Lumina tower

shedding light on knowledge and ideas

May 30 2024 Luca Laponder P4
AR3AP100 Fall Semester 2023-2024

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The Hague Horizon Campus

journey

25 January 2024 Luca Laponder P2
AR3AP100 Fall Semester 2023-2024

ABSTRACT

As cities continue to evolve and grow, the interest in a vertical campus has increased, raising questions about the dynamics and accessibility of public and private spaces within these structures. These spaces serve as multifunctional hubs, facilitating various activities such as education, work, recreation, and social interaction. However, there is a growing need to understand how public and private spaces merge, coexist, and are accessed within and around these large-scale buildings. Public and private spaces are often seen as functions that are separated from each other. Analyzing existing frameworks helps to get a better understanding of the definition and design differences. This combined with the well-being of humans in public and private spaces, shows what characteristics make a space or area feel public and private for the users. By going in-depth between three case studies from different typologies, their characteristics become visible. The case studies are chosen because of their variety of functions and are reflected on the Vertical Campus in The Hague.

RESEARCH QUESTION

How does the boundary between public and private realms influence the connection in the vertical campus?

SUB QUESTIONS

1. What are the design differences between public spaces compared to private spaces in and around buildings?
2. What physical and psychological characteristics influence the well-being of humans in public and private spaces?
3. How are public and private spacing used in different high-rise buildings?
4. How to reflect the case studies for the Vertical campus in the Hague?

OBJECTIVE

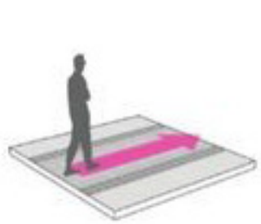
This research aims to identify and recommend design approaches that foster positive interactions and perceptions of individuals within the realm of public and private spaces. The research reflects qualities that can be translated for the vertical campus in The Hague. The purpose of the campus is to be accessible to everyone, without feeling restricted or unwelcome. This starts from the external environment, how to wander between buildings and functions, and the internal layout to ensure optimal accessibility and functionality for all its users.

PROBLEM SIGNIFICANCE

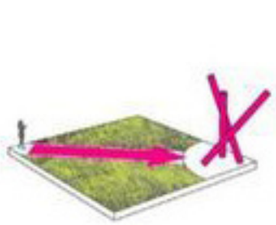
A vertical campus is not the traditional way a campus is organized but is needed to fit into the growing cities. Its potential for mixed-use development aligns with the goals of densifying urban areas. Unlike the traditional campus, often located outside city centers. The vertical campus facilitates integration into urban life, fostering opportunities for innovation and development, particularly in the realm of mixed-use projects. In a vertical campus are a lot of different functions and spaces. Spaces that can be used for several functions and other parties. Because of this mix, public and private spaces merge and coexist. However, in a vertical campus, the ground floor and outside area are some of the most complex spaces. On this level, everyone in and around the building passes this place.
But how do we encourage gathering in and around these buildings? How can we make buildings, places where people feel safe to come and not feel lost or not welcome? Buildings should not be individual islands but should create a communal area that connects the surrounding buildings and their functions, we try to create a connected city in our ever-growing society.

TYPES OF BOUNDARIES

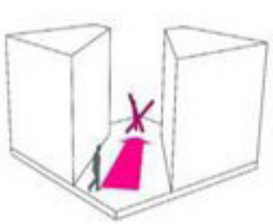
1. wandering



Paving Pattern



Landmarks



View Corridor

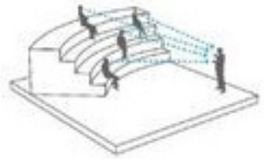


Info Graphics

2. interaction



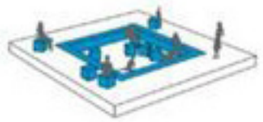
3-Sided Benches



Amphitheatre

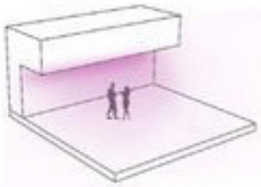


Pedestal Surface



Flexible Space

3. lighting



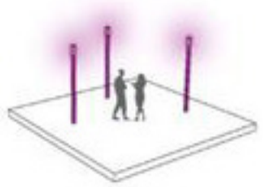
Architectural Lighting



Indirect Lighting

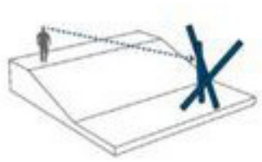


Reflected Light

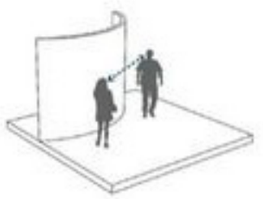


Diffused Pole Light

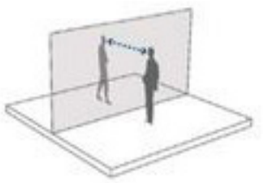
4. visibility



Elevated Vantage



Curved Facades



Glass Facades



Clear Sight Zone

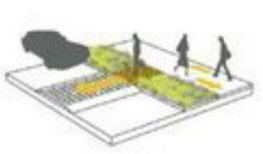
5. mobility



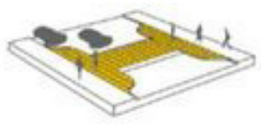
Raised Pedestrian Crossing



Textured Transitions



Waiting Zone



Shortened Crossing

inside vs outside

inside boundaries

Public vs private

Physical vs psychological

TYPES OF BOUNDARIES

Physical boundary – visible boundaries

Type of boundary	Explanation
Security/surveillance boundary	Access is only allowed by card/ticket/id
Economic boundaries	Commercial or residential space
Legal boundaries	Property lines or zoning laws
Community and civic boundaries	Designated public areas or spaces
Temporary boundaries	Events or gathering

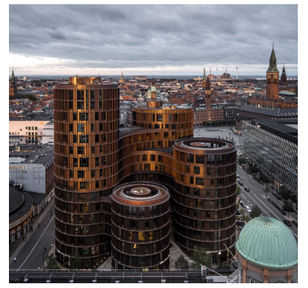
Psychological boundary – everything we feel inside our body (emotions)

Type of boundary	Explanation
Territoriality	Public vs private intimate space
Ethnical boundary	Accessible by a group or race of people
Social identity and group dynamics	Conformity and in/out-group dynamics
Privacy needs	Intimacy in space
Personal space	The distance of your inner comfortable space

Casestudies

By the use of case studies I tried to get a better understanding of how these buildings work. The next questions helped me map this;

- How does the entrance flows and how are people guided.
- How does the architecture translate to their floorplan, iconic vs timide.
- Did the structure create the floorplan or is the floorplan adjusted to the structure and how is public and private mixed.



Axel tower Kopenhagen



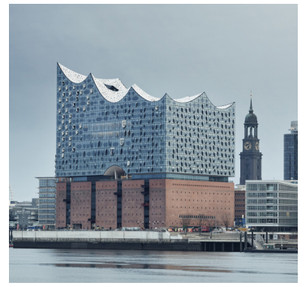
Maersk Kopenhagen



Bookcity Shenzhen

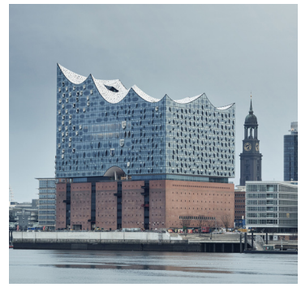


UTS Library Australia



Elbhiharmonicer Hamburg





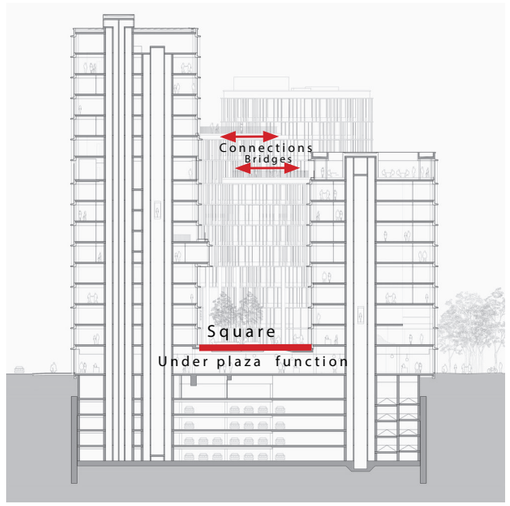


Axel towers - Copenhagen

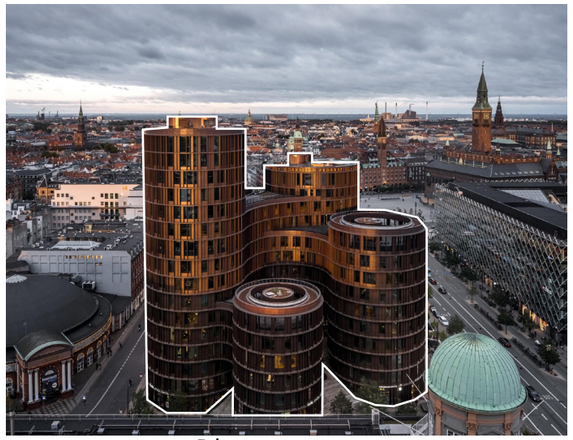
Location: Copenhagen, Denmark
Architect: Lundgaard & Tranberg ARkitekter
Function: Fofice & retail & urban space
Building year: 2017
Square meters: 40.000m2

This project is iconic in the skyline of Denmark due to its round shapes and height. However, the color scheme merges with the city. The project is located in the city center of Copenhagen, close to the station. The design consist of five towers, each having its own height and diameter. The different towers are connected with bridges. These bridge stretch over several floors and xxxx. Besides the height difference in the towers is there also a elevated plaza. The center courtyard of the project is elevated, asking people to explore what to find there.

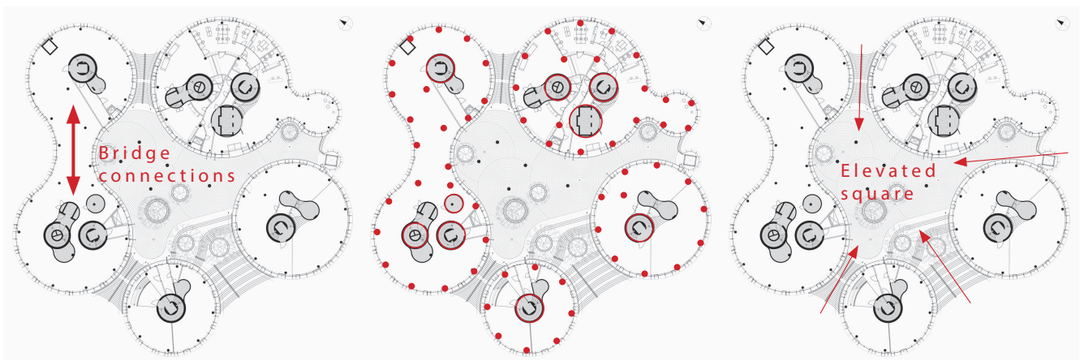
Another aspect is the structure. The building has round cores and columns placed in circles. The center placed cores creates a small floorspace but it is experienced as dynamic and complicated.



Plaza



Placement



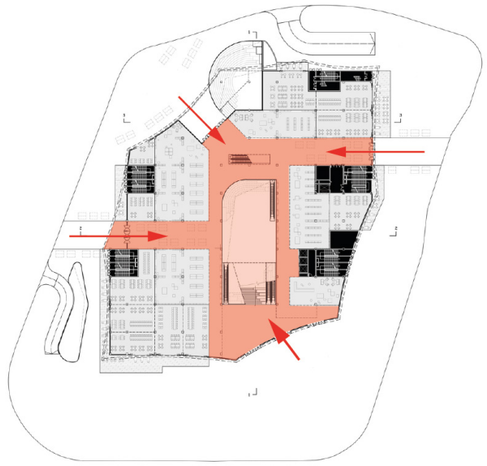
Spaces Structure Entrance

Bookcity - Shenzhen

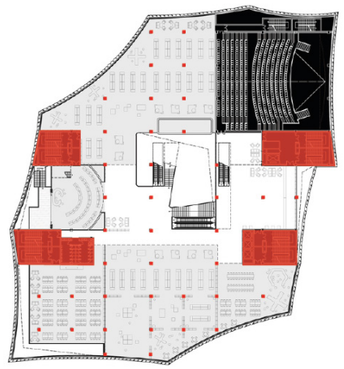
Location: Shenzhen, China
Architect: Atelier Global Limited
Function: Library & auditorium
Building year: 2020
Square meters: 45.500m2

This projects remarked me due to the regular grid, with small changes due to the needs of their funciton, combined with an unique facade. The grid is not compremised by the facade and the functions will have the most efficient floorspace. The layout is based on one central atrium that is connected on the groundfloor on four sides. Allowing visitors to enter the building from all sides from a horizontal movement to a vertical. The atrium allows views over several levels, stimulate people to explore.

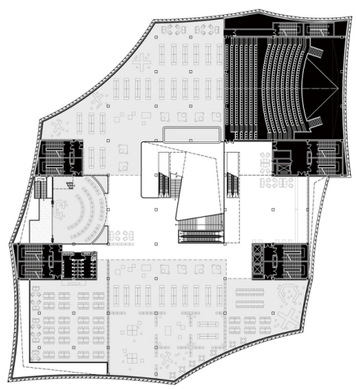
Another interesting part of this project is the public and private function balans. The only private functions are the theater, storage and supply spaces. The core is placed on the outside of the floorplan to create the large atrium.



Entrance



Structure



Spaces

Maersk - Copenhagen

Location: Copenhagen, Denmark
Architect: C.F. Moller Architects
Function: University & auditorium
Building year: 2017
Square meters: 42.700m2

wat over de outdoor plot vertellen nog xxxx



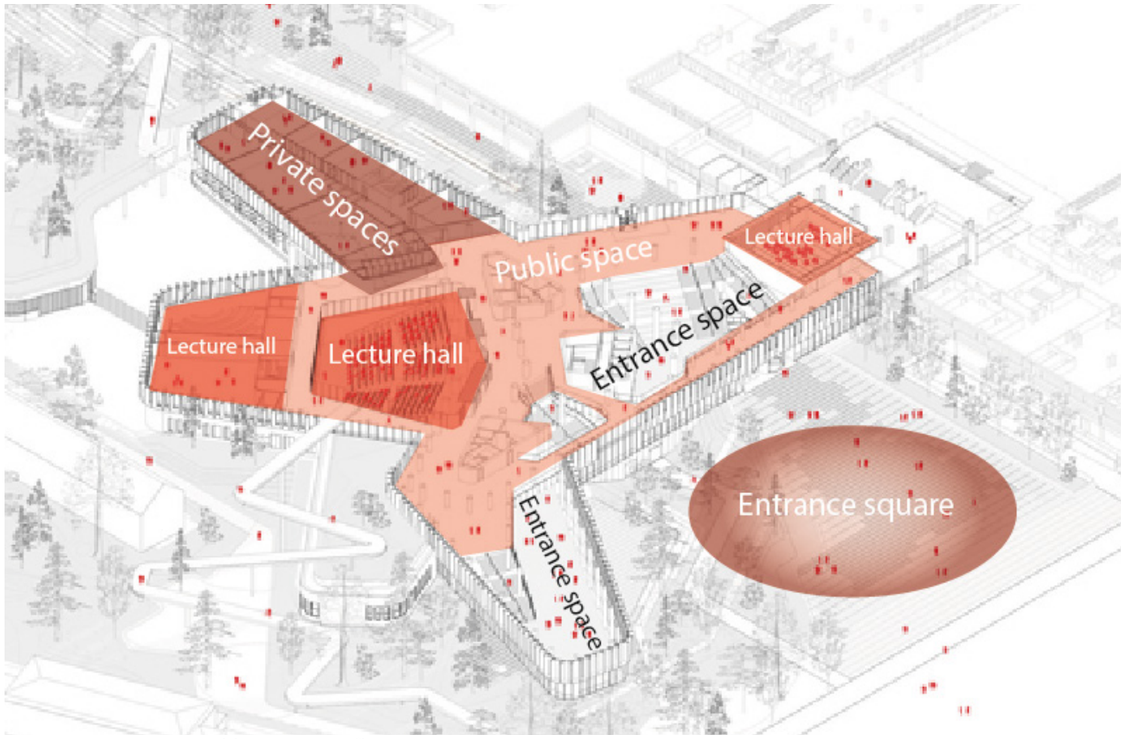
Facinated by how the outdoor level elevated to the first floor in the building. How does the public space enters the private building. This project is known by its unique shape and optical illusion. The illusion of sizing. The building doesn't appear to be very wide in some angels but the floorpan suggest otherwise.

Interesting in this project is how they dealt with the placement of three cores and how the columns are placed due to the round corners and diagonal lines in the bulding.

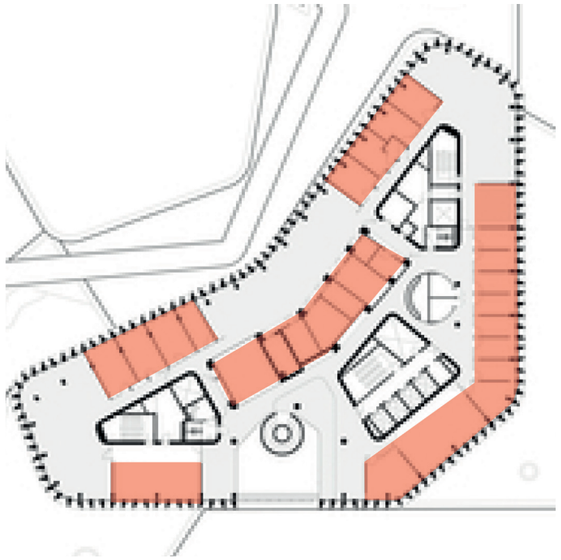
The first floor is an open floorpan that mixes between lecture halls and private spaces. Allowing users to mix between these large functions before going higher into the building.

central void uitleggen

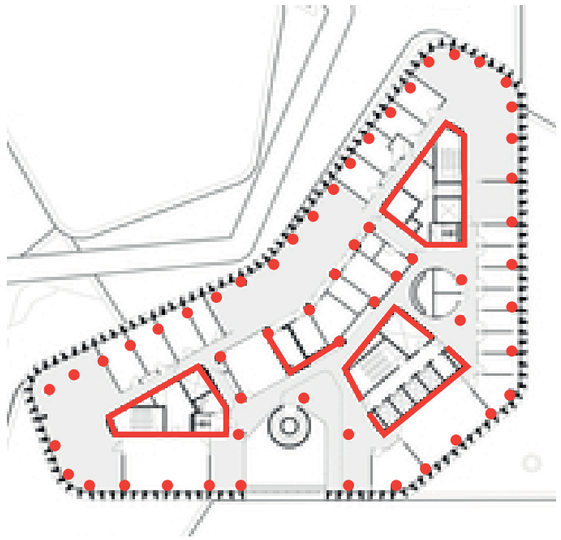




Entrance - public - private - flow



Flexibility

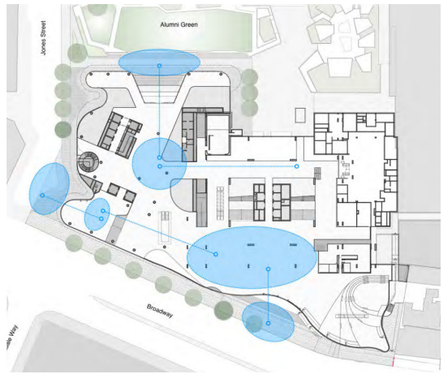


Structure

UTS - Australia

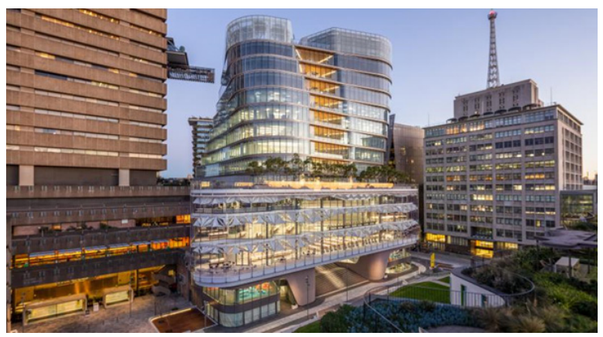
Location: Sydney, Australia
Architect: Francis-Jones Morehen Thorp (FJMT)
Function: Faculty of Law and UTS Library
Building year: 2019
Square meters: 32.400m2

xxxxxx







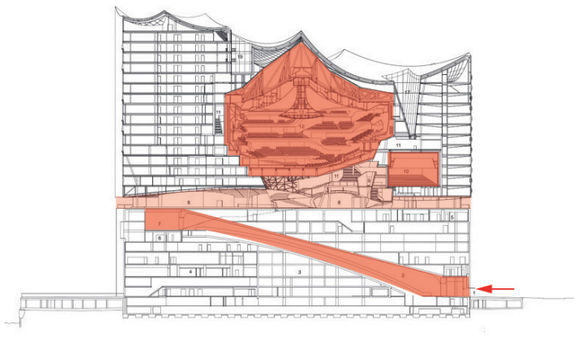


Elbphilharmonie - Hamburg

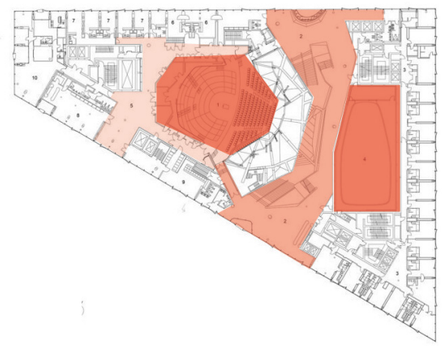
Location: Hamburg, Germany
Architect: Herzog & de Meuron
Function: Theater & residentional & hotel & bar & public space
Building year: 2017
Square meters: 120.000m2

The biggest project of the case studies and housing the most functions. This building is known for its theater design that is shown in the facade design. One of the key points of the building is the mid level public floor, but it is also the boundary. How easy is it for people to go into this building and reaching this floor. They tried to solve it by the use of a long escalator which guides you to the platform. Also interesting in this floorpaln is the division of public and private spaces due to the stacking in functions. Corridors are that become narrow and closed of from the public.





Vertical functions

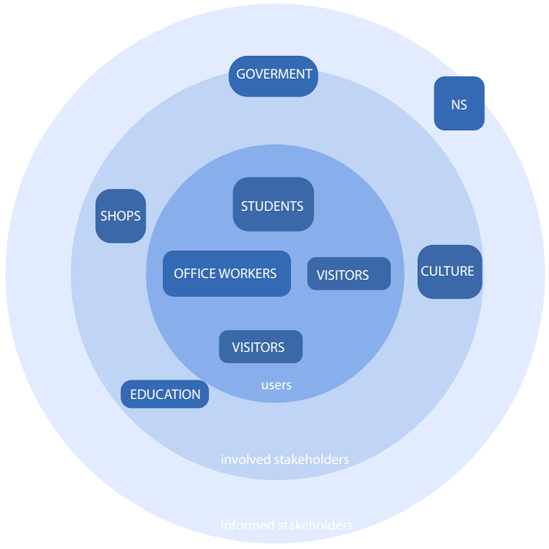


Horizontal functions

Design brief

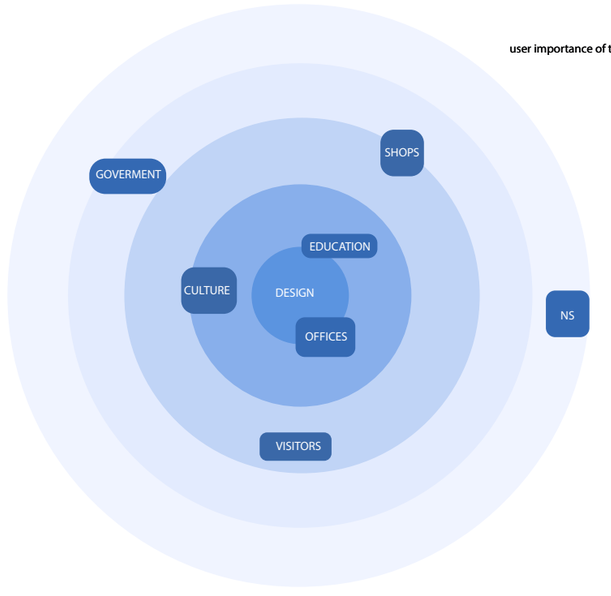
STAKEHOLDERS

users maps



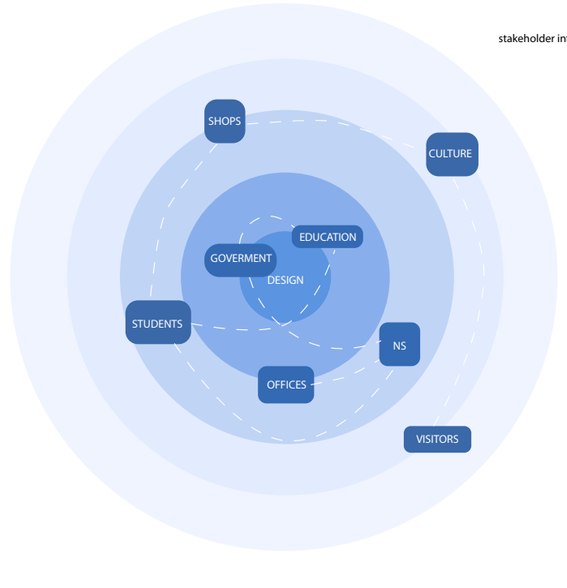
Visualising the difference of a user, stakeholder or a informed stakeholder.

user importance of the building



Scaling the importance of the different users

stakeholder influence in the building



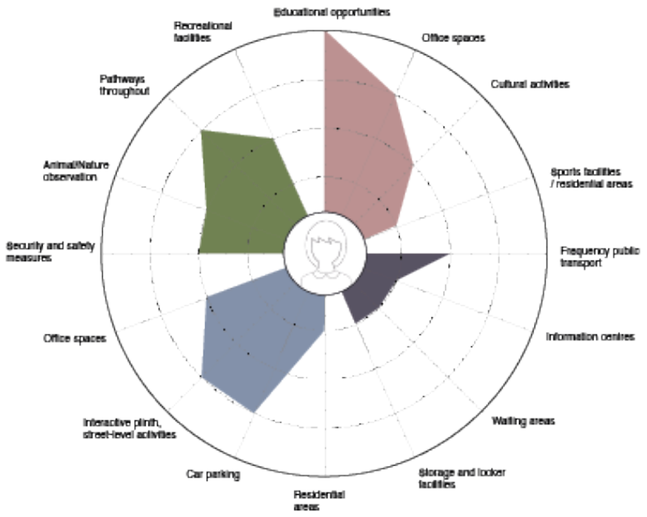
This diagram shows how the different parties are involved in the design process. Some parties have a lot of incluence on the design

PERSONANS MEETS PROGRAM

GREEN SITE AREA

TEACHER

CAMPUS



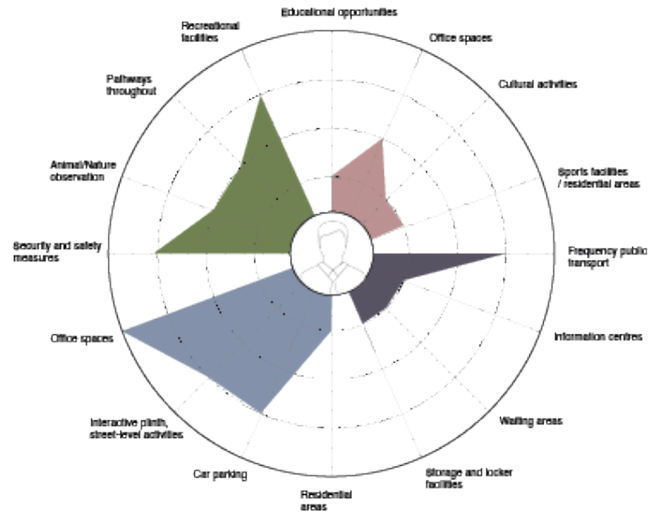
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

NS WORKER

CAMPUS



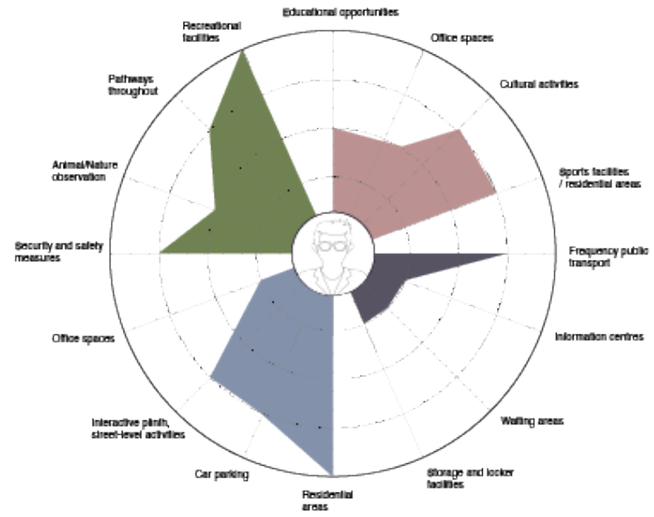
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

RESIDENT/ FAMILY

CAMPUS



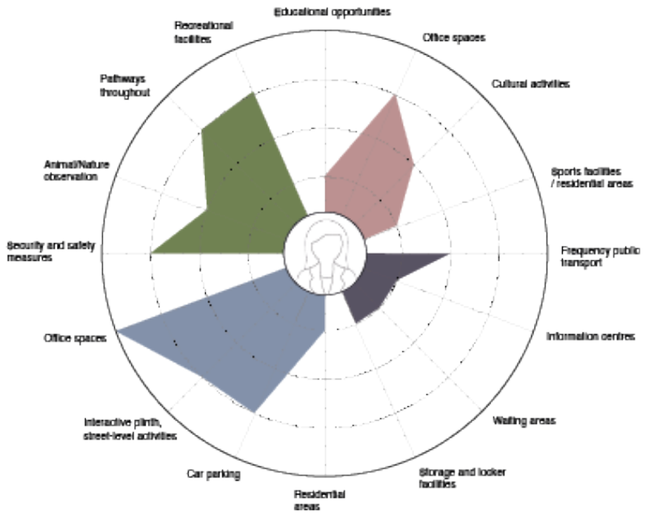
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

OFFICE WORKER

CAMPUS



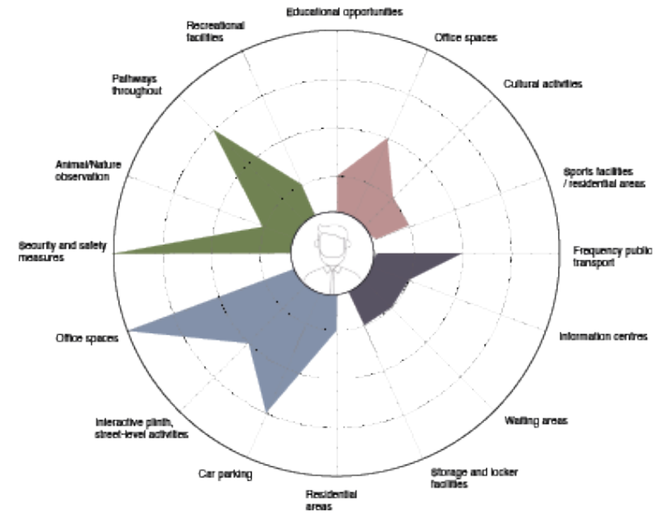
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

POLITITIAN

CAMPUS



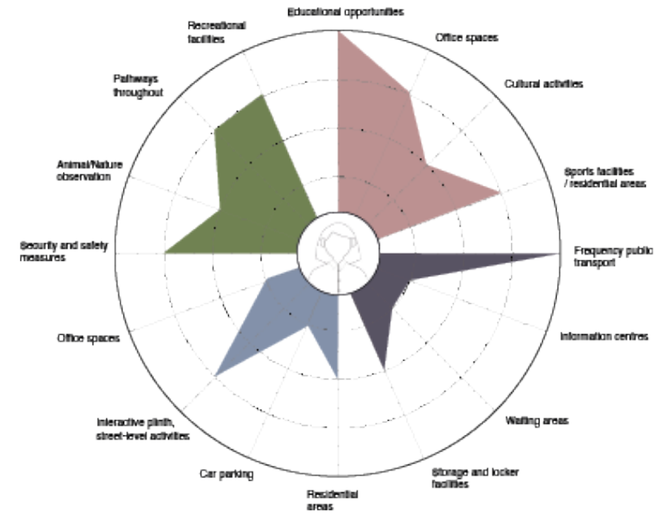
URBAN SITE AREA

DEN HAAG CS

GREEN SITE AREA

STUDENT

CAMPUS



URBAN SITE AREA

DEN HAAG CS

CATEGORISING FUNCTIONS

THE PLACE FOR DEVELOPMENT

Work related spaces

- Office space



THE PLACE WHERE WE TEACH AND LEARN

Everything that has to do with learning, all ages

- Play and learn
- Learn and discover
- centre of advanced virtuality
- learn and development
- teaching, learning and development spaces
- Elementry school



INSPIRATION AND PLACE TO SHARE KNOWLEDGE

Public accessible space and functions

- Shops
- Commercial spaces
- Cafe and lounge
- Restaurant

Campus related

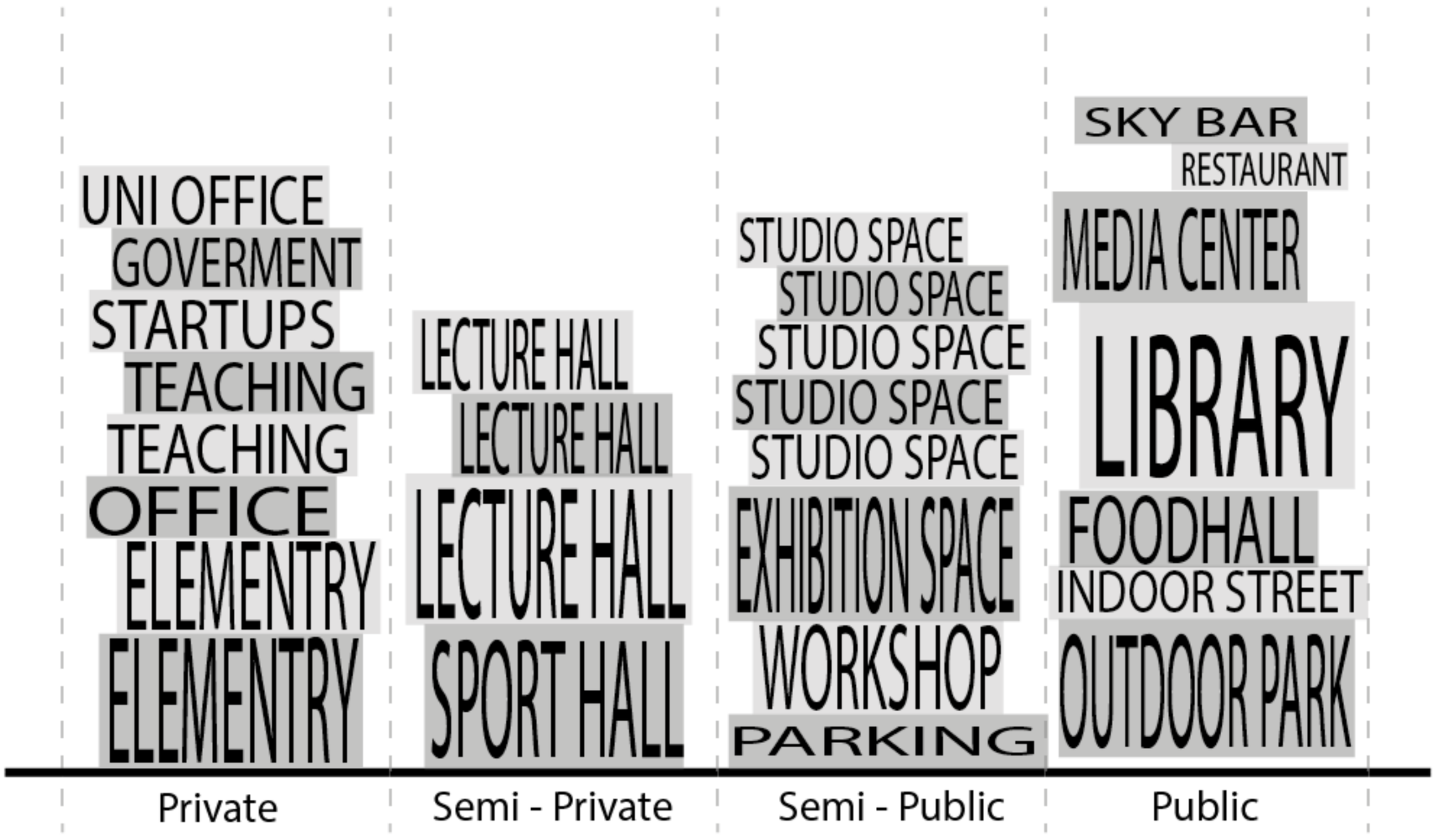
- Library and media center
- Workshop
- Theaters/lecture
- Exhibition space
- Sport space

CATEGORISING FUNCTIONS

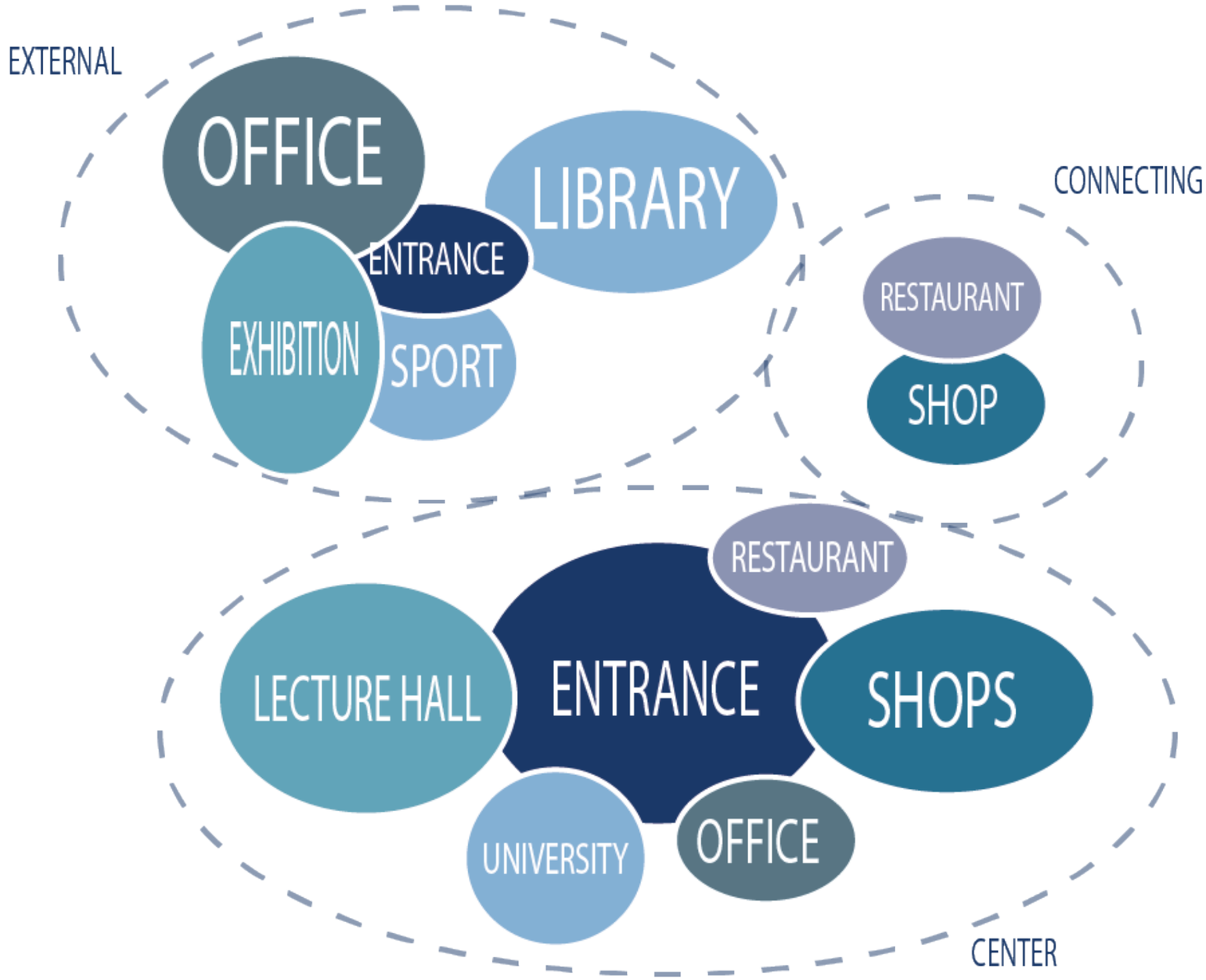


Development - Teach and learn - Inspiring and sharing knowledge

CATEGORISING

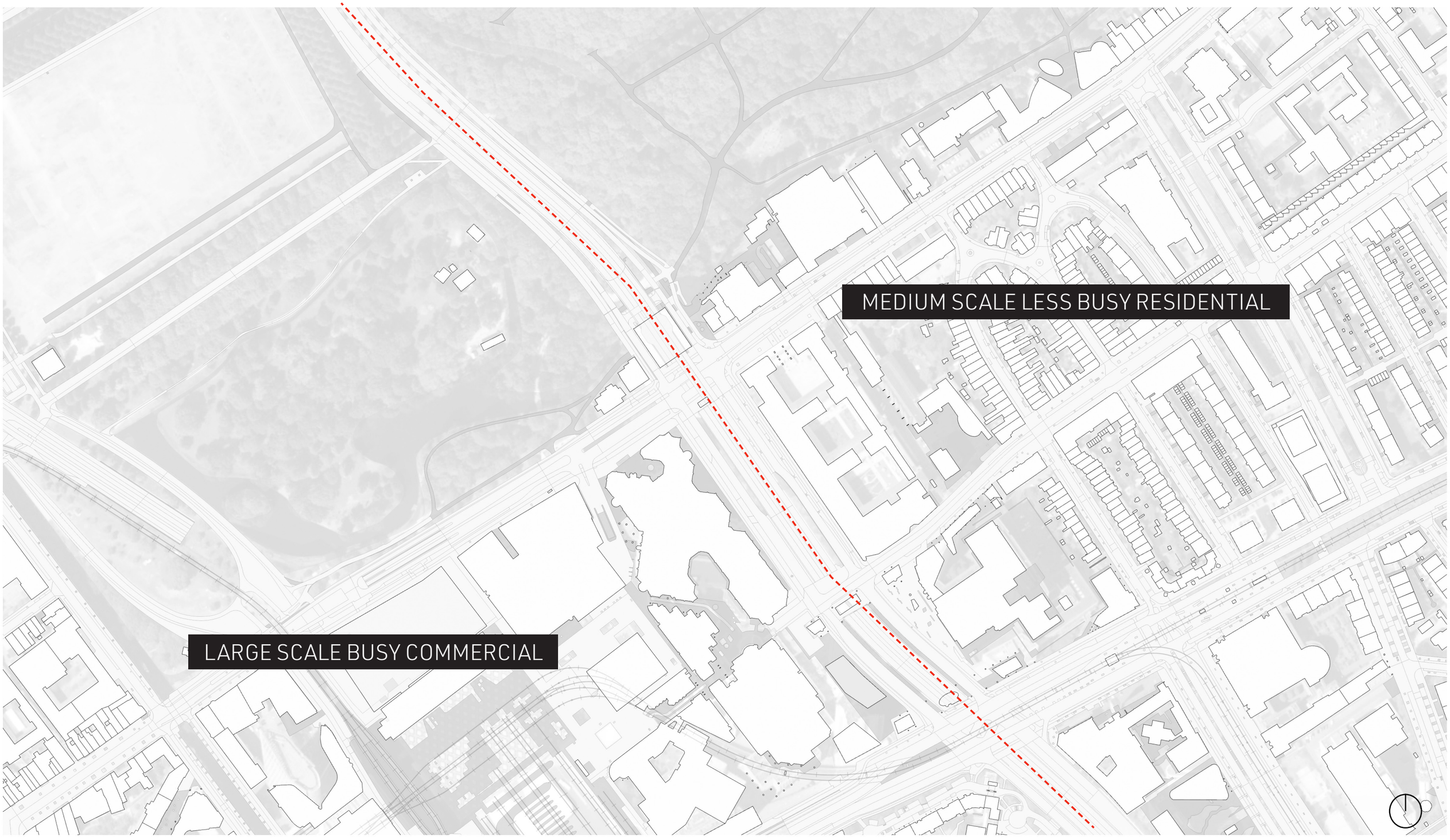


BUBBLE DIAGRAM



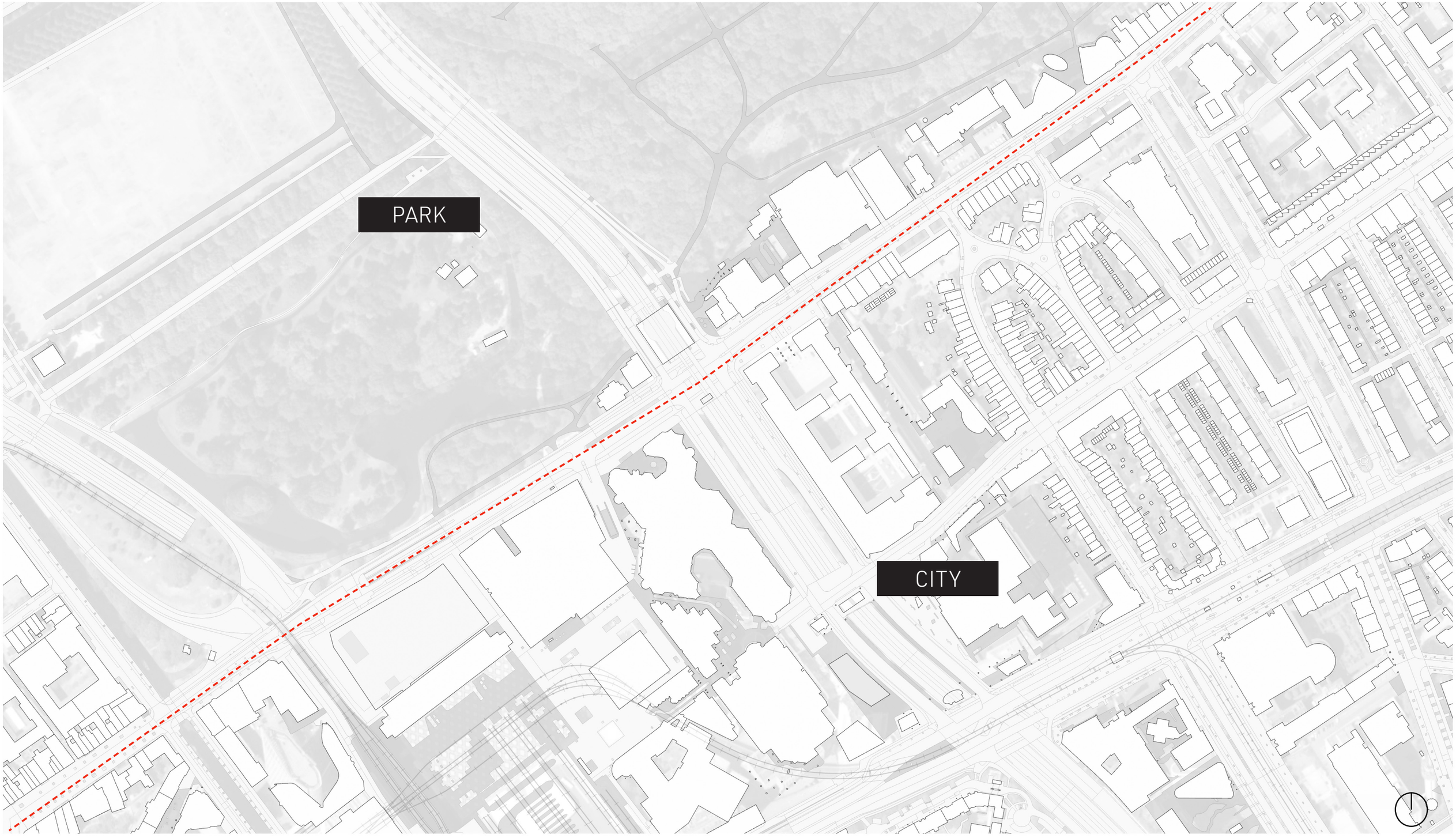
P1 CAPACITYPLAN

MAIN DIVISION OF AREAS



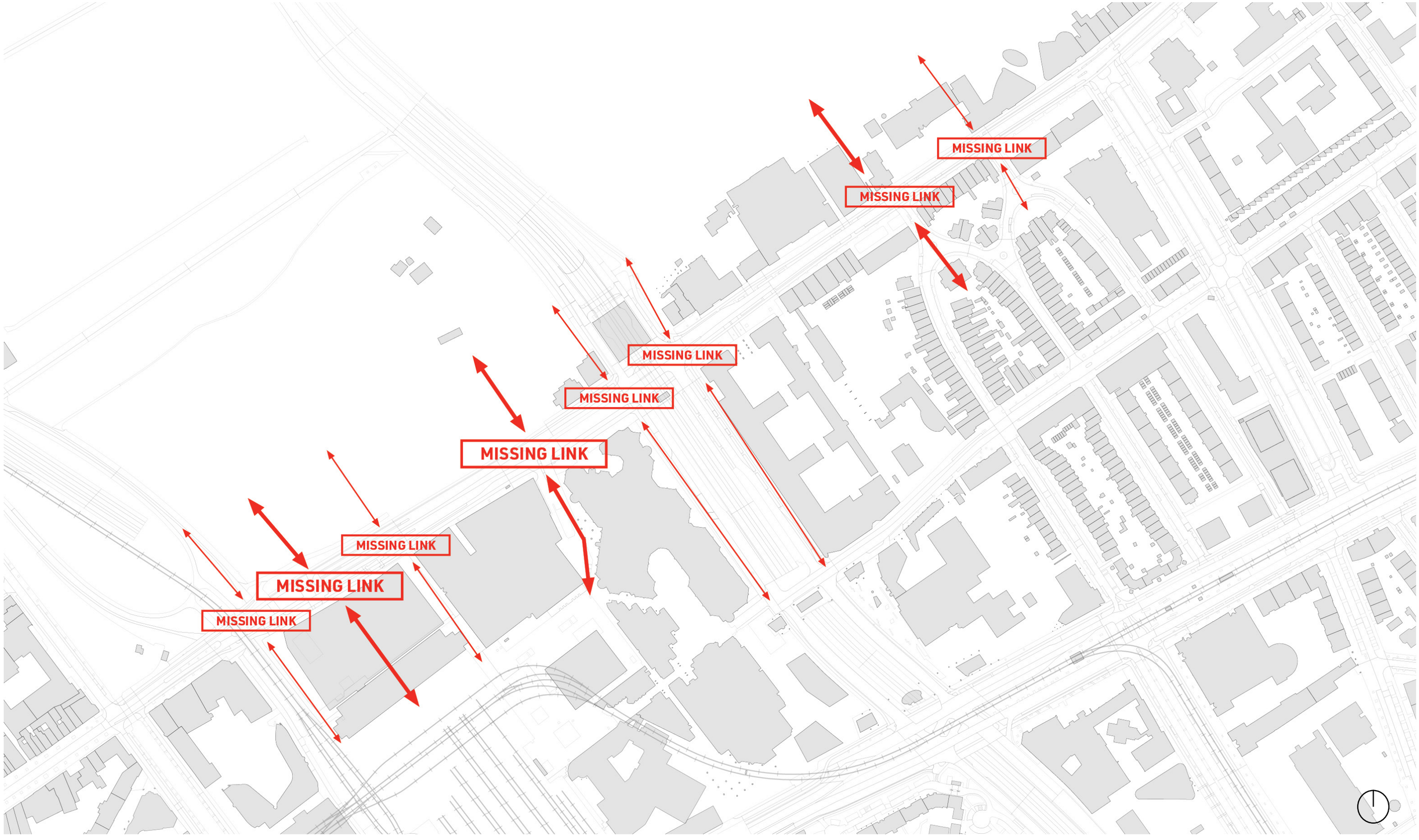
Road is interrupting East and West.

MAIN DIVISION OF AREAS

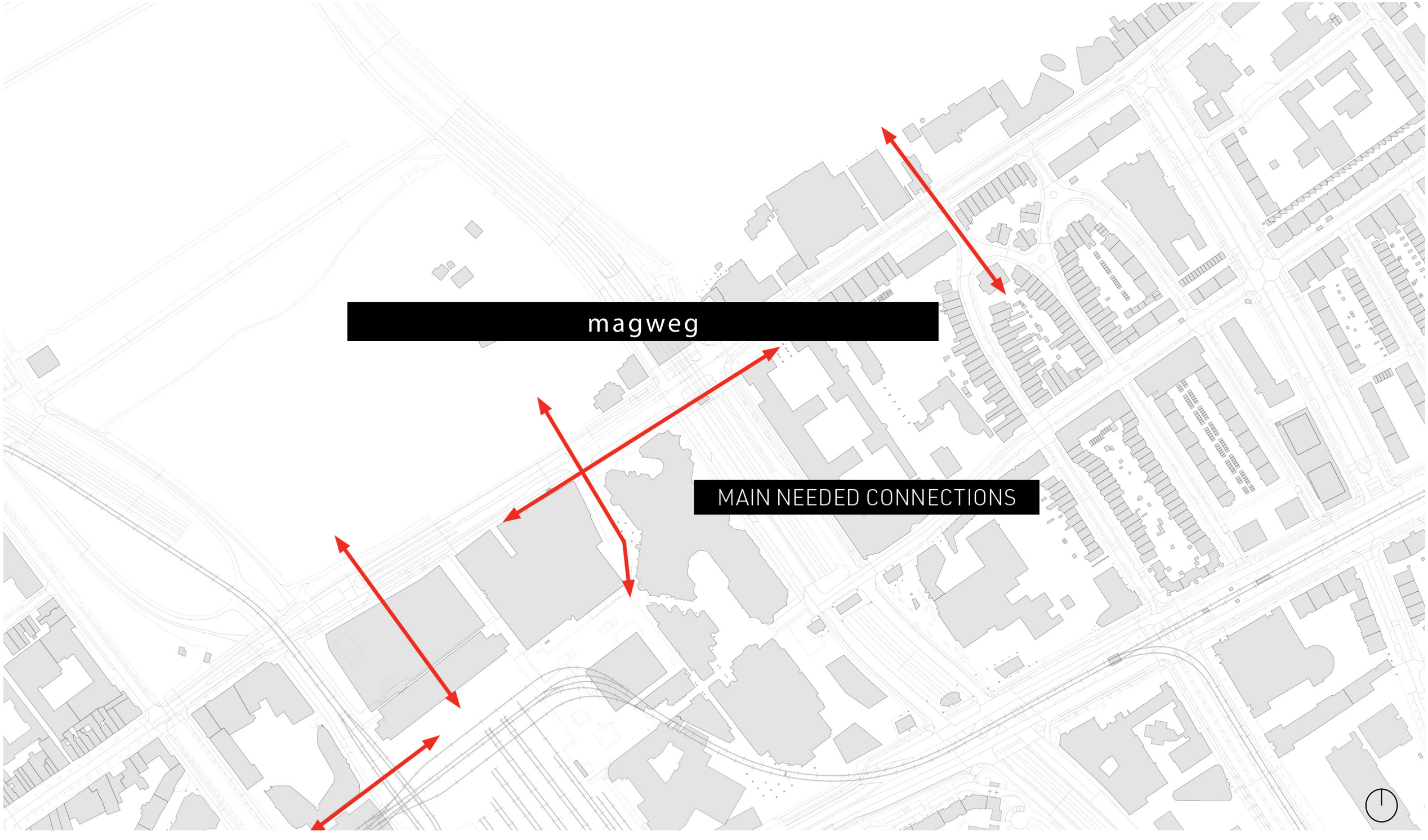


North and south are divided by a road. The park is not connected.

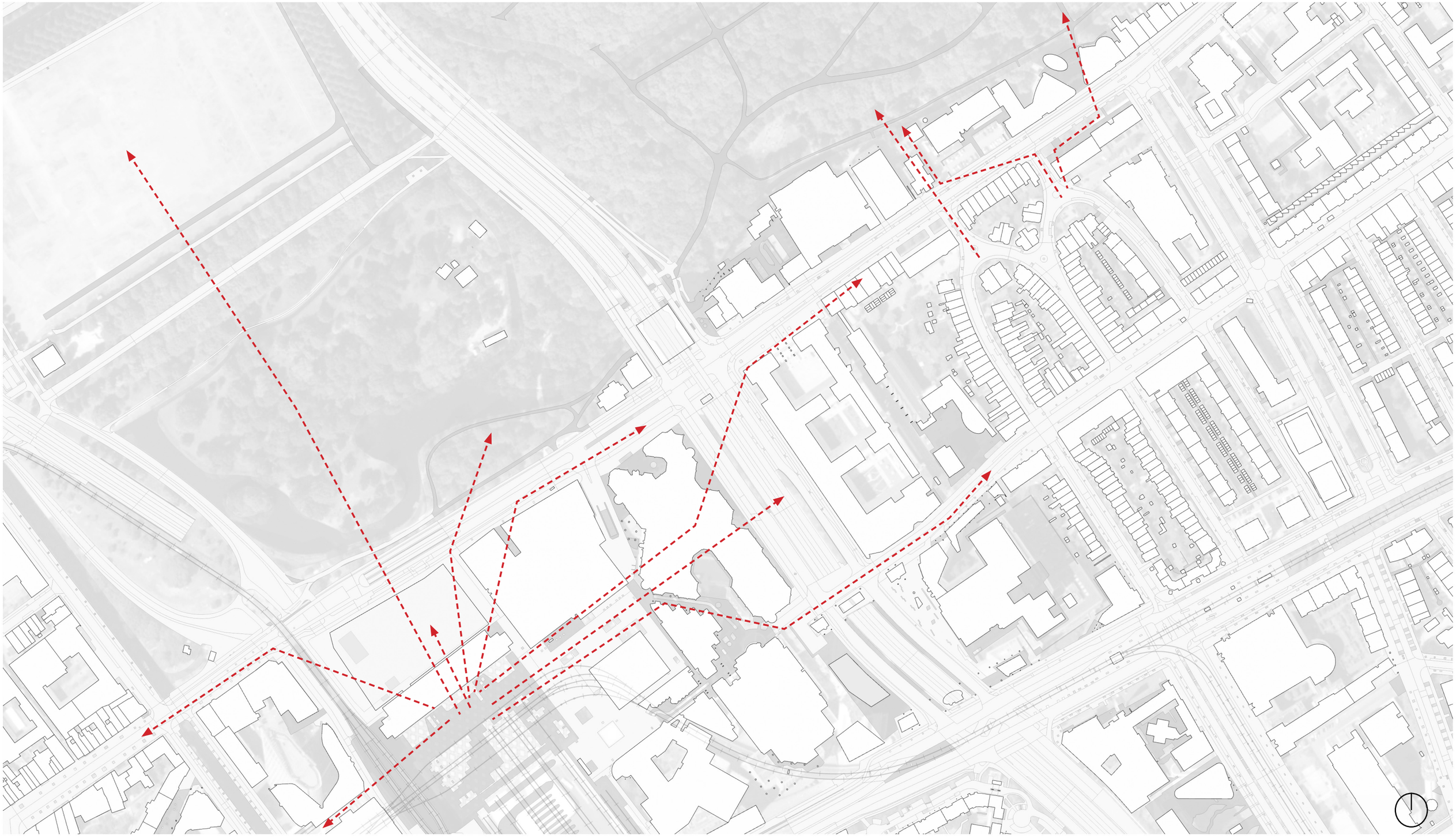
MISSING LINKS



MAIN CONNECTIONS

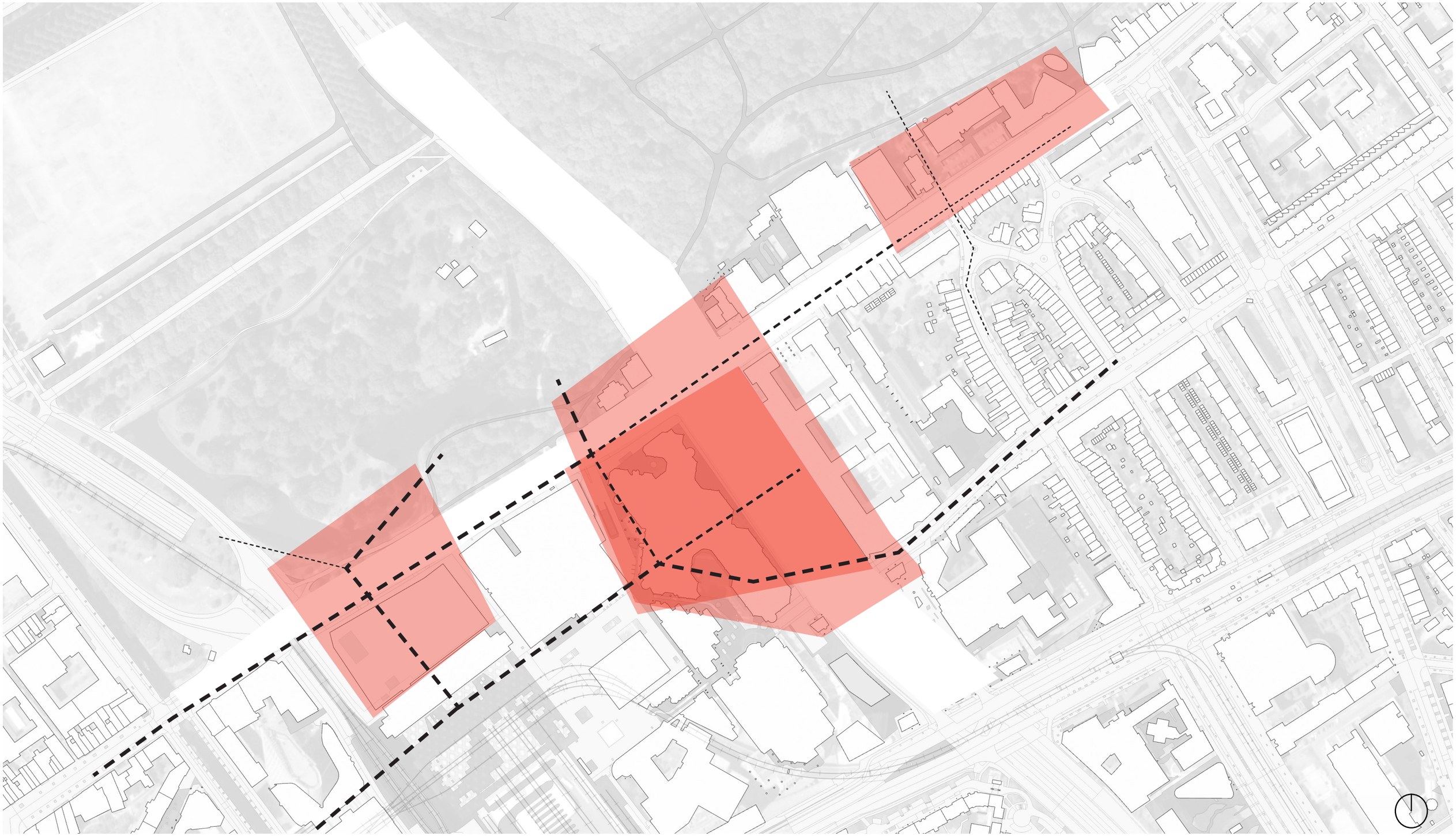


RADIATING MOVEMENT OF PEOPLE



Structuring the new space.

MAIN CENTERS TO ESTABLISH



Structuring the new space: Public and busy centers.

VISION P1

PROBLEMS AND POTENTIAL P1

Challenge: Lack of attractive street-level spaces, combined with an active plint.

Issues: Limited seating, disconnected urban fabric, and unengaging buildings.

Additional problems: Traffic, wide streets, lack of greenery and sheltered spaces. (Movevent vs staying)

Consequence: People run from the problem, to the more intimate streets in the North

Goal: Create a vibrant and cohesive urban environment with street-level activities and community cohesion.
Also a new lifestyle

What is already well developed: Park and greenery, good public transport and connection.

wander - explore - connect - engage - open up - preserve

through the area and green

different functions allows for mixed use

public activities

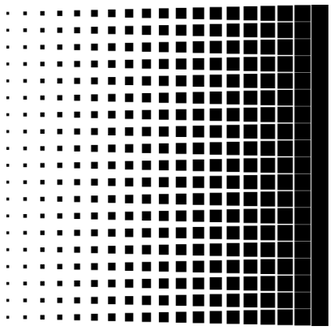
the closed facades and plints

existing buildings and characters

these 4 are all about a new dynamic lifestyle

VISION AFTER P1

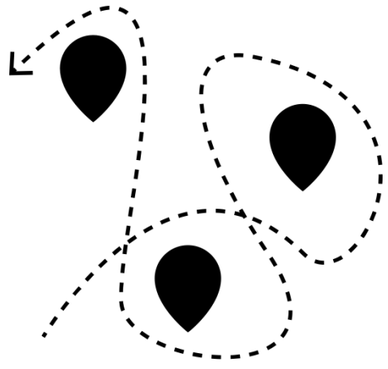
KEY WORDS



Gradient

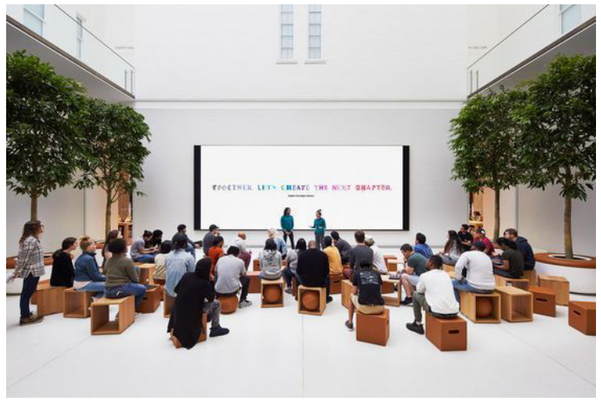


Knowlegde and learning connects



Wander







THE VERTICAL CAMPUS AS ONE BUILDING

The vertical campus in the Hague is going to educate all ages. Learning doesn't stop after university. By making the building interactive for its users it will become a community center of knowledge. Learning and development can be experienced in several ways.

Interaction with people is key for this method. Different ways such as lectures, events, shops and activities are ways to connect people inside a building and to learn.

This combined with offices that can be related for the educative development, can really enhance the working spirit and also the interaction between users.

THE VERTICAL CAMPUS AS AN AREA

A building never stands on its own and it can gain its power by its surroundings, the urban fabric. The vertical campus is one building of the campus which is activated by the use of several small and mid rise buildings around it.

The surrounding functions allow for all kinds of activities during the day and night. In this way there will always be people in this area.

Critical is the gradient between the park and the city. The human scale at the boarder of the park is lost and needs to be restored in more gentle way. This allows the campus area to profit from the power of the park

THE VERTICAL CAMPUS

The 4 pillars of my research and design:
wander - connect
engage - human scale

"Buildings should not be individual island, but should create a communal area that connect the surrounding buildings and their functions. Trying the create a connected city"

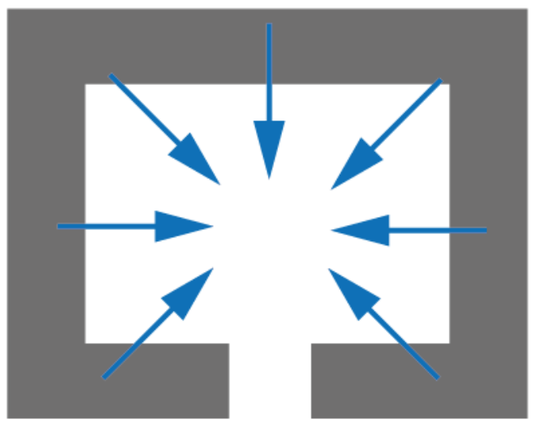
Human scale and individual space

"Private realm vs the public domain in spaces of exposure"

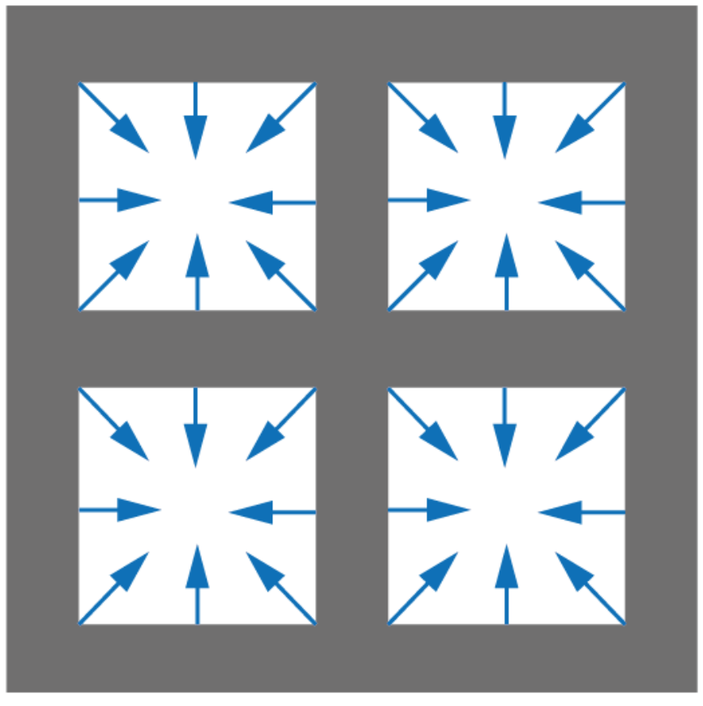
"a boundary is part of both sides of the divide or of none, as it forms a threshold. The boundary can find an ambiguous character, which in some circumstances may be welcome, as it can promote permeability and social interaction"

ORIGINAL CAMPUS

Oxford courtyard design

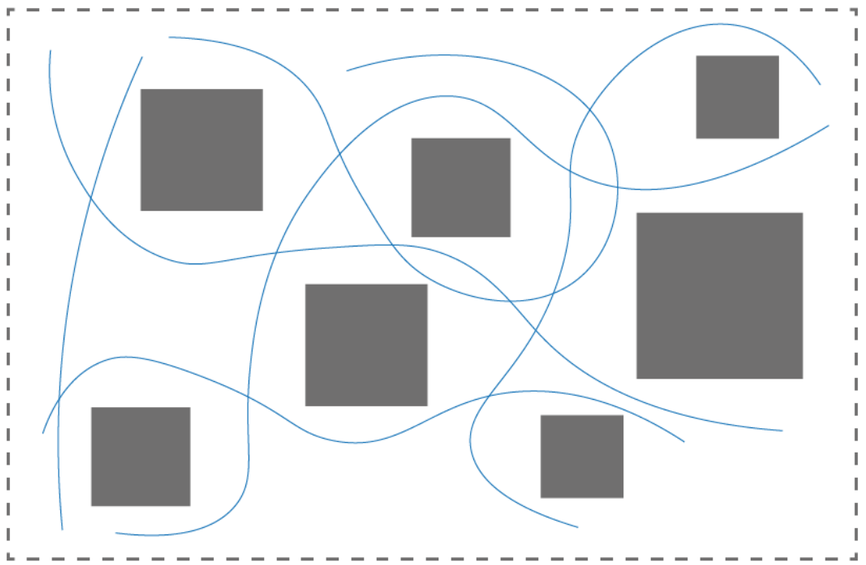


Orientated inwards
private experience



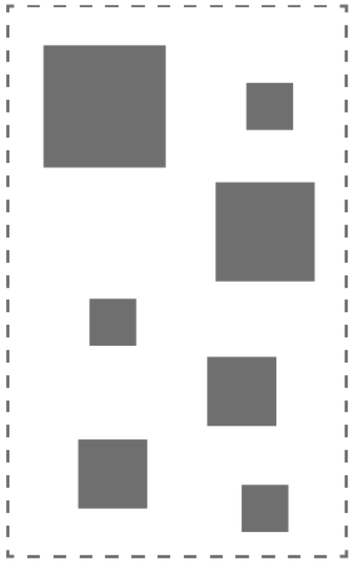
NOWADAY CAMPUS

TU Eindhoven campus

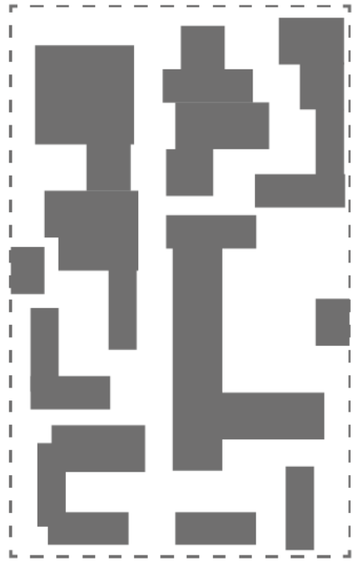


OUT OF THE CITY CENTER
ISLAND CONCEPT, SPREAD OUT

Campus area

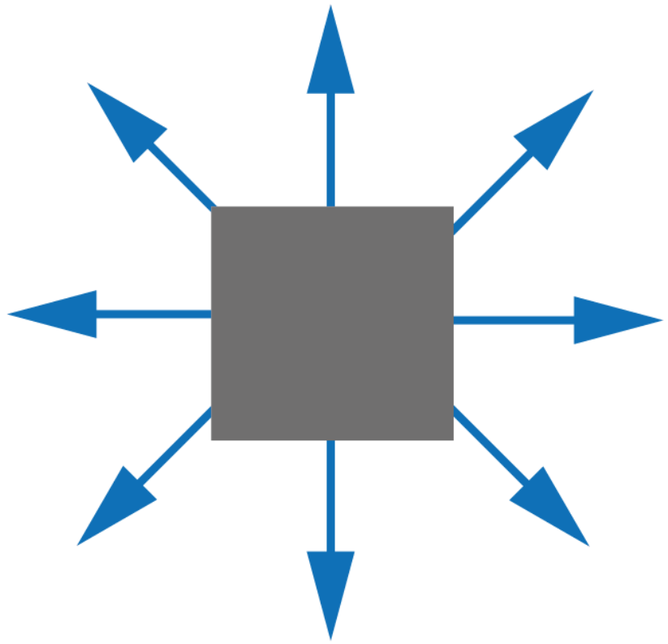


City center



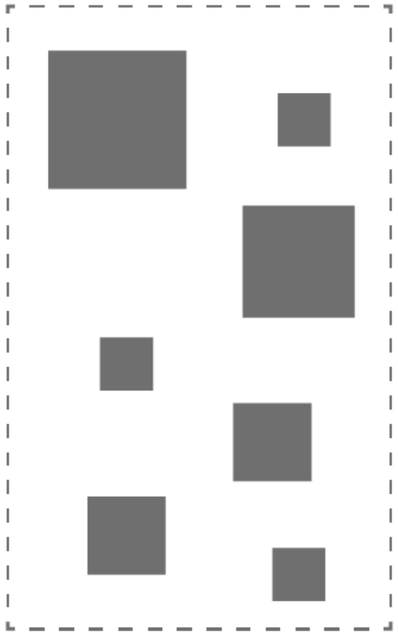
THE HAGUE CAMPUS

Flipping the Oxford design facing outwards, the courtyard is the city



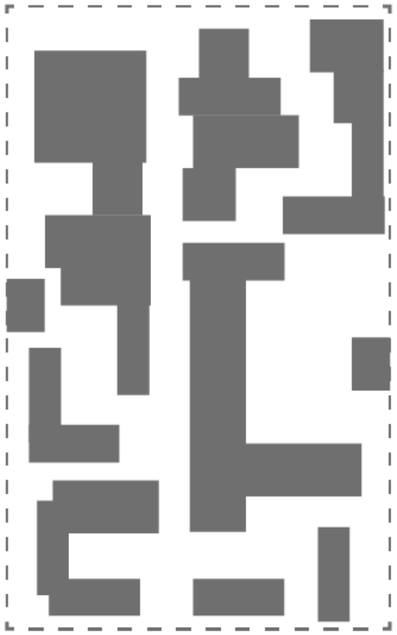
Buildings should not be only standing islands

Current Campus Idea



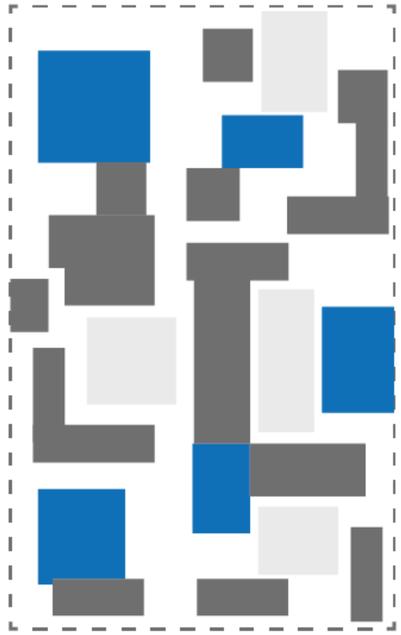
Island concept

Current city fabric



The city center

Interweven urban fabric. The city, campus and public functions



Mixing the current city with the campus lifestyle

REVISED PLAN

Focus area: West side of the a12

Changes P1: Changing the boundaries of the plan to a more fesable area. A location that can be realised as a growth plan for The Hague. Where the current road system is preserved when possible.

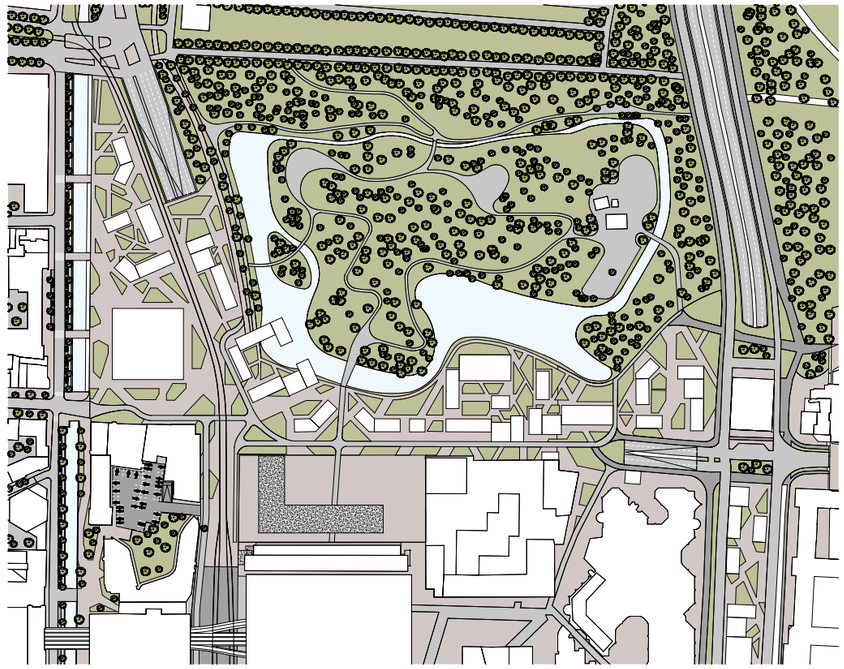
Biggest change: Relocating the road underground, making the park more accessible

Goal: Creating the gradient and escape betweeen park vscity

Challenge: Making the area pedestrian friendly,
Staying vs leaving,
Using the existing public transportation and connections

Development: The area has 1 campus area, a connecting area and growth area.





OLD CAPACITY PLAN

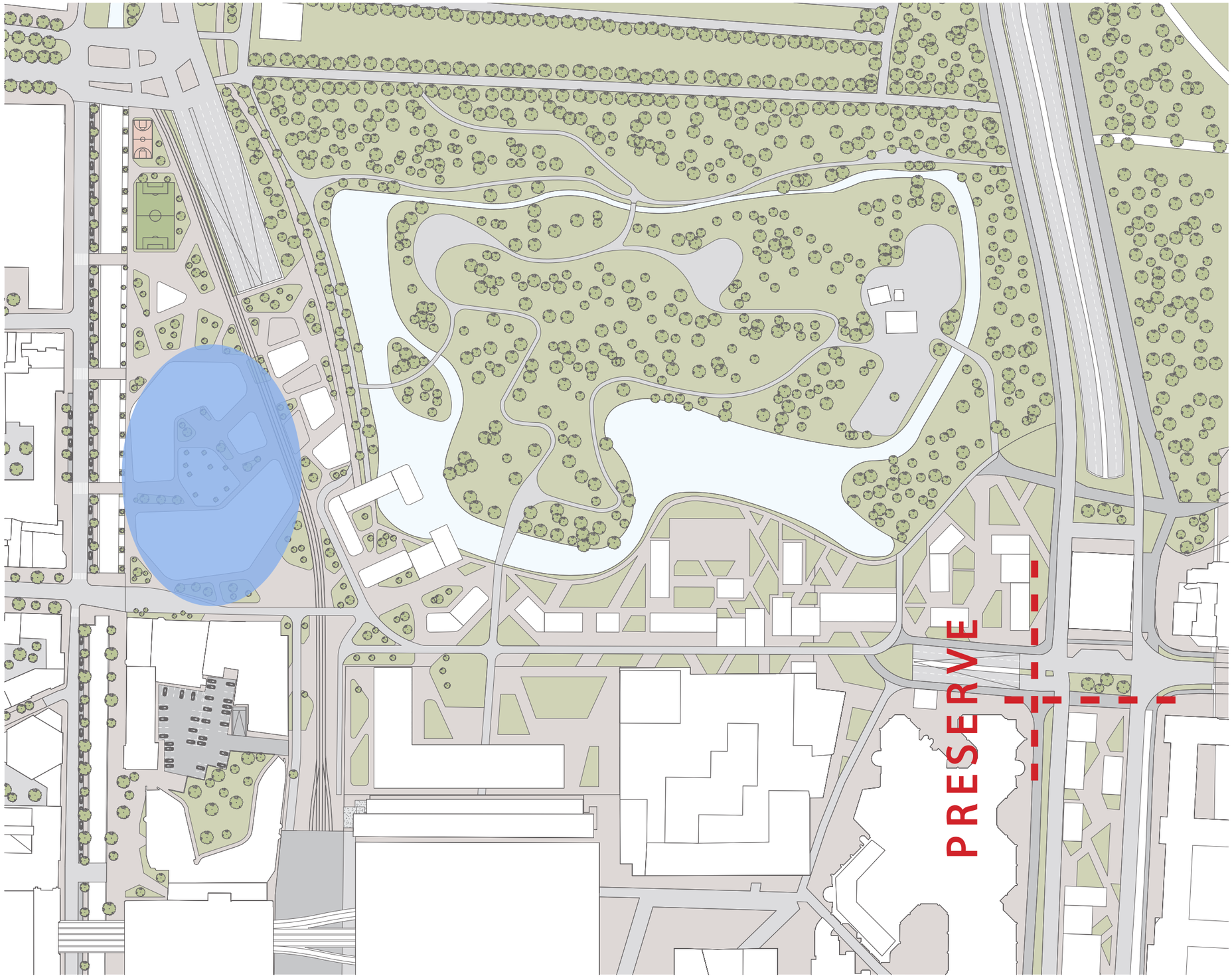
- Compleet vision extended over the whole area
- Most extreme version, pedestrian is main focus
- Island concept and wandering, maze



CAPACITY PLAN CHANGES

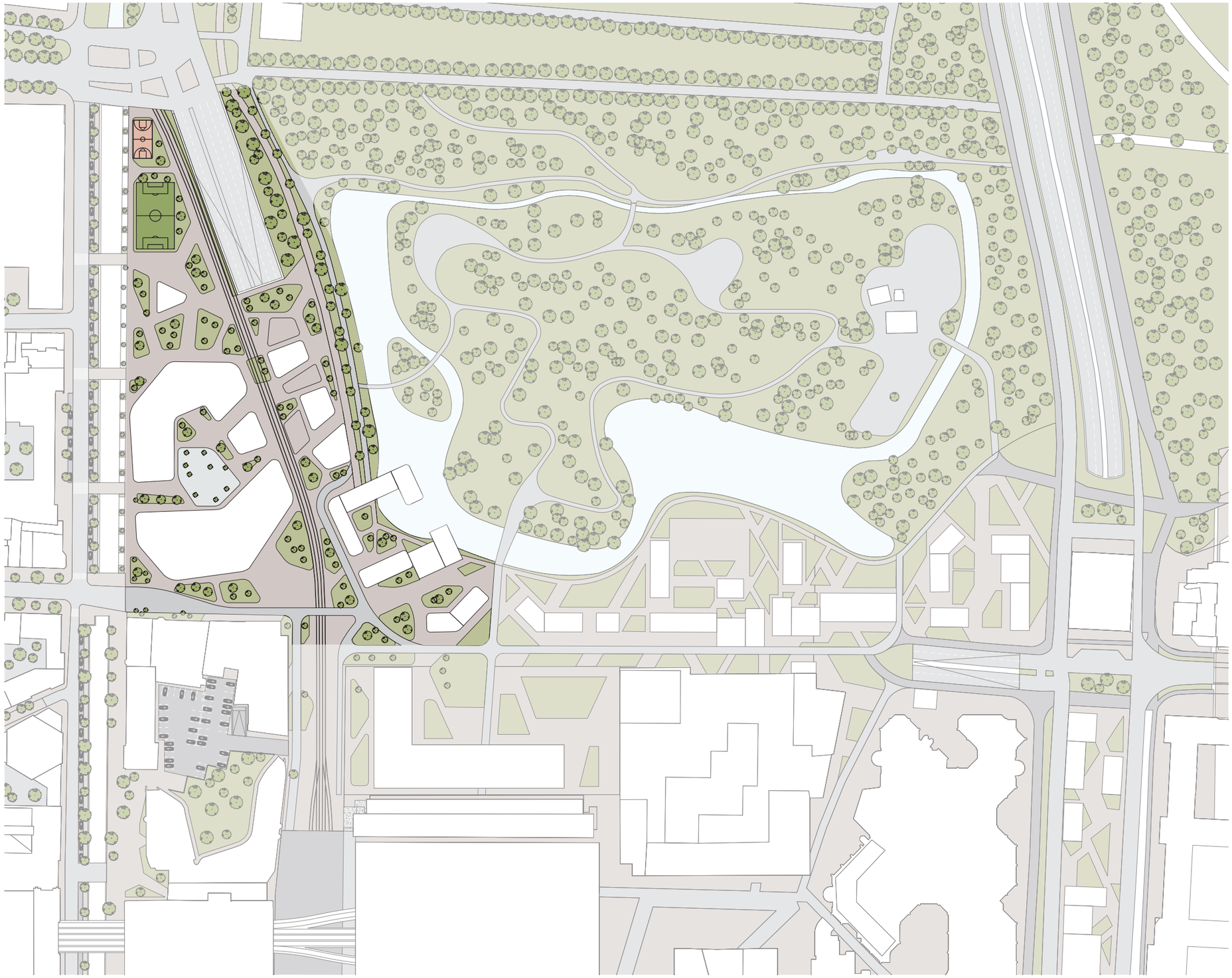
Changing the boundaries of the plan to a more fesable area. A location that can be realised as a growth plan for The Hague. Where the current road system is preserved when possible.

