an existing building if you can also use the existing building?".

This made me think about the possibilities to utilize existing spaces as part of an exhibition space. Is it possible to create an archive that does not have any boundaries, physically but also conceptually? What if the archive moves past its physical building and spreads out into the entire city?

In a way, one can view the city as an archive. The buildings inside a city are a collection of different periods and different designs. It would be interesting to use this archive in combination with a traditional archive. What if the exhibitions take place in the buildings that are featured in the archive and it becomes a much more engaging experience?



concept of an archive without boundaries

INSTALLATION

structure inside existing building

- universal design
- easily demountable
- room for showcasing different materials
  - models
  - drawings
  - digital things (documentaries)
  - books
- 'transparent' blending in with the surroundings = the building

PAVILION

structure looking out on existing building

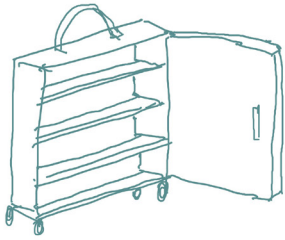
- can be more project specific
- scaled model of a building or a part of a building
- room for showcasing different materials
- engage a wider audience
  ↳ more WOW factor

ARCHIVE MATERIAL TRANSPORTATION

trolley (for transport)
↳ wheels
shelves
boxes

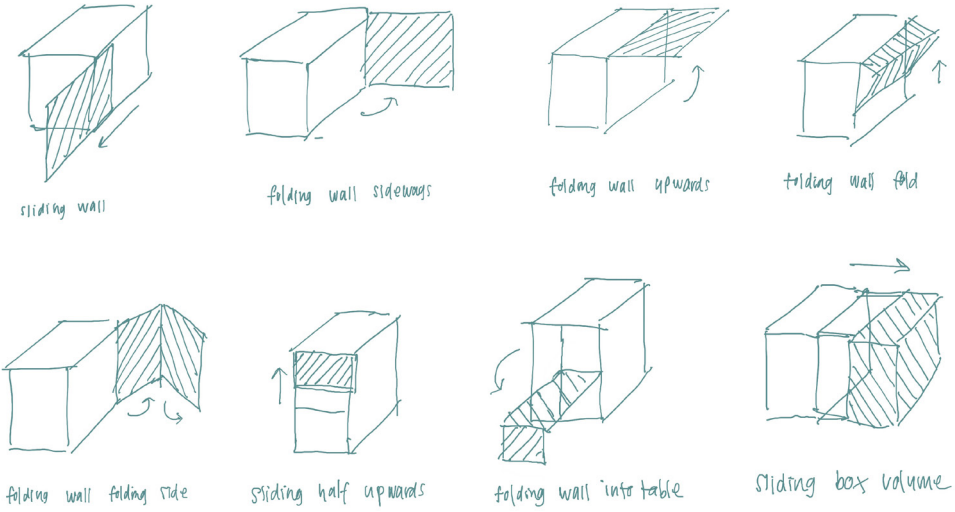
racks (for storage)
↳ wheels
racks

INSTALLATION

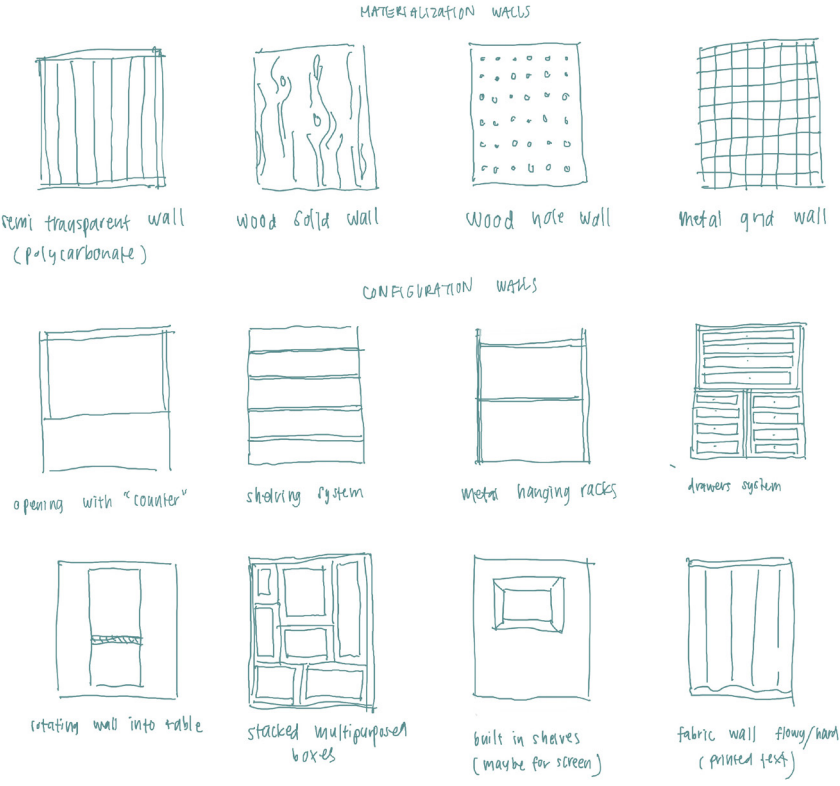


" BIG suitcase "

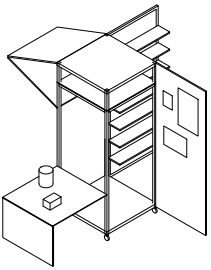
upscaled trolley that transforms into an exhibition installation



configuration of the module



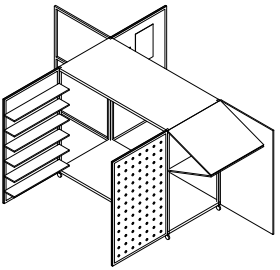
materialization of the interchangeable walls



MODULE 2

1000x1000x2500

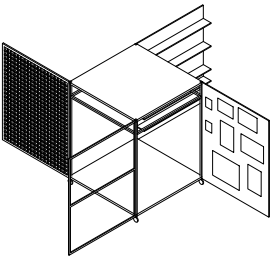
frame: 40x40



MODULE 3

2500x1200x2000

frame: 40x40

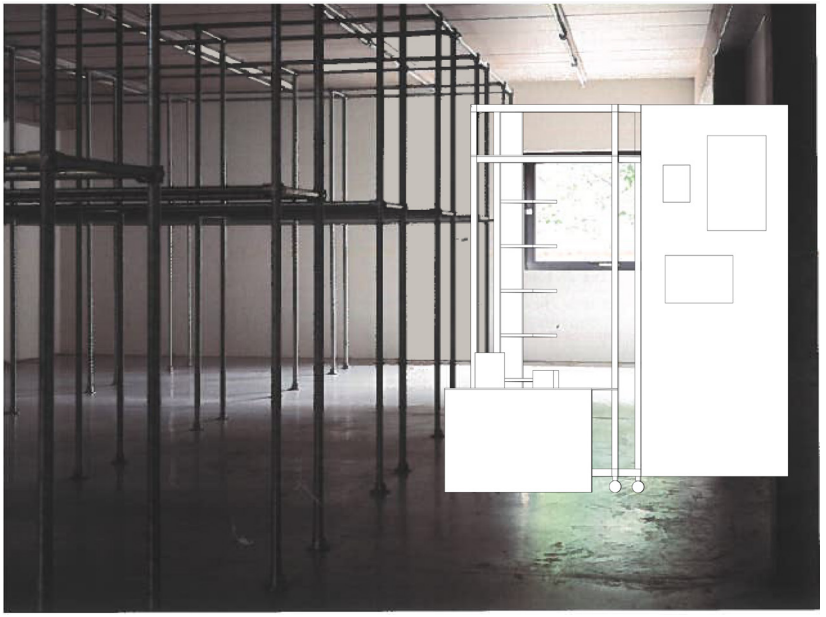


MODULE 4

2000x2000x2500

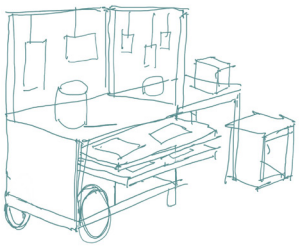
frame: 40x40

different versions of the module with various dimensions



module inside maison guiette extension

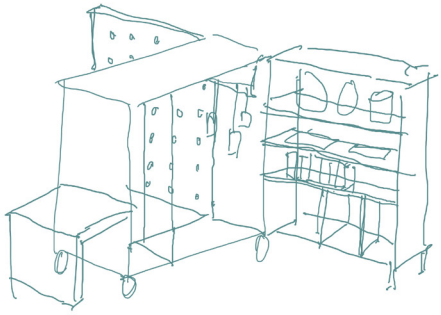
TROLLEY DESIGN
(500 × 800 × 1000)



+ very compact
+ easily transportable
+ conceptually strong
+ fits in many spaces

– fits less objects
– feels very temporary
– doesn't integrate much with the space

MODULE DESIGN
(800 × 1500 × 1800)



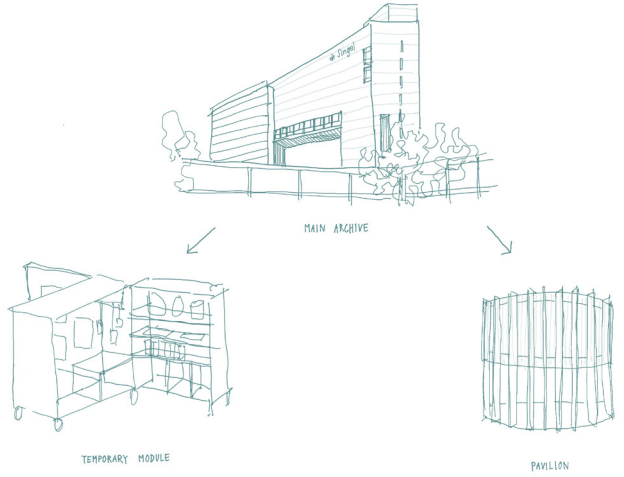
+ can create different spaces
+ various configurations for many objects
+ more functions ⇒ engaging
+ spatially interesting

– harder to transport
– needs enough space
↳ maybe not possible everywhere

I had done a lot of research on one particular module with openable doors. This was a decision that was made fairly quickly, and I did not explore other options. I think that the most important thing for this module is transportability. It needs to be compact and once opened, be an interesting exhibition object. This led to two options: a trolley design and a module design. The trolley would be able to move around the city more easily, as the module would require car transportation for longer distances. I decided to go with the module design, as the object itself is more architecturally interesting and can create more engagement.

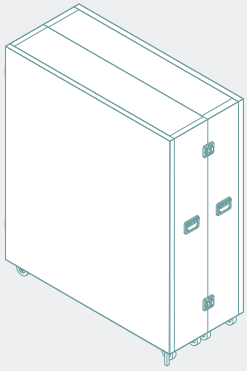
P1 PRESENTATION

final products



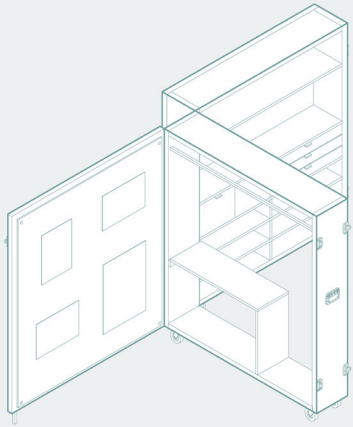
The final product is a compact module that can be transported all over the city. It is a part of the concept that the archive does not only belong in an introverted building but can expand throughout the entire city and take different forms. Besides the main archive building, there will be temporary modules and pavilions to support the material of the archive and engage people. For P1 I worked out the temporary module typology.

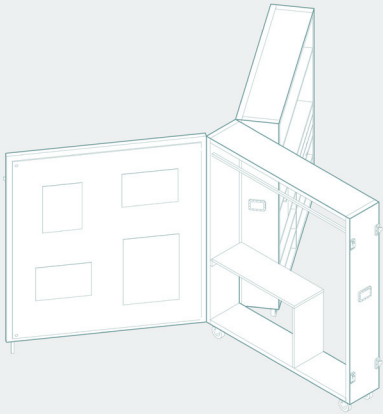
This module is 1500 millimeters by 650 millimeters and has a height of 1800 millimeters, making it the perfect size to move through domestic doors and therefore accessible to places as well as outdoors and indoors. The module would be able to put inside interesting architectural buildings in the city and exhibit material from the archive regarding the building or the architect. Placing the exhibition inside or near the projected archival material makes it engaging for the people.

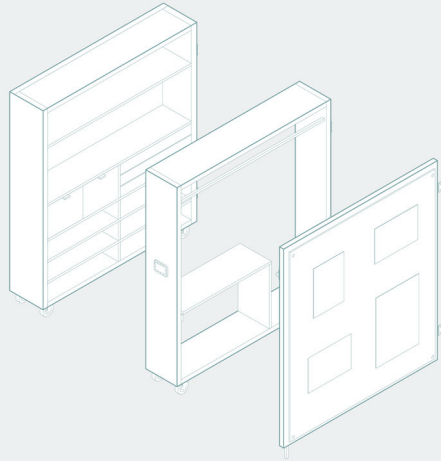


module

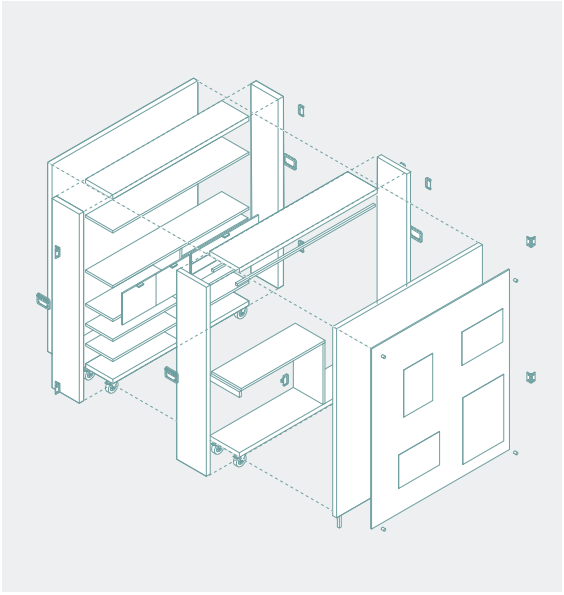
1500 x 650 x 1800
(lxwxh)



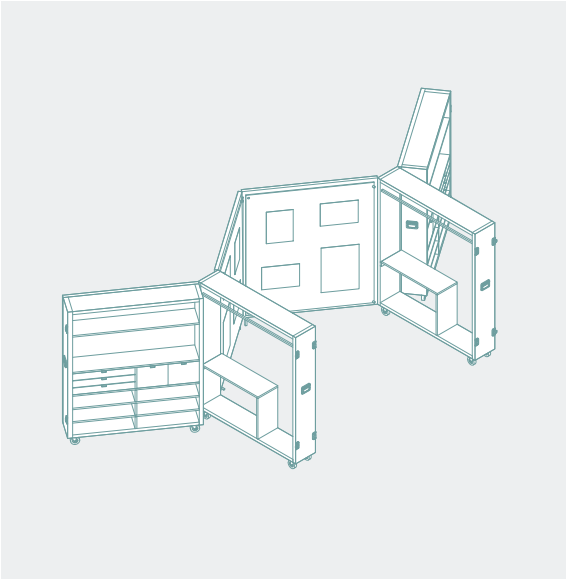




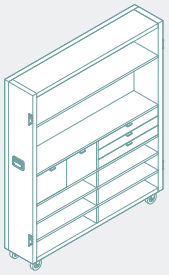
module drawings



exploded module

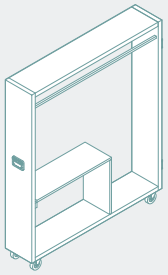


connected module system



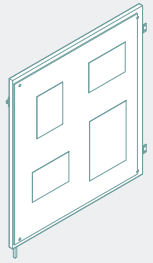
cabinet with shelves and drawers

function: storage



space with foldable table and racks

function: study



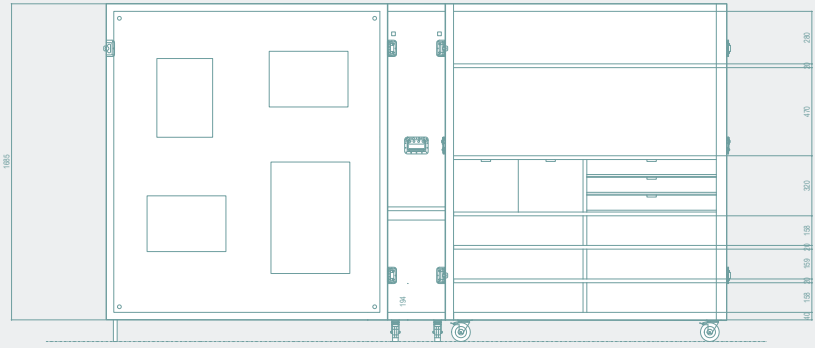
empty board

function: display

multifunctional boxes

function: comfort and display

module elements



elevation of module

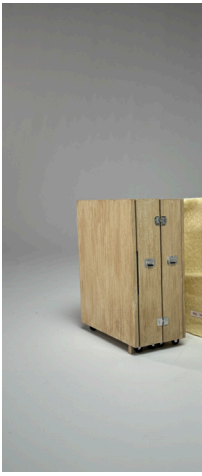
PHOTOGRAPHS

module in CCA model

module in kabinett model

process pictures

I spent a whole day taking the pictures in the photo studio and in the photobooth. I decided to re-use the models made for the first assignment, as there were many in the same scale (1:15) as the module I made and they could showcase how the module could work in a spatial setting. The models two models I chose would show the module in an archive depot setting, where the workers could arrange the products inside the module and one in the exhibition area of the archive, where it is clear how the exhibiting function of the module displays material.



model photographs

model photographs

feedback P1

The feedback for P1 was quite negative and harsh which was very demotivating. It felt dismissive of the conceptual ambition.

Some of the points made:
- Context of the city and the concept needs to explain more. How does it work in the city? How do you transport it (show in drawings van, walking in city etc)? How does it stand in the space? What is the bigger infrastructure?
- photographs bad... could be put in a different space of someone, less sterile and more like real space , some one else's model here
- Make more connection with baines and the starting concept of the idea... in maison guiette extension atelier space -> photo and floor plan
- Can it really be transported like this, everything will fall out and trip, how to really move it around? Cover, how would it work with straps?
- Configuration: does it need multiple modules linked together? But how does the space work around it module? Do you use the outside of the box
- What happens when the modules are not being used? Where are they stored, all lined up or reused? In the main building or in some other storage?

Looking back, the Baines research helped me understand the concept of the city as archive with distributed programming, but didn't yet solve the practical problem. Daniel's P1 feedback showed this: Where are modules stored? How are they transported? How does the distributed system operate?
These questions pointed towards a crucial understanding: the city as archive concept requires a central building, that doesn't operate as a container but as operational hub. The VAi building would be simultaneously:

1. Storage for physical collections (traditional archive function)
2. Coordination center for distributed exhibitions (network concept)
3. Public interface engaging visitors
4. Working environment for VAi staff

The Baines research therefore wasn't abundant, it was the conceptual foundation that made the entire project possible. Without understanding how buildings evolve and adapt, I couldn't have seen that archives can be evolutionary and adaptive. Without testing distributed programming, I couldn't have understood why a central building remains necessary.

personal statement

Yunke Li

The typology of the archive raises many discussions. According to the Cambridge Dictionary (n.d.), the definition of an archive is "a collection of historical records relating to a place, organization, or family." However, in the past few weeks, we have been dissecting what an archive truly is and it is apparent that this type of building moves beyond this description.

The combination of different disciplines that come together in the archive is fascinating. This can be ambiguous and confusing, but once analyzed more thoroughly, my realization is that an archive needs to host spaces for the following functions: exhibiting, curating, storing, and studying. The relationship between these functions is up to the designer and the institution to interpret, and after analyzing numerous case studies, it is clear that this connection can vary widely. For example, the Canadian Centre for Architecture approaches the concept of an archive very sterile and surgically. Resulting in the separation of certain spaces and also the degree of accessibility to the public. However, it is also possible to go in the opposite direction and create a space that can be seen as more of a collection of items, such as in the John Soane Museum, where storage and exhibition are seamlessly merged.

I am particularly interested in understanding the different methods that can be used to find a perfect synergy between the disciplines, specifically one that is transparent and engaging for a public audience. Additionally, as Kieran Long from ArkDes raised this topic during his lecture, the architectural archive is a particular typology, targeted to a curated audience. It is interesting to think about ways the general public can be more engaged with these institutions, such as using recent graphic design trends and hosting events. It is also important to mention that an archive often attracts people of different statuses and backgrounds, as one can view the archive as a somewhat elite typology. The barriers to entering vary by the target group and might influence this, but addressing these perceptions could result in more engagement.

For the current design assignment, I am exploring this idea and looking into the concept of an archive being outside its physical limitations, where parts of an archive's collection are placed throughout the city, creating smaller archives. By doing this, a wider audience in the city is exposed to the archive, making it more connected with its surroundings. One can view the buildings in a city as a type of archive on its own. Buildings are similarly conserved, carefully maintained, and in a way also displayed. The discussion around the centrality and distribution of an archive is one of importance. One can argue how far to expand an archive on a larger scale and how many functions should be merged. The need for a central archive has created tension between institutions, and this concept could be explored more.

Would it be possible to incorporate the city into an archive? In what way would this change the definition of the archive? Does an archive have to be limited to one building or can it be an ensemble of separate spaces? These are all questions being raised and I would be interested in analyzing these more in future research. I believe that audience engagement is vital for a successful archive and I would like to focus on the evolvement of the typology to become more inclusive to a wider public, by also physically expanding the archive into the city.

Sources: Cambridge Dictionary. (n.d.). Archive. In Cambridge Dictionary. Retrieved October 18, 2024, from https://dictionary.cambridge.org/dictionary/english/archive

From the brief....

The task was to work with the VAi (Flanders Architecture Institute), which represents architecture in Flanders and Brussels in Belgium and combines exhibitions, lectures, debates, events and publications with the stewardship of the Flanders Architectural Archive. Since 2018, the VAi has held over 180 private architectural archives, including those of Léon Stynen, Bob Van Reeth, Christian Kieckens, and many others. The challenge set for us was to think about the role of this extensive historical material, and the technical conditions of the archive, as part of the VAi's wider public mission.

The VAi is based at De Singel, a large modernist cultural complex on the southern edge of Antwerp, originally designed by Léon Stynen in 1958 and later extended by Paul De Meyer and Stéphane Beel. The VAi currently occupies space there for its public activities, but its archive is housed separately in the centre of Antwerp in a building that is no longer fit for purpose. In 2021, the VAi held a competition through the Open Call to create a new home in a redundant church, but this project was later abandoned.

Our assignment was to pick up this problem: the VAi needs a new home. Instead of starting from the abandoned competition, we were asked to build on the relationship between the VAi and De Singel, and to explore how both institutions might be rethought together. De Singel itself faces challenges: it has an introverted character, large underused spaces, and a weak relationship with the city. The project therefore asked us to test how the VAi could find a renewed identity within this context, while also reimagining De Singel's role for the future.

Over the course of the semester, the task was to develop a proposal for a unified home for the VAi, combining its archive with its public and administrative roles. We were expected to begin by documenting and analysing De Singel, understanding its history, context and potential, and then refine a project brief that responded to both the VAi's needs and the site itself. By P2, we were required to define a strategic direction and outline form for our proposal, represented through models and drawings. By the end of the course, we were expected to deliver a developed architectural project that engaged across scales: interior, building, city and landscape.

The program included public spaces such as a reception area, reading room, and library; staff workspaces and meeting rooms; and extensive archive facilities including depots, processing areas, restoration spaces, and specialised storage. In total, around 4,000 m^2 of archive space was required, alongside several hundred square metres of public and office functions. The design needed to address technical demands such as climate control, contamination, and digitisation, while also considering how the archive could be made accessible and meaningful for visitors.

BRIEF C
ARCH

week 2.1 - week 2.7

03. PROJECT FOR AN HITECTURE ARCHIVE

PHYSICAL MODEL

group discussion

From this brief on we will focus on de Singel as a site. We started with understanding this complex building as a group. This week the group was split into 4 different subgroups: research, 3D model, site model, and building model.

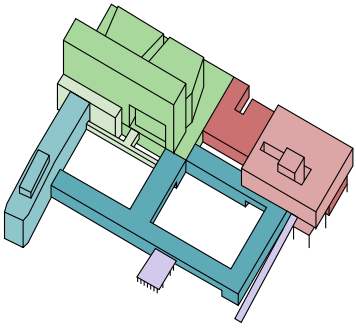
I was in the building model of de Singel. We started by discussing what kind of model we wanted to make and what scale should be the most suitable. With test prints of the floor plans, we decided on 1:250. With this model, we also categorized ourselves into three groups focusing on: the site, the floors, and the facade. Jenny and I were analyzing the floors and how to realize them in the model.

It was challenging to start with this physical model when there were not enough documents to make the model (e.g. sections were missing). We had to wait for the 3D model group to finish to be able to start everything, so we mainly focused on analyzing and planning how to make the model.

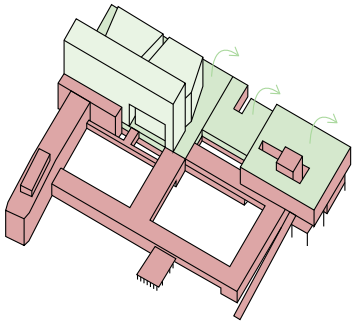
We finished a sketch model of the building in foam the next day.

Daniel commented that he liked it as a foam model and that it could be used as a sketch model. That it was unnecessary to work it out and to leave it like this, but to critically rethink what other models we should make.

sketch model in foam 1:250

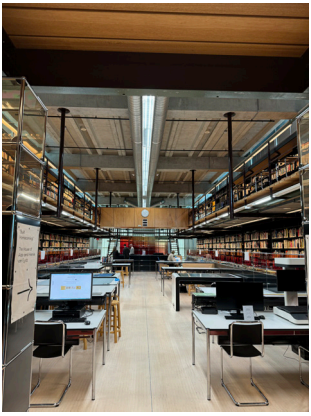


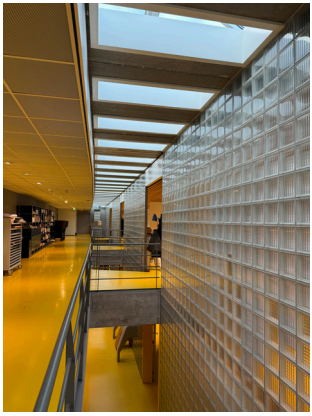
de Singel categorized in movable blocks

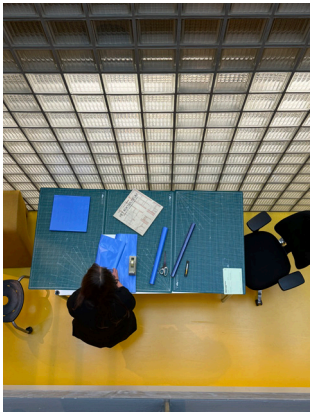


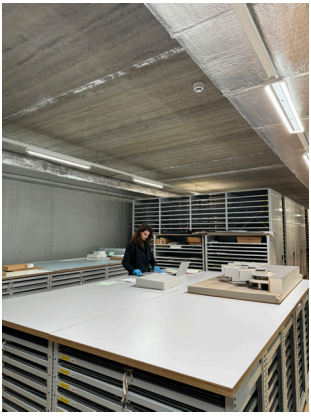
openable surfaces in the model

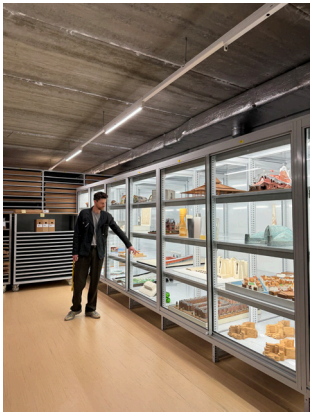
SITE VISIT HET NIEUWE INSTITUUT ROTTERDAM







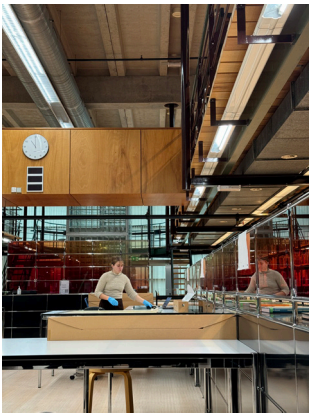


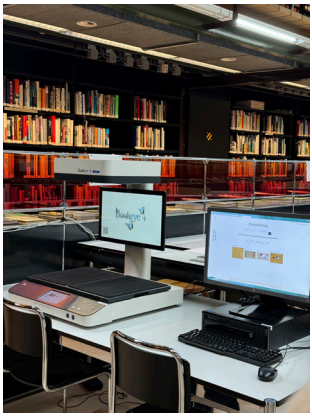


14 NOVEMBER

SITE VISIT HET NIEUWE INSTITUUT ROTTERDAM

14 NOVEMBER

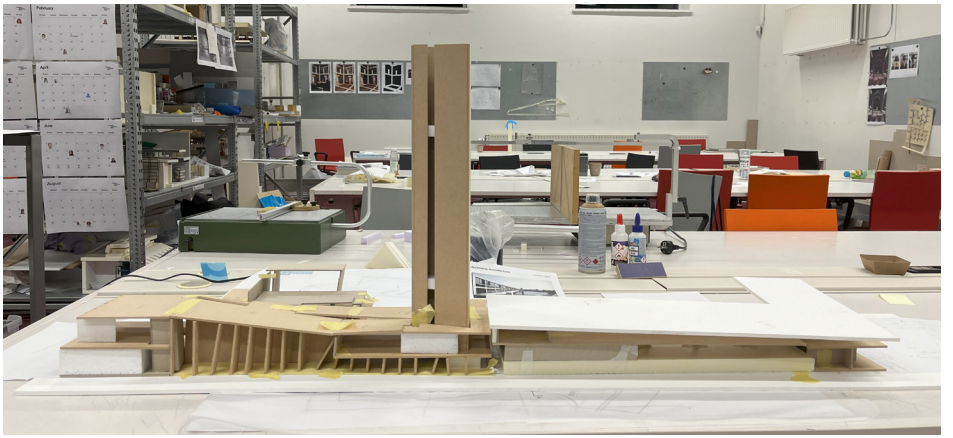




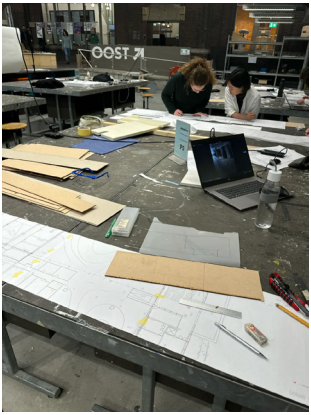
We had a tour through het nieuwe instituut and their archive in Rotterdam. I have been here before, but have never visited the archive part of the building. It is interesting to see how the archives seem to have a universal language for its design and specifically the materialization. There were many similarities between this archive and the one in the VAi. The archive and the offices of the archive however are completely hidden from the public, making it for many people invisible. I know that in my design I would like to connect this more with each other.

PHYSICAL MODEL

1:100 section model de Singel



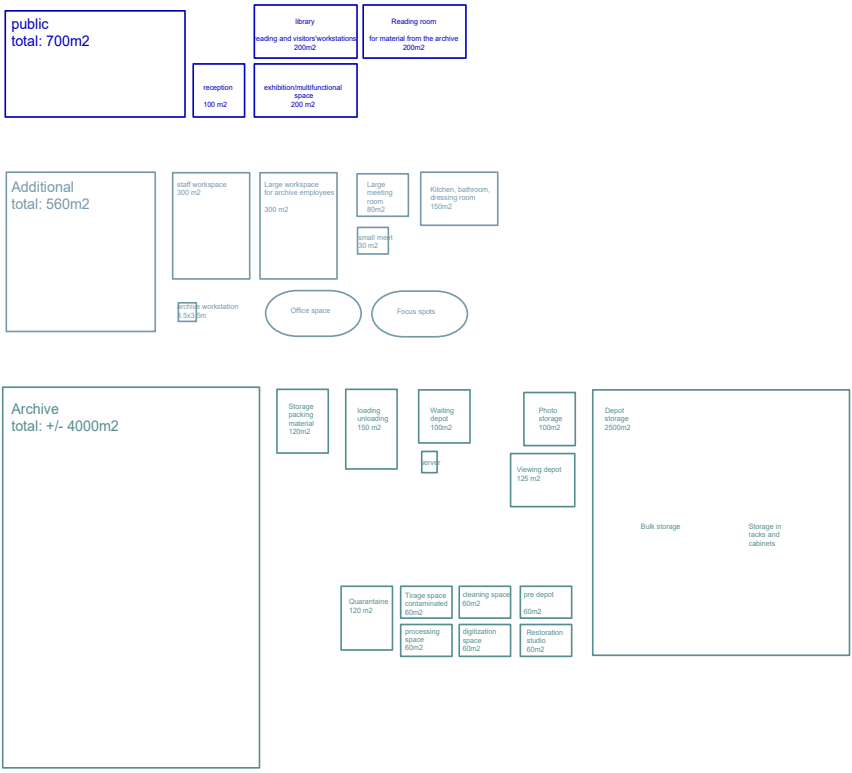
section model draft



1:100 section model de Singel

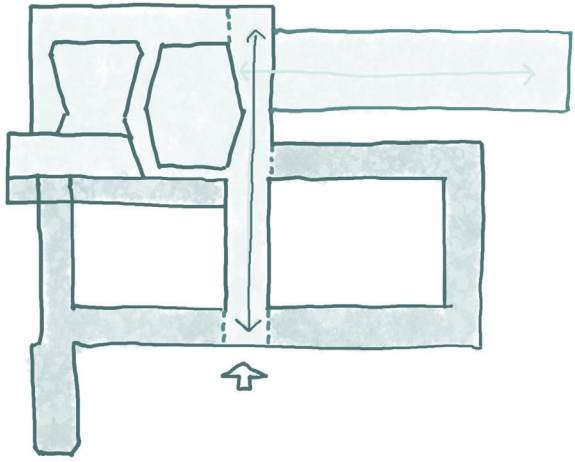
steps of making the section model:

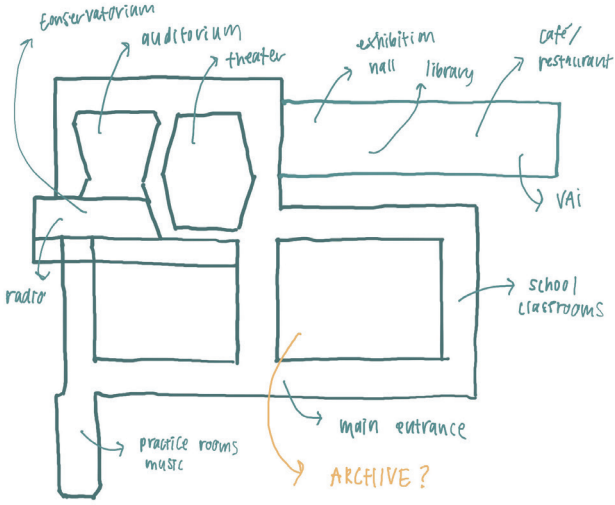
1. deciding which section to make: the main circulation of the building from main entrance to the auditorium
2. choosing the materials: recycle mdf and cardboard
3. dividing the areas: entrance, corridor, beel new part, theater
4. cutting all the parts
5. assembling all the parts
6. spray painting all the parts
7. make a foam base for the section with all the different height levels



brief program of requirements in actual size

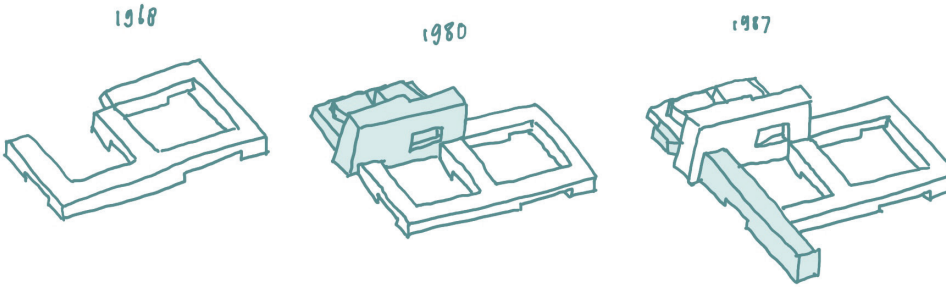
FIRST DESIGN IDEAS



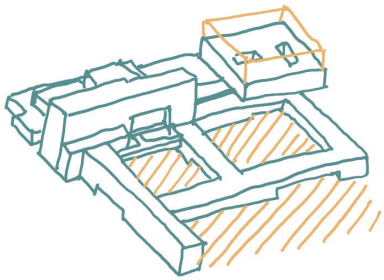


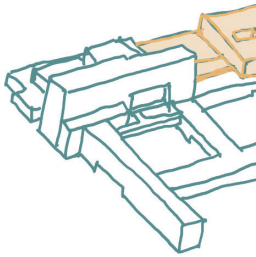
Based on the development of the building throughout the years there are a few possibilities for the new building. It is to either add to the exisiting building by possibly partly demolishing the structure or to move it to a site near. The park across the street is most appealing to me.

I started analyzing de singel and the different functions that are currently in the building. After analyzing and making various models, I still feel like de singel is very difficult to understand and one of the reasons for this is because there are too many different functions mixed throughout the entire building. This makes it difficult to have an overview and I would like to separate some of these functions. Also, it doesn't make sense to me to add a new function (archive) to this already chaos. Therefore, I would want to move it outside.



↳ NOW?



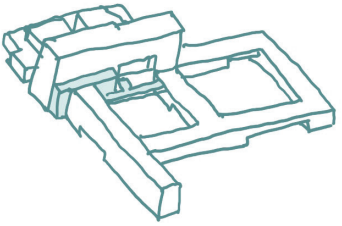


① add extension to the existing building
→ on top of structure
→ directly next to structure
(courtyard / gardens)

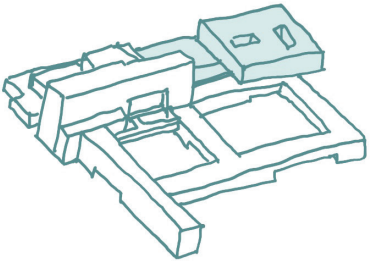
② demolish bui
add a new
↳ reorganiz

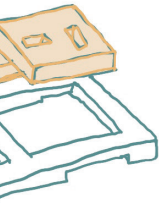
archive location research

2000



2010



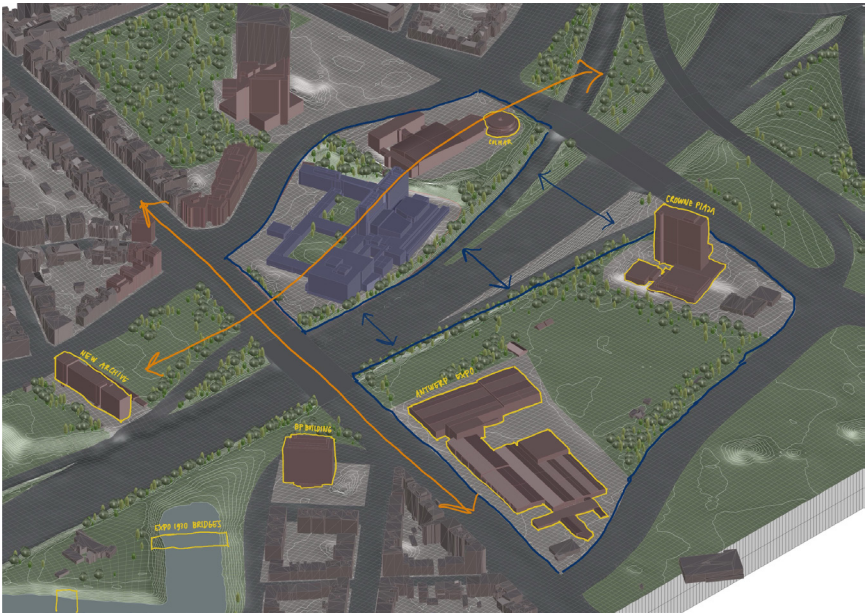


building partly and
ew structure
nrize existing building

(3) build new structure in
context → park

LANDMARKS INTEGRATION

interesting architectural landmarks



engage the buildings in the area as part of the archive

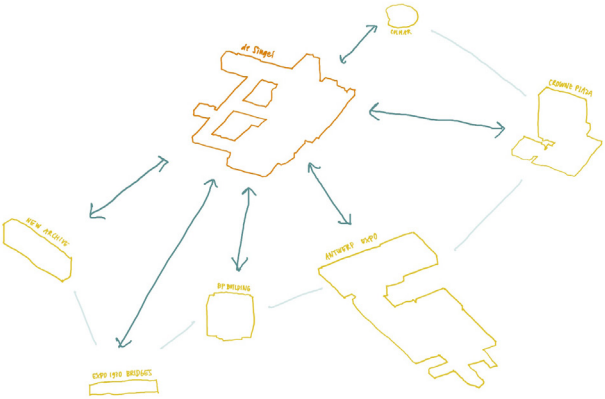
Can existing buildings become part of VAi's archive program?

If the city itself is an archive, then Antwerp's significant modernist buildings should participate in VAi's programming. I identified six landmarks within 15-minute walk of deSingel:

- BP Building (Stynen, 1963)
- Crowne Plaza / former Esso Motor Hotel (Stynen, 1986)
- Antwerp Expo (1958)
- Van Rijswijck Residence (Stynen, 1932)
- Colmar Wezenberg / former Expo 1950
- Bridges from 1930 Expo

The question: How could these buildings physically host VAi programming?

how to make connection ?



exterior or interior ?
materialization color
texture size
possible? view perspectives

public or private ?
urban scale landscaping
social media (apps)
hidden inside
outside objects

small or big ?
noticibility amount
changability flexibility
sustainability (re-use)

The main question that arises from doing research about these "landmarks" is how to incorporate them in a realistic way with the new archive.

How can connection be made with these buildings? Will this connection be visible on the exterior or on the interior? Is this visible for the public audience or for a smaller curated private group of people?

It is one way to connect these through function, but it also is very important to make a visual connection.

LANDMARKS INTEGRATION

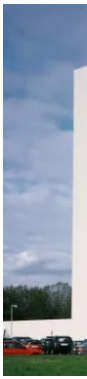
interesting architectural landmarks

BP building

Jan Van Rijswijcklaan 162 (Antwerpen)
Kantoorgebouw in naoorlogs modernisme gebouwd in opdracht van BP Belgium, de Belgische vestiging van olieproducent The British Petroleum Company. Het ontwerp door de architecten Léon Stynen en Paul De Meyer, voor de uitvoering geassisteerd door Joseph Reusens, dateert van 1959-1960.

Bruggen expo 1930 en vijver Brialmontomwalling

Eric Sasselaan (Antwerpen)
Twee identieke bruggen naar ontwerp van Emiel Van Averbeke, gebouwd naar aanleiding van de Wereldtentoonstelling van 1930 te Antwerpen, gelegen over een vijver, als restant van een ravelijngracht van de Brialmontvesting.



Crowne pl

Het beken
twerp van
is een bak
Antwerpe
verdiepin

Antwerpen Expo 1958

Het Antwerp Expo is
gische stad Antwerpe
Van Rijswijcklaan (N1
pen. Tegenover Antw

ne plaza leon steynen 1986

ekende gebouw naar het on-
o van architect Léon Stynen,
n baken langs de Ring van
erpen en telt 260 kamers op 19
epingen.

1958

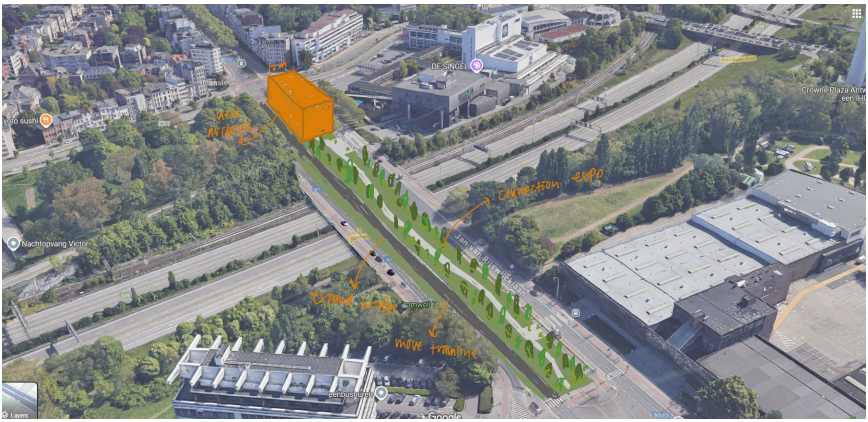
o is een congrescentrum in de Bel-
werpen. Het gebouw staat aan de Jan
n (N177), vlak bij de Ring om Antwer-
Antwerp Expo staat het Tankmonument.

Colmar Wezenberg Antwerpen Expo 1950

Restaurant Colmar, het kenmerkende spinvormige gebouw aan zwembad Wezenberg, was aan renovatie toe. In 2014 voerde AG Vespa, als eigenaar van het gebouw, de werken uit om zo te voldoen aan de hedendaagse eisen van duurzaamheid. Voormalig expo gebouw in 1960.

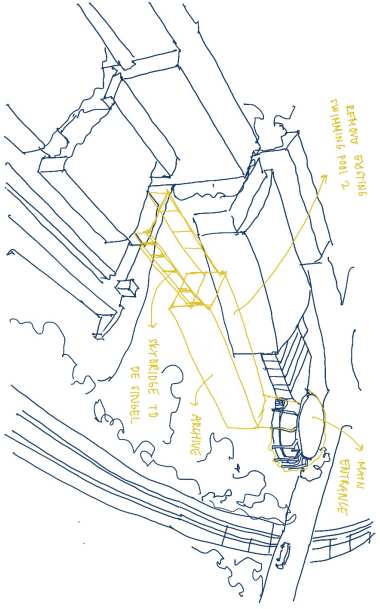
DESIGN IDEAS

urban exploration

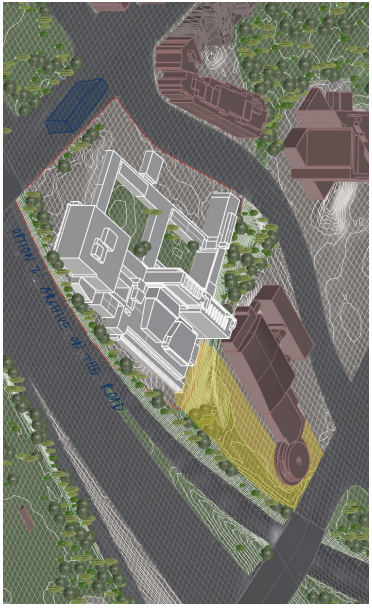


I want to create a stronger connection with the Antwerp expo on the other side of the highway. As previous plans and briefs have explored, this area could benefit from a stronger cultural park image. This can be done by strengthening this area and the connections between the different cultural functions.

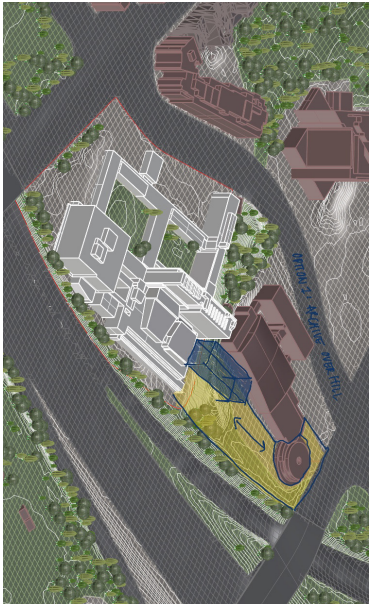
One way to do this on a larger urban scale is to broaden the existing road to create a park. Using the empty middle lane to create green space and connection and create a green connection to the expo building, where a part of the archive functions will be hosted.



connecting with former expo building

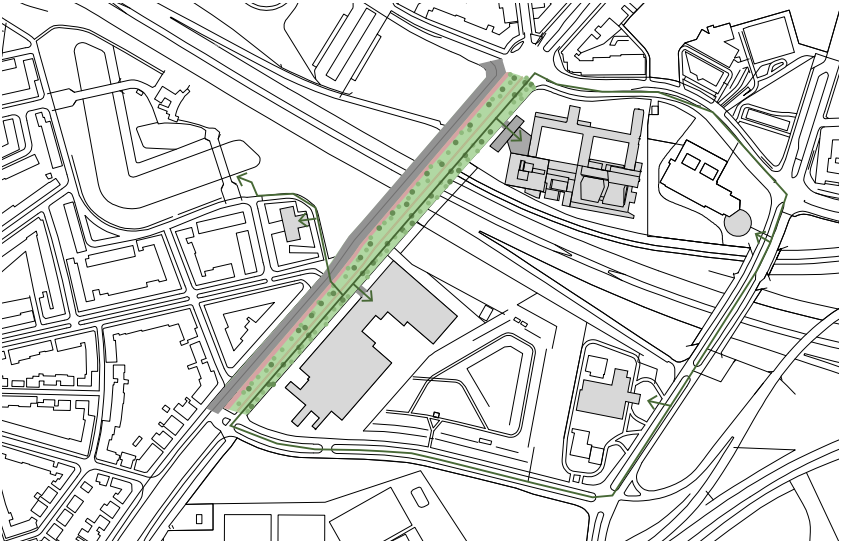


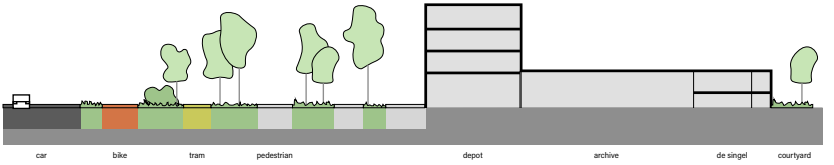
in the middle of the road



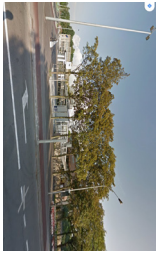
backside of de singel

design options location

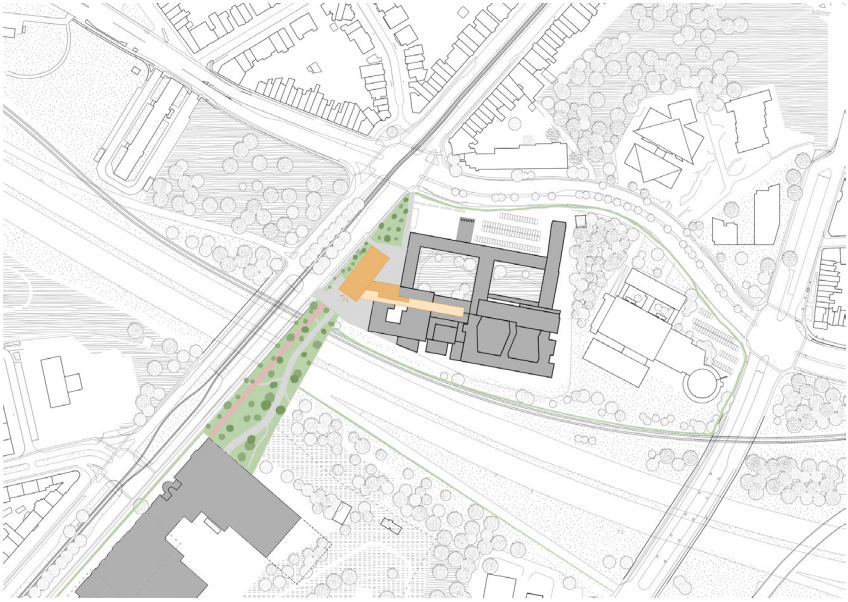




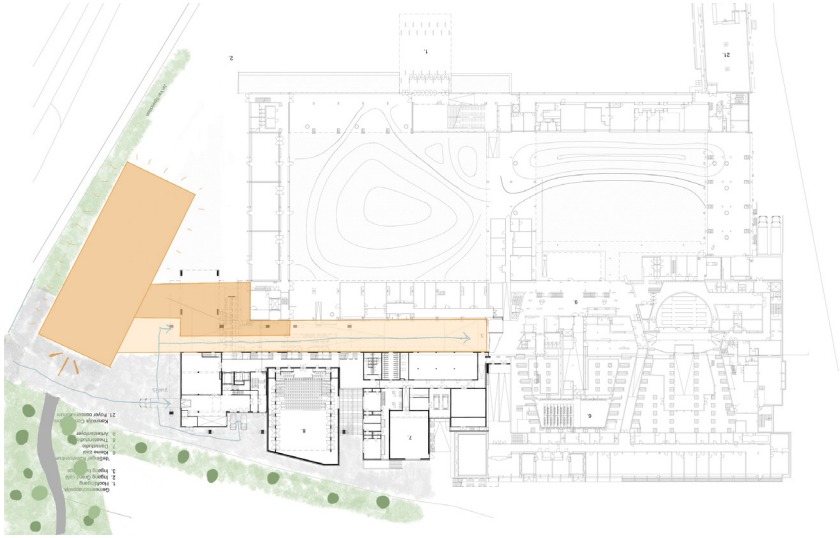
Making a green connection in the area to engage people to walk around and visit the other buildings. The highway will be widened and make room for a green park with sufficient pedestrian and biking space.

colmar	crowne plaza / colmar	expo / bp building / bridges	expo	de singel / new archive	de singel / new archive	de singel
						

walking route landmarks street view



new urban site plan with triangular bridge

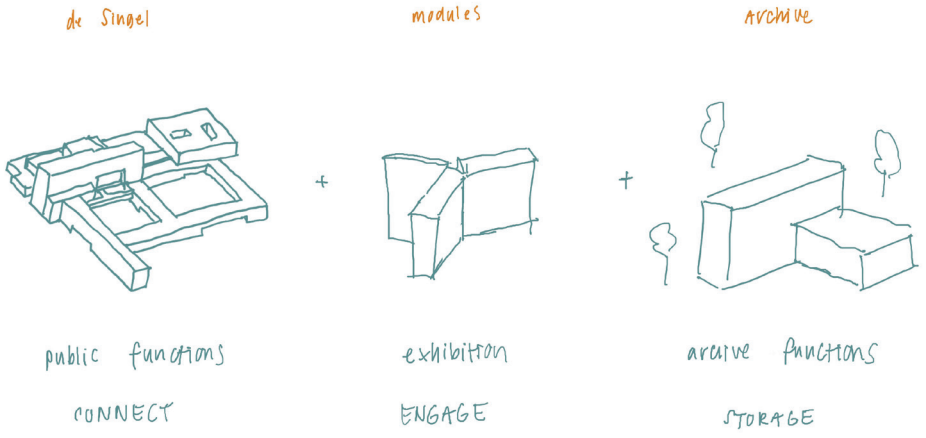


At this point, I explored many different variations, but it was necessary to decide the position of the new building block and the volume of this. Through received feedback and further exploration, it became clear to me what the main goal of my project was: to become a catalysator for further development and connection in the area. I want the new building to be more than just a building next to de Singel, but to speak to the area and buildings around it.

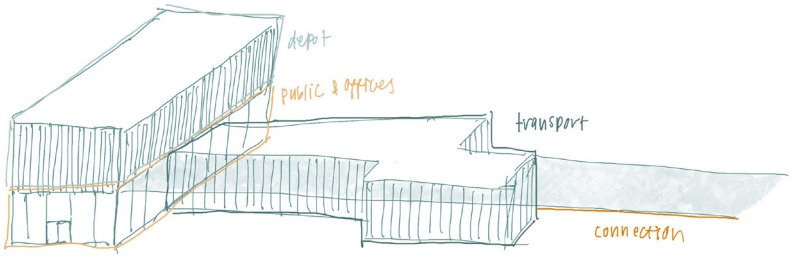
It made the most sense to put this building on the corner, paralleling the street and facing all four important directions: the city, the park, de Singel, and the expo. Additionally, the bridge will be extended to emphasize the connection between the expo building and the archive. It is important that this building responds to this new connection.

The landmarks are used to activate the area and integrate them with the VAi. Their goal being:

1. Physically connect to expo (through bridge)
2. Create visual connections to other landmarks (sightlines from bridge/building)
3. Use temporary installations (P1 modules) for symbolic landmarks during events
4. Develop walking routes with signage explaining architectural significance



The main idea of this new archive is to create a new kind of concept.
One where the archive moves into the city and is decentralized. there will be an existing archive building with the depot and where everything will be stored. This will be combined with de singel where the public functions are and modules that engage a wider public with an exhibition function. A map like the open monument-en dag kaart with nearby buildings (that are featured in the archive) and exhibition spaces will be created to show where the modules are located.



The building will consist of one bigger building block that hosts the depot and the public functions. A roof structure will extend into de Singel to connect the two volumes and to give the longitudinal space that is being used as the artist's entrance a function.

In the sections, the connection with the highway is showcased in combination with the newly extended bridge. This creates a space that can act as a square in front of the building, facing the south.

version A.0

version B.1

version C.0

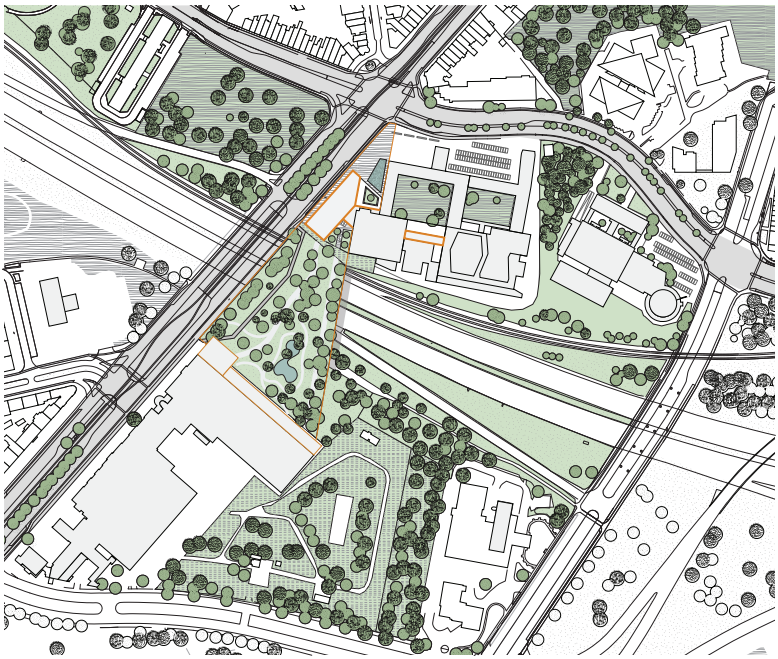
I explored different variations of possible floor plans.

I want the building to have an open exterior 360 and be accessible on all sides. This was a challenge because I also had to take the transportation into account and the accessibility of the trucks. It was a hard task to locate this in a place where it didn't affect the circulation of pedestrians. In these versions, it is located in the extended part of the building and accessible through the square that is in front of the bridge. I noticed that this is not ideal and that the areas needed for the function of preparing the materials for the depot take up a lot of space. I feel like there's more potential for this to be optimized.

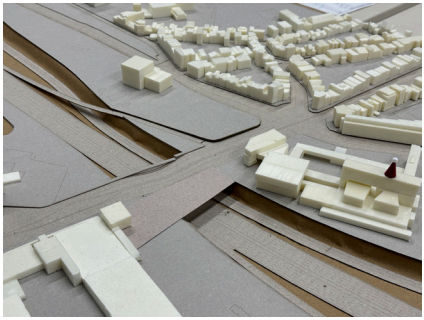
The variations also explore the different layouts for the reading hall in combination with the library. I want the reading room to be visible from the outside (street) and picture this as a light, open and long space. There will be a mezzanine with more working spaces and be combined with easy accessibility to the library.

floor plan sketches

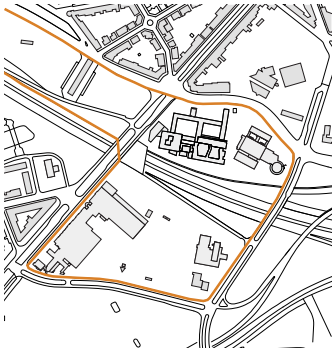
PRE-P2 PRESENTATION



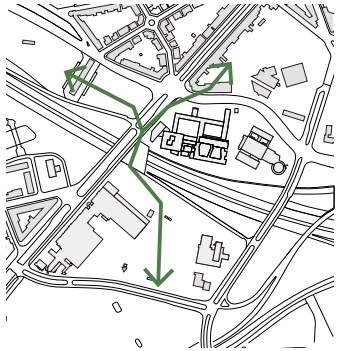
urban site plan - 1:4000



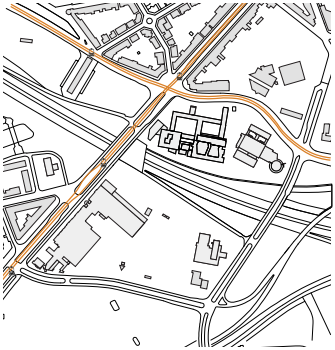
sketch model in site model !:1250



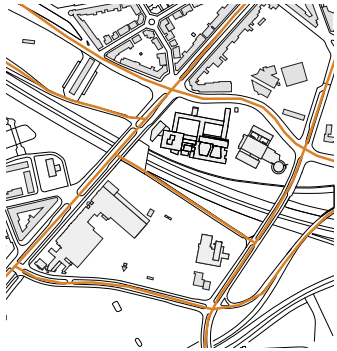
culture park image



strong green connection

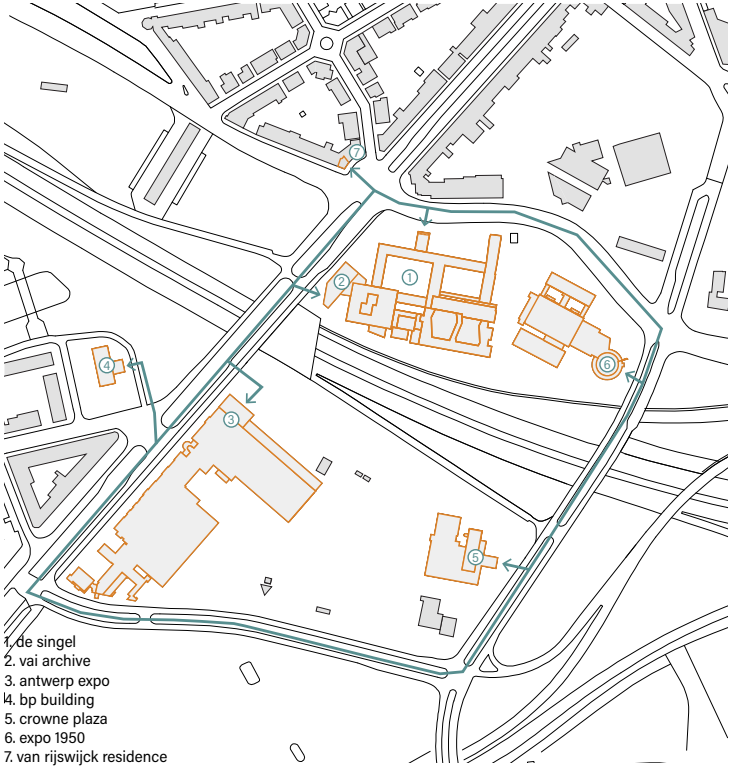


good public transportation network



easy accessibility for bikes and pedestrians

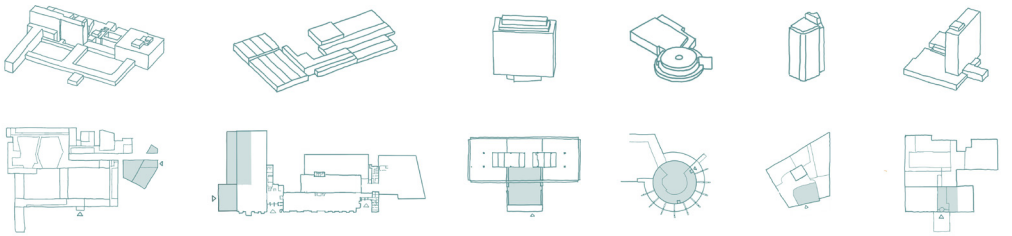
landmarks as part of the archive



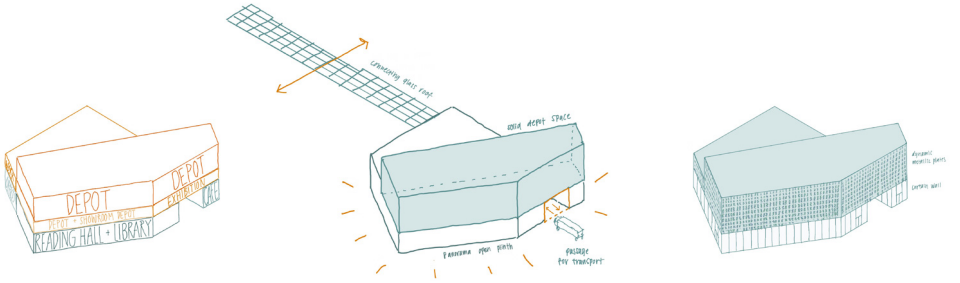
walking route

1 - 2	5 min (350m)
1 - 2	2 min (150m)
2 - 3	4 min (300m)
3 - 4	3 min (180m)
4 - 5	13 min (900m)
5 - 6	5 min (350m)
6 - 7	5 min (350m)
total	34 min (2400m)

de Singel | antwerp expo | bp building | colmar | van rijswijck | crowne plaza

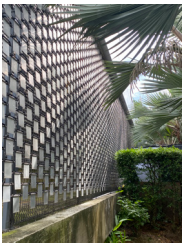


landmarks with floor plan and archive intervention

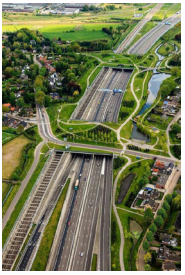
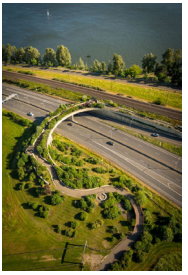


concept diagrams archive

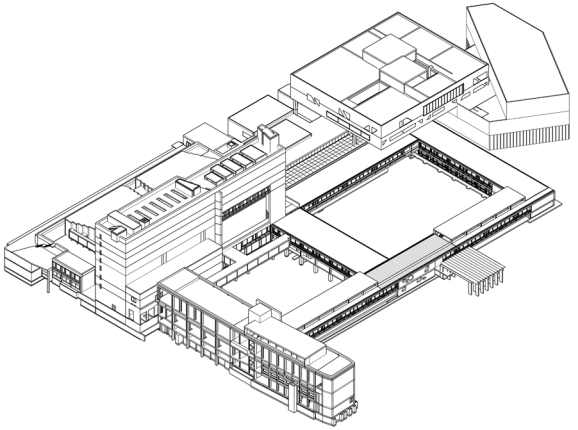
axonometry floors

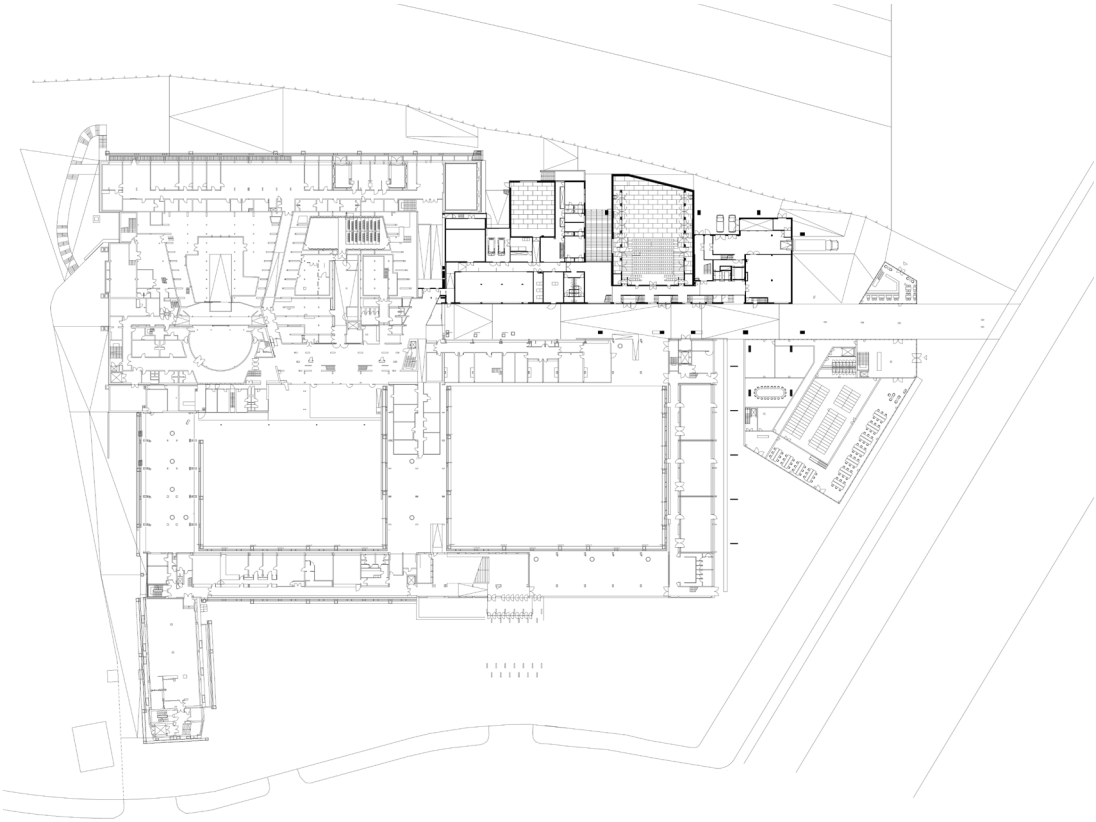


facade cladding material depot

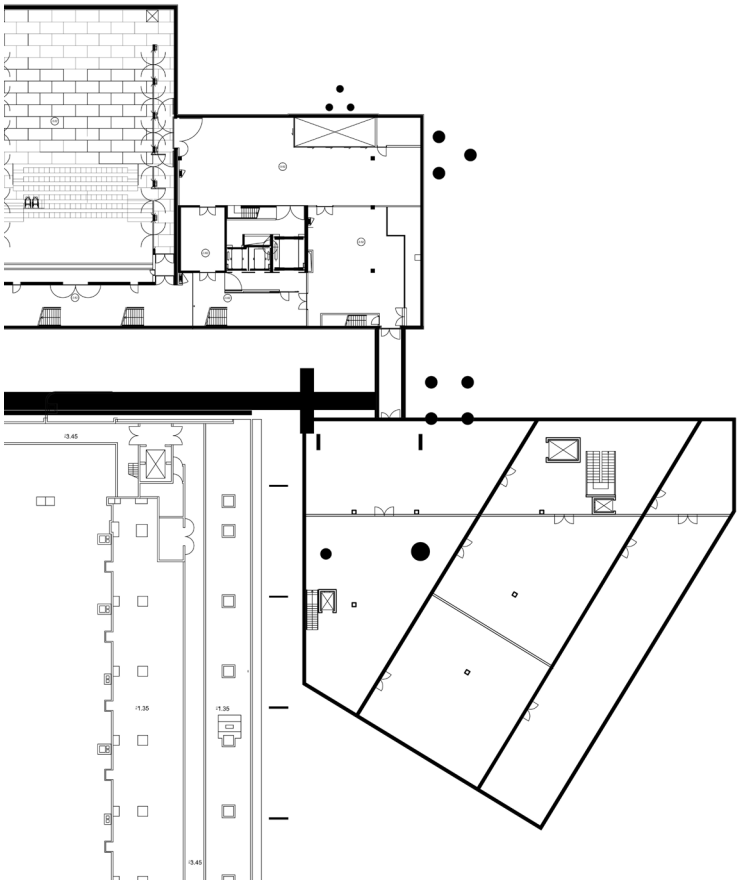



green connecting bridge

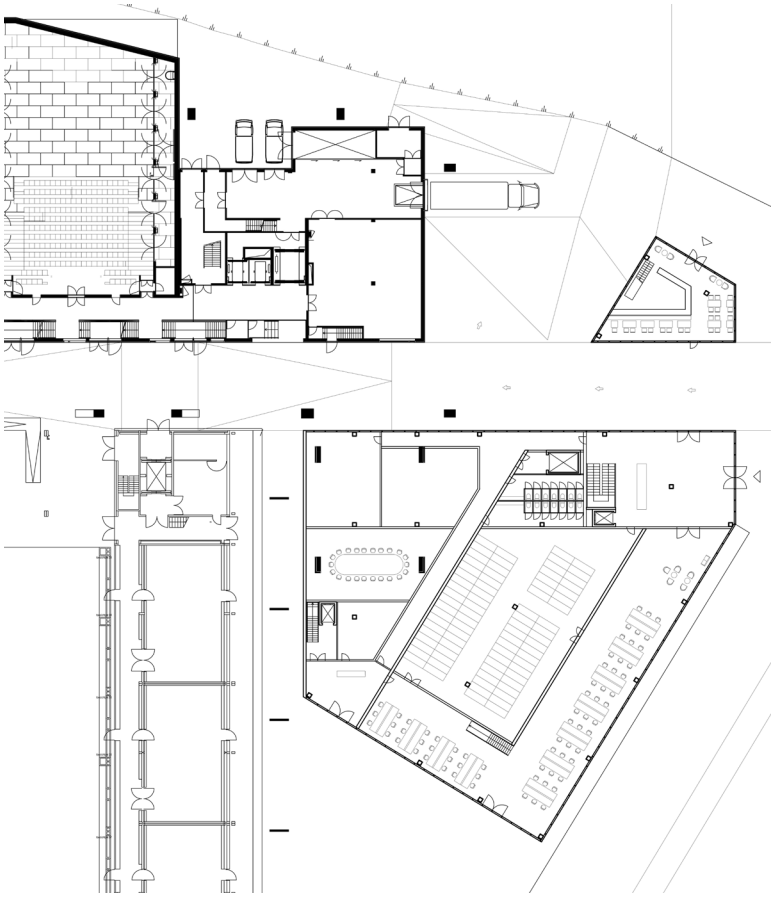




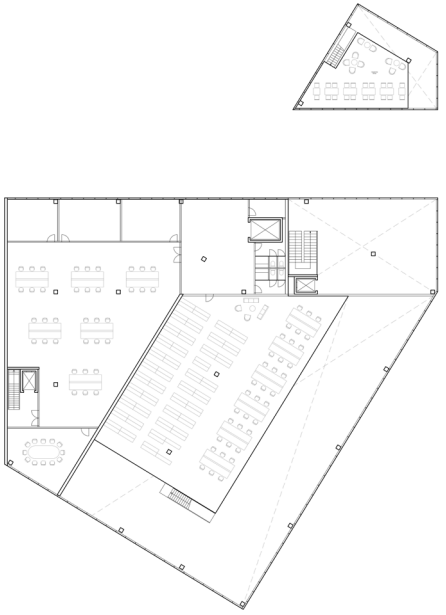
site plan ground floor 1:1000

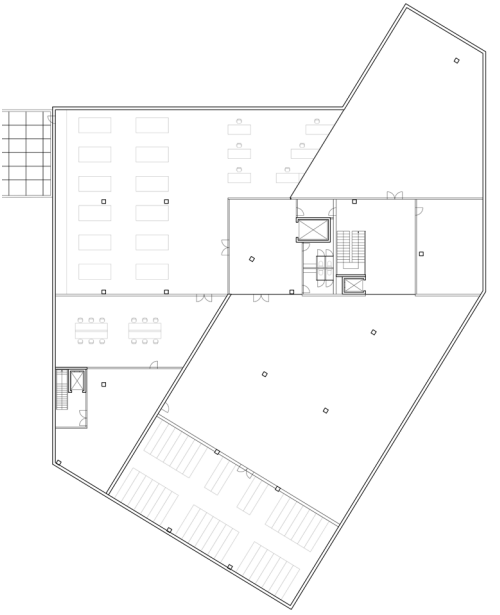


floor plan basement 1:400

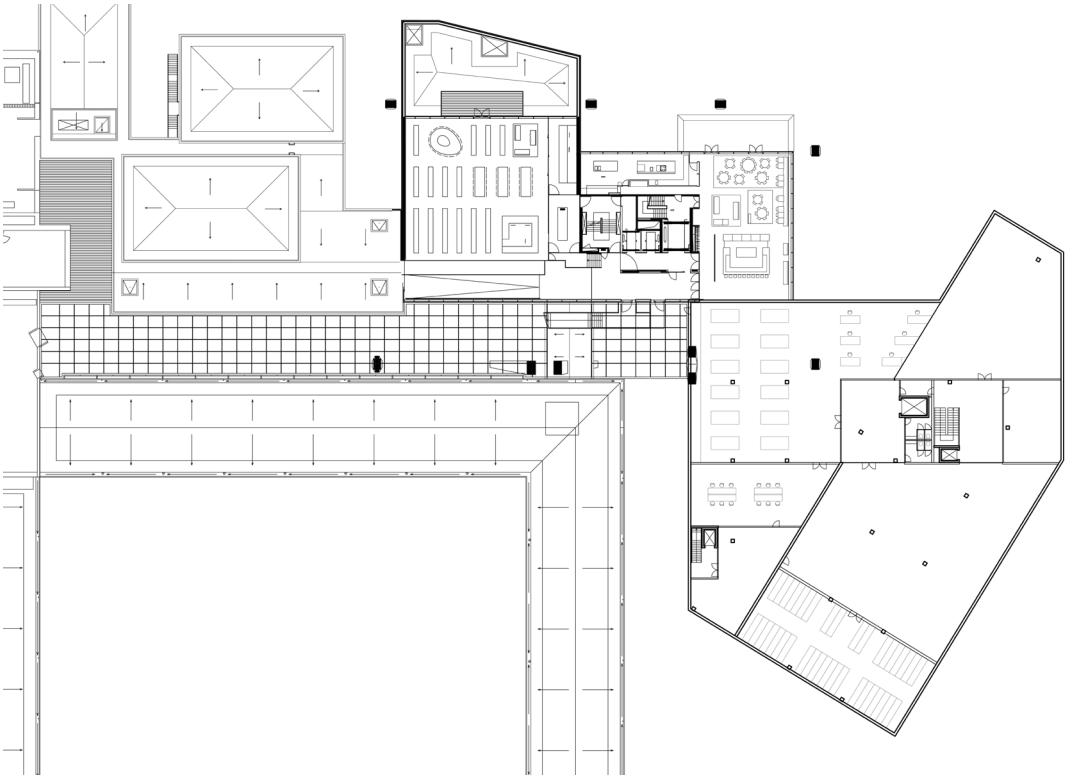


floor plan ground floor 1:400

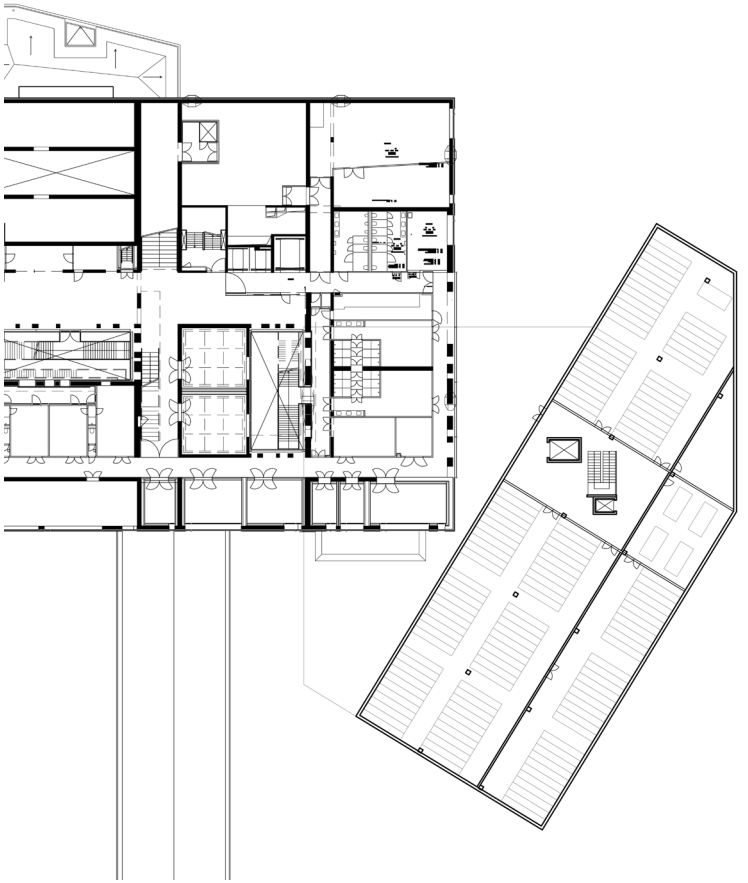




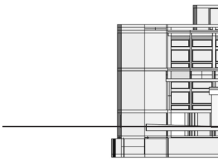
floor plans first floor and second floor 1:400

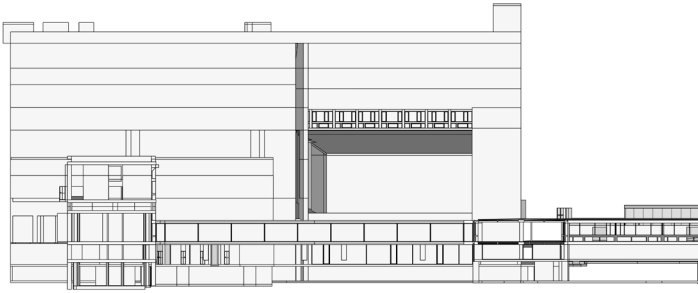


floor plan second floor with ceiling 1:400

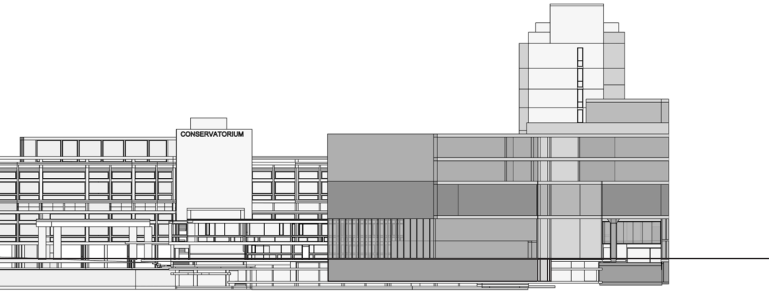


floor plan depot third floor 1:400





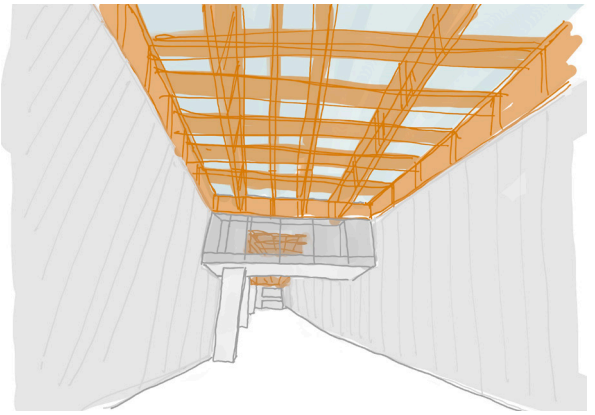
sections 1:600

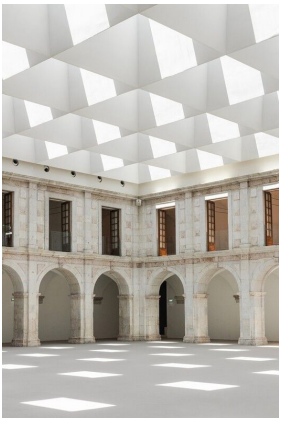


west longitudinal section

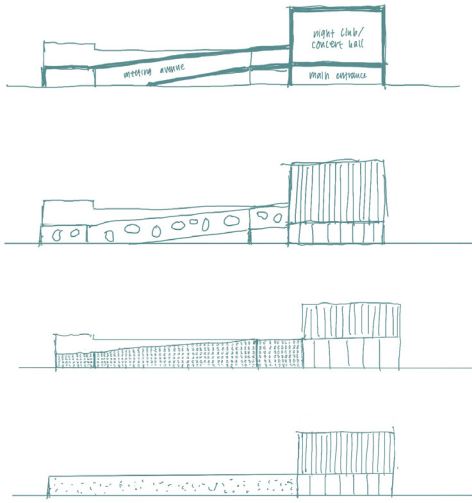
north longitudinal section

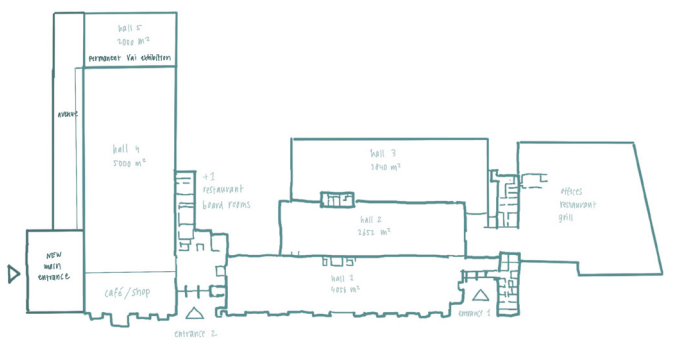
demolishment plan of current state de Singel





impression sketch of gass roof structure and reference Convento do Beato Event Center / RISCO (2022)





new expo concept for facade material, fucntions and floor plan ground floor

AFTER PRE-P2

Pre-P2 presentation text

Urban
The main goal of the new project is to activate the area surrounding de singel. This plan thinks about the space on a larger urban scale, addressing the fragmentation that is currently happening.
The new archive is placed on the corner of the beel building and acts as the new entrance of de singel.
The current bridge will be extended to create a green park and follow the axis of the building to the expo, creating a clear visual connection between the two buildings. A new front will be given to the expo building in a similar materialization which faces the south facade of the new building. Parking moved to the underground expo. And the new function of a nightclub and concert hall will be added to the expo to create activity outside of expo opening hours.
So the idea is to create a stronger culture park image, which aligns with Antwerpen's development plan. The public transportation network and accessibility for cyclists and pedestrians will back this up. The result is a stronger green connection in these directions between these areas and the park
Besides adding new buildings, I also want to utilize the existing valuable architecture in the area. I believe a city archive shouldn't be an introverted typology but can be opened up more to the public. The archive will be expanded into these buildings by adding a public exposition function to its ground floors, which motivates people to explore the surroundings

Building
Moving on to the design, The new vai building will be located on this corner, and will communicate directly to the context in all directions. The facade translates directly to the functions inside the building, making it easy to read. It has a transparent facade on the ground floor and a solid exterior for the depot part.
All public functions are on the first two floors and the Vai office is located on this side. Additionally, the Leon restaurant doesn't speak much to the users, so a new casual cafe is placed here, becoming a new meeting place for the students, artists, vai workers and expo visitors. The existing truck entrance is used for the vai and transportation will be redirected to go underneath the building, keeping the area in front of the building open.
This elongated road is currently empty, but has a lot of potential to become the new spine of de singel. A new roof structure is placed to create a new passage and extend the activity onto the street. This semi exterior space becomes a new core area to socialize between all the different users especially combined with the relocation of the canteen.

feedback from daniel:

An interesting and quite convincing urban analysis. The expo could get a major new façade to your triangular bridge. What is the three dimensional relationship between Beel's volumes and yours? Seen from the city this is a very tightly knitted ensemble of elements, which meet at a point. The resolution of this set of formal relationships is where the success of the project will be found...or not. You also need to think more precisely about the functional resultant. At the moment you make offices with almost no outside in the triangle formed between the three elements of Beel, Stynen and you.

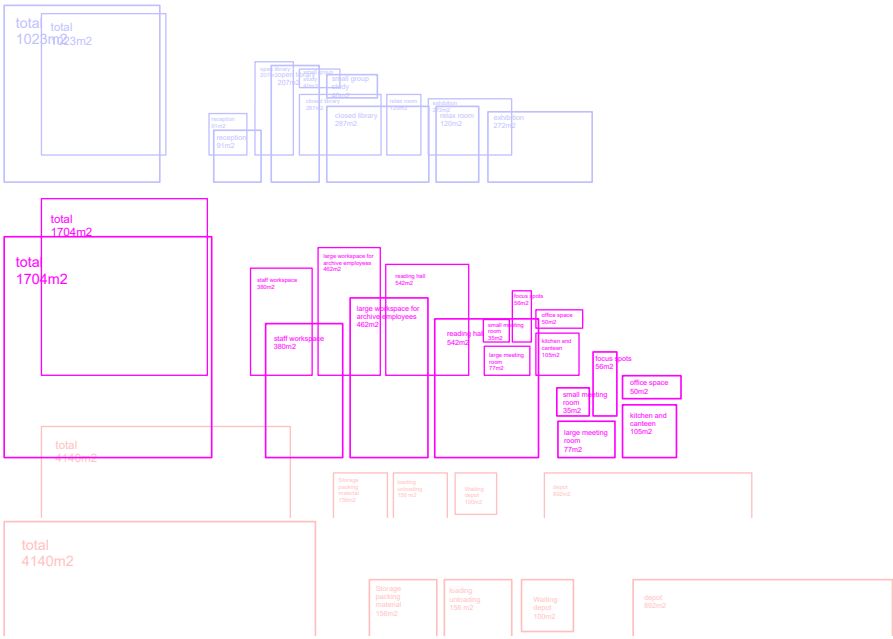
Unfortunately, the P2 presentation didn't go as I hoped it would go.
I had prepared all the products and worked through the entire Christmas break to have as much as possible to show for this presentation. I even prepared a script, which is not something I usually do.
When I started the presentation I noticed I was quite nervous and I couldn't find the words to explain my project properly. I feel disappointed that I put a lot of effort into the preparation, but that the execution didn't go as planned. I think that subconsciously I was afraid to repeat my P1 presentation, as that did not go well either and I received extremely demotivating feedback.

I realize for P2 that I do not want to repeat the same scenario and that I need to be more prepared. I need to write out the script days before, go through the slides and the project with people who are not knowledgeable about architecture and put down a presentation that is easy to understand also for outsiders. I need to focus on delivering a clear storyline, have clear products, and know the project inside out. I think it's most important for me to practice the speech and delivery numerous times and be more confident in the presentation.

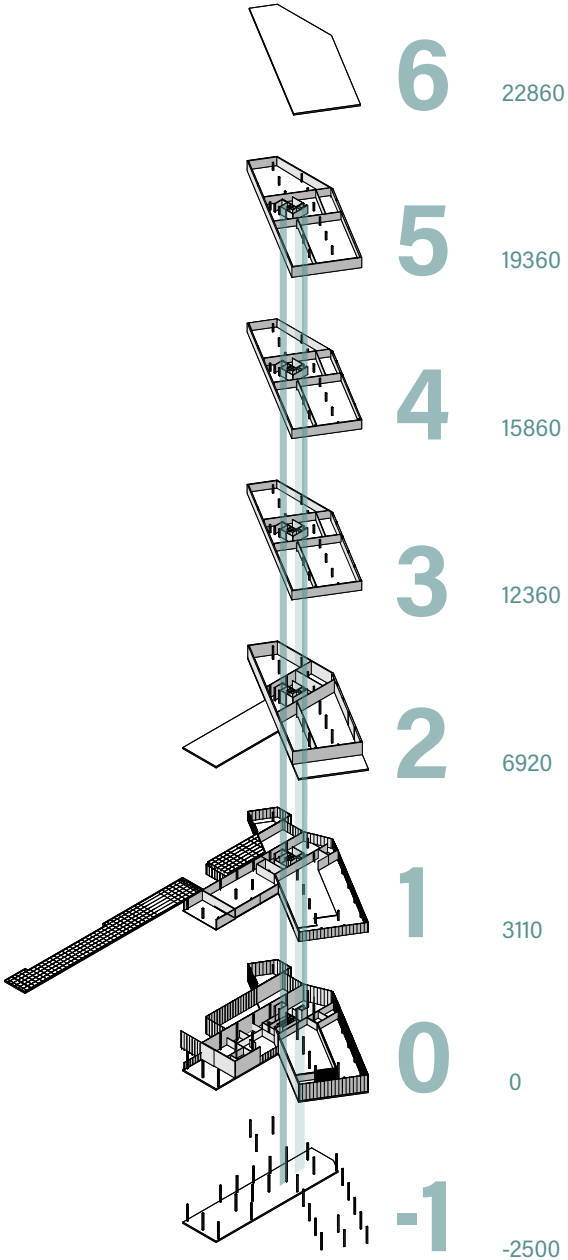
The feedback I received was very helpful and I felt like it gave me clear directions for what to focus on. It was very good to hear that the overall concept of the project is clear and strong. The biggest remark made was about the volume of the building and to rethink the spaces between the different volumes. How do they connect with each other and what does it mean for the leftover spaces that are the result of the volumes? It is also important to think clearly about the created spaces and if realistically they will be comfortable spaces for people to be in.

I will focus on the further exploration of this volume, while keeping the human experience of the spaces in mind.

