FUSION SCIENTIA

More Than Just a Campus



Chiel Vlutters

Graduation portfolio
Public Building Graduation Studio 2023-24
The Vertical Campus I A Public Hub of the Future in The Hague

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Delft University of Technology
Public Building Graduation Studio 2023-24
The Vertical Campus I A Public Hub of the Future in The Hague

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Introduction

As I conclude my time at TU Delft (2022-24), this graduation book reflects the finale of a creative, challenging, and deeply enriching journey in the Public Building Graduation Studio, “The Vertical Campus.” Throughout my years at TU Delft, I have taken part in numerous inspiring projects, but this final graduation project truly pushed my boundaries and tested every skill I’ve developed along the way.

The project is set in the dynamic and densely populated Central Station district of The Hague, where we were tasked with envisioning a new hybrid high-rise that challenges the conventional idea of a campus. The goal was to create a building that is sustainable, multifunctional, and resilient, one that reimagines how education spaces can function in an urban environment. So how do we design the campus of the future, and how does this impact the way we learn, the experience of students, and the university’s place in society?

I invite you to follow my journey, from the earliest conceptual explorations to the final detailed design of Fusion Scientia, a vision for the future of learning environments.

“Fusion Scientia”

Means “the fusion of knowledge” in latin and serves as a homage to the historical significance of education. Latin, as a symbol of academia, underscores the tradition of scholarly pursuit, while the fusion of knowledge represents the ultimate goal of this graduation plan.

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Abstract
Fusion Scientia

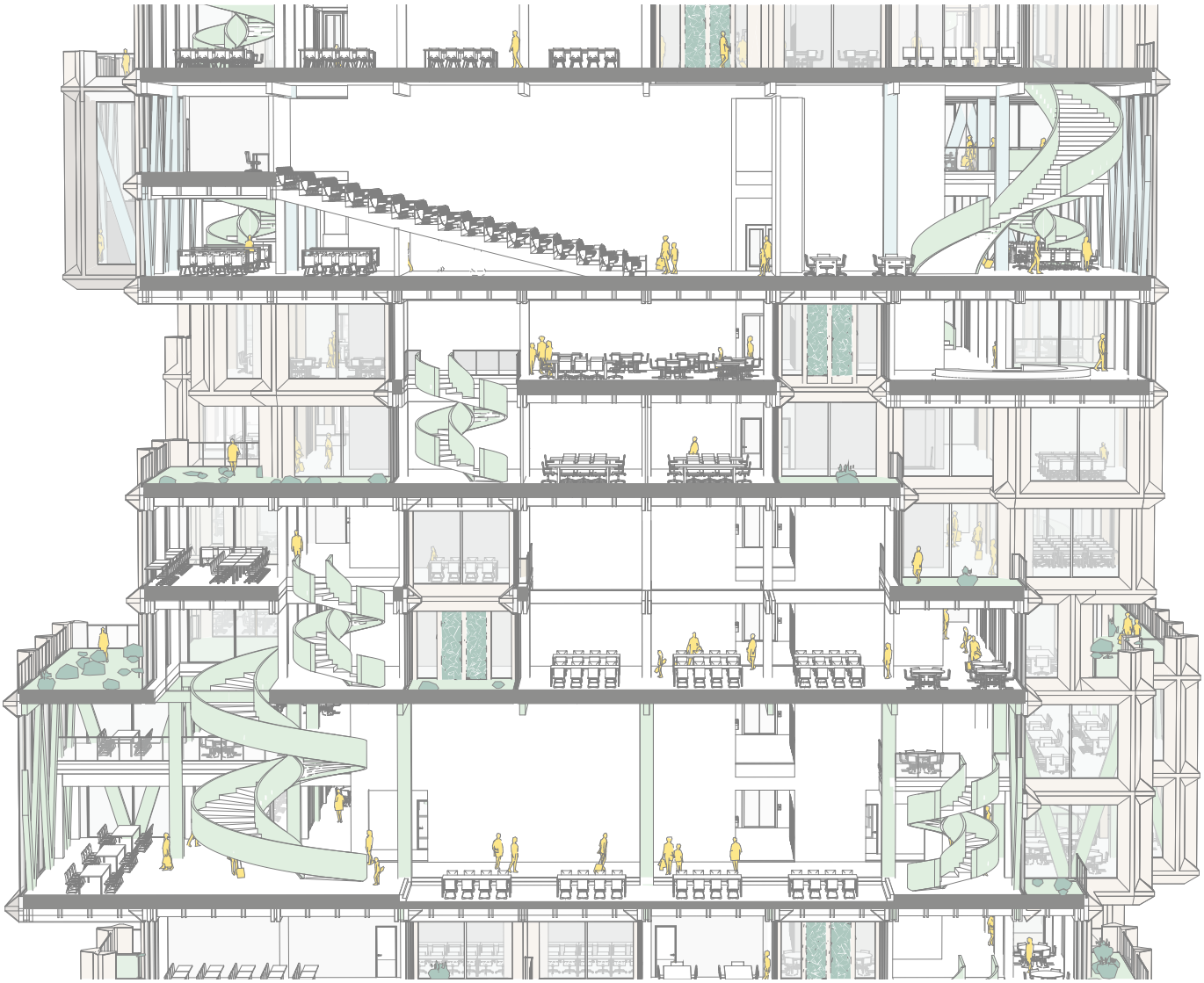
This graduation report examines the potential for an open and inclusive university campus situated in the heart of The Hague. Within the framework of the Public Building Graduation Studio, the vertical campus concept redefines how learning and interaction occur within and beyond the university setting. This exploration led to the development of *Fusion Scientia*, a guiding principle that embodies the vision of a dynamic public campus. More than merely a design for a new building, *Fusion Scientia* represents a transformative approach to education, fostering collaboration, accessibility, and lifelong learning within the community.

In response to the growing need for connectivity between academia and society, the design embraces an inclusive ethos that invites both direct users, students and staff, and the wider community to engage in a shared learning environment. This is achieved through a carefully crafted programmatic layout of vertical and horizontal spaces, ensuring collaboration and cohesion among various functions. Key areas such as the Mountaintop, Waterhole, Campfire, and Cove create vibrant hubs for interaction, enhancing the overall educational experience.

To promote a healthier and more inviting atmosphere, the design features a porous facade that breaks up the massing of the building, allowing for greater transparency and interaction between levels. The carved-out spaces create unique floorplan layouts, fostering spontaneous engagement among users. Incorporating green elements throughout the campus, such as terraces and indoor greenery, further enhances biophilia, promoting well-being and a connection to nature.

Sustainable climate design, including underfloor heating and ventilation systems, ensures a healthy indoor climate while reducing the building's environmental impact. The project also emphasizes the importance of reusing existing structures, transforming early to late 1900s office buildings from grey and dark environments into a vibrant and light public space. This approach not only honors the architectural heritage of the area but also contributes to a more dynamic urban landscape.

Ultimately, *Fusion Scientia* serves as a concept that transcends traditional boundaries, redefining the role of the university in the 21st century. By integrating education with the urban fabric, the project aspires to create a more educated society through collaboration and engagement.



Part I | **Graduation Plan**

Introduction

Title of the graduation project
The Campus

Location
The Hague, The Netherlands (Central Station District)

Argumentation of choice of the studio
During my training, I initially concentrated on residential buildings, which sparked my interest in the interplay between private and public spaces. The studio assignment, a decentralized vertical campus, particularly intrigued me due to its complex blend of public and private functions, making it a fascinating challenge. Additionally, I have always been captivated by the future development of our world and innovative, unconventional ideas. The decentralized vertical campus may very well be one of these forward-thinking concepts, as it is still quite a foreign concept to many.

Problem statement
The traditional university campus is often a closed off area, with limited public access. This separation is created by factors such as its location on the city's outskirts. Even when campuses are situated within urban areas, access is frequently restricted through gates, security checkpoints, and designated entry points, which further limit public entry.

This transition from public to private spaces hinders social knowledge development and exacerbates the divide between those who study and those who don't. As a result, universities become isolated, missing out on the diverse perspectives and experiences that the broader community can offer.

The local community, in turn, seldom benefits from the knowledge generated within the university, despite possessing valuable practical knowledge. This disconnect prevents a rich exchange of ideas and skills, which could greatly enhance both academic learning and community development. By creating more inclusive and accessible campuses, universities can bridge this gap, fostering a more integrated and mutually beneficial relationship with their surrounding communities.

The benefits of this knowledge exchange extend beyond the local community. The number of teachers and professors in the Netherlands is declining, which raises concerns among experts, especially in light of our country's dependence on its knowledge economy. This decline is partly due to an aging teaching workforce and a lack of new entrants into the profession. High workloads and uncompetitive salaries are discouraging potential candidates from pursuing teaching careers. To tackle this challenge, how can we incorporate practitioners into the academic sphere to help reduce the teachers' workload?

Research Questions

When designing for a lifelong learning environment, there is a significant opportunity to bridge this theory-practice-gap. By fostering an inclusive and transparent atmosphere, both students and local residents can benefit from increased interaction and knowledge exchange.

A thoughtfully designed space that invites the local community into the university's educational activities can transform the campus into a dynamic hub of learning and collaboration. This approach promotes the blending of theoretical knowledge with practical experience, enriching the educational experience for students while simultaneously providing valuable resources and opportunities for community members. This leads to the main question:

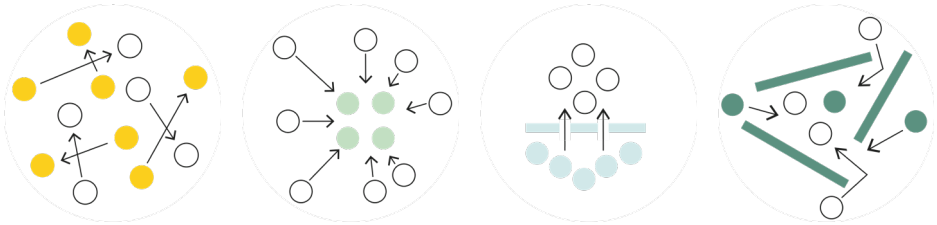
"How to establish an interactive lifelong learning environment wherein teachers, students, and visitors can mutually learn from, and inspire one another?"

SQ1: How to deal with the boundries between public and private functions?

SQ2: How to create a sense of community in a vertical campus to extends beyond the building itself and into the city fabric?

SQ3: How to foster interaction and knowledge sharing in the vertical campus?

From these research questions we can derrive four main pilars that will be the driving factor of the research. These design principles are:



Interactive Inviting Transparant Accessible

By answering these questions I hope to design a building that not only contributes to The Hague but also provides a clear design language or toolbox on how to design an interactive hybrid structure focussed on sharing knowledge and interaction.

Methodology and methods

The architectural research primarily involves desk research focused on strategies for fostering lifelong learning, reimagining learning spaces, and hybridizing functions. This theoretical framework aims to produce solutions and design strategies, which will be further explored through in-depth case study research encompassing various typologies and facilities integrated into the design.

Literature Review
The pressing need for educational reform highlights how traditional universities adapt to lifelong learning and evolving pedagogies. Chitiba (2012) emphasizes challenges in integrating lifelong learning into curricula, advocating for flexible educational models. Leiringer and Cardellino (2011) underscore the role of innovative school designs in educational transformation and the importance of adaptable environments for 21st-century learners.

Benade, Bertelsen, and Lewis (2018) explore how reimagined learning spaces foster creativity, while Parisio (2013) focuses on designing spaces that enhance student autonomy through customizable features. Harrison and Hutton (2014) call for environments that accommodate diverse learning styles. Dufault (2017) advocates for collaborative partnerships in decentralized campuses, emphasizing stakeholder engagement. Byers, Hartnell-Young, and Imms (2018) evaluate classroom designs and their impact on students' perceptions of technology effectiveness, offering insights into optimal configurations for enhanced learning outcomes.

Contextual Analysis
The research comprises three segments. First, it examines the campus's history and trends and their impact on the local community, providing a crucial foundation for further research.

Second, the study investigates global case studies of vertical buildings to gain insights into their operations within urban environments. The main objective is to gather inspiration for designing a vertical building.

The third segment focuses on merging theoretical and practical knowledge through architectural design, translating various programmatic functions into a coherent design language.

Architectural Exploration
This study explores the Fusion Scientia concept—"the merging of knowledge"—in designing a vertical campus in The Hague. It employs research-by-design methods to balance public and private spaces, enhancing connectivity and accessibility while integrating the university into the urban environment.

The future campus will decentralize educational spaces across neighborhoods, fostering inclusivity and spontaneous interactions. By embedding itself within the city, the university becomes a vital community partner, promoting lifelong learning and redefining higher education as an accessible shared resource.

Literature and general practical references

Aurelia Chitiba (2012). *Lifelong learning challenges and opportunities for traditional Universities, Constanta.*

Roine Leiringer & Paula Cardellino (2011). *Schools for the twenty-first century: school design and educational transformation.*

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Andrew Harrison & Les Hutton (2014). *Design for the Changing Educational Landscape Space, Place and the Future of Learning.*

Katie H Dufault (2017). *Rethinking Partnerships on a Decentralized Campus.*

Terry Byers, Elizabeh Hartnell-Young & Wesley Imms (2018). *Empirical Evaluation of Different Classroom Spaces on Students' Perceptions of the Use and Effectiveness of 1-to-1 Technology*

PART II | **Capacity Plan**

Exploratory Research
London Excursion

Our architecture graduate class embarked on an inspiring three-day excursion to London and Oxford, which offered a perfect mix of educational depth and cultural discovery.

I arrived a day early, on **September 19**, with some classmates, and we stayed in a house near Hyde Park. That afternoon, we explored Soho and our neighborhood, taking our first underground rides and soaking in the city's energy. We wrapped up the evening early to prepare for the busy days ahead.

On **September 20**, the official program began as we gathered at Russell Square before splitting into groups to explore some of London's architectural landmarks. We visited the UCL and LSE campuses, studying urban ensembles and cutting-edge designs, including the Bartlett School of Architecture by Hawkins/Brown and the Marshall Building at LSE by Grafton Architects. A group visit to Sir John Soane's Museum provided historical context before we toured modern landmarks like the King's Cross Station extension by John McAslan + Partners and the Barbican Centre. After the day's program, we grabbed dinner at Gordon Ramsay's burger place in Farringdon and later experienced the city's nightlife at Egg in North London, which was a great way to unwind.

The next day, **September 21**, we traveled to Oxford, where we explored the timeless beauty of Old Souls College and The Queen's College. We also had the chance to tour renowned architectural projects like Alison Brooks Architects' Exeter College Cohen Quad and Hawkins/Brown's Beecroft Building. Each site gave us valuable insights into blending heritage with contemporary design, sparking creativity. After a day filled with architectural inspiration, we relaxed at a local pub, soaking in the Oxford atmosphere.

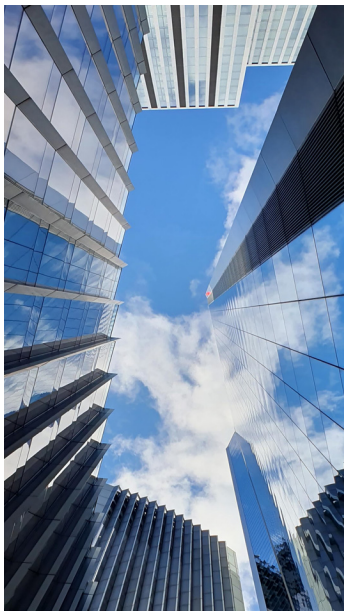
Our final day with the class in London, **September 22**, included visits to the Serpentine Pavilion by Lina Ghotmeh, the Royal National Theatre by Denys Lasdun, and the Tate Modern by Herzog & de Meuron. After finishing the official program at Alison Brooks Architects' studio, we quickly headed to the Natural History Museum and the British Museum, both awe-inspiring in their scale and exhibits. Later, we checked into an Airbnb near Waterloo. That evening, I, along with two friends, attended a techno event at Fabric, a renowned club, which gave us a taste of London's electronic music scene.

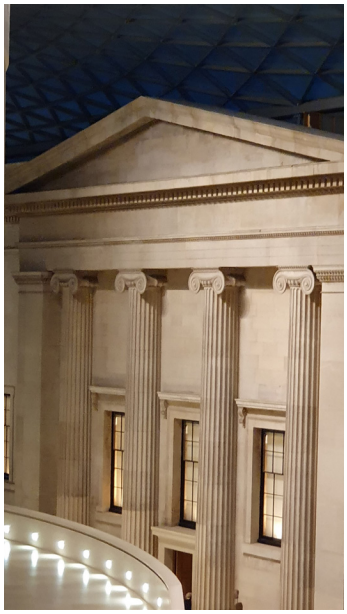
On **September 23**, our final day, we aimed to see as much of London as possible. We walked from the London Eye to St. Paul's Cathedral, explored Borough Market, crossed Tower Bridge, and visited the Tower of London. We then took the underground to Buckingham Palace, followed by a stroll to Big Ben and Westminster Palace. In the evening, we visited the Walkie Talkie building to admire London's skyline at night over drinks, the perfect way to end our time in the city.

On **September 24**, we returned to Delft, filled with inspiration from London's rich architectural landscape and the memories we created along the way.







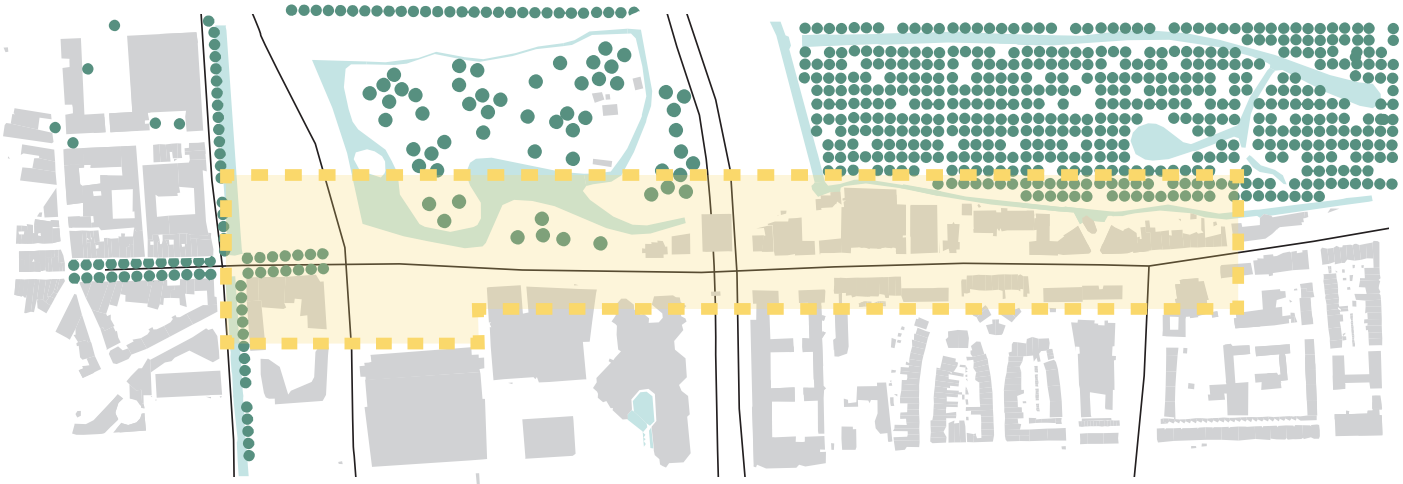

Introduction
The Green Border

The designated area is a dynamic and historically rich zone in The Hague, defined by the prominent Bezuidenhoutseweg. This area stretches from the Malietoren, a notable landmark perched above the Utrechtsebaan, and extends across the bustling square in front of The Hague Central Station. The zone is strategically positioned, providing a seamless connection between urban vibrancy and natural tranquility.

On the western edge, the area is bordered by the Koekamp park, a green oasis that serves as a transition from the city's bustling core to the expansive Haagse Bos, one of the oldest forests in the Netherlands. Koekamp is an important ecological and recreational space, offering residents and visitors a place to relax amidst nature. Adjacent to Koekamp is the iconic Malieveld, a large open space famous for hosting major public events, protests, and gatherings. Malieveld is more than just an event space; it is a symbol of civic engagement and a vital green lung in the heart of The Hague.

Bezuidenhoutseweg itself is a street of significant institutional importance, reflecting a blend of modernity and heritage. To the east of Utrechtsebaan, Bezuidenhoutseweg transforms into a 'street of institutions,' lined with prestigious office buildings. This includes the headquarters of globally recognized organizations such as UNICEF, the Nationale Ombudsman, and the Planbureau voor de Leefomgeving. These modern structures coexist with rows of historic high-end townhouses, which have been repurposed as offices, embassies, and law firms. The architectural character of these buildings ranges from classic to contemporary, adding to the street's unique charm.

The juxtaposition of old and new, nature and urbanity, makes this area a unique canvas for the design of a university campus. It offers an opportunity to create a space that harmonizes with its surroundings while contributing to the vibrant, diverse fabric of the city.



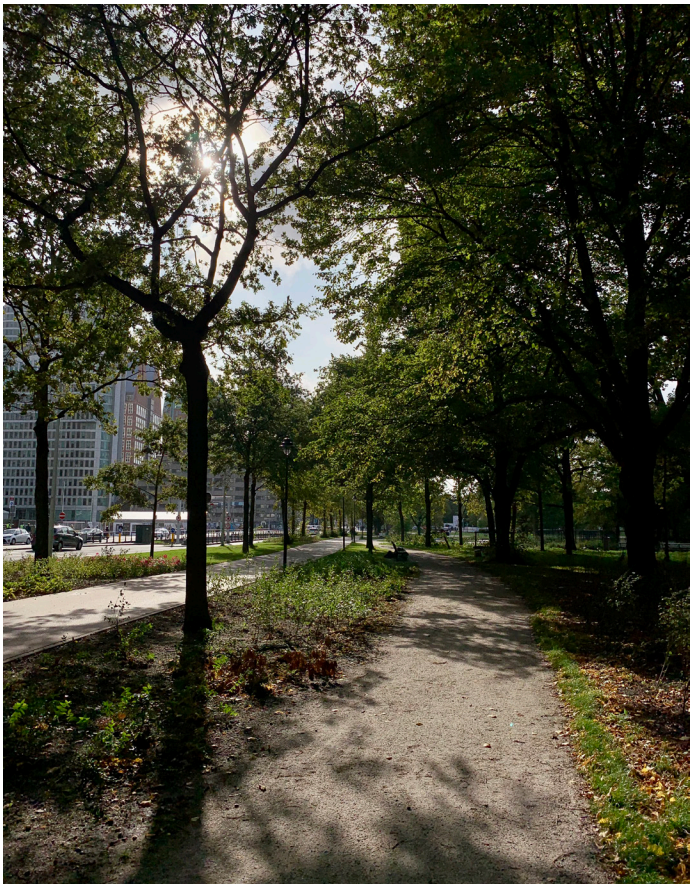

Station






CS-New Babylon 0,3
Centraal Station Koninklijke Bibliotheek 0,5
Centrum Binnenhof Mauritshuis
0,4
Malieveld
Rijnstraat 0,2
Literatuur-museum 0,5
Nationaal Archief 0,4







Problem Statement
Connecting the city to the green

One of the first things we noticed about the large green spaces adjacent to the city's green border was their substantial size and the potential they hold for enhancing urban life. To gain a deeper understanding of our site, particularly the relationship between these green spaces and the rest of the city, we conducted several field trips. During these visits, we observed firsthand how the green areas interact with their surroundings and how people utilize them. We saw that many people use these spaces as a retreat during lunch breaks, whether by relaxing on a bench or taking a stroll through the park or forest. However, we also noticed a significant drop in activity after office hours. The once lively and vibrant park area became eerily quiet, with the sounds of bicycles and chatter giving way to the rustle of leaves and silence.

This contrast became the catalyst for our "problem statement," which we prefer to frame as an opportunity for improvement. While the forest and green spaces are meant to offer tranquility and peacefulness—making them functional in that regard—we sought to encourage greater interaction between the green areas and the city. This led us to the following insight:

"A **green city** is not one with a lot of **green infrastructure**, but one where **green spaces** and **natural processes permeate** through the **urban fabric**, making them **accessible** and **integral** to urban life."

In other words, green spaces in cities do not reach their full potential unless they are seamlessly integrated into the city's infrastructure. The city must become part of the green, and the green must become part of the city, to form a symbiotic relationship that benefits both. With this vision in mind, we began developing a strategy to bring the green into the city and the city into the green.



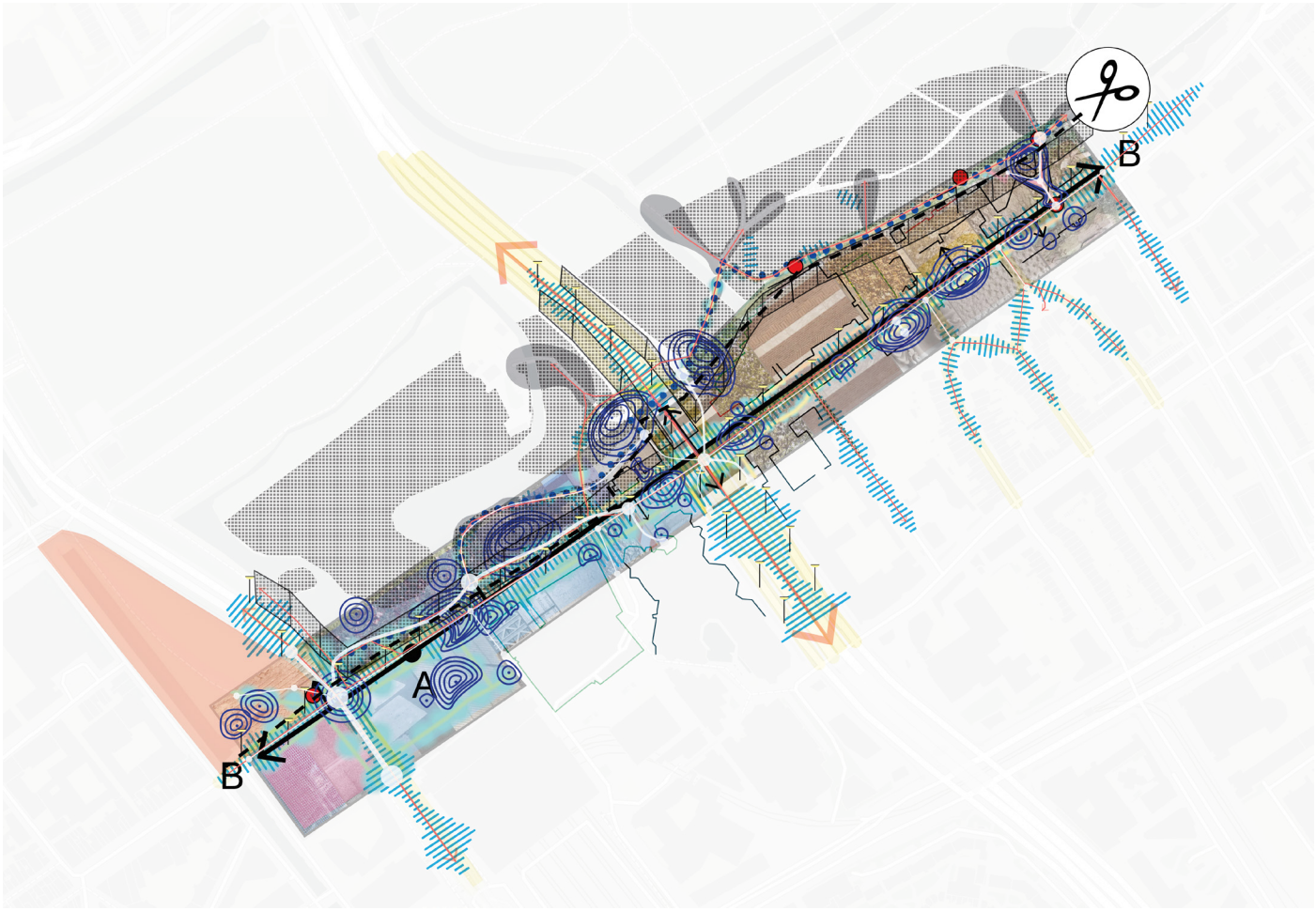
Empirical Research
Psychogeographical Map

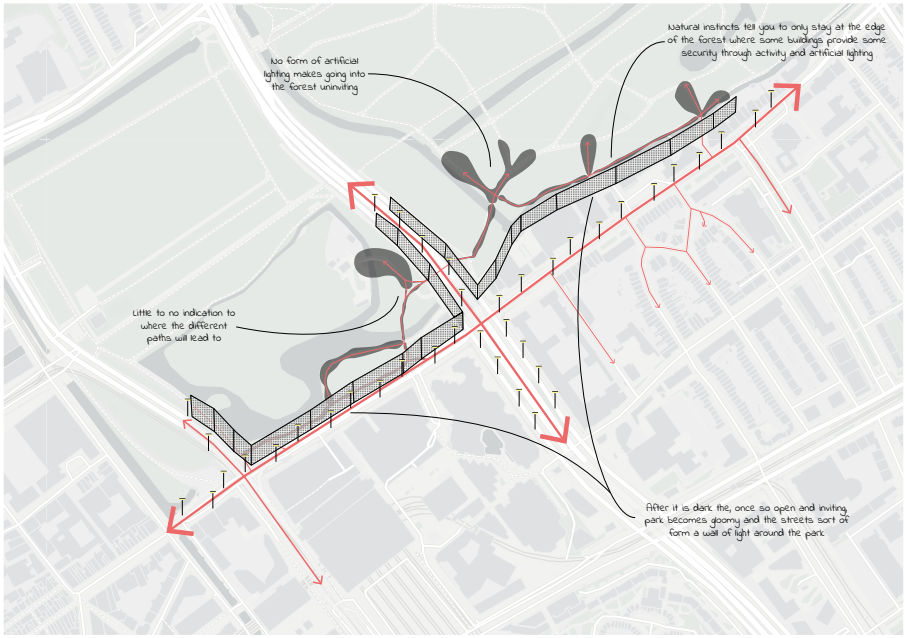
In the initial stages of our research into the green border area, we were tasked with conducting empirical research focused on sensory observation.

“Genius Loci,” which translates from Latin as “the spirit of a place,” is essential in how we perceive areas and places. This research often requires physically engaging with the location and using all your senses to create an image. This image can alter your previous perception or prejudice of the area, either positively or negatively. By capturing the “spirit” of the area, you gain a better understanding of the place and can drastically change your design approach.

To visualize the genius loci, we created a psychogeographical map that connects psychological aspects to their spatial location. On the right-hand side are three maps created by me, and below is the final collage of all the maps created by our group, representing all the research we did to complete this psychogeographical mapping of the site area.

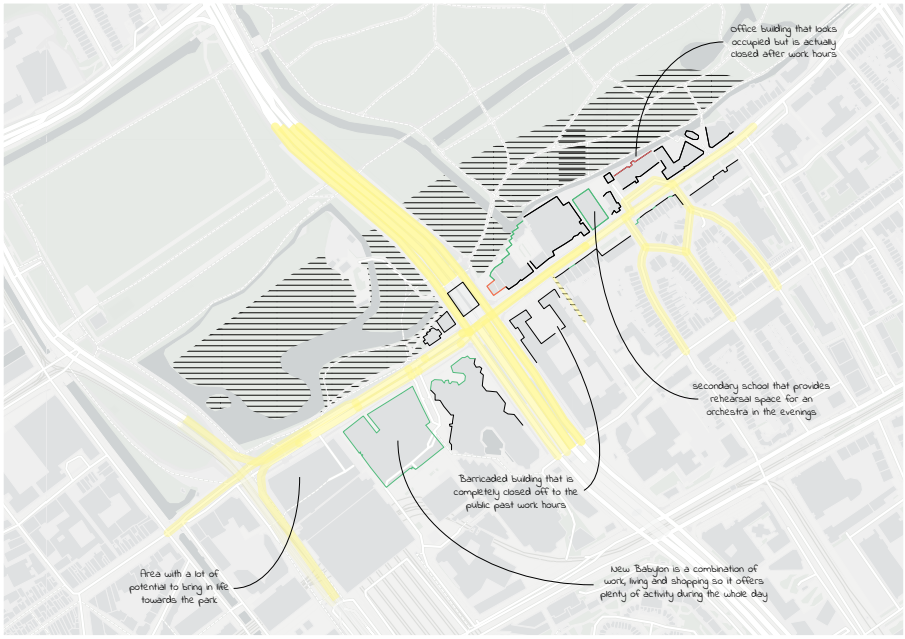
The collage itself seems very chaotic, which is an interesting outcome of the research. A clear main axis, the Bezuidenhoutseweg, can be deduced from this image, highlighting our findings that this axis is currently very strong. However, there is little done to connect it to the upper green border or the lower urban borders. The potential of this vibrant street, especially towards the green zones, is something we want to focus on when making our capacity plan because we believe that is where the most opportunity lies.





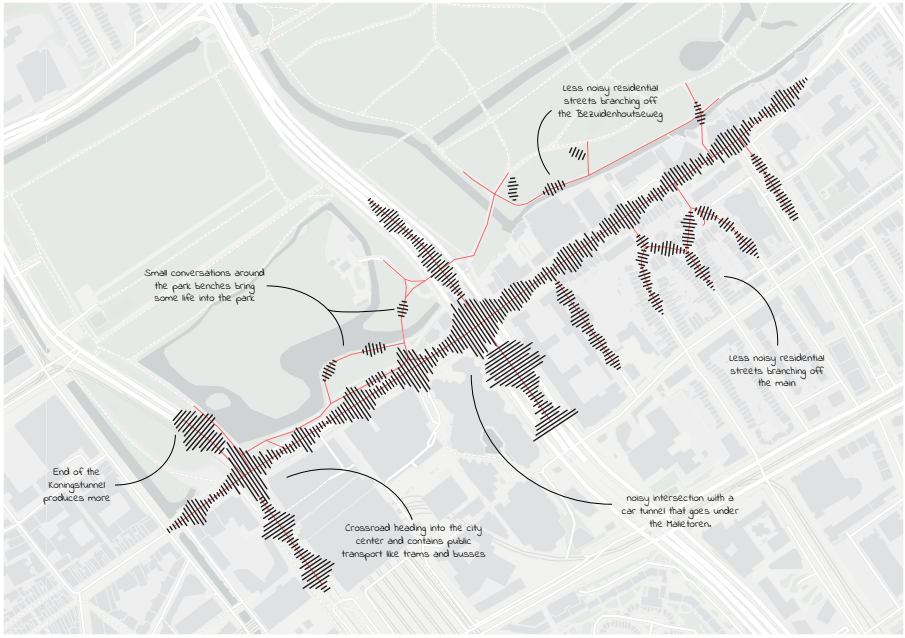
Security

As someone who has never lived in a large city, a sense of security and safety is something I notice quickly. I was somewhat familiar with this area of The Hague due to the central station, but the green border was still a mystery. To explore it, I decided to walk through the green border at night and see how it changed from the day. Once inside the parks, I felt isolated from the city, almost like being in a dark prison. There were no street lamps, and visibility was limited to about 5 meters. Hearing footsteps ahead without seeing who they belonged to made me feel on edge.



Light vs Dark

As mentioned, my research focused on the differences between day and night, prompting me to map out light and dark spaces. This map shows how the green parks are completely unlit, while the surrounding streets serve as safe transition zones guiding people through the city. Combined with the social security of open and closed-off facades, this adds another layer to understanding the area's safety. It's unfortunate that, based on instinct, almost no one travels through the green spaces at night and relies on the lit streets for transport. This led to the conclusion that the green areas only serve their purpose during the day which is a shame.



Soundscape

Both during the day and at night, the green spaces effectively provide tranquility and peace of mind. They offer a welcome escape from the surrounding urban hustle. In contrast to the noisy streets, the parks' gravel paths are quiet, with occasional disturbances from people talking on benches or bicycles passing by. This sense of peace is likely a key attraction for visitors, and should be a major consideration when planning improvements to the existing spaces.

Empirical Research
Personas

To gain a more profound understanding of our target group and to effectively identify and map the various stakeholders involved in the project, we undertook an in-depth stakeholder analysis using personas. We pinpointed nine key stakeholders in the area and conducted a detailed examination of their daily routines to gain valuable insights into their behaviors, needs, and expectations.

On the right-hand side, you'll find an example of a persona created for each stakeholder, outlining their specific wishes and needs. While our research primarily focused on university students and staff, the perspectives of local residents also provided valuable insights into how to approach changes to the site. We carefully examined how these groups interact with both the university and the project site itself. For example, a student living in The Hague might have more frequent interactions with the site, whereas a student residing in a neighboring city might primarily engage with the station area and the surroundings of the university, given the more limited nature of their daily movements.

These diverse characteristics were thoroughly mapped, enabling us to identify and summarize a "problem statement" that captures the current challenges and opportunities at the site. This problem statement is a critical component, as it will play a decisive role in shaping the capacity planning and guiding the subsequent phases of our research and design process.



The Expat



The PHD-Candidate



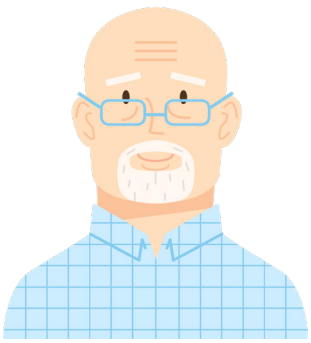
The Professor



The Local Resident



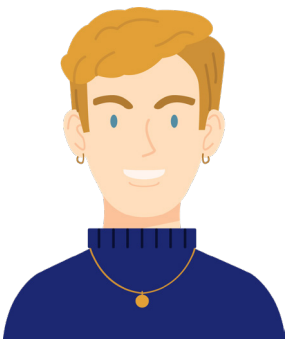
The Student



The Longtime Resident



The Traveler



The Student



THE WORKER

Age: 39

Gender: Female

Occupation: Legal assistant

Characteristics / Behaviors: She lives in Zoetermeer but is familiar with the city of The Hague for some time because she was born in the area. Even in her spare time she can sometimes be found in the city to go to go shopping in the city centre or go out. For her job she visits The Hague two to three times a week. She travels to Central Station and from there walks to her job which is in the New Babylon building. During her breaks she sometimes go to a nearby supermarket or a healthy to-go restaurant. When she has the time for it, she likes to grab a cup of coffee or fresh tea on her way in or out of the office.

Gains:

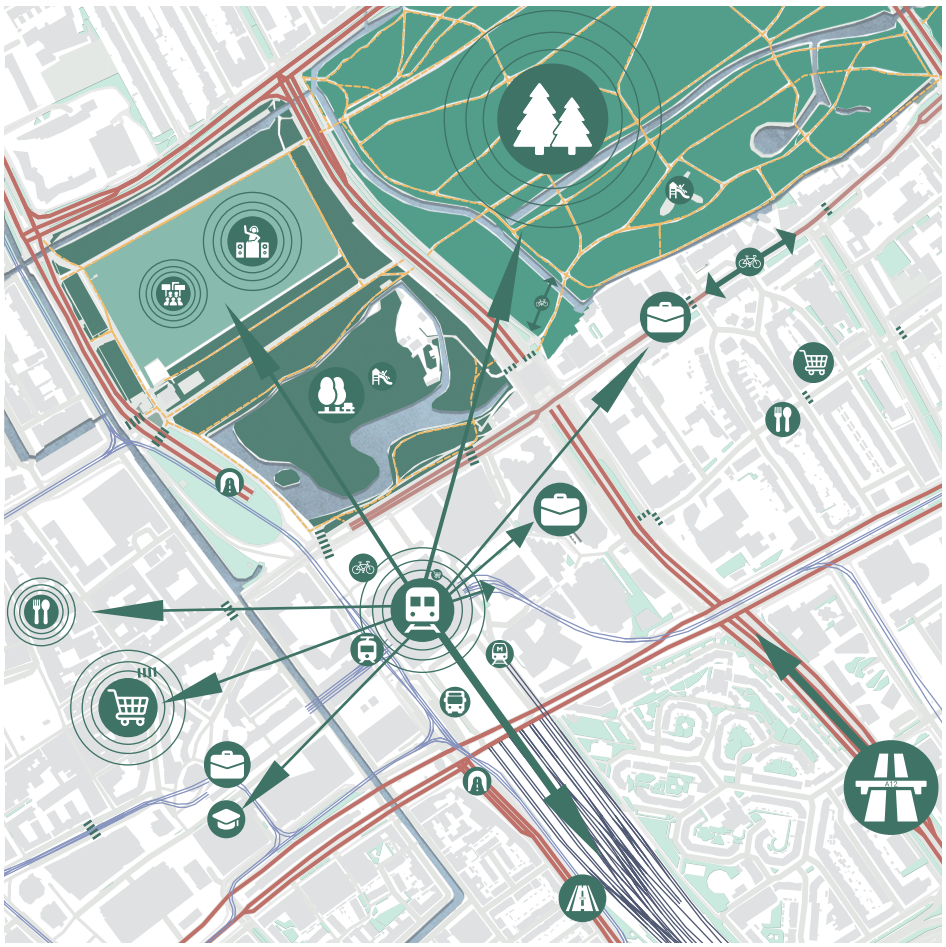
- She has quite some convenience around her with the different stores and to-goes that are near the Central Station.

Pains:

- An option to enjoy the nice weather outside is only possible on the roof terrace of the office or in the park, which is not ideal and a bit too far maybe from the office.

The area around The Hague's central station serves as a key entry point to the city and functions primarily as a corporate hub and central public transportation hub. While it's bustling with commuters and office workers, the area lacks a vibrant atmosphere and offers limited public spaces for leisure. Unlike the welcoming entrances of cities like Amsterdam or Rotterdam, The Hague's station area feels more professional and utilitarian, with most people either passing through or working nearby. Green spaces like Koekamp and Haagse Bos are available, but most people head to the city center for dining or leisure activities.

SWOT Analysis
Strengths & Opportunities

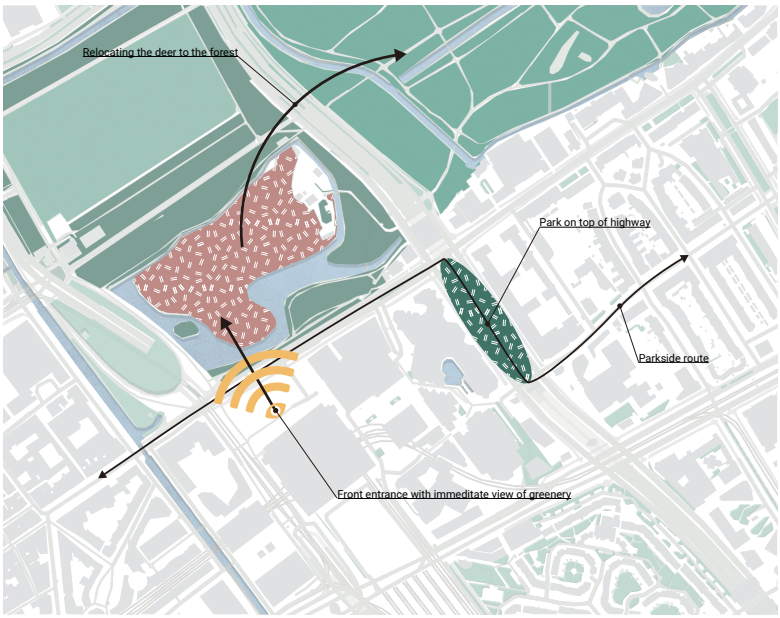


- Central Station - Train station
- Metro station
- Tram station
- Bus station
- Highway
- Tunnel
- Ring road
- Bicycle traffic
- Forest
- Park
- Playground
- Demonstration area
- Festival terrain
- Restaurant
- Shop / supermarket area
- Offices
- School
- Library
- Hotel
- Important connection
- Meeting points
- Pedestrian crossing
- Walking path
- Park road
- Main traffic routes
- Metro and tram lines
- Train tracks
- Greenery
- Malieveld green plain
- Koekamp park
- Haagsche bos park



- Train traffic
- Motor vehicle traffic
- Metro traffic
- Tram traffic
- Bus traffic
- Tram traffic
- Important highway access road
- Important ring road connection
- Point of attention
- Bicycle unfriendly area
- Unsufficiently publicly accessible area
- Not accessible
- Important connection
- Problematic connection
- Noise pollution
- Walking path
- Park road
- Main traffic routes
- Metro and tram traffic
- Train traffic
- Area with no accessable greenery
- Unattractive space

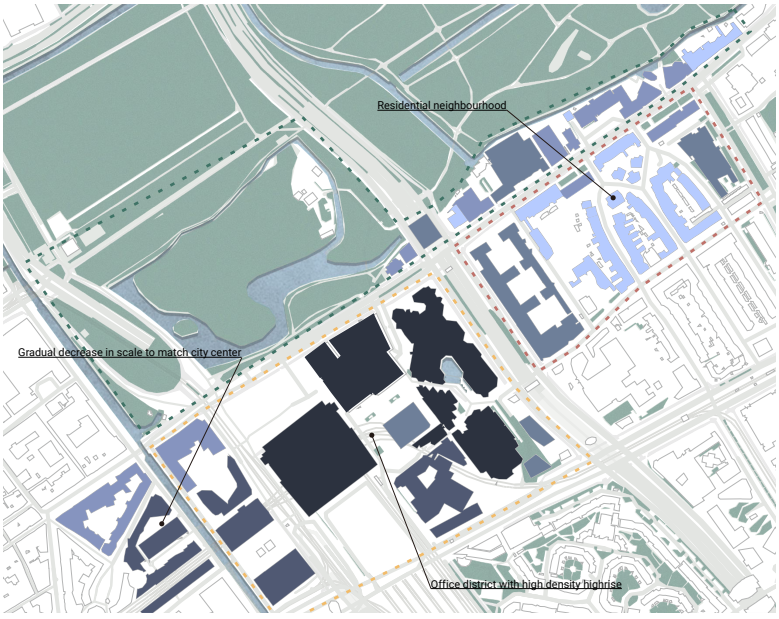
SWOT Analysis
Weaknesses & Threat



The potential of some of the most prominent area's in our site is not yet used to its full capacity. Giving back the Koekamp to the locals instead of the deer and covering up the highway could make the area way more accessible and could help activate these sides of the area better.



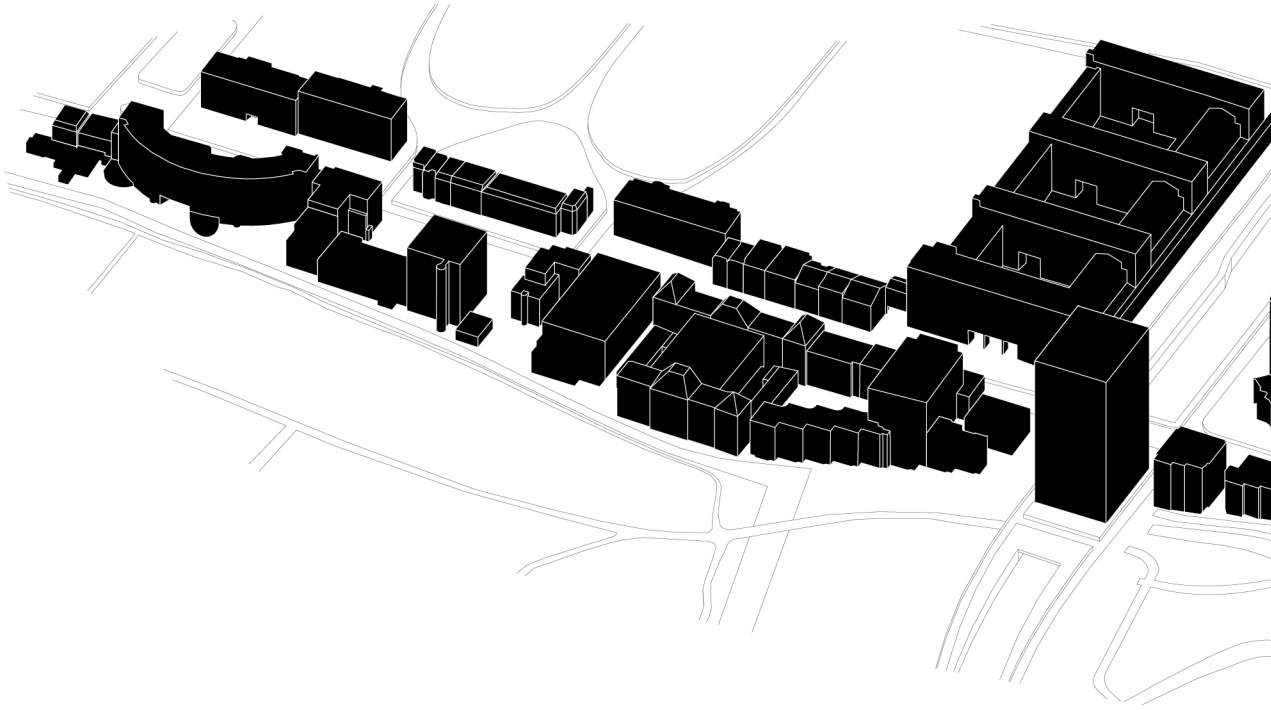
Looking at some of the poor qualities of the area we can identify three main points which are the busy traffic flows running through the area and the poor use of The Hague forrest. Also the fact that the central station is no longer using its main entrance is a pity.

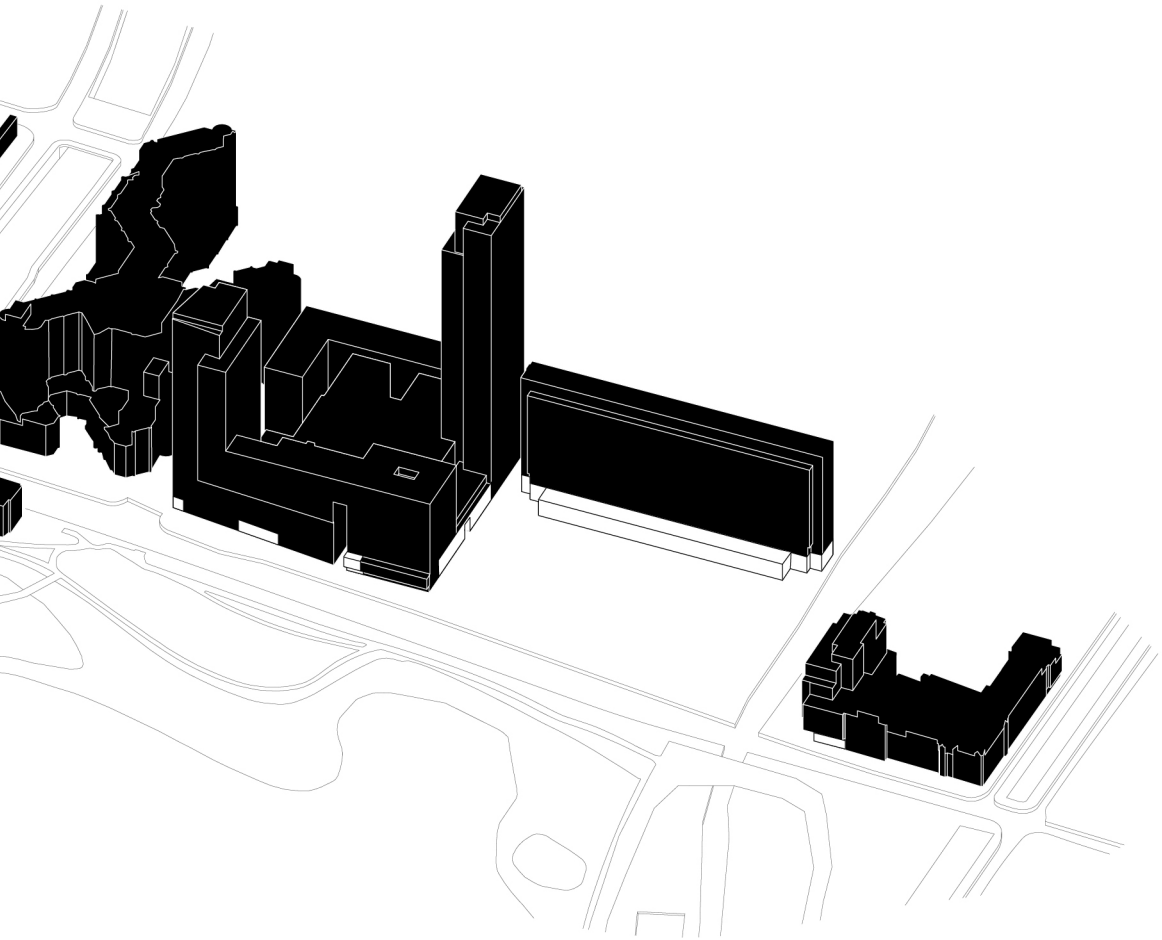


The area is split up into various characters resulting from the dominant building functions in and around it. We identified three area's based on building height and function.

3-Dimensional Nolli Map
Public vs Private Functions

This Nolli map illustrates the distribution of public and private spaces within the site, revealing a notable lack of public amenities. The area has very few public spaces, with the primary ones being located in the plinth of the New Babylon building and the central station. These are virtually the only existing public areas available.





Circulation & Flow patterns
Current Situation

Existing circulation flows & patterns



Proposed circulation flows & patterns



Circulation & Flow patterns
Proposed Situation

The circulation flows and patterns played a crucial role in shaping our proposed capacity plan for the green border. The main axis, Bezuidenhoutseweg, and its branching side streets, particularly offer significant potential for enhancing pedestrian movement. Our plan prioritizes expanding space for non-motorized transportation and aims to improve connectivity between the urban areas and the green spaces.

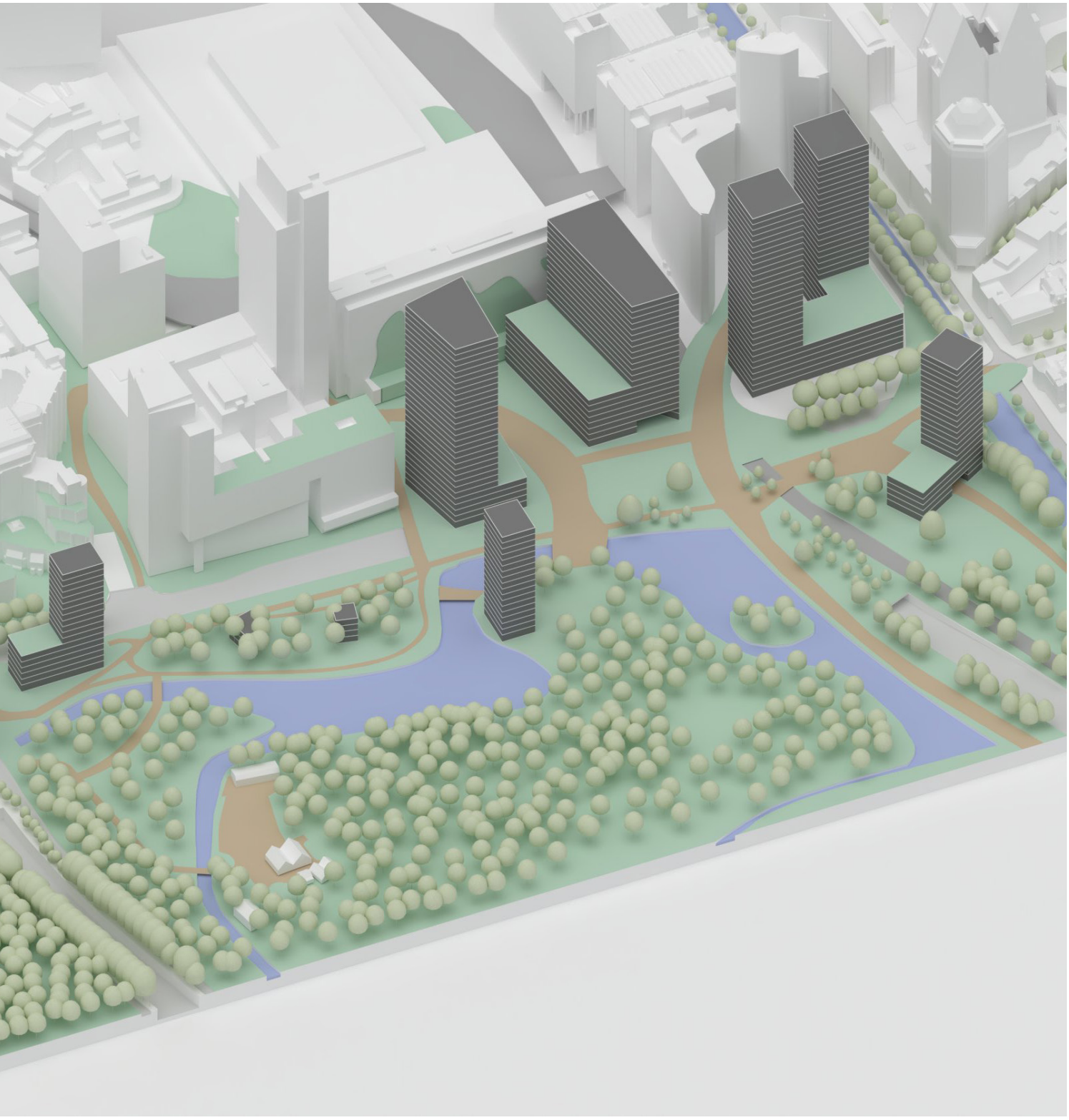
By introducing these new circulation routes, we intend to make various areas more vibrant and interactive. This increased connectivity is expected to foster greater engagement within these spaces and unlock new opportunities for development and activity. For example the space in front of the central station becomes a green square that provides the station with a new and active front entrance that can serve as the new gateway to The Hague. Instead of ending up in a sidestreet people now enter and exit the station through a green and open area.

The Utrechtse Baan will be enhanced with a park and residential towers to activate the currently inaccessible area. This development will create a new gateway to the green spaces, offering an alternative to the narrow streets surrounding the parliament building. The 3-dimensional result can be seen on the next page.



Circulation & Flows
Proposed Situation





Massing
Design Steps

When assessing the current site, we began by analyzing the existing conditions to identify potential areas for improvement before introducing new structures. Building anew is not always the optimal solution; renovating existing buildings can contribute significantly to climate change sustainability goals and promote the overall health of the city. Demolishing familiar structures isn't always the best option, as renovation can often yield better results for all parties involved.

We identified several older buildings, some of which we deemed necessary to demolish, while others were selected for revitalization. In the second image on the right, buildings marked in red are those we considered outdated and suitable for replacement in our capacity plan. Starting from the left, the first cluster of buildings stood out as architecturally incongruent with the neighborhood and were significantly outdated. We proposed a new plan to use this axis within the plot to create a new entrance from the residential neighborhood into the Haagse Bos. A green corridor here could provide the necessary flow of people into the forest, revitalizing its currently isolated and underutilized nature. We believe the forest can accommodate more visitors without compromising its role as a space for relaxation and tranquility.

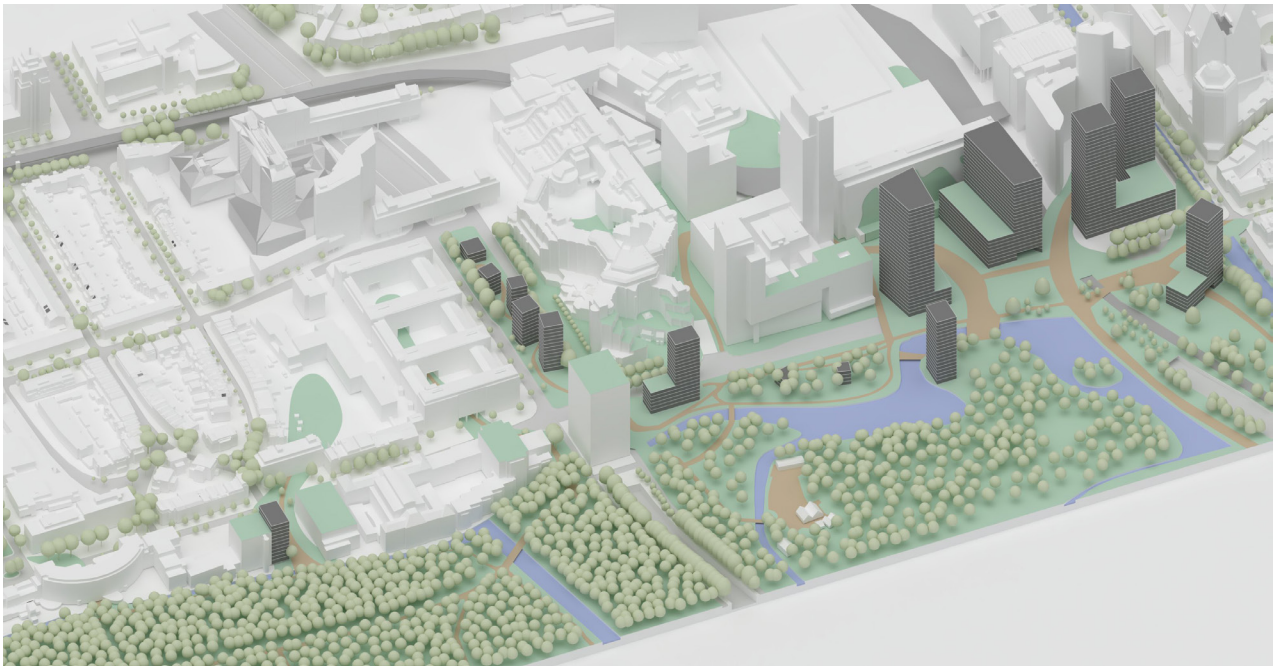
The second cluster, moving from the left, consists of abandoned old office buildings. These could be replaced with new structures that enhance this corner of the Koekamp and, in turn, improve the Malietoren building that sits atop the Utrechtsebaan.

Our capacity plan aims to bring nature back into the city while simultaneously reintegrating the city with nature. This philosophy led to the proposal of a residential tower on the deer island of the Koekamp. Currently, the area serves only as a deer park, with the surrounding moat making it inaccessible to the public. We see this as a missed opportunity for the park. Relocating the deer to the Haagse Bos, which is more suited to their natural habitat, would allow the park to be returned to the city and the island to become accessible once again. To complement a vibrant and active park, we propose that a residential tower could introduce around-the-clock activity to the area, thereby enhancing the site's social security.

Lastly, the area in front of the central station and the adjacent Bellevue site forms the core of our proposed capacity plan. The space in front of the station is currently vacant, and the municipality already plans to construct a residential tower there. We support this idea and further propose creating a new gateway to The Hague by establishing a car-free zone in front of the station, flanked by two larger volumes that define the entrance to the central station. This approach aims to relieve pressure on the station's side entrances and refocus attention on the original front, facing the Koekamp. By doing so, tourists and other visitors arriving at the station will be greeted by the city's green spaces, offering a much-improved first impression of The Hague.







Massing
Program Distribution

The capacity plans should provide design solutions in which special attention is given to the meaning and nature of the public realm and how that is connected to its environment, the interaction between nature and program and the re-use of existing buildings. The Studio is also looking for concepts that allow for more flexible use of available space; during peak days the pressure on available space is high, but at other moments a lot of space is unused or empty. The total program is roughly divided by 3. For each zone the built program is 80.000 – 160.000 m2, in which:

- 30-40% is public program and publicly accessible;
- 30-40% is (governmental) office program;
- 30-40% is housing.

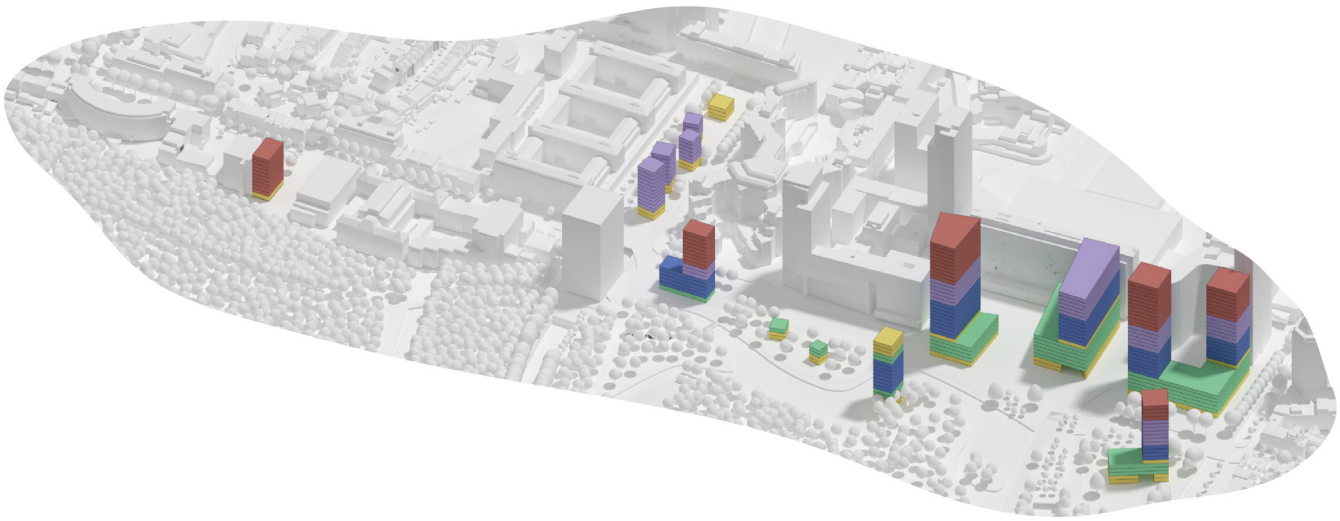
Housing

Public

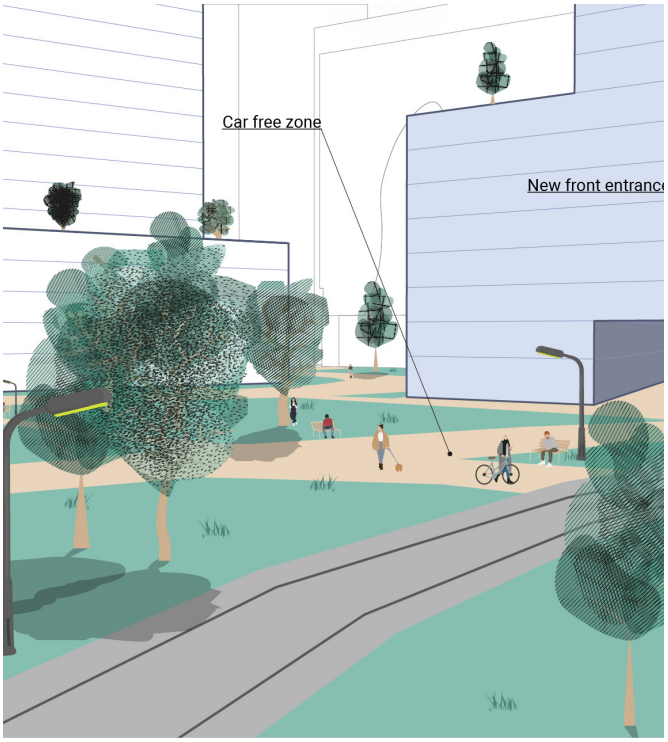
Work

Mixed: Housing / Work

Mixed: Public / Work



Impressions
Site perspectives









Performative Conceptual Model
Balance in all things

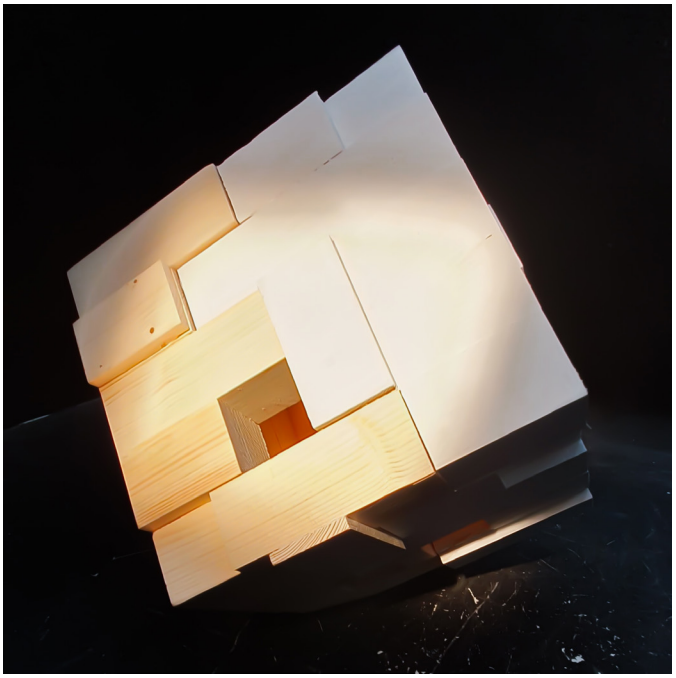
For this assignment, we were tasked with creating a performative conceptual model that reflects the principles of tectonics and/or stereotomics, drawing inspiration from the “Transformation/Digital” lecture held on October 26. The model had to engage with spatial, material, and performative aspects, serving as an indexical interpretation rather than a direct representation of the underlying concepts.

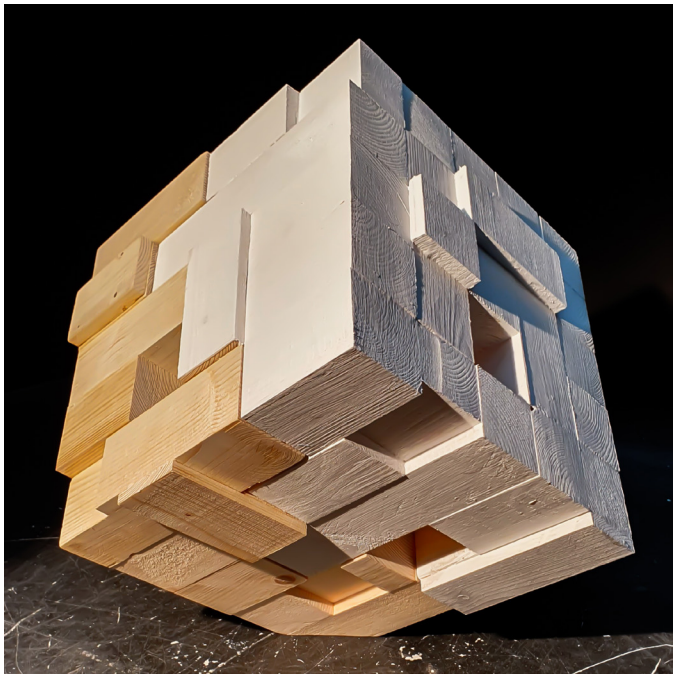
In response to this brief, my model conveys the idea of duality and equilibrium. Constructed from two interlocking wooden halves within a 25 cm x 25 cm cube, it represents the harmonious yet distinct relationship between opposing forces, much like the contrast between urban and natural spaces in The Hague. By integrating diverse materials and geometric transformations, the model reflects the interconnectedness of opposites and the necessity of balance for stability, as emphasized through the yin and yang philosophy.

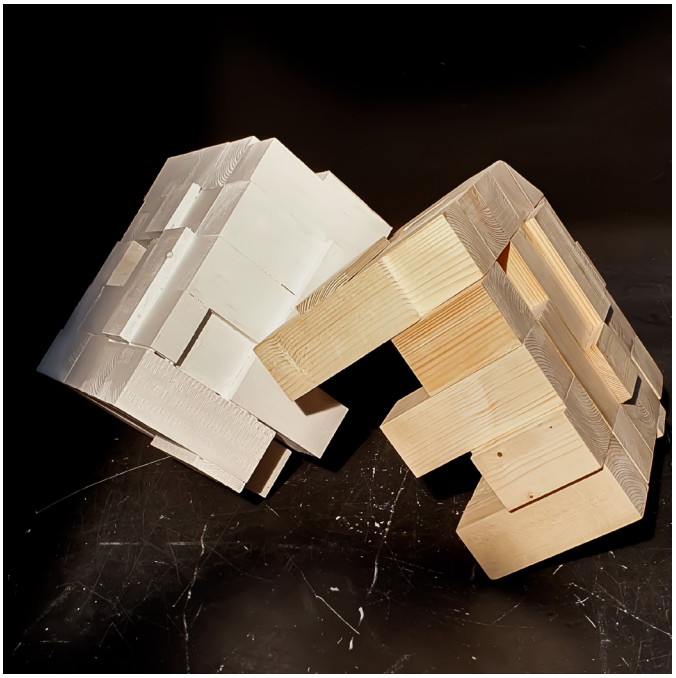
The model is designed to convey the concept of duality and equilibrium in both its structure and arrangement. When the two halves of the cube come together, they achieve a harmonious and “whole” state, despite being distinct in nature. This illustrates how diverse spaces or objects can mutually enrich each other, as seen in the bustling office district of The Hague compared to the serene Haagse Bos.

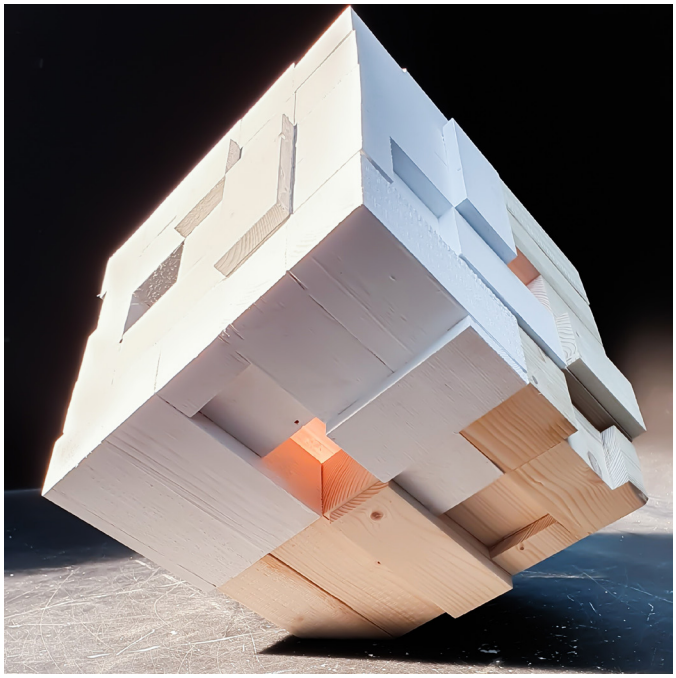
Measuring 25 x 25 cm, the cube is crafted from wood, introducing an organic element into the model, even though its edges are perfectly straight. The cube consists of two interlocking halves, symbolizing a transparent boundary between two worlds, which might not be readily apparent in reality but perpetually exists. Through this boundary, one gains insight into both sides, mirroring the experience offered by the model.

However, when the two halves are separated, the model loses its equilibrium and topples over, symbolizing the necessity of opposites in nature. It embodies a kind of yin and yang, illustrating that these opposing forces are inherently interconnected and complement each other.









PART III | **Design Research**

Design Brief
Vertical Campus

The Graduation Studio's assignment is to design a hybrid building for higher education in the center of The Hague. The design should facilitate and encourage public interaction between citizens, businesses, governmental institutions, and (with emphasis on) university curricula. Large universities like Leiden University (LU) and TU Delft (TUD) plan to expand and look for space in nearby urban centers such as The Hague and Rotterdam. The areas around the central station in The Hague are perfectly situated in terms of proximity and accessibility. However, the pressure on the available space is very high, mainly due to the apparent need for more governmental offices and complementary public functions. Therefore, the studio calls for a hybrid building design where all the program elements are condensed and benefit from each other on a tight site footprint in a vertical configuration. Designing a hybrid building in the vertical form will allow for the integration of different functions in one single building. It will also reinvigorate the area of the city that largely consists of mono-functional buildings by introducing programmatic diversity, typological innovation, and formal experimentation. The design of a hybrid building will bring tangible benefits to the surrounding urban fabric by introducing new ways to study and live in the city.

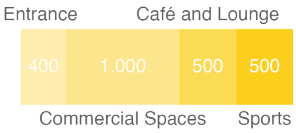
This new hybrid educational campus is going to differ from the traditonal campus we know today. The research into this new campus of the future is therefore very import to find and indentify the current characteristics of the traditional campus and where points of improvement lay. The research aims to describe what the new campus of the future will look like and how this is going to be achieved. The research question which was formulated earlier:

"How to establish an **interactive lifelong learning environment** wherein **teachers**, **students**, and **visitors** can mutually learn from, and inspire one another?"

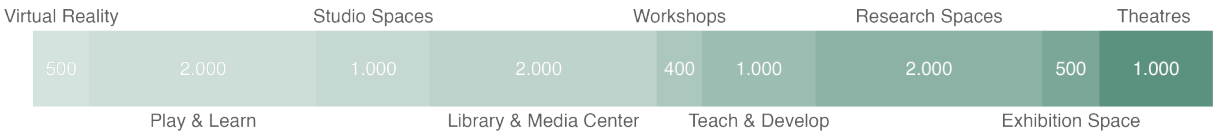
To try and anwer the research question we first have to analyse the project site more specific before we can begin with the theoretical research. The theoretical research focusses on how to use the educational function of the university as a catalyst for the entire hybrid building. The aim is to use the university itself to be the driving factor behind the creating of the lifelong learning environment. After this there is also research done to explore various design strategies to make this learning environement more interactive to fully exploit the hybridity that the building has to offer. This theoretical research chapter will then be used to act as a basis on which the actual architectural design can build upon. The examples giving in the theoretical research therefore work on their own and the actual solution can be found in the chapter: Final Design P4+ & P5.

On the right hand side you can see how the design brief is constructed. The total design brief is around 30.000 m^2 which is quite a considerable amount and therefore verticality is also the only option for this design assignment.

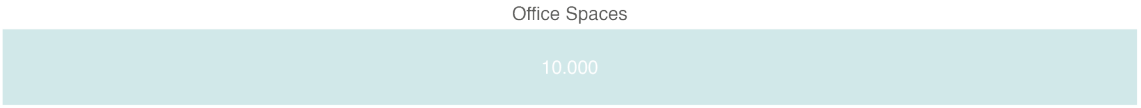
Public



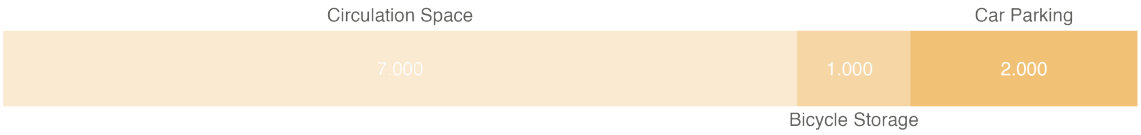
Education



Commercial



Circulation & Storage



Design Brief
Detailed Description

Hybrid Building on Education, approx. 30.000 m2.

Lifelong learning is the voluntary, ongoing pursuit of knowledge, skills, and abilities through various forms of education. The building should facilitate the types of programs that support this for people/students of all ages. Lifelong Learning therefore calls for more diversity in the programmatic brief than the strictly educational functions and spaces. The overlap with other programs in the hybrid building is thought to be beneficial to Lifelong Learning, while at the same time it offers time- and space sharing in order to enhance efficiency in use. The brief is indicative and divided in zones that, as said, can overlap or be rearranged.

Entrance (400 m2)
Reception and information, elevator lobby, security center, gates to shielded areas, cloakroom, amenities, lounge.

Commercial Spaces (1.000 m2)
Divided in units of at least 100 m2 with their own amenities, accessible from the interior and exterior public space.

Café and Lounge (500 m2)
The building should have café and informal lounge areas for people to eat and drink, socialize, study alone or in groups, or just relax. These areas should integrate with the circulation and exhibition spaces of the building.

Play and Learn (2.000 m2)
Supervised/ safe play areas for the youngest, combined with day care center and (elementary) learning functions for approximately 200 students and 15 staff.

Learn and Discover; Studio Spaces (1.000 m2)
Studio spaces will provide an outstanding environment for interaction between staff and students as well as for peer-to-peer learning with a level of containment and acoustic privacy for approximately 20 groups of 16-20 students per group.

Library and Media Center (2.000 m2)
A range of spaces for individual and group study, enabling access to physical and electronic resources, as well as facilities for photocopying and printing, storage and display of books, art, and digital collections.

Workshops (400 m2)
Workshops containing tools and equipment suitable for producing small- to medium-scale timber and metal work, e.g.: models, furniture, or construction prototypes. The workshops need ground level access for delivery, storage, and display. Workshop spaces are min. 200 sqm.

Centre for Advanced Virtuality (500 m2)
The Centre allows students (and not only) to experiment with technologies of virtuality – Virtual Reality, Augmented Reality, Cinematic Reality, 360-degree

videos. The Centre consists of labs, immersive environments in which to reproduce imaginative experiences, meeting rooms, small working areas, and maker spaces, equipped with high-performance computers. The Studio supports creative projects and research endeavors, by bringing people together.

Learn and Develop; Research Spaces (2.000 m2)
A secure working environment, separated from the general teaching facilities, allowing a combination of quiet, solitary research work as well as collaborative group or team projects. This is likely to consist of traditional individual offices with storage for books as well as more open, interactive workspaces. Accommodation of 100 full-time staff; 200 part-time and 100 students.

Teaching, Learning & Development Spaces (1.000 m2)
These will provide acoustic and visual privacy for 10 small groups of 15-25 students. Spaces and furniture should be flexible, enabling access to physical and electronic resources.

(Lecture) Theatres (1.000 m2)
The building will include (lecture) theatres as follows: One large theatre, seating 400+ people, possibly dividable into two smaller theatres, Two medium theatres, each seating 120-150 people, and Two small theatres, each seating 50-60 people. This will also include foyer / breakout spaces large enough for the same number of people to gather and wait for the next lecture/event, which could have a dual function as an exhibition or casual seating space.

Exhibition Space (500 m2)
Any dedicated exhibition space will need to be serviced by a commercial-type kitchen for use at events, and be near to public amenities within the building.

Sports (500 m2)
One sports hall (height 7m) with sufficient changing rooms, lockers, and shower facilities. Additional multifunctional spaces for fitness, yoga, dance etc.

Office Spaces (10.000 m2)
The building will provide workspace for approximately 600 operational and support staff, and associated facilities such as file storage, meeting rooms, and reception. Outdoor grounds The spaces in the building should have easy access to outdoor spaces like a playground, terrace, park, square, etc.
Storage, Mechanical Utilities and Circulation Space 25-30% of total gross floor area

Bicycle Parking
For 800 bicycles (2 per 100 sqm)

Car Parking
(1 parking place per 250 sqm = 160 cars)

Delivery of Goods

Design Research | **Site Analysis**

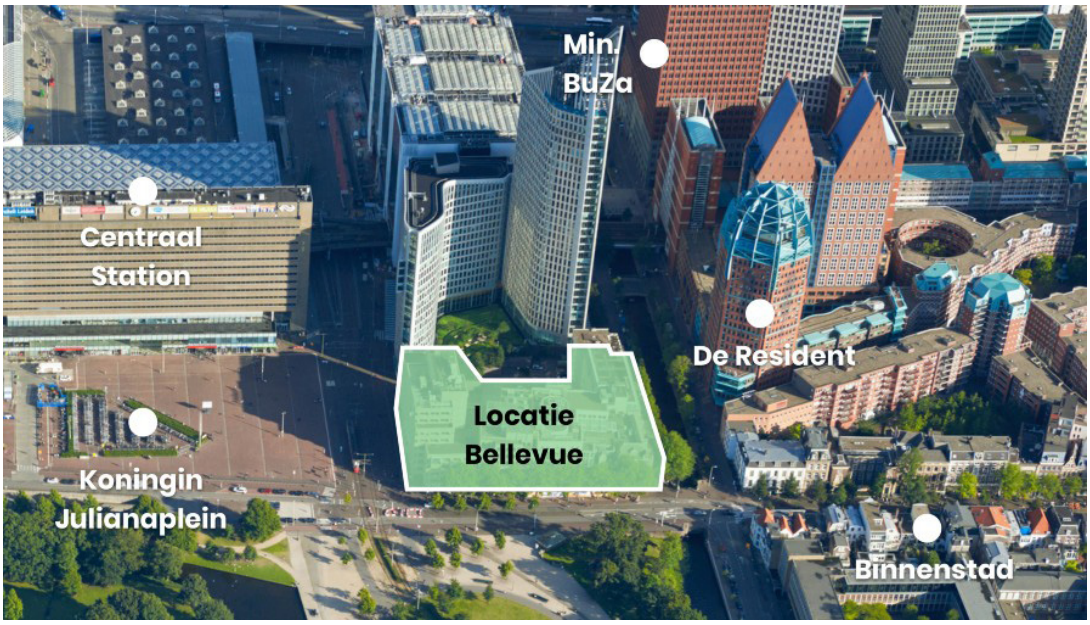
Site
Bellevue Location

Following our P1 presentations of the capacity plan, we transitioned to working independently. The first step in developing our individual design proposals was to select a 50m x 50m site within our designated area. I focused on the space in front of the central station, searching for a specific location to design my campus.

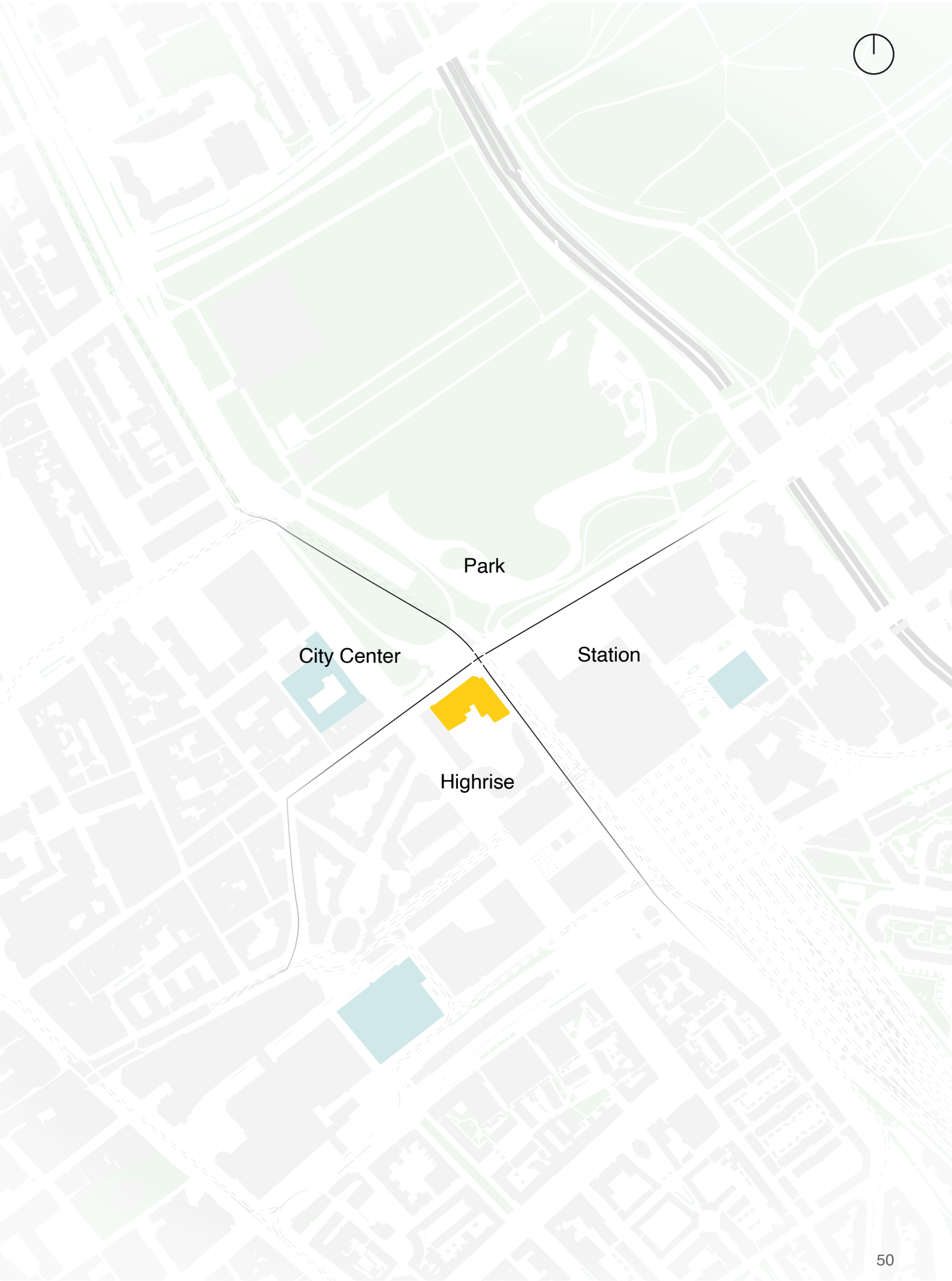
The Bellevue location stood out due to its historical significance, its current role in the urban fabric surrounding the central station, and its potential for future development. Alongside my personal preferences for the design site, the Public Building studio's emphasis on sustainability and renewal aligned perfectly with my interests. The ongoing large-scale redevelopment plans for the area further piqued my interest in this site, making it an ideal choice for my project.

