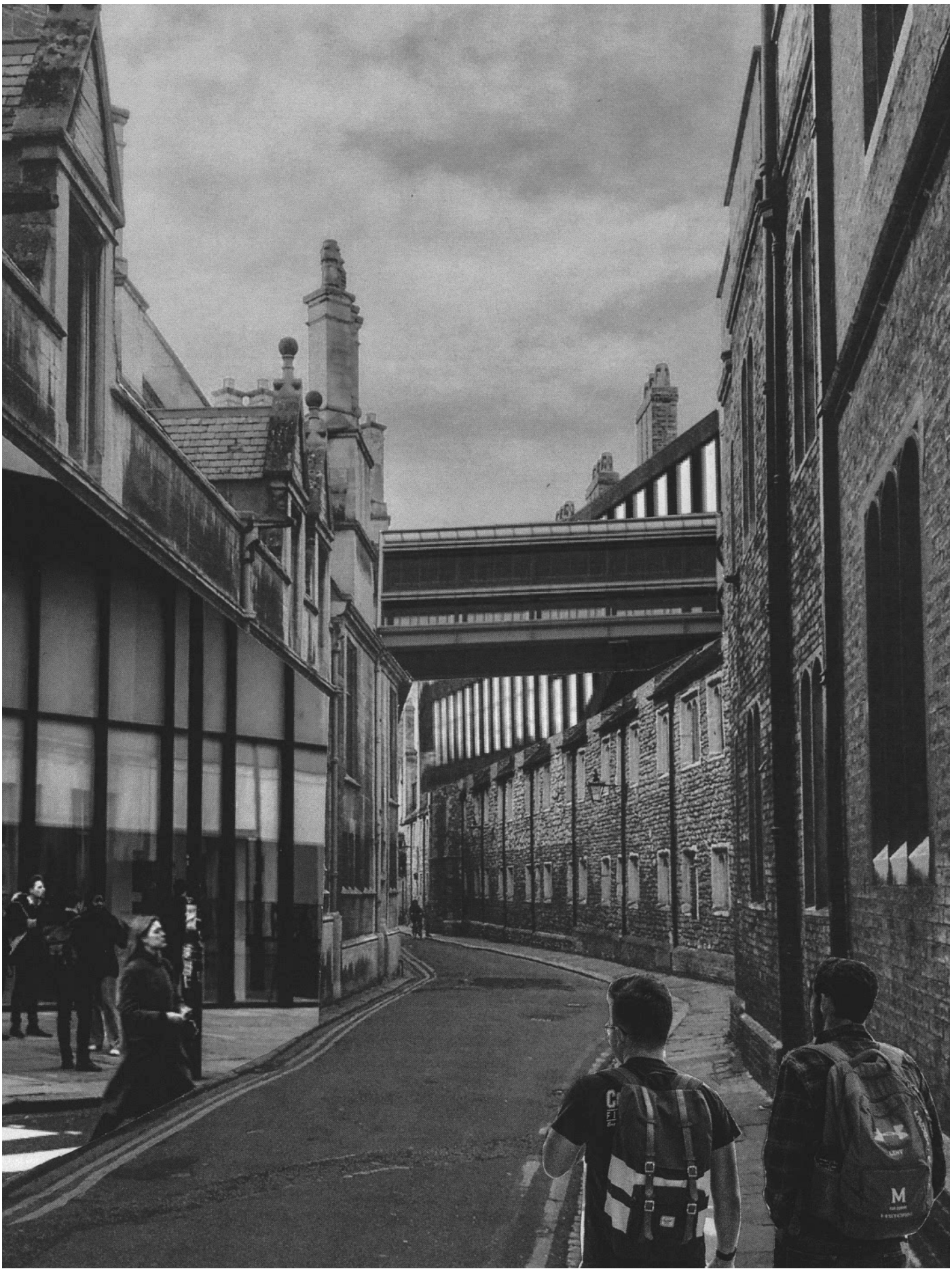
Cosmopolitan

Connecting the worlds of academia and city



Cosmopolitan

Connecting the worlds of academia and city

MSc Architecture, Urbanism and Building Sciences
TU Delft

Public Building Graduation Studio
The Vertical Campus: a Public Hub of the Future in The Hague
AR3AP100
2023/2024

Name
5708990

Tutors:

Paul Kuitenbrouwer
Gosia Golabek
Piero Medici

Table of contents

01. Introduction

Design assignment

Vertical campus

You might recognize a campus as a constellation of university buildings and student housing, stretched horizontally over a certain area: a traditional, fixed environment. However, over time, campuses started to recognize the importance of providing spaces for relaxation, socialization, and recreation, understanding that a well-rounded education extends beyond the classroom. They began to include leisure and entertainment functions in addition to these traditional educational ones.

The studio introduced the idea of a **vertical campus** to offer new possibilities regarding these new elements of education. A Vertical Campus offers a dynamic environment where learning, work, and recreation coexist, blurring the lines between academic life and city life. In addition, vertical campuses may offer solutions to the demands of universities in dense urban environments, and at the same time integrate them more closely with the urban fabric to allow for **stronger connections** between the **academic community** and **the city**. Therefore, the vertical campus is a profound shift from the traditional horizontal spread of university campuses.

The assignment was to design a hybrid building for higher education. The design should be built around this previously introduced dynamic environment, and so facilitate and **encourage public interaction** between academia, citizens, businesses, governmental institutions, and so on.

As an introduction to colleges and campuses, the studio group went on a field trip to London and Oxford. In Oxford, we visited several traditional colleges like All Souls College. In London, we visited more contemporary university buildings like London School of Economics as part of the University of London. While the terms college and campus are sometimes used interchangeably, their actual meanings differ. Both models can be explained with the help of projects in Oxford, Cambridge, and Charlottesville in the following paragraph.

Evolution of campus

Inward facing courtyards

From the thirteenth until the sixteenth century, colleges had a spatial model designed primarily for housing and shared facilities for teachers and students associated with a university. The model of construction consistently featured a courtyard building facing inward, for it to be closed off from its surroundings. This caused the public streets to be seen as backsides, and only occasionally interrupted by closed gateways and doors, limiting public access. Behind these walls, trees, and spires emerge. The spatial layering was visible yet remains inaccessible. In Cambridge, **Trinity College** and **Gonville and Caius College** that are located on either side of Trinity Lane showcase this model. The two cities feature a complex spatial structure where a network of enclosed courtyards intertwines with a traditional layout of city streets and squares.

1:3000

Legend

Reach from center

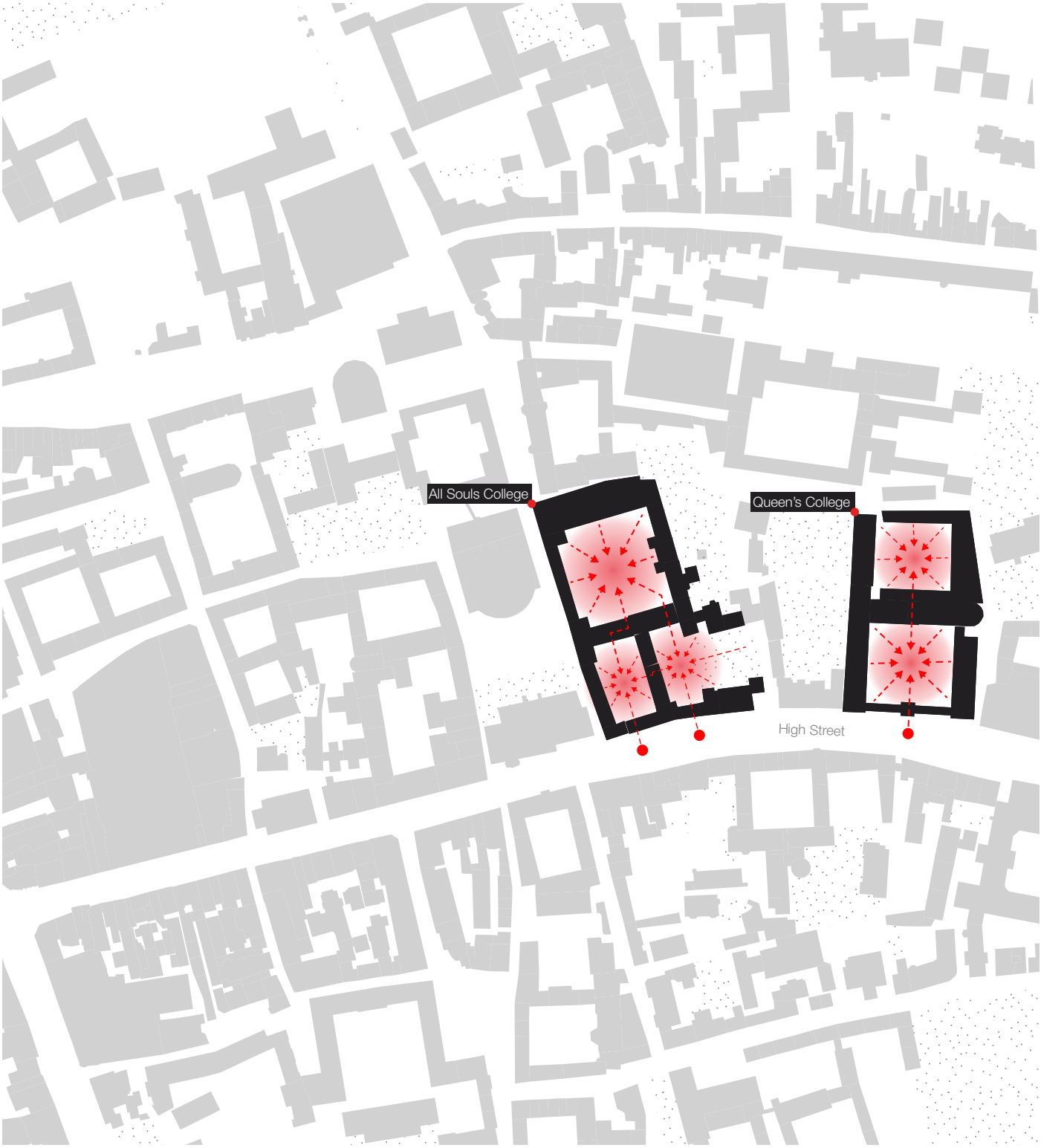
Entrances

Walking paths

Evolution of campus

U-shaped compositions

With time there were new developments in Cambridge and Oxford expanding upon the existing. A more contemporary spatial structure for buildings was being introduced. Courtyards were no longer fully seperated from the city, but rather enclosed by the U-shaped compositions of the buildings that opened up towards the city. Yet at the transition point between the courtyard and the city there still was a closed screen or wall, with a gateway in the middle. This allowed the traditional inward-looking nature of the college to be retained. During the field trip of our studio, we visited Oxford. Here, **All Souls College** and **Queen's College** showcased this model. They were located along the active High Street, that could be considered the main road of Oxford.



1:3000

Legend

Reach from center

Entrances

Walking paths

Evolution of campus

Interconnected pavillions

In the eighteenth century, architect William Wilkins developed this model of U-shaped compositions that opened up towards the city, even further with the design of **Downing College** in Cambridge. He proposed the construction of several freestanding pavilions around a large central lawn laid out with grass and trees. The pavilions were only connected via a series of columns that together formed a screen. This design could be recognized as a radical break from the courtyard designs of the older colleges. The various buildings formed pavilions in an open green space, like temples in a landscape. Therefore, this design would be one of the inspirations for the **campus**: a new model for university buildings and student housing that Thomas Jefferson would build upon later.

1:3000

Legend

Reach from center

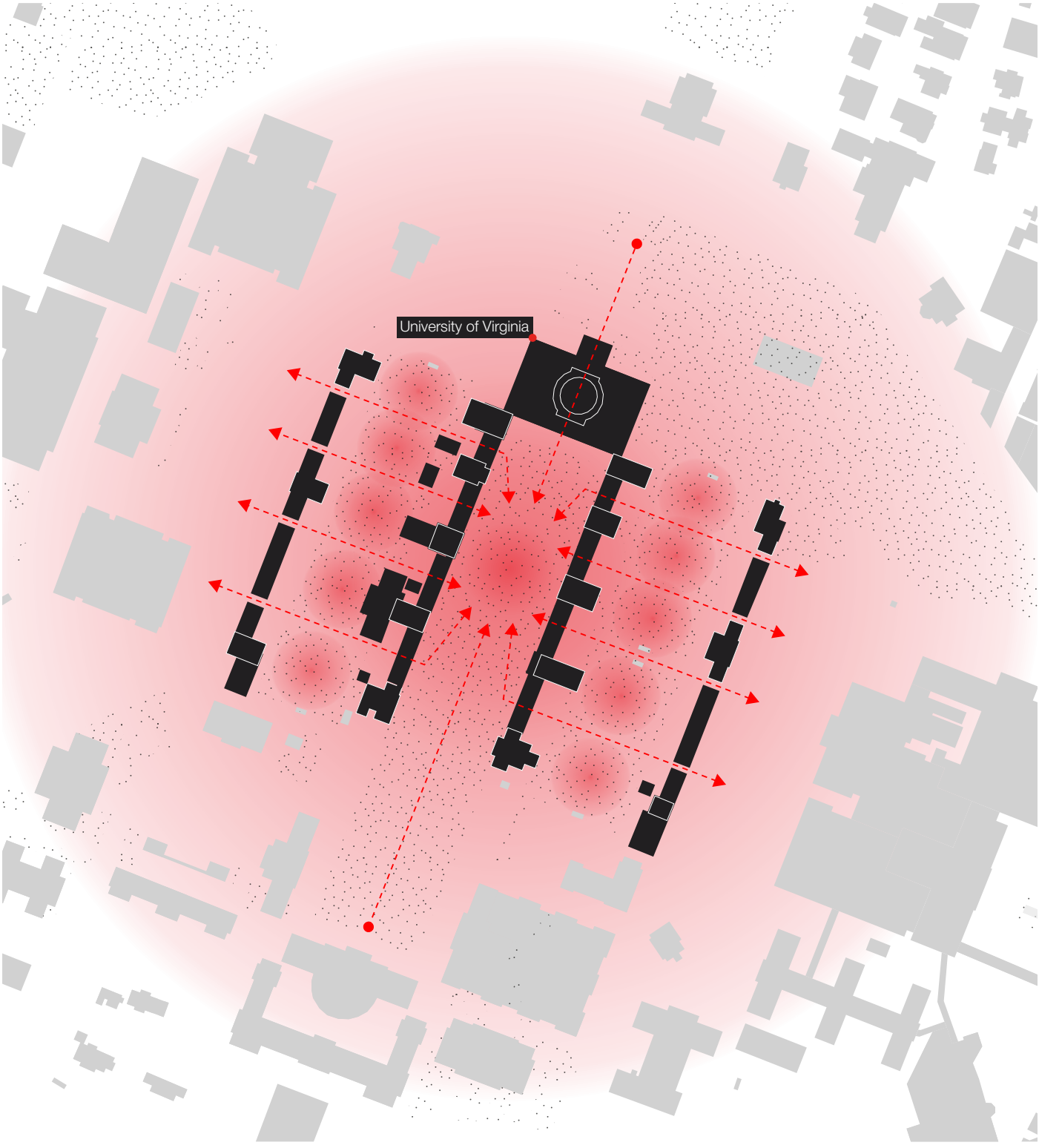
Entrances

Walking paths

Evolution of campus

Freestanding pavillions

In the nineteenth century, the design of William Wilkins served as a base for the **University of Virginia** in Charlottesville in the USA. This university was designed by American architect Thomas Jefferson as a series of buildings surrounding an open rectangular field (in Latin ‘campus’). On the long sides of the field were several houses connected by colonnades. Behind these connected buildings were gardens that were capped by a second row of houses. However, these were not connected but positioned next to each other as separate pavilions, making it not a backside, but rather another front side and emphasizing the idea of connectedness. This design introduced the campus as a boundlessness space in which only freestanding objects have been placed. This idea of connectedness was expressed even more by leaving one side unbuilt for the central field to open up towards the surrounding landscape. Universities were often built on the outskirts of existing cities as an open field could form the heart of the campus. This part of campus could be connected to surrounding fields and their buildings, forming a network. The campus had no fixed borders: it could grow into the cityscape by incorporating existing buildings.



1:5000

Legend

Reach from center

Walking paths

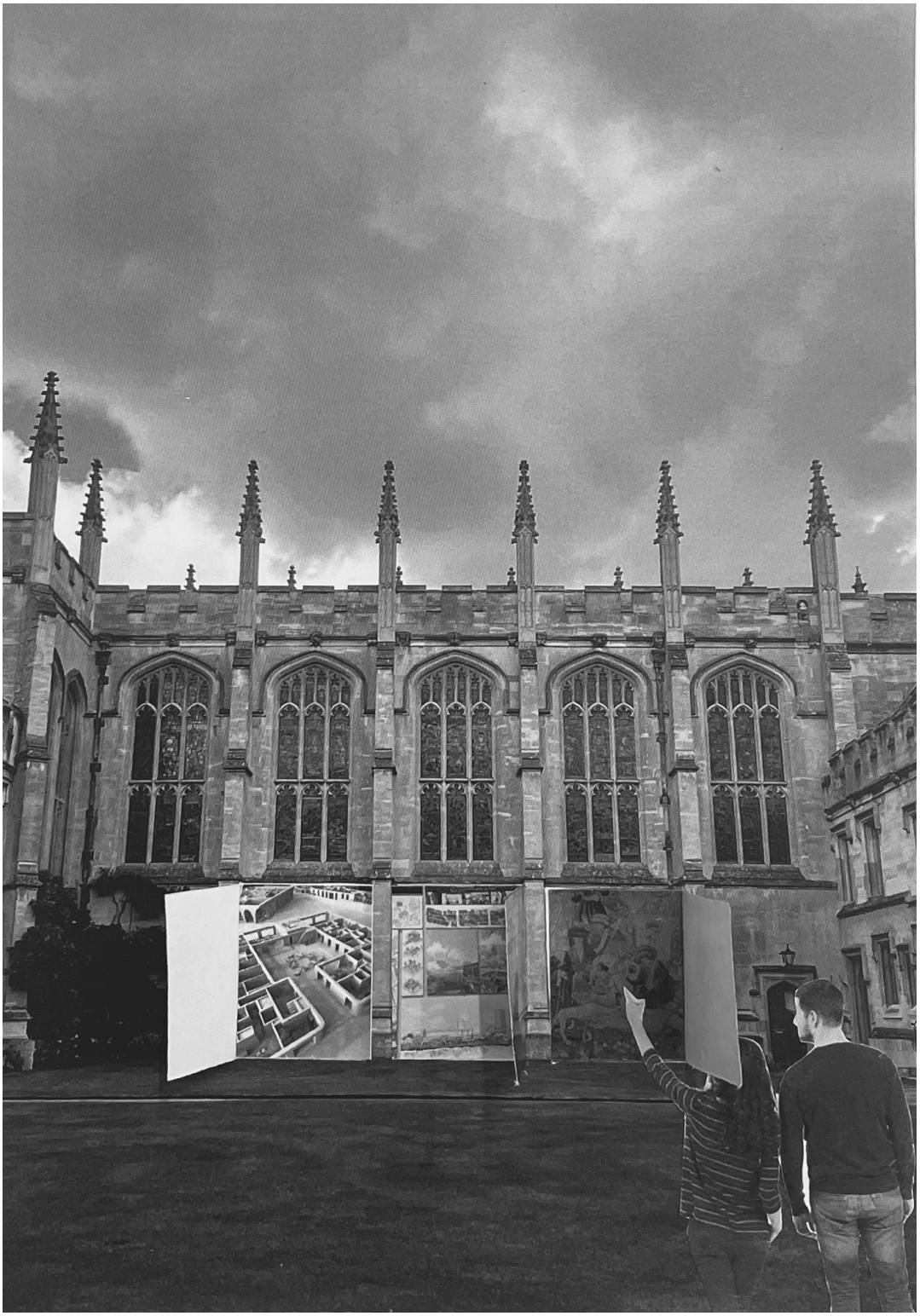
Entrances

Interconnective paths

Utopian collages

Trinity Lane

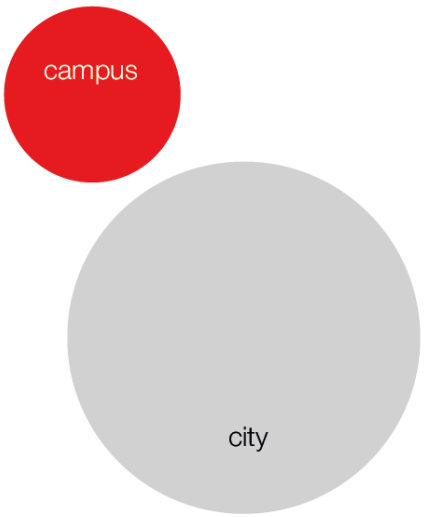
All Souls College

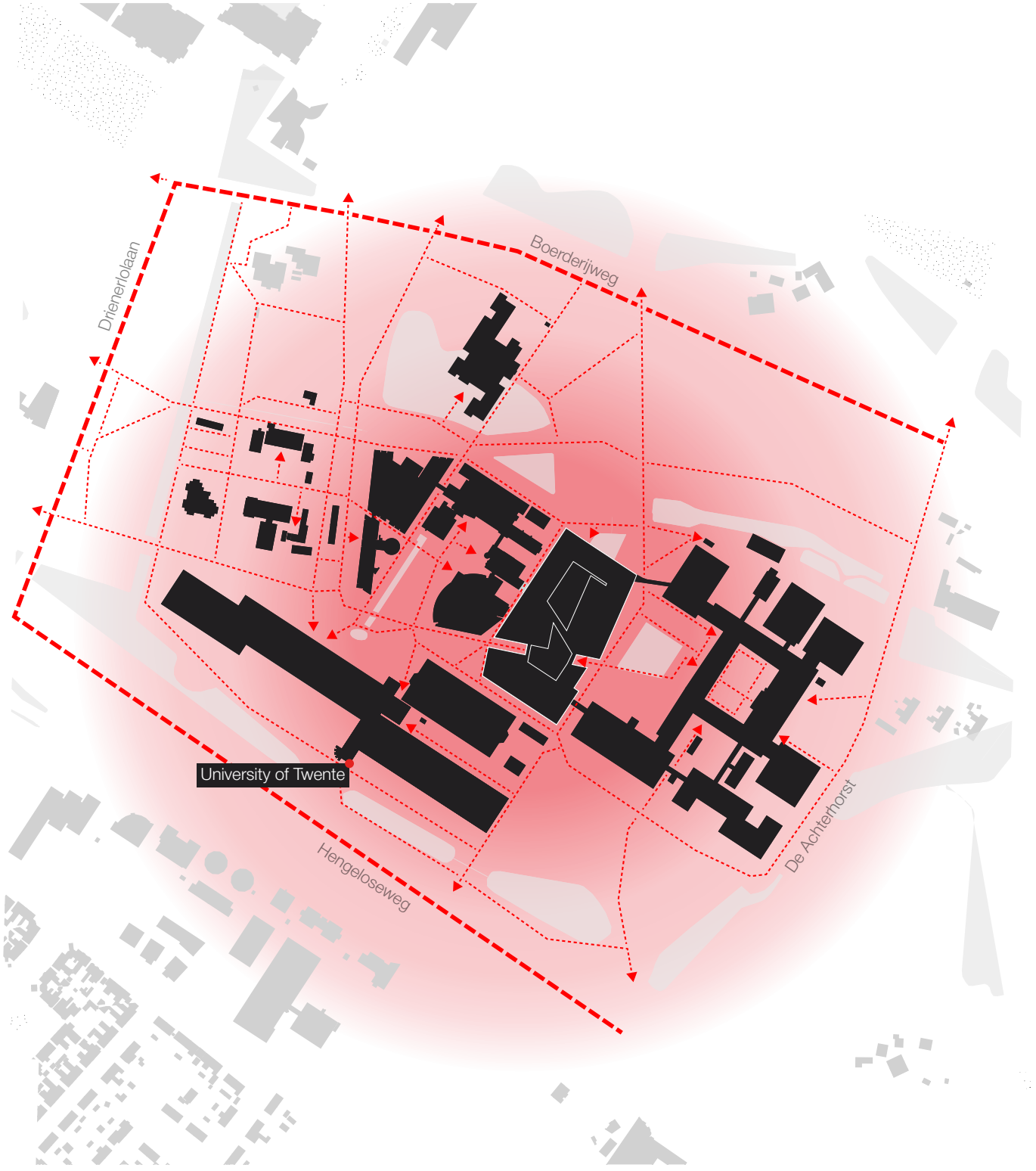


Dutch campuses

Campus outside of the city

We could distinguish three spatial configurations on the interplay between campus and city in the Netherlands. The first model, **campus outside of the city**, proposed campus as its literal translation, and idealistic idea: a green field in the open, purposely built outside of the city to seperate the academic community from influences from the outside world. This model is very uncommon in the Netherlands. This has to do with the relatively small distances, urbanization, and densification. This model is expressed way more in the United States of America with the previously mentioned University of Virginia. In the Netherlands, similar campuses are still located on cycling distance from the nearby city. It is remarkable how the campus works as a network of interconnected buildings that has no specific centre. An example is **University of Twente** in Enschede.





