

Luca Fontana

# HAVEN

*The public interlace for social inclusivity  
in post-renewal Copenhagen*

**Complete Drawings and Details**

Public Building Graduation Studio  
2019 - 2020





PUBLIC INTENSIFIED NETWORK  
Manifesto: Public space as Sharing Platforms

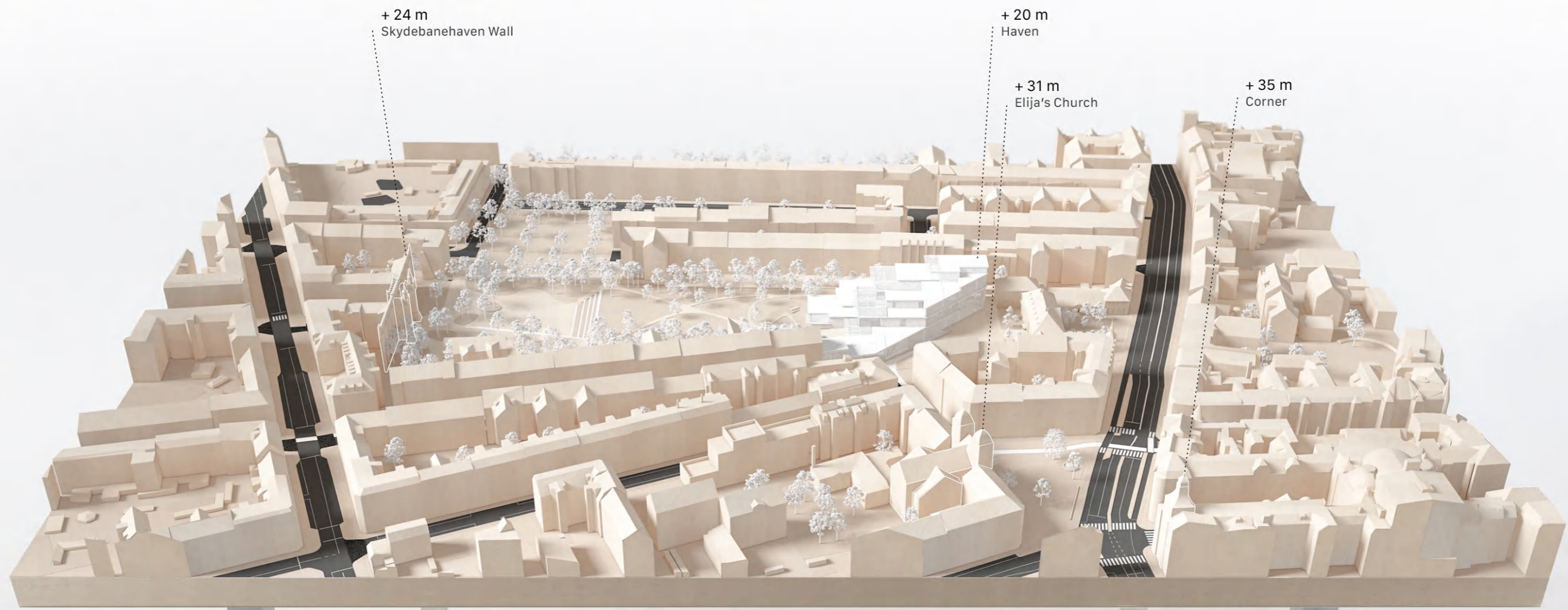


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Integration of Systems. Ventilation, Water, HVAC  
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# Overview





+ 24 m  
Skydebanehaven Wall

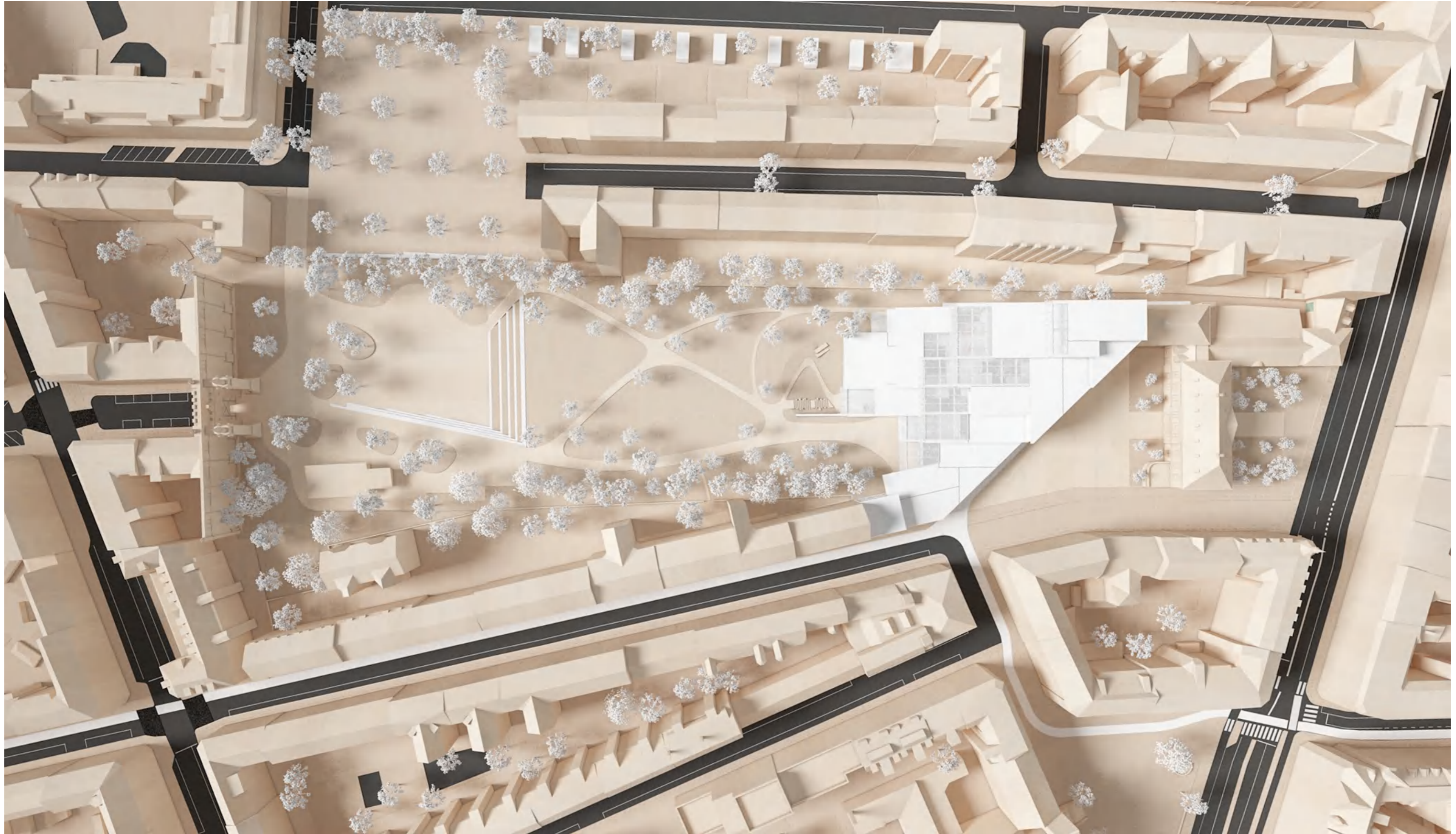
+ 20 m  
Haven

+ 31 m  
Elija's Church

+ 35 m  
Corner

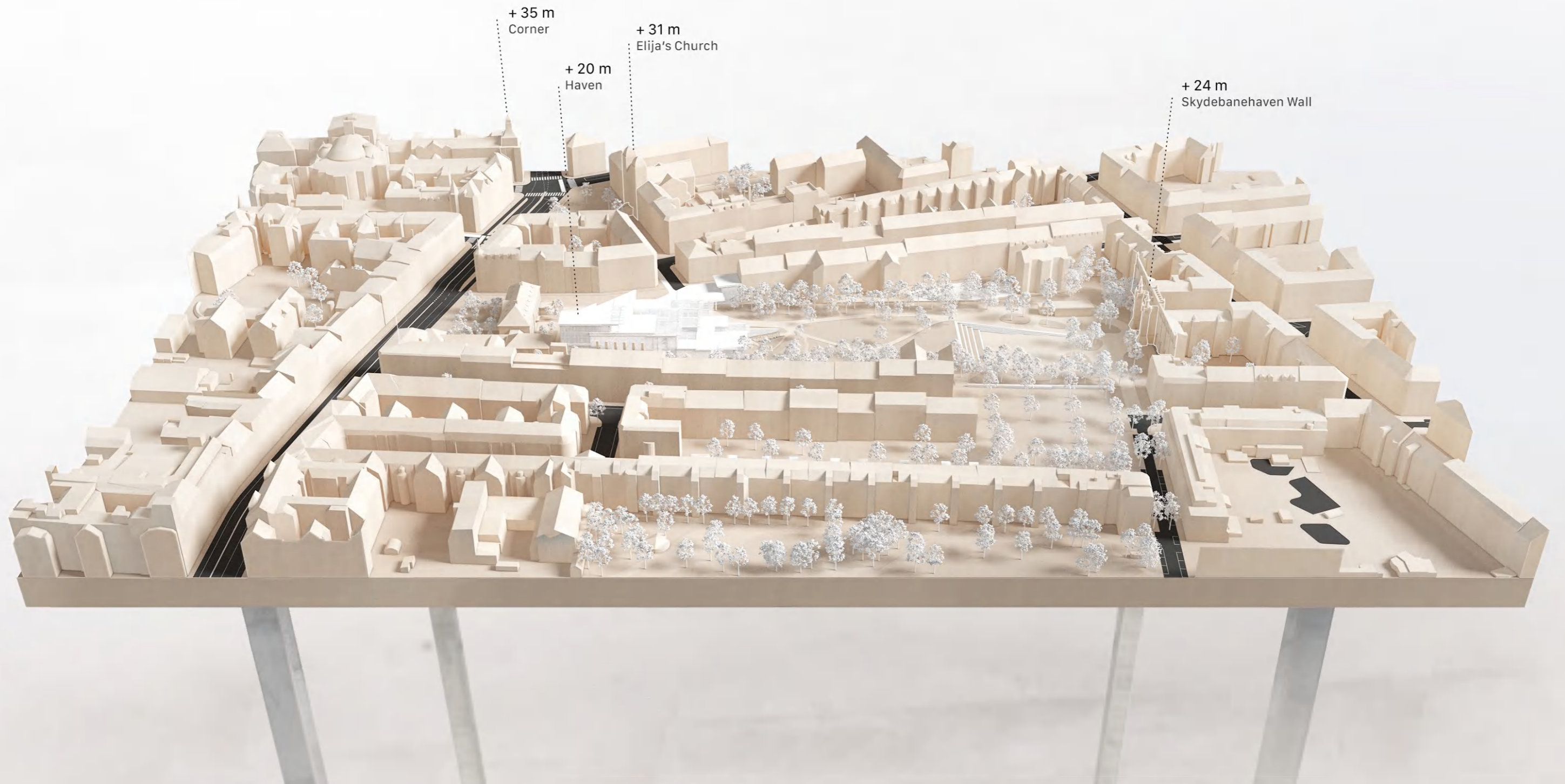
CONTEXTUAL MODEL, EAST SIDE  
1.1000 (DIGITAL)





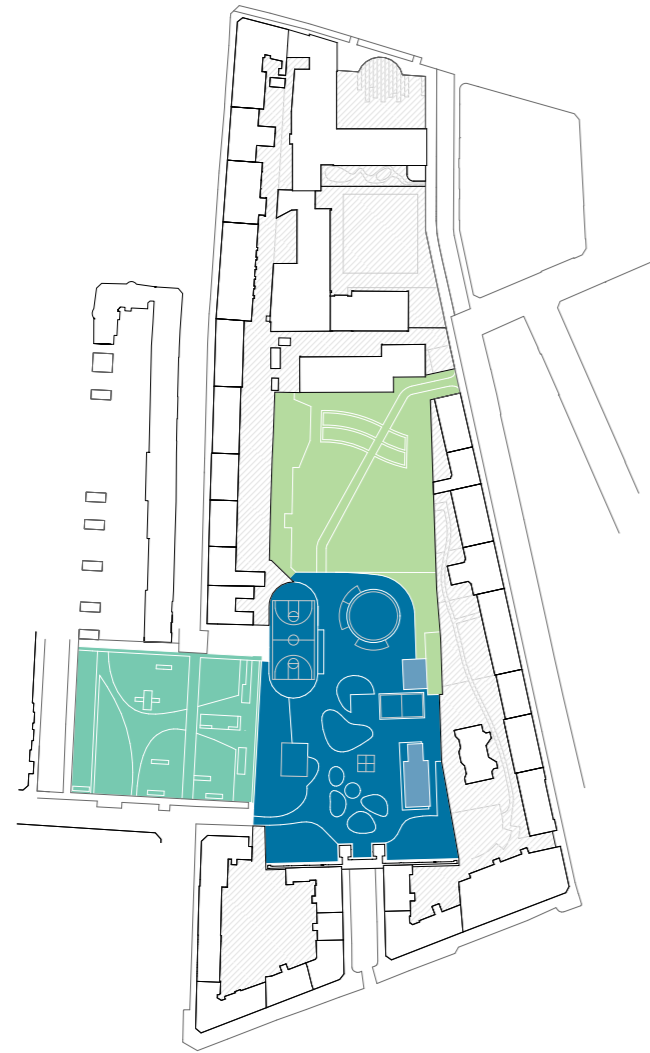
CONTEXTUAL MODEL  
1.1000 (DIGITAL)



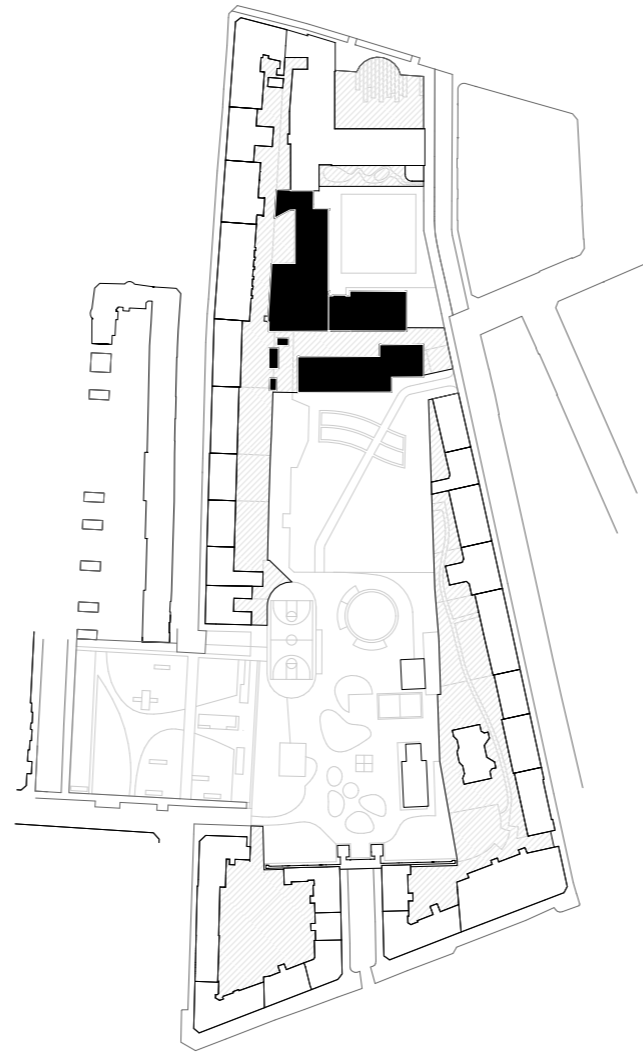


CONTEXTUAL MODEL, WEST SIDE  
1.1000 (DIGITAL)

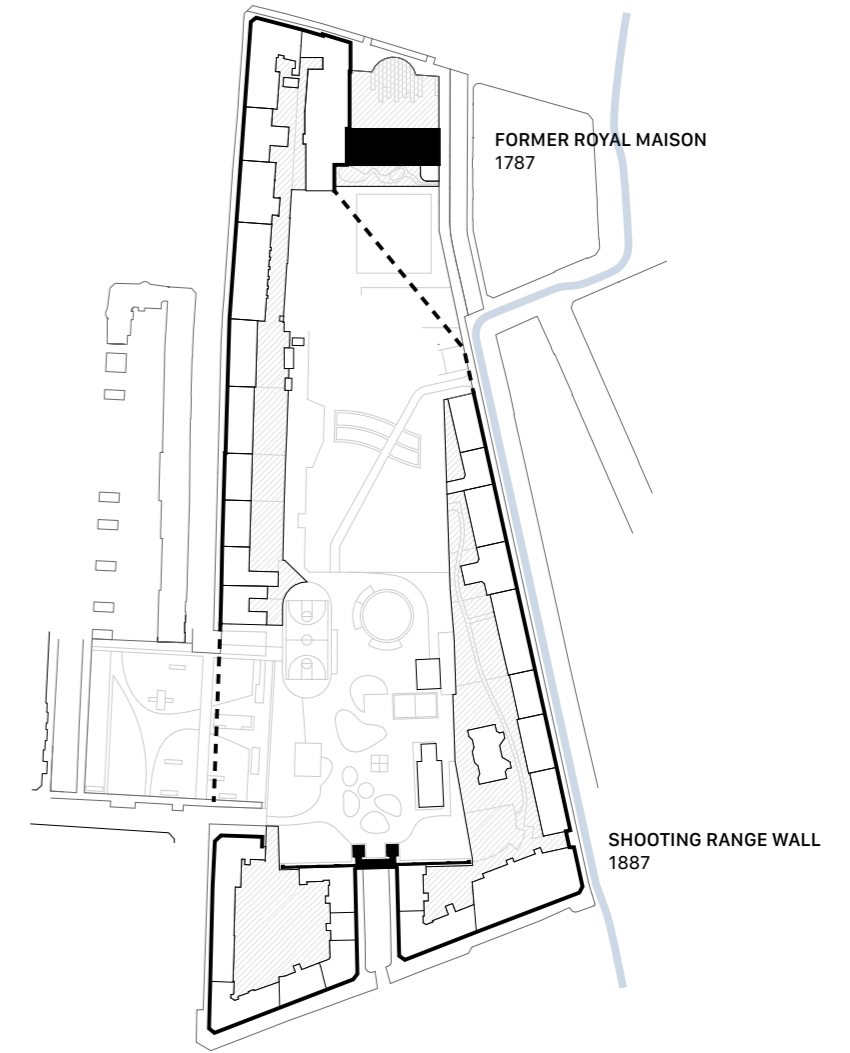




EXISTING PROGRAM



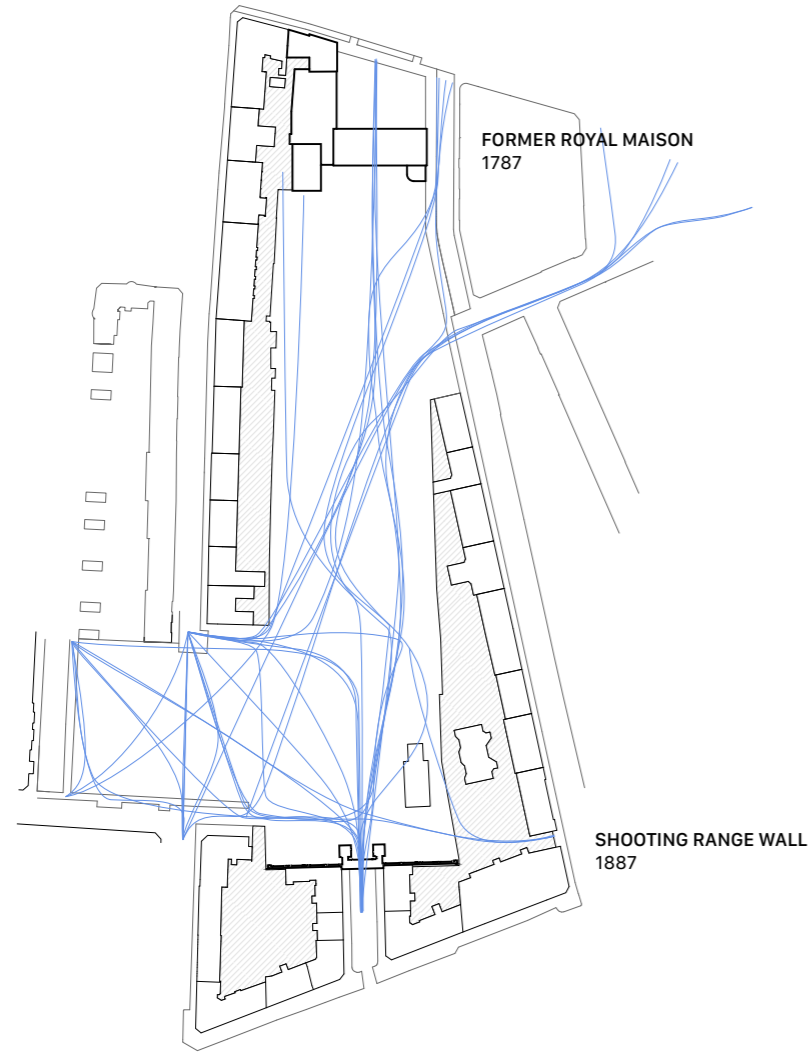
REMOVED BUILDING



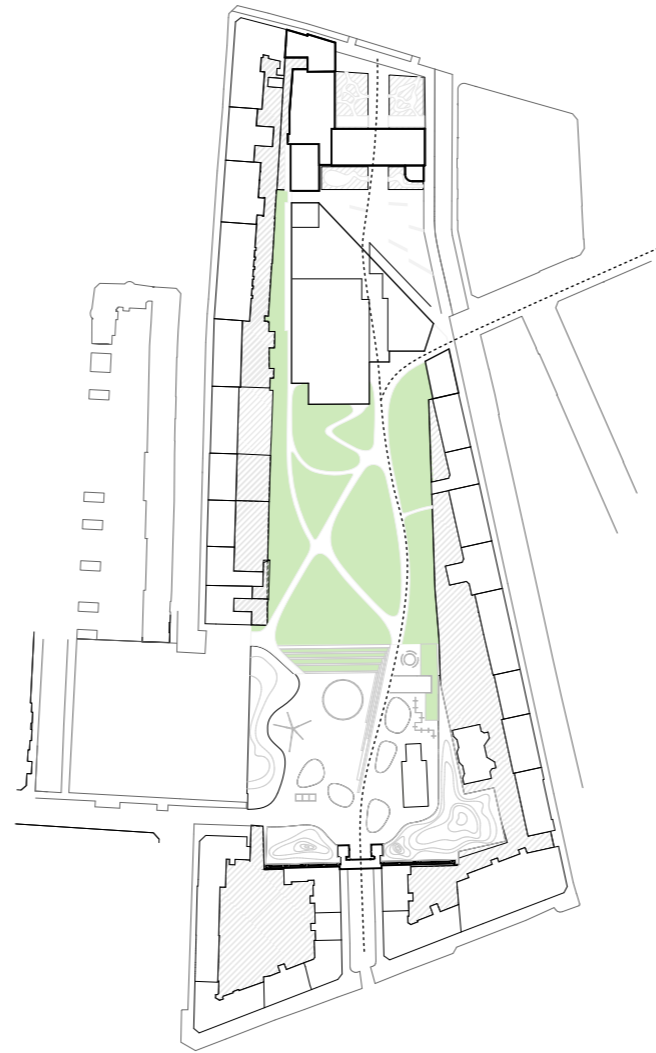
OPEN COURT

SITE STRATEGY  
DIAGRAM

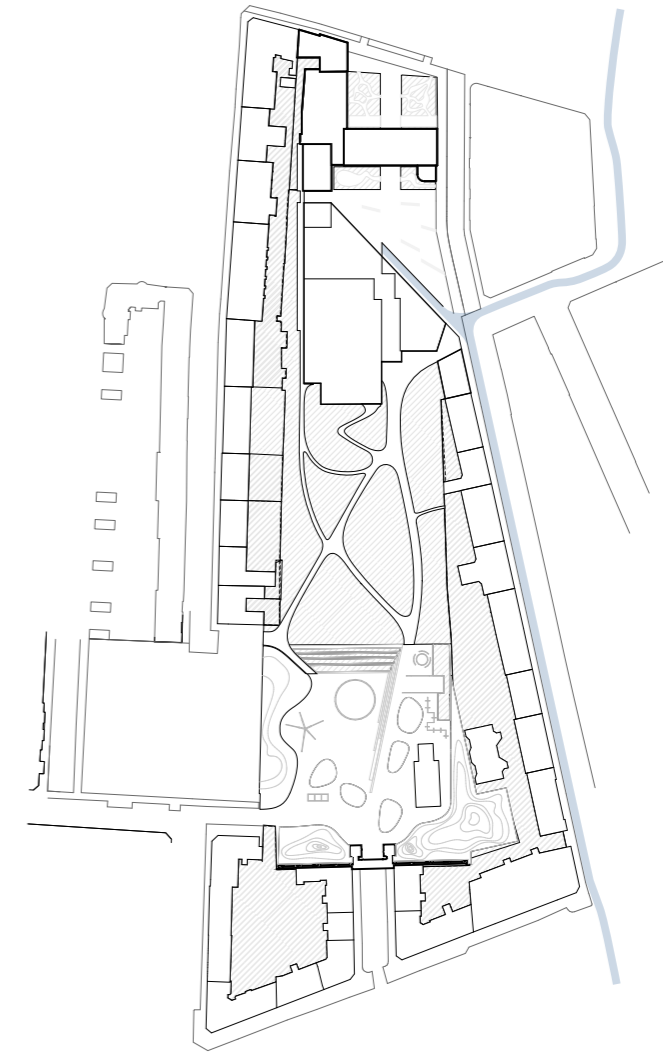




POTENTIAL ROUTES



NEW CONTINUITY



LANE AND VIEW

SITE STRATEGY  
DIAGRAM





CONTEXTUAL MODEL, SOUTH SIDE  
1.1000 (DIGITAL)