PRODUCTS FOR P2

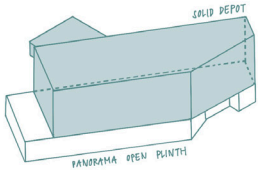


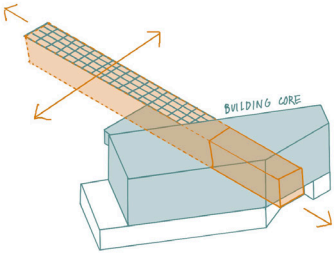
program of requirements design and brief

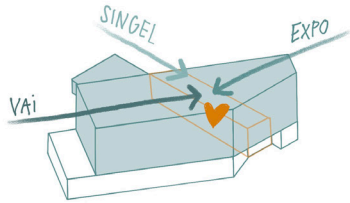


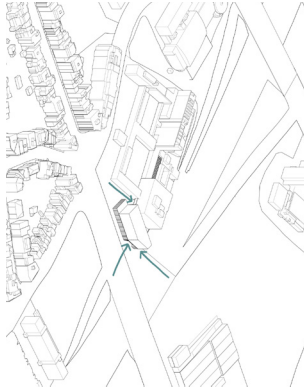
axonometry floor plans

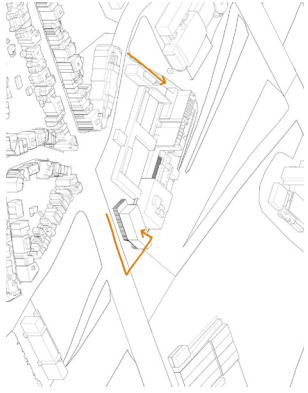
concept diagrams archive building

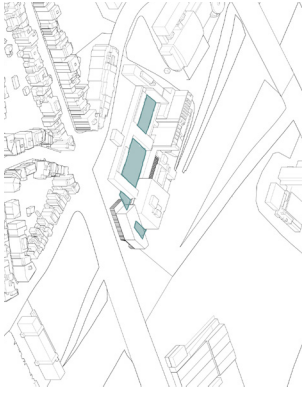




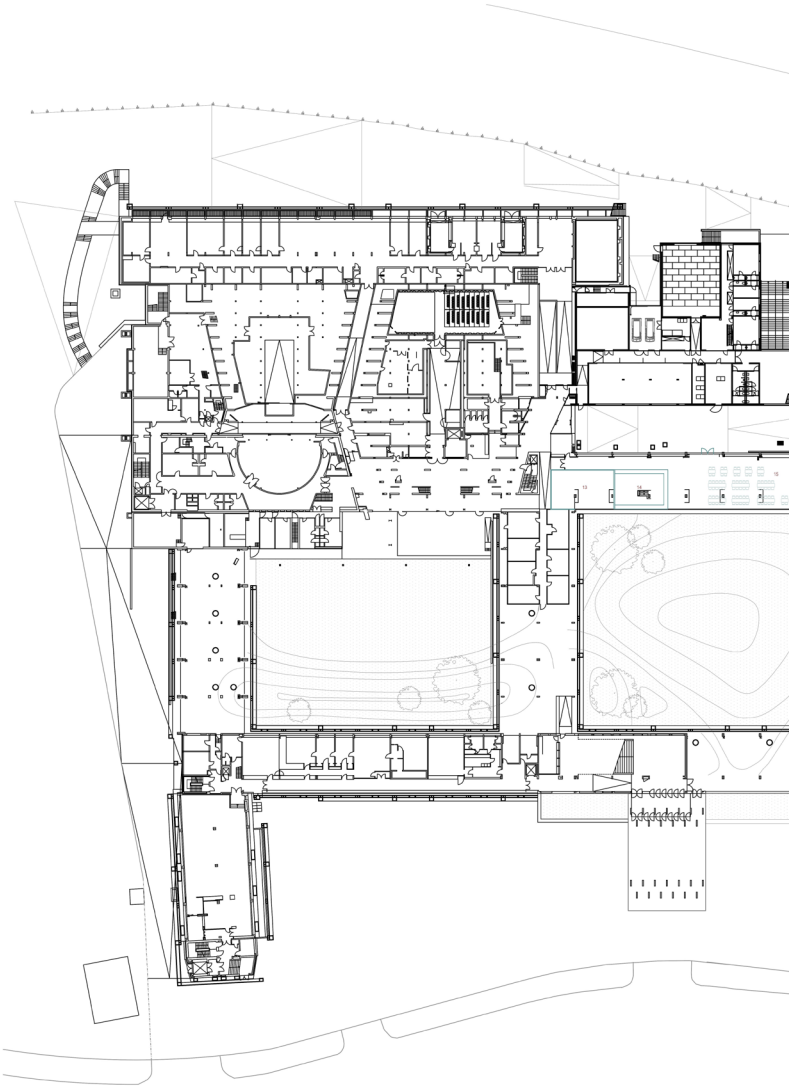




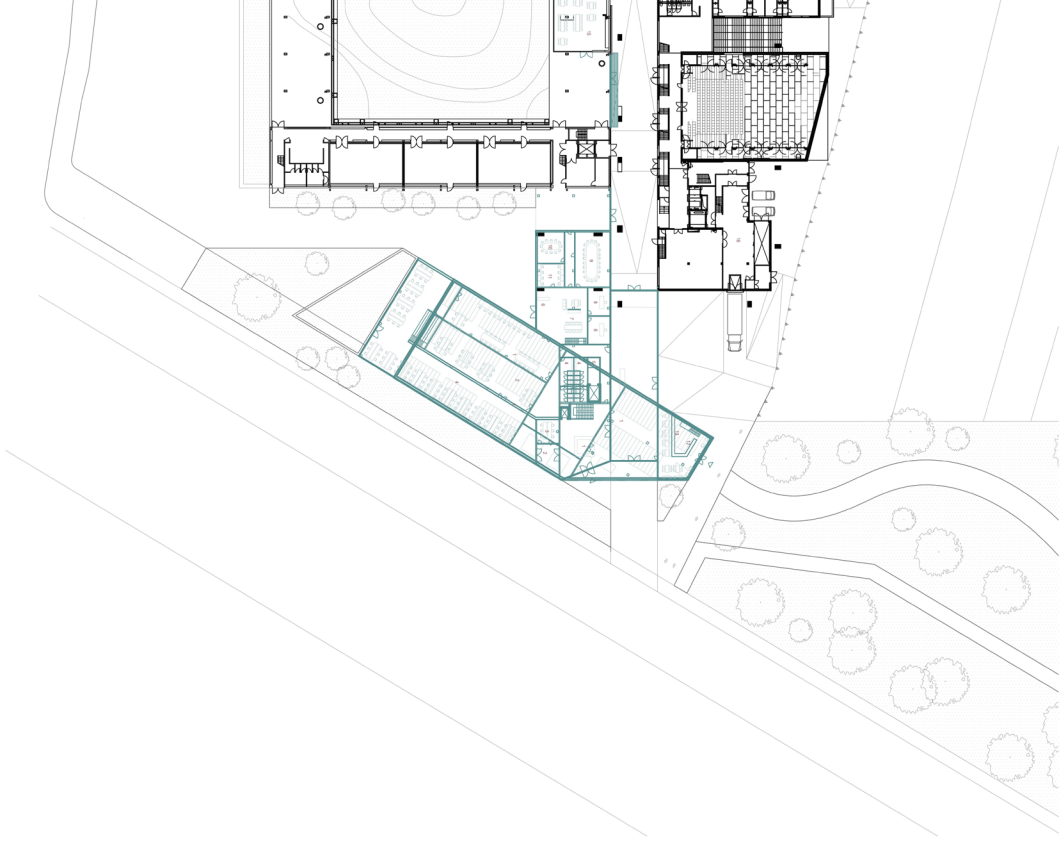




concept diagrams direct context



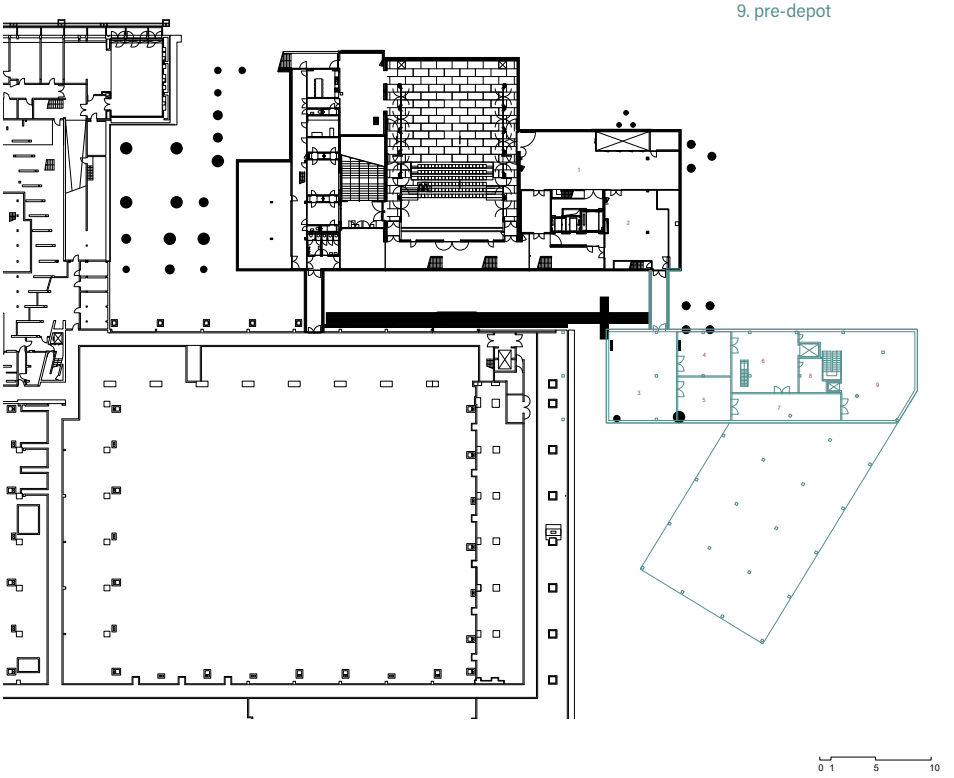
site plan ground floor 1:1000



0 5 25 50

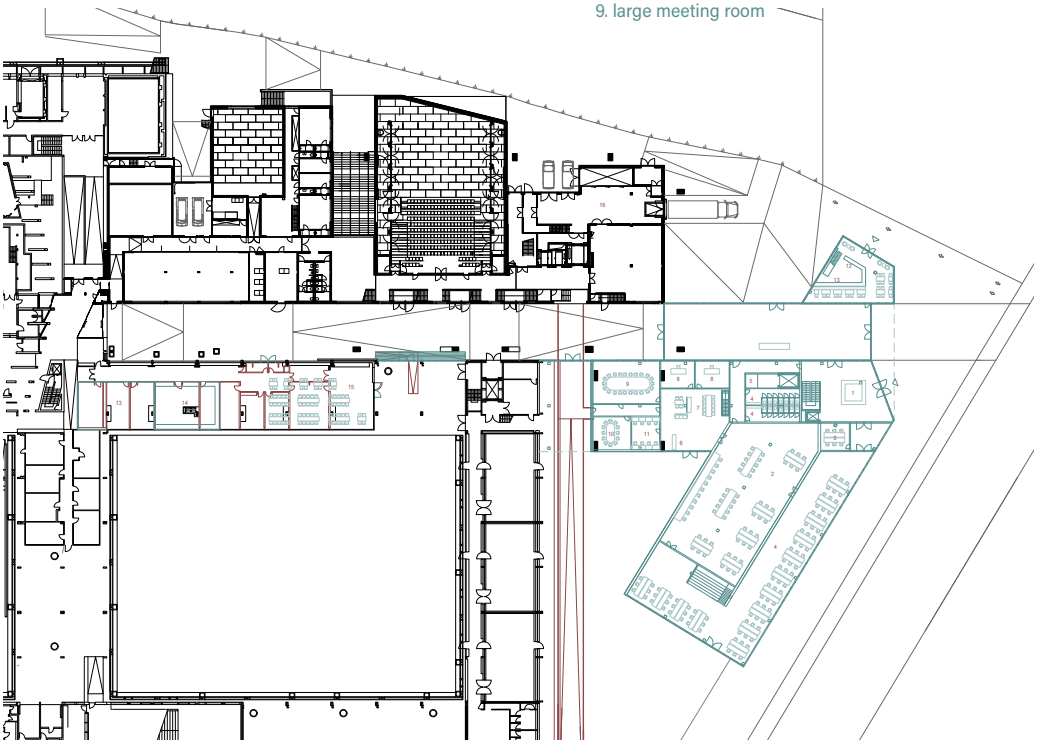
floor plans (scaled)

1. storage packing material
2. waiting depot
3. quarantine
4. tirage space contaminated
5. processing space
6. digitization space
7. cleaning space
8. technical room
9. pre-depot



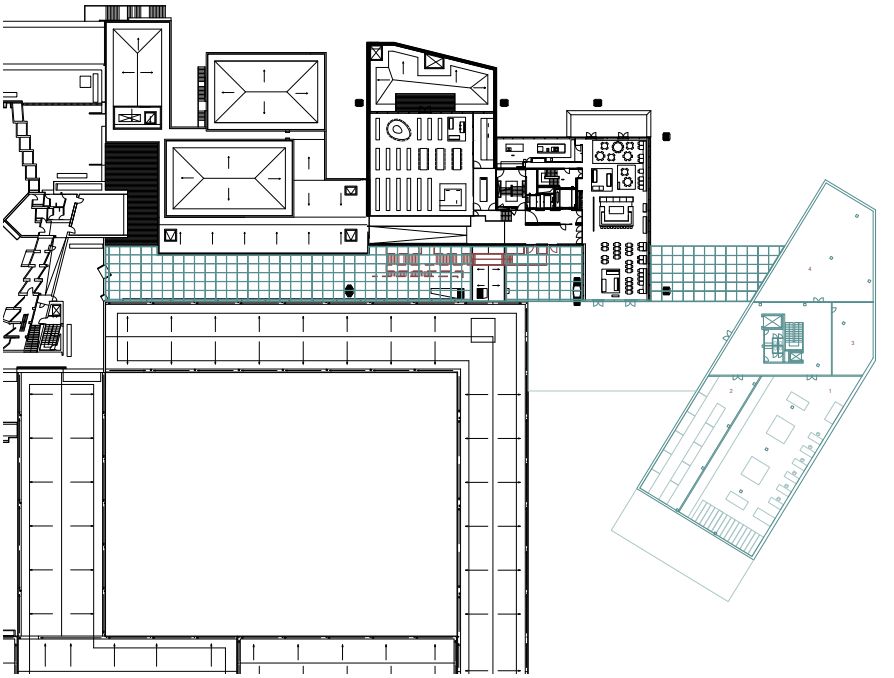
floor plan basement

1. main entrance
2. staff workspace
3. group study room
4. toilets
5. technical room
6. reception
7. kitchen and canteen
8. office
9. large meeting room
10. small meeting room
11. focus spaces
12. cafe bar
13. kitchen
14. front kitchen
15. canteen
16. loading unloading



floor plan ground floor

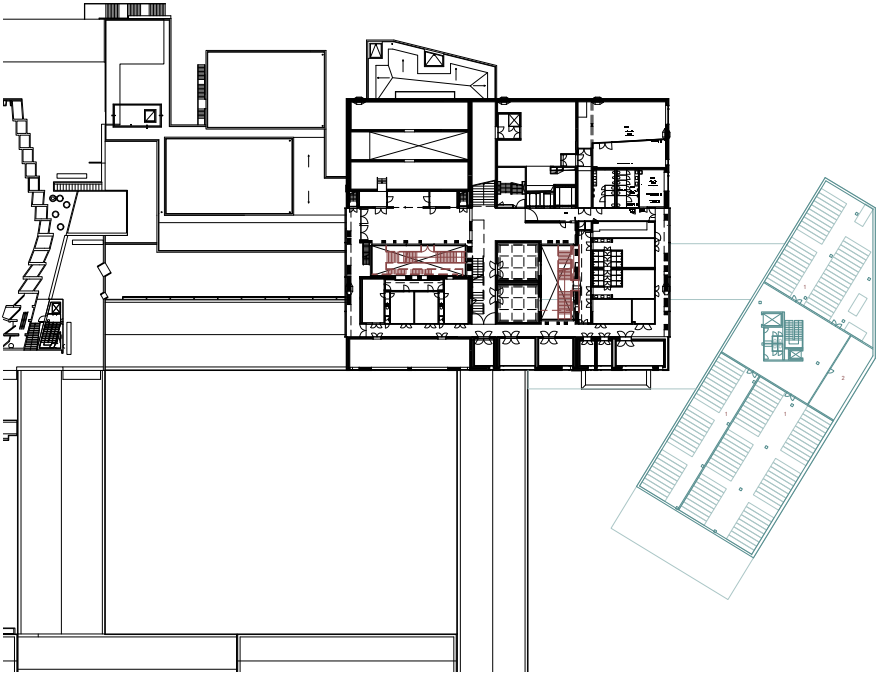
1. large workspace archive
2. showroom depot
3. restoration room
4. exhibition



0 1 5 10

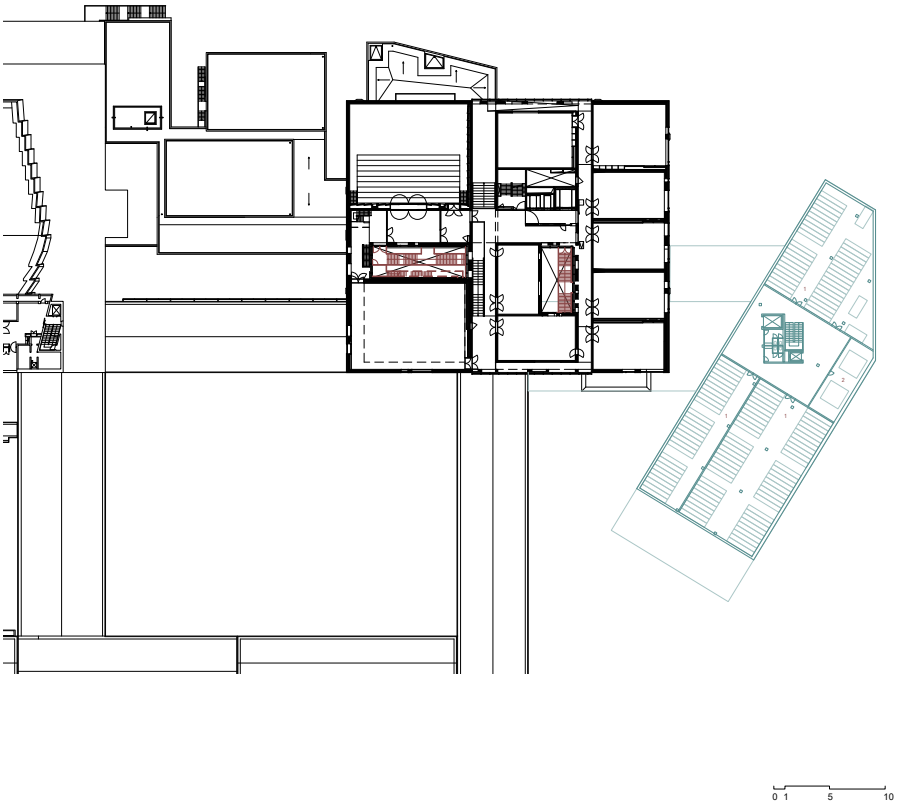
floor plan second floor with ceiling 1:500

1. depot
2. technical room



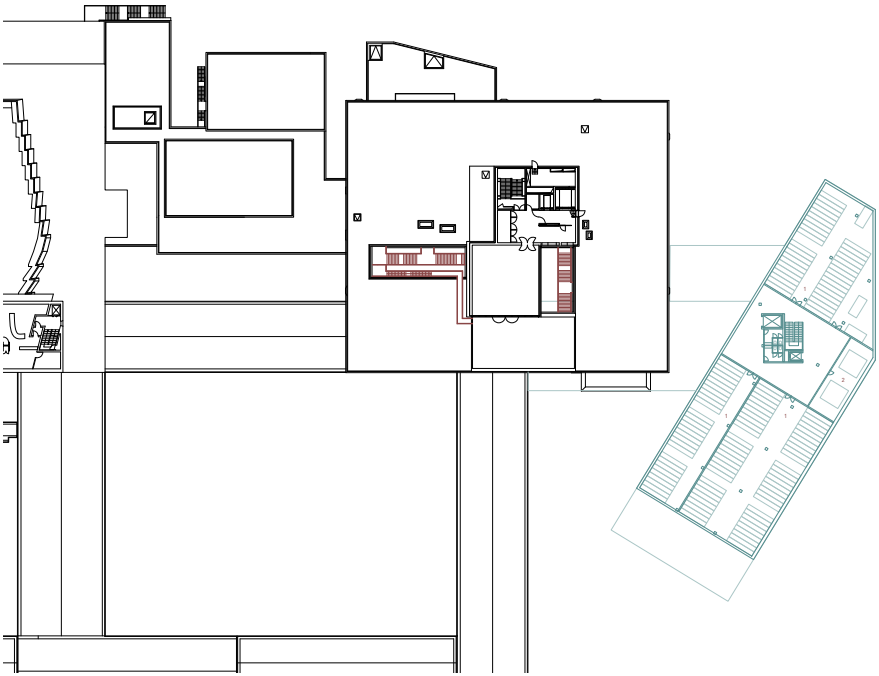
floor plan depot third floor 1:500

1. depot
2. technical room

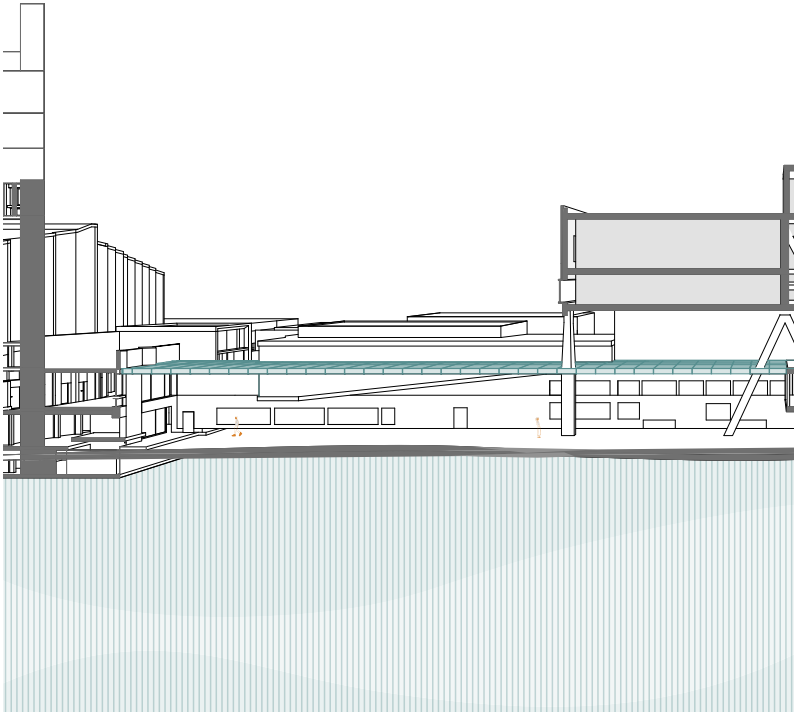


floor plan depot fourth floor 1:500

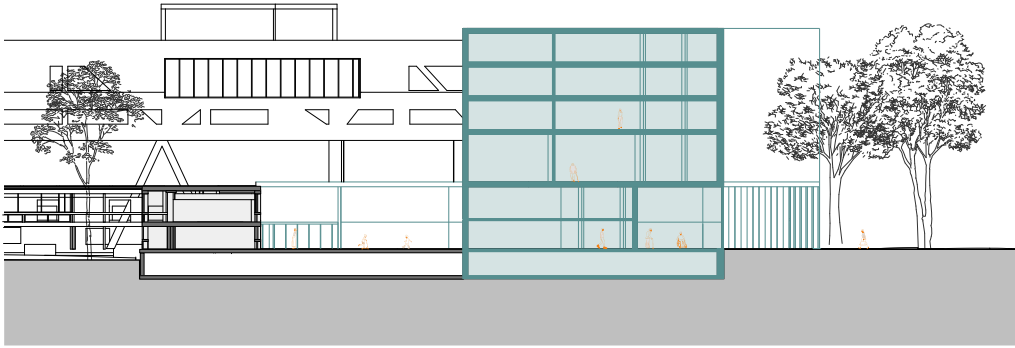
1. depot
2. technical room



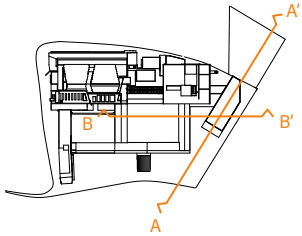
floor plan depot fifth floor 1:500

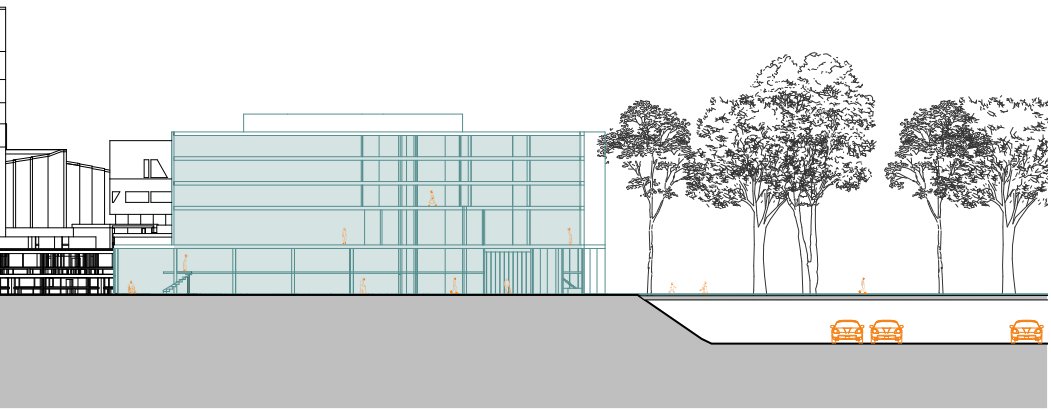


perspective section

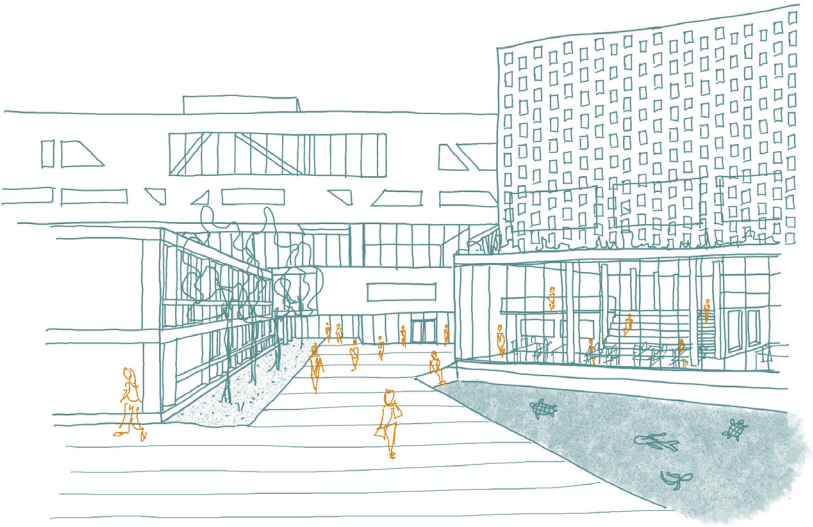


south section BB'

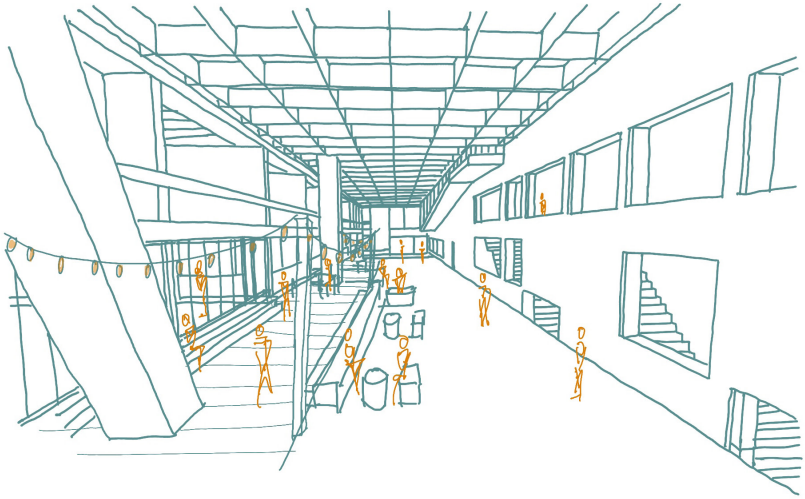




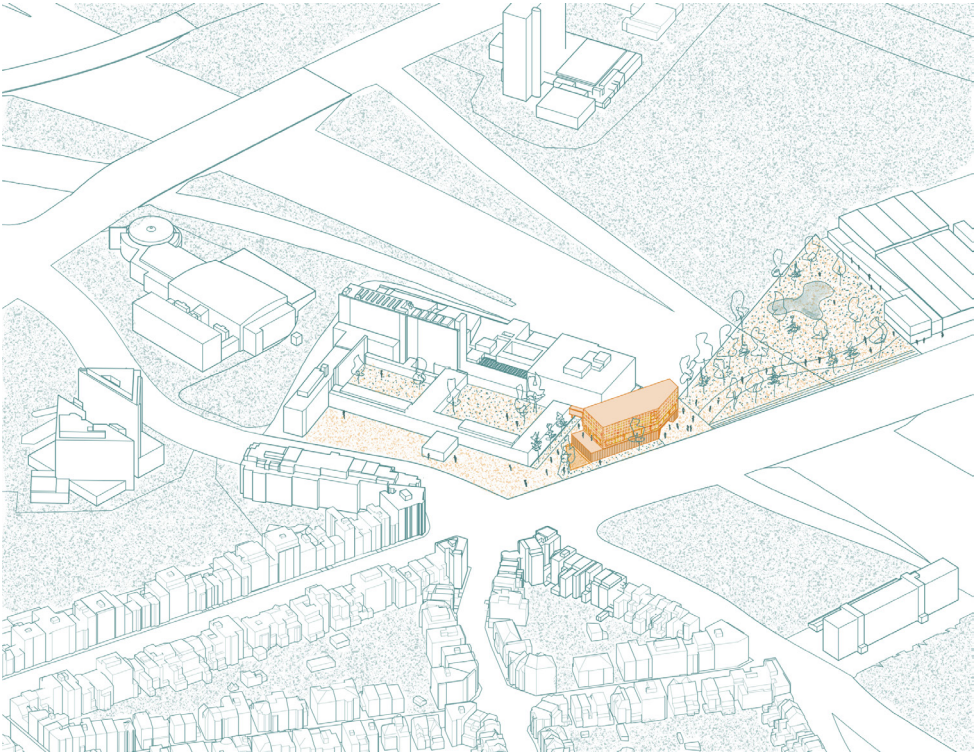
west longitudinal section AA′



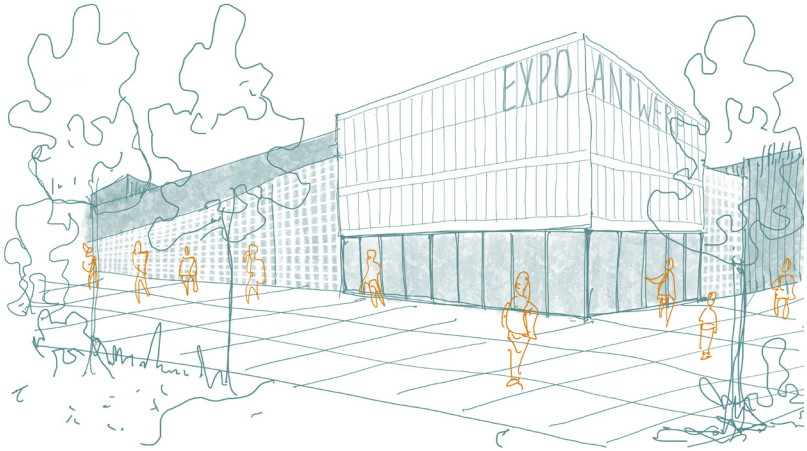
view of front courtyard and vai office entrance



view of glass roof and passage



axonometry of the site



impression of new expo entrance

P2 PRESENTATION

It was mentioned numerous times that the narrative for the P2 presentation needs to be clear and cohesive. The project needs to be clear for an audience that is not familiar with the project at all and this can be hard when you have been working on the same thing for many months. I made it a priority to prepare this narrative by writing it out and practicing this with people around me. The first time was with my boyfriend, who has zero knowledge of architecture. This was helpful to adjust the order of the presentation and to make it as clear as possible. The second time was with a friend who is currently studying urbanism. She was able to help with internal adjustments.

After, I practiced many times alone. I really felt that this process helped me a lot to prepare for this presentation and to go into it less nervous.

For the first part of my presentation, I prepared the text completely per slide, the part about the floor plans I improvised.

P2 presentation text

Introduction

Hello, welcome to my P2 presentation and thank you all for being here. I know that you have had a long day of presentations today and probably know more about the project now. I will go through the introduction a bit more quickly to prevent too much repetition.

The assignment for this graduation studio is to design an architectural archive that will act as the new home for the Flanders Architecture Institute (VAi).

The project is located in de Singel in Antwerp, a modern cultural campus in the south that hosts a conservatory and the Vlaamse Muziekschool.

The building complex is very complicated, with its many extensions built over a span of 50 years. The original building was designed by Leon Stynen and the final extension was completed by Stephane Beel.

This is also where the VAi office is currently located. The archive itself is not located here but in a separate building in the city center. The existing depot is too small and unsuitable for preservation. Additionally, the archive has outgrown this building and the VAi needs a new home where all functions can be combined into one space.

This was exactly what my project explored on the basis of the program of requirements we received in the brief. This brief was categorized into three functions: public, additional and archive. I arranged all the functions in the brief to scale to understand how much space is needed for everything.

This image shows the program of requirements spaces in my design.

The public and additional functions are bigger than the brief, but the archive functions are similar. The brief has a total area of 5260 m2 and my design is 6867 m2, making it 30% bigger.

Main concept

The concept behind the design is to create an archive that goes beyond the creation of a physical building and reimagines how an archive can be integrated into a larger network. The city. And the city becomes the archive. As the city with its everchanging collection of buildings can be seen as a type of archive on its own.

In this case, de Singel's purpose is to connect with its surroundings, and it is where the public functions are located. The archive building is for storage and hosts archival functions. Modules are introduced to be placed around the city and engage with an audience. These will have exhibition functions.

The question that arises from this is: How do we make a connection with the city? How can we engage the surrounding and extend the archive outside its own limits?

P1 Presentation

This was something I explored for my P1 project and I decided to extend the idea of a transportable modular archive that can be opened up.

this module is 1,5 m by 1,8 m and has a width of 650, making it fit through domestic doors.
The modules can be placed throughout the city outside and inside architecturally

interesting buildings, perhaps even the ones featured in the archive material. This design showcases how an archive can become an interactive piece of architecture, engaging with spaces and people. And mostly, how it can transform from a rather introverted character into a welcoming and attractive typology.

Urban vision

The question for this project now is: How can we integrate the buildings around us into the archive?

The project reimagines the relationship between de Singel and its urban surroundings, aiming to transform the area into a vibrant cultural park. The new archive building is placed at the corner of the Beel building, serving as a new entrance and focal point for the campus. To enhance connectivity and accessibility, the existing bridge is extended into a green park, creating a clear axis between the archive and the expo building. A new café is situated on this point, which attracts people from every direction. A new façade for the expo building reflects the materiality of the VAi, strengthening their visual and functional relationship.

MODEL PHOTO: strong connection between the expo and the archive

This vision will be reinforced by the strong cultural park image, which was mentioned in various future master plans of the municipality of Antwerp. The pedestrian green bridge connects the green areas in the surroundings. Additionally, the public transportation network will be improved and cycle and pedestrian paths will become more accessible.

Landmarks

For this project, I have explored valuable buildings in the area that can be a part of the archive, therefore being an extension of the VAi. These [point] buildings are designed by Leon Stynen, the architect who also designed de Singel and these two buildings are culturally significant. These so-called landmarks are also a great addition to the cultural park image and help strengthen the area. A walking route stimulates visitors to explore the surroundings.
these landmarks will host public exhibition functions on the ground floors, which will also help engage people who might not be as familiar with the VAi.

One of these landmarks is the Antwerp expo, which will have a new façade that reflects the materiality of the VAi building shown in these sketches, strengthening their visual and functional relationship. Additional interventions include relocating parking underground and introducing new public functions such as a nightclub and concert hall to activate the area outside of expo hours. The extension of a walking avenue along this side will make the visual connection between the two buildings even stronger.

Here is a sketch of how this new expo building looks like when you arrive from the archive on the green bridge.

Concepts archive

In these diagrams, the different functions of the archive for its direct context are illustrated. The building connects the green areas. The volume is based on the two main axes in the area, one in the direction to the city, and one that emphasizes the culture, with sport facilities and a future art archive located here. Water is used to mark the front and the back of the building and the faces of the two buildings. Courtyards as seen

in de Singel, are referenced in the new building, creating intimate spaces and meeting points. The accessibility of the building is on all sides. Transportation of trucks will be from the backside.

The building itself will have a solid volume on top of a transparent open plinth, that has a 360 view. The façade reflects the functions that are inside. The public areas, such as the reading hall and the office are on the first two floors. The VAi spaces are located between as a transition between the public functions and the depot functions.

A glass roof cover is added to create a passage, that connects all the functions in de Singel and becomes the new core of the building. The VAi, expo and Singel come together in this main hall, which is the heart of de Singel.

MODEL PHOTO: the building volume is based on the strong lines in the area. Visually you will follow these lines. One going to the park on the opposite side of the road and one into the new core of the building, the passage

As mentioned before, the materialization of the building reflects the functions and their accessibility to the public. The curtain wall engages people. The depot has a closed appearance but with metal plates that move with the wind, still has a dynamic character.
Here you can see how the volume interacts with de Singel and its surroundings.

The building has 5 floors with a basement. The building is almost 23 meters high, which is just a little bit higher than the beel building.
The public functions are centred on the ground floor and first floor, the offices are spread over the first three floors. And the depot functions are on top of this.

MODEL PHOTO: height differences between the buildings can be seen here

Load bearing structure consists of steel columns with concrete covers. The axis distance of the columns is 7500 by 8300, which was inspired by the columns in de Singel.

Floor plans

There are a few major interventions made in the site, which is summarized in this diagram.

week 3.1 - week 3.5

AFTER P2 PERIOD

AFTER P2 PRESENTATION

Written feedback from P2 presentation

The aim of using the extension as a means to knit stronger connection of the Singel with its surrounding, especially the area across the highway, seems very good to us. The location on the corner is also well chosen, as there are really many loose ends to tie up here. However, it is a very complicated place and the desire to create a building without back sides does not make it any easier. At the moment, the new building is very close to the Beel extension, but the relationship between the two has not yet been properly articulated. Are they supposed to form a pair? Is one more dominant than the other? How do they react to each other in form and expression? Can you design your extension in a way that the existing conglomerate makes more sense?

The ideas for your façade are still quite abstract and conceptual. This new building will represent the VAI through its spaces, its relationship to the Single and its facades. What does it communicate? What does it say about the VAI and the archive?

After the presentation, I received some feedback that I felt was quite relevant and useful for my future process.

It was validating to hear that the concept of my project is clear and strong. I spent a lot of time thinking about this concept and how I could convey this. For the next steps, it is important to think about how this concept can translate better into the design and how it relates to the current situation of de Singel.

The main objective was that the new VAi building is very closely placed to de Singel, especially the Beel extension. How do these two volumes relate to each other and what does this mean for the exterior of these two buildings?

I have not thought too much about the exterior of the building yet. I know that I want it to catch a wide audience and have an open appearance. For P2 I decided to go for a dynamic metal plate facade. I got the remark that this might be too performative and not relate enough to the current situation of de Singel/ Antwerp/Flanders. I need to rethink this material and make it relate more to the function of the archive, as well as the surroundings of the building.

FACADE DESIGN

wooden horizontal panels

white painted concrete

red brick, alternating with open brick structure

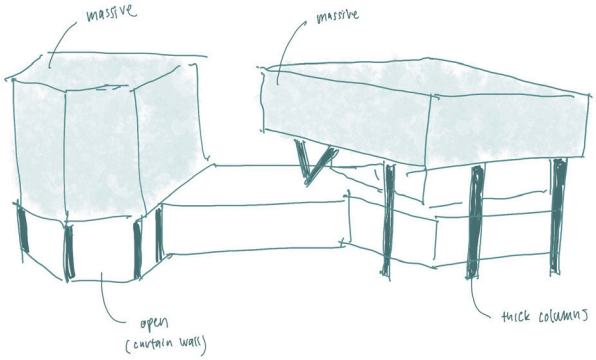
red sandstone

I've been doing research on what kind of material I would like to use for my facades. During my P2 presentation, I mentioned the reference of Marina Bay Sands by Moshe Safdie (2011) where they used metal moving plates. I got the feedback that this material choice can be a bit too performative and also not relevant to the location in Belgium. It would be better to look into a material that is more representative for the VAi and Flanders.

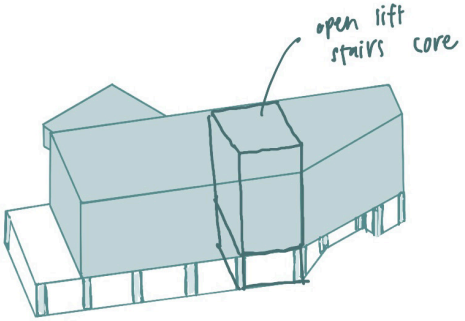
The new building will be located close to de Singel and the Beel building. Therefore, it's important to think about the materialization in relation to the materialization of these buildings. A choice needs to be made between using the same material or using something completely different and contrasting.

The options for the first method is to either go for wooden horizontal panels, making a direct connection to the Beel extension or choose a more monotone material like the white-painted concrete panels.
I thought it would also be interesting to go for a material that is very linked to the Flemish architecture: red brick. Red brick also makes it possible to add another layer to the facade, by experimenting with the patterns and textures. This is something that I've gotten extremely inspired by during my internship in Vietnam. Brick was used in many different ways, as a cladding, as a wall, as an art piece, and as decoration.

The building's volume is quite simple: a massive volume on top of an open plinth. As the shape of the building was easily understood, I wanted the facade to add another layer of complexity to the building, by creating a sequence of detail level the closer you move to the facade.

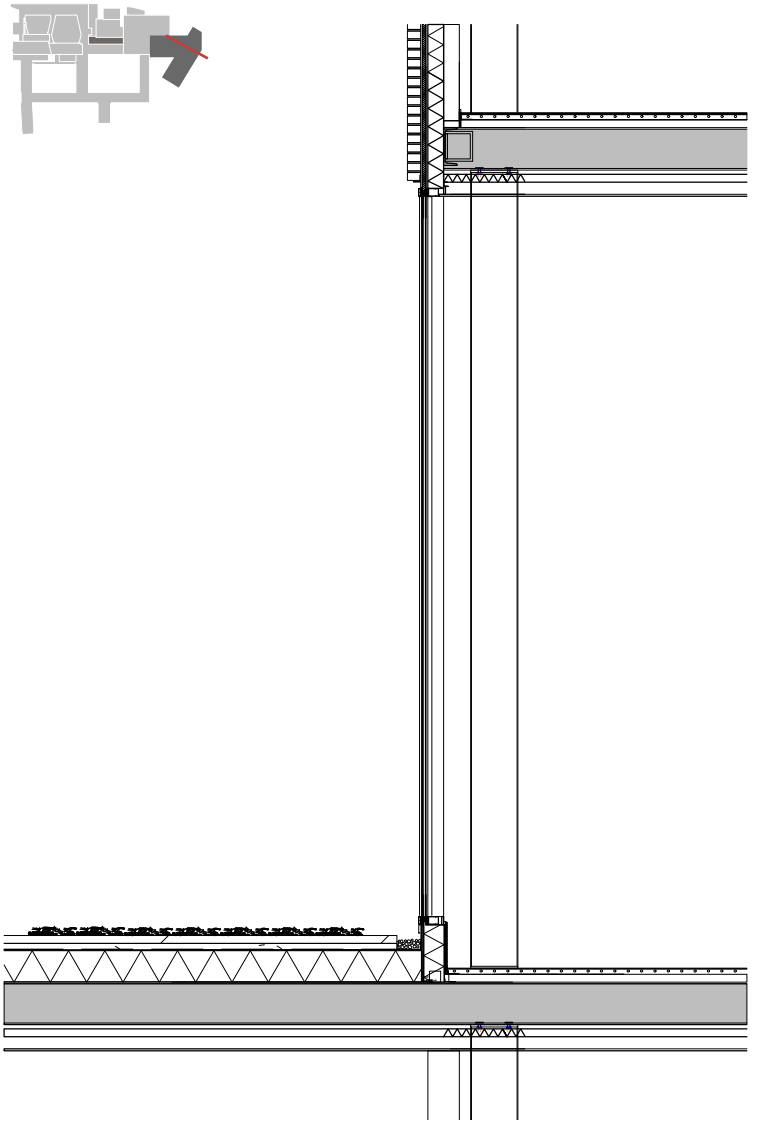


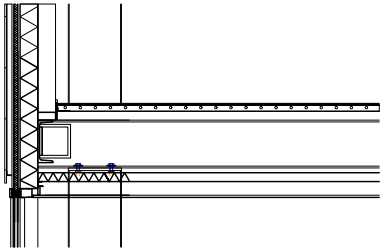
I wanted the volume of the VAi building to be similar to the volume of the Beel extension. The Beel extension creates the illusion of a volume hovering on top of another volume, as this volume is supported by large concrete columns. The effect is similar to a mushroom or a ufo. I wanted to emphasize the columns in the curtain wall facade to create a similar effect. This means that the volume on top needs to have a solid appearance.



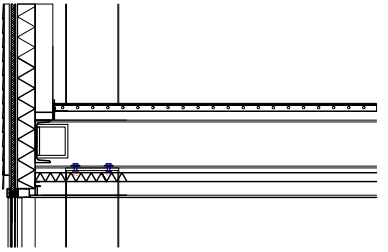
section concept sketch

facade fragment 1:20 (scaled)





facade cladding: wooden panels

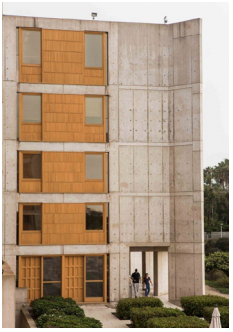


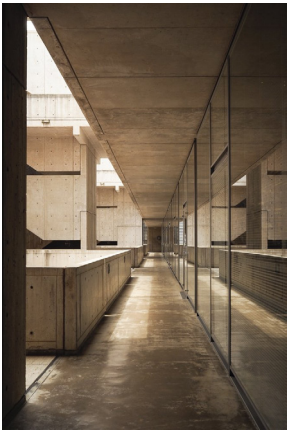
facade cladding: ceramic tiles

My building technology tutor advised me to make a drawing of a facade fragment and think about all the details. By doing this, I was able to make some decisions on materialization or explore materials and their consequences.
I made a fragment of a part of the building that has two floors, a curtain wall, a green roof, and facade cladding. I was not sure about the facade cladding yet, so I made a version with bricks, wooden panels, and ceramic tiles.

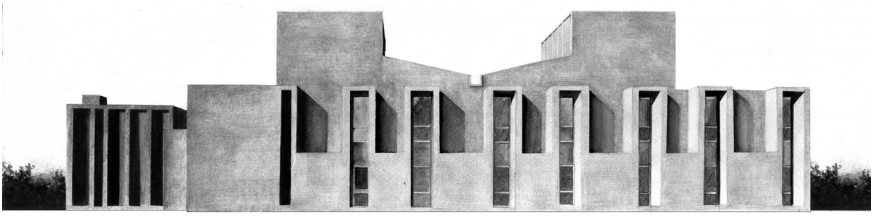
I understood that the entire facade of the building is made with the concept of a curtain wall. The columns are load-bearing and the facade is hanging on to this structure. It doesn't matter if this material is something structural like brick, the concept stays the same, and behind the structure is a structure made with an aluminum panel wall.

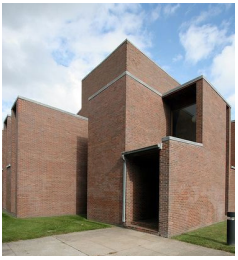
REFERENCES





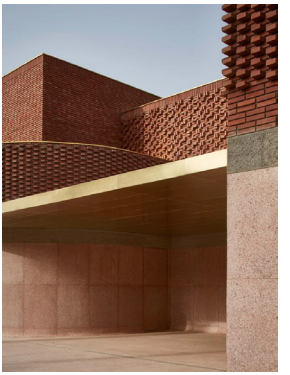
louis kahn - salt lake city

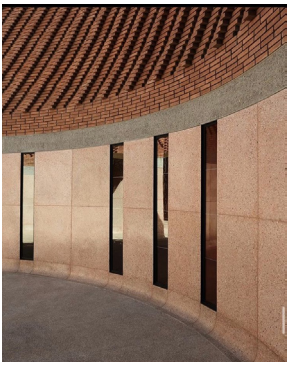




louis kahn - first unitarian church

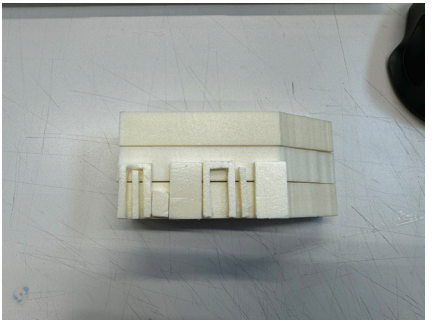
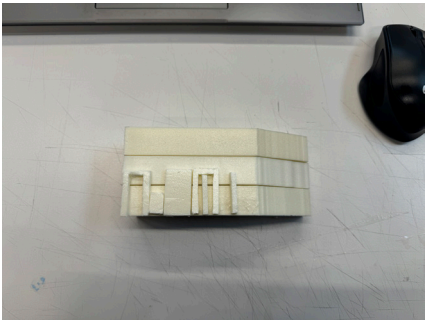
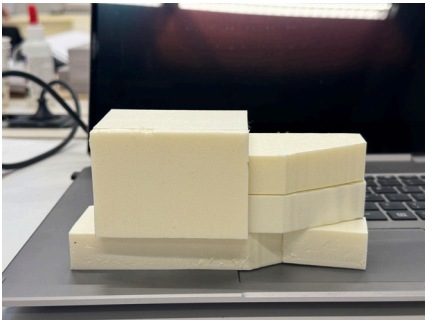
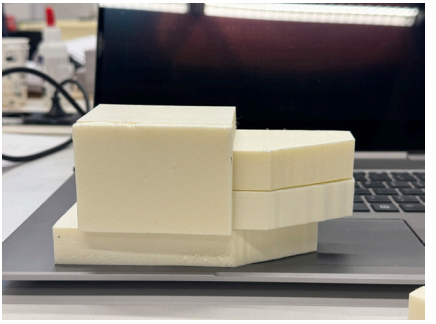
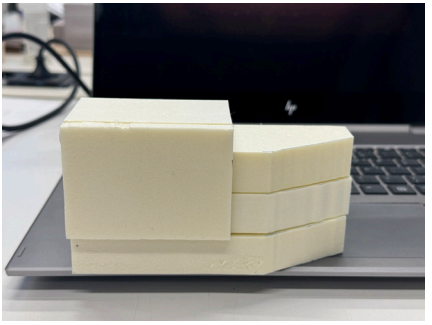
studio KO - yves saint laurent museum marrakech



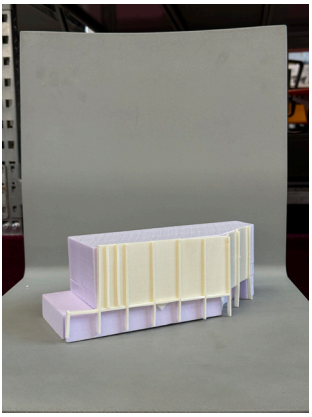


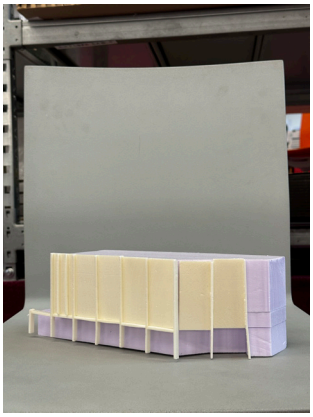
facade style and verticality - pinterest

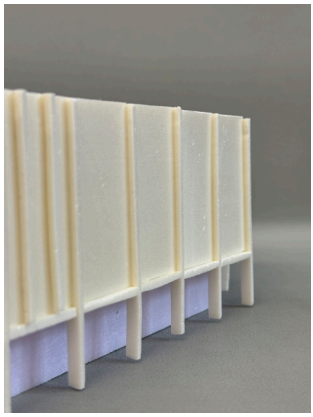
PHYSICAL MODEL TESTS

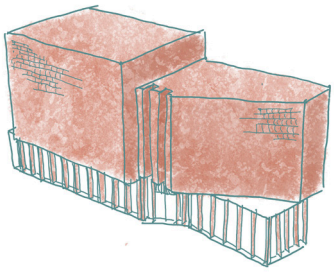






volume and facade tests









When looking at references, I was mainly focused on how to express the solid volume. I was thinking about ways to make the facade more interesting, how to shift the volume on top slightly to make the shape more dynamic and how the materiality could help with this. Louis Kahn does a excellent job defining facades with solid planes and plays with the dynamic between open and close.

I realized that my building does not want to create this heavy appearance, and I should focus more on how to define the connection between the solid volume on top with the open volume beneath. This is where I came across references on pinterest where the facade cladding merges into the columns supporting the facade. I tested this out in a physical model.

BR

week 3.6 - week 3.8

RIEF 04. A DIFFICULT WHOLE

DESIGN IDEAS

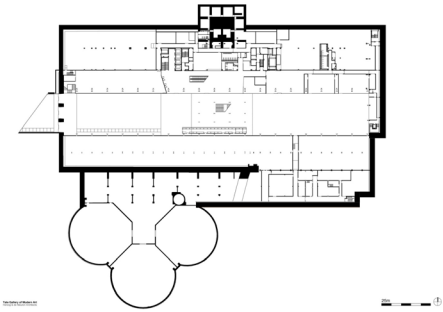
I felt that I spent a lot of time exploring different facade materials and that I was struggling to make any decisions regarding this. I was unsure what direction I wanted to head to, and with every tutoring, more options came into the equation. I had to change my focus on something else.

I decided to dive deeper into the floor plans and focused on the movement through the building, In particular, the main entrance and its relationship with the passage. This space will become the new central point of de Singel, but how do we translate that into the floor plan and the facade?

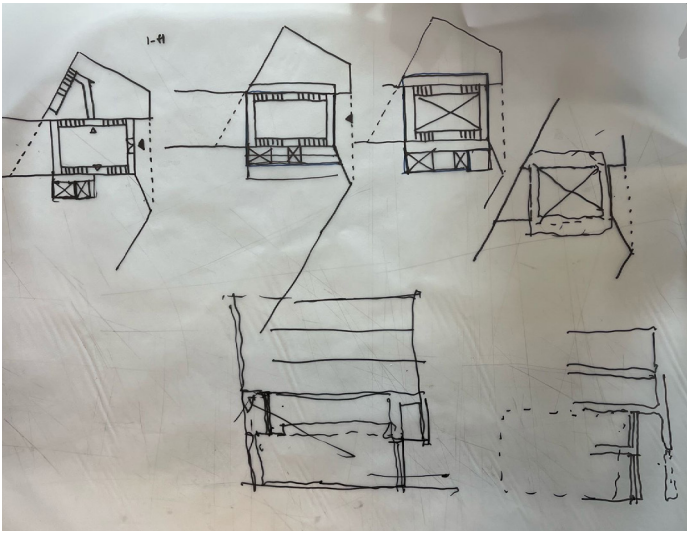
I took inspiration from the Tate Moden in London, specifically the turbine hall. The scale of this museum is obviously different when compared to the VAi, but we can learn a lot from what this space was intended to do for the building.
I wanted the entrance of the VAi to become a space for connection, inspiration and direction. It needed to become the new core of de Singel, a meeting space, but at the same time act as a space with flexibility in function.

I wanted to put the circulation around this core. At first, I put the central staircase and elevator in the middle of the passage, but later decided to put it around the corridor. Spatially, this made the passage more interesting. I felt like a space always needed a clear function, but understood that an empty space like this has a lot of value.

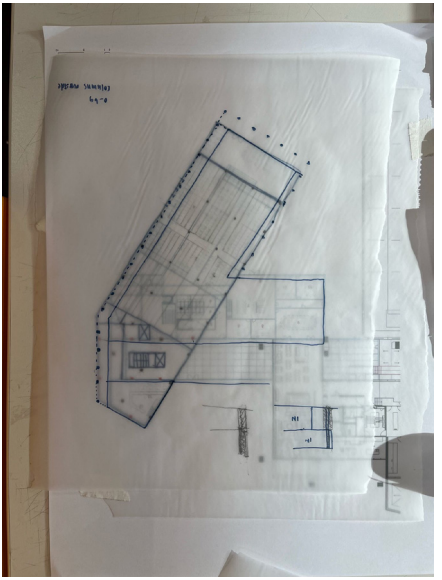
tate modern turbine hall

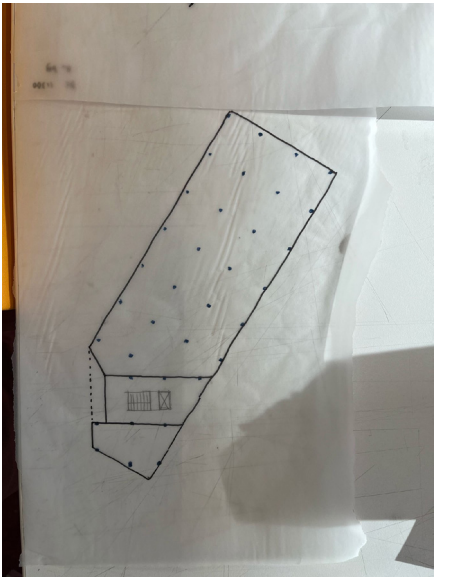


tate modern ground floor



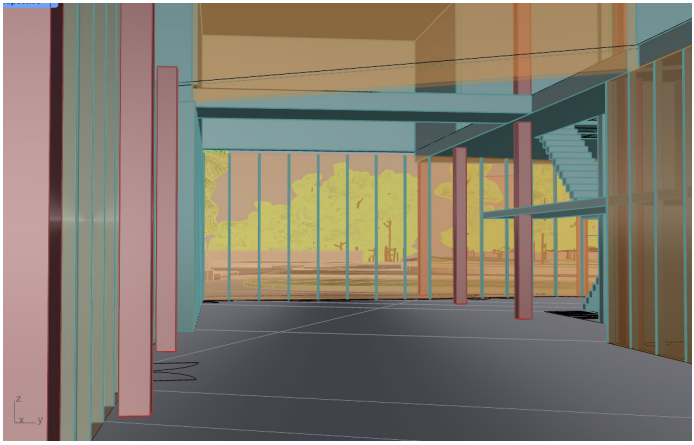
sketches during tutoring entrance



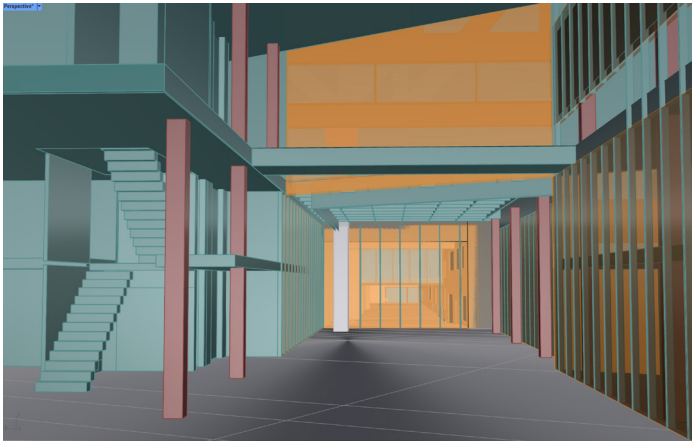


I tried to understand the new entrance hall spatially, by putting it in 3D. It is interesting to see that the space immediately becomes more defined and spatially attractive. By keeping the staircase open, I feel like you can understand that the goal of this hall is to invite you to explore the rest of the building.

Besides defining the entrance hall more, I also looked more into the floor plans and how to change it to create an overhang and connect columns with the facade.

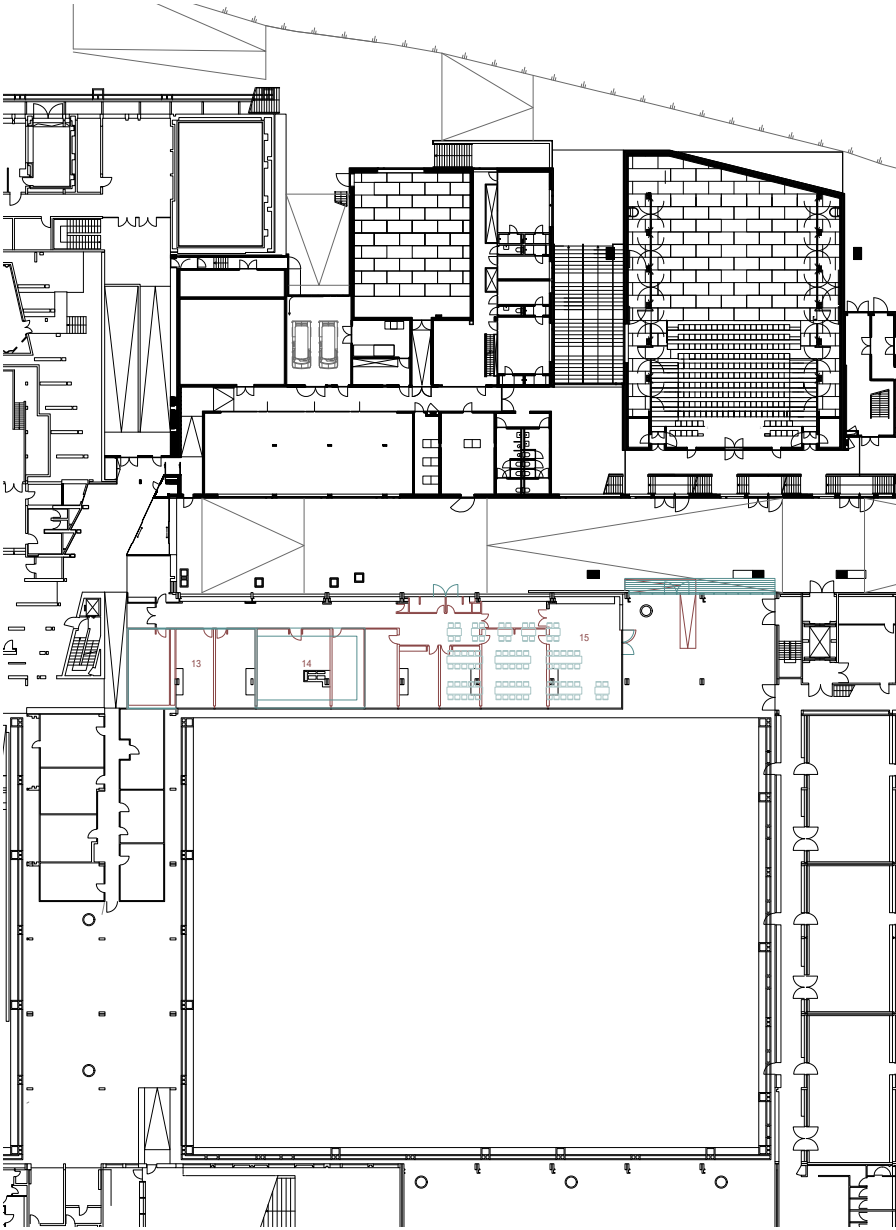


render main entrance with staircase



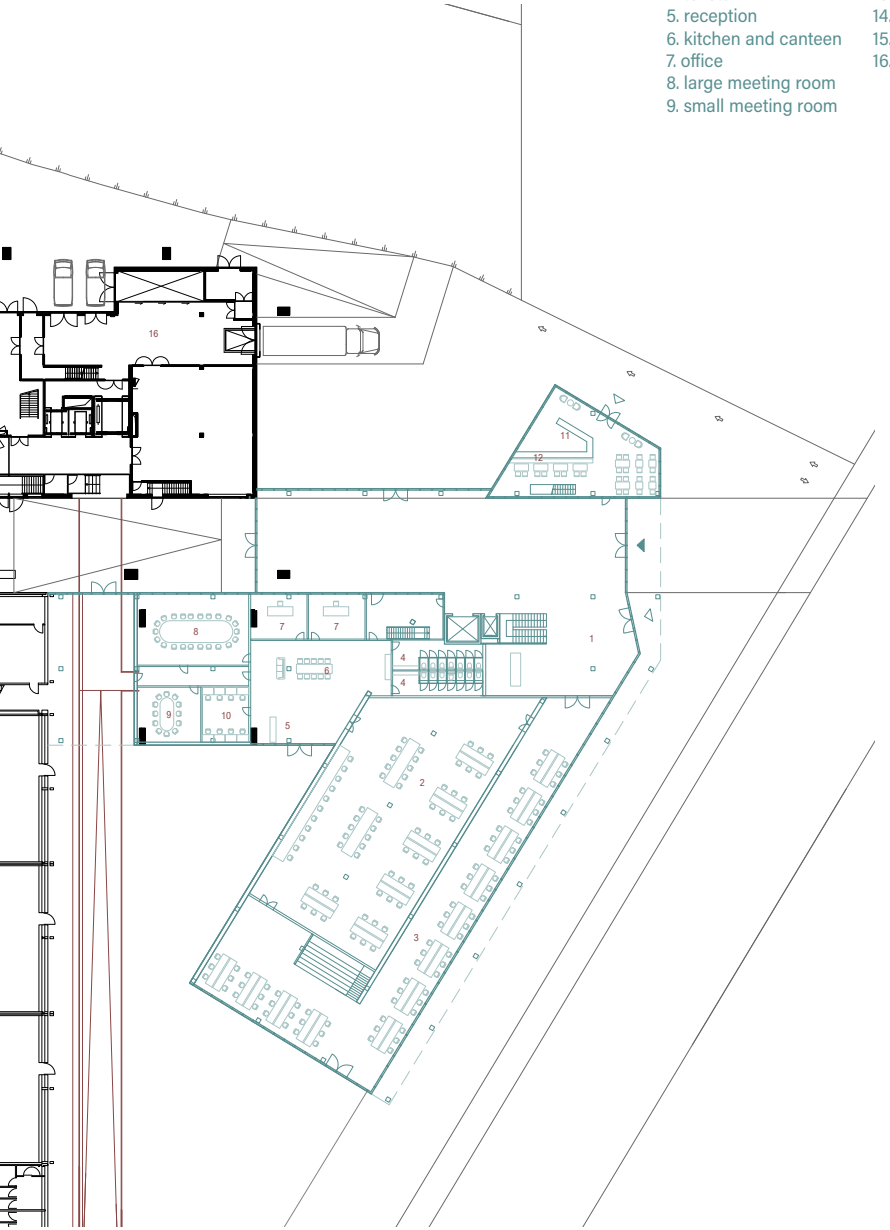
render main entrance with staircase

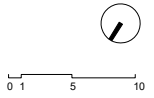
P3 PRESENTATION



site plan ground floor

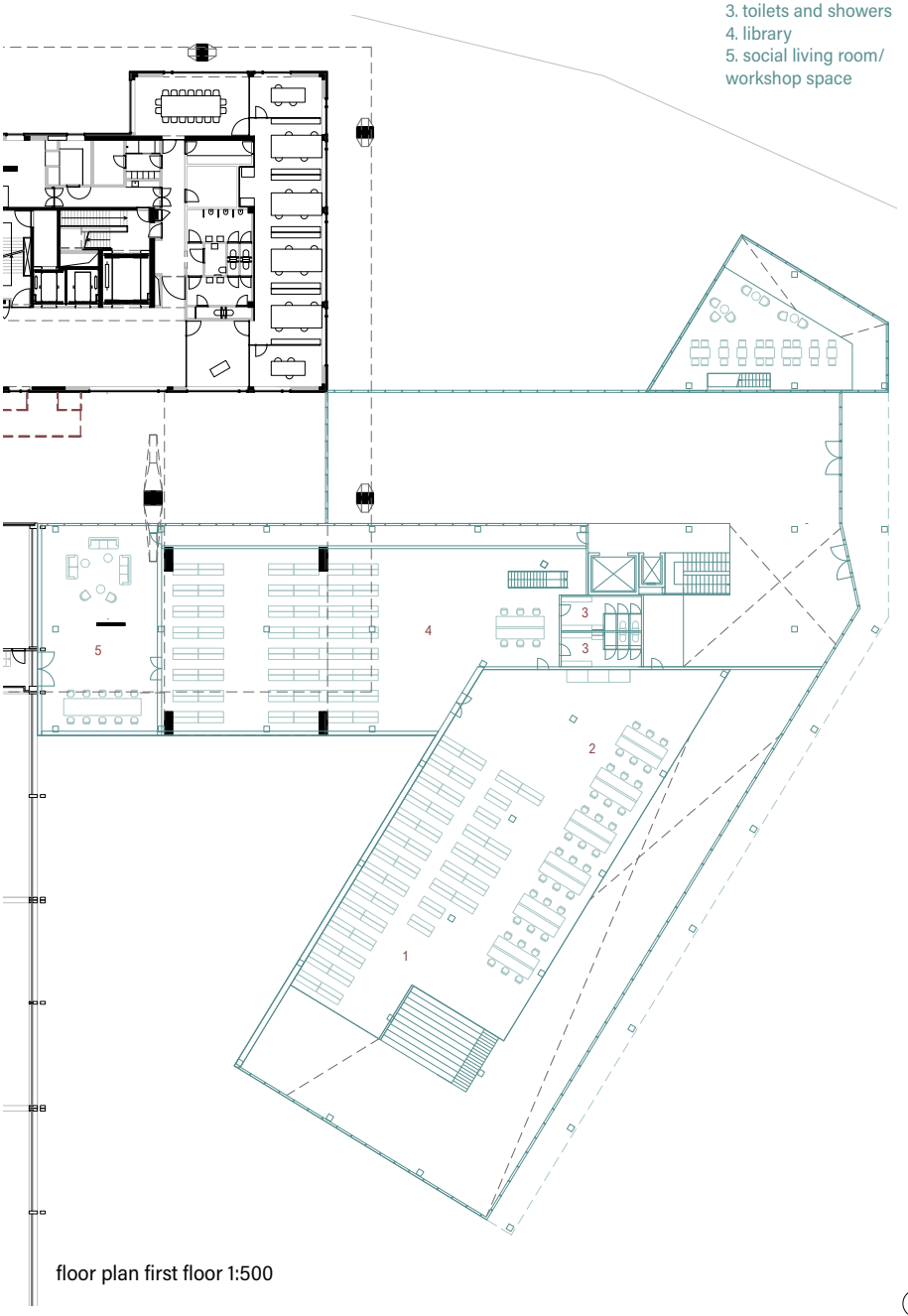
1. main entrance
2. staff workspace
3. group study room
4. toilets
5. reception
6. kitchen and canteen
7. office
8. large meeting room
9. small meeting room
10. focus spaces
11. cafe bar
12. kitchen cafe
13. kitchen canteen
14. front kitchen
15. canteen
16. loading unloading





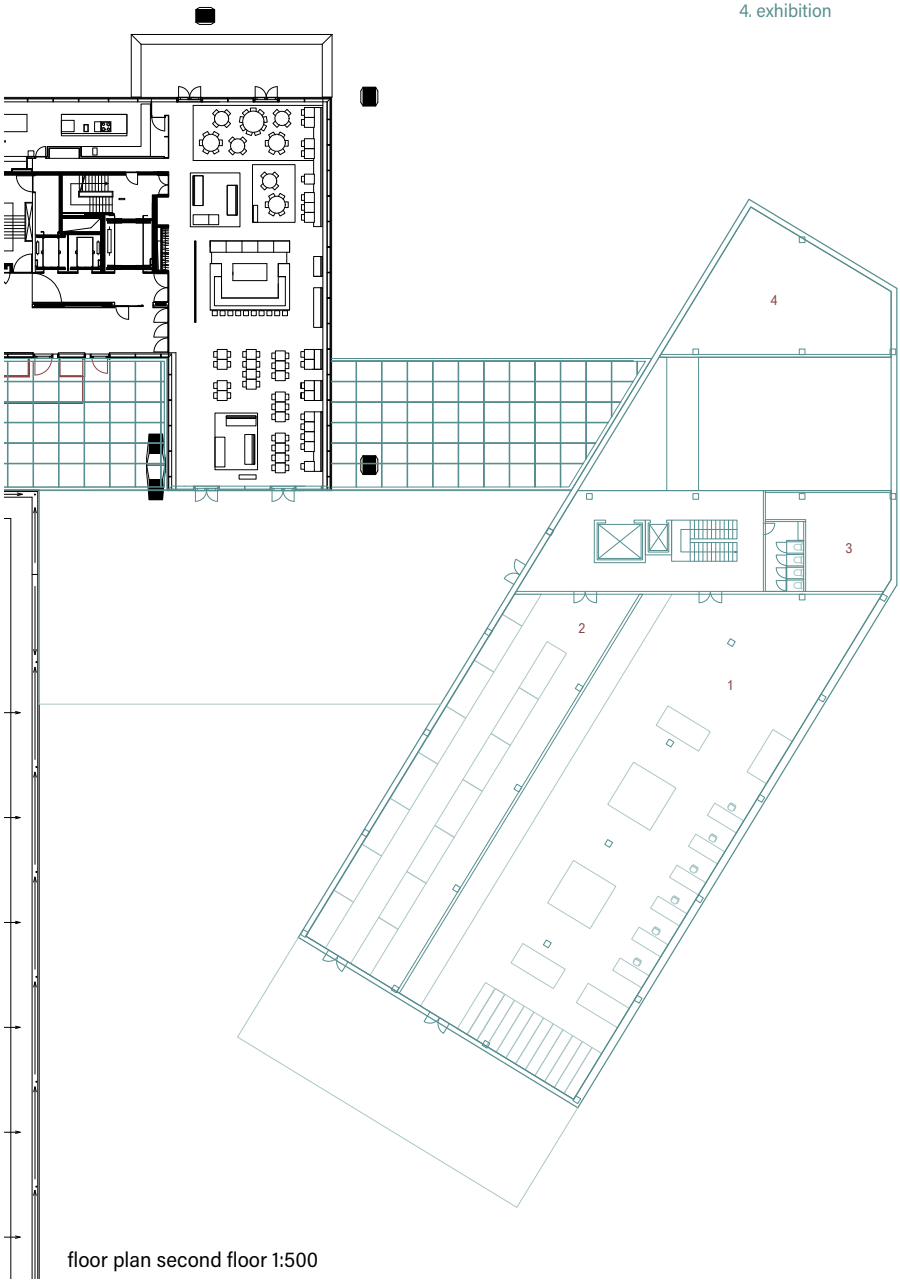
updated floor plans (scaled)

1. open library
2. workspaces
3. toilets and showers
4. library
5. social living room/
workshop space



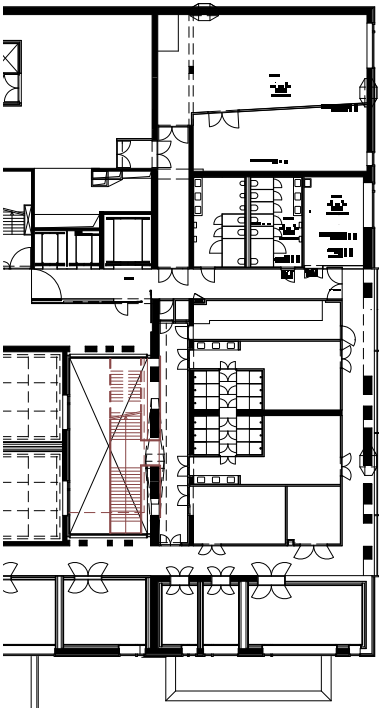
floor plan first floor 1:500

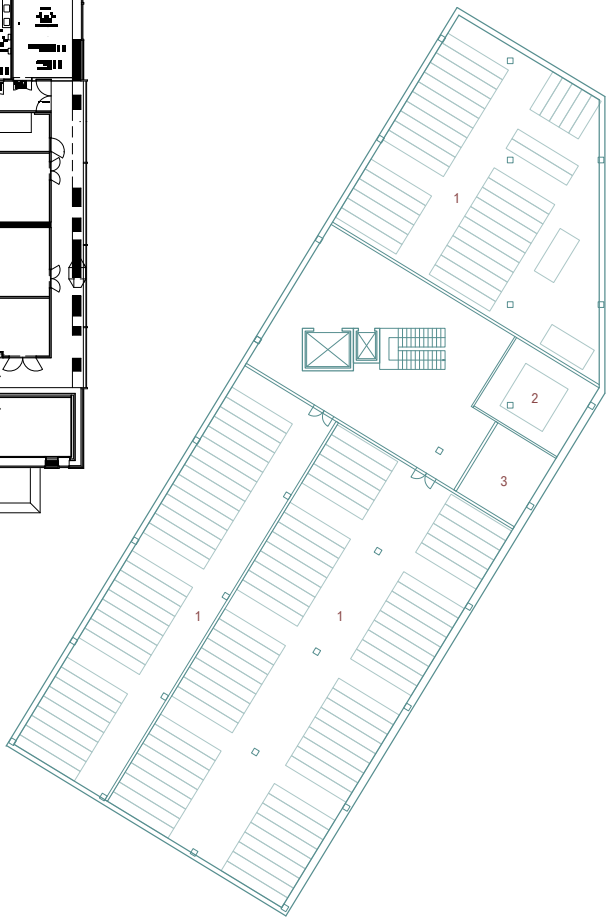
1. large workspace archive
2. showroom depot
3. restoration room
4. exhibition



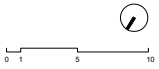
floor plan second floor 1:500

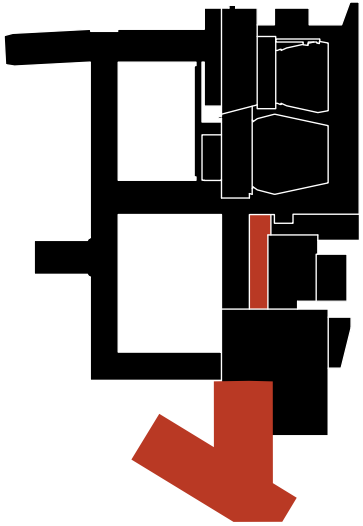
1. depot
2. technical room





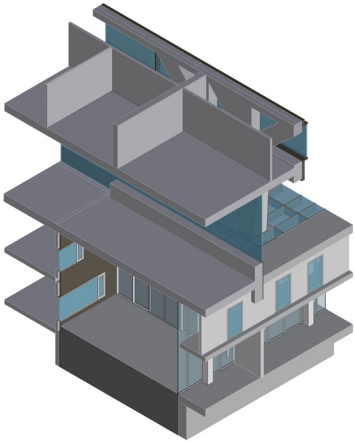
floor plan third floor 1:500

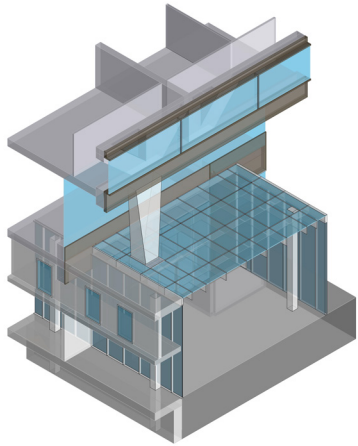


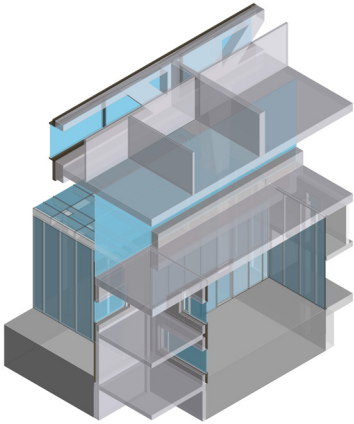


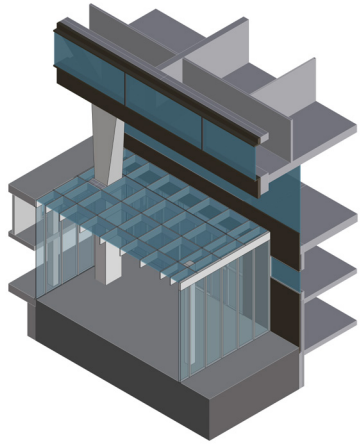
digital model of fragment

FRAGMENT MODEL FOR P3



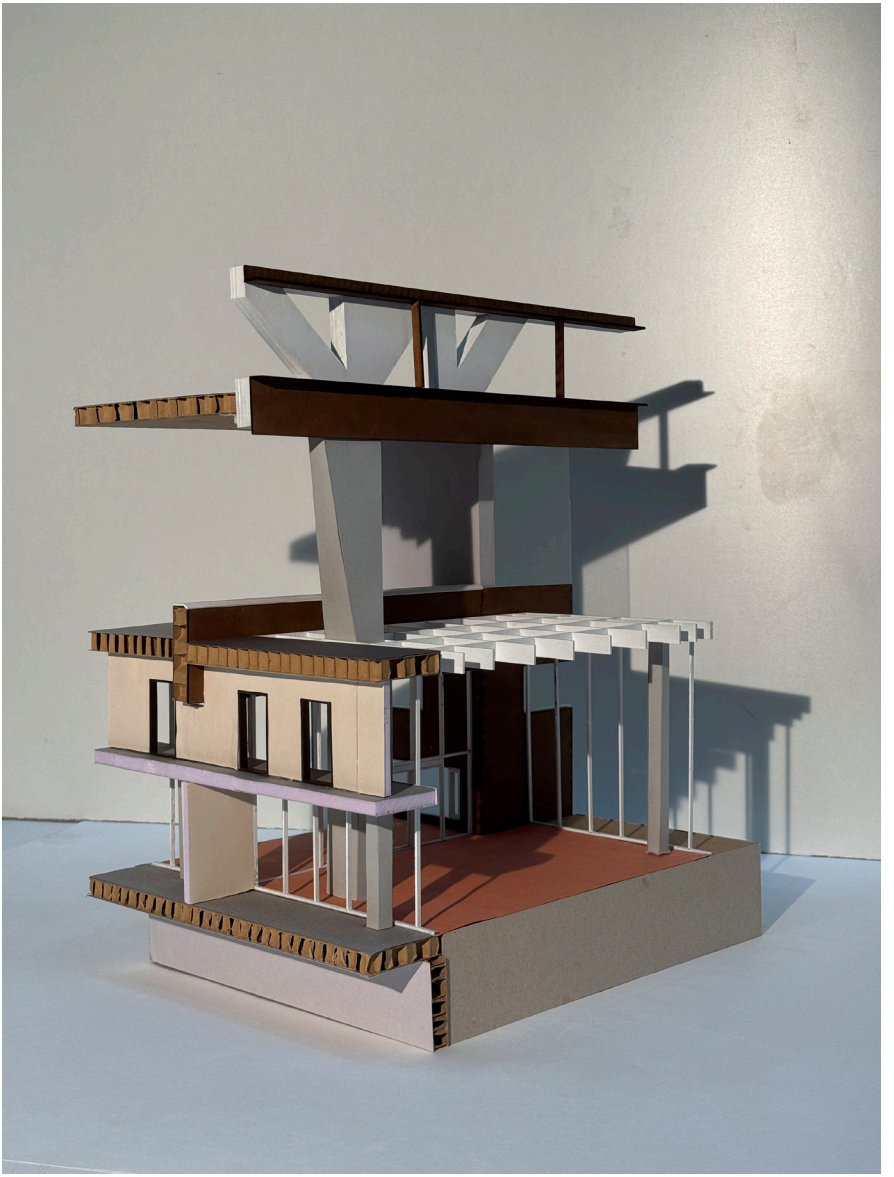






digital model of fragment

physical model of fragment



physical model of fragment

The fragment model shows the intersection between the new VAi building, the roof cover of the passage, and the Beel extension.

This part of the building shows how the new construction connects with the existing Beel facade. The passage is an important part of the new design, as this is where all the functions will come together. I wanted to show this meeting point in the model. The double floor heighted space combined with red tile flooring, creates an intimate space for connection.

The part of the VAi building shown in the model on the ground floor is where the meeting rooms are located. The first floor hosts a corridor leading to the library, which is behind the wall with long windows. This corridor creates a visual connection with the passage and the functions inside the building.

While making this model, I noticed that it would be difficult to construct the roof of the passage around the large existing column of the Beel building. The column would be a major cold bridge, as it would go from interior to exterior and back to interior. The position of the other columns was challenging too. It would be interesting to think about other possible options.

week 3.8 - week 5.1

THE INBETWEEN

STRUCTURE

This chapter will have a different structure compared to the structure of the other chapters. This period is titled "the inbetween" as it marks a period that sits between the P3 and P4/P5, where a lot of design process will be made. This progress is not always chronological, linear or logical. It makes more sense to group the different progress into their own categories, not linking it to the week numbers.

It is also important to note that just before the P4 moment, I have decided to extend the project to next semester, as I was dealing with many personal (health) problems.

Thus, this period spans over a period from April 10 to September 26.

The feedback received during tutorials will also be integrated into this structure and content. However, the important feedback moments will be discussed in the chapter "Feedback".

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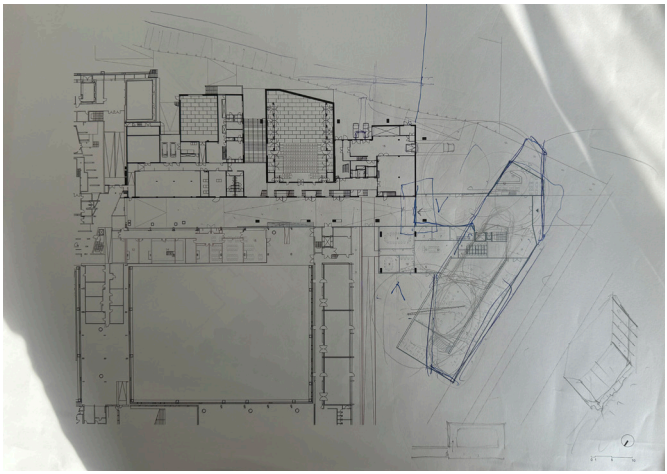
P3 PRESENTATION

urban site plan with entrances



site plan ground floor building with new shape

During my P3 presentation, I got feedback from Dennis (the guest critic from VAi) and Daniel which was very helpful. They drew on the drawings I put up, which was good for me to visualize their feedback and to help me remember after the presentation.

They both had the same comment that the concept is clear and that the extension of the bridge is a good intervention.

However, during the presentation, it was unclear what the accessibility is of the building and where the entrances are situated. By drawing them on the site plan, it became clear that there are three main entrances: one on the city side, one on the expo side, and one from de Singel inside. This means that the position of the current main entrance is not a place where people cross naturally. This specific point where everything comes together and crosses each other is shifted slightly to the right and can be emphasized more clearly. The landscape surrounding this can also be bigger and more appealing. Rather than extending the atrium, it would be better to have specific entrances: the park entrance, the city entrance, and the singel entrance. Rather than dividing these entrances, it would be better to combine them to make one large entrance.

Currently, there are courtyards in front of these entrances. This concept of the plaza can be made stronger, inviting people into the niche. To make these courtyards stronger visually, it would be better to reshape the volume of the building (as seen on the site plan of the building). The two vertical lines are to redirect the public to either the green park on the other side of the road, or inside the courtyard leading to the main entrance. This way, the building is embracing these two courtyards more strongly, creating an even more intimate space.

P3 PRESENTATION

re-evaluating concepts

CITY

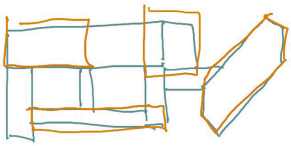
① city

archive bigger than physical limits

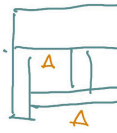
archive engage w surroundings

DE SINGEL

② de Singel



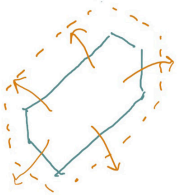
cultural campus with clear functions & identity



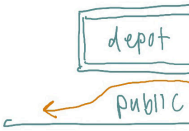
clear entra accessibilit

VAI

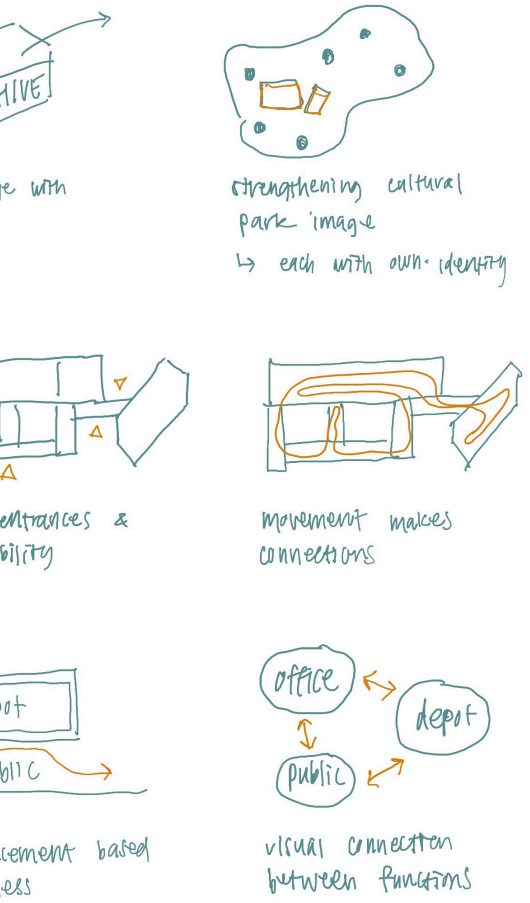
③ VAI



open plan & engaging with surroundings



function placeme on publicness



concept on different scales

After the P3 presentation, I felt quite a bit demotivated. Looking at everyone's presentation, I also questioned "what is my project even about?"

It felt like I lost the main concept and objective of my design. This was something that happened to many other students, and I felt like it was happening to me too. I was making decisions based on something that would not relate back to my main original idea. I decided to read through my written statement again and draw the main concepts, relating it to three different scales: the city, de singel and the VAi.

It was very useful to see this visually and to remind myself of the concept which was so clear to me during P2.

I will need to think about this regularly moving on with the process.

PRE-P4 PRESENTATION

Before the summer break, I scheduled a pre-P4 presentation. This was a moment for me to give a mock P4 presentation to all my tutors, receive feedback that I could work on during the summer break, and set a deadline for myself to continue structurally working on the project. Unfortunately, this meeting did not exactly turn out as I had hoped, as only one tutor out of the three was able to attend. It became more of a 1 on 1 tutoring with Susanne. Nevertheless, it was still helpful for myself to have this moment and to end the semester with this. I pushed myself a lot during these weeks to produce as much as possible and work on the storyline of the project.

During this meeting, I gave the presentation as planned: 30 minutes. This was a good moment to practice the given time-limit. After the presentation, we discussed each slide one by one. We focused on the structure of the presentation and also on some internal adjustments that I could make.

The main points that I should focus on going further are:

1. rethink the name of the project "archive city" does not contain the essence of the project and can be misleading. --> rethink what the project is really about?

2. Go more deeper into the location of de Singel, specifically it being located next to the ring. Need to zoom out on a larger urban scale and describe these conditions.

3. Refer back to Leon Stynen's original plan to situate in the landscape. Connect the bridge to this ideology and make the concept of creating a landscape stronger.

4. rethink the courtyards in front of the building, specifically the urban plaza. The shape is awkard. Look into using existing fabric.

5. the facade can be designed by an artist. How much of this illustration/design is up to you as an architect?

AUGUST

During the summer break, I received an email informing me that Susanne will no longer be my main tutor due to her schedule being abroad for two months, and that Daniel will be taking over from now on. Frankly, this came as a bit of a surprise, as I've discussed Susanne's plans with her multiple times and thought that we had come to an agreement for the planning. Upon receiving this information, I was mostly worried about Daniel's take on my project, as he has not received any updates on the project since P2. In the end, he will be the person who will grade me, so it is crucial that he understands my whole process and is standing behind my project. For the last few months, I have also mostly gotten feedback from Susanne and therefore made adjustments based on her comments. Daniel obviously would have different remarks than Susanne, and I was worried they might not always be on the same page. I do believe Daniel understood this challenge from my side and felt reassured by his approach.

It was important for me to schedule a meeting with both of them, so we could discuss further arrangements and that I could understand their perspective on my project a bit clearly. Unfortunately, this meeting took place a bit later than I had anticipated: the end of August. This meant that this highly important meeting took place only one month before my P4 presentation. I felt pressured and hoped everything would be good, so that it wasn't necessary for me to make any major adjustments so soon before my presentation.

The meeting was online and nearly 3 hours in the end and I felt really thankful that they made the time for this.

The feedback mostly regarded the structure of my presentation and the essence of my project in broader terms.
After working on the same project for one year, I felt a bit lost in what the most important factors are. It was extremely helpful to have someone look at it from this perspective.

The most important notes:
1. My project is, in its essence, a bridge. The VAi building complements this bridge and strengthens the concept that initiated the bridge. It is important to explain clearly the current situation and why this bridge is crucial, in a larger scale and on a building scale.
2. Rethinking the project statement: "I need to give the VAi an appropriate working environment and public presence".
3. link back to Steynen's original design in the landscape and as a modernist city.

P4 PRESENTATION

Feedback from Daniel and Susanne

You make a coherent, straightforward summary of the issues . It would be useful to include an explanation of the history of the VAi's attempt to move from the Singel and where the brief comes from. However we also think it would be good if you could be more precise in defining your ambitions for the project by P5. This will help you sharpen the narrative further and help you to decide what you need to make still and where to focus your energies. For example you make quite a clear reading, in general terms of the loss of relation between building and its landscape and de Singel's lack of permeability, but you are less precise in describing these things qualitatively. What was, or could that landscape have been like and how will the new landscape you make replace it. What are the opportunities of your bridge in connecting exacting fragmented landscapes as part of a larger coherent whole etc.