The area can be called campus, however it will house everything that is needed to create a vivid area for people visiting or staying.



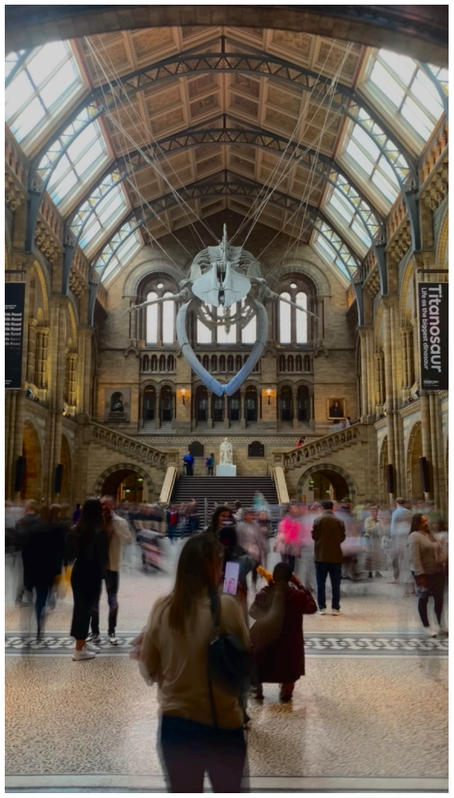
NEW CAPACITY PLAN

- Less volumes, more cataloge design and still able to wander
- Better pedastrian connection. People before cars, they are the guest
- Realistic way of removing the cars, not 100% car free
- Growth potential

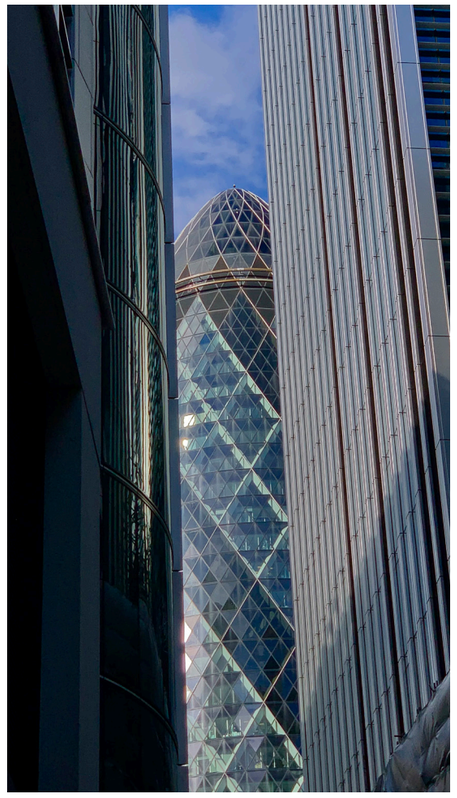


OXFORD ASSIGNEMENT

LONDON



In this picture is visible how the public building is designed. Materials, light, routing and how people move.



In this picture we see the effect of how an area is percieved when several high rise buildings are clustered. But also the reflection and shadow of materials because of the distance between the buildings.

OXFORD



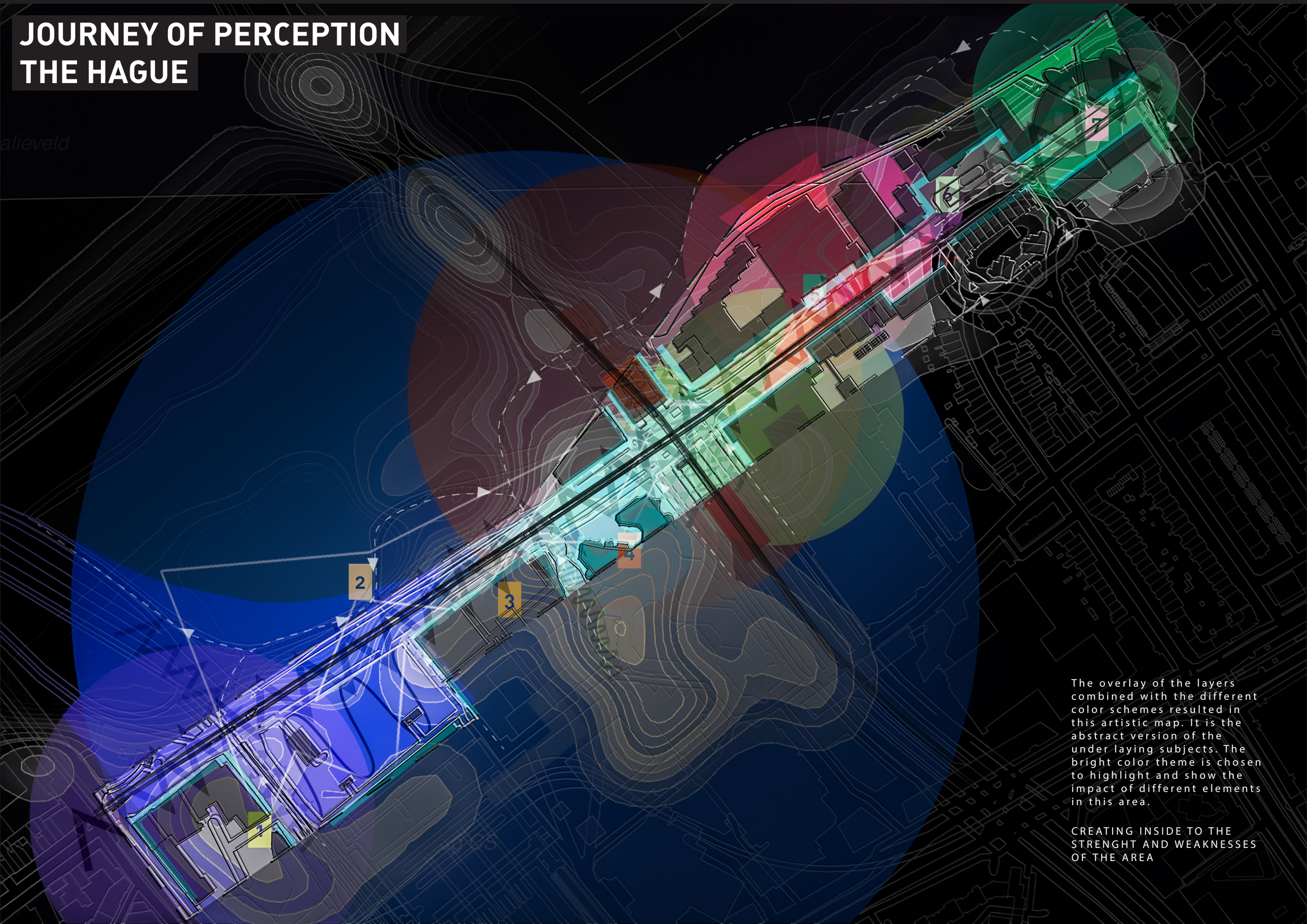
Open for the public or private is very well visible in these pictures. How do we close something for the public and how does the inner courtyard feel. What gives the perception of privacy?



Between the larger project/building is a totally different dynamic visible of the street plan. It is pedistrian accessible and gives are to breath between the buildings. It feels open and is different to the w

PSYCHO-GEOGRAPHICAL MAP

JOURNEY OF PERCEPTION
THE HAGUE



The overlay of the layers combined with the different color schemes resulted in this artistic map. It is the abstract version of the under laying subjects. The bright color theme is chosen to highlight and show the impact of different elements in this area.

CREATING INSIDE TO THE STRENGHT AND WEAKNESSES OF THE AREA

MONTAGE

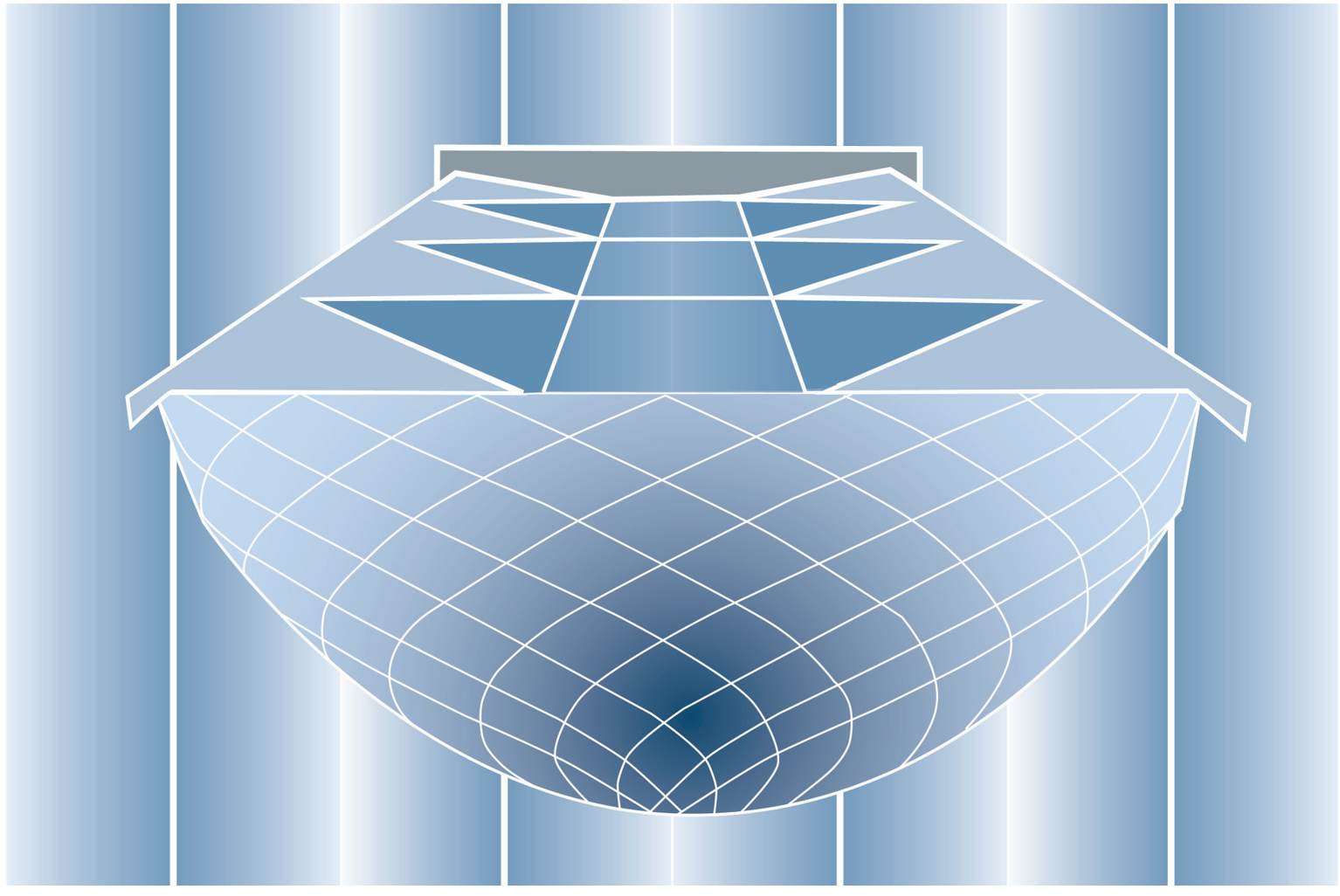


Buildings should not be individual islands but should create a communal area that connects the surrounding buildings and their functions

DIAGRAM

MIRRORING

CORE LINES
SELF REFLECTION



REFLECTING ON THE URBAN FABRIC AND HOW THE BUILDING WILL MERGE WITH THE SURROUNDING

The reflection of glazing is the overlapping topic of these three buildings. It shows the different effects that shapes have on light and reflection. The patterns are overlapped and mirrored to create a floating image that merges into two buildings with their own identity.

URBAN CONTEXT

LOCATION



Car movement and solid high rise



The intimate neighborhoods vs high rise



The wall between the city and park

KOEKAMP



Herritage of the city landscape



Freedom



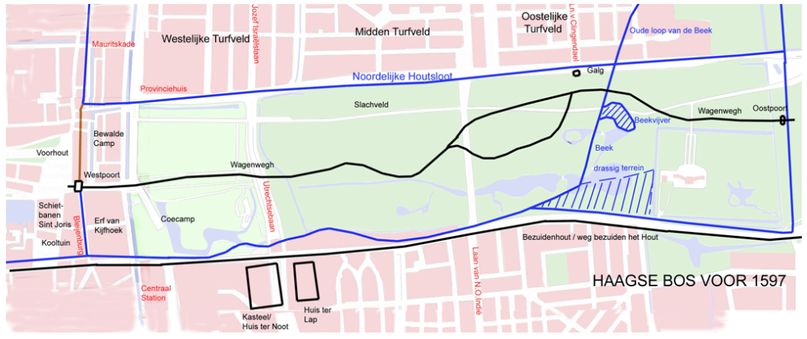
Peat and wood extraction

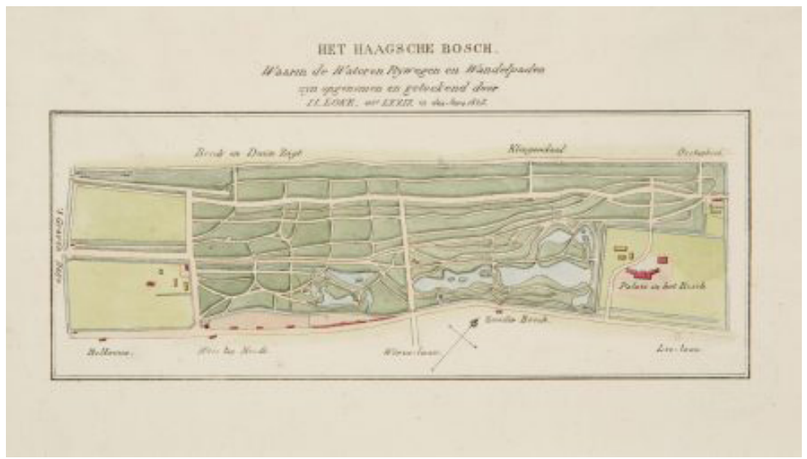


Walking

Boundary 1597

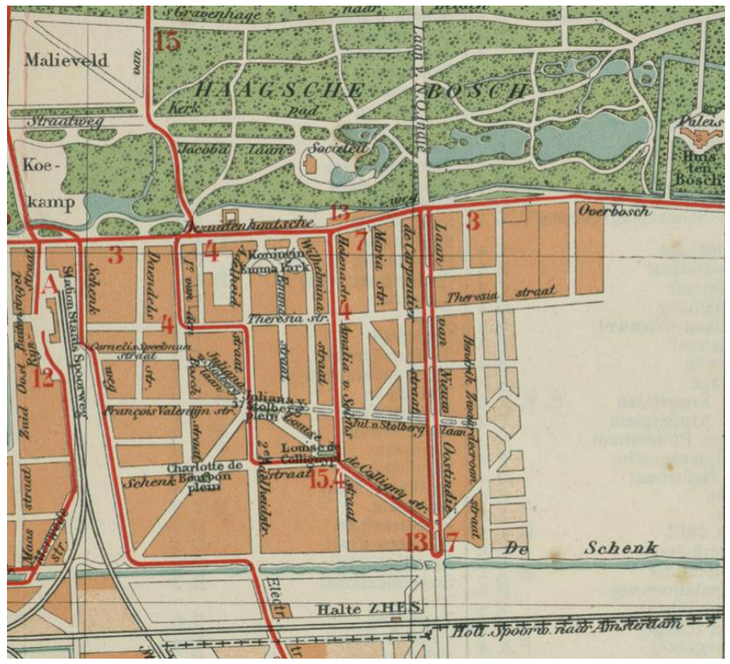
Building area is in the park





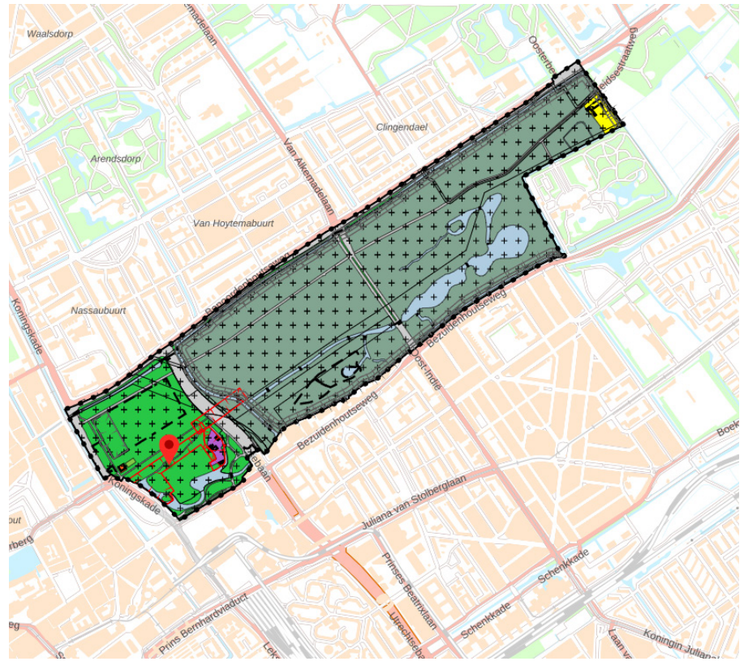
Boundary since 1900

Area not part of the park anymore

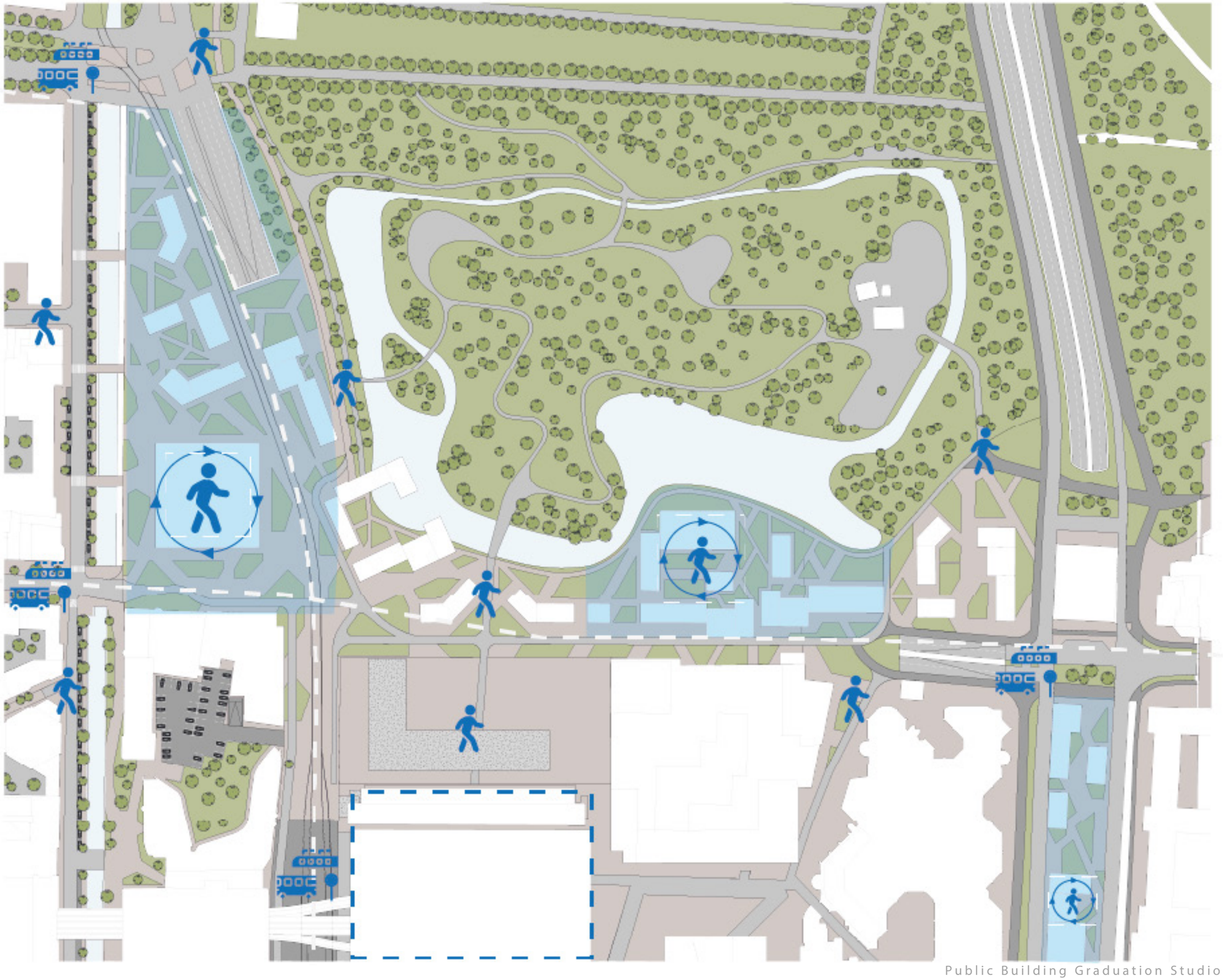


Current boundary 2023

Ruimtelijke plannen



GROWTH POTENTIAL



SITE CHOICES

A12 Bridge:

+ Site is larger than the building, growth and other functions can be around it.
+ In the middel of mid rise buildings
+ Linking the residential and commercial area
+ Connecting the govermental buildings, re-use
- Tight spot, long but small. Will create and have shadows.
- Construction and parkinglimitations because of underlaying tunnel.

Baylkon Park:

+ Close to one of the central spots in this area. Visibility and traffic.
+ In the middel of mid rise and high rise buildings
+ Addition to the park and city area
- Will be in the shadow of the Babylon and Malietoren
- Poor access with current masterplan, can be improved with the new roads and pediastrian area
- Entering the park, which is a sensitive area, where do you stop building?

Steadion Park:

+ Prominent visibilty spot
+ Preserving the park and existing buildngs
+ Fills with the high rise next to it
- Contrast with the neighborhood on the left. High and low rise
- Limited by tunnel and tram

Location	Growth potential	Park boarder	Building shade
A12 brigde	2	1	2
Babylon Park	1	3	3
Steadion Park	3	2	2

CHOSEN PLOT

- Extended to all edges of the buildings
- Connected with the powerhouse and train station
- Road underground, Bezuidenshoutseweg



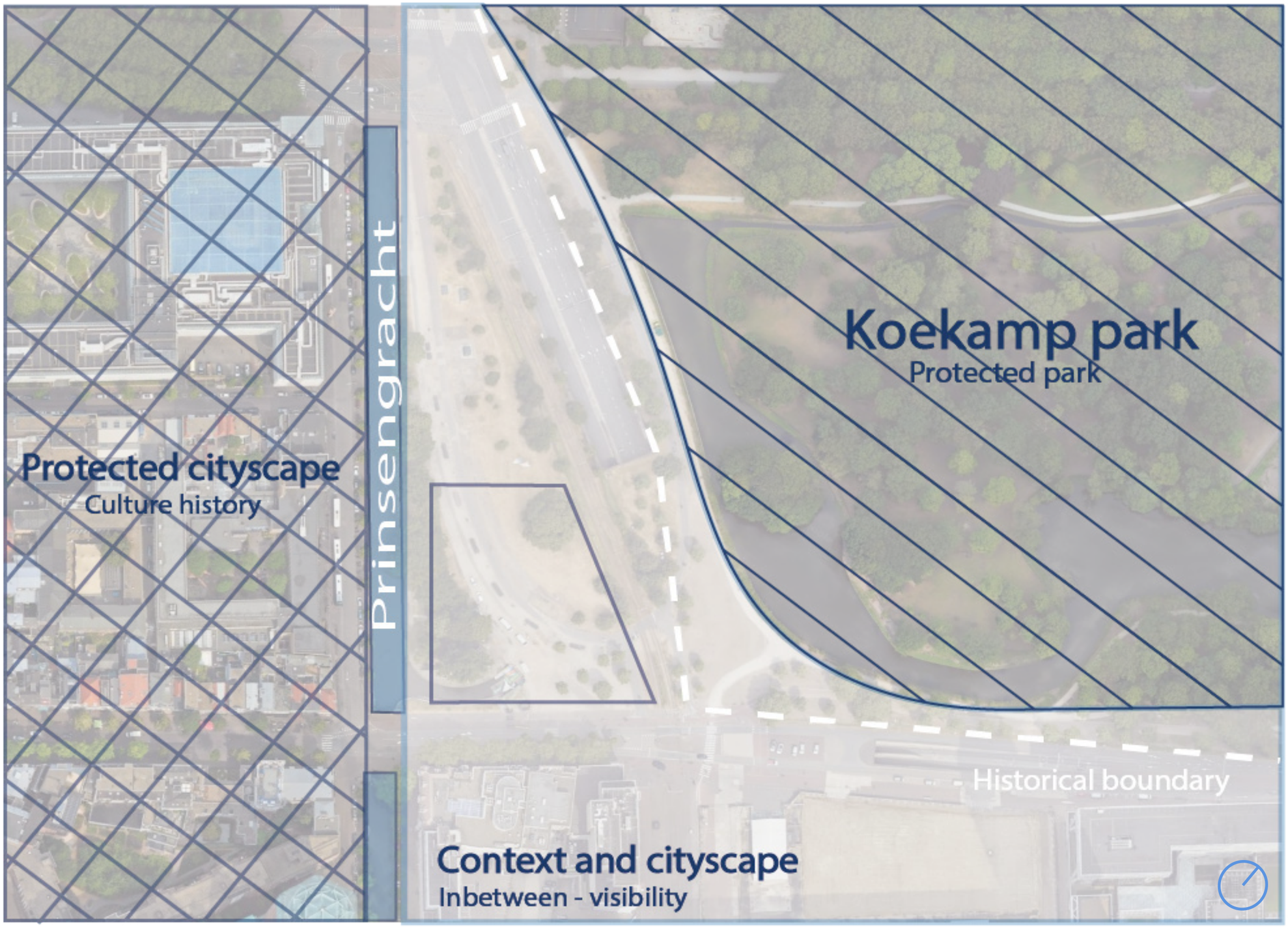
PARK BOARDER

Herritage of the cityscape

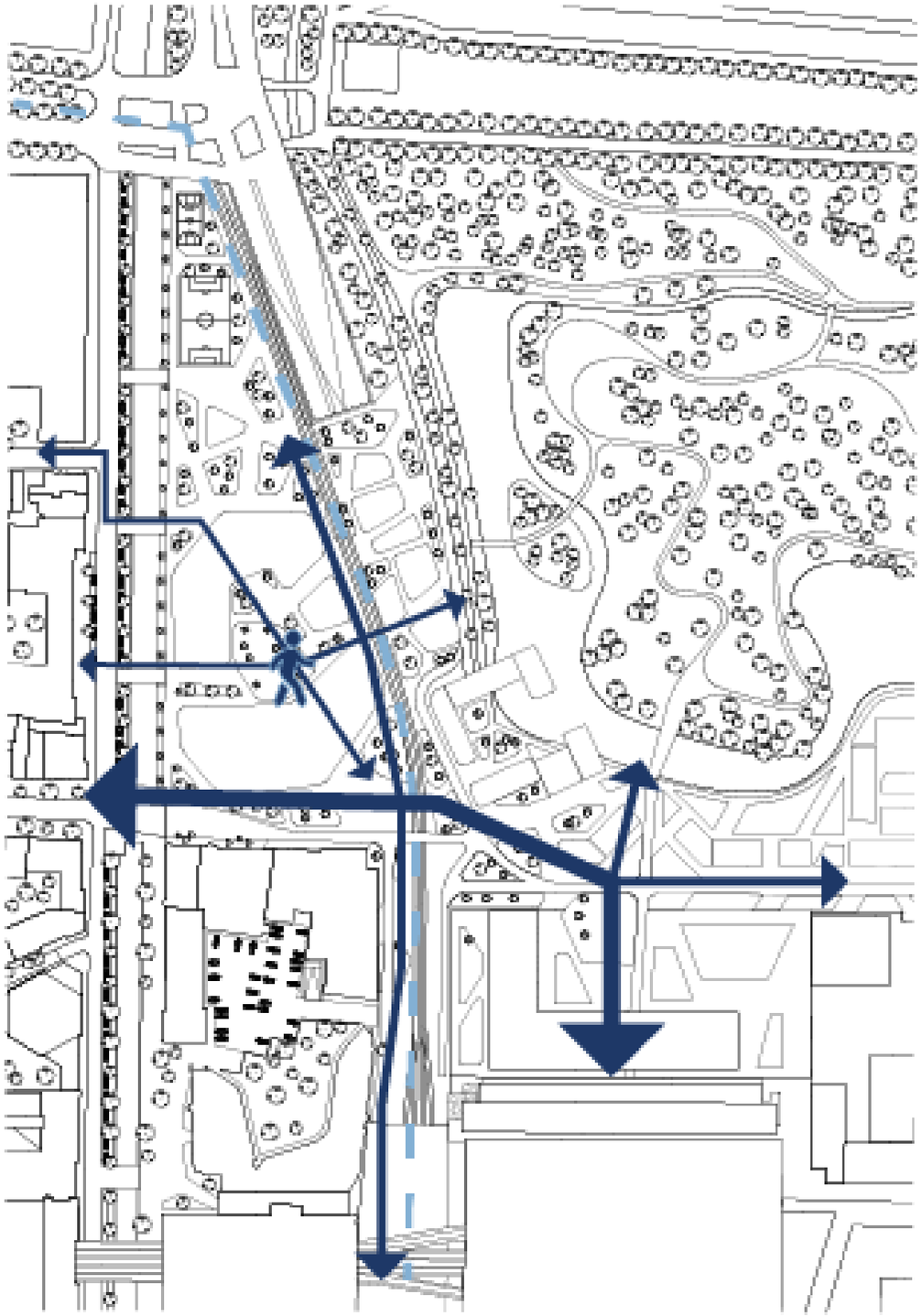
Freedom

Peat and wood extraction

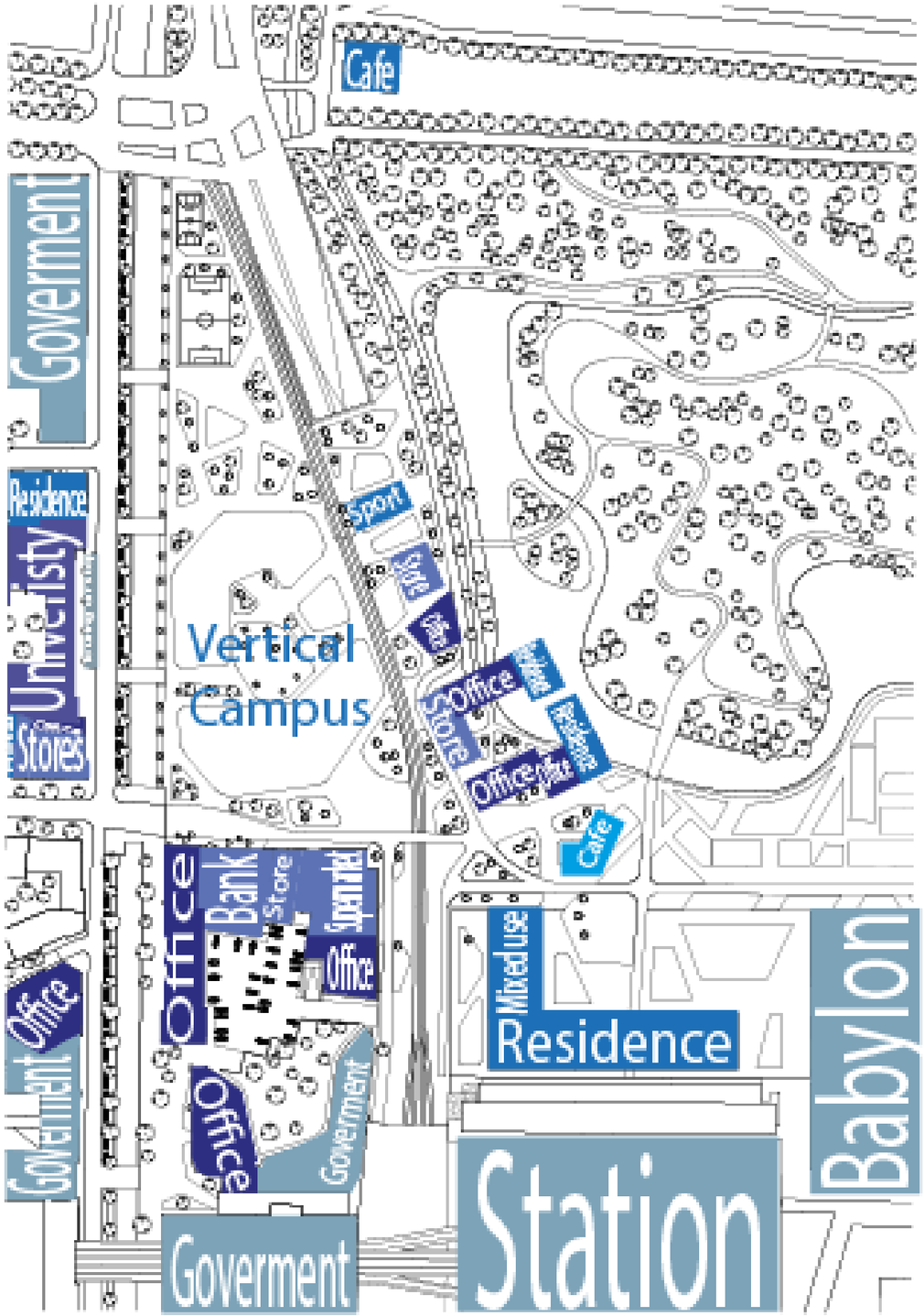
Walking - visibility



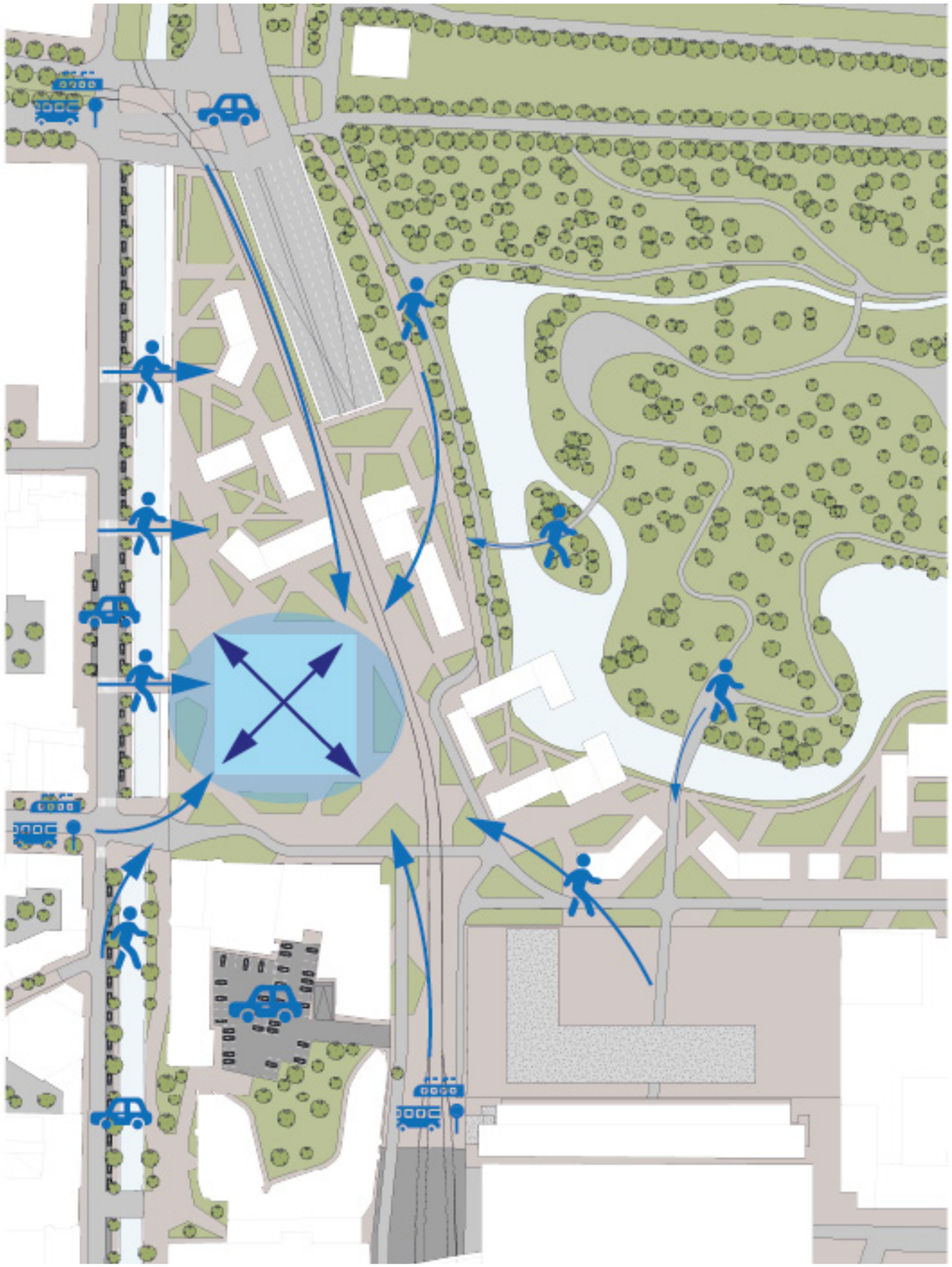
MOBILITY



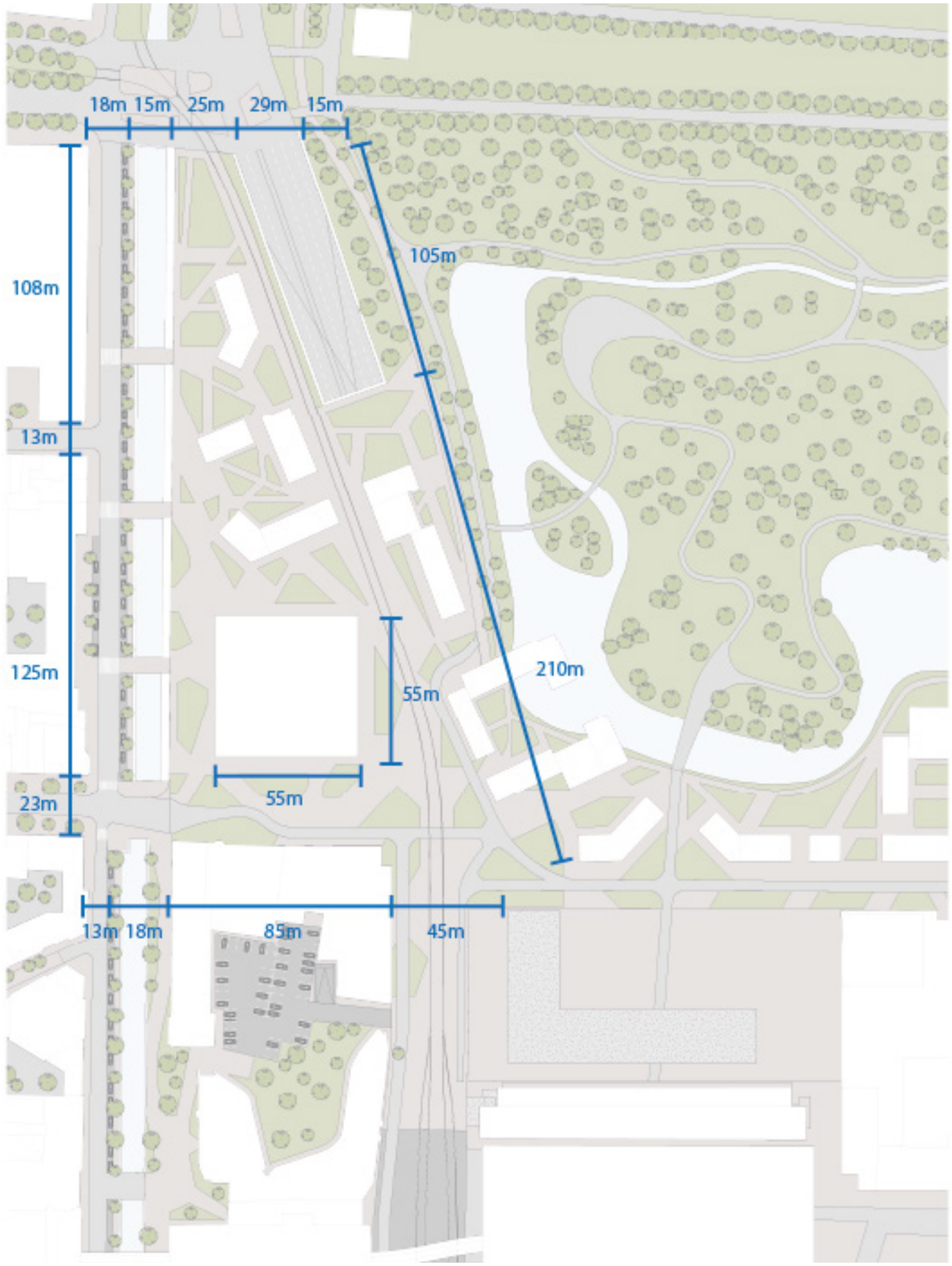
FUNCTIONS



ACCESS POINTS

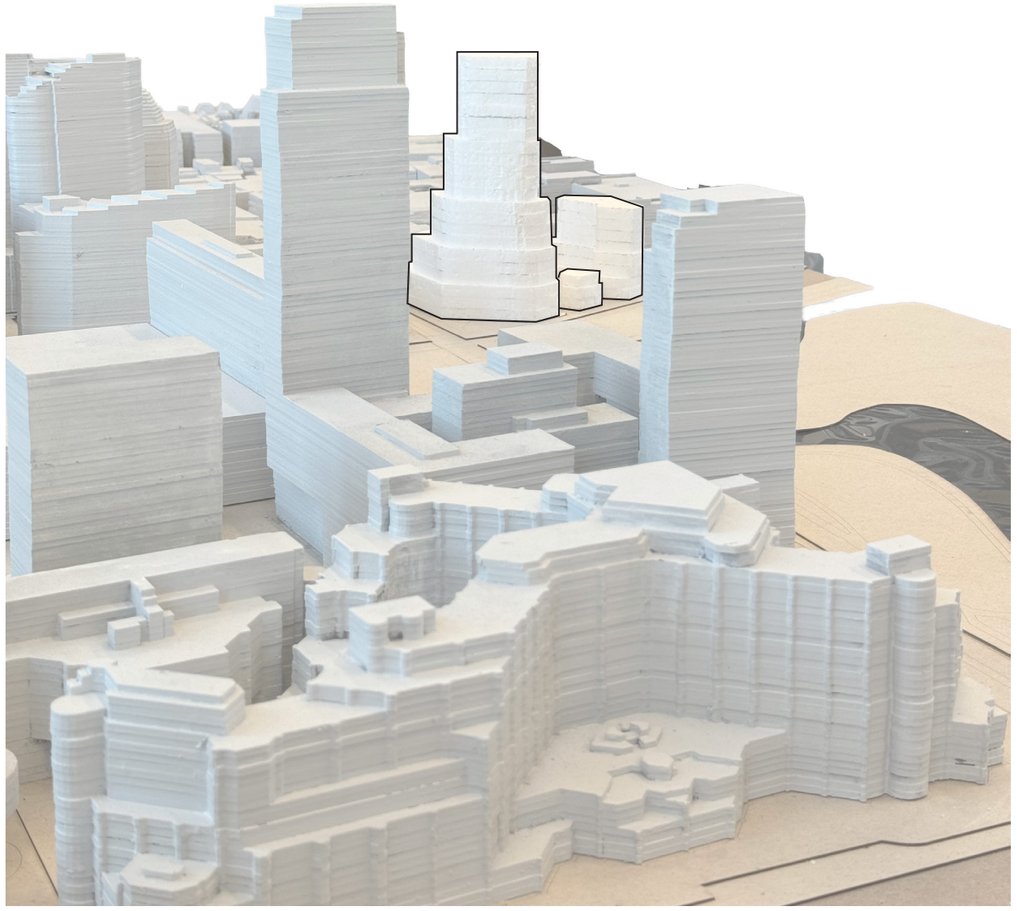


MEASUREMENTS



DESIGN PROCESS

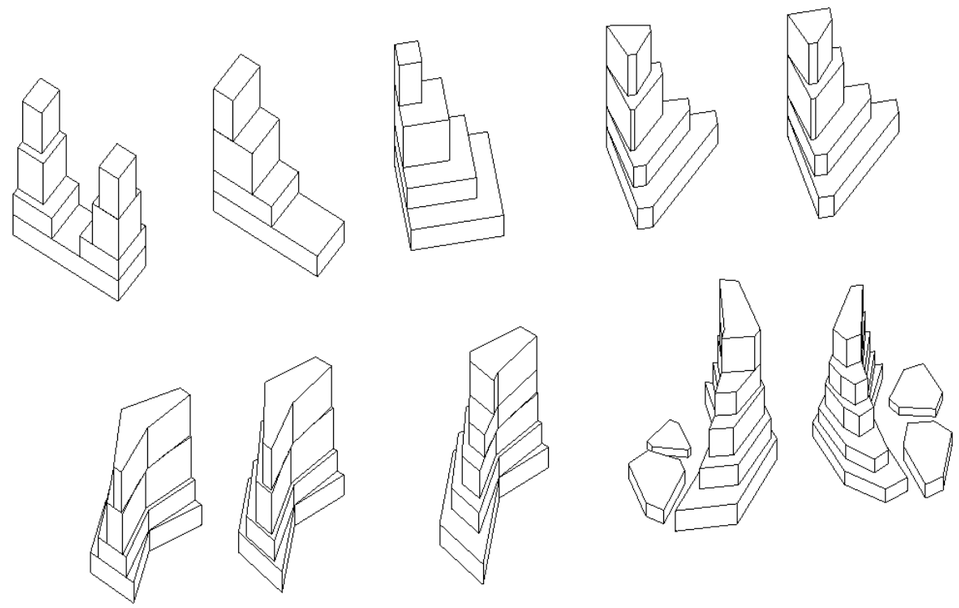
SCALE MODEL



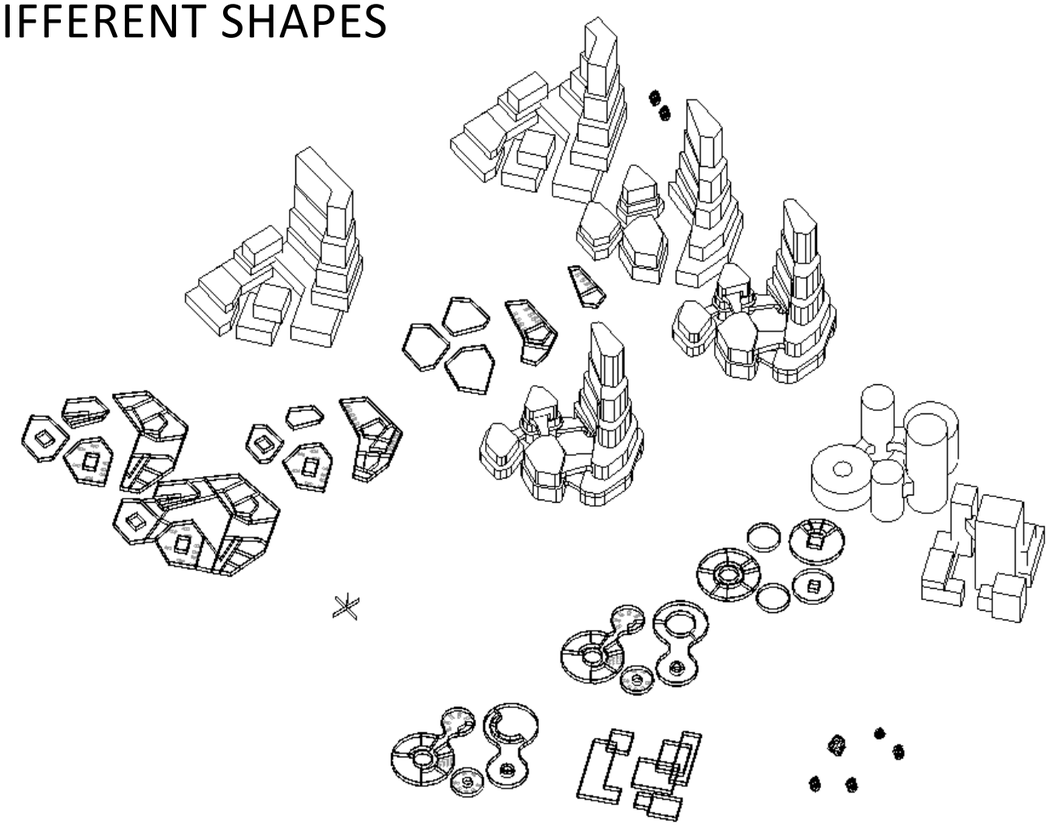


MASS STUDIES

FIRST SKETCHES

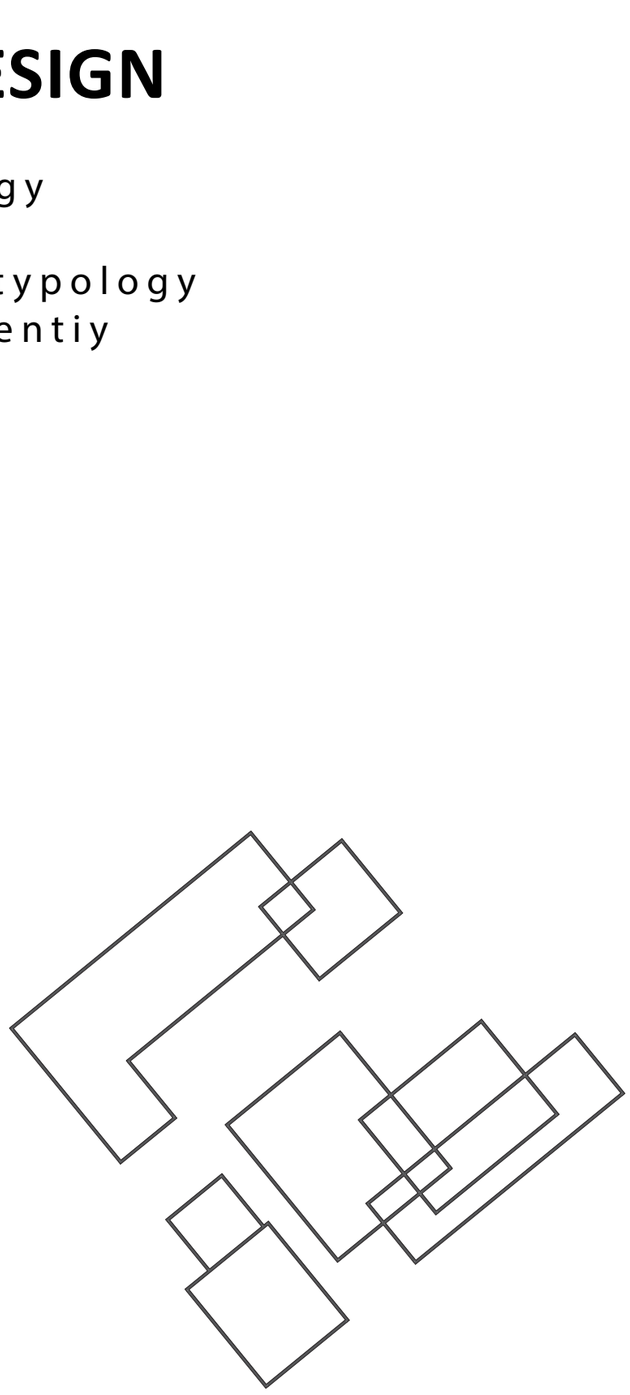


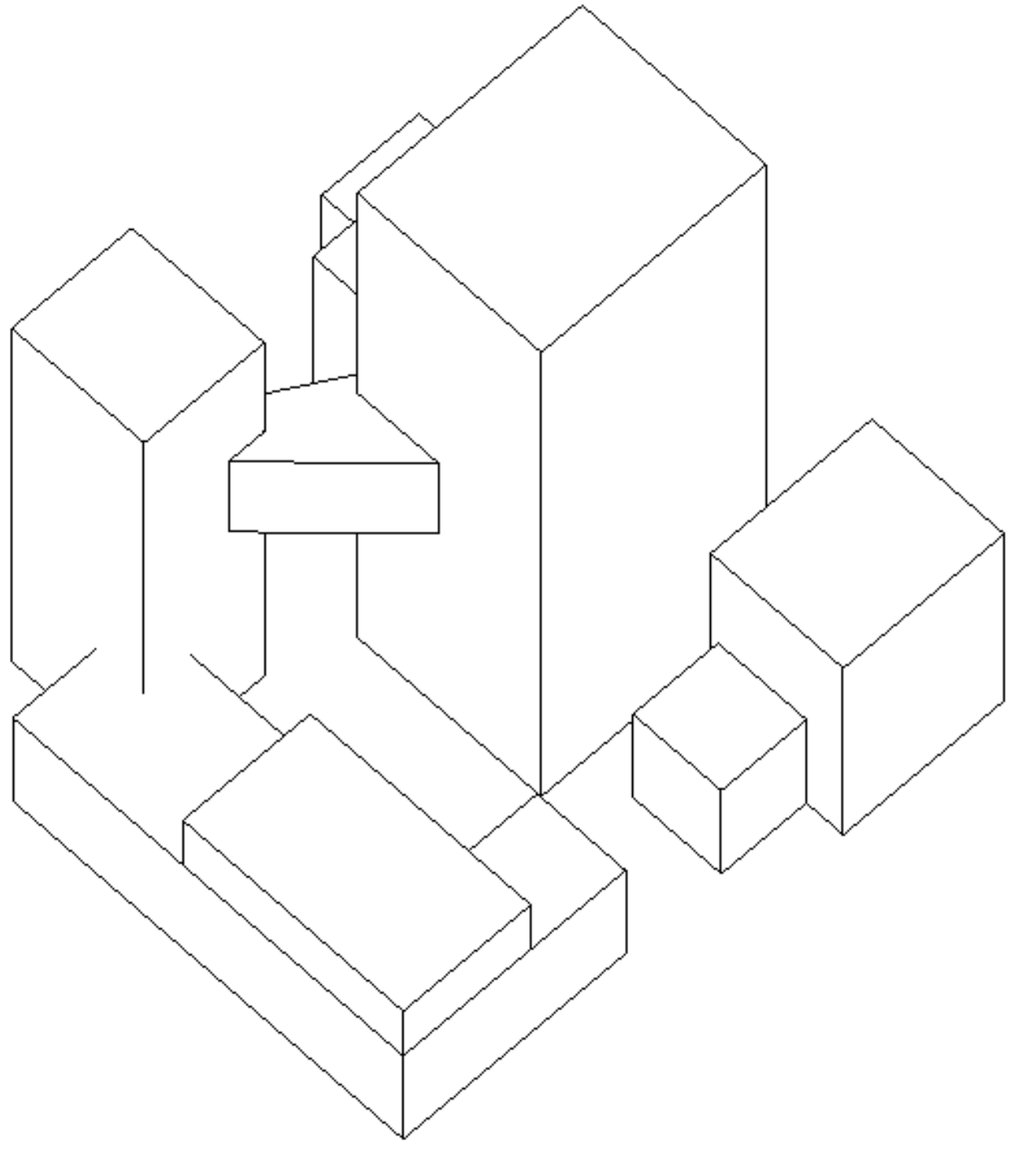
DIFFERENT SHAPES



BLOCK DESIGN

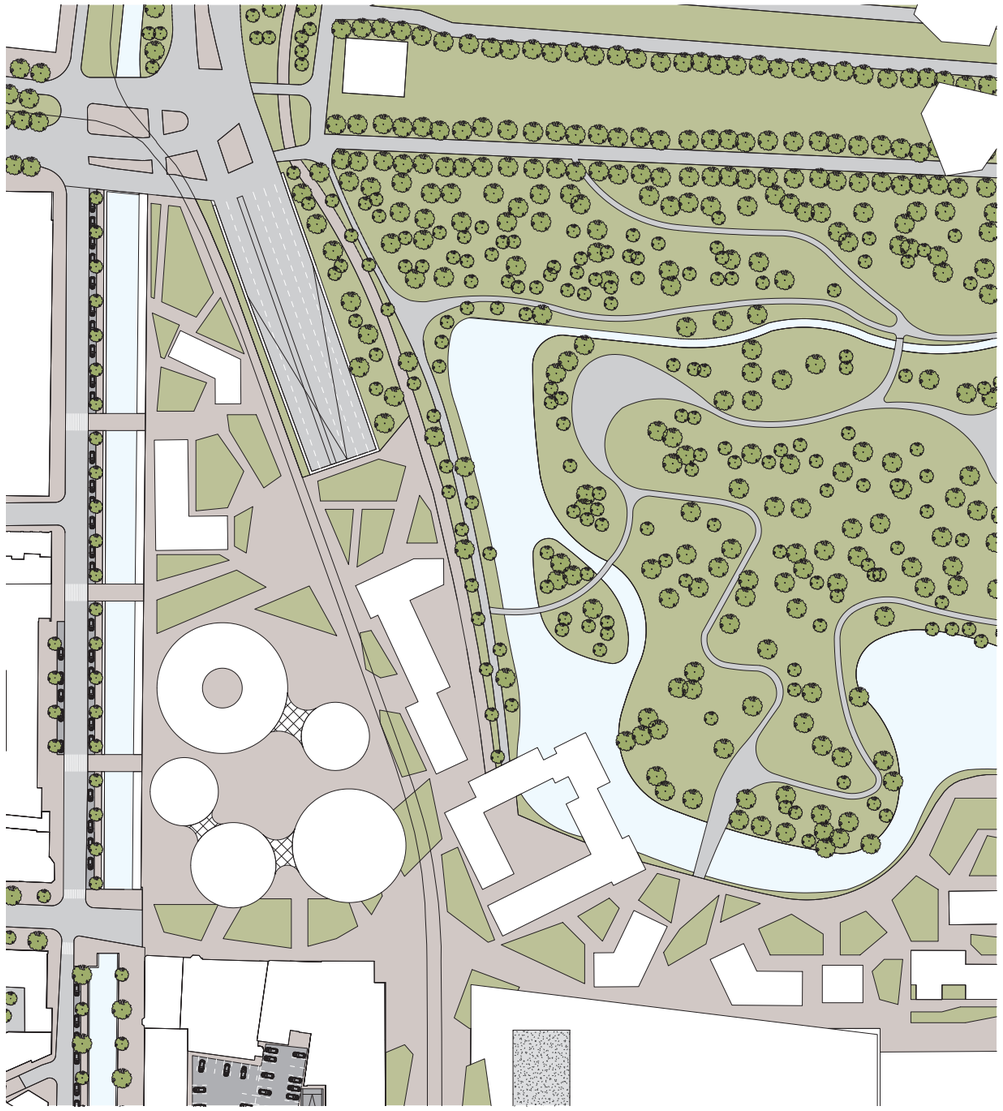
- Fits typology
- mid rise
- fits in the typology
- no clear identiy





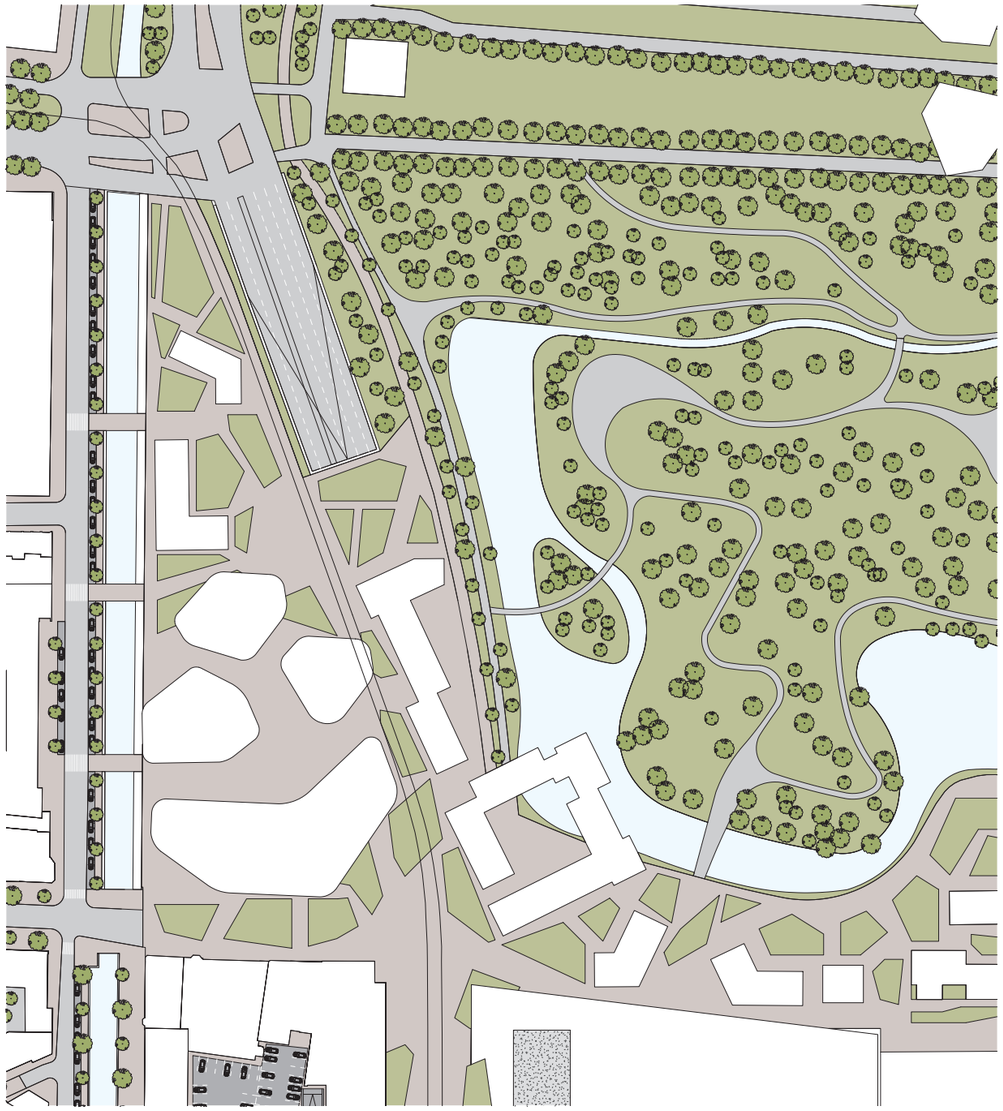
LOCATION

ROUND DESIGN



- Iconic, doesn’t follow the rules of the city design
- different acces point
- wander
- growth potential in this style

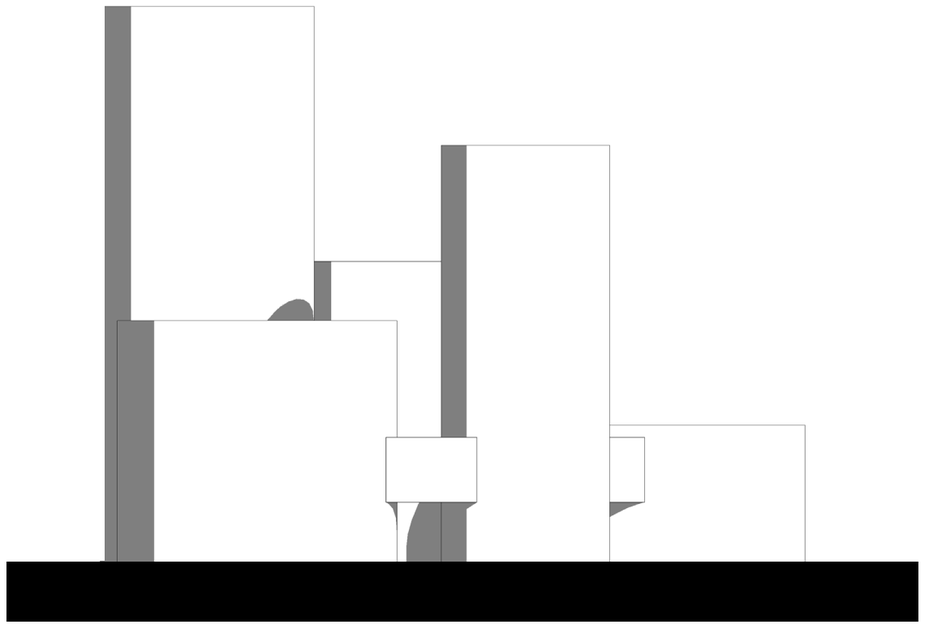
TOWER DESIGN



- all towers have unique and not straight shapes
- different acces point
- wander
- growth potential in this style

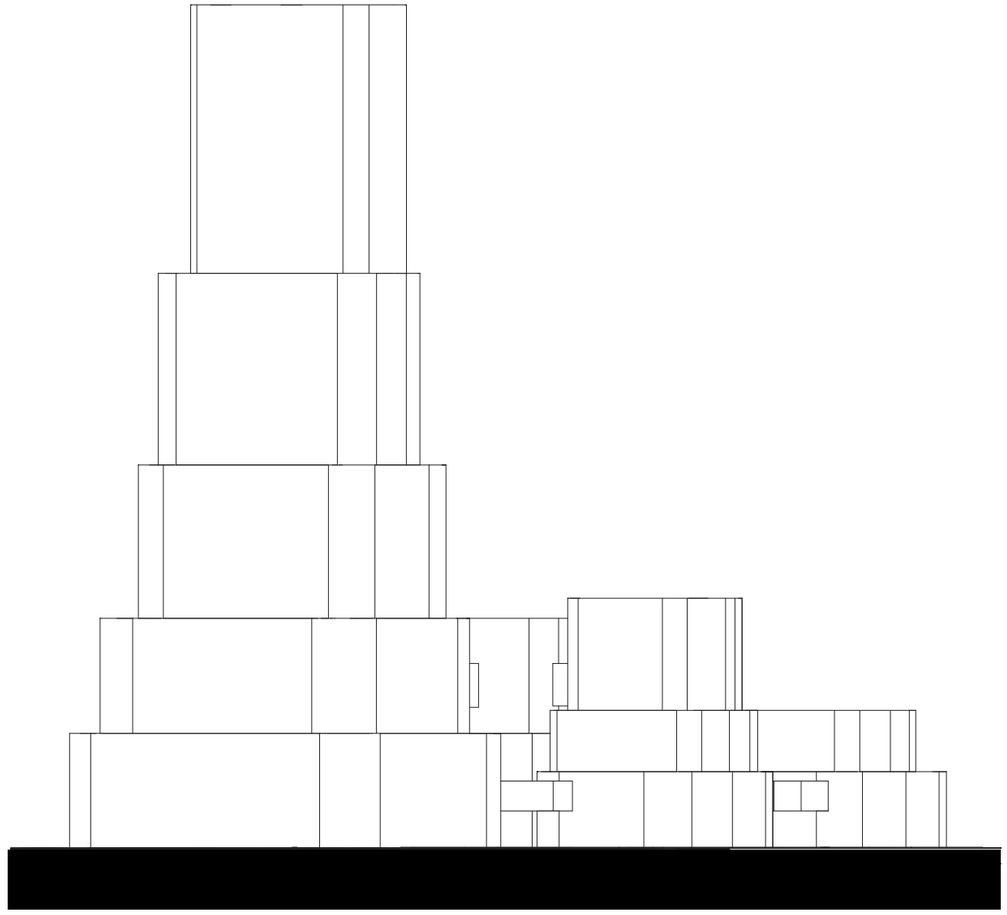
PROFILE

ROUND DESIGN



- 80m highest tower
- diameter 25 for towers, 45 for low rise events
- bridges connect the buildings, not on all levels

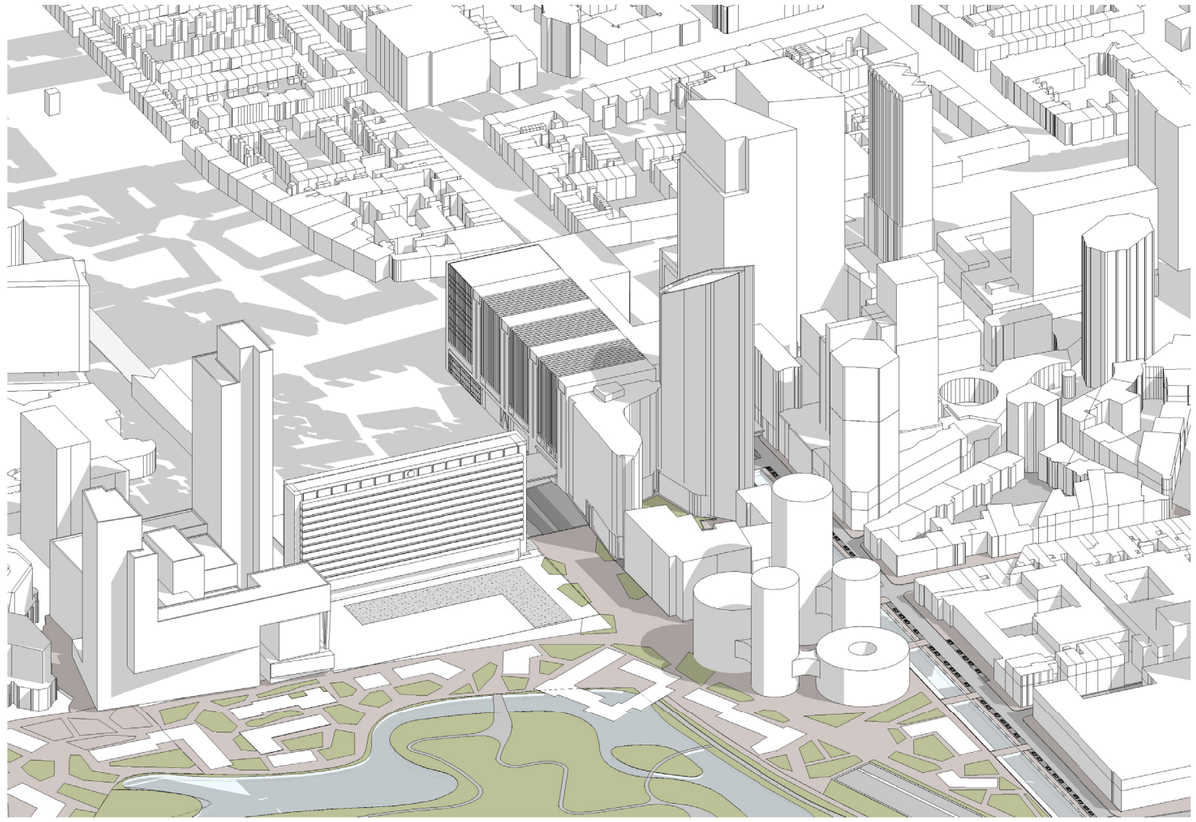
TOWER DESIGN



- 110 m high
- extra volumes for larger or smaller public functions
- stands tall in the skyline
- curves not visible in this view but help make it slim, optical

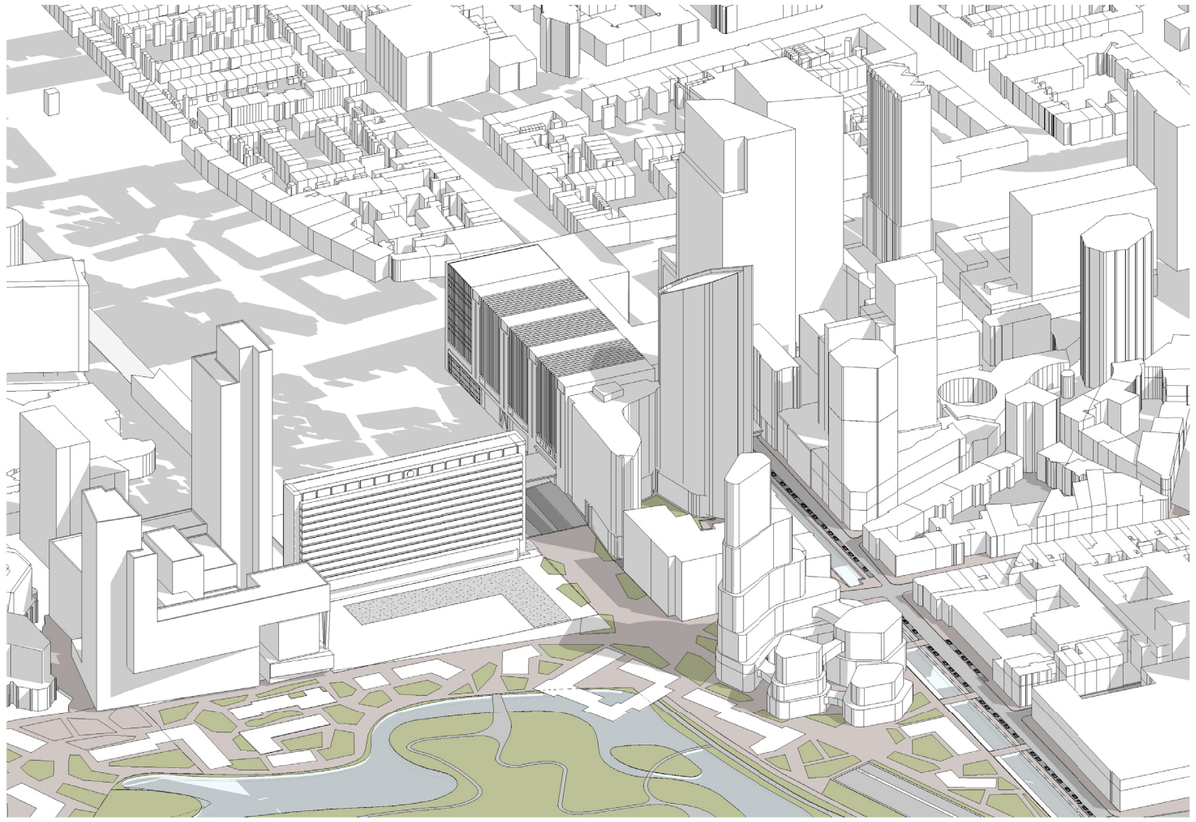
BIRD VIEW

ROUND DESIGN



- fits the mid rise size buildings
- tower concept is used in more places

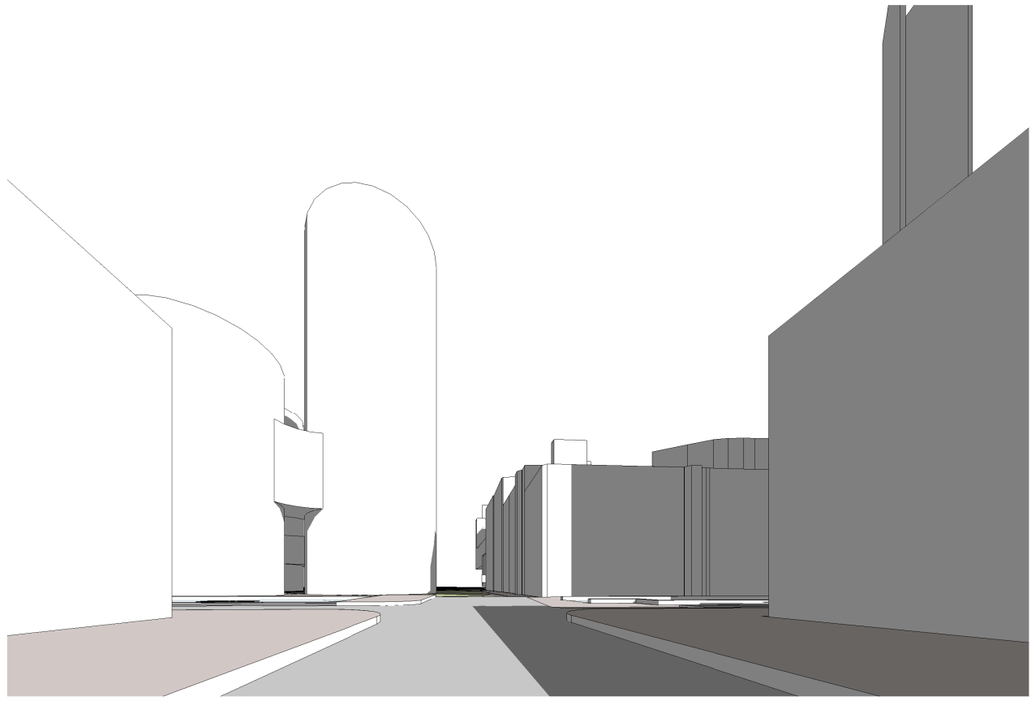
TOWER DESIGN



- mid high rise building, but slim format
- more in the height than width

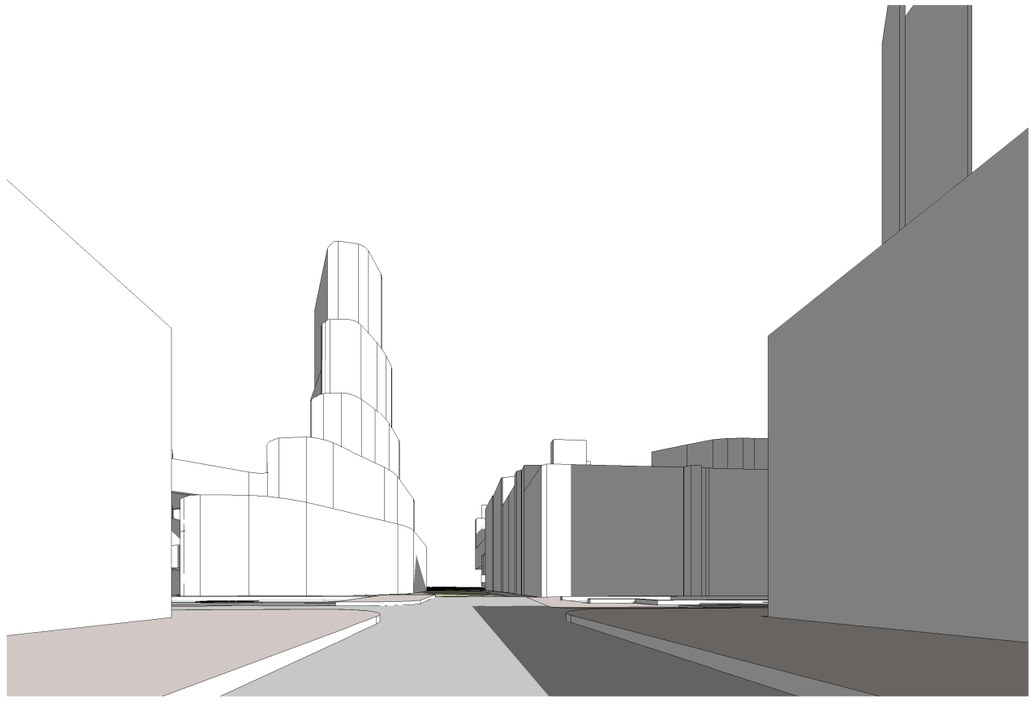
CITY VIEW

ROUND DESIGN



- less gradient height difference
- doesn’t feel large because of the round forms

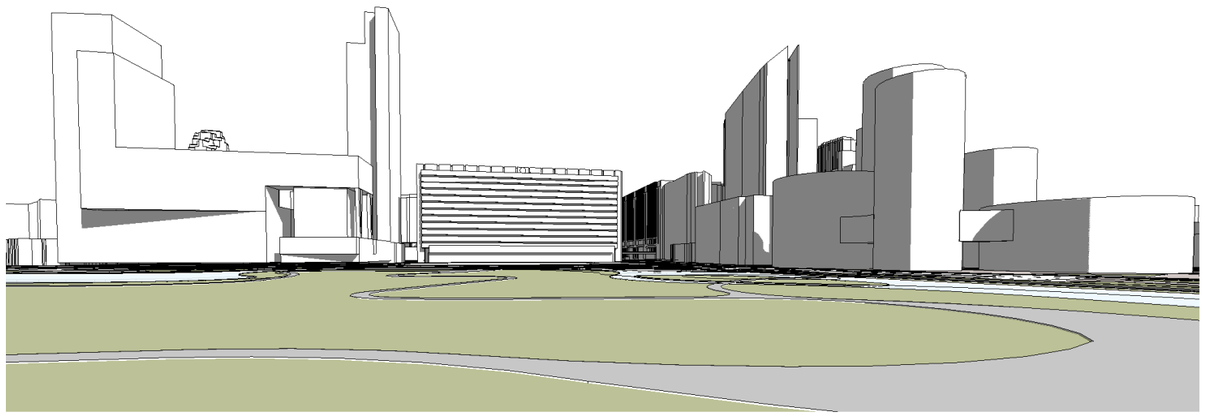
TOWER DESIGN



- from low to heigh, fits better with the babylon and powerhouse side. City is low rise and we go to high rise on this side
- slim silouhette

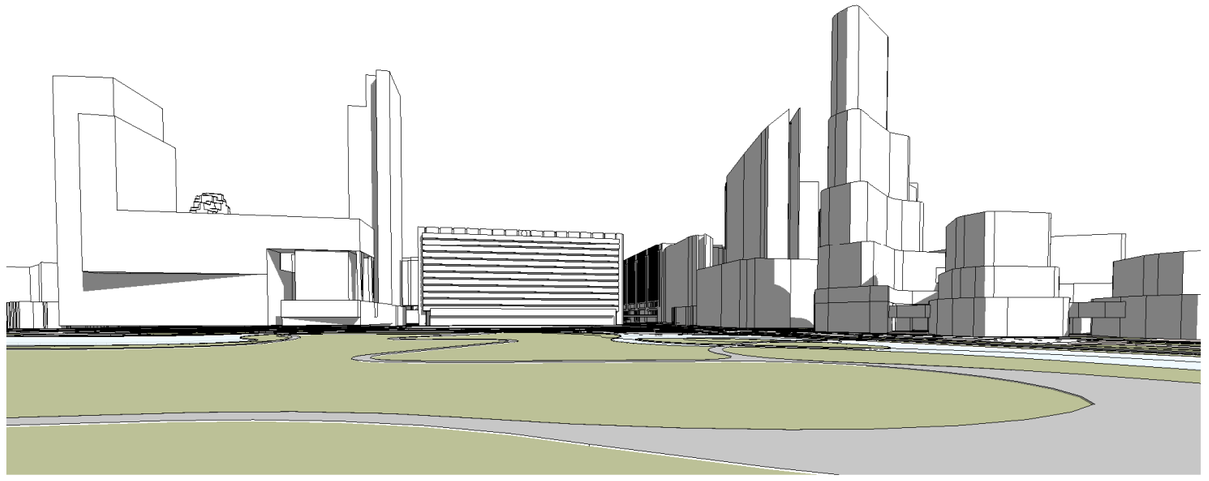
PARK VIEW

ROUND DESIGN



- more spread out and fits the surroundings

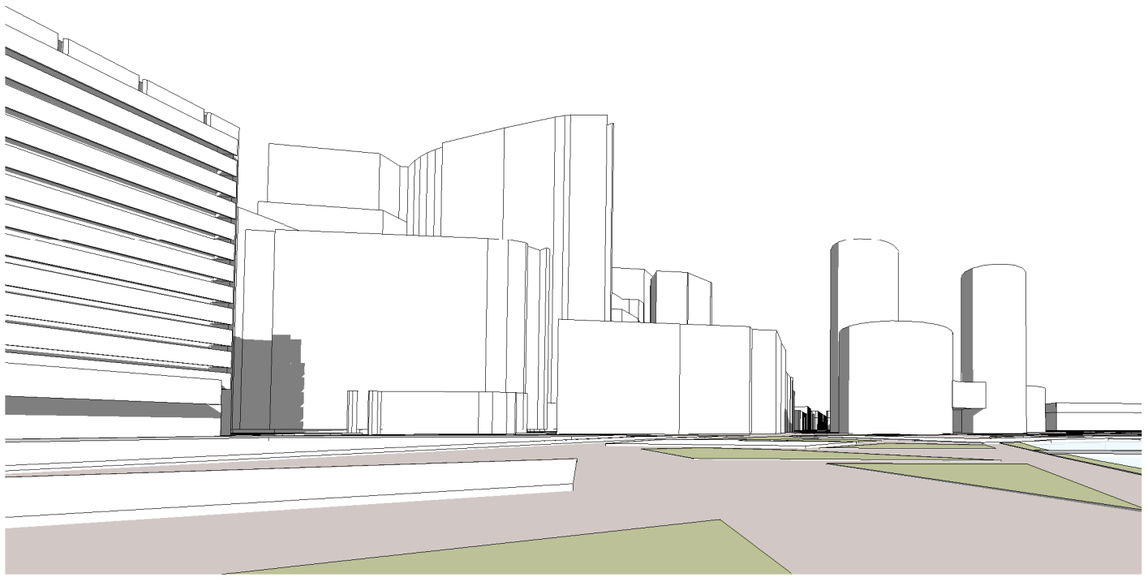
TOWER DESIGN



- gradient to the high rise

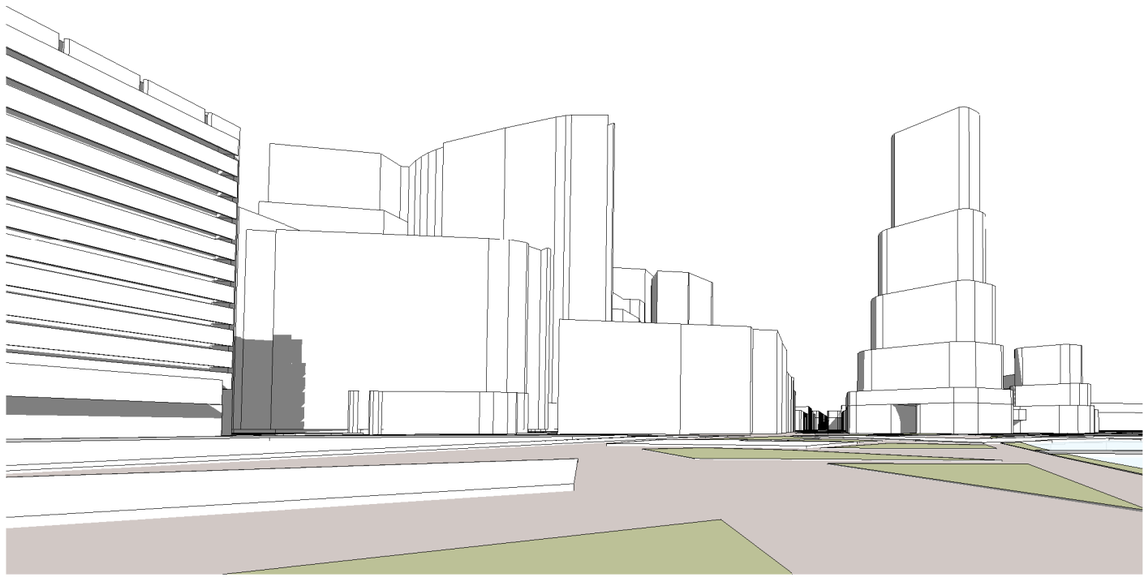
STATION VIEW

ROUND DESIGN



- merging with buildings on the left side, height wise
- contrast buildings left side
- lower towers same height as the existing buildings on the left

