

# The Framework for Education

*Unification, Revitalisation, A Framework, The Educational Centre & Embodiment of Experimental Nature and Process - For The Public*

## Set of Drawings

Bart Ramakers  
Public Building Graduation Studio  
2023-2024



**Delft University of Technology**

Faculty of Architecture and The Build Environment  
Graduation Report for Master Of Science in Architecture,  
Urbanism, Landscape Design and Building Technology

**Public Building Graduation Studio**

The Vertical Campus - A Public Hub of the Future in The Hague  
AR3AP100  
2023-2024

**Mentors**

First mentor (Project Design) Ir. Paul Kuitenbrouwer  
Second mentor (Theory & Delineation) Ir. Gosia Golabek  
Third mentore (Technical Building Design) Dr. Piero

**Head of Public Building Group**

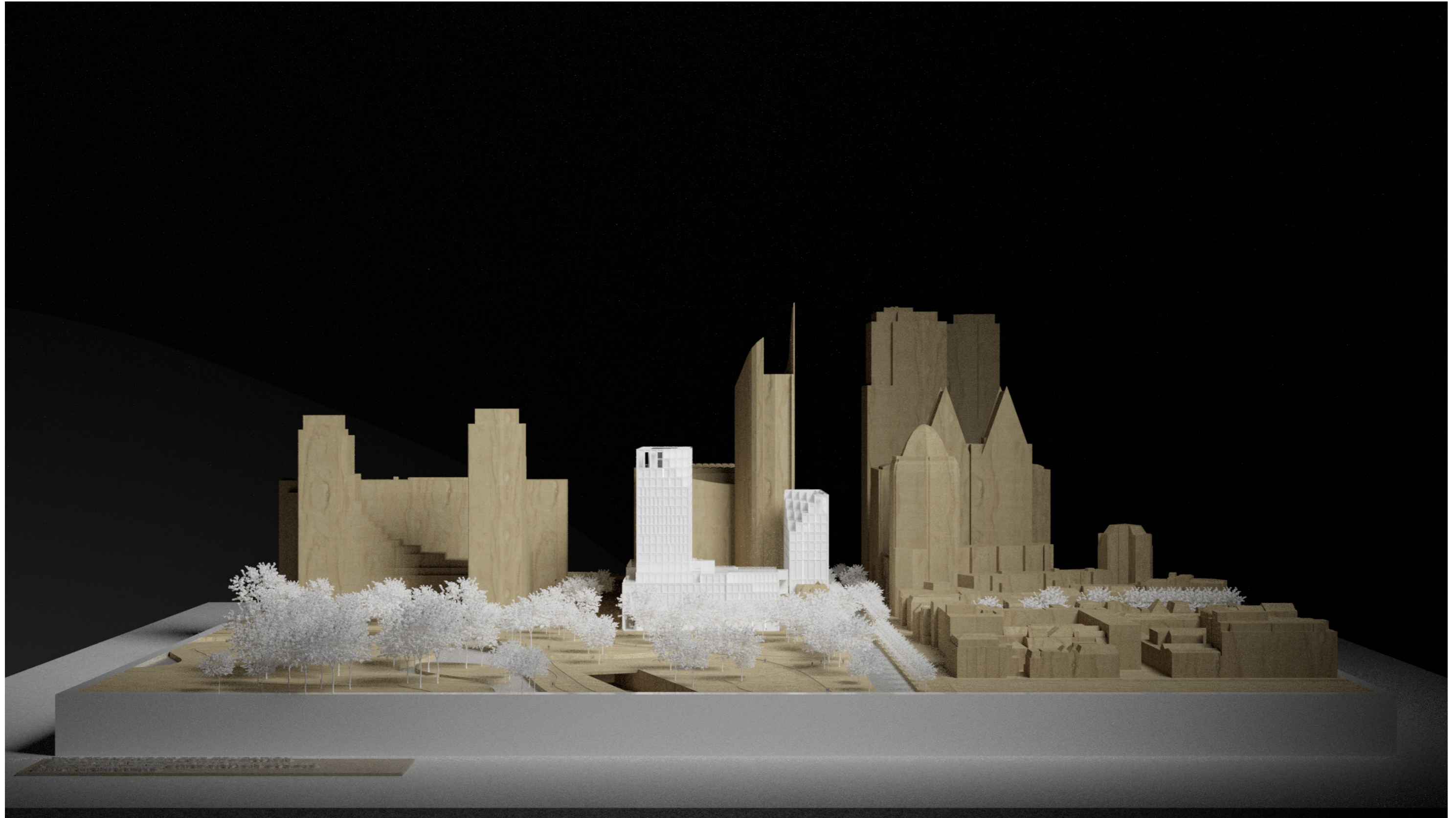
Prof. Ir. Nathalie de Vries (founding partner MVRDV)

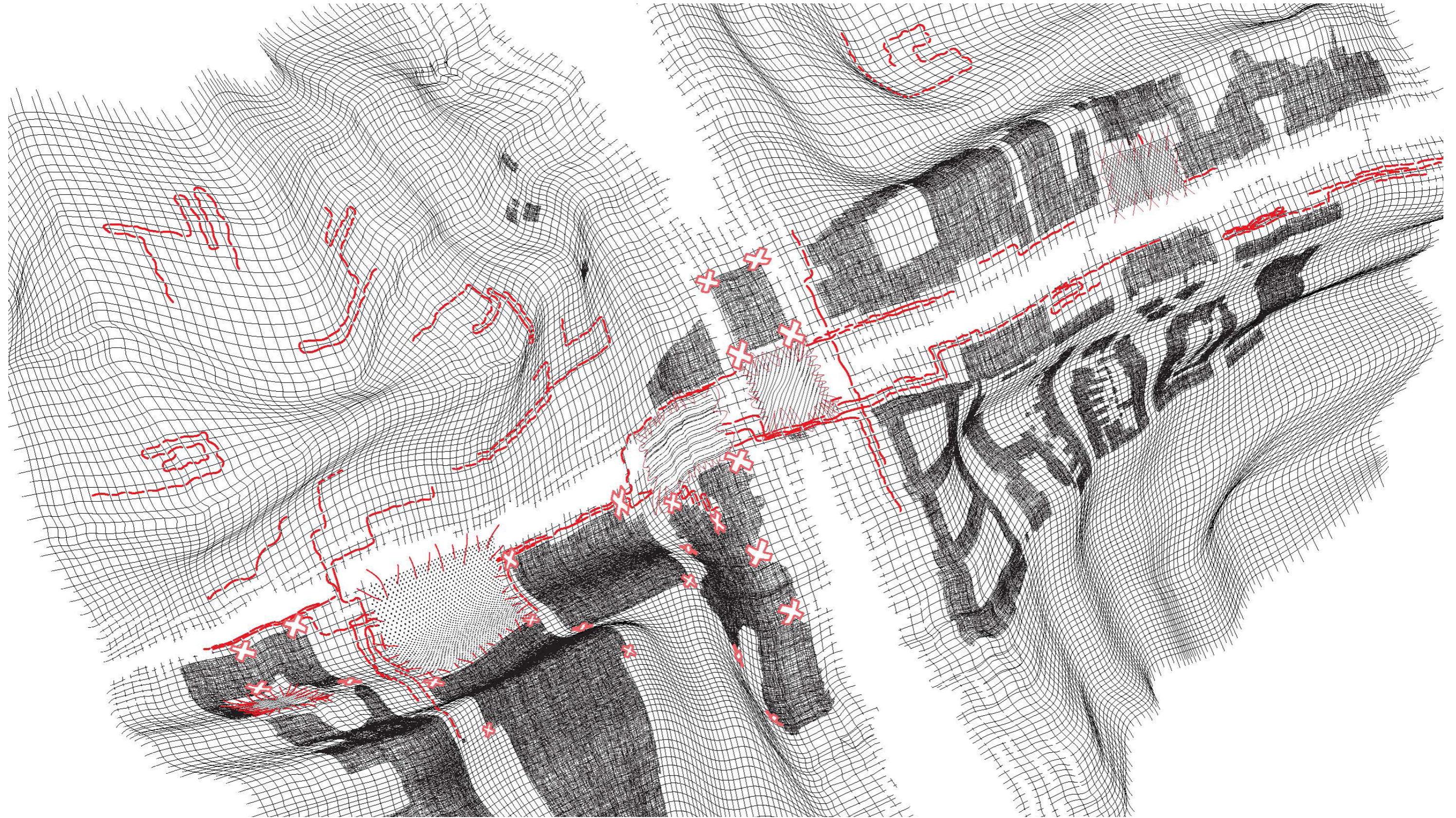
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## Situation Overview

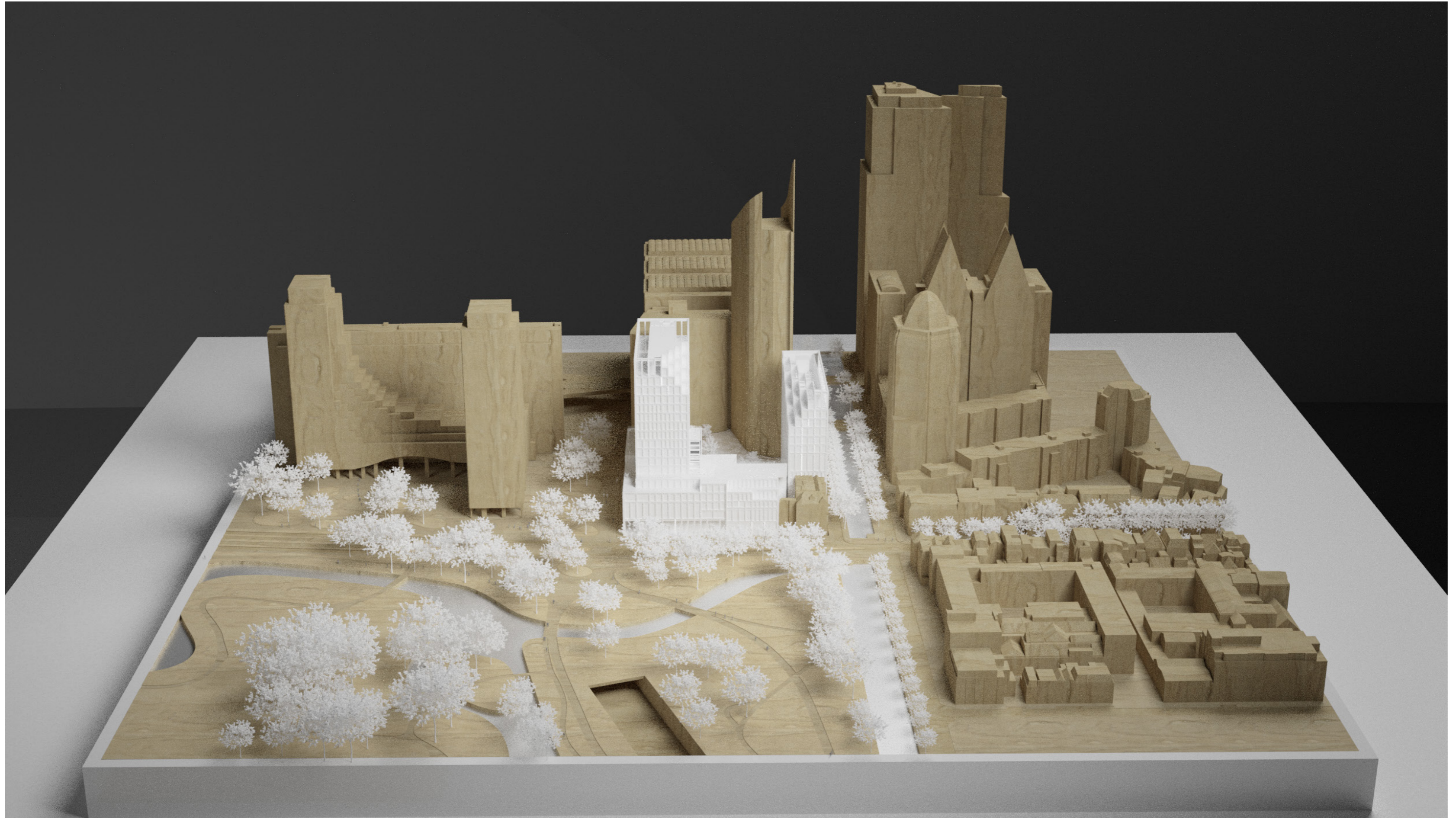
Computer Generated Image of a 1:500 Physical Model

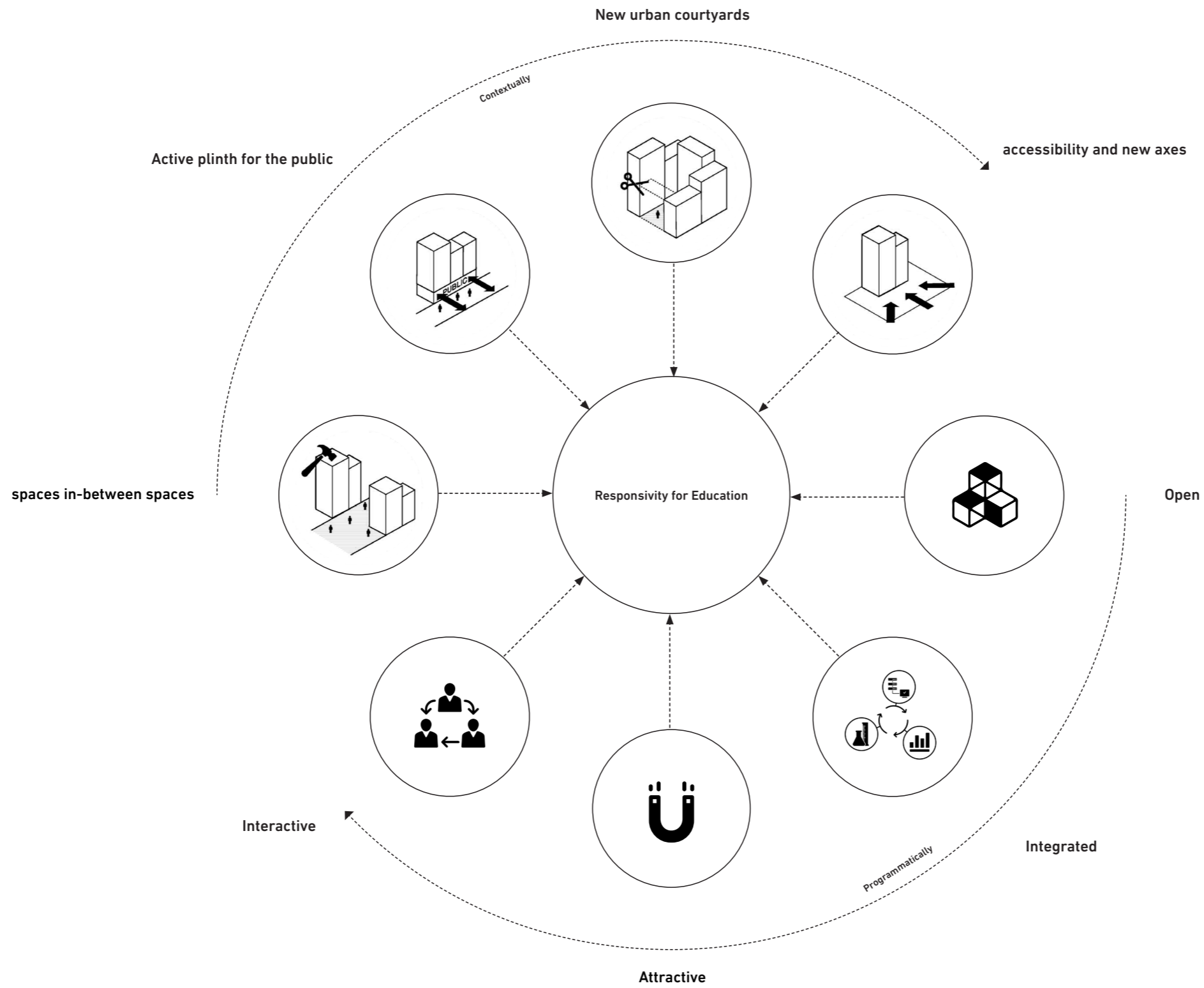




## Situation Overview

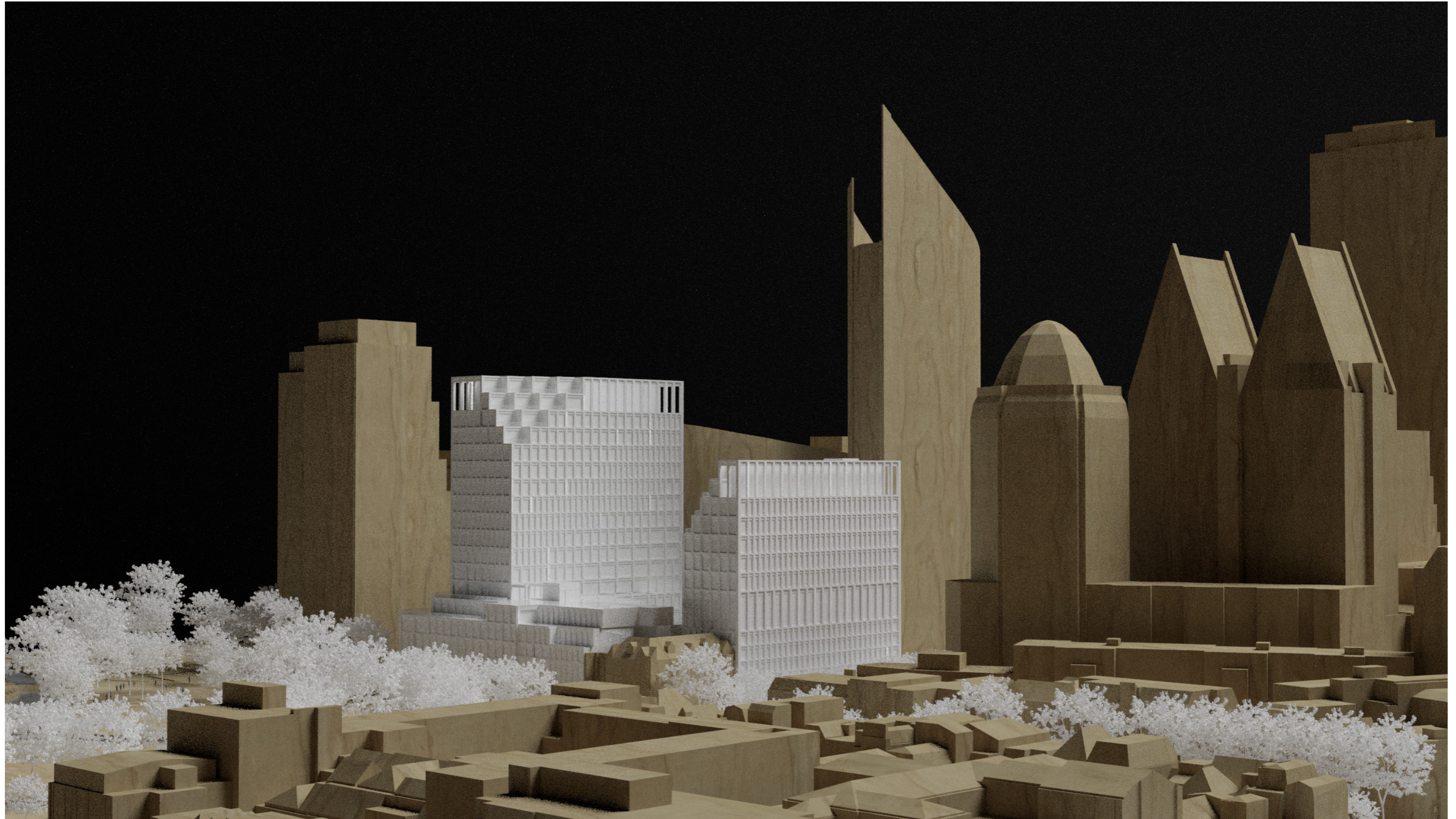
Computer Generated Image of a 1:500 Physical Model

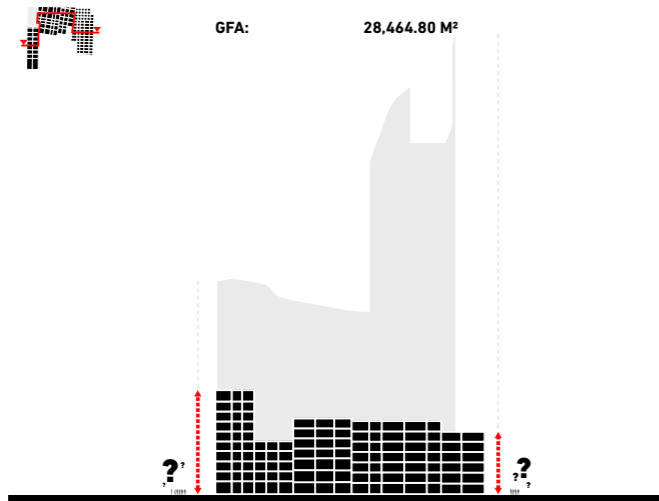




## Situation

Computer Generated Image of a 1:500 Physical Model

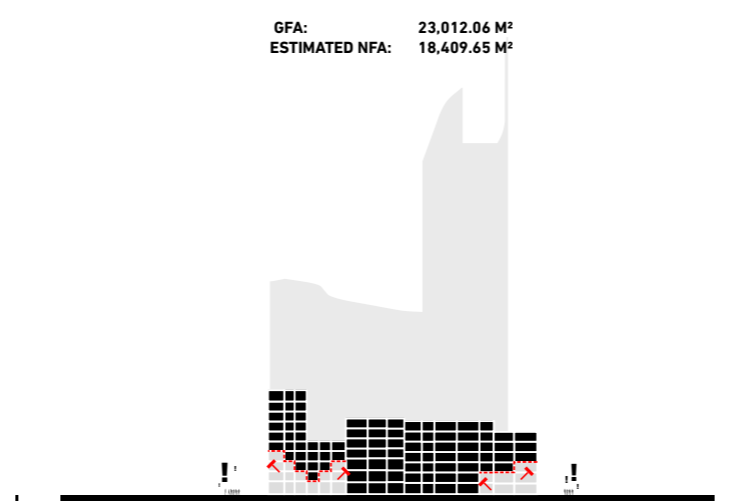




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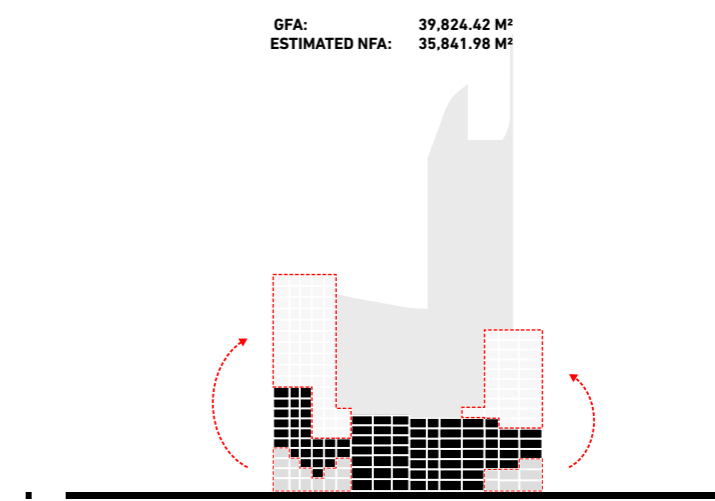
? ?