Why does the landscape include vegetable gardens? For whom? Is its function not, in some way, to re-establish de Singel's relation to the original sense of landscape here, not a domesticated park? you might look at the Mile End Green Bridge by CZWG in London or the barbican garden by Nigel Dunnett also in London, as examples of techniques and strategies to make landscape in such a condition.

You use the study trips and models well to translate your initial ideas of an archive, in relation to architecture and the city. The archive was very open, permeable flexible in the early part of the work. How do these ambitions translate into your building as it has developed? You might want to think about the archive across a series of scales. When you talk about the buildings within the neighbourhood, do these buildings need to host parts of the archive – something in the manner of your P1 project – or is it that they themselves are parts of the archive, in which case they could be part of a walk through the landscape, which your bridge helps facilitate. Marie-Jose van Hee's exhibition established the petite randonnée (small walk) and grande randonnée (big walk) seeing the singel as a landscape to be walked through, could you imagine a tres grande randonnée- which allows vistors to leave the building and guiding them to see these neighbours?

Your plans seem quite clarified however sections are less present

The stone façade – do you see your collage as a placeholder, how big is it, how would it be made and by whom? How deep is the façade stone panel? If it is to have a design on it, how will this be made and want impact will it have on thickness? It is a very different kind of stone building to the massive stone structures of history, or clad post war buildings. The base is frameless glazing, middle stone, top mirror glass. How do you make the building feel like a coherent whole? Could the language of the base and the top be the same?

How does the building change peoples perception of de Singel? What is it like

at eye level and from a distance? in the. street, across the park, as part of the whole? More spatial studies of the interiors would be useful

The project has many qualities but your description of it feels somewhat superficial. Think about where you need depth or precision, do this at scales of landscape building interior, Stating your ambitions clearly should help with this

Notes from Susanne on the Project Journals and Research Context:

In the first part, the journal is very carefully put together, but it mainly reads like a series of loosely connected exercises. It is not clear in which framework these studies were carried out, which guiding questions and interests lie behind them, and which conclusions are drawn in relation to the project. It is a missed opportunity, since the material itself is strong and could be used much more effectively for the development and articulation of the project narrative.

In the second half, there are some exciting passages where visual material and text are more closely interwoven, making it clearer how references and studies contribute to the project. A process of reflection becomes visible and the journal gains depth.

Often, however, uncommented visual material dominates. Towards the end, numerous external texts or longer documents are inserted without sources, and their specific relevance to the project remains unclear.

Overall, the work would benefit from a somewhat more persistent attempt to find the exact words for thoughts and ideas, describe things in more detail, really unpack their meaning and take them more seriously as contributions to an architectural discourse.

P4 PRESENTATION REFLECTION

Before the P4 presentation I made a list for myself with points I wanted to focus on after the P4 and before the P5. I knew going in, that there were a few aspects that could be improved. The feedback the tutors gave me during the P4 were quite in line with my ideas.

The main task was to create visualizations, specifically to understand the materiality of the building. I have designed it so far as a working building, on floor plan and sections it's correct. However, it is a bit hard to get a feeling of experience. One of the key areas was the landscape of the bridge. How does it look like? How do you move through this space? How do you view the building from this landscape?
During my whole process, I have always viewed this bridge as a secondary thought. I have started to realize in the recent weeks, that the bridge is a crucial part of my design and shapes how this building is perceived. Spatial studies and impressions of the bridge will be able to convey the experience more clearer.

It is also important to do a bit more research on the bridge and the construction of it. Specifically, how the bridge is able to hold the load of the vegetation and trees on top of it. I need to understand how to create a system where these are integrated better.

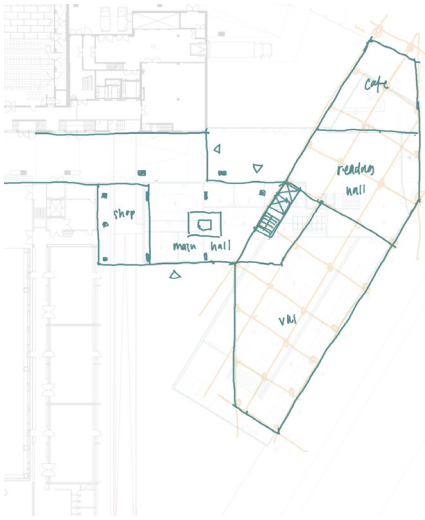
A few comments have been made about the facade and its technicalities.

FLOOR PLANS

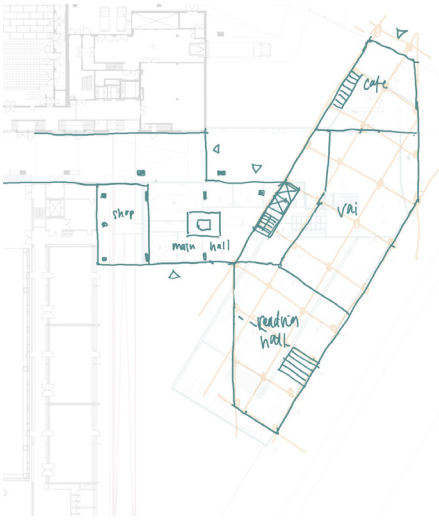
developments - structural changes - sections - visualizations

DEVELOP FLOOR PLANS

floor plan sketches



GF_version 1



GF_version 2

1F_version 1

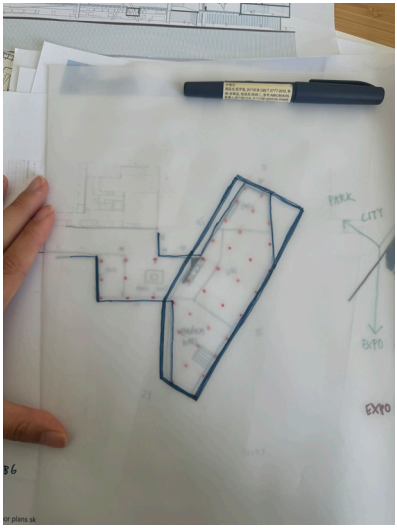
1F_version 2

2F_version 2

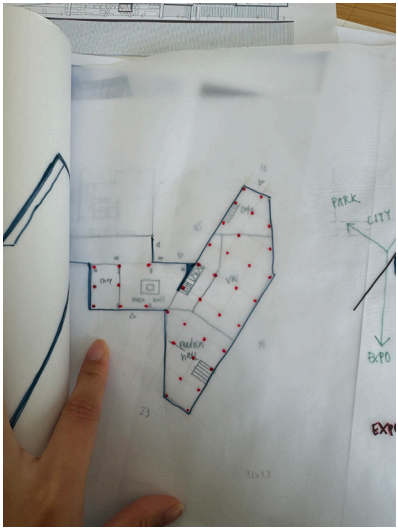
3F_version 2

Having decided that the new space connecting the two volumes would become the new entrance hall, I needed to change the floor plans.

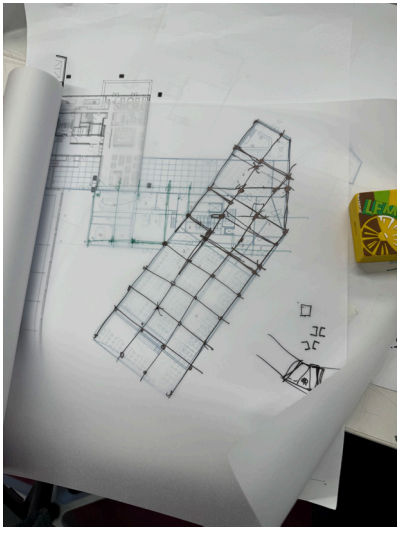
I started by drawing the grid (stramien) and with that the placement of the columns. I tried to keep a similar structure of the building, where the most public functions are closer to the ground floor and the private ones are on top. This led to a few different versions of the floor plan



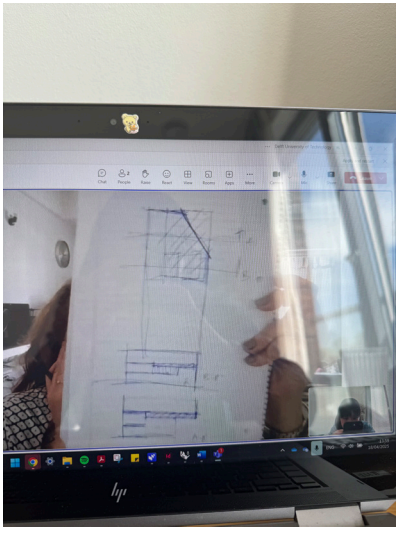
volume of building and cantilevers



new column structure sketch



stramienen and columns



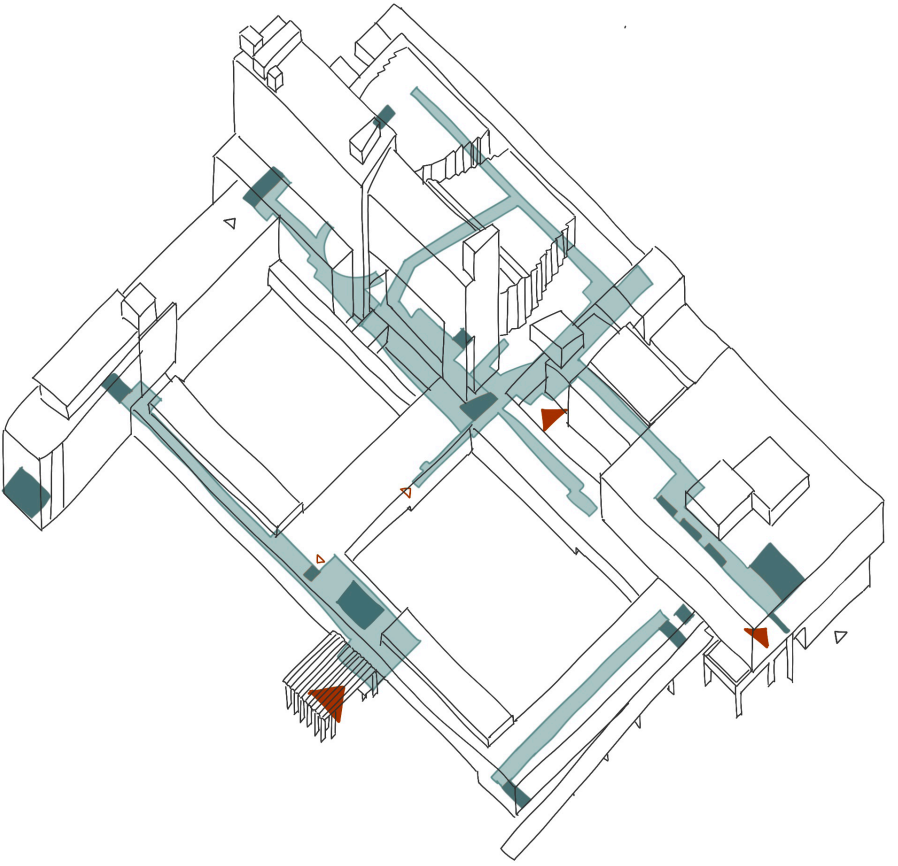
reinforced floor

For BT, I mainly discussed the structure of the building with my tutor and what would happen to it if I made adjustments.

I find building technology to be quite challenging, so it is hard sometimes to make decisions about certain things that I am not completely sure about. I feel the need to discuss all the small things, to make sure that whatever decision is made is correct.

We talked a lot about the position of the columns, and how to be able to define them with the stramienen. As my building has an irregular form, and also consists of two parts with a different direction in the grid, it can be tricky to figure out how this works structurally. I want to have steel columns with concrete floors and concrete beams. I always thought these beams had to connect from end to end, but this does not have to be. As the volume is also rotated and I want to use square columns, the columns will also be rotated to be parallel to the long side of the building. This would mean the beams are between two columns that have a different direction, which needs extra reinforcement.

The same appears to be true for a cantilever. It is possible to construct a cantilever without a column structure underneath. The floor for the cantilever needs to be thicker and reinforced, but this would be visible in the section, and also the interior. I need to think about the effects of this visually.

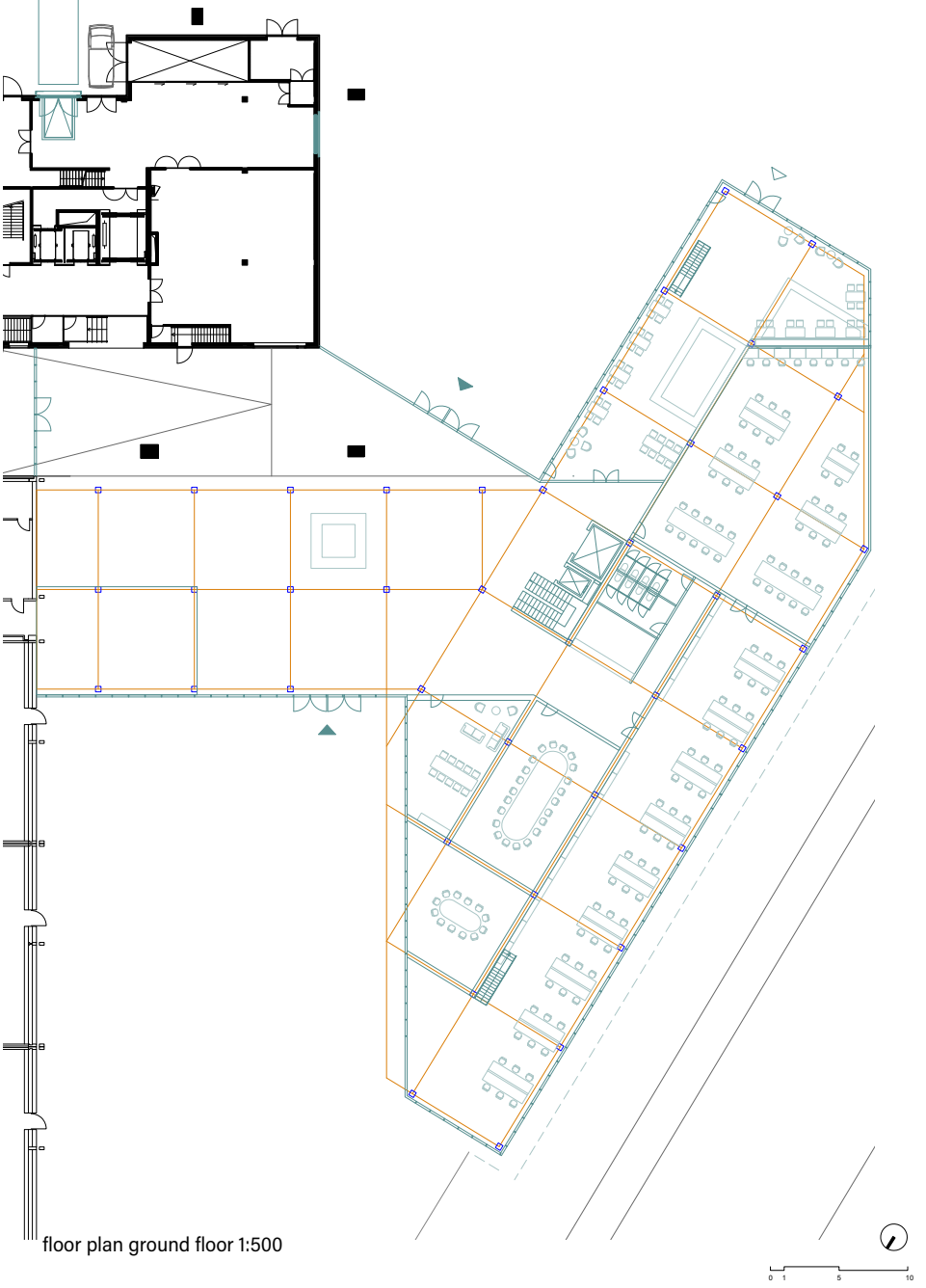


existing ciruclation ground floor de Singel

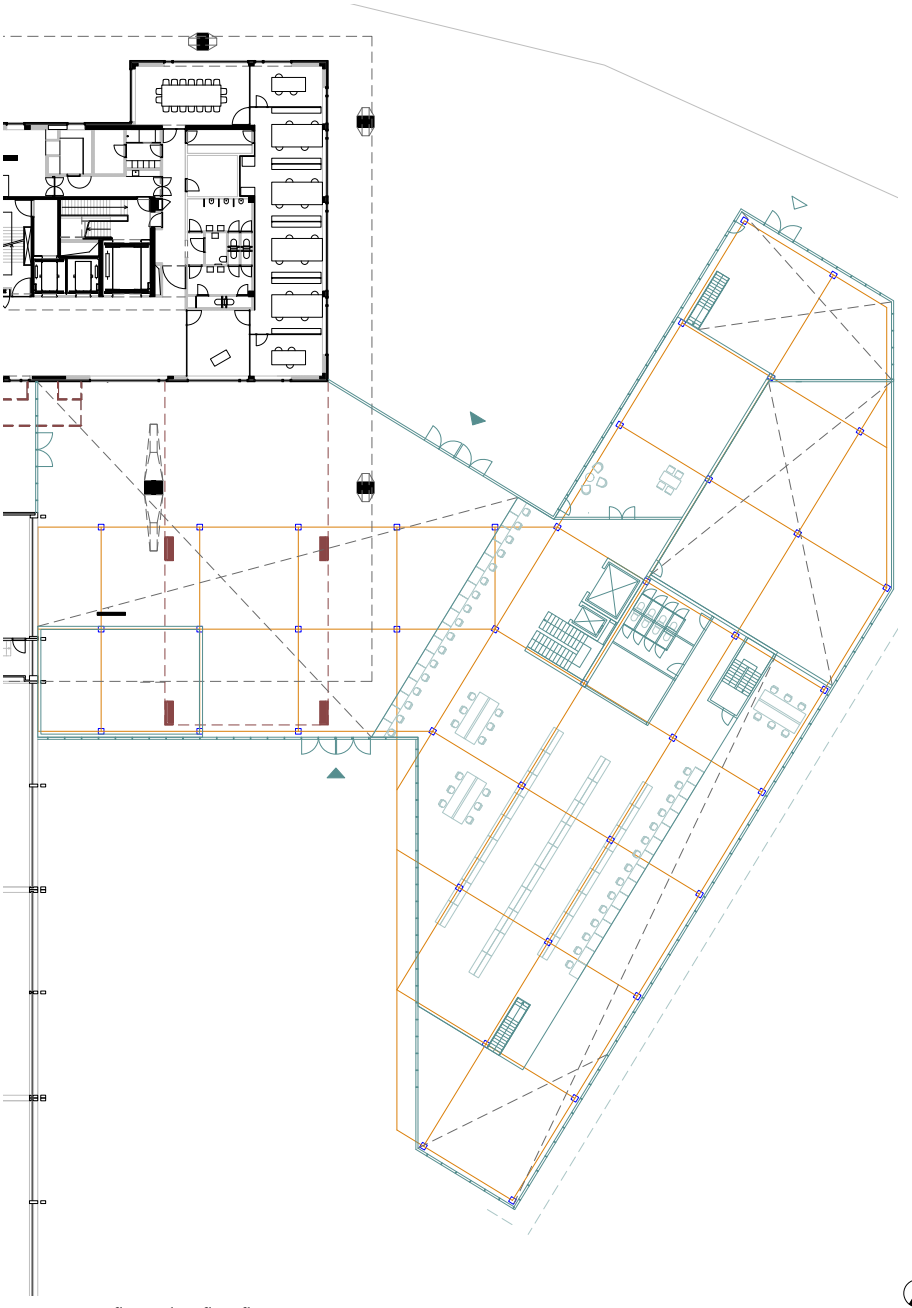
It was necessary to understand de Singel as a building to explain the problems that take place internally. These images were made for the purpose to illustrate the circulation problem in de Singel. This takes place on an urban scale, but is also reflected in the program and circulation inside. The main circulation of the building does not take place on the ground floor, but on the first floor. As a result, the ground floor is not connected with its surroundings, creating a barrier for people to enter the building. The circulation is fragmented, even though the main entrances are situated at this level. A lackof public functions and ground floor activity leads to a lack of connection. It is important for the VAi to introduce a new main circulation for the entire complex and bring back the activity to the ground floor.

circulation singel existing

FLOOR PLAN EDITS



floor plan ground floor 1:500



floor plan first floor 1:500

updated floor plans (scaled) April 2025

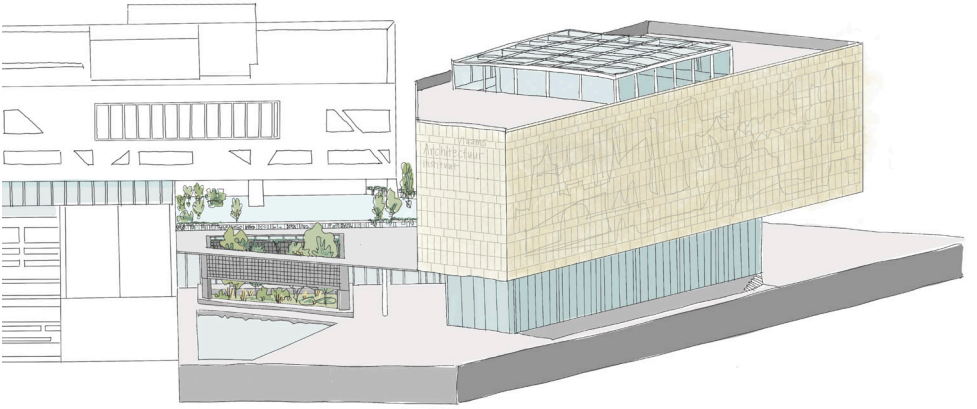
UPDATES AUGUST-SEPTEMBER

There are some minor changes made after the pre-P4 presentation and the P4 presentation in the floor plans.

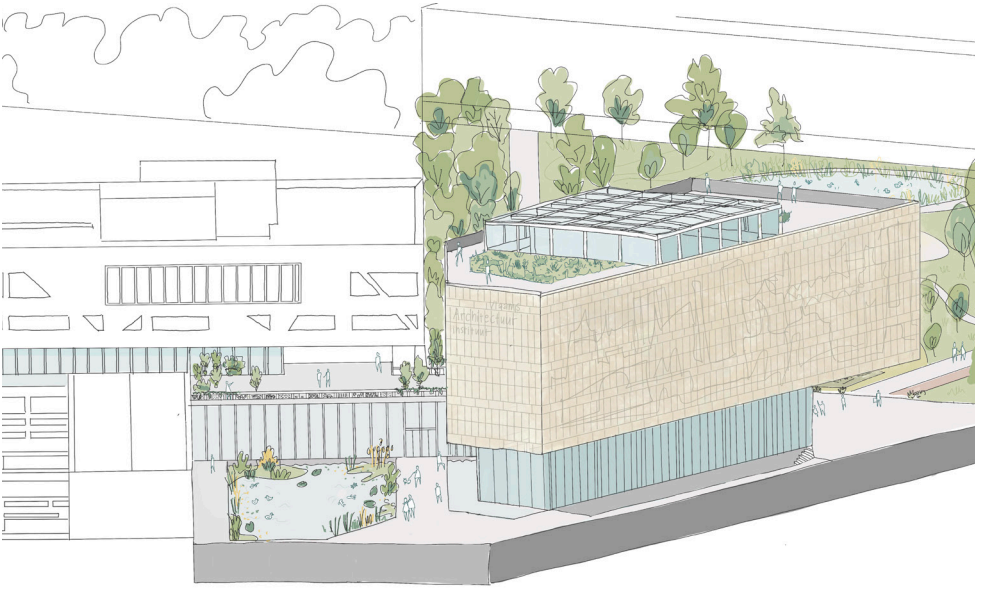
I spent some time redesigning the courtyards. The courtyards are the extension of the bridge and therefore need help to continue the green route throughout the city and link it with the other green areas.

At first, I redesigned the “city courtyard” with a roof and a pigeon wall, after visiting Cordoba in Spain and getting inspired by their bus station. The shape of the roof would emphasize the entrance of the building and create an intimate space for the workers and visitors to stay.

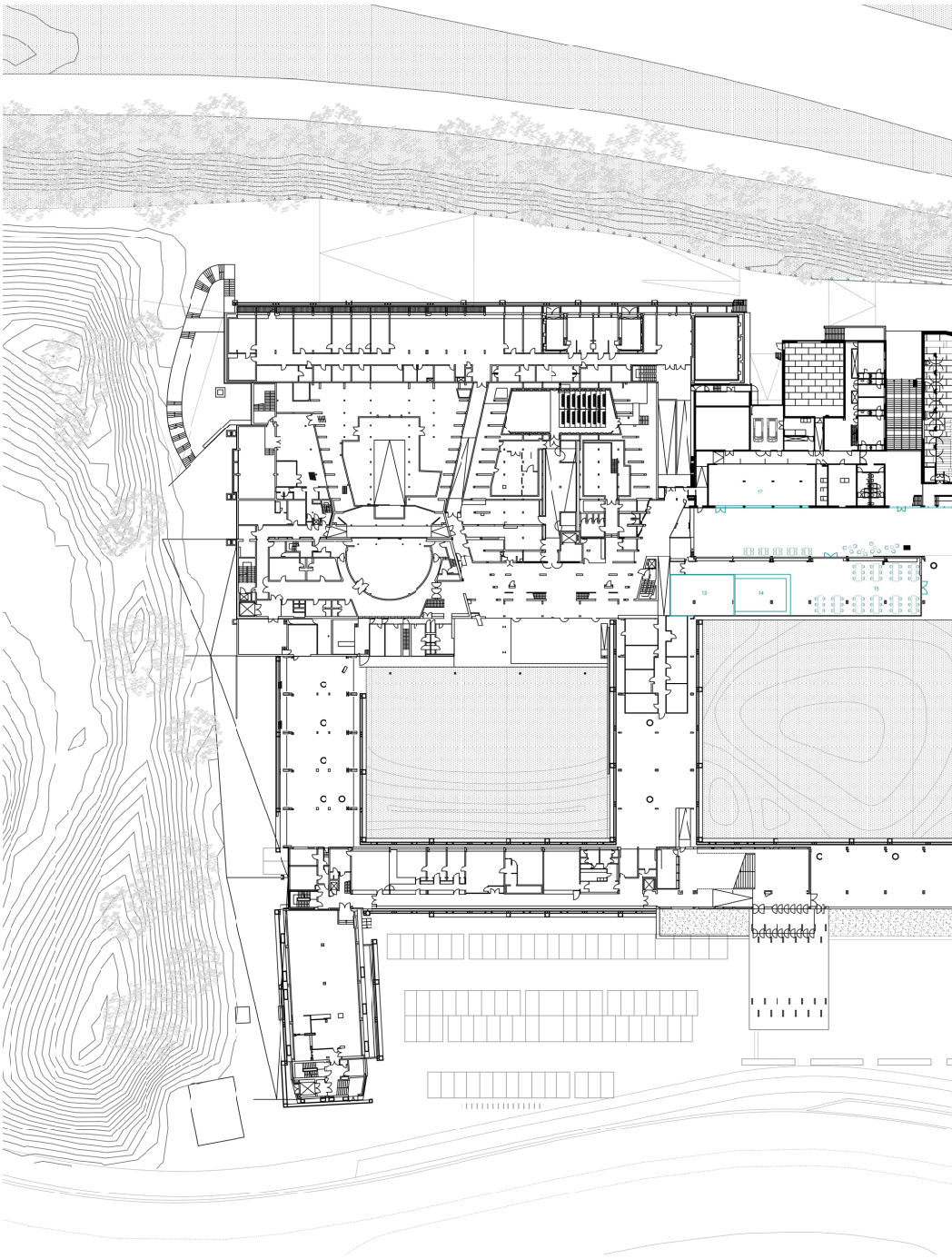
After discussing with Daniel, he commented that this space would become very dark and unpleasant to stay in. It would be better to keep it as an open space and to reuse the existing pool for a body of water.



veiw with pigeon wall (August 2025)



section with updated courtyard (September 2025)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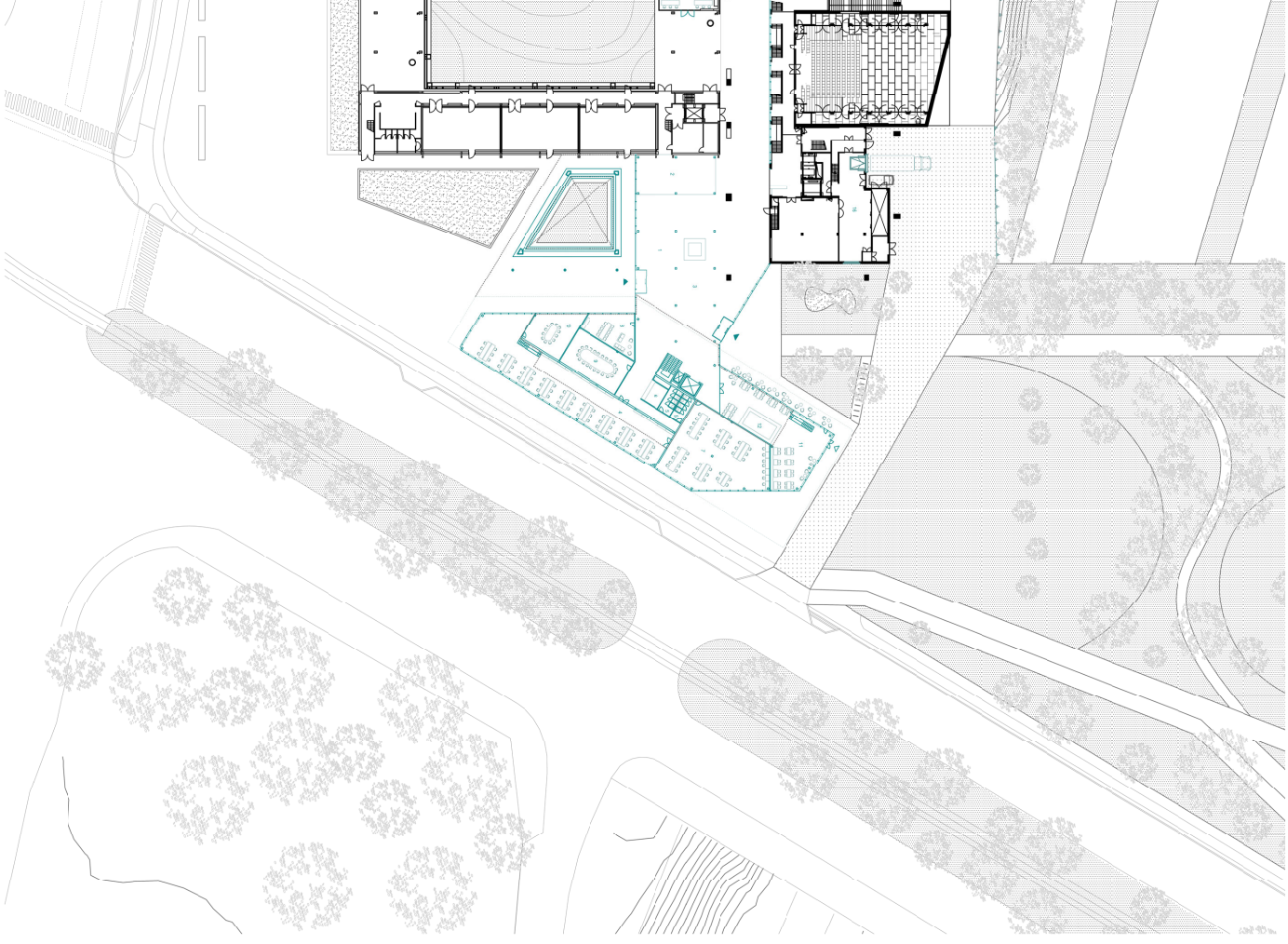
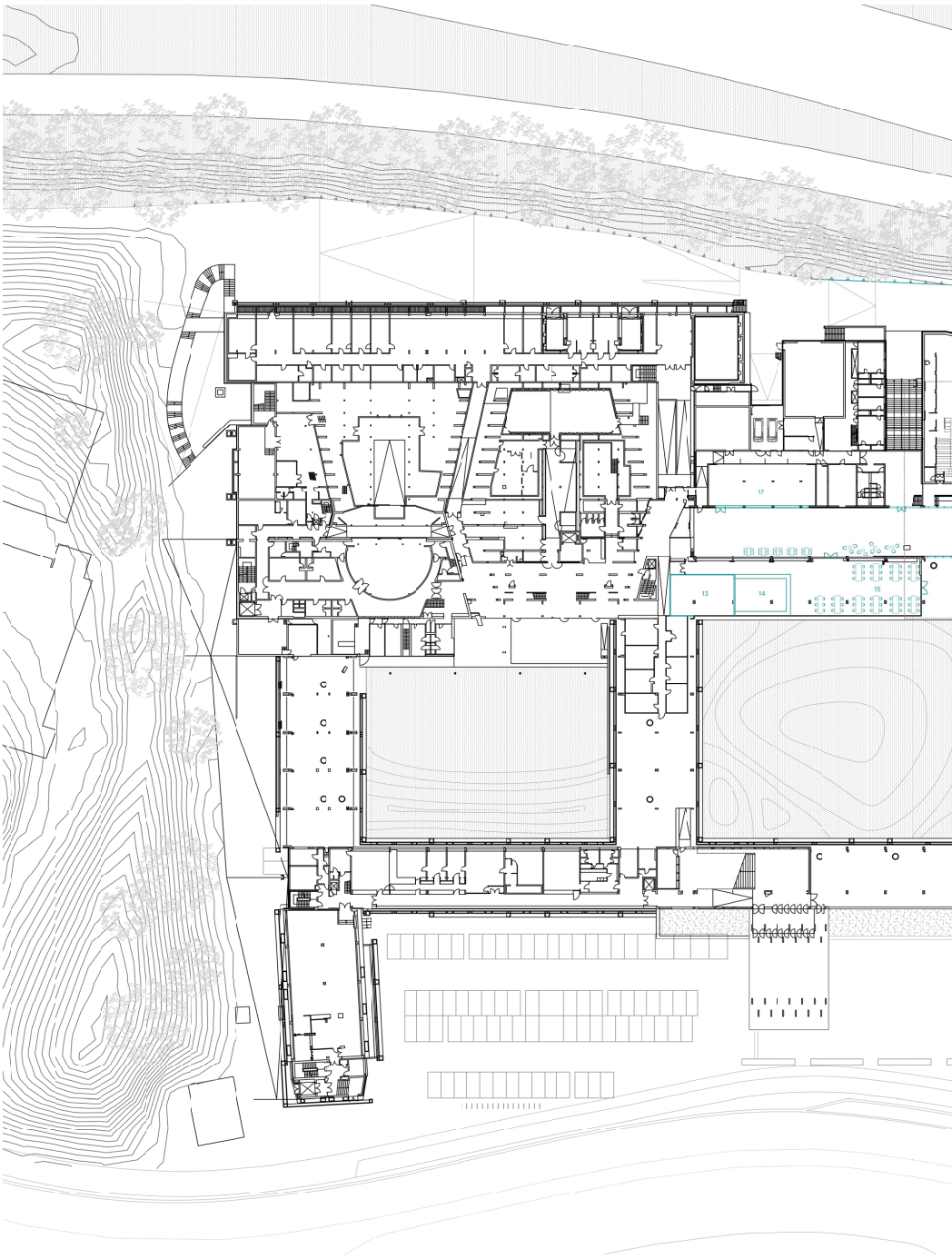


site plan August 2025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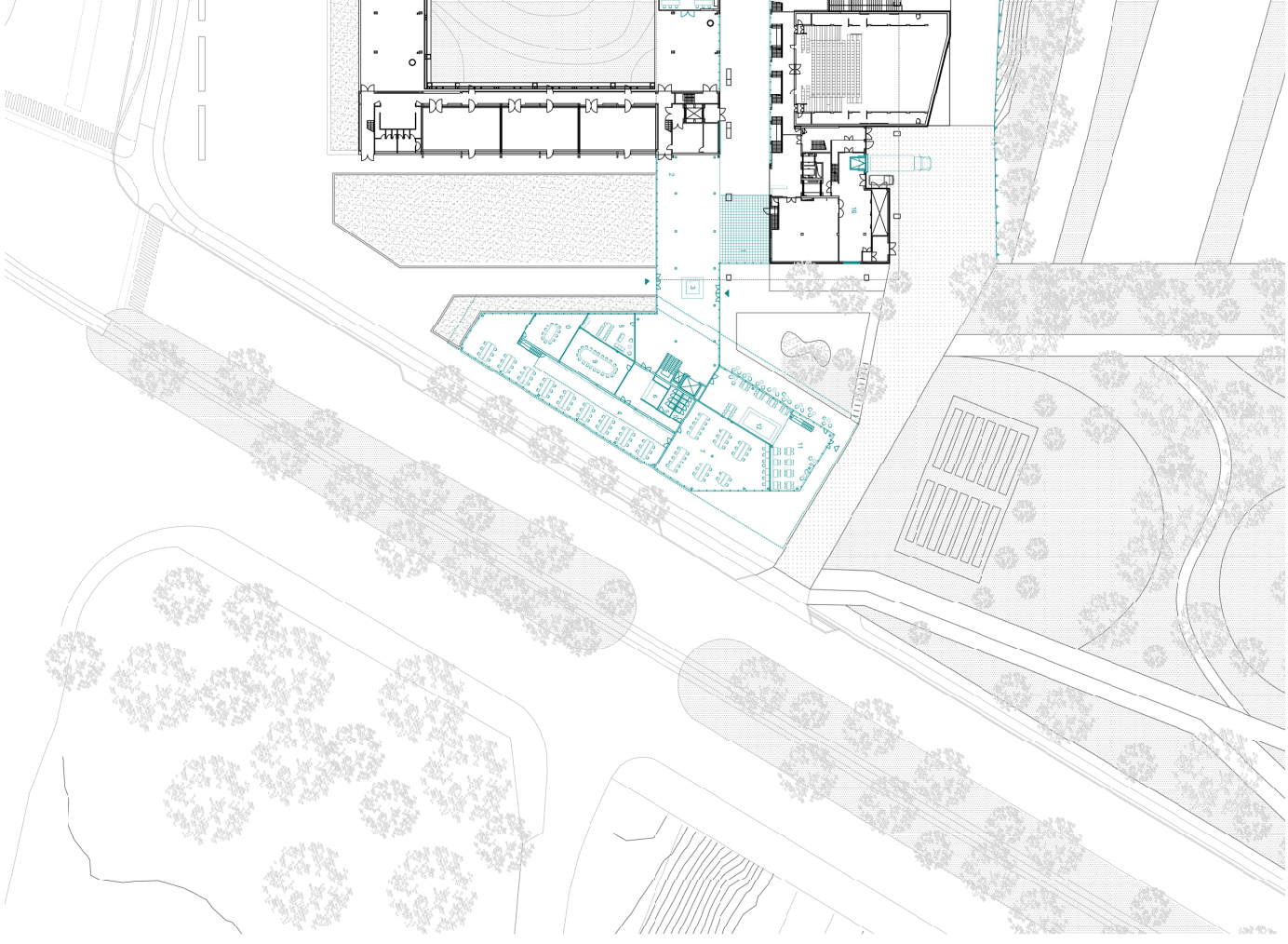
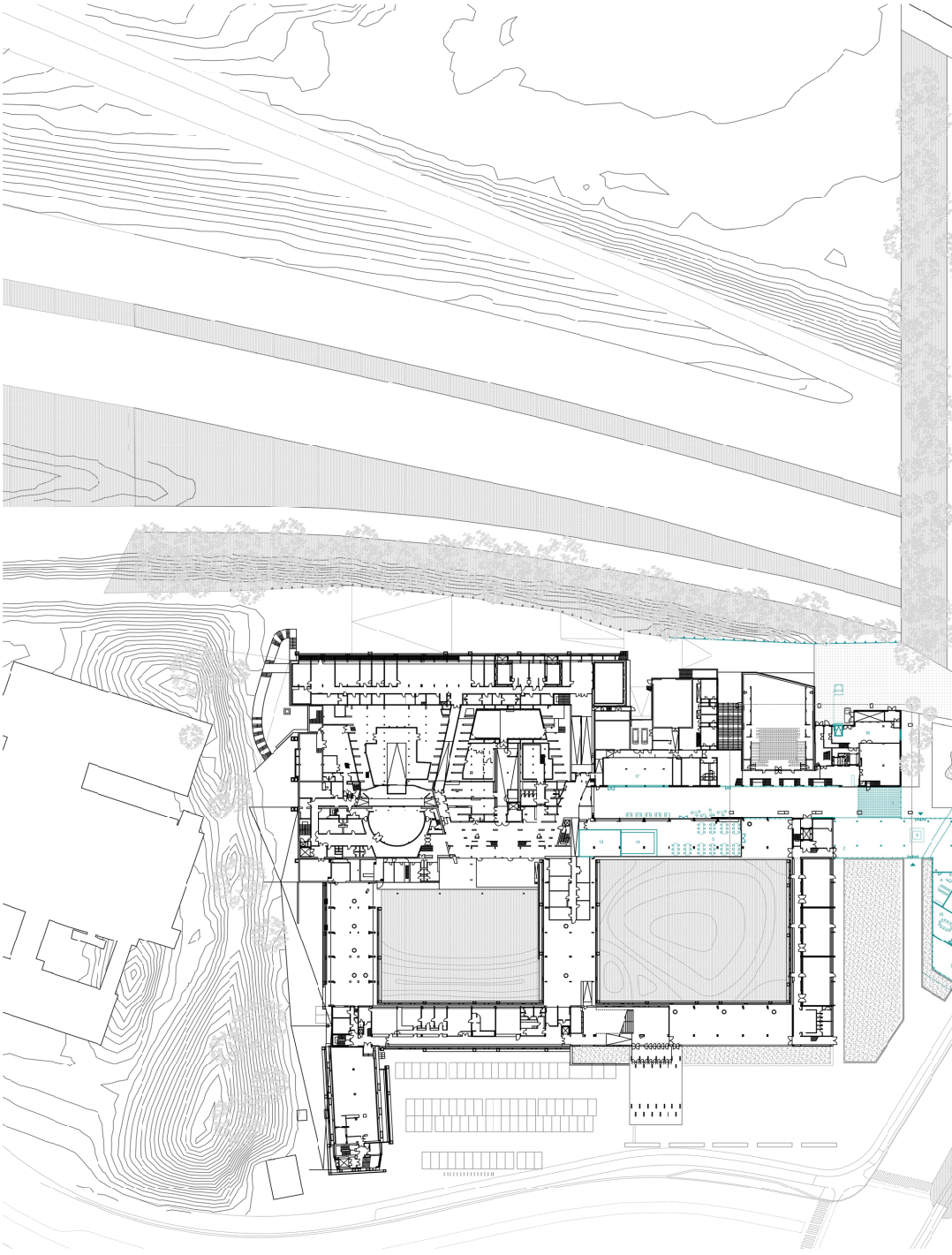


site plan September 2025

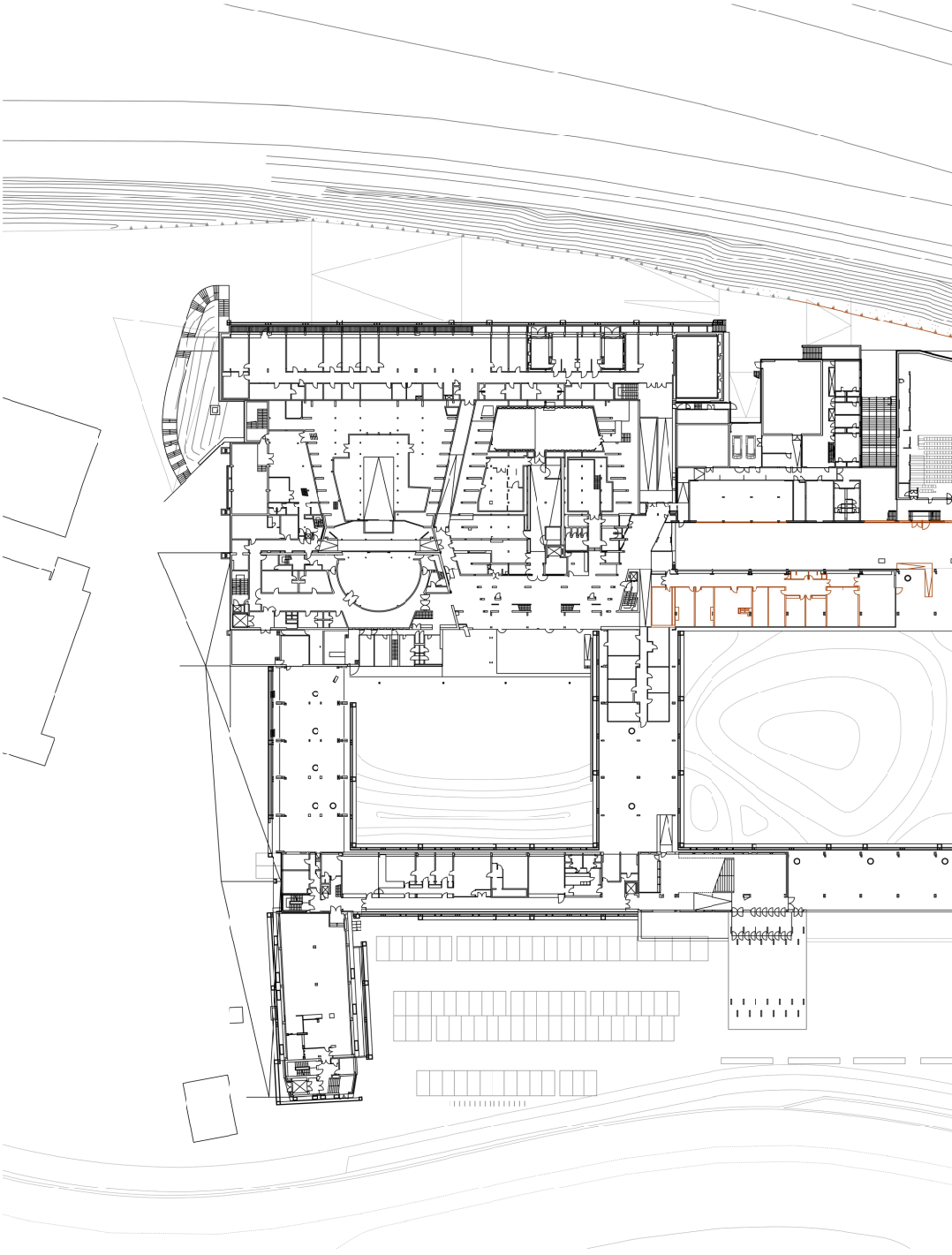


site plan ground

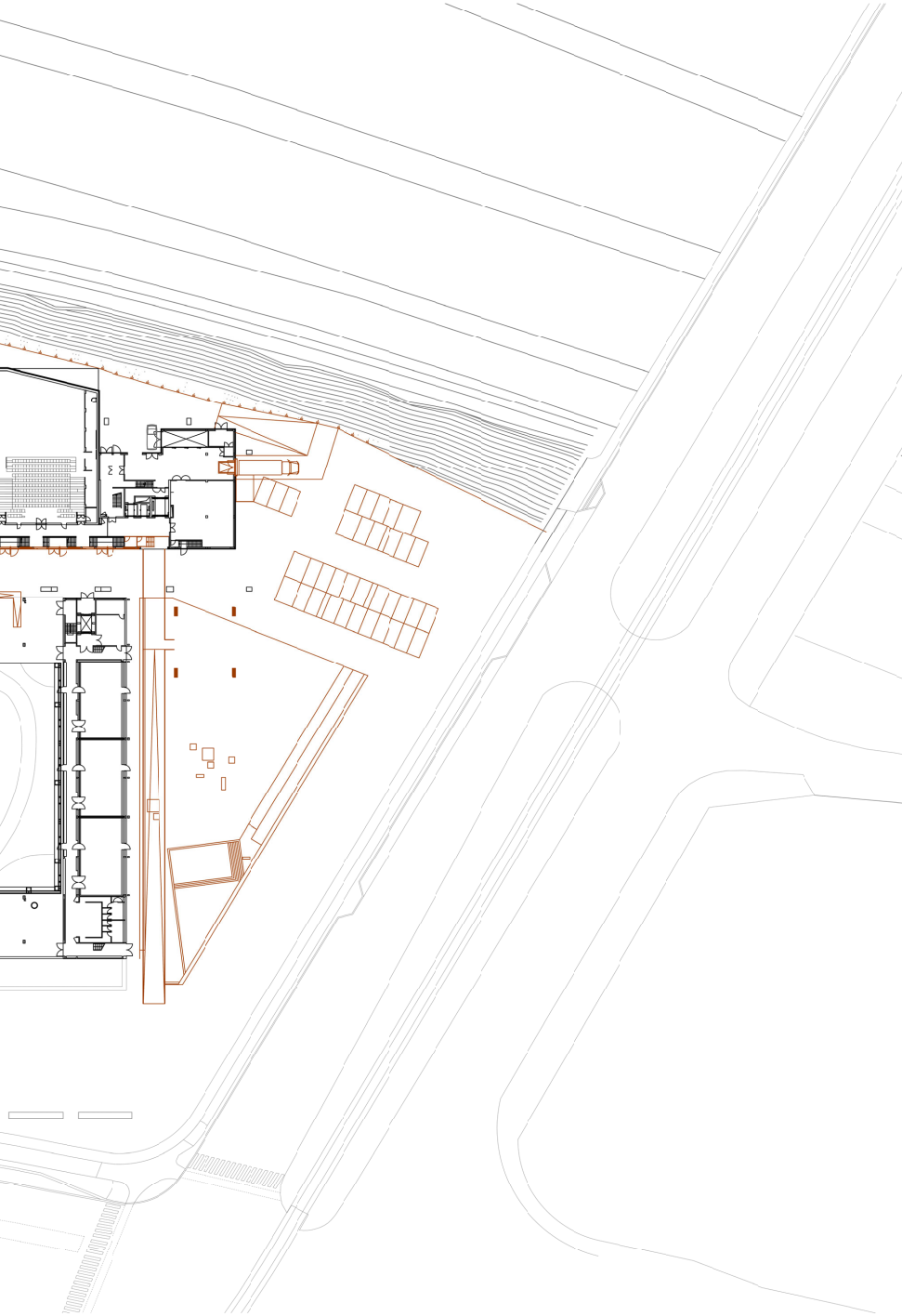
ound floor 1:1500

site plans for P4 September 2025

0 5 25 50



site plan ground floo



site plans for P4 September 2025

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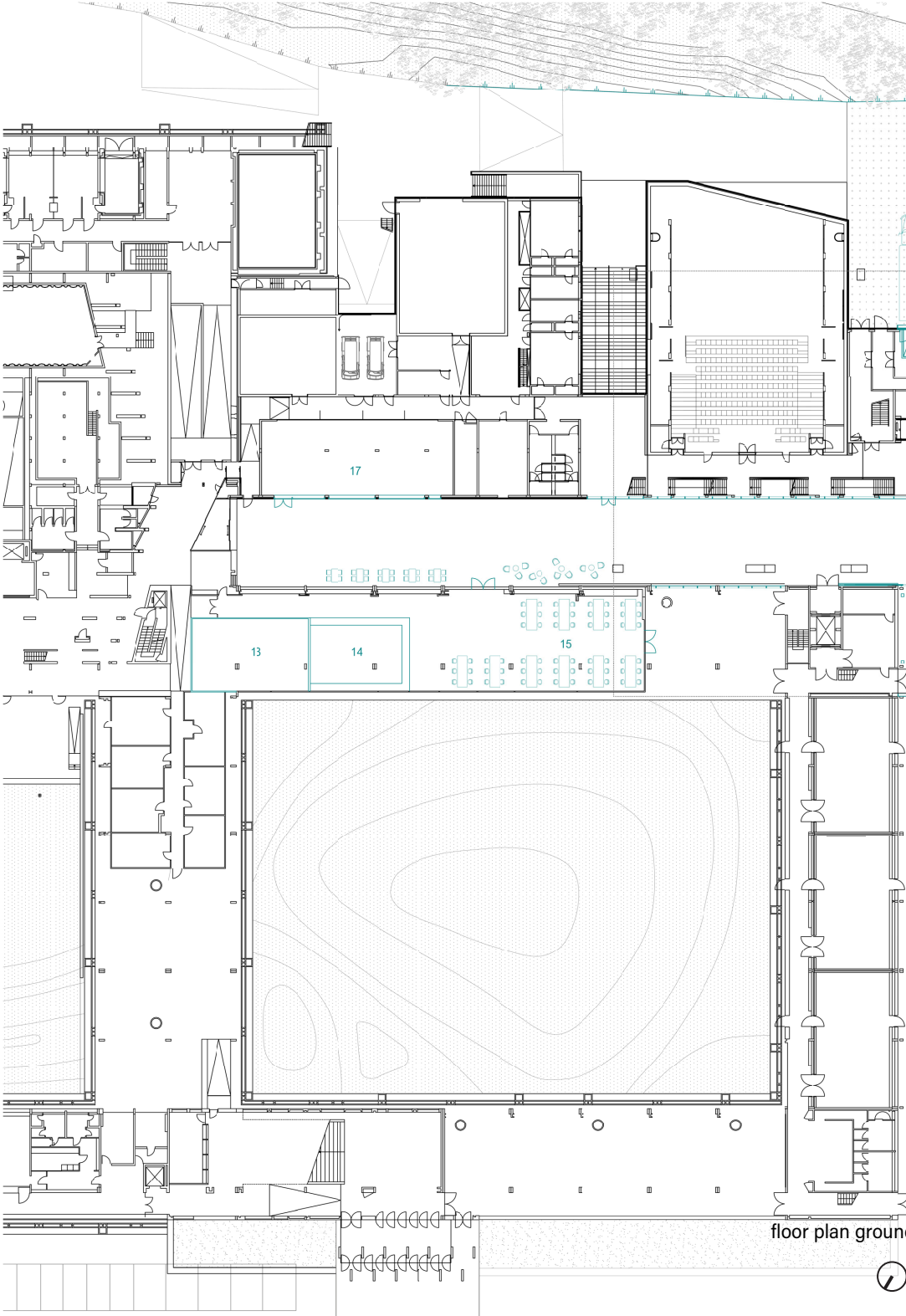
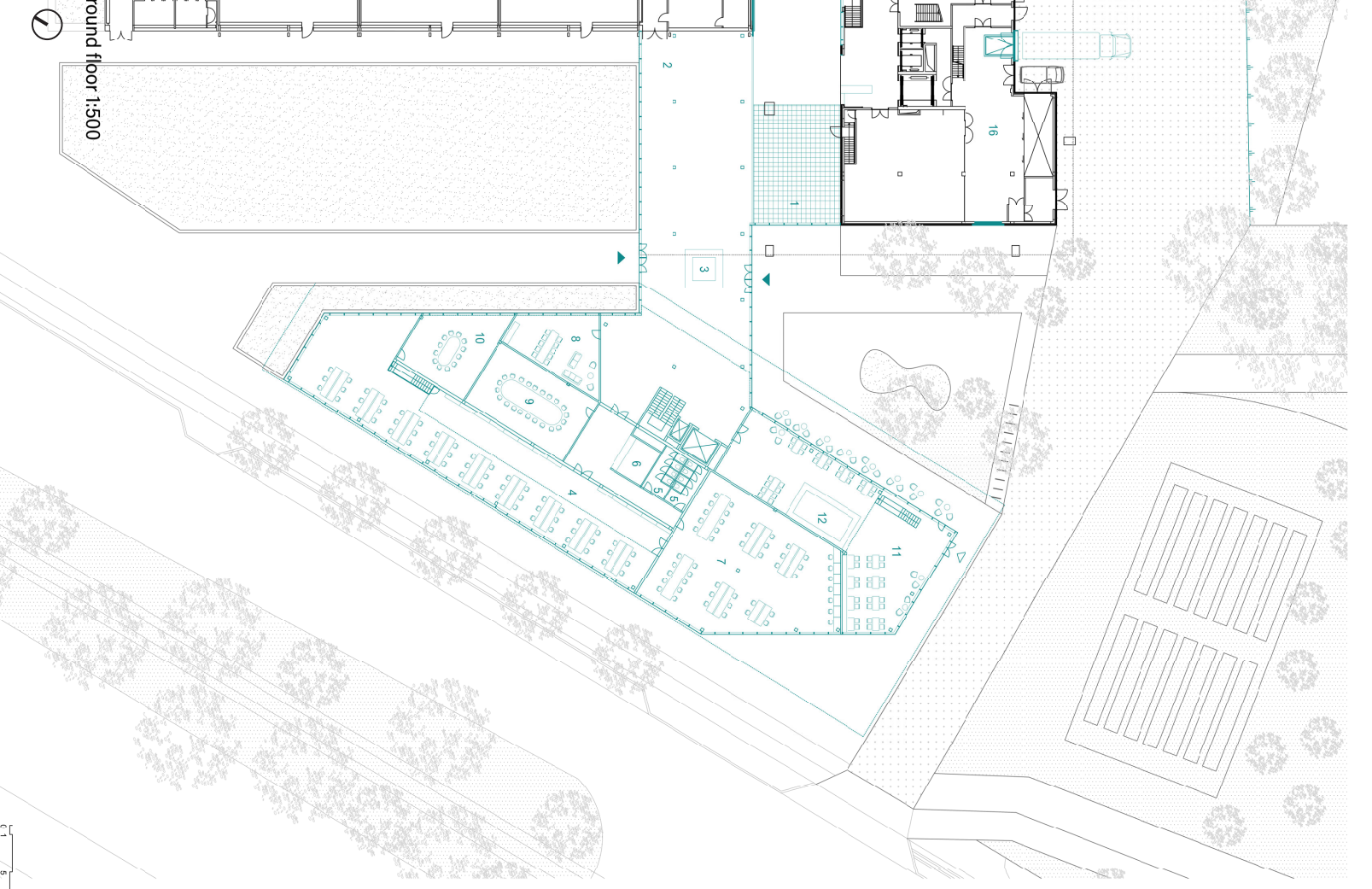
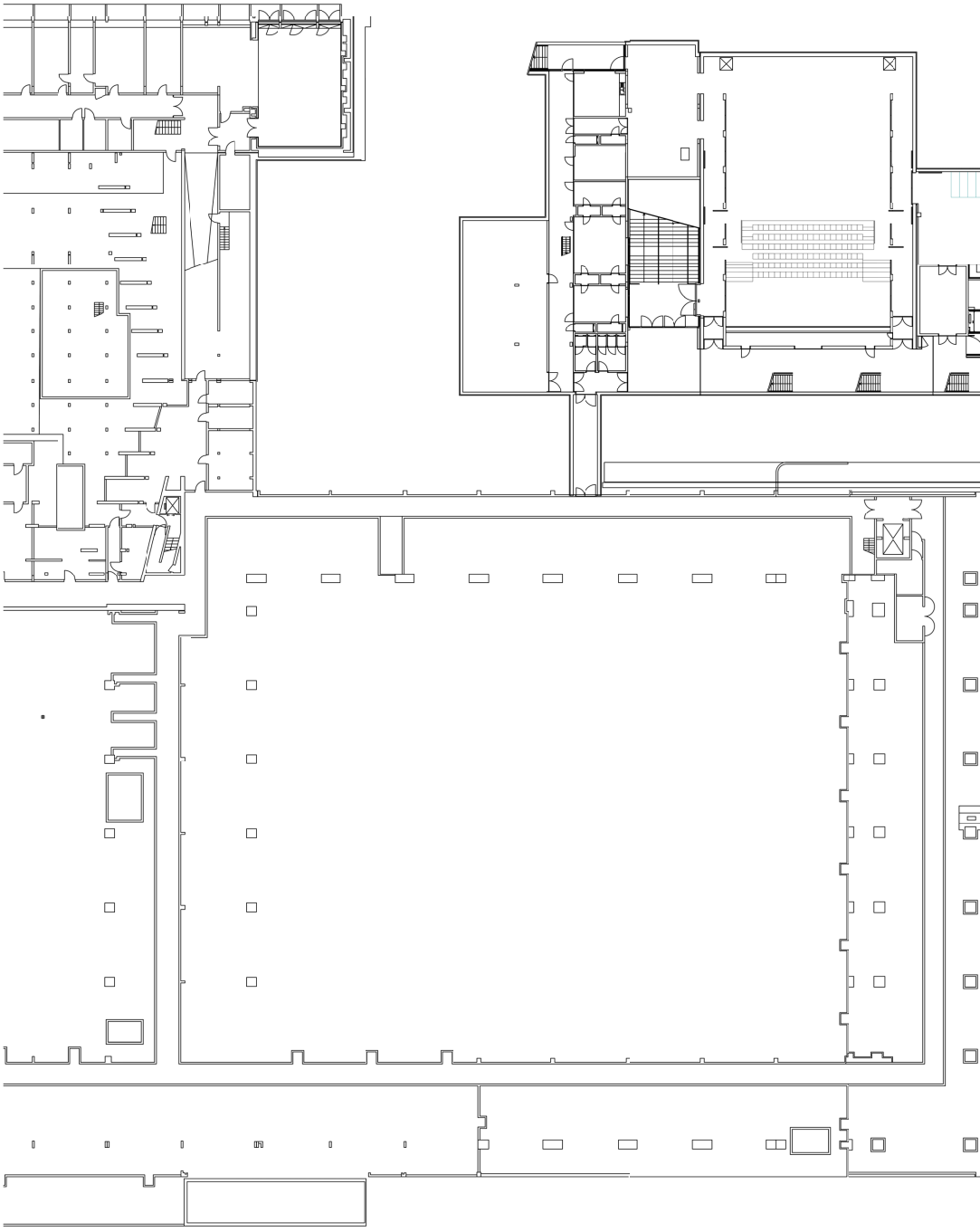
0 5 25 50