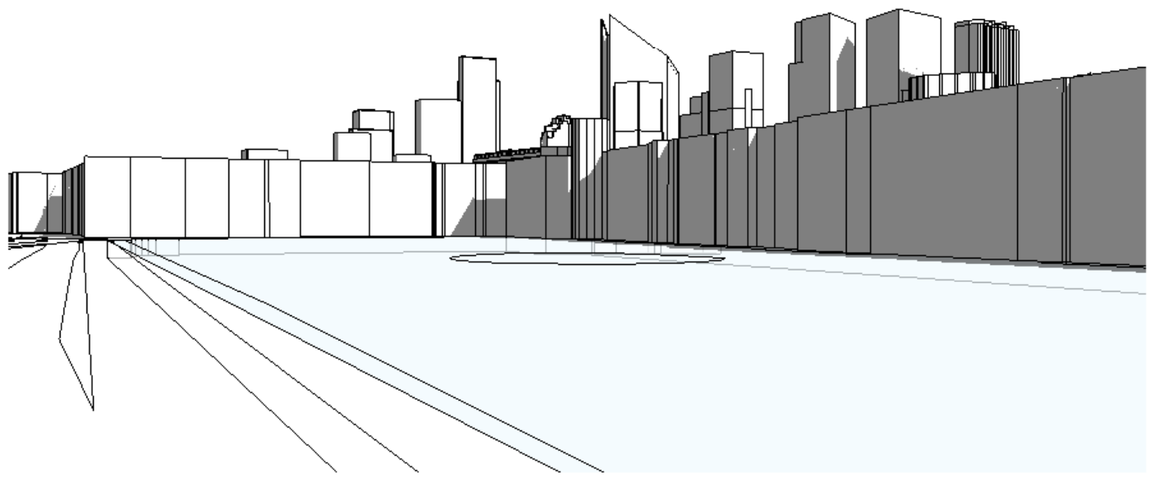
TOWER DESIGN



- impressive entrance side, height
- contrast buildings left side
- The first 2 slaps are the same height as the existing buildings on the left

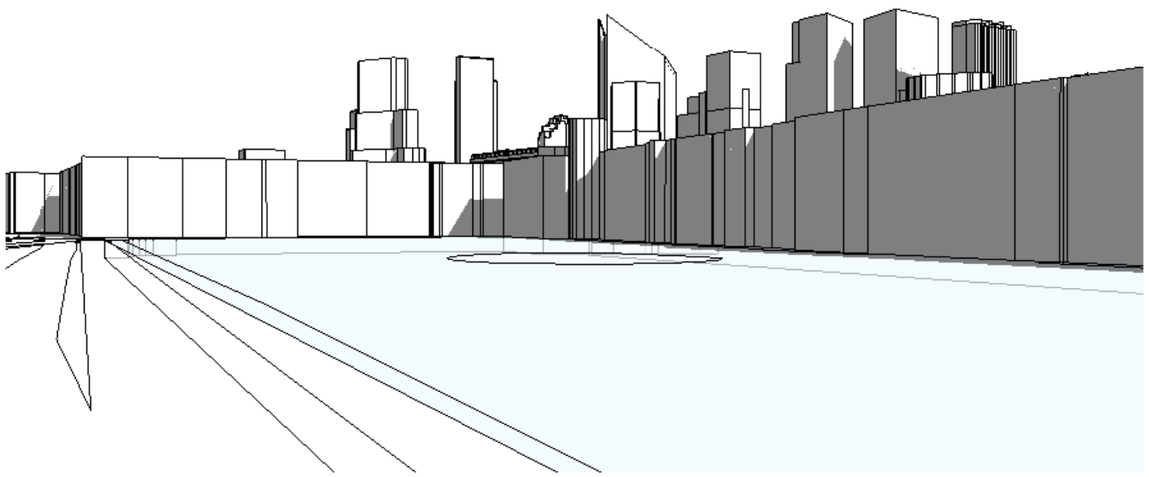
BINNENHOF VIEW

ROUND DESIGN



- Medium icon that can be visible from some parts of the Hague

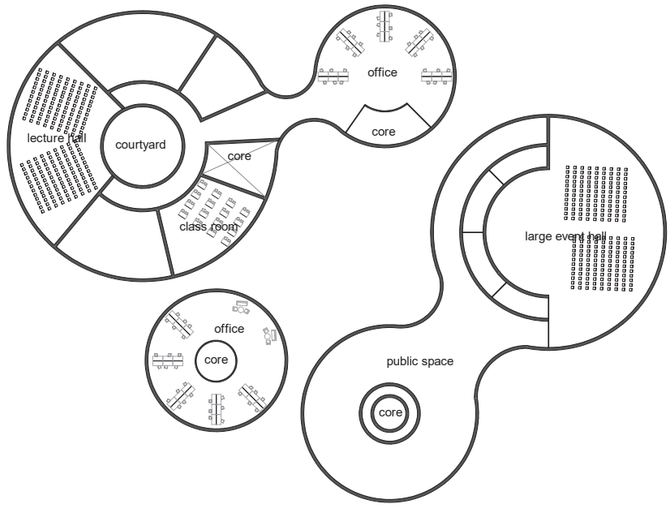
TOWER DESIGN

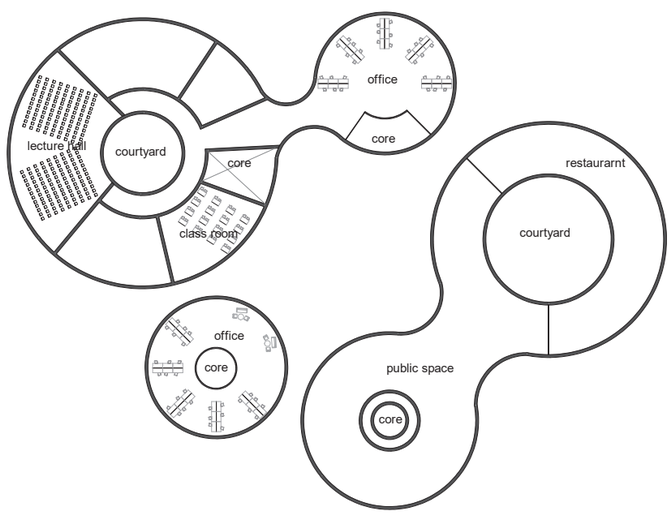


- Another icon for the Hague for a large part of the city

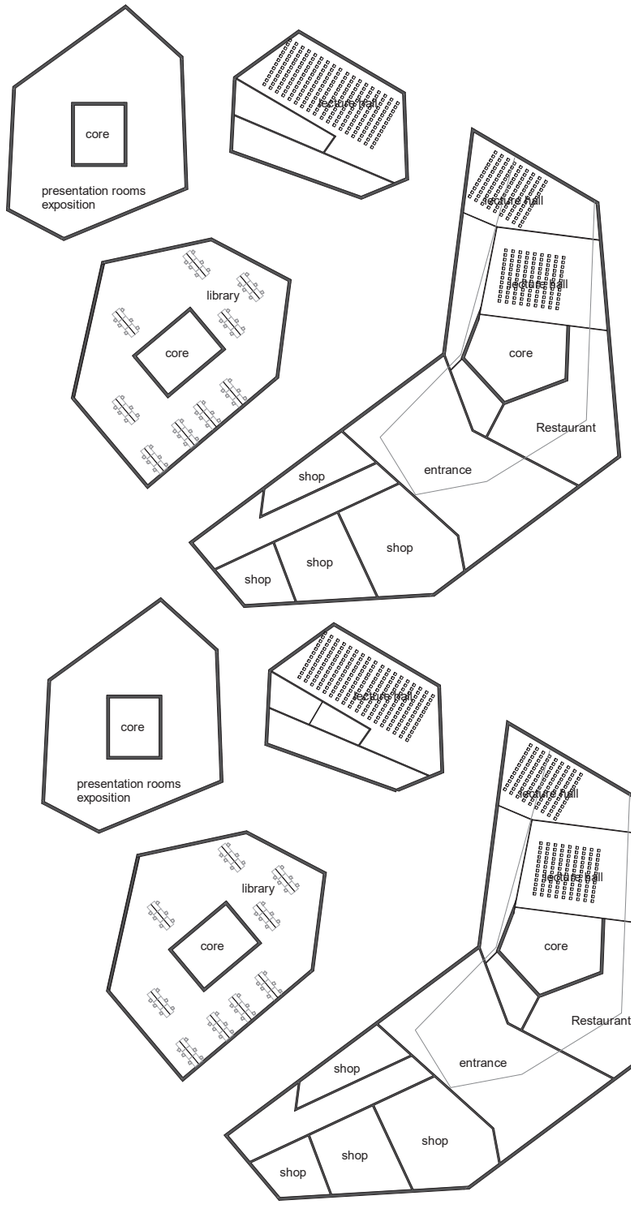
FLOORPLAN

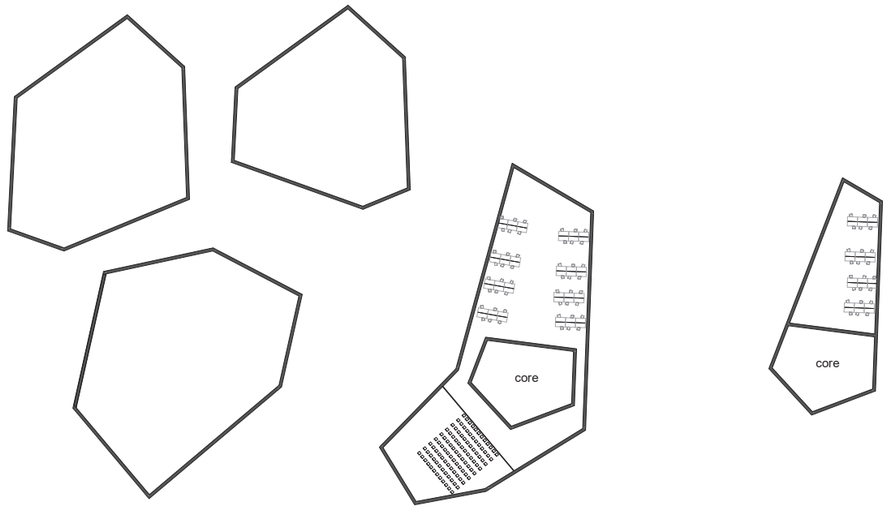
ROUND DESIGN

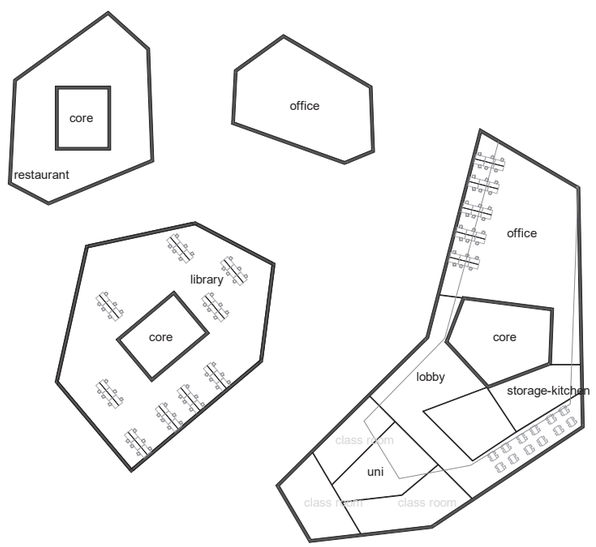




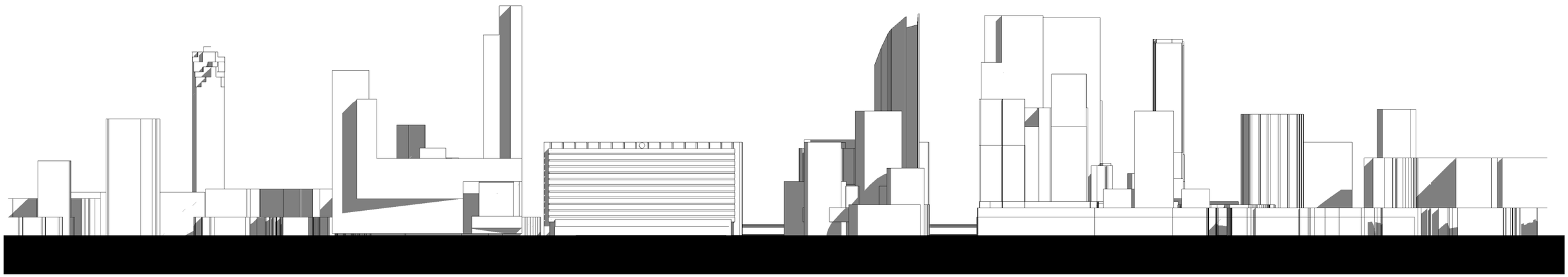
TOWER DESIGN



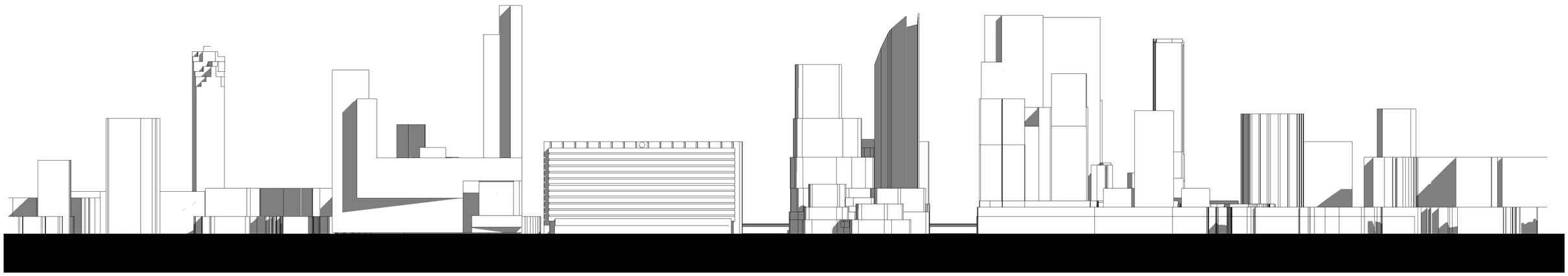




SECTION



ROUND DESIGN



TOWER DESIGN

SIGHT LINES



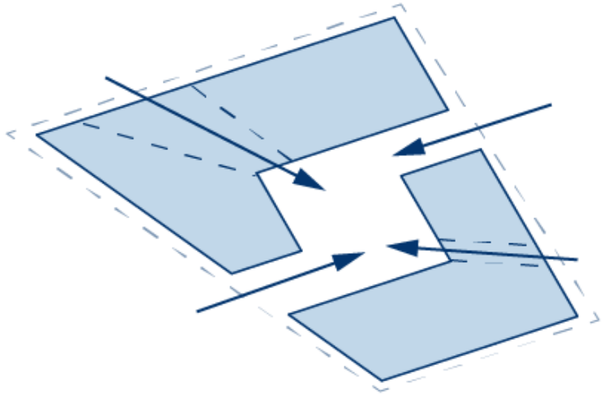




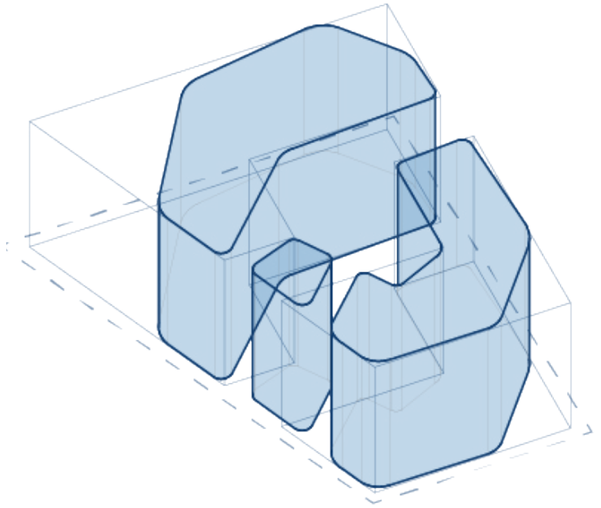




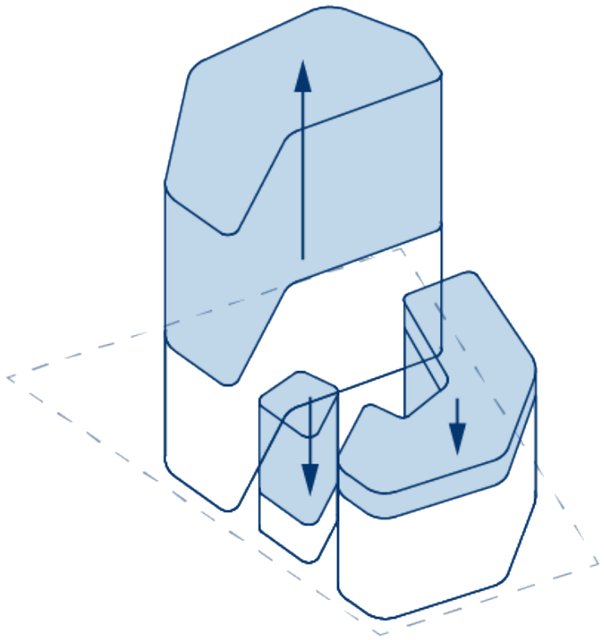
DESIGN PROCESS



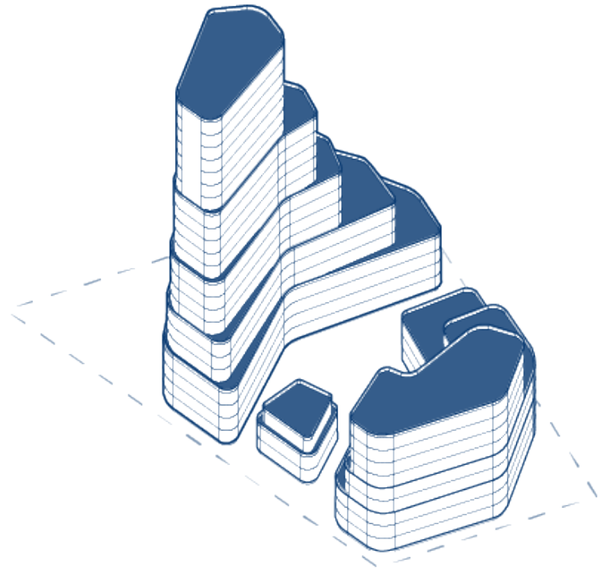
OUTLINE AND ACCESS POINTS



SHAPE AND DIVISION



HEIGHT GRADIENT

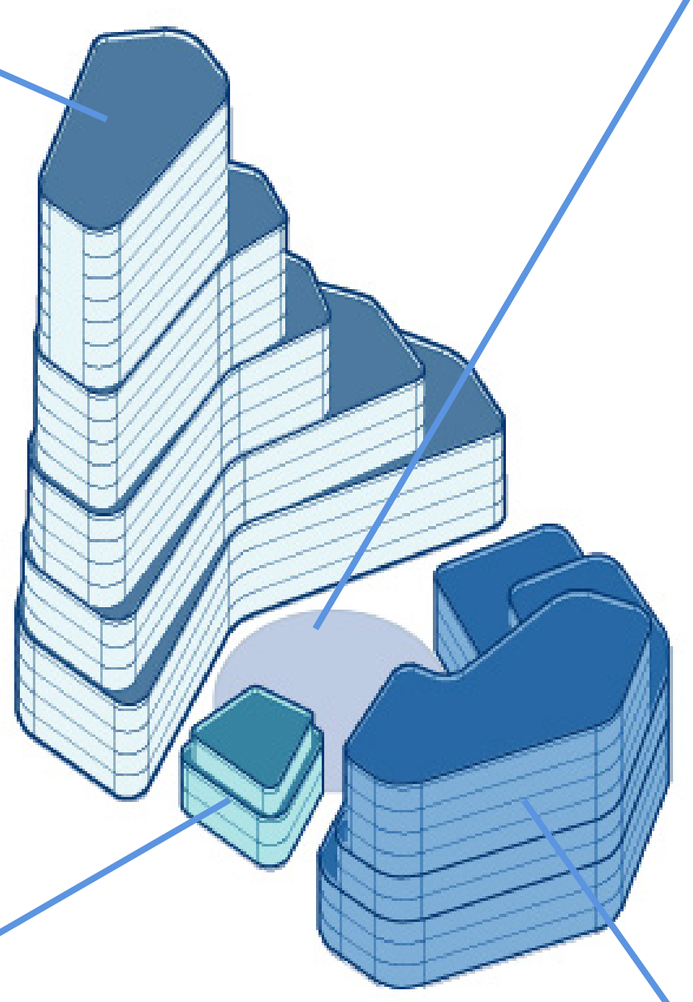


PRESENCE AND VISIBILITY

SHAPE

Main building - icon for the skyline
- slim profile

Valley courtyard - different scales - visibility



Create intimate space - wandering

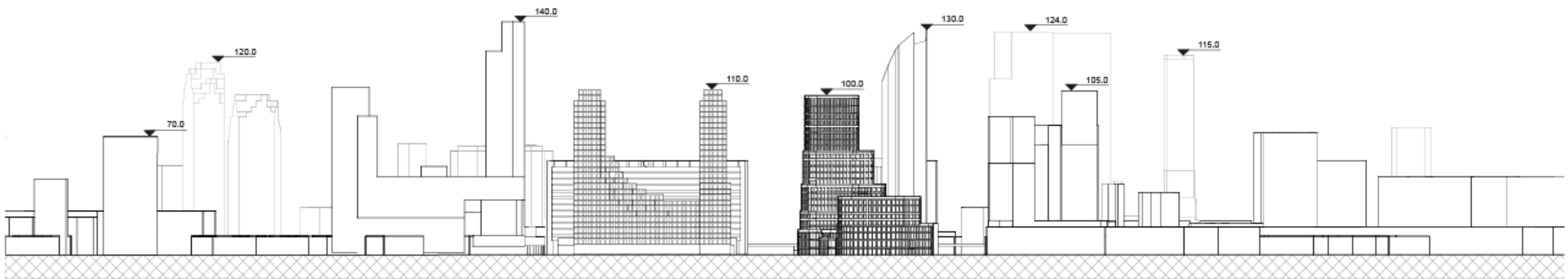
Gradient element - valley shape
- stimulates movement

SITE

- buildings are organic as the main building
- different acces point
- wander
- growth potential in this style
- Heritage, doesn't follow the rules of the city design
- different acces point

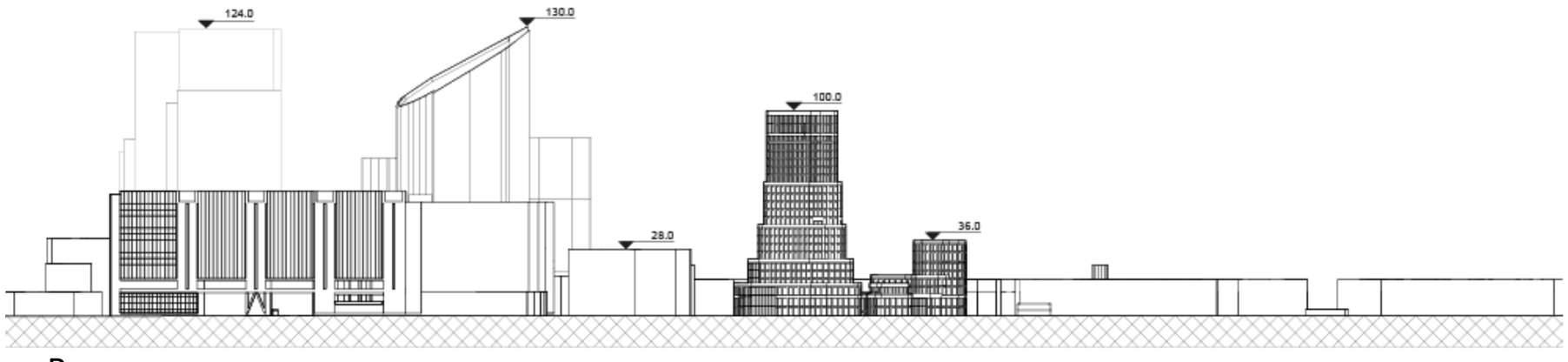


SECTION

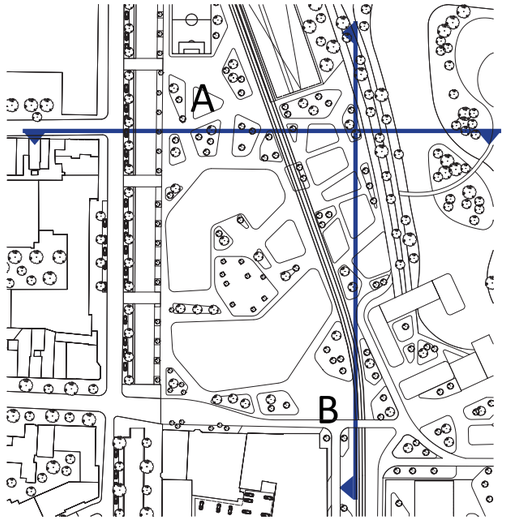


A

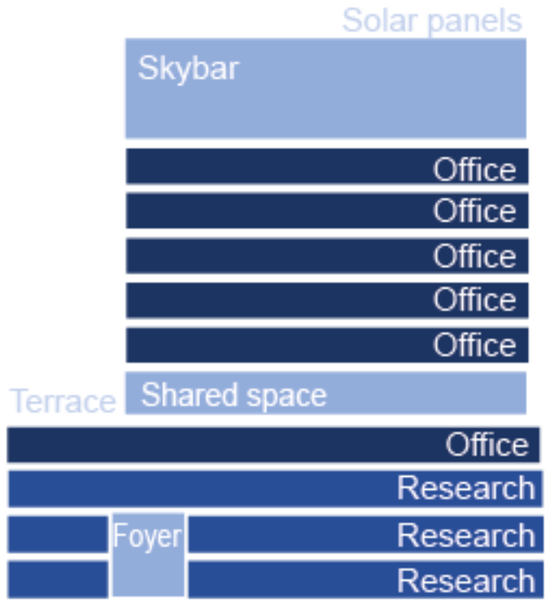
- 110 m high
- extra volumes for larger or smaller public functions
- stands tall in the skyline
- curves not visible in this view but help make it slim, optical

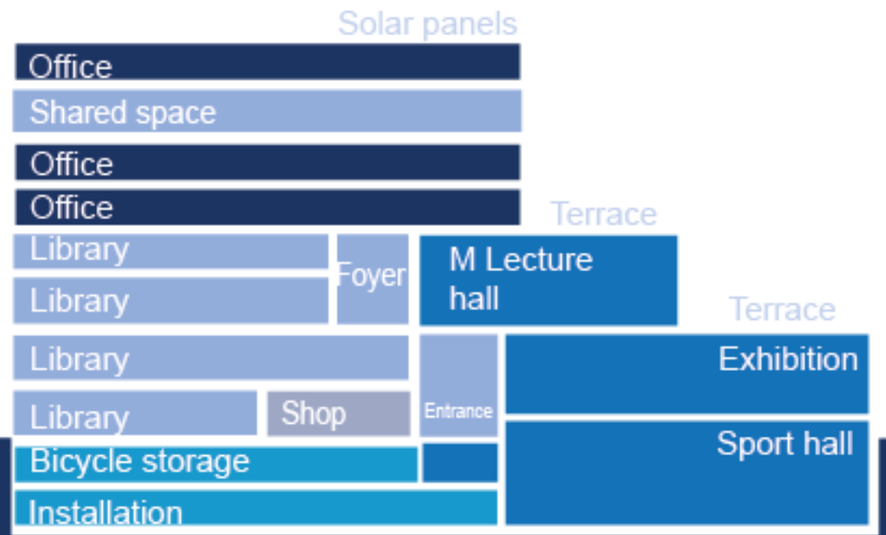


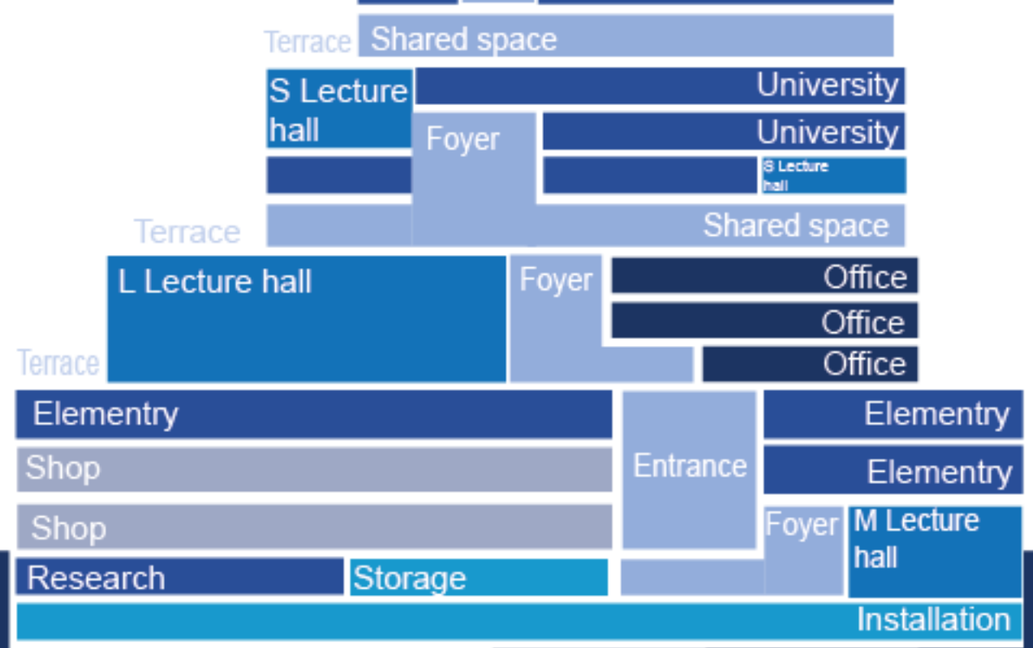
B



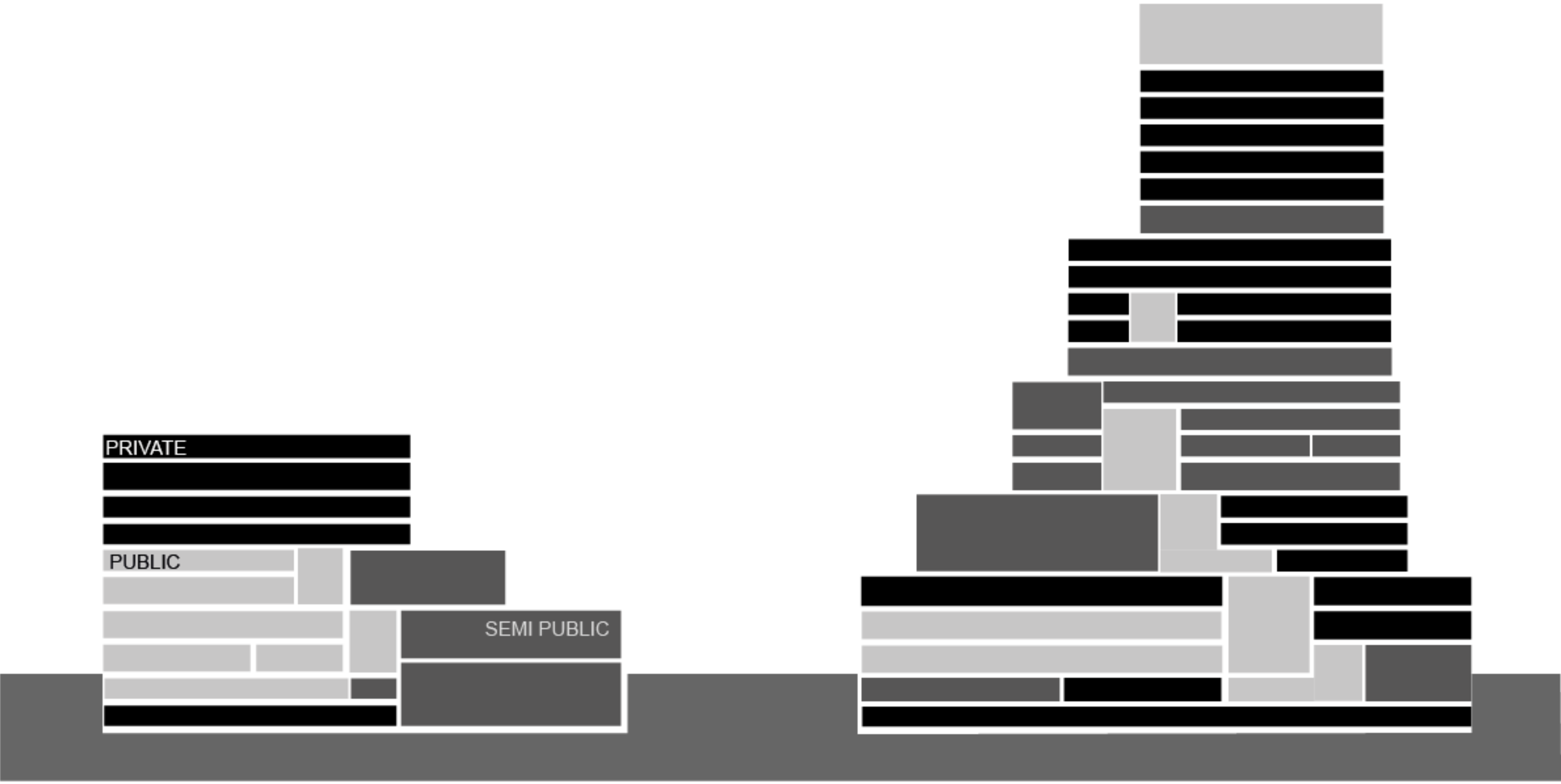
FUNCTIONS


Solar panels
Skybar
Office
Office
Office
Office
Office
Terrace
Shared space
Office
Research
Foyer
Research
Research

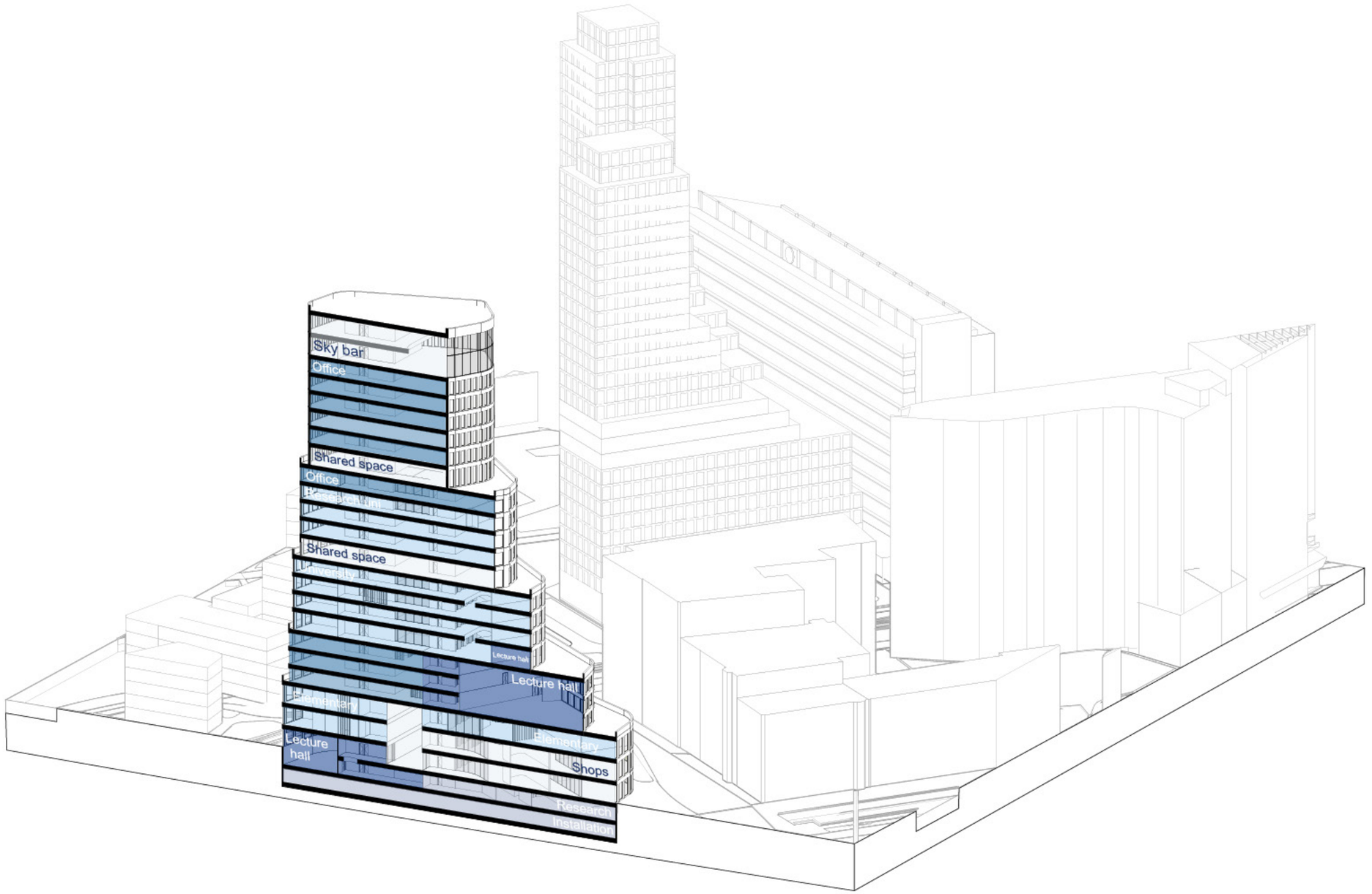

Solar panels
Office
Shared space
Office
Office
Terrace
Library
Foyer
M Lecture hall
Library
Terrace
Library
Exhibition
Library
Shop
Entrance
Sport hall
Bicycle storage
Installation


Terrace
Shared space
S Lecture hall
University
Foyer
University
S Lecture hall
Terrace
Shared space
Terrace
L Lecture hall
Foyer
Office
Office
Office
Elementry
Entrance
Elementry
Shop
Elementry
Shop
Foyer
M Lecture hall
Research
Storage
Installation

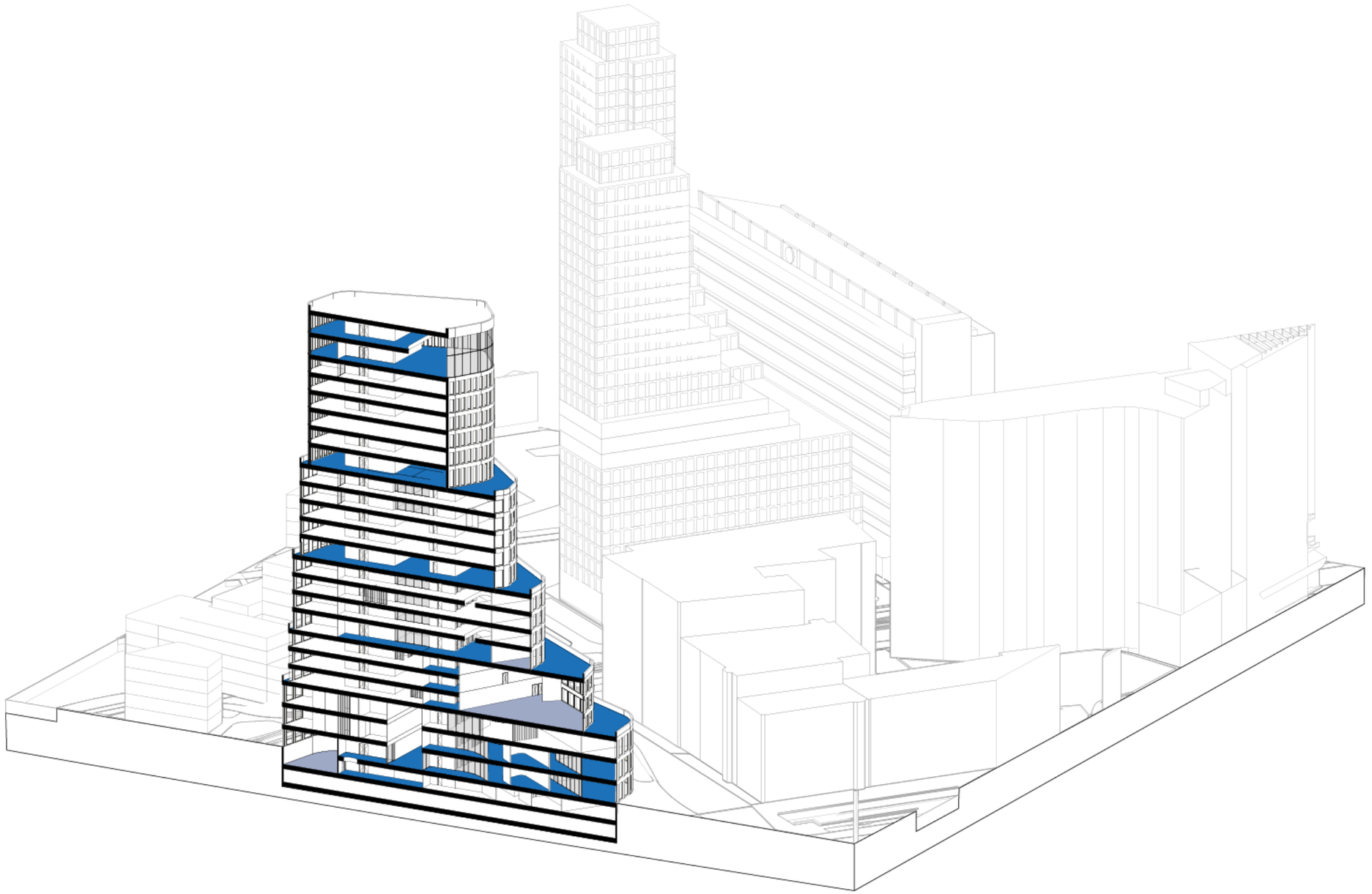
PUBLIC-PRIVATE



FUNCTIONS


Sky bar
Office
Shared space
Office
Shared space
Lecture hall
Lecture hall
Elementary
Lecture hall
Elementary
Shops
Research installation

VERTICAL FLOW



STRUCTURE

STRUCTURE - CORE

Main building: 2 cores
Second building: 1 core
Pavilion building: 1 core

Main building - 2 cores

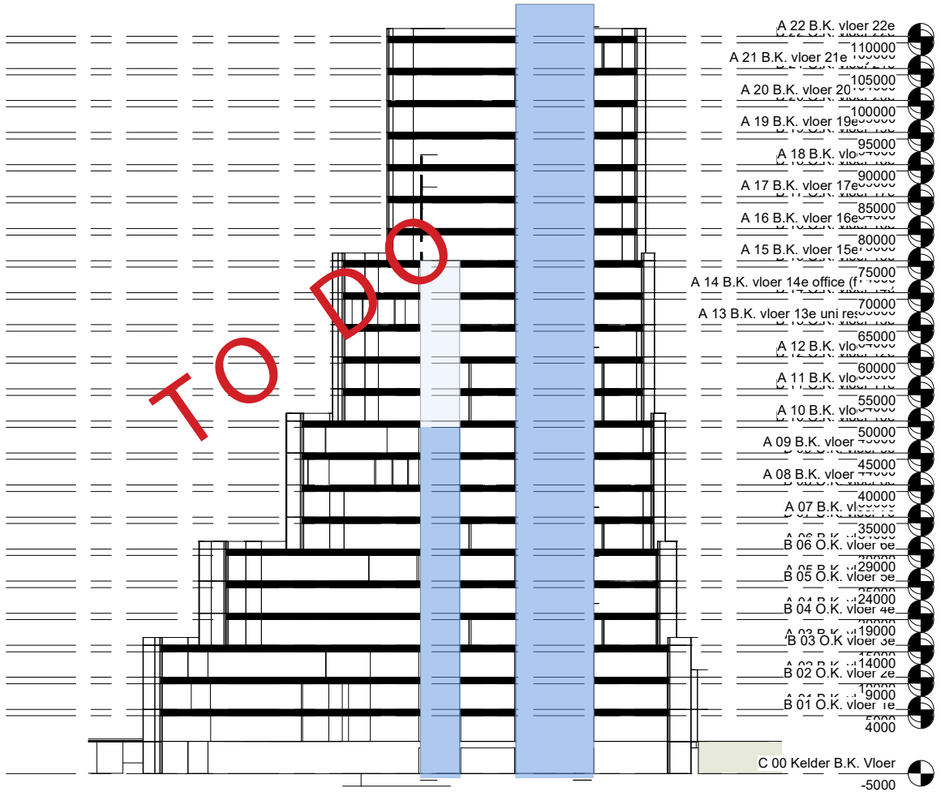
- stability
- distribution people, shaft and elevators

Core 1 - located at the entrance

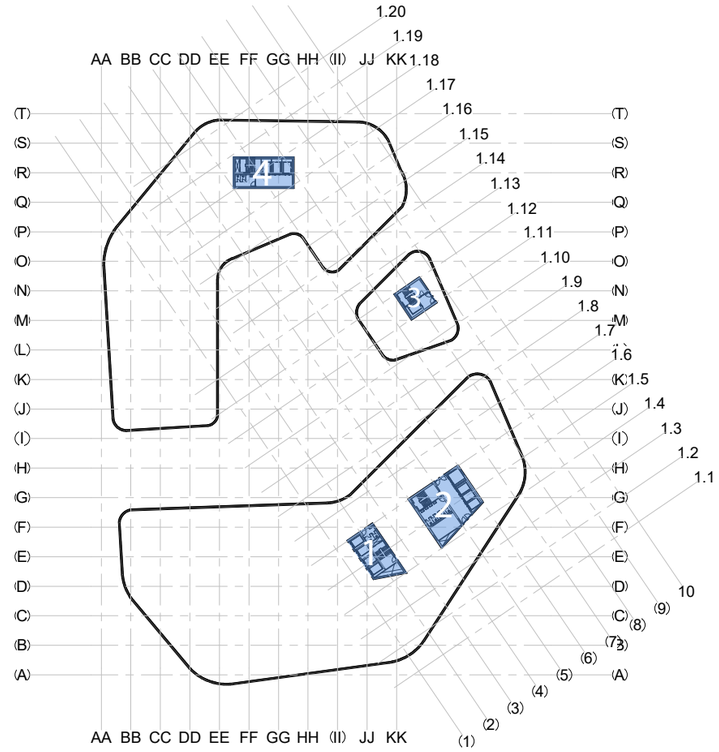
- direct access entrance
- focussed on connecting foyer and lower public functions
- half way the core switches function and will be used as floor space.

Core 2 - xx side of the building

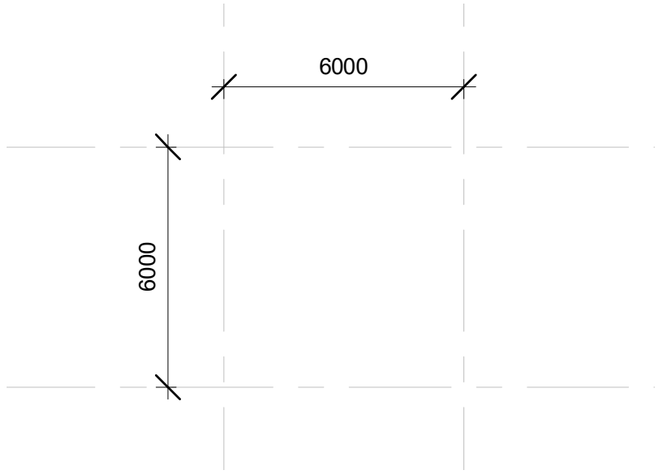
- main core of the building
- connection top floors, offices
- more exclusive entrance (public-private)







STRUCTURE - GRID

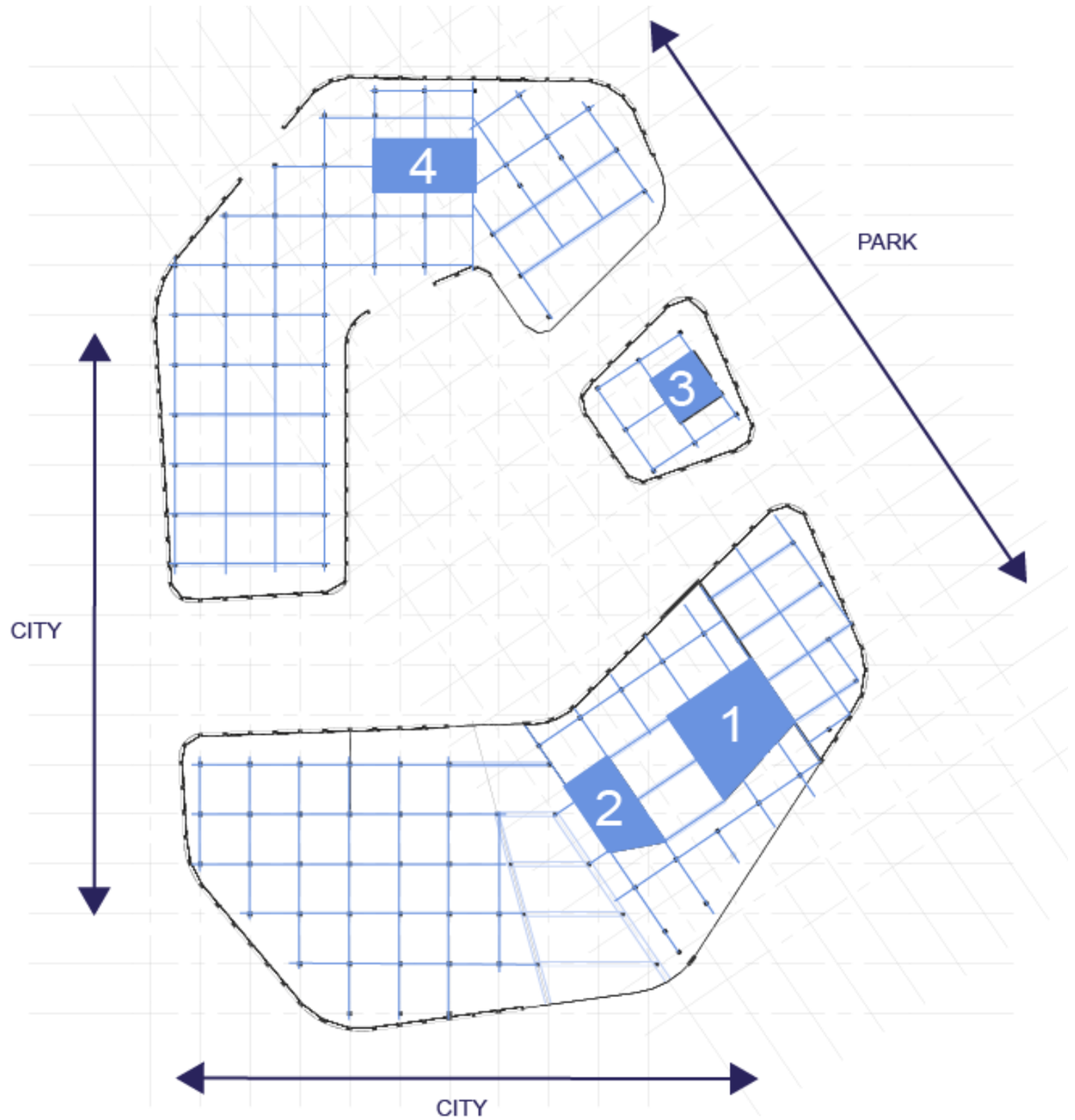


Grid 6x6 h.o.h.

horizontal and
twisted 35

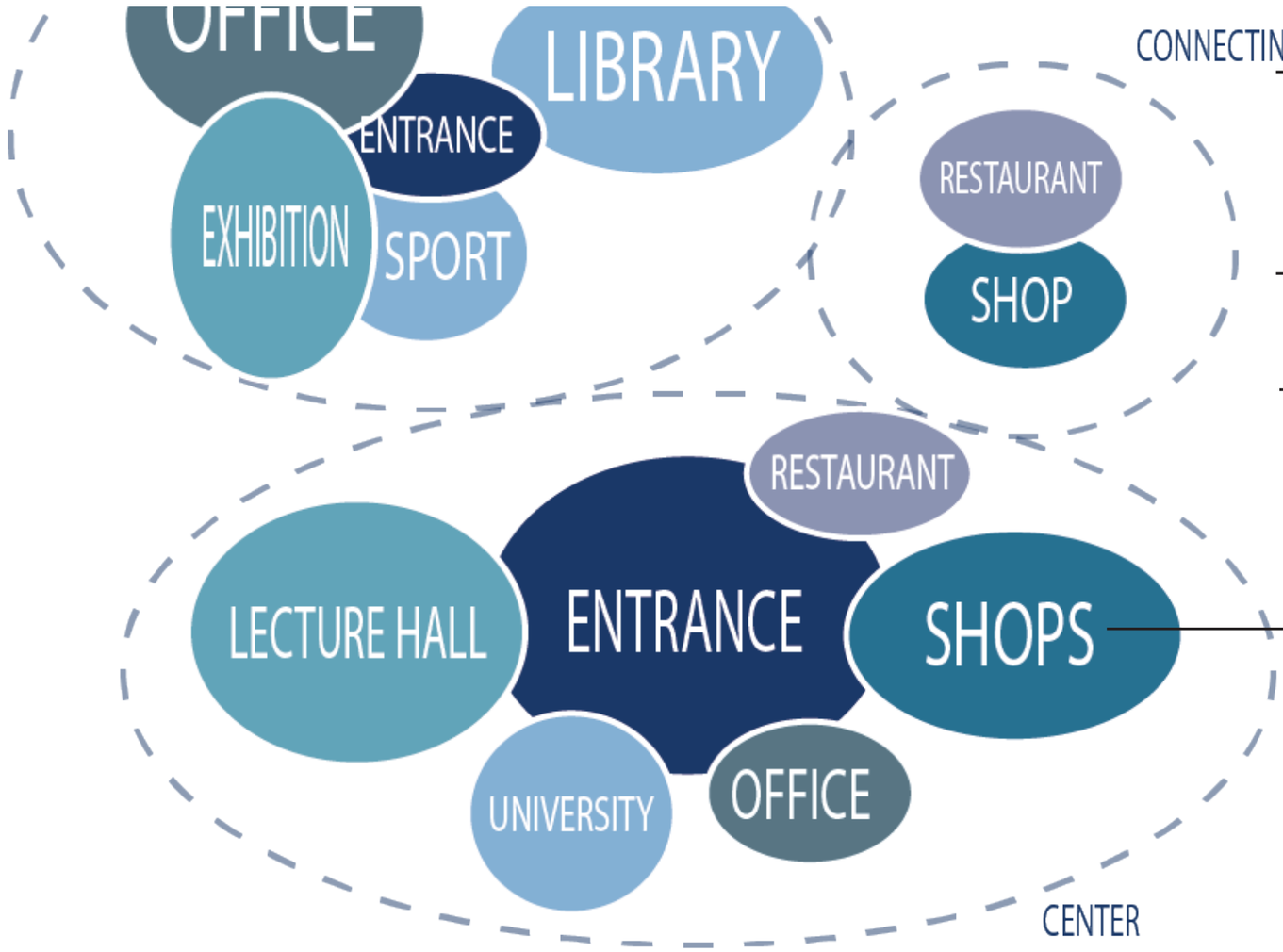
WHAT KIND SIZE GRID I CHOSE:
5.4 TO MANY COLUMS
6 FITS SIZING BUILDING SHAPE
7.2 MOST FLEXIBILITY

grid is twisted for 35 degrees paralel to park



Grid orientation

STRUCTURE - MATERIAL



CONCRETE COLUMS BETWEEN CLT FLOORS

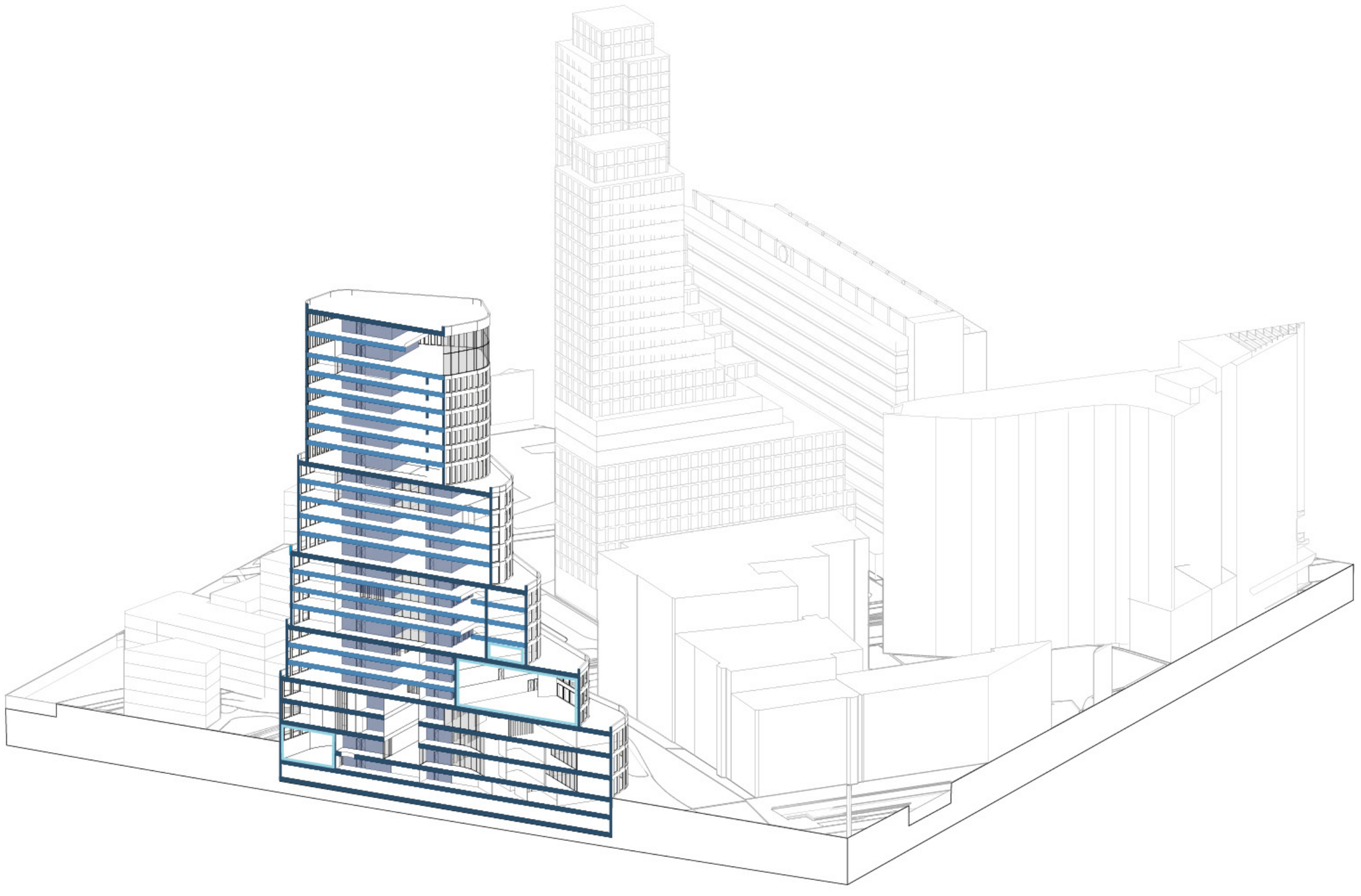
CONCRETE STABILITY FLOORS

CLT FLOOR AND COLUMS

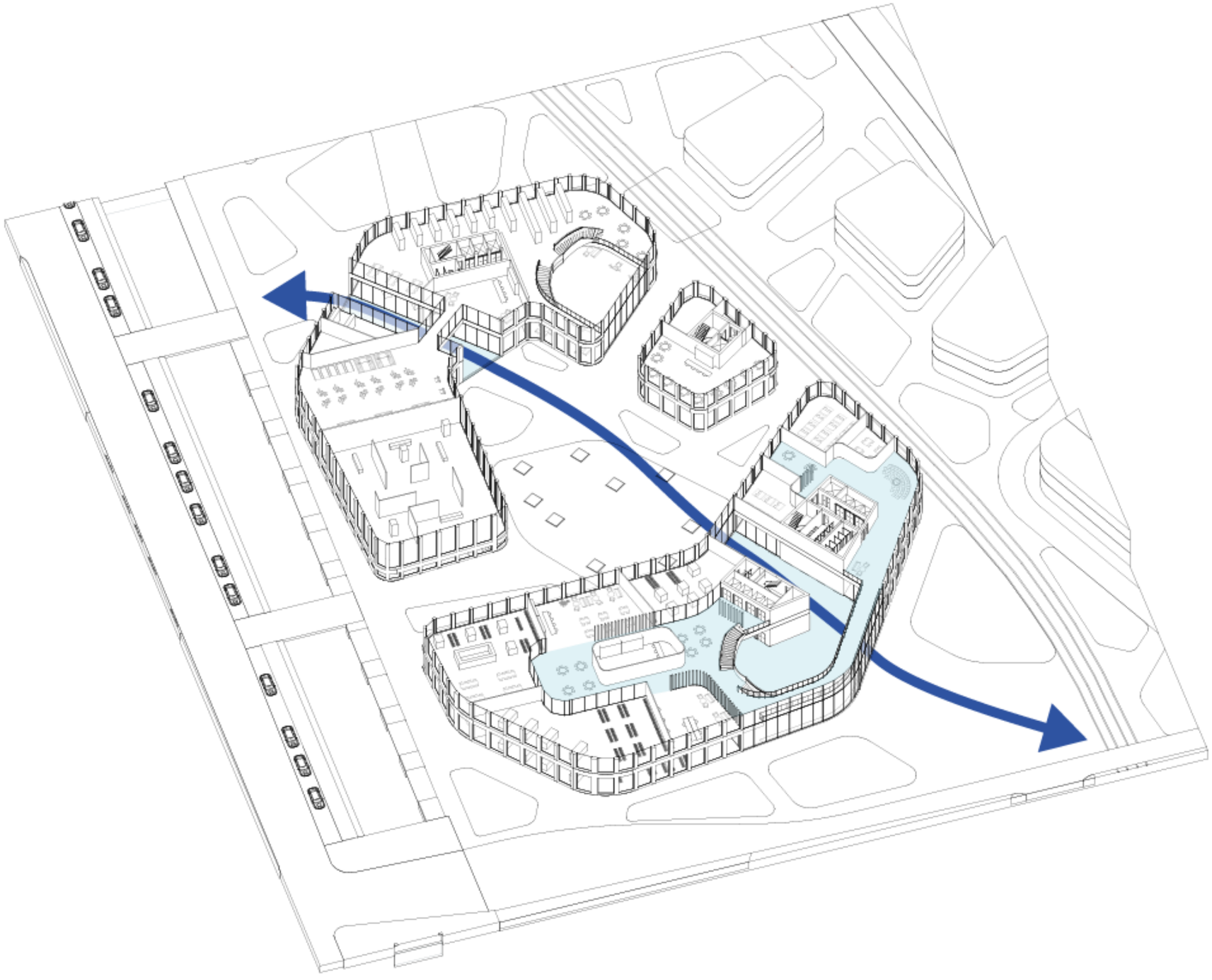
STEEL STRUCTUR FOR EVENT HALLS

CONCRETE BASE (FLOOR AND WALLS)

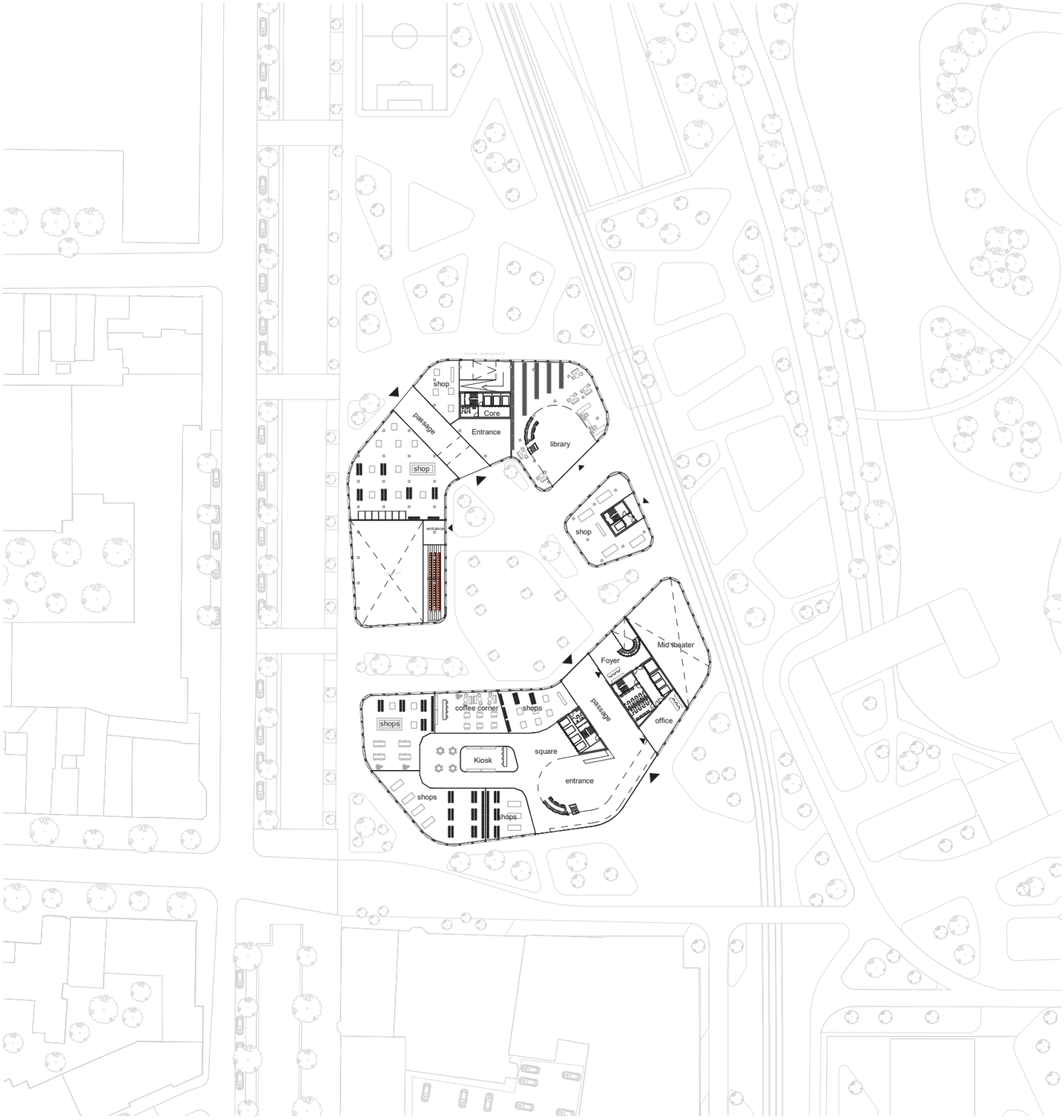
STRUCTURE



FLOW - ENTRANCE

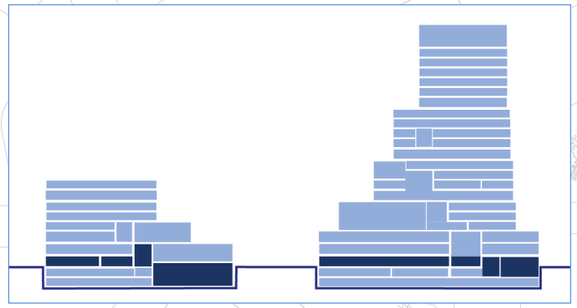


FLOORPLAN - GROUNDFLOOR



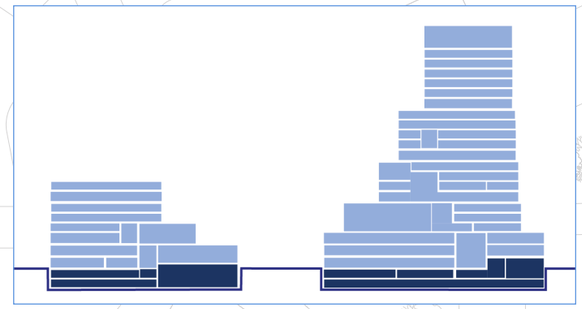
FLOORPLAN - GROUND FLOOR





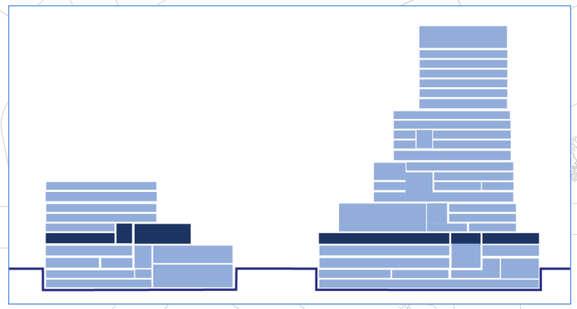
FLOORPLAN - BASEMENT



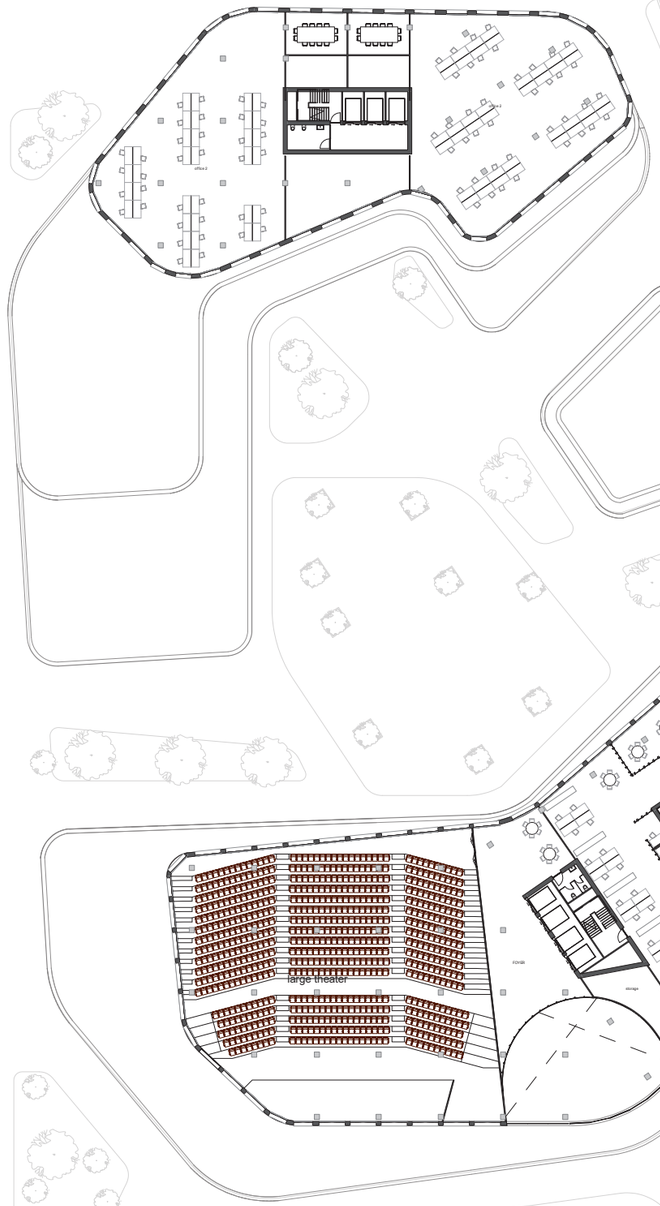


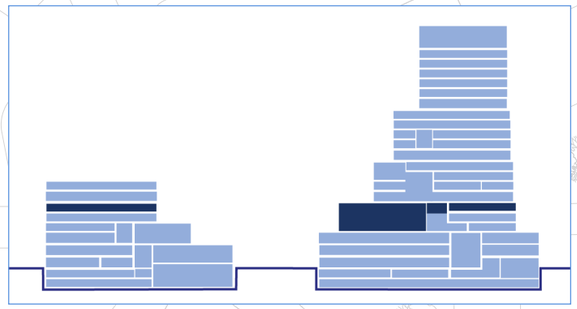
FLOORPLAN - 2ND



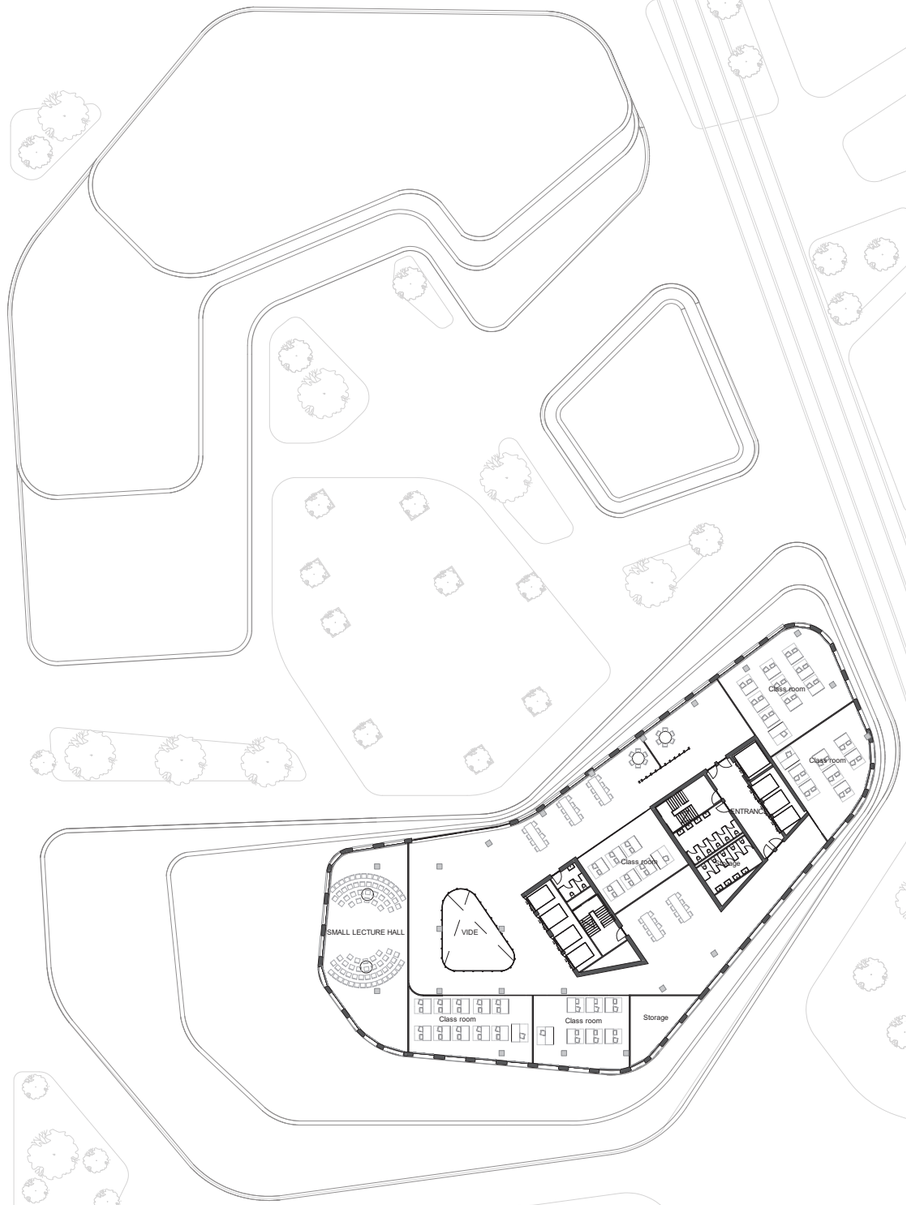


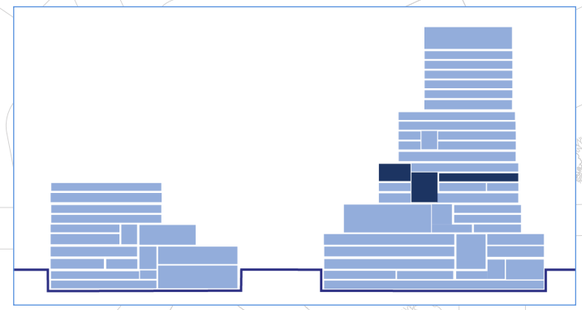
FLOORPLAN - 5TH



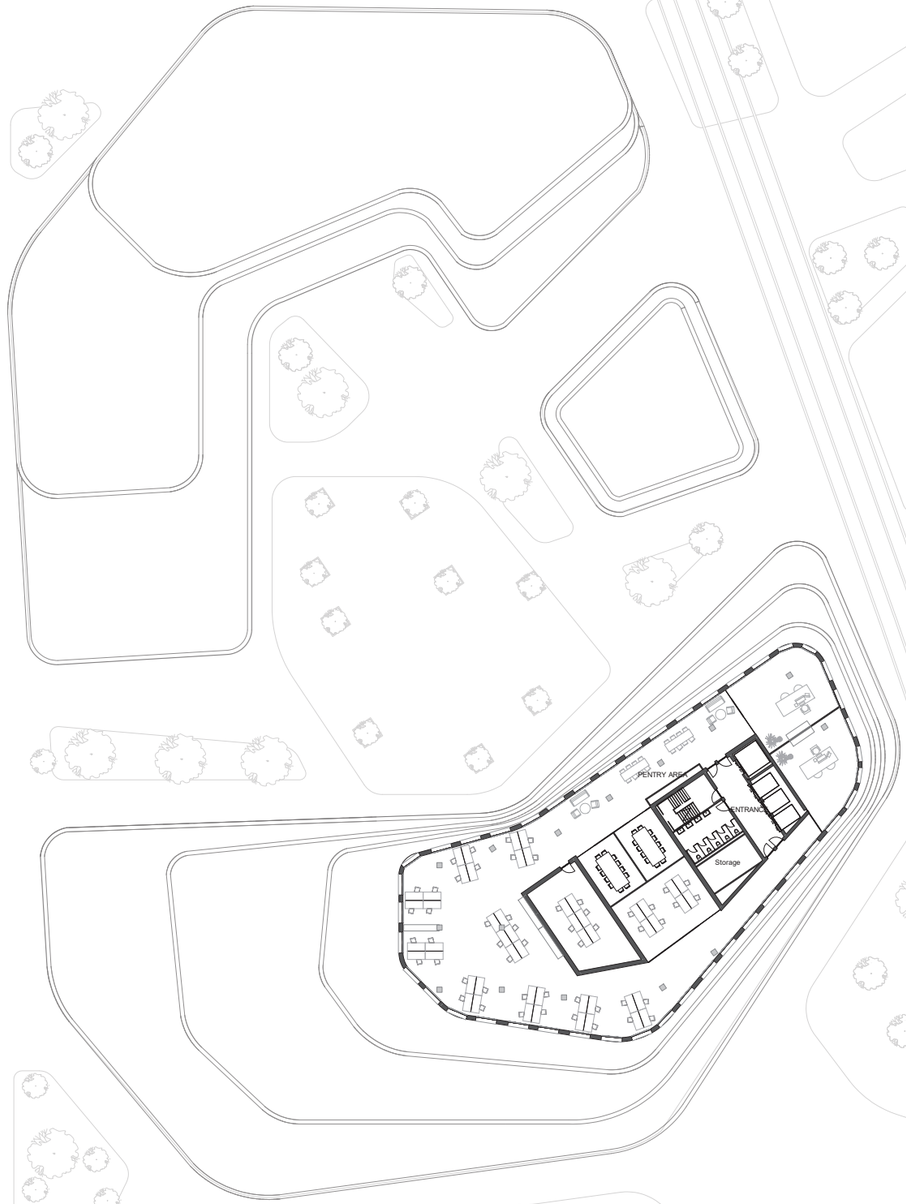


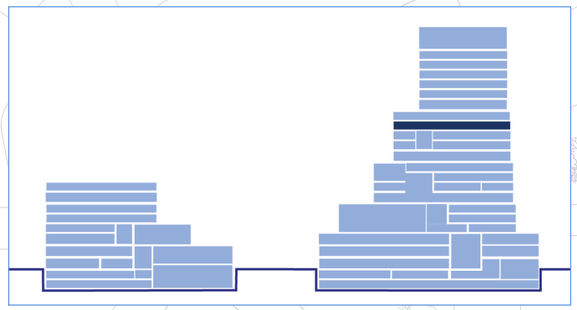
FLOORPLAN - 8TH



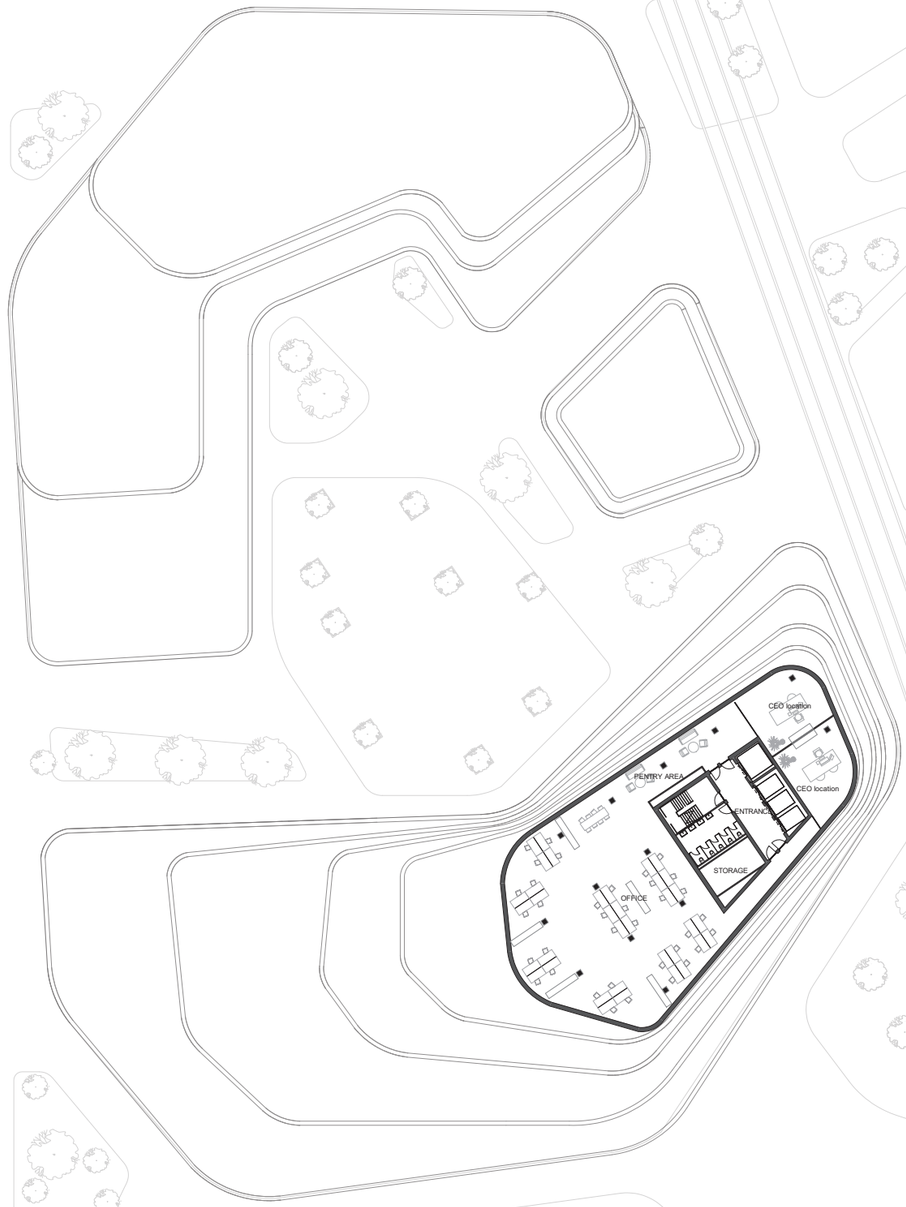


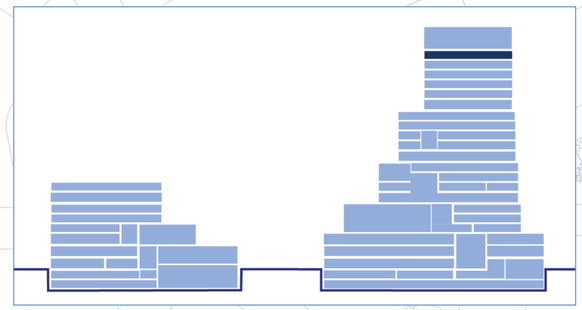
FLOORPLAN - 14TH



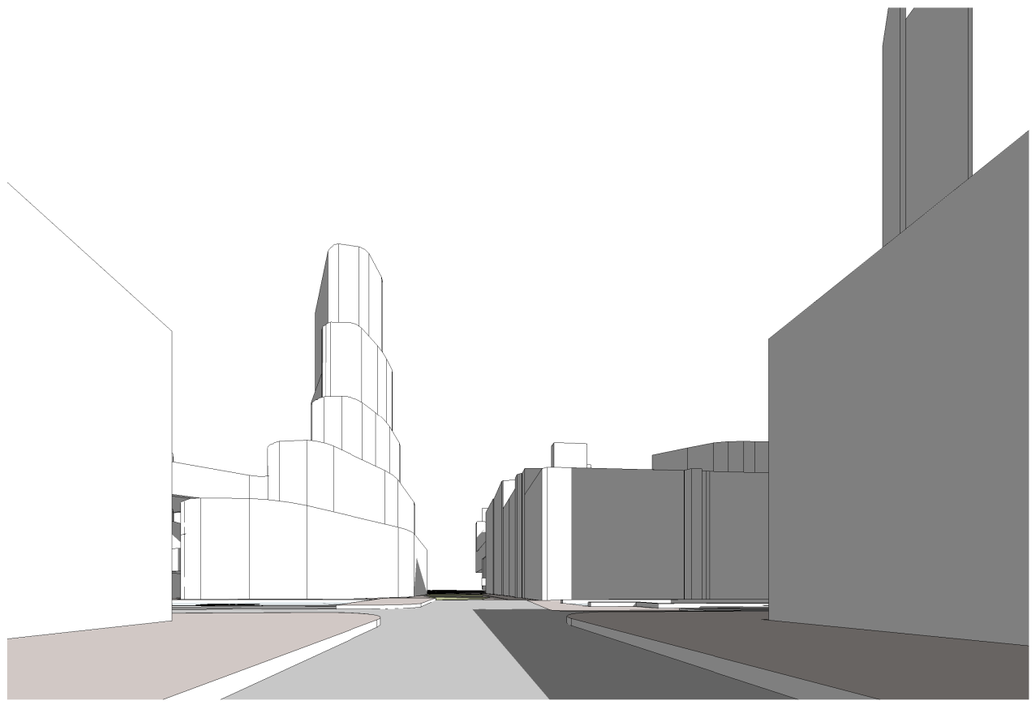


FLOORPLAN - 20TH



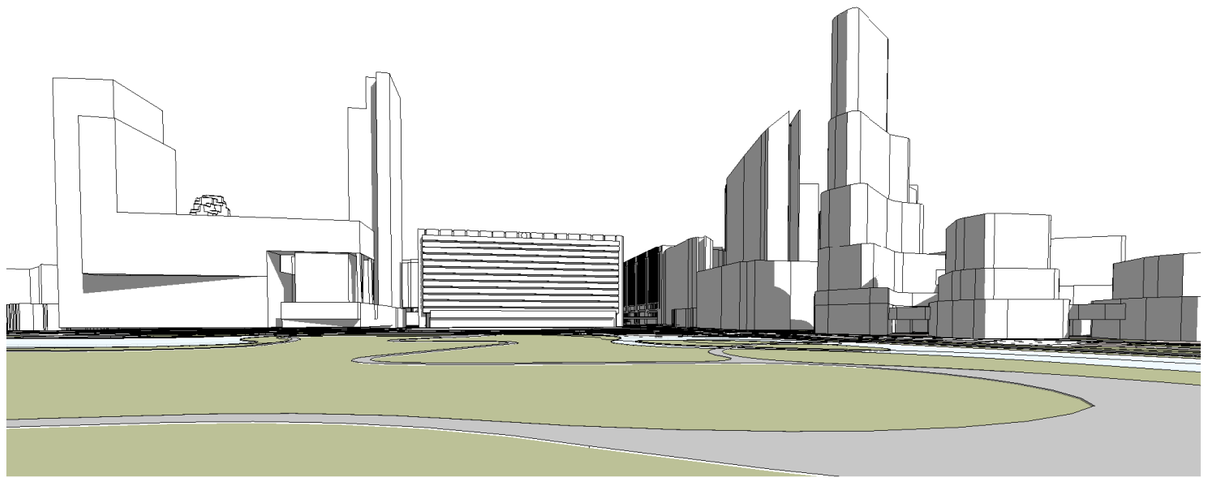


CITY VIEW



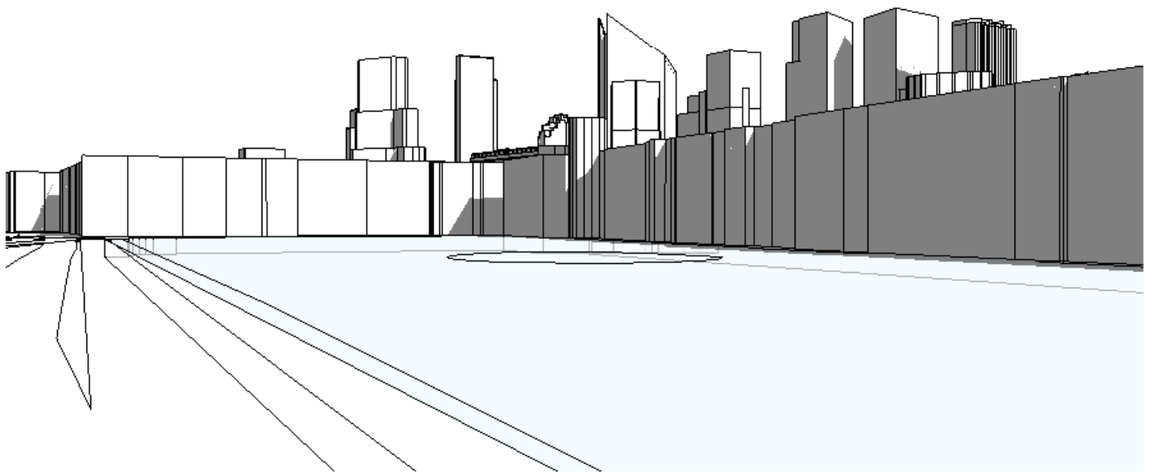
- from low to heigh, fits better with the babylon and powerhouse side. City is low rise and we go to high rise on this side
- slim silouhette