I was particularly drawn to this site within the Green Border due to its strategic location relative to key areas of the city. Positioned at the intersection of three crucial zones—the city center, the green spaces, and the central innovation district—this site plays a vital role in connecting residential, recreational, and professional areas. The proximity to the central station further enhances its importance in linking these diverse zones.

This integration aligns perfectly with my ambition for the campus to foster an inclusive learning environment that seamlessly combines work and leisure. Just as my campus aims to bridge the gap between theory and practice, this site effectively connects working and living spaces. Therefore, the Bellevue location is ideal for creating a lifelong learning experience that integrates all facets of urban life in The Hague.



The Bellevue location as seen from the northern side located next to the central station


Park
City Center
Station
Highrise

Connection to the city
Location Choice

Upon closer examination of the immediate surroundings of the Bellevue site, three major movement flows can be identified. The predominant flow consists of pedestrians and cyclists traveling to and from the Central Station. On the eastern side of the plot, there is a tram line that forms part of the Central Station tram stop, which is heavily utilized by The Hague's residents. The tram network is arguably the city's most crucial public transport system, extending far into the urban landscape. Thus, the tram station adjacent to the Central Station also experiences significant foot traffic.

To the north of the Bellevue site lies Bezuidenhoutseweg, which has seen reduced congestion since the opening of the Koningstunnel in 1996. This tunnel redirects most traffic beneath the Central Station area, resurfacing next to Koekamp Park. As a result, the area is predominantly pedestrian-friendly, presenting opportunities to enhance the pedestrian experience even further.

Along the northern edge of the Bellevue site is the Laan van Reagan en Gorbatsjov, which curves around the S100 on both sides. In between the bicycle and pedestrian paths, greenery in the form of trees and grass exists, but the space still feels somewhat vacant due to its large scale. This area is situated between the city center and the Zieken Canal ring. To the east of Laan van Reagan en Gorbatsjov lies Koekamp Park, a lush green space with a rich history dating back to the late 17th century when it served as a hunting ground for the Dutch nobility before becoming a public park. A central island in the park is now home to deer, although it is not publicly accessible, which is unfortunate. Just a few hundred meters further east, The Hague Forest could provide a suitable habitat for these deer without compromising the public green space in Koekamp.

Reflecting on the movement flows around the Bellevue site, it is evident that the main influx of visitors is directed toward the Central Station. This historical station, established in 1843, features its main entrances on the western and eastern sides, resulting in a constant flow of people heading toward Turfmarkt and Anna van Buerenplein. Consequently, many visitors may not venture north to enjoy the city's parks, instead finding themselves on a busy street that resembles a back alley rather than a welcoming promenade or boulevard.

These urban characteristics immediately inspired me to envision new strategies for transforming the Central Station area. My goal is to improve the interaction between the station and its visitors, enhancing the qualities of my design and, more importantly, creating a better public environment for The Hague as a whole.



Flows & Movement



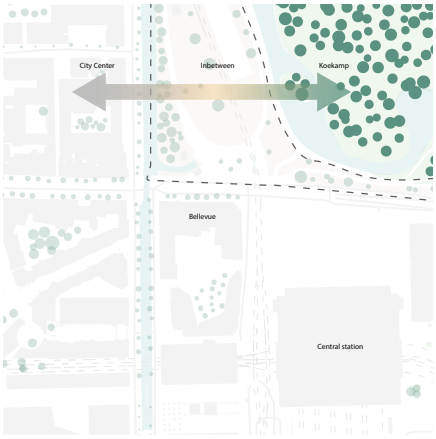
Pedestrians & Cyclists



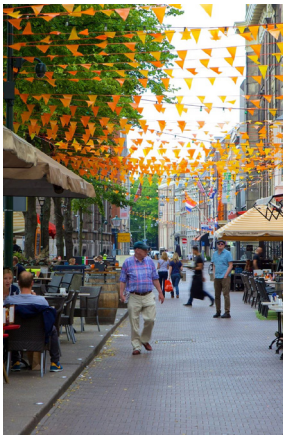
Trams



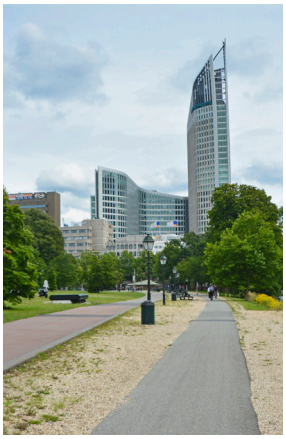
Cars



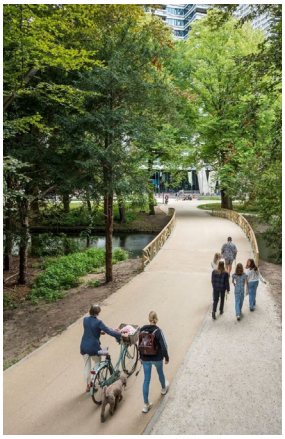
Inbetween-Zone



City Center



Inbetween zone



Koekamp



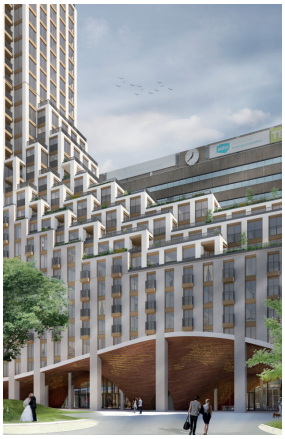
Station Entrance



1979

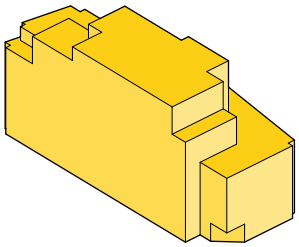


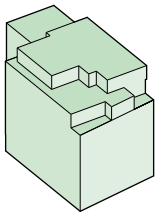
2016



2027

Exploratory Research
Existing Buildings



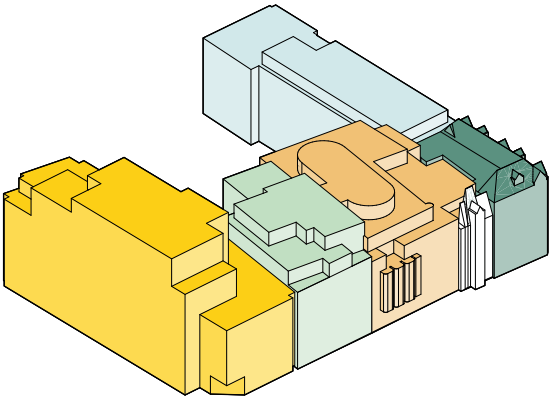


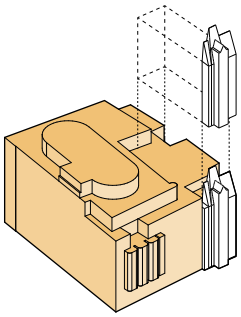


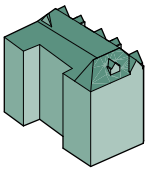
Kantorenflat Bellevue ‘s Gravenhage

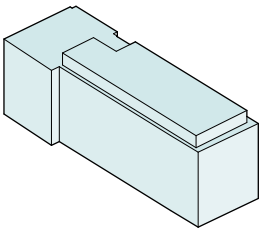


Den Hout











Nieuwe Hout

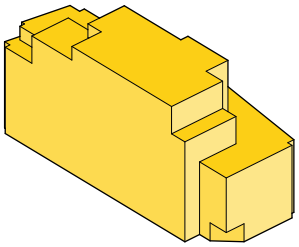


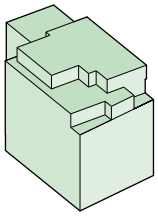
Haagsche Assurantie Compagnie



Oranje Hout

Exploratory Research
Existing Buildings





Basic Information

	Kantorenflat Bellevue ‘s Gravenhage	Den Hout
Building Name		
Architect	Hornstra, Verschoor and Kayden Architects	Mehrtens & Van Veldhoven Architecten
Year of Construction	1975	1984

Architectural Style

Style	Art Nouveau/Jugendstil	Brutalism/Modernism
Design Features	Ornaments, Classical detailing, Brickwork, Balanced symmetry and proportion	Clean lines, Minimal ornamentation, and Functional form

Size and Area

Total Area (m²)	13.850	4035
Number of Floors	12	6
Footprint Size (m²)	1.475	535

Construction Details

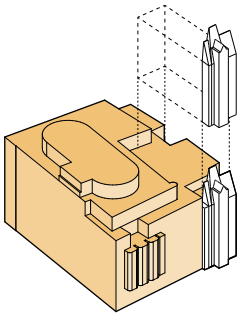
Construction Type	Columns and Beams	Columns and Beams

Historical and Cultural Significance

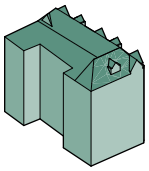
Historical Status	No Status	No Status

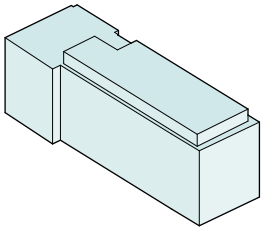
Functional Analysis

Current UseArchitect	Office	Office
Original Use	Office	Banking Building



Residence (1907)
Liefland, W.B. van
Municipal Monument





Nieuwe Hout	Kantoorgebouw Haagsche Assurantie Compagnie	Oranje Hout
Mehrtens & Van Veldhoven Architecten	Johan Mutters (1858-1930)	Prent-Landman Architekten
1974	1913	1981

Post-Modernism + Neo-Renaissance	Art Nouveau/Jugendstil	International Style
Partly monumental Facade, Extensive use of glass, Curved glass bay windows	Ornaments, Classical detailing, Brickwork, Balanced symmetry and proportion	Simplicity of form, Functional design, Lack of ornamentation

7.500	1.865	6.620
8	5	6
835	370	810

Columns and Beams	Traditional	Columns and Beams

(partly) Municipal Monument	Monumental	No Status

Banking Building	Office	Office and Residential
Banking Building	Banking Building	Office and Residential

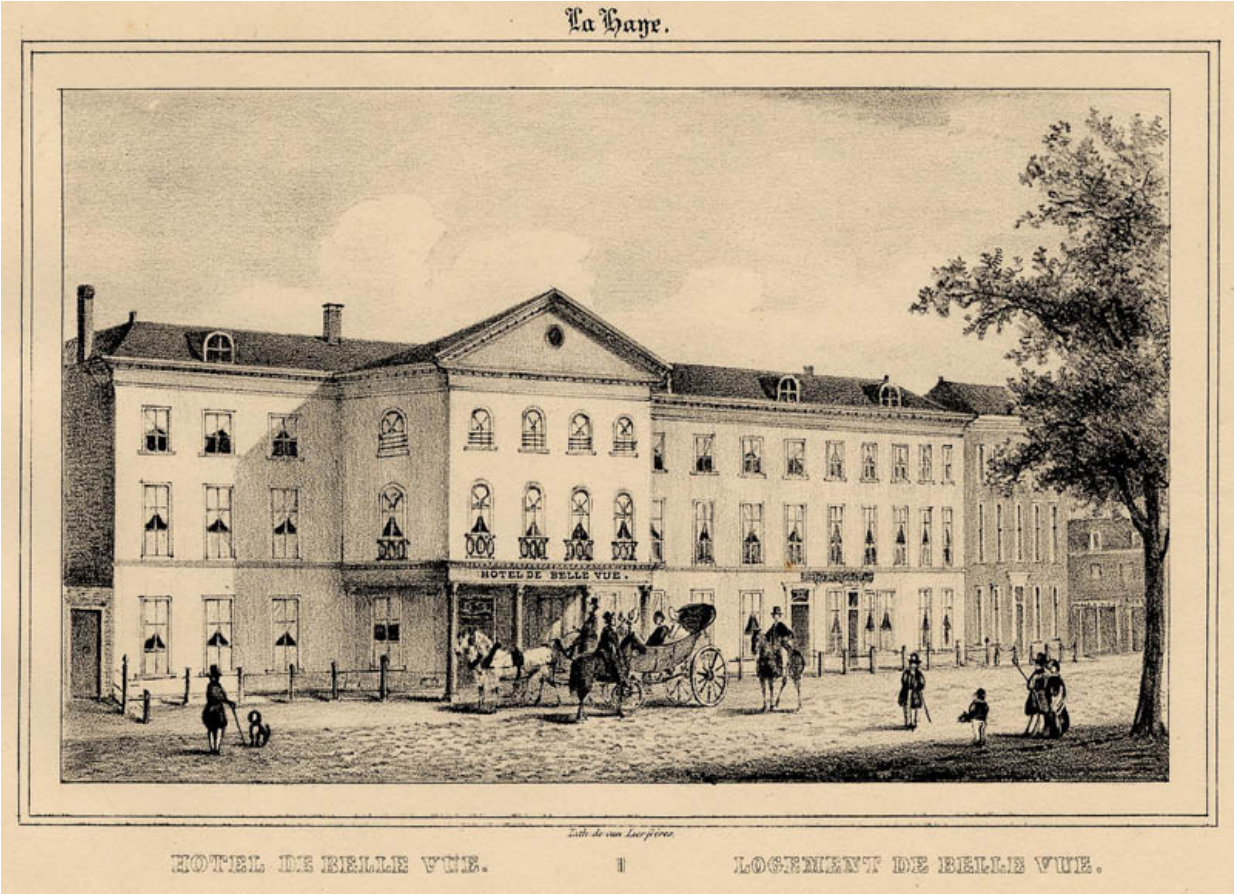
Exploratory Research
History

The history of the project site, particularly the Steadion building, stretches back to 1797, when a hotel called Bellevue stood where the Steadion now resides. The name “Bellevue,” which can be loosely translated to “beautiful view,” was fitting given its prime location opposite the Haagse Bos and what is now known as Koekamp Park.

In the late Middle Ages, the counts of The Hague planted the Haagse Bos, transforming it into a hunting ground. This area served as a hunting ground for many years, not only for the counts but also for later inhabitants. Over time, the forest was also used extensively for logging. By the early 1800s, the Haagse Bos had gradually shifted its role, becoming more of a recreational space for the local population.

The Malieveld, an adjacent field initially set up by French soldiers during Napoleon’s occupation to serve as their campsite, evolved into a lively venue. Tents were erected, offering refreshments and drinks to visitors, while the forest and Malieveld hosted various sporting events. Given its strategic location, Hotel Bellevue quickly became one of the most luxurious and sought-after accommodations in the vicinity of the Haagse Bos.

In 1930, the hotel was closed and transformed into an office building. In 1974, the entire structure was demolished, making way for a series of new buildings. The current owners of the office buildings, constructed between 1974 and 1984, are now considering relocating. This potential move could mark the beginning of a new chapter in the area’s long and storied history.



The postcard shows a lithograph of the Bellevue Hotel from around 1840, created by the Van Lier brothers.



The postcard from the collection of Dick Gilijamse, featuring Hotel Bellevue, was likely created in 1904.

Exploratory Research
Redevelopment Plans

As previously mentioned, the current owners of the office buildings on the Bellevue site are planning to sell their properties and the land, paving the way for future development. In collaboration with the municipality of The Hague, the site is being reimagined as a more dynamic and hybrid space that will include housing, office spaces, and areas for sports and leisure. During my research, I observed several issues with the current location, and these have also been acknowledged in the government's redevelopment plans. My personal goals align with the municipality's vision to revitalize the area and transform it into a vibrant and lively hub.

The initial sketches and designs for the new buildings on the Bellevue site have already been released, sparking considerable controversy due to the sheer scale of the project. The proposed towers, standing 180 meters tall, took many people by surprise, myself included. These towering structures dramatically alter the existing skyline of The Hague and do not blend harmoniously with the surrounding environment. As a result of significant feedback from local residents, the design is currently under revision, with particular attention being given to reducing the maximum height of the towers.

While the future will reveal the impact of these changes, I must express that, although I fully support the municipality's ambitions and objectives for the site, the approach they've taken so far is not one I would personally endorse.



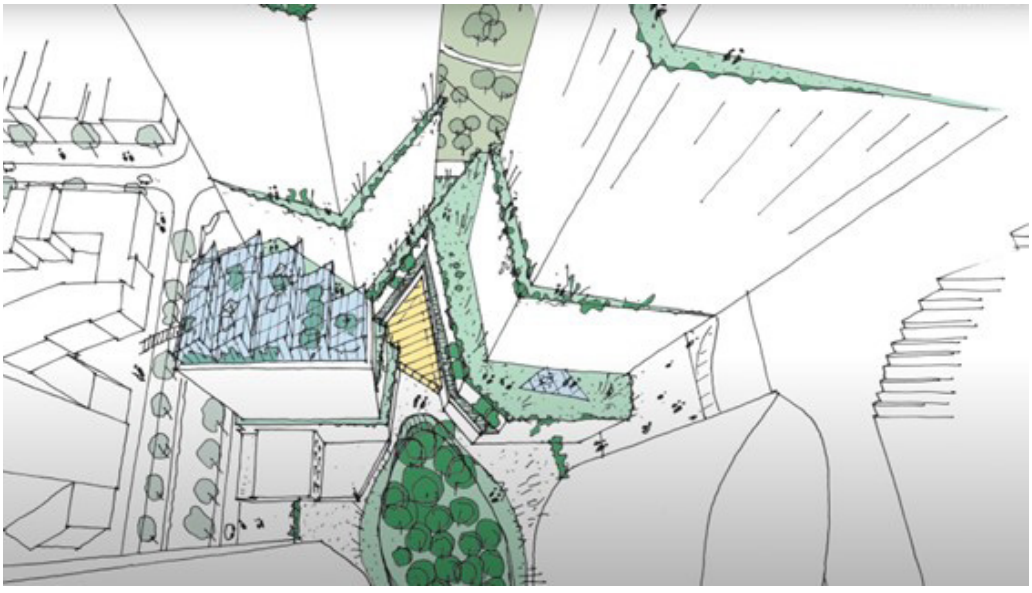
The proposed plan for the two 180-meter-tall residential towers on the Bellevue site



The proposed plan, seen from inside the Koekamp park



A plan view on how the new design aims to connect to the existing urban fabric

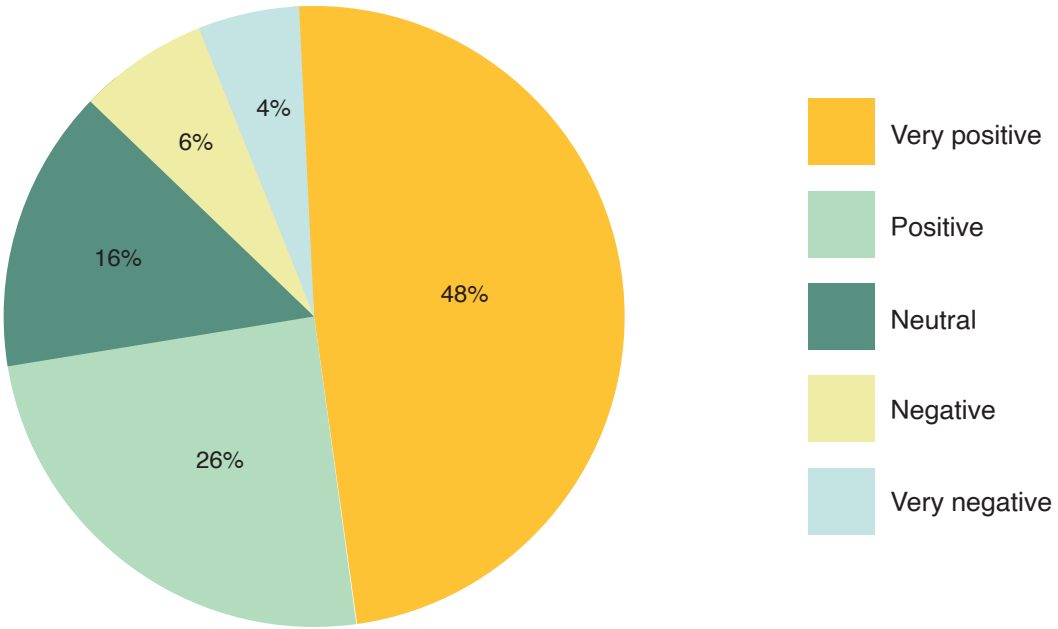


A topview onto the courtyard of the Bellevue area shows how dense the location will be

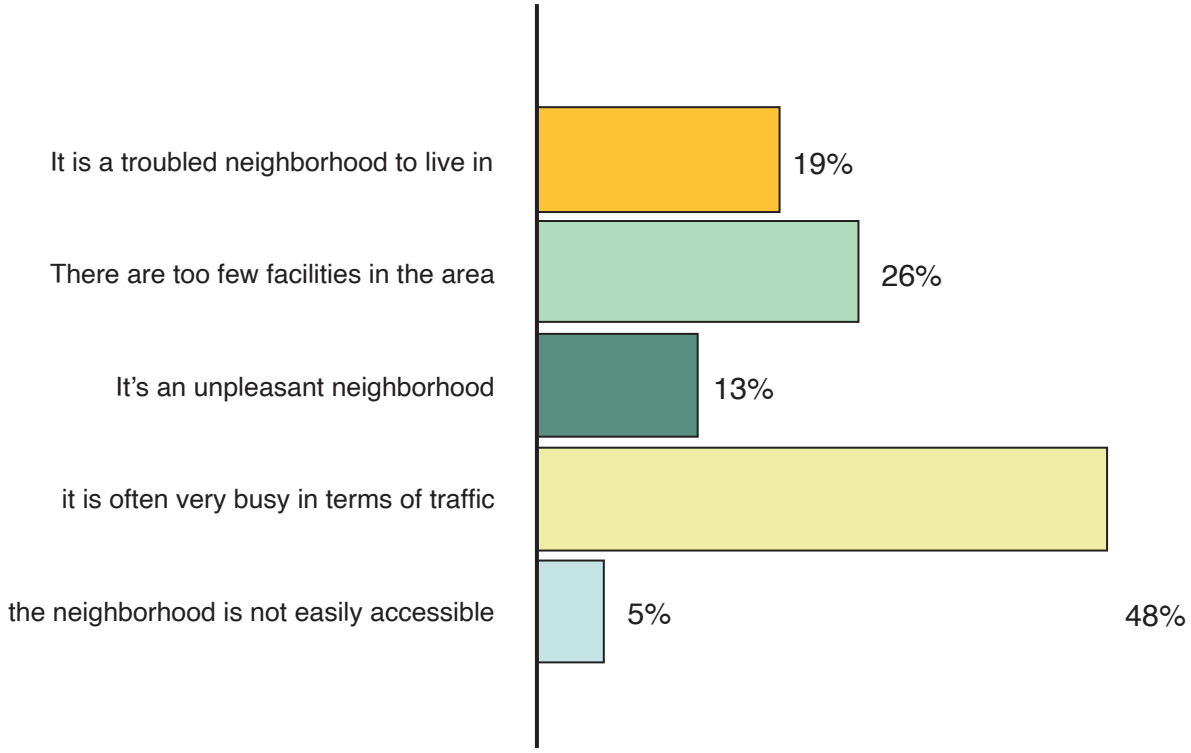
The municipality, in collaboration with the architect, hosted several online webinars where residents of The Hague could ask questions and learn more about the proposed building plans. These sessions revealed that while there was general support for the renovation of the Bellevue site, some residents expressed dissatisfaction with the current facilities and urban connections in the area.

The new design, which includes two towering skyscrapers, sparked mixed reactions. While many residents appreciated the idea of expanding The Hague's skyline, viewing it as a sign of the city's modernization, concerns were raised about the proposed height of the buildings. As previously noted, a more gradual and thoughtful introduction of high-rises into the existing skyline could offer a better balance, addressing both aesthetic and community concerns.

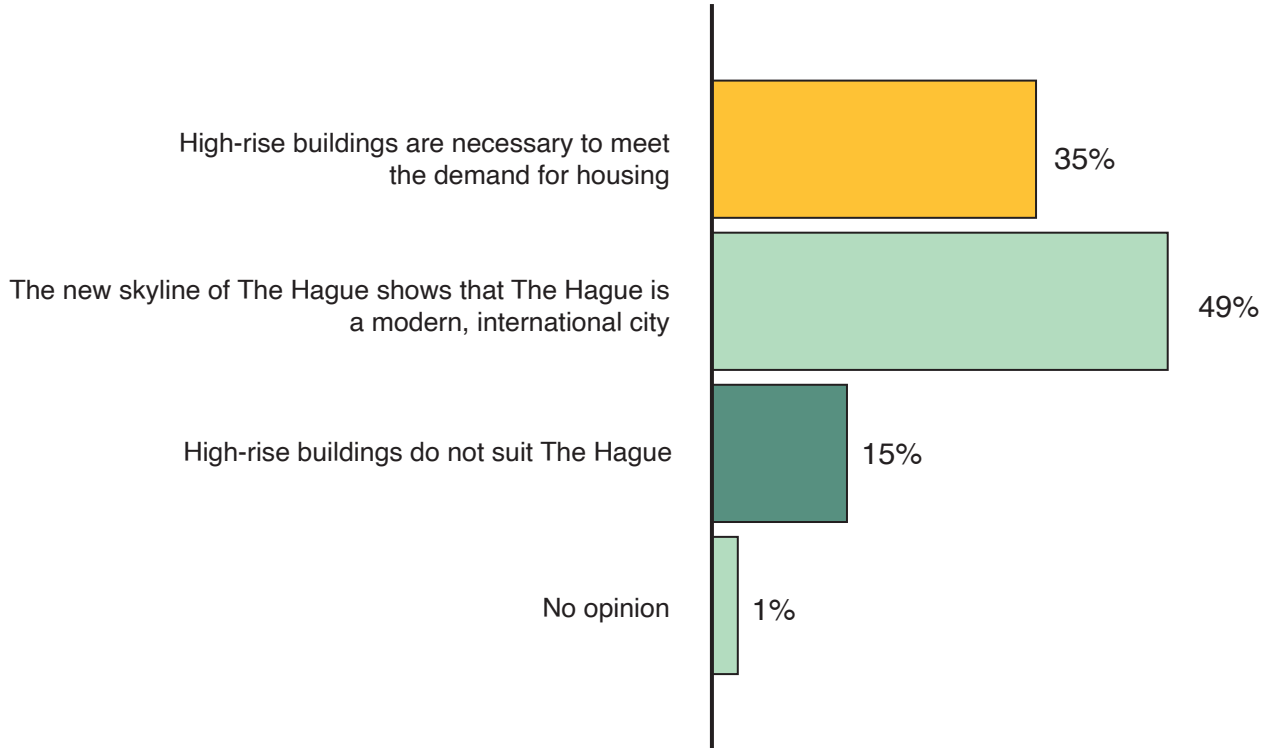
In general, are you positive or negative about redevelopment of the Bellevue location?



What do you think are the biggest negatives in the neighborhood in the current situation?



What is your general attitude towards high-rise buildings in The Hague?



Design Research | **Theoretical Research**

“**Tell** me and I **Forget**,

Teach me and I may **Remember**,

Involve me and I **Learn**.”

– Benjamin Franklin

Ambiton
New way of learning

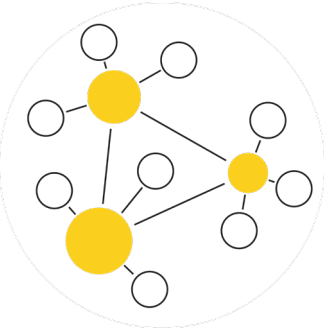
My goal for this project is to create a university campus that bridges the gap between theory and practice, as well as between the academic and practical worlds. The future campus should not only be a place of learning but also a vibrant part of the city, where knowledge is shared, created, and applied in real-time. Drawing inspiration from Benjamin Franklin's words the design will emphasize involvement and interaction, both within the university community and with the broader urban environment.

Campus
History & Trends

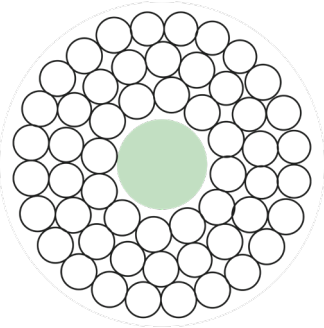
When we examine the history of traditional campuses, which have evolved over many centuries, certain trends and characteristics emerge that define these designs. Initially, many of these campuses were situated in or near city centers, as universities were integral to the intellectual and cultural fabric of urban life. Over time, as cities expanded, these campuses became surrounded by other urban developments, leading to a natural fragmentation of the campus. This fragmentation resulted in an integrated campus design that blended seamlessly with the city itself.

Rather than being isolated, these campuses became porous and accessible, with streets, pathways, and public spaces shared between the university and the surrounding community. This openness transformed the campus into a more inclusive environment where local residents and university users could engage with each other. The boundaries between academic and public spaces blurred, fostering a sense of connection between the university and the city, enriching both the student experience and the vibrancy of urban life.

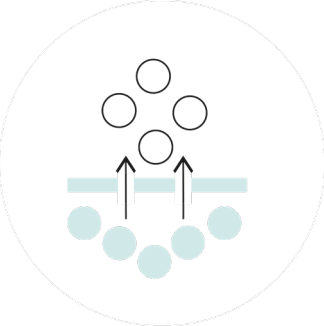
However, this accessibility does come with certain limitations. While open, inclusive campuses offer opportunities for interaction, there is still a need for privacy and spaces dedicated to focused academic work. To create an environment conducive to study and concentration, universities must carefully balance openness with areas that are more secluded, ensuring that students have the quiet, focused spaces they need to thrive academically. This delicate balance between public accessibility and academic privacy is a key challenge in modern campus design.



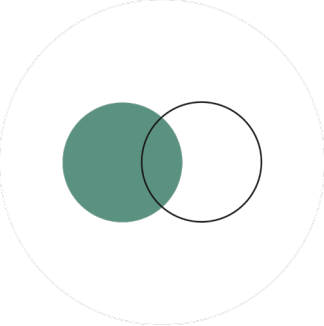
Decentralized



Integrated



Accessible



Inclusive



University of Amsterdam, located within the city center of Amsterdam



Oxford university, located in the city center of Oxford but still very inaccessible



University of Leiden, spread out through the city of leiden

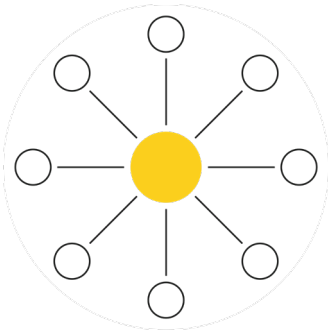
Campus
Modern campus

A significant trend that emerged in the early to mid-19th century, which went on to shape modern campuses around the world, was the rise of the American campus design. This design was characterized by a more exclusive and centralized layout, which led to the creation of larger and more autonomous campuses. These campuses were often situated on the outskirts of cities, where there was ample space for expansion, resulting in sprawling designs that were much larger than anything seen before.

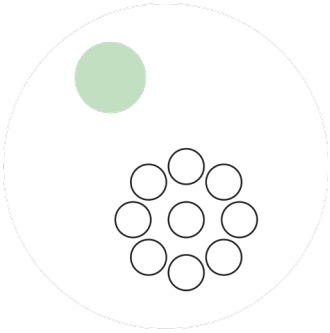
The American campus evolved into a self-contained community, resembling a small town. It housed not only academic and research facilities but also student accommodations, commercial stores, recreational spaces, and dining options. The campus was no longer just a place for learning; it became a self-sufficient town, fostering a comprehensive environment for students and staff to live, study, and socialize.

This design concept was widely adopted around the globe, including in countries like the Netherlands, where universities such as TU Delft implemented similar models. While this approach offers clear benefits to students and faculty, providing an immersive and focused educational environment, it also comes with certain drawbacks. The isolation and centralization of the campus often create a barrier between the university and the local community. With these campuses located away from city centers and designed to meet all the needs of their users within campus boundaries, local residents who are not directly connected to the university have little reason to engage with the campus. As a result, the campus becomes an exclusive area primarily serving students and staff, limiting interaction with the broader community and reinforcing a sense of separation.

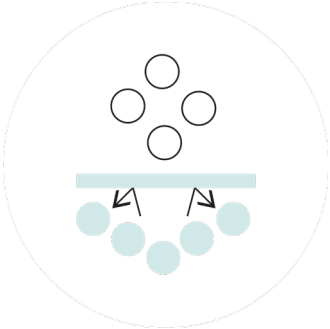
While the American campus model successfully fosters a cohesive academic environment, its potential to isolate the campus from the surrounding community has had a lasting impact on the way universities interact with their cities. This trade-off between autonomy and inclusivity remains a key consideration in modern campus design.



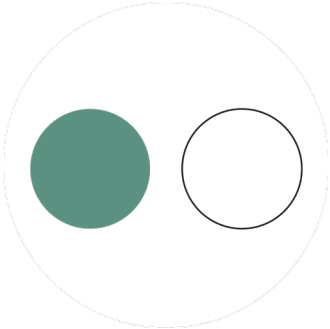
Centralized



Isolated



Inaccessible



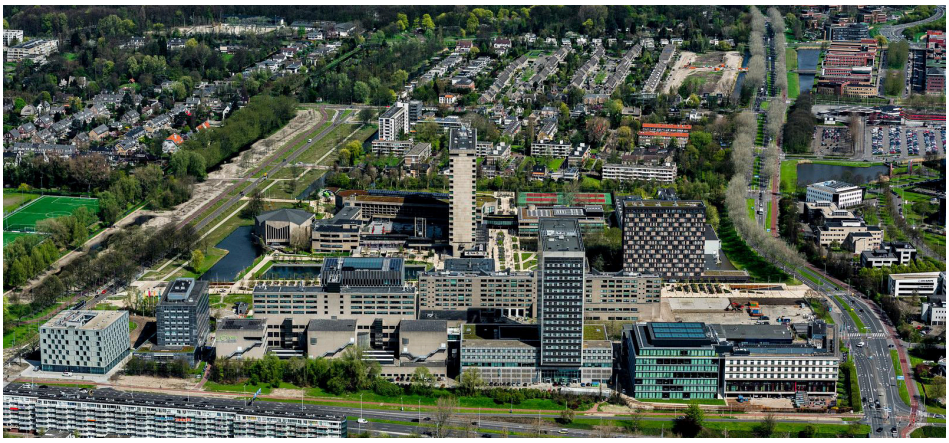
Exclusive



Virgina Tech university, completely isolated from other cities and is fully autonomous



The University of Twente, at the edge of the city surrounded by forest and water



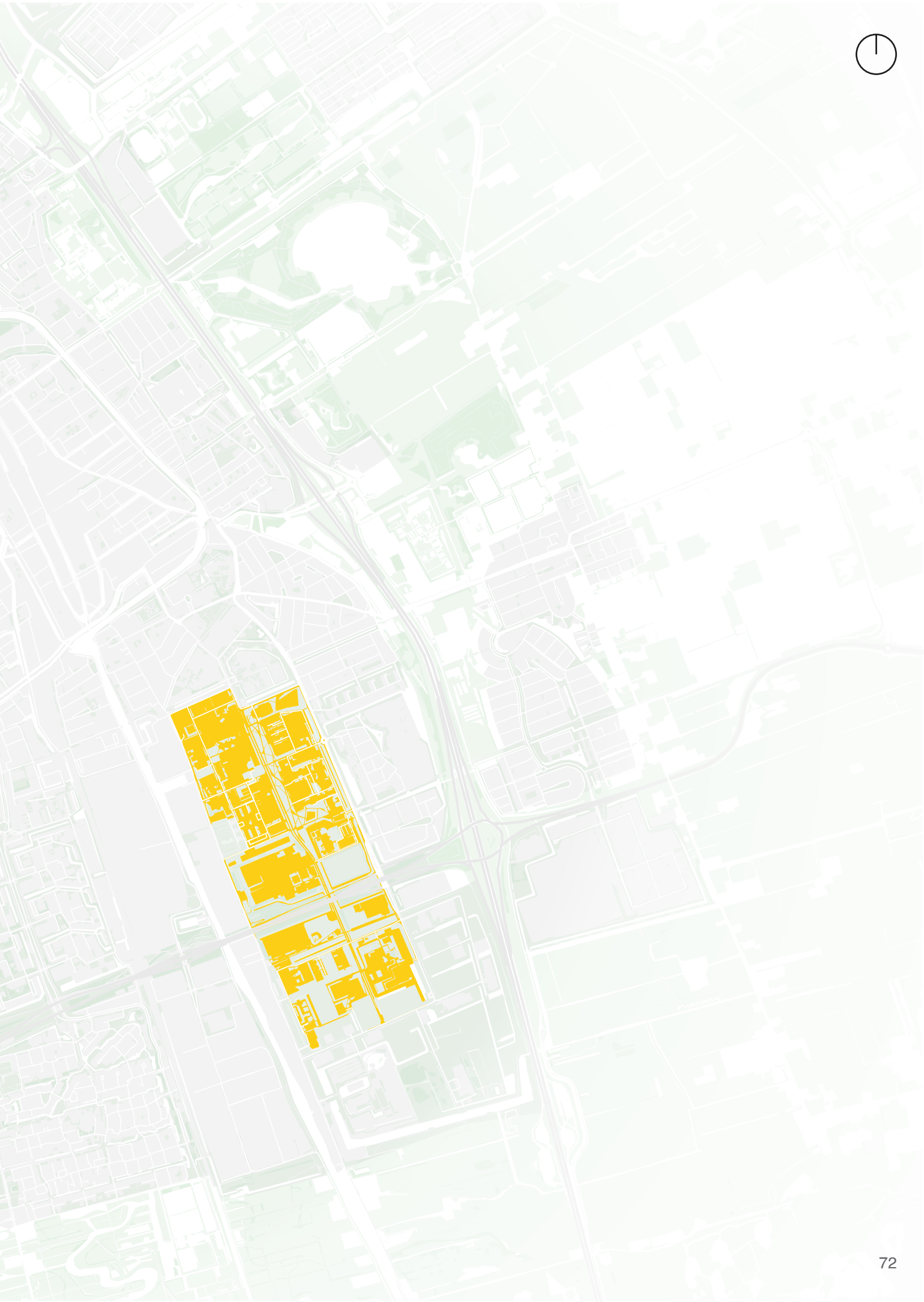
Rotterdam University, located at the edge of the city enclosed by roads

Campus
Traditional layout

When we examine the geographical position of Delft University of Technology (TU Delft), it is clear that the campus is located on the outskirts of the city. It forms a distinct rectangular zone of large academic and research buildings, separated from the city's major residential neighborhoods by natural and man-made barriers, such as canals and interstates. Over the years, the campus has expanded southward, gradually filling available space within its defined boundaries.

However, as TU Delft continues to grow, it faces a potential constraint: the campus will eventually be boxed in by other urban developments, facilities, and infrastructure within the city. This will force the university to confront a pivotal decision, either to remain centralized, maintaining its compact, self-contained design, or to expand beyond its current borders, possibly developing satellite facilities or new campuses outside the city.

This dilemma raises questions about how TU Delft will evolve, balancing the benefits of maintaining a cohesive campus environment with the demands of future growth and the potential for greater integration with the surrounding city. Should the university expand beyond its limits, it will have to navigate the challenges of dispersing its community and resources, potentially altering the dynamics of campus life and its connection to Delft as a whole.



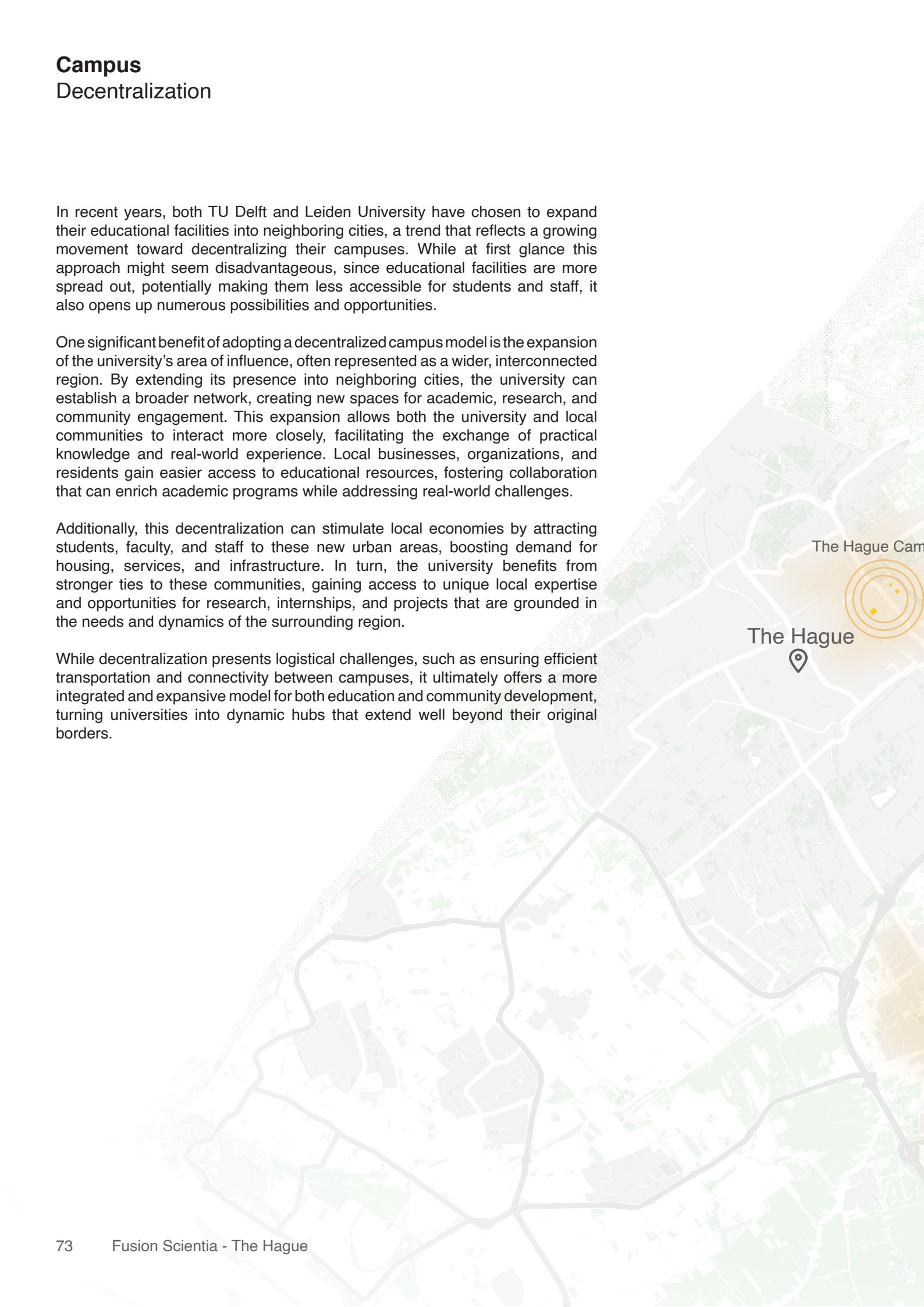
Campus
Decentralization

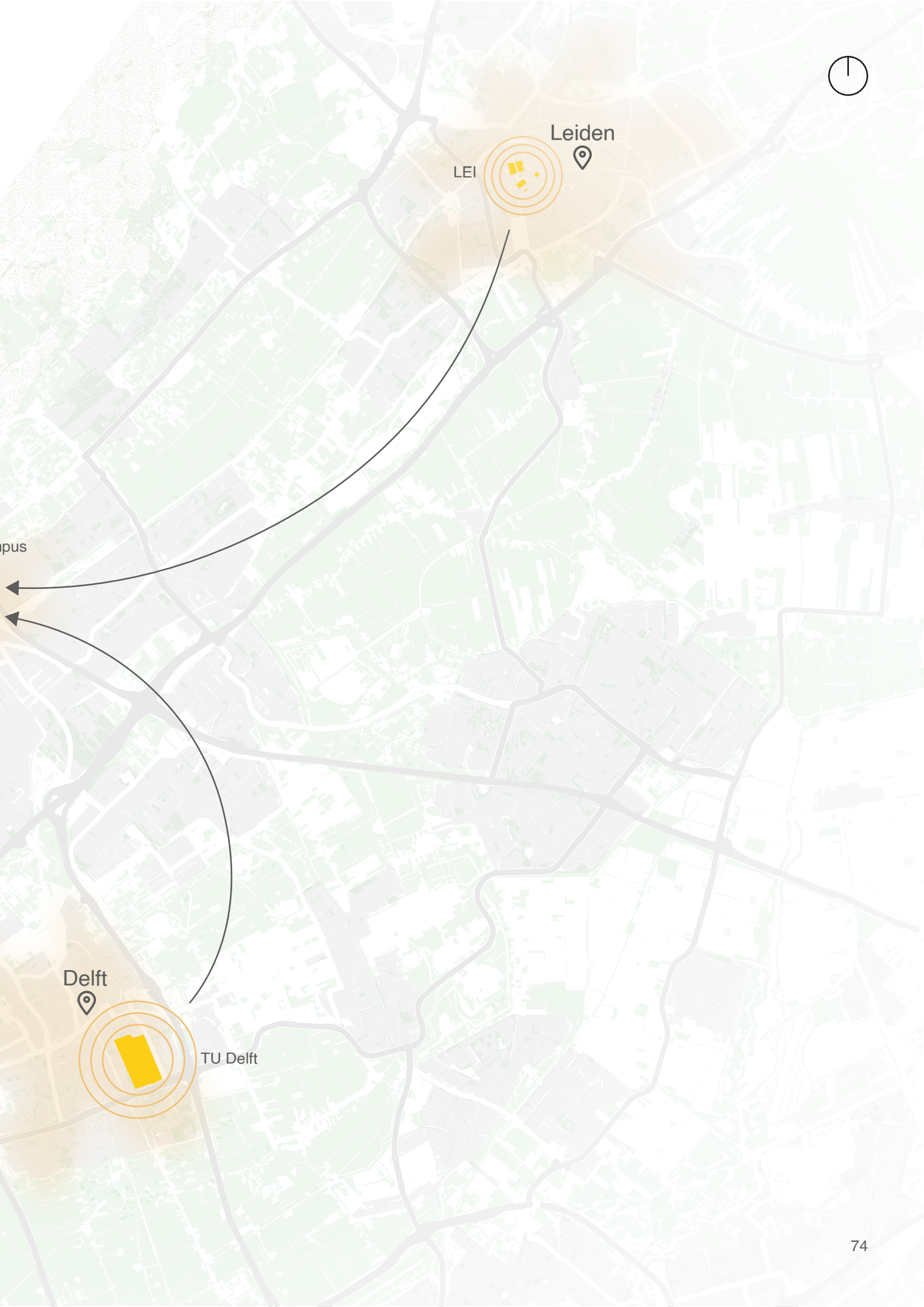
In recent years, both TU Delft and Leiden University have chosen to expand their educational facilities into neighboring cities, a trend that reflects a growing movement toward decentralizing their campuses. While at first glance this approach might seem disadvantageous, since educational facilities are more spread out, potentially making them less accessible for students and staff, it also opens up numerous possibilities and opportunities.

One significant benefit of adopting a decentralized campus model is the expansion of the university's area of influence, often represented as a wider, interconnected region. By extending its presence into neighboring cities, the university can establish a broader network, creating new spaces for academic, research, and community engagement. This expansion allows both the university and local communities to interact more closely, facilitating the exchange of practical knowledge and real-world experience. Local businesses, organizations, and residents gain easier access to educational resources, fostering collaboration that can enrich academic programs while addressing real-world challenges.

Additionally, this decentralization can stimulate local economies by attracting students, faculty, and staff to these new urban areas, boosting demand for housing, services, and infrastructure. In turn, the university benefits from stronger ties to these communities, gaining access to unique local expertise and opportunities for research, internships, and projects that are grounded in the needs and dynamics of the surrounding region.

While decentralization presents logistical challenges, such as ensuring efficient transportation and connectivity between campuses, it ultimately offers a more integrated and expansive model for both education and community development, turning universities into dynamic hubs that extend well beyond their original borders.



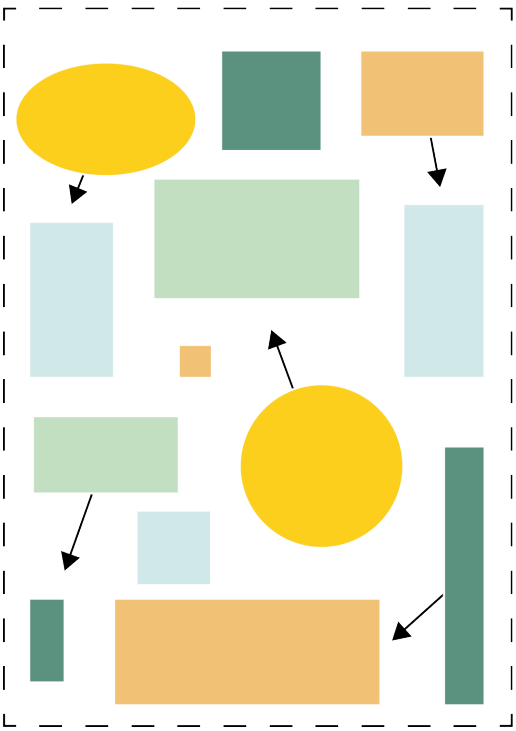

Leiden
LEI
Delft
TU Delft

Campus
Distribution of knowledge

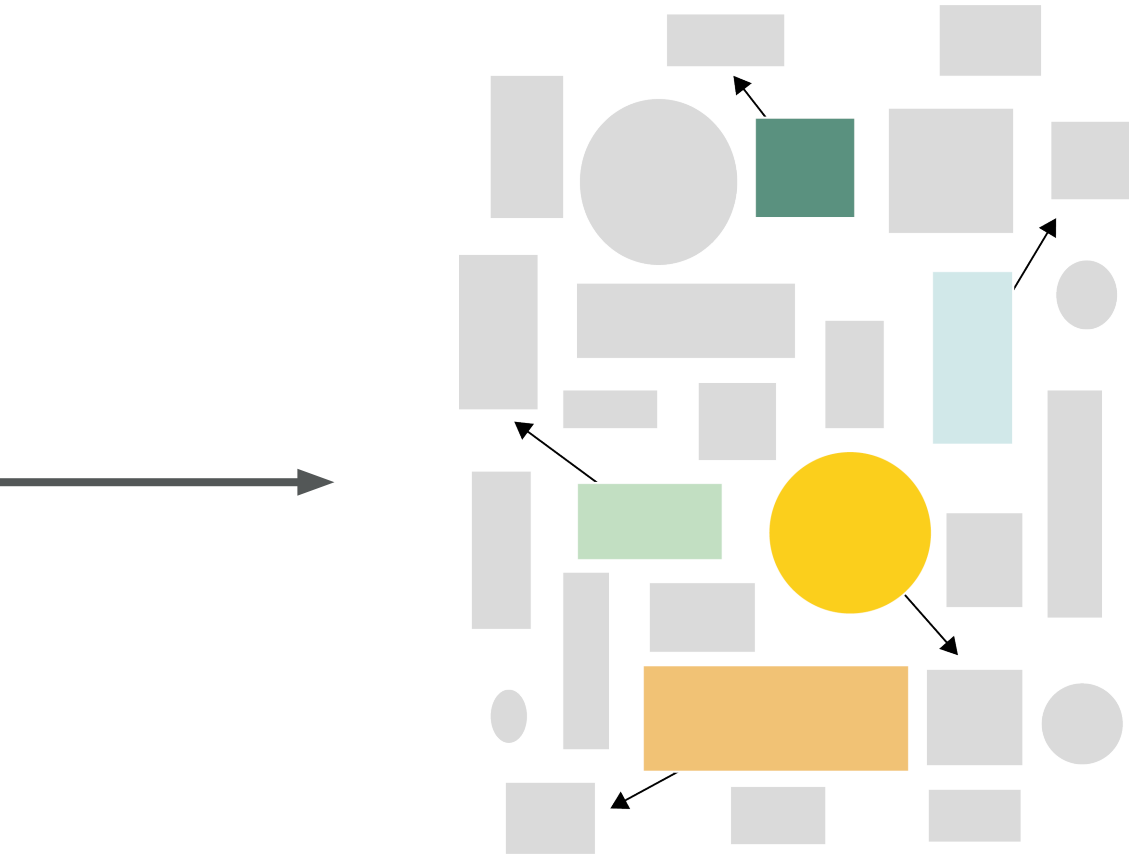
The traditional university campus emphasized centralization, effectively containing knowledge within its borders. While this model facilitated connections among faculties, students, and staff, it also restricted the flow of knowledge beyond the campus, limiting interactions with the broader community.

In contrast, a decentralized university model spreads facilities across a wider area, allowing knowledge to flow more freely into the local community. This approach fosters inclusivity and encourages collaboration between university members and local residents, businesses, and organizations.

Decentralized campuses provide opportunities for interdisciplinary projects and community-based learning initiatives, allowing students to engage with real-world challenges and apply their knowledge in practical contexts. By integrating more closely with their surroundings, universities can adapt their curricula to reflect local needs, transforming into dynamic hubs of knowledge that enhance both academic and civic life.



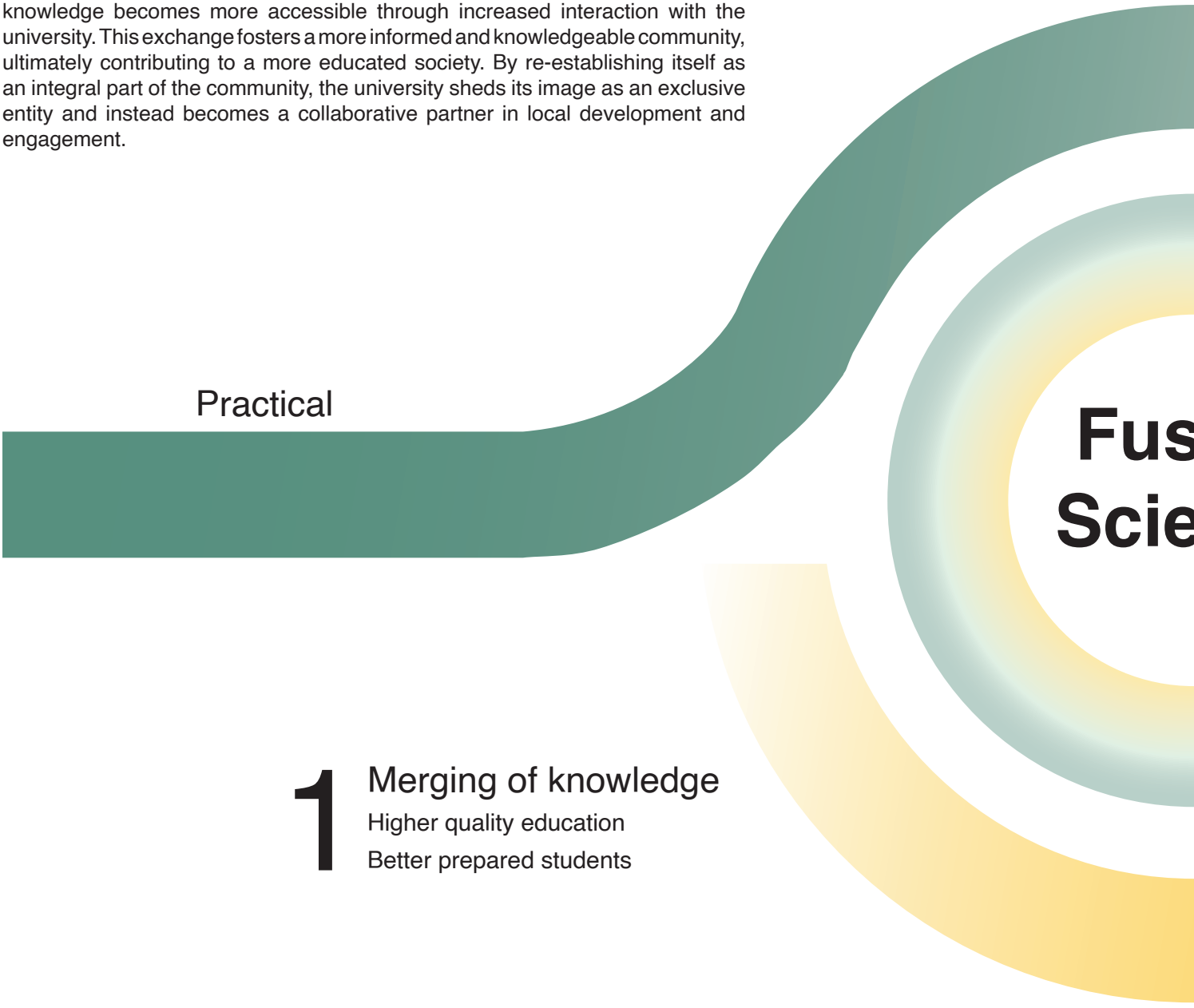
Knowledge containment



Knowledge sharing

The convergence of practical and theoretical knowledge from both the local community and the university is encapsulated in the term Fusion Scientia, which means “the merging of knowledge” in Latin. This integration benefits both parties by enhancing the quality of education. Faculty and students gain access to a broader range of information and experiences within their local context, better preparing graduates for their future careers as they become more familiar with practical applications in their field.

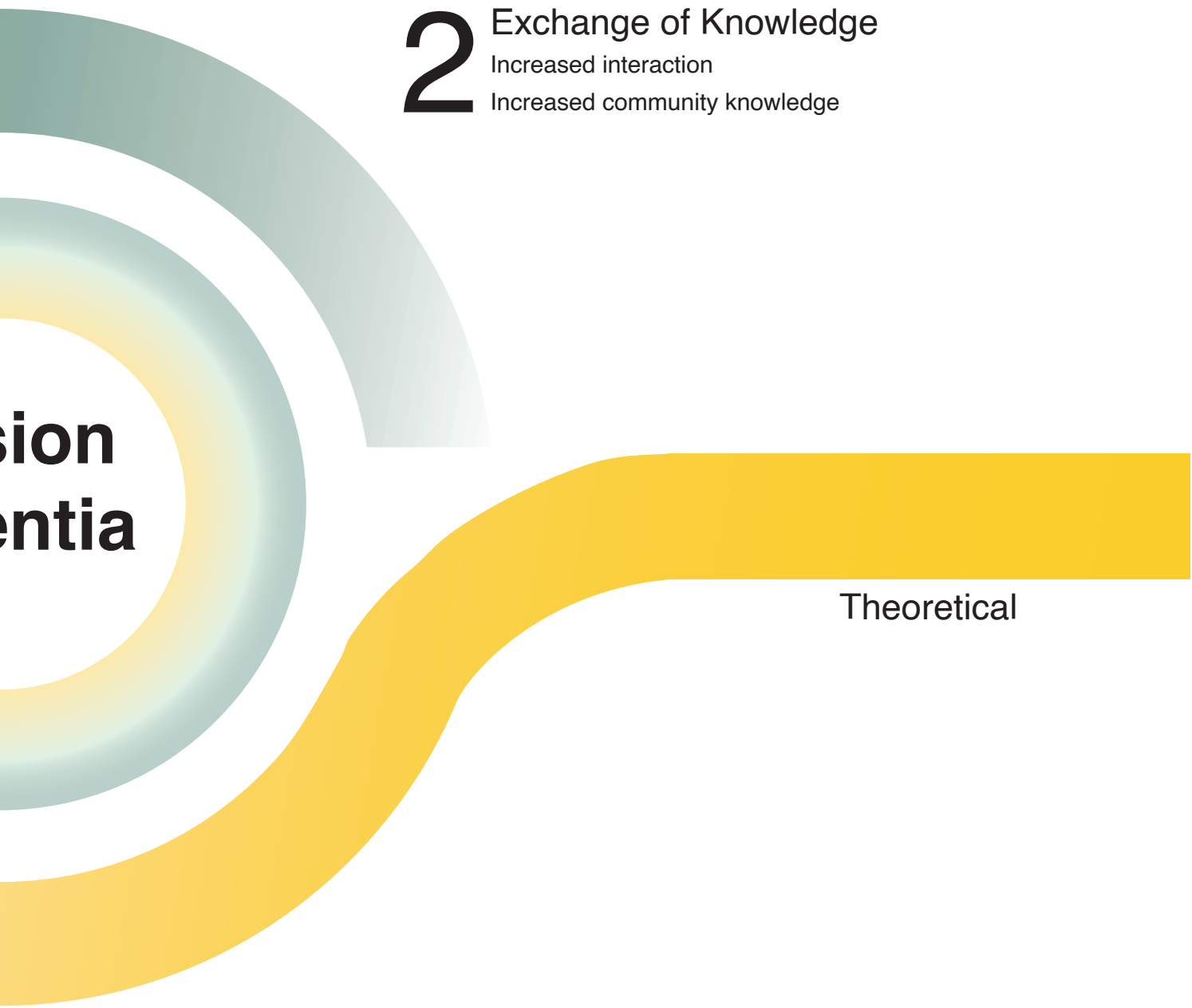
Moreover, the local community also reaps significant benefits, as theoretical knowledge becomes more accessible through increased interaction with the university. This exchange fosters a more informed and knowledgeable community, ultimately contributing to a more educated society. By re-establishing itself as an integral part of the community, the university sheds its image as an exclusive entity and instead becomes a collaborative partner in local development and engagement.



1 Merging of knowledge

Higher quality education

Better prepared students


sion
entia
2
Exchange of Knowledge
Increased interaction
Increased community knowledge
Theoretical

Campus
Future campus

The future of the university campus is poised to break away from the traditional, centralized model, embracing a more inclusive and integrated approach that fosters deeper connections with the city and its inhabitants. Unlike the isolated campuses of the past, the future campus should be a decentralized network of educational spaces that are interwoven with the urban fabric, making higher education more accessible and relevant to a broader audience.

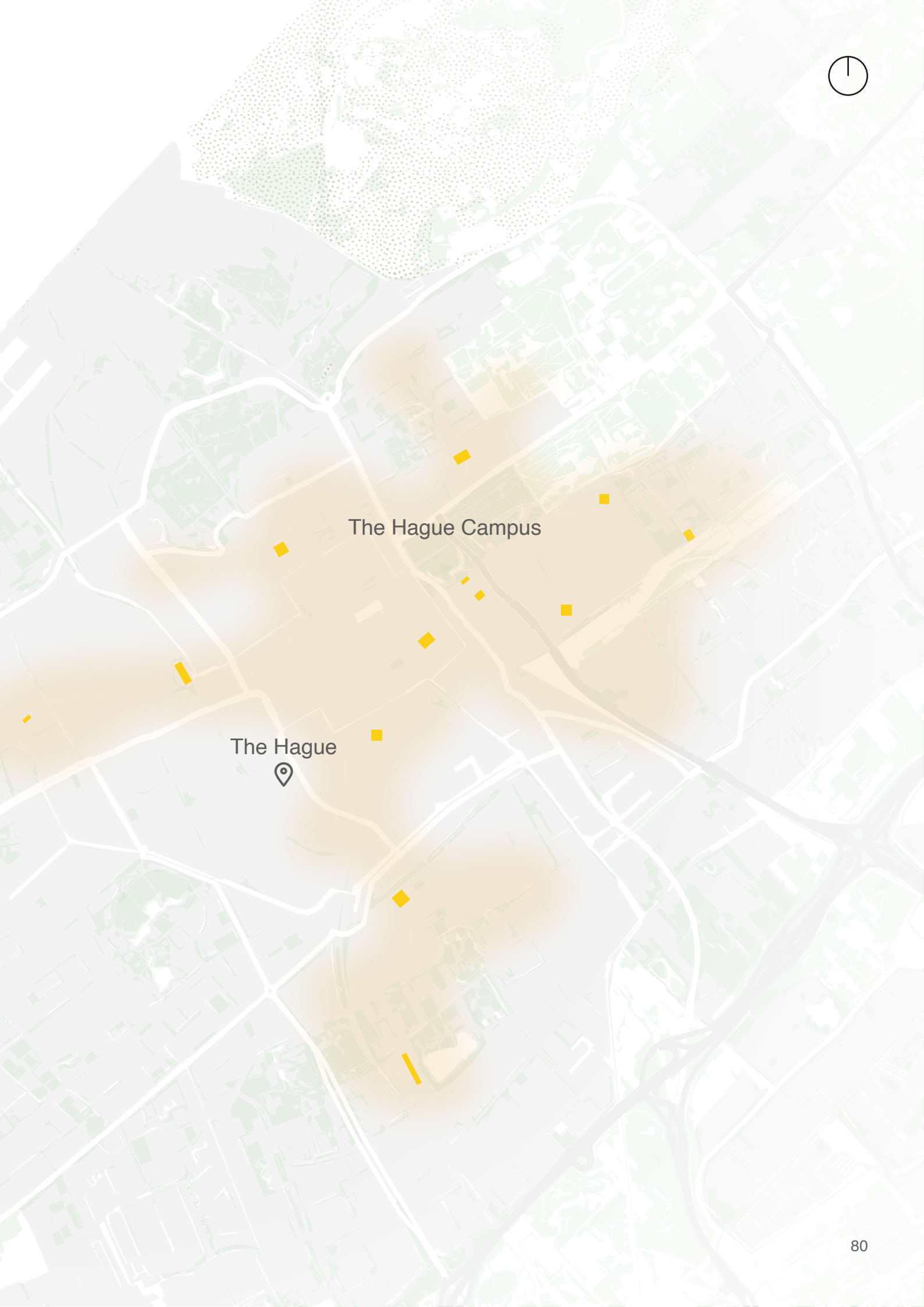
In this vision, the campus is not confined to a single, self-contained site but rather dispersed across various locations within the city. This decentralization allows the university to extend its reach, creating opportunities for learning and interaction throughout the urban environment. By embedding educational spaces within different neighborhoods, the university becomes a more visible and active participant in the daily life of the city, encouraging spontaneous interactions between students, faculty, residents, and visitors.

Inclusivity is at the heart of this new campus model. The design should prioritize accessibility, ensuring that the campus is welcoming not only to its direct users, students, faculty, and staff, but also to the wider community. Public spaces, such as libraries, lecture halls, and green areas, should be open and inviting to all, encouraging curiosity and participation from those outside the university. This openness can help demystify higher education, making it a more integral and accessible part of society.

Interaction with the city is further enhanced by integrating the campus into the existing urban infrastructure. Rather than being placed on the outskirts, where it risks becoming an isolated entity, the future campus should be deeply rooted in the city center, contributing to the vitality and diversity of the urban landscape. This integration fosters a symbiotic relationship between the university and the city, where both benefit from the exchange of ideas, resources, and opportunities.

In this decentralized and inclusive model, the campus becomes a living laboratory for innovation and collaboration, where knowledge is not only created but also shared widely. By scattering educational facilities throughout the city, the university can engage with different communities, addressing their unique needs and challenges while promoting lifelong learning. This approach ensures that the university is not just a place of academic study but a dynamic and responsive institution that evolves with the city it serves.

Ultimately, the future campus should be a place where the boundaries between academia and the public dissolve, creating a shared space that enriches both the university and the city. This new model of the campus as an integrated, decentralized, and inclusive network will redefine the role of higher education in the 21st century, making it more accessible, relevant, and connected to the world around it.


The Hague Campus
The Hague

Timeless Pedagogy
Essense of Learning

Learning lies at the heart of education, acting as the catalyst for intellectual growth and personal development. It goes beyond simply acquiring information; it is a transformative journey that empowers individuals to expand their horizons, explore new ideas, and realize their full potential.

Learning is a multifaceted process that involves absorbing information through a variety of channels. While learning can happen passively as we navigate daily life, it can also take on a more deliberate, active form. This active engagement is essential for deep understanding and long-term retention.

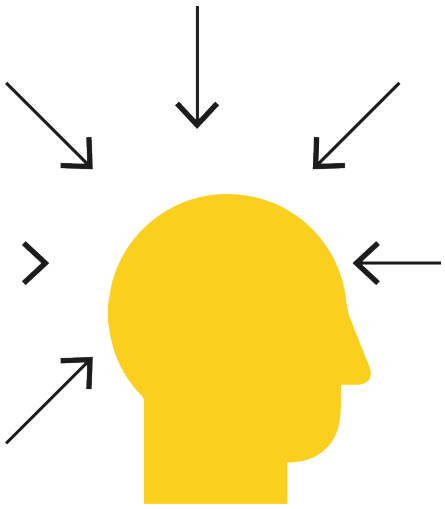
Learning manifests in diverse ways, broadly categorized into collaborative and individual approaches. Collaborative learning fosters the exchange of ideas, enhances critical thinking, and builds social and communication skills. It encourages learners to challenge each other's perspectives, leading to richer, more nuanced understandings. Individual learning, on the other hand, allows for personalized pacing and focused study, catering to one's unique interests and learning styles. Each method has its own strengths and limitations, and the effectiveness of each depends on the context and goals of the learner.

In today's digital age, where individual learning is increasingly facilitated by vast online resources, it is essential to strike a balance with collaborative learning. Overemphasis on solitary learning can lead to the decline of crucial interpersonal skills, such as teamwork, empathy, and communication. Collaborative learning not only complements individual study but also helps in developing a well-rounded skill set that is indispensable in both professional and personal spheres.

As we look to the future, the role of teachers and mentors—who have long been the pillars of our educational system—will become even more vital. In an era where information is readily accessible, the guidance of educators is crucial in helping learners navigate the overwhelming abundance of resources, critically assess information, and apply knowledge in meaningful ways. To ensure that the teaching profession remains relevant and appealing, it is imperative to rethink and innovate educational methods and teacher training programs. By revitalizing the profession, we can attract passionate and skilled educators who are equipped to inspire and lead the next generation of learners.

In summary, learning is a dynamic and evolving process that requires a thoughtful balance between individual and collaborative approaches. As the educational landscape continues to change, the role of educators must be reimagined to ensure that learning remains a transformative force in society.

*"The **essence** of learning lies in balancing **individual discovery** and **collaborative exchange**,*
*a process that begins with **accessing knowledge** on our own,*
*but reaches **true understanding and innovation** when we **engage with others**,*
*blending **personal insights** with **collective wisdom**."*



Absorbing

Timeless Pedagogy
Essense of Teaching

Teachers are the backbone of education, the essential force without which schools and universities could not function. They do much more than simply impart knowledge; they spark curiosity, foster critical thinking, and shape the minds of future generations. Beyond their formal roles as educators, teachers serve as mentors, role models, and sources of inspiration, guiding students toward success both academically and personally. In this way, teachers are truly indispensable to the educational system, providing the foundation on which all learning is built.

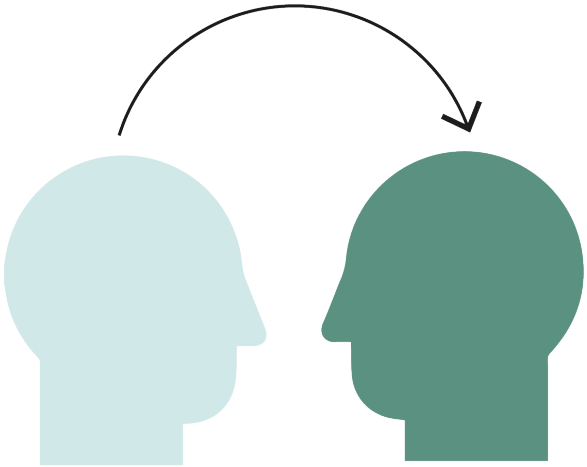
Teaching is fundamentally about preparing individuals for the future. Teachers are pivotal in equipping students with the knowledge, skills, and values needed to navigate an ever-evolving society. This preparation goes beyond the delivery of academic content; it includes the development of life skills, ethical reasoning, and character. Teachers help students become well-rounded individuals capable of contributing meaningfully to their communities and the wider world.

Furthermore, teachers enrich the learning experience by drawing from their own life experiences. The diverse backgrounds and perspectives that teachers bring to the classroom allow them to offer unique insights and real-world examples, making the learning process more relevant and engaging for students. This connection between the theoretical and the practical helps students to better understand and apply what they learn, bridging the gap between education and real-life application.

In essence, teaching is a continuous cycle of learning, growth, and sharing. Teachers are lifelong learners themselves, constantly acquiring new knowledge and skills from a variety of sources. They use this ever-expanding pool of knowledge to inspire and guide their students, helping them to achieve their fullest potential. Through their dedication and passion, teachers play a crucial role in shaping the future, one student at a time.

In summary, teachers are more than just conveyors of information; they are the architects of future generations. Their influence extends far beyond the classroom, as they prepare students not only for academic success but for life itself. By sharing their knowledge, experiences, and values, teachers lay the groundwork for a brighter, more informed, and compassionate society.

*“The **essence** of teaching lies in **preparing** individuals for the **future**,*
*a process that begins with **acquiring knowledge** and **experience** oneself,*
*enabling the **transfer of wisdom** to others.”*



Transfering

Timeless Pedagogy
Balance

Teaching without sufficient experience or deep knowledge of the subject matter presents significant challenges, not only for the educator but also for the students. An instructor lacking a solid grasp of the content may find it difficult to convey concepts clearly, potentially leading to confusion, gaps in understanding, and even the spread of misinformation among learners. Furthermore, without firsthand experience in the field, teachers may struggle to contextualize theoretical concepts, making it harder for students to see the relevance of what they are learning to real-world scenarios.

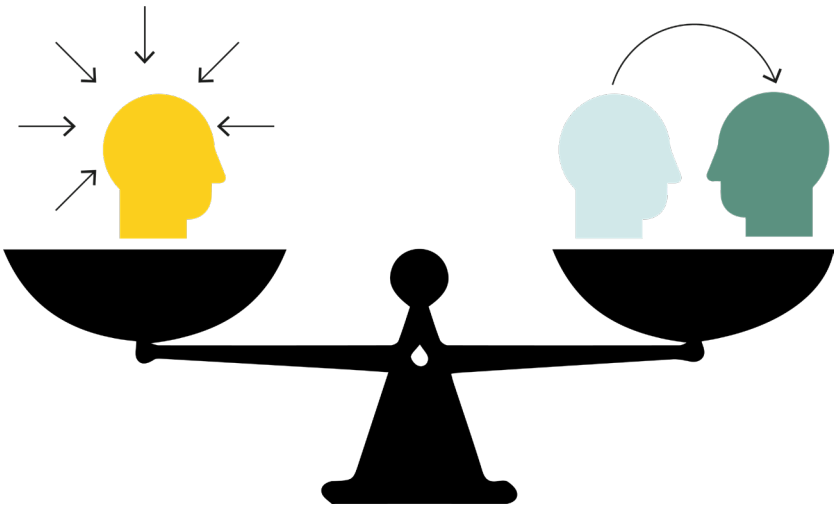
In higher education, these risks are particularly pronounced. Educators in this setting are more vulnerable to falling behind in their knowledge compared to those in lower education. This is because higher education often deals with specialized and rapidly evolving fields that require constant learning and adaptation to stay current. In contrast, lower education focuses on teaching fundamental skills and knowledge that are generally more stable and applicable to everyday life.

In higher education, the pace of change in many disciplines—such as technology, science, and economics—means that what is current today may be outdated tomorrow. Therefore, educators must engage in continual professional development, staying abreast of the latest research, innovations, and industry practices. This ongoing learning process is essential not only for maintaining the integrity of the educational content but also for providing students with the most up-to-date information and tools they will need to succeed in their future careers.

Moreover, the lack of practical experience in a given field can hinder a teacher's ability to bring lessons to life for students. Real-world examples and insights drawn from personal experience make learning more relatable and engaging, helping students to connect abstract theories with practical applications. Without this connection, education risks becoming too theoretical and disconnected from the realities students will face in the workforce.

In summary, the effectiveness of teaching is deeply intertwined with the educator's experience and knowledge. For those in higher education, where fields evolve rapidly and require specialized expertise, the need for continual learning and practical experience is even more critical. Ensuring that teachers remain knowledgeable and up-to-date is essential not only for their professional growth but also for the success and preparedness of their students.

*"**Teaching** without ongoing **experience** and **up-to-date knowledge** risks failing to convey concepts clearly, as educators may struggle to **connect theory** with **real-world applications**, **diminishing** their ability to **transfer knowledge** effectively."*



Balance

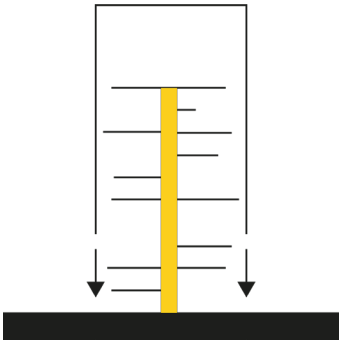
Future Adaptability
Building as a vessel structure

As teachers, students, and other users evolve within an educational environment, it is crucial that the environment itself also adapts and evolves. A static learning environment can hinder the continuous growth of its users, highlighting the necessity for adaptability in its design. An environment that embraces change becomes a dynamic vessel that supports and accommodates the ongoing development of its users, ensuring it remains flexible and relevant for the future.

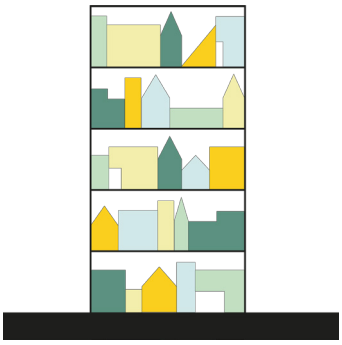
Predicting the exact future needs of universities is impractical; instead, the focus should be on creating spaces that can evolve with emerging trends and needs. While versatile “vessel” buildings offer adaptability, they also risk creating spaces that lack character and a sense of identity. Thus, it is essential to apply flexibility thoughtfully, ensuring that these spaces do not become impersonal. Maintaining a balance between adaptability and a strong sense of place is vital, so that users can cultivate a feeling of belonging and ownership. This approach fosters an environment where individuals not only feel at home but also take pride in their surroundings and their contributions.

When vessel structures become too generic, they risk losing their architectural identity, which can have broader implications for both the building and the city. Generic designs may contribute to a bland urban landscape, diminishing the distinctive character and uniqueness of the city. This lack of identity can negatively affect the public perception of the building and, in turn, the city itself.

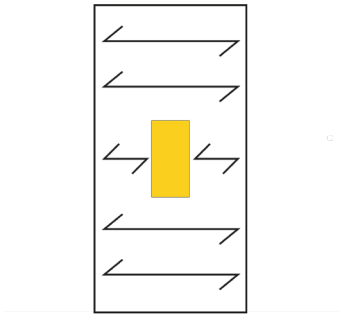
Furthermore, when buildings lack a clear sense of place or personality, users may feel disconnected and undervalued. This detachment can lead to reduced engagement with the building and its activities. For a space to be truly effective, it must resonate with its users and reflect the vibrancy and individuality of its environment. Balancing adaptability with strong, thoughtful design helps ensure that buildings not only evolve with changing needs but also contribute positively to the urban fabric, fostering a deeper connection between the space and its community.



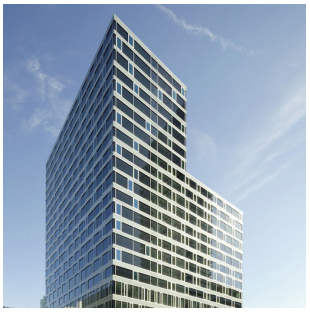
Vessel structure

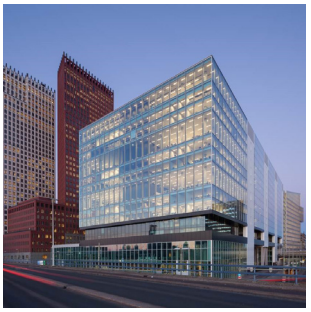


Programmatic freedom



Plan libre









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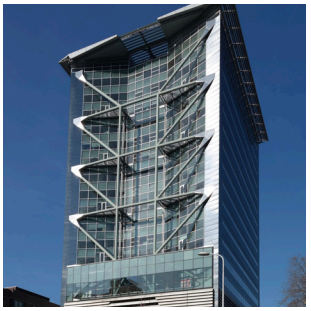





Identity & Character
Generic vs Specific

Earlier, we discussed the pros and cons of generic or flexible spaces and how they impact the identity, character, and functionality of a space. Instead of categorizing an entire building as generic or specific, this approach doesn't quite work in a hybrid building where various functions and spaces coexist. Therefore, rather than labeling the whole building, we focus on individual spaces, assessing their needs, organization, and the design strategy they require.

We've categorized these spaces into five main groups, each with its own sub-rooms that demand a unique approach. Each room is evaluated based on its most common characteristics and traits.

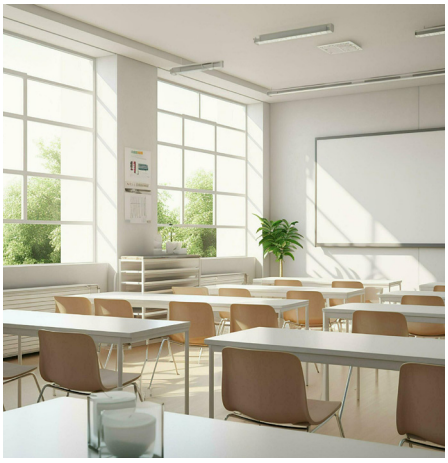
The terms used to describe the design approach are:

Generic
Spaces designed for broad use, often with a standard layout that can serve multiple purposes without much modification.

Flexible
Spaces that can be easily adjusted or reconfigured to suit different needs or activities, offering adaptability in their design.

Specific
Spaces designed with a particular purpose or function in mind, with architecture and features tailored to support that specific use.

Unique
Custom or one-of-a-kind spaces designed for special or distinctive purposes, often with unique architectural or design elements that set them apart.



Academic Spaces

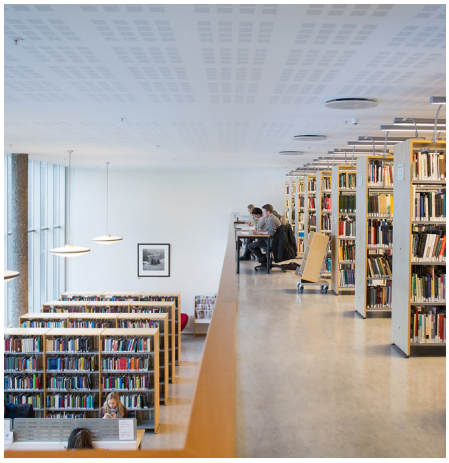
Classrooms	Generic & Flexible
Standard rectangular rooms that can be easily adapted for different class sizes and teaching styles. They are designed for flexibility, with movable desks and chairs.	

Lecture Halls	Specific
Larger, often semi-circular or tiered spaces designed to ensure all students have a clear view of the presenter. The architecture is specific, focusing on acoustics and sightlines.	

Laboratories	Specific & Flexible
Highly specialized spaces with specific layouts and equipment for different types of research (e.g., wet labs, cleanrooms). These rooms are often unique to their intended scientific purpose. Some exceptions are for example computer labs.	

Studio Spaces	Specific & Unique
Custom-designed spaces for creative work, with specialized equipment like easels, drafting tables, or soundproofing, depending on the discipline (e.g., art, design, music).	

Workshops	Specific
Hands-on spaces with fixed machinery or equipment, tailored to crafts like woodworking or metalworking. These are specific to the activities performed within.	



Library and Study Spaces

Main Library	Generic
Large, open spaces with shelving, study areas, and reading rooms. These are flexible, designed to accommodate different types of study and resource access.	

Study Rooms	Flexible
Small, enclosed rooms that can be reserved for group work or individual study. Their design is generic and adaptable.	

Reading Rooms	Specific
Quiet, often large spaces designed for individual study, with a focus on natural light and minimal distractions. The architecture here is more specific to creating a conducive environment for focused work.	

Archives	Specific/Unique
Highly controlled environments with specific climate and security measures to protect historical documents and special collections.	



Administrative and Faculty Spaces

Faculty Offices	Generic & Flexible

Standard office spaces, often small and adaptable, designed for individual work or small meetings.

Admin. Offices	Generic

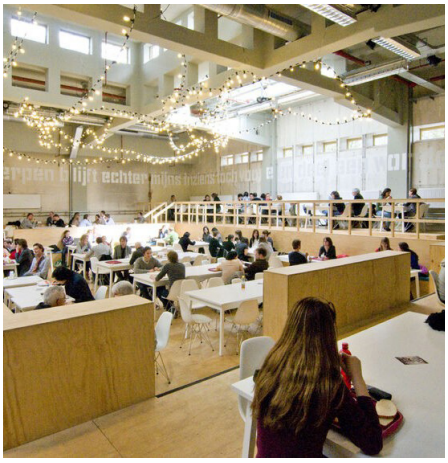
Standard office spaces for university administration, designed to be flexible and accommodate various administrative functions.

Conference Rooms	Flexible

Meeting rooms with tables and chairs that can be reconfigured for different types of meetings. They are generic and adaptable.

Depart. Offices	Specific

Larger office spaces for department heads and administrative staff, often with meeting rooms attached. These spaces are designed with the specific needs of a department in mind.



Recreational and Social Spaces

Gym/Fitness Center	Specific

Large, open spaces designed specifically for physical activities, often with specialized equipment and flooring.

Lounge / Relaxation	Flexible

Relaxation spaces with movable furniture, designed to be adaptable for different social activities. These are generic and flexible.

Dining Hall / Cantine	Flexible

Large spaces designed to accommodate a large number of diners with flexible seating arrangements. While designed for a specific purpose (dining), they often include adaptable layouts.

Outdoor Spaces	Specific & Unique

Custom-designed spaces for creative work, with specialized equipment like easels, drafting tables, or soundproofing, depending on the discipline (e.g., art, design, music).



Event and Performance Spaces

Auditoriums	Specific

Large, often tiered spaces designed with specific acoustics and sightlines for performances, speeches, or large lectures.

Theaters	Specific/Unique

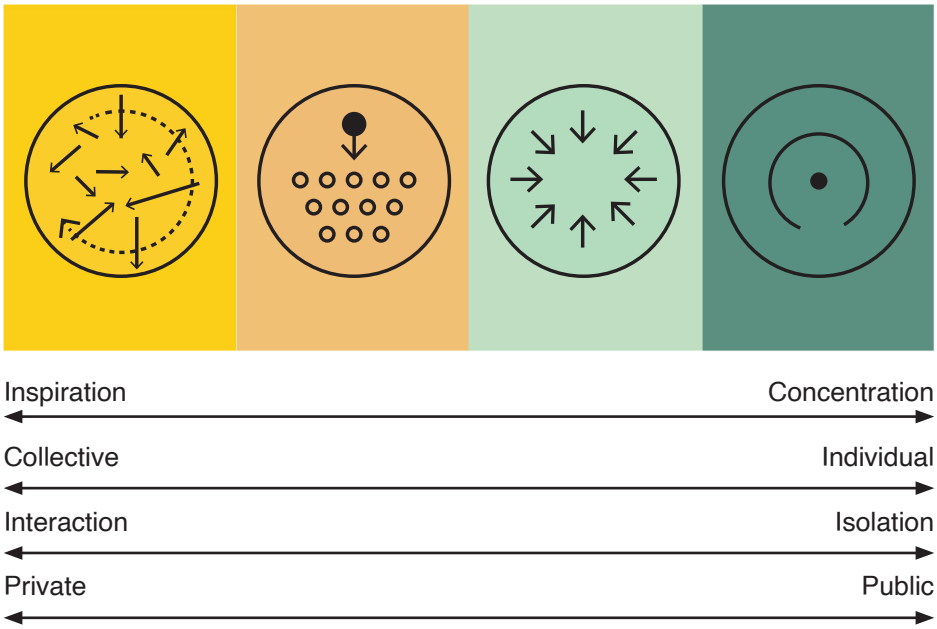
Spaces designed for dramatic performances, with specialized lighting, sound systems, and often a stage. These are unique spaces tailored to performance arts.