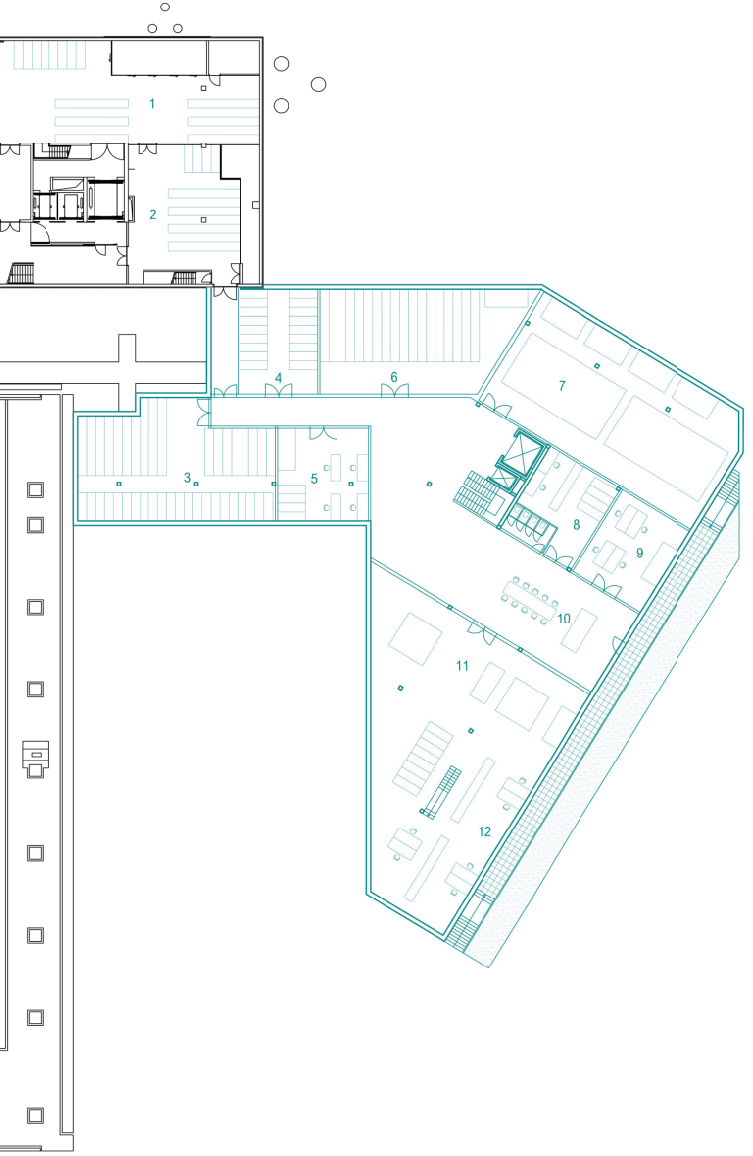
floor plan ground



site plans for P4 September 2025



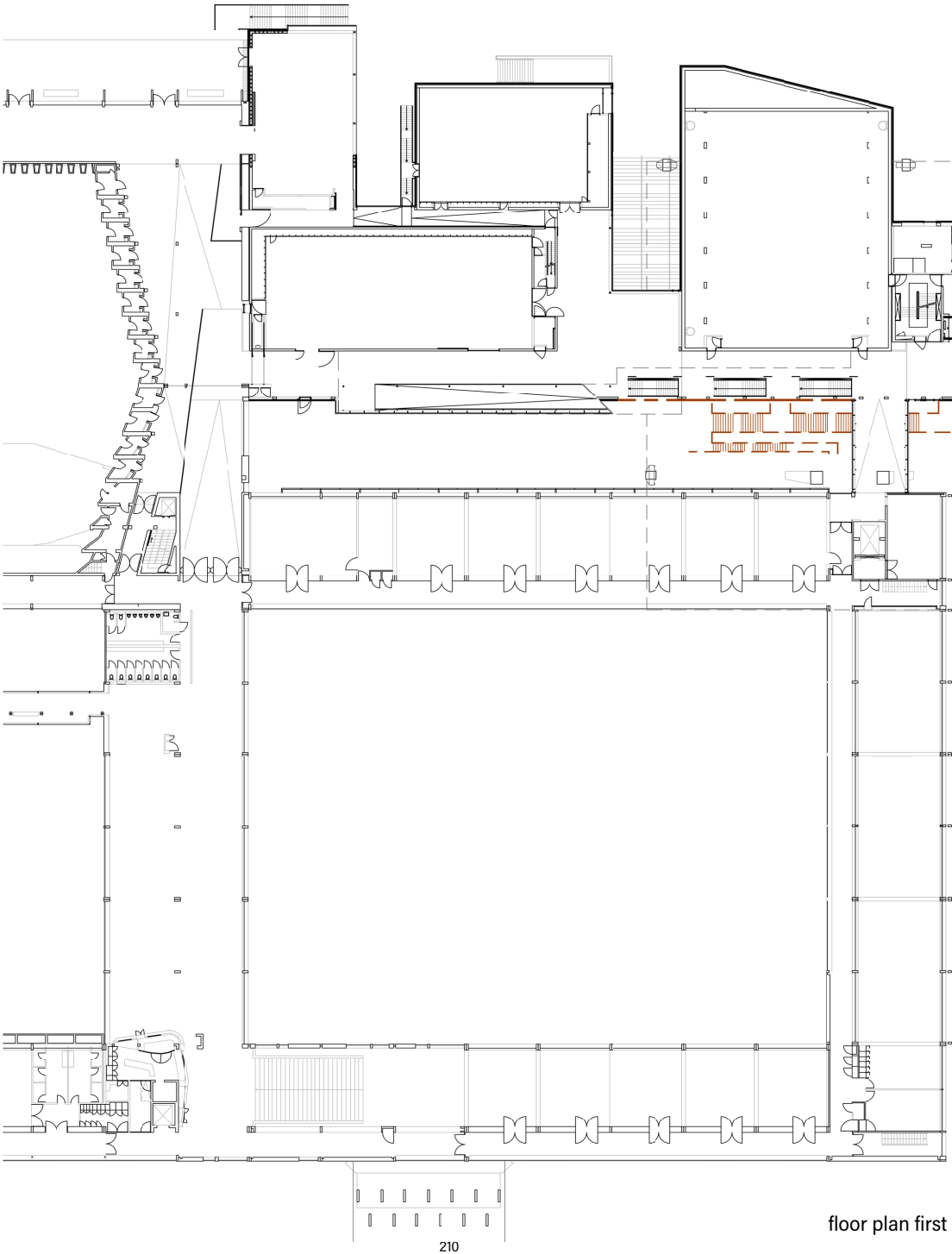
floor plan ground



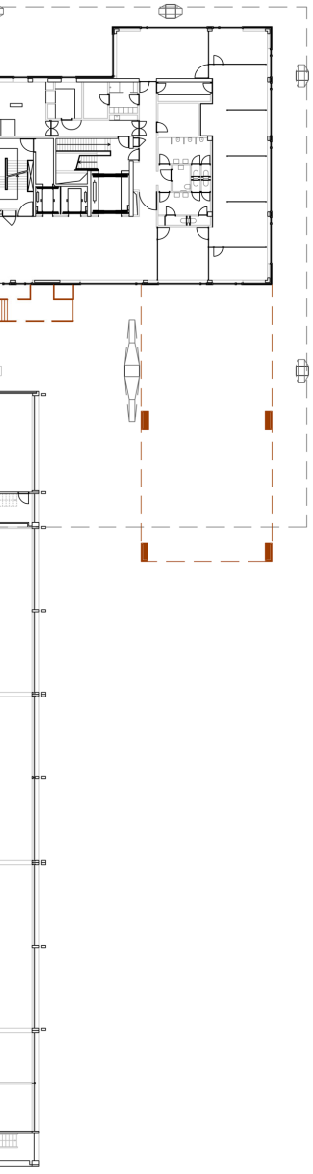
site plans for P4 September 2025

0 1 5 10

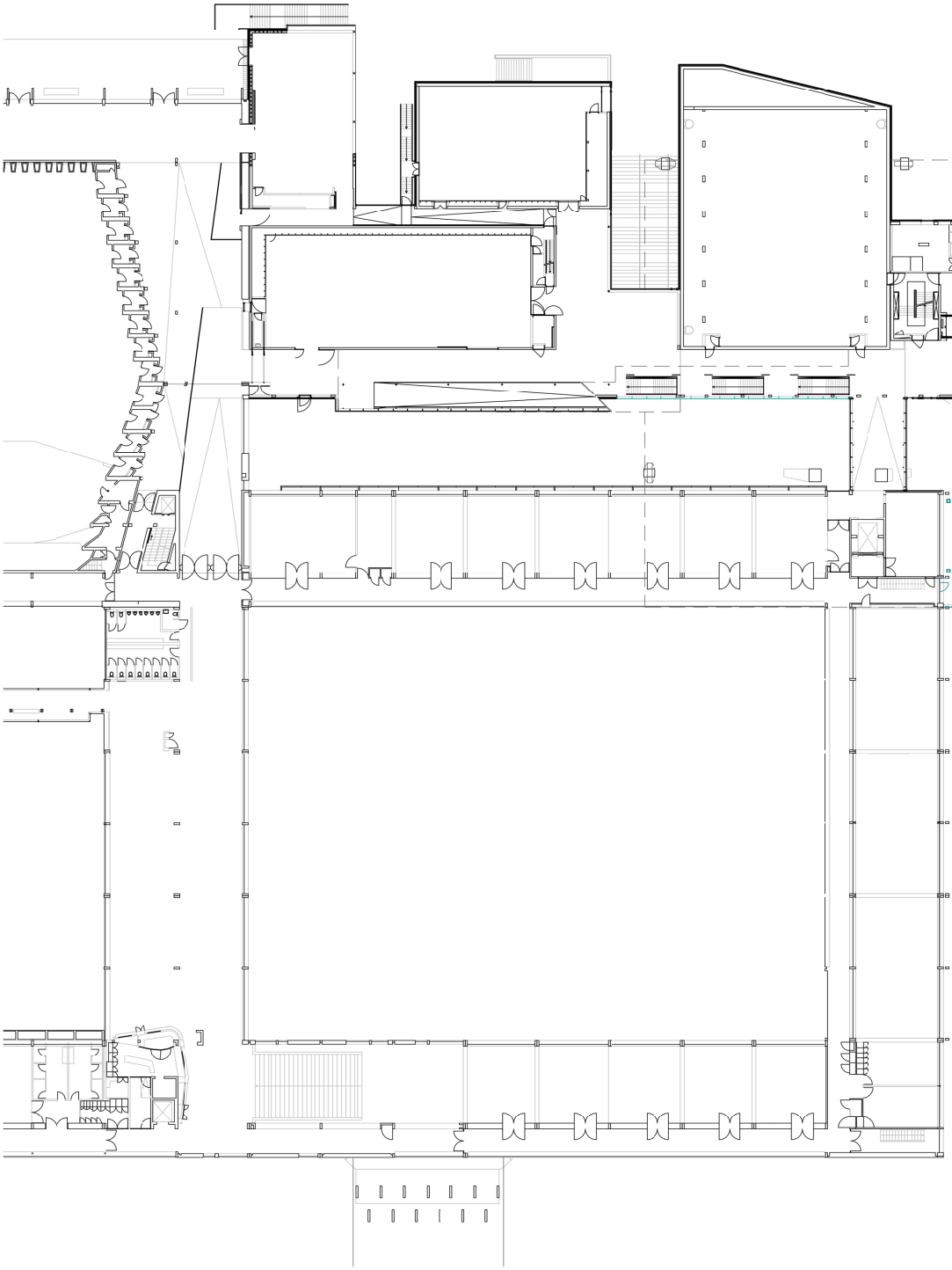
round floor 1:500



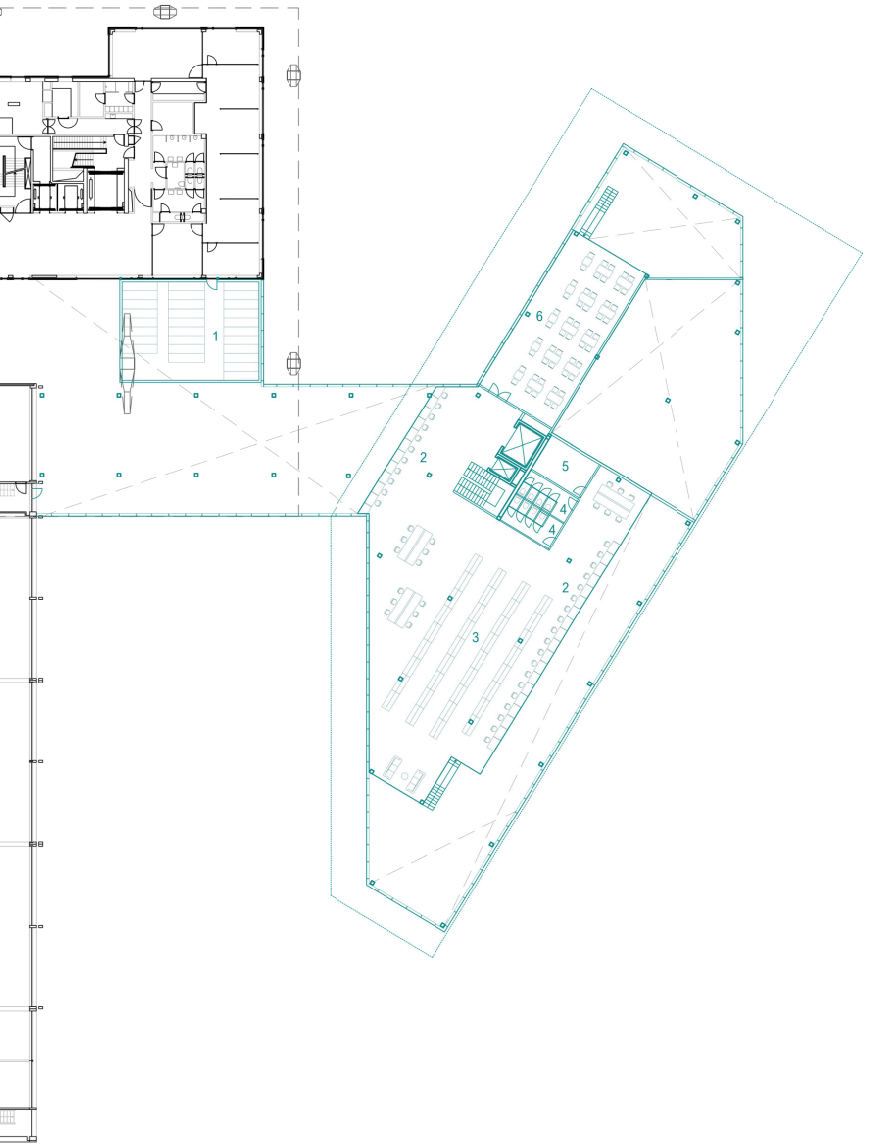
floor plan first



first floor 1:500



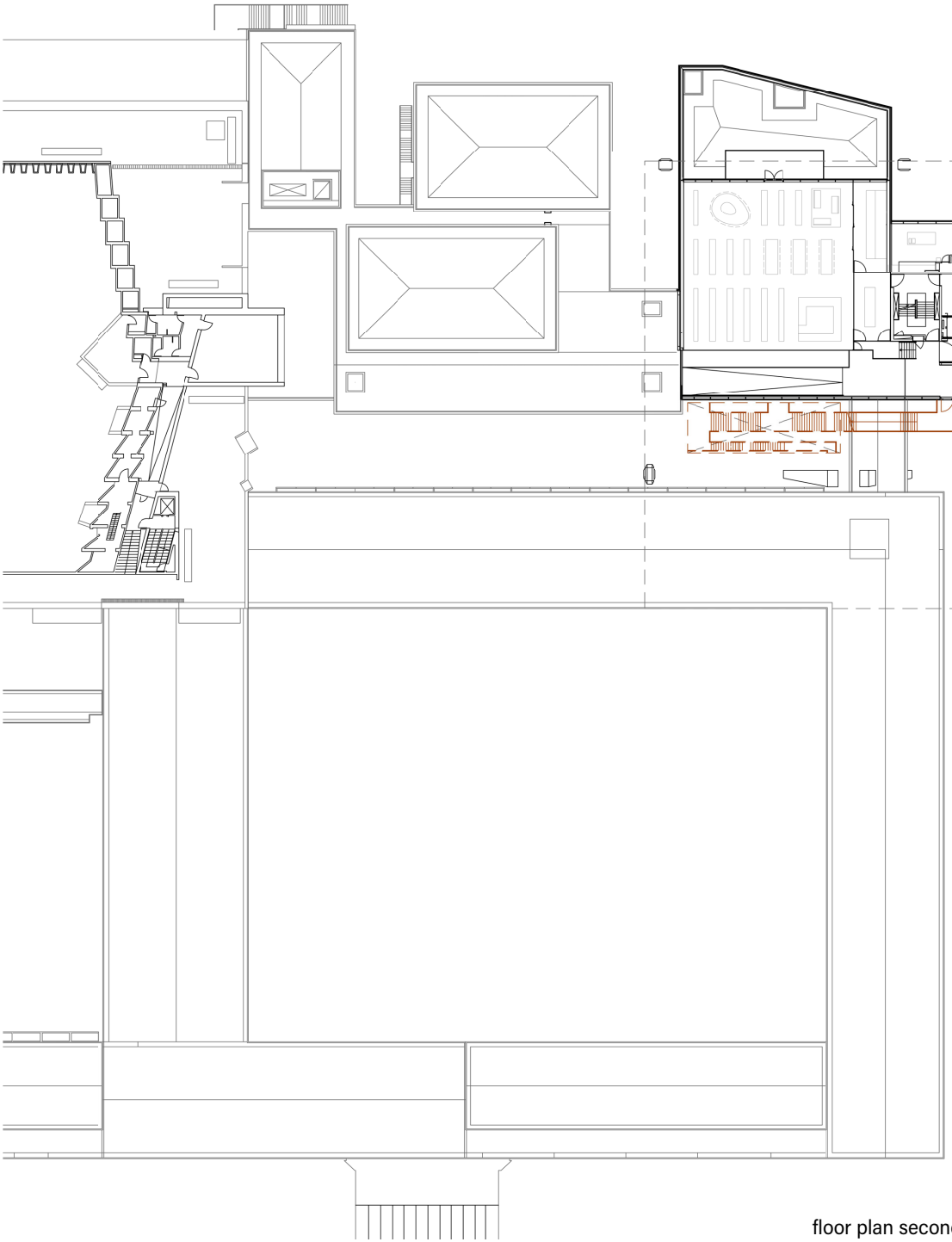
floor plan first



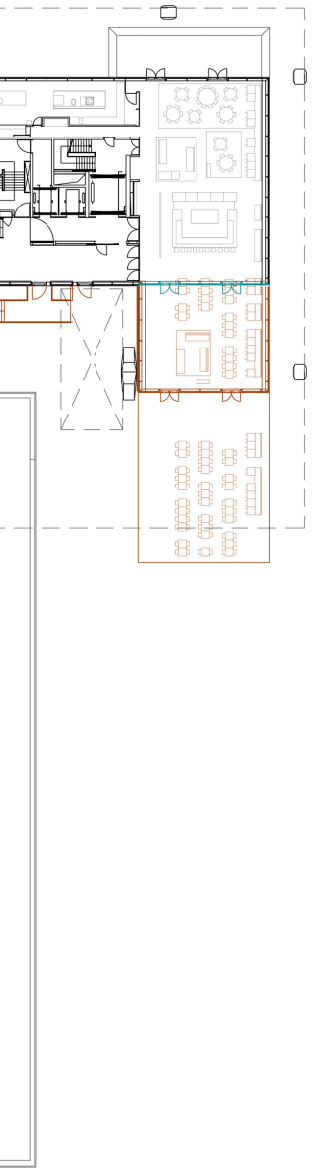
site plans for P4 September 2025

1 5 10

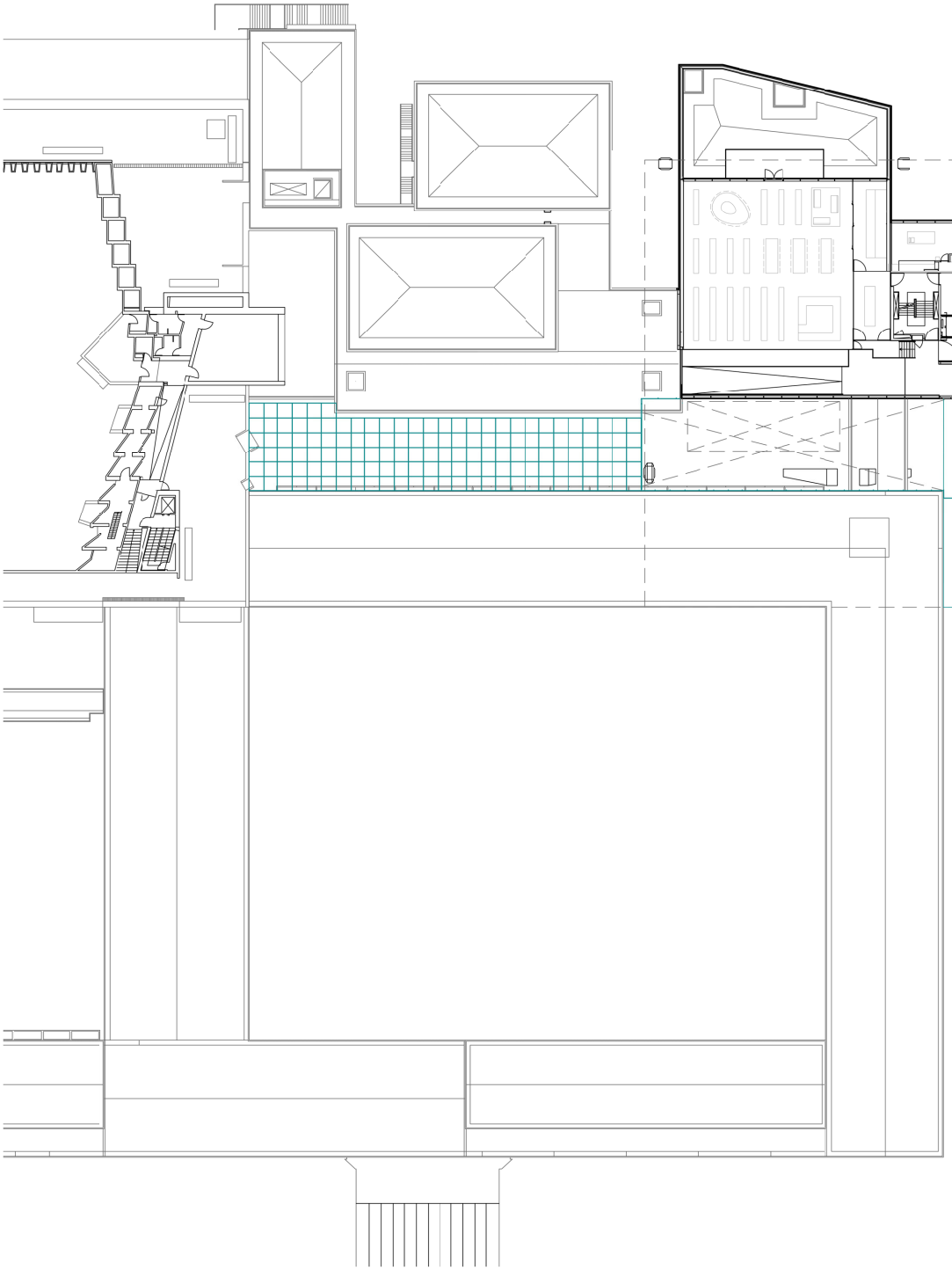
first floor 1:500



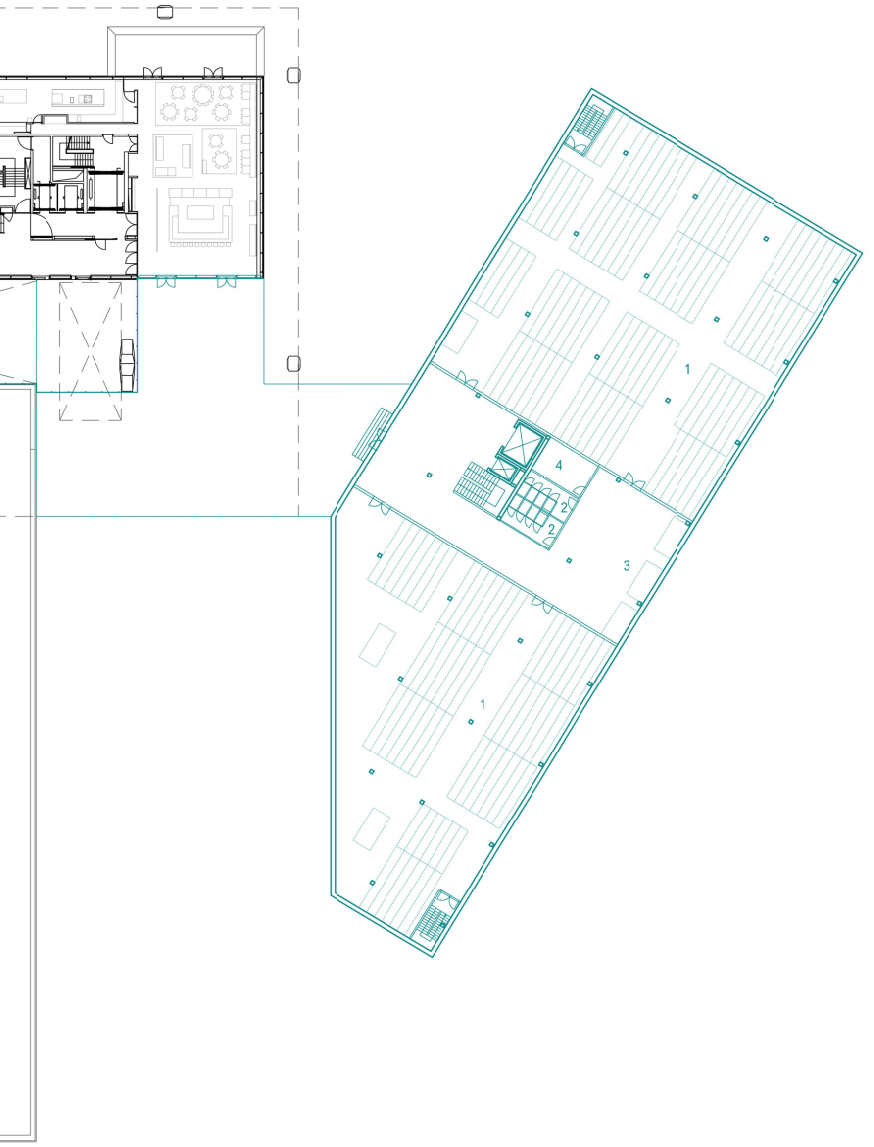
floor plan secon



econd floor 1:500



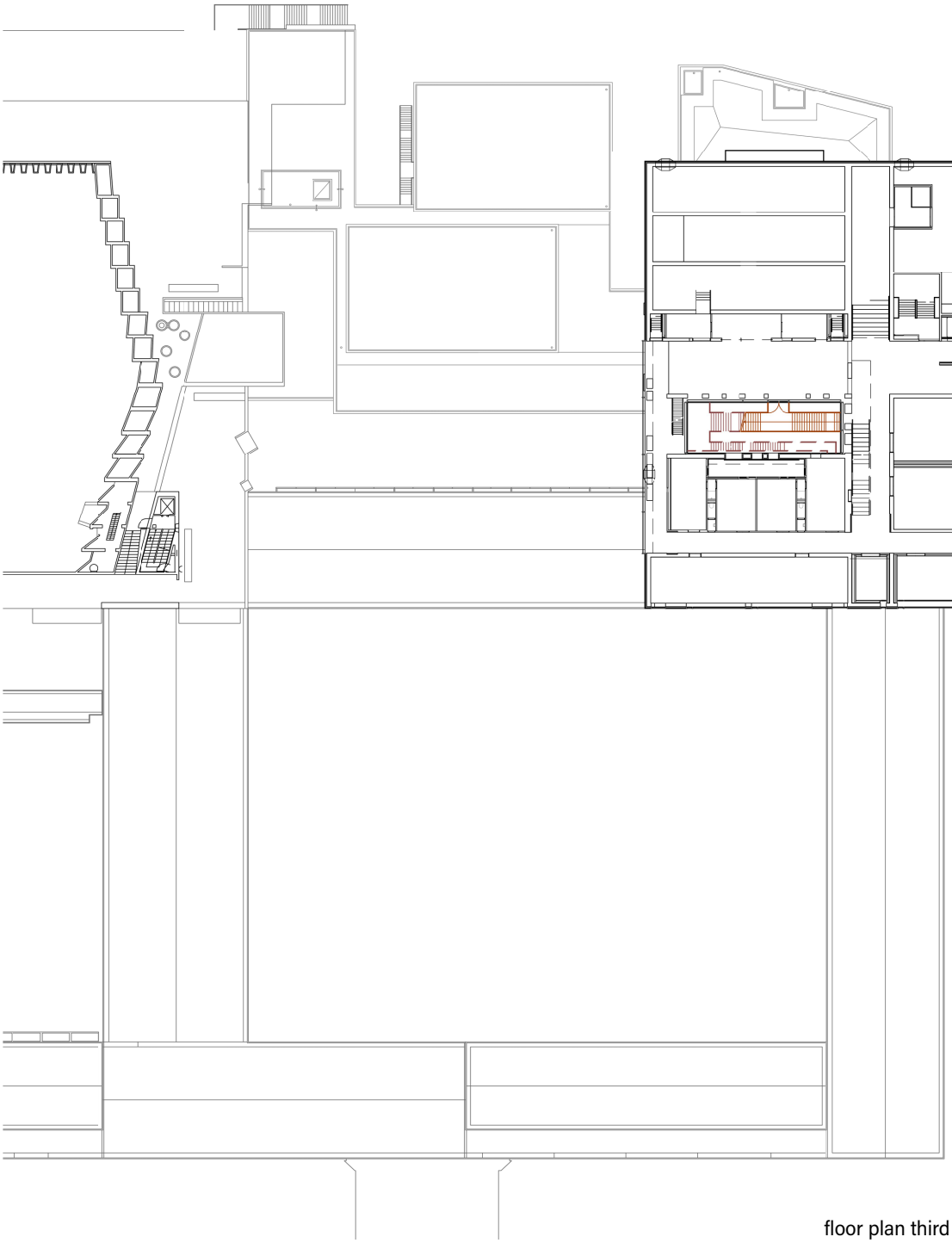
floor plan secon



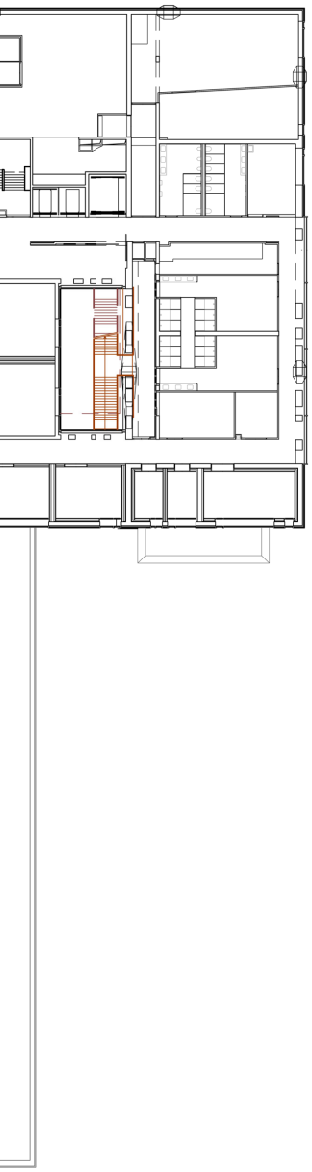
site plans for P4 September 2025

0 1 5 10

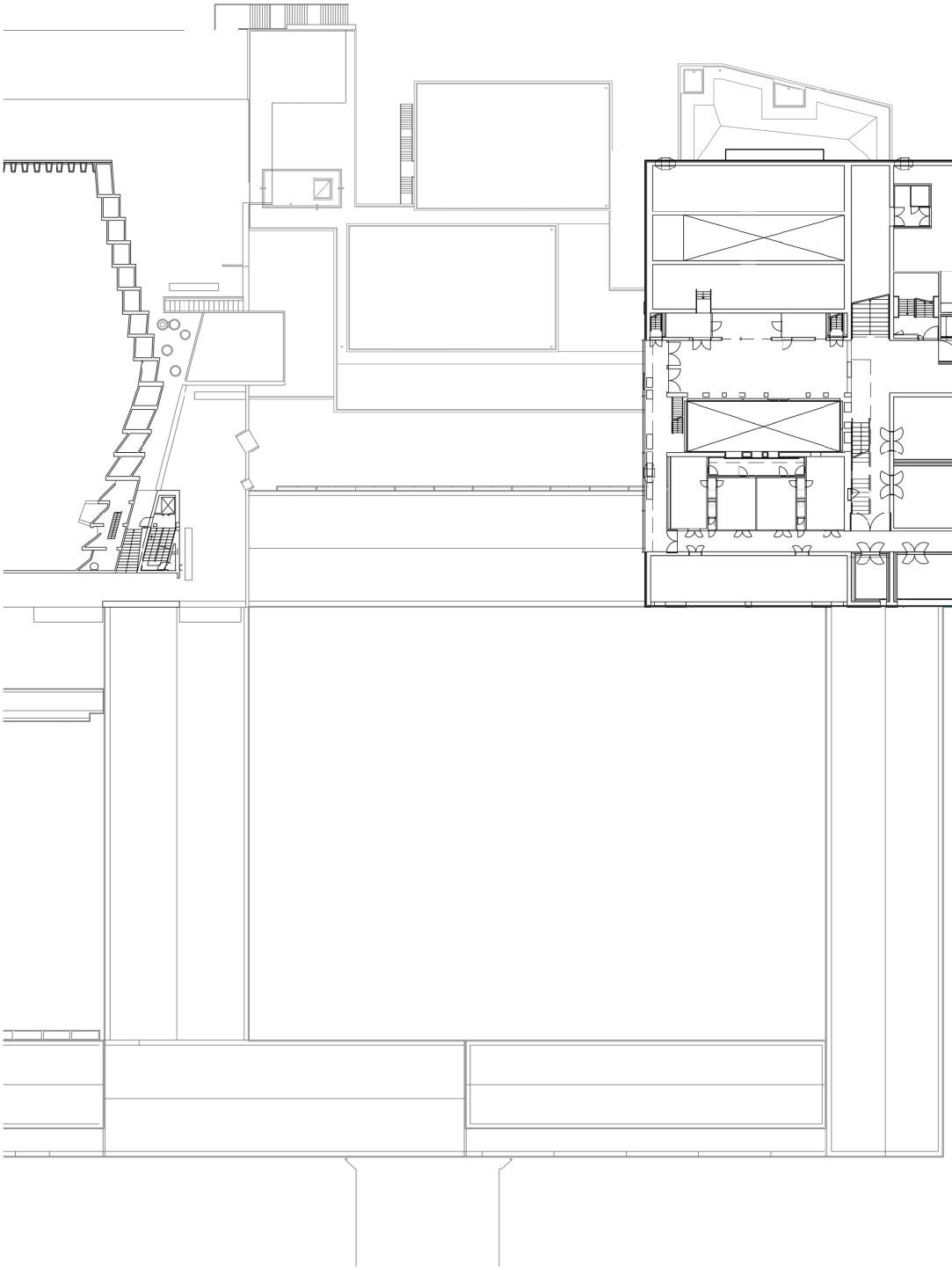
econd floor 1:500



floor plan third



third floor 1:500

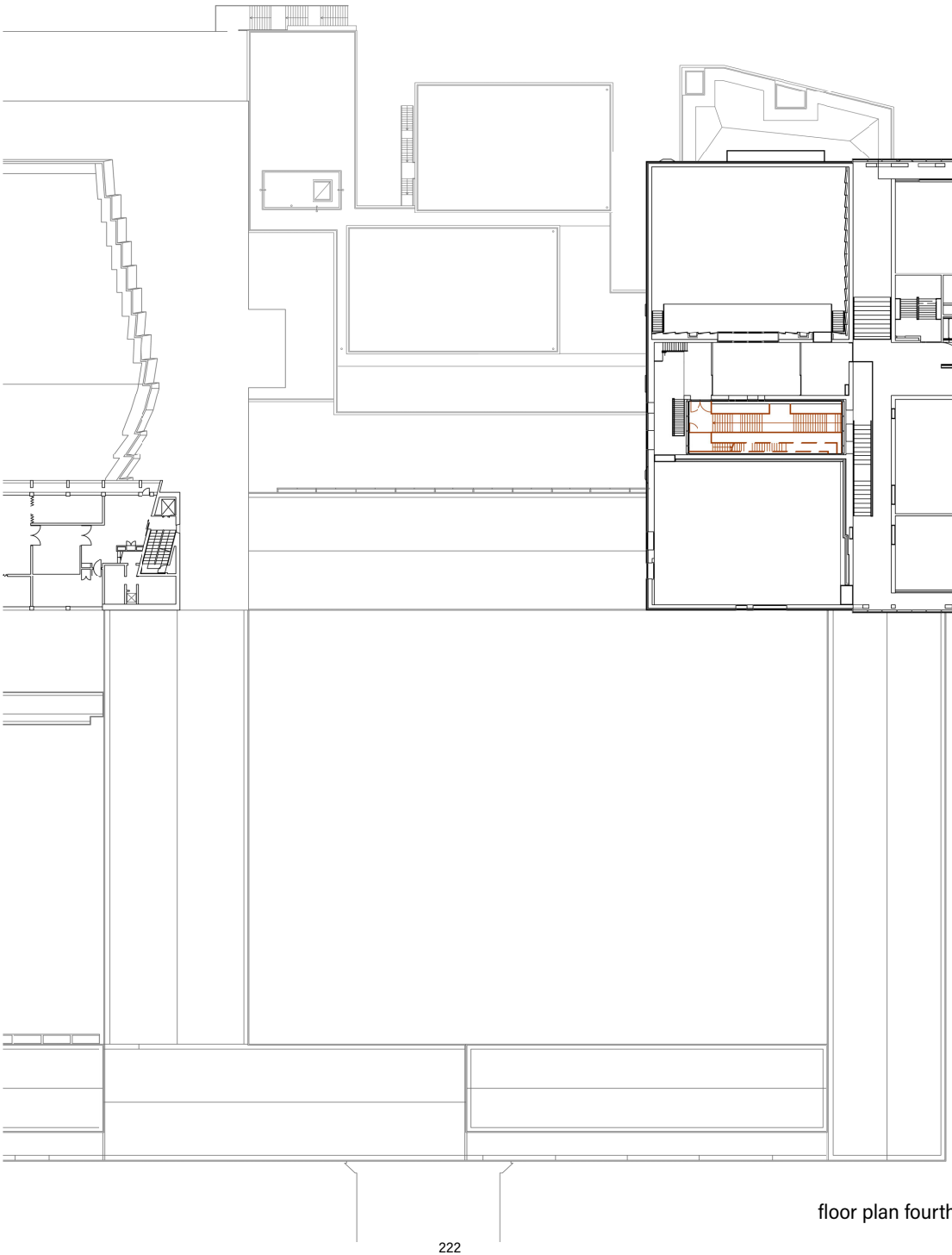


floor plan third

site plans for P4 September 2025

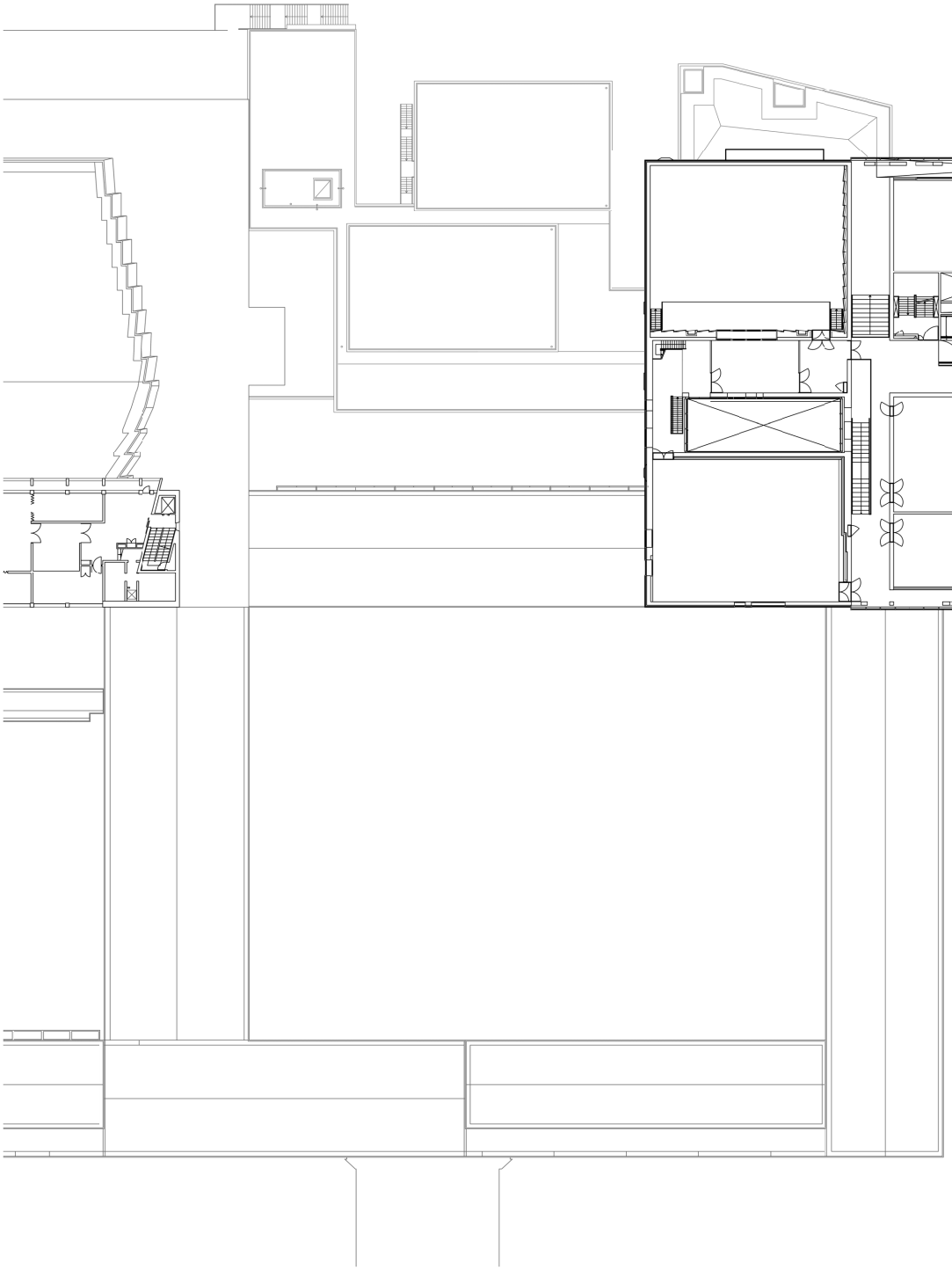
0 1 5 10

third floor 1:500



floor plan fourth

ourth floor 1:500

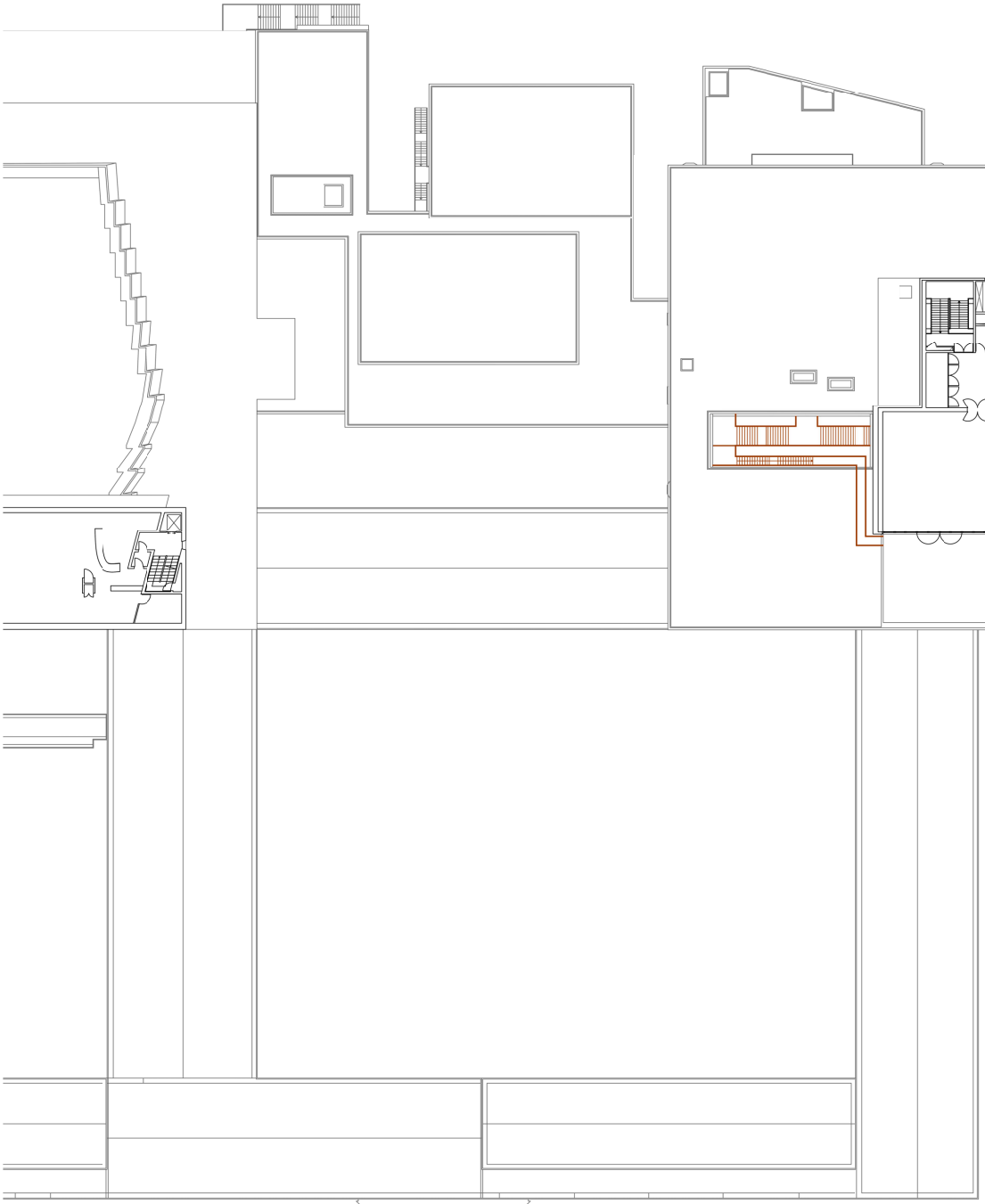


floor plan fourth

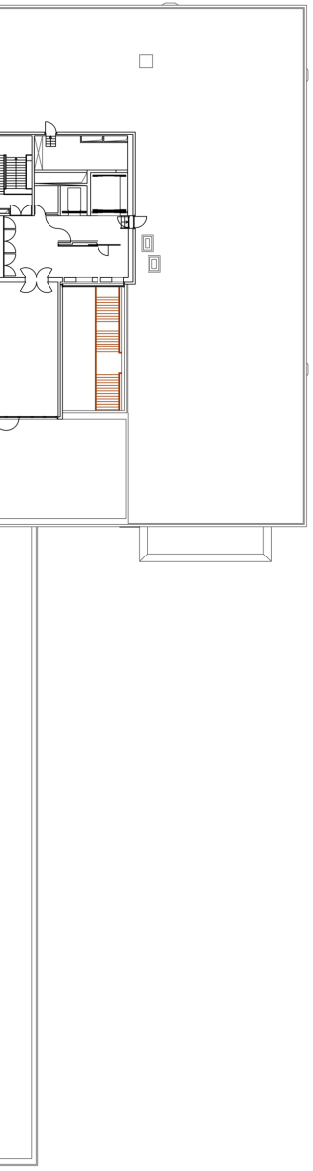
site plans for P4 September 2025

0 1 5 10

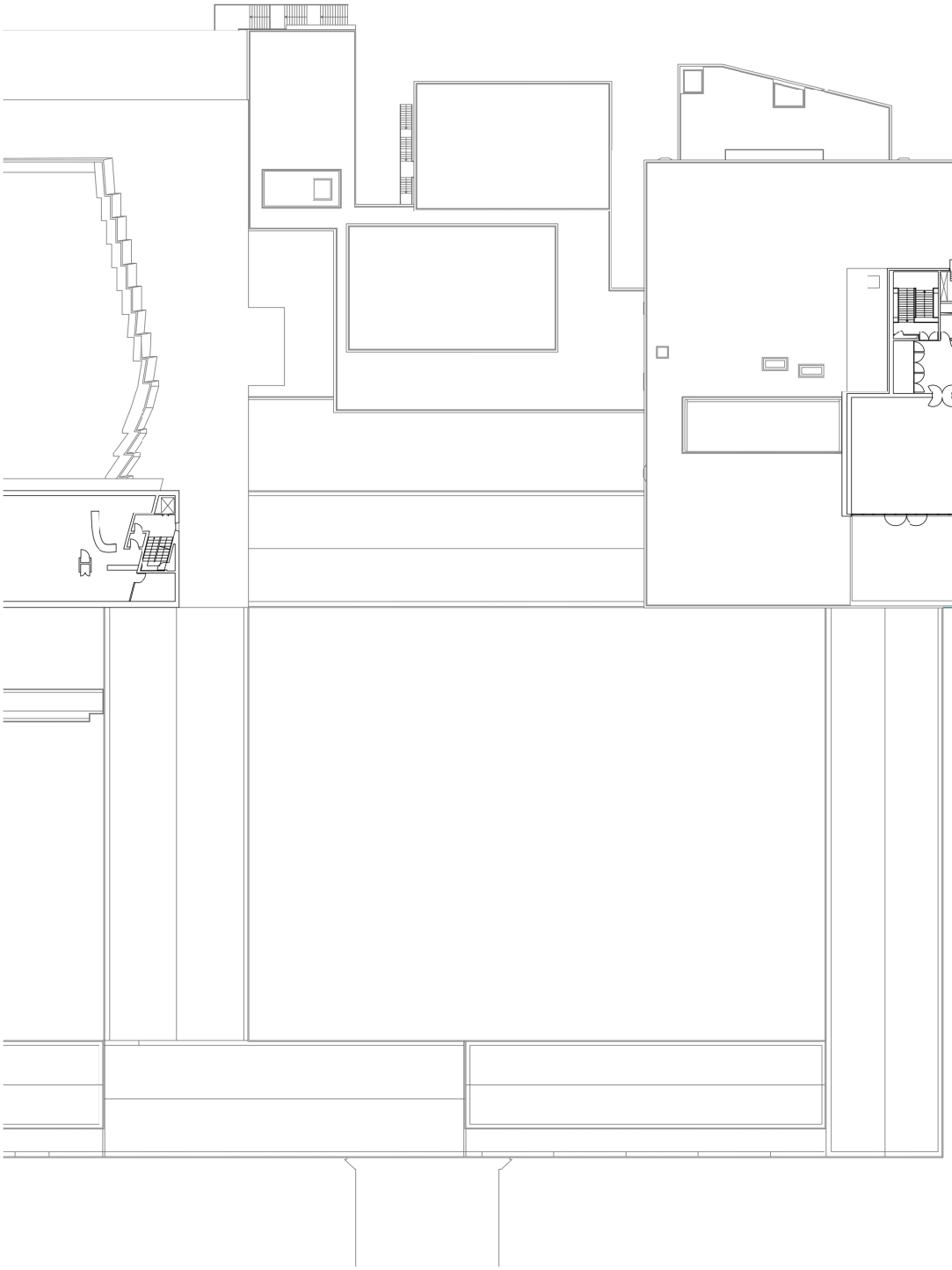
ourth floor 1:500



roof plan fifth f



fifth floor 1:500

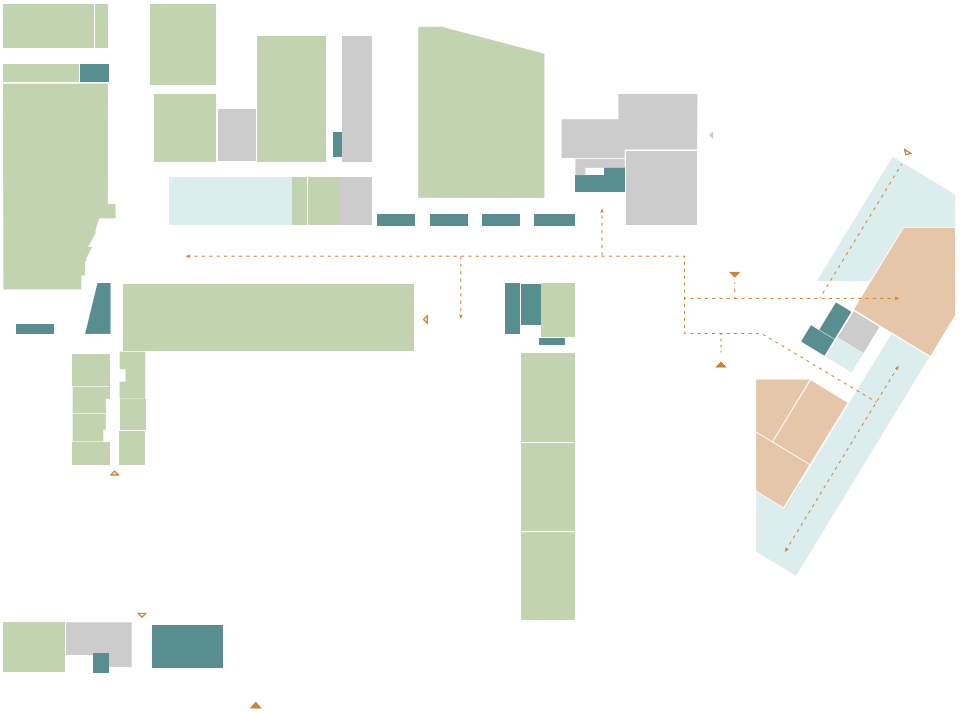


roof plan fifth f

site plans for P4 September 2025

0 1 5 10

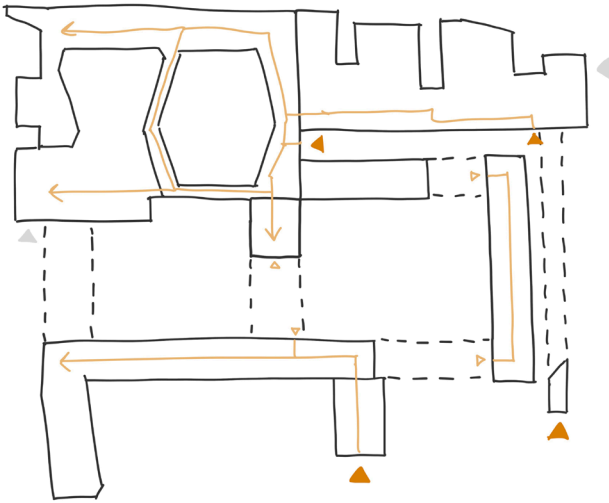
fifth floor 1:500

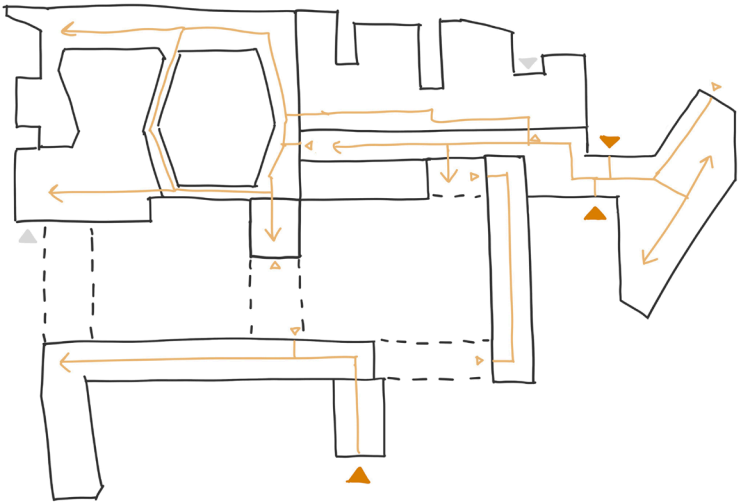


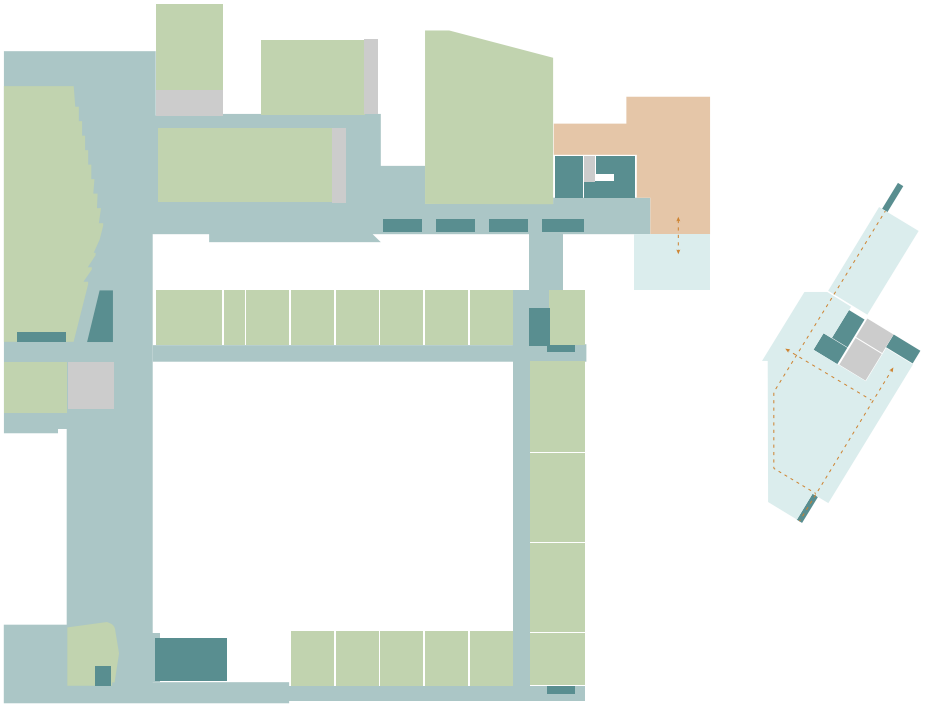
ground floor

- public vai spaces
- private vai spaces
- circulation
- vertical circulation
- other de Singel
- services and logistics

- main entrance
- secondary entrance
- logistics entrance

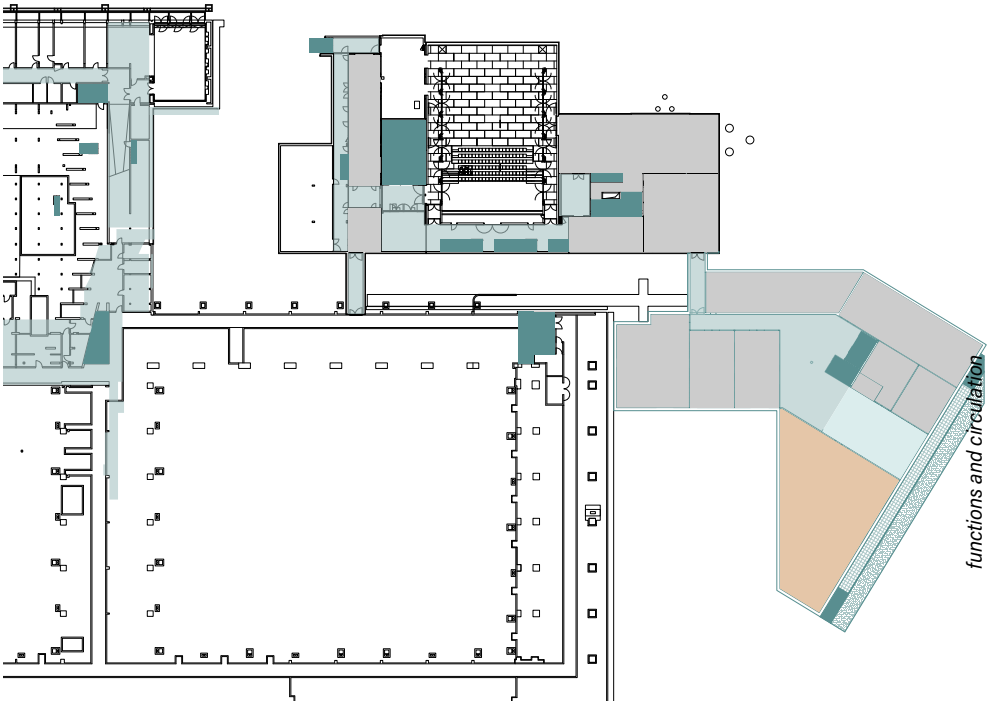




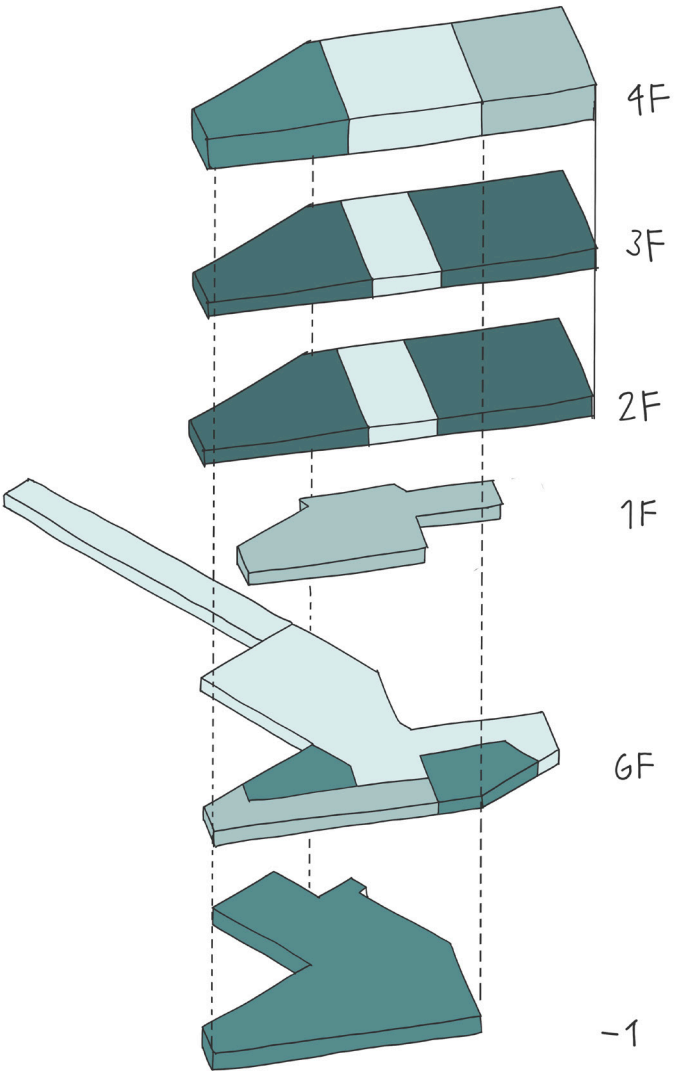


first floor

public vai spaces
private vai spaces
circulation
vertical circulation
other de Singel
services and logistics



basement



public - circulation and spaces

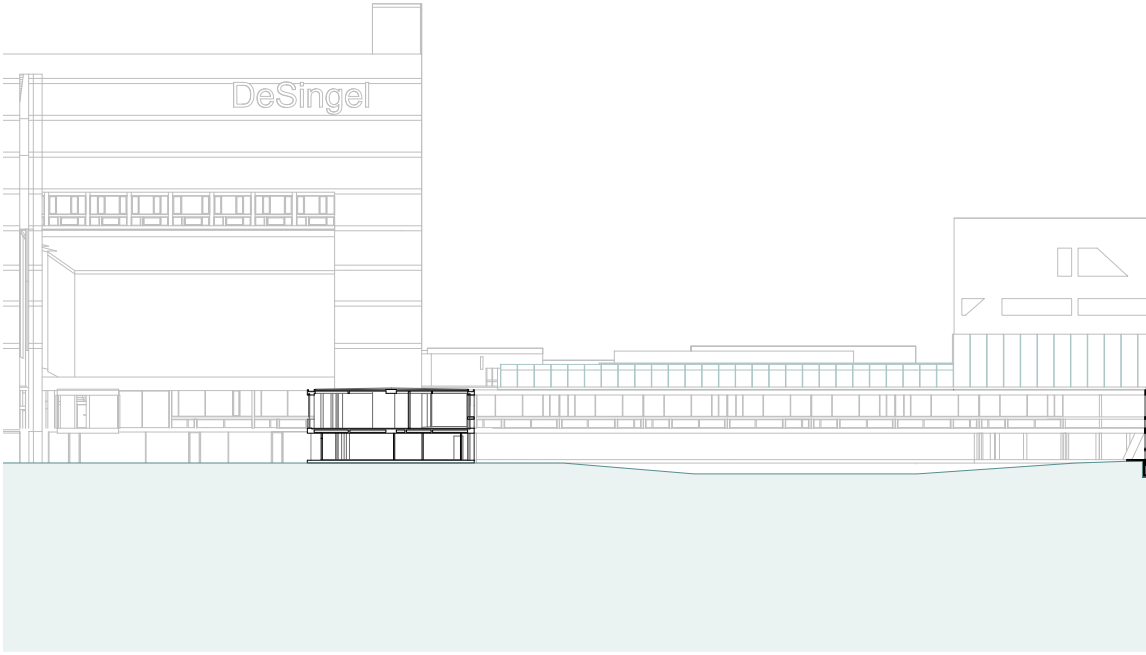
public - workspace, reading room

private - vai office, workspace, processing

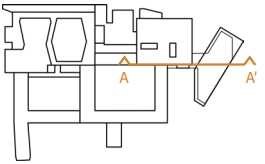
private - depot

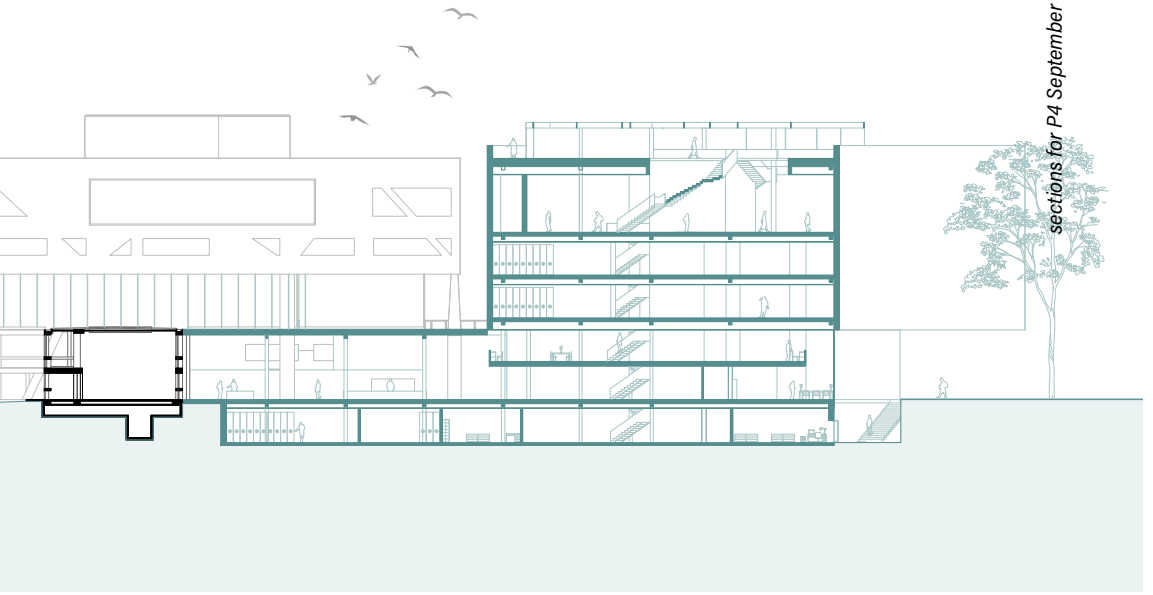
The development of the floor plans shows a fundamental shift in how i understood the VAi building's programmatic organization. In the beginning, i had been thinking horizontally, spreading the functions across a large space to accommodate everything at once, with the public functiions all clustered together on the ground floor. I started to rehtink this concept and understood that it is not necessary to keep this so literal. I programmed the circulation vertically, with a clear hierarchy from public to private as you ascend, but ending back to public. By spreading these public functions, you create a route for the visitors and create engagement throughout the entire building, instead of localizing the activity on one floor. This is also the reason why the core circulation of the building is placed in the center, and stays public.

SECTIONS

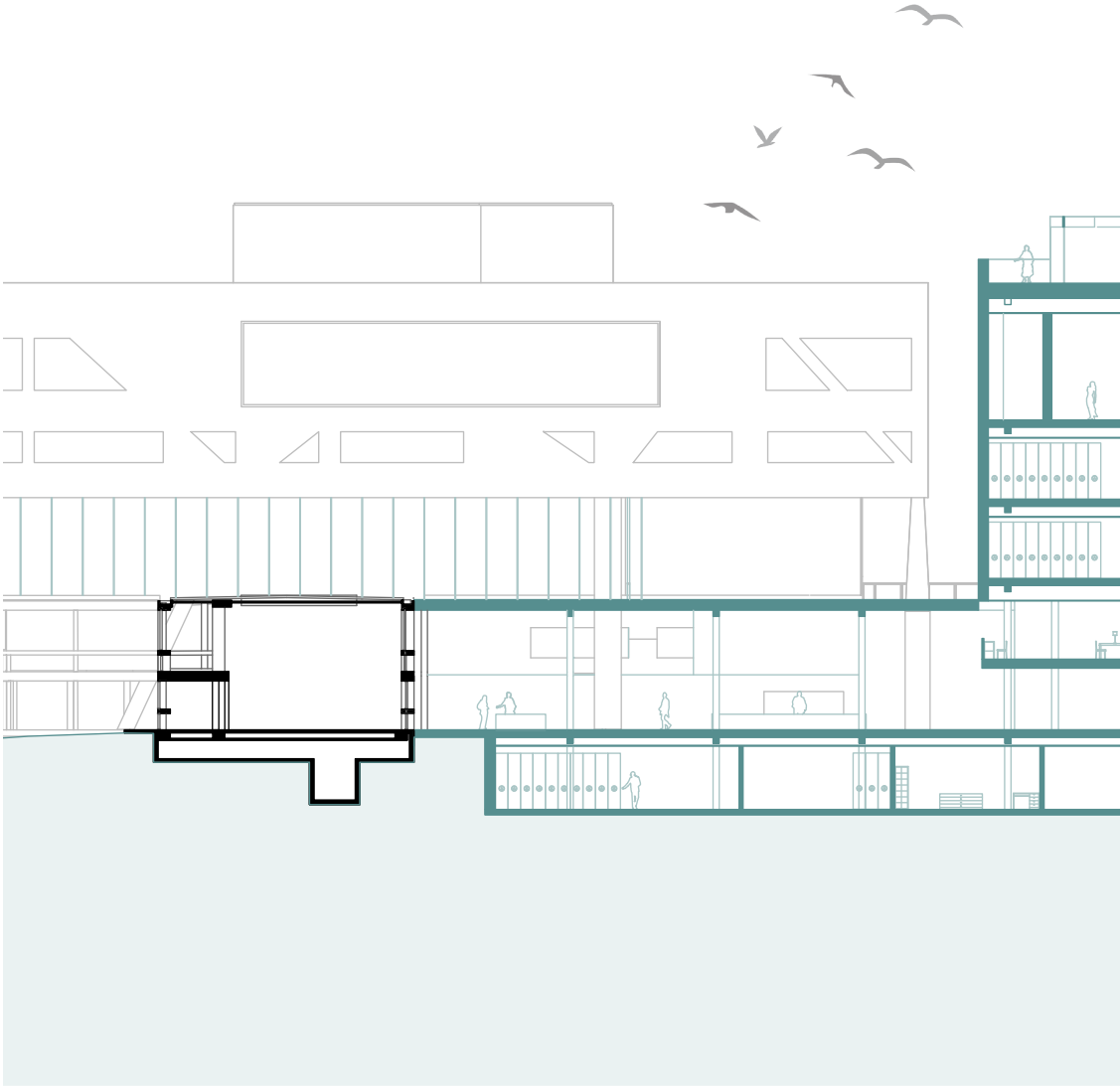


south section AA'

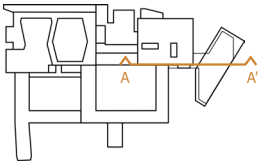




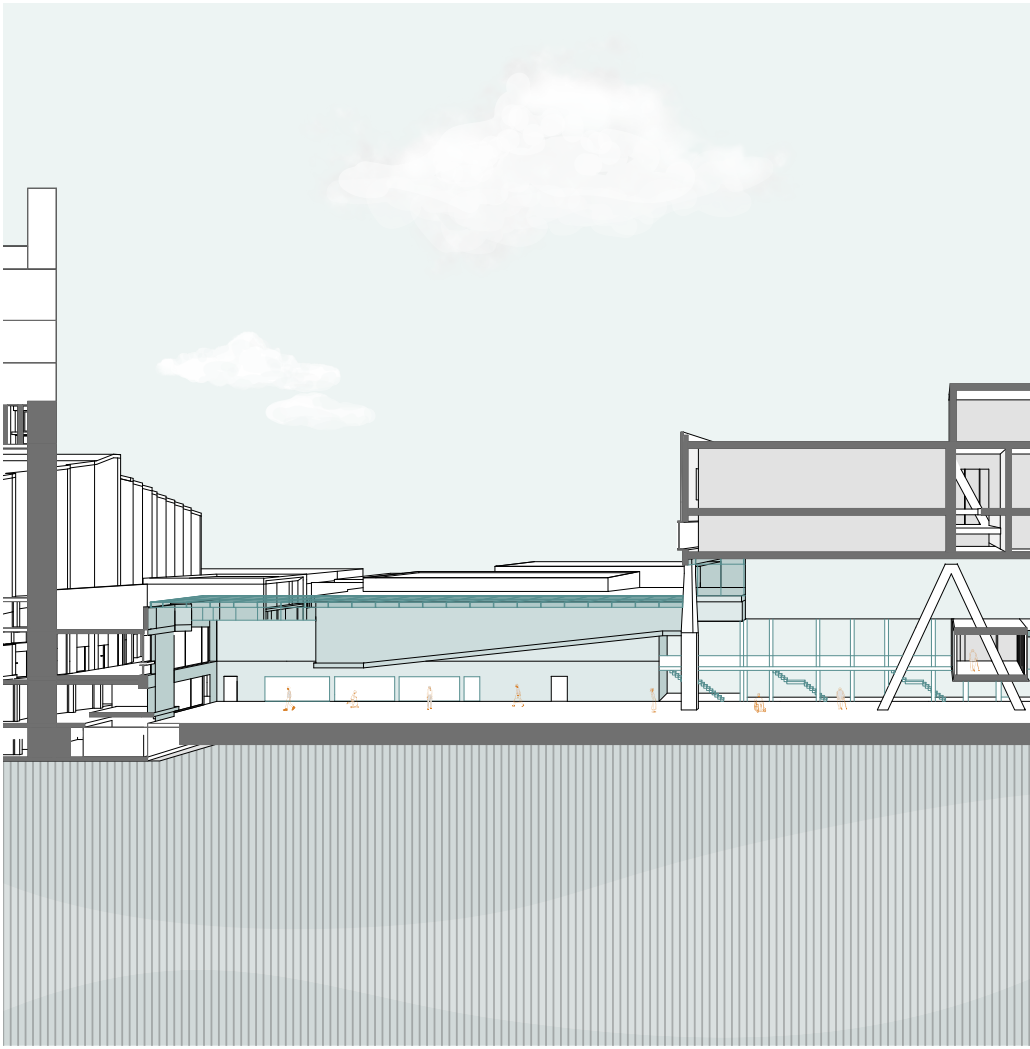
sections for P4 September 2025



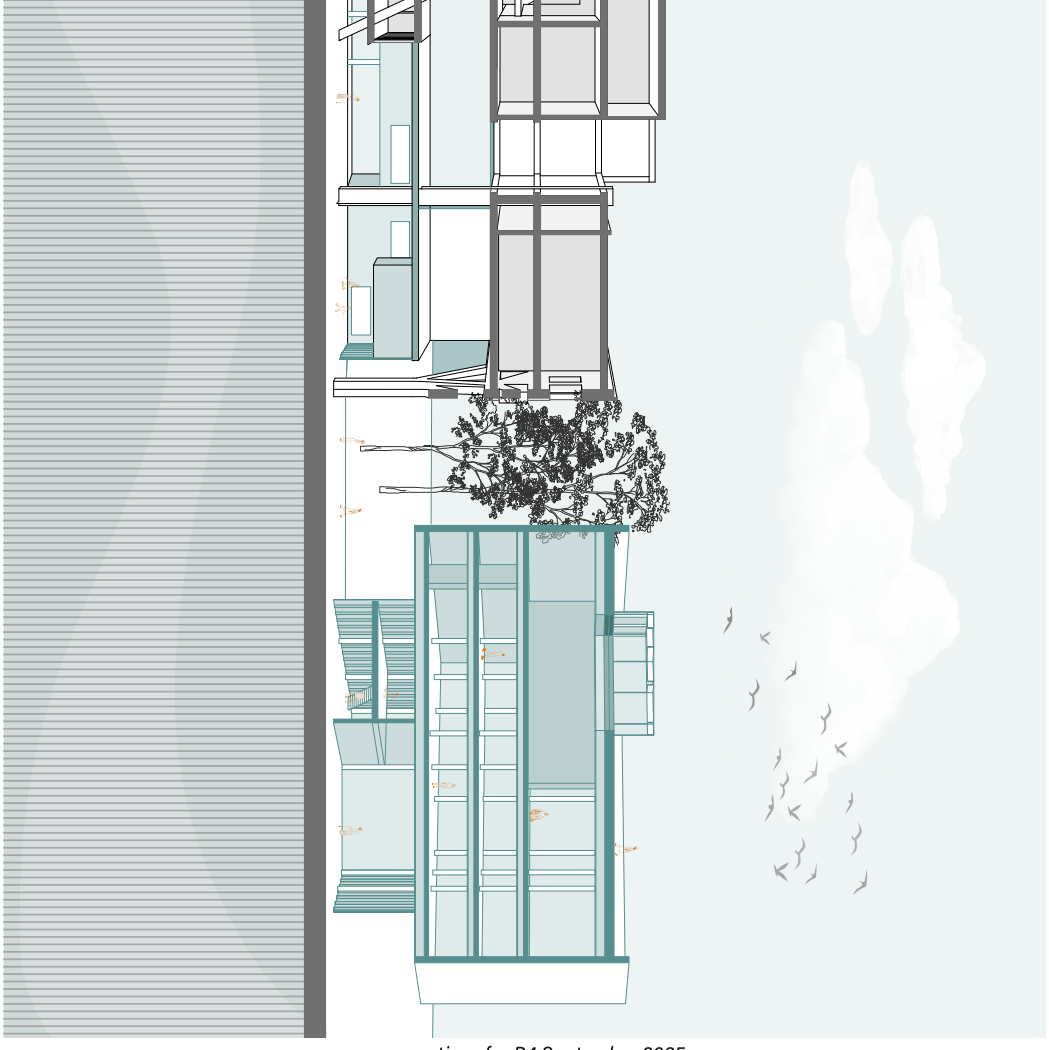
south section AA'



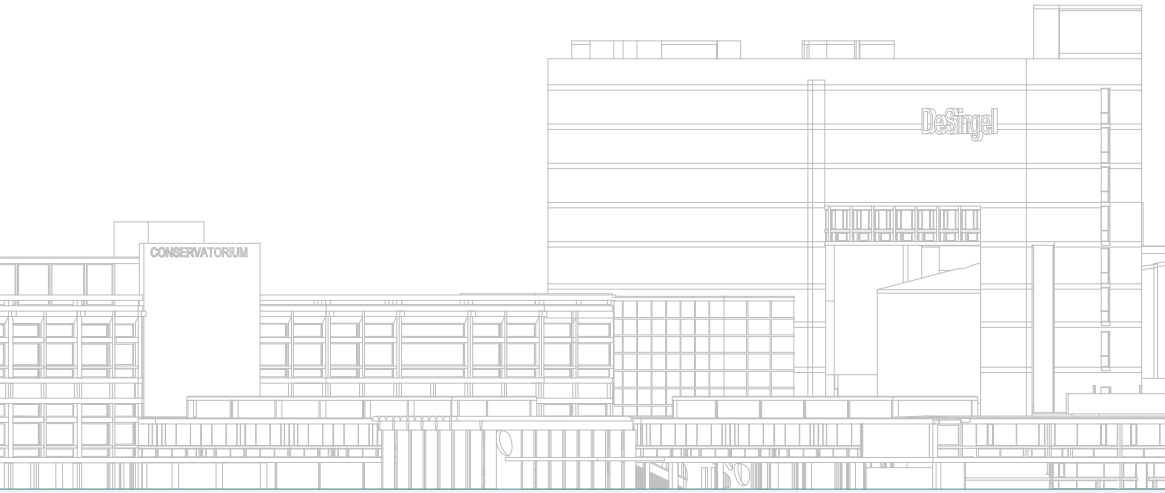
sections for P4 September 2025



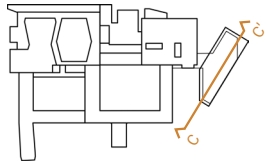
perspective section

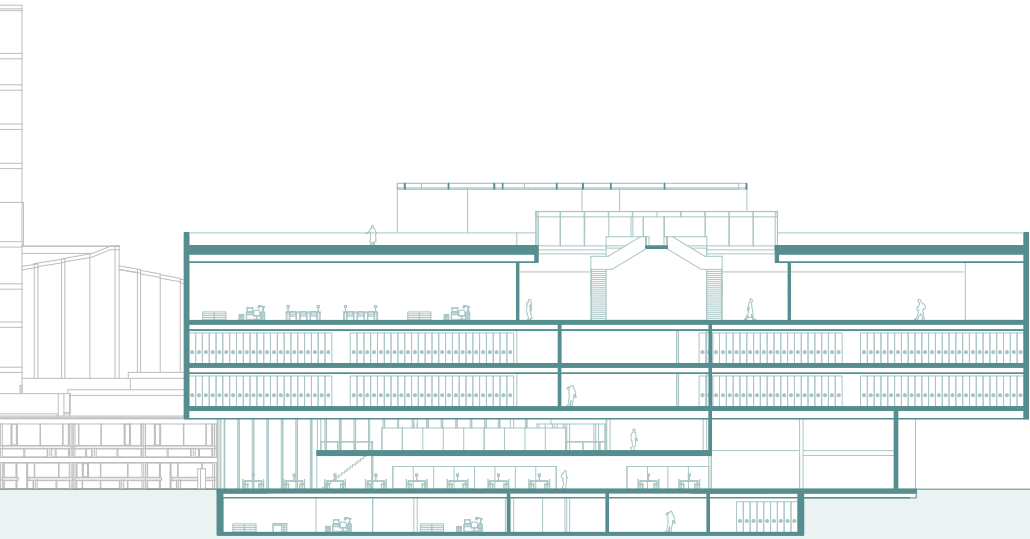


sections for P4 September 2025

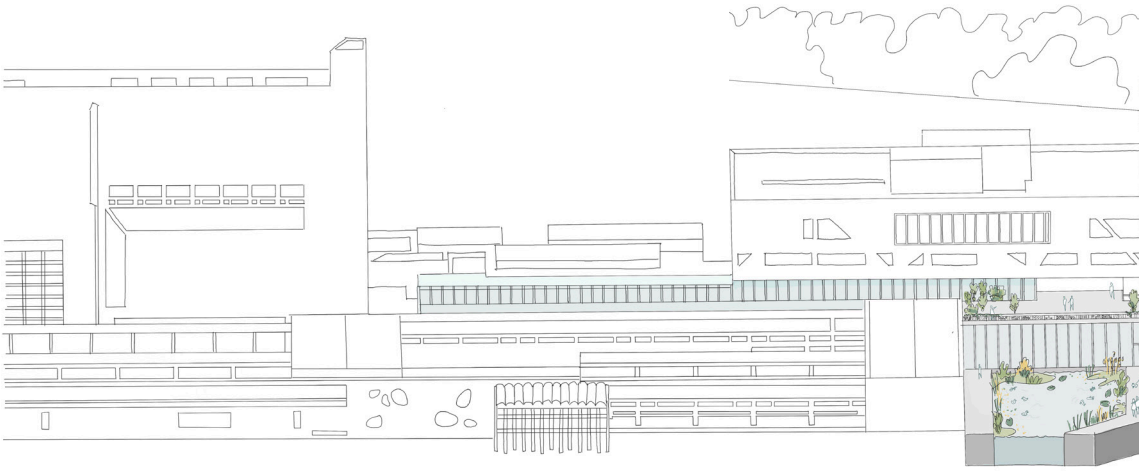


south section CC′

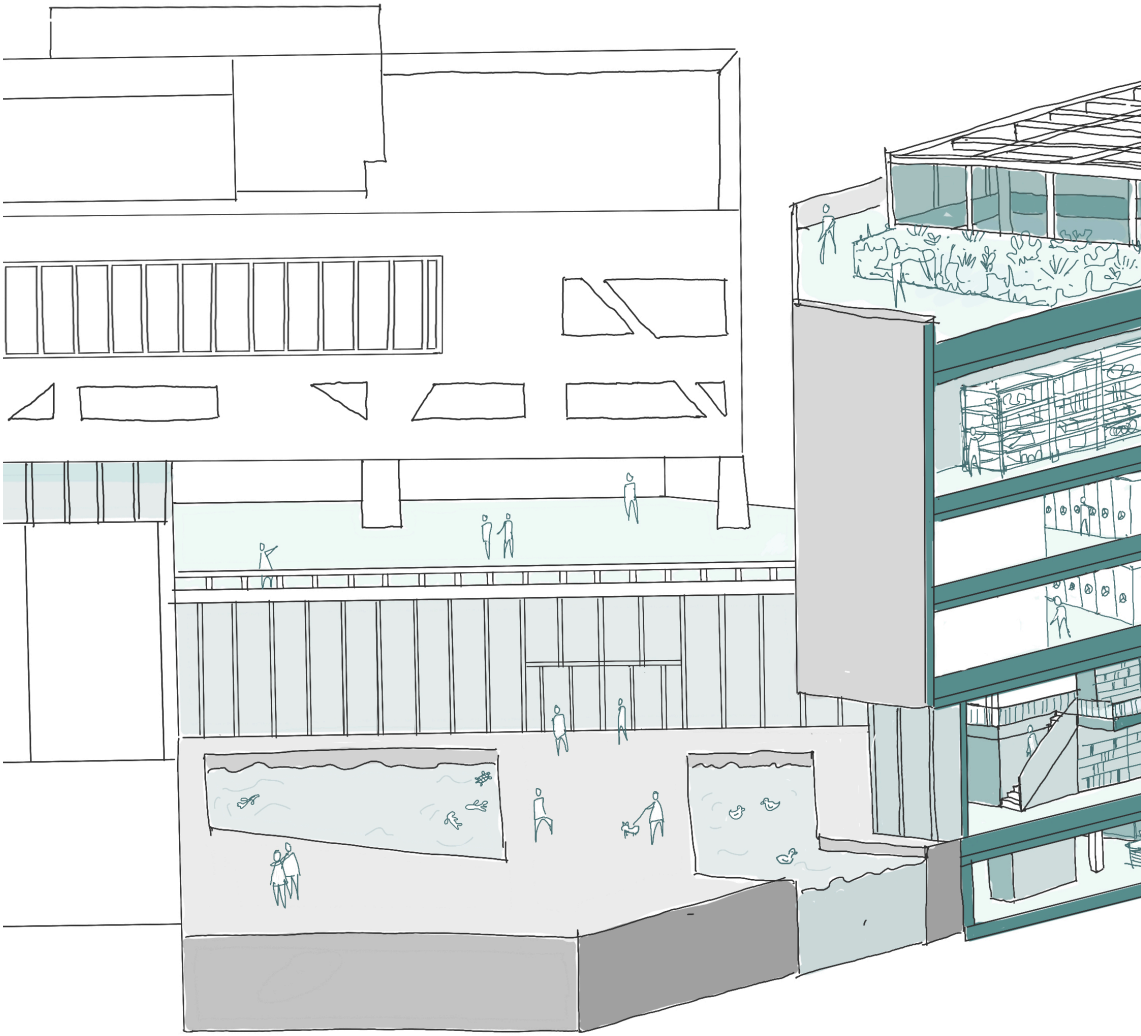


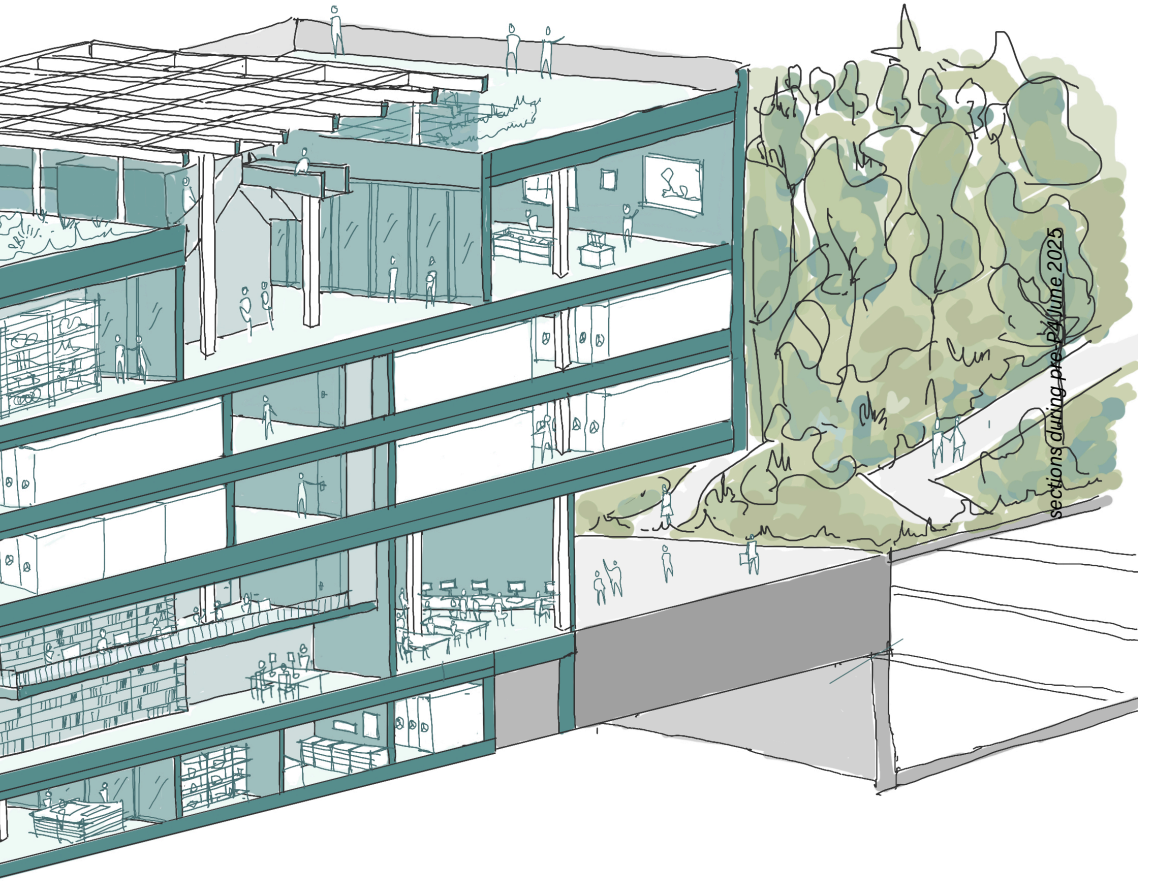


sections P5 October 2025

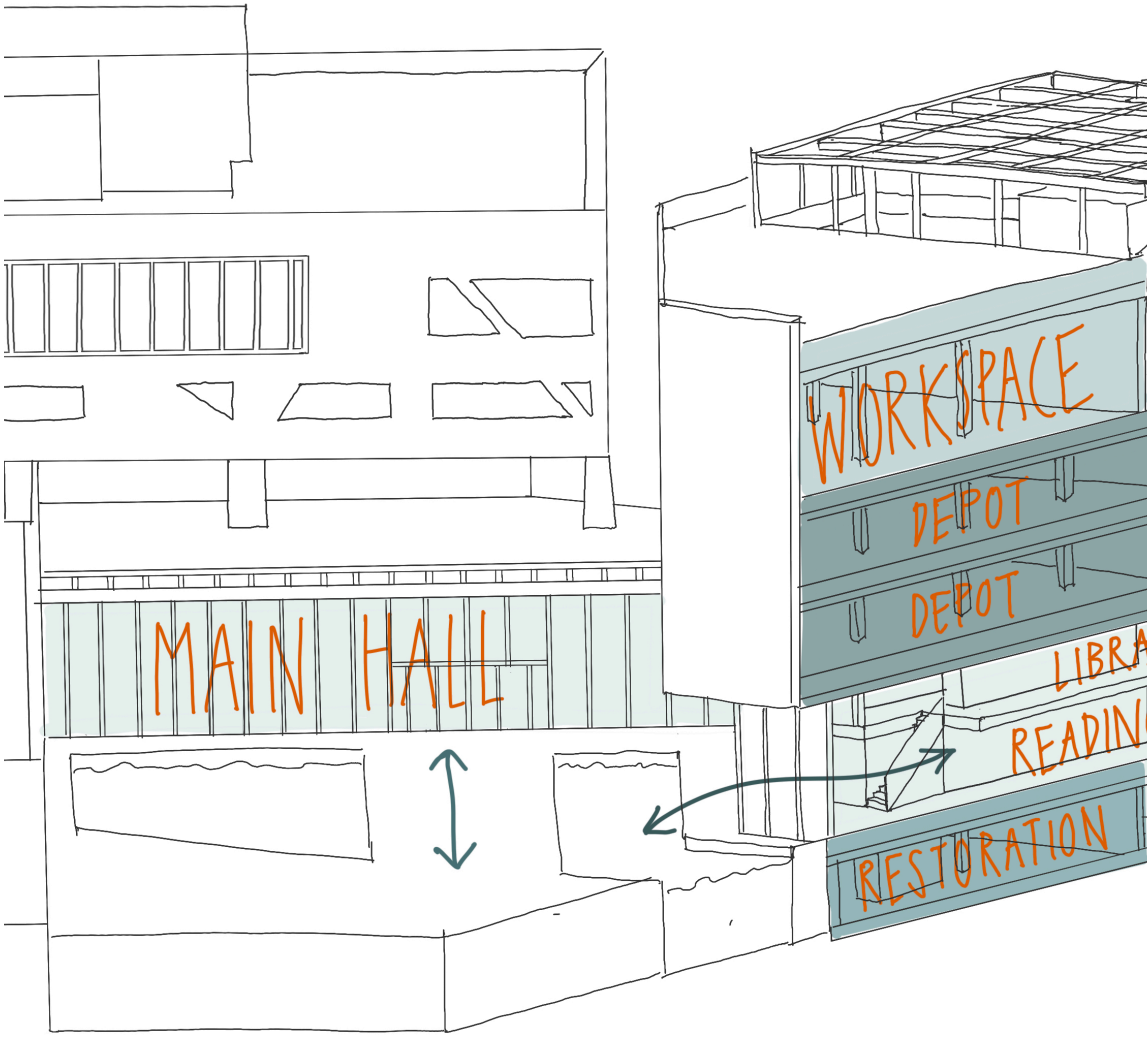


sections for P4 September 2025

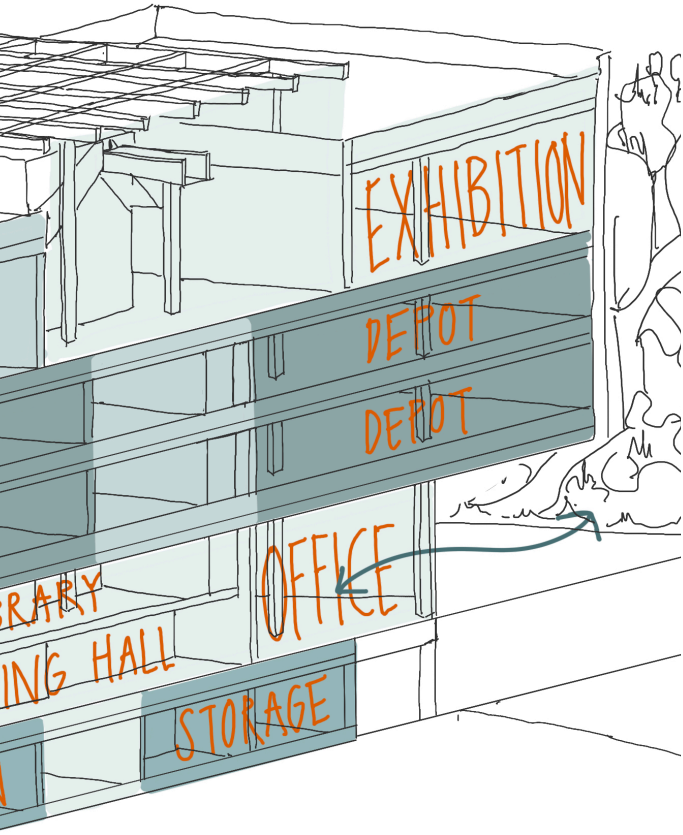




sections during pre-P4 June 2025



section with functional programme



roof terrace

exhibition, workspace, view depot

depot

depot

library, cafe

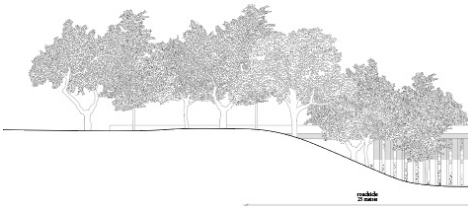
main hall, reading hall, cafe, office

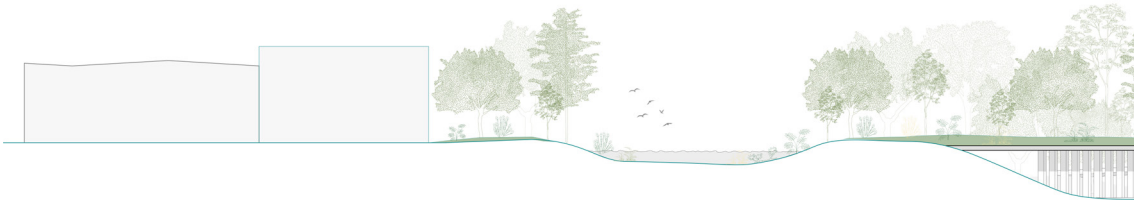
logistics, research, workshop

sections during pre-P4 June 2025

open for public

private





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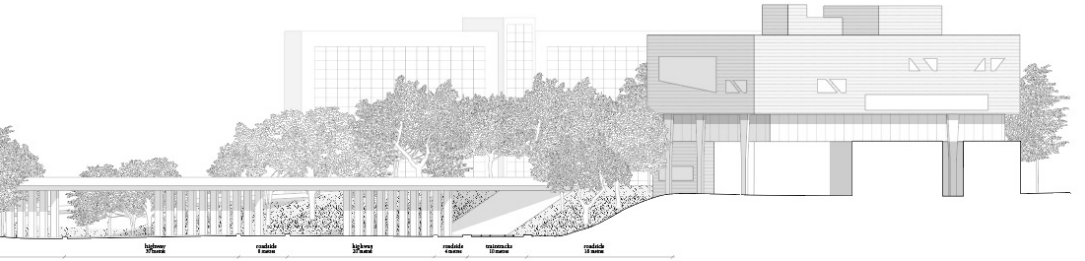
existing bridge and gree



sections for P4 September 2025

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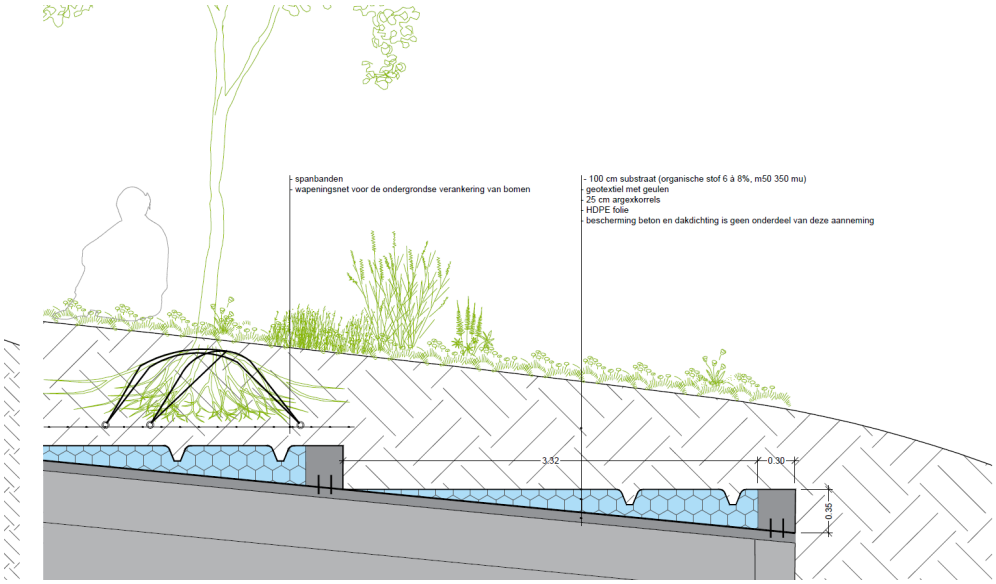
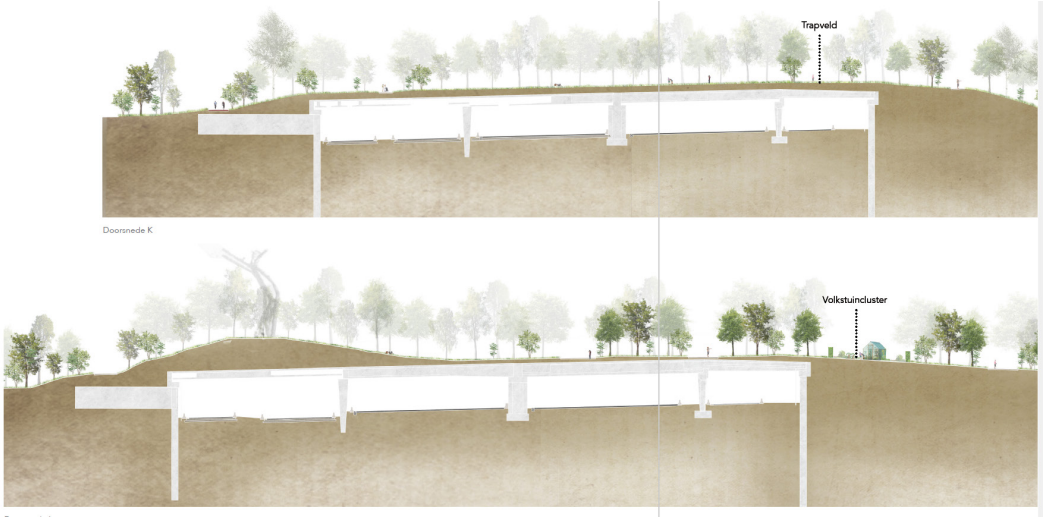
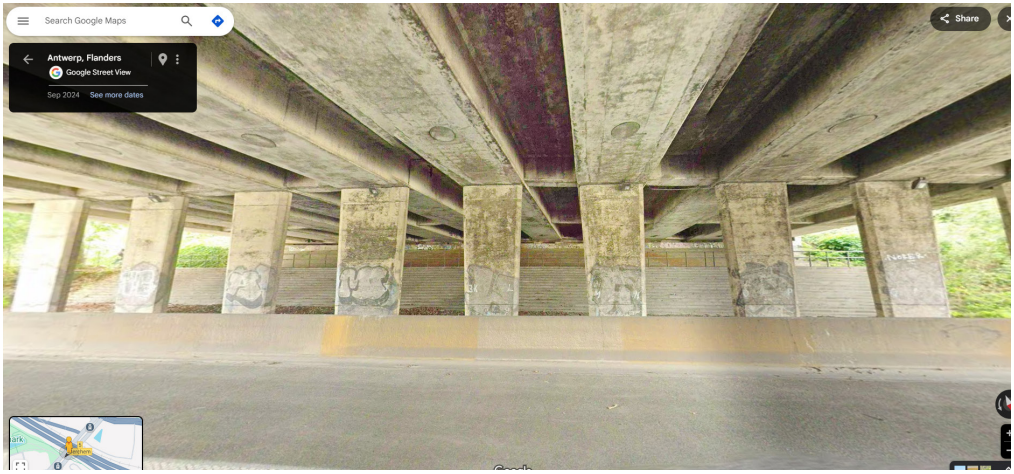
l green bridge extension





drawings from the Grote Verbinding (Ringpark het Schijn, 2024)



google maps street view existing bridge

The triangular bridge requires a minimum six-meter clearance above the railway tracks for safe train operation and overhead electrical systems. Supporting meaningful tree growth requires at least a one-meter growing substrate across the structure's surface. This creates substantial loads that exceed typical pedestrian bridges by several orders of magnitude. The soil alone weighs approximately 1,800 kg/m^3 when saturated. Added to this are live pedestrian loads and wind forces on mature trees. These complex load combinations required a robust structural approach that could span the 100-meter triangular geometry and support the varying width of the landscape platform.

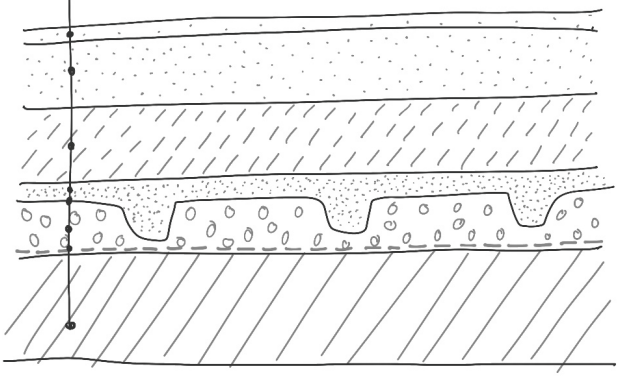
Extending the existing highway bridge's post-tensioned concrete system proved most viable. This approach provides the deep structural girders necessary to support the landscape loads, while also maintaining visual continuity with the current infrastructure. The total structural section reaches approximately one meter in depth. This includes the concrete beam structure, waterproofing membrane, drainage layer, and growing medium. The depth creates varying soil zones across the bridge surface. There are shallow 30-40 cm areas for ground cover and shrubs, and full one-meter depth areas for tree planting. The concrete structure's inherent mass helps resist overturning moments from wind loads on mature trees. The deep girder system also allows for integrated drainage channels and utility routing without compromising structural integrity.

section of the new bridge

The construction of the bridge was something I had to think about more deeply. This bridge is different from a "normal" bridge, as it is an extension of an existing bridge. The construction needs to connect to the existing bridge and be built at the same height, which is at 6 meters high. This is crucial, as it can not interfere with the existing train line. The current bridge is supported by 500x2000 columns and anchored on the sides. This system is called a multi span beam and slab bridge, supported by columns. The horizontal elements forming the underside of the roadway are the primary support system called superstructure (deck support). These beams are likely to be pre-stressed or post-tensioned concrete beams, creating a grid to support the deck slab above.

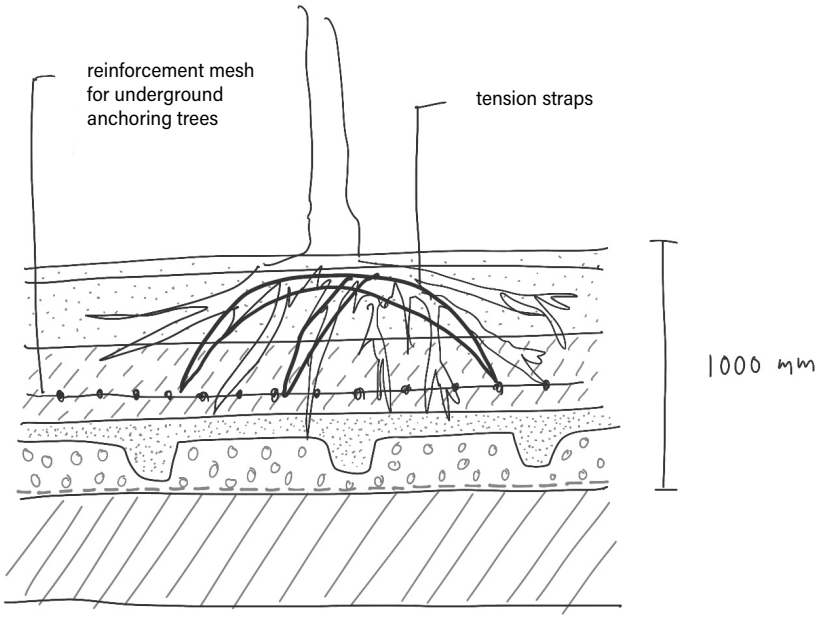
At the outermost vertical elements we have the abutments, which are integral parts of the main supports for the structure.

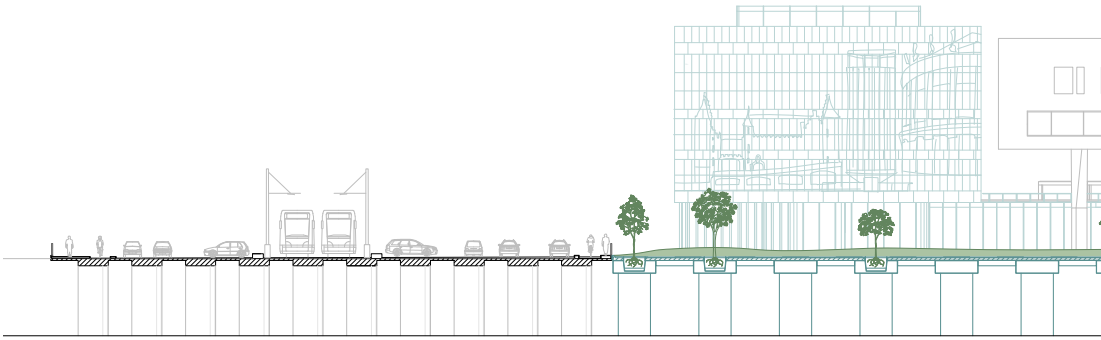
70 mm fungus dominant compost
250 mm topsoil (6-8% organic matter)
350 mm tree sand (4% organic matter)
80 mm poor soil (<2% organic matter)
geotextile
250 mm argon granules
HDPE layer
500 mm concrete



reinforcement mesh
for underground
anchoring trees

tension straps





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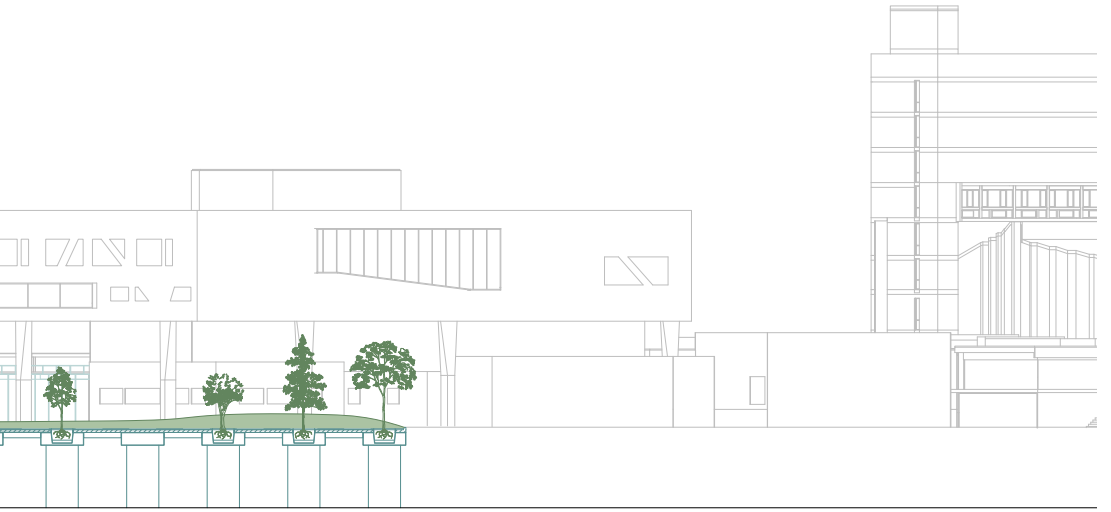
green bridge e



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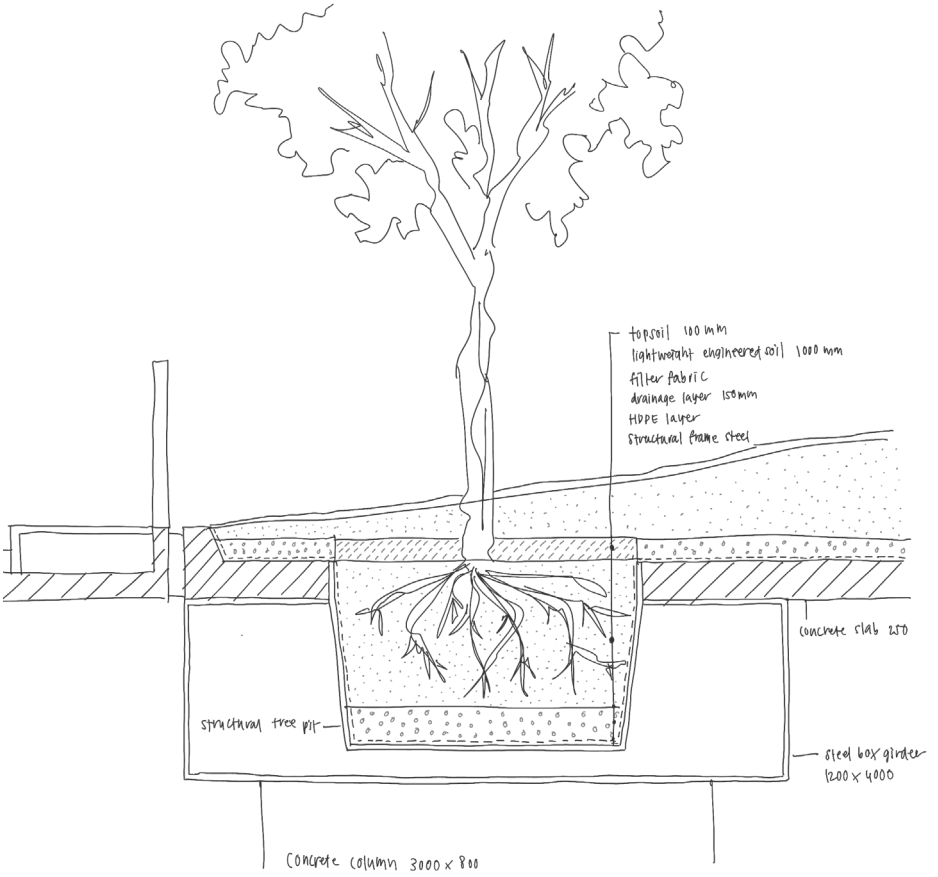
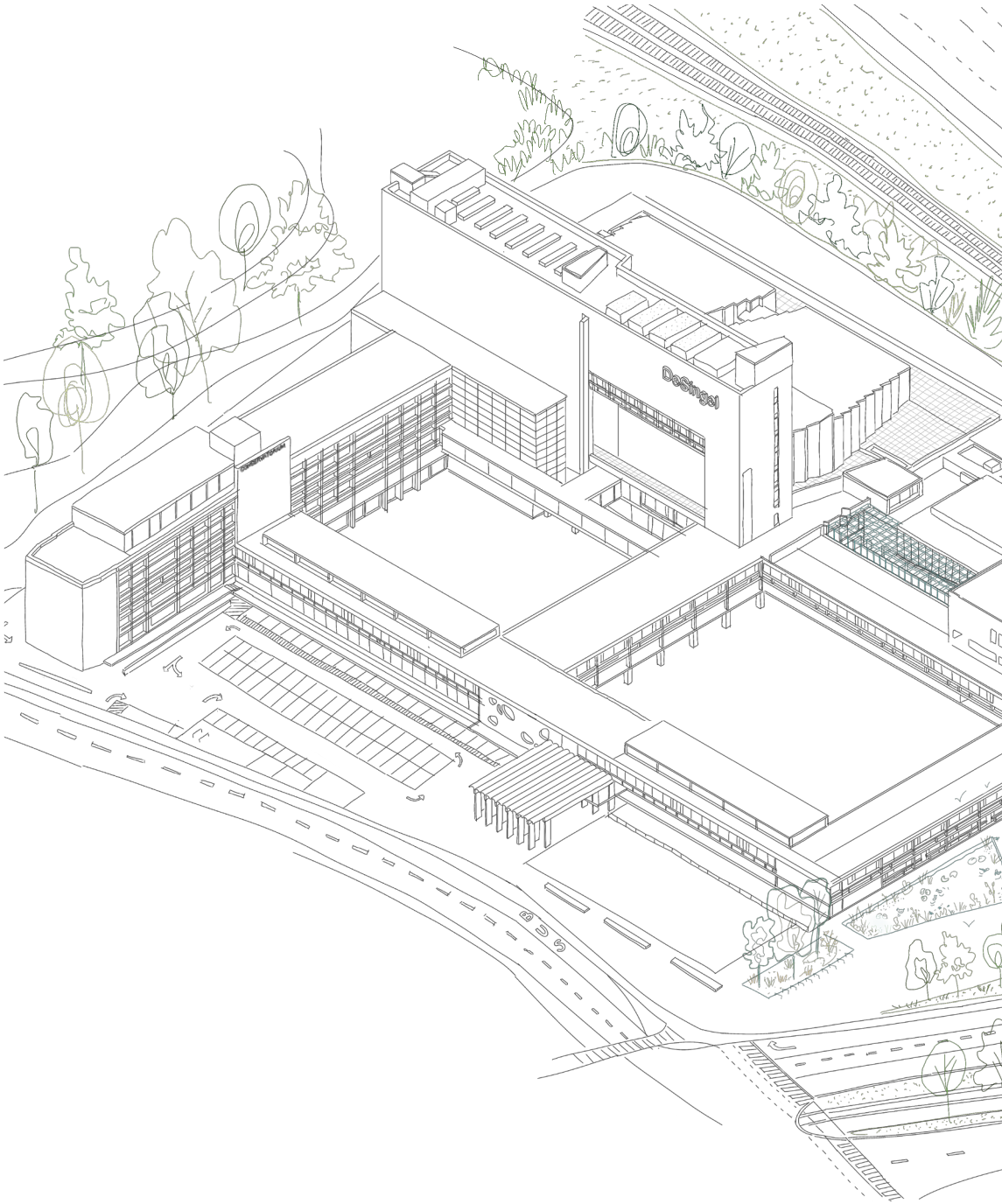
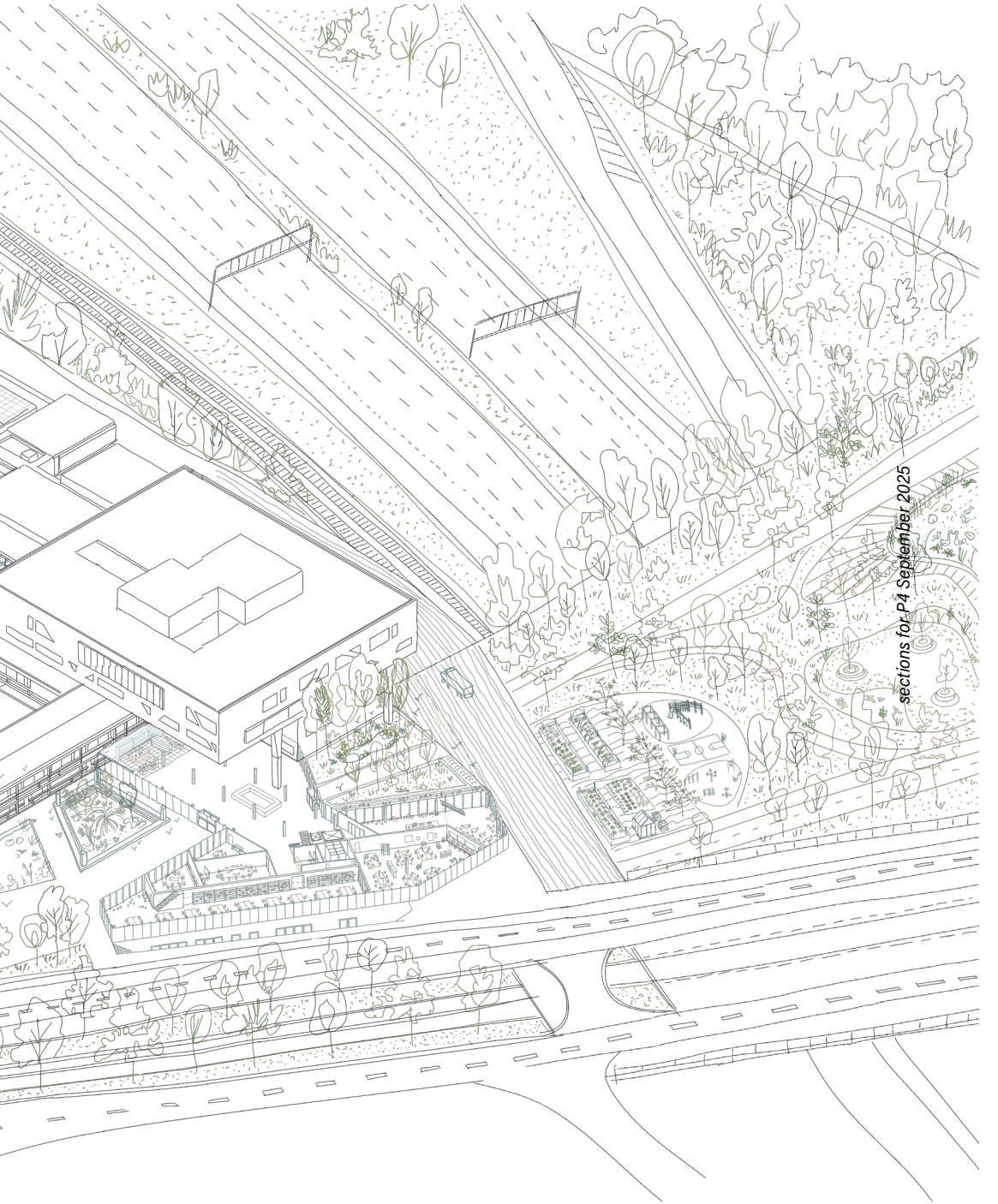
idge extension



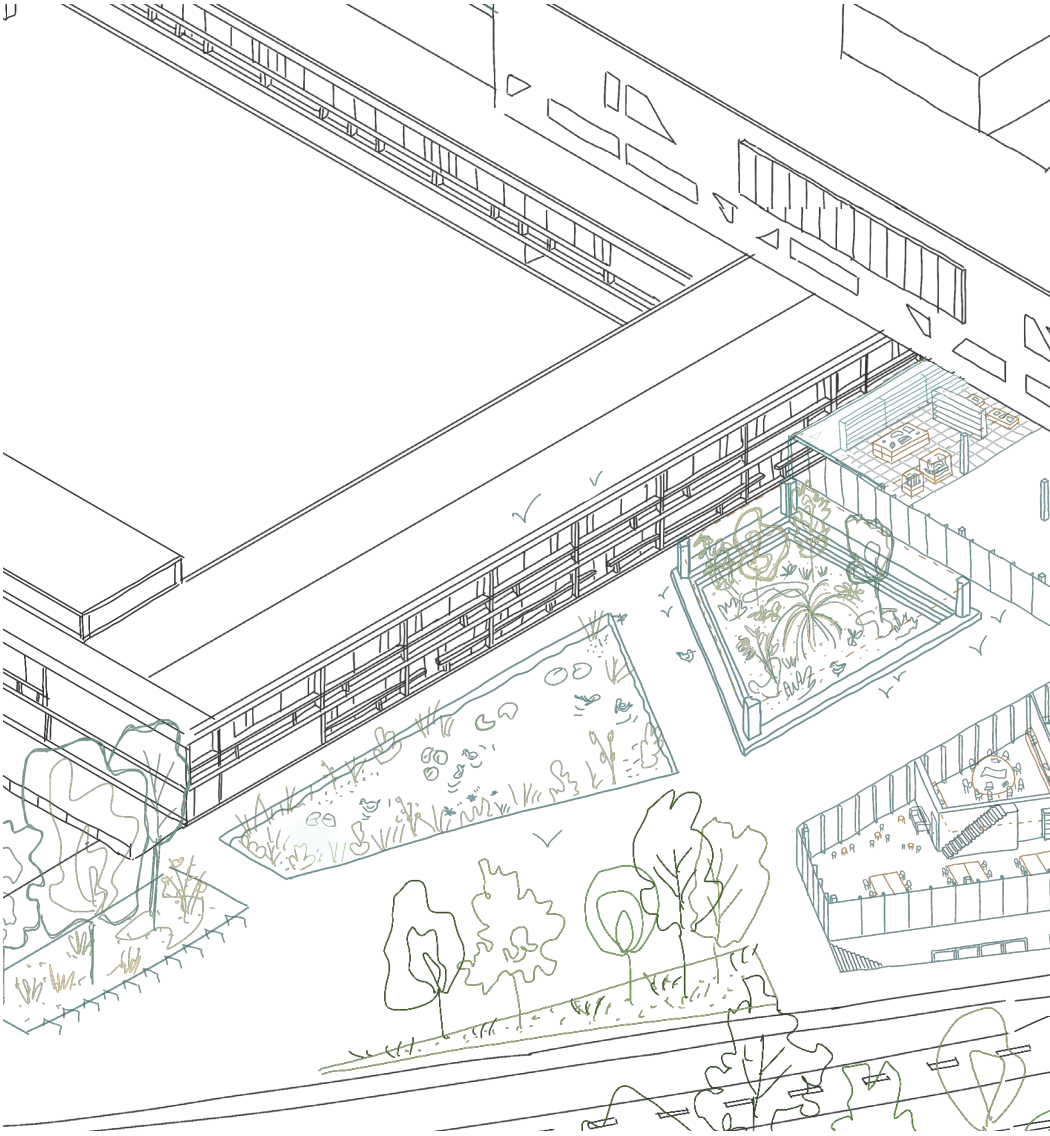
detail tree pit landscape bridge

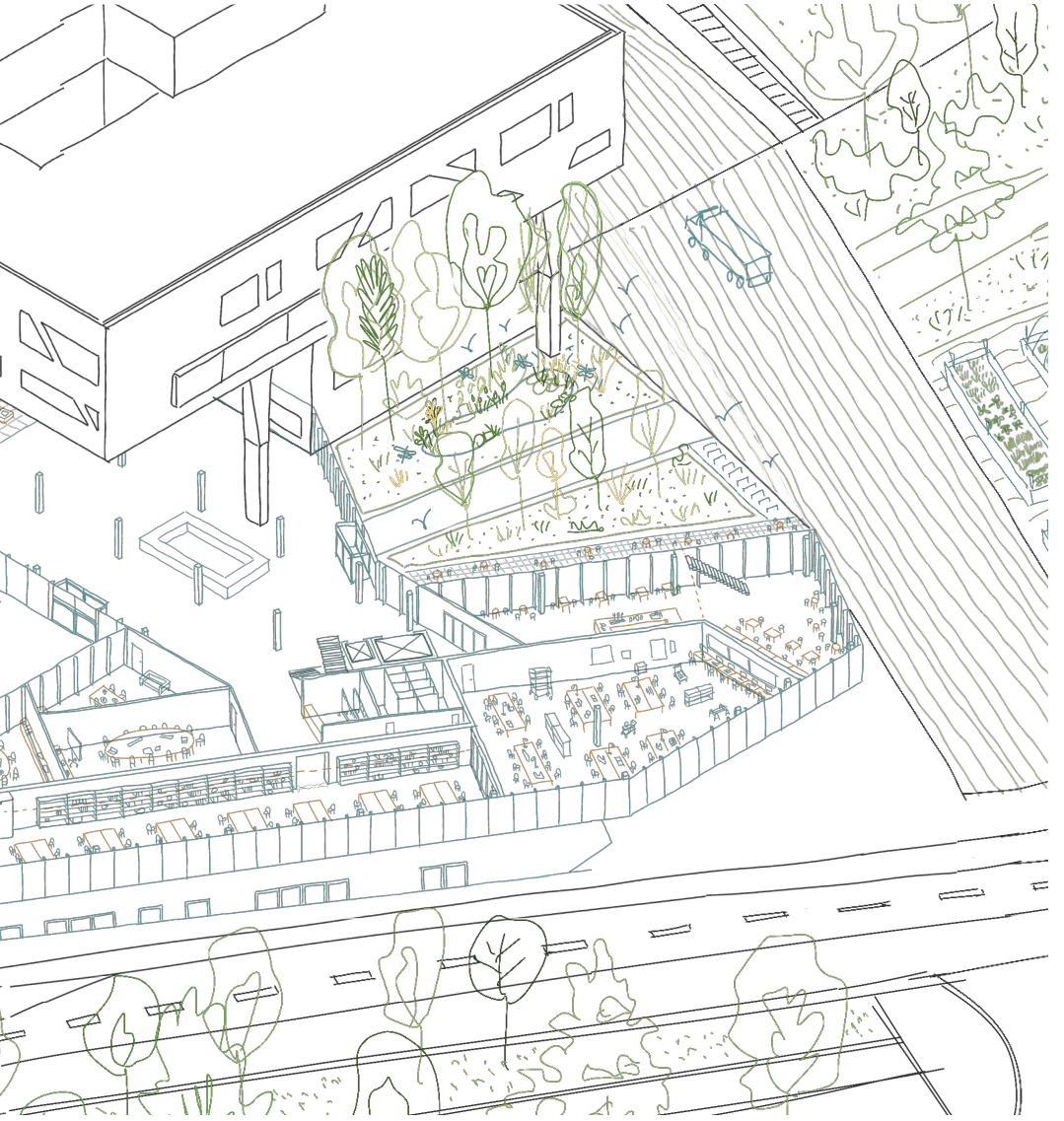
This bridge extension is designed as a combined structure using both steel and concrete to create a strong elevated park. The main framework is made from wide, shallow steel beams called box girders, which are held up by strong concrete columns. This setup provides the needed height for trains to pass underneath. A solid concrete deck is poured on top of these steel beams, creating a waterproof base for the entire park. On top of this concrete base, we build a layered landscape system with a full one meter depth of special lightweight soil. This one meter depth is a key part of the design because it provides enough room for the roots of smaller trees and large shrubs to grow without needing special structural support. For the biggest trees, we create deeper, framed openings called structural tree pits that go right through the deck. These pits channel the heavy weight of the large trees and their deep soil straight down to the main steel beams and concrete columns. In this way, the structure and the landscape are designed together from the start, creating a thriving green park that is built to last.


