Master Thesis at TU Delft

The Marketplace Of Ideas: Sharing And Discovery

Studio: The Public Building Graduation Studio AR3AP100 MSc 3/4 2023-24
Christoph Psykalla 5858712

CONTENTS

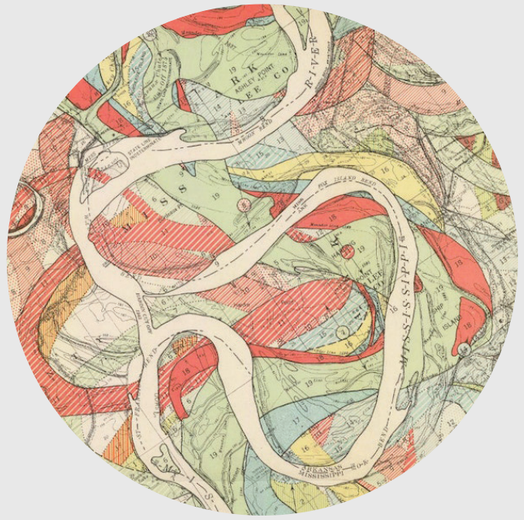
UNIVERSITY AS A MARKETPLACE OF HIGHER EDUCATION.

As a social conception this means that the university is open to people of all ages, on a full-time, part-time, or course by course basis..”

“Concentrated, cloistered universities, with closed admission policies and rigid procedures ..kill opportunities for learning.”

Topic, Context, Conclusion, Design

The Design is rooted in the specific context (Where?) in combination with the general topic of university teaching, particularly a vertical campus (What?). The conclusion is articulated in a design agenda to be fulfilled, based on the previous two topics and a general approach to 21st-century architecture and current societal challenges (How?.



1. Topic (WHAT?)

University

2. Context (WHERE?)

The Hague

3. Conclusion (HOW?)

Agenda

4. Design

Marketplace of Ideas

What?

Where?

Conclusion

DESIGN

What should a university be?

STUIDIO INTRODUCTION

Welcome to the 2023-24 Graduation Studio of the Public Building Group!

Every academic year, the Public Building Graduation Studio investigates a new building type that is emerging from the ceaseless densification of our cities. In the next two semesters, we will explore the **Vertical Campus** for universities and institutes of higher education.

New building types often result from the **hybridization** of existing types that may have existed for decades and even centuries. Under the influence of today's lifestyles, digitalization, market economy, and climate change, historical paradigms of architecture are shifting. We will investigate the campus architecture of **higher education** that ventures out to other cities because the existing traditional university cities are unable to cope with the ever-increasing number of students and the limits to horizontal expansion. We will investigate how **learning and teaching** are changing because of new concepts arising from digital tools and virtualization, and what they mean for the types of architecture we need. We will also explore the possibility of various institutions and functions sharing buildings and facilities.

This studio will specifically focus on how to blend vertically configured educational buildings and facilities into The Haugue's fast-growing center of the Dutch national government and international institutions around **The Hague Central Station**.

The verticality may provide a more sustainable way to build by enabling multiple use of spaces on a limited footprint. We will also tap into the need for **lifelong learning** and continuing education of for example government officials, educators, and professionals. Today, universities are particularly interested in ensuring that students, teachers and researchers are embedded more in society. Therefore, they invest in and create, close to campuses, possibilities for start-ups and other businesses for the application of research and hands-on training.

What can this new way of thinking of a university, growing on top, inside, and together with a government center embedded in a Dutch city center, look like? We will adopt an umbrella term **campus** for this. This is sometimes called the "fifth generation" campus. This means in particular campuses should be more integrated into daily life than in the past. When universities started centuries ago, they were also quite integrated into cities. In order to retrace the origin of universities, we will first take an excursion to Great Britain where the concept of university, college, and (at a later stage) campus was partly invented. We will visit **Oxford** to learn about the medieval model and **London** where very modern universities are integrated into the city's fabric.

For the construction and materialization part in this studio – as an integral part of your architectural design – with the help of Technical Building Design instructors, we urge you to follow the concepts of **circular design** and find a way to minimize energy use and greenhouse gas emissions in order to help counter adverse climate conditions in cities. Through workshops, we will also encourage and support the use of **digital design tools** including coding and scripting for both urban research and mapping, as well as for making your own architectural design.

In addition, **Atelier Rijksbouwmeester** (Studio of the Chief Government Architect) will support us based on its current study of how to redevelop and expand the government center of the future both by re-use and creating new buildings. The Public Management group of **Real Estate Management** at BK will also help us along the way on the (multiple) usage of spaces, densities, and related data. With all the above in mind, we expect a high level of design in **Multiplicity.**

In this studio, you can really help invent the new types of **Vertical Campus** appropriate for our time and the coming future. The cities and their universities only now begin to develop such new concepts.

I am very much looking forward (and upward) to the results of the Vertical Campus Graduation Studio!

Nathalie de Vries
Head of Public Building Group

Roy and Diana Vangelos Education Center, Diller Scofidio + Renfro, New York, USA, 2016.
Photo: Iwan Baan

REASONING

Syllabus: "..Today universities are particularly interested in ensuring that students, teachers and researchers are embedded more in society. Therefore, they invest in possibilities for start-ups and other businesses for the application of research and hands-on training."

I grew up loving to work with my hands and had an interest in how things fit together. This led me to start studying mechanical engineering, but I missed the creative aspect. So, I switched to an apprenticeship in product design at a school that had a similar approach to the Bauhaus, where practical trades like masonry and carpentry are taught in the same facilities. I decided to pursue architecture because it combines my diverse interests and has the ability to create a better utopian world. My own approach, therefore, focuses on practicality and sustainability while embracing excitement, explorability, and joy. The idea of the future campus resonates with me, and I believe universities should better align what we learn with real-world problems and policymaker decisions since I always found that working in an office accelerated my learning process much more than university could in the same time. We need a more hands-on approach and less theoretical talk. Some architects can be out of touch with the needs of the population, partly due to isolated university teaching. Furthermore, we need more political support and exchange to counter unchecked capitalism, which prioritizes the needs of the wealthy and often leads to buildings that are not built to last, solely focused on maximizing profit.

POTENTIALS
OF UNIVERSITY TEACHING

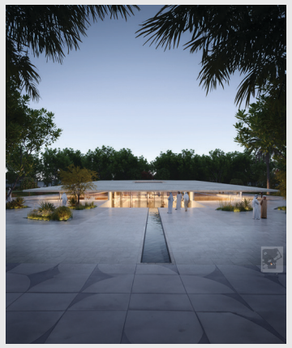
1. Hands-on work.
Specialized tools and addressing contemporary social challenges.

2. Mentoring.
Personal guidance and growth, contrasting with generic online courses.

3. Networking
Interdisciplinary work and learning from other disciplines.

4. Projects that live-on.
Real-world application of research an project output.



SHORTCOMINGS
OF UNIVERSITY TEACHING

1. Theoretical and one-sided

2. Isolated study-subjects

3. Isolated form city and public.

4. Few real world applications

UNIVERSITY → RESEACH QUESTION 1/2

This already concludes to the first part of my research question, based on diverse educational systems and situations and the general potentials, that can be seen in University teaching.

How can The Hague's new campus fosters practical learning and real-world application?

What?

Where?

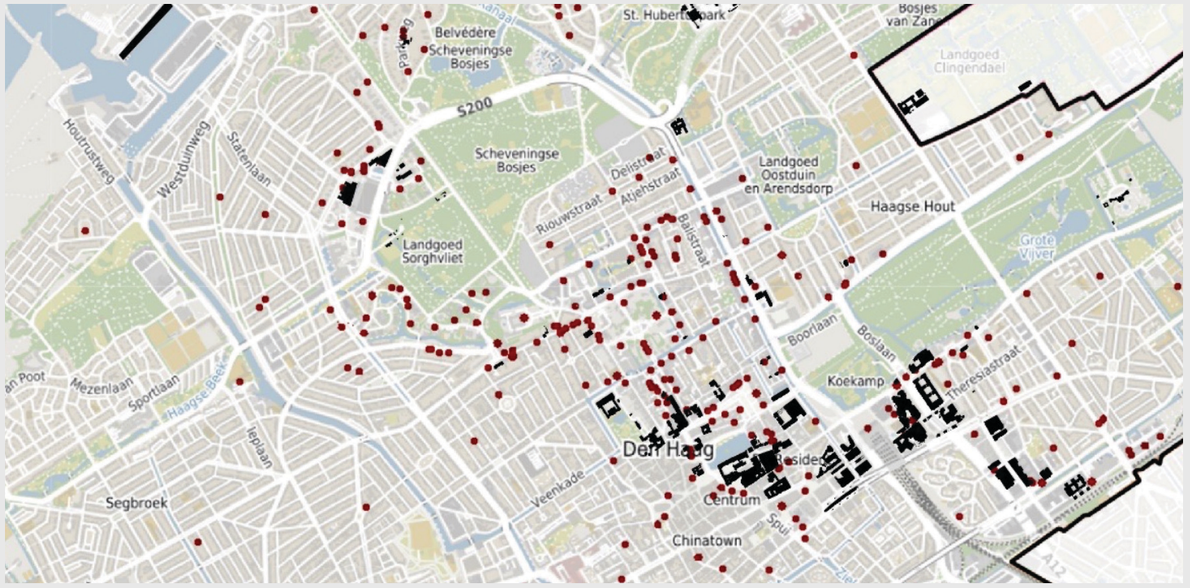
Conclusion

DESIGN

What does the location offer?

THE HAGUE:
THE CITY OF PEACE AND JUSTICE

1. International Court of Justice (ICJ)
2. International Criminal Court (ICC)
3. Permanent Court of Arbitration (PCA)
4. Organisation for the Prohibition of Chemical Weapons (OPCW)
5. The Hague Conference on Private International Law (HCCH)
6. Eurojust
7. Europol
8. Special Tribunal for Lebanon
9. International Residual Mechanism for Criminal Tribunals
10. The Assembly of States Parties to the Rome Statute of the International Criminal Court
11. Dutch House of Representatives
12. Dutch Senate
13. Ministry of Justice and Security
14. Ministry of Foreign Affairs
15. Ministry of Defence
16. Ministry of the Interior and Kingdom Relations
17. The Netherlands Supreme Court
18. International Commission on Missing Persons (ICMP)
19. The Hague Institute for Global Justice
20. The Hague Academy of International Law
21. NATO Communications and Information Agency (NCI Agency)
22. The Netherlands Institute of International Relations 'Clingendael'
23. The Peace Palace Library
24. The Hague Program for Cyber Norms



CENTER OF INNOVATION AND STARTUPS

International orientation and vibrant start up culture top 5 fstest growing tech hub
more than 1500 start ups
50.000 internationals
over 200+ international organisations

New Energy

For decades leading multinational energy companies such as Shell, Orsted, Q8, Aramco and Total and numerous engineering companies have chosen to be located in The Hague.

There are many initiatives in The Hague that actively support the development of sustainable solutions ensuring the **transition** to **renewable** forms of **energy** in the near future.

Some of these solutions, such as the blinking lights of **offshore wind farms** that can be seen at night from The Hague beach in Scheveningen or the **solar panels** on roofs, are already visible to the eye. Other, less visible solutions such as the **geothermal** generation of energy, have become a cornerstone of The Netherlands' energy transition.

Finance

Ongoing investments and funding are vital for innovation and business growth. Here in The Hague, established financial industry with major multinationals headquartered in the city - **Nationale-Nederlanden, Aegon, MN Services, NIBC and FMO** together with key financial institutions based in The Hague make up a solid foundation for a healthy business climate critical for the startups and business success. This strong financial infrastructure makes our city a very attractive place for finance-related businesses and startups.

Cyber Security

The Hague is a major and rapidly expanding **cybersecurity hub** in Europe. In The Hague, we believe that new technologies are imperative in accelerating and maintaining peace, justice and security worldwide.

Major international advancements and breakthroughs in the fields of cybersecurity, forensics, national security and critical infrastructure are developed in The Hague area, forming an unparalleled **ecosystem** of **cybersecurity** companies.

Our city drives **global initiatives** on the ethical and legal challenges related to the internet, big data, artificial intelligence (AI) and robotics.

NGOs & Social Enterprises

The Hague is becoming more and more known as **an Impact City**, where impact investors are looking for **promising businesses** and projects to make the world more sustainable and more innovative. A city, where entrepreneurs, governmental institutions, academic and business communities together are working towards a **better, safer and more just world**. We believe that economic success can go hand in hand with solutions for a better world. Under the motto "doing good and doing business" we concentrate talent in the city to address the global challenges.

IT & Technology

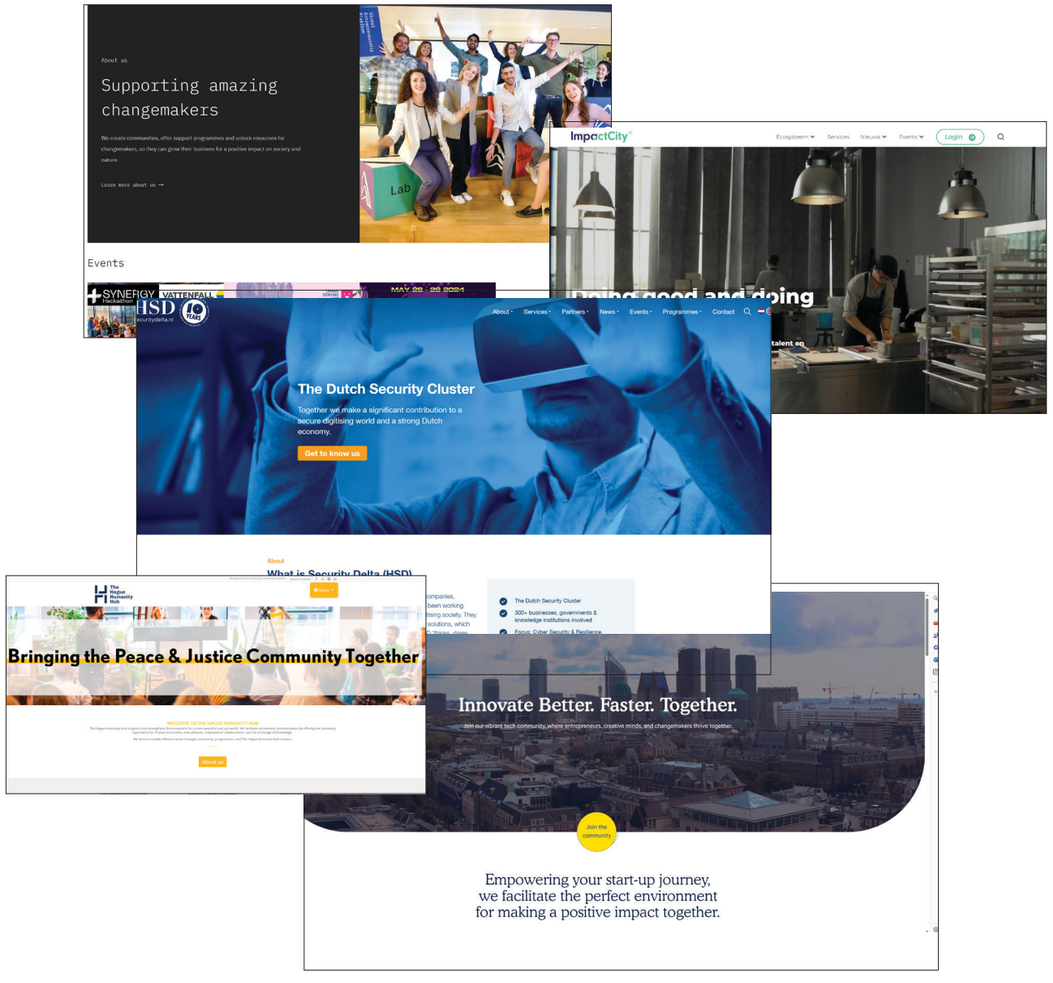
As a global hub for innovation and entrepreneurship, The Hague is a centre of IT & Tech expertise.
At the national level, The Hague is home to the new **Strategic Action Plan for Artificial Intelligence** and initiatives and organisations, such as:

- ImpactCity
- The Hague Humanity Hub
- The Hague Security Delta
- The Hague Tech
- YES!Delft
- World Start-up Factory

Together they form a strong tech ecosystem in The Hague that attracts industry leaders as well as young IT talent.

Legal & Policy

The Hague, as the International City of Peace Justice, has a strong Legal & Policy cluster due to the well-established community of policymakers, commercial firms and public institutions. The Hague opens many opportunities to foreign direct investments in order to further strengthen its Legal & Policy cluster.



POTENTIALS
OF A UNIVERSITY CAMPUS IN THE HAGUE

1. Political Center

Students gain firsthand exposure to international politics and diplomacy, enhancing their understanding and potential career opportunities in governmental and diplomatic fields.

2. Center of Peace and Justice

The presence of major international courts enables specialized programs in international law and human rights, utilizing local expertise and institutions.

3. Endless Initiatives and Organizations

The city's multitude of initiatives and organizations offers vast opportunities for engaging with global projects and networks.

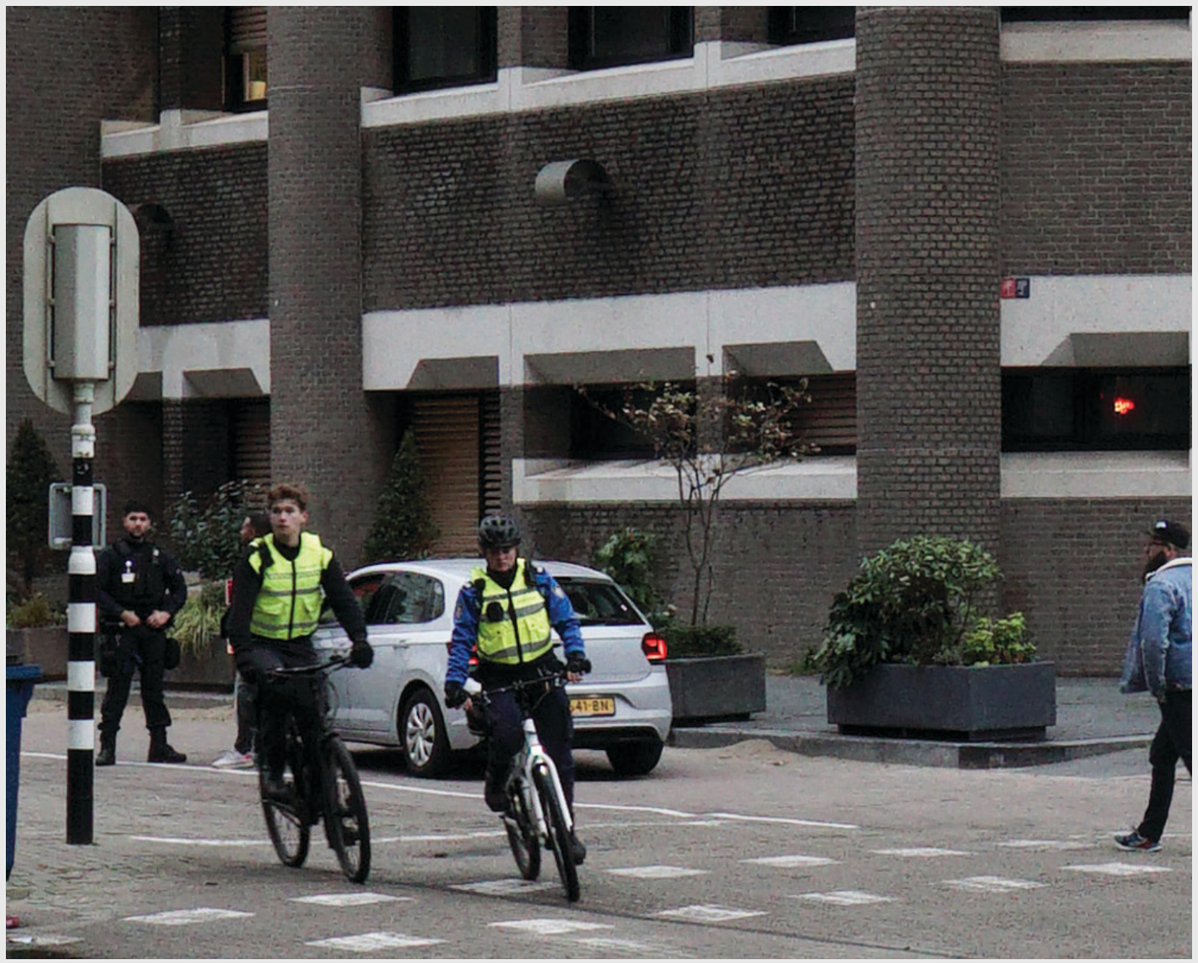
4. Innovation and Entrepreneurship

The Hague's focus on innovation provides valuable resources for students interested in entrepreneurship, connecting them with tech startups and business incubators.

THE REALITY

OF THE HAGUE'S CENTRAL INNOVATION DISTRICT

groeiende weerstand tegen het bestaande systeem



CONTEXT → RESEACH QUESTION 2/2

Taking into account the distinctive context of The Hague, the other part of the question explores the unique opportunities this particular area of the city offers. It searches for the potential role of a university in the unique context of The Hague, considering its distinct political, educational, and cultural landscape.
1. the potentials of The Hague
2: the potentials of a “physical” learning environment




WHERE?

(1.) How can The Hague’s new campus be a dynamic, cross-disciplinary forum betwen the public, industry and politics (2.) that fosters practical learning and real-world application?

WHAT?




What?

Where?

HOW?

DESIGN

What is the resulting Agenda?

RESULTING AGENDA

A high-rise university should be a dynamic hub of knowledge, embodying a network of learning where educational political, residential, and commercial activities coexist to enhance the educational experience. Open to the public. Anyone can learn teach or participate in discussions.

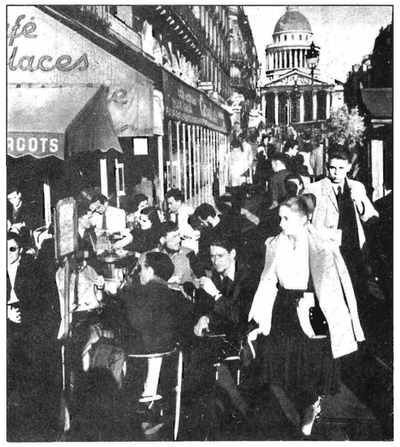
THE MARKETPLACE OF IDEAS: SHARING AND DISCOVERY

"Concentrated, cloistered universities, with closed admission policies and rigid procedures ....kill opportunities for learning."

"University as a marketplace of higher education. As a social conception this means that the universit is open to people of all ages, on a full-time, part-time, or course by course basis.."

"A pattern language" , Christopher Alexander, Sara Ishikawa and Murray Silverstein

43 UNIVERSITY AS A MARKETPLACE



A PUBLIC FORUM

Incorporating the Political context: how to construct a public forum for exchange of political ideas

A SYMBOL OF COMMUNITY - NOT POWER

High-rise buildings should prioritize community instead of a representation of power. They should embrace sustainable materials and use low-tech constrution methods and reversible connections that allow for adaptability.

CONNECTING THE CITY.

First horizontal, then vertical. Less borders, more street activities and interaction. Including nearby governmental buildings into the urban approach.

TO DO's:

1. Publicly accessible
2. Local industry involvement
3. Political involvement4. Active street scene
5. Interdisciplinary collaboration
6. Responsive to societal changes
7. Diverse educational offerings
8. Sustainability-focused

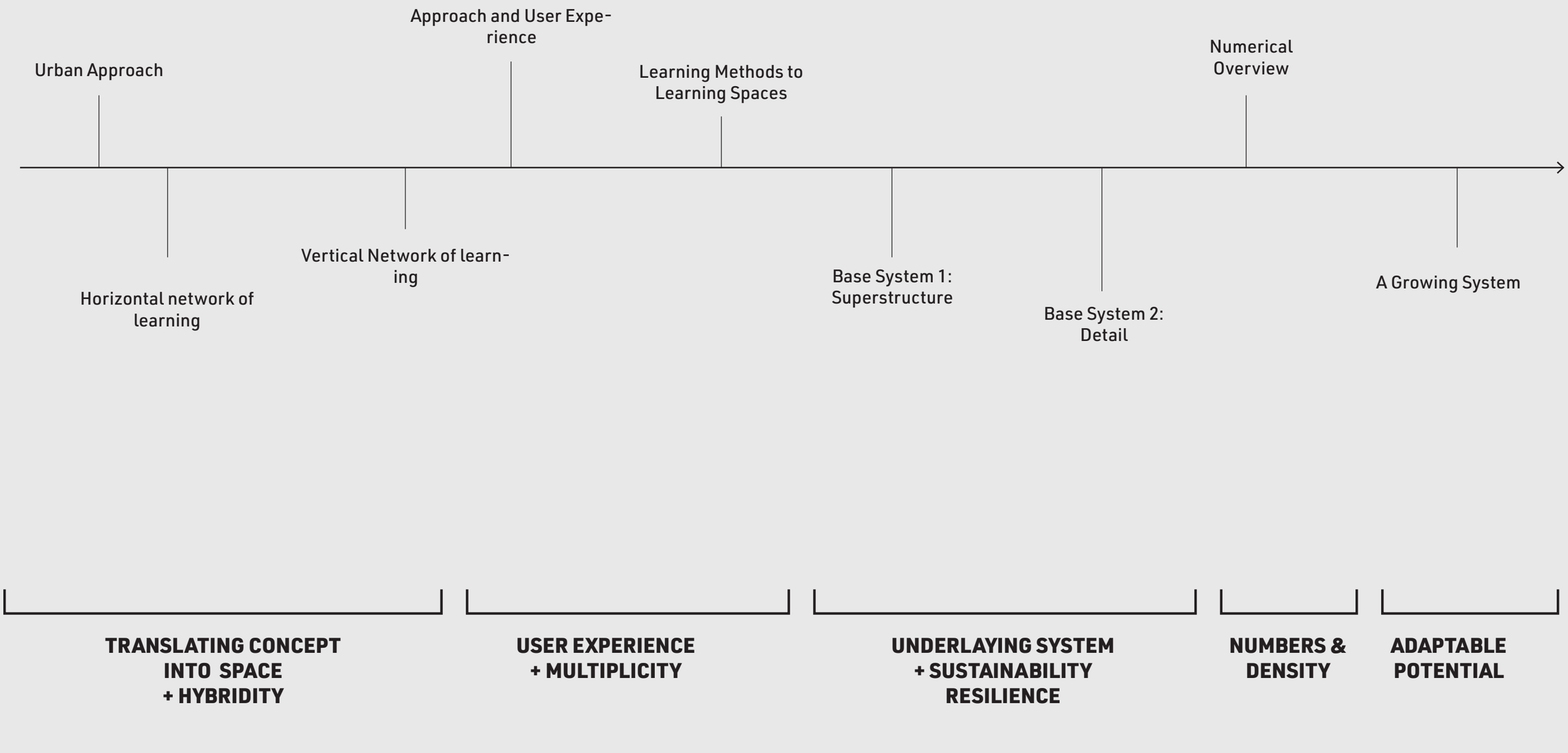
What?

Where?

Conclusion

DESIGN

DESIGN CHAPTER OVERVIEW



URBAN APPROACH

Choice of Location
Laying the foundation for an urban campus.

MANIFESTATION

POTENTIALS

school
park
politics
justice agency
school
business association
gaming association
school
politics
park
politics
business center
Leiden Uni
Library
train station
national archive

the good

MANIFESTATION

SHORTCOMINGS

the bad

CURRENT STATE

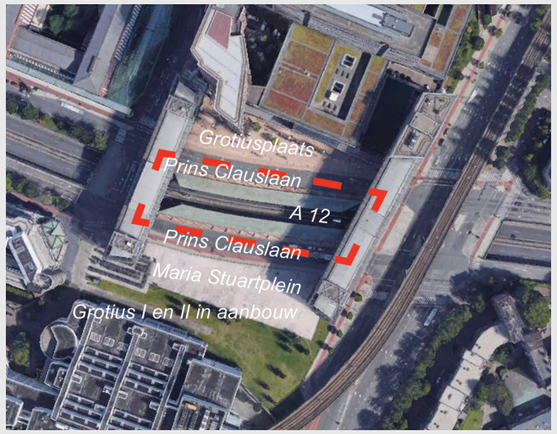
cental station
busy / lively

low rise resential
small shops and cafés

CURRENT PLANS

Francesco Veenstra noted (Rijksbouwmeester)...
...the need to extend development efforts beyond the immediate vicinity of The Hague's main station to surrounding areas.

Plans are in place to close off the highway in the middle and create a park on top, forming an island surrounded by streets. There is also a design proposal, for example by Mecanoo, which suggests placing towers above the road. Additionally, there are already several structures that hover over the roadway or sit atop the underlying highway.



Effect (?)
of current plans

before

after (current approach)

A City for People

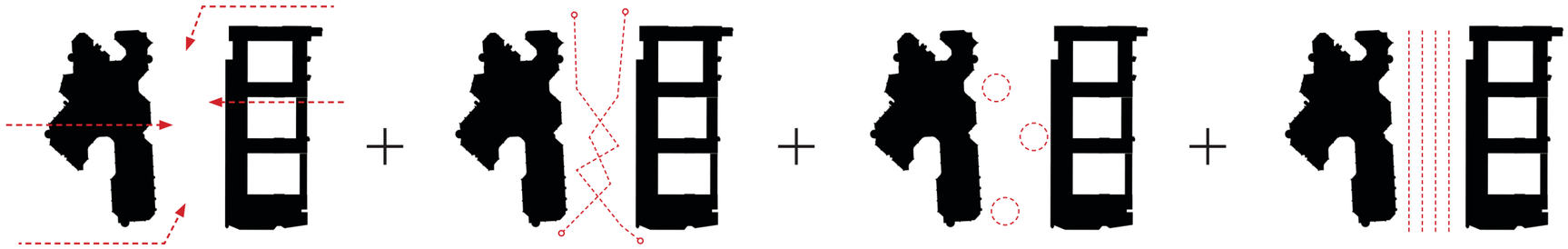
My proposal aims to reimagine this part of The Hague by taking an additional step: what if we move the two remaining surface lanes underground, alongside the already existing lanes, to free up space for the city and its residents? This people-centric approach would connect the bustling areas around the main station with the residential zone to the east.

Significant development is occurring within 400 meters of the train station, and the government is currently looking to expand this area, which aligns with the direction of this proposal.

before

after (proposal)

HORIZONTAL PRINCIPLES
SIMILAR TO A MARKETPLACE



PERMEABLE
INTEGRATION WITH CITY

EXPLORABLE
NO BORDERS

PLAZA ACTIVITIES
AROUND THE CLOCK

STRUCTURE:
UNDERGROUND LANES

THE CITY BECOMES
THE CAMPUS

Not only the Building itself acts as a University building/the Campus. The whole area east of the train station is acting as one large campus plane, integrated with the city.

The plane of immanence

By adopting this urban approach with the campus building and integrating neighboring structures, the campus will incorporate buildings from political, business, and educational sectors. Together, they create a plane of possibilities known as the plane of immanence. This concept, attributed to philosophers Gilles Deleuze and Félix Guattari, envisions a space where all life and consciousness unfold, free from hierarchical distinctions or transcendental justifications. It serves as a backdrop where multiple connections and expressions can emerge without the interference of pre-established categories.

Urban Approach

HOIZONTAL NETWORK OF LEARNING

Integrating Qualities of the Central Innovation District
New Urban center

The Network of Learning: Horizontal

Here are some of the close neighbors shown that could be integrated into the campus design. Fully integratedspaces or simply shared office spaces to maximize occupancy rates. Only minor adjustments are needed in the urban setting to achieve significant changes in urban life. Parks will be established, roads will be restricted, and workshop pavilions will be distributed like a net across the area. Additionally, features such as wooden decks and seating/assembly areas will be constructed. In combination with similar paths and pavements, the campus will extend towards the neighboring buildings.

1. national archive

2. library

3. leiden university

4. gaming industry trade association

5. environmental assess-ment agency

6. business advocates

7. lower house of the dutch parliament

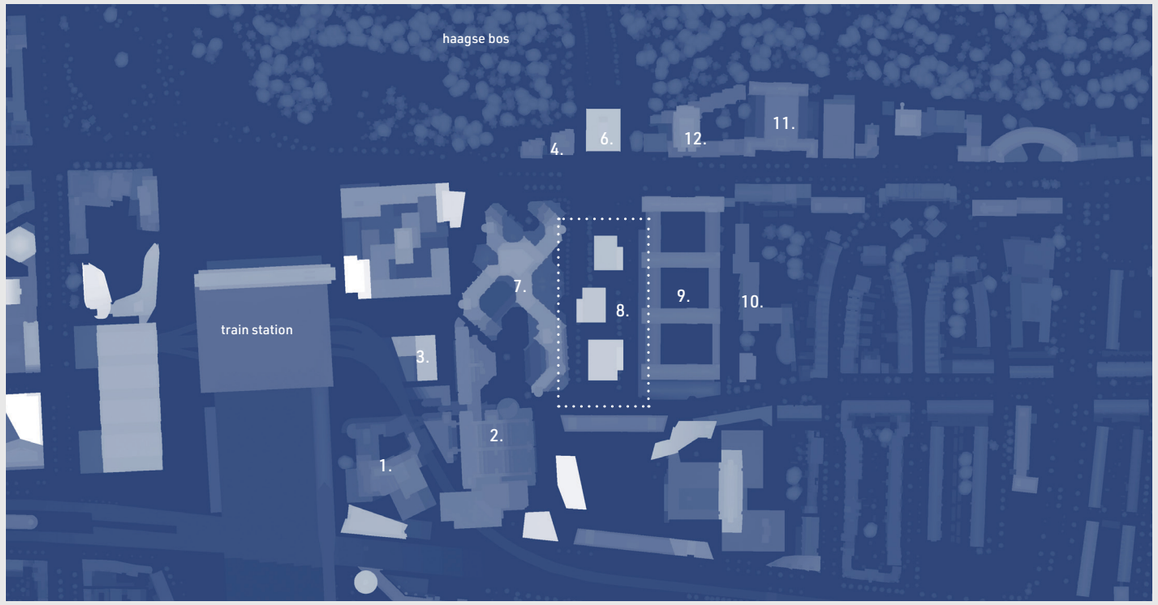
8. hybrid campus building

9. ministry of economic affairs and climate

10. educational institution

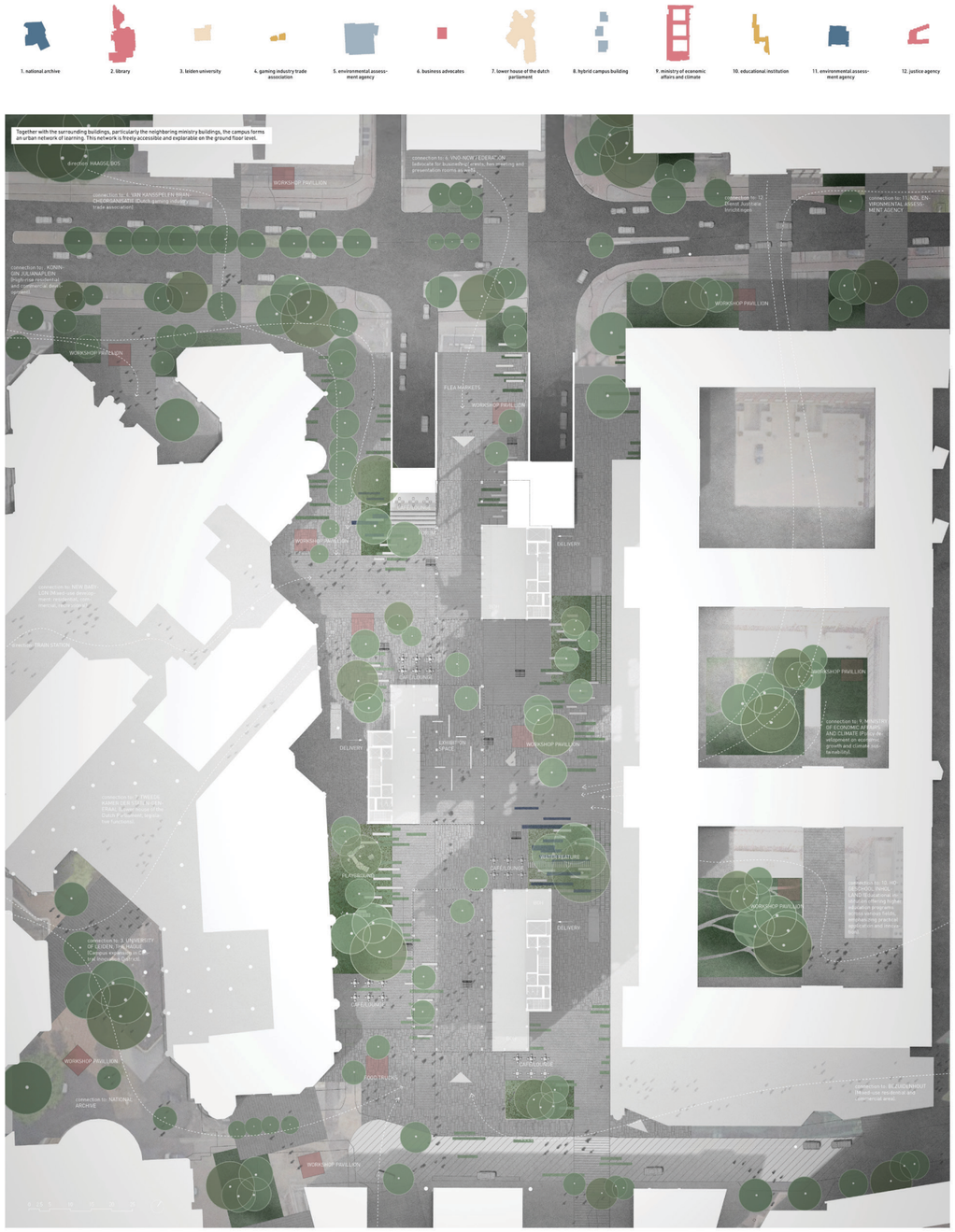
11. environmental assess-ment agency

12. justice agency



THE MARKETPLACE OF IDEAS: AN URBAN NETWORK

Integrated with The Hague's specific environment, the campus is responsive to local needs and uncovers existing potential.