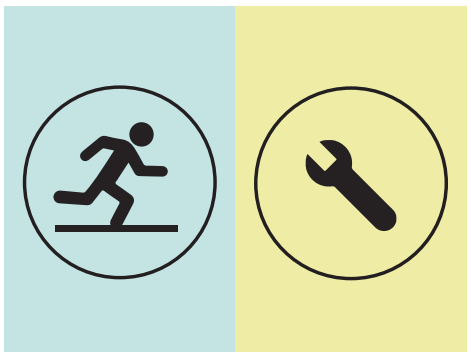
Exhibition Halls	Flexible/Specific

Large, open spaces that can be adapted for various types of exhibitions. While flexible, they often have specific architectural features to support displays and installations.

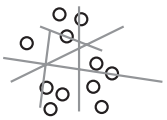
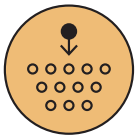
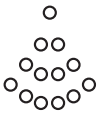
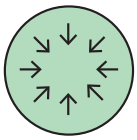
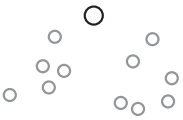
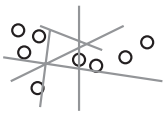
Learning Situations
Learning as a Catalyst

In designing effective learning environments, I sought to identify key characteristics that would best support a range of educational activities. Through extensive research and observation, I recognized that different types of interactions and learning processes require distinct spatial qualities. To address these varying needs, I developed a set of space characteristics that cater to specific learning behaviors and functions. This approach is grounded in the belief that the design of a space can significantly influence the way knowledge is shared, absorbed, and applied. By carefully considering these characteristics, I've created a framework that supports diverse learning experiences, each tailored to enhance engagement and effectiveness in its own unique way.





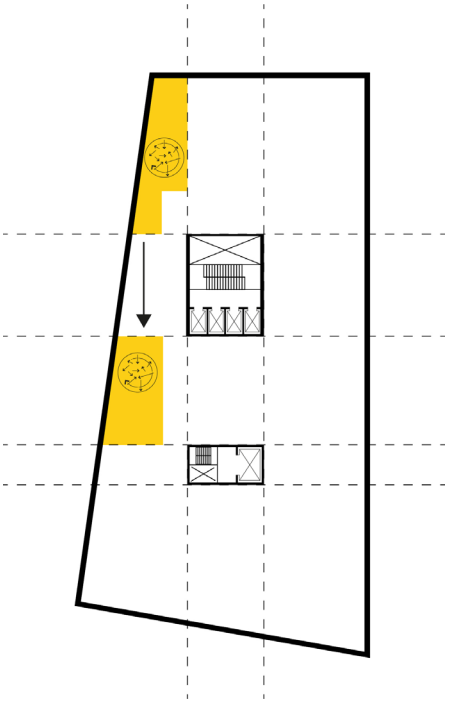
Supporting tools

Type	Signature	Description	Principle	Orientation	Spaces
Waterhole		The waterhole learning setting supports informal knowledge sharing by allowing free flow and encouraging spontaneous meetings between students.	Invitation	 Multifunctional Spread out	Atelier workspaces Café / Cantine Library Lounges Courtyards
Mountain Top		Mountain Top learning settings support single-way communication from one to many. Whether it is a presentation or a stage performance.	Direction of attention	 Singular Gathered	Theater Lecuture hall Podium Stage Auditoriums
Campfire		Campfire learning setting creates smaller pockets for group work and group dialogue. Marked with a boundary the campfire setting supports the feeling of coherence and collaboration.	Marked territory	 Multifunctional Gathered	Classroom Conference room Lab spaces Seminar rooms Maker spaces
The Cove		The Cove learning setting affords focus, deepening and concentration. It provides a place for either visual or psysical privacy.	Concentration	 Singular Spread out	Private office Study pods Isolation booths Recording studios Workstations
Movement		Everyone needs to move several times a day. Movement moves knowledge from the brain and into the body.	Physical activation	 Multifunctional Spread out	Elevator Stair Corridors Trails Ramps
Hands On		Hands on draws paralleles to ‘makersspaces’, using prototyping to gain a deeper understanding of how theory works in practice.	Experimenting	 Focused Props / Objects	Artisan spaces Engineering spaces FAB-Lab CAM-Lab Makerspaces

Learning Types
Spacial Characteristics

The arrangement and design of various learning environments significantly influence their attributes and attractiveness. The layout and spatial organization of these environments dictate how they function and how inviting they are to users. Beyond the individual design of each space, the way these environments interact with one another plays a pivotal role in establishing their overall synergy. The connections and transitions between different learning spaces can enhance or detract from the collective ambiance, shaping the mood, energy, and effectiveness of the entire setting.

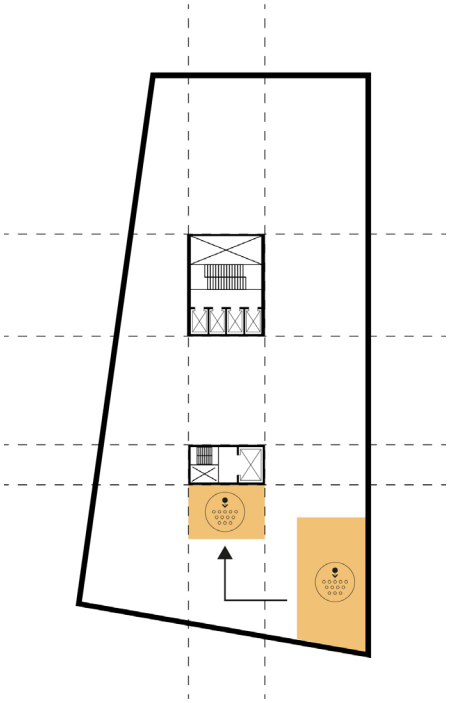
Moreover, the placement and interconnection of each learning space within the broader floorplan are crucial in determining their impact. Strategic positioning can foster a seamless flow between different types of activities, encouraging spontaneous collaboration and knowledge exchange. Conversely, poor spatial arrangement can create barriers to interaction, diminishing the potential benefits of each environment. The design must therefore carefully consider not only the individual attributes of each space but also how they relate to and complement the surrounding spaces, creating a cohesive and dynamic learning experience.



Waterhole

The Waterhole is a highly social and interactive learning situation that requires a vibrant atmosphere to work effectively.

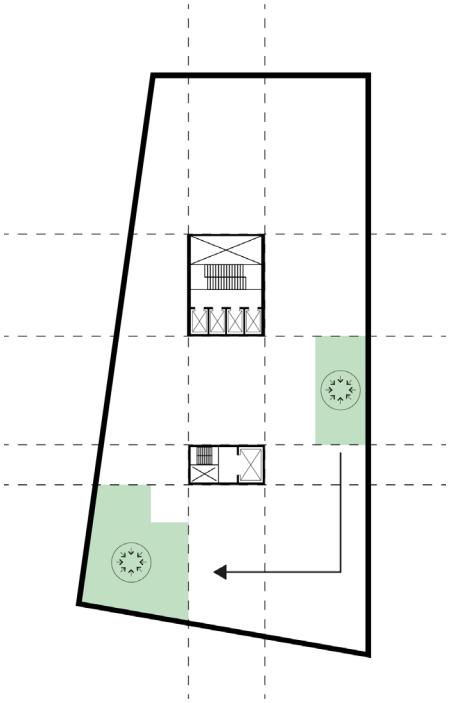
- Being near the heart of the building ensures a steady flow of people using the space as intended.
- Plenty of daylight is needed to create a pleasant environment for working, learning, and spending time between classes or during free time, as users tend to stay here a lot.



Mountain Top

The Mountain Top is a learning setup requiring space and a stage, limiting its location and orientation.

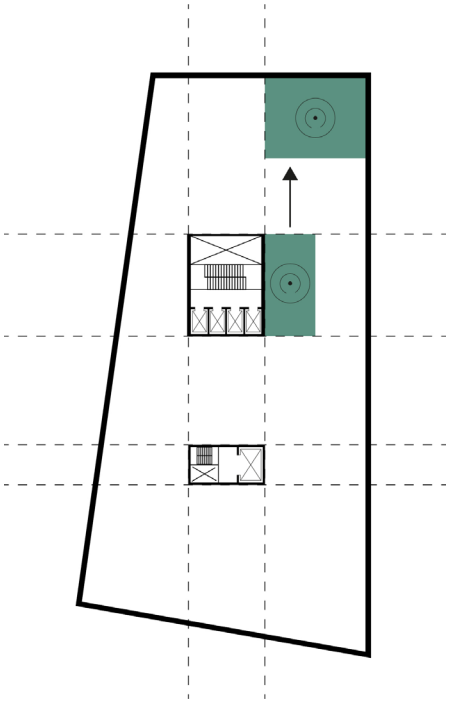
- The Mountain Top should face inward toward open space. In enclosed settings like theaters, external views can distract users, so sometimes enclosure is necessary.
- While daylight generally benefits spaces, it can also be distracting. Reflections on screens or in users' eyes can hinder usage. Sunshading can help but creates a blind facade whenever the space is in use.



Campfire

The Campfire is a set gathering place needing confined spaces for small to medium groups to be successful.

- The main characteristic of the Campfire is that users have a specific reason for going there. This can help guide them through other spaces that might spark their imagination and inspiration.
- These spaces need plenty of daylight, as people tend to spend more time there.
- Most of these spaces also need to be enclosed, so careful positioning is important.



The Cove

The Cove is highly isolated, space-efficient, and individual-focused. Therefore it can be placed almost anywhere and .

- Given its focus on isolation and concentration, it is ideal for these spaces to be separated from noisy environments by physical barriers or distance.
- While a large amount of daylight is not essential, it is beneficial as it enhances both mental and physical health.

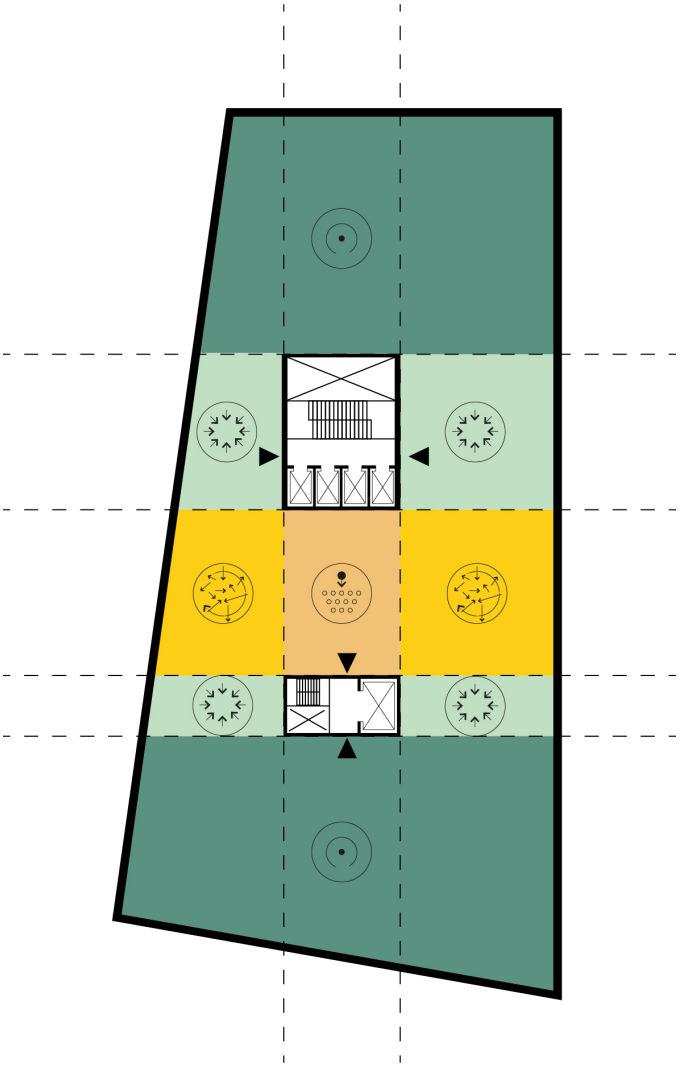
Learning Types
Spacial Characteristics

The development of these three distinct floorplan layouts—The Cove, The Campfire, and The Waterhole & Mountain Top—emerged from a deep understanding of how spatial design influences learning experiences. Recognizing that the arrangement and design of learning environments profoundly affect their functionality and appeal, we sought to create spaces that not only meet the specific needs of different learning scenarios but also enhance the overall synergy of the educational setting.

Each floorplan was carefully crafted with a clear purpose in mind, considering how the placement and interconnection of spaces could either foster or hinder collaboration, focus, and interaction. By strategically positioning and organizing these environments, we aimed to create a seamless flow between various activities, ensuring that each space contributes positively to the collective atmosphere and learning experience.

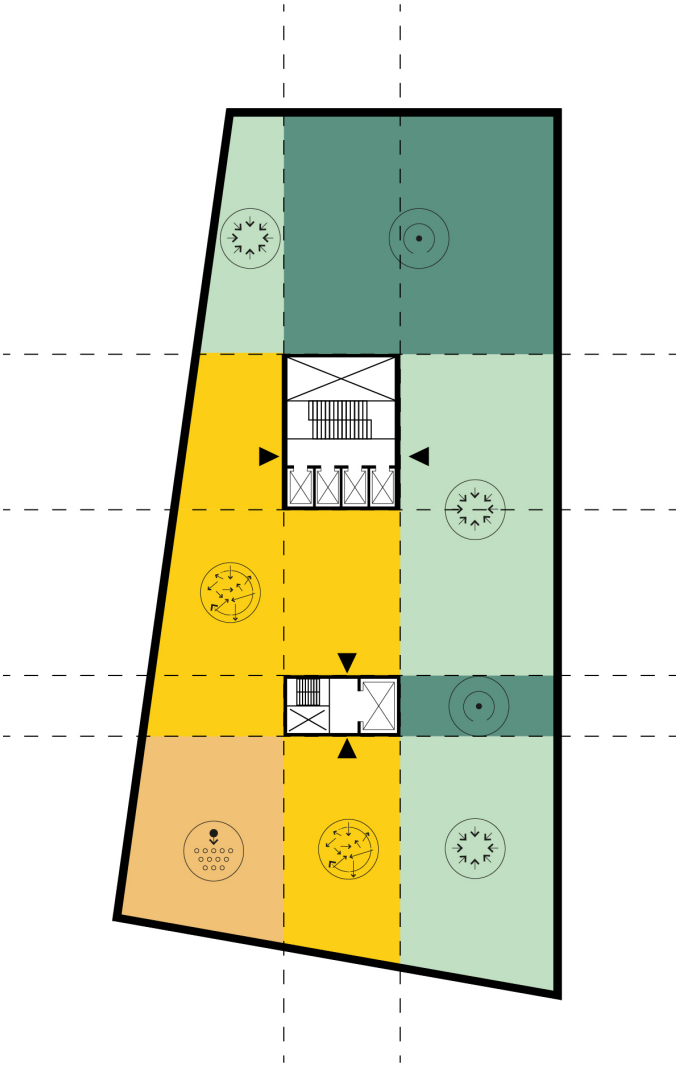
The Cove was designed to prioritize individual concentration, offering a quieter, more secluded environment. In contrast, The Campfire layout focuses on communal learning, with larger spaces for group activities and interaction. Finally, The Waterhole & Mountain Top combination fosters a vibrant, dynamic atmosphere where communal activities and gatherings take center stage, allowing for both structured and spontaneous exchanges of knowledge.

These floorplans represent a thoughtful approach to balancing individual and group learning needs, creating an interconnected, cohesive learning environment that supports a wide range of educational activities.



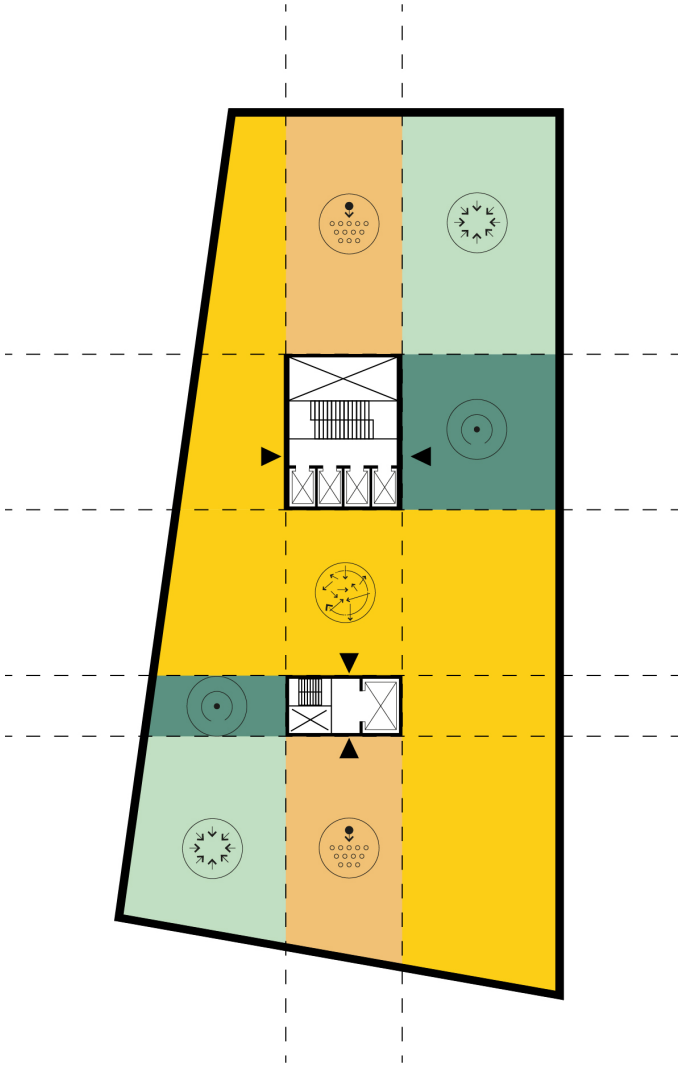
The cove

In this floor plan layout, all learning situations remain readily accessible, with a heightened emphasis on individual learning and concentration. This floor is strategically positioned apart from the more communal areas, fostering a quieter atmosphere conducive to focused study.



The Campfire

On the Campfire level, the emphasis shifts towards communal learning, featuring expansive open spaces for interaction and larger classrooms for group gatherings. This floor is optimal for workshops or activities requiring gatherings of specific groups.



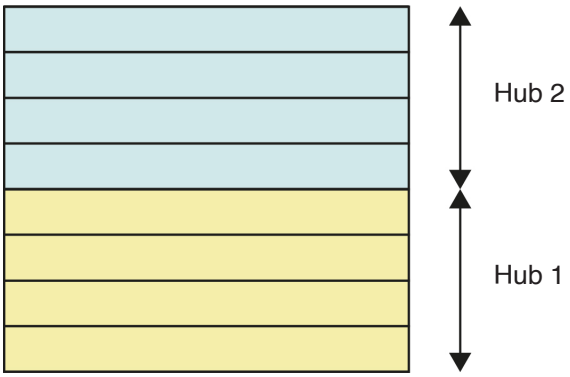
The Waterhole & Mountain Top

The combination of Waterhole and Mountain Top learning scenarios creates a dynamic, vibrant, and primarily communal environment. While individual learning is still possible, it is not the main focus of this setting. These spaces allow people to gather and interact.

Learning Types
Vertical Connections

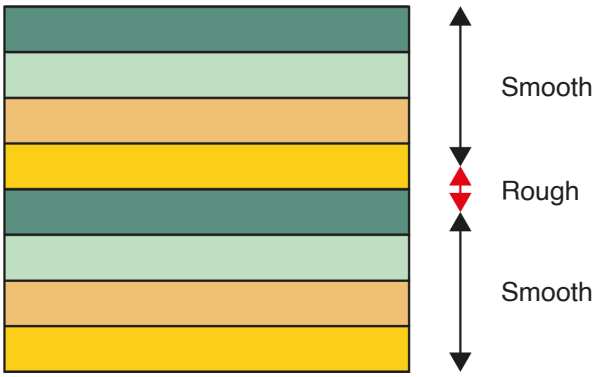
In addition to solving the horizontal connections within the floorplan, the vertical connections between the various floors in the tower are equally crucial. To address this, the concept of “Hubs” was introduced. These hubs are not just horizontally connected but also require vertical integration to ensure a cohesive flow between the distinct characteristics of each floor. By optimizing these connections, we enhance the interaction between different learning environments, allowing them to complement one another across levels.

One innovative approach involves designing hubs with internal vertical connectivity, ensuring smooth transitions within the same hub, while still providing a coherent link between different hubs. For example, integrating the Waterhole and Mountain Top into a double-height floor creates a dynamic space where both learning scenarios can interact and benefit from shared vertical space. This approach not only strengthens the connection between floors but also maximizes the potential of each learning environment.



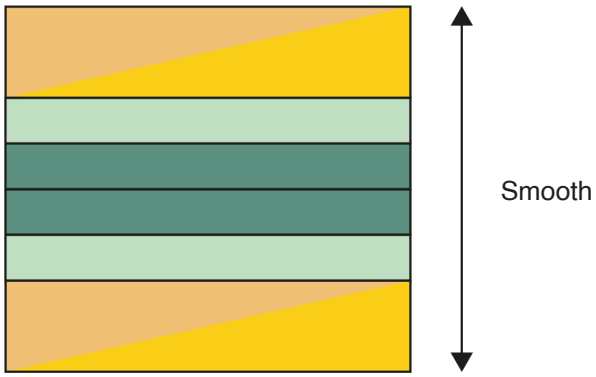
Hubs

The program isn’t solely horizontally linked but also requires a vertical connection. Each floor possesses distinct characteristics that interact with each other.



Connections

The link between floors extends beyond its originating hub and seamlessly transitions between hubs. While the transition within the parent hub remains smooth, it may become more abrupt when transitioning to another hub stacked above.



Optimization

One potential solution involves designing a hub that features both internal vertical connectivity and seamless hub-to-hub connections. By integrating both the Waterhole and Mountain Top into a double-height floor, each learning scenario gains additional advantages. The Waterhole can interact with the Mountain Top, while the latter benefits from increased vertical space for activities.

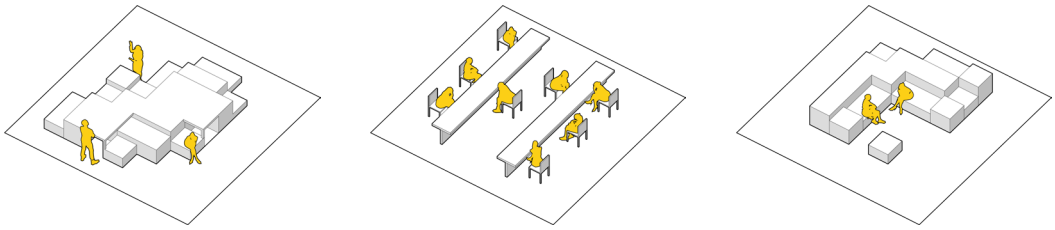
Learning Types
Architectural Translation

In this chapter, I have translated the core principles of the Waterhole, Mountain Top, Cove, and Campfire into distinct architectural forms. This process was essential in creating a strong and coherent design approach, ensuring that each space reflects the unique characteristics and functions of the learning environments they represent. By transforming these conceptual principles into tangible architectural elements, I aimed to foster spaces that naturally support the intended learning behaviors.

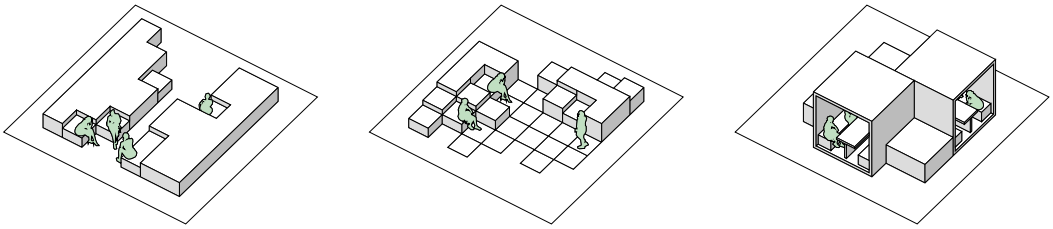
This architectural translation is not just about defining the identity of each space; it's also about facilitating the seamless integration of practical and theoretical learning within a single building. The Waterhole, for example, is designed to be vibrant and bustling, encouraging spontaneous interaction, while the Campfire, though also a gathering space, offers a more focused environment for group dialogue. Similarly, the Mountain Top and Cove each serve their purposes, with the former promoting presentation and performance, and the latter providing a haven for concentration and deep work.

By carefully designing these spaces, I sought to create an environment where different learning types can intersect and complement each other. The goal is to promote interaction and collaboration across various learning activities, making the building a dynamic hub where practical and theoretical knowledge converge. This approach ensures that the architectural design not only meets functional needs but also enriches the educational experience by supporting diverse learning styles and fostering a vibrant community.

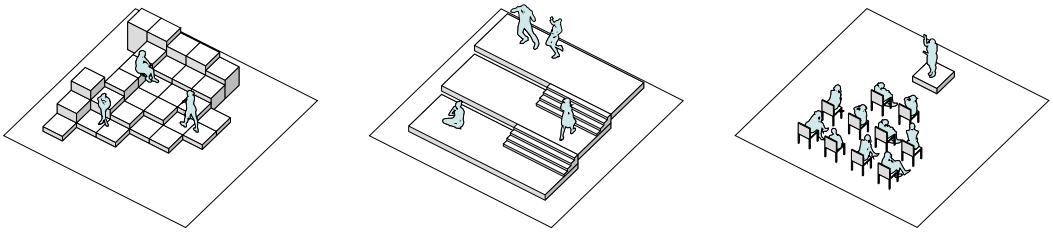
Waterhole



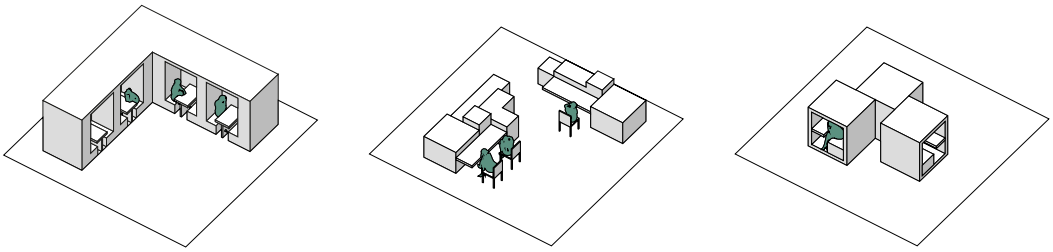
Campfire



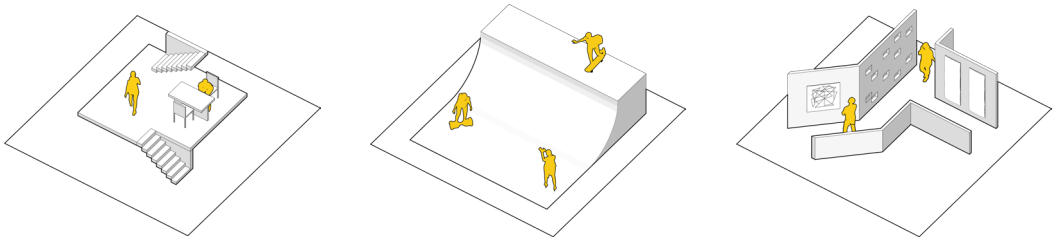
Mountain Top



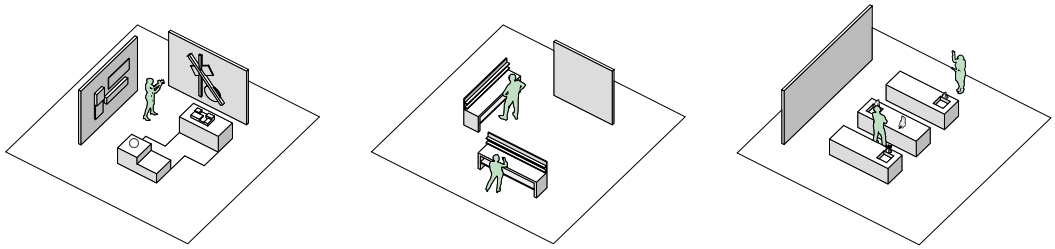
The Cove



Movement



Hands On

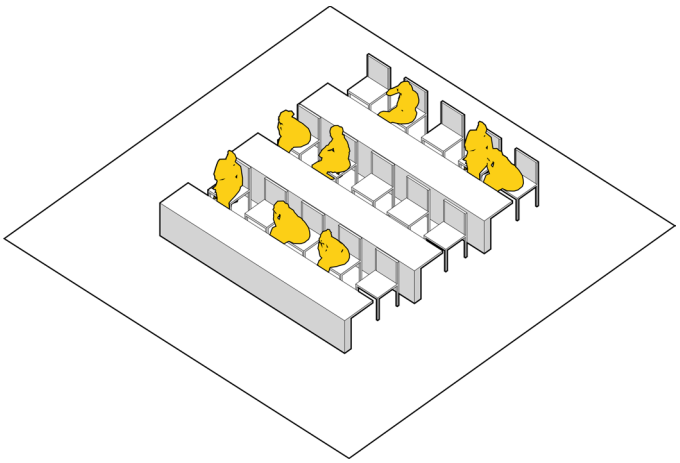


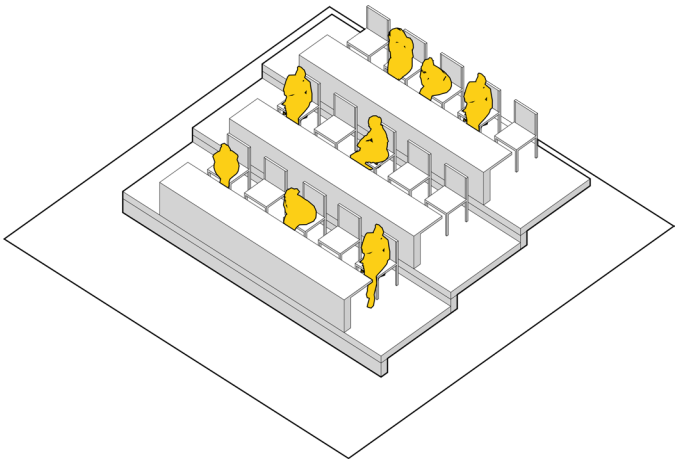
Designing for Engagement
Integrating practice and education

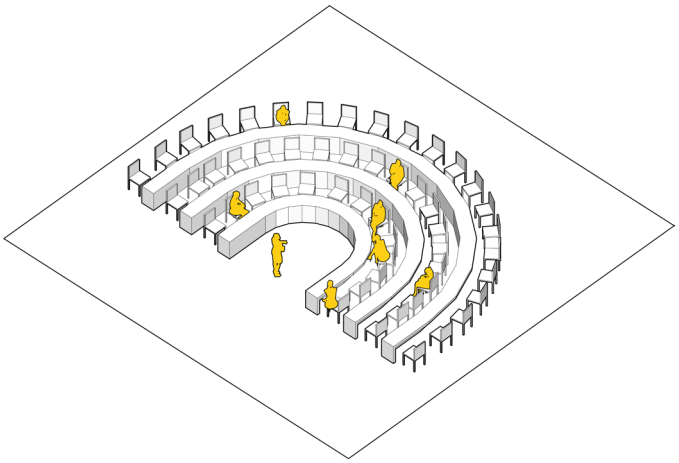
Having examined the nature of learning, its processes, and its influence on architectural and spatial design, we can now explore how architecture can act as a bridge between theoretical and practical realms. Learning, in this context, is more than just an isolated activity; it is a dynamic force that drives interactions and connections between abstract ideas and practical applications. It serves as a central catalyst, shaping and being shaped by the environments in which it takes place.

Viewing learning as a catalyst means acknowledging its role in facilitating ongoing exchanges between theoretical concepts and real-world experiences. This perspective places learning at the core of architectural design, prompting us to rethink how our spaces can encourage more interaction and engagement. Instead of learning occurring solely in structured settings, it should also happen spontaneously. Interactive design strategies can help foster these spontaneous interactions, bridging the gap between theory and practice.

Here are three design strategies that can translate these ideas into architecture: Spatial Forms, Visual Connections and Interaction Boundaries







Spacial Forms

We shape our rooms with careful consideration. If you were to examine an empty floor plan of a house, you would immediately recognize the function of each room by its shape and size. This intentional use of shapes to serve specific functions applies to classrooms, meeting rooms, and lecture halls as well.

A traditional rectangular classroom directs all attention to the front, but the view can be obstructed by the people sitting in front, leading to distractions.

In a tiered classroom, each row is elevated, ensuring that everyone has a clear view over the person in front. This setup enhances concentration and visibility, improving the connection between the speaker and the audience.

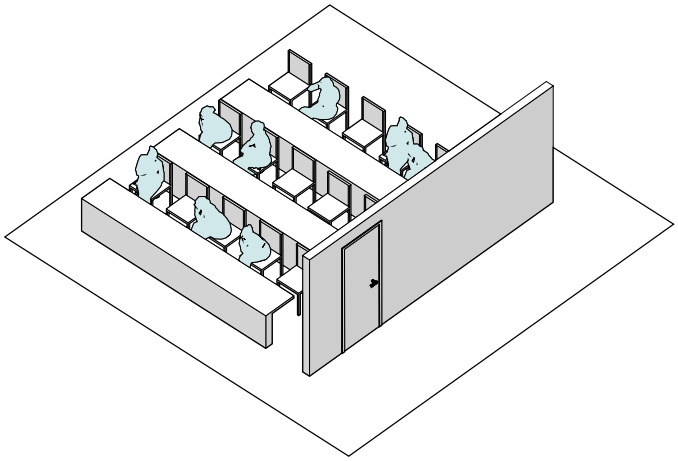
A semi-circular room allows everyone to see the speaker directly. However, the speaker must be more interactive to maintain eye contact with the entire audience. This design fosters a more engaging atmosphere, facilitating interactive discussions both within the group and between the speaker and the audience, as participants can see each other's faces across the room.

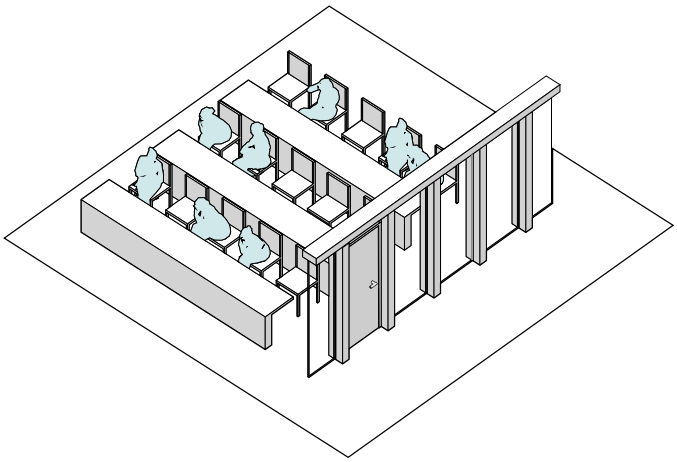
The way we use shapes in design significantly impacts how we utilize a space and the possibilities it offers. By consciously designing with function and space in mind, we create environments that are more valuable and tailored to specific purposes, rather than generic spaces that fail to excel in any particular aspect.

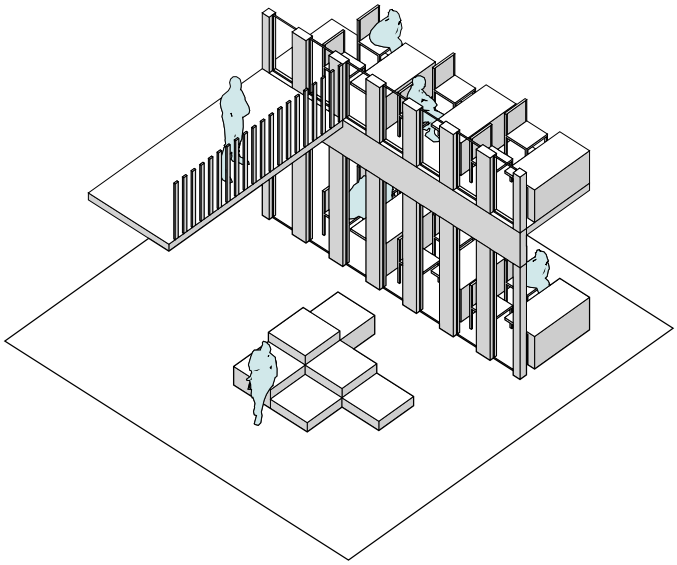
Visual Connections
Visual connections are a crucial element in the design and functionality of spaces. By strategically arranging sightlines and ensuring clear visual access between areas, we can significantly influence how a space is used and experienced. Effective visual connections facilitate interaction, improve navigation, and enhance overall usability, transforming how users engage with their environment. This thoughtful integration of visual relationships ensures that spaces are not only functional but also intuitive and inviting, thereby optimizing their impact and effectiveness.

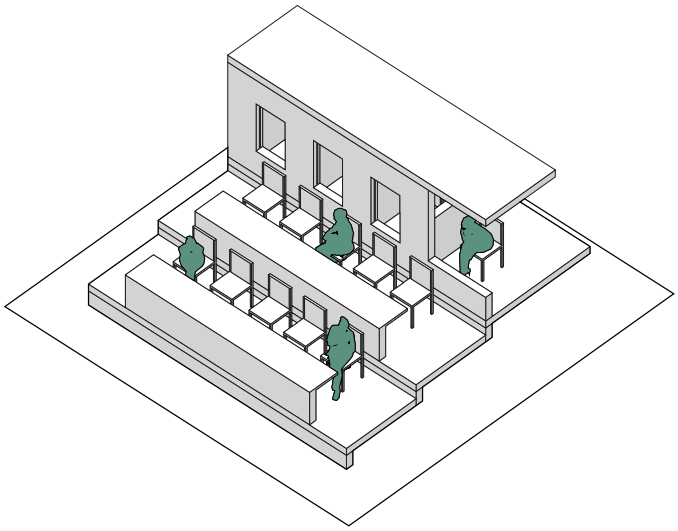
In the first example, we see a traditional classroom with solid walls that block the view to both the inside and outside. While this design offers benefits like increased privacy and enhanced concentration for those using the space, it also limits any potential connection with the external environment. However, in certain spaces, such as workshops, fostering a connection to the outside might be more advantageous, as illustrated in the second example. Here, the boundary between indoors and outdoors is softened through the use of glass panels.

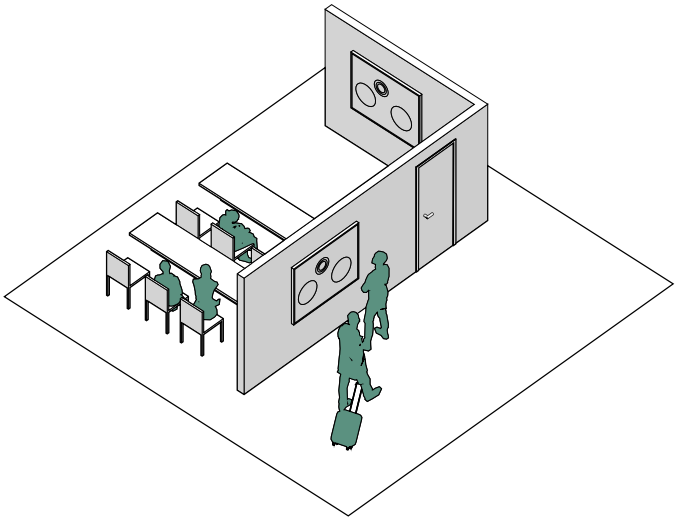
By integrating these approaches, spaces can become more interconnected, allowing for greater interaction between different areas. This can result in improved collaboration and a stronger relationship between both the spaces themselves and the people using them.

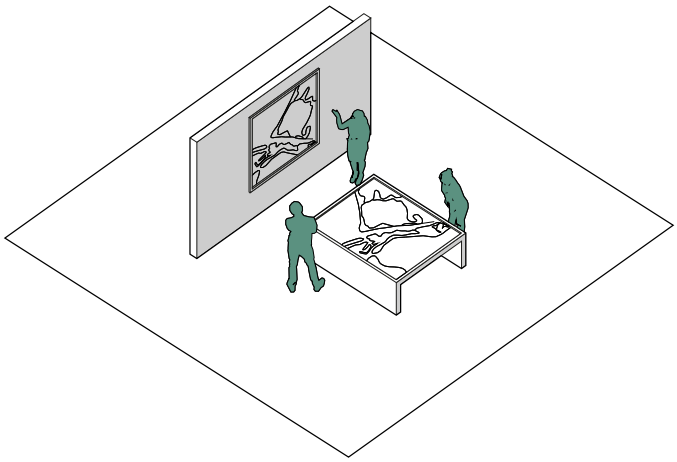












Interactive Boundries

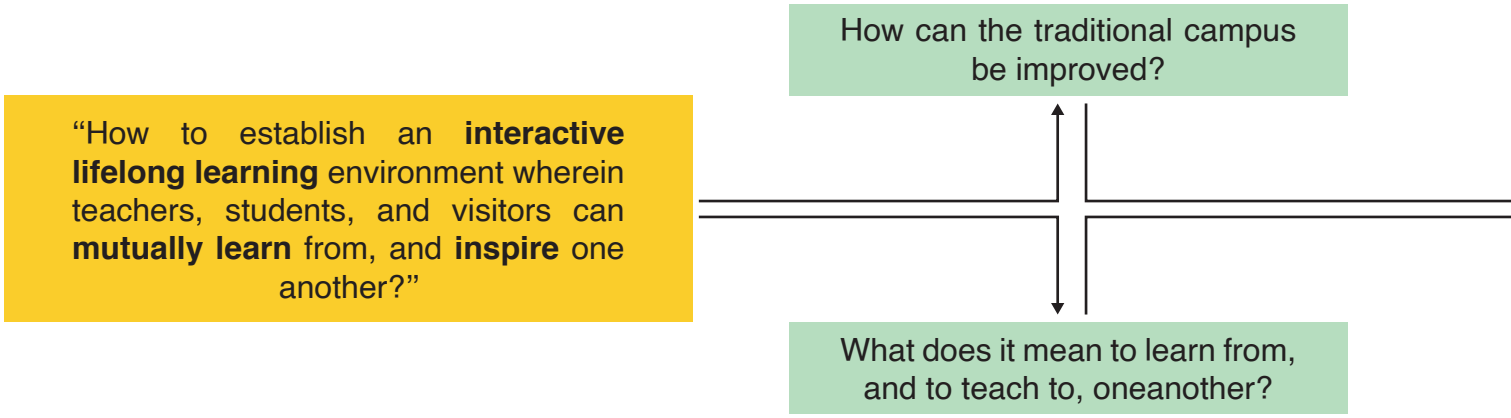
Interactive boundaries play a pivotal role in shaping how individuals engage with different spaces. These boundaries, such as the transition between entering a classroom to participate versus observing through a glass window, define the nature of interaction and involvement within a space. By designing these boundaries thoughtfully, we can influence how users transition between passive observation and active participation. Interactive boundaries help delineate different levels of engagement, guiding users in their interaction with the environment and ensuring that the space supports a range of activities effectively. This careful design of boundaries enhances both the functionality and the overall experience of the space.

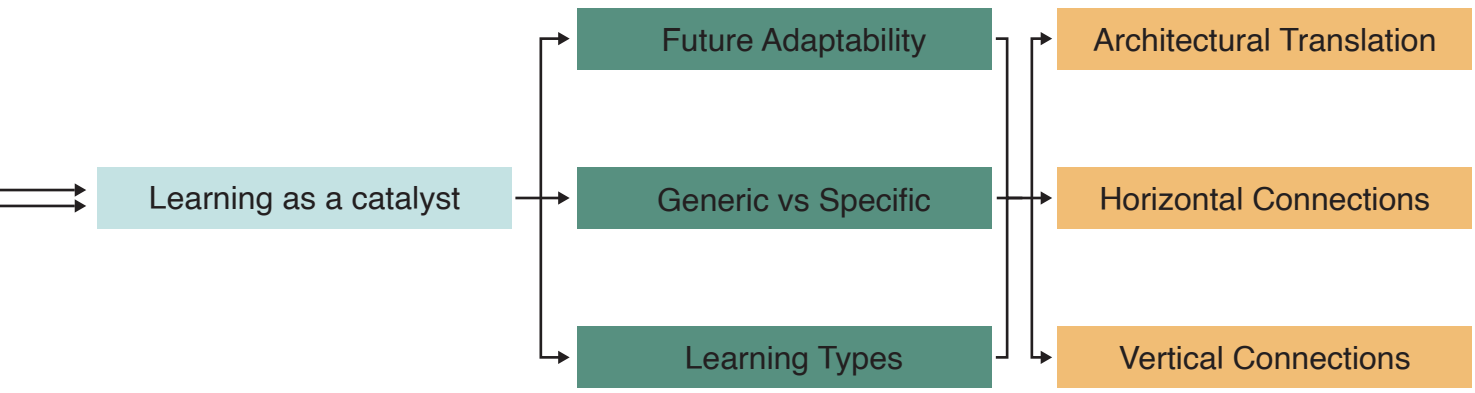
By providing opportunities for others to participate in activities discreetly and privately, as shown in the first example, such as adding extra seating outside the classroom, we can foster curiosity and encourage individuals to engage with lessons on their own terms. While these implementations may not always be desirable, in larger auditoriums or lecture halls, for instance, it likely won't matter if a few more students choose to participate in a way that makes them feel comfortable. The barrier of entering an unfamiliar classroom or lecture hall is enough to deter many from participating altogether.

Another example is the use of cloned screens that offer a glimpse of what's happening inside the classroom. This can spark the curiosity of passersby, allowing them to decide whether or not to join. Similarly, spontaneous collaboration spaces equipped with digital tools could enable people to engage in a more public setting.

Research
Summary

To summarize the foundation of my research, the following diagram outlines the key steps in my research process and illustrates how it will inform and guide my design phase.




Learning as a catalyst
Future Adaptability
Generic vs Specific
Learning Types
Architectural Translation
Horizontal Connections
Vertical Connections

Part IV | **Concept Design Process** P2

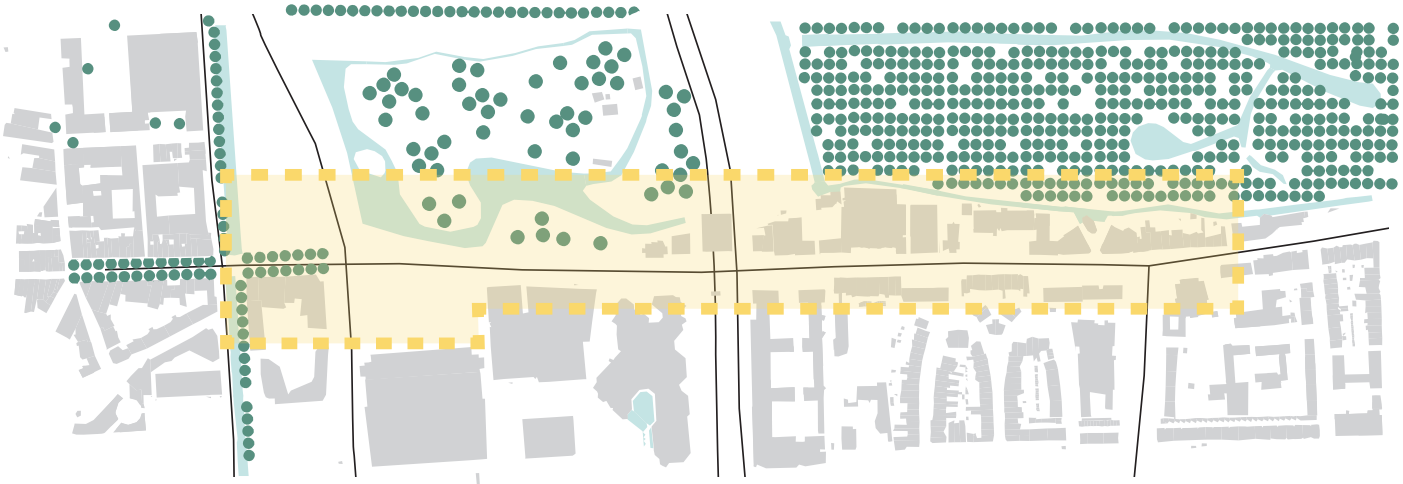
20/11/23 - 15/02/24

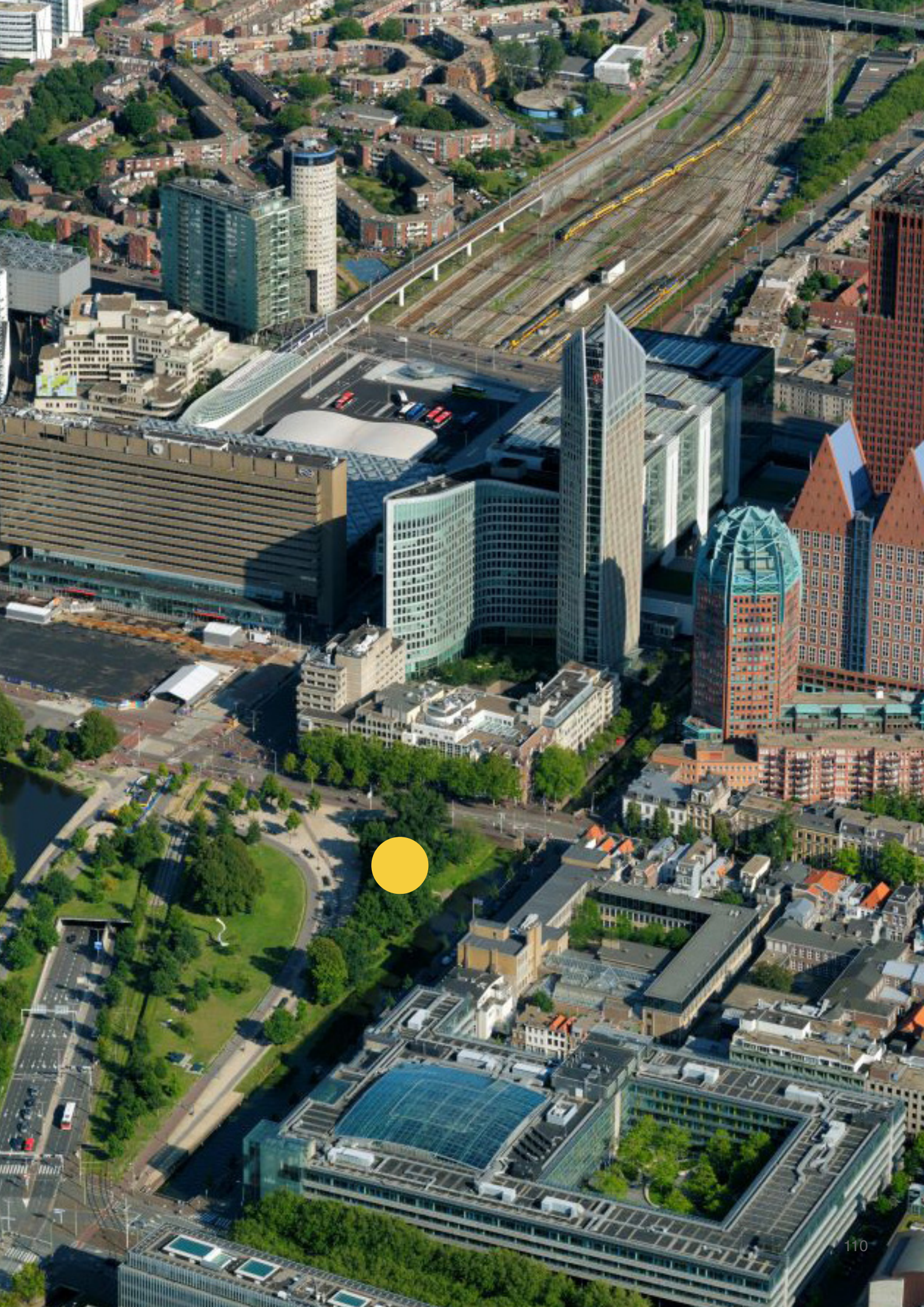
Exploration
Concept

In the initial stages of my design process, the approach I took changed significantly from the final outcome. My journey began in the same general area, but I sought greater architectural freedom by positioning my first design on a largely empty piece of land across the street from what would eventually become my final design location.

I was particularly drawn to this corner of The Hague and found the plot intriguing due to its vast open space and lack of clear infill. The area was primarily occupied by an overly large bicycle and pedestrian path and a canoe rental shop, which seemed to be the only active functions in the vicinity. However, I envisioned far greater potential for this site.

My objective was clear: to create a university that would serve the city and its people. This central location, albeit retrospectively a bit too central, appeared to possess the characteristics that could support my concept. The available space offered a blank canvas, and I believed it could become a vibrant educational hub.



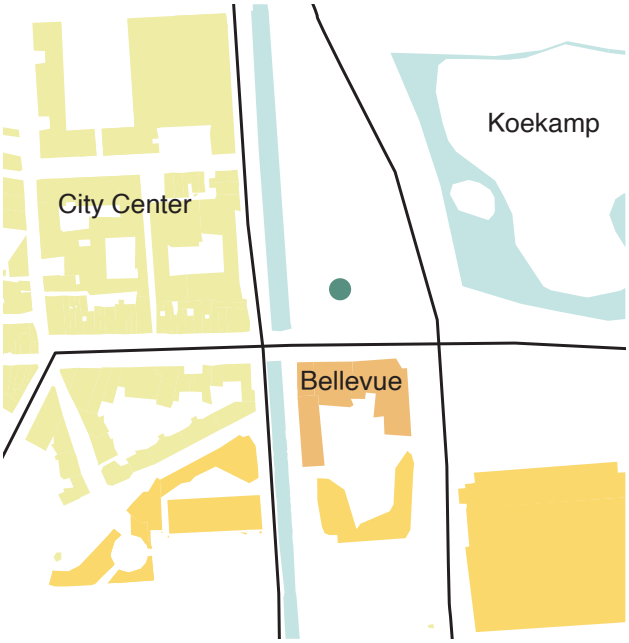


Site Analysis
Initial design ambition

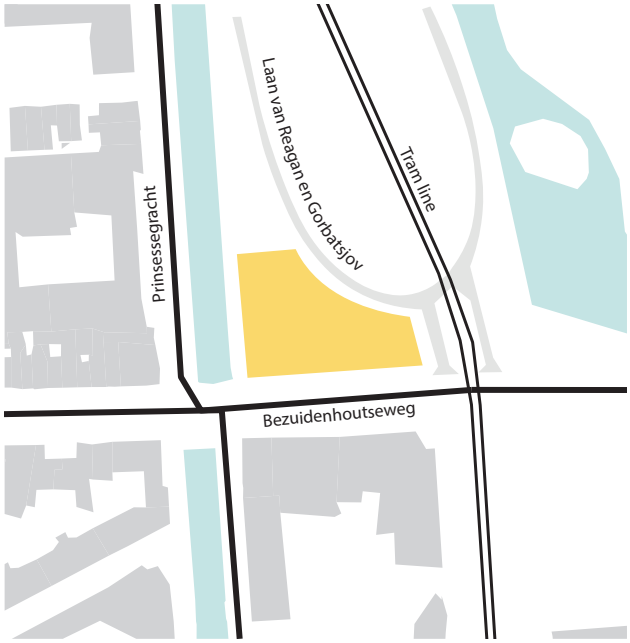
The area across the street from the Bellevue location immediately caught my attention due to its size and the lack of functional space. It primarily served as a circulation zone, with little more than a small canoe rental shop occupying the site. My goal was to transform this space into a vibrant and lively area that would be more than just a pass-through for pedestrians. The heavy foot traffic seemed ideal for realizing my vision of an open university—an inviting space designed to attract people from all walks of life, not just the university's direct users.

I began with a general analysis of the area to assess the existing elements and determine what I wanted to retain or modify for my design. The plan to create a new entrance to the central station had already been incorporated into the design of KJ Plein by Powerhouse, and combined with Delva's new plan to revitalize Koekamp, this provided an excellent foundation for transforming my designated area.

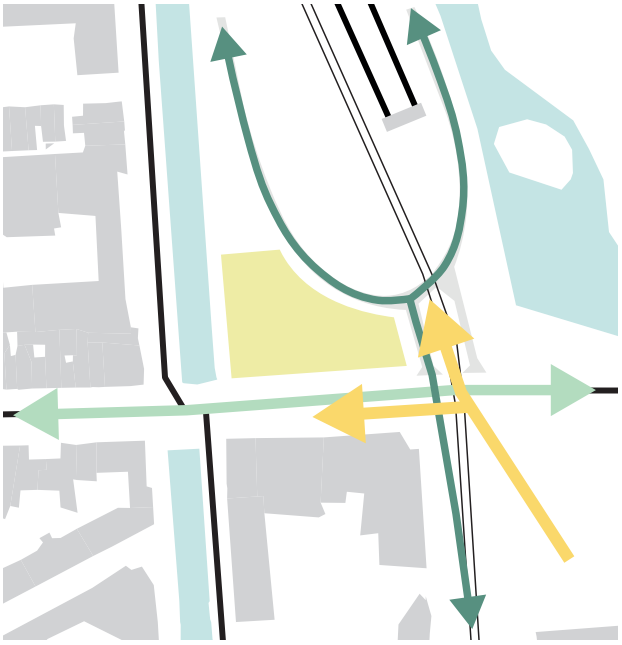
Additionally, the educational connections in the vicinity, particularly with the Royal Academy of Arts as my immediate neighbor, offered opportunities to establish meaningful urban links to the site.



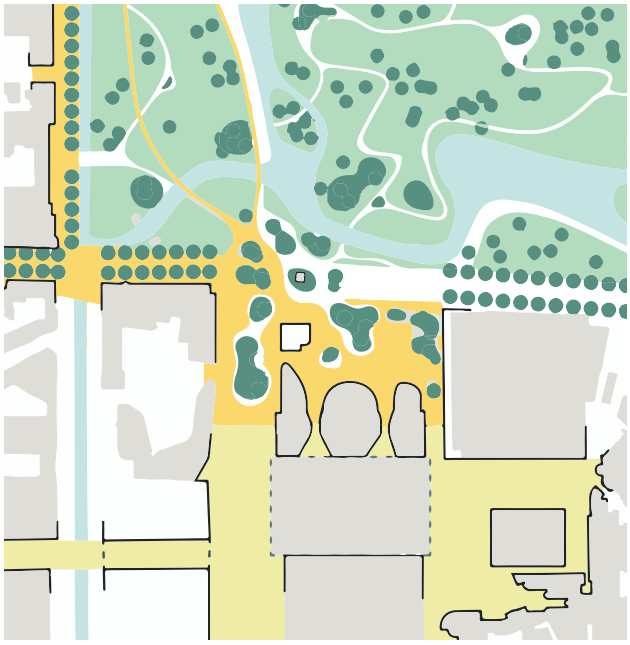
Transition
The plot is situated across the street from the bellvue location and is sandwiched between the city center and the left and the Koekamp on the right.



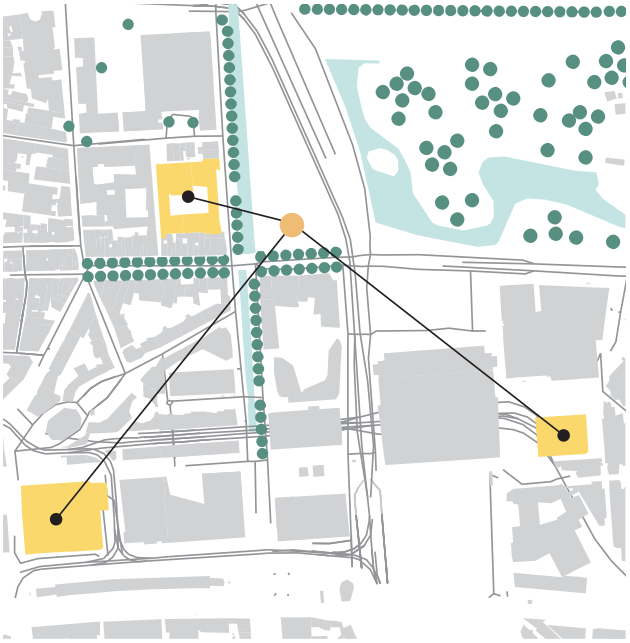
Location
The plot finds itself on the corner of the transition from the low rise city center and the high-rise office district arount the central station.



Flows
The streets, bicycle/pedestrian paths surrounding the plot bring a lot of traffic flows with them.



Entrance
With the Powerhouse design of the KJ Plein a new entrance to the city The Hague is being made.



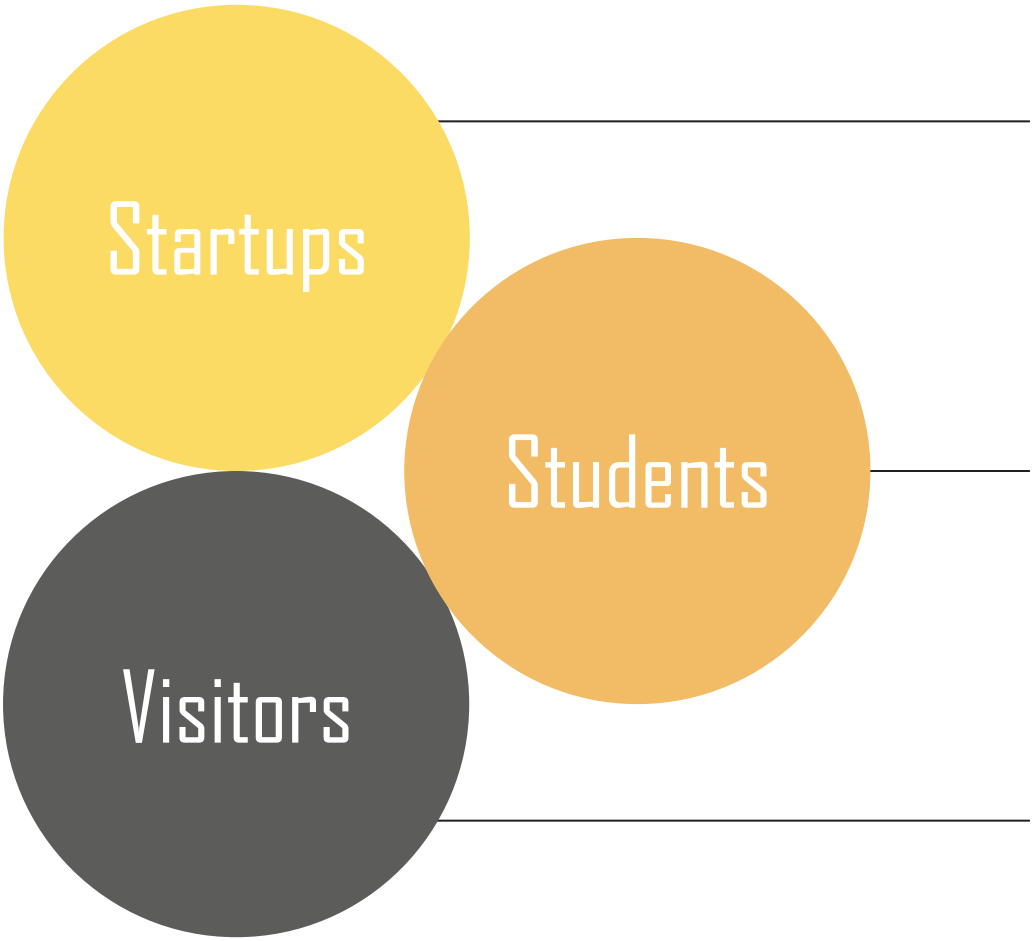
Academic Positioning
The building attempts to connect the three main university buildings in the area but most importantly the Royal Academy of Art across the canal.



Academic Connections
Together both connections result in a heavier flow of people around the plot which is beneficial to the goal of connecting people within the building.

Massing
From concept to form

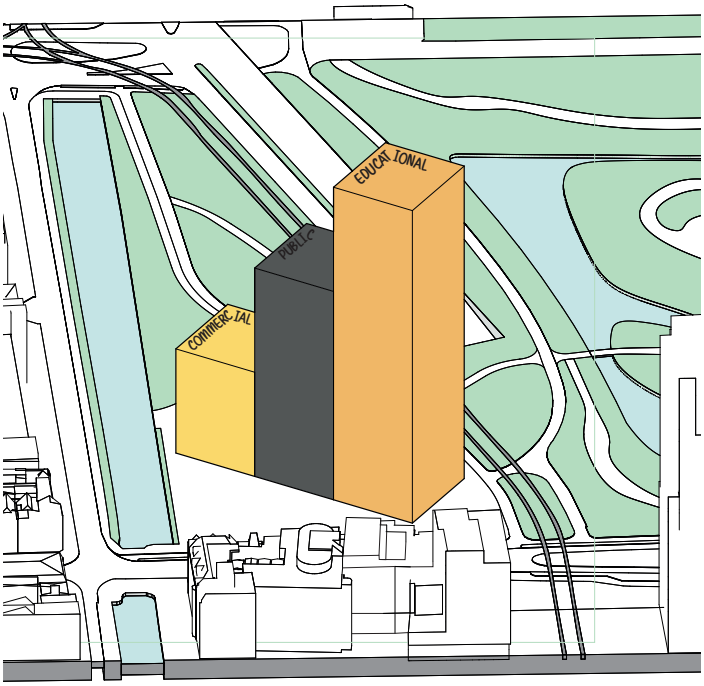
I began by reminding myself who I was designing for and what their needs and desires were. From this analysis, three main target groups emerged, which would shape the foundation of my initial design. The primary focus of the university would naturally be the students and their dedicated staff. However, the general public and visitors also formed a crucial part of my vision. Finally, startups represented the office and commercial spaces, aligning well with the goals of an open campus that promotes innovation and flexibility. These startups became a fitting third focus group, complementing the other users of the building.



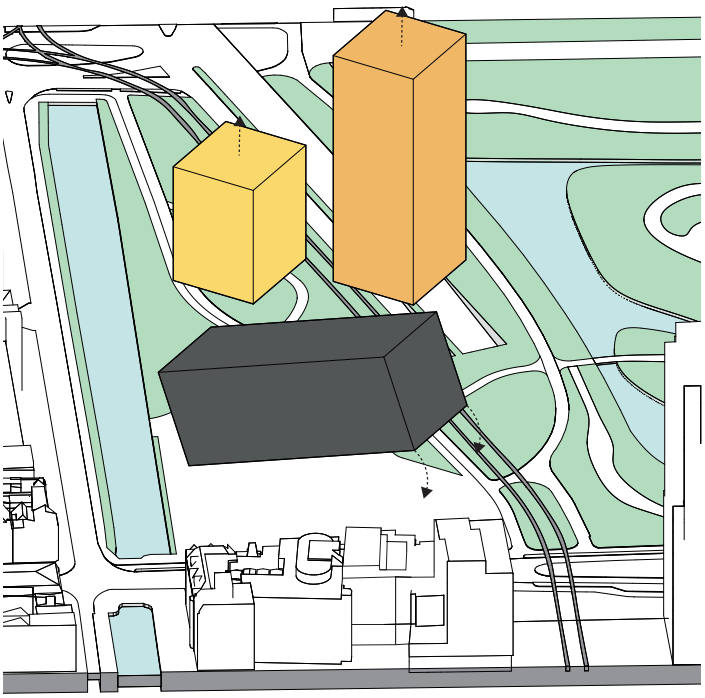
- Collaborative spaces
- Creative ...
- Flexible ...
- Exhibition ...
- Networking ...
- Shared facilities

- Vibrant spaces
- Creative ...
- Flexible ...
- Exhibition ...
- Social ...
- Accessible ...
- Quiet ...
- Well equiped ...
- Shared facilities

- Vibrant spaces
- Flexible ...
- Social ...
- Accessible ...
- Quiet ...
- Shared facilities

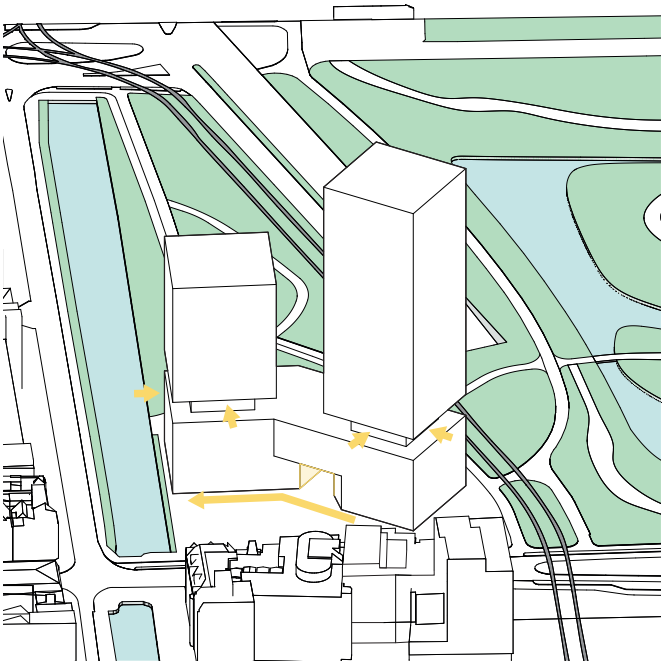


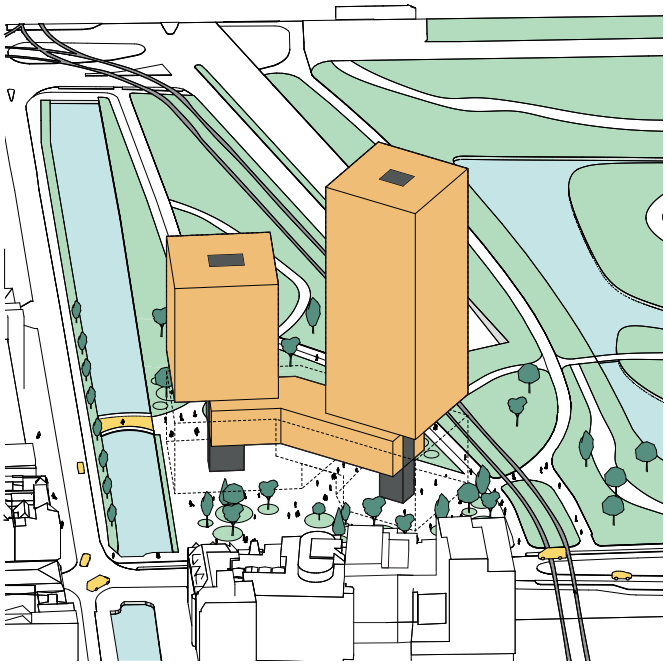
To better understand the scale and size of the building's program, I began with a volume concept composed of three shapes representing the three target groups. Education, being the focal point of the design, occupied the largest volume, followed by public spaces, and lastly, commercial areas. Although the design brief required that one-third of the space be allocated to offices, I recognized that much of this space could also serve educational purposes, so I initially combined them, resulting in an expanded educational program.



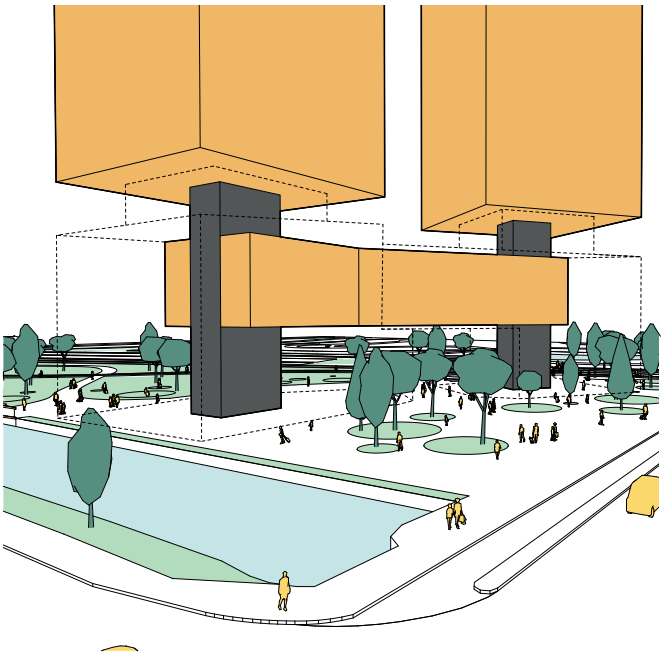
The three pillars were then shifted and rotated so that the public area lies horizontally on the ground floor, with two towers rising above it. This configuration allows the public space to act as a connector between the towers while engaging directly with the surrounding urban fabric. The towers, being more suited for non-visitors, benefit from increased privacy and views, while the public portion maintains its essential visual and psychological connection to the street level.

Massing
Shaping the Volumes



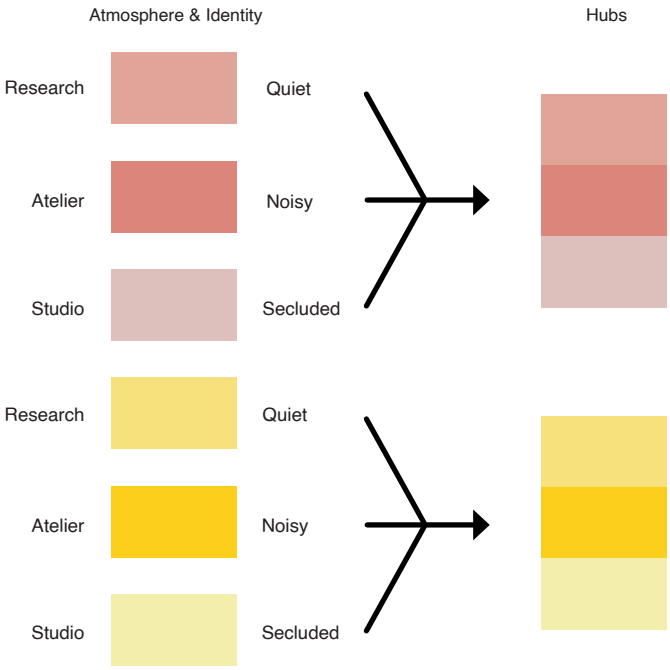






In order for the site to become more traversable and for the base of the design to feel less like a wall blocking the existing flows in and around the site a hole was made to allow circulation through the building. The base of the towers were extruded inwards to create a visual seperation from the base towards the towers. This gave the towers their own identy and emphasized the independence and identy of the base.

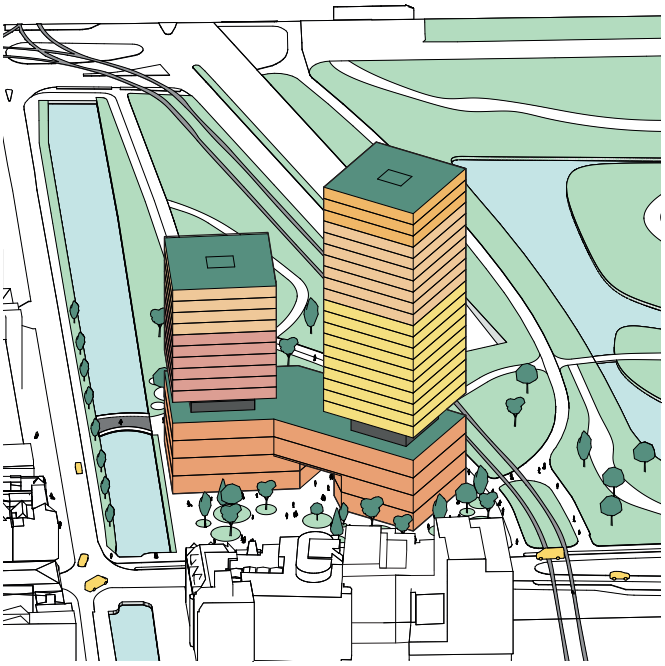
The orange marked volumes show the enclosed area in relation to open space areas while the grey show the central cores of the building. The plinth is largerly all open space to emphaszed its public character and create a more free flowing flow throughout the buildings base. The middle section of the base is where the main lecture hall were going to be located.



As I began working on how to divide the program between the base and the towers, I focused on the identity and characteristics of each element. I realized that both the horizontal distribution and the vertical stacking of the program would be crucial to the design.

I developed a system of three layers, each with its own distinct characteristics, to create hubs that would provide everything students, staff, and visitors might need. Instead of grouping all the classrooms on a single level, I distributed them evenly across the layers, ensuring that each hub offered a complete range of resources and amenities.

These hubs could evolve into their own small faculties, where students feel more at home and familiar with their surroundings. This approach also made navigating the building easier, with everything within closer reach. The elevators would be used less frequently, allowing the stairs to become a more prominent means of circulation.



Public program
7600 m²

University
4300 m²

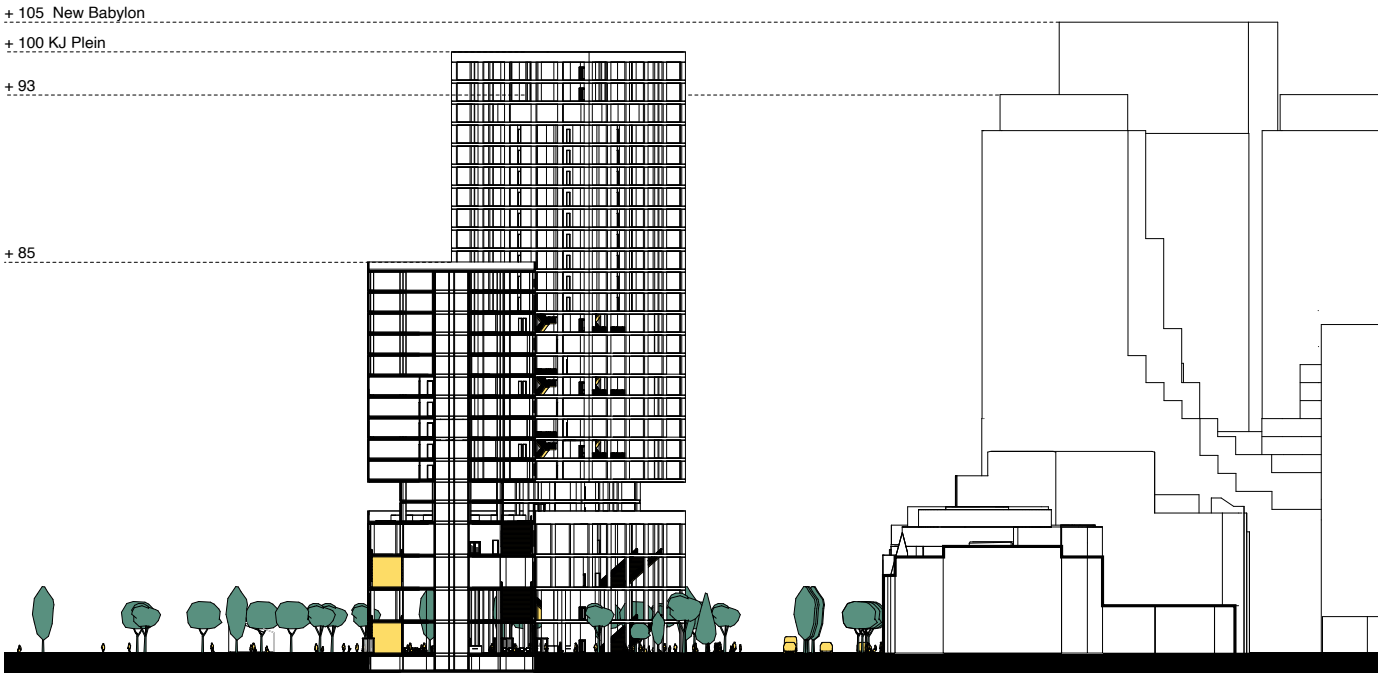
Elementry school
3000 m²ᵛ

Commerical
10400 m²

Sports
2200 m²

Exploration
Sections

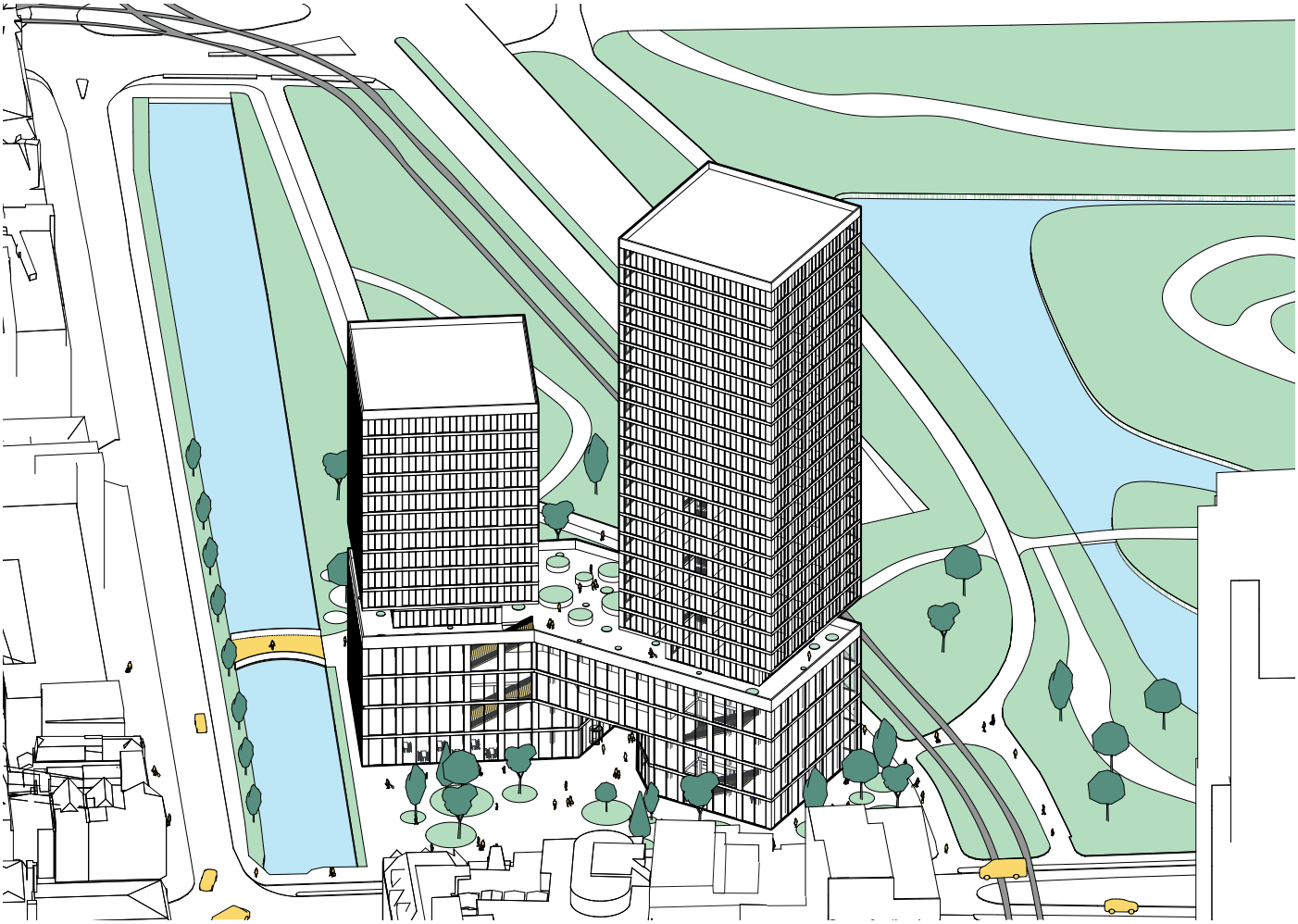
The skyline of The Hague near the central station is gaining prominence, requiring careful integration of taller buildings into the urban fabric. The design includes two towers: the smaller one is positioned closer to the city center, while the larger tower is placed near the central station. This arrangement ensures a smooth transition in height, allowing the towers to blend seamlessly into the existing skyline. The larger tower will be positioned between the height of the KJ Plein building by Powerhouse and the Hoftoren behind the Bellevue location.











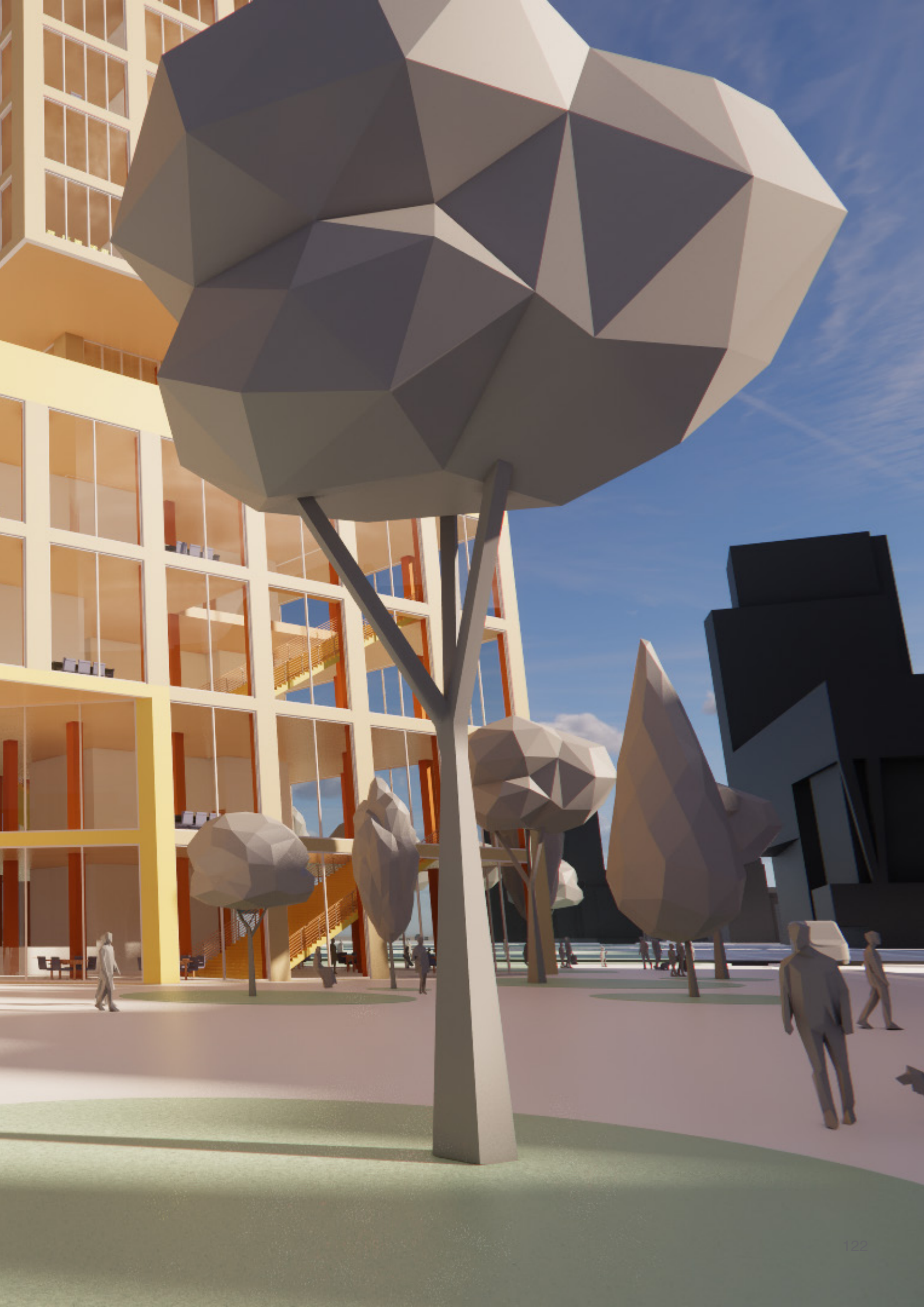


Exploration
Summary

Despite my enthusiasm and the promise this site initially held, the design ultimately did not work out as planned. The challenges of the location, which seemed advantageous at first, became apparent. It lacked the necessary infrastructure and connectivity that I needed and the freedom become a little bit overwhemling. My tutors also raised the ethical question about building in green space as larger cities often lack these spaces due to densification. This ultimately led to the descicion to look for a new site to continue my design proces going into P3.