VERTICAL BORDER AT FUTURE CITY GATE



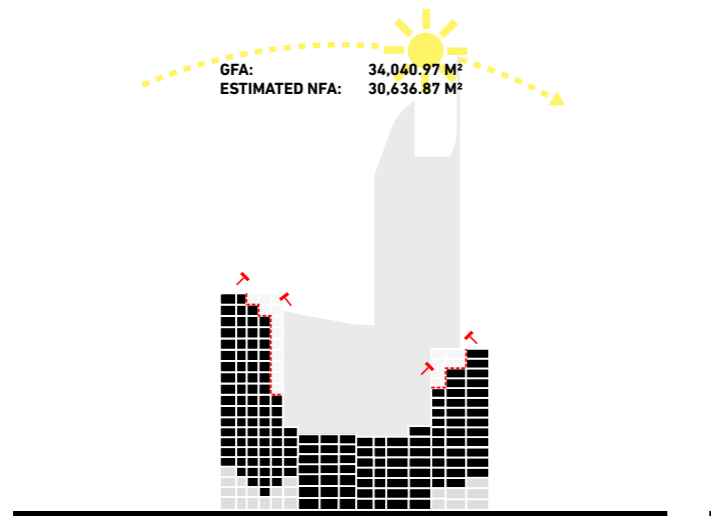
GFA: 23,012.06 M<sup>2</sup>  
ESTIMATED NFA: 18,409.65 M<sup>2</sup>

CARVING OUT CAVE AS GATE TO INNER COURTYARD



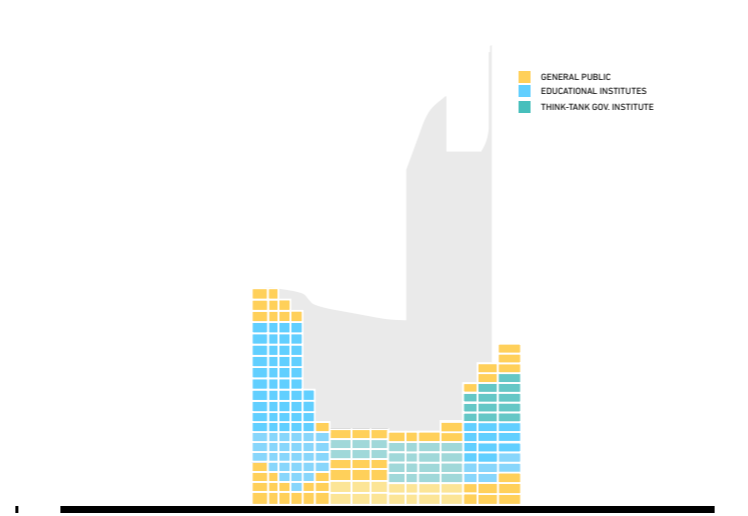
GFA: 39,824.42 M<sup>2</sup>  
ESTIMATED NFA: 35,841.98 M<sup>2</sup>

RELOCATION OF LOST FLOOR AREA + NEW PROGRAM

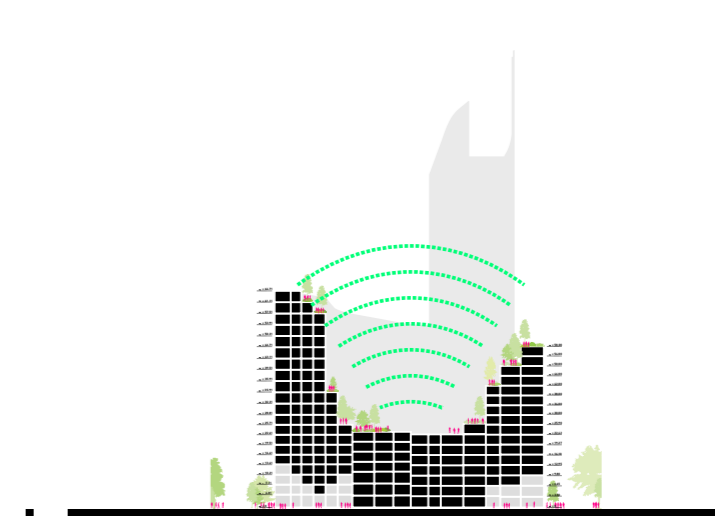


GFA: 34,040.97 M<sup>2</sup>  
ESTIMATED NFA: 30,636.87 M<sup>2</sup>

ADAPTING INNER FACING FACADES  
SOLAR ORIENTATION, VISUAL CONNECTIVITY



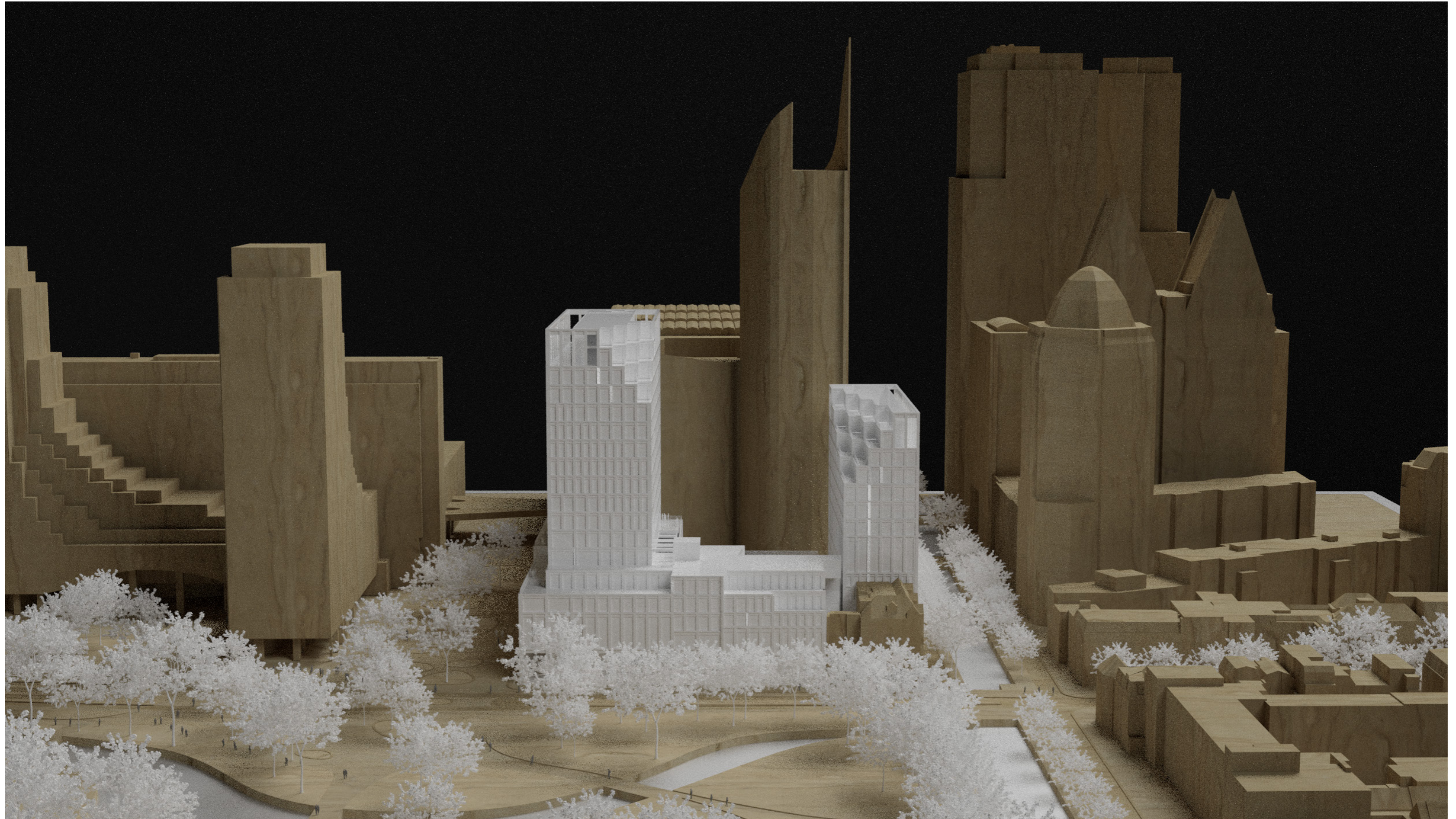
HIGH-LEVEL PROGRAMMATIC ORGANISATION  
AS REFLECTION OF URBAN CONTEXT

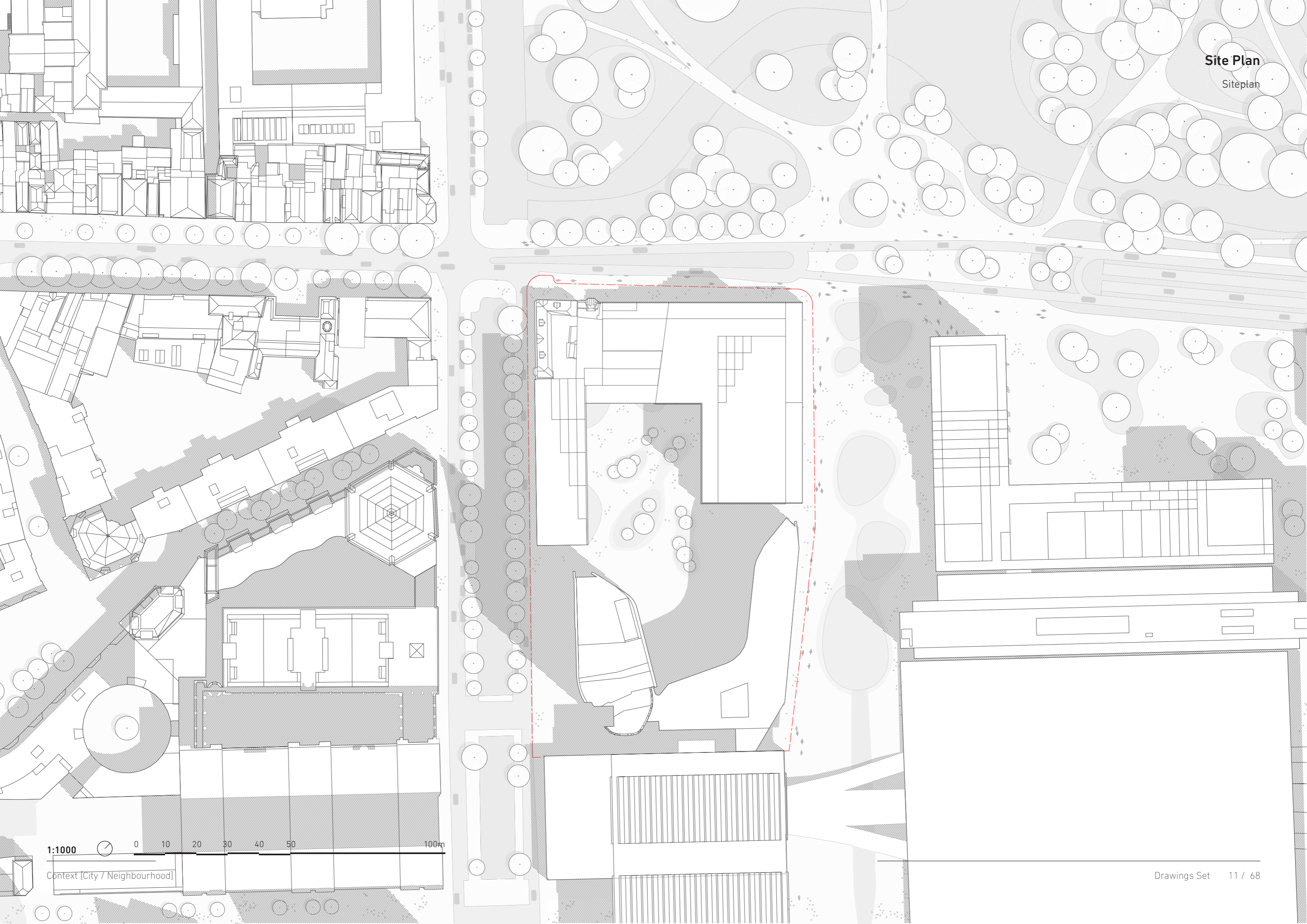


BREAKING UP POWER CLUSTERS WHILST ACTIVATING UNDER-UTILIZED URBAN REALM  
MODERN INTERPRETATION OF HISTORIC CAMPUS TYPOLOGY

## Situation Overview

Computer Generated Image of a 1:500 Physical Model



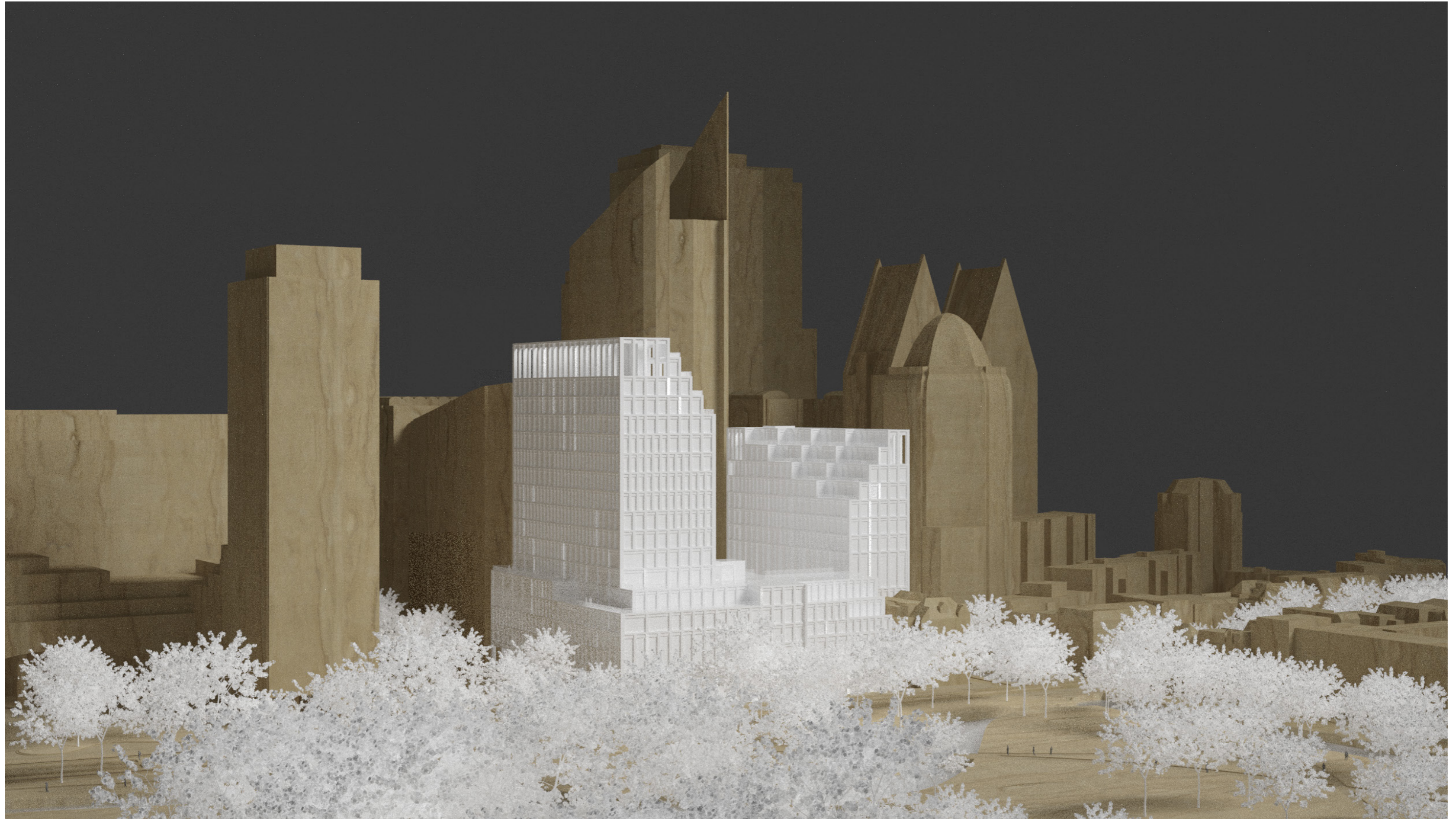


1:1000 0 10 20 30 40 50 100m

Context [City / Neighbourhood]

