P5 Yinglin Cao 4185730

Transition

The United Nations Headquarters of Environmental Council, NYC

Group Master Plan:

Continuation of the Manhattan's Green Belt

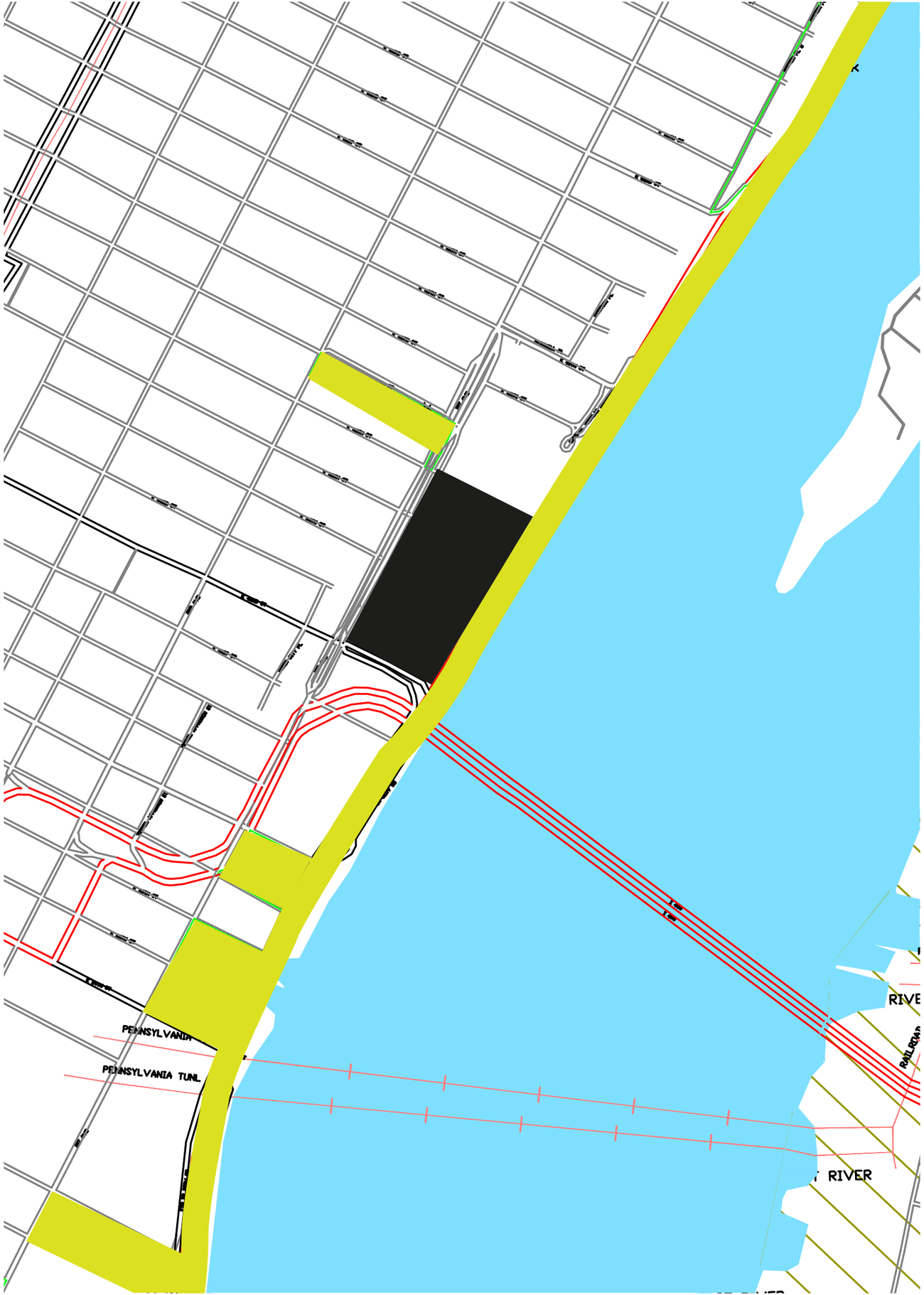
Create connections along the water for pubic purposes