CONTEXTUAL MODEL, NORTH-EAST SIDE  
1.1000 (DIGITAL)





CONTEXTUAL MODEL, SOUTH-WEST SIDE  
1.1000 (DIGITAL)





HAVEN  
AERIAL VIEW





HAVEN  
FROM SVENDSGADE





HAVEN  
FROM SVENDSGADE AND ABSALONSGADE





HAVEN  
MAIN ENTRANCE, NORTH FACADE (10.00 am)





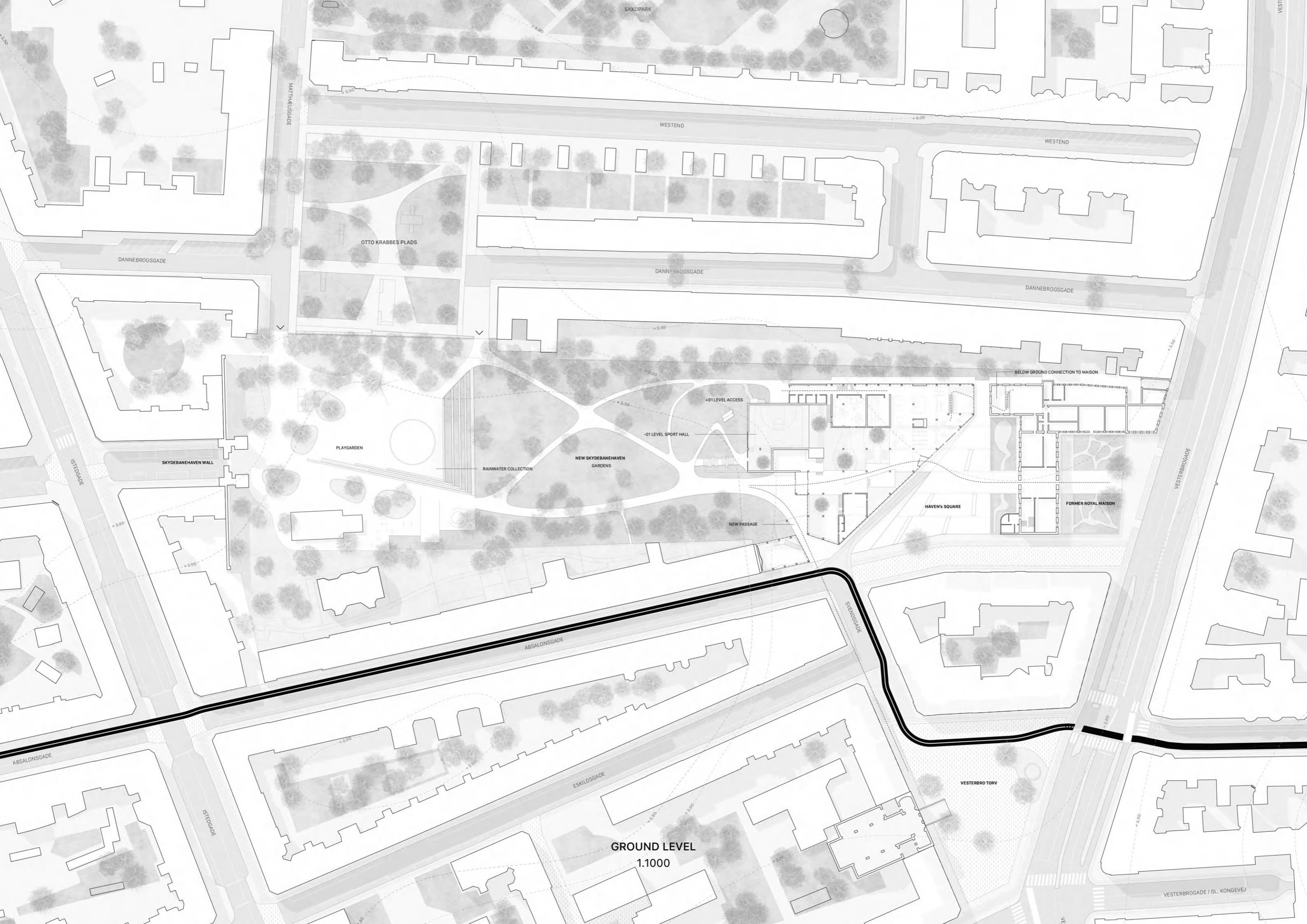
HAVEN  
MAIN ENTRANCE, NORTH FACADE (6.00 pm)





HAVEN  
GARDEN ENTRANCES, SOUTH FACADE (11.00 am)





GROUND LEVEL  
1.1000

DANNEBROGSGADE

WESTEND

WESTEND

OTTO KRABBES PLADS

DANNEBROGSGADE

DANNEBROGSGADE

MATHÆLSGADE

ISTEDGADE

SKYDEBANEHAVEN WALL

PLAYGARDEN

RAINWATER COLLECTION

NEW SKYDEBANEHAVEN GARDENS

-01 LEVEL SPORT HALL

+01 LEVEL ACCESS

BELOW GROUND CONNECTION TO MAISON

HAVEN'S SQUARE

FORMER ROYAL MAISON

NEW PASSAGE

VESTERBROGADE

ABSALONSGADE

SVENDSGADE

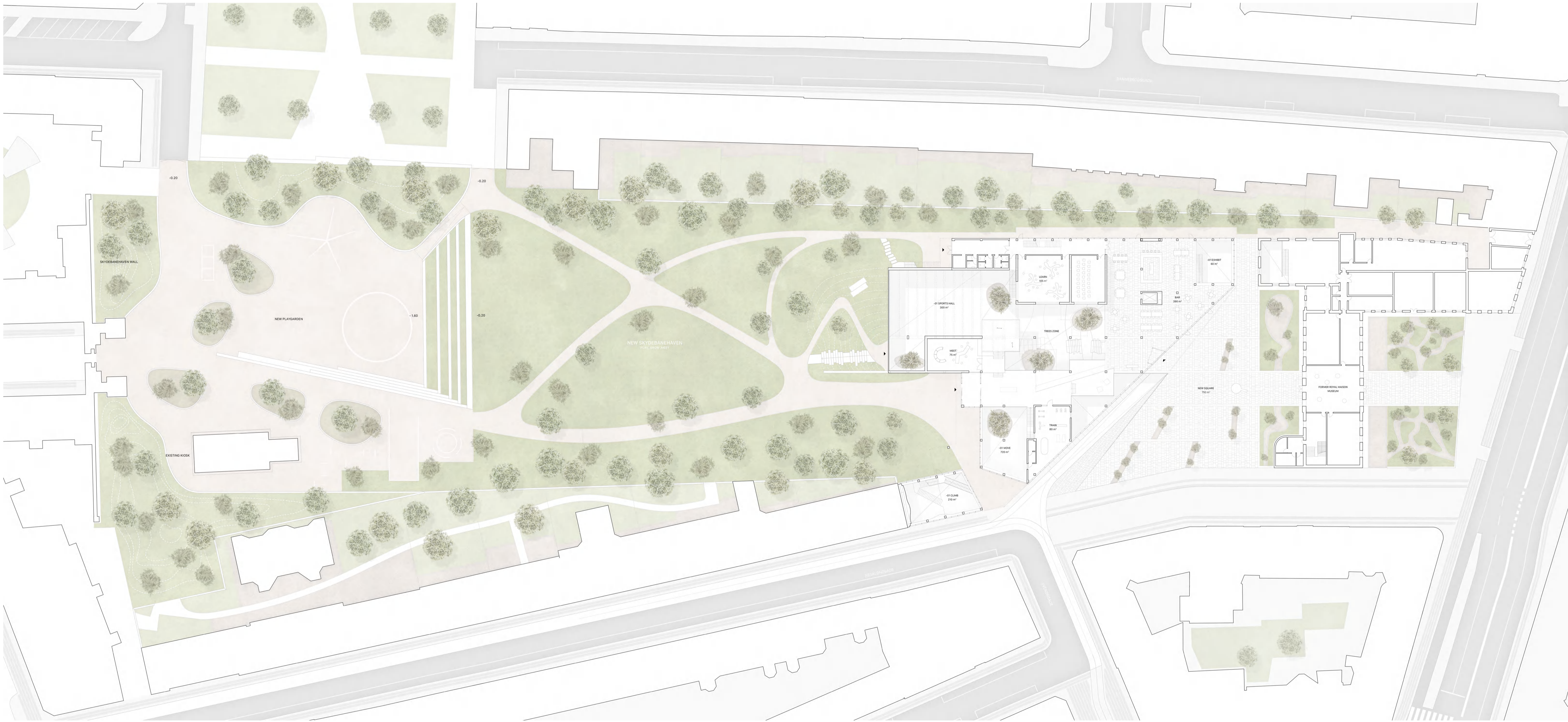
ESKILDSGADE

VESTERBRO TORV

ISTEDGADE

VESTERBROGADE / GL. KONGEVEJ





GROUND LEVEL  
1.200





-01 SPORTS HALL  
300 m<sup>2</sup>

LEARN  
185 m<sup>2</sup>

-01 EXHIBIT  
60 m<sup>2</sup>

BAR  
390 m<sup>2</sup>

TREES ZONE

MEET  
75 m<sup>2</sup>

FORMER ROYAL MAISON  
MUSEUM

NEW SQUARE  
750 m<sup>2</sup>

TRAIN  
80 m<sup>2</sup>

-01 MOVE  
720 m<sup>2</sup>

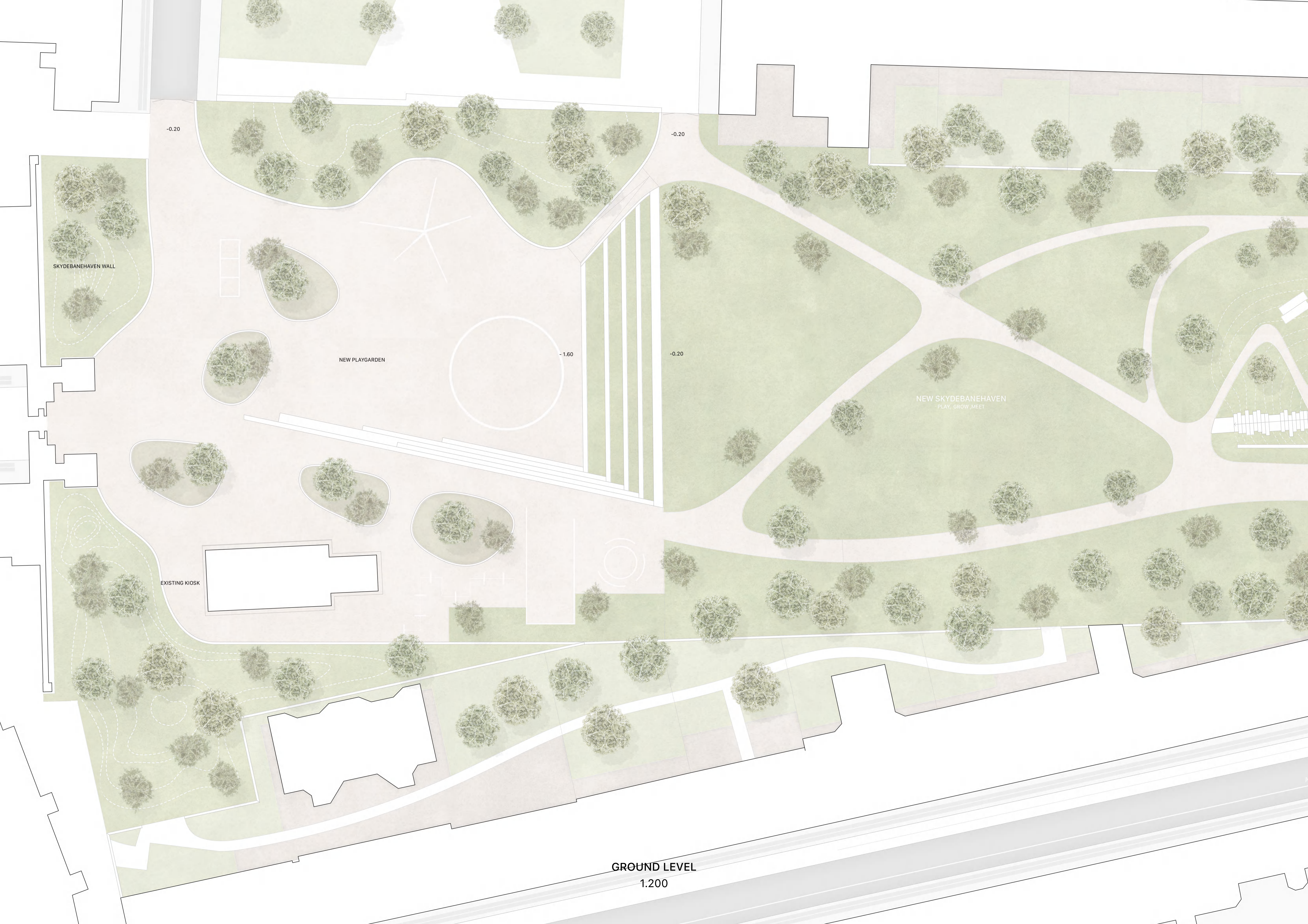
-01 CLIMB  
210 m<sup>2</sup>

ABSALONSGADE

ST. ENDSGADE

GROUND LEVEL  
1.200





-0.20

-0.20

SKYDEBANEHAVEN WALL

NEW PLAYGARDEN

-1.60

-0.20

NEW SKYDEBANEHAVEN  
PLAY, GROW, MEET

EXISTING KIOSK

GROUND LEVEL

1.200





-01 LEVEL  
1.200





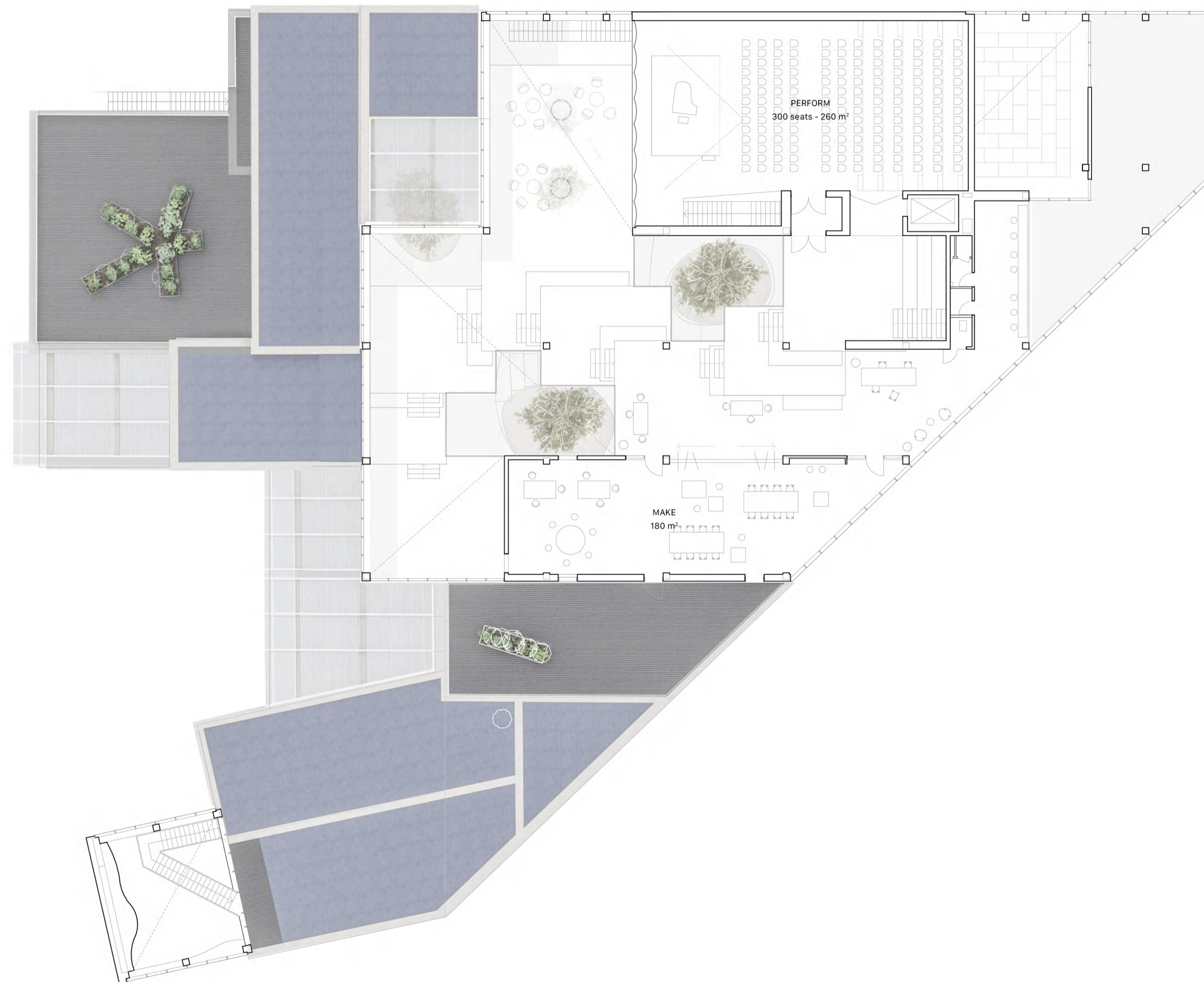
01 LEVEL  
1.200





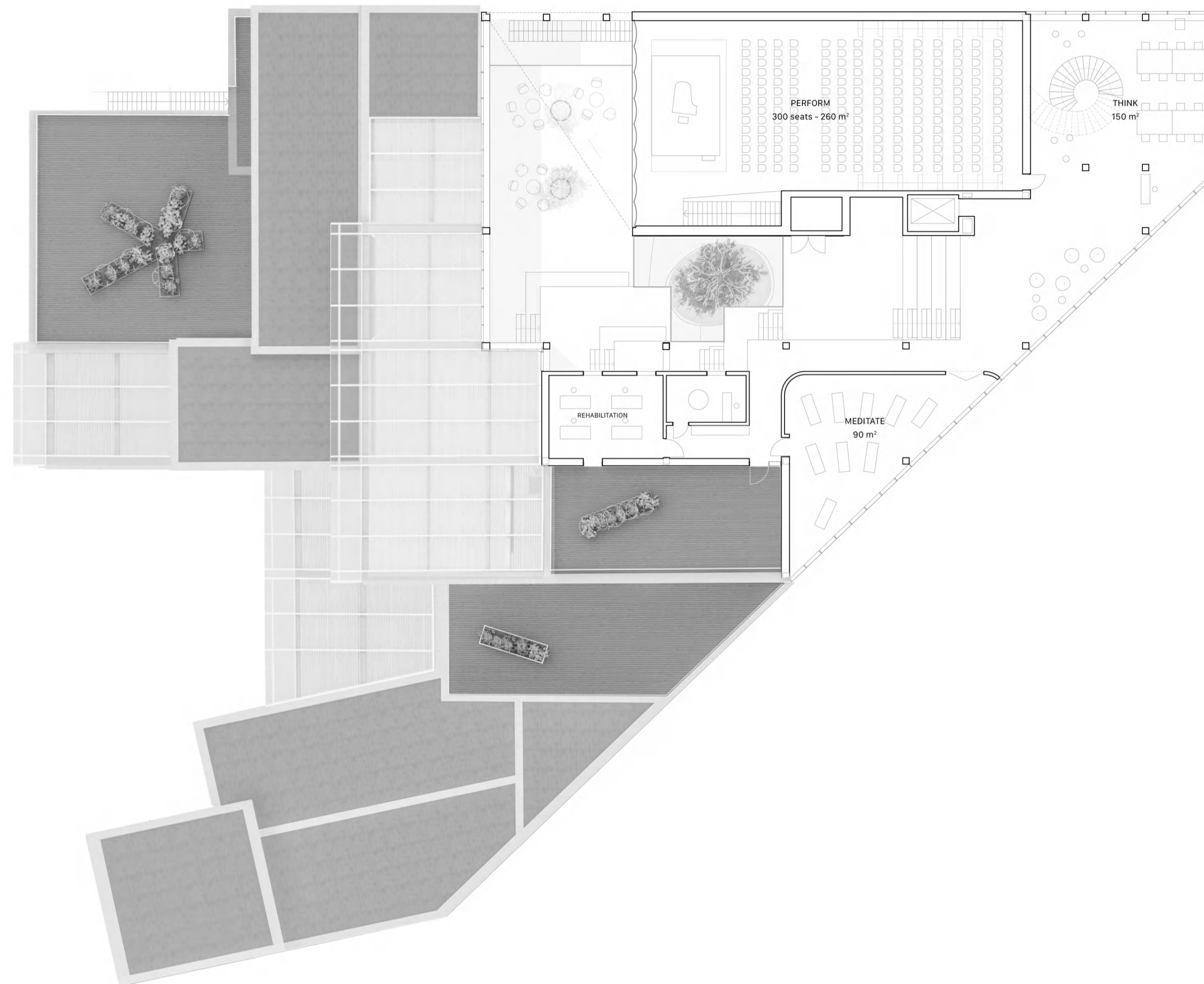
02 LEVEL  
1.200





03 LEVEL  
1.200





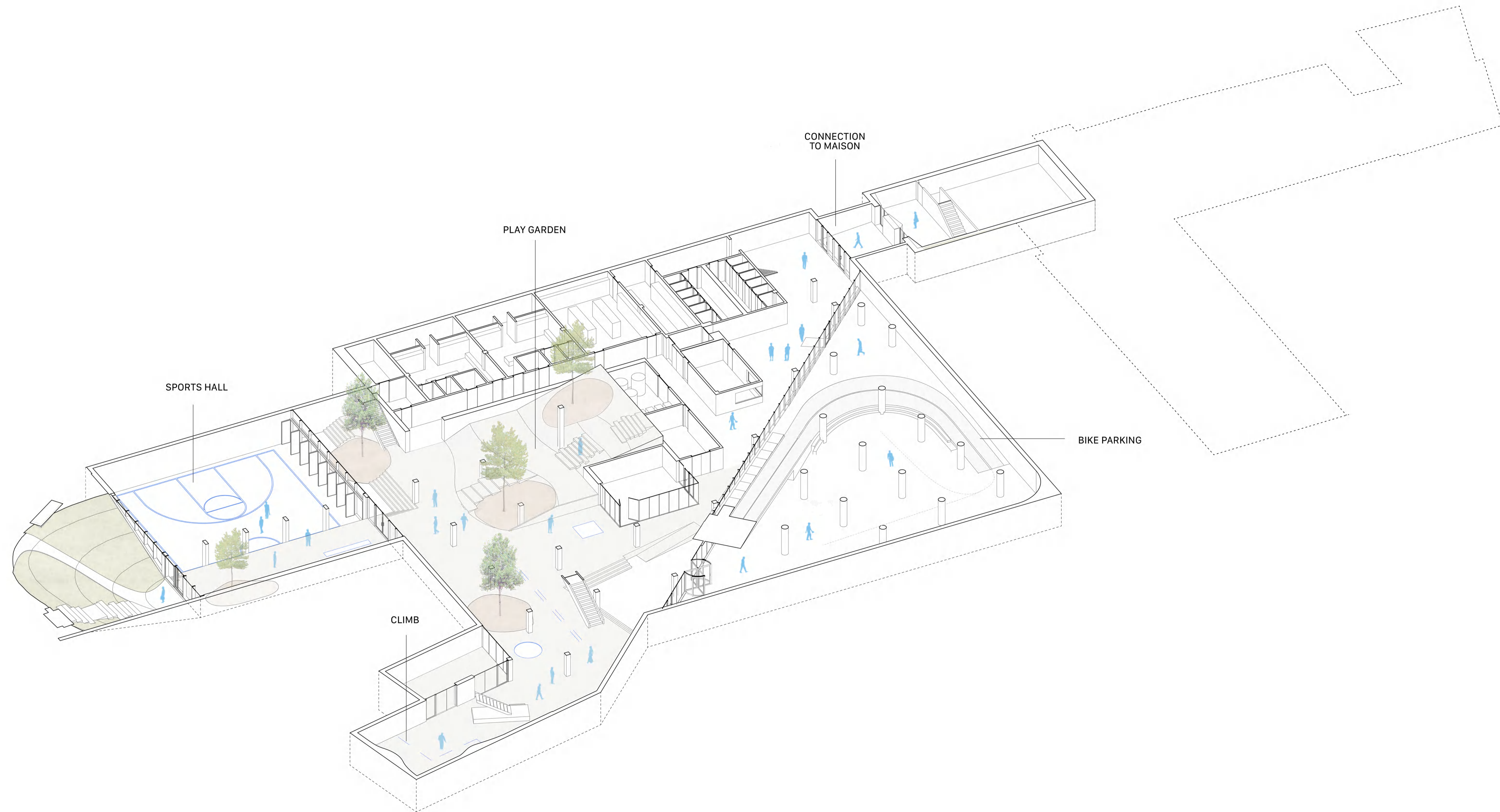
04 LEVEL  
1.200





05 LEVEL  
1.200





-01 LEVEL  
Axonometric 1.200





PARK  
-01 BICYCLE PARKING





PLAY GARDEN  
-01 SPORTSHALL





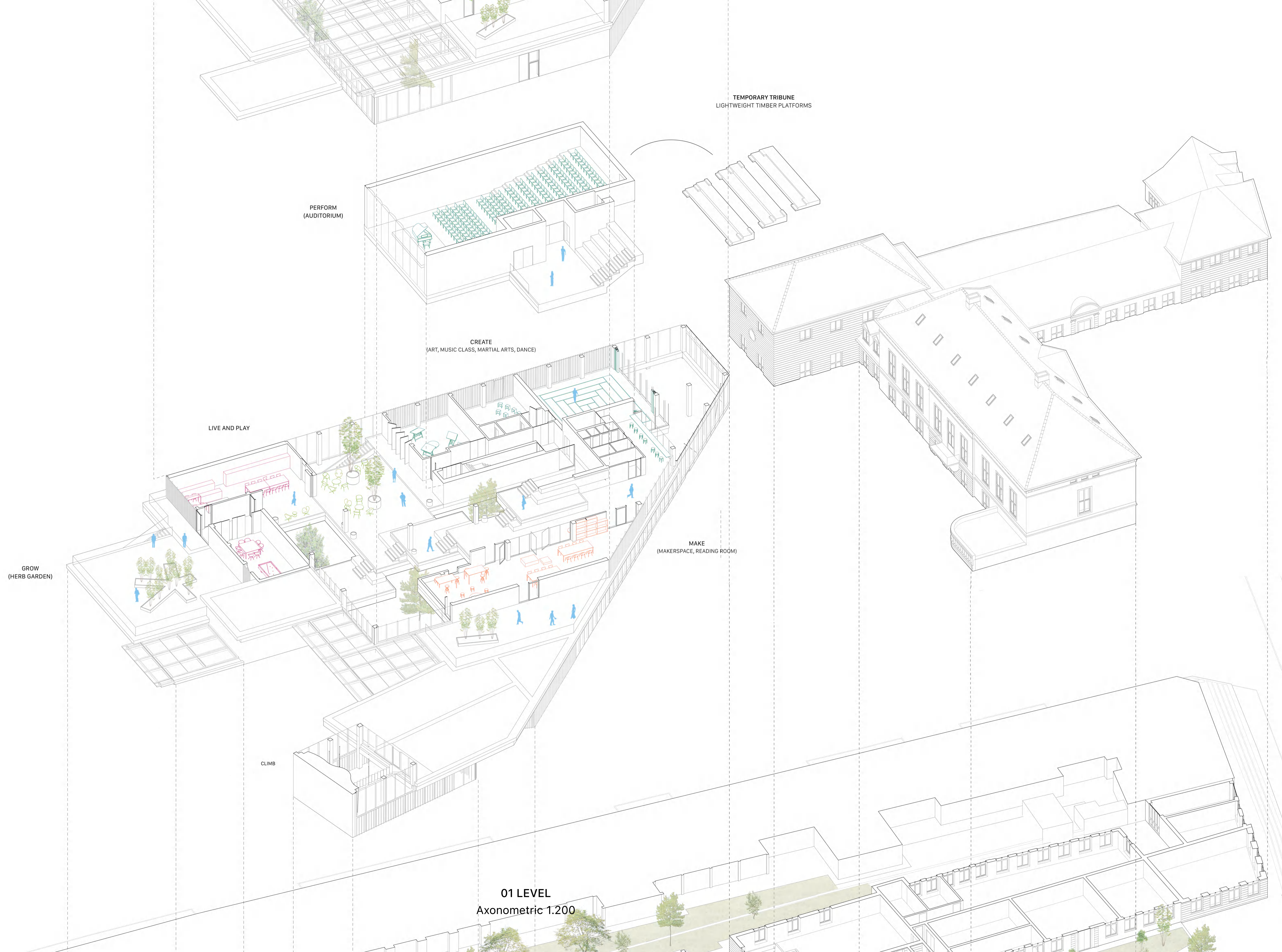
PLAY GARDEN  
-01 SPORTSHALL





Q0 LEVEL  
Axonometric 1.200





PERFORM  
(AUDITORIUM)