## Situation Overview

Computer Generated Image of a 1:500 Physical Model



Plan Drawing

Nolli - Ground Floor Embedded in Context



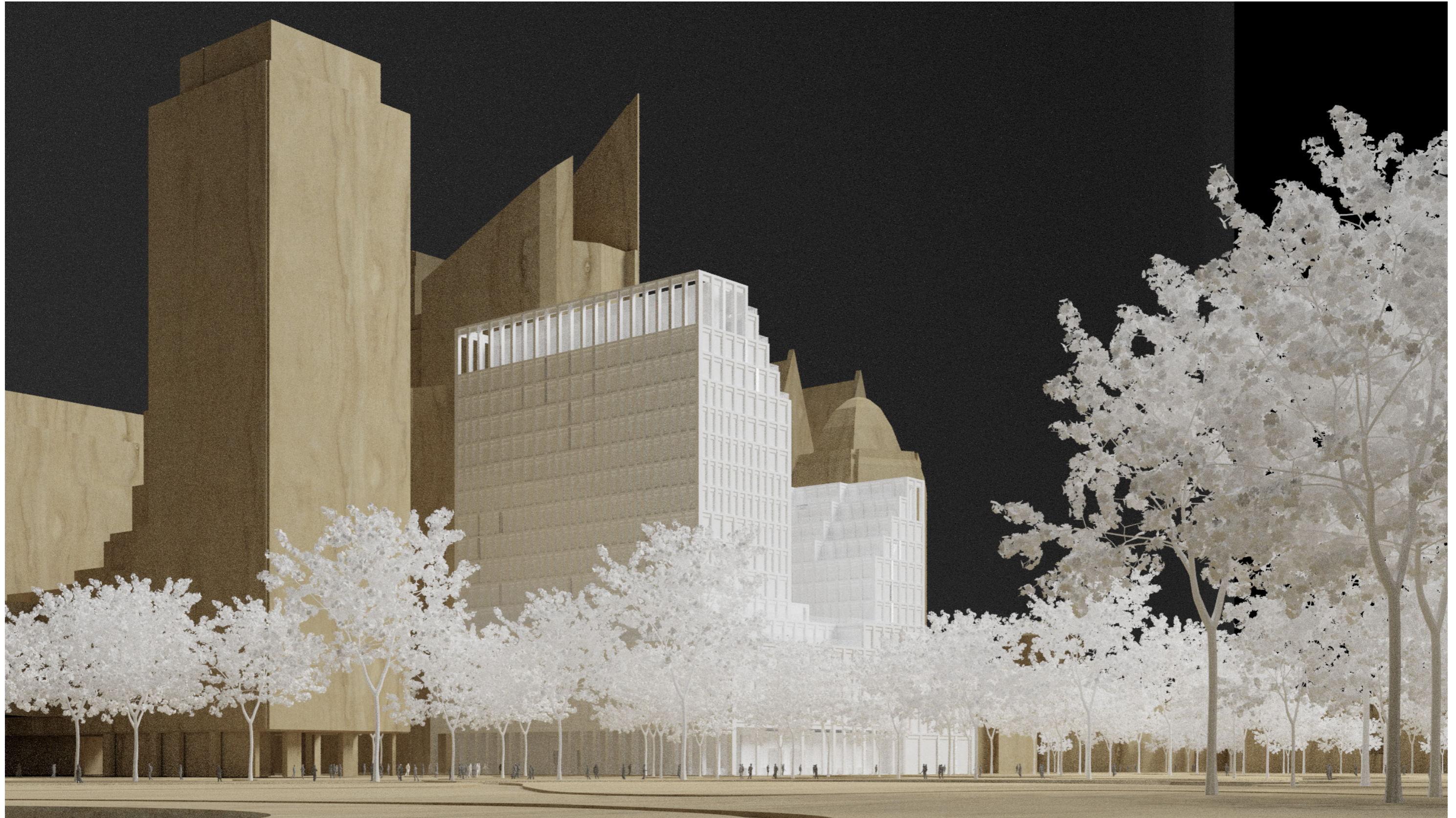
1:1000 0 10 20 30 40 50 100m

Context Only / Neighbourhood

Drawings Set 13 / 68

## Situation Overview

Computer Generated Image of a 1:500 Physical Model





1:500



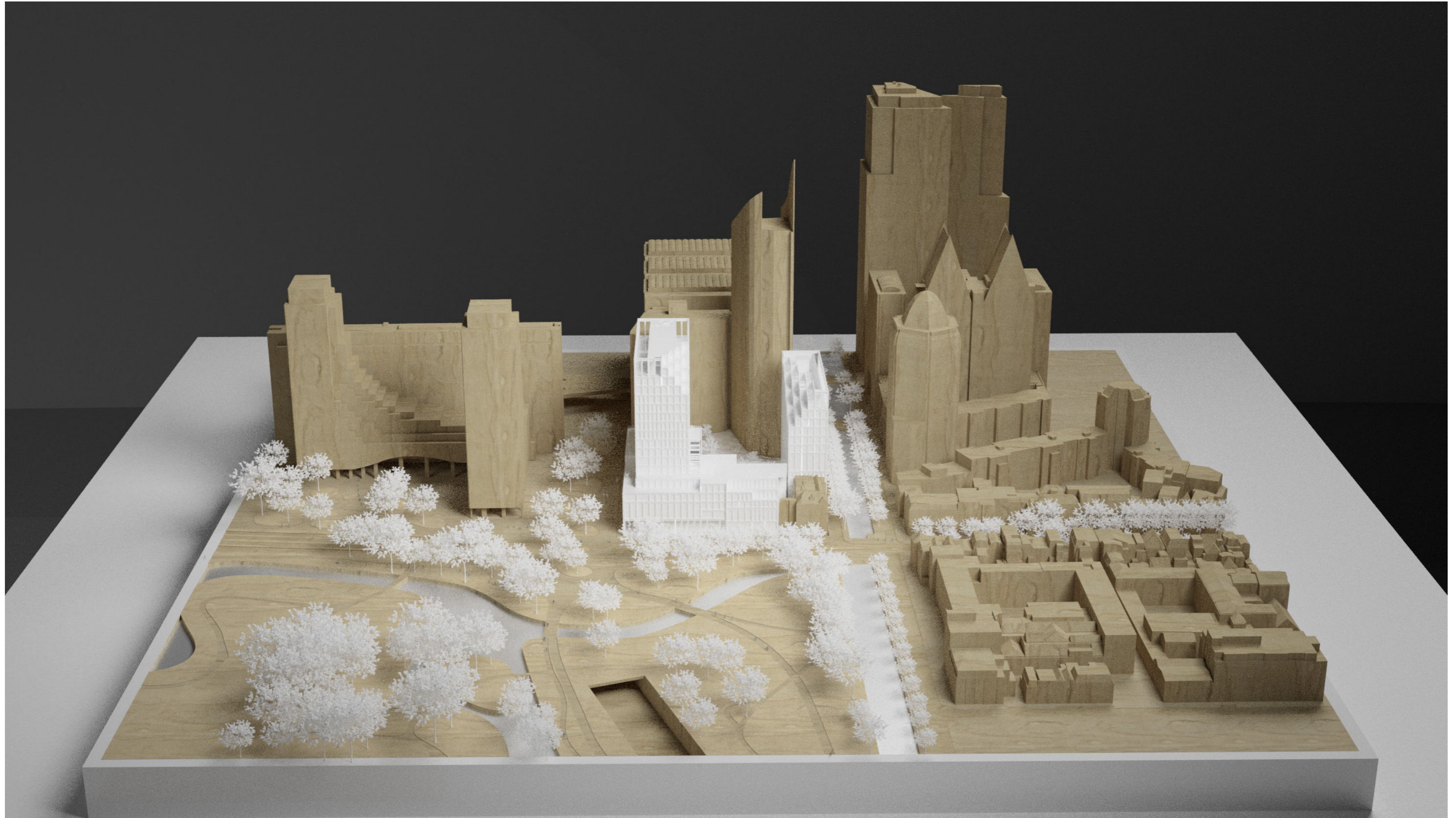
0 5 10 15 20 25

50m

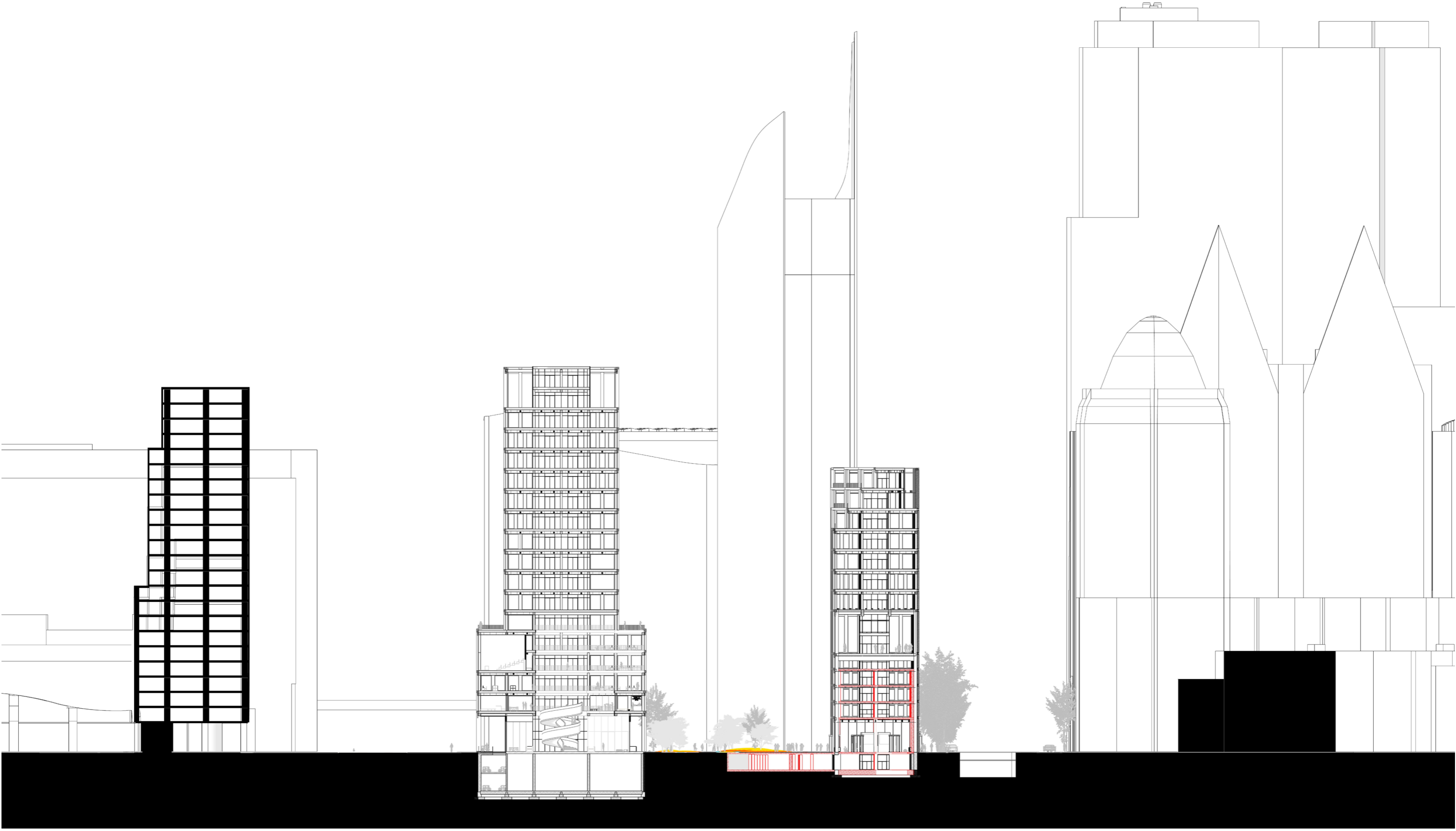
Context [City / Neighbourhood]

## Situation Overview

Computer Generated Image of a 1:500 Physical Model



City Block and it's connectiviaCity block and it's new established axis and improved connectivity





View of main entrance, seen from Koningin Julianaplein



Walking towards the main entrance



View of main entrance, seen from Koningin Julianaplein



View of main entrance, seen from Koningin Julianaplein



View of main entrance, seen from Koningin Julianaplein



View from inner courtyard looking from The Ministry of Education, Culture and Science



View from inner courtyard looking from T2



View from Zwarteweg, looking at the entrance of Tower 2 at Oranjevuitensingel



View from Zwarteweg, looking at the entrance of Tower 2 at Oranjevuitensingel



View from Zwarteweg



View of main entrance, seen from Koningin Julianaplein



View from inner courtyard looking from The Ministry of Education, Culture and Science



View of main entrance, seen from Koningin Julianaplein



View from inner courtyard looking from The Ministry of Education, Culture and Science



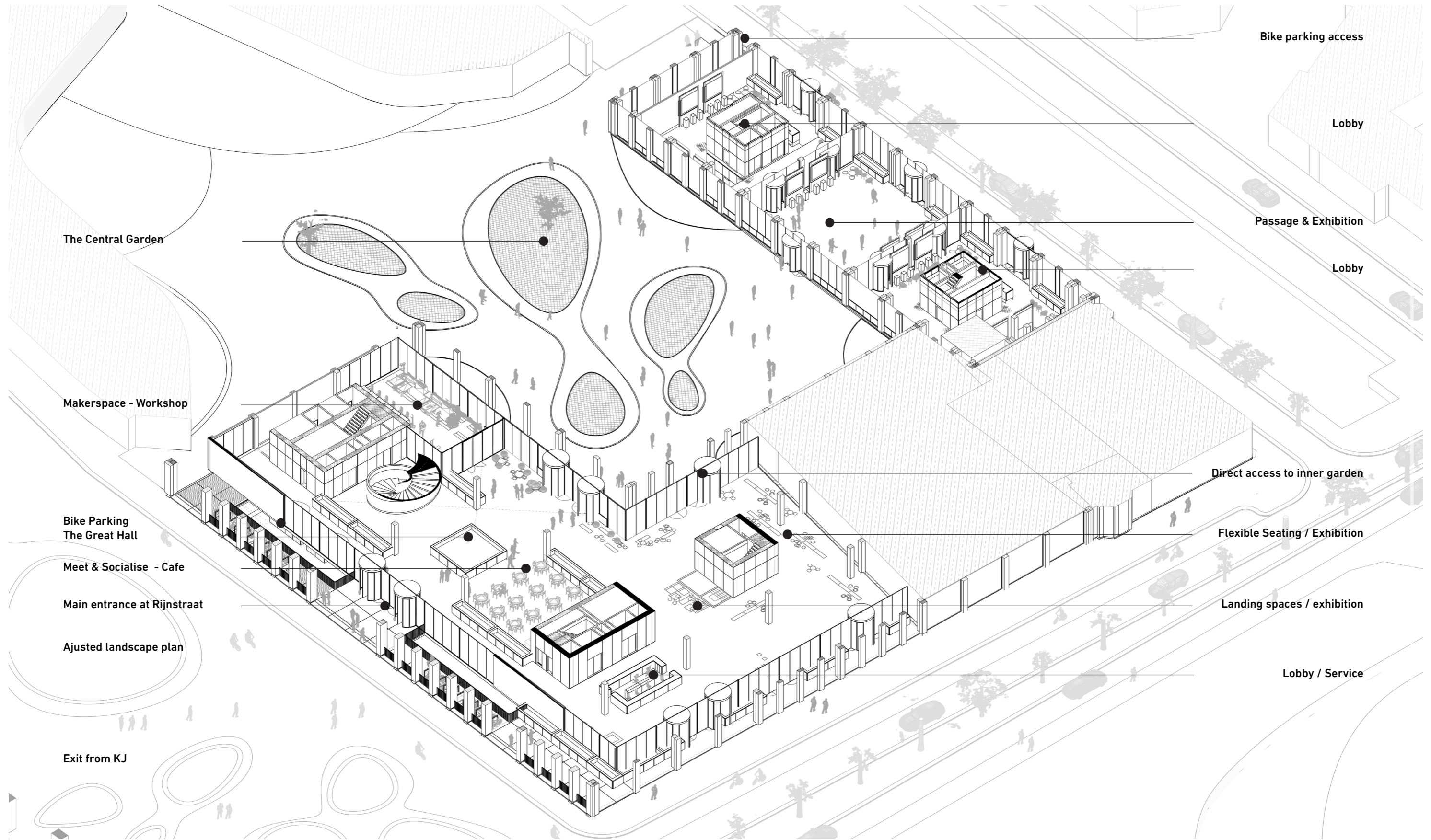
View from Zwartepad, looking at the entrance of Tower 2 at Oranjevuitensingel



View from Zwarteweg

# Axonometrics

First Floor



The Central Garden

Makerspace - Workshop

Bike Parking  
The Great Hall

Meet & Socialise - Cafe

Main entrance at Rijnstraat

Ajusted landscape plan

Exit from KJ

Bike parking access

Lobby

Passage & Exhibition

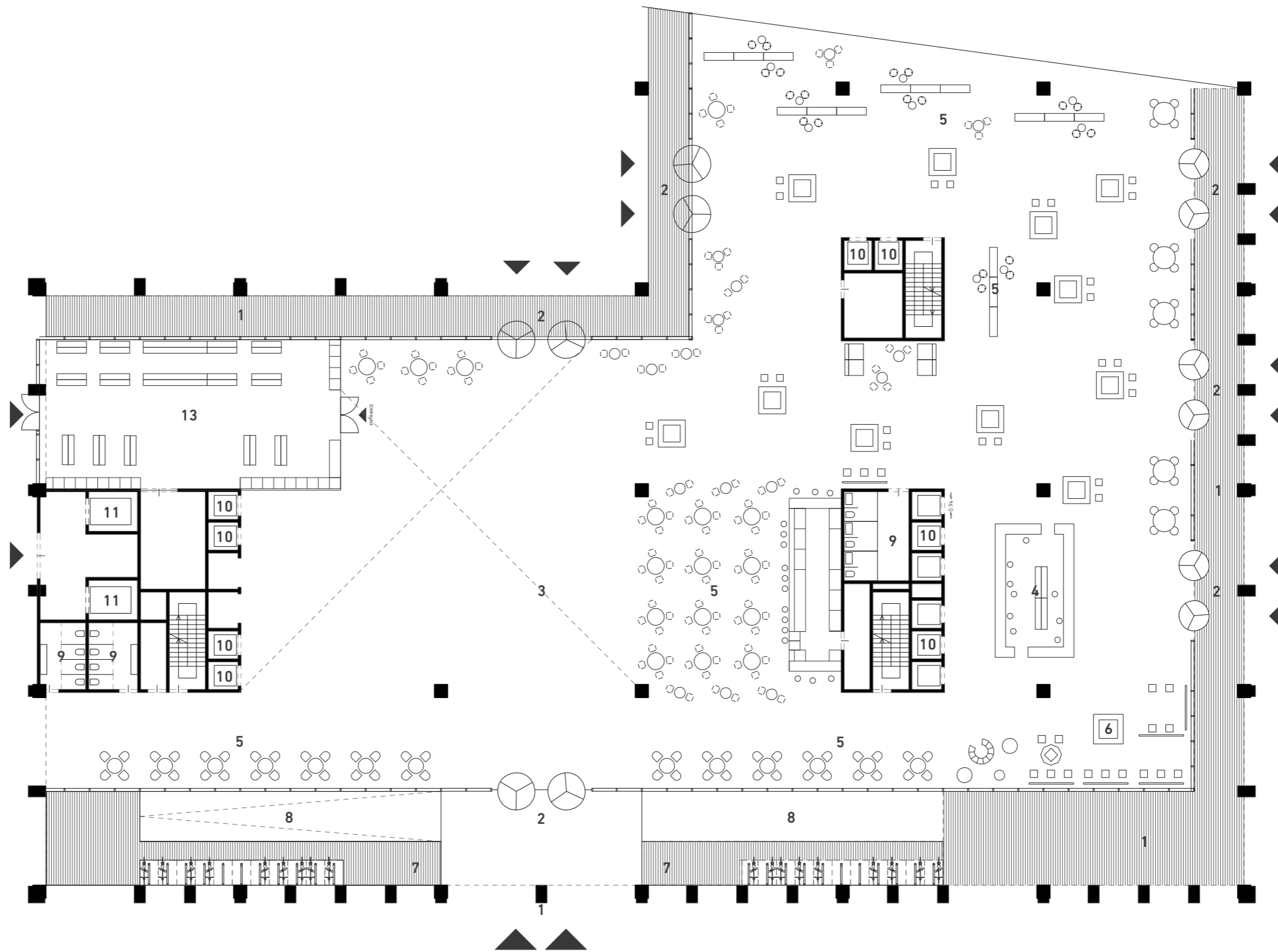
Lobby

Direct access to inner garden

Flexible Seating / Exhibition

Landing spaces / exhibition

Lobby / Service



**The Forecourt & The Great Hall**

- |                  |                   |                        |                      |                     |                   |
|------------------|-------------------|------------------------|----------------------|---------------------|-------------------|
| 1. The forecourt | 3. The great hall | 5. Cafe / lobby / flex | 7. Bike storage      | 9. WC               | 11. Service lifts |
| 2. Main entrance | 4. Reception      | 6. Exhibition spaces   | 8. Bike storage ramp | 10. Passenger lifts | 13. Workshop      |