United Nation Environmental Council

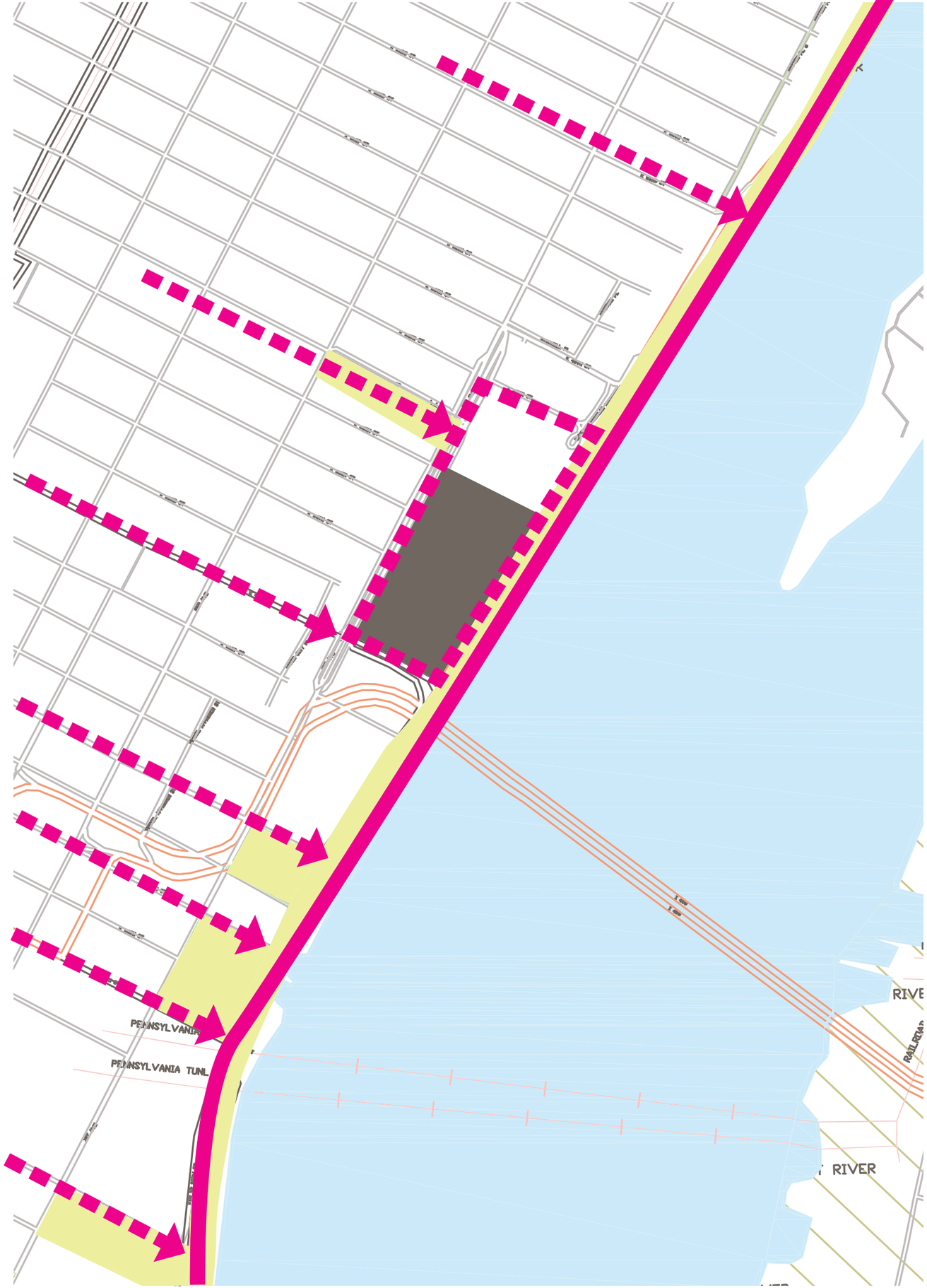
What Role ?