PARK VIEW



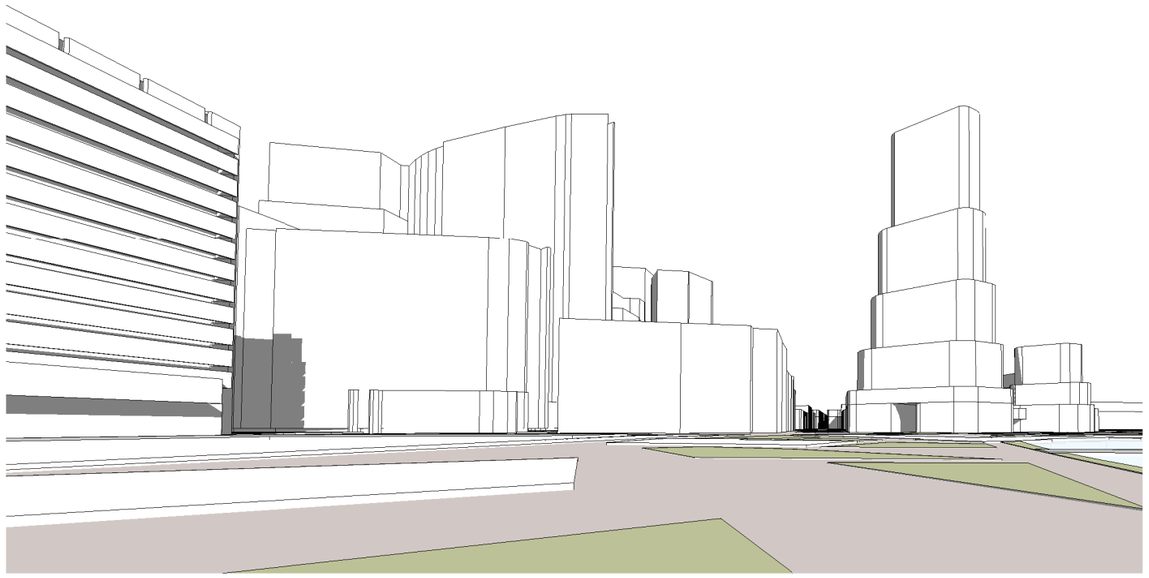
- gradient to the high rise

BINNENHOF VIEW



- Another icon for the Hague for a large part of the city

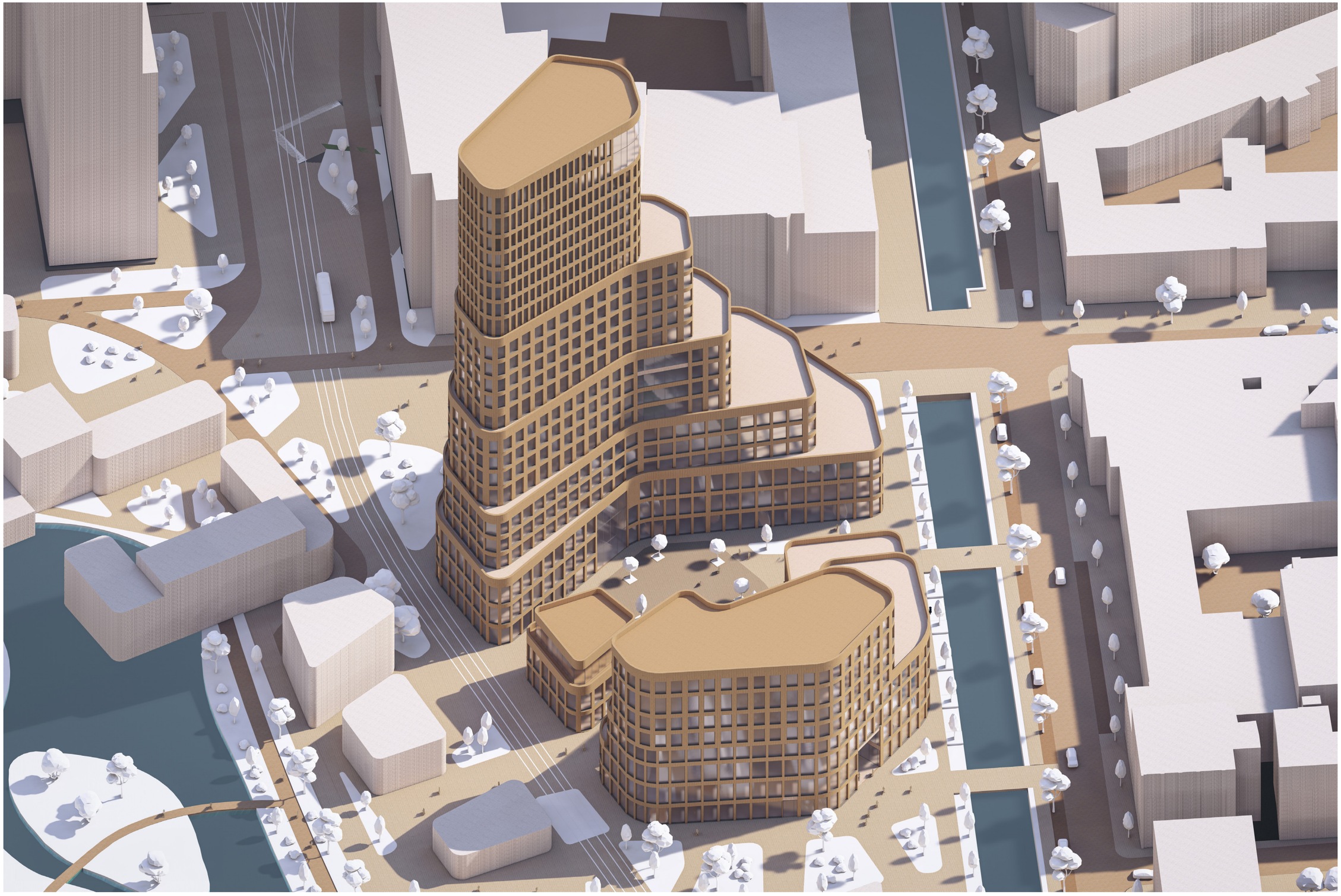
STATION VIEW



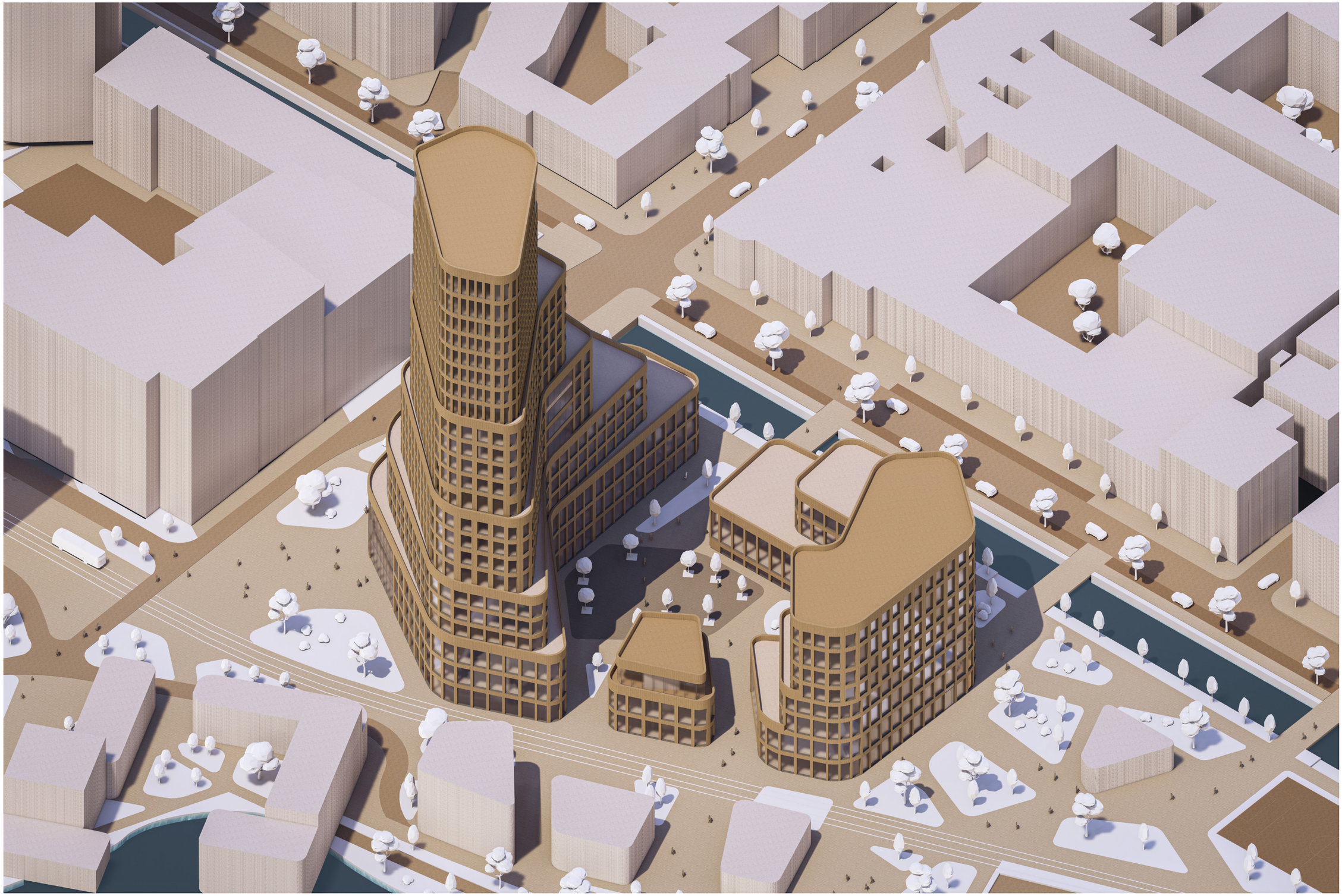
- impressive entrance side, height
- contrast buildings left side
- The first 2 slaps are the same height as the existing buildings on the left

RENDERS

3D VIEW



3D VIEW



3D VIEW



RENDER - ENTRANCE



RENDER - PASSAGE



RENDER - COURTYARD



RENDER - INTERIOR



B P3 Process

Lumina tower

shedding light on knowledge and ideas

April 4 2024 Luca Laponder P3
AR3AP100 Fall Semester 2023-2024

CONSEQUENCE OF DENSIFYING

The Hague



Preserving the park

\+

Self standing islands

=

Central park New York



Boarder between city and park

SINGULAR ICON

“multiplicity as a property of buildings in order to make them less singular in function, more productive, more transformative and more resilient.” - Manifesto Public Building

Icons should not focus on 1 function but should focus on the mix of their use, growth and influence to their surroundings.

RESEARCH



RESEARCH QUESTION

How does the vertical campus contribute to the public and private realm in The Hague?

CONCEPT

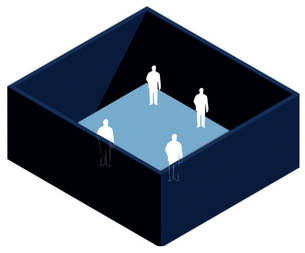
Both methods are needed to fullfill the combination of all the functions

open - sublime- wander **+** closed - abstract- generic

=

repetitive Formula

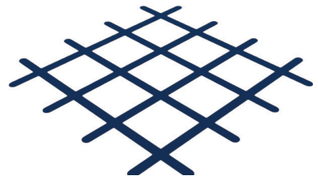
KEY WORDS



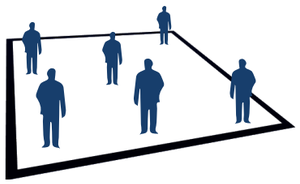
closed



abstract



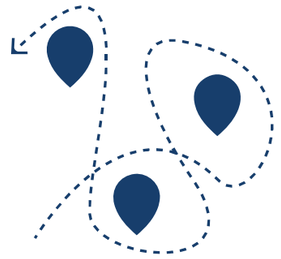
generic



open

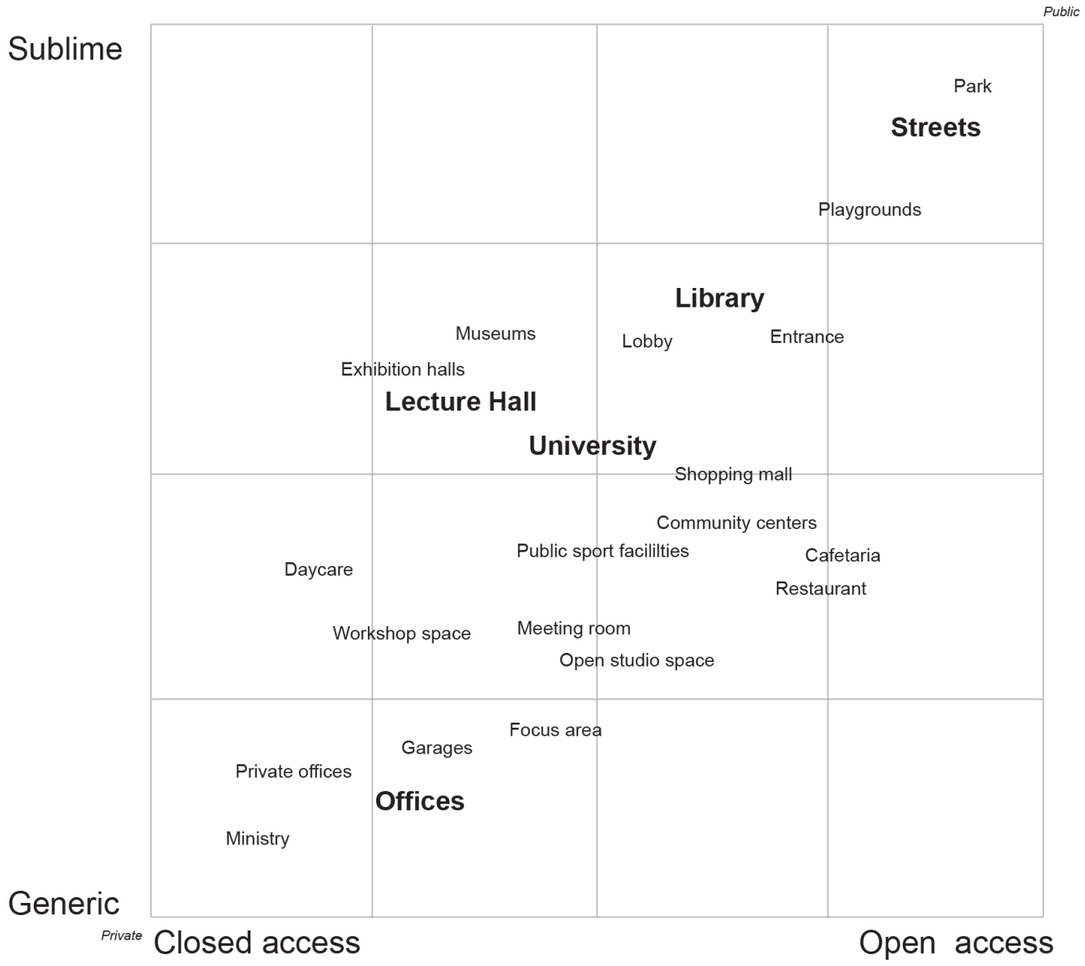


sublime

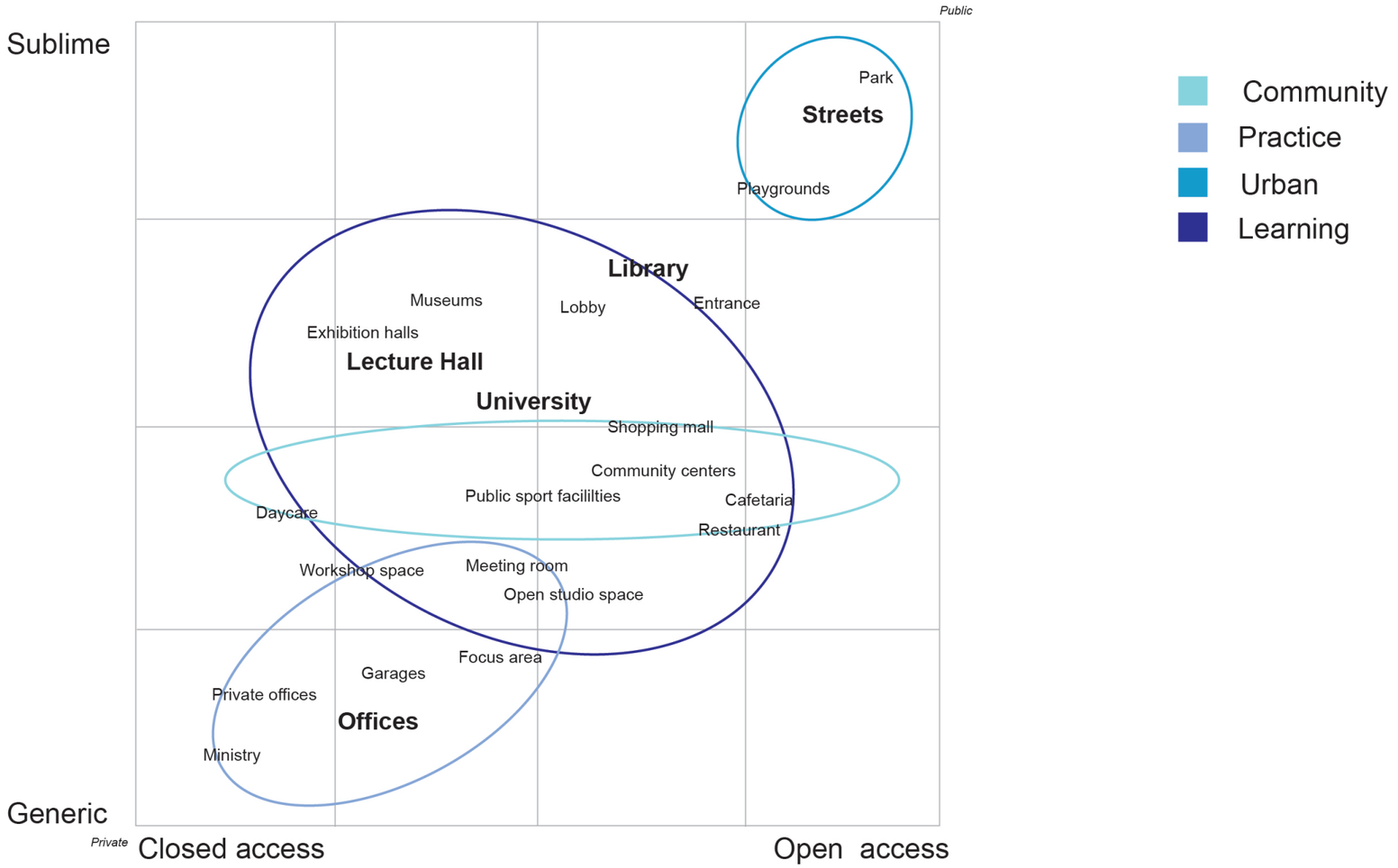


wander

FUNCTIONS


Public
Sublime
Park
Streets
Playgrounds
Library
Museums
Lobby
Entrance
Exhibition halls
Lecture Hall
University
Shopping mall
Community centers
Public sport facililties
Cafetaria
Daycare
Restaurant
Workshop space
Meeting room
Open studio space
Focus area
Garages
Private offices
Offices
Ministry
Generic
Private
Closed access
Open access

CATEGORISE


Sublime
Public
Park
Streets
Playgrounds
Library
Museums
Lobby
Entrance
Exhibition halls
Lecture Hall
University
Shopping mall
Community centers
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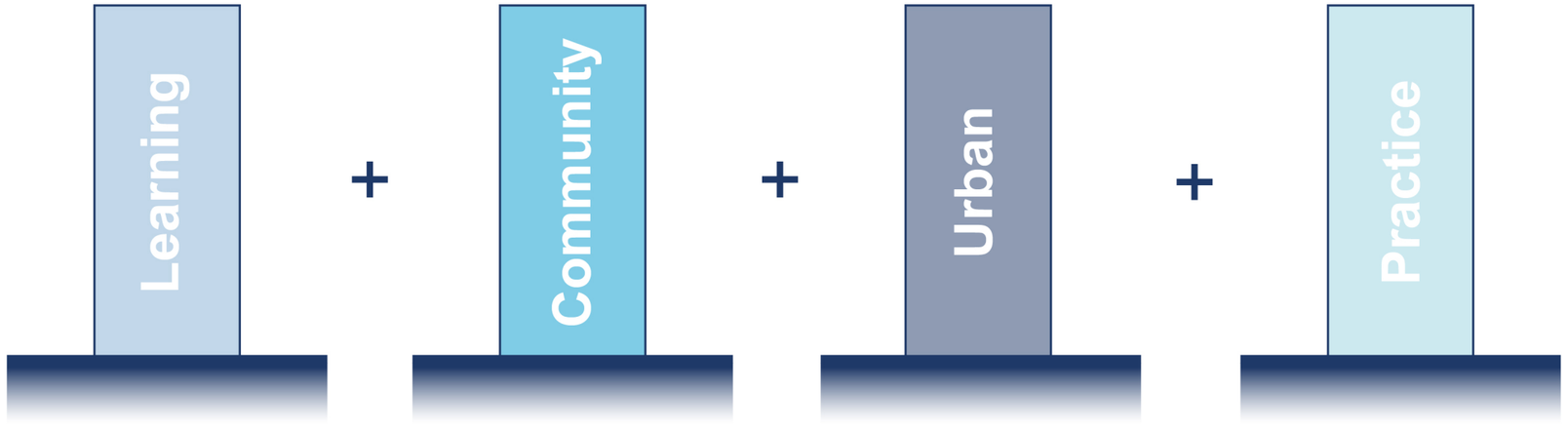
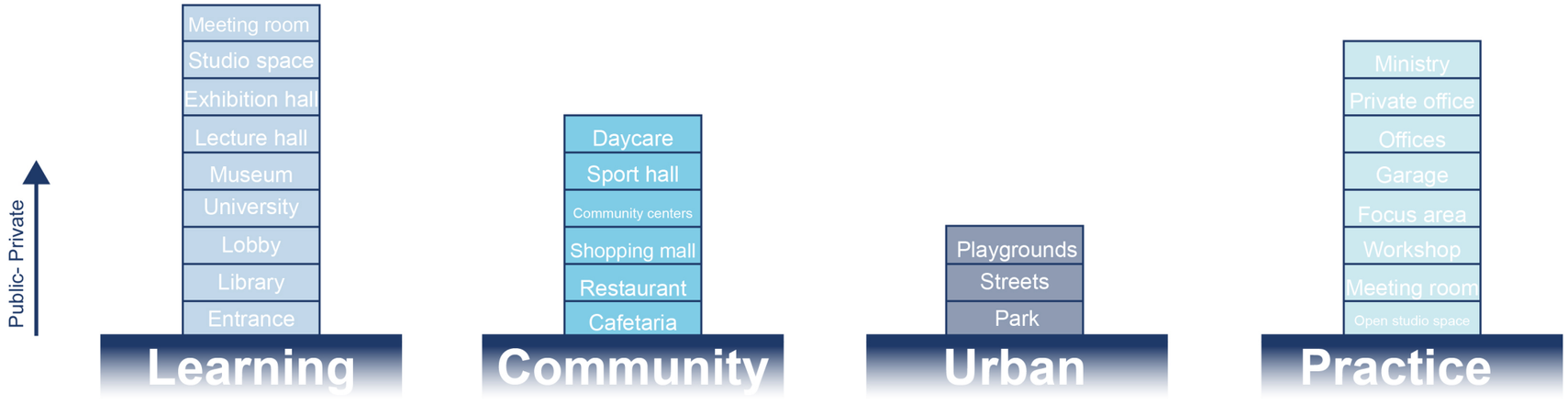
Cafetaria
Daycare
Restaurant
Workshop space
Meeting room
Open studio space
Focus area
Garages
Private offices
Offices
Ministry
Generic
Private
Closed access
Open access
Community
Practice
Urban
Learning

PILLARS



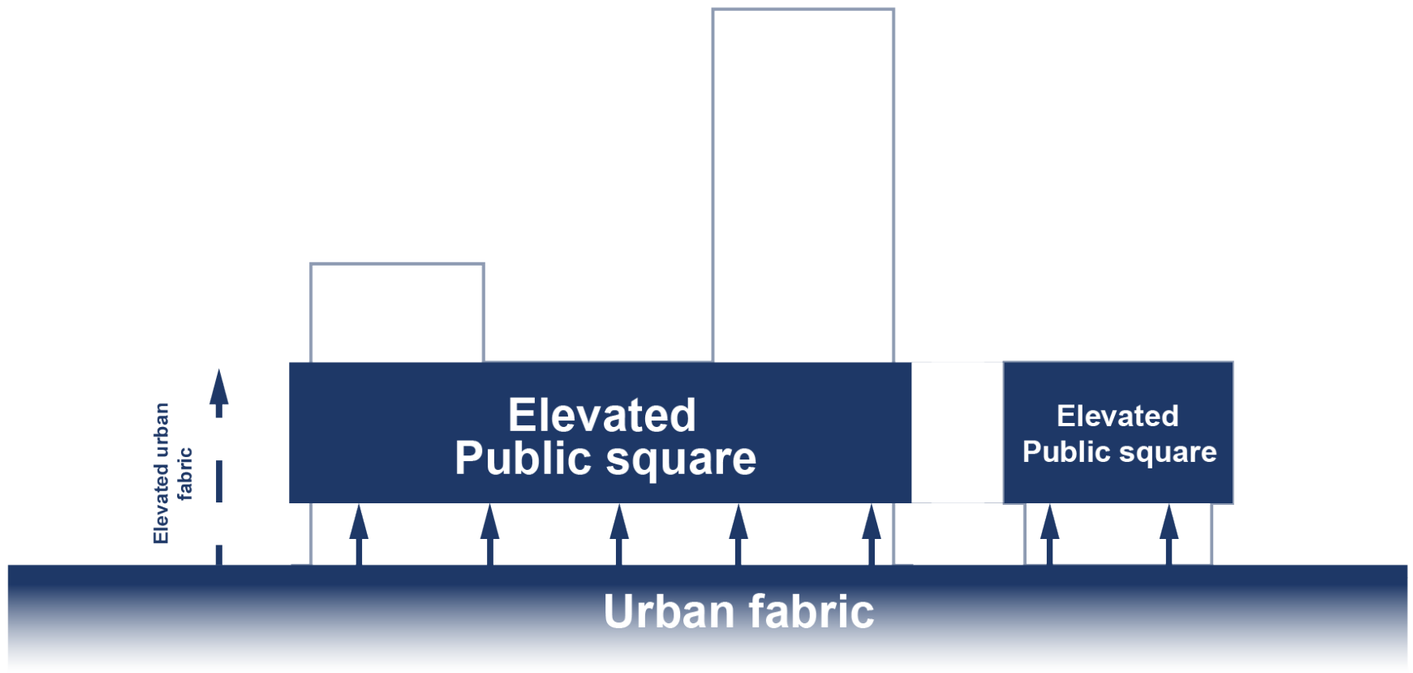
The main pillars for all underlaying functions to create a vertical campus

PILLARS



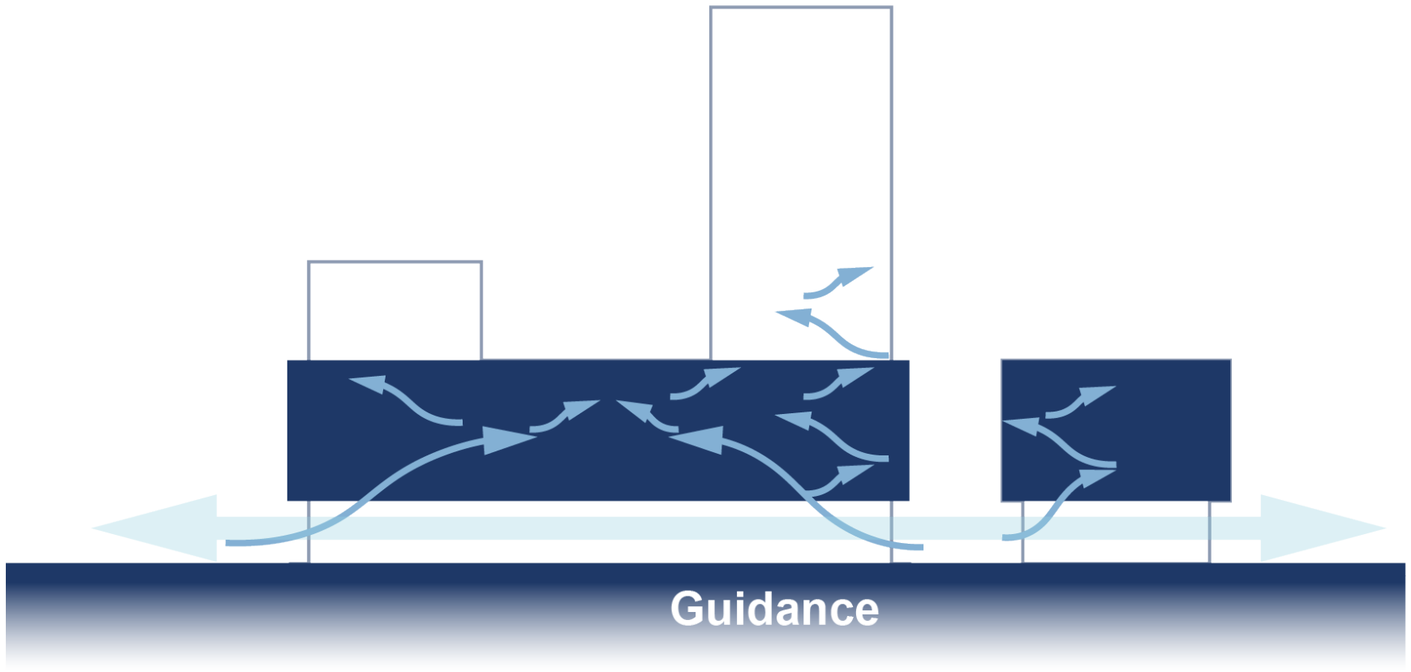
The higher we get the more private it becomes. Also the amount of functions varies.

ELEVATION



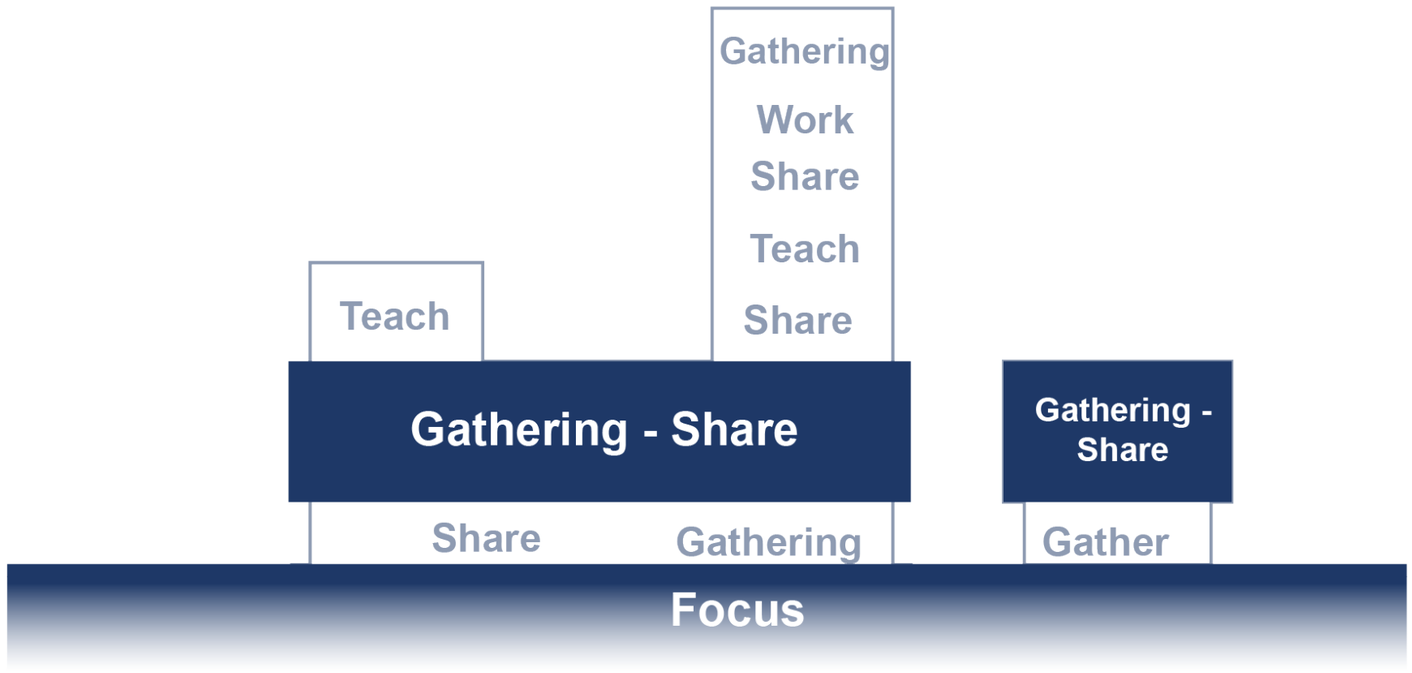
Elevating the urban fabric into the building. Creating a flow from the outside to the inside, but also between the 2 buildings.

GUIDANCE - WANDER



Changing vistas and view lines unfold as you navigate through the building.

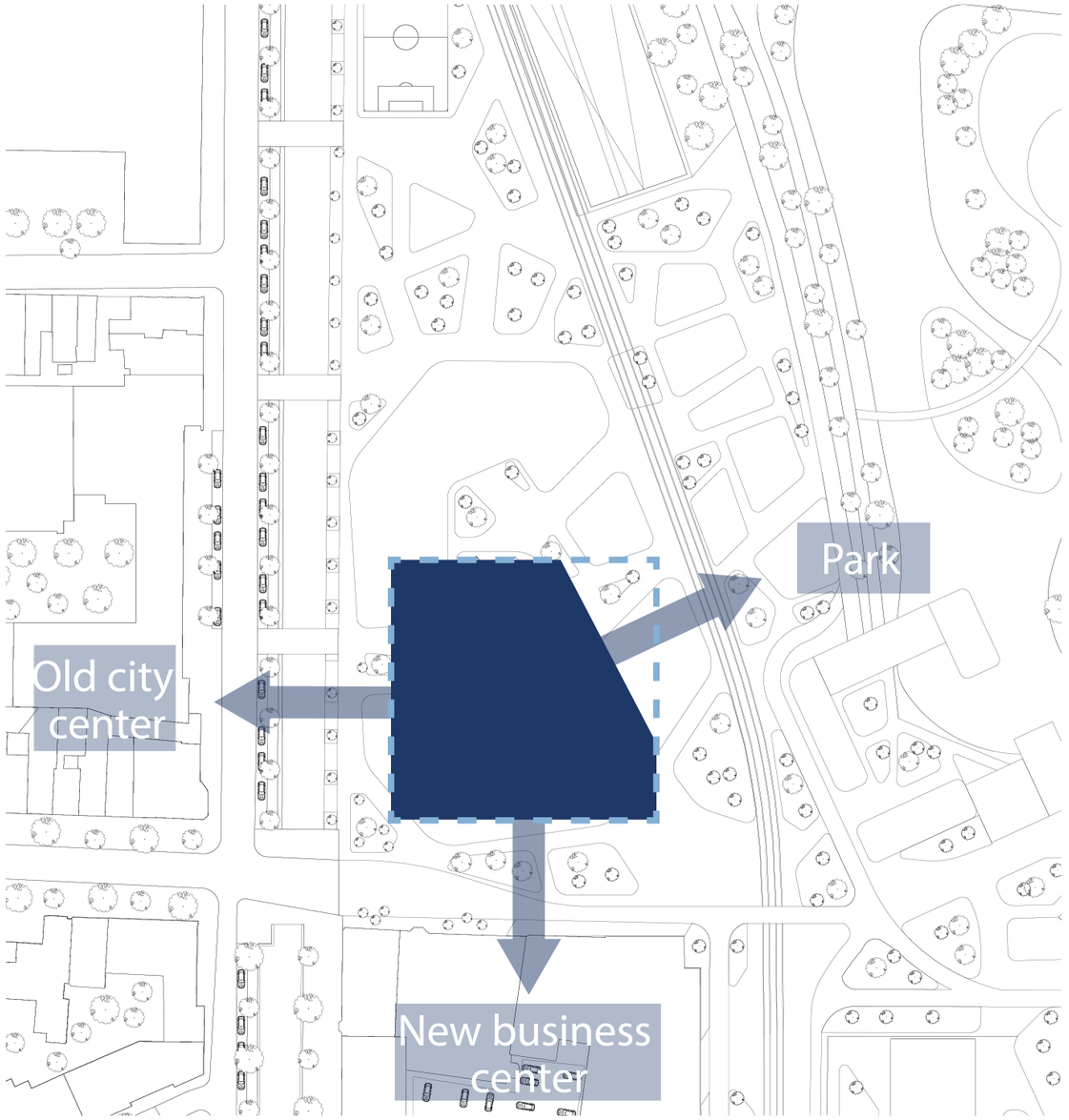
THEMES



Different words that define methods of sharing knowledge.

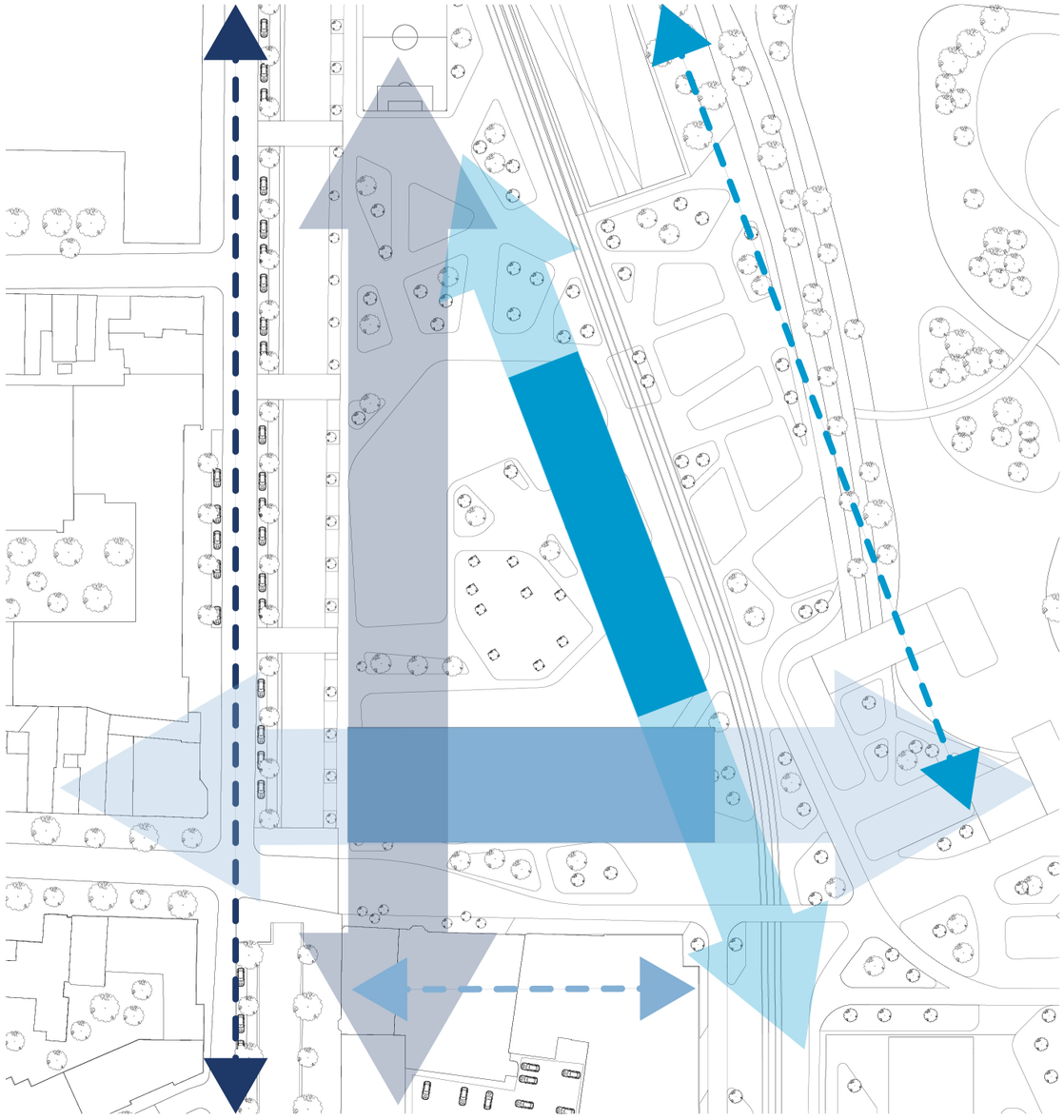
This is will be linked to the programm.

TYPOLOGIES



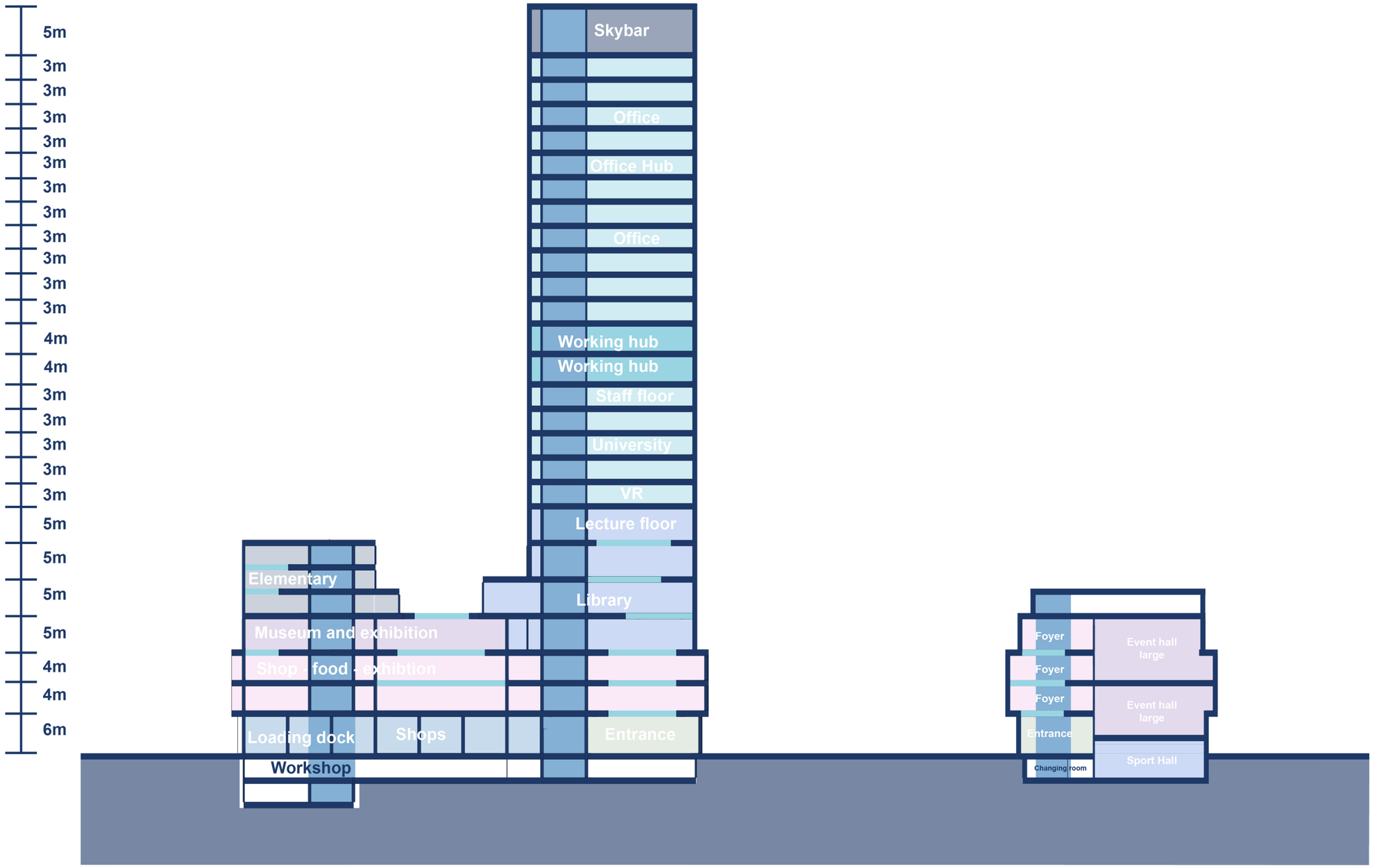
Deconstructing the traditional tower into the three different urban fabrics

TYPOLOGIES



Following the orientation of the three urban areas.
One building doesn’t stimulate movent, a cluster will.

FUNCTIONS


5m
3m
3m
3m
3m
3m
3m
3m
3m
3m
3m
3m
4m
4m
3m
3m
3m
3m
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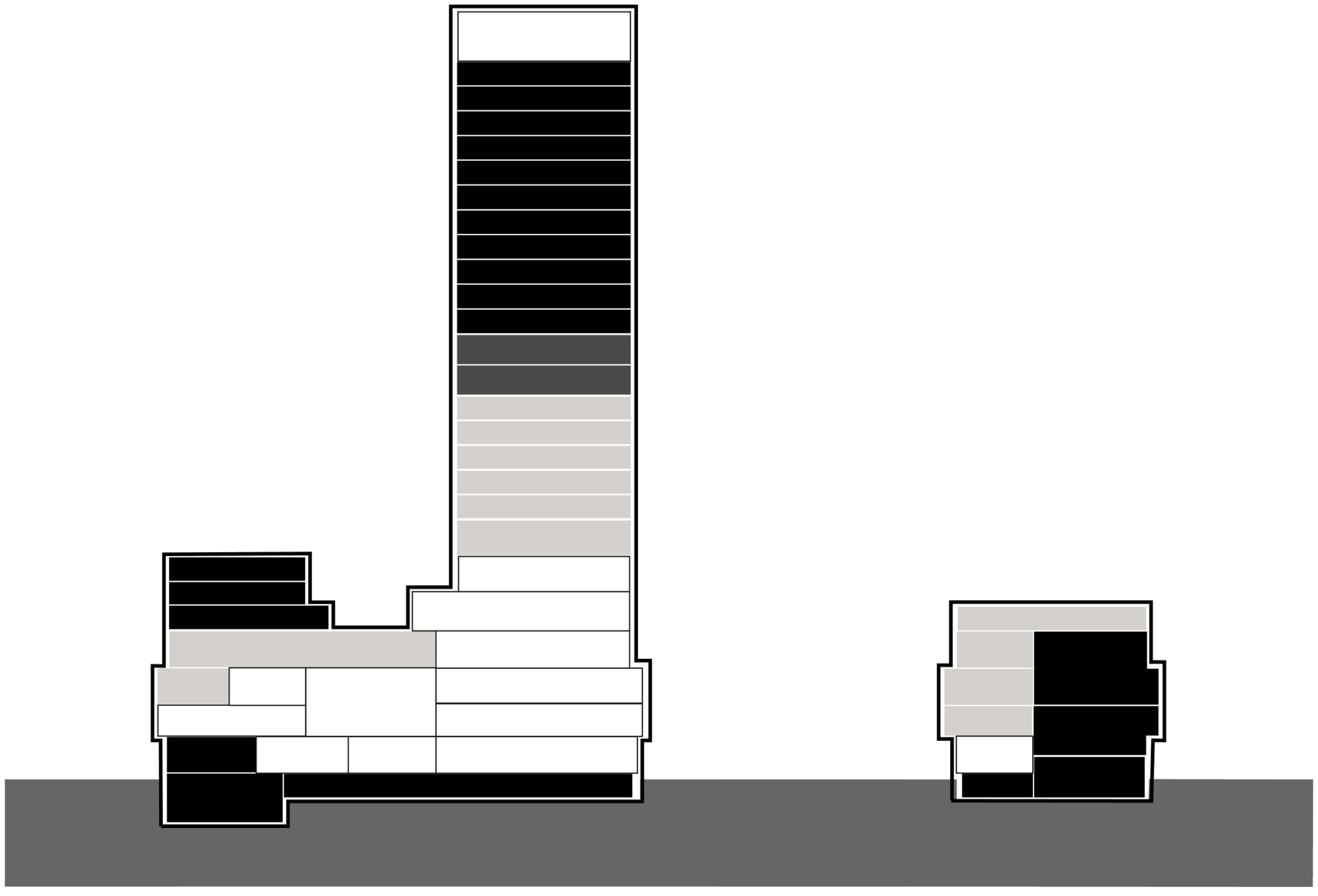
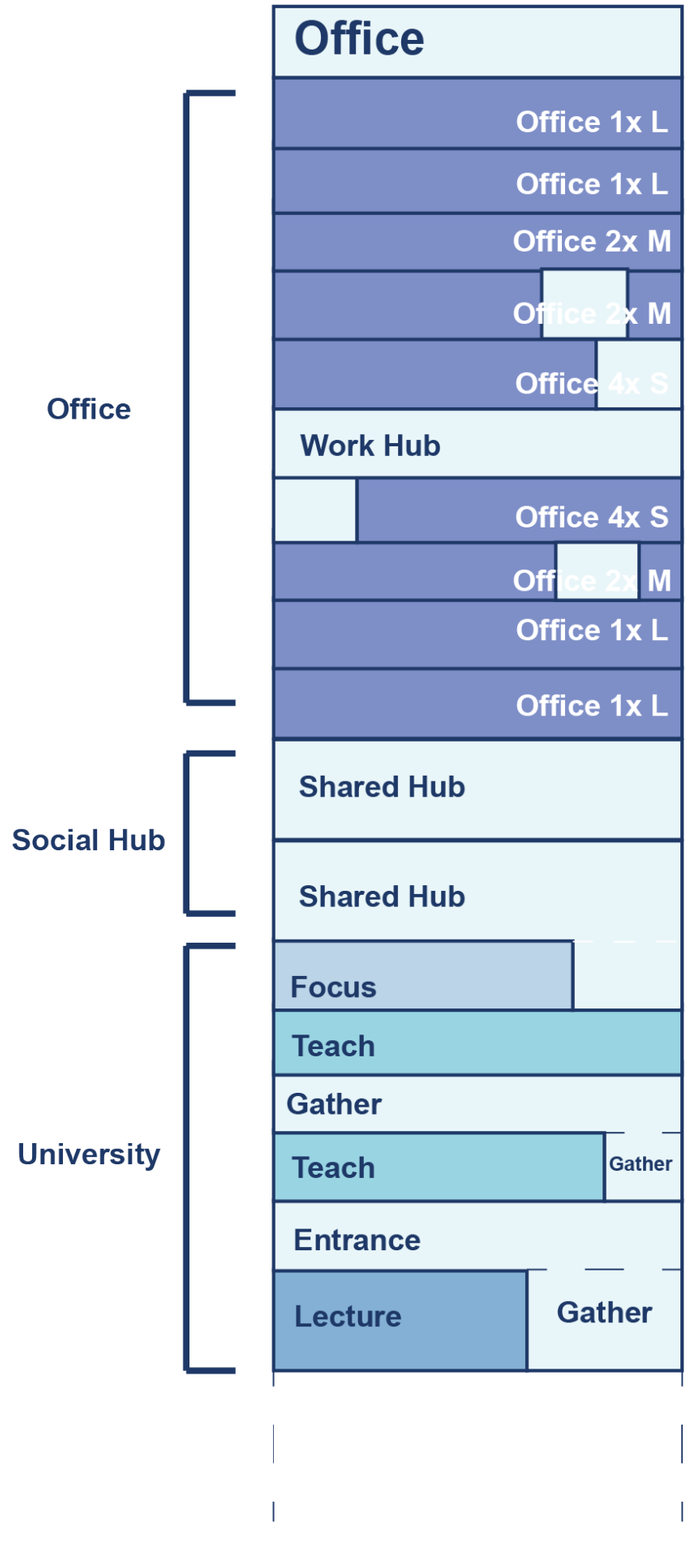
5m
5m
5m
5m
4m
4m
6m
Skybar
Office
Office Hub
Office
Working hub
Working hub
Staff floor
University
VR
Lecture floor
Library
Elementary
Museum and exhibition
Shop + food + exhibtion
Loading dock
Shops
Entrance
Workshop
Foyer
Foyer
Foyer
Entrance
Changing room
Event hall large
Event hall large
Sport Hall

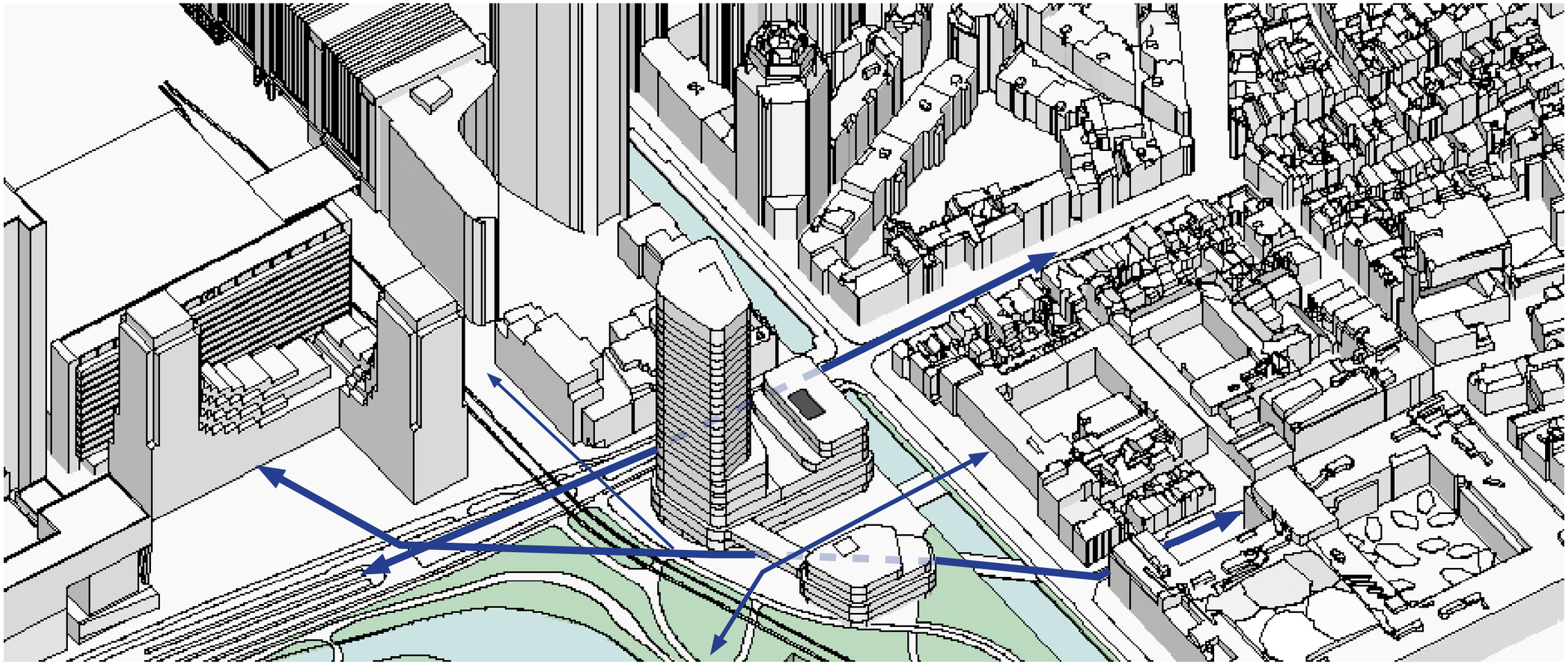
PUBLIC -PRIVATE



TOWER FLOW

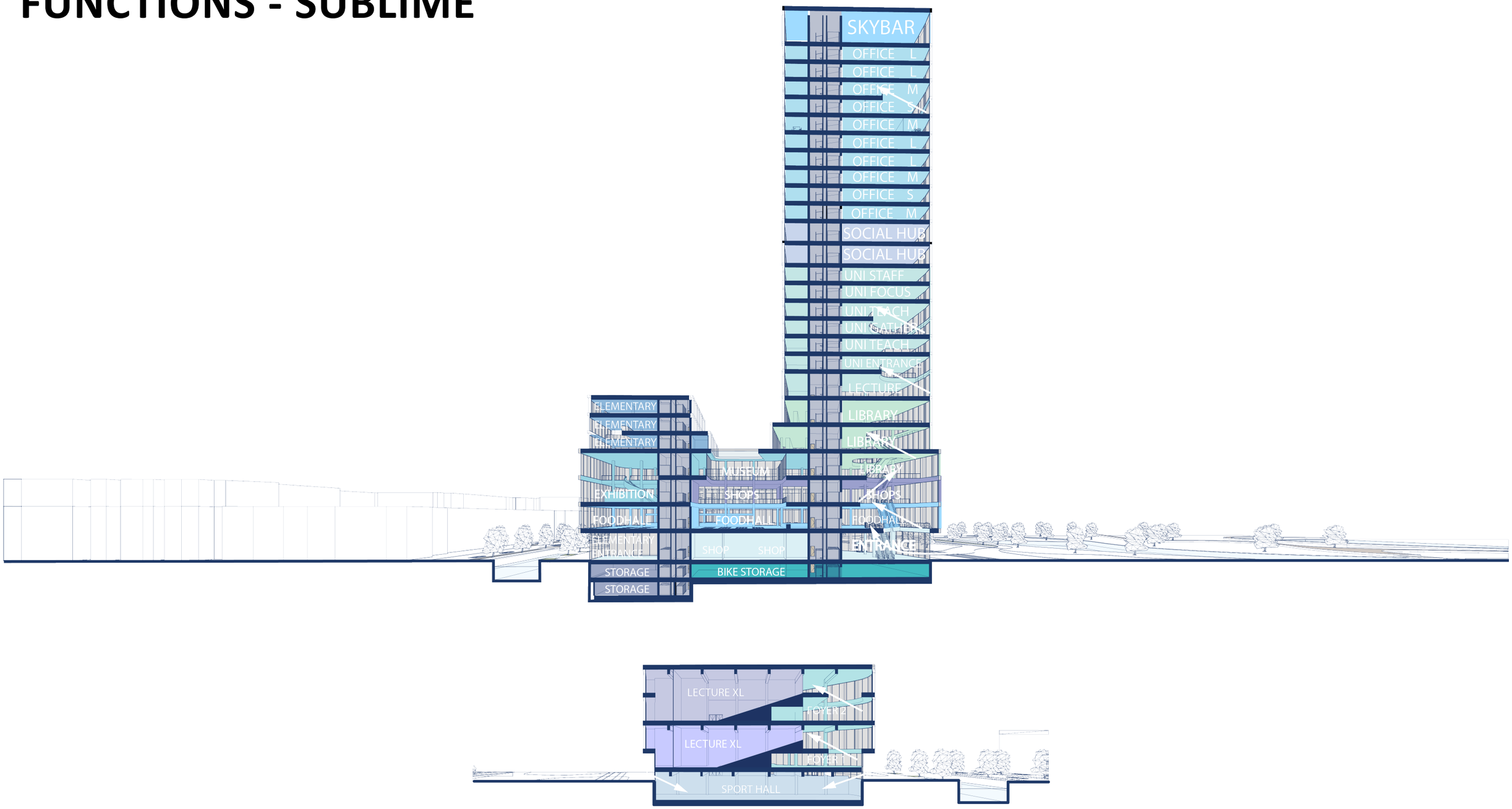

Office
Office 1x L
Office 1x L
Office 2x M
Office 2x M
Office 4x S
Work Hub
Office 4x S
Office 2x M
Office 1x L
Office 1x L
Office
Shared Hub
Shared Hub
Social Hub
Focus
Teach
Gather
Teach
Gather
Entrance
Lecture
Gather
University

FLOW



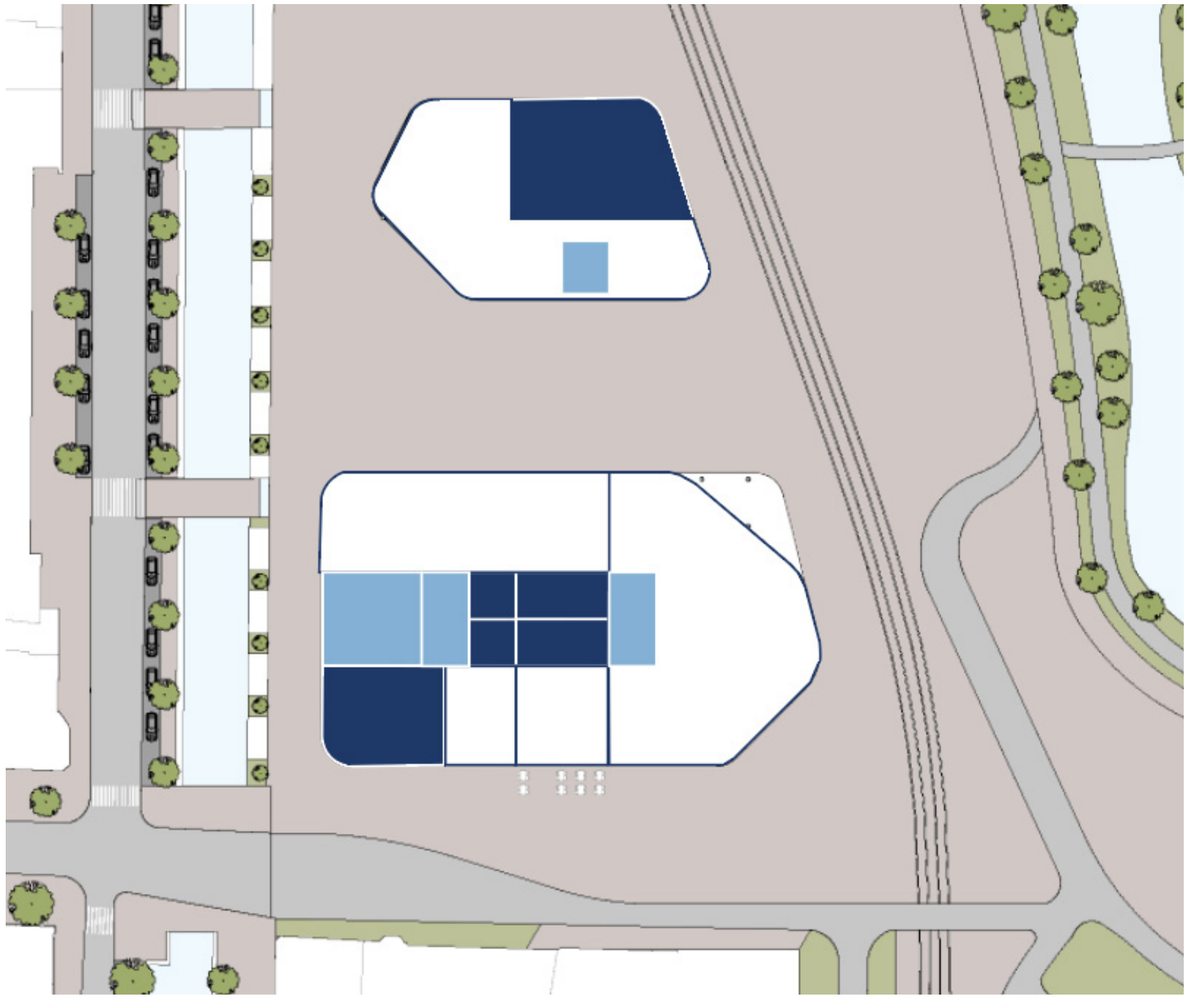
Creating a new curve into the city, connecting the station with green and the new vertical campus with the city. A new groene lopen?

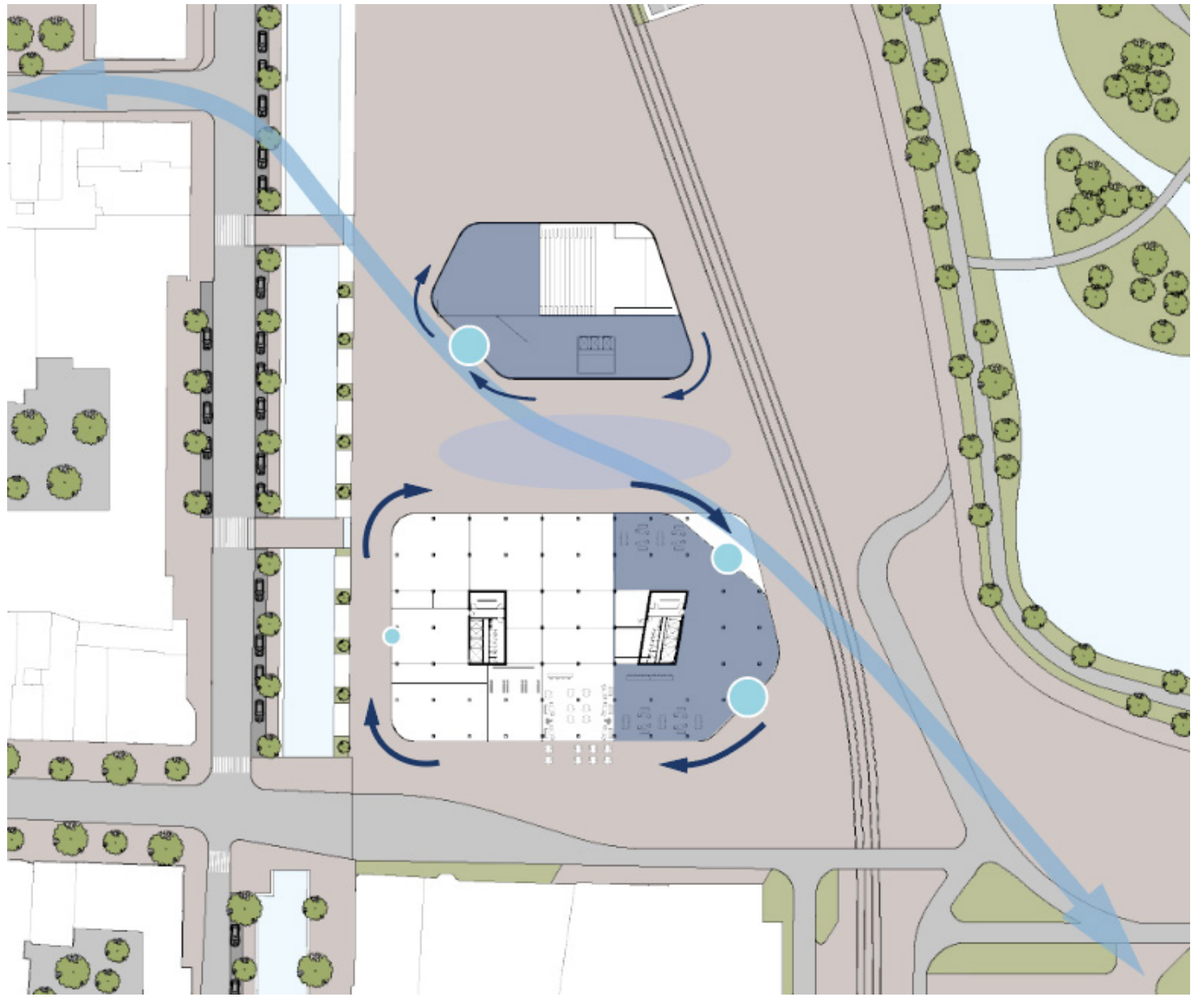
FUNCTIONS - SUBLIME



To enter and embark on a journey of discovery, with visitors movening from one floor to the next through interconnection and overlepping rotunda spaces that serve as the main vertical circulation route.

PUBLIC PRIVATE



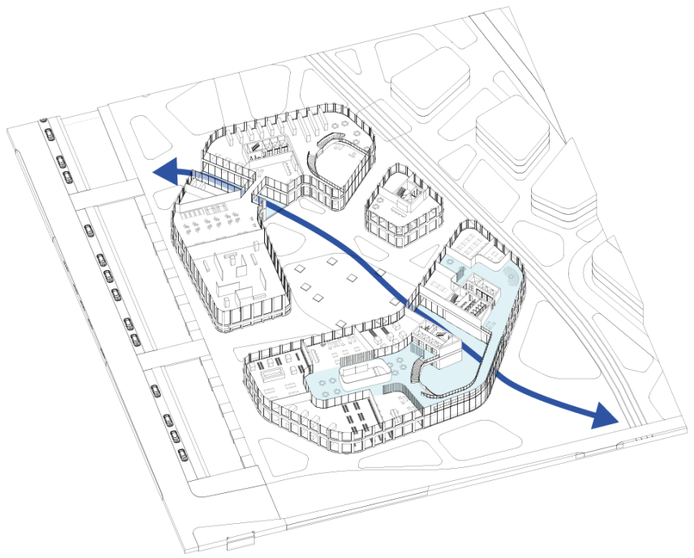


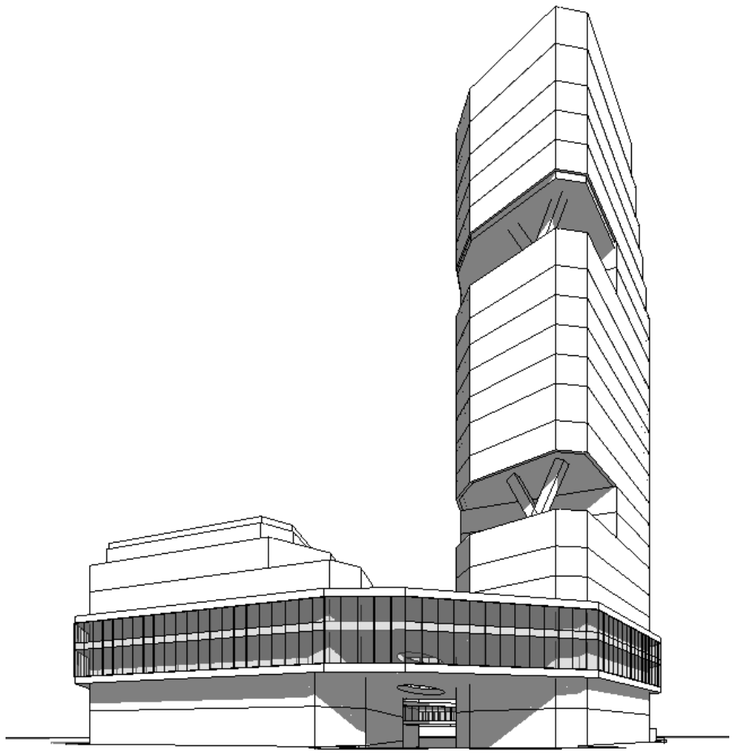
PURPOSE

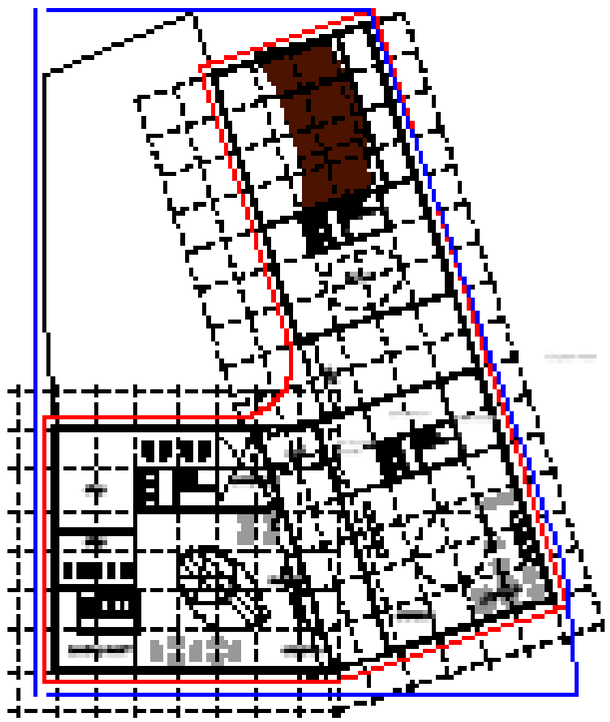
The shops and cafes stimulate movement around and inbetween the buildings, with the goal to cross the entrance area.

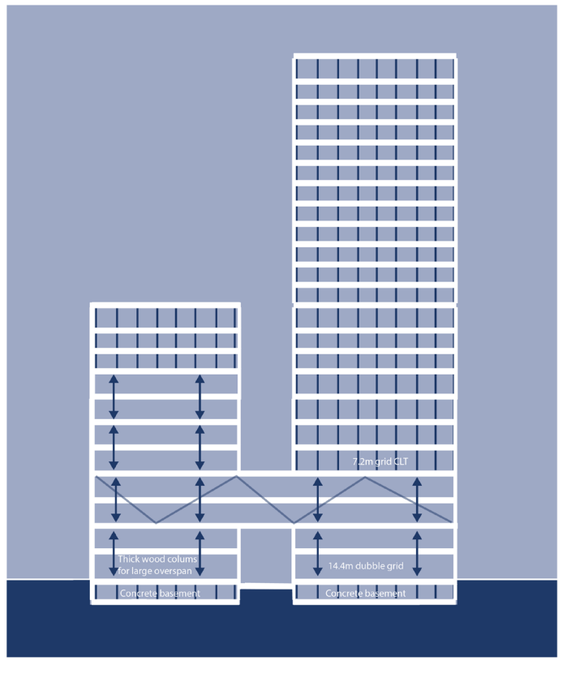
02 Old Designs After P2

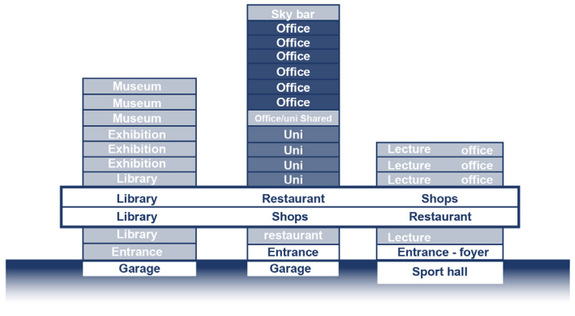
DESIGN TEST

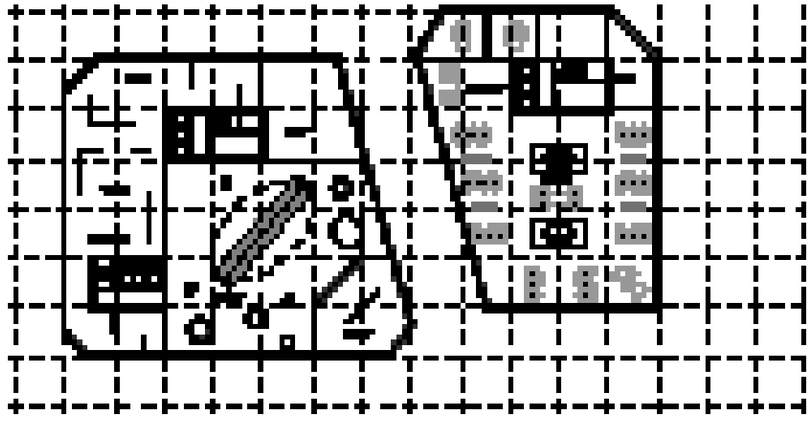






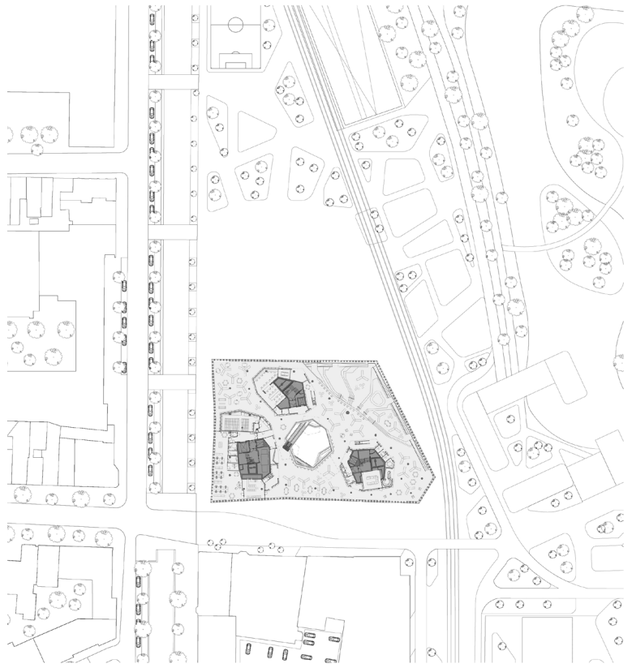

7.2m grid CLT
Thick wood colums for large overspan
Concrete basement
14.4m dubble grid
Concrete basement

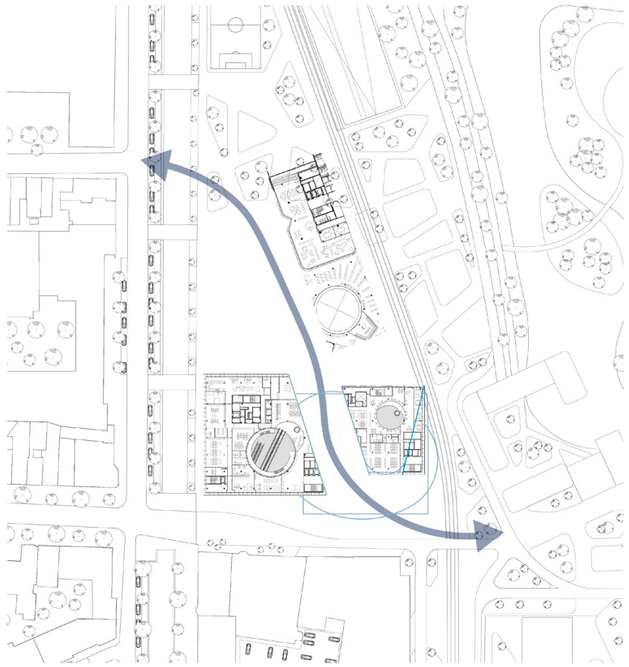

Sky bar
Office
Office
Office
Office
Office
Office
Office/uni Shared
Uni
Uni
Uni
Uni
Museum
Museum
Museum
Exhibition
Exhibition
Exhibition
Library
Lecture office
Lecture office
Lecture office
Library Restaurant Shops
Library Shops Restaurant
Library restaurant Lecture
Entrance Entrance Entrance - foyer
Garage Garage Sport hall

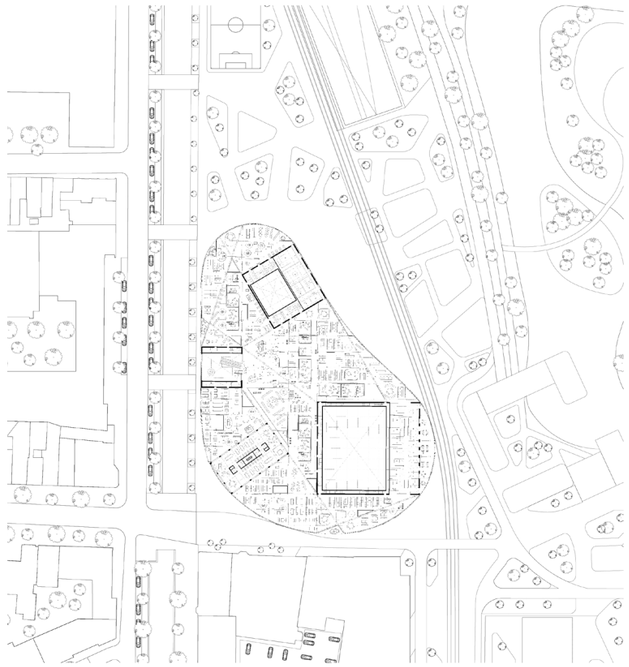


photoshop









03 Structural Design

OBJECTIVE STRUCTURE

Combining public space with modulair elements

Creating a modular structure that consist out of CLT as much as possible. It will also be used for the large event overspans. If needed, concrete will be used.
The structure is also part of the interior aspect of the building and will be used at a baselayer for the design.