1:200

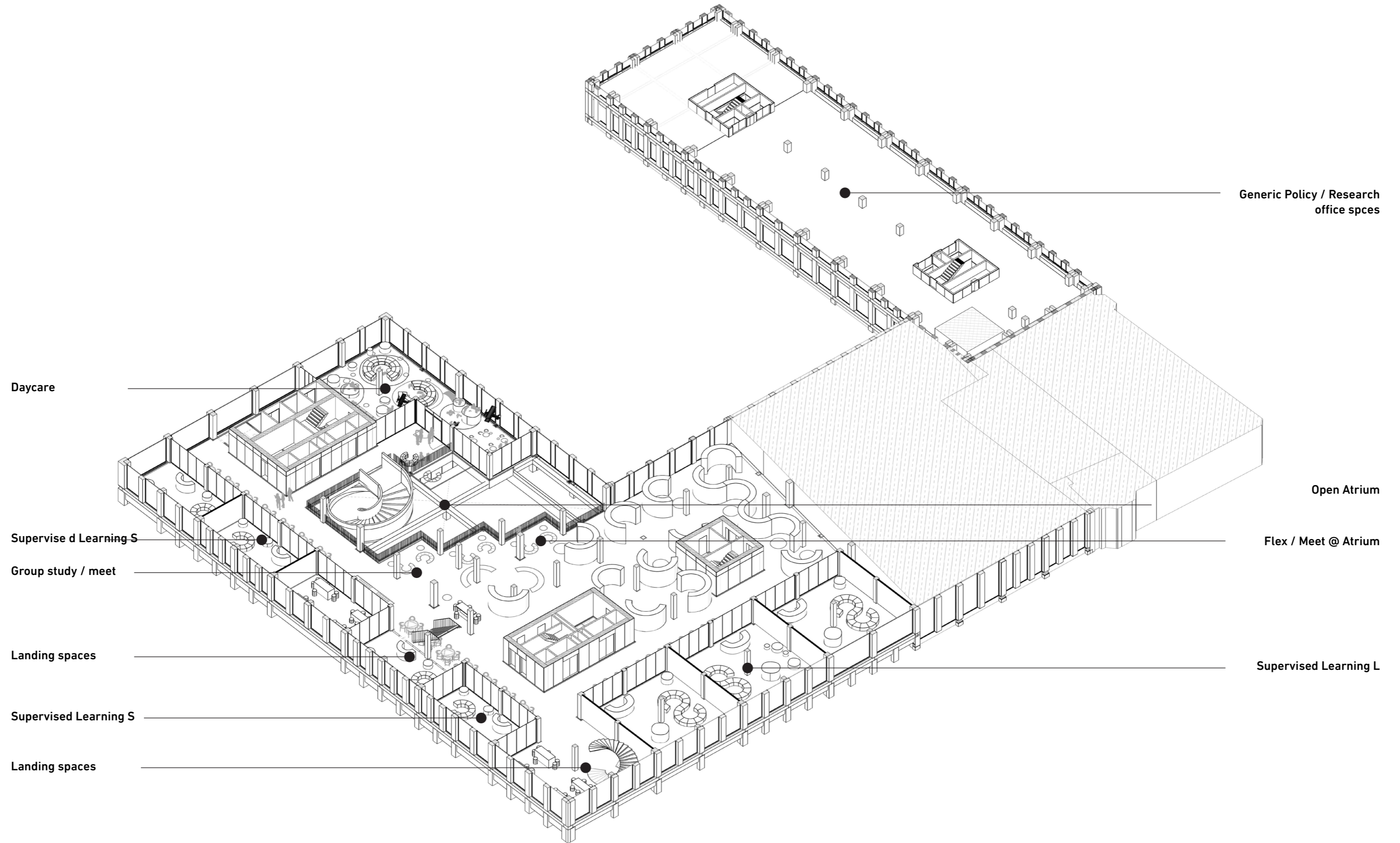


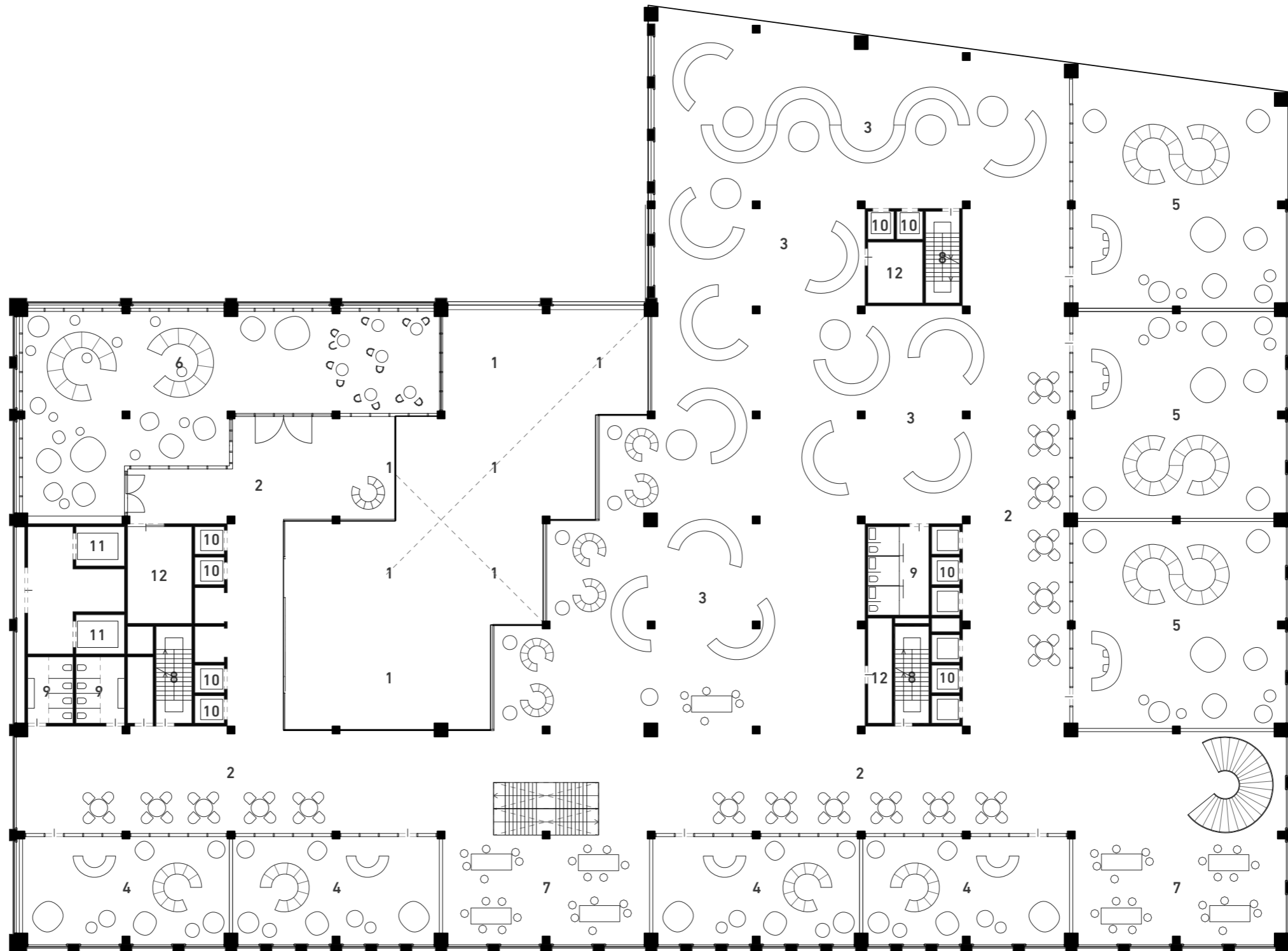
0 2 4 6 8 10

20m

# Axonometrics

Second Floor





**Play & Learn**

- |                           |                            |                            |                    |                     |                   |
|---------------------------|----------------------------|----------------------------|--------------------|---------------------|-------------------|
| 1. Atrium                 | 3. Open Playground         | 5. Supervised learning (M) | 7. Breakout spaces | 9. WC               | 11. Service lifts |
| 2. Lounge / Meet / Invite | 4. Supervised Learning (S) | 6. Day-care centre         | 8. Escape stairs   | 10. Passenger lifts | 12. Storage       |

1:200

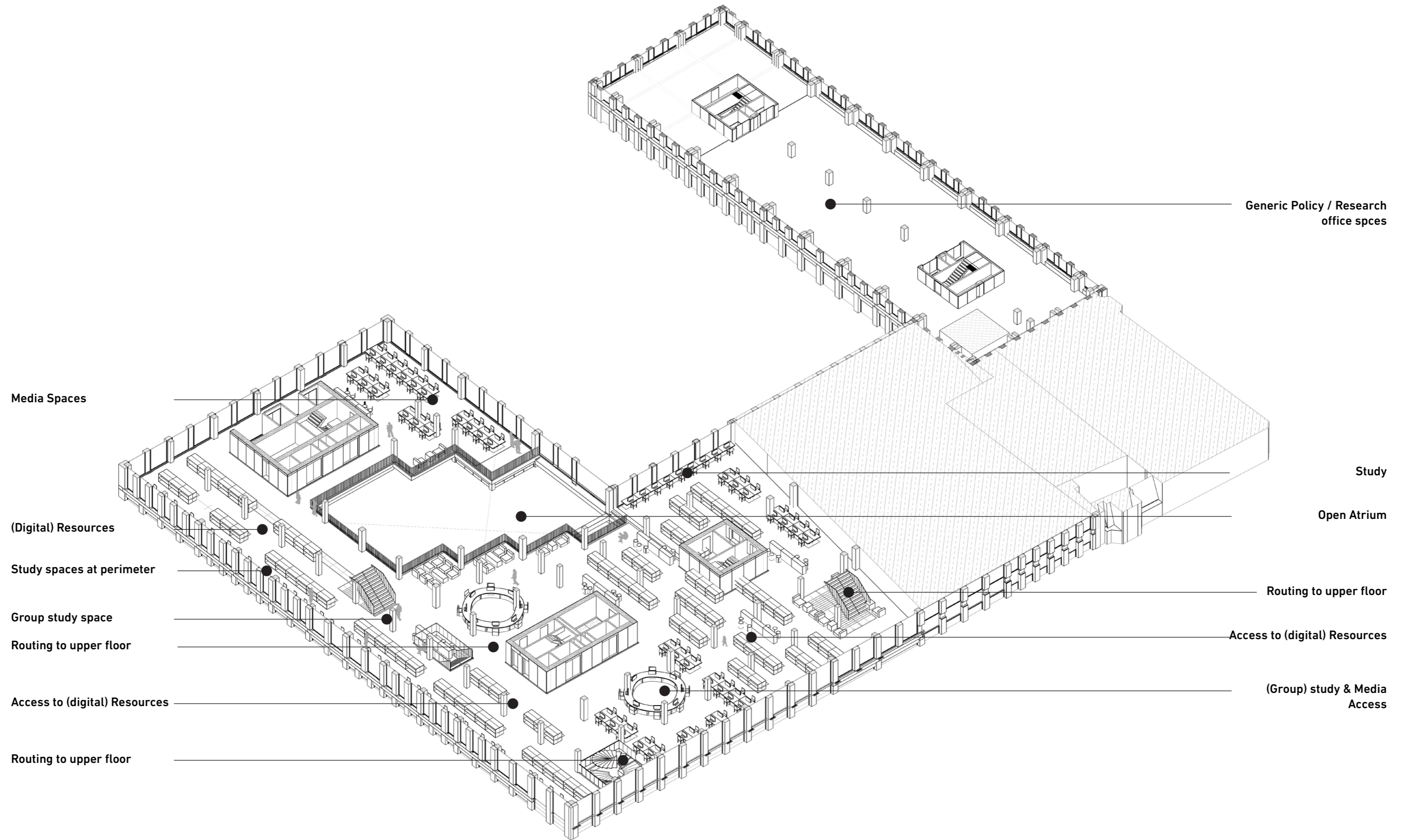


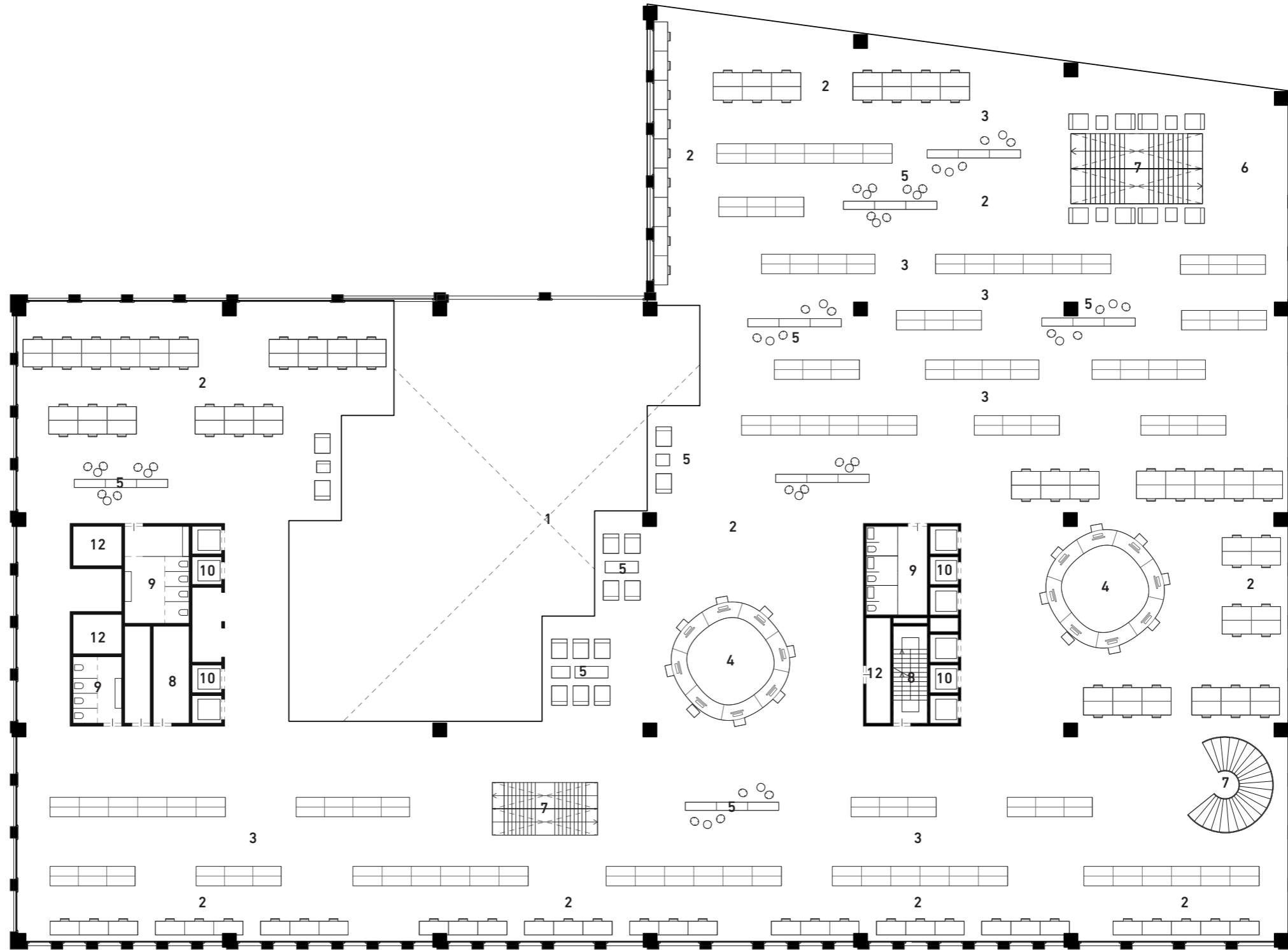
0 2 4 6 8 10

20m

# Axonometrics

Third Floor





Library & Media Centre

- 1. Atrium
- 2. Open studyspaces
- 3. (digital) Resources
- 4. Digital resources
- 5. Reading places
- 6. Foyer
- 7. Staircases
- 8. Escape stairs
- 9. WC
- 10. Passenger lifts
- 11. Service lifts
- 12. Storage

1:200

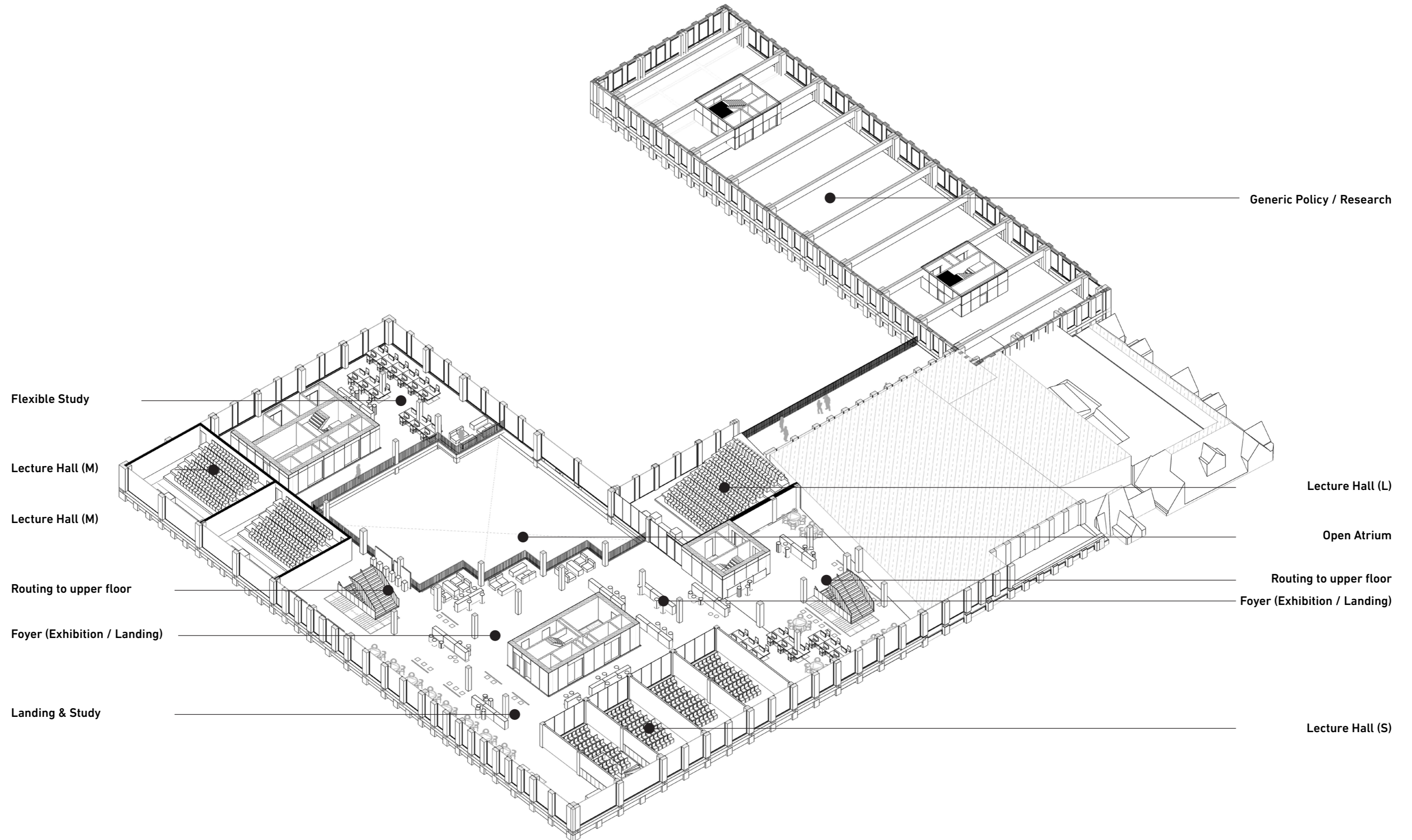


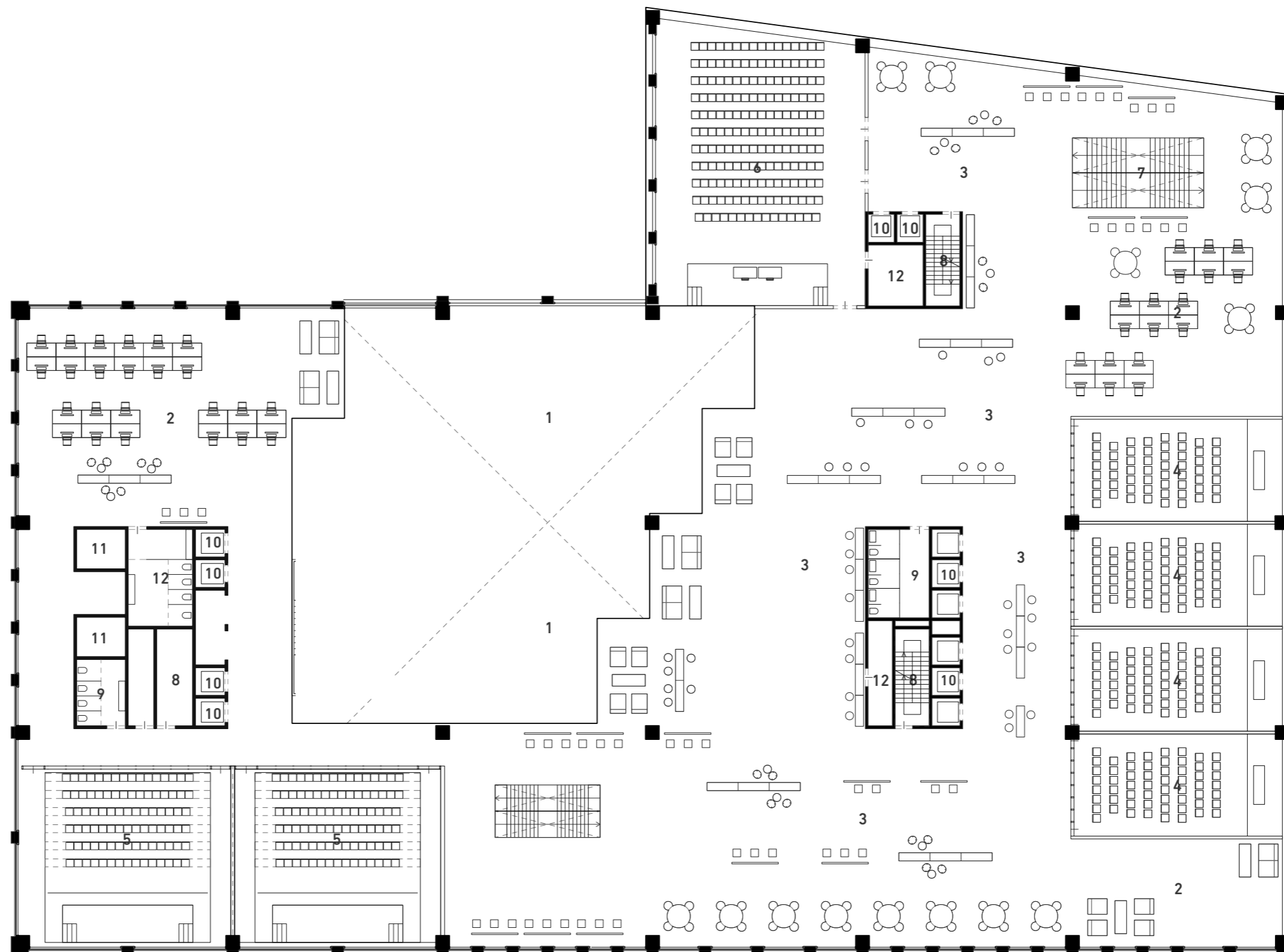
0 2 4 6 8 10

20m

# Axonometrics

Fourth Floor





**Lecture Halls & Library & Media Centre**

- |                     |                         |                          |                  |                     |                   |
|---------------------|-------------------------|--------------------------|------------------|---------------------|-------------------|
| 1. Atrium           | 3. Foyer                | 5. Lecture hall (medium) | 7. Staircases    | 9. WC               | 11. Service lifts |
| 2. Open studyspaces | 4. Lecture hall (small) | 6. Lecture hall (large)  | 8. Escape stairs | 10. Passenger lifts | 12. Storage       |