This realization led to a pivotal shift in my approach. I moved my focus across the street, where I found a site that better met the needs of my project. This new location offered the right balance of accessibility, community integration, and potential for growth. It was a learning experience that underscored the importance of flexibility and adaptability in the design process.

Although my first design did not come to fruition, it was a valuable step that informed and refined my final approach. The journey taught me to embrace change and to see every challenge as an opportunity to improve and innovate.



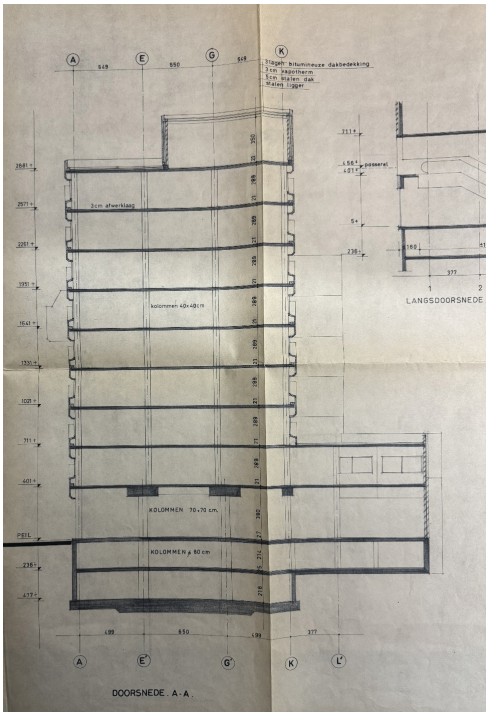
Part V | **Preliminary Design** P3 & P4

15/02/24 - 21/04/24

Rediscover
P3 & P4 Design Ambition

After my P2 phase it was concluded that the site that I had chosen did not really fit for both my ambition and the ethics of building into the green spaces of a city forced me to seek out a different site to continue my design proces. It was already very clear that the best option for me was to stay close the the site I had investigated and that I already familiar was. I therefore decided with my tutors as well that the Bellevue Location across the street would provide me with similar site characteristics while still holding on to the already existing urban fabric and design. This in turn would provide me with a more guidelines and boudries that would help me shape my design. The amount of freedom that I originally wanted and chose for myself when chosing to building inside the green ultimately gave me too much freedom and therefore I could not chose what to do. The Bellevue site would on one side give me this much needed framework in which I could design my new building.

Before I could start designing on the site Bellevue Location I had to research the already existing Buildings that were present on the site. Initally I started investigating only the Steadion building on the corner but later in the design phase I also included the other two building on the plot to become part of my renovation and adaptation plan. My research into the Steadion building and the other buildings shaped my first desgin ambition which was to try and reuse as much of the existing structures as possible for both sustainability reasons and also to preserve the identy of the old buildings. Instead of demolishing the buildings completely I wanted to try and see if their character could be used and changed into something that could enhance the character of the new university building.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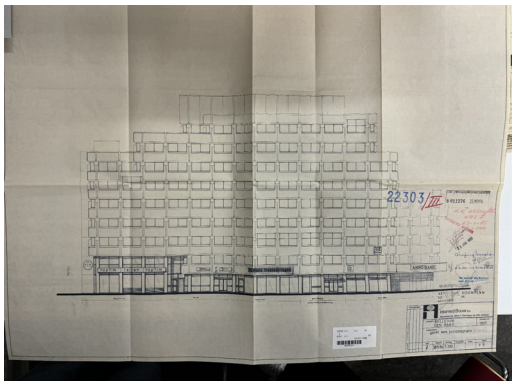
LANGSDOORSNEDE
KOLOMMEN 70x70 cm.
KOLOMMEN ø 80 cm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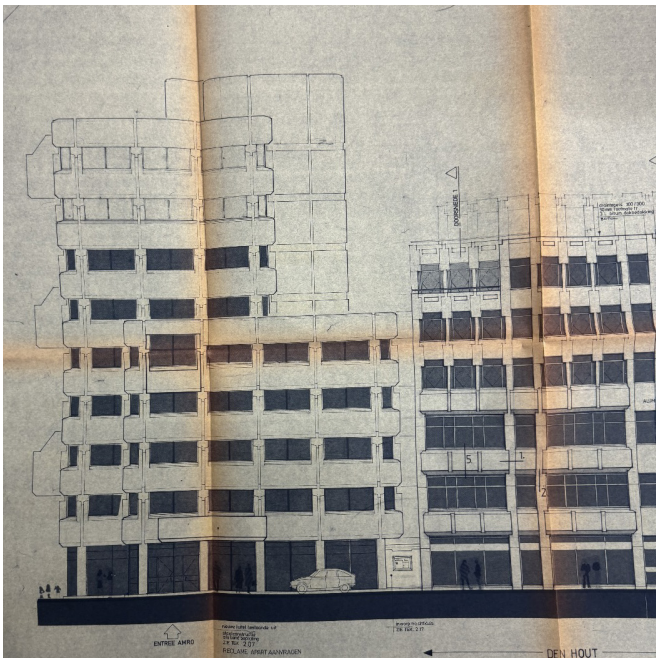
GROND
EERSTE VERDIEPING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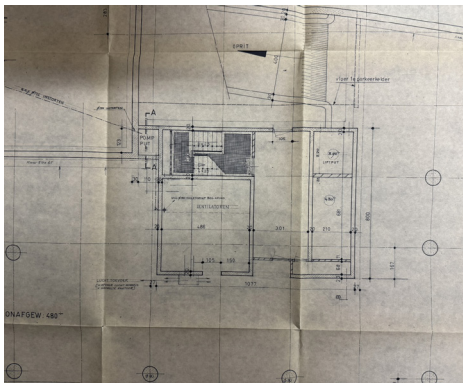
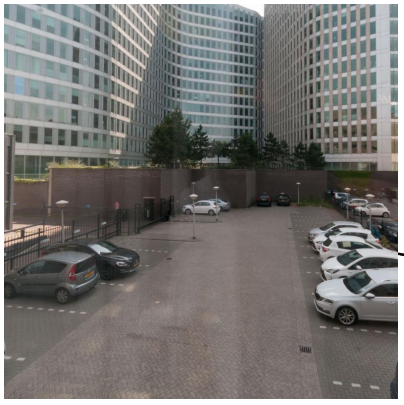




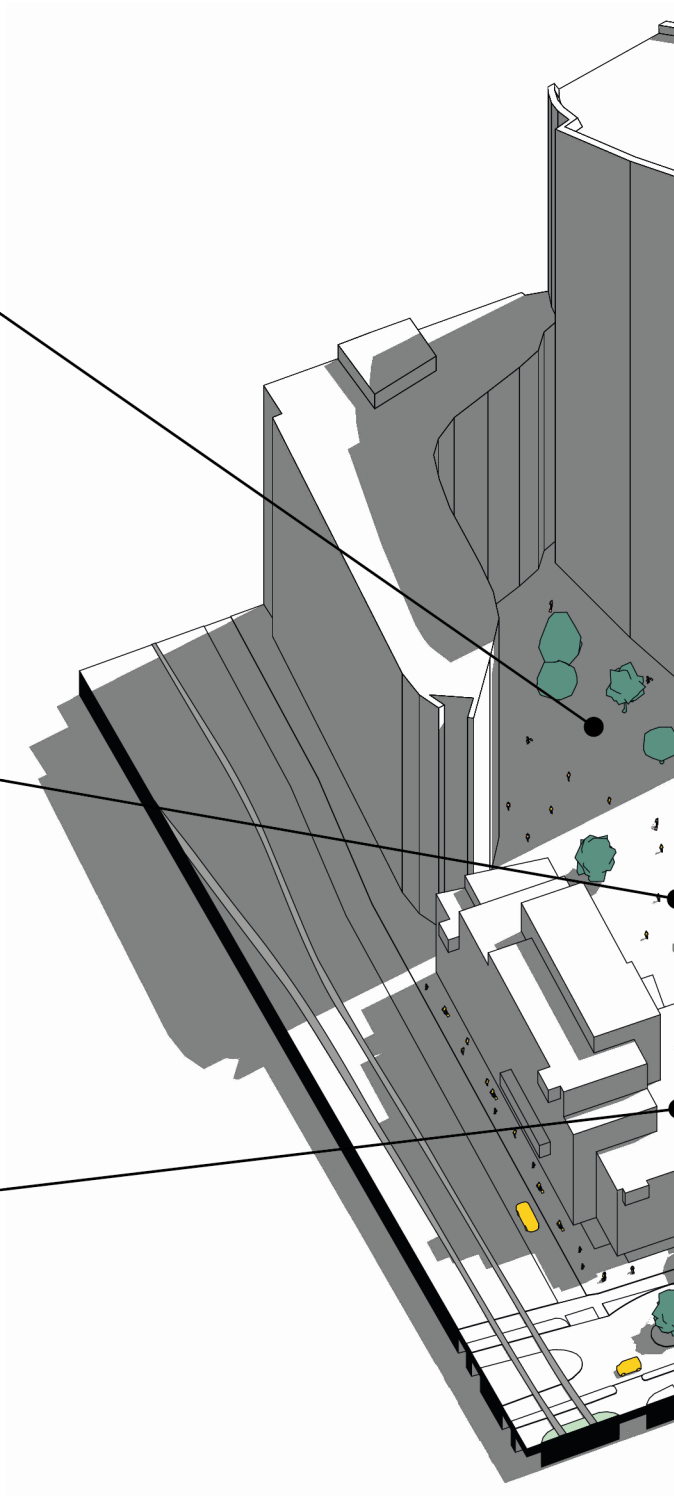
Lack of public green space

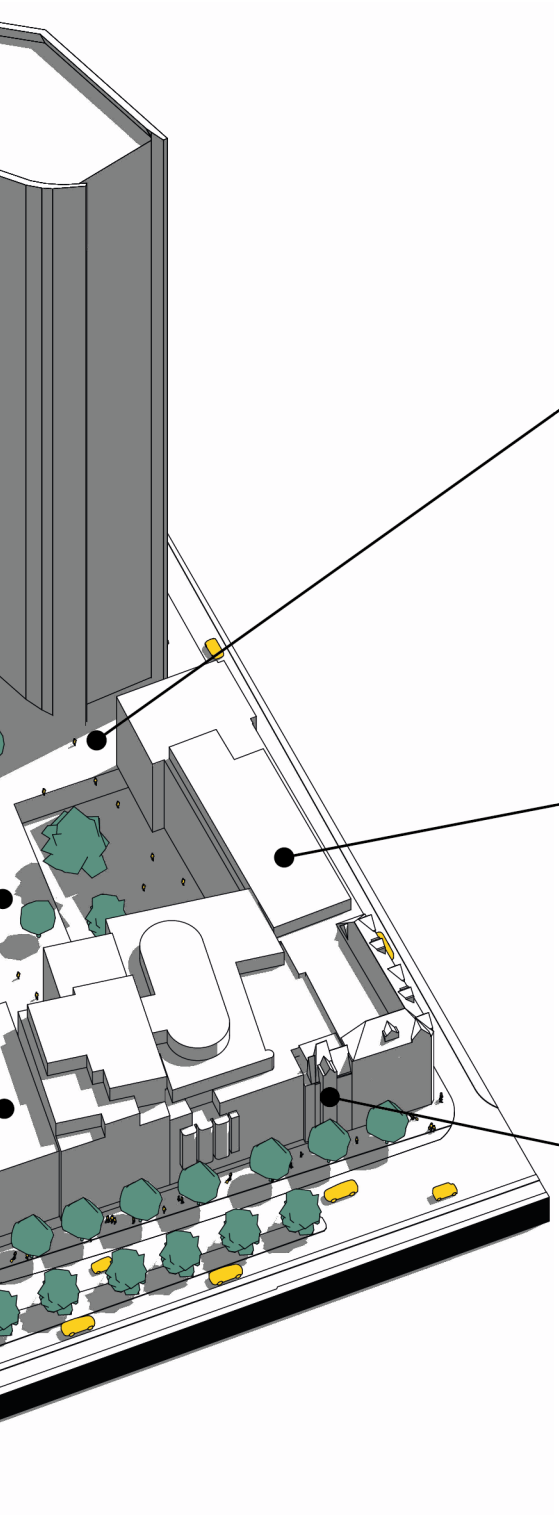


Heat island in the form of a parkinglot



Outdated buildings that lack a public appearance







Area is inaccessible to the public



Lack of mixed program which leaves the area deserted



Monumental facade is the only piece of old architecture left

Reuse
Renovation Steps

The three buildings followed the same reuse strategy as the Stadion building, shown in the images on the side. To maximize the reuse of the existing structure, I decided to remove the facades of all the buildings. Although the brutalist facade had a distinctive character and its own beauty, it ultimately proved unsuitable for a public function. The lack of daylight penetration and flexibility made it difficult to adapt the facade to the new purpose. For instance, the entire floor plan, setbacks, and terraced shape of the Stadion were based on the dimensions of the prefabricated facade elements.

Removing these elements gave me much more freedom to design a new facade that better suited the public function of the new university.



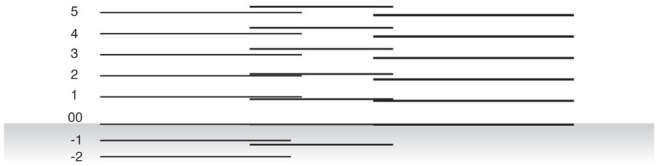
Remove upper levels



Remove facades



Join the three buildings

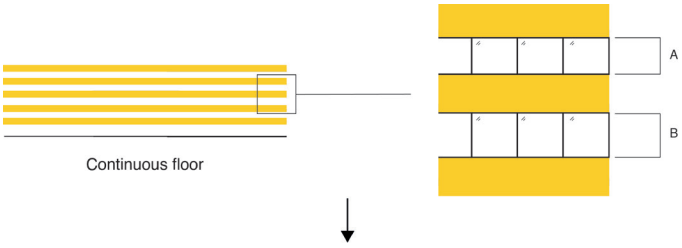




Continuous floor

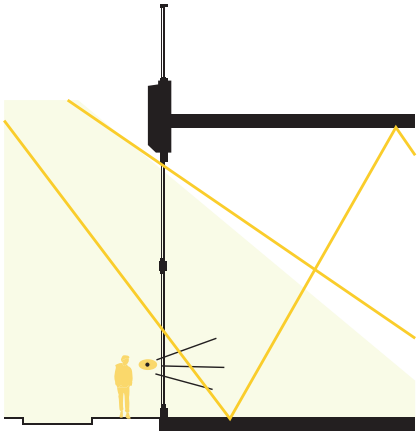
Weavy floor

Another big challenge of merging the three buildings into one was the fact that each building had a different floorheight which resulted in a weavy landscape of floors. I came up with a way of joining the three buildings with a symmetrical facade but this resulted in very small slids of windows that also did not provide the floorplans with enough light. I then decided that maybe it was a good idea to merge some of the levels together by getting rid of a few and therefore create a higher ceiling height that fitted the public character of the building better.

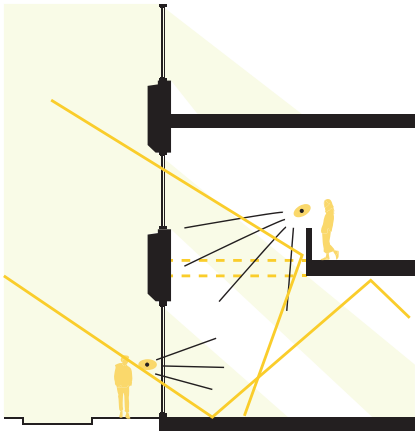


Continuous floor

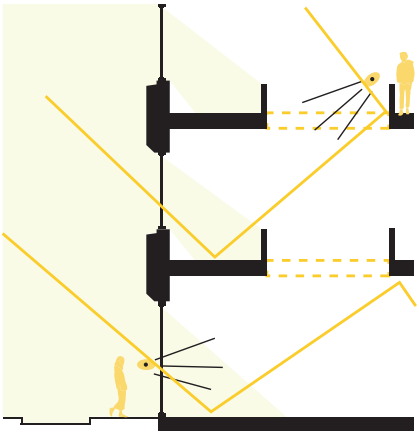
Double height floor



Doubling the ceiling height



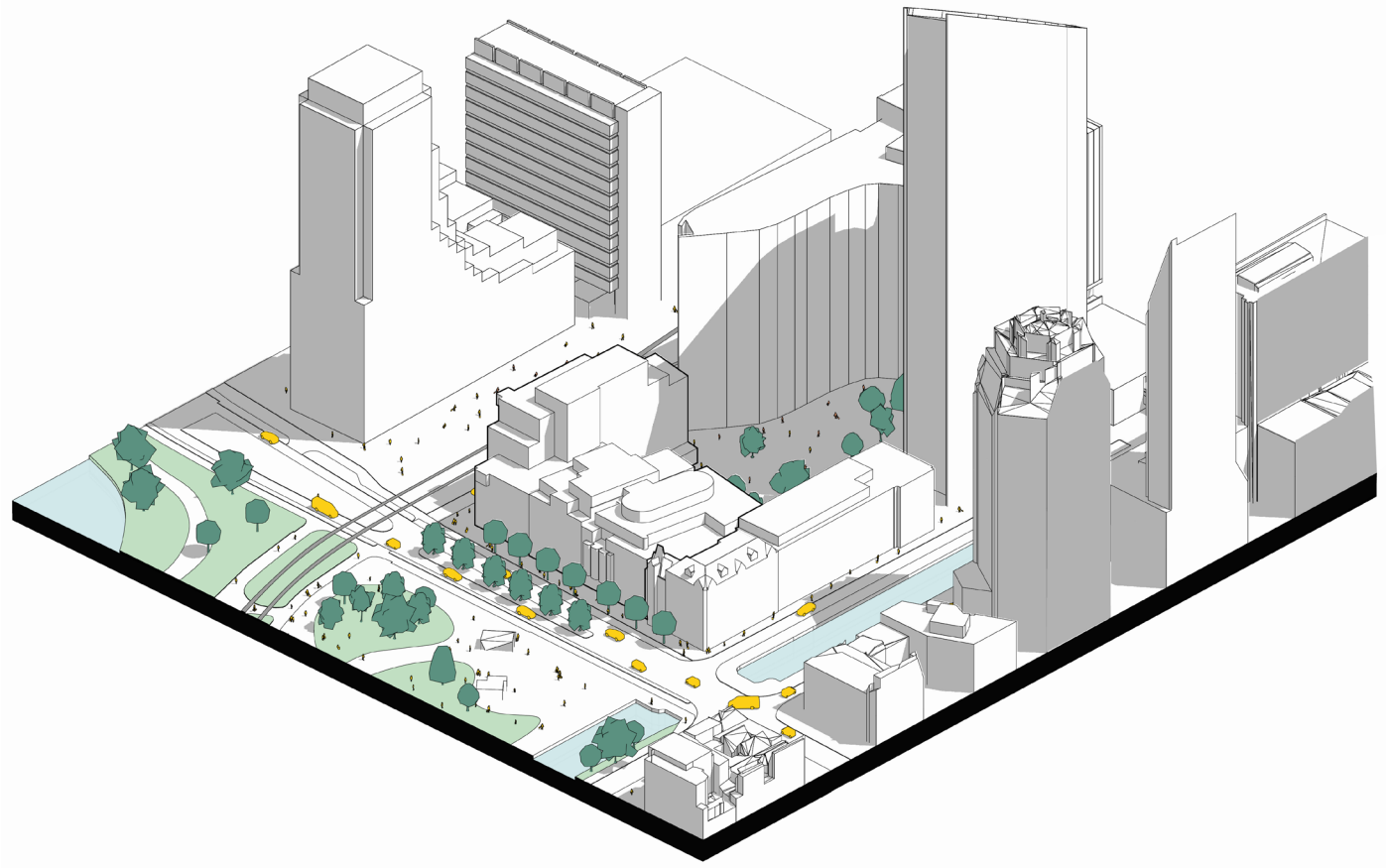
Creating voids near the facade

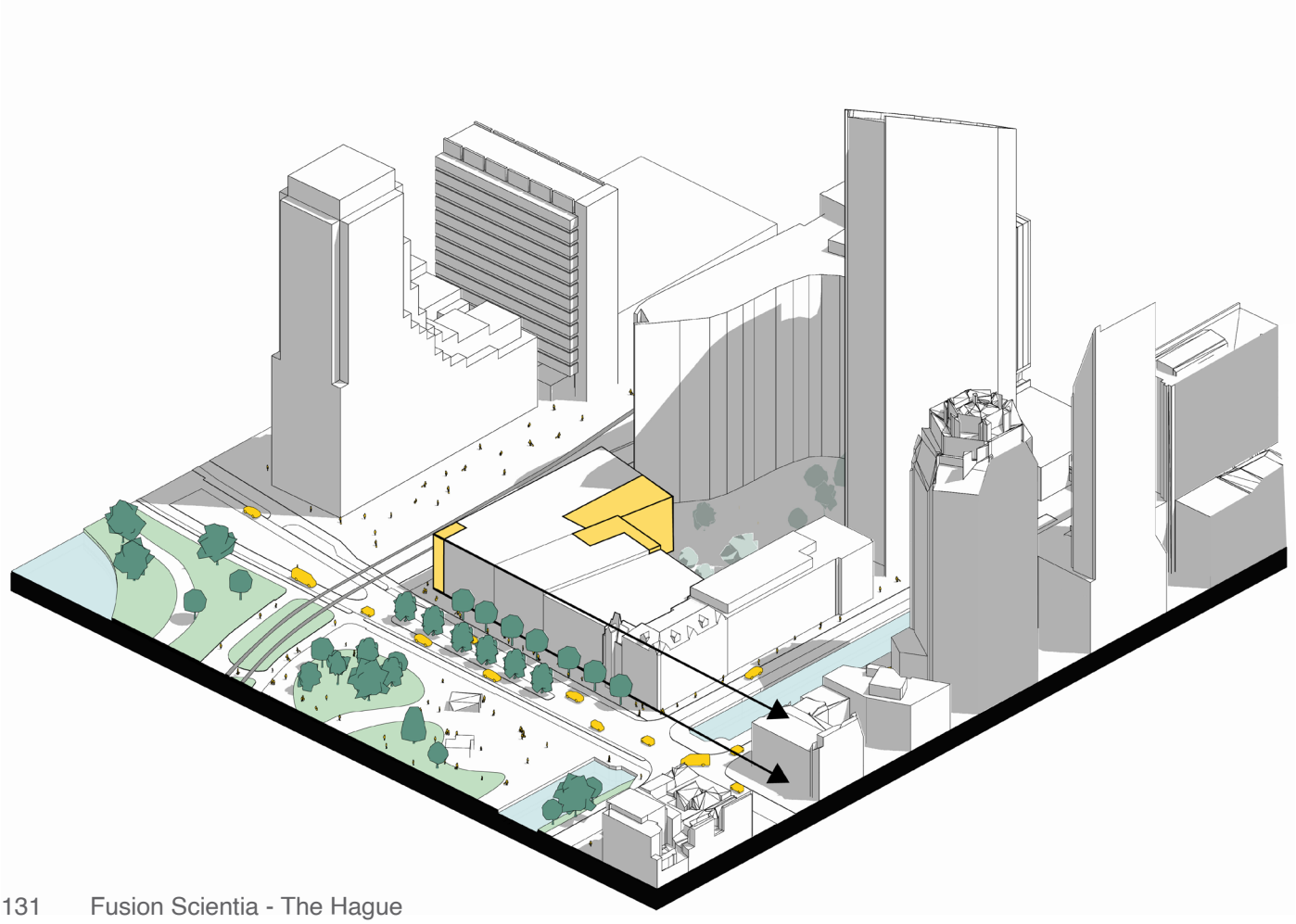


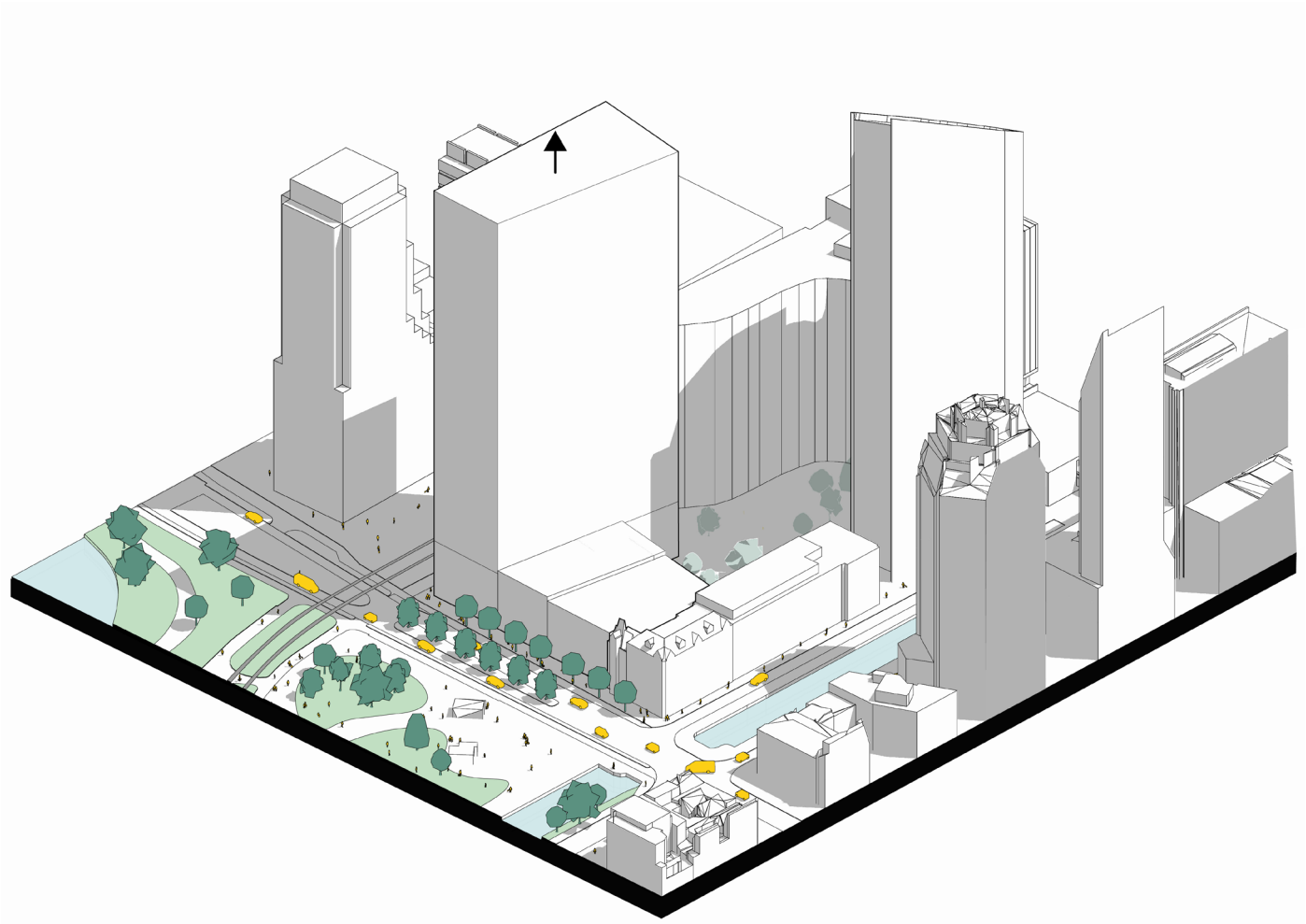
Creating voids in the center

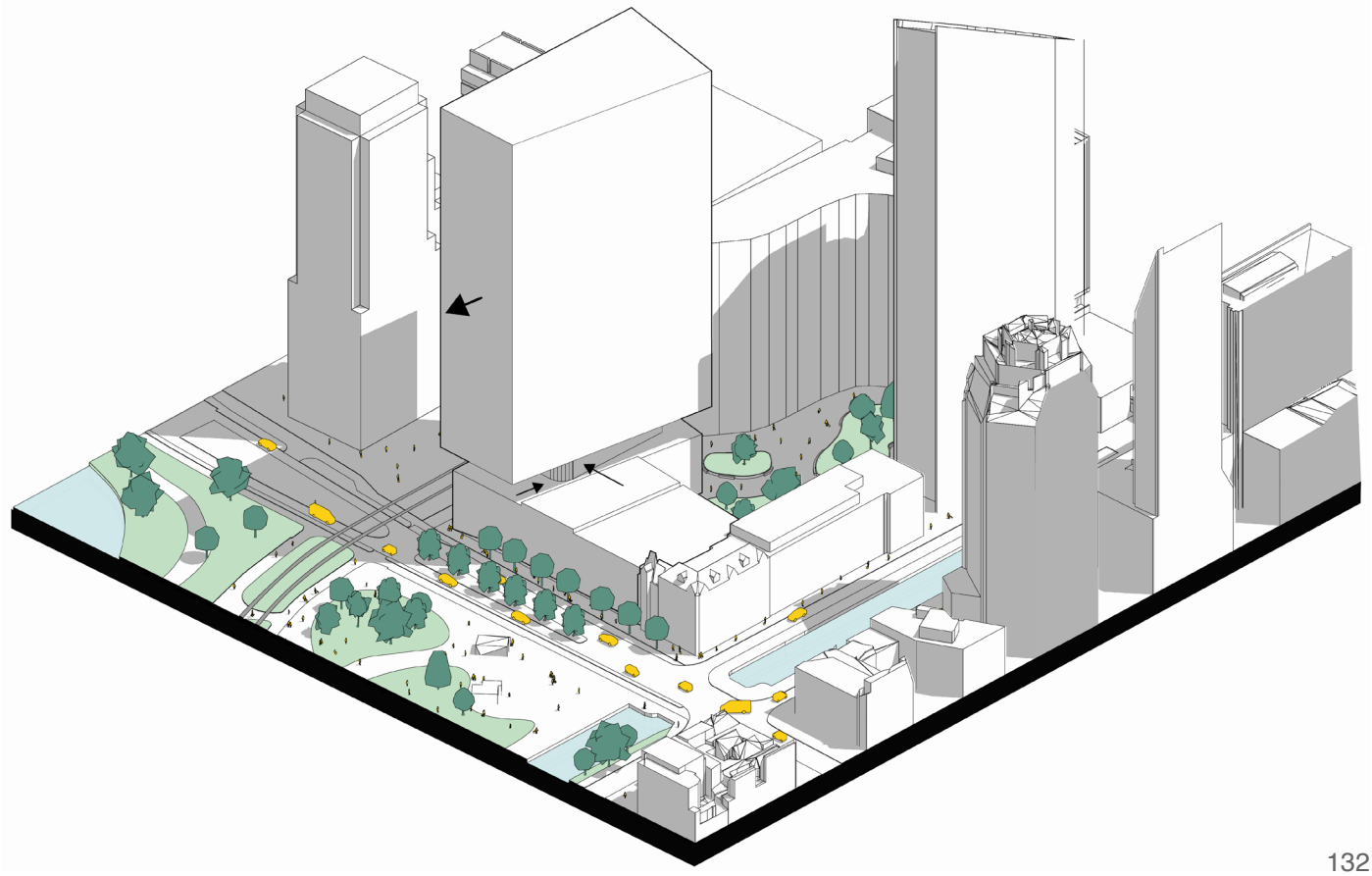
Massing Steps

Reshaping and adding volumes

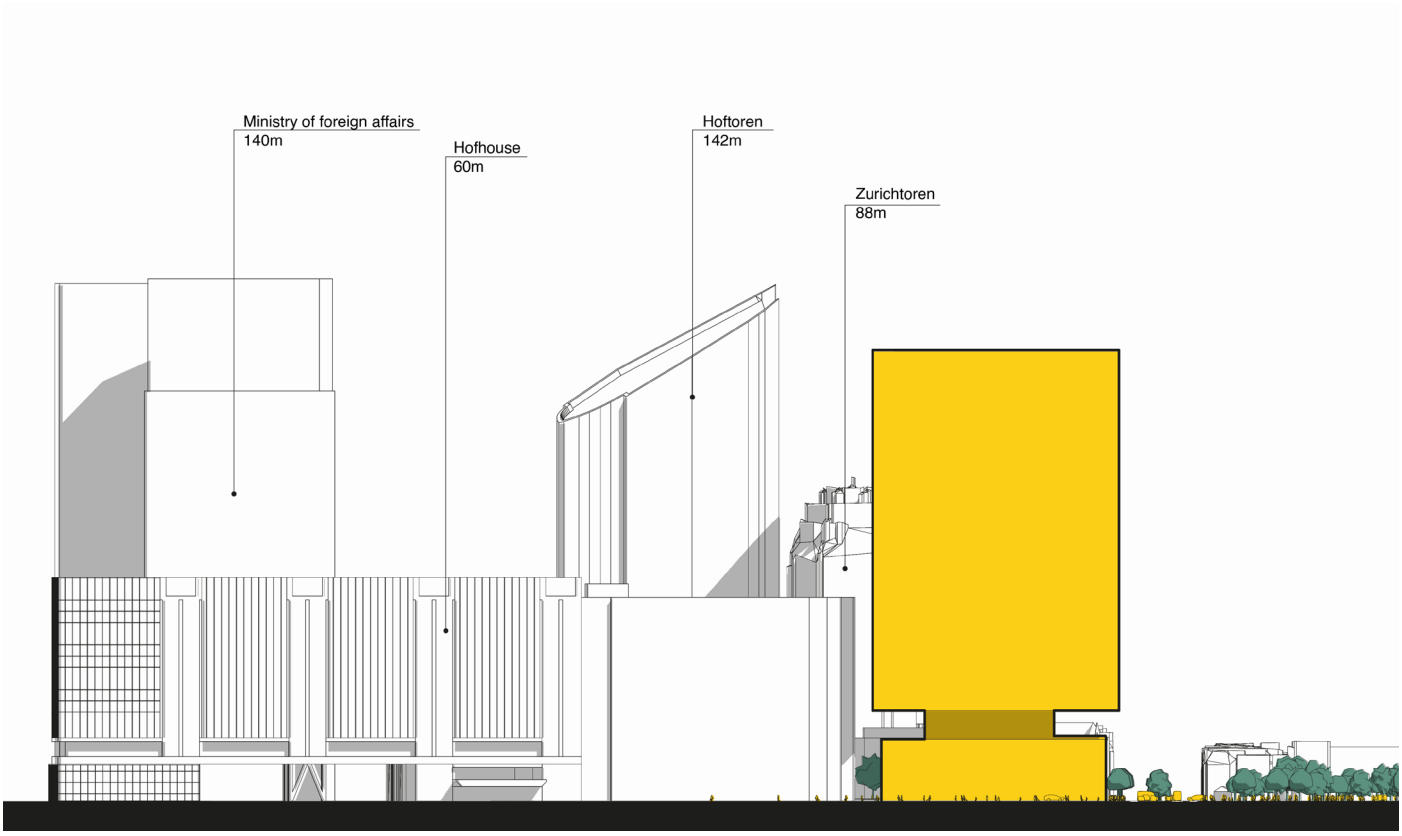


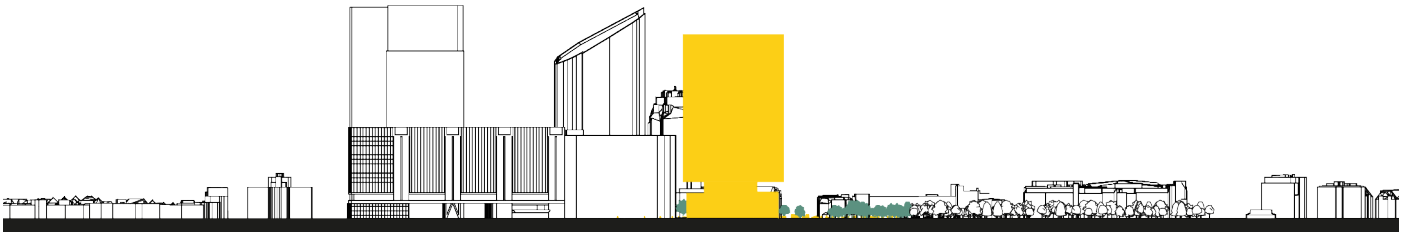




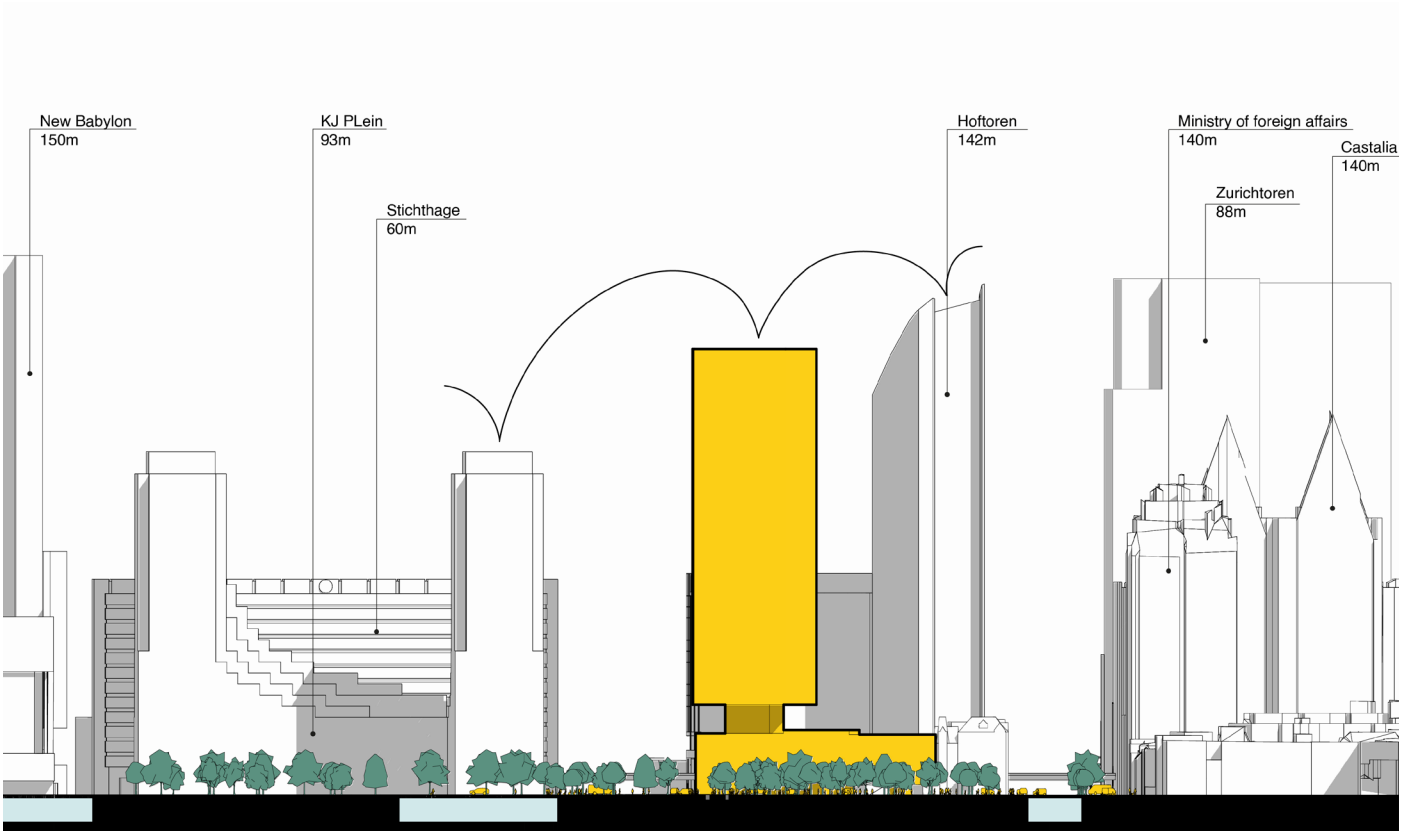


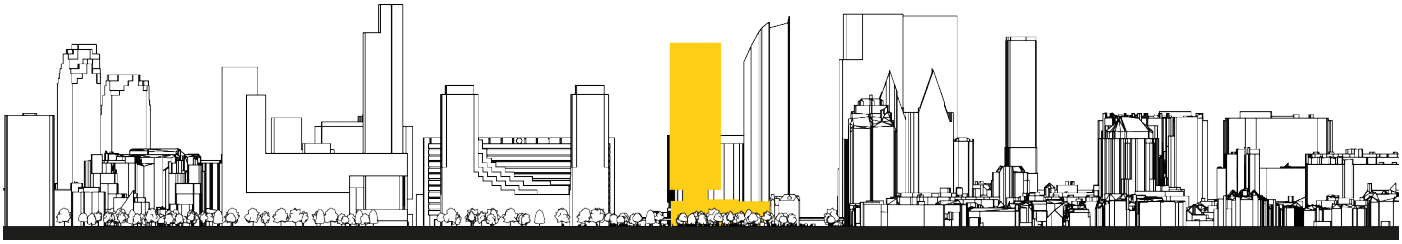
Urban Sections
North-South Section



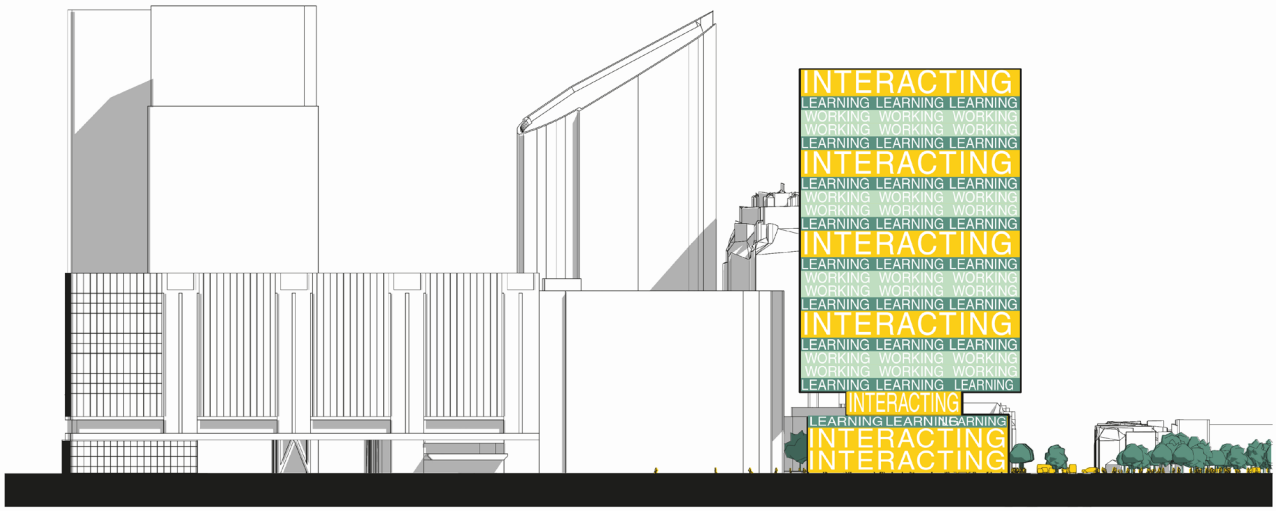


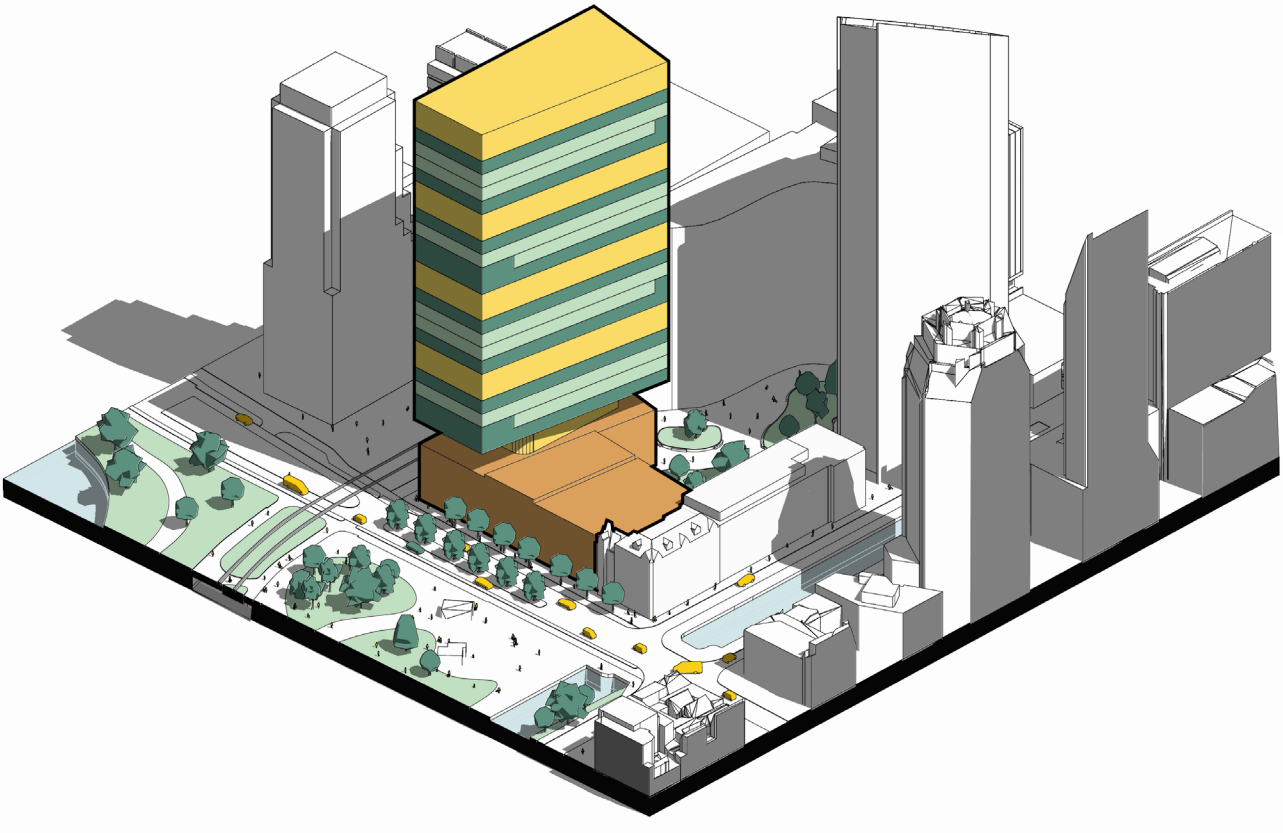
Urban Sections
East-West Section

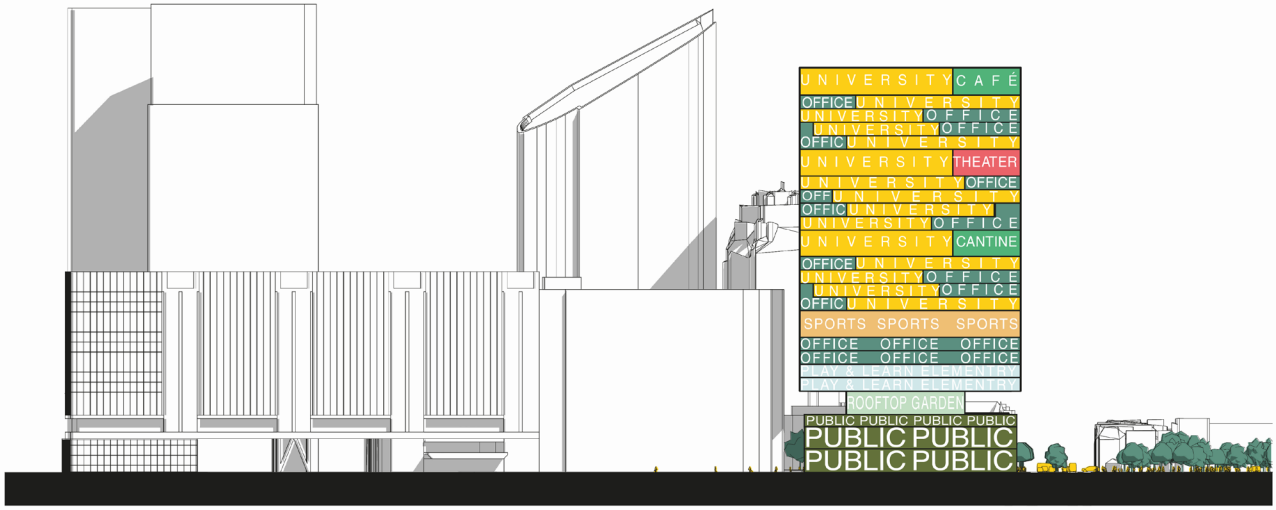




Program
Spacial Concept



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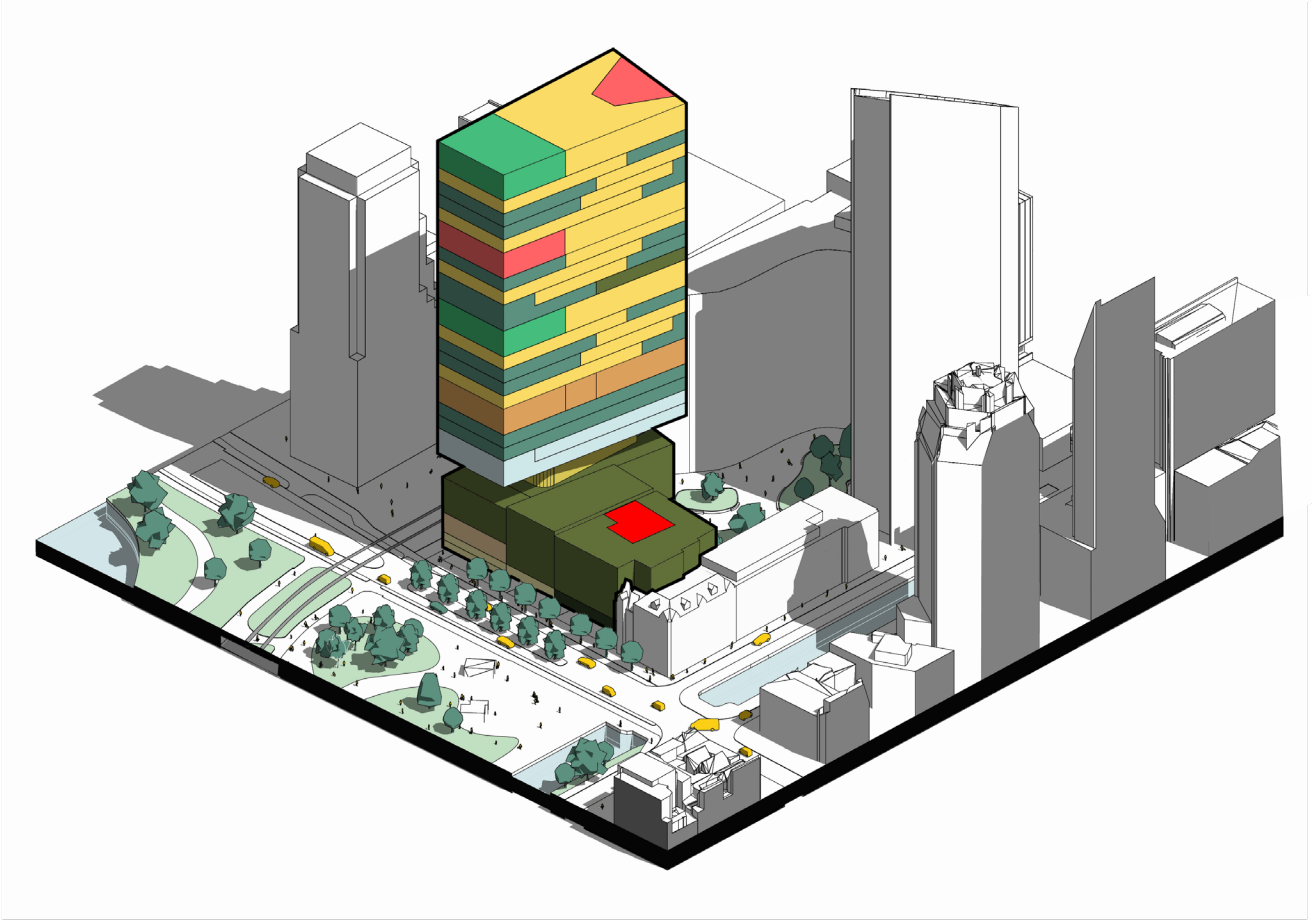
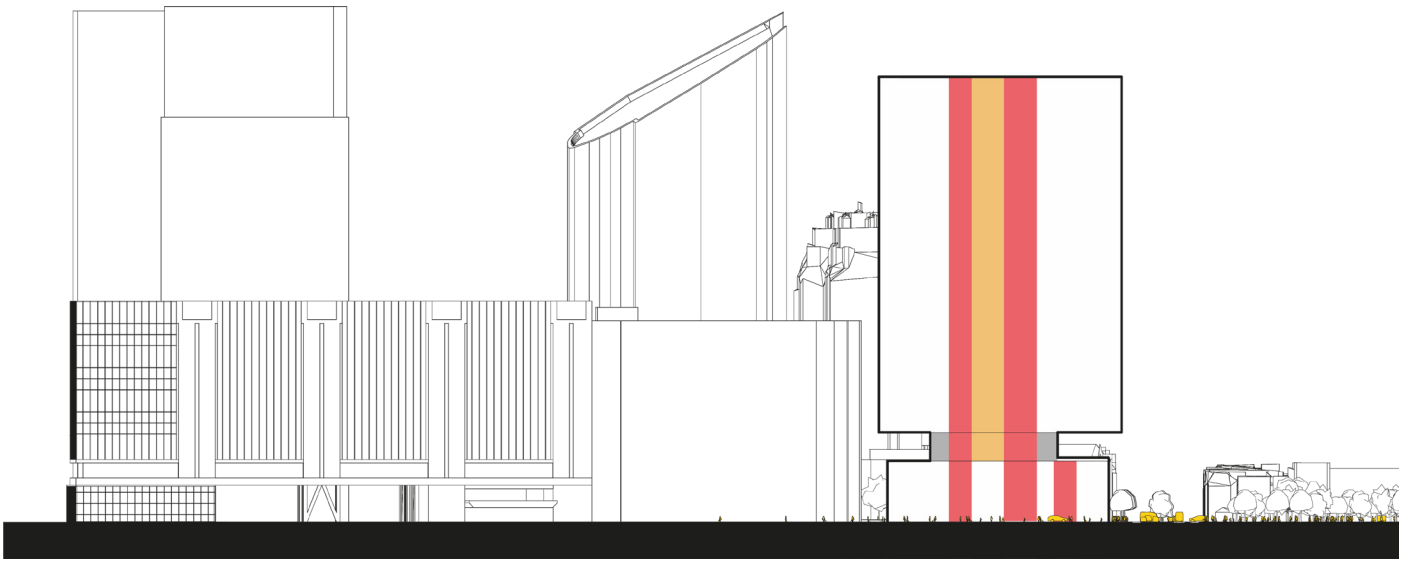
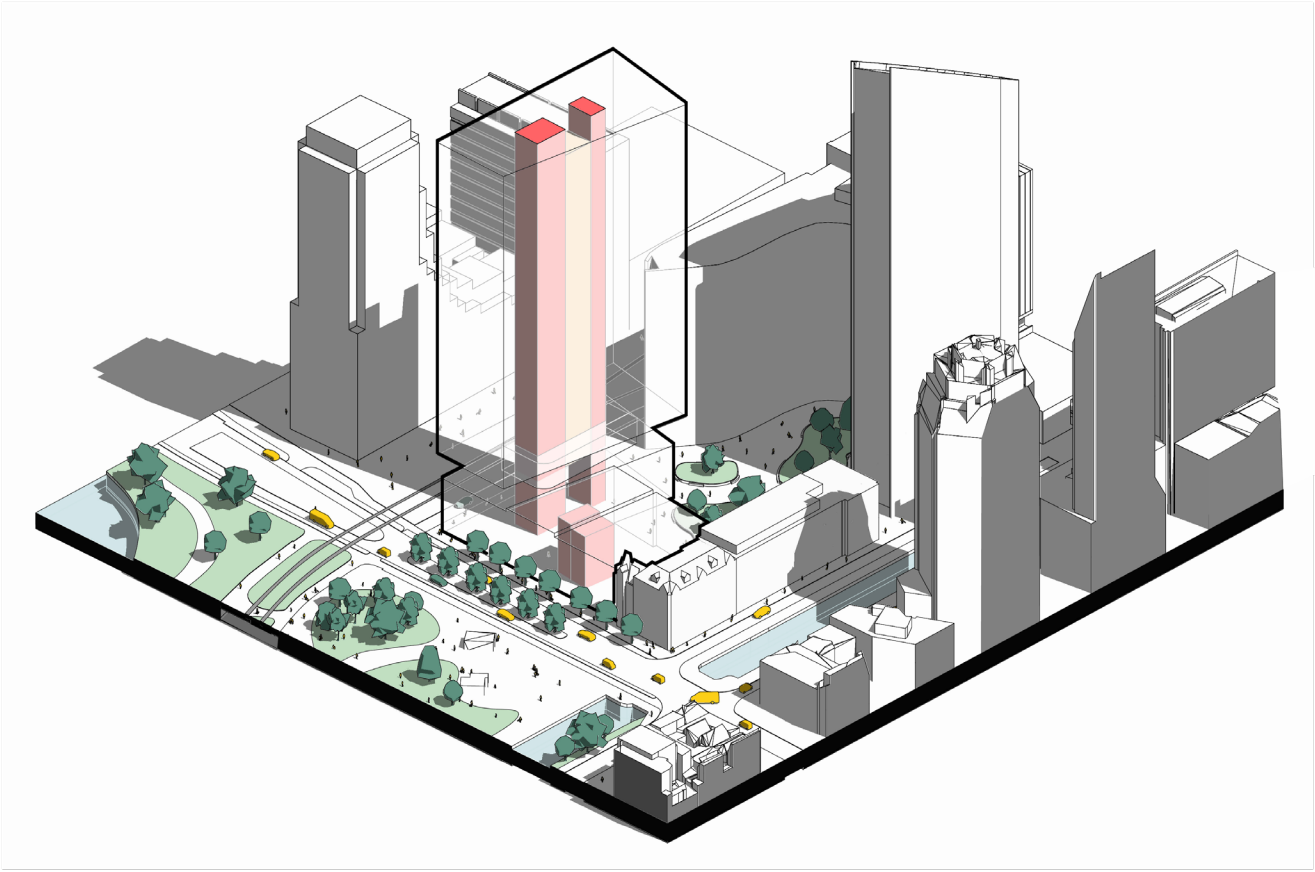
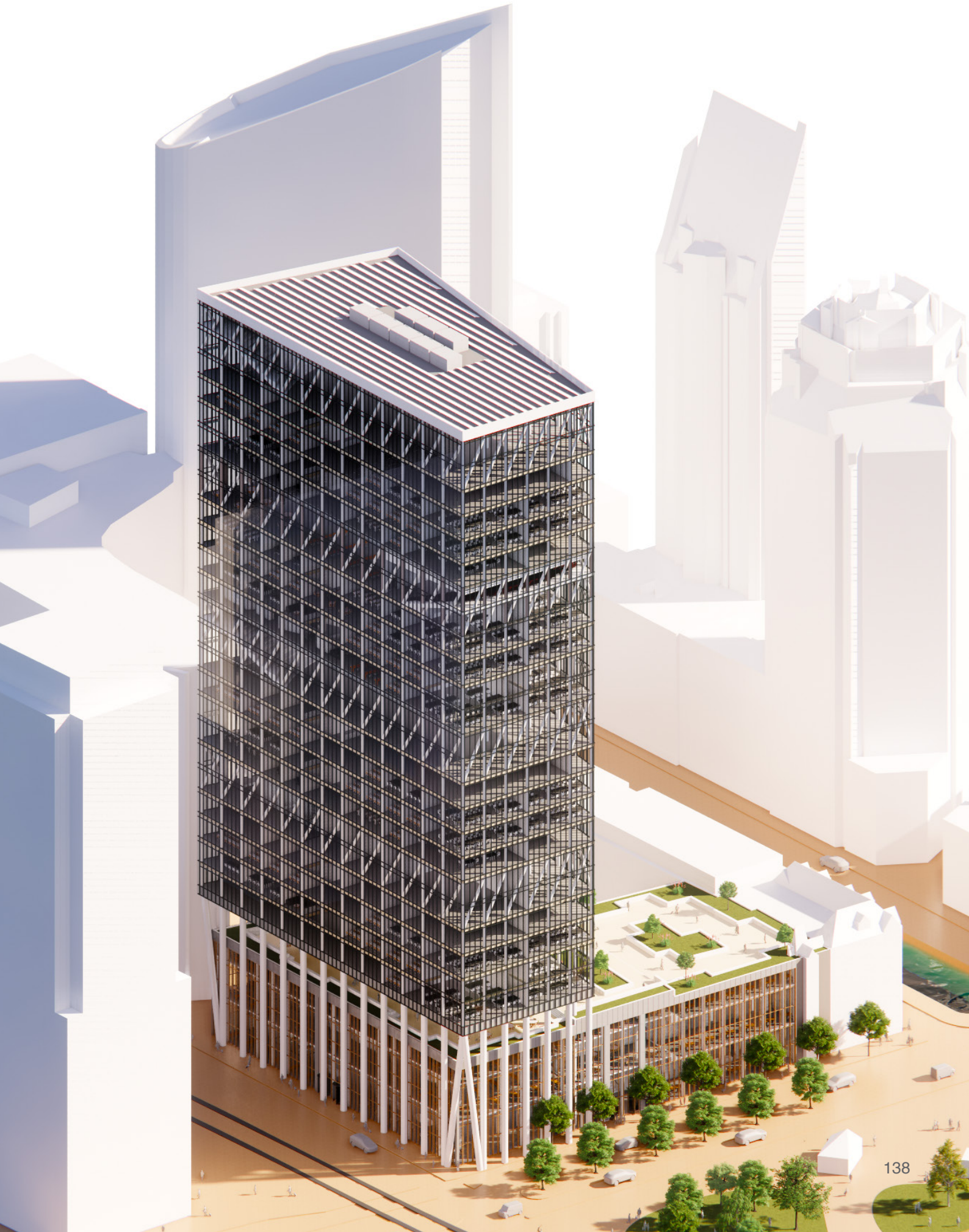


Flows
Vertical Circulation

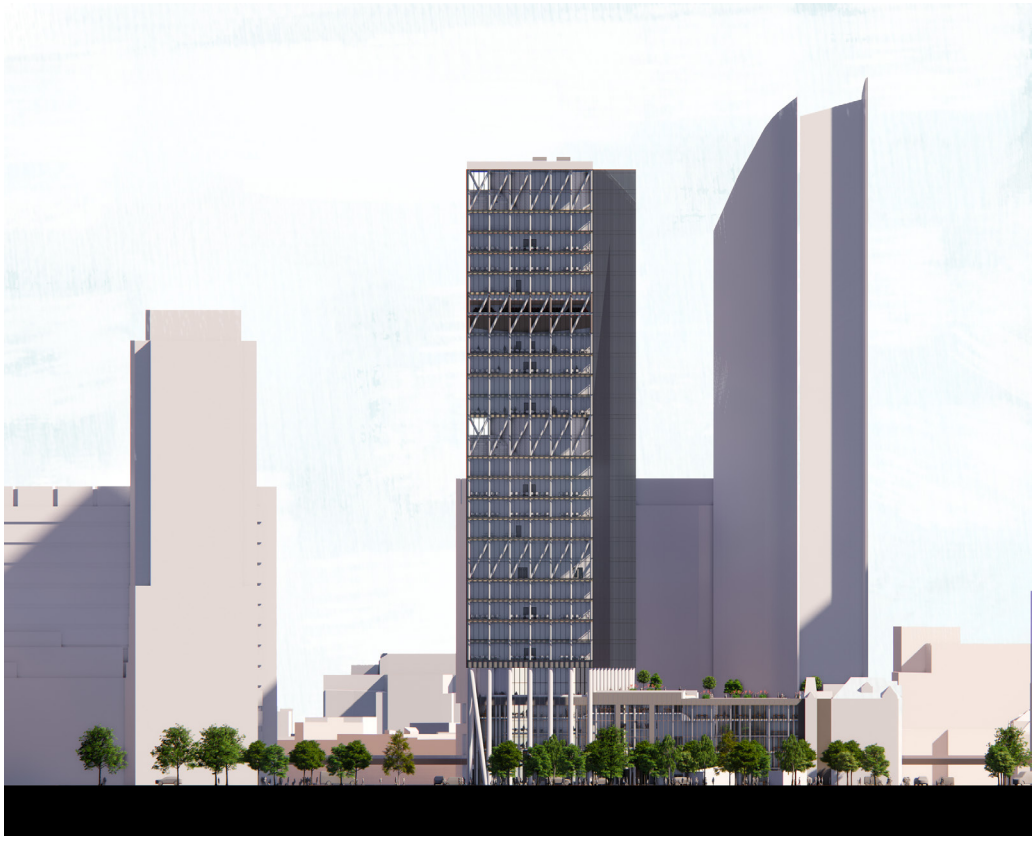




Final Design
Axometric



Final Design
Elevations Front & Right



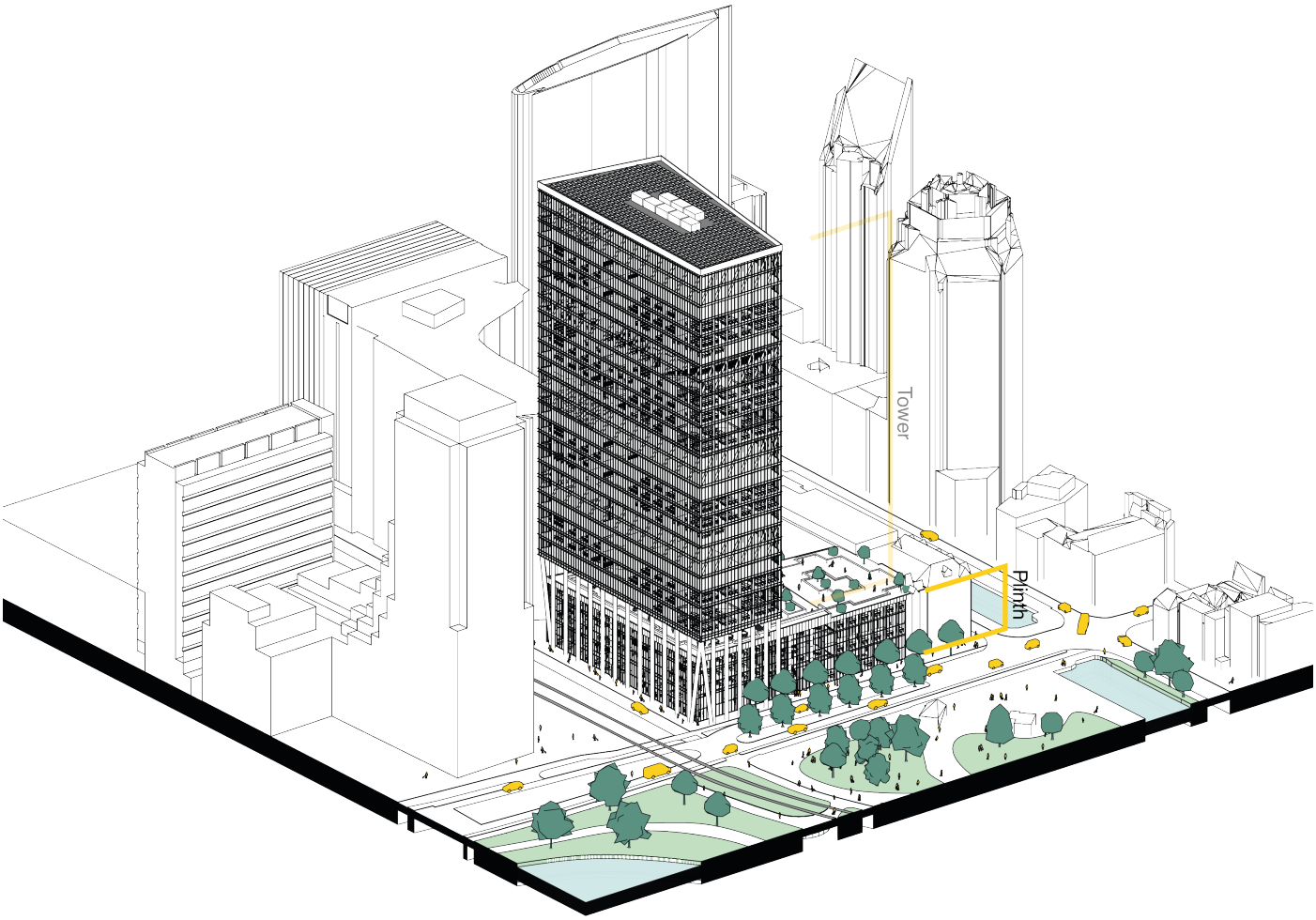


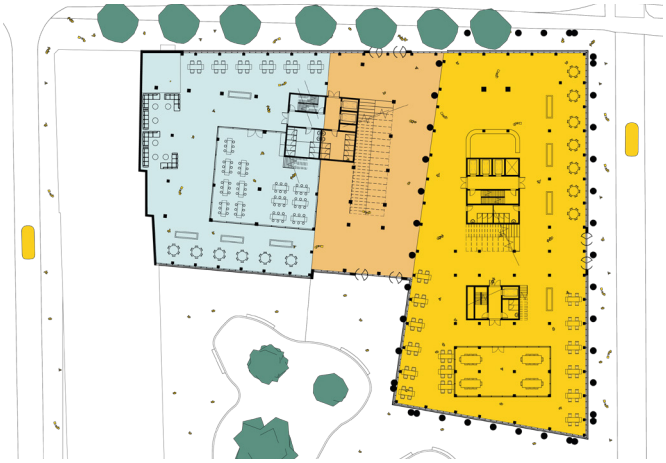
Final Design
Perspective Section

These elevations and perspectives illustrate how I leveraged the sloped shapes of the lecture halls and theaters by utilizing the empty void space they created for the rooms below. In the case of deeper rooms, I increased the ceiling height in certain areas to allow more light to reach further into the floor plan. The rhythm of the hubs is also clearly visible in these sections.

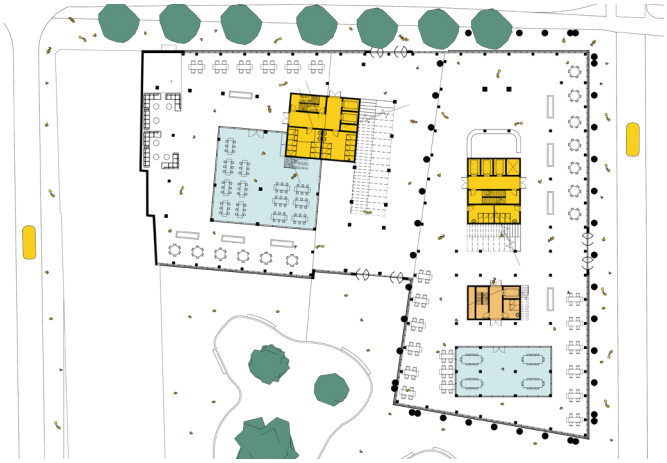


Plinth
Axometric





Old building structure



Enclosed program

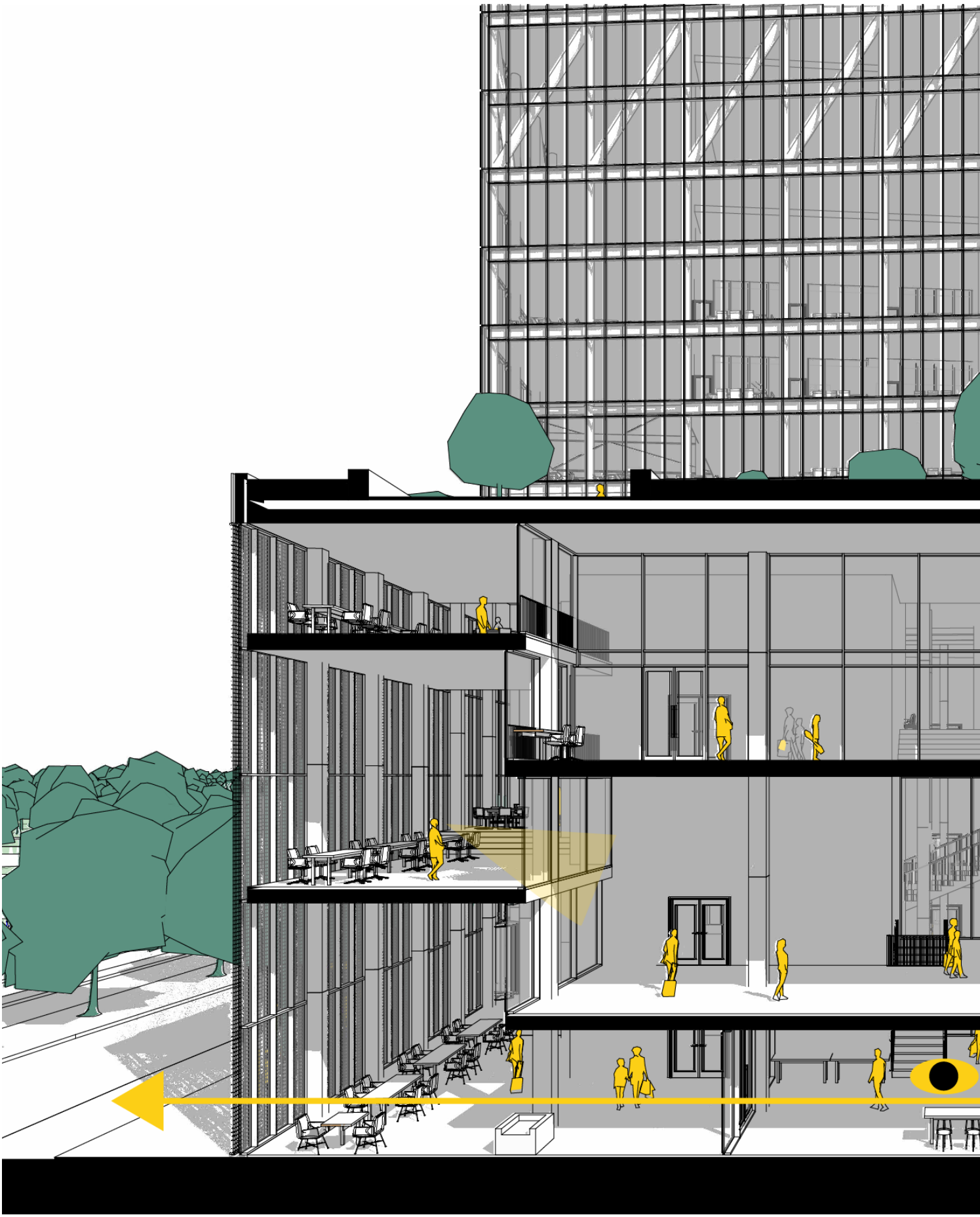


Open and traversable ground floor



Open and traversable ground floor

Plinth
Perspective Section



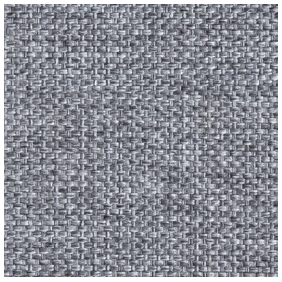


Plinth
Materialisation

For the materialization of the plinth and the tower, I opted for a natural and airy atmosphere, utilizing materials that promote a sense of lightness. The incorporation of wooden elements adds warmth to the spaces, creating a welcoming environment that fosters comfort and connection. This thoughtful choice of materials enhances the overall aesthetic and aligns with the project's emphasis on sustainability and harmony with the surrounding urban context.











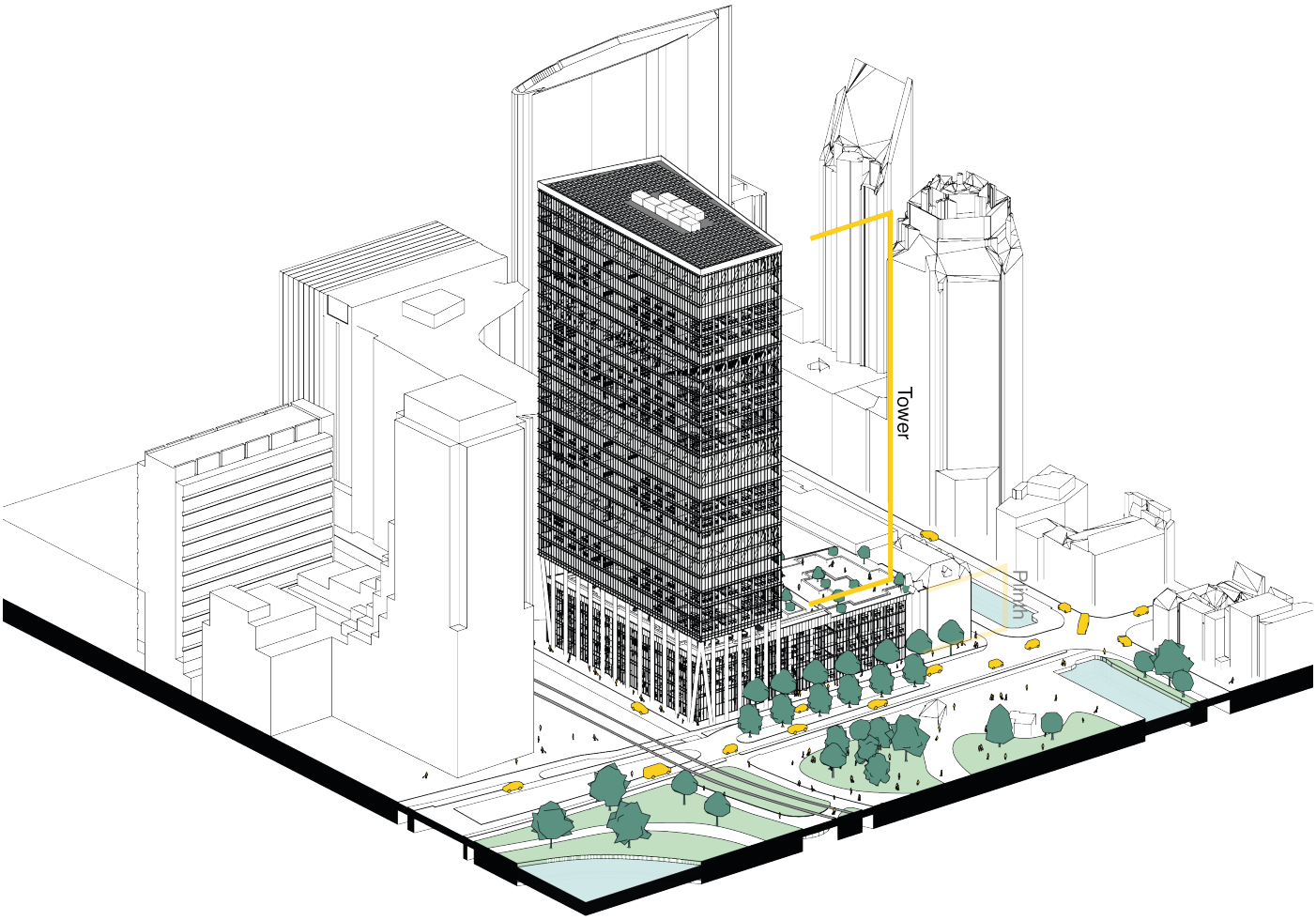




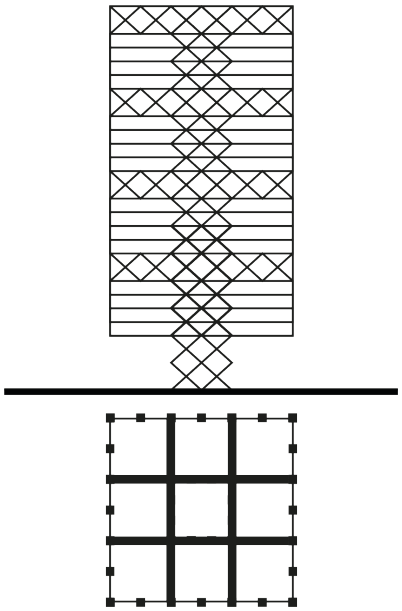
Tower
Axonometric

The structural principles of the tower were integral to the design and complemented the hub concept. Given the existing structure below, the tower is essentially supported by a table-like framework with mega columns placed outside the old foundation.

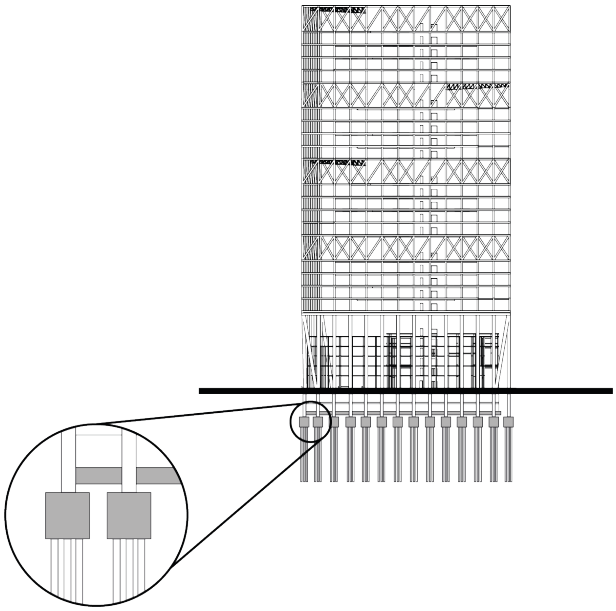
The tower itself employs an outrigger structure with diagonal braces in the facade, which combine two concrete floors into a single rigid element. The next four floors are supported by this outrigger structure, and the bracing in the facade helps transfer downward forces through the concrete floors to the building's central core. Additionally, the braces manage the wind loads on the facade, with these horizontal forces also being directed through the concrete floors into the central core.

