AR3AP100

MSc3 | MSc4
Public Building Graduation Studio

THE VERTICAL CAMPUS
A public hub of the future in the Hague

Tutors :
Henk Bultstra, Ger Warries, Sien van Dam

Graduation Report

Interwoven realities

as a catalyst for integration

Savvina Megalovasili
5859034

CONTENTS

4	Research Plan
10	Graduation Plan
18	Time Planning
20	Program Brief
25	Site area analysis
15	Capacity Plan
15	Chosen plot
15	Theory & delination
15	Design phase 1
15	Design phase 2
15	Design phase 3
15	Graduation report

RESEARCH PLAN

RESEARCH PLAN

Research Introduction

This research aims to explore ways to develop a new approach to educational buildings. How can the architect reimagine university spaces by focusing on the contemporary changes to educational practices? How could a campus be perceived as an active part of the city? How can the citizens relate to the university as a public space and integral part of the urban fabric? In order to approach the idea of a public campus, one needs to think about conditions such as ownership, privacy, accessibility, porosity and publicness. Thus this research attempts an investigation of the notion of collective spaces as a new typology that is in between public and private[1]. Thinking of a constellation of public, private and collective spaces, it is essential for this research to examine how the transition between these spaces is realized. The initial research developed during the first studio sessions, in which we explored the Central Innovation District of The Hague, directed my interest into a more focused documentation of the limits where the public space extends, existing patterns of space division, how private spaces are defined on the existing buildings and what is the influence this relationship exerts to the urban layer of the city.

Research Topics

1. Redefining learning spaces for contemporary practices

This research concerning learning spaces will revolve around two axes: one that is defined by the quest for an evolved spatial approach to post-compulsory education facilities and another that is defined by the investigation of new relations between these facilities and the city.
The concept of learning spaces has evolved significantly over the years, reflecting changes in pedagogical approaches and the broader societal shifts that have redefined education. J. Boys argues that the traditional classroom model is no longer adequate for preparing students for the challenges of the 21st century[2]. Contemporary pedagogy is characterized by a shift from passive, teacher-centered learning to active, student-centered learning. Learning is increasingly seen as a collaborative, dynamic, and experiential process, thus it requires new spatial scenarios.[3]
The first universities that were founded centuries ago were quite integrated into the urban fabric. Looking at Oxford, it is quite evident how the colleges are interwoven with the city blocks and they are an integral part of everyday life. During the 1950s campuses in the U.S. were being developed outside the city area and that influenced the university approach in Europe as well.[4] Today with the ever increasing number of students and the need for expansion, many institutions have turned to cities and vertical configurations to address the issues. This research's purpose is to explore how learning spaces could be integrated into the city center of The Hague, relate to the public and become an inclusive hub of innovation and continuous learning.

2. Collective spaces and their edges

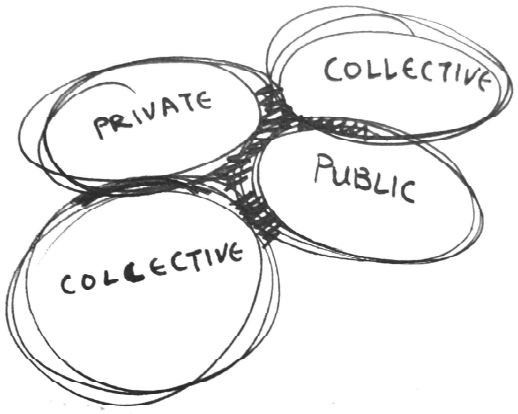

Figure 1: Public-private-collective diagram
Student's own work

The attempt to integrate the future campus with the city will challenge the idea of openness and acces sibility. In order to achieve the creation of a public campus and at

1 Avermaete, T., Hooimeijer F., & Schrijver L. Stedelijke formatie & collectieve ruimten, Oase 71, Rotterdam: NAi Uitgevers, 2006

2 Boys J., Towards Creative Learning Spaces: Re-Thinking the Architecture of Post-Compulsory Education, Abingdon, Oxon, New York: Routledge, 2011.

3 den Heijer, A.C., Campus of the Future: Managing a Matter of Solid, Liquid and Gas (Delft University of Technology, 2021.

4Technische Universiteit Delft. Universiteit en stad. OverHolland : Architectonische Studies voor de Hollandse Stad. V18/19. Nijmegen: Uitgeverij Vantilt, 2016.

the same time preserve the spatial needs for the educational purposes the dipole of public and private emerges.

The Nolli map is a primary example of documenting the relation between the public and the private domain in the city, using two colors to describe this binary division of urban spaces and buildings. In terms of accessibility, the city experience appears as a continuous journey, until hard barriers of property and privacy are encountered. However, the actual conditions of the city cannot rely upon this dipole to be described. The notion of spatial gradient is introduced, which describes the transition between public and private and brings forward this new hybrid private-public spaces. Manuel de Solà-Morales introduces the notion of collective space, as a typology that responds to the contemporary city functions. "Collective spaces are not strictly public or private, but both simultaneously. These are public spaces that are used for private activities, or private spaces that allow for collective use, and they include the whole spectrum in between."[5]

Access is essential for the development of collective spaces, since they consist of different levels of permeability and are defined by various boundaries. Proximity is more related to accessibility rather than the actual physical distance.[6] The goal is to investigate how the future campus can be connected to the city through a network of collective (learning) spaces both on the ground floor level and vertically.

This thesis will further investigate the edges that the coexistence of public, private and collective spaces form. These edges can be more or less penetrable, enabling connection or closeness. These transitions between spaces can be described as barriers, boundaries, borders or thresholds. In order to facilitate this research, a set of characteristics will be attributed to each of these typologies of edges.[7] Through the design phase, the thesis will focus on how these transitional moments are experienced and how these different typologies of edges are spatially manifested.

Methodology

In order for this thesis to be developed it is necessary to approach the topics in question through a set of research methods. Throughout the research process, it is crucial to maintain a reflexive and iterative approach, allowing for adjustments and refinements as new insights emerge.

Literature review

A comprehensive literature review as a tool to identify existing knowledge and theories about new approaches to learning spaces as well as a historic overview of the typology, so that past spatial elements and relations can be reevaluated and adapted to contemporary practice. Furthermore, it is essential to construct a theoretical framework based on literature in order to better define the notions of barriers, boundaries, borders and thresholds.

Site Analysis

The research may encompass both qualitative and quantitative data, including an extended site analysis that documents how the existing buildings integrate with the public space and how they define the edges between public and private use. When investigating the conditions of the site area it is important to assess possibilities for reuse or re-purpose whole buildings or parts of them.

Case studies

Several case studies that integrate learning spaces and city functions will be analyzed and compared. Design paradigms that look at the transition between public, collective and private spaces will also be studied to later inform the design choices.

Design Agenda

As stated in the studio brief we are asked to develop an urban capacity plan for the central station area of The Hague that will highlight the potential developments and new relations in the site and a new hybrid build-

5 de Solà-Morales M., Public and Collective Space: The Urbanization of the Private Domain as a New Challenge, Oase 33, Rotterdam: NAi Uitgevers, 1992

6 Scheerlinck, K. Collective Spaces Streetscape Territories Notebook. Vol. 2. LUCA School of Arts; Brussels, 2013.

7 Sendra P., & Sennett R. Designing Disorder: Experiments and Disruptions in the City, London New York: Verso, 2022.

ing for lifelong learning. The first step towards this proposal would be to fully assess existing infrastructures, buildings and public spaces, determine possible reuse of spaces and potential relations and connections that have not been facilitated until now. A system of collective spaces on multiple levels connected to the ground floor and expanding on the surrounding buildings can offer a new perception of the area as an entity, and not a concentration of objects. The idea of an open campus will foster a stronger relation with the community and the new building will become part of the new urban constellation.

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APPENDIX

Barrier
The purpose of the barrier is to block, to disrupt.
The barrier is resistant, but it can also be porous.
The barrier is visible.
The barrier can be fragmented.

Boundary
The boundary indicates a limit or extent.
The boundary establishes closure.
The boundary can be manipulated.

Border
The border is a separating line between places or states.
The border is an edge where different forces interact.
The border is continuous.
The border exerts influence to both sides, establishing an ambiguous zone.

Threshold
The threshold indicates a beginning or a change.
The threshold is a transformational zone.
The threshold has spatial presence.
The threshold is not disruptive, but transitional

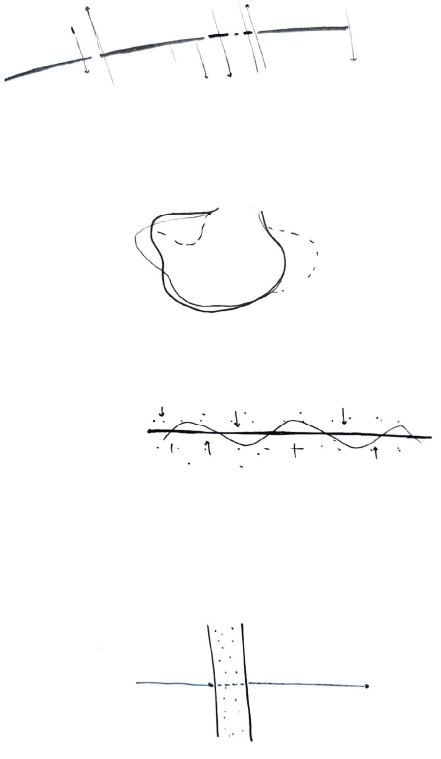
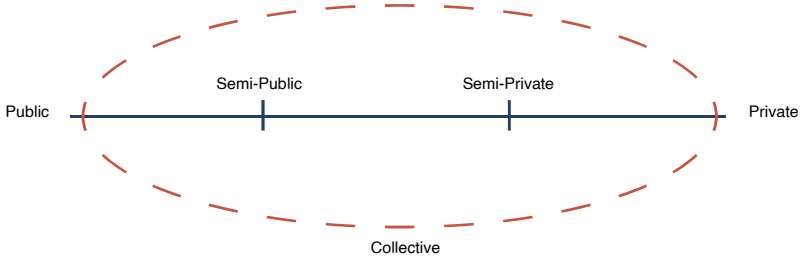
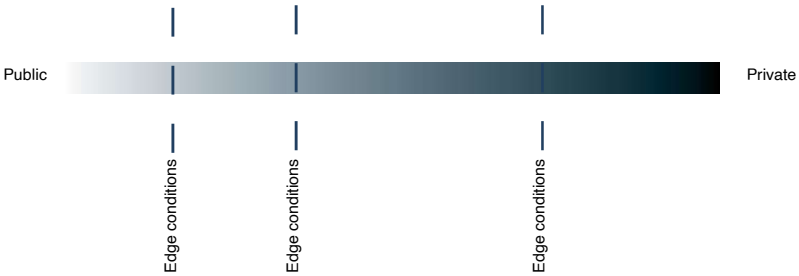


Figure 2: Edges' sketch diagrams
Student's own work


Public
Semi-Public
Semi-Private
Private
Collective


Public
Private
Edge conditions
Edge conditions
Edge conditions

GRADUATION PLAN

Personal information

Name	Savvina Megalovasili
Student number	5859034

Studio

Name / Theme	Public Building Graduation Studio 2023-24 The Vertical Campus | A Public Hub of the Future in The Hague	
Main mentor	Henk Bultstra	Architecture
Second mentor	Ger Warries	Building Technology
Third mentor	Sien van Dam	Theory & Delineation

Argumentation of choice of the studio

During MSc1 Public Building studio, we got to see how the building can function as a node of development for a territory that has already a given context. The addition of new elements as well as the choice of maintaining some of the existing ones, was both challenging and beneficial for future strategies and thinking. Furthermore, what has been important for my choice, is the fact that students of this studio can study and reflect on all the scales of the project, from the region and the urban scale to that of the program and the materials, resulting in a more comprehensive understanding of architecture as a “tool” and its significance in everyday life in the cities.

GRADUATION PLAN

Graduation project

Title of the graduation project

Interwoven realities as catalyst for integrationt

Goal

Location

The Hague, Central Station District

The posed problem

In the rapidly evolving landscape of contemporary cities,densification has emerged as a pivotal urban planning strategy to address the challenges of population growth, resource scarcity, and increasing land value. As cities seek to adapt to these new circumstances and re-imagine their future self, they turn to the development of the so-called “mega blocks” and “super-tall buildings”. These super structures usually create a complex internal world that has limited connection to the outside environment and even less connection with the surrounding buildings. The city becomes an amalgamation of these separated entities that appear as objects floating between the open streets.

Urban densification, characterized by the intensification of land use and the vertical expansion of structures, is the main goal for the city of The Hague for its 2050 vision, focusing especially on the Central Innovation district. Part of that district is the zone that is located directly around the Central Station and is predominantly a pedestrian area. The core of this zone consists of a dense area with large institutional buildings such as the National Library, the (temporary) parliament building, the National Archive and the Leiden University building, combined with the renovated New Babylon. However, the visitor ends up wandering around these monumental solids, unable to engage with the interior life and users of the buildings, disoriented and uneager to stay and engage with the area.
The addition of a new object/building will fail to address

the needs of the area, which are those of a porous environment and three-dimensional public space that engages with the existing built forms.

At the same time, the attempt to integrate the future campus with the city challenges the idea of openness and accessibility. In order to achieve the creation of a public campus and at the same time preserve the spatial needs for the educational purposes, the dipole of public and private emerges. The Nolli map is a primary example of documenting the relation between the public and the private domain in the city, using two colors to describe this binary division of urban spaces and buildings. In terms of accessibility, the city experience appears as a continuous journey, until hard barriers of property and privacy or even a hard facade are encountered.

Research questions

The project will investigate how the development of a strategy for a new campus building can achieve to bring forward possible connections between separated entities, entities that will eventually form the new campus by using the potential of weaving visible and invisible aspects and dynamics of the existing environment together.

- How can the open campus act as a catalyst for these closed-off realities and establish a new three-dimensional connecting layer on the site?

- How can the design for the campus act as a node for development and reconfiguration of the existing building context?

- How can the future campus be connected to the city through a network of collective (learning) spaces both on the ground floor level and vertically?

- How can the citizens relate to the university as a public space and integral part of the urban experience?

Design assignment in which these result

As stated in the studio brief, we are asked to develop firstly an urban capacity plan for the central station area of The Hague that will highlight the potential developments and new relations in the site and a new hybrid building for life-long learning. The first step towards this proposal would be to fully assess existing infrastructures, buildings, and public spaces, determine possible reuse of spaces and potential relations and connections that have not been facilitated until now. I observed that the buildings on the site are functioning as distinct entities, yet they possess significant potential to be interconnected and utilized by various stakeholders due to their program and structure.
My proposal aims to intervene in the closed, separated building entities of the area by connecting them with the new campus building. Focusing on the edge conditions that characterize the existing environment, a system of collective spaces on multiple levels connected to the ground floor and expanding on the surrounding buildings can offer a new perception of the area as an entity, and not a concentration of objects. Placing the new building between the station building and Leiden University will lead to the development of a central educational 'spine' on the ground floor level - a publicly accessible strip that extends from the station to the library. The idea of an open campus will then foster a stronger relationship with the community, and the new design will become part of the new urban constellation. Knowledge is meant to be discovered and explored by the visitors of the campus, and the city is meant to be part of the student experience.

Process

Method description

In order for this thesis to be developed it is necessary to approach the topics in question through a set of research methods.

Research-by-Design
In Research-by-Design, the traditional boundaries between research and design are blurred, allowing for a collaborative and iterative exploration of ideas. This process was important for the first stages of qualitative research, the problem-statement, and the formation
of initial intentions. Observations, interviews and theory and delineation assignments help us construct the theoretical framework of our research, explore different concepts, and test them though simple design attempts

Literature review
A comprehensive literature review can be used as a tool to identify existing knowledge and theories about new approaches to learning spaces as well as a historic overview of the typology, so that past spatial elements and relations can be reevaluated and adapted to contemporary practice. Furthermore, to fully comprehend the notion of

hybridity and multiplicity, literature research is employed.

Site Analysis
The research may encompass both qualitative and quantitative data, including an extended site analysis that documents how the existing buildings integrate with the public space and how they define the edges between public and private use. When investigating the conditions of the site area, it is important to assess possibilities for re-use or re-purpose whole buildings or parts of them.

Case studies
Several case studies that integrate learning spaces and city functions were analyzed and compared. Design paradigms that look at the transition between public, collective and private spaces will also be studied to later inform the design choices as well as examples of built projects that implement the notion of hybridity and mixed use. Further paradigms of sustainable structures models will be used as case studies for the technical building design phase of the graduation studio.

Although literature review, site analysis and case studies as research methods are mentioned separately, they remain an integral part of the research-by-design process. Throughout the research and the preliminary design phase, it was crucial to maintain a reflexive and iterative approach, allowing for adjustments and refinements as new insights emerge.

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Case studies

Bernard Tschumi Architects - Parc de la Villette (Paris, France) - 1983

Cedric Price - Potteries Thinkbelt Project (Staffordshire, England) - 1966

Cedric Price - Fun Palace for Joan Littlewood Project (London, England) - 1961

Constant Nieuwenhuys - New Babylon - 1959-74

MVRDV – The Podium (Rotterdam, Netherlands) - 2022

MVRDV - Vanke 3D City (Shenzhen, China) - 2018

Stan Allen, Rafi Segal - Block/Tower (New York, USA) - 2013

Steven Holl Architects - Visual Arts Building at the University of Iowa (Iowa City, USA) - 2016

Steven Holl Architects - Linked Hybrid (Beijing, China) - 2009

RCR arquitectes - The Edge (Dubai, UAE) - 2007

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 programme (MSc AUBS)?

My graduation project, which focuses on the transformation of the existing conditions of the dense Central Station area in The Hague, relies on the research done through the Public Building Graduation Studio sessions and is based upon the studio's main investigation goals of multiplicity, hybridity, sustainability and densification. The TU Delft community, and the MSc Architecture, Urbanism and Building Sciences program in particular, are at the forefront of developing solutions for current global issues such as the ones mentioned above. My project approach aligns with the objectives and context of my master track in Architecture, by developing a strategy for a sustainable, self-sufficient and responsive architecture.

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

The interdisciplinary character of the MSc AUBS program is evident in the approach of my project. It blends perspectives from social dynamics, environmental considerations, and architectural design, thereby adding to the wider scholarly conversation about the connections among urban spaces, societal requirements, and advancements in architecture.

Time planning

P2: schematic design — **Week 2.10**

Phase 1:The first week after P2 involves reviewing and reflecting on the feedback obtained during P2 presentation and assessment. This stage is crucial for gaining a deeper insight into potential modifications of the strategy and the planning of next steps towards the design. — **Week 3.1**

Phase 2: In this stage, the schematic design proposal from P2 will be transformed into a tangible architectural design proposal. During this phase, plans, sections and elevation should include further detail, elaborating on the ones proposed for P2, going from the 1:500-1:200 scale to that of 1:50. Furthermore the technical aspects of the building will be examined and incorporated into the design. — **Week 3.2** — **Week 3.7**

P3: design proposal — **P3**

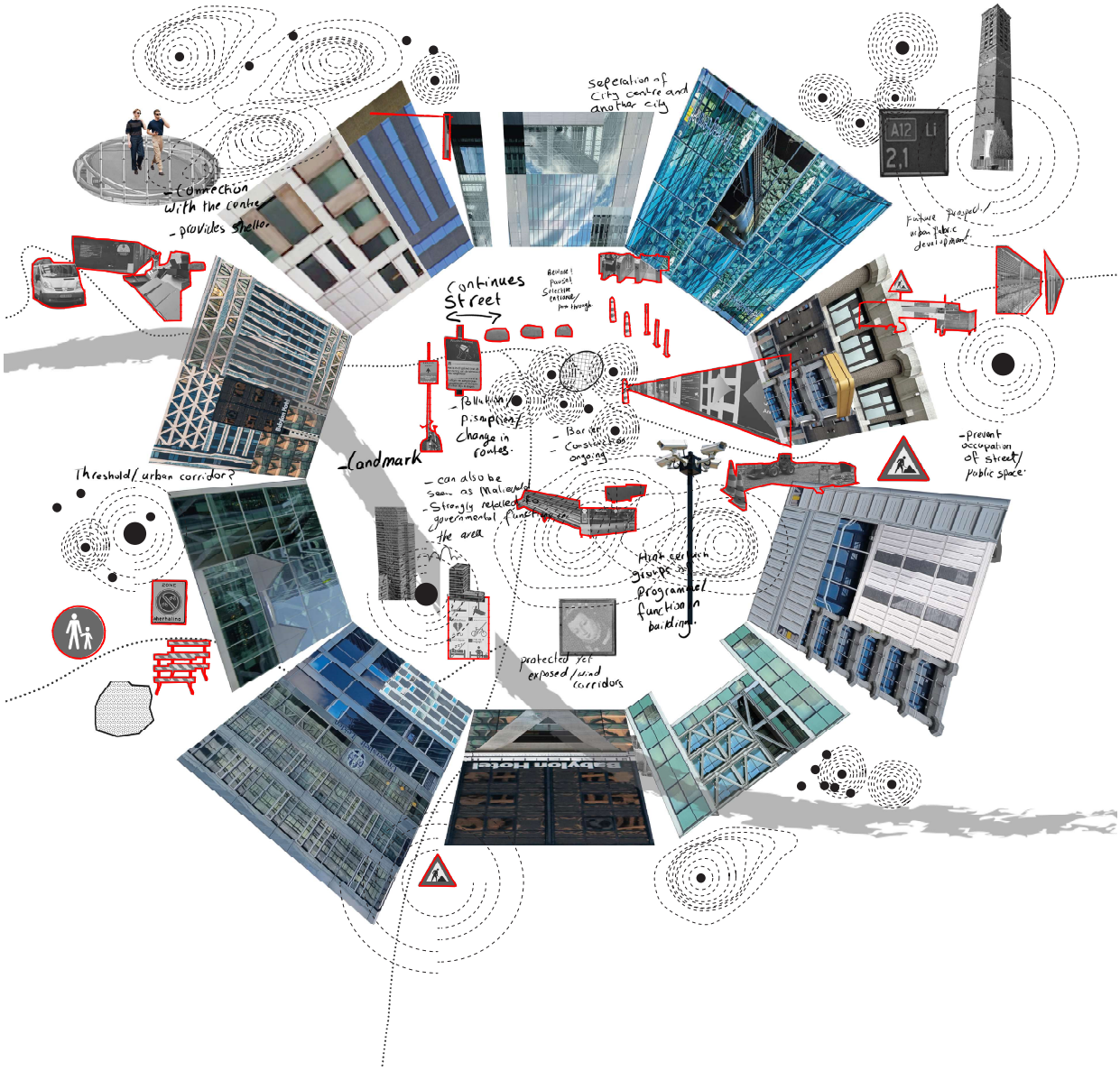
Phase 3: Once more, during this week it is necessary to contemplate the feedback received during P3 presentation and plan the next weeks accordingly. — **Week 4.1**

Phase 4: These weeks revolve around refining and concluding the design proposal. This phase should bring the project's technical specifications (materiality, structural details in scale 1:20-1:5, climate conditions diagrams etc) into sharp focus. — **Week 4.2**

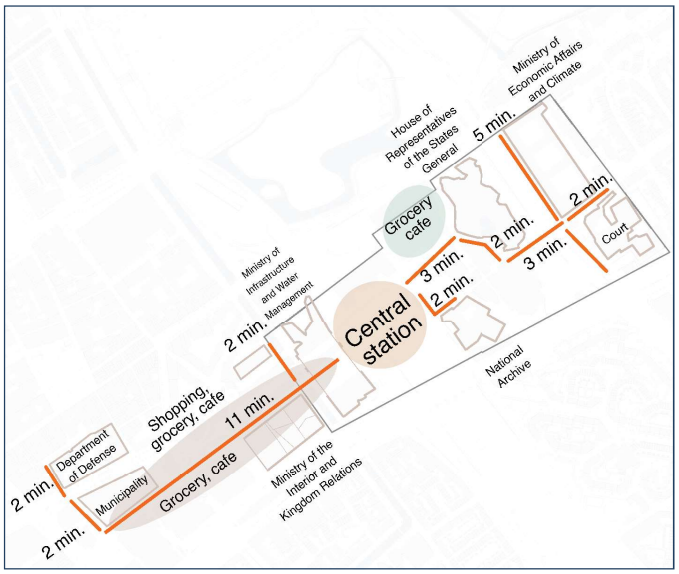
P4: FINAL design proposal — **P4**

Phase 5: During phase 5 the final modifications and refinements to the materials and models should be made, while preparing the final presentation. — **P5**

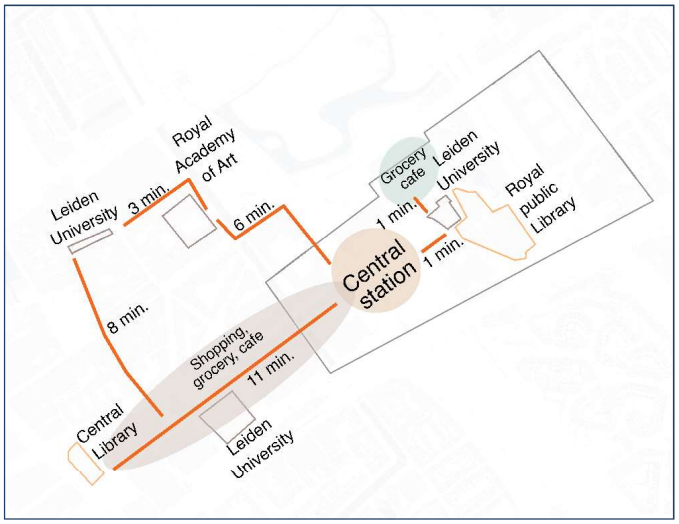
SITE ANALYSIS



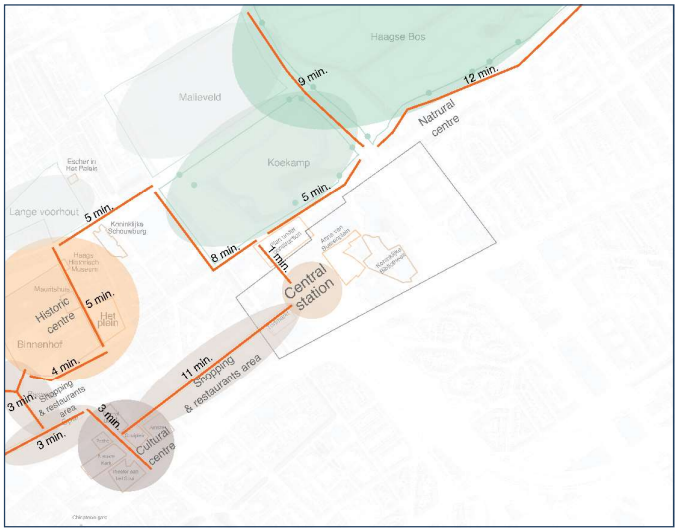
Phychogeographical map



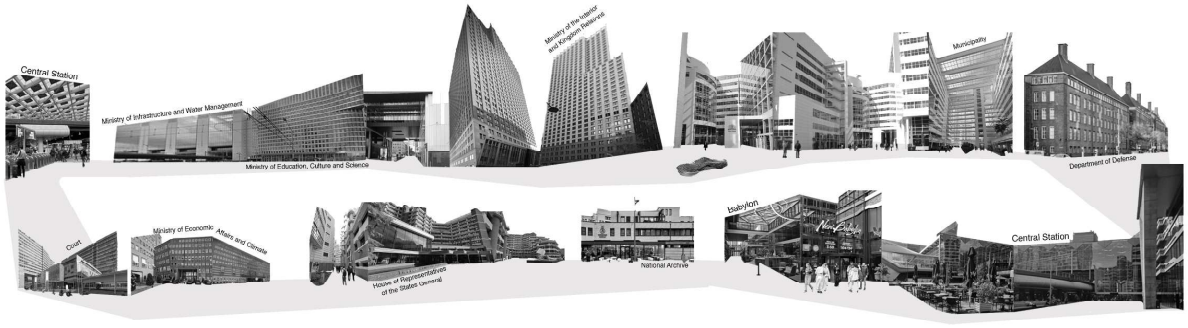
Employee movement scenario



Student movement scenario



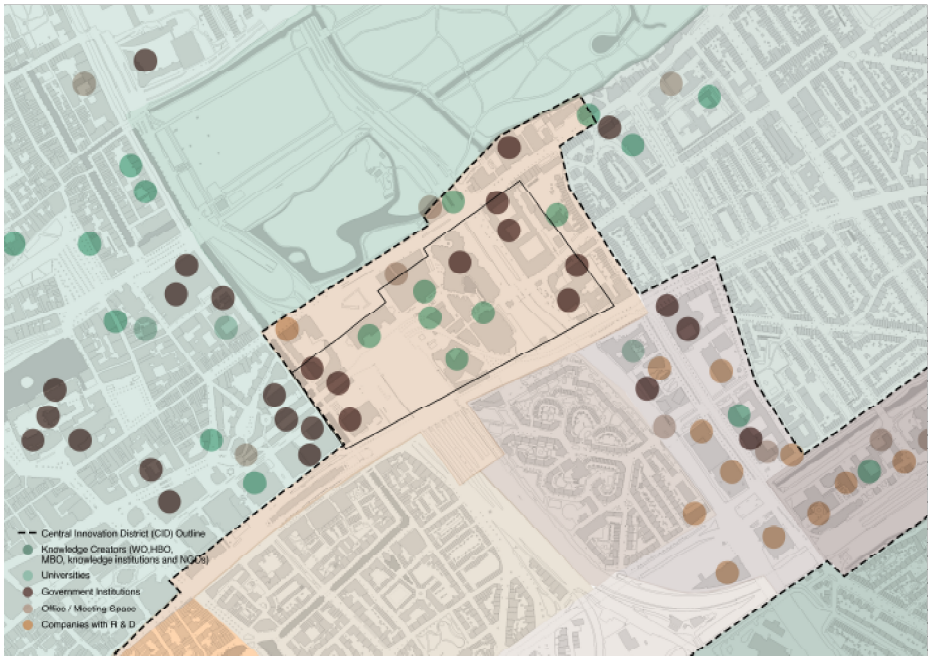
Tourist movement scenario


Central Station
Ministry of Infrastructure and Water Management
Ministry of Education, Culture and Science
Ministry of the Interior and Kingdom Relations
Municipality
Department of Defense
Court
Ministry of Economic Affairs and Climate
House of Representatives of the States General
National Archive
Babylon
Central Station

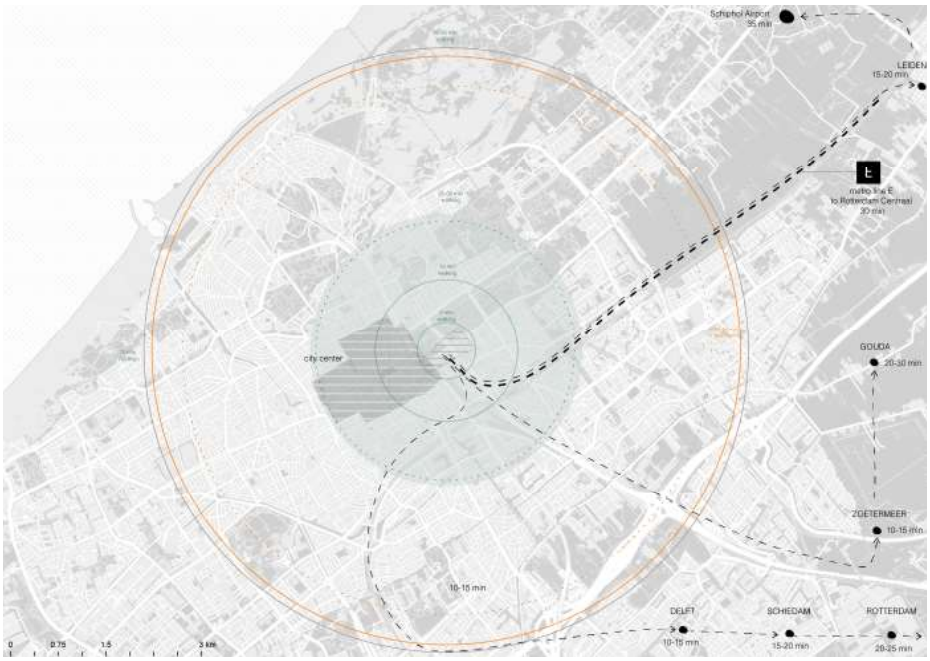

Central Station
Leiden University
Central Library
Royal Public Library
Leiden University
Royal Academy of Art
Central Station
Leiden University
Babylon


Central Station
Amare
Theater aan het Spui
Nieuwe Kerk
Passage
Binnenhof
Babylon
Central Station
Haagse Bos
Kneuterdijk
Lange Voorhout

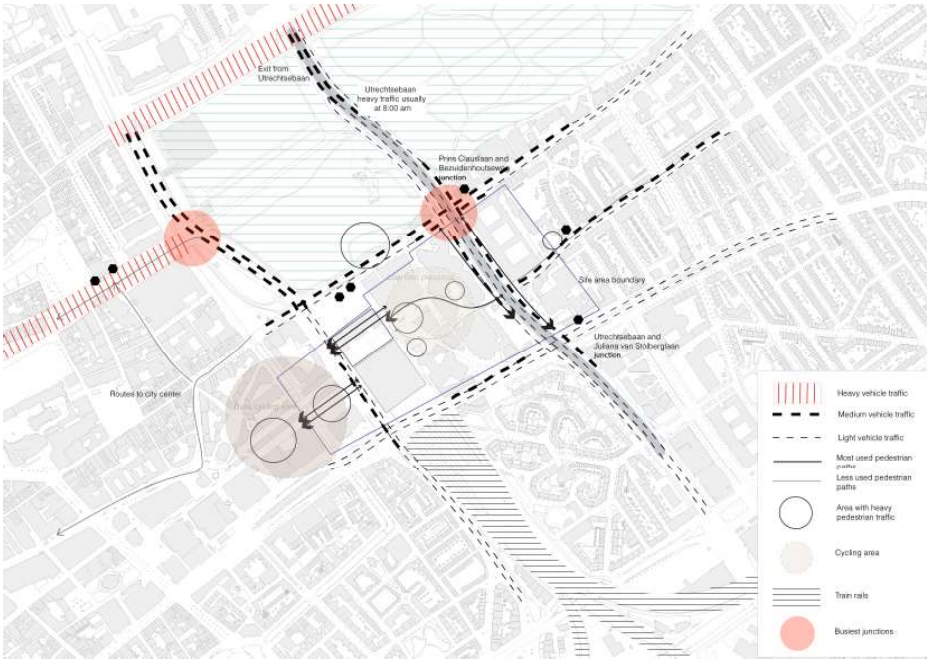
Important public spaces



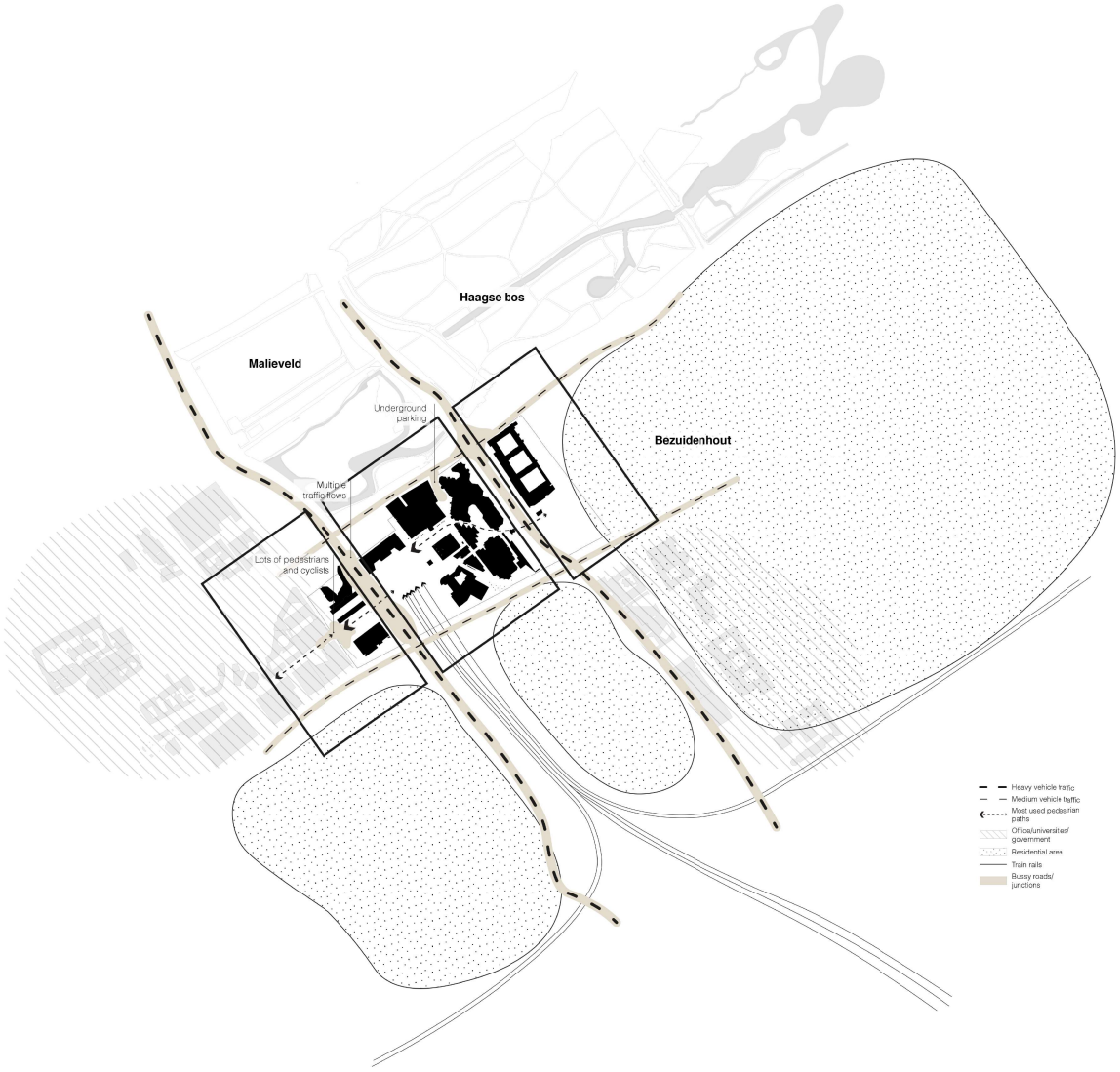
Programmatic “clouds” through CID , Den Haag