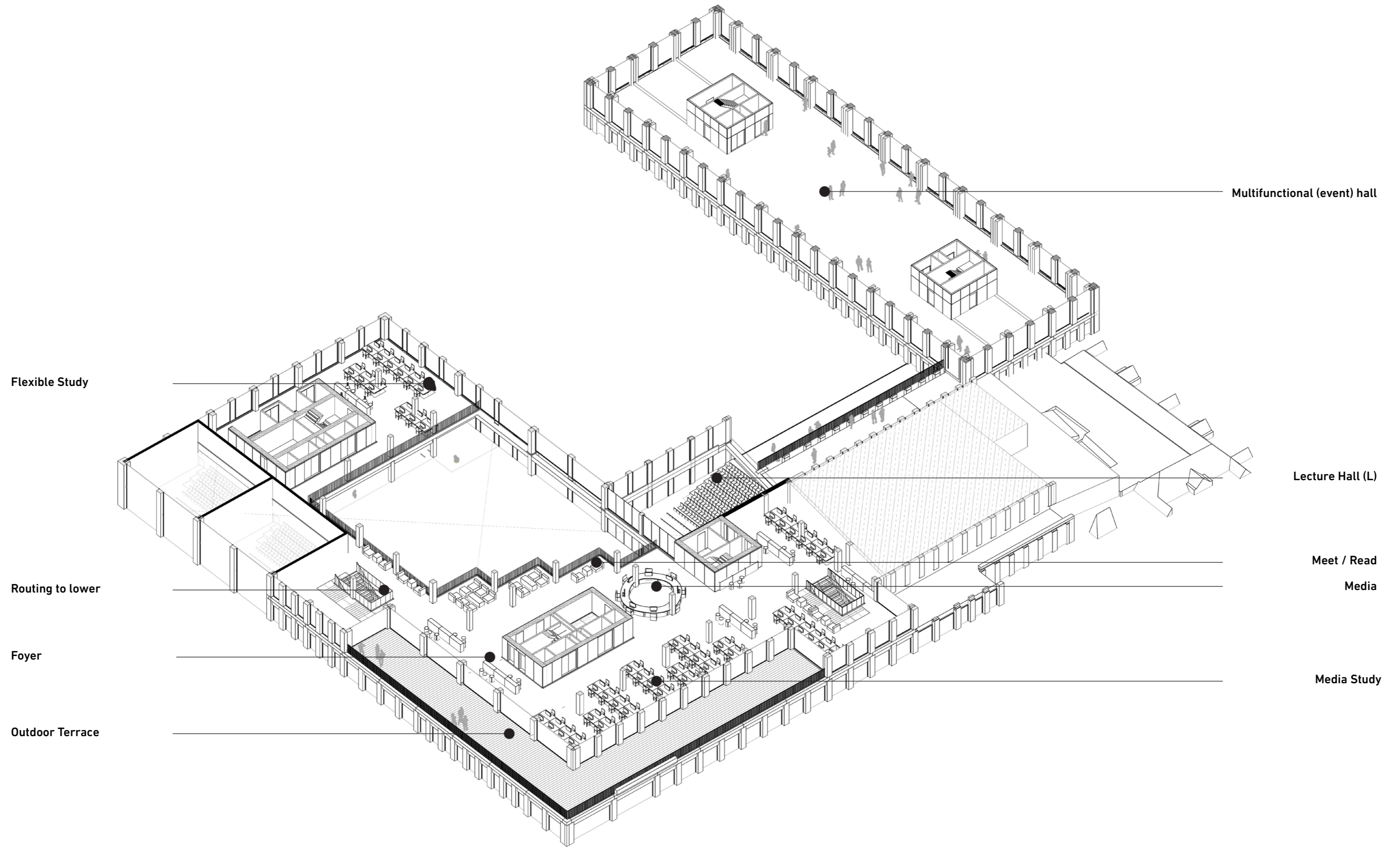
1:200

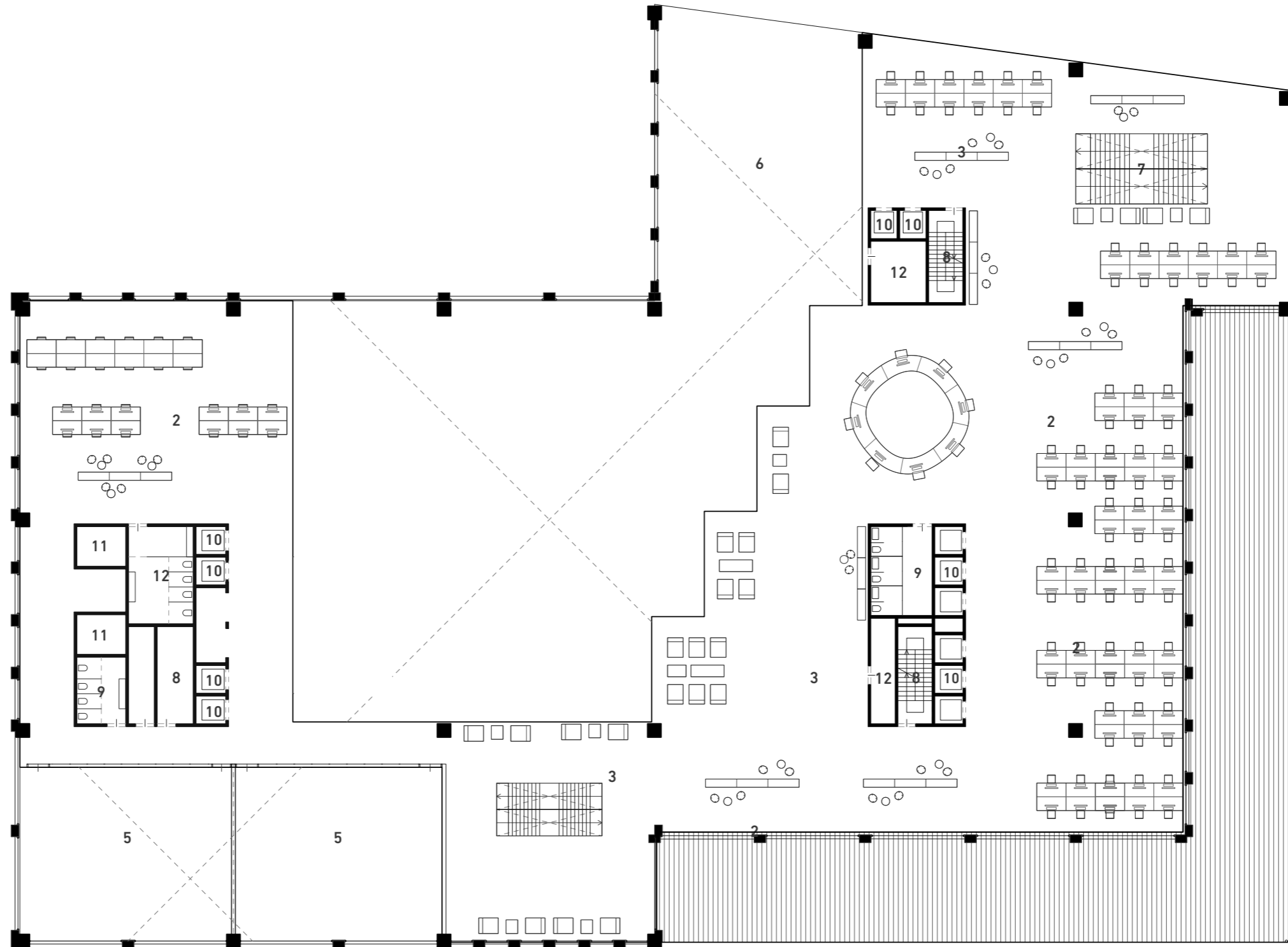


20m

# Axometrics

Fifth Floor





**Play & Learn**

- |                     |                     |                     |                  |                     |                   |
|---------------------|---------------------|---------------------|------------------|---------------------|-------------------|
| 1. Atrium           | 3. Foyer            | 5. Lecture hall (m) | 7. Staircases    | 9. WC               | 11. Service lifts |
| 2. Open studyspaces | 4. Lecture hall (s) | 6. Lecture hall (l) | 8. Escape stairs | 10. Passenger lifts | 12. Storage       |