DeSingel

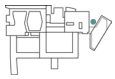


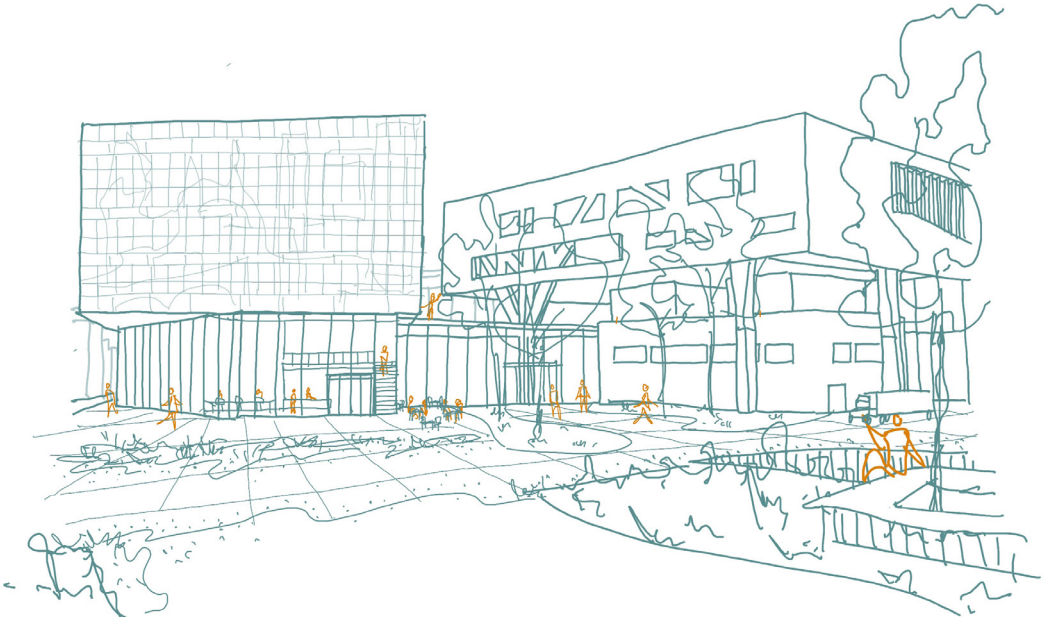
sections for P4 September 2025

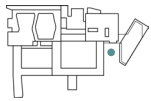


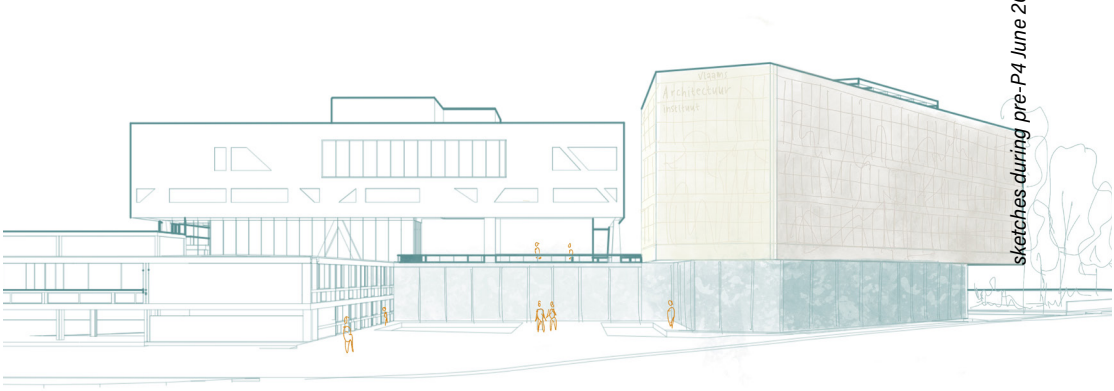


VISUALIZATIONS

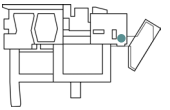


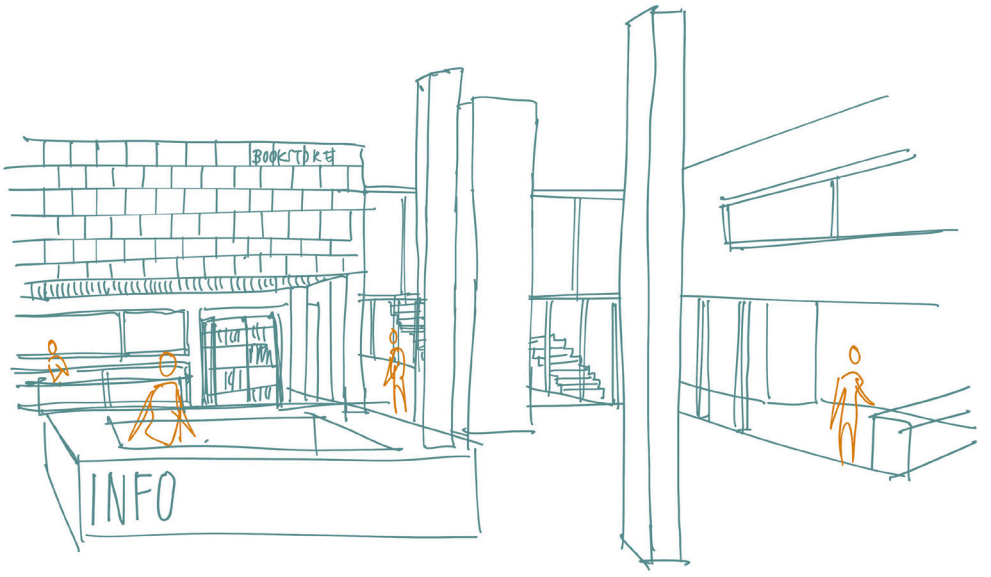


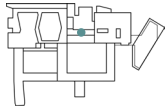


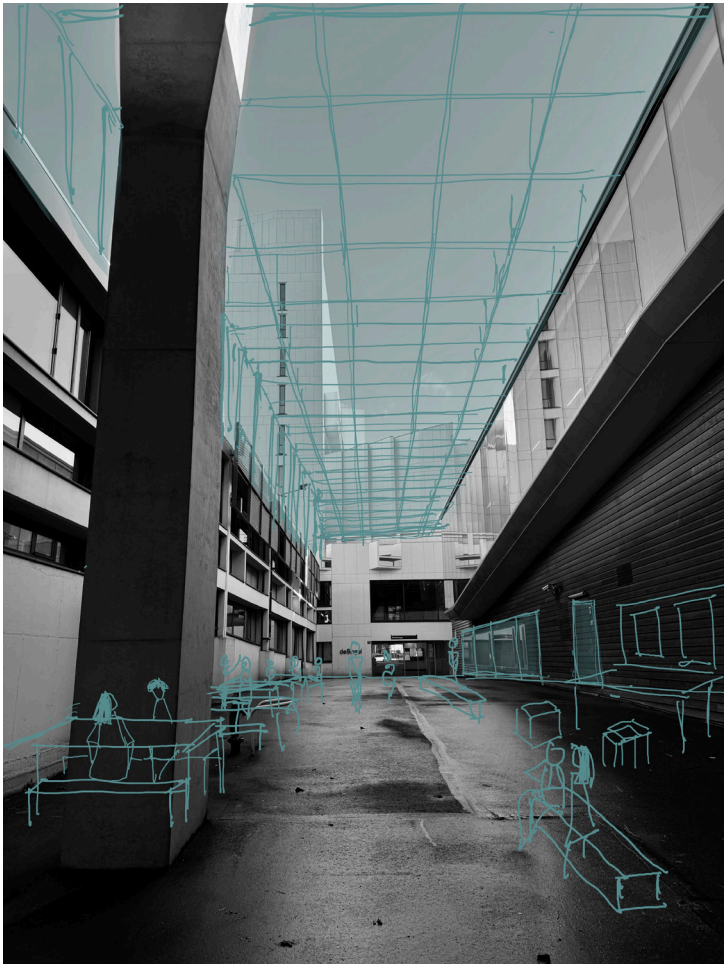


sketches during pre-P4 June 2025

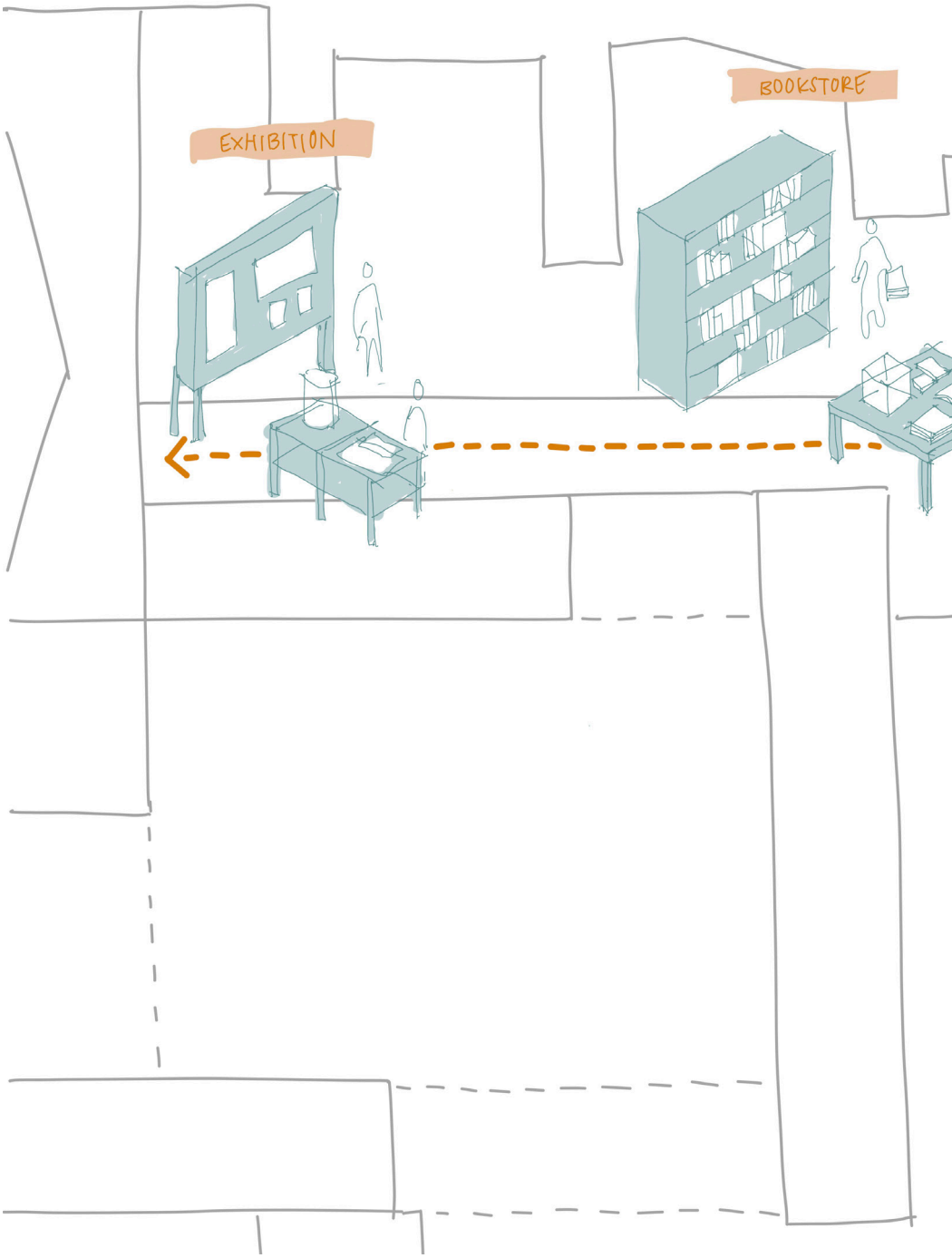



BOOKSTORE
INFO

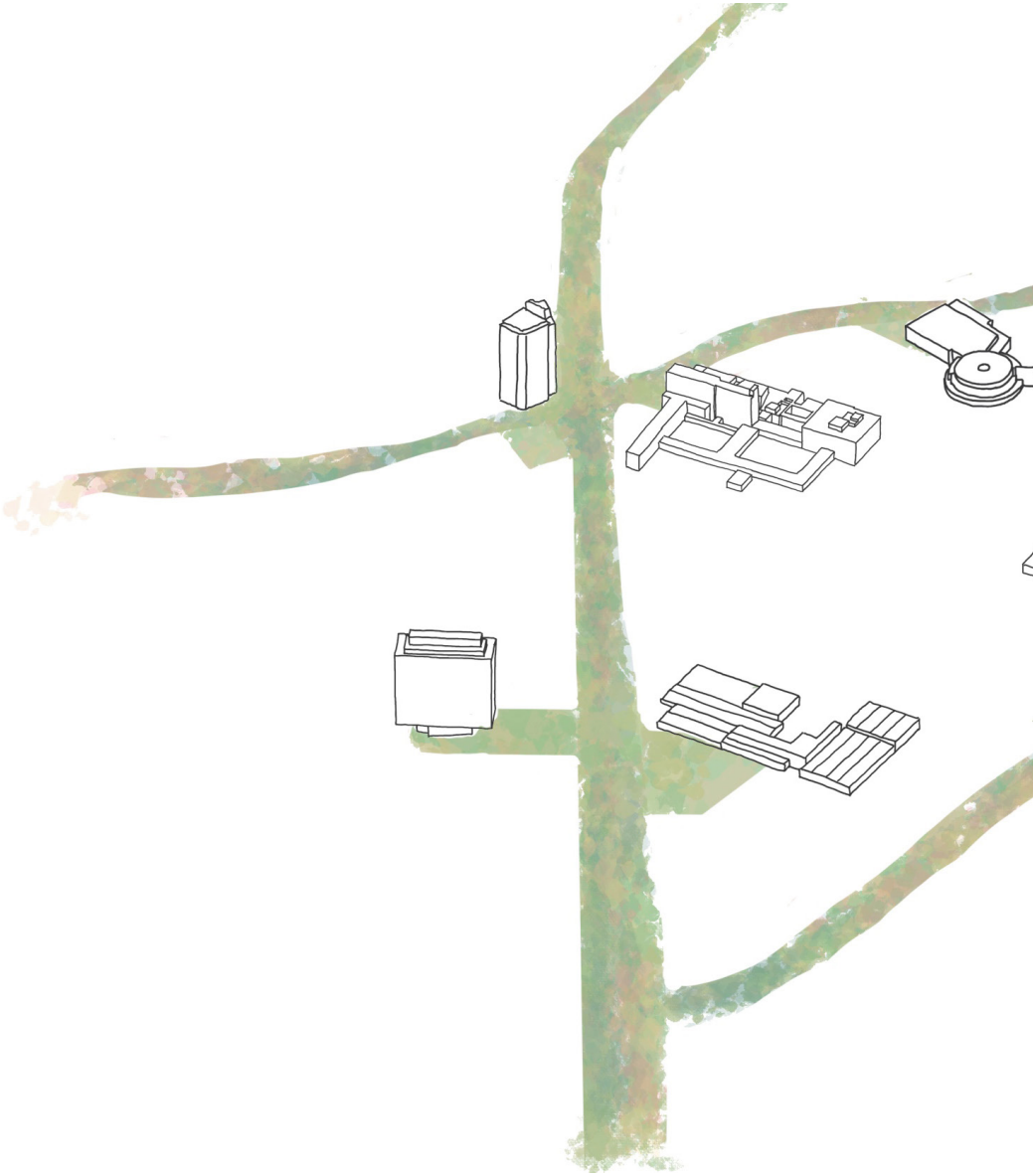


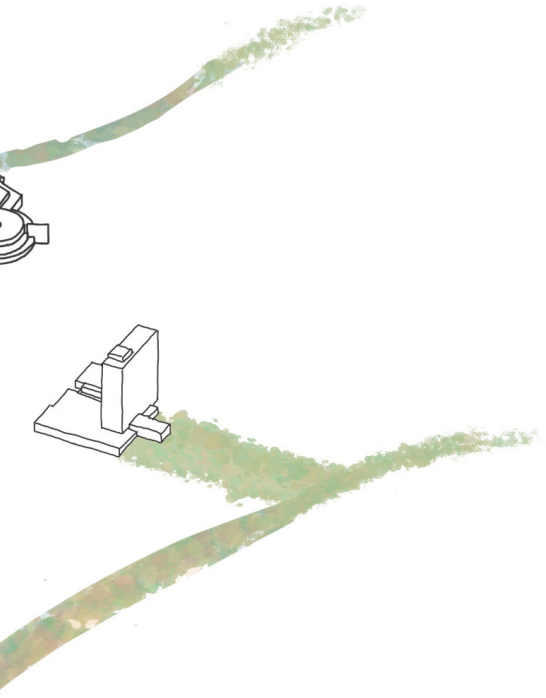


sketches during pre-P4 June 2025


EXHIBITION
BOOKSTORE

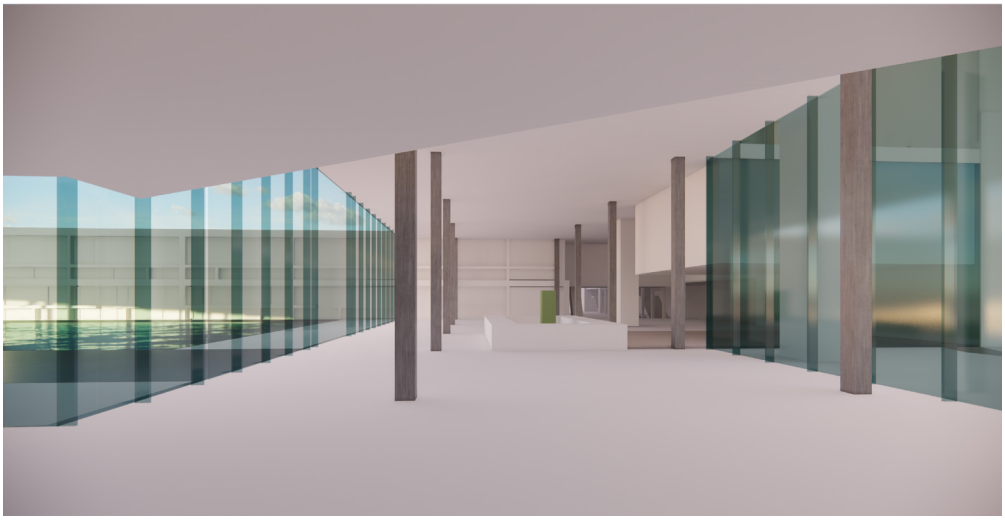
interconnectivity functions ground floor



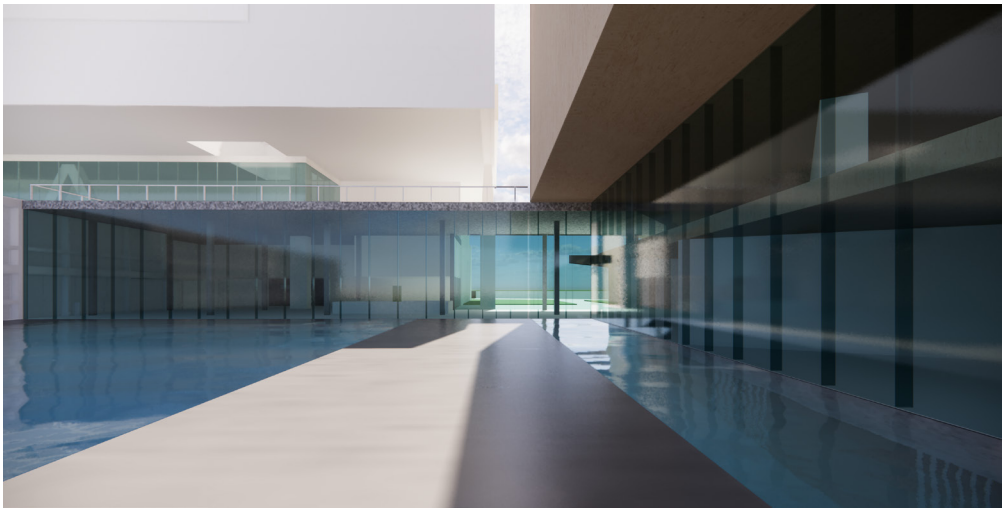


This project proposes a fundamental shift in how we perceive an architectural archive. It moves beyond the traditional model of a closed container, instead proposing the city itself as a dynamic, living archive. The rich collection of modernist landmarks surrounding de Singel, many designed by Leon Stynen himself, become active extensions of the VAi's program.

By integrating these buildings into a distributed network, the archive extends beyond its physical limitations. Exhibitions, research, and public programs can extend into the BP Tower, the former Esso Hotel, and other key sites, turning the urban fabric into a curated landscape of architectural knowledge. This strategy transforms the archive from a repository of the past into an active participant in the city's cultural life, creating a dialogue between the institution, its collection, and the very environment that shaped it. Envisioning the city as an archive.

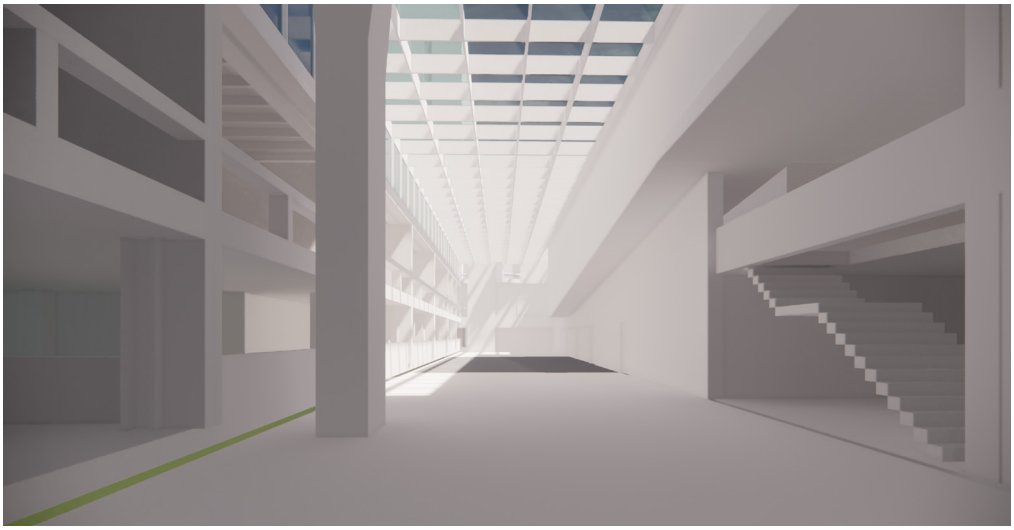


main hall

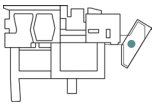


city courtyard

reading hall



passage



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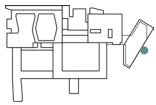
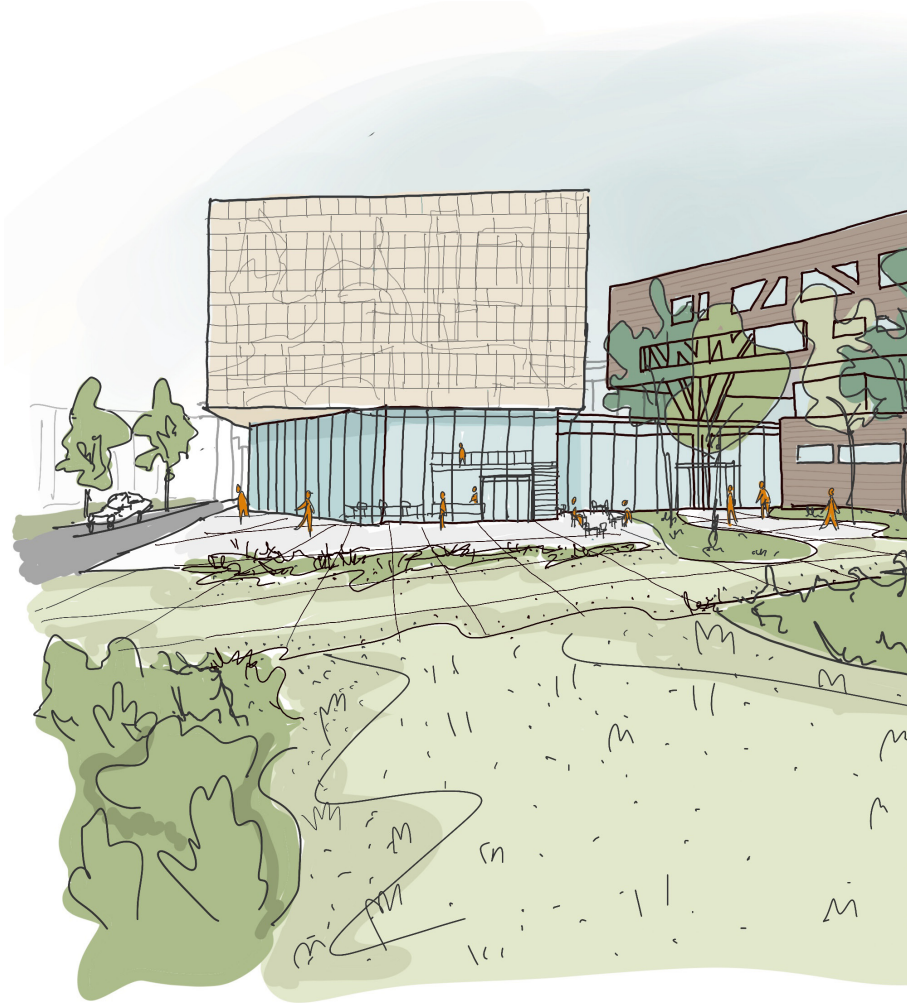
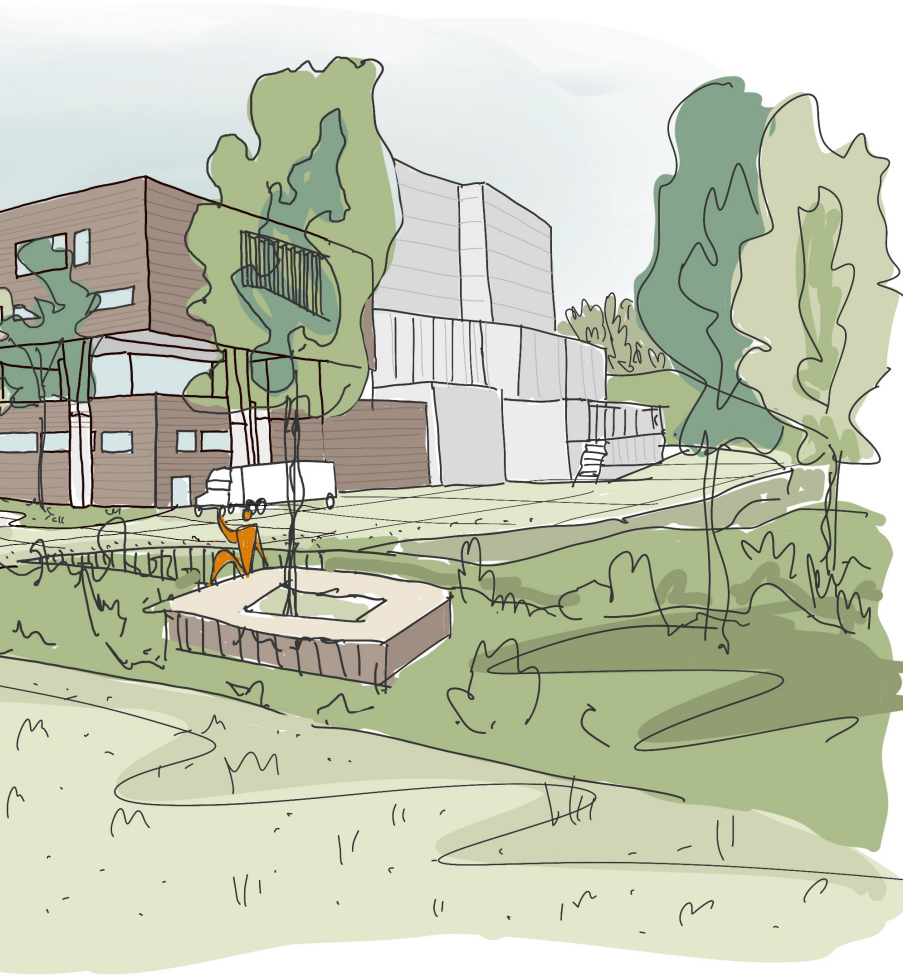


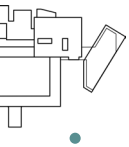
impression sketch





impression sketch

DeSingel



impression sketch

CROWNE PLAZA

BOOK TORE
INFO

Vlaams
Architectuur
Instituut
MUZIEK

JOST
Hamann

ARCHITECTUUR

materialization - design - elevations

FACADE DESIGN

MATERIALIZATION

GOBERTANGE STEEN

I have finally decided the material for my facade: a locally sourced natural stone.

I did some research on the buildings in Antwerp and the materiality of these. The majority of the buildings are built in red brick or white stone. Especially buildings of higher significane, such as churches or govermental buildings are built in stone.

The local stones that are used in Flanders are:
1. Ledesteen
2. Gobertangesteen
3. Balegemse steen
4. imported stone: Tournai limestone & Bentheimer sandstone

From these stones only Gobertange steen is still in use to this day.

Some information about Gobertange steen and the use as facade cladding:

Origin: Quarried in Gobertange (Walloon Brabant, Belgium), near Flanders.
Color: Creamy white to light yellow, with subtle grain variations.

Durability: Hardens after exposure, resisting weathering.
Workability: Soft when freshly cut (easy to carve), then solidifies.
Aesthetic Appeal: Warm, neutral tone complements traditional and modern designs.
Sustainability: Locally sourced, reducing transport emissions.

Modern Applications:
Facade cladding (e.g., restored historic buildings, new constructions).
Window surrounds, cornices, and decorative elements.
Paving and flooring in high-end projects.

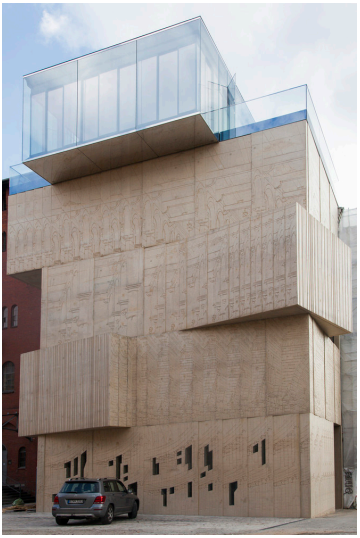
Technical Properties:
Frost-resistant (suits Belgium's climate).
Low porosity (reduces water absorption and erosion).
Supply Chain: Actively quarried by companies like Carrières du Hainaut.

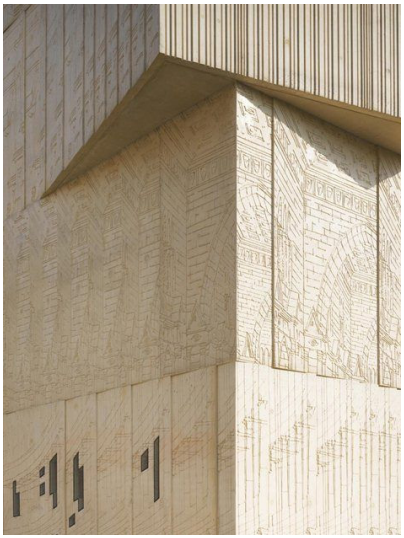
Modern Installation Techniques:
Ventilated Facades: Gobertange panels fixed with stainless steel anchors for airflow.
Thin Cladding: Cut into 3–5 cm slabs to reduce weight.

Sint Jacobskerk: interieur en ornamentele elementen

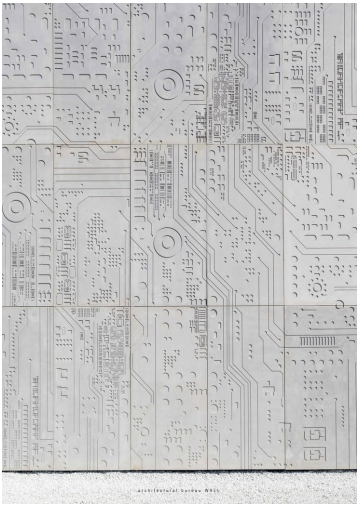
Sint Pauluskerk: gevel en sculpturele decoratie

references engraved stone facade





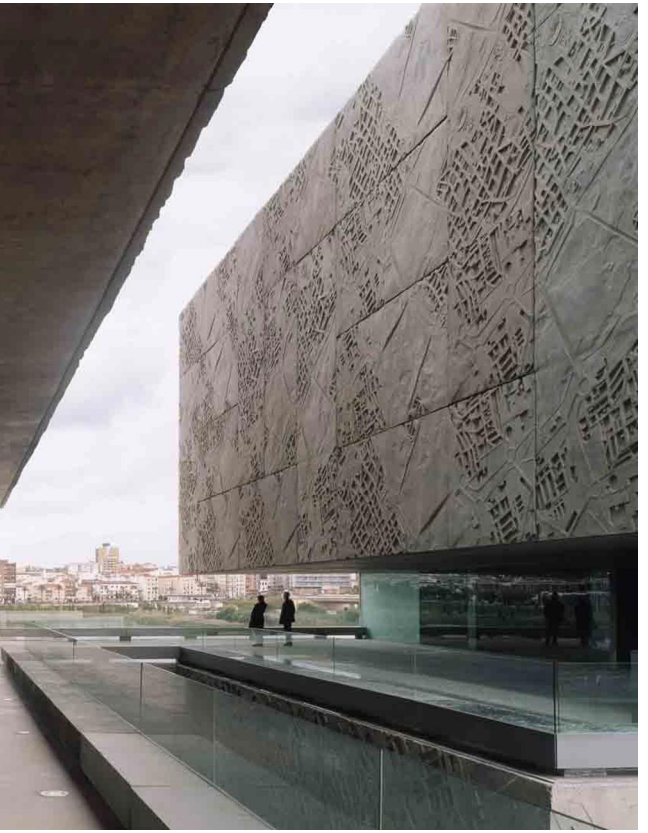
tchoban foundation berlin



Pavilion DIT [Department of Information Technology]

palacio de congresos y exposiciones de merida

references volume building



palacio de congresos y exposiciones de merida

DESIGN CONCEPT

I analyzed some of Antwerp's most important architectural buildings, looking at the materiality, design, and ornamentation.

The majority of these buildings are old buildings. Only two are built in the last century: MAS museum and Havenhuis.

It is interesting to note that most of these buildings have ornamentation in their facade, making it interesting for the public to look at them, and resulting in having such significance in the city. I would like to design a building that incorporates ornamentation as part of the design. This can be done by engraving the stone with a pattern, making the material more dynamic and encapsulating. The facade will change in appearance when moving closer or farther away from it.

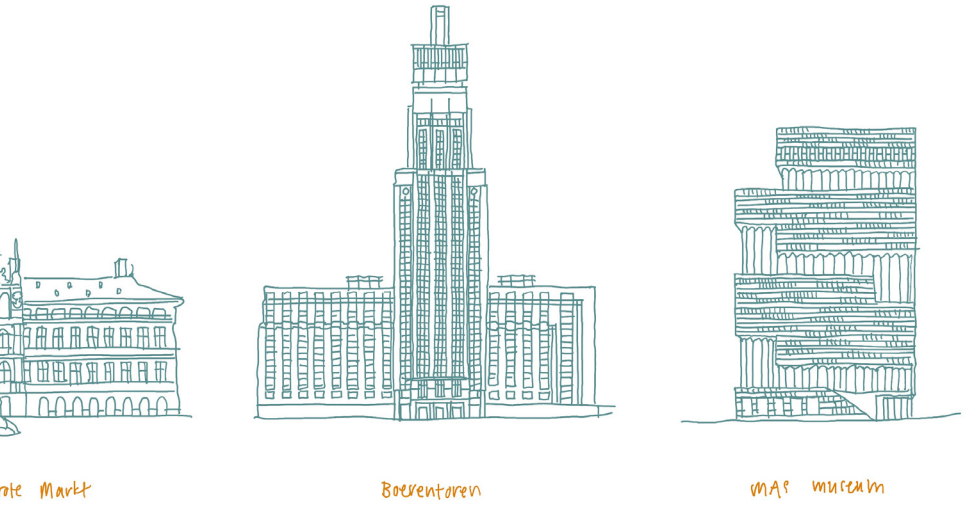
onze - lieve - Vrouwekathedraal

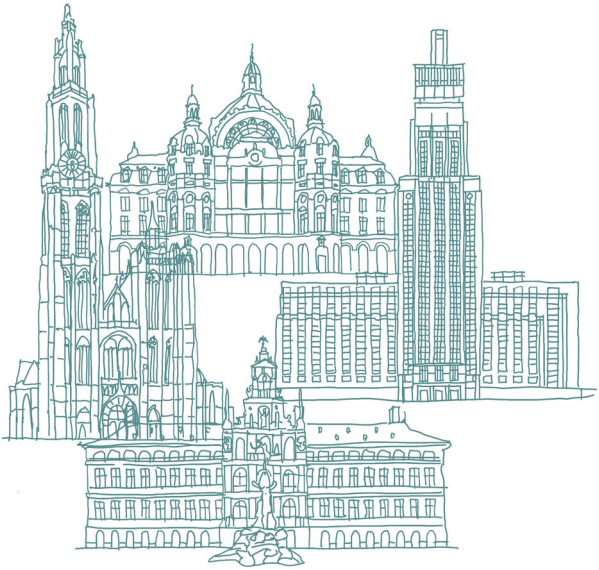
Antwerpen Centraal Station

stadhuis op Grote

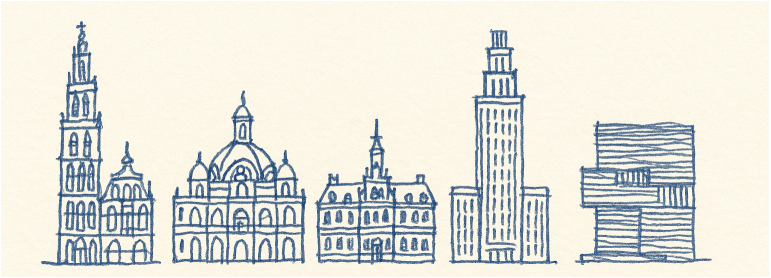
If we look at the common design choices for these buildings, we can conclude the following:

Material Contrast: Red brick + white sandstone (for texture/status).
Vertical Emphasis: Tall spires (Gothic) or pilasters (Baroque).
Guild Pride: Facades announce the owner's trade via symbols.
Flemish Baroque Drama: Curved gables, dynamic sculptures, gold accents.
Italian Influence: Since the 16th century (columns, pediments, symmetry).

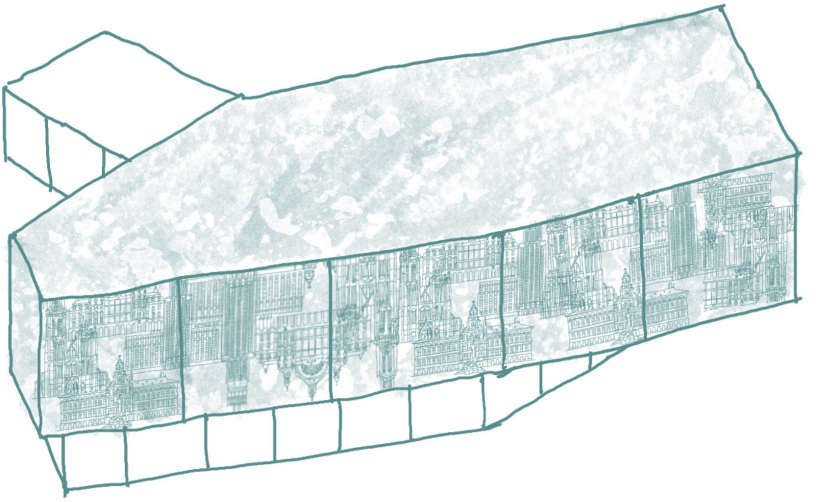




combine the sketches of the buidlings together



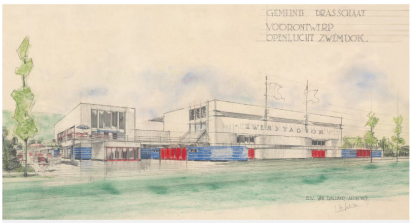
simplify the sketches (with ai) to create a more minimalistic look



create a pattern that can be used on the facades

Collectie highlights

De collectie bestaat uit een waaier aan objecten, elk met een eigen verhaal en achtergrond. Aan de hand van een reeks thema's krijg je een inkijk in onze archieven.



Sport & Architectuur

In Stijl

I had to rethink the idea of the facade and make the concept stronger. I wanted to have an engraved facade that also acts ornamental, showcasing the function of the building clearly to the world.

I revisited the choice of the illustration and pattern. Now doing a bit more research on the type of buildings that were chosen. I decided to take the VAi archive as a reference and looked at the collection highlights. The collection "In Stijl" particularly was interested and showed how the city of Antwerp developed architecturally over time. It was very relevant to the depot.

In Stijl (from the VAi website)
Elke periode heeft zijn kenmerkende architectuurstijlen. Ze vertellen een uniek verhaal over onze geschiedenis en cultuur. In Stijl brengt 200 jaar ontwerpen en bouwen in Vlaanderen en Brussel tot leven aan de hand van documenten uit de collectie van het VAi. Bewonder gebouwen in neoclassicistische stijl, ontdek de speelse vormen van de art nouveau of sta stil bij de sobere composities van de modernistische architecten.

Is het begrip stijl nog relevant? Lange tijd zagen kunst- en architectuurhistorici 'stijl' als een onmisbaar instrument om de geschiedenis van de bebouwde omgeving te bestuderen. Vandaag is dit begrip minder aanwezig in het discours van historici en architecten. Zij kijken niet langer naar de geschiedenis in termen van stilistische coherentie. Het onderzoeken van de uiterlijke kenmerken of stijlen wordt tegenwoordig aangevuld door dwe studie van de architectuur binnen haar bredere maatschappelijke en culturele context.

Antwerp's architectural timeline facade concept

The facade of this new building, situated alongside De Singel in Antwerp, serves as a visual narrative of the city's rich architectural evolution. Designed as a dynamic timeline, it incorporates stylized representations of key buildings that have shaped Antwerp's identity over the centuries.

Each segment of the facade reflects a distinct architectural era, from the medieval gothic splendor of the Cathedral of Our Lady, through the ornate Renaissance and Baroque influences, to the bold modernist and contemporary designs that define the city today. Iconic structures such as the Antwerp Central Station, the Boerentoren, and De Singel's own architectural heritage are abstracted into the facade's composition, creating a dialogue between past and present.

The design not only pays homage to Antwerp's built history but also integrates seamlessly with De Singel's layered development, acting as a bridge between the old and the new. Through materiality, form, and rhythm, the facade becomes a living archive, which is a tribute to the city's architectural legacy while asserting its forward-looking vision.

By fusing historical references with contemporary expression, the facade invites viewers to experience Antwerp's skyline as a cohesive story, etched in stone, glass, and steel.

HET STEEN

Het Steen is het **oudste en misschien wel meest iconische gebouw van Antwerpen.** Het is verbonden met de oorsprong van de stad en de laatste zichtbare getuige van de omwalde burcht die sinds de 13de eeuw de oevers van de Schelde domineerde.

Wat vandaag Het Steen is, is het resultaat van eeuwen bouwen, verbouwen en bijbouwen. Om de samenhang tussen de verschillende bouwfasen te vergroten, schreef de Vlaams Bouwmeester in 2016 een Open Oproep uit voor de restauratie en herbestemming van het Steen. Het winnend ontwerp van noAarchitecten vertrekt vanuit de bouwgeschiedenis van het complex. Het vrijstaand gebouw zoals het in 1890 was gevormd, ligt aan de basis van hun voorstel. De nieuwbouw van noAarchitecten sluit naadloos aan op dit historische deel. Voor het historisch onderzoek deden de architecten onder meer beroep op archiefstukken uit de collectie van het VAi.

Ferdinand Truyman, ontwerp van herstelling voor gevel C van Het Steen, 1885

Gravure van Josef Linnig uit 1868, naar een tekening van Bonaventura Peeters uit 1650

Ontwerp kleurgradaties in het metselwerk door kunstenaar Pieter Vermeersch

ONZE-LIEVE-VROUWEKATHEDRAAL

De Onze-Lieve-Vrouwekathedraal is niet alleen een architecturaal meesterwerk, maar ook een symbool van Antwerpens trots, geschiedenis en culturele identiteit. Als hoogste gotische gebouw van de Nederlanden (123 meter torenspits) domineert ze al eeuwenlang de skyline van de stad, en haar iconische Silhouet is wereldwijd herkenbaar. Ze vindt haar oorsprong in een 9e-eeuwse kapel, later vervangen door een romaanse kerk in de 12e eeuw. De bouw van de huidige gotische kathedraal begon in 1352 en duurde tot 1521, met onderbrekingen door politieke en financiële problemen. Belangrijke architecten waren Jacob van Tienen, Peter Appelmans en de familie De Waghemakere, die het oorspronkelijke vijfbeukige ontwerp uitbreidden naar een zevenbeukige basiliek—bijzonder door het ontbreken van een triforium en kapiteelloze pijlers die een hogere ruimtesuggestie creëren. De noordtoren werd voltooid in 1521, terwijl de zuidtoren onafgewerkt bleef. De kathedraal liep schade op tijdens de Beeldenstorm (1566), het calvinistische bestuur (1578-85) en de Franse bezetting (eind 18e eeuw), met latere barokke aanpassingen en neogotische restauraties in de 19e eeuw. Sinds 1965 wordt ze grondig gerestaureerd.

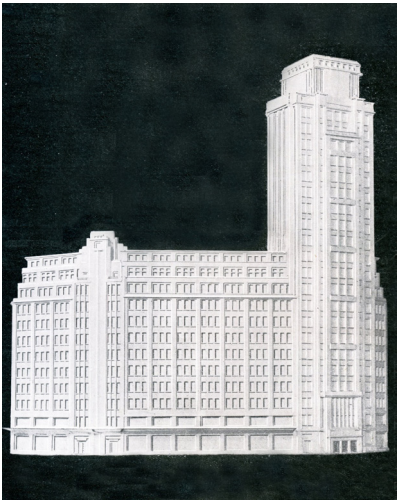
opstand voorgevel, opstand toren, Koninklijke Commissie voor Monumenten en Landschappen (KCML), 01-01-1837 uit beeldbank Onroerend Erfgoed

Genomen door Pauwels, Oswald op 01-01-1989

DE BOERENTOREN

De Boerentoren is meer dan een gebouw. Al van bij zijn oplevering was de toren een markant **herkenningsteken van de Antwerpse skyline en een symbool voor de welstand en moderniteit van de stad**. Antwerpen veroverde met zijn skyscraper zelfs een plaats op de internationale architectuurscène. Dit eerste Belgische torengebouw was met zijn 87,5 meter jarenlang een van de hoogste wolkenkrabbers in Europa. Vandaag staat de Boerentoren opnieuw in de belangstelling. De plannen om dit iconische gebouw de volgende jaren om te vormen tot een cultuurtempel laten niemand koud.

Jos Smolderen, perspectieftekening van de Boerentoren in Antwerpen, 1928 (collectie VAi)



Eerste maquette van de Boerentoren, juli 1928

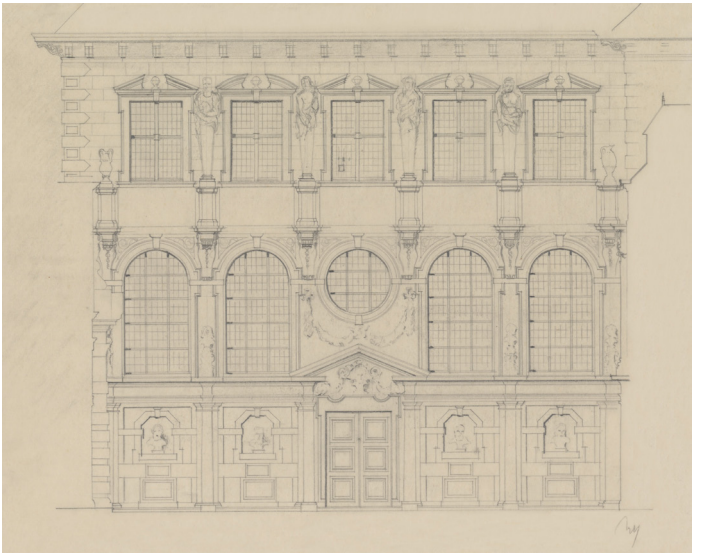
Jan Vanhoenacker, Jos Smolderen en Emiel Van Averbeke, definitief gevelontwerp (deel 1 en 2), januari 1931

HET RUBENSHUIS

De beroemde barokschilder Pieter Paul Rubens (1577-1640) was een wereldburger, maar hij kwam altijd terug naar zijn vertrouwde Antwerpen. Hij kocht er een huis en bouwde het om tot een Italiaans stadspaleis. Naar aanleiding van de opening van Rubens Experience, het nieuwe onthaal van de hand van Robbrecht en Daem architecten, lanceert het Vlaams Architectuurinstituut een collectiehighlight. Reis mee door de wonderlijke geschiedenis van de kunstenaarswoning.

De voorgevels van het Rubenshuis op de wereldtentoonstelling van Brussel, ontworpen door Henri Blomme. Uit 'L'Emulation,' 1910 (11) (collectie VAi)

De gerestaureerde portiek, jaren 1940 (collectie VAi)



Victor Blommaert, ontwerp voor de gevel van de werkplaats (of schildersatelier), jaren 1940 (collectie VAi)

NEOCLASSICISME

Tijdens de tweede helft van de 18de eeuw vormden archeologische opgravingen de aanleiding voor reizen naar Italië en de verspreiding van talrijke werken over de oudheid. Deze belangstelling voor de antieke cultuur beïnvloedde de architectuur en de schilder-, beeldhouw- en sierkunsten.

Vanaf de jaren 1760 verdrong het neoclassicisme de barok en de rococo. Het inspireerde zich op de vormen en verhoudingen van de Griekse en Romeinse architectuur. Het was de eerste van een hele reeks historische stijlen die opgang maakte in Europa en Noord-Amerika.

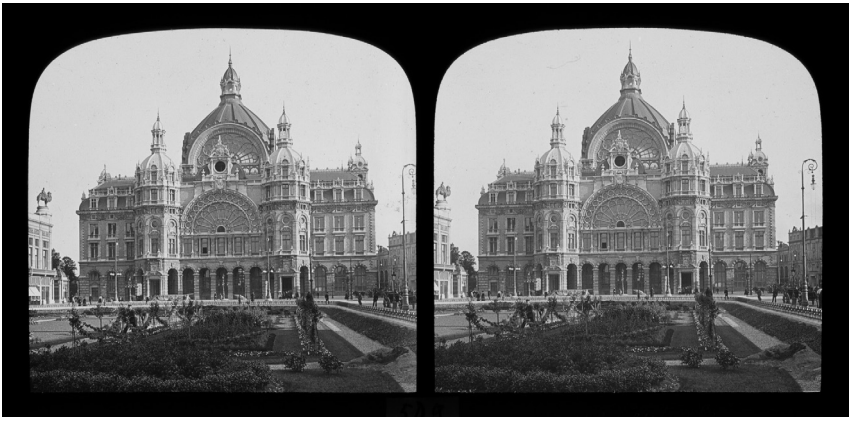
Pierre Bruno Bourla, Théatre Royal Français of de Bourlaschouwburg in Antwerpen, 1829-1834. Foto uit 1904 (collectie VAi)

NEOSTIJLEN

Vanaf de jaren 1830 was de oudheid niet meer unaniem het enige na te volgen model. Er kwam een einde aan de dominantie van het neoclassicisme in de architectuur. De inspiratiebronnen werden gevarieerder. Ontwerpers recycleerden ook andere historische stijlen. Die intense belangstelling voor het verleden had onder meer te maken met de sterke nationale gevoelens na de Belgische onafhankelijkheid.

De 19de eeuw was het hoogtepunt van de neo-architectuur, een manier van bouwen waarin stijl een kwestie was van architectuur uit het verleden te reproduceren. Een aantal ontwerpers putten slechts uit één stijl om de architectuur te herbronnen en de herinterpreteren. Populair waren de neorenaissance en de neogotiek.

Tegelijkertijd met deze neostijlen ontwikkelde zich het eclecticisme. Dat richtte zich niet op één bron, maar combineerde verschillende historische stijlen naast elkaar tot een originele, nieuwe architectuur. Dit virtuoos spel met stijlen had een grote impact op het architectuurdiscours van de 19de eeuw. Een bijzondere vorm van het eclecticisme was de beaux-arts-stijl. Die sloot aan bij het neoclassicisme, de neobarok en de neorenaissance en was nauw verbonden met het architectuuronderwijs aan de academies.



Louis Delacenserie, het Centraal Station in Antwerpen, 1895-1905 (collectie VAi)

ART NOUVEAU

Tussen ongeveer 1890 en 1913 verspreidde zich een vernieuwingsbeweging in de architectuur en de kunstnijverheid. Deze 'nieuwe kunst' of art nouveau brak met de vormen uit het verleden en de artistieke neostijlen die de voorgaande decennia hadden gedomineerd. In hun streven naar een totaalkunst werkten de architecten met een veelheid aan materialen, vormen en kleuren. Ze maakten gebruik van golvende, vloeiende lijnen of geometrische motieven. Gietijzer, glas, sgrafitto en mozaïek speelden een belangrijke rol.

In het begin werd de art nouveau vooral geapprecieerd door een elite. Uiteindelijk vond de stijl ook zijn weg naar de kleine burgerij en evolueerde al snel tot een modieus fenomeen. De beweging bracht een rijke schakering aan regionale variaties voort. Zo was er de Jugendstil in Duitsland, de Modern Style in Engeland en de Wiener Secession in Oostenrijk.

Jan Van Asperen, in samenwerking met Emiel Van Averbeke, het liberaal volkshuis Help u Zelve in Antwerpen, 1898-1901. Foto uit 2004

ART DECO

De art-decostijl was een decoratieve stijl in de architectuur, de interieurinrichting en de toegepaste kunst. Hij bereikte zijn hoogtepunt tussen de twee wereldoorlogen en was populair bij een breed publiek. Stilistisch is de art deco moeilijk te definiëren. Historische stijlen, lokale en exotische invloeden en het modernisme vormen slechts een kleine greep uit het repertorium dat door deze stijl werd gerecupereerd en gemoderniseerd. Art deco was gematigd modern en bood zo een acceptabel decor voor het burgerlijke wonen in de jaren 1920 en 1930.

Net als de art nouveau is art deco een verzamelnaam die betrekking heeft op diverse stromingen in verschillende landen. De term is afgeleid van de Exposition Internationale des Arts Décoratifs et Industriels Modernes die in 1925 plaatsvond in Parijs.

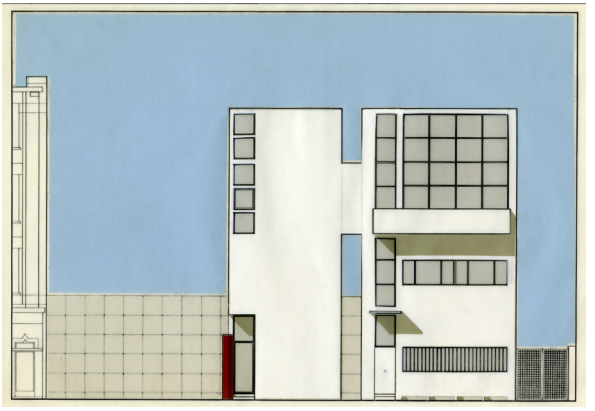
Emiel Van Averbeke en Van Opstal, hoekgebouw van het warenhuis Galeries Du Bon Marché in Antwerpen, 1928 (collectie VAi)

MODERNISME

Het modernisme is een stroming in de architectuur en de kunst die vooral vanaf de jaren 1920 opgang maakte. Deze baanbrekende beweging kwam voort uit reacties op de maatschappelijke en technologische veranderingen van die tijd. Ze streefde naar functionaliteit, eenvoud en een breuk met de historische stijlen.

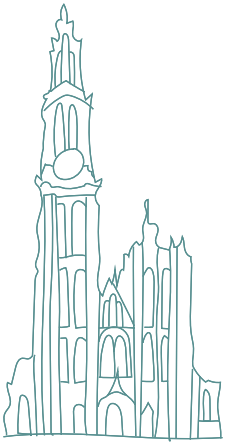
De modernistische architecten herleidden hun ontwerpen tot uitgepuurde composities waarin natuurlijke elementen zoals licht en lucht werden geïntegreerd. Ze streefden naar efficiënte en rationele gebouwen die de behoeften van de gebruikers weerspiegelden, zonder overtollige versieringen. Ook experimenteerden ze volop met nieuwe materialen en technieken. Beton, staal en glas werden prominent ingezet en boden meer vrijheid in de vormgeving. Dit vertaalde zich in een architectuur met elementaire en geometrische volumes, horizontale raamstroken, platte daken en open en flexibel ingerichte ruimtes.

De modernistische architectuur bevatte een veelheid aan vormen en tendensen. In België ontwikkelde ze zich vooral als een zakelijke baksteenarchitectuur. Slechts enkelen verwerkten het modernistisch, ideologisch geladen purisme op een bijna dogmatische manier.

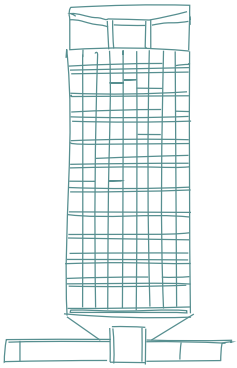


Georges Baines, ontwerp uitbreiding woning Guiette in Antwerpen, circa 1993, Collectie VAi - Collectie Vlaamse Gemeenschap

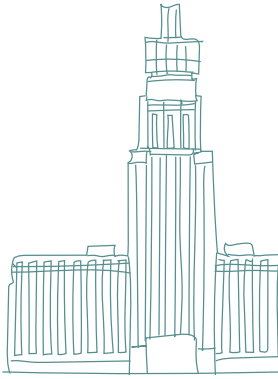
collage of the buiildings



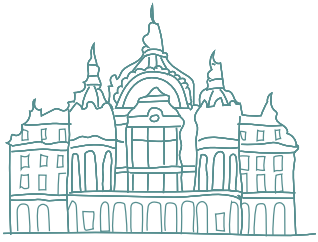
onze-lieve-vrouwekathedraal



BP gebouw



boerentoren

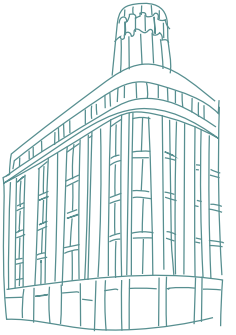


antwerpen centraal station

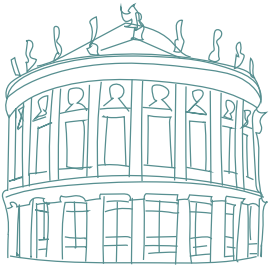
liberaal volkshuis

het steen

maison guiette

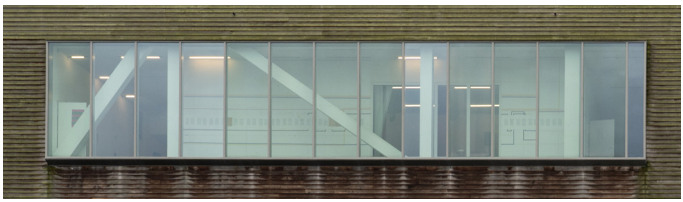


galeries du bon marché

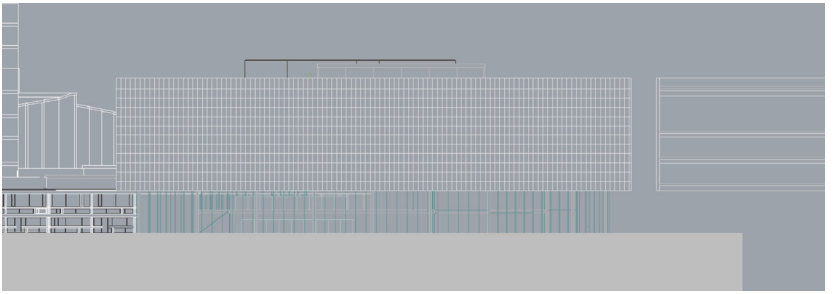


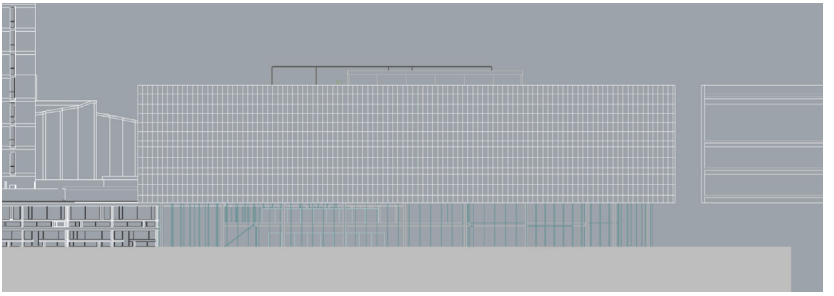
bourlasschouwburg

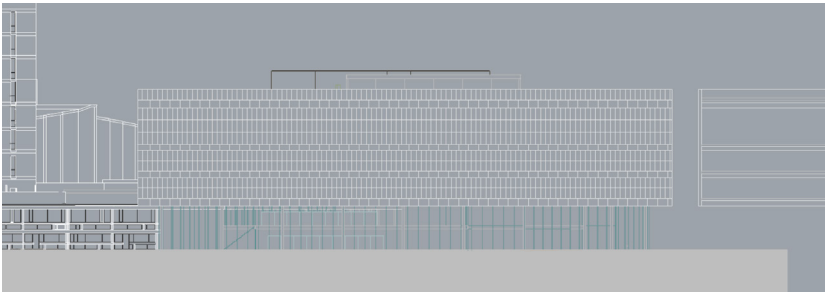
rubenshuis



deSingel



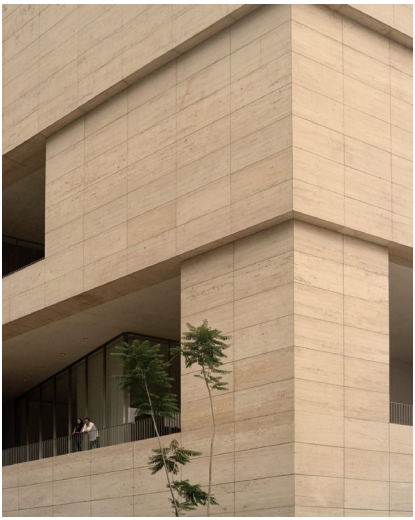




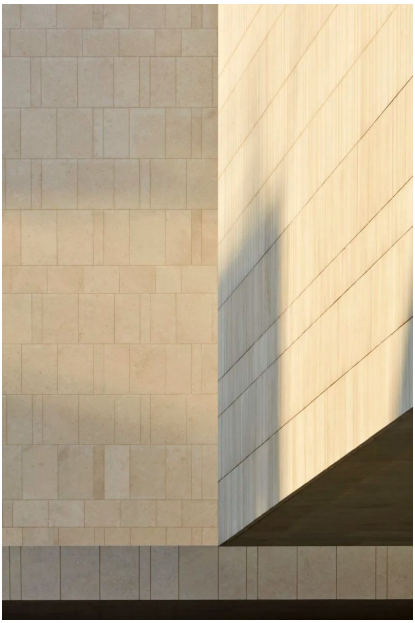
variations of the facade tiles pattern on the facade

final tile dimensions: 700x1550

final tile dimensions: 865x1400



david chipperfield - museo jumex

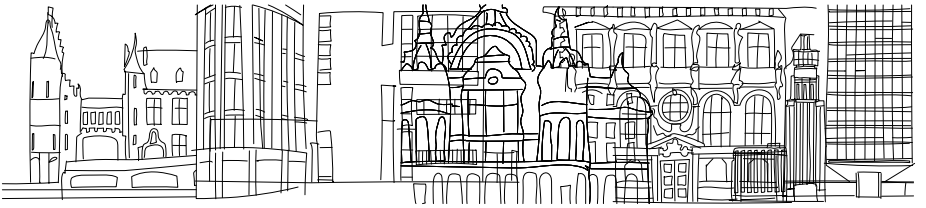


john mcaslan - M7 cultural forum

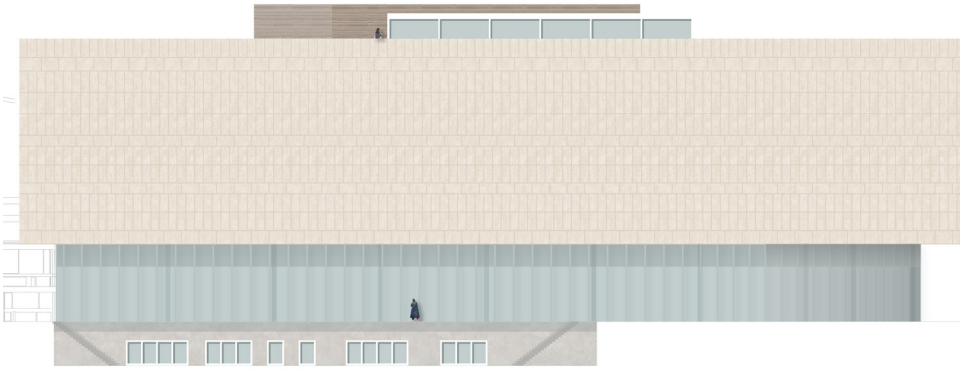
One can question how much of this illustration is up to the architect to design. Will this artwork be commissioned from a local artist? If this illustration is engraved into the stone, who will do this engraving? Machine or hand work? Are all the facades going to be engraved? Or only one or two "main" facades? How much will the costs be? Is it viable to engrave all the facades? Gobertange is a soft stone, so relatively easy to carve, but how easy is easy?

The rhythm of the panels is reflective of de Singel's facade. One can question if the pattern created by the panels would be visually strong enough without the illustration.

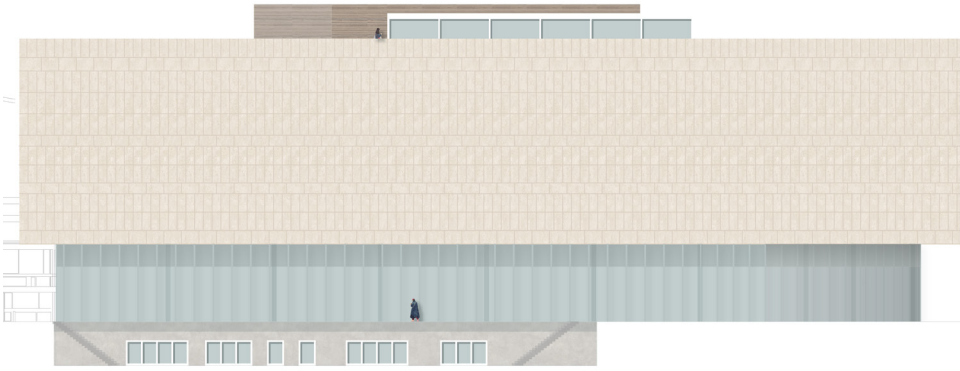
When developing the illustration myself, I found it challenging to determine the appropriate level of detail. I experimented with various collages and combinations of buildings, shifting between more realistic and more conceptual approaches. In the end, I arrived at a simplified collage that loosely reflects the Antwerp skyline. The lines are minimal yet distinct enough to draw attention from afar, while revealing a finer level of detail as one moves closer to the facade.



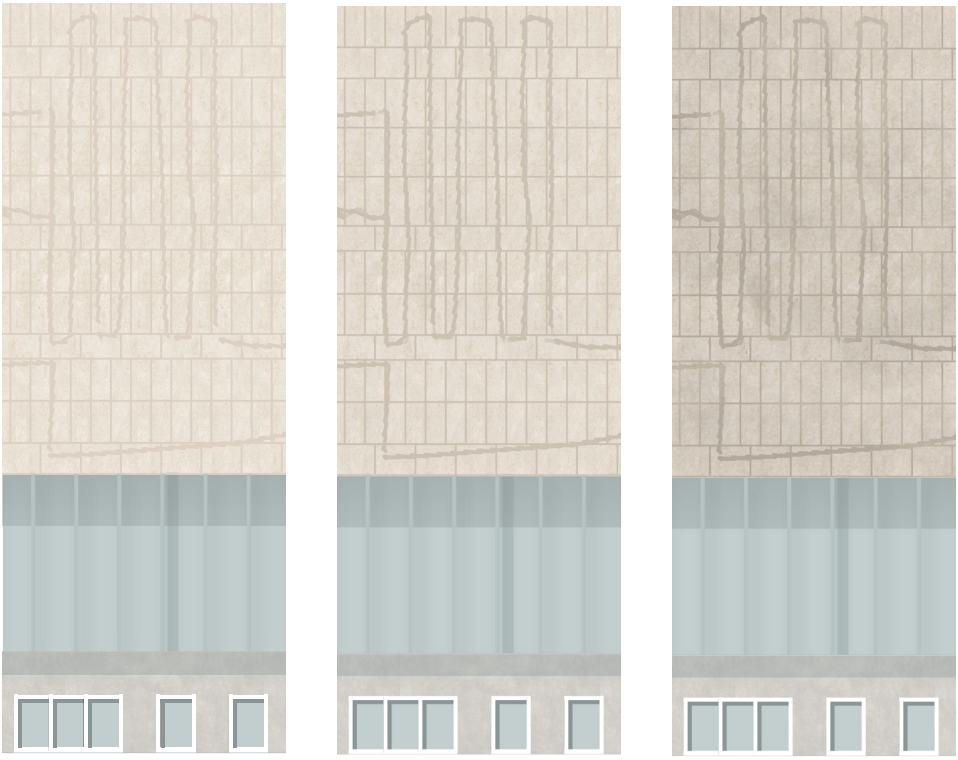
detailed_illustration



elevation_only_tiles



elevation_detailed_illustration

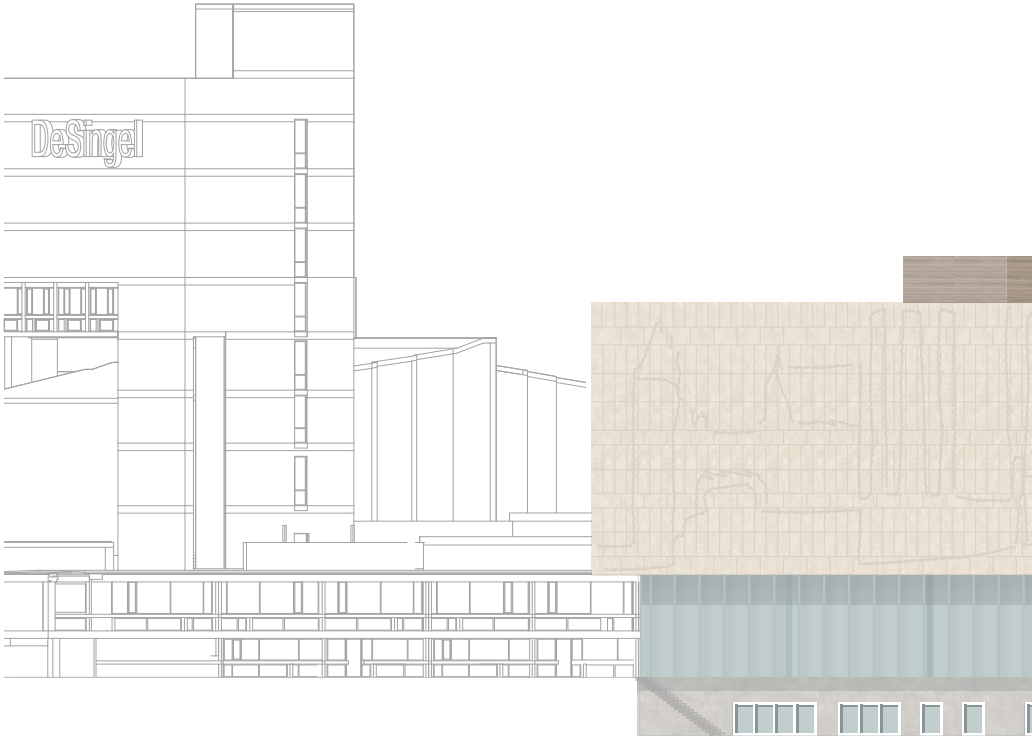


facade weathering

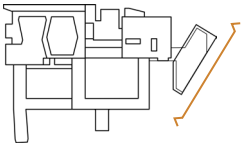
This image shows the facade not as a pristine object, but as a living part of the city. Over time, the Gobertange stone will develop a natural patina—a soft, weathered texture that echoes the aging process of the very architectural landmarks depicted in its engraved collage.

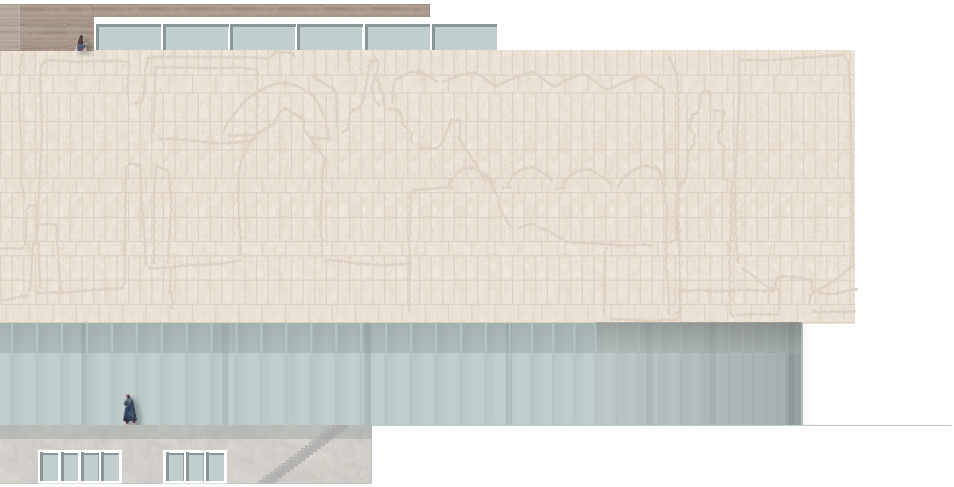
This intentional weathering embodies the project's core idea: the archive is not a static container, but a dynamic participant in the city's timeline. The facade itself becomes a record, its surface changing and gaining character, just as the city and its architecture continue to evolve. It is a testament to the beauty of a building that is designed to belong, to age gracefully, and to tell a story that deepens with time.