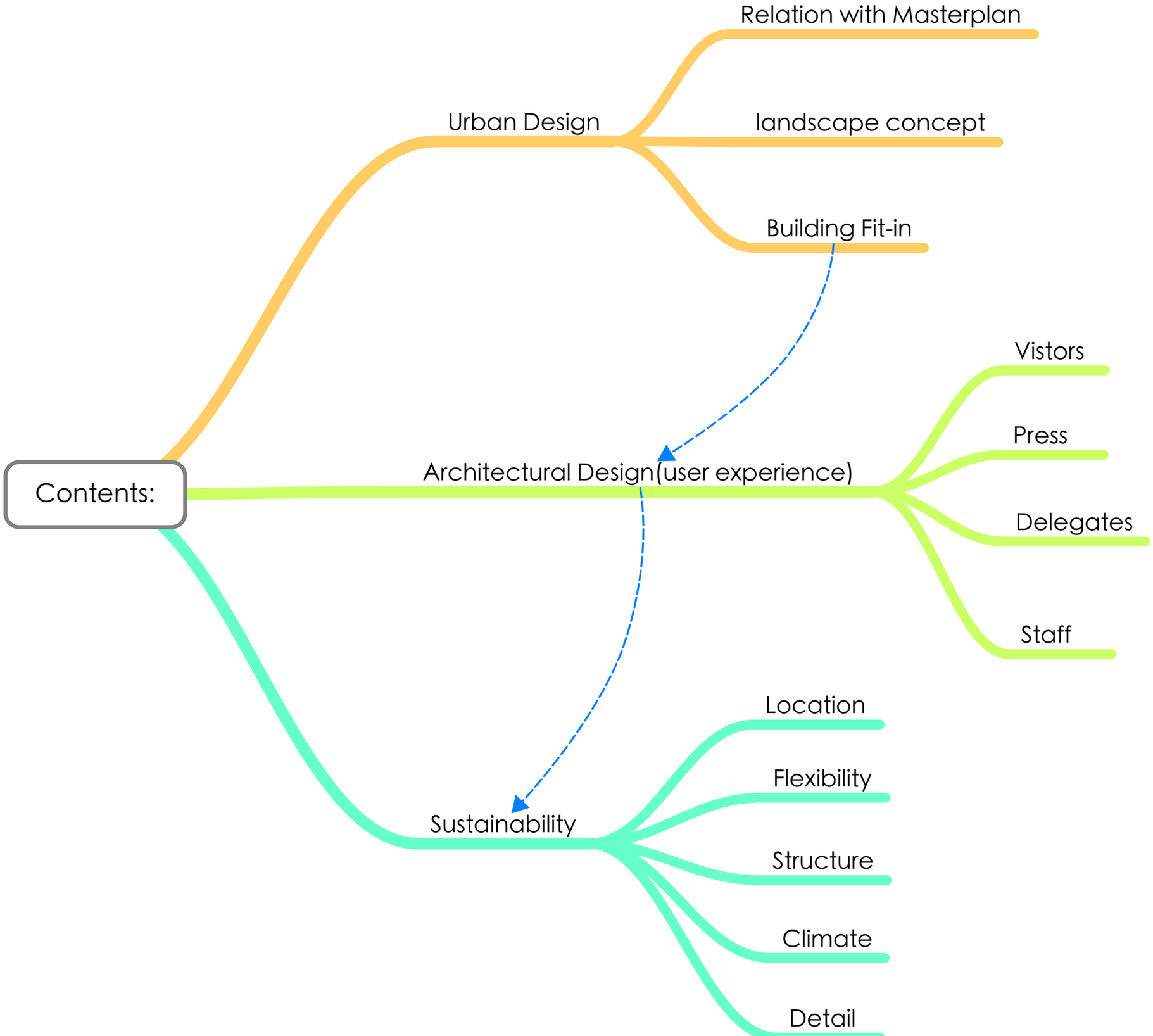
Context

Problem



Problem




Contents:
Urban Design
Relation with Masterplan
landscape concept
Building Fit-in
Architectural Design(user experience)
Vistors
Press
Delegates
Staff
Sustainability
Location
Flexibility
Structure
Climate
Detail

Concept of TRANSITION:

in

Space **Urban**

Program **Architecture**

Structure and Facade **Technology**

Chapter 1
Urban Design

1. Relation with Master plan
2. Landscape Design
3. Building Fit-in

1. Relation with Master plan

Current Situation

42nd Street

HAMMARSKJOLD PLAZA

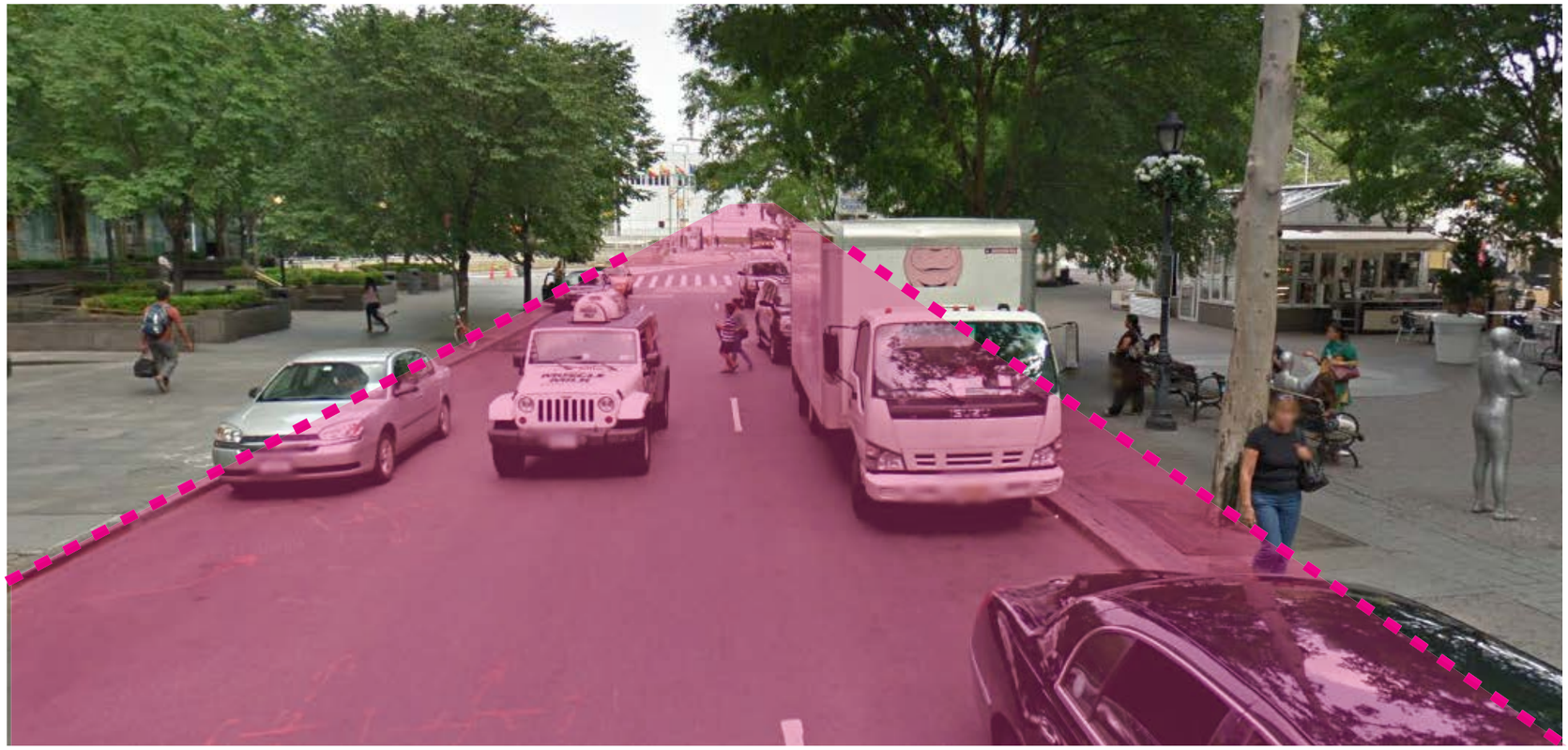
48nd Street

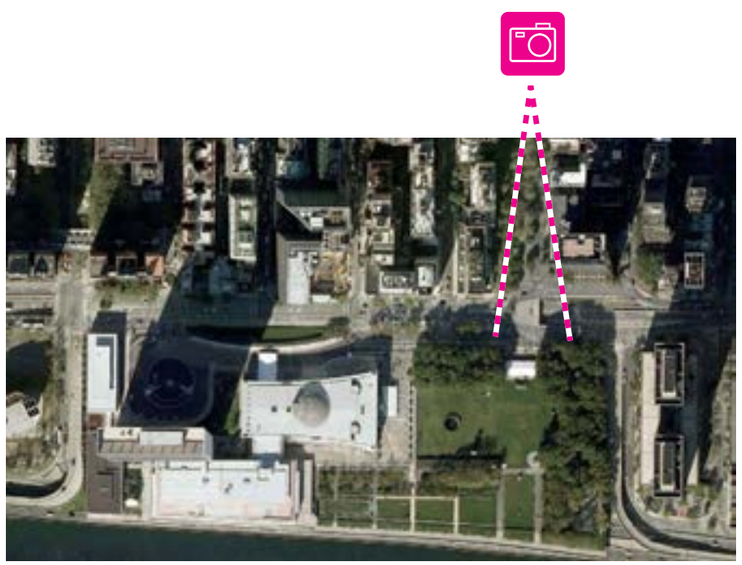
1st Avenue

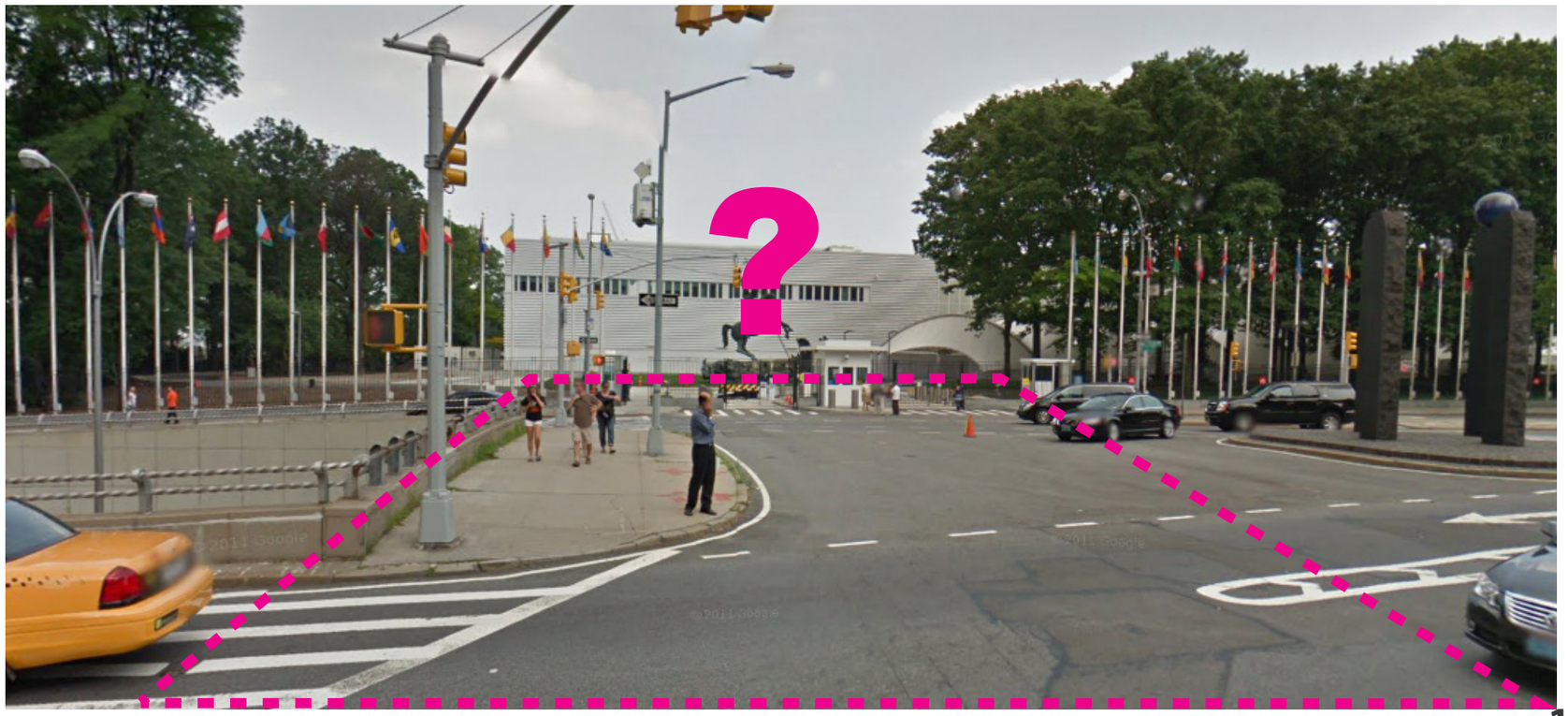
FDR Drive

Program

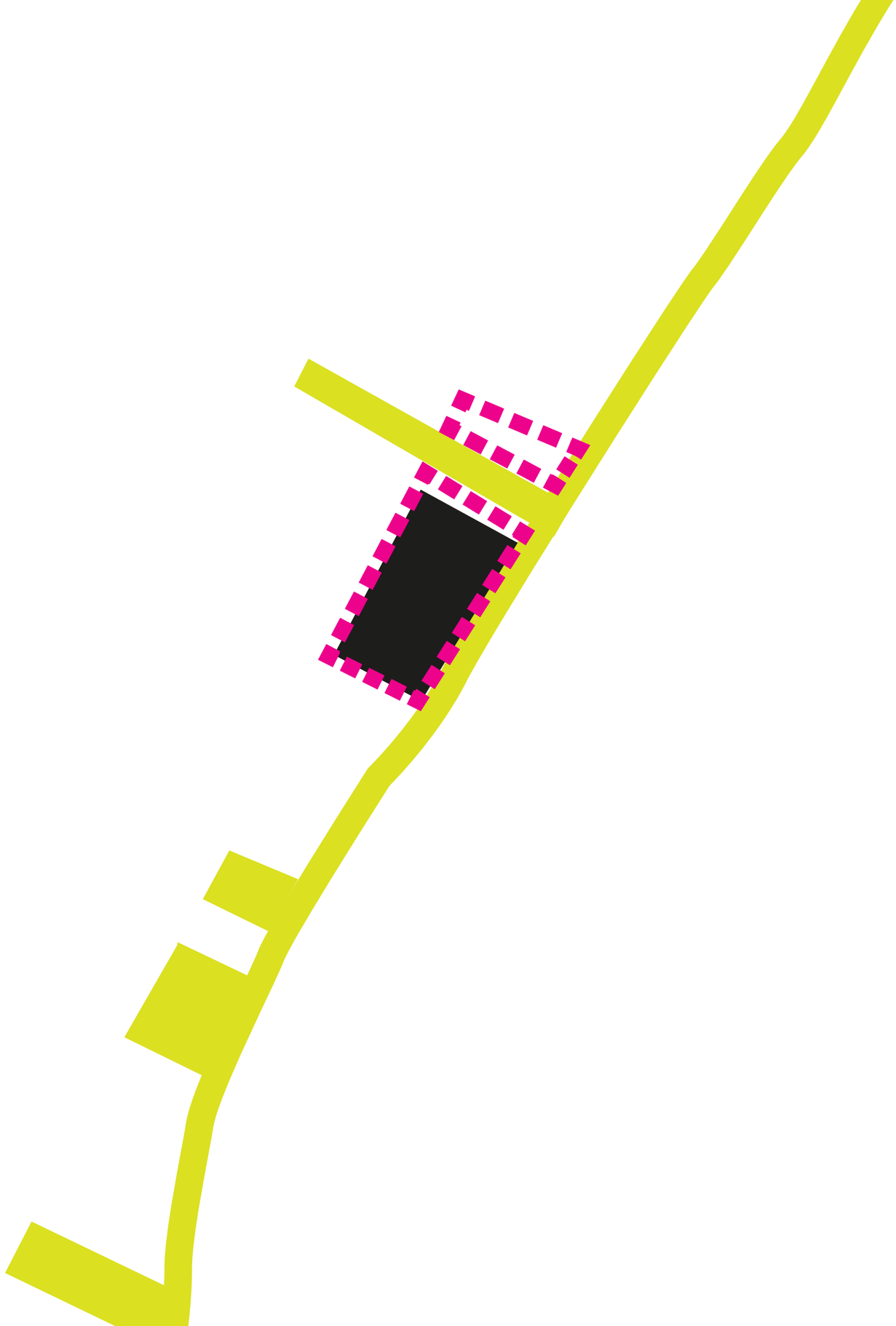