1:200



0 2 4 6 8 10

20m



The great hall, seen from the cafe



The great hall, looking towards the workshop



Looking towards the atrium, seen from the great hall



The atrium, looking towards the day-care centre



Education for the youngest, supervised learning and day-care centre



Library and media centre, access to (digital) content and reading / study spaces



Library and media centre, access to (digital) content and reading / study spaces



Library and media centre, looking towards to courtyard



The lecture hall

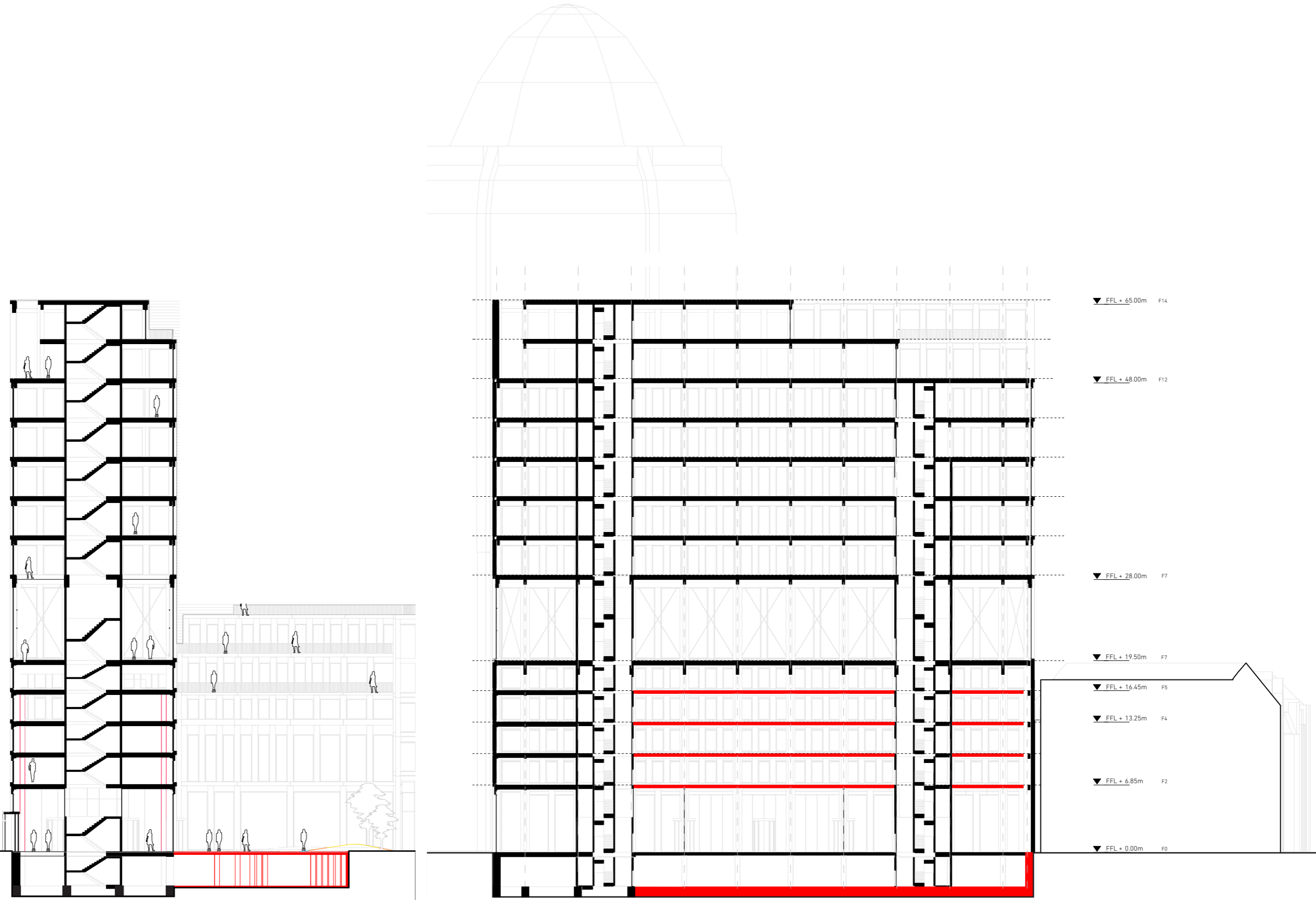


The passage, exhibition space for young taletns



The multi-functional event hall,

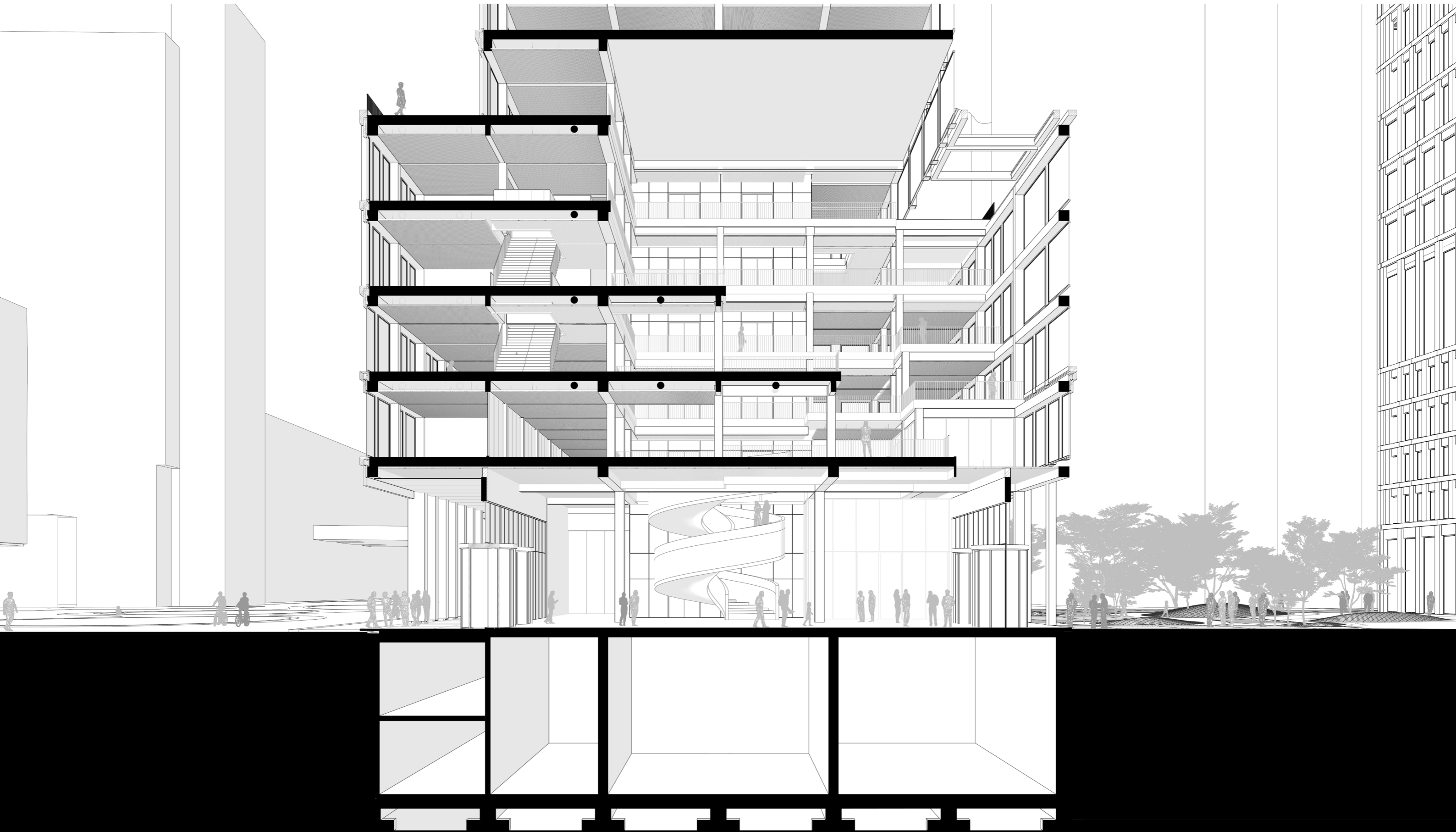
# Sections

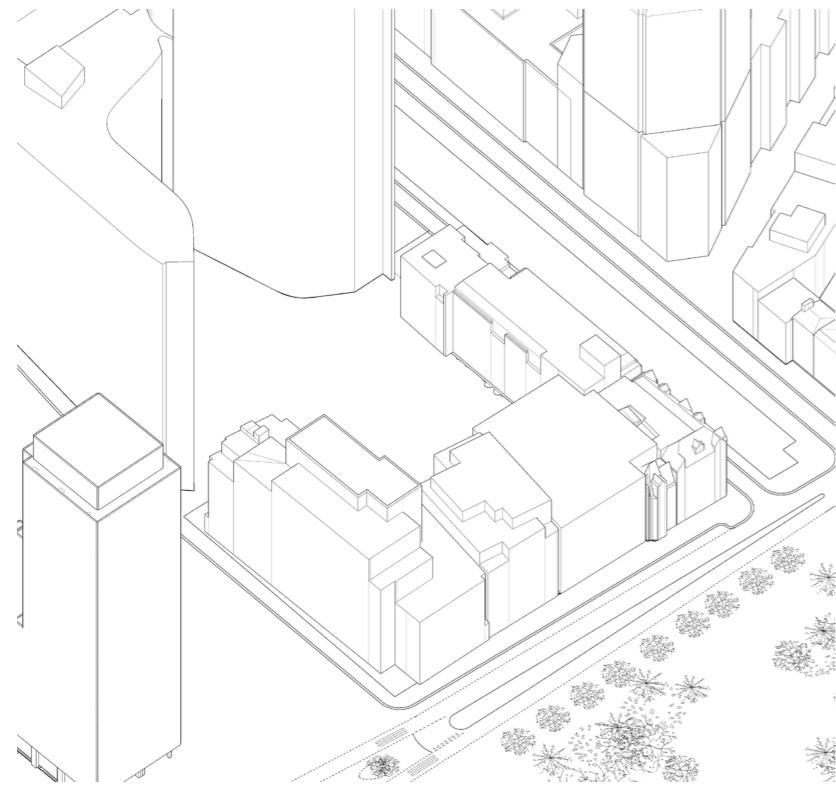




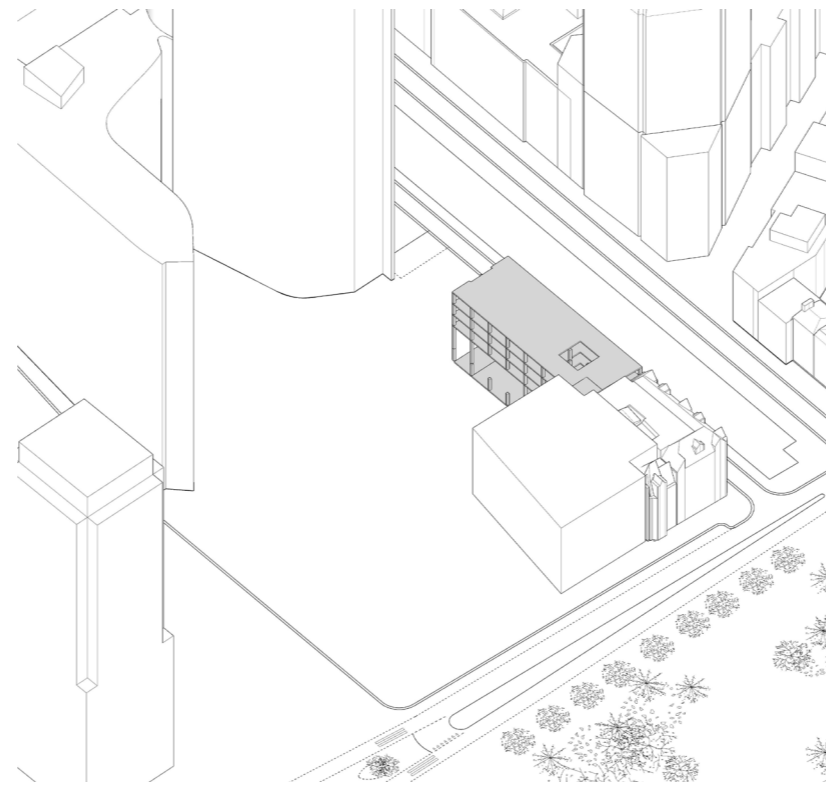
Perspective Section

b-b

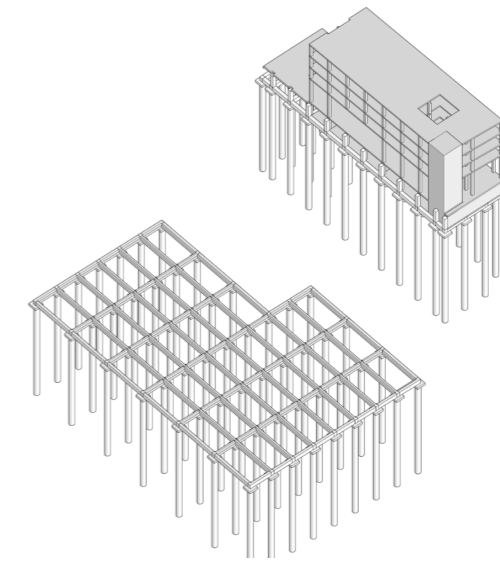




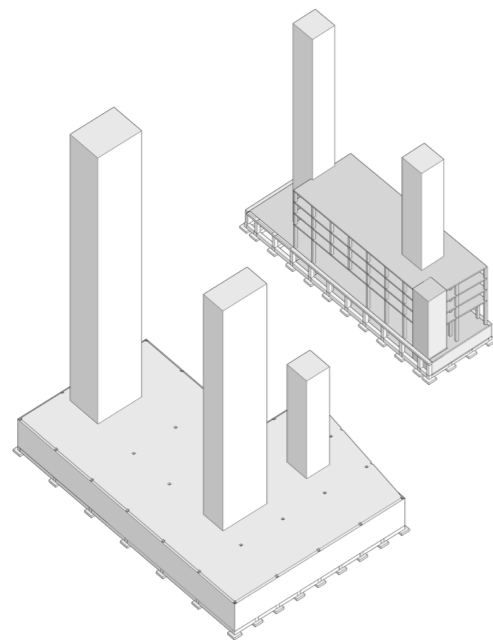
1. Existing situation



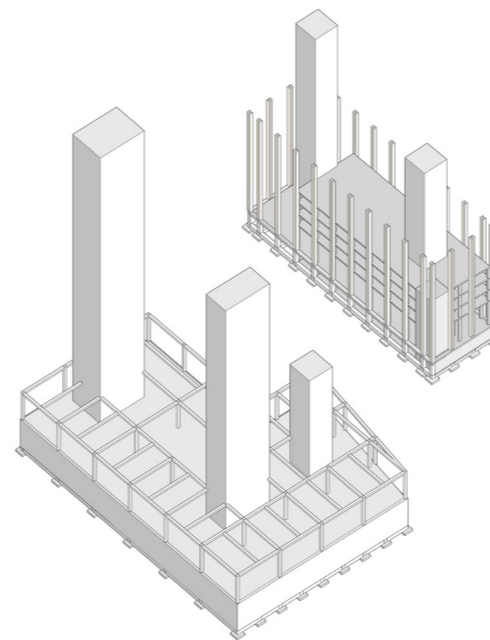
2. Partial demolition and re-use



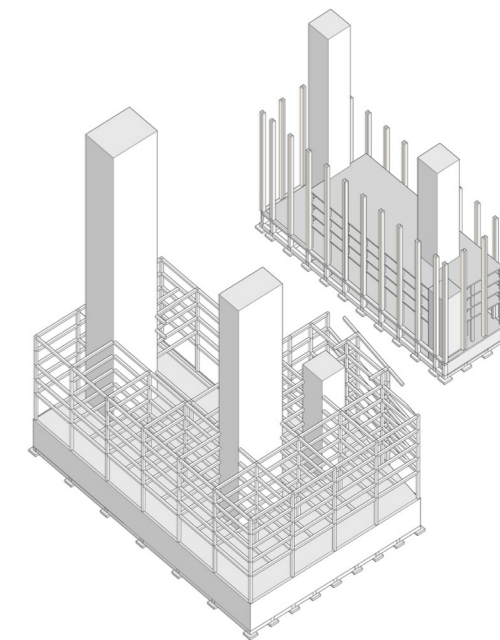
3. New foundations and sub-structure



4. Concrete base

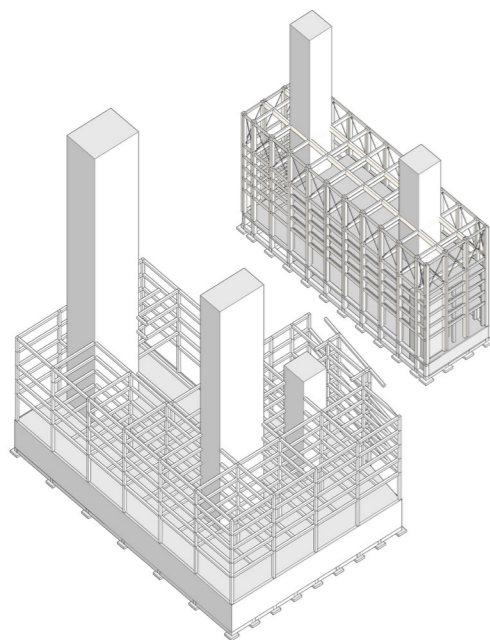


5. Initial build-up

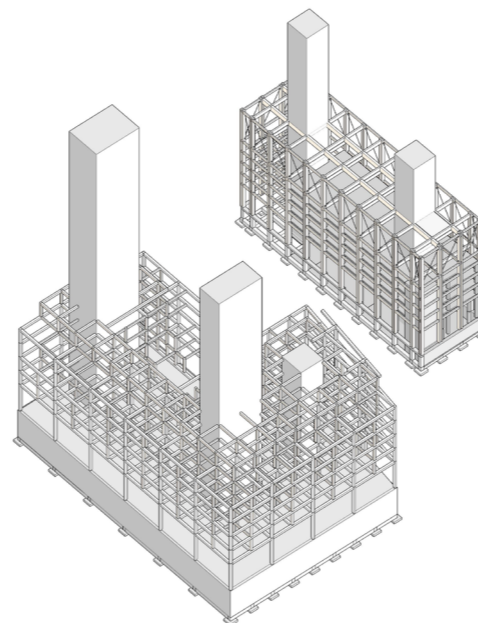


6. Concrete plinth and timber framework as primary base

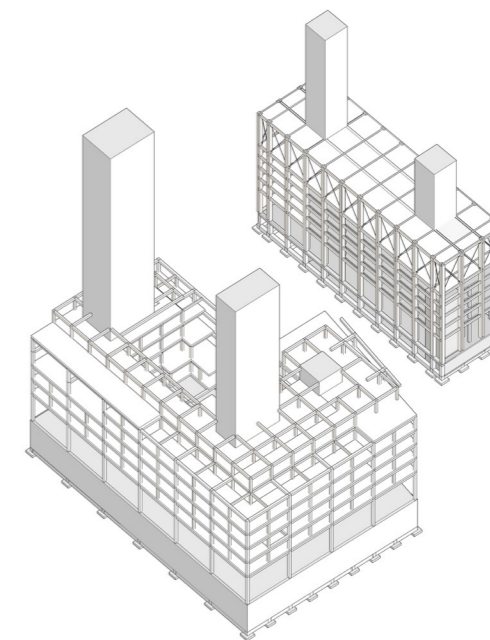




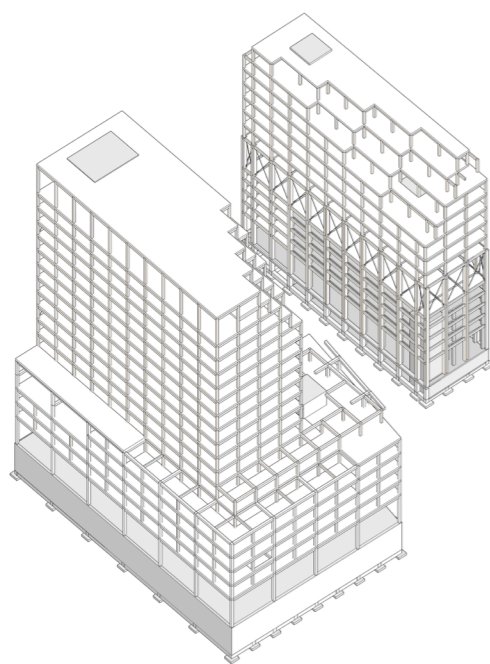
7. Concrete primary structure and timber framework