CREATE  
(ART, MUSIC CLASS, MARTIAL ARTS, DANCE)

LIVE AND PLAY

GROW  
(HERB GARDEN)

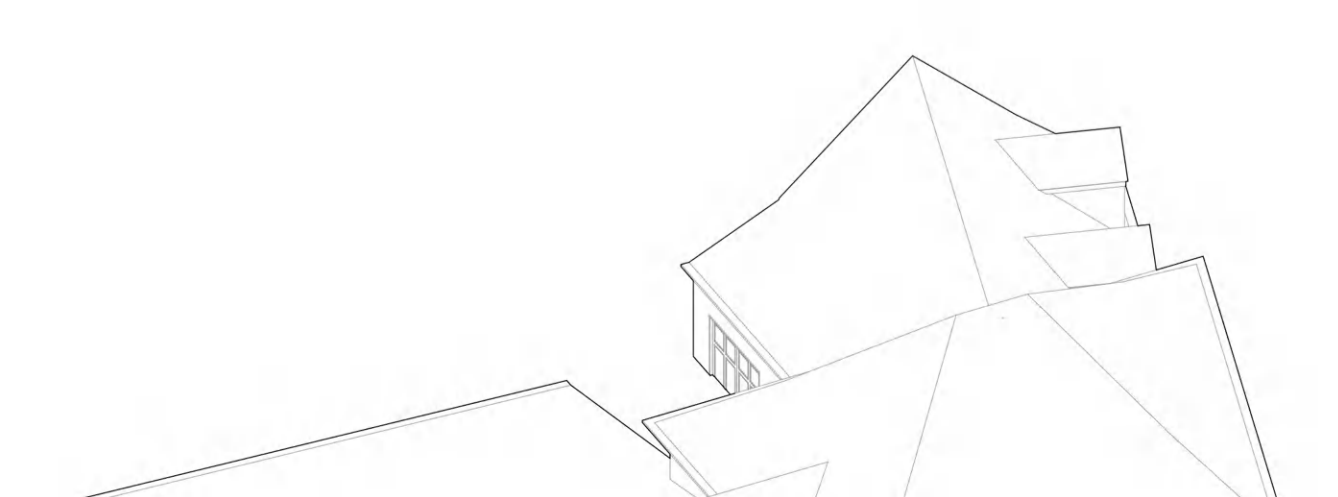
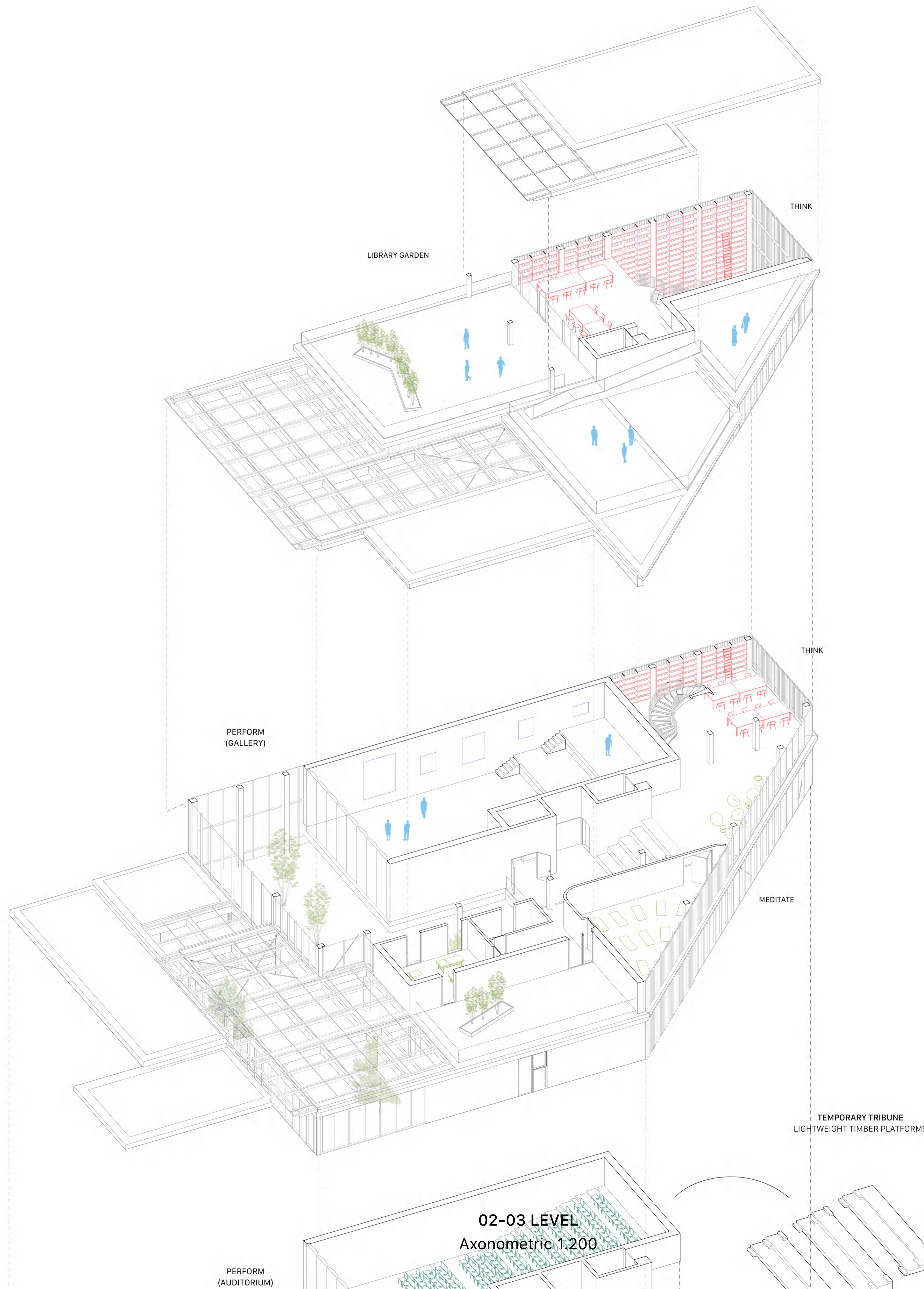
CLIMB

MAKE  
(MAKERSPACE, READING ROOM)

TEMPORARY TRIBUNE  
LIGHTWEIGHT TIMBER PLATFORMS

01 LEVEL  
Axonometric 1:200









ARRIVAL  
+ 00 CIRCULATION ZONE





INTERLACE  
+ 0.5 CIRCULATION ZONE





CREATE  
+01 ARTS AND MUSIC CLASS









PERFORM  
+03 AUDITORIUM HALL





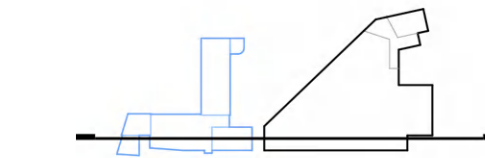
THINK  
+04 LIBRARY, CO-WORKING





0 1 5 10 20 m

LONG SECTION 1  
1:200

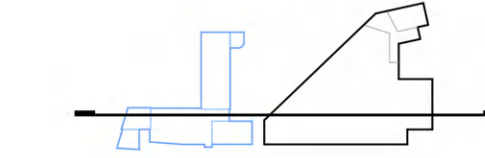




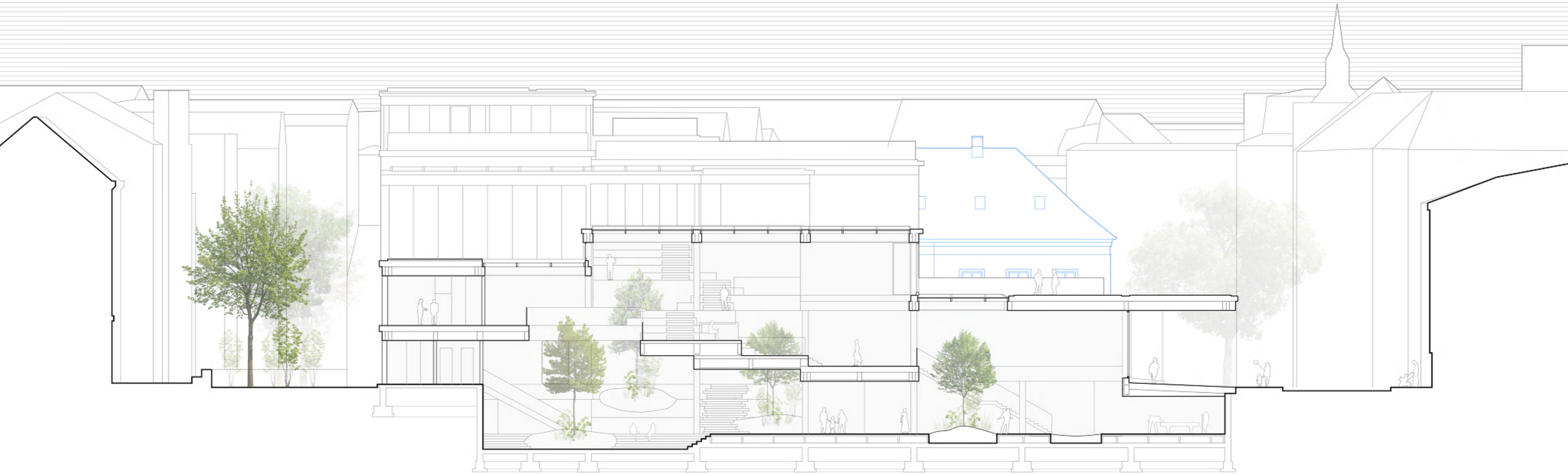


0 1 5 10 20 m

LONG SECTION 2  
1:200

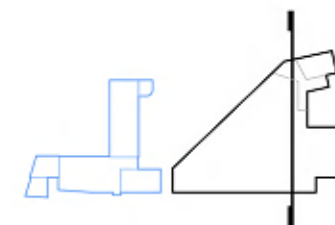




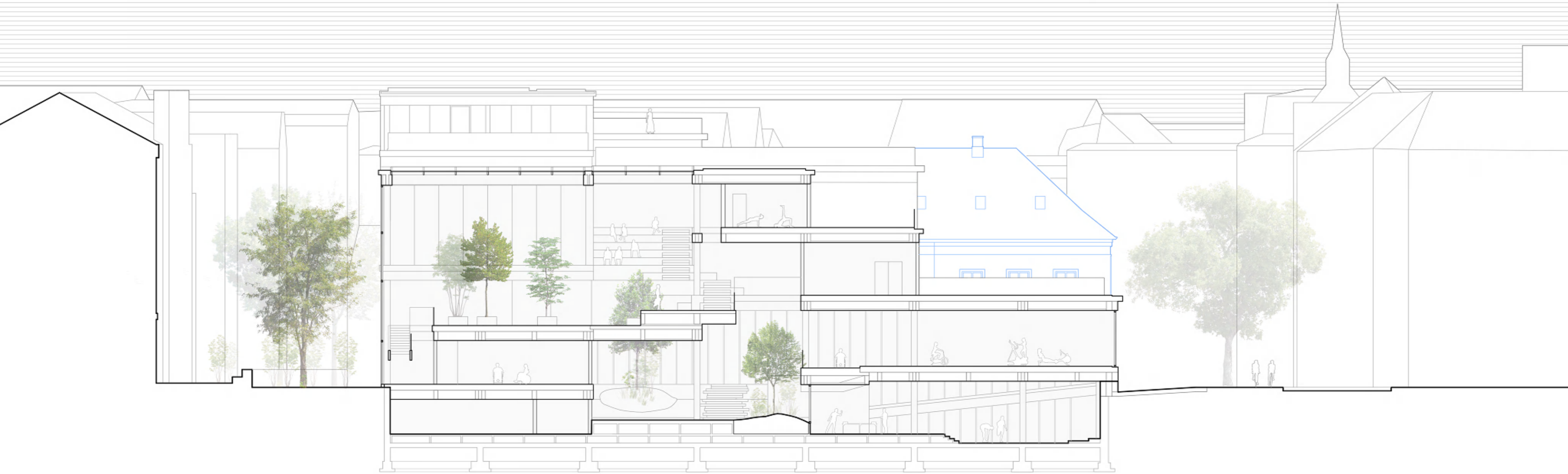


0 1 5 10 20 m

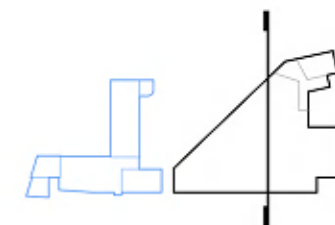
CROSS SECTION 1  
1.200







CROSS SECTION 2  
1.200





**Program**



## CULTURE

Theater  
**Auditorium**  
Performing arts center  
Music Venue  
Concert house  
**Cinema**  
Opera house  
**Dance hall**  
Amphitheater

**Museum**  
Pavilion  
Gallery  
Exhibition center  
Installation  
Preservation Site  
Acquarium  
Planetarium  
**Watching Tower**

**Workshop**  
School  
**Makerspace**  
Hackerspace  
**Library**  
**Learning center**  
**Visitor center**  
Visual arts center  
Science center  
Youth center  
Kindergarten  
**Office**  
Watching tower  
Zoo  
Aquarium  
Interpretation Center  
Planetarium

## MOVEMENT

**Playground**  
**Sports Hall**  
Gymnasium  
Swimming pool  
Fitness club  
Ski centre  
Skatepark  
Race Track  
**Running Track**  
**Martial Art**  
**Bouldring, Climbing**  
Interactive Game  
**Table Game**

Spa  
Sauna  
**Meditation Hall**  
Bath House  
**Massage Room**  
Therm  
Hospital  
Medical facilities  
**Rehabilitation center**  
Retirement  
Asylum  
Healthcare center  
Clinic

## COMMERCE

**Market**  
Shopping Centre  
Showroom  
Grocery Store  
Pharmacy  
**Temporary stores**  
**Bicycle Store**  
Gas station  
Charging Station

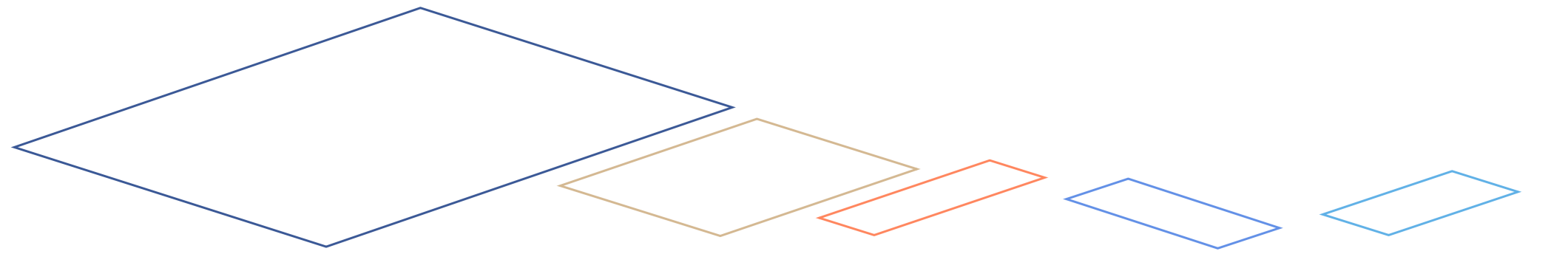
## URBAN

Urban Farm  
Botanical Garden  
Herb Garden  
Greenhouse  
**Community Garden**  
**Park**  
Riverside  
Lagoon  
**Cafeteria**  
Pub  
Night club  
RestaurantFast Food  
Coffee Shop  
**Lounge Room**  
**Dining Room**  
**Square**  
**Community Hall**  
Sidewalk  
Street

### PROGRAM SELECTION

*Selection of functions for the maximum diversity.*





**Move**

Sports hall, Climb,  
Play and Exercise

**Arrive**

Reception, Bar,  
Exhibition, Square

**Learn**

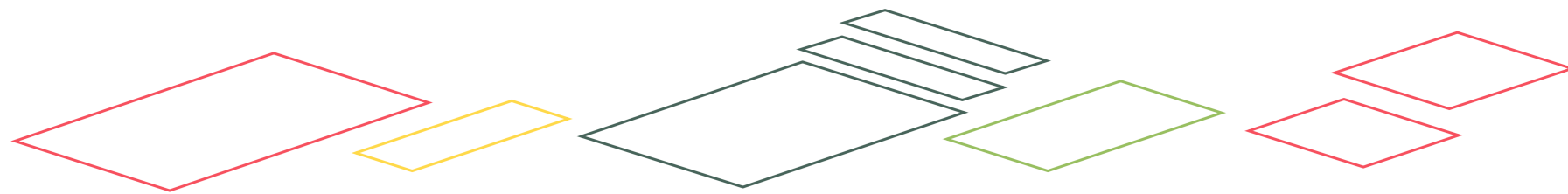
Special Classroom,  
Learning centre,

**Meet**

Play area, Gallery,  
Table Game.

**Live**

Community Living Room,  
Cooking Class, Herb Garden



**Create**

Art, Music Class,  
Dance Martial Arts Hall

**Make**

Makerspace, Model  
Rooms, Co-working

**Perform**

Auditorium, Exhibition  
and more

**Meditate**

Yoga Hall,  
Rehabilitation rooms

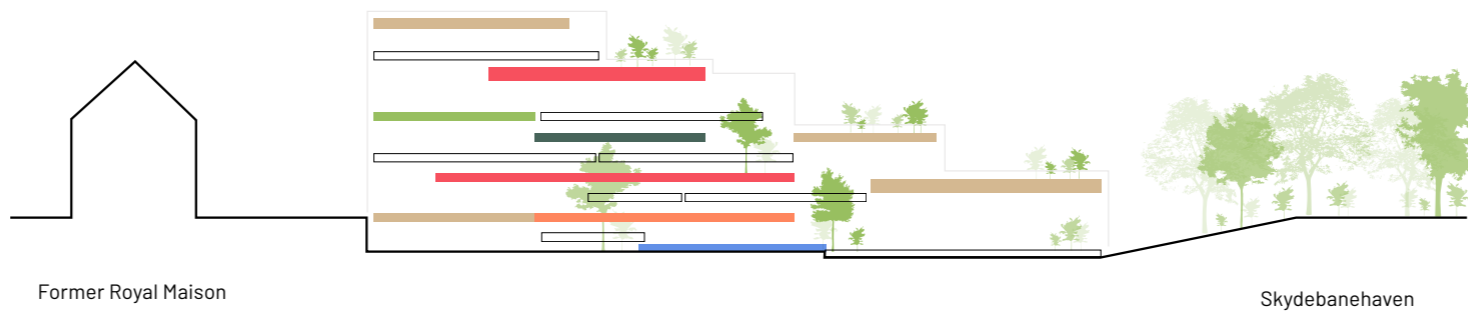
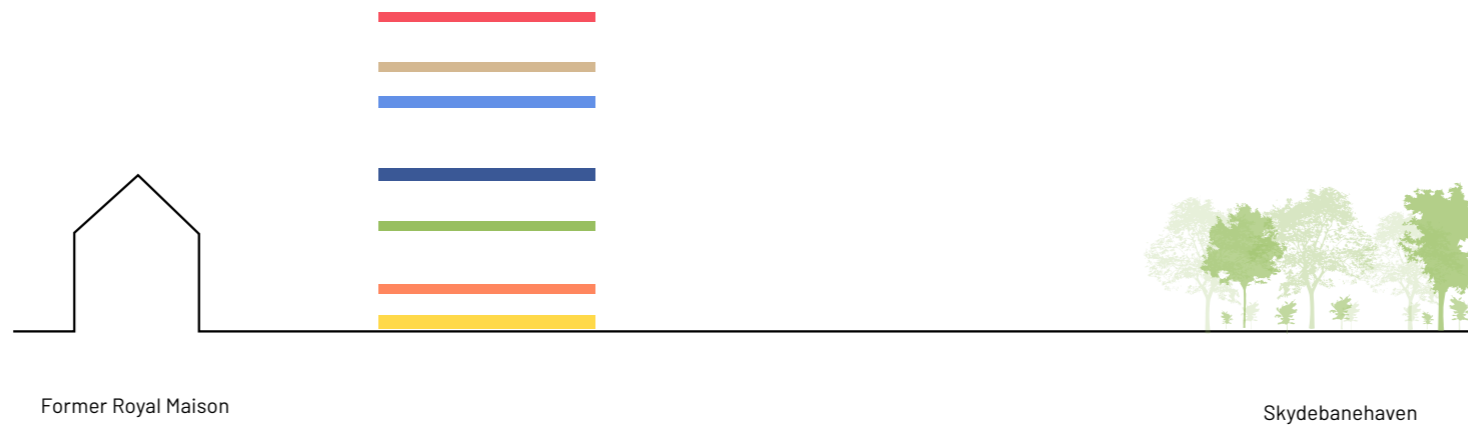
**Think**