1:5000

Legend

Reach from network

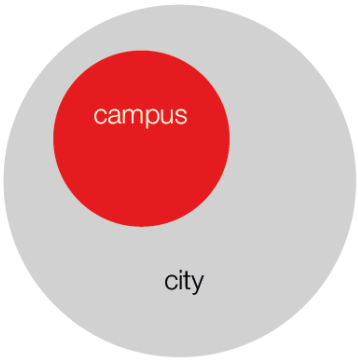
Borders

Interconnective paths

Dutch campuses

Campus isolated within the city

The second model, **campus** as a somewhat **isolated area within the city**, is the most common in the Netherlands. This model has clear borders that raise a barrier for the urban population who have no connection to the university. This model often has one centre that expands towards the city. Campus is located within the city, but still is an entity on its own and, therefore, is not really integrated in the city. This may cause certain campus departments to be seen as outcasts that do not fully belong either to the main campus, because they are not located in its center; or to the city. An example is the **Technical University of Delft** and its Architecture faculty.



1:5000

Legend

Reach from network

Borders

Interconnective paths

Dutch campuses

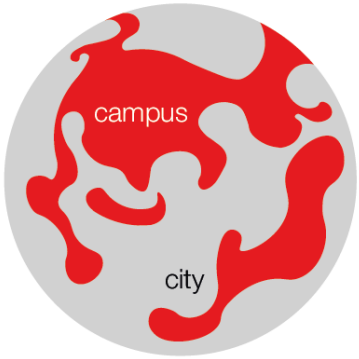
Campus partly integrated the city

The third model, campus integrated in the city, is fairly common as well. In this model, campus is part of the urban fabric by mixing university functions with housing, working, and other non-university functions like leisure and cultural activities. An example is the **University of Maastricht**.

Campus of the future

Campus fully integrated the city

This fourth model that I am proposing myself is the model according which I am designing this vertical campus. It proposes campus as a fully integrated area within the city. This means that campus users make use of city program, but city users can also make use of campus program. I believe that there should be a **two-sided interplay**.



02. **Context**

The Hague

Introduction

With a population exceeding half a million, The Hague is the third-largest city in the Netherlands, following Amsterdam and Rotterdam. The city is located in the southwest corner of the larger Randstad conurbation, one of the largest conurbations in Europe, and faces the North Sea (figure x).

In the 1960s, a discussion in the Netherlands began about the need to increase the socio-economic impact of Dutch cities within a European perspective. The average size of the Dutch cities was considered insufficient to compete in the transnational market of major capital cities. Since then, the idea of the Randstad emerged. Instead of planning the growth of each city within the Randstad region independently, it was considered more efficient to think in terms of clustering, strengthening the mutual connections of the cities.

According to the new 2050 long-term strategy, The Hague aims to become the new Dutch Manhattan, taking over the leadership role that has been claimed by Rotterdam up until now. The plan envisions an extreme increase in density in the city center, with the Central Station area as its focal point due to the availability of a multimodal mobility network, fostering the development of hybrid buildings. So far, this increase in density has reflected in a cluster of high-rise buildings surrounding the Central Station, adding to the variety of entities this area holds. Adjacent to these high-rise buildings, which primarily serve as government offices, there are areas of low-rise buildings that are mainly residential. In contradiction to this plan of densification, The Hague values and preserves its green area of Koekamp, Malieveld, and Haagse Bos in front of the Central Station.


North Sea
Germany
United Kingdom
Amsterdam
The Hague
Utrecht
Rotterdam
Belgium

Central Station area

Koekamp

High rise area

Project zones

Three zones

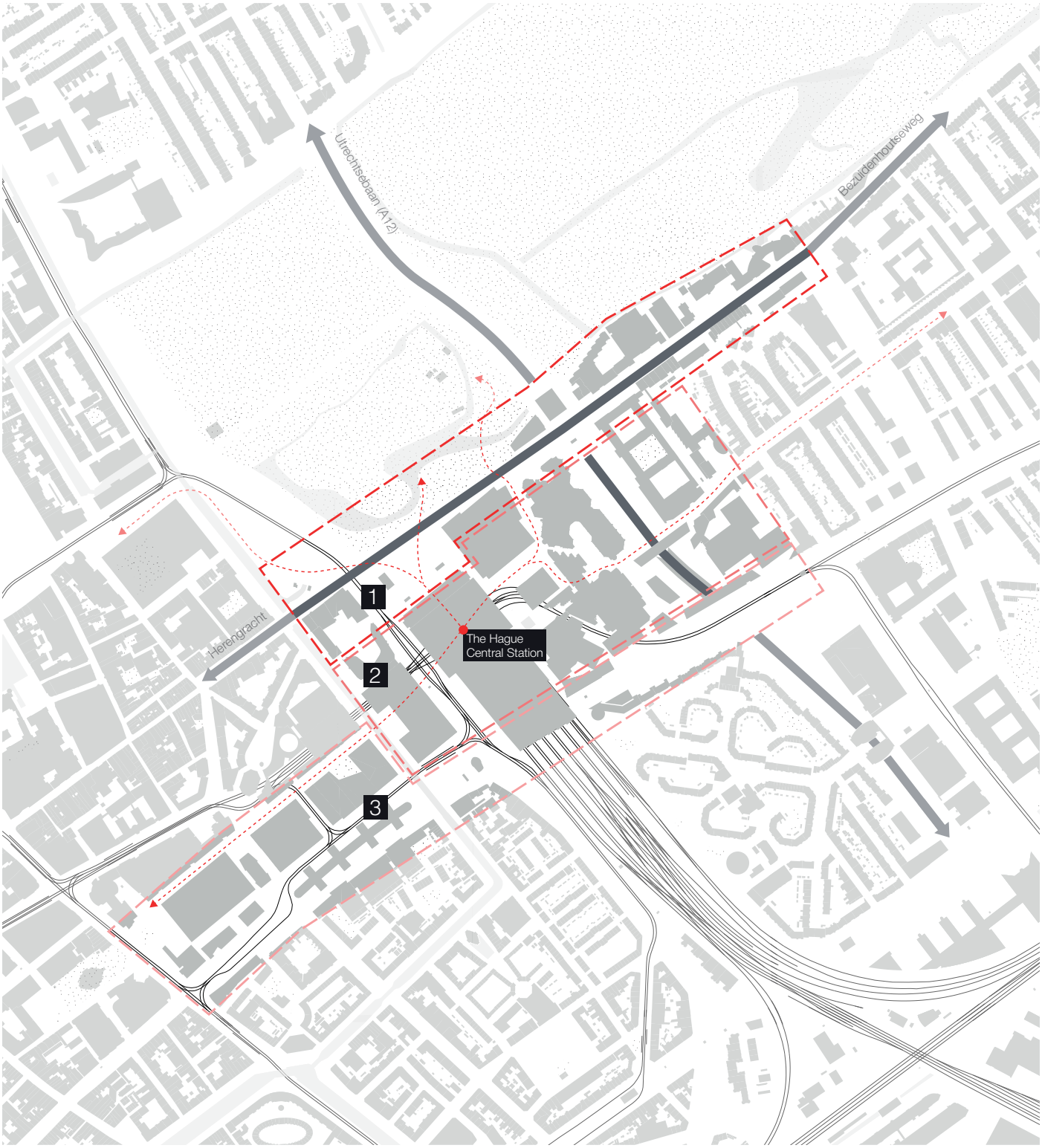
In MSc3 the studio proposed the **Central Station area** as an area with a high potential for densification because of the excellent accessibility by public transport and the proximity of the national and city government buildings. The pressure on this area was high, because the government office buildings in the vicinity asked for more office spaces. The studio asked us to come up with a capacity plan for one of three zones around The Hague Central Station:

1 - the green border
2 - the high-density urban fabric
3 - the fly-over infrastructure

This capacity plan had to allow for more flexible use of available space; as during peak days the pressure on available space was high, but at other moments a lot of space was unused or empty. Additionaly, the capacity plan had to provide design solutions in which attention was given to the quality and meaning of the public realm, by integrating existing and new buildings. For each zone the total built program was 80.000 - 160.000 m^2, of which:

- 1/3 public program and publicly accessible
- 1/3 (government) office program
- 1/3 housing

Each of three zones got assigned to a group of around ten students, which then got subdivided again into smaller groups of either three or four students again, to have multiple different proposals in the end. I formed a group together with Luca Laponder and Christoph Psykalla. In our case, we were assigned the **green border**: a zone marked by Bezuidenhoutseweg and the A12.



1:5000

Legend

Zone borders

Main axes

Green border zone

Site analysis

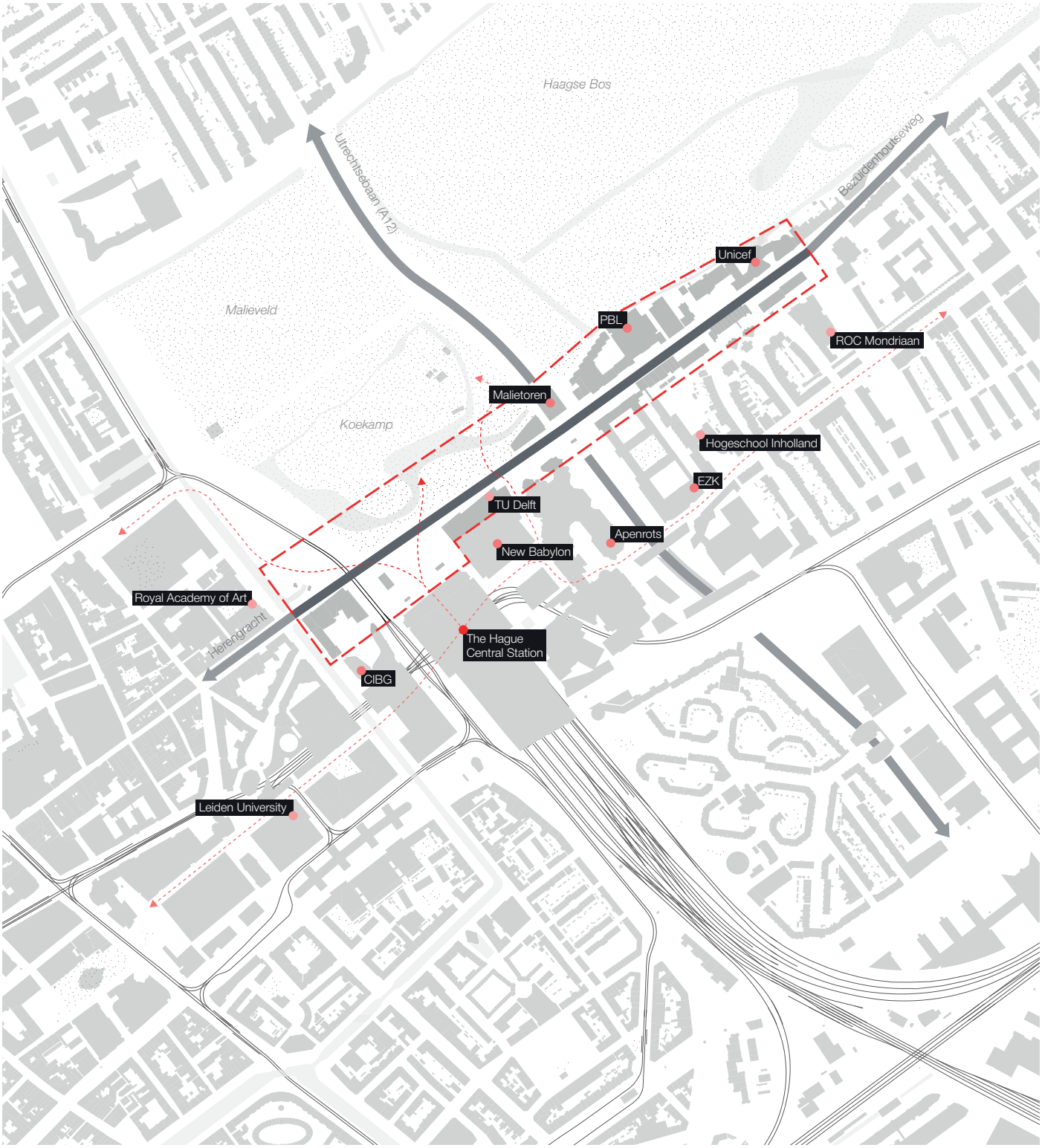
Our first step in proposing a capacity plan, was getting a hold of the area we were working with. We initiated with a site visit, and combined our findings in maps.

North of Bezuidenhoutseweg, the area borders the **Koekamp** park, with the famous **Malieveld** behind it, and **Haagse Bos**. South of Bezuidenhoutseweg and west of Utrechtsebaan, the area borders a cluster of high-rise buildings housing government offices, but also multifunctional buildings like New Babylon, and the remarkable government building that is Apenrots. East of Utrechtsebaan, office buildings housing institutions such as Unicef and Planbureau voor de Leefomgeving (PBL), and government offices such as Ministerie van Economische Zaken en Klimaat (EZK) are situated alongside rows of historic high-end townhouses currently in use as office spaces, embassies, law firms, and more. South of these office buildings and townhouses, there are residential terraced houses. In addition, the area holds a variety of different educational institutions that offer different types of education: politics, business, arts and culture, and so on. This allowed for cooperation possibilities.

As we arrived by train in The Hague, we did notice several **strengths** and **opportunities**. The first thing we noticed were all different directions we were able to choose to continue our journey as this area offered many different destinations (green area, low-rise residential area, high-rise commercial area, city center). If we were looking for some peace and quiet, we could visit Haagse Bos; and if we were looking for some activity, we could visit the city center.

However, we also noticed some **weaknesses** and **threats**. Our immediate perception of Bezuidenhoutseweg was that it clearly lacked an attractive and inviting public realm. There was a disconnected urban fabric characterized by large unengaging buildings with closed off facades that acted as boundaries. The urban disconnection was made more obvious by unnecessary wide roads and its traffic, and a notable absence of greenery. As a result, the only appealing place to stay at was the green area. However, the width of Bezuidenhoutseweg and the large office buildings along it, caused there to only be very few and very small entrances from the city to the green area, limiting its use and preventing it from reaching its full potential.

.



1:5000

Legend

- Main axes
- Main walking paths
- Offices/government
- Educational institutions

Site pictures

Bezuidenhoutseweg

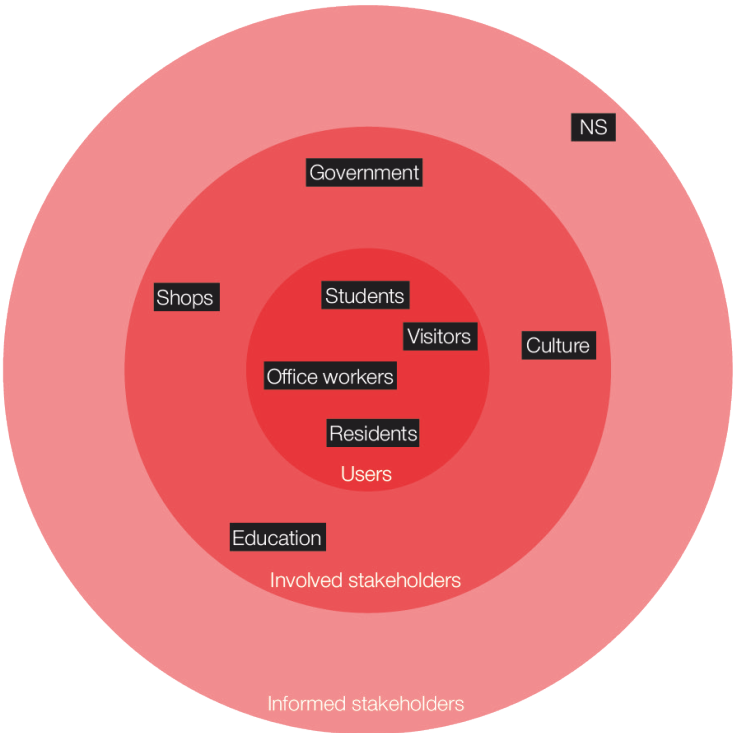
Theresiastraat

Stakeholders

Personas

To expand our analysis, we **interviewed** people in the Central Station area. All interviews we did were summed up into **personas**: fictional characters created based upon our interviews in order to represent and paint a picture of all stakeholder types. All personas are displayed on the following pages.

We found several overlaps in the responses during our interviews, most of which confirmed our own perception as well. The **overlapping pain points** in the area were the current lack of an attractive public realm along Bezuidenhoutseweg: we found most people to seek refuge at Haagse Bos. Office and parliament workers confirmed our findings that a lot of office space was left unused, and that it would be beneficial for companies to work together in a few chosen buildings for efficiency purposes. Regarding university design, most students and teachers primarily valued practicalities like sufficient outside seating options, sheltered spaces, and food or coffee corners. The **overlapping gain points** of a hybrid campus in the area were people hoping for it to be working as a catalyst and activate the public realm, opportunities for students and offices to cooperate, and more options for residents to choose which education to follow.



Personas

Student

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.

Gain points

My university would have more time spent at if they were to redesign the square. For example, by adding greenery, seating areas, and shelters.

Personas

Resident

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, ages 6 and 8. 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.

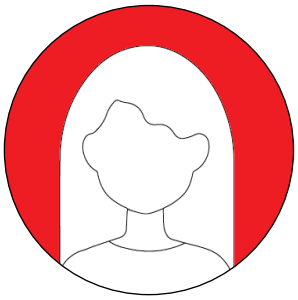
Pain points

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.

Visitor



Emma Bakker, 17 years old

Motivation

achievement

personal growth

efficiency

convenience

Personality traits

introvert — *extrovert*

analytical — *creative*

sensing — *intuition*

passive — *active*

About me
I am in **secondary school**. I am from Assen and our class is visiting the Dutch parliament today.

Goals
I am planning on finishing secondary school next year and then attend some university in the Netherlands.

Pain points
Not applicable

Gain points
More campuses mean more possibilities for me to try out.

Personas

Office worker

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.

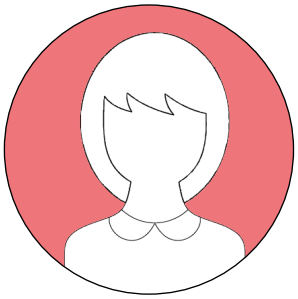
Pain points

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

Teacher



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

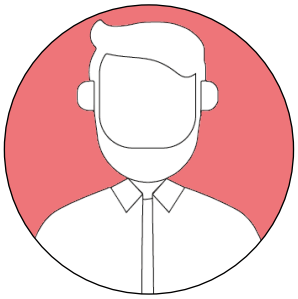
I often only do work related stuff at university, but when I do take a break, I like to go outside. I would probably do this more often if the square in front of our entrance was not so uninviting. The university does have a garden, but it is not easily accessible and therefore often left unused.

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.

Personas

Parliament



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.

Cultural center

David Bos, 28 years old

Motivation

achievement

personal growth

efficiency

convenience

Personality traits

introvert — *extrovert*

analytical — *creative*

sensing — *intuition*

passive — *active*

About me
I am the **founder** of a newly set up **cultural centre** and I live in Wassenaar.

current, shared themes, beliefs and values of the society

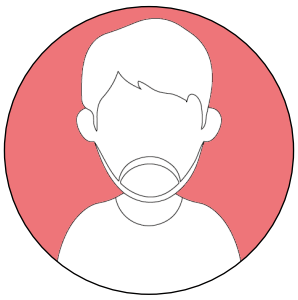
Goals
Our cultural centre would like to draw more attention to local arts and culture by offering exhibitions, performances, and workshops to support and showcase local artists and their work.

Pain points
xxx

Gain points
More students in this area would possibly mean more volunteers for our centre. In addition, I think there might be opportunities for cooperation with an educational institution to offer us space for exhibitions and workshops for students.

Personas

Shop owner



Jaap de Bruin, 60 years old

Motivation

achievement

personal growth

efficiency

convenience

Personality traits

introvert — *extrovert*

analytical — *creative*

sensing — *intuition*

passive — *active*

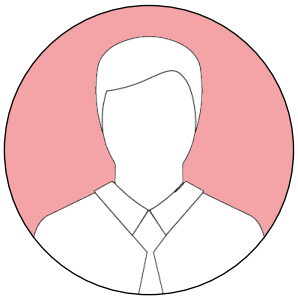
About me
I am the owner of a **restaurant** on Theresiastraat, which has been in our family for decades. I was born in The Hague and have lived here since.

Goals
I want to keep this business profitable and keep it in our family.

Pain points
Not applicable

Gain points
Students are a big part of our clientele, as for example Hogeschool Inholland is close by. A new educational institution in this area would mean more students, and therefore more income.

NS worker



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.