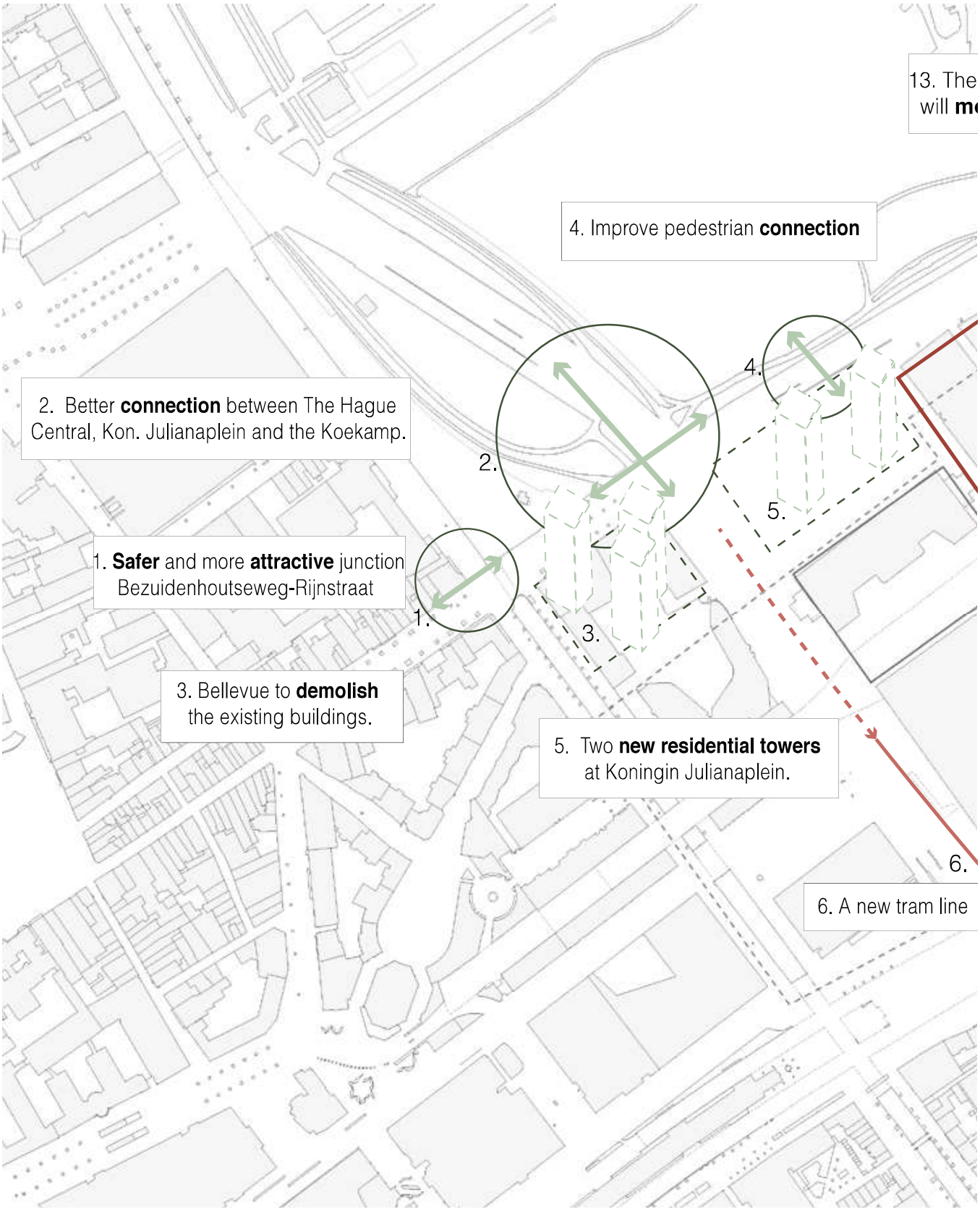
Important public spaces

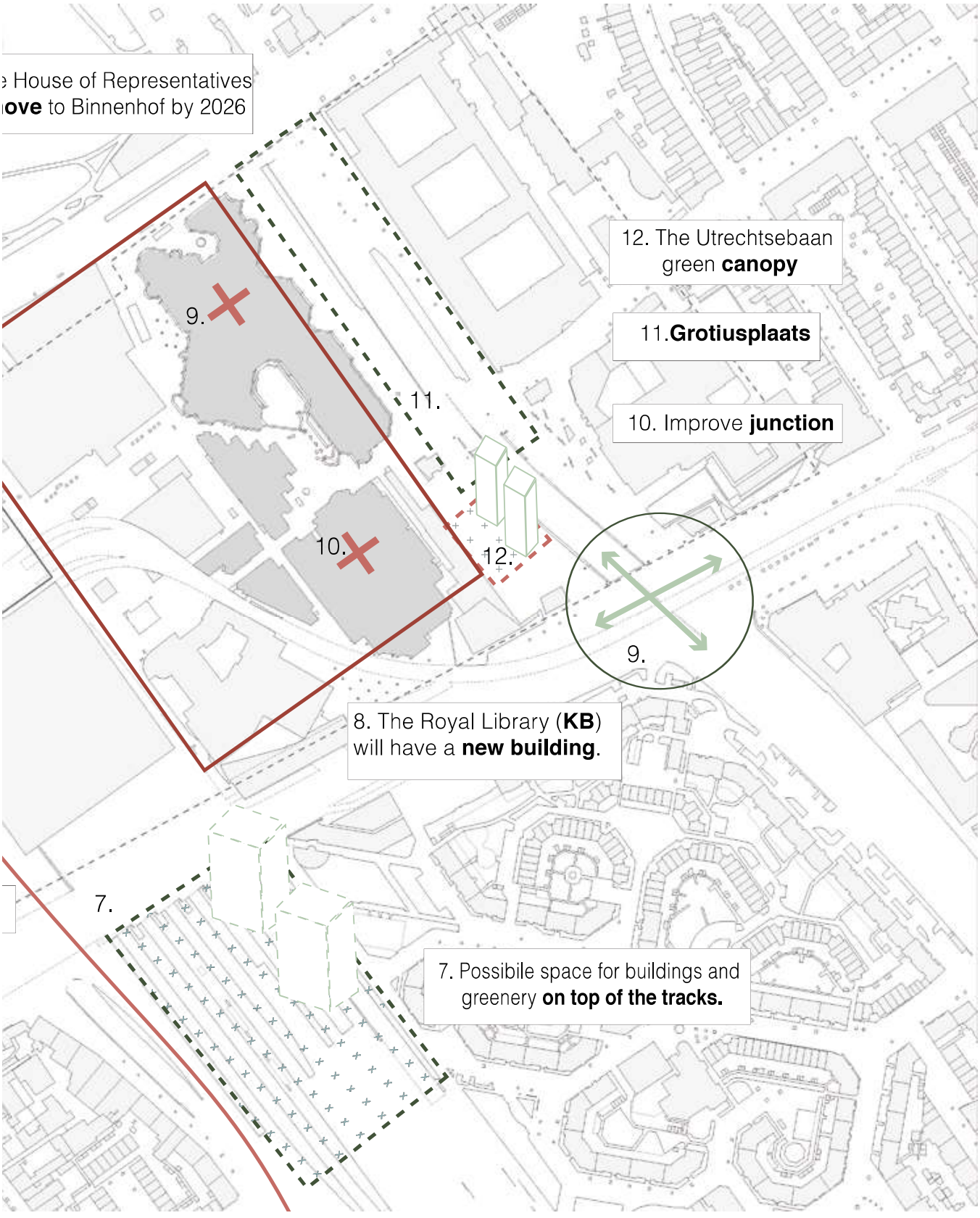


Traffic documentation

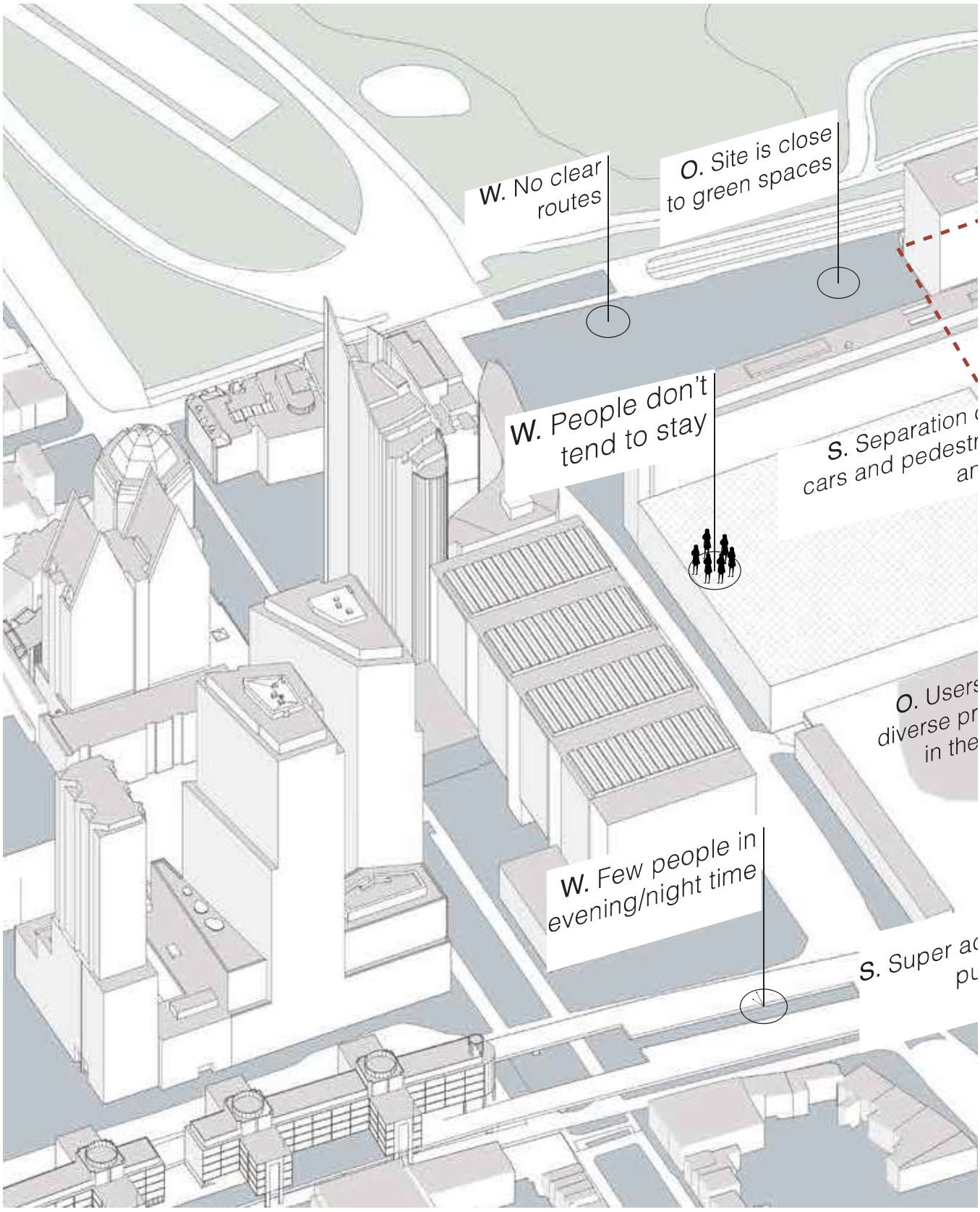


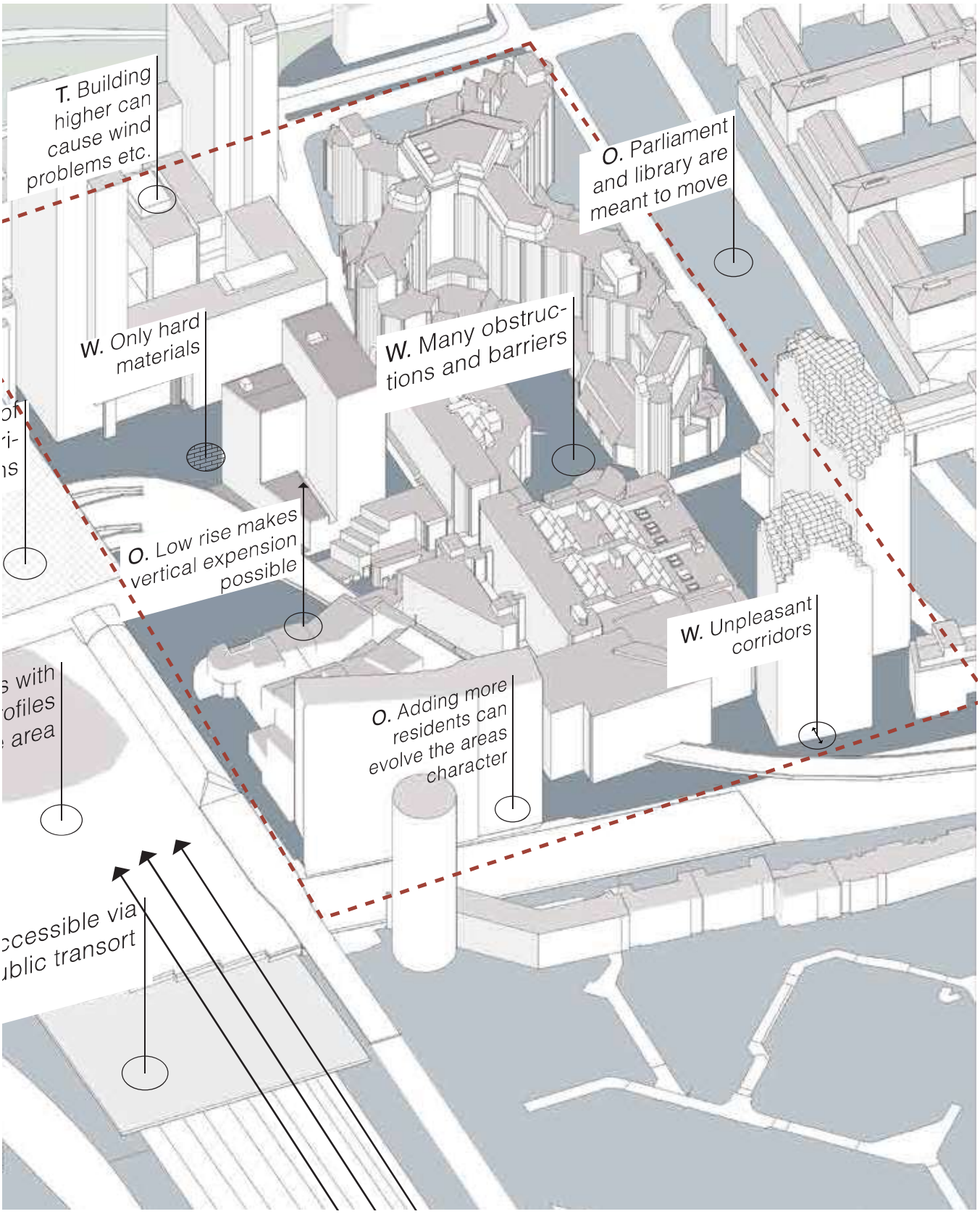
Area of interest documentation


13. The
will m
4. Improve pedestrian **connection**
2. Better **connection** between The Hague Central, Kon. Julianaplein and the Koekamp.
1. **Safer** and more **attractive** junction Bezuidenhoutseweg-Rijnstraat
3. Bellevue to **demolish** the existing buildings.
5. Two **new residential towers** at Koningin Julianaplein.
6. A new tram line
1.
2.
3.
4.
5.
6.



Municipality's future plans


W. No clear routes
O. Site is close to green spaces
W. People don't tend to stay
S. Separation
cars and pedestr
ar
O. Users
diverse pr
in the
W. Few people in evening/night time
S. Super ac
pu



SWOT diagram

No clear circulation axis

Area is empty after 7:00 pm

Closed off ground floors

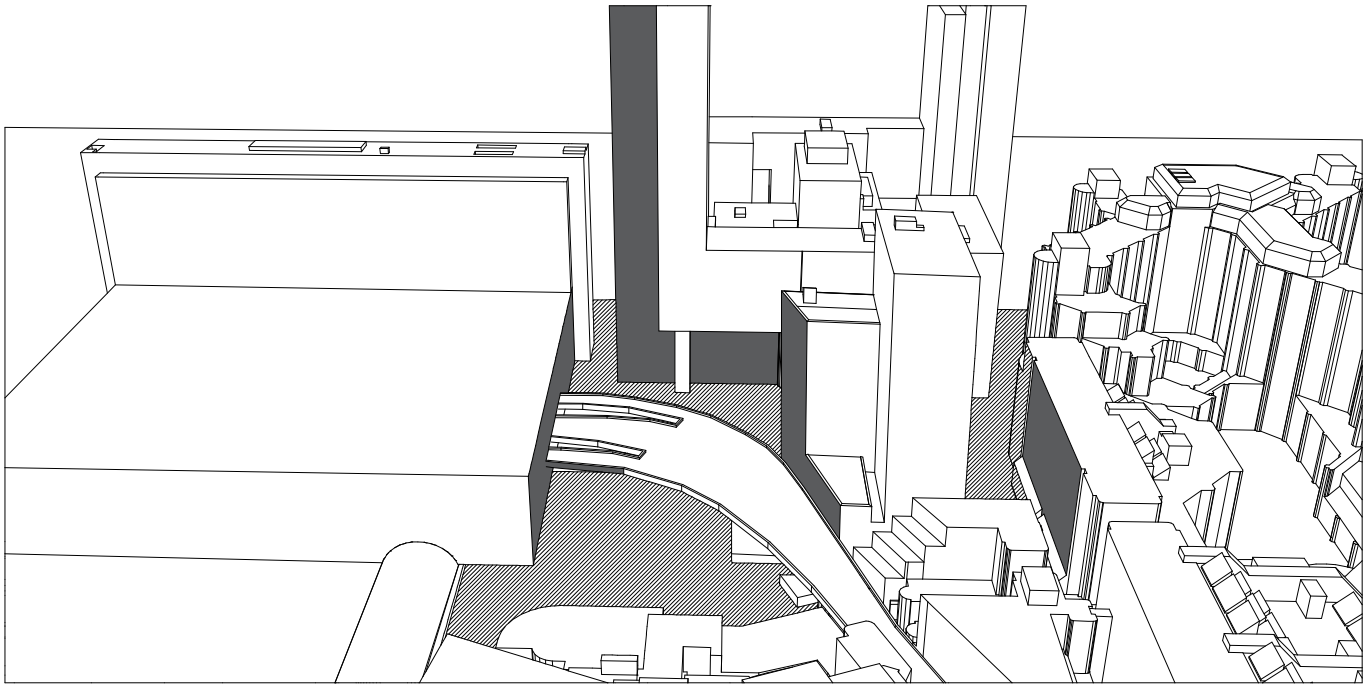
Limited access to facilities

There are only two inputs to the site

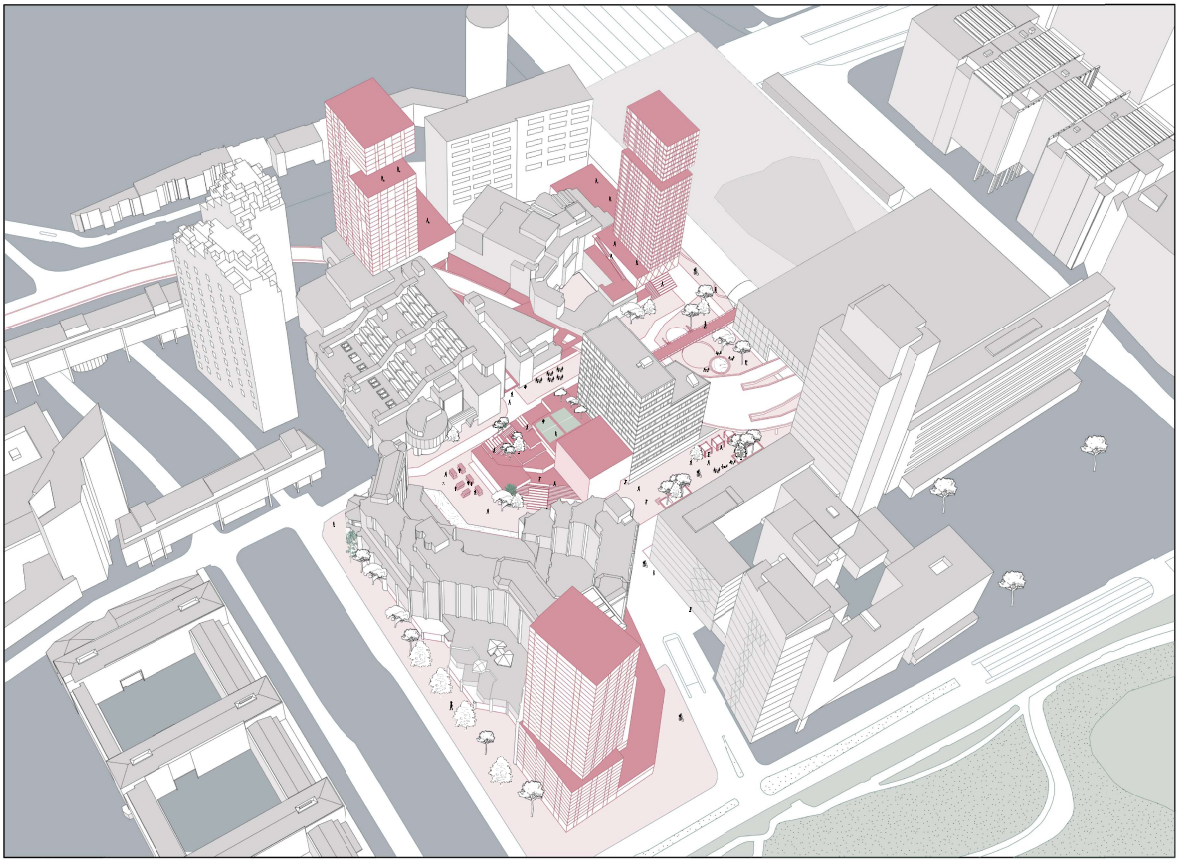
Pedestrian area

Limited used corridors

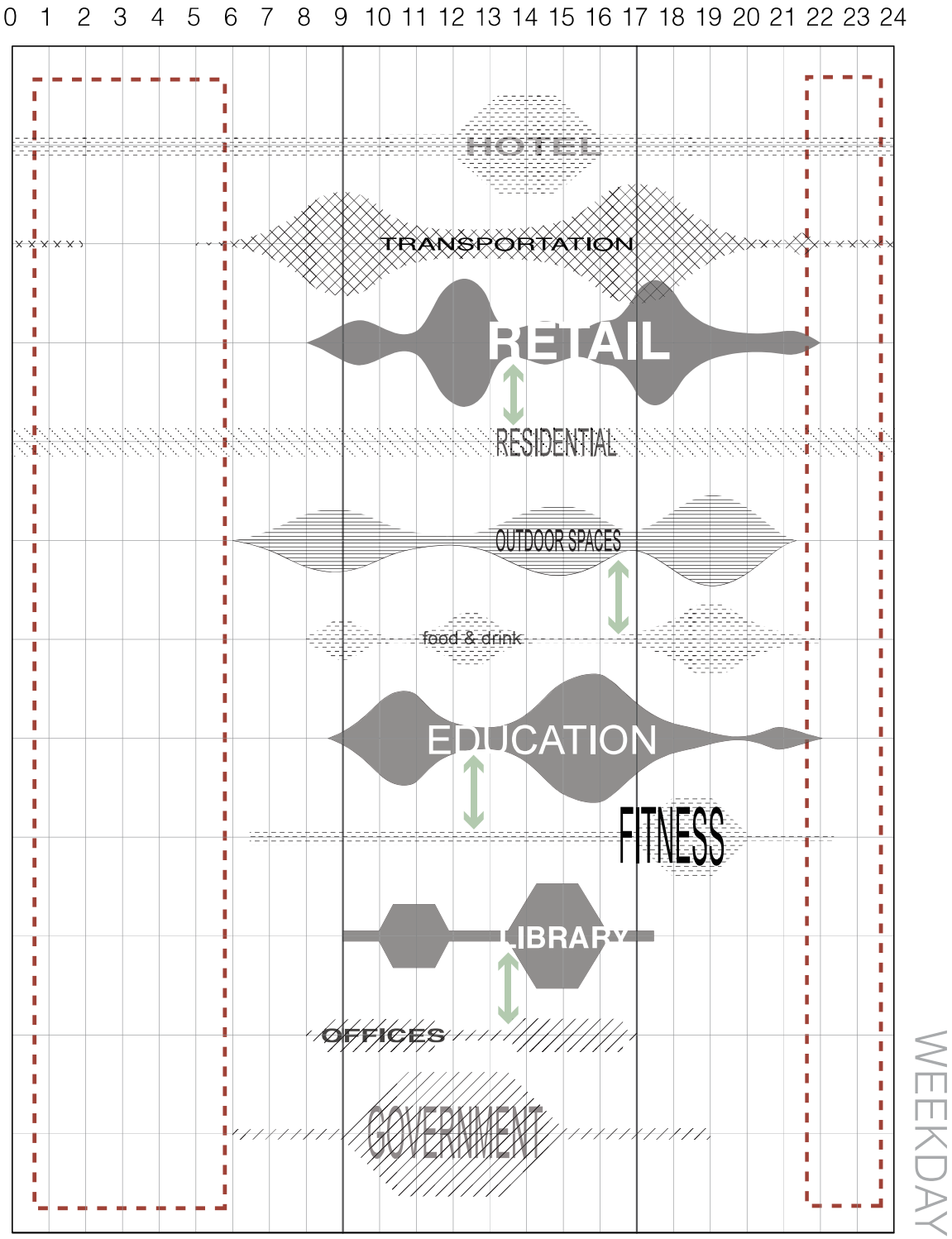
Back facades of the buildings



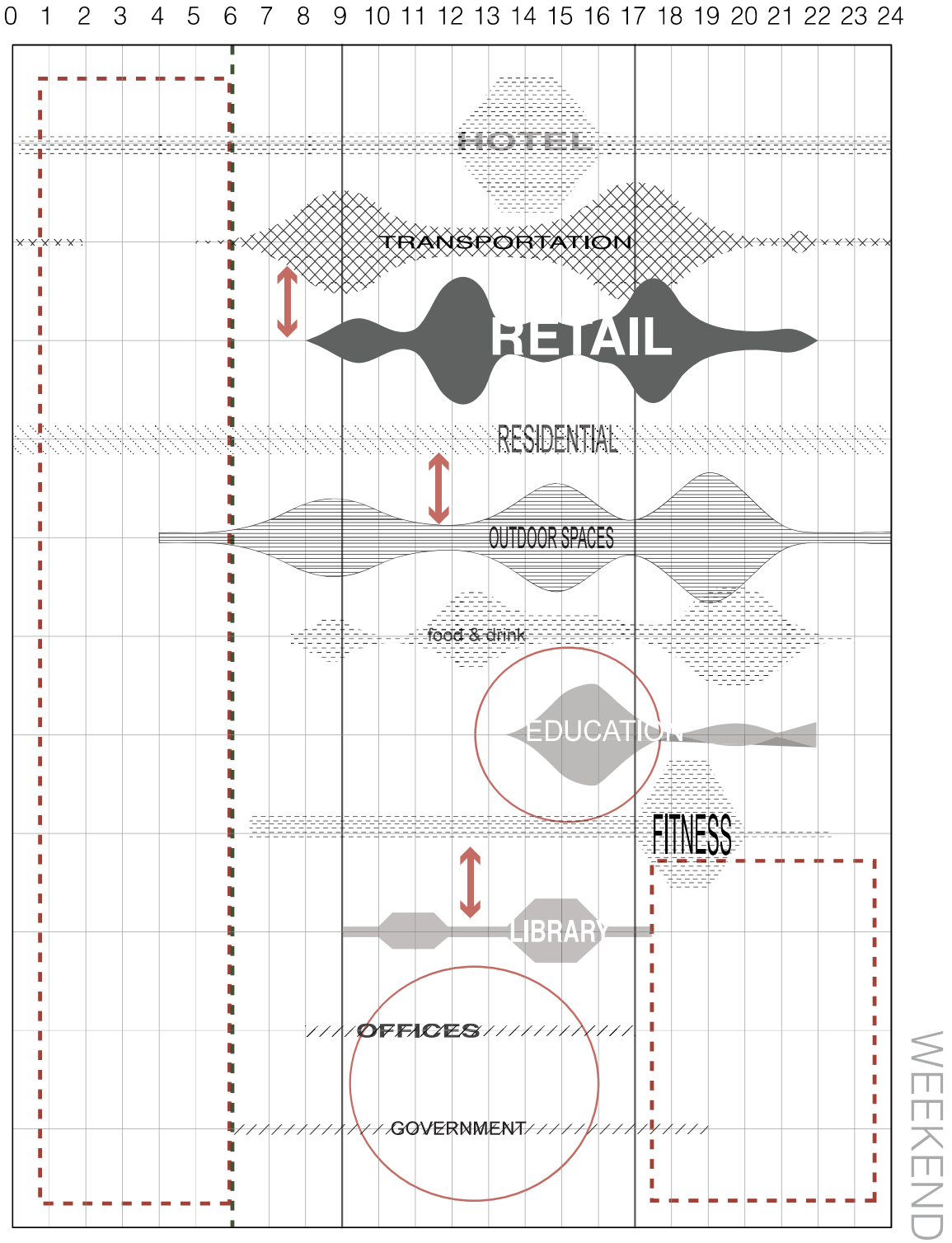
CAPACITY PLAN



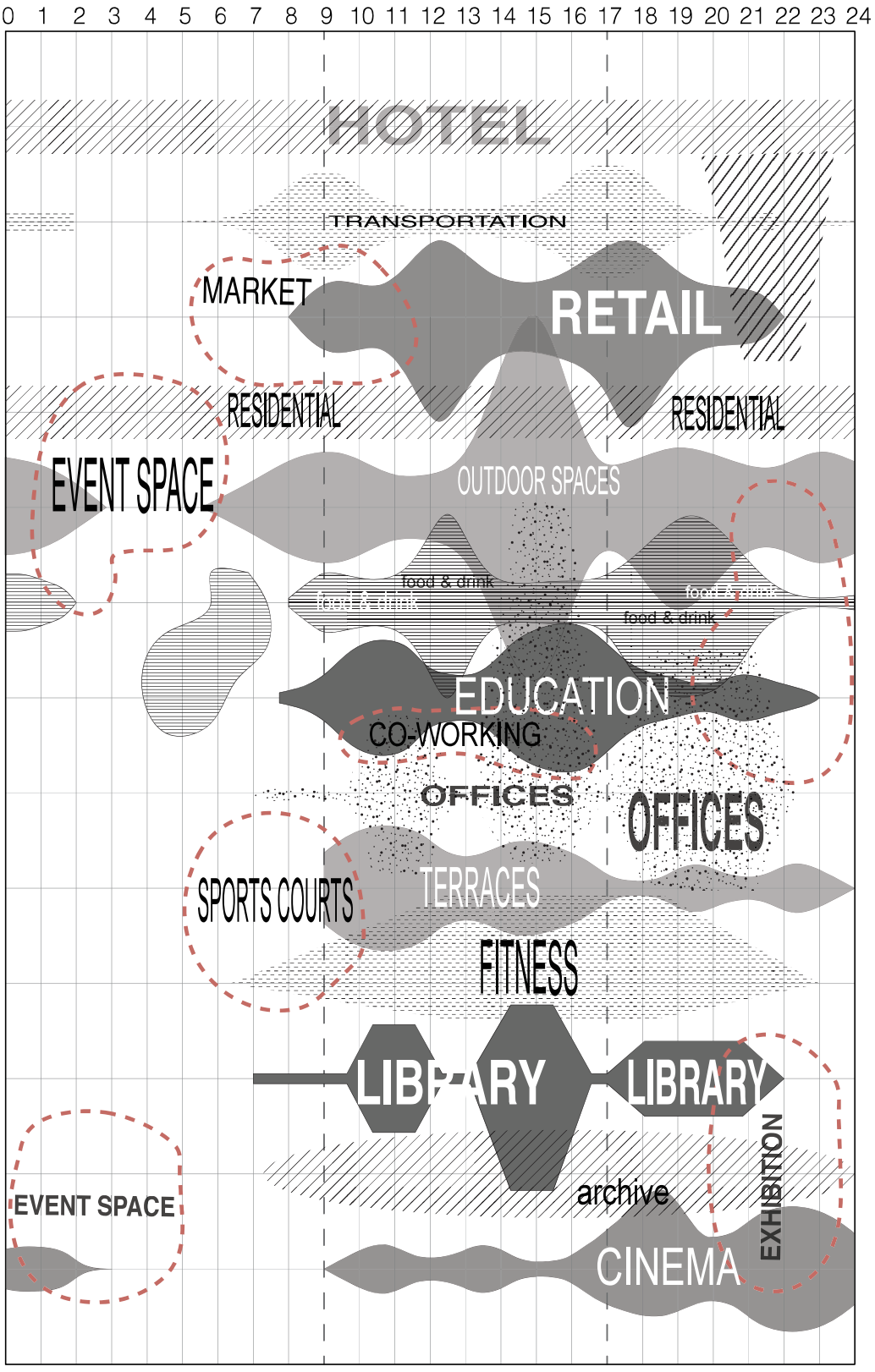
Capacity plan



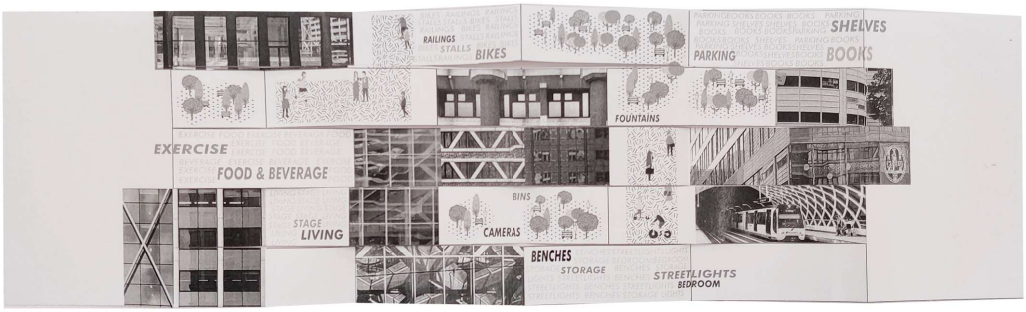
Program diagram during weekdays



Program diagram during weekends



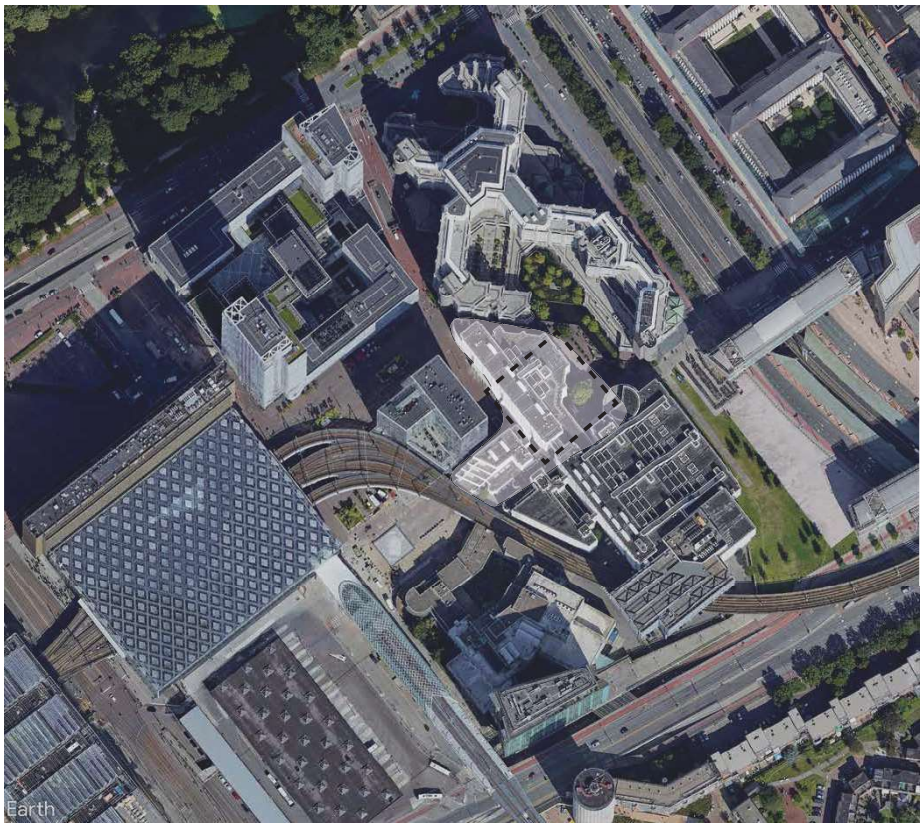
Proposed program diagram

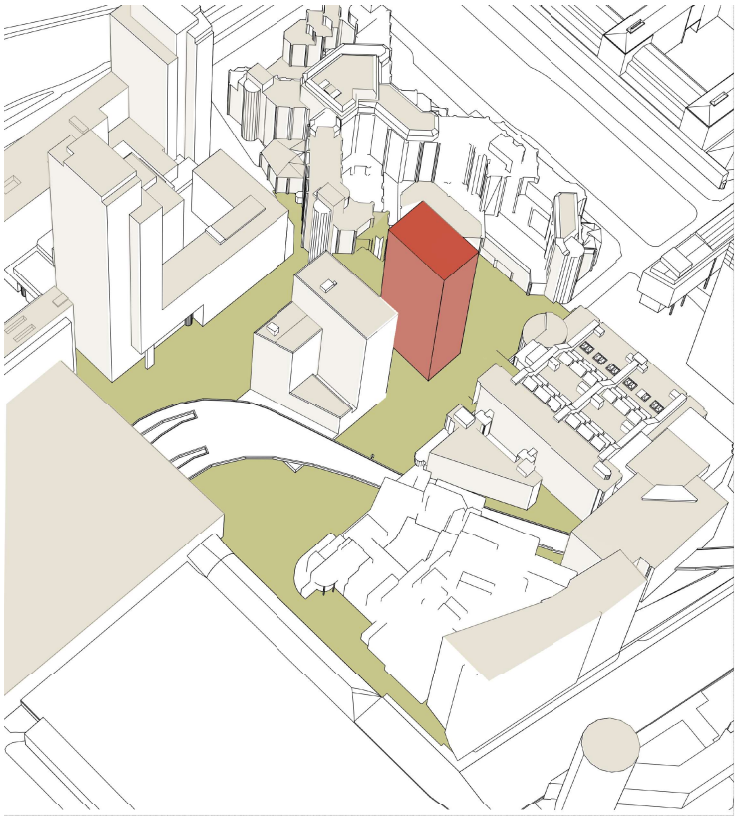


Re-imagining public space

CHOSEN PLOT

Possible plot A





- Possible connection with Leiden University building.

- Together with Leiden University they can create an educational hub.

- Possible connection with the Parliament building.

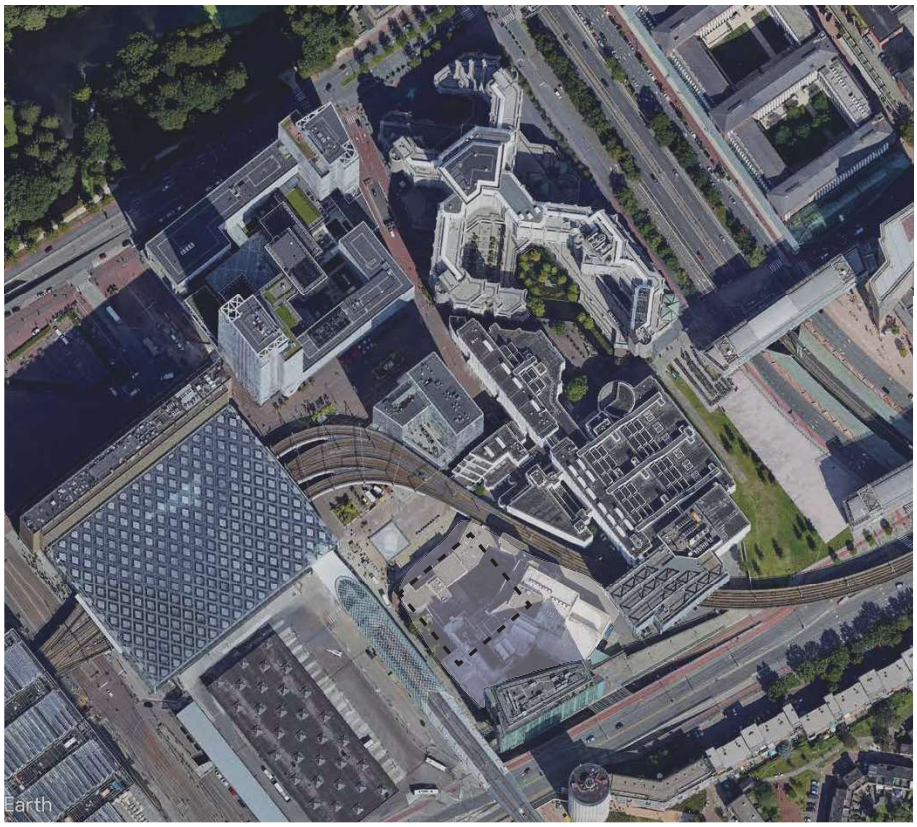
- The ground floor of the new building could become part of the public space that is also the entrance to the core of the site.

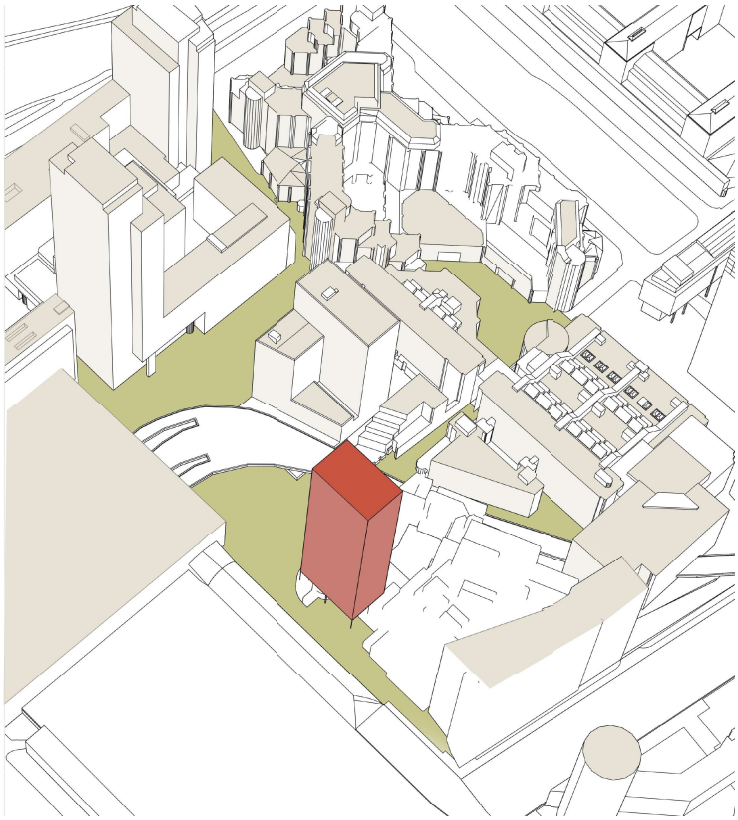
- Too close to another high rise building.

- Part of the Library building will need to be demolished.

- There is limited space within the plot.

Possible plot B





- Possible connection with the bus station level.

- Reconfigure the Archive building and make a system.

- Possible connection with the library.

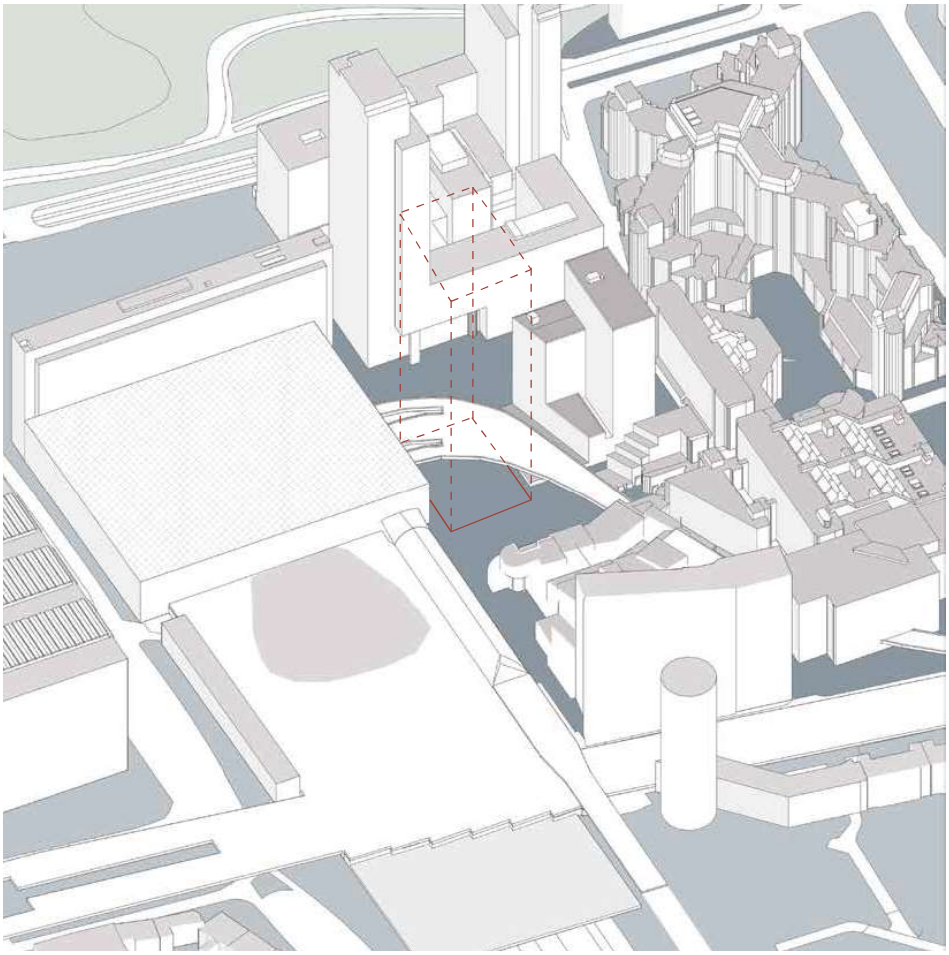
- It can create a public zone with the open space in front of it.

- Possible connection with the residential building.

- Too close to another high rise building.

- Part of the Archive building will need to be demolished.

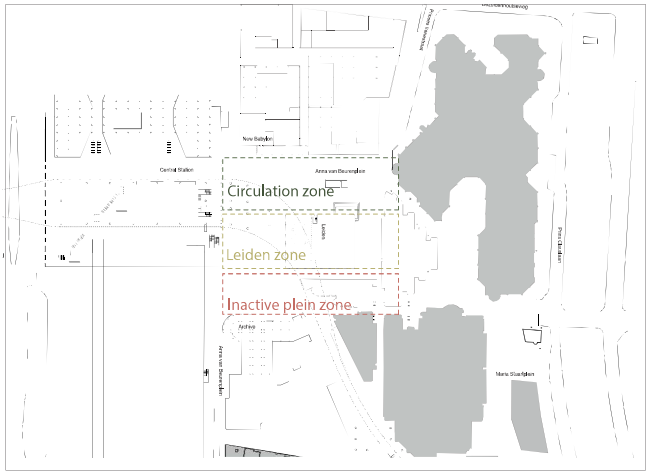
- There is limited space within the plot.



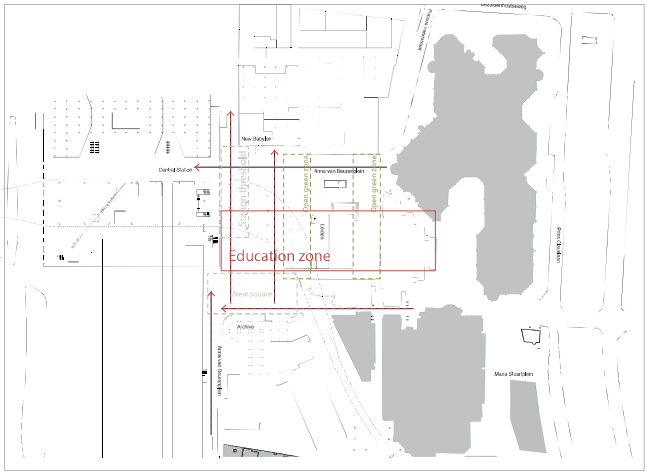
The chosen plot offers possibility for **connections** with the Central Station building, Leiden University building and the Archive building. Furthermore, it makes use of the space **under the tram lines** that is currently inactive. The new building aims to become a **node of development** for the dense area around the station.