View





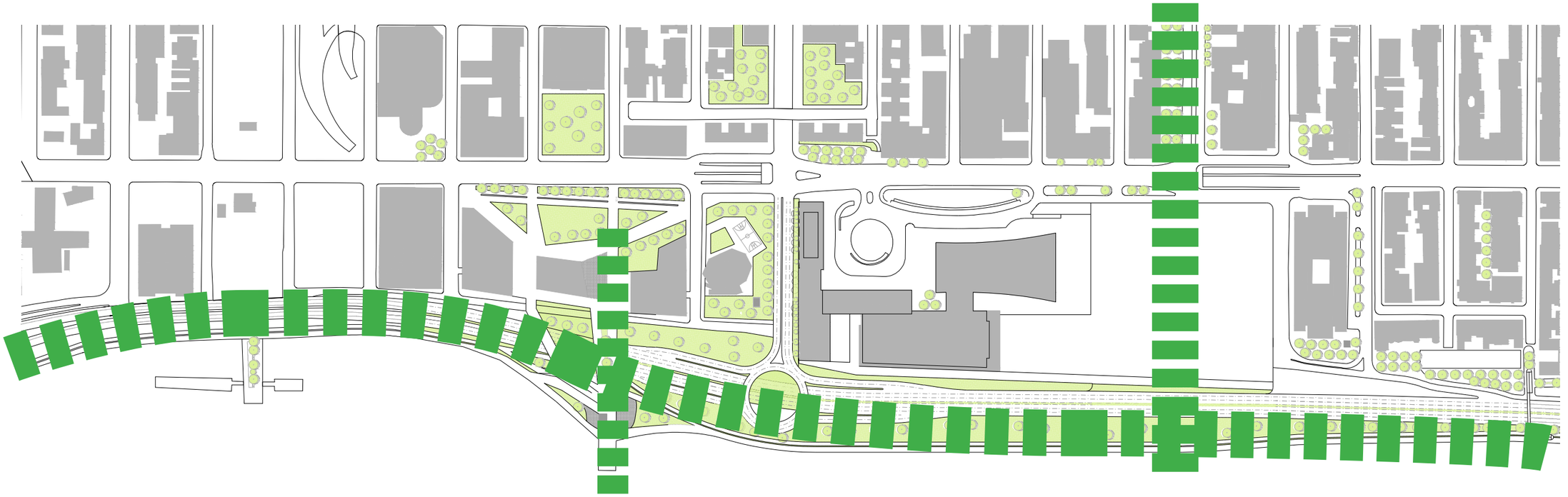


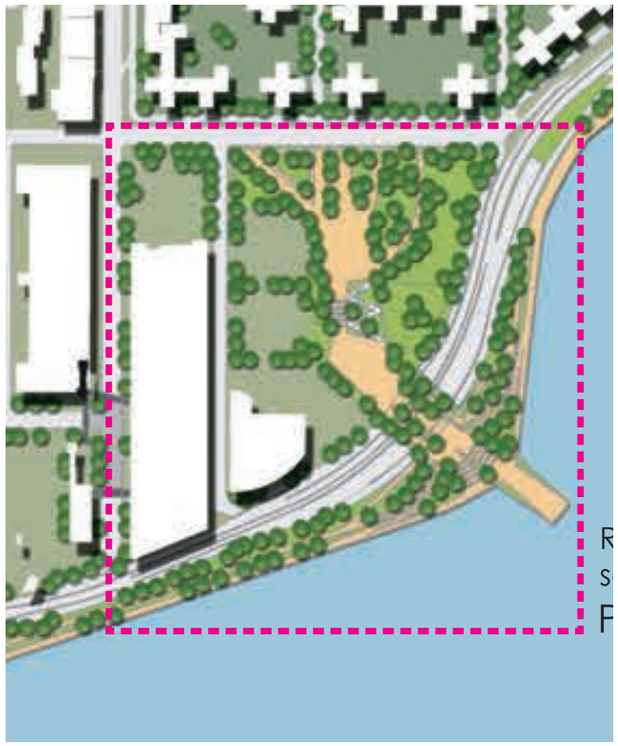
Solution to Break the Gap



New Preconditions

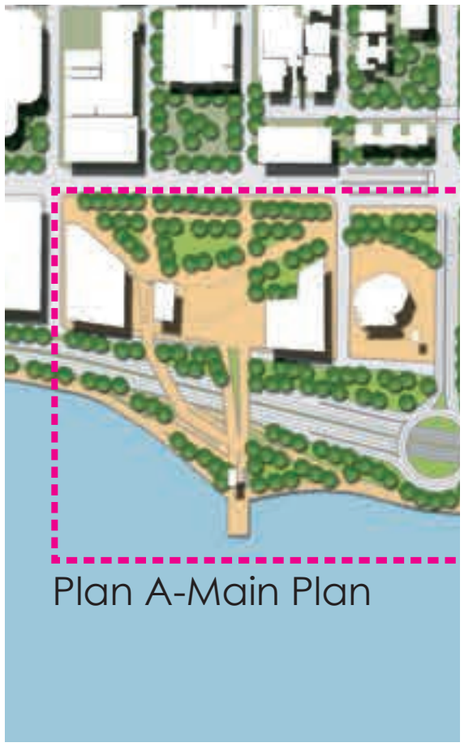
Preservation and renewal of ecological context