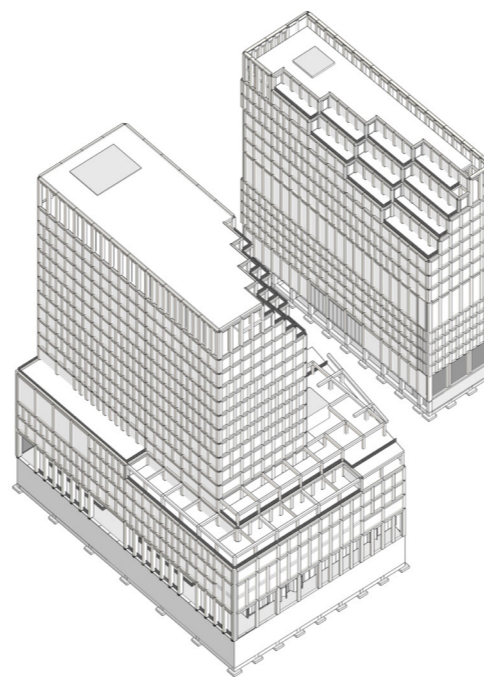
8. Secondary flexible timber infill



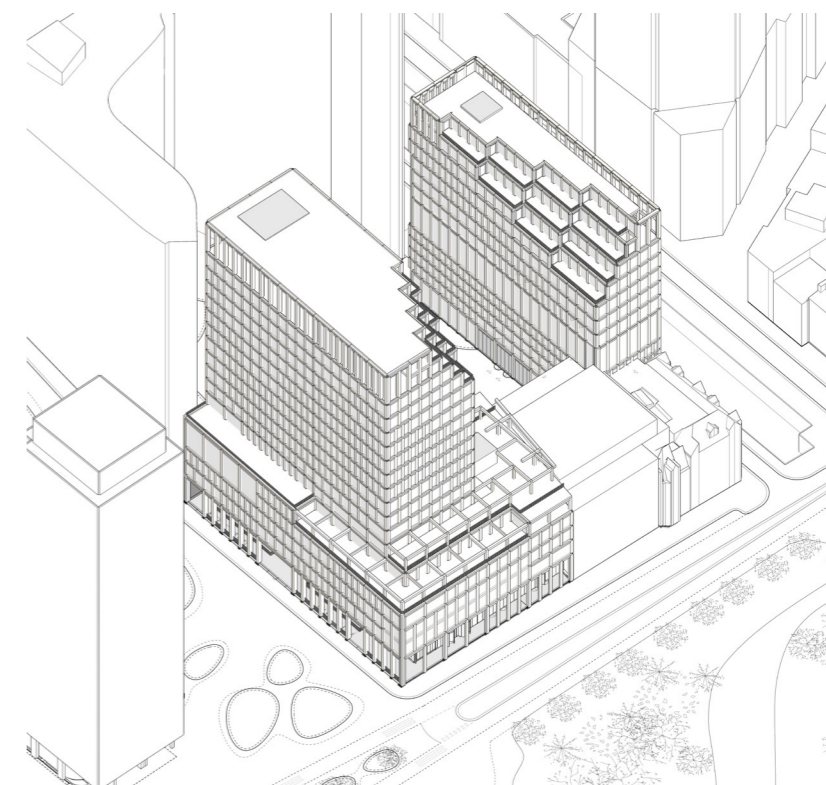
9. Slabs



10. Additional "generic" timber levels



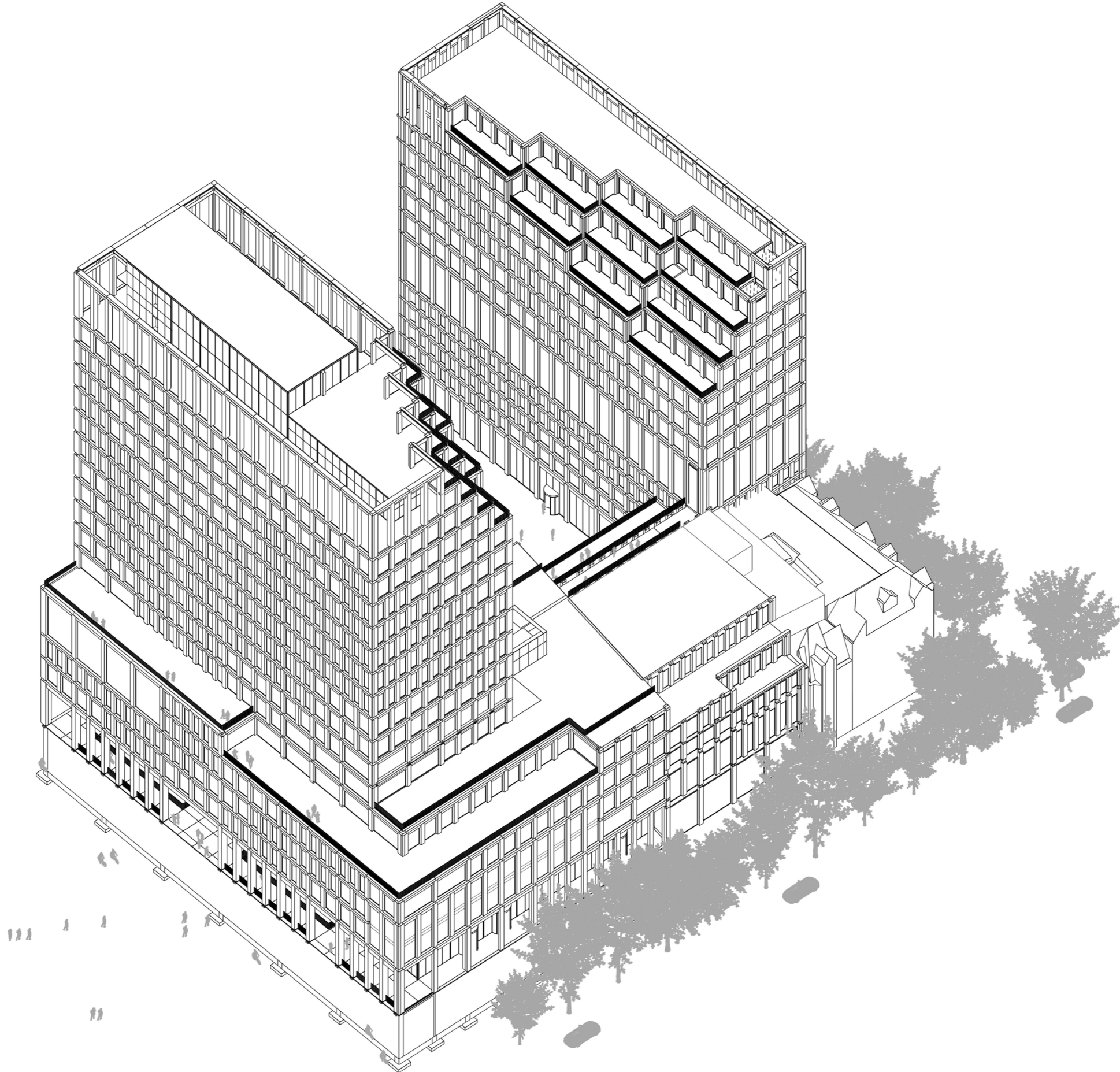
11. Envelope

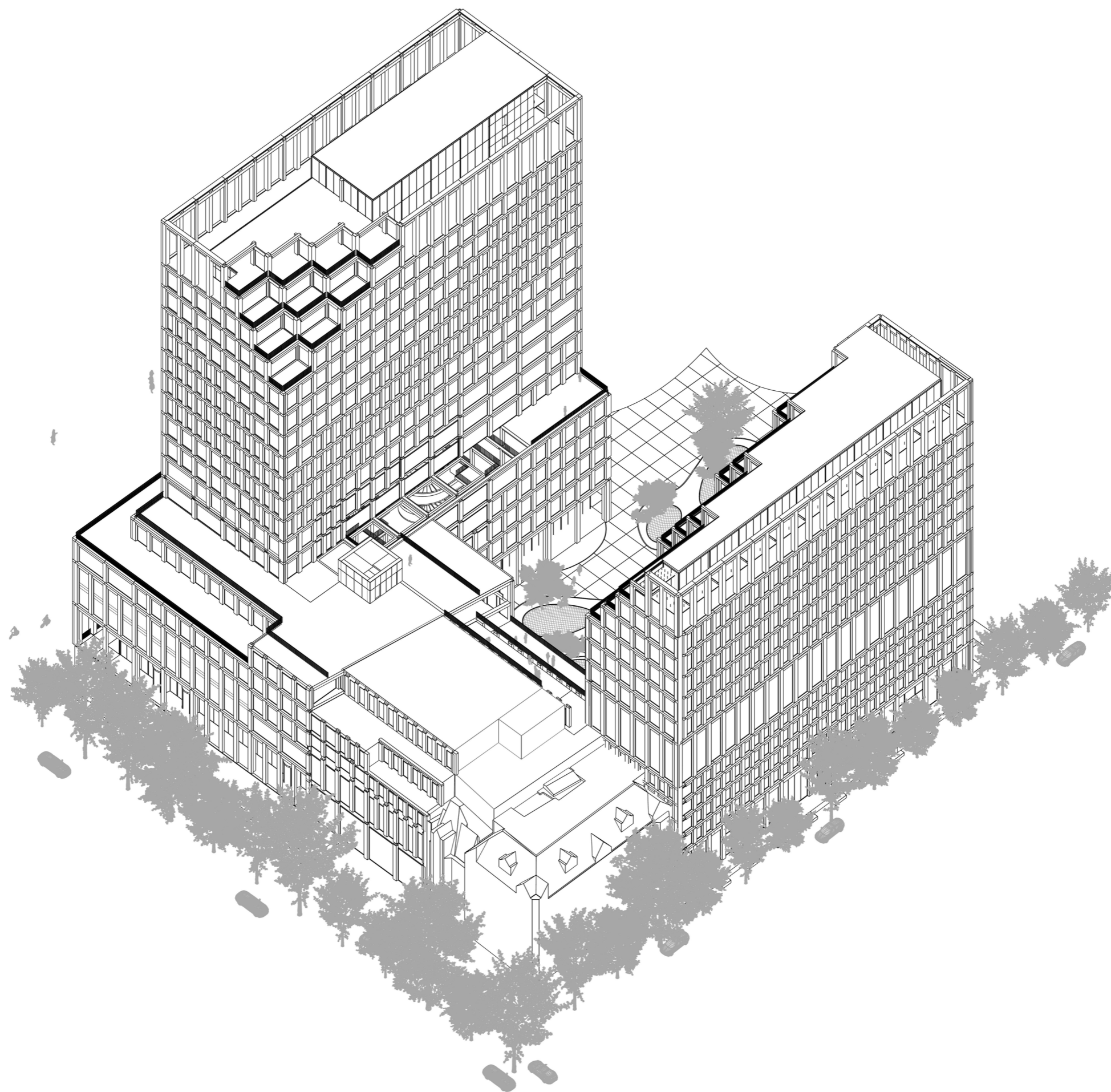


12. Project proposal

**Axonometric drawing**

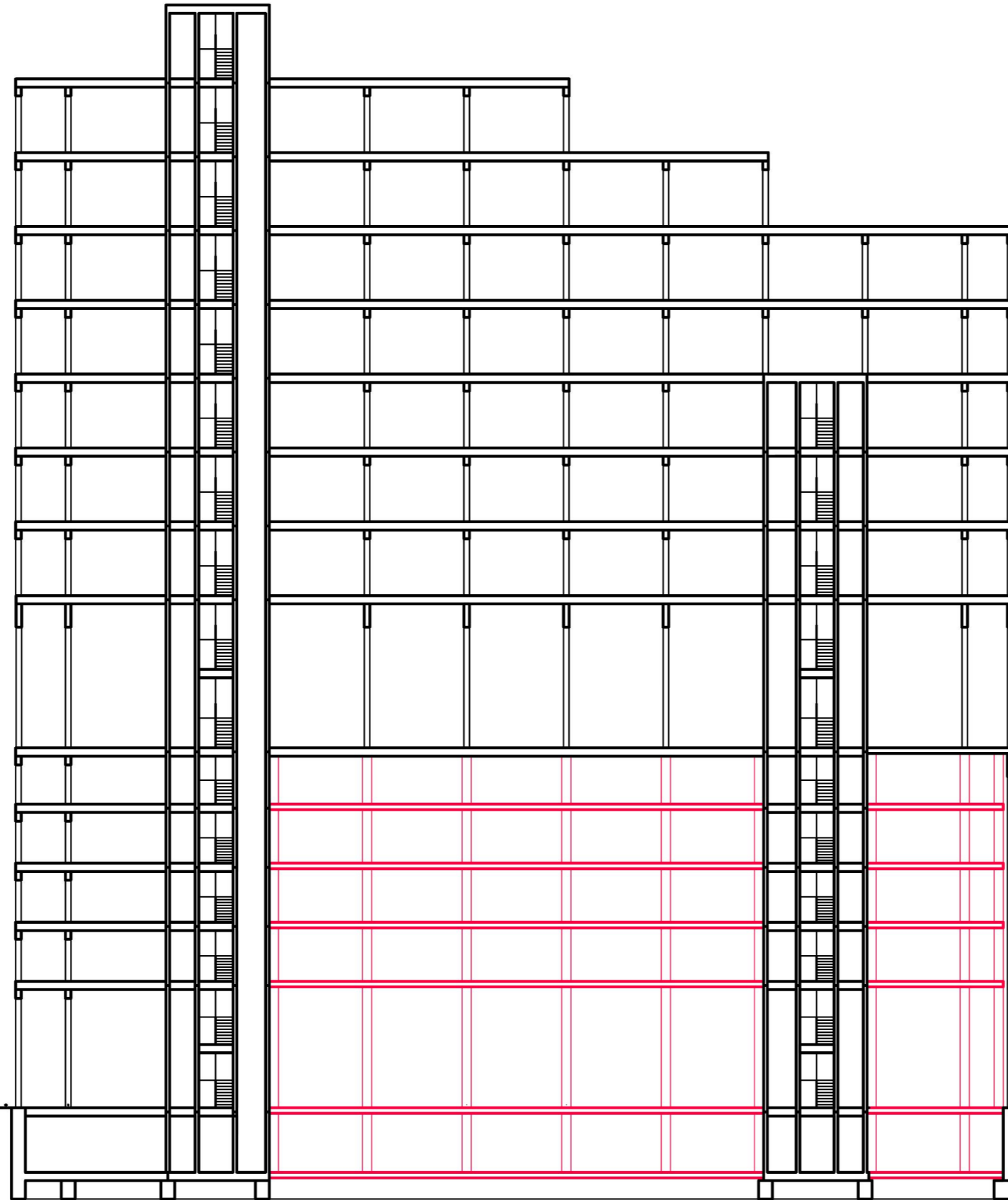
Full project

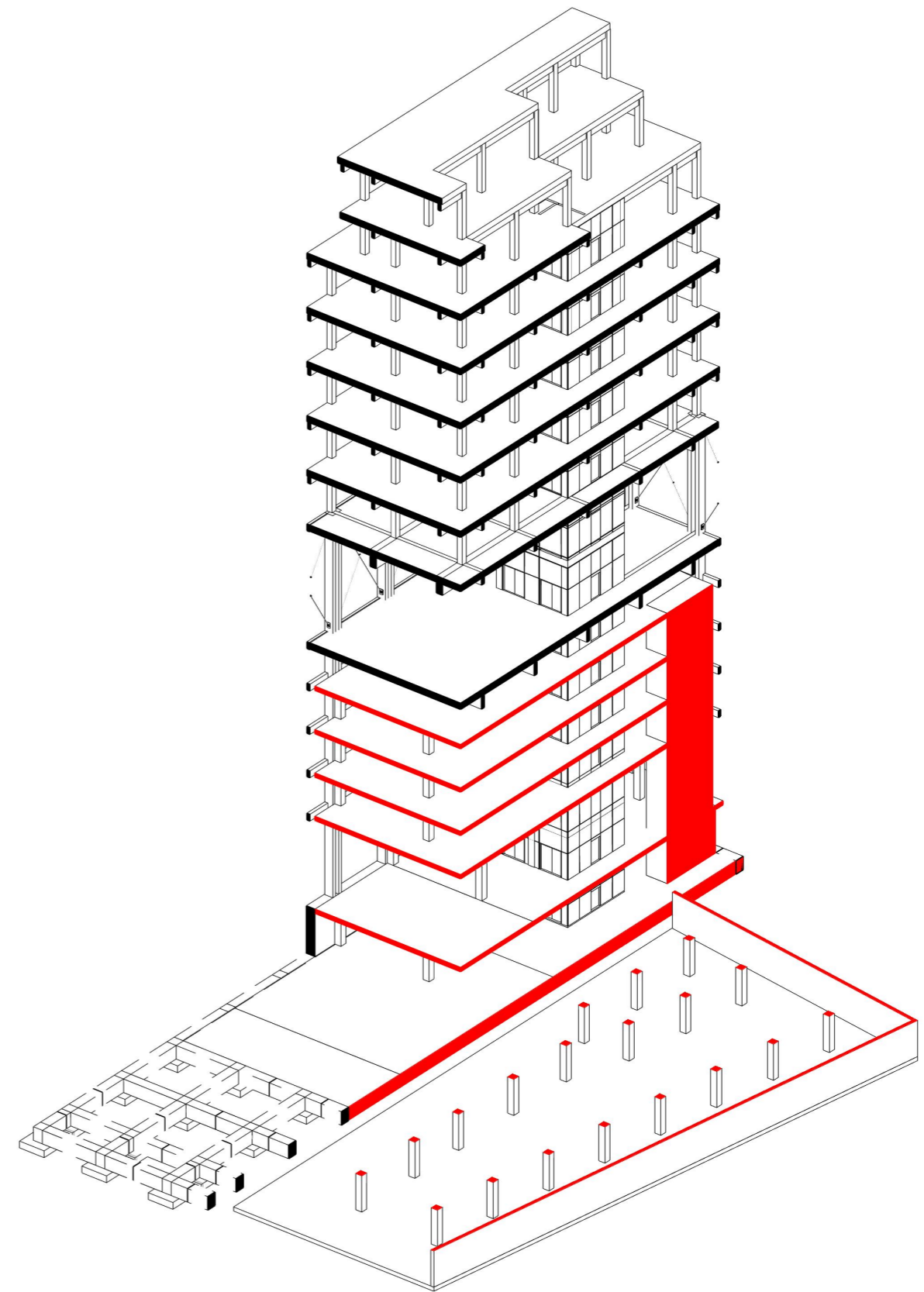
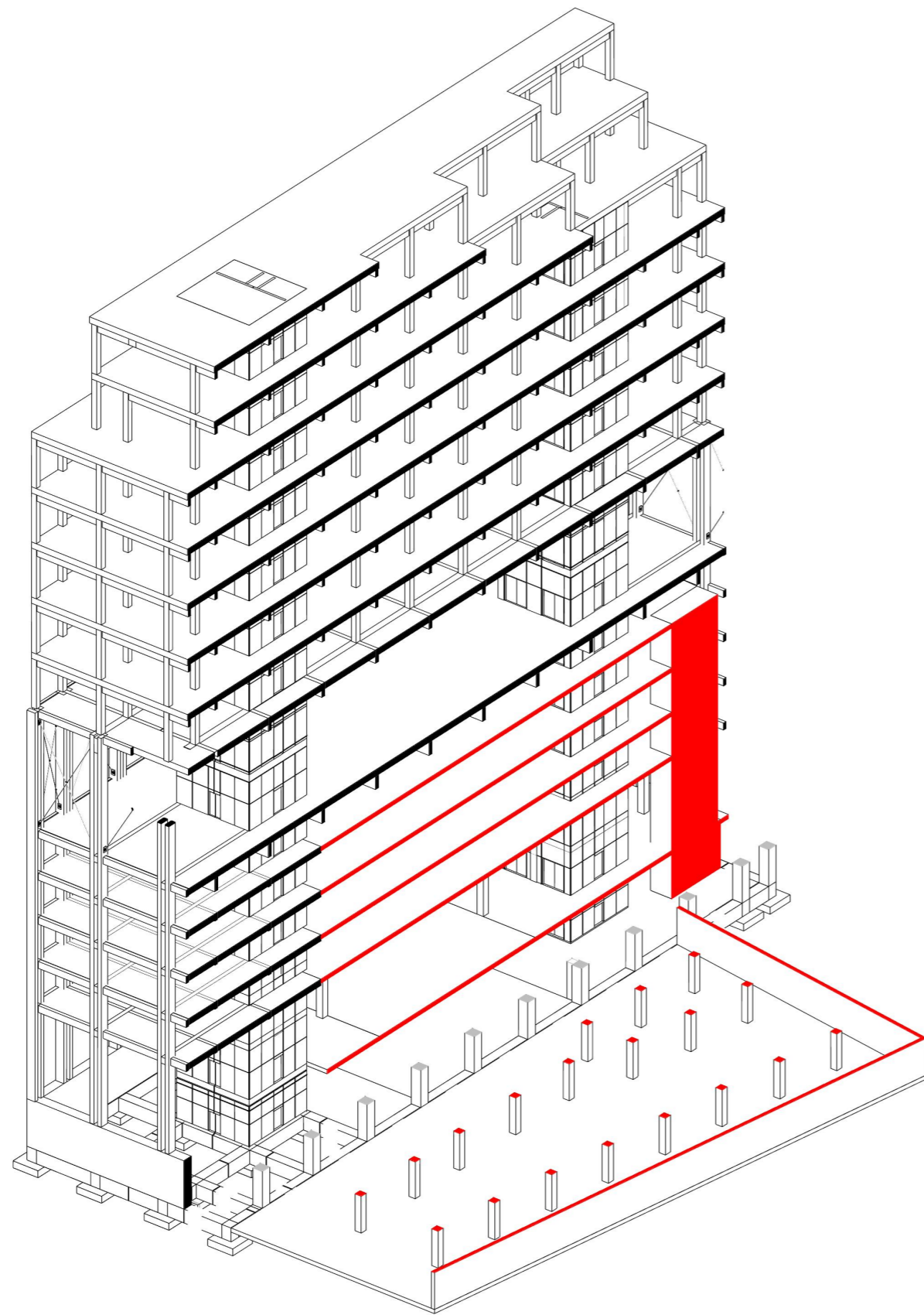




# Structural Diagrams

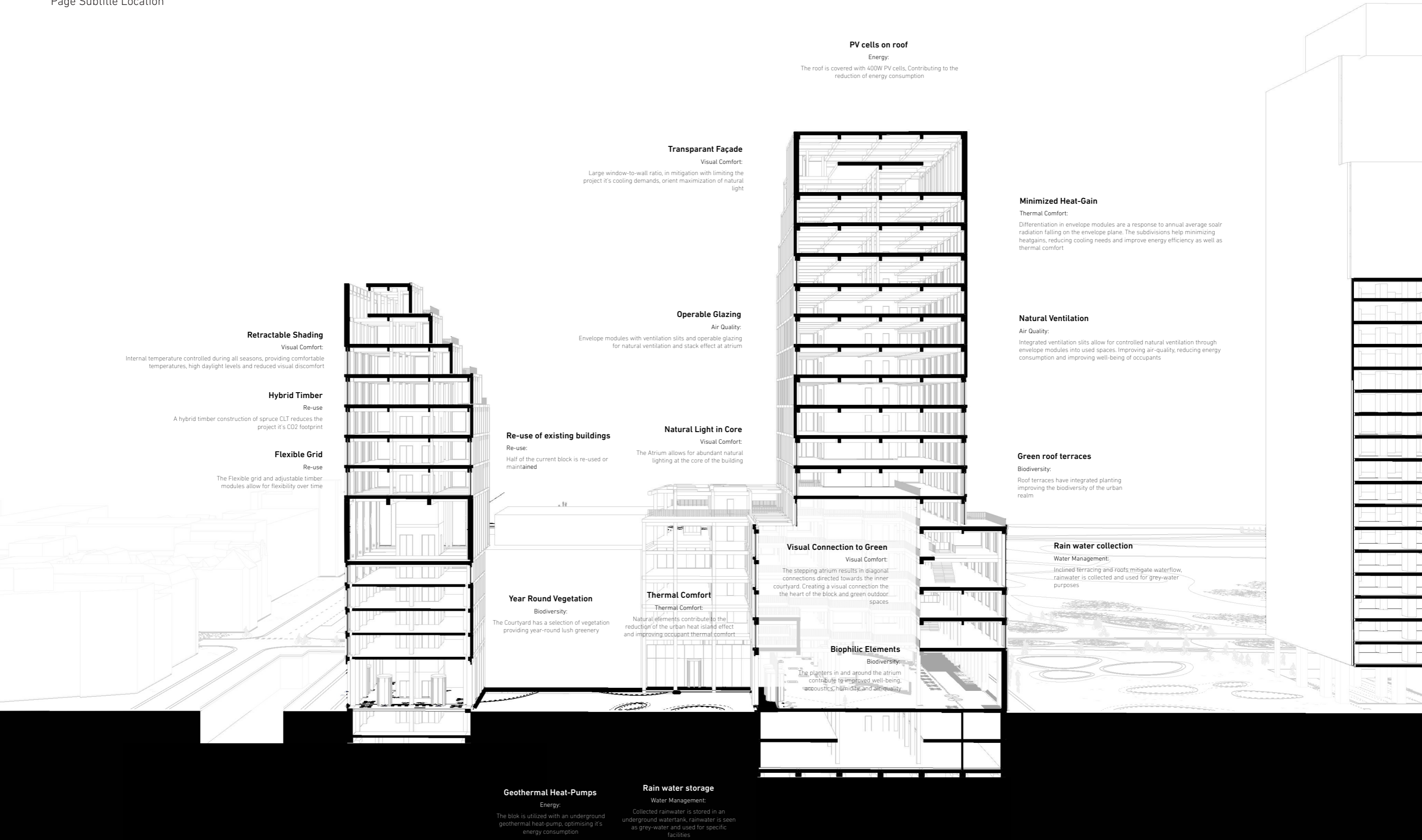
Schematic sectional drawing





# Climate Concept Section

Page Subtitle Location



### PV cells on roof

**Energy:**  
The roof is covered with 400W PV cells, contributing to the reduction of energy consumption

### Transparent Façade

**Visual Comfort:**  
Large window-to-wall ratio, in mitigation with limiting the project's cooling demands, orient maximization of natural light

### Operable Glazing

**Air Quality:**  
Envelope modules with ventilation slits and operable glazing for natural ventilation and stack effect at atrium

### Minimized Heat-Gain

**Thermal Comfort:**  
Differentiation in envelope modules are a response to annual average solar radiation falling on the envelope plane. The subdivisions help minimizing heatgains, reducing cooling needs and improve energy efficiency as well as thermal comfort

### Natural Ventilation

**Air Quality:**  
Integrated ventilation slits allow for controlled natural ventilation through envelope modules into used spaces. Improving air-quality, reducing energy consumption and improving well-being of occupants

### Green roof terraces

**Biodiversity:**  
Roof terraces have integrated planting improving the biodiversity of the urban realm

### Rain water collection

**Water Management:**  
Inclined terracing and roofs mitigate waterflow, rainwater is collected and used for grey-water purposes

### Visual Connection to Green

**Visual Comfort:**  
The stepping atrium results in diagonal connections directed towards the inner courtyard. Creating a visual connection the heart of the block and green outdoor spaces

### Biophilic Elements

**Biodiversity:**  
The planters in and around the atrium contribute to improved well-being, acoustics, humidity, and air quality

### Natural Light in Core

**Visual Comfort:**  
The Atrium allows for abundant natural lighting at the core of the building

### Thermal Comfort

**Thermal Comfort:**  
Natural elements contribute to the reduction of the urban heat island effect and improving occupant thermal comfort

### Year Round Vegetation

**Biodiversity:**  
The Courtyard has a selection of vegetation providing year-round lush greenery

### Geothermal Heat-Pumps

**Energy:**  
The blok is utilized with an underground geothermal heat-pump, optimising it's energy consumption

### Rain water storage

**Water Management:**  
Collected rainwater is stored in an underground watertank, rainwater is seen as grey-water and used for specific facilities

### Retractable Shading

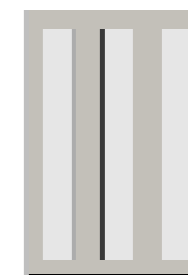
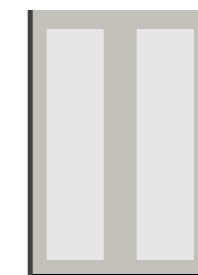
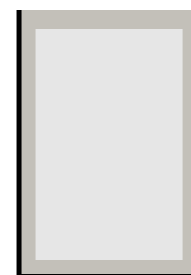
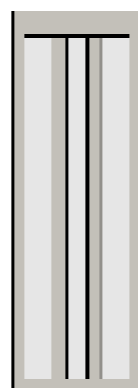
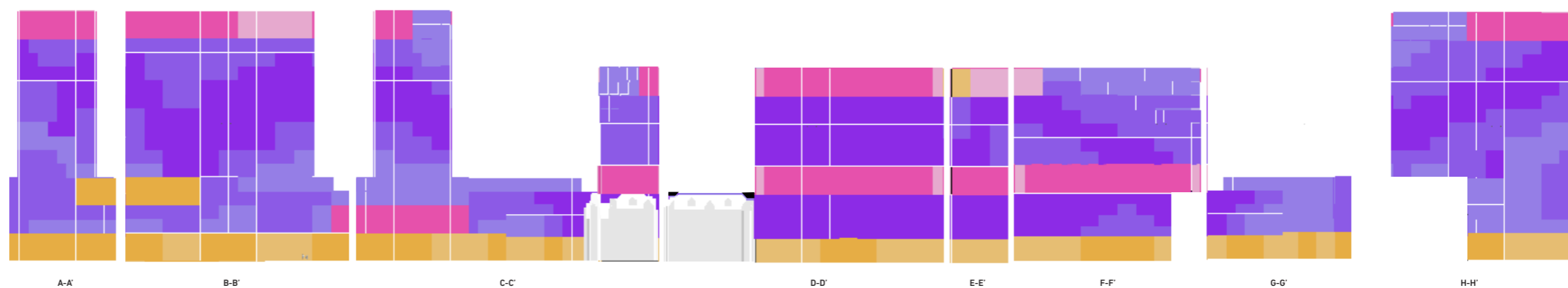
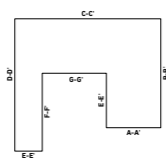
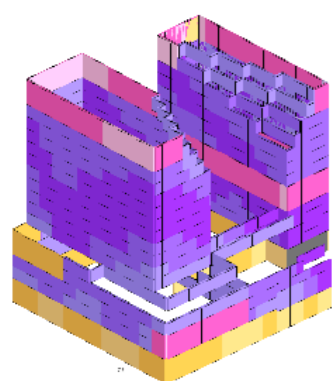
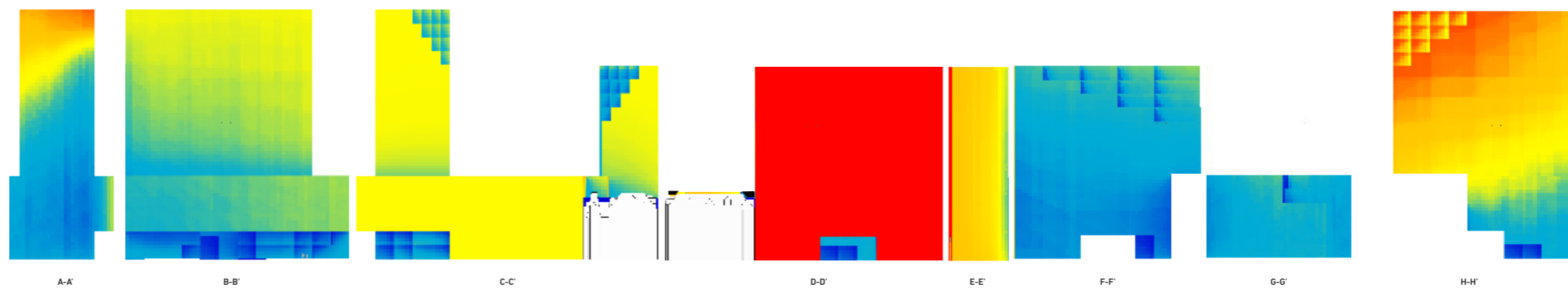
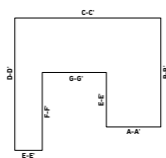
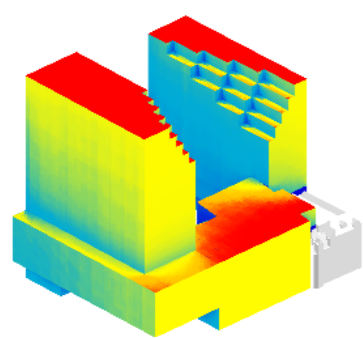
**Visual Comfort:**  
Internal temperature controlled during all seasons, providing comfortable temperatures, high daylight levels and reduced visual discomfort

### Hybrid Timber

**Re-use:**  
A hybrid timber construction of spruce CLT reduces the project it's CO2 footprint

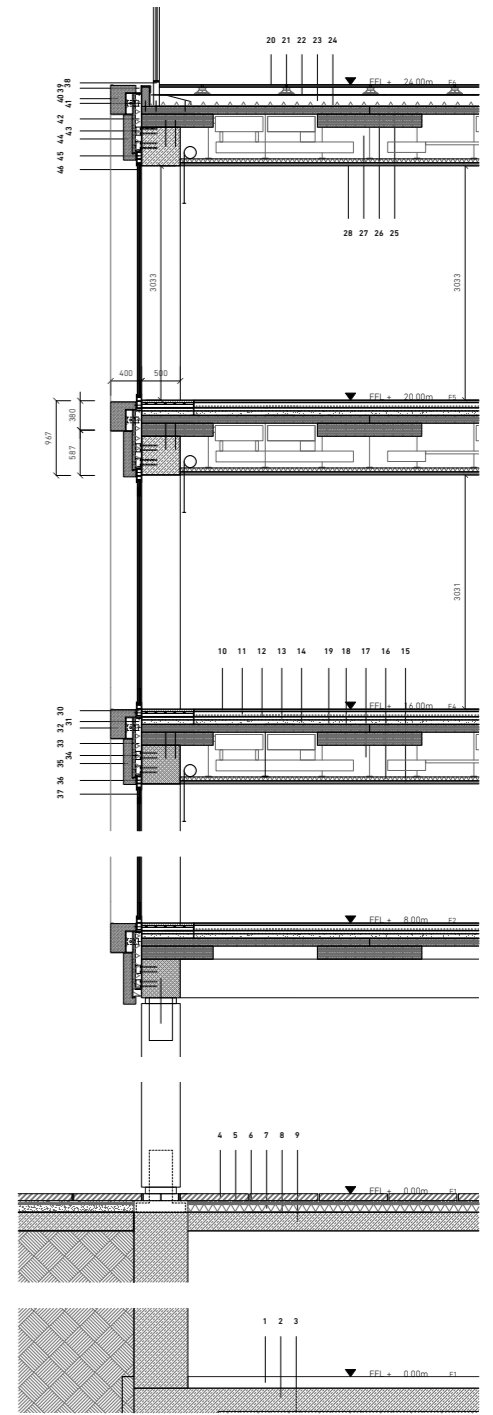
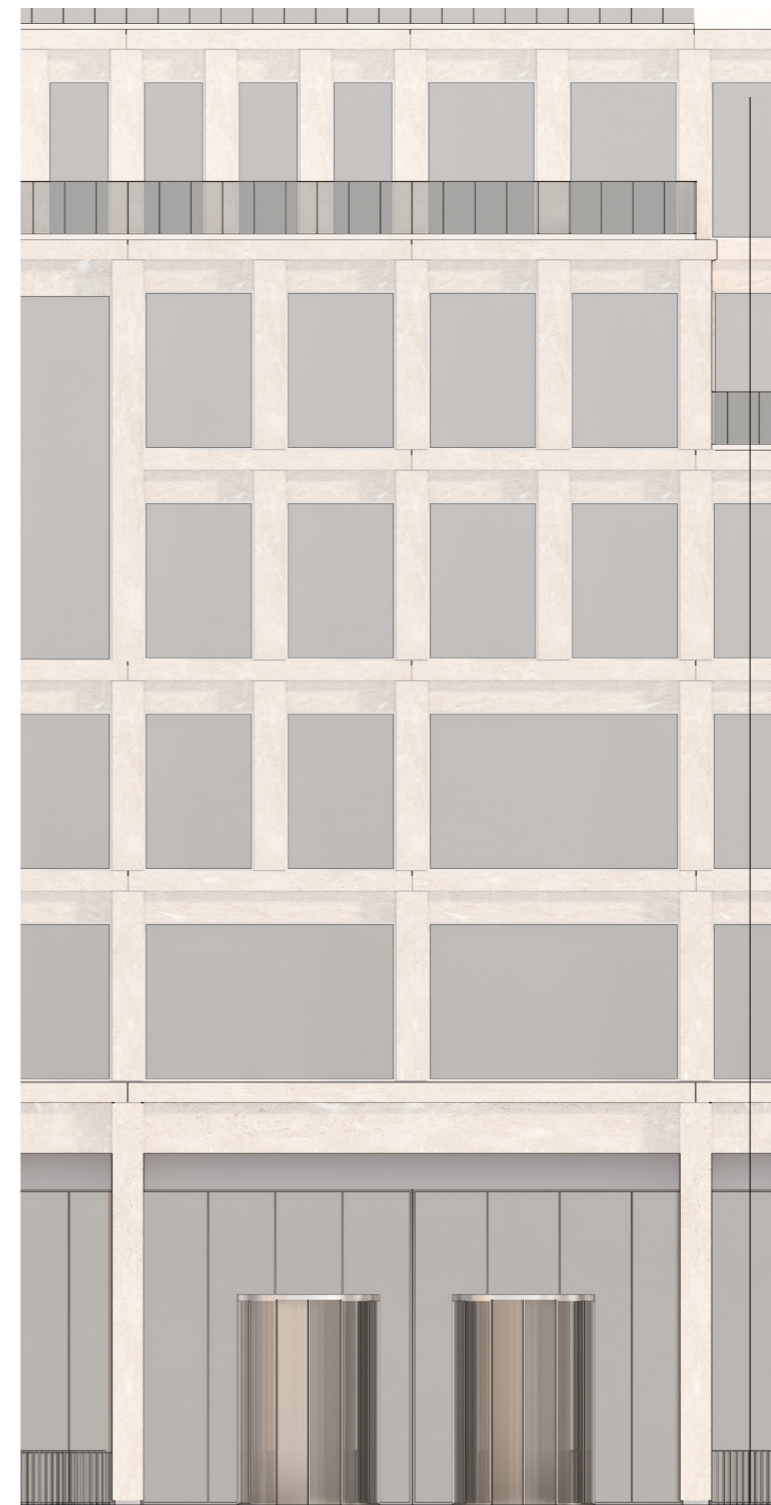
### Flexible Grid