Flows diagram

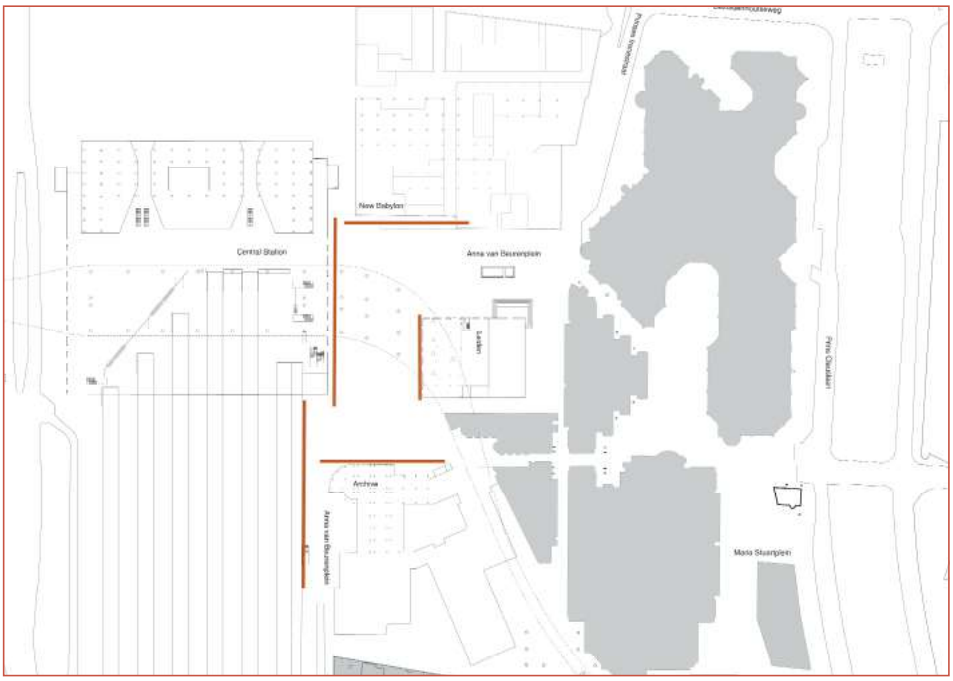
Current uses diagram



Existing zones within the site

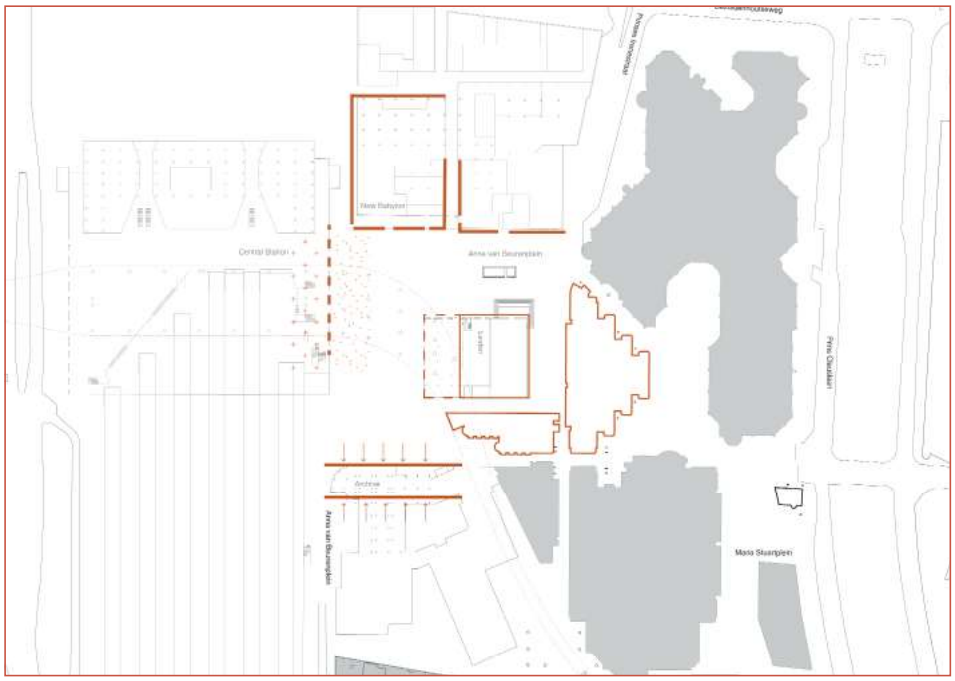


Future configuration of the site

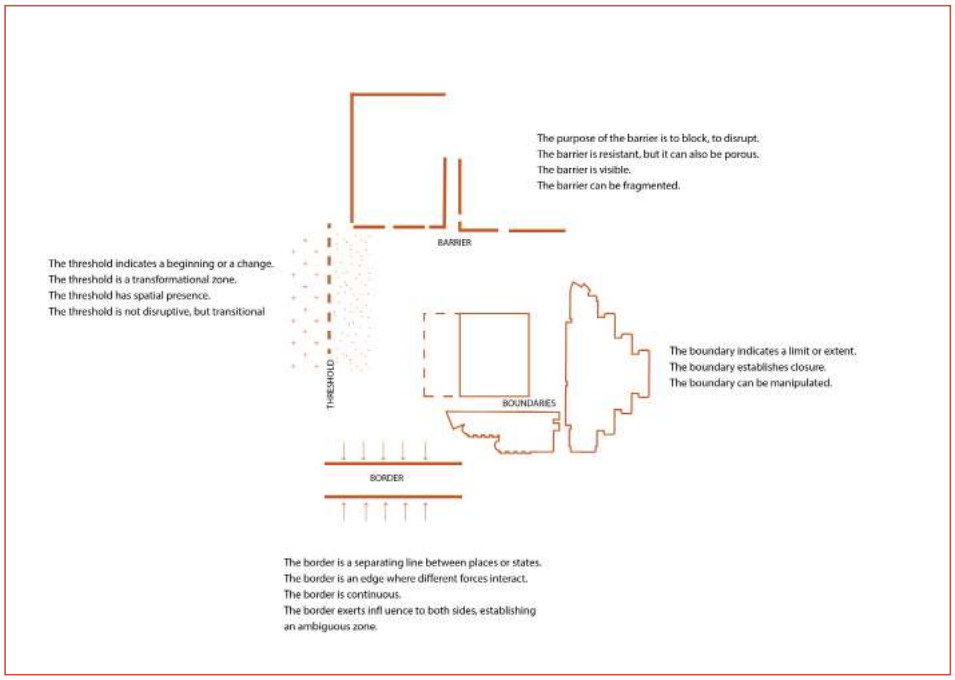


Hard barriers

Site constraints

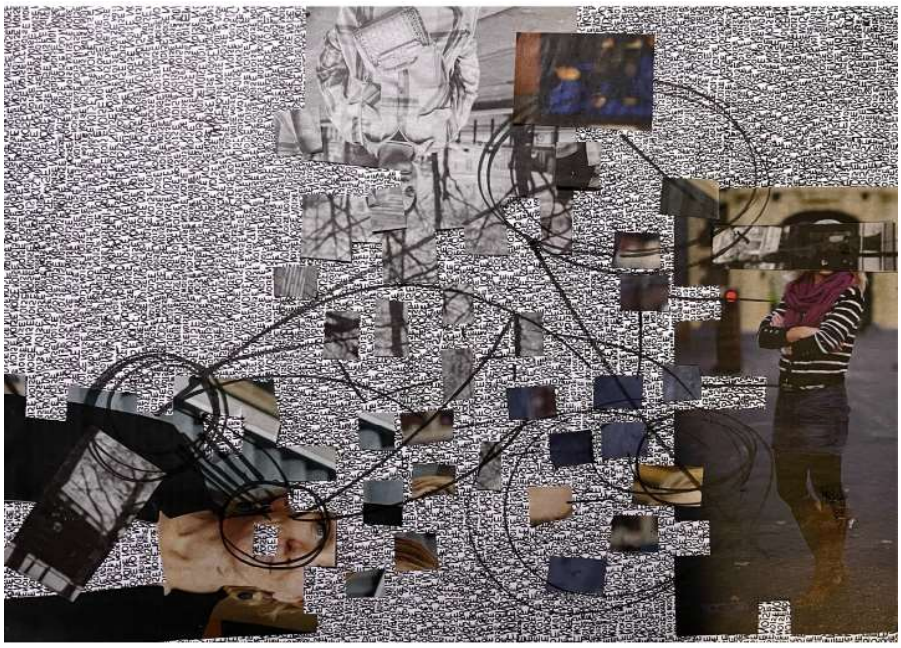


Different types of edges

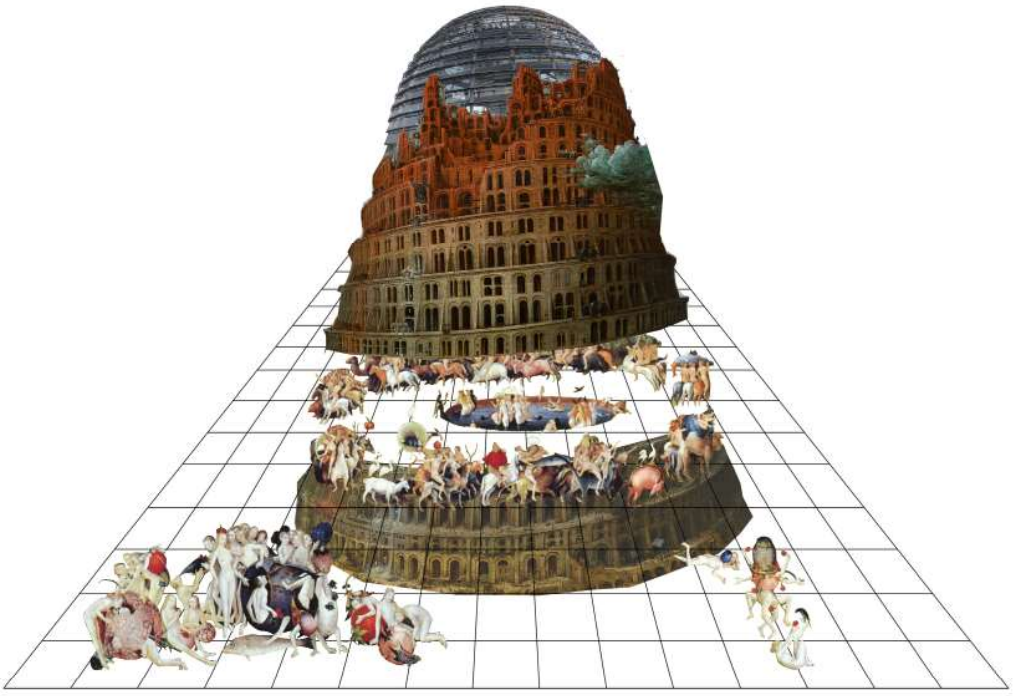


Edges analysis

THEORY & DELINEATION



Site reinterpretation



The public campus

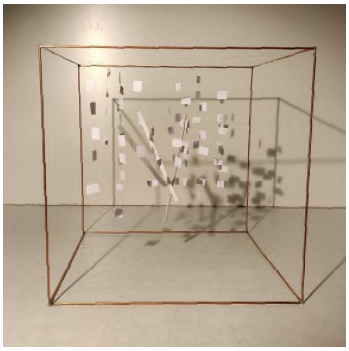
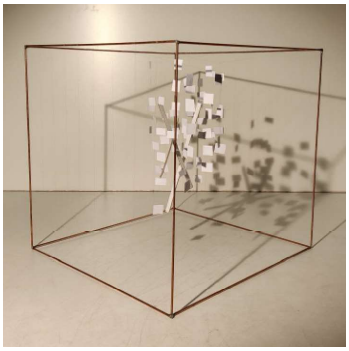
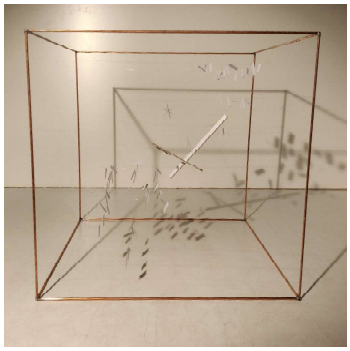
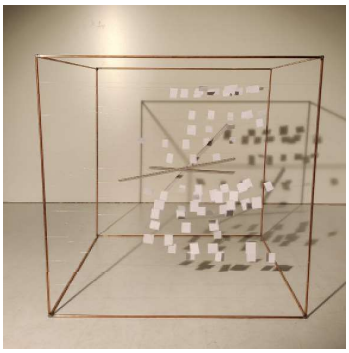
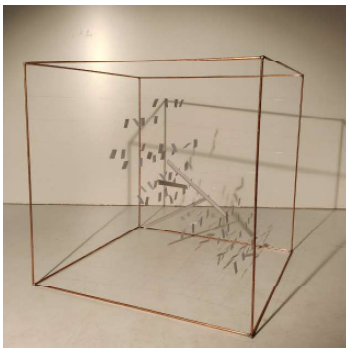
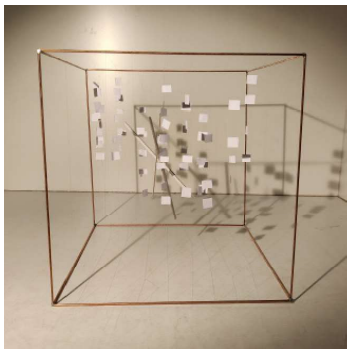
The virtues of the Public Campus:

- It offers a variety of workspaces (from shared spaces to individual studying)
- It provides flexible classrooms (they can be transformed or can be found in multiple locations even outside campus)
- It shelters non-academic functions
- It is open for 20 hours every day
- It consists of a network of indoor-outdoor spaces extending on all levels
- It has spaces with no access restrictions
- It incorporates in its constellation spaces from near buildings that are unused
- It is the home of 3-to-103- years-old learners
- It is experienced as part of the city
- It showcases the learning process