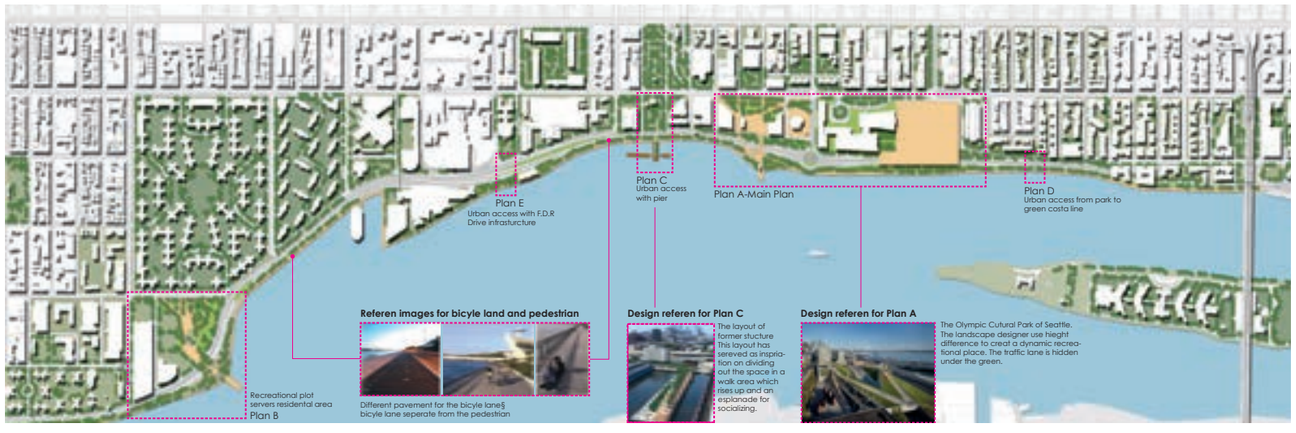


R
S
P

Plan C
Urban access
with pier



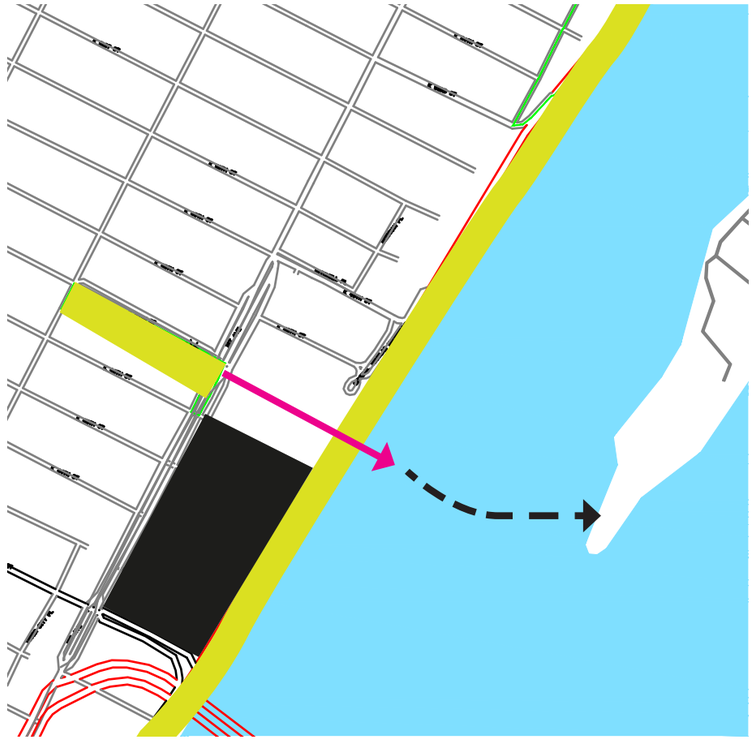
Plan A-Main Plan



Urban Design

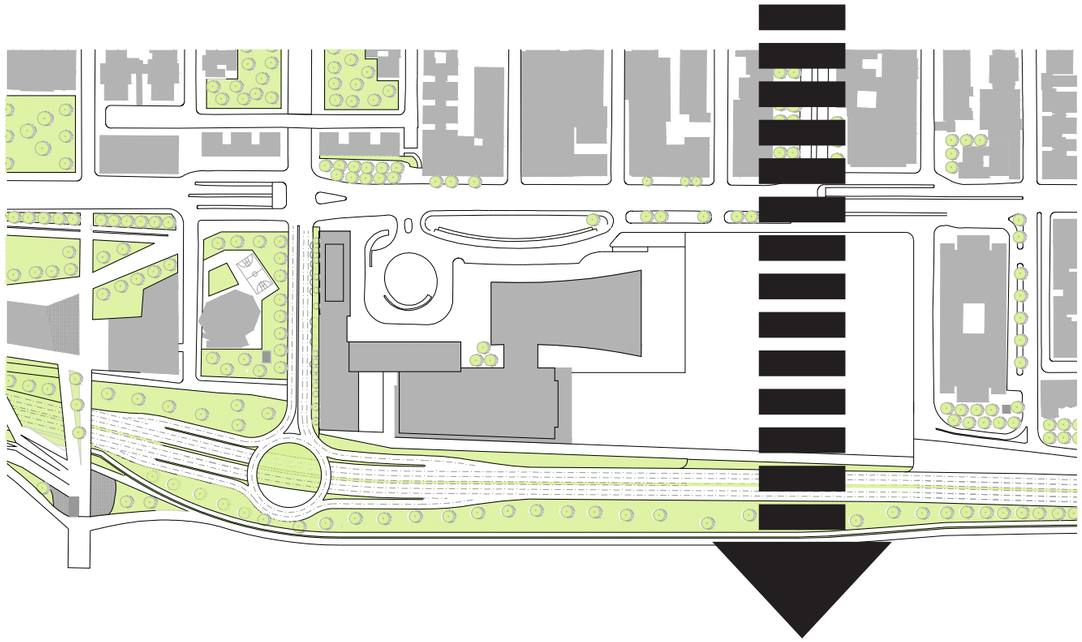
New Preconditions

Connecition with Roosevelt Memorial Park

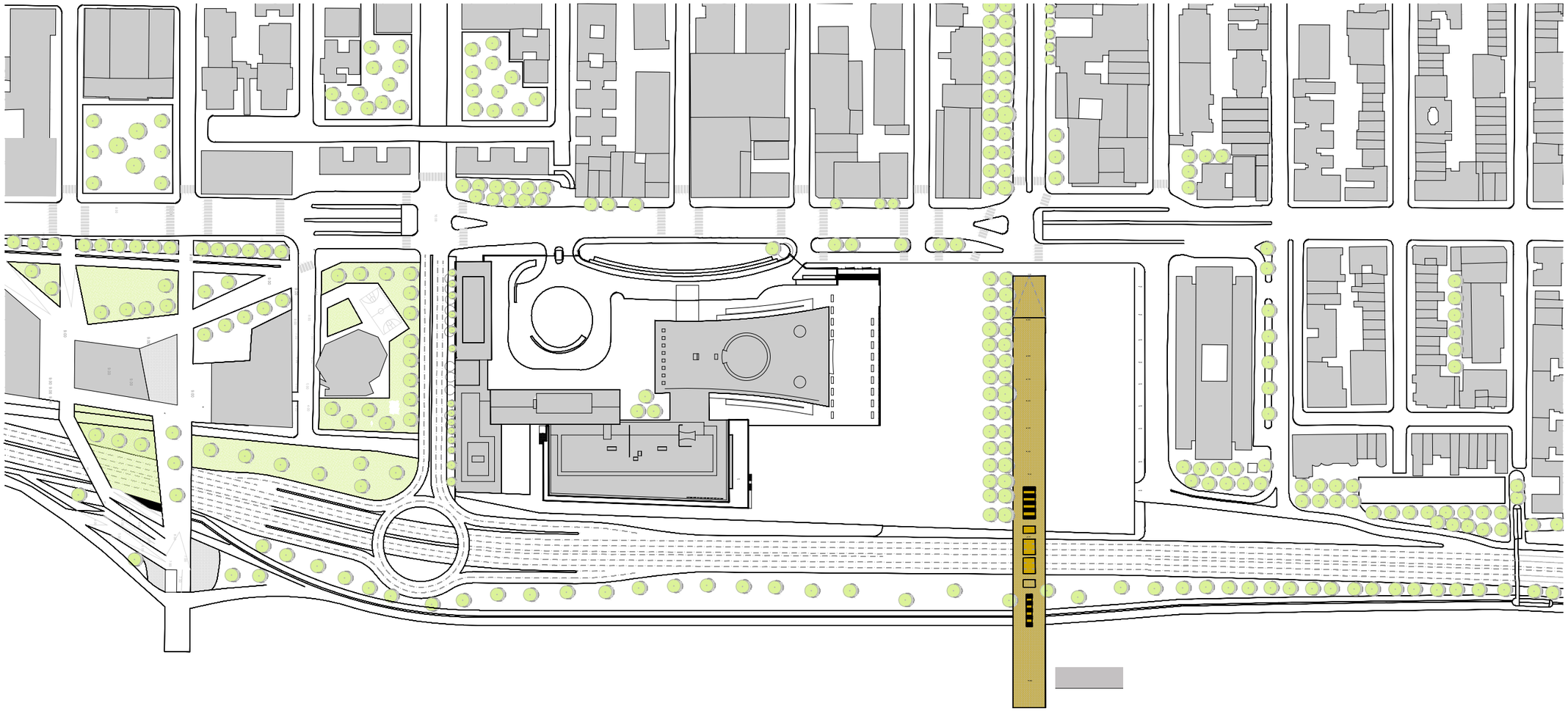