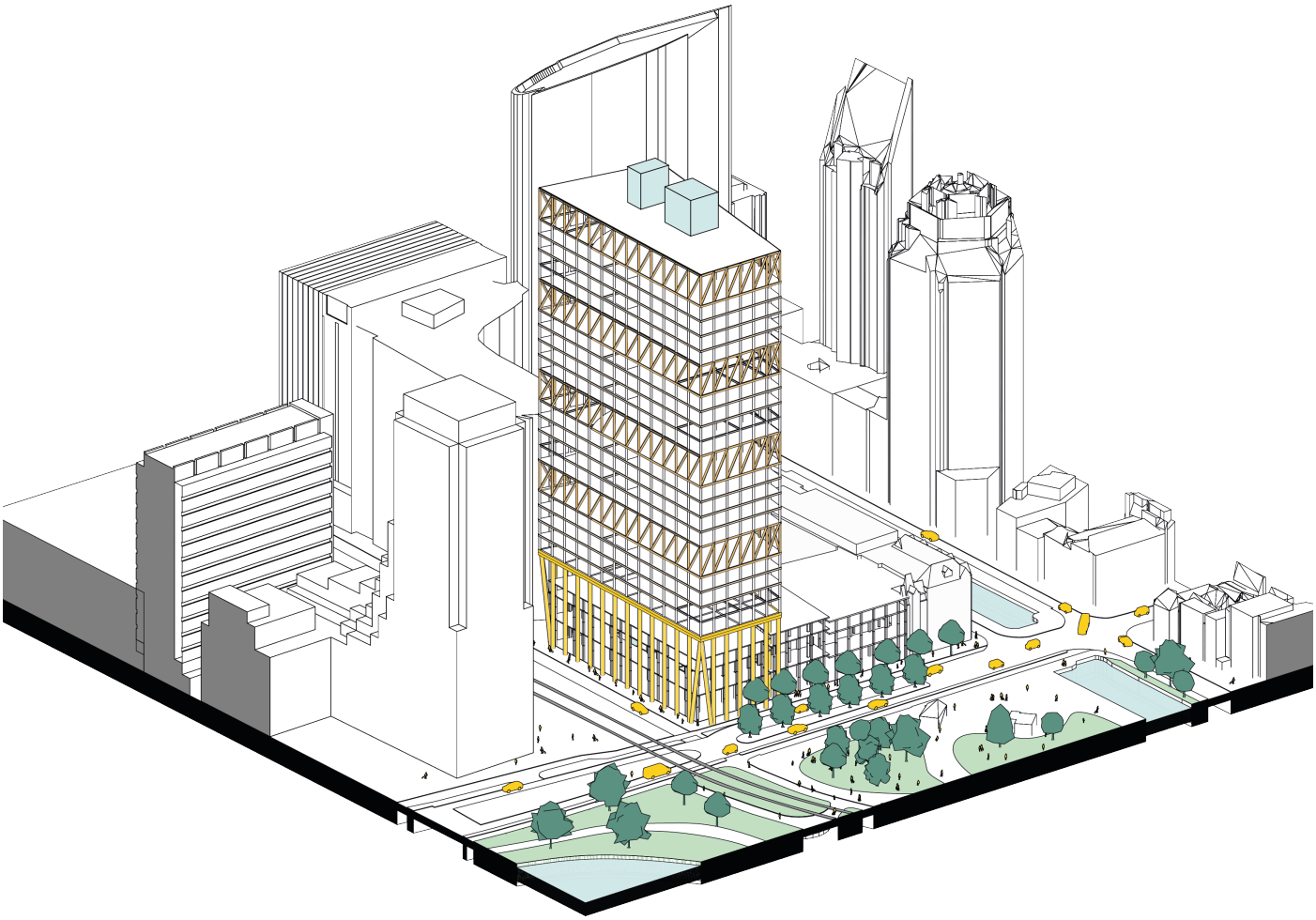


Outrigger structure

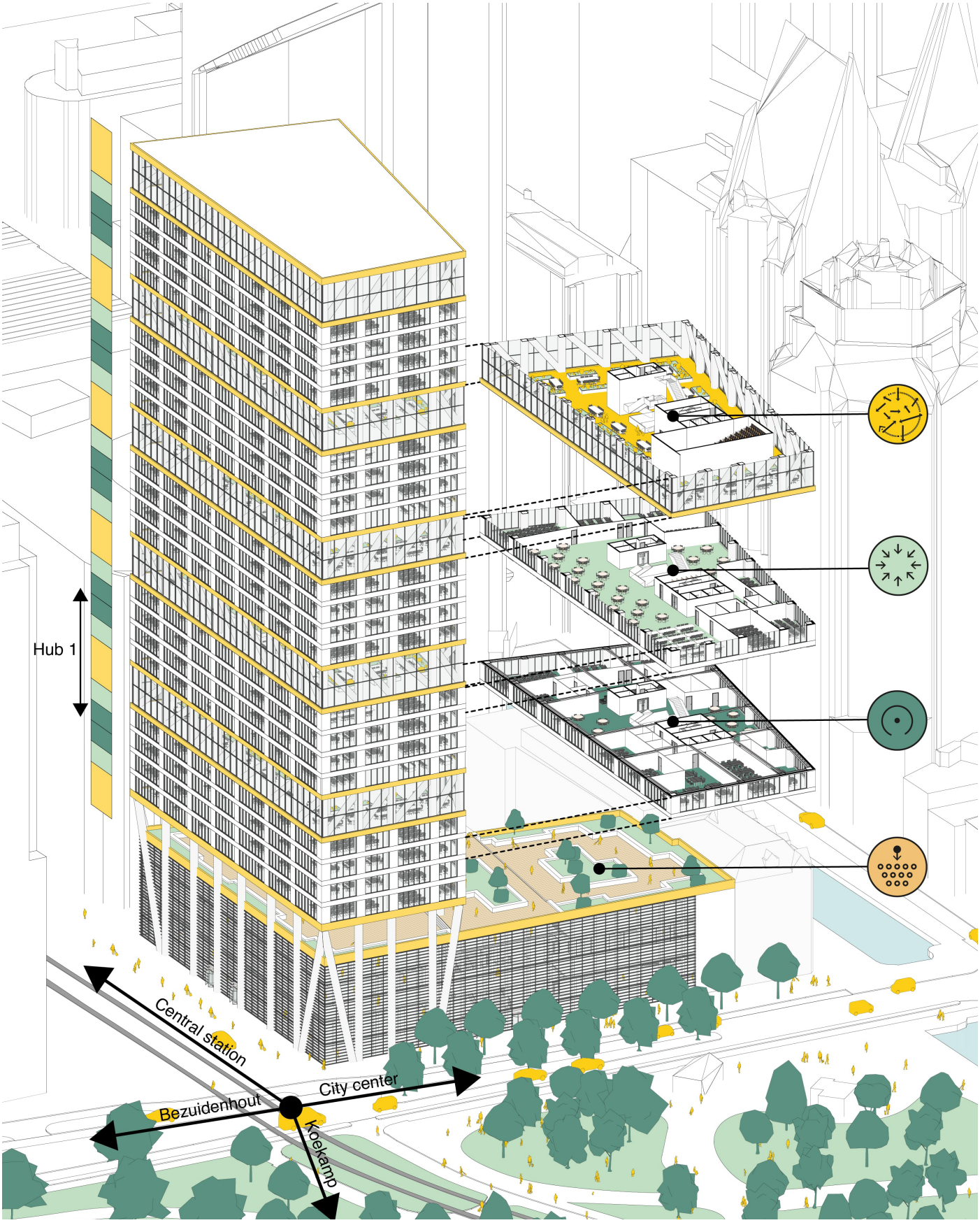


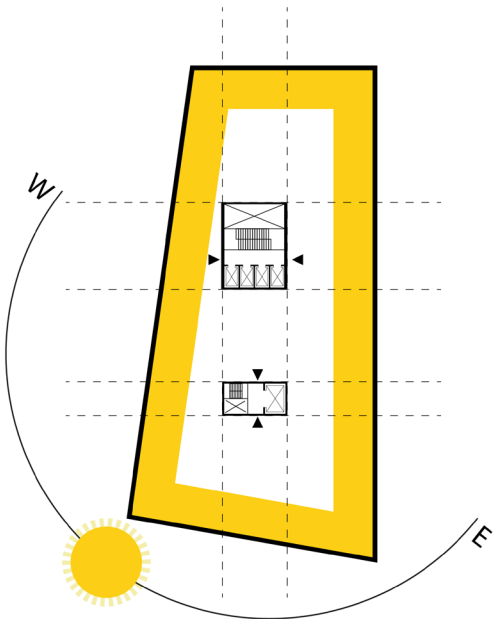
Foundation



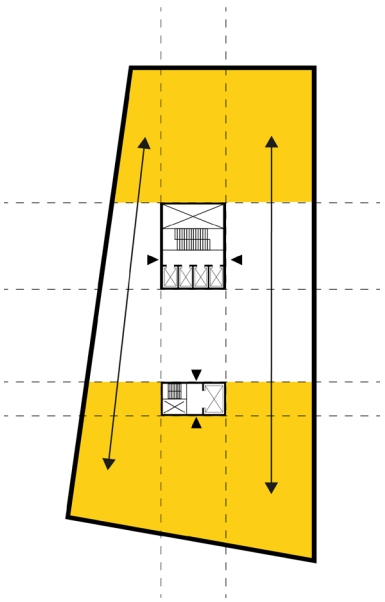


Tower
Hub-Concept

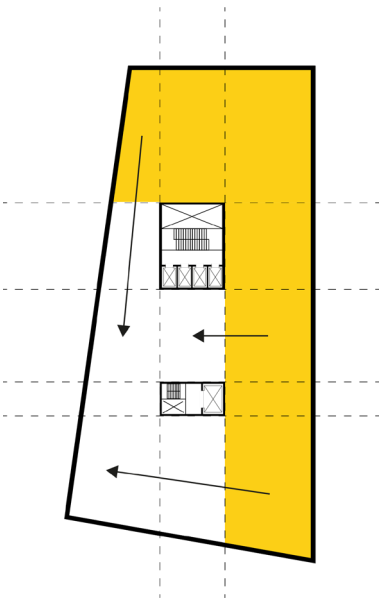




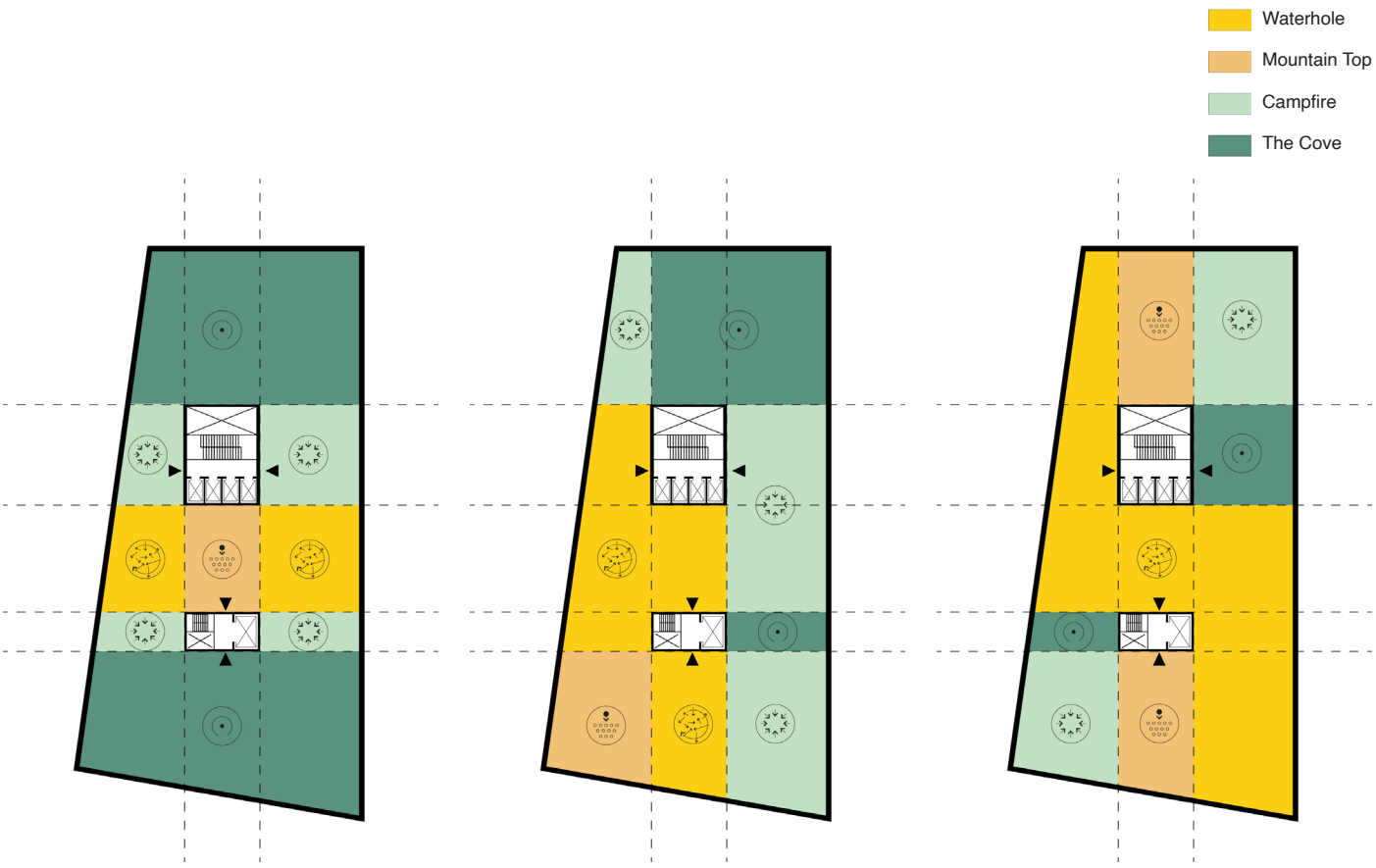
Exterior oriented program



Seperated program



Sun Oriented program



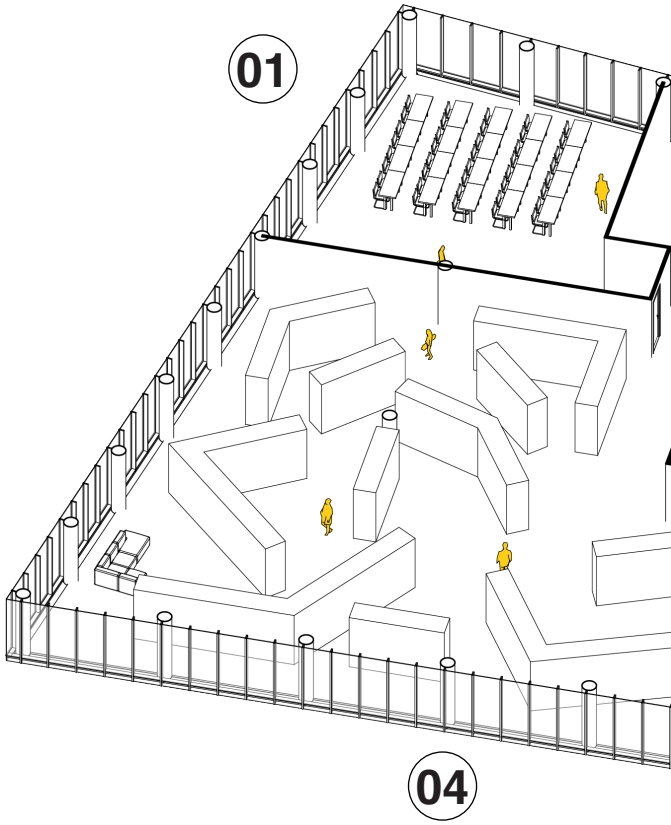
Work

Learn

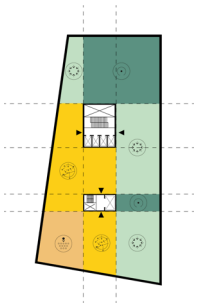
Interact

Floorplans
19th floor

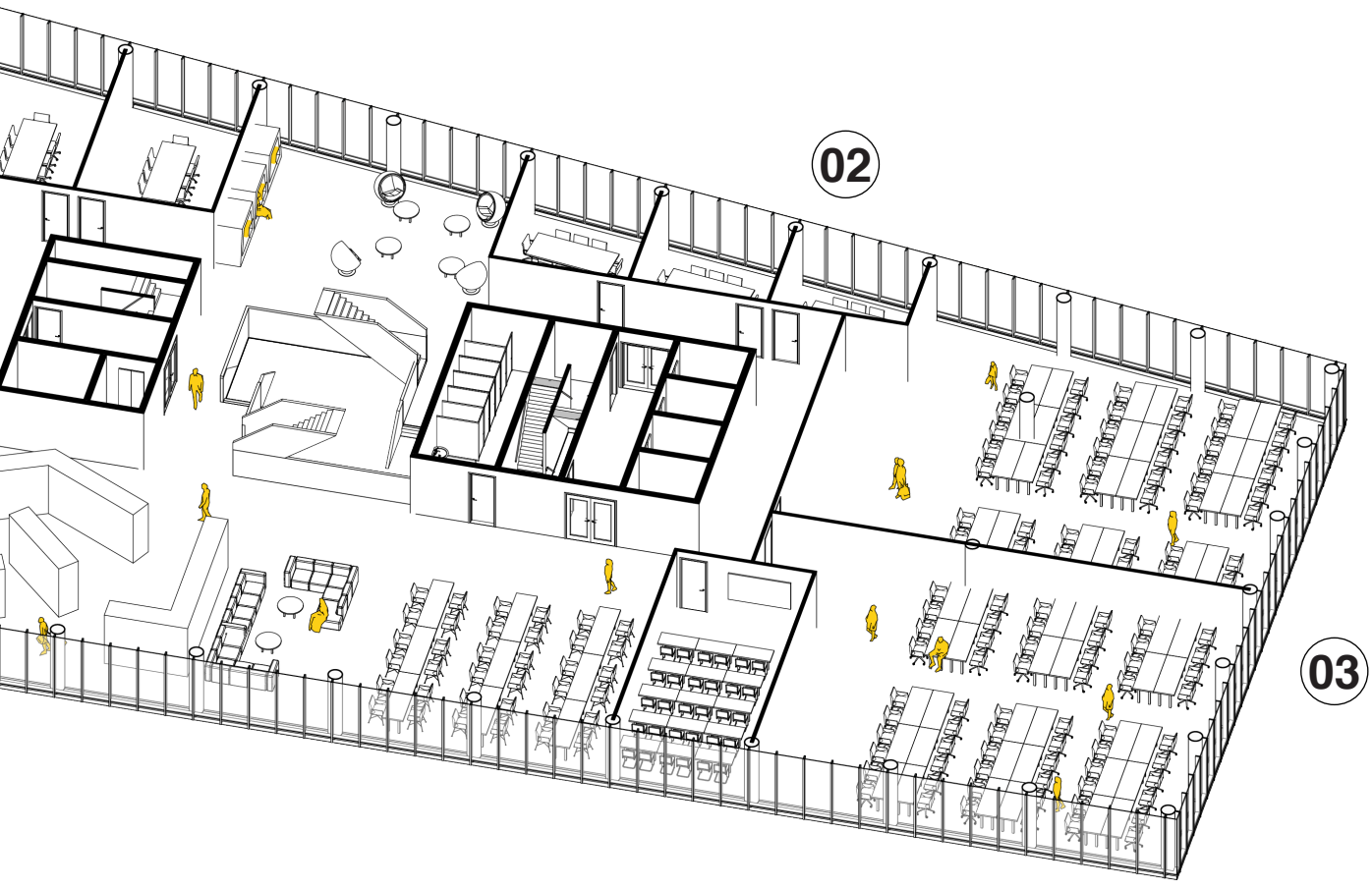




Design Principle: Campfire



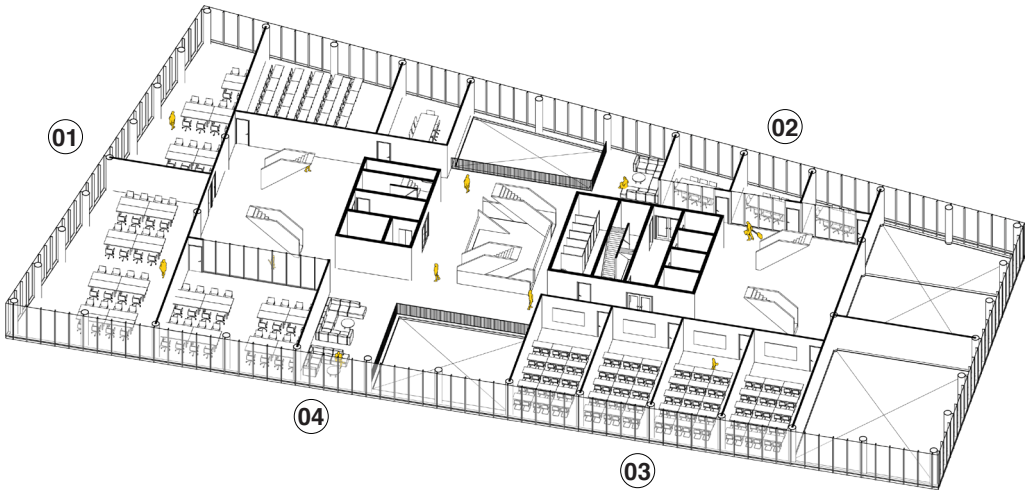
01 Research spaces
02 Conference rooms
03 Flex offices
04 Library



Rediscover
Concept

Design Principle: The Cove

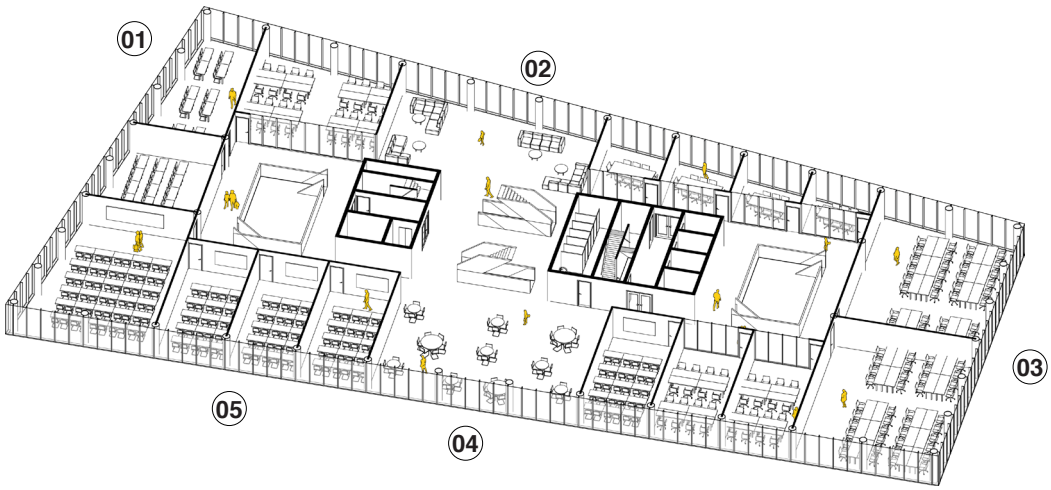
01 Office spaces
02 Meeting rooms
03 Classrooms
04 Lounge





Design Principle: The Cove

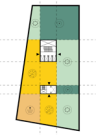
01 Lab spaces
02 Lounge
03 Office space
04 Atelier
05 Classrooms



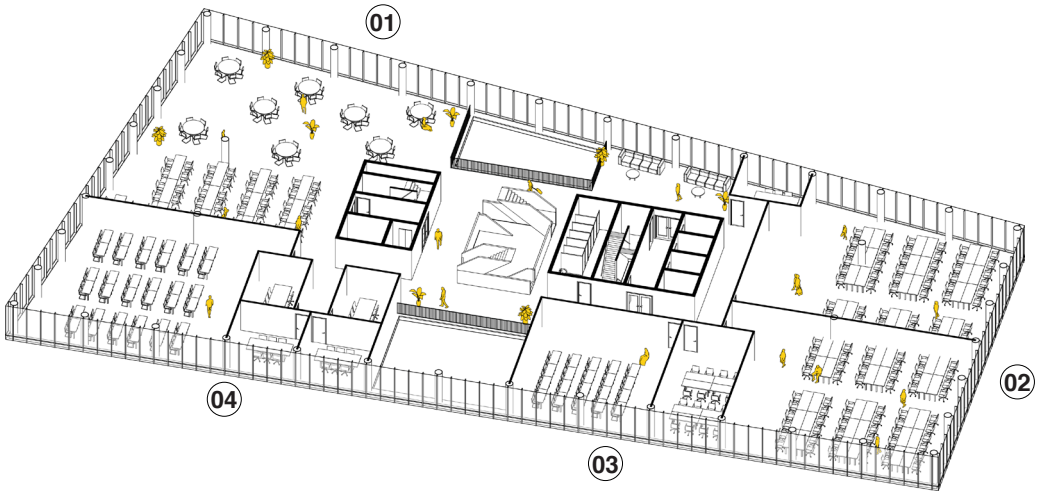


Design Principle: Campfire

01 Atelier spaces
02 Flex office
03 Classrooms
04 Research spaces

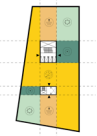


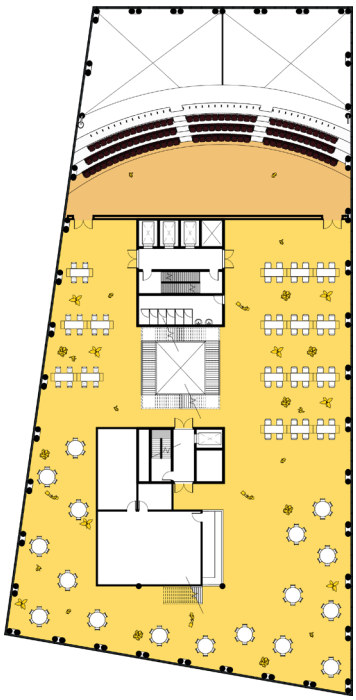


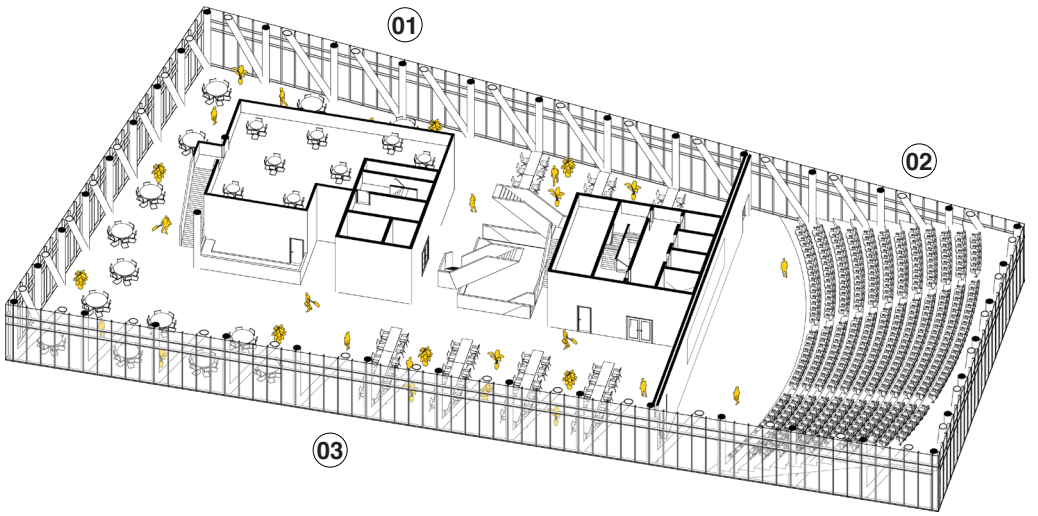


Design Principle: Waterhole

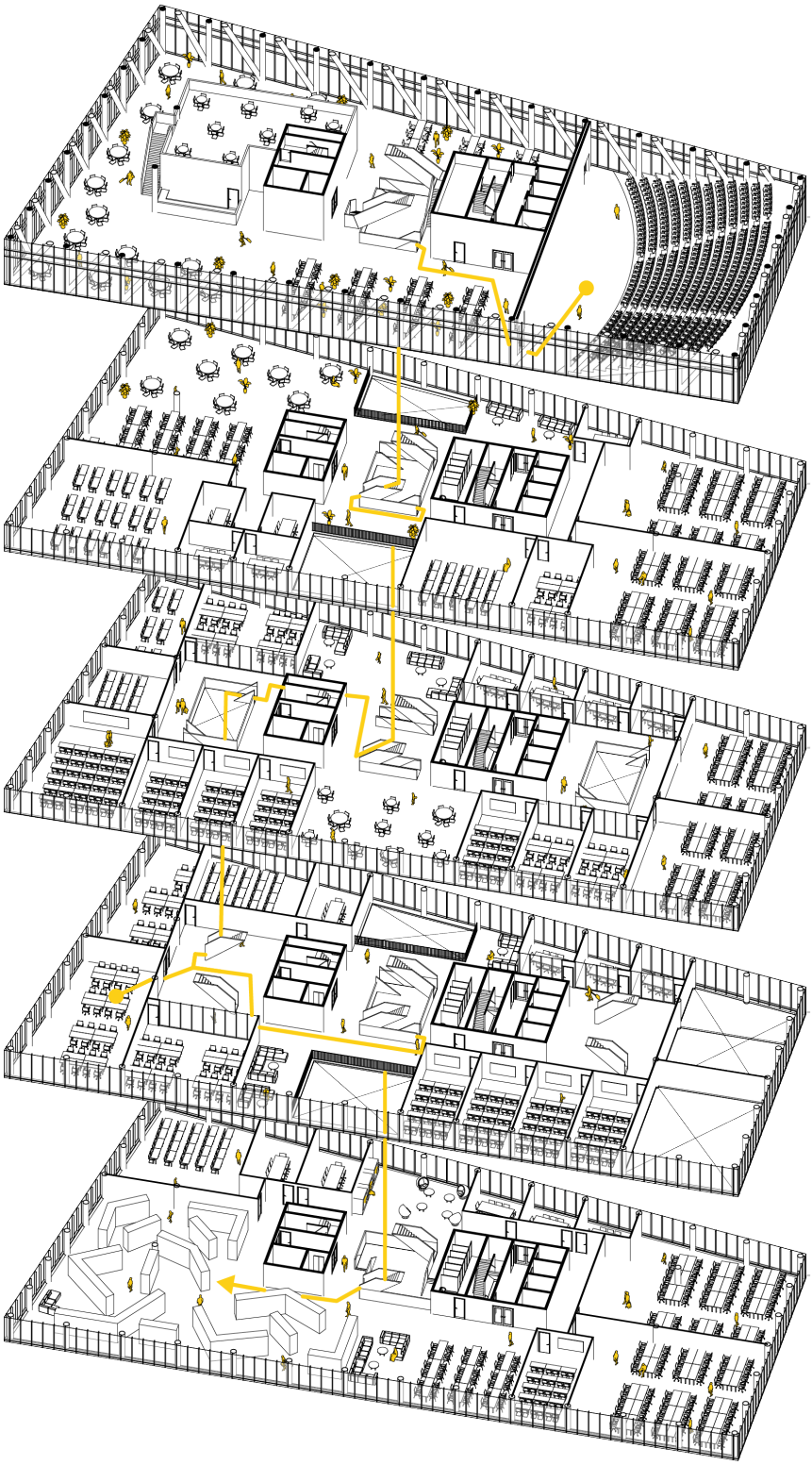
01 Cantine & café
02 Large Theater
03 Atelier spaces







Tower
Axonometric



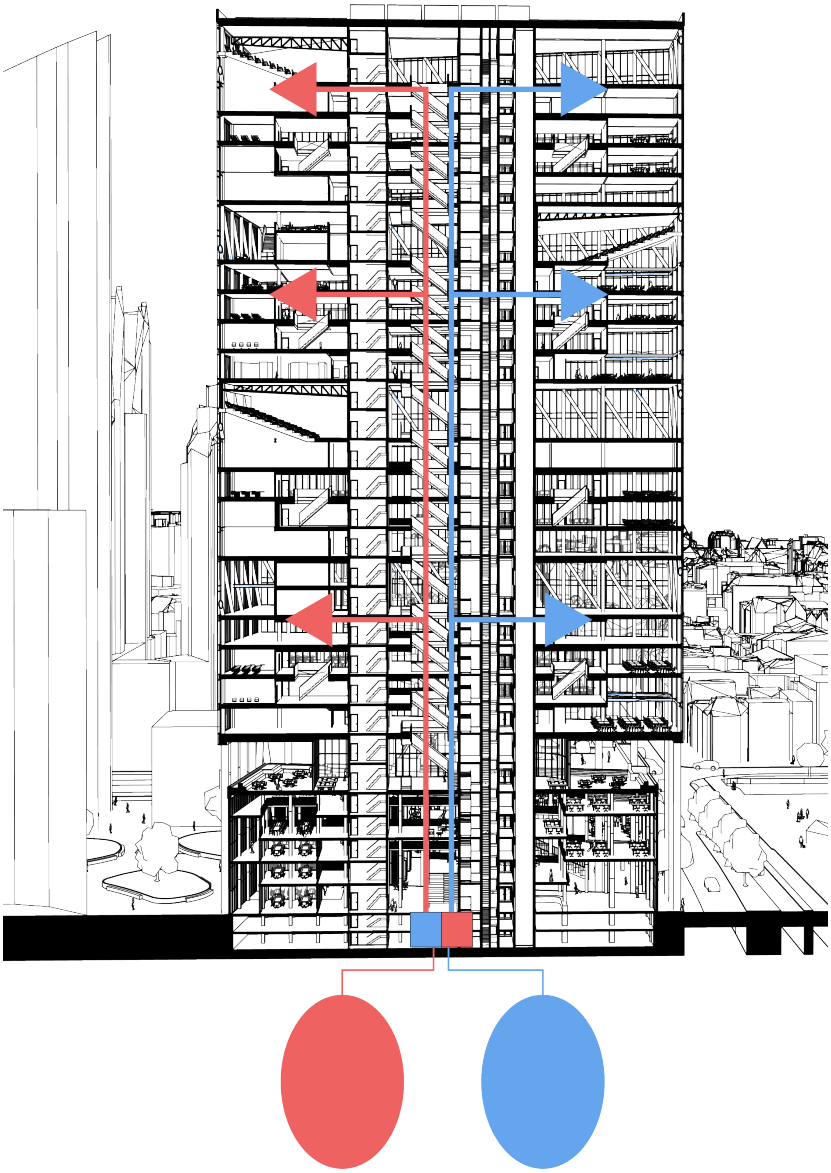
23 Interact

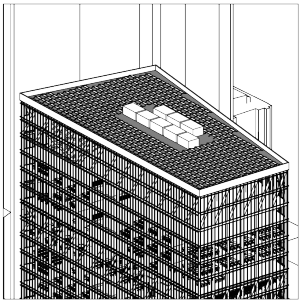
22 Learn

21 Work

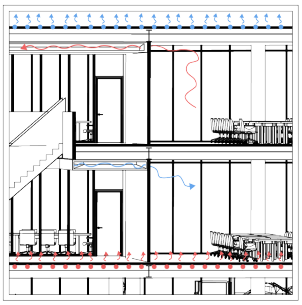
20 Work

19 Learn

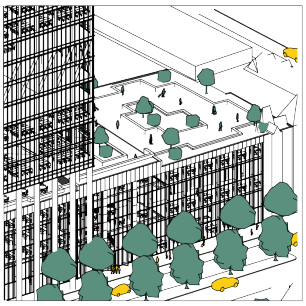




Green energy

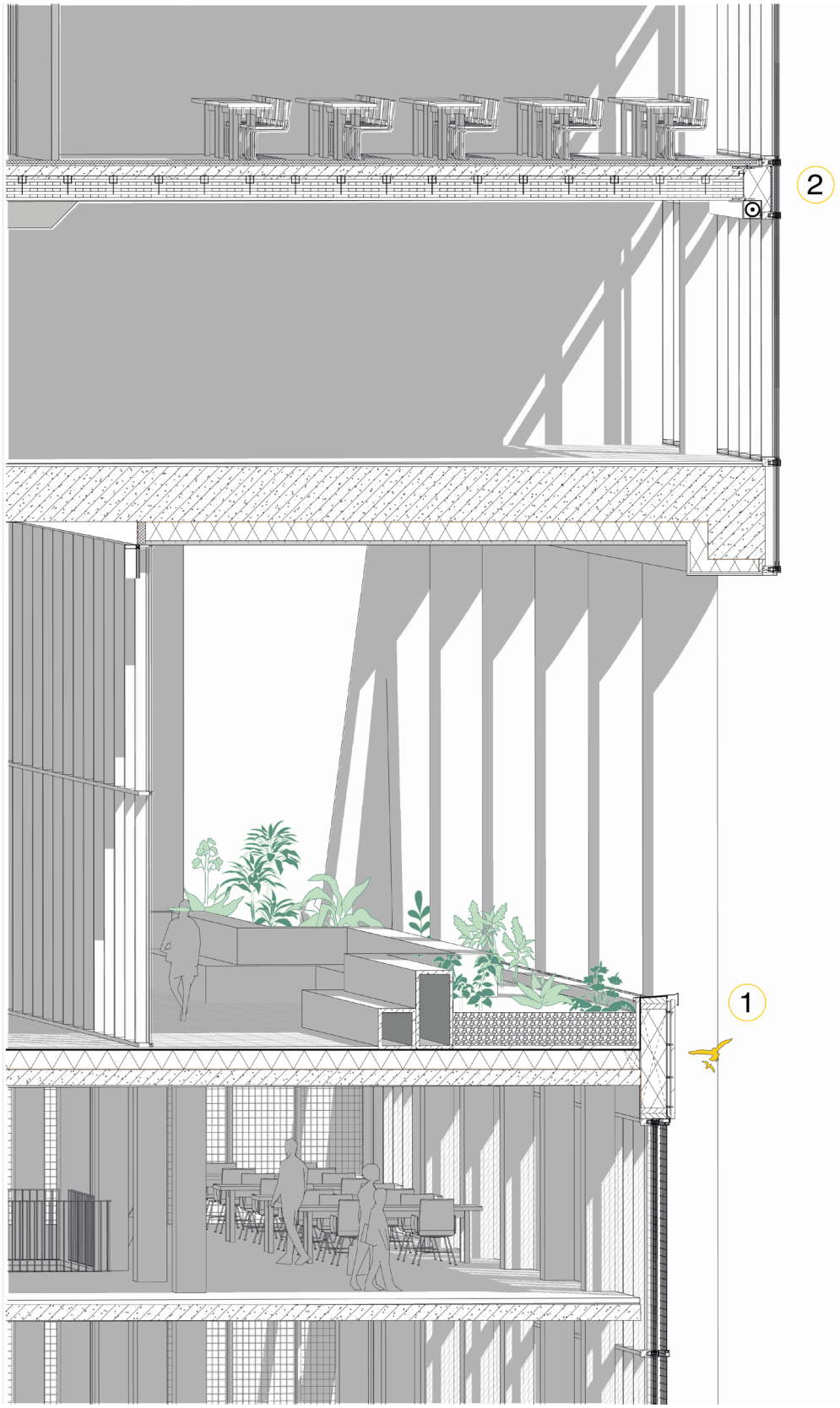


Heating & cooling



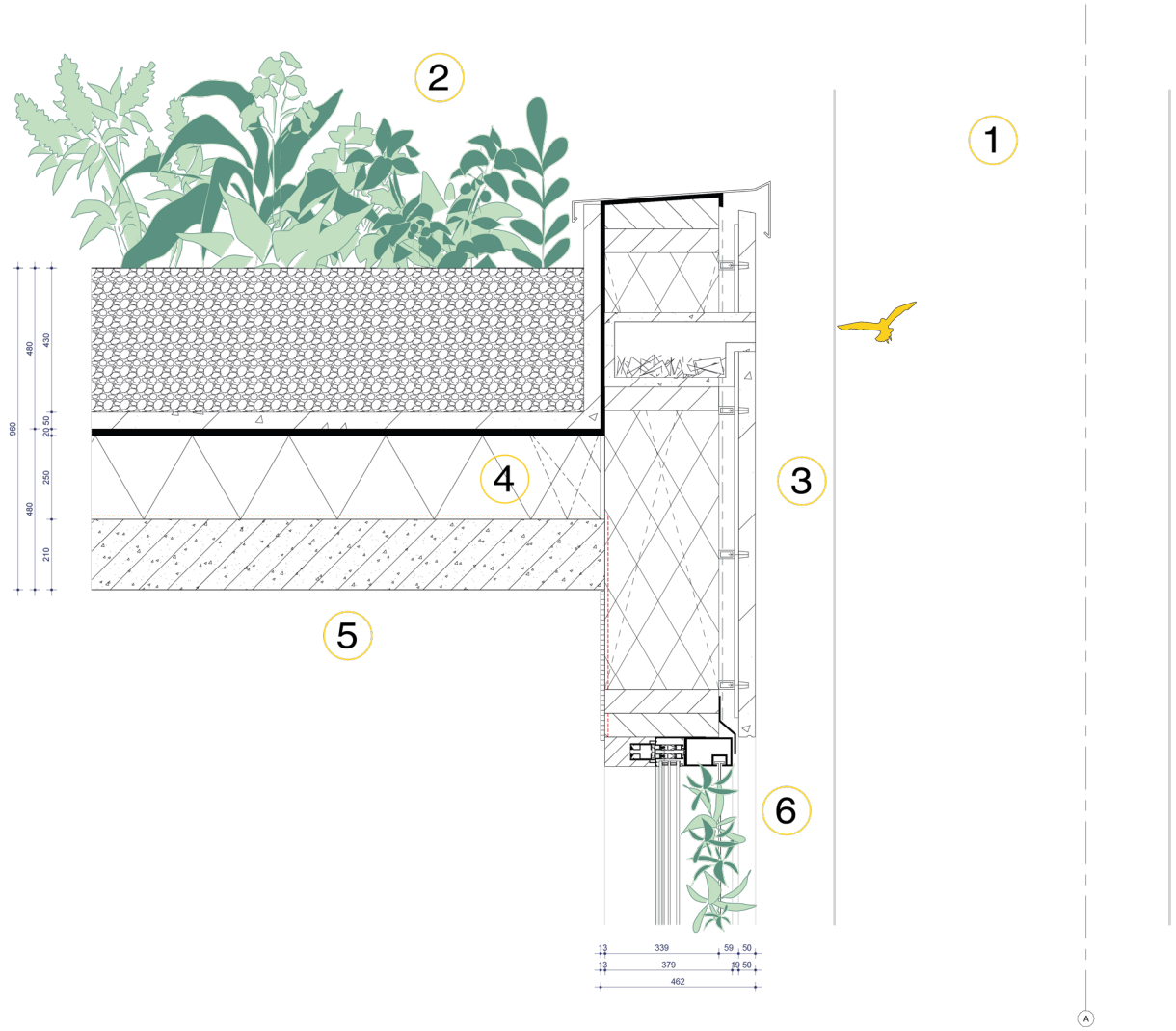
Biodiversity

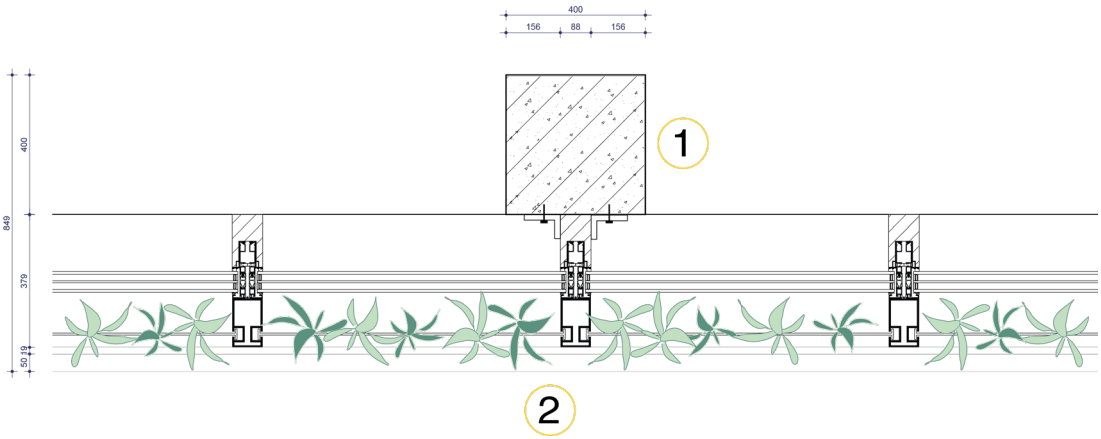
Facade Design
Facade Fragment

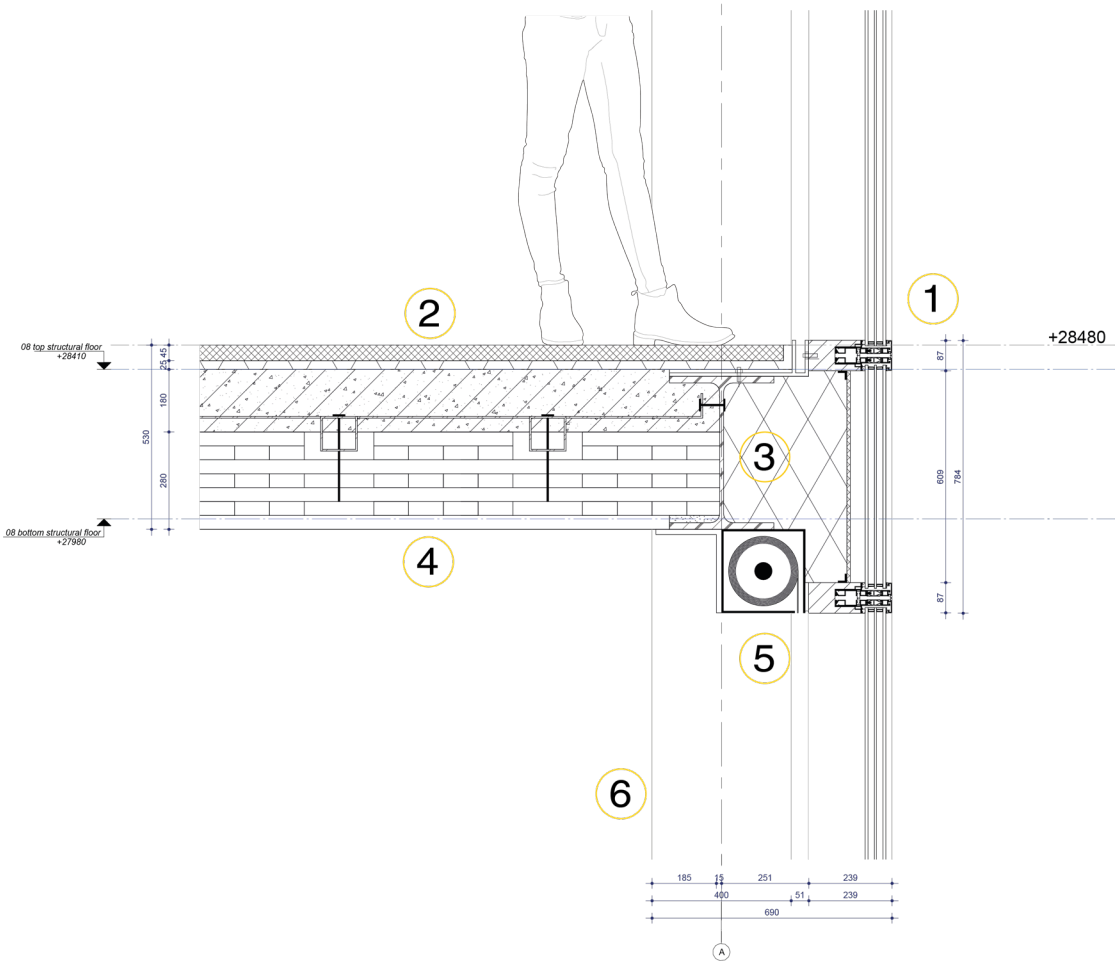




Technical Drawings
Details Plinth






1
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+28410
08 bottom structural floor
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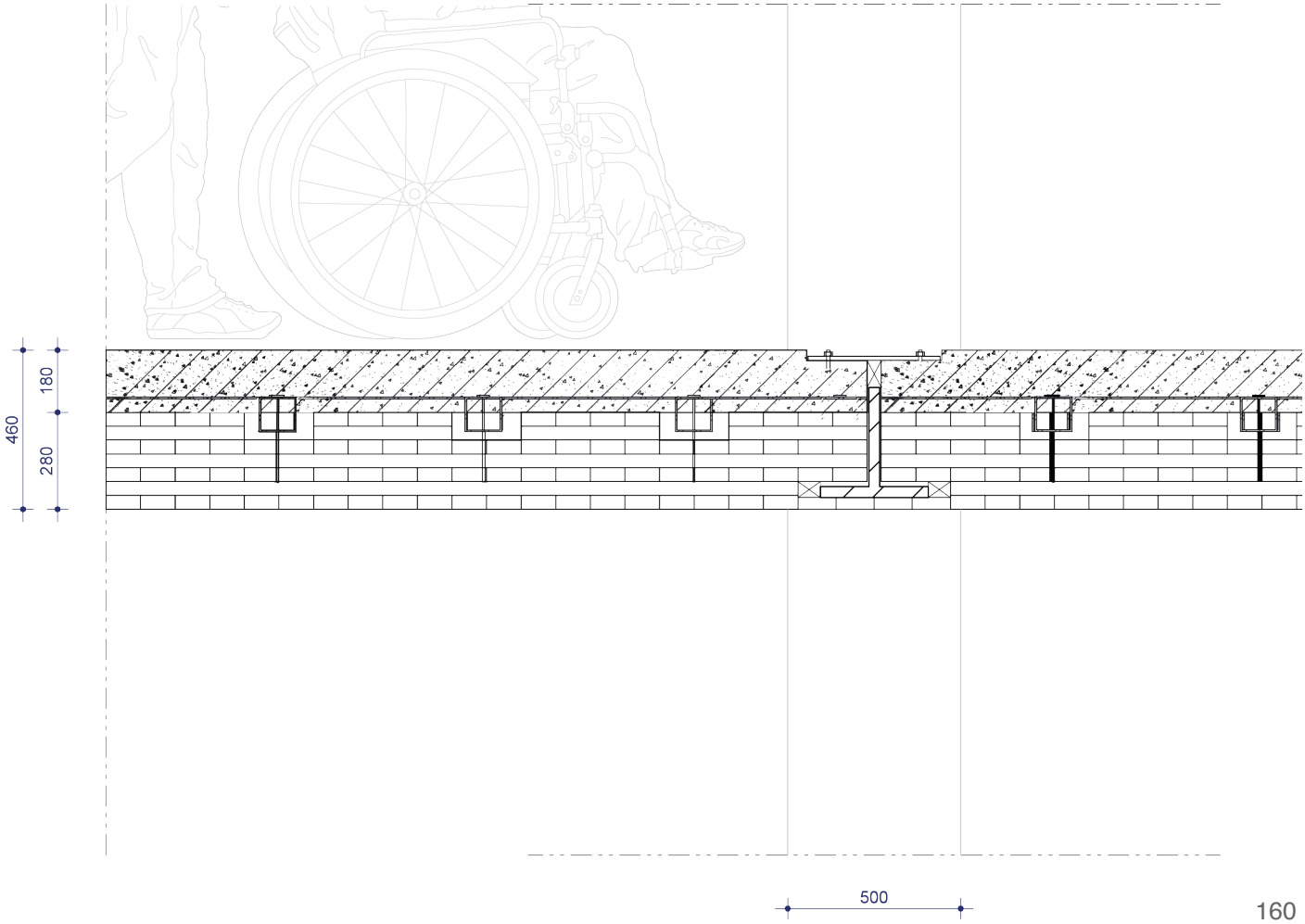

460
180
280
500

Visualisation
Rooftop Garden





P4 Design
Summary

Although I was going into the right direction with my design I noticed that I had spend a lot of time on certain parts of the design, like the interior connections beetween spaces and in turn had neglected other parts of the design. I struggled with the facade design of both the tower and the plinth and as a result the buildings concept felt very strong but the endresult of the architectural design felt uncomplete. This feeling was not onesided as also my tutors concluded after my P4 presentation that I needed some more time developing the rest of the buildings characteristics further. So after a failed first p4 i set out to review my architecturural approach to the site with all the theoretical research and concepts in mind and went into the summer holiday with a fresh look at the project. I knew I was going to have to restart the whole drawing and design process but somewhere I was also glad to be able to start fresh again and get rid of the limitations my previous design held against me.



Part VI | **Final Design** P4+ & P5

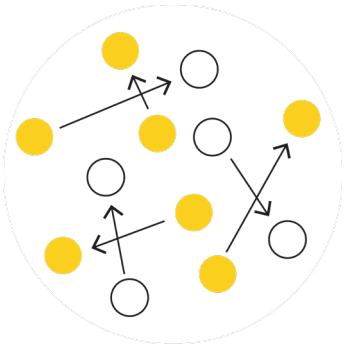
21/04/24 - 03/10/24

Mastering
P4+ Fresh Start

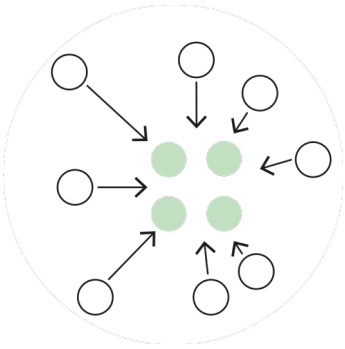
Having accumulated extensive information about the site, clarified design objectives, and consolidated research findings, it was time to bring all these elements together into a final design that truly reflected the project's vision and ambition. Over the summer, an individual approach allowed for focused work on a new design iteration, shaped by fresh insights and refined ideas. Starting from scratch, the modeling and drawing phases were reinitiated to establish a stronger foundational structure. While this process required time, it ultimately created a solid base for more coherent development.

When the new design was presented in the first meeting of September, it received positive feedback from the tutors, signaling a meaningful advancement. This marked a turning point, providing the confidence and framework needed for the project to take its final shape. Although the design changed my research question and goals still remained the same:

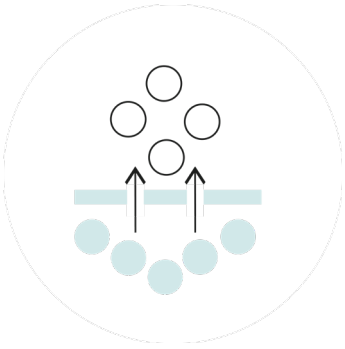
“Establish an interactive **lifelong-learning environment** wherein **teachers**, **students**, and **visitors** can mutually learn from, and inspire one another.”



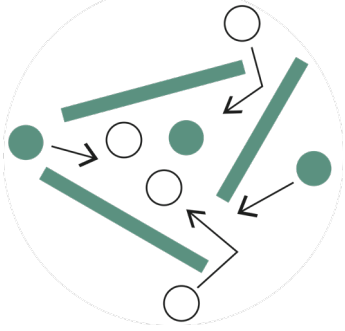
Accessible



Inviting



Transparant



Interactive

Site Analysis
Urban Strategies

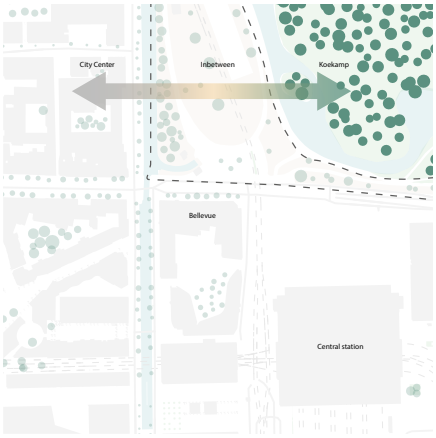
In the location analysis at the beginning of this graduation plan, we examined the site characteristics, historical context, and future development plans in detail. This information led to the formulation of an urban redevelopment plan for the area surrounding the Bellevue site, as well as a specific redevelopment strategy for the Bellevue site itself. On the right side, the concept for the urban redevelopment plan is presented, which includes extending the Koekamp into the “in-between zone.” This transformation aims to create a higher-quality green space, shifting the area from a primary circulation zone to one that accommodates both movement and relaxation.

With the introduction of the new Koningin Juliana Plein design by Powerhouse, the northern park side of the central station is reactivated. Incorporating greenery allows for a portion of the Koekamp to extend across the Bezuidenhoutseweg, creating a vibrant KJ Plein. This new entrance to The Hague facilitates a greater flow of people toward the northern side of the station, as opposed to the previously utilized side entrances. This increased foot traffic will predominantly move toward the city center, passing directly by the Bellevue site.

These strategies of extending green spaces and enhancing the site’s value to attract more visitors will also serve as the foundational principles for redeveloping the Bellevue site itself.



Flows & Movement



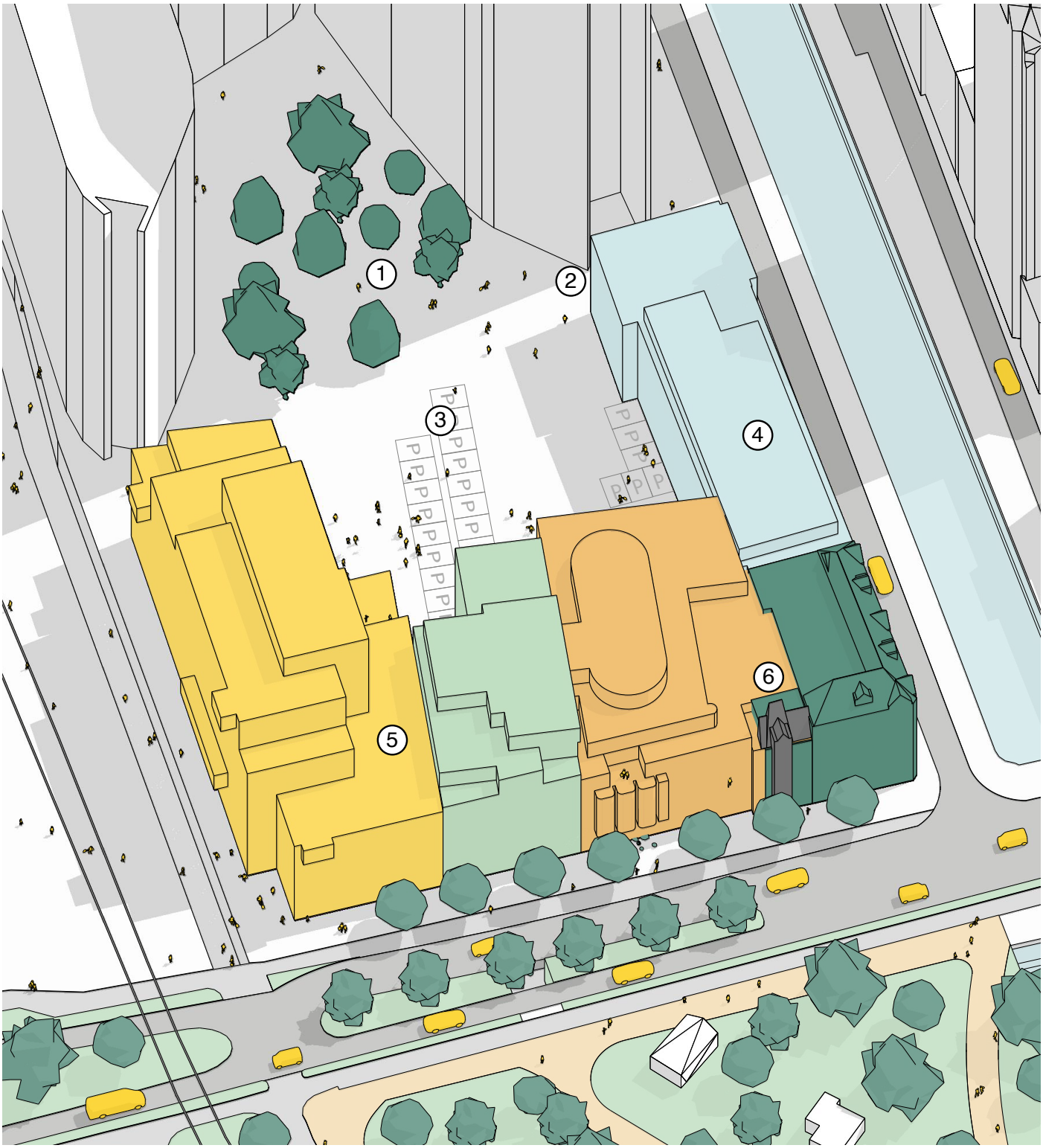
Inbetween-Zone



Station Entrance


City Center
Koekamp
Bellevue
KJ Plein
Car Free
Central station

Bellevue Site
Site Characteristics



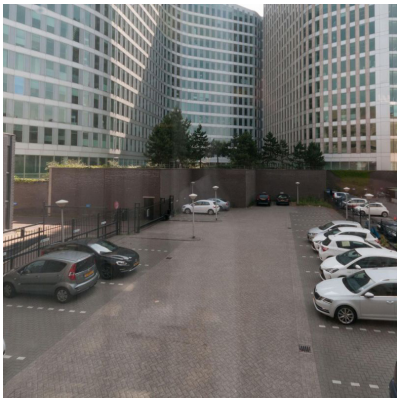
Currently, the Bellevue site functions as both a parking lot and a private garden for the Hoftoren located across the street. The area has limited access for the general public and fails to contribute meaningfully to the public realm of The Hague. The buildings that comprise the Bellevue site are predominantly office structures, further diminishing its public character due to the absence of diverse programming. Additionally, these buildings are outdated; aside from their monumental facades, they lack a distinct identity. Even residents of The Hague often struggle to locate the Bellevue site based on its description, highlighting how it gets lost amid the more extravagant high-rises that surround it.



1. Lack of public green space



2. Inaccessible



3. Heat island



4. Lack of diverse program



5. Outdated facades



6. Monumental facade

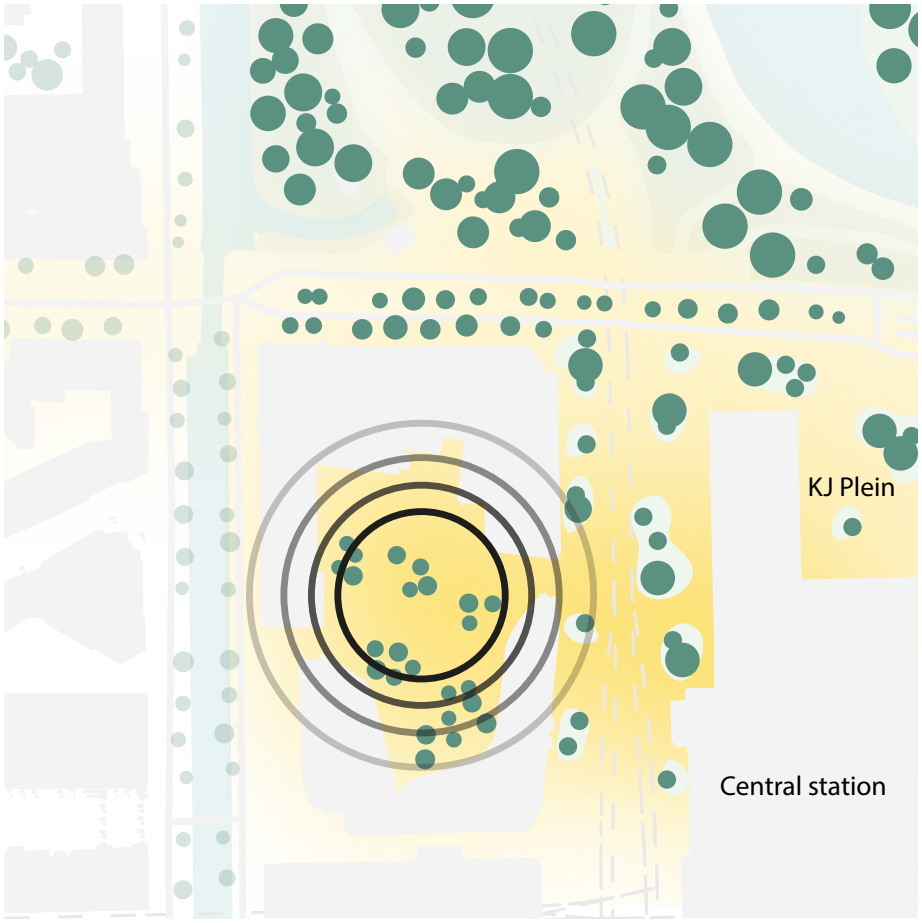
Bellevue Site
Redevelopment Strategies

As previously mentioned, the strategy of utilizing green spaces to draw more people to the Bellevue site will serve as the cornerstone of its revitalization. To transform the area from a mere parking lot into a vibrant public space, we will take inspiration from the design of KJ Plein and extend the park into the urban fabric, as envisioned during our capacity planning phase. The integration of greenery will enhance the public value of the space, thereby attracting a larger audience.

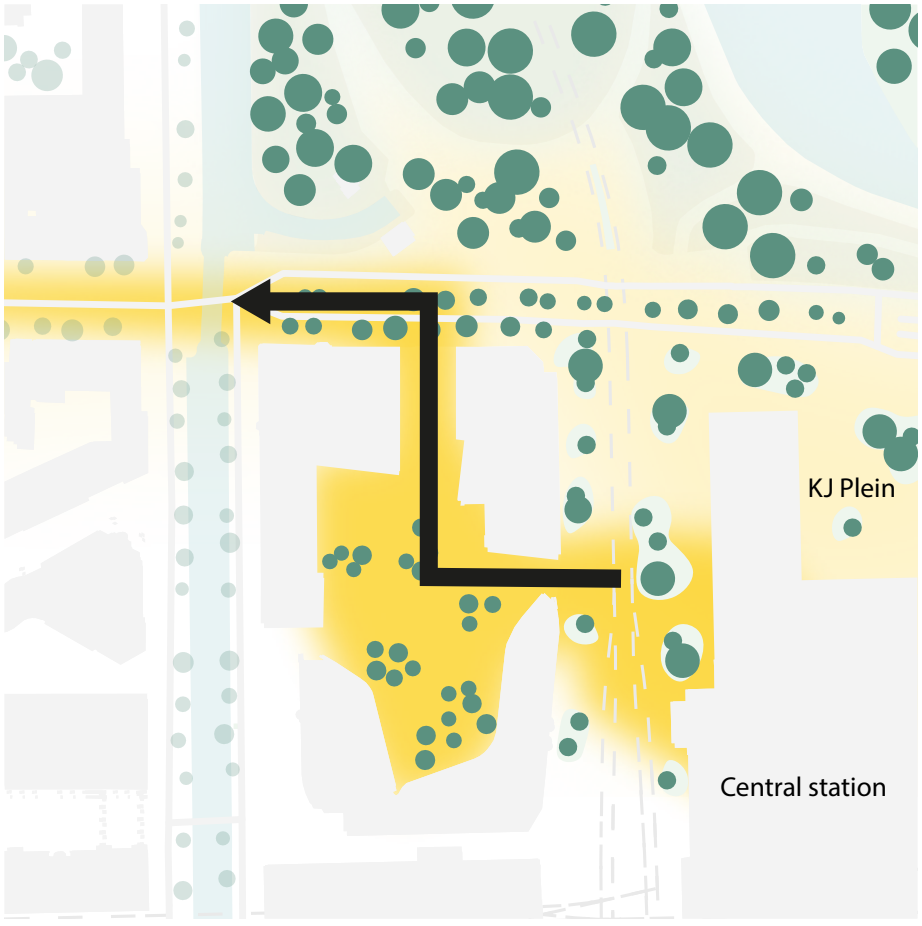
To capitalize on this trend, we aim to make the Bellevue site part of the natural flow of movement rather than a detour. Visitors heading to the city center could pass directly through the Bellevue site, bypassing the busy intersection at its corner. This would allow them to enjoy the tranquil environment of the Bellevue courtyard. My project stands to benefit from this increased foot traffic, as fostering local community interaction is central to its ambition and a key factor for the design concept's success.



Introducing Green



Public Value



Plot Engagement

Revival Plan
Renovation Steps

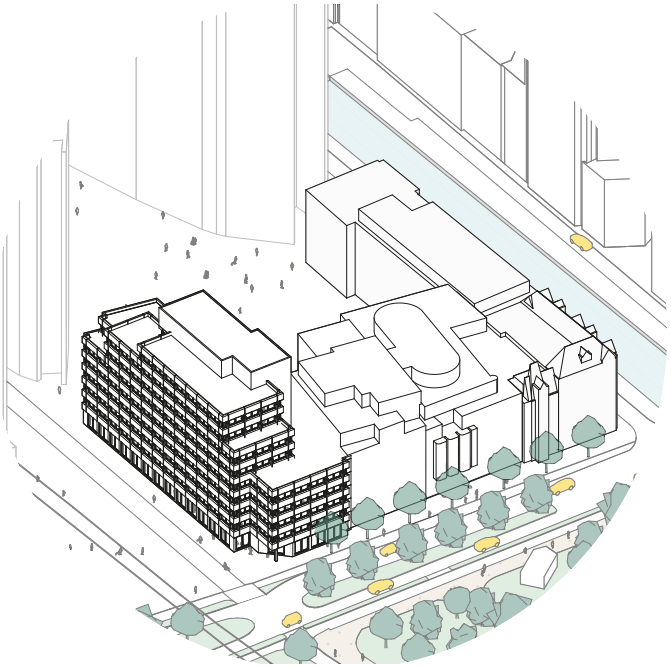
With the previous information in mind, I am designing a plan for the Bellevue site that aligns better with the evolving urban environment and the future campus design. To initiate the renovation, the facades of the three selected buildings will be stripped down. Two of these buildings feature concrete facade elements that can be recycled and reused.

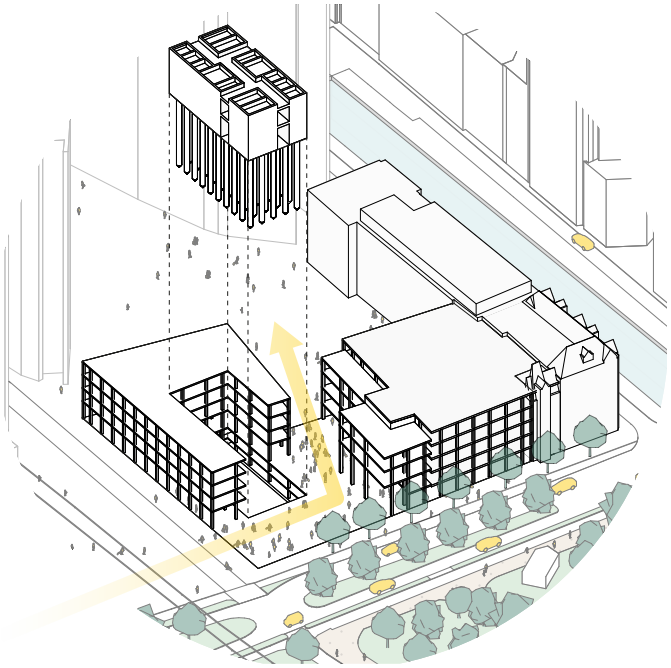
The next step will involve leveling the rooftops of the three buildings to create a uniform roof landscape that matches the height of the neighboring structures and aligns with the overall building height in the city center across the Zieken Canal ring. This flatter roof will provide a stable base upon which I can design my tower.

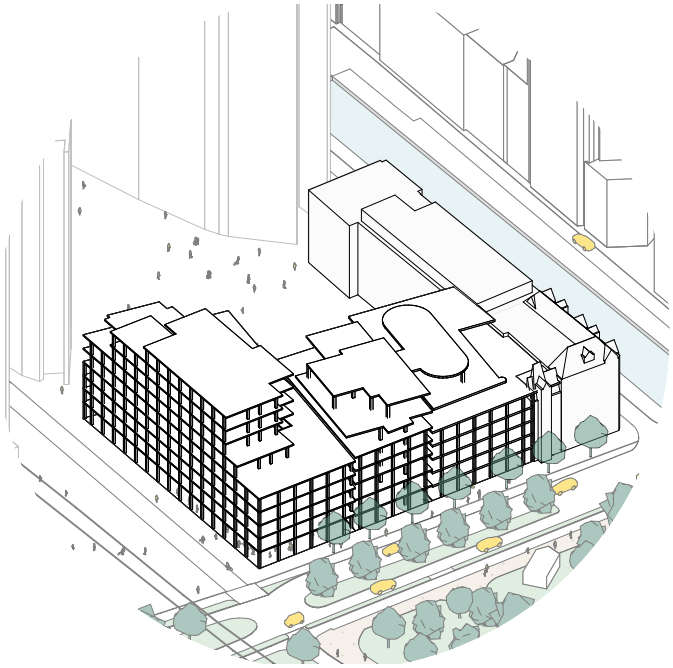
To enhance accessibility and connect with the flow of people from the central station, a street will be introduced through the center of the site. This plan also allocates space for a new central core for the tower, which will require significant area from the existing buildings but is essential for providing a strong foundation for the tower.

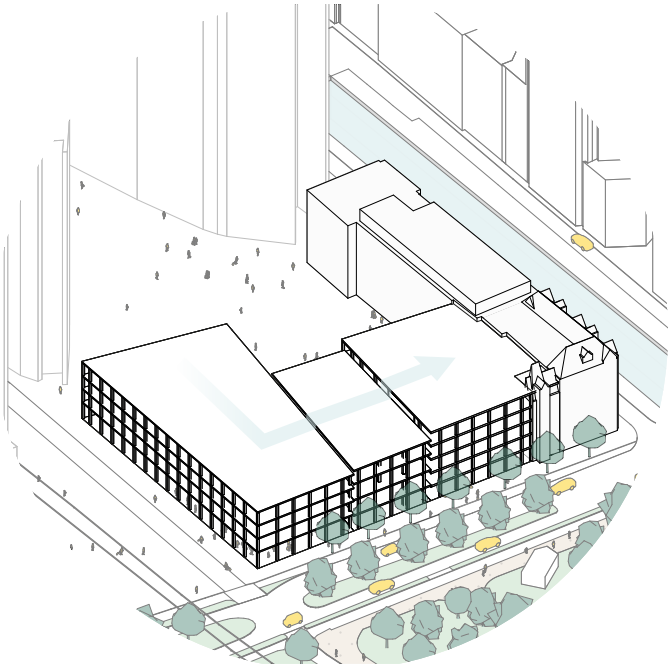
The street will be covered to protect users traveling between both sides of the building while psychologically encouraging them to feel integrated into the building, even while they remain in the public space. This design approach aims to attract more visitors to the site.

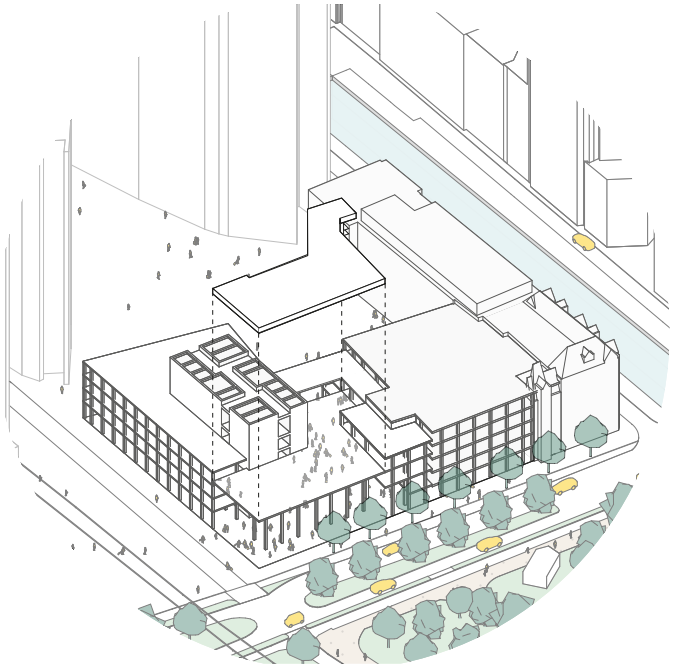
Finally, portions of the facade and roof will be carved out to open up the building blocks, creating a more porous environment. This strategy enhances transparency and allows greenery to permeate the site and the buildings themselves. By extending the park into the structures, the public character of the buildings will be strengthened, fostering greater participation and interaction among users.

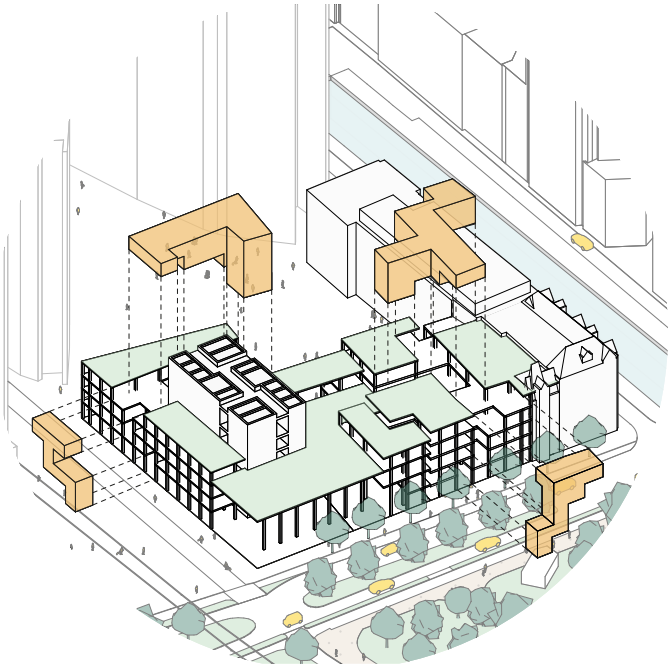










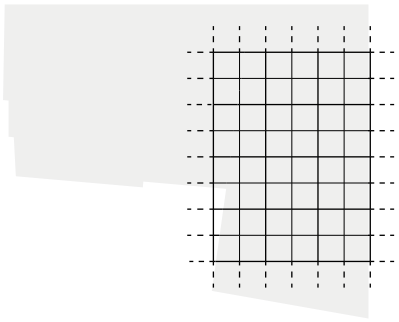


Extrusion of the Tower
Grid Framework

In determining the general shape and size of the tower to be designed atop the existing structure, I began by analyzing grids of high-rise towers. A few key characteristics guided my decisions. First, the grid needed to be functional for a timber load-bearing structure, which limited the maximum grid size to around 5 to 7 meters. Additionally, the central core was required to constitute 25% of the footprint. This, combined with the minimum dimensions of a classroom adjacent to the facade and a hallway around the core, established the minimum width and length necessary for the building.

I found that a classroom required a minimum width of approximately 5.5 meters, alongside a hallway of around 1.5 to 2 meters. This led me to conclude that a grid size of 5.4 by 5.4 meters, with a total building dimension of six by eight grid squares, would be ideal for my design. This configuration not only aligns well with my timber load-bearing system but also supports the educational functionality of the building.

The rectangular shape of my building is intentional; it mirrors the form of the existing structures, maximizing the footprint while avoiding interference with the public realm by preventing overhangs over the streets.



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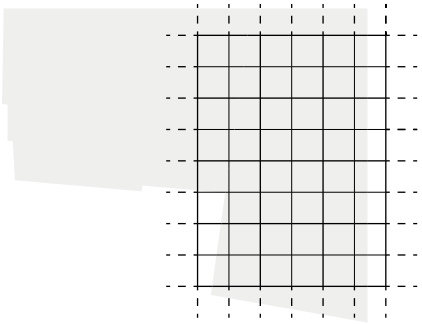
   Lenght 40.000



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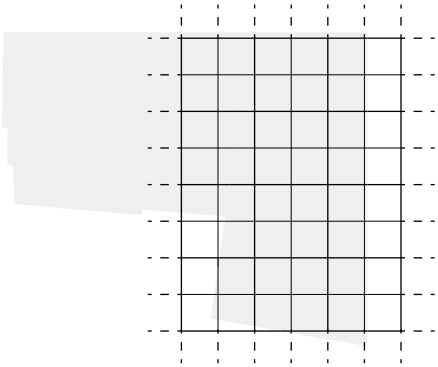
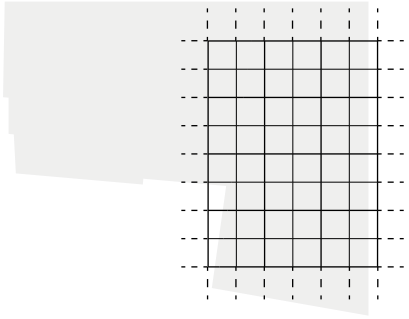


3. Grid size 7.000 x 7.000 (6 x 8)
   Width 42.000
   Lenght 56.000



4. Grid size 5.400 x 5.400 (6 x 8)
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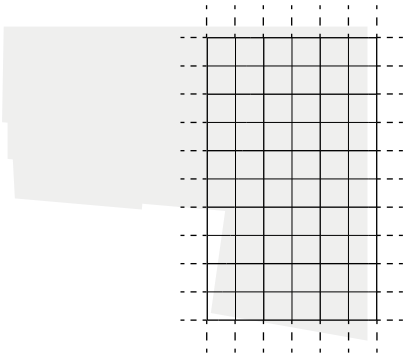
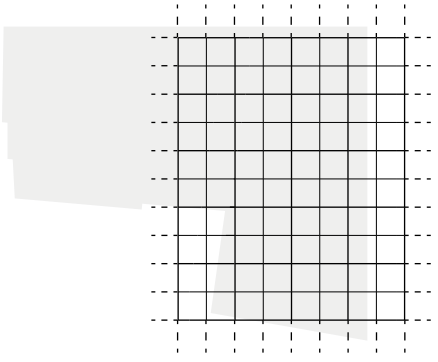
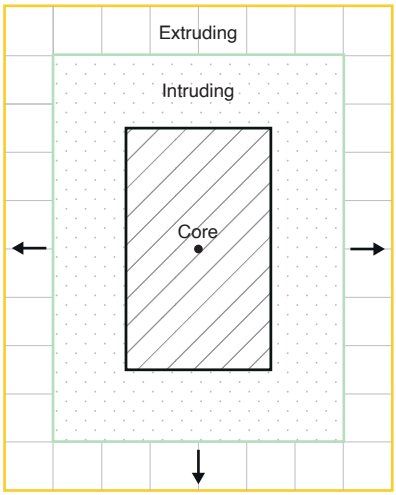
   Lenght 43.200



5. Grid size 5.400 x 5.400 (6 x 10)
   Width 32.400
   Lenght 54.000



6. Grid size 5.400 x 5.400 (8 x 10)
   Width 43.200
   Lenght 54.000


Extruding
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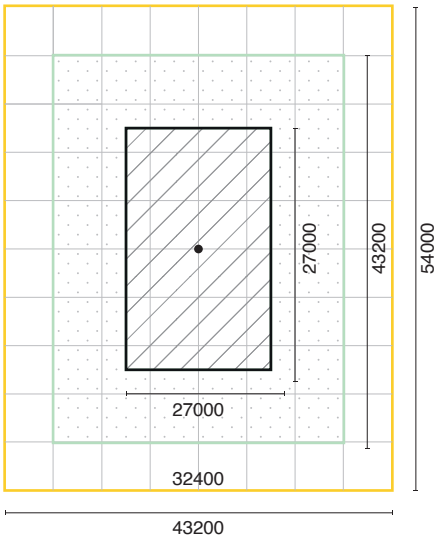
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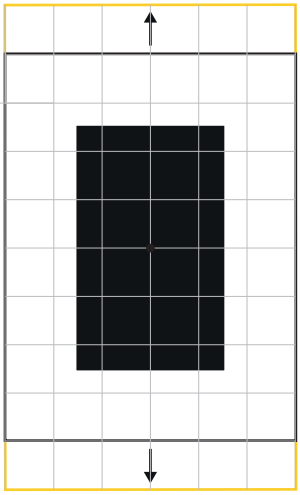
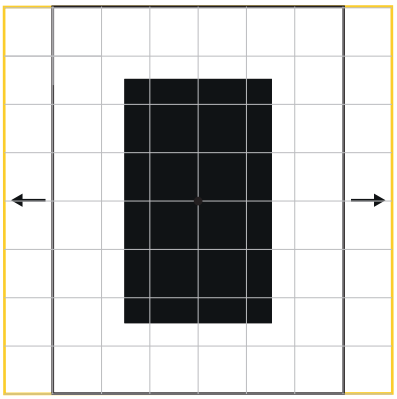
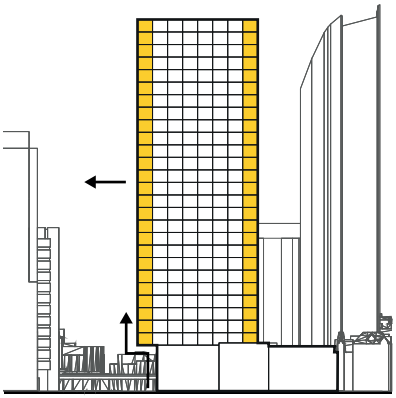
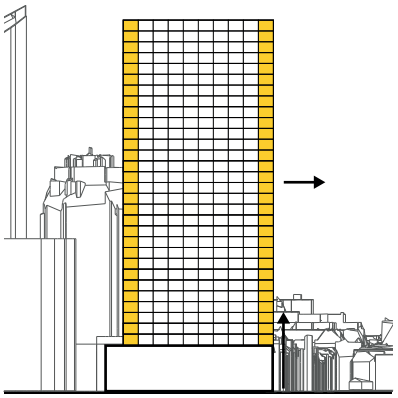


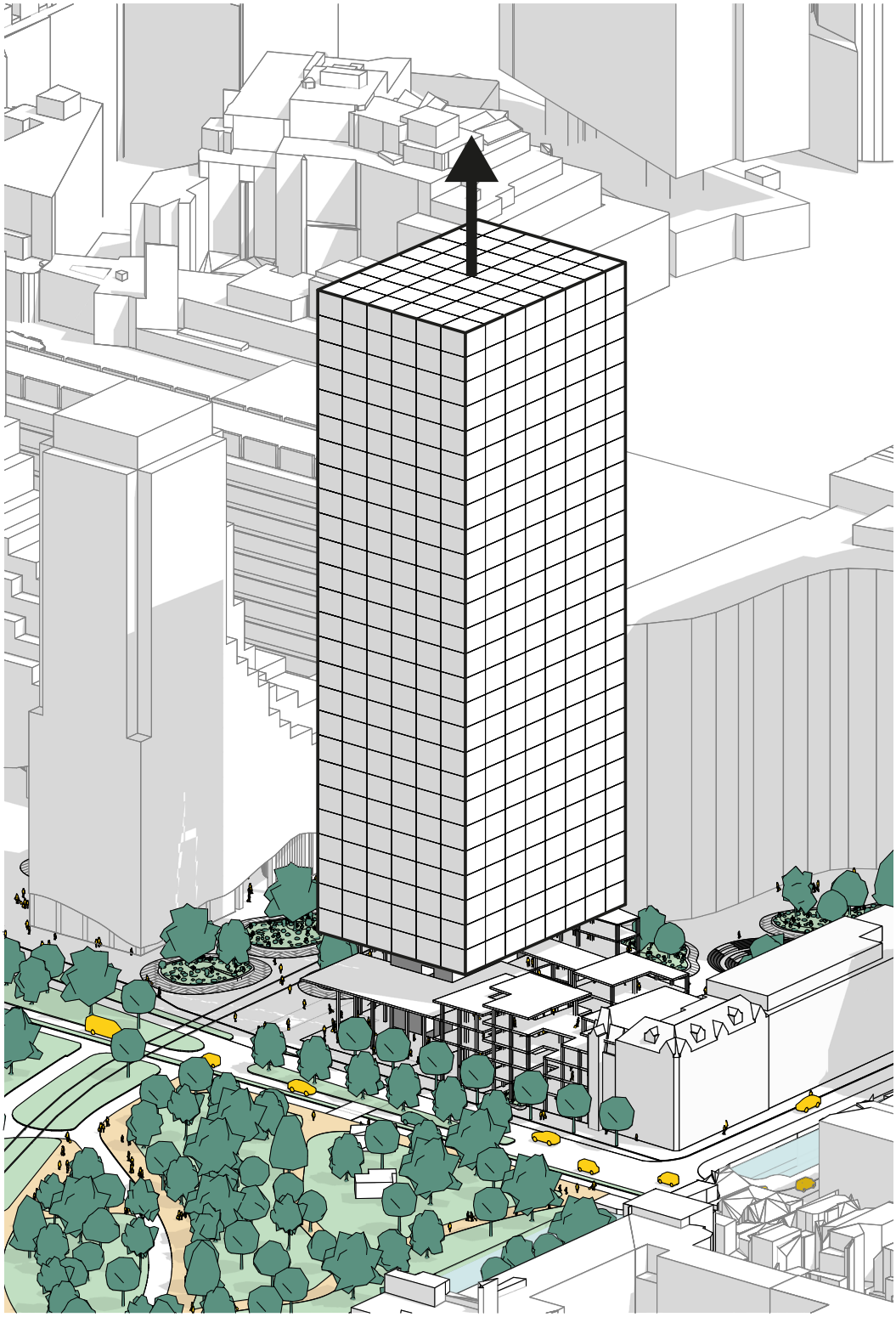


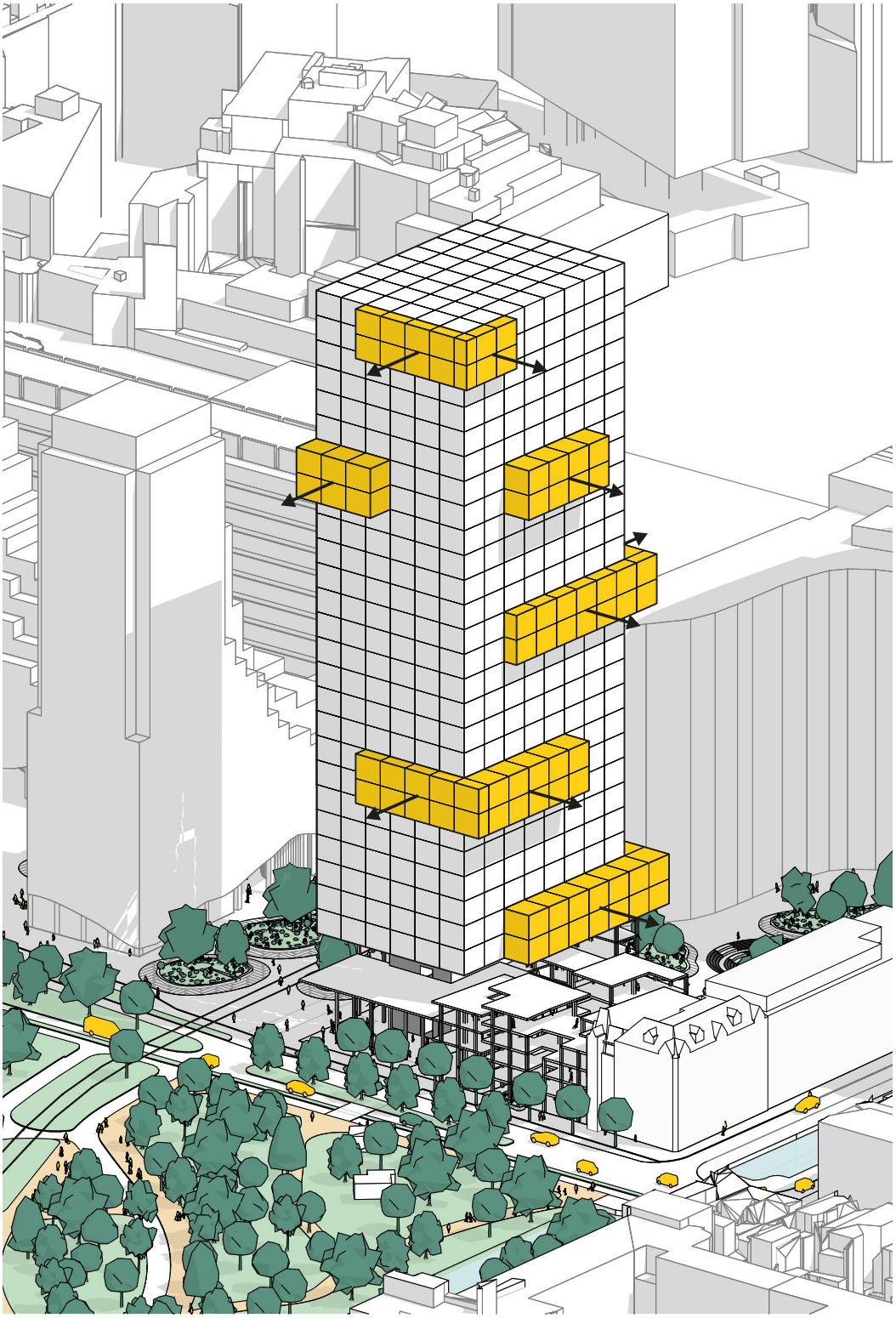




Massing Steps
Extruding new volume

A tower is extruded above the existing buildings, serving as the central component for the university campus.