Library, Lounge, Library  
Garden

**PROGRAM DEFINITION**

*Verbs to define zones with a degree of flexibility.*

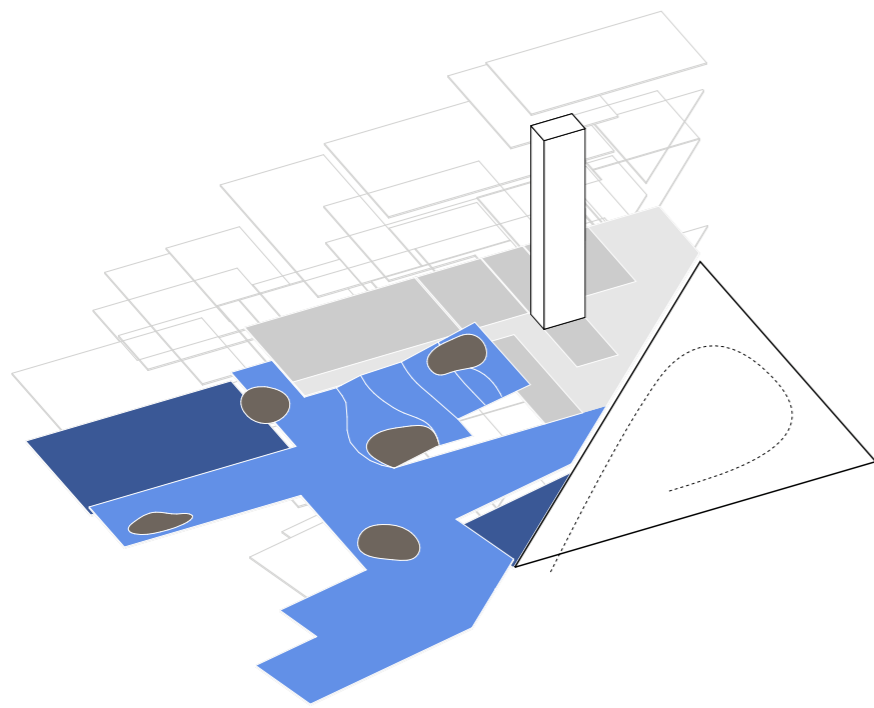




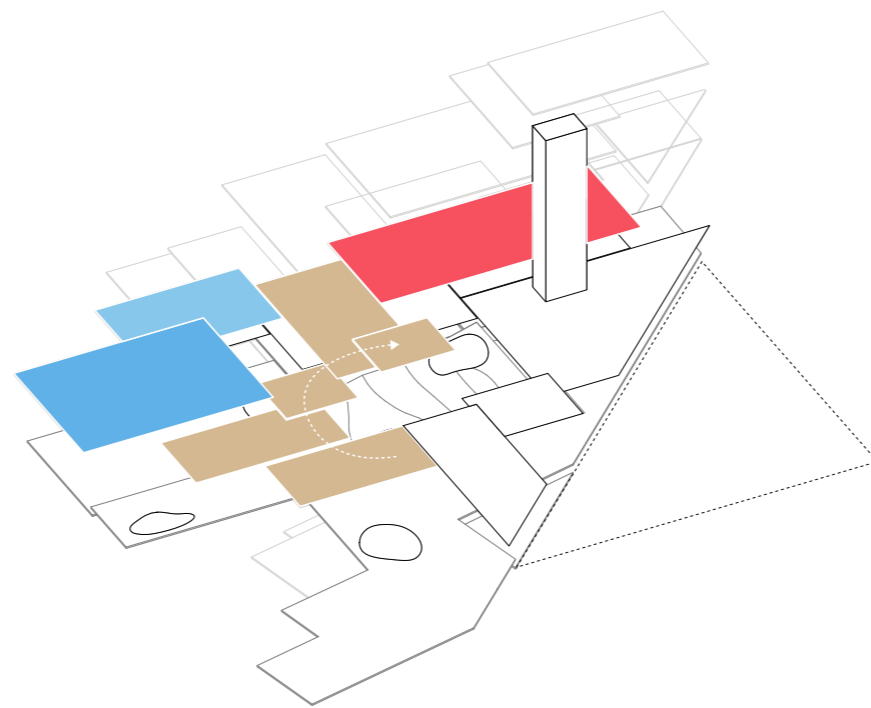
**PROGRAM PLACEMENT**

*Platforms spread towards the garden to define a space of interaction among them*

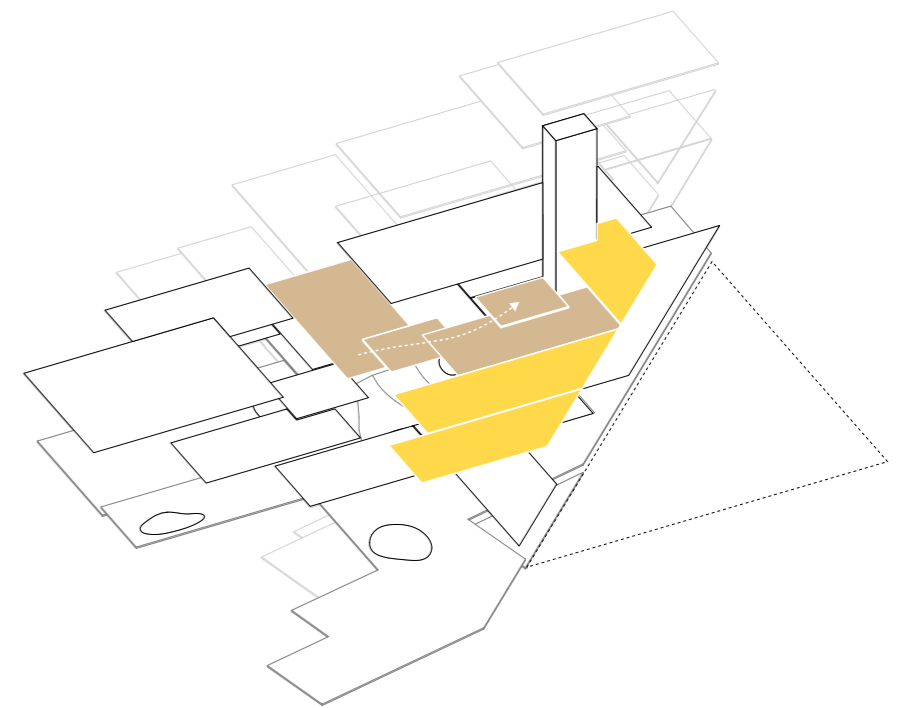




-01



01

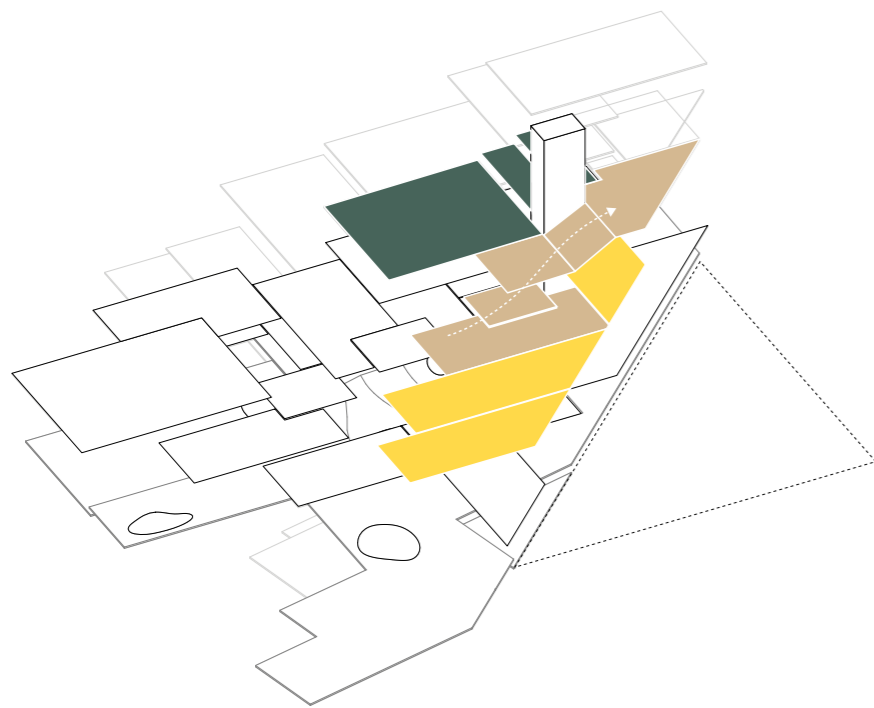


02

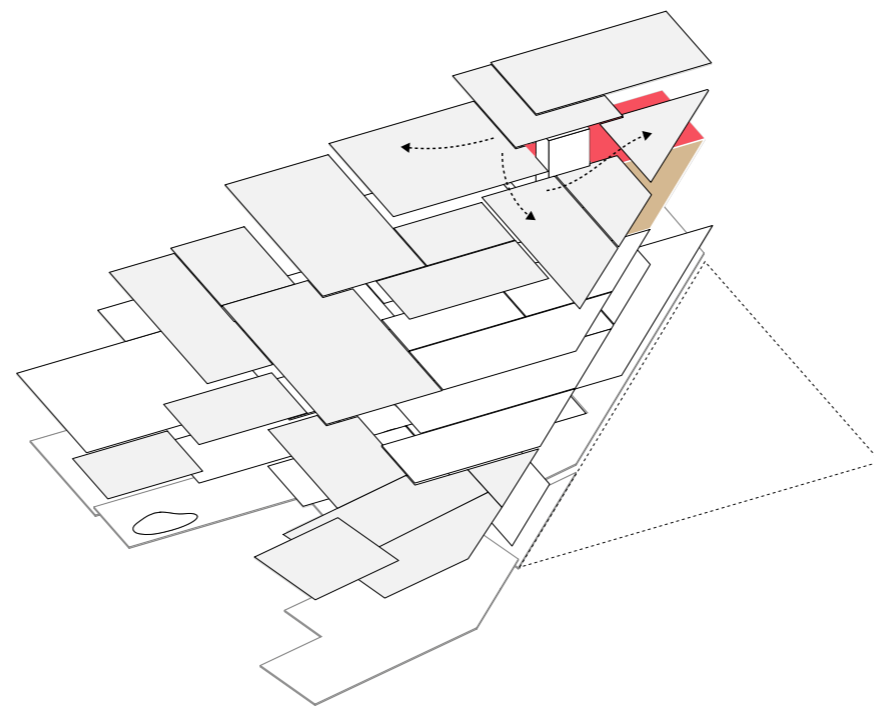
**PROGRAM PLACEMENT**

*Platforms spread towards the garden to define a space of interaction among them*

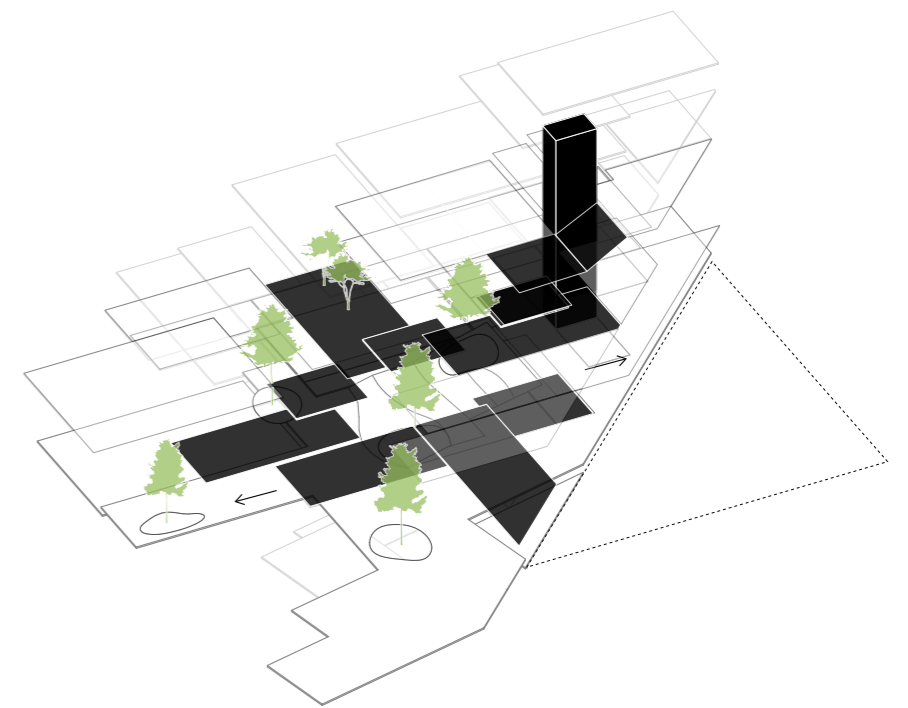




03



ROOFS



INTERLACE

**PROGRAM PLACEMENT**

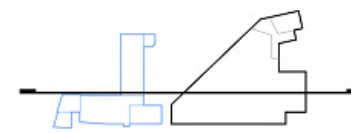
*Platforms spread towards the garden to define a space of interaction among them*





0 1 5 10 20 m

CROSS SECTION 2  
1.200



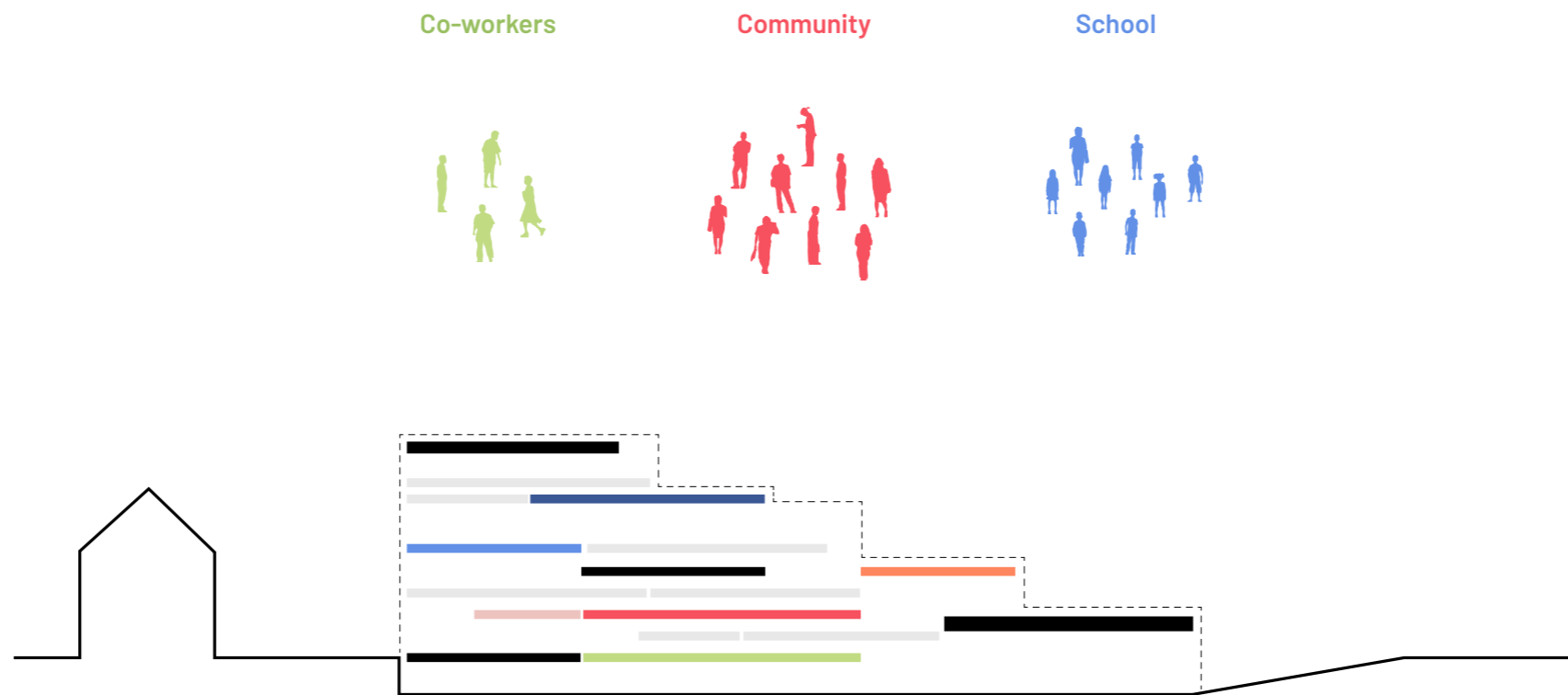


**Multiplicity**









**SHARING PLATFORMS**

*The building becomes a public asset open to individuals, groups or associations.  
 Resources are meant to be reused and space is open to diverse layouts.  
 When the building is not use by the majority of people for their leisure, it is usable as  
 extension of other facilities.*





+ 1.0 INTERLACE  
CIRCULATION ZONE (10.00 am)





+ 1.0 INTERLACE  
CIRCULATION ZONE (5.00 pm)









WINTER

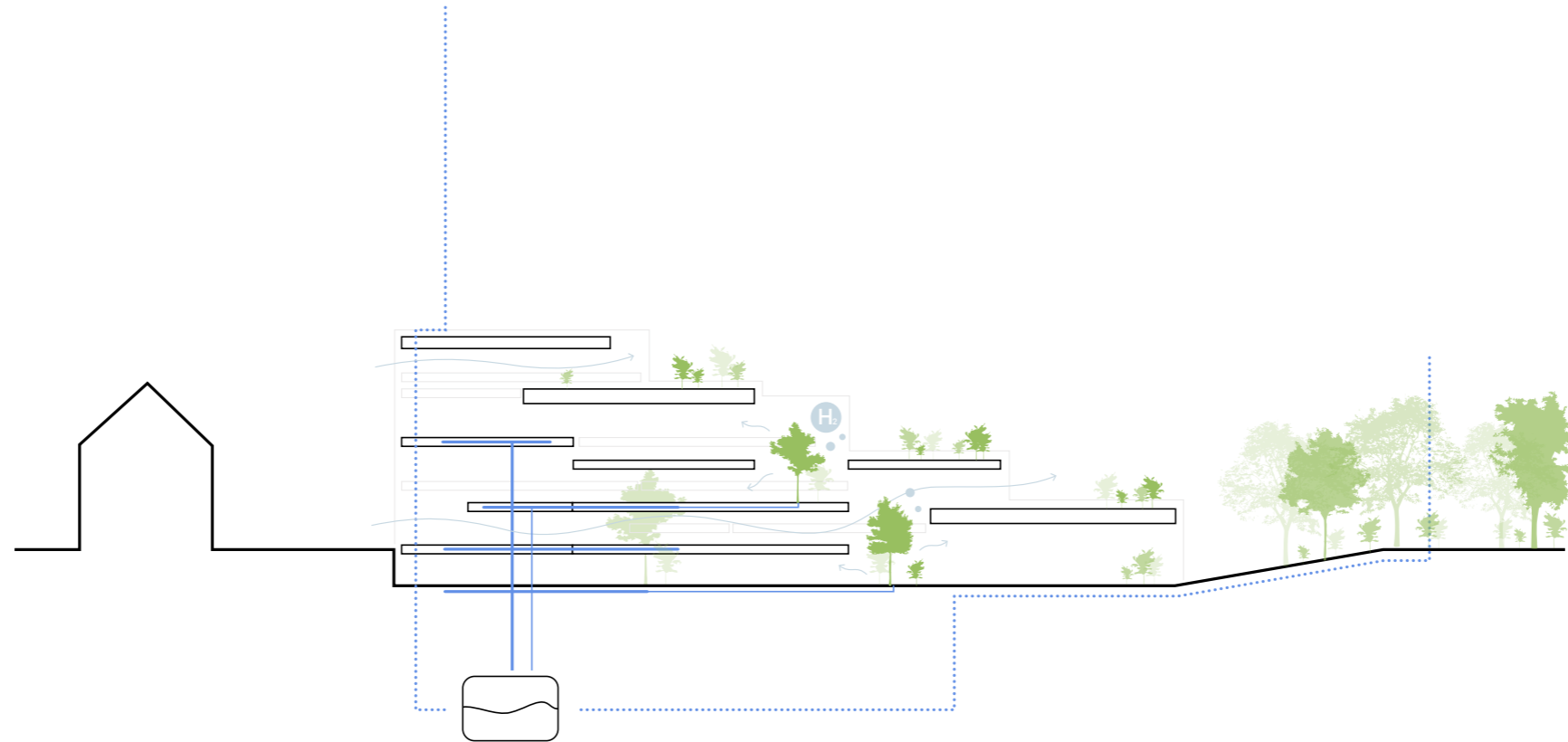
**GREENHOUSE EFFECT**

*It delays the heat loss in winter, mitigating the temperatures between inside and outside.*

**COMBINED HVAC AND RADIANT HEATING/COOLING**

*Dry radiant heating allows to set diverse temperatures. The forced ventilation system control humidity and purification of air with heat recover.*





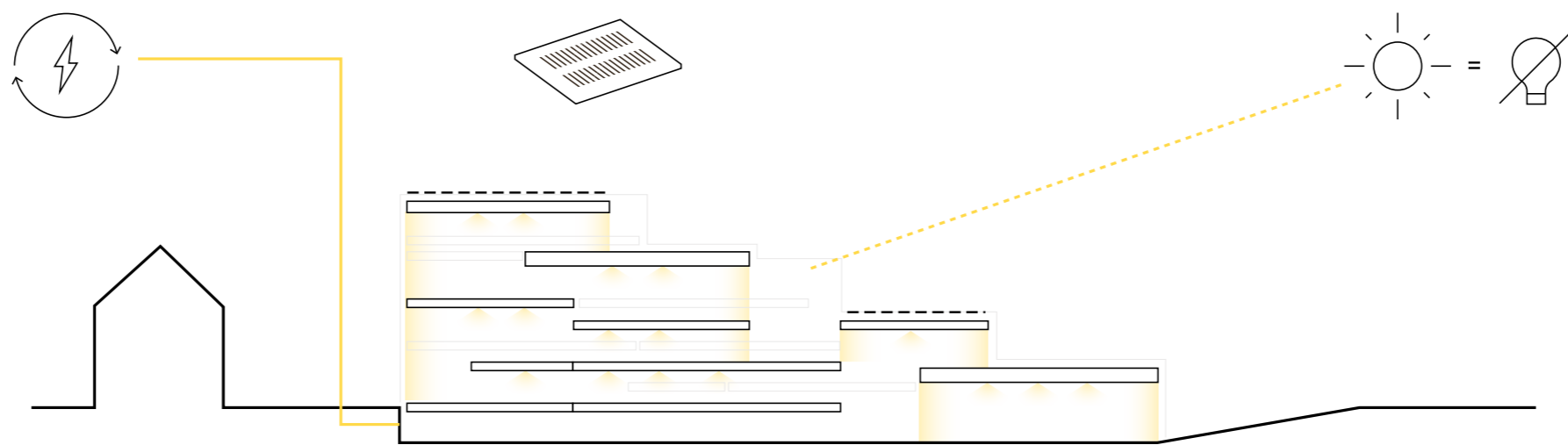
#### **RAINWATER COLLECTION**

*Gutters runs on external envelope: roof leads water partly to the edge and the center of the building.  
Pipes are hidden and insulated in thick wall.*

#### **NATURAL CROSS VENTILATION**

*Plants and trees on the underground level enhance air quality,  
while the vertical circulation space facilitate natural ventilation.*

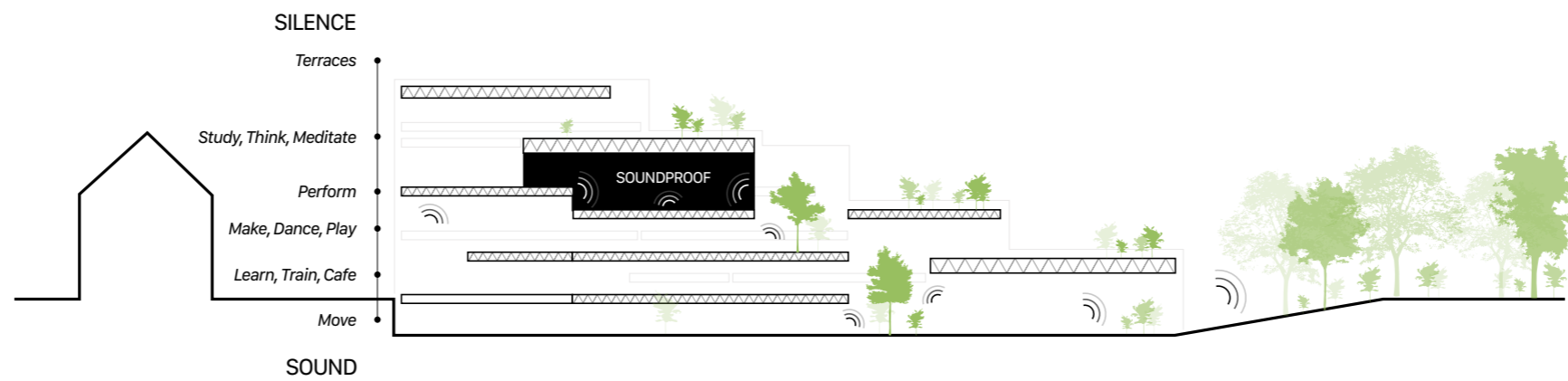




**ELECTRICITY SUPPLY, PRODUCTION, SAVING**

*Photovoltaic cells on the roof and sunlight harvesting on the south facade aims to reduce the need of artificial light over the day. The need of renewal energy, from City biofuels, is minimized.*





#### ACOUSTIC ATTENUATION

*Vegetation and slabs absorb and attenuate sounds.*

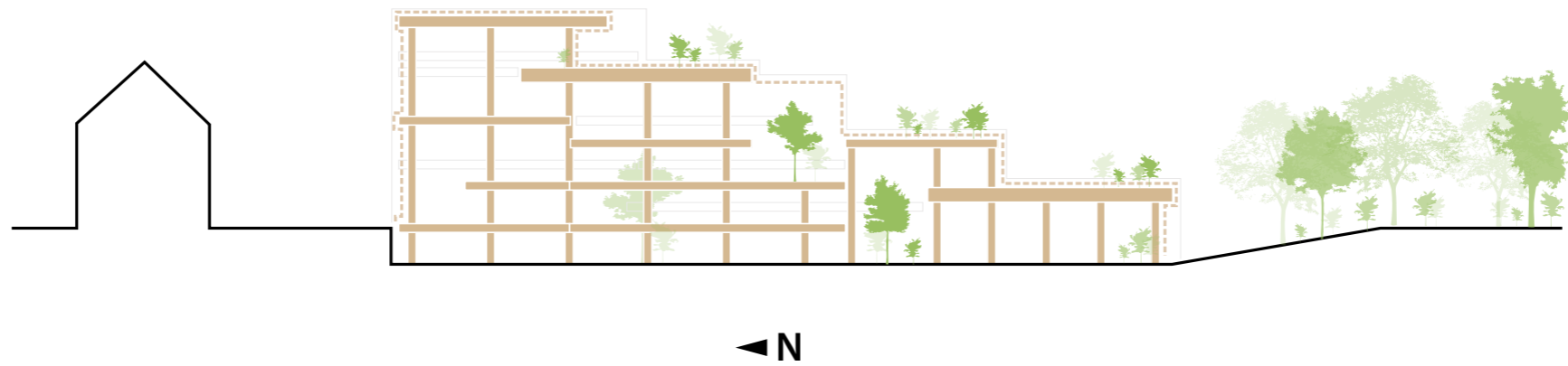
#### SOUND ZONING

*Functions follows acoustic requirements. Sound zones are mainly defined horizontally, therefore vertical partitions are less separating.*



# Structure

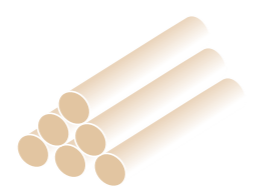




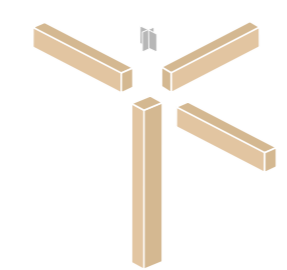
**STRUCTURE AND ENVELOPE**

*Laminated timber structure, Glazed and wood facade maximizing envelope exposed to South.*