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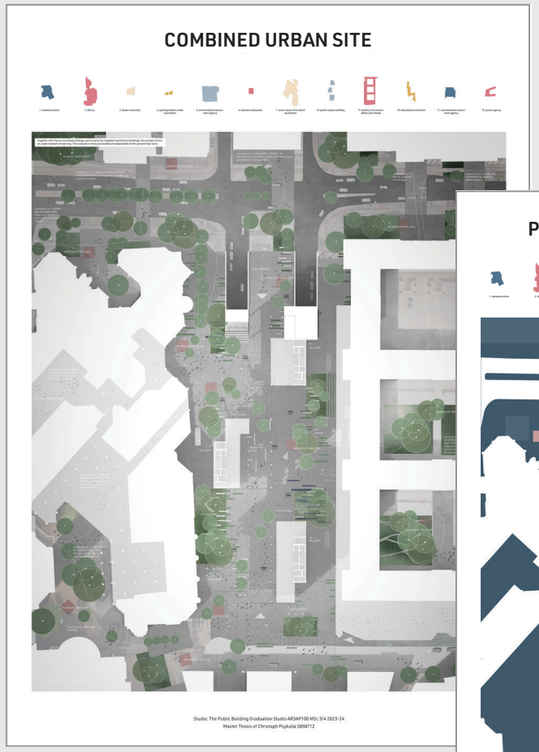
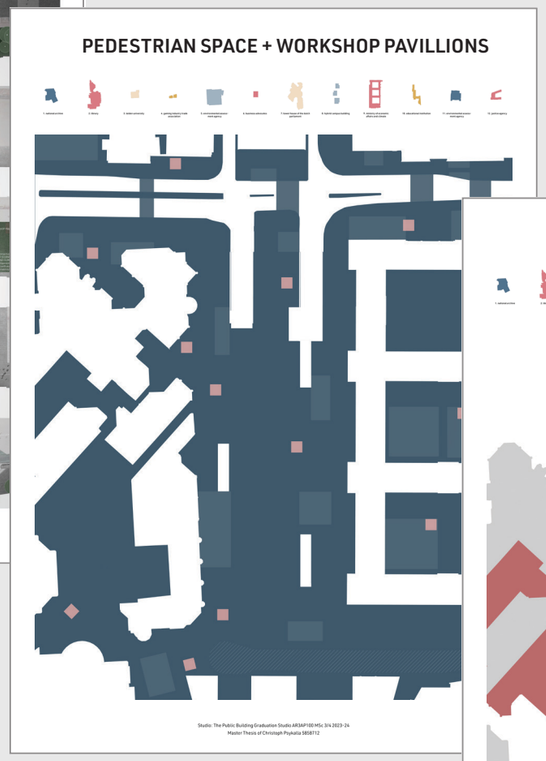
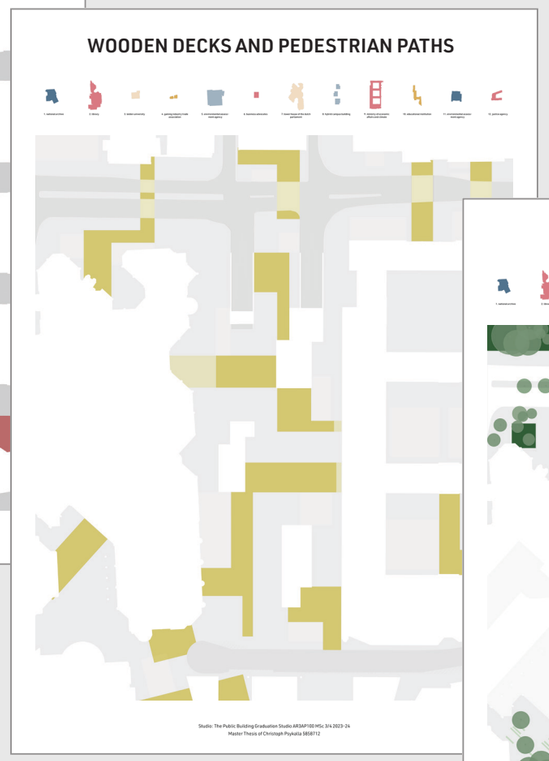
MAIN ELEMENTS

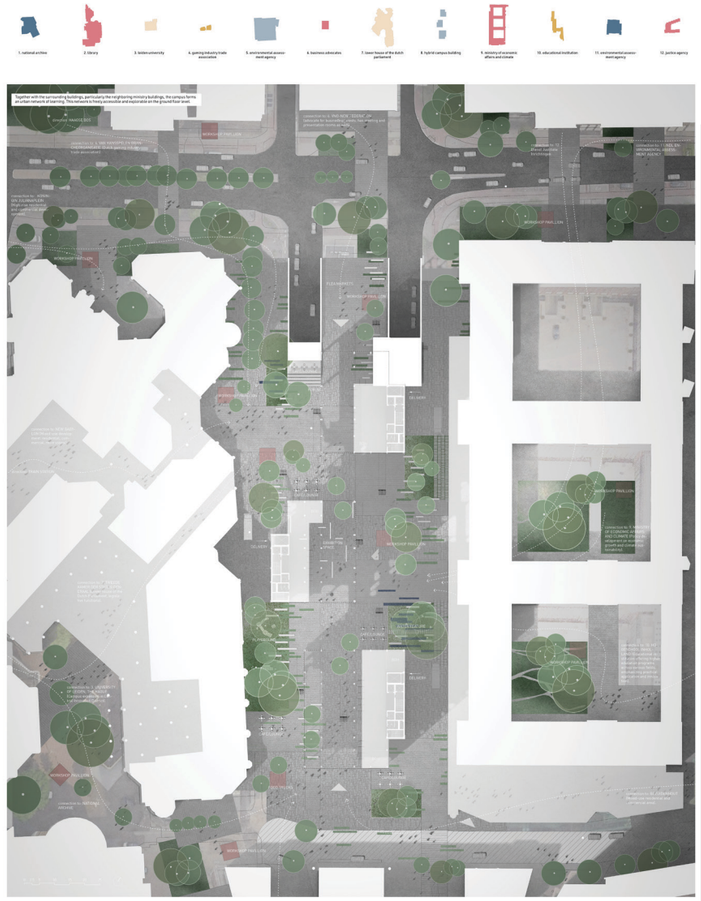






PATHS

COMBINED URBAN SITE



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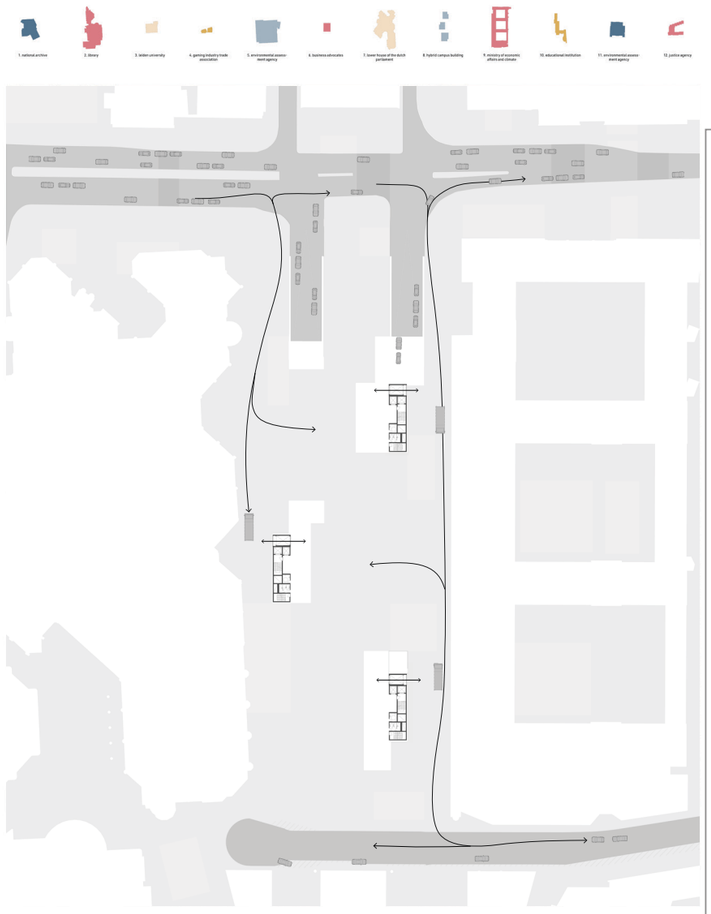
PATHS: DELIVERY



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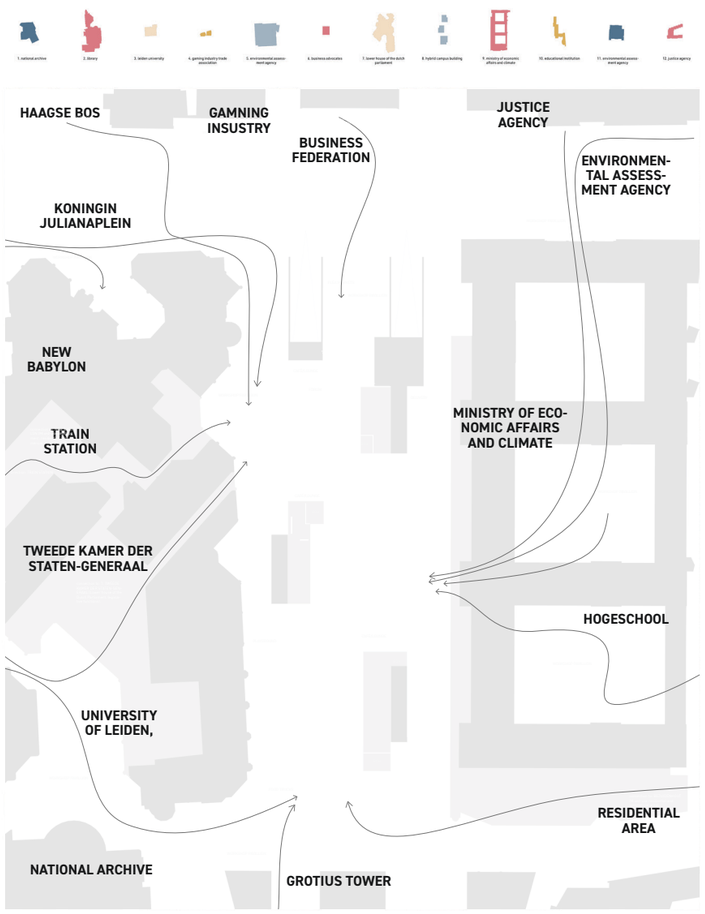
PATHS: TO/FROM NEIGHBOURS



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direction HAAGSE BOS

WORKSHOP PAVILLION

connection to: 4. VAN KANSSPELEN BRANCHEORGANISATIE (Dutch gaming industry trade association)

connection to: 6. VNO-NCW FEDERATION (advocate for business interests, has meeting and presentation rooms as well)

connection to: 12. Dienst Justitiële Inrichtingen

connection to: 11. NDL ENVIRONMENTAL ASSESSMENT AGENCY

connection to: . KONINGIN JULIANAPLEIN (High-rise residential and commercial development).

WORKSHOP PAVILLION

WORKSHOP PAVILLION

FLEA MARKETS

WORKSHOP PAVILLION

CAFÉ/LOUNGE

FORUM

WORKSHOP PAVILLION

DELIVERY

BOH

connection to: NEW BABYLON (Mixed-use development: residential, commercial, recreational)

direction: TRAIN STATION

CAFÉ/LOUNGE

BOH

WORKSHOP PAVILLION

connection to: 9. MINISTRY OF ECONOMIC AFFAIRS

connection to: NEW BABYLON (Mixed-use development: residential, commercial, recreational)

direction: TRAIN STATION

connection to: 7. TWEEDE KAMER DER STATEN-GENERAAL (Lower house of the Dutch Parliament, legislative functions).

connection to: 3. UNIVERSITY OF LEIDEN, THE HAGUE (Campus expansion in Central Innovation District).

WORKSHOP PAVILLION

connection to: NATIONAL

CAFÉ/LOUNGE

FORUM

WORKSHOP PAVILLION

DELIVERY

BOH

CAFÉ/LOUNGE

BOH

DELIVERY

EXHIBITION SPACE

WORKSHOP PAVILLION

PLAYGROUND

WATER FEATURE

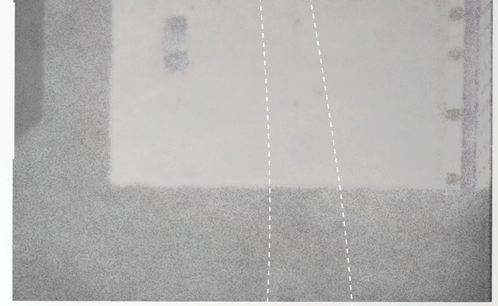
CAFÉ/LOUNGE

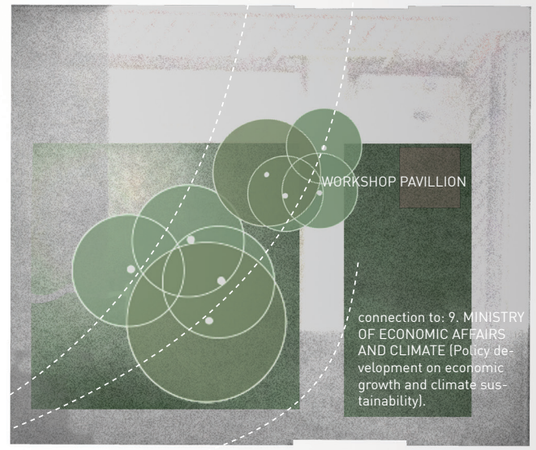
BOH

DELIVERY

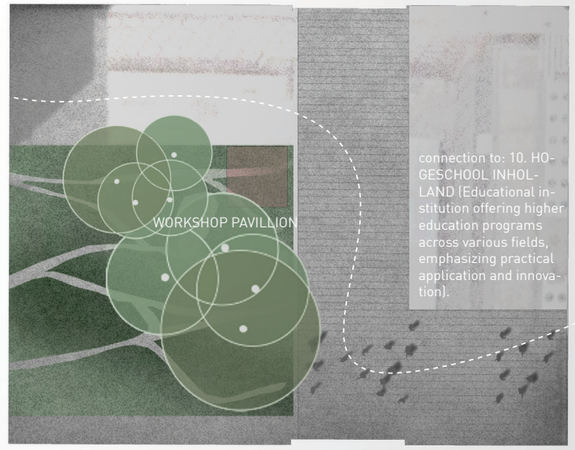
CAFÉ/LOUNGE

FOOD TRUCKS





connection to: 9. MINISTRY OF ECONOMIC AFFAIRS AND CLIMATE (Policy development on economic growth and climate sustainability).



connection to: 10. HOGESCHOOL INHOLLAND (Educational institution offering higher education programs across various fields, emphasizing practical application and innovation).

connection to: BEZUIDENHOUT (Mixed-use residential and commercial area).

ERAAL (Lower house of the Dutch Parliament, legislative functions).

connection to: 3. UNIVERSITY OF LEIDEN, THE HAGUE (Campus expansion in Central Innovation District).

WORKSHOP PAVILLION

connection to: NATIONAL ARCHIVE

PLAYGROUND

WATER FEATURE

CAFÉ/LOUNGE

BOH

DELIVERY

CAFÉ/LOUNGE

BOH

CAFÉ/LOUNGE

FOOD TRUCKS

WORKSHOP PAVILLION

connection to: GROTIUS TOWERS (Sustainable residential development with amenities).

WORKSHOP PAVILLION

connection to: 10. HOGESCHOOL INHOLLAND (Educational institution offering higher education programs across various fields, emphasizing practical application and innovation).

connection to: BEZUIDENHOUT (Mixed-use residential and commercial area).

WORKSHOP PAVILLION

Base System 1:
Urban Approach

VERTICAL NETWORK OF LEARNING

Collaboration between students.
Exploring new disciplines.

Horizontal network
of learning

STUDIES:

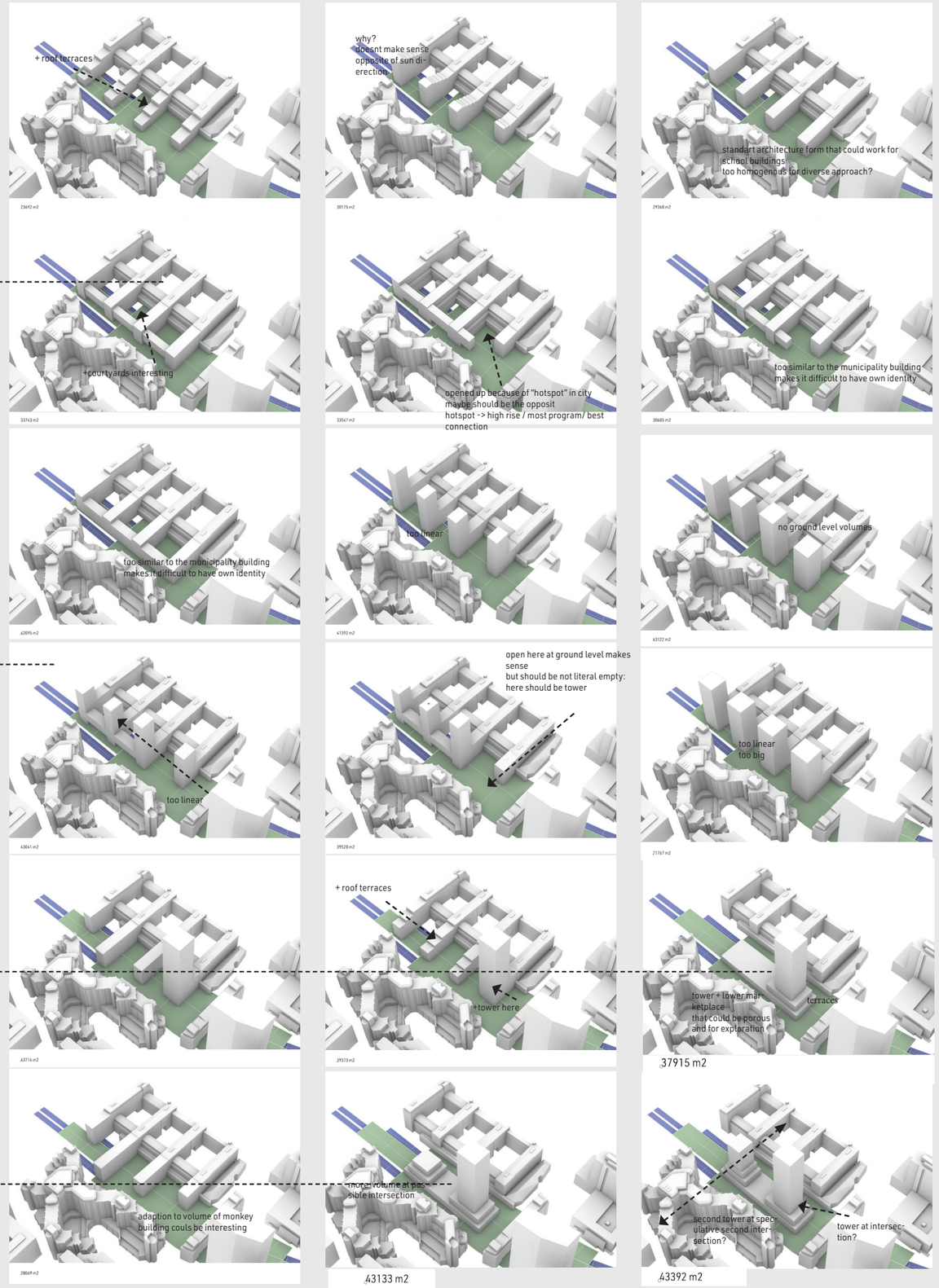
A SHORT OVERVIEW

low volumes and integration with ministry building

multiple towers

division of horizontal and vertical

multiple towers +
division horizontal / vertical

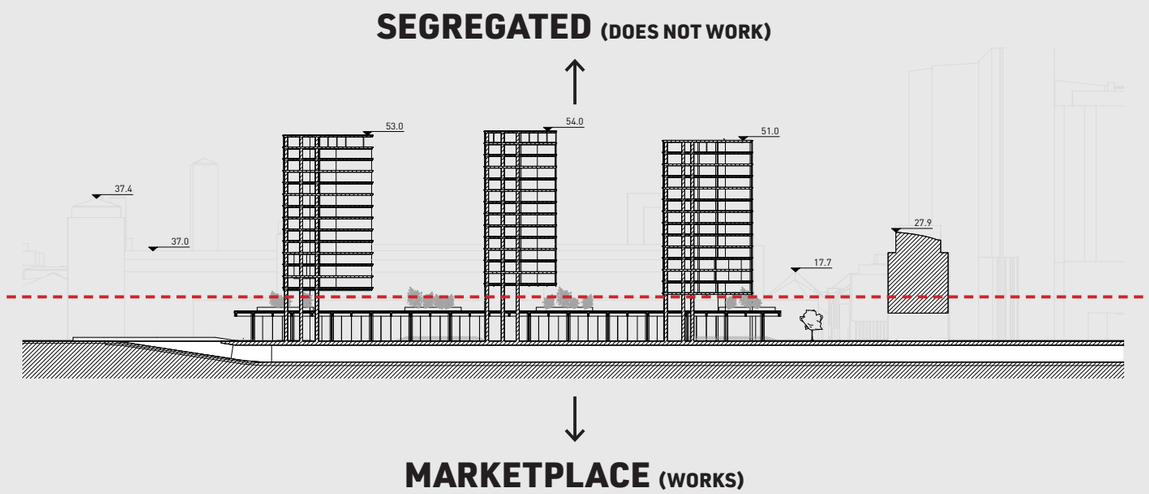


CONCEPTUAL APPROACH

My initial design focused on developing a horizontal "marketplace" for idea exchange and a vertical component that offered dense atmospheres conducive to study and research.

Upon reevaluating my ambitions, I realized that while the lower part of the building achieved the qualities I sought, the vertical section felt secluded, private, and isolated from the rest. The revised concept involves a more interwoven system combining open "marketplace" situations with dense innovation spaces. The sharing and discovery of knowledge, along with the exploration of the educational landscape, should occur across all levels of the building.
The picture on the right, created by the author, interprets a vibrant urban space with varying densities. This image served as inspiration for the conceptual approach.

FIRST APPROACH

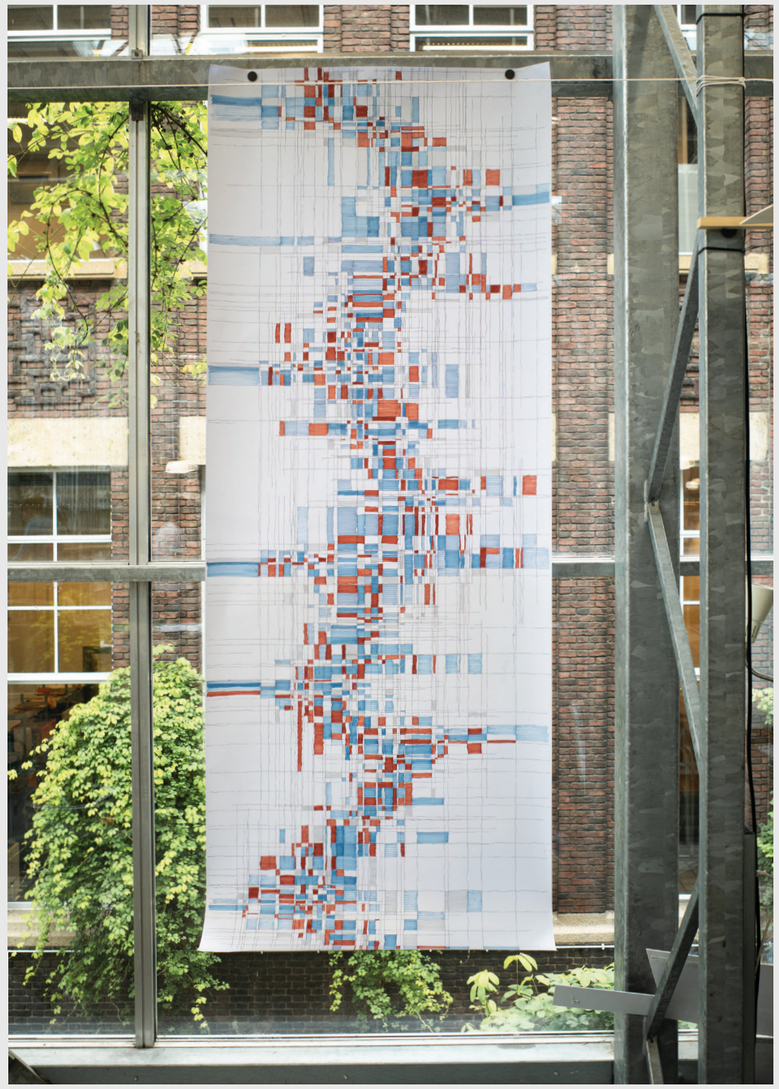


FINDINGS

WHAT IT DOES:
sharing/interaction only at base of building

WHAT IS DESIRED INSTEAD:
"distributed" sharing/interaction including city

INSPIRATION



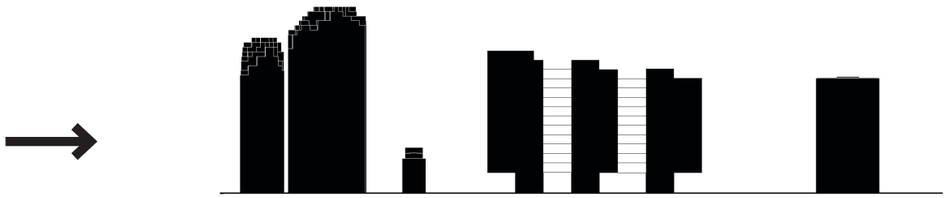
VERTICAL PRINCIPLES

DISTRIBUTION
OF ACCESS

OPEN UP
INTEGRATE CITY

BLEND
INTO CONTEXT

INTERCONNECT
PROGRAM BETWEEN TOWERS



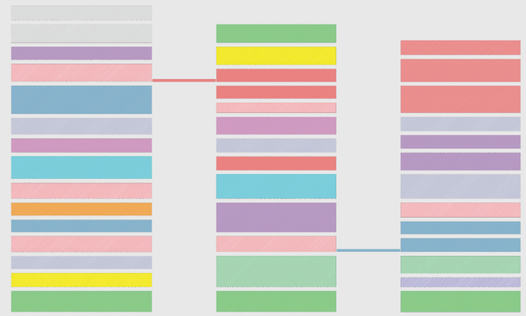
The vertical approach: Interconnected Program

starting with conventionally stacked volumes

introducingvarious program

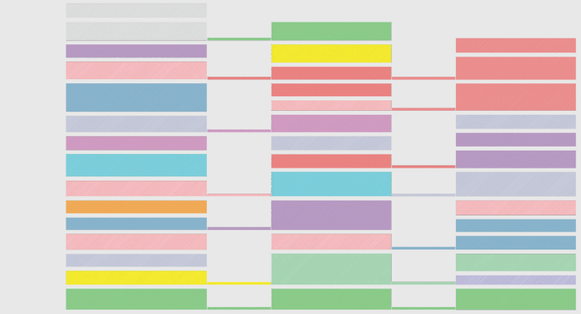
establishing different floor hights, that each program could benefit from

filling-in the volume - adjusting hights accordingly

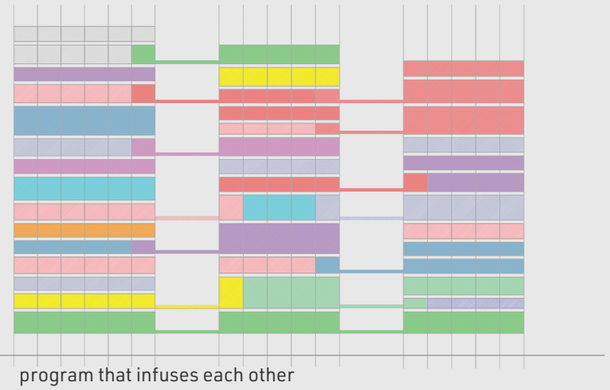


interconnecting the program, where it fits
“finding pairs”

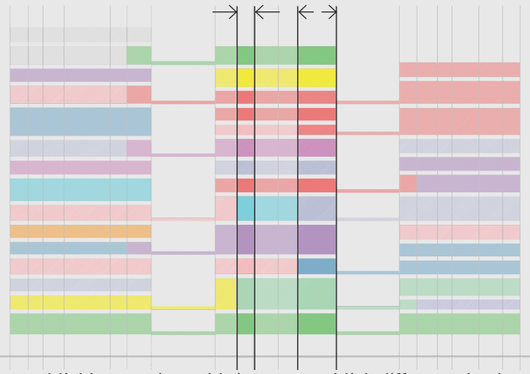
The vertical approach: Interconnected Program



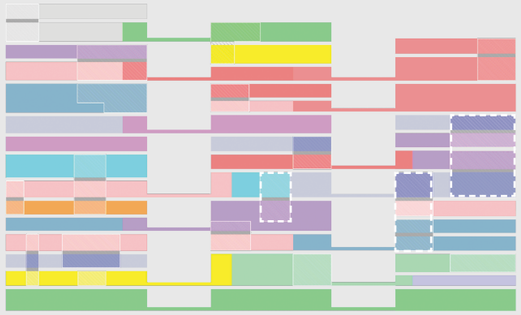
connecting more program with each other



program that infuses each other



establishing varying grid sizes to establish different sized spaces



establishing regions where there will happen a vertical intersection of program

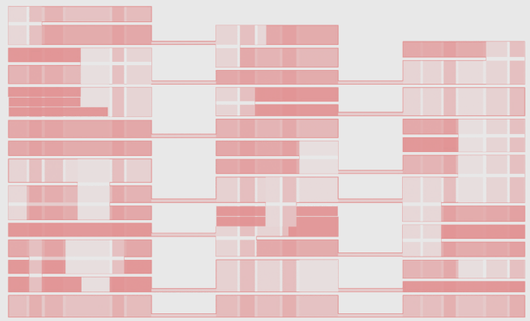
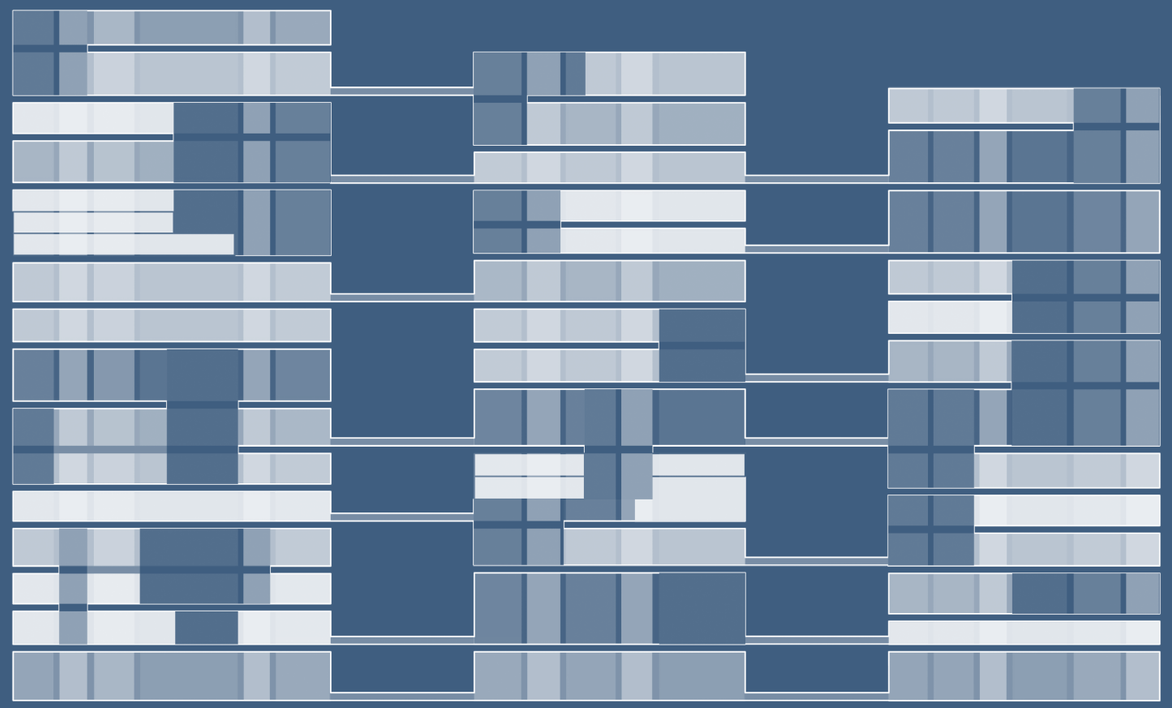


diagram of the resulting densities within the building

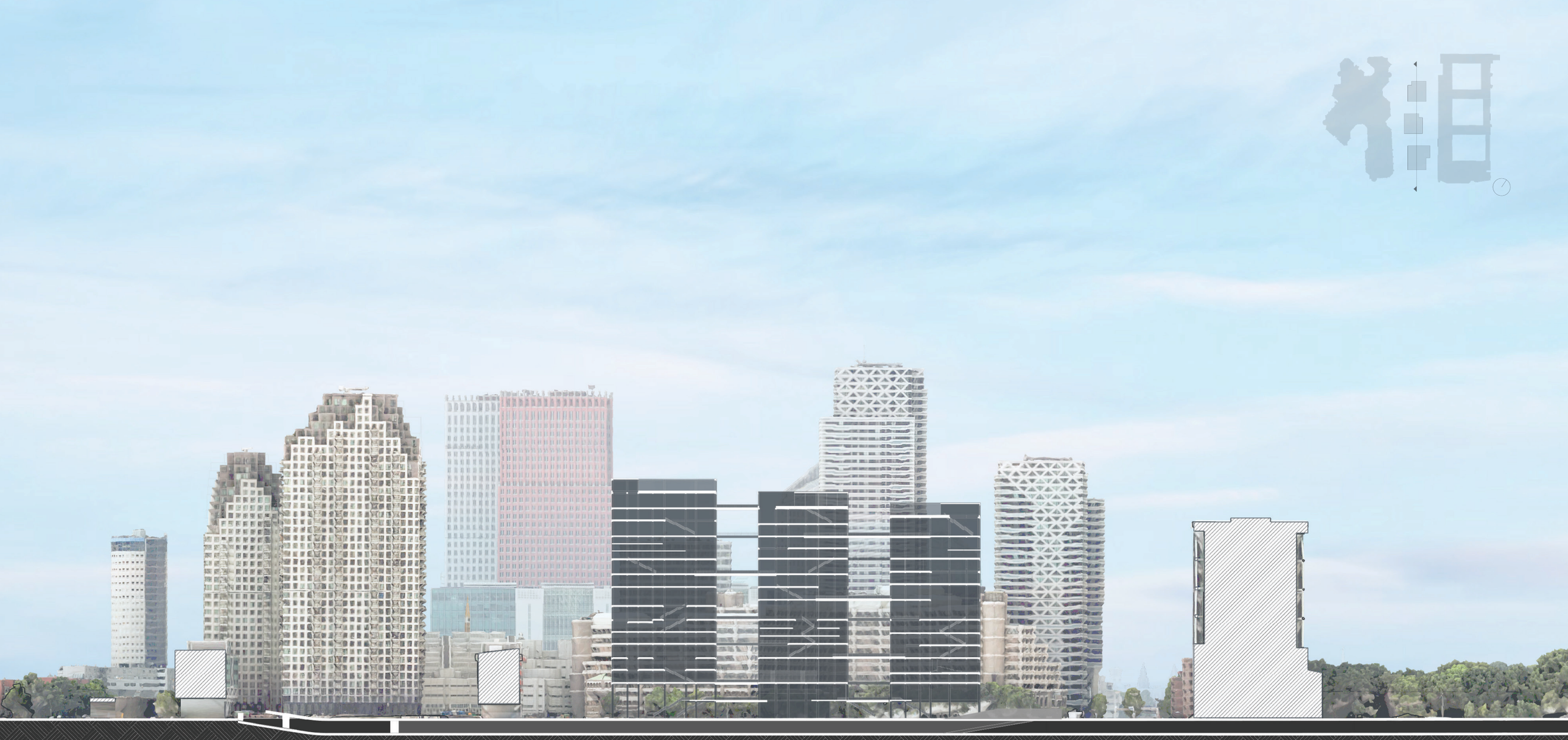
FROM DENSE

TO SPACIOUS

SPATIAL CONTINUITY



PROGRAMMATIC SECTION



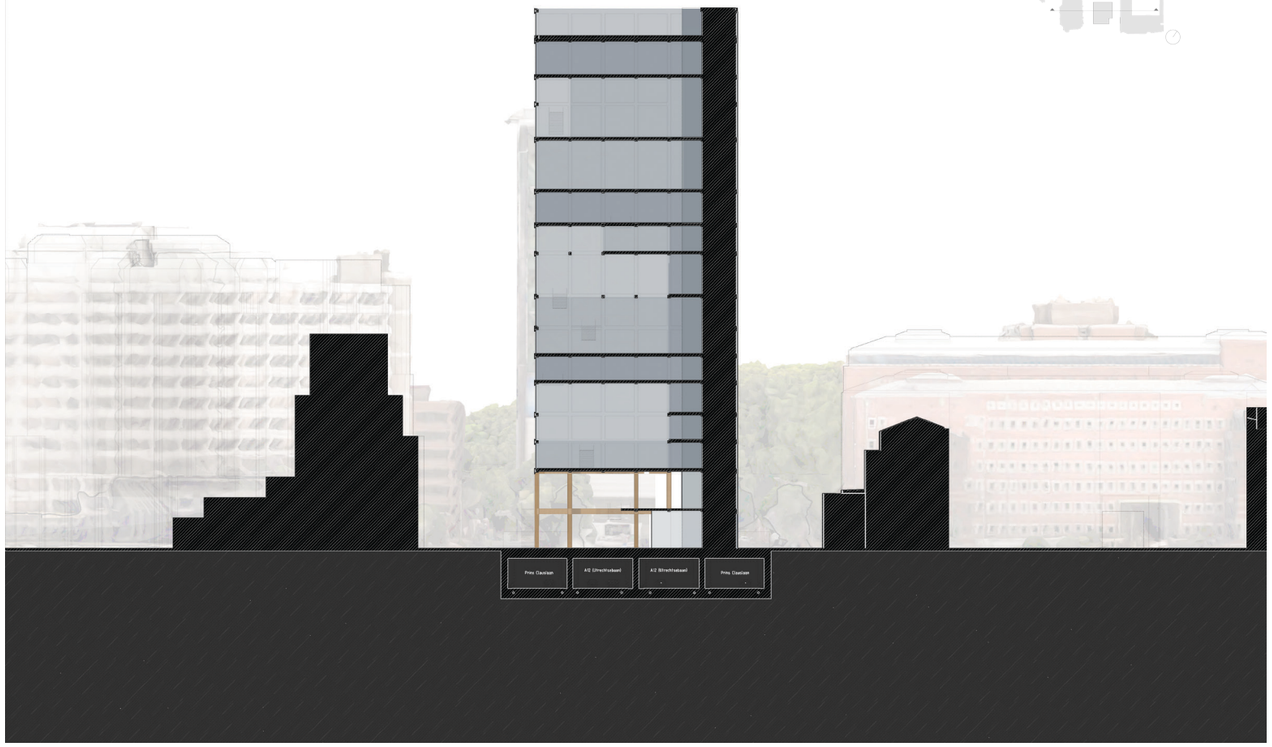
URBAN SECTION:

PROGRAMMATIC APPROACH...

TRANSLATED INTO SPATIAL LAYOUT

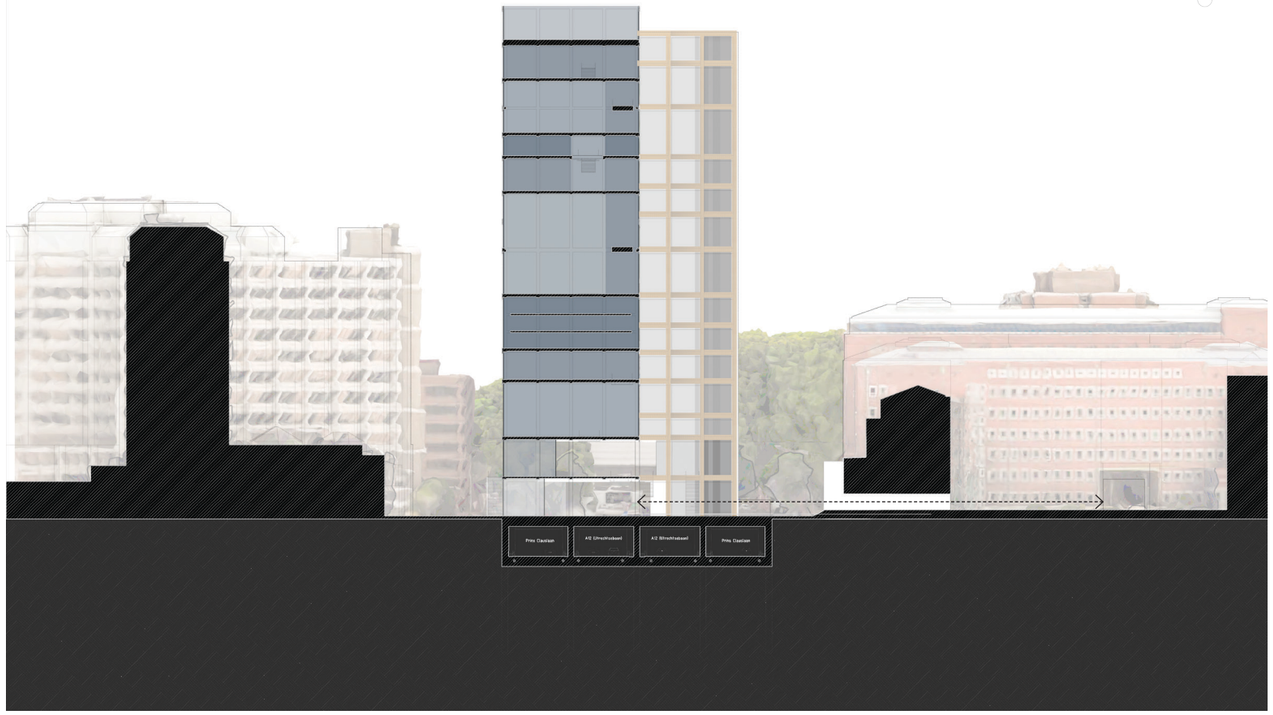
Section A - A

Main Entrance from the South.



Section B - B

Connection to ministry of economic affairs, hoogeschool inholland...