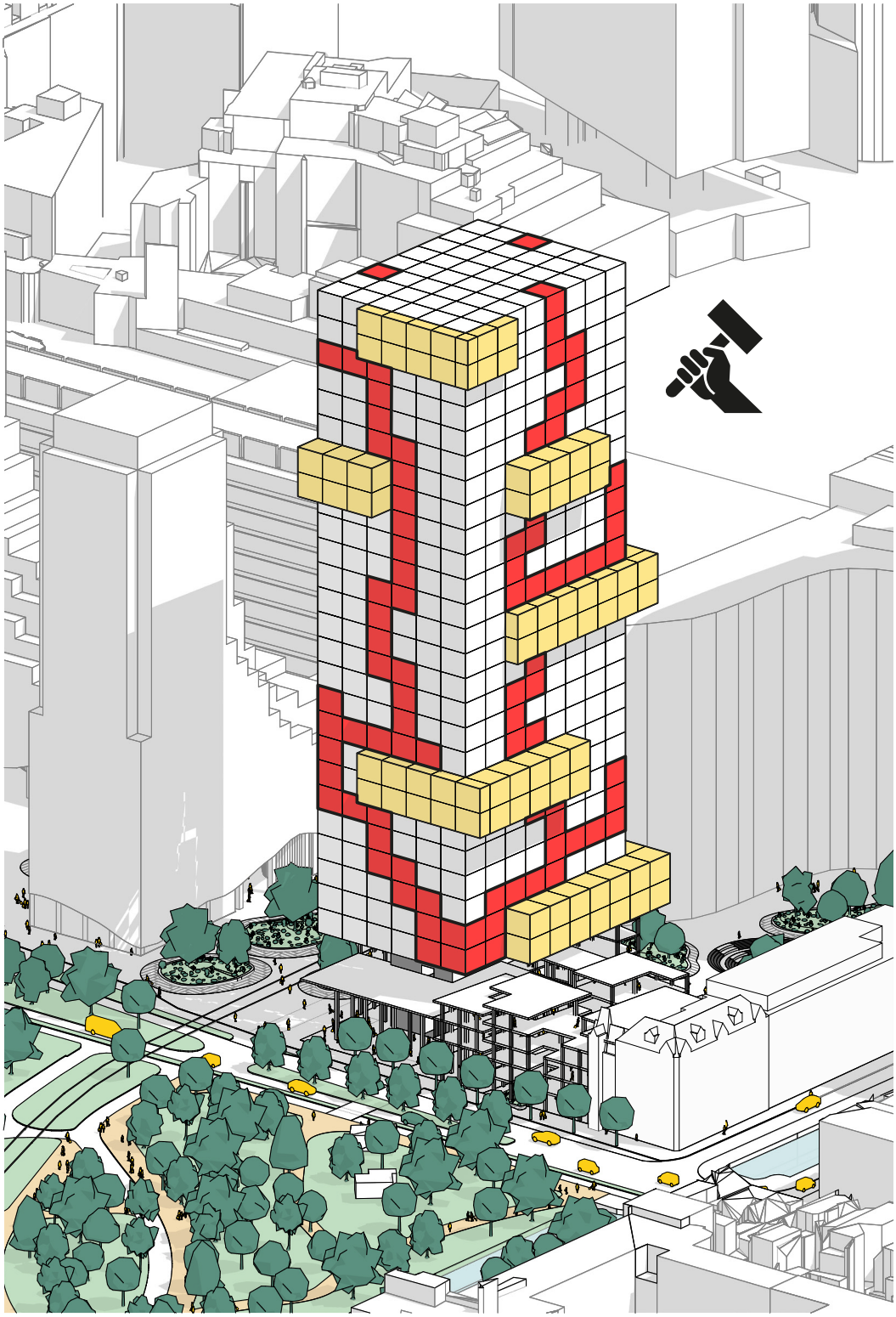


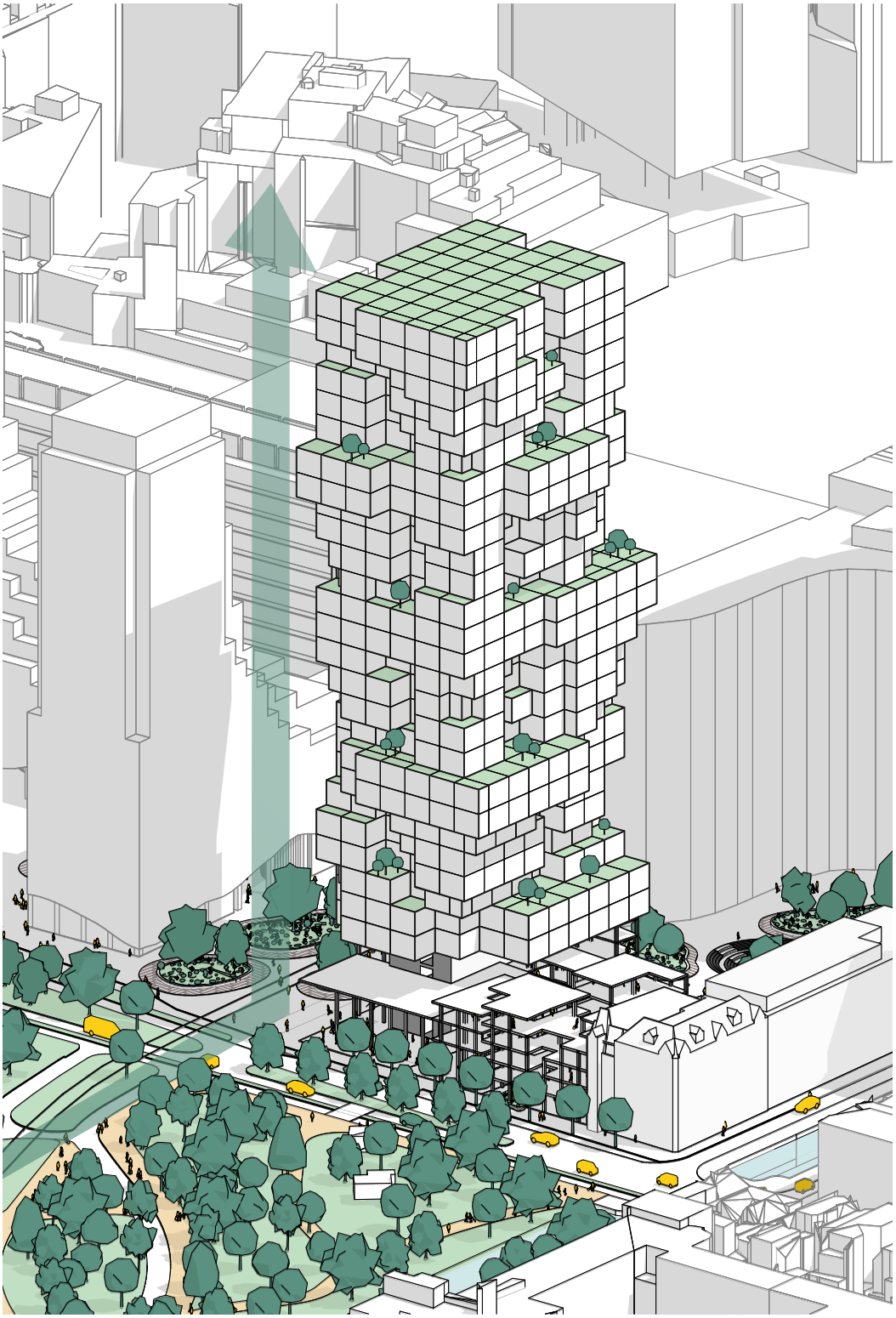


The tower is expanded at specific locations to accommodate larger programs, such as a theater or lecture hall.

Massing Steps
Carving out

A vertical journey is integrated into the facade to enhance the volume's porosity, mirroring the porosity strategies applied to the existing Bellevue buildings.





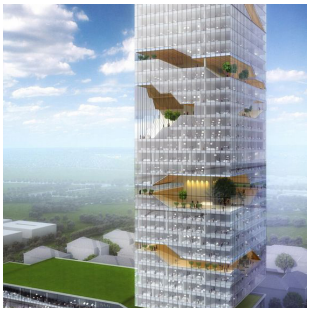
Finally, the void created by the carving can be transformed into green spaces, extending the Koekamp both horizontally into the plot and vertically.

Extending & Carving
Vertical Journey in the facade

To explore how to design a facade that fosters interaction both functionally and aesthetically, I investigated case studies that utilize carving and extending facade elements to create a vertical journey. In a previous project, I conceptualized a section illustrating how movement within the core of a high-rise can extend beyond just the core itself; it can also integrate into the facade or the surrounding program. This earlier perspective, combined with new insights, prompted me to delve deeper into the implications of such a vertical journey and an interactive facade for my university campus. By examining how these design elements can enhance user experience, I aim to create a more engaging and dynamic environment that encourages interaction and exploration.



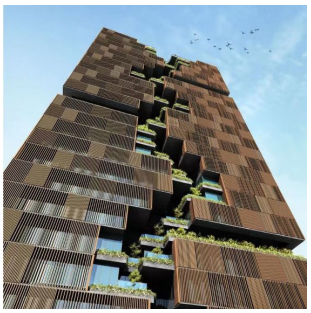









Program
Influence of program on massing

Extending the facade serves more than just the purpose of sculpting a vertical journey; it also creates essential space for specific programs vital to the functionality of the university campus. The type of program housed within a building significantly influences its shape, size, and overall design. The vertical campus is no exception, as certain programs necessitate unique design considerations compared to more flexible and generic spaces. This specialized program includes:

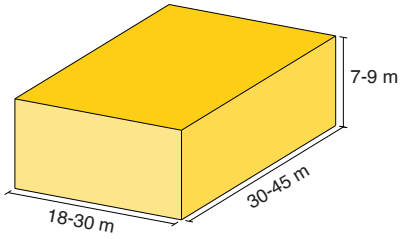
Theater (Lecture Theatres)
- Space Impact: Theaters are among the most influential in determining the building's form due to their size, seating capacity, ceiling height, and acoustic requirements. A large theater, especially one seating 400+ people, needs considerable floor area, tiered seating arrangements, and often higher ceilings for proper acoustics and sightlines.
- Design Considerations: High ceilings, possibly sloped floors, significant acoustic treatment, and backstage areas.

Sport Hall
- Space Impact: The sport hall requires a large, open floor plan with a ceiling height of at least 7 meters. This single large volume often dictates the building's height and footprint.
- Design Considerations: Open span structure (without columns obstructing the space), high ceilings, durable flooring, and adequate space for changing rooms and storage.

Library and Media Center
- Space Impact: The library and media center, with its need for large amounts of shelving, seating, study areas, and digital media spaces, can take up significant floor area. The layout requires careful planning to ensure accessibility, lighting, and quiet study spaces.
- Design Considerations: Flexible, open layouts with varying ceiling heights for different functions (e.g., reading areas vs. stacks), natural light integration, and quiet zones.

Large Conference Rooms or Auditorium
- Space Impact: Similar to theaters, large conference rooms or auditoriums significantly affect the building's layout due to their size, the need for AV equipment, and seating arrangements.
- Design Considerations: High ceilings, possibly tiered or flexible seating, robust AV setups, and adjacent breakout spaces.

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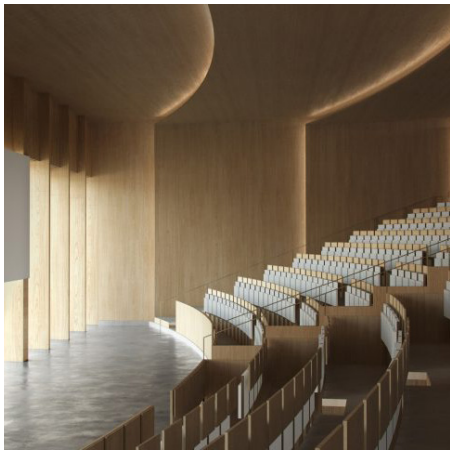
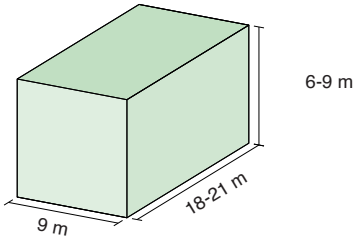
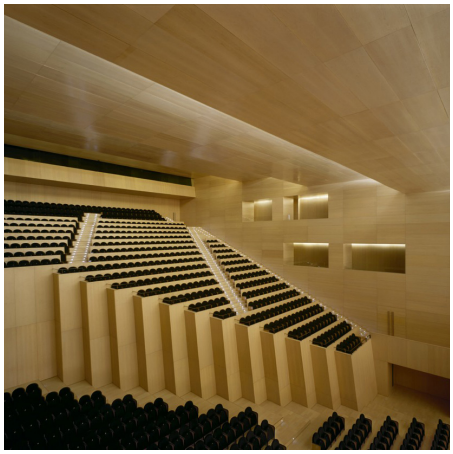
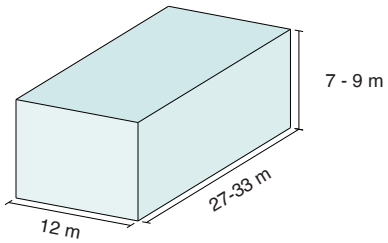
30-45 m
18-30 m



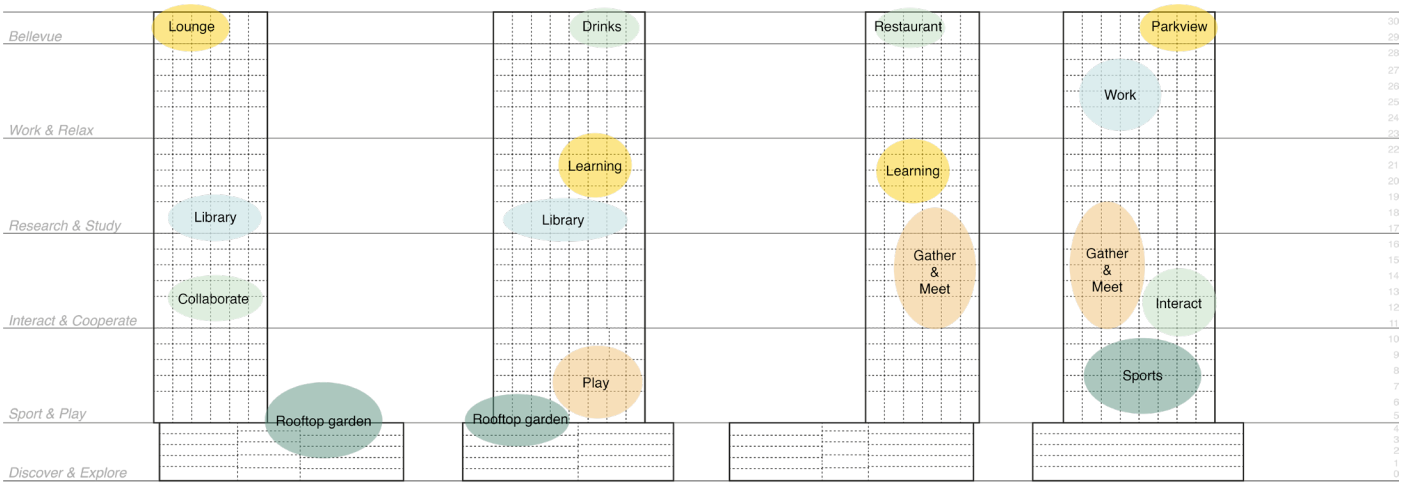

6-9 m
18-21 m
9 m

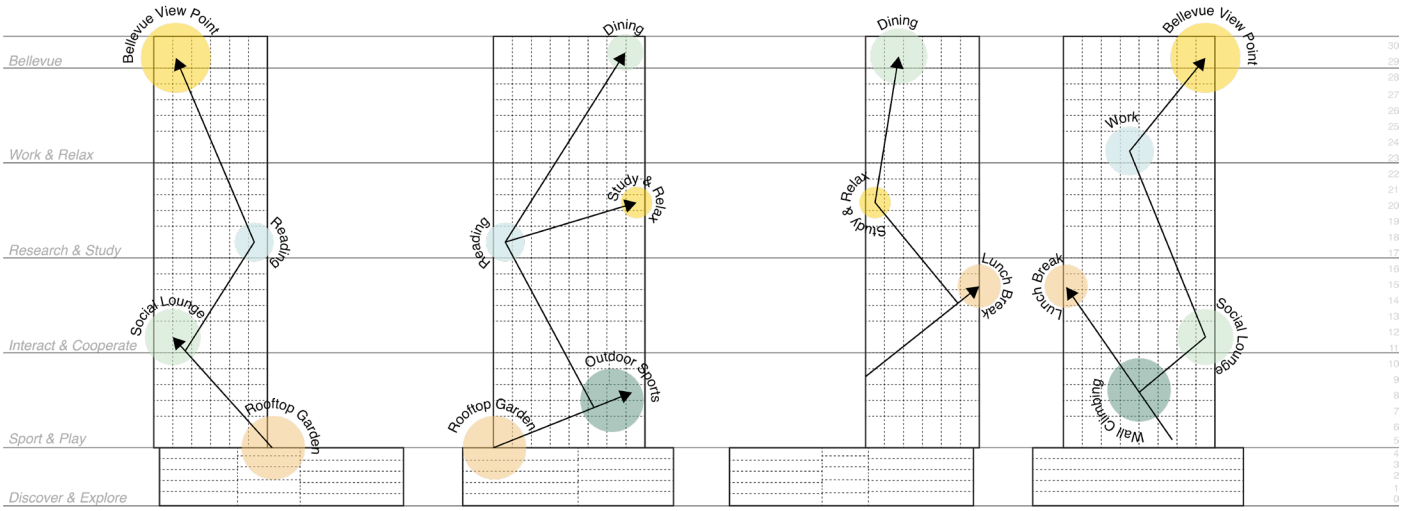



7 - 9 m
27-33 m
12 m

Vertical Journey
Extentions in the facade

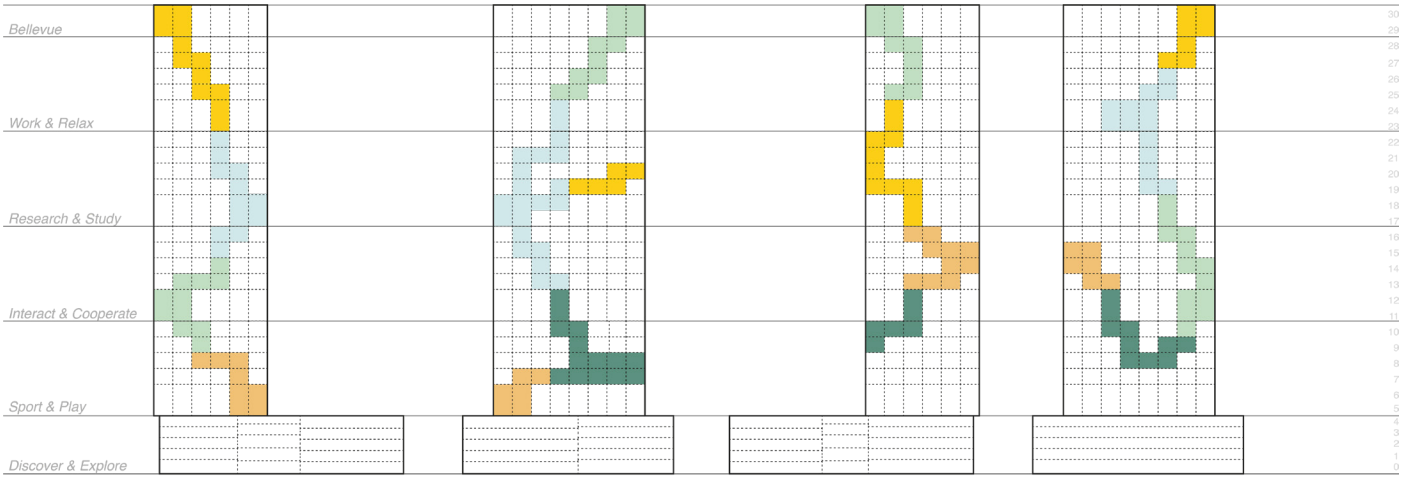
To determine the optimal positioning of special programs and exceptions in my plans, I adopted a sectional approach to explore the spatial requirements for each function. By developing a straightforward programmatic layout for the tower, I identified configurations of functions that needed additional space within the structure. Initially, this process was quite intuitive, as there was no clear vision of how the internal program would ultimately take shape. As the understanding of where each program would be situated became clearer, the process became iterative, requiring adjustments to both the facade extensions and the program in response to one another.

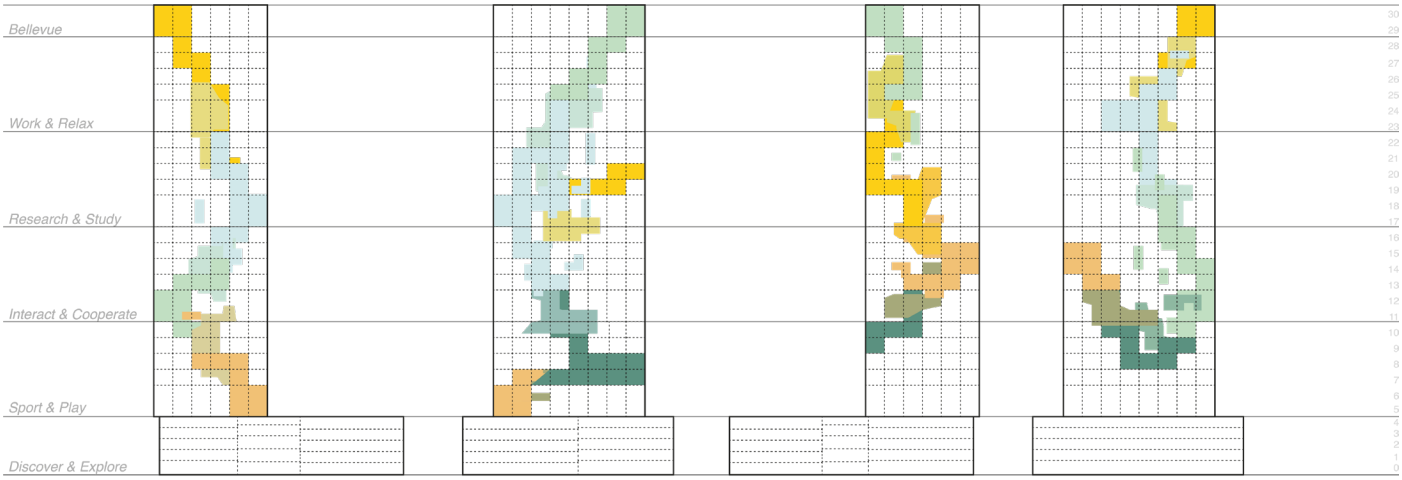




Vertical Journey
Connecting Program

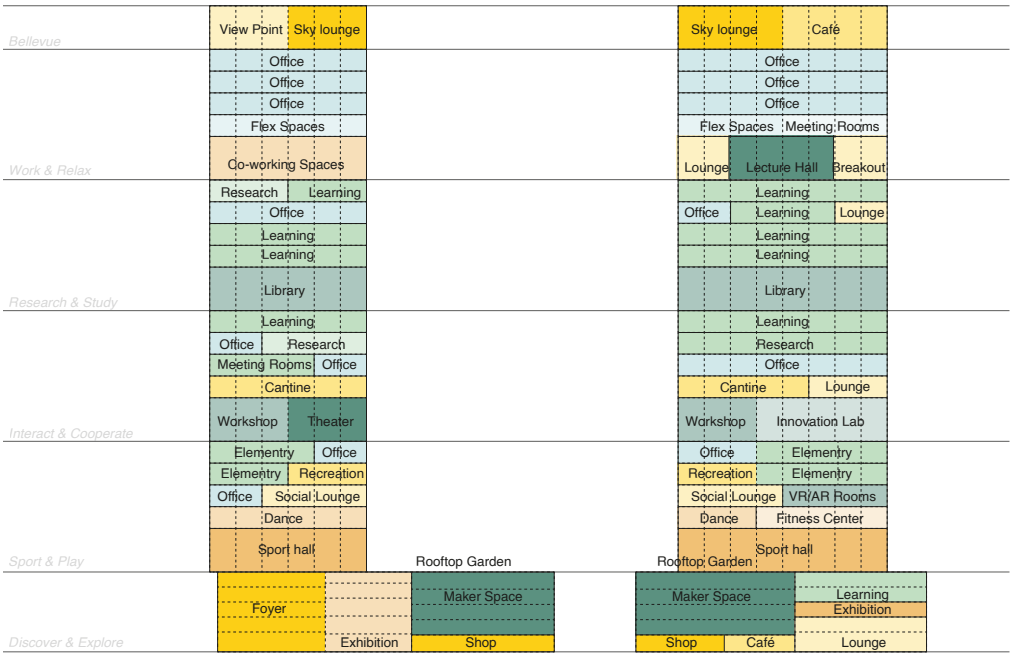
The concept of a vertical journey began to take shape as the limitations of the tower's extended sections were clearly defined. A design was drafted to connect this program by integrating a vertical route within the facade. Similar to the iterative process of determining where to extend the tower, this design phase involved creating multiple vertical routes, which resulted in various floor plan layouts. The complexity and functionality of these floor plans necessitated significant design adjustments, as the vertical journey needed to be not only aesthetically appealing but also functional, ensuring it did not impede the building's overall usability.

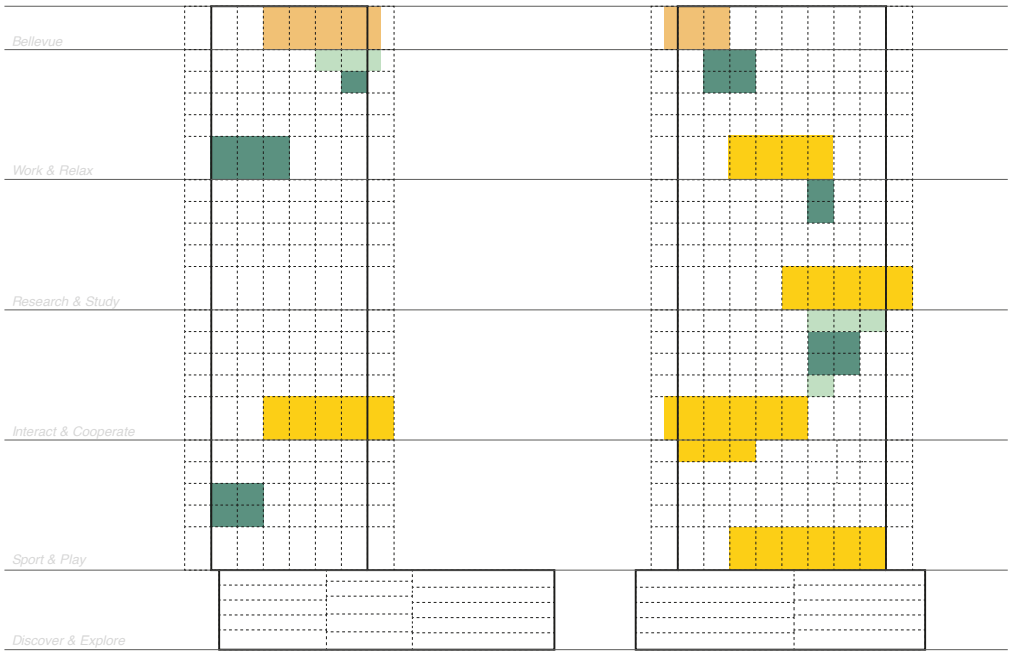


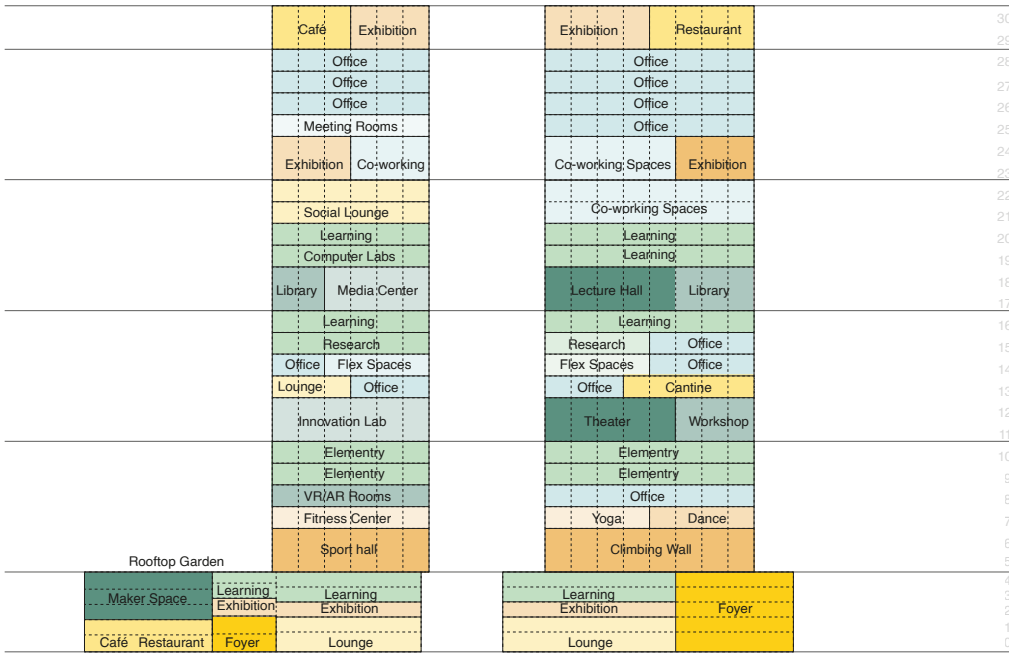


Hub Concept
Revised translation

Ultimately, a more definitive programmatic layout for the tower and its base emerged, concluding the design process related to the facade's extensions and carvings. The primary focus shifted to the floorplans, which significantly influenced the overall design, as functionality remained paramount and could not be sacrificed for aesthetic appeal. The principle of "form follows function" was strongly upheld, providing a clear design direction that contrasted with more subjective considerations, such as the tower's visual identity.






Café
Exhibition
Office
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Office
Meeting Rooms
Exhibition
Co-working
Social Lounge
Learning
Computer Labs
Library
Media Center
Learning
Research
Office
Flex Spaces
Lounge
Office
Innovation Lab
Elementry
Elementry
VR/AR Rooms
Fitness Center
Sport hall
Rooftop Garden
Maker Space
Learning
Exhibition
Learning
Exhibition
Café
Restaurant
Foyer
Lounge
Exhibition
Restaurant
Office
Office
Office
Office
Co-working Spaces
Exhibition
Co-working Spaces
Learning
Learning
Lecture Hall
Library
Learning
Research
Office
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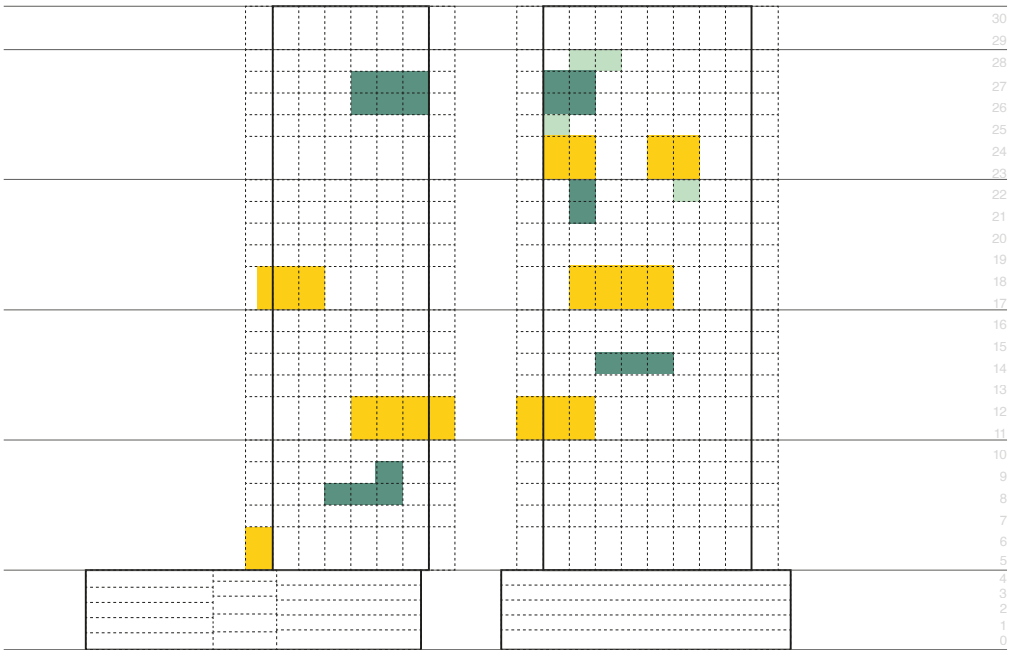
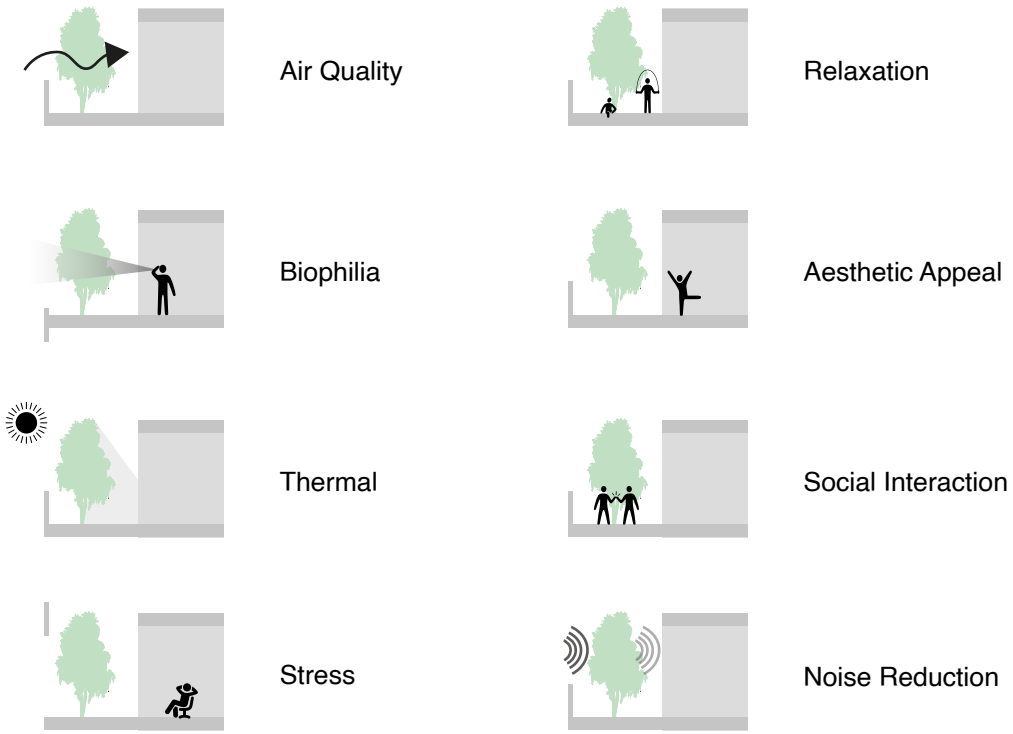


Green spaces
Benefits of greenery inside buildings

Integrating greenery in buildings, both through terraces and indoor plants, offers numerous benefits that enhance the living and working environment. Firstly, plants significantly improve air quality by filtering pollutants and increasing oxygen levels, promoting better health and well-being. The concept of biophilia, which highlights our innate connection to nature, underpins this design choice, fostering a sense of tranquility and happiness.

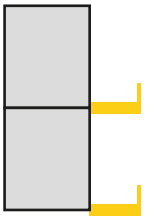
Additionally, greenery serves as a thermal barrier, providing natural insulation that helps regulate indoor temperatures and reduce energy consumption. The shading offered by plants enhances comfort, making spaces cooler and more inviting. Aesthetically, green elements add visual appeal, creating vibrant and engaging environments.

Moreover, green spaces encourage social interaction, as they often serve as communal areas for relaxation and connection. Finally, plants can reduce noise levels, contributing to a calmer atmosphere. Overall, the inclusion of greenery enriches both the functionality and the experience of a building.

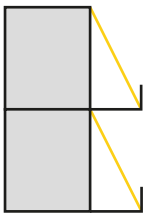


Outdoor Spaces
How to create them?

Cantilevered floor



Tie Rods



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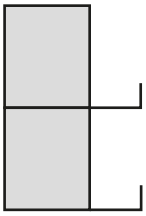
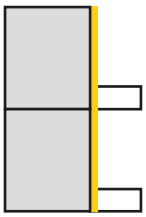
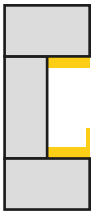


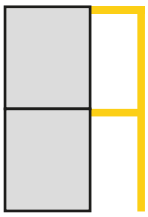
Column in facade



Loggia

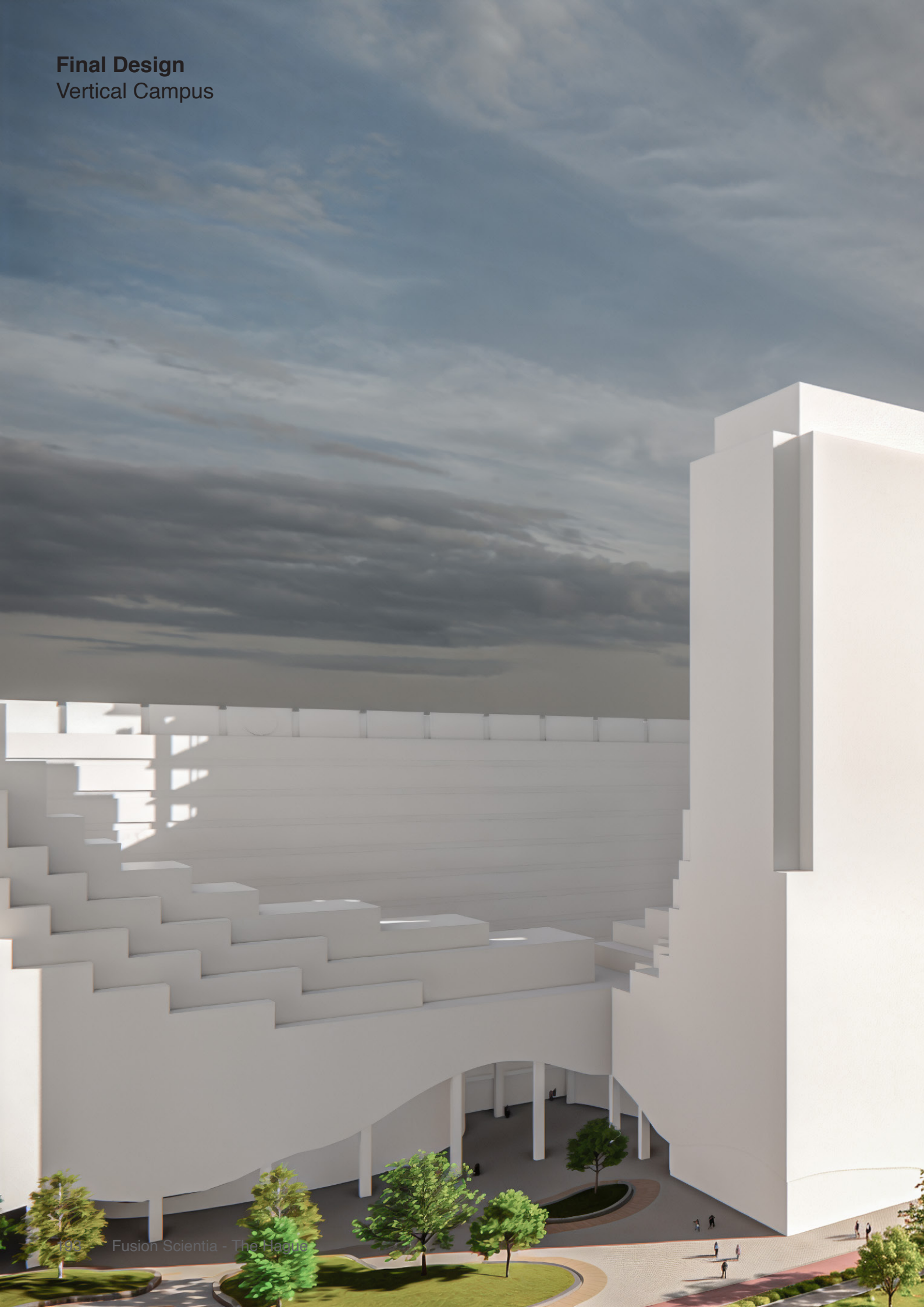


External construction



Creating outdoor spaces within a building involves various design strategies, from cantilevered floors to external structures. In this project, I carved out the facade to develop loggias and terraces that not only serve as outdoor areas but also function as roofs for the floors below. This approach efficiently integrates outdoor spaces with the facade design, resulting in a cohesive architectural expression. The terraces emerge as a product of the vertical journey through the facade, while the facade itself reflects the positioning and presence of these outdoor spaces. This harmonious interplay exemplifies the principle that form follows function, and function follows form, ensuring a balanced and aesthetically pleasing design.

Final Design
Vertical Campus





Urban Context
Elevations

The height of the building itself sits right inbetween the new KJ Plein design by Powerhouse and the Hoftoren south of the Belelvu. with its 136 meters it will be a noticable addition to the skyline of The Hague but still fit right in and not disturb the skyline. Its height provides a gentle step up from the smaller KJ Plein up to the more tall buildings in the highrise district.



Front Elevation



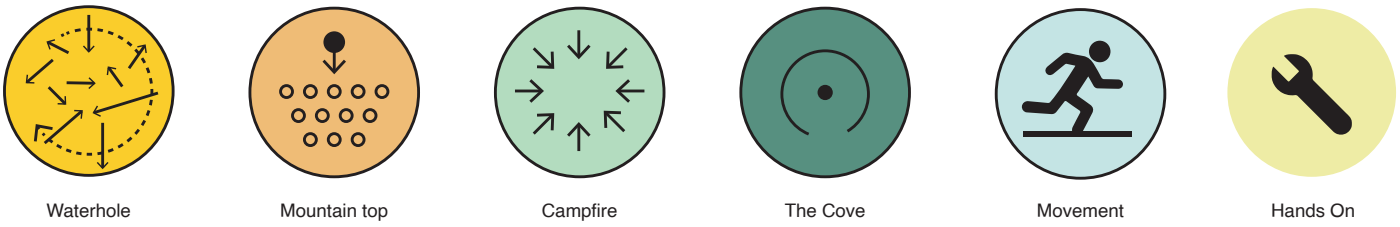
Left Elevation

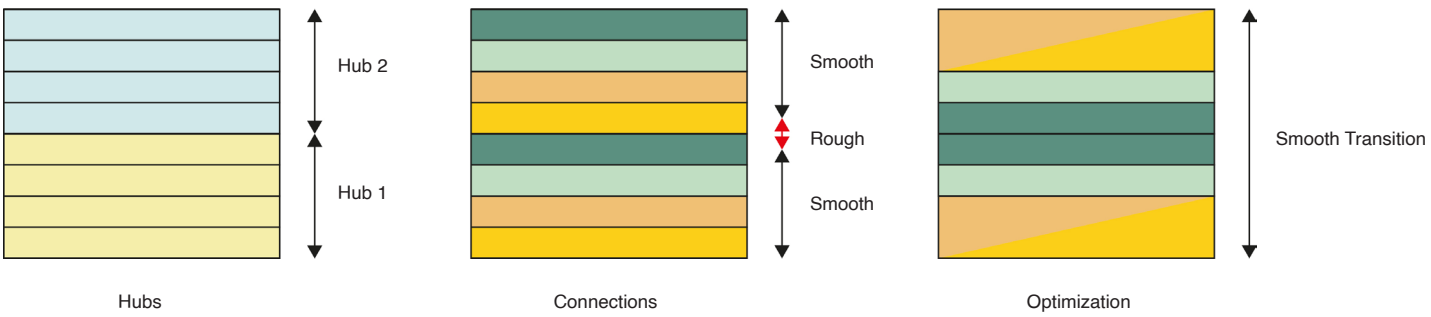
Program
Spacial Concept

The theoretical research explores how learning can serve as a catalyst to foster interaction and create a dynamic layout within the university. Six primary “learning types” were defined, providing a structured approach to designing the spatial layout amidst a complex array of programs. By grouping various functions into these six categories, the design process becomes more streamlined and cohesive.

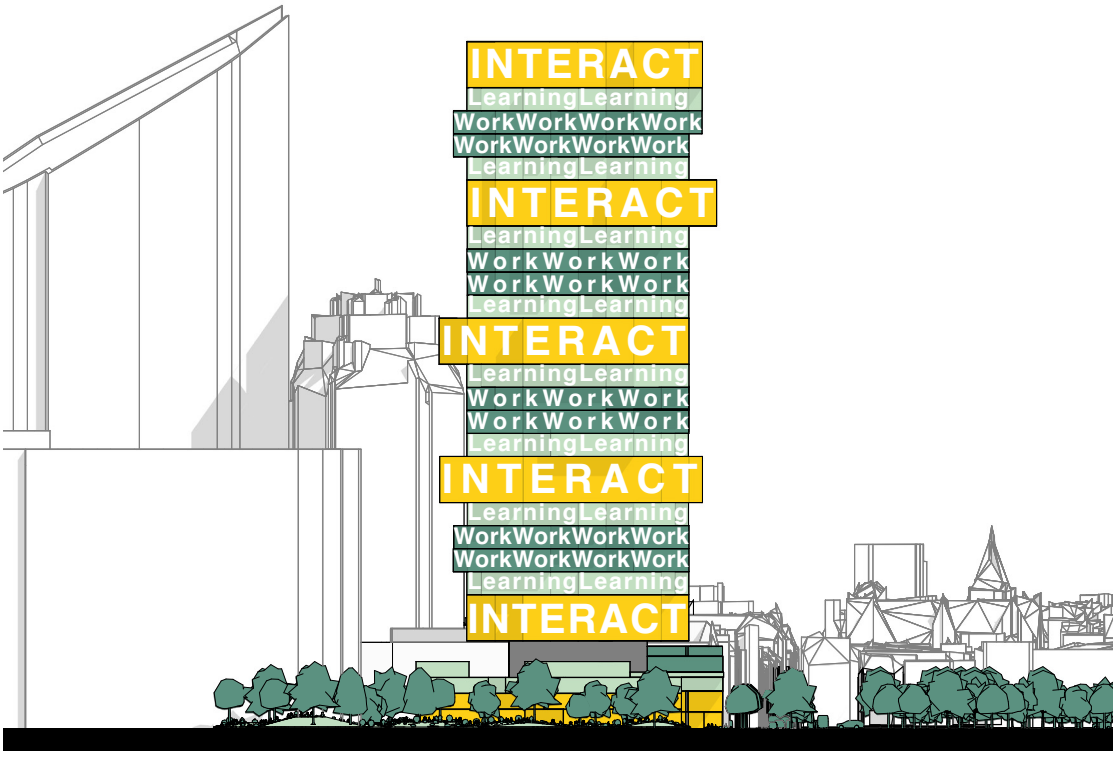
The core concept of the programmatic design centers on both horizontal and vertical connections across floors and spaces. Stacking floors into hubs with a transition pattern between functions enables a smoother flow, benefiting learning, productivity, and comfort. This layout allows occupants to navigate intuitively, guided by natural instincts rather than a rigid structure.

The concept visualized on the right illustrates how this arrangement comes together. Double-height floors are dedicated to interaction and engagement, linked to both the Waterhole and Mountaintop learning types. Above and below these interactive spaces are Campfire levels, which gradually transition to more focused, concentrated settings but still support collaborative work and vibrant atmospheres. Adjacent to the Campfire zones, the Cove spaces offer environments for isolated, concentrated work. This stacking strategy ensures that lively, energetic spaces do not directly interfere with those requiring tranquility and focus.





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Hubs
Description

In the theoretical research chapter, I previously discussed my ideology regarding both the horizontal and vertical stacking and connections of floors. Given the significance of verticality in high-rise buildings, incorporating it into the design process is crucial.

For P4, I developed a design based on this hub structure. However, the outcome revealed that the diagram and initial design concept were still too theoretical, lacking a clear architectural translation.

To better integrate the building's program with the hub concept, the hubs need to be personalized. What defines a hub? Is it merely a diagrammatic idea that got lost during the design process, or is it something tangible that users can see, feel, and experience?

The hubs should embody their intended purpose, beginning with attracting and inviting people. However, if people don't understand the purpose of the hubs, the concept will fail. Therefore, the four hubs have been personalized into distinct segments of the building, each with its own character. We have created the following four hubs:

1.Discover
An engaging hub that encourages curiosity and adventure. This space is designed to inspire exploration, whether through hands-on activities, interactive exhibits, or immersive experiences. It's a place where discovery fuels creativity, inviting users to delve into new ideas and experiences.

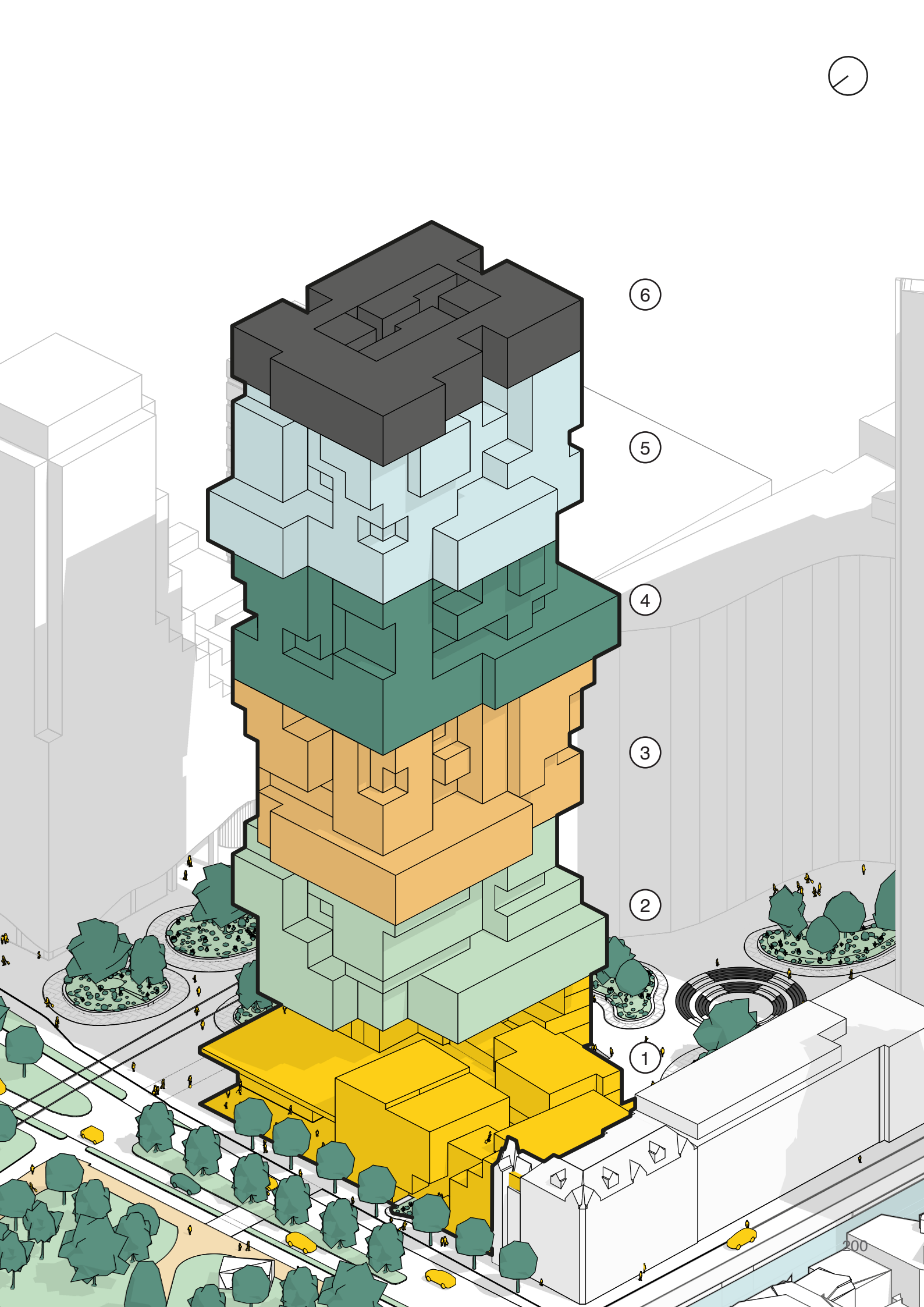
2. Play
A dynamic hub designed for physical activity, fitness, and recreation. Whether it's a quick game, a workout, or engaging in active fun, this space energizes and invigorates.

3. Gather
A welcoming area where people can come together to connect, socialize, or simply unwind. This hub fosters community and relaxation, making it perfect for informal meetings, casual conversations, or peaceful breaks.

4. Research
A focused environment tailored for intellectual pursuits, deep work, and quiet contemplation. Equipped with resources and designed for concentration, this hub is ideal for students, researchers, and anyone in need of a productive workspace.

5. Work
A versatile space where work meets comfort. This hub balances productivity with relaxation, offering areas for focused tasks as well as spots to take a breather, ensuring that work and well-being coexist harmoniously.

6. Bellevue
A comfortable and inviting skybar and lounge offering panoramic views over The Hague. Named after the original Bellevue Hotel, this space provides a relaxed atmosphere where students, faculty, and visitors can unwind, socialize, or enjoy a quiet moment.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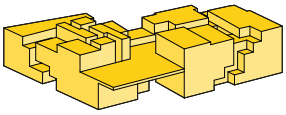
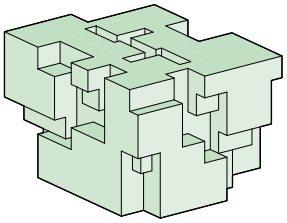
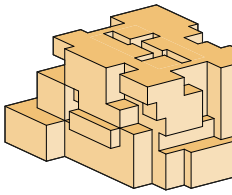
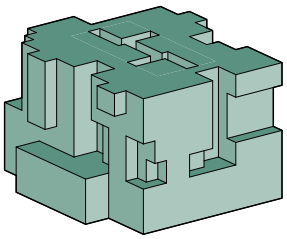
Hubs
Characteristics

	Discover	Play	Gather
Hub			
Character	Inviting Open Intrigue Transparent	Dynamic Energetic Playful Engaging	Social Collaborative Welcoming Flexible
Spacial dynamics	Wandering Gather Meet Spacious	Spacious Active Dynamic Play	Gather Wanderin Spacious Relax

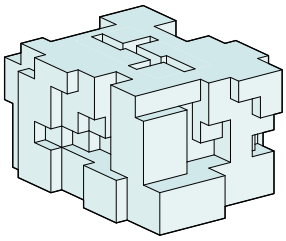
Research



Innovative
Focused
Knowledge-driven
Analytical

Enclosed
Meet
Innovate
Inspire

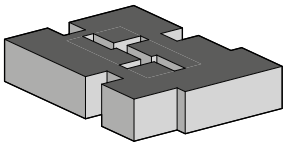
Work



Productive
Efficient
Structured
Professional

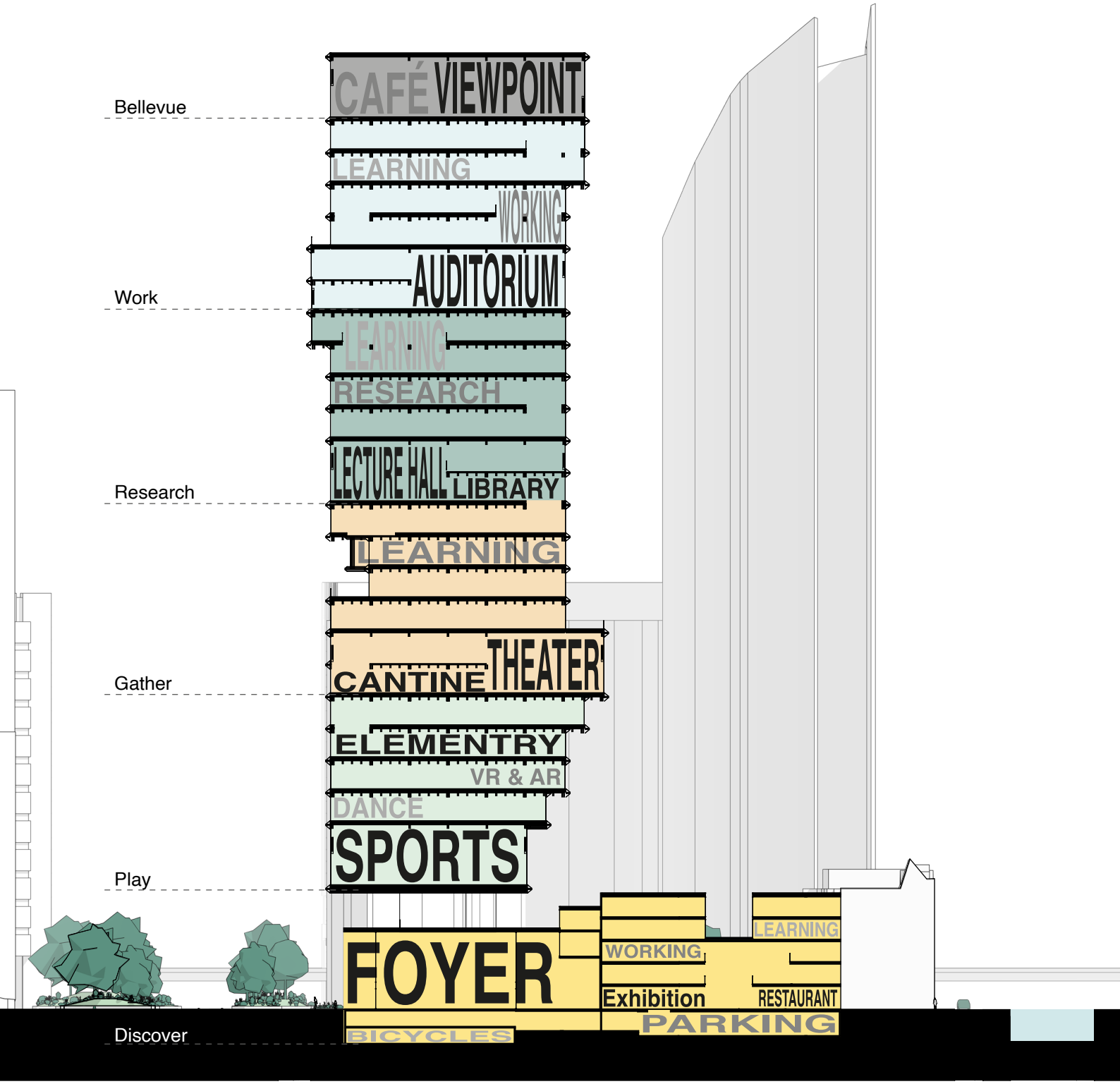
Flexible
Professional
Enclosed
Structured

Bellevue



Scenic
Elegant
Relaxing
Elevated

Meet
Relax
Gather
View


Bellevue
Work
Research
Gather
Play
Discover
CAFÉ VIEWPOINT
LEARNING
WORKING
AUDITORIUM
LEARNING
RESEARCH
LECTURE HALL
LIBRARY
LEARNING
CANTINE
THEATER
ELEMENTRY
VR & AR
DANCE
SPORTS
FOYER
LEARNING
WORKING
Exhibition
RESTAURANT
PARKING
BICYCLES

The final programmatic layout incorporates all the previously defined design elements, including the vertical journey, unique programs, the revitalization plan for existing buildings, and the learning types with their vertical and horizontal connections. At the tower's base, a ground-level foyer welcomes visitors, creating an inviting entrance into the building. A commercial area in the adjacent existing structures enables this part of the campus to function independently, maintaining activity even when the main campus is closed.

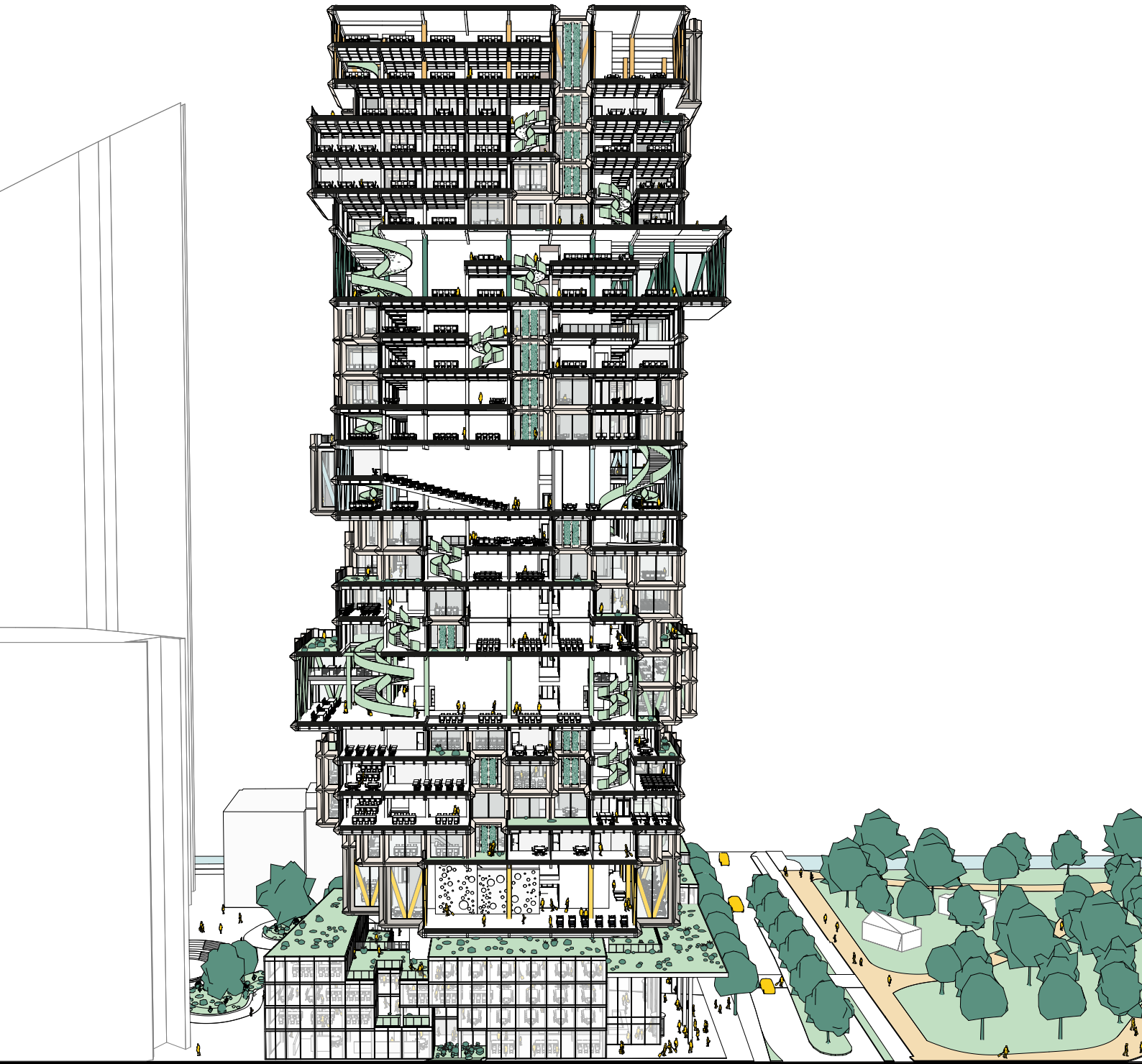
The Play Hub houses both sports facilities and the elementary school, allowing the school easy access to outdoor spaces and sports areas without crossing into more professional hubs, minimizing disruption. Above the Play Hub is the Gathering Hub, which serves as the university's core, featuring a shared canteen and the largest theater, with a capacity for over 400 people.

The university's primary educational spaces occupy nearly a third of the layout and are situated at the tower's center to ensure accessibility to all hubs, acting as a central meeting point for users. Above these levels is a hub focused on work and office activities, supporting meetings and office work while reflecting the university's collaborative philosophy. Finally, at the top of the tower, the Bellevue houses a sky bar and restaurant, offering a panoramic viewpoint to complete the campus experience.

Programmatic Layout
Perspective Section

This programmatic design culminates in a perspective section that reveals the diversity of its programs, the spacious voids, porous facades, and the vertical circulation achieved through spiral staircases positioned outside the core. These elements enhance connectivity and visual transparency across floors, inviting movement and interaction.

The façade design integrates a series of terraces, achieved by carving out sections of the façade layers, creating spaces that extend learning and gathering areas to the outdoors. Each terrace is thoughtfully positioned to offer different views, varied sunlight exposure, and opportunities for greenery. Additionally, a lush rooftop landscape crowns the existing buildings at the tower's base, adding a green, inviting layer to the campus and promoting biophilia. Together, these features make the building both environmentally integrated and visually dynamic, creating a multi-layered experience that supports learning, community, and well-being.



Discover
Front Entrance

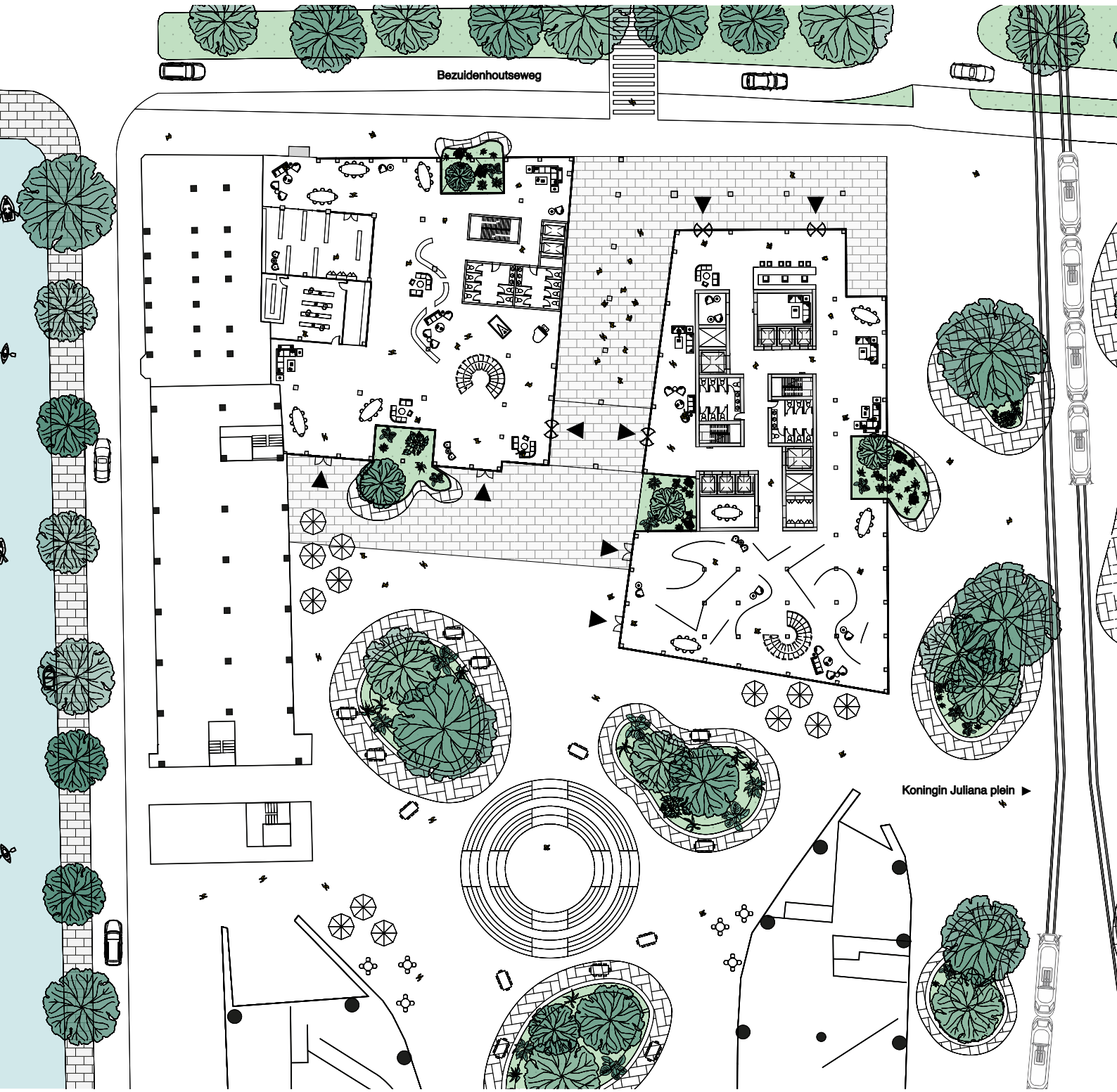




Floorplan
00 Ground Floor

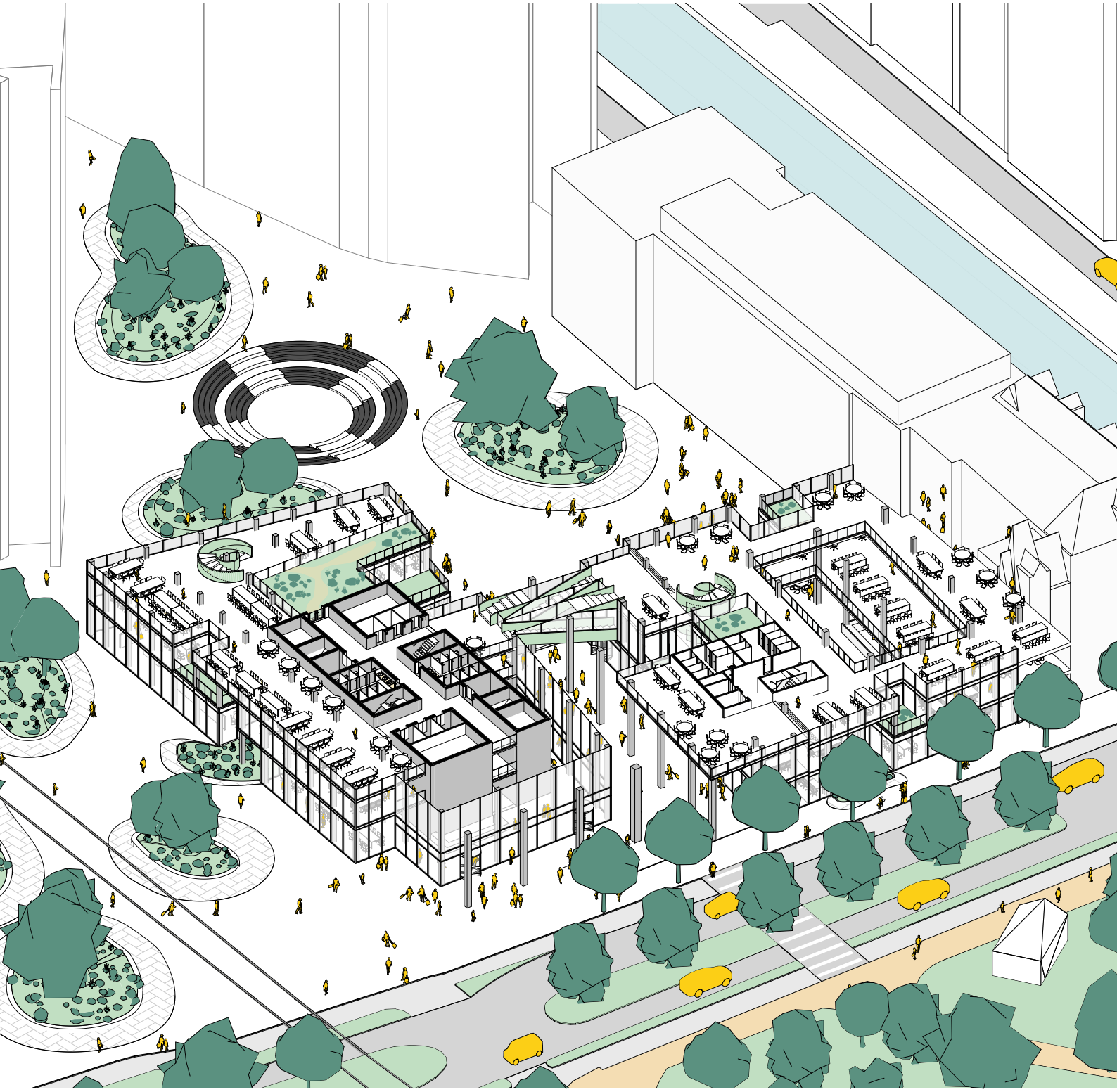
To the right is the ground floor plan of the redesigned Bellevue site, showcasing a revitalized green courtyard with an outdoor arena that serves multiple functions. This large green area is subdivided into smaller, intimate spaces, creating a relaxed and inviting atmosphere. The courtyard extends eastward across the tramlines, connecting to KJ Plein with a consistent architectural language that unifies both parts of the station area.

A street runs through the existing structure, linking the courtyard with the park across Bezuidenhoutseweg. On the building's left side, a restaurant, shops, and a seating area serve both the public and campus users. The right side features a welcoming foyer that continues the pathway through the building, leading to a large exhibition space that enhances the campus's public character. The core, with its generous hallways, opens up the floor plan and invites people inside, encouraging them to explore the building and discover what lies above.


Bezuidenhoutseweg
Koningin Juliana plein


Discover
Front Entrance





Floorplan
03 Third Floor

The first terraces begin to emerge in the floor plan, bringing a new dimension to the space. Large amounts of glass and carefully positioned voids break up the expansive floor areas, transforming them into cozy, lively spaces that contrast with the former open, monolithic layouts. These terraces invite natural light deep into the interiors and create visually connected areas that balance openness with intimacy.

At the center, directly over the street, the initial staircases linking the two buildings are introduced. These staircases not only provide functional connections but also add a playful element to the architecture. Since the levels of the two buildings do not align symmetrically, the resulting staircase slopes and lengths vary, creating an engaging, dynamic rhythm. This asymmetry brings a unique character to the space, enhancing the atmosphere with visual interest and encouraging exploration across levels.

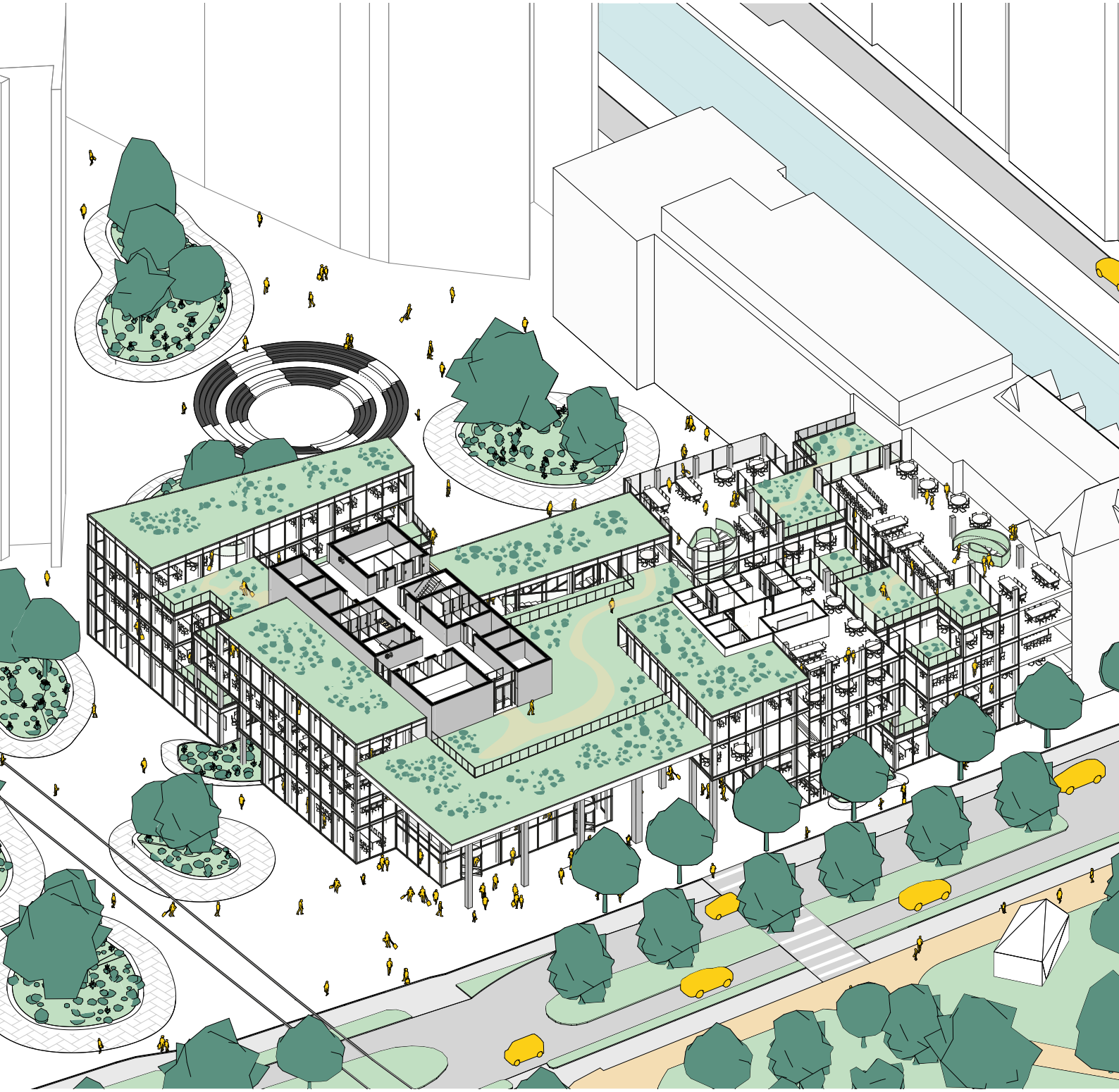

Discover
Courtyard



Floorplans
04 Fourth Floor

On the fourth and final floor of the campus base, situated within the existing buildings, the green rooftop landscape fully unfolds. Here, the design integrates terraces and pathways surrounded by lush greenery, creating a peaceful, elevated retreat where people can walk, relax, or sit amidst natural surroundings. Workspaces on this level are designed with large windows and open sightlines to this green environment, giving occupants a direct visual connection to nature.

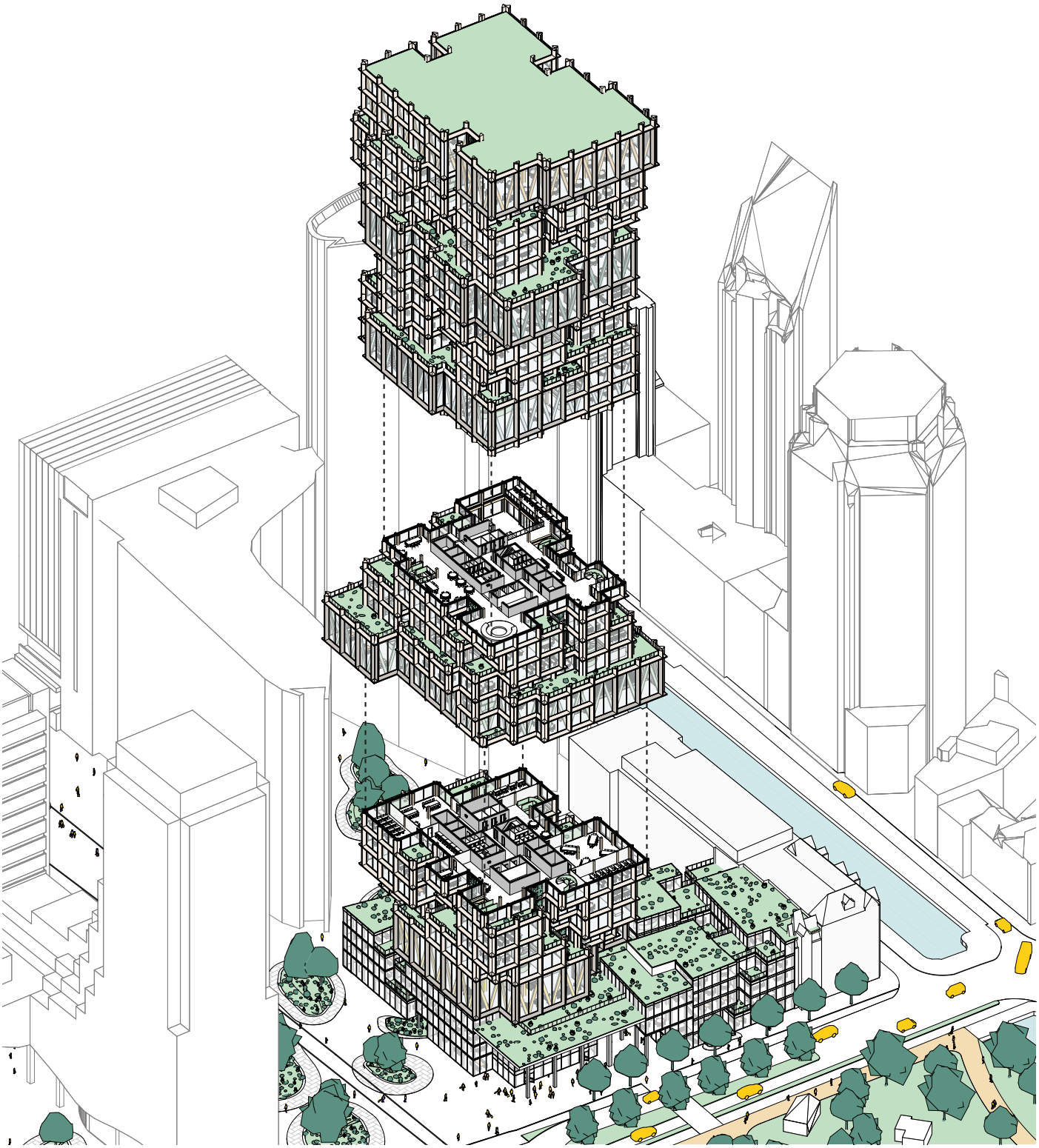
The experience feels as though one is working or studying in Koekamp itself, seamlessly blending the campus interior with the park-like atmosphere outside. This proximity to nature promotes a sense of calm and focus, enriching the work and study environment. The rooftop landscape serves as an urban oasis, providing not only physical respite but also a mental escape within the bustling campus, making it a distinctive highlight of the building's design.



Discover
Front Entrance







Gather
Hearth of the university

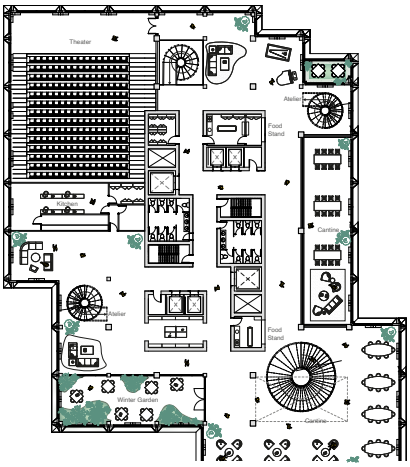
In the tower section, the Gathering Hub best embodies the project's vision and ambitious goals. This hub brings together interactive spaces open to the entire campus community, integrating a significant portion of the university's program along with carefully placed office spaces. It functions as a central, collaborative area, designed to support learning, engagement, and professional interaction, creating a vibrant ecosystem that resonates with the ethos of Fusion Scientia.

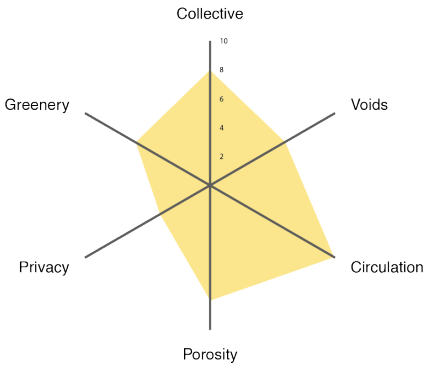
The Gathering Hub captures the essence of Fusion Scientia by blending educational, social, and professional functions within a single cohesive space. It encourages spontaneous encounters and cross-disciplinary exchanges, representing a new learning environment where boundaries between work, study, and collaboration are fluid. This hub stands as a testament to the project's commitment to fostering a dynamic and inclusive educational atmosphere, making it the most definitive space for expressing the concept's transformative impact.

Gather
Floorplan Principles

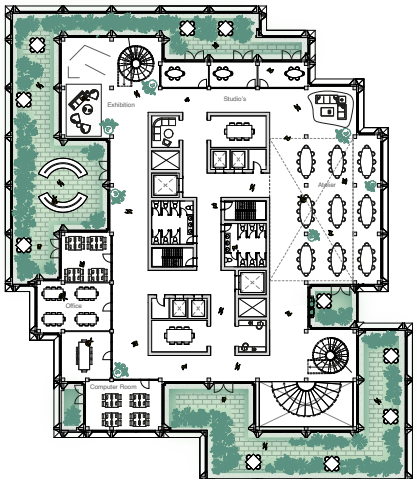
The Gathering Hub spans five distinct levels, each with unique characteristics and qualities that contribute to the overall function of the hub. These levels are tailored around the primary learning types, with the addition of two specialized subtypes: the Oasis, a variation of the Campfire designed for open, outdoor-focused gathering, and the Nest, a variation of the Cove, which creates a more intimate, home-like environment for focused work. Each level's design aligns with these learning types, enriching the hub with a variety of settings that support diverse learning and collaboration styles within the campus.

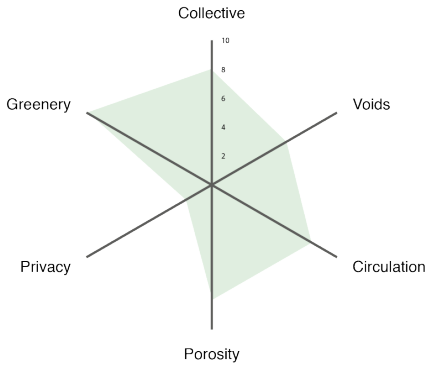
Waterhole



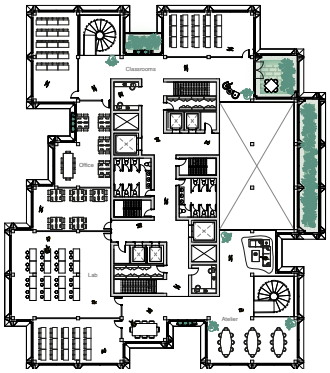


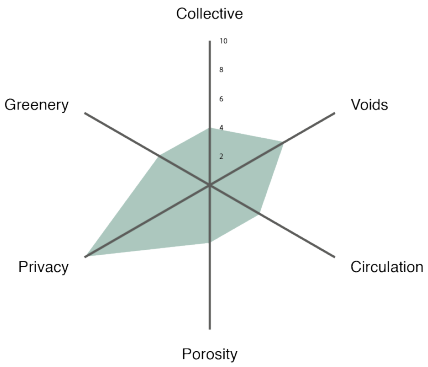
Oasis



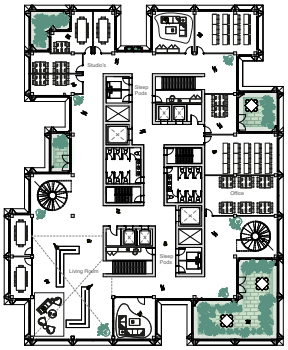


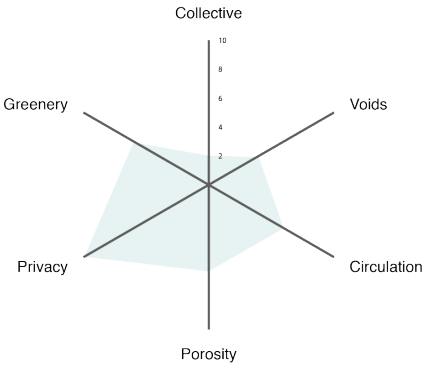
Cove



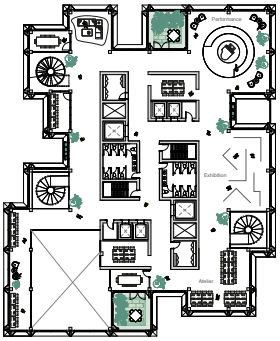


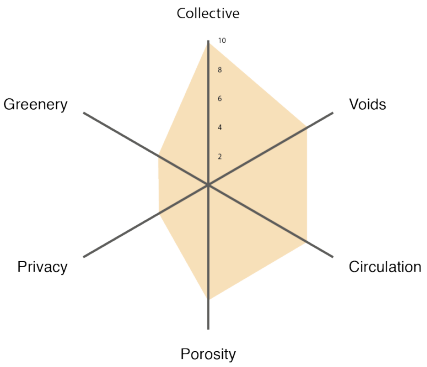
Nest





Campfire





Gather
Vertical Connections

The hubs are vertically connected through three distinct circulation strategies, each designed to facilitate movement and preserve the specific atmospheres of each level. The primary circulation is managed by the central core, providing rapid movement between floors with elevators and enclosed staircases, ideal for those needing direct and efficient vertical transit.