ELEVATIONS

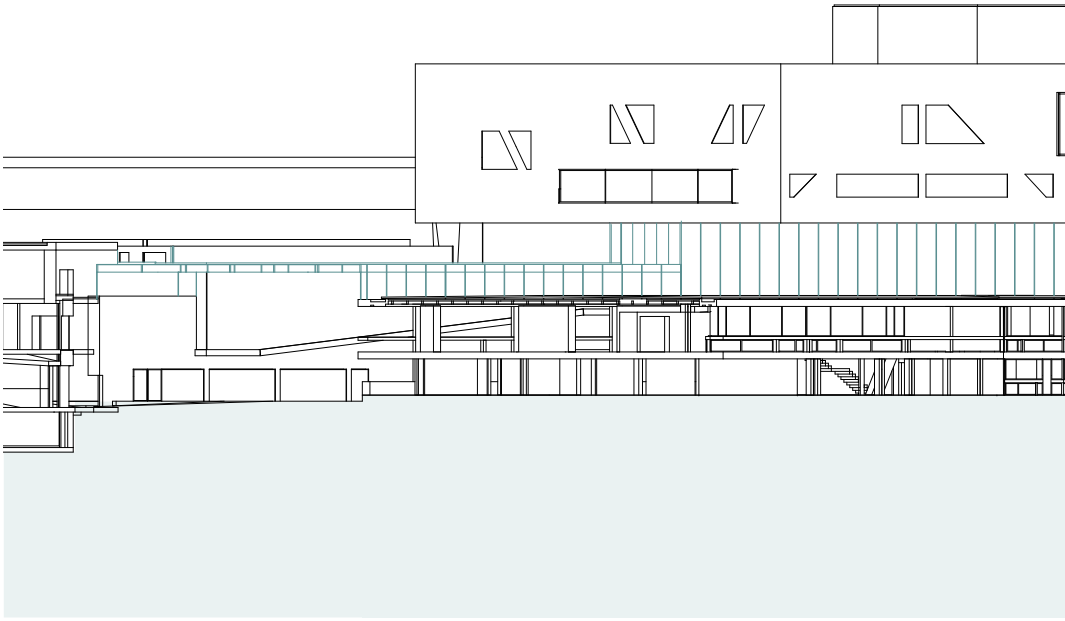


elevation_west_facade

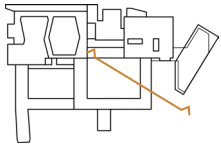


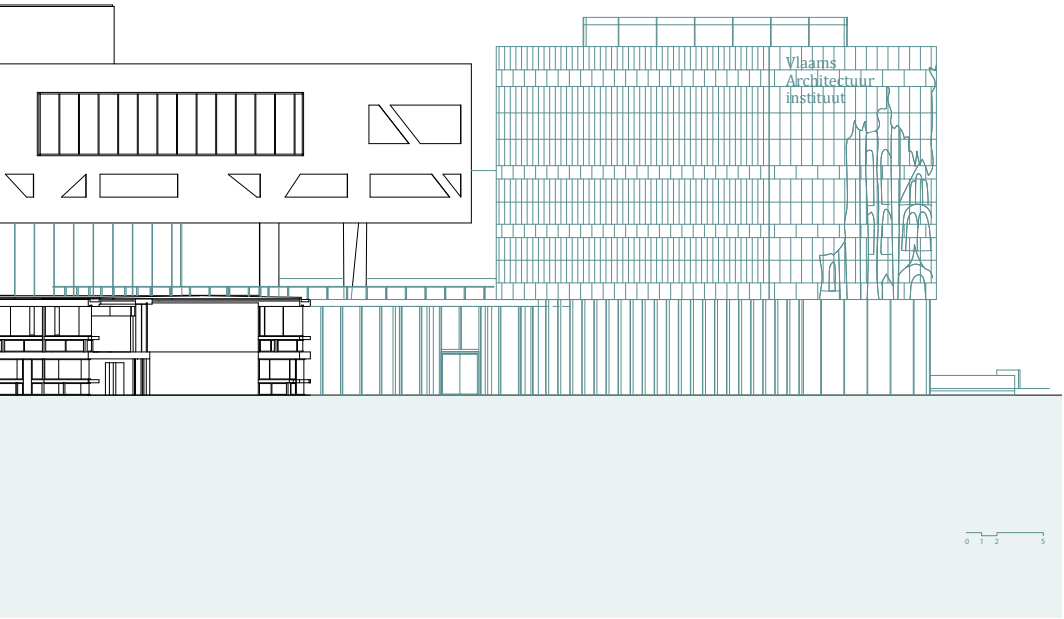


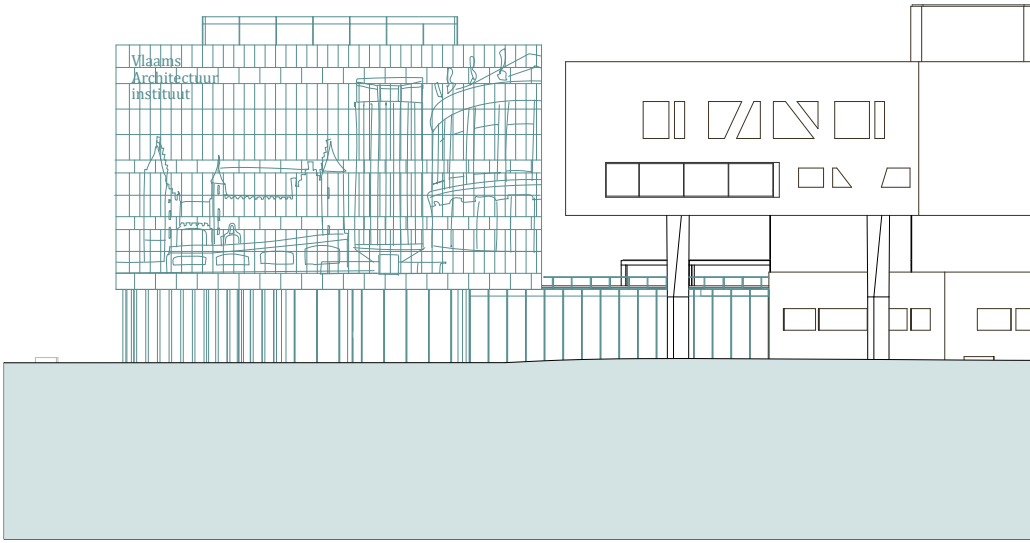
elevations



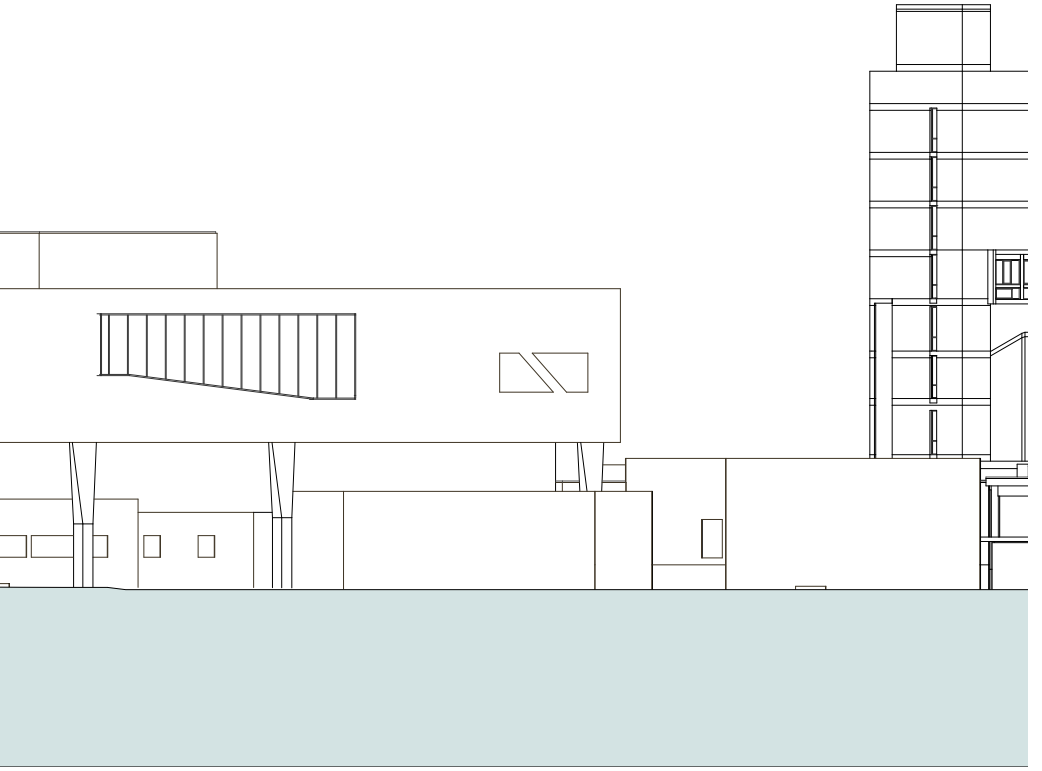
elevation_north_facade




Vlaams
Architectuur
instituut
0 1 2 5



elevation_south_facade

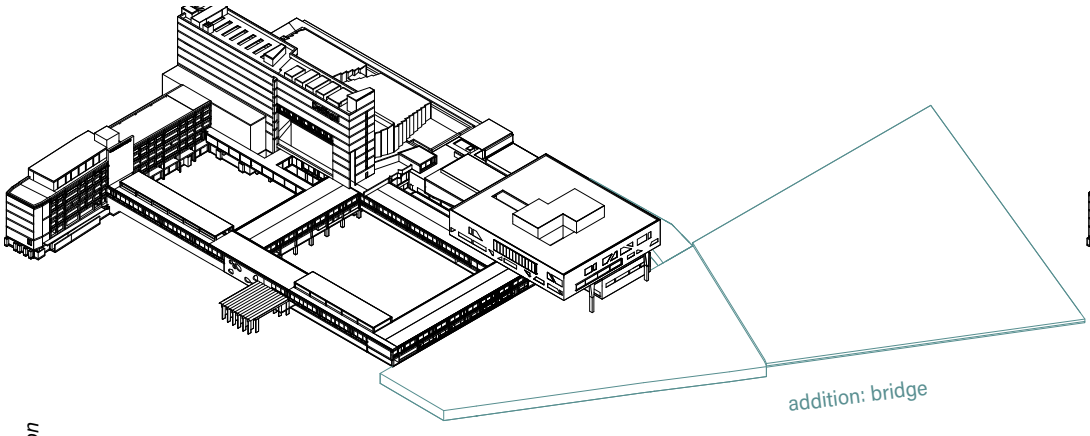


BUIL

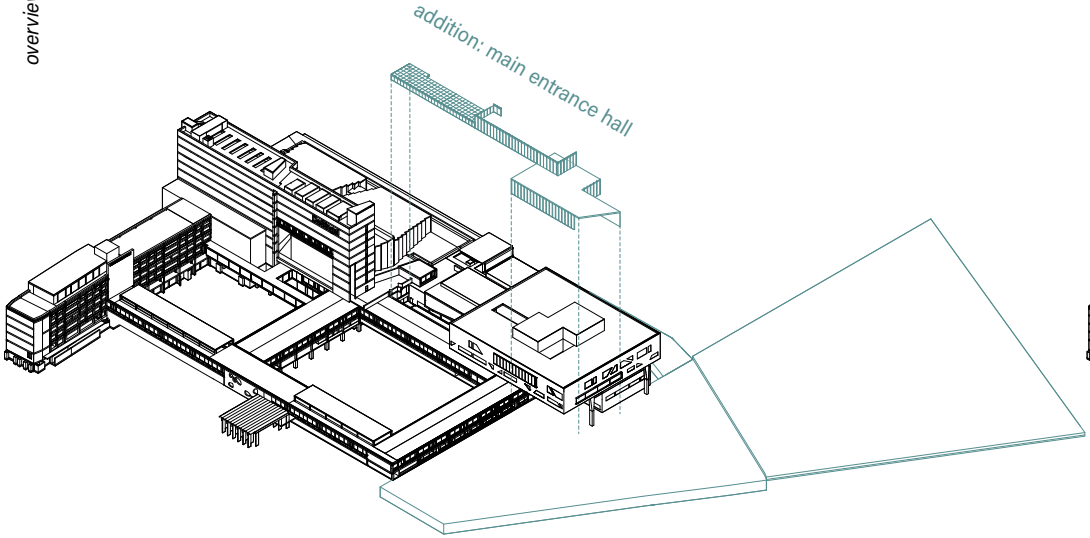
LDING TECHNOLOGY

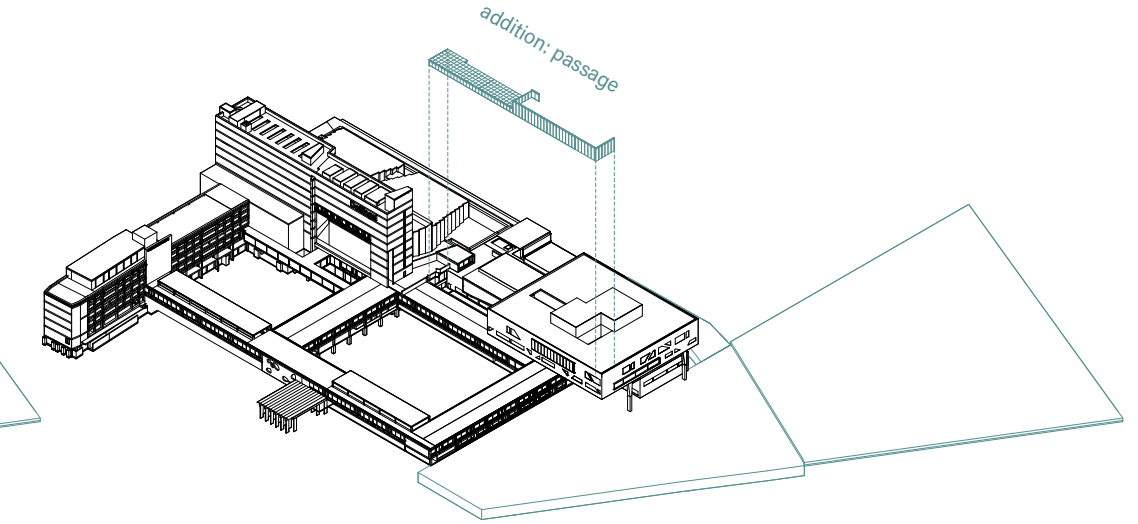
structure - floor plans - facade fragment - details - climate design

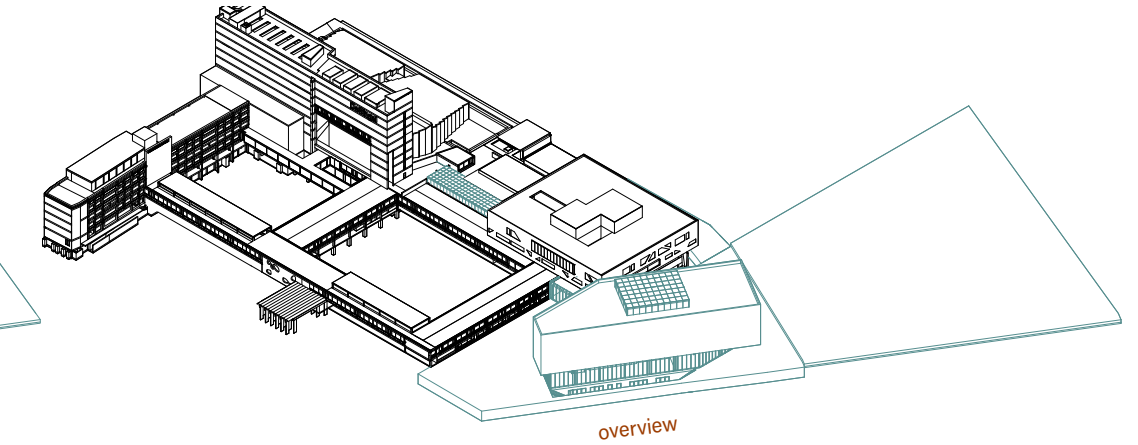
STRUCTURE



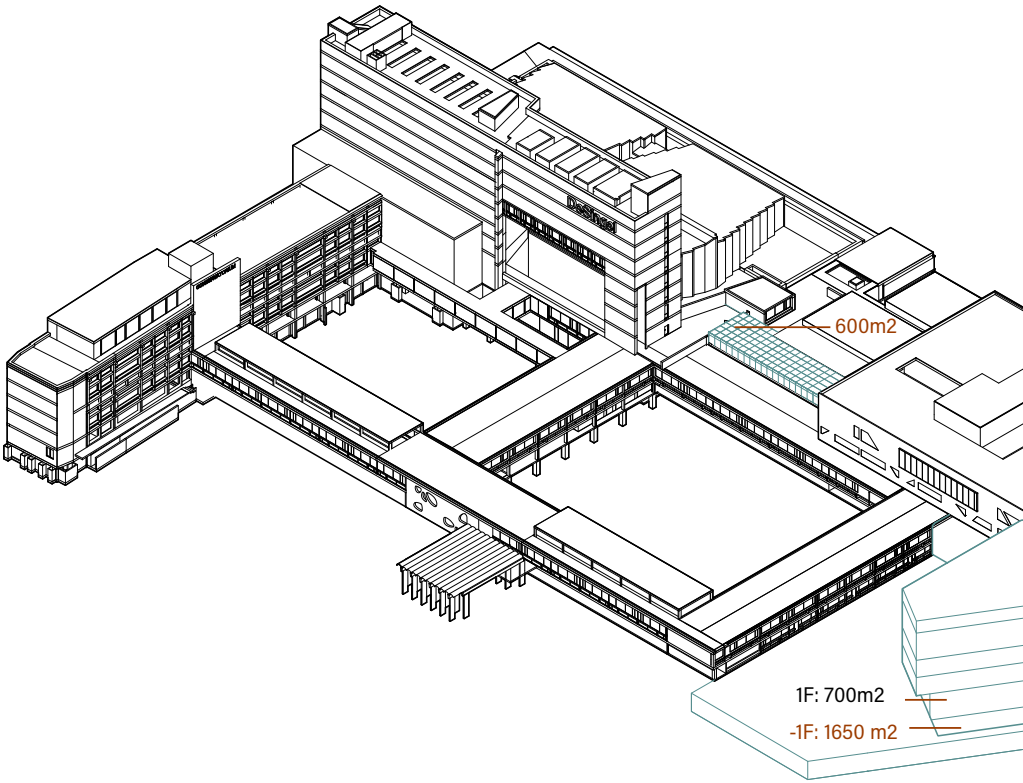
overview structure addition

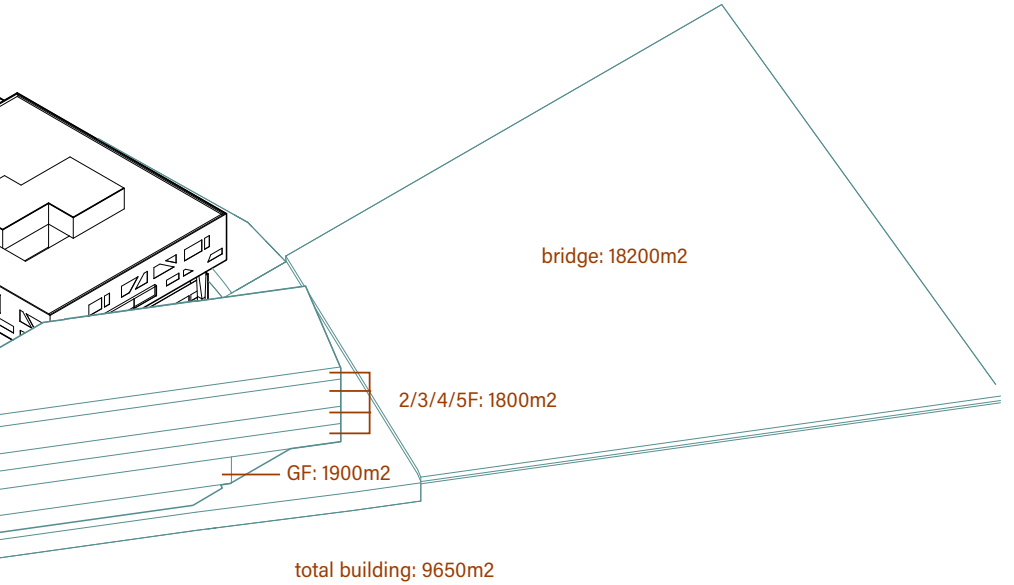


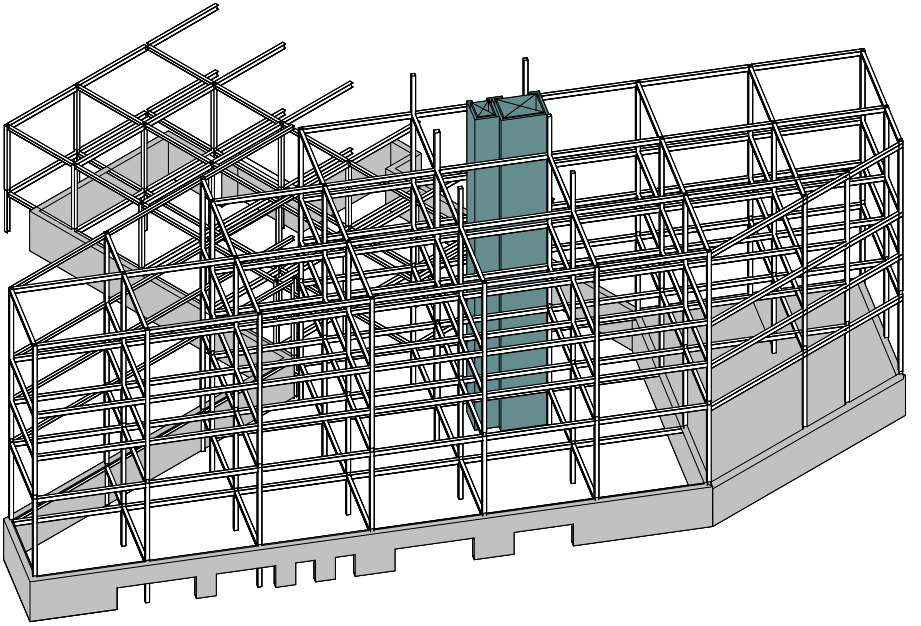

addition: passage


overview

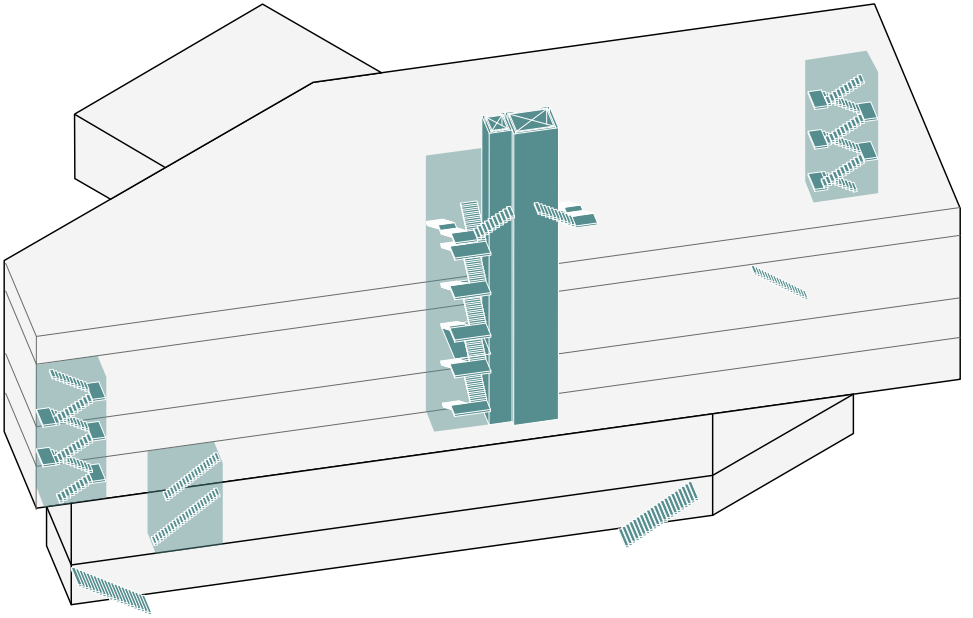
overview volume




bridge: 18200m2
2/3/4/5F: 1800m2
GF: 1900m2
total building: 9650m2

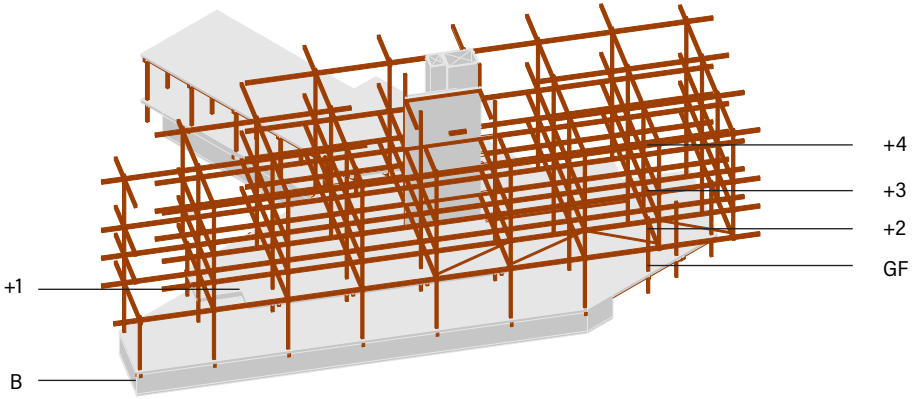


load-bearing structure pre-p4



circulation building

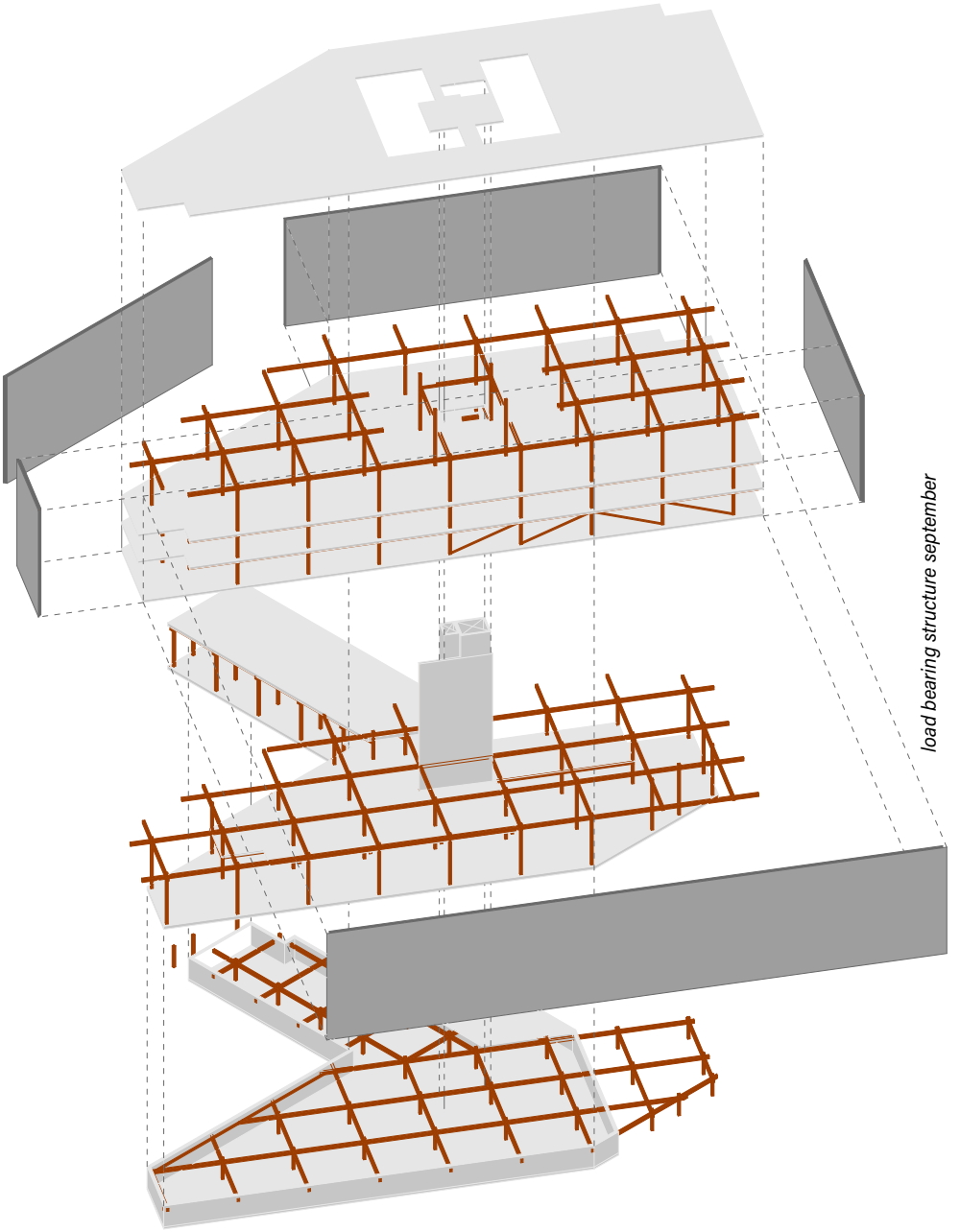
diagrams structure pre-p4



steel beams and columns

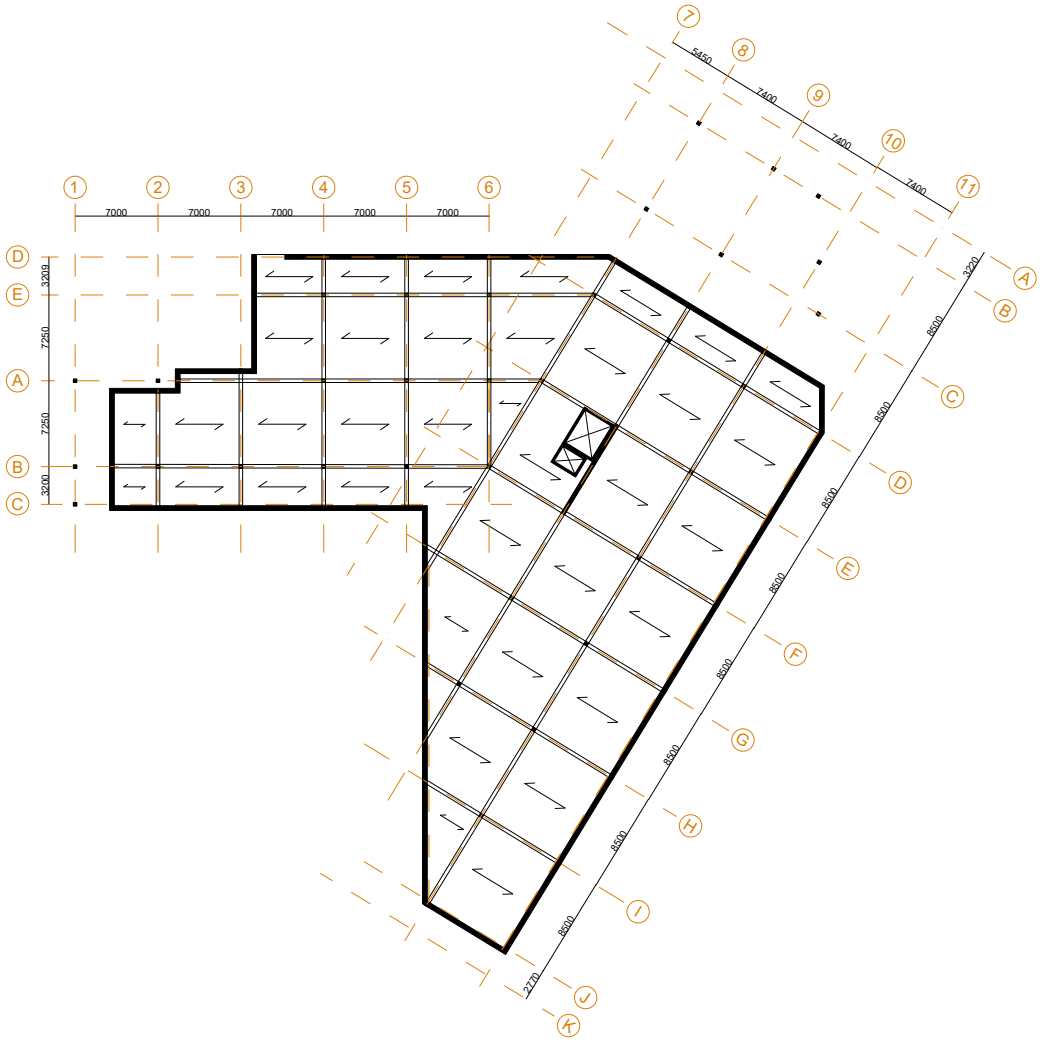
concrete structure

concrete facade

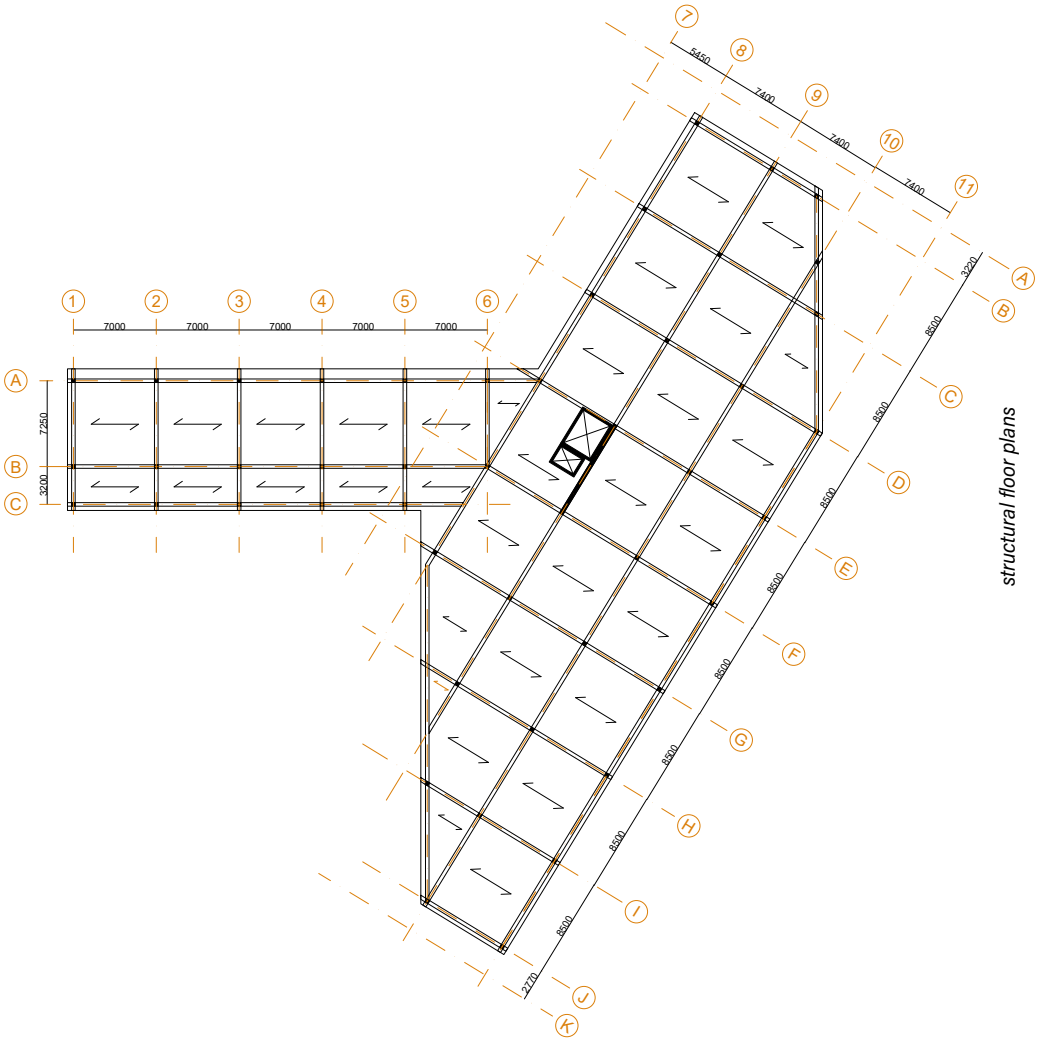


load bearing structure september

FLOOR PLANS



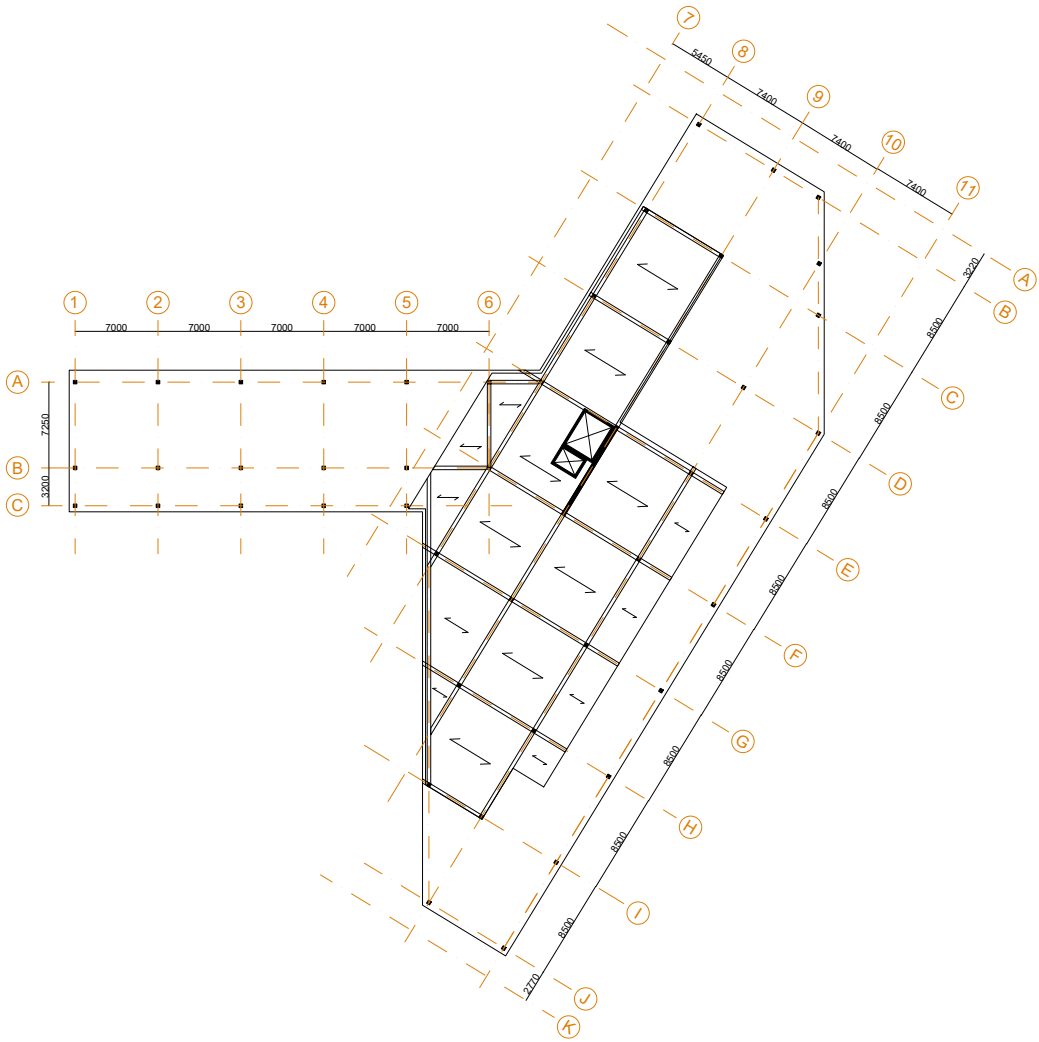
basement



structural floor plans

0 1 5 10

ground floor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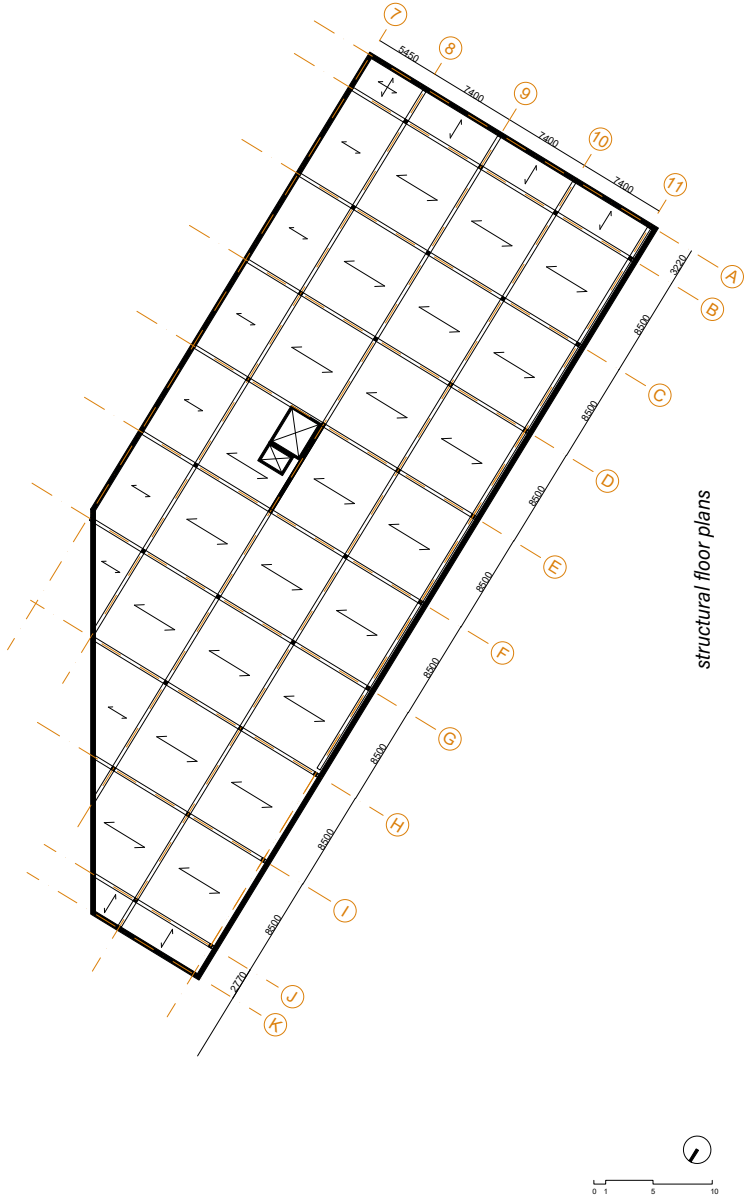
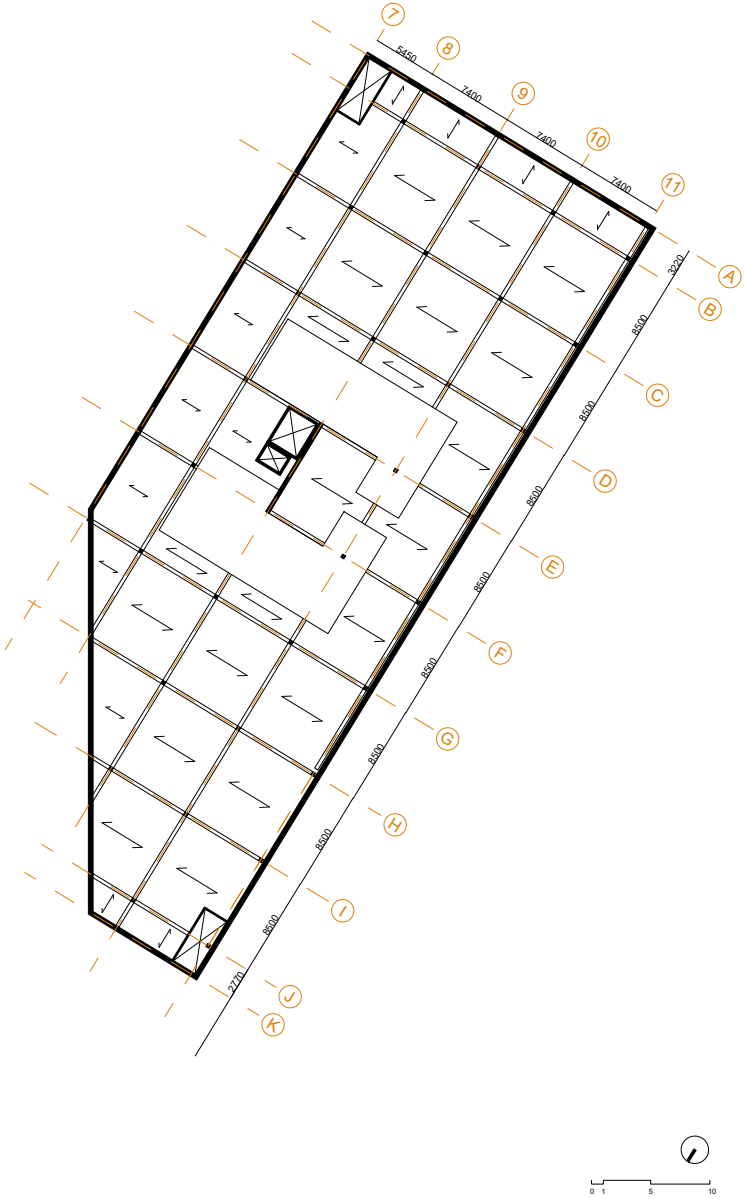
8500
2770

first floor



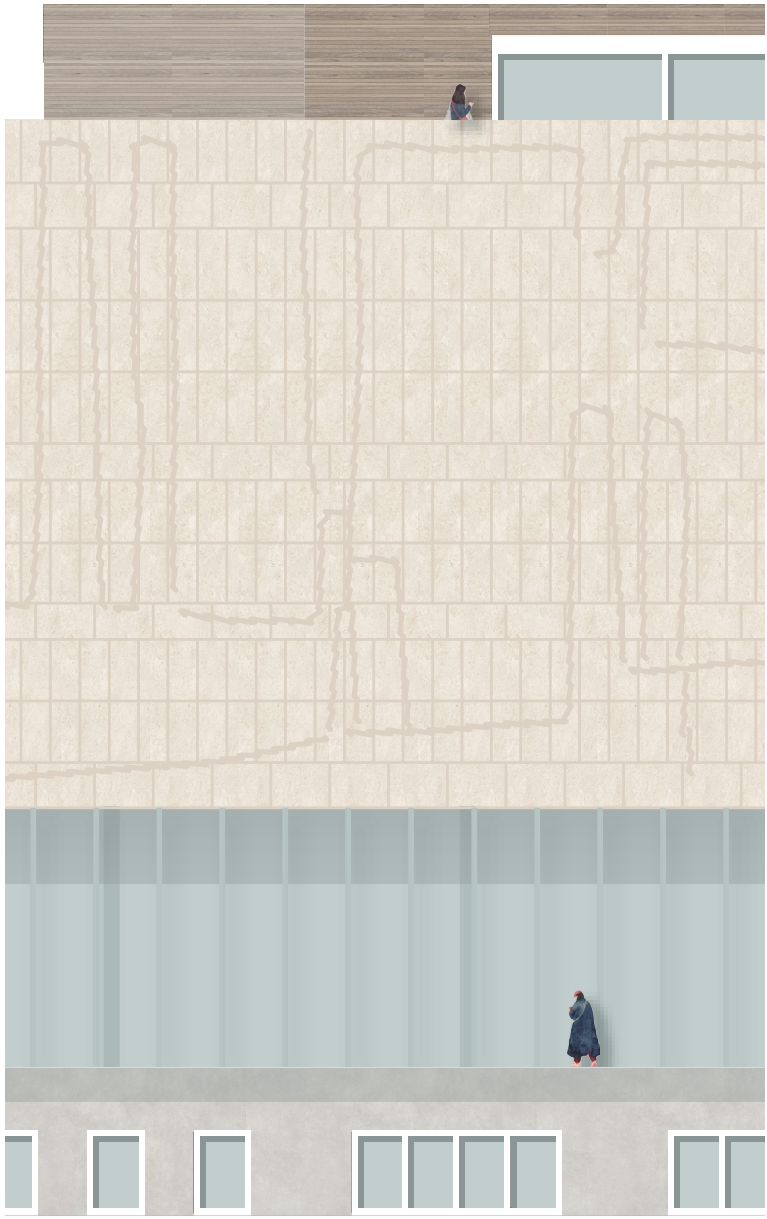
structural floor plans

second floor and third floor

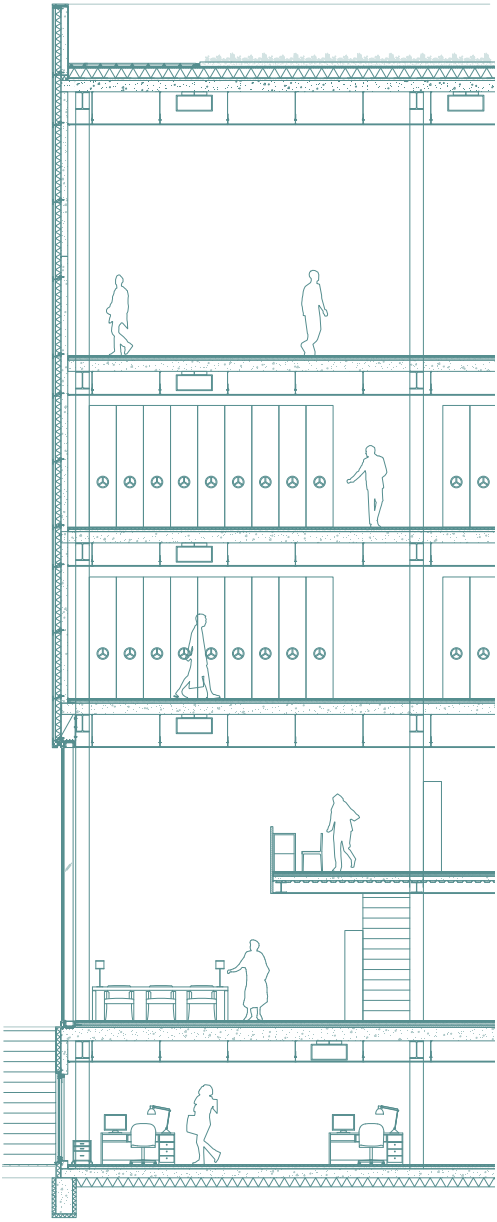


second floor and third floor

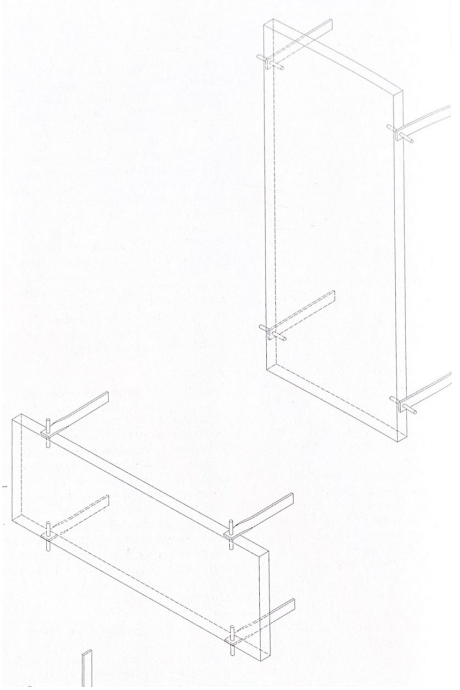
structural floor plans



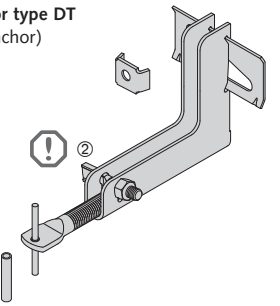
FACADE FRAGMENT



facade fragment 1:25



Body anchor type DT
(Support anchor)

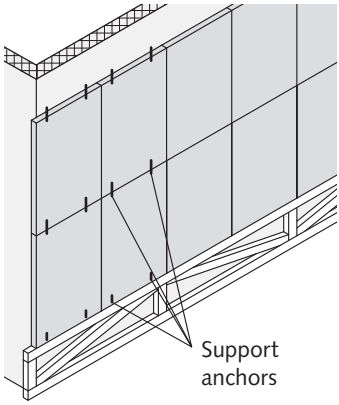


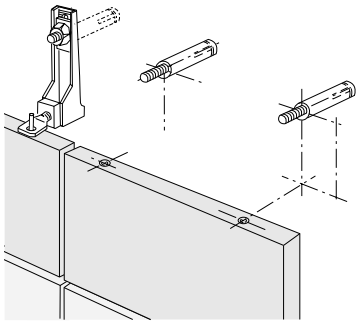
Hugues, T., Steiger, L., & Weber, J. (2005).

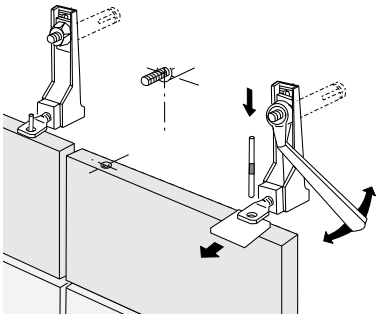
The panels need to be fixed with at least three, usually four fixings, generally two suporting and two retaining fasteners (Hugues et al., 2005). A minimum thickness of 30mm is prescribed for vertical panels.

HALFEN DT Body anchor

HALFEN DT Body anchors (structural anchors) are suitable for large stand-off distances of 140 to 300mm and loads of up to 1300N. The pre-assembled anchors consist of the main bracket, the adjustable wedge plate and a spade bolt. Vertical bracket adjustment is made using the sliding wedge plate. The stand-off distance to the supporting substrate can be adjusted using the spade bolt. The Body anchor DT can also be pivoted around the fixing bolt for lateral adjustment. The spade bolt is pre-assembled to use in the horizon panel, but is easily adjusted for use in the vertical joints by rotating the spade bolt.







Installation natural stone panels with halfen anchors

1. Prepare fixing points
- Cut and temporarily remove part of the thermal insulation where each anchor will be placed.
- Drill the dowel holes for the first and second panel rows to the correct diameter and depth.
- Clean all dust from the holes.

2. Install lower (support) anchors
- Attach and align the lower row of Halfen body anchors (type DH) using approved Halfen bolts (HB-BZ) and the supplied washers.
- Replace the removed insulation around the anchors.
- Fill pin holes with mortar as required.

3. Mount first row of panels
- Place the first row of stone panels onto the installed support anchors.

4. Install upper anchors for next row
- Fix and align the upper (retaining) anchors for the next row using the same procedure.
- Leave a 2 mm gap between the top edge of the lower panel and the bottom edge of the upper support arm.

5. Insert locking pins
- Insert the anchor pin through the spade bolt hole into the sleeve below, following the specified dimensions for pin, fixing hole, and joint spacing.

(Halfen, 2023)

The stone panel dimensions are for the vertical panels: 700x1550 mm (width x height) and for the horizontal panels: 1400x865 mm. These panels will be engraved with a pattern.

I used AI to give me a rough calculation of the stone panel weights and the differences per thickness.

density used = 2650 kg/m^3 for limestone

Panel A: 700 × 1550 mm = 0.700 × 1.550 = 1.085 m^2
Panel B: 865 × 1400 mm = 0.865 × 1.400 = 1.211 m^2

Volume = area × thickness (m). Mass = volume × density (2650 kg/m^3).

Panel A (1.085 m^2)
30 mm (0.030 m): vol = 1.085×0.030 = 0.03255 m^3 → mass = 0.03255×2650 = ≈ 86.3 kg.
40 mm (0.040 m): vol = 0.04340 m^3 → mass = 0.04340×2650 = ≈ 115.0 kg.
50 mm (0.050 m): vol = 0.05425 m^3 → mass = 0.05425×2650 = ≈ 143.8 kg.
60 mm (0.060 m): vol = 0.06510 m^3 → mass = 0.06510×2650 = ≈ 172.5 kg.

Panel B (1.211 m^2)
30 mm: vol = 1.211×0.030 = 0.03633 m^3 → mass = 0.03633×2650 = ≈ 96.3 kg.
40 mm: vol = 0.04844 m^3 → mass = 0.04844×2650 = ≈ 128.4 kg.
50 mm: vol = 0.06055 m^3 → mass = 0.06055×2650 = ≈ 160.5 kg.
60 mm: vol = 0.07266 m^3 → mass = 0.07266×2650 = ≈ 192.5 kg.

So going from 30 → 40 → 50 → 60 mm increases mass substantially (not linear in handling complexity).

3) Practical recommendation (based on panel size, engraving, anchors)

Minimum: 40 mm for panels of ~1.1–1.2 m^2 if anchors are well designed, edge distances are respected, and engraving depth is shallow. At 40 mm the panels weigh ~115–128 kg each, manageable but still heavy.

Preferred / safer: 50–60 mm.

50 mm gives ~144–160 kg depending on size and provides better anchor embedment and room for engraving (5–10 mm depths).

60 mm is even safer for larger panels or deeper carving; it also reduces risk of cracking near anchor points.

If you want deeper engraving / relief (≥10–15 mm) or ornamental undercuts, aim for ≥50 mm, preferably 60 mm.

For 50 mm panels the following goes:
Panel A: ≈144 kg → 1.41 kN (using 9.81 m/s^2)
Panel B: ≈160 kg → 1.57 kN
Rounding up: 1.6 kN self-weight per panel.

2 bottom and 2 top anchors:
vertical load per bottom anchor =
1.6 kN ÷ 2 = 0.8 kN (≈ 800 N).

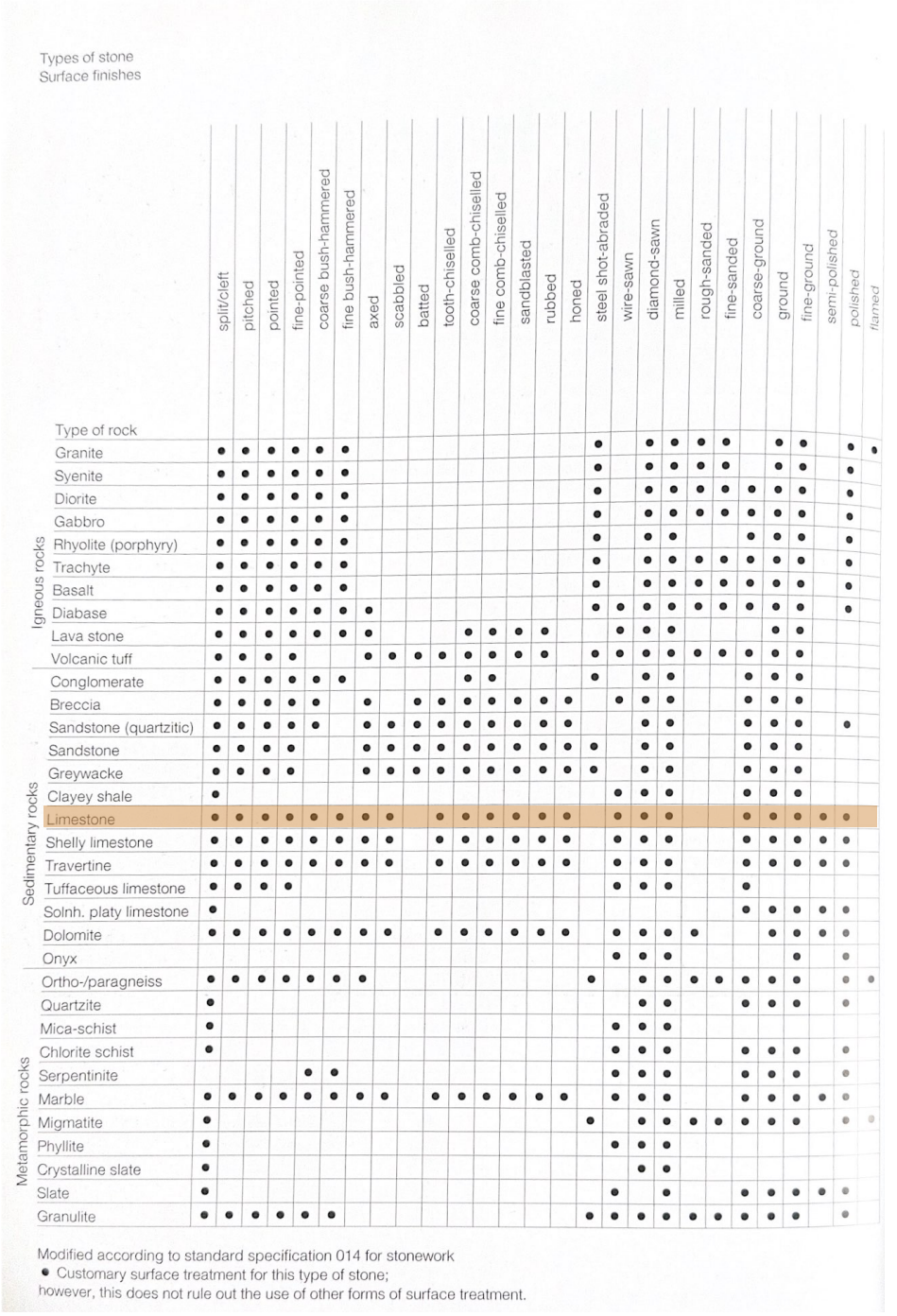
Add a safety factor (1.5–2.0 typical) → design for ≈ 1.6 kN per anchor ultimate load.

The standoff distance is 160mm, and looking at the technical table, this means that **Halfen Body Anchor DT 1316** would be the most suitable.

Halfen Body anchors DT

Type	Load group	Design loads	Stand-off distance			Support body				Spade bolt				Connection
	F_V [N]	$F_{V,Rd}$ [N]	k [mm]	min k [mm]	max k [mm]	x [mm]	L [mm]	h [mm]	e [mm]	d [mm]	c [mm]	l [mm]	z [mm]	ø [mm]
414	400	540	140	120	170	50	95	92	30	12	4	105	21	9
416	400	540	160	140	190	55	115	97	30	12	4	105	21	9
418	400	540	180	160	210	60	135	102	30	12	4	105	21	9
420	400	540	200	180	230	65	155	107	30	12	4	105	21	9
422	400	540	220	200	250	70	175	112	30	12	4	105	21	9
424	400	540	240	220	270	75	195	117	30	12	4	105	21	9
426	400	540	260	240	290	80	215	122	30	12	4	105	21	9
428	400	540	280	260	310	85	235	127	30	12	4	105	21	9
430	400	540	300	280	330	90	255	132	30	12	4	105	21	9
1314	1.300	1.755	140	120	170	80	90	130	36	16	5	115	21	11
1316	1.300	1.755	160	140	190	85	110	135	36	16	5	115	21	11
1318	1.300	1.755	180	160	210	95	130	145	36	16	5	115	21	11
1320	1.300	1.755	200	180	230	80	150	130	36	16	5	115	21	13
1322	1.300	1.755	220	200	250	90	170	140	41	16	5	115	21	13
1324	1.300	1.755	240	220	270	95	190	145	41	16	5	115	21	13
1326	1.300	1.755	260	240	290	100	210	150	41	16	5	115	21	13
1328	1.300	1.755	280	260	310	105	230	155	41	16	5	115	21	13
1330	1.300	1.755	300	280	330	110	250	160	41	16	5	115	21	13

max. $F_h = F_V$



Modified according to standard specification 014 for stonework

● Customary surface treatment for this type of stone;
however, this does not rule out the use of other forms of surface treatment.

Pointed and ground

Pointed, tooth-chiselled and ground

Pointed, bush-hammered, axed and ground

Coarse-pointed

Pointed

Bush-hammered

Fine bush-hammered

Bush-hammered and ground

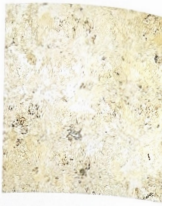
Comb-chiselled

Comb-chiselled (random)

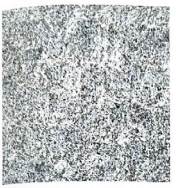
Comb-chiselled (herringbone pattern)

Diamond-sawn

Ground



Polished



Fine-pitched

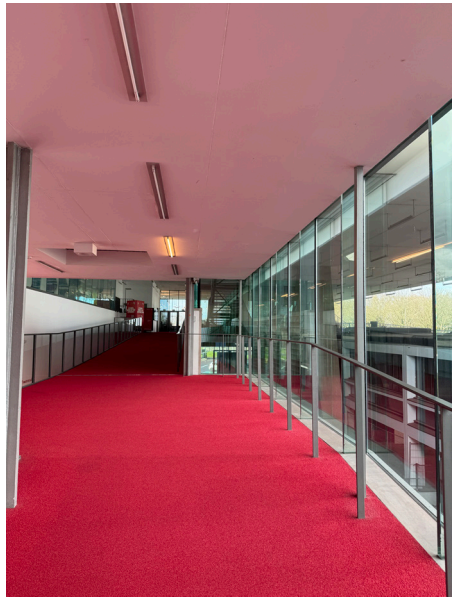
Bush-hammered

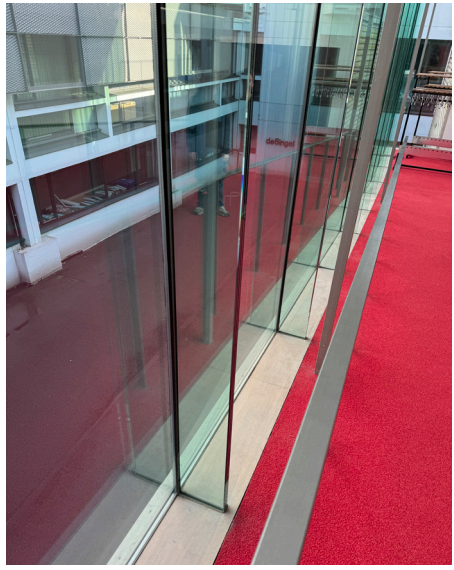
Fine bush-hammered

Furrowed

Sandblasted

Flamed





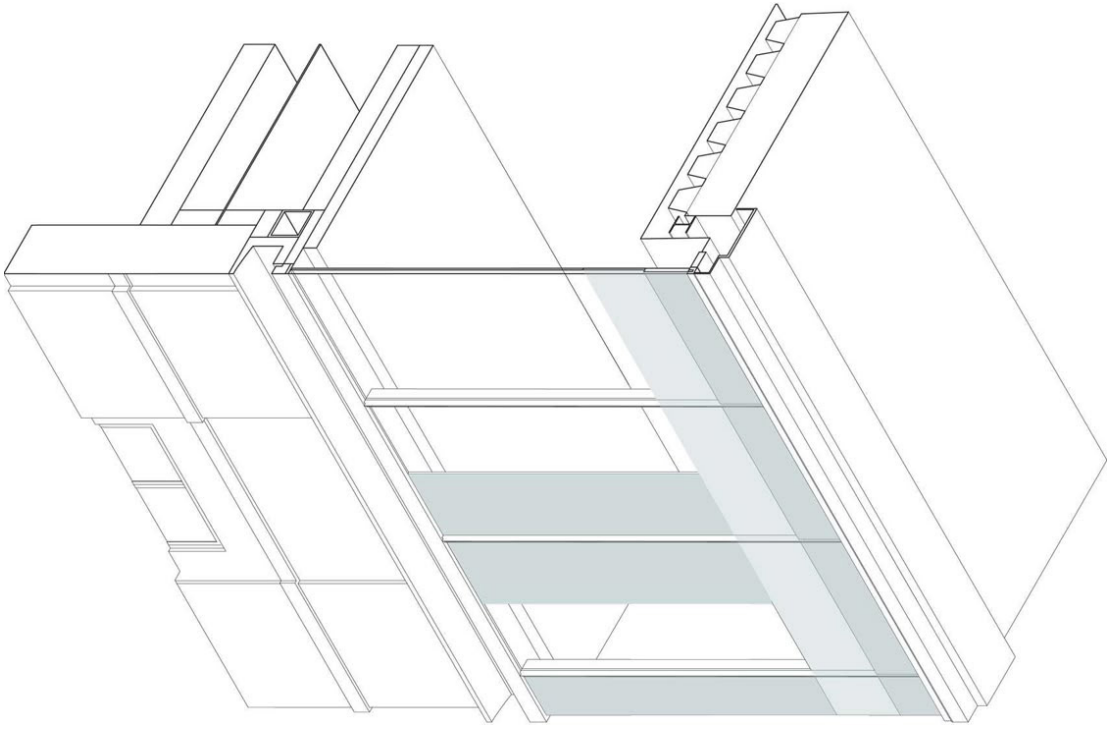
The existing windows in the beel building are repeated in multiple places in the building. I wanted the VAi extension to have a similar look. It was quite hard to understand exactly how this system was made, especially because my tutor did not know how this was done. After some research I found out the system was called glass fin facade.

A glass fin facade is a type of modern curtain wall system where the primary structural support is provided by vertical beams made of glass, called glass fins. These fins are set perpendicular to the main glass plane, acting like the ribs of the building, to resist wind loads and other forces, allowing for an incredibly sleek, all-glass appearance with minimal visible metal framing.

1. Glass Fins: These are the structural workhorses. They are typically made from laminated glass (two or more panes bonded with a strong interlayer, like PVB or SGP). This is crucial because if a fin were to break, the interlayer holds the glass together, maintaining its structural integrity and safety. Fins can be several stories tall and are very thick (often 25mm to 50mm+).

2. Main Infill Glass: This is the weatherproofing part of the wall, the part you actually look through. It is usually a high-performance insulated glass unit (IGU) for thermal and acoustic insulation. This glass is not structural; it simply hangs in front of the fins.

3. Point-Supported Hardware: Instead of being held in a continuous frame, the infill glass is attached at discrete points using sleek, minimalistic hardware. The most common types are:
- Patch Fittings: Flat metal plates bolted to the glass that connect to the fins.
- Spider Fittings: Elegant, cast stainless steel arms that connect the glass to the fins or to a separate support structure. These are very common for creating a “floating” glass effect.

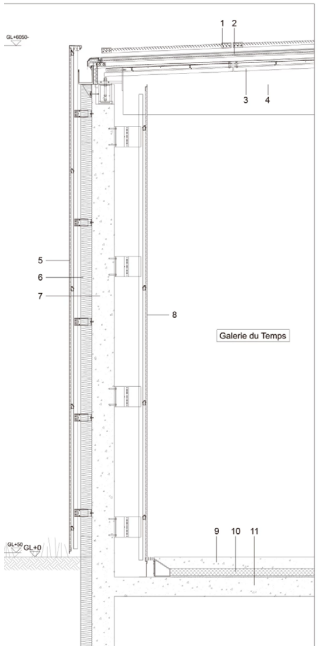


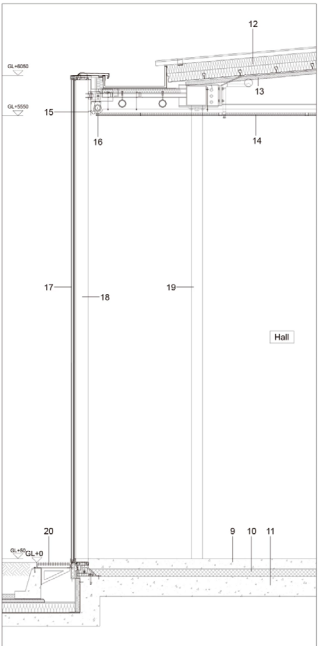
Louvre Lens / SANAA. (2012, December 29)

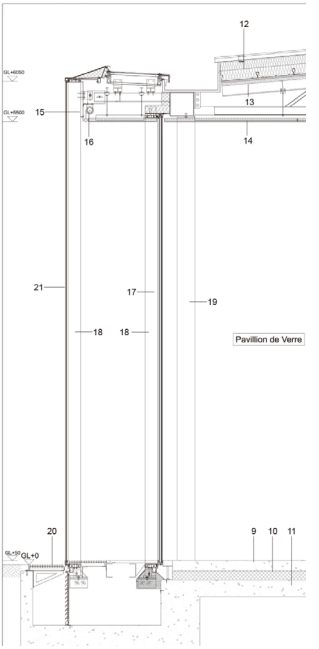
In this referenve the glass fin facade is placed around the entire building. The building consists of only one floor and a roof. The facade extends all the way to the roof, making the roof slab visible from the outside. In my design, I would like to have the ceiling panels extend to the outside, and be on the same height as the catntilever. This means that the glass fin needs to connect to the floor slab.

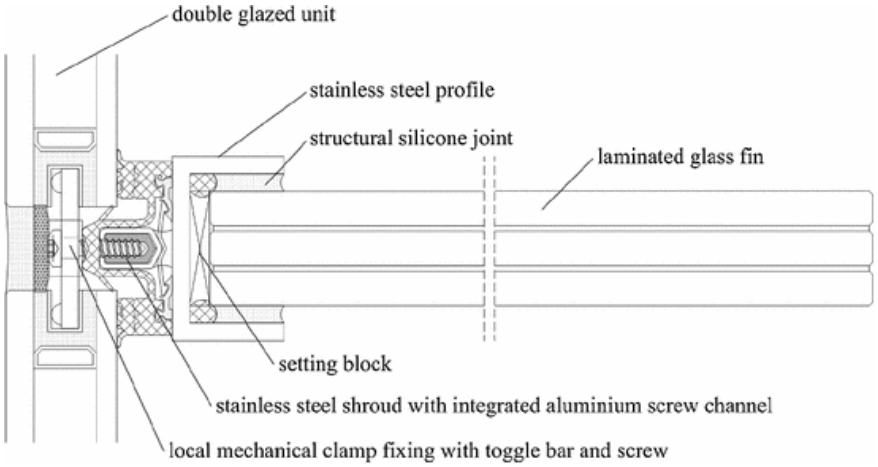
1 parasol
2 acristalamiento doble 10+(8+8) mm
3 persiana interior
4 viga T de acero 250 e=20 mm y h600-1100 e=10 mm
5 panel de aluminio en nido de abeja e=2+20+1 mm
6 aislamiento e=140 mm
7 hormigón e=280 mm
8 panel de aluminio nido de abeja e=1+(1.18.1) mm
9 pavimento de hormigón pulido e=150 mm
10 aislamiento 90 mm (suelo radiante)
11 forjado de hormigón e=240 mm
12 panel de revestimiento
13 panel acústico
14 chapa perforada 1.8 mm
15 chapa plegada de acero
16 persiana enrollable
17 acristalamiento doble 10+(8+8) mm
18 parteluz
19 pilar
20 rejilla galvanizada
21 vidrio laminado 6+6 mm

1 *sunshade grille*
2 *double glazing skylight 10+(8+8) mm*
3 *interior mobile louver*
4 *paint on steel T-beam w250t=20 x h600-1100t=10 mm*
5 *aluminum honeycomb panel t=2+20+1 mm*
6 *insulation t=140 mm*
7 *concrete t=280 mm*
8 *aluminum honeycomb panel t=1+(1+18+1) mm*
9 *polished concrete paving t=150 mm*
10 *insulation 90 mm (floor heating)*
11 *structural concrete t=240 mm*
12 *roof cladding system*
13 *acoustic board*
14 *1.8 mm perforated meta*
15 *folded steel sheet*
16 *rolling sunshade screen*
17 *double glazing 10+(8+8) mm*
18 *mullion*
19 *column*
20 *galvanized grating*
21 *laminated glass 6+6 mn*







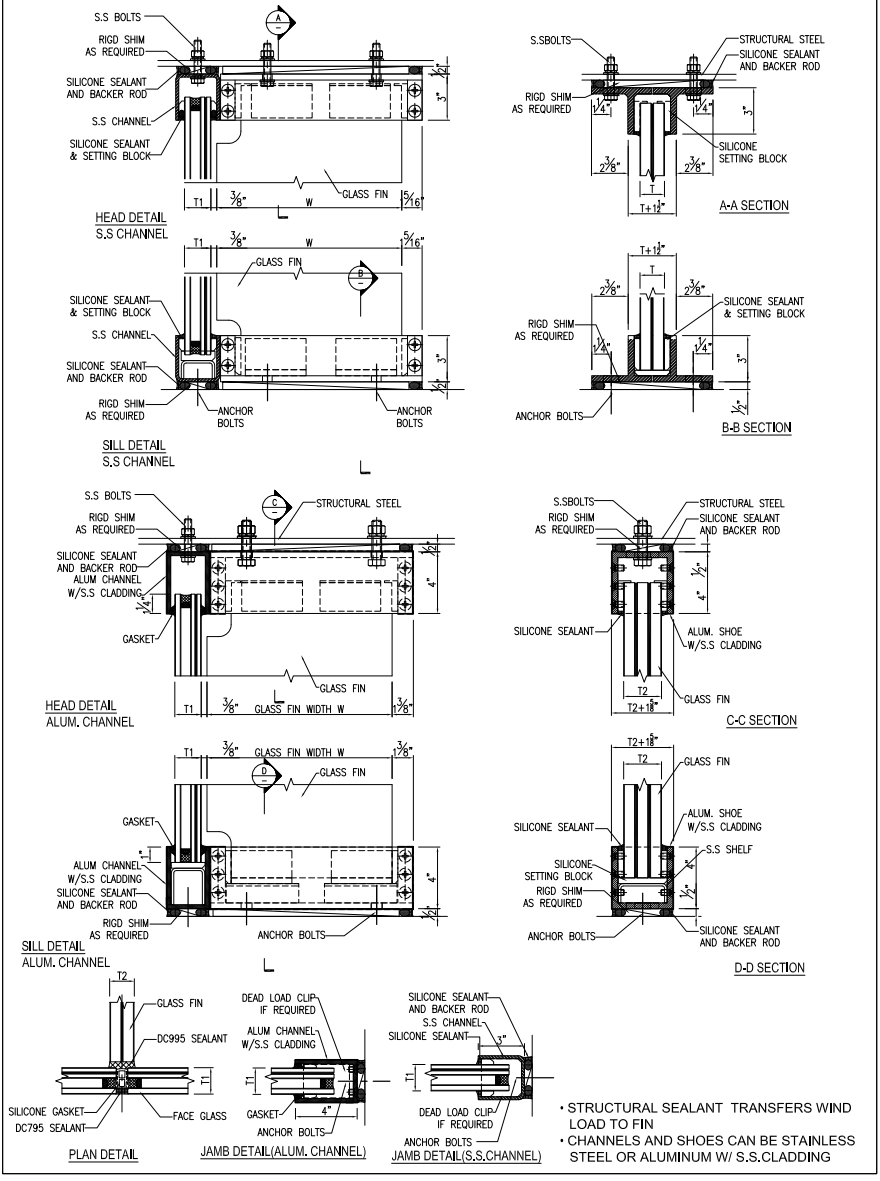


typical glass fin connection with a double glazed unit

from analyzing different contractors, I was able to understand the elements of the glass fin wall.

Glass Fin Wall System

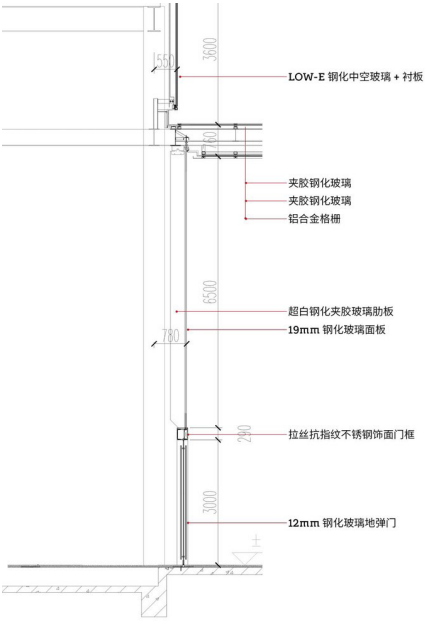
Structurally Silicone Glazed /Bottom Supported System

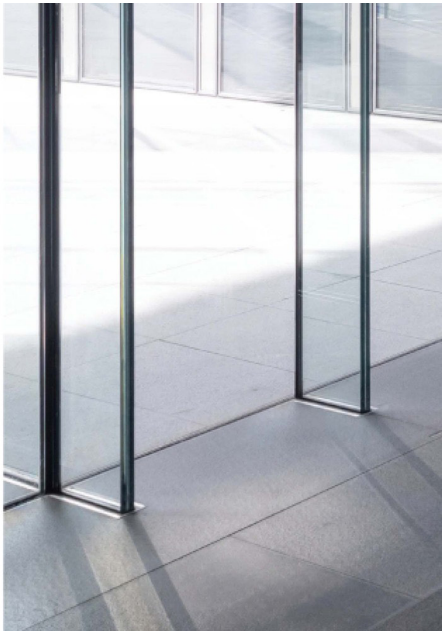


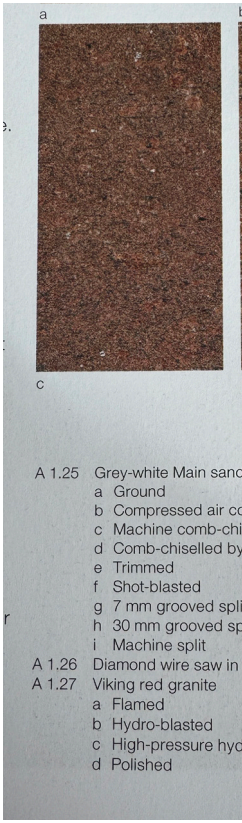
1.1.1

this method for the strucural finn wall requires an aluminium frame to hold the HR++ glass which spans across the entire facade. The glass fins are secured to a structural steel profile, which is attached to the glass with silicone sealant. The structural steel is bolted into the structural concrete floor/ceiling.

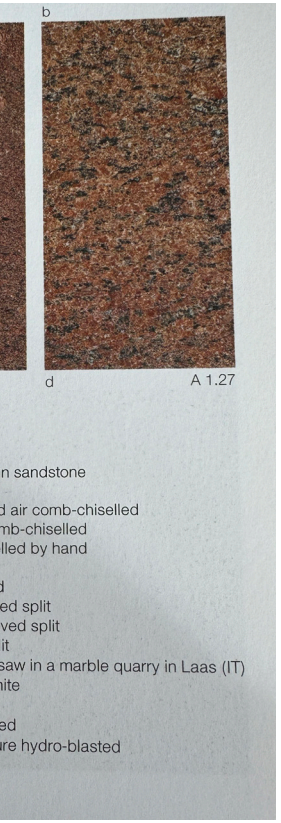
In the case of Beel, the structural steel is hidden under the finishing of the floor and ceiling.



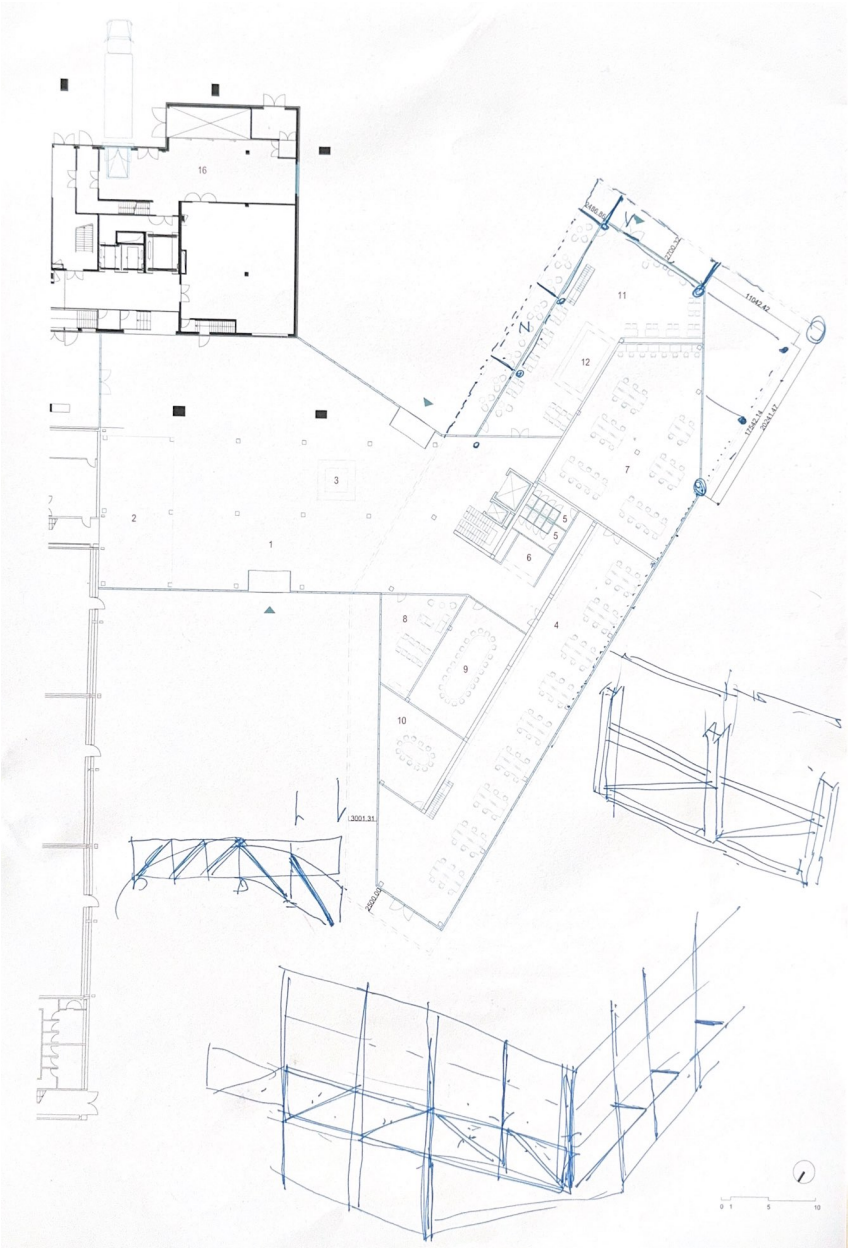




various methods to engrave natural stone and the achieved texture
source: Schulz, A., Schulz, B., & Albus, J. (2020). Manual of natural stone modern usage of a classic building material (; S. Hauger, Trans.). Edition Detail.



when using stone panels, it is important to think about the gaps in between the panels and how to connect them. the easiest way as pictured in the top figure, is to use a permanently elastic compound to seal the joints


16
11
12
7
3
2
1
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4
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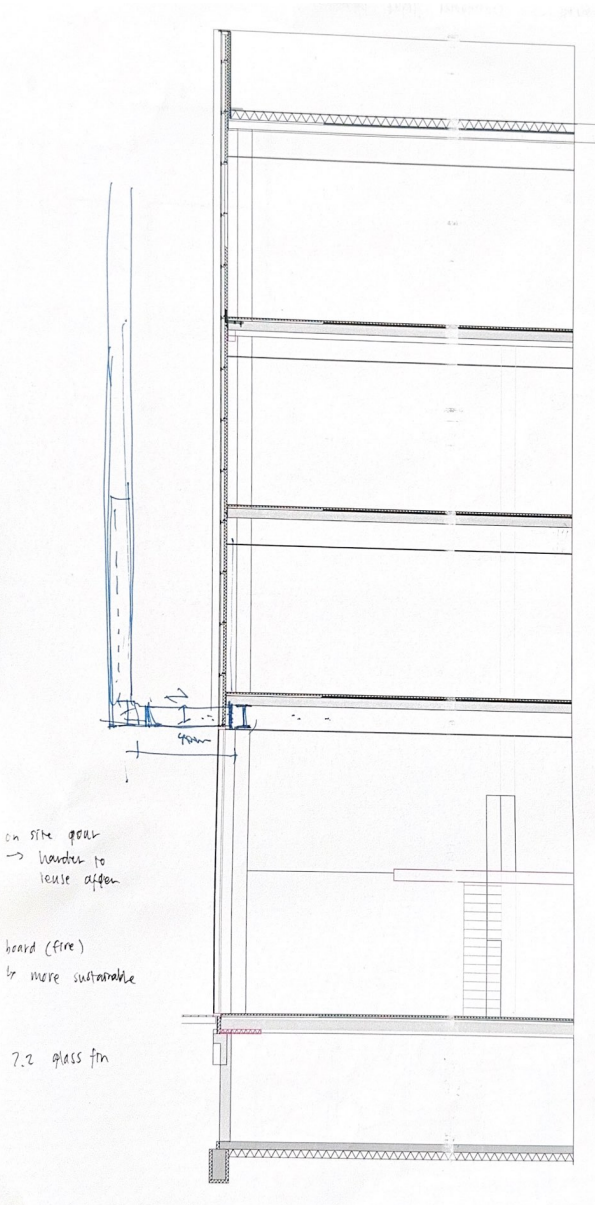
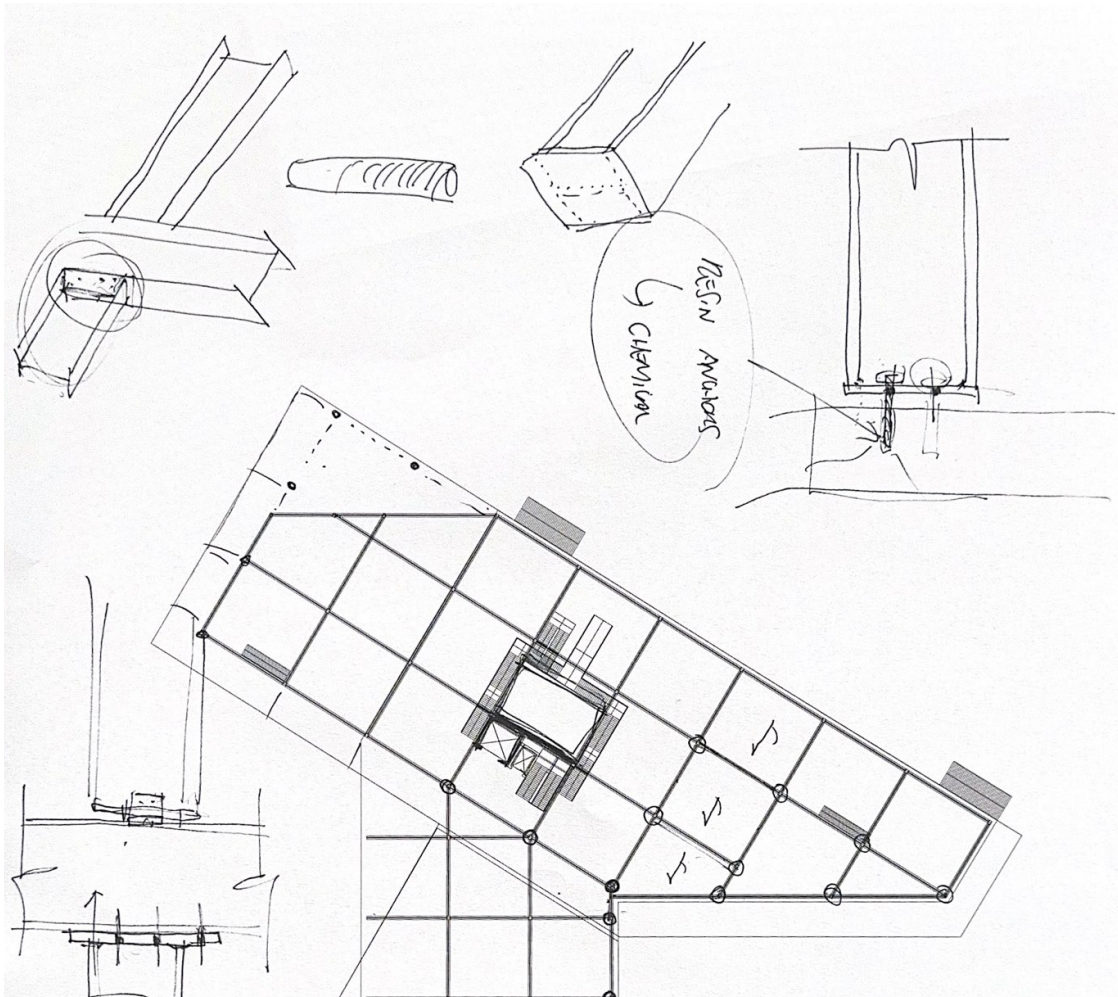
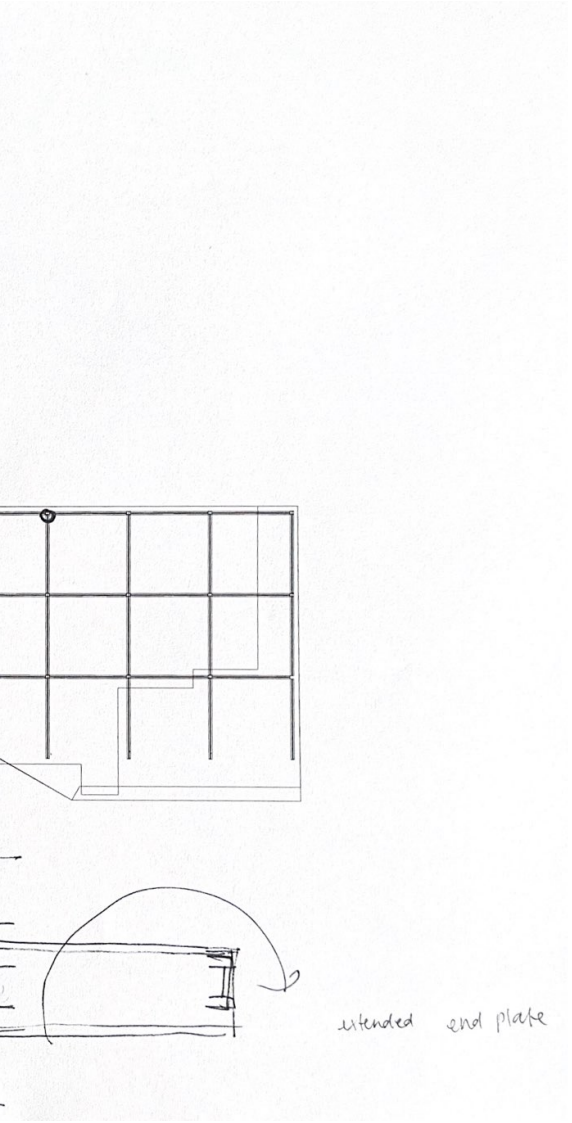
3001.31
11042.42
17542.14
2041.47
0 1 5 10



research - cantilever

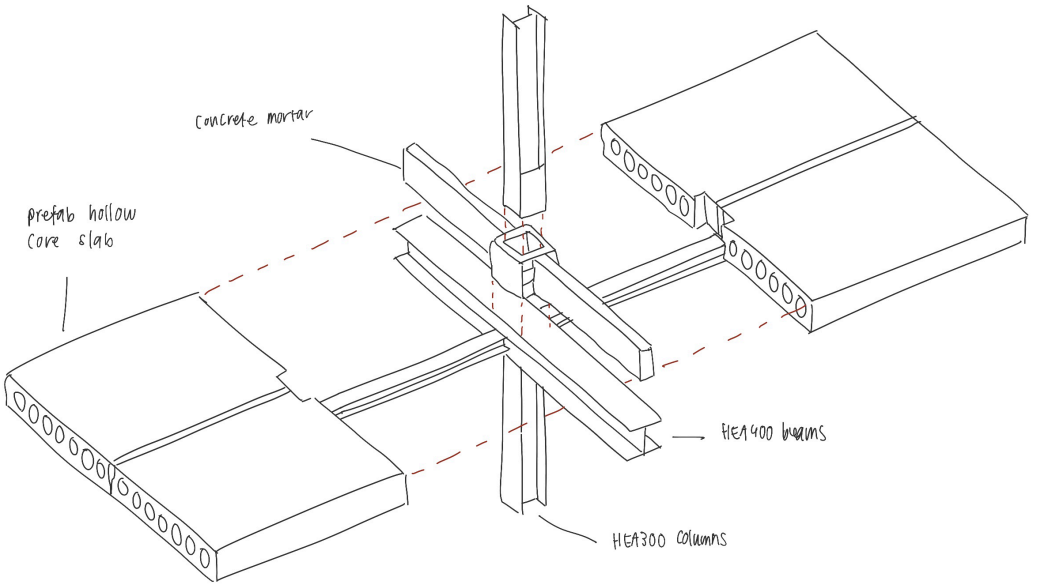

DESIGN AWARDS
BY CHEVRON



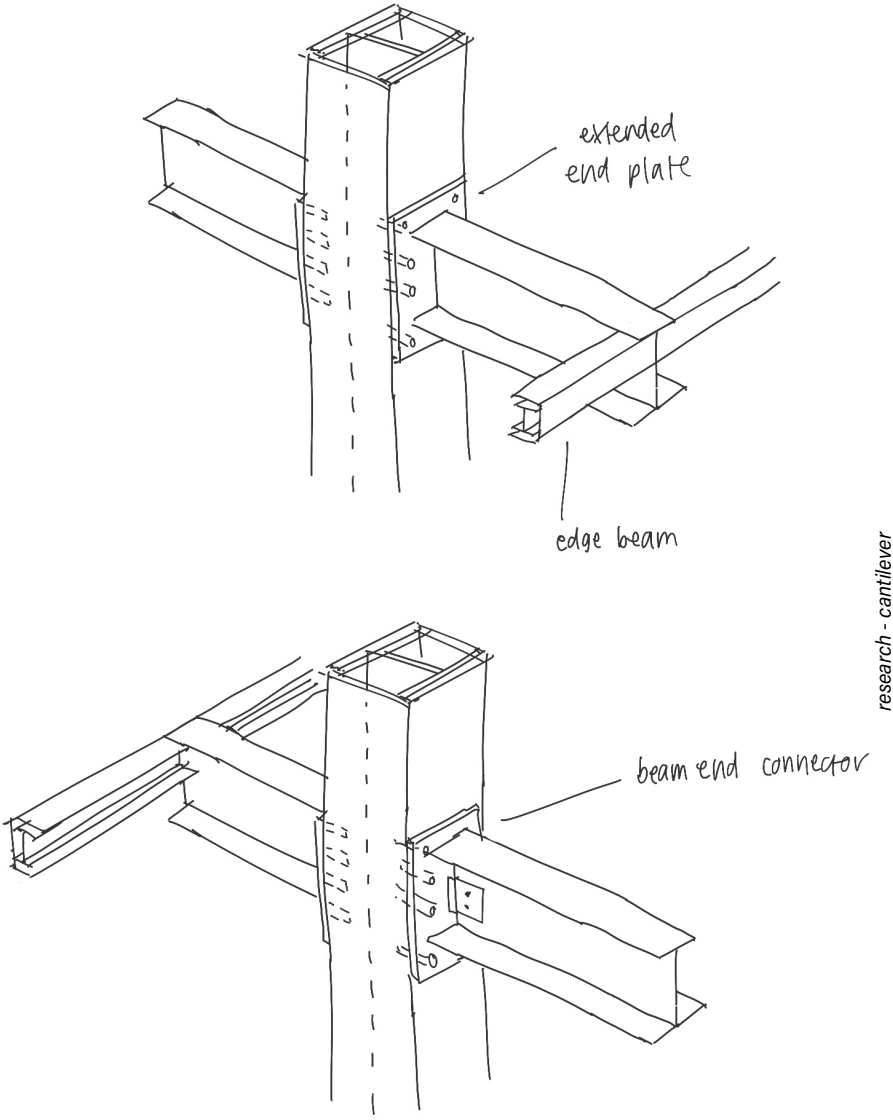
My building has a cantilever on nearly every side, with the corner on the northwest facade being the biggest, with 20x10m in dimensions. After numerous tutorials, my BT tutor didn't seem to understand how to detail this. I decided to contact Mauro Overend and schedule a few meetings with him.

The floor is made of prefab concrete and will be placed on top of HEA300 beams. The beams will extend until the columns inside. The outside structure will be supported with a smaller edge beam going around the entire outline of the facade. Beams will be connected to the beams inside, and this edge beam. This connection will include an extended end plate to support the torsion force created by the cantilever.

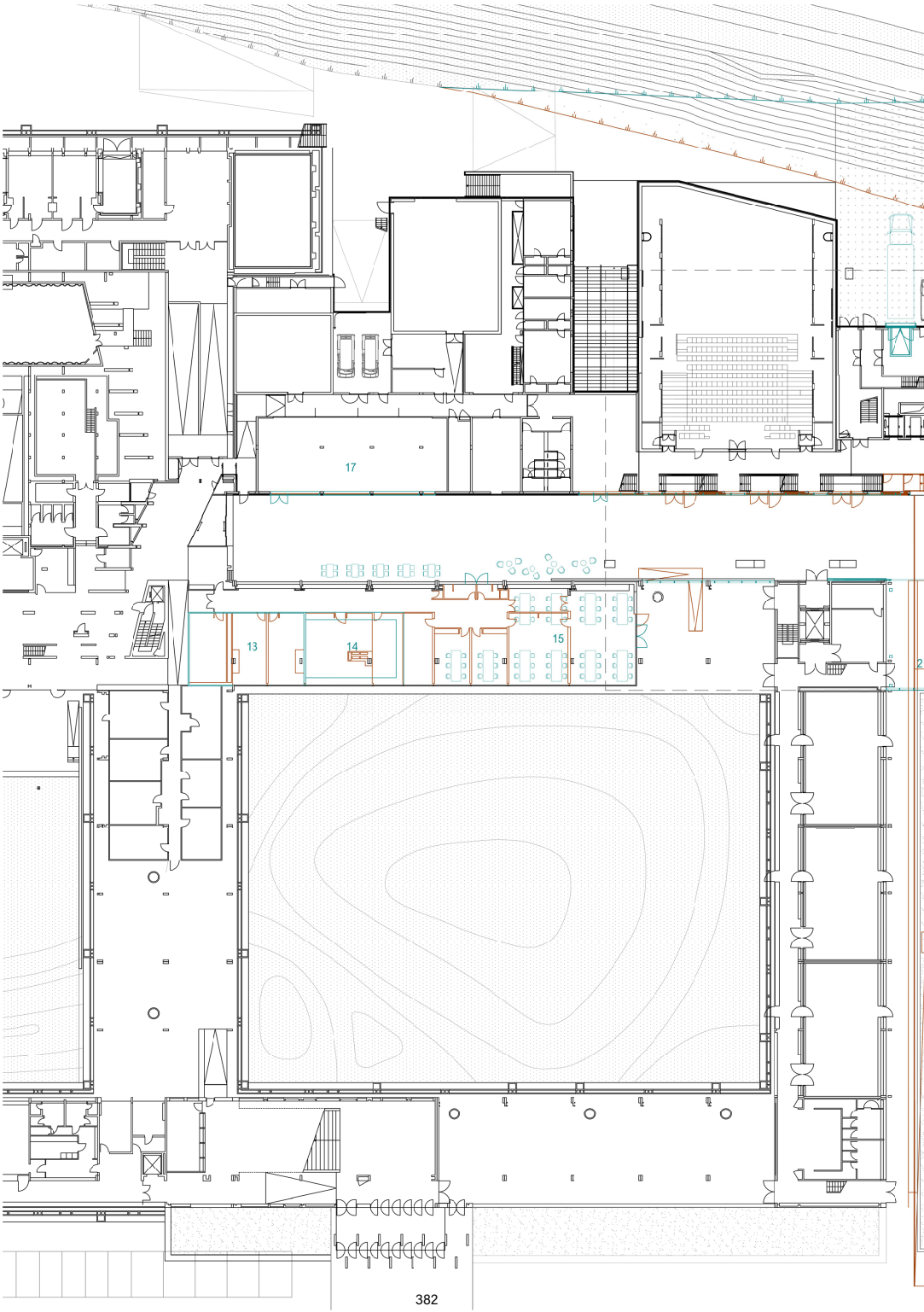
After talking about changing the floors to a waffle structure or choosing a different material, it turned out that it was easy to solve the cantilever structurally. All I had to do was add multiple diagonal beams between the columns to counter the moment created by the cantilever and create windbracing.



structure of the floors assembly



cantilever connection with column and beams detail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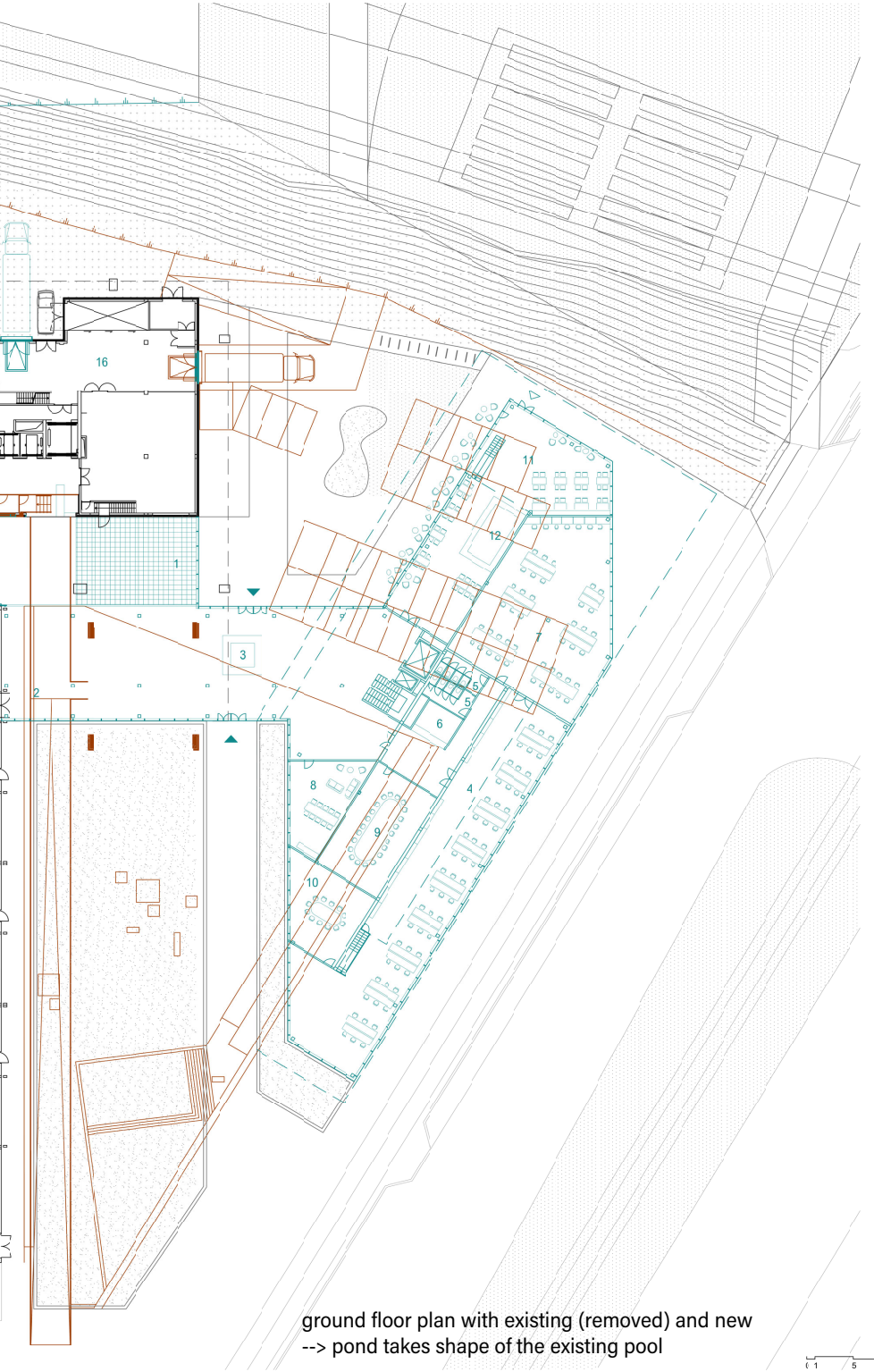
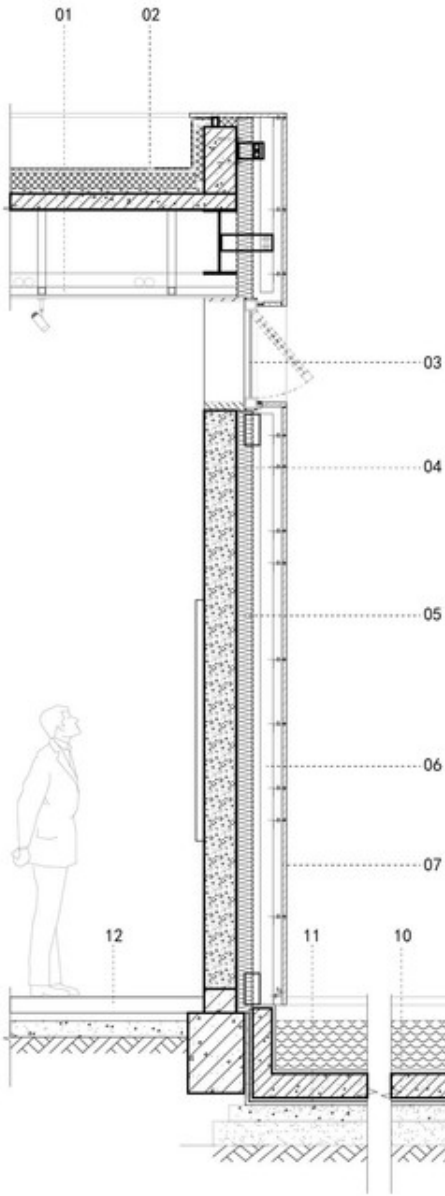
13
14
15



ground floor plan with existing (removed) and new
--> pond takes shape of the existing pool

1 5 10



01.双层石膏板
02.防水层
03.双层中空low-e玻璃窗
04.加气混凝土砌块
05.保温层
06.龙骨
07.沉香米黄石材
08.细点黄金麻花岗岩
09.水池
10.钢筋混凝土
11.防水层
12.水泥自流平

01.Double gypsum board
02.Waterproofer
03.Double hollow low-e glazing
04.Aerated concrete block
05.Insulating layer
06.Keel
07.Cream-colored stone
08.Gold hemp granite
09.pond
10.Reinforced concrete
11.Waterproofer
12.Cement self-leveling

The city courtyard will have two ponds. They are both made with the structure and position of the existing water pond. The pond will reach the facade, giving the illusion that the building is floating on the water. The glass fin facade creates a seamless connection between the interior and the exterior of the building. From the inside, this connection also brings impressive views.