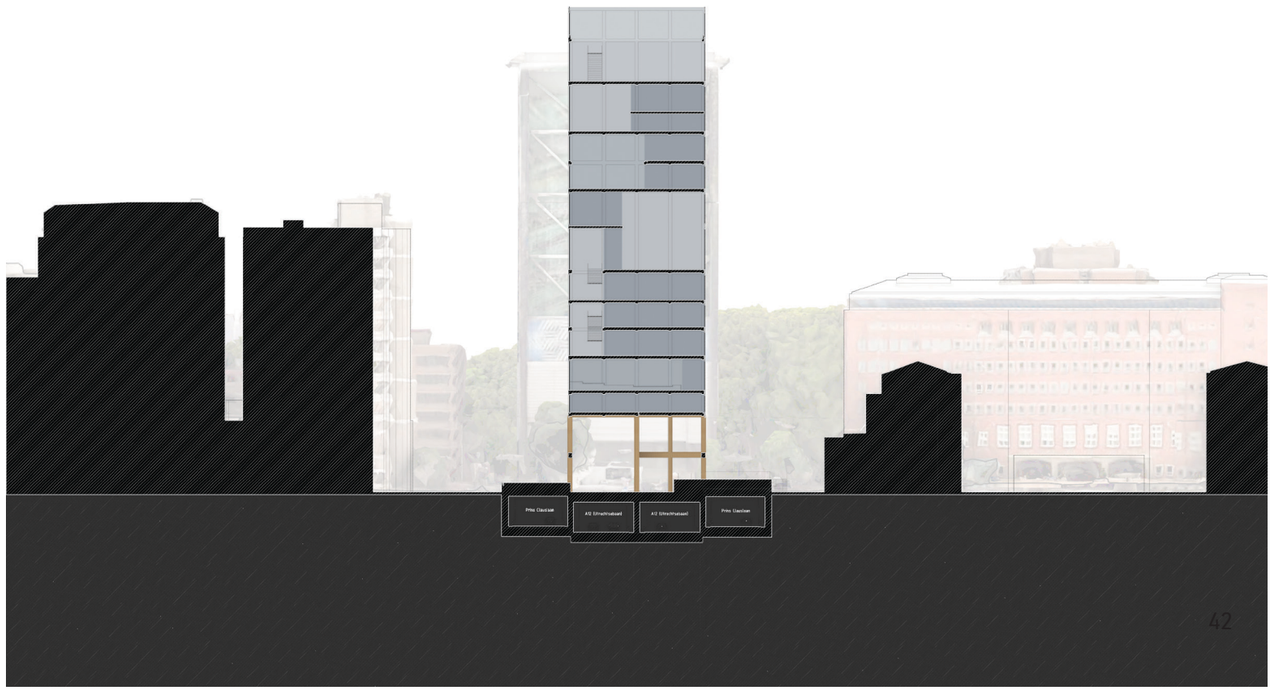


Section C - C

Connection to tweede kamer der staten generaal, train station, University of Leiden...

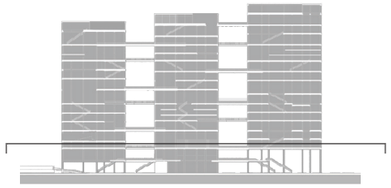
Section C1 - C1

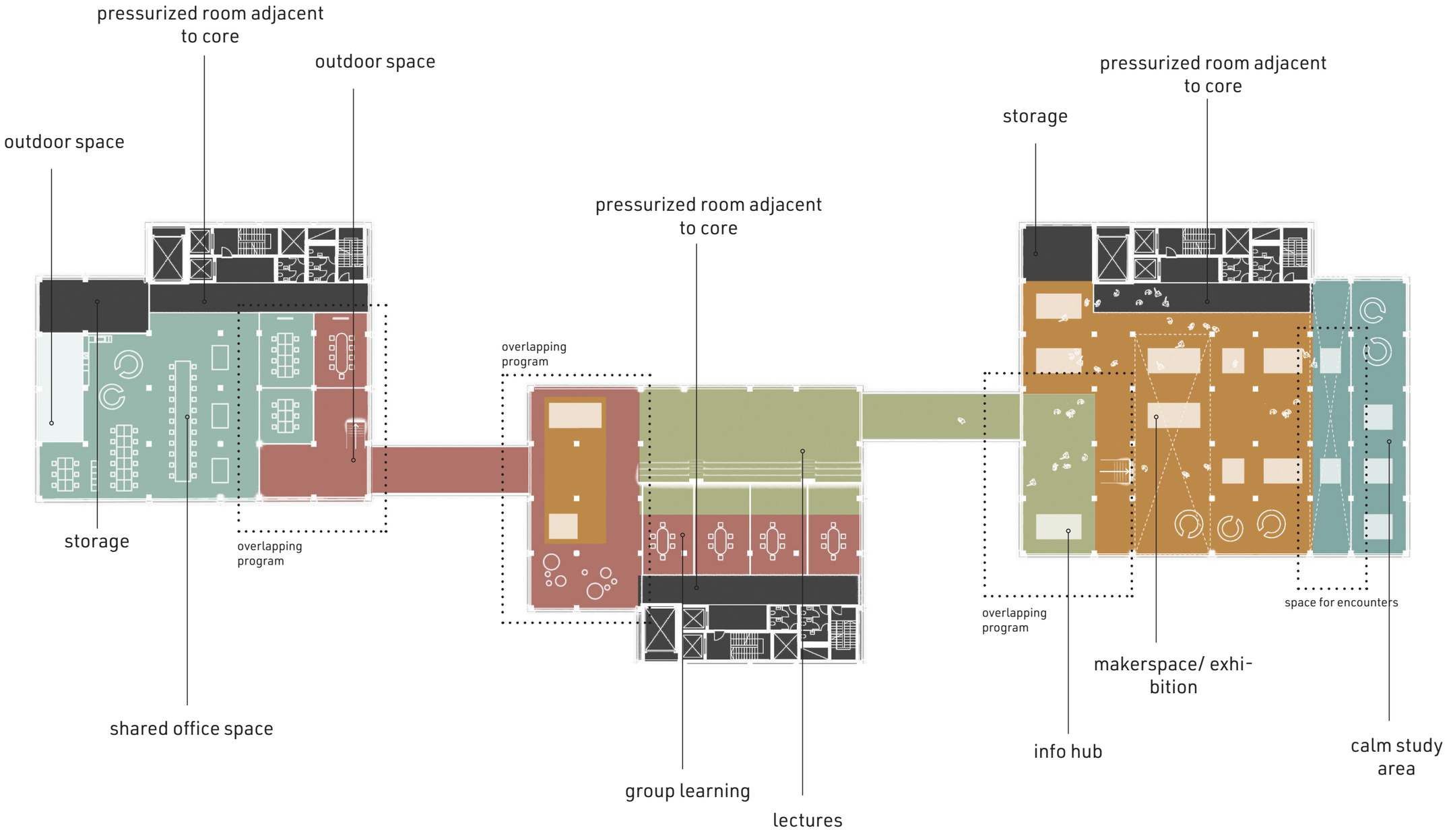
Connection to the park, business associations, justice association, environmental agency...



SHARING AND DISCOVERY:

LAYOUT EXAMPLE

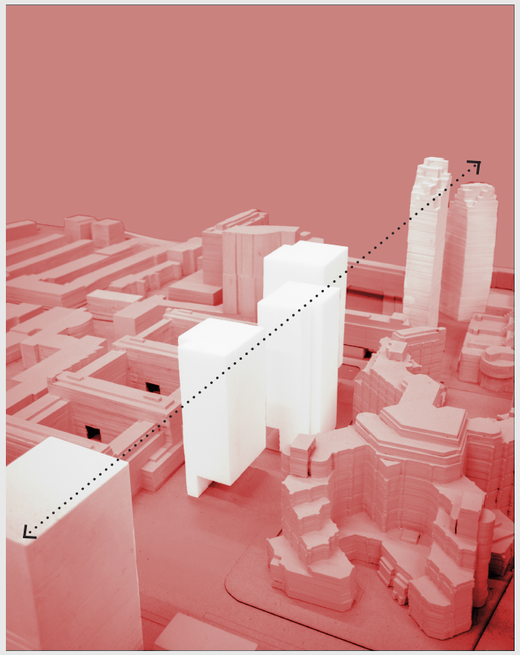




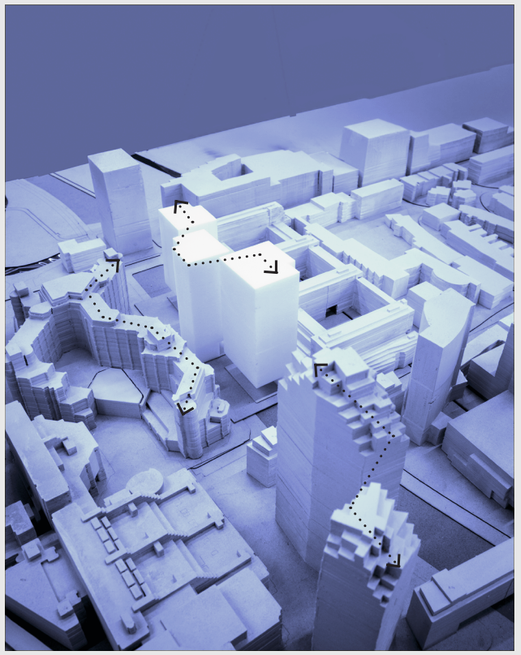
ELEVATION

HORIZONTAL AND VERTICAL NETWORK OF LEARNING

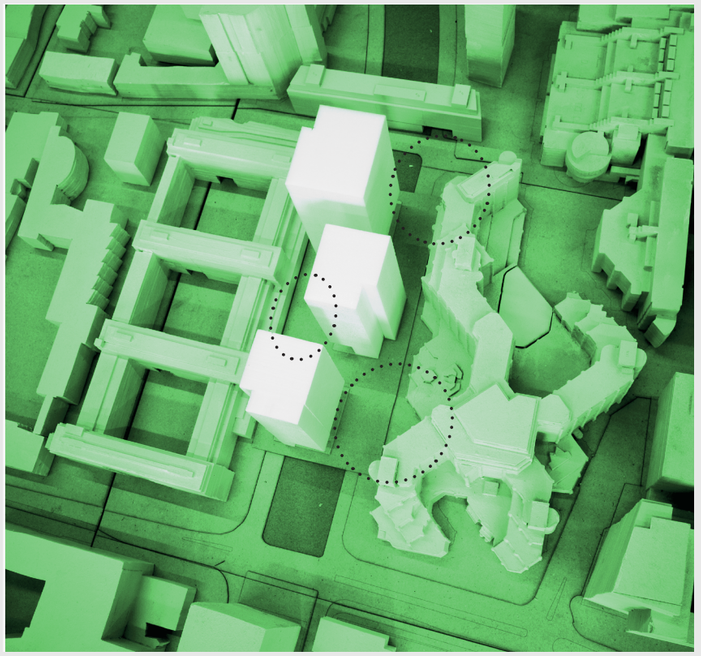
OVERVIEW: INTEGRATION INTO
THE CONTEXT



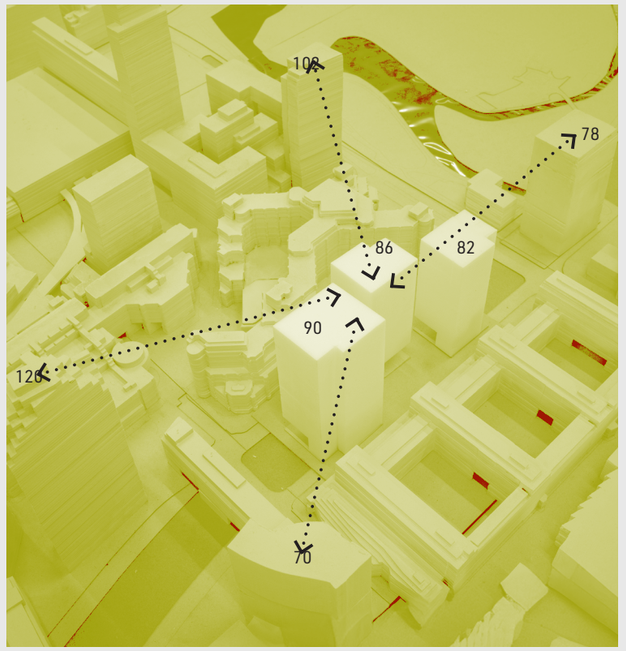
Reference to buildings next or above the highway.



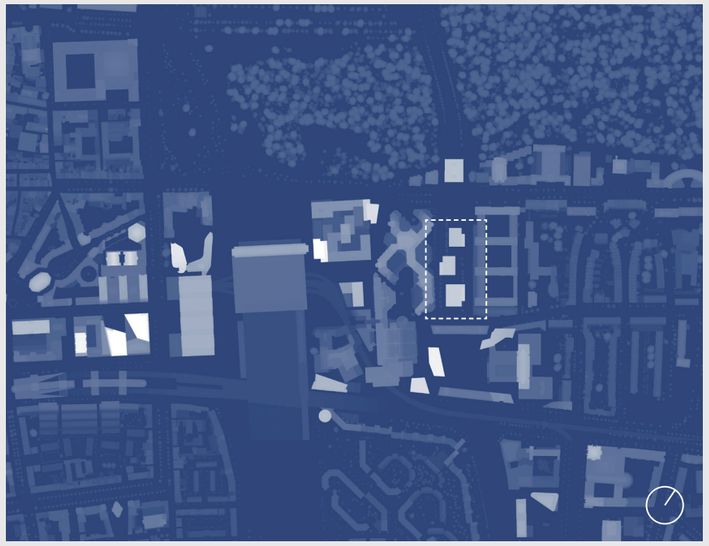
Shift as reference to neighbouring buildings.

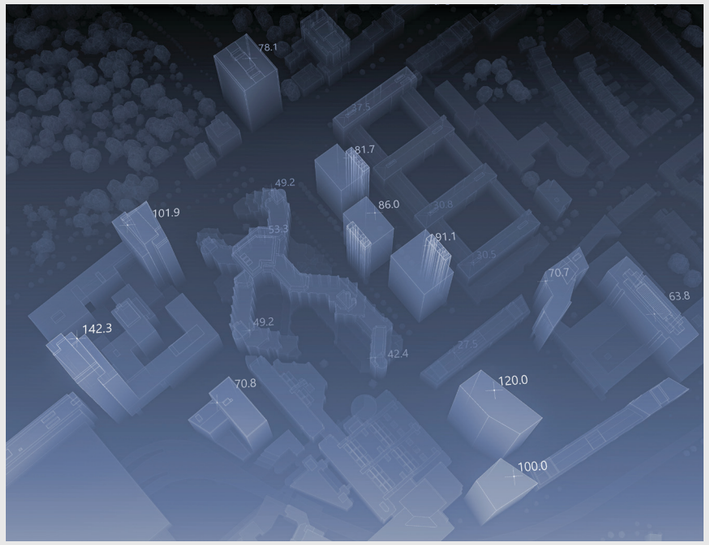


Shifting to achieve pockets with open spaces.



Similar hights in this area.

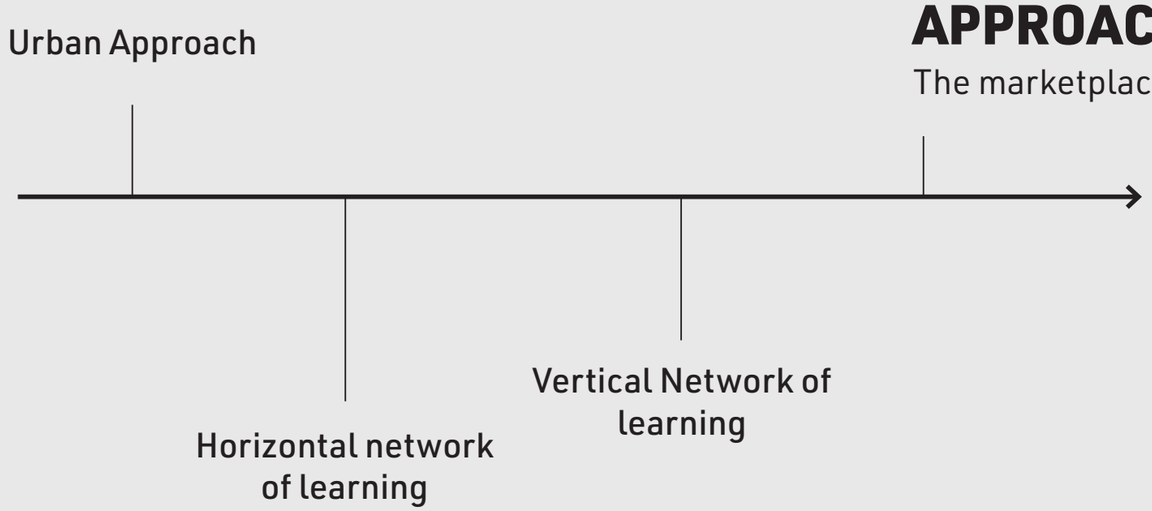




The Campus extends The Hagues High Rise Area towards north-east.

APPROACH AND USER EXPERIENCE

The marketplace where people and ideas intersect.



PERSONAS
THE FUTURE USERS

Linda Jansen, 52 years old

Motivation
achievement
personal growth
efficiency
convenience

Personality traits
introvert — extrovert
analytical — creative
sensing — intuition
passive — active

About me
I am a *teacher* at Hogeschool Inholland in the Hague. I have lived in The Hague my entire life.

Goals
By teaching my students I hope to not only teach them the required knowledge to graduate, but also fully prepare them for the workfield that is waiting for them.

Pain points
I often only do work related stuff at university, but when I do take a break, I like to go outside. I would probably do this more often if the square in front of our entrance was not so uninviting. The university does have a garden, but it is not easily accessible and therefore often left unused.

Gain points
The square could use more greenery and some coffee or food trailer. The garden should be easily accessible, and I also think connecting greenery and parks throughout the city would also cause people to connect more.

TEACHER

Sofia Bianchi, 25 years old

Motivation
achievement
personal growth
efficiency
convenience

Personality traits
introvert — extrovert
analytical — creative
sensing — intuition
passive — active

About me
I am an *international business student* at Hogeschool Inholland in the Hague. I live in The Hague, but I grew up in *Italy* where I graduated from my bachelors.

Goals
After my masters I would love to stay in the Netherlands and find a job here. I appreciate the structure and calmness this country offers unlike Italy.

Pain points
Being a busy student I value the breaks we get during lectures. However, my university does not offer a qualitative outside space to properly enjoy. For example, the square in front of the entrance is grey and boring, there are only few seating areas, and no shelters. Because of this, I spend most of my breaks away from university, sometimes going to de Spui.

Gain points
My university would gain and have more time spent at if they were to redesign the square so that it would be more attractive to stay at. For example, adding greenery, seating areas, and shelters.

STUDENT

Robin de Jong, 38 years old

Motivation
achievement
personal growth
efficiency
convenience

Personality traits
introvert — extrovert
analytical — creative
sensing — intuition
passive — active

About me
I work for the *Ministry Of Agriculture.* I live in Rotterdam.

Goals
The goal of our Ministry is to ensure good prospects for the Dutch farming, horticulture and fishing sectors, which are renowned worldwide for producing good-quality food that is safe and affordable. We want to restore and maintain natural areas.

Pain points
Public transportation is very busy as it is right now. An increased number of commuters using public transportation would result in a more crowded train or bus for me on my way to work.

Gain points
Building a campus vertically means it reserves only a small footprint in the city. This saves space to maintain natural areas. Also, I think there might be opportunities for cooperation with an educational institution to show students the importance of agriculture.

POLITITIAN

Peter van Dam, 45 years old

Motivation
achievement
personal growth
efficiency
convenience

Personality traits
introvert — extrovert
analytical — creative
sensing — intuition
passive — active

About me
I work as a *train conductor* for NS. I live in Dordrecht, but I travel to the Hague Central Station multiple times a day.

Goals
The goal of NS is for our passengers to be able to go where they want, as comfortably as possible. We see travel time as time gained. Time that you can use as you wish: to have a conversation, work, study, rest or to reflect on your day.

Pain points
NS is currently struggling with a shortage of staff. A new educational institution would presumably increase the number of commuters, which means NS might have to employ more staff.

Gain points
A new university, bringing together students from multiple educational institutions, means that there will probably be more train traffic towards the Hague Central Station. Also, I think such an innovative campus might even attract more tourists.

NS WORKER

Martin van Dijk, 34 years old

Motivation
achievement
personal growth
efficiency
convenience

Personality traits
introvert — extrovert
analytical — creative
sensing — intuition
passive — active

About me
I am a *father* of two daughters, 6 and 8, and together with my wife we live in the Hague, where I also grew up myself. I work at a *contractor* in the city.

Goals
I want for our children to be able to attend primary school and visit playgrounds in a save environment. Regarding myself, I want to keep working my job to provide for my family.

Pain points
My family and I live in a rented house. A new educational institution would mean more students looking for housing in The Hague, so a higher demand, which means that probably our rent would increase.

Gain points
A new educational insitution would give our children more options to explore in the area once they are ready for high school or university.

RESIDENT / FAMILY

Linda Visser, 48 years old

Motivation
achievement
personal growth
efficiency
convenience

Personality traits
introvert — extrovert
analytical — creative
sensing — intuition
passive — active

About me
I work for an *investment company* in the neighbourhood of The Hague Central Station and I live in The Hague.

Goals
Every month our team has a few meetings in conference center New Babylon. Our goal is to keep this going and get other offices to do the same. I think the occupancy rate of buildings in this area would be much higher if such spaces would be shared more.

Pain points
A lot of office buildings in the area are only partly occupied during the week, there is a lot of unused office space.

Gain points
A new educational insitution would offer opportunities for some offices to move and settle there, so that in buildings left unused new investments can be made.

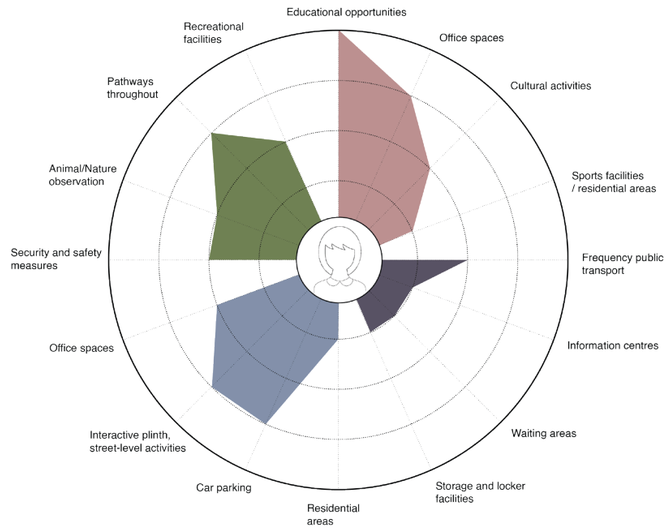
OFFICE WORKER

USERS ANALYSIS
BUTTERFLY DIAGRAMS

GREEN SITE AREA

TEACHER

CAMPUS



URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

STUDENT

CAMPUS

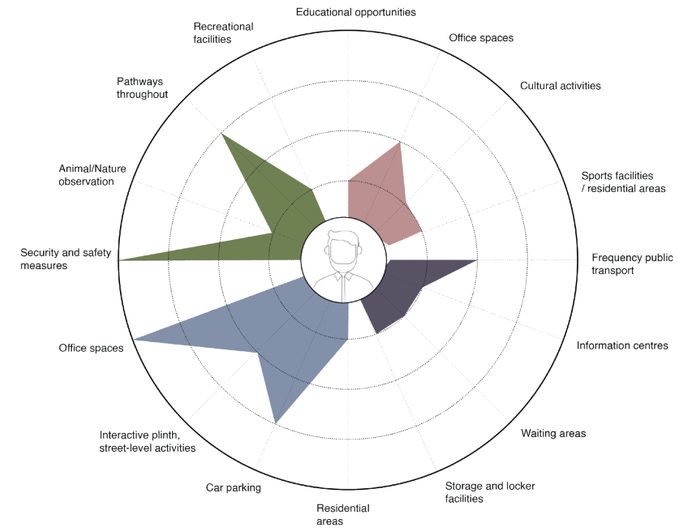
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

POLITITIAN

CAMPUS



URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

NS WORKER

CAMPUS

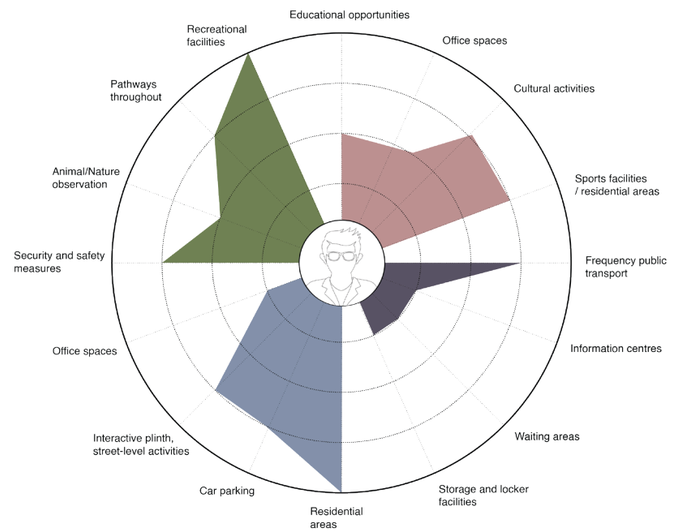
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

RESIDENT/ FAMILY

CAMPUS



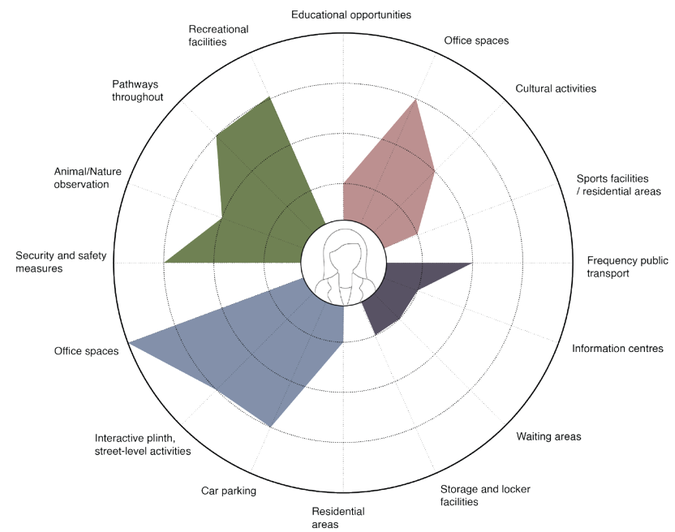
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

OFFICE WORKER

CAMPUS



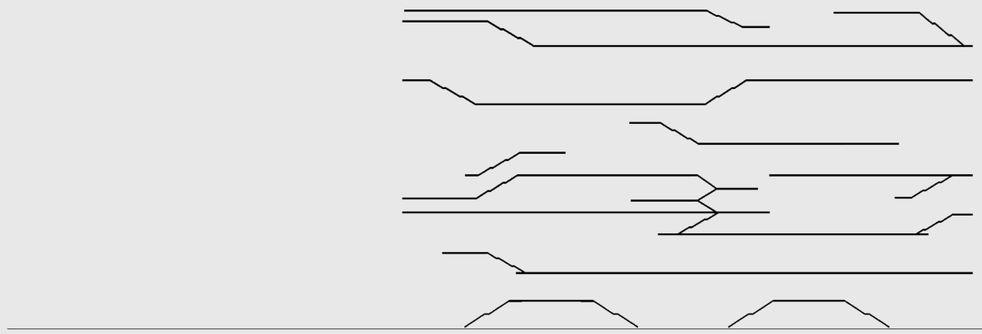
URBAN SITE AREA

DEN HAAG CS

Meet Alex

Alex de Jong represents a typical student at a university in The Hague, a city celebrated for its vibrant tech scene. At 22 years old, Alex is a third-year student pursuing a Bachelor of Science in Computer Science. Despite being somewhat introverted, Alex embodies a curiosity and eagerness to engage with new technologies. With his analytical mindset, he thrives on solving complex problems and is meticulous in his project work. His academic pursuits focus on artificial intelligence and machine learning, with active participation in coding bootcamps and hackathons aimed at developing sustainable software solutions.

The university campus serves as a dynamic environment that helps Alex broaden his horizons and discover unforeseen passions, particularly through its effective use of space which promotes interaction among students. This setting is crucial for someone like Alex, who, while introverted, values collaborative projects and teamwork. He regularly attends tech meetups and engages in university social events, which fosters his involvement in the tech community. The campus design, illustrated by the conceptual paths through the university, facilitates these interactions, enabling students to connect with others they might not otherwise meet, thus enriching their educational experience and social life.



Alex de Jong (22)

Study: BSc in **Computer Science**, 3rd Year

Traits: analytical, organized, **introvert**

Interests: AI, **machine learning**, Programming languages

Activities: **Robotics club**, teaches coding, enjoys cycling

Career Goals: **Tech startup** in AI, further studies in data science

Social: Teamwork, tech meetups, **not much time** besides university

Languages: Dutch (fluent), English (fluent), German (basic)

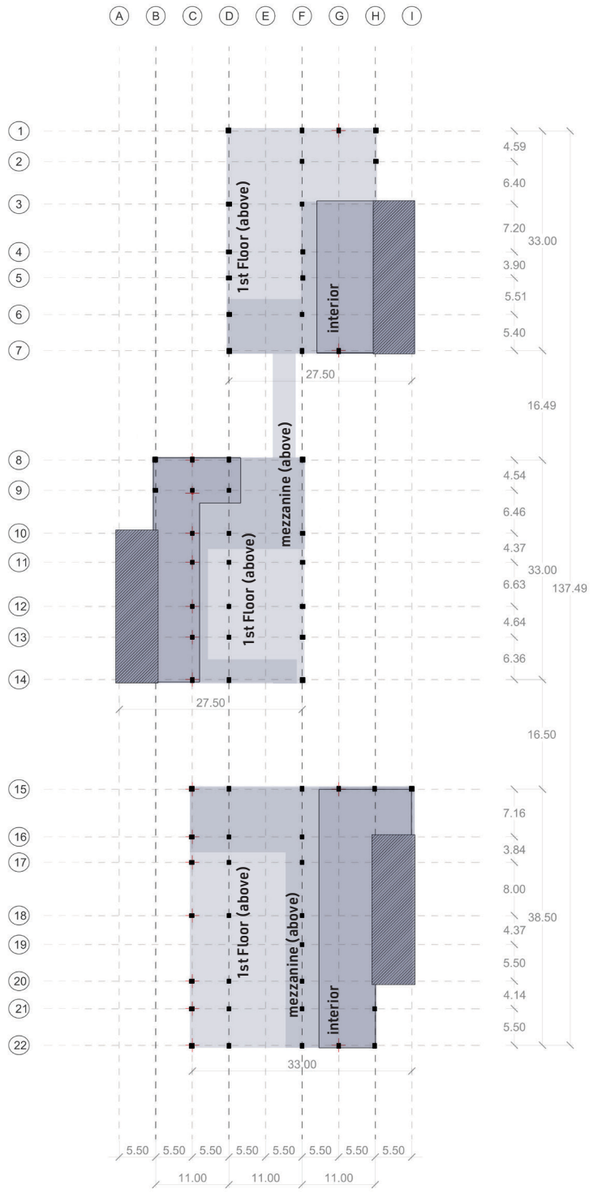
Alex (not to scale)

TIME: 9:00

ARRIVING AT THE

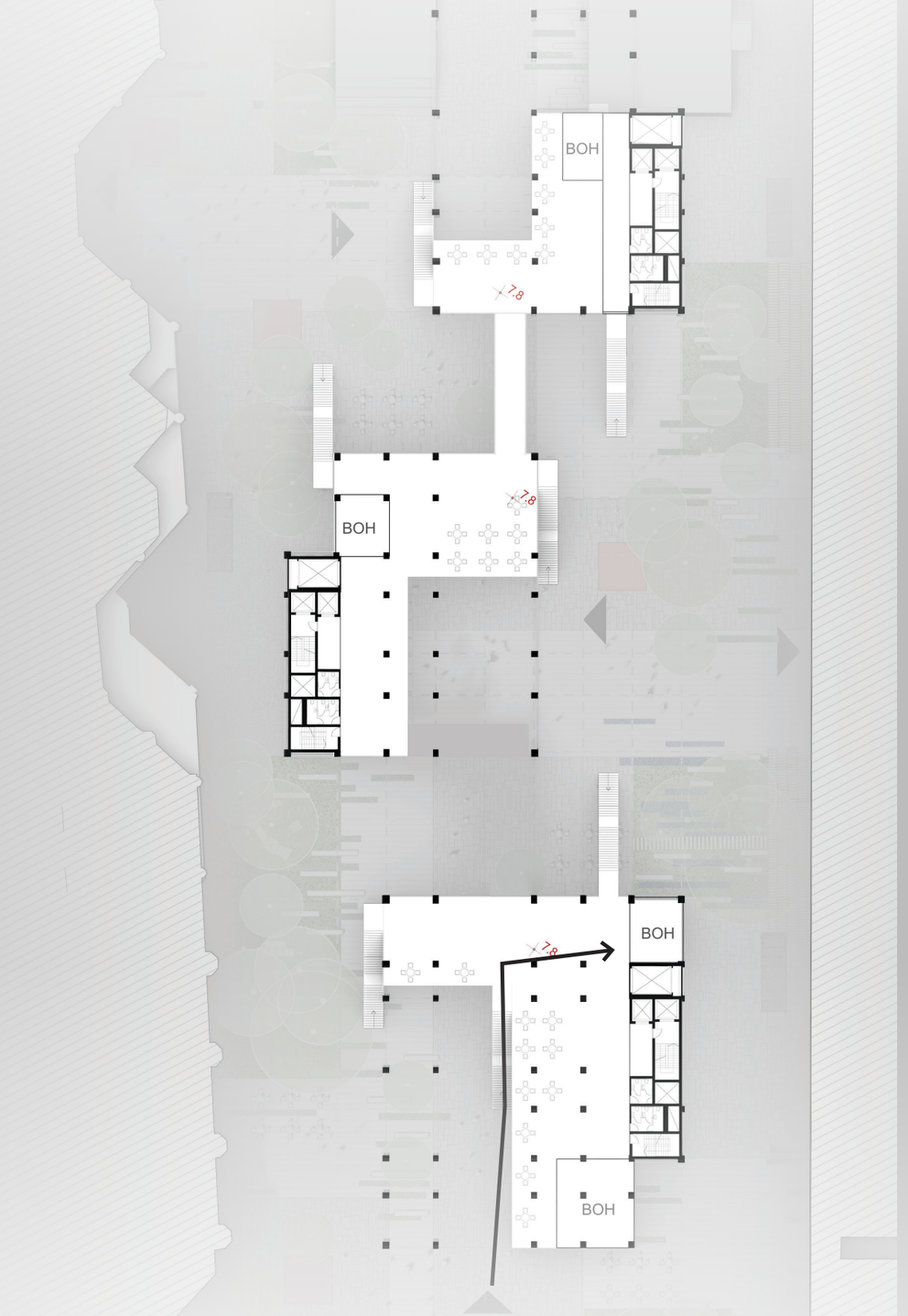
MAIN ENTRANCE..

The retraction from the mezzanine level and the interior space towards the core which itself it set off to the sid results in a fluid transition from outside to inside.



TIME: 9:00

GOING FOR COFFEE..



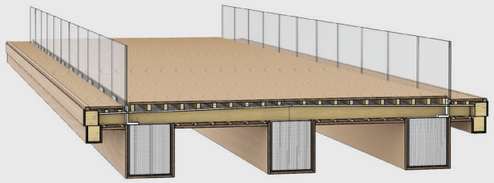
TIME: 9:10

ENDED UP JOINING A POLITICAL DEBATE

TIME: 9:25

THE FORUM PLAZA

The protagonist, Alex, encounters a public discussion about the implications of digital surveillance on human rights, held at the ground level in front of Tower Two. Initially indifferent due to his primary focus on computer science rather than political topics, he stops to listen for a few minutes. Although the debate is not directly related to his field of artificial intelligence and machine learning, it touches on concerns about privacy and data usage—areas that are tangentially connected to his studies. Intrigued by this broader perspective, Alex considers the potential overlaps with his own work and thinks about joining the discussion next time to explore how these broader issues might impact his field.



BEFORE
v.s.
AFTER

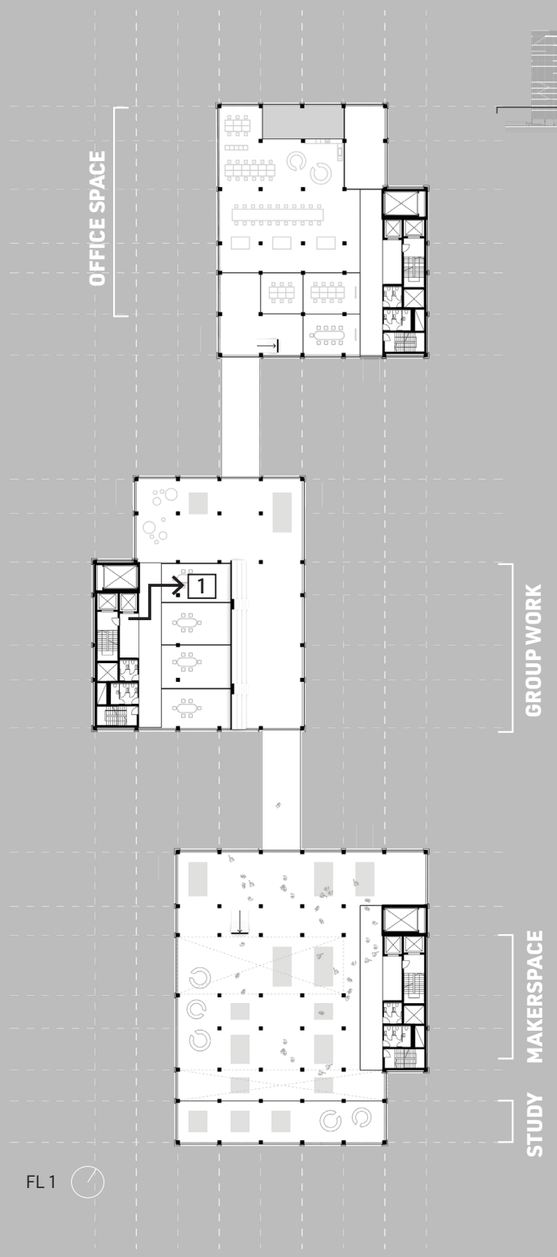
TIME: 9:30

LATE FOR GROUP WORK

FL1 (left)
Alex arrives a bit late to his **GROUP WORK (1)** in the dedicated meeting rooms in Tower Two.

FL2 (right)
After deciding to work on one of his coding projects, Alex headed to his favorite spot–a calm **STUDY (2)** area with better sound insulation. To get there, he crossed an interior bridge 3), which offered a view into an exhibition space (4) displaying prototyping results from the adjacent maker lab. This view from the bridge represents the critical "**MARKETPLACE MOMENT**" where various intentions and programs intersect in a shared space.

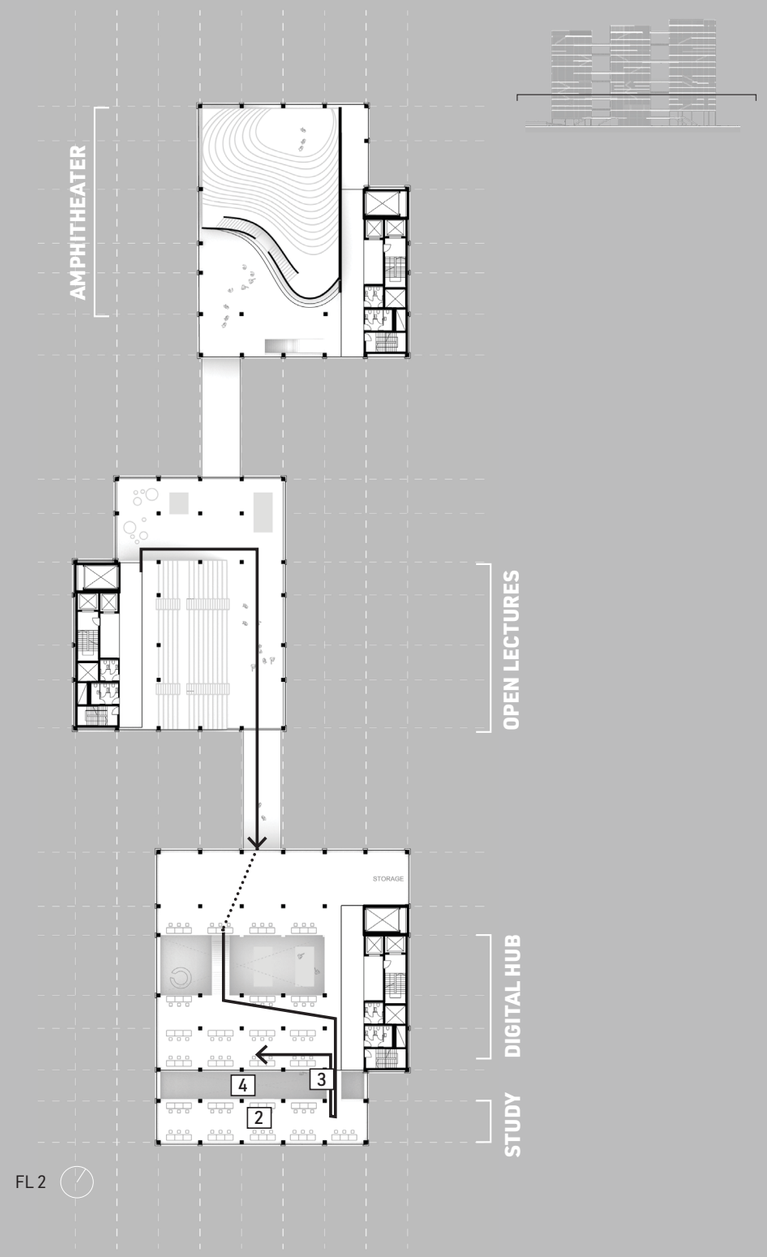
Intrigued by the displays, Alex resolved to take a closer look at the exhibition after finishing his project. This spontaneous interaction underscored the importance of such open spaces in promoting collaborative learning and connection within the university setting.