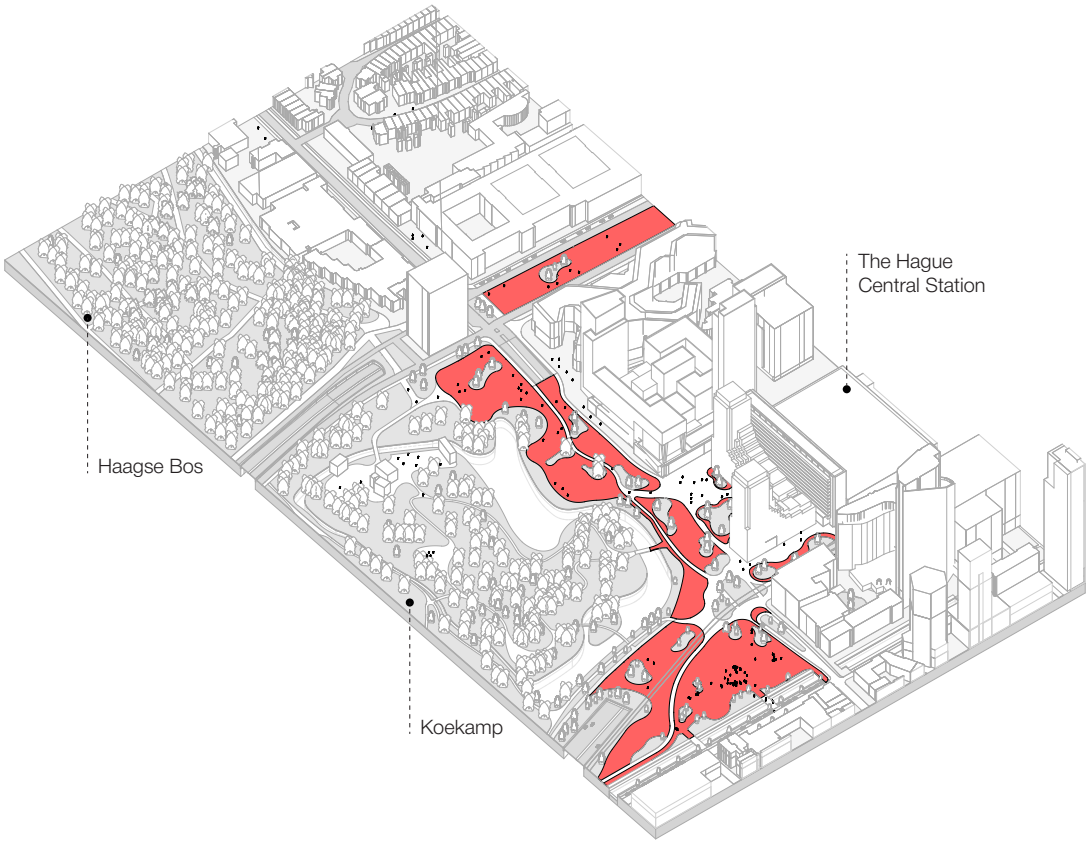
Capacity plan

Interventions

The main issue to be improved could be traced back to a **disconnected urban fabric**, caused by a large boundary that is Bezuidenhoutseweg. This boundary literally seperated the park and city, making people have to choose to stay at either of the two, and using Bezuidenhoutseweg as more of a transit area: an area to pass by rather than to stay at. Therefore, our goal was to blur the boundary between city and park to activate the public realm, and redesign this area to become a **place to stay** at.

For the densification of the area to make sense to begin with, the area had to become a place to stay. The first step in doing this, was introducing a **pedestrian zone** along Bezuidenhoutseweg, but also on top of the A12. To do this, we put a few roads underground, expanding the underground road network. A pedestrian zone allowed to introduce more ground floor activity, and gave us a bigger area to efficiently densify.

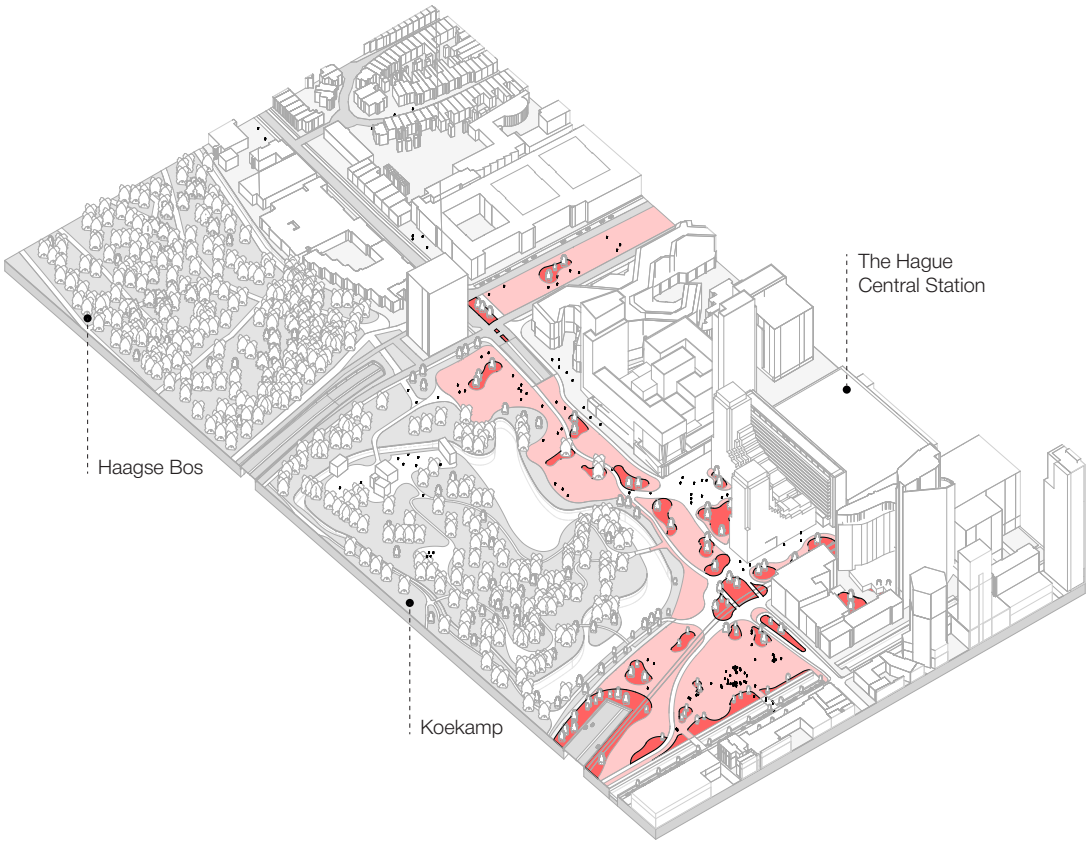
.



Legend

Pedestrian zone

By **extending the greenery**, we aimed to make this area more attractive.



Legend

Pedestrian zone

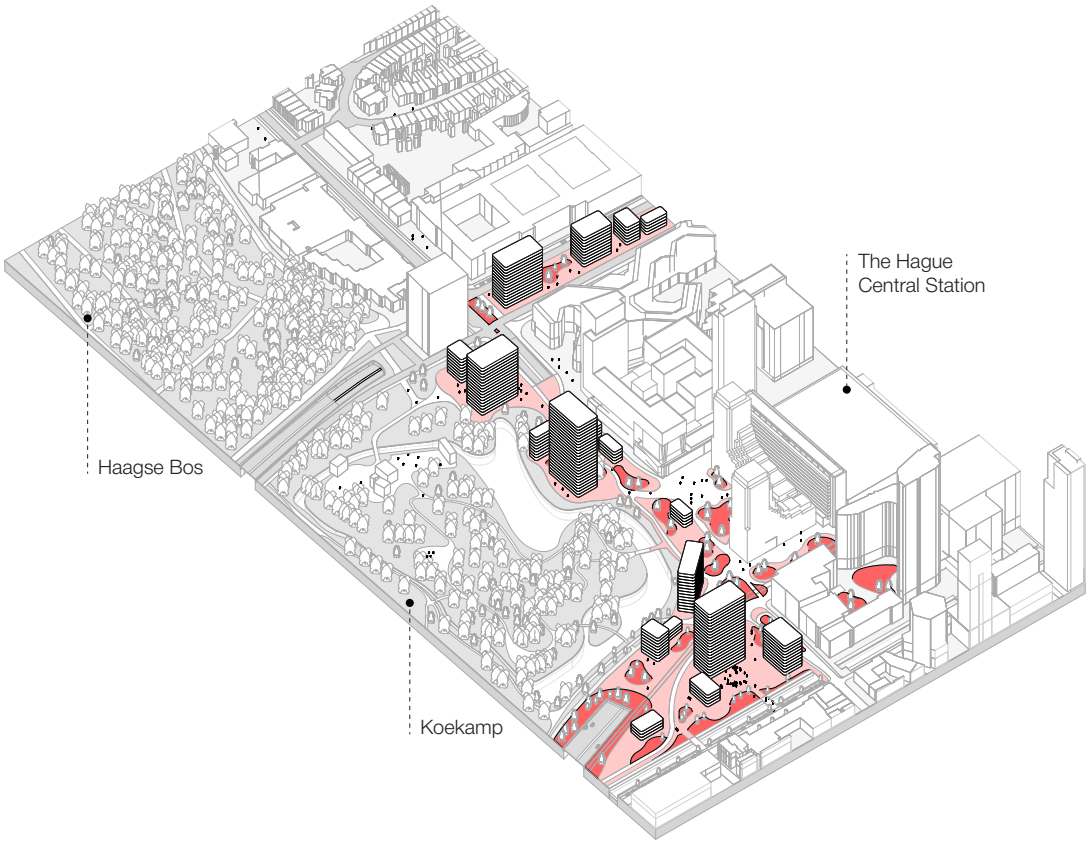
Extension of greenery

Capacity plan

Interventions

To actually densify, we opted for multiple buildings in **different scales** (small, medium and large) to allow for different types of buildings, invite a broader community, and therefore allow for more (ground floor) activity. Medium and large buildings provided program for destination traffic, while the smaller buildings, such as pavilions, acted as **public realm activators** for others.

.



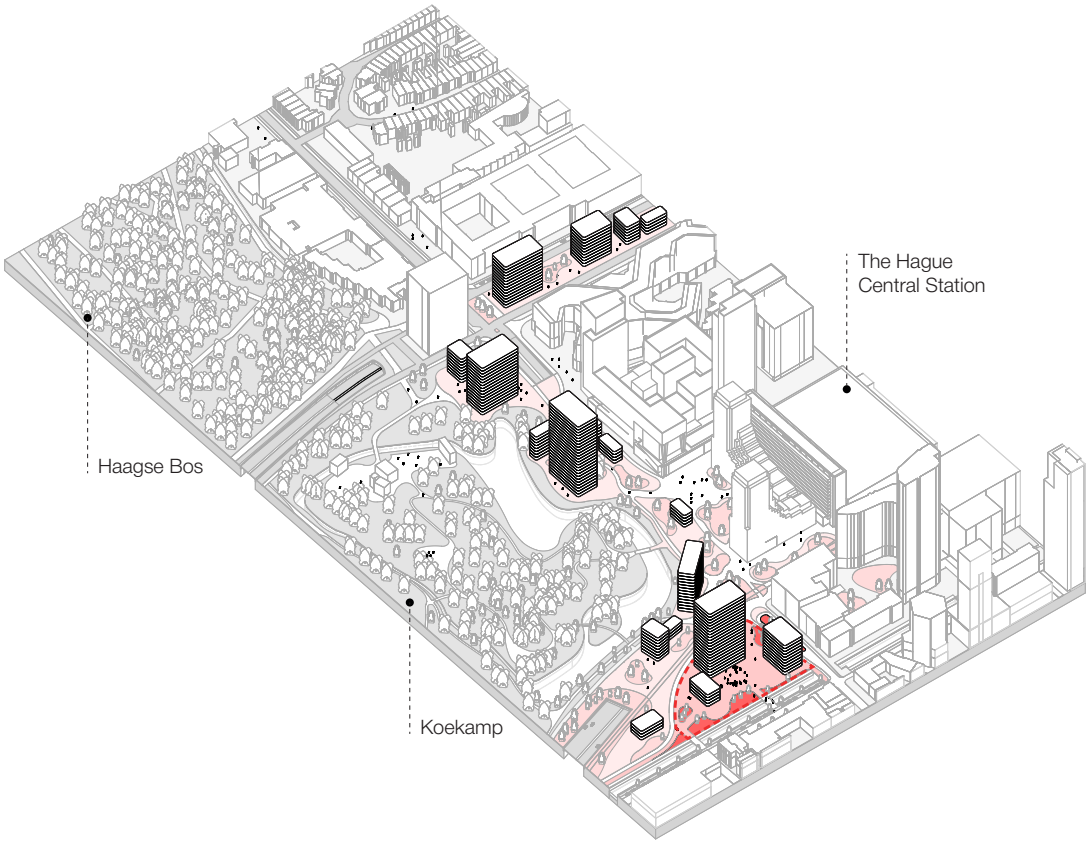
Legend

Pedestrian zone

Extension of greenery

Out of all buildings, I chose the plot that is highlighted, as it was located on the **crossroads of different surrounding areas** (green area, residential area, high-rise area, city center). This plot could act as the **connector** for the currently disconnected urban fabric. This means literally connecting areas, as well as fostering interaction between various user groups.

.



Legend

Pedestrian zone

Extension of greenery

Chosen plot

03. Research topic

Research question and design goal

*How can a public vertical campus **contribute to** the city of The Hague?*

*The design goal was to create a public vertical campus that **integrates** seamlessly into and **connects** The Hague's urban fabric, fostering **social**, **cultural**, and **economic vitality**.*

Design framework

Pillars

To reach the design goal, I created a framework of pillars through which a vertical campus could contribute to and enrich the city of The Hague by fostering social, cultural, and economic vitality: **Connectivity**, **Collaboration**, and **Performance**.

Connectivity referred to the physical and social links between campus and the surrounding urban fabric. It was achieved by creating attractive public spaces that invited participation from the public, and encourage interaction between different user groups.

Collaboration referred to the cooperation and engagement between various user groups, bridging the gap between the academic community and broader city community. It was achieved by providing shared spaces, where people could engage in joint activities and exchange knowledge.

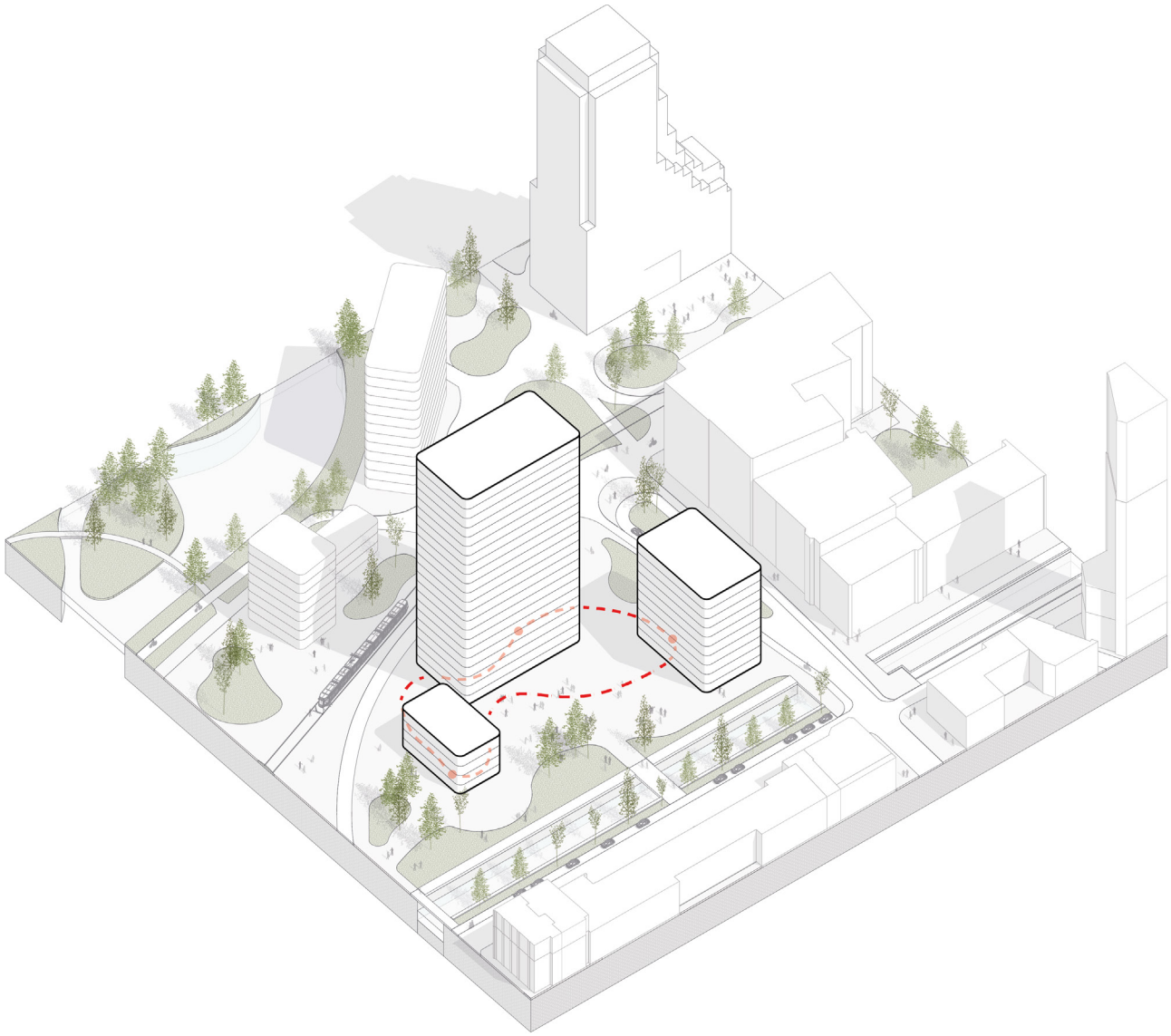
Performance referred to result-driven achievements, presenting campus as a contributor to innovation and economic growth. It was achieved by creating dedicated working spaces, where people could focus on specific and professional initiatives.

04. Design diagrams

Mass evolution

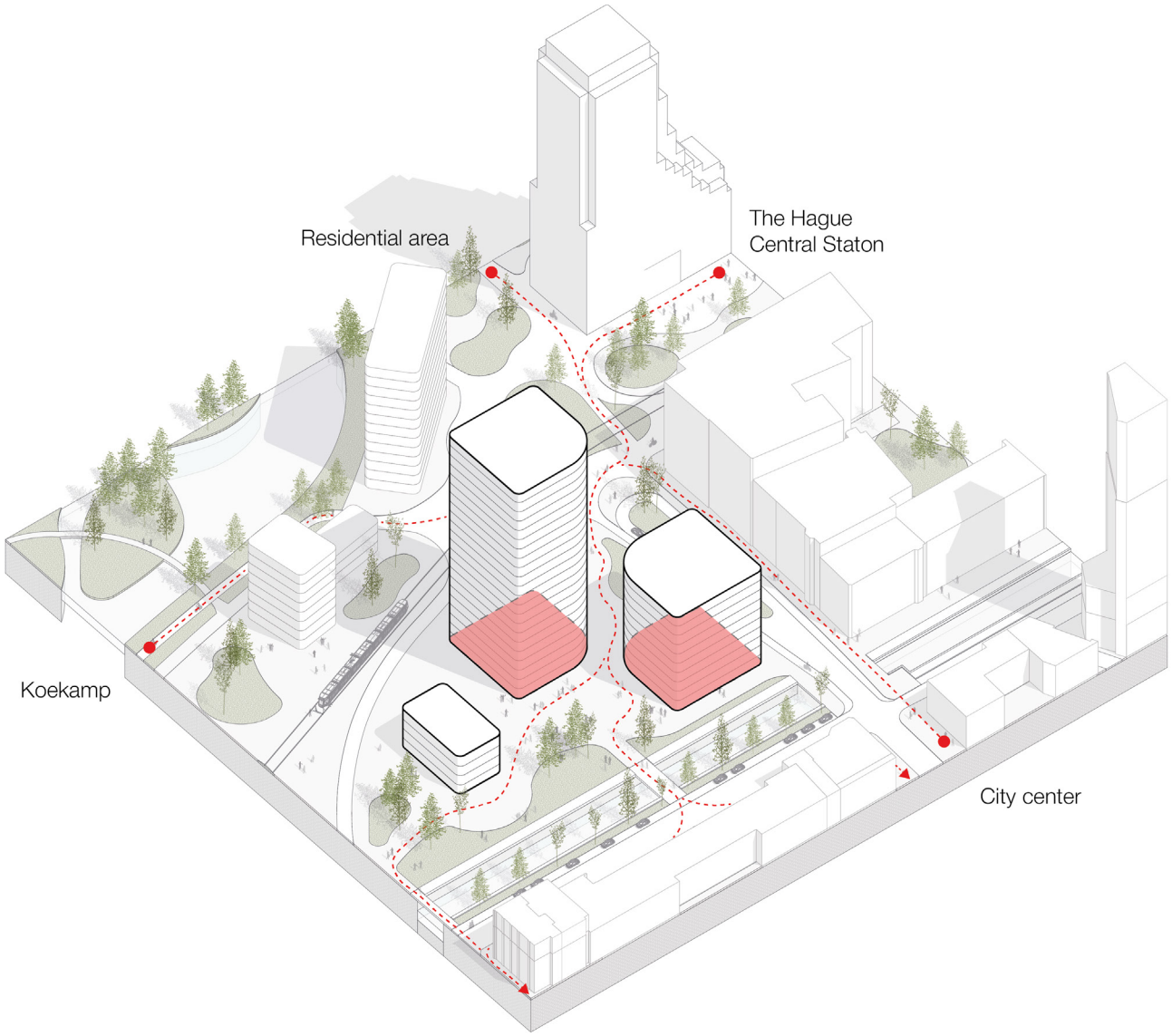
Different scales

The starting point was multiple buildings of different scales to promote movement in the public realm. This diagram was also related to my **view on verticality** for the project. Quick vertical movements and so connections between people from university were desired. However, to reach full integration of campus in the city, horizontal movements and connections to the surrounding areas were necessary as well to foster connectivity.