BT, it is important to solve this connection. The pond needs to reach the facade, but not interact with the facade.

Connecting a pool directly to a glass fin facade creates three major challenges:

1. Waterproofing: Creating a 100% reliable, continuous barrier to prevent water from the pool from leaking into the building structure.

2. Structural Movement: The building structure, the glass facade, and the pool will all expand, contract, and deflect at different rates due to temperature changes, live loads, and wind. The connection must accommodate this movement without cracking or breaking the waterproofing seal or the glass.

3. Load Transfer: The pool structure is heavy and must be independently supported without transferring loads onto the fragile glass facade.

The pool is a separate concrete structure on its own foundation. A deliberate expansion joint separates it from the building's floor slab, where the glass facade stands. The entire connection is sealed with a continuous, flexible waterproofing membrane and a high-performance sealant within the joint to make it completely watertight. The glass facade itself is protected from the pool's loads and movements by this independent system.

International Pacific University, Tadao Ando

Glenstone museum, Thomas Phifer and Partners

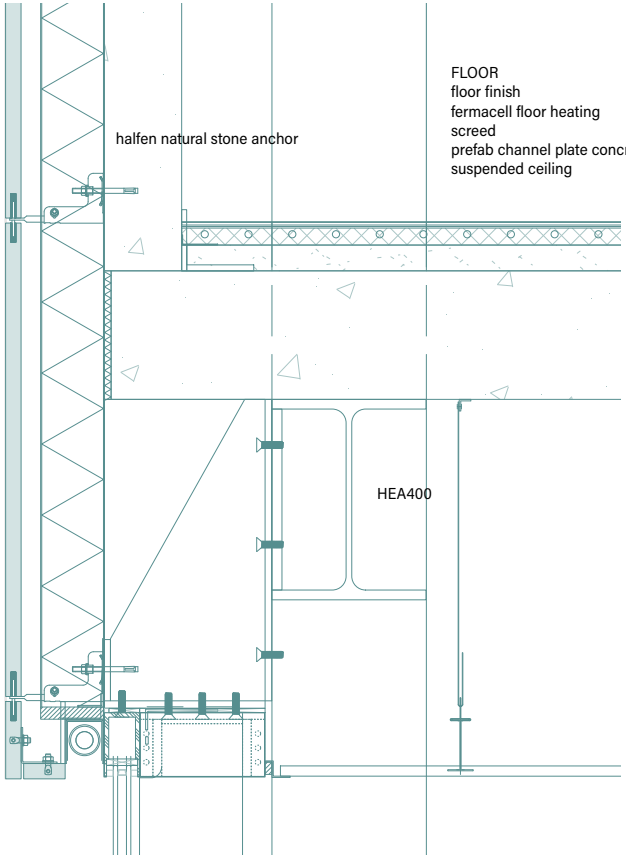
Langen Foundation, Tadao Ando

In these references, it looks like the building is placed on a slab. This slab has its own foundation and is seperate from the pool construction. The pool construction starts under neath the floor slab, which is why there is an edge between the building floor and the water.

Between the pool structure and the concrete "bathtub"a hidden expansion joint connect them.

DETAILS 1:5

WALL
natural stone plate
halfen natural stone anchor DT
ventilated air cavity
water resistant vapour permeable barrier
prefab concrete wall



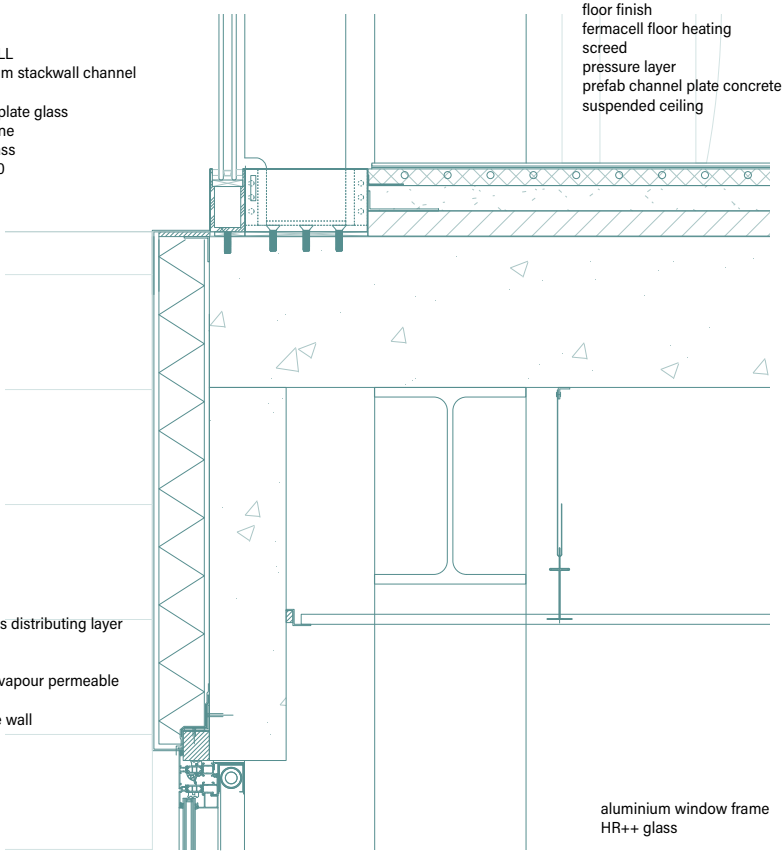
FLOOR
floor finish
fermacell floor heating
screed
prefab channel plate concrete floor
suspended ceiling

GLASS FIN WALL
finwall aluminium stackwall
channel profile
tempered mainplate glass
structural silicone
tempered fn glass
column HEA300

groove for drainage

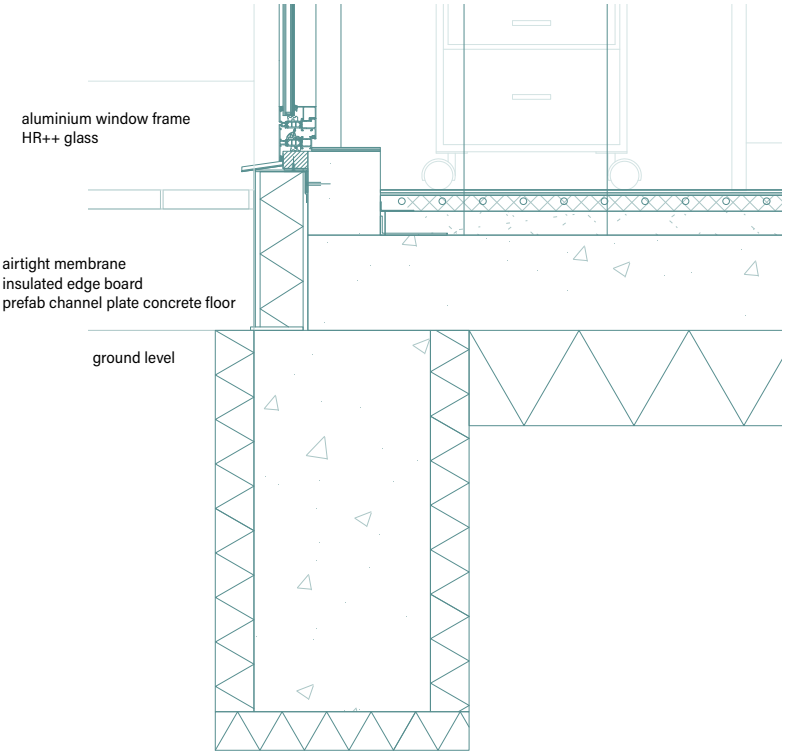
FLOOR
floor finish
fermacell floor heating
screed
pressure layer
prefab channel plate concrete floor
suspended ceiling

GLASS FIN WALL
finwall aluminium stackwall channel profile
tempered mainplate glass
structural silicone
tempered fn glass
column HEA300

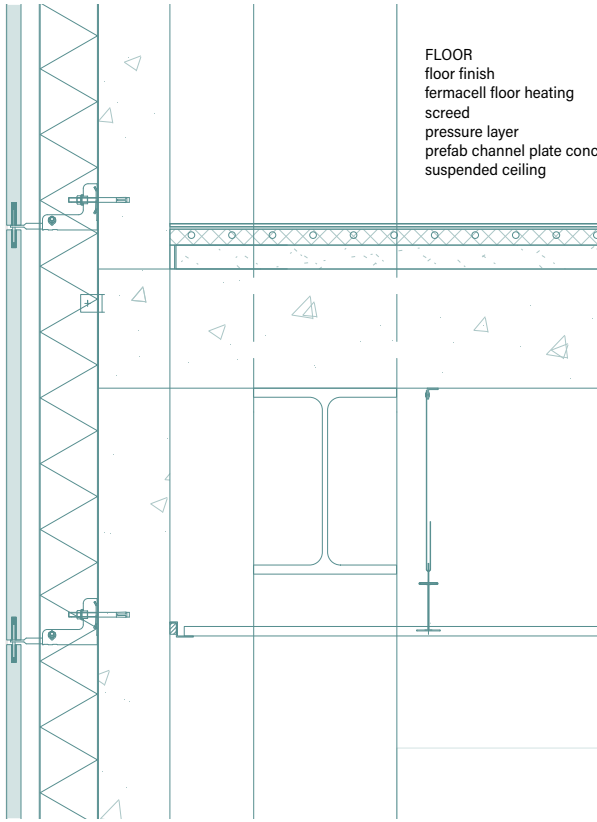


WALL
plaster
reinforced stress distributing layer
insulation
adhesive layer
water resistant vapour permeable barrier
prefab concrete wall

aluminium window frame
HR++ glass

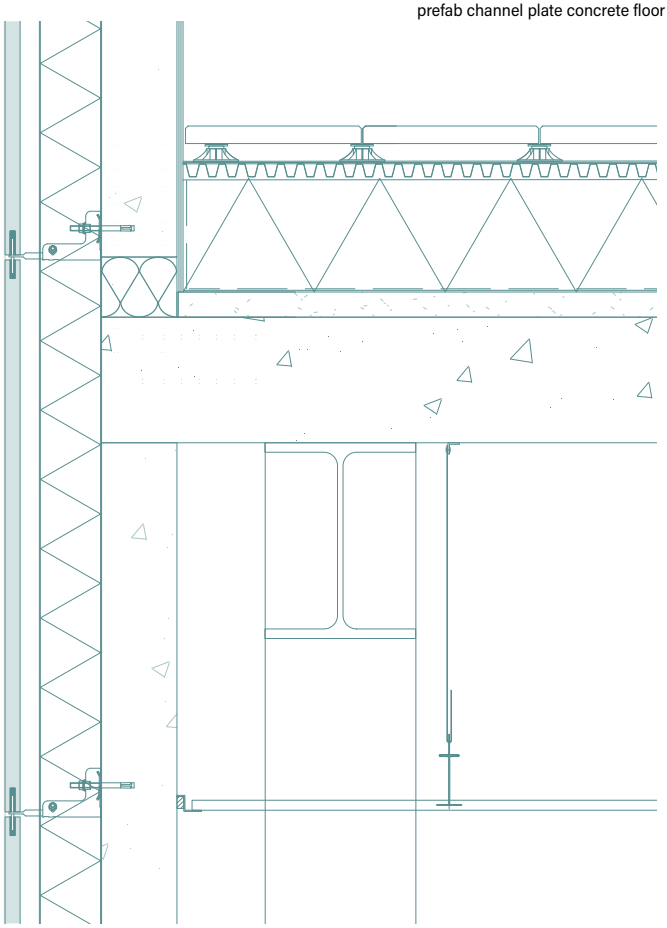

aluminium window frame
HR++ glass
airtight membrane
insulated edge board
prefab channel plate concrete floor
ground level

WALL
natural stone plate
halfen natural stone anchor BA160
ventilated air cavity
water resistant vapour permeable barrier
prefab concrete wall

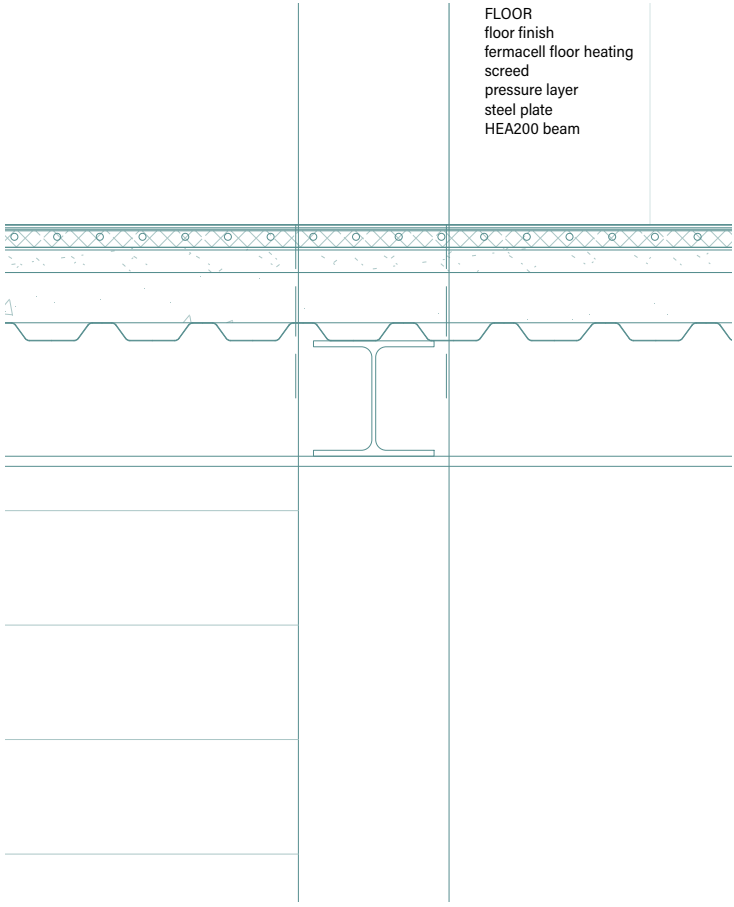


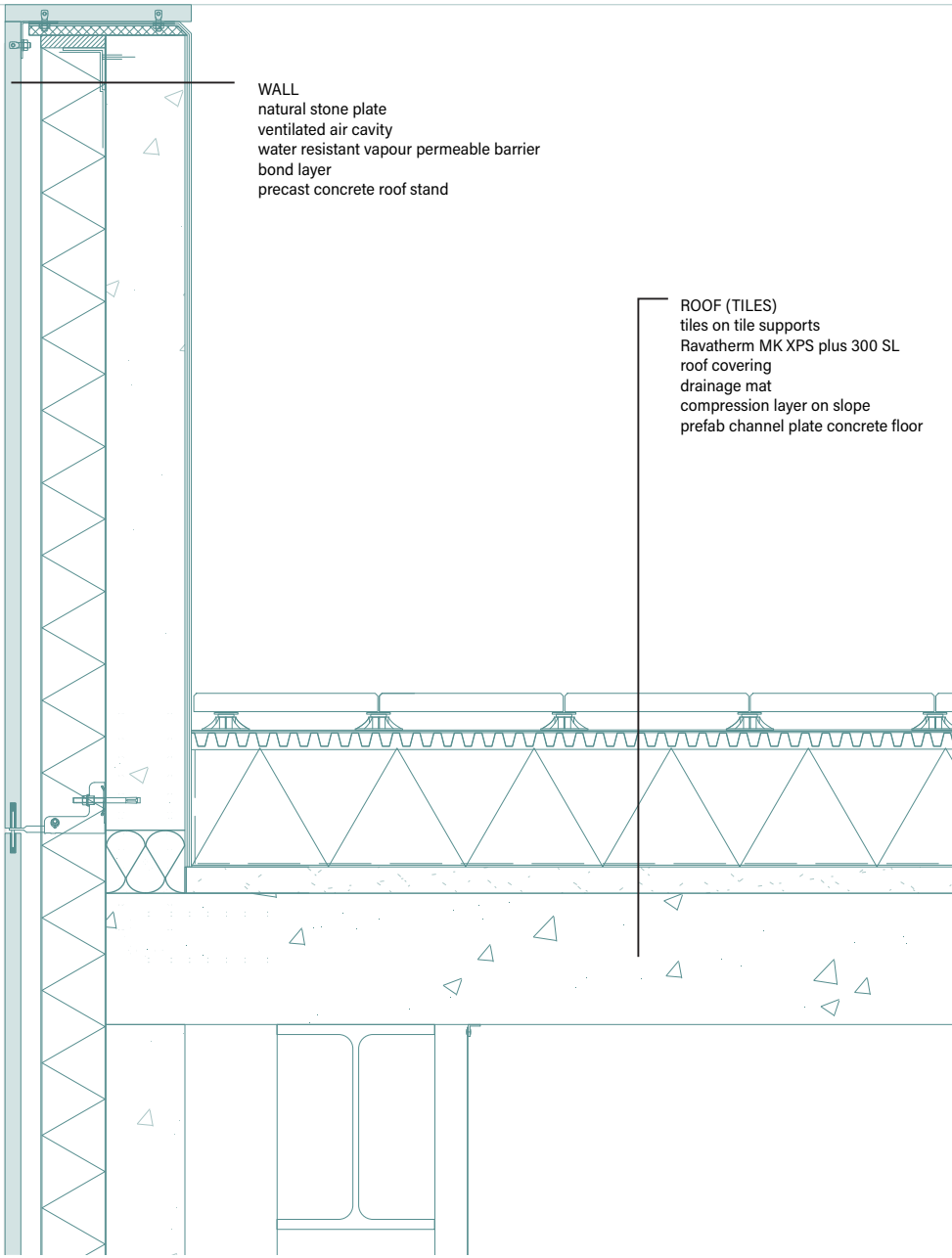
FLOOR
floor finish
fermacell floor heating
screed
pressure layer
prefab channel plate concrete floor
suspended ceiling

ROOF (TILES)
tiles on tile supports
Ravatherm MK XPS plus 300 SL
roof covering
drainage mat
compression layer on slope
prefab channel plate concrete floor

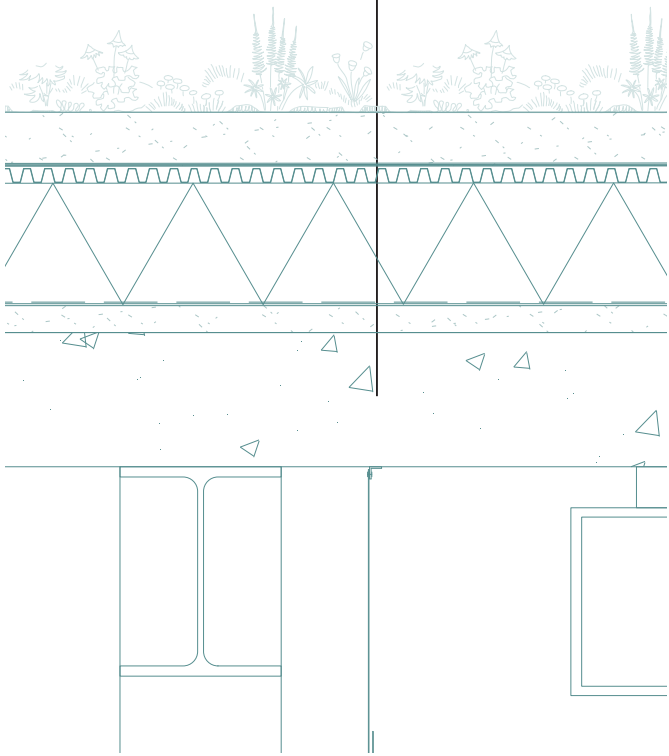


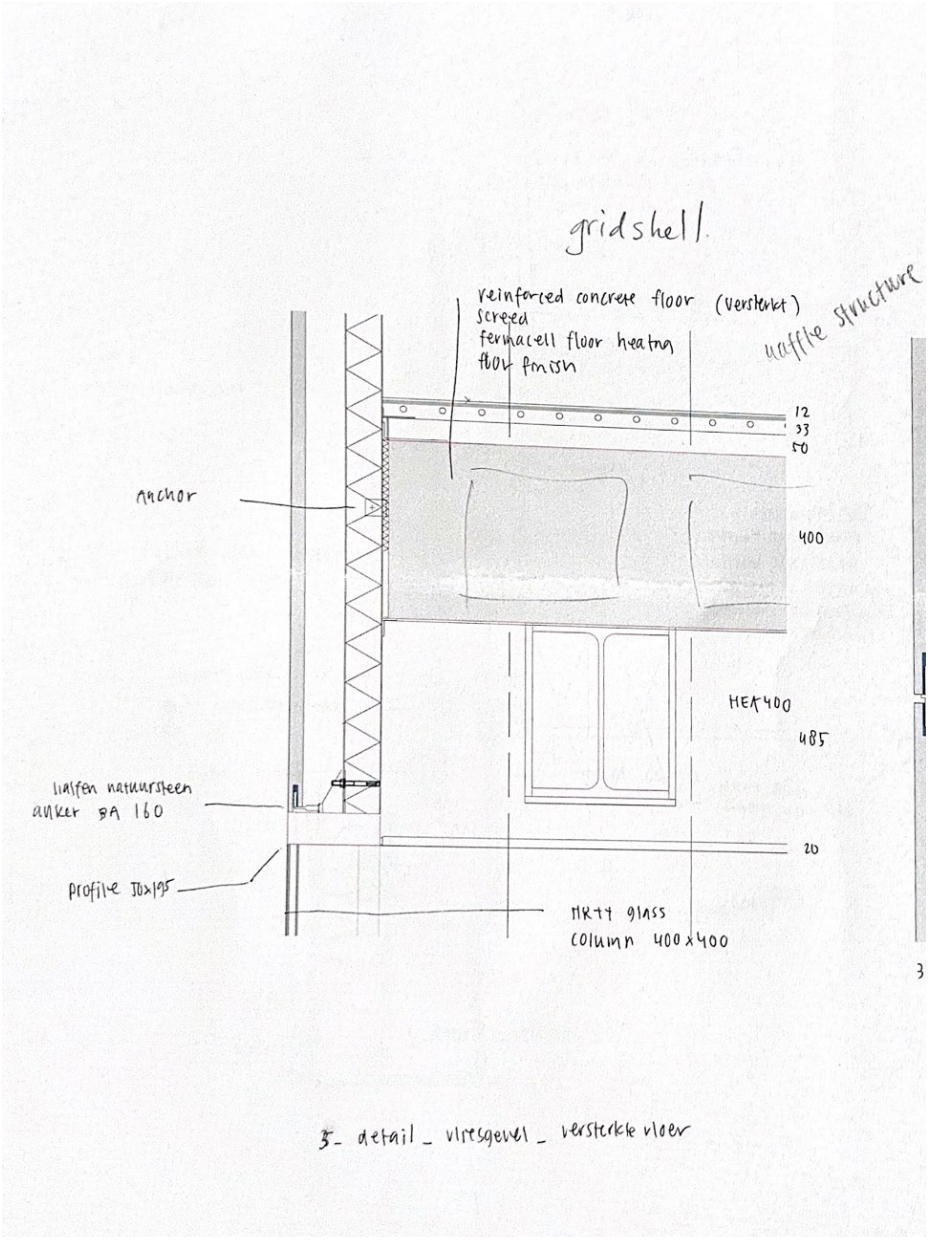
WALL
natural stone plate
halfen natural stone anchor
BA160
ventilated air cavity
water resistant vapour perme-
able barrier
prefab concrete wall


FLOOR
floor finish
fermacell floor heating
screed
pressure layer
steel plate
HEA200 beam

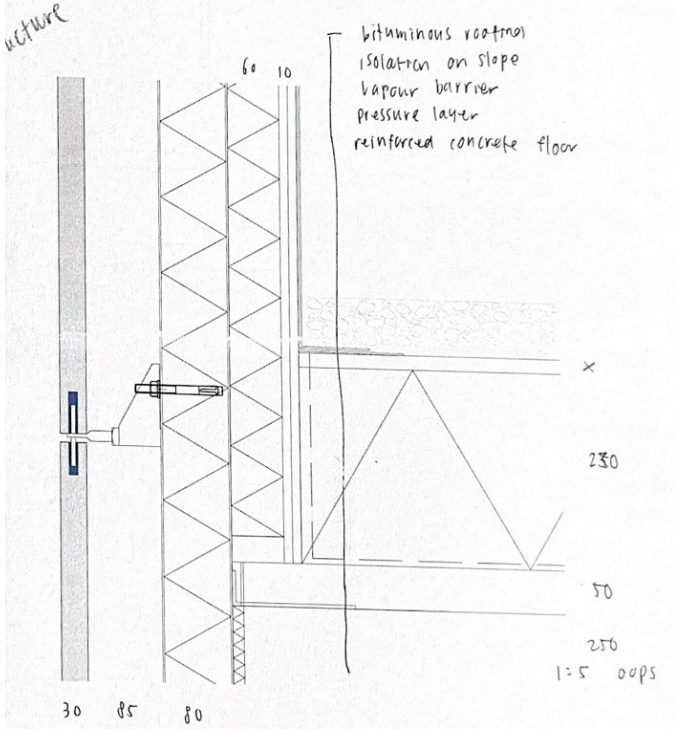

WALL
natural stone plate
ventilated air cavity
water resistant vapour permeable barrier
bond layer
precast concrete roof stand
ROOF (TILES)
tiles on tile supports
Ravatherm MK XPS plus 300 SL
roof covering
drainage mat
compression layer on slope
prefab channel plate concrete floor

ROOF (VEGETATION)
vegetation
substrate
drainage mat
Wédéflex D4 No Roots
Wédéflex MVB
slope board
isolation
prefab channel plate concrete floor

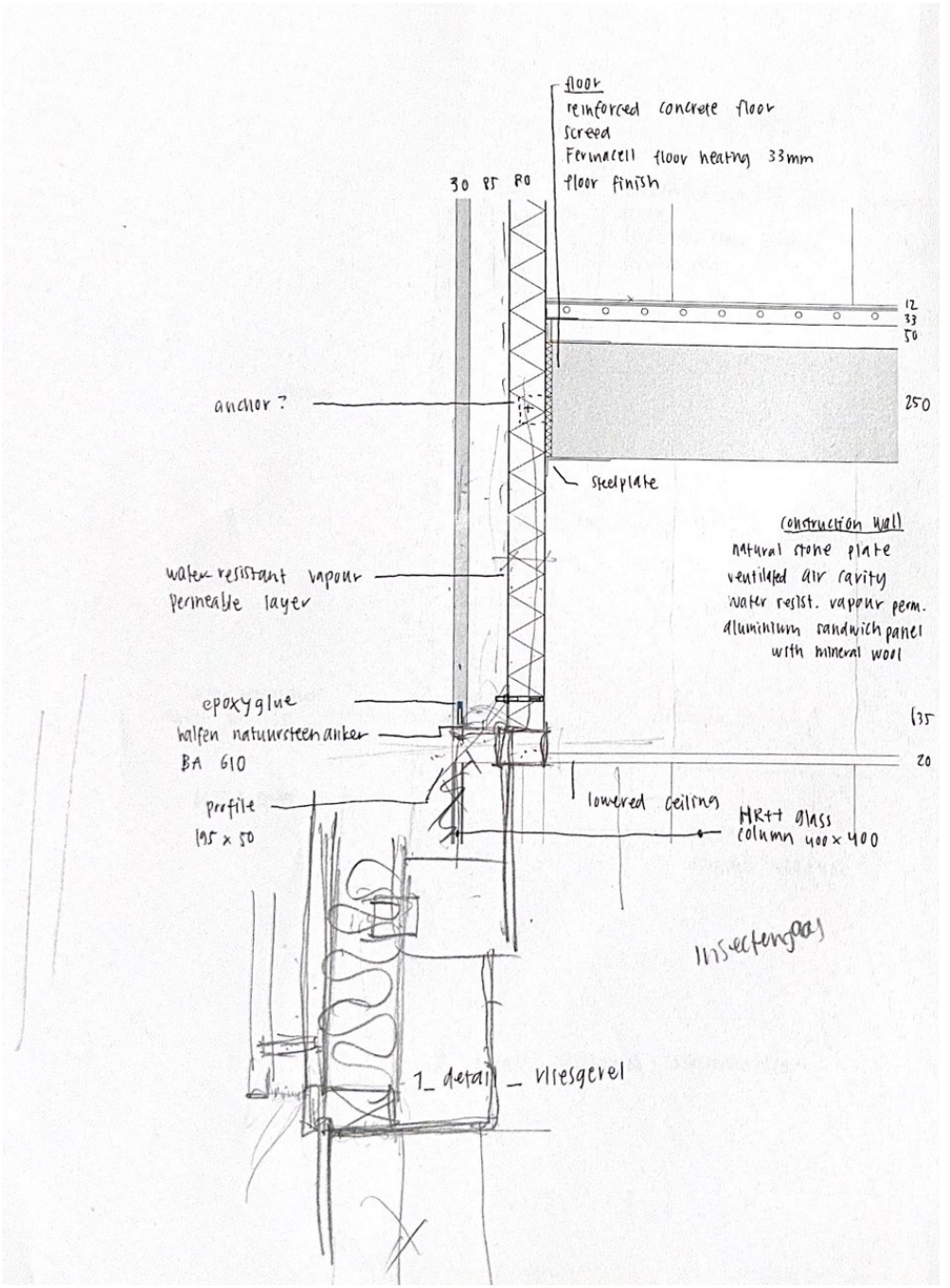


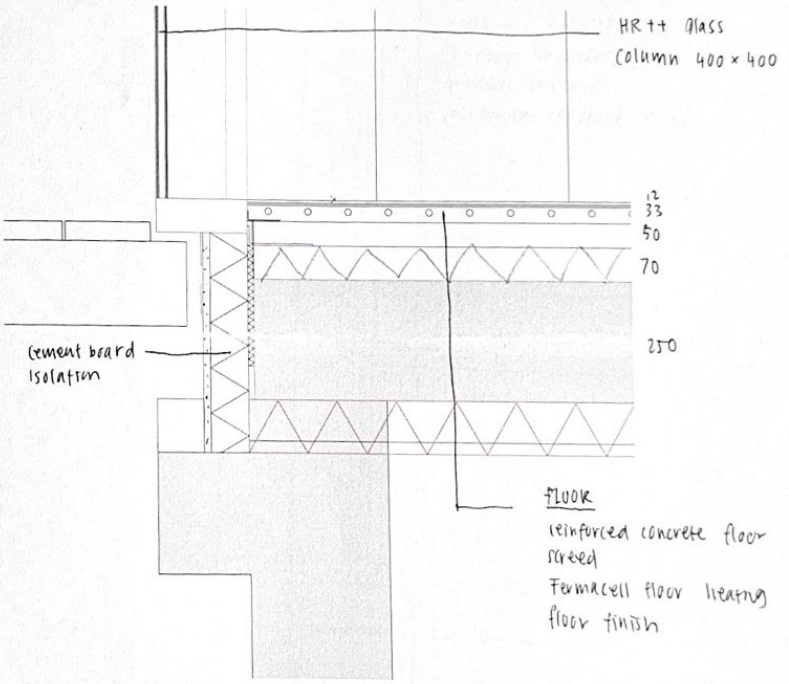


3- detail _ vliesgevel _ versterkte vloer

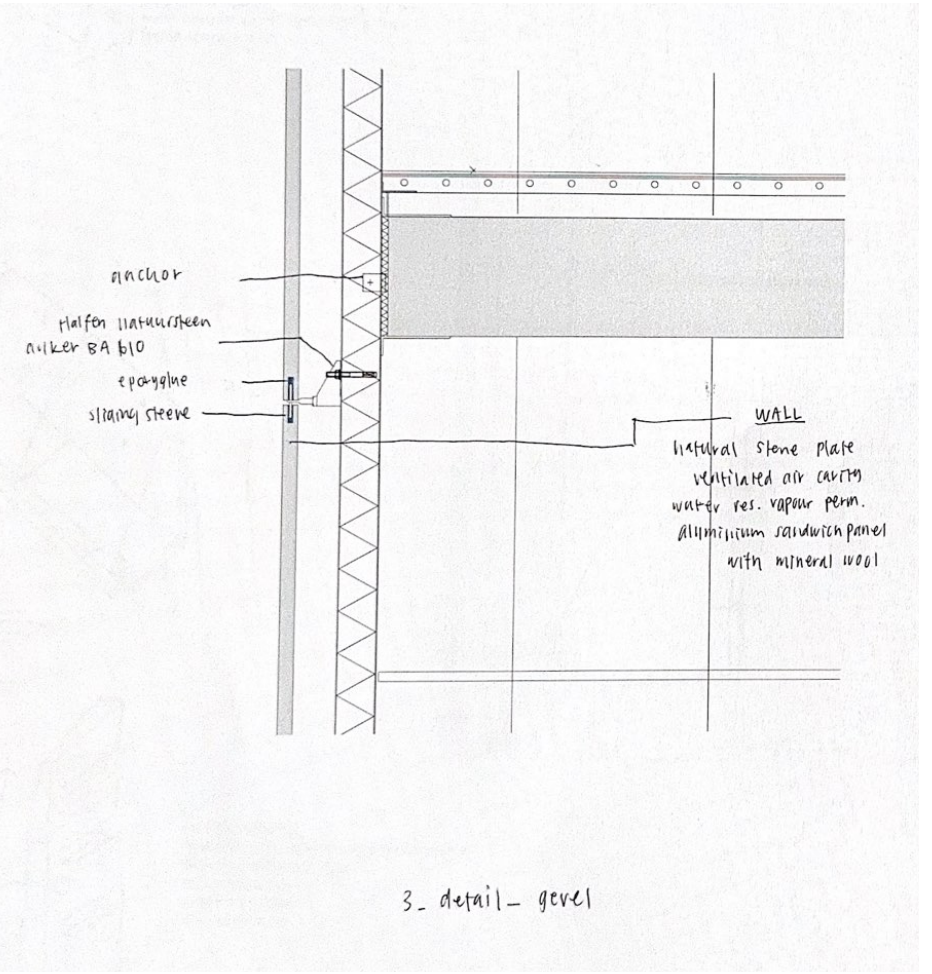

bituminous roofing
isolation on slope
vapour barrier
pressure layer
reinforced concrete floor
60
10
230
50
250
30
85
80

6_ detail_ dak

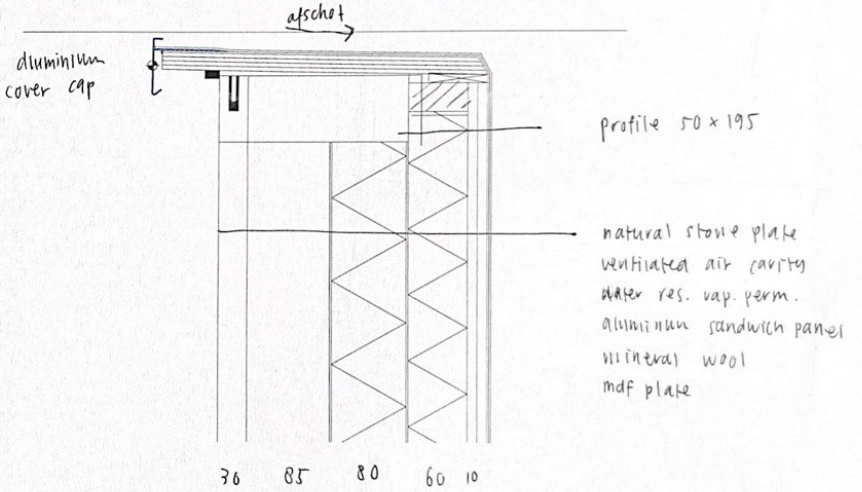

floor
reinforced concrete floor
screed
Fermacell floor heating 33mm
floor finish
30 85 80
12
33
50
250
anchor ?
steelplate
construction wall
natural stone plate
ventilated air cavity
water resist. vapour perm.
aluminium sandwich panel
with mineral wool
water resistant vapour
permeable layer
epoxyglue
halfen natuursteenanker
BA 610
135
20
profile
195 x 50
lowered ceiling
HR++ glass
column 400 x 400
1_detail _ vliesgevel



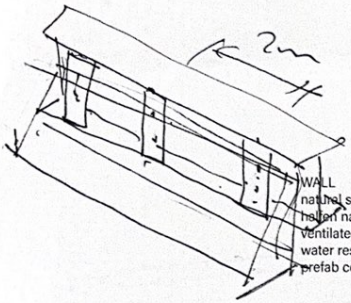
2_detail_kelder



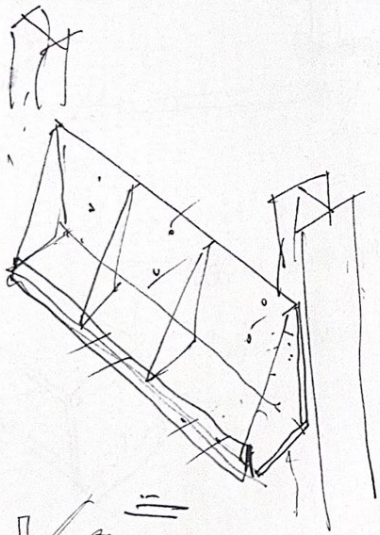
3_ detail_ gevel

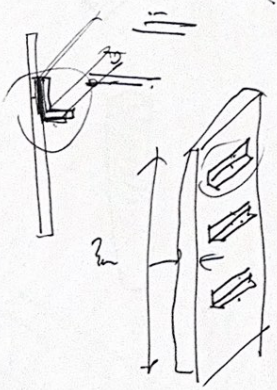


4_ detail_ dakrand

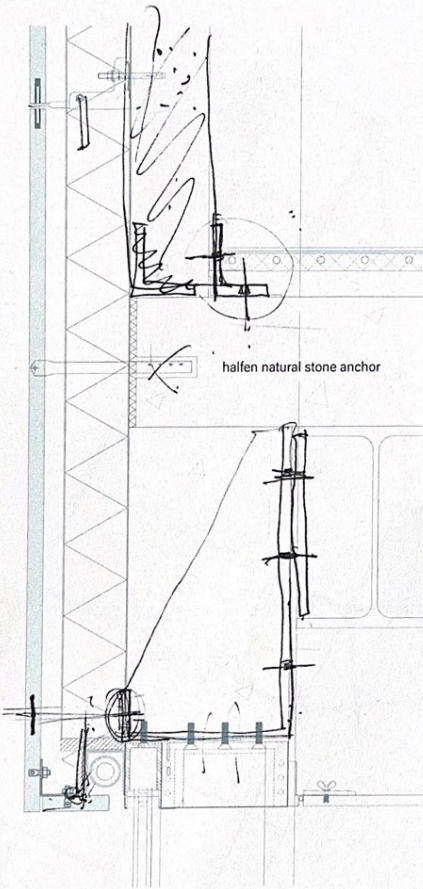


WALL
natural stone plate
halfen natural stone anchor BA160
ventilated air cavity
water resistant vapour permeable barrier
prefab concrete wall



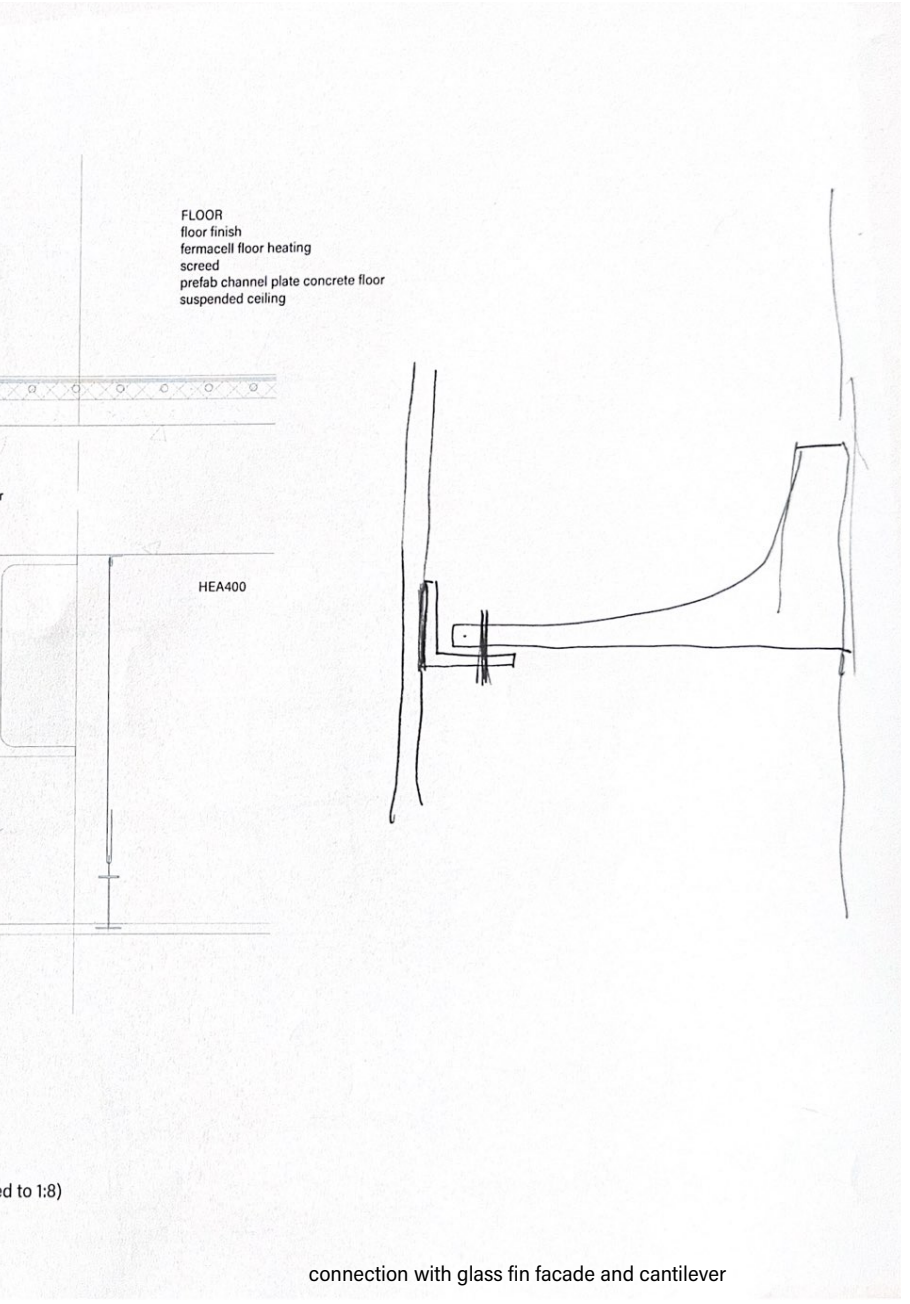


GLASS FIN WALL
finwall aluminium stackwall channel profile
tempered mainplate glass
structural silicone
tempered fn glass
column HEA300



halfen natural stone anchor

details 1:5 (scaled to 1:



ed to 1:8)

connection with glass fin facade and cantilever

CLIMATE DIAGRAM

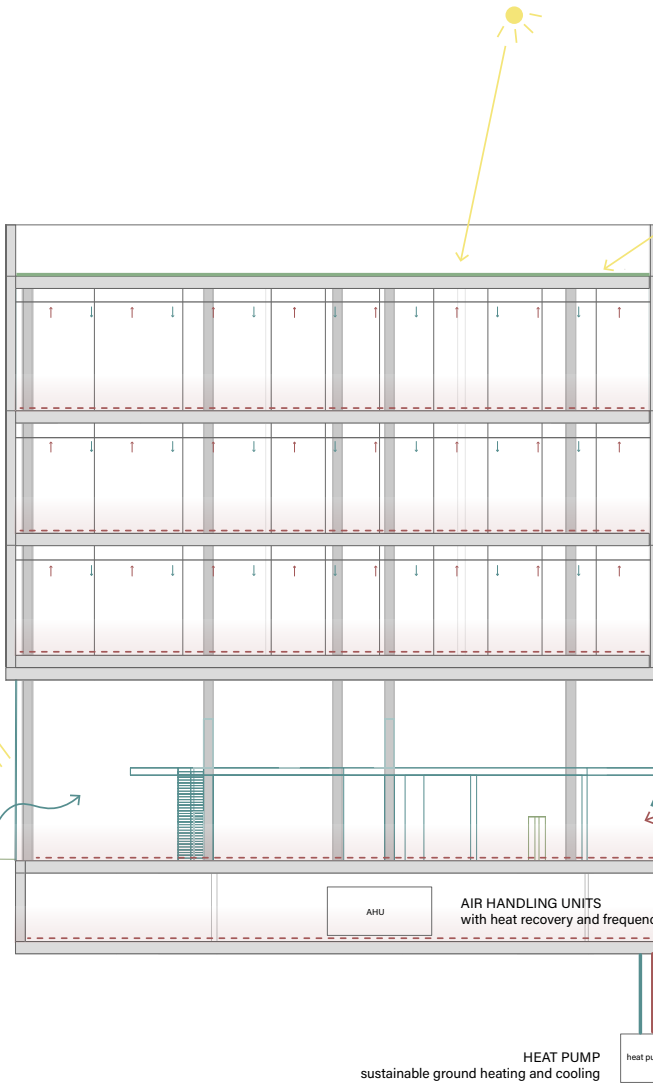
ROOF
vegetation roof with plants
for natural cooling

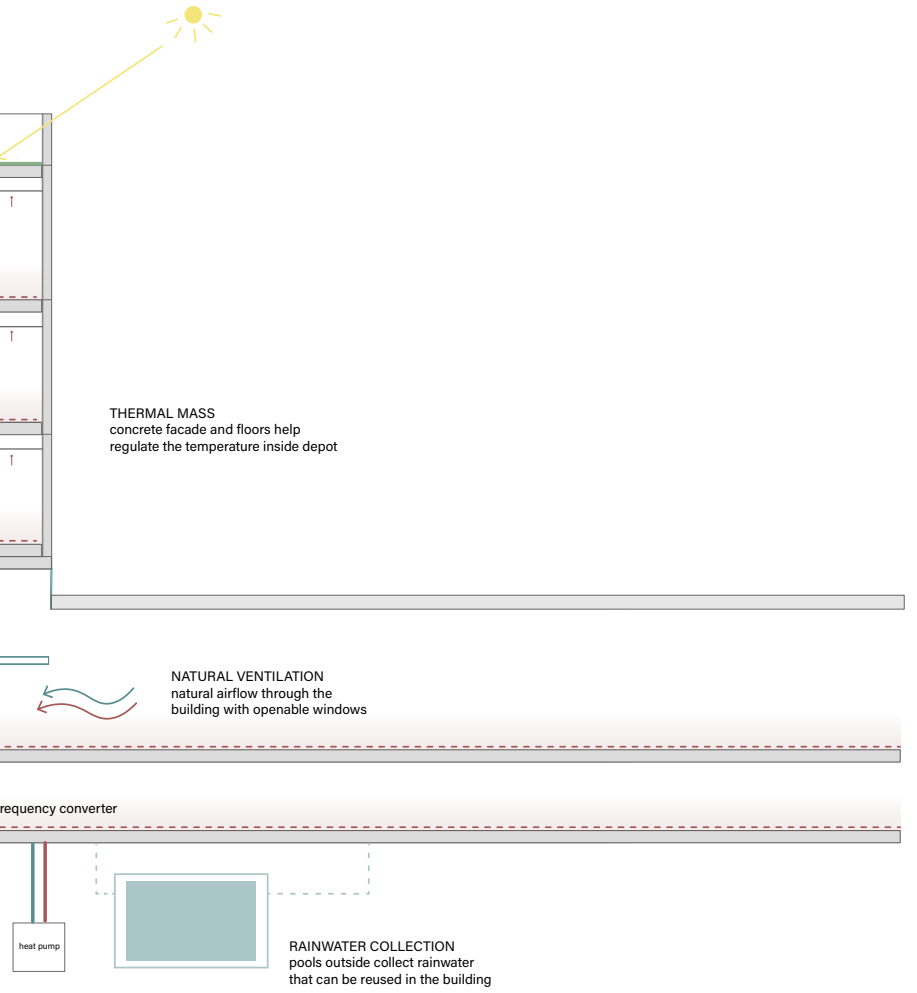
VENTILATION
ventilation type D: mechani-
cal ventilation for constant
temperature of 16°C - 18°C
inside depot

HEATING
low temperature floor heating
system throughtout the
building

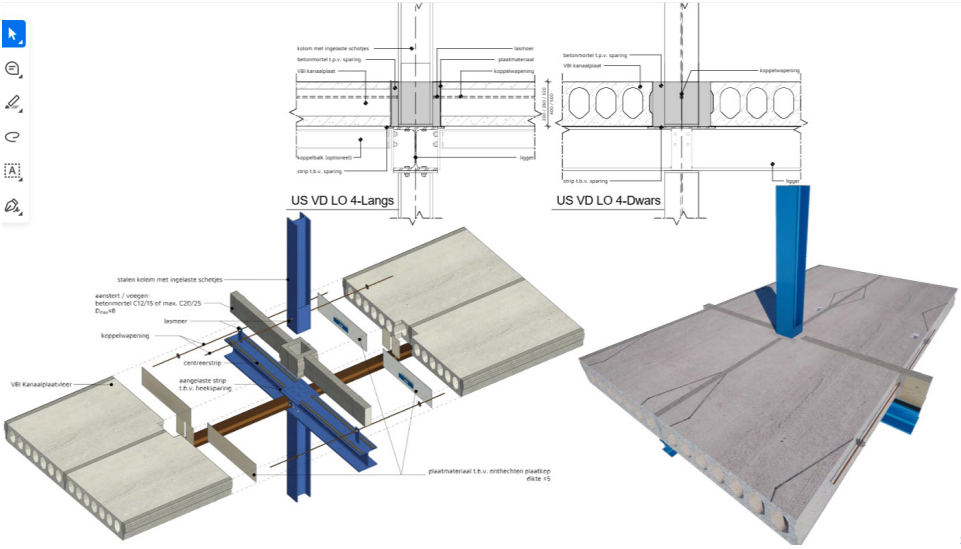
DAYLIGHT
natural daylight inside the building

SUN SHADING
automatic sun shading to
control air temperature




THERMAL MASS
concrete facade and floors help
regulate the temperature inside depot
NATURAL VENTILATION
natural airflow through the
building with openable windows
requency converter
heat pump
RAINWATER COLLECTION
pools outside collect rainwater
that can be reused in the building

SUSTAINABILITY



Demountable
The structure of the building will consist of a steel frame, with steel columns and steel beams. The floor is made of prefab concrete slabs that are placed on-site on top of the beams. In the reference we can see how the connections can be made in a demountable manner.

Thermal mass
For the functions of the depot, the facade will be massive. The natural stone will be anchored into a wall. This wall will also be concrete, which is beneficial for the energy consumption as the thermal mass of concrete is high. In a space like an archival depot, the climate inside needs to be regulated. Having both concrete floors and walls will make the flunctuations less and the climate more stable overall.

Daylight

The use of glass fin facade on the ground floor and first floor ensures that the building gets enough daylights. These are also the floors where most of the staying funcrions are located. The top floor has a big skylight and an atrium to provide daylight. The benefit of this is that less electricity has to be used for light and that it is a natural way to heat up the spaces.

URBAN DESIGN

landmarks - urban plan - courtyards - research city plans - flora and fauna

LANDMARKS

1. de singel
2. van rijswijck residence
3. bp building
4. expo antwerpen
5. crowne plaza
6. wezenberg

2. van rijswijck residence, leon stynen 1932

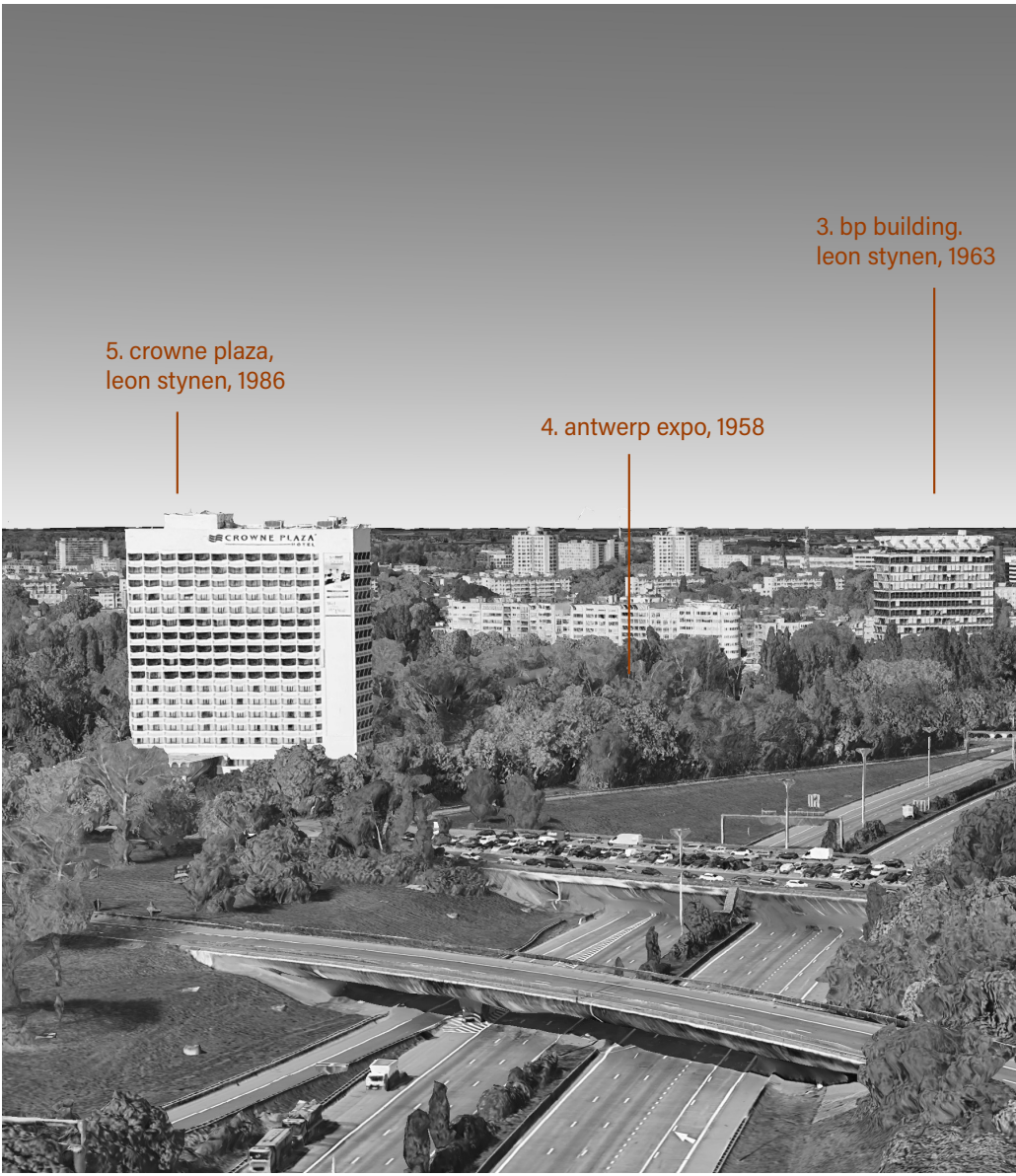
3. bp building. leon stynen, 1963

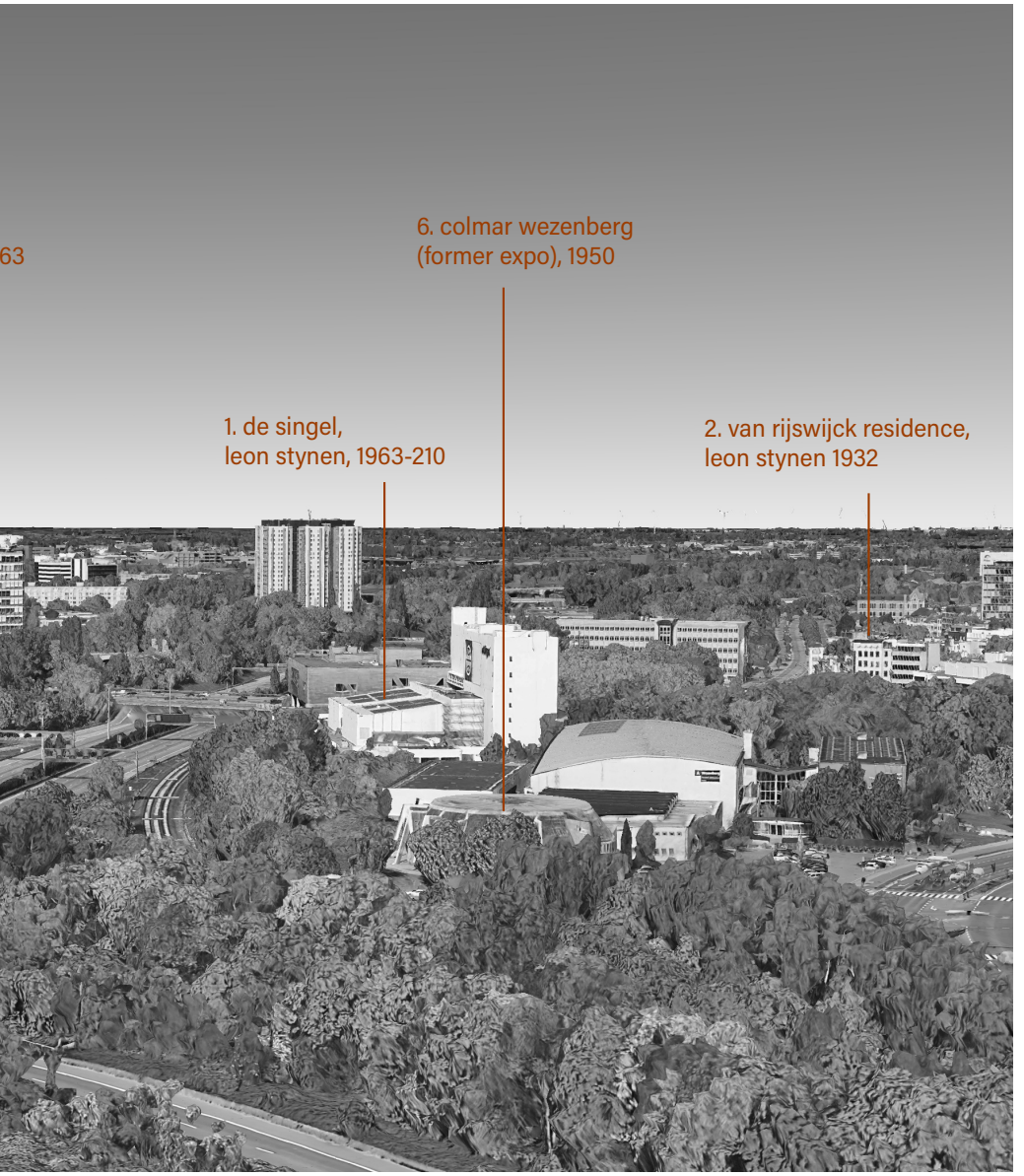
6. wezenberg (former expo), 1950

5. crowne plaza, leon stynen, 1986

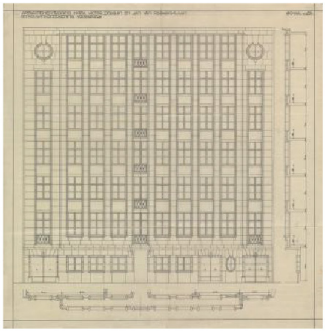
4. antwerp expo, 1958

landmarks map


3. bp building.
leon stynen, 1963
5. crowne plaza,
leon stynen, 1986
4. antwerp expo, 1958
CROWNE PLAZA



landmarks skyline



1. deSingel and the Royal Flemish Music Conservatory ▪ Desguinlei 25, 2018 Antwerp × 1958 – 1985 ¬ in collaboration with Paul De Meyer
According to architecture critics, this complex ensemble is the most complete summary of Stynen's oeuvre. In 1958, he received the commission to build a music conservatory here, in the green edge of the city. He designed the campus as a pavilion, with rooms that open onto two square courtyards. Later followed a radio studio, a concert hall, a theater hall, a library tower, and a public foyer. Stynen originally had a much grander urban design for the Wezenberg in mind. Of that true 'city in the green,' only a few fragments were realized: deSingel, the BP-building, and the Esso Motor Hotel. The unstoppable traffic infrastructure thwarted Stynen's dream: "The hills and water of the old fortifications are architectural elements I work with. Now that they've taken those away with the construction of the E3 and the railway, only a building remains." Despite this changed context, the ensemble is a convincing masterwork.

2. Residentie Van Rijswijck ▪ Jan Van Rijswijcklaan 160, 2018 Antwerp × 1931 – 1932
For this apartment building, Stynen originally had a streamlined, modernist design in mind. Presumably, this style did not entirely appeal to the client's taste. The architect modified his design toward a more conventional, refined art-deco style, adapted to the surroundings. The facade composition is distinctly vertical, with rectangular windows in ascending frames. The strongly overhanging superstructure is supported at the corner by two stepped consoles. Notable is the monumental crowning, with a flagpole on the corner, and seven life-sized sculpted female and male figures. We don't know whom they represent, nor who the sculptor is. The stained glass window with spiral pattern in the corner section is the result of a recent renovation.

3. BP-building (including temporary home base Delen Private Bank, partner Stynen 2018) ▪ Jan Van Rijswijcklaan 162, 2020 Antwerp × 1959 ¬ in collaboration with Paul De Meyer, Joseph Reusens, Claude Blondel, Raymond Van Loo, Kunstwerkstede De Coene, Idel Ianchelevici
When British Petroleum commissioned Stynen for its new Antwerp branch to be built, the architect proposed to construct it not in the city center but in the green periphery near a major access road. The result is not only a highlight from Stynen's oeuvre, but also one of the most striking high-rise projects of Belgian post-war architecture. The floor plates and facades of the office building hang from steel cables attached to a sculptural support structure of concrete and steel that crowns the building. A bold concept that German modernists had already described in the 1920s, but had not yet been executed in Europe. The architects coupled this technological innovation with aesthetic elegance. Due to the small surface area of the base, the volume appears to lift itself from the ground. The entrance pavilion is pushed transversely under the construction, which further enhances the lightness.

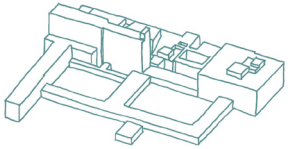
4. Antwerp Expo (former Nationaal Bouwcentrum) ▪ Jan Van Rijswijcklaan (N177), 2018 Antwerpen × 1958, expanded 1972-1989 ¬ architect unknown
In 1958 opened the Nationaal Bouwcentrum at Wilrijkseplein, serving as a documentation and information center for the construction industry. The original complex comprised exhibition pavilions, an auditorium and model homes built according to systems construction methods. The venue's inaugural public fair in 1958 focused on the theme of "building," establishing its role as a platform for architectural and construction innovation. In 1971, the Antwerp Book Fair was held for the first time in the Nationaal Bouwcentrum, marking its evolution toward broader exhibition programming. Between 1972 and 1989, new buildings were constructed for commercial fair activities, and the original information pavilions disappeared during this transformation period. The congress center was simultaneously renamed Antwerp Expo, reflecting its shift from specialized construction documentation to general exhibition venue. The building is strategically located on Jan Van Rijswijcklaan near the Antwerp Ring.

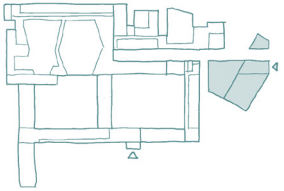
5. Esso Motor Hotel (Crowne Plaza Hotel) ▪ Gerard le Grellelaan 10, 2018 Antwerp × 1969 ¬ in collaboration with Paul De Meyer
Together with deSingel and the BP-building, this hotel belongs to the most defining buildings by Stynen and De Meyer on the Wezenberg. In the late 1960s, the firm developed a competition design for an economic center. The Swedish Esso Motor Hotel was establishing a hotel chain across Europe at that time. They explicitly chose high-rise construction to save space, but also for prestige and visibility. In Antwerp, the choice fell on this location along a major access road. Of the competition design, only the hotel and a 'car care center' were built. The concrete tower, fifteen stories high, is strictly designed according to a predetermined grid. A large concrete canopy accentuates the entrance.

6. Restaurant Colmar Wezenberg (former expo 1950) ▪ Desguinlei area, Antwerpen × 1950 ¬ architect unknown
The current Restaurant Colmar Wezenberg is located next to the former Olympic swimming pool from 1920. It was originally built to house the "Expo 50", an international exhibition held in Antwerp in 1950. The building features a distinctive spider-like or star-shaped design with radiating arms and a central circular structure. The building now serves as a restaurant next to a sports center, primarily known for its swimming facilities. It is a notable example of post-war modernist architecture in Belgium.

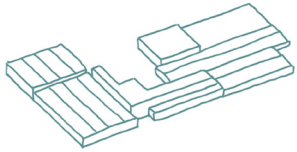
source: Vlaams Architectuurinstituut en stad Antwerpen. (2018).

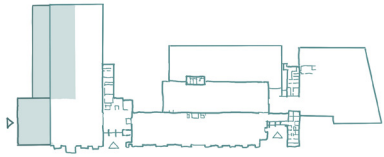
de singel



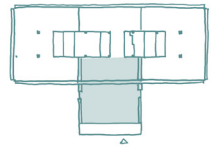


antwerp expo



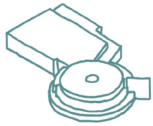


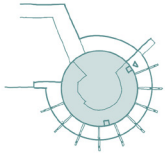
bp building



landmarks research

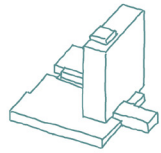
wezenberg

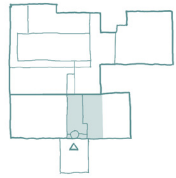




van rijswijck

crowne plaza





I continued my research on the landmarks and asked myself: **how can the existing buildings become part of the VAi's archive program?**

From the beginning I imagined the buildings to open up their space to host archive functions inside. I envisioned these to mainly be exhibition functions on the ground floor (illustrated in the drawing), in a similar way executed as my P1 module. I started to think about the reality of this, and explored every building more deeply.

BP building lobby

BP Building:
I initially imagined that the ground floor could host rotating exhibitions visible from the street, making archival knowledge accessible to passersby. Currently this space is completely open and a few art pieces are aready displayed here. The top floor offers a clear view of de Singel and its surroundings. Inside the building, there are a variety of different companies. The ground floor is a space without identity, so it would fit the VAi programming.

BP building view

Crowne Plaza
As active hotel, the Crowne Plaza seemed impossible initially. But hotels have underutilized public spaces, lobbies, meeting rooms, corridors. What if VAi negotiated to use lobby space for exhibitions during off-peak hours?
Hotel operations fundamentally conflict with exhibition programming. Guests expect quiet lobbies, not educational displays. Security concerns about archival materials in public hotel spaces. Insurance complications.
Interesting conceptually but operationally challenging. Could be possible to host temporary events, during an event (Open Monumentendag, Architecture Week). The event spaces on the top floor would be suitable for this.

Crowne Plaza view top floor

Van Rijswijck Residence
This building is a residential and private building where VAi programming would be invasive. But located across de Singel and designed by Leon Stynen, it is not a building to be forgotten. It can be used in different ways, without exploiting the private spaces inside.

Van Rijswijck Residence from the street

Colmar Wezenberg
This building is bordering the sports center with Olympic Swimming Pool Wezenberg. Currently, it operates as a restaurant, targeting the people who visited the sports center and swimming pool. However, it could introduce a different group of people if utilized more specifically. The building consists of two floors, with the restaurant on the first floor.
The ground floor is a semi-open space, currently abandoned, and used for storage. As this space is seperated from the restaurant and easily accessible, it would be a good location for the VAi to put their programme.

expo ground floor level

interior pavillion

Antwerp Expo
This building has a different purpose than the other landmarks. The Antwerp Expo plays a crucial role in the design and the integration of the VAi with the surroundings. With the Expo getting an extension on the bridge side, it immediately will become part of the VAi building. The idea is to create this in the same visual language as the VAi, creating a new main entrance on this side. The Expo would offer permanent space for the VAi to host their exhibitions. A clear connection between the two will be made in different ways.

current main entrance facade

location expo extensiion

There is a distinguish we can make between the buildings, placed in different categories:
1. activated landmarks: builidngs that can host VAi functions inside
2. symbolic landmarks: buildings that are historically significant but unavailable for programming

After reseach it becomes clear that the buildings in the direct context can serve different purposes:

1. used to host (temporary) installations as extension of the archive
2. become part of walking routes with signage explaining architectural significance, and supported by VAi app
3. create visual connections between the landmarks and the VAi
4. physically connect to de Singel

But where does this leave the buildings at a larger scale? These buildings are not the only interesting buildings in the city

Proposal: A MULTI-SCALE WALKING NETWORK

It became clear that not every significant building can actively host the VAi's program, but each can play a valuable role in a larger narrative. This led to a strategy based on two types of walking routes, operating at different scales and levels of engagement.

The direct programming network: The Immediate Context

This route exists in the immediate surroundings of de Singel and is directly curated by the VAi. It connects to landmarks that can realistically host physical archive programming.

The Primary Partner: Antwerp Expo emerged as the most important location. Its existing function as an exhibition hall creates a natural partnership. The bridge makes this a physical reality, allowing the VAi to operate across two buildings, with major exhibitions in the Expo's flexible halls.

The bridge is the backbone of the direct network, making the exchange of people and exhibits between de Singel and the Expo a seamless part of the archive experience.

The conceptual collection route: The city-scale walk

This is a broader, city-scale walking route that frames the "city as an archive" concept for the general public. It includes landmarks that are symbolically important but cannot host permanent VAi programs, such as the residential Van Rijswijck Residence.

On this route, these buildings are presented as "collection pieces" in an open-air museum of architecture. The experience is supported by:

1. Wayfinding and signage: Information points explain the architectural significance of each landmark.

2. Temporary activations: The mobile modules from my P1 project could introduced to these sites during city-wide events like Open Monumentendag, creating temporary moments of engagement.

3. Visual framing: The bridge and the VAi building itself are designed to create strategic view lines that highlight these landmarks, integrating them visually into the archive.

4. Online interaction: the VAi creates an app that stimulates people to scan building in real time. A curated description and archival material will pop up, explaining the landmark, supported by audio guides. People can create their own walking route and share with friends.

5. Printed and digital maps: instead of one crowded map, different thematic maps are produced by the VAi. These can be phyiscal, collectible items inside the VAi, or digital, inside the app or Google Maps.

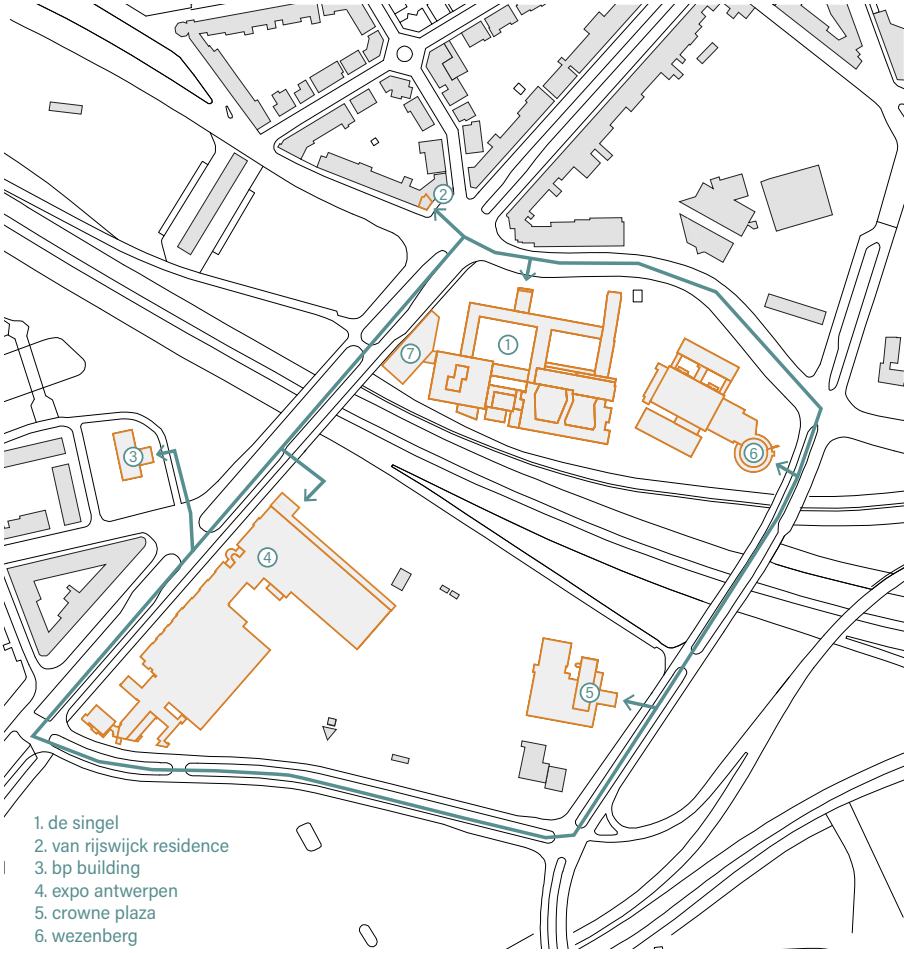
This strategy that plays on two scales is both ambitious and practical. It creates a core of active, programmed spaces while expanding the concept to a city-wide scale. The visitor can choose their journey: a deep engagement with the archive's direct network, or a broader exploration of Antwerp's architectural collection. This approach shows the "city as an archive" concept as not just a metaphor, but a tangible, walkable reality.

reference wayfinding: riverside walk gardens millbank, london, UK

alternative outdoor display systems

reference visual framing: view from the highline

THE VAI ARCHIVE WALK



walking route

1 - 2	3 min (190m)
2 - 3	8 min (550m)
3 - 4	3 min (180m)
4 - 5	9 min (800m)
5 - 6	5 min (350m)
6 - 7	5 min (350m)
total	33 min (2100m)

There is not just one walk that fits this concept. The VAi can curate different walks throughout the city of Antwerp, each with a different focus. This could be a certain architect that is highlighted in one exhibition, Antwerp's architecture as a timeline (e.g. connecting with the facade), a specific architectural style (art nouveau, modernism, etc.).

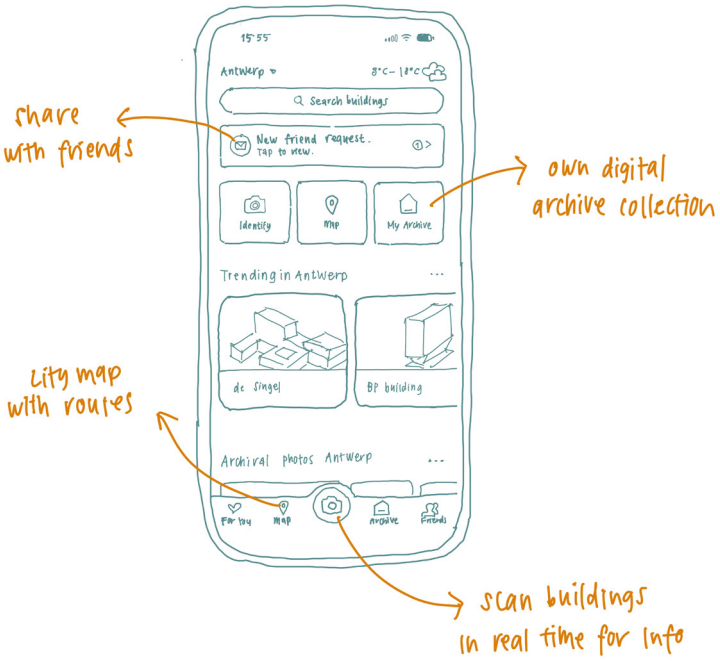
from VAi Leon Stynen architectuur route (2018)

deSingel (1975)

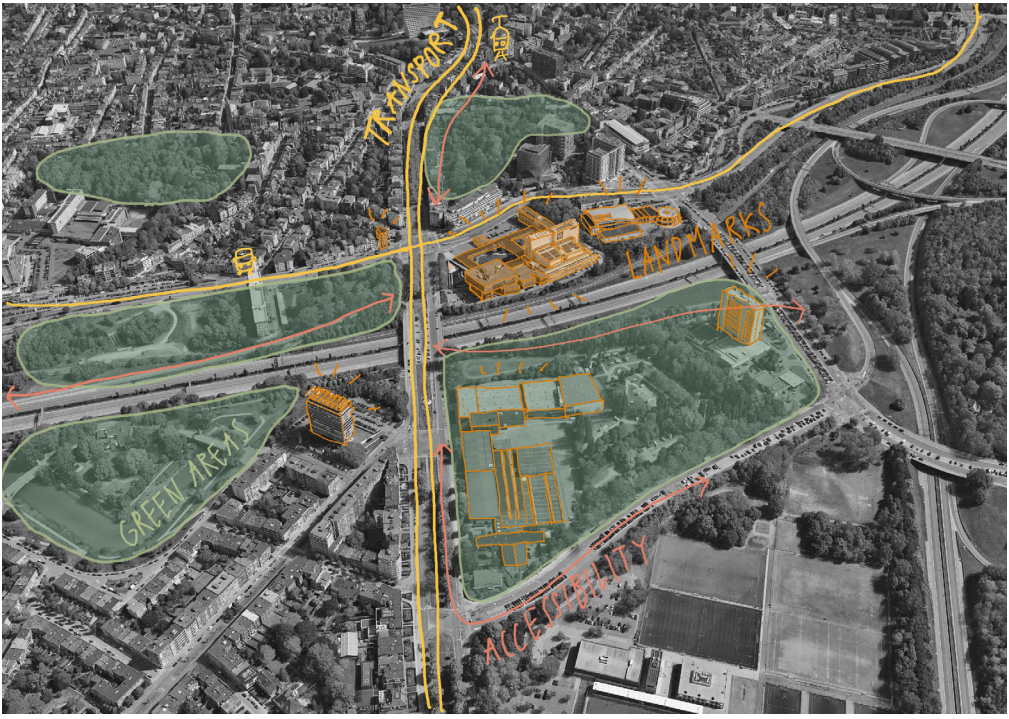
ABOUT DE SINGEL

De Singel wants to be a contemporary and welcoming arts house, a lively and international leading meeting place for art without borders in a changing world. Its unique building on a multifaceted arts site links DE SINGEL to the rich variety of communities in Flanders (and Antwerp), with artists and art practices from every corner of the globe.

Photo: Library Royal Conservatory Antwerp, 1968

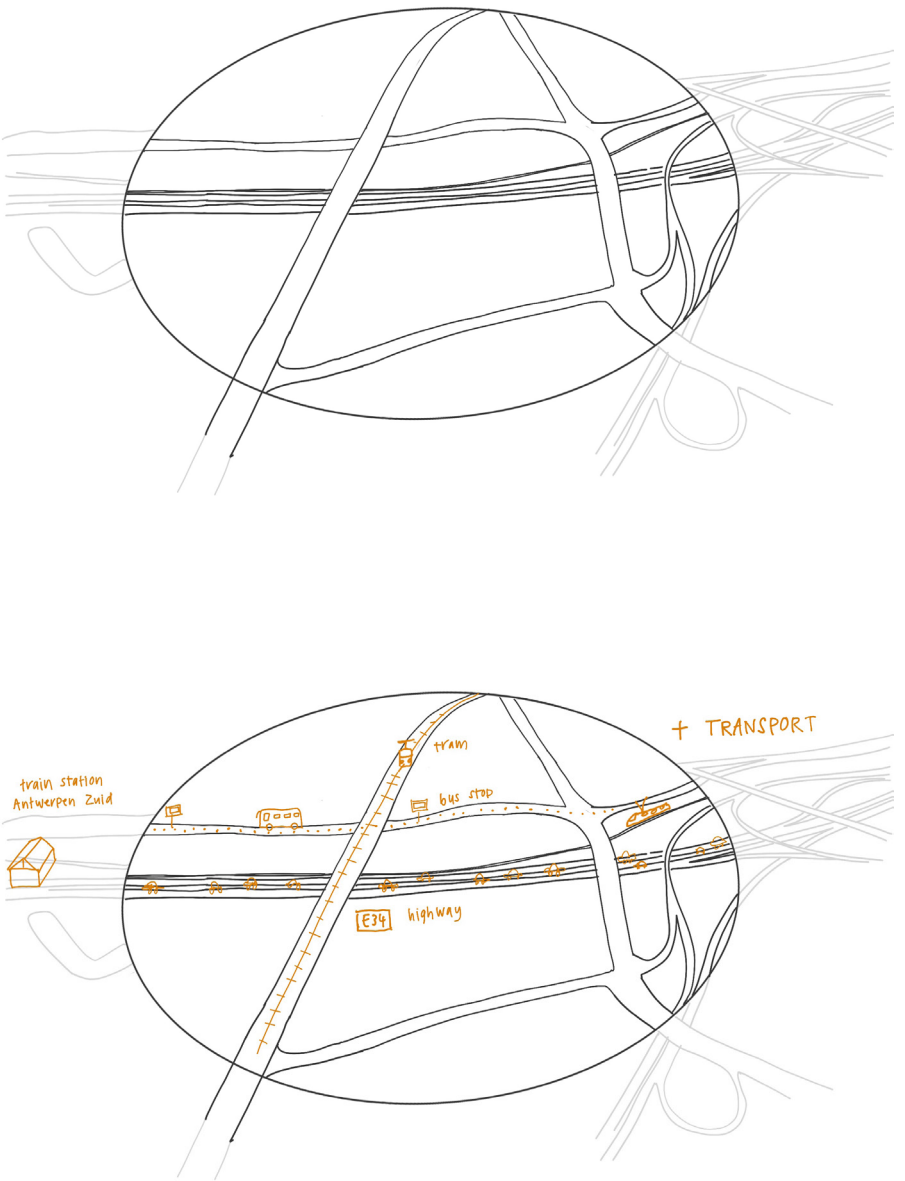


URBAN PLAN

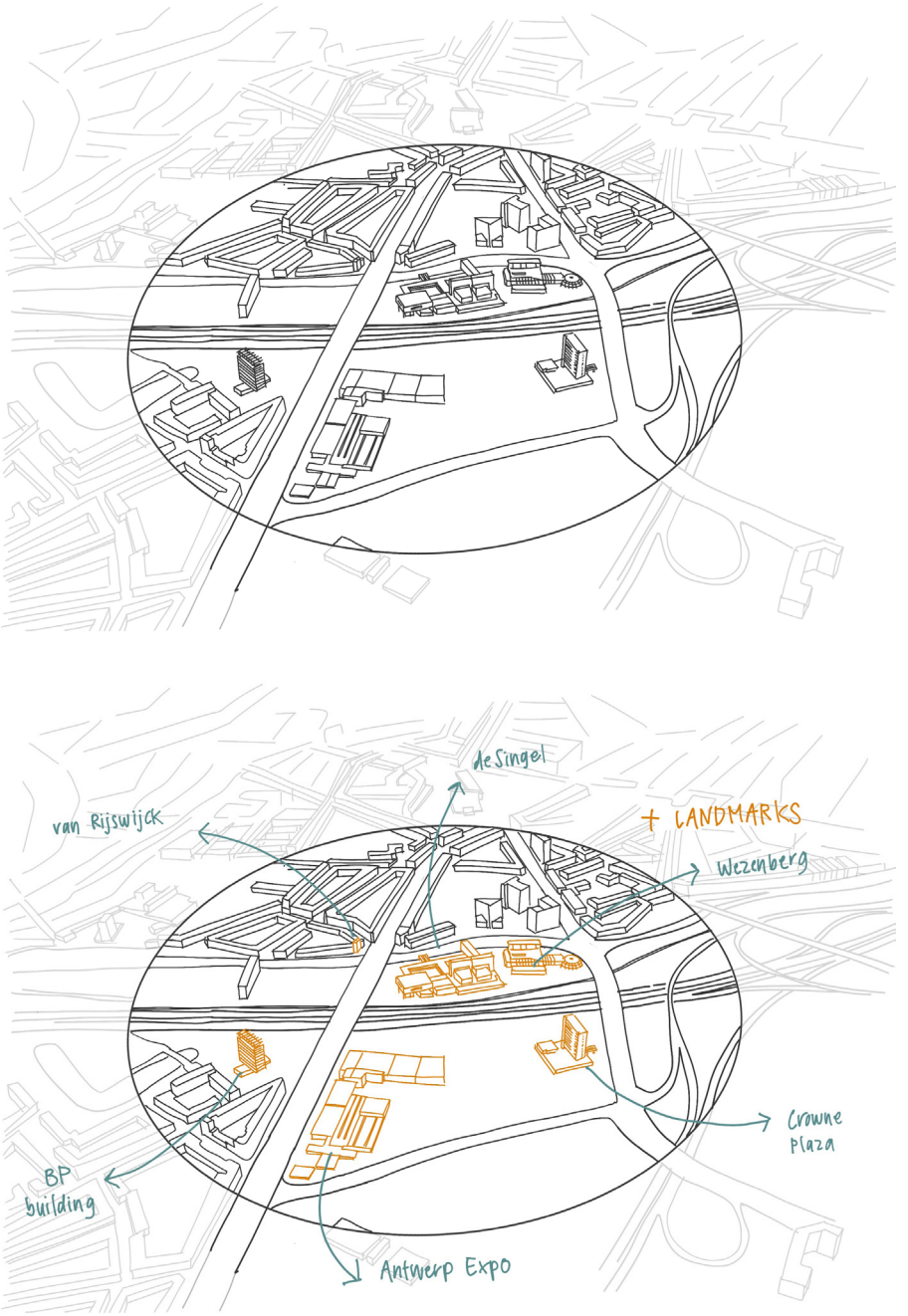


strengths in the area

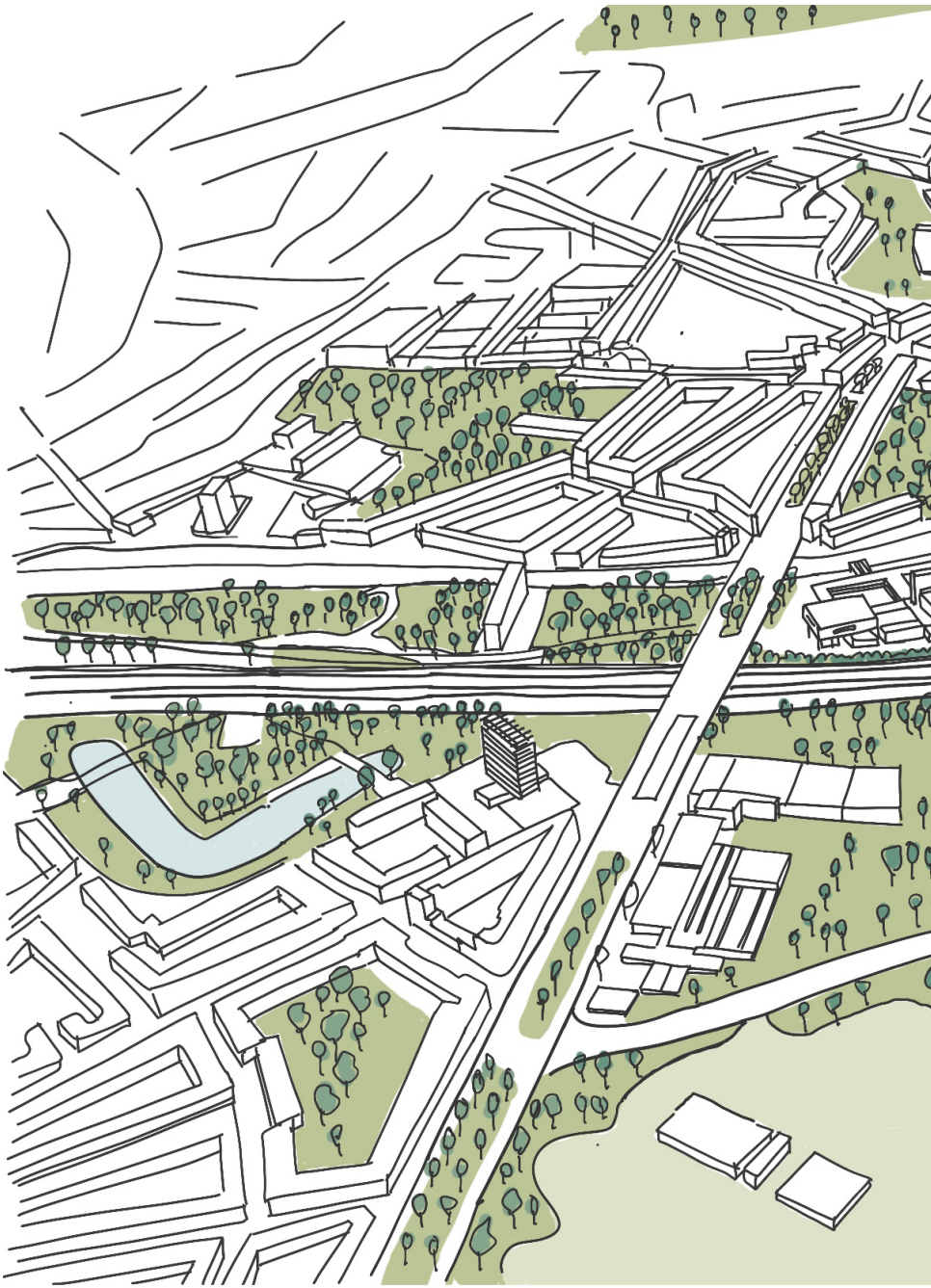
oppertunities in the area



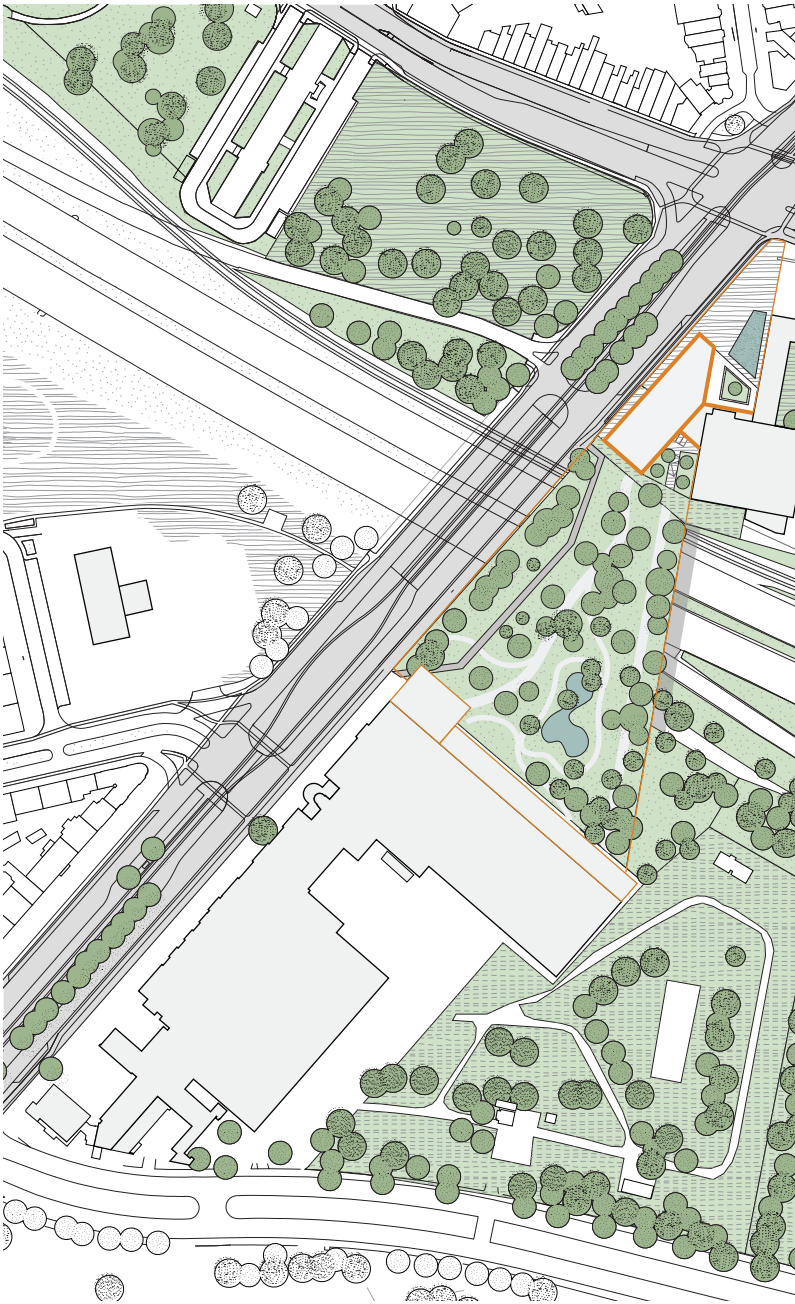
infrastructure in the area

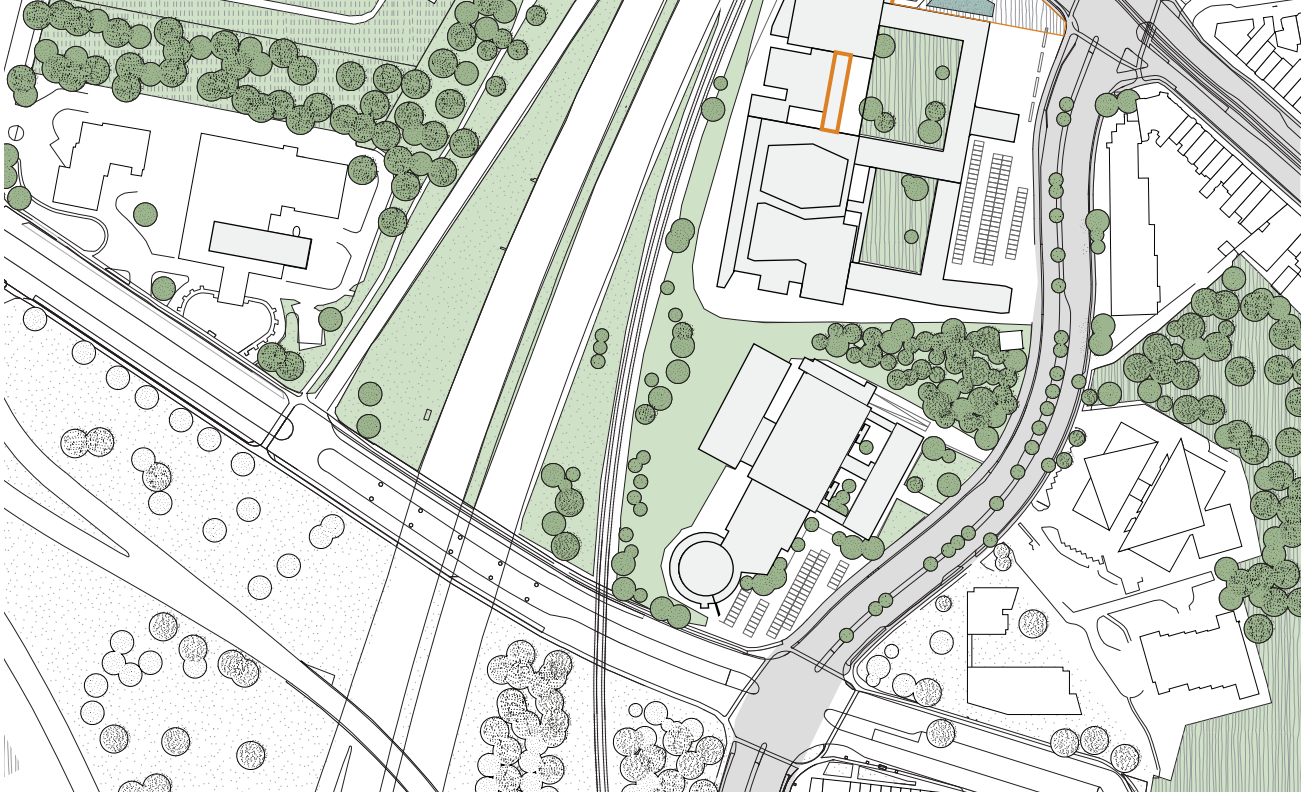


landmarks in the area



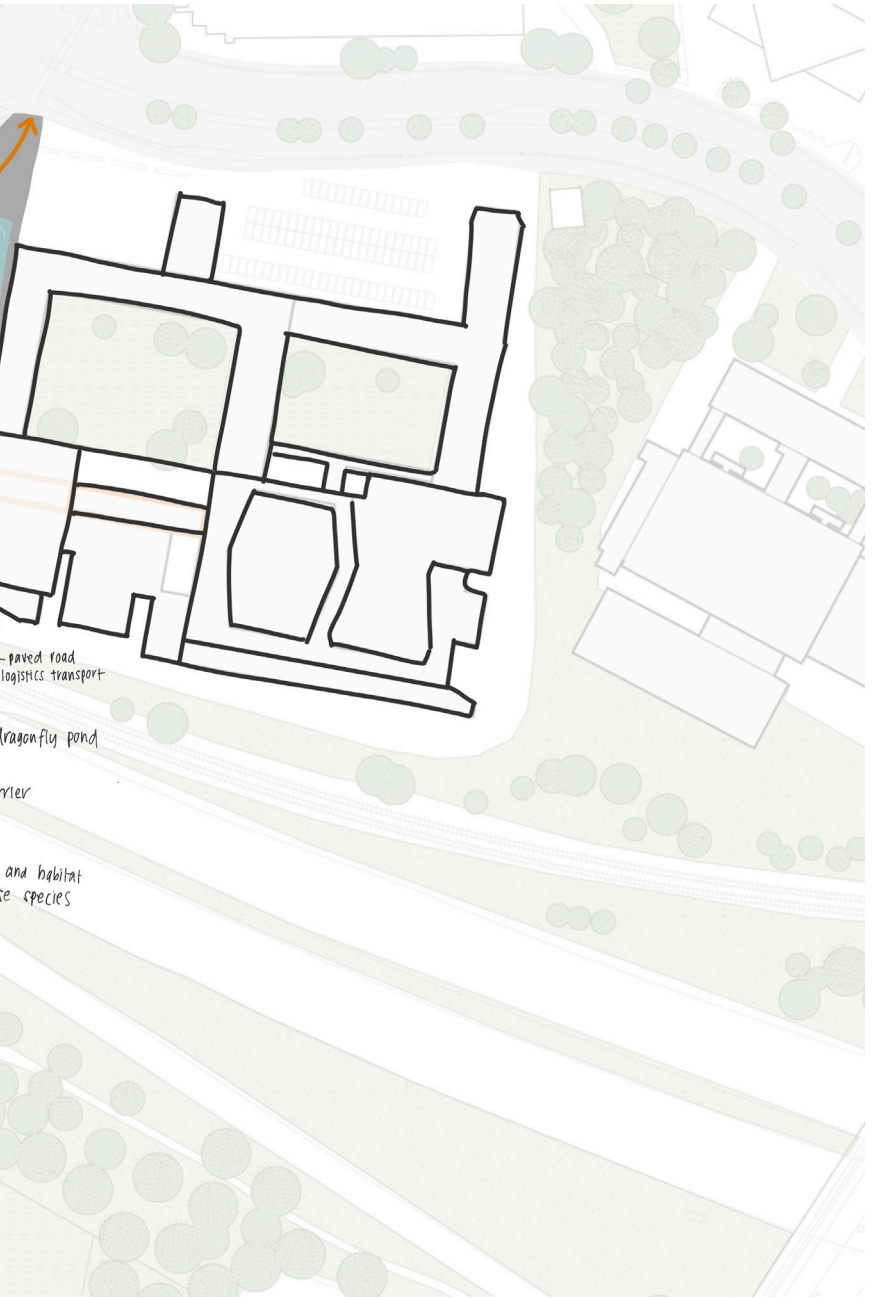
urban plan

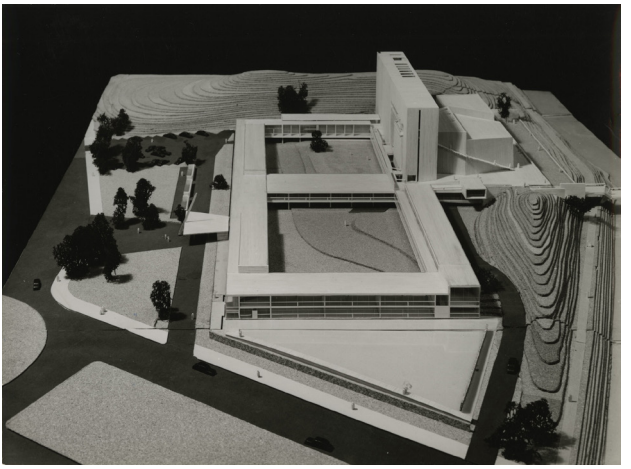




urban site plan

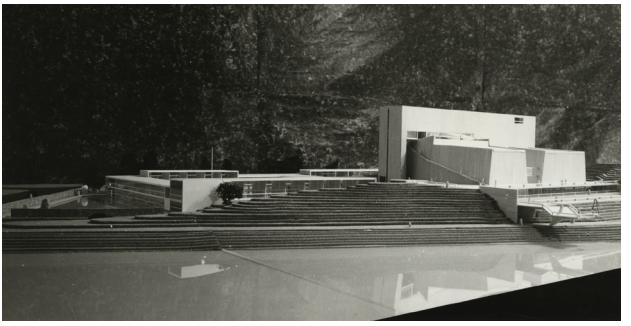
water element
for rain water collection
bird nest boxes
and insect hotels
café
allotments
space for sports
and recreation
lawn for
relaxation
bicycle road
dog friendly park
semi-paved
for logistics
bat bricks
in walls
dragonf
sound barrier
highway
clear route and h
for biodiverse spe
high density
trees
water element
for buffer


- paved road
logistics transport
dragonfly pond
rrier
and habitat
se species



Leon Stynen original design ca. 1962

the hill at the corner is dominant and has the same height as the hill next to de Singel. A walk-way has been created as an extension of de Singel into this landscape



Leon Stynen original design ca. 1962

the height of the hill is as high as de Singel building. the view inside of de building is onto de lanscape.

de Singel before the Beel extension. The hill is a seperation between the highway and de Singel. In the model, it looked like there was a direct connection with the hill, but in reality there is a parking lot and a long ramp creating a barrier. the relationship with the landscape is not as strong.

ca. 1968 c

ca. 1968 construction of de Singel

Water was part of the original Singel's design, with the purpose of reflecting the facade and giving the illusion that de Singel extends in the environment.