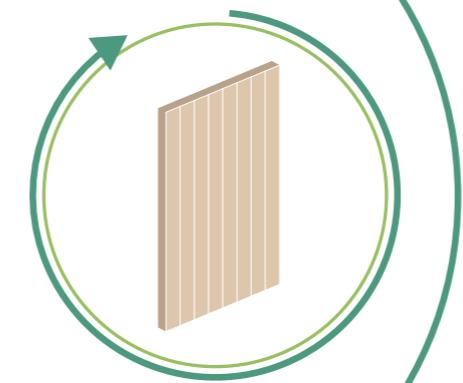


**CO<sup>2</sup> STORED**  
 —  
**RENEWABLE**  
 —  
**LOCAL**



**50+ years**

70 % Modular  
 Timber Structure



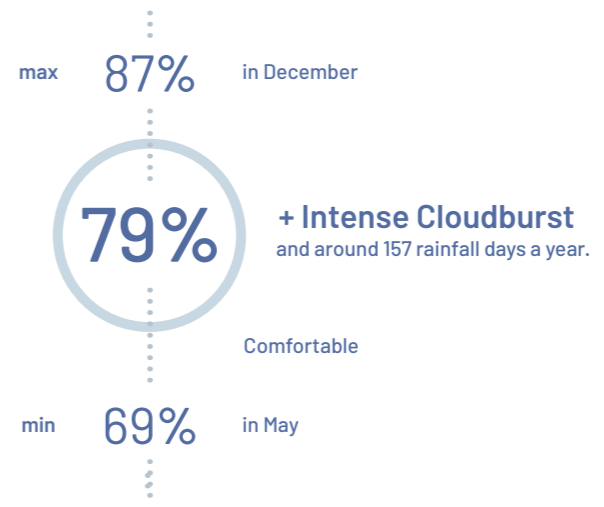
**~50 years**

Prefab DLT Panel  
 Accoya Cladding



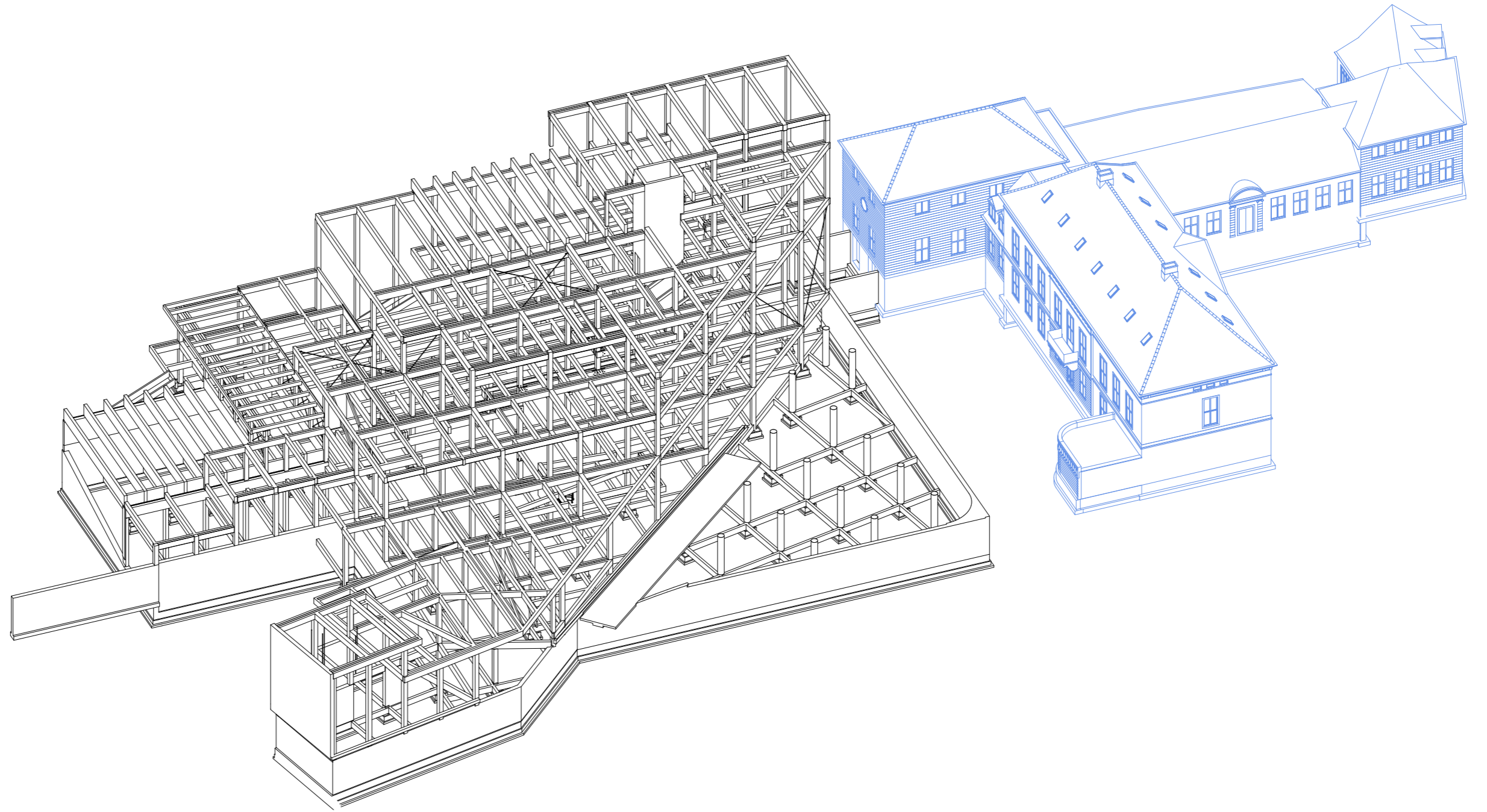
Glazed Units  
 Insulating Raincoat

**AV. HUMIDITY**



**MATERIALS DURABILITY**  
 Sustainable production and re-use

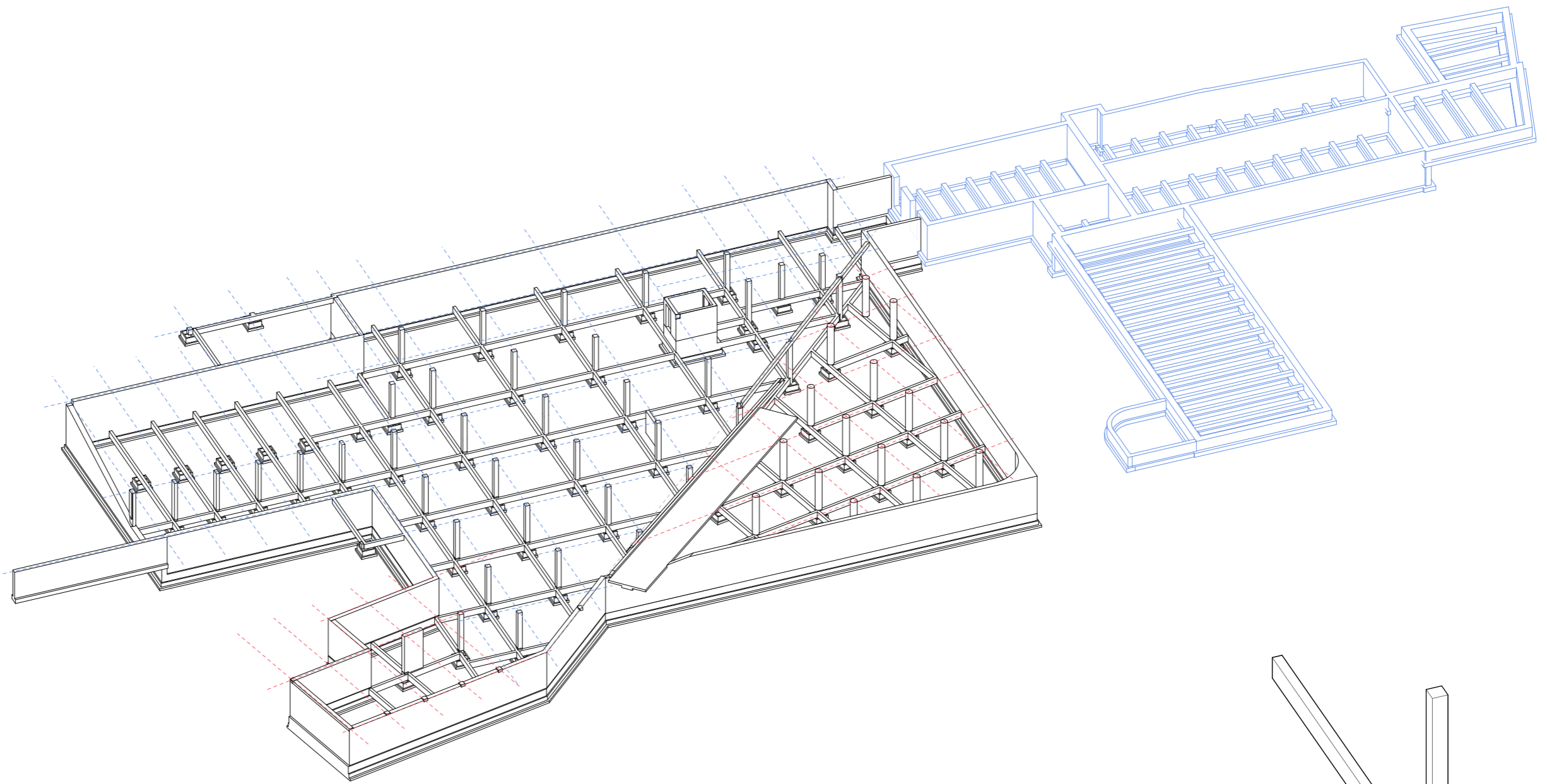




**STRUCTURAL PARTS**

*Overview*

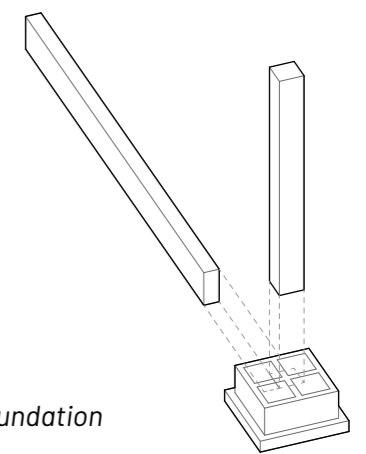




**STRUCTURAL PARTS**

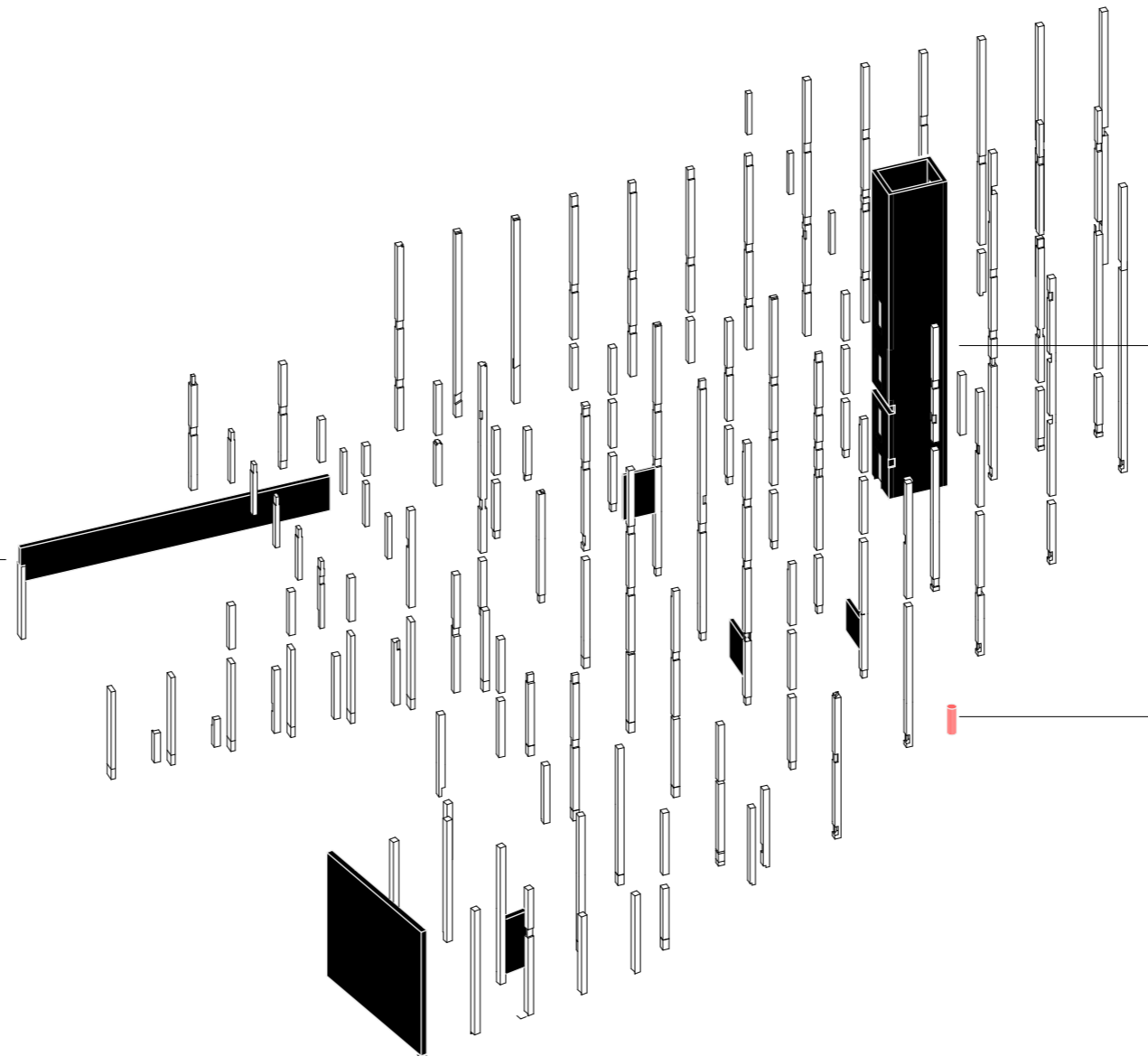
*Foundation, Reinforced Concrete*

*Prefabricated Concrete Foundation*





Hollow, Structural GLT wall  
(-01 Sport hall)

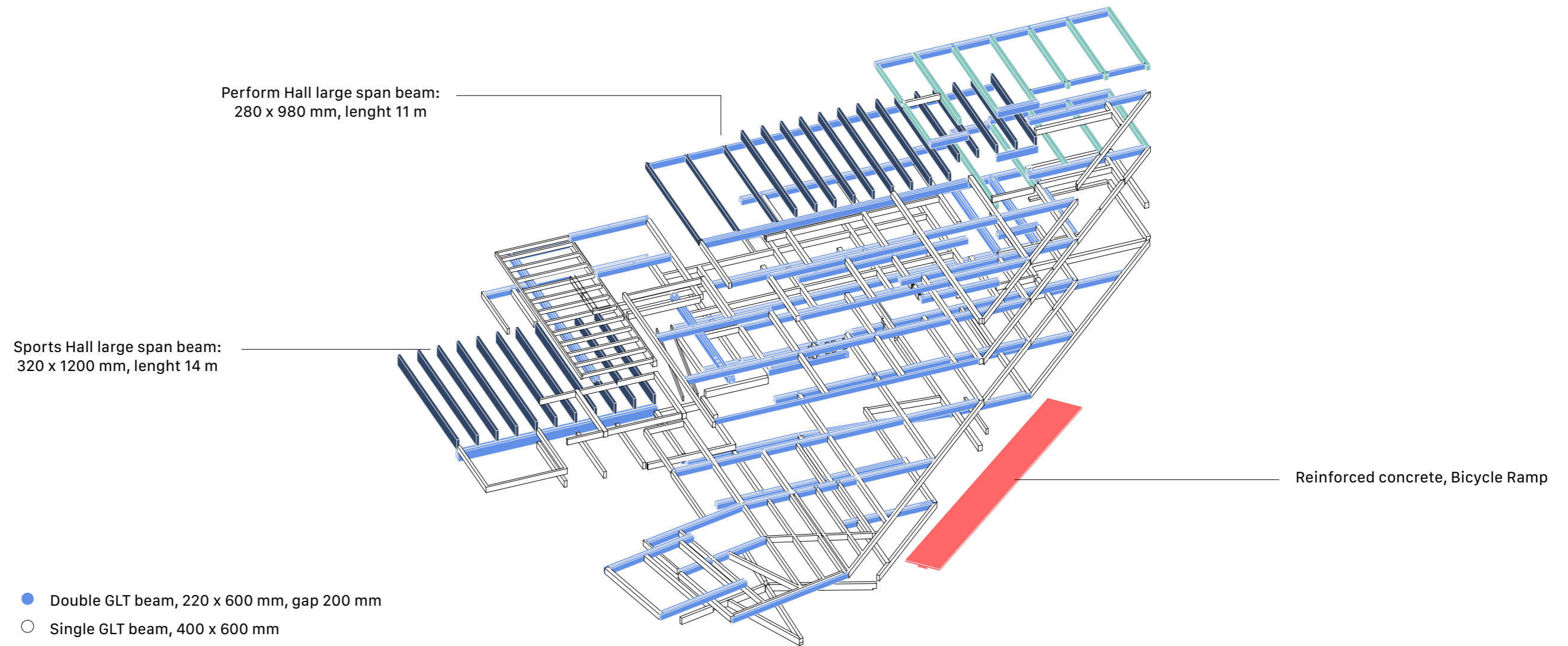


CLT Elevator Core

Reinforced concrete, Bicycle Ramp

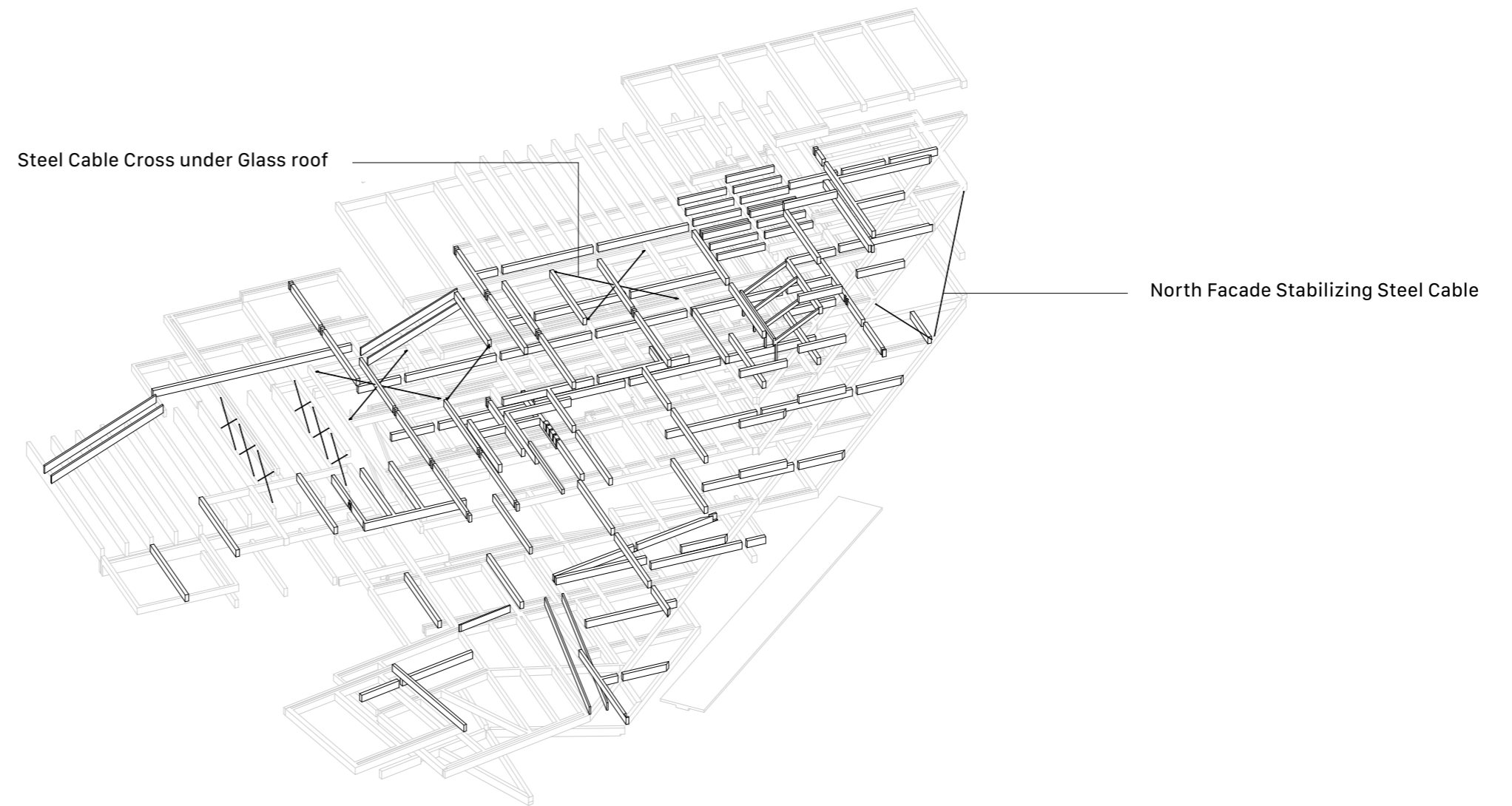
**STRUCTURAL PARTS**  
*Vertical Elements*