TIME: 13:00

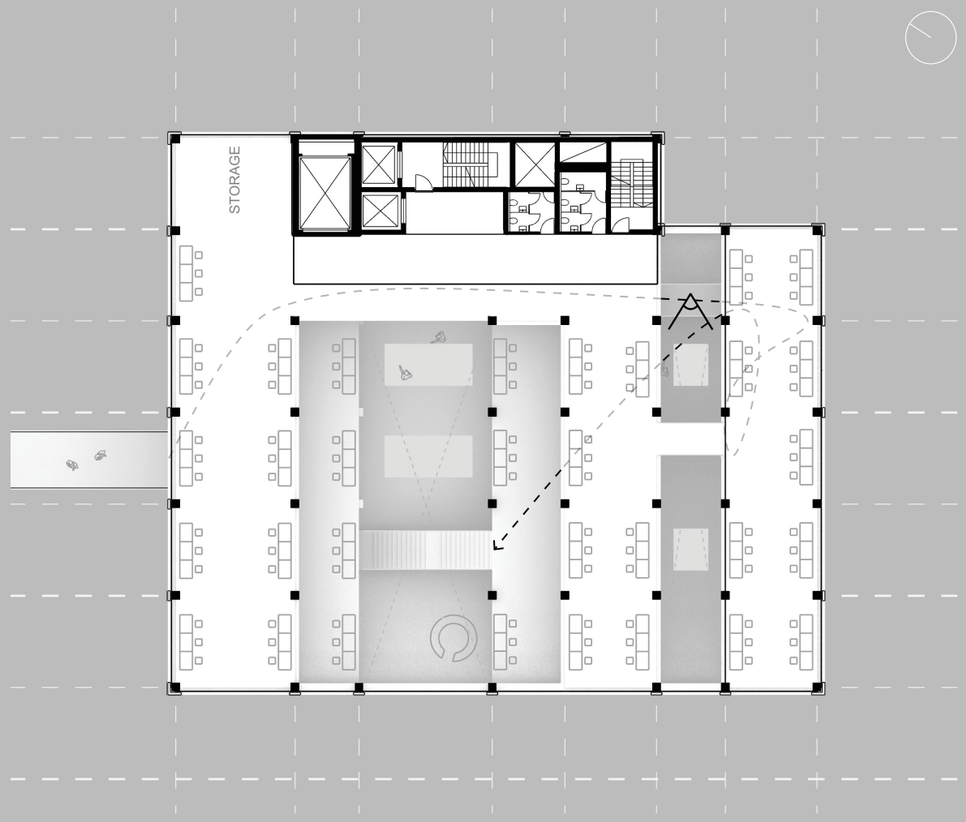
WENT TO STUDY

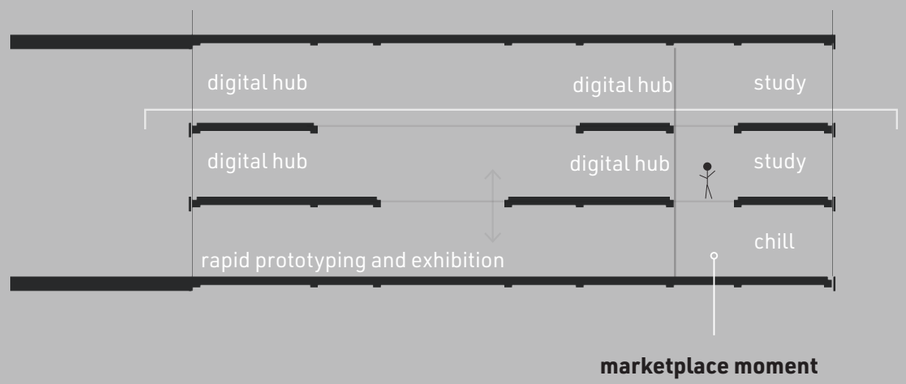
ENDED UP PROTOTYPING



SHARING AND DISCOVERY:

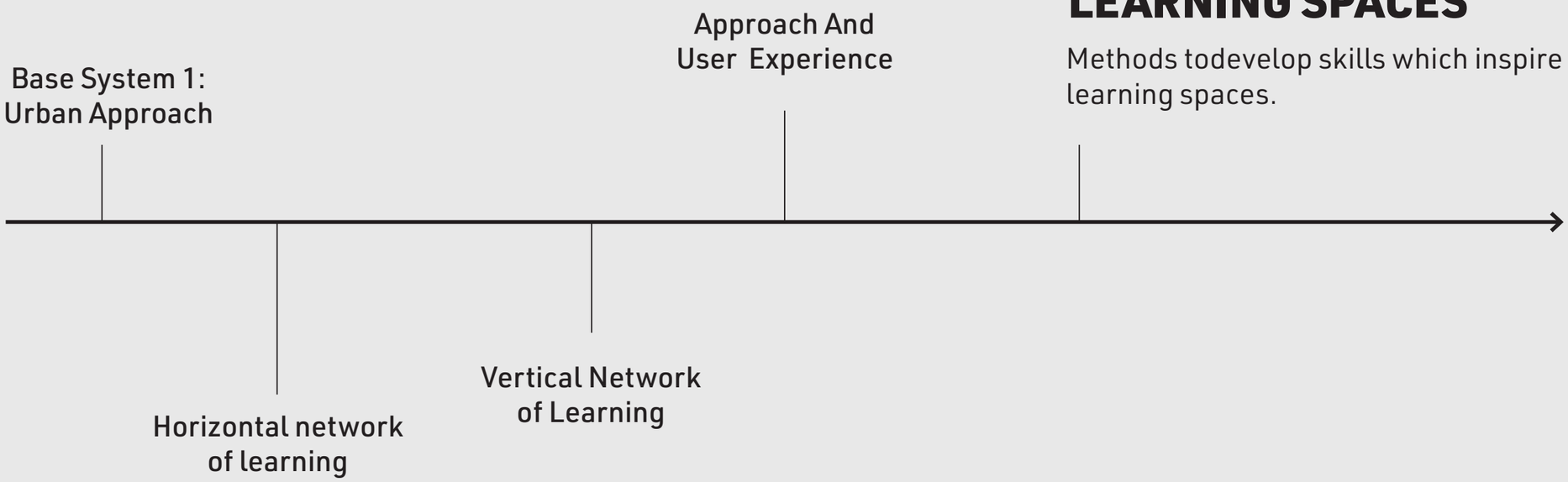
THE MARKETPLACE MOMENT





LEARNING METHODS TO LEARNING SPACES

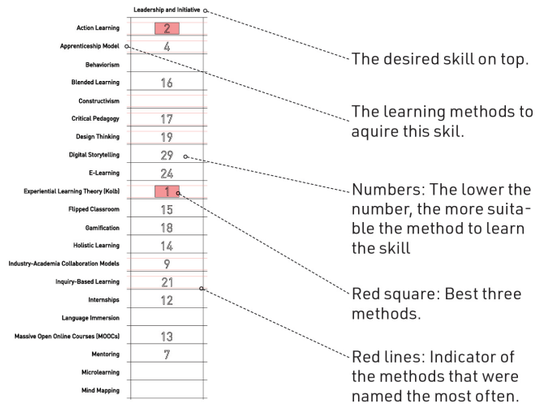
Methods todevelop skills which inspire learning spaces.



LEARNING METHODS TRANSLATED INTO LEARNING SPACES

This table shows an evaluation of learning methods to develop the required skills in graduate students. Initially, the methods are assessed, and subsequently, the best-performing ones are selected to create learning spaces based on these theories.

Further Explanation can be found in Booklet A1.



skills (that graduate students need)

learning methods

	Critical Thinking	Problem-Solving	Communication Proficiency	Teamwork	Adaptability	Information Literacy	Creativity and Innovation	Digital Literacy	Global Awareness	Leadership and Initiative	Ethical Responsibility	Life-Long Learning	Emotional Intelligence	Practical Skills	Research Proficiency	Time Management	Resilience	Problem Identification	Cultural Competence	Public Speaking	Data Analysis	Technical Skills	Networking	Initiative	Project Management	Environmental Awareness	Conflict Resolution	Interdisciplinary Thinking
Action Learning	6	4	6	5	4	6	4	10	6	2	4	7	5	3	6	1	2	4	4	2	4	4	8	8	3	4	4	7
Apprenticeship Model	10	9	13	3	11	7	9	18	3	4	6	10	4	2	9	4	8	11	10	8	10	5	2	5	1	11		16
Behaviorism	22						28						29													23		
Blended Learning	17	15	19	18	15	16	14	2	13	16	17	18	14	16	11	16	10	13	16	17	15	19	17	21	12	25	19	10
Constructivism	8		2					12			12	1	2	13	4	4	5	8	2	13	6	17	22	3	22	22	7	1
Critical Pedagogy	7	7	10	27	8	4	7	27	17	17	3	9	10	24	23	11	7	7	5	11	9	14	13	14	17	10	6	9
Design Thinking	5	1		14	6		1	20		19		4		15	8			1			7		28	4	15	18		4
Digital Storytelling	28	21	29	26		22	19	6	26	29	25	28	26	29	22	25	25	25	28			25			14	17	22	28
E-Learning	21	18	20	20	17	15	16	1	14	24	18	17	20	17	20	18	21	27	18	24	17	20	18	27	11	26	18	23
Experiential Learning Theory (Kolb)	4	3	3	1	1	5	5	13	1	1	2	2	1	1	5	5	1	6	3	1	1	1	6	2	4	1	1	2
Flipped Classroom	26	17		28	14	19	26		18	15	23	21	13	20	12	7	19	12	19	16	22	23	23	20			17	11
Gamification		22	24	15	22	25	22	23	25	18	24	24	23	21	29	27	23	10	24	26	21	24	27	12	23	19	23	24
Holistic Learning	16	27		29	23	20	17	29	23	14	21	14	12	23	25	9	22	19	9	19	12		21	23	7	9	16	21
Industry-Academia Collaboration Models	23	10	15	11	13	11	12	19	4	9	7	11	16	9	10	22	9	15	11	15	11	9	1	19	6	13	12	15
Inquiry-Based Learning	3	6	9			1	6	15	27	21	13	8	9	25	3	12	13	5	29	10	5	16	14	13	16	7	5	8
Internships		14	17	13	12			25	9	12	15	13	18	8	16		16	17	13	21	14	10	3	17	5	15	14	
Language Immersion	26		27	24	24	24	20		10		27	26	25	27	24	23	27	23	21	28	28	26		29	28	20	26	
Massive Open Online Courses (MOOCs)	18	16	22	19	16	17	13	3	15	13	20	16	19	18	14	17	18	18	17	23	16	22	20	18	18	27	20	20
Mentoring	13		14	9		12			22	7	9	29		11		14	12	22	14	9	27	12	4	10		12	10	17
Microlearning		29				28							28								25	29	26		26		28	
Mind Mapping	27	28	28	25	27	23	21	28	28		29	27	27	28	26	29	28	24	27	29		27	29		27		27	27
Mindfulness Training					26	29	27			26	26				28	10	29		26					24	29	24		29
Mobile Learning		20	23					5		27				22		26		26		25				22				
Montessori Method	25	25	12	16	25	21	24	26	24	25	28	25	24	26		24			25			8					29	26
Online Tutorials	19	19	21	21	19	14	15	4	19	28	19	19	21	19	13	19	17	28		22	18	21	19	25	21	28	21	19
Peer Coaching	12		8	10	29	13		22	21	8	10		6	12	18	8	11	21	15	3	24	13	5	11	25	16	11	18
Peer Learning	11		7	8	28		29	21	20	23					18	28					23		25	9	24		9	12
Problem-Based Learning	1	3	4	6	2	2	2	8	16	5	3	5	7	5	1	2	3	2	7	5	2	2	10	6	19	2	2	5
Project-Based Learning	2	2	5	4	3	3	3	9	5	3	8	6	8	4	2	3	4	3	6	4	3	3	7	7	2	3	3	6
Service Learning	14	8	11	7	9	9	10	16	7	10	5	15	11	10	27	13	14	20	18	12	26	15	15	15	8	6	15	13

Extended version on next pages

	Critical Thinking	Problem-Solving	Communication Proficiency	Teamwork	Adaptability	Information Literacy	Creativity and Innovation	Digital Literacy	Global Awareness	Leadership and Initiative	Ethical Responsibility	Life-Long Learning	Emotional Intelligence	Practical Skills
Action Learning	6	4	6	5	4	6	4	10	6	2	4	7	5	3
Apprenticeship Model	10	9	13	3	11	7	9	18	3	4	6	10	4	2
Behaviorism	22						28						29	
Blended Learning	17	15	19	18	15	16	14	2	13	16	17	18	14	16
Constructivism	8		2					12			12	1	2	13
Critical Pedagogy	7	7	10	27	8	4	7	27	17	17	1	9	10	24
Design Thinking	5	1		14	6		1	20		19		4		15
Digital Storytelling	28	21	29	26		22	19	6	26	29	25	28	26	29
E-Learning	21	18	20	20	17	15	16	1	14	24	18	17	20	17
Experiential Learning Theory (Kolb)	4	5	3	1	1	5	5	13	1	1	2	2	1	1
Flipped Classroom	24	17		28	14	19	26		18	15	23	21	13	20
Gamification		22	24	15	22	25	22	23	25	18	24	24	23	21
Holistic Learning	16	27		29	23	20	17	29	23	14	21	14	12	23
Industry-Academia Collaboration Models	23	10	15	11	13	11	12	19	4	9	7	11	16	9
Inquiry-Based Learning	3	6	9			1	6	15	27	21	13	8	9	25
Internships		14	17	13	12			25	9	12	15	13	18	8
Language Immersion	26		27	24	24	24	20		10		27	26	25	27
Massive Open Online Courses (MOOCs)	18	16	22	19	16	17	13	3	15	13	20	16	19	18
Mentoring	13		14	9		12			22	7	9	29		11
Microlearning		29				28							28	
Mind Mapping	27	28	28	25	27	23	21	28	28		29	27	27	28
Mindfulness Training					26	29	27			26	26			
Mobile Learning		20	23					5		27				22
Montessori Method	25	25	12	16	25	21	24	26	24	25	28	25	24	26
Online Tutorials	19	19	21	21	19	14	15	4	19	28	19	19	21	19
Peer Coaching	12		8	10	29	13		22	21	8	10		6	12
Peer Learning	11		7	8	28		29	21	20	23				
Problem-Based Learning	1	3	4	6	2	2	2	8	16	5	3	5	7	5
Project-Based Learning	2	2	5	4	3	3	3	9	5	3	8	6	8	4
Service Learning	14	8	11	7	9	9	10	16	7	10	5	15	11	10
Simulated Environments	29	24	25	22	20	26	18	11	29	20	22	22	22	6
Socio-Cultural Theory (Vygotsky)	9	11	1	2	7	8	8	14	2	6	11	3	3	14
Traditional Classroom Learning	20	26	18	17	18	18	25	24	12	22	16	20	15	
Virtual Reality (VR) Learning		23	26	23	21	27	23	7				23		
Work-Integrated Learning (WIL)	15	13	16	12	10	10	11	17	8	11	14	12	17	7

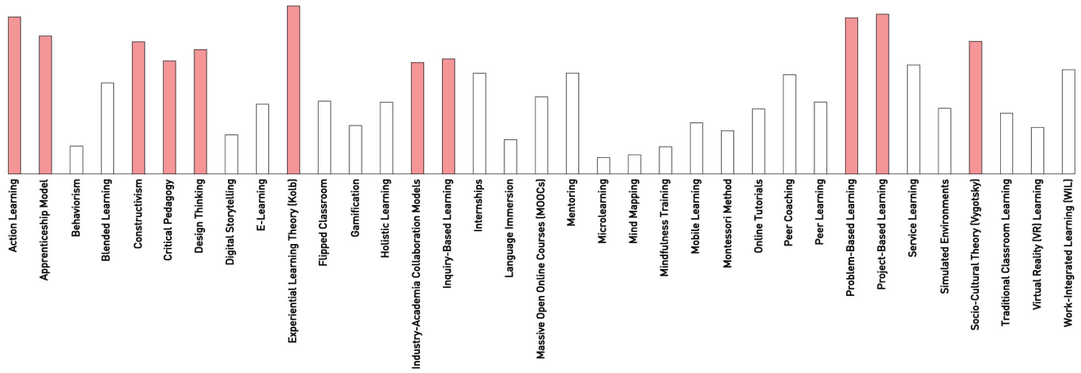
	Research Proficiency	Time Management	Resilience	Problem Identification	Cultural Competence	Public Speaking	Data Analysis	Technical Skills	Networking	Initiative	Project Management	Environmental Awareness	Conflict Resolution	Interdisciplinary Thinking
Action Learning	6	1	2	4	4	2	4	4	8	8	3	4	4	7
Apprenticeship Model	9	6	8	11	10	8	10	5	2	5	1	11		16
Behaviorism												23		
Blended Learning	11	16	10	13	16	17	15	19	17	21	12	25	19	10
Constructivism	4	4	5	8	2	13	6	17	22	1	22	22	7	1
Critical Pedagogy	23	11	7	7	5	11	9	14	13	14	17	10	6	9
Design Thinking	8			1			7		28	4	15	18		4
Digital Storytelling	22	25	25	25	28			25			14	17	22	28
E-Learning	20	18	21	27	18	24	17	20	18	27	11	26	18	23
Experiential Learning Theory (Kolb)	5	5	1	6	3	1	1	1	6	2	4	1	1	2
Flipped Classroom	12	7	19	12	19	16	22	23	23	20			17	11
Gamification	29	27	23	10	24	26	21	24	27	12	23	19	23	24
Holistic Learning	25	9	22	19	9	19	12		21	23	7	9	16	21
Industry-Academia Collaboration Models	10	22	9	15	11	15	11	9	1	19	6	13	12	15
Inquiry-Based Learning	3	12	13	5	29	10	5	16	14	13	16	7	5	8
Internships	16		16	17	13	21	14	10	3	17	5	15	14	
Language Immersion	24	23	27	23	21	28	28	26		29	28	20	26	
Massive Open Online Courses (MOOCs)	14	17	18	18	17	23	16	22	20	18	18	27	20	20
Mentoring		14	12	22	14	9	27	12	4	10		12	10	17
Microlearning							25	29	26		26		28	
Mind Mapping	26	29	28	24	27	29		27	29		27		27	27
Mindfulness Training	28	10	29		26					24	29	24		29
Mobile Learning		26		26		25				22				
Montessori Method		24			25			8					29	26
Online Tutorials	13	19	17	28		22	18	21	19	25	21	28	21	19
Peer Coaching	19	8	11	21	15	3	24	13	5	11	25	16	11	18
Peer Learning	18	28					23		25	9	24		9	12
Problem-Based Learning	1	2	3	2	7	5	2	2	10	6	19	2	2	5
Project-Based Learning	2	3	4	3	6	4	3	3	7	7	2	3	3	6
Service Learning	27	13	14	20	8	12	26	15	15	15	8	6	15	13
Simulated Environments	21	20	24	14	22		20	6	9	26	13	5	24	25
Socio-Cultural Theory (Vygotsky)	7	15	6	9	1	14	8	18	11	3	20	21	8	3
Traditional Classroom Learning	17		20		20	18	19	28	24	28	10	29		22
Virtual Reality (VR) Learning		21	26	29	23	27	29	7					25	
Work-Integrated Learning (WIL)	15		15	16	12	20	13	11	16	16	9	14	13	14

AN EXAMPLE

1. EVALUATION

	MENTIONS	AVERAGE
Action Learning	28	4.75
Apprenticeship Model	27	7.81
Behaviorism	4	25.5
Blended Learning	28	15.39
Constructivism	21	8.76
Critical Pedagogy	28	11.82
Design Thinking	17	10
Digital Storytelling	23	23.7
E-Learning	28	18.79
Experiential Learning Theory (Kolb)	28	3
Flipped Classroom	24	18.29
Gamification	27	22.22
Holistic Learning	26	18.46
Industry-Academia Collaboration Models	28	12.07
Inquiry-Based Learning	26	11.5
Internships	23	13.78
Language Immersion	23	24.48
Massive Open Online Courses (MOOCs)	28	17.61
Mentoring	21	13.76
Microlearning	8	27.38
Mind Mapping	24	26.92
Mindfulness Training	13	25.62
Mobile Learning	9	21.78
Montessori Method	19	23.05
Online Tutorials	27	19.56
Peer Coaching	25	14.04
Peer Learning	16	18.44
Problem-Based Learning	28	4.89
Project-Based Learning	28	4.32
Service Learning	28	12.46
Simulated Environments	27	19.44
Socio-Cultural Theory (Vygotsky)	28	8.68
Traditional Classroom Learning	24	20.25
Virtual Reality (VR) Learning	16	22.5
Work-Integrated Learning (WIL)	27	13.22

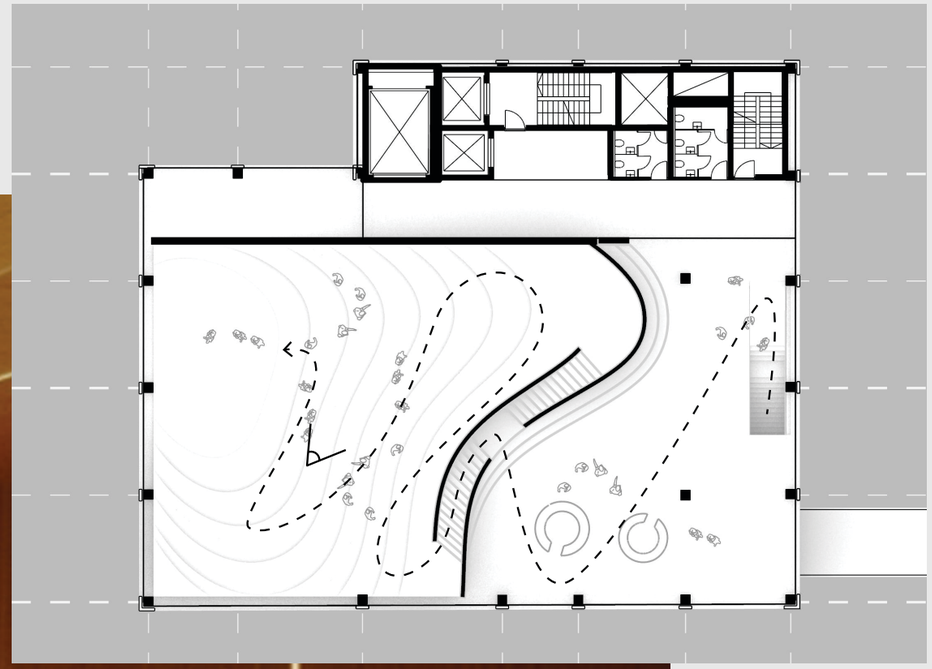
2. COMPARISION



3. CHOOSING SUITABLE METHOD BASED ON USER GROUP AND SKILLSET TO DEVELOP

	Critical Thinking	Problem-Solving	Communication Proficiency	Teamwork	Adaptability	Informatio
Project-Based Learning	2	2	5	4	3	
Service Learning	14	8	11	7	9	
Simulated Environments	29	24	25	22	20	
SOCIO-CULTURAL THEORY (VIGOTSKY)	9	11	1	2	7	
Traditional Classroom Learning	20	26	18	17	18	
Virtual Reality (VR) Learning		23	26	23	21	
Work-Integrated Learning (WIL)	15	13	16	12	10	

4. DESGN BASED ON THEORY OF THE METHOD (following pages)



THE CRITICAL FORUM

Sociocultural theory by Vygotsky
Embracing participation and initiative
Transition from “being a spectator” to “active participant”

VYGOTSKY:
ZONE OF PROXIMAL DEVELOPMENT

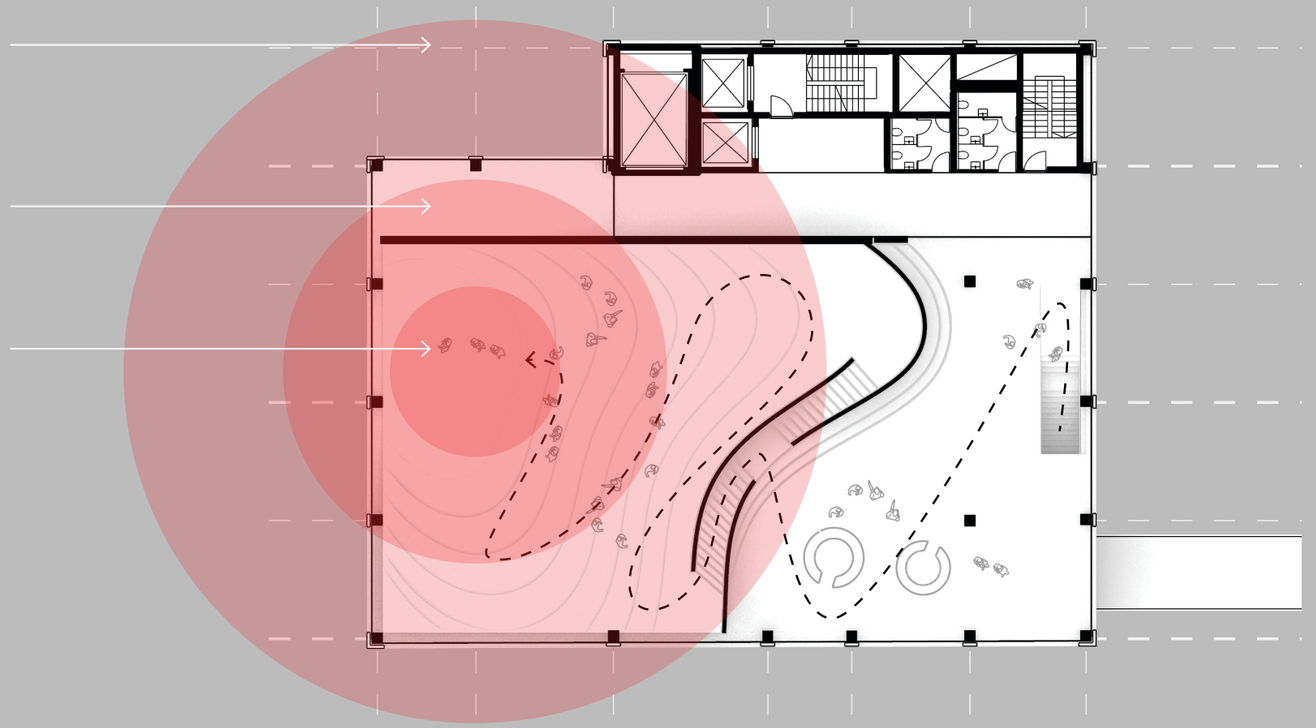
The design of an amphitheater, is based on Vygotsky's Sociocultural Theory. This theory underscores the importance of social interactions in cognitive development, suggesting that learning occurs through mediated relationships as individuals engage with cultural and institutional aspects of their environment. Key components of this theory, such as the More Knowledgeable Other (MKO) and the Zone of Proximal Development (ZPD), are depicted in the diagram. In the ZPD, learners can achieve higher cognitive functions under the guidance of someone more skilled.

The critical forum incorporates this principle in a spatial configuration where the focus—the person or people speaking on a topic—is placed in the center of the forum, representing the challenges the learner has yet to master. The outer areas of the forum provide a space for learners to observe the discussion without direct involvement. As a speaker gains confidence, they may choose to gradually move towards the center to actively participate in the discussion.

things that the learner already can do and is comfortable with

zone of proximal development (ZPD)

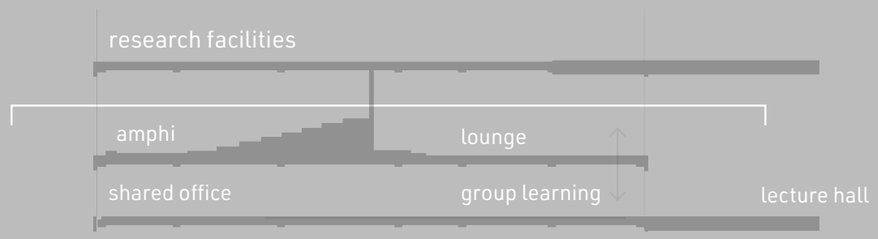
what the learner can not yet do but others can / the more knowledgeable other (MKO)



Critical Pedagogy: Emphasizes critical thinking and equality.
Sociocultural Theory (Vygotsky): Prioritizes dialogue and open discussions.
Description: An amphitheater-like setting designed to foster critical thinking and dialogue on societal issues, inspired by the principles of critical pedagogy.
Principle: Focused on empowerment and active participation.
Orientation: Semi-circular and inclusive to minimize hierarchy.

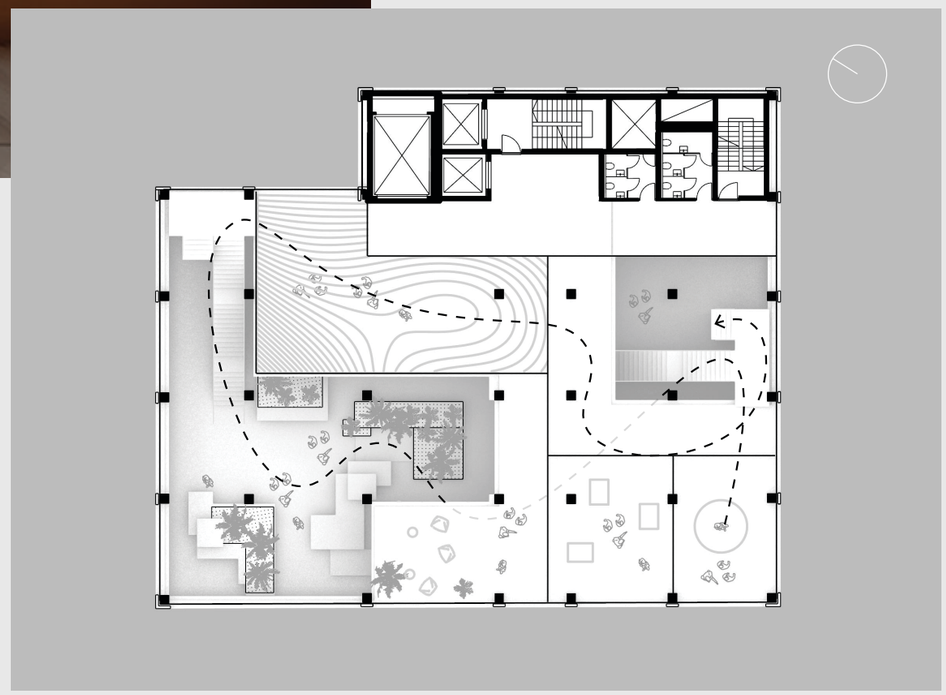
EXCELLS IN: Communication Proficiency, Teamwork (here: guidance/teaching others), Emotional Intelligence, Taking Initiative

NOT SUITABLE: Digital Literacy, Time Management, Technical Skills, Project Management



EXPERIENTIAL GARDENS

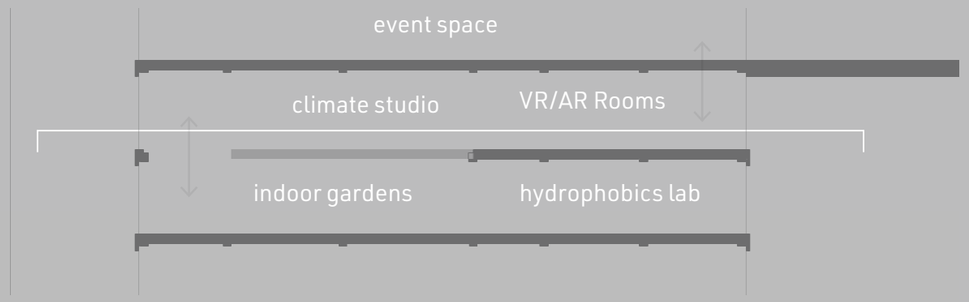
Experiential Theory by Kolb
Immersive Lab Studios with central group reflection space (gardens)

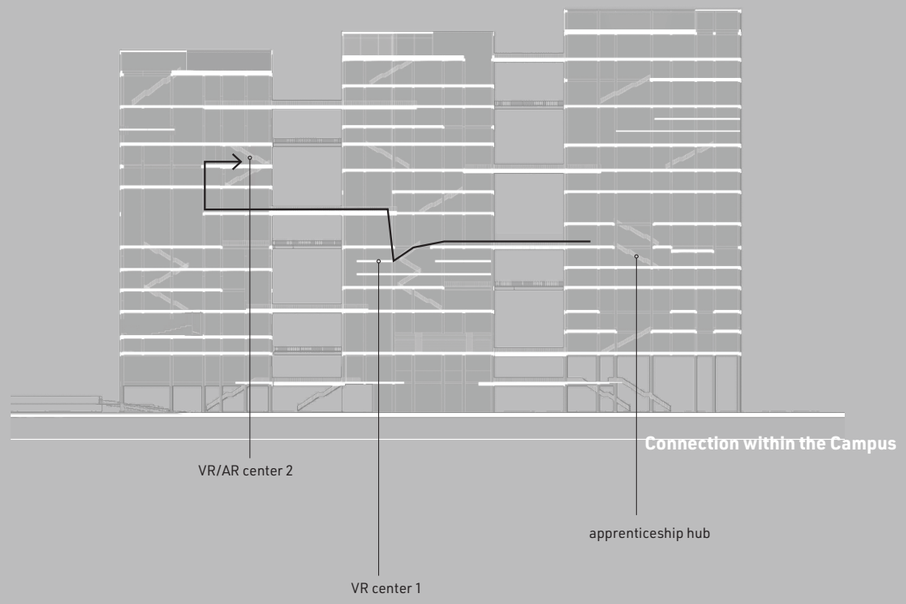


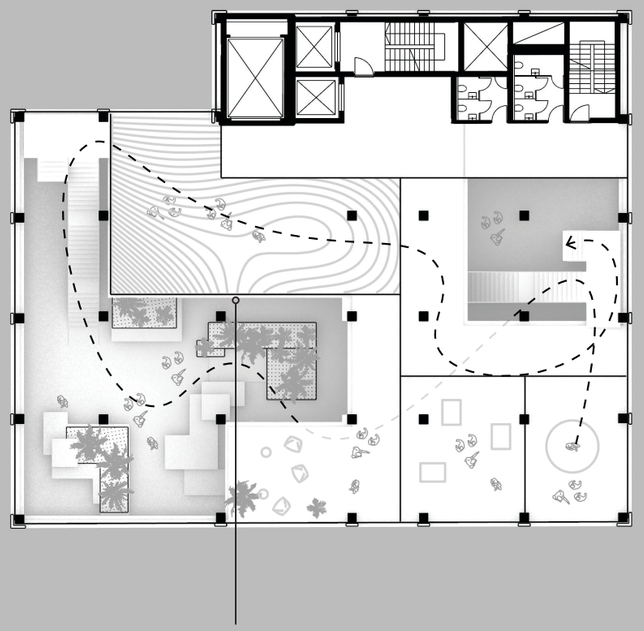
EXPERIENTAL GARDEN

This lab's design aligns with Kolb's theory of Experiential Learning, emphasizing sensory experiences and learning through deep immersion. The space is designed to facilitate sensory engagement, allowing learners to immerse themselves fully in interactive experiences.