New Preconditions

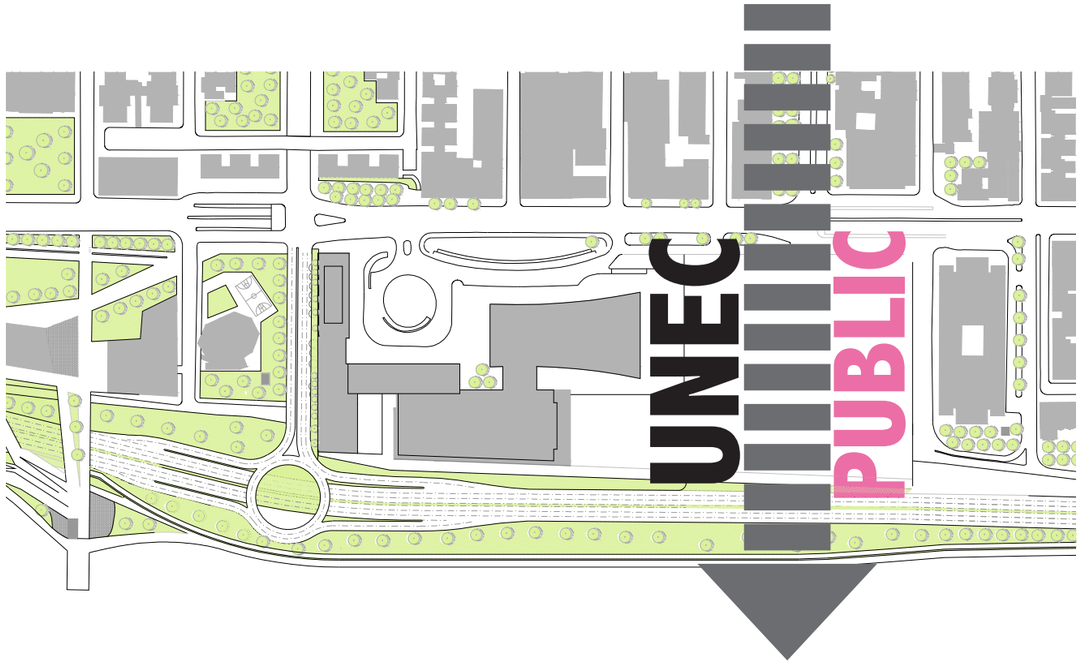
Preservation and renewal of ecological context



Situation Plan
Landscape Design



Building Position
Location Chosen



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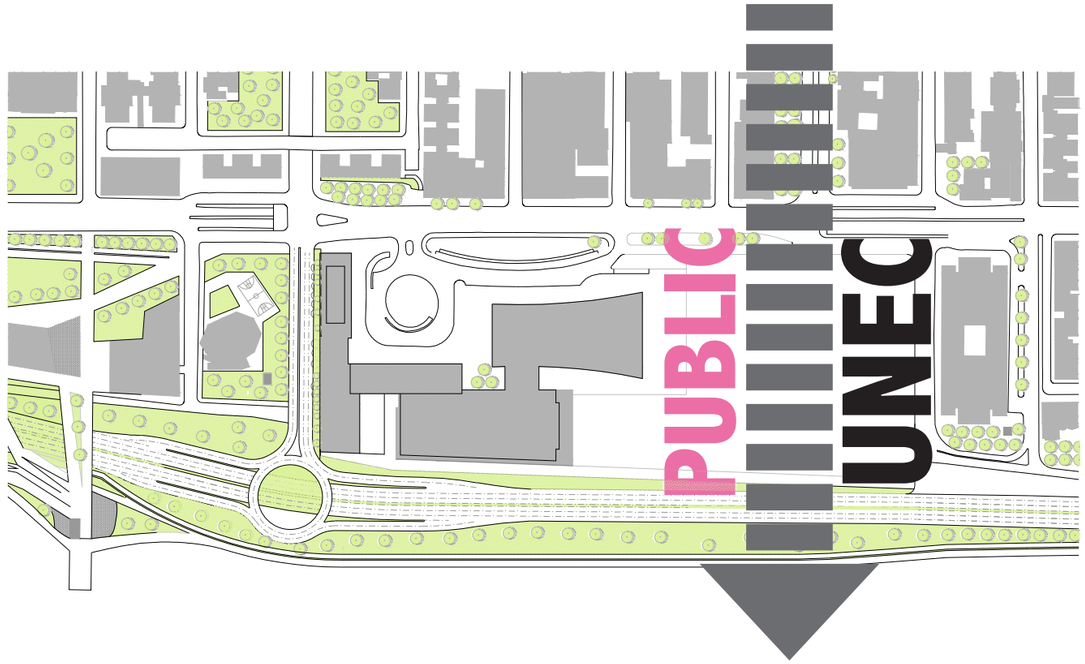