**STRUCTURAL PARTS**  
*Timber Beams*

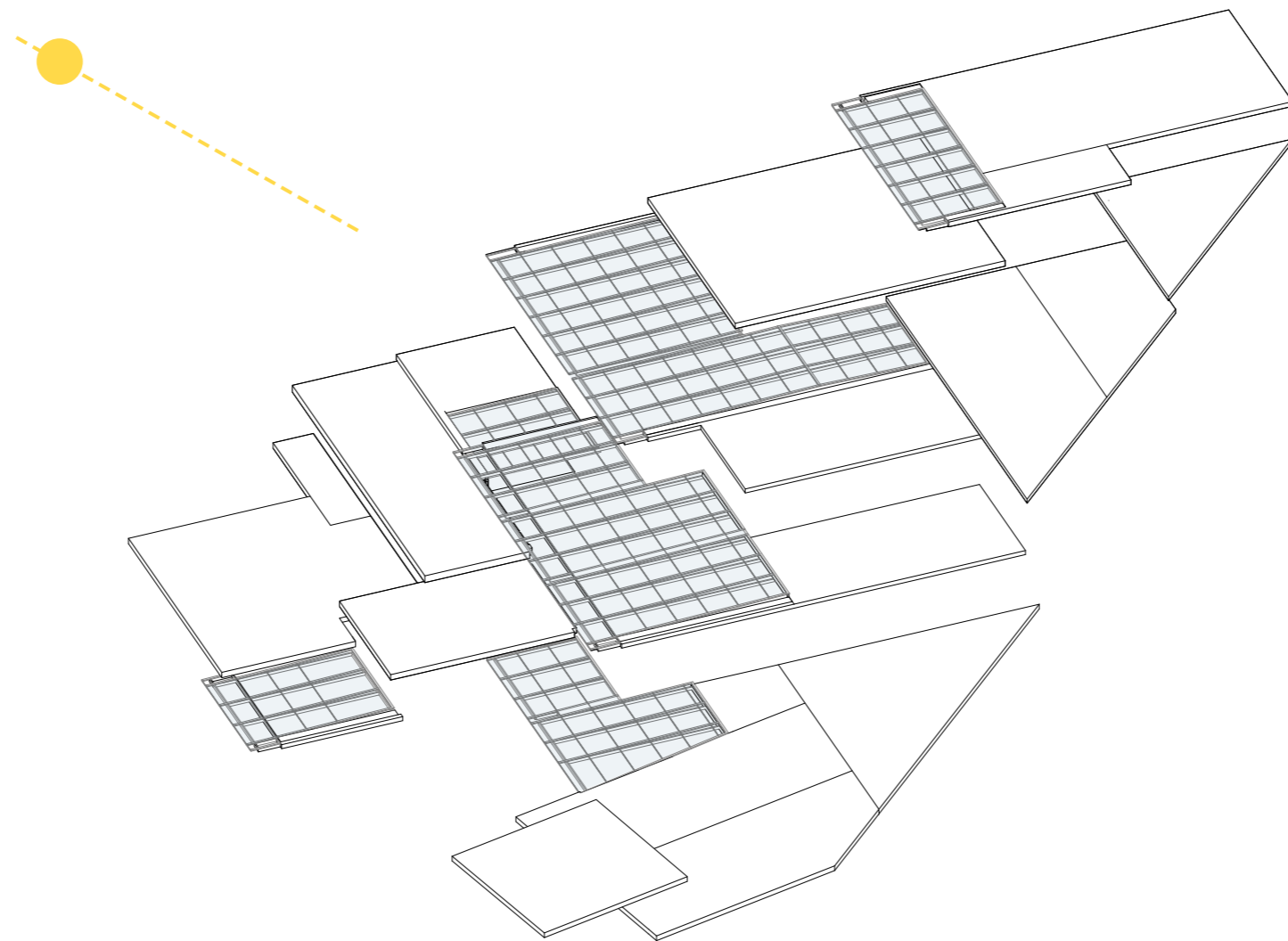




**STRUCTURAL PARTS**

*Secondary Beams and Stabilization Cables*

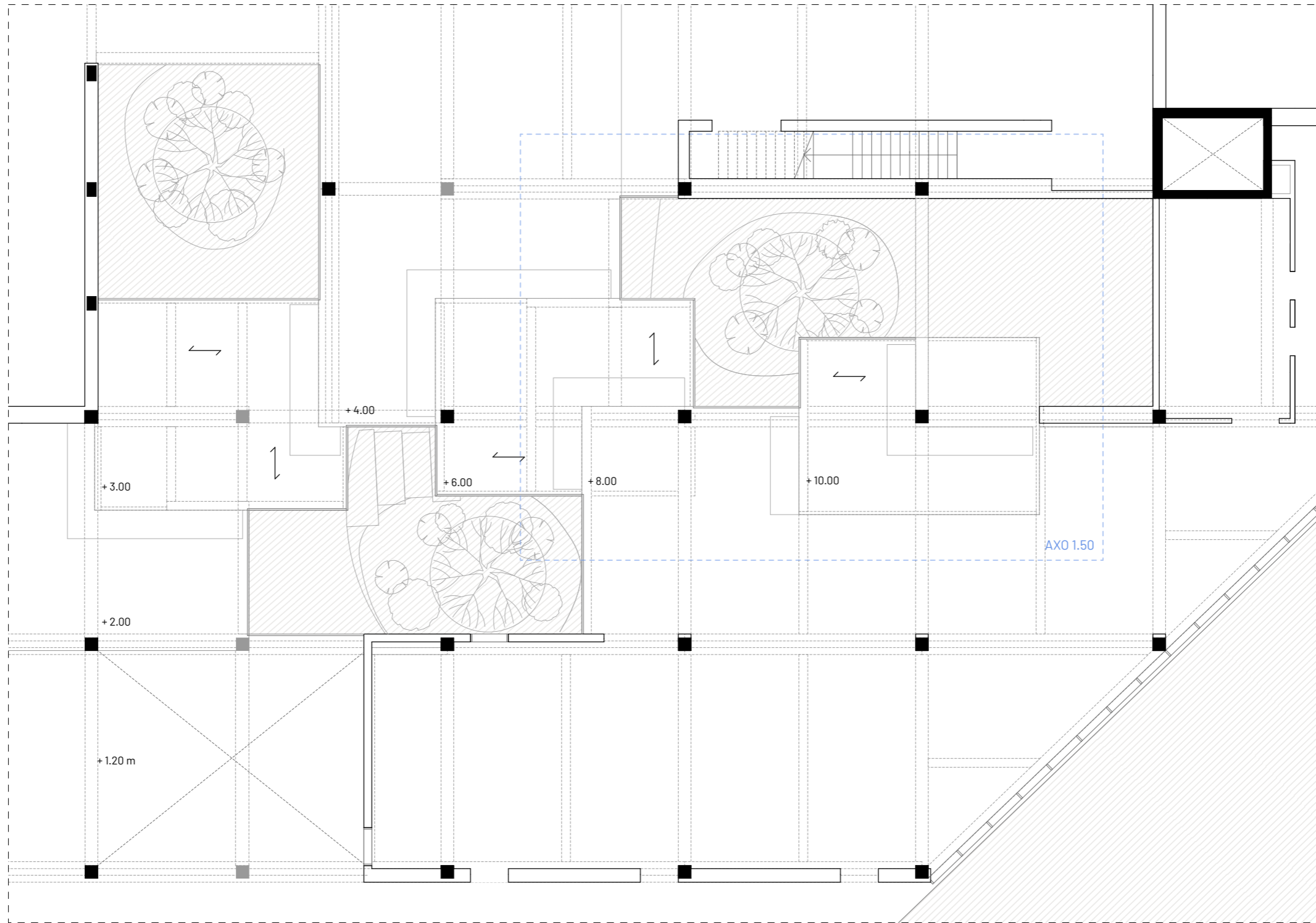




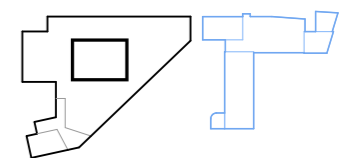
**STRUCTURAL PARTS**

*Slabs and Roofs (See more in details 1.50)*

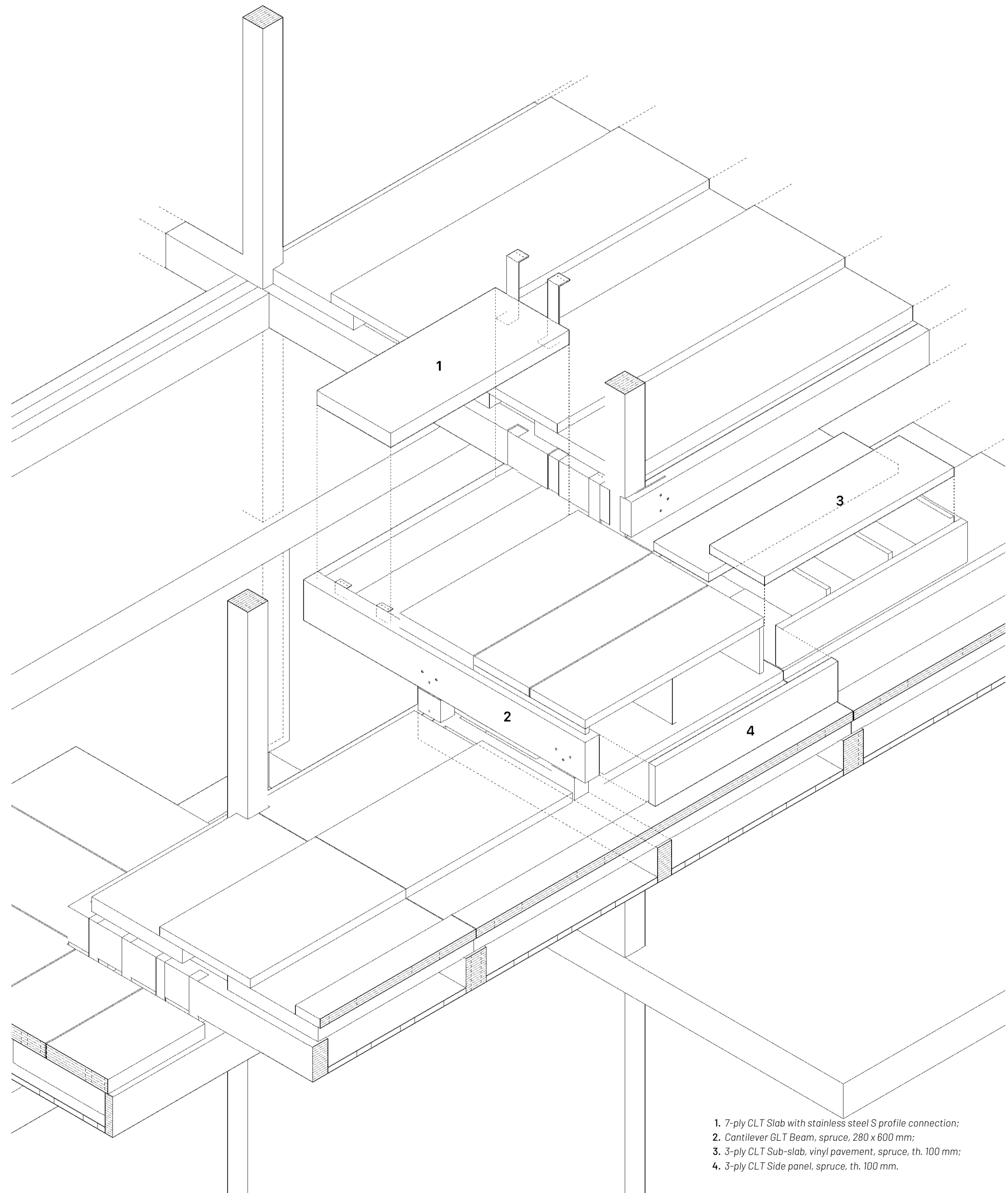




STRUCTURE PLAN OF CIRCULATION PLATFORMS  
1.200







1. 7-ply CLT Slab with stainless steel S profile connection;
2. Cantilever GLT Beam, spruce, 280 x 600 mm;
3. 3-ply CLT Sub-slab, vinyl pavement, spruce, th. 100 mm;
4. 3-ply CLT Side panel, spruce, th. 100 mm.

STRUCTURE CANTILEVER PLATFORMS  
Axonometric 1.50

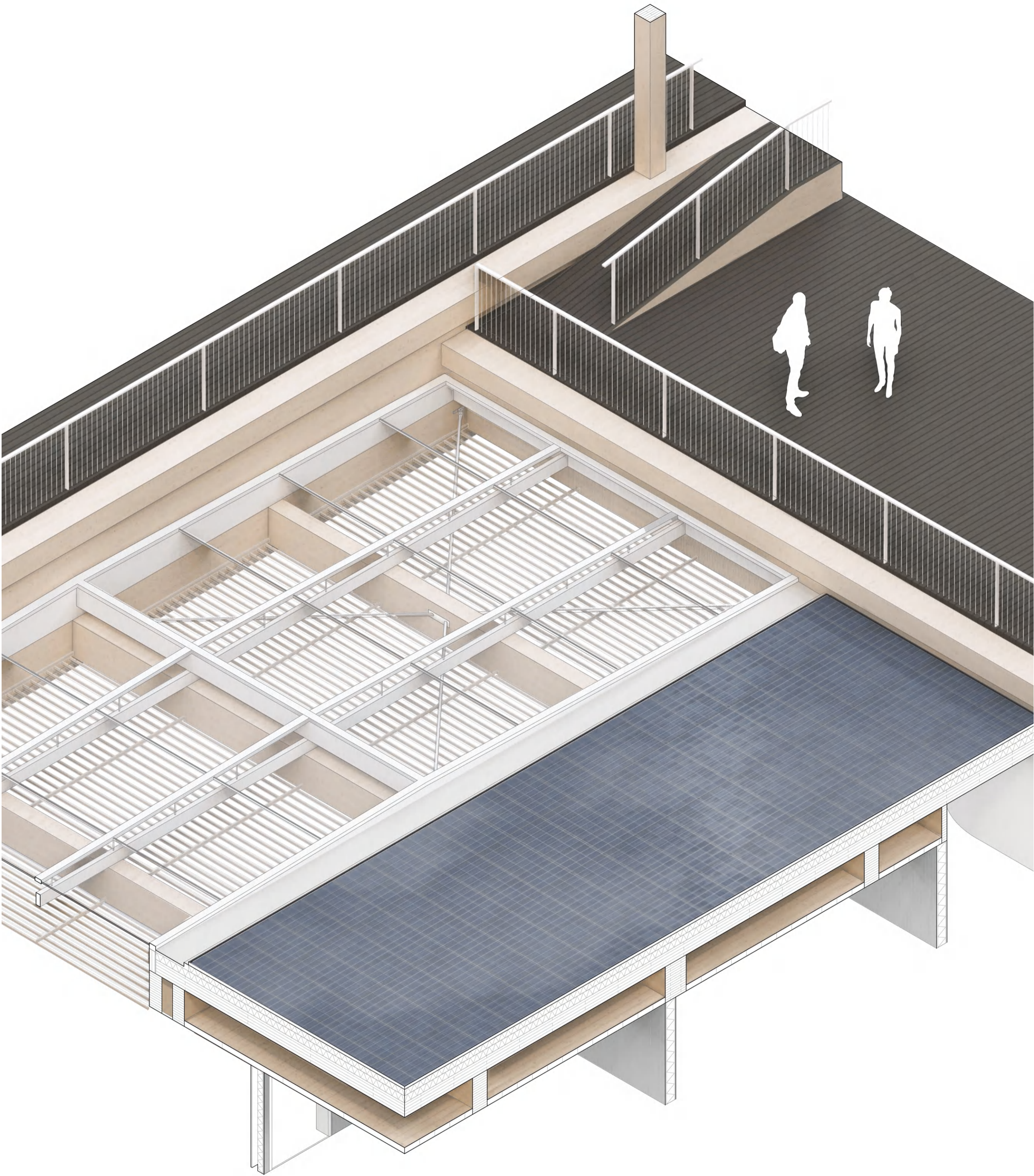




Railing: white aluminium.  
Steps: Lightweight hollow plaster box.  
Pavement: Vinyl pavement, with dry radiant sub-floor.

CLADDING CANTILEVER PLATFORMS  
Axonometric 1.50

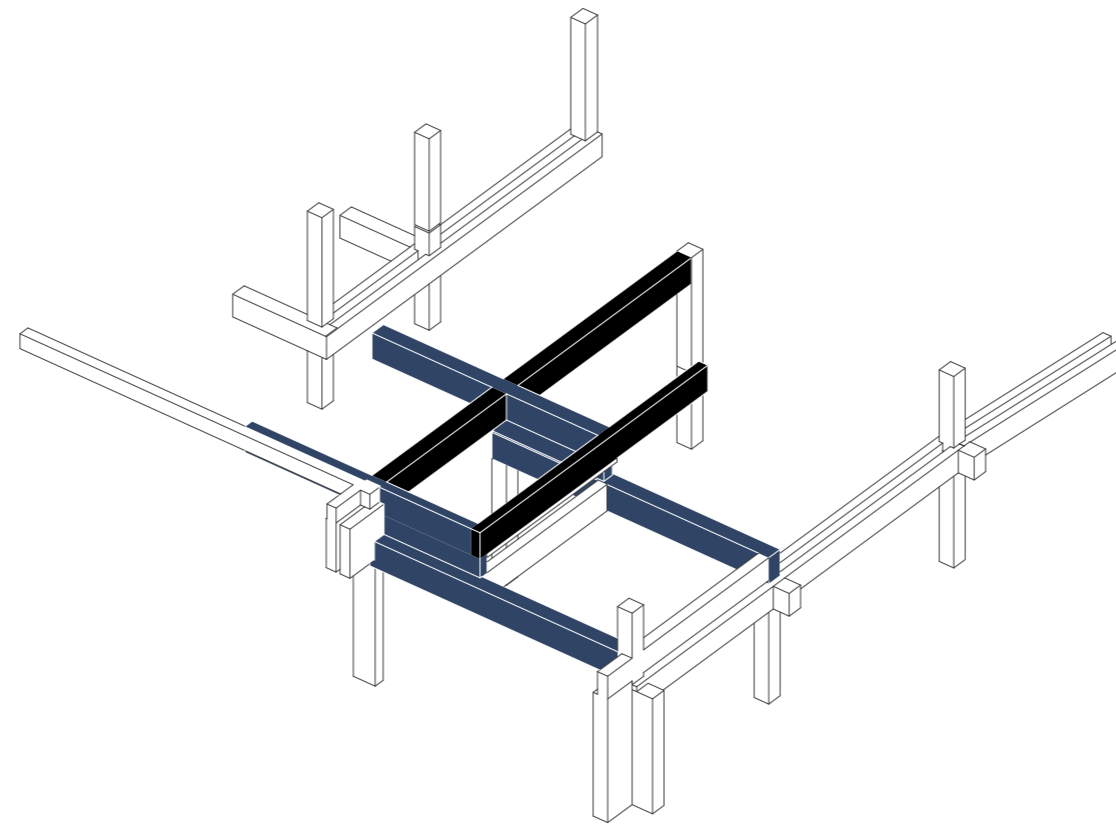




Skylight: white aluminium frame, safety glass.  
Roof: Photovoltaic panels integrated or walkable timber floor.

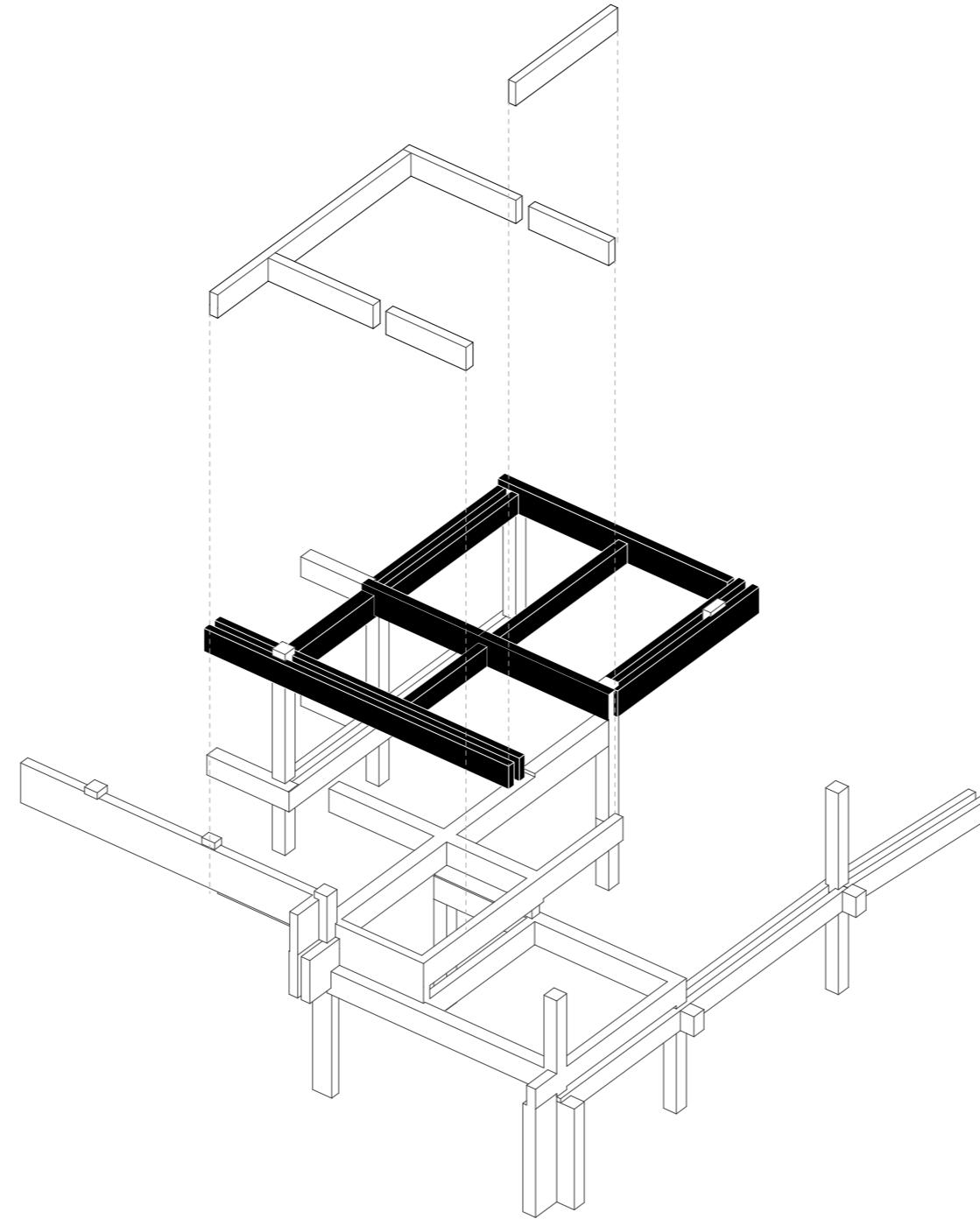
CLADDING ROOF  
Axonometric 1.50





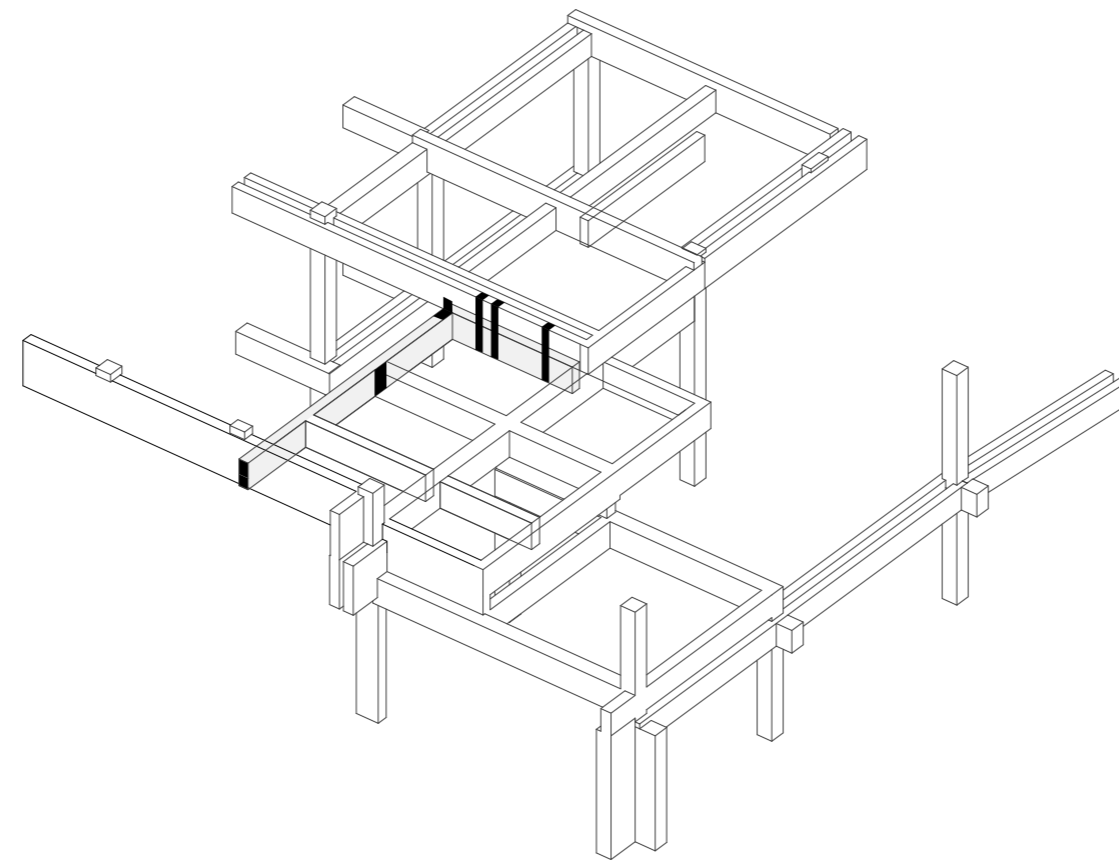
Primary Cantilever GLT Beams  
Level 01





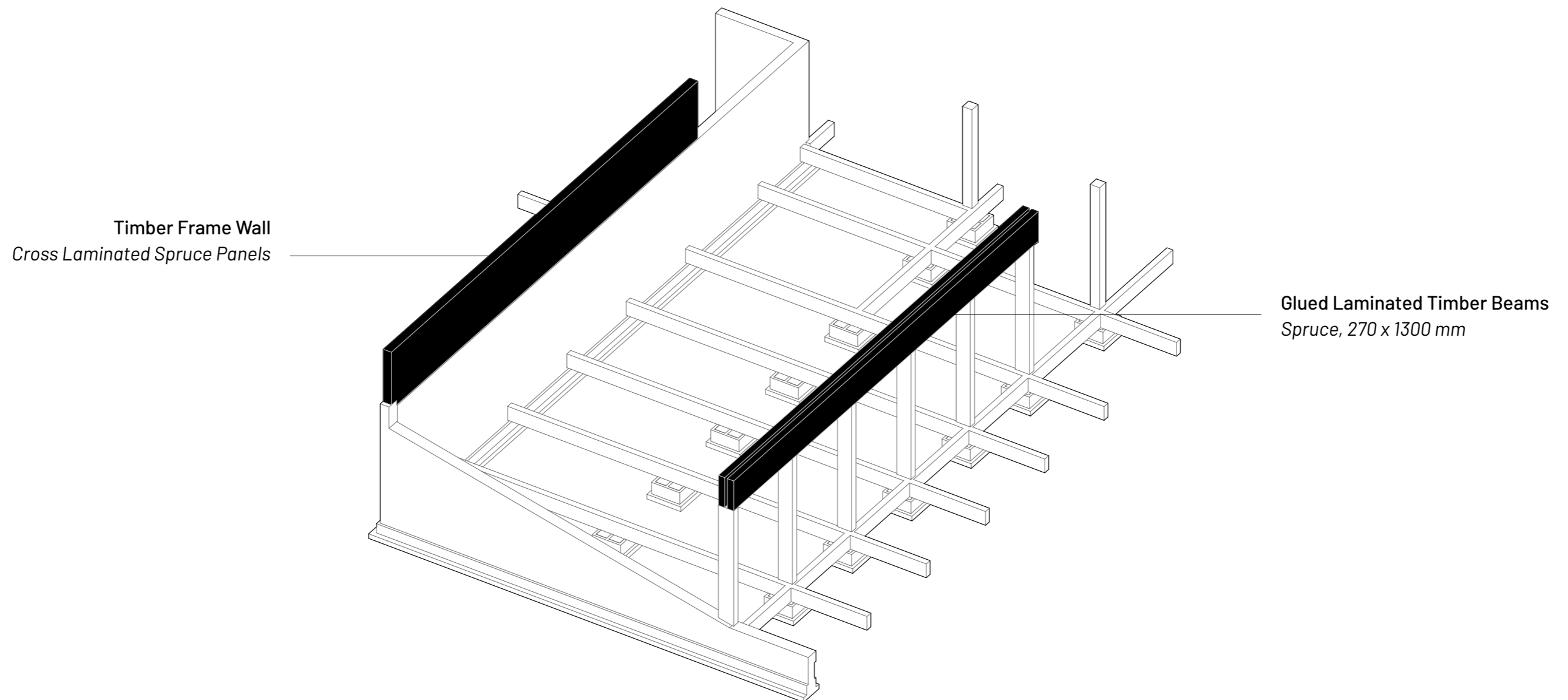
Primary GLT Beams  
Level 02



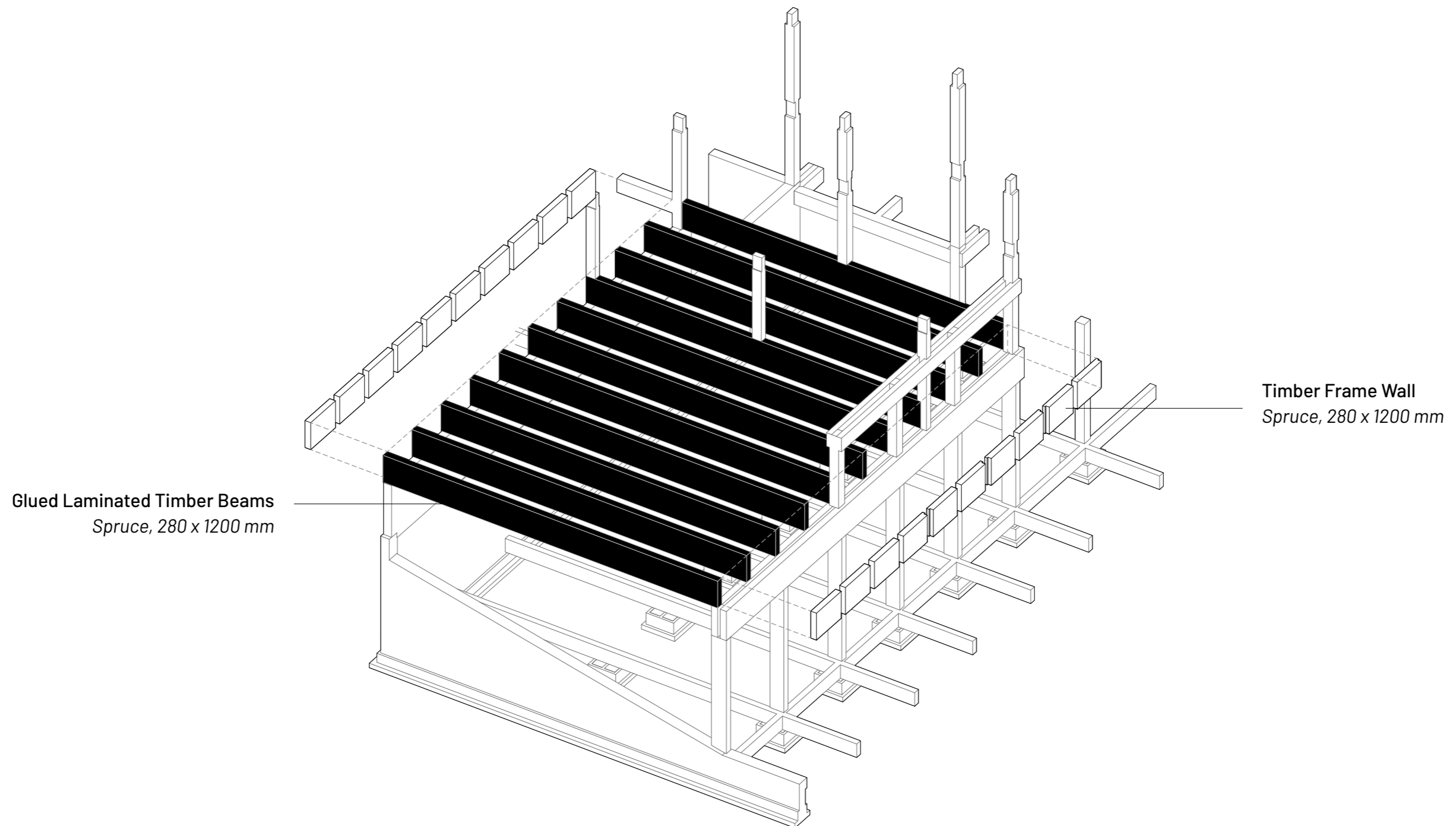


Ceiling Structure  
Non-loadbearing spruce panels.