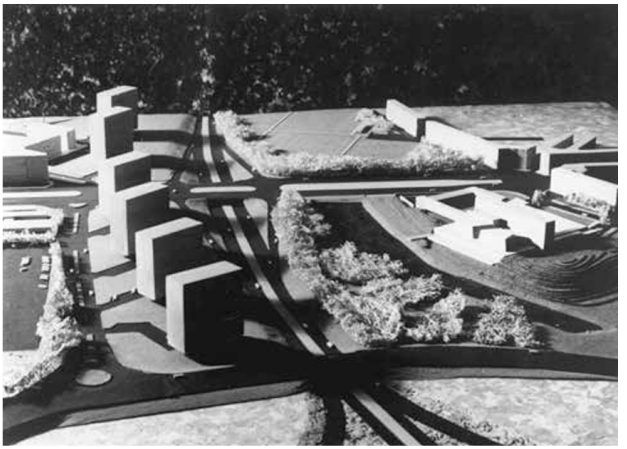
de Singel is surrounded by green trees and bushes. From this perspective giving the illusion that the green is almost taking over the building.

Stynen's ordeal

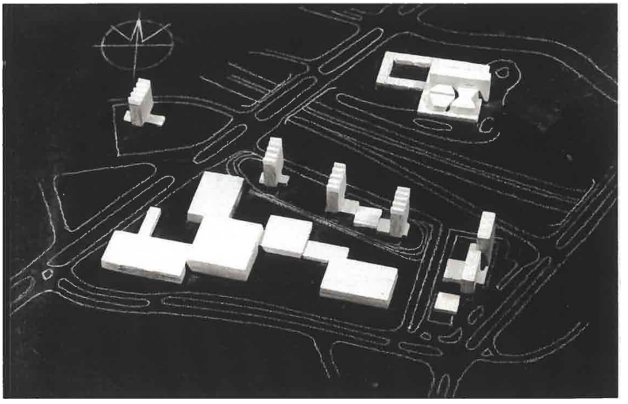
The Wezenberg that Stynen discovered was a charming area left over from the ravages of relentless urban development, which primarily took place in the city center and, due to the new harbor expansions, in the north of the city. Stynen immediately seized the unique opportunity offered him to transform this area into an exemplary piece of the new city, with his design for the music conservatory forming the center.

In 1962, Leon Stynen presented a master plan for a complete urban district that reflected his vision of the contemporary city. This vision built on the models that the French modernist Le Corbusier had laid out in the Charter of Athens. Away from the dilapidated city center, which according to the modernists, was only fit for demolition, and easily accessible to modern traffic, he designed a self-sufficient enclave. A row of tall apartment buildings evoking a new urban belt, near the highway, screened the area.
Against the existing city, a string of lower housing blocks closed off the area, as if he wanted to protect the individuality and intimacy of the place around the Wezenberg from unwanted outside influences. In the center, the conservatory and radio studios, combined in a single complex, would form the vibrant and meaningful center of the neighborhood, a kind of acropolis. Everything a modern urban planner could dream of found its natural place here in a diverse natural environment with water and green spaces that had been preserved from the old canal belt.
Of the entire plan that Leon Stynen had envisioned for his building, nothing would come to fruition, except for a few isolated fragments, such as the conservatory building itself, the so-called BP towers with their permanent suspended structure, and the Crest Hotel. In their incoherence, these three buildings by Stynen remain the lasting witnesses to the lack of vision and dedication that doomed the area, with its potential to develop into a true urban neighborhood. But the building itself, which was the starting point for the urban environment, fell victim to it. In its amputated state, it could no longer realize its grand ambitions. The conservatory itself was conceived as a built landscape that would integrate into the surrounding natural landscape. The difficulties began with the curtailment of the program that the Ministries of Public Works and of National Education and Culture wanted to amend the existing regulations for scale building. "The ink on the first drawings was still dry when the Passion began," admits Lean Stynen. According to him, this was not a school at all, but a public building with several halls for theaters and concerts.
The most serious distortion of the plan took place when the decision was made to shift the planned route of the E3 in the immediate vicinity of the building. There, the attractiveness of the natural setting, including its water features, would disappear. Furthermore, it was decided to construct a double-track line across the area envisioned for the conservatory. The conservatory and the radio studios, which had been regarded as a serene haven of peace and quiet, now became victims of the audible noise of the highway and railway.

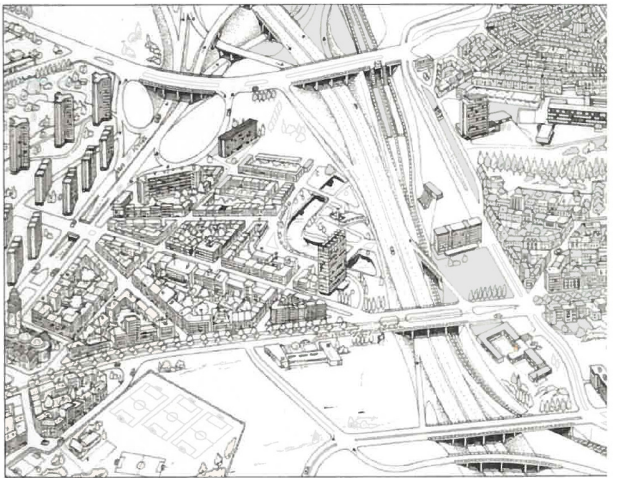
The final blow to the urban development project was dealt when the city council came up with the idea of building an Olympic swimming pool on what remained of the Wezenberg. Leon Stynen's building became increasingly isolated as a result.
(De Bruyn et al., 2009)



Architect Leon Stynen designed a large park with ponds around the conservatory. A row of lower apartment buildings shields the site from the city.



1970
In 1970, he competed in a tender issued by the City of Antwerp for the construction of a trade center on the open space behind the Conservatory (09). He designed a cluster of smaller halls around a connecting courtyard. The design was never implemented.



1969
Masterplan for Wezenberg

view of the current situation

view of the situation after intervention

COURTYARDS

piazza santa maria rome
Width: ~25m (irregular, roughly rectangular)
Key Feature: Centered around a 12th-century mosaic church and an octagonal fountain.
Design Notes: Cobblestone paving, casual seating on fountain steps, vibrant nightlife.

Piazza della Cisterna (San Gimignano)
Width: ~20–25m (triangular)
Key Feature: Medieval well, surrounded by 14th-century towers and honey-colored stone buildings.
Design Notes: Feels like a stage set, with steeply sloping pavement drawing the eye upward.

Piazza del Popolo (Ascoli Piceno)
Width: ~25m (part of a larger rectangular square)
Key Feature: Known as one of Italy's most beautiful squares, with travertine paving and Gothic loggias.
Design Notes: Harmonious proportions, often compared to a Renaissance drawing.

Piazza Santo Spirito (Florence)
Dimensions: ~25m x 55m
Key Features: Lined with rustic cafés and artisan workshops
Central octagonal fountain (a copy of the original 16th-century design)
Lively morning market and nightlife scene

I decided that I wanted to create two different courtyards in the landscape: a city courtyard on the north side of the building and a green courtyard on the south side.

The city courtyard is located on the city side and will have a direct connection with the urban surroundings. This courtyard is inspired by the Italian Piazzas. The size of the courtyard is around 25m by 60m. I analyzed some piazzas that were similar in size and noticed a few things. These piazzas are all paved with stone and are surrounded on at least three sides by buildings with active functions, making it an intimate space. There is at least one focal point on the piazza, this can be a church, a historic building, or a fountain. In the case of de Singel, it would be interesting to place a fountain on the piazza as a casual meeting spot.

Why do these piazzas work?

Human Scale: Feels enclosed but not cramped, encouraging social interaction.

Clear Focal Points: A fountain, church, or tower draws the eye and anchors the space.

Active Edges: Cafés, shops, and historic buildings ensure vitality.

city courtyard analysis

piazza verde vecchia

paley park nyc
A “pocket park” with a 20-foot waterfall, ivy-covered walls, and honey locust trees shading movable chairs.

concept of “pocket park”

Urban pocket parks are small parks designed for use in the public realm around urban areas. They are also sometimes called parklets or mini parks. Relatively easy to set-up and comparatively inexpensive to build, they are an effective way for urban areas to create inviting, outside spaces for residents and the community.

goal of green courtyard:
relax
meet
mindfullness
calm
leisure

community gardens for café

university of sheffield pocket park

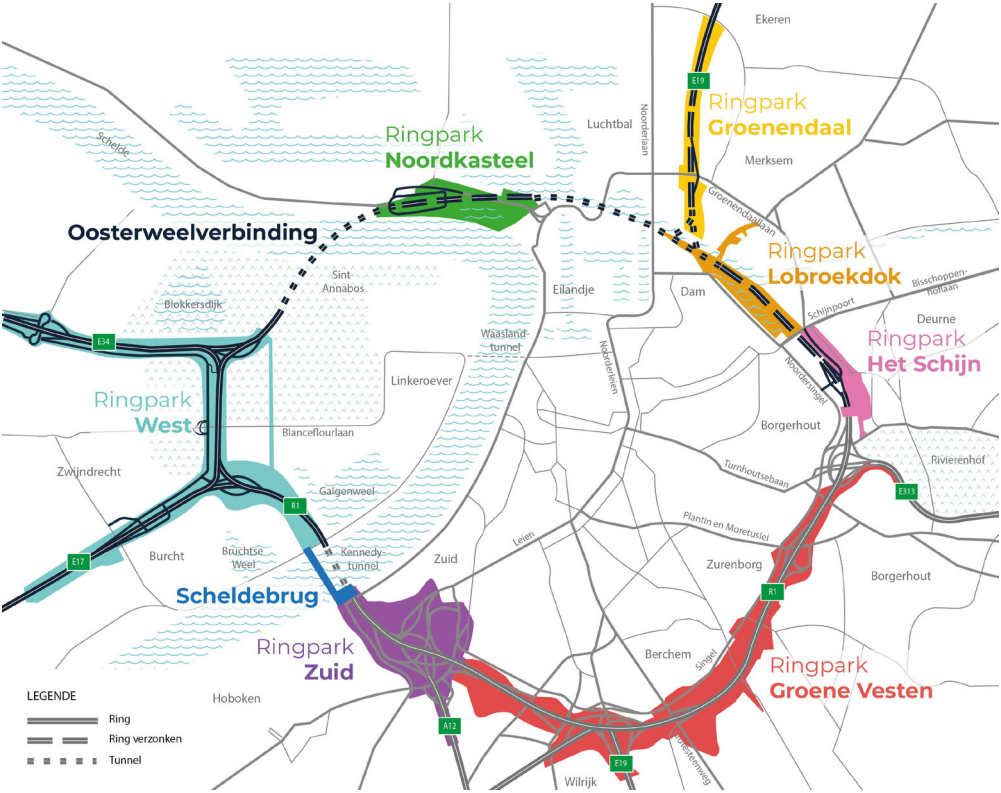
seoullo 7017
Highway Crossed: Former elevated highway (now a "sky garden")
Features:17 pedestrian paths with 24,000 plants (trees, shrubs, and flowers).
Night lighting transforms it into a glowing green spine.
A retired highway reborn as a plant-covered walkway.

goal of green bridge:
connect
exercise
leisure
travel

promenade plantée paris
Structure: 4.7km elevated railway viaduct
Features: The world's first elevated park (pre-dates the High Line!).
Rose gardens, bamboo groves, and arched walkways.
Connects Bastille to Bois de Vincennes.

RESEARCH CITY PLANS

DE GROTE VERBINDING



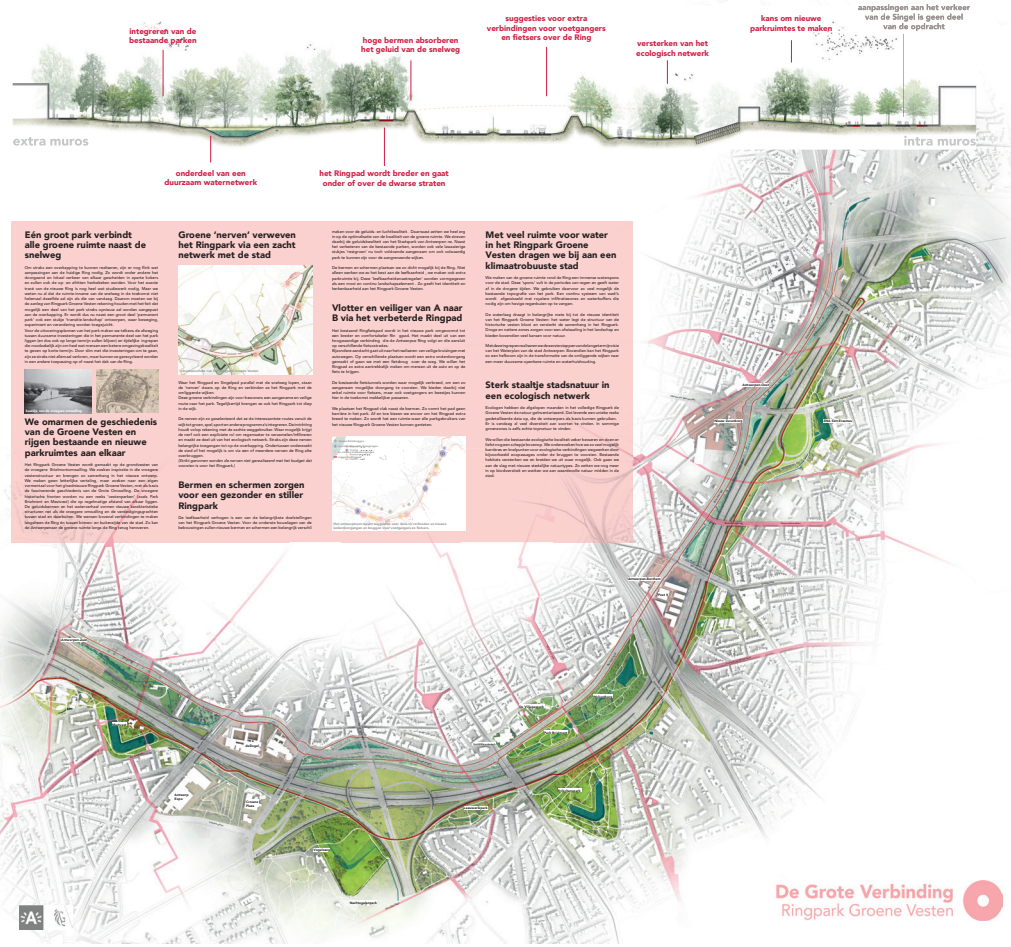
De Grote Verbinding is a transformative urban project in Antwerp, Belgium, designed to heal the historic division caused by the city's heavily trafficked ring road (R1). For decades, this major highway has cut through the city like a barrier, creating a physical and social divide between neighborhoods while contributing to high levels of noise, air pollution, and traffic congestion. De Grote Verbinding aims to reconnect these separated communities by gradually covering large sections of the ring road with so-called "roof structures" or caps. On top of these new structures, the city plans to build parks, green spaces, walking and cycling routes, and community facilities, effectively stitching the urban fabric back together while improving the quality of life for residents living along the ring.

The project is not only about infrastructure but also about social and environmental renewal. It forms part of a long-term vision developed through collaboration between the Flemish government, the city of Antwerp, and various citizen movements, most notably the Ringland initiative. These citizen groups played a key role in pushing for greener, healthier, and more human-centered solutions to the city's mobility problems. De Grote Verbinding therefore also includes measures to improve sustainable mobility, such as better public transport connections and safer cycling routes, as well as efforts to restore biodiversity, reduce greenhouse gas emissions, and improve air quality around the densely populated urban core. By capping sections of the ring, the project will reduce noise levels and filter out pollution, creating healthier conditions for tens of thousands of residents.

Ultimately, De Grote Verbinding seeks to transform what was once a disruptive barrier into a unifying green backbone for the entire city. Instead of being an obstacle, the ring road will become an integrated part of Antwerp's urban landscape, supporting rather than hindering community life. The new green spaces and slow-traffic routes will encourage recreation, active transport, and social interaction, while the improved mobility network will make it easier and safer to move across the city. This combination of infrastructural, environmental, and social interventions marks De Grote Verbinding as one of the most ambitious urban transformation projects in Europe, aiming to set a precedent for how cities can reclaim space from car traffic to create healthier, more connected, and more livable urban environments.

RINGPARK

Ringpark Groene Vesten



"suggesties voor extra verbindingen voor voetgangers en fi etsers over de Ring"

conceptontwerp Ringpark Groene Vesten 2020

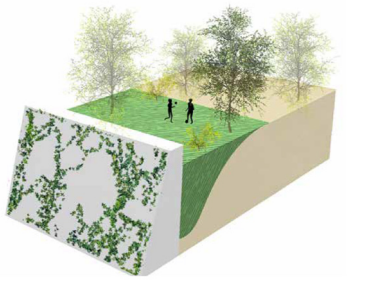
Ringpark Groene Vesten is one of the new green parks being developed as part of De Grote Verbinding project in Antwerp. It stretches along the southern section of the Antwerp ring road (R1), between the districts of Berchem, Antwerpen-Zuid, and Hoboken. Historically, this area was dominated by traffic infrastructure and acted as a barrier between neighborhoods, but Ringpark Groene Vesten aims to transform it into a continuous green corridor that reconnects surrounding communities. The project will create a wide park zone with large green areas, play and sports facilities, walking and cycling paths, and ecological zones that support local biodiversity.

A central feature of Ringpark Groene Vesten is the planned capping of parts of the ring road, meaning they will be covered and landscaped to reduce noise and air pollution and to create safe, accessible public space above. This will allow residents to cross the area more easily and will link up existing parks such as Brilschanspark and Wolvenberg. The new park will not only serve as a recreational space but also function as an ecological buffer and climate-adaptive zone, improving air quality, reducing heat stress, and managing rainwater. By replacing a noisy traffic barrier with a green and lively urban landscape, Ringpark Groene Vesten will become a key element in reconnecting Antwerp's neighborhoods and improving quality of life in the city's southern districts.

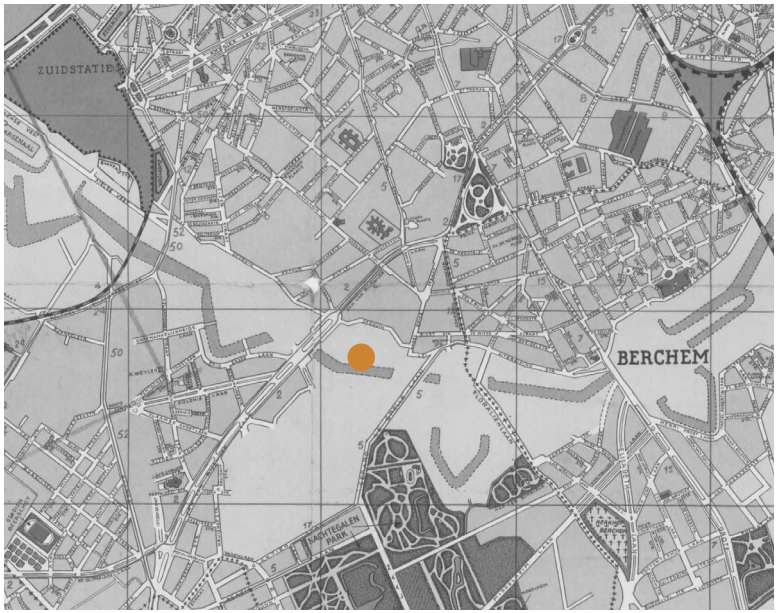
Summary of document: 2022_RP_GroeneVesten_info_DEF

Goals of Ringpark Groene Vesten
1. reduce impact of the highway
2. better living quality in ringzone
3. reduce distance between neighbourhoods
-> connect between park areas to create a park
4. bring back the old Brialmontomwalling

ways of approach
1. create park space
- raise roadsides
- rest space becomes park space
- strengthen vestenparken near de ring
2. ring bicycle path
- make tunnels and bicyle and pedestrian bridges
3. water (water buffers)
- wadi's -> city becomes water sponge
- reuse pumped water from de singel
- new vestengrachten for open water
4. screens and roadsides to create vestenmuur
- improve air quality and noise

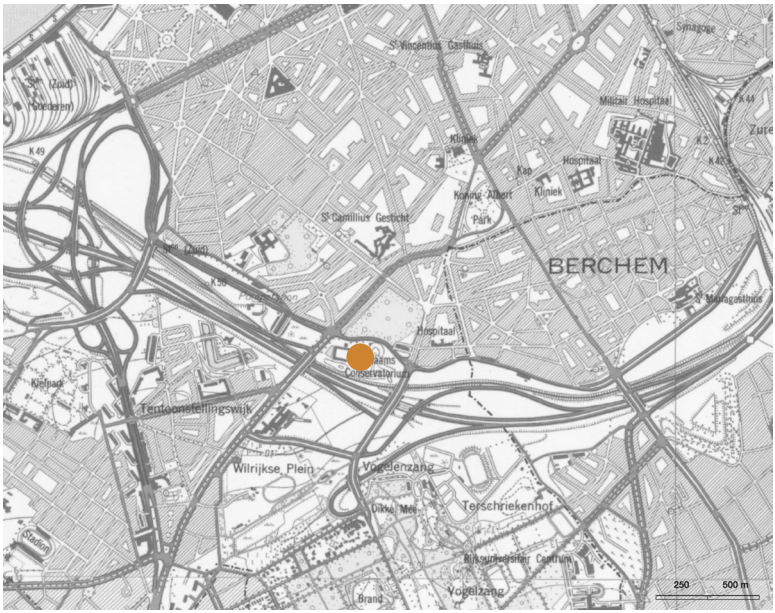


1830

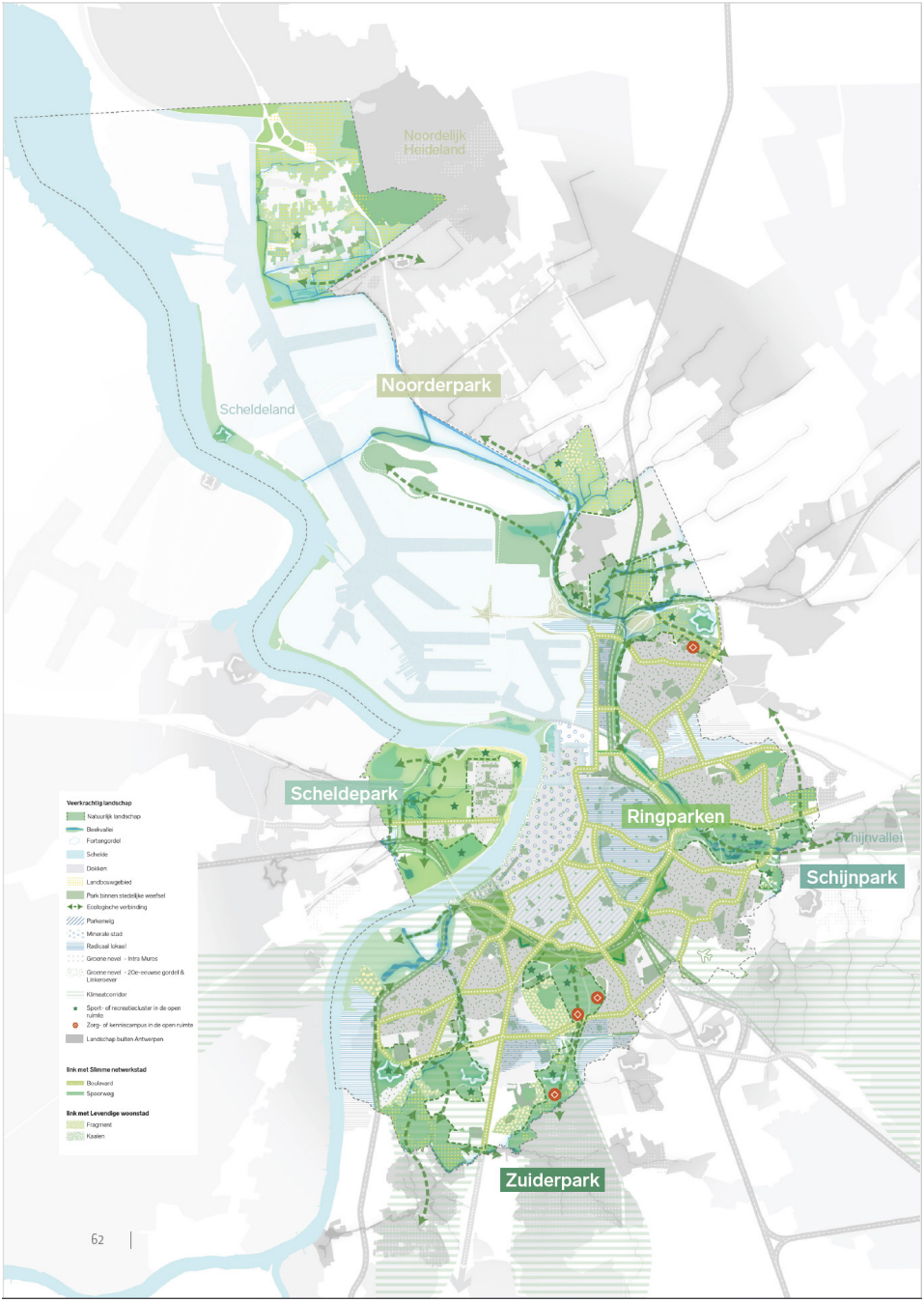


1950

1897


St Vincentius Gasthuis
Synagoge
Militair Hospitaal
Kliniek
Hospitaal
Kap
Kliniek
Koning Albert
Park
St Camillius Gesticht
BERCHEM
Hospitaal
Conservatorium
Tentoonstellingswijk
Wilrijkse Plein
Vogelenzang
Dikke Mee
Terschriekenhof
Rijksuniversitair Centrum
Vogelzang
Brand
Stadion
250
500 m

1981

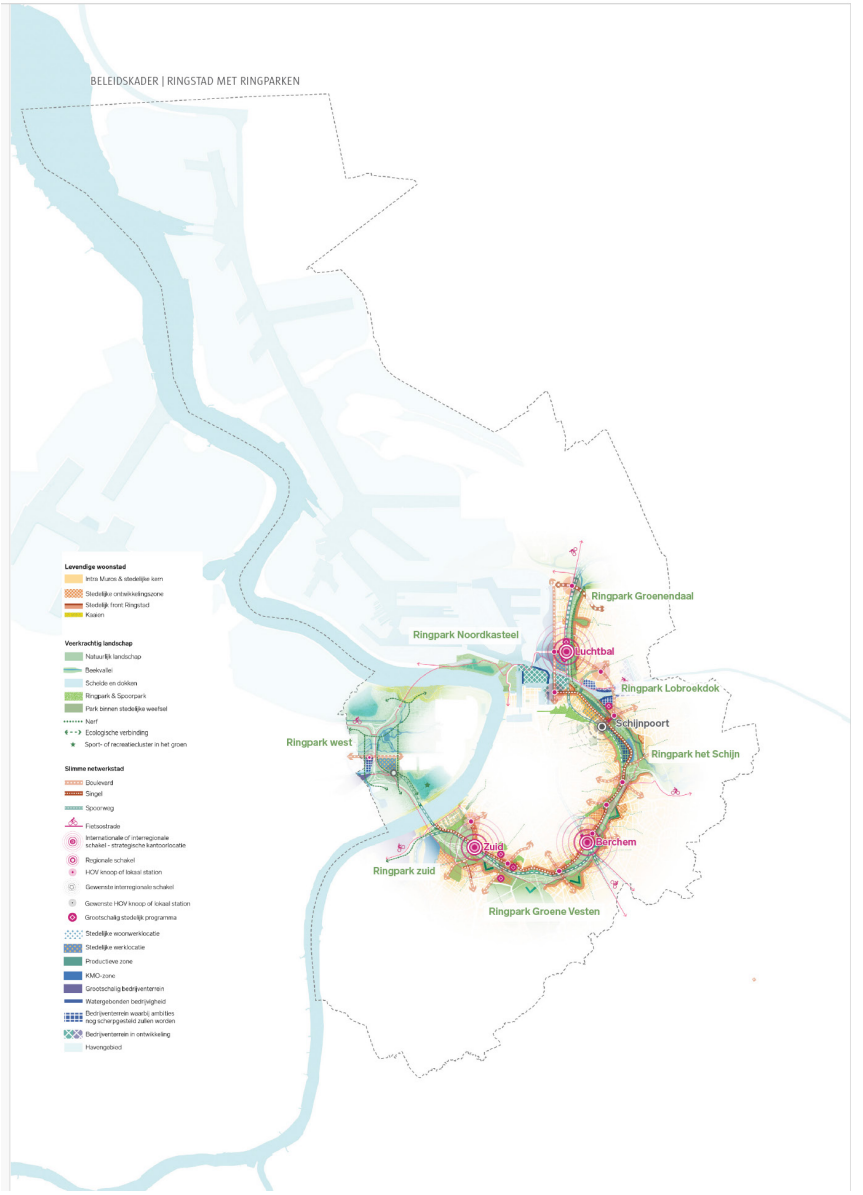

Noordelijk Heideland
Noorderpark
Scheldeland
Scheldepark
Ringparken
Schijnpark
Zuiderpark
Veerkrachtig landschap
Natuurlijk landschap
Beekvallei
Fortengordel
Schelde
Dokken
Landbouwgebied
Park binnen stedelijke weefsel
Ecologische verbinding
Parkenwig
Minerale stad
Radicaal lokaal
Groene nevel - Intra Muros
Groene nevel - 20e-eeuwse gordel & Linkeroever
Klimaatcorridor
Sport- of recreatiecluster in de open ruimte
Zorg- of kenniscampus in de open ruimte
Landschap buiten Antwerpen
Iink met Slimme netwerkstad
Boulevard
Spoorweg
Iink met Levendige woonstad
Fragment
Kaaien

62

NATURAL LANDSCAPES AS SUPPORTERS OF THE GREEN-BLUE NETWORK

The city's green-blue main structure consists of several superparks. These are large-scale, contiguous green areas, often composed of diverse open spaces including agricultural clusters. The superparks continue the large green areas outside Antwerp within the city limits. The Zuiderpark is an extension of the Land van Boom, the Schijnpark is an extension of the Antwerp Voorkempen, and the Noorderpark marks the border of the Brabantse Wal. In addition, the Scheldepark forms a continuation of the Waasland and the Scheldt estuary. The Ringparks will also form a superpark after completion. This park structure (as an umbrella term for the various Ring Parks) is an outlier: it does not directly connect to the green areas on the city's outskirts, but forms a connection between Scheldepark, Zuiderpark, and Schijnpark. This future superpark will thus play a central role in the city.
The green-blue main structure will consist of the various natural landscapes and the Ring Parks. Each landscape fulfills a specific role in the city and will be preserved and improved accordingly.

(SRA 2024)


BELEIDSKADER | RINGSTAD MET RINGPARKEN
Levendige woonstad
Intra Muros & stedelijke kern
Stedelijke ontwikkelingszone
Stedelijk front Ringstad
Kaaien
Veerkrachtig landschap
Natuurlijk landschap
Beekvallei
Scheide en dokken
Ringpark & Spoorpark
Park binnen stedelijke weefsel
Nerf
Ecologische verbinding
Sport- of recreatiecluster in het groen
Slimme netwerkstad
Boulevard
Singel
Spoorweg
Fietsostrade
Internationale of interregionale schakel - strategische kantoorlocatie
Regionale schakel
HOV knoop of lokaal station
Gewenste interregionale schakel
Gewenste HOV knoop of lokaal station
Grootschalig stedelijk programma
Stedelijke woonwerklocatie
Stedelijke werklocatie
Productieve zone
KMO-zone
Grootschalig bedrijventerrein
Watergebonden bedrijvigheid
Bedrijventerrein waarbij ambities nog scherp gesteld zullen worden
Bedrijventerrein in ontwikkeling
Havengebied
Ringpark Groenendaal
Ringpark Noordkasteel
Leuchtbal
Ringpark Lobroekdok
Schijnpoort
Ringpark het Schijn
Ringpark west
Zuidi
Berchem
Ringpark zuid
Ringpark Groene Vesten

The City of Antwerp, together with the team of the city architect and AG Vespa, will create a new district called the Ringstad. The expansion of the new ring road will result in a stronger connection between the 20th-century belt and the city center and will maximize the improvement of the quality of life in the surrounding neighborhoods. Since the construction of the Ring, the city has largely turned its back on the Ring Zone. The covering of the Ring makes it possible to link the city center to the suburbs in a very organic, and especially open and green, way through the large-scale urban development program Ringstad with accompanying Ring Parks.

The Ring Parks will form the backbone of a strengthened green-blue network. The Ring City and the Ring Parks form a cohesive whole. In a Connecting Valley, the existing large park clusters and the green remnants of the Brialmont extramural ramparts will be connected to form a continuous ecological connection. The covering will maximize the opportunity to create a sufficiently broad, functional ecological connection with the various surrounding valuable natural areas. The green coverings will create new, extensive park connections between neighborhoods that are currently separated by the Ring. The parks will be designed so that the cooling effect of the climate corridor is extended deep into the city. They will also significantly improve the quality of life in the neighborhoods surrounding the Ring. The principles of the livable residential city will be implemented in the development of neighborhood parks as a fully-fledged integral part of the Ring City. The parks will create safe and comfortable connections for cyclists and pedestrians. Depending on the location, the landscaping of the roofs and verges will follow the construction of the Oosterweel connection or the modification of the southeastern ring road. The green valley will be enhanced by the construction of generous connections over the radial bridges.

POMPPARK ZUID

Grondplan definitief ontwerp Pomppark Zuid (via degroteverbinding.be)

Pomppark Zuid is one of the planned Ringparken within Antwerp's De Grote Verbinding project. It will be located in the southern part of the city, near the junction where the Antwerp ring road (R1) meets the A12 motorway. The name "Pomppark" refers to the existing historical water pumping station (pompstation) in the area, which will be integrated into the design of the new park.

The main aim of Pomppark Zuid is to transform a zone that is currently dominated by traffic infrastructure into a green, accessible, and climate-resilient public space. The park will include large planted areas, recreational and sports facilities, and safe walking and cycling connections between the surrounding districts. It will also serve an important ecological and environmental function: parts of the nearby ring road will be capped or shielded, reducing noise and air pollution, while new water buffering and infiltration systems will help prevent flooding during heavy rainfall.

By reconnecting neighborhoods that are now cut off by roads and providing a pleasant green environment, Pomppark Zuid will contribute to healthier living conditions and a stronger sense of community in the south of Antwerp. It is one of several Ringparken that, together, will help turn the once-divisive ring road corridor into a continuous green belt linking different parts of the city.

future vision pomppark zuid

CULTUURPARK

Cultuurpark is a major redevelopment project within Antwerp's broader Groene Singel strategy, aiming to transform a currently fragmented cluster of cultural, sports, and recreational facilities into a cohesive and vibrant urban destination. The area already houses several important city institutions, including Antwerp Expo, the international arts campus deSingel, the Wezenberg swimming complex, and the Wilrijkse Pleinen sports grounds. Despite their significance, these facilities are separated by busy roads and scattered open spaces, which limits their accessibility and weakens their connection to the surrounding neighborhoods. Cultuurpark seeks to overcome these barriers by reorganising public space, adding greenery, and improving pedestrian and cycling links, so that the area becomes an open, inviting cultural park embedded within the city.

The project's ambition is to create a place where culture, leisure, sports, and nature come together as part of a continuous urban landscape. In collaboration with private partners, the city plans to invest in new infrastructure and upgrade existing facilities, while reinforcing green connections and public spaces between them. This will not only enhance the cultural appeal of the district but also strengthen its ecological and social functions, offering more opportunities for recreation and community life.

A central role in this vision is played by the Antwerp Expo site, which will be retained and modernised as a multi-functional complex. Rather than remaining an isolated events venue, it will be reimagined as a connector between the major institutions in the area. By encouraging shared use of infrastructure, such as parking, event halls, and public spaces, and by creating new links between surrounding green areas, housing, and transport networks, the project aims to turn the site into an active part of the urban fabric. Through smarter mobility choices and better integration into the wider city network, Cultuurpark seeks to become an innovative example of how large cultural and event facilities can be sustainably embedded in a dense urban environment.

cultuurpark outline

FLORA AND FAUNA

ACTIONS

GREEN ROOF
In Antwerp, the use of green roofs was enshrined in the most recent version of the building code. Green roofs have been mandatory for new roofs with a slope of less than 15° and a surface area of at least 20 m^2 since October 2014.
The building code allows for the choice between an extensive or intensive green roof. A smart choice of plants and the use of different substrate thicknesses are particularly important. Variety in plants (succulents, herbs, and flowers) provides food and shelter for animals from early spring to late autumn.

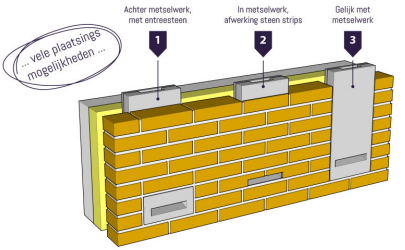
NESTING SITES
Buildings used to offer plenty of nesting opportunities for typical urban species, such as cavities under roofs, gutters, or in cavity walls.
With improved insulation, many of these places are disappearing. Green facades and roofs sometimes offer an alternative, but the integration of other replacement nesting sites is desirable.
Built-in nest boxes, special roof tiles, or making hollow spaces accessible provide a place for fellow city dwellers.

DE STAD ALS HABITAT
De stenige stad onderscheidt zich van het buitengebied door een hoge temperatuur, meer lawaai, licht, vervuiling en drukte. Er zijn een 50- tot 100-tal soorten die in deze omstandigheden goed overleven en er ook kenmerkend voor zijn geworden. Het zijn typische stadssoorten zoals vleermuizen, huismussen en gierzwaluwen.
Deze typische stadssoorten zijn in voorliggend groenplan niet opgenomen als indicatoren doelsoorten (62), maar ze dragen wel aanzienlijk bij tot de biodiversiteit in de stad.
Veel stedelijke soorten staan onder druk. De stad dient aan specifieke voorwaarden te blijven voldoen om goed als habitat te functioneren:
- Gebouwen bieden ruimte aan soorten (spleten, kieren, nestkasten,...).
- Er zijn zachte elementen (perken, tuinen, gevel-

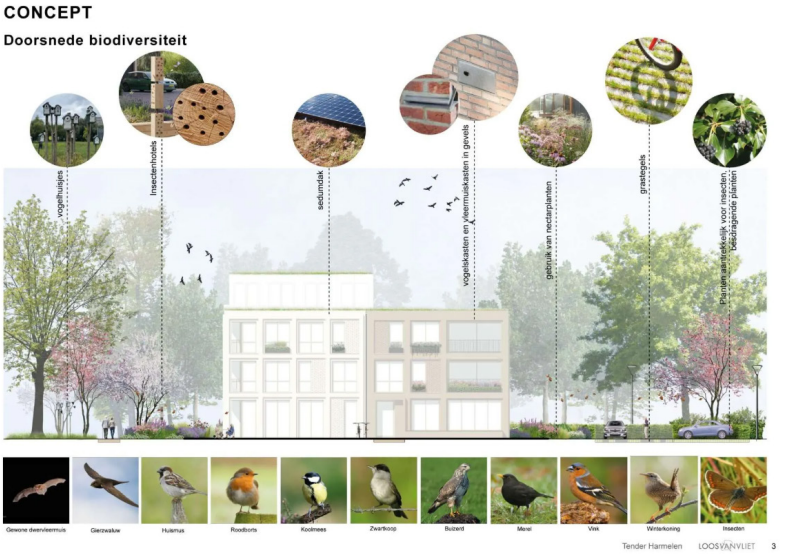
PARKVERBINDINGEN
Maatregelen die de parkverbindingen kunnen ondersteunen zijn:
- gelaagde beplanting
- gebruik van inheemse plantensoorten
- integratie van waterelementen
- specifieke boomkeuze i.f.v. doelsoorten
- garanties voor bomen > 50 jaar
- aanplant van of vervanging door bomen met een behoorlijke omvang (minimaal 35+)
- gradiëntrijke inrichting (reliëf, voedselrijkdom,...)
- extensief beheer van grasland (1 à 2 maal / jaar)

- toepassing van bloemenrijk grasland

Groenelementen die de verbindende rol van
deze assen i.f.v. biodiversiteit niet ondersteunen
worden in de parkverbindingen niet toegepast:
- vormbomen
- perkplanten
- bloembakken



vleermuiskast integreren in de gevel



natuurinclusief bouwen (CRKL architecten)

DE GROENE BEDDING

The Green Bedding is the most centrally located open space landscape in Antwerp. It is situated around the Ring Road, the route of which runs almost entirely as a belt around the city center. The landscape therefore both forms the separation and connection between the city center and the 20th-century belt. Unlike the other landscapes, the Green Bedding is an open space with a high proportion of paved surfaces and even buildings.

Currently, the gray component is highly influential in perceiving the landscape. The tangle of roads sculpts a rolling open space throughout the city. The gray network is, in a sense, the support along which the various green spaces merge into a long, continuous urban landscape.

X_Ringbermen / Straatsburgdok

CURRENT SITUATION
drie basislagen

De Groene Bedding is een artificiëel geheel. Op het eerste zicht heeft het bermenlandschap overal dezelfde kenmerken, maar wie even beter rondkijkt merkt verschillende geomorfologische basiselementen op.

het zuidwestelijke deel behoorde tot de scheldepolders. de grond bevat klei en leem, met een tooplaag rivierzand. Eerst een nat gebied, nu droog door drainage voor de kennedytunnel.

Ecologische connector

De Groene Bedding omvat geen homogene habitat of kerngebieden en is daarom ecologisch een uniek landschap. Vooral de overgangen van habitat tot habitat zijn belangrijk. Het landschap vormt een grootschalige structurele verbinding tussen andere kerngebieden en de Schelde. De soorten die bij de Groene Bedding horen zijn dan ook kenmerkend voor verschillende habitats, van kruipwilg voor de droge zanderige delen tot veldrus voor de graslanden en pinksterbloem voor de bosrijke plekken. Als al deze soorten voldoende aanwezig zijn, vervult het landschap zijn functie als ecologische connector.

Voor de verbindende functie zijn de interne samenhang en graduele overgangen belangrijk. Alleen door goede continuïteit kan de connector relaties tussen de landschappen in stand houden en de uitwisseling van organismen versterken. Ter hoogte van het Lobroekdok eindigt het groene landschap. Voor de connector is dit een ontbrekende schakel naar de Schelde. Als vallei van het Schijn vormde deze plek ooit wel een robuuste verbinding naar de polders en Schelde.

Droogdokkenpark
Schijn_Schelde_verbinding
Kraaienpoot
Ijzerlaan
Slachthuis
Lobroekdok
Schijntje
Spoor_Oost
X_Ringbermen / Straatsburgdok
Turnhoutsepoort
Klaverveld
Zurenborg
Posthof
Brialmontpark
Legrelle
Mastvest
Wilrijkse Plein
Konijnenwei
Nieuw_Zuid

ACTIES (p274, 276)

L14a SchijnSchelde-verbinding

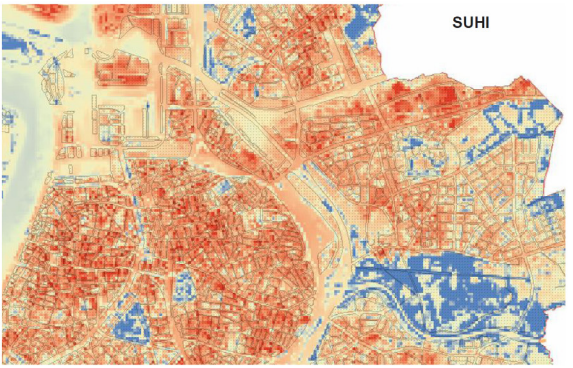
L14b Zuidelijke Bedding

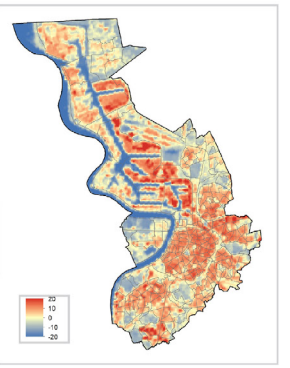
L14c Invalswegen

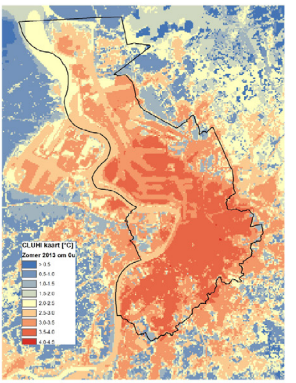
TOEKOMSTVISIE

foucs op synergie met aanwezige groeimogelijkheden in het landschap als gevolg van dominantie van verkeersinfra-structuren.

strategieen
1. Doorzetten
Het Eilandje is een ontbrekende schakel in de groenstructuur. Nieuwe groene ruimte moet worden voorzien en de wterloop moet doorgetrokken worden.
2. aandikken
De groenstructuur moet worden versterkt. Groene ruite wordt vergroot en nieuw groen wordt geintroduceerd.
3. Verlanden
Het oppervlak is groot, maar niet effectief. De impact van infrastructuur wordt geminimaliseerd. Het groen krijgt meer verblijfskwaliteit en barrieres worden beperkt.







Het cummulerend effect van warme dagen, zuidoosten wind en een hoge verzegelingsgraad zorgen ervoor dat de kernstad en het zuidelijke deel van de haven vandaag de grootste hotspots in Antwerpen zijn. Zowel het dag- als nachteffect van het stedelijk hitte-eiland is er het hoogst. Het noordelijke (ontbrekende) deel van de Groene Bedding vormt het centrum van de hotspot. De SUHI-kaart geeft de oppervlaktetemperatuur weer en toont daarmee hoeveel een omgeving tijdens de dag opwarmt.
De CLUHI-kaart geeft een beeld van het verschil in luchttemperatuur tussen stad en platteland en toont daarmee hoeveel een omgeving wel of niet afkoelt tijdens de nacht.

SUHI kaart:
- alle groene ruimtes hebben minder opwarming
- water warmt minder snel op dan verharding, meer dan groen. stromend water is het laagst
- het afkoelend effect van groen/blauwe ruimte kan 200 tot 400m ver reiken, maar bebouwing verzwakt dit

CLUHI kaart:
- ingesloten groengebieden blijven warmer
- stromend water koelt meer af dan stilstaand water
- groene bedding koelt even weinig af als bebouwde weefsel door verharding

Groene Bedding is een landschap dat onderhevig is aan een grote ontwikkelingsdruk (infrastructuren, gebouwen,...). I.f.v. de ecologische verbindende rol is het dan ook in eerste instantie van belang om de bestaande relaties en verbindingen in stand te houden door:
- evenwichtig behoud van de soortenrijke graslanden en loofhoutaanplanten (59).
- vermijden van het kappen van bomen en verdere verzegeling van de ondergrond.
- beperken van de (recreatieve) betreding van zones die bijzondere natuurwaarden omvatten.

- het vermijden van onderbrekingen of versmallingen in de groene ruimte door het aanhouden van een minimale continue groenzone of corridor.
- het maximaal vergroenen van infrastructuren (overbruggingen, wegen,...).
- het voorzien van faunapassages d.m.v. corridors, ecoducten of -tunnels.

De dimensies van faunapassages zijn afhankelijk van de soorten waarvoor ze functioneren.
Algemene aanbevolen minimum-afmetingen zijn:
1. Corridor:
- vissen min. 10 tot 25 m breed
- insecten min. 25 m breed
- amfibieën/reptielen min. 25 m breed
- kleine zoogdieren min. 50 tot 100 m breed
2. Ecoduct:
- min. 40 tot 60 m breed
- per biotooptype min. 25 m
- breedte/lengte verhouding = ideaal 0,8 min. 0,4 à 0,5
3. Faunatunnel:
- min. 15 m breed (10 m per biotooptype)
- 3 à 4 m hoog
- < 40 m lang
- openheidsindex = b x h / l = > 1,5
Rond ingangen is een buffer van 150 m nodig. Geluidschermen en lichtdemping is aanbevolen.

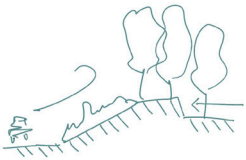
faunapassage

Catalogus Leefbaarheidsmaatregelen in de ringzone _ 20170505

MAATREGELEN _ afscherming van de bron milieuhinder en ontvanger

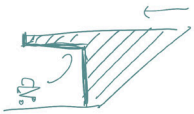
canyon

landschappelijke berm



vegetatie

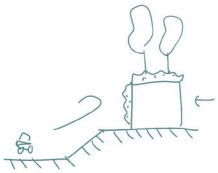
schermen



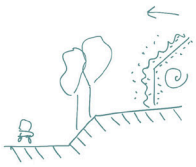
overkraging

MAATREGELEN _ bescherming ontvanger

nieuwe gebouwen



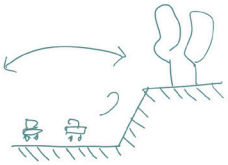
groendaken



filtersystemen / geveïsolatie

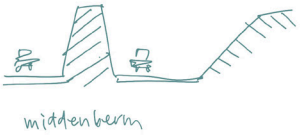
afstand

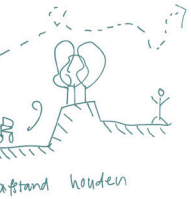
MAATREGELEN _ verminderen vd barrièrewerking



dwarsverbindingen _

herinrichting bruggen
verbreding bruggen
nieuwe bruggen
langsverbindingen

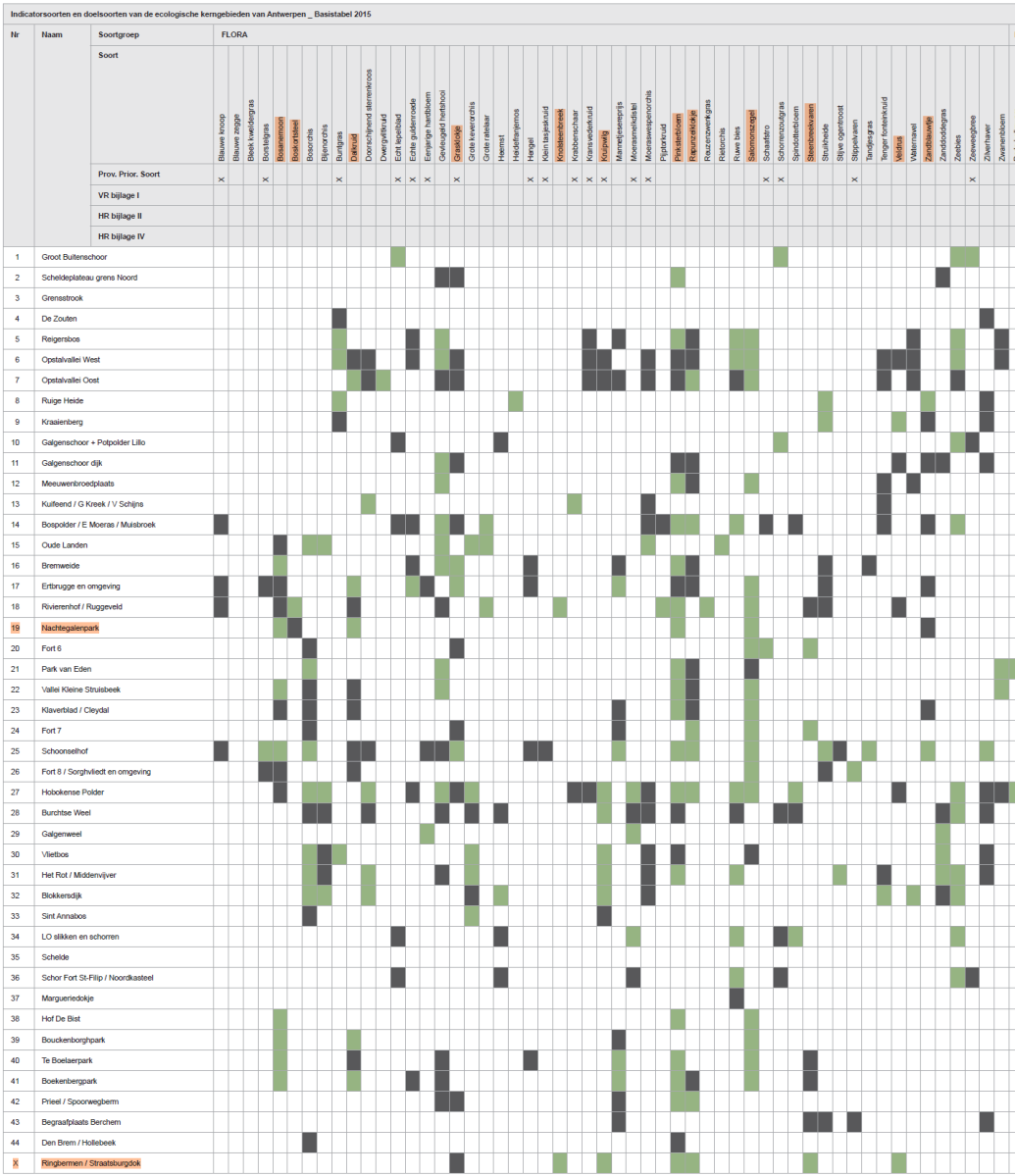


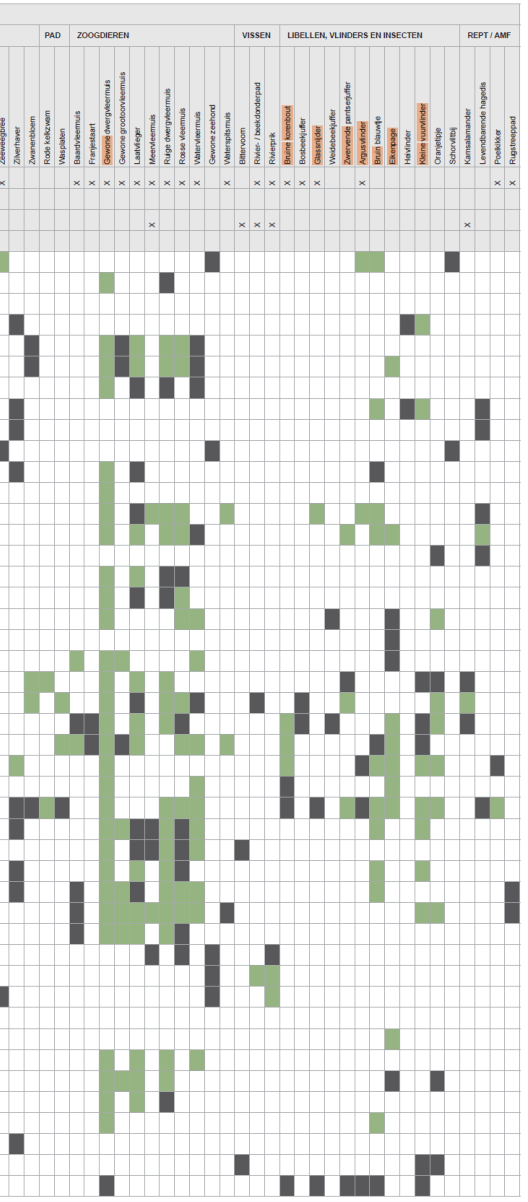


Uit het doctoraatsonderzoek komt onder meer dat geluidsmaatregelen (zoals een gesloten balustrade) een invloed hebben op hoe aangenaam of onaangenaam de ruimte op de brug wordt ervaren. Daarnaast toont de studie aan dat het verzorgen van de inrichting van de brug vanaf een bepaalde geluidsreductie meer effect (aangenaamheid) zal hebben dan verder doorgedreven geluidsmaatregelen. Zo werd bijvoorbeeld vastgesteld dat een groene inrichting van de zone voor voetgangers en fietsers beter scoorde dan een versteende aanleg. Ook werd vastgesteld dat de ruimte positiever werd gewaardeerd naarmate de balustrade hoger werd en een groter geluidseffect heeft, maar dat bij de hoogste balustrade (3m) deze waardering afneemt omwille van visuele redenen (waarschijnlijk het gebrek aan zicht op de omgeving). Uit de doorrekening van de gesloten balustrade kan worden geconcludeerd dat:
een gesloten balustrade van 1,5m hoogte een reductie geeft op de bijdrage van de Ring die het sterkst is vlak bij de balustrade en afneemt naar het midden van de brug toe; vlakbij de rand van de brug gaat het om een afname van 9 à 10 dB(A);
in het midden van de brug neemt het effect af, maar worden toch nog reducties behaald van de bijdrage van de Ring van 6 à 7 dB(A). Het absoluut niveau op het midden van de brug is natuurlijk reeds lager dan aan de zijkant door de afschermende werking van het brugdek zelf.

uit catalogus leefbaarheidsmaatregelen in de ringzone 20170505

ECOLOGIC NETWORK





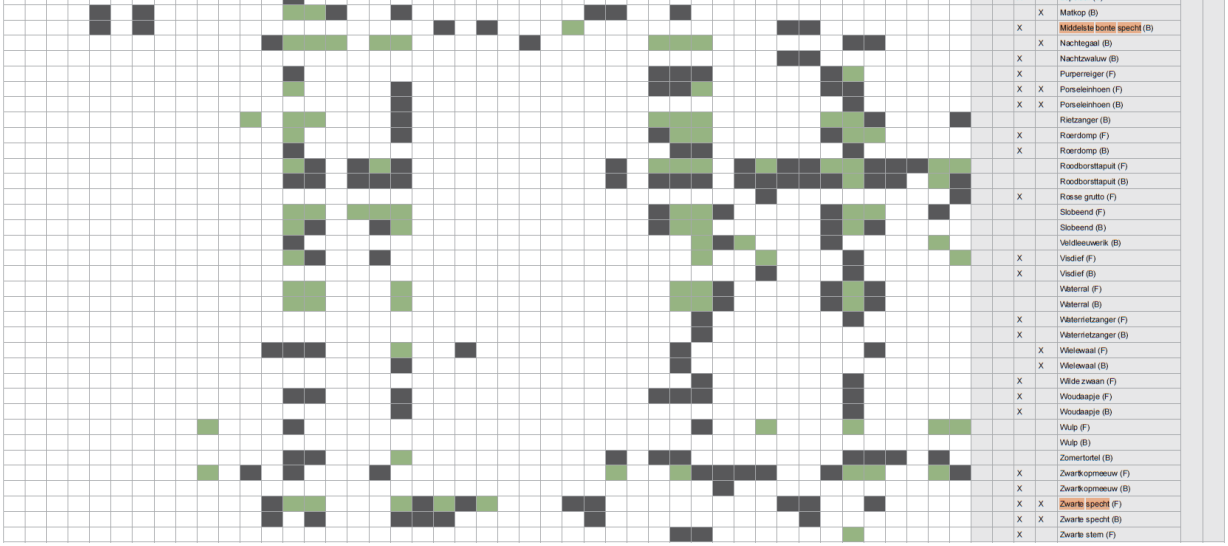
indicatorsoorten en doelsoorten in de twee gebieden rondom de Singel (Nachtegalenpark(19) en Ringbermen/ Straatsburgdok(X)):

FLORA
bosanemoon
boskortsteel
dalkruid
graslokje
knolsteenbreek
kruipwilg
pinksterbloem
rapunzelklokje
salomonszegel
steenbreekvaren
veldrus
zandblauwtje

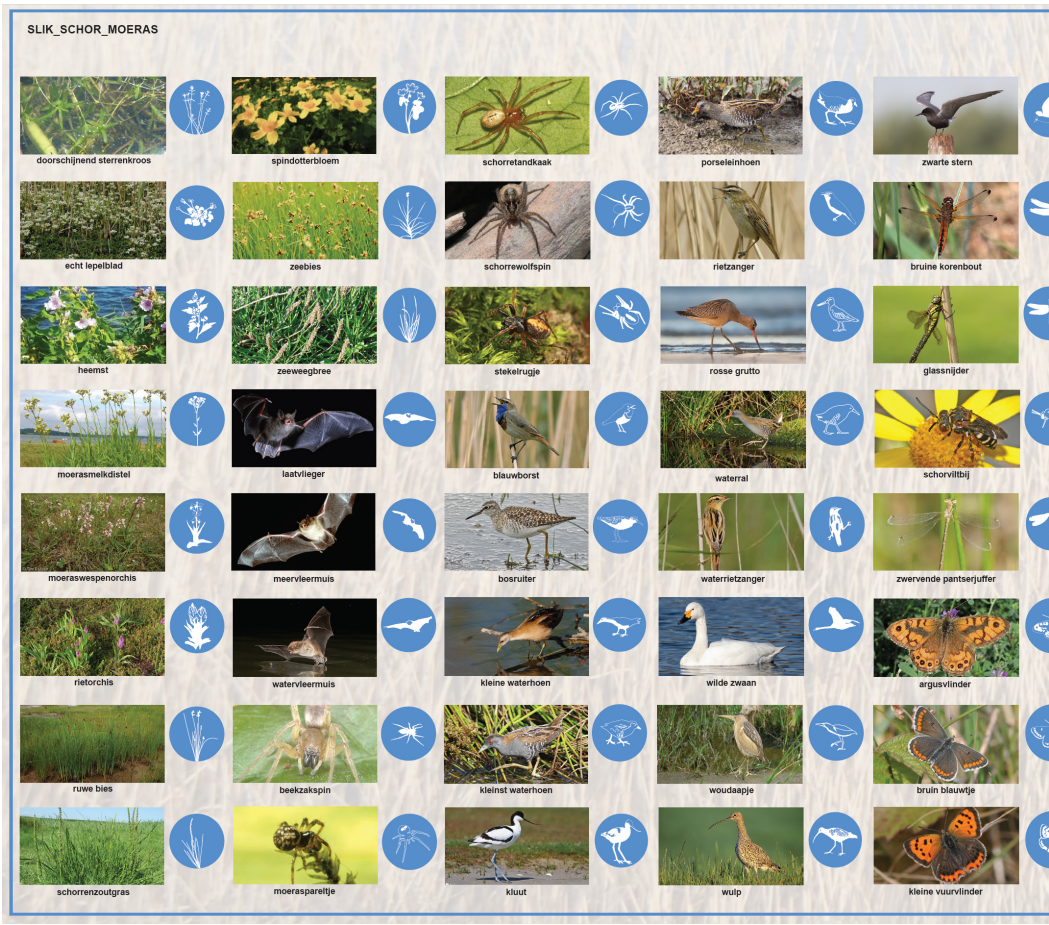
FAUNA

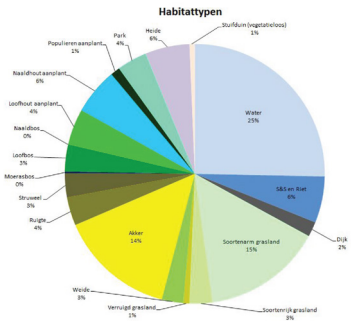
gewone dwergvleermuis
bruine korenbout
glassnijder
zwervende pantserjuffer
argusvlinder
bruin vlauwtje
eikenpage
kleine vuurvlinder
boomvalk
gekraagde roodstaart
middelste bonte specht

Indicatorsoorten en doelsoorten van de ecologische kerngebieden van Antwerpen _ Basistabel 2015
Nr
Naam
Soortgroep
SPINNEN
VOGELS
Soort
Heidespoorspin
Beekzakspin
Bemkmobielkruip
Bleek langpootje
Gewone sprietspin
Herfsttrosseltepin
Kleine heidehangmatspin
Moesspaandje
Puddoprukkonkje
Rietkogelspin
Ringoogdwerkkop
Rotskampoot
Schorrentandkaak
Schorrenwolfspin
Steekrugje
Voorkopstukdwergspin
Watertepin
Aalscholver (B)
Bergeend (F)
Bergeend (B)
Blauwborst (B)
Blauwe kiekendief (F)
Bruine kiekendief (F)
Bruine kiekendief (B)
Boomleeuwerik (F)
Boomleeuwerik (B)
Boompieper (B)
Boomvalk (F)
Boomvalk (B)
Boeruiter (F)
Gekraagde roodstaart (B)
Geoorde fuut (F)
Geoorde fuut (B)
Grote zaagbek (F)
Grote zilverreiger (F)
Grote zilverreiger (B)
Ijsvogel (F)
Ijsvogel (B)
Kleine zilverreiger (F)
Kleine zilverreiger (B)
Kleine zwaan (F)
Kleine waterhoen
Kleinste waterhoen
Kluut (F)
Kluut (B)
Krakeend (F)
Krakeend (B)
Kuifeend (B)
Lepelaar (F)
Lepelaar (B)
Matkop (B)
Middelste bonte specht (B)
Prov. Prior. Soort
VR bijlage I
HR bijlage II
HR bijlage IV
1 Groot Buitenschoor
2 Scheldeplateau grens Noord
3 Grensstrook
4 De Zouten
5 Reigersbos
6 Opstalvallei West
7 Opstalvallei Oost
8 Ruige Heide
9 Kraaienberg
10 Galgenschoor + Potpolder Lillo
11 Galgenschoor dijk
12 Meeuwenbroedplaats
13 Kuifeend / G Kreek / V Schijns
14 Bospolder / E Moeras / Muisbroek
15 Oude Landen
16 Bremweide
17 Ertbrugge en omgeving
18 Rivierenhof / Ruggeveld
19 Nachtegalenpark
20 Fort 6
21 Park van Eden
22 Vallei Kleine Struisbeek
23 Klaverblad / Cleydal
24 Fort 7
25 Schooneelhof
26 Fort 8 / Sorghvliedt en omgeving
27 Hobokense Polder
28 Burchtse Weel
29 Galgenweel
30 Vlietbos
31 Het Rot / Middenvijver
32 Blokkersdijk
33 Sint Annabos
34 LO slikken en schorren
35 Schelde
36 Schor Fort St-Filip / Noordkasteel
37 Margueriedokje
38 Hof De Bist
39 Bouckenborghpark
40 Te Boelaerpark
41 Boekenbergpark
42 Prieel / Spoorwegberm
43 Begraafplaats Berchem
44 Den Brem / Hollebeek
X Ringbermen / Straatsburgdok

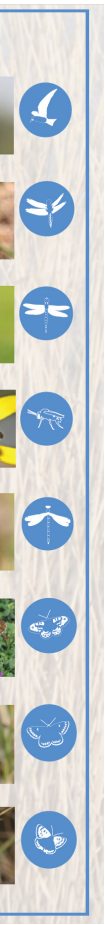


	X	Matkop (B)
X		Middelste bonte specht (B)
	X	Nachtegaal (B)
X		Nachtzwaluw (B)
X		Purperreiger (F)
X	X	Porseleinhoen (F)
X	X	Porseleinhoen (B)
		Rietzanger (B)
X		Roerdomp (F)
X		Roerdomp (B)
		Roodborsttapuit (F)
		Roodborsttapuit (B)
X		Rosse grutto (F)
		Slobeend (F)
		Slobeend (B)
		Veldleeuwerik (B)
X		Visdief (F)
X		Visdief (B)
		Vaterral (F)
		Vaterral (B)
X		Vaterrietzanger (F)
X		Vaterrietzanger (B)
	X	Wielewaal (F)
	X	Wielewaal (B)
X		Wilde zwaan (F)
X		Woudaapje (F)
X		Woudaapje (B)
		Wulp (F)
		Wulp (B)
		Zomertortel (B)
X		Zwartkopmeeuw (F)
X		Zwartkopmeeuw (B)
X	X	Zwarte specht (F)
X	X	Zwarte specht (B)
X		Zwarte stern (F)





The indicator and target species characterize the habitat types within a core area and reflect the ecological quality and functioning of the area. A wide variety of habitat types occur within the Antwerp region, spread across the various core areas. Water and its related habitats, such as mud-flats, salt marshes, reeds, and marshes, account for approximately one-third of the surface area of the green-blue structure.



EUTROOF WATER

gewone waternavel

waterspin

kleine zwaan

tenger fonteinkruid

aalscholver

krakeend

bittervoorn

bergeend

kuifeend

rivierdonderpad

geoorde fuut

lepelaar

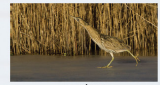
rivierprik

grote zaagbek

purperreiger

gewone zeehond

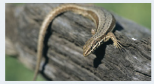
grote zilverreiger


roerdomp

kamsalamander

ijsvogel

slobeend


levendbarende hagedis

kleine zilverreiger

visdief

GRASLAND

bijenorchis

mannetjesereprijs

bermknobbelkopje

rotskampoot

blauwe zegge

pijptorkruid

bleek langpalpje

voorkopstruikdwergspin

blauwe knoop

rapunzelklokje

gewone sprietspin

blauwe kiekendief

éénjarige hardbloem

stijve ogentroost

heidespoorspin

bruine kiekendief

gevleugeld hertshooi

veldrus

kleine heidehangmatspin

veldleeuwerik

grasklokje

zilverhaver

putkopruwborstje

zwartkopmeeuw

grote ratelaar

gewone dwergvleermuis

rietkogelspin

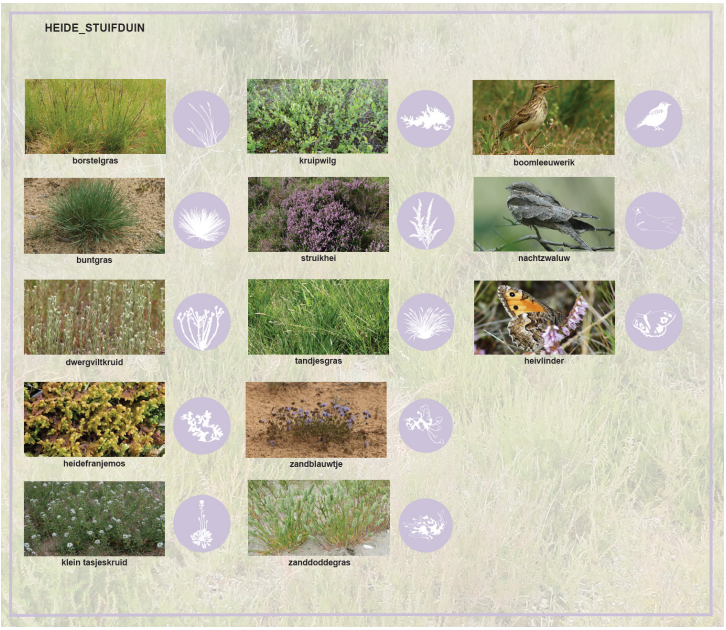
oranjetipje

knolsteenbreek

rosse vleermuis

ringpootzwartkop

wasplaten


HEIDE_STUIFDUIN
borstelgras
kruipwilg
boomleeuwerik
buntgras
struikhei
nachtzwaluw
dwergviltkruid
tandjesgras
heivlinder
heidefranjemos
zandblauwtje
klein tasjeskruid
zanddoddegras

BOS_PARK

bosanemoon

reuzezwenkgras

herfststrooiselspin

wielewaal

boskortsteel

salomonszegel

boompieper

zomertortel

bosorchis

schaafstro

boomvalk

zwarte specht

dalkruid

stippelvaren

gekraagde roodstaart

eikenpage

echte guldenroede

baardvleermuis

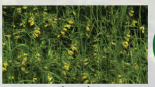
matkop

rode keikzwam

grote keverorchis

franjestaart

middelste bonte specht


hengel

gewone grootoorvleermuis

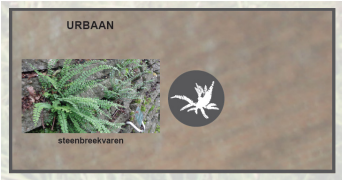
nachtegaal

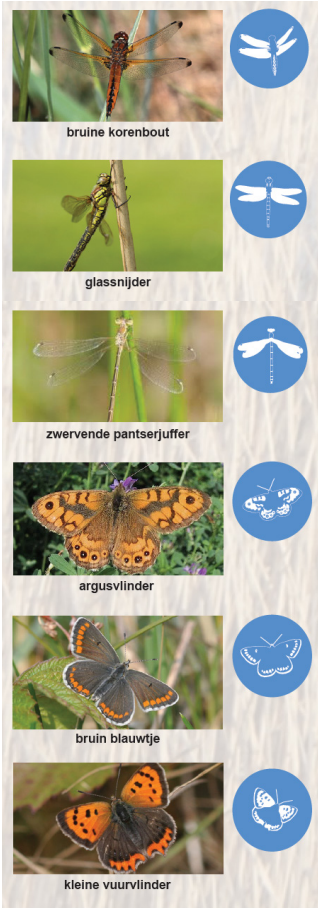
pinksterbloem

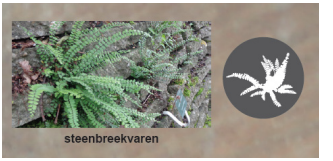
ruige dwergvleermuis

roodborsttapuit

WEILAND_SLOTEN
bleek kweldergras
poelkikker
krabbenscheer
rugstreeppad
kransvederkruid
bosbeekjuffer
zwanebloem
weidebeekjuffer
waterspitsmuis


URBAAN
steenbreekvaren





species based on the situation and vision maps (p310,312)

Because the location of de Singel is in De Groene Bedding, on the south side, the biodiversity types extend further than just the neighborhood of de Singel. The goal of the city in the end is to connect the whole ring, making it possible for nature to transport.

In the situation and vision maps there are a few habitattypes indicated. They are part of the following types:

1. slik en schoor
2. grasland
3. heide
4. bospark
5. urbaan

I assume the species are not only the ones indicated on the maps, but the area consists of the other species in the habitattypes, as the ring is the connecting factor around the entire city.

We can conclude that the main species of fauna are in the family of: dragonflies, butterflies, bats, birds

(additional) species based on ecologic network table (p316-317)

HOW TO INTEGRATE THIS INTO DESIGN ELEMENTS?

The project needs to integrate biodiversity enhancement, habitat creation, and ecological connectivity.

1. Target species & their needs

SPECIES	HABITAT REQUIREMENTS
Gewone dwergvleermuis (Pipistrellus pipistrellus)	Needs roosting crevices, dark corr areas.
Bruine korenbout / Glassnijder / Zwervende pantserjuffer (Dragonflies/Damselflies)	Need clean water, emergent veget
Argusvlinder / Bruin vlauwtje / Eikenpage / Kleine vuurvlinder (Butterflies)	Require nectar-rich flowers, larval sunny spots.
Boomvalk (Falco subbuteo)	Hunts small birds/insects mid-air;
Gekraagde roodstaart (Phoenicurus phoenicurus)	Nests in cavities, feeds on insects.
Middelste bonte specht (Dendrocopos medius)	Needs mature trees with soft wood

	DESIGN INTERVENTIONS
k corridors, and insect-rich foraging	- Install bat bricks (with narrow slots) in walls. - Create linear green corridors with night-blooming plants to attract insects. - Avoid excessive artificial lighting (use warm, downward-facing LEDs).
vegetation, and sunny spots.	- Introduce shallow, planted water features in courtyards. - Use native aquatic plants (e.g., Iris pseudacorus). - Ensure gentle slopes for easy access.
arval host plants, and sheltered	- Plant native wildflowers (e.g., Knautia arvensis, Origanum vulgare). - Include bare sandy patches for basking. - Avoid pesticides.
l-air; needs open sightlines.	- Preserve open sightlines across courtyards. - Add perching poles for hunting.
ects.	- Install nest boxes with 32mm entrance holes. - Plant berry-bearing shrubs (e.g., Sambucus nigra).
wood for nesting.	- Retain deadwood or decaying trees in courtyards. - Avoid excessive pruning.

2. Key Architectural Strategies

A. Green Roofs & Walls
- Extensive green roofs with native sedum/wildflowers for butterflies/bees.
- Climbing plants (e.g., Hedera helix) on walls for nesting birds and insects.

B. Courtyards as Micro-Habitats
- Water features: Small ponds with shallow edges for dragonflies.
- Layered planting:
    Canopy: Native trees (e.g., Quercus robur for eikenpage butterflies).
    Understory: Flowering shrubs (e.g., Buddleja davidii for nectar).
    Ground cover: Wildflower meadows.

C. Green Bridge as Ecological Corridor
- Connect habitats between the existing building and extension.
- Use native, dense hedges (e.g., Crataegus monogyna) for birds/insects.
- Avoid fragmentation with continuous green pathways.

D. Lighting & Materials
- Bat-friendly lighting: Red/amber LEDs, motion-activated where possible.
- Permeable surfaces: Gravel paths, porous paving for ground-nesting insects.
- Natural materials: Untreated wood, rough-textured walls for nesting.

How to incorporate fauna elements in to the design?

- bat tower
- pigeon tower
- bat bricks/holes
- bee hotels
- insect hotels
- dragonfly ponds

dragonfly pond

insect hotel

bee hotel/brick

pigeon tower

The pigeon wall in Córdoba Bus Station is a brilliant example of animal-inclusive architecture, where the building itself provides shelter for urban wildlife. Here's how it works structurally and functionally:

How the Pigeon Wall Functions
1. Perforated Concrete Structure
- The wall is made of precast concrete with cylindrical holes (approx. 15–25 cm in diameter) arranged in a grid pattern.
- Each hole is deep enough (30–50 cm) to provide shelter from wind, rain, and predators.
- The rough interior surface allows pigeons to grip and nest comfortably.

2. Thermal & Protective Benefits
- Passive Cooling: The cavities create shade and airflow, keeping pigeons cool in Andalusia's hot climate.
- Safety from Predators: The depth and narrow openings deter cats/rats from reaching nests.

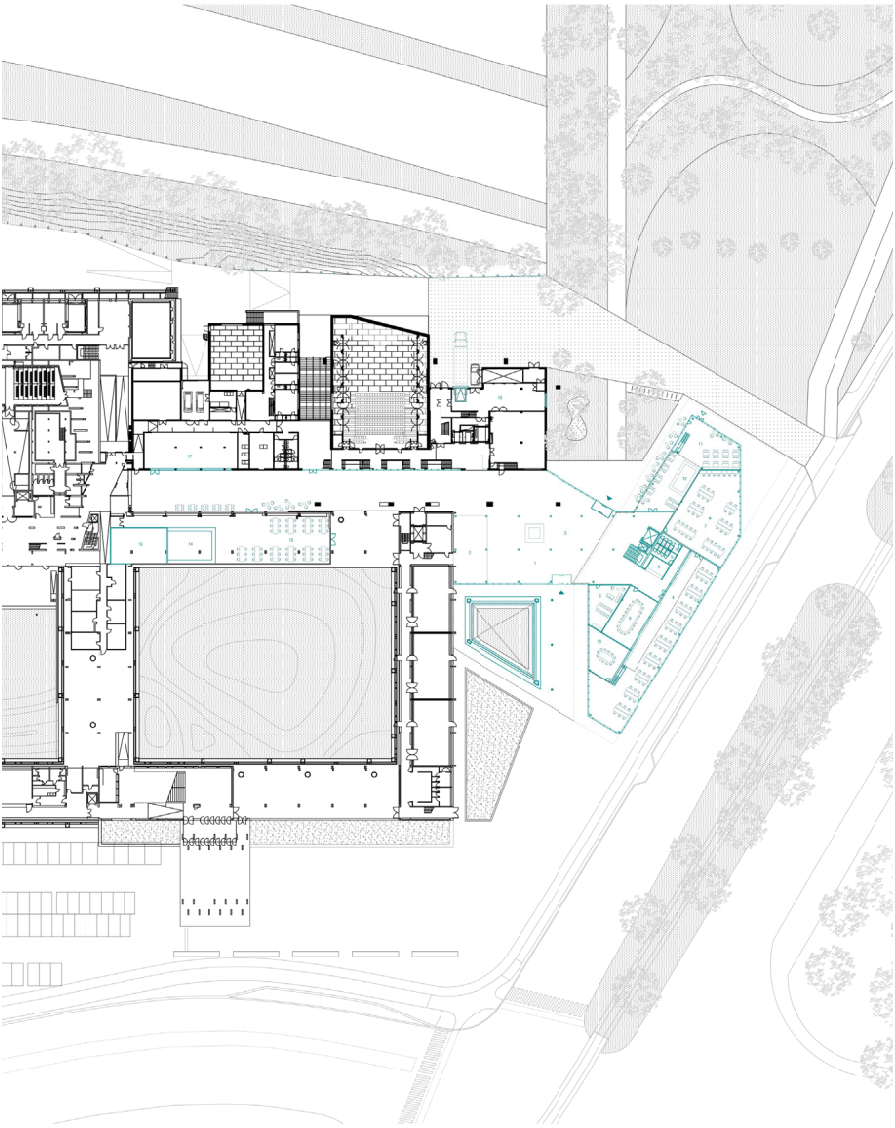
3. Access & Movement

- Pigeons enter from the open side (facing the courtyard) and perch inside the tubes.
- The overhang/roof above prevents rain from flooding the nests.

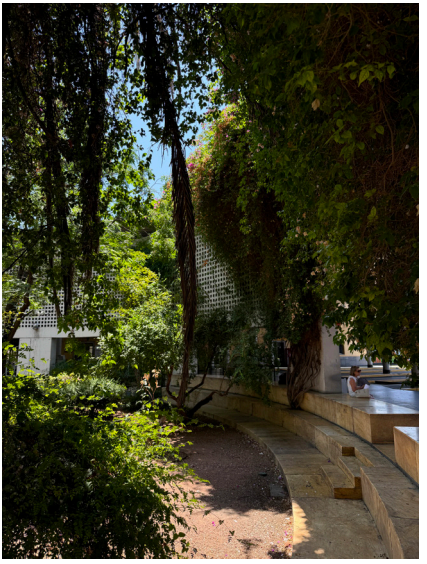
Why It's Successful
- Dual Purpose: The wall serves as shade for humans + housing for pigeons.
- Low Maintenance: Pigeons self-regulate occupancy; droppings fall to the ground (no clogging).
- Cultural Nod: Reflects Córdoba's Islamic heritage, where doves symbolize peace.

How to Adapt This for De Singel's Fauna
Species Adapted "Pigeon Wall" Solution

Bats: Narrower slots (15–25 mm) in shaded façades.
Solitary Bees: Smaller holes (6–8 mm) with clay/wood liners.
Birds: Varied cavity sizes (e.g., 32 mm for gekraagde roodstaart).



site plan ground floor with pigeon wall courtyard



photographs taken of the cordoba bus station 16-07-2025 by me

sketch of the pigeon wall inspired by cordoba bus station

The revised courtyard design returned to simplicity: an open plaza using the existing water feature as focal point. Rather than building new structure, I would work with the existing structure of the pool that currently sits unused and neglected between buildings.

The goal was to restore and expand the existing pool as water feature, changing its character from a still body to a vibrant green nature pond.

The pigeon wall concept didn't disappear, it relocated to the balustrade on top of the main hall, together with the insect hotels. This will serve as both ecological infrastructure and spatial marker.

BAT BRICK IN FACADE
INTEGRATED BIRD BOXES
ANTWERP ZUID STATION
CLEAR ROUTE FOR FLORA AND FAUNA
LOCAL CAFE ON VAI CORNER TO ATTRACT PEOPLE
NATURE INCLUSIV
VAI
GREEN SPACES WITH DIVERSE LANDSCAPE FOR LEISURE
DOG FRIENDLY PARK
ANTWERP EXPO
JAN VAN RIJSWIJCKLAAN
WATER POND AS RAIN BUFFER AND HABITAT FOR DIVERSE ANIMALS

landscape bridge plan with flora & fauna elements

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interiors buildings cities