Because of the weight of the tower it is not feasable to have CLT colums at the bottem. These will be replaced for wood to reduce environmental impact.

GRID OPTIONS

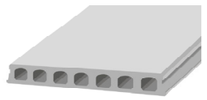
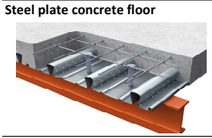
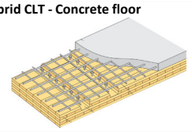
Smaller than 6x6 is not feasable for the useable floorspace inbetween the structure for CLT.

→ Max overspan CLT 6 meters, after that colums and beams needed.

Around or bigger than 8x8 is ideal for the large open space, but not worth the large structure that is needed for CLT.

→ Hybrid structure can help allow this distance

Multi Criteria Analysis

Factors	1		2		3		4		5		6		7		
			Factors are determind for floor with a span of 7.2 meters												
	Max floor span (m)		Floorheight (mm)		Sound insulation		Weight kg/m²		*CO2 emmisions kg/m²		Demountability		Fire resistance (min)		Totaal
Score: 1/4	Value	0.1	Value	0.2	Value	0.05	Value	0.2	Value	0.2	Value	0.1	Value	0.1	1.0
Concrete hollow core slab 	Up to 18m	4	200	4	Poor due to cannels	2	309	1	61	2	Not demountable due to wet connections	1	very well	4	**2.4**
Steel plate concrete floor 	Up to 9m	2	300	3	Very good due to high mass	3	15.6kg/m2 for steel decking + 504kg/m2 for concrete topping = 520	4	112	1	Not demountable due to wet connections	1	well	3	**2.35**
Timber hollow core slab 	Up to 16m	4	474	1	Very poor due to low mass and cannels	1	35.7	1	30	4	Demountable	3	poor	1	**2.05**
CLT floor 	Up to 6m	1	Not possible at this span due to vibrations But if this effect is discarted 360 will suffice	2	Poor due to low mass	1	166	2	42	3	Demountable	3	well	3	**2.15**
Hybrid CLT - Concrete floor 	Up to 12m	3	200mm CLT + 60mm concrete = 260mm	3	Good due to relative high mass	4	98kg/m2 for CLT 144kg/m2 for concrete = 242	3	70	2	Not demountable due to wet connections	1	very well	4	**2.6**

GRID OPTIONS

Multiplied by 3

6 x 6

Smaller grid, used in housing. Program asks for larger open space. However no beams needed.

7.2 x 7.2

The inbetween where open space and sizing of the structure are in balance. Beams needed.

8.1 x 8.1

Large grid with a lot of useable space. However, losing space by the beams and placement of the colums.

6.3 x 8.1

Rectangular grid, orientated in the length of the building. Saves thickness floor, short orientation.

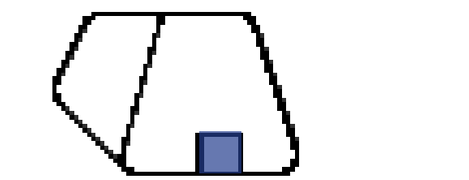
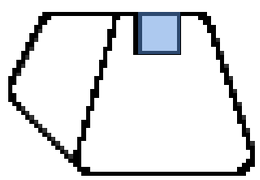
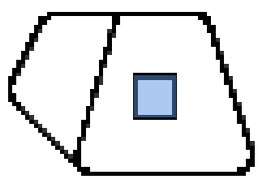
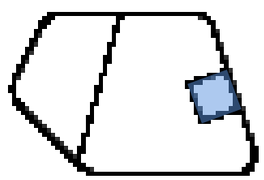
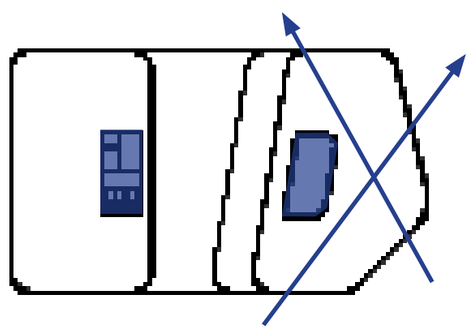
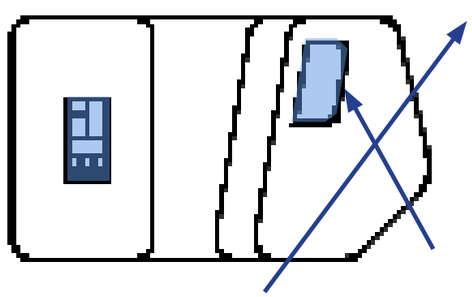
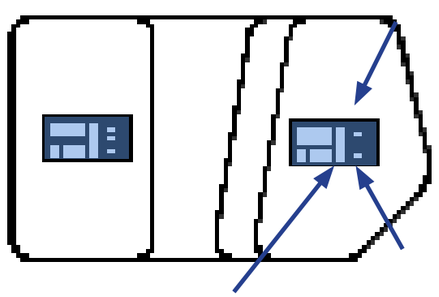
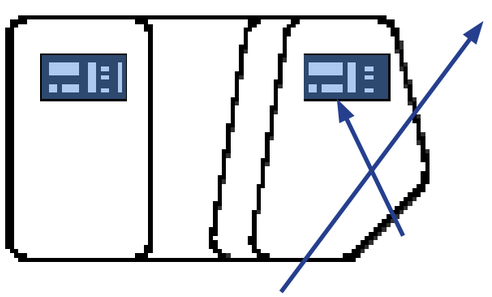
7.2 x 8.1

The inbetween where open space and sizing of the structure are in balance. However, square grid is prefered.

9 x 9

Large grid with a lot of useable space. However, losing space by the beams and placement of the colums.

CORE OPTIONS

Option 1

- Central position
- Close to eachother.
- Visibility entrance preserved.
- Top core orientated towards square
- Space between core and facade is tight.

Option 2

- Dividing the floorplan, left core.
- Top one core on the wrong side square
- Blocking view entrance
- Core not possitioned correct

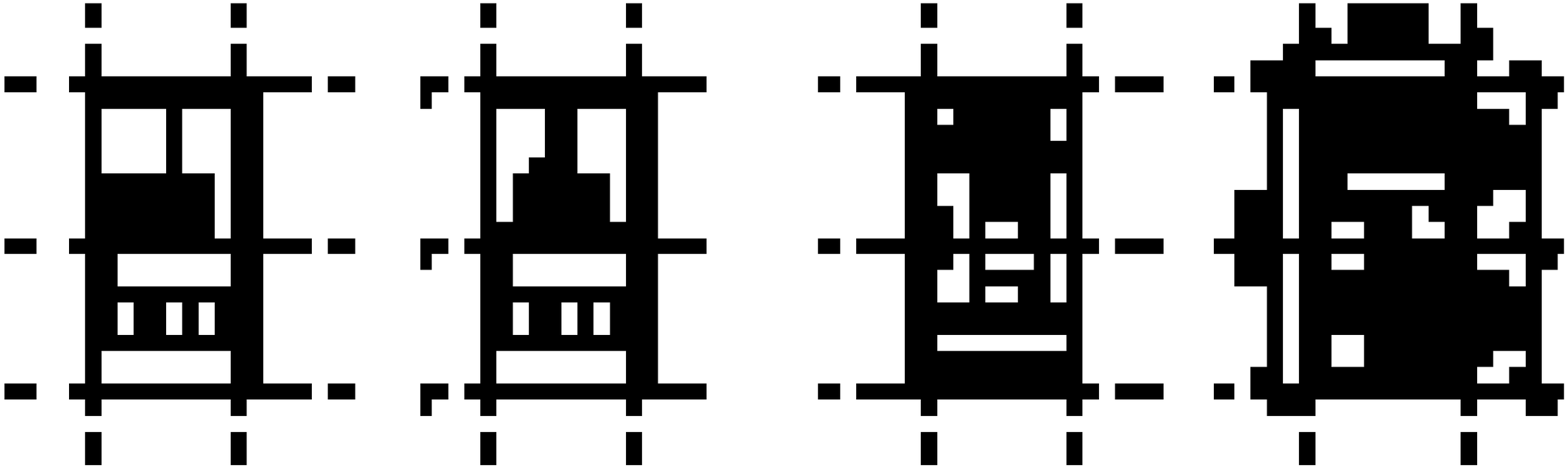
Option 3

- Main building blocking both connections
- Cores are not stable for the structure.
- Top core limits the lecture hall position

Option 4

- Blocking view entrance by core.
- Cores possitioned correct, however not stable now
- Top core could be, however blocks view park.

CORE DESIGN



Option 1

- Internal corridor
- 3 elevators
- 1 bathroom
- large installation space

Option 2

- Internal corridor
- 3 elevators
- 2 bathrooms
- Small installation space
- Dubble sided staircase doesn’t fit

Option 3

- Internal corridor
- 3 elevators
- 1 bathroom
- Dubble sided staircase doesn’t fit
- Installation space

Option 4

- Interal corridor, but exterior elevators.
- 4 elevators.
- 1 bathroom
- Installation space
- Large dubble sided staircase

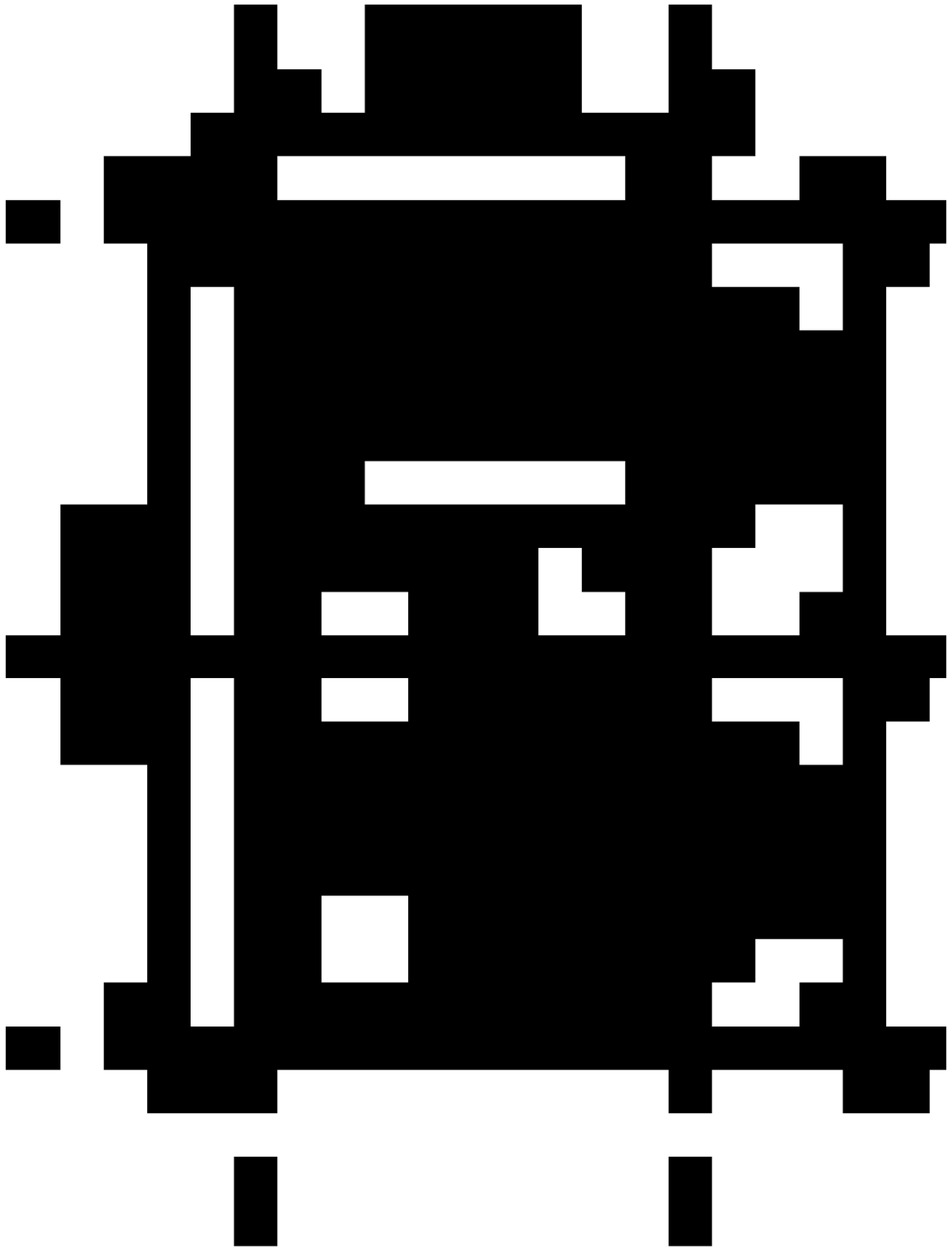
CORE DESIGN

Main building:
Cores in the main building are the same, only mirrord and rotated.

Elevators:
3 regular elevators and 1 for deliveries and large events

Material:
- Concrete prefab
- poured concrete

Thickness:
- 300 = xxxx
- 400 = xxxx
- 500 = xxxx



GRID - CORE

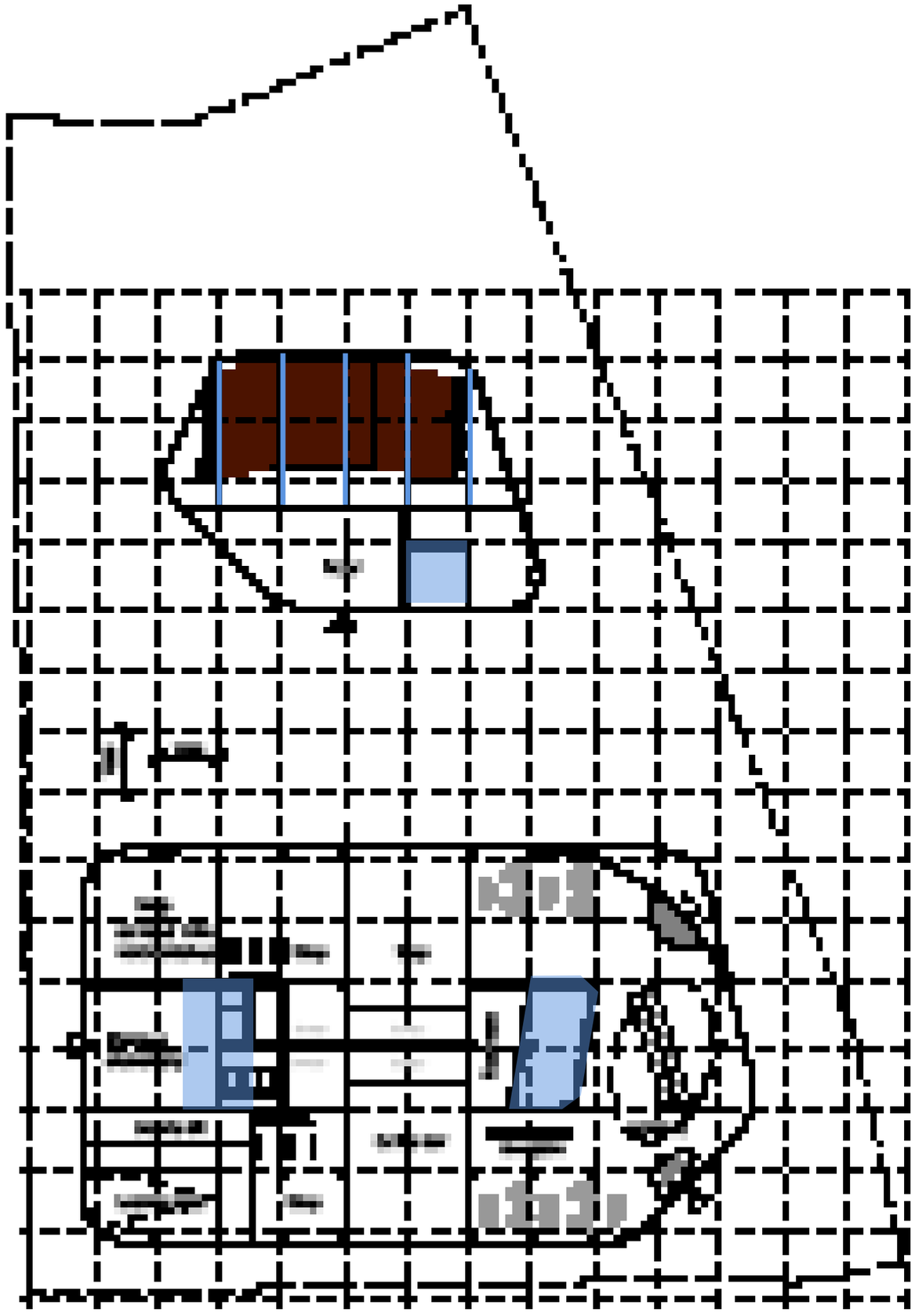
Using the same grid in the whole building. Office and university needs flexibility and future development.

Exeptions for the theaters, entrance or sport hall

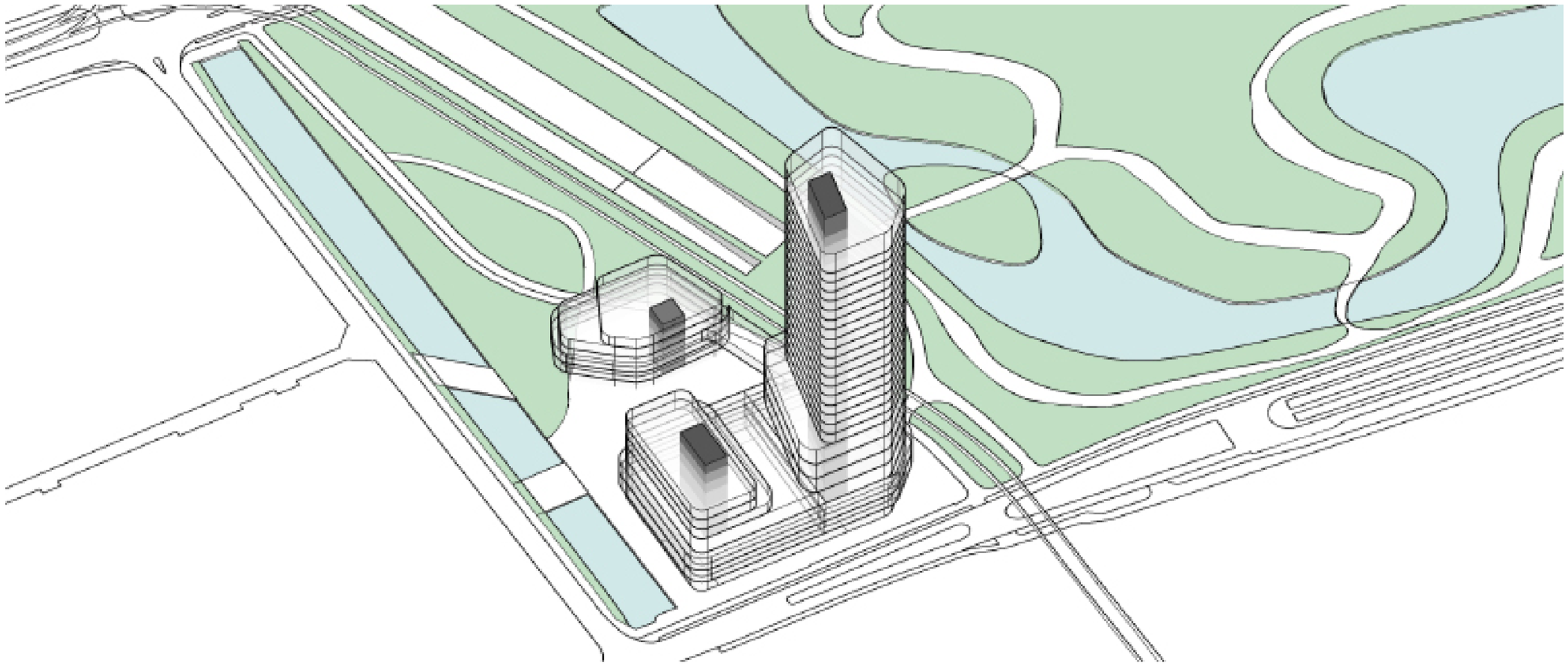
Note: Facade offset 1m due to colums

7.2 x 18
theater and sport

7.2 x 7.2
For the general building



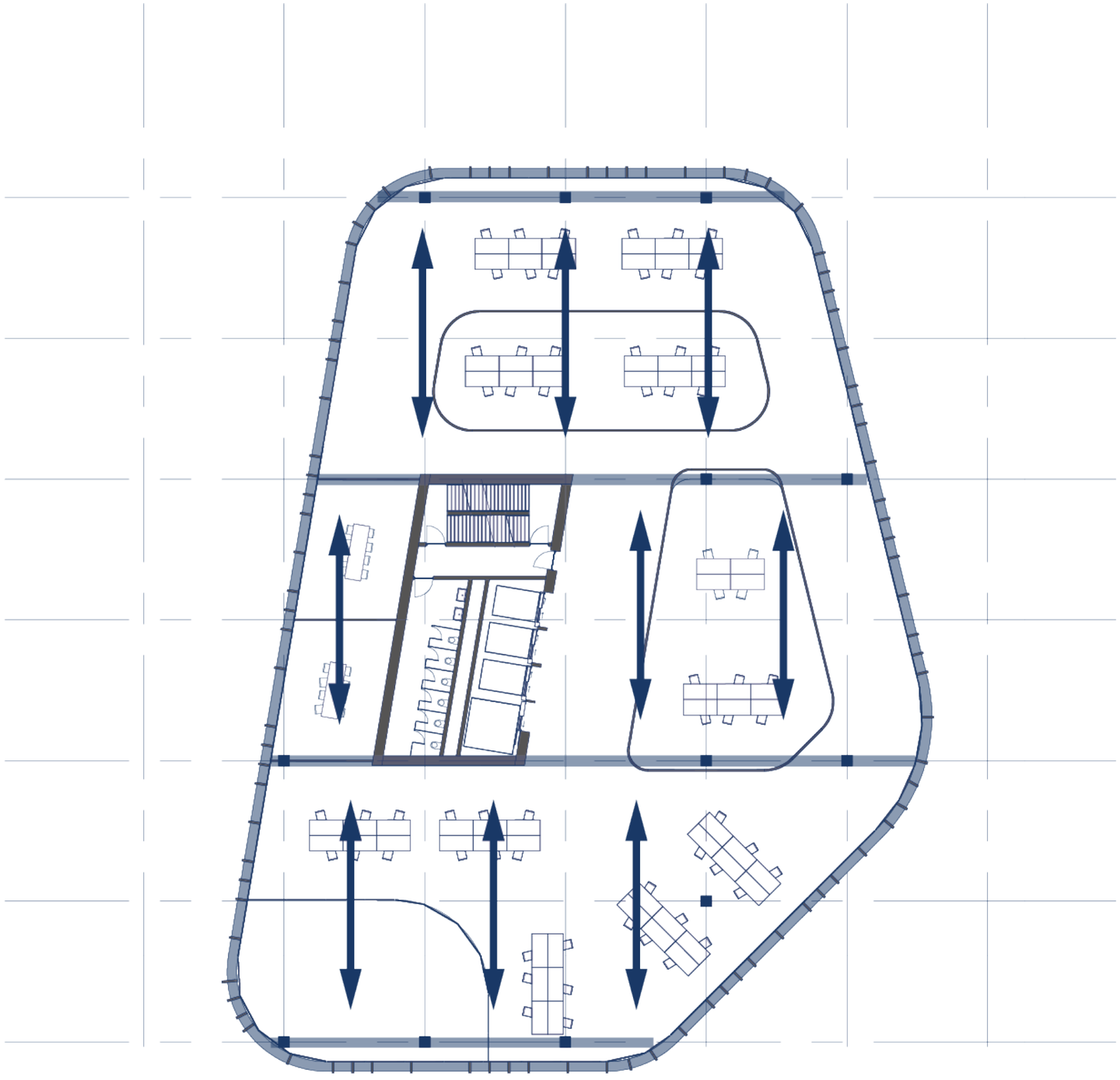
CORE



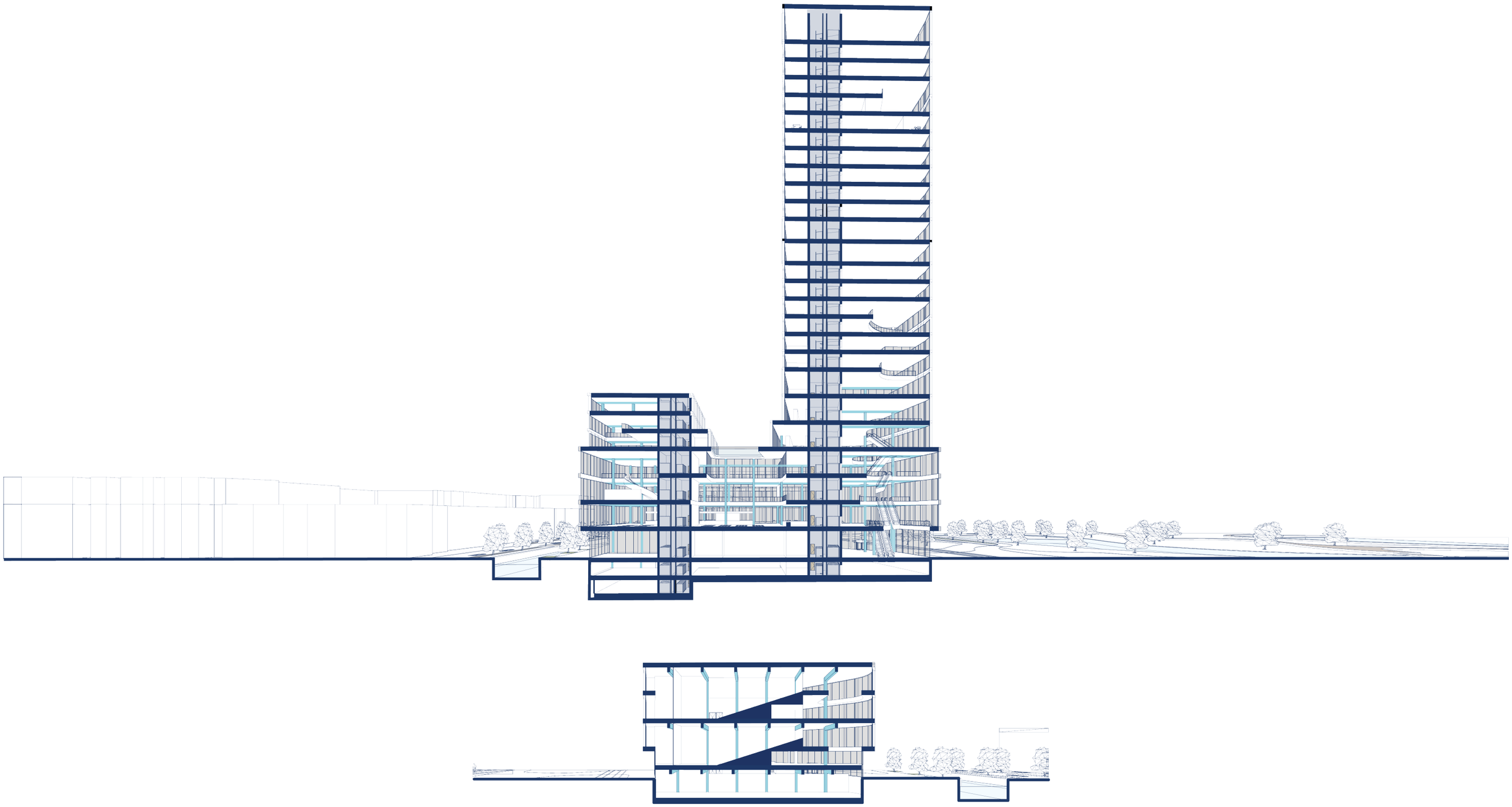
Main building, core are in the same line positioned to eachother. Reducing the distance. Prime location for access to the functions and entrance points.

STRUCTURE

FLOOR= Hybrid CLT floor / Composite floor
Stiffness for 14.400mm overspann
Overhang will be suported by Randbalk
Max 1000-3000mm overhang



STRUCTURE



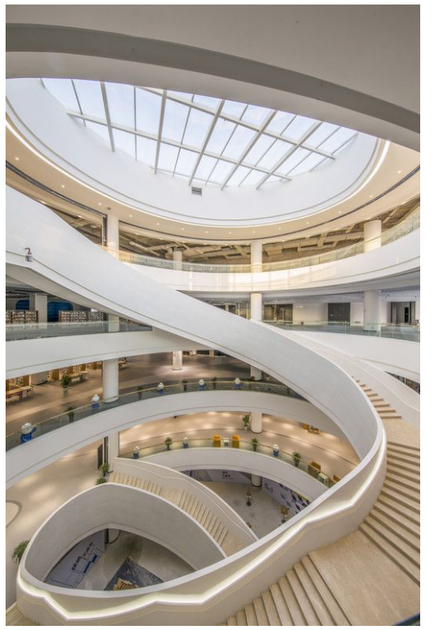
04 Facade Design

MATERIAL CONCEPT

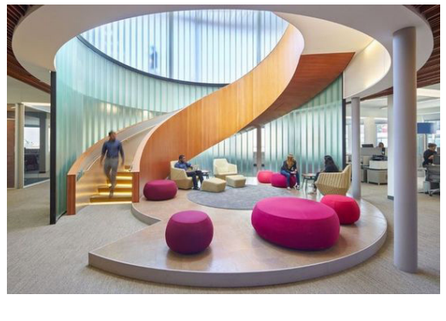




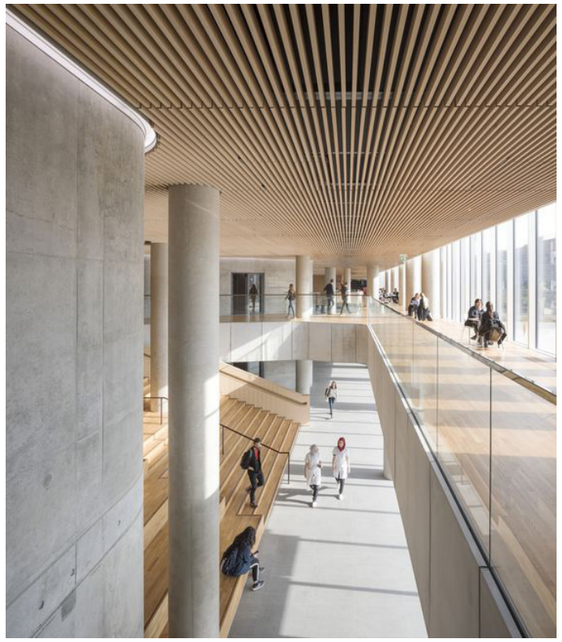


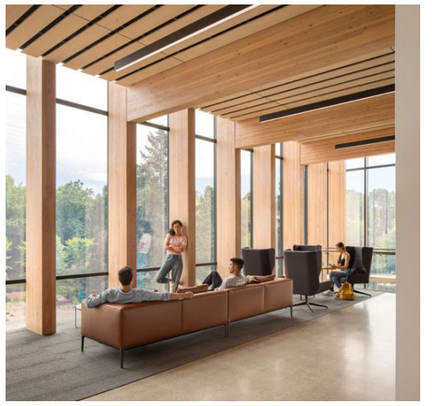








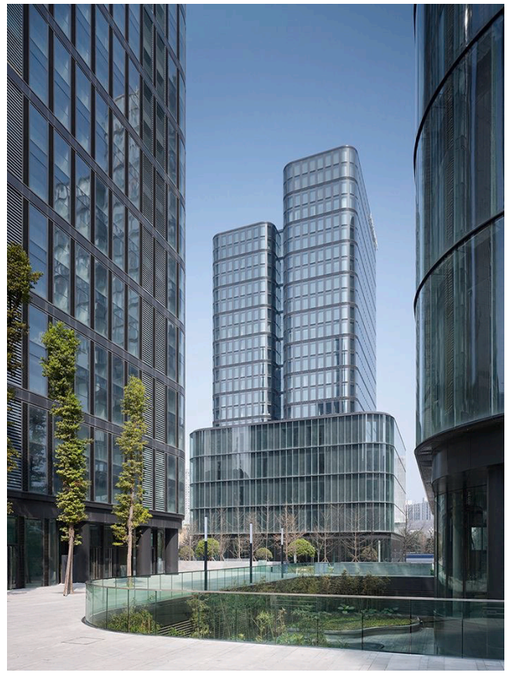




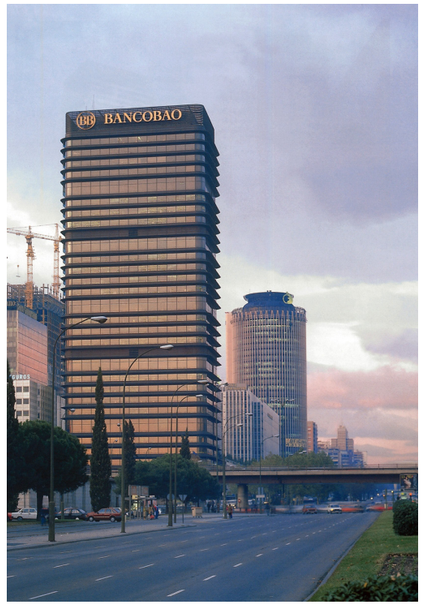


FACADE MOODBOARD

Horizontal vs Vertical lines

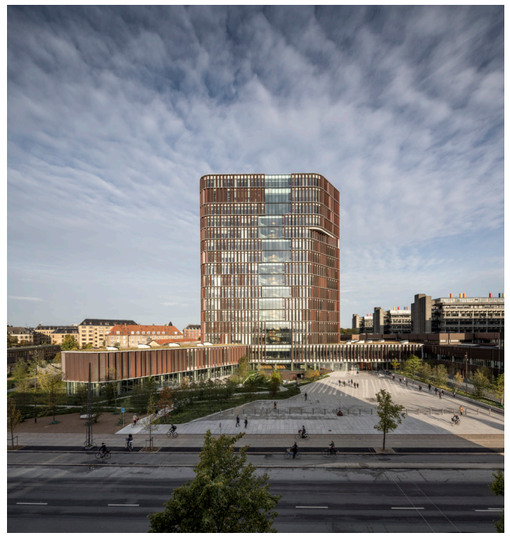


















FACADE OPTIONS

Horizontal

- Guiding around the building
- Shows the length of the building
- Accentuate the round forms
- Shows all the different functions in the facade

Vertical with horizontal

- Layering still visible
- Focus on the vertical, used as shading for the glazing.
- extends over 1 or more floors to show hight.
- Shows the functions behind the facade

Vertical

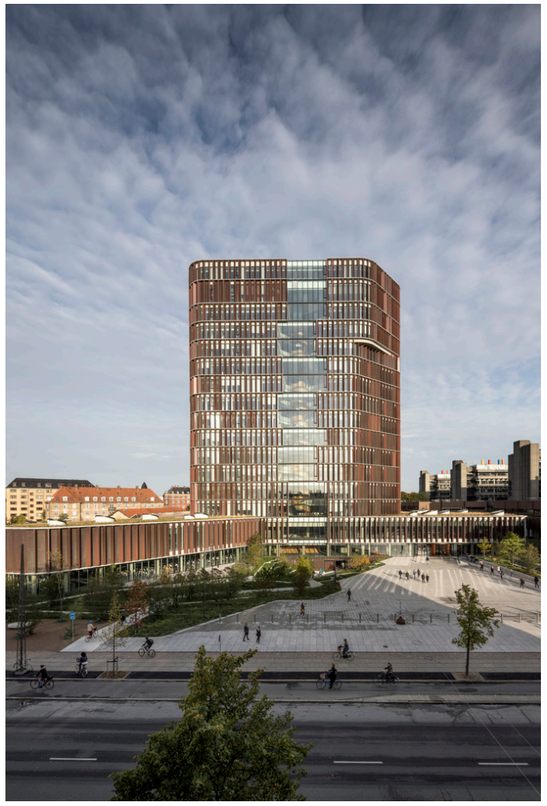
- Makes the building more slender for the towers
- Focusses on the height.
- Makes you look up
- Hides the functions more

add drawings

FACADE COLLAGE









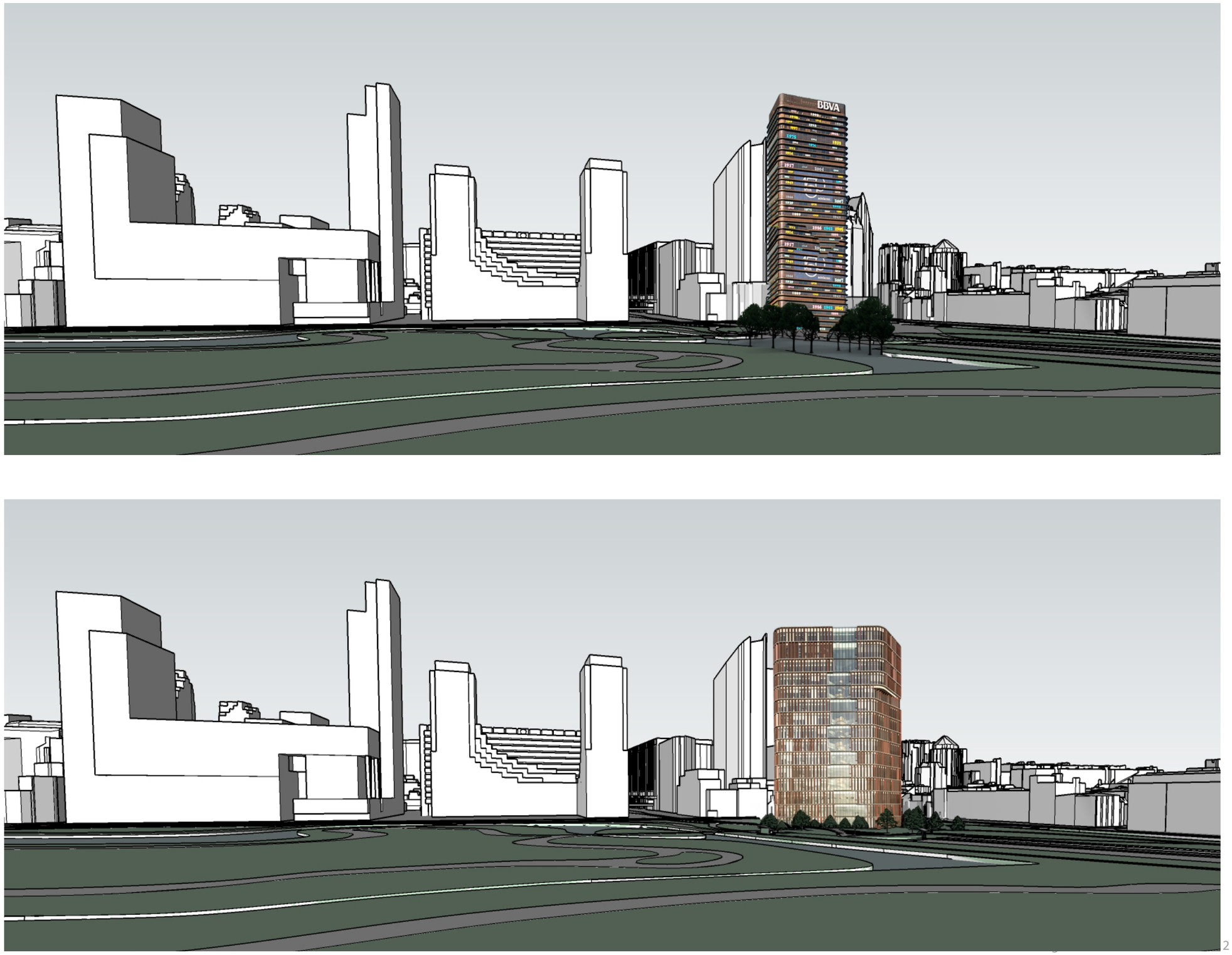
Banco de Bilbao Tower

- Horizontal lines, showing layes
- Soft corners
- Shade element used as accent

Maersk Tower

- Vertical facade elements, with horizontal visible floor lines.
- layering still visible but not the main focus.
- Creating shading by the vertical facade

FACADE COLLAGE

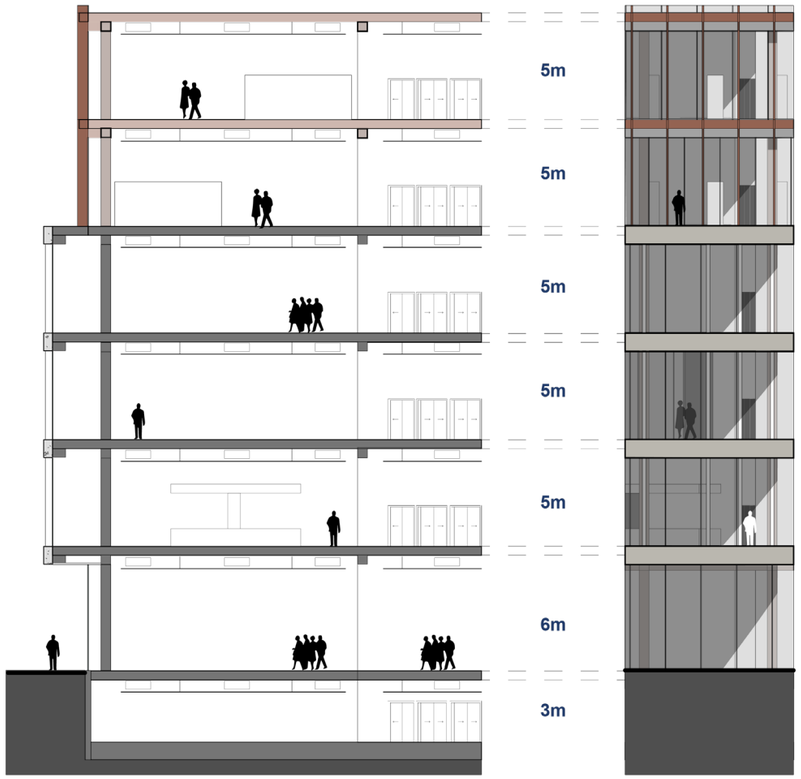


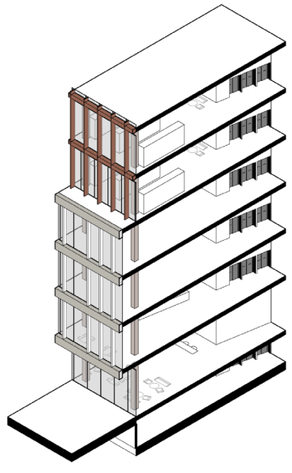
FACADE DESIGN

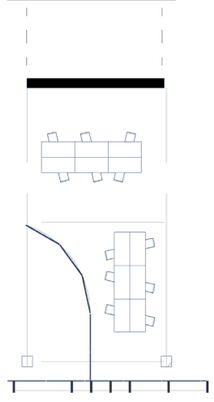
PLINT = Concrete pilars and colums
TOWER = CLT pilars and colums

PLINT = stone look material / after P3

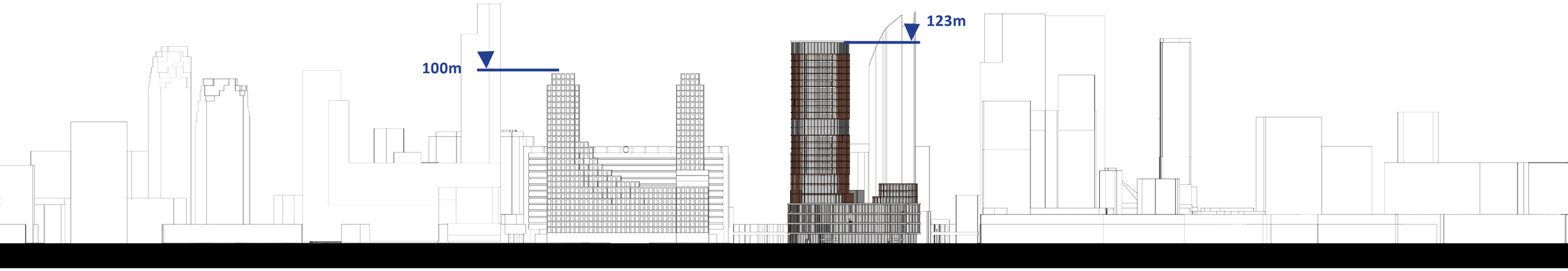
TOWER = Aluminium panels / cortenstaal







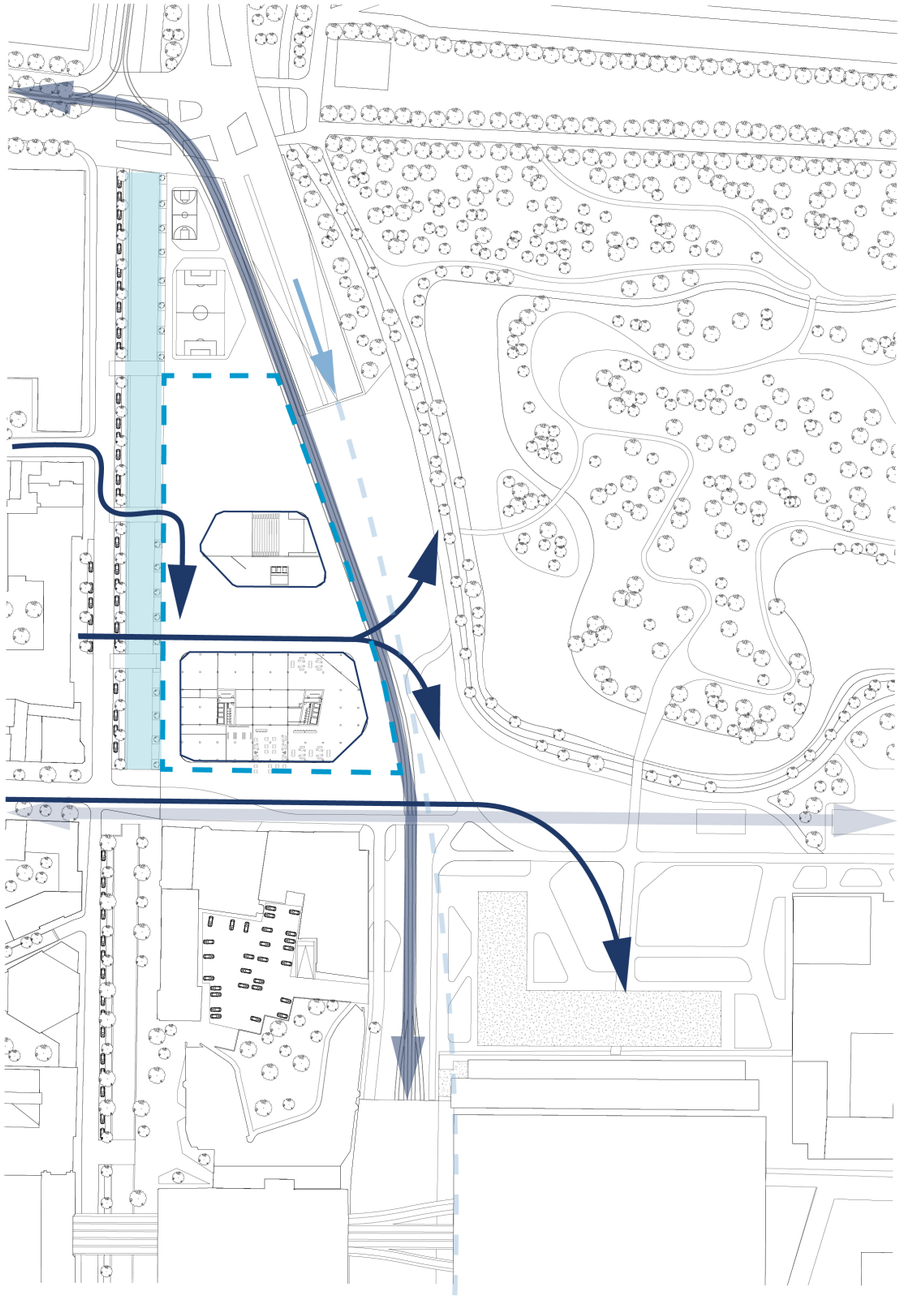
HEIGHT



05 Rivesed Masterplan

CURRENT MOVEMENT

- TRAM
- CURRENT PATH ROUTING
- CAR AREA
- WATER FRONT
- TUNNEL
- PLOT



MASTERPLAN VISION

- Creating a safe space from the tram line.
- Use Powerhouse project as guidance, round or soft edges.
- Pedestrians and bicycle first, car is guest.
- Public space should guide people inbetween the buildings.
- Seating, green and public meetings.
- Intergrating the bicycle storage

CLIMATE

Ground vs ceiling ventiltion

Ground: (Uni, office, elementary)
- Flexibility re-locate
- Maintenance
- Tile shape flooring
- Clean ceiling
- Hollow sound when walking

Ceiling: (public space)
- Less flexible
- Visibility
- Flooring can be everything
- No floor sound

Ventilation
- Chimney nog possible due to wind flow down the high rise
- Mechanical whole building
- Small window openings
- Spui ventilatie en brand atrium

Water use:
- Rain water restroom
- Water storage
- Public square water storage

Solar panels
- Small footprint building
- Top part only, reflection
- Facade, relative ineffective

Heating
- Ventilation

WKO:
- Available area, distance max 100m

Shading
- Overhang/ setbacks
- Walls/ panels
- Slabs
- Flexible sunshading

Glazing
- Overhang
- Sun protection foil

Visibility installation
- Tucked away in office and university
- Public area is tucked away, clean look
- Visible in the Hub and xxx

Installation
- storage around core
- inbetween core and out core shape, tech panels
- Tower room behind core reserved



Lumina tower

shedding light on knowledge and ideas

TABLE OF CONTENT

01 Theme

02 Site

03 Research

04 Vision - Function

05 Architecture

06 Technical

01 Theme

STUDIO THEME

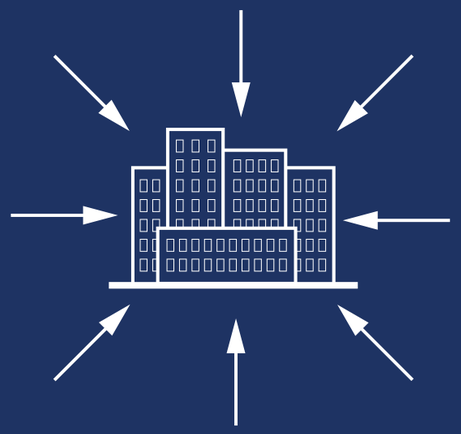
The ever growing cities



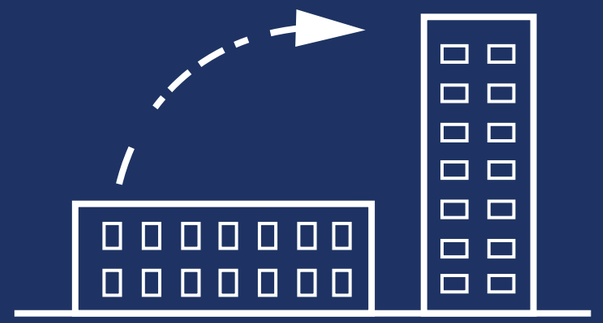
Why should we build vertical?

Studio question:

Creating the Vertical campus



The densification of the city



Developing new typologies

STUDIO ASSIGNMENT

Assignment = 30.000m2

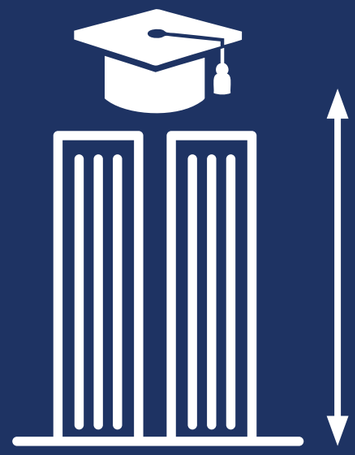


Functions



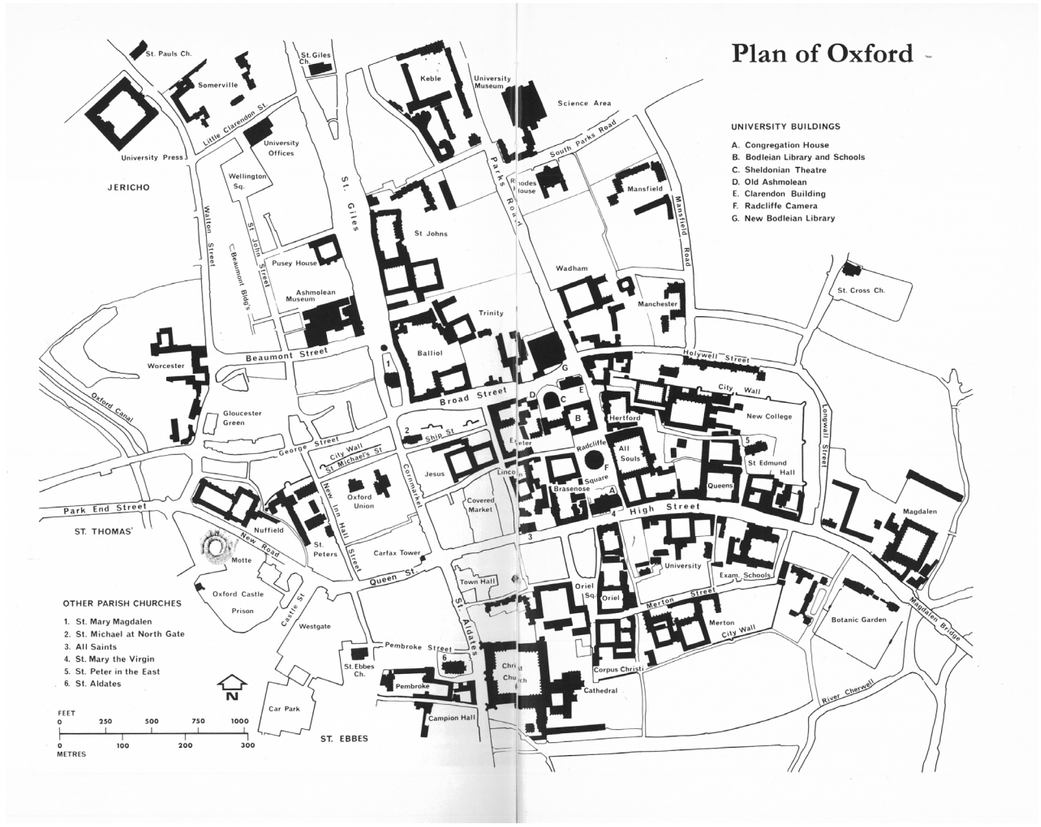
Horizontal campus

Footprint = 5.450m2

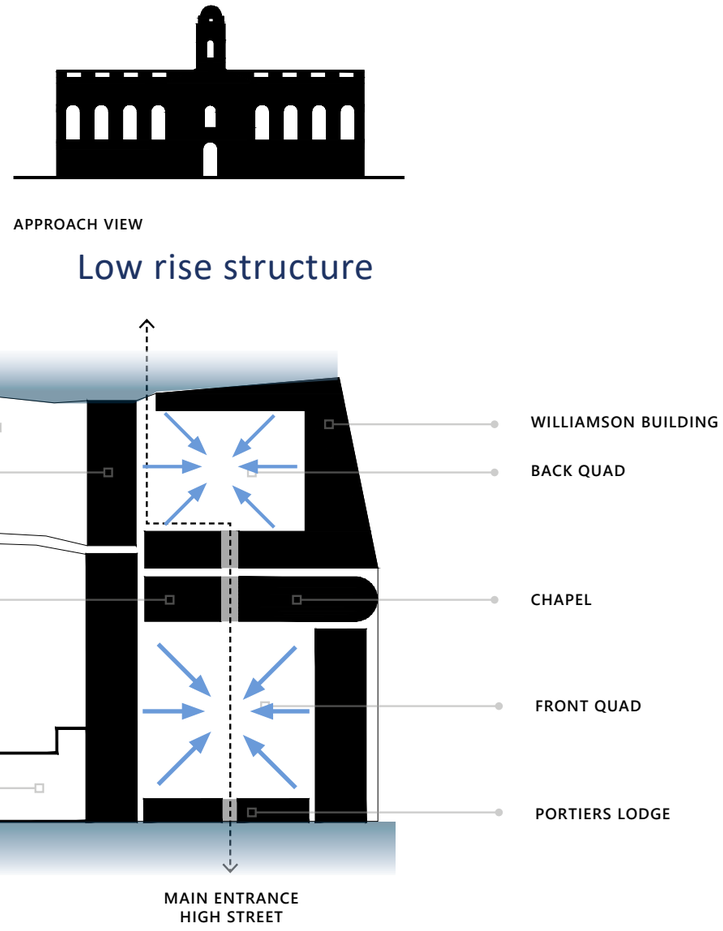


Vertical campus

TRADITIONAL CAMPUS - OXFORD



Spread out campus - footprint



Orientated inwards to create private experience

WHAT DO WE DO ON A CAMPUS?

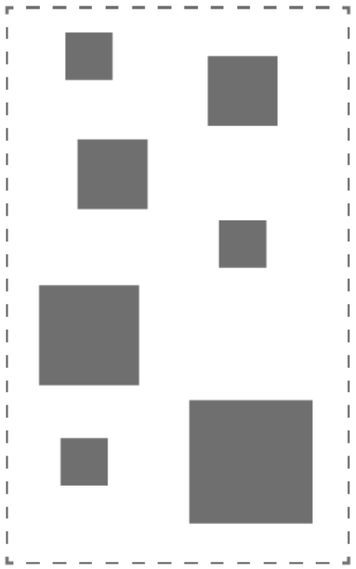
Studying - Research

Discussions - Creating - **Inbetween time**

Sports - **Private**



Spread out Masterplan



Abstract version



TU Eindhoven

WHAT DO WE DO IN THE CITY?

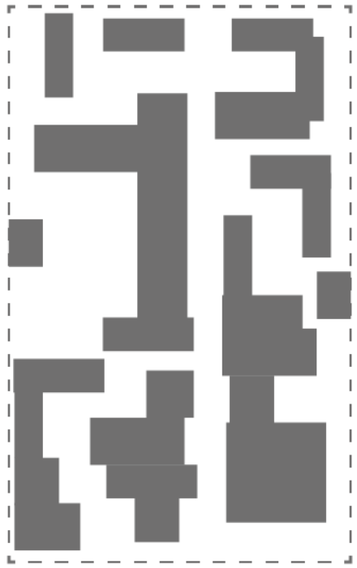
Sharing knowlegde - **gathering**

Discussions - **Leisure -** Economy

Sports - **Public**



Condensed Masterplan



Abstract version



The Hague center

02 Site

RANDSTAD

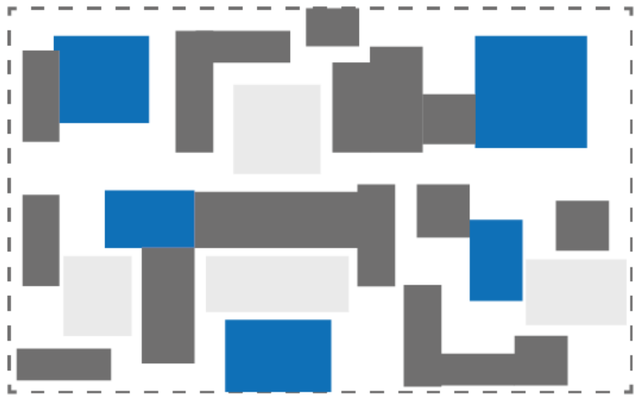


The Hague is political heart of the Netherlands

CAMPUS NETWORK

LEIDEN UNIVERSITY

- 5 Faculties in The Hague - Spread out
- Individual islands implemented with the city - Single function
- Mixing students in the urban fabric
- Private acces - Institutional learning

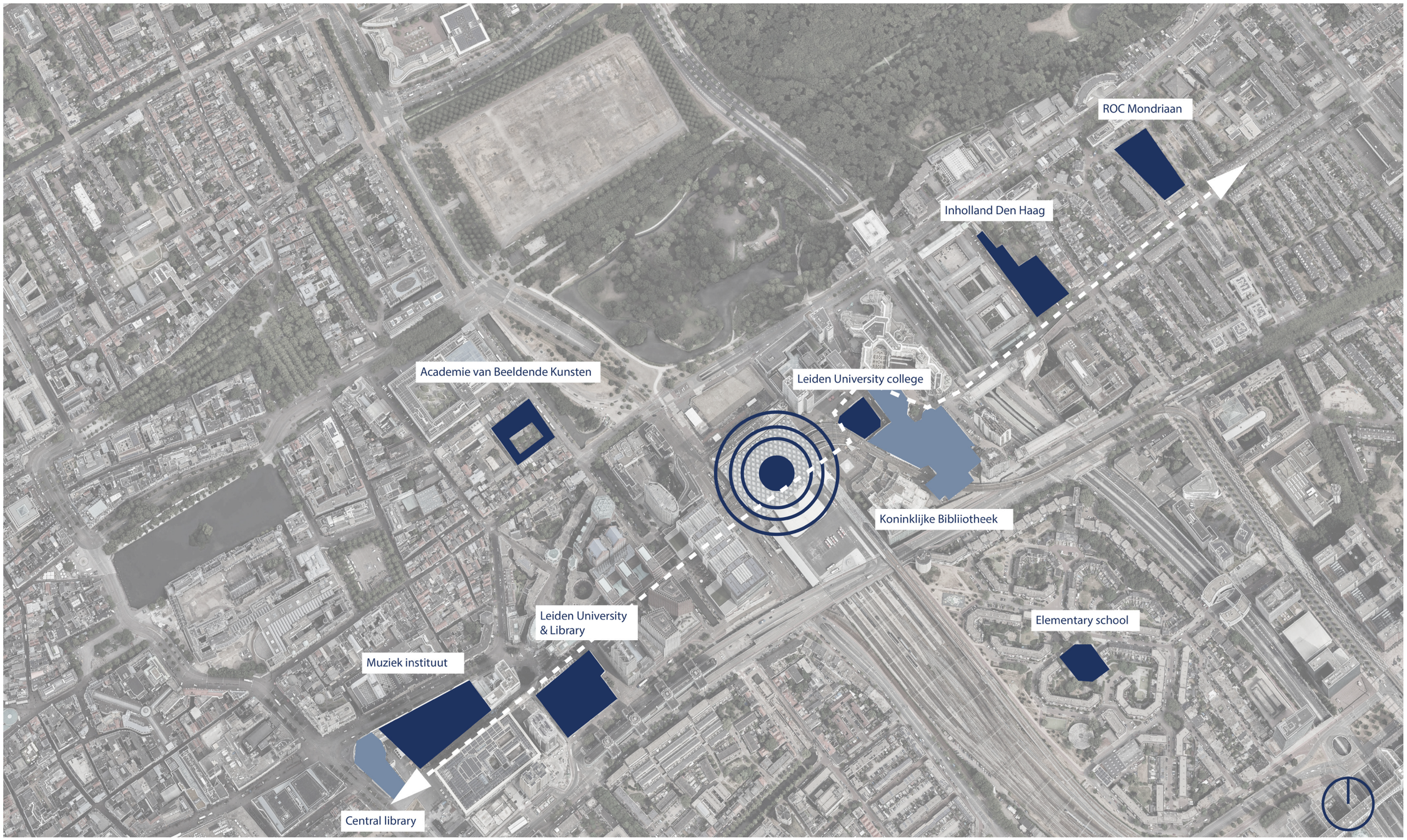




Leiden University The Hague

Public Building Graduation Studio 23/24

CAMPUS NETWORK



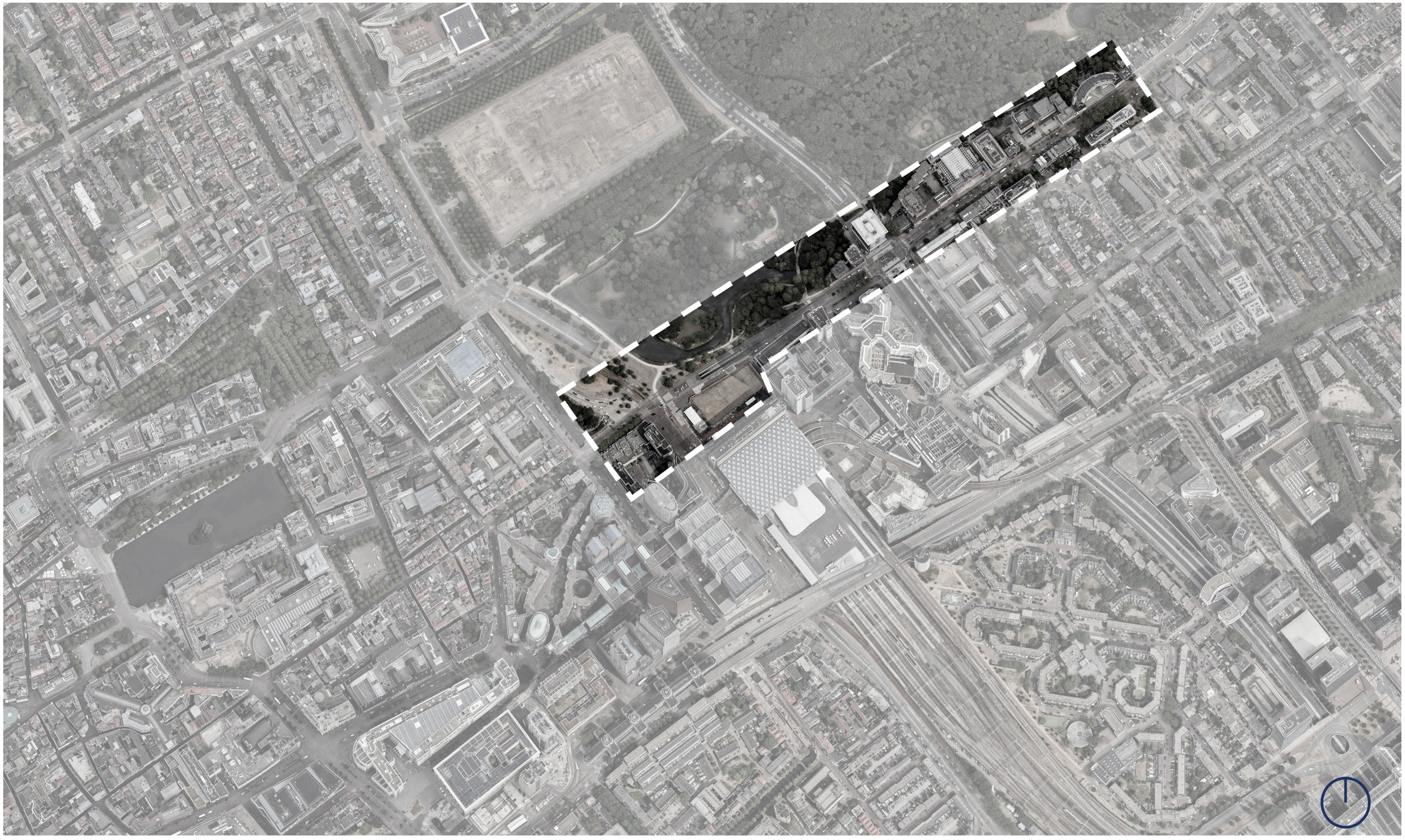
Connecting not only the campus network with the city but also with the Randstad

STUDIO AREA



Proximity of the station connecting the different areas

GREEN BORDER



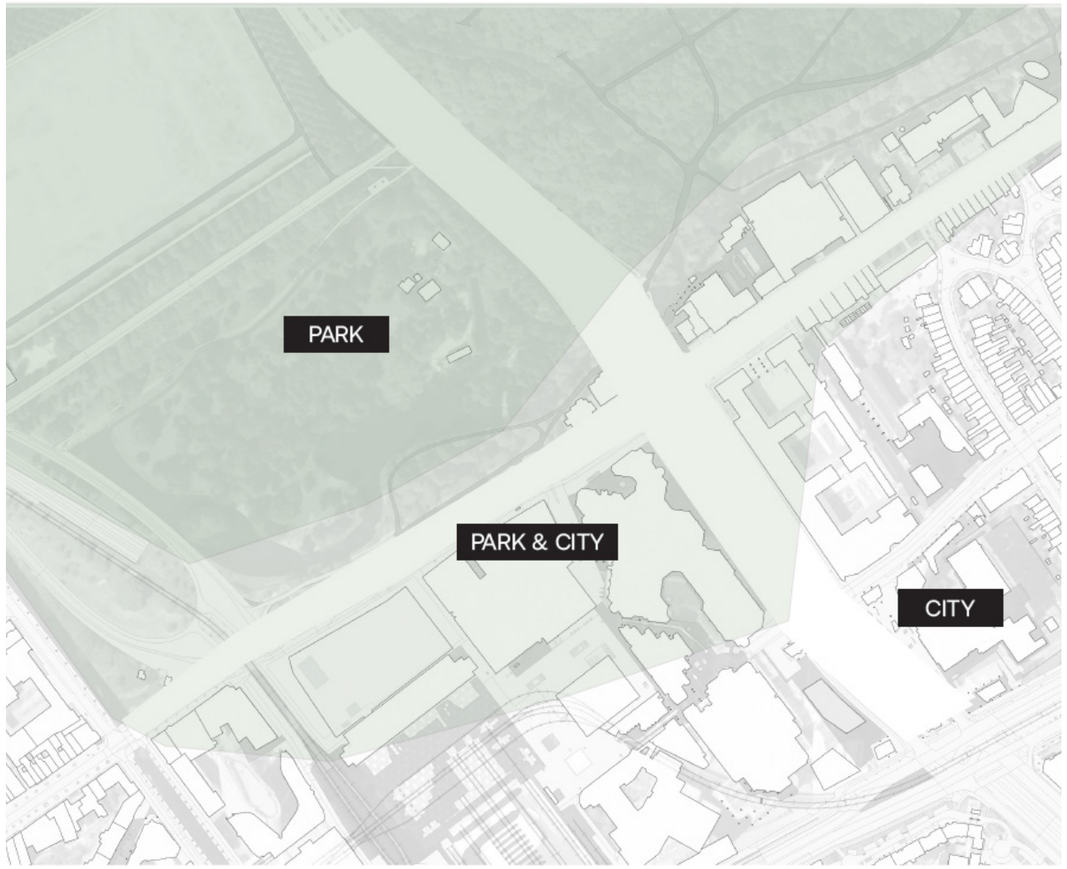
In between park and the city

P1 CAPACITY PLAN

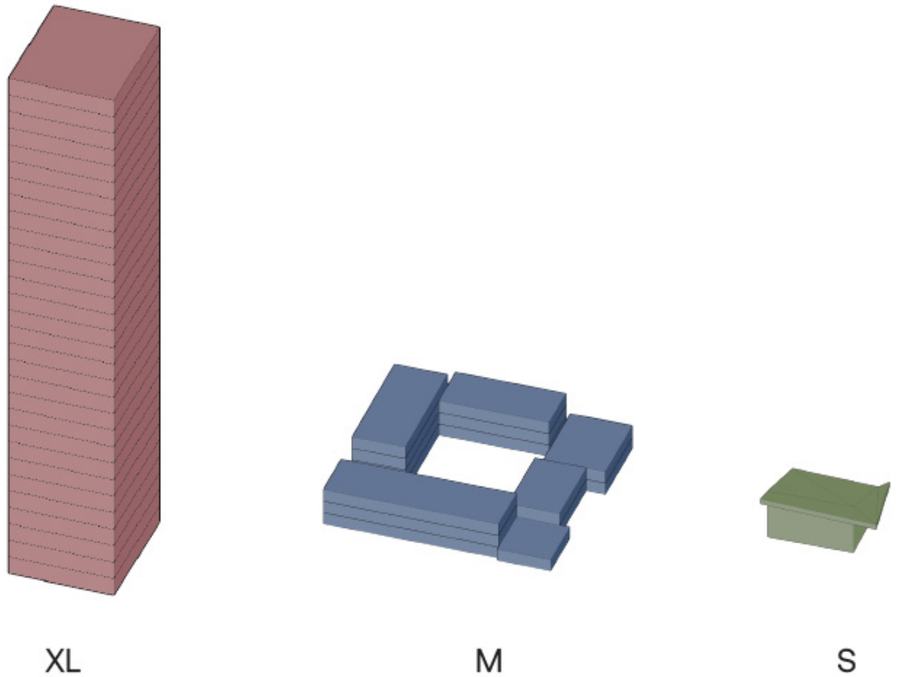


Distributing high-rise buildings to embed their function with the city fabric

P1 CAPACITY PLAN - TAKEAWAYS



Extending the park into the city

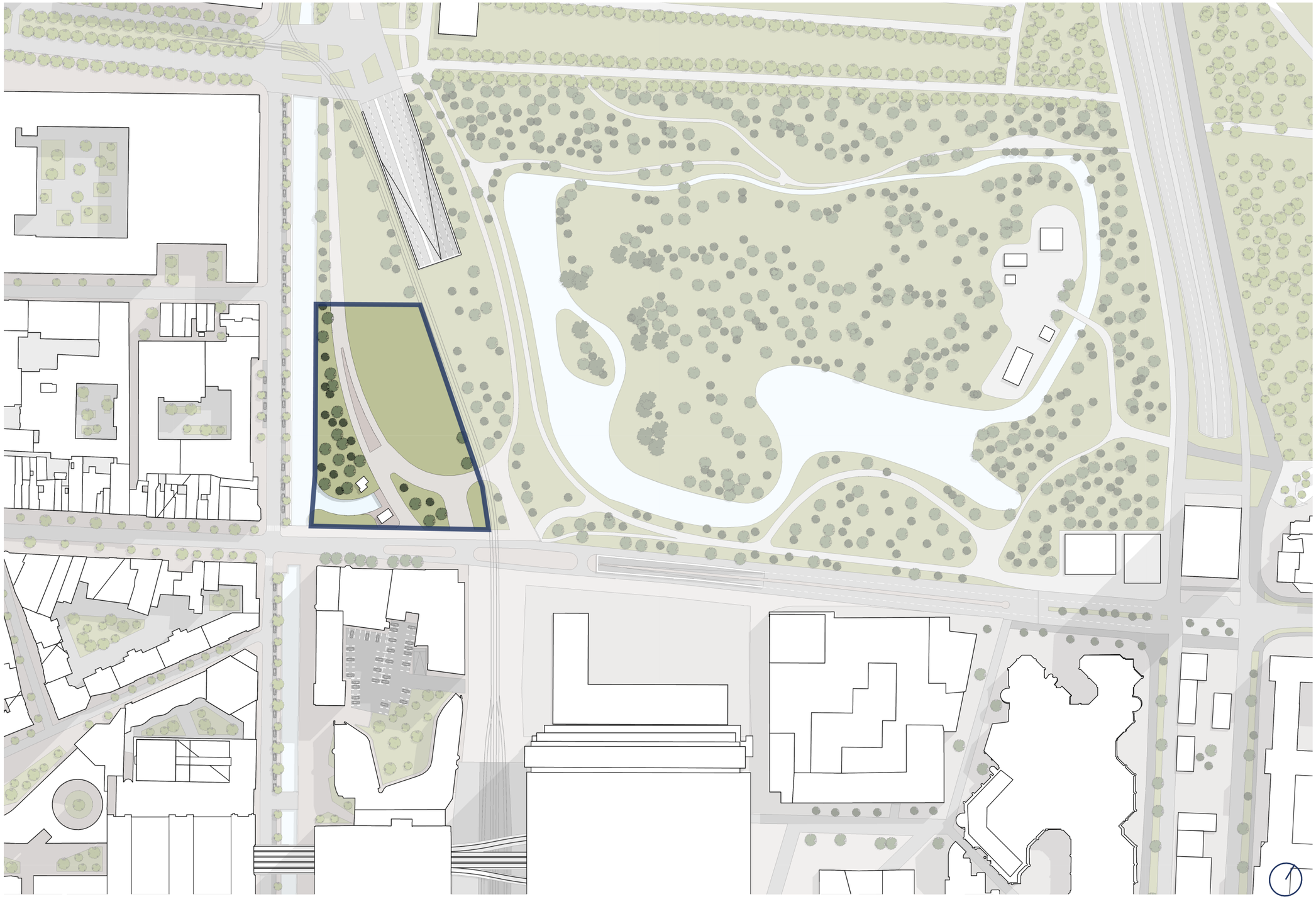


The mix of different scales

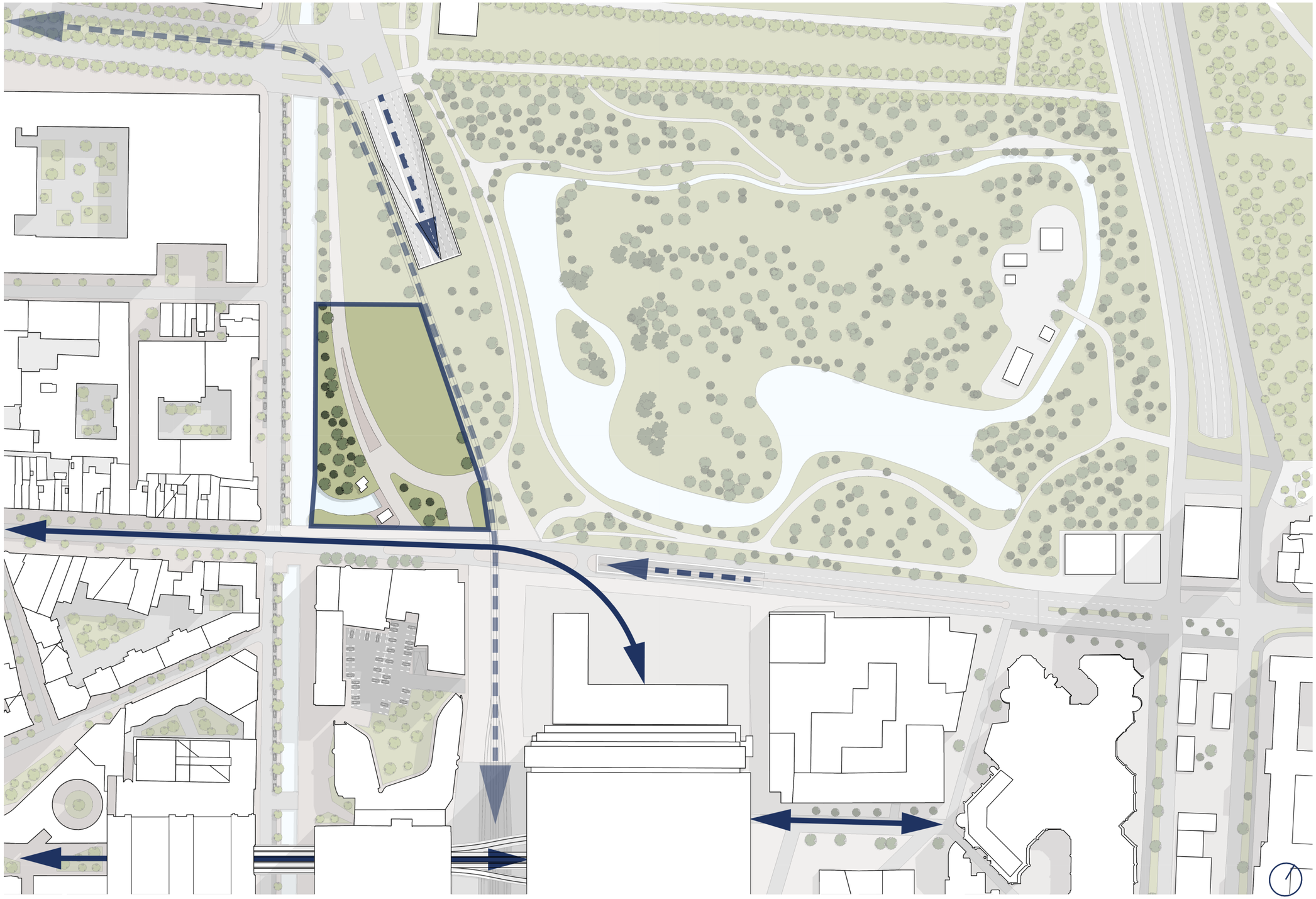
CURRENT SITUATION



BUILDING PLOT

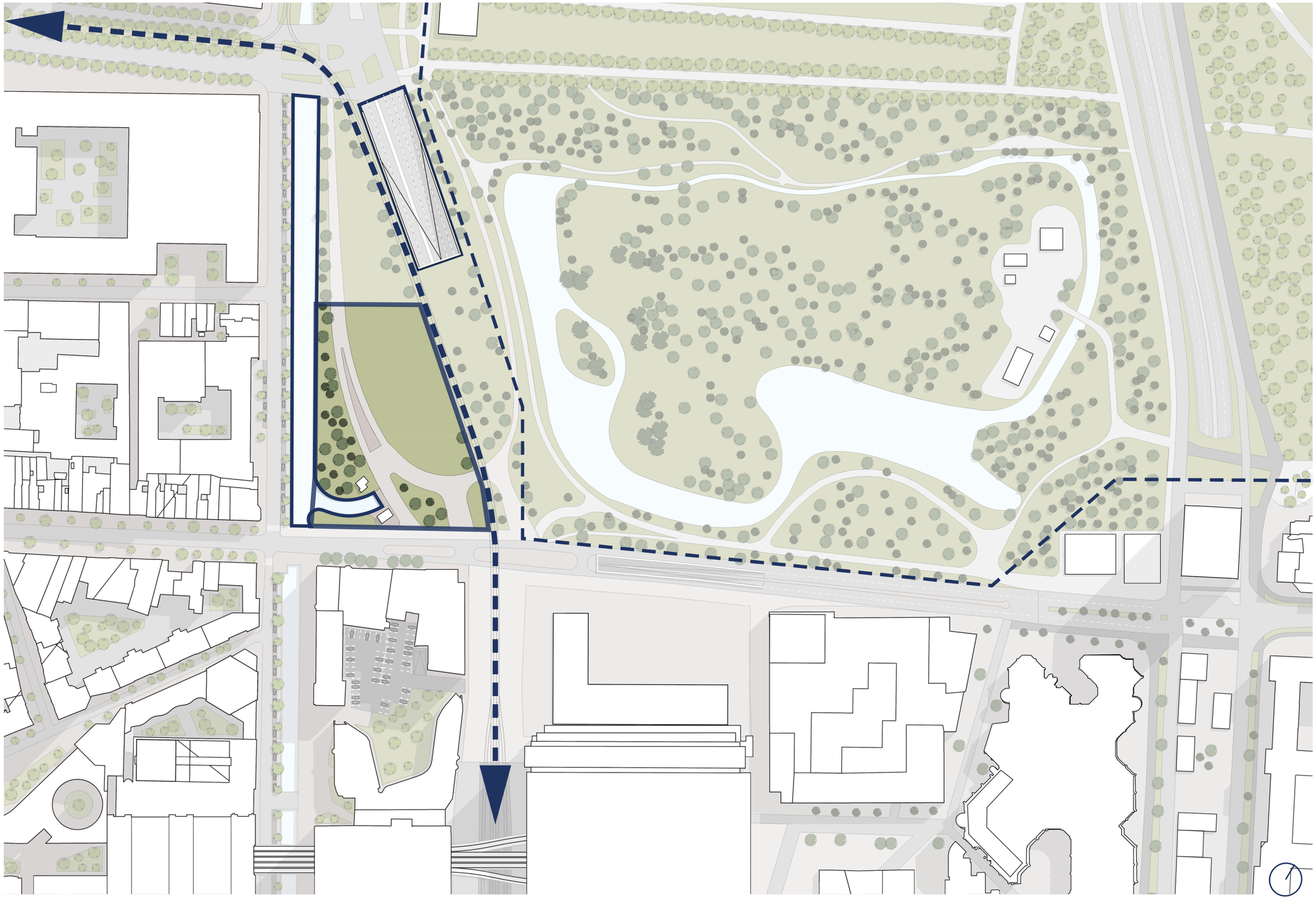


CURRENT MOVEMENT



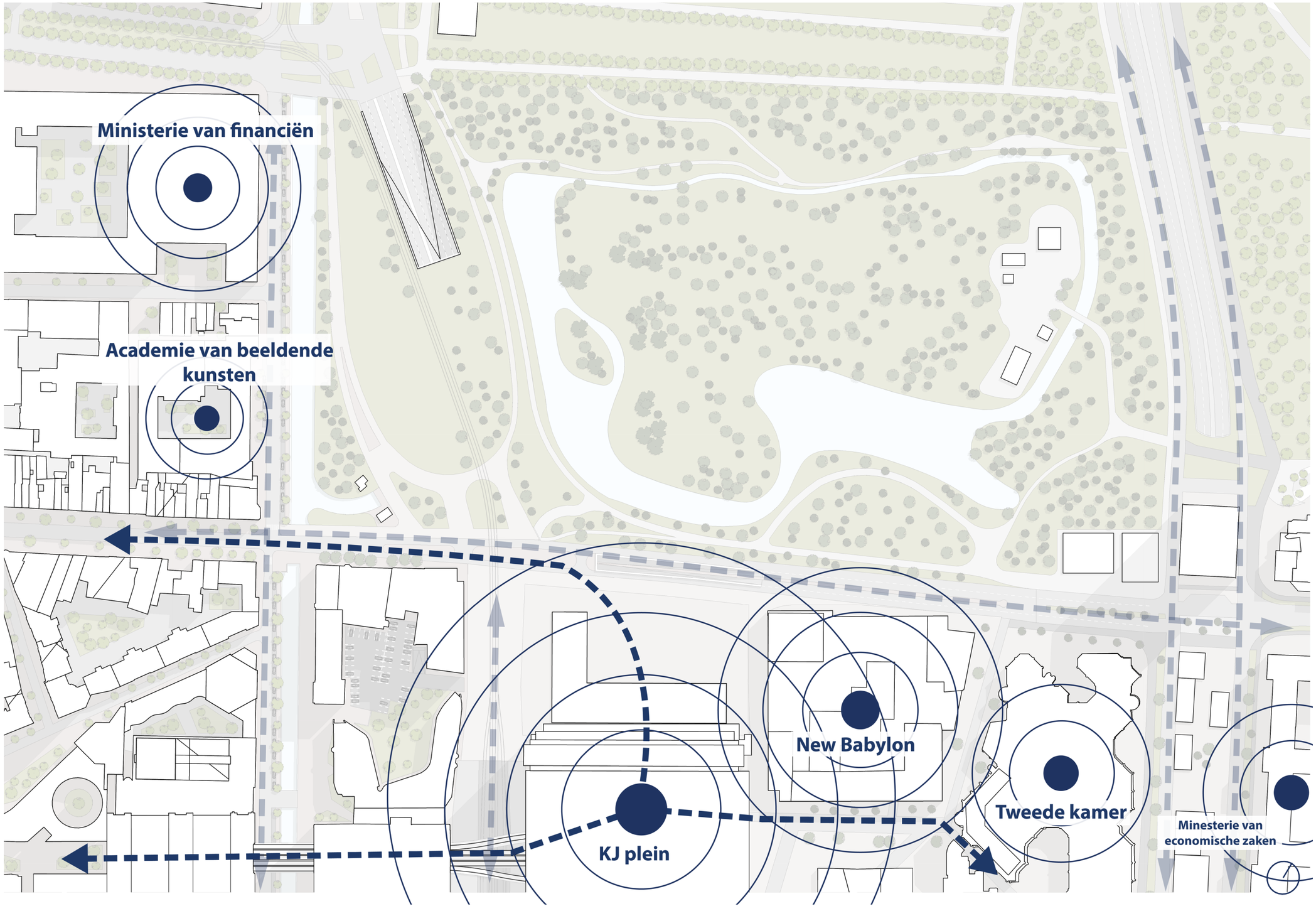
Pedestrian - tram - car

BOUNDARIES



Physical and historical

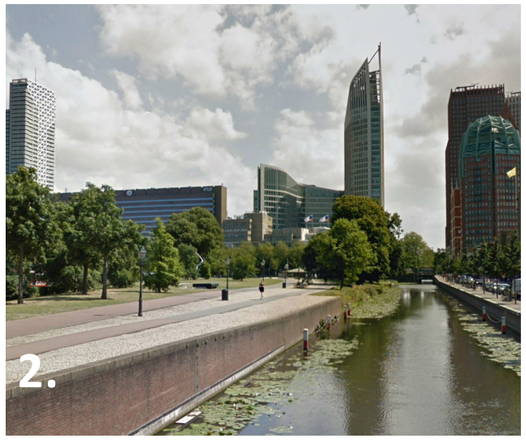
URBAN ANALYSIS



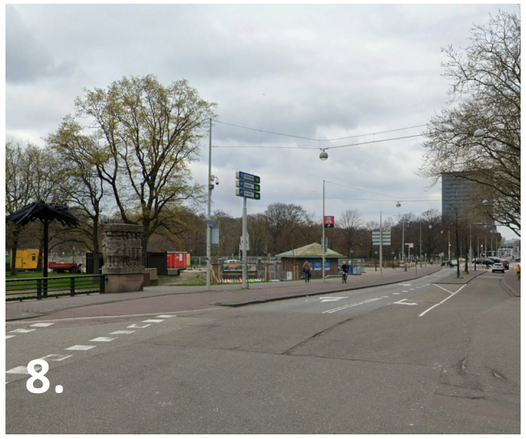
Impact buildings and routing

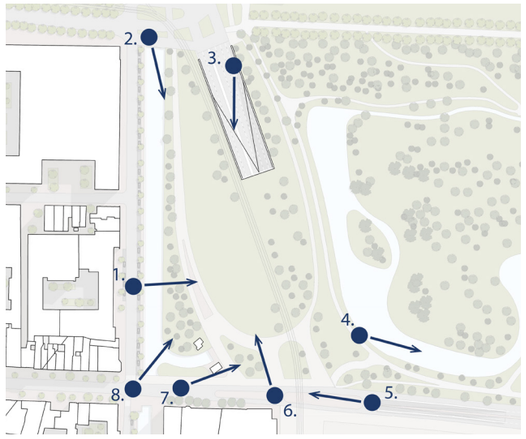
SIGHT LINES



















03 Research

CURRENT SITUATION

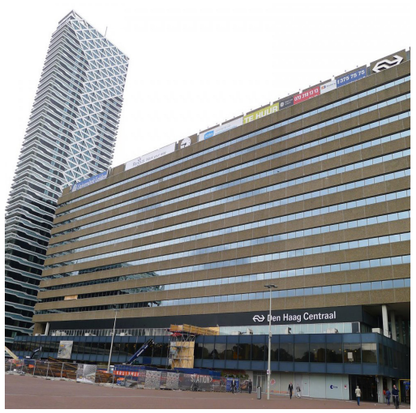


Individual islands - Height contrast

LANDMARKS THE HAGUE

Private & single function







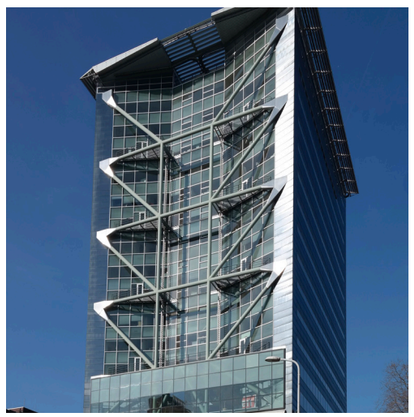


















DISTOPIA



Detachment of the public realm, self-referential buildings

DISTOPIA

MANIFESTO

“multiplicity as a property of buildings in order to make them less singular in function, more productive, more transformative and more resilient.” - Manifesto Public Building

URBAN

Buildings should not only reflect on themself, but should engage in the public realm of the city when looking into the urban scale.