Experiential Learning (Kolb) Sensory experiences and learning through immersion.
Description: A setting that offers sensory experiences, inspired by Kolb's experiential learning theory.
Principle: Experience
Orientation: Immersion

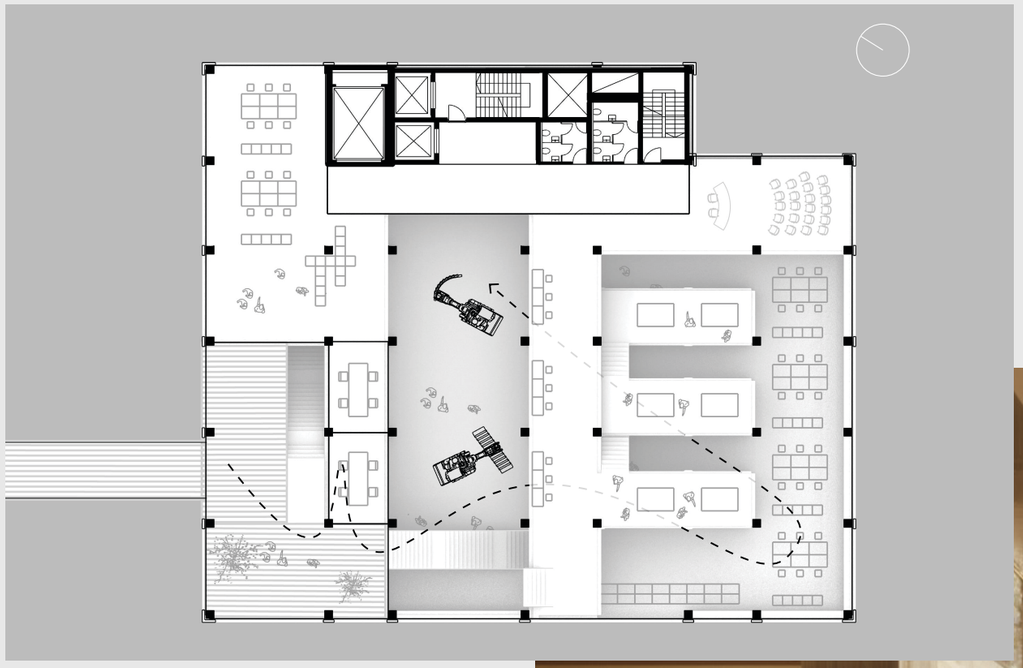






inwards focussed immersion

upening up the space

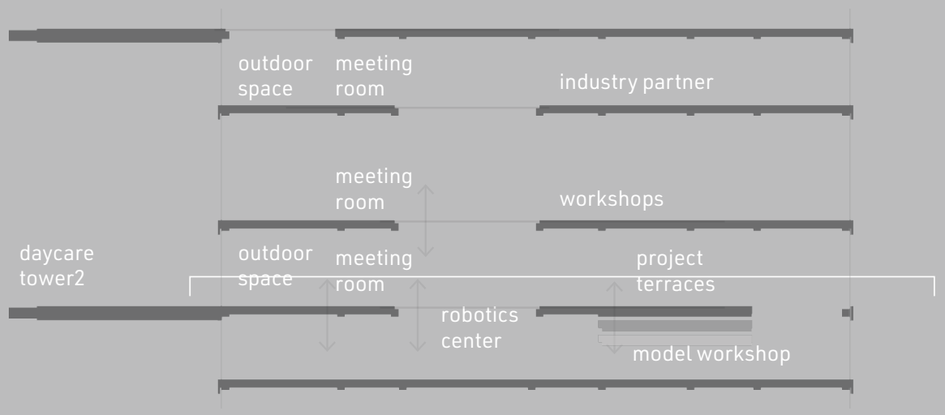


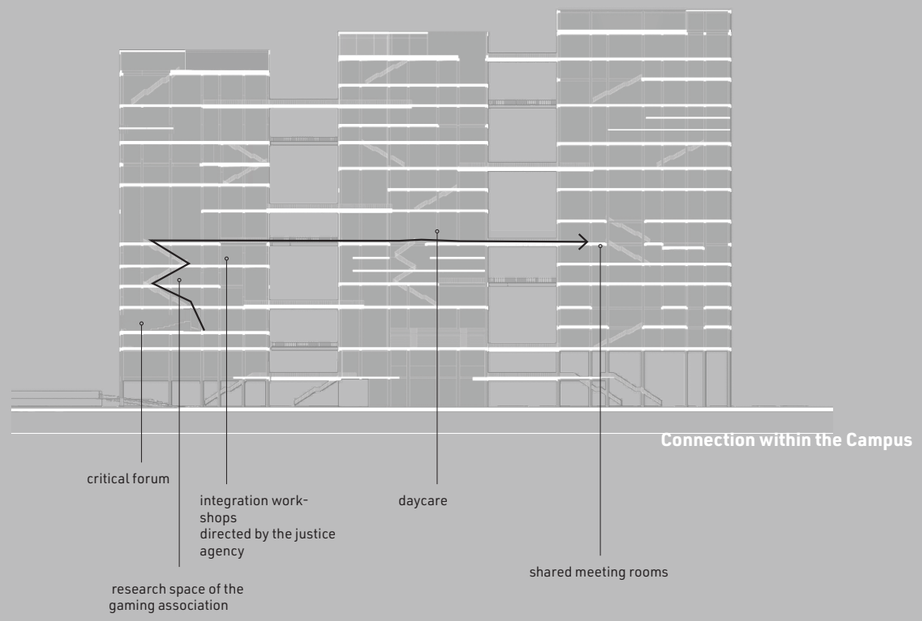
THE APPRENTICESHIP HUB

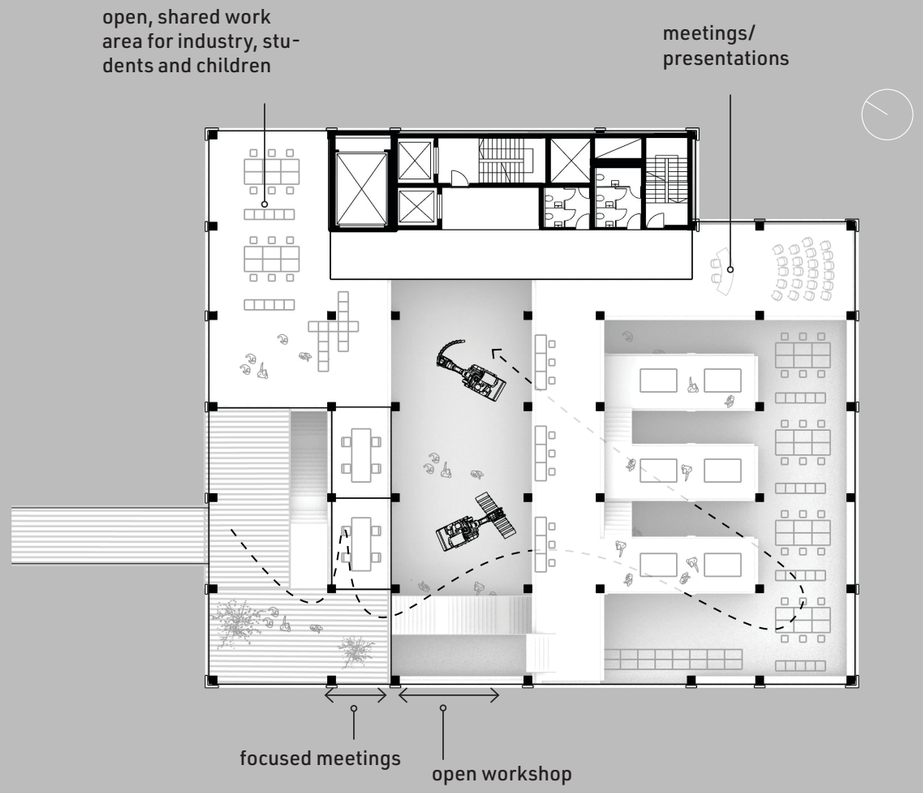
Problem/Project Based Learning
Industry-Academia Collaboration
Mentorship and Interdisciplinary work

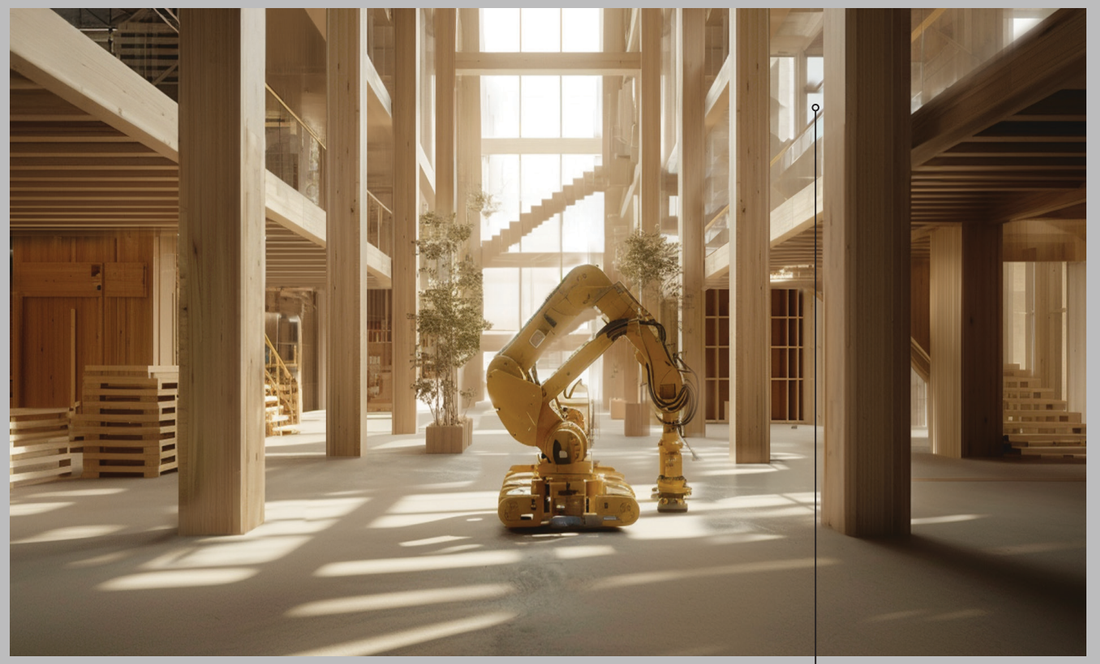
THE HANDS ON APPRENTICESHIP HUB

Apprenticeship model for up to date know-how and a project-based learning approach. Learning by doing.
Description: Open-plan workshop that integrates office area, meeting rooms, a safe experience area for the youngest....
Principle: Mentorship
Orientation: Multi Layered

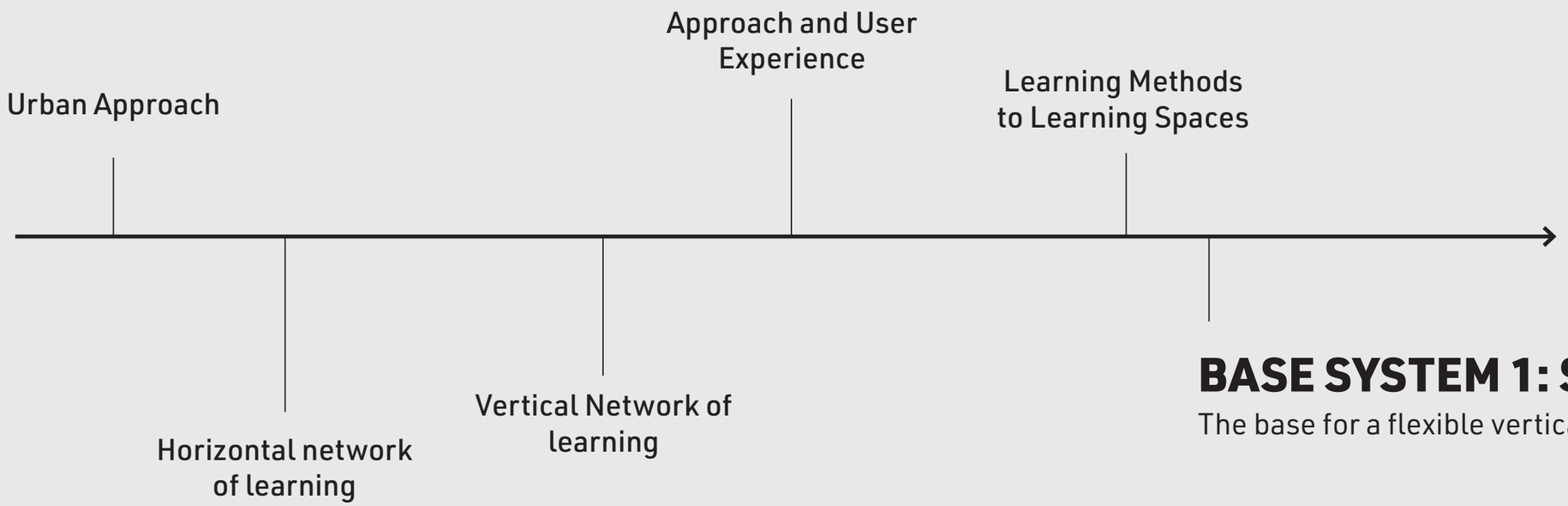








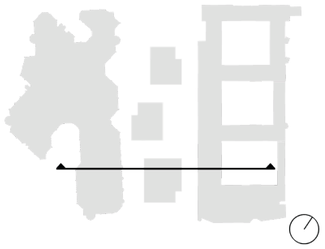
meeting rooms sound proof but with view into the center

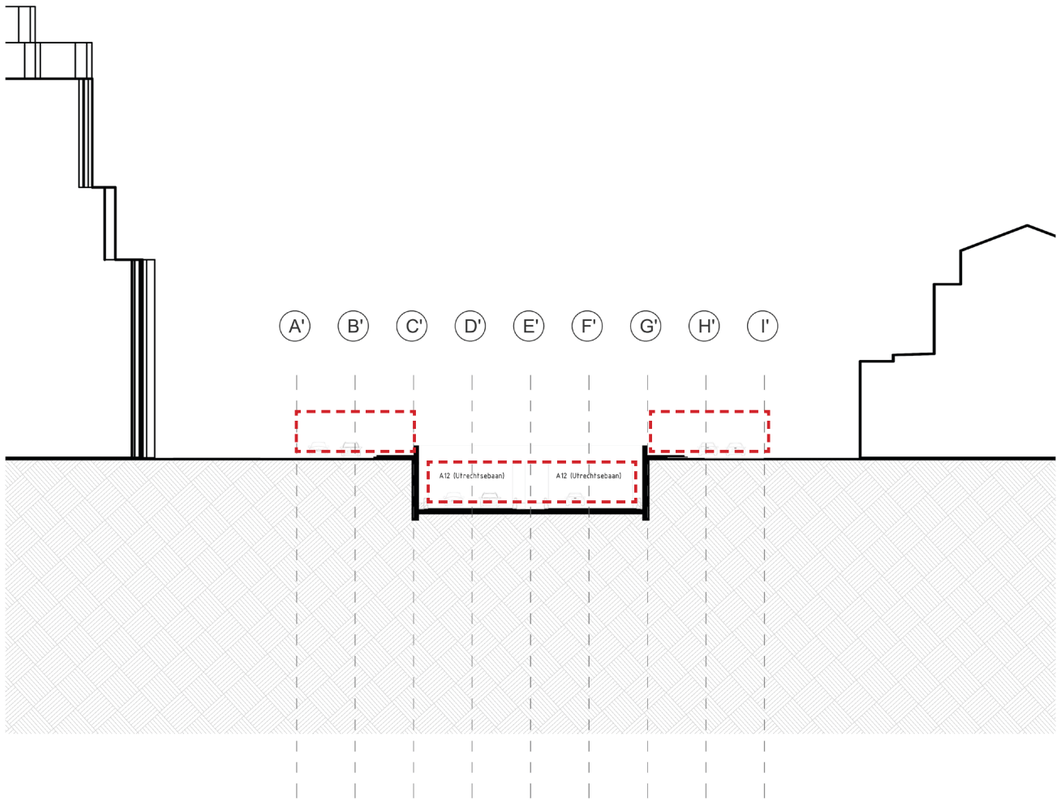


BASE SYSTEM 1: SUPERSTRUCTURE

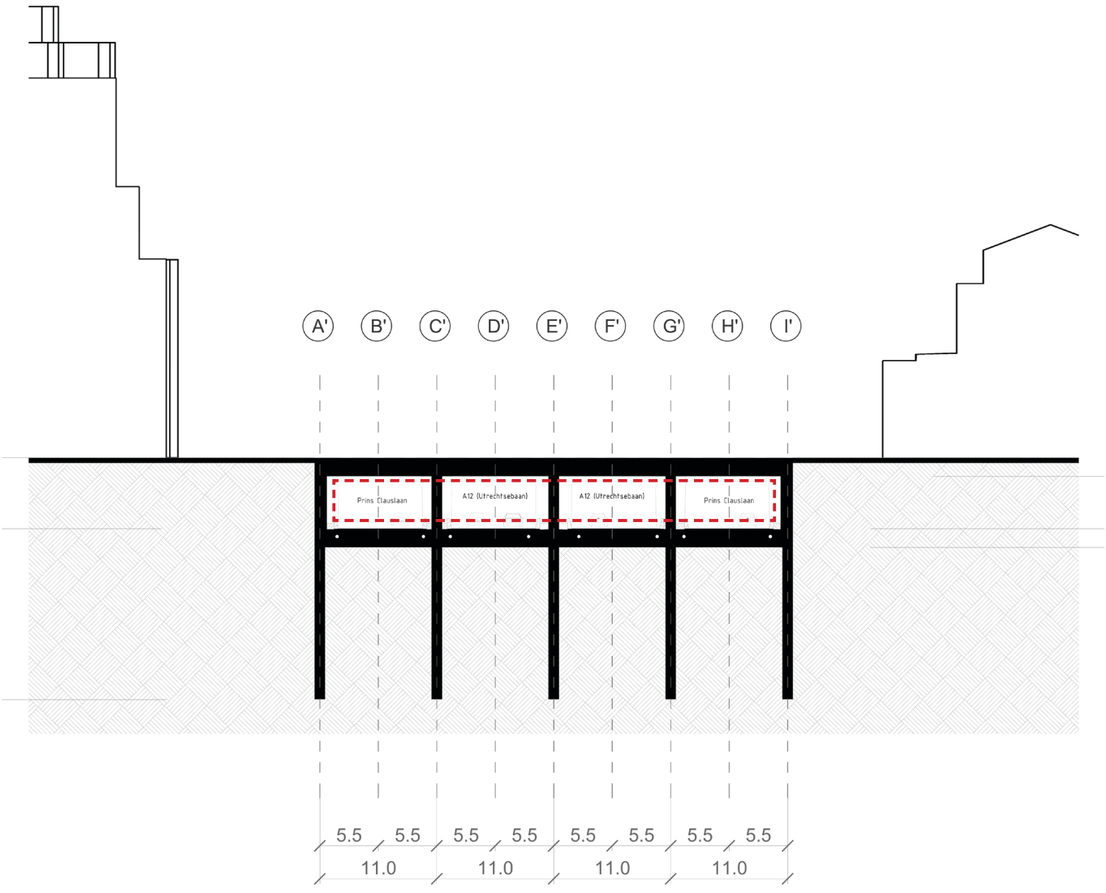
The base for a flexible vertical campus.

THE FOUNDATION



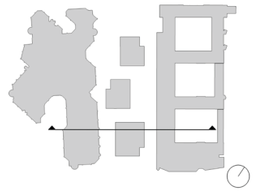


before

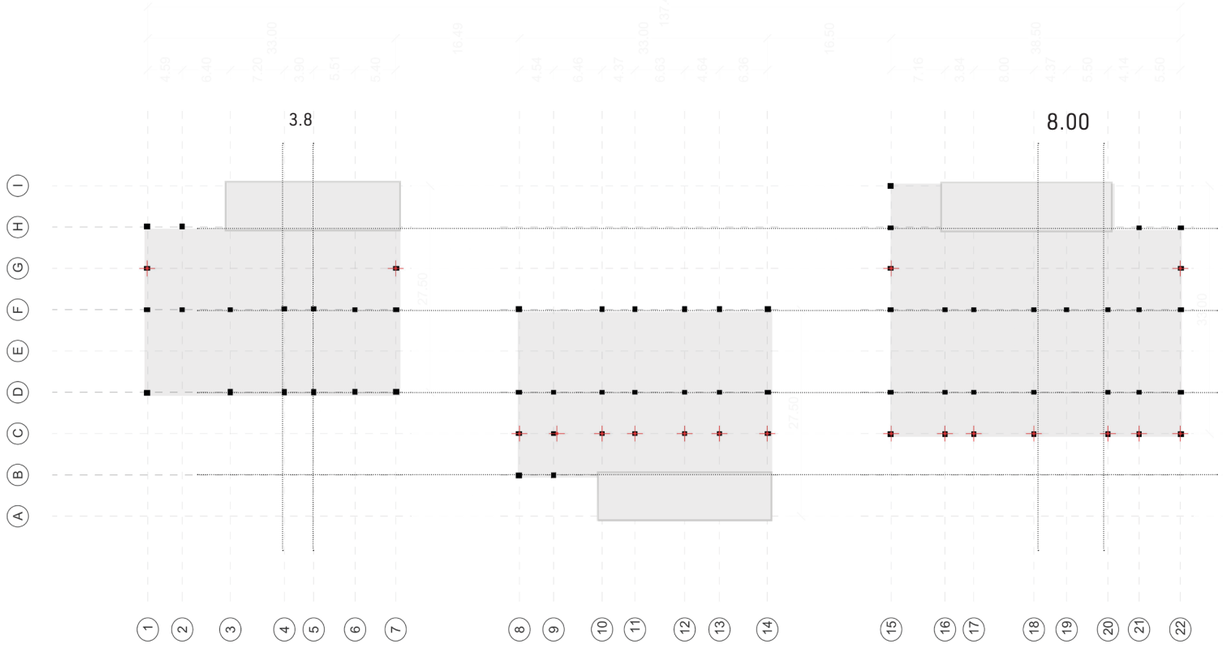


after

CONSTRAINED
v.s.
FREE

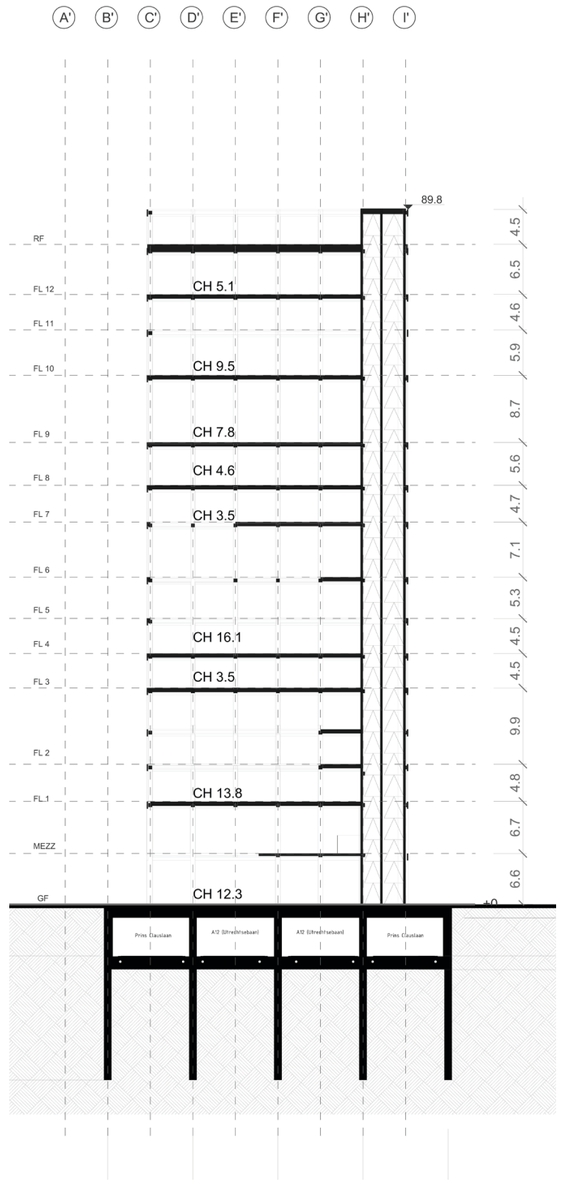


Due to the underground lanes, the grid in the longitudinal direction was kept as rigid as possible in the other direction it is expanded and reduced, deviating from a standard grid.
Only the columns, which are marked in red, were not placed efficiently due to constraints from the spatial arrangement above. This represents a compromise between efficiency and flexibility. As a consequence, the areas with red columns will require reinforcements between the ground level and the underground lanes.

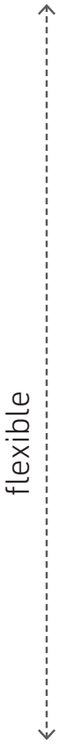


flexible

rigid

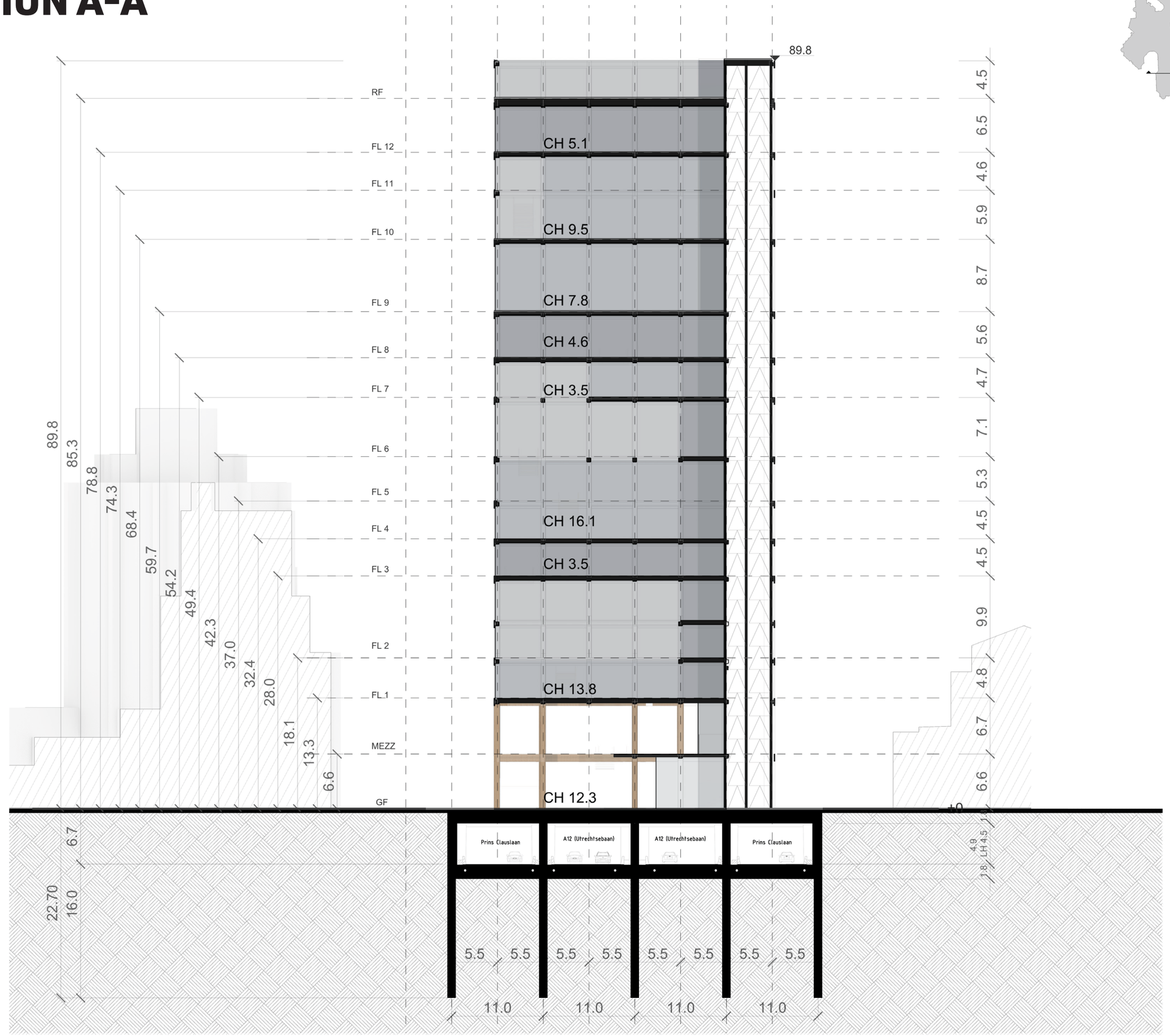


rigid



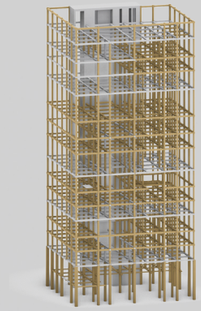
flexible

FULL SECTION A-A

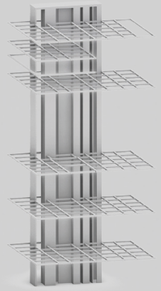


SUPERSTRUCTURE
ON UNDERGROUND TRAFFIC LANES

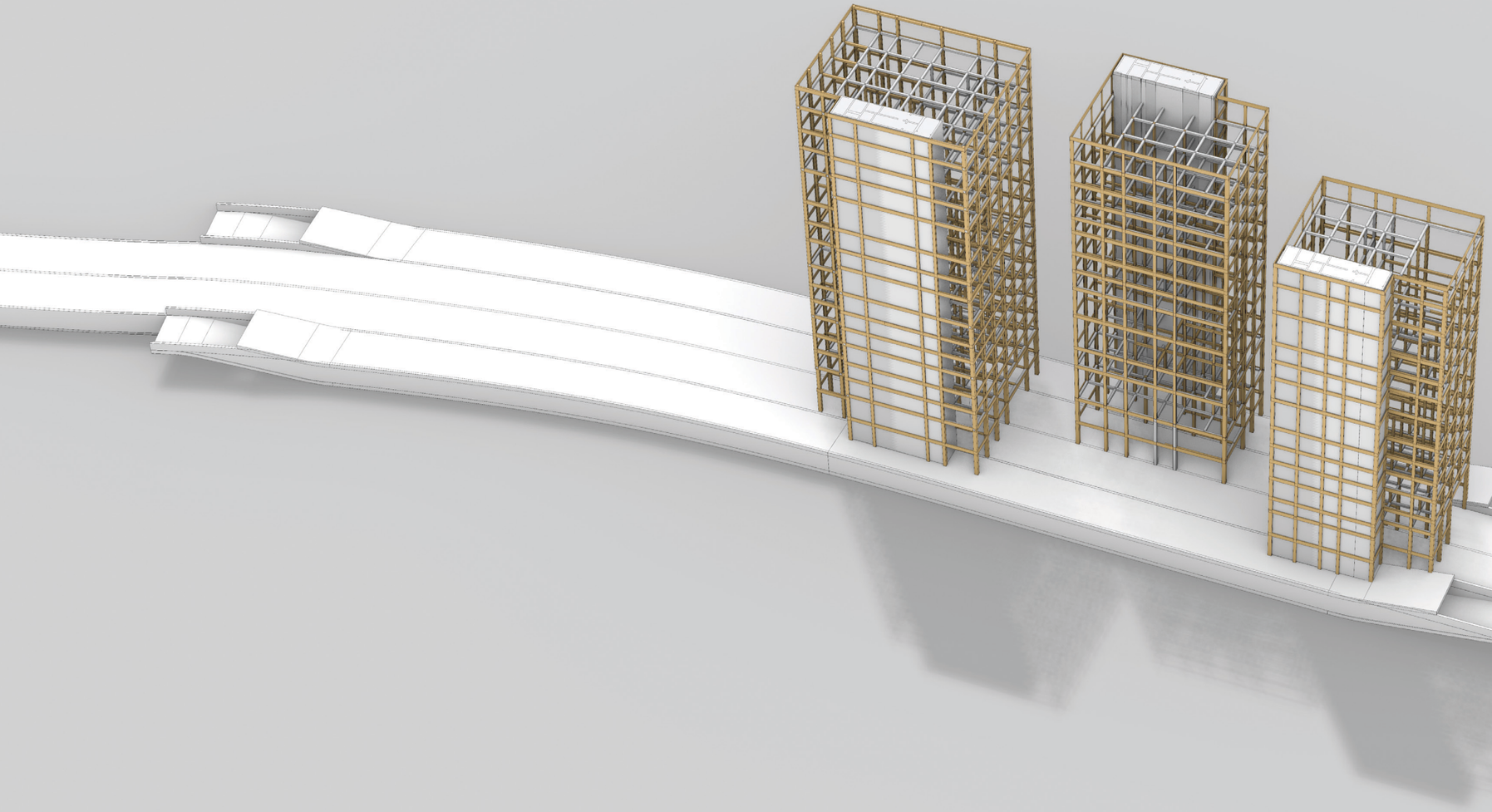
The concrete core connects directly to the underground lanes and the foundations, as illustrated.

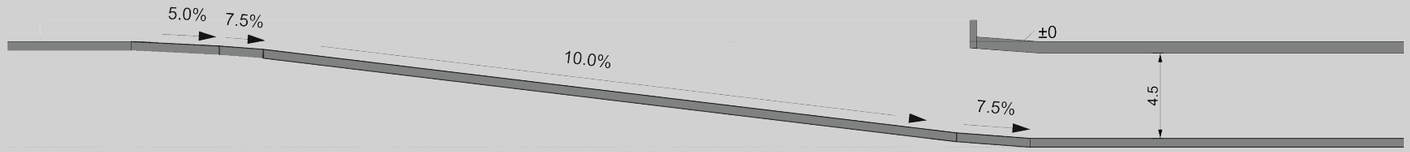


wood:
flexibility



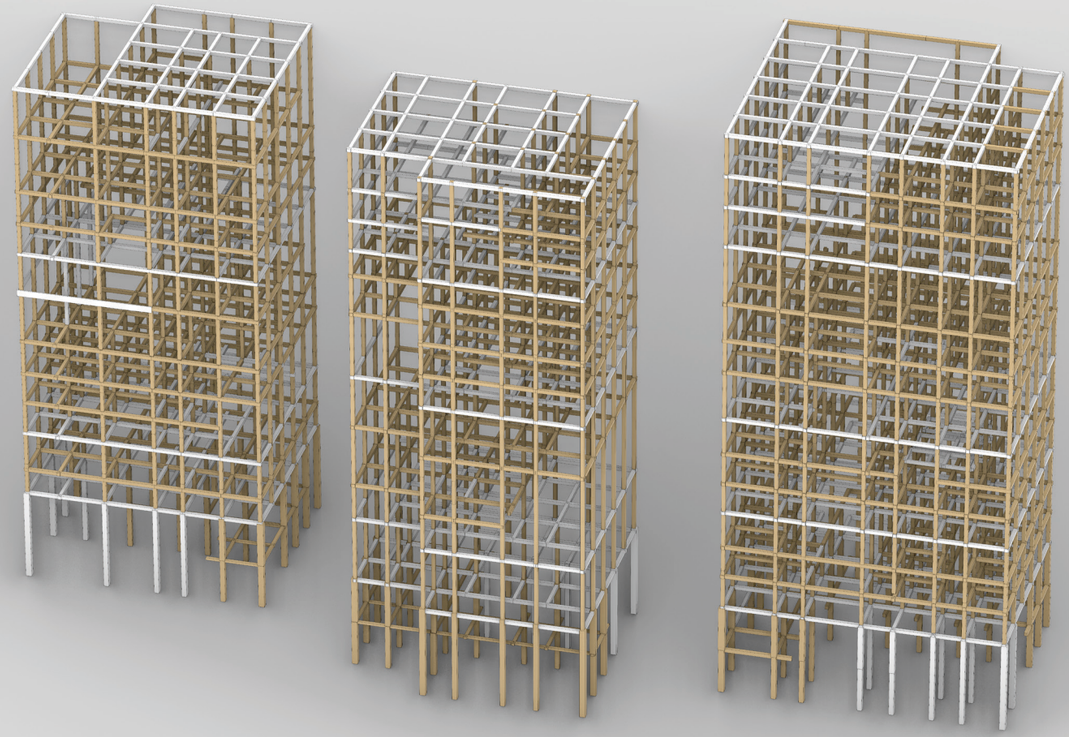
concrete:
stiffness





ADAPTABLE AND EFFICIENT

To maximize efficiency, the primary wooden superstructure is complemented by concrete elements in critical areas, providing lateral stability.

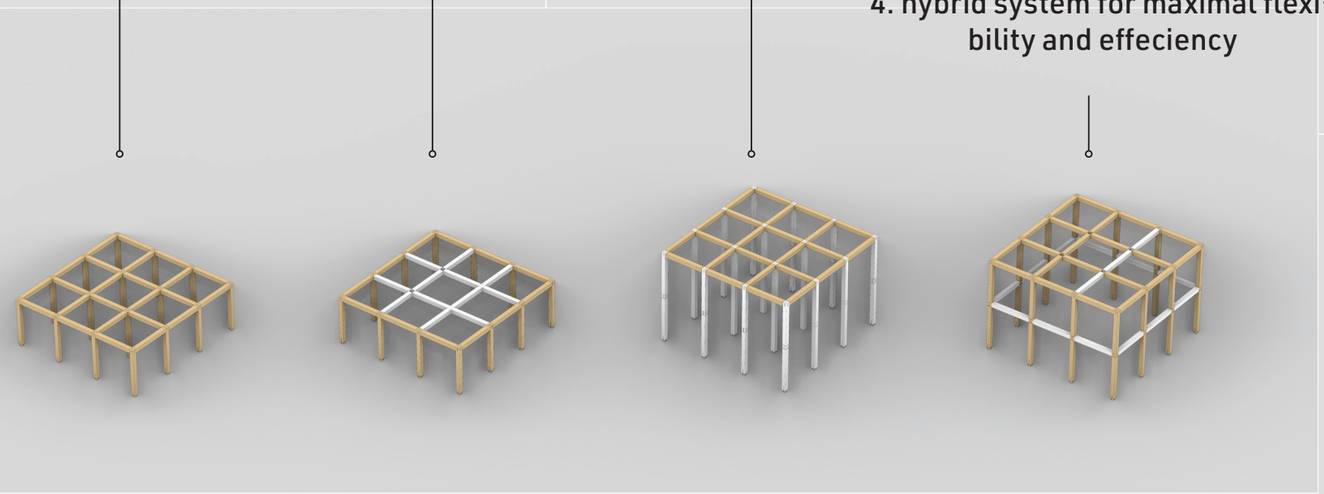


1. wooden skeleton

2. concrete beams for long spans

3. concrete columns at long buckling lenghts

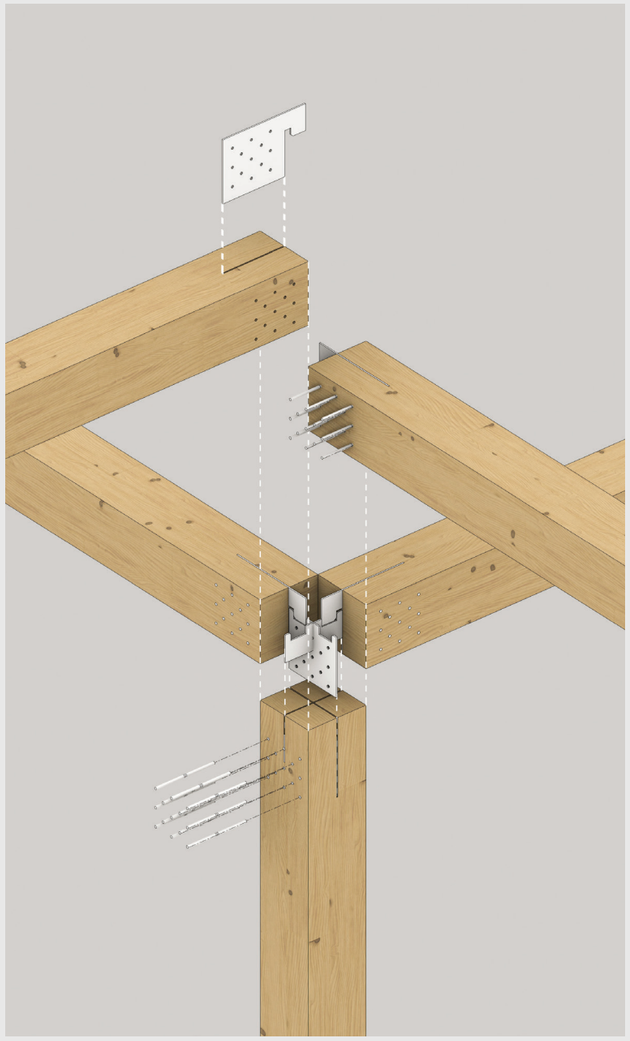
4. hybrid system for maximal flexibility and effeciency

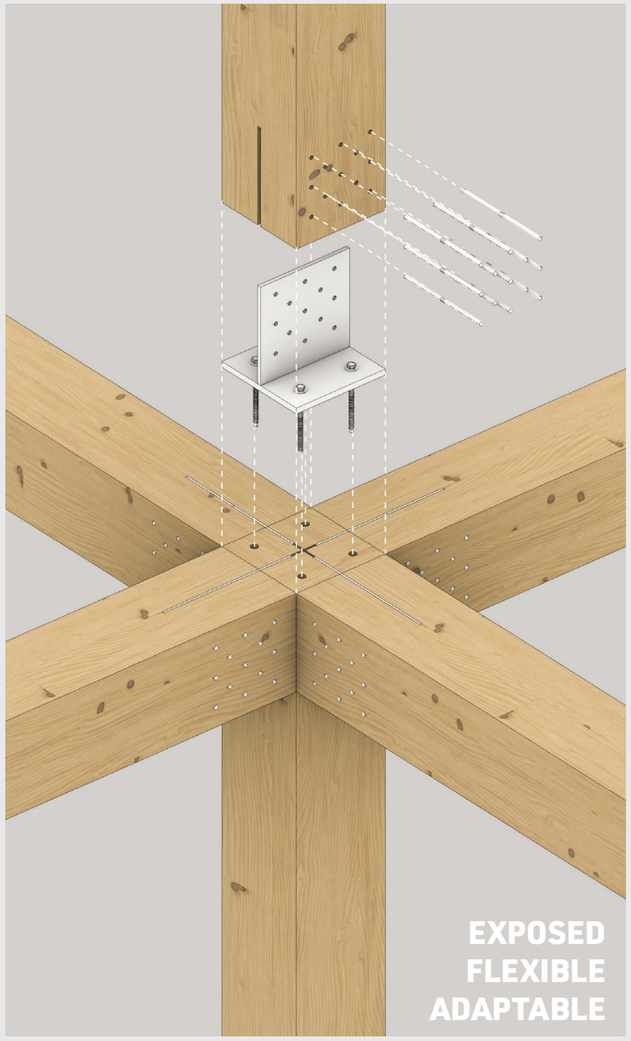


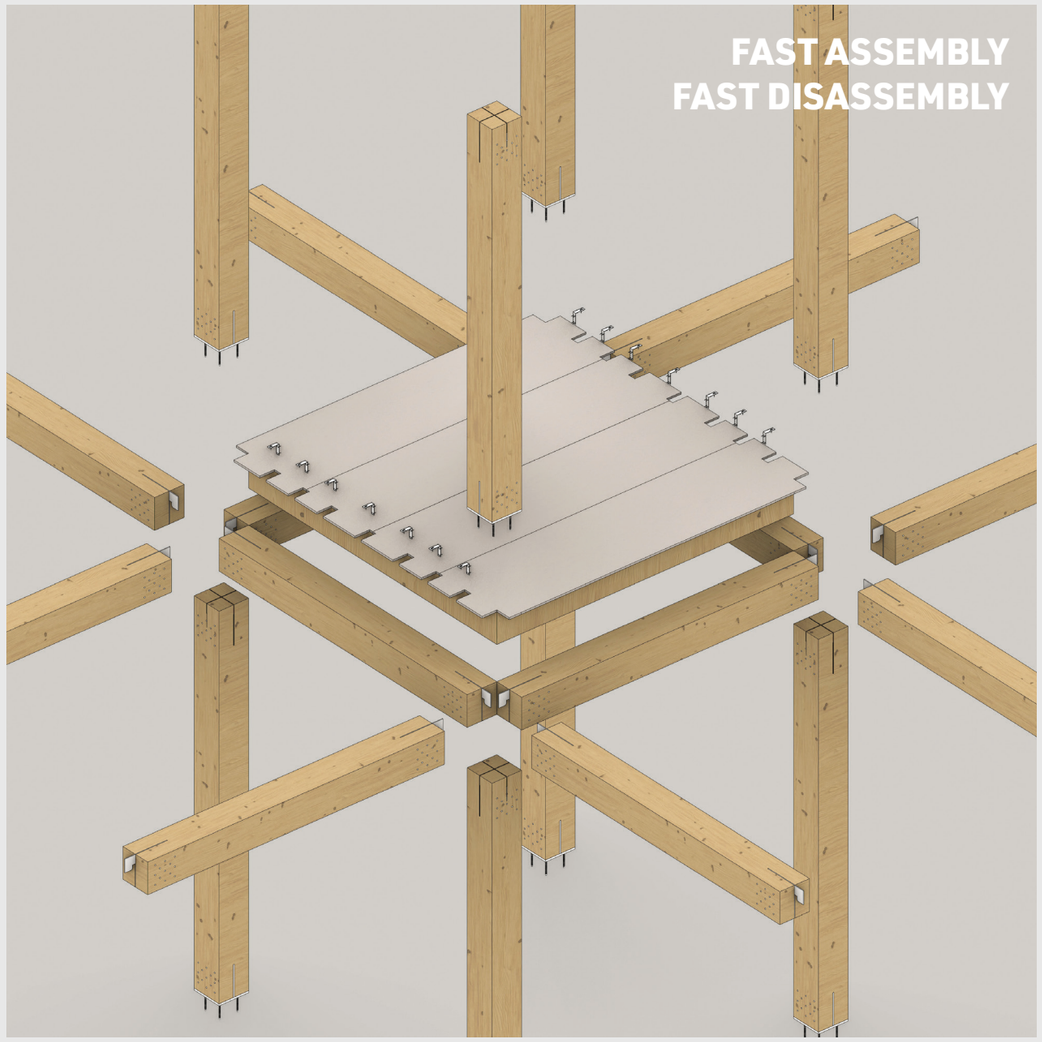
concrete

wood

REVERSIBLE
WOODEN CONNECTIONS AND PREFABRICATION







MODULAR CATALOGUE

SHOWCASING “HOW IT IS MADE”, AESTETIC DRIVER, COST REDUCTION, RESILIENCE

The timer frame allows for a wide range of different expressions which are directly developed out of differing structural solutions - a few are shown here. The structure is the main aestitic driver here. An educational and flexible way of designing the element. Another benefit is the reduction of construction costs and duration.