Shaped footprints

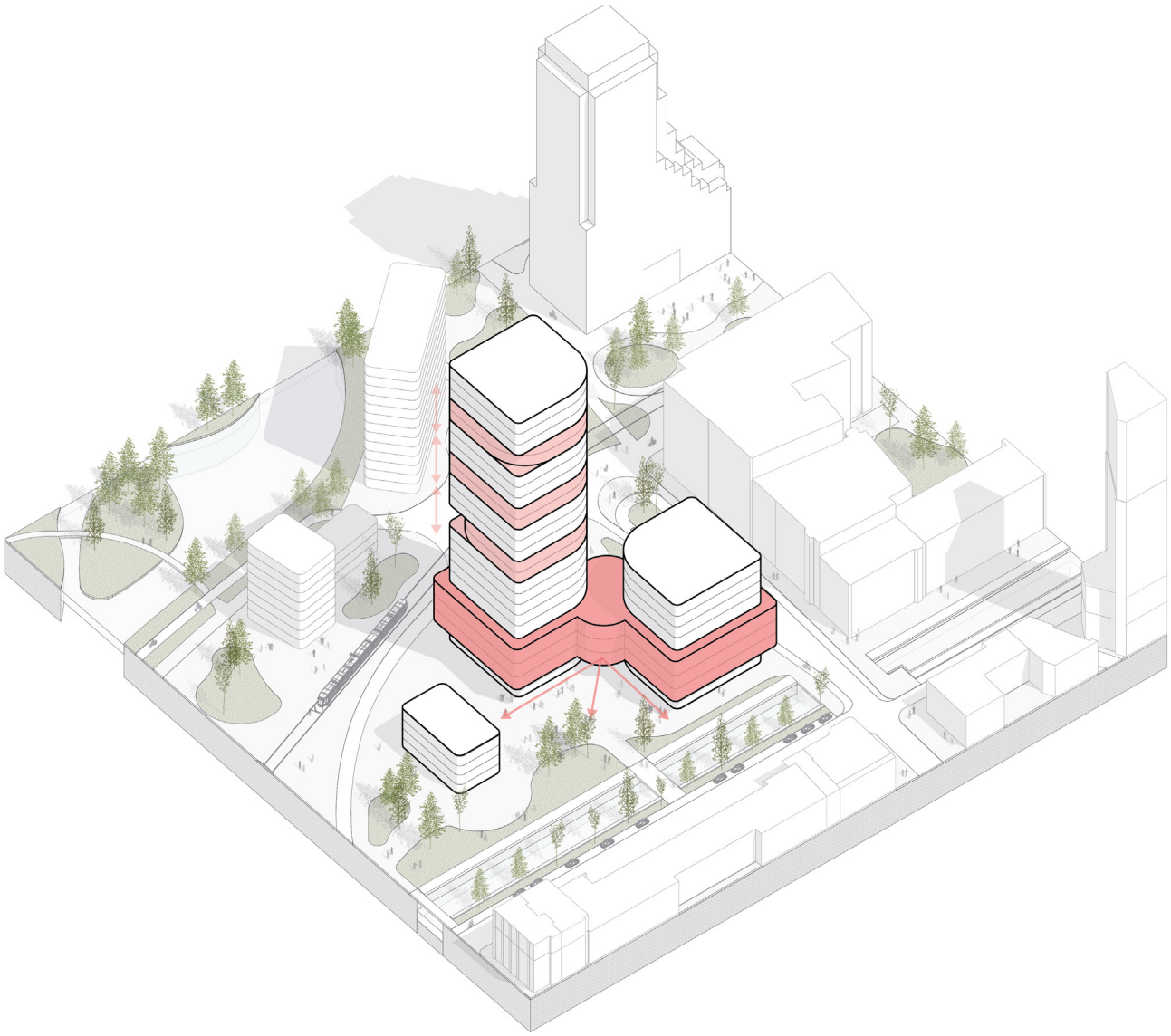
The second step was creating equal footprints to symbolize full integration of campus in the city and their two-sided interplay. The footprints were then curved along the main walking paths in the urban fabric for the building to integrate in the area.



Mass evolution

Connective center, in-between spaces

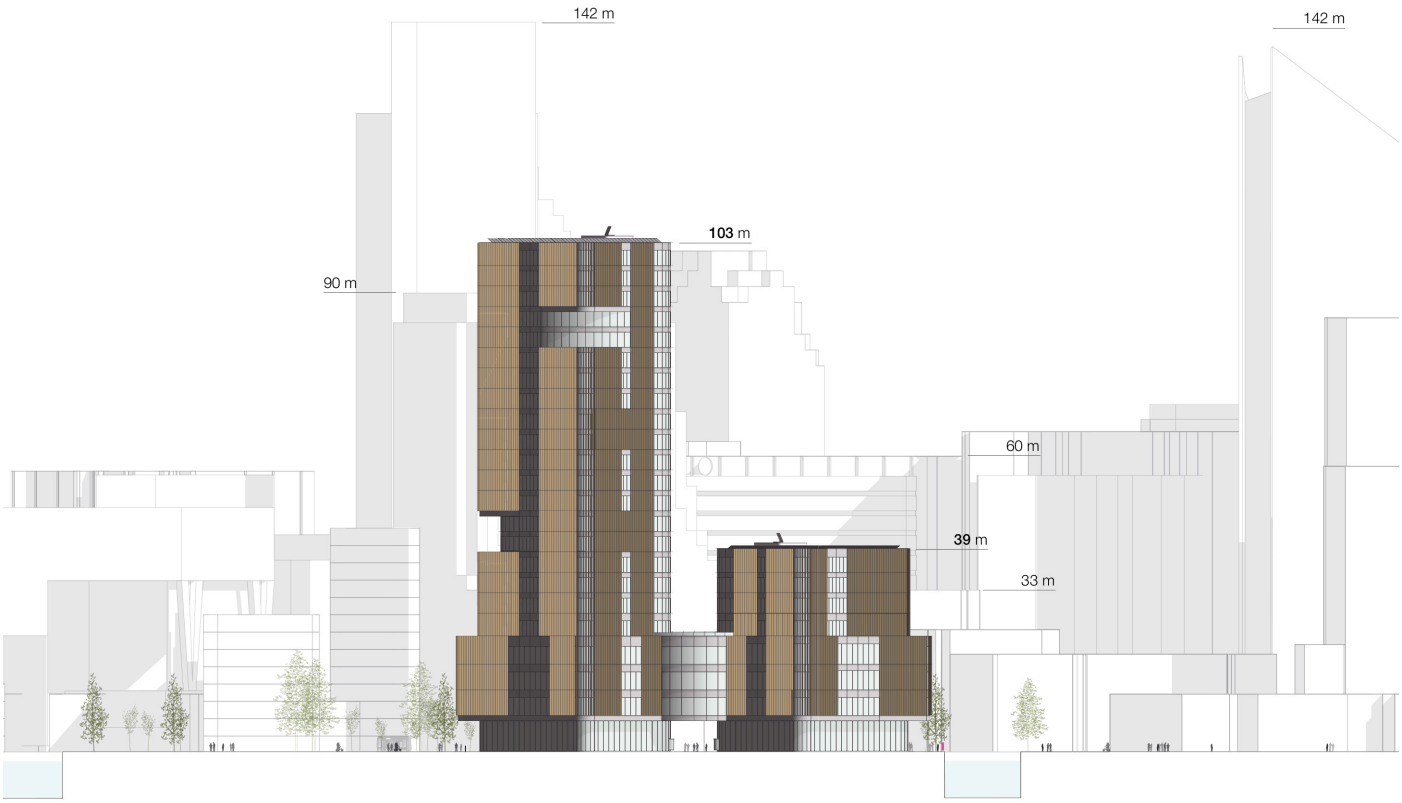
The third step was connecting the two masses to showcase the literal connection between campus and the city. The circular shape intended to create multiple sightlines for the users to be more aware of their surroundings, and therefore foster connectivity through **horizontal connections**. The fourth step was carrying through the circular shapes in the tower for coherence purposes. These unusual floors intended to act as in-between spaces to foster collaboration through **vertical connections**.



Urban context

Height relations

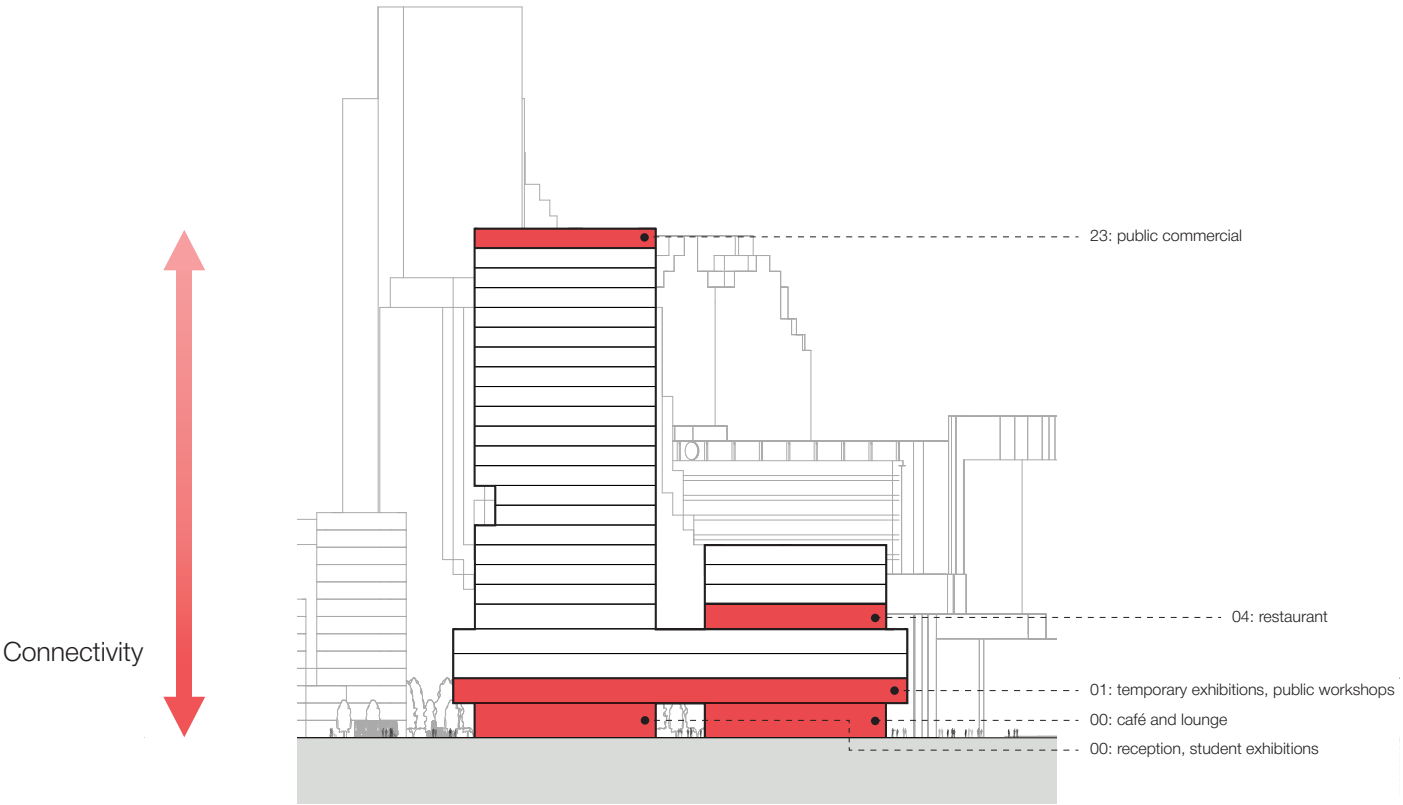
This building did not aim to become the highest building in The Hague, as it did not align with the design goal. The height of the building symbolized its connecting nature and thus could be found in the middle of its surrounding buildings.



Spatial organization

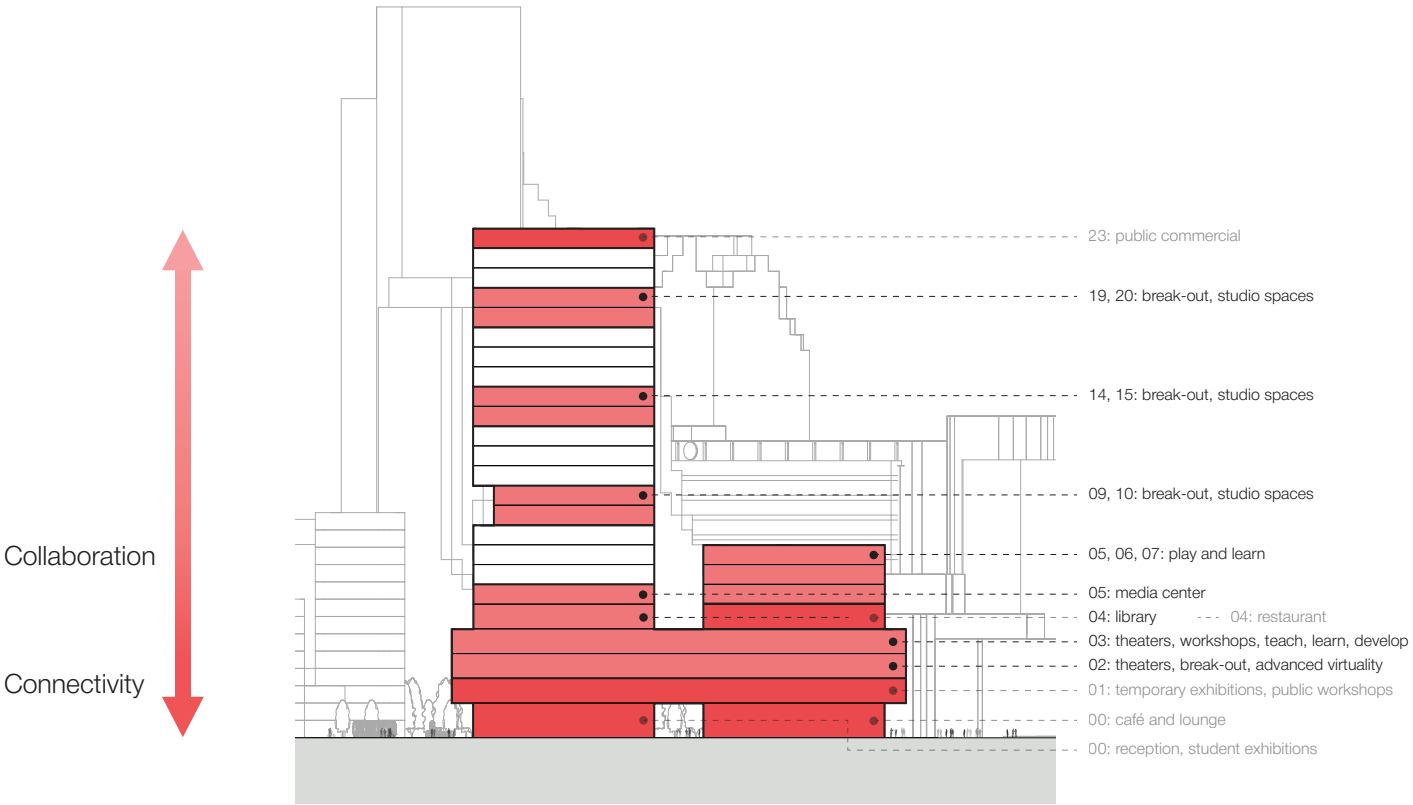
Connectivity

First, the spatial organization of the building can be proposed while assigning program from the design brief to these pillars. The first pillar connectivity, again, aims to attract foot traffic and invite for participation from the public. Therefore, this pillar is assigned to the lower levels of the building that are public. Functions that can achieve this are commercial functions are for example a commercial function like a café, but also public temporary exhibitions. I am saying temporary because a variety in exhibitions also attracts a variety of user groups.



Collaboration

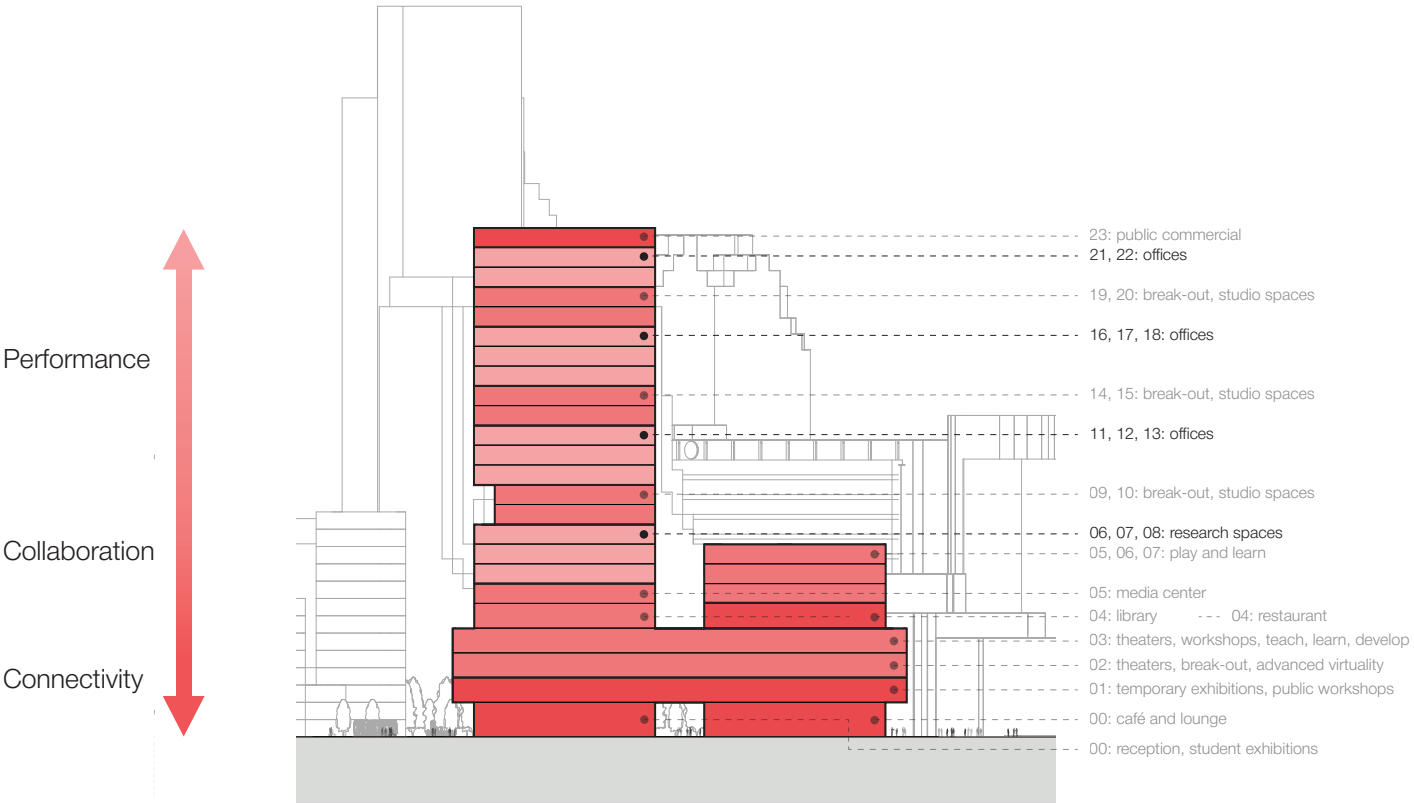
Moving up, the second pillar, collaboration, aims to stimulate cooperation between various user groups. This can be between academic community like students and teachers, but also between the academic community and broader city community. Therefore, this pillar is assigned to the mid levels of the building that are semi-public. Functions that can achieve this are functions like theaters, public workshops, and an advanced virtuality center. For example, theaters provide a form of collaboration that is the exchange of knowledge from teacher to student, and public workshops provide possible collaboration in joint activities between student and residents of The Hague. Also, some collaborative levels are located on the higher floors that are semi-private, these can be the in-between spaces for clusters above and below to collaborate.



Spatial organization

Performance

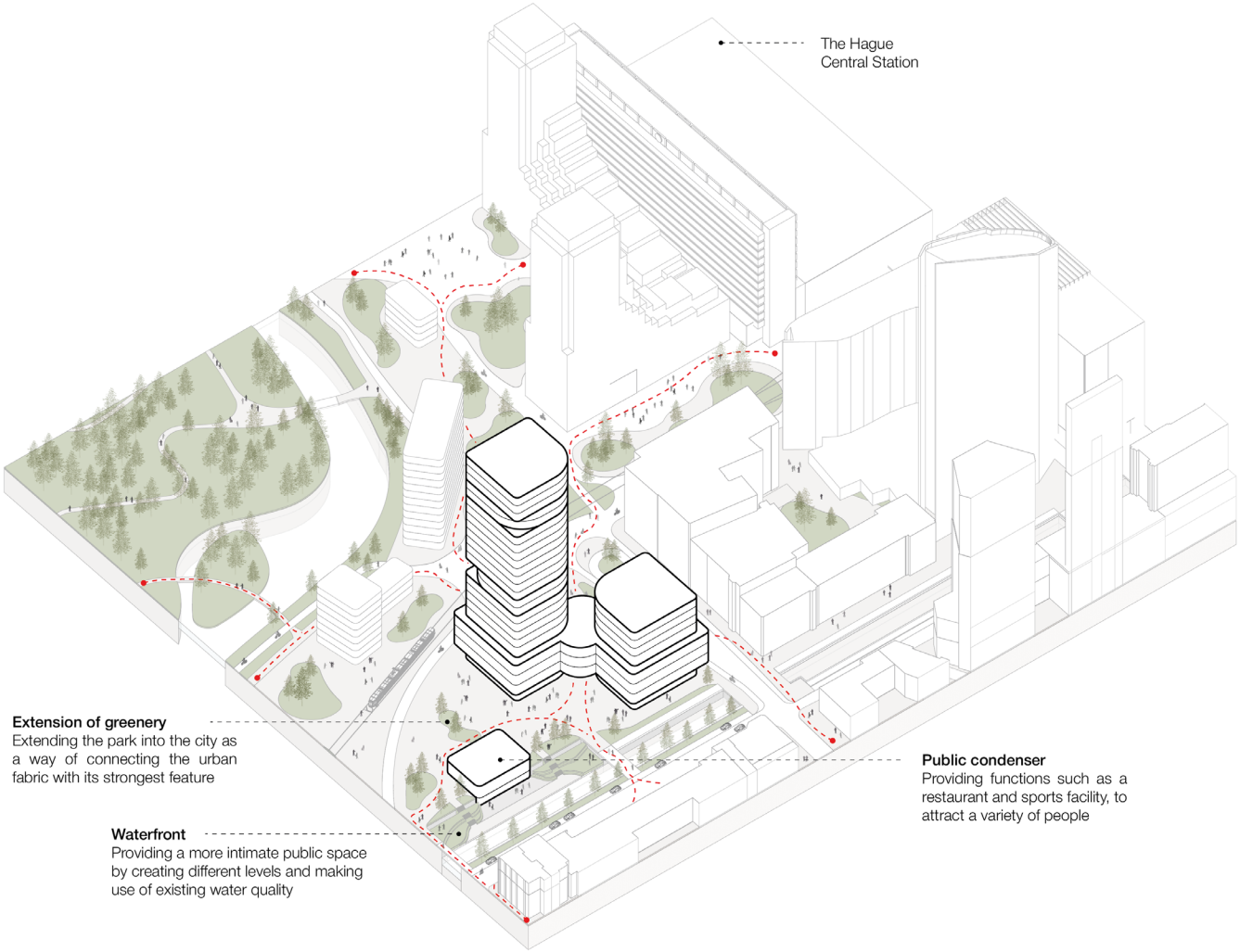
Then the last pillar, performance, aims to have result-driven achievement so that campus acts as a contributor to innovation and economic growth. Functions that can achieve this are offices and research spaces. These are specific and professional functions, and are therefore located on the upper levels.