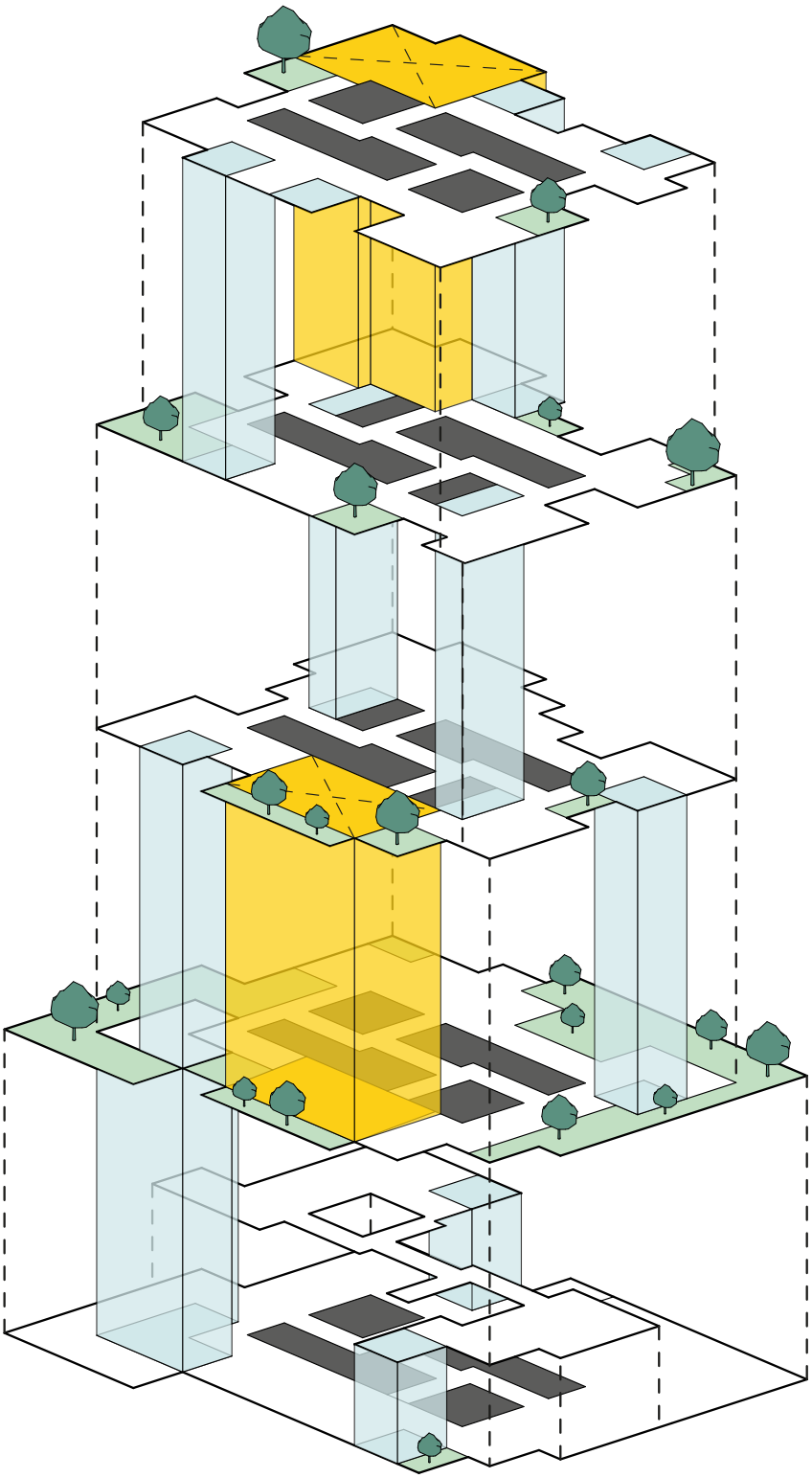
Secondly, additional circulation paths exist outside the core, strategically placed to encourage visible movement, enhancing the sense of activity and interaction between floors. These open staircases and pathways create a sense of connection as users can see and be inspired by movement throughout the hub.

Finally, strategically placed voids encourage vertical movement by offering visual and auditory cues that connect the levels. These voids highlight points of interest between floors, drawing people toward activities or quieter areas based on sound and sightlines. Each floor varies in its degree of openness versus privacy and noise versus calm, so the design carefully calibrates connections to suit these characteristics.

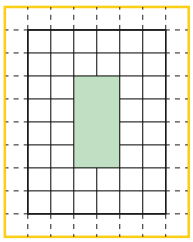
For instance, the double-height interactive level 11 has a vibrant atmosphere, but it doesn't share voids with adjacent floors to prevent noise from spilling over into quieter zones. However, it does include a large staircase that smoothly connects to upper floors, inviting people to explore the building further. Similarly, the Oasis on level 13 shares both a circulation path and a selective void with the Cove above, allowing visibility and sound to connect the spaces at key points without disrupting the Cove's focus-driven environment.

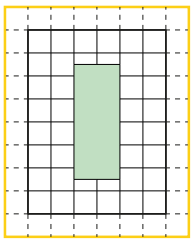
The Cove, designed for concentrated work, only shares core-based circulation with the level above, ensuring minimal distraction. Above the Cove, the Nest follows a similar layout, sharing carefully controlled connections with the Campfire above, much like the Oasis-to-Cove relationship below. This layering of sound, sight, and movement creates a natural flow that guides users to interactive levels, maintaining vibrancy in social areas and tranquility in concentrated ones. This intuitive circulation design reinforces the balance of energy and calm across the tower, allowing spaces to retain their unique atmospheres and serve their distinct purposes effectively.

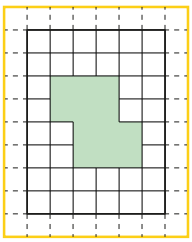
The core, a striking element of the building because of its size and crucial functionality, was carefully crafted. Comprehensive studies were undertaken to explore its limitations and possibilities, as well as its influence on the adjacent floor plans. This research transformed the core into a dynamic component that balances structural requirements with spatial flexibility, optimizing the overall layout and circulation within the building. Approximately 25% of the core's volume was allocated to ensure the building's stability while maintaining its architectural integrity.

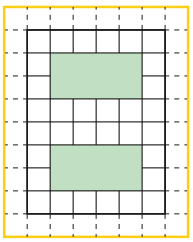

16
15
14
13
12
11

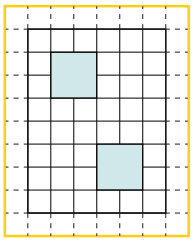
Core Design
Variants

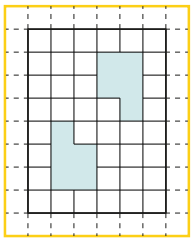

1 - 233 m² (16,7%)

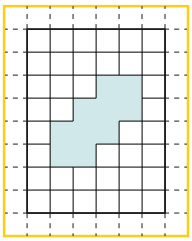

2 - 292 m² (20,8%)

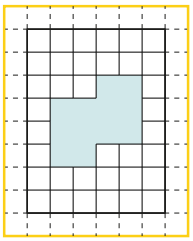

3 - 350 m² (0,25%)

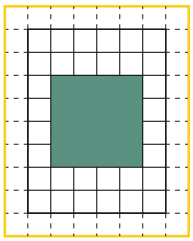

4 - 467 m² (33,3%)

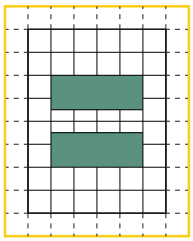

5 - 233 m² (16,7%)

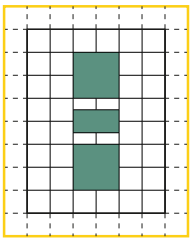

6 - 292 m² (20,8%)

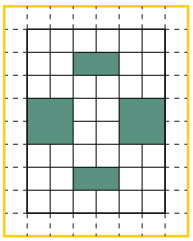

7 - 292 m² (20,8%)

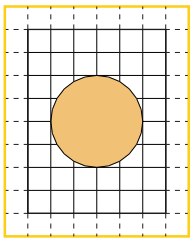

8 - 350 m² (0,25%)

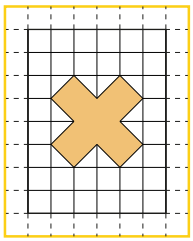

9 - 467 m² (33,3%)

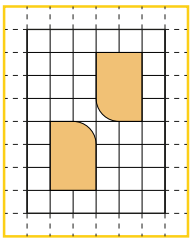

10 - 350 m² (0,25%)

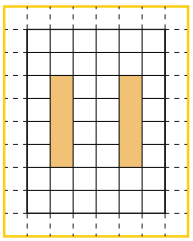

11 - 292 m² (20,8%)

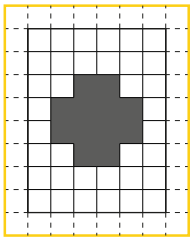

12 - 350 m² (0,25%)

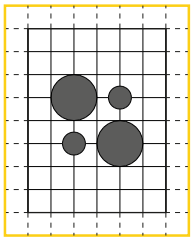

13 - 362 m² (25,9%)

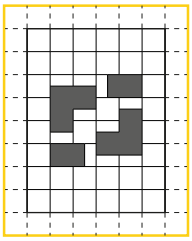

14 - 292 m² (20,8%)

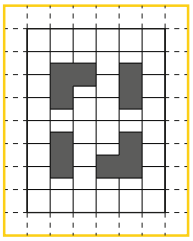

15 - 335 m² (23,9%)

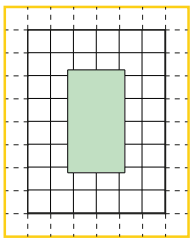

16 - 233 m² (16,7%)


17 - 350 m² (0,25%)

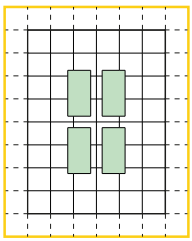

18 - 226 m² (16,1%)


19 - 262 m² (18,8%)

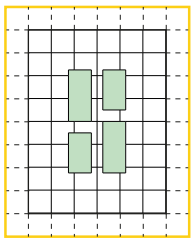

20 - 292 m² (20,8%)



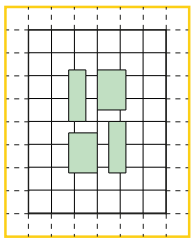
21 - 328 m² (23,4%)



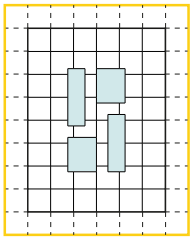
21.1 - 328 m² (23,4%)



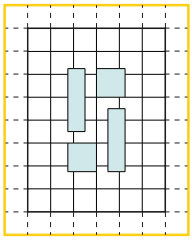
21.2 - 328 m² (23,4%)



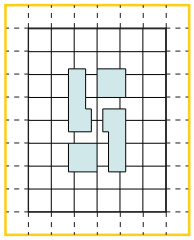
21.3 - 328 m² (23,4%)



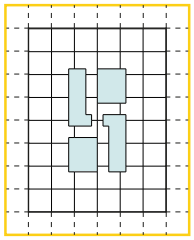
21.4 - 328 m² (23,4%)



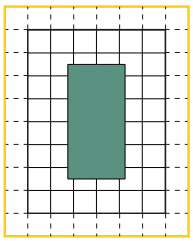
21.5 - 328 m² (23,4%)



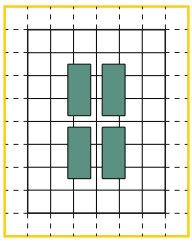
21.6 - 328 m² (23,4%)



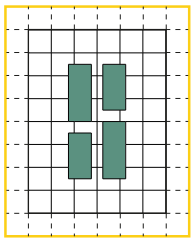
21.7 - 328 m² (23,4%)



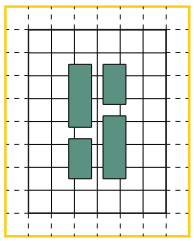
22 - 365 m² (26%)



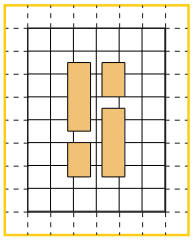
22.1 - 365 m² (26%)



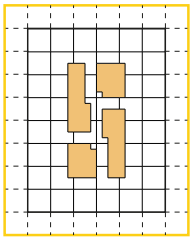
22.2 - 365 m² (26%)



22.3 - 365 m² (26%)



22.4 - 365 m² (26%)



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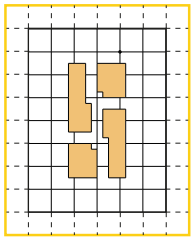
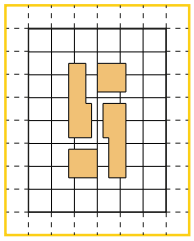
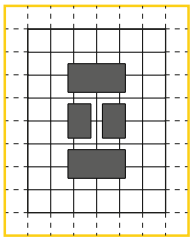


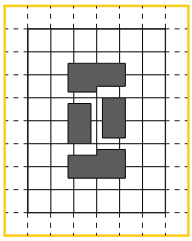
22.6 - 365 m² (26%)



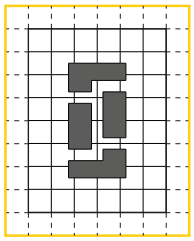
22.7- 365 m² (26%)



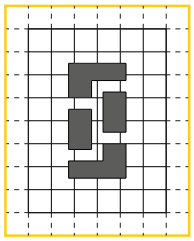
22.8 - 365 m² (26%)



22.9 - 365 m² (26%)



22.10 - 365 m² (26%)



22.11 - 365 m² (26%)

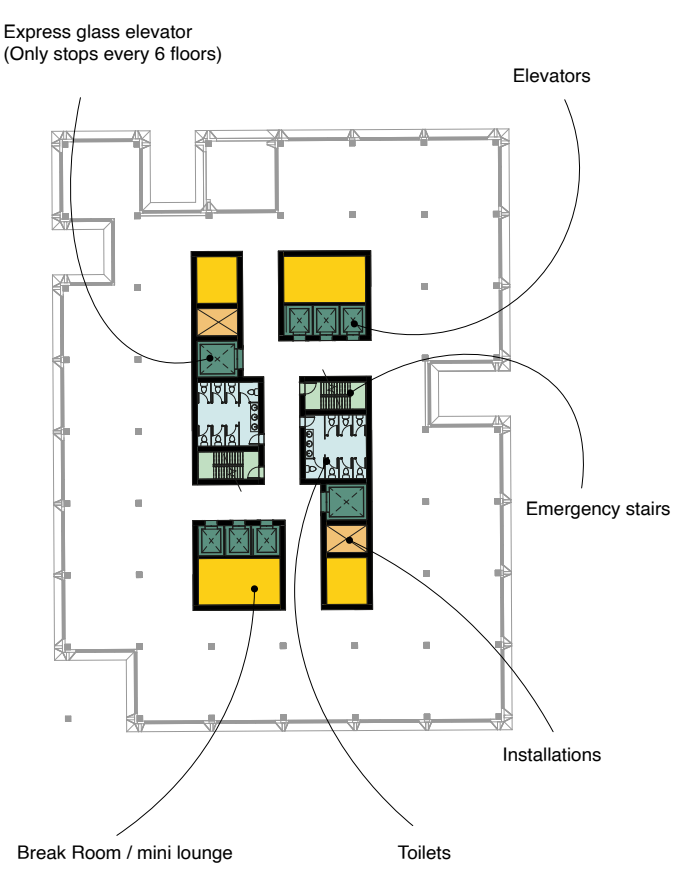
Core Design
Variants

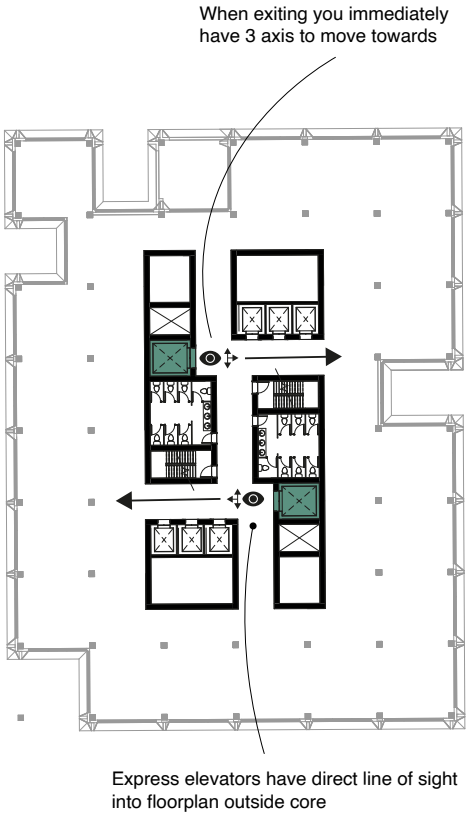
Among the various core design variants, one concept emerged as particularly promising. Variant 21.7 was based on a symmetrical arrangement of four sub-cores, divided by a plus-shaped internal hallway, forming the foundation of this design. The positioning and configuration of the hallways were adjusted, resulting in asymmetrical sub-cores that offered varied sightlines and movement flows within the core itself.

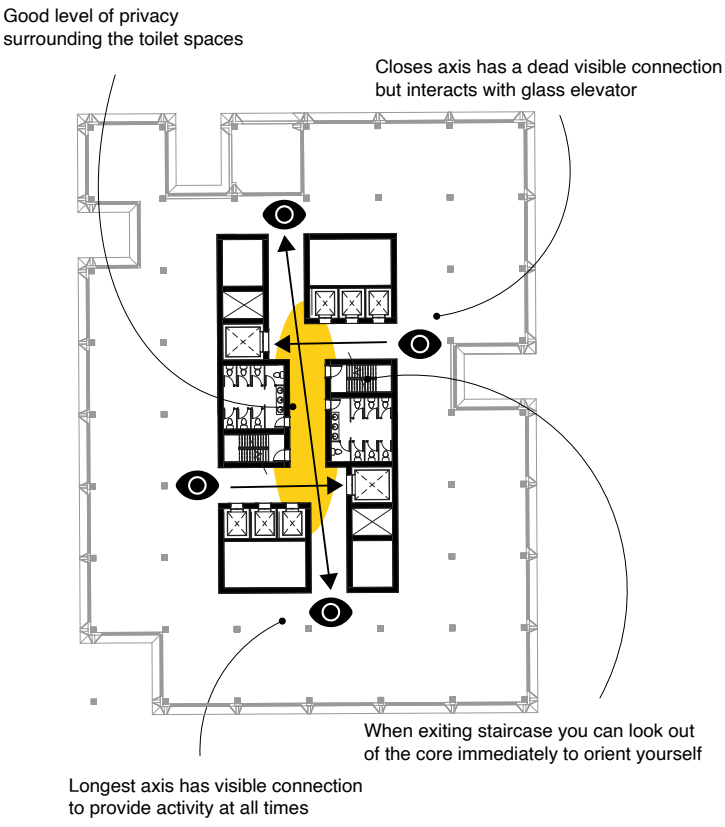
While Variant 22.11 displayed significant potential, it was limited by accessibility, as it did not allow entry to the core from all four sides of the floor plan. This constraint hindered movement and interaction around the core.

Ultimately, Variant 22.7 was developed, providing 360-degree access to the core with an asymmetrical layout. This design not only accommodates a diverse range of programs surrounding the core but also creates a private center for restrooms. Crucially, it maintains visible connections to the exterior, eliminating dead space. This approach fosters a functional, safe, and naturally lit environment that serves multiple purposes, contrasting with traditional monofunctional core designs.




Express glass elevator
(Only stops every 6 floors)
Elevators
Emergency stairs
Installations
Break Room / mini lounge
Toilets


When exiting you immediately
have 3 axis to move towards
Express elevators have direct line of sight
into floorplan outside core


Good level of privacy
surrounding the toilet spaces
Closes axis has a dead visible connection
but interacts with glass elevator
When exiting staircase you can look out
of the core immediately to orient yourself
Longest axis has visible connection
to provide activity at all times

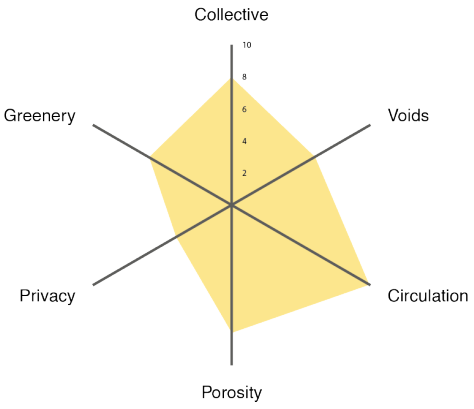

Kitchen
Meeting Room for
quick sessions
Storage
Break Room / mini lounge

Waterhole
Interaction & Gathering

This floor is defined by its vibrant shared canteen and the expansive theater it houses, making it a central hub for community interaction and engagement. The layout thoughtfully incorporates areas for both communal and individual seating, allowing for a variety of dining experiences, from casual group gatherings to quieter, more personal meals. A winter garden adds to the ambiance, providing a refreshing connection to the outdoors and enhancing the overall atmosphere with natural light and greenery.

Beneath the theater podium, a fully equipped kitchen supports the culinary needs of the space, ensuring that meals can be prepared on-site for events and daily dining. In addition to the main kitchen, flexible food stands are strategically placed within the adaptable spaces of the core, offering a dynamic range of dining options that can cater to various tastes and preferences. This flexibility allows the area to host pop-up vendors or seasonal offerings, keeping the dining experience fresh and exciting.

The overall design features high ceilings and a spacious, open layout, which not only promotes a sense of grandeur but also encourages social interaction and collaboration. This openness fosters a welcoming environment, inviting users to gather, collaborate, and participate in the diverse activities available on this floor, ultimately enhancing the public character of the space and reinforcing its role as a lively focal point of the campus.



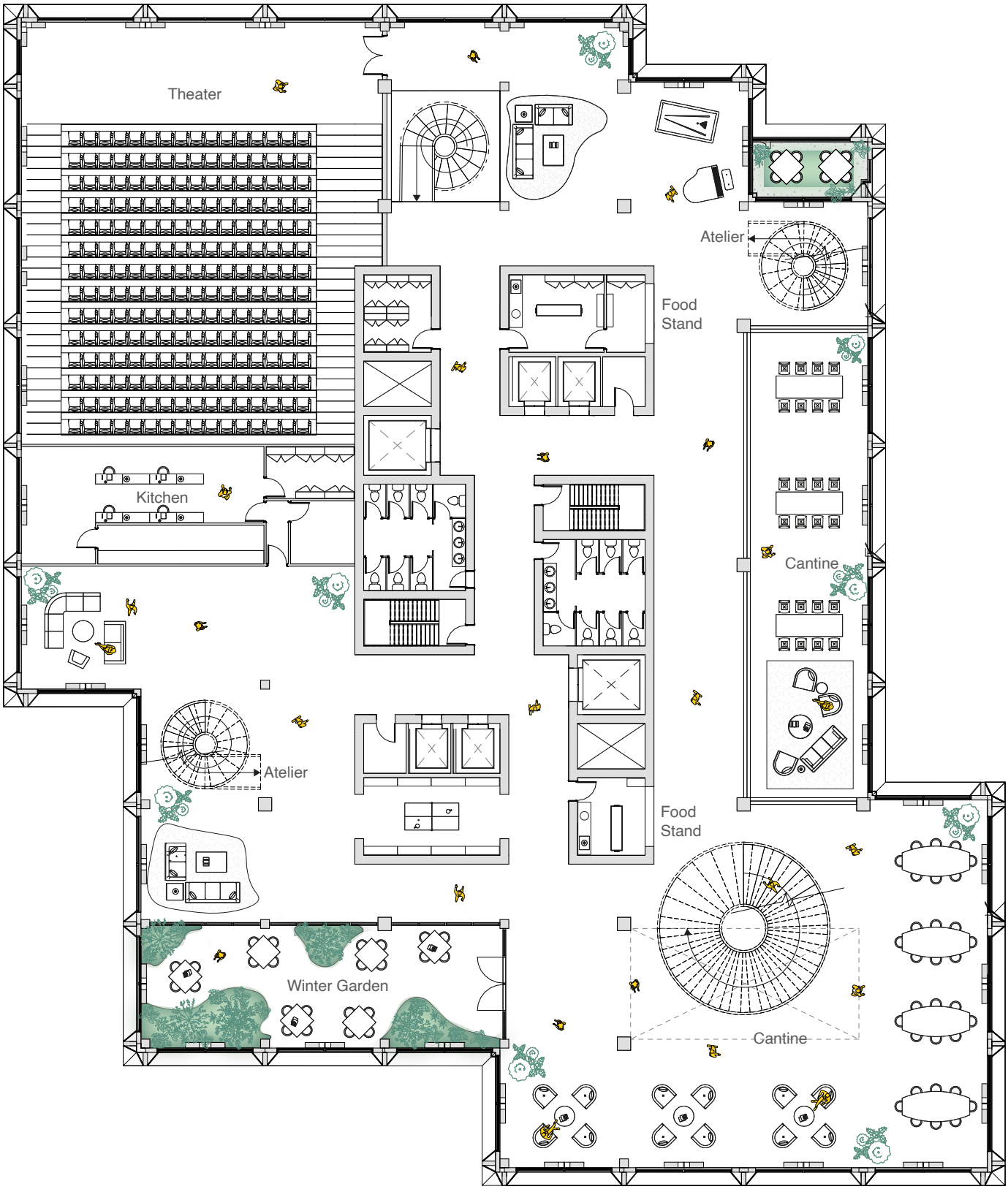
Waterhole



Circulation space



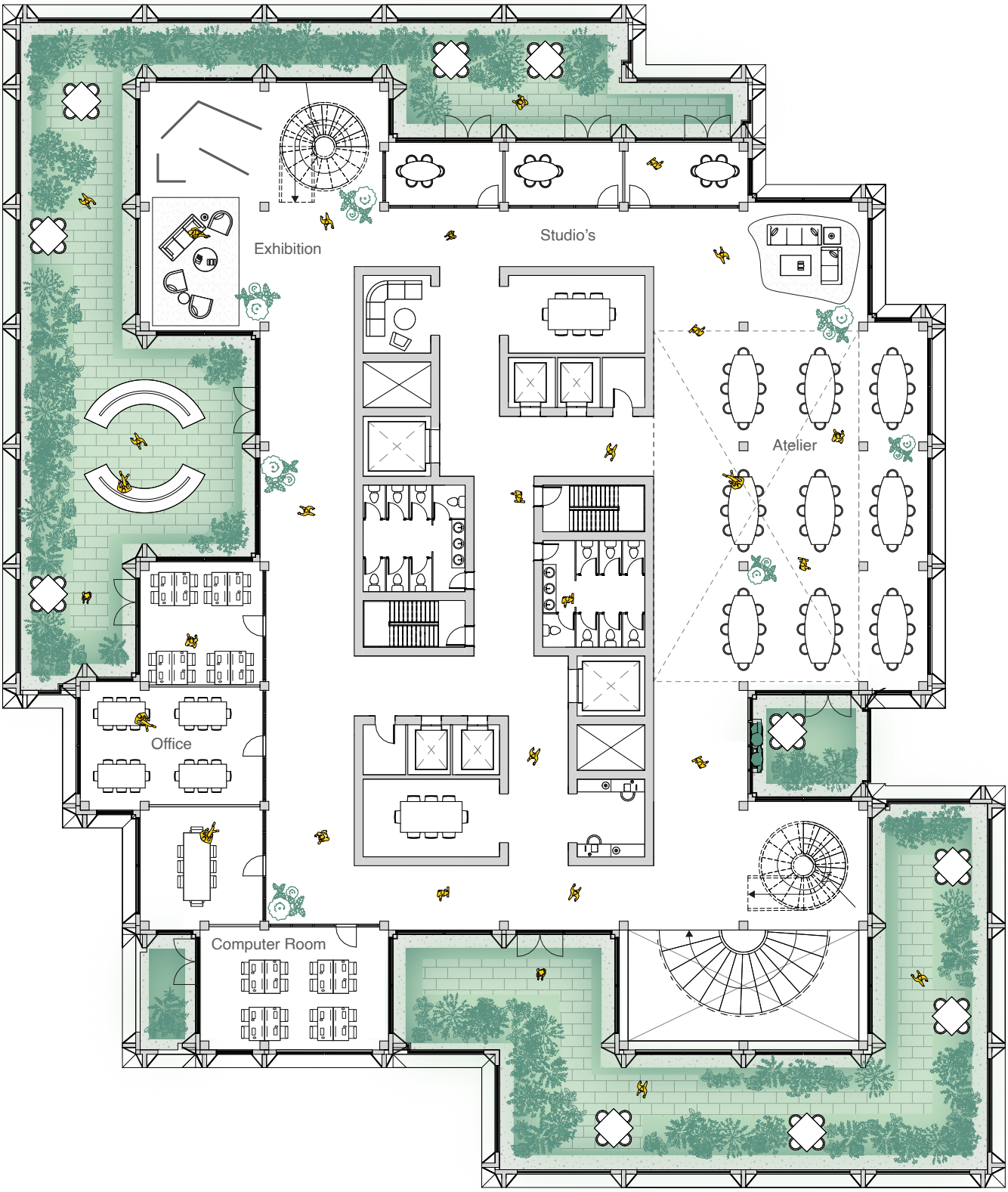
Program Distribution


Theater
Atelier
Food
Stand
Kitchen
Cantine
Atelier
Food
Stand
Winter Garden
Cantine

Waterhole
Cantine






Exhibition
Studio's
Atelier
Office
Computer Room

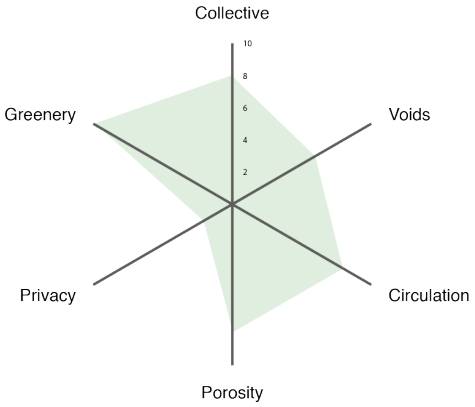
Oasis
Outdoor Working & Relaxing

The Oasis, as its name suggests, is dedicated to outdoor working and relaxation, offering a variety of terraces that provide users with aesthetically pleasing views and ample opportunities for gathering in nature. The design features larger outdoor arenas interspersed with more secluded seating areas, catering to a range of preferences for social interaction and solitude.

Adjacent to the greenery, meeting rooms and office spaces benefit from inviting views and often include private outdoor seating areas, allowing for a seamless blend of indoor and outdoor working environments. This connection to nature enhances productivity and creativity, providing a refreshing backdrop for meetings and collaborative efforts.

A spacious atelier space within the Oasis contributes to a vibrant working atmosphere, enabling users to alternate between outdoor and indoor tasks. This flexibility supports diverse working styles, encouraging creativity and collaboration while fostering a sense of community among users.

The core of the Oasis includes additional meeting facilities, lounges, and kitchenettes, ensuring that users have access to essential amenities without sacrificing the outdoor experience. This thoughtful integration of spaces promotes a dynamic environment where individuals can work, connect, and unwind, making the Oasis a true sanctuary within the campus.



Waterhole



Circulation space



Program Distribution

Oasis
Outdoor Connections





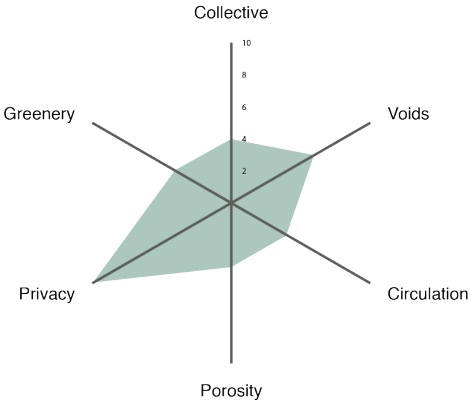
The Cove
Focused Learning & Research

The Cove is characterized by its more enclosed program and limited circulation around the core, creating an atmosphere conducive to focus and concentration. This area is designed to accommodate the majority of the university's core functions, including classrooms, research facilities, and staff offices. The layout prioritizes quieter, dedicated spaces that foster deep learning and collaboration among students and faculty.

Terraces in the Cove are intentionally less accessible, serving primarily as visual focal points rather than active gathering spaces. This design choice reinforces the Cove's role as a tranquil retreat within the campus, allowing users to appreciate the surrounding environment without the distraction of heavy foot traffic.

A clear shift in programming is evident throughout the Cove, with vibrant, dynamic spaces (indicated in yellow) giving way to more isolated and concentrated areas (represented in green). This thoughtful transition allows for a diverse range of activities, catering to both collaborative projects and individual study. The layout encourages users to engage with the environment in a way that supports their specific needs, whether they require an energetic group setting or a peaceful place for focused research.

Overall, the Cove is designed to create an optimal balance between interaction and introspection, ensuring that all users can find their ideal space for learning and productivity within the university.



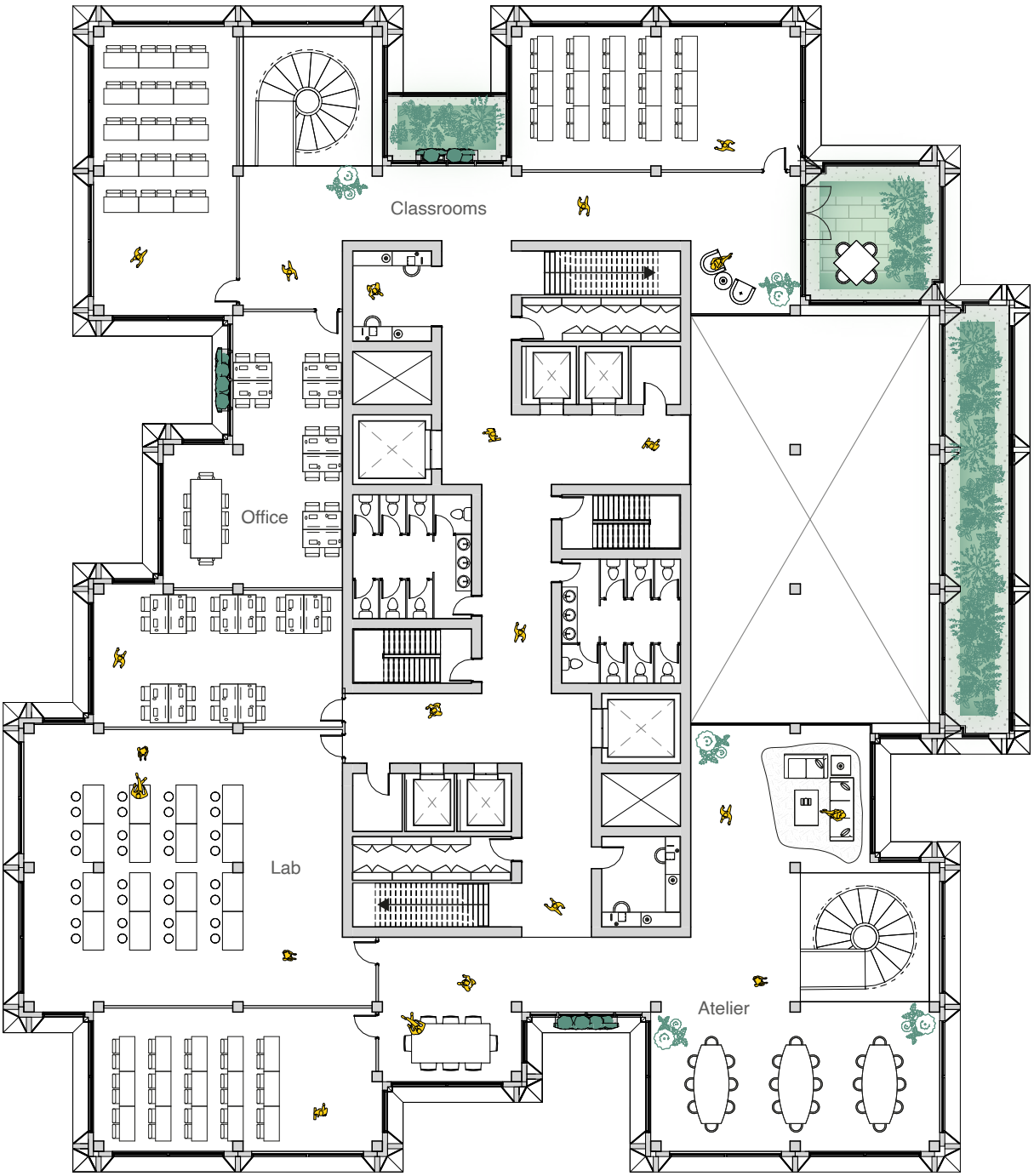
Waterhole



Circulation space



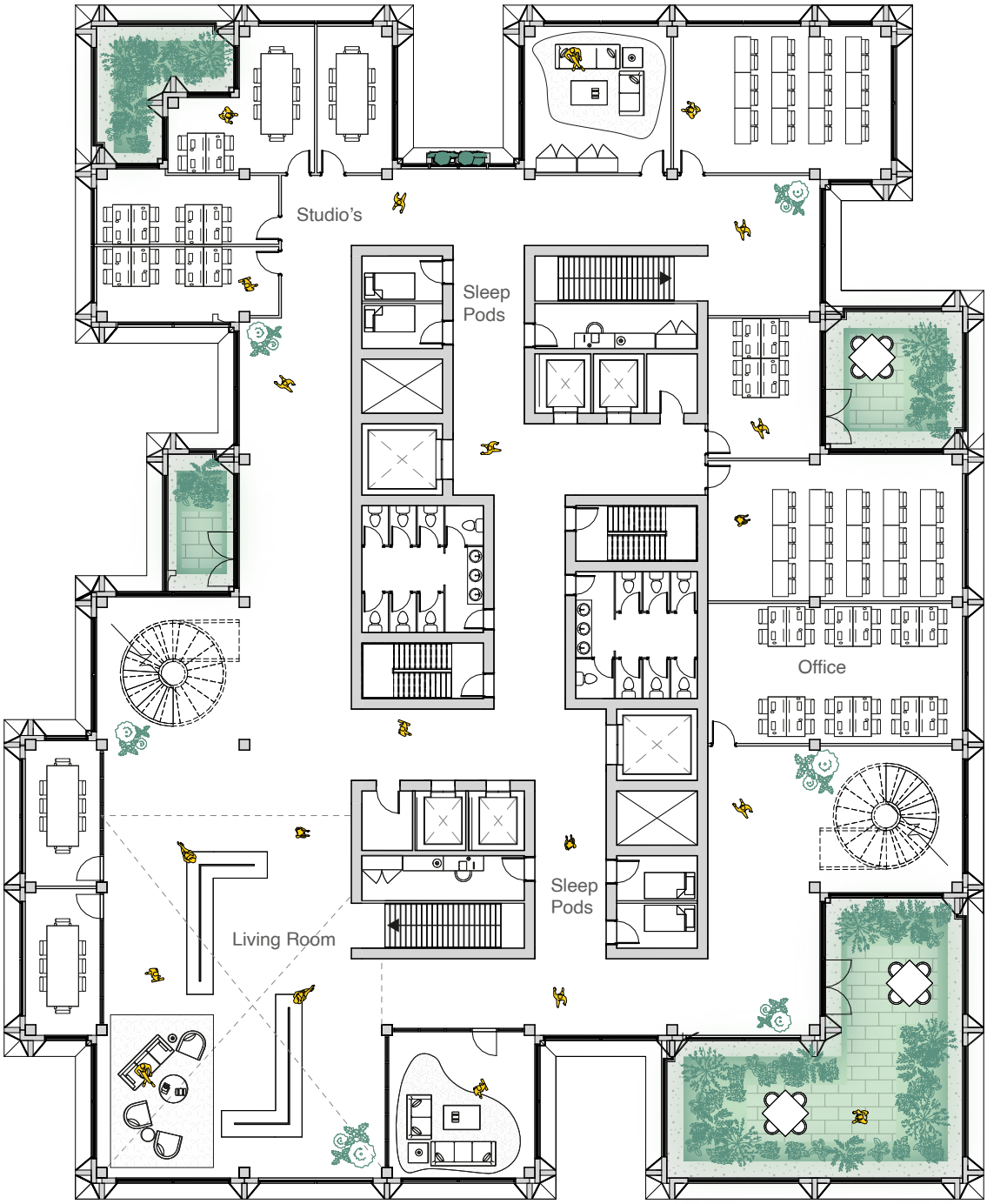
Program Distribution


Classrooms
Office
Lab
Atelier

Cove
Voids



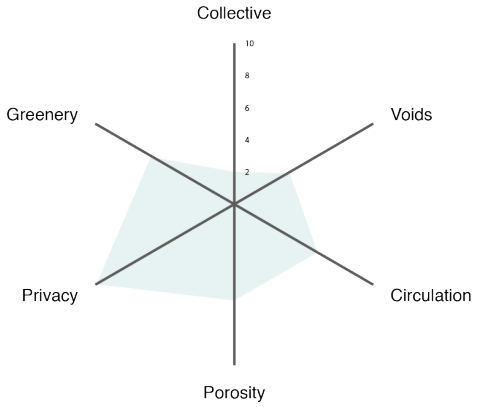



Studio's
Sleep
Pods
Office
Sleep
Pods
Living Room

The Nest serves as a sanctuary for students, staff, and visitors, providing a much-needed respite from the demands of academic life. This space is designed to encourage a more relaxed pace, offering a variety of environments that cater to leisure, collaboration, and even rest. By integrating areas for informal gatherings and comfortable lounging, the Nest fosters a sense of community while promoting individual well-being.

The thoughtful layout allows users to seamlessly transition between group activities and personal downtime, enabling them to find their own work-life balance. This balance is crucial for enhancing focus and concentration over time, as it encourages a more holistic approach to learning and productivity.

One of the defining features of the Nest is its “living room” atmosphere, which promotes informal interactions and collaborative learning experiences. This space is complemented by accessible green elements, such as indoor plants and views of outdoor greenery, creating a calming environment that invites creativity and relaxation. Overall, the Nest embodies a philosophy that values the importance of both work and leisure in achieving academic success and personal fulfillment.



Waterhole



Circulation space



Program Distribution


Nest
Living Room

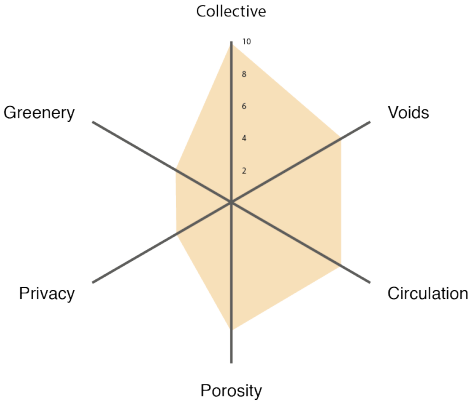


Campfire
Exhibitions and Performances

The Campfire is designed to serve as a vibrant collective gathering space that fosters informal learning and community engagement. This area is ideal for a variety of activities, including exhibitions, smaller lectures, and live performances, such as intimate music events. The design encourages a sense of togetherness, inviting individuals to come together, share ideas, and explore new concepts in a relaxed environment.

One of the defining features of the Campfire is its unique structural design, which minimizes the need for numerous support columns within the space. This innovative approach results in larger, open areas that can be adapted for a wide range of flexible programming. Such versatility allows the space to be reconfigured as needed, accommodating everything from art showcases to educational workshops or social gatherings.

The Campfire's open layout promotes fluid movement and interaction, making it an ideal backdrop for spontaneous conversations and collaborations. The atmosphere is infused with creativity and dynamism, encouraging users to engage with one another and take part in the diverse activities offered. Ultimately, the Campfire embodies the spirit of community and collaboration, enriching the overall educational experience within the tower.



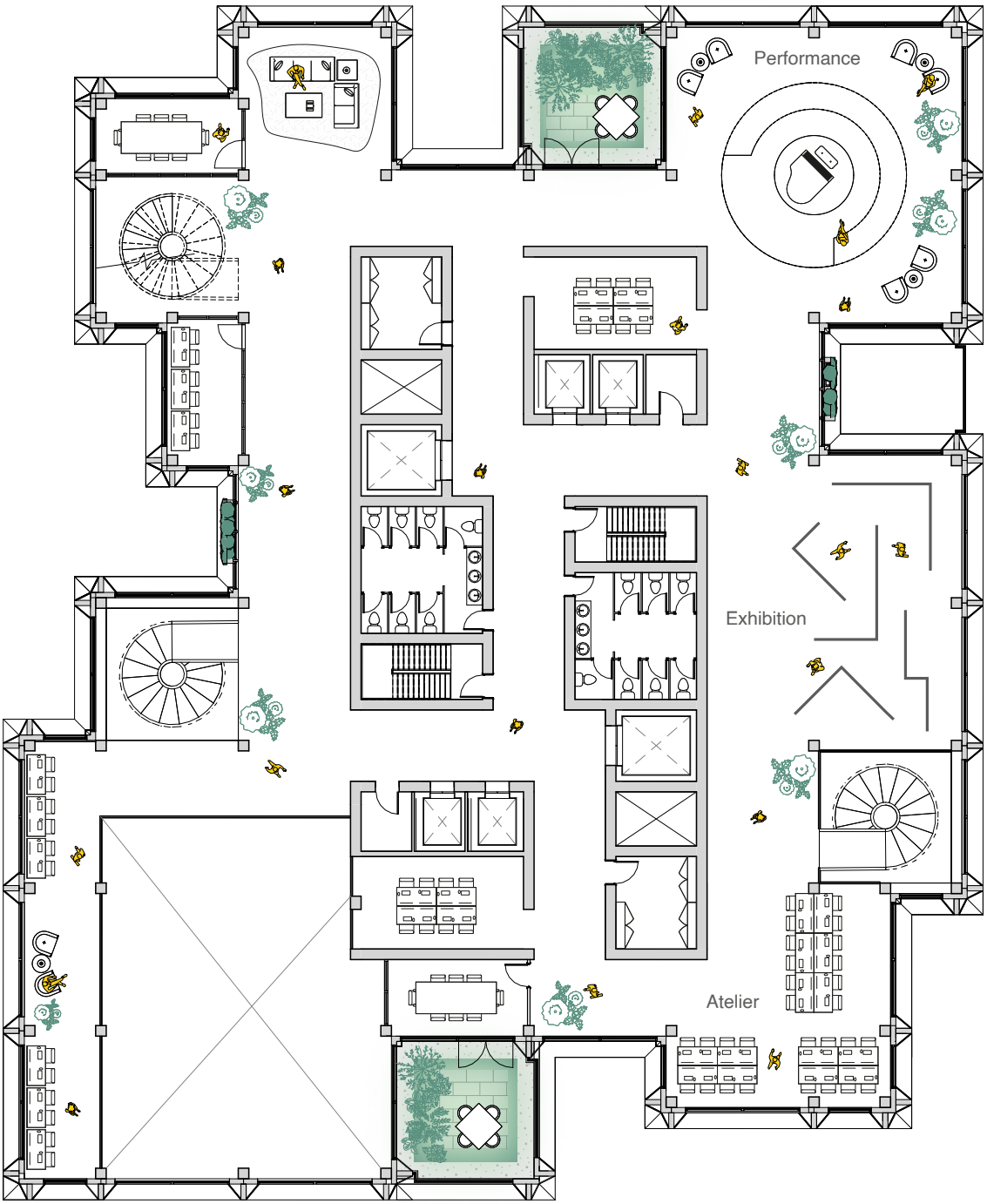
Waterhole



Circulation space



Program Distribution


Performance
Exhibition
Atelier

Campfire
Performance

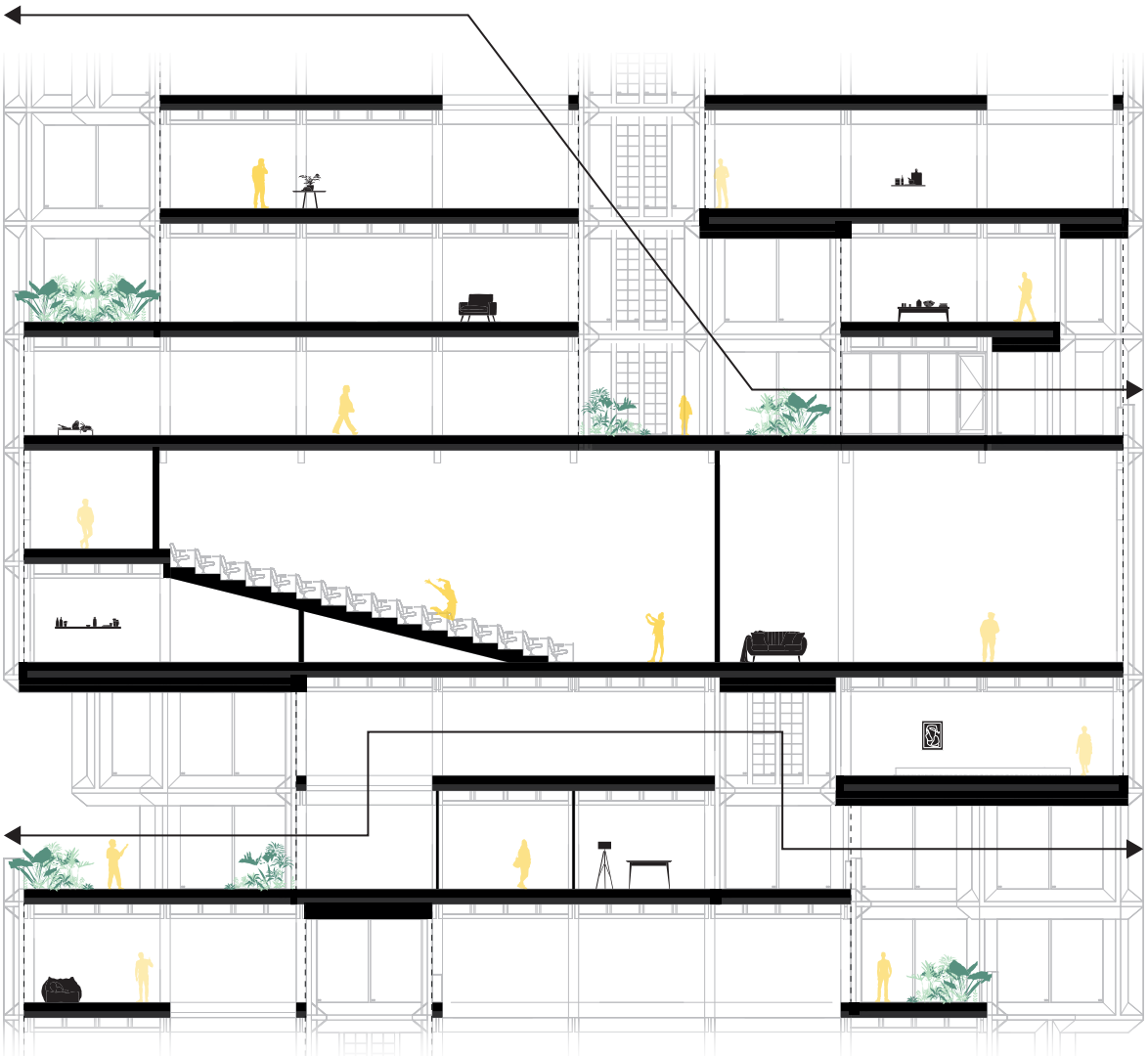



GRAND SOUND

Vertical Landscape
Traditional vs New Layout

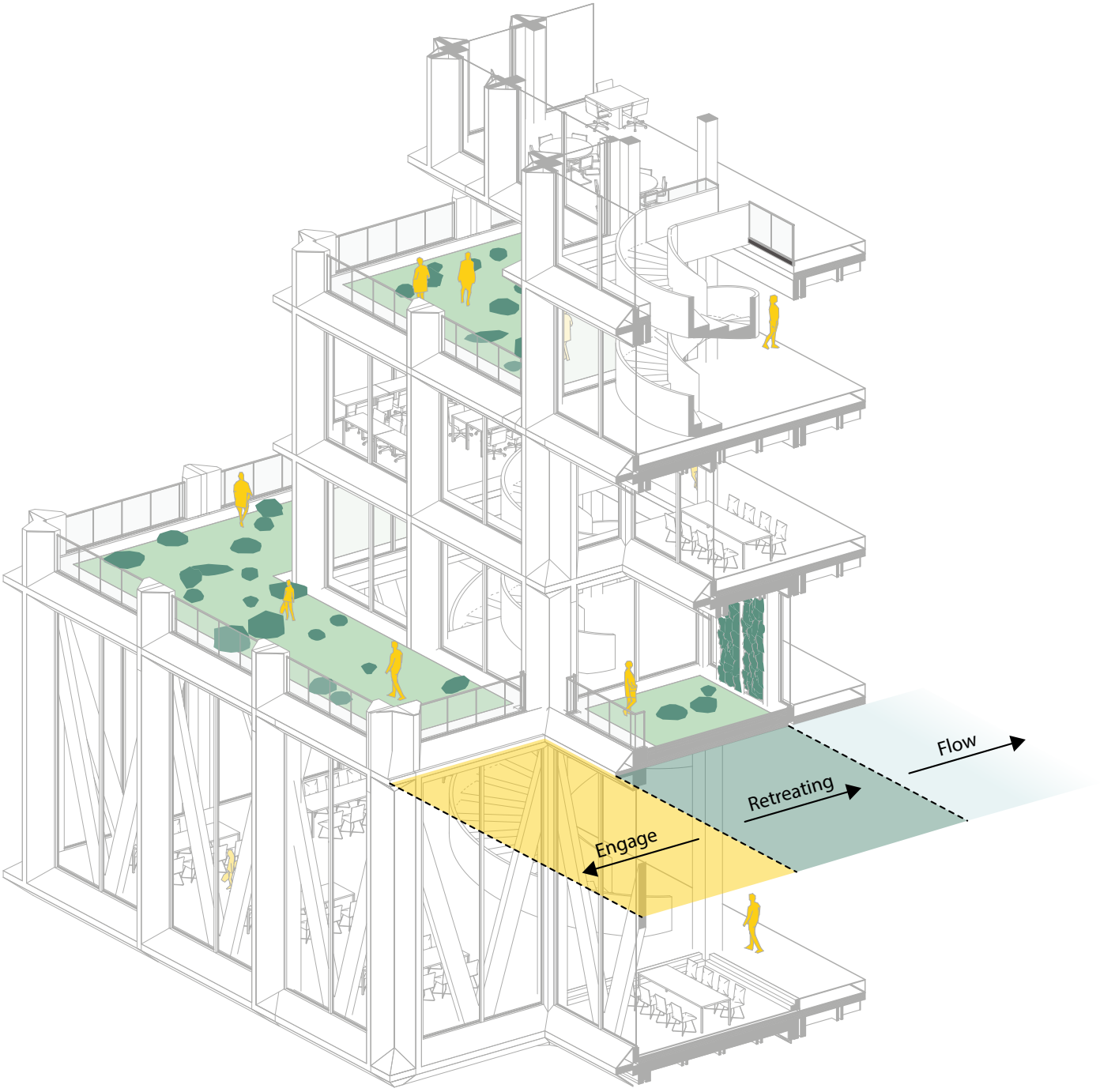
By incorporating strategies that enhance porosity, introduce voids, and integrate greenery, I have developed a novel approach to high-rise connectivity, both horizontally and vertically. Rather than adhering to a conventional, horizontally-focused floor plan, this design fosters a dynamic and fluid layout that emphasizes vertical connections. This innovative arrangement not only encourages movement throughout the building but also cultivates a cohesive identity across different levels. As a result, occupants are less likely to feel isolated within their own floors; instead, they experience a sense of belonging and engagement with the entire structure.





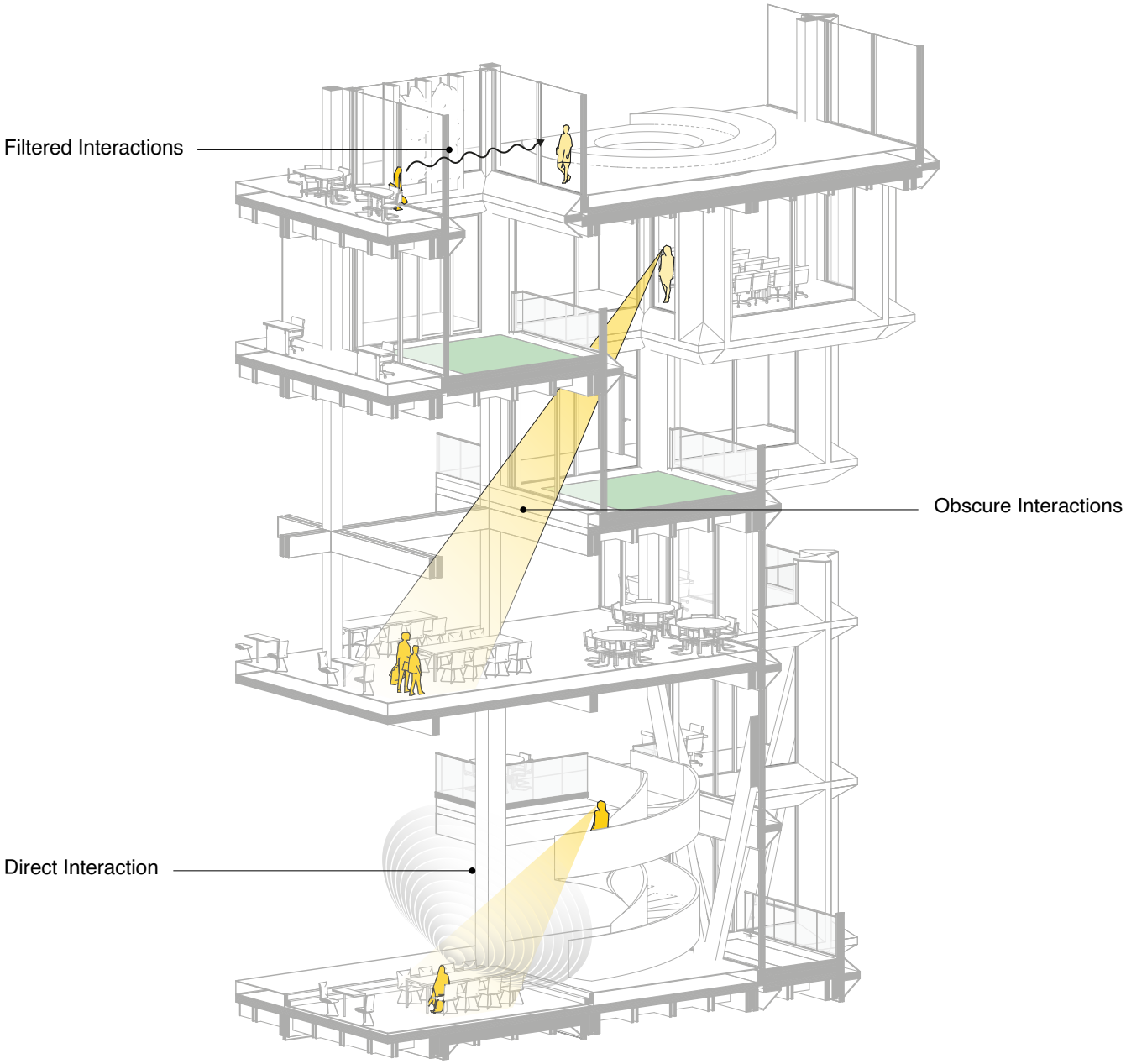
Vertical Landscape
Facade Layers

The voids in the facade, coupled with its horizontal design elements, create a layered facade that defines spaces with distinct characteristics. The outermost layer, more removed from the floorplan and exposed to the elements, boasts the largest green areas available, making it ideal for larger group gatherings. In contrast, the more enclosed loggias provide a retreat-like atmosphere for individual use. The innermost layer is dedicated to circulation, and having hallways directly connected to outdoor spaces is a distinctive feature for high-rise buildings, as they often experience sunlight blockage from surrounding programs. This innovative design fosters a seamless interaction between indoor and outdoor environments, enhancing the overall experience for users.



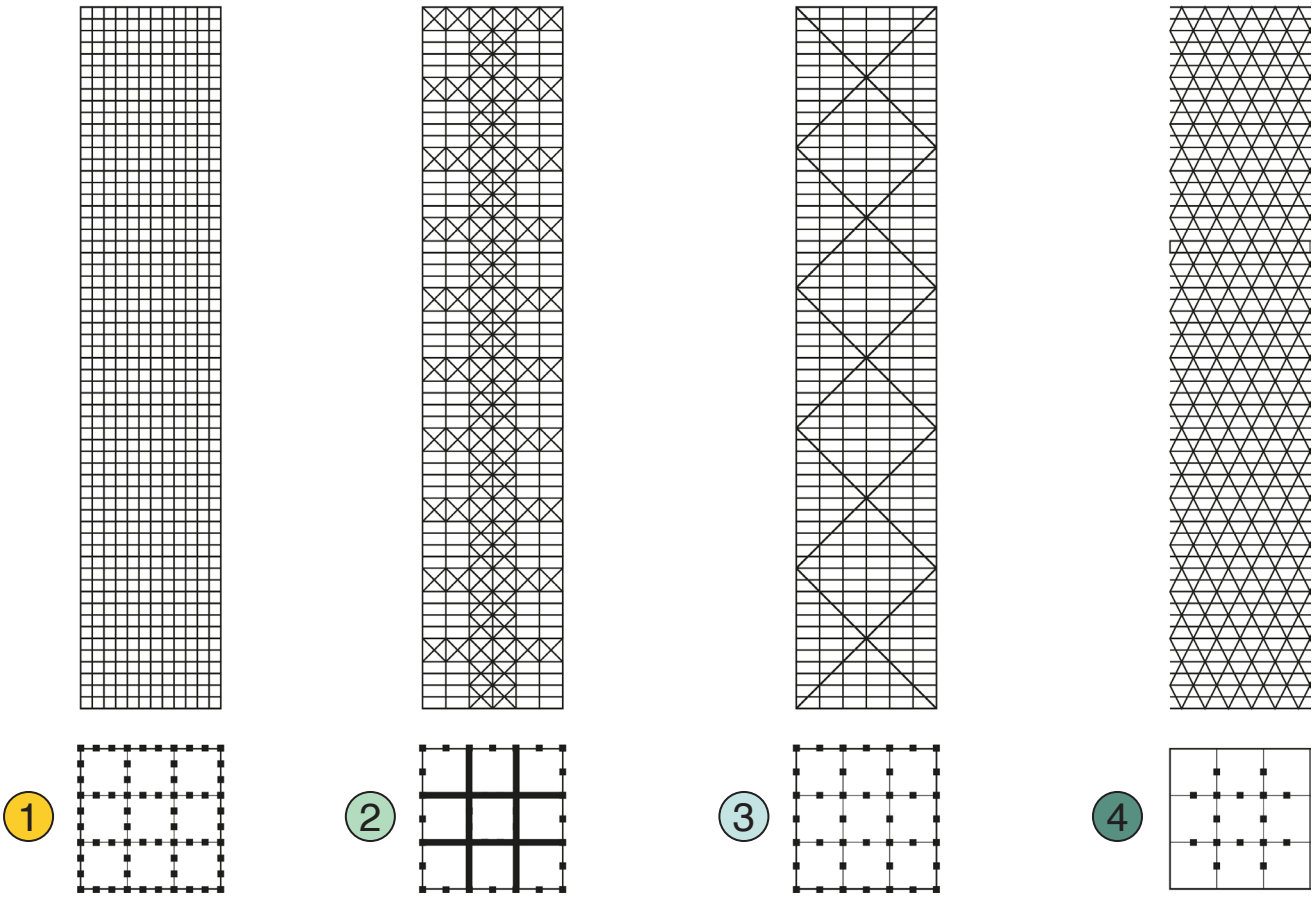
Vertical Landscape
Layered Connections

The various layers of the building not only create unique spaces but also foster enhanced interaction between floors in multiple ways. Direct interaction is facilitated through auditory cues and visual indicators, allowing users to engage with one another even across levels. Additionally, sightlines are thoughtfully designed to extend across multiple floors, creating a sense of connectivity that is often absent in traditional high-rise buildings. This innovative approach enables users to experience a feeling of proximity to their neighbors, as if they are sharing the same space despite being on different levels. Such layered interactions enrich the environment, promoting a vibrant community and encouraging spontaneous social engagement among occupants. By breaking down the barriers typically found in vertical structures, this design cultivates a dynamic atmosphere that enhances collaboration and connection.



Structural Principles
Load Bearing Structure

Presented below are several examples of commonly employed structural principles for high-rise towers. Although numerous variations exist, this evaluation focuses on four primary structural systems for clarity. Ultimately, the most appropriate option identified is the outrigger structure.



1 Bundled-Tube

- Column based
- Plate action in floors
- Less flexible internal design

2 Outrigger Structure

- Facade based
- Plate action through trusses
- Less flexibility in floors with belt trusses

3 Braced-Tube

- Facade based
- Plate action in floors
- Less flexible facade design options

4 Diagrid

- Facade based
- Plate action in floors
- Diagrid is the facade so not flexible
- Entire facade has to be covered by the diagrid otherwise it loses its strenght



1. Bundled-Tube
   432 park avenue, New York
   SLCE Architects



2. Outrigger Structure
   Shanghai Tower, Shanghai
   Gensler Architects



3. Braced-Tube
   John Hancock Center, Chicago
   Skidmore, Owings & Merrill Architects

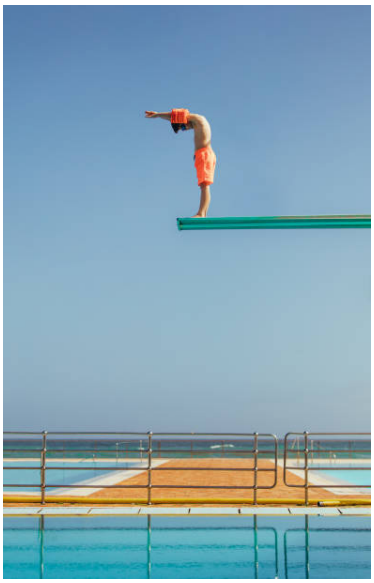


4. Diagrid
   City of Dreams Hotel Tower, Macau
   Zaha Hadid Architects

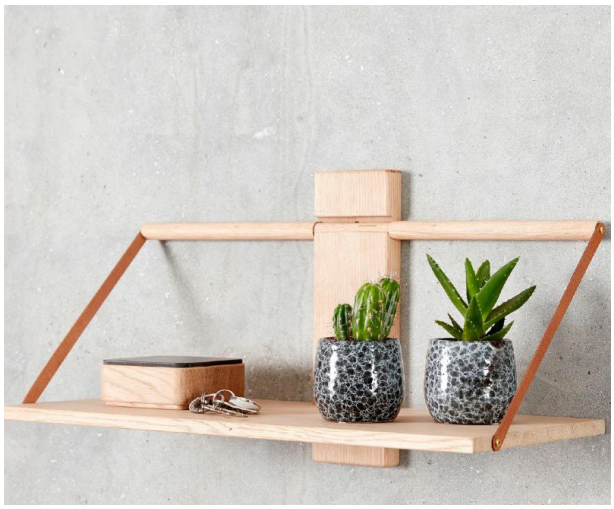
STructural Principles
Outrigger structure

The outrigger structure operates on principles similar to those of a wall shelf, seesaw, or diving board. When weight is applied to the outermost edge of a longer board, it tends to tip more easily. However, increasing the board's thickness enhances its stiffness, resulting in a more robust structure. This concept can be mirrored on the opposite side of the core, effectively creating a tree-like design where large branches extend outward from the central trunk.

The program, or the functional components of the building, is placed atop these branches. To minimize the thickness of these branches, it is crucial to reduce the weight of the program as much as possible. One effective strategy for achieving this is by constructing the upper floors from timber, which is both lightweight and strong. A sturdy steel frame anchored to the core supports the lighter timber structure above, ensuring structural integrity. Additionally, incorporating trusses enhances stability, allowing the overall design to withstand wind forces while maintaining an efficient and elegant aesthetic.

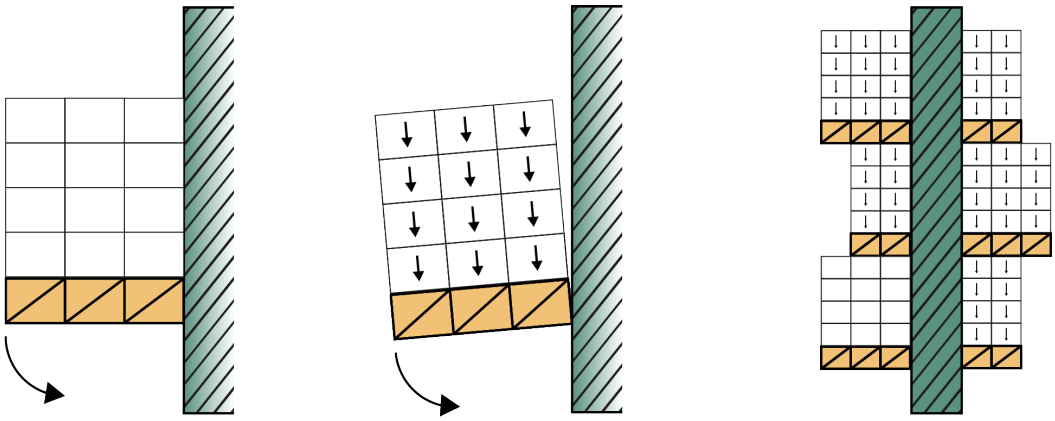






The arrangement of these six floors effectively functions as a standalone six-story building, complete with its own foundation. This design offers significant advantages for the timber structure, as it allows for smaller dimensions while maintaining stability and strength. One notable benefit is that the top floor of this stack does not bear any load from the floors above it. As a result, the potential exists to eliminate columns in the floor plan if necessary, thus enhancing the flexibility of the interior space.

However, while the internal columns may be removed to achieve a more open layout, facade columns remain essential for supporting the facade elements, ensuring structural integrity and aesthetic cohesion. This innovative approach means that the “roof” of these levels, constructed from a robust steel frame, effectively carries itself and provides a solid base for the next stack above. This system not only optimizes the use of materials but also creates opportunities for dynamic, open spaces within the building, catering to a variety of uses and functions.



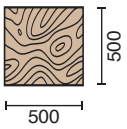


Structural Dimensions
Case Studies

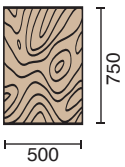


Name	**Atlassian Tower**
Location	Sydney, Australia
Grid	6000 x 4000 mm
Function	Office
Description	Located in the heart of Sydney's Central Business District, this striking 40-story skyscraper stands at approximately 180 meters tall. The building was designed by architect firms Fender Katsalidis and SHoP Architects and developed by Atlassian. The design of the Atlassian building emphasizes both innovation and environmental responsibility, incorporating cutting-edge sustainable technologies and materials. It features an advanced energy-efficient facade and a significant focus on reducing its carbon footprint. The building is set to accommodate a variety of uses, including office spaces, conference facilities, and public areas.

Columns



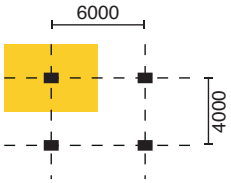
Beams



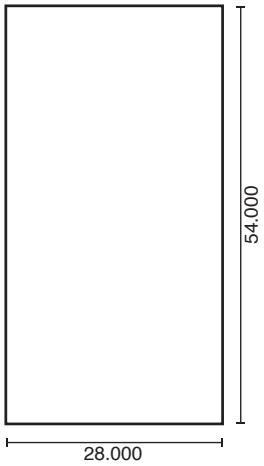
Floor



Supporting Field



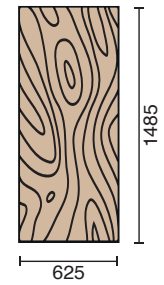
Total floor area

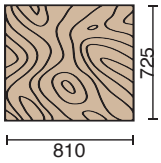


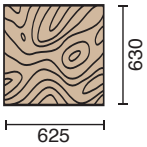


Name	**Mjøstårnet**
Location	Brumunddal, Norway
Grid	6.600 x 6.600 mm
Function	Office
Description	Mjøstårnet is an innovative high-rise building located in Brumunddal, Norway, and is renowned as the world's tallest timber structure, standing at 85.4 meters with 18 stories. Completed in 2019, it showcases sustainable construction practices by primarily using cross-laminated timber (CLT) and glulam. The project was designed by Voll Arkitekter and developed by the Norwegian firm Moelven, emphasizing the strength, versatility, and environmental benefits of timber as a building material. Mjøstårnet houses offices, apartments, a hotel, and a restaurant, serving as a landmark in sustainable architecture and engineering.

Columns







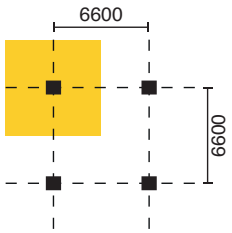
Beams



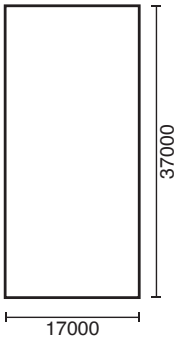
Floor



Supporting Field



Total floor area



Structural Dimensions
Case Studies



Name	**Brock Commons**
Location	Vancouver, Canada
Grid	4.000 x 2.850 mm
Function	Housing
Description	Brock Commons Tallwood House is an impressive high-rise building located at the University of British Columbia in Vancouver, Canada. Standing at 53 meters with 18 stories, it was one of the tallest mass timber buildings in the world at its completion in 2017. The building exemplifies sustainable construction, utilizing cross-laminated timber (CLT) and glulam for its structure, combined with a concrete core. Designed by Acton Ostry Architects and engineered by Fast + Epp, Brock Commons showcases the efficiency and environmental benefits of using wood in tall buildings. The residence houses over 400 students and serves as a pioneering example in the evolution of timber construction, contributing to the growing global interest in sustainable architecture.

Columns



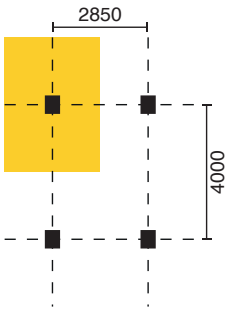
Beams

Floor carries itself

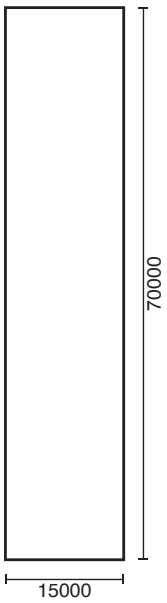
Floor

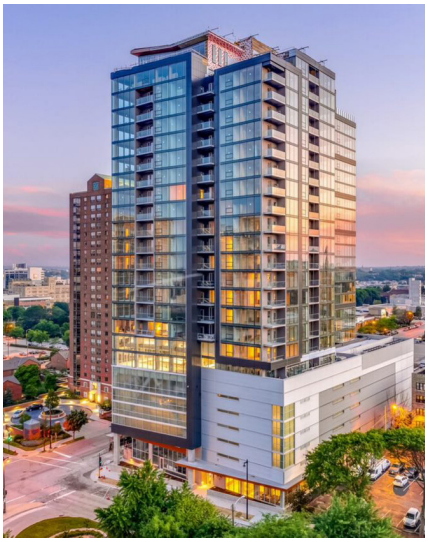


Supporting Field



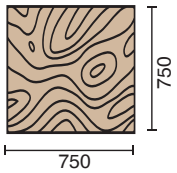
Total floor area



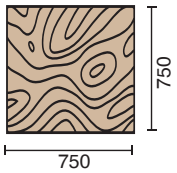


Name	**Ascent Tower**
Location	Milwaukee, Wisconsin
Grid	7.000 x 5.000 mm
Function	Housing
Description	Ascent Tower is a groundbreaking high-rise located in Milwaukee, Wisconsin, and is celebrated as the world's tallest mass timber structure, rising 86.6 meters with 25 stories. Completed in 2022, this innovative building demonstrates the potential of sustainable construction through its extensive use of cross-laminated timber (CLT) and glulam. Designed by Korb + Associates Architects and developed by New Land Enterprises, Ascent showcases the strength, durability, and environmental advantages of timber in urban architecture. The tower features residential apartments, offering modern amenities while significantly reducing the building's carbon footprint. Ascent stands as a pioneering achievement in the future of sustainable high-rise construction.

Columns



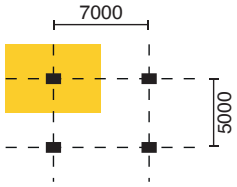
Beams



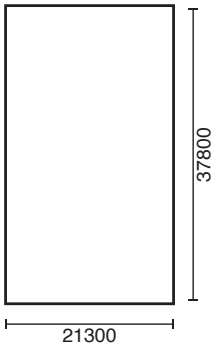
Floor



Supporting Field



Total floor area



Structural Dimensions
Rule of Thumb

CLT (Cross-Laminated Timber) and Glulam (Glued Laminated Timber) are both engineered wood products, but they differ greatly in their structure, manufacturing process, and applications. Structure wise these are the main differences:

- **CLT** is made by stacking layers of lumber boards crosswise (at 90 degrees) and then gluing them together. This cross-layered structure gives CLT panels strength in both directions, making them very stiff and dimensionally stable.

- **Glulam** consists of layers of lumber boards glued together in parallel (same direction). The boards are laminated in such a way to optimize the strength along the grain of the wood, making glulam ideal for load-bearing beams and columns.

CLT Floor
Rule of thumb:

Thickness	1/1/40 to 1/50 x lenght	
Thickness	1/1/40 to 1/50 x 5,4	= 108 - 135 mm

Glulam Columns
Rule of thumb:

Width	1/25 to 1/30 x height	
Width	1/25 to 1/30 x 4,5 m	= 150 - 180 mm

Glulam Beams
Rule of thumb: Glued laminated wooden floor beams (up to 10 m)

Height	1/17 x length	
Width	1/6 to 1/8 x height	
Height	1/17 x 5,4 m	= 320 mm
Width	1/6 to 1/8 x 320 mm	= 40 - 55 mm

Fire Proofing
0,65 mm/min burn-in time

Fire resistance 60 min	= 39 mm
Fire resistance 120 min	= 78mm

Martinsons CLT panelen

Tabel: Overspanningen[1)] 2017-04-28

Martinsons CLT panelen Afmeting: 1000 x lengte x dikte [mm]										
			Klasse A (Woningen) 1,75 kN/m^2		Klasse B (Kantoren) 2,5 kN/m^2		Klasse C:1 + C:2 + D:1 + D:2 4,0 kN/m^2		Klasse C:3 + C:4 + C:5 5,0 kN/m^2	
Dikte [mm]	Eigen gewicht CLT [kg/m^2]	Aantal lagen	Max overspanning[2)]	Doorbuiging EC5[3)]	Max overspanning[2)]	Doorbuiging EC5[3)]	Max overspanning[2)]	Doorbuiging EC5[3)]	Max overspanning[2)]	Doorbuiging EC5[3)]
60-3s	24	3	**2,1**	L/284	**2,0**	L/257	**1,6**	L/301	**1,5**	L/299
70-3s	28	3	**2,4**	L/280	**2,2**	L/282	**1,8**	L/309	**1,7**	L/300
80-3s	32	3	**2,8**	L/283	**2,6**	L/277	**2,2**	L/282	**2,0**	L/307
90-3s	36	3	**3,1**	L/281	**2,9**	L/270	**2,4**	L/292	**2,2**	L/310
100-3s	40	3	**3,5**	L/256	**3,2**	L/264	**2,7**	L/272	**2,5**	L/281
120-3s	48	3	**4,2**	L/254	**3,9**	L/252	**3,3**	L/261	**3,0**	L/284
140-3s	56	3	**4,8**	L/258	**4,5**	L/251	**3,8**	L/263	**3,6**	L/257
100-5s	40	5	**3,3**	L/258	**3,0**	L/270	**2,5**	L/287	**2,3**	L/301
120-5s	48	5	**3,7**	L/269	**3,5**	L/253	**2,9**	L/275	**2,7**	L/279
130-5s	52	5	**4,3**	L/265	**4,0**	L/263	**3,4**	L/270	**3,2**	L/268
140-5s	56	5	**4,2**	L/253	**3,9**	L/252	**3,3**	L/260	**3,0**	L/282
150-5s	60	5	**4,8**	L/258	**4,5**	L/252	**3,8**	L/264	**3,5**	L/279
160-5s	64	5	**5,3**	L/262	**5,0**	L/253	**4,3**	L/256	**4,0**	L/264
180-5s	72	5	**5,5**	L/250	**5,1**	L/253	**4,4**	L/252	**4,1**	L/258
200-5s	80	5	**6,2**	L/260	**5,8**	L/259	**5,0**	L/262	**4,7**	L/263
230-5s	92	5	**7,0**	L/262	**6,6**	L/257	**5,8**	L/250	**5,4**	L/259
210-7s	84	7	**6,3**	L/255	**5,9**	L/253	**5,1**	L/256	**4,8**	L/256
240-7s	96	7	**7,3**	L/284	**7,1**	L/256	**6,2**	L/257	**5,9**	L/251
270-7s	108	7	**7,6**	L/313	**7,6**	L/262	**6,7**	L/257	**6,3**	L/260
280-7s	112	7	**7,6**	L/305	**7,6**	L/257	**6,7**	L/251	**6,3**	L/254
300-7s	120	7	**8,0**	L/323	**8,0**	L/273	**7,2**	L/254	**6,8**	L/255

1) Eigen gewicht = g_{hout} + 50 kg/m^2, Klimaatklasse 1, berekeningen volgens NEN-EN 1990, NEN-EN 1991-1 en NEN-EN 1995-1

2) Eigenfrequentie > 8 Hz, Maximale onmiddelijke doorbuiging door een punktlast, 1 kN < 1,0 mm bij 1,0 m vloerbreedte

3) Totale uiteindelijke doorbuiging bij quasi-blijvende combinatie formule 6.16a & 6.16b (NEN-EN 1990). Min. eis L/250
Doorbuiging voldoet tevens aan eis voor bijkomende uiteindelijke doorbuiging L/333

Final Dimensions

Due to the significant difference between the rule of thumb and the dimensions in the case studies, I opted for dimensions closer to those observed in practice, except when the rule of thumb suggested larger dimensions, which were then considered correct.

CLT Flooring	200-5s (200 mm - 5 layers)
Glulam Columns	400 x 400 mm
Glulam Beams	500 x 200 mm

Structural Dimensions
Rule of Thumb

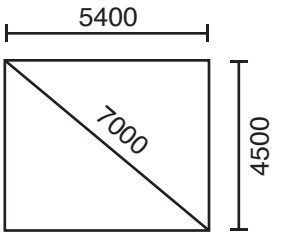
For high-rise structures, steel plays a critical role, particularly when utilized in outrigger systems with belt trusses. These structural elements work together to enhance the building's stability and resistance to lateral forces, such as wind and seismic loads.

- An outrigger structure consists of **horizontal trusses** or stiff frames that connect the building's core to the outer columns. By doing so, the outrigger effectively ties the core to the perimeter, distributing the loads more evenly across the building. This connection minimizes the building's lateral displacement and deflection, thereby enhancing overall stability.

- **Belt trusses** are horizontal truss systems that encircle the building at specific levels, often in conjunction with outrigger structures. These trusses distribute the forces from the core to the outer columns, acting like a "belt" that stiffens the entire structure. Belt trusses are particularly effective in reducing the building's tendency to twist or sway under wind loads.

Steel Columns
Rule of thumb:

Width	1/12 x lenght	
Height	1/12 x 9 m	= 750 mm



Steel Beams
Rule of thumb:

Height	1/20 to 1/25 x lenght	
Height	1/20 to 1/25 x 9,45 m	= 378 - 473 mm

Steel Trusses
Rule of thumb:

Height	1/10 to 1/15 x lenght	
Height	1/10 to 1/15 x 7 m	= 467 - 700 mm

For high-rise buildings, concrete cores play a crucial role in ensuring structural stability and safety, particularly when dealing with the significant forces encountered at great heights. The core, often constructed from reinforced concrete, is central to maintaining the building's rigidity and resilience.

- The **concrete core** serves as the primary vertical structural element, providing essential support and acting as the backbone of the building. It houses critical services such as elevators, stairwells, and utility shafts, and is responsible for carrying and distributing both vertical and lateral loads.

Concrete Core Walls
Rule of thumb:

Height	1/20 to 1/30 x height	
Height	1/20 to 1/30 x 4,5 m	= 150 - 225 mm

But for highrise buildings the estimate is normally between 400 - 500 mm

Given that the outrigger structure significantly assists in managing wind loads, we can opt for a lower range of thicknesses.

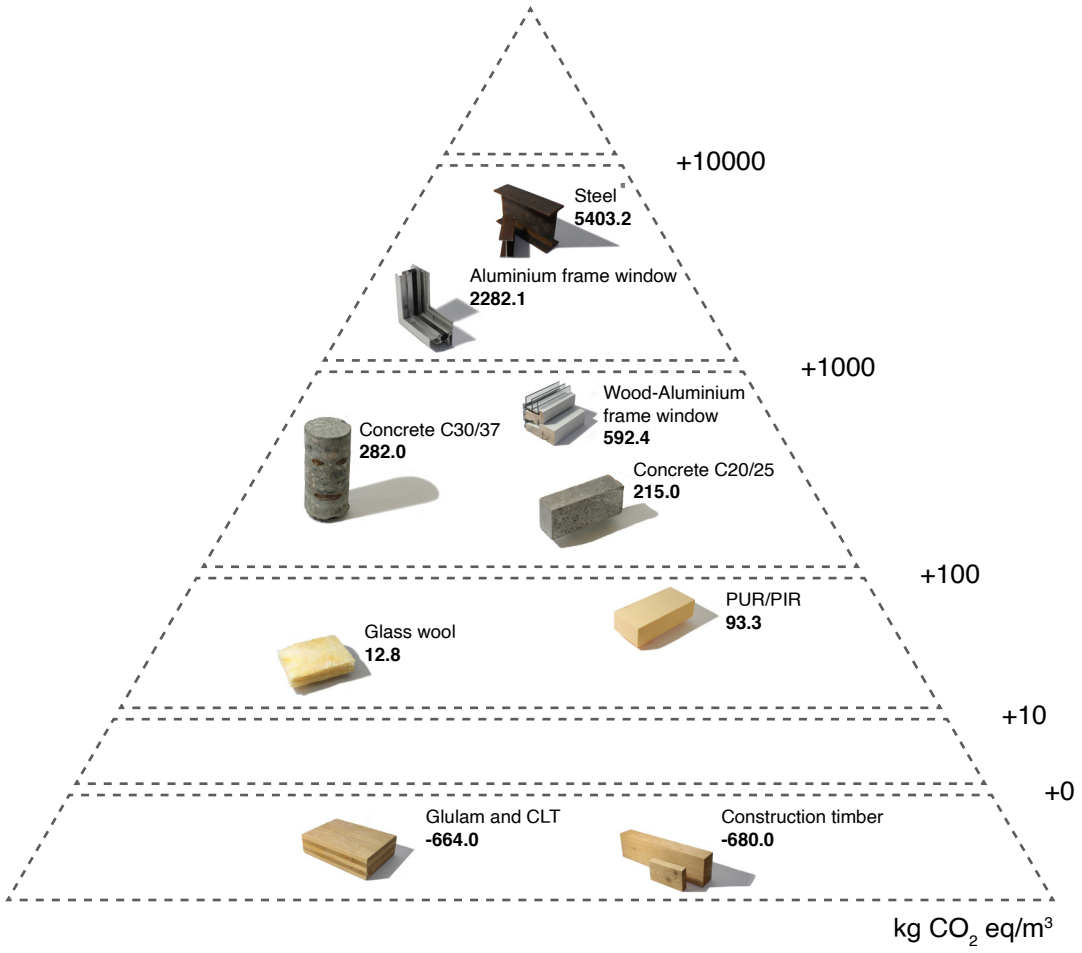
Final Dimensions
Due to the significant difference between the rule of thumb and the dimensions in the case studies, I opted for dimensions closer to those observed in practice, except when the rule of thumb suggested larger dimensions, which were then considered correct.