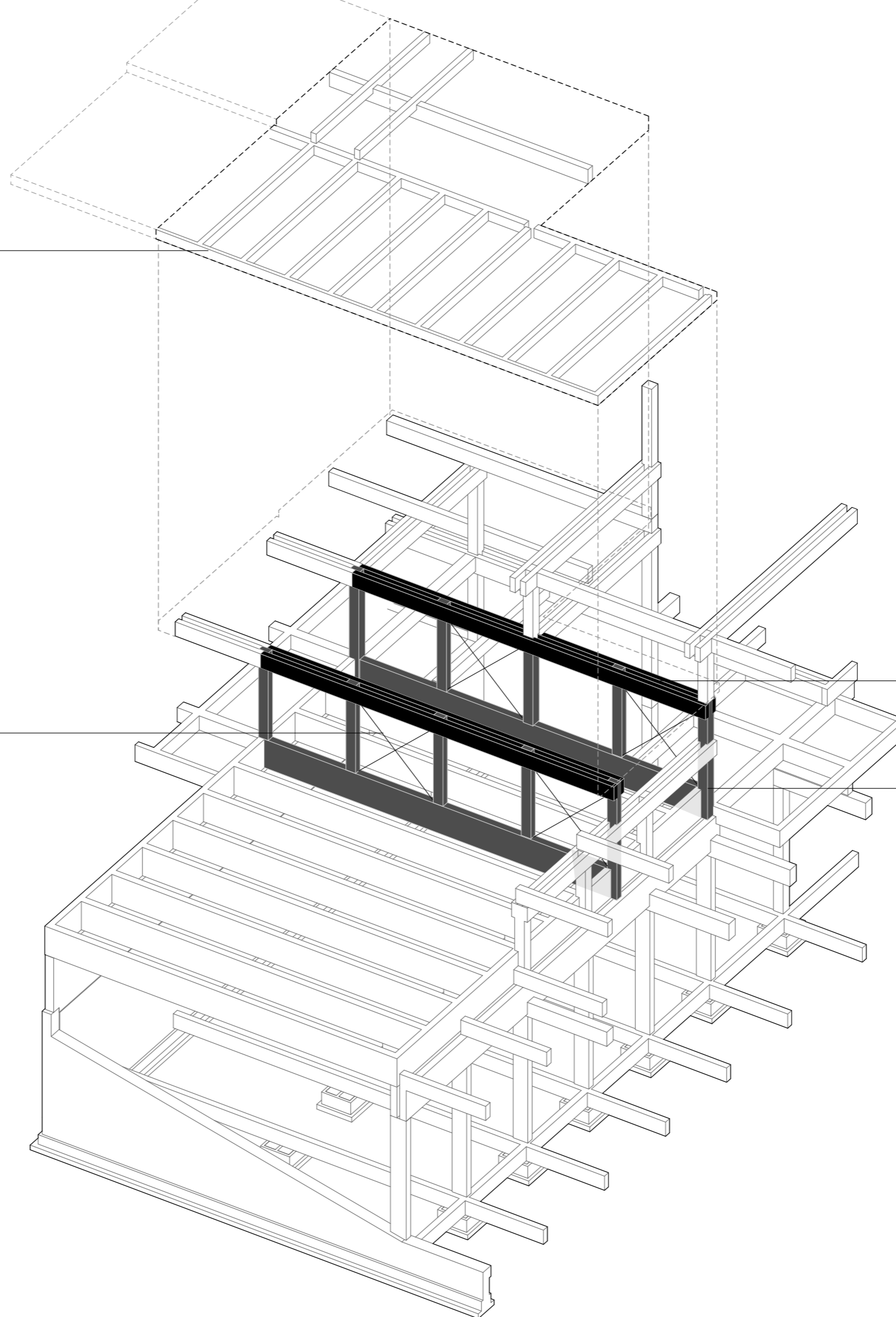
**LARGE SPANS**  
Axonometric 1.200

**Roof Timber Rafters**  
*GLT Spruce, 220 x 400 mm*

**Cross Braces**  
*Stainless Steel Rods, Ø 40 mm*

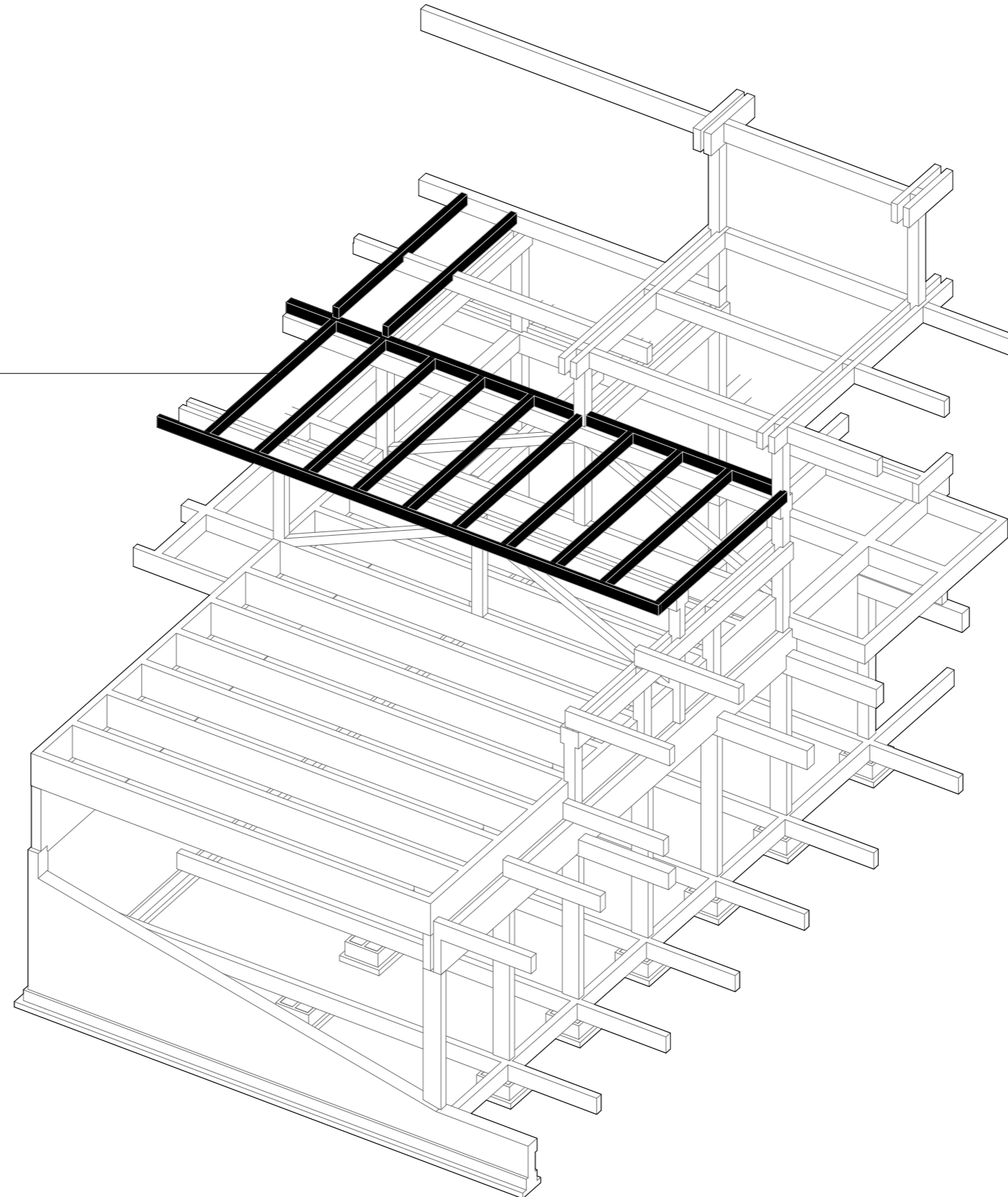
**Double GLT Beams**  
*Spruce, 250 x 600 mm*

**GLT Columns**  
*Spruce, 400 x 400/320 mm*





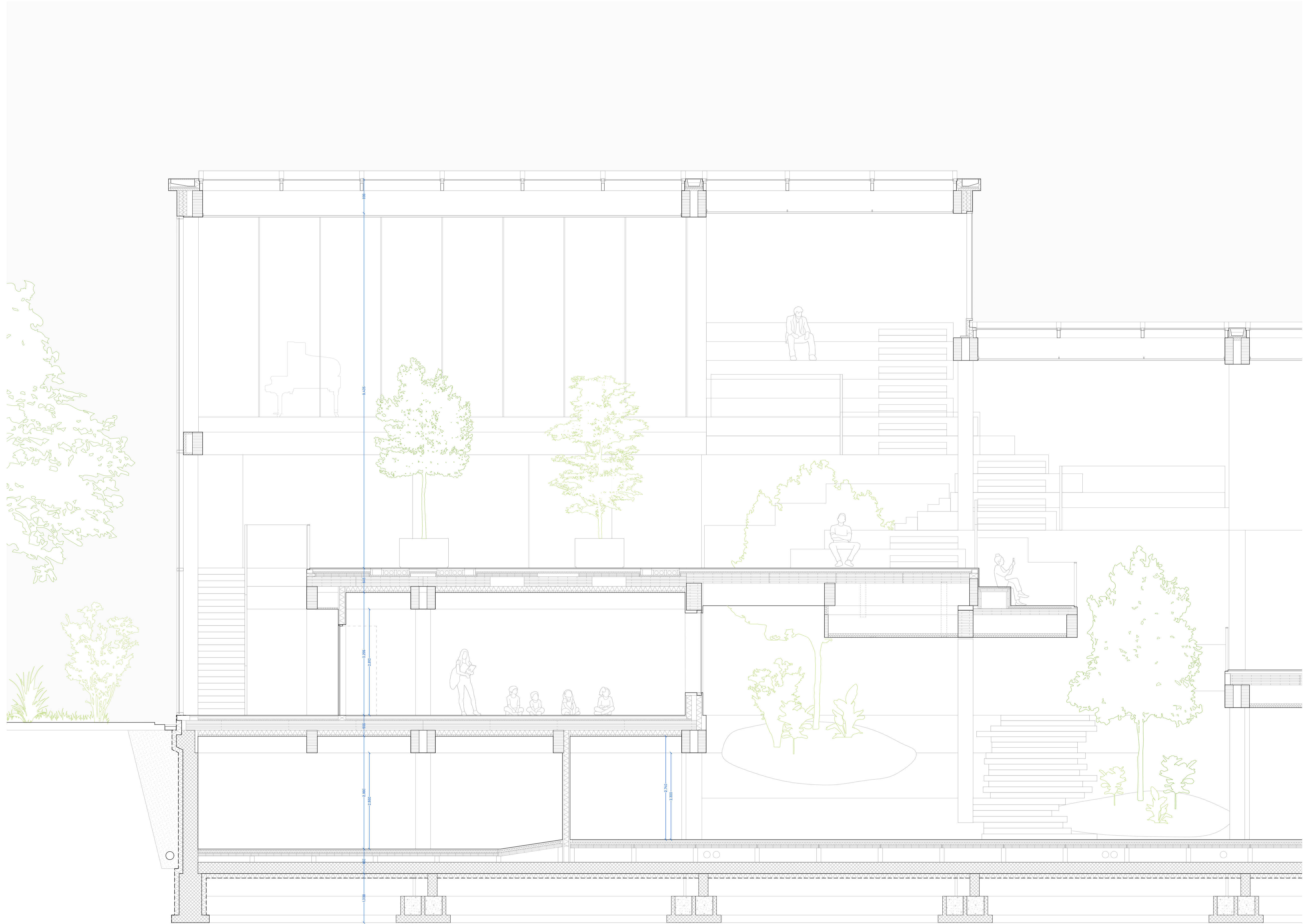
Roof Timber Rafters  
*GLT Spruce, 220 x 400 mm*



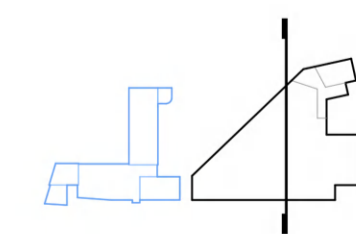


# Envelope

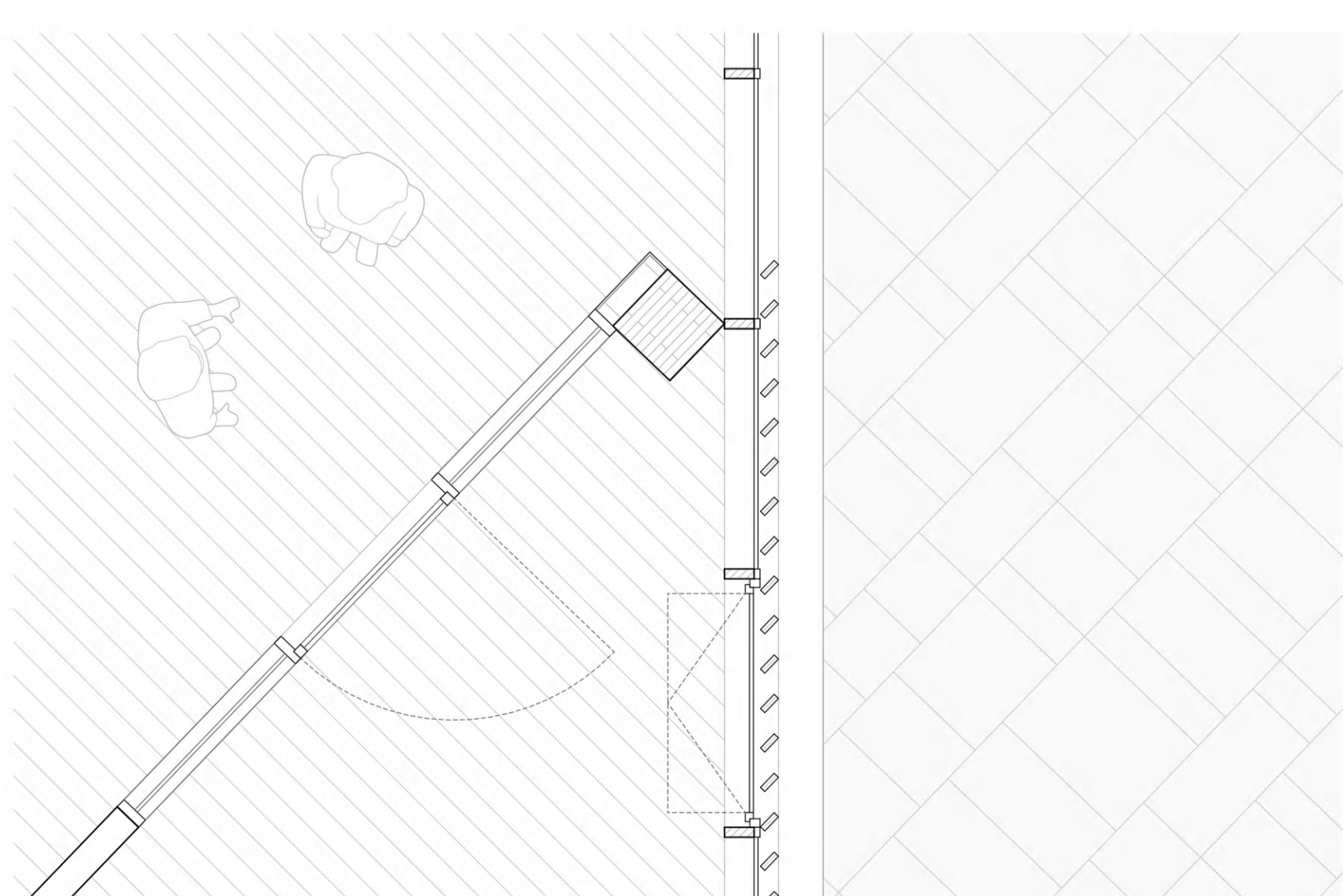
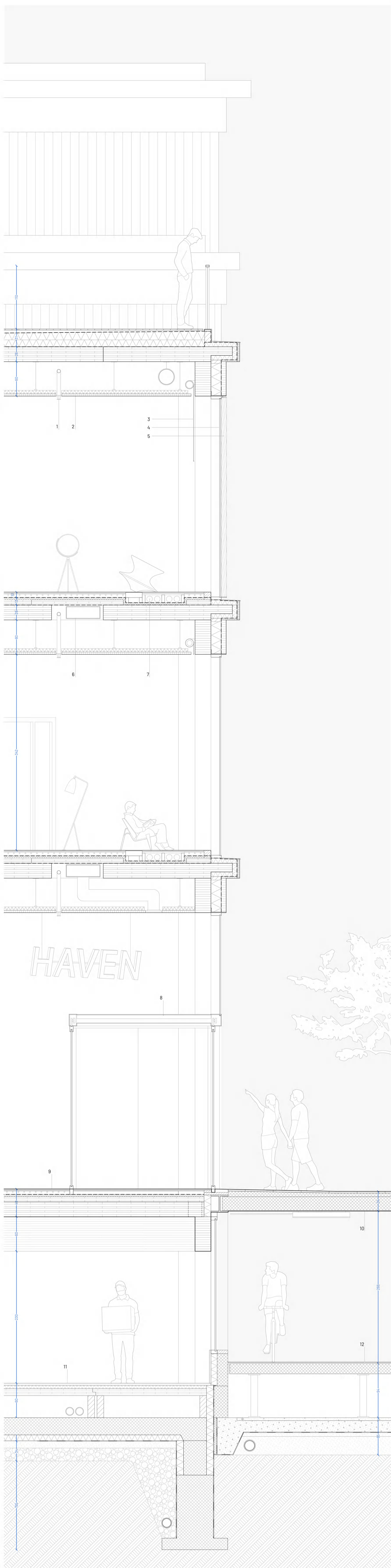




CROSS SECTION DETAILS  
1.50







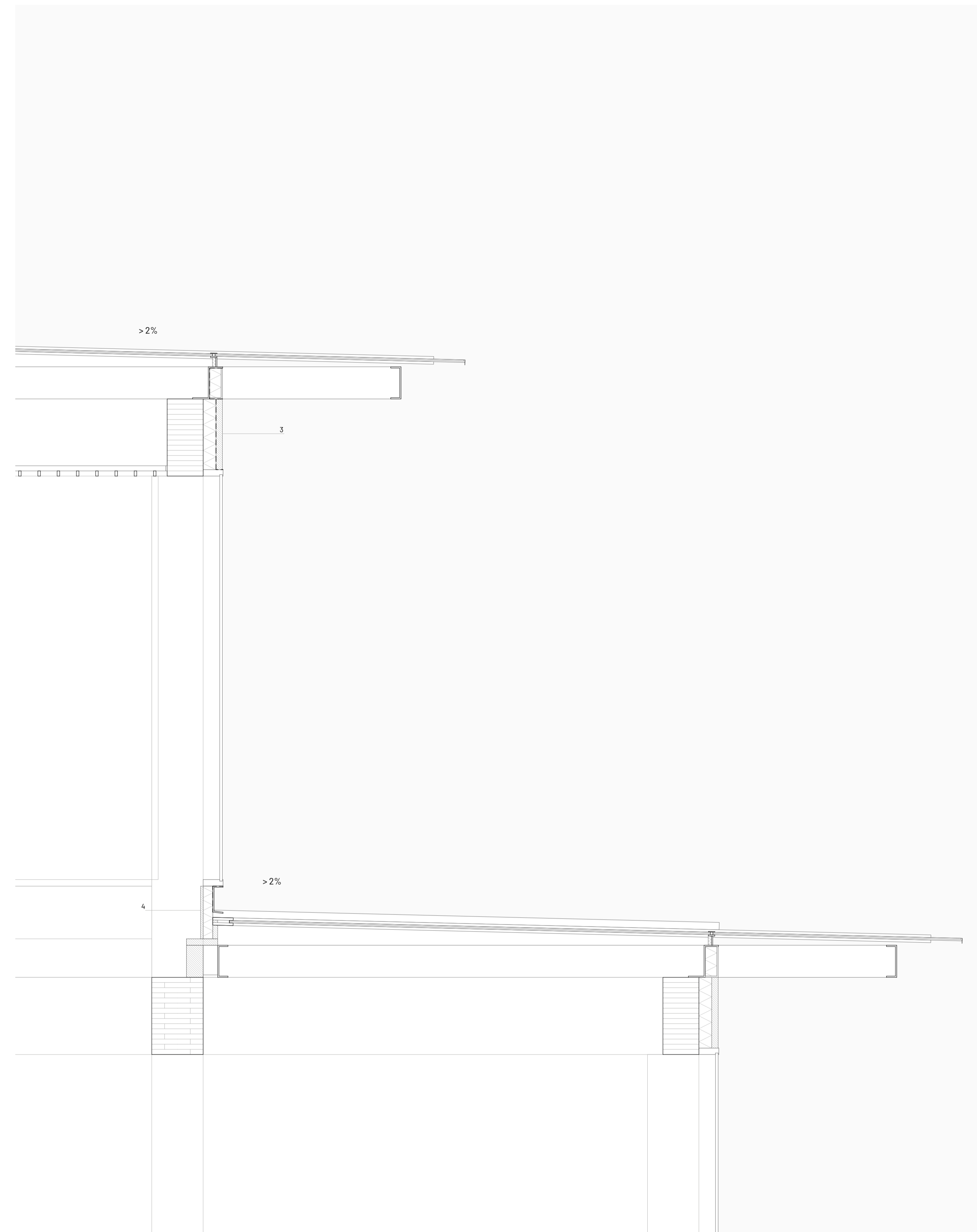
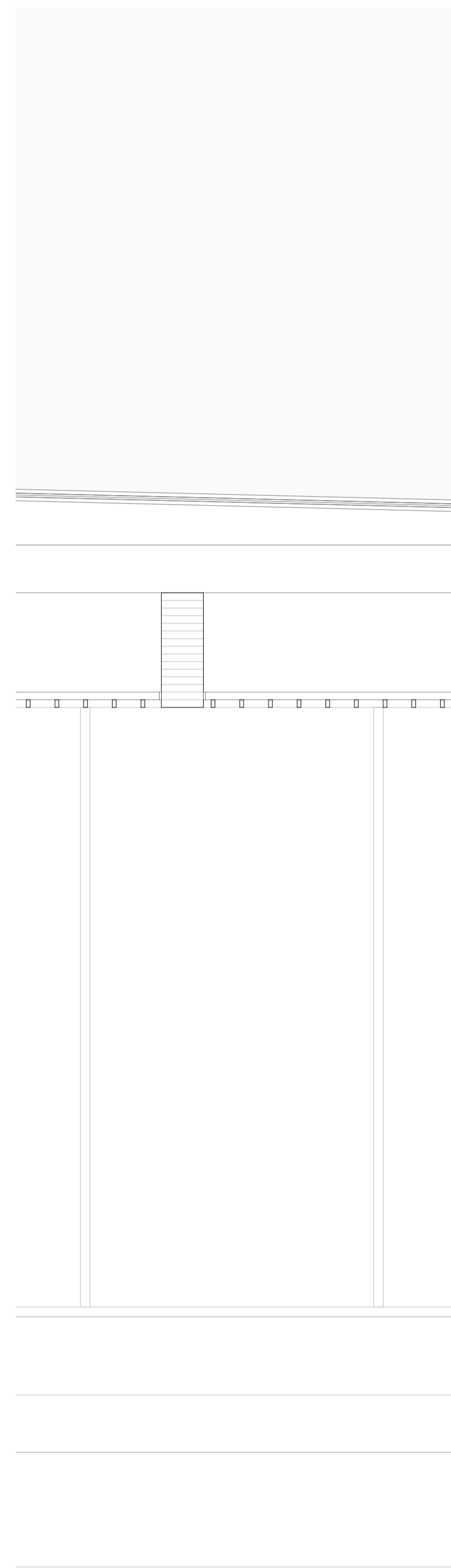
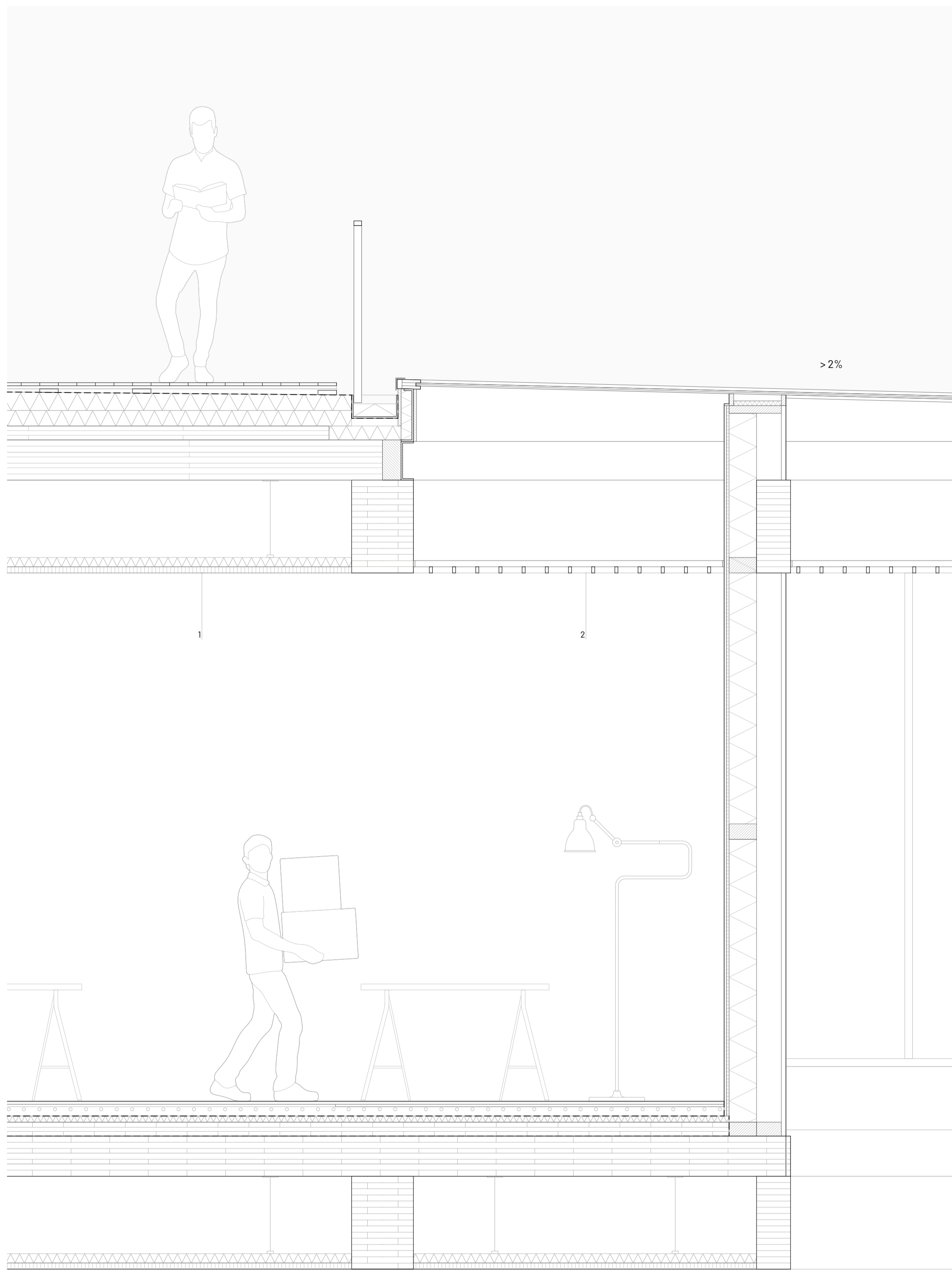
## FACADE DETAILS