+

ARCHITECTURE

For the building scale it should offer more than housing its own function. It should offer undefined spaces for crowds and people to meet.

RESEARCH QUESTION

How does the Vertical campus contributes to and extends the public realm in the Hague?

SUB QUESTION

How can a public hybrid building introduce and combine public and instutionalized learning in an attempt to exchange knowledge?

PROJECT AMBITION

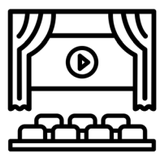
PUBLIC AND INSTITUTIONAL LEARNING

Solving the separation between **university campuses** and **public learning** in cities by creating a new typology of **campus** within the city. In this way, **mixing** public and institutionalized education, exchange of knowledge.

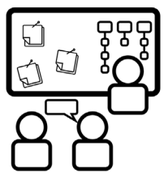
PUBLIC LEARNING METHODS



Library



Theater



Workshop



Museum

INSTITUTIONALIZED LEARNING

University



Library



Faculty



Elementary



Lecture



Sport



Research

INSTITUTIONALIZED LEARNING



Referring to the **structured and formalized** educational processes that occur within established institutions such as schools, colleges, universities, and professional training organizations.

PUBLIC LEARNING



Referring to **sharing knowledge** by activities and experiences accessible to the public. It emphasizes **informal** and cultural engagement by enhancing collective learning outside formal instutional settings.

RECAP

CITY

Public learning methods



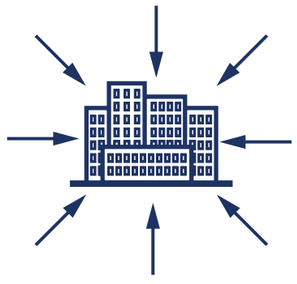
+

CAMPUS

Institutionalised learning



Combining the traditional campus into the city



+



High density character

Spread out character

Proposes a new vertical typology

VERTICAL CAMPUS (IN THE CITY)

Studying - Research - **Exploration**

Discussions - Creating - **Leisure**

Sports - **Shops - Gathering**

Multiple Public & Institutional functions





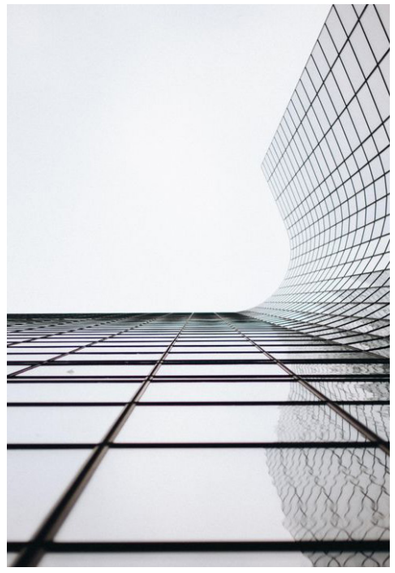
Lumina is Latin for “Lumen”, Meaning “**Light**”.
It symobolizes the **enlightenment** of knowledge. The shedding of light on knowledge and ideas linked to University, Research and Office.

04 Vision - function

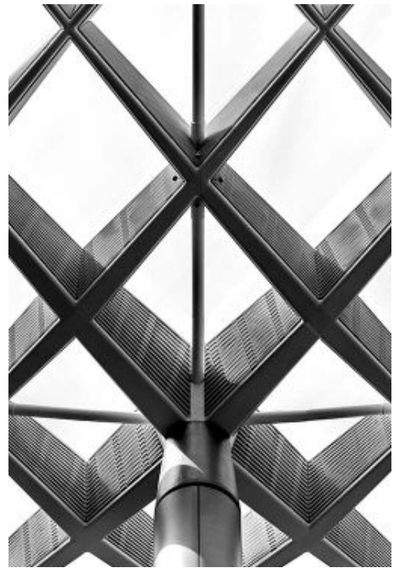
GUIDELINES



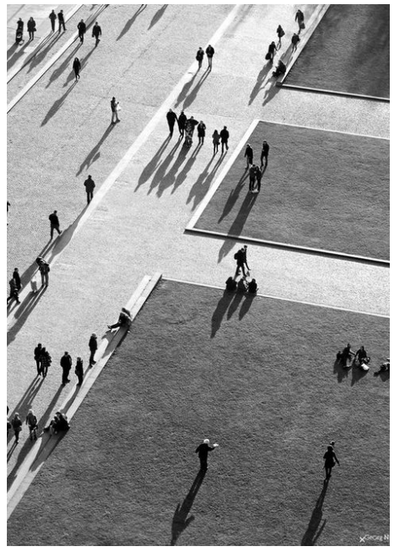
closed



abstract



generic



open

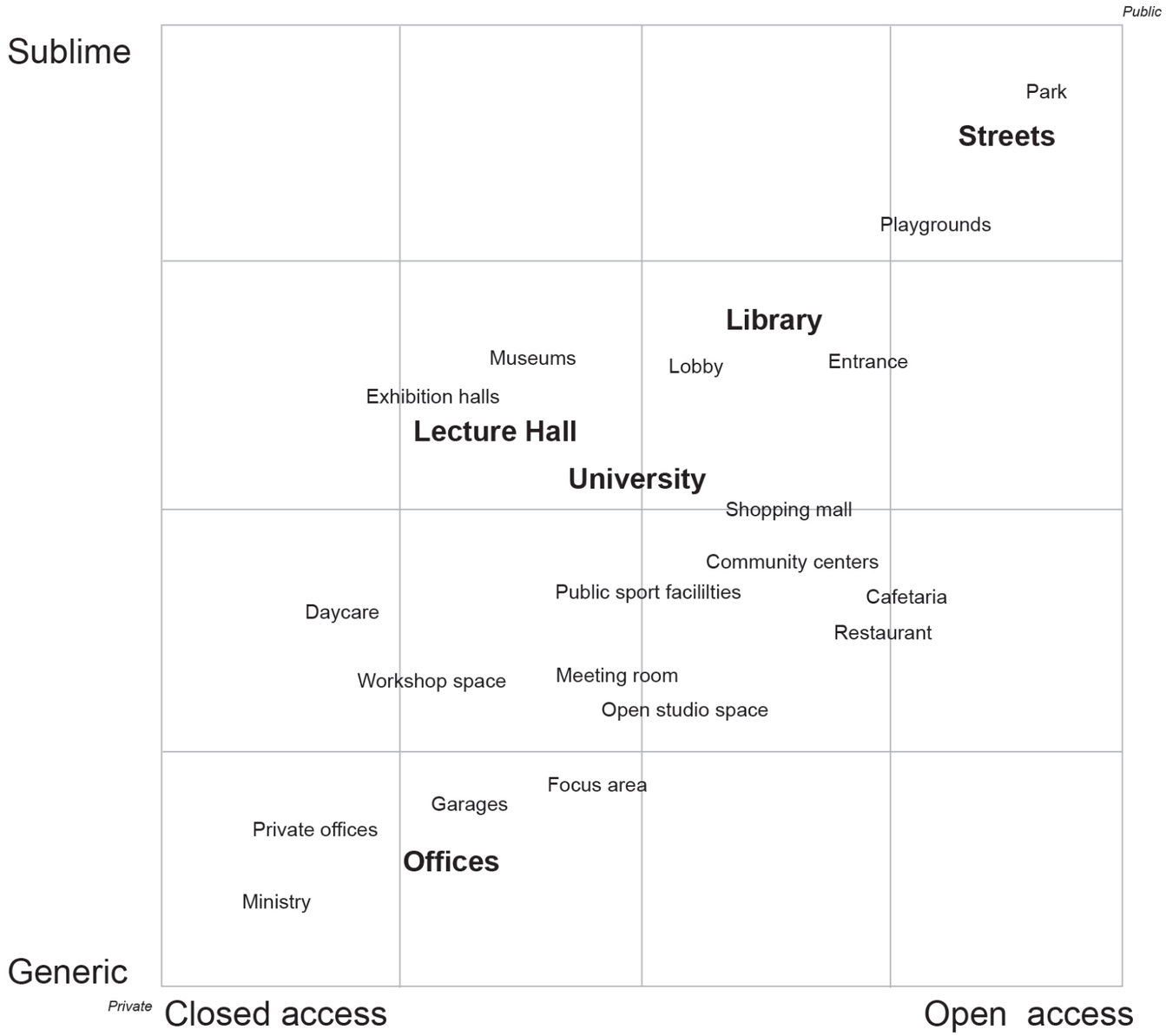


sublime

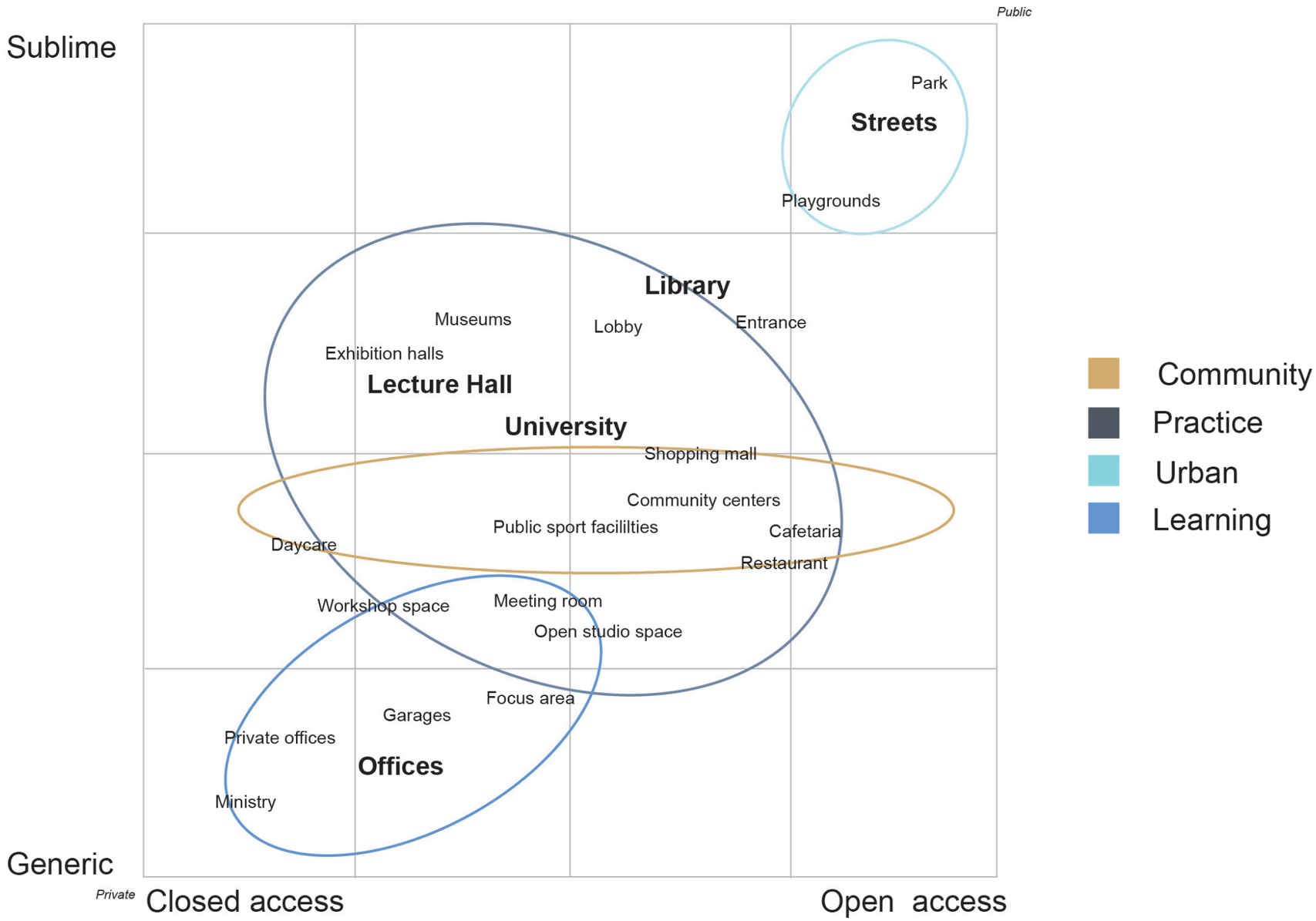


wander

FUNCTIONS


Public
Sublime
Park
Streets
Playgrounds
Library
Museums
Lobby
Entrance
Exhibition halls
Lecture Hall
University
Shopping mall
Community centers
Public sport facililties
Cafetaria
Daycare
Restaurant
Workshop space
Meeting room
Open studio space
Focus area
Garages
Private offices
Offices
Ministry
Generic
Private
Closed access
Open access

CATEGORISE


Sublime
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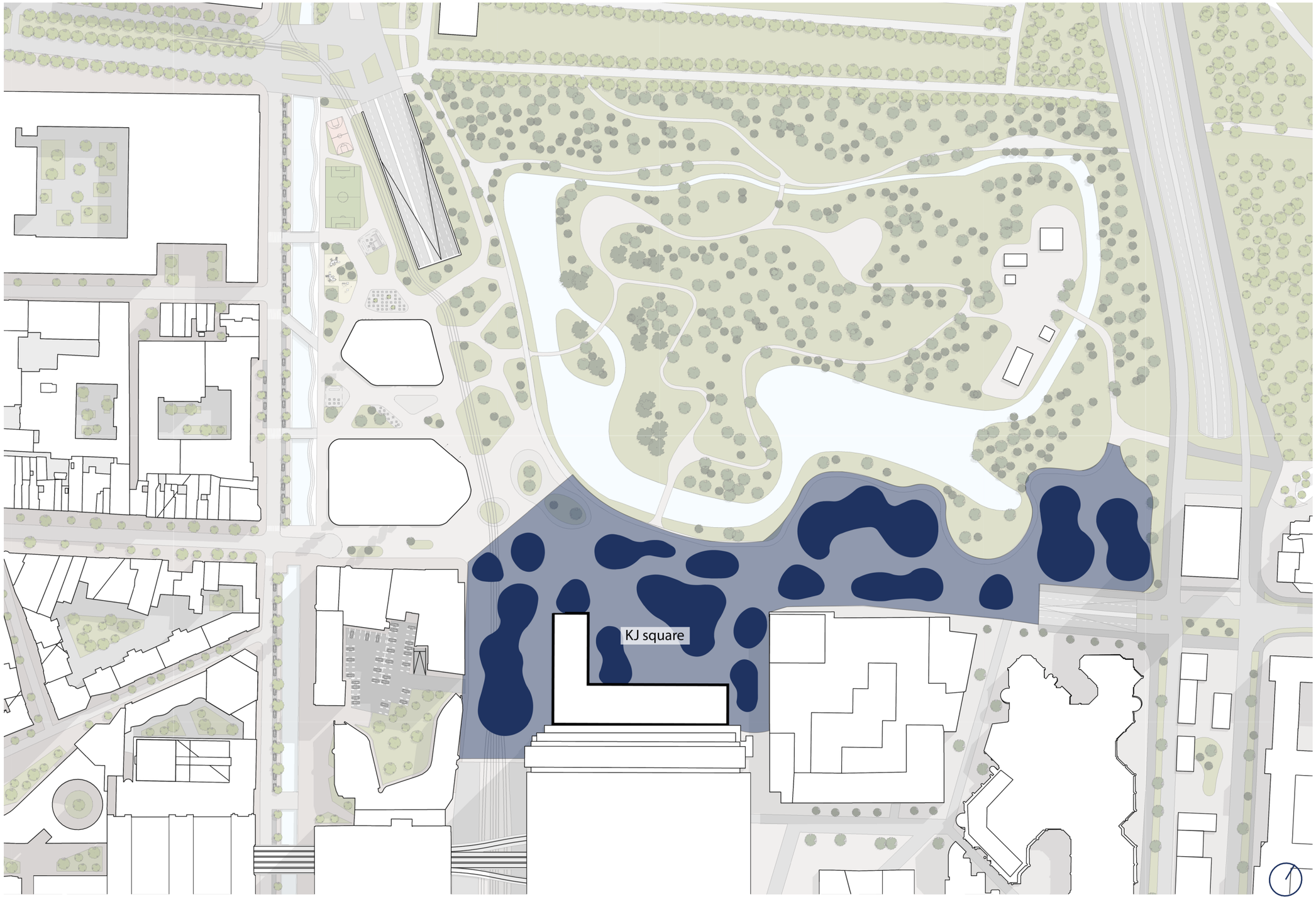
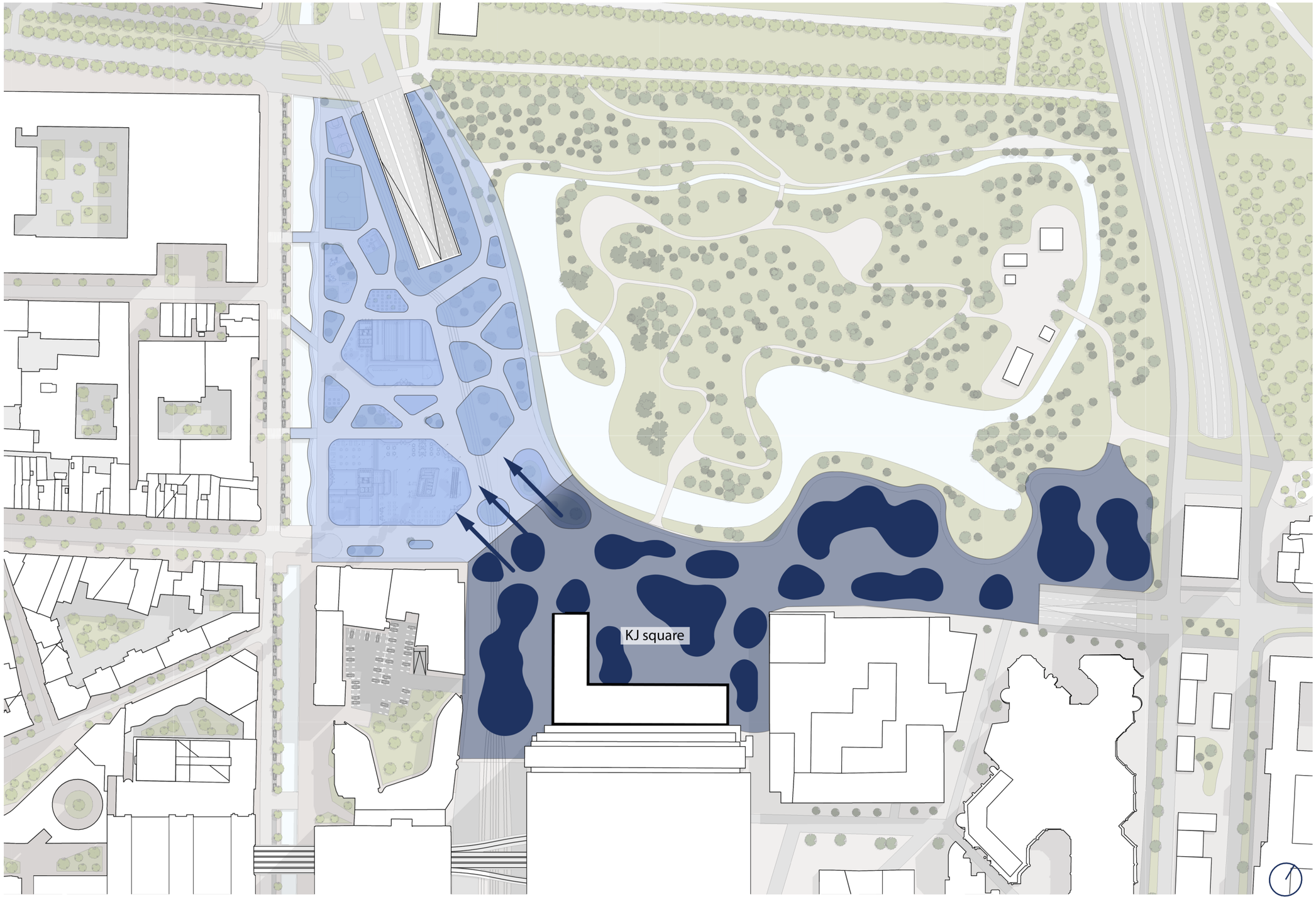
Cafetaria
Daycare
Restaurant
Workshop space
Meeting room
Open studio space
Focus area
Garages
Private offices
Offices
Ministry
Generic
Private
Closed access
Open access
Community
Practice
Urban
Learning

MASTERPLAN POWERHOUSE



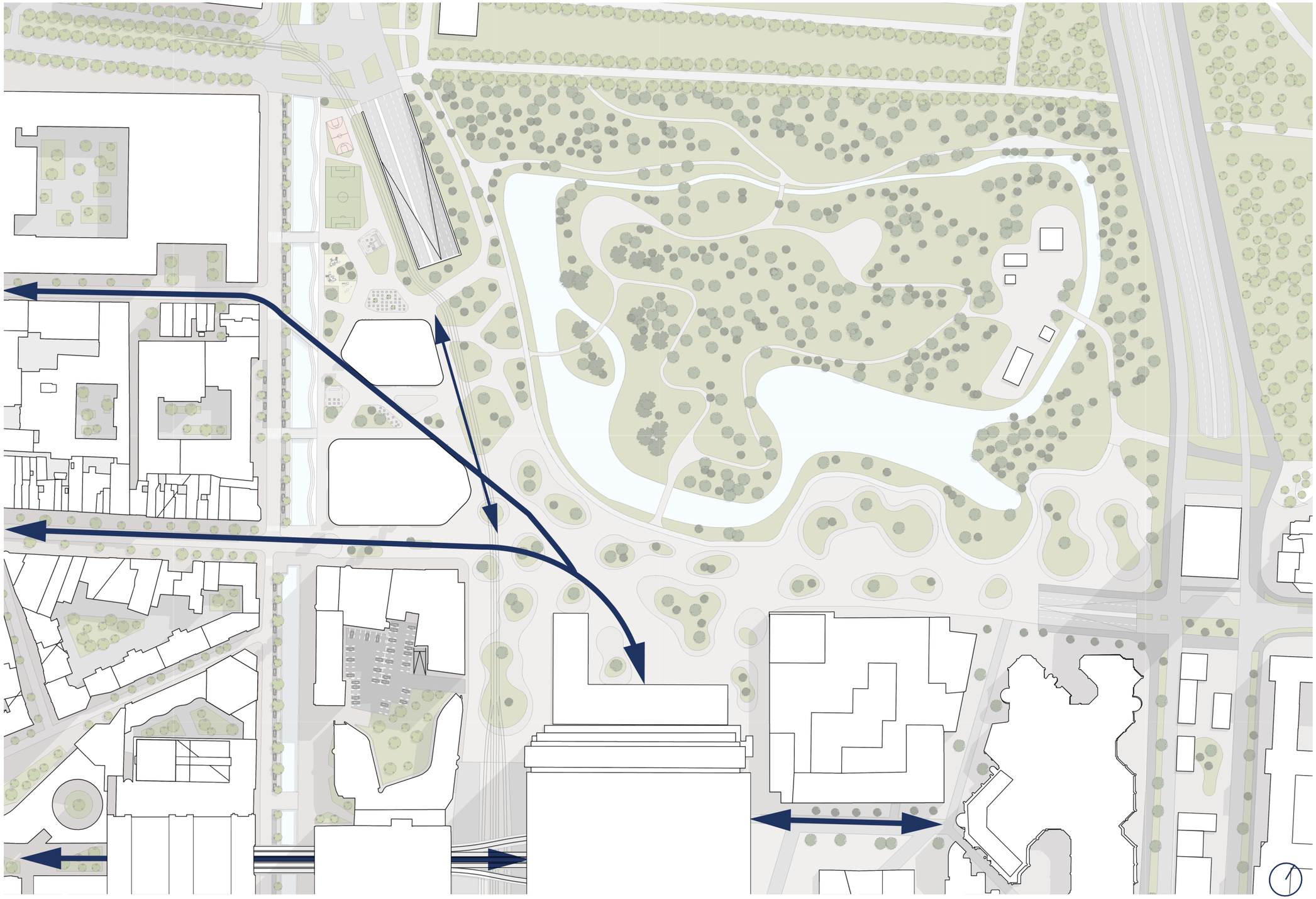
Current situation

EXTENDING MASTERPLAN



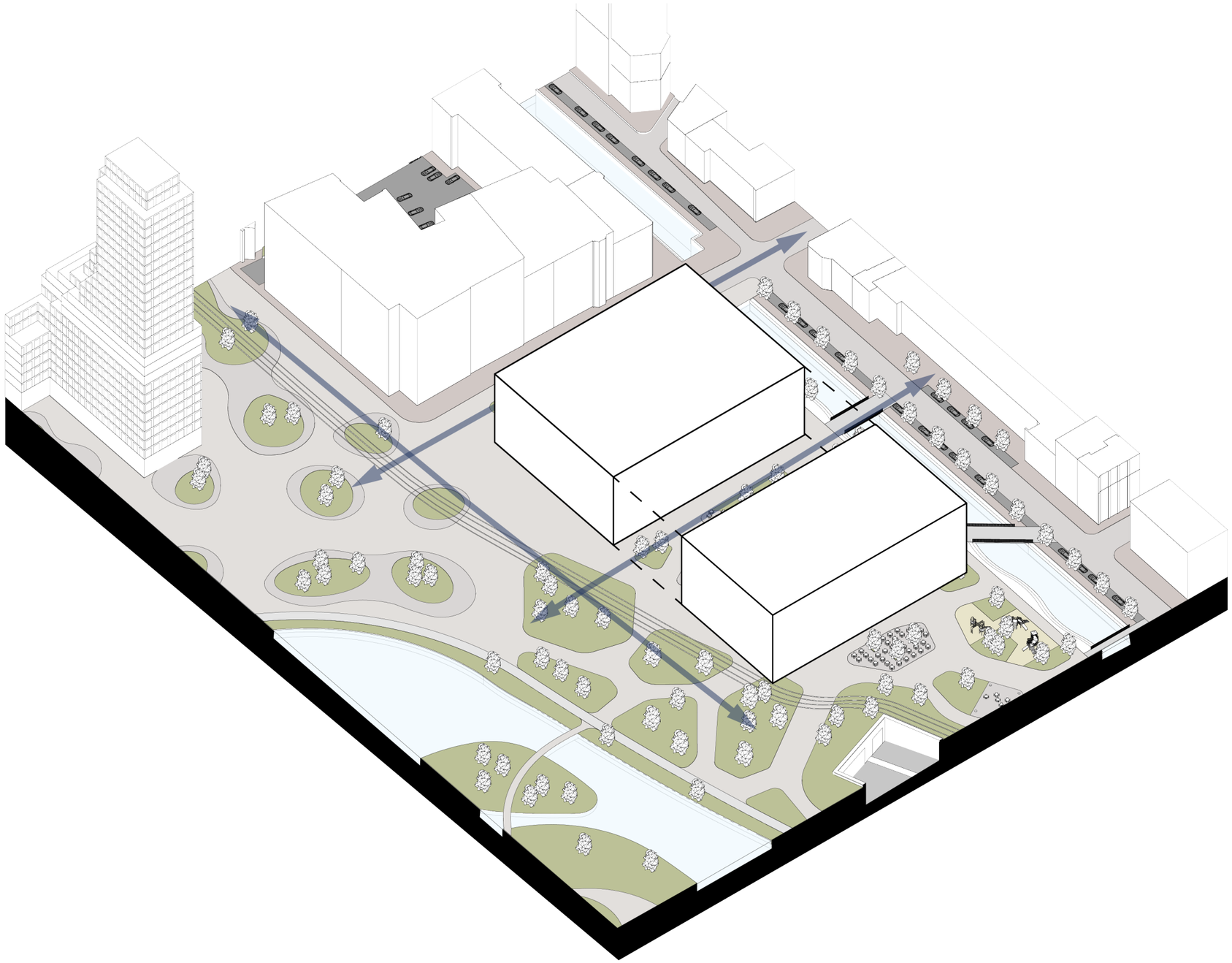
Extending the masterplan from Powerhouse, which is organic, to soft edges.

URBAN AMBITION



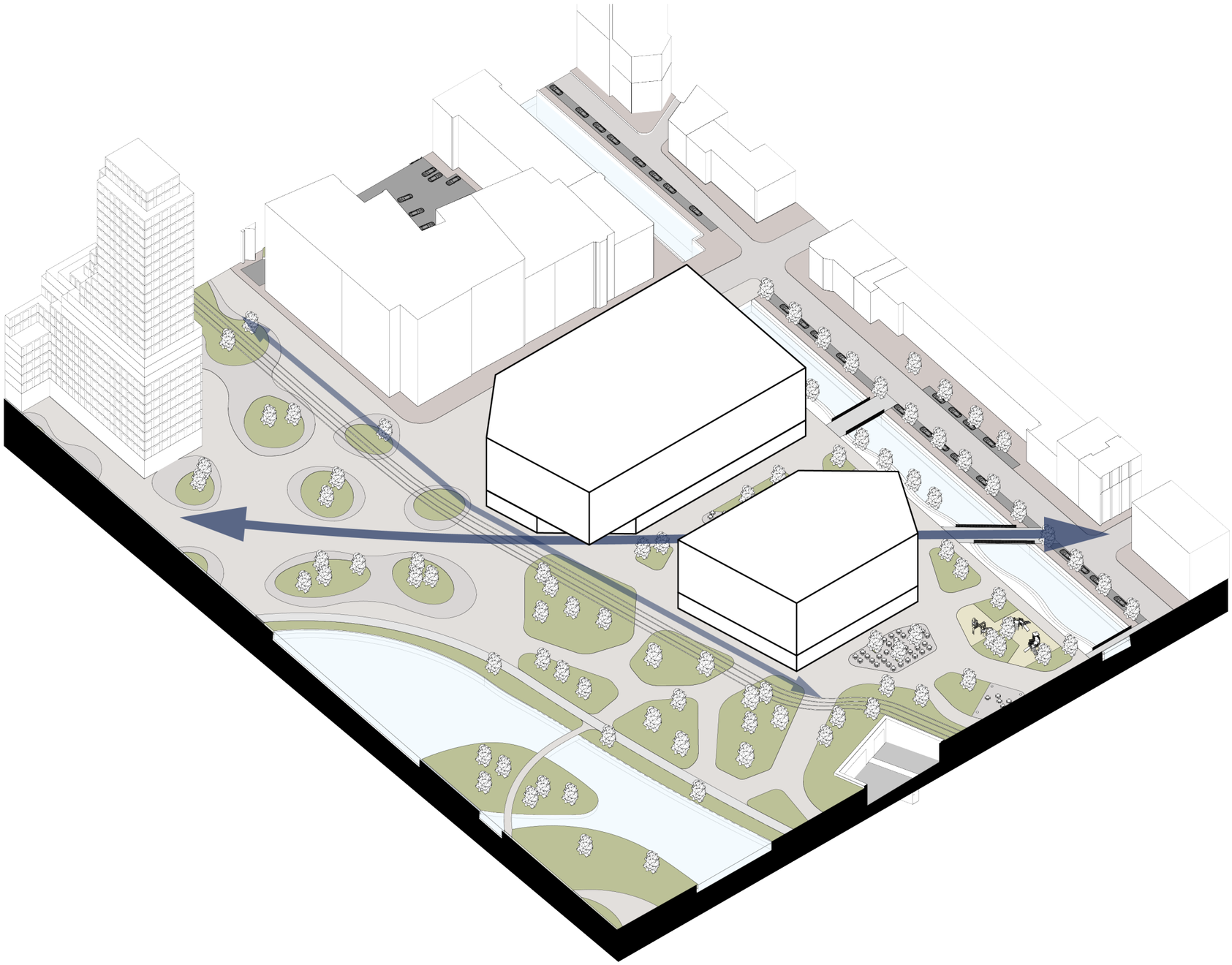
Extending campus network - Pedestrian area

CONCEPT



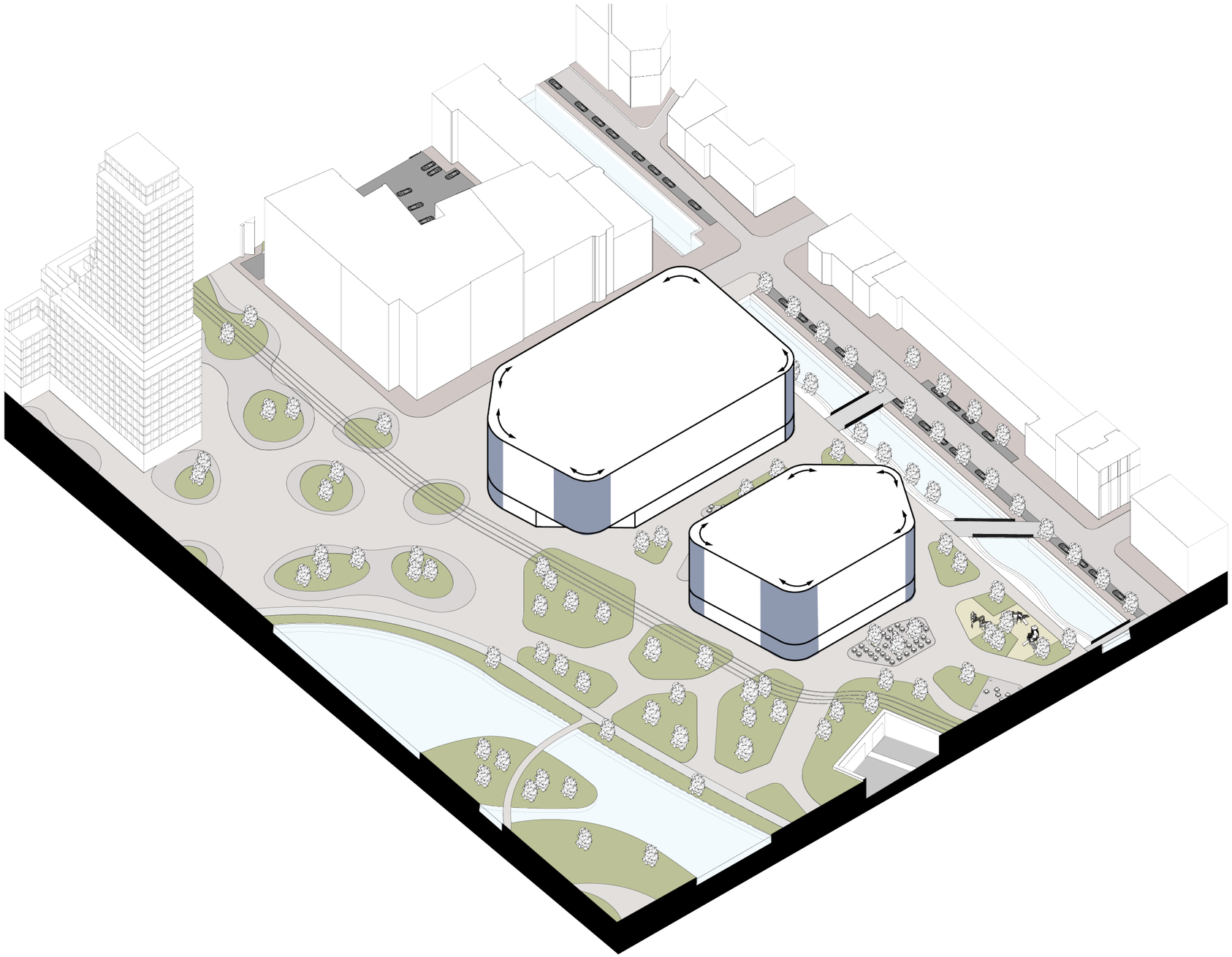
Extending the current streets. One building doesn’t stimulate movement, a cluster will

CONCEPT



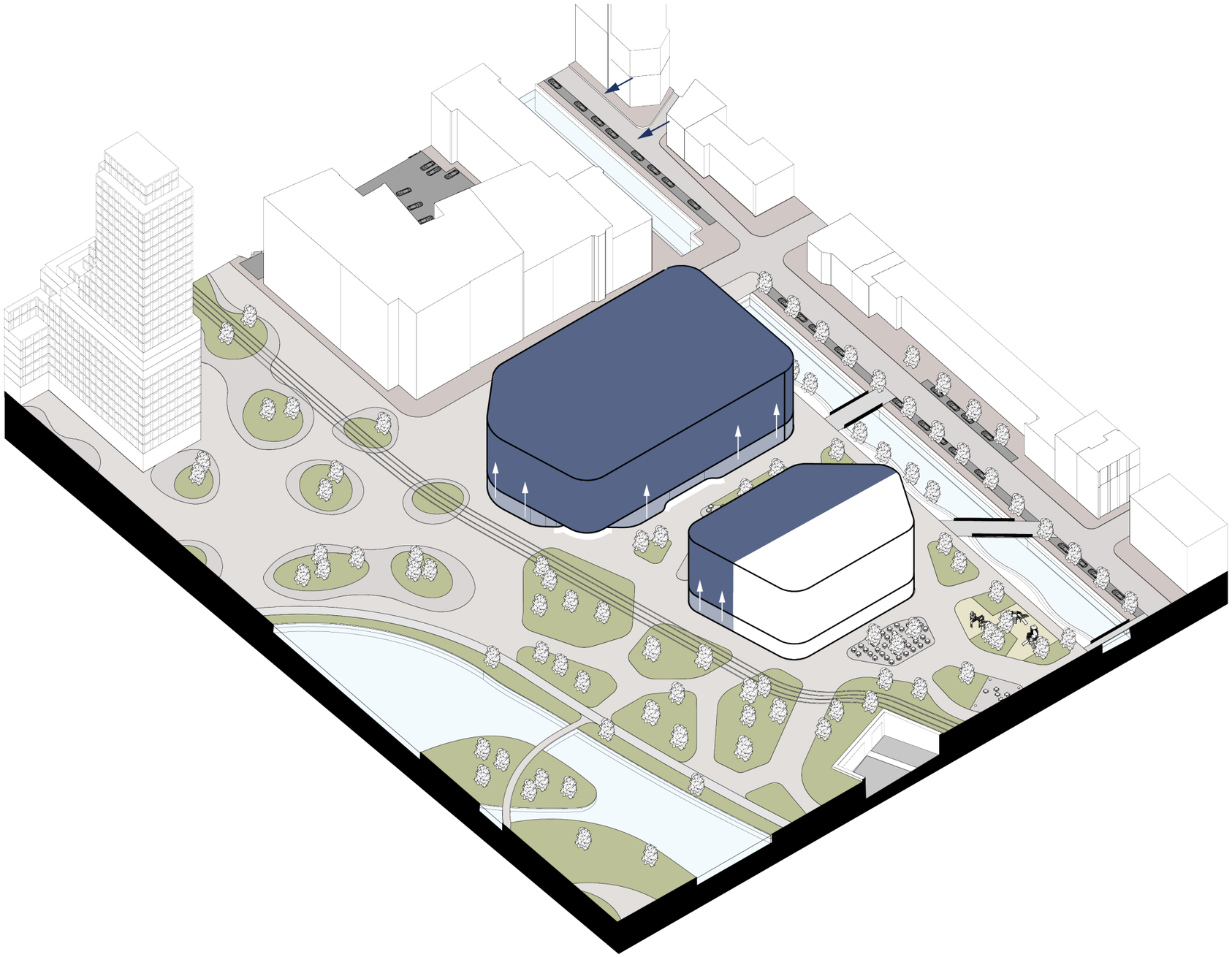
Creating a new connection between the city and the station, guiding through the campus

CONCEPT



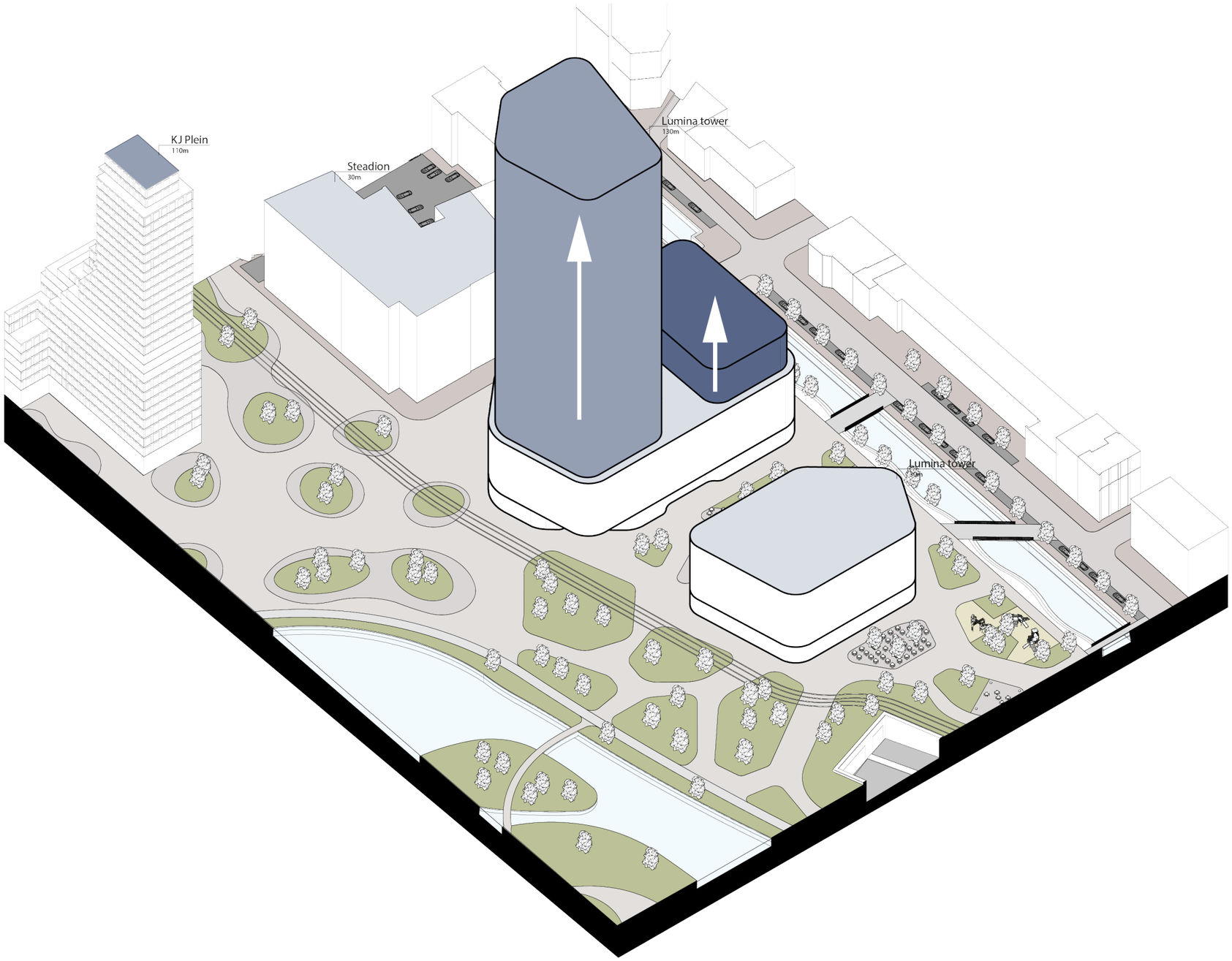
Curving the edge to create its own identity in the surrounding and guide people to the city

CONCEPT



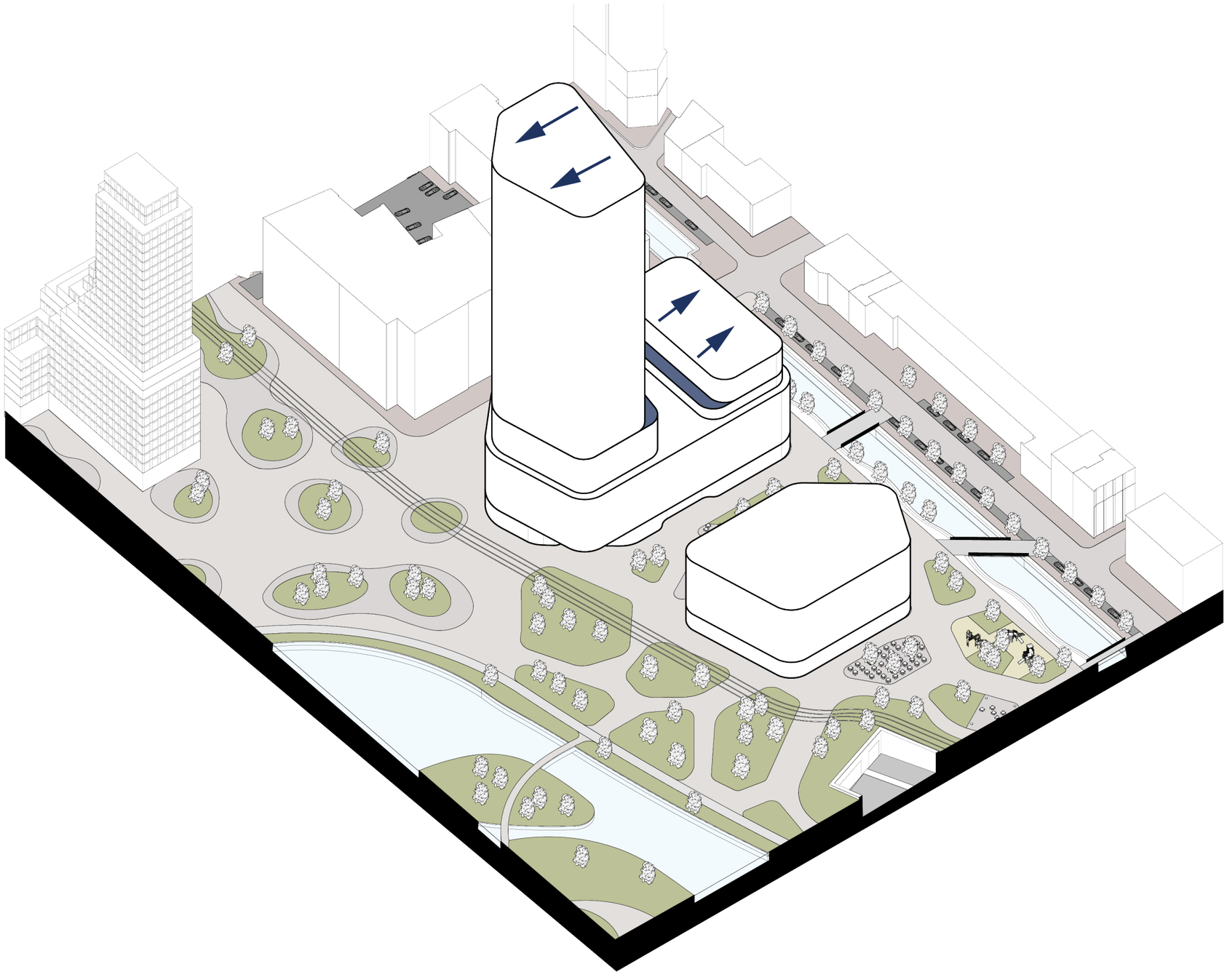
Elevated square and transparent ground floor
combined with setback entrances.

CONCEPT



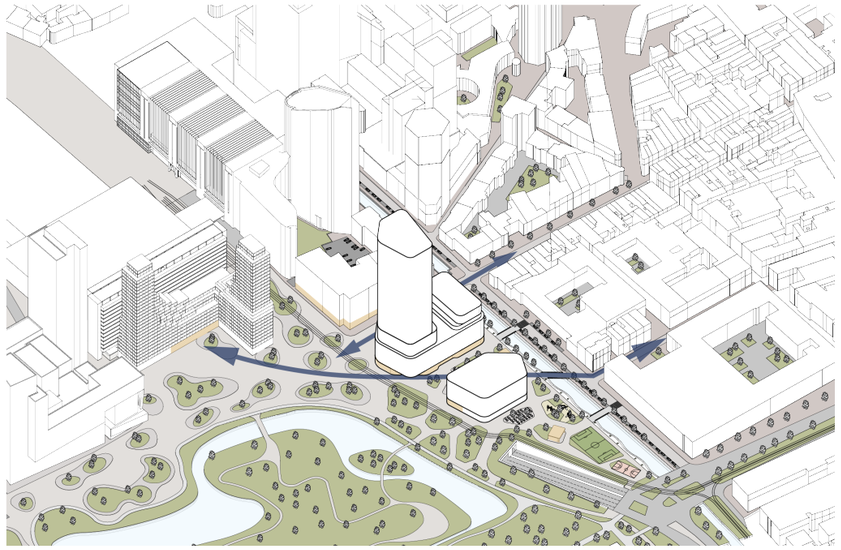
Extrude to fit in the urban fabric height

CONCEPT

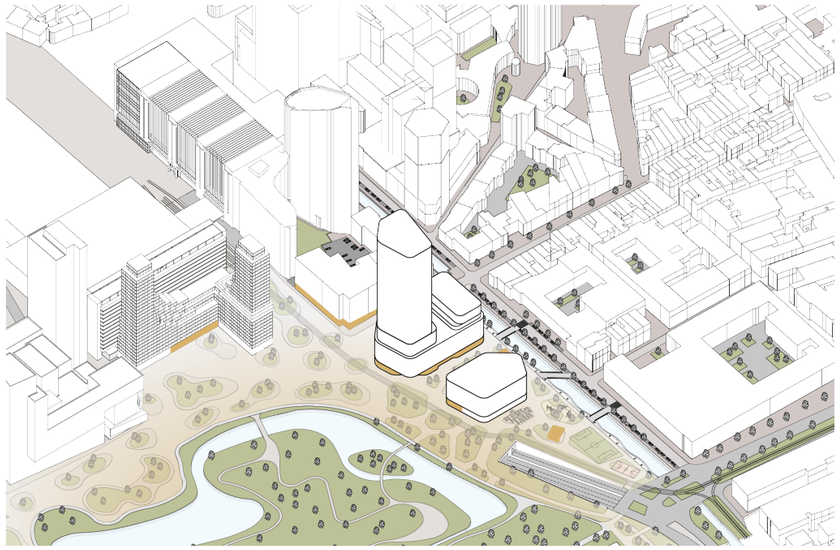


Setback to make the volume less solid

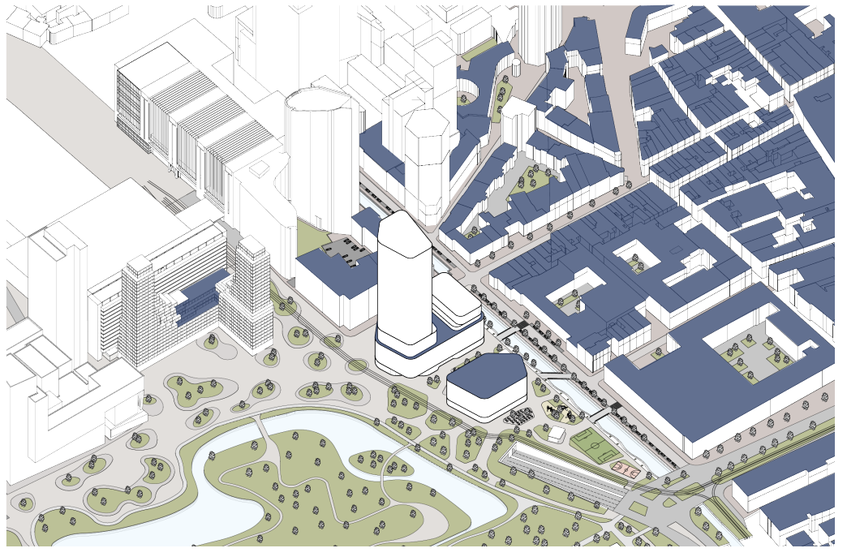
ANCHOR INTO THE URBAN FABRIC



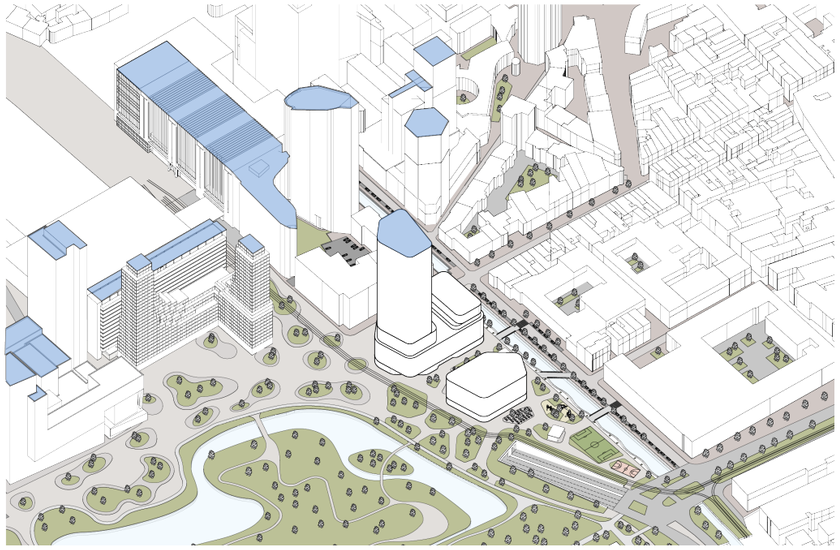
Flow station - campus and city



Creating a transition zone between park and city



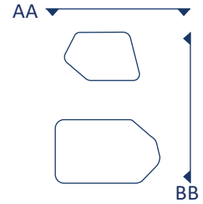
City height

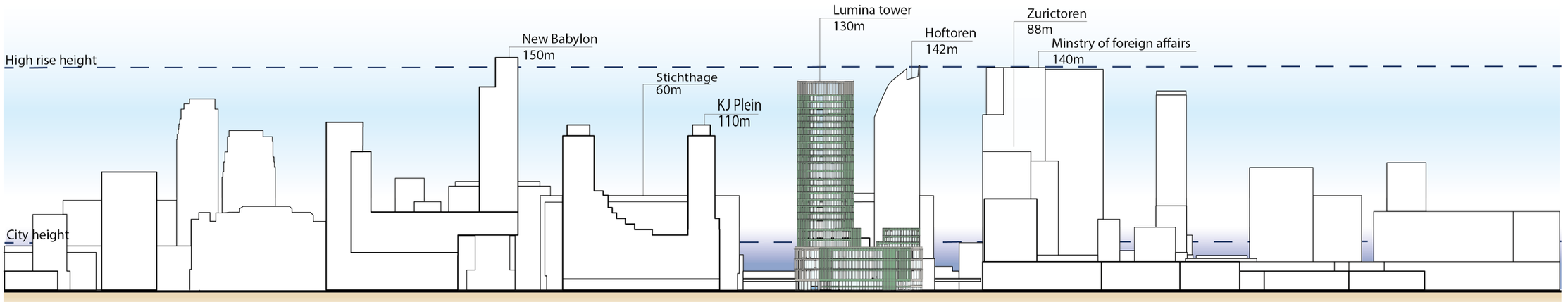


Station area height

Matching the urban fabric

HEIGHT





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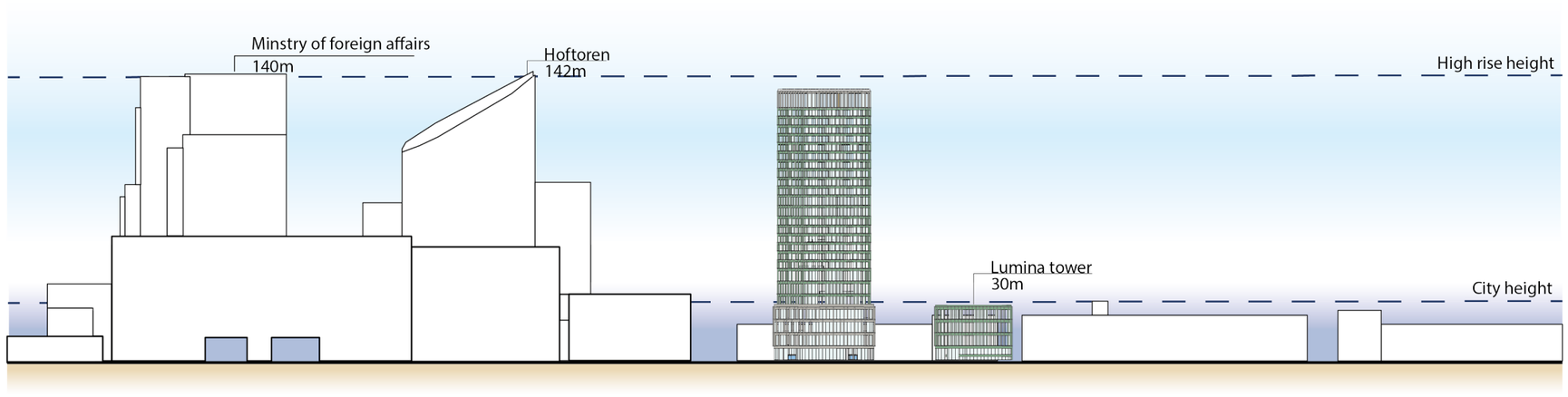


BB

Matching the urban fabric height

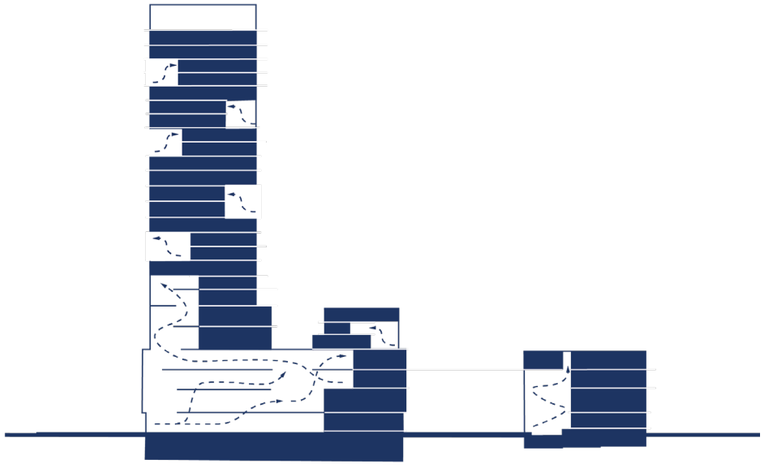
IMPLEMENTATION



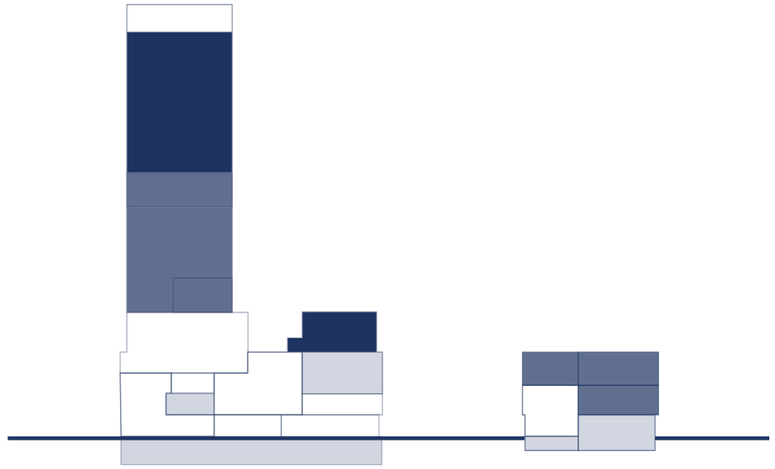
THE CONCEPT



Elevated plinth over 4 levels

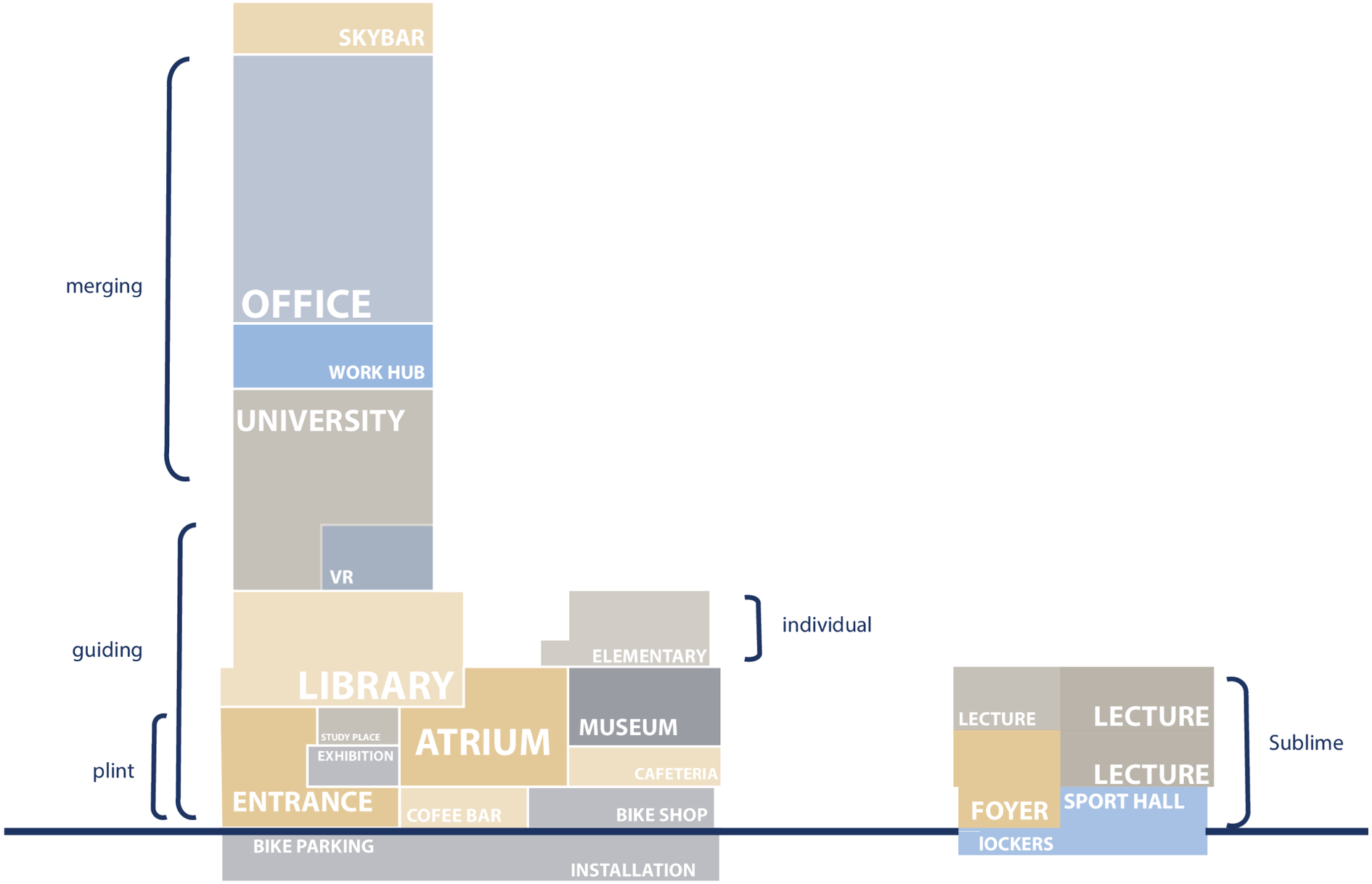


Wander inbetween voids



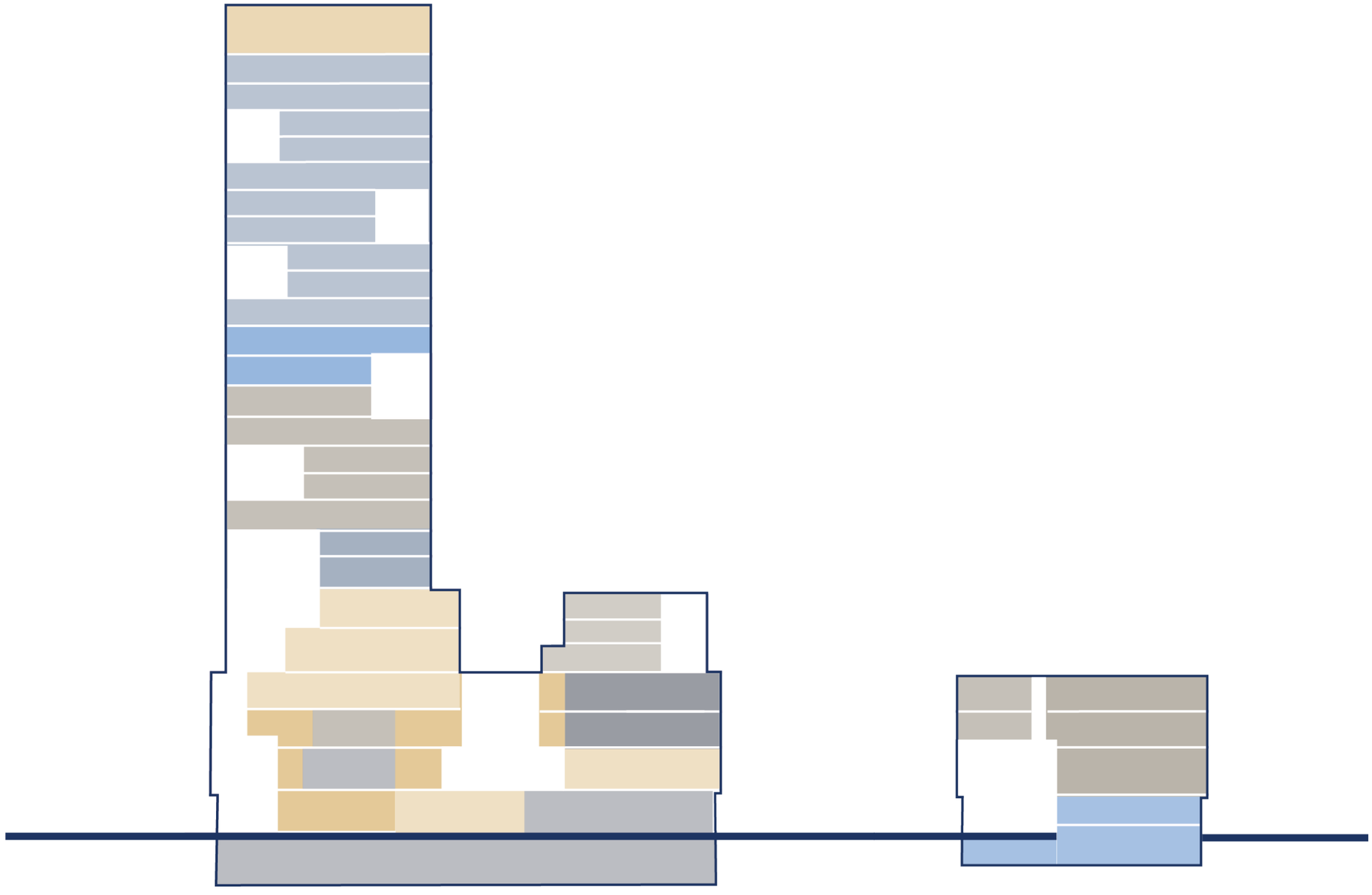
Public - Institutionalized

FUNCTIONS



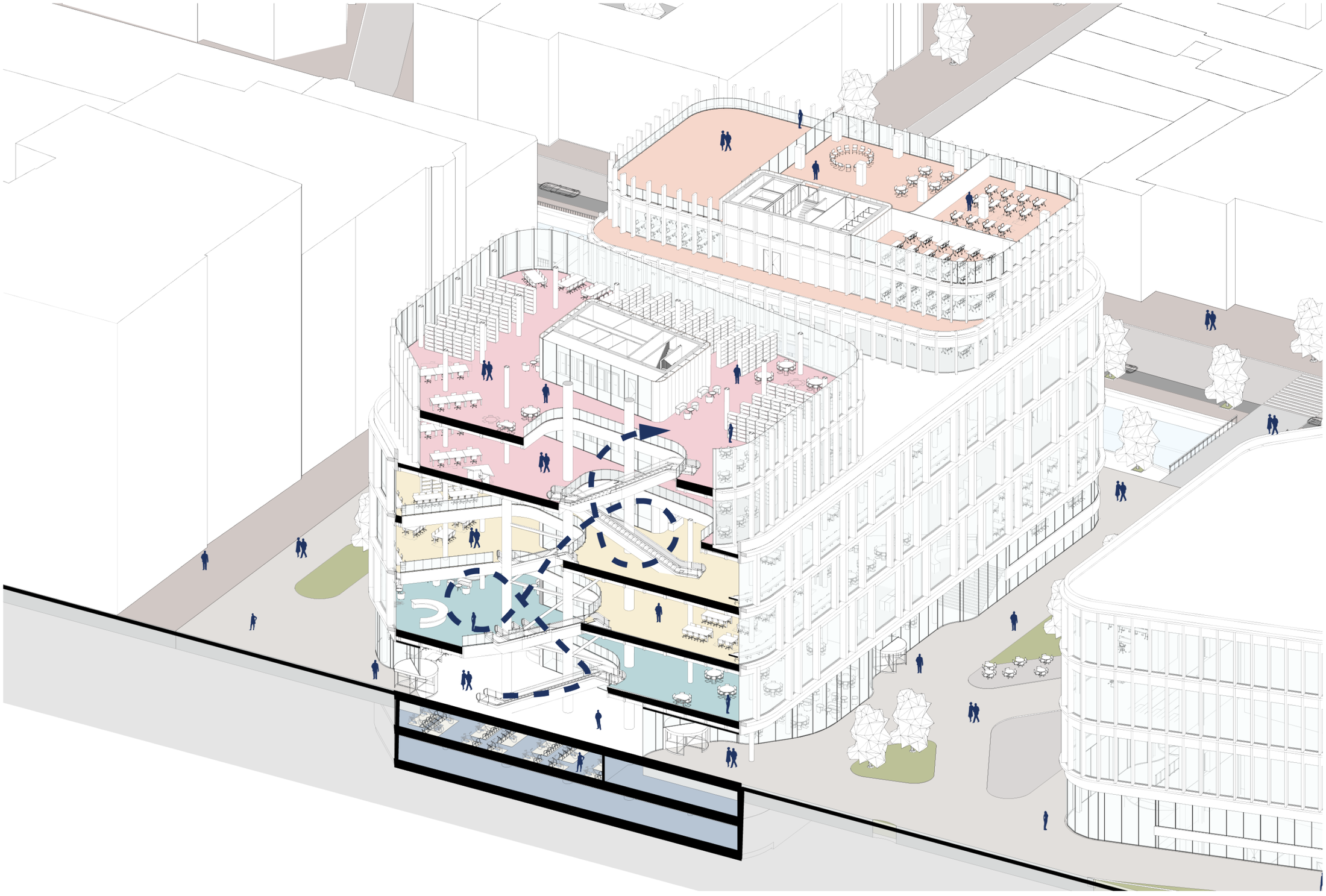
Clustering functions with the guidelines

VISTAS - VOIDS



Connecting functions by voids, showcasing functions and movement

VOIDS

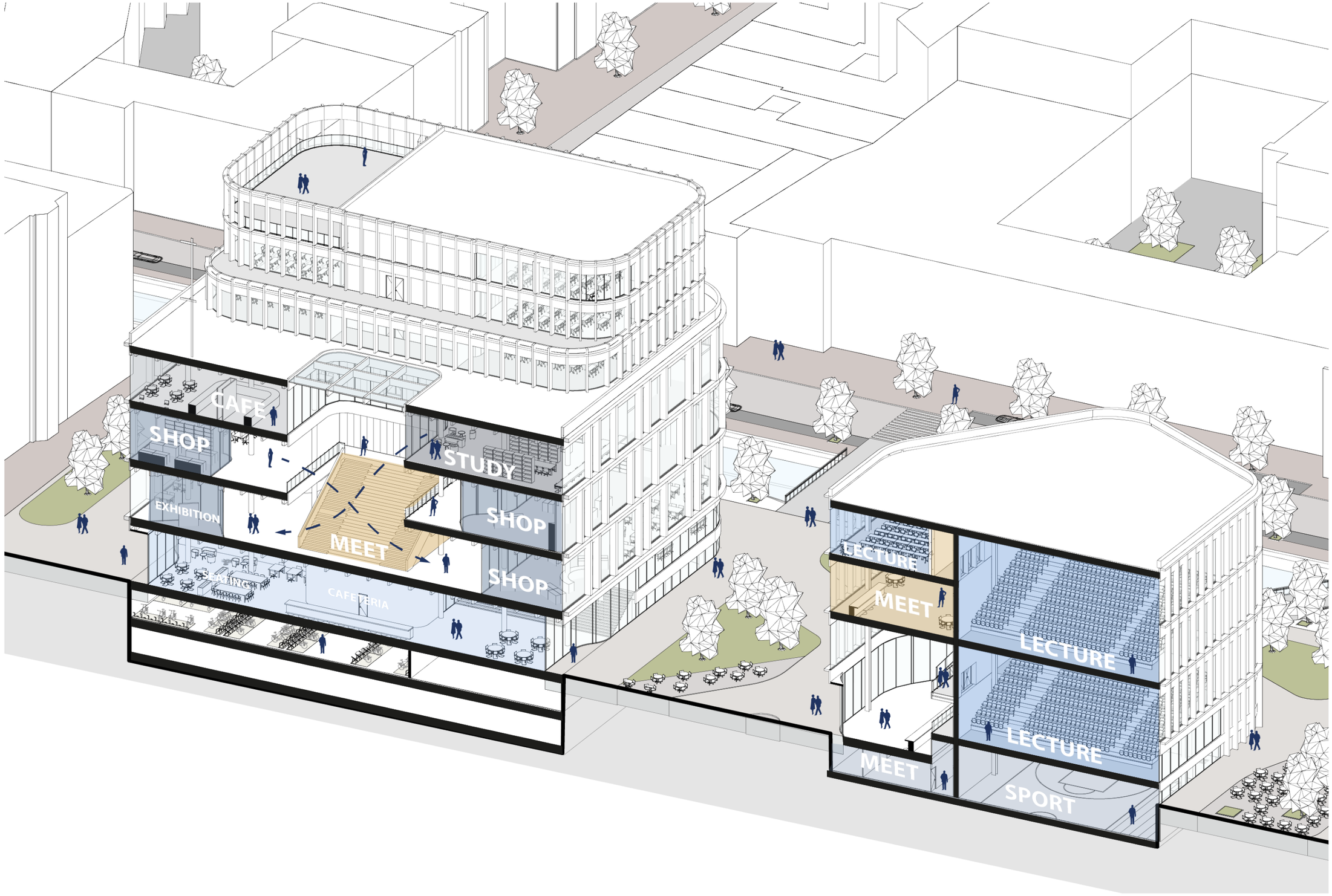


Changing vistas and view lines unfold as you navigate through the building.