Unexpected entrances to the campus

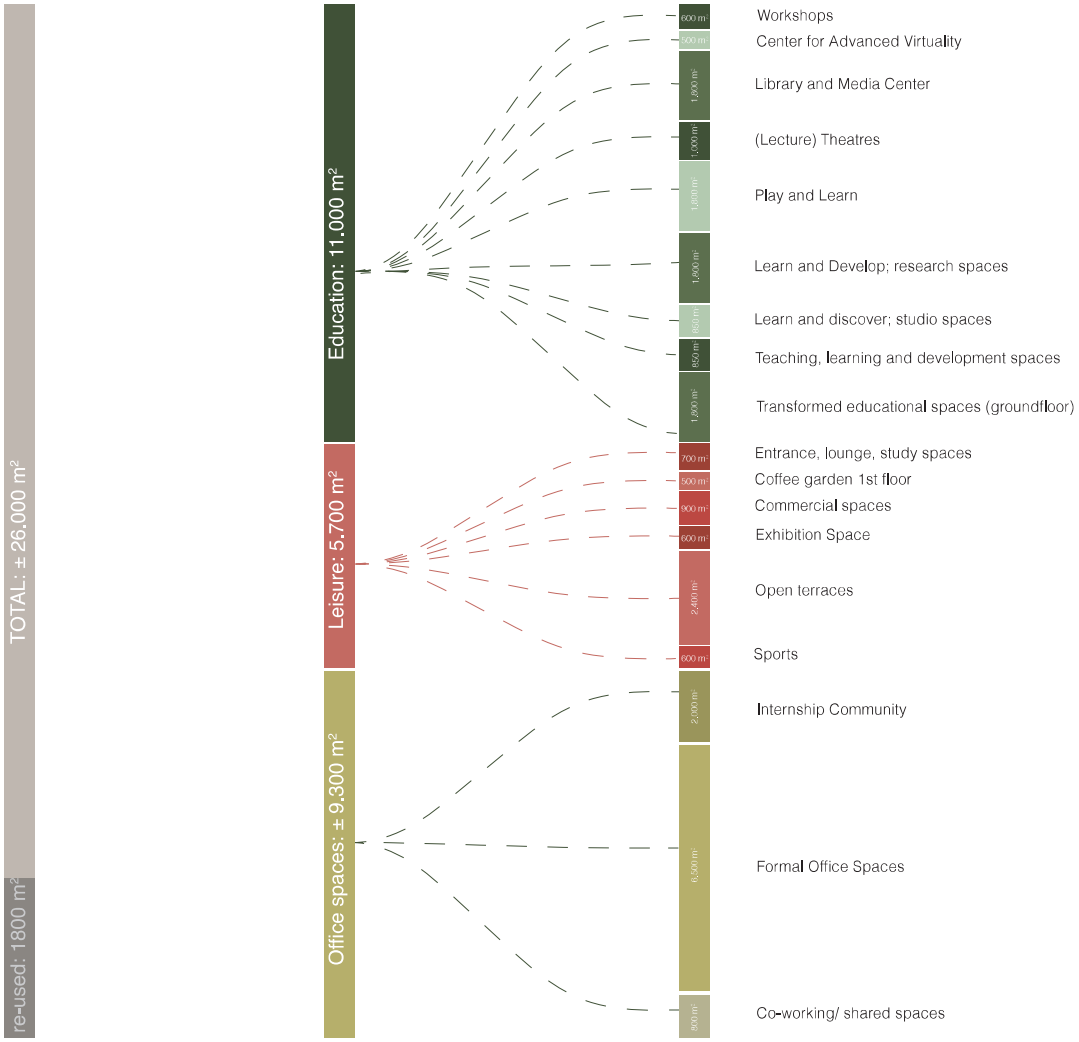
Unexpected entrances to the campus

The notion of weaving

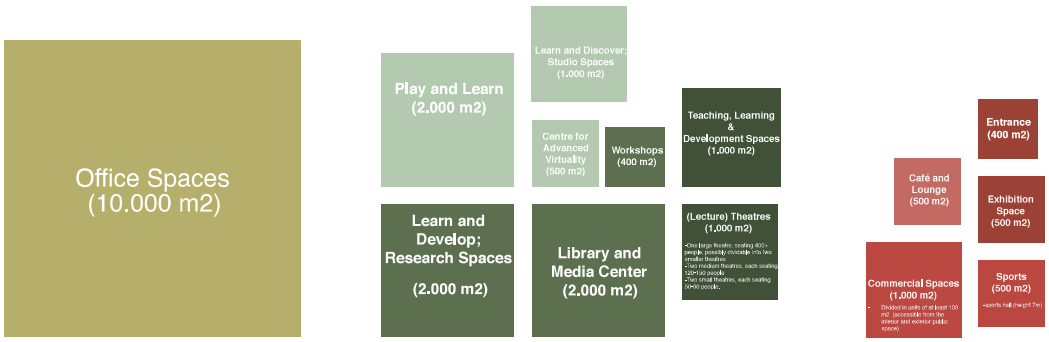







Densities and prespectives

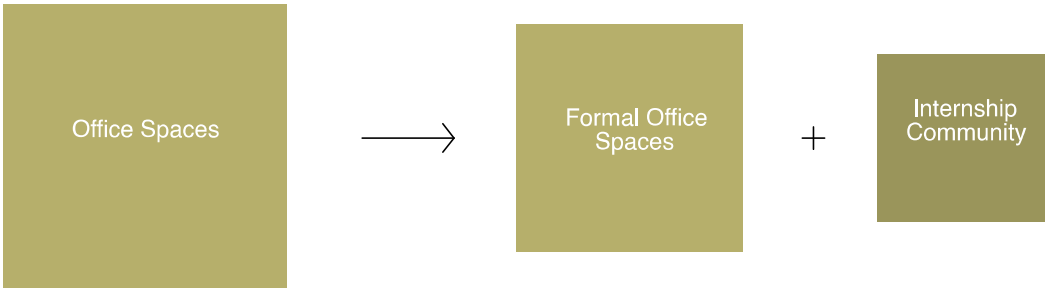
PROGRAM BRIEF



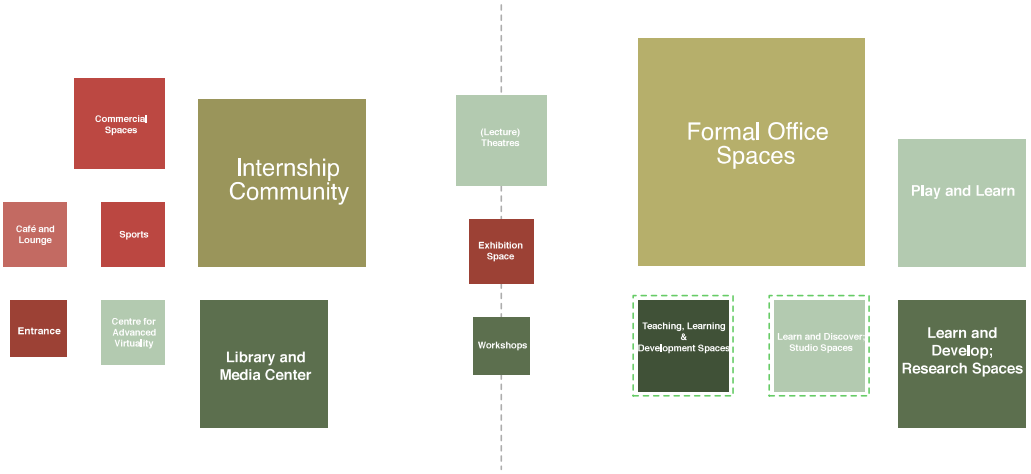
Given program brief



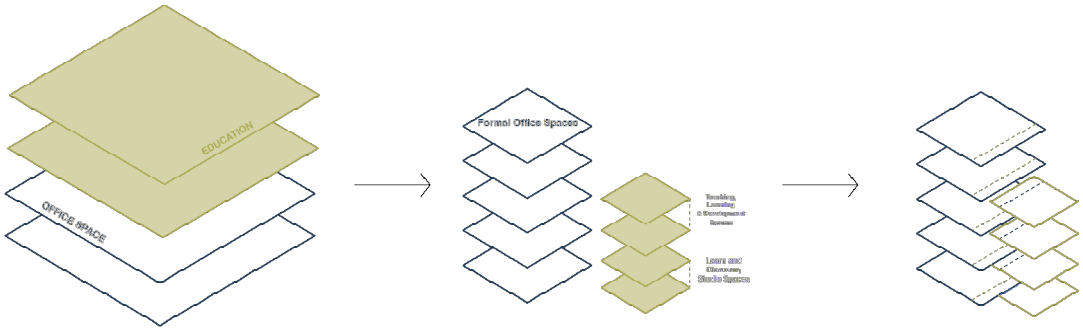
Given program brief



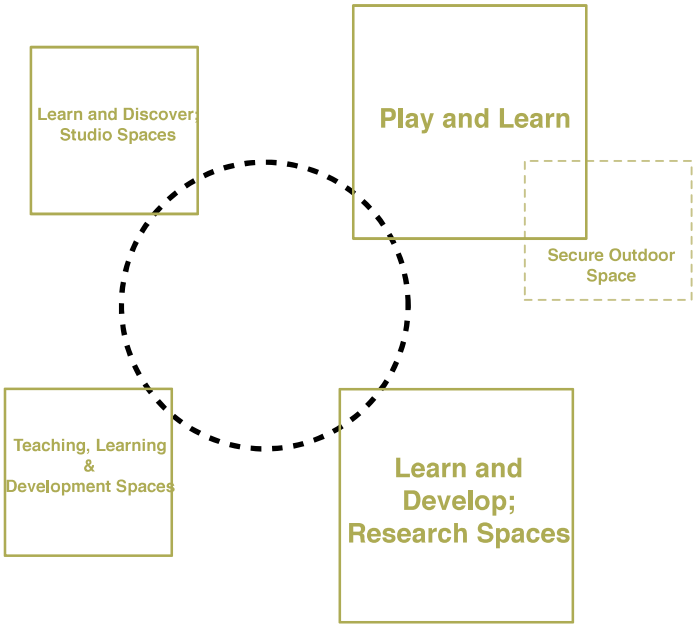
Office space reconfiguration



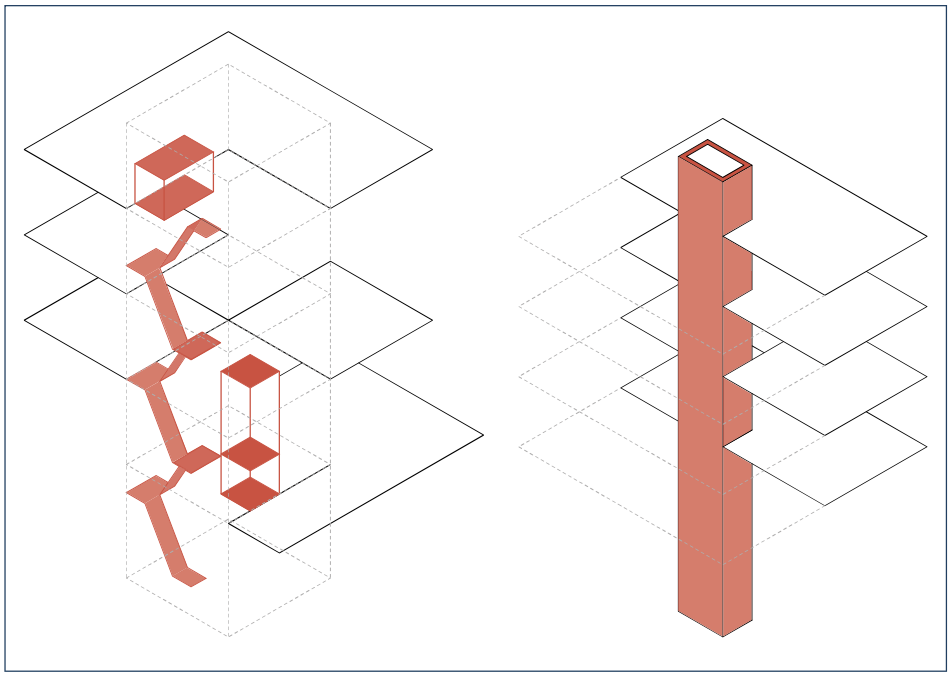
Public/ Semi-public/ Private spaces



Education and office spaces

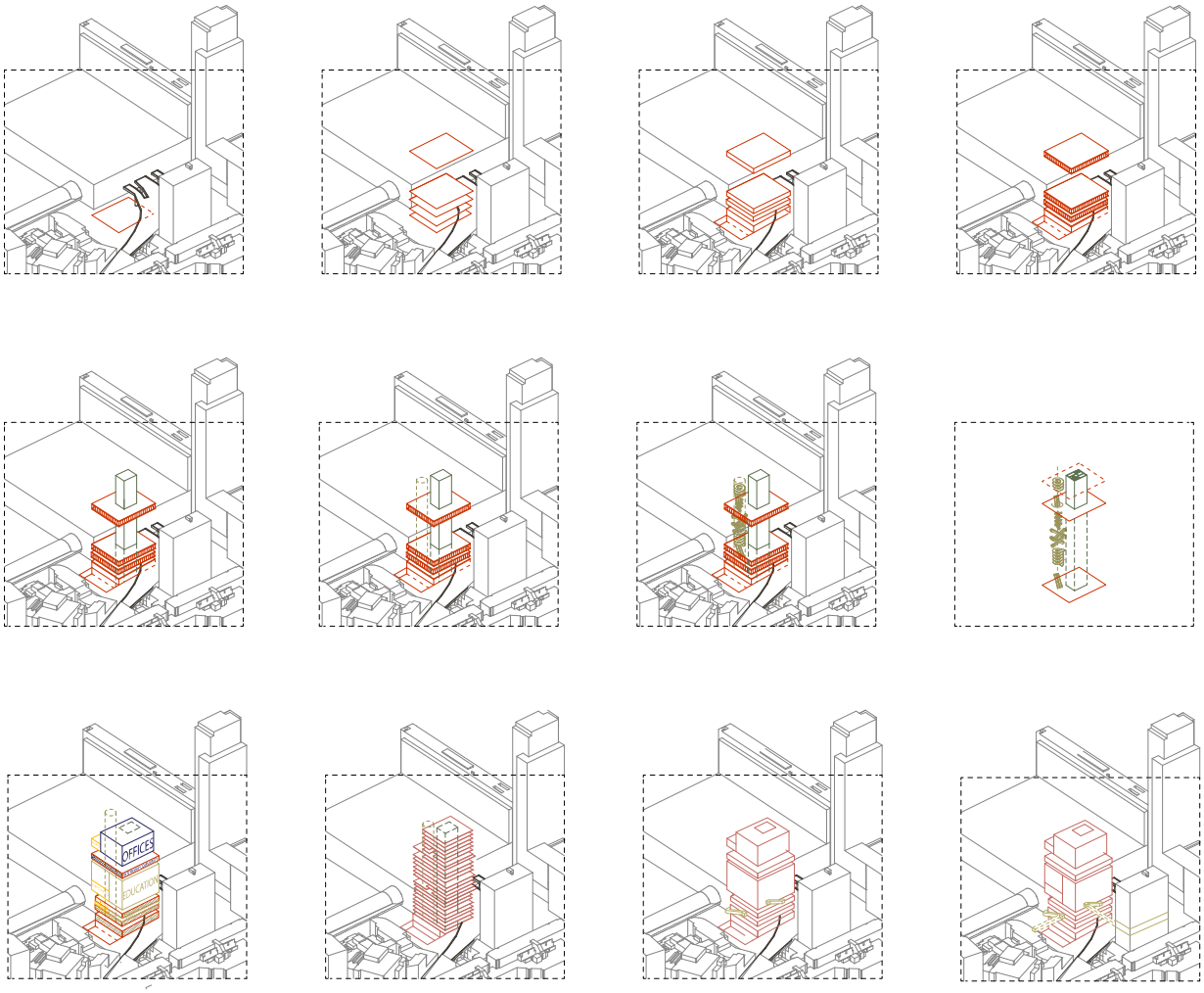


Educational spaces

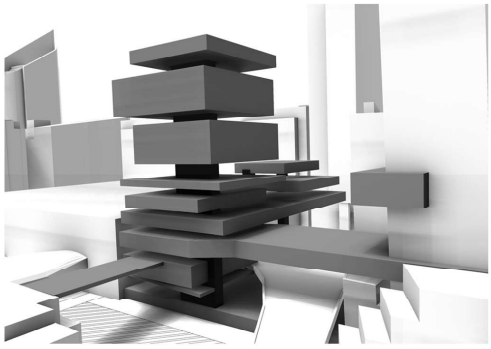


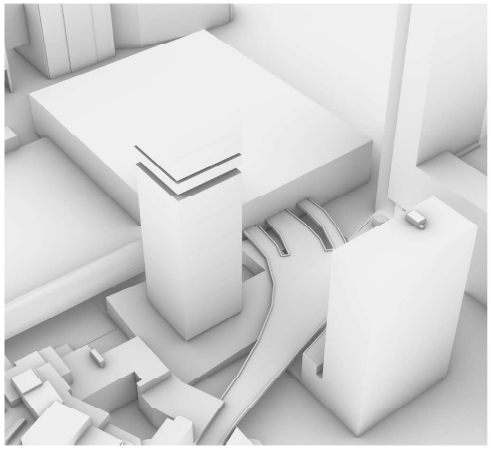
Two types of circulation

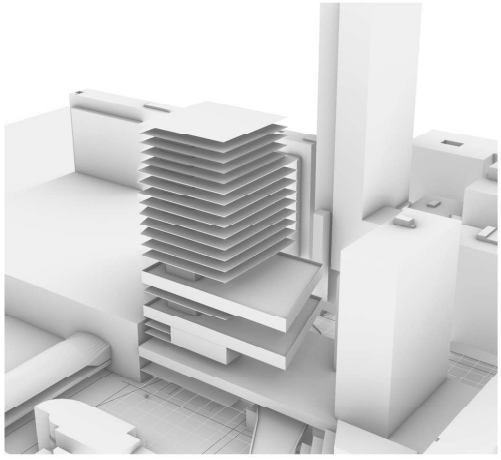
DESIGN PHASE 1



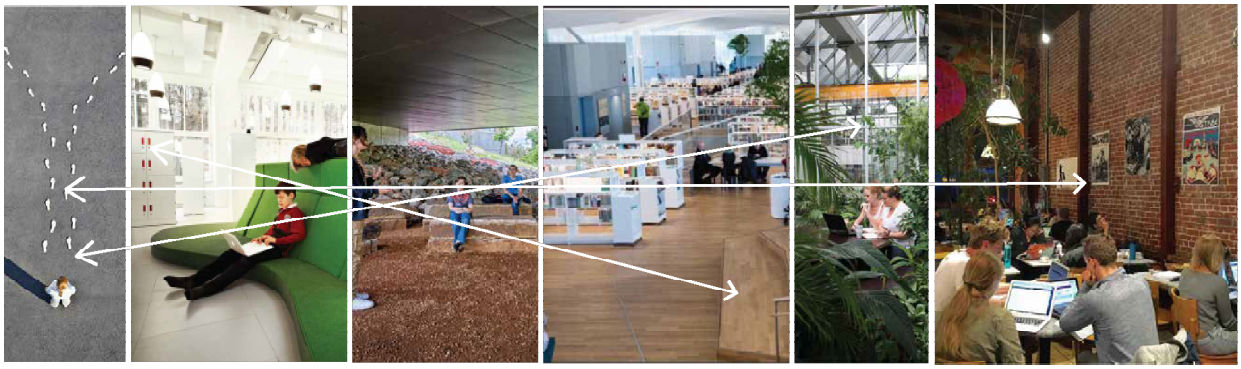
Strategy diagrams



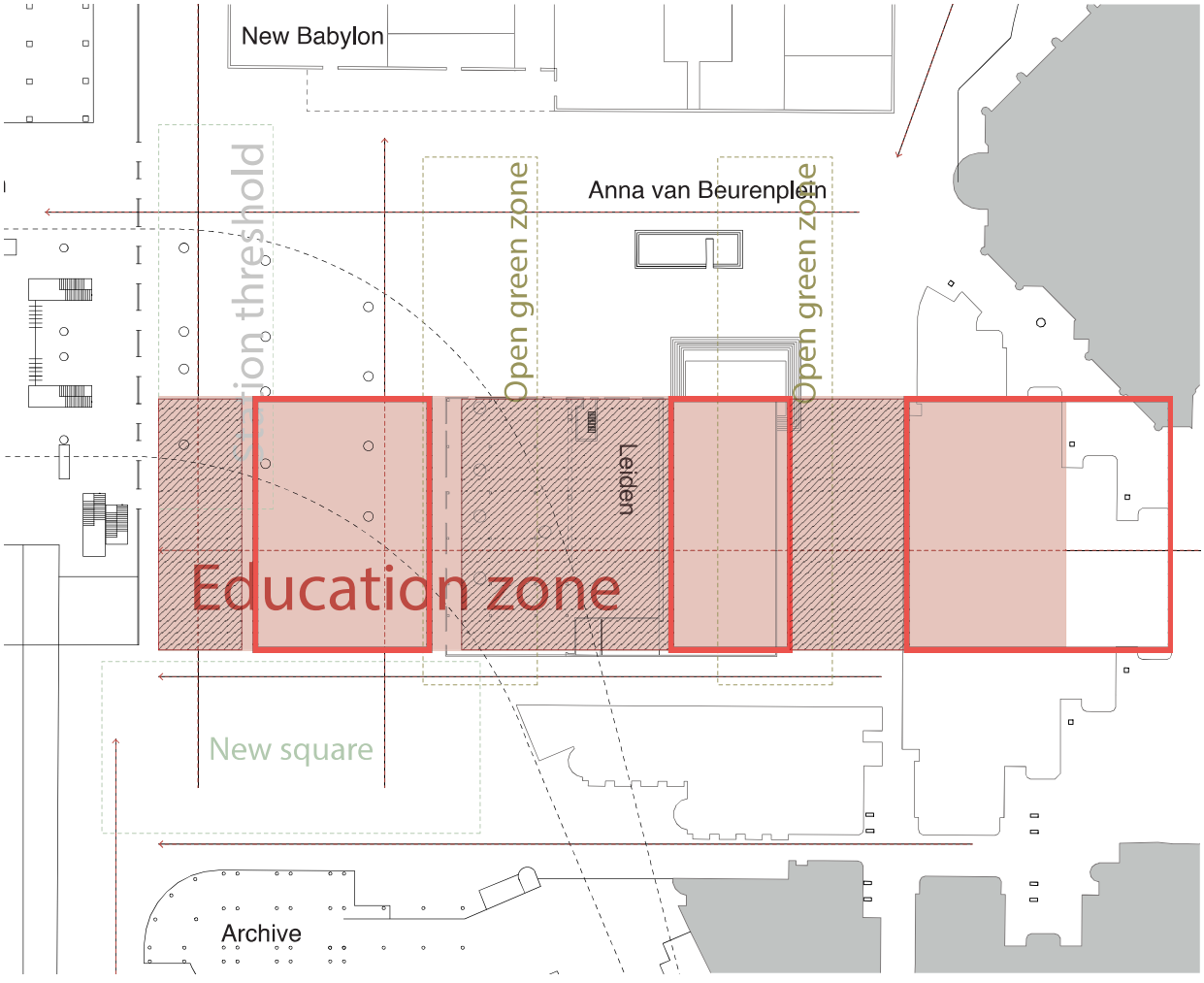




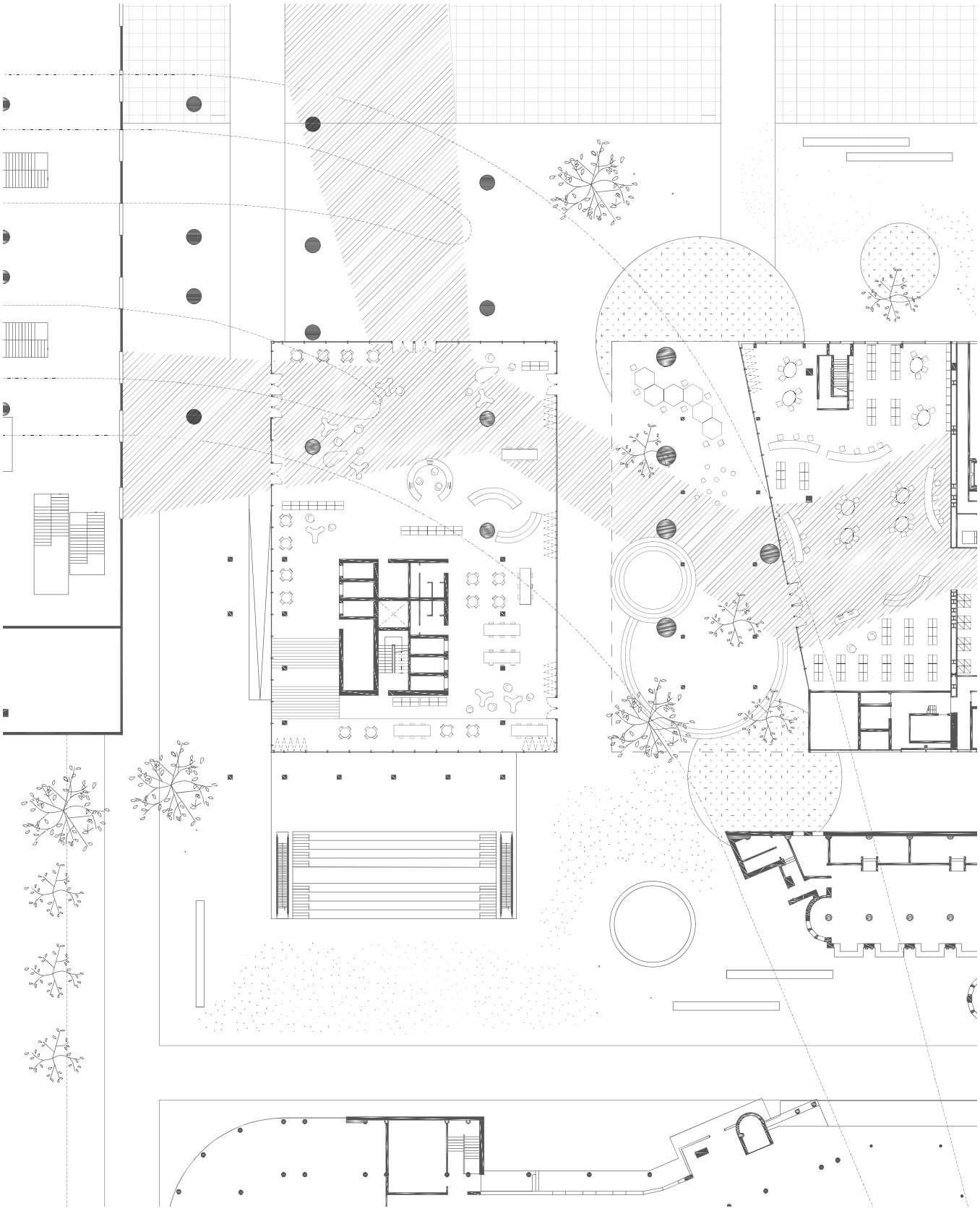
Volume studies

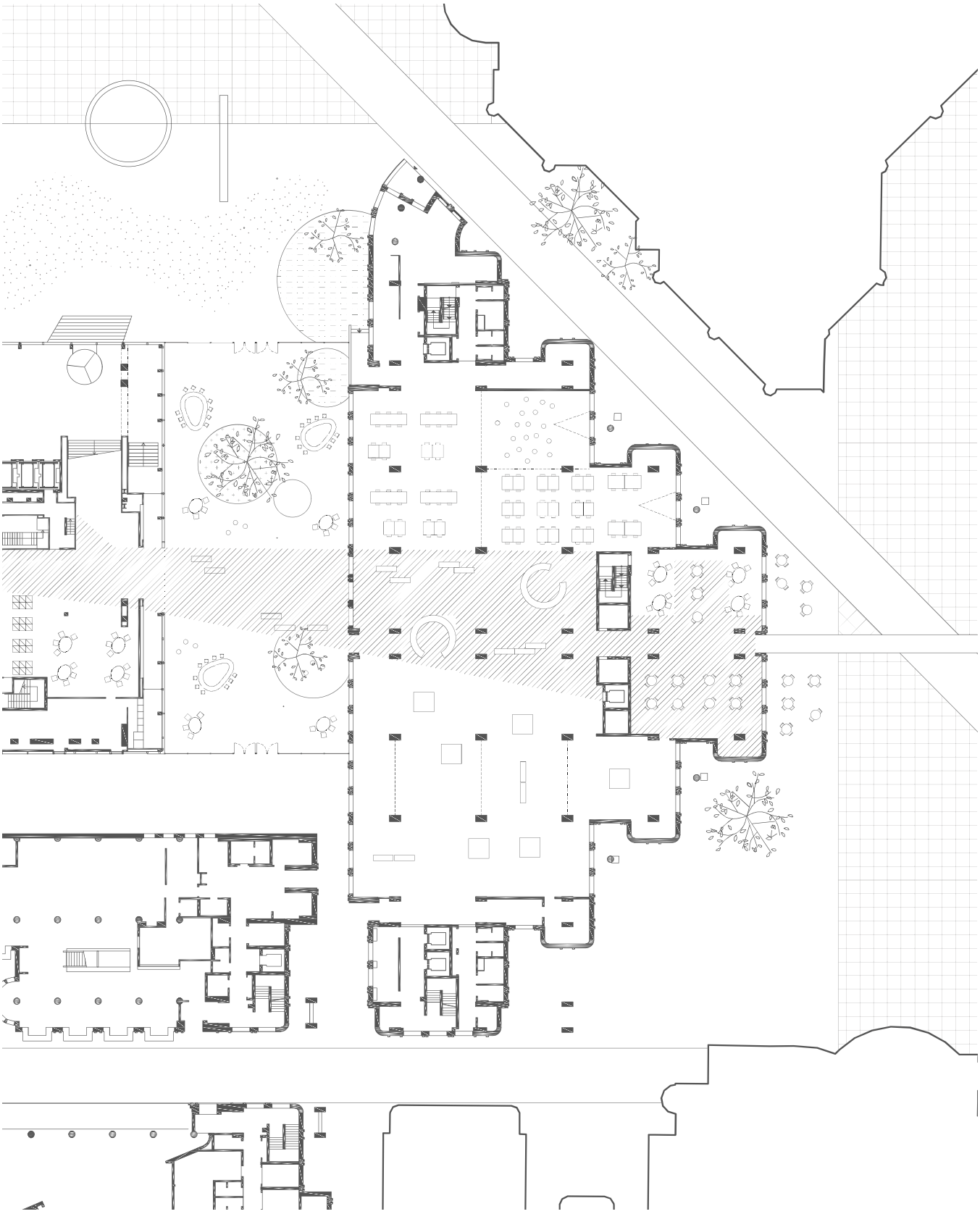


Ground floor educational spaces qualities

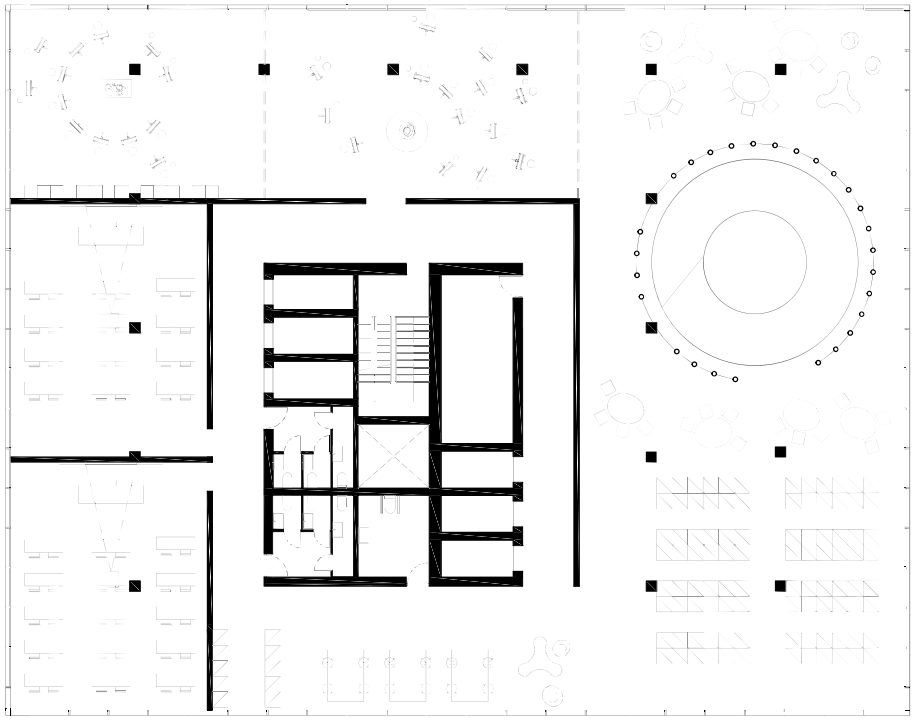


Educational Spine

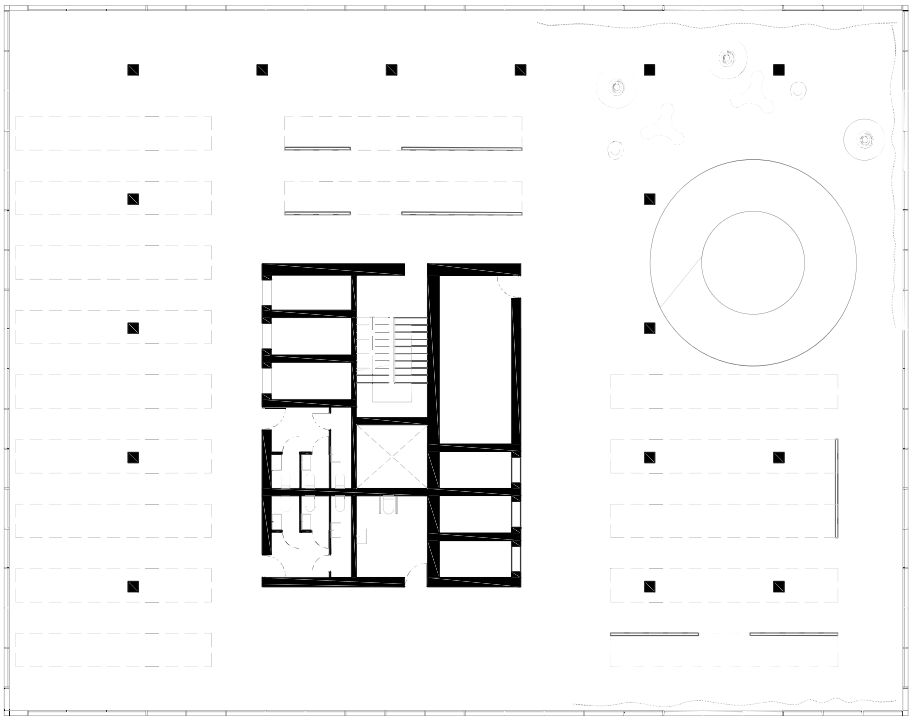




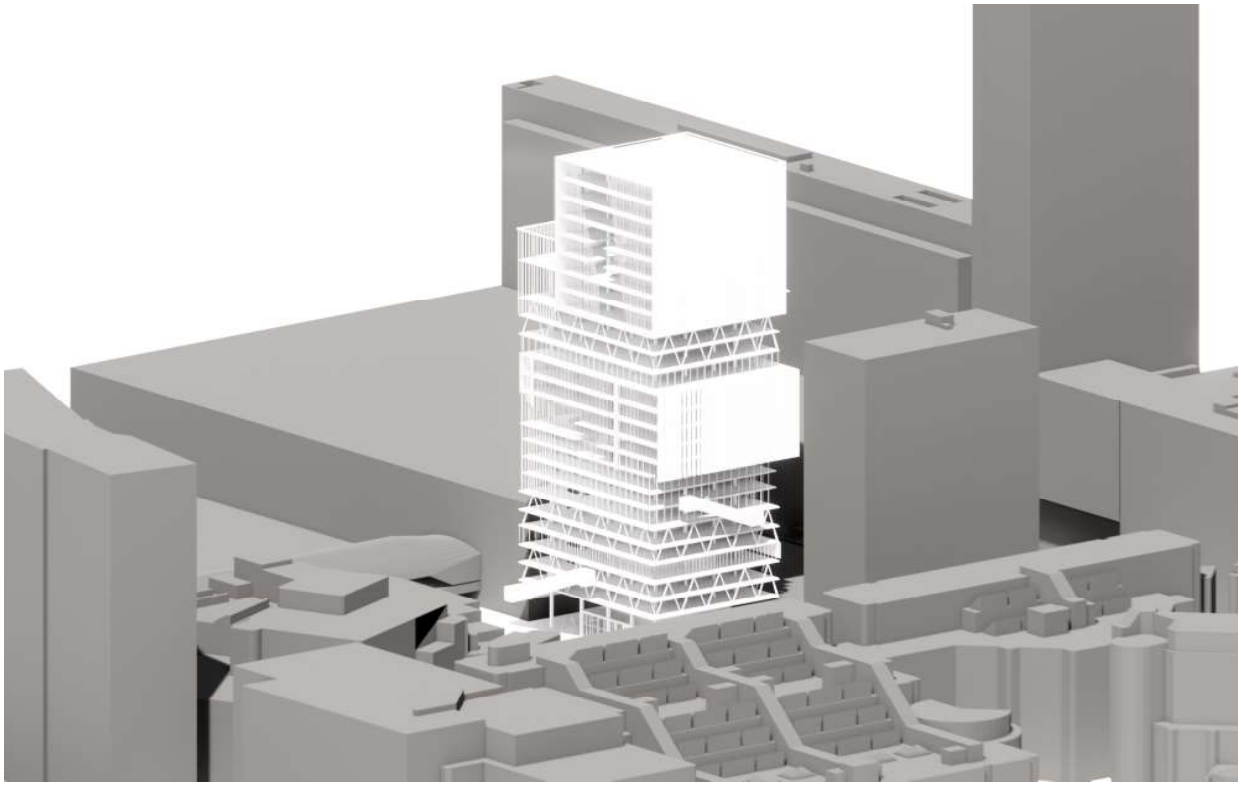
Groundfloor plan



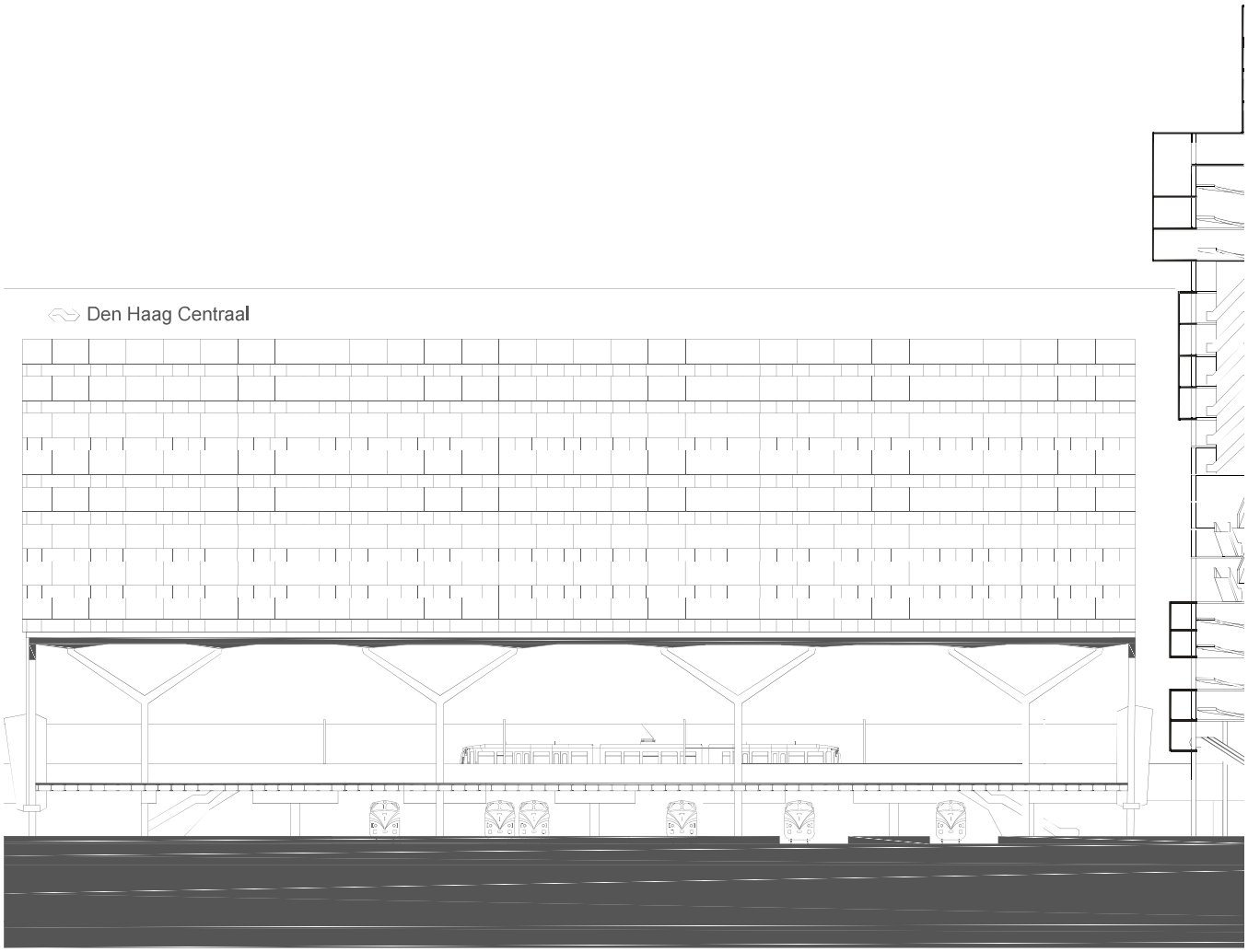
Workshops floorplan

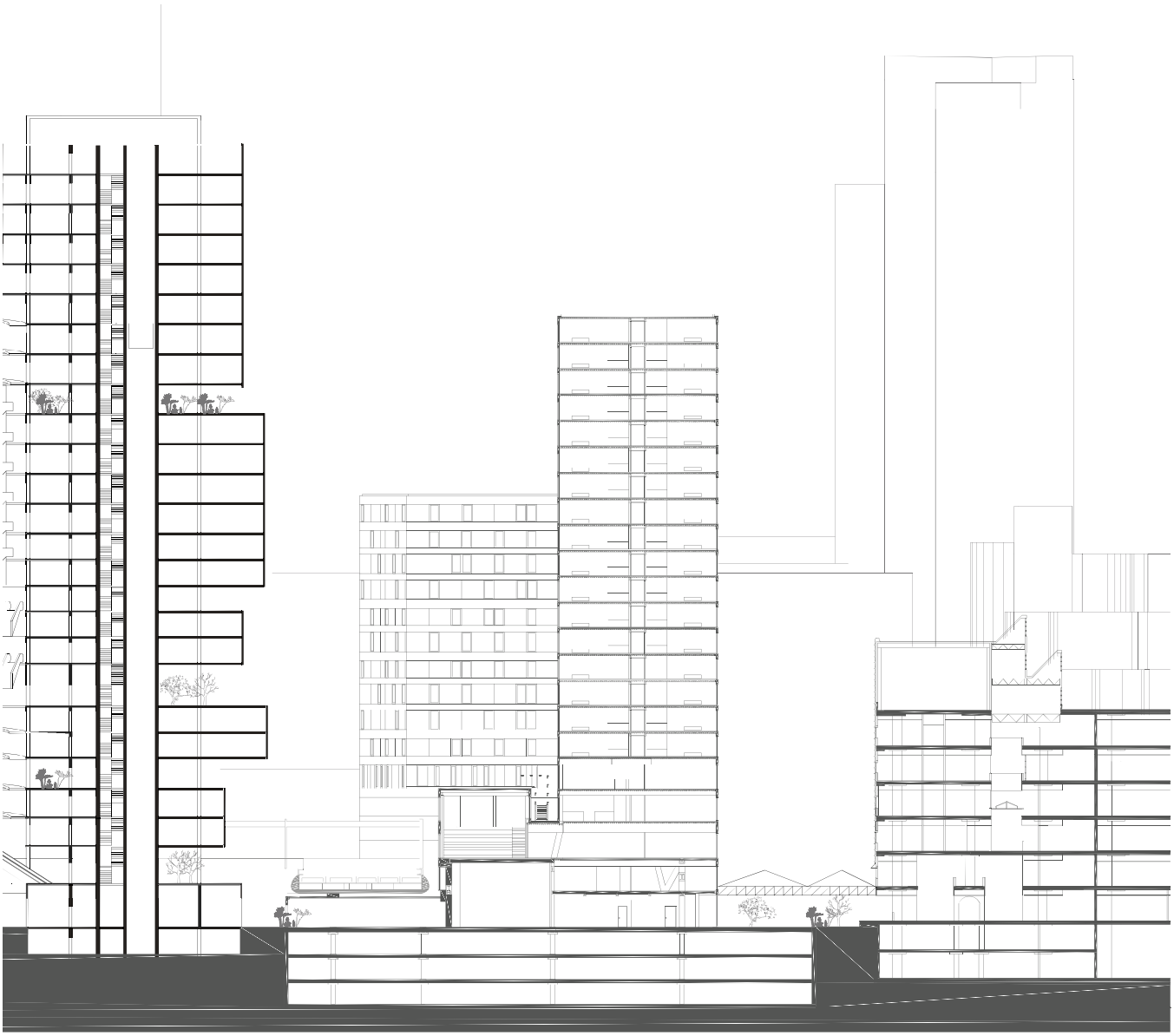


Exhibition open plan



Aerial view


Den Haag Centraal



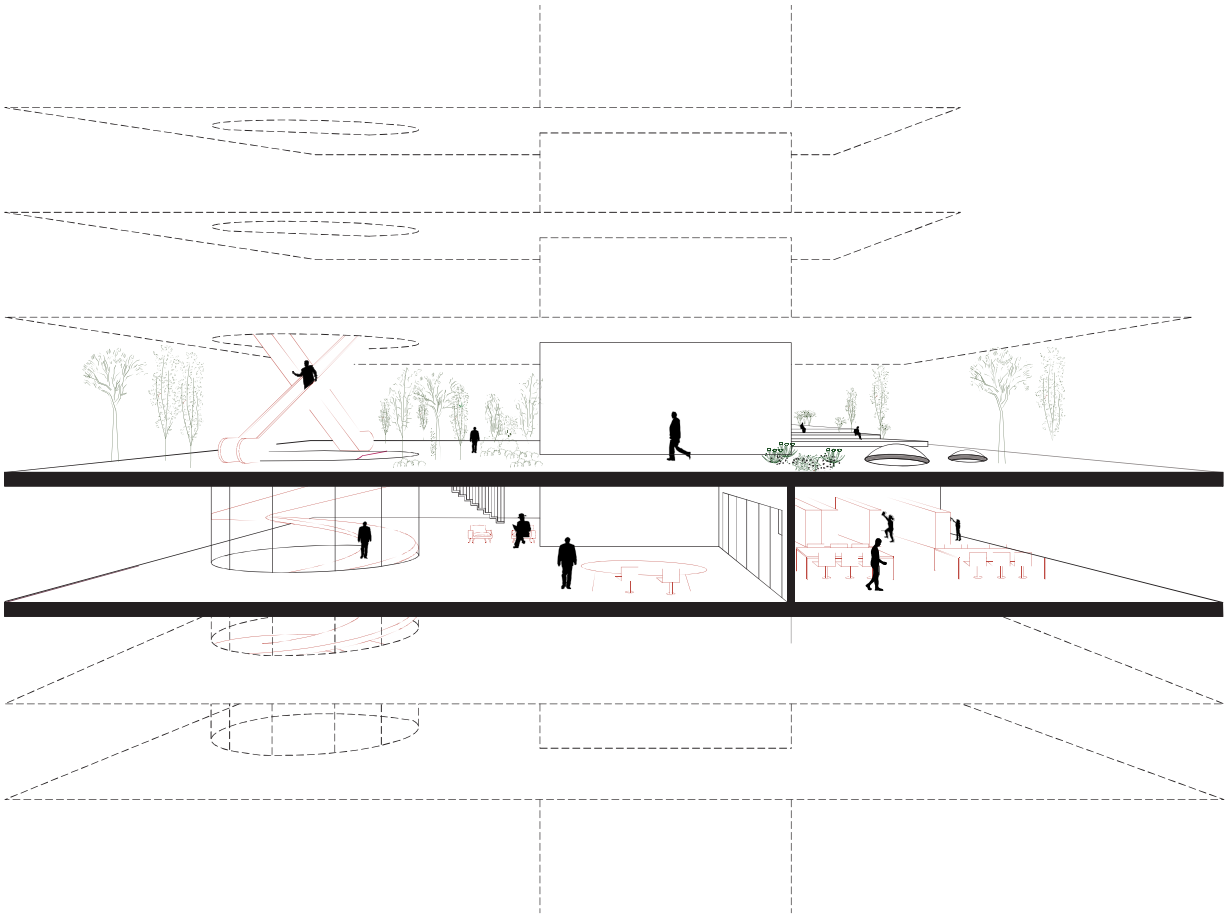
Section

Public spaces

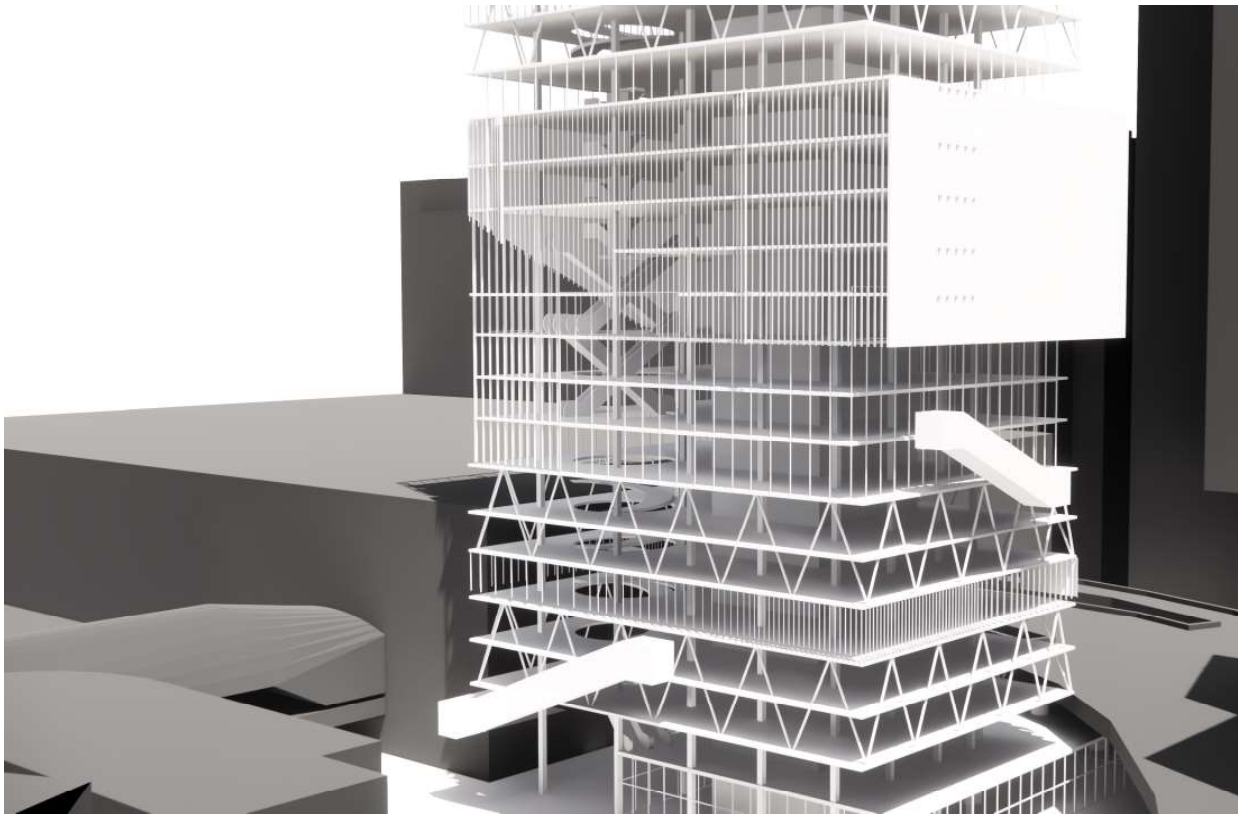
Educational spaces

Office spaces

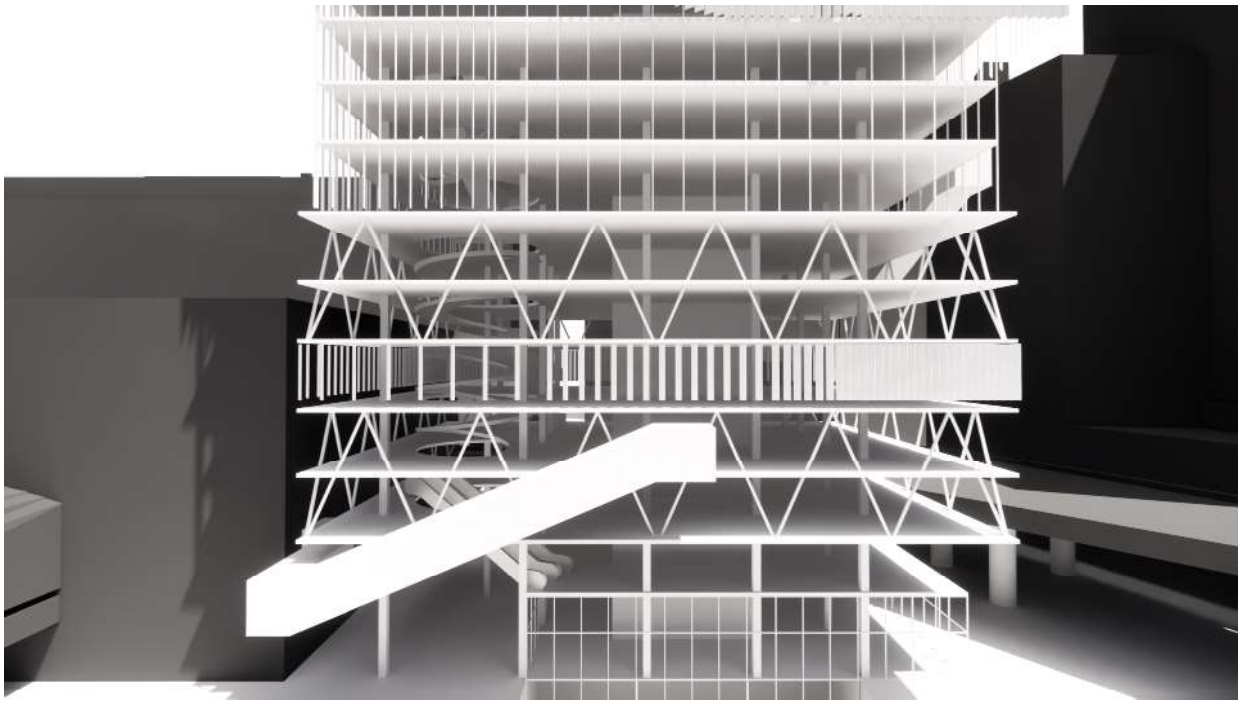
Program distribution



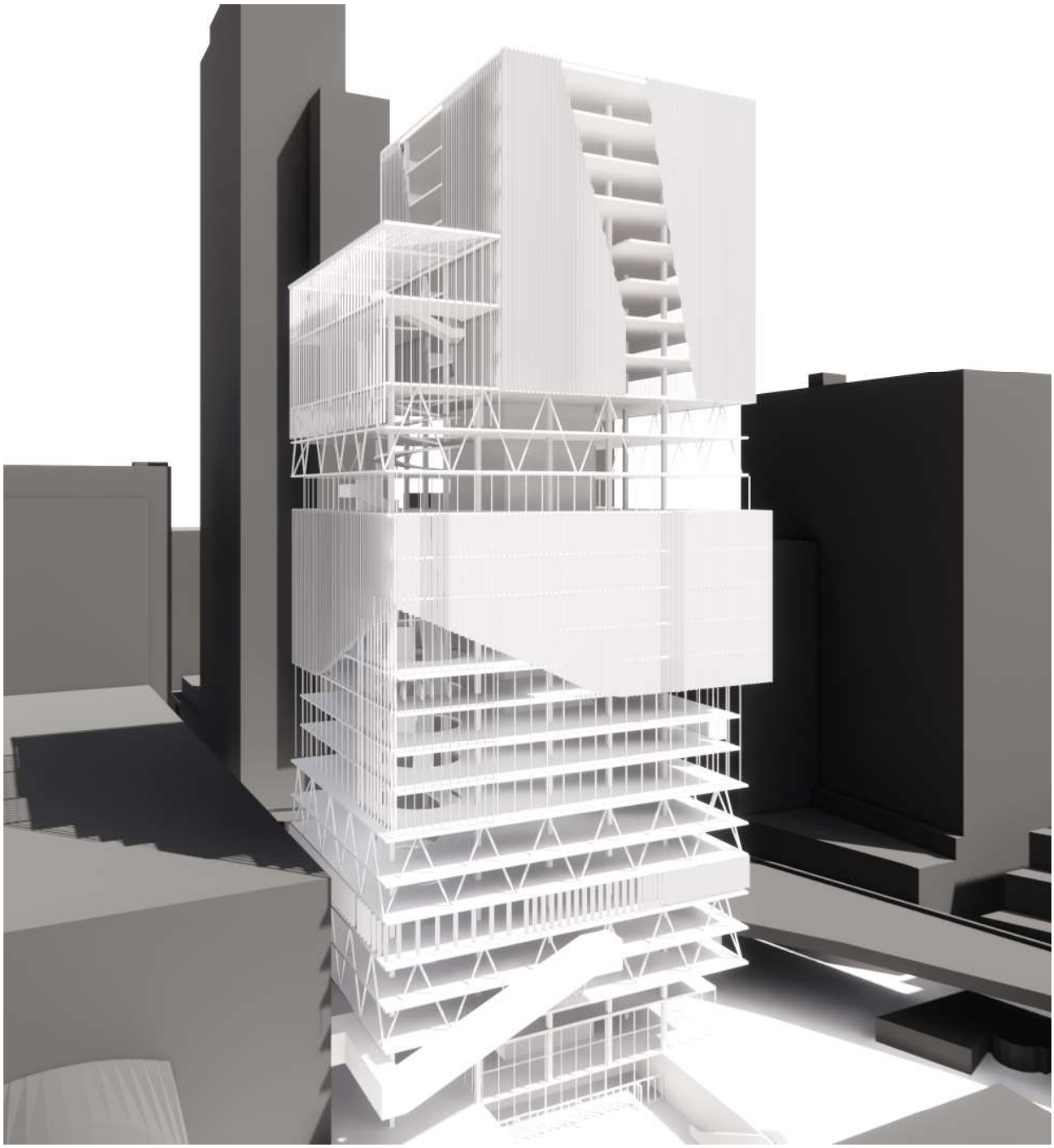
Open platforms



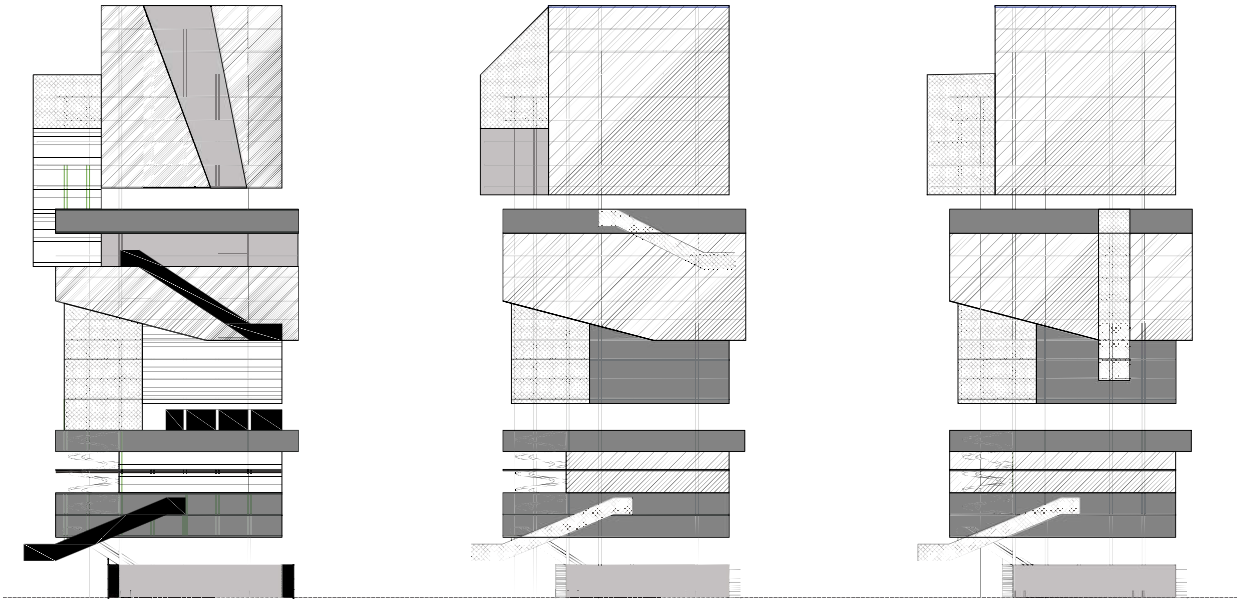
Facade proposal



Facade proposal



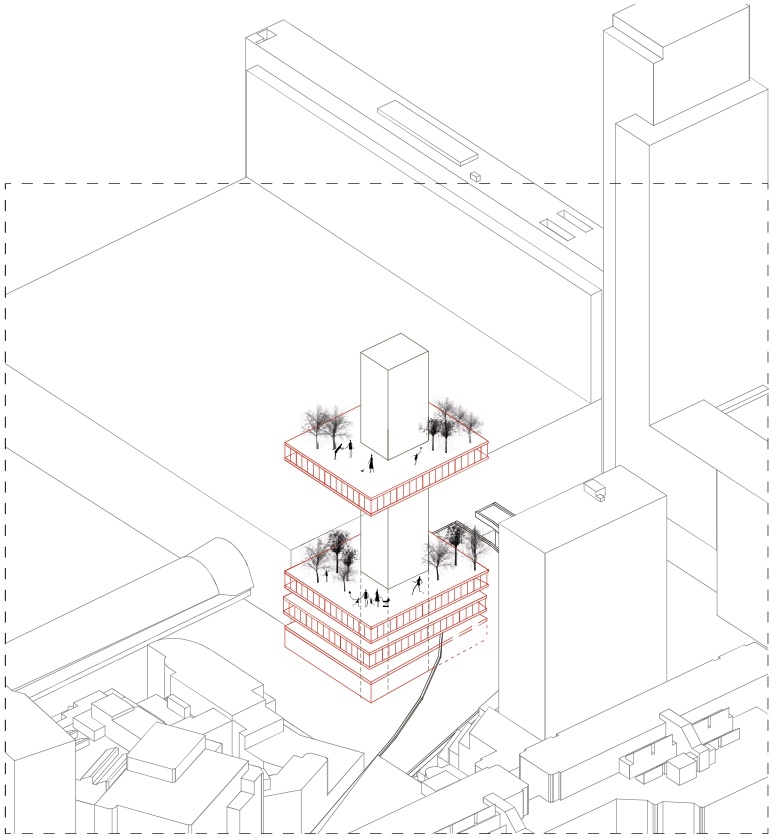
South facade



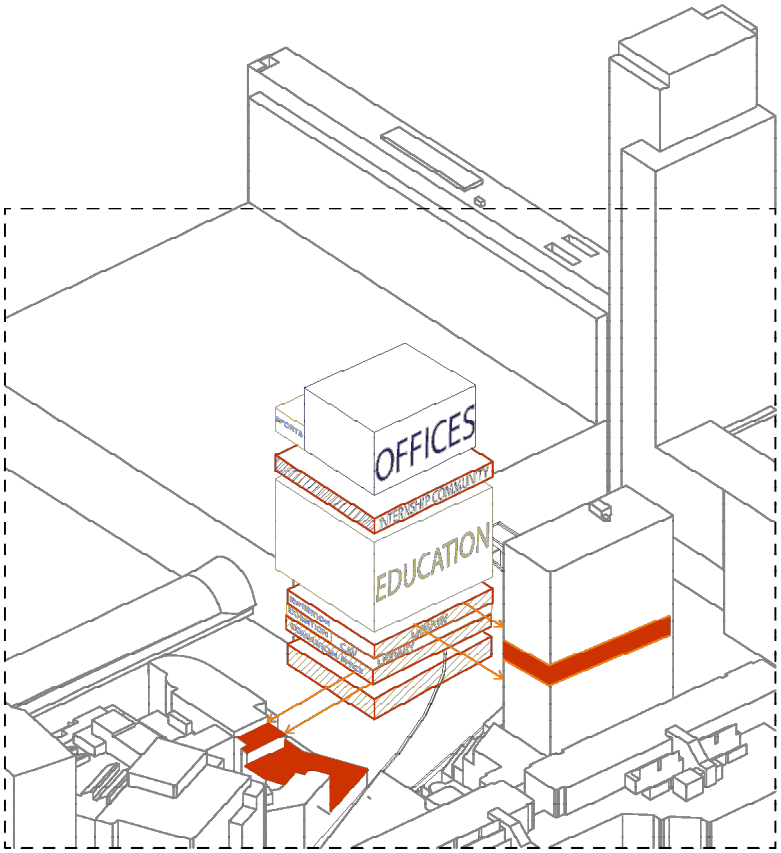
Elevation studies

DESIGN PHASE 2

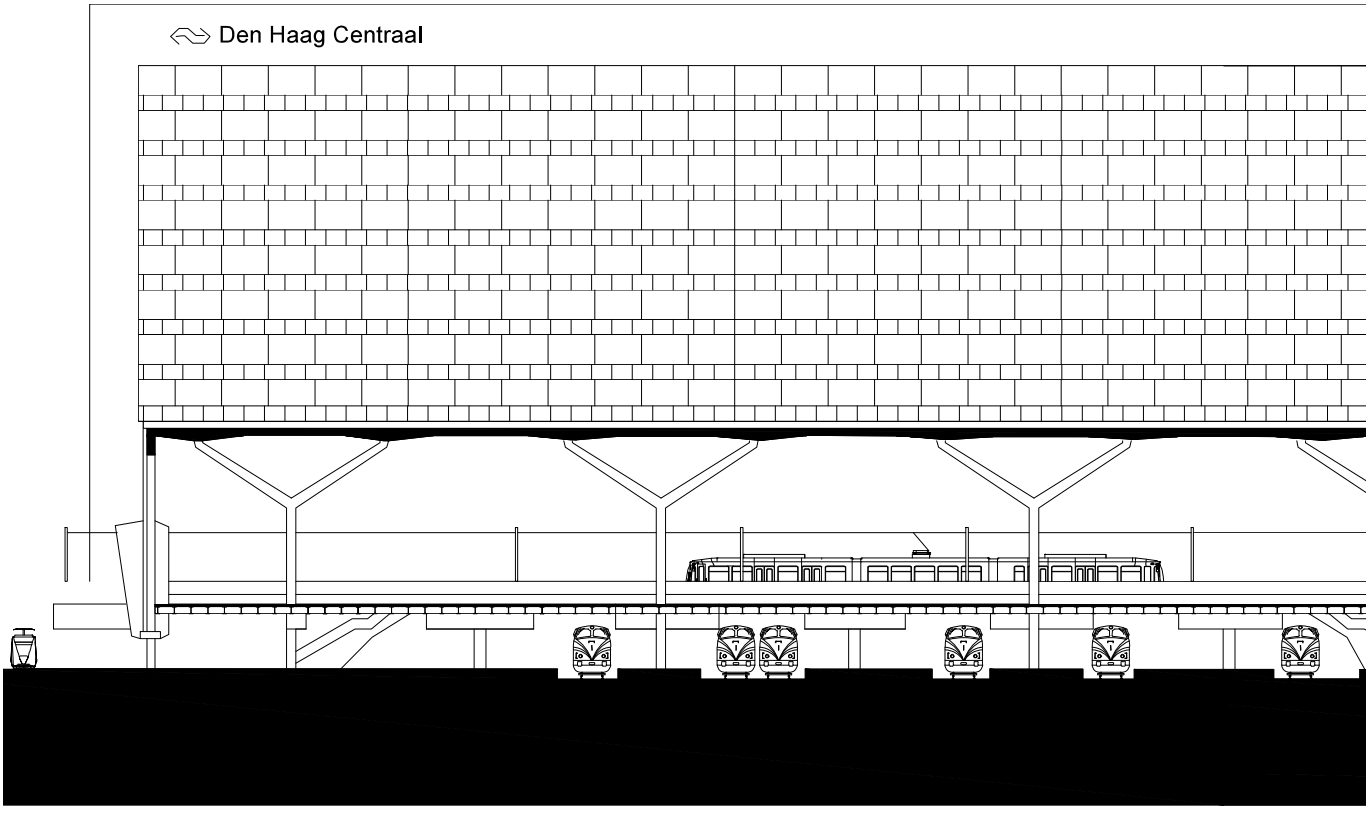
Campus connected to Archive and Leiden building