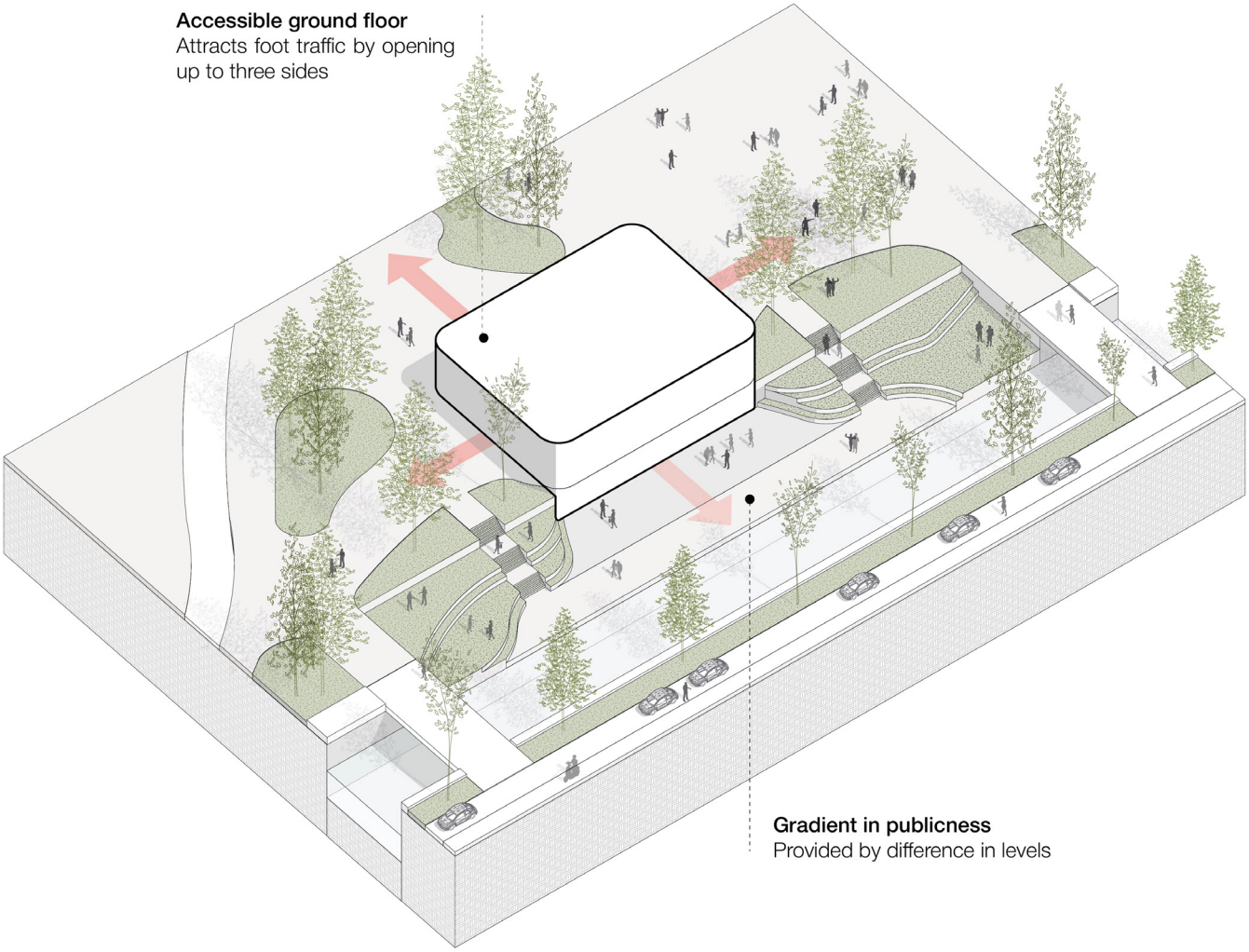


Public space

Northwest side

For the public to be invited into the campus, the design has to have an attractive public space. Making the public space attractive is done by various interventions. First, I am extending the greenery of the park onto the plot as this was found to be the most attractive and valued feature of the area. Next, the canal is being used to create a difference of levels in the public space, for it to be experienced more intimately. Together with this, there is a public condenser that holds a restaurant and sports facility, that attracts a variety of people.

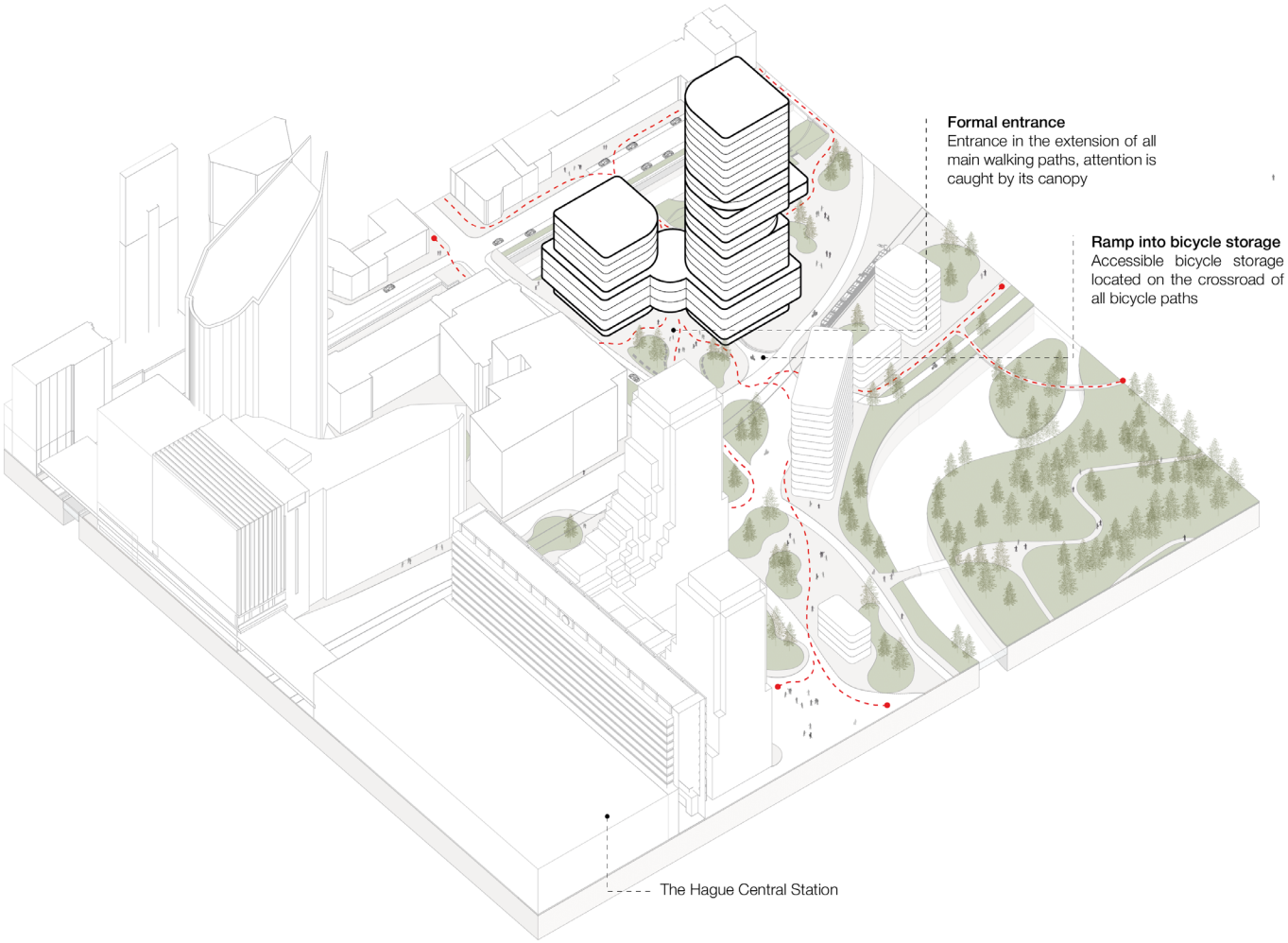



Accessible ground floor
Attracts foot traffic by opening up to three sides
Gradient in publicness
Provided by difference in levels

Public space

Southeast side

Looking from the other side, the square in front of and underneath the canopy acts as a formal entrance, which works because the different shape creates an identity. On this square, there is also greenery for a coherent design. There is a bicycle ramp next to the the crossroad of all bicycle paths.



05. Design drawings

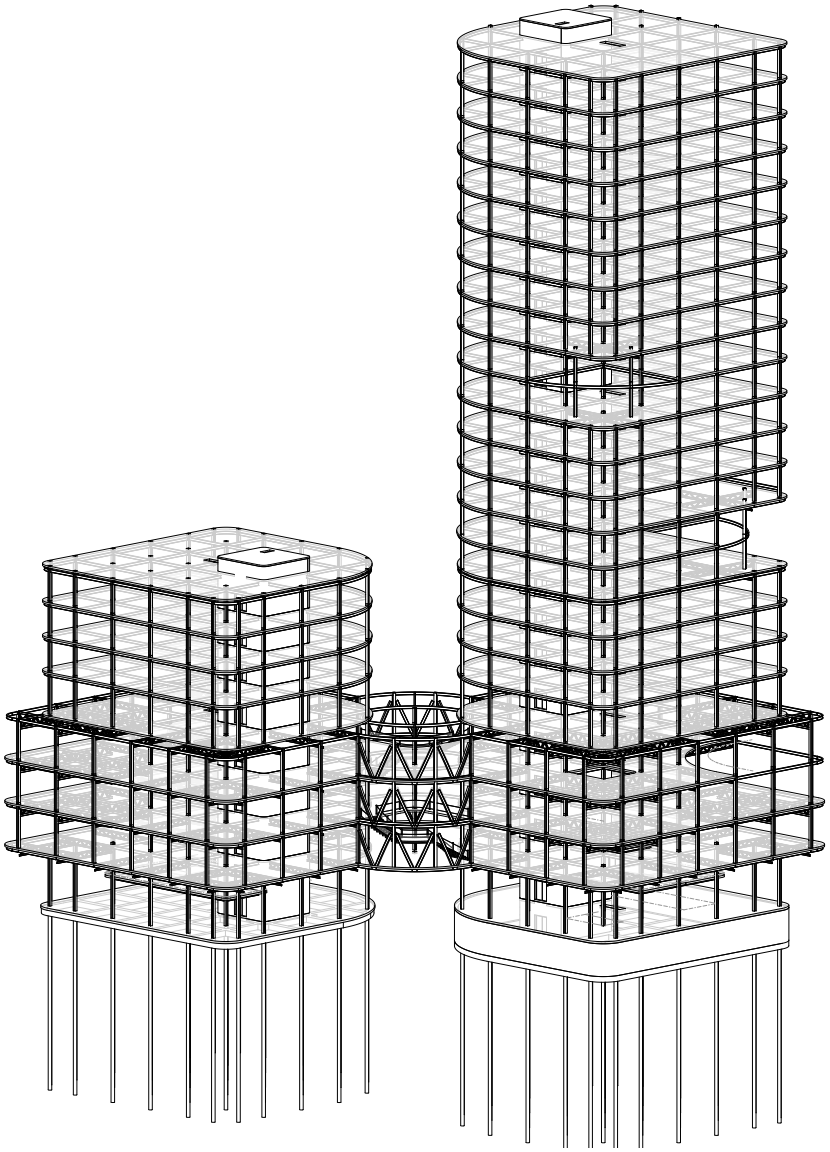
These public spaces lead you into the building. Together with the previously determined spatial organization, they lead to the floor plans. The floor plans can be found in the other appendix booklet, as well as an exploded axonometric, sections and visualisations.

06. Technical Building Design

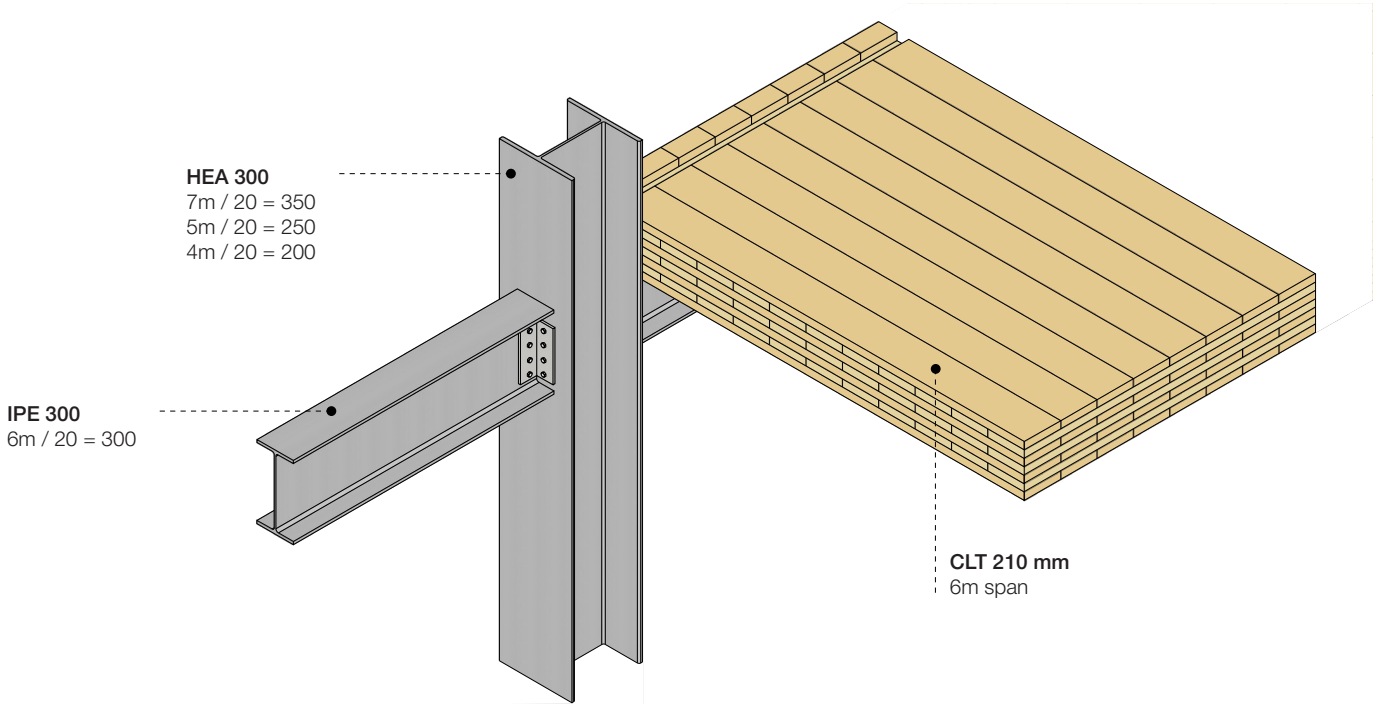
Structural principle

Hybrid structure

The structure follows a 6x6 m grid, that was chosen to allow for multiple design options and space efficiency. This way, spaces of 6 m depth could be designed, as well as spaces of 9 m while using a cantilever emphasizing the most central part of the design.



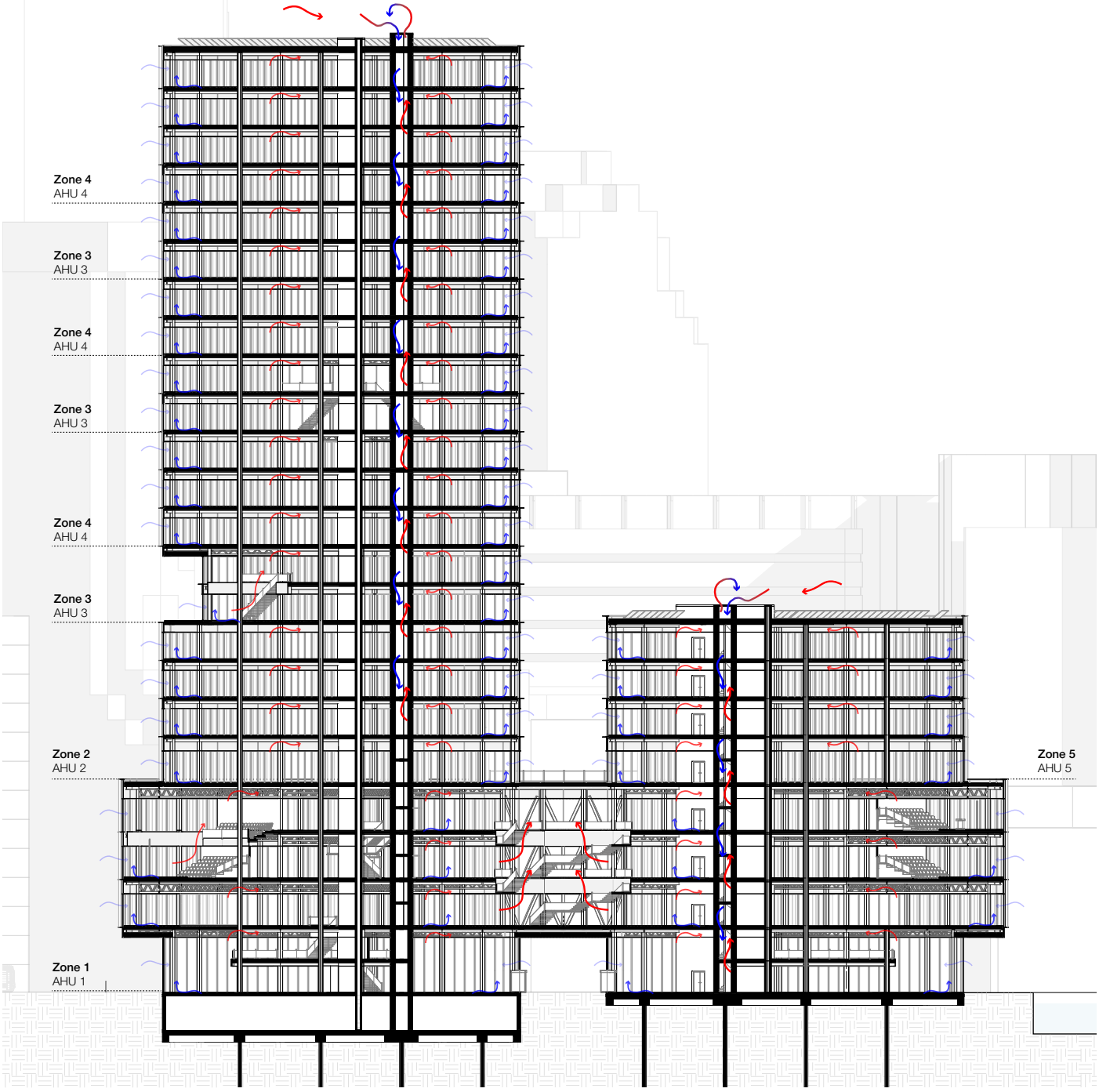
The building materials are chosen to respond to the variety in surrounding areas this building knows. The main structural principle consists of a concrete core for stability, a steel structure for clear height efficiency, and a CLT floor for sustainability purposes.



Climate concept

Section

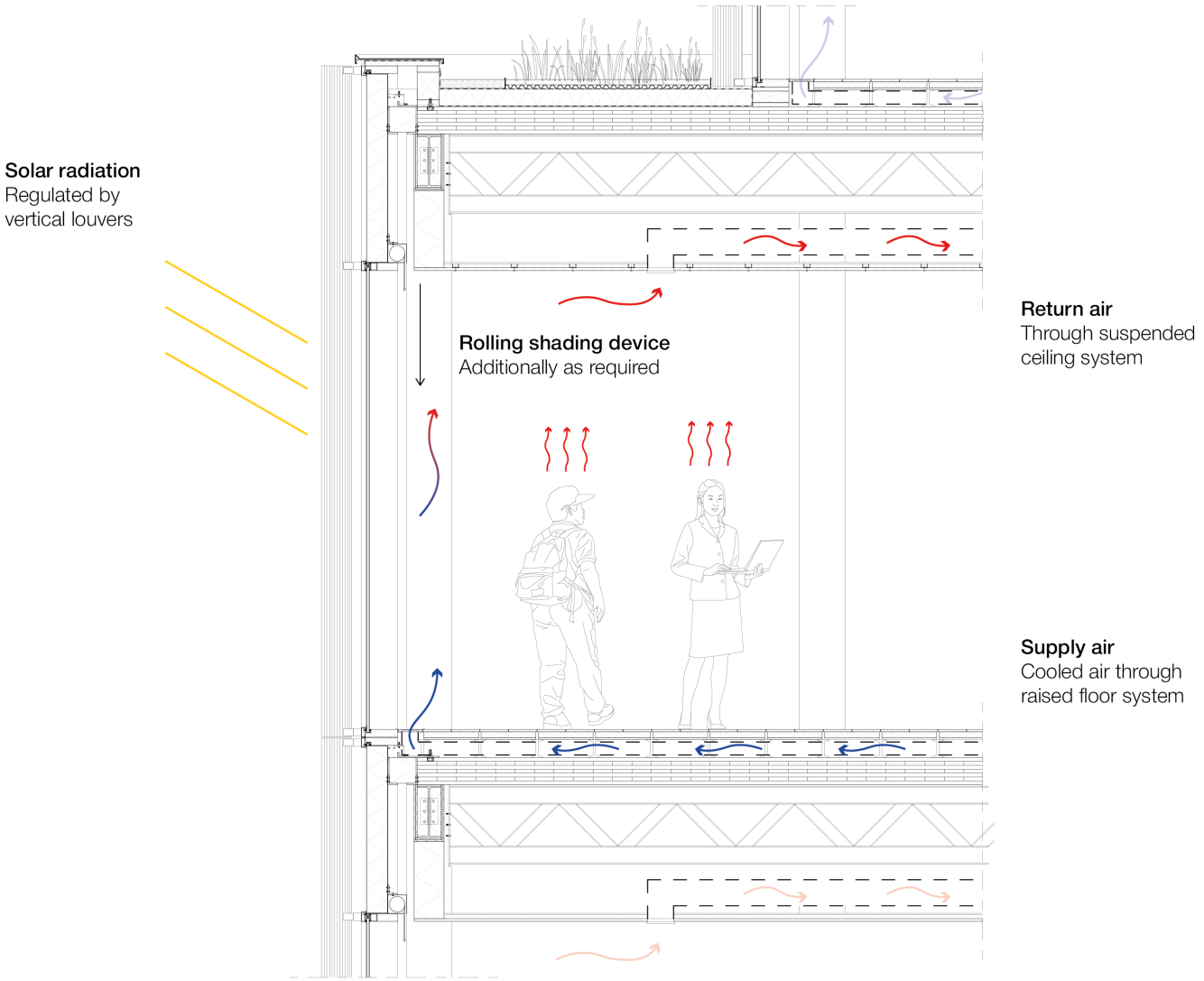
The climate in the building is divided in multiple zones that are assigned to different Air Handling Units on the rooftops. This allows the climate to be regulated according to various functions, heat sources, and using times.