Three-layer-panel

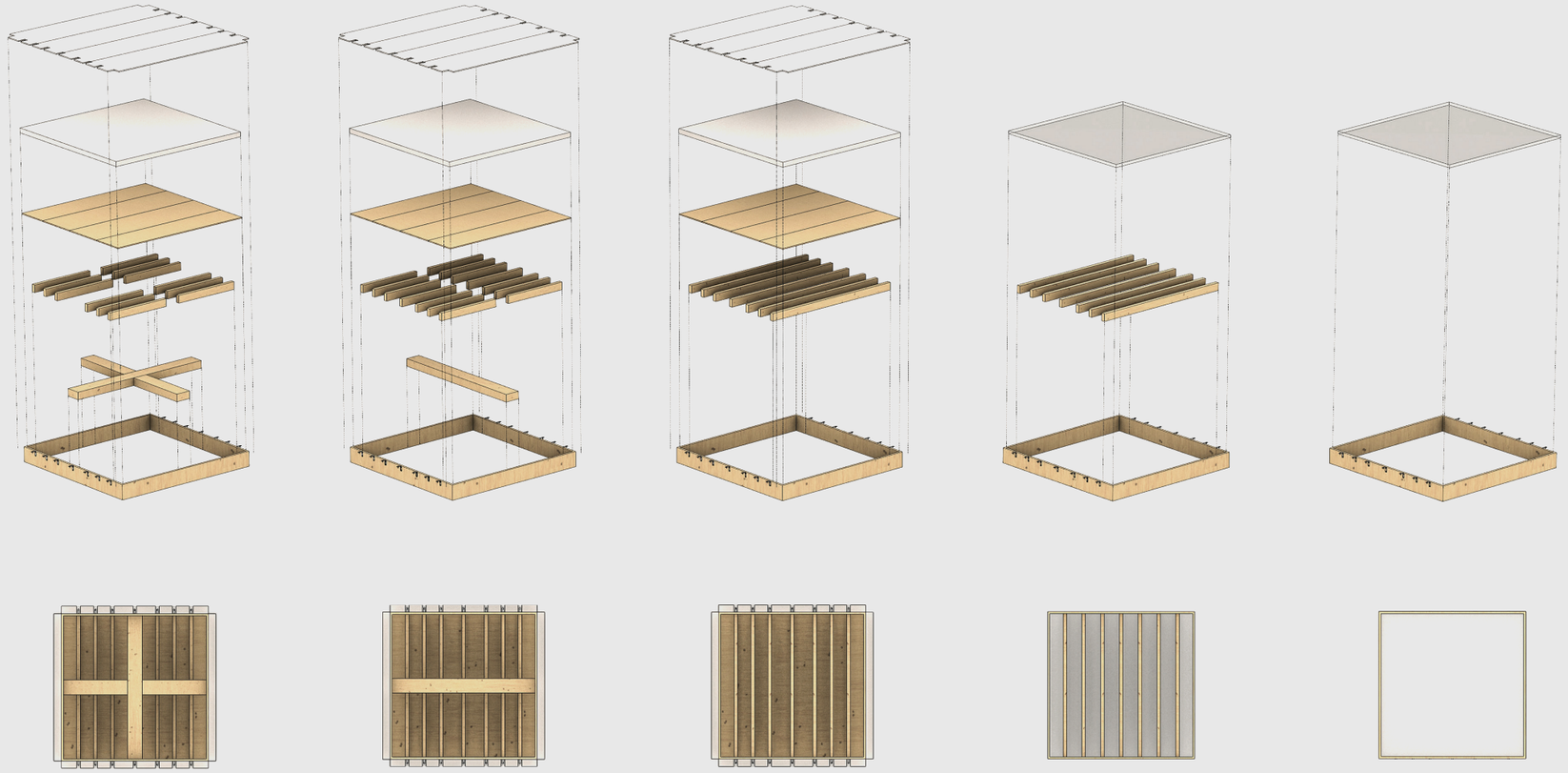
Wood fiber insulation board

Three-layer-panel

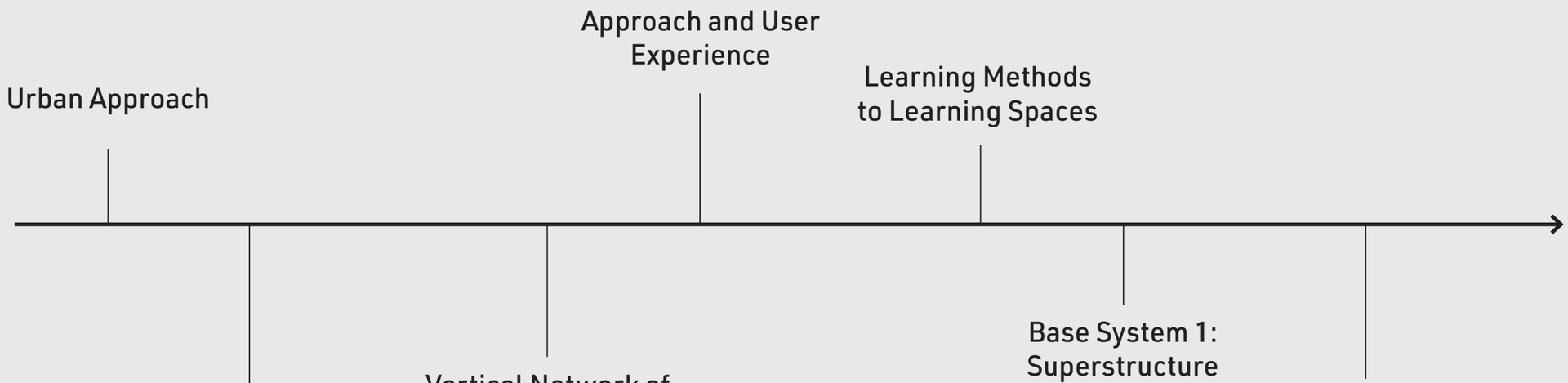
Structural wood

Structural wood

Timber frame



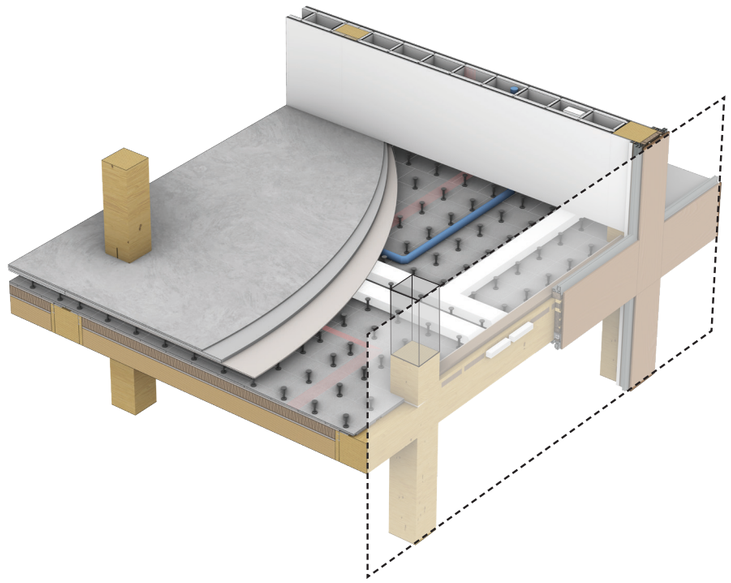
Laminated Glass
(2-3 layers of 10mm depending on span)



BASE SYSTEM 2: DETAIL

Ready for Today and Tomorrow.
Resilience built-in.

FACADE OVERVIEW



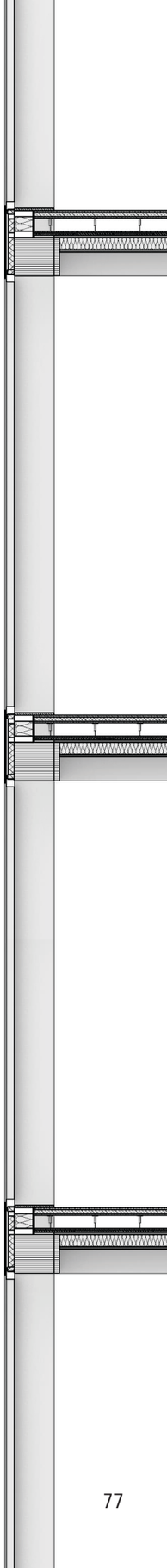
Location of detail fragment

Fixed window element

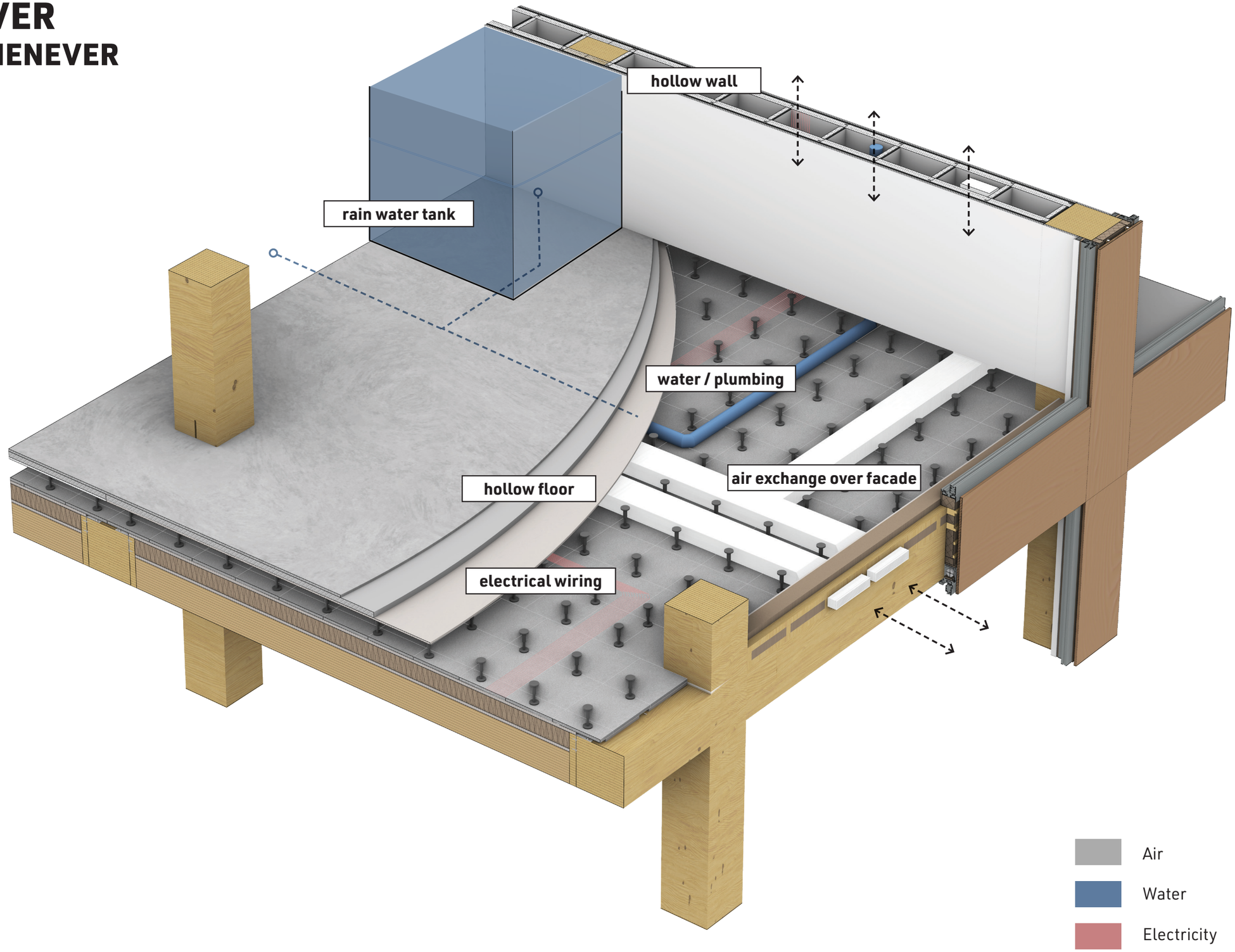
Sliding door element

Railing (indoor)

Varyation of prefab element in ceiling

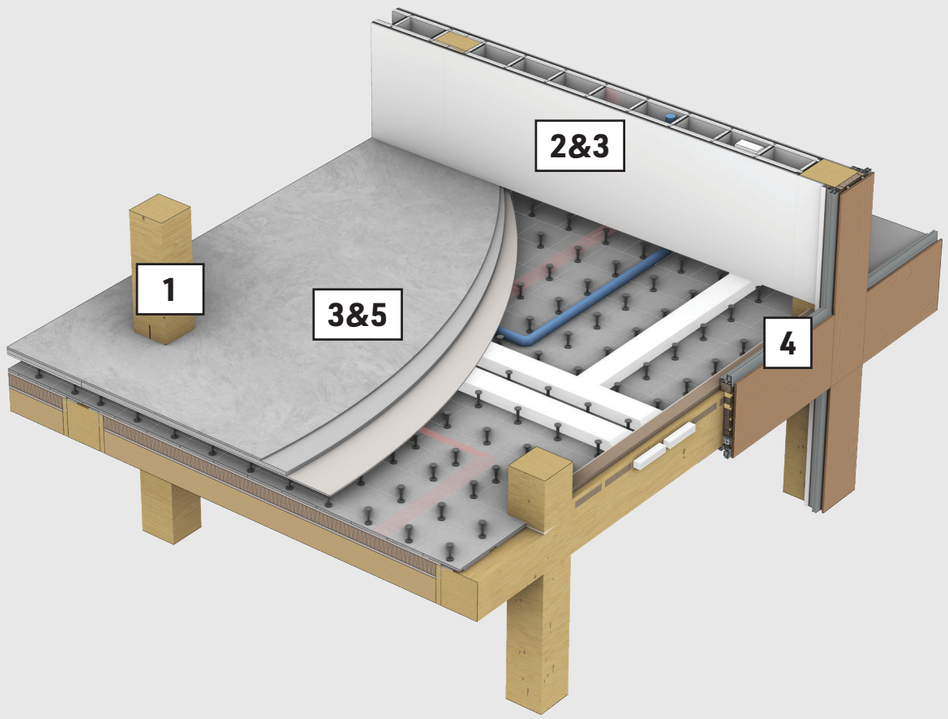


WHATEVER
WHEREVER
WHENEVER

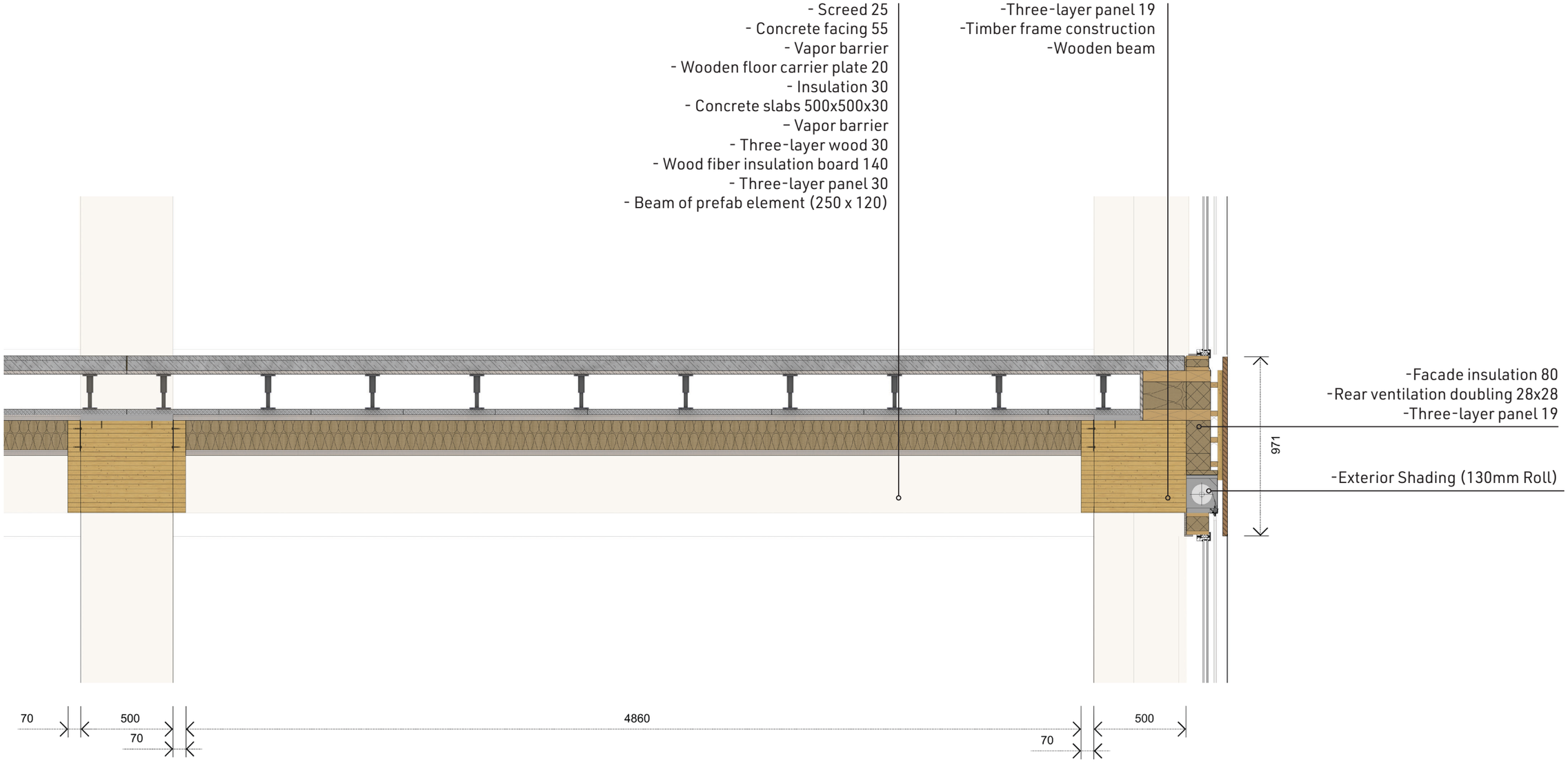


RAW MATERIALITY

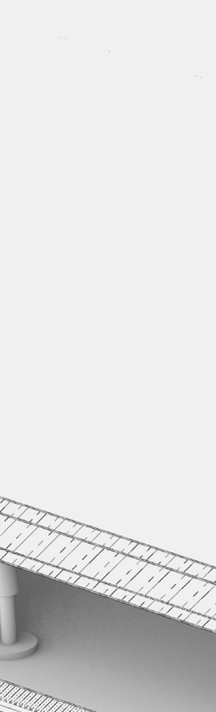
HANDS-ON WORKING SPACES
REMODELLING ENCOURAGED



TYPICAL DETAIL



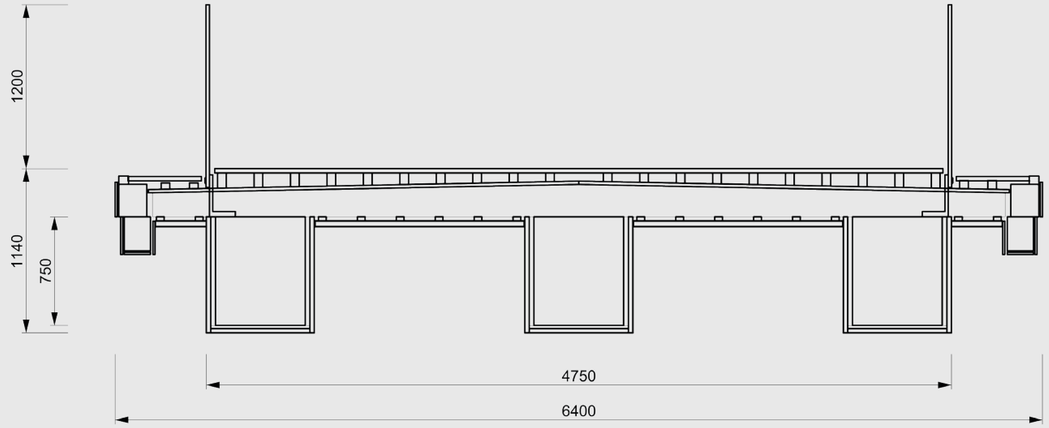
SECTION OF VERTICAL AND HORIZONTAL DETAIL

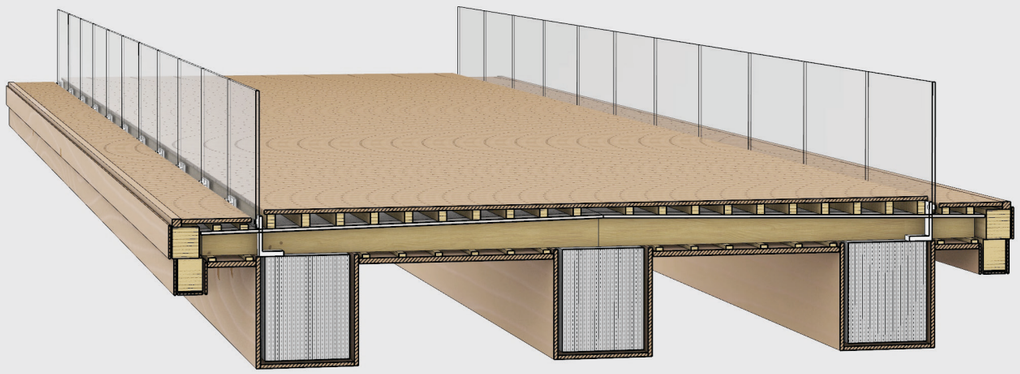


Raised floor stand [Raised floor for installation of ventilation and electrical systems]

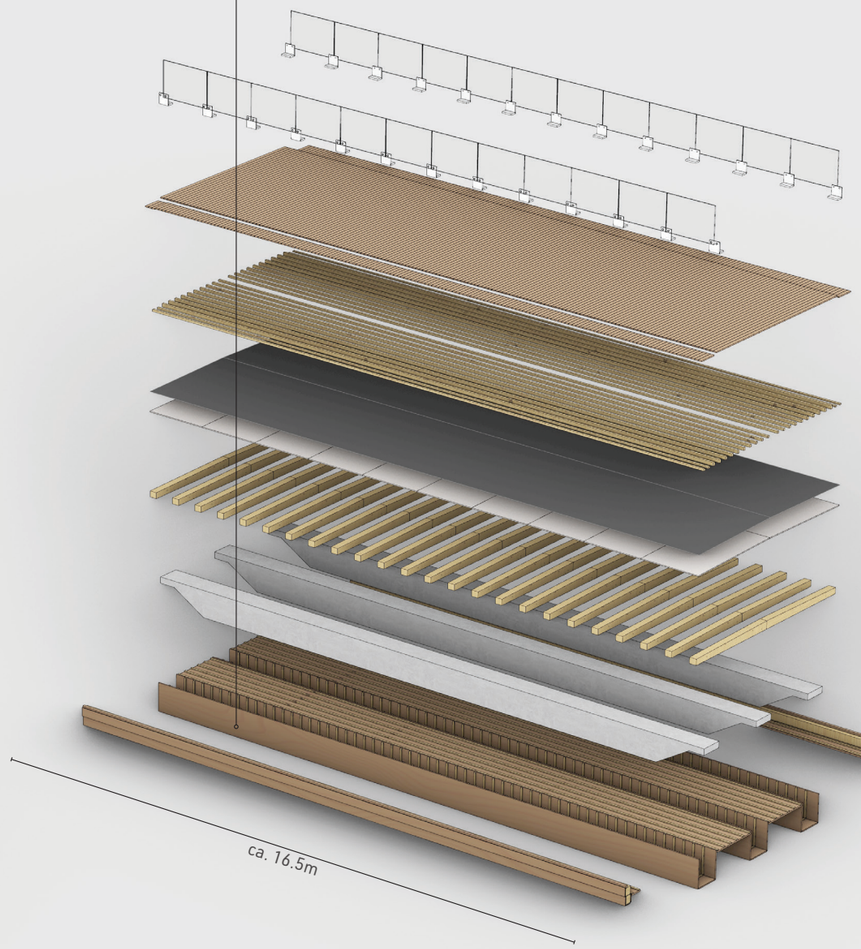
Metal fitting for mounting the prefab element

CONNECTING BRIDGE:
CONSTRUCTION

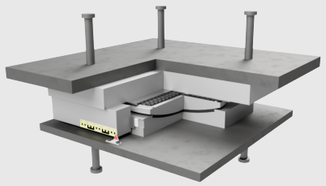




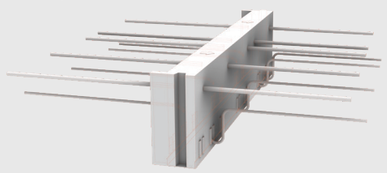
Wooden planks 34mm
Wooden substructure 60x60 to 100x60 (varying heights)
Water barrier 3mm
Wooden board 30mm
Structural wooden beams with gradient 200x250 to 80x250
Concrete beam 750 x 600
Three-layer outer paneling with wooden substructure



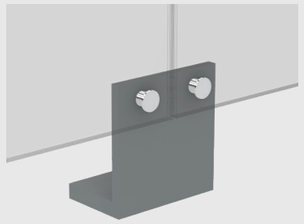
BRIDGE:
VERTICAL SECTION



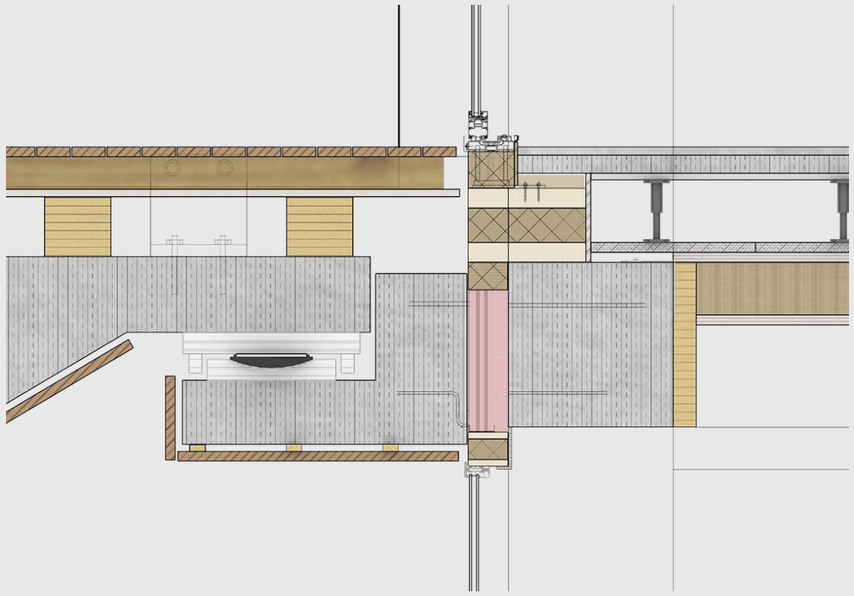
Spherical bearing:
Dynamic forces like wind and thermal expansion can shift bridge towers. A spherical bearing, which allows for movements in all directions, is crucial to maintain stability and integrity under such conditions.

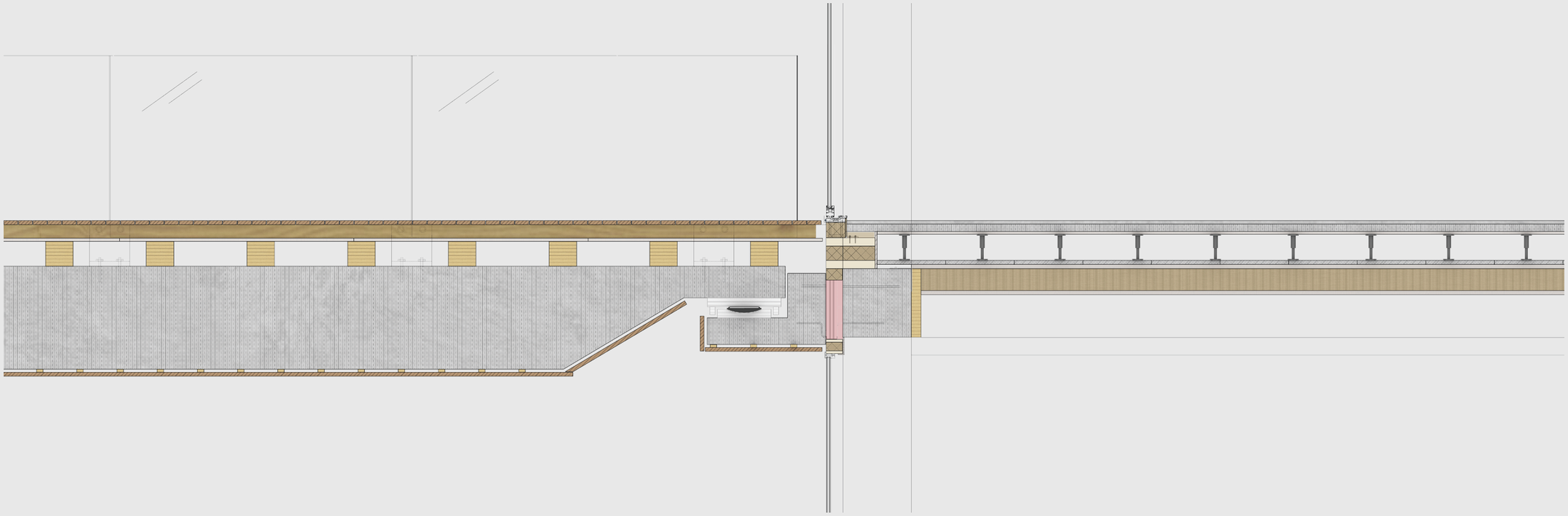


Isokorb:
To avoid thermal bridges, an Isokorb is used.

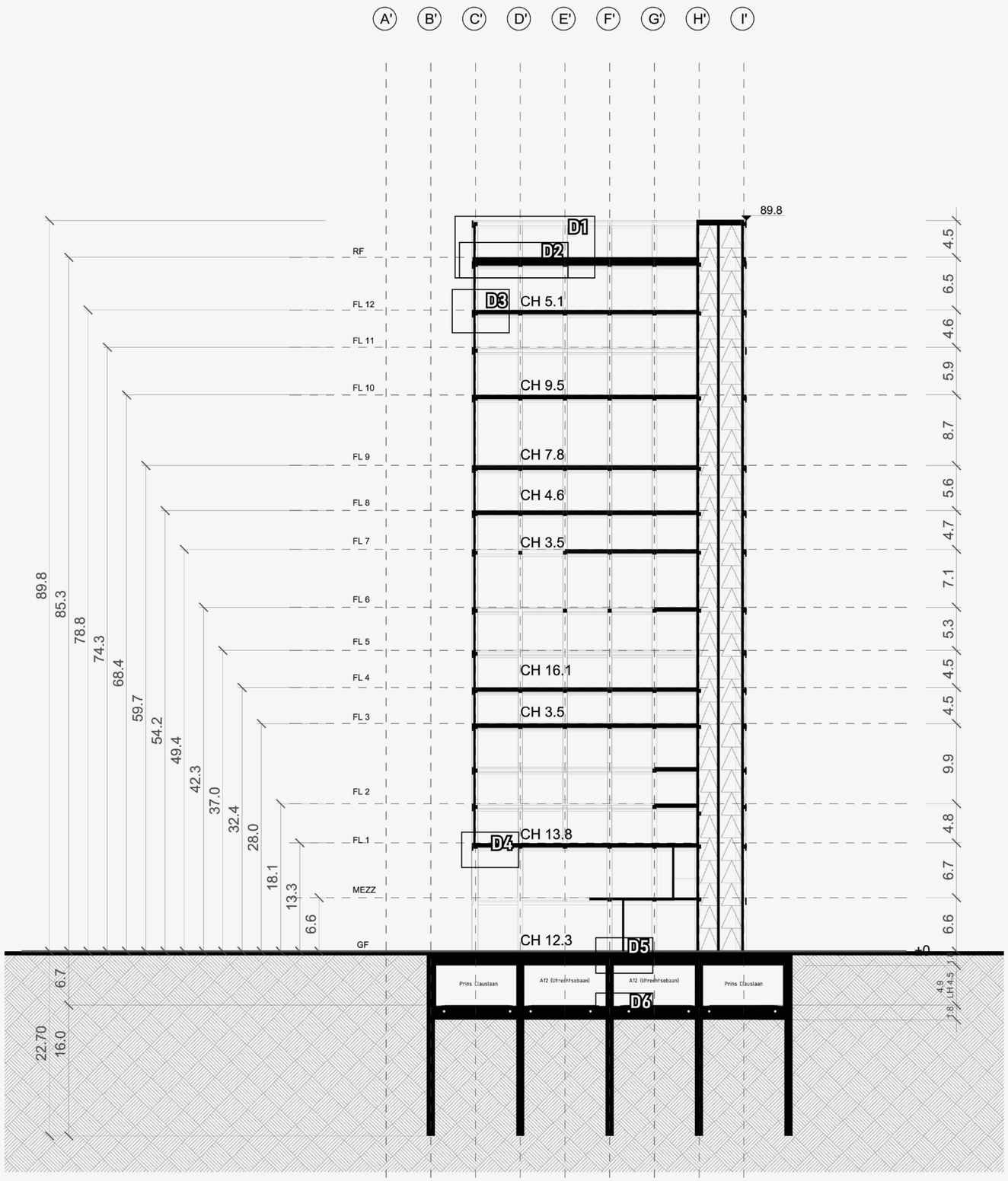


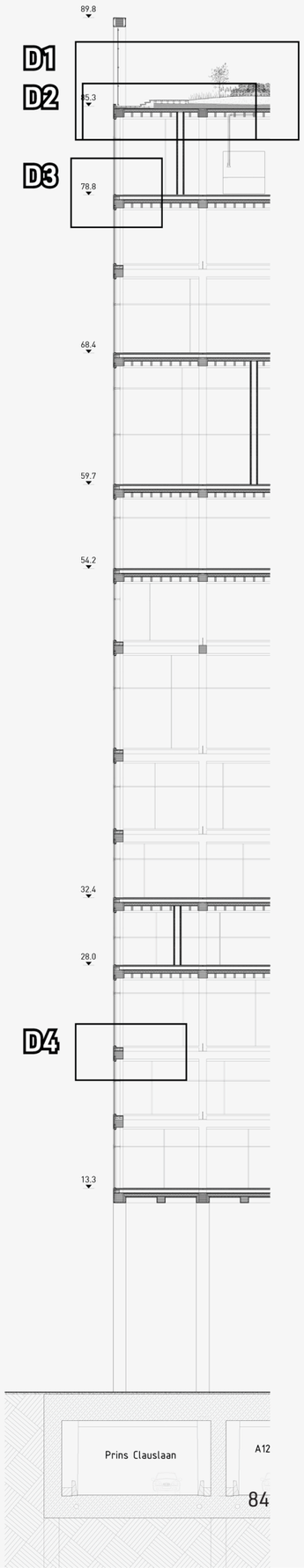
Hidden glass mount:
This is the metal fitting that holds the glass panels, it is concealed within the wooden substructure or wooden paneling.