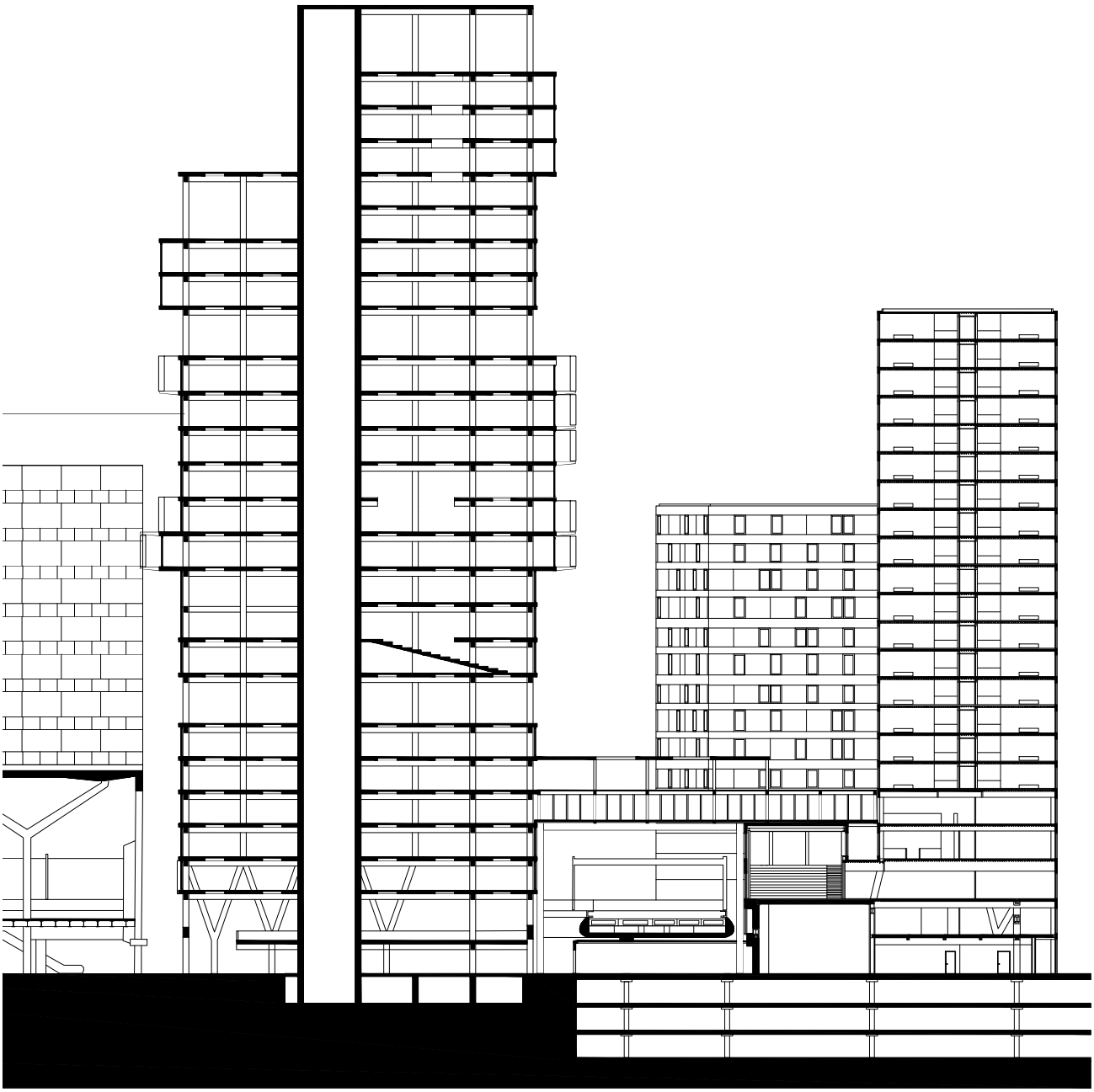


Open platforms



Programmatic clusters

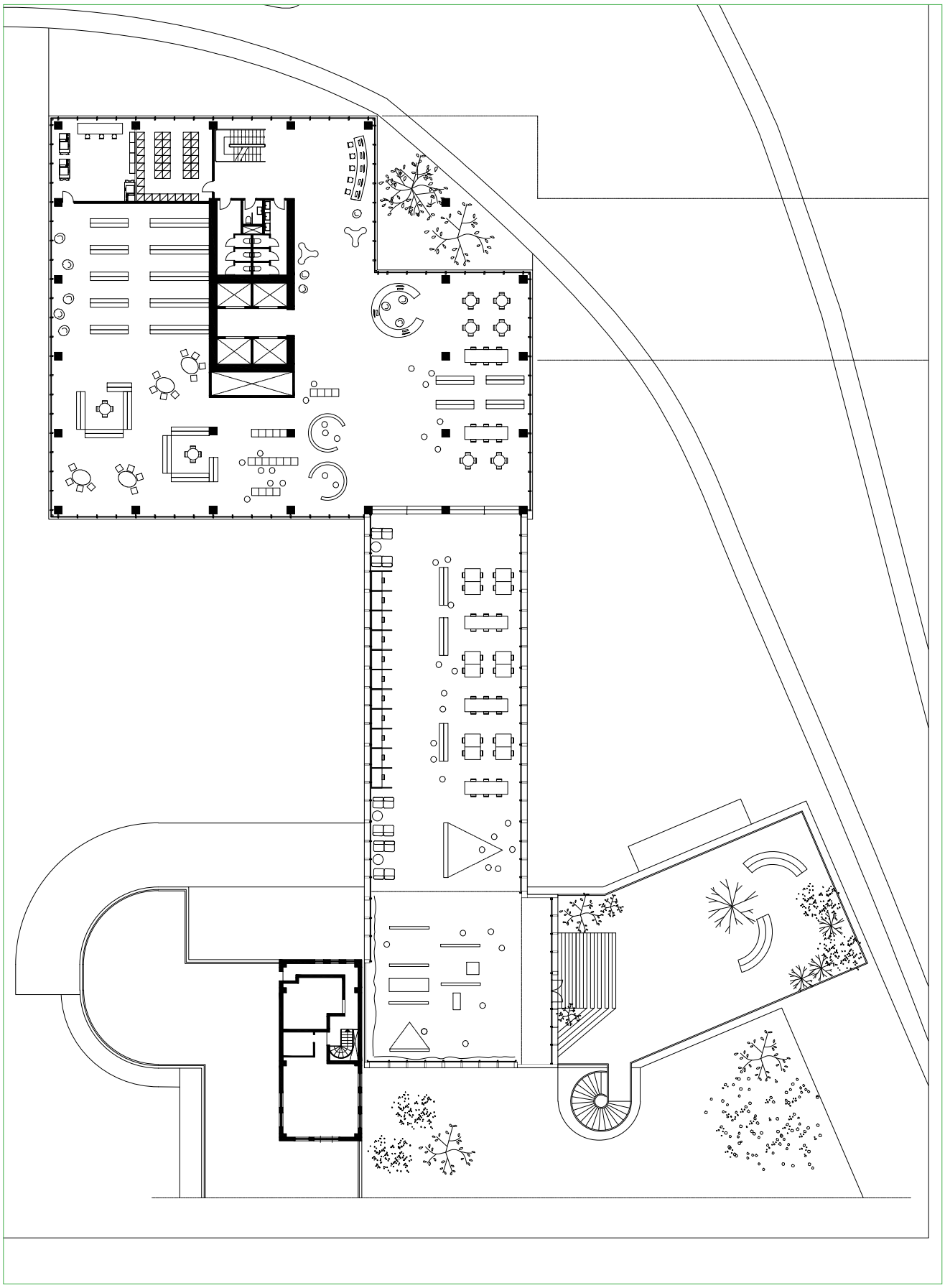

Den Haag Centraal



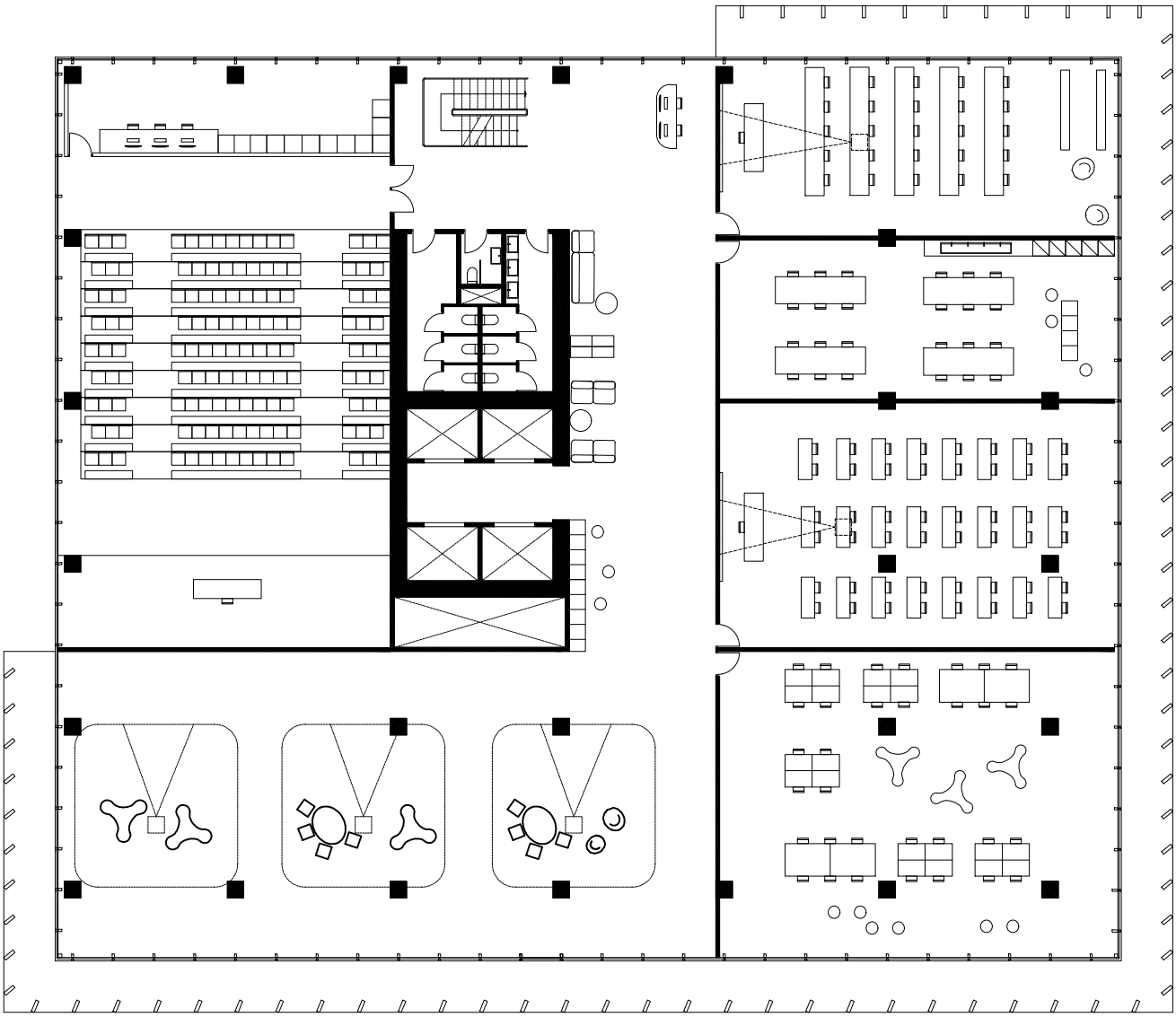
Section

Open amphitheatre on ground floor

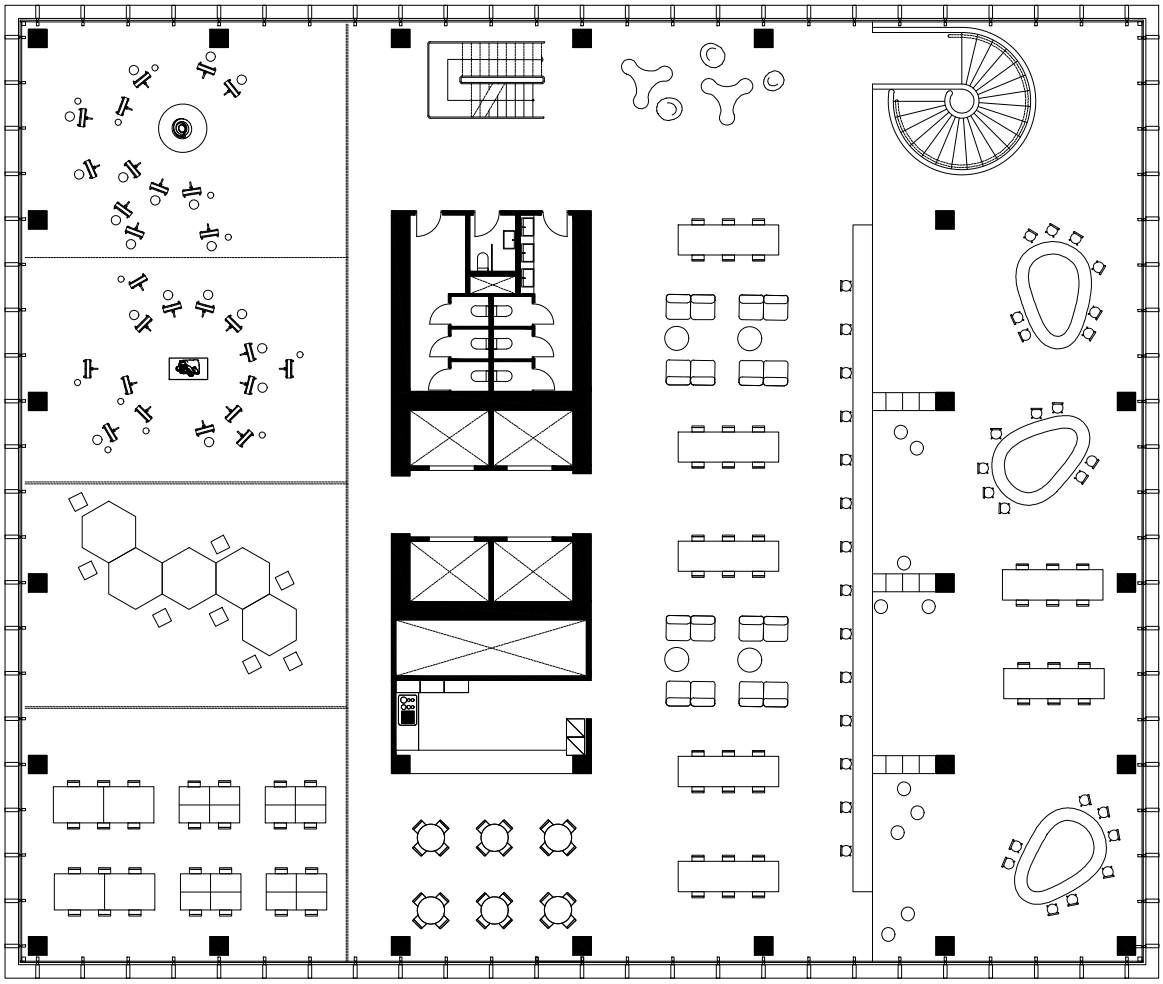
Connection to Leiden



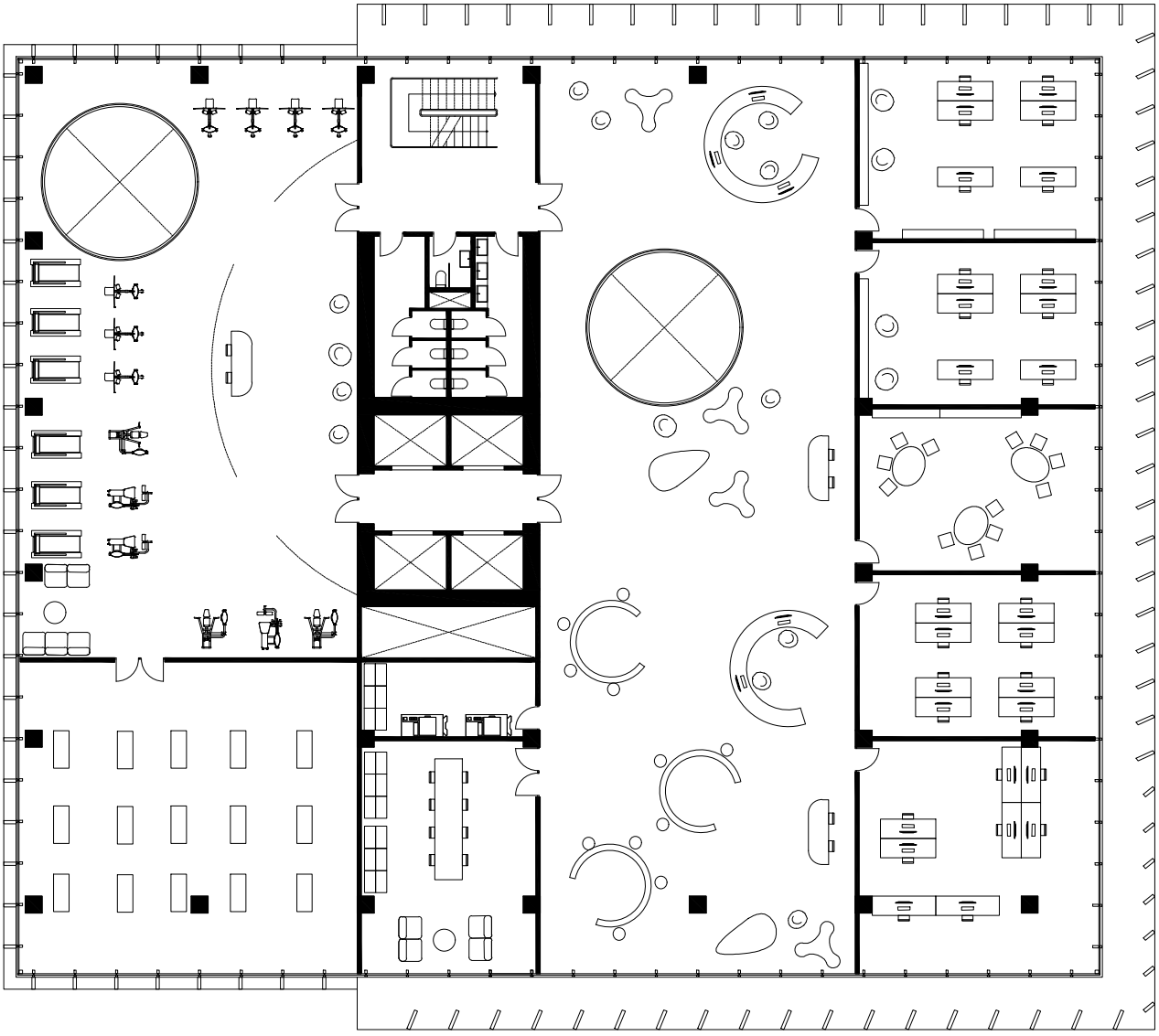
Level 3 Connection to Archive



Floor plan level 10-Learn and discover
1:200

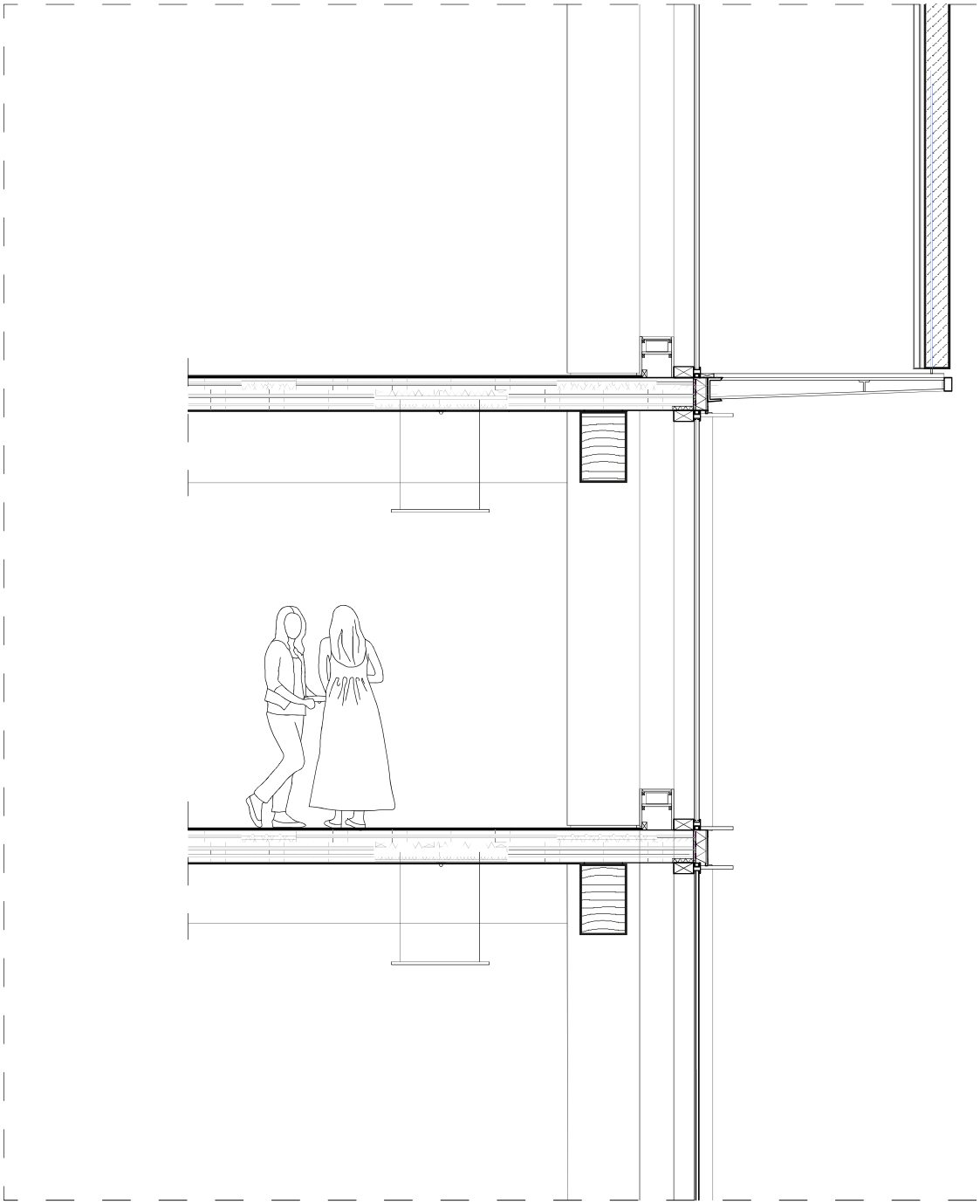


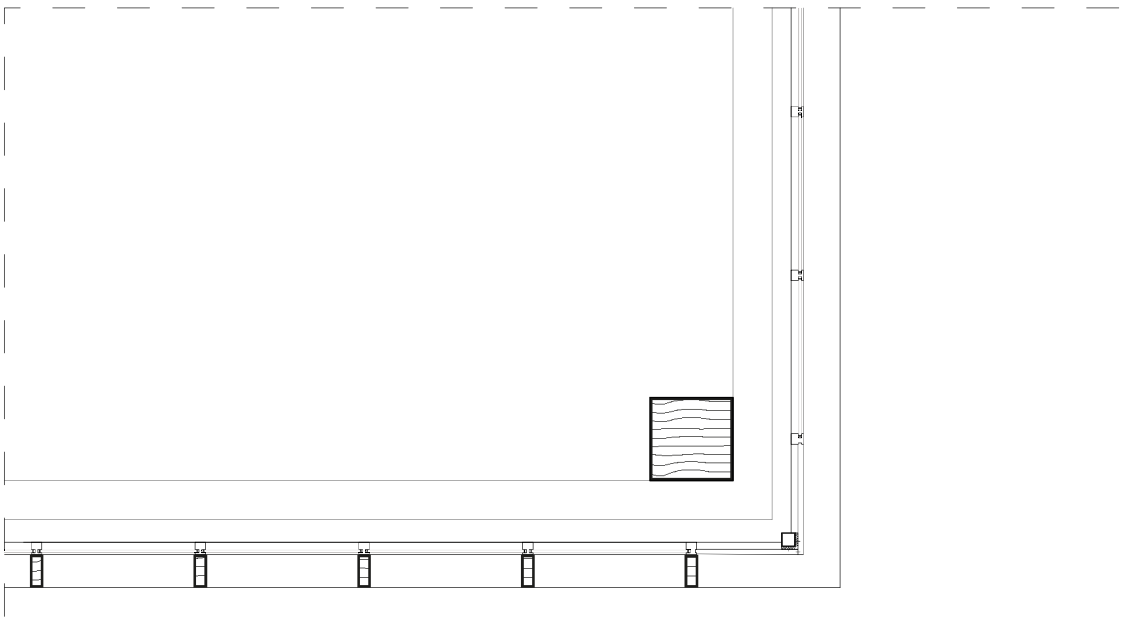
Floor plan level 13-Learning Commons
1:200

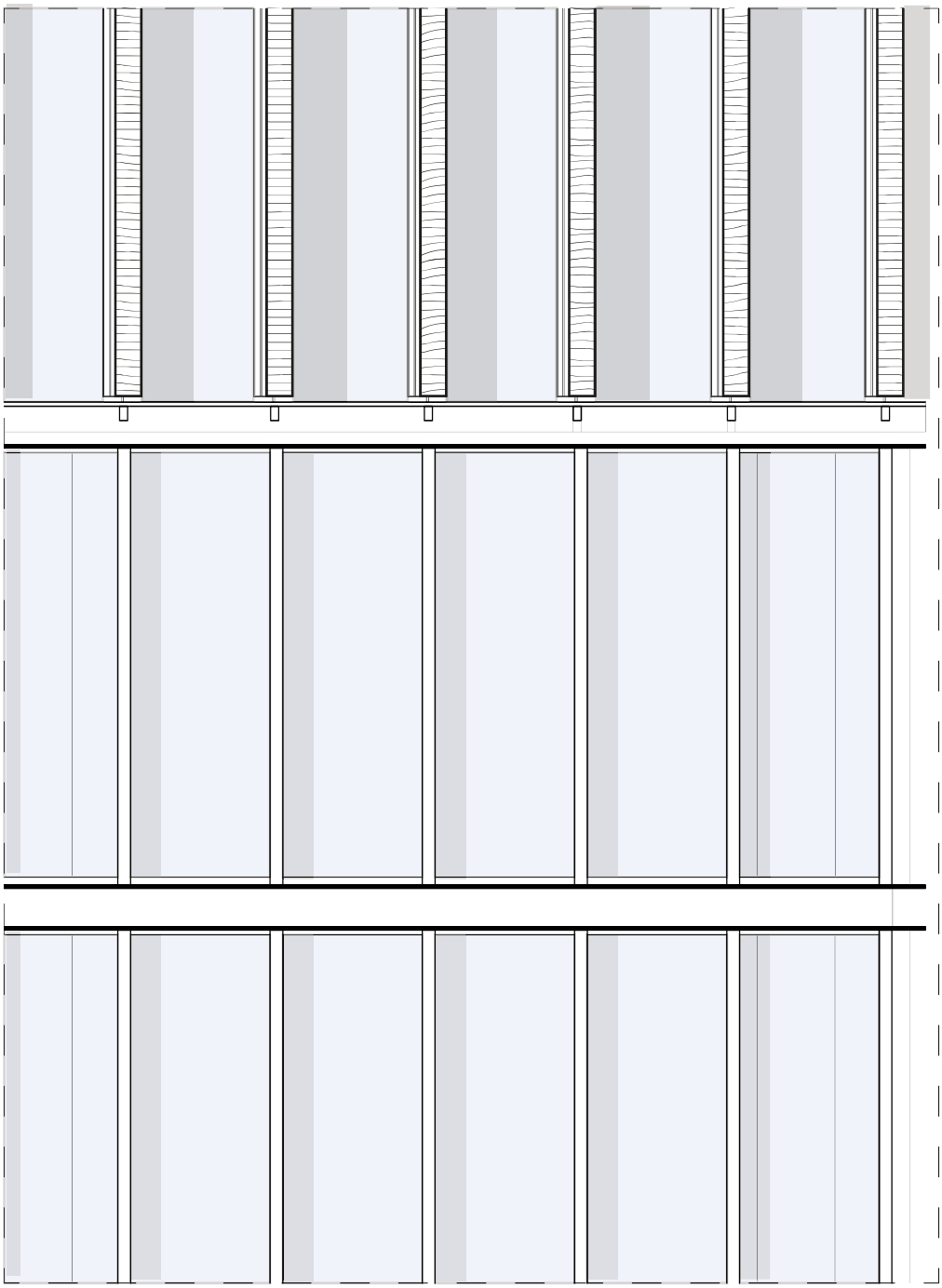


Floor plan level 20-Office space and sports cluster
1:200

View from Leiden University building







Facade fragment
1:50

DESIGN PHASE 3

Final design

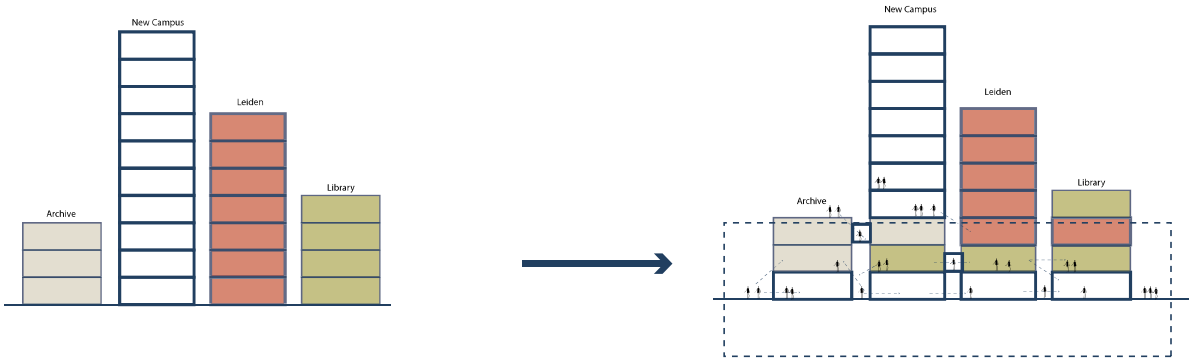
Hybrid -Resilient - Futureproof

“Buildings are complex constructions with a logic all their own. Hybrid buildings are unlike ordinary building types in that they combine and interweave a diversity of functions, kinds of space, and construction systems. Their complexity makes it possible to form a web of new relations. Those relations, in turn, allow the buildings to respond to a culture of rapidly shifting coalitions among societal organizations of all kinds. Hybrid buildings leave room for any unpredictable changes that might arise. The hybrid design task is not geared to an endpoint but to a strategy: the goal is to find an unambiguous motive for every situation.”

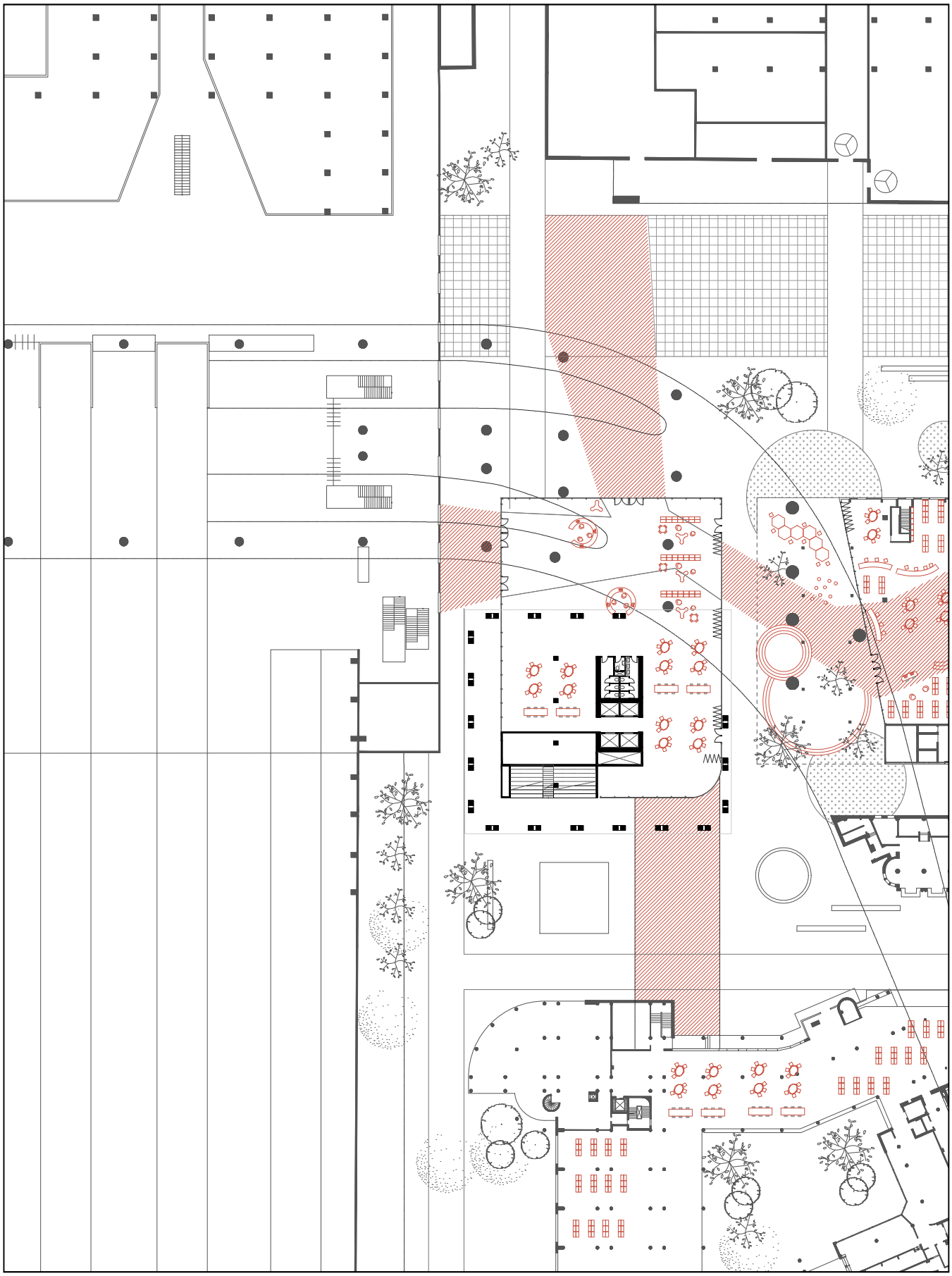
Clemens Steenbergen, Henk Mihl, Wouter Reh, and Ferry Aerts, Architectural Design and Composition, Bussum:

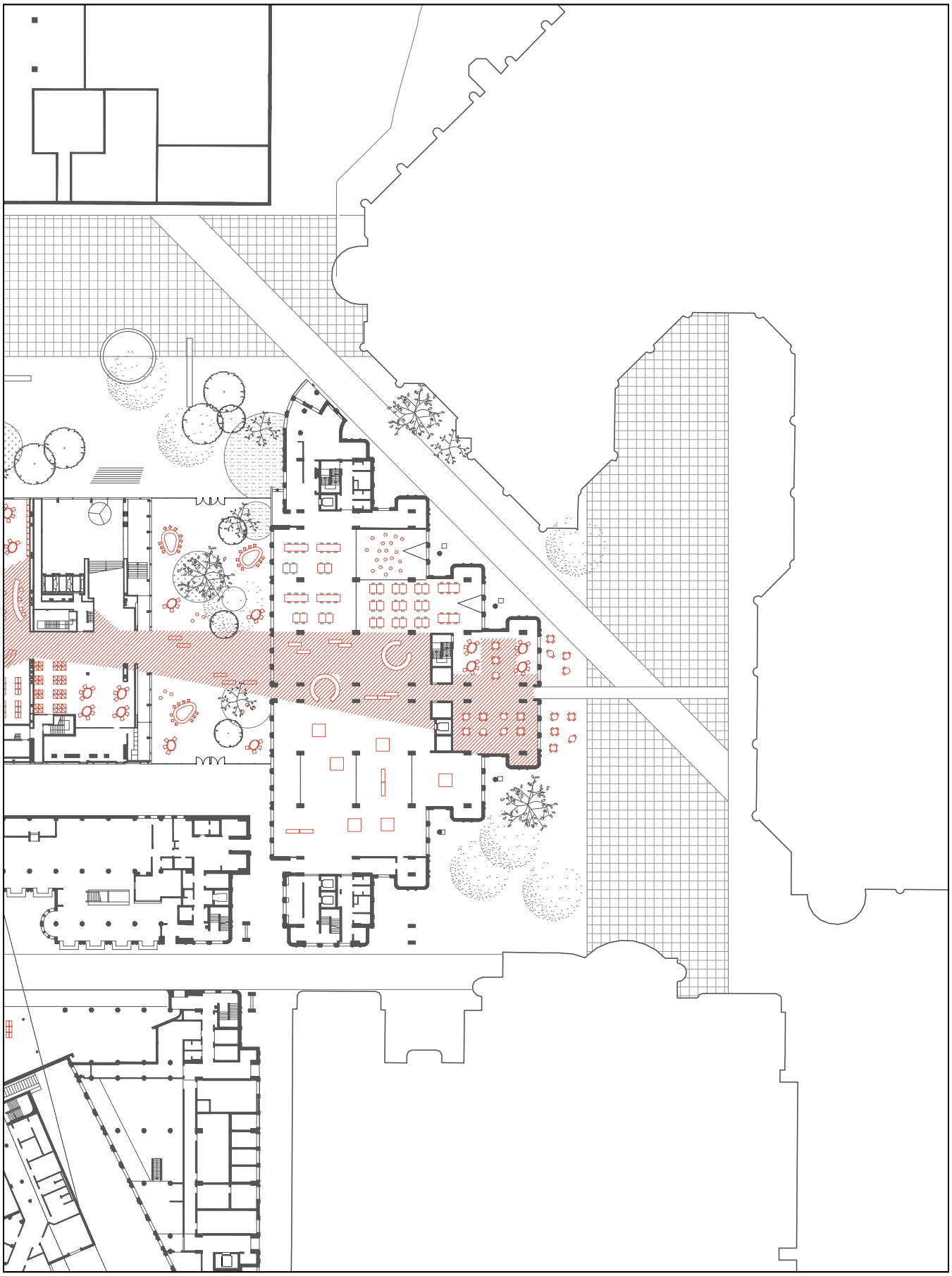
THOTH Publishers, 2002, 208

The Ground floor

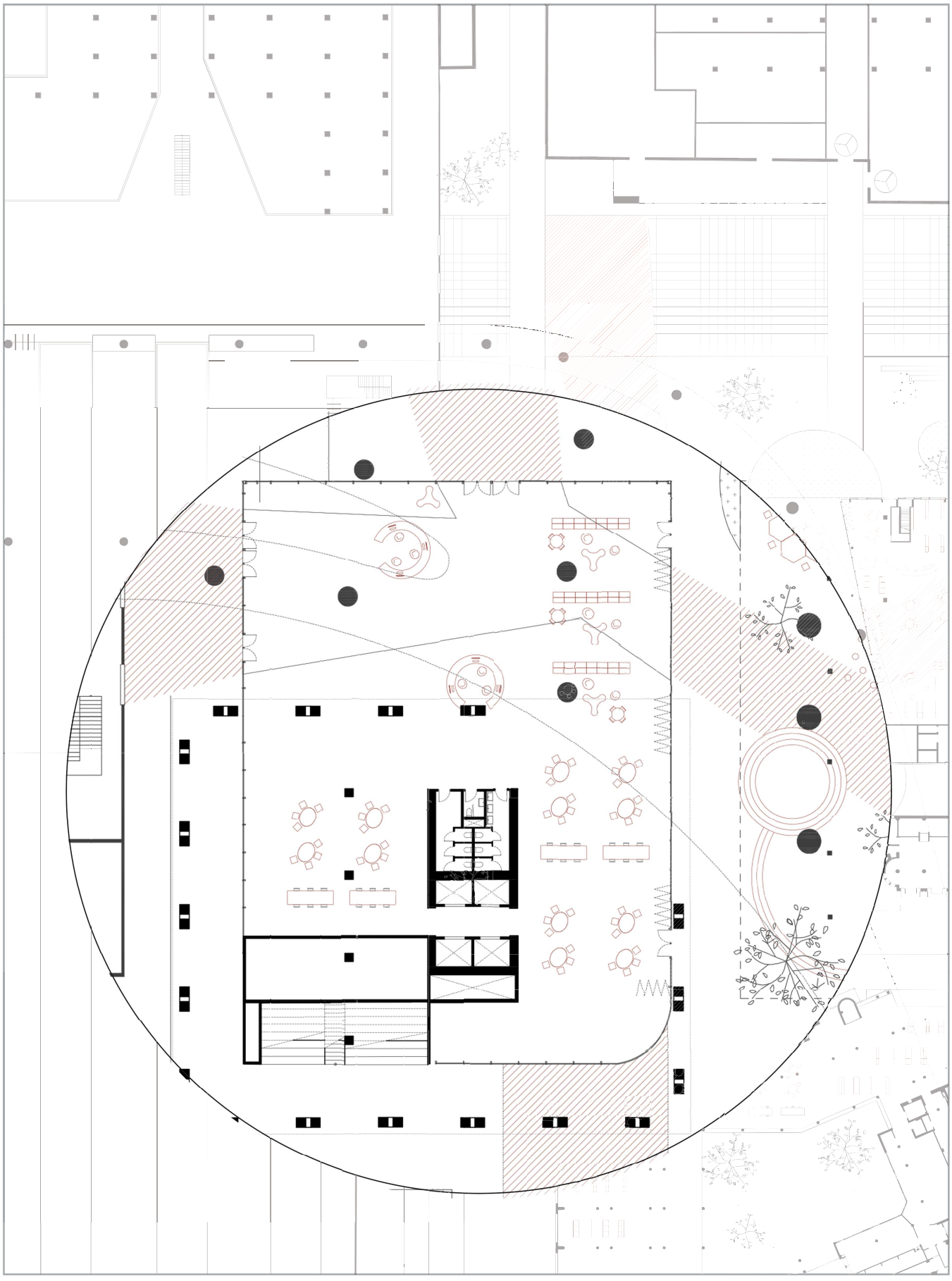


Rethinking the plinth

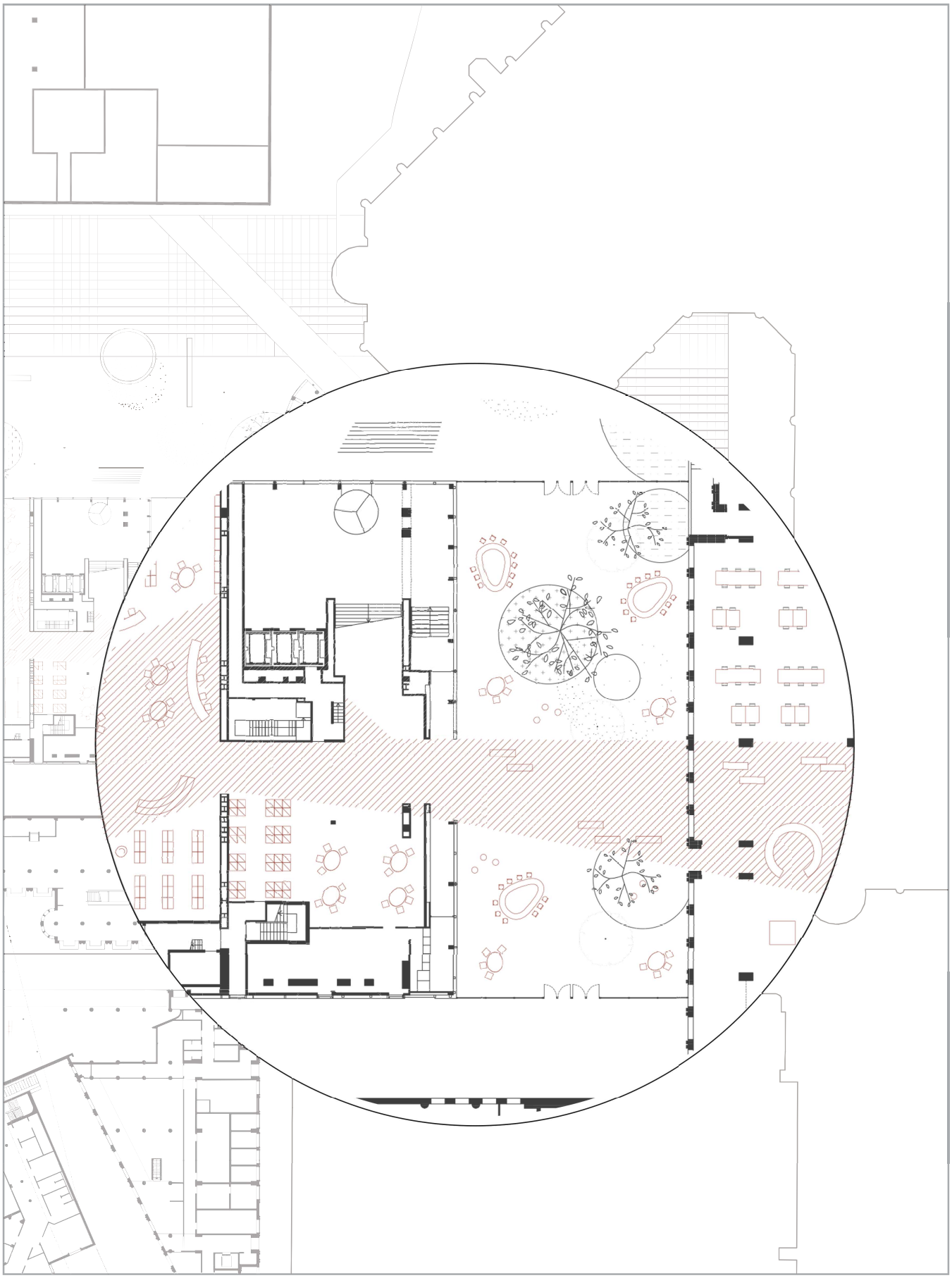




Ground floor plan

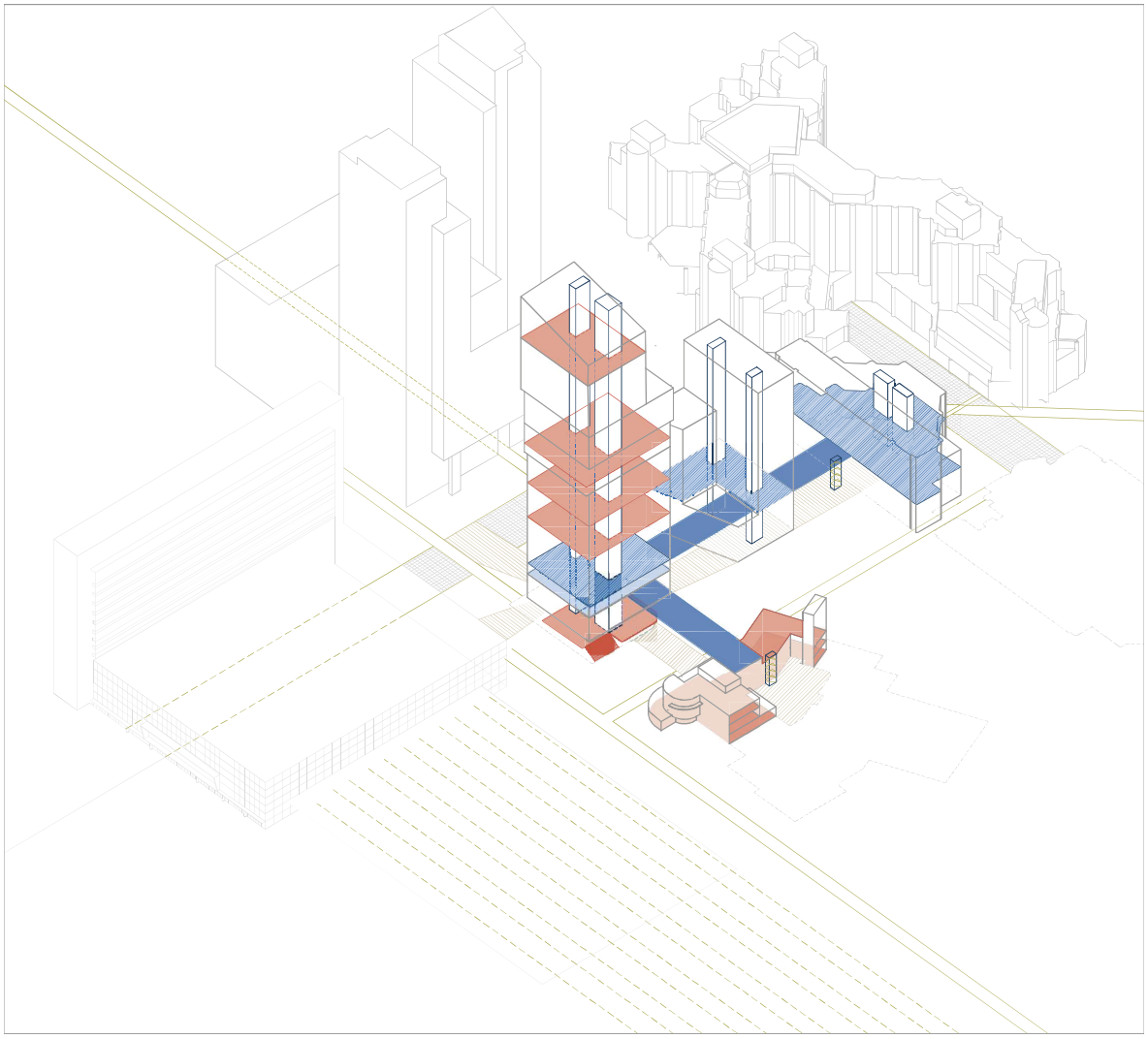


Campus Ground floor plan

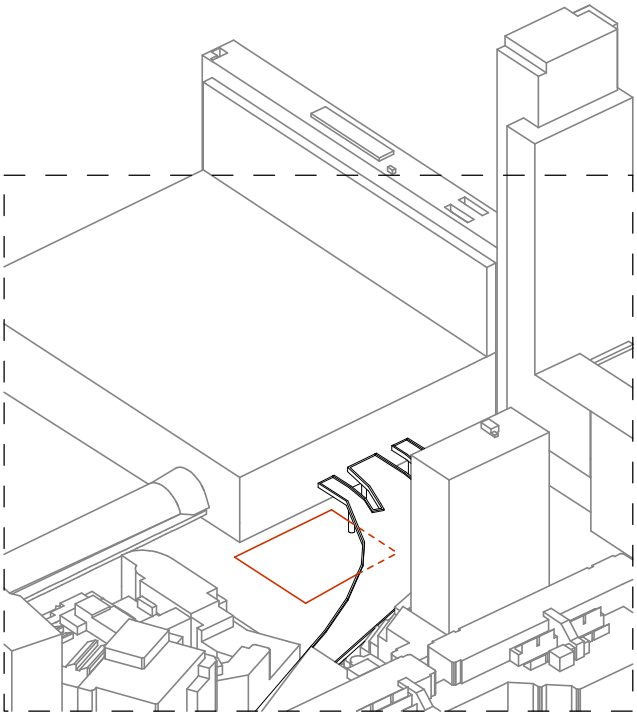


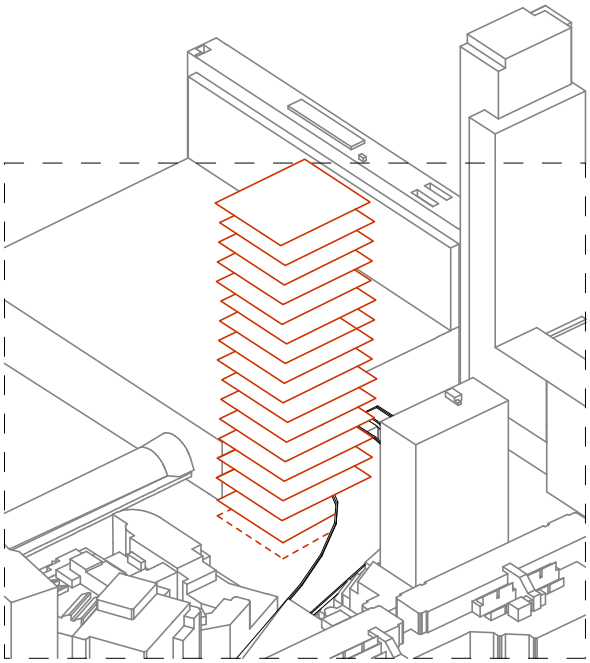
Leiden building connected to the Library on the ground floor level