### 1.30

1. Fire safety sprinkler on ceiling;
2. Laminated Timber Roof:  
Accoya battens 120 x 21 mm on subfloor, 80 mm;  
Fireproof waterproofing membrane, 1.8 mm;  
Thermal insulation to fall, rockwool, 150-100 mm;  
Thermal insulation, rockwool, 120 mm;  
Vapour barrier, bituminous membrane, 1.2 mm;  
7-ply CLT spruce panel, 260 mm;  
CLT beam, spruce, 350 x 600 mm;  
Mineral fiber acoustic insulation, 40 mm;  
Acoustic suspended panels, 35 mm.
3. Solar control: textile;
4. Thermal glazing: 8 mm toughened glass + 12.7 mm cavity + laminated safety glass of 2x8 mm;
5. Vertical fin, accoya wood, spruce, 100 x 30 mm;
6. Mechanical ventilation duct, max. 580 x 220 mm;
7. Water supply ducts 4x of Ø 100 mm
8. Entrance, glazed box, aluminium structure, 2x sliding glass doors (2m wide)
9. Internal Laminated Timber Slab:  
Floor covering 20 mm  
Dry heating screed, concrete overlaid 75 mm  
Footfall sound insulation 40 mm  
3-ply CLT spruce panel 90 mm  
7-ply CLT spruce panel 260 mm  
Mineral fiber acoustic insulation 40 mm  
Acoustic suspended panels 35 mm
10. Granite pavement, lightweight concrete screed max. 150 mm, reinforced concrete slab 350 mm, loadbearing I stainless steel beam.
11. Suspended timber pavement on prefab reinforced concrete foundation.
12. Precast reinforced concrete bicycle ramp, 250 x 2600 mm

0 1 2m

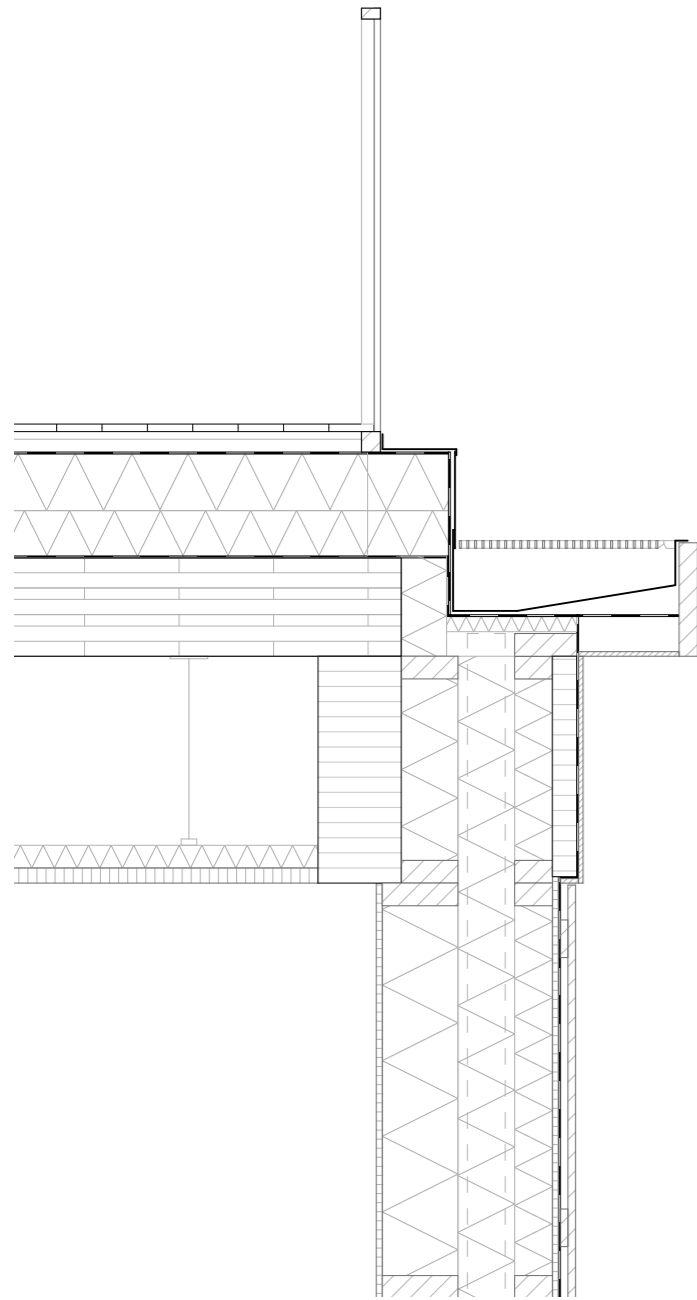




- 1. Walkable roof, CLT and GLT structure.  
(See Packages Details)
- 2. Glass roof, Steel Hollow Profile, Safety Glass.  
(See Packages Details)
- 3. Accoya wood cladding panel, with rockwool thermal insulation, 120 mm.
- 4. Rockwool thermal insulation, steel C profile gutter.

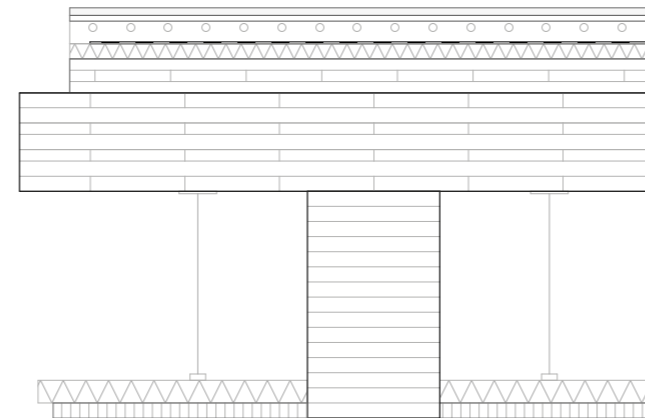
ROOF DETAILS  
1.20





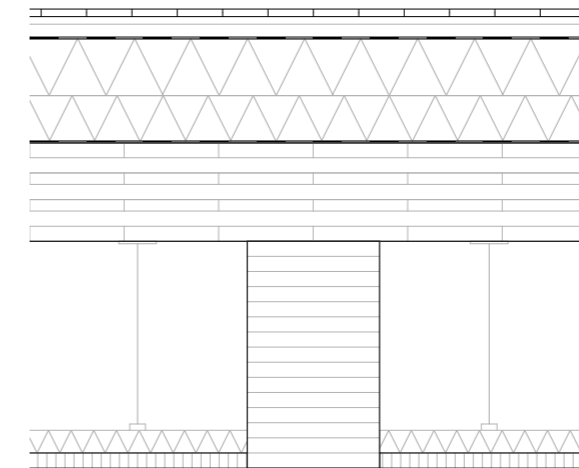
### Exterior Wall

- Floor covering  
20 mm
- Dry heating screed, concrete overlaid  
75 mm
- PE foil  
0,2 mm
- Footfall sound insulation  
40 mm
- 3-ply CLT spruce panel  
90 mm
- 7-ply CLT spruce panel  
260 mm
- Mineral fiber acoustic Insulation  
40 mm
- Acoustic suspended panels  
35 mm



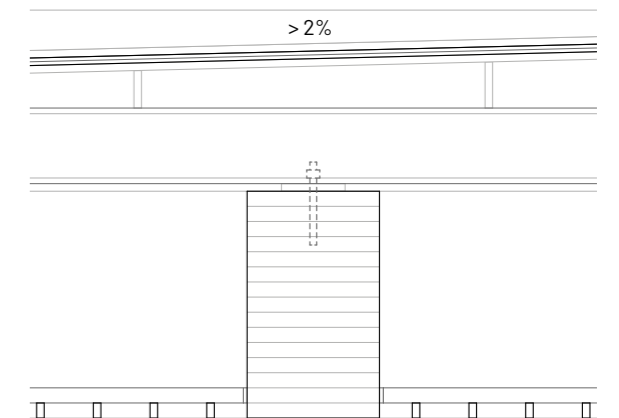
### Internal Slab

- Floor covering  
20 mm
- Dry heating screed, concrete overlaid  
75 mm
- PE foil  
0,2 mm
- Footfall sound insulation  
40 mm
- 3-ply CLT spruce panel  
90 mm
- 7-ply CLT spruce panel  
260 mm
- Mineral fiber acoustic Insulation  
40 mm
- Acoustic suspended panels  
35 mm



### Roof Slab

- Accoya battens 120 x 21 mm on subfloor  
80 mm
- Fireproof waterproofing membrane  
1.8 mm
- Thermal insulation to fall, rockwool  
150-100 mm
- Thermal Insulation, rockwool  
120 mm
- Vapour barrier, bituminous membrane  
1.2 mm
- 7-ply CLT spruce panel  
260 mm
- GLT beam, spruce  
350 x 600 mm
- Mineral fiber acoustic Insulation  
40 mm
- Acoustic suspended panels  
35 mm



### Glass Roof

- Laminated Safety Glass , flat.  
2x 10 mm
- Fireproof waterproofing membrane  
1.8 mm
- Thermal insulation to fall, rockwool  
150-100 mm
- Thermal Insulation, rockwool  
120 mm
- Vapour barrier, bituminous membrane  
1.2 mm
- 7-ply CLT spruce panel  
260 mm
- GLT beam, spruce  
350 x 600 mm
- Mineral fiber acoustic Insulation  
40 mm
- Acoustic suspended panels  
35 mm

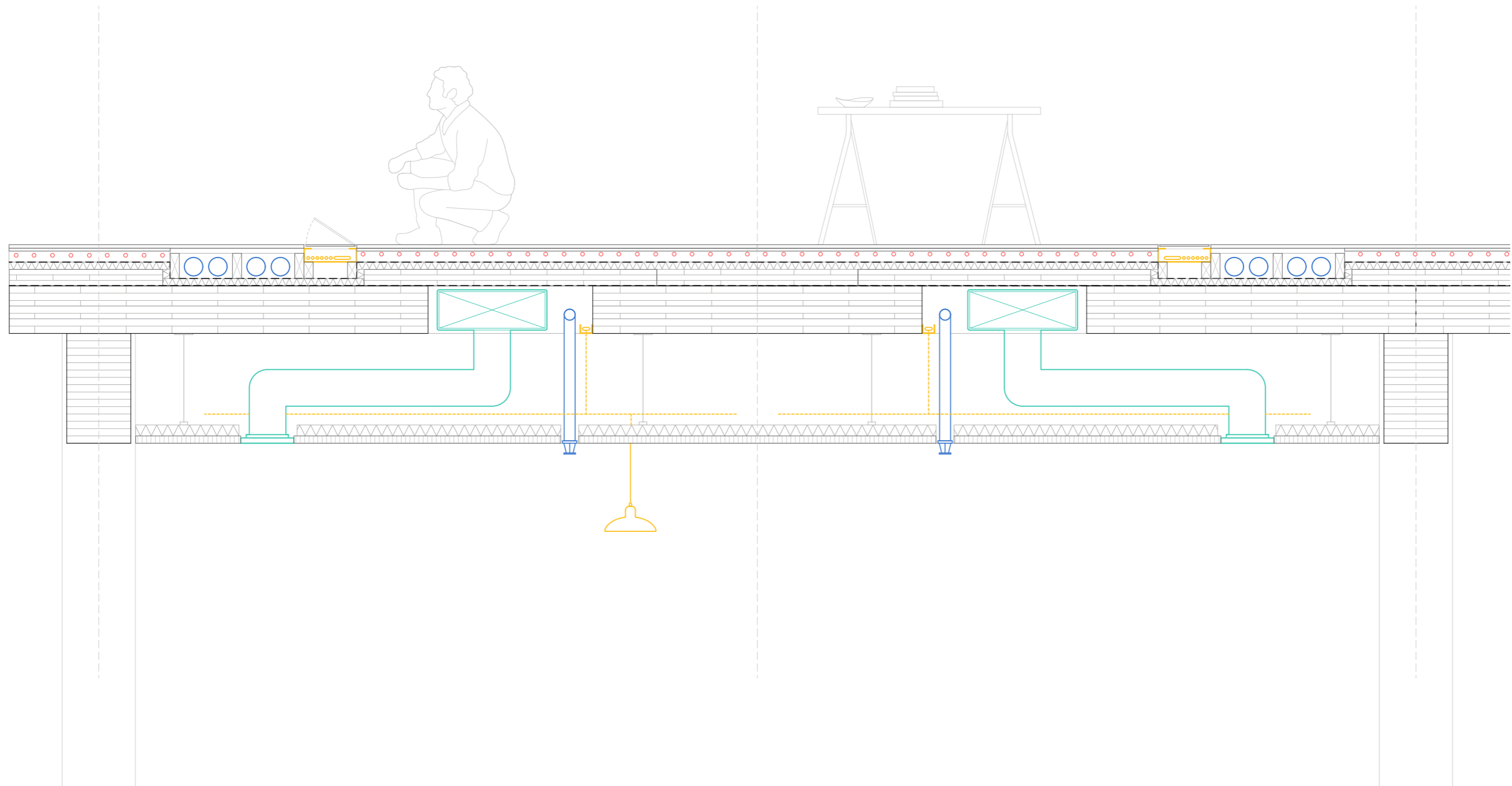
## ENVELOPE PACKAGES DETAIL

1.20



# Systems

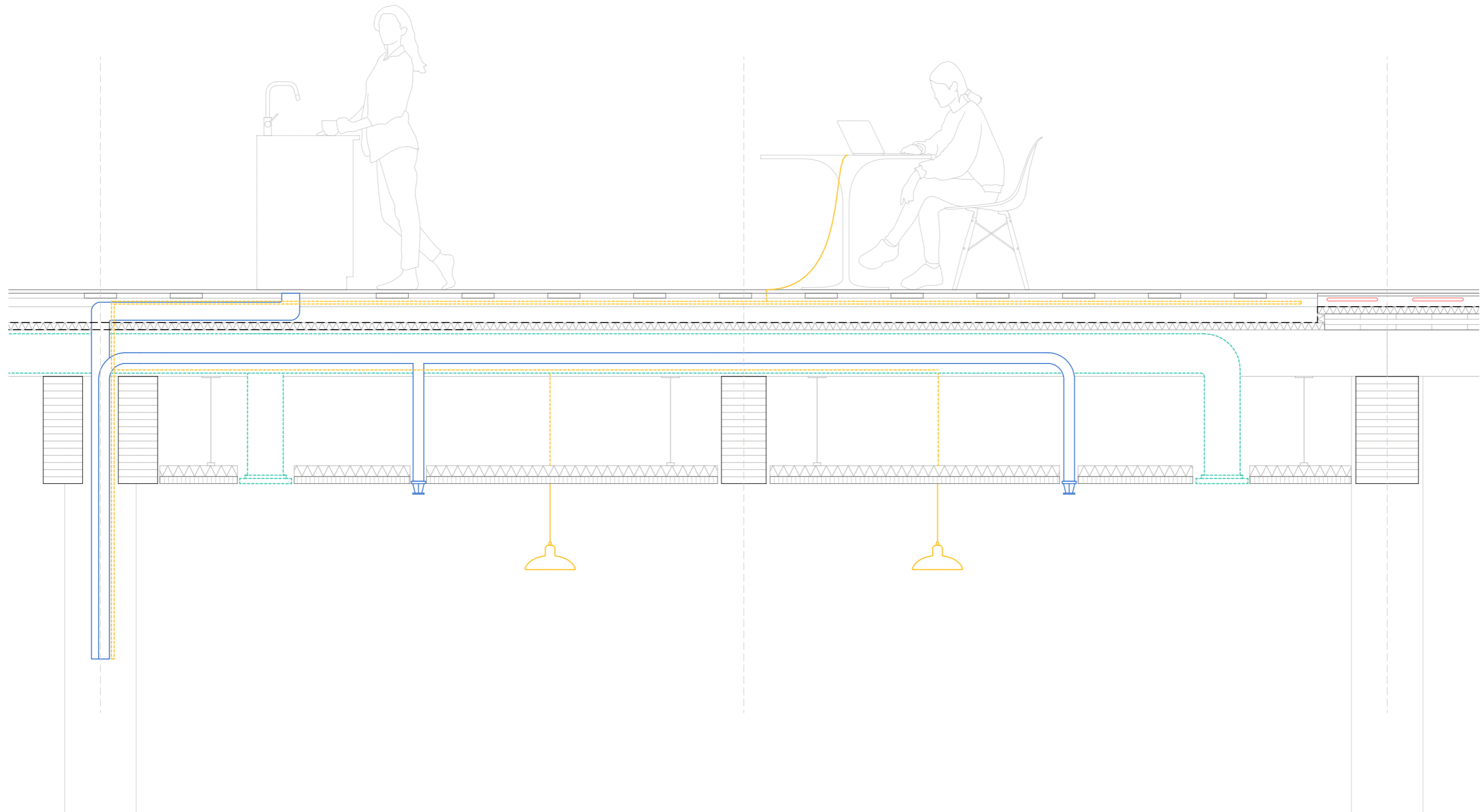




**CLIMATIC SYSTEMS**

- Electricity
- Dry Radiant Heating
- Water Supply, Sprinklers
- Air

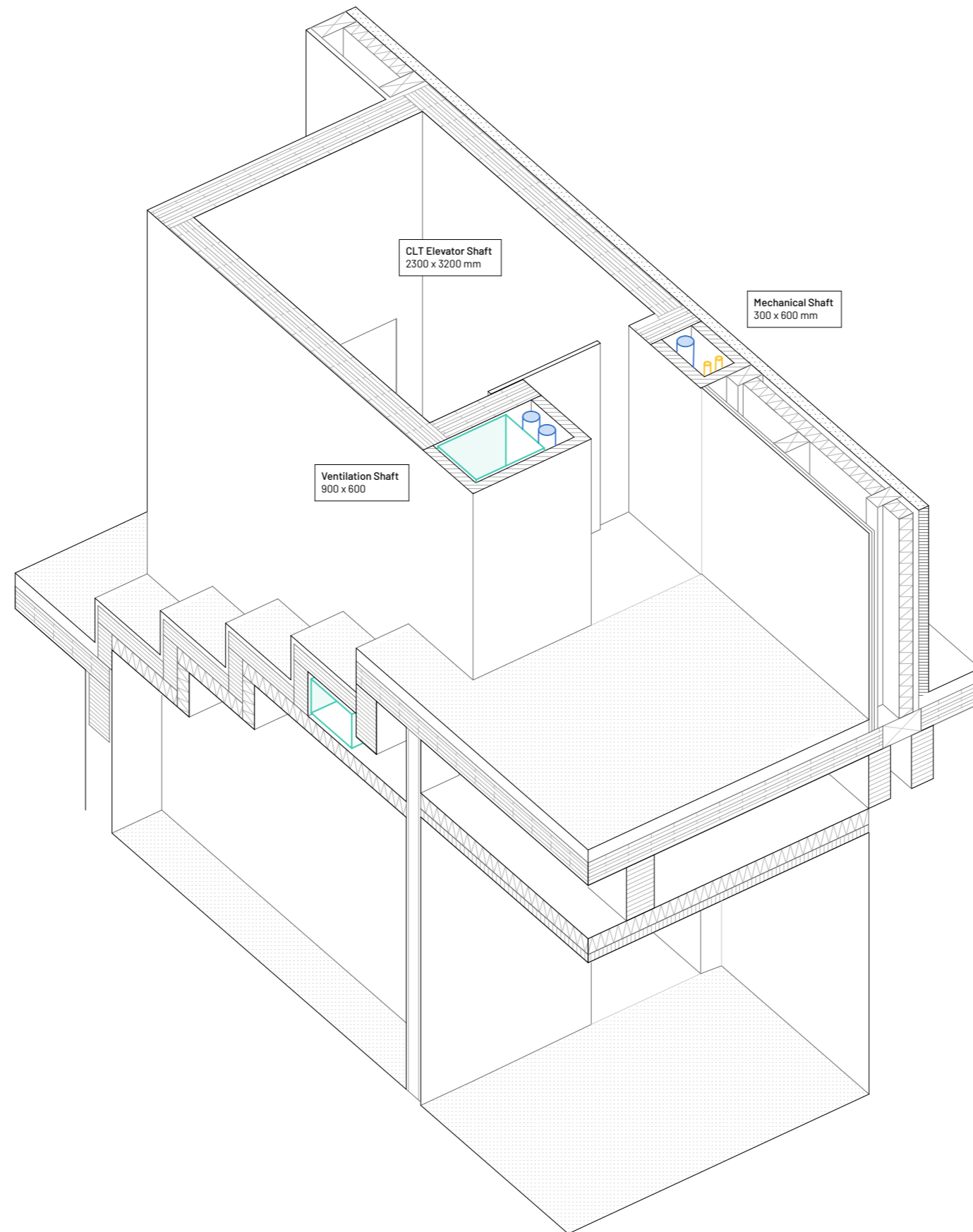




**CLIMATIC SYSTEMS**

- Electricity
- Dry Radiant Heating
- Water Supply, Sprinklers
- Air





**CLIMATIC SYSTEMS**

- Electricity
- Dry Radiant Heating
- Water Supply, Sprinklers
- Air



## **Complete Drawings and Details**

### **HAVEN**

*The public interlace for social inclusivity in post-renewal Copenhagen*

**Luca Fontana**

4773691

### **Public Building Graduation Studio**

Public Condenser, The Hague – Copenhagen

AR3AP131

**TU Delft**

2019 - 2020