Zone 4
AHU 4
Zone 3
AHU 3
Zone 4
AHU 4
Zone 3
AHU 3
Zone 4
AHU 4
Zone 3
AHU 3
Zone 2
AHU 2
Zone 5
AHU 5
Zone 1
AHU 1

Climate concept

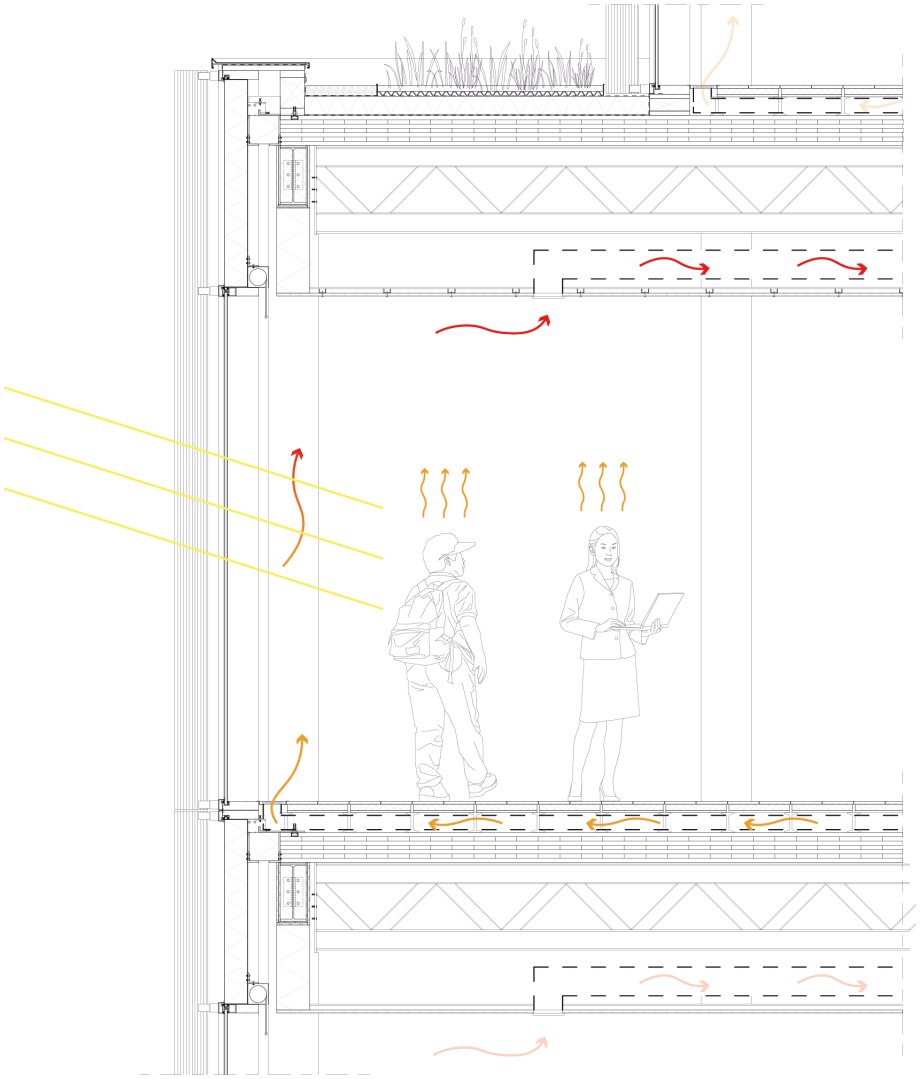
Summer

The building gets ventilated, healed and cooled through air. There are two shading methods. First, during summer, vertical louvers are able to block out solar radiation, and keep the inside climate comfortable. They are designed to rotate according to climate. This means, during winter, they are able to let solar radiation through.



Winter

Solar radiation
Let through by vertical louvers

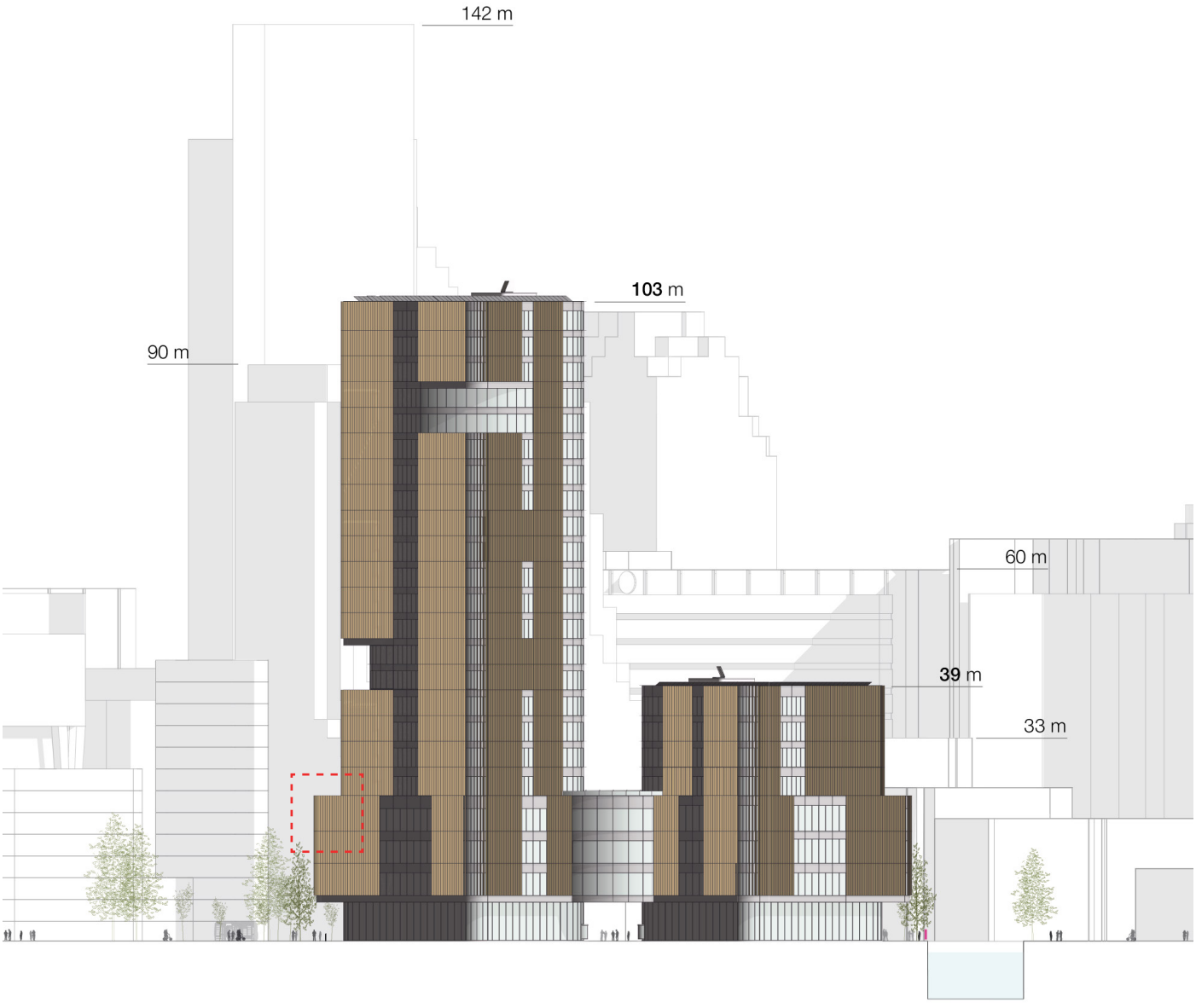


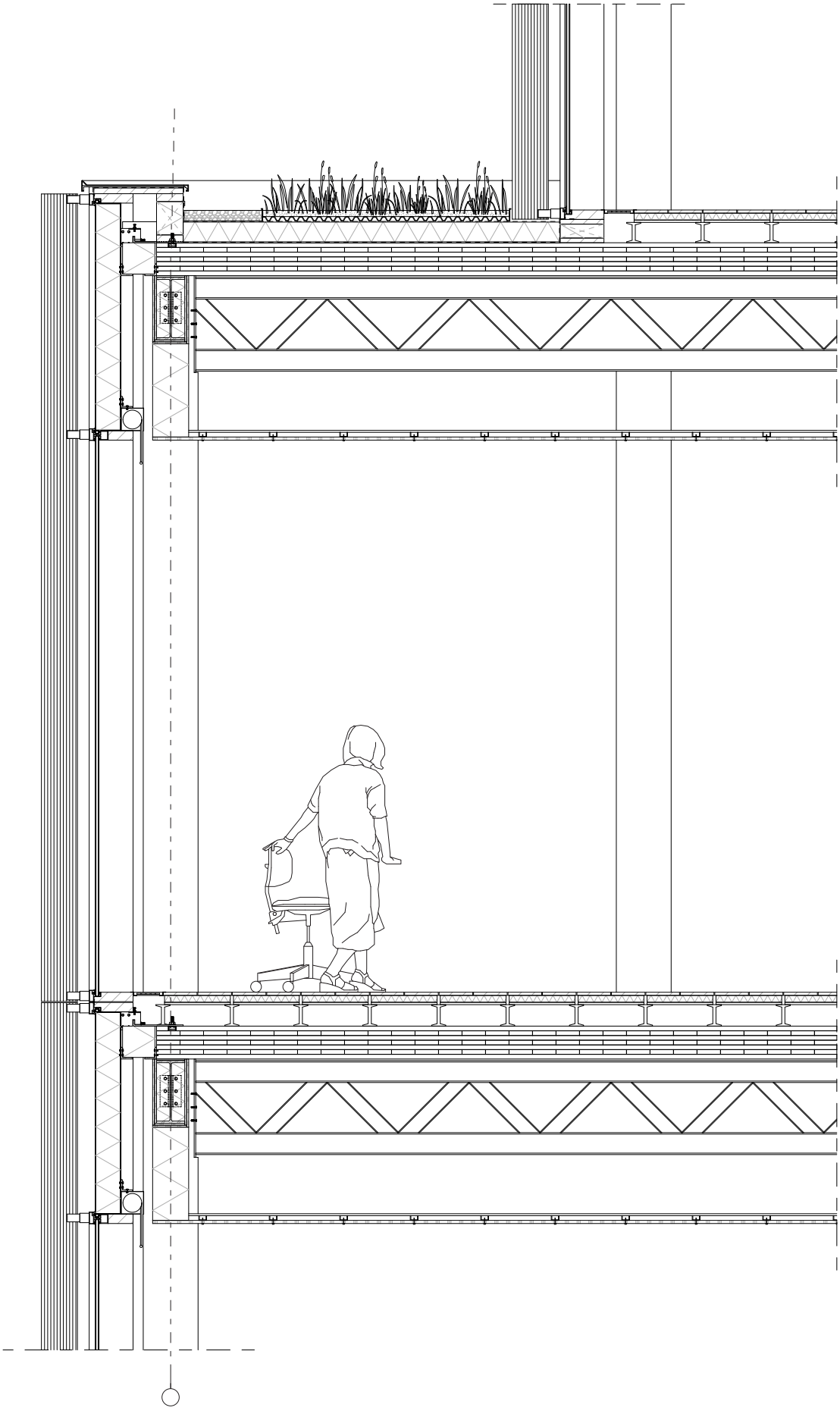
Return air
Through suspended ceiling system

Supply air
Heated air through raised floor system

Fragment 1

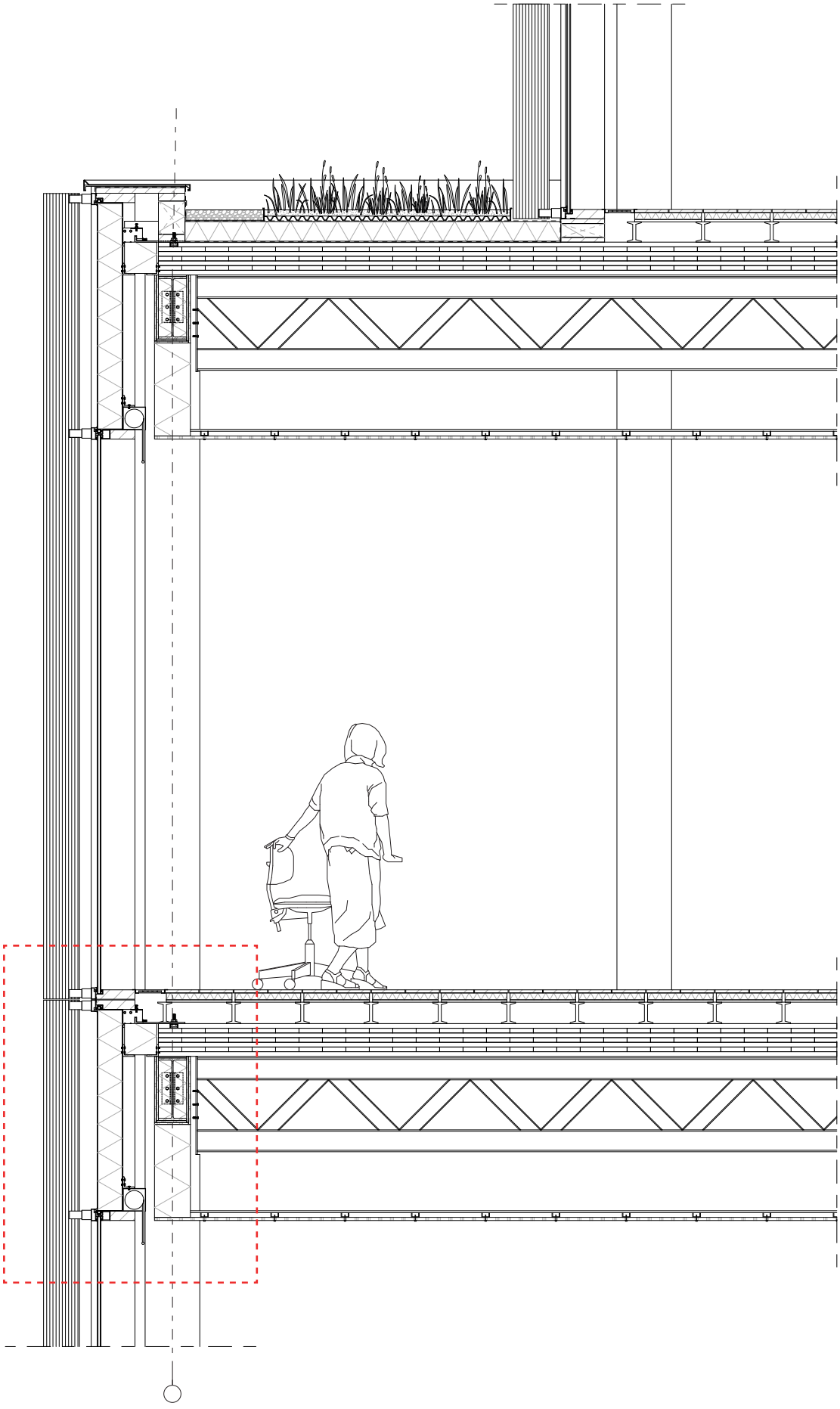
1:20





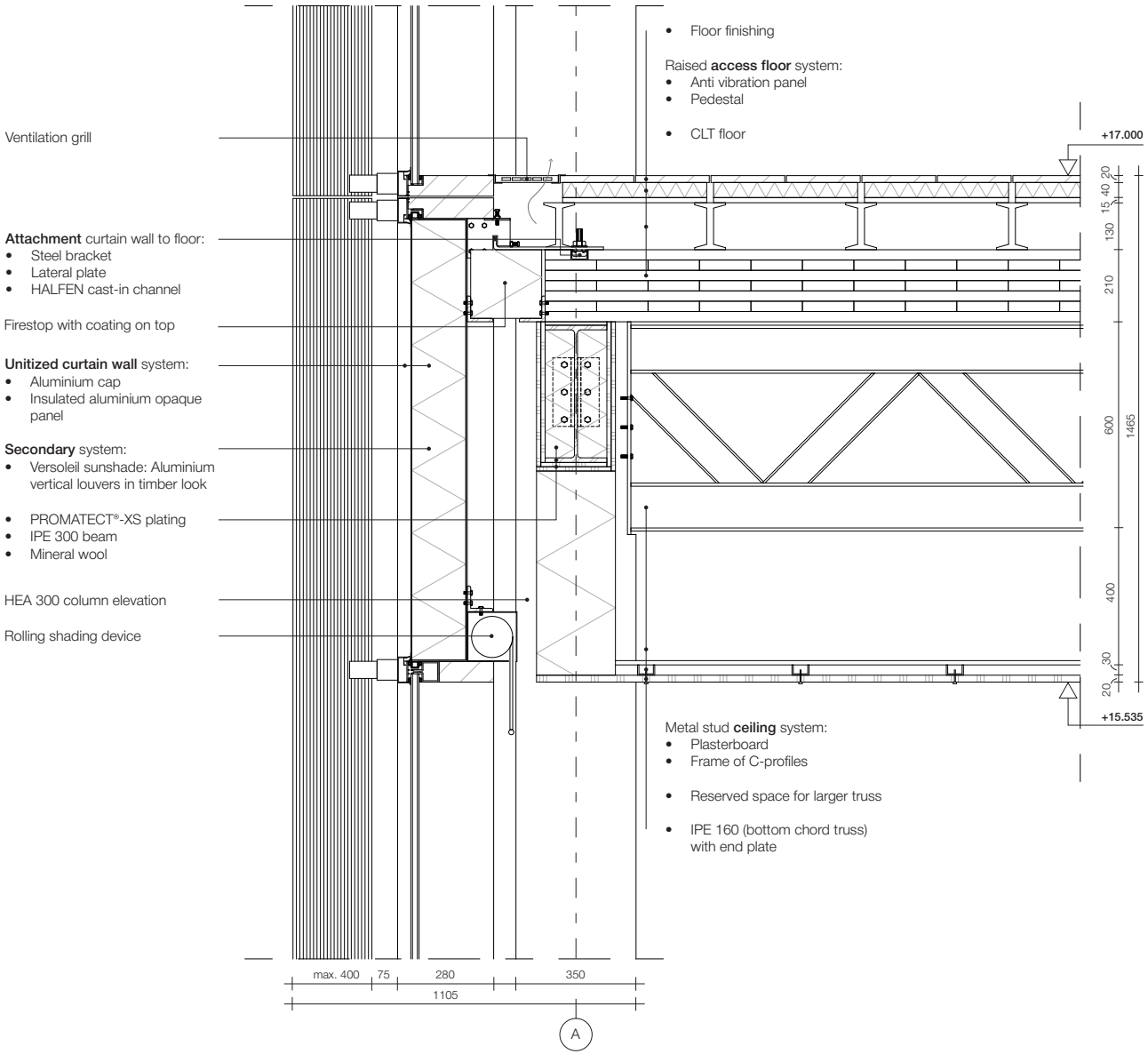
Fragment 1

1:20



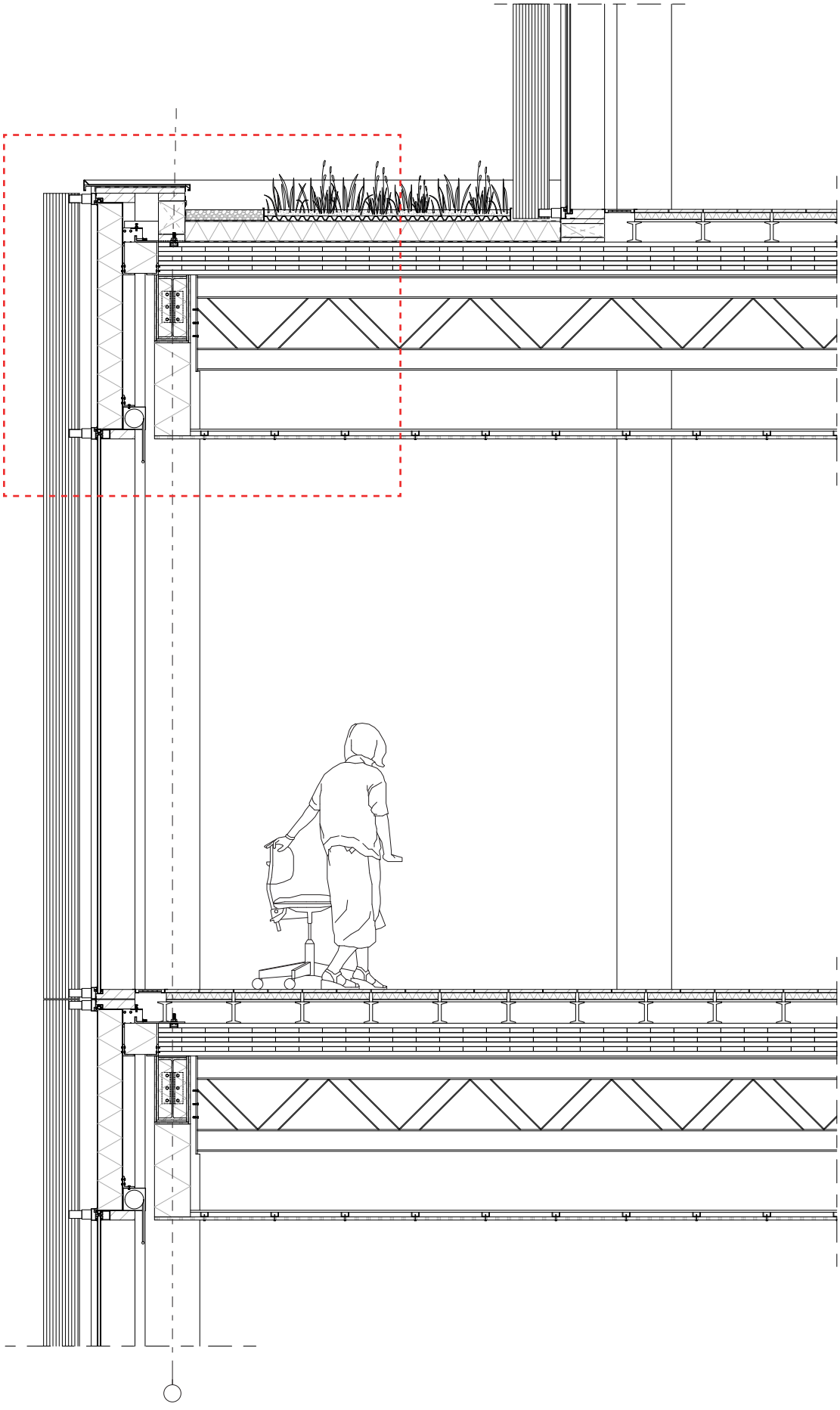
VD1

1:5


Ventilation grill
Attachment curtain wall to floor:
• Steel bracket
• Lateral plate
• HALFEN cast-in channel
Firestop with coating on top
Unitized curtain wall system:
• Aluminium cap
• Insulated aluminium opaque panel
Secondary system:
• Versoleil sunshade: Aluminium vertical louvers in timber look
• PROMATECT®-XS plating
• IPE 300 beam
• Mineral wool
HEA 300 column elevation
Rolling shading device
• Floor finishing
Raised **access floor** system:
• Anti vibration panel
• Pedestal
• CLT floor
+17.000
20
40
15
130
210
600
400
30
17
20
1465
+15.535
Metal stud **ceiling** system:
• Plasterboard
• Frame of C-profiles
• Reserved space for larger truss
• IPE 160 (bottom chord truss) with end plate
max. 400
75
280
350
1105
A