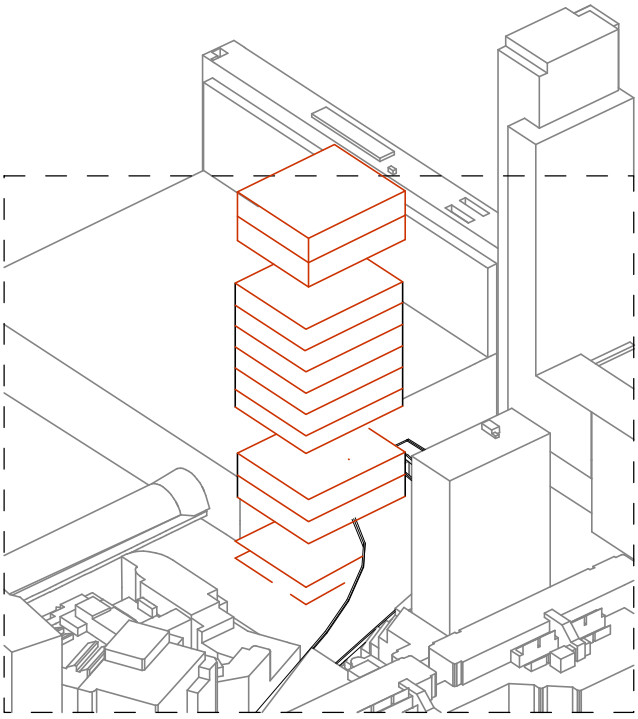
Campus development

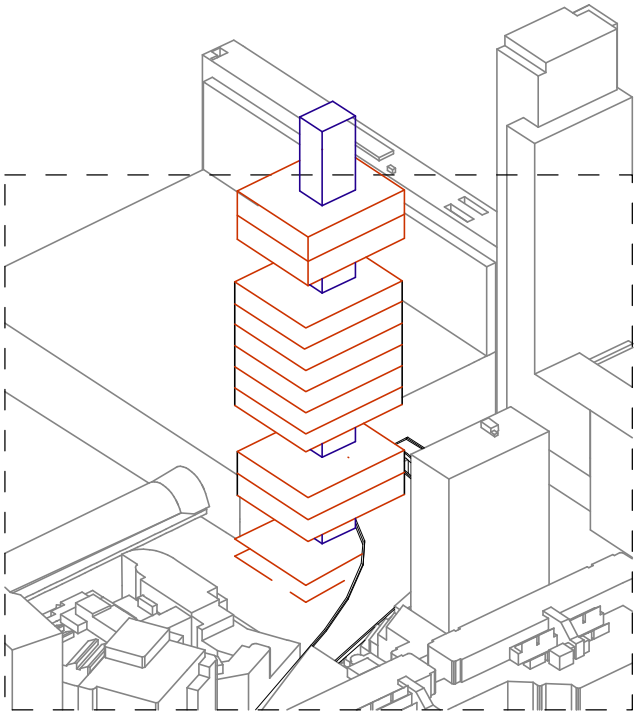


“Weaving “ the campus

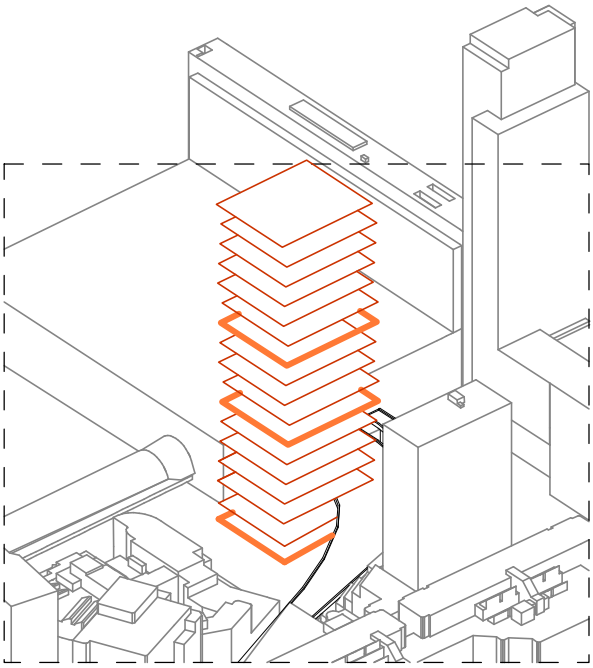


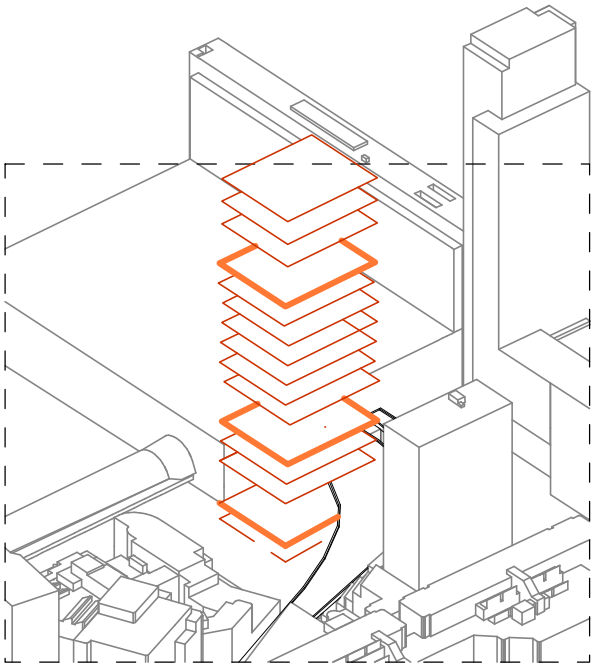


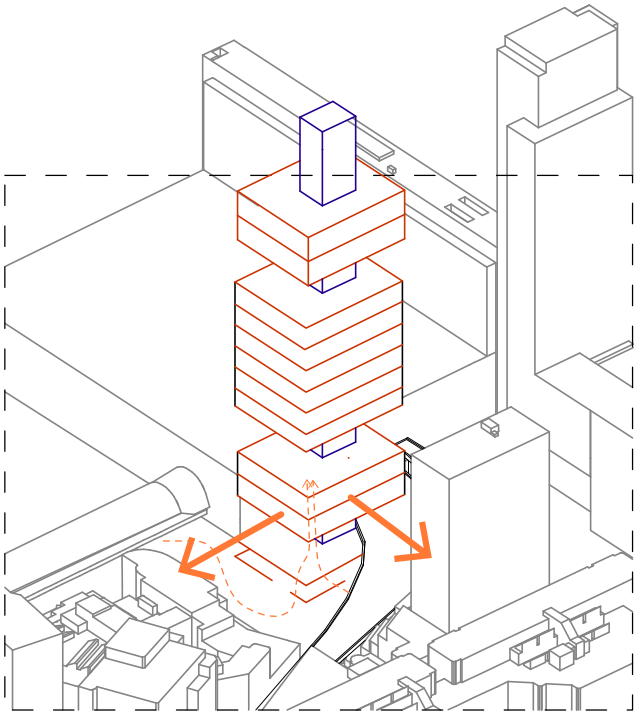


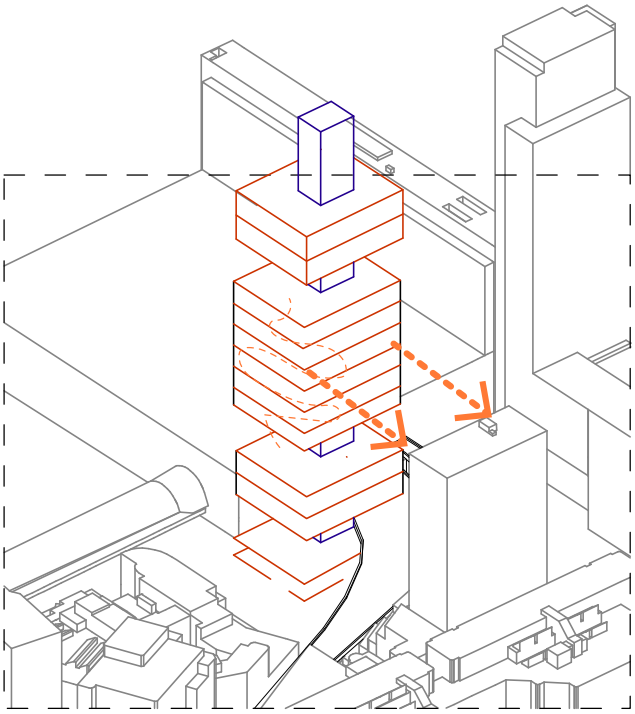


Strategy diagrams

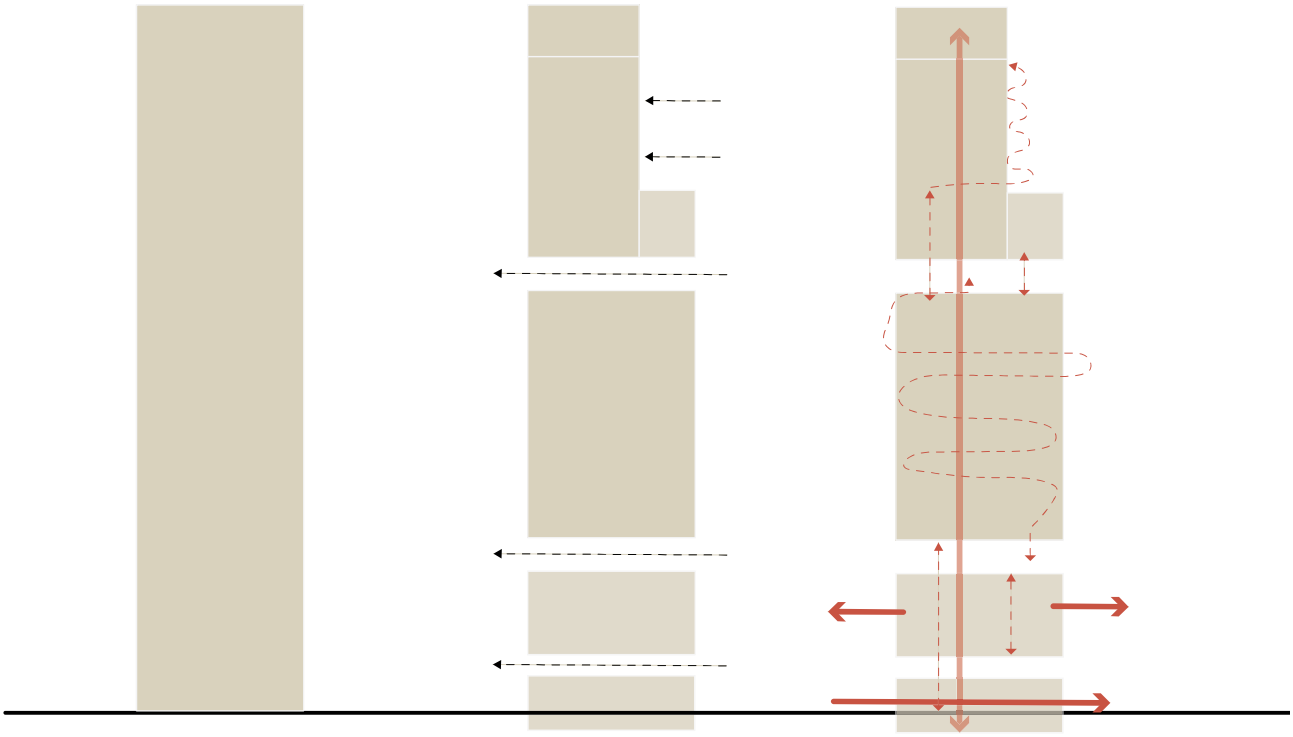




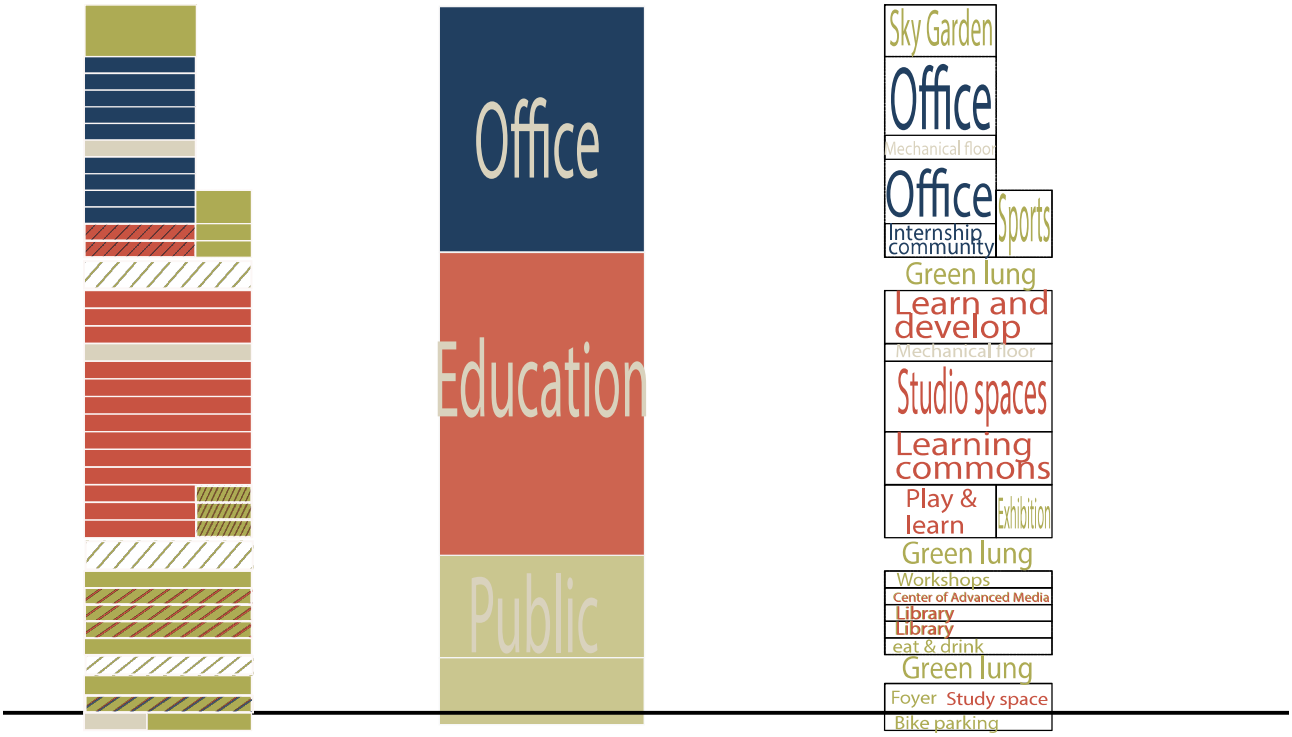




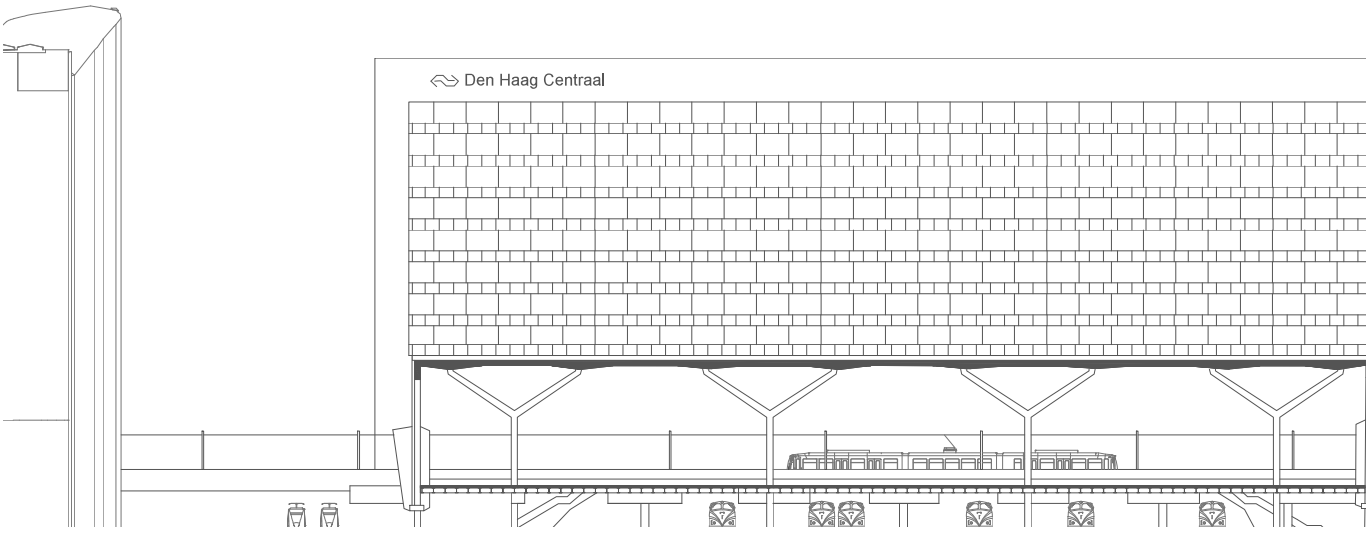
Strategy diagrams

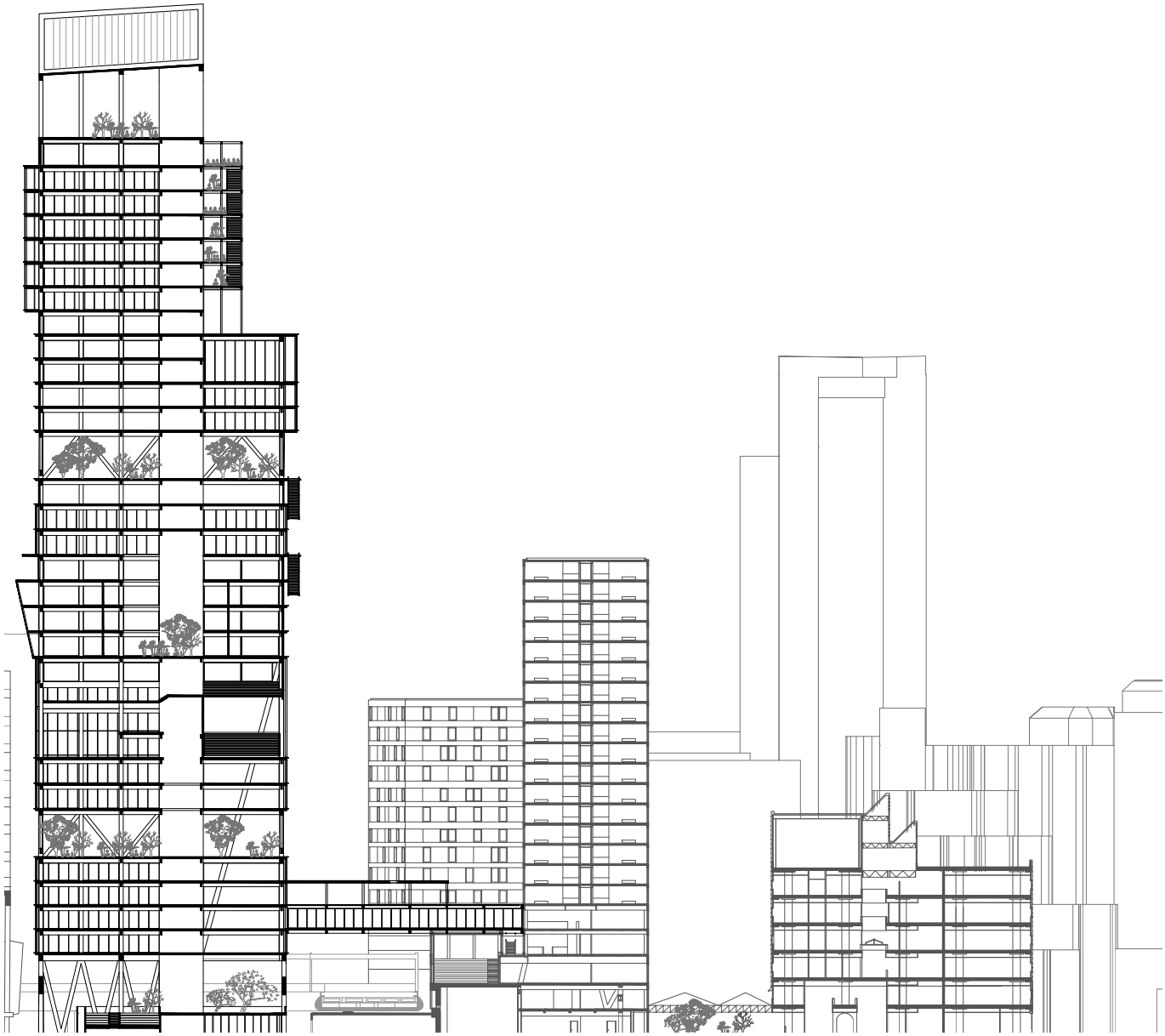


Volume development concept

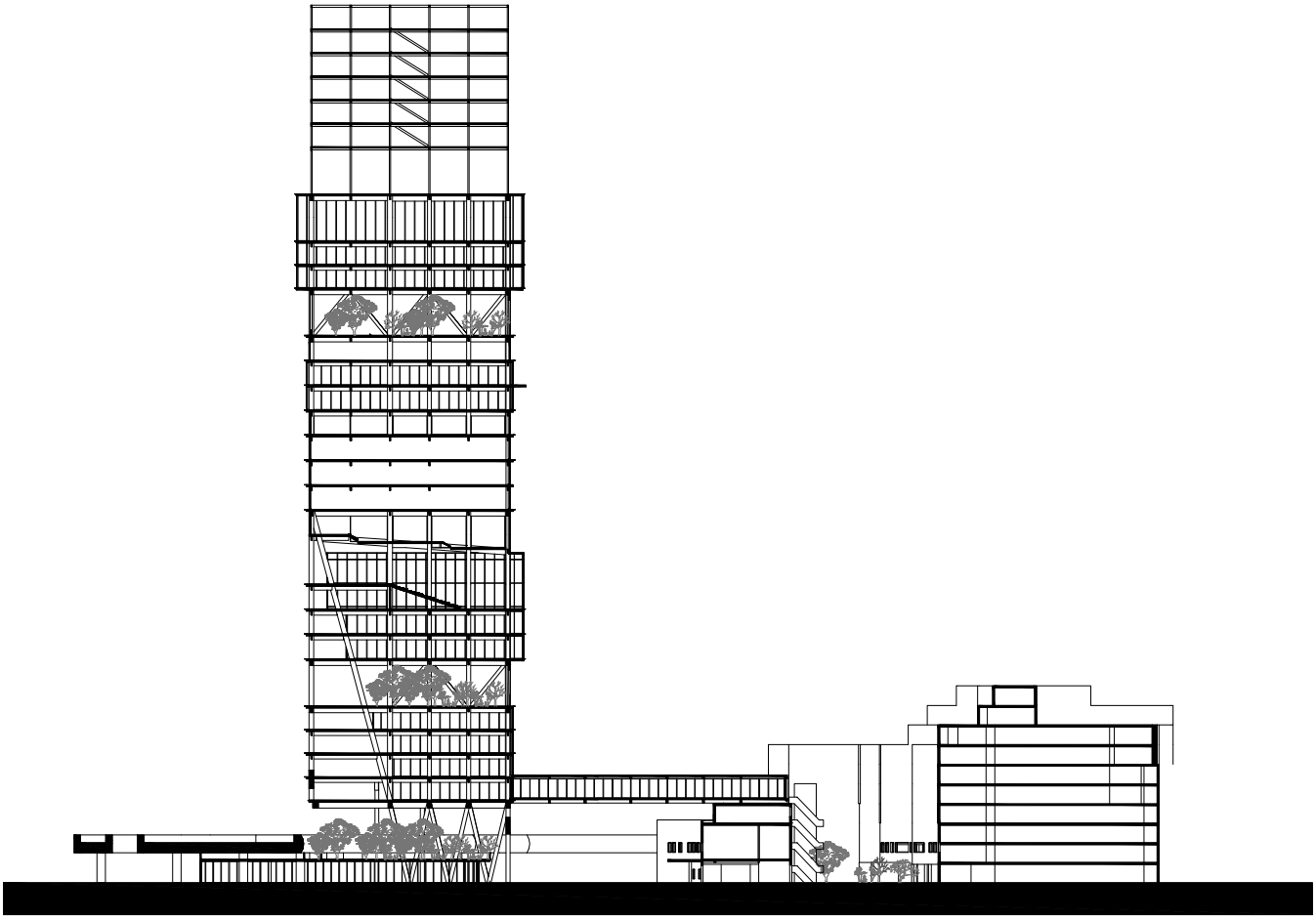


Programmatic development concept

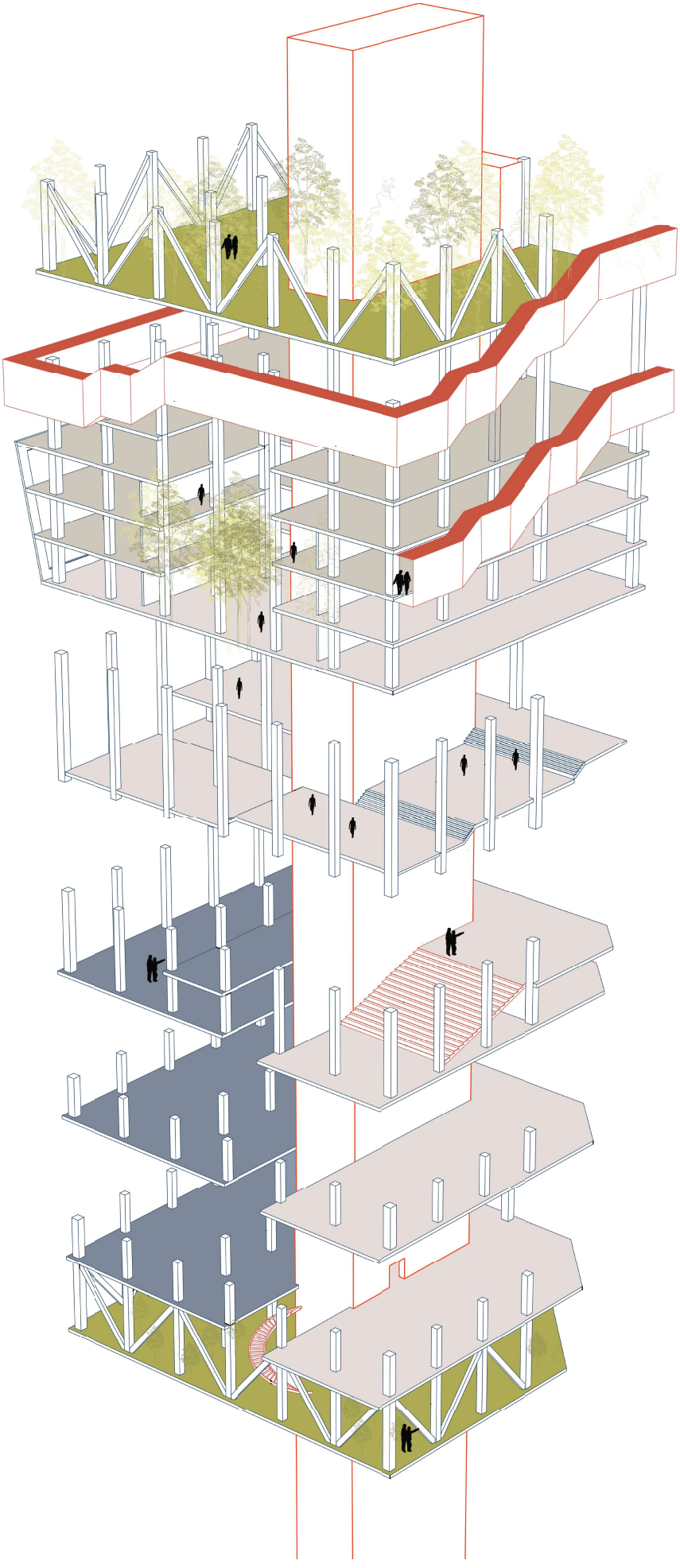

Den Haag Centraal



Section

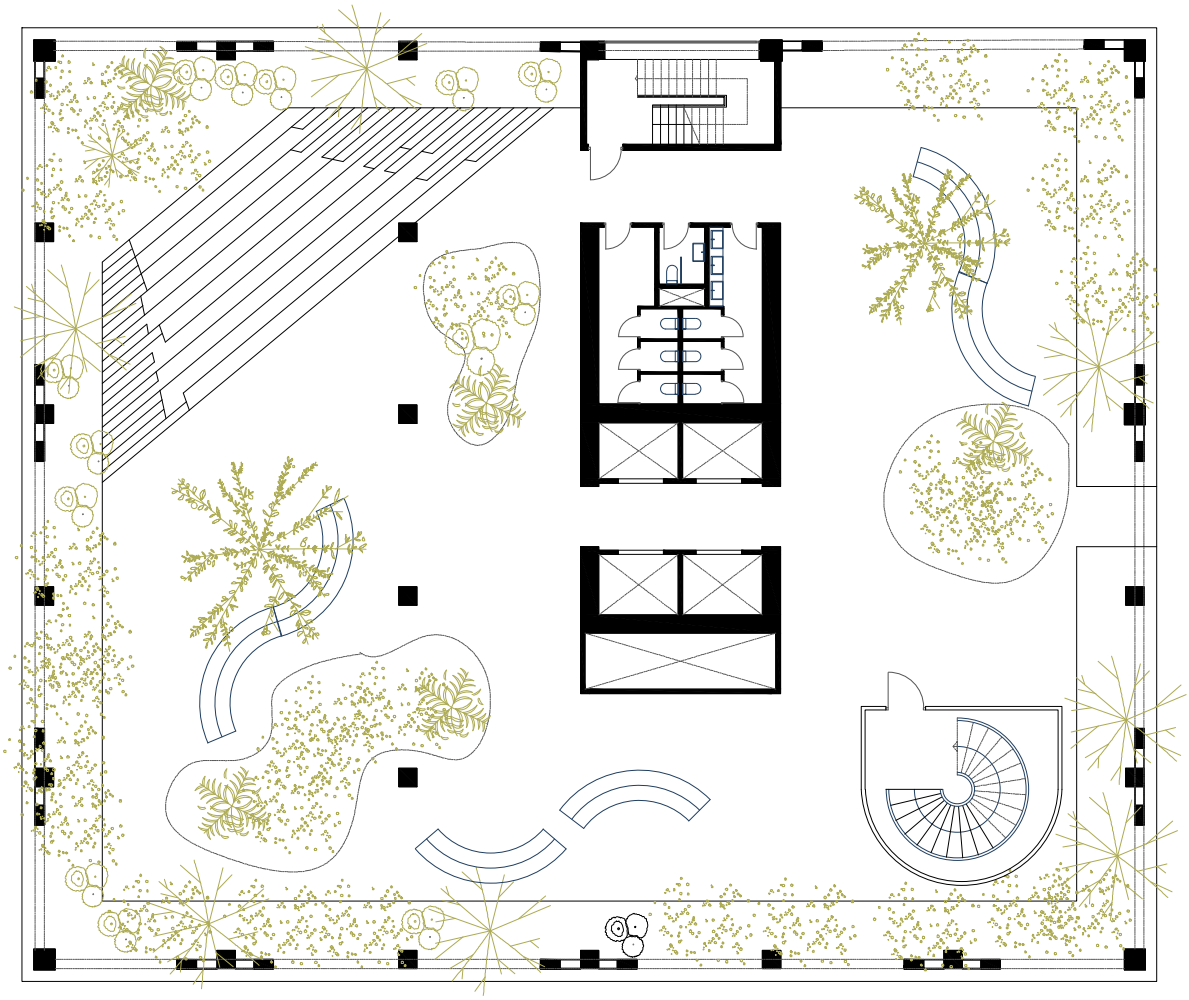


Section

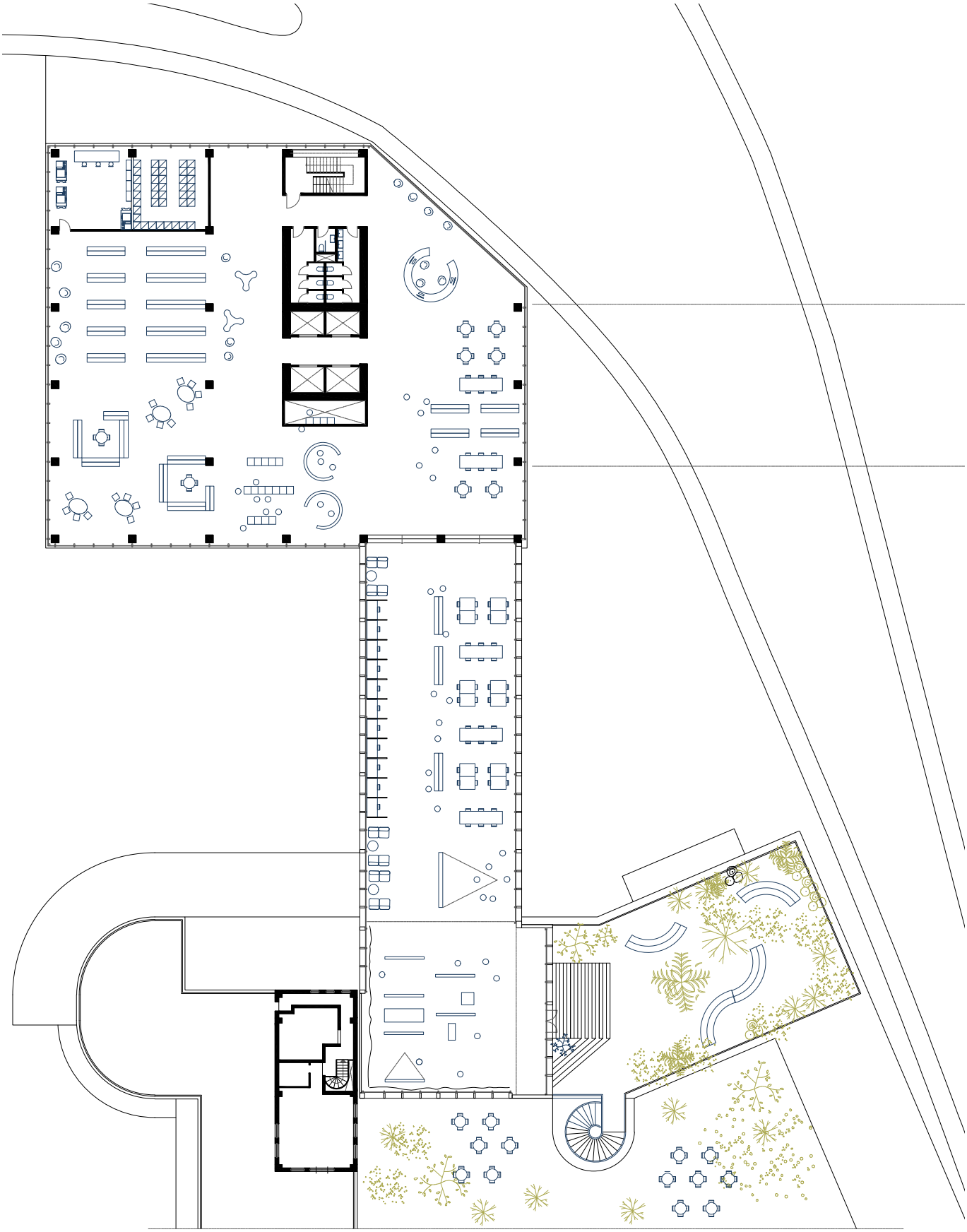


Educational cluster diagram

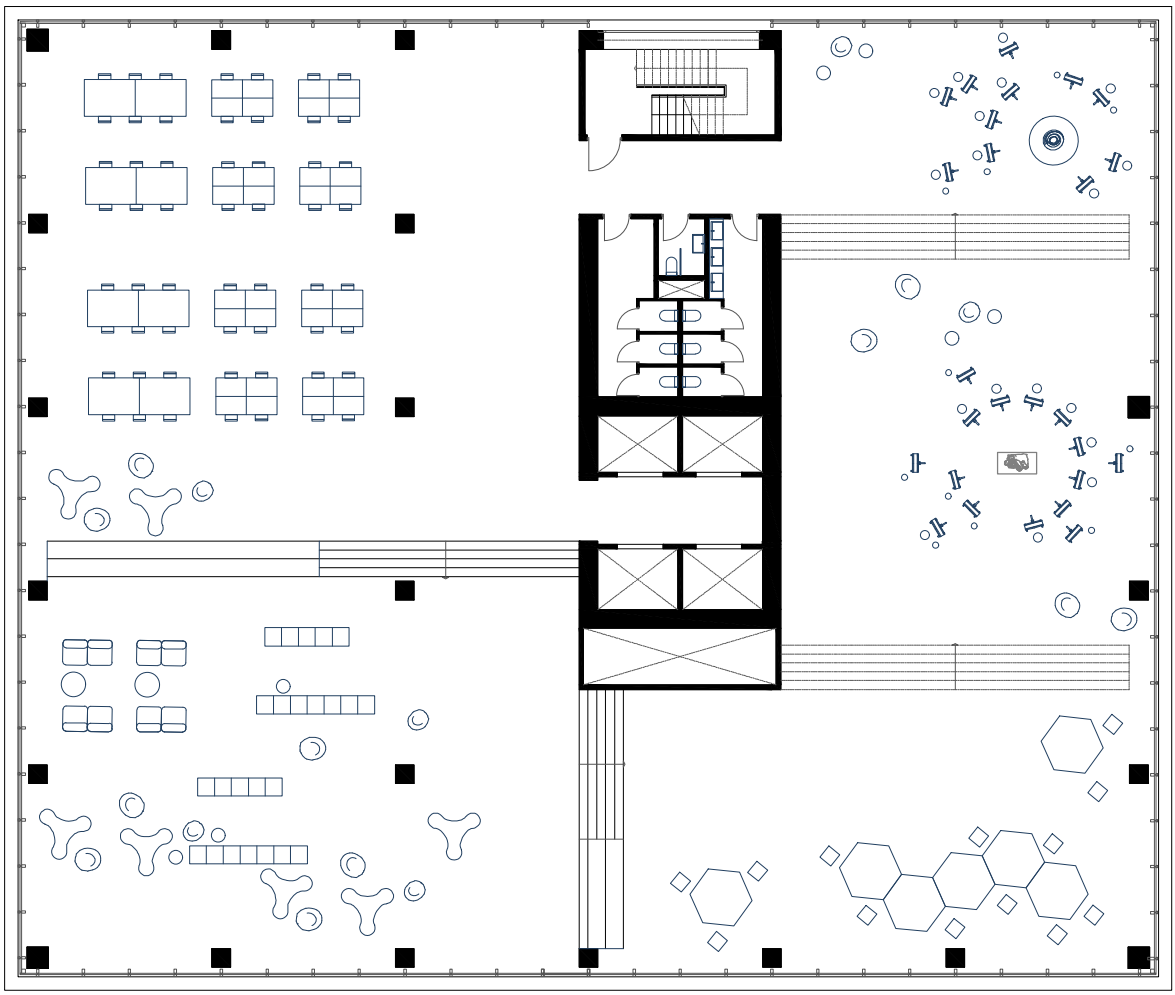
Floor plans



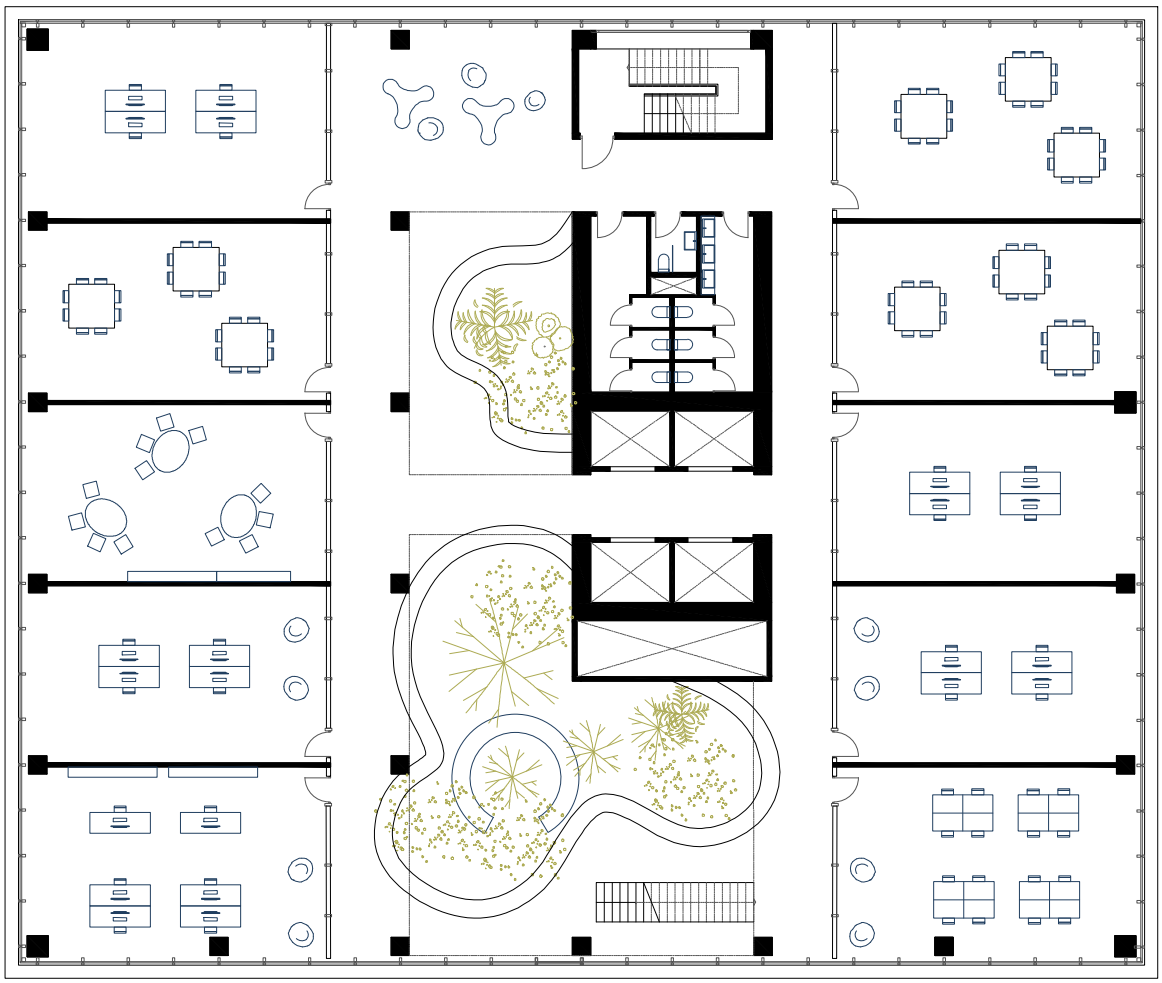
Open platform floorplan



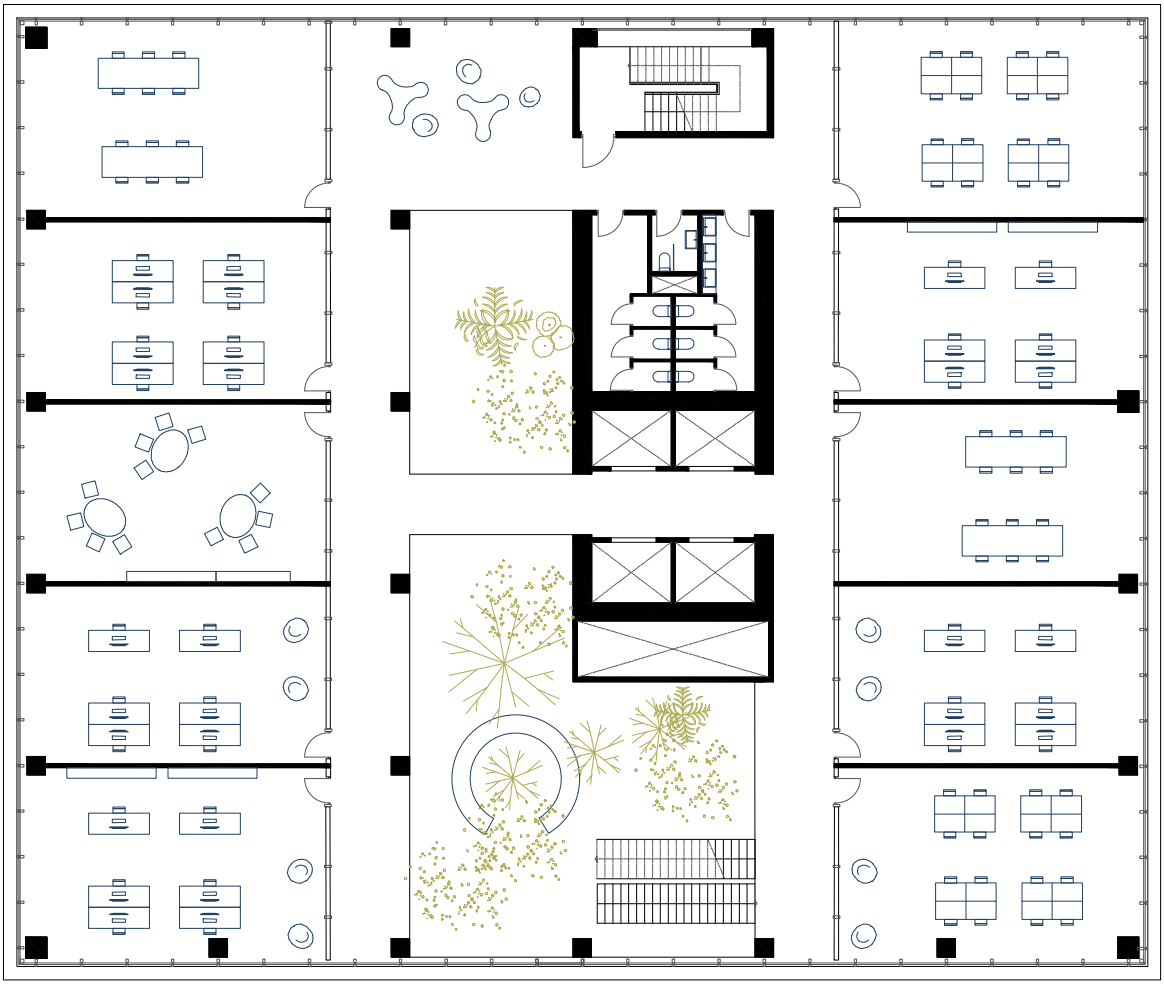
Level 3 floorplan/ Connection with the Archive building