**Re-use:**  
The Flexible grid and adjustable timber modules allow for flexibility over time

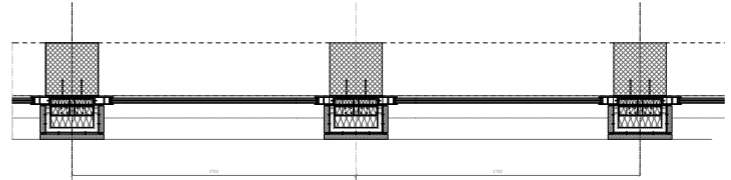


# Technical Detailing

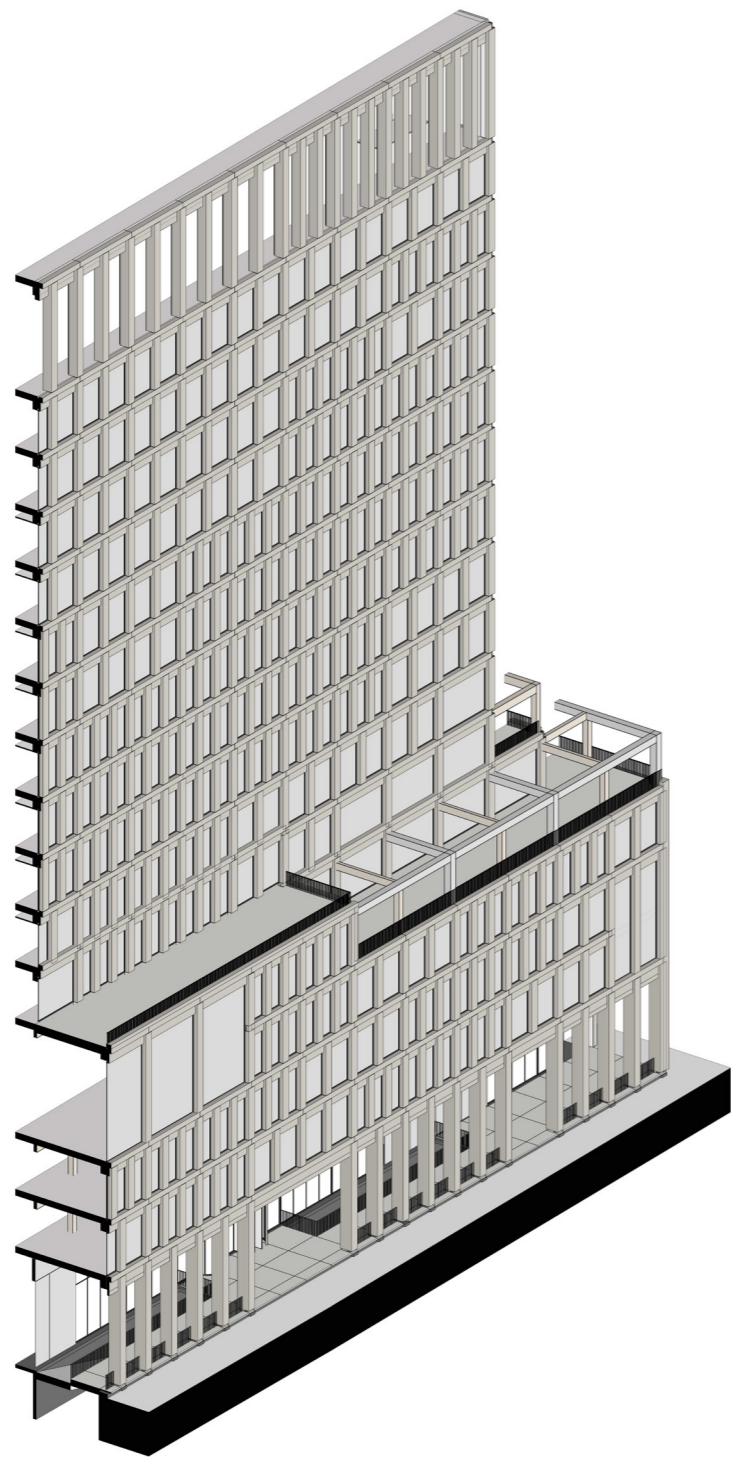
1:20 Fragment



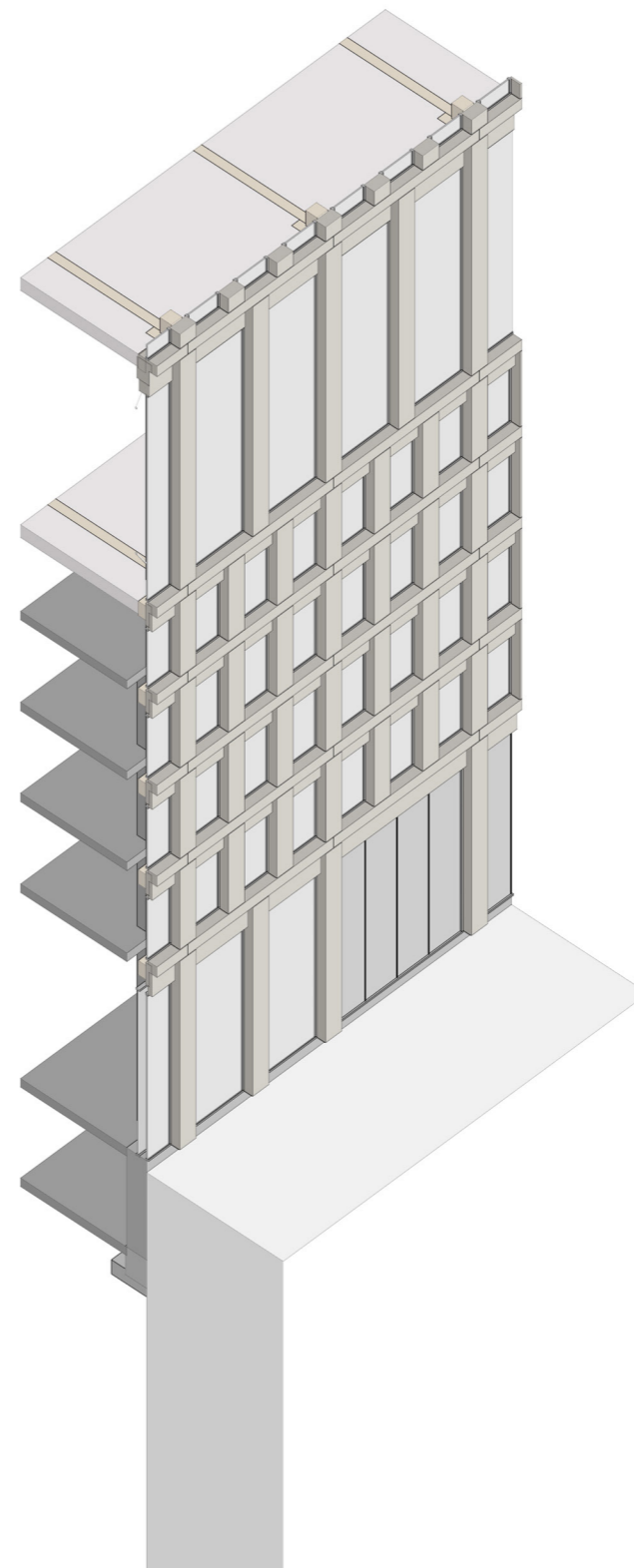
**NORTH-EAST FACADE FRAGMENT 1:20**



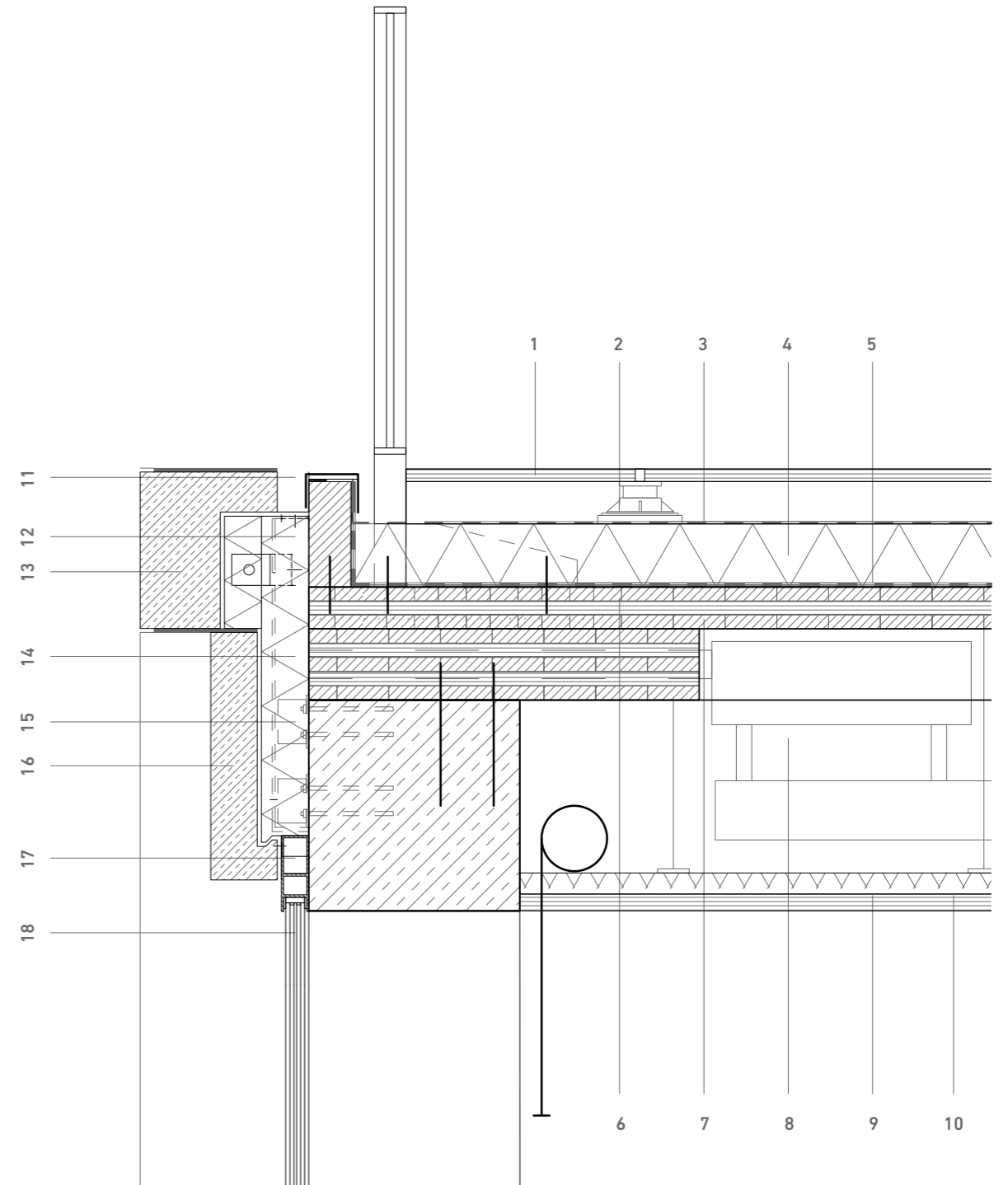
- |  |   |  |
|--|---|--|
| <p><b>Sub Structure Slab</b></p> <ol style="list-style-type: none"> <li>Natural stone pavel, shell limestone 1-10mm</li> <li>Forming support pads with permeable top panel layer</li> <li>PE Foil</li> </ol> <p><b>Exterior Ground Floor</b></p> <ol style="list-style-type: none"> <li>Natural stone pavel, shell limestone 1-10mm</li> <li>Pea gravel</li> <li>Combined building protection and drainage mat</li> <li>Two-ply polymer bitumen membrane</li> <li>Foam glass insulation</li> <li>240mm Prefab. Reinf. Concrete Slab</li> </ol> <p><b>Storey Slab (Timber)</b></p> <ol style="list-style-type: none"> <li>Finishing layer offering per space: limestone, polished concrete, white epoxy parquett</li> <li>2x PE foil</li> <li>Screed with underfloor heating / cooling</li> <li>2x PE foil</li> <li>Mineral Wool</li> </ol> | <p><b>Terracing Slab</b></p> <ol style="list-style-type: none"> <li>30mm Shell-Limestone Slab</li> <li>Forming support pads with top panel</li> <li>PE Foil</li> <li>Mineral wool to full</li> <li>Two-Ply polymer bitumen membrane</li> <li>5-Ply Cross Laminated Timber, C24</li> <li>Installation Cavity</li> <li>Sound Insulation 50mm</li> <li>Silver Fir Battens 30x42 mm</li> </ol> <p><b>Storey Slab (Timber)</b></p> <ol style="list-style-type: none"> <li>Bonded Chipping infill 60mm, Elastomer-bitumen emergency sealing</li> <li>Ceiling lining Silver Fir Battens 30x42mm</li> <li>Sound Insulation 50mm</li> <li>Installation Cavity</li> <li>5-Ply Cross Laminated Timber, C24</li> <li>3-Ply Cross Laminated Timber, C24</li> </ol> | <p><b>Envelope</b></p> <ol style="list-style-type: none"> <li>100mm aluminum framing</li> <li>Mineral wool 100mm</li> <li>Shell limestone sill panel</li> <li>Mineral wool 100mm</li> <li>Insulated steel joint profile</li> <li>Shell limestone sill panel</li> <li>100mm aluminum framing</li> <li>3-layered low-e low-u glass</li> </ol> <p><b>Envelope Outdoor Terrace</b></p> <ol style="list-style-type: none"> <li>100mm aluminum framing</li> <li>Rainwater gutter</li> <li>Shell limestone sill panel</li> <li>Insulated steel joint profile</li> <li>Mineral wool 100mm</li> <li>Insulated steel joint profile</li> <li>Shell limestone sill panel</li> <li>100mm aluminum framing</li> <li>3-layered low-e low-u glass</li> </ol> |
|--|---|--|



North-East facade



North-East facade



**Envelope Outdoor Terrace**

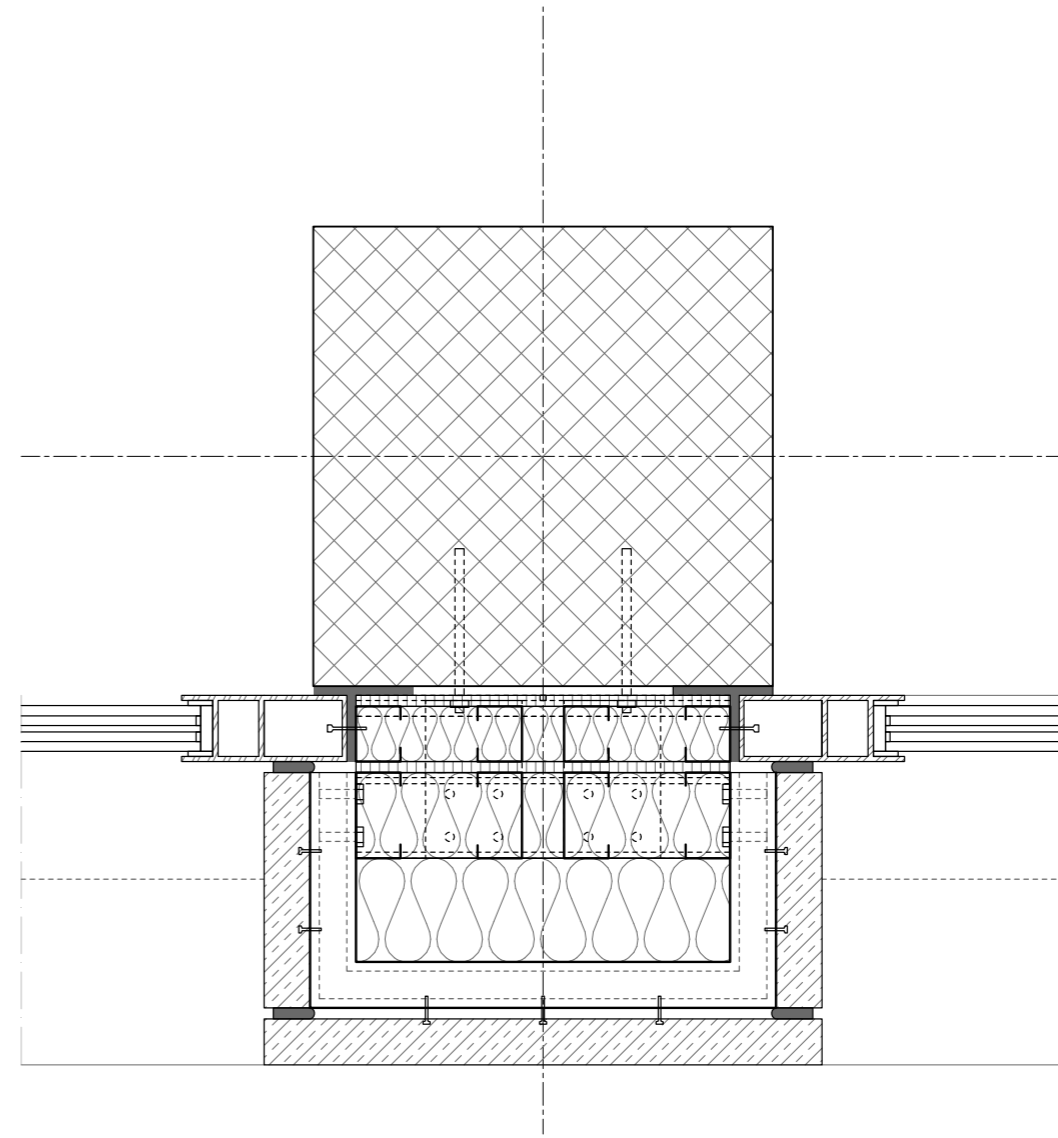
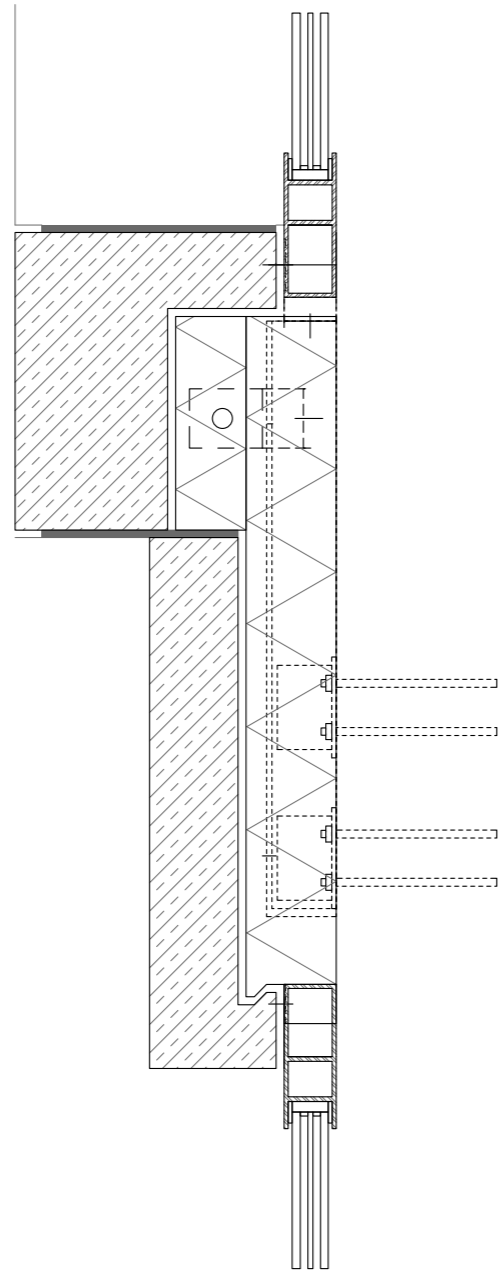
- 11. 90mm aluminium framing
- 12. Rainwater gutter
- 13. Shell limestone sill panel
- 14. Insulated steel joint profile

- 15. Mineral wool 100mm
- 16. Insulated steel joint profile
- 17. Shell limestone sill panel
- 18. 90mm aluminium framing
- 19. 3-layered low-e low-u glasst

**Terracing Slab**

- 1. 30mm Shell-Limestone Slab
- 2. Paving support pads with top panel
- 3. PE Foil
- 4. Mineral wool to fall
- 5. Two-Ply polymer bitumen membrane

- 6. 3-Ply Cross Laminated Timber, C24
- 7. 5-Ply Cross, Laminated Timber, C24
- 8. Installation Cavity
- 9. Sound Insulation 50mm
- 10. Silver Fir Battens 30/40 mm







## **Set of Drawings**

Bart Ramakers  
Public Building Graduation Studio  
2023-2024