FIRST FLOOR VOID



ATRIUM



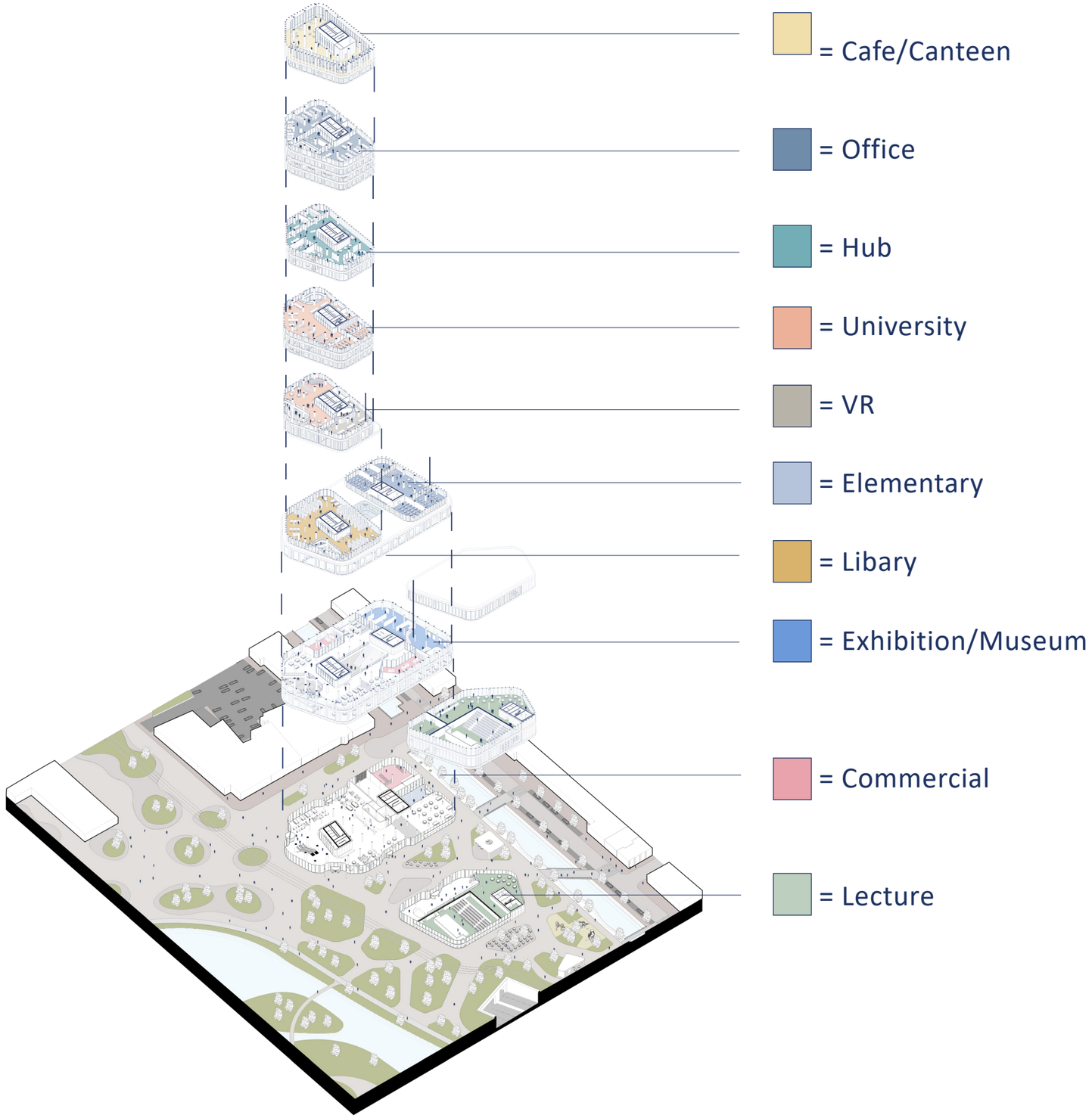
Cultural and institiutional learning

UNIVERSITY GATHERING HALL



05 Architecture

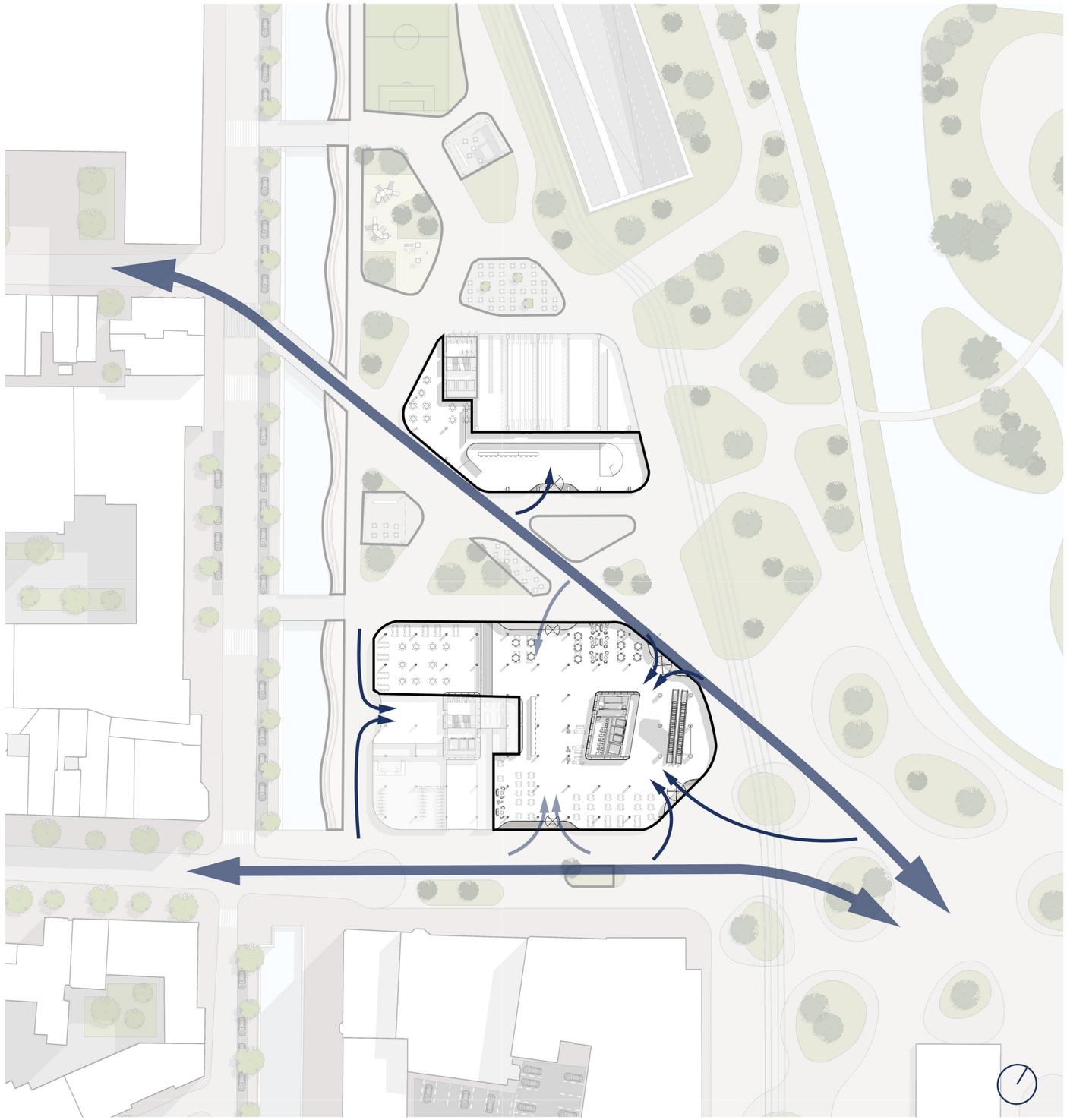
STACKING FLOWS



OUTDOOR SPACE



ENTRANCES



Guidance to the building by the new connection

SITE ACTIVITIES



Sport pavilion



Playground



Gathering



Waterfront





Soccer field



Terraces



Water square



Public bike storage

Different types of gathering

WATERFRONT



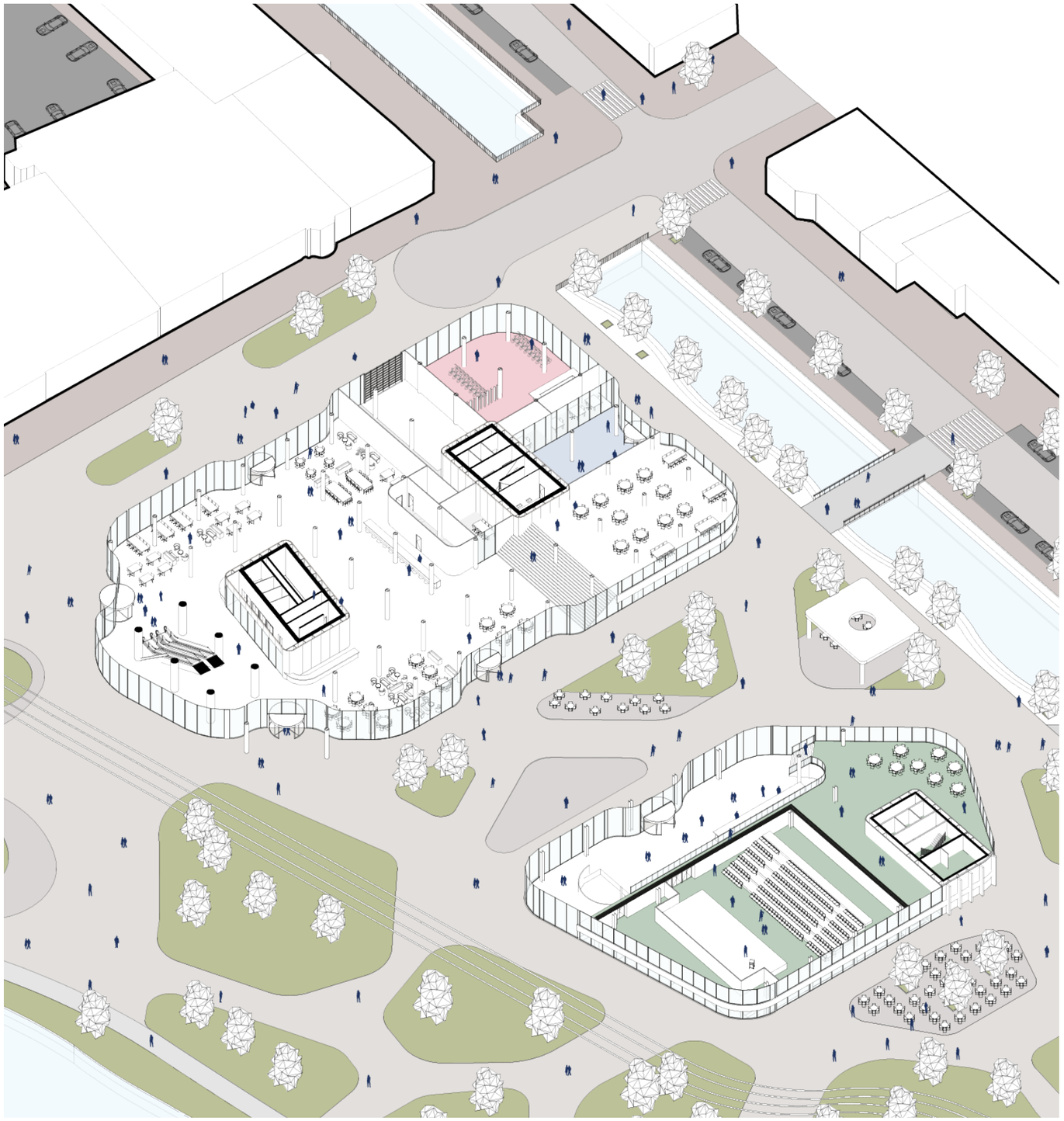
ENTRANCE

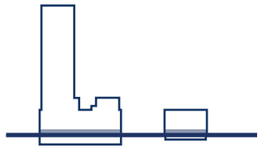


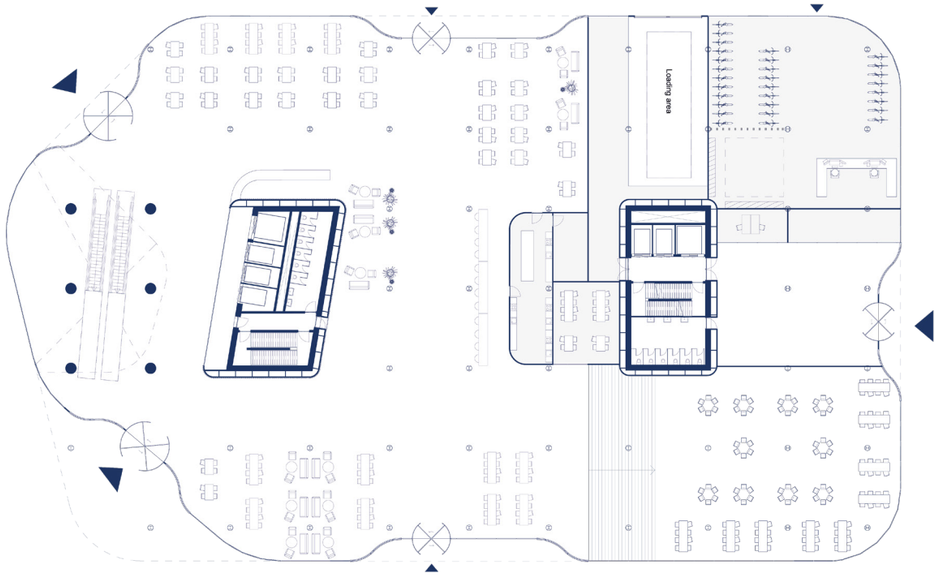
ENTRANCE

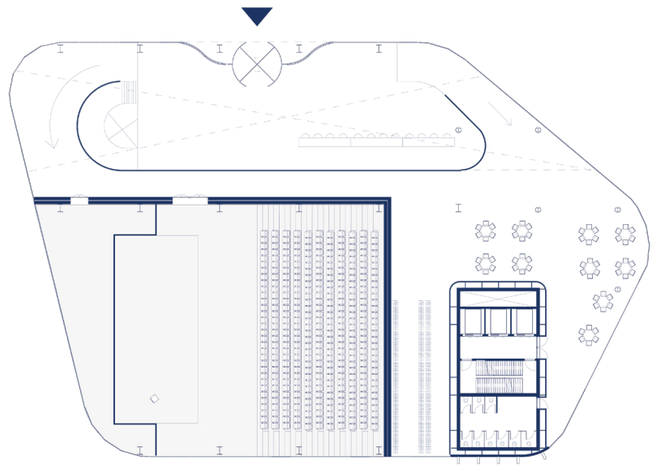


GROUND FLOOR - PLINTH

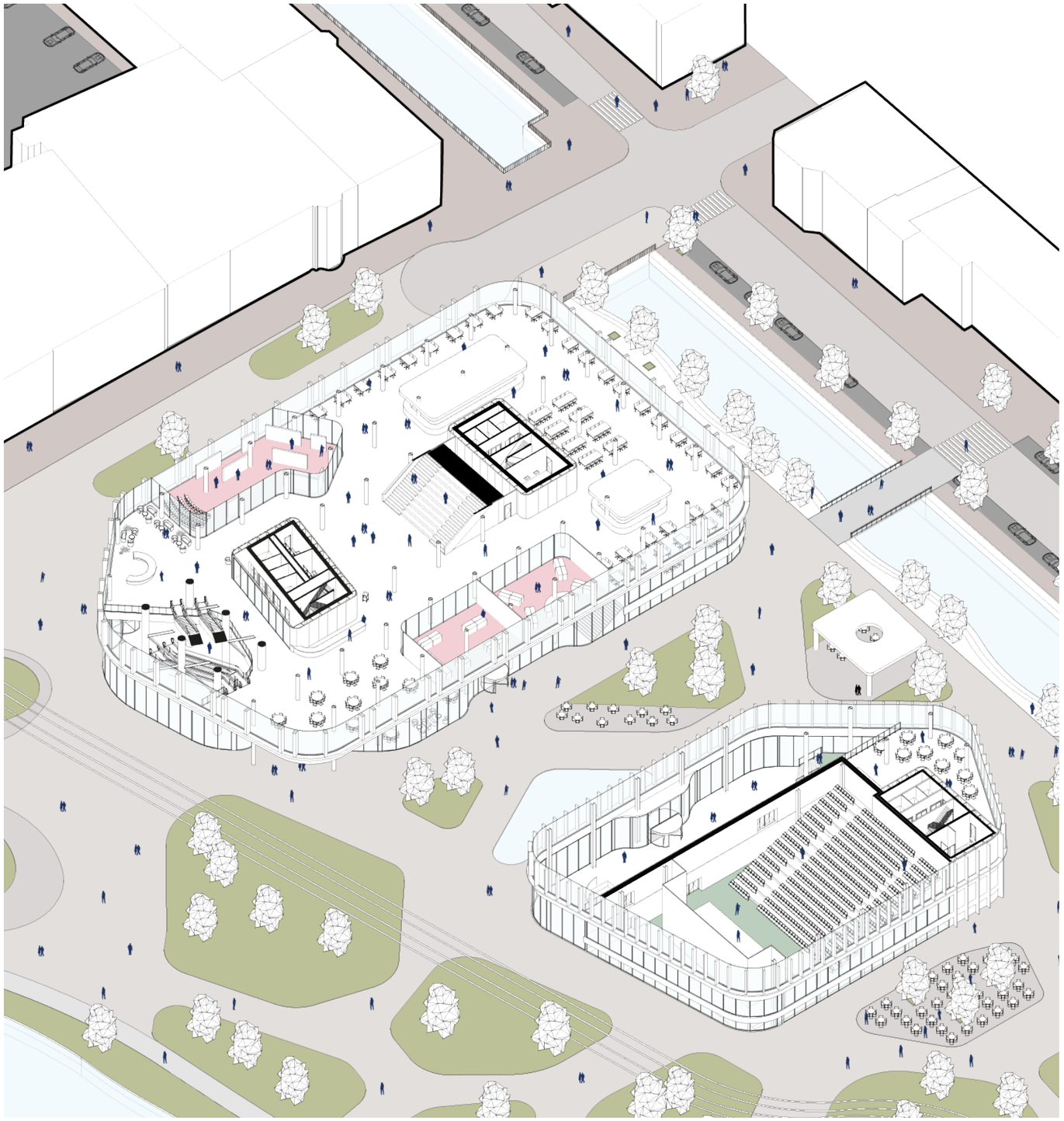


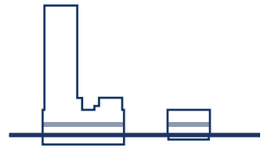


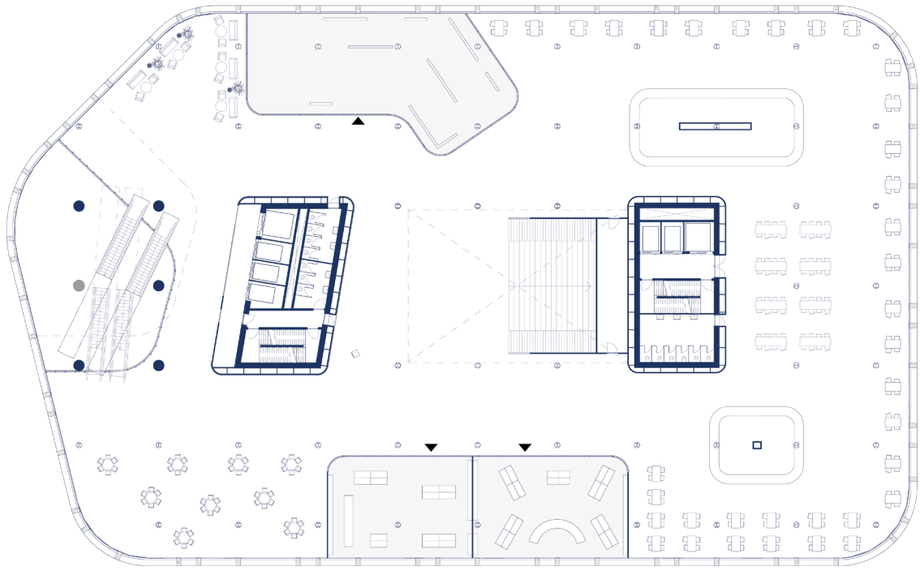


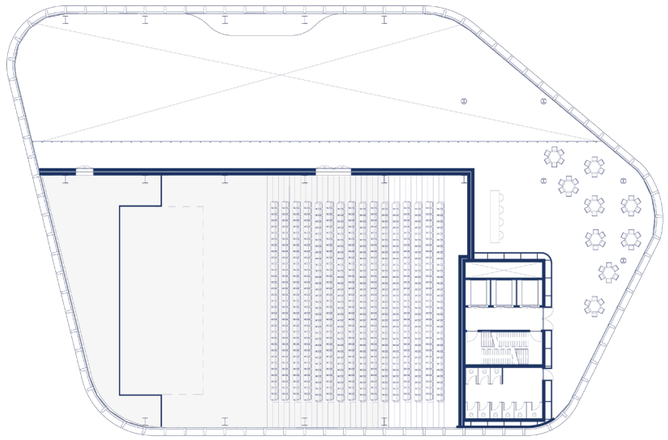


FIRST FLOOR - PLINTH

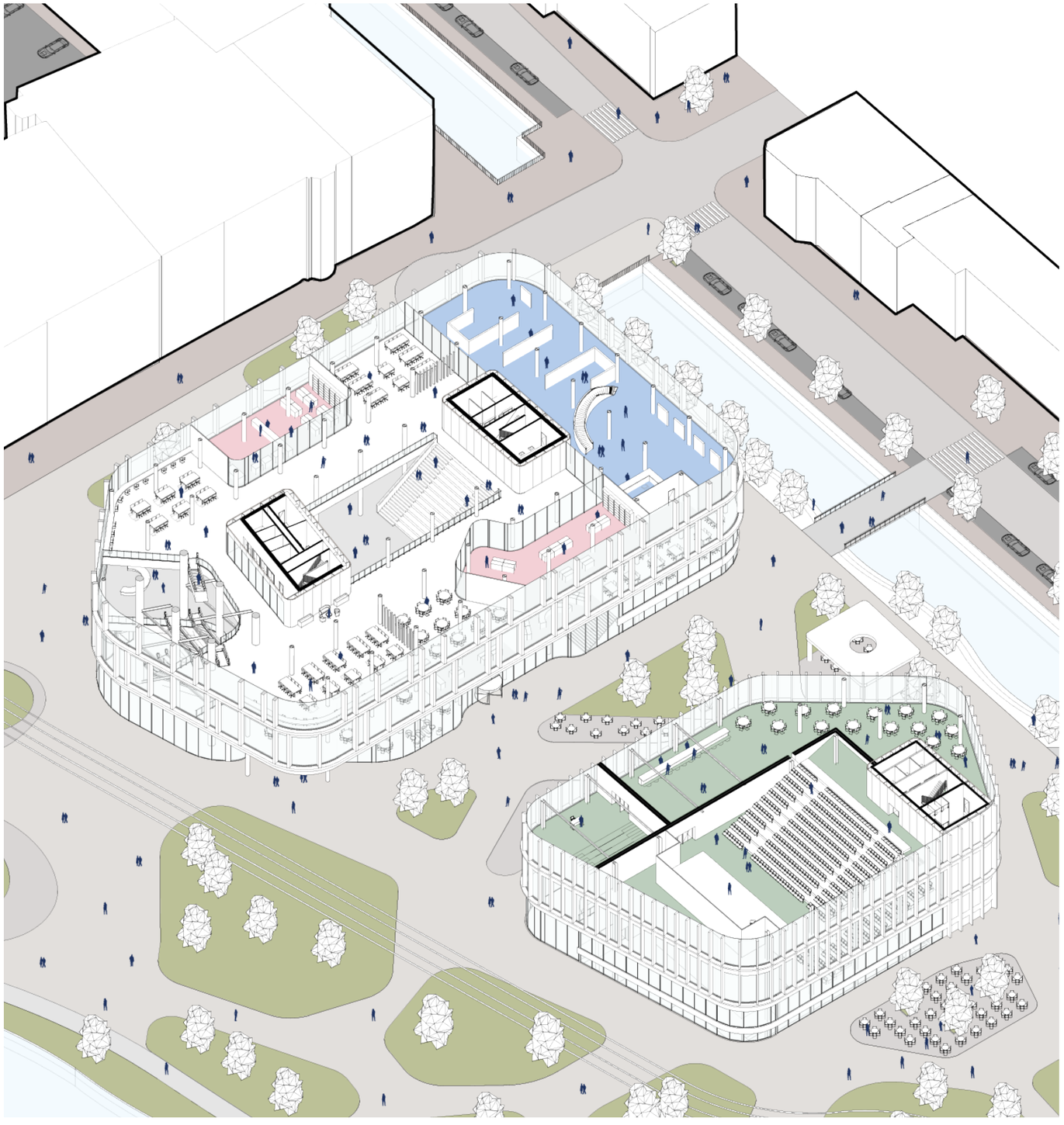


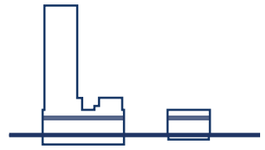


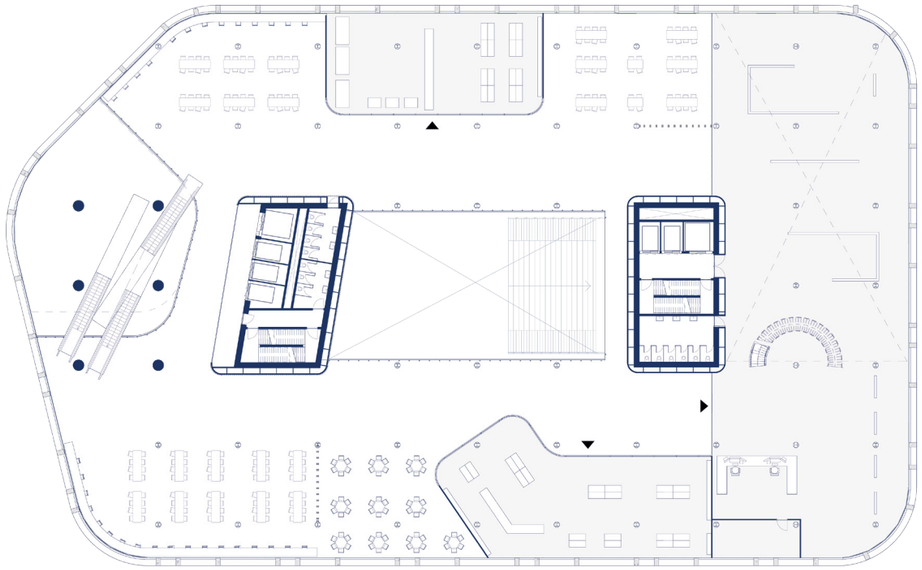


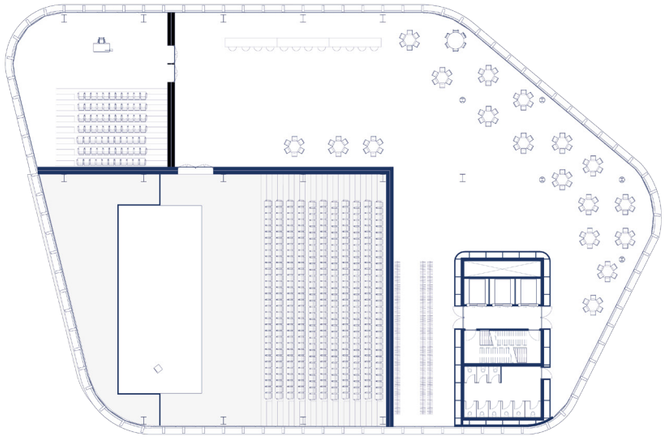


SECOND FLOOR - PLINTH

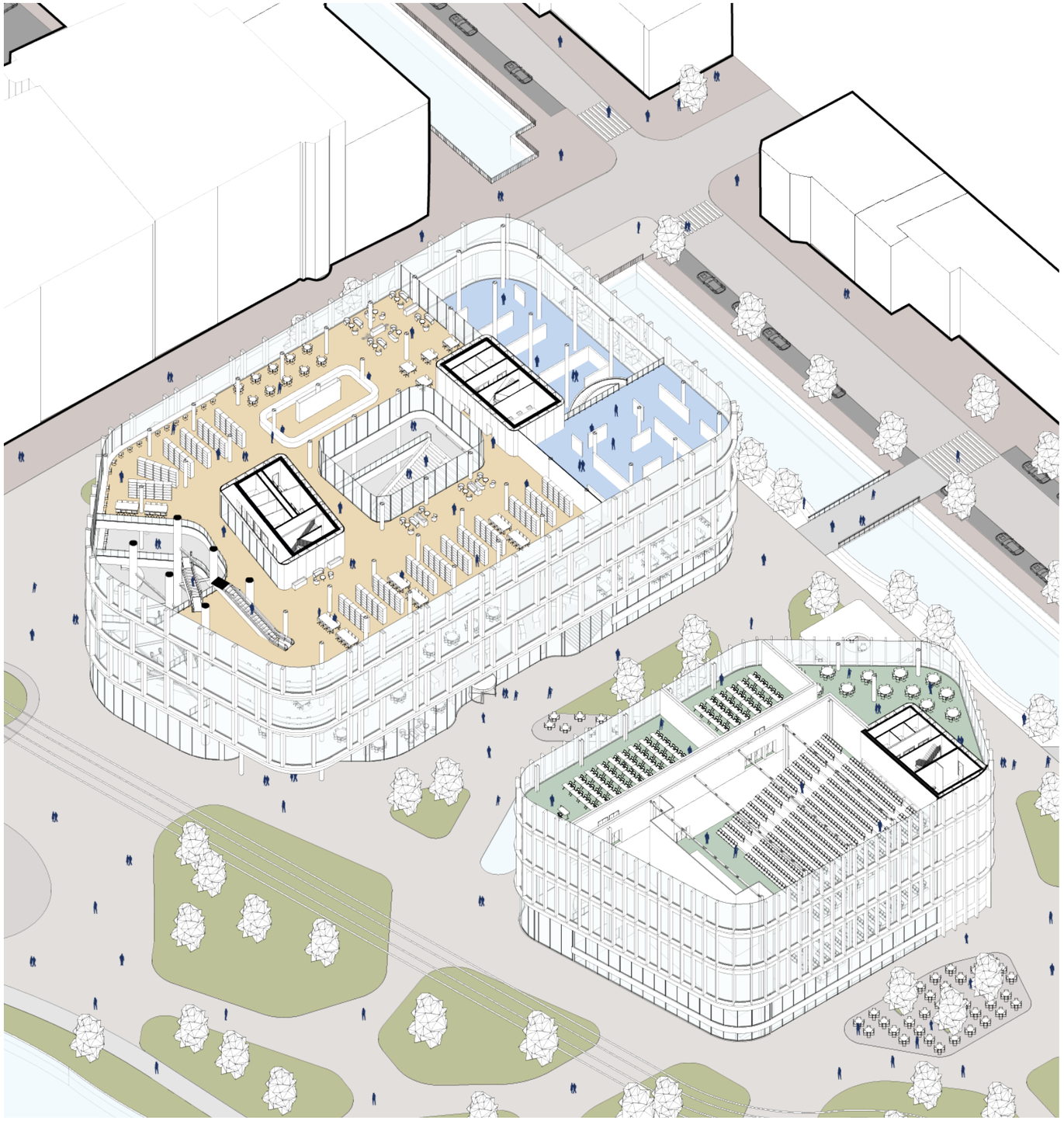


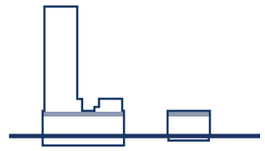


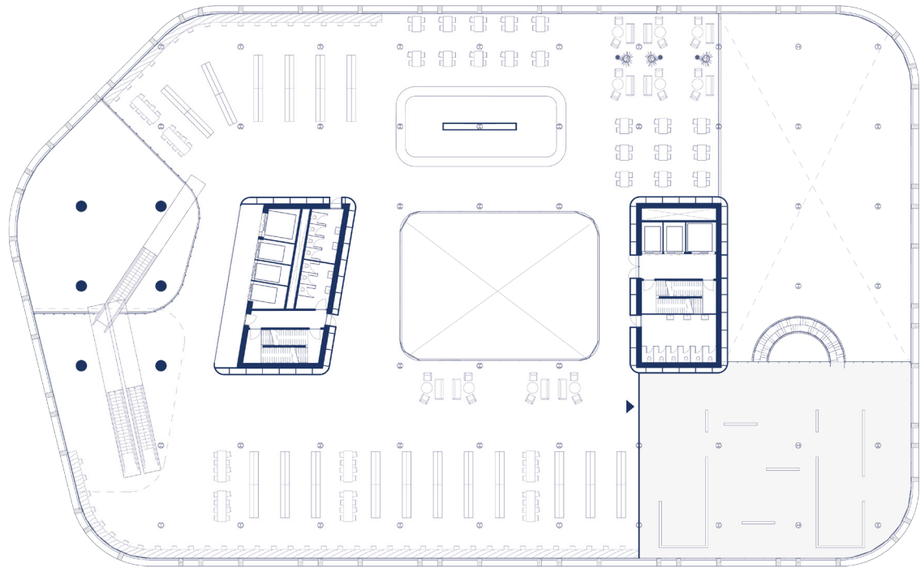


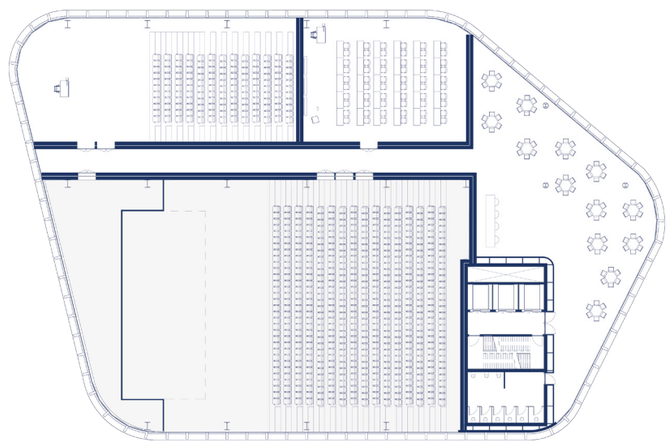


THIRD FLOOR - PLINTH

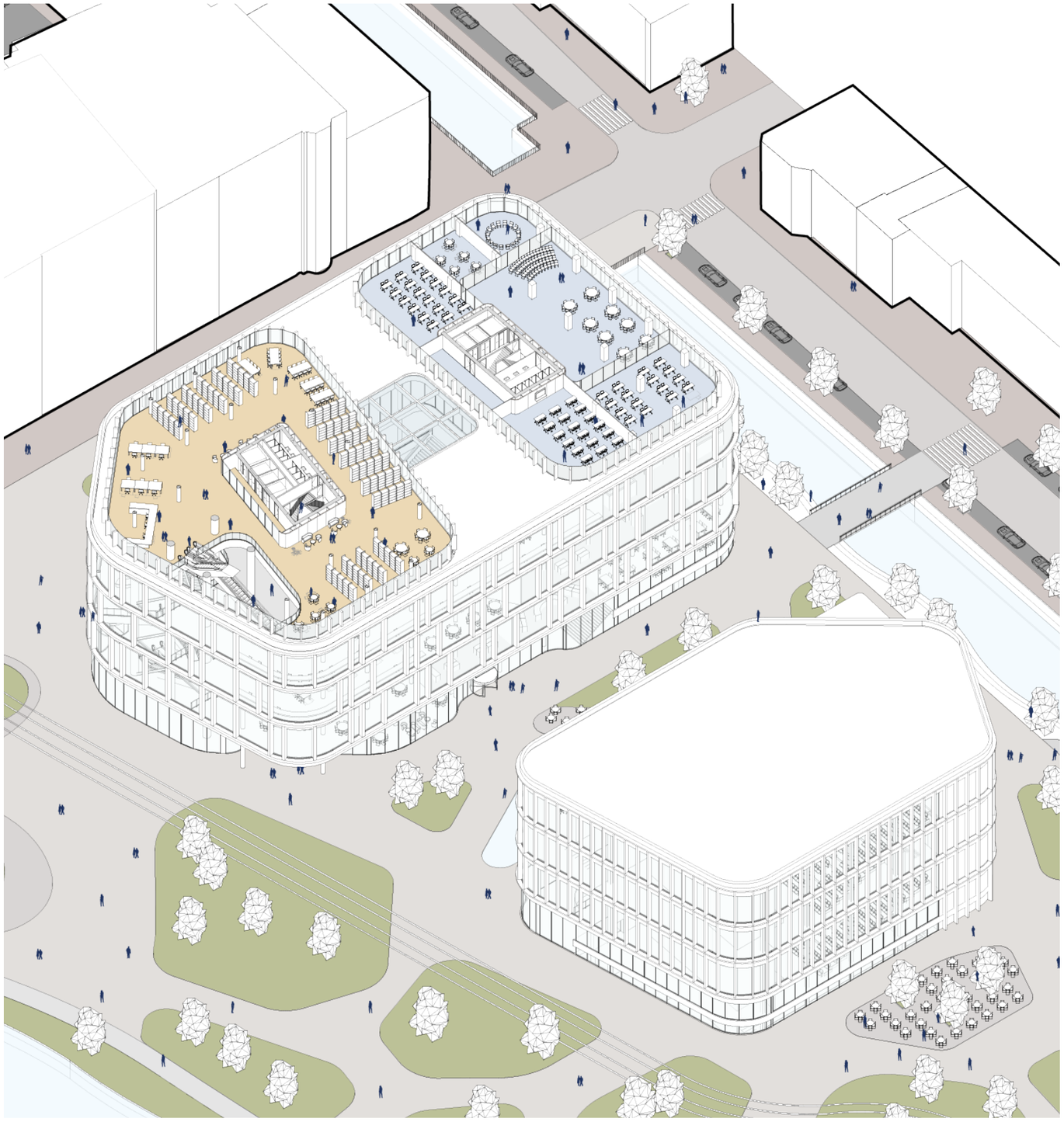


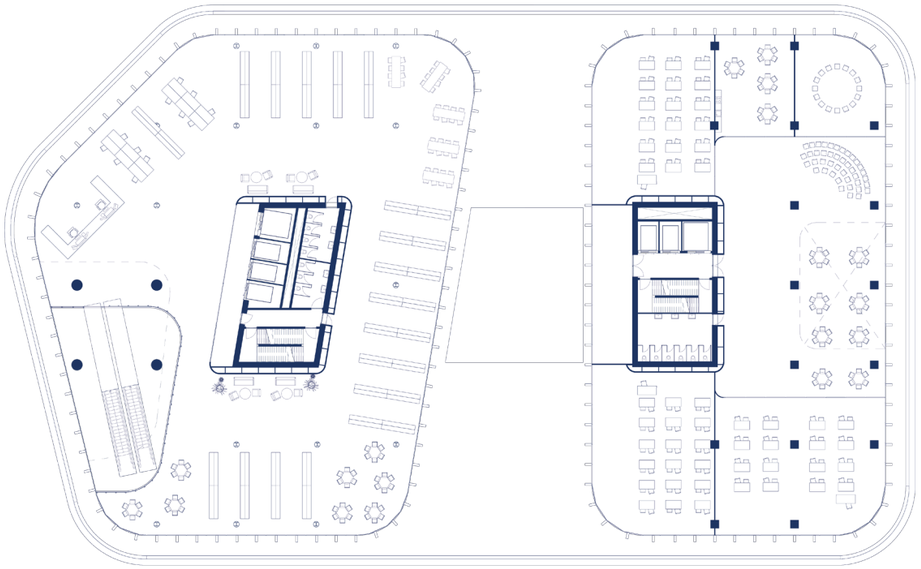






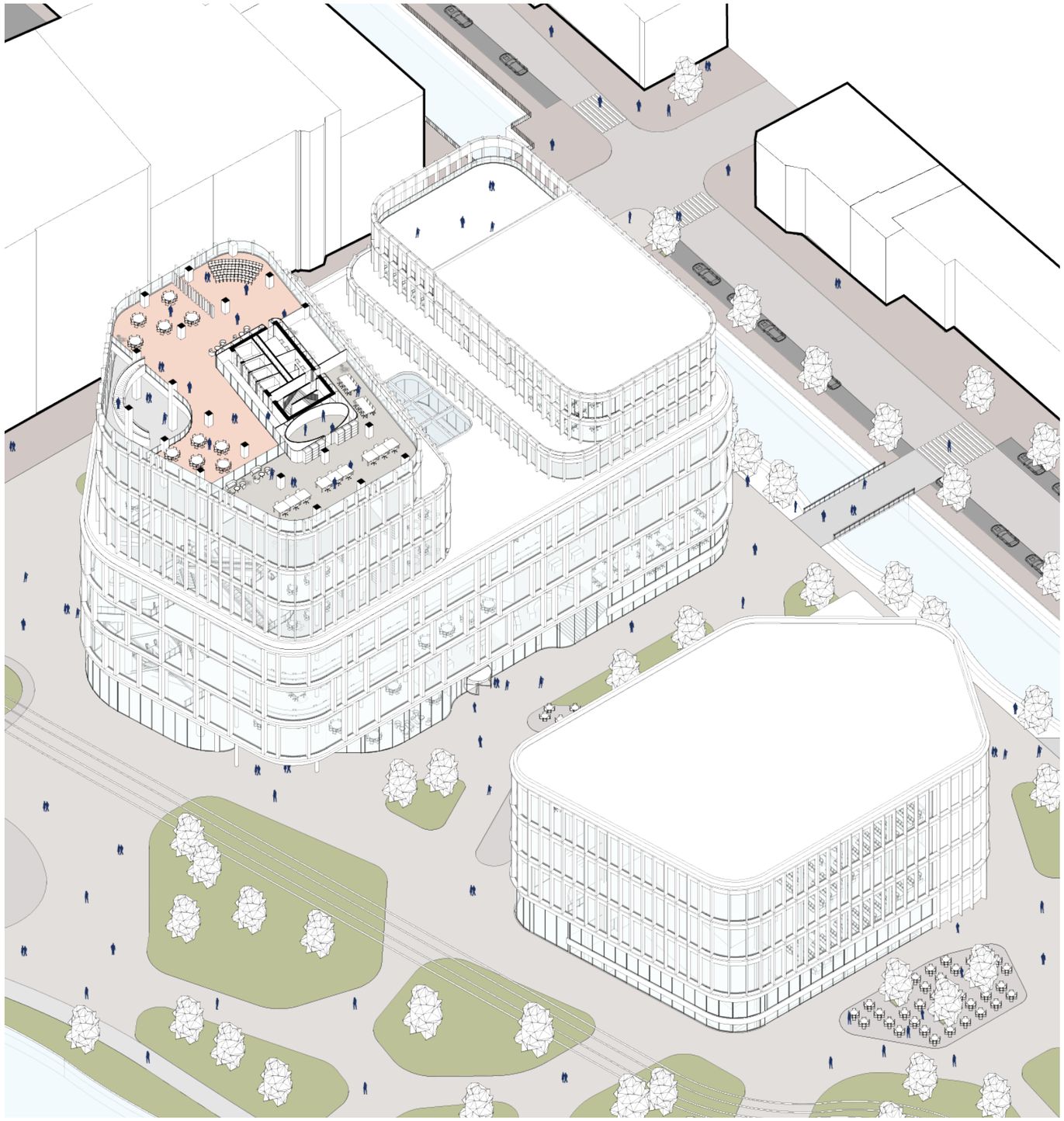
FOURTH FLOOR - LIBRARY

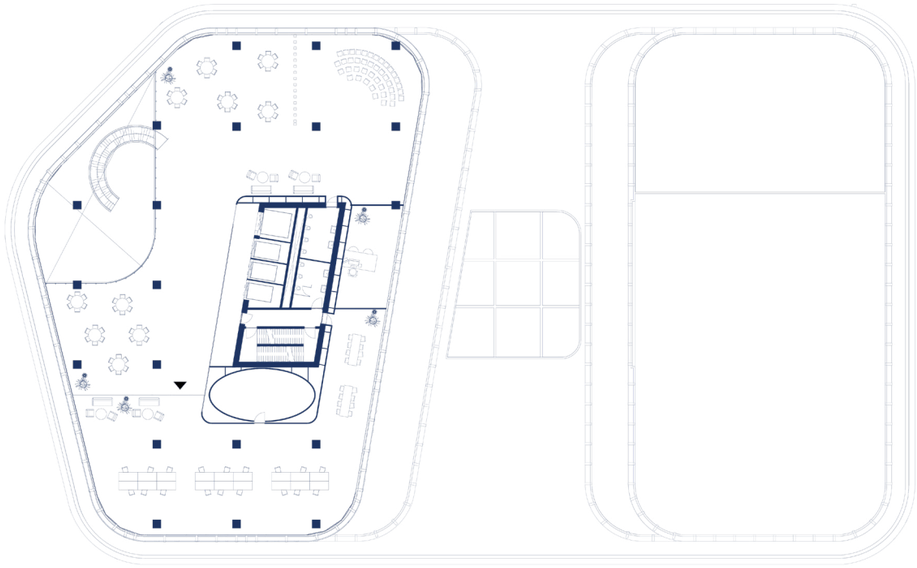




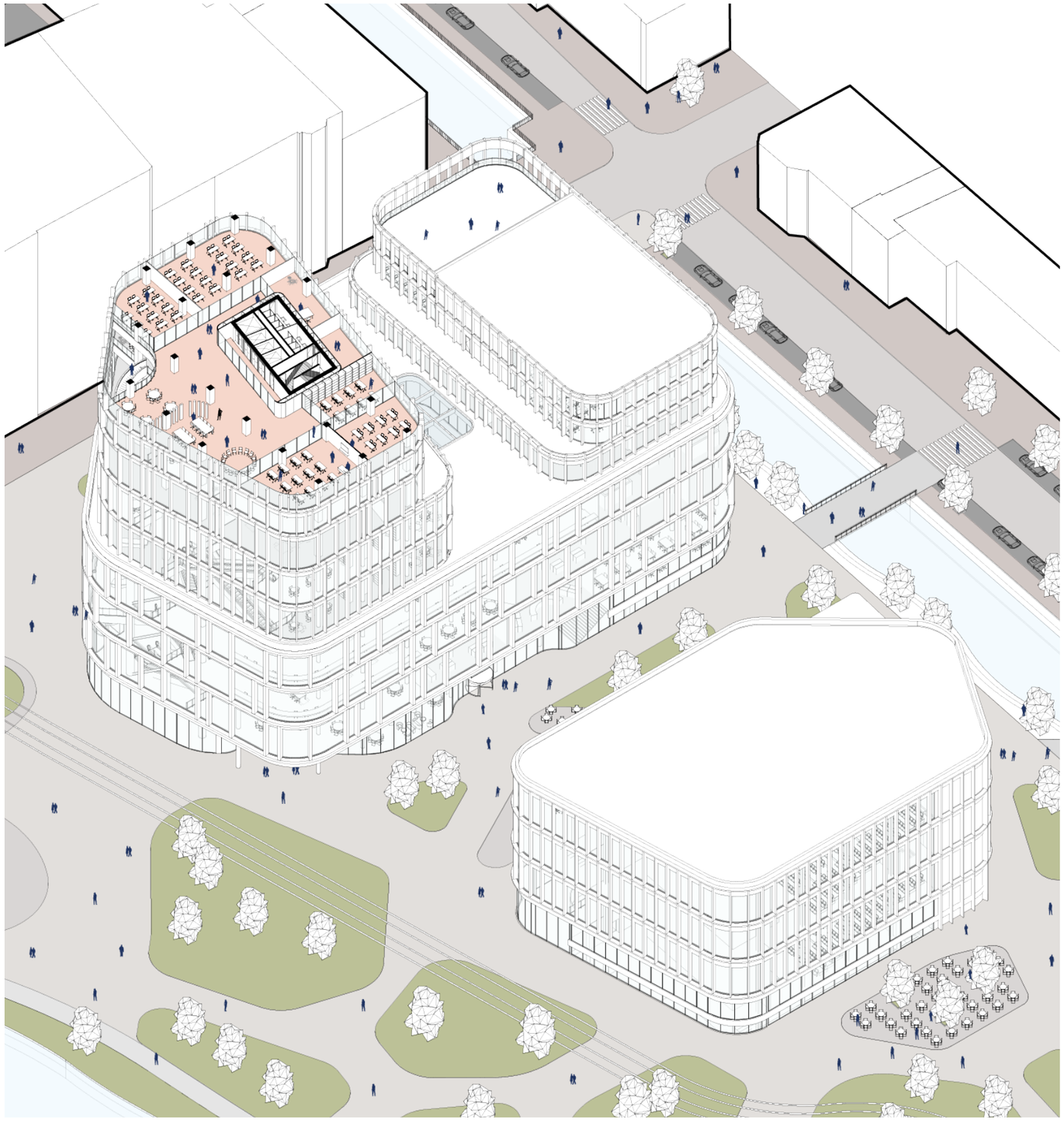


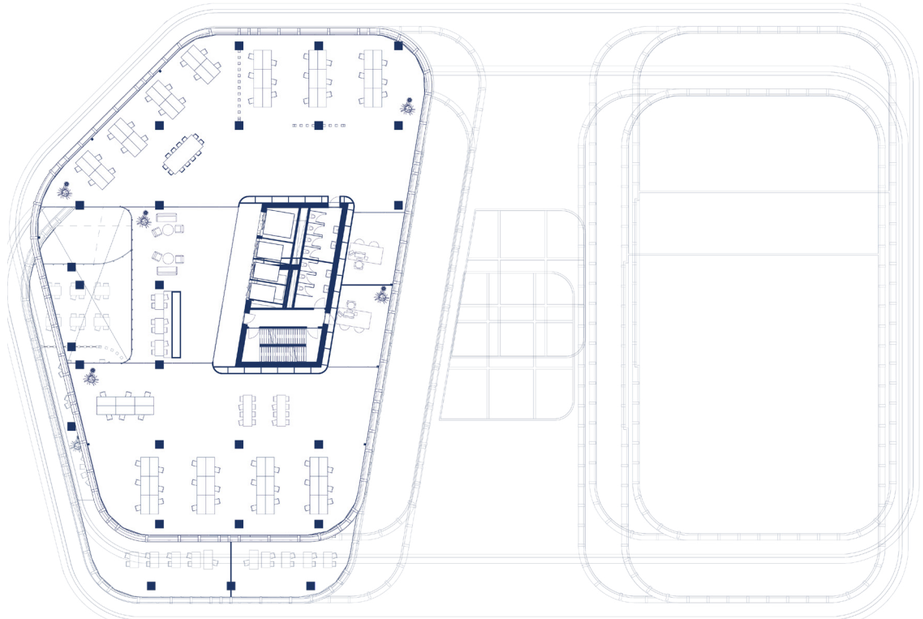
SEVENTH FLOOR - UNIVERSITY ENTRANCE



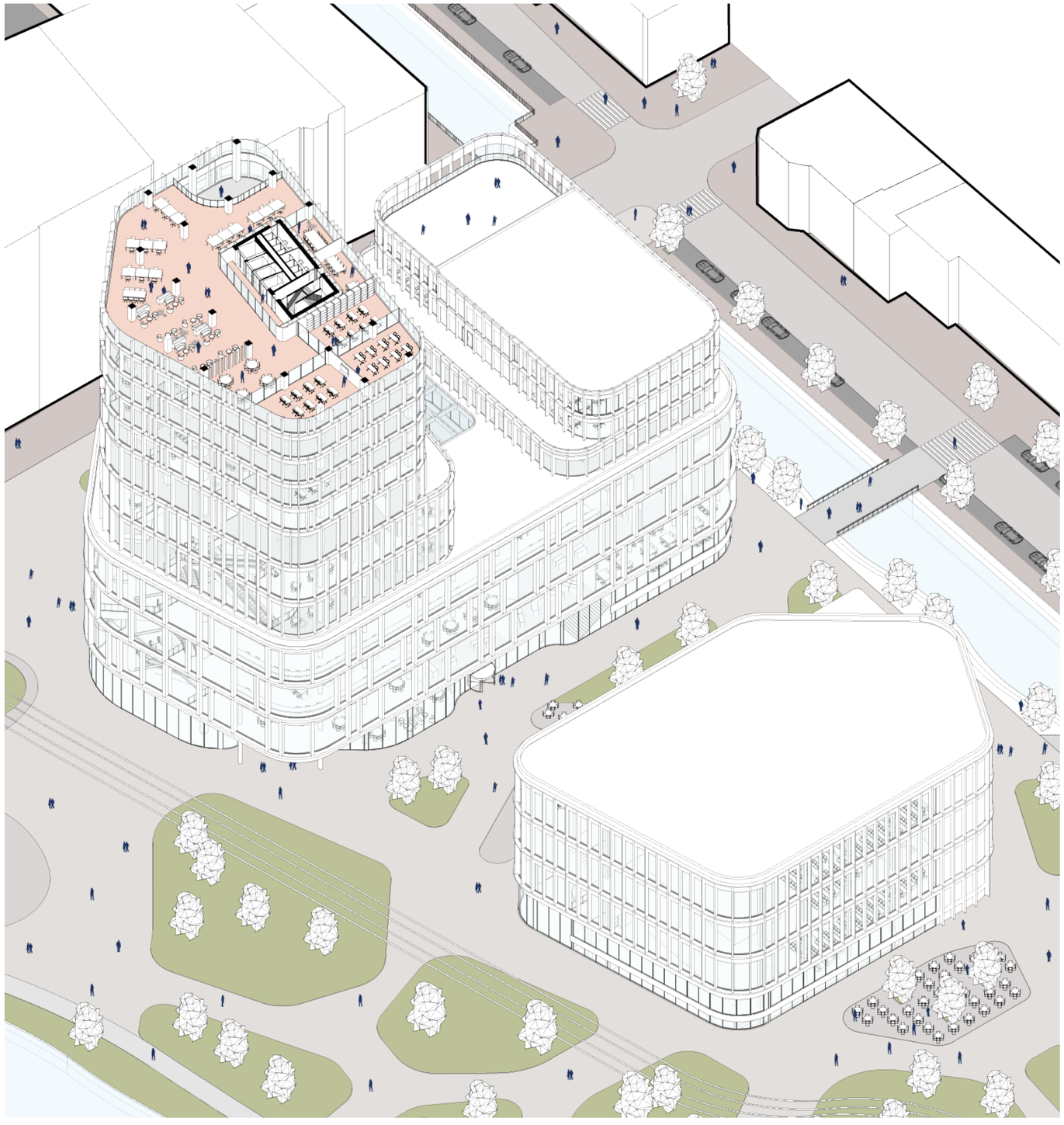


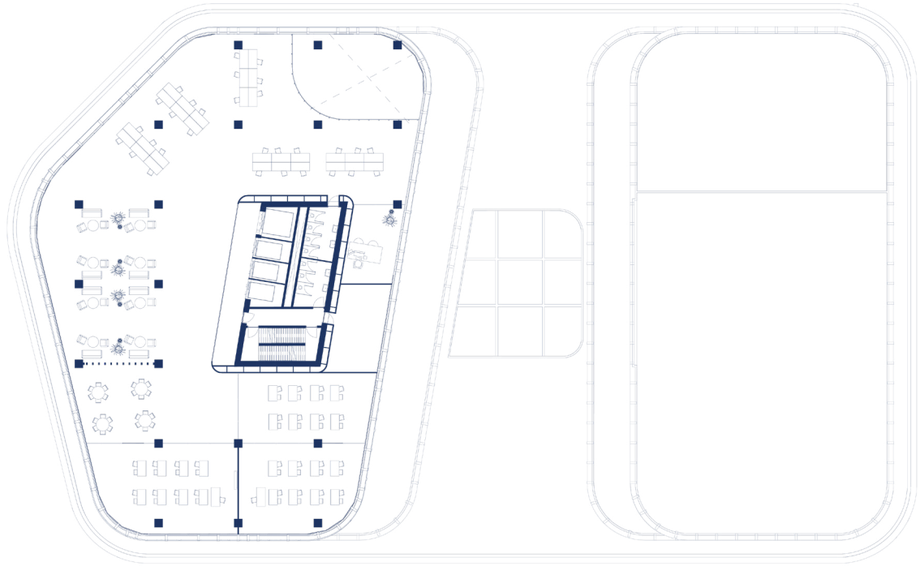
EIGHT FLOOR - UNIVERSITY



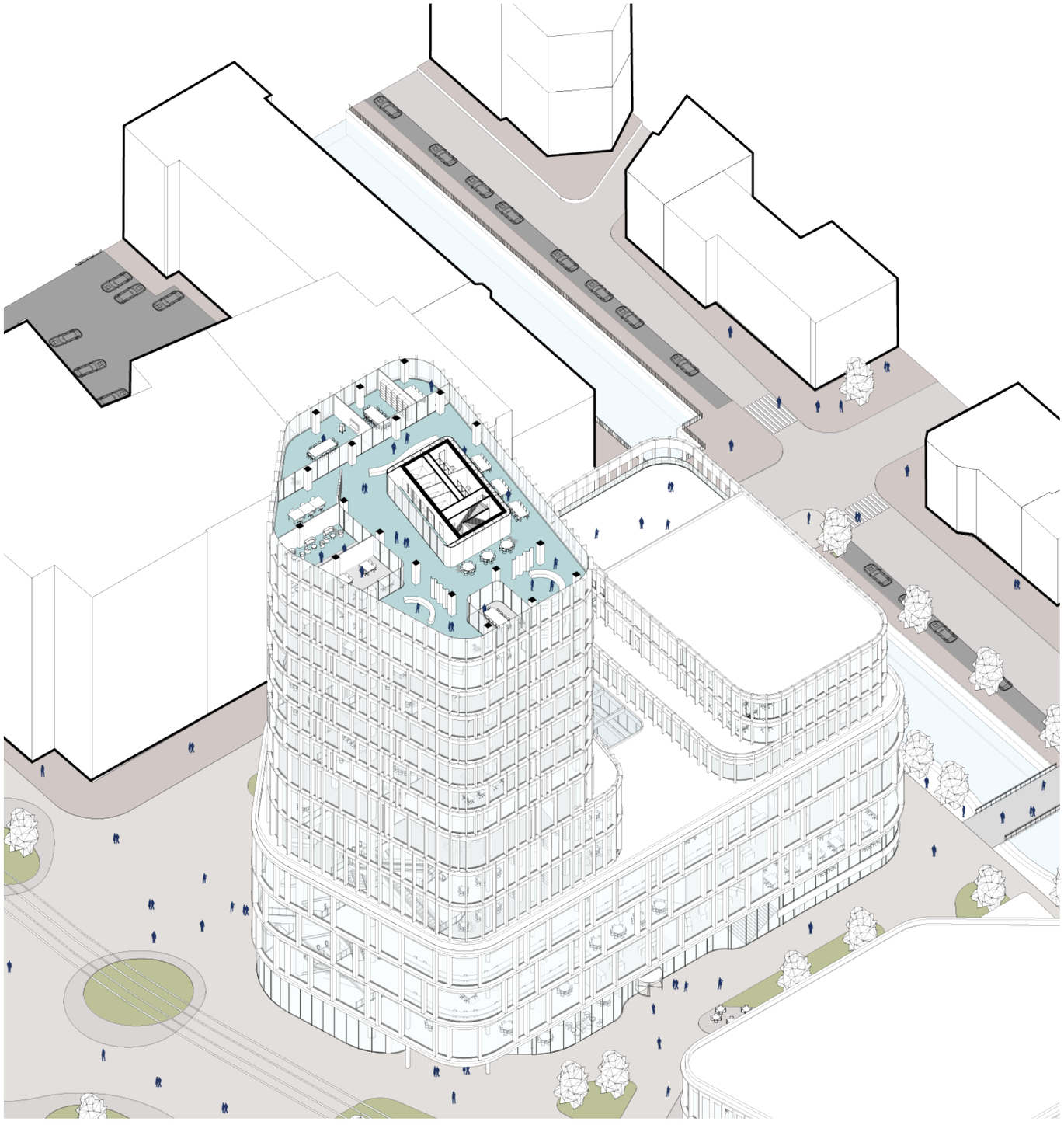


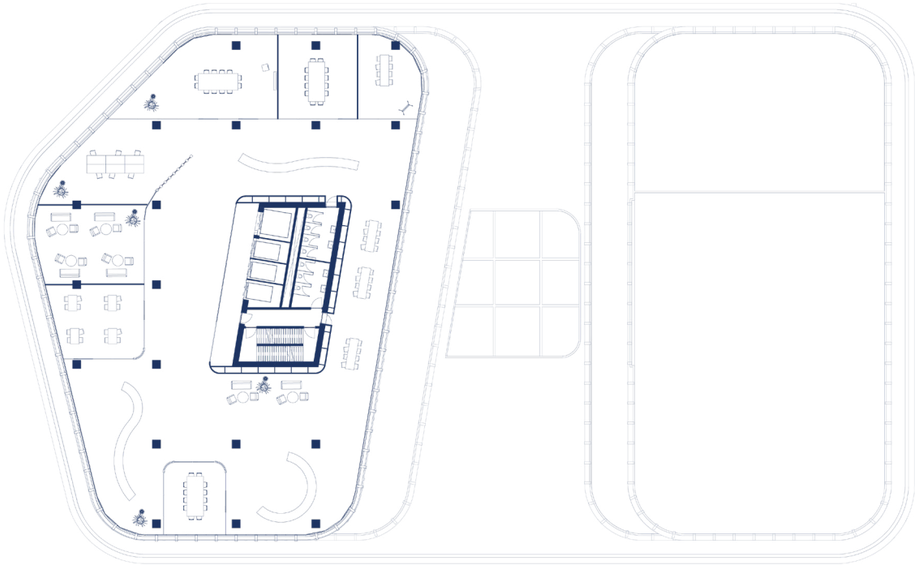
ELEVENTH FLOOR - UNIVERSITY



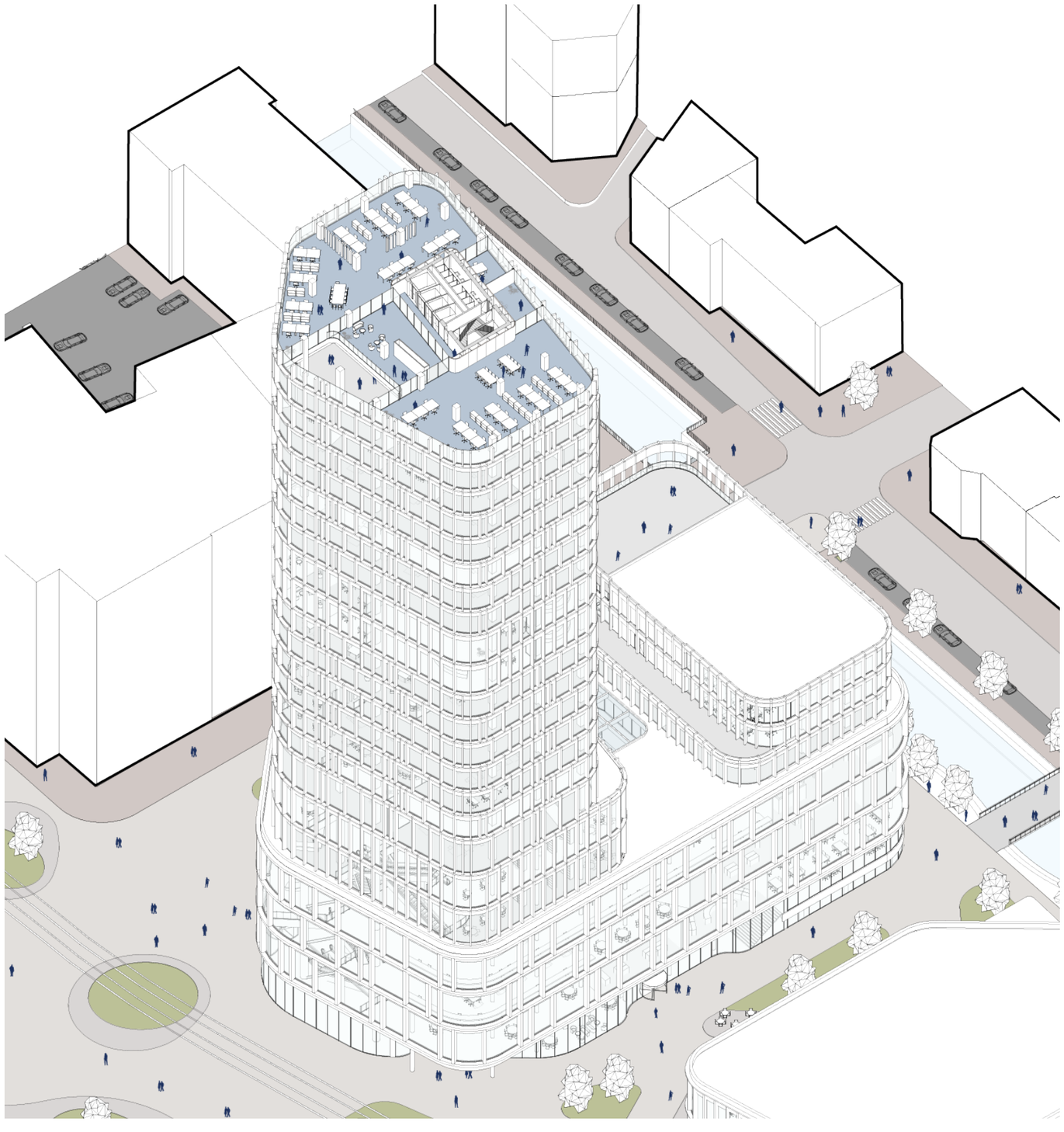


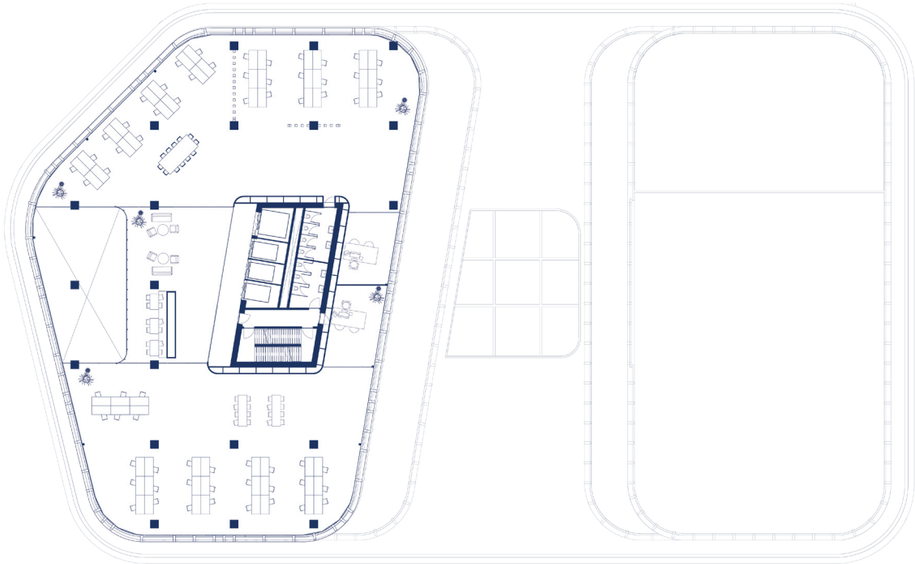
FOURTEENTH FLOOR - WORK HUB



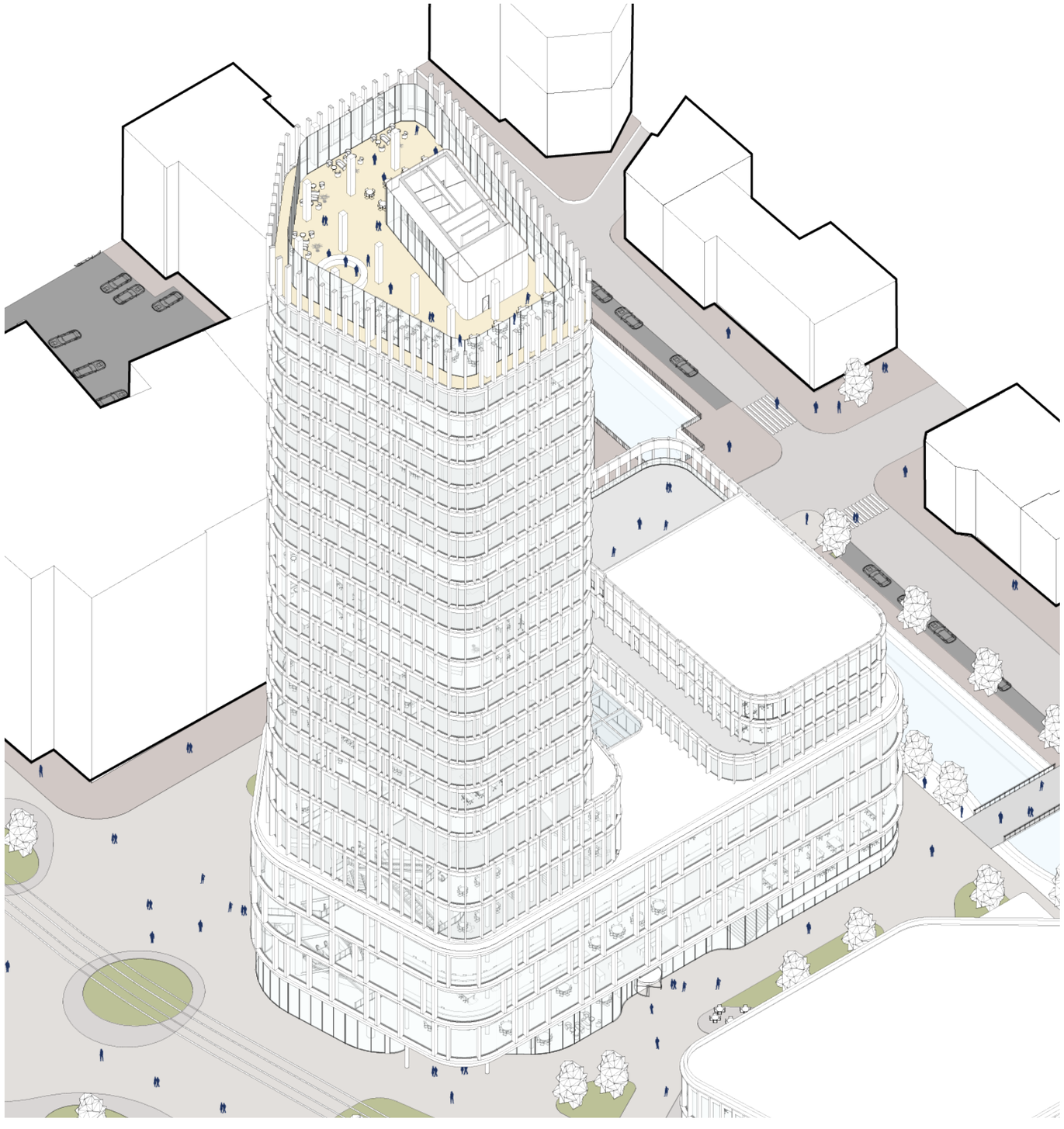


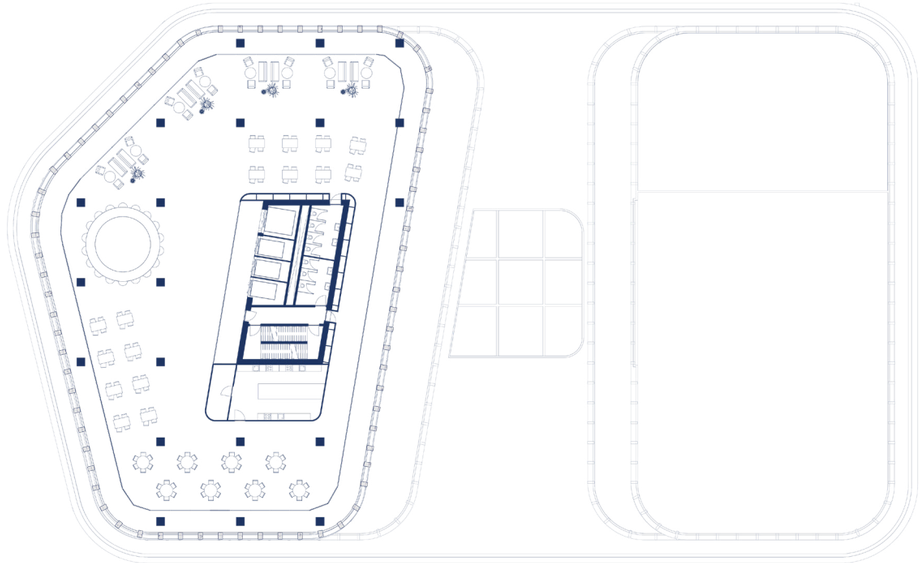
TWENTY SECOND FLOOR - OFFICE





TWENTHY FIFTH FLOOR - SKYBAR



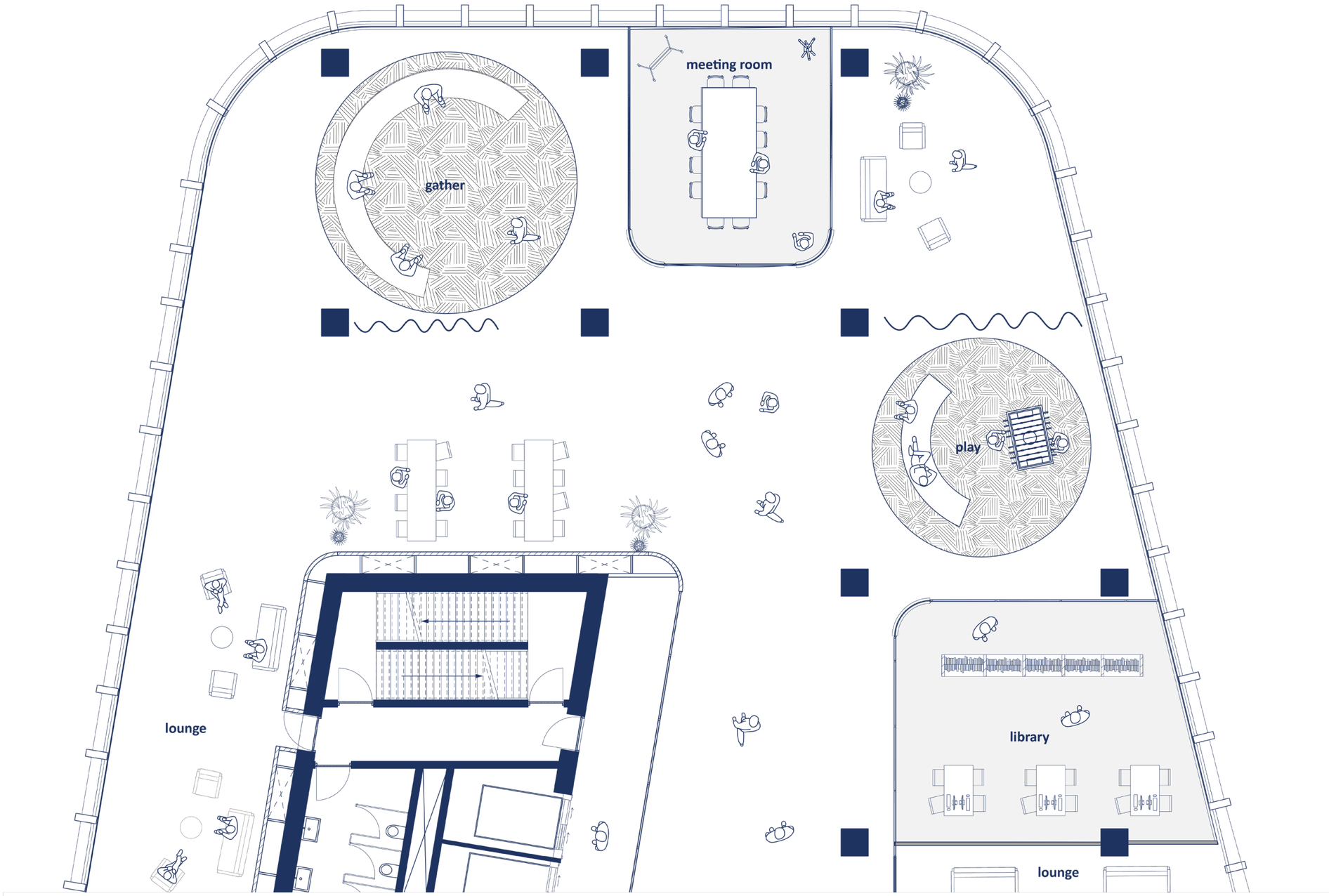


OVERVIEW



TYPICAL FLOORPLAN

Floor 14 - scale 1.50



The workhub on the fourtheenth floor. Formal and informal places meet for university and the offices.

UNIVERSITY ENTRANCE

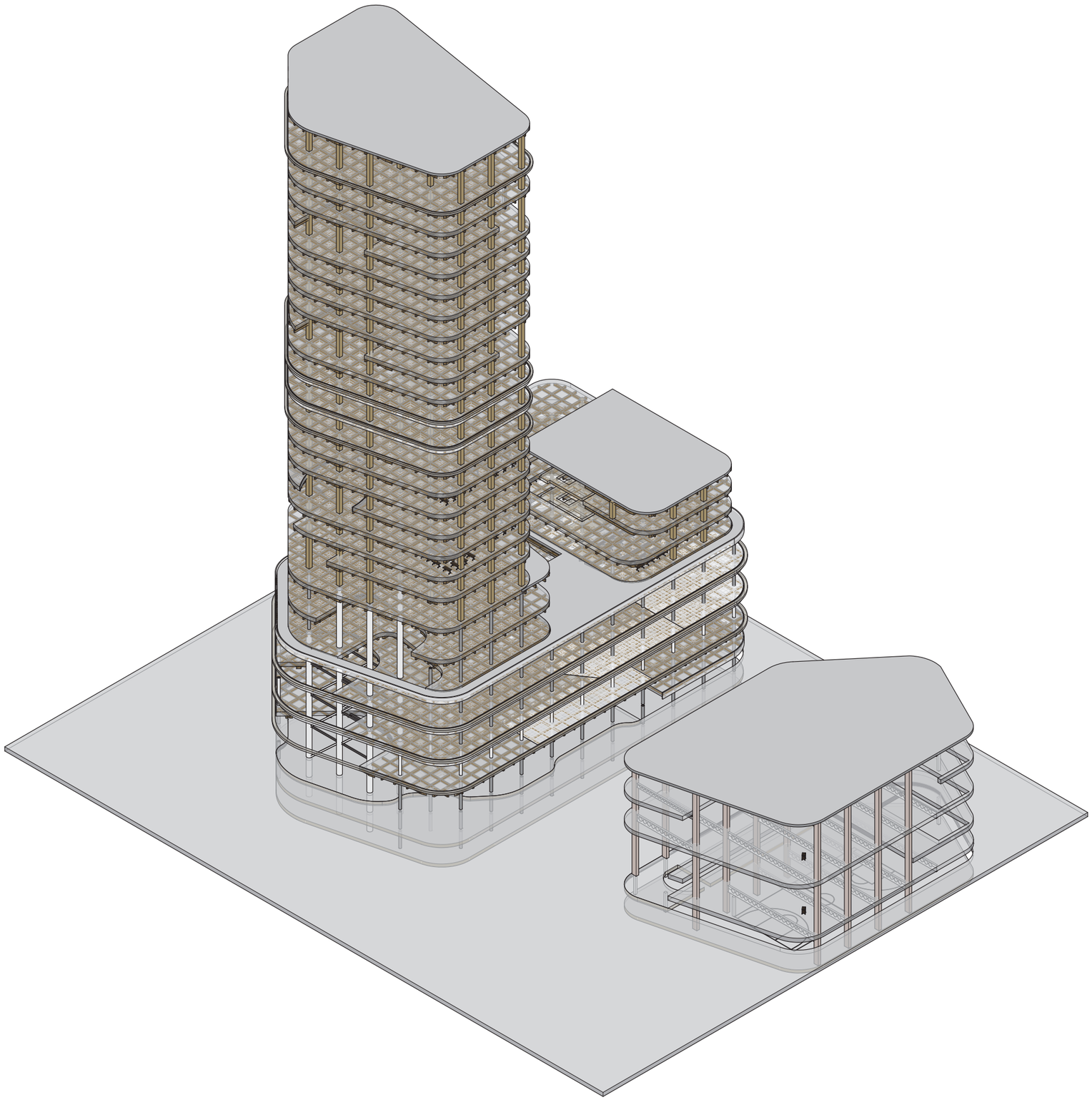


EXHIBITION - MUSEUM

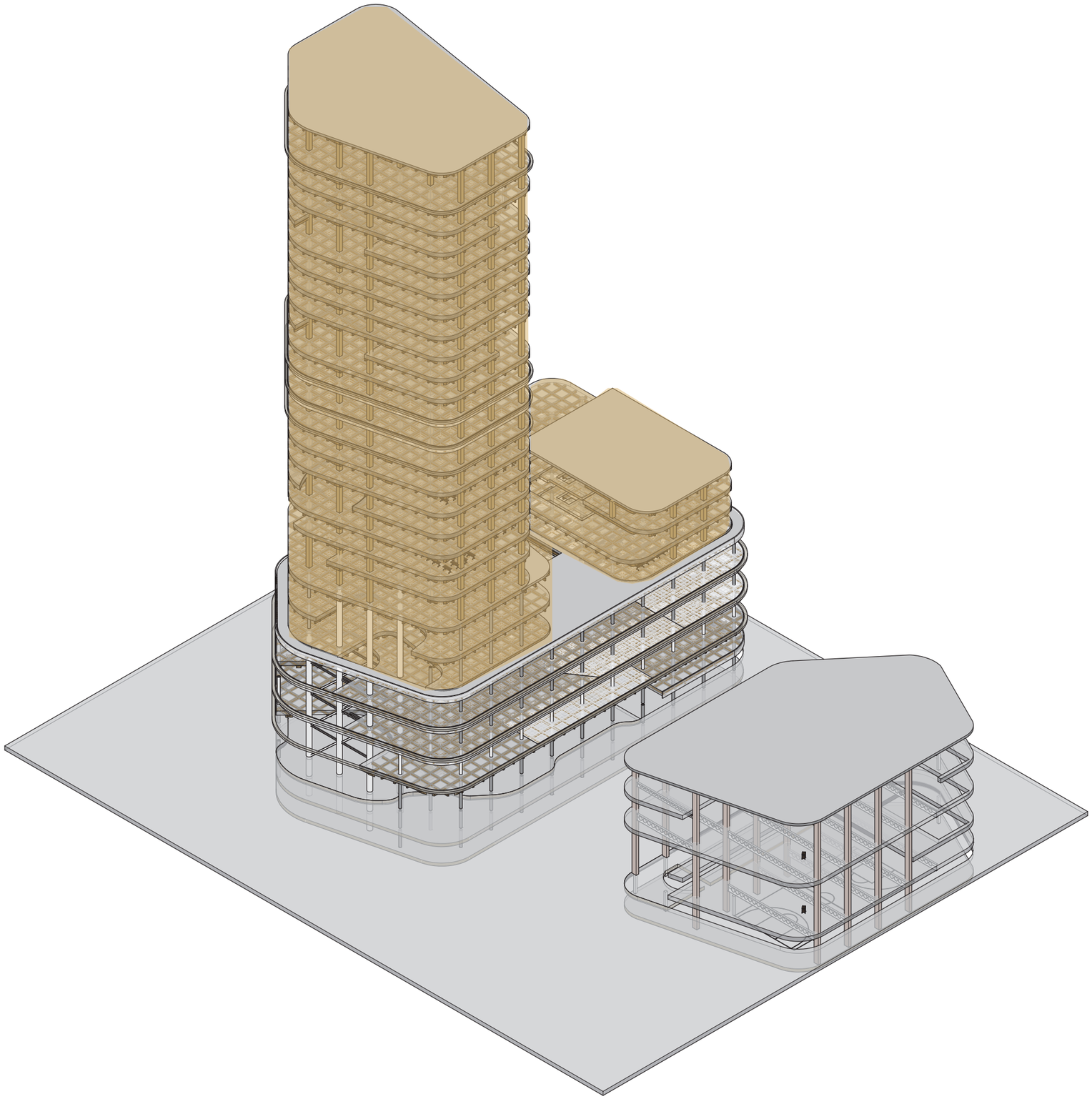


06 Technical

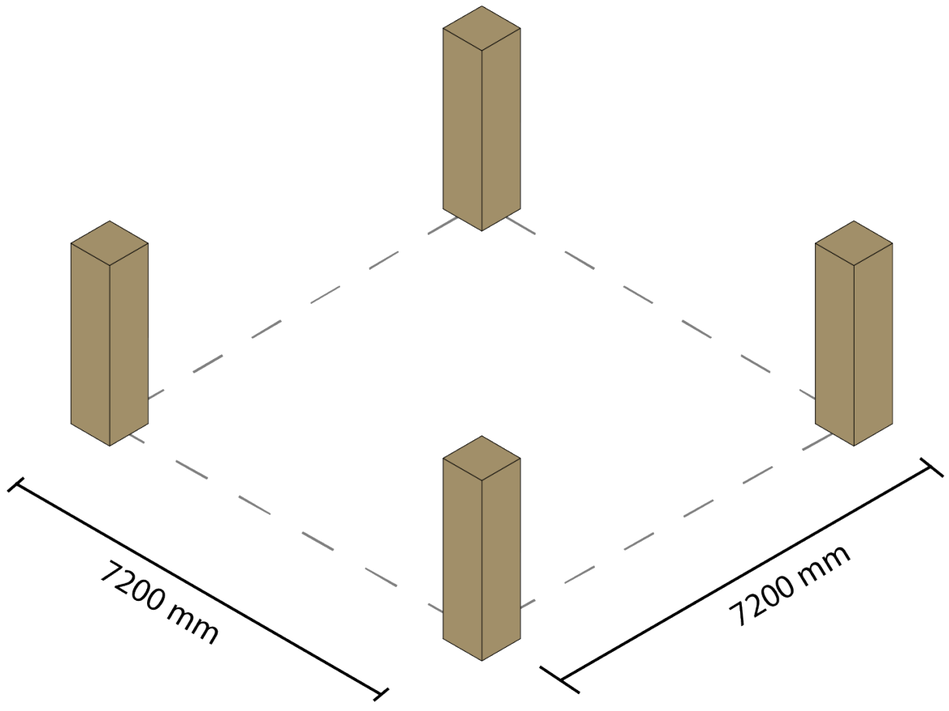
STRUCTURE



MAIN STRUCTURE

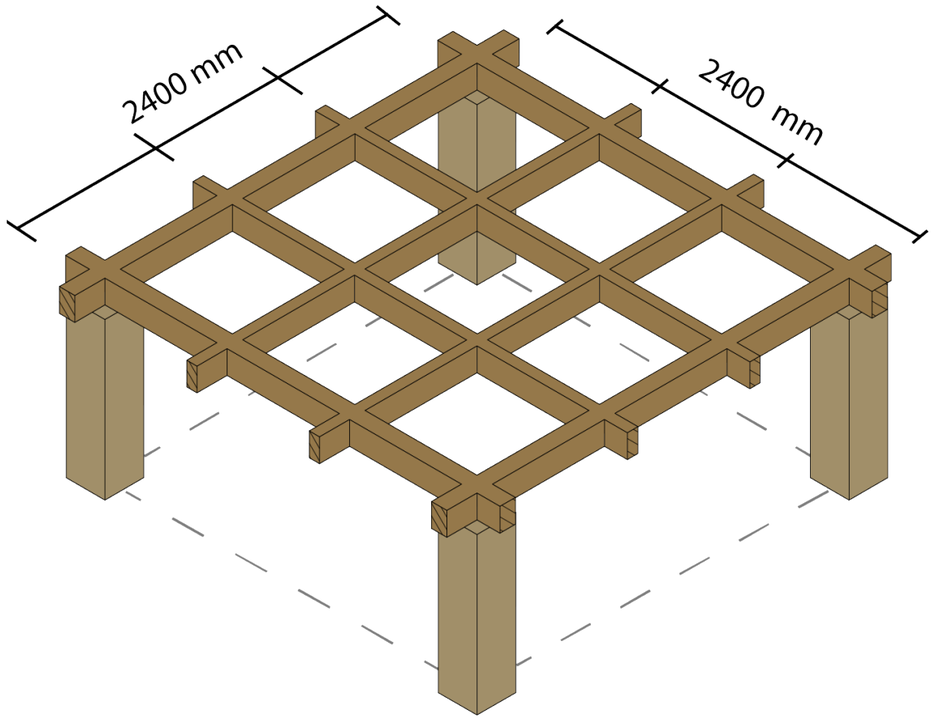


GRID



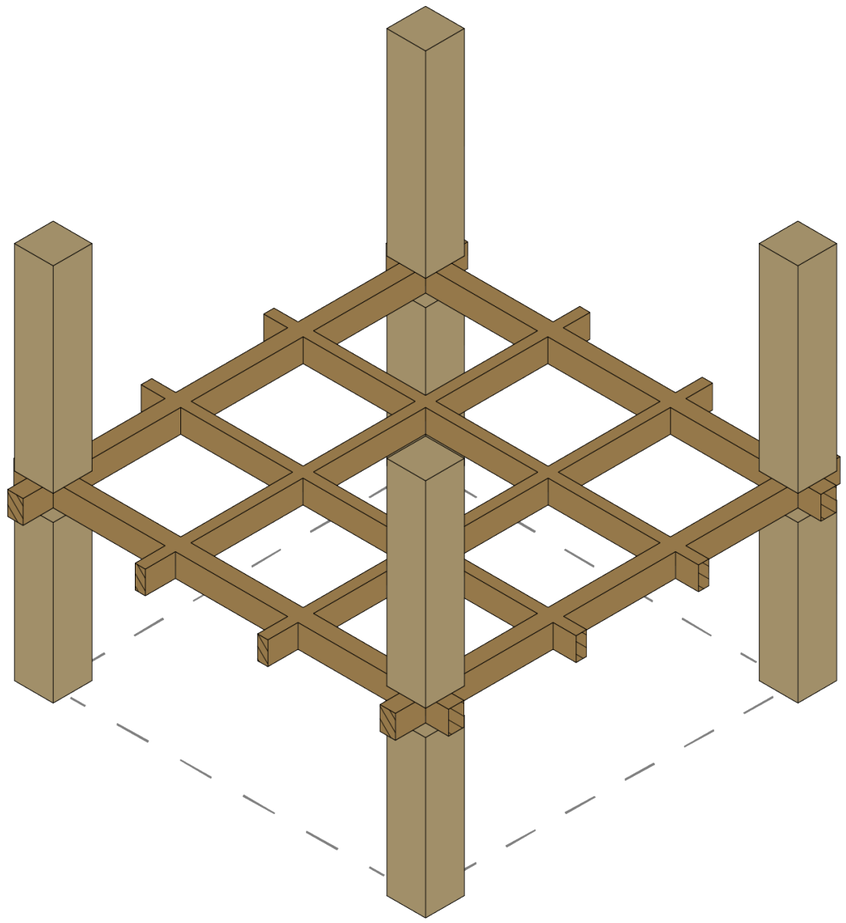
Larger grid than normal CLT structure 6000x6000

BEAMS



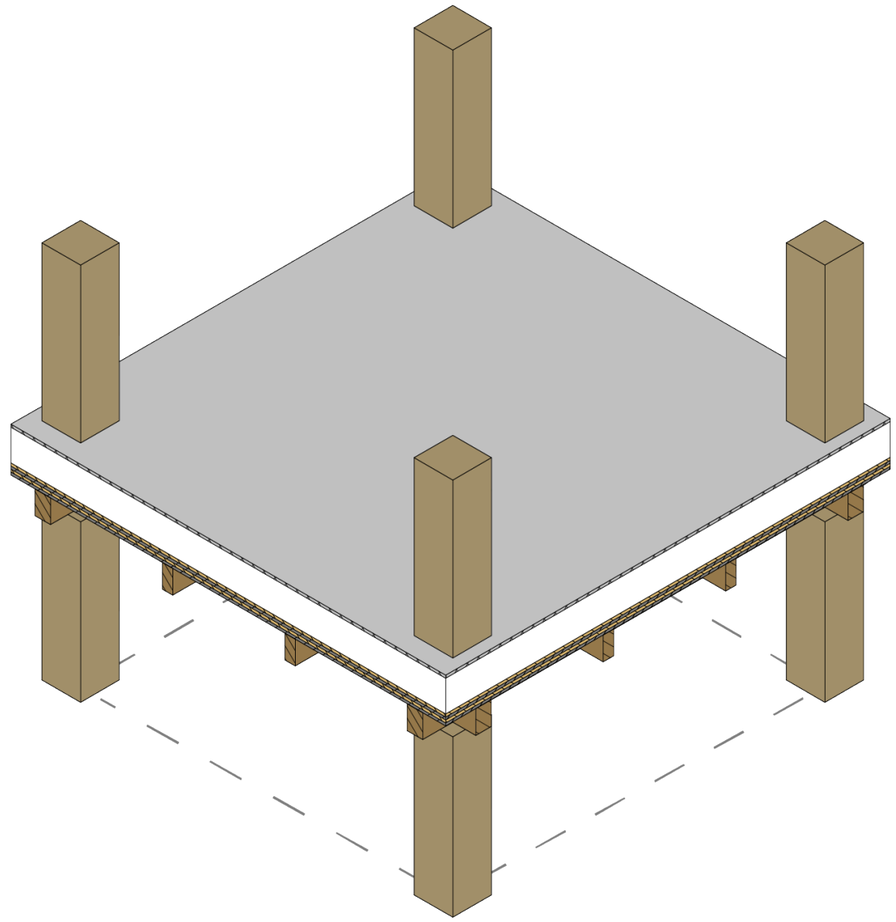
Waffle structure allows for overhang and voids, the beams create stiffnes.
Height is 450mm and 2400mm C-C span.