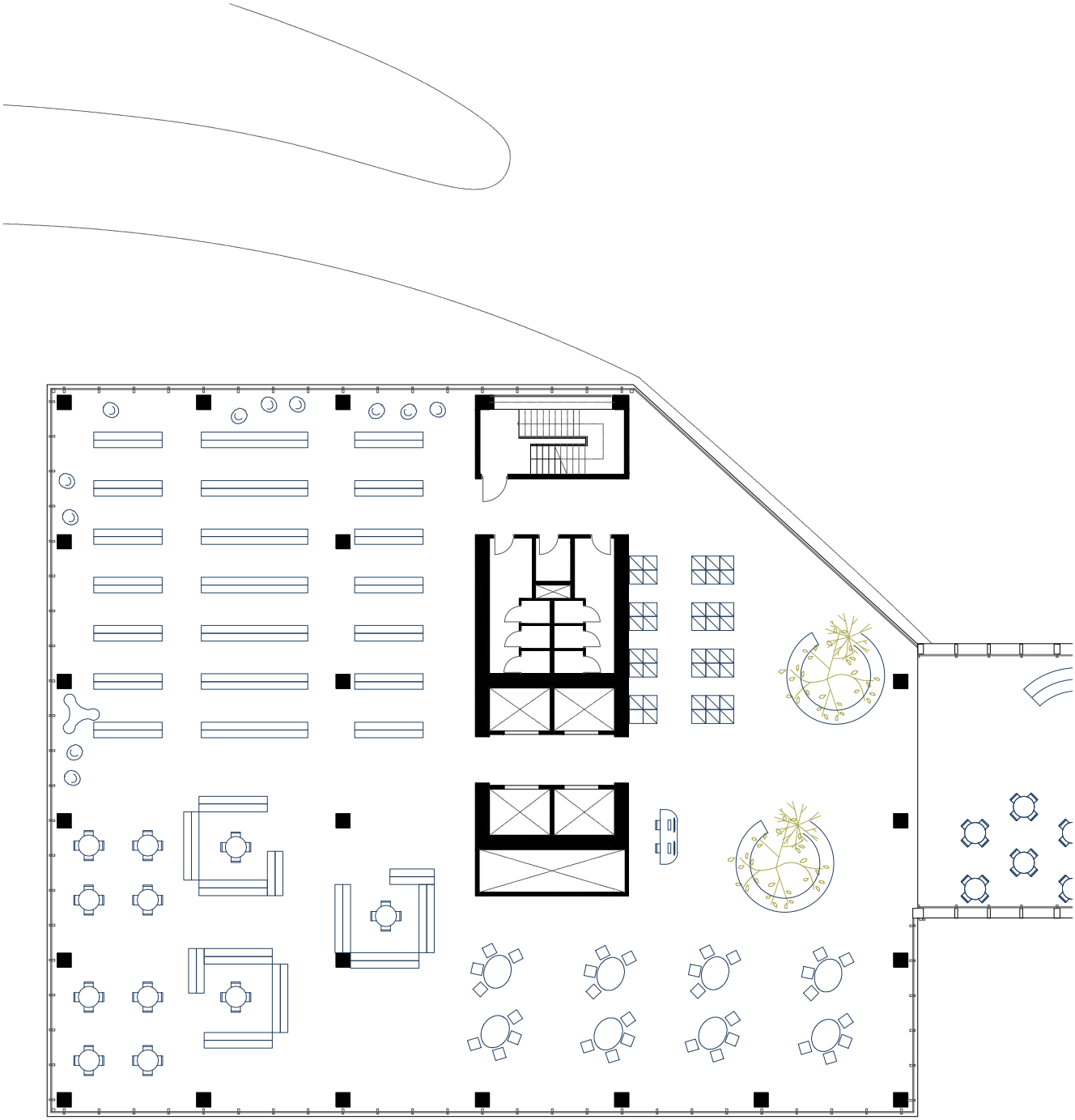
Learning Commons floorplan

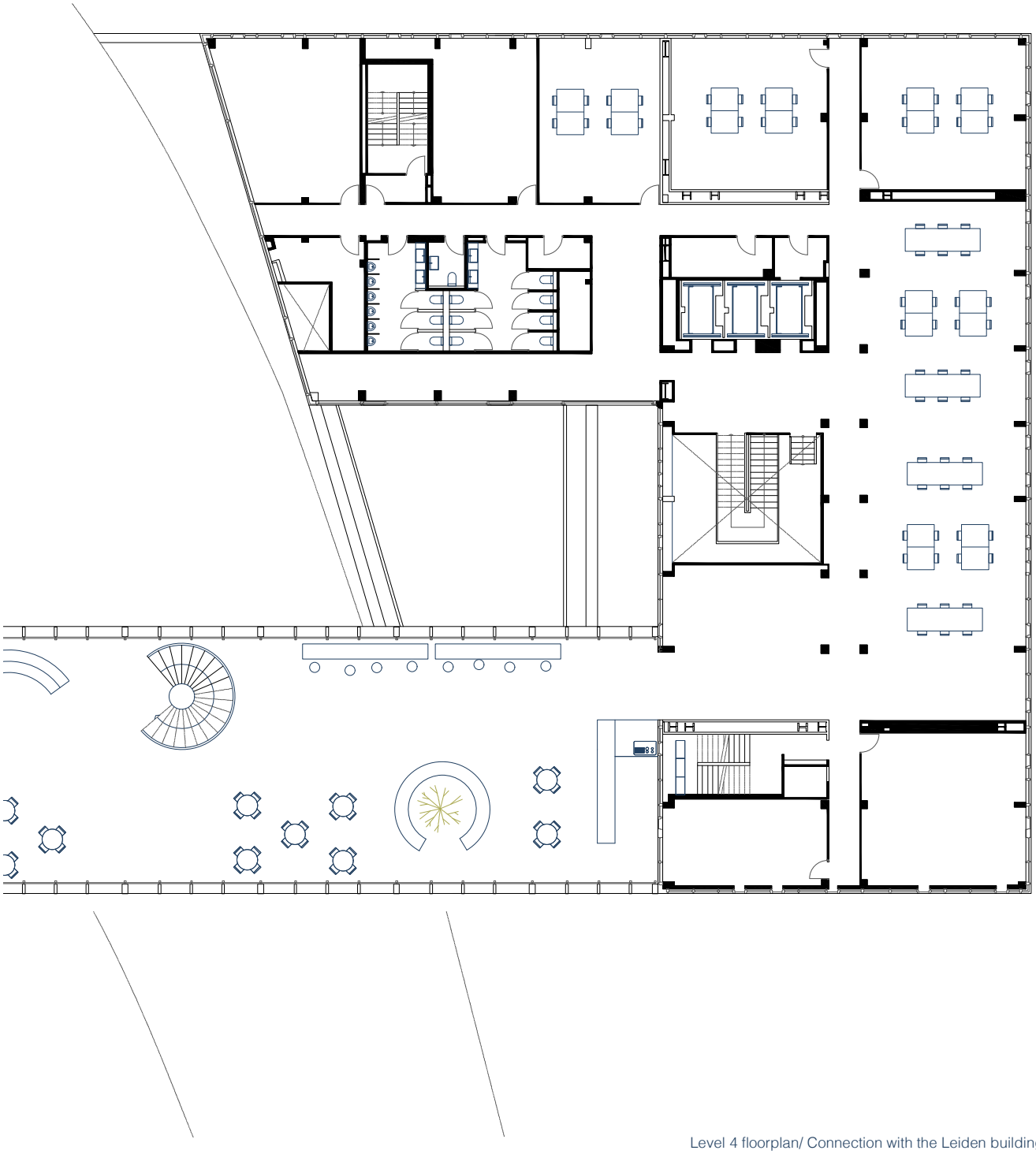


Research Commons floorplan

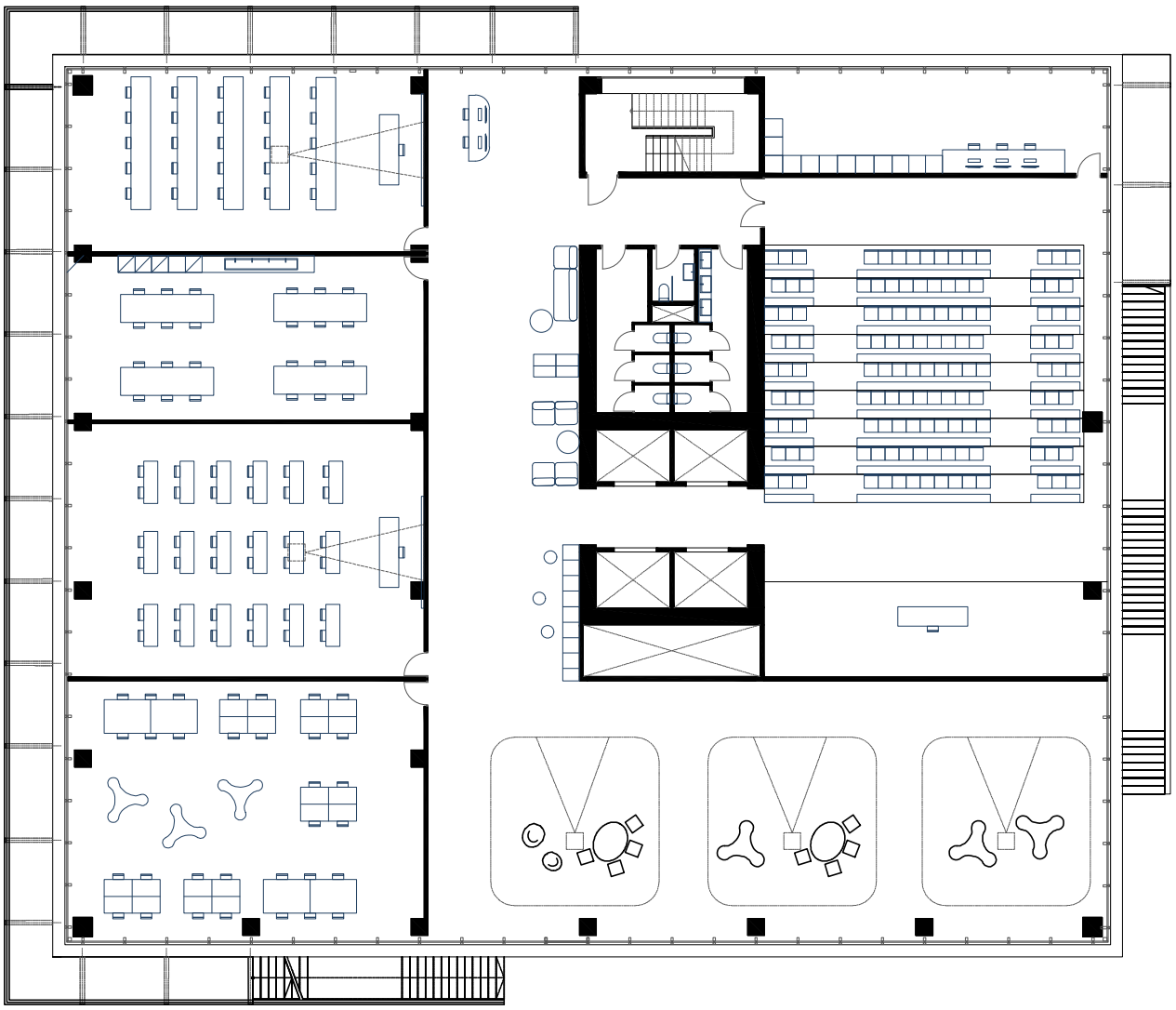


Learning Commons floorplan

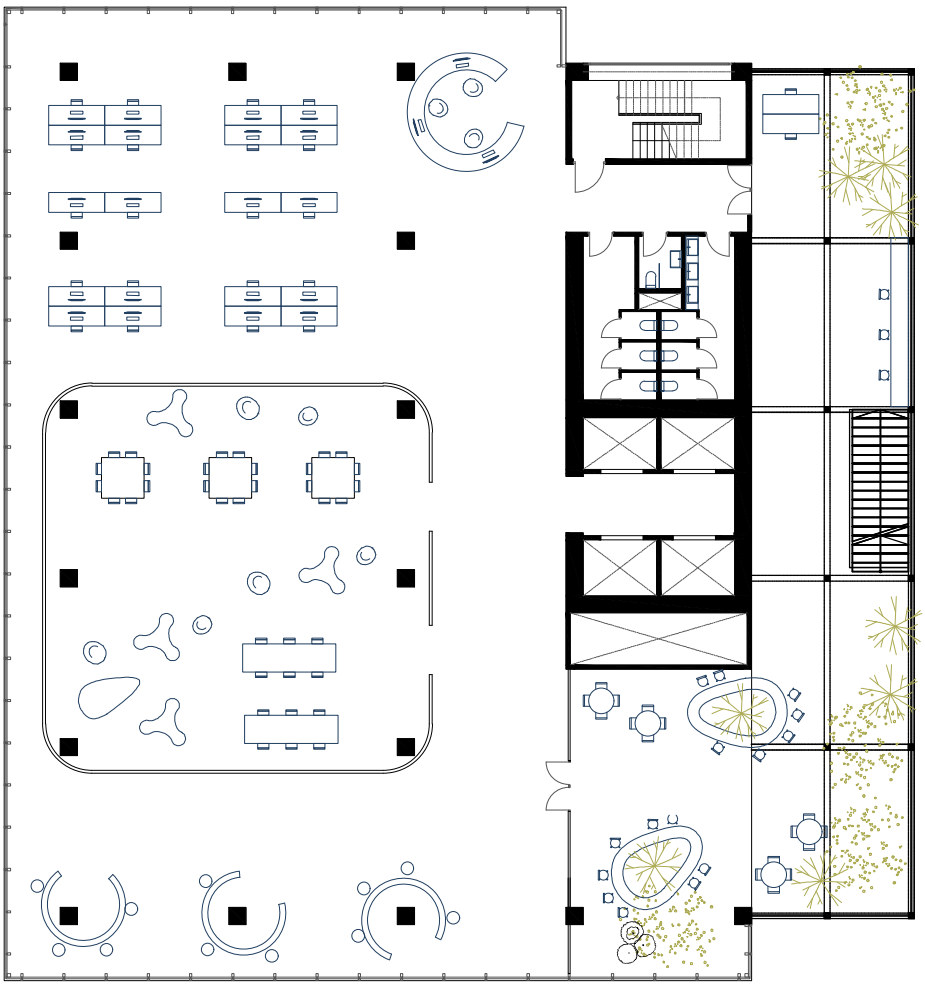




Level 4 floorplan/ Connection with the Leiden building

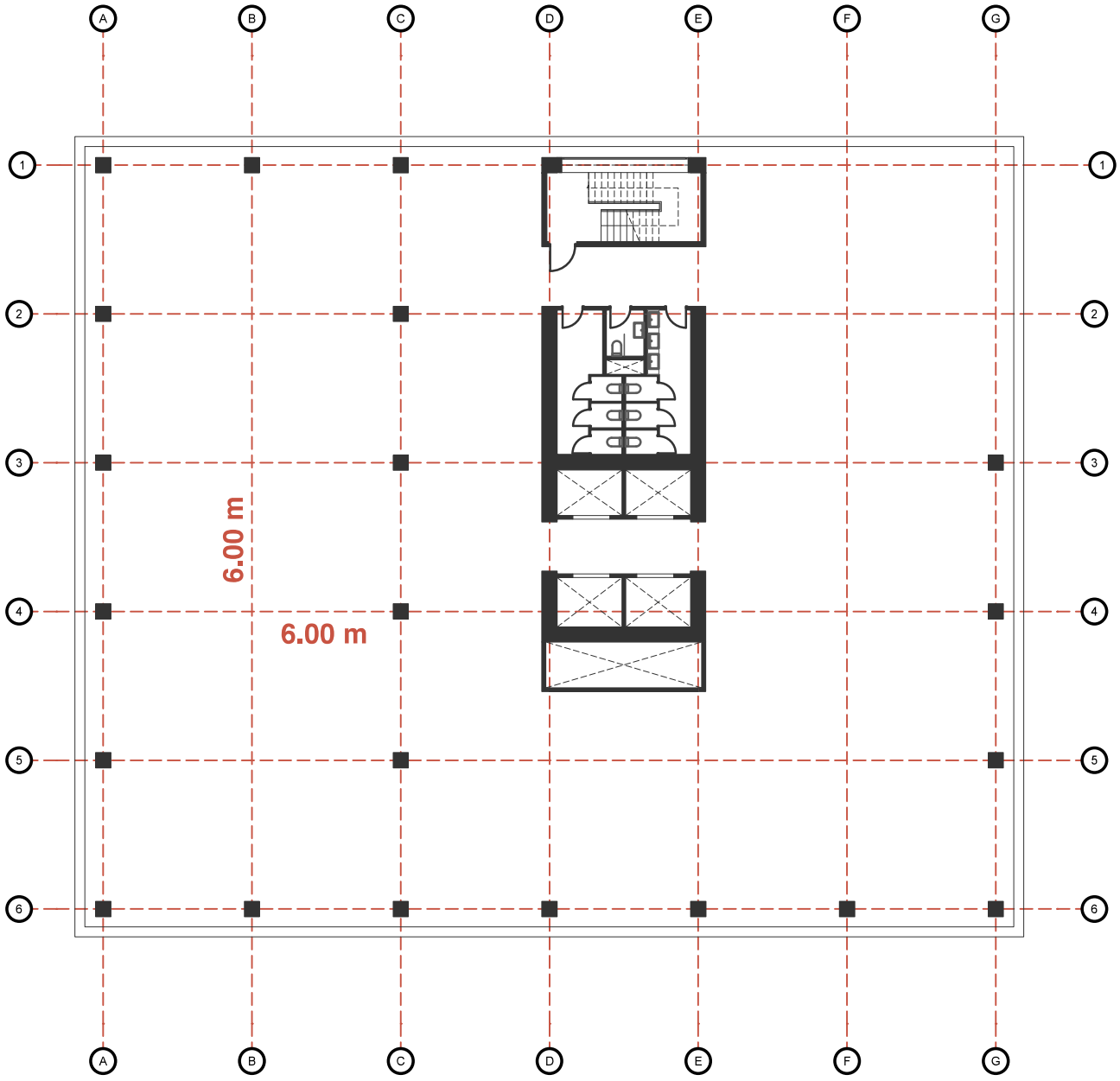


Classrooms floorplan

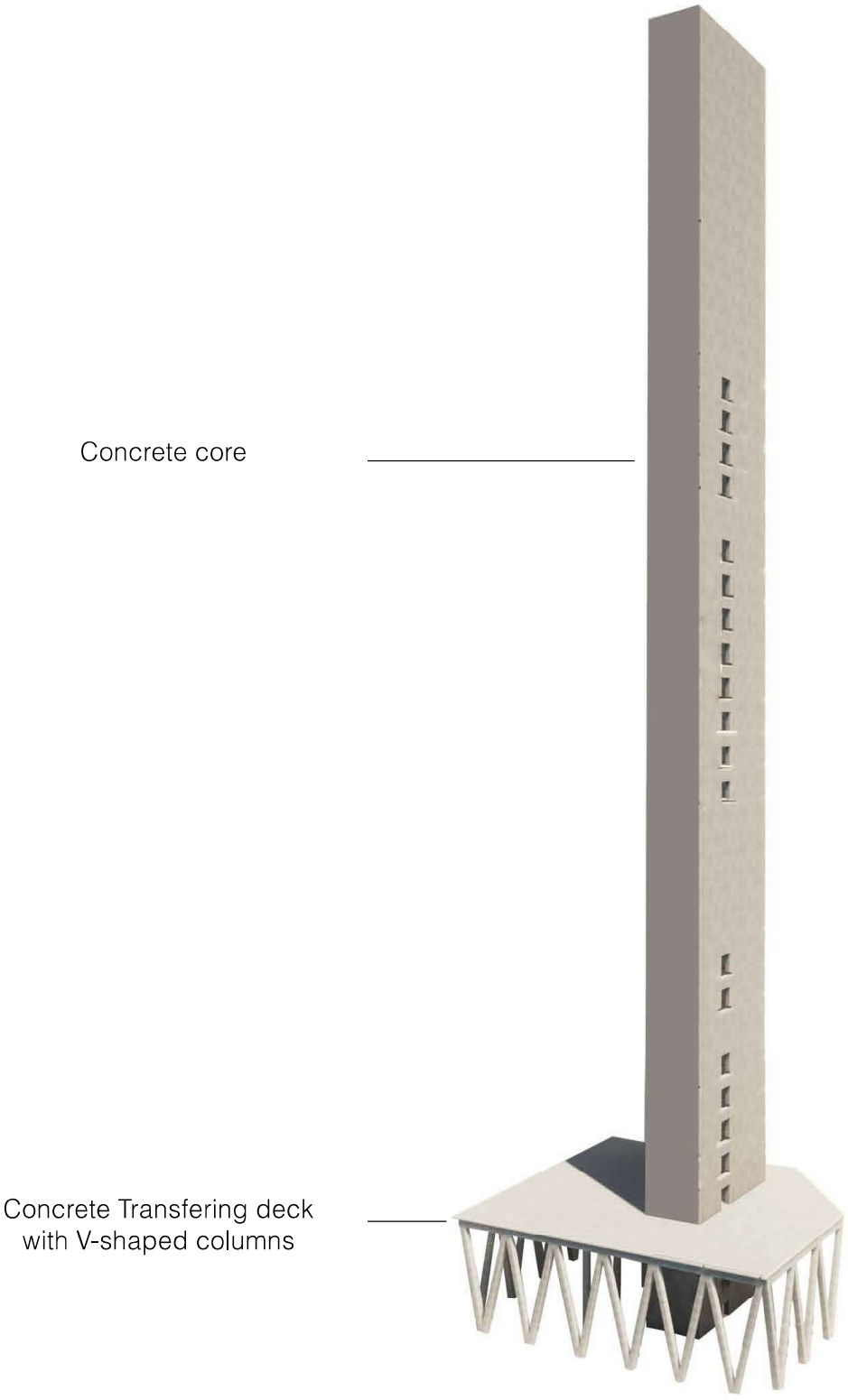


Office spaces

Structure



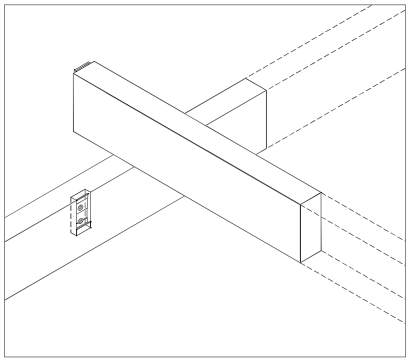
Typical floorplan

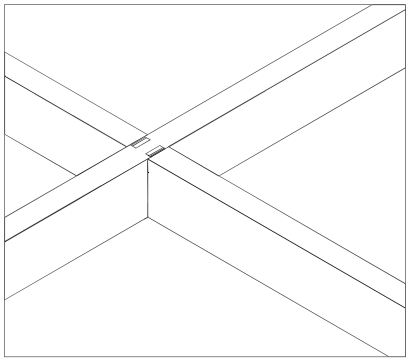

Concrete core
Concrete Transfering deck
with V-shaped columns

Glulam post and beam structure

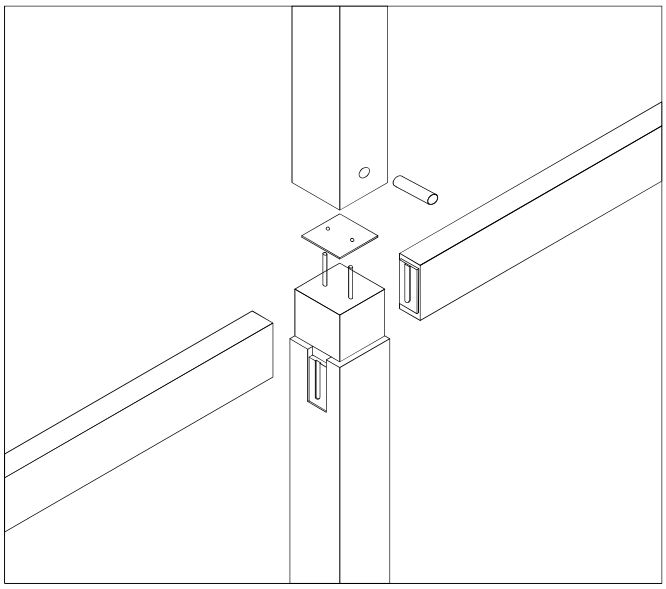
Structural scheme

beam-to-beam

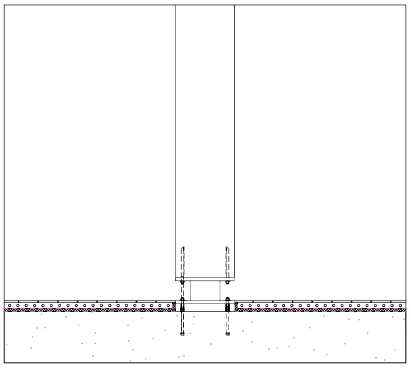


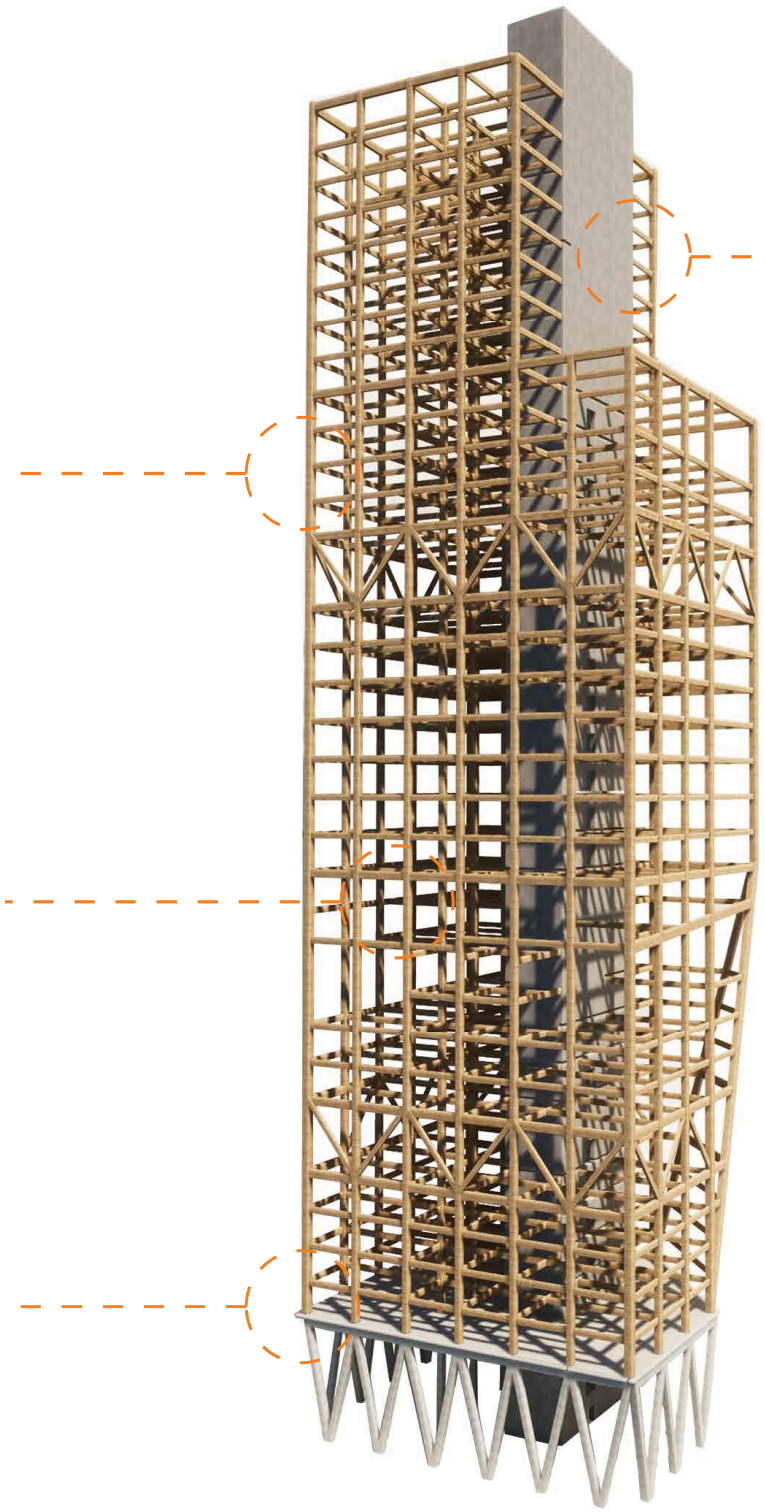


comumn-to-column
beam-to-column

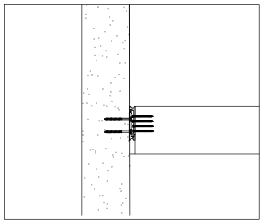


column-to-concrete base

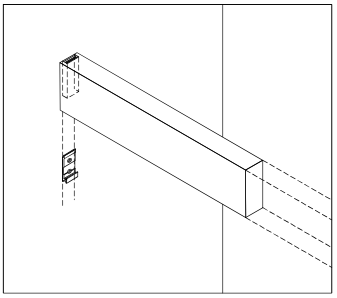




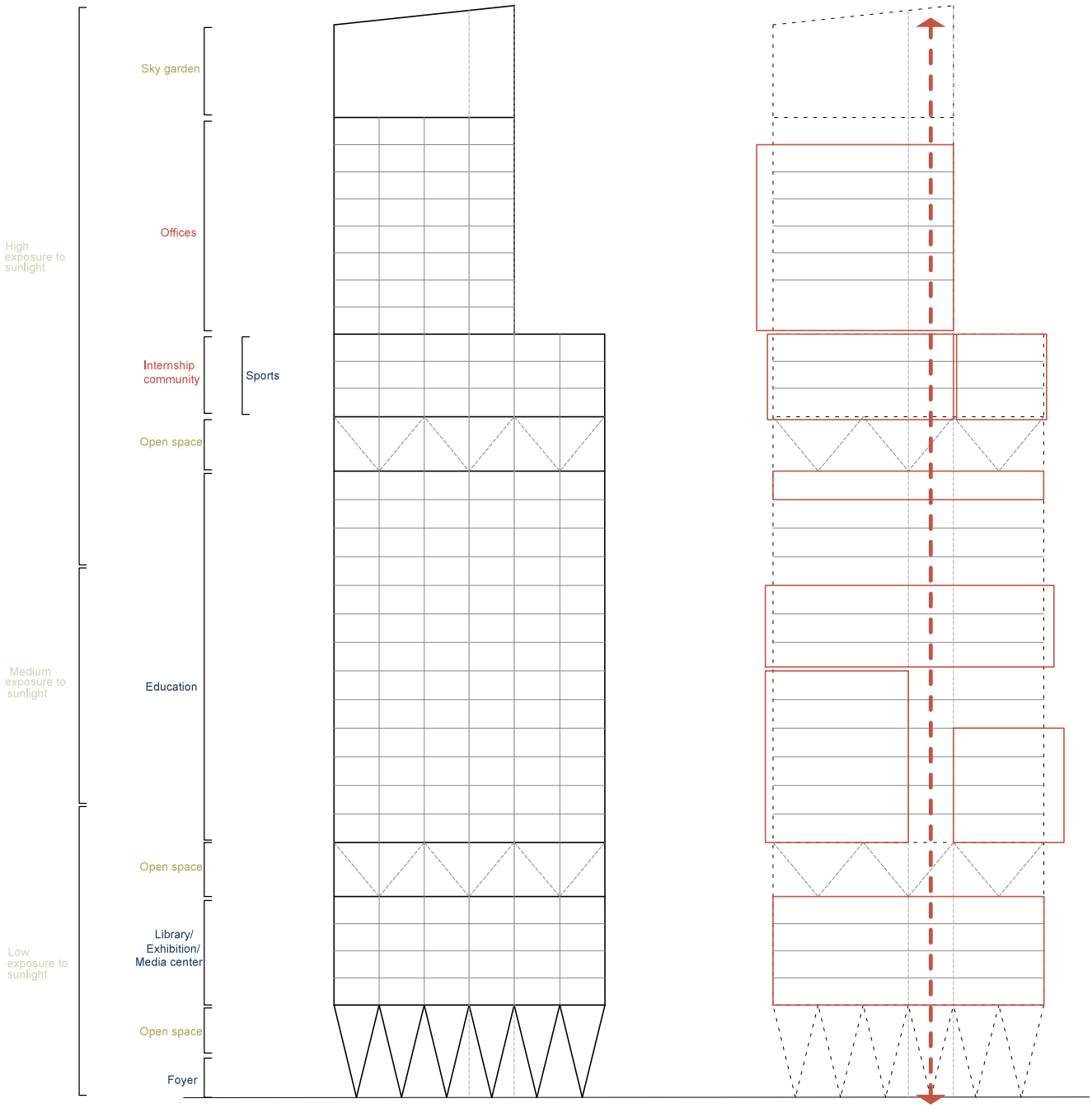
beam-to-concrete detail



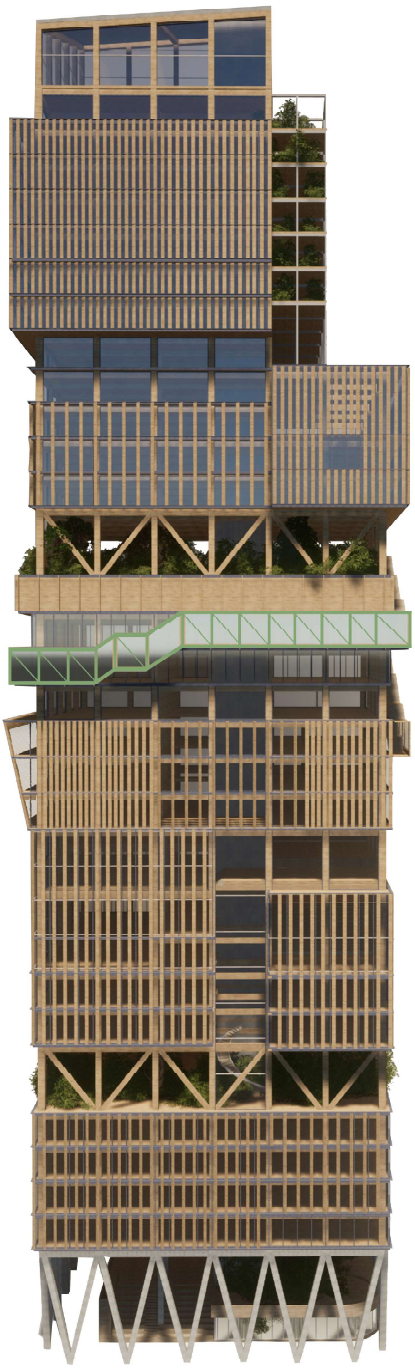
beam-to-concrete core



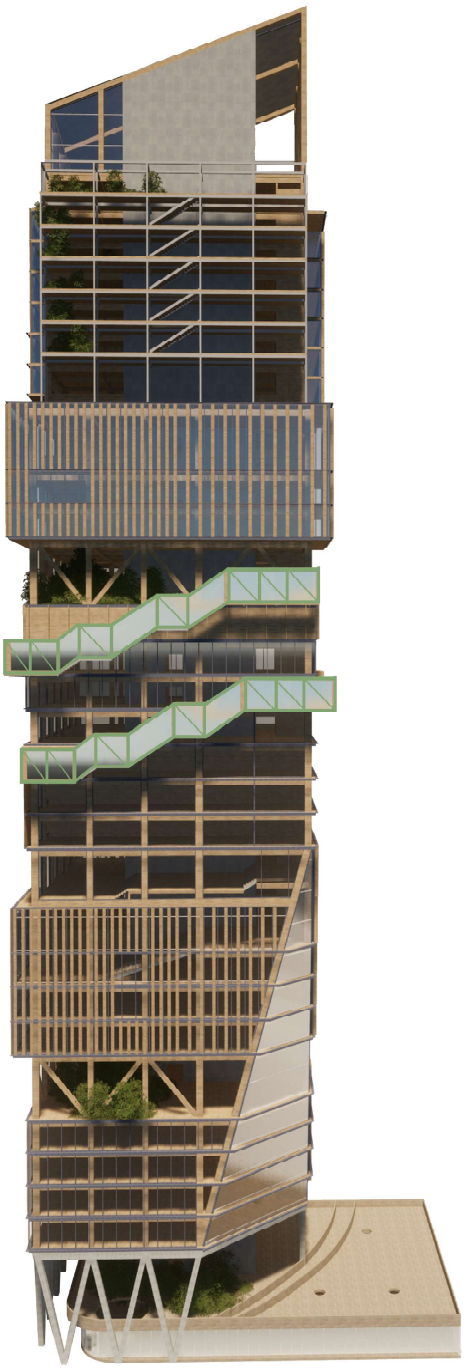
Facades



Facade development structure

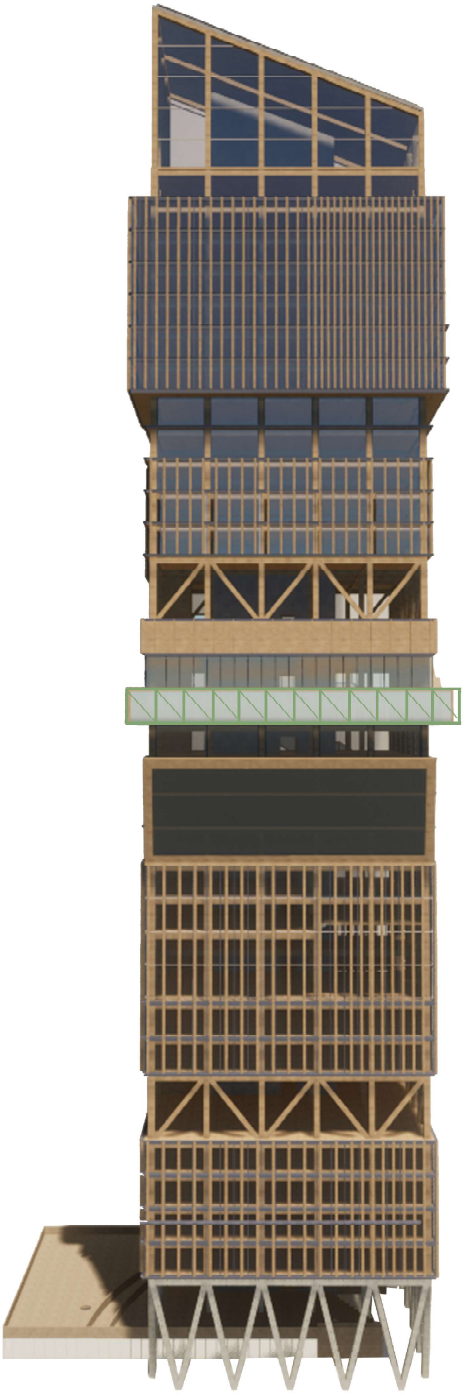


South elevation

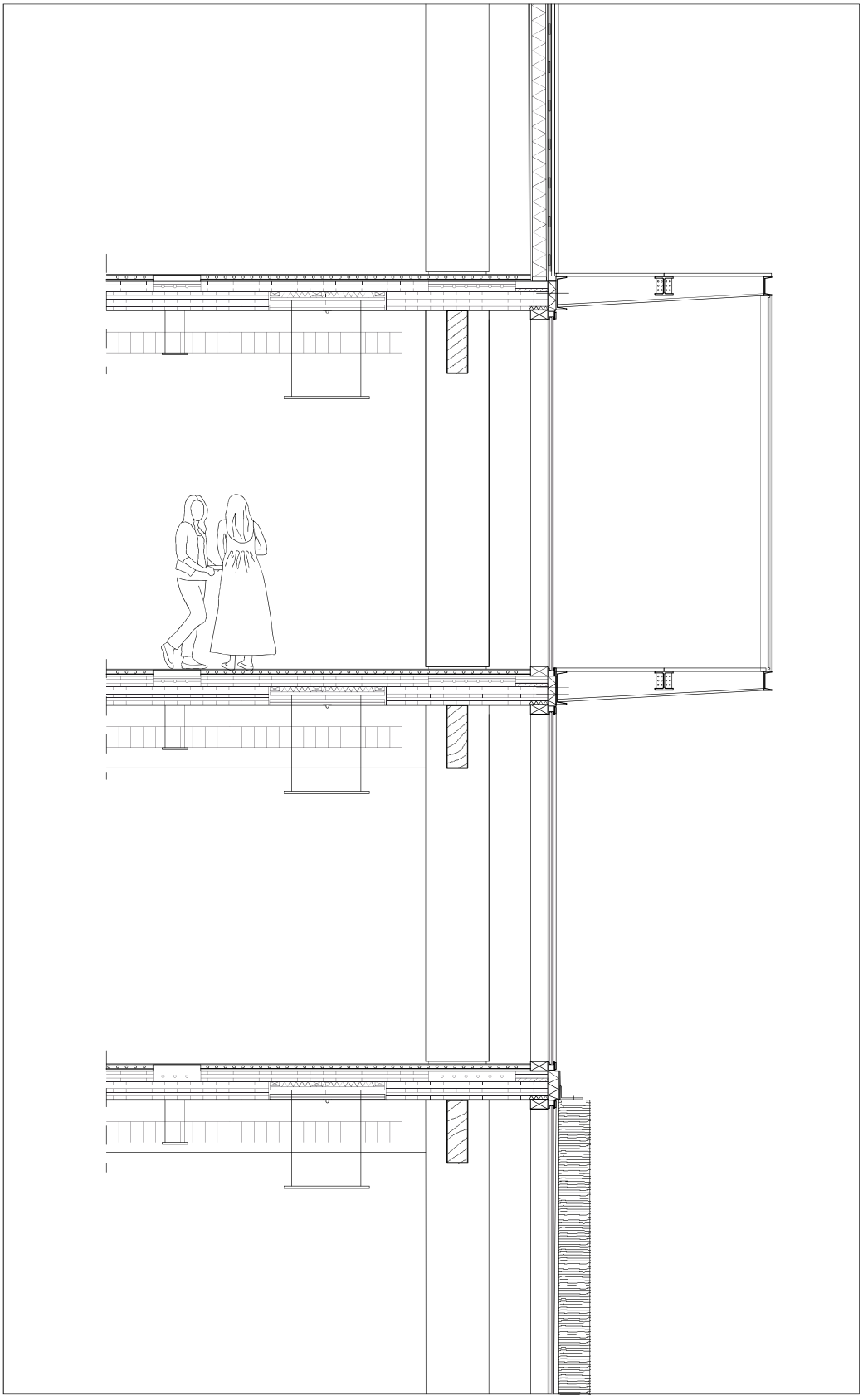


East elevation

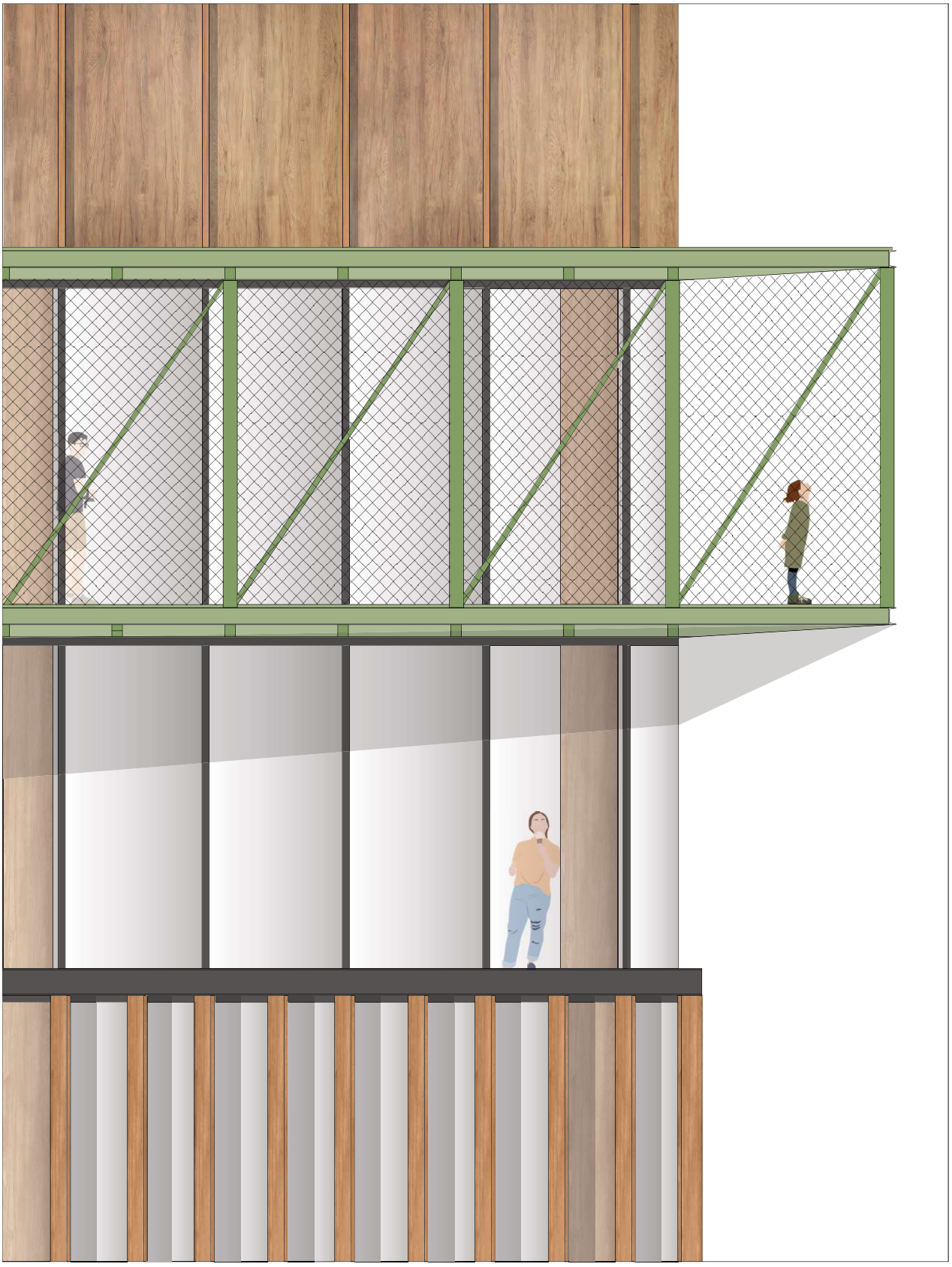
North elevation



West elevation



Facade section



Facade elevation

Flooring

Hardwood floor planks
Heated screed
Membrane
Sound insulation
Membrane
Cross laminated timber, three layers 99 mm
Cross laminated timber, five layers 169 mm

Installation space

Fibreglass panel 2x 25 mm
Sound insulation
Installation conduits
Plywood board 2x 13 mm
Sprinkler system
Electrical system conduits