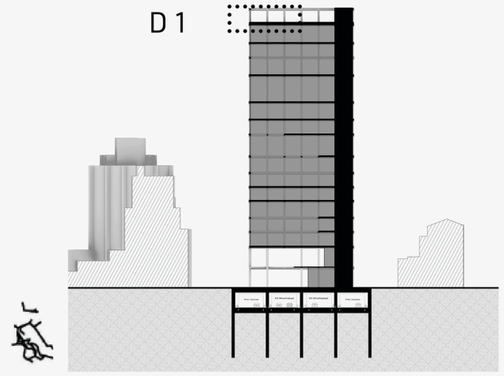


FRAGMENT


A'
B'
C'
D'
E'
F'
G'
H'
I'
89.8
RF
FL 12
FL 11
FL 10
FL 9
FL 8
FL 7
FL 6
FL 5
FL 4
FL 3
FL 2
FL 1
MEZZ
GF
D1
D2
D3
D4
D5
D6
CH 5.1
CH 9.5
CH 7.8
CH 4.6
CH 3.5
CH 16.1
CH 3.5
CH 13.8
CH 12.3
89.8
85.3
78.8
74.3
68.4
59.7
54.2
49.4
42.3
37.0
32.4
28.0
18.1
13.3
6.6
4.5
6.5
4.6
5.9
8.7
5.6
4.7
7.1
5.3
4.5
4.5
9.9
4.8
6.7
6.6
+0
6.7
22.70
16.0
4.9
LH 4.5
1.8
Prins Clauslaan
A12 (Utrechtsebaan)
A12 (Utrechtsebaan)
Prins Clauslaan


89.8
D1
D2
85.3
D3
78.8
68.4
59.7
54.2
32.4
28.0
D4
13.3
Prins Clauslaan
A12
84

ROOF SECTION D1



Soil 175mm to 600mm
Drainage and Retention System ZinCo 50mm

Meadow and rockey type plants along the edges
shrubs and herbs towards the middle
little trees in the middle

Wooden Deck Douglas 140 x 23

wooden planks (20x23)

2%

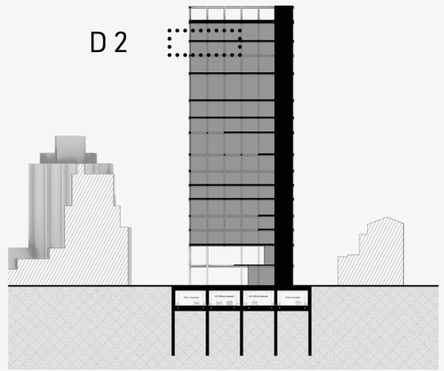
2%

water retention
+ green roof

gradient insulation

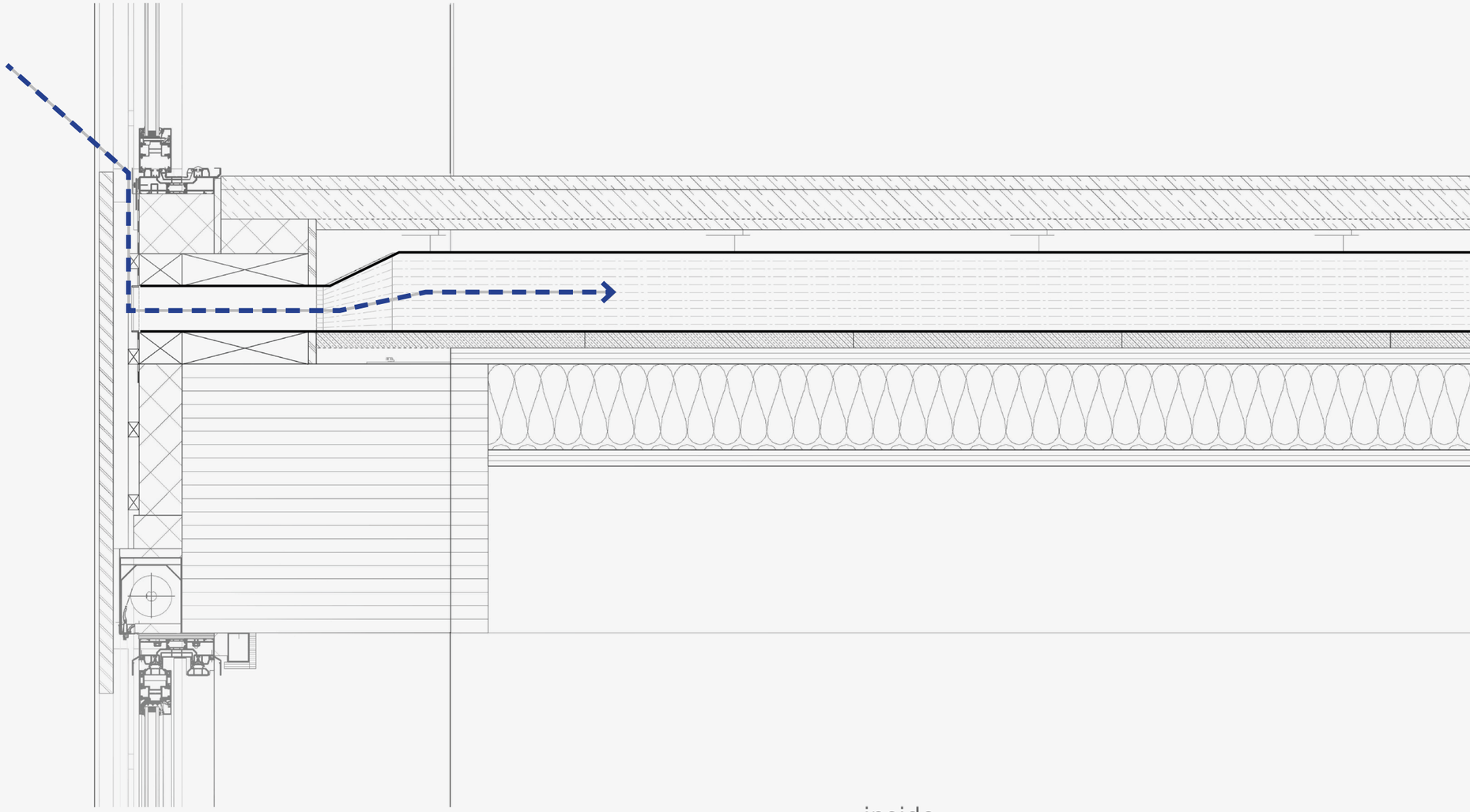
rainwater harvesting tank

REGULAR FLOOR SECTION D2



- Screed 25
- Concrete facing 55
- Vapor barrier
- Wooden floor carrier plate 20
- Insulation 30
- Concrete slabs 500x500x30
- Vapor barrier
- Three-layer wood 30
- Wood fiber insulation board 140
- Three-layer panel 30
- Beam of prefab element (250 x 120)

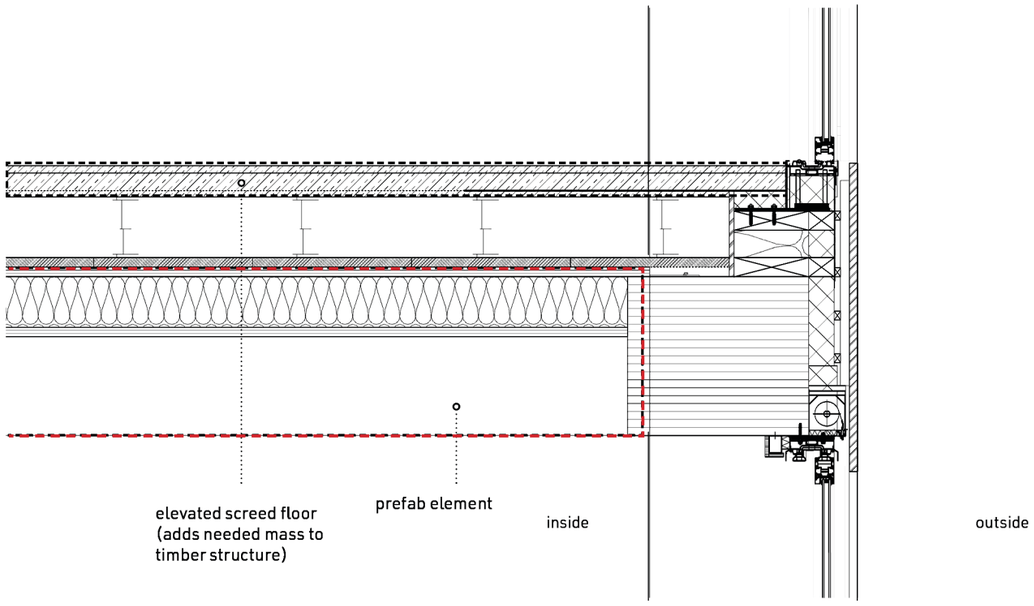
DECENTRALIZED VENTILATION SYSTEM



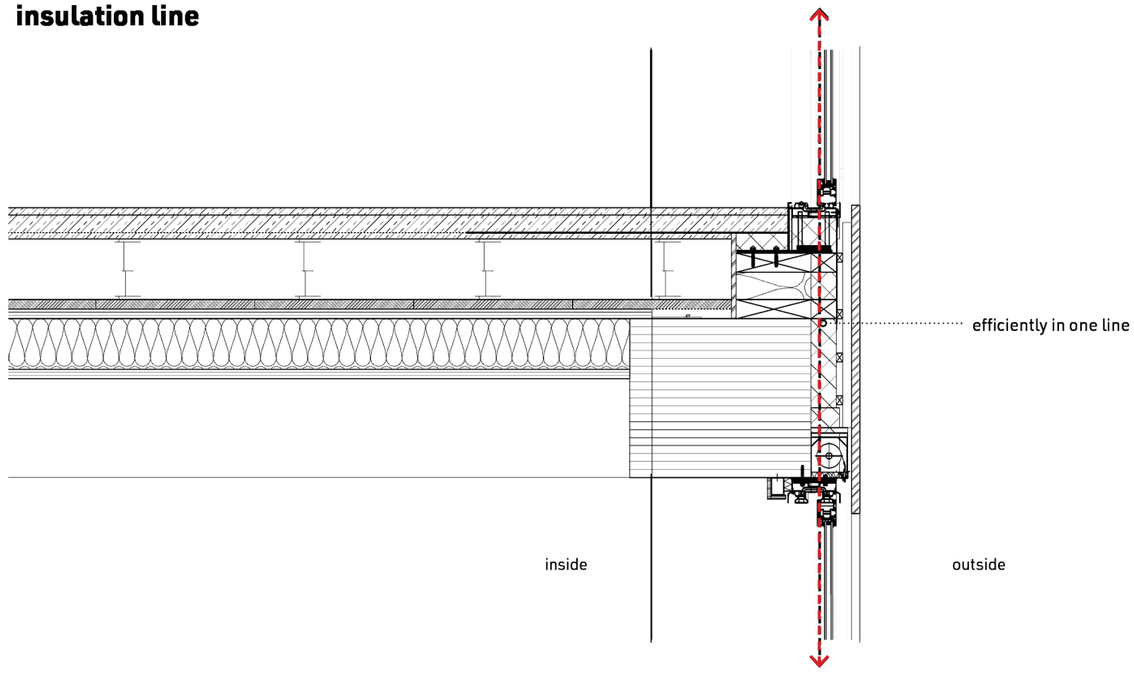
outside

inside

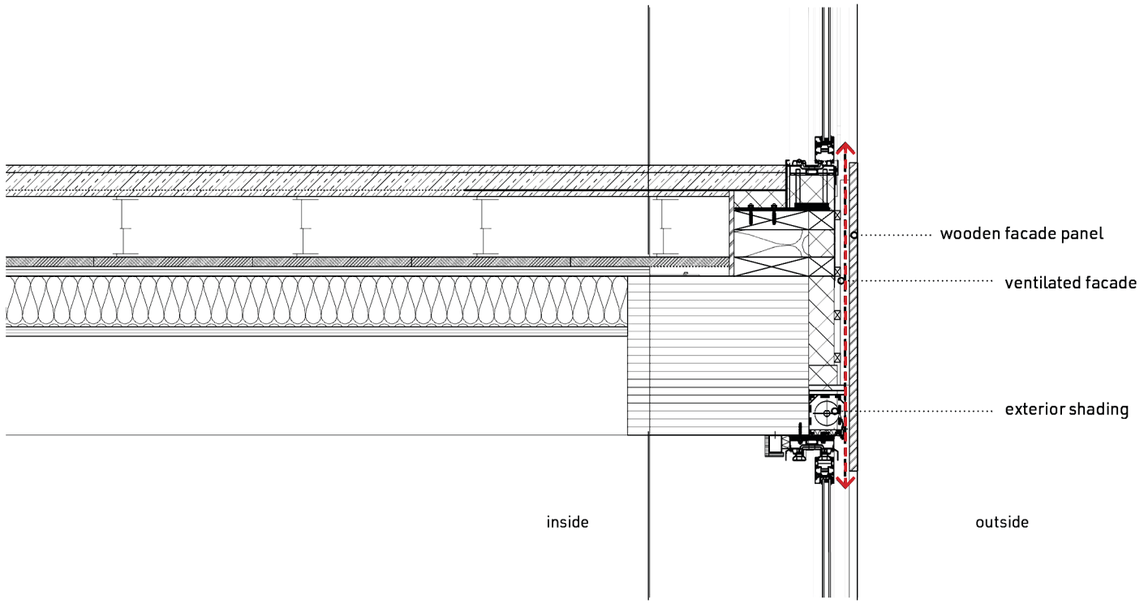
location of prefab element



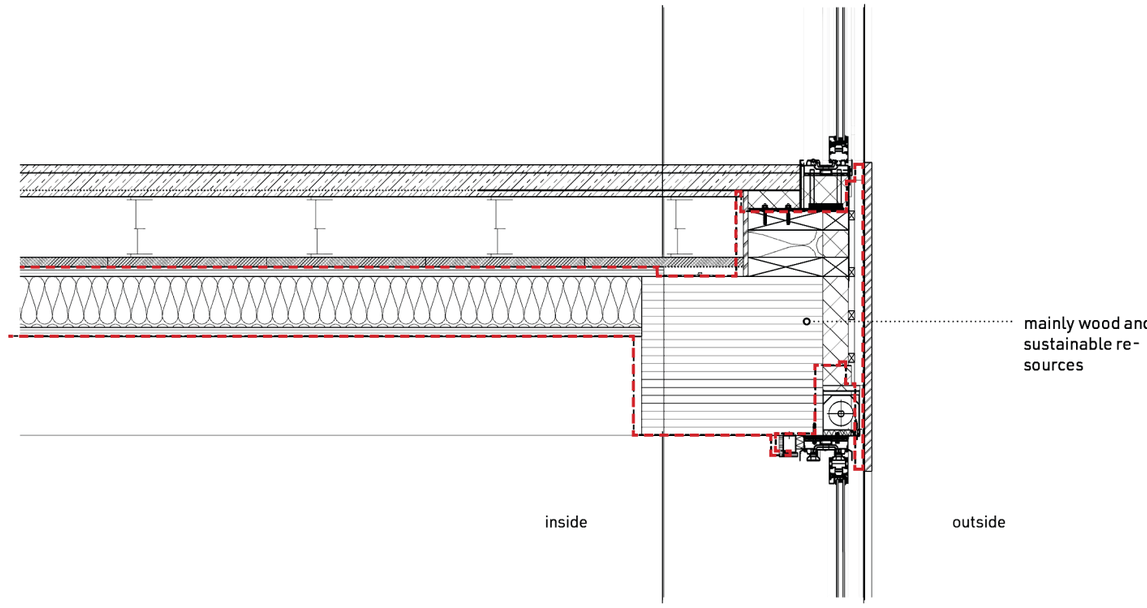
insulation line



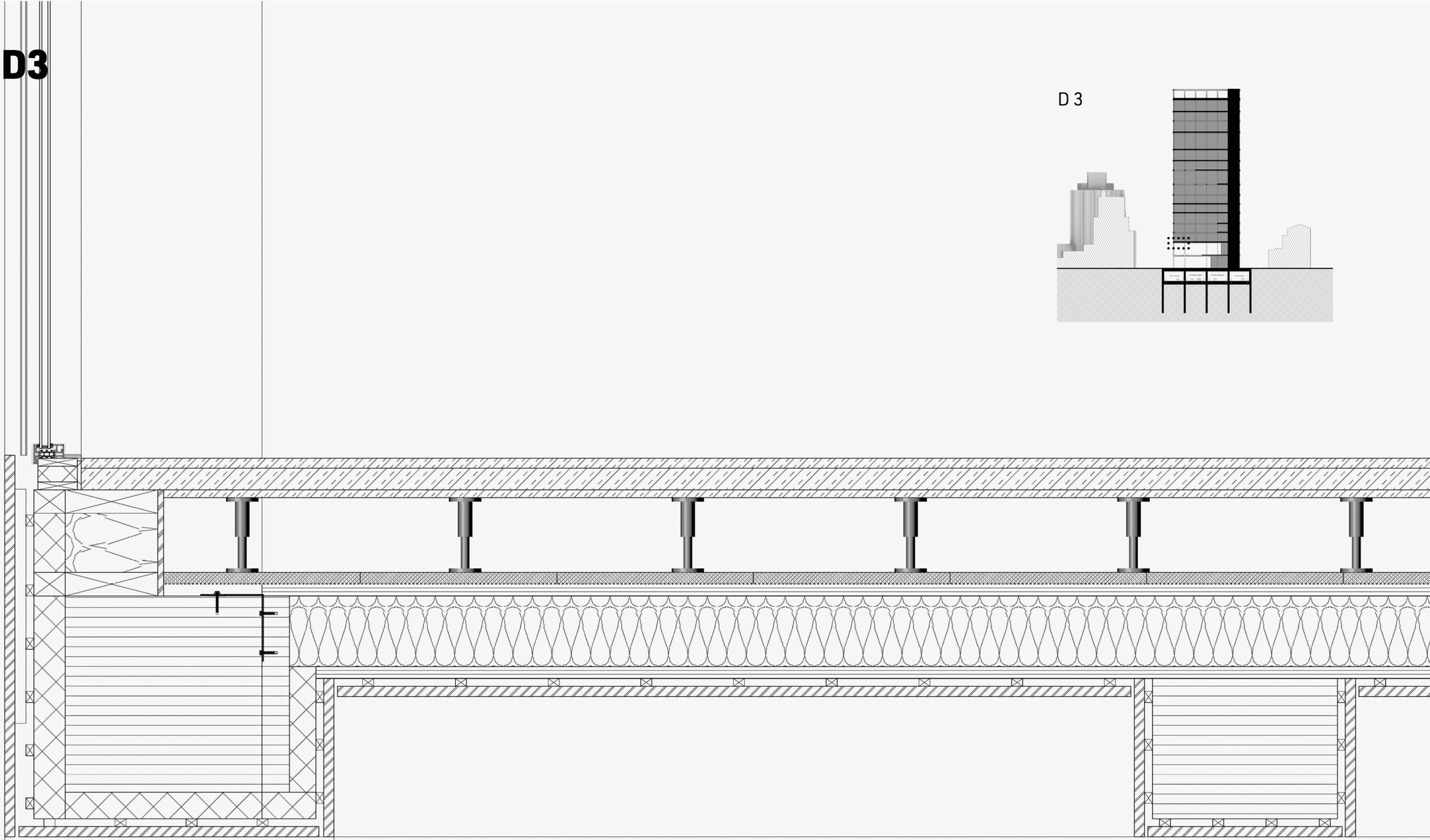
ventillated facade



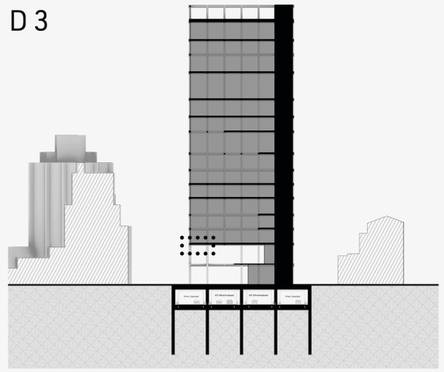
Embracing Sustainable Materials



SECTION D3



SECTION D5 GROUND FLOOR

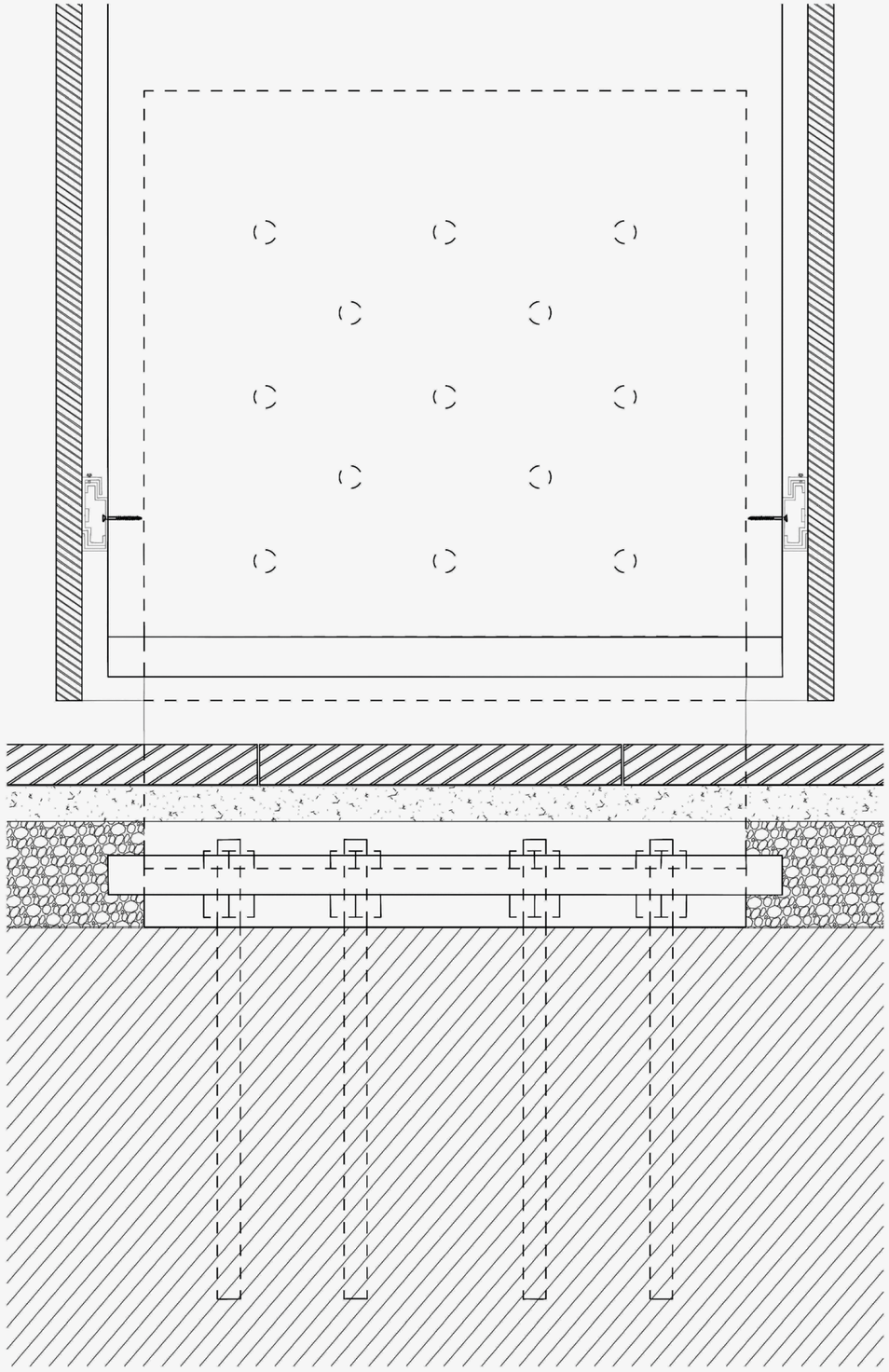


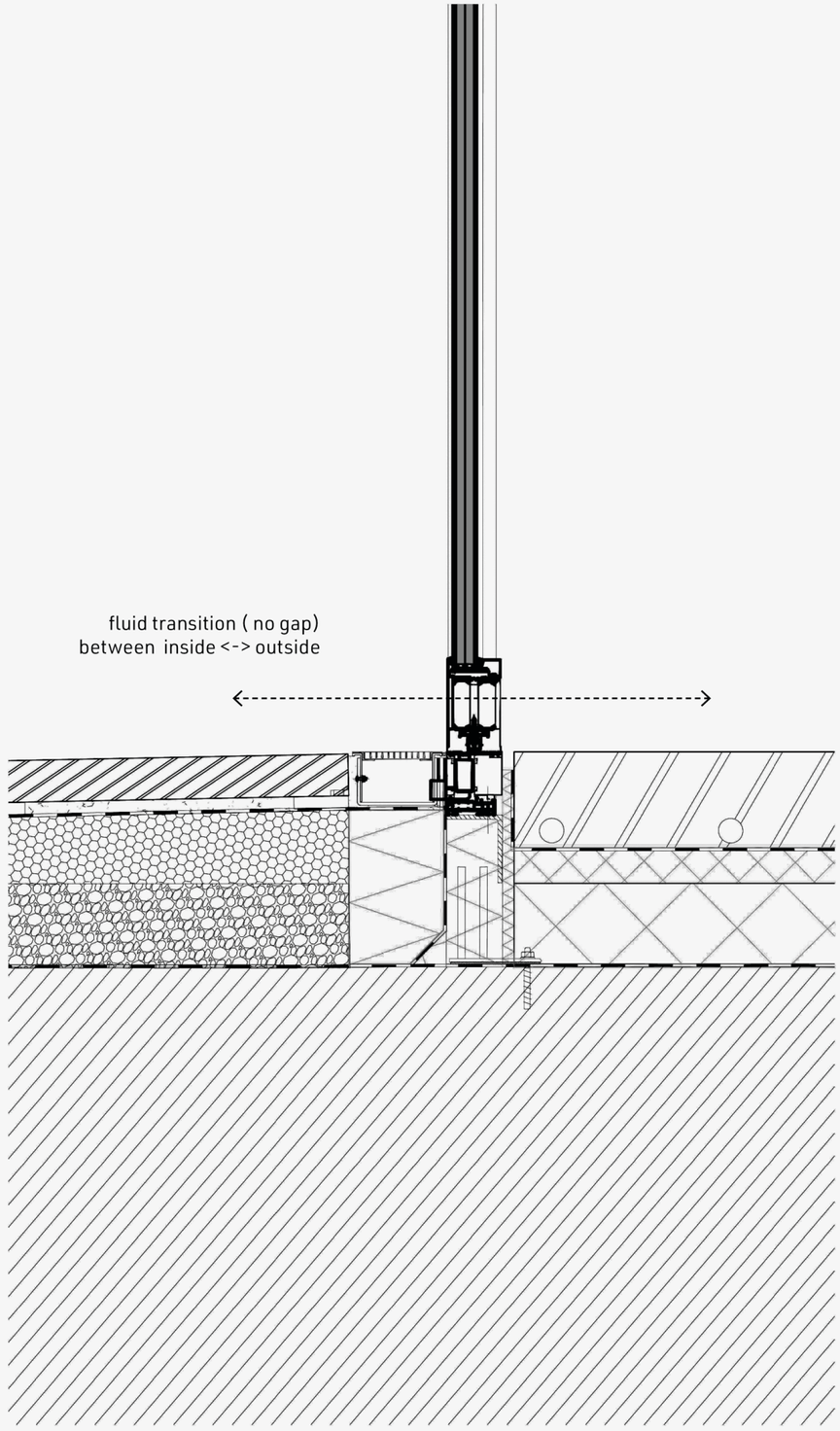
(wooden) columns with the same wooden cladding as the cladding of higher levels

Natural Stone 50mm
Permeable Infill 10mm (between brickwork holder)
Gradient Insulation Isolair 40-65mm
Insulation Isovlas 70mm
Reinforced Concrete 1800mm

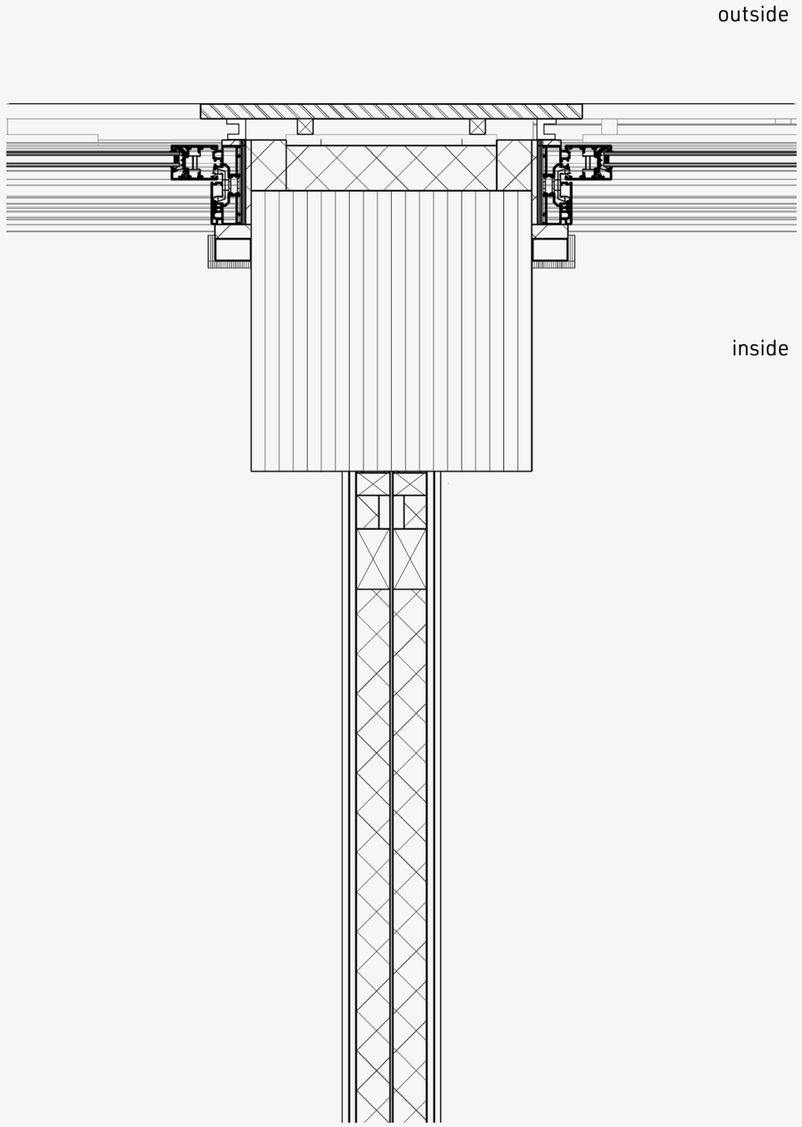
Screed with under Floor Heating 75mm
Impact Sound Insulation Steico Therm SD 30mm
Insulation Isovlas 70mm
Reinforced Concrete 1800mm

DETAIL SECTION D5 GROUND FLOOR

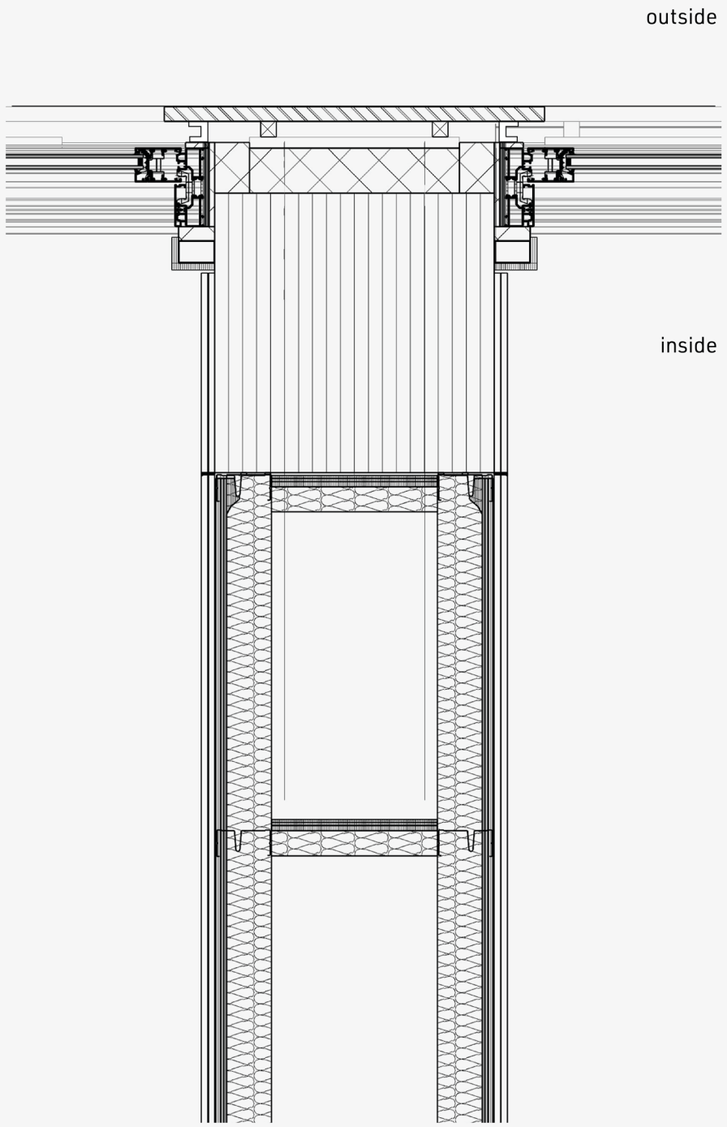




HORIZONTAL SECTIONS



Standart drywall

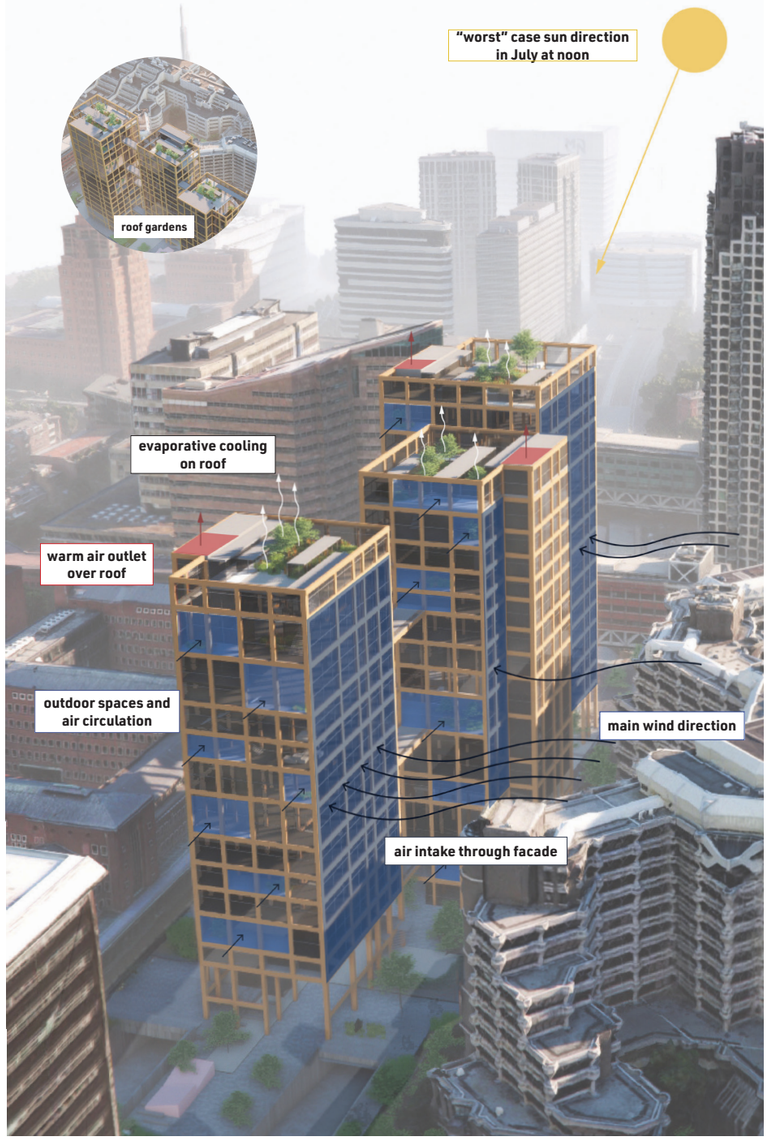


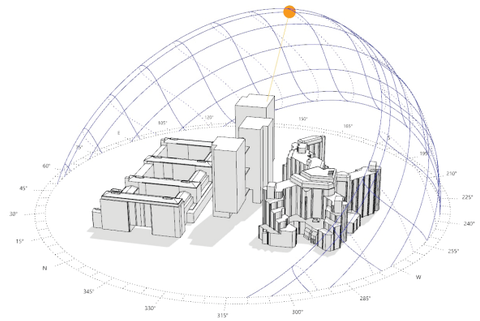
Acoustic hollow wall (for vertical routing of electricity, air, and water to achieve maximal flexibility).

LOCATION CONDITIONS AND DESIGN IMPACTS

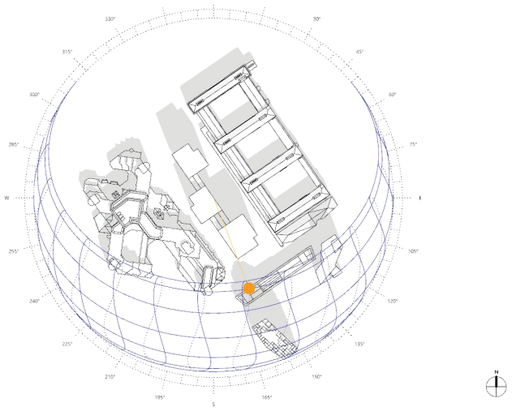
In graphics 1) and 1.1), it can be seen from where and at what angle the sun's radiation impacts the building. The momentary sun location and shadow are set to July 20th, which is around the time when the most heat input can be expected.

In graphic number 2), it can be observed from which direction the wind will come toward the campus building in summer (20th of June to 29th of August). This knowledge is used to place the outdoor spaces of the building in the directions where not too much wind is expected. These are the sides north-west and south-east.

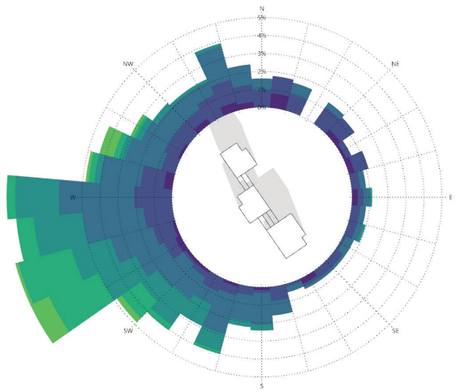




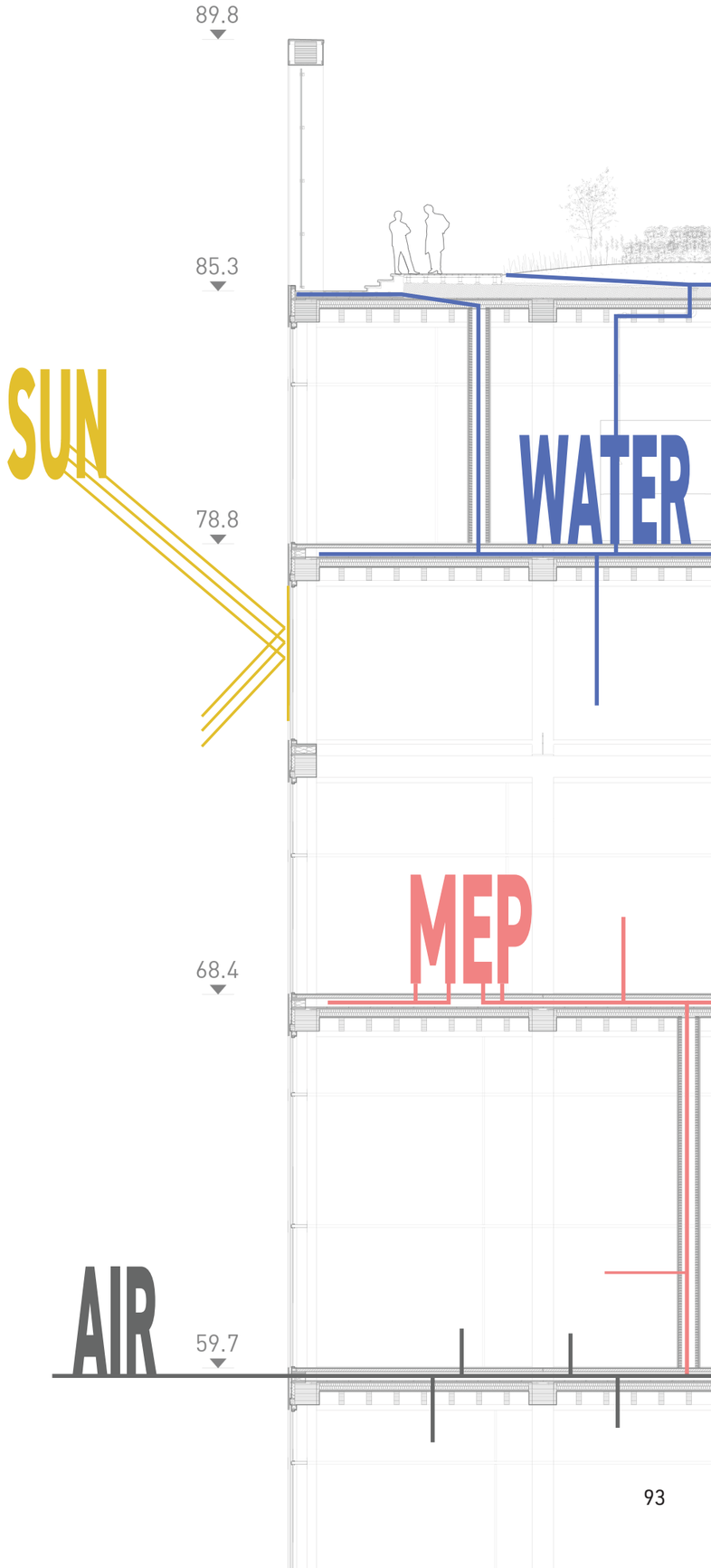
1) Yearly Sunpath at the Location and Shadow Cast in July (noon)



1.1) Yearly Sunpath at Location and Shadow Cast in July (noon)

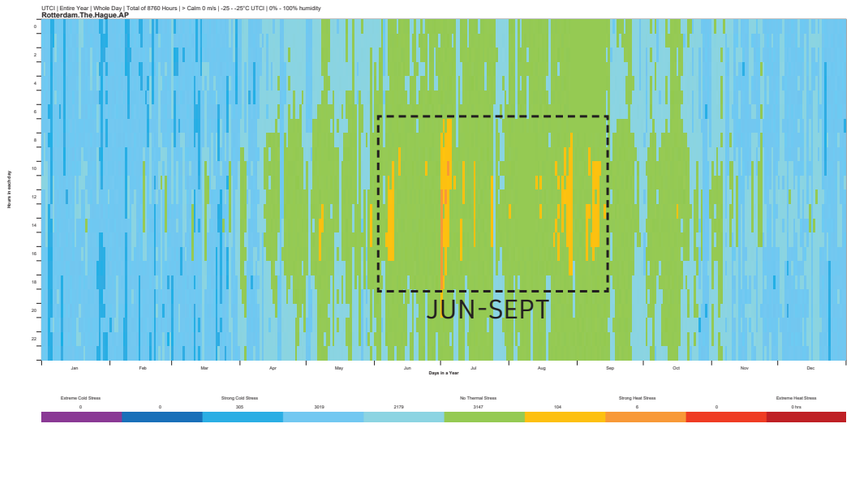


2) Wind Rose at Location

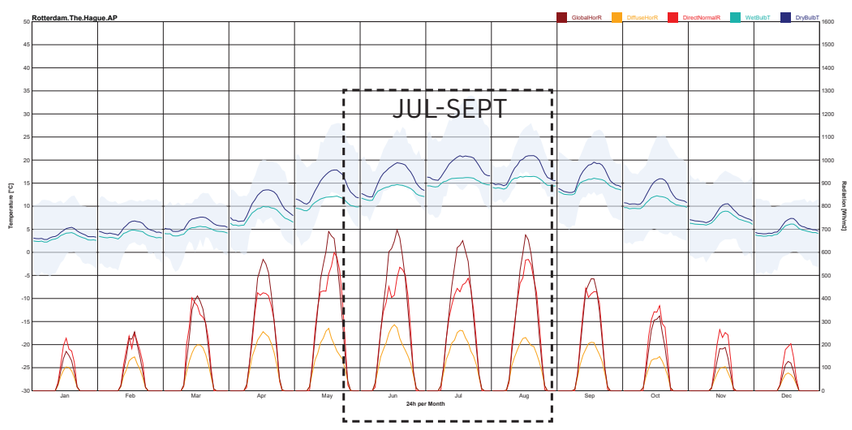


DISTRIBUTION OF HVAC AND MEP

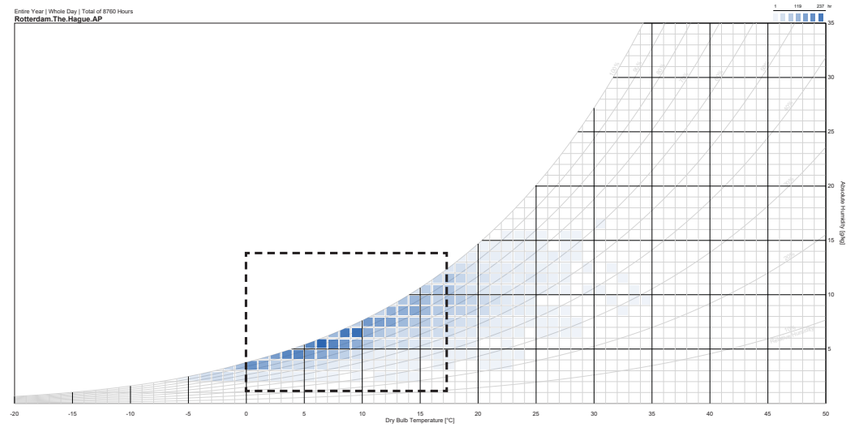
In diagrams 3), 4), and 5), it can be seen when the most heat stress can be expected for the site. This can be used to make assumptions for calculating the HVAC system size (Heating, Ventilation, and Air Conditioning).