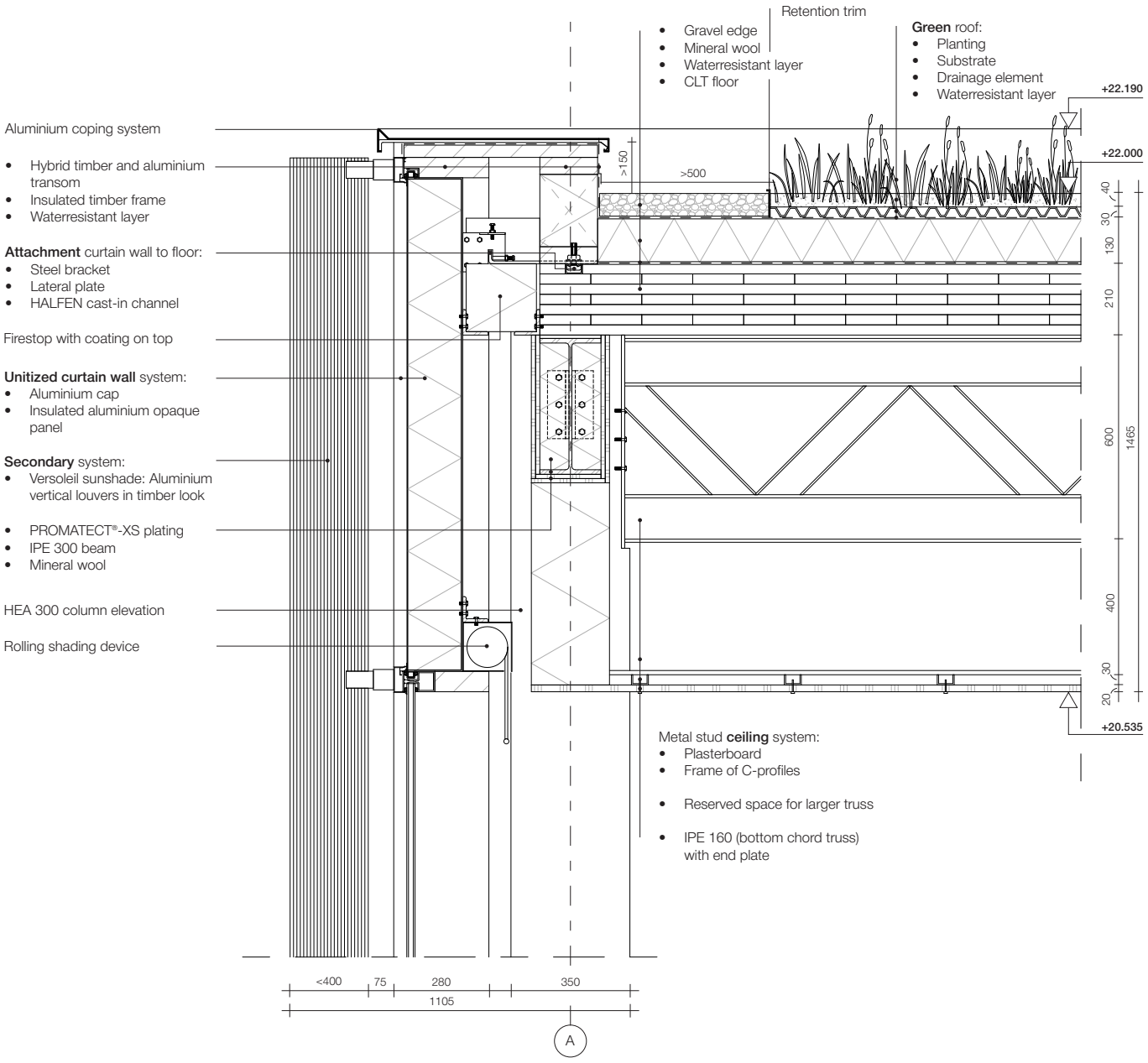
Fragment 1

1:20



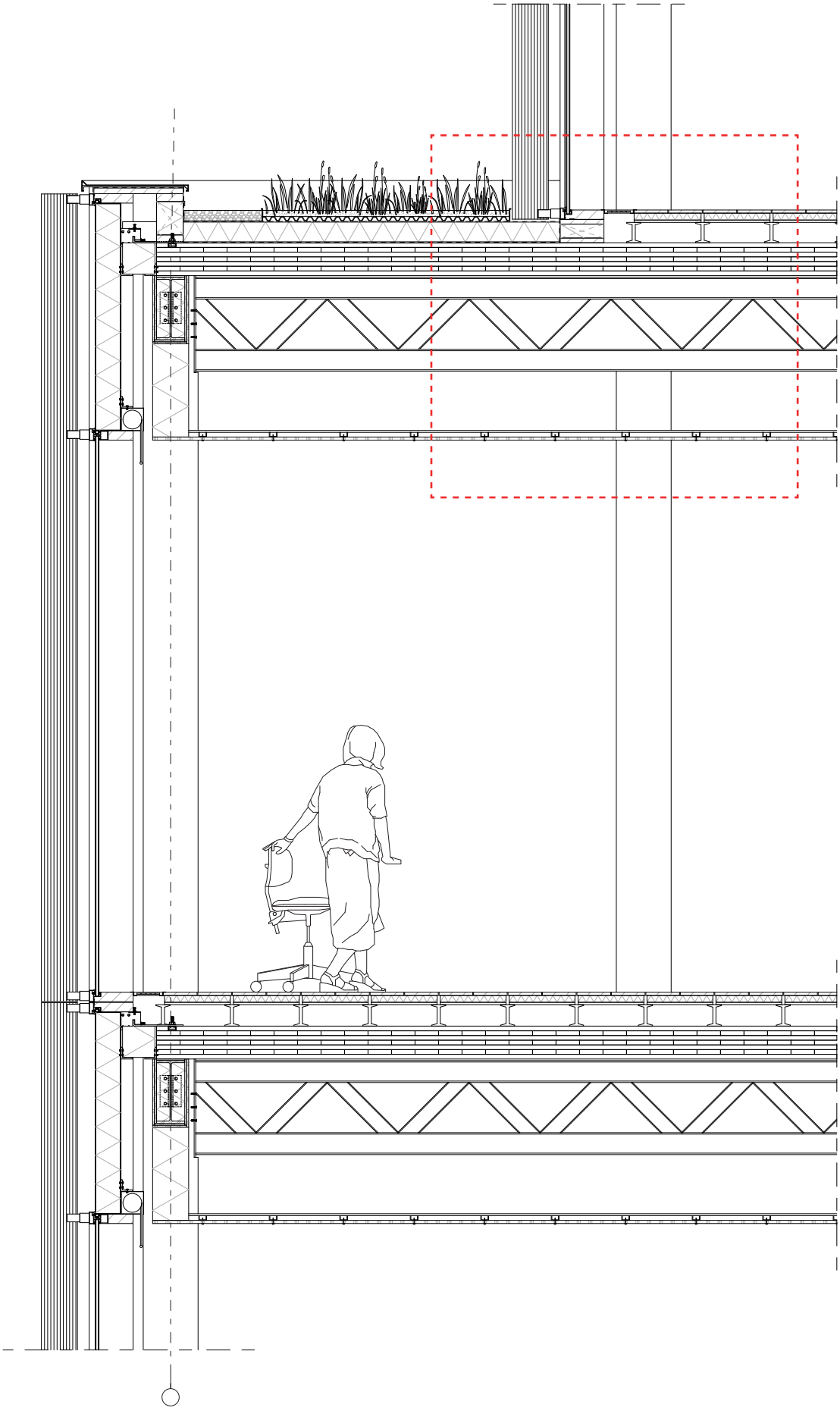
VD2

1:5


Retention trim
Gravel edge
Mineral wool
Waterresistant layer
CLT floor
Green roof:
Planting
Substrate
Drainage element
Waterresistant layer
+22.190
+22.000
Aluminium coping system
Hybrid timber and aluminium transom
Insulated timber frame
Waterresistant layer
Attachment curtain wall to floor:
Steel bracket
Lateral plate
HALFEN cast-in channel
Firestop with coating on top
Unitized curtain wall system:
Aluminium cap
Insulated aluminium opaque panel
Secondary system:
Versoleil sunshade: Aluminium vertical louvers in timber look
PROMATECT®-XS plating
IPE 300 beam
Mineral wool
HEA 300 column elevation
Rolling shading device
>150
>500
40
30
130
210
600
1465
400
30
20
+20.535
Metal stud ceiling system:
Plasterboard
Frame of C-profiles
Reserved space for larger truss
IPE 160 (bottom chord truss) with end plate
<400
75
280
350
1105
A

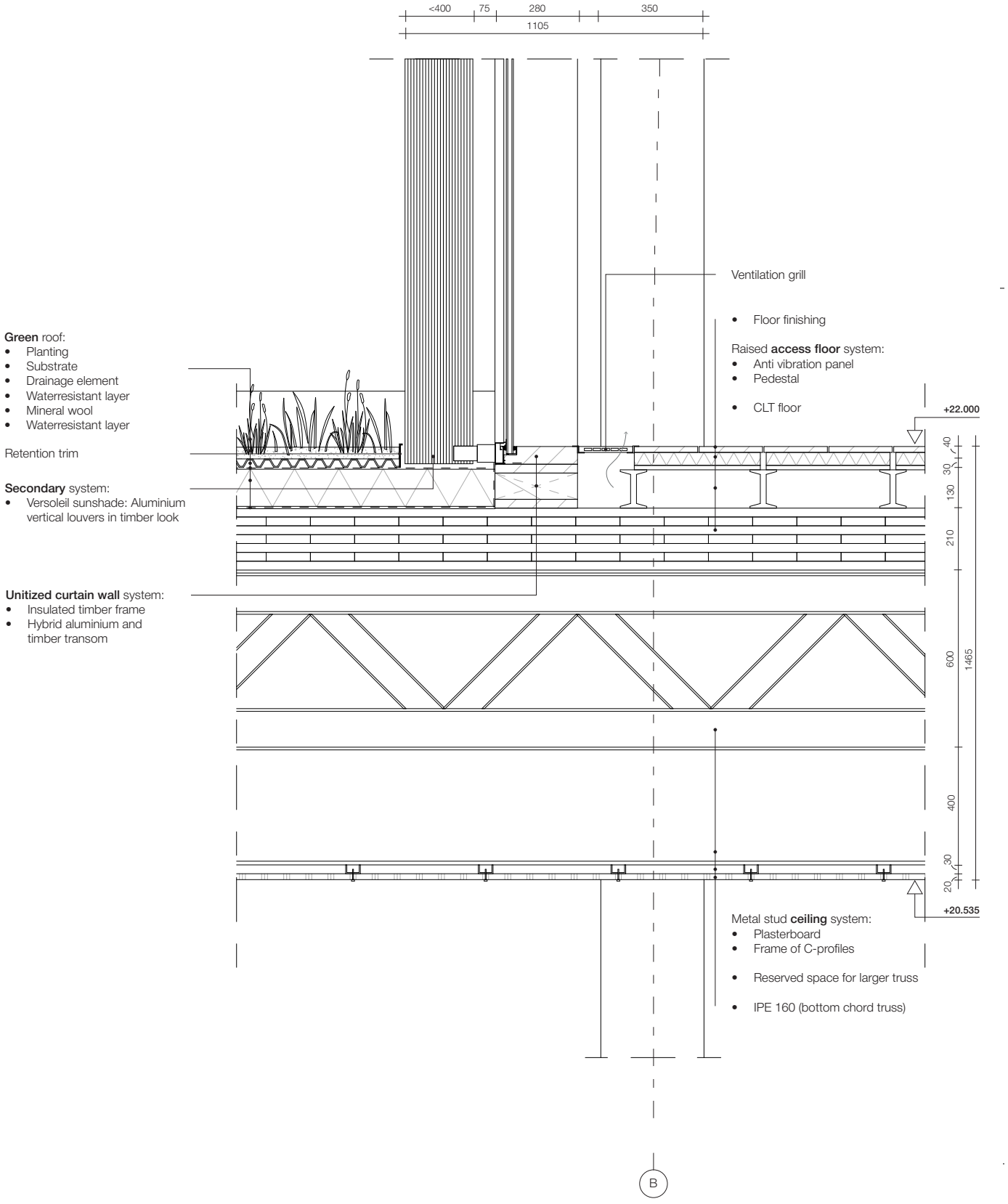
Fragment 1

1:20



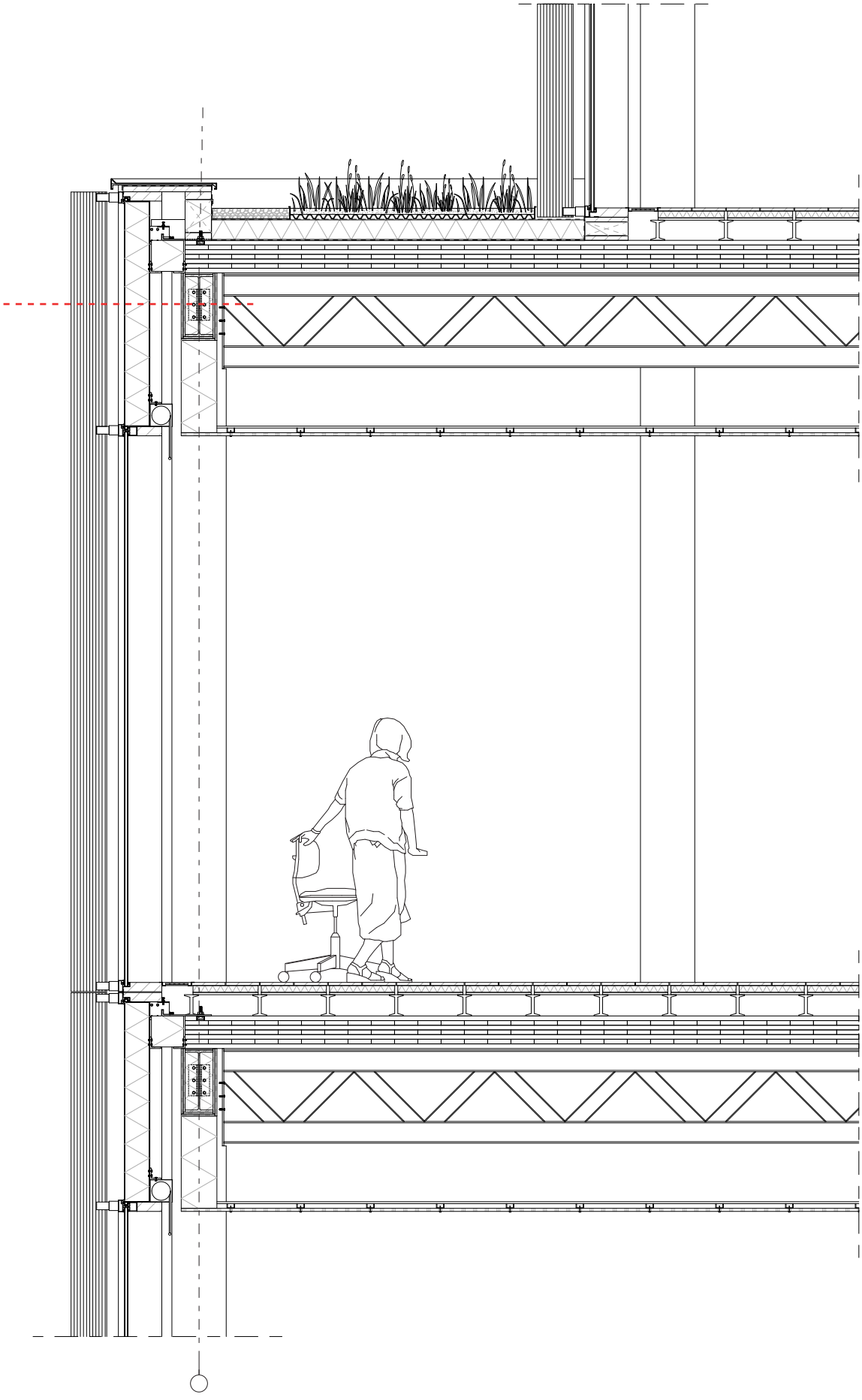
VD3

1:5


<400
75
280
350
1105
Ventilation grill
• Floor finishing
Raised **access floor** system:
• Anti vibration panel
• Pedestal
• CLT floor
+22.000
40
30
130
210
600
1465
400
30
20
+20.535
Metal stud **ceiling** system:
• Plasterboard
• Frame of C-profiles
• Reserved space for larger truss
• IPE 160 (bottom chord truss)
Green roof:
• Planting
• Substrate
• Drainage element
• Waterresistant layer
• Mineral wool
• Waterresistant layer
Retention trim
Secondary system:
• Versoleil sunshade: Aluminium vertical louvers in timber look
Unitized curtain wall system:
• Insulated timber frame
• Hybrid aluminium and timber transom
B