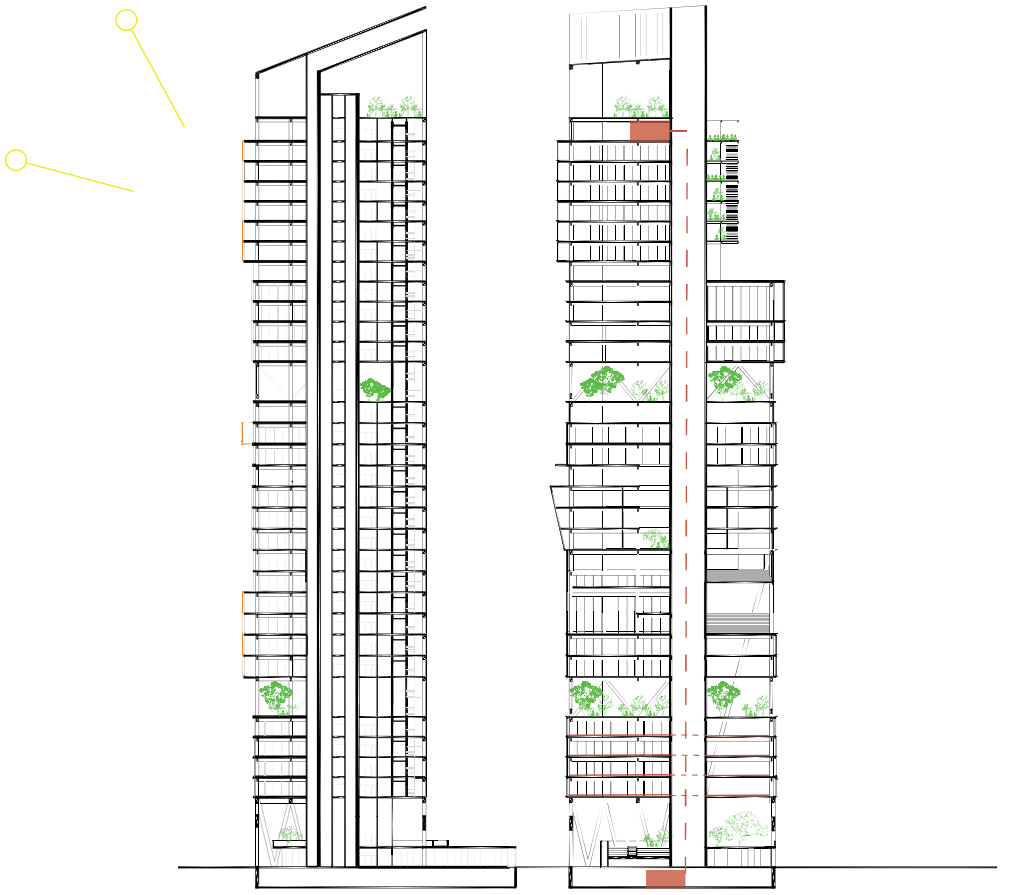
Facade

Triple-glazed thermally broken curtain wall
LVL mullion
Glued laminated timber column 610/610

L-shape Aluminium Profile
Thermal insulation, mineral wool 80 mm m
Vapour barrier
Accoya wooden louvers

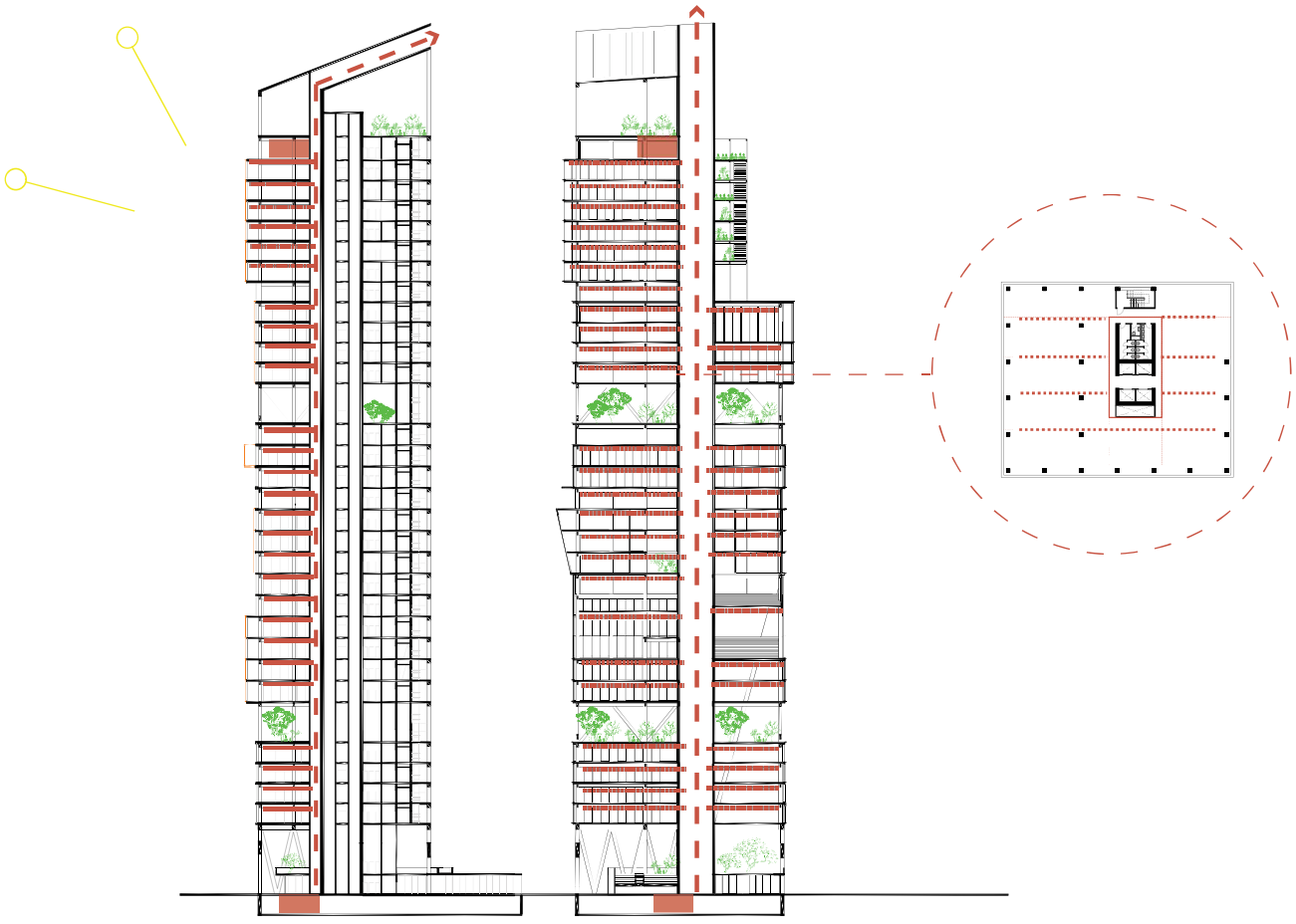
Facade detail

Energy

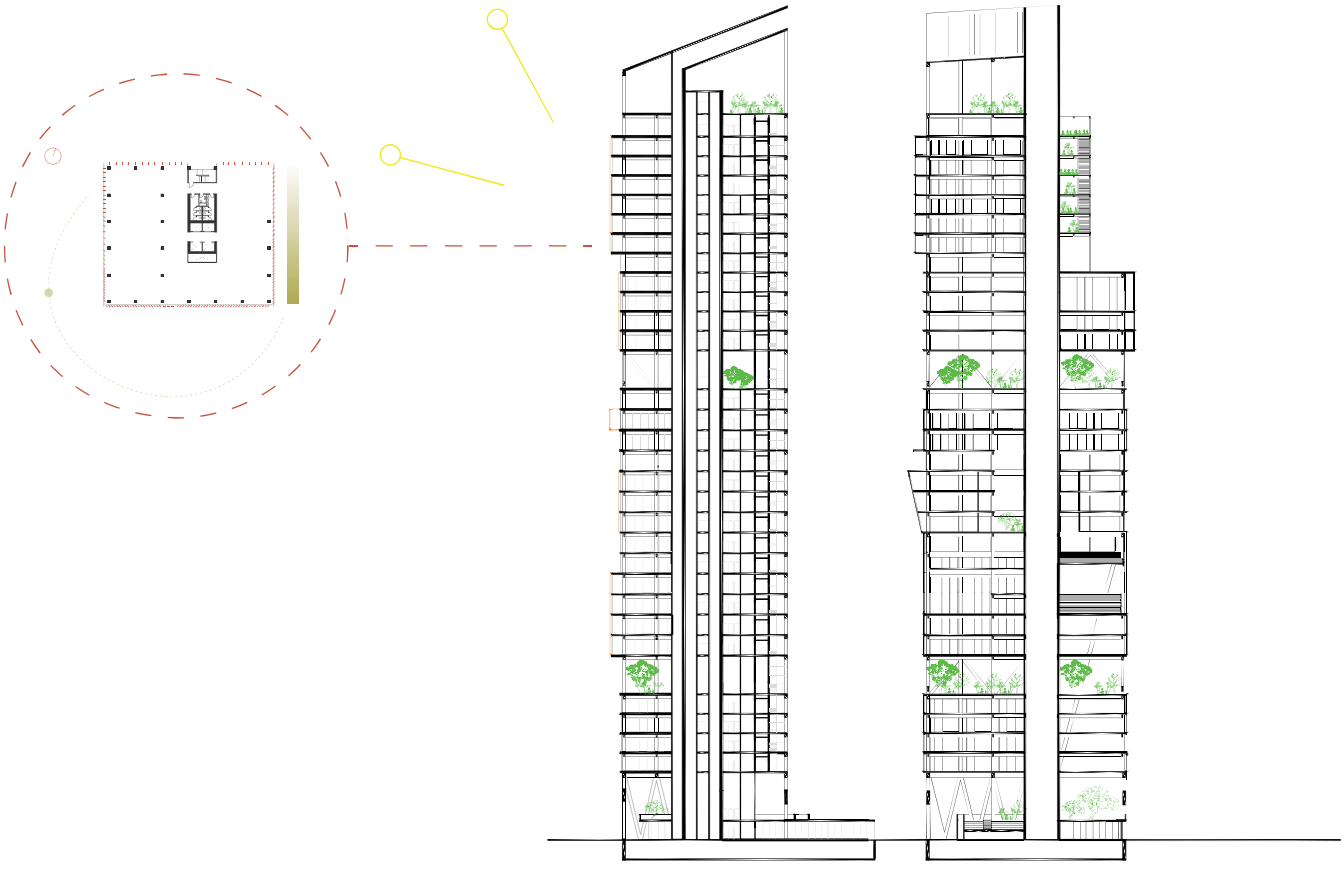


Underfloor heating

Natural ventilation



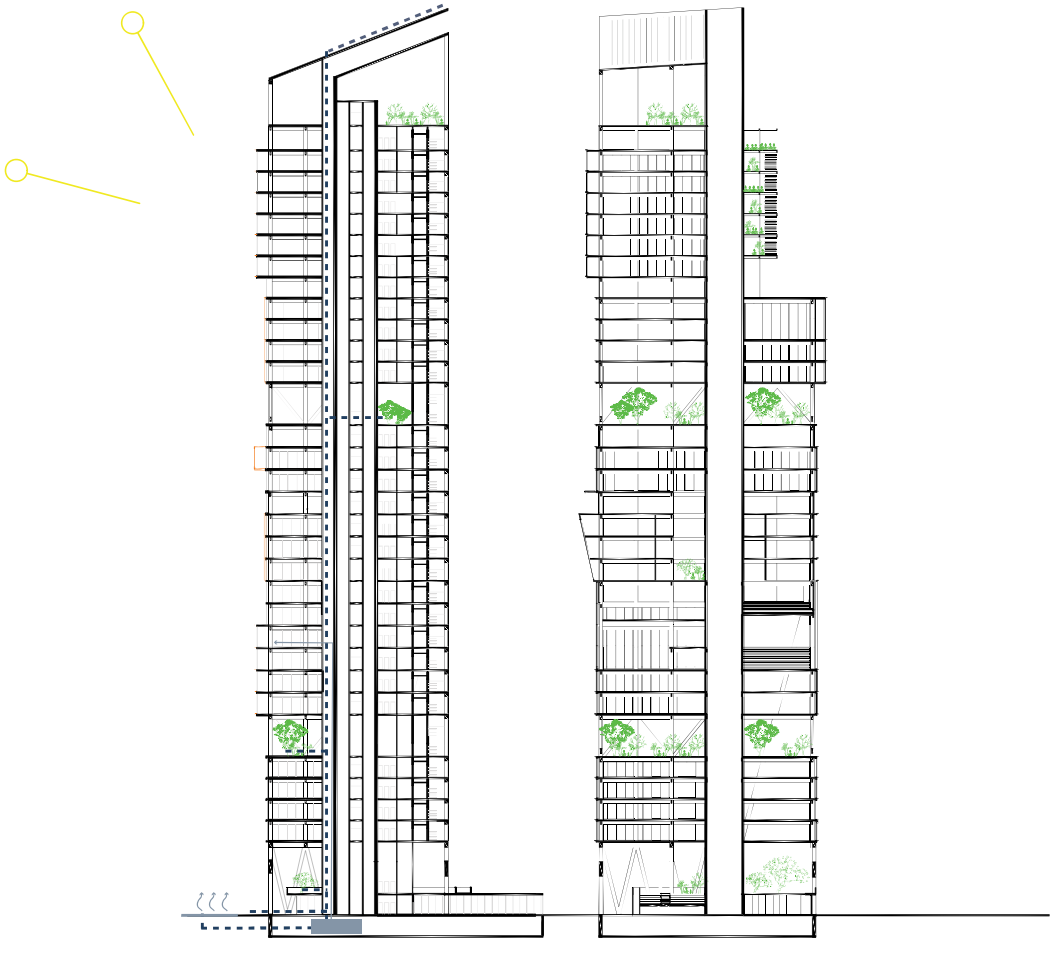
Mechanical ventilation with heat recovery



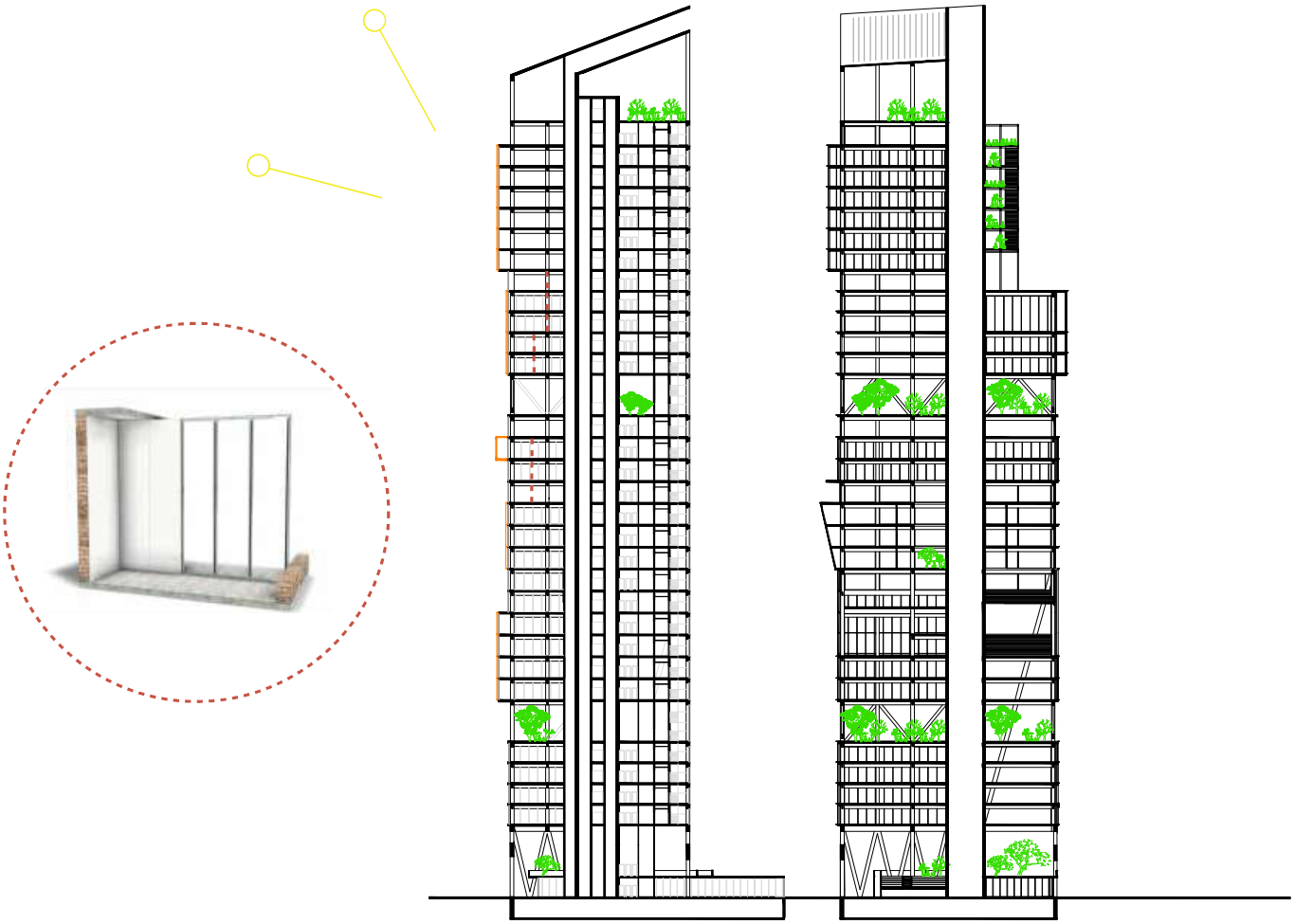
Sunshading louvers

Circularity

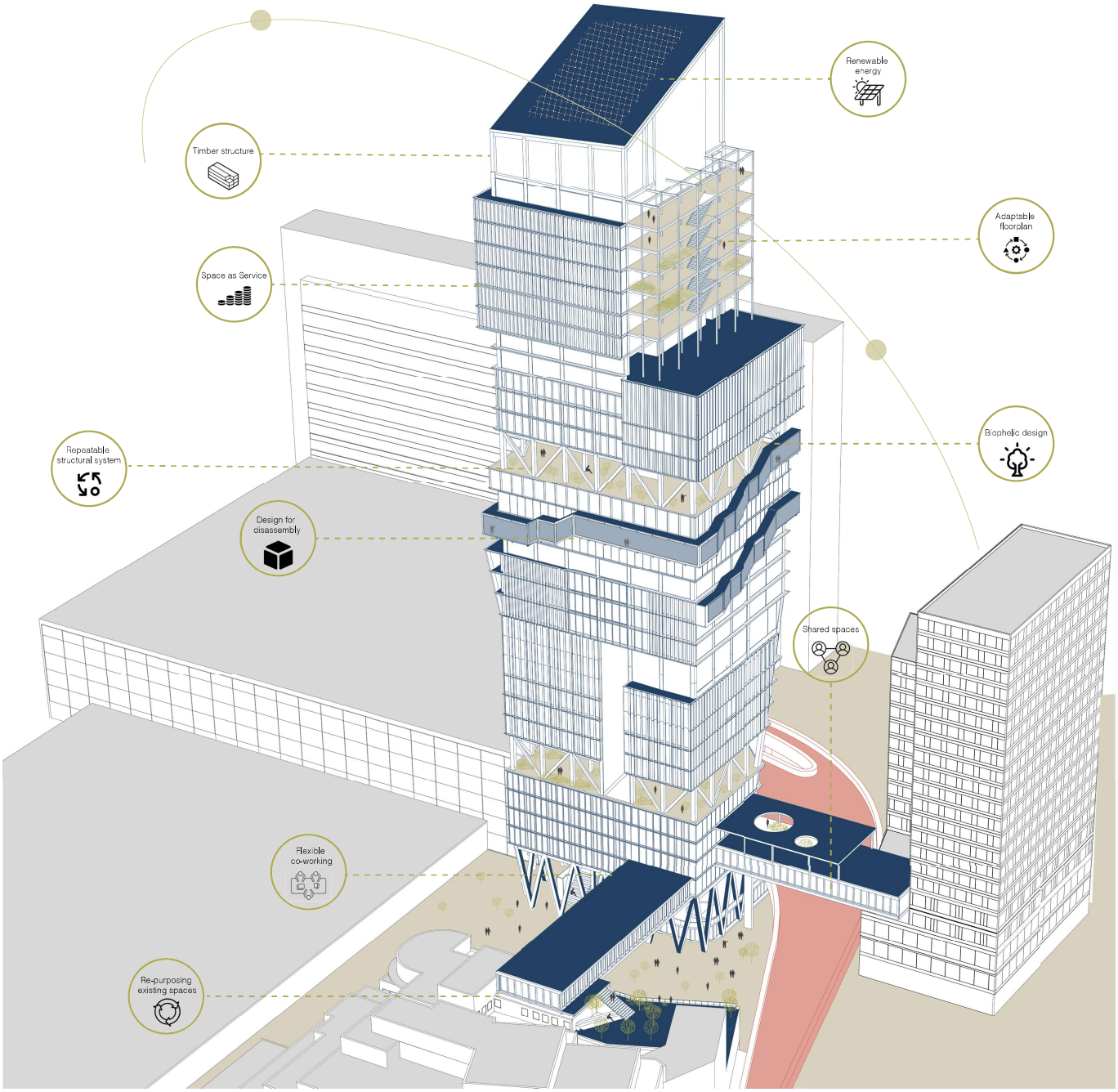
Biophilic design



Rainwater collection



Adjustable partitions



Circularity diagram/Shared spaces

Perspective views

Open platform

Open platform

Archive rooftop

Archive courtyard

Library

Connection with Leiden

Learning commons

Exterior corridor on classroom level

Research commons

Research commons

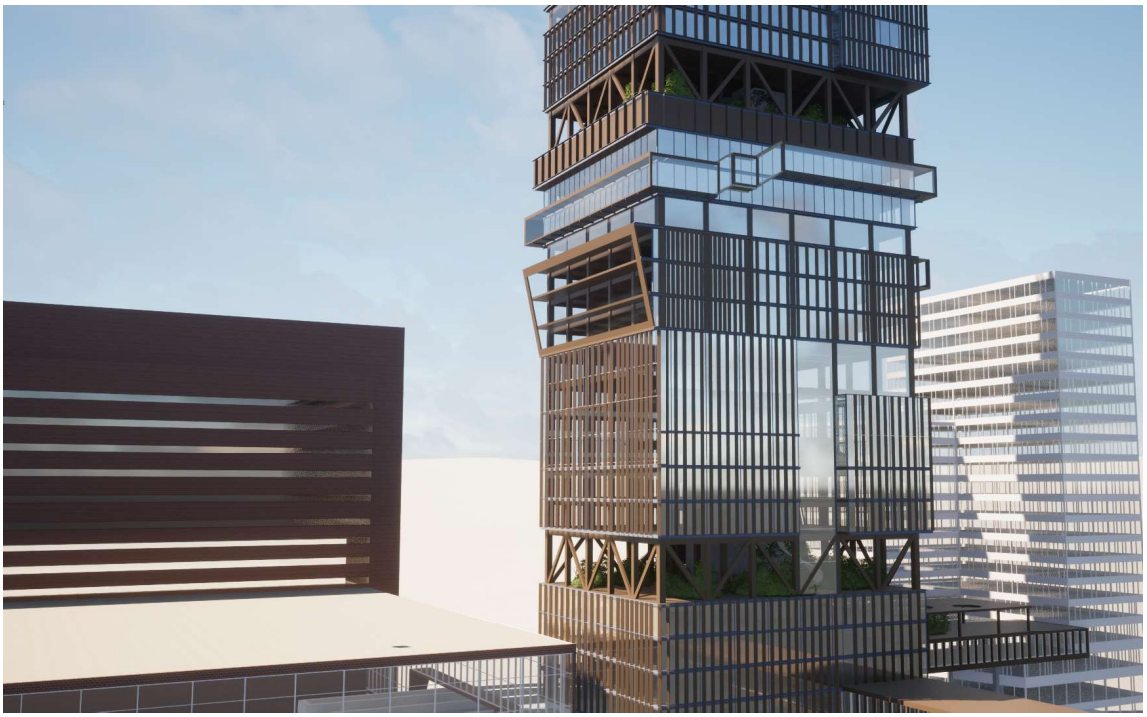
Office interior space

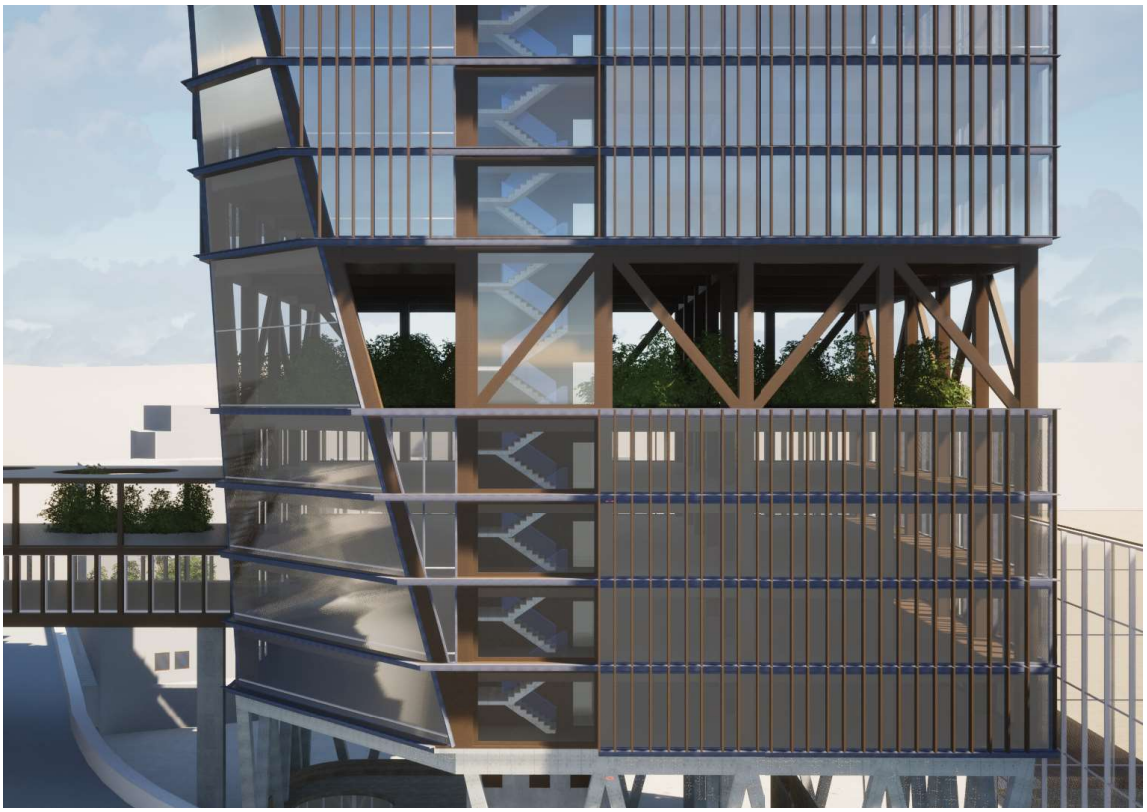
Office green space

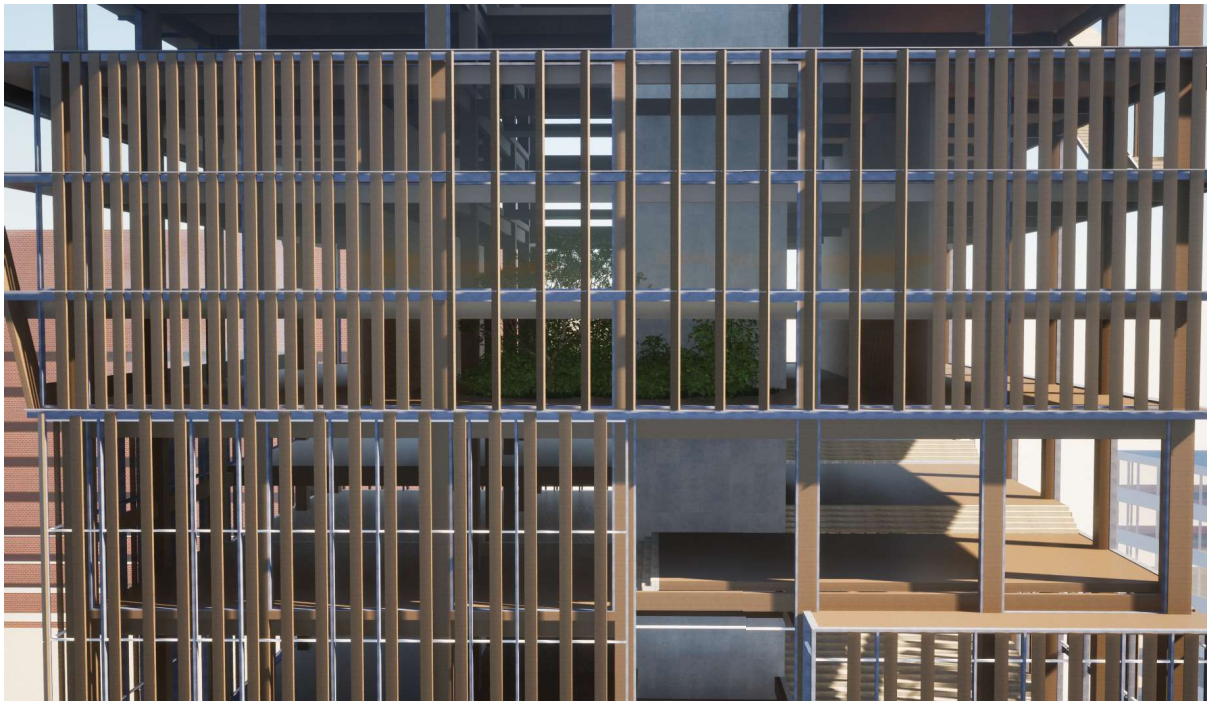
Sky garden

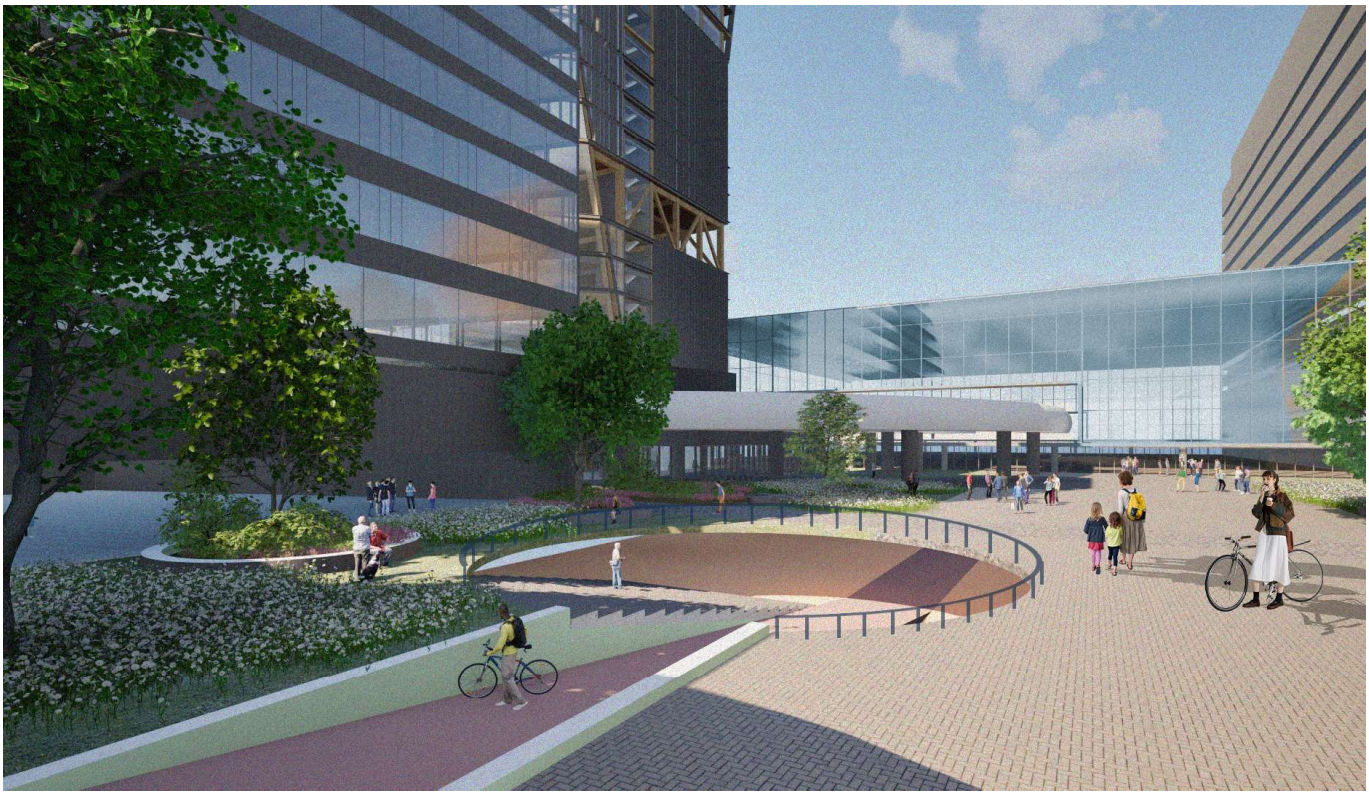
Sky garden

Exterior views









REFLECTION

1. The relation between the graduation project topic, the master track and the master programme.

Public building studio 2023-24 chose the dense Central Station area in The Hague as the site area. According to the city's long term strategy, a significant rise in urban center density is anticipated in the next 30 years, especially within the area of interest. The Central station area, because of its character as a diverse multimodal transportation network, will be at the epicenter of research and future development. The studio topic focuses on this change and endeavors to investigate how to blend vertically configured educational buildings and facilities into The Hague's fast-growing center of the Dutch national government and international institutions around The Hague Central Station.
My graduation project is exploring the transformation of this dense station area through developing connections between existing infrastructures and the new campus building. The project strategy was shaped by the findings stemming from the contextual investigation, which brought forward the potential the site area has to offer. Through the method of research-by-design, the project explores an approach to densification by engaging with porosity, permeability, and connectivity. At the same time, the development of a hybrid timber high-rise and the research on such structures lie at the core of the project. The emergence of timber high-rise buildings constitutes a promising avenue in sustainable urban development, offering benefits such as reduced carbon emissions, enhanced structural performance, and fostering a more environmentally-conscious built environment.
The TU Delft community, and the MSc Architecture, Urbanism and Building Sciences program in particular, are at the forefront of developing solutions for current global issues such as urban densification, sustainability in construction materials and inclusive urban environments. My project aligns with the objectives and context of my master track in Architecture, by developing a strategy for a sustainable, self-sufficient, and responsive architecture.

2. The influence of the research on the design and vice versa.

The development of the initial project topic, as well as the final design approach, were a direct result of the interactive relationship between research and design. In architecture, the symbiotic relationship between research and design forms the cornerstone of innovative and experimental built environments. Research serves as the foundation upon which design decisions are based, offering insights into historical precedents, cultural contexts, technological advancements, and environmental considerations. This informed perspective guides the design process, fostering creativity and critical thinking to address complex issues. Conversely, design acts as a vehicle for translating research findings into tangible solutions, manifesting concepts into physical forms that shape the built environment. The iterative nature of this relationship allows for continuous refinement and adaptation of the design project, while the developed strategy and findings of the design process contribute to the general research and pass the torch on to future projects.
At the beginning of the thesis project, research was a key component in formulating the problem statement and the conceptual framework of the project. Qualitative and quantitative data processing, case study analysis and literature review enriched the problem statement and the project's directions by providing comprehensive insights, contextual understanding, and evidence-based analysis, establishing a solid groundwork for addressing these challenges effectively. During the two semesters, research and designing efforts led to certain design loops and constant questioning of the ambitions and the means to achieve the final design and evaluate its potential impact.
Research-by-design was at the very core of the Public Building studio. The project's design outcome derives from a series of conceptual investigations through various means like collages, mapping, written essays, and further on through drawings and models. Within this journey from concept to design and back again, a creative process intertwines design and research into an inseparable unity.

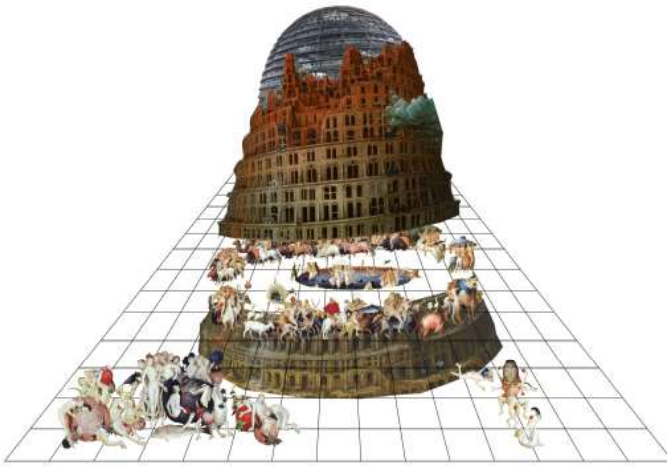


Figure 1: Photomontage created as part of the Research-by-design
Student's own work

3. The value of the personal way of working (approach, methods, how the feedback from tutors was translated into my work).

Based on the organization of the studio and my personal approach to the graduation project process, the work was divided into three design phases, some occasion-

ally overlapping during certain periods of time. The first design phase revolved around the formation of a personal manifesto, a strategy that would become the core of the design. Throughout this phase, I indulged myself in research about the site area. This context-led approach significantly influenced the formation of my intentions and strategy for both the building and urban scale of the project. At the same time, a thorough literature review is crucial during the design process, as it provides valuable insights into relevant precedents, contemporary global and local issues, and innovative methodologies, enriching the design exploration and fostering informed decision-making.
The second design phase focused on converting the outcomes of the research into an actual design. Experimentation with the form and shapes of the building, as well as further investigation on the existing buildings and conditions of the site, in order to integrate them into the design, were the main focus of this phase. Furthermore, case studies play a pivotal role during this stage of the design process by offering practical examples, insights, and lessons learned from real-world projects. During the third design phase, the focus shifted towards the technical aspects of the project and a more detailed documentation of its spaces and interventions. Throughout these three phases, trial and error was integral to the design process, as it allowed for experimentation with various ideas, refinement of concepts, and discovery of unforeseen opportunities or challenges, ultimately leading to the development of the final result.
Because of the complicated and multilayered nature of the project, it was inevitable on occasion to reach 'designing deadends'. Collaborating with the tutors and receiving their feedback were vital for overcoming these difficulties and acquiring a new perspective for the design.

Figure 2: Collage/Investigating the notion of weaving
Student's own work

4. Context led design approach

The context-driven design approach emphasizes a methodical examination and integration of site-specific parameters encompassing cultural, historical, environmental, and socio-economic factors. During the first design phase, investigating the contextual milieu, informed all aspects of the design process, ranging from comprehensive site analysis and programmatic articulation to spatial configuration. This approach aimed to facilitate the decision on how the new building will be embedded in its immediate context, enhancing the inherent qualities of the site, while addressing its challenges.
The initial research conducted during the first studio sessions focused on exploring the Central Innovation District of The Hague. This exploration directed my interest towards a more detailed documentation of several aspects: the extent of public space, existing patterns of space division, how private spaces are defined within existing buildings, and the influence of this relationship on the urban fabric of the city. The main research output supported the notion that the buildings on the site are functioning as distinct entities, yet they possess significant potential to be interconnected and utilized by various stakeholders due to their program and structure. Thus, the first step of the proposal was to assess existing infrastructures, buildings, and public spaces, and determine possible reuse of spaces and potential relations and connections that have not been established yet. This led to the concept of 'weaving' as a method to integrate existing spaces with the new campus building, positioning it at the center of this novel urban entity.

5. The academic and societal relevance, scope and implication of the graduation project, including ethical aspects.

My graduation project addresses a series of issues that are relevant to the larger architecture community such as urban densification and its implications, the social value of reinventing the public space of these dense environments and the integration of hybrid and sustainable solutions to the design. These topics of investigation integrate social, economical and environmental perspectives, and thus, the project offers the potential for further research and elaboration from various academic viewpoints. The project, also, addresses the notion of integration into a given (urban) context, refusing the existing approach of inserting yet another " closed envelope" into the city fabric, while providing functional spaces for gathering, learning, and recreation, promoting social interaction and connectivity. Furthermore, the proposed strategy of "weaving" existing and new elements on the site brings forward the issue of neglecting what already exists, because of the urge to build entirely new infrastructures and completely demolish the obsolete ones. The project could provide a possible answer on how to build future-proof environments, well integrated into their environment that act as catalysts for urban regeneration.

6. Ethical issues

While densification can promote efficient land use, reduce sprawl, and enhance public transportation, it may also exacerbate issues such as gentrification, displacement of marginalized communities, and unequal access to affordable housing and amenities. Additionally, increased density can strain infrastructure, heighten pollution levels, and diminish green spaces, impacting the quality of life for residents of the area. Throughout the

design process, I tried to consider all possible implications that the design of a high-rise could evoke for the public. Inevitably, in every project the architect is forced to make tough decisions, in an attempt to balance, for instance, the demands and aspirations of the client (the city of The Hague), their impact on the community, and the actual needs of the people of the area.

7. Multiplicity and Prosperous Densification

To enhance the long-term sustainability of our cities, a shift away from the practice of demolishing and reconstructing buildings, based solely on changing needs, is imperative. Repurposing existing structures for new functions, instead of demolishing them, promotes sustainable development and brings forward urban dynamics that might not have been evident before. Adaptive reuse and repurpose projects can breathe new life into underutilized buildings while reducing construction waste and energy consumption. Furthermore, embracing more resource-conscious strategies entails designing environments that are inherently productive, versatile, and adaptable, thereby maximizing utilization of the available resources.

Multiplicity in design enables architects to maximize the efficiency of space, by accommodating multiple functions within a compact footprint. Designing buildings and neighborhoods that integrate a mix of residential, commercial, and recreational spaces fosters a vibrant urban environment where people can live, work, and socialize within proximity.

The graduation project relies on the re-evaluation of existing conditions and incorporates spaces from the adjacent buildings into the new design for the area. The common denominator, for shaping this new urban ensemble, is the idea of the public campus. Design interventions that are flexible and desmantable activate parts of buildings (terraces, ground floors, upper floors) and thus, create a web of educational and public spaces. The new high-rise building, being at the core of the site redevelopment, attempts to address the need for densification, by employing an alternative way of stacking. The main purpose was to manipulate the volumes in a manner that allowed connections between the different levels and to provide open public spaces, arranged vertically rather than being found exclusively on the ground floor of the building.

8. The value of the transferability of the project results.

The project is developed as a strategy that can be applied to different contexts and places that deal with the need for densification and urban revitalization. The building acts as an urban system of connected public spaces on different levels of different buildings. Between these spaces and the connecting interventions the programme can be arranged, changed over time and achieve diverse combinations of mixed use. The methodology of weaving new building volumes with the layers of existing context could act as a learning tool and a research subject. It could serve as a case study, offering insights into ways a new high-rise building can be embedded to its context and create symbiotic relations, while being able to adapt to future changes and needs.

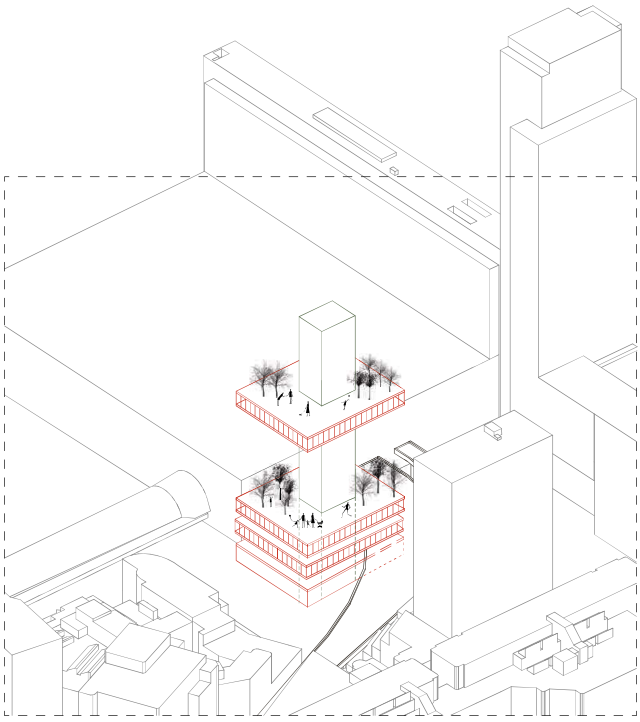


Figure 3: Axonometric diagram of the public platforms

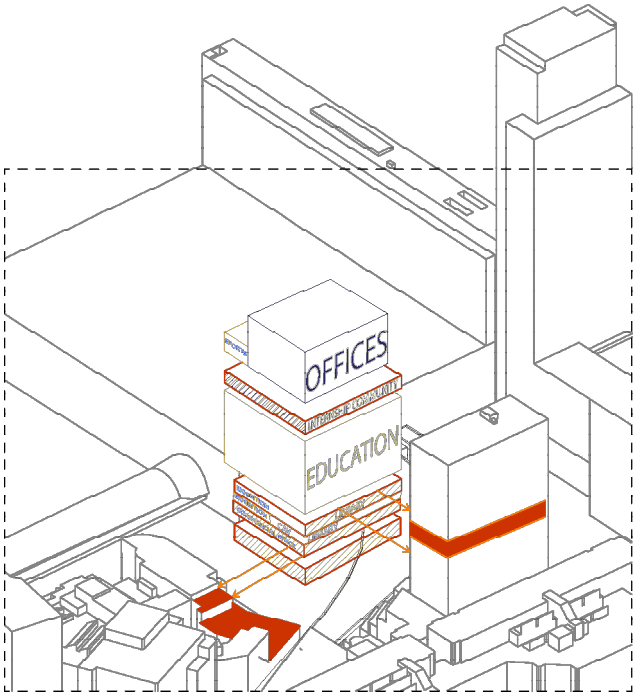


Figure 3: Axonometric diagram of the programmatic clusters