CONNECTION



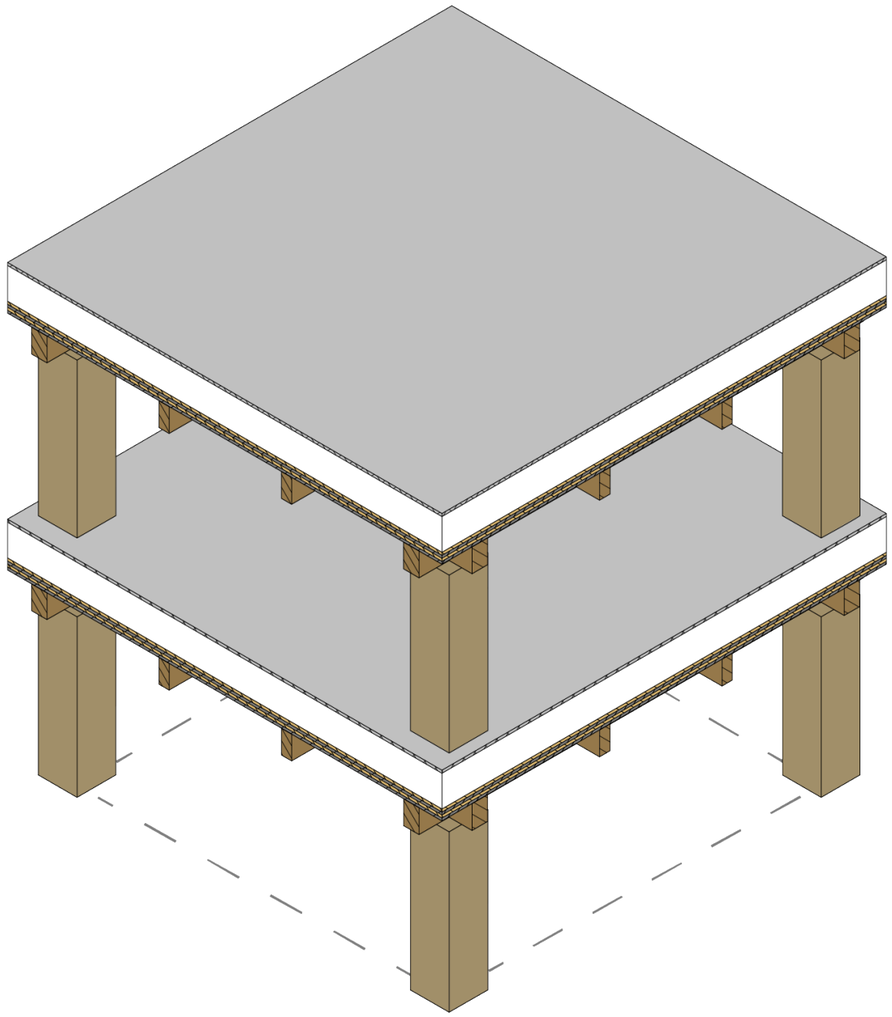
Stacking the columns on top of the beams by the use of steel plate with tubes sliding over each other to create a stiff connection.

FLOORING



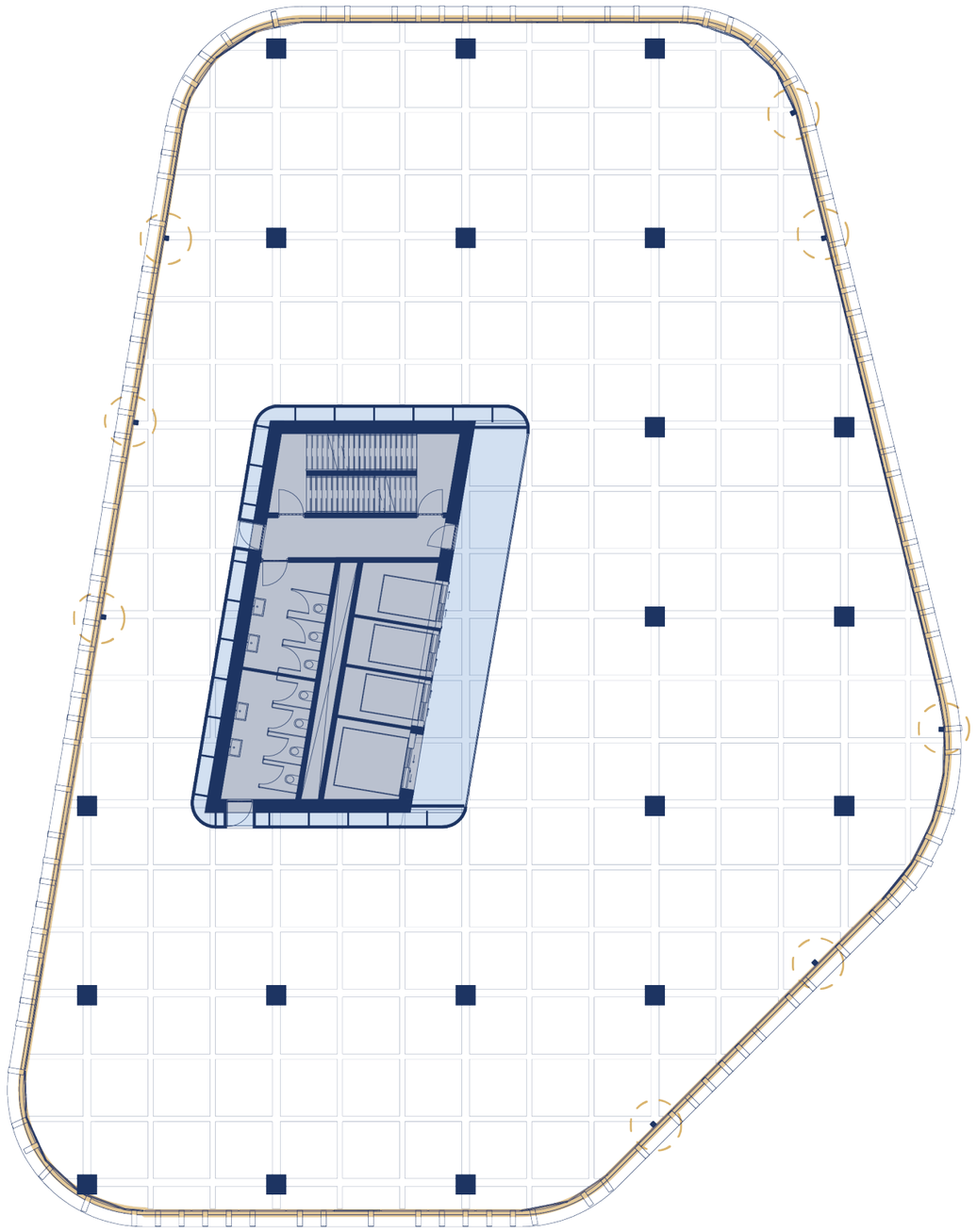
CLT floor of 200mm thick with a floating floor for ventilation and installation.

STACKING



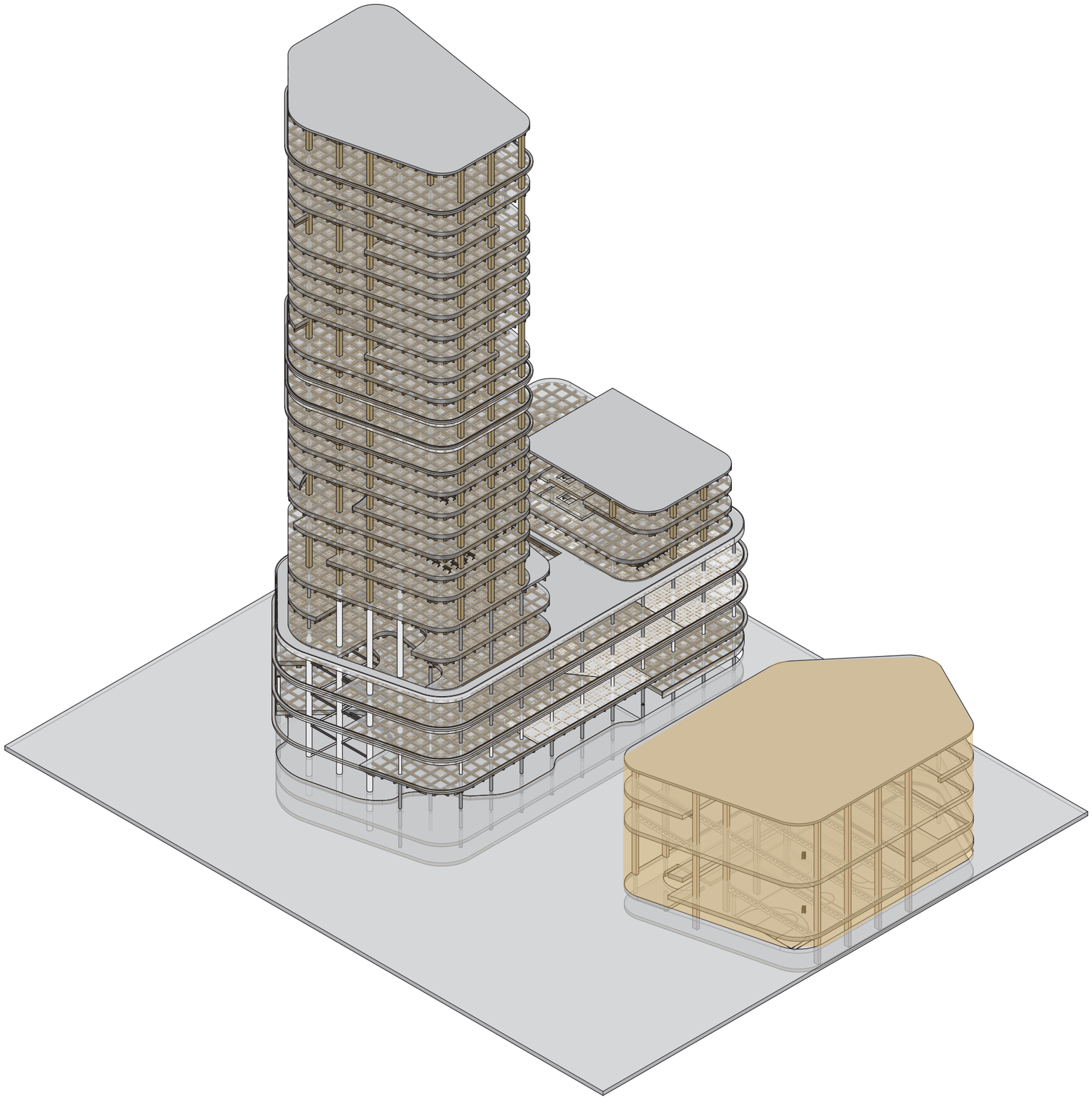
Repeating this proces for the towers of the building.

TYPICAL STRUCTURAL FLOORPAN

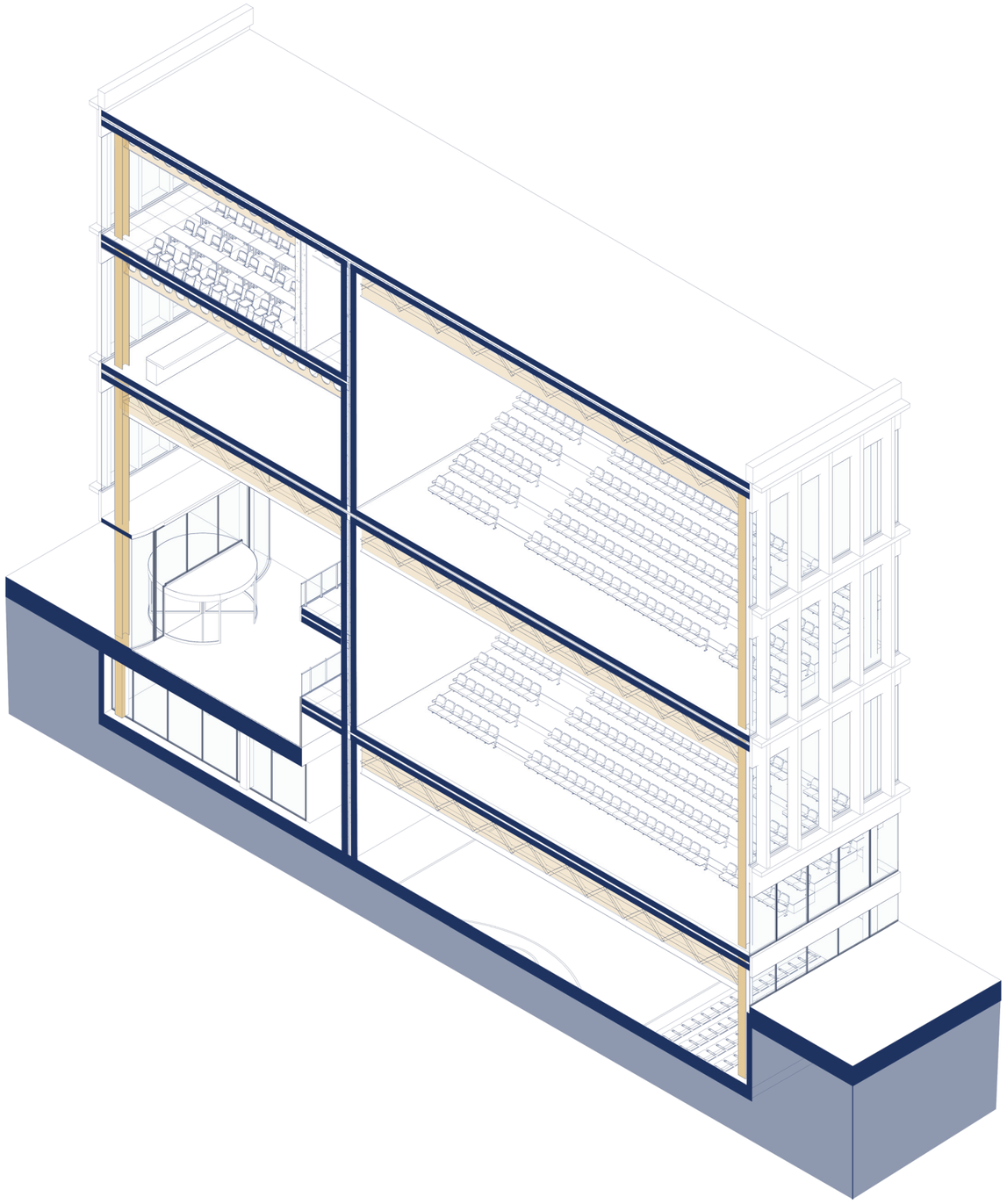


The overhang of the floor is supported by an steel edgebeam and also by several square steel colums around the facade.

SECOND STRUCTURE

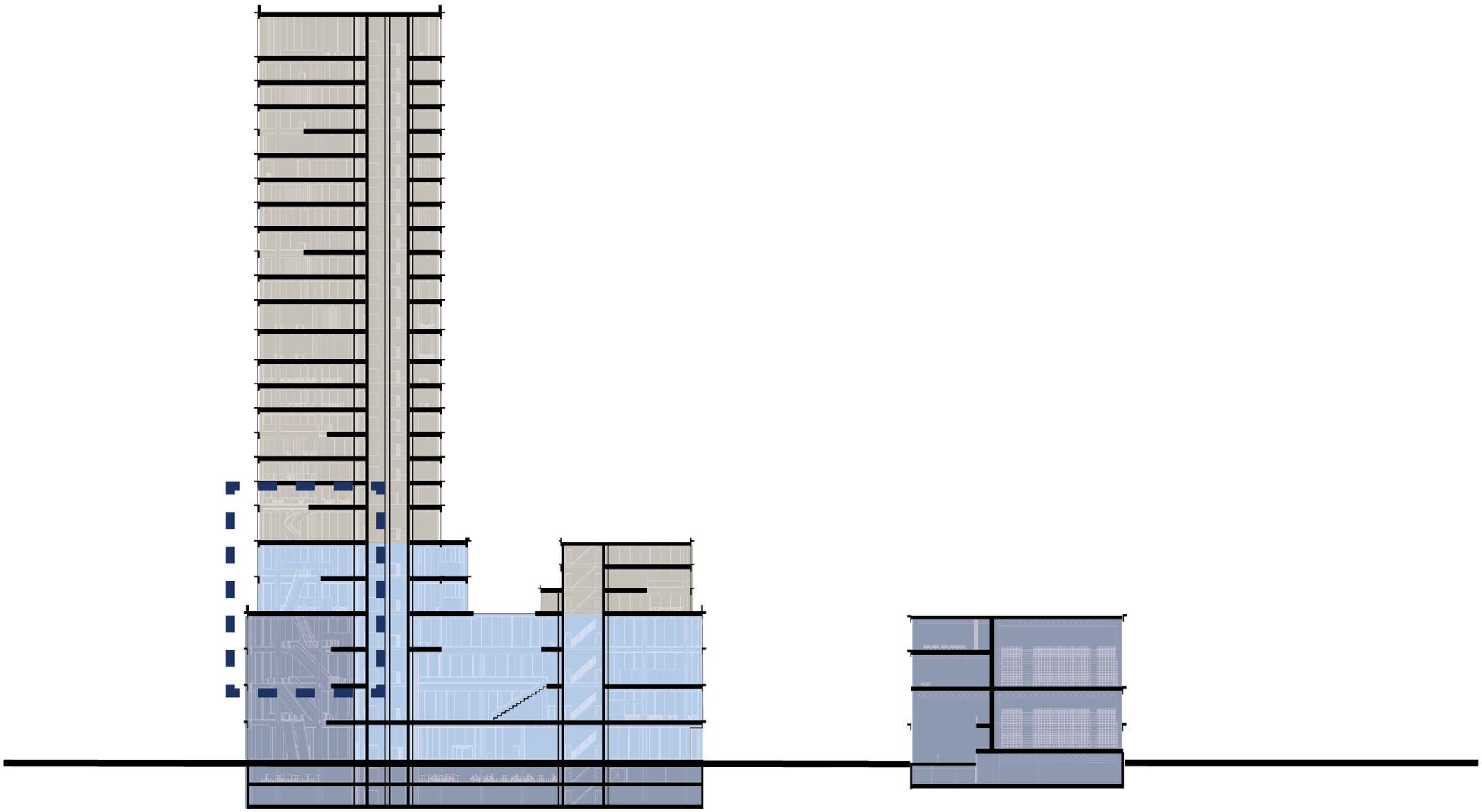


BOX IN BOX



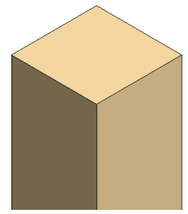
A box in box design that is supported by trusses

DIVISION MATERIALS



CLT - Steel - Concrete

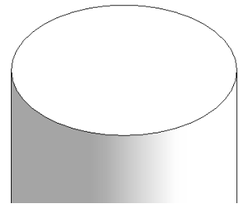
STRUCTURE DEVISION



CLT structure:
- 750 x750 mm
- towers only

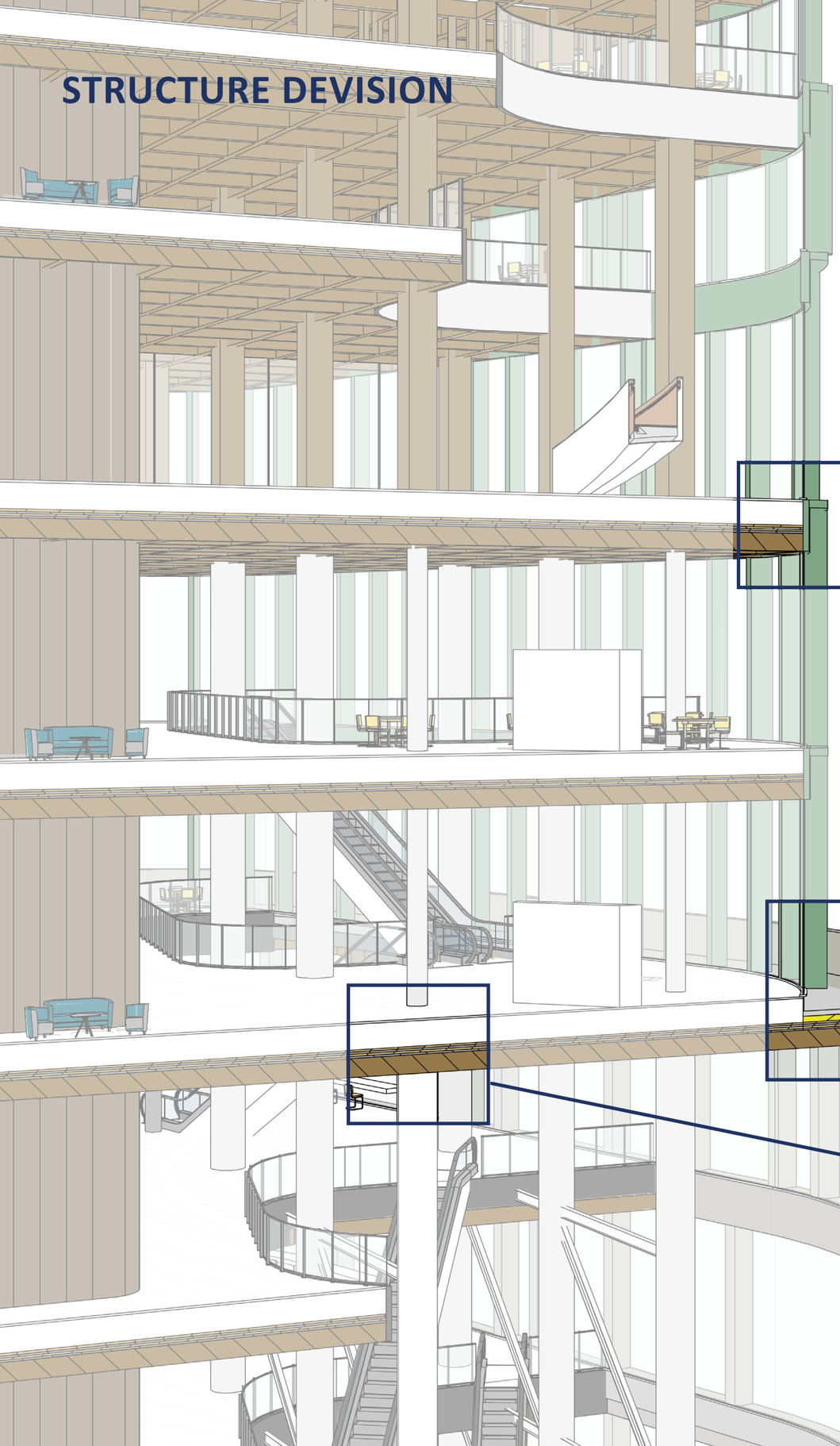


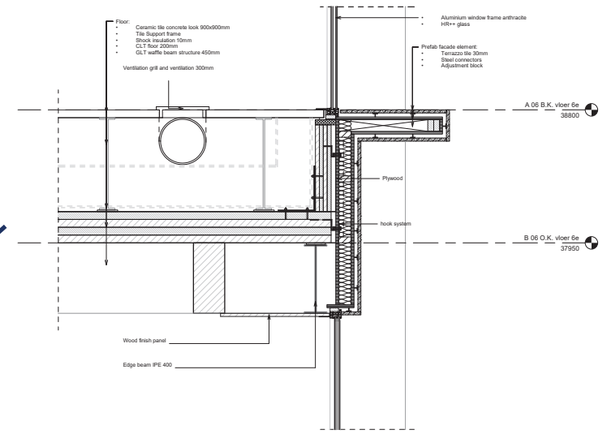
Steel structure:
- HEA300 + Round cast
- Plinth, up to 4th floor

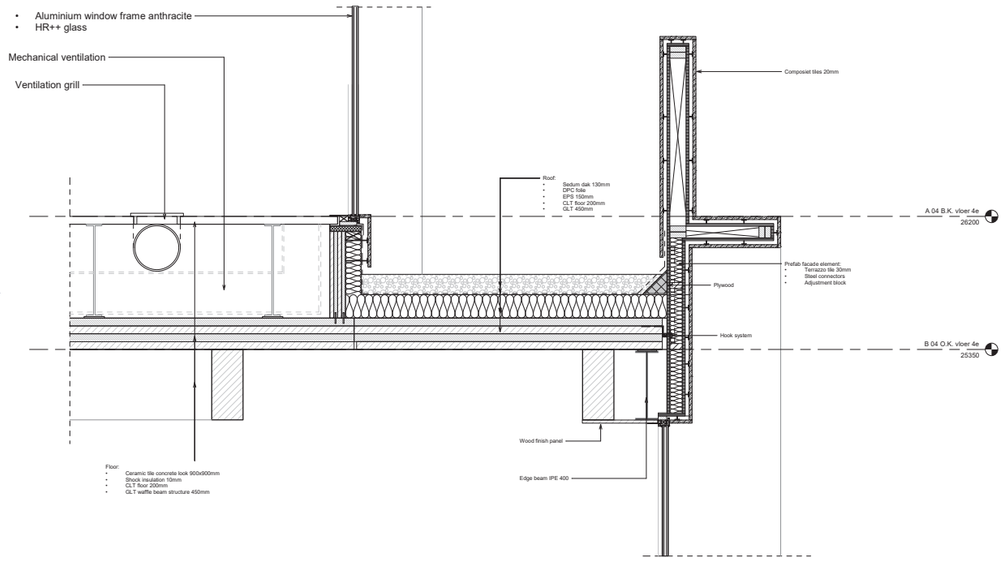


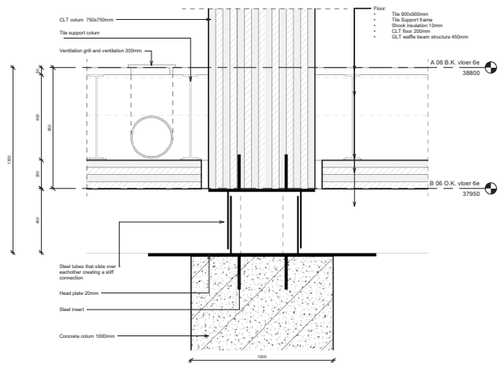
Concrete structure:
- 1000 mm
- 6 Entrance colums

STRUCTURE DEVISION

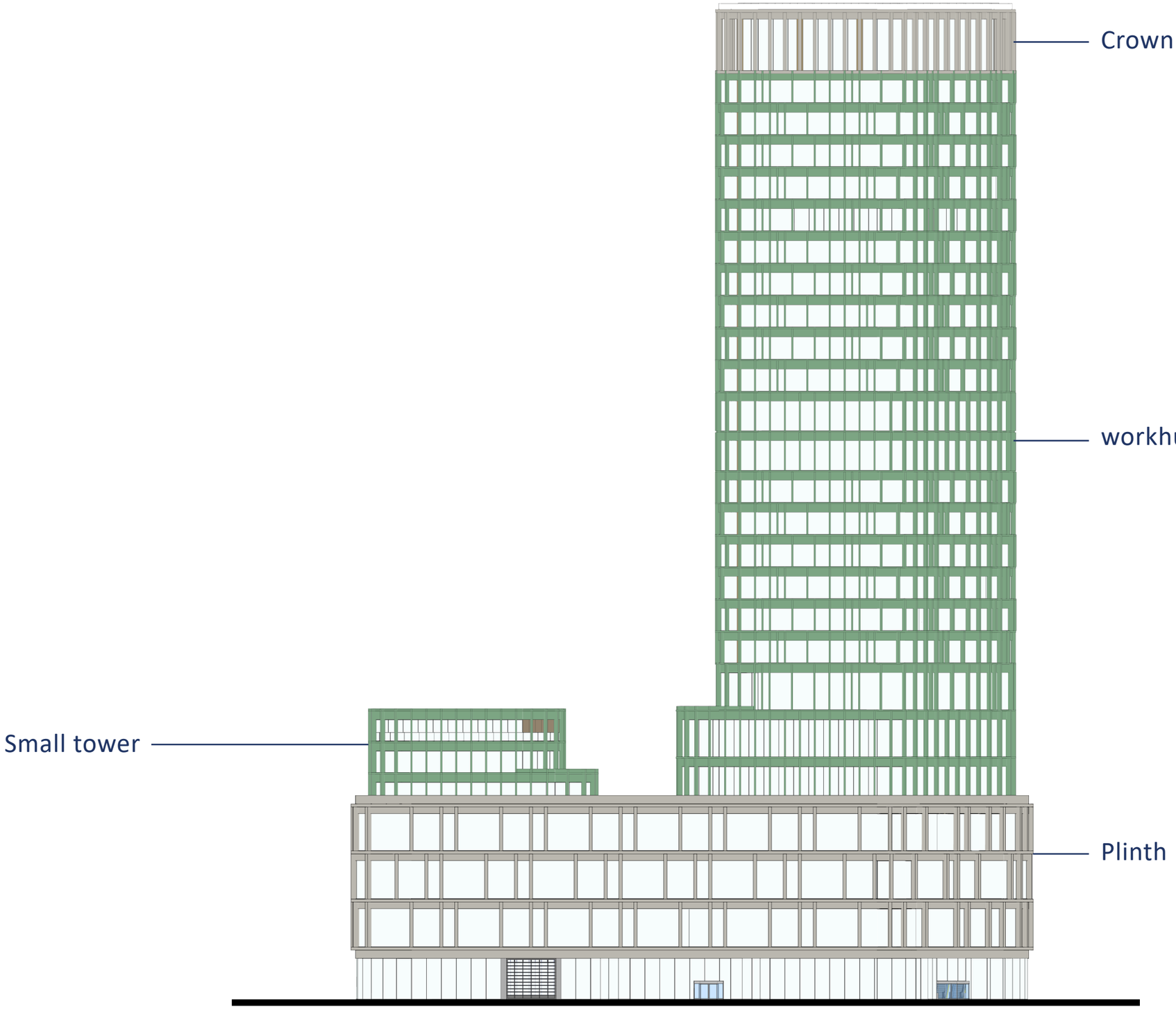




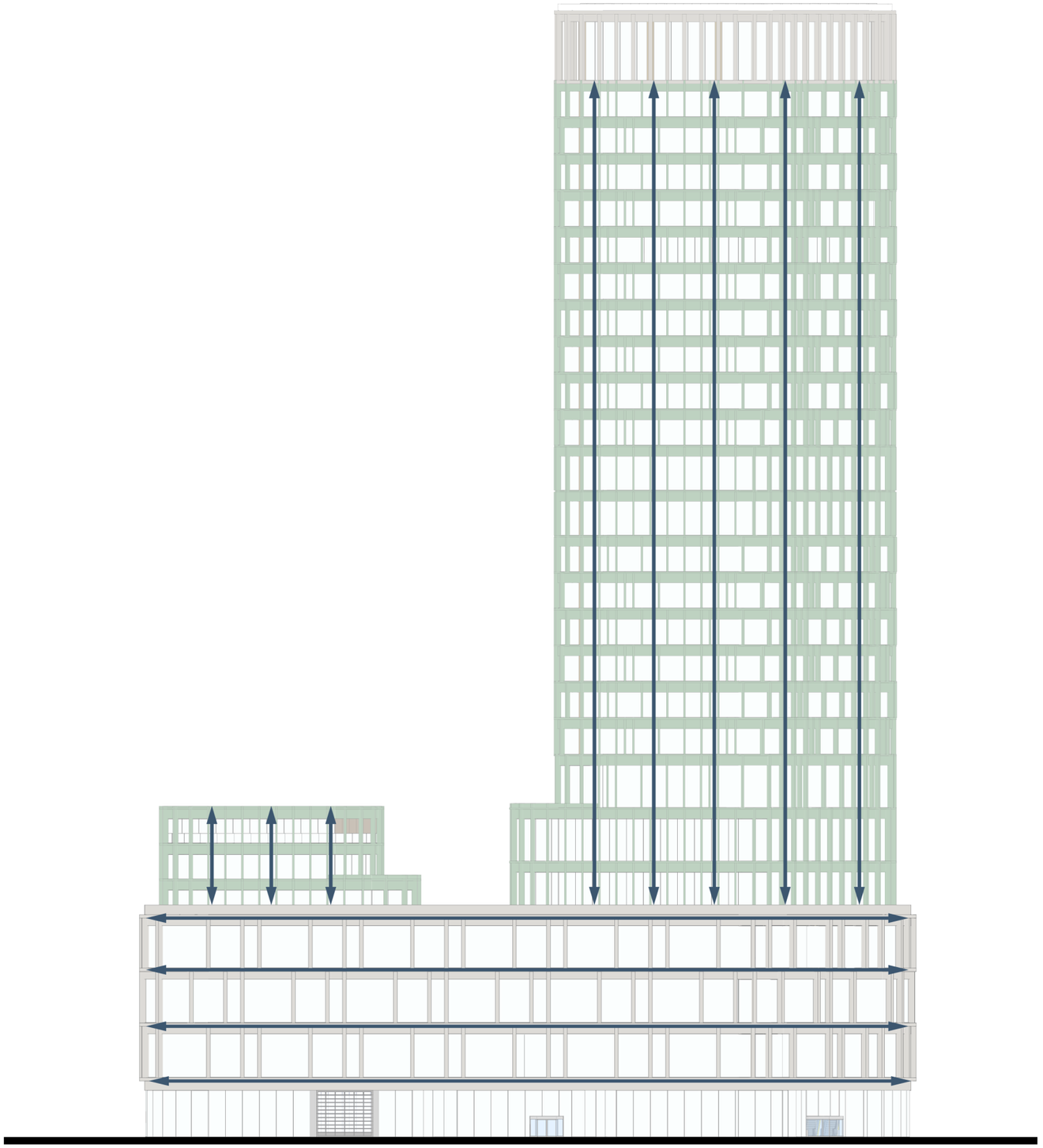




FACADE

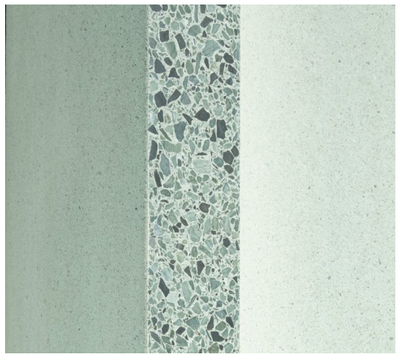


FACADE



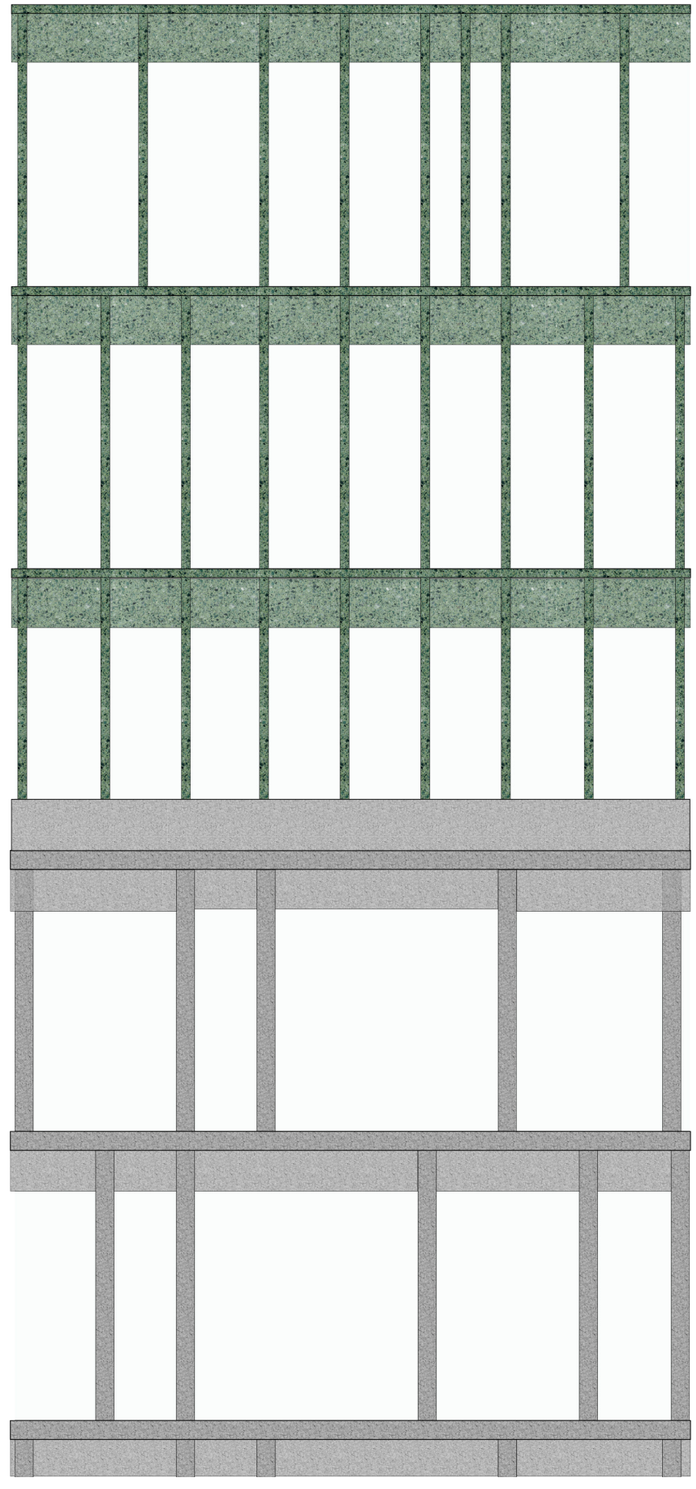
Horizontal orientation combined with vertical

MATERIAL



Terrazzo composiet

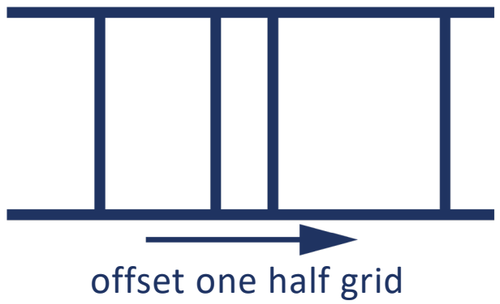
Oscuro terrazzo

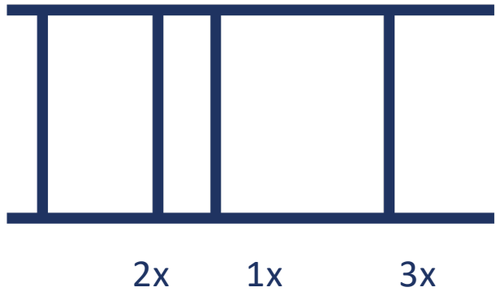


FACADE RHYTHM



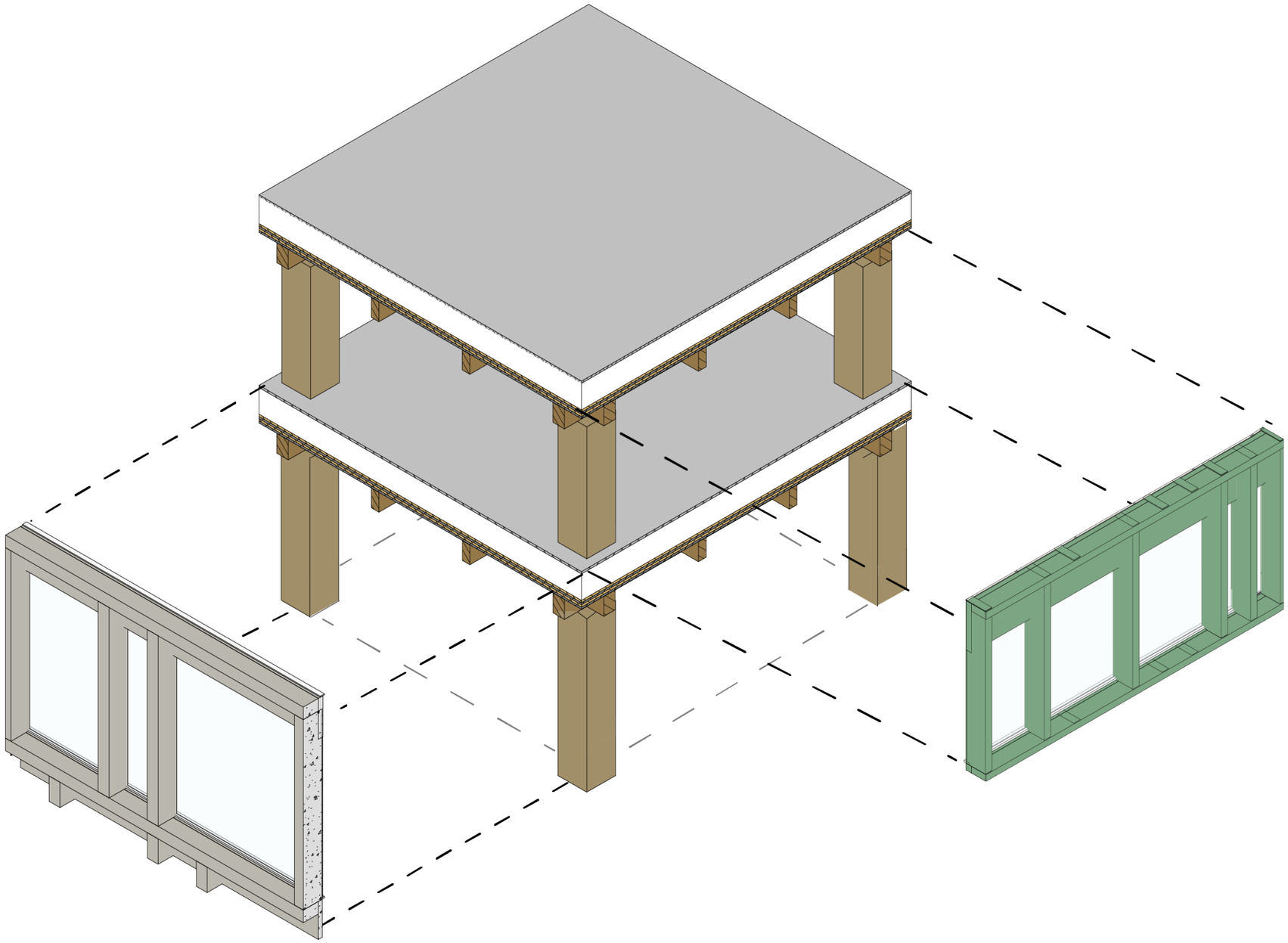








PREFAB FACADE



Changing rhythm and different profile thicknesses

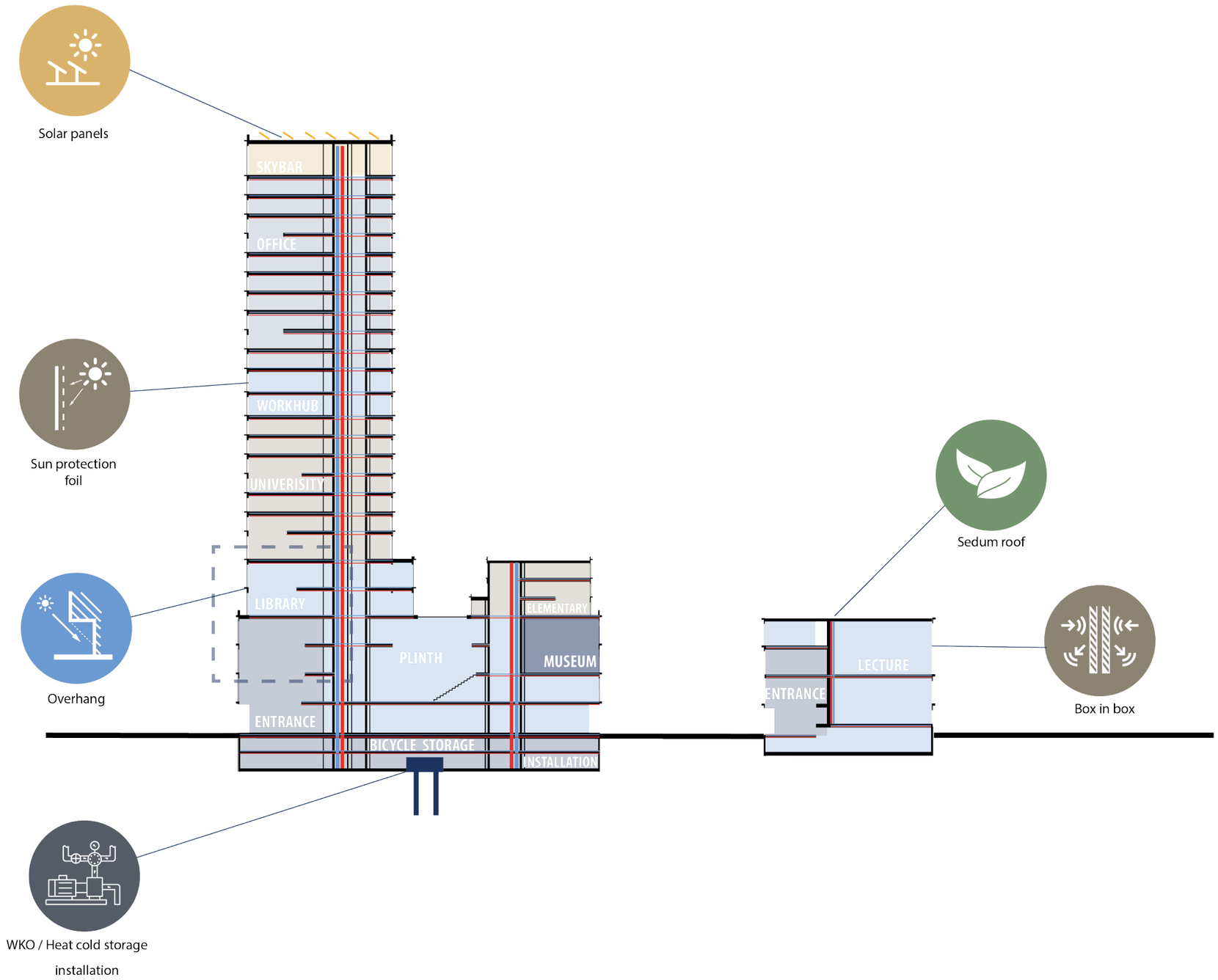
THE FLOW



CITY VIEW

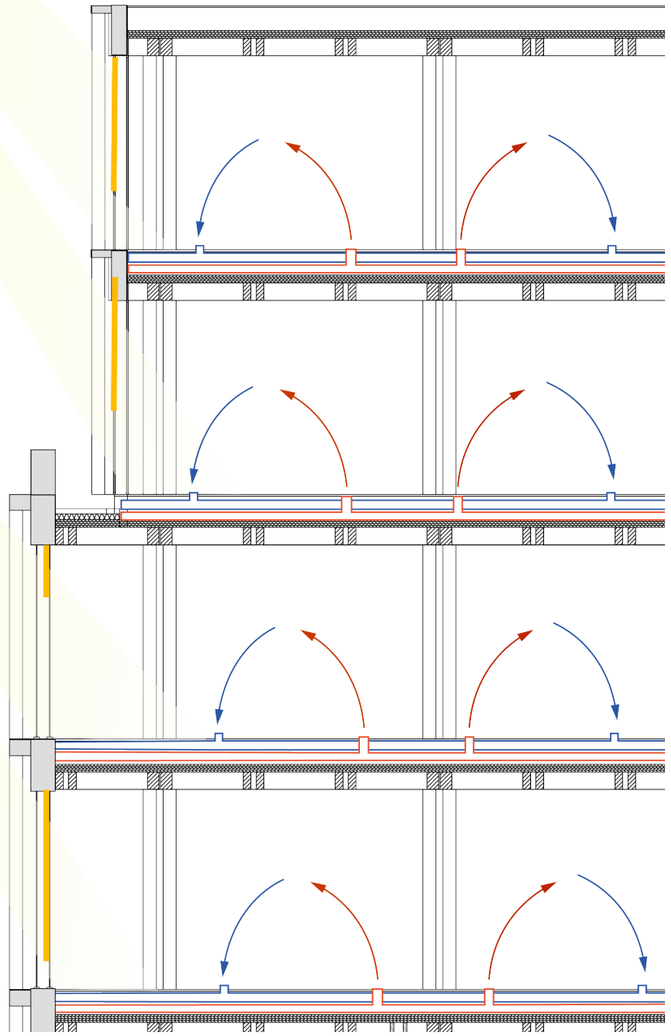


CLIMATE CONCEPT

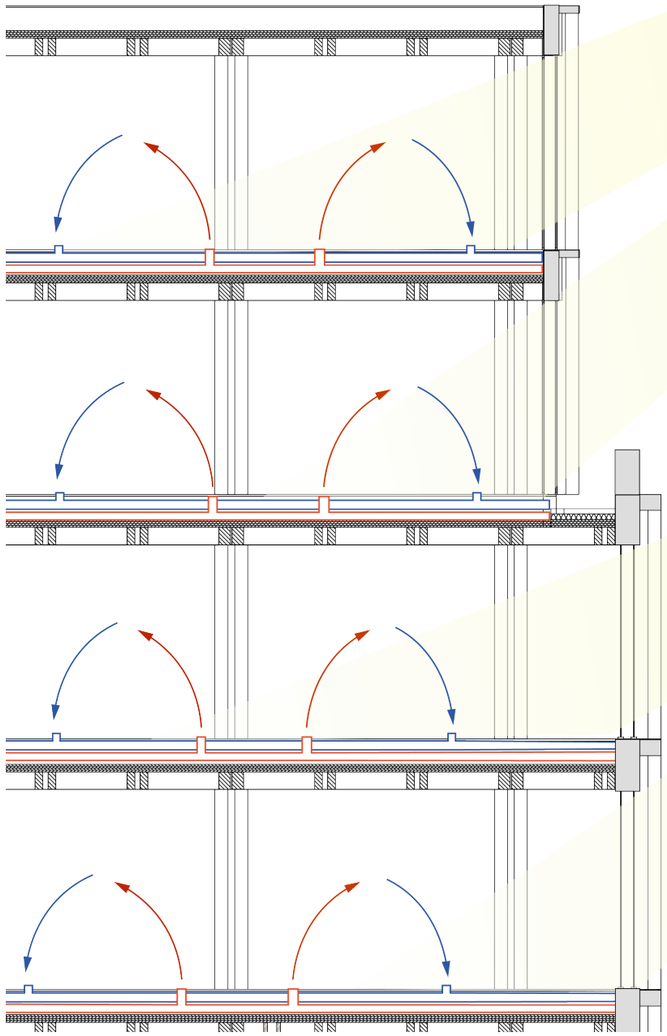


Decentralised ventilation - requirements vary per functions

CLIMATE SECTION



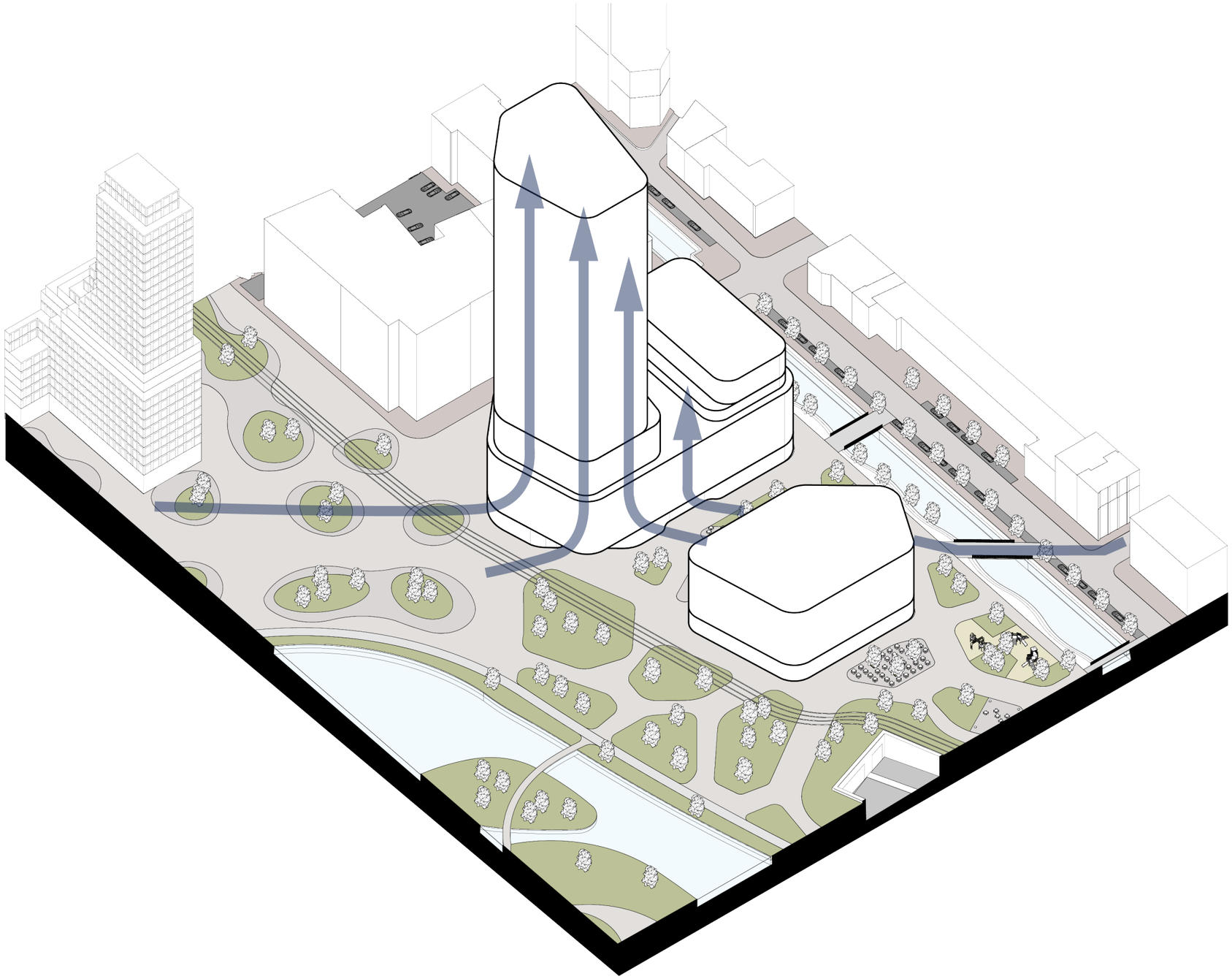
summer - overhang/shades/foil



winter

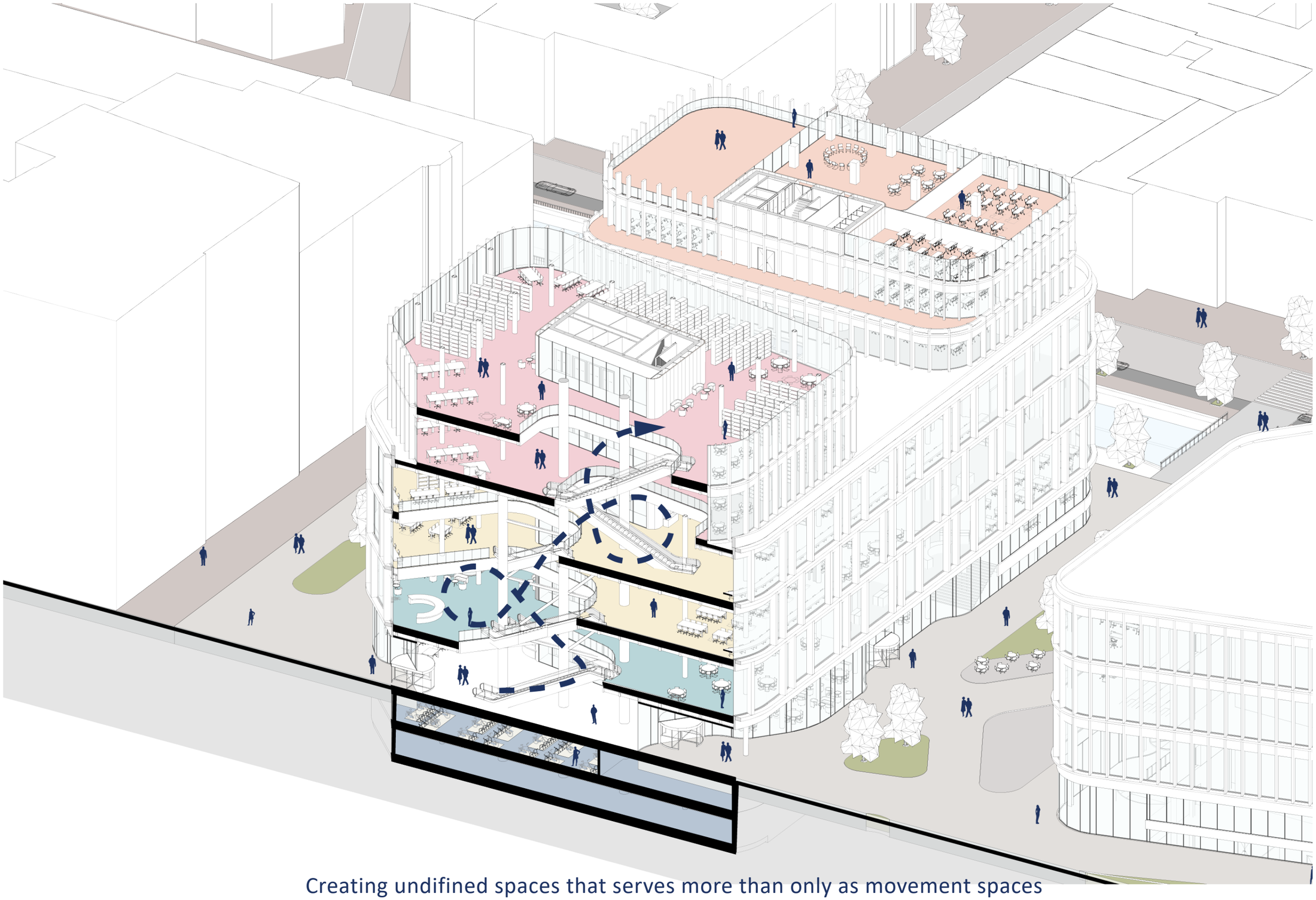
How does the Vertical campus contributes to and extends the public realm in the Hague?

HYBRIDITY



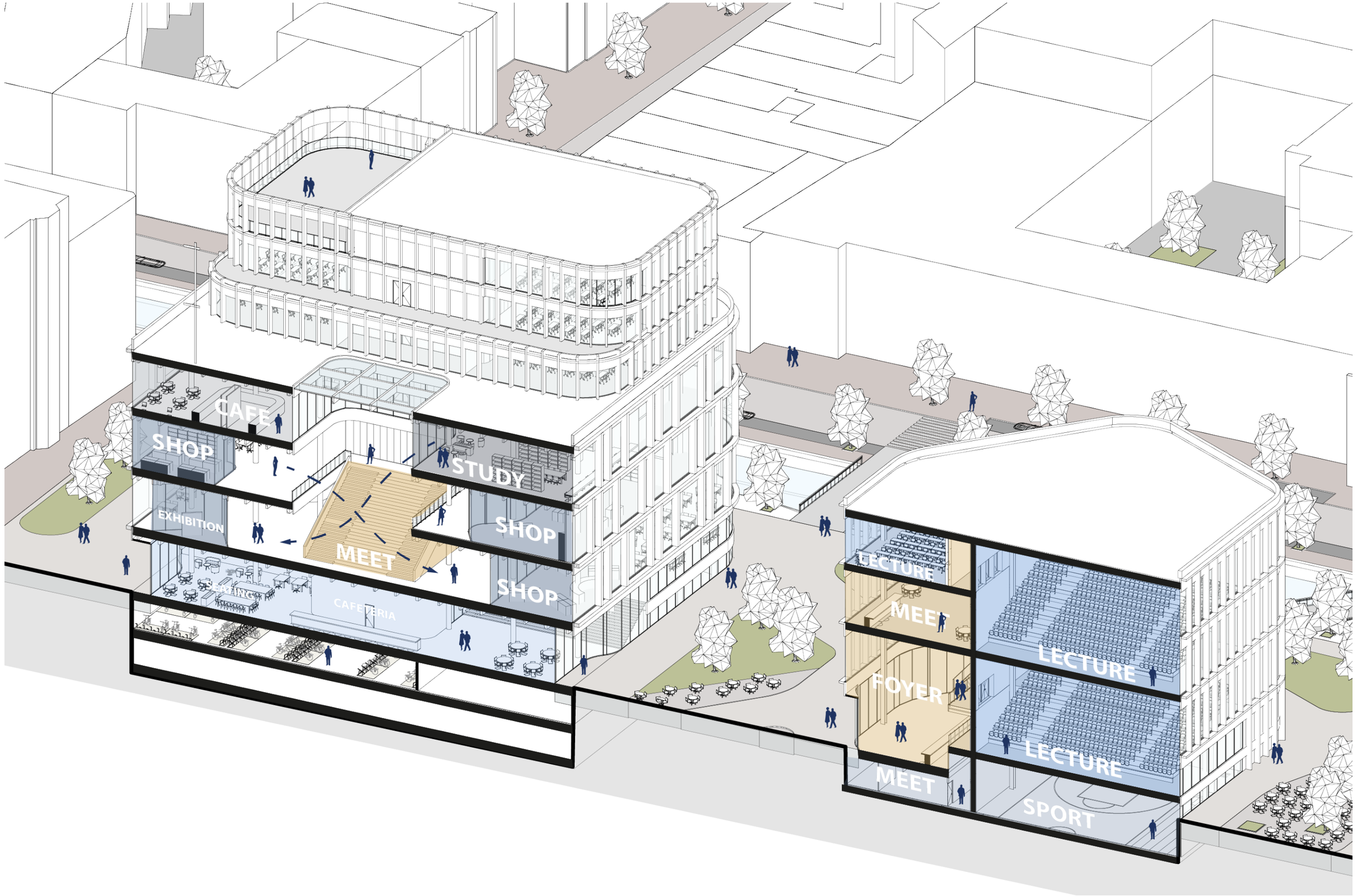
Extending the campus network of The Hague and Randstad form the horizontal public realm to the vertical campus

MULTIPLICITY



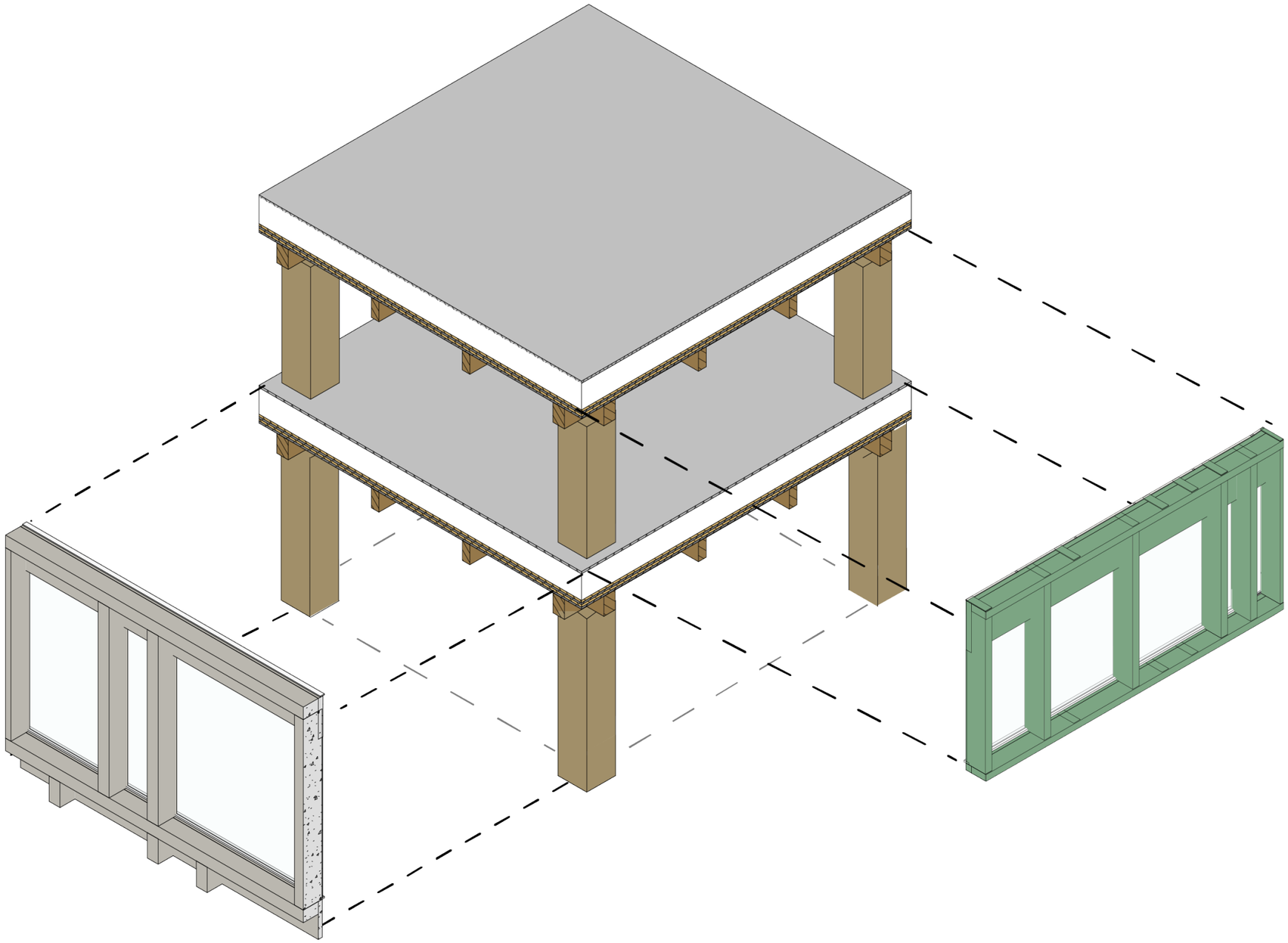
Creating undifined spaces that serves more than only as movement spaces combined with their actual function. The voids and views stimulate curiosity.

LIFELONG LEARNING



Wander and meet as a visitor in the atrium where institutionalized functions, display and share their knowledge in the open plinth without any boandaries

SUSTAINABILITY



Prefabicated facade elements combined with a flexible ventilation system.
Achieved by the use of an elevated floor and waffle beam structure

Lumina tower

shedding light on knowledge and ideas

10 Research -Reflection

The Vertical campus | Reflection

Luca Laponder | 4853075

Date 30 April

AR3AP100 | Public Building Design

MSc Architecture, Urbanism and Building Sciences | TU Delft

FINAL REFLECTION

In this document, I will reflect on my approach to the research and design process during the graduation phase. I will delve into the research method I employed, the rationale behind my design choices, and how the design proposal addresses the problem statement.

RELATION WITH STUDIO TOPIC, MASTER TRACK AND PROGRAM

My interest for Public Buildings in architecture started during my Bachelor studies at the ZUYD Hogeschool. In the third year, we had the possibility to go on an exchange abroad. I got the opportunity to work at an architectural bureau in Barcelona. The bureau is specialised in large scale projects and high-rise. During this period, I got the chance to work on lots of different projects. In the concept department but also on the physical projects. This gave me an insight in the different methods that are used for high-rise buildings and also, how important the plinth is in these projects.

However, I never had the chance to design a project of this scale by myself and especially this height. The vertical and hybrid use of the Vertical Campus creates its challenges which relate to the nowadays densifying cities and rare plot size.

This research aims to merge institutional learning with public learning experiences, such as libraries, theatres, and exhibitions, within a vertical campus integrated into the urban fabric. Traditionally, campuses are horizontal and detached from the city, leading to a separation between private campuses and public learning opportunities in urban areas.

During the design process after P2, it became clear that public and private space is a definition that changes depending on its function. This development led to a new design for the Vertical Campus and also a redefined research question. For the Vertical campus it means that private space will be replaced by institutional learning and that public space is focussed on public learning, sharing knowledge with visitors. A multifunction location where people gather to share, create and gain knowledge.

Overall, **the research about how the Vertical Campus contributes to and extends the public realm in the Hague**. It is implemented in the capacity plan of The Hague that we developed for P1. It is also about connecting the existing urban tissue. Buildings should not only reflect to themselves, but should engage in the public realm of the city. This is achieved through a transparent ground floor that connects the elevated square over several floor. These themes go further than only the Public Building Studio. They link to Urbanism, how we connect movement of people through the city and the development of the city of The Hague for Management in the Built Environment. But looking closer to the Vertical Campus itself, the research becomes a guide how we experience spaces. In my introduction of P2 for my research I talked about what we experience when walking towards a large-scale or high-rise building. This experience shows that entering a public building has different boundaries for people. Physical but also psychological. From the outdoor urban space, materials, interior and sizing of the surrounding to the distance between people and how ethnical boundaries have impact on us. Linking the different studios in the Faculty of Architecture together will help in the future to do more research about this topic.

RESEARCH AND METHODOLOGY

The research for the Public Building studio consisted of research by design. The literature research of public and private space gave me a better understanding what creates boundaries and why do we experience them. However, the case studies showed how boundaries change depending on their function. The case studies made me realise that the function of the building has a larger impact on the experience of these boundaries and therefor made me change my research definitions from public and private space to public and institutional learning methods.

Looking back on the analysis of my case studies, which included several questions. I believe that looking deeper to the function of the building combined with the literature, would have helped redefining my research question earlier in the process. The case studies each have their own characteristics for their function. The link between function and the type of boundary was then reflected onto the Vertical Campus.

After my P2 presentation I struggled what my Vertical Campus would mean for the public realm of The Hague. The prominent location next to the station and between the park and the city made it clear that it should be the reflection of knowledge. Therefore, also the name Lumina tower. Lumina is Latin for “Lumen”, Meaning “Light. It symbolizes the enlightenment of knowledge. The shedding of light on knowledge and ideas.

The new understanding of private space to institutionalised learning resulted into a new research question combined with a sub question: **“How does the Vertical Campus contributes to and extends the public realm in the Hague?”** To answer my research question, a sub question was created to support the final answer: **“How can a public hybrid building introduce and combine public and institutional learning methods in an attempt to exchange knowledge?”**

The sub question goes deeper into how the public space around the Vertical campus is also an extension of the university, it is the place where the university displays their development to the public. It gives insight into the development but also allows the city to gain this knowledge. This method has a great impact on how to organize the program, think about exhibition or presentation spaces. Or how the canteen of the university is placed on the central entrance hall. The understanding of organising institutional learning into a public building helped to answer the main research question.

RELATION RESEARCH AND DESIGN

The objective is to design a vertical campus in The Hague that encourages the exchange of diverse knowledge forms and enhancing the learning experience for both students and the public. The design aims to integrate public and institutional learning spaces by creating multifunctional areas like libraries, theatres, and exhibition spaces accessible to everyone. The case studies are focussed on these functions and analyse the methods that are used to create spaces in the vertical campus. This is achieved because of the research about defining public and private space.

Public accessibility:

One of the fundamentals of Public Buildings is the public accessibility for public and private buildings that thereby allows for informal use of the interior or enclosed space. The first focus point that has an influence on the public character of the space is the embedding of the building in the city. Especially how the ground floor connects with the urban fabric. For high rise buildings is the footprint small compared to the total square meters of the building. Therefore, it is crucial to create a plint that has multiple entrances, a pedestrian routing through or guiding besides the building. The main routing from the station goes in between the two buildings in one straight line. The line is embedded under one entrance of the main campus but also between the two buildings. This creates more privacy from the city and a place where there is lots of movement between people, allowing to meet.

When entering the main building it is key to allow visitors to see the different function in the building. By creating a foyer that has different levels of terraces, changing vistas and view lines unfold as you navigate through the building. This experience of wander is stimulated by mixing the institutional learning with the public learning, such as the library, exhibition and museum space. But how do we get people to enter the building? By creating a full transparent plint combined with large voids, the elevated square is connected with the urban tissue.

Social interaction public and institution:

The mixed program is also important for the social interaction. The various uses provide opportunities for meetings between different users that are from the building or from the city. Because of the large variety of functions in the building it is important to have entrances separated.

The first separated entrance is the theatre, large lecture halls and sport hall. These spaces have their own breakout space because they have different technical requirements but also a different social interaction. Because these functions are separated for the main building, also a boundary, interaction between people is more genuine. People go there with a reason.

The second separated entrance is the elementary school. Most of the functions ask and allow for mixed use. However, an elementary school asks for different requirements. Think about playground, direct access to the classrooms by ground floor access or elevators and drop of space for the parents. Because of these restrictions there is chosen to move the entrance of the elementary school to the side of the building. At this entrance parents and children have direct access to the elevators to the elementary school. There is also a place to drop of your child and store the stroller.

The third important place is the university foyer. This foyer is located on the first floor of the building. In the heart of the plint area of the building. The foyer reaches three floors. Allowing visitors to wander and see around the different public and institutional functions the university has to offer. The floorplan of these three floors is open and transparent allowing users to see what is behind every corner.

Implementation urban fabric:

The location of the building plays a big role in the use and experience of the building. The building is located on a debatable plot. The plot is on the edge of the park and is officially not part of it. However, the plot is in between the city, park and train station. Being on the connection route between the station and the city. The ideal location for people passing by and having a look into the building. The fully transparent plint allows to look through the

building to the park and in between space. The guidance of people into and around the building plays a major role in having a vibrant outdoor space. The space around the building is designed to have waterfront seating, kindergarten space and sport facilities looking over the park.

RELEVANCE

Cities will continue to evolve and grow, and the interest in qualitative densification and, therefore hybrid vertical typologies will be increasing over the years, raising questions about the dynamics and accessibility of public spaces within these structures. Buildings should not only relate to themselves but should engage in the public realm of the city, we try to create a connected city in our ever-growing society. By creating a vertical campus in the city, this statement is challenged because institutional learning is normally detached from public learning.

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

For the full version with more context see the attachment.

Personal information	
Name	Luca Laponder
Student number	4853075

Studio		
Name / Theme	Public Building	
Main mentor	Paul Kuitenbrouwer	Project design
Second mentor	Piero Medici	Technical Building Design
Third mentor	Gosia Golabek	Theory & Delineation
Argumentation of choice of the studio	My interest lies in large-scale projects and the complexity of layers. A high-rise building brings new challenges that I haven't had the chance to analyze yet.	

Graduation project	
Title of the graduation project	Lumina Tower – Shedding light on knowledge and ideas
Goal	
Location:	Train station area, The Hague. The border between the city, station, and park.
The posed problem	As cities continue to evolve and grow, the interest in densification and, therefore vertically organized buildings have increased, raising questions about the dynamics and accessibility of public spaces within these structures. The studio Public Building has chosen to design a vertical campus around the station area of The Hague, a very busy and densified area of the city, creating a challenge to implement the campus in the existing urban fabric. The next question is about, what is a campus. What functions are housed in these buildings and how does the use and position change when stacking these functions? The vertical campus houses spaces that serve as multifunctional hubs, facilitating various activities such as education, work, recreation, and social interaction. However, there is a growing need to understand how public spaces can merge, coexist, and extend the horizontal realm of the city into vertical hybrid typologies, within and around these large-scale buildings.
Research questions	This research aims to merge institutional learning with public learning experiences, such as libraries, theaters, and exhibitions, within a vertical campus integrated into the urban fabric. Traditionally, campuses are horizontal and detached from the city, leading to a separation between

	private campuses and public learning opportunities in urban areas. The goal is to create a campus within the city, blending public and institutional learning to stimulate the exchange of knowledge. By defining the boundaries experienced in and around the vertical campus, the public realm extends into the building, thereby stimulating urban movement both for the city and within the campus itself. This design problem has led to the research question: **How does the Vertical Campus contributes to and extends the public realm in the Hague?** *Sub question.* **How can a public hybrid building introduce and combine public and institutional learning methods to exchange knowledge?** In traditional campuses, public and private spaces overlap, providing informal learning opportunities during the day for students. These campuses often feature libraries, theaters, and exhibitions organized for sharing knowledge, which falls under **public learning** methods. **Institutional learning**, on the other hand, refers to structured and formalized educational activities. However, these campuses are typically horizontal and detached from the urban areas, limiting access for the general public. By creating a campus within the city, we allow the general public to access these public spaces, thus enhancing public engagement with educational resources. This urban integration aims to blend public and institutional learning, stimulating the exchange of knowledge.
Design assignment in which these results.	The objective is to design a vertical campus in The Hague that encourages the exchange of diverse knowledge forms and enhancing the learning experience for both students and the public. The design aims to integrate public and institutional learning spaces by creating multifunctional areas like libraries, theaters, and exhibition spaces accessible to everyone. Flexible environments will be designed to accommodate public lectures, workshops, and academic activities such as study and discussion. Extending the public realm is crucial, ensuring the campus seamlessly integrates with the urban fabric to promote public interaction and urban movement. To facilitate knowledge exchange, spaces will be developed that encourage different types of learning, such as co-working areas and communal spaces.

	The learning experience will be enhanced by providing different sizes of classrooms and seminar rooms that support varied learning methods. The design will cater to both structured institutional learning and informal public education. This vertical campus design fosters a dynamic environment that blends public and institutional spaces, promoting knowledge exchange and enriching the learning experience for all.

Process

Method description

The research for the Public Building studio consisted of research-by-design method. The literature research on public and private spaces gave me a better understanding of what creates boundaries and why we experience them. However, the case studies showed how boundaries change depending on their function. The case studies made me realize that the function of the building has a larger impact on the experience of these boundaries and therefore made me change my research definitions from public and private space to public and institutional learning methods.

The first step is defining the public and private space for the vertical campus. This is achieved by the use of two steps. One is the use of 5 case studies that have different public and private functions. In this case study floorplans, sections and master planning has been analyzed. The second one is doing research about the general definition of public and private space, this is done by existing literature. The design process combined with the research resulted into the new definition of public and institutional learning which allowed to have a different perspective on the case studies. This led to new questions for the case studies that showed how the different functions used their methods to define the spaces.

This analysis will help to answer the sub-question:

1. **Defining public and institutional learning**

   Defining public and private space for the vertical campus resulted in public and institutional learning. The specified definition for the vertical campus will help to understand the current situation of these functions for the design of the Vertical Campus in the Hague. It also helps to understand how these boundaries are used in public and institutional learning.

   It explains the design differences and overlaps for interior and exterior spaces. Which defines the barrier between public and private space. (Mehta, 2013c) (“Public vs. private: The evaluation of different space types in terms of publicness dimension”, 2015) (Sommer, 1969:27).

2. **Physical and psychological characteristics**

   The next step is research about the well-being of humans in public and private spaces. How do we experience these spaces and what characteristics do these spaces have? This research will be based on the framework from (Ewing & Clemente, 2013) and goes

deeper into characteristics that are related to the Vertical Campus. Well-being is a broad definition, for this paper is chosen to investigate the psychical and psychological effects of public and private spaces on people (Mehta & Palazzo, 2020).

As a result of the used definition, the psychological effect is a result of the physical surroundings. This is also seen in the next framework. The framework from Ewing and Clemente highlights the relationship between design features and the level of human activity in public spaces. This combined with the research from Ted Kilian (Kilian, T. 1997), Cattell (Cattell et al., 2008), and the book from Sivlia Serreli (Serreli, 2013) are added to elaborate more on the political aspect of public and private spaces.

3. Boundary types

An understanding of the different types of boundaries will help to connect or separate functions from each other.

4. Case studies

The definition of public and private space combined with topics for physical and psychological effects are used in five case studies. The case studies are focused on large-scale projects with mixed-use. The case studies will be tested on several topics.

1. How does the Urban fabric engage from city to interior building?
2. How do they guide people in the building?
3. Open vs closed elements.
4. Showing the Liveliness of the building from the outside
5. Understanding what is public and private in the building.

The results of these case studies are then used for a framework on the Vertical campus in The Hague.

Literature and general practical references

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Sommer, Robert, 1969, Personal Space: The behavioral basis of design, Prentice-Hall, Englewood Cliffs, New Jersey.

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master program (MSc AUBS)?

Overall, **the research about how the Vertical Campus contributes to and extends the public realm in the Hague is not limited to the boundaries of itself**. It is implemented in the capacity plan of The Hague that we developed for P1. It is also about connecting the existing urban tissue. Buildings should not only reflect to themselves but should engage in the public realm of the city. This is achieved through a transparent ground floor that connects the elevated square over several floors. These themes go further than only the Public Building Studio. They link to Urbanism, how we connect the movement of people through the city and the development of the city of The Hague for Management in the Built Environment. But looking closer to the Vertical Campus itself, the research becomes a guide, how to design the vertical campus that supports the exchange of diverse knowledge forms and enhances the learning experience for both students and the public. Linking the different studios in the Faculty of Architecture together will help in the future to do more research about this topic.

2. What is the relevance of your graduation work in the larger social, professional, and scientific framework?

Cities will continue to evolve and grow, and the interest in qualitative densification and, therefore hybrid vertical typologies will be increasing over the years, raising questions about the dynamics and accessibility of public spaces within these structures. Buildings should not only relate to themselves but should engage in the public realm of the city, we try to create a connected city in our ever-growing society. By creating a vertical campus in the city, this statement is challenged because institutional learning is normally detached from public learning.

Lumina tower

shedding light on knowledge and ideas