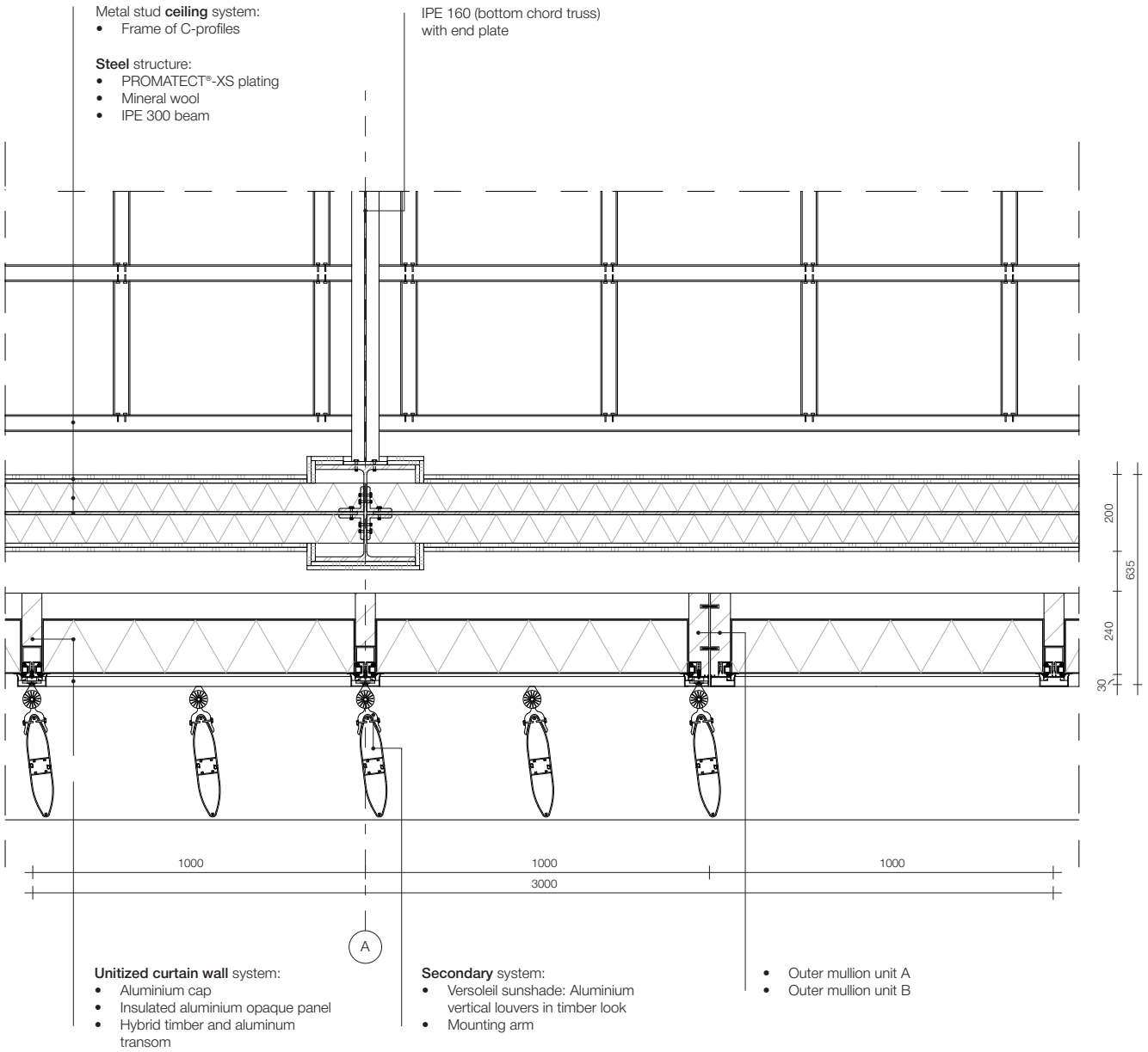
Fragment 1

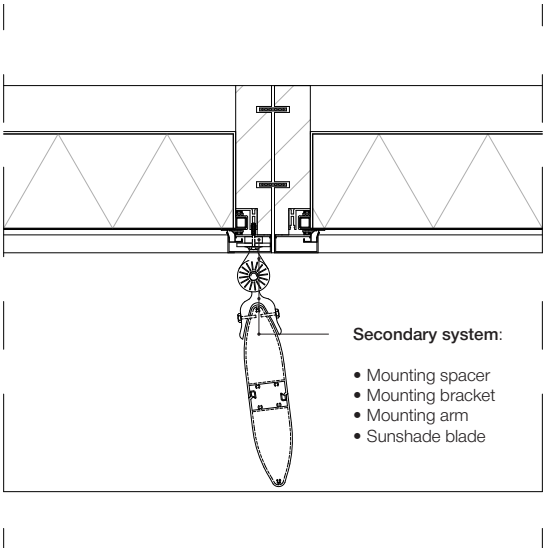
1:20



HD1

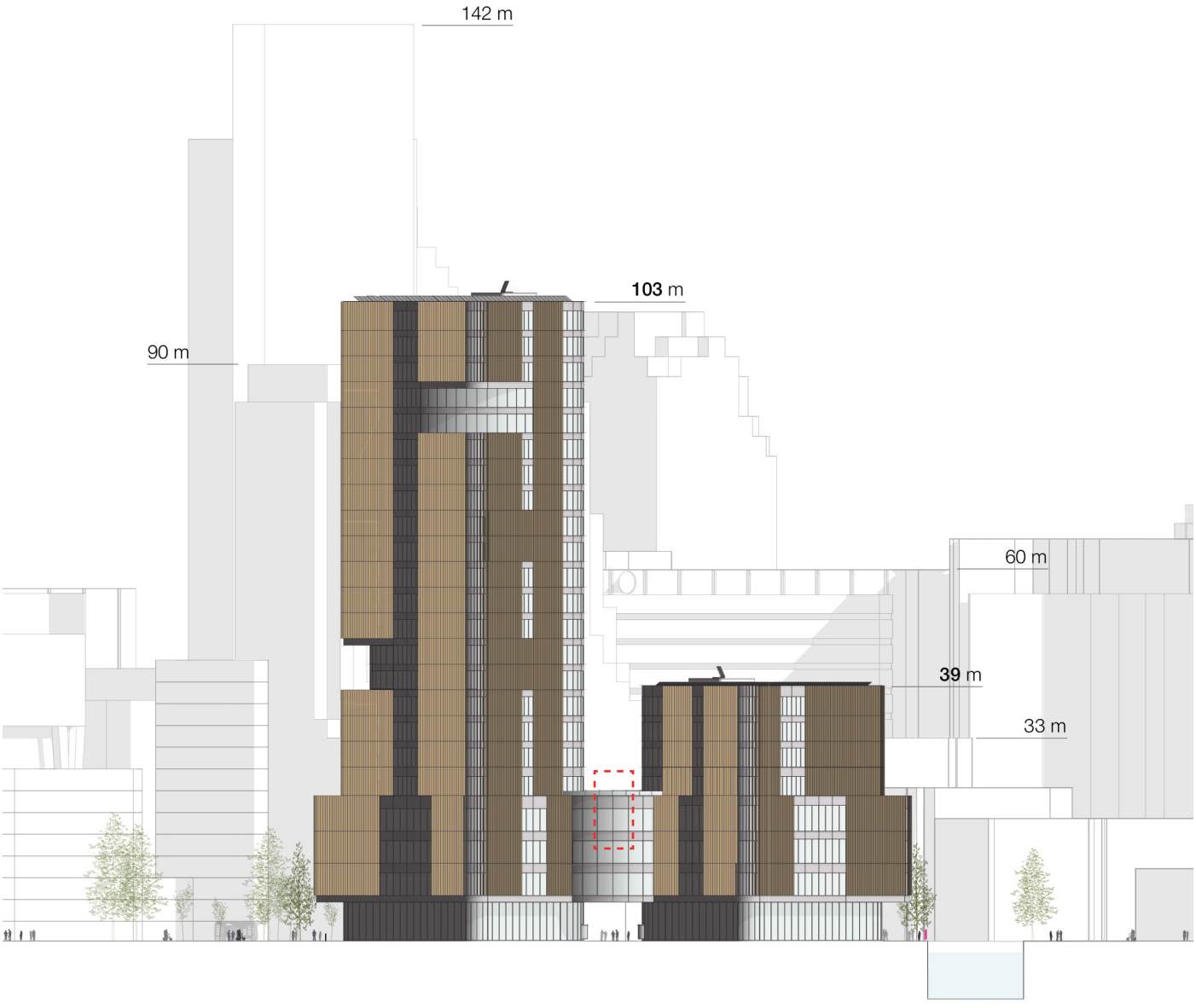
1:5

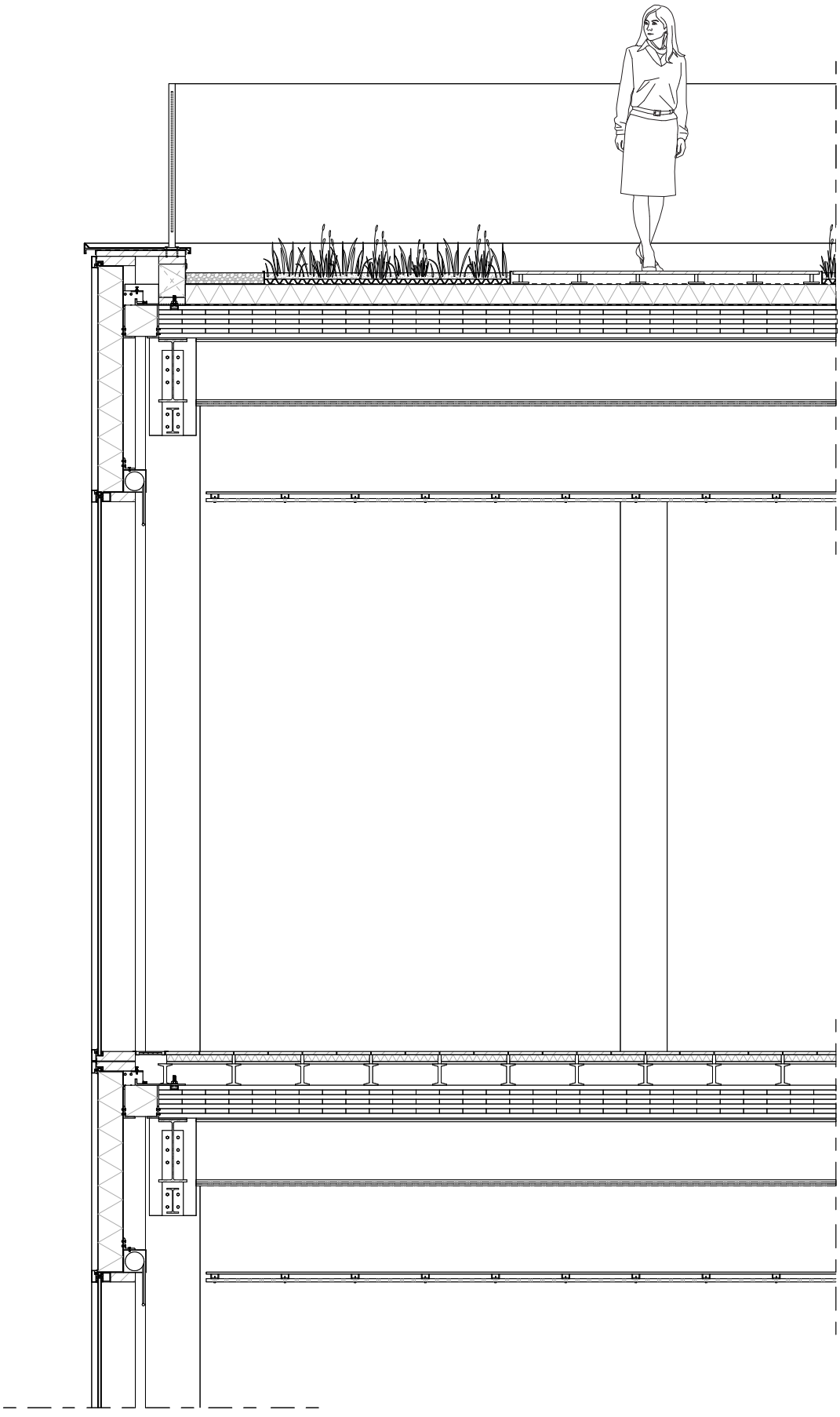

Metal stud **ceiling** system:
• Frame of C-profiles
Steel structure:
• PROMATECT®-XS plating
• Mineral wool
• IPE 300 beam
IPE 160 (bottom chord truss) with end plate
200
635
240
30
1000
1000
1000
3000
A
Unitized curtain wall system:
• Aluminium cap
• Insulated aluminium opaque panel
• Hybrid timber and aluminum transom
Secondary system:
• Versoleil sunshade: Aluminium vertical louvers in timber look
• Mounting arm
• Outer mullion unit A
• Outer mullion unit B


Secondary system:
• Mounting spacer
• Mounting bracket
• Mounting arm
• Sunshade blade

Fragment 2

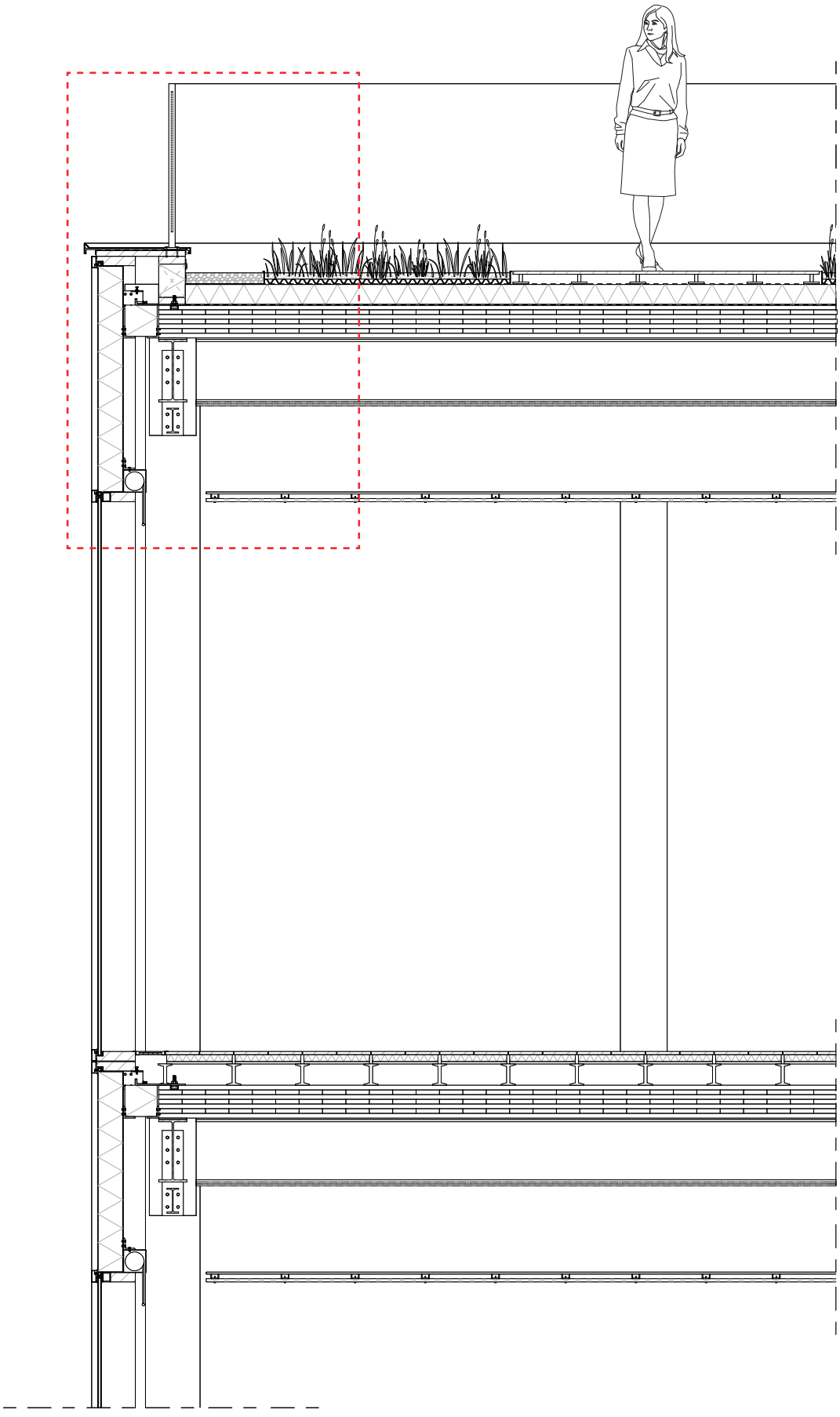
1:20





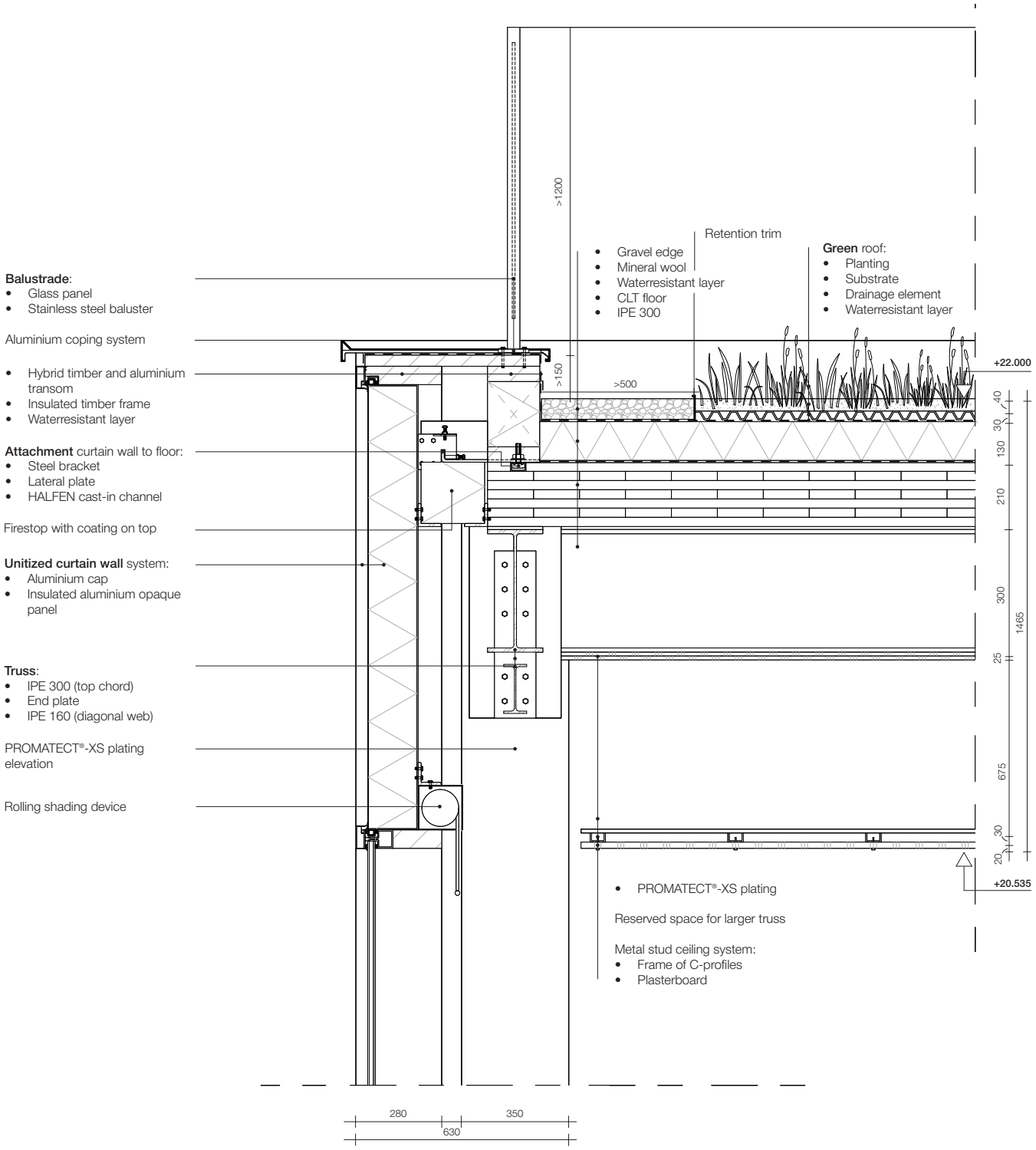
Fragment 2

1:20



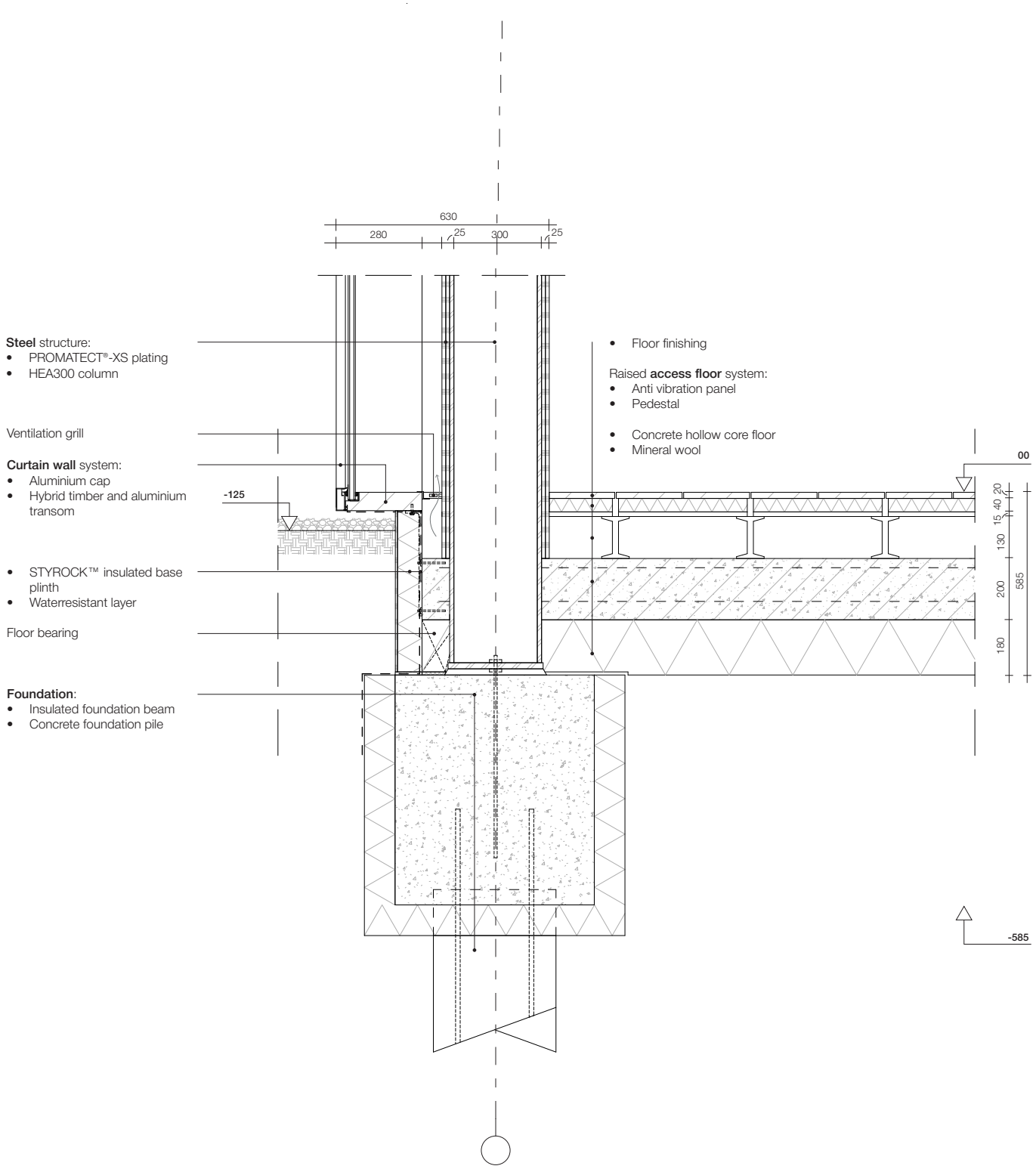
VD1

1:5


Balustrade:
• Glass panel
• Stainless steel baluster
Aluminium coping system
• Hybrid timber and aluminium transom
• Insulated timber frame
• Waterresistant layer
Attachment curtain wall to floor:
• Steel bracket
• Lateral plate
• HALFEN cast-in channel
Firestop with coating on top
Unitized curtain wall system:
• Aluminium cap
• Insulated aluminium opaque panel
Truss:
• IPE 300 (top chord)
• End plate
• IPE 160 (diagonal web)
PROMATECT®-XS plating elevation
Rolling shading device
>1200
>150
>500
Retention trim
• Gravel edge
• Mineral wool
• Waterresistant layer
• CLT floor
• IPE 300
Green roof:
• Planting
• Substrate
• Drainage element
• Waterresistant layer
+22.000
40
30
130
210
300
1465
25
675
30
20
+20.535
• PROMATECT®-XS plating
Reserved space for larger truss
Metal stud ceiling system:
• Frame of C-profiles
• Plasterboard
280
350
630

Plinth detail

1:20



07. Final reflection

Final reflection

The project, why?

This Graduation Studio of Public Building asked us students to design a vertical campus in the vicinity of The Hague Central Station. While this area was supposed to be vibrant, the Bezuidenhoutseweg appeared to be very unengaging towards its surroundings, mainly due to very large buildings with their closed off facades, and lack of ground floor activities. Initially, while forming a capacity plan for P1, our team asked ourselves if adding another high rise building would not only add to this anonymity. Therefore, we proposed campus as a constellation of buildings spread through an area, varying in scale. This meant that the main part of campus could still be a vertical building, but in addition, campus as a whole would comprise medium and smaller scale buildings to encourage movement and interactions between people, and activate the public realm. In addition, for P2, I researched several models on the spatial interplay of campus and city. I found out that in the Netherlands, campus is often only partly integrated in the city. This means that campus can make use of the city program, but city can not actively make use of the campus program. My goal was to design a campus that follows the model of campus fully integrated in the city, meaning there is a two-sided interplay.

Research question

Moving forward, following our approach on the idea of campus, I came up with the following research question for my design:

How could a public vertical campus contribute to and enrich the city of The Hague?

Methodology, research and design process

From the beginning I knew I was interested in how to actively connect campus and its surrounding city. I tried out several approaches, but could not quite put a finger on how to translate this ambition into architectural design. Somewhere in the process, I tried narrowing my scope for the design to gain a clear direction. I created a framework for myself to follow consisting of three key pillars: connectivity, collaboration, and performance. Connectivity refers to the physical and social links between campus and the surrounding urban fabric. It is achieved by creating attractive public spaces that invite participation from the public, and encourage interaction between different user groups. Collaboration refers to the cooperation and engagement between various user groups, bridging the gap between academic community and broader city population. It is achieved by providing shared spaces, where people can engage in joint activities and exchange knowledge. Performance refers to result-driven achievements, presenting campus as a contributor to innovation and economic growth. It is achieved by creating dedicated working spaces, where people can focus on specific and professional initiatives. To this pillars I could link functions of the program brief as the pillars related respectively from public to semi-private, creating a logical vertical hierarchy of spaces. In addition, I researched all kinds of personas and their needs, and translated this into types of spaces (partly from the given program brief, partly added). By considering different users and their needs, the campus could become a vibrant and inclusive environment that not only serves the academic community but also actively engages with its surrounding public realm. I received feedback to think in activities and interactions that a place can provide, rather than plain program. From this point on, I had a much clearer view and my design process progressed in a much more linear way.

Final reflection

Importance of design thinking

In my opinion, involving personas in your design, should be one of everyone's main priorities. Buildings, especially (vertical) public buildings, should be designed for the public that makes use of it for it to actively integrate in the cityscape and not be an enclave on its own.

Reflection

Looking back on my proposed design, I believe I managed to design my vertical campus as an actual extension of the urban fabric, that therefore invites a large variety of people and connects academic life and city. In addition, I made slight expansions to the program brief. For example, I wanted this campus' educational offer to go beyond student degrees, and, amongst other things, I introduced not only workshops for students, but also public (group) workshops. These functions are stacked upon each other in a way that it creates a logical hierarchy of spaces and extension of the urban fabric. For example, functions connected to the pillar connectivity (e.g. café/lounge, public student and temporary exhibitions, public group workshops) are located on the lower levels and serve as an introduction to the vertical campus. Functions connected to the pillar collaboration (e.g. theaters, advanced virtuality center, workshops, break-out spaces) are located on the mid levels. Functions connected to the pillar performance (e.g. research spaces, offices) are located on the upper levels, occasionally interrupted by collaborative break-out spaces. This concept of inviting, practicing, sharing, and educating between campus and city, is used throughout the entire campus.

Relation to master track

The topic of my graduation makes for the campus to not anymore be an isolated enclave but be a real public building. This topic covers, next to architectural design, urban design as it aims to connect campus with cityscape.

Relevance in larger social, professional, scientific framework

This research contributes to the profession in a way that it can lead as an innovative spatial model for other universities facing challenges in bridging the gap between academic life and cityscape. By identifying contemporary shortcomings, and reimagining the standard spatial layout of a university campus, it provides valuable insights and has the potential to spark positive transformation within the profession.