3) Hourly Heatmap Rotterdam/The Hague



4) Diurnal Averages Rotterdam/The Hague



5) Psychorometric Chart: Rotterdam/The Hague

MEP (Mechanical, Electrical, and Plumbing equipment) location decentralized no basement available and roof should not be sacrificed)

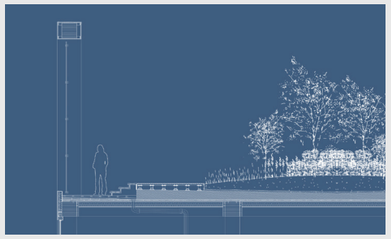
decentralized ventillation through concealed facade intakes, air ducts conveniently routet throughhollow walls and floors

PV + exterior shading in critical locations and openable windows in lower levels for air circulation

water retention on roof and landscape grey water use within building flexible pipe routing through floor and walls

MITIGATING RADIATION

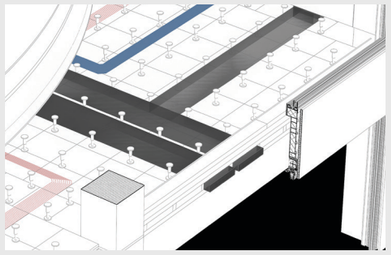
evaporative cooling on roof

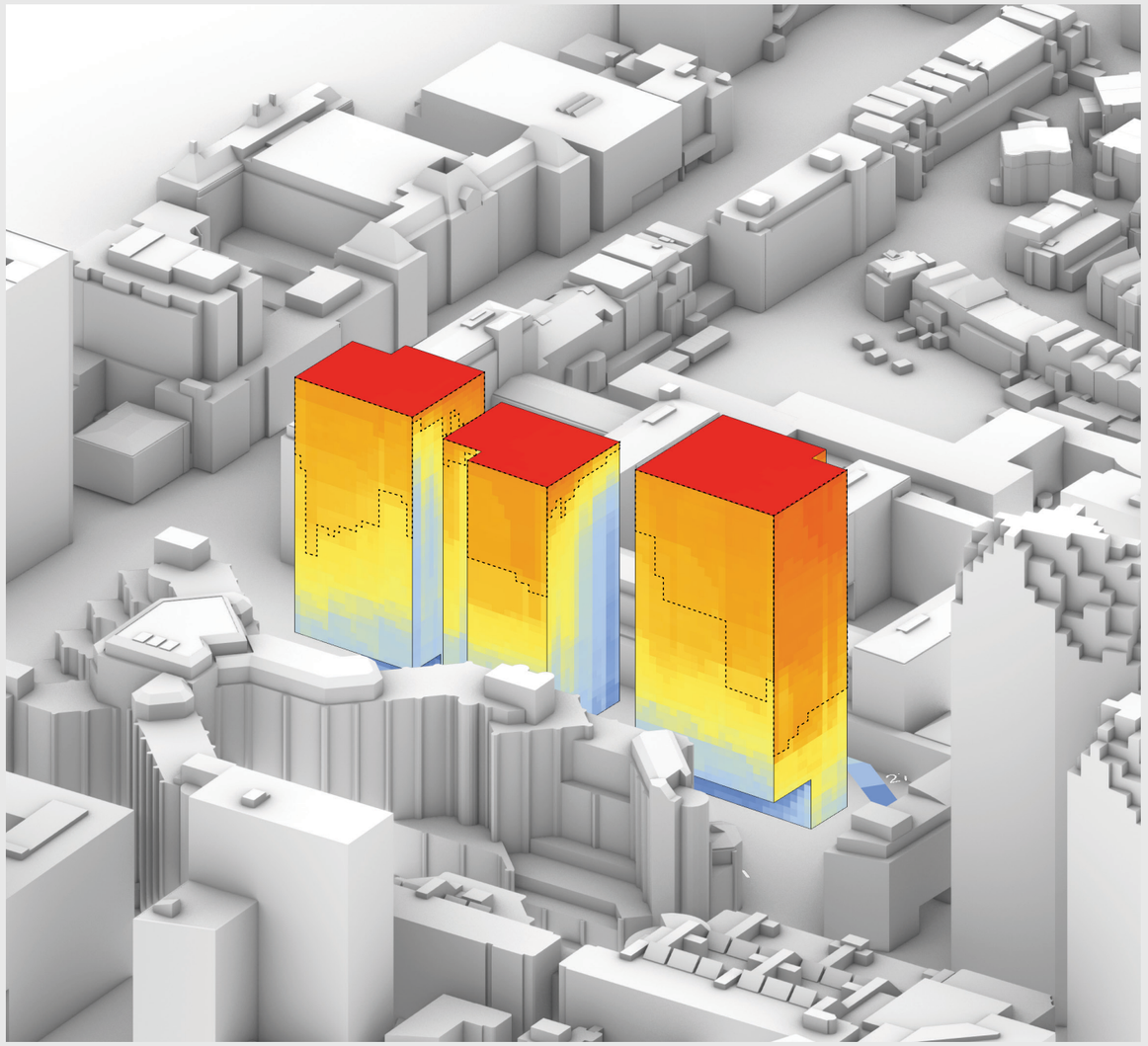


integrated PV
(in regions of dotted line)

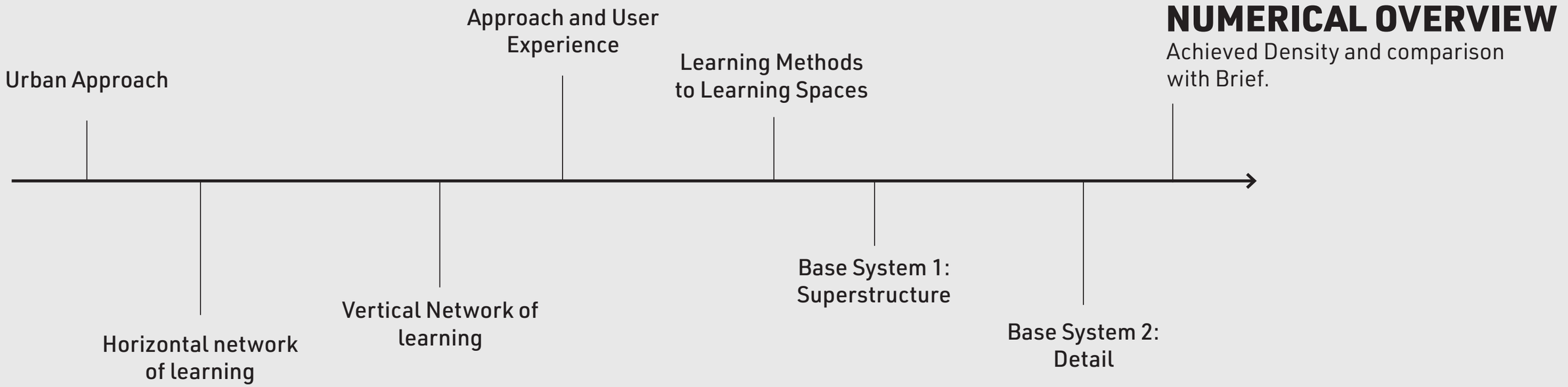
exterior shading

decentralized ventiallation



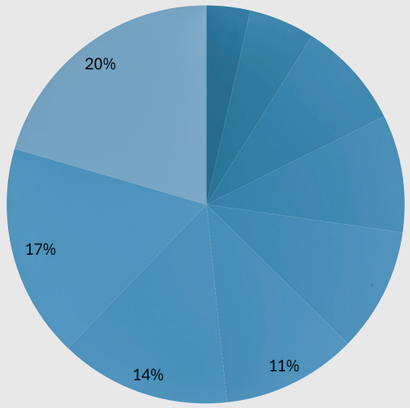


Locations that need special attention: evaporative cooling on the roof, integrated pv and exterior shading on the facades


Urban Approach
Horizontal network of learning
Vertical Network of learning
Approach and User Experience
Learning Methods to Learning Spaces
Base System 1: Superstructure
Base System 2: Detail
NUMERICAL OVERVIEW
Achieved Density and comparison with Brief.

NUMERICAL OVERVIEW:
TOTAL AREA

largest GFA occupations

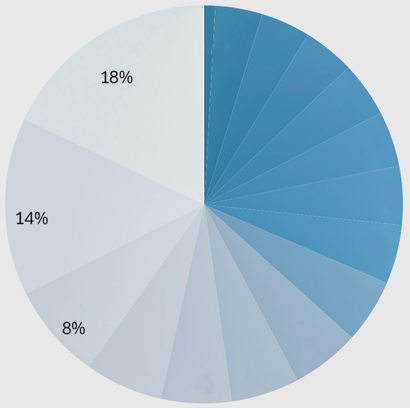


20% storage, circulation, MEP
17% Office Space
14% Café/Food/Lounge
11% Research Facilities

Entrance 326
Commercial Space 1456
Café and Lounge 2814
Learn and Daycare 1727
Learn Group Studio Space 1632
LIbrary and Mediacenter 2008
Workshops 1615
Center for Advanced Virtuality 1507
Research Space 2288
Intense Learning 1890
Lecture Theaters 1379
Exhibition Space 1723
Sports Center 2070
Office Space 5223
Bar and Event Space 2006
Storage, Circulation, MEP 6482

(GFA): 32.413 m2

largest Landscape occupations

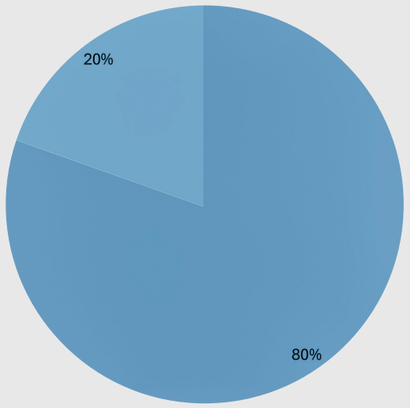


18% Forum/Plaza/Seating
14% Green Leisure Park
8% Workshop Pavillion

open-plaza with seating 1617
green leisure park 1365
workshop pavillions 1094
forum plaza 757
food trucks, flea market 422
bike parking 867
café 797
interactive exhibition 691

LANDSCAPE 7.891 m2

Floor Area Ratio



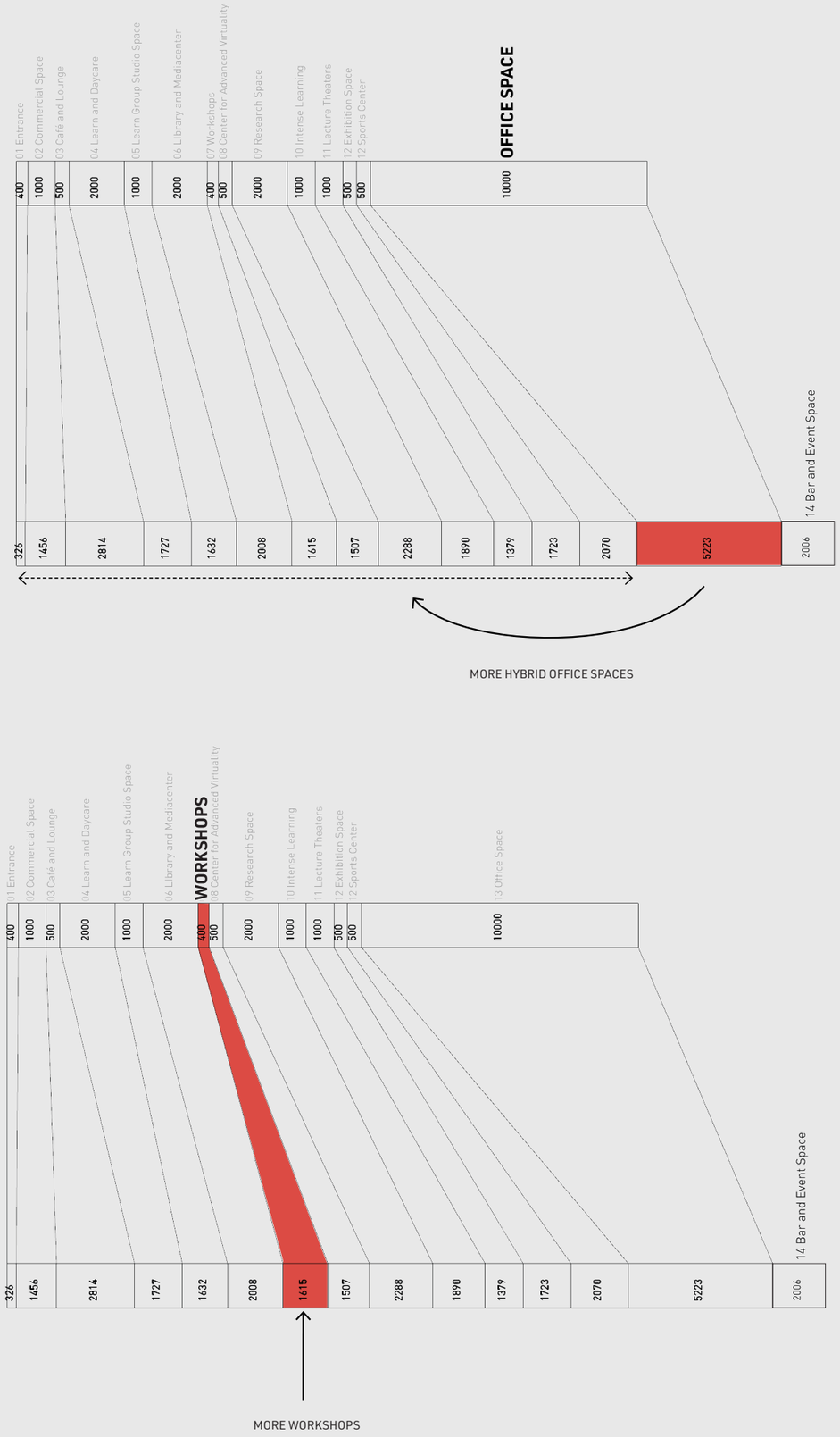
80% to 20%: FAR 4

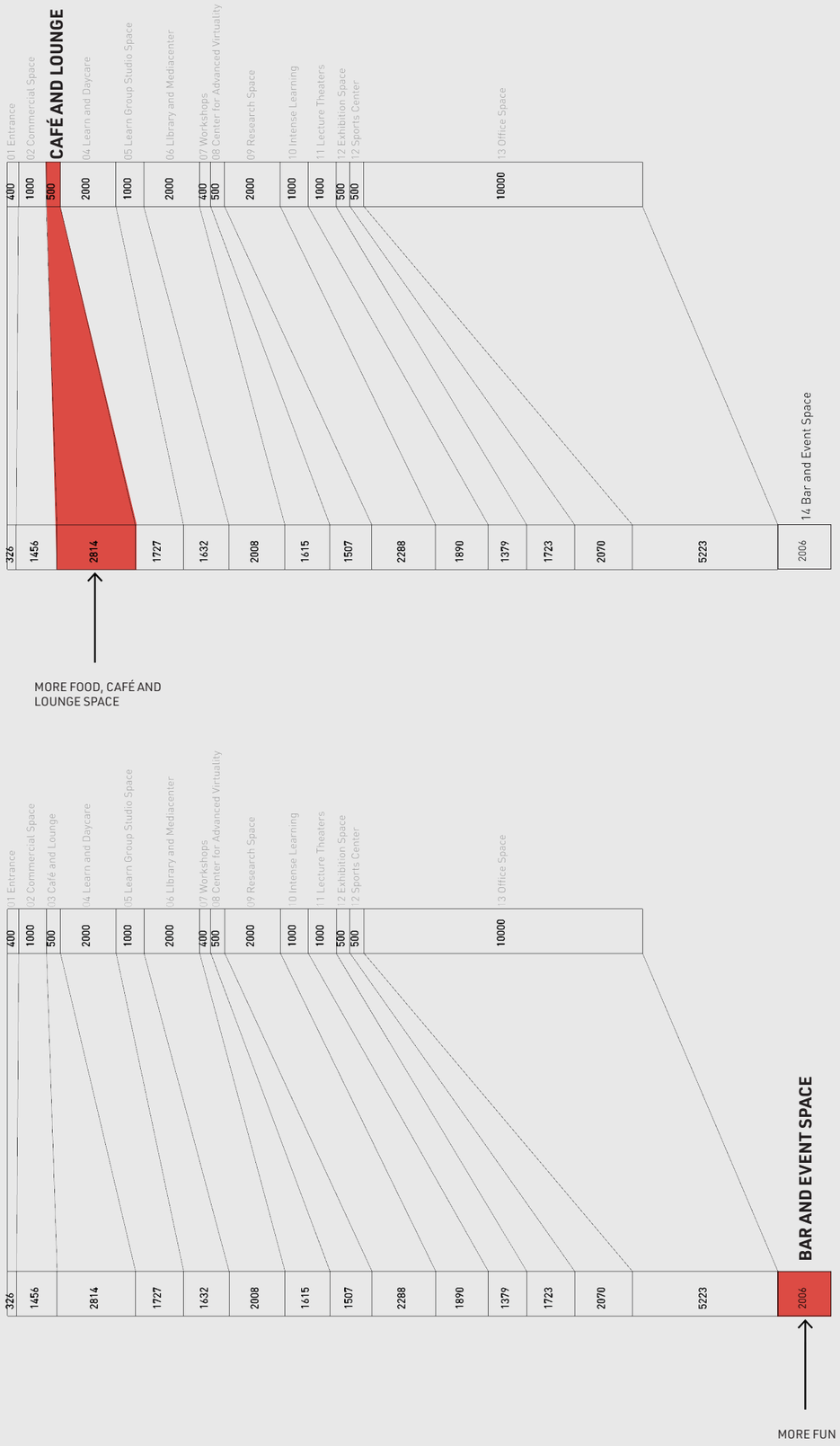
GFA	32.413
Landscape	7891

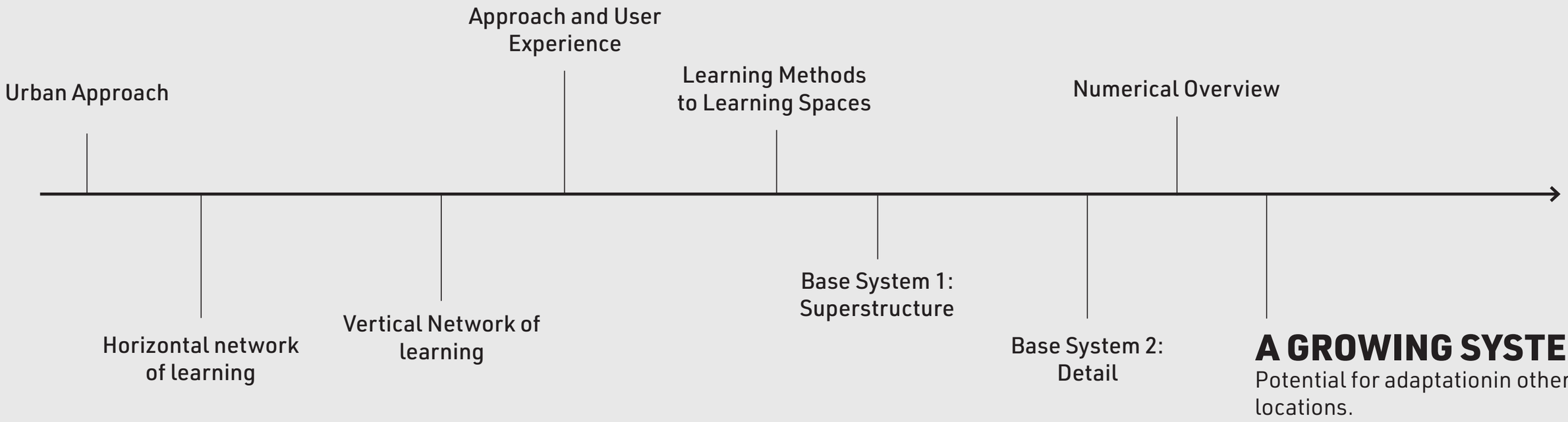
TOTAL: 40.304m2

Areas: Brief vs. Design proposal

Deviations from the Brief

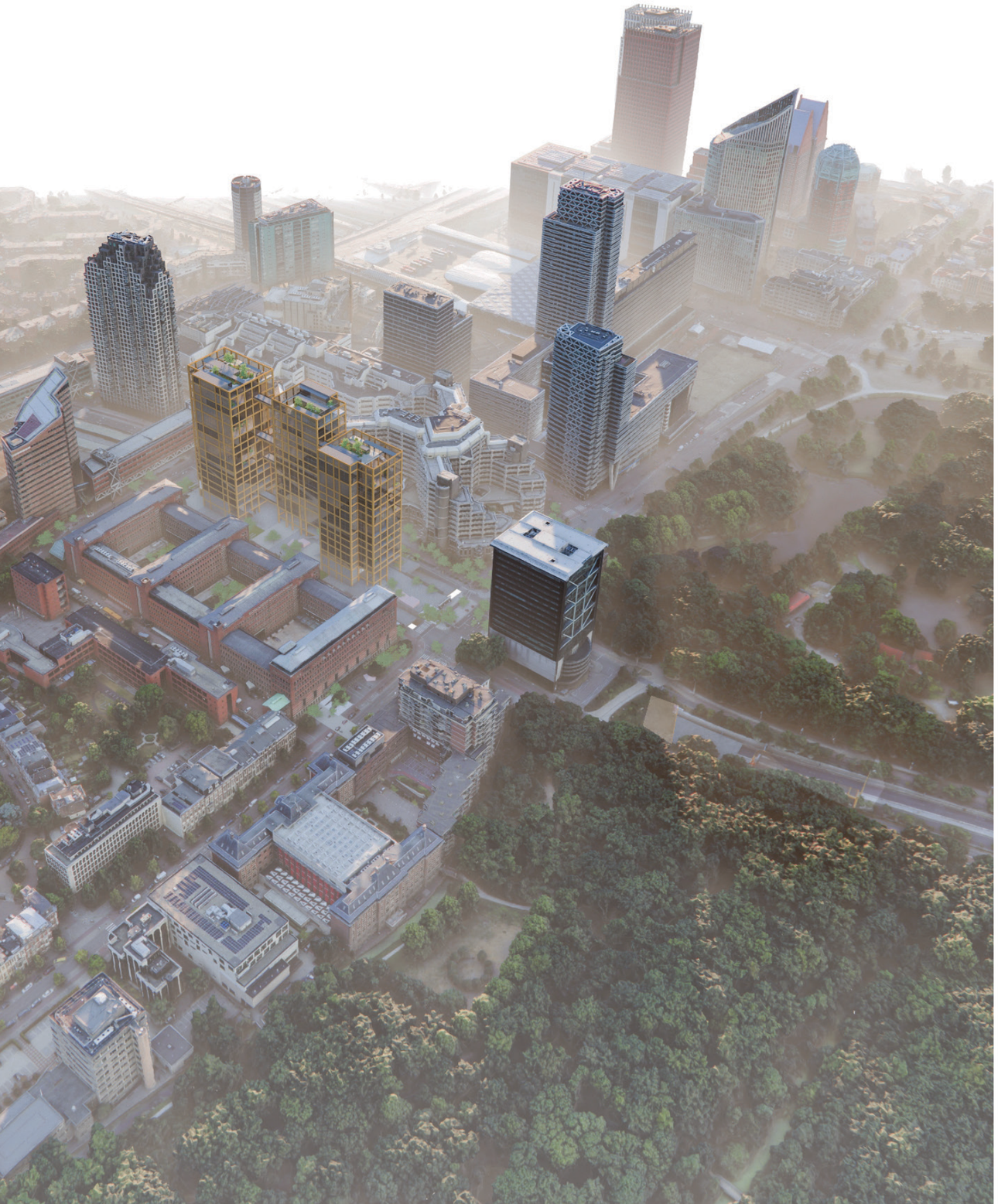





Urban Approach
Horizontal network of learning
Vertical Network of learning
Approach and User Experience
Learning Methods to Learning Spaces
Base System 1: Superstructure
Base System 2: Detail
Numerical Overview
A GROWING SYSTEM
Potential for adaptationin other locations.

POTENIAL:

EXTENDING BEYOND THE SITE



APPENDIX

REFLECTING ON MULTIPLICITY (1/4)

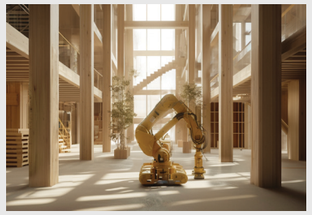
The design of the Vertical Campus embraces multiplicity, featuring a variety layout sizes and specialized functions to cater to diverse needs. It includes for example study spaces, experiential indoor gardens, lecture halls, climate studios, exhibition spaces, workshops, student homes, and specialized laboratories. Some areas are specifically designed influenced by effective learning methods that were analysed to be especially beneficial to the development of the skillsets of graduate students. Notable among these are an immersive sensory space inspired by Kolb's experiential learning theory, an amphitheater-like room that encourages discussions grounded in critical pedagogy, and a workshop that supports hands-on, problem-based learning reminiscent of the apprenticeship model.

These diverse spaces are not only interconnected within the building but also linked to among each other via external bridges. The design showcases a three-dimensional arrangement that varies in density, characteristics, and orientation, focusing on multipurpose use and community involvement.

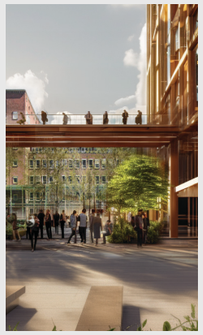
The Vertical Campus serves a wide audience, transcending traditional academic boundaries to facilitate lifelong learning opportunities for professionals and making educational resources available to all residents of the city. This approach establishes the campus as a central hub for community interaction, integrating it seamlessly with the urban context of The Hague's central governmental and international zone.

1. Design of varying densities to cater to different uses and interactions.
2. From openly public to secluded spaces.
3. Translation of educational methods into spatial configurations to enhance learning experiences.
4. Integration of neighboring buildings and creation of a holistic design/master plan for the neighborhood.

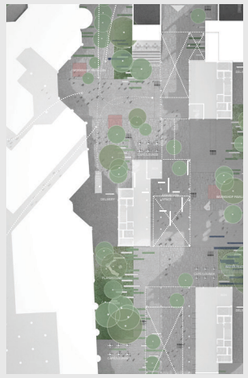
unique
open ground floor



vast workshop
spaces



interconnected towers

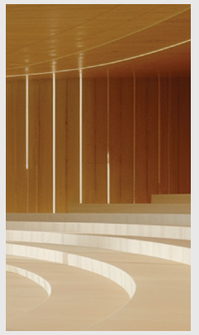


lecture halls, water feature, playground, wooden deck...

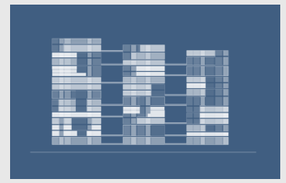
interior gardens

cut-through space

vertical +
horizontal network of
spaces



organic amphi-
theater

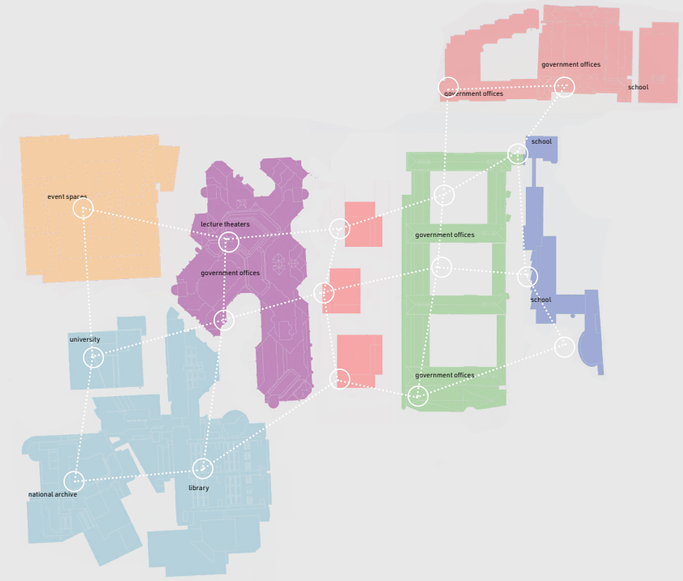


dense vs open

REFLECTING ON HYBRIDITY (2/4)

The project exemplifies the Public Building Graduation Studio's goal to merge diverse functions and cultural elements within a single academic setting. It blends educational, public, political, and industrial elements to create a dynamic hub where students, faculty, government officials, and business leaders actively collaborate. This integration transforms the building into a center for interdisciplinary activities and community interaction. The design incorporates a vertical campus, which simultaneously has many features found in a more horizontal layout. This approach not only addresses the spatial limitations of traditional universities but also enriches the multifunctional nature of the educational space. The integration with neighboring structures optimizes the use of existing office buildings and lecture halls, positioning the university within a broader urban and societal context.

1. Integration of educational, political, and industrial programs.
2. Incorporation of neighboring buildings and their users.
3. Positioning of the educational system as a political actor, driver of change, and mediator.
4. Open access policy with no admission restrictions.
5. Implementation of a horizontal campus layout within a vertical structure to counteract spatial isolation.



combination of public, industry and education

hybrid, interwoven program

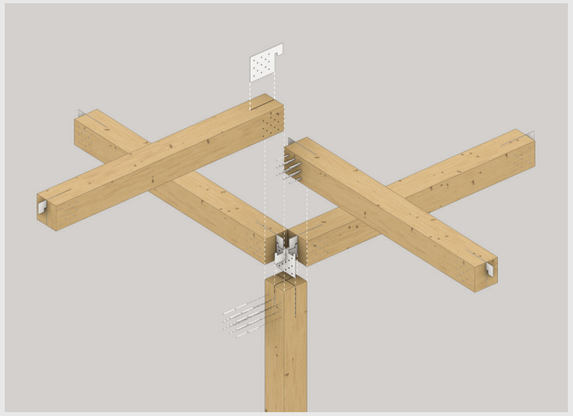
REFLECTING ON RESILIENCE (3/4)

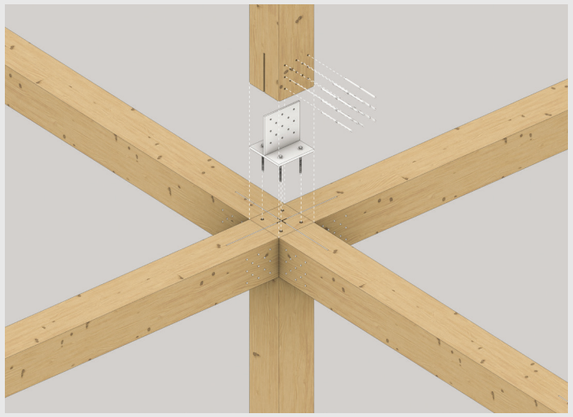
The structural system of the Vertical Campus is designed for resilience, featuring reversible connections that allow for future interior modifications. The layout includes a diverse array of sizes, which can be adapted based on evolving needs. Hollow floors and walls enhance the building's versatility by facilitating MEP (mechanical, electrical, and plumbing) outfitting without being confined to the core, which supports varied program placement.

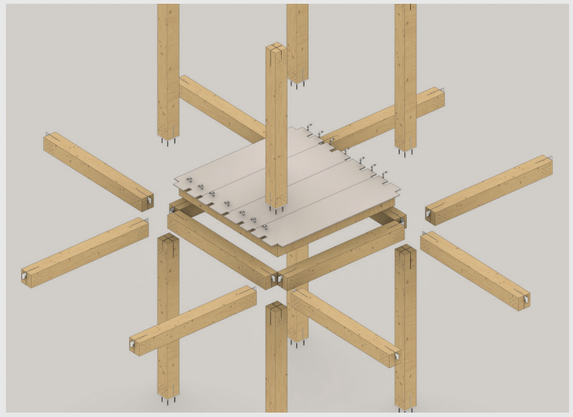
The adaptable nature of the design's underlying system ensures resilience to changing conditions. Floor heights are adjustable, and even additional cores could potentially be integrated into the design if needed. This would not compromising the integrity of the design which is made possible by the underlaying flexible system. Exposed construction elements not only serve educational purposes but also ease modifications, showcasing the aesthetic of natural wood. Imperfections and marks from potential future changes to its internal layout would only add to the buildings aesthetics instead of a need to cover these up as it might be the case in other designs.

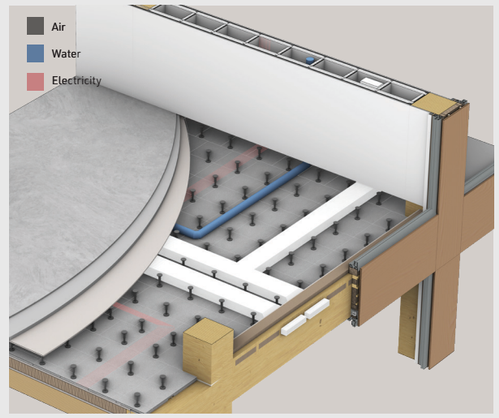
In responding to the challenges of urban densification, the design of the Vertical Campus optimizes the limited urban footprint by allowing multifunctional use of the floor area. This approach ensures that the campus is well-prepared to handle future shifts in programmatic needs. The use of flexible/reversible building materials, such as wood and a low-tech approach, enhances the campus's ability to adapt to changes without extensive overhauls, promoting its long-term viability.

1. Implementation of reversible structural connections.
2. Hollow floors and walls for total flexibility in utility installations.
3. Wide variety of floor heights and space sizes, including adjustable floor heights.
4. Use of exposed natural wood to simplify future modifications.
5. Proposal of a system that can be customized to meet specific needs.









REFLECTING ON SUSTAINABILITY (4/4)

My graduation project promotes sustainable construction practices by highlighting the advantages of wooden structures due to their lower carbon footprint and greater flexibility for future modifications. These attributes support the long-term environmental sustainability of the campus by making it easier to adapt to changing needs compared to more rigid concrete constructions.

The design incorporates circular design principles to minimize energy use and support a climate-conscious approach, ensuring that the campus remains responsive to technological advancements and evolving functional requirements. The main load-bearing system features sustainably sourced wood, enhanced with the use of concrete beams only in areas where needed. This approach increases flexibility but maximizes efficiency. Key elements such as sustainable insulation and prefabrication elements are also integral to the project.

Water management is addressed through rainwater collection systems on the roofscape that reduce consumption and alleviate pressure on municipal drainage systems. The inclusion of a green roof including small trees not only aids the water retention but also decreases the building's thermal load. Additionally, outdoor shading reduces indoor heat stress while a decentralized ventilation system through the ventilated façade ensures efficient air circulation.

The design extends its sustainability focus to the surrounding environment by creating park areas that mitigates the heat island effect and offers recreational spaces for the community. It promotes social sustainability by fostering public integration and accessibility across the university. The rerouting of traffic underground or the limiting of access for cars in other areas prioritizes pedestrian space and develops vibrant street-level spaces. Economic sustainability is additionally bolstered by integrating industries within the campus to harness emerging talent and by repurposing nearby underutilized office spaces and lecture halls to increase their occupancy levels.

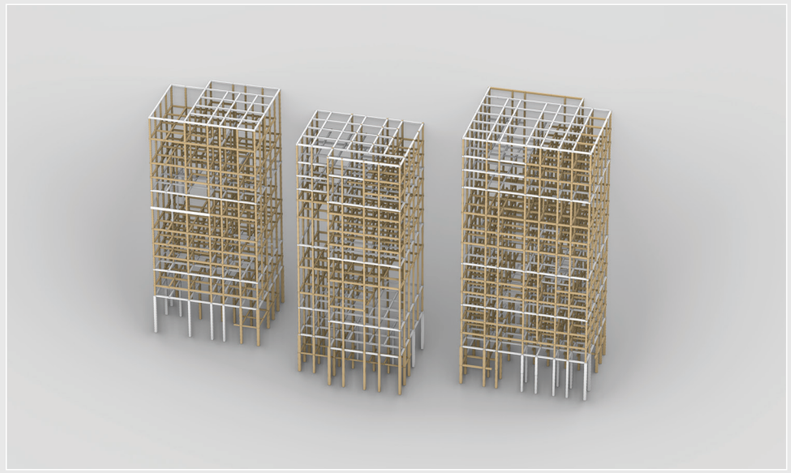
1. Utilization of a wooden superstructure combined with concrete elements to maximize structural efficiency.
2. Integration of decentralized mechanical, electrical, and plumbing (MEP) systems.
3. A water collection system to minimize water usage and reduce the burden on the municipal water system.
4. Incorporation of sustainable insulation materials and prefabrication techniques.
5. Installation of green roofs and outdoor shading structures to decrease thermal load.
6. Development of park and water areas to mitigate the urban heat island effect.

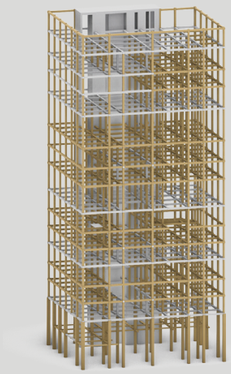
MEP (Mechanical, Electrical, and Plumbing equipment) location decentralized
no basement available and roof should not be sacrificed)

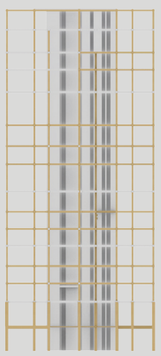
decentralized ventillation through concealed facade intakes, air ducts conveniently routet throughhollow walls and floors

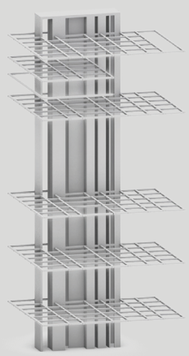
PV + exterior shading in critical locations and openable windows in lower levels for air circulation

water retention on roof and landscape
grey water use within building
flexible pipe routing through floor and walls









REFLECTING ON CONTEXTUALITY (5/4)

Architecture should always embrace contextuality to ensure designs are deeply integrated with their **specific environments** and responsive to **local needs and opportunities**.