Steel Columns	RHS 750 (750 x 750)
Steel Beams	IPE 500 (500 x 250)
Steel Trusses	IPE 600 (600 x 250)
Concrete Core Wall	400 mm

Structural Materials
Embodied Carbon

In an era where the construction industry faces the challenge of excessive reliance on steel and concrete, this project aims to rethink material usage in high-rise architecture. The goal is to reduce the environmental impact of traditional building methods by adopting a hybrid design strategy that integrates the strengths of timber, specifically Cross-Laminated Timber (CLT) and Glulam, with steel and concrete. This approach seeks to create a high-rise tower that not only satisfies the rigorous demands of durability and structural integrity but also prioritizes sustainability. By harnessing the complementary properties of these materials, the project envisions a future where buildings are both resilient and environmentally responsible.

When considering the most common construction materials, it's evident that there are significant differences between the three primary materials and also among other components, such as insulation and window frames. It's essential to not only focus on the main structural materials but also to ensure sustainability at a detailed level throughout the project.



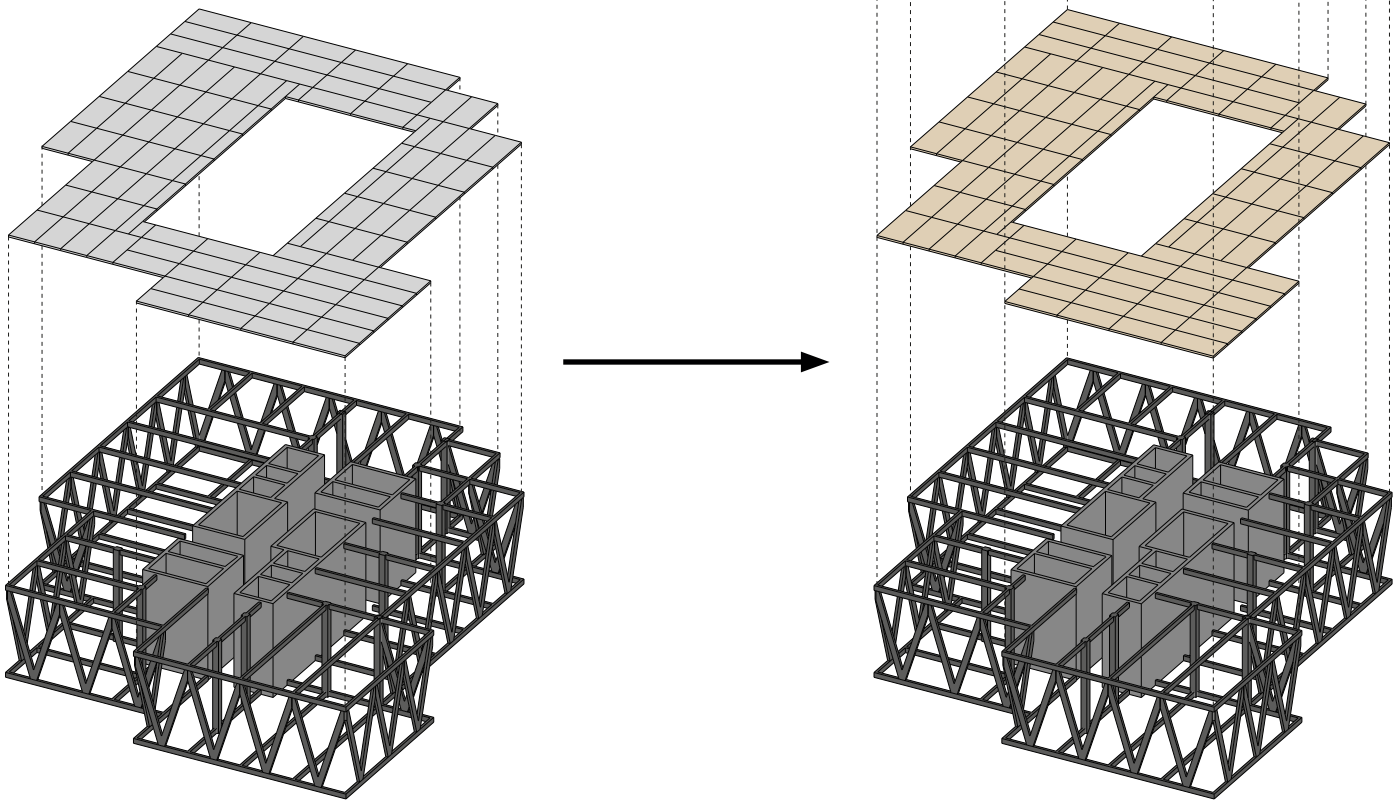
Option 1: **Concrete & Steel**

Concrete Core	9634,58 m^3	2.716.951,56 kg CO_2 eq	(55%)
Concrete Floors	6155,08 m^3	1.735.732,56 kg CO_2 eq	(35%)
Concrete Columns	1516,16 m^3	427.557,12 kg CO_2 eq	(9%)
Steel Beams	135,2 m^3	730.512,64 kg CO_2 eq	(1%)
Total	**5.610.753,88 kg CO_2 eq**		
Per m^2	**115,1 kg CO_2 eq**		

Option 1: **Hybrid of steel, concrete & timber**

Concrete Core	9634,58 m^3	2.716.951,56 kg CO_2 eq	49%
CLt Floors	6155,08 m^3	-2.956.663,94 kg CO_2 eq	32%
Glulam Columns	3574,97 m^3	-1.367.049,84 kg CO_2 eq	18%
Steel Beams	135,2 m^3	730.512,64 kg CO_2 eq	1%
Total	**-1.042.402,06 kg CO_2 eq**		
Per m^2	**-21,4 kg CO_2 eq**		
Total reduction	**118%**		

Structural Materials
Variants

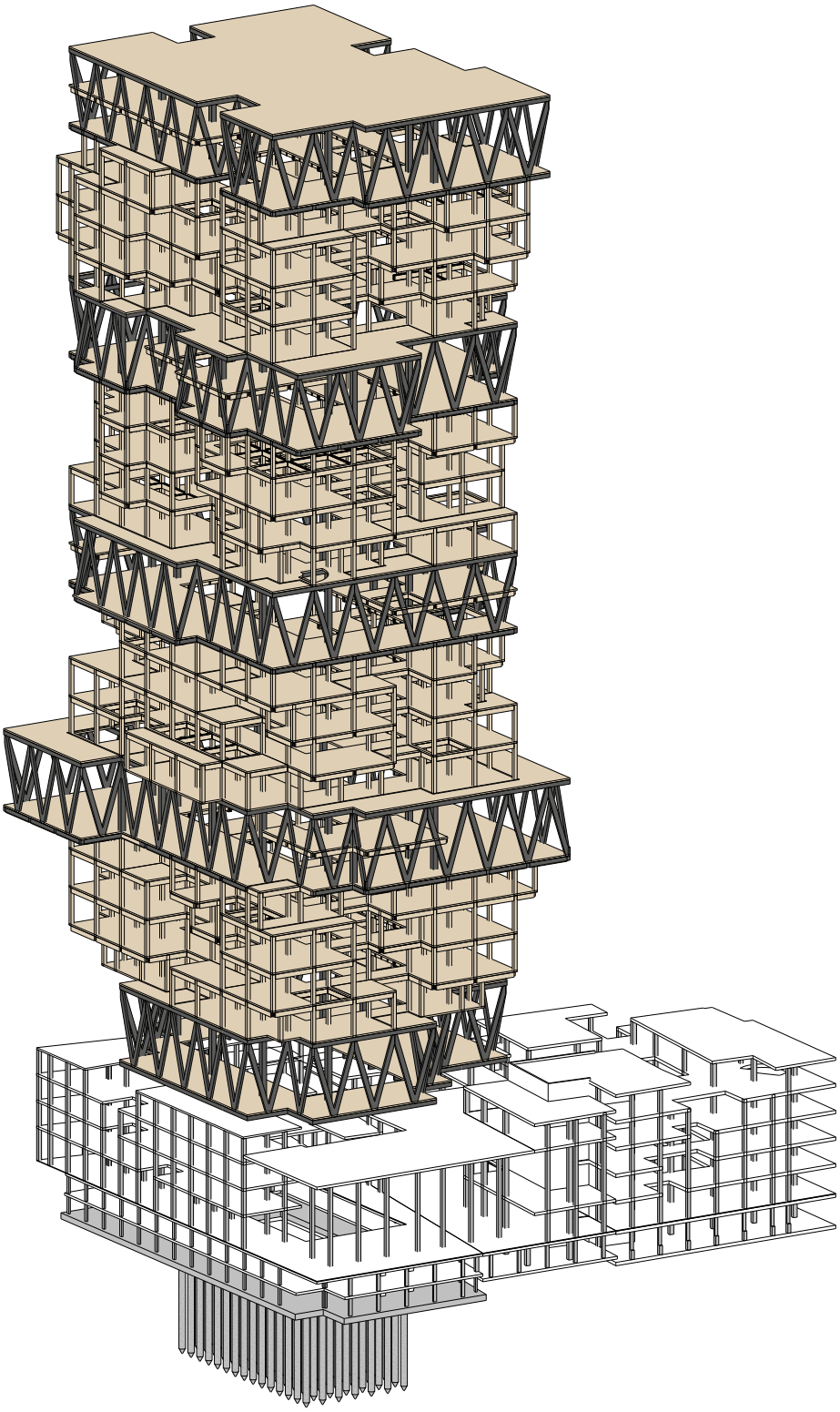


1. Concrete & Steel

115,1 kg CO_2 eq per m^2

2. Hybrid of Steel, Concrete & timber

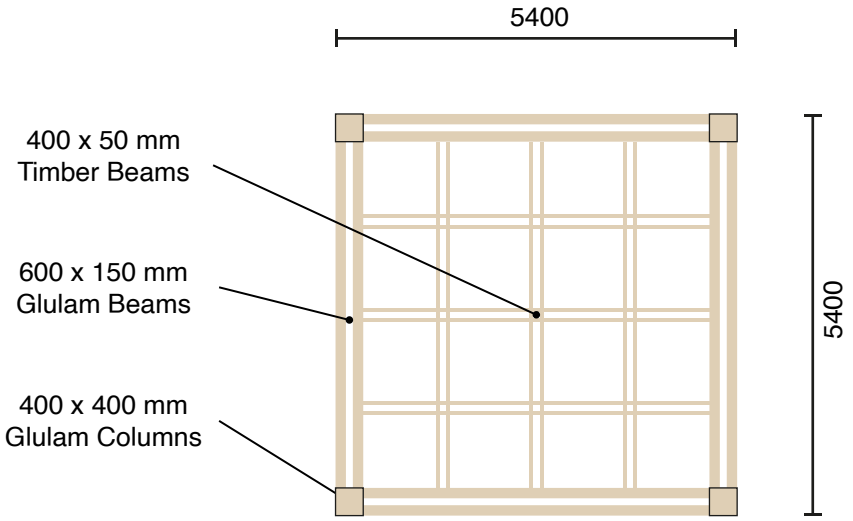
-21,4 kg CO_2 eq per m^2

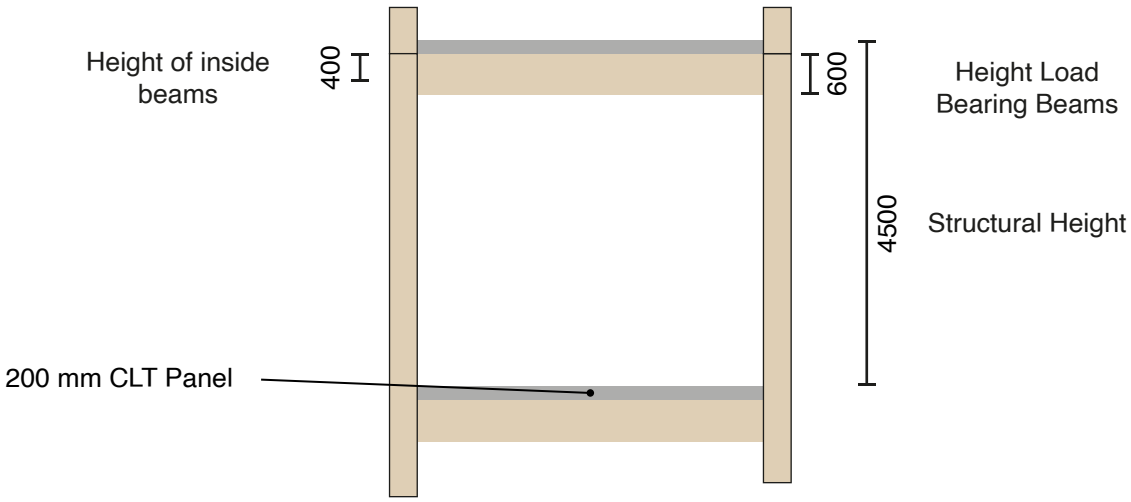


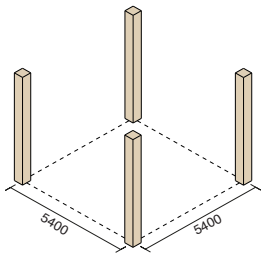
Structural Concept
Sequence & Form

The new Echo building at TU Delft features an innovative heating and cooling system that runs through the floor rather than the ceiling. The floor is elevated by approximately 300-400 mm and incorporates an all-air displacement ventilation system. This system supplies fresh air from the floor and exhausts warmer air through the ceiling. By delivering fresh air at the user level, it ensures that clean air reaches occupants first. As the air warms and becomes contaminated, it rises naturally and is expelled. In the summer, this setup enhances cooling efficiency by allowing cool air to move unobstructed from below to the ceiling, without contending with warmer air trapped above. Essentially, the system functions as both floor heating and air ventilation simultaneously.

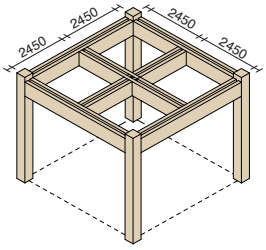
Some design principles that I will be using are:
- 350 mm raised floor
- All-air displacement ventilation system
- Heat & Cold Exchange with Water-Air Heatpump
- CO_2, VOC and air humidity regulated air ventilation



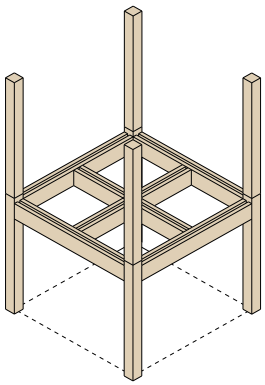




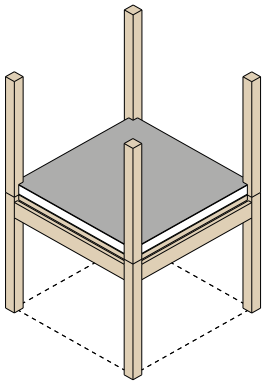
A grid of 5400 x 5400 is created with glulam columns



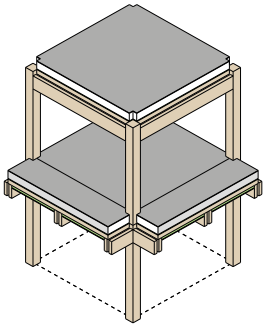
Glulam beams are positioned between the columns to create a stiff framework on which the floor can be laid.



The next columns can be stack directly on the first columns using steel connection plates.



A clt slab with a raised floor on top is placed on top of the beams.



The timberframework grids can be stacked on top and next to eachother using the same dimensions even for outdoor loggia's.

Climate design
Design principles

The new Echo building at TU Delft features an innovative heating and cooling system that runs through the floor rather than the ceiling. The floor is elevated by approximately 300-400 mm and incorporates an all-air displacement ventilation system. This system supplies fresh air from the floor and exhausts warmer air through the ceiling. By delivering fresh air at the user level, it ensures that clean air reaches occupants first. As the air warms and becomes contaminated, it rises naturally and is expelled. In the summer, this setup enhances cooling efficiency by allowing cool air to move unobstructed from below to the ceiling, without contending with warmer air trapped above. Essentially, the system functions as both floor heating and air ventilation simultaneously.

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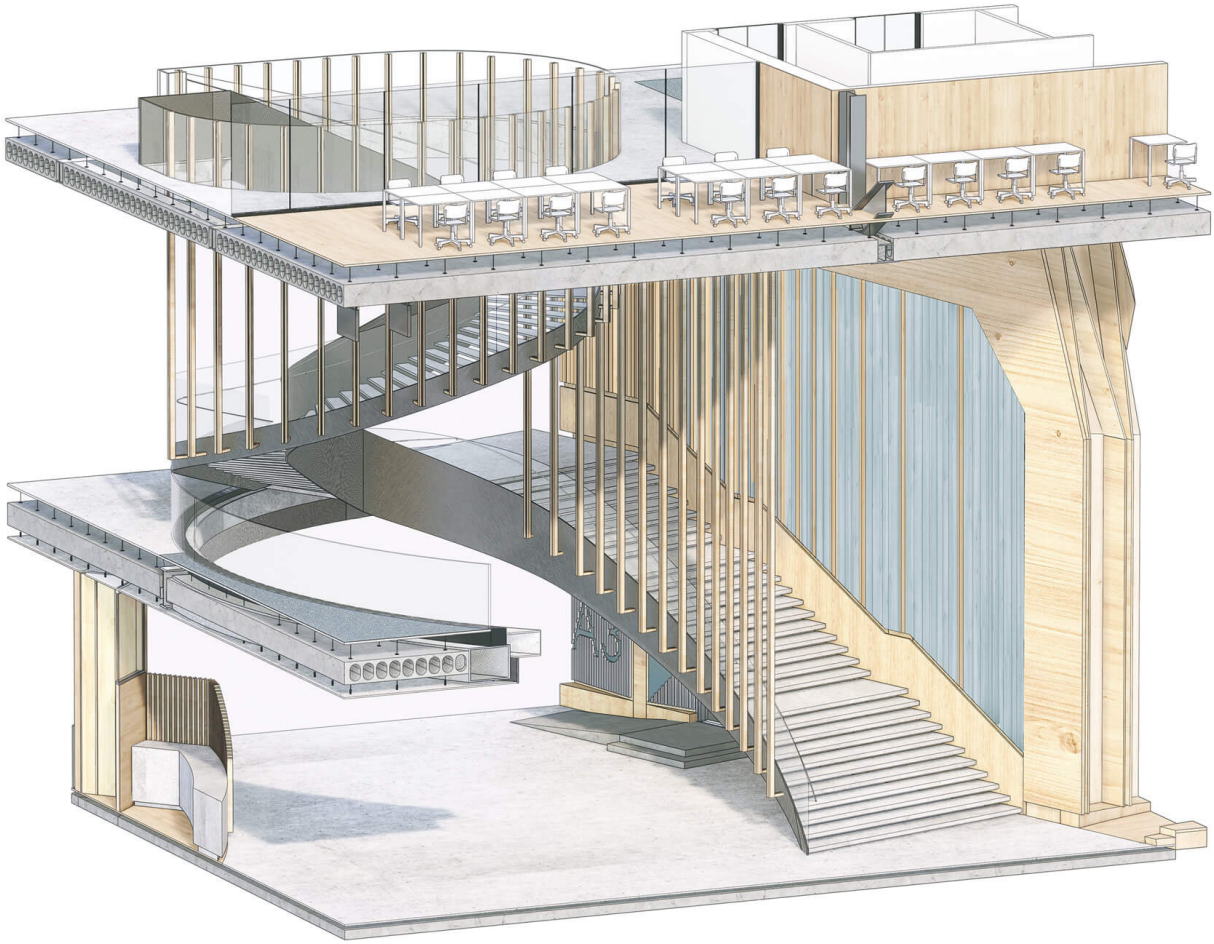
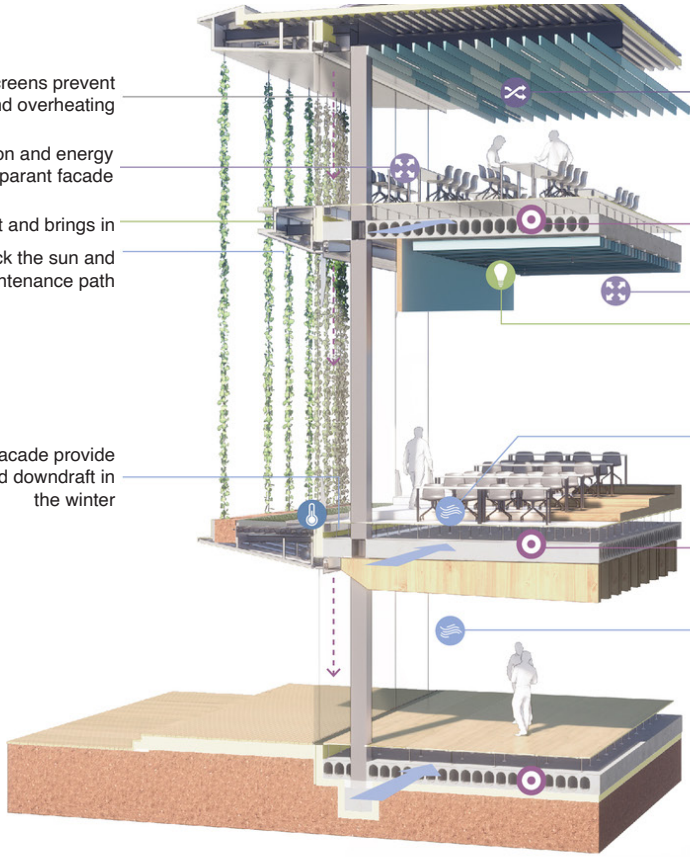
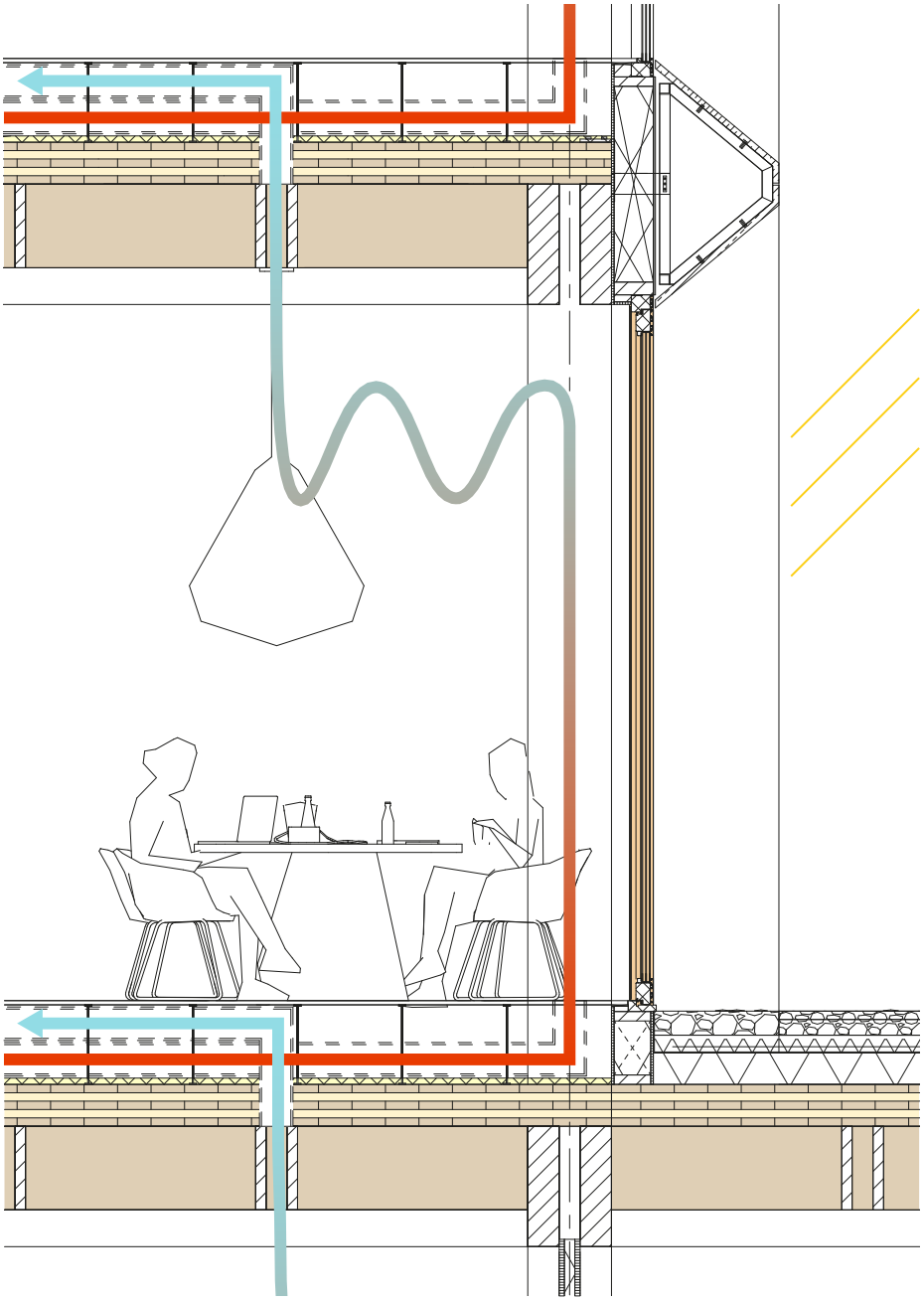
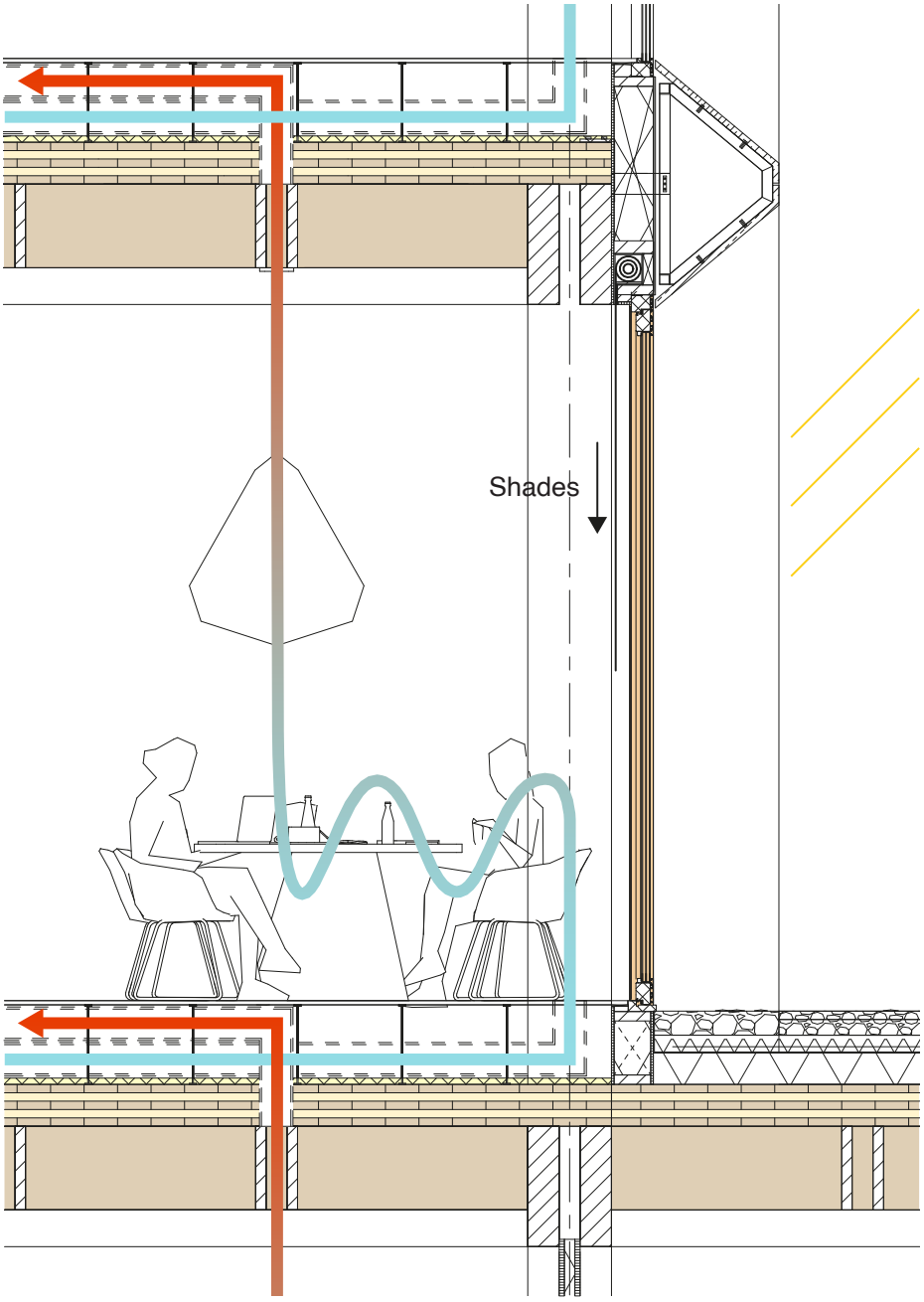



Dynamic internal light- and sunscreens prevent daylight disturbance and overheating
Increased day-light transmission and energy consumption due to transparant facade
Green facade filters daylight and brings in
Canopy wings block the sun and simultaneously function as a maintenance path
Convectors along the glass facade provide suitable heating and prevent cold downdraft in the winter
Fresh air supply is based on the total indoor air quality (CO_2, VOC and air humidity)
v
Temperature controll automatically switches to default in absence of people
Day-light controlled LED-Lighting
Displacement air-supply system in raised floor results in 20% cleaner air in comparison to traditional air supply systems
Floorpots become “plug and play” with a busbar system in the raised floor
Use of materials with low emission of air-pollution parts

Climate Design
Heating & Ventilation

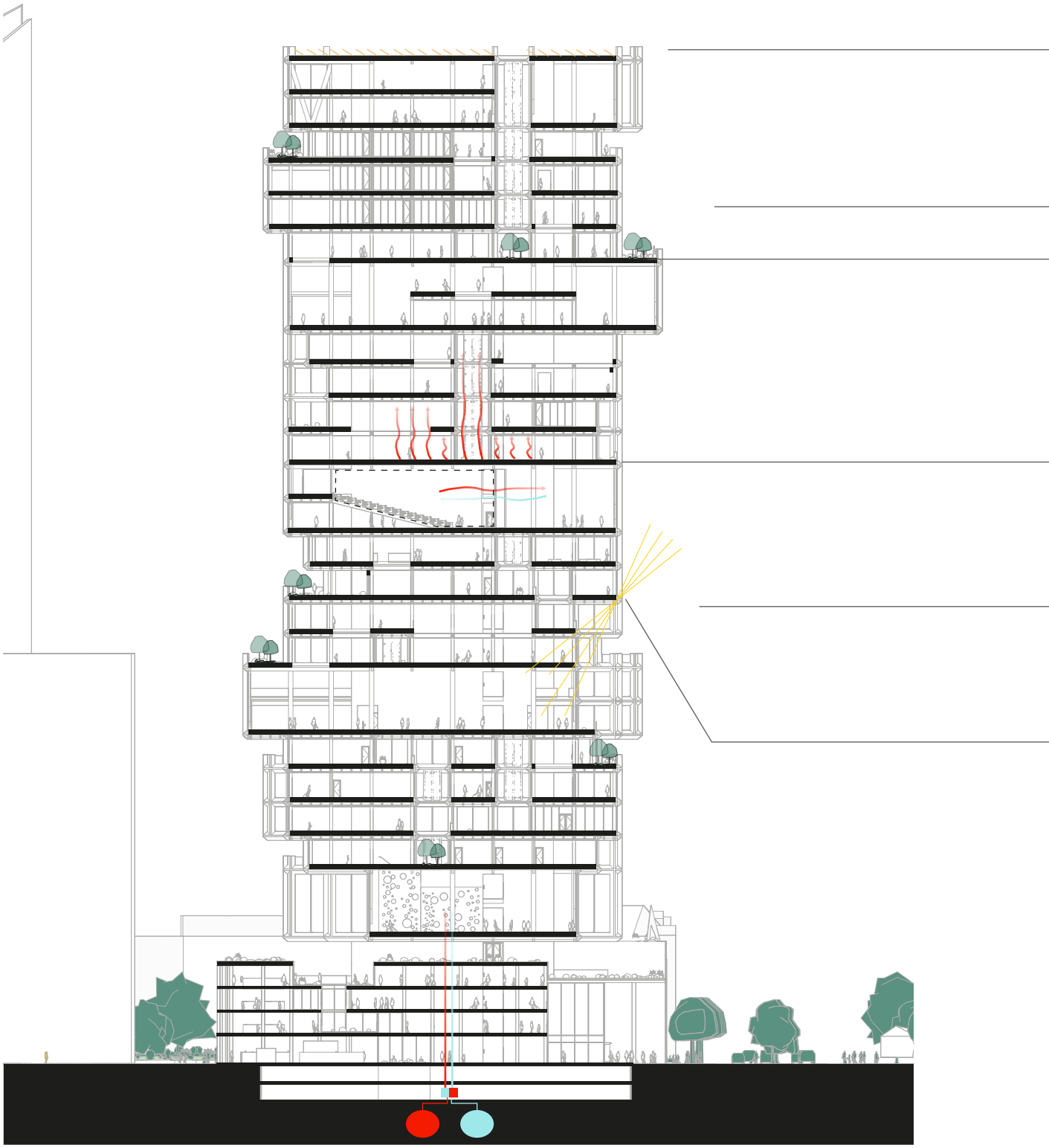


Winter

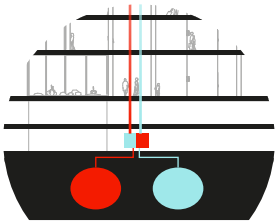


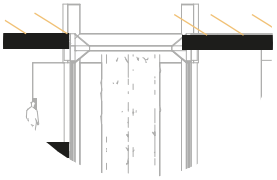
Summer

Sustainability
Climate Section



Renewable energy production

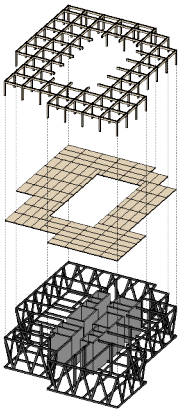




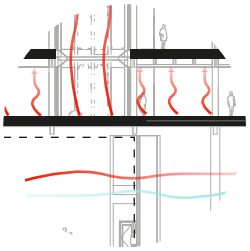
Rainwater retention



Hybrid construction

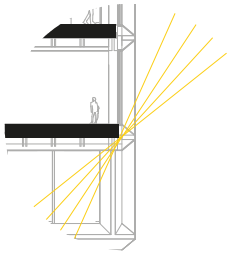


Ventilation



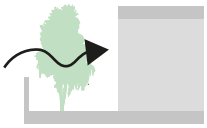
Greenery

Passive shading

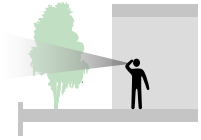




Thermal



Air Quality



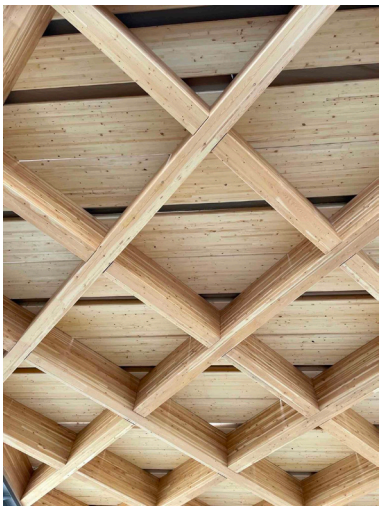
Biophilia

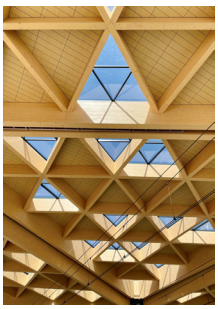
Structural Detailing
Timber Design

The glulam beams that are used to support the CLT floor structurally are going to be left in sight as the clear use of timber inside the building is being promoted. The timber texture of the elements has a clean and warm feel to it and this works very well with the concrete which is more cold. Because the timber construction is in plain sight for everyone to see it no longer just functions as a structural element but instead becomes part of the design and finish of the spaces.

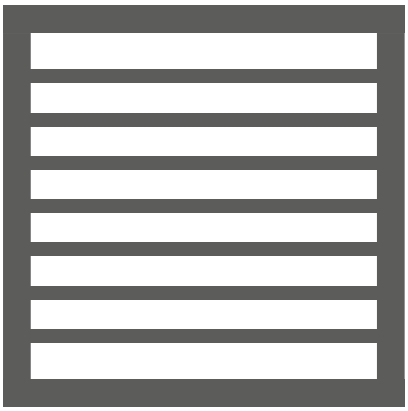
There are multiple design options to play around with the position, size and shape of the beams or the raster in which they are a part of. Below one can see various designs made with timber constructions and on the right is the digital translation of these designs with some other examples included as well.

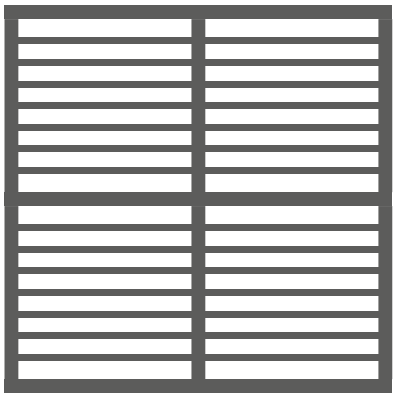






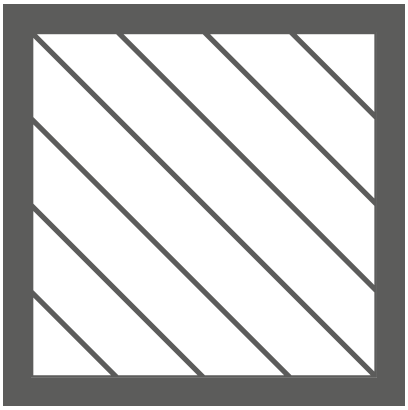


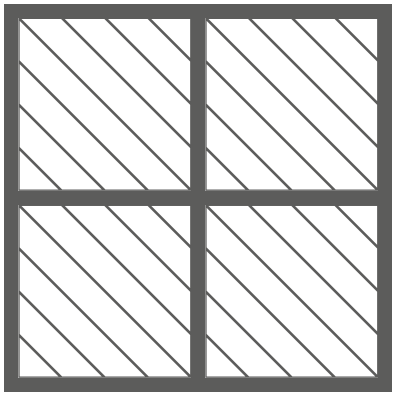






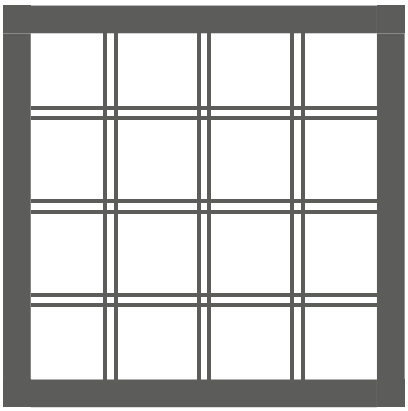
Straight Beams

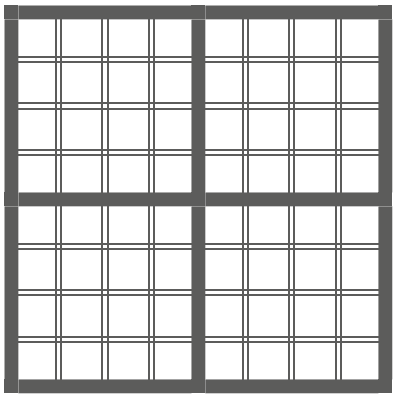






Diagonal Beams







Intersecting Beams

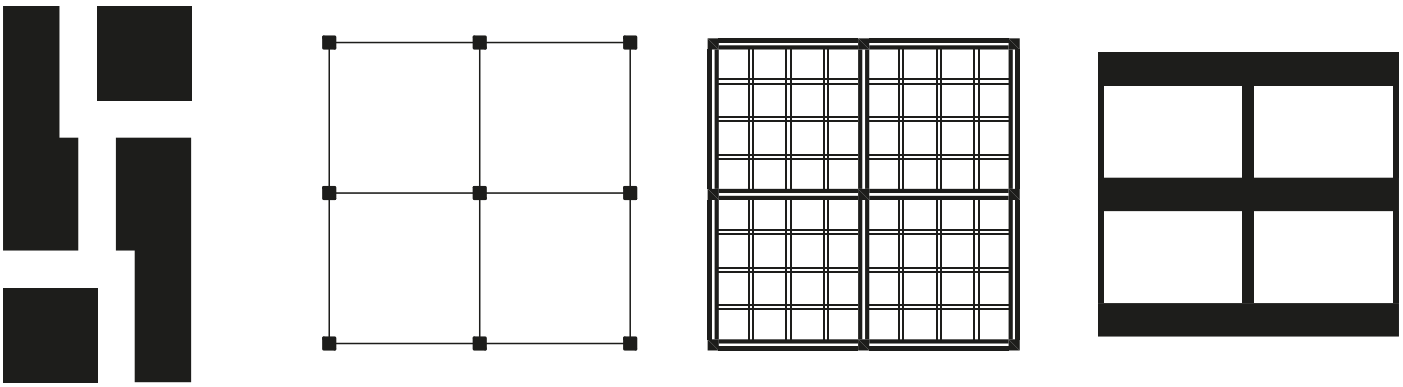
Facade Design
Patterns & Compositions

For the facade design, a thorough exploration of various patterns was undertaken to develop a symmetrical approach that would shape the building's exterior. Given the inherently chaotic volumetric form of the structure, the objective was to create a more uniform facade that still expressed depth and harmonized with the surrounding greenery.

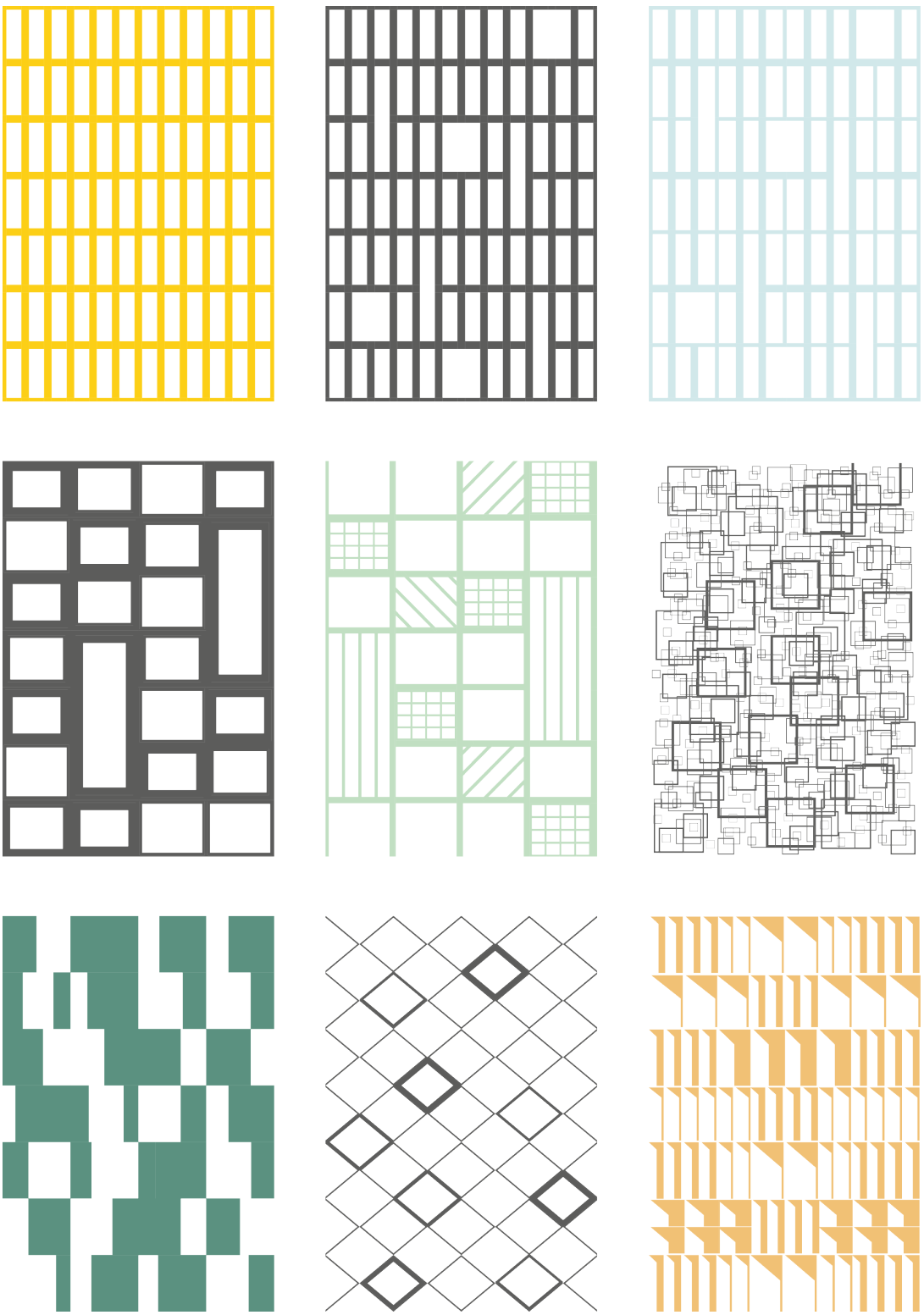
Initial investigations focused on identifying existing patterns within the design, such as the core structure, the underlying grid, the ceiling design, and the rhythmic arrangement of the facade's structural components prior to cladding. These elements served as the foundational basis for the facade's aesthetic.

Subsequent experimentation involved a range of patterns and shapes, each varying in uniformity. Among these iterations, the final design emerged as particularly captivating due to its ability to maintain a consistent rhythm while facilitating an engaging interplay of shadows and depth. This design not only preserved simplicity but also introduced complexity through its nuanced interactions with light.

Further exploration into depth and shadow dynamics ultimately led to the refinement of the final design, resulting in a facade that effectively balances visual interest with structural coherence.



Existing patterns in the design



Experimentation with new patterns

Skin
Final Design

The finalized design of the facade element is characterized by a symmetrical structure that projects 600mm outward, encompassing the full floor thickness of 1200mm. This innovative approach not only enhances the building's aesthetic appeal but also integrates seamlessly with its overall design ethos.

Terrazzo, sharing similar properties with concrete, is highly versatile and can be cast into a variety of shapes, including complex forms such as the one designed for this facade. This adaptability makes terrazzo an ideal choice for creating distinctive architectural elements. Its natural, stone-like appearance complements the greenery surrounding the building, fostering a harmonious relationship between the structure and its environment.

The unique geometry of the facade elements plays a crucial role in generating dynamic shadow patterns that shift throughout the day as the angle of sunlight changes. This interplay of light and shadow not only adds visual interest but also contributes to the building's character, creating a façade that is not merely a protective skin but an integral part of the architectural narrative. By thoughtfully incorporating these design principles, the facade becomes a vibrant expression of both functionality and aesthetics, enhancing the overall experience of the building.



Al fior di late



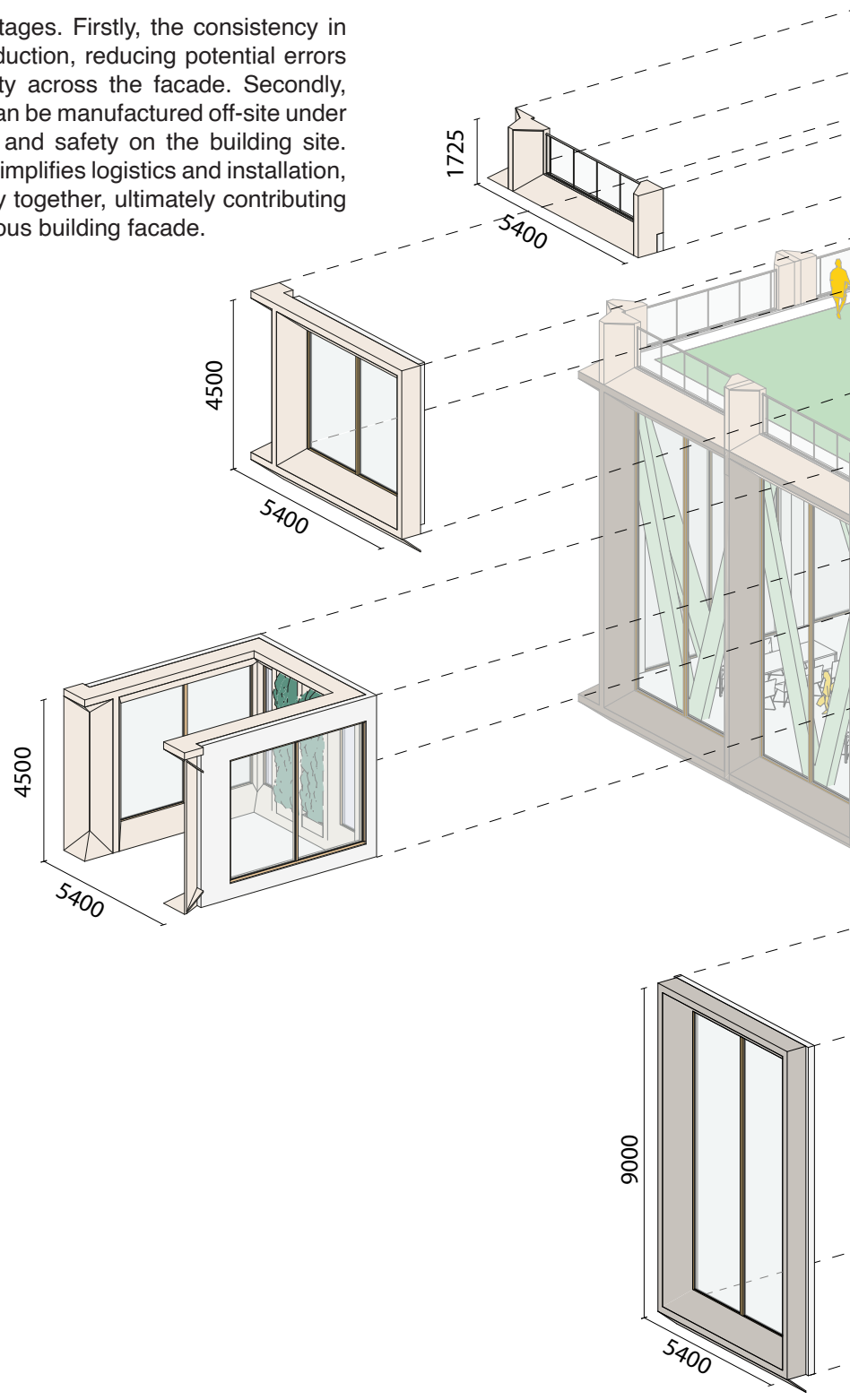
Málaga



Skin
Dimensions & Variations

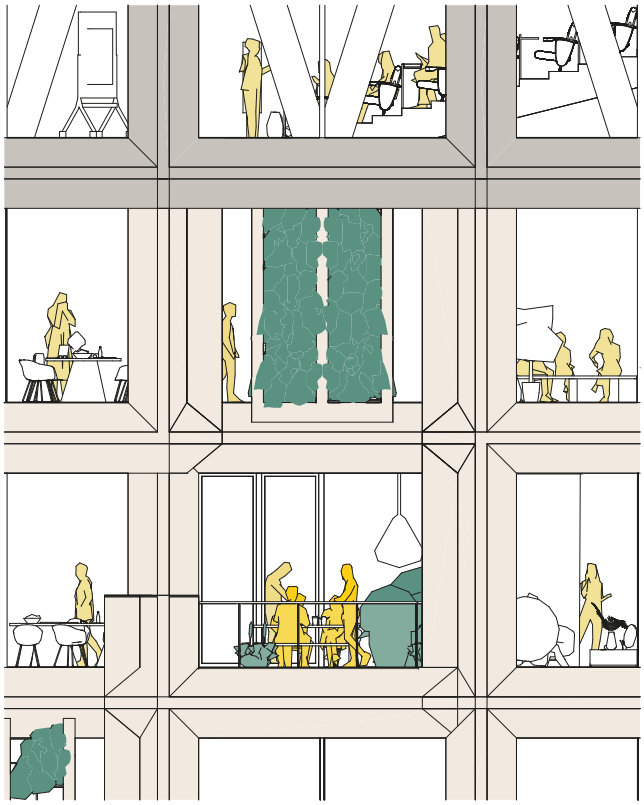
A rhythmic design approach led to the development of multiple unique facade elements, each sharing core similarities with a standard base element. This method resulted in around 20 distinct variations that, despite their differences, maintain visual and structural cohesion with the primary design language. By leveraging a modular pattern across these elements, the design not only brings a sense of continuity and rhythm to the facade but also significantly streamlines the prefabrication and construction processes.

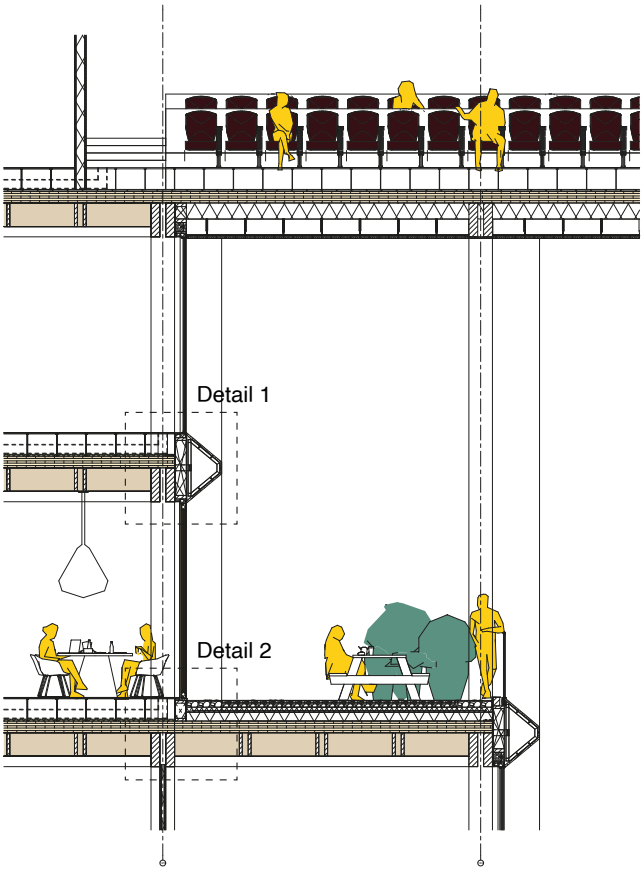
This modular approach offers multiple advantages. Firstly, the consistency in design allows for efficient, high-precision production, reducing potential errors during assembly and ensuring uniform quality across the facade. Secondly, prefabrication of these elements means they can be manufactured off-site under controlled conditions, enhancing both speed and safety on the building site. Finally, using variations of a standard module simplifies logistics and installation, as components are pre-made to fit seamlessly together, ultimately contributing to an efficient, cohesive, and visually harmonious building facade.

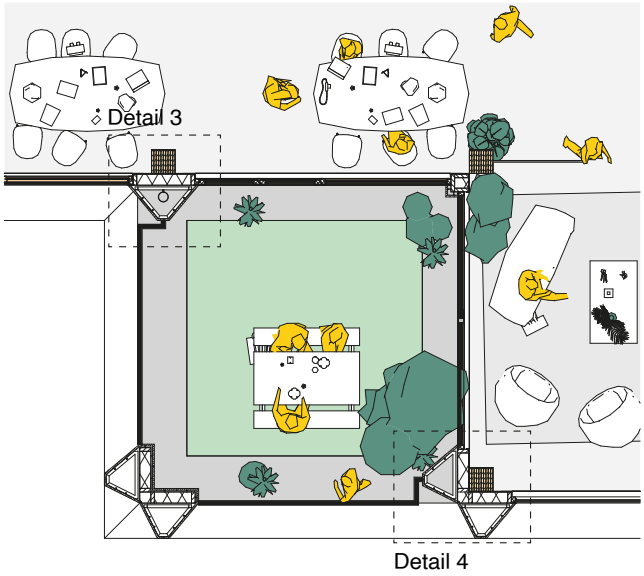




Technical Elaboration
Facade Fragment

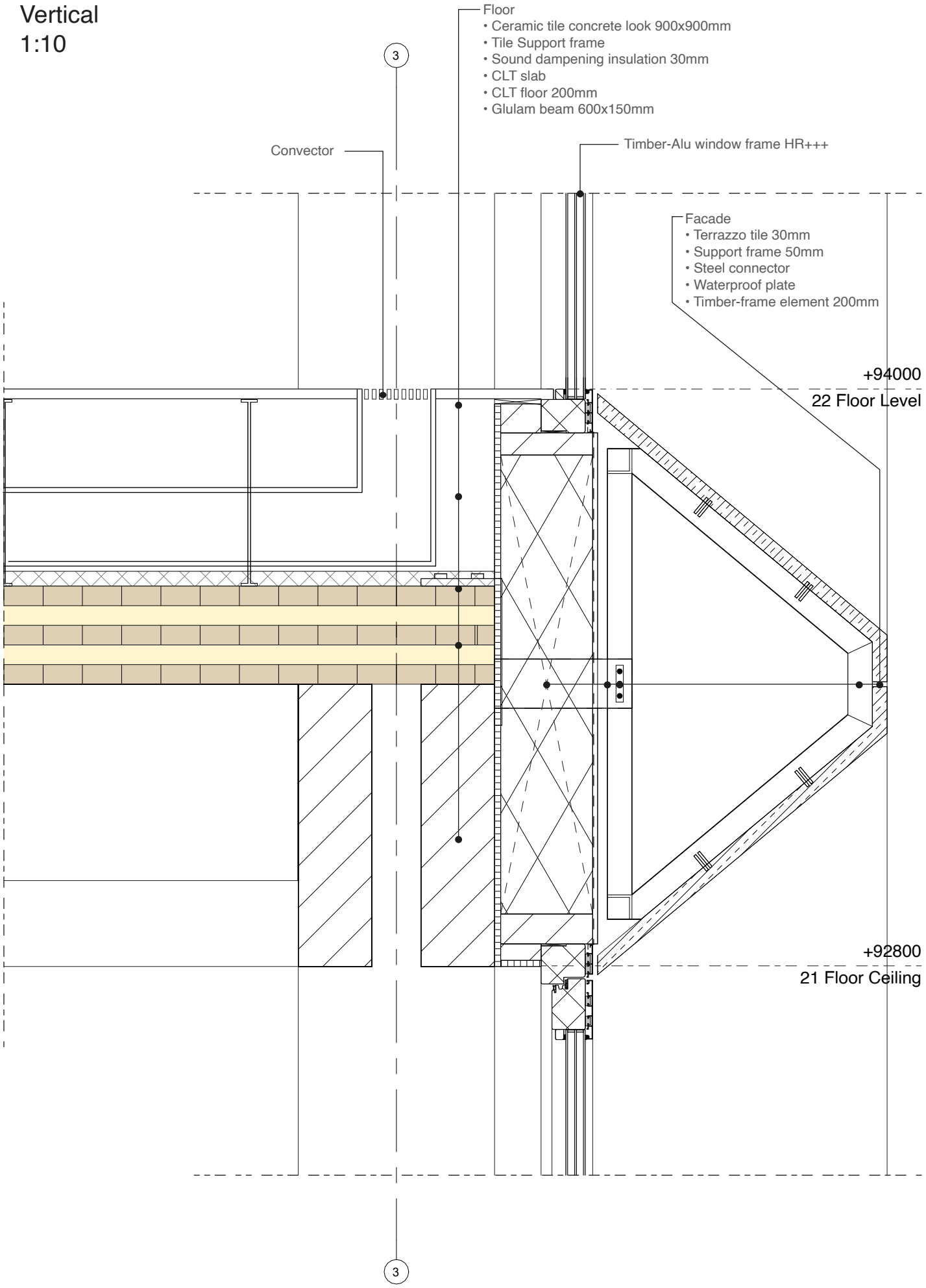


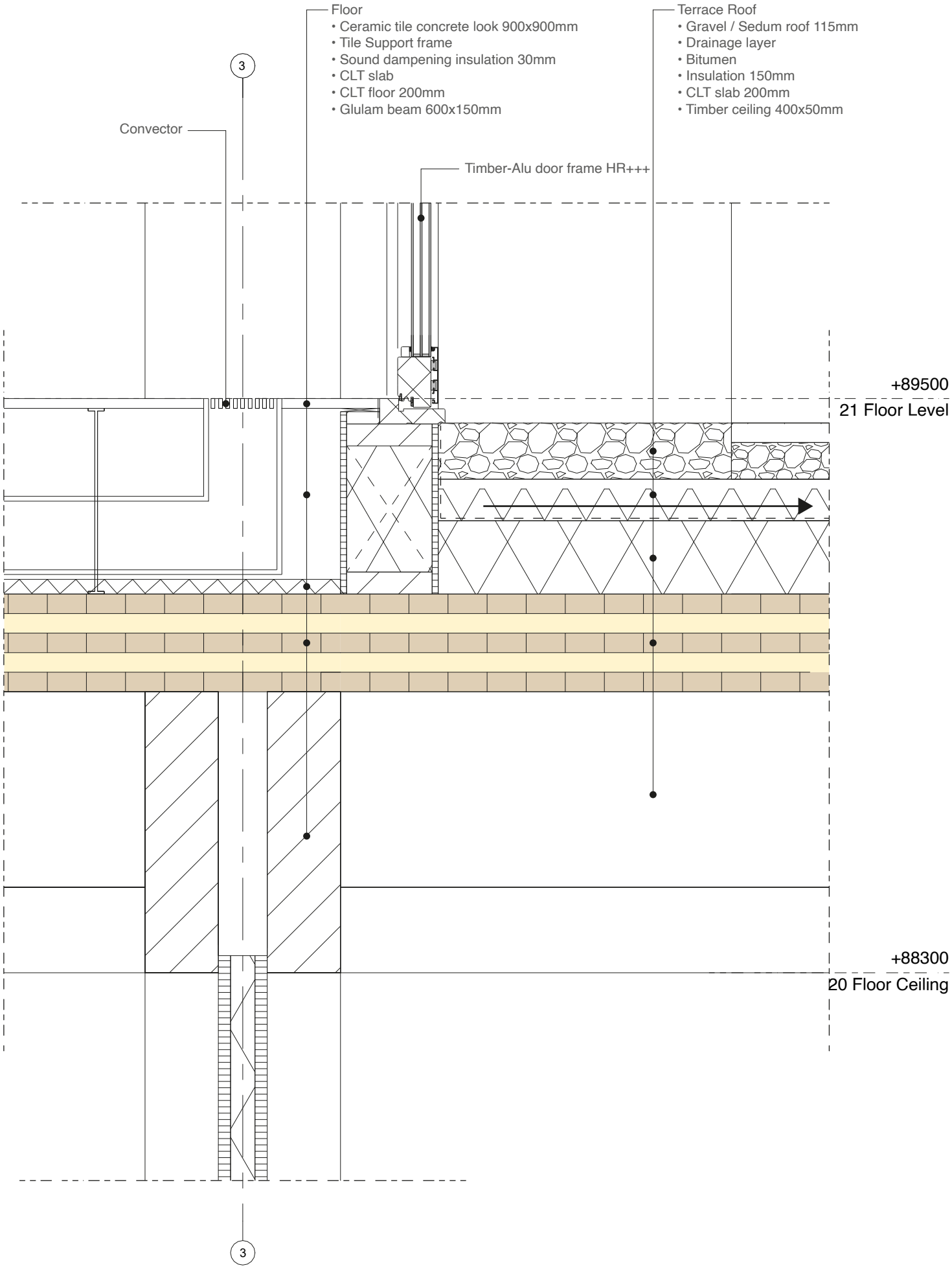




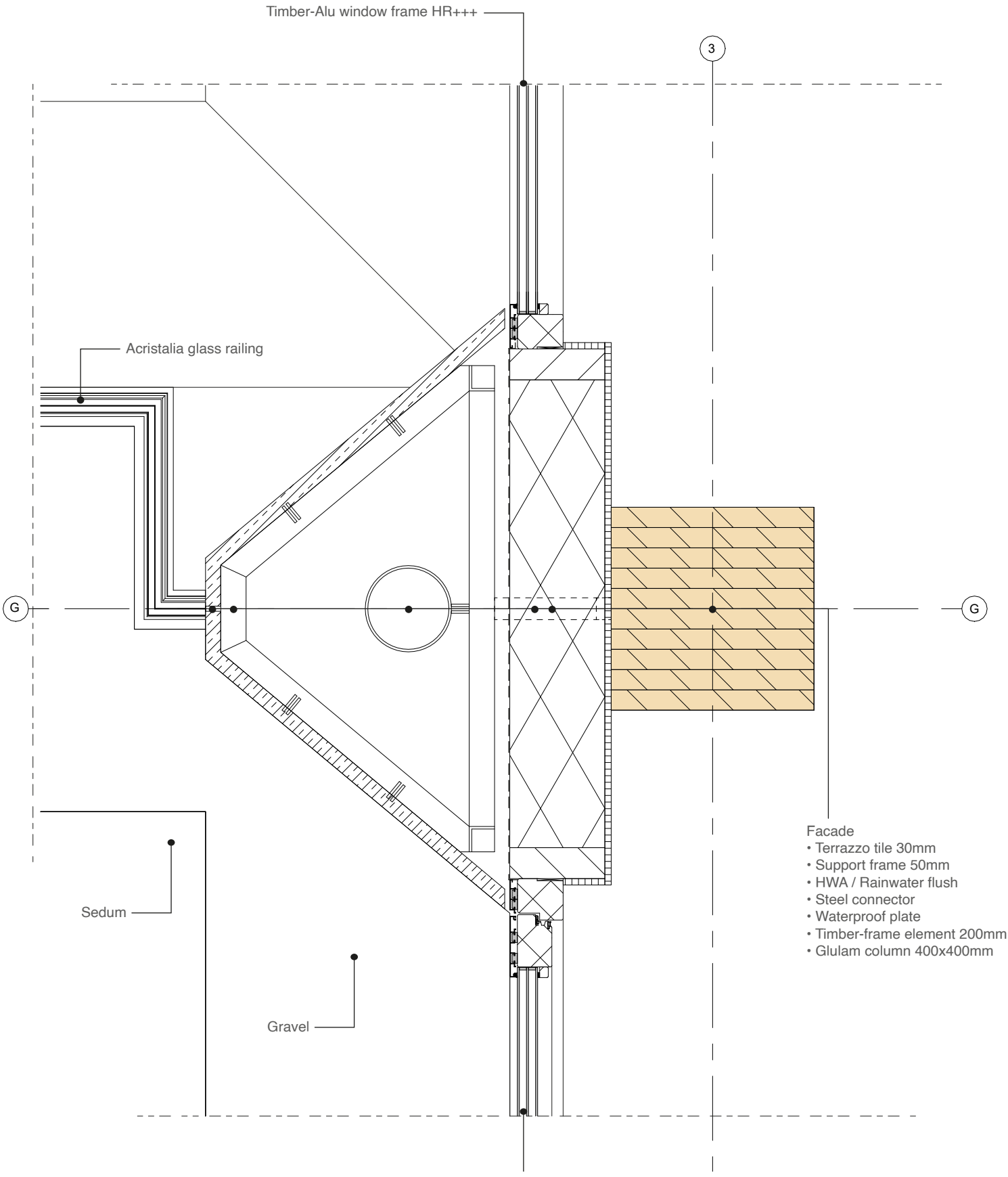


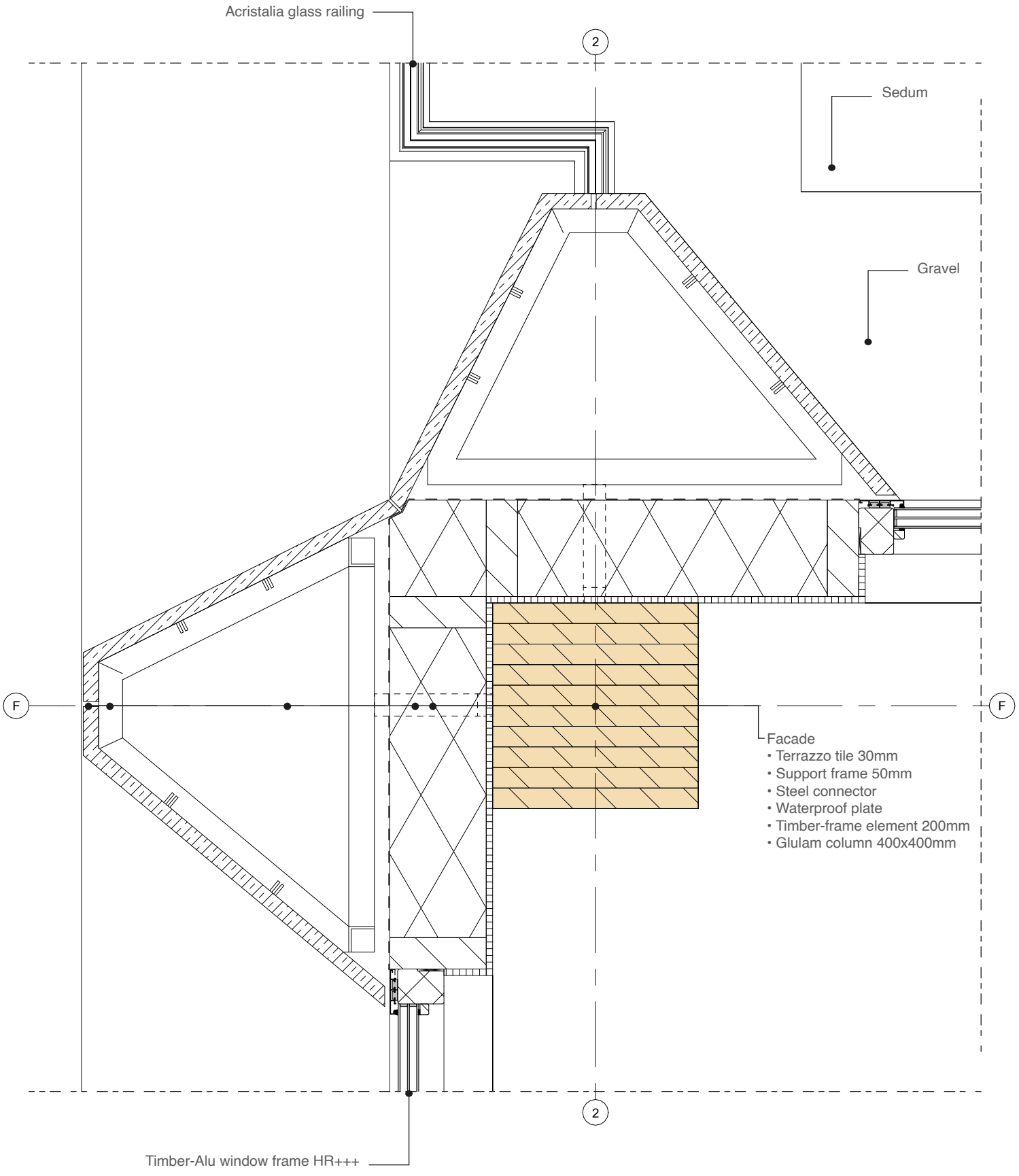
Details
Vertical
1:10




Floor
• Ceramic tile concrete look 900x900mm
• Tile Support frame
• Sound dampening insulation 30mm
• CLT slab
• CLT floor 200mm
• Glulam beam 600x150mm
Terrace Roof
• Gravel / Sedum roof 115mm
• Drainage layer
• Bitumen
• Insulation 150mm
• CLT slab 200mm
• Timber ceiling 400x50mm
3
Convector
Timber-Alu door frame HR+++
+89500
21 Floor Level
+88300
20 Floor Ceiling
3

Details
Horizontal
1:10




Acristalia glass railing
2
Sedum
Gravel
F
F
Facade
• Terrazzo tile 30mm
• Support frame 50mm
• Steel connector
• Waterproof plate
• Timber-frame element 200mm
• Glulam column 400x400mm
2
Timber-Alu window frame HR+++

3D Fragment
Integrated Design

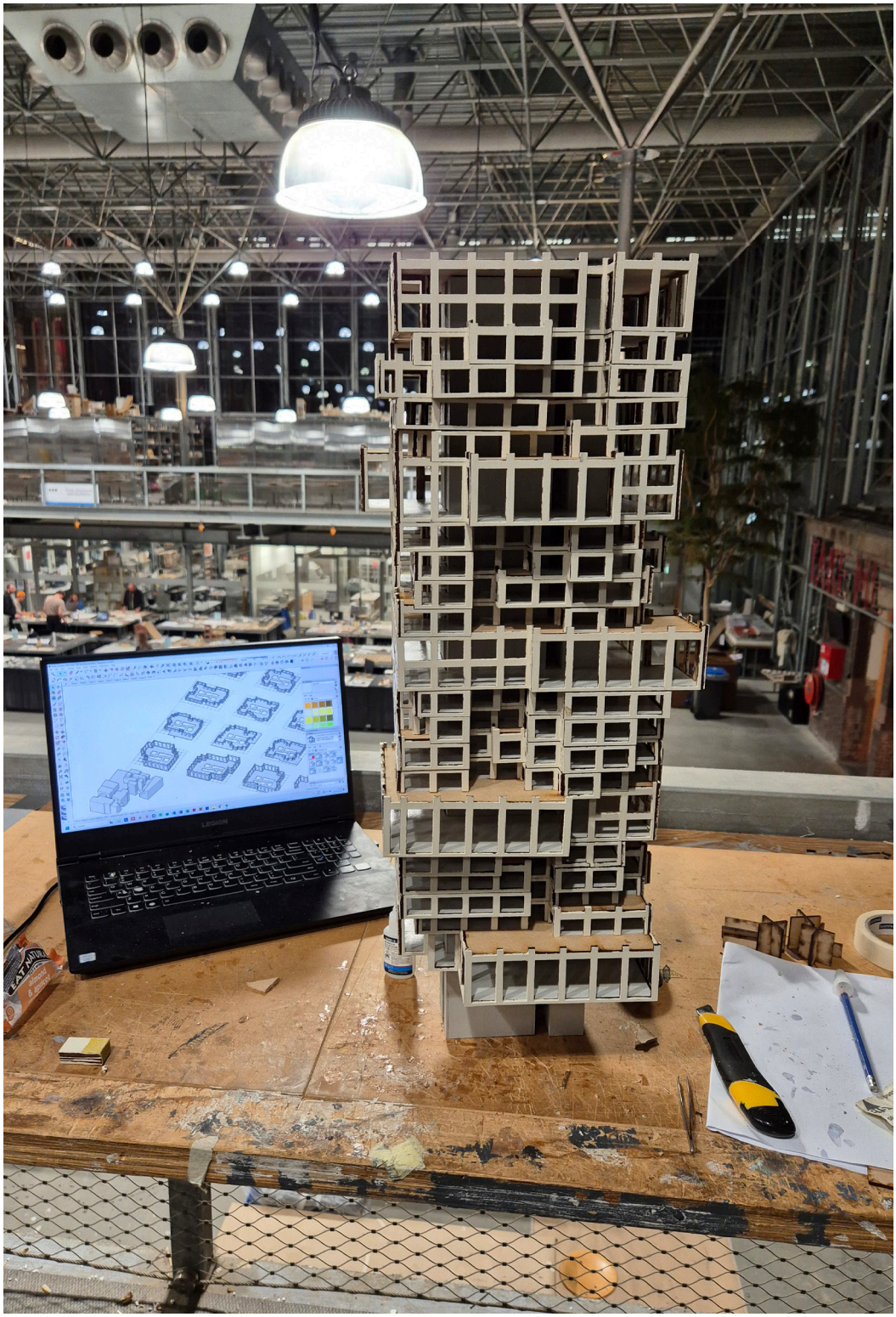




Model
1:200









Fragment
1:20




2-persoons

Part VII | **Reflection**

Reflection

Creating an Interactive, Life-Long-Environment

Developing an interactive space to meet the needs of diverse target groups required a deep understanding of each group's unique characteristics. These traits were carefully analyzed and compared to craft a design strategy accommodating a range of learning scenarios. Six distinct learning environments were identified and integrated with corresponding programs. For instance, the "Mountaintop" scenario, which facilitates formal knowledge dissemination, was paired with spaces like a theater or lecture hall, allowing experienced individuals to communicate knowledge to novices. In contrast, the "Waterhole" setting, emphasizing two-way communication, was aligned with flexible spaces such as ateliers or libraries, fostering engagement between educators and students alike.

These learning environments were thoughtfully incorporated into the program, with each scenario necessitating specific spatial configurations to enhance vertical organization. The vertical campus layout thus centered on this configurational strategy, establishing it as the building's guiding principle.

One significant design consideration was the balance between public accessibility and the building's core functions. While a more publicly accessible structure fosters a sense of community, it also presents challenges related to ownership, identity, and security. The design aimed to minimize these issues, and further exploration could determine how these considerations ultimately influence the design's success.

Alignment with Master Track and the Public Building Group

The Public Building Group at TU Delft explores the evolving role of public buildings, focusing on new spatial strategies, programmatic articulations, and architectural components. Through both design research and applied design, the group questions and reinvents past typologies. This project aligns with the group's aim by reimagining campus design to foster lifelong learning and bridge the gap between theory and practice, equipping students for contemporary challenges. This exploration also reflects the broader mission of our master track to address social needs through architecture, with an emphasis on connecting theoretical insights with practical applications.

Academic Relevance

Redefining the traditional campus into a future-oriented concept that supports lifelong learning and bridges theoretical and practical knowledge is essential. Such a model better equips students for real-world challenges while facilitating cross-generational mentorship in specialized fields, such as technology, where skills gaps often exist. This approach could not only foster more robust educational outcomes but also support a more informed and adaptable society by making education accessible to individuals at various life stages.

Progress and Milestones in Design Development

The objective of this studio project is to innovate educational spaces to enhance both mental and physical learning environments. My aim was to create a space where knowledge from the university and the local community could thrive, contingent upon community engagement. To ensure this, I emphasized educational aspects by integrating various learning styles into the design, rather than relying solely on programmatic diversity. By weaving these elements together, I believe this goal has been successfully met, though its effectiveness will ultimately be measured through users' experiences.

Design Process Reflection

Reflecting on the design process revealed a series of developments and adjustments. The initial approach aimed to incorporate a significant portion of the existing structure, limiting the design's adaptability. This realization, albeit late, prompted a shift in strategy. Although my first P4 presentation fell short, it laid the groundwork for a fresh start. Over the summer, I re-evaluated my architectural approach, incorporating theoretical research to create a design more attuned to its context. Upon resuming in September, I presented the revised concept to my tutors and received positive feedback. This validation reinforced my confidence and guided further refinements, making the extra effort well worthwhile.

Tutor Feedback and Support

Following P2, a design overhaul was required due to a site relocation, leading to intensive feedback sessions that introduced a wealth of new information. While initially challenging, this helped me maintain alignment with my vision. After an initial setback in the first P4, I spent the holidays refining the design independently with the support and encouragement of my tutors. This creative break allowed me to return to the project with renewed perspective and clarity. Upon resuming, I found ongoing feedback from tutors to be invaluable, contributing meaningfully to the project's evolution.

Influence of Research on Design Process

Much of the research was driven by case studies and personal insights, supplemented by academic literature and informal discussions. Initially, the concept emphasized merging theory with practice, yet program mixing alone proved insufficient to engage users. This realization led to the integration of elements that actively promote interaction. Additionally, the site's spatial dynamics informed key adjustments, with the building's footprint prompting reconsideration of horizontal and vertical connectivity, ultimately enhancing both design and research outcomes.

Approach and Impact

The project's ambition to foster interaction and learning among diverse user groups was challenging, as it required a nuanced understanding of both student and community needs. Retrospectively, more research on community and business perspectives could have provided valuable insights into their readiness to engage with the concept. Nonetheless, the project embodies the core philosophy of knowledge sharing—connecting people through shared experiences.

Academic and Societal Value

Beyond economic benefits for stakeholders, this project envisions a societal advancement, leveraging experiential learning to benefit the broader community. Extending hands-on learning models to higher education ensures students acquire practical skills while engaging professionals in meaningful ways. The TU Delft architecture program exemplifies this, involving tutors from the professional world, and other fields of study could gain similarly by integrating real-world expertise. The goal is a balance: knowledge from books and experiential learning together prepare students for future roles.

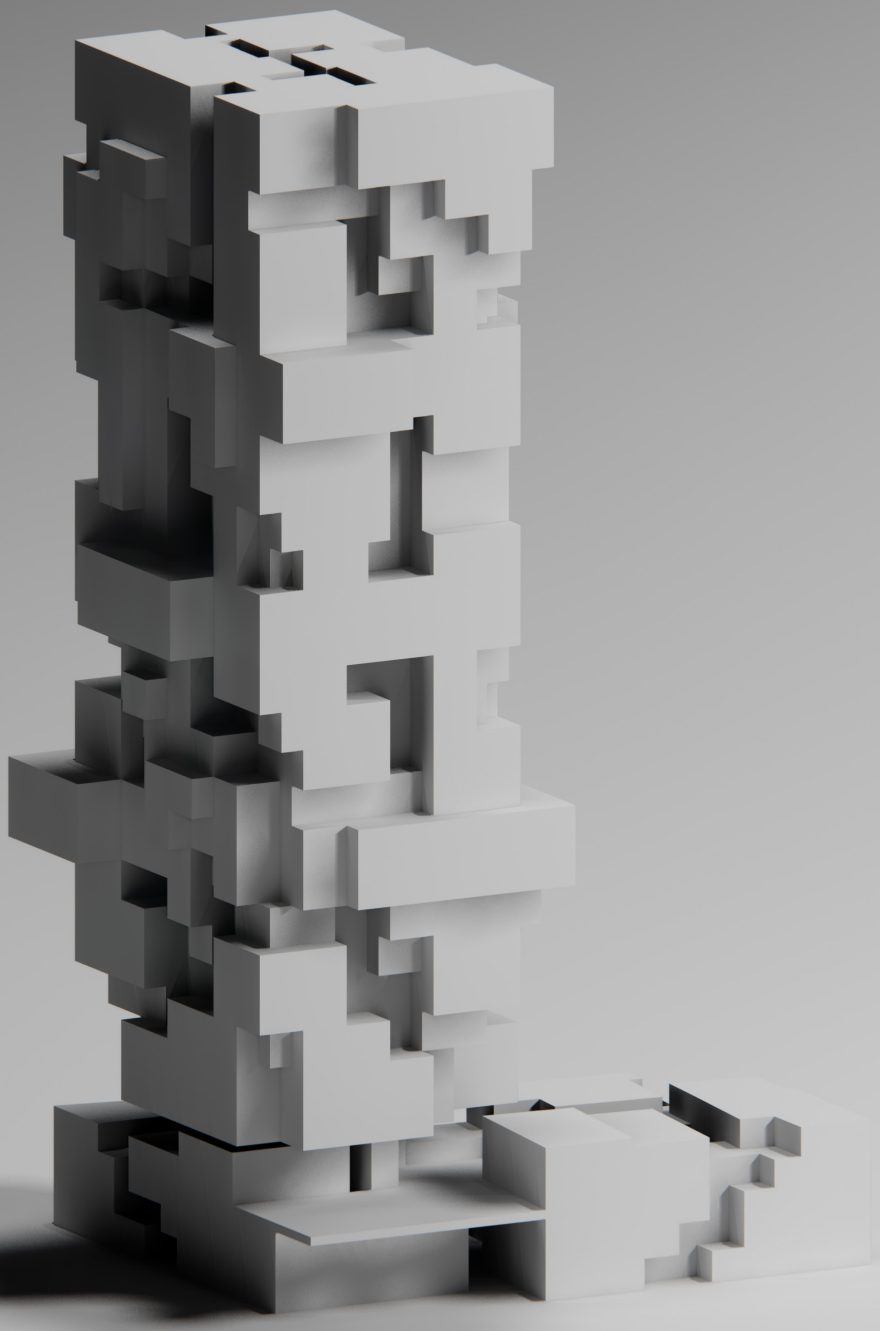
Transferability

This project offers a blueprint for fostering meaningful interactions across a range of environments, extending beyond traditional educational settings. Its principles could apply to the design of experience centers, office complexes, and commercial spaces, provided the overarching goal remains fostering interaction among diverse groups. Ultimately, this project presents a versatile framework that promotes learning, collaboration, and community-building across multiple contexts.

Conclusion

The graduation journey, while filled with its share of challenges and setbacks, has proven to be an invaluable experience, one that has shaped me profoundly both as a person and as a designer. Through overcoming these obstacles, I've gained knowledge and skills that have elevated both the quality and efficiency of my work processes to levels I had not achieved before. This past year has been one of intense growth, learning, and memorable achievements that I will carry forward in my life.

As I prepare to embark on the next phase of my career, I'm taking a moment to pause and reflect on all that I've accomplished. Before stepping fully into the professional world, I'll take a much-needed break to unwind, as I'll soon be heading to Australia for an extended backpacking adventure, an opportunity to reset and prepare for the exciting path ahead.



Chiel Vlutters
Delft - November 2024

“**Tell** me and I **Forget**,
Teach me and I may **Remember**,
Involve me and I **Learn**.”

– Benjamin Franklin –

This graduation portfolio presents Fusion Scientia, a transformative concept for an open and inclusive university campus in the heart of The Hague. Designed within the framework of the Public Building Graduation Studio, this project redefines the relationship between academia and society by fostering collaboration, accessibility, and lifelong learning. The campus features carefully crafted spaces,Mountaintop, Waterhole, Campfire, and Cove, that promote vibrant interactions and community engagement. With a focus on sustainability, biophilia, and the reuse of existing structures, Fusion Scientia aspires to create a dynamic public hub that enhances educational experiences and enriches the urban landscape.

As I conclude my time at TU Delft (2022-2024), this graduation book represents the finale of a creative and enriching journey. My years at TU Delft have been filled with inspiring projects that have pushed my boundaries and allowed me to develop a diverse set of architectural and personal skills.



I have thoroughly enjoyed my time here, learning more than I ever imagined and forming lasting friendships along the way. The collaborative environment and support from peers and mentors have made this experience truly unforgettable. I am grateful for the opportunities I’ve had to engage with innovative ideas and tackle complex challenges, shaping my identity as an architect.

This journey has been not only about academic growth but also about personal development and connection with a vibrant community. I look forward to applying the lessons I’ve learned as I embark on the next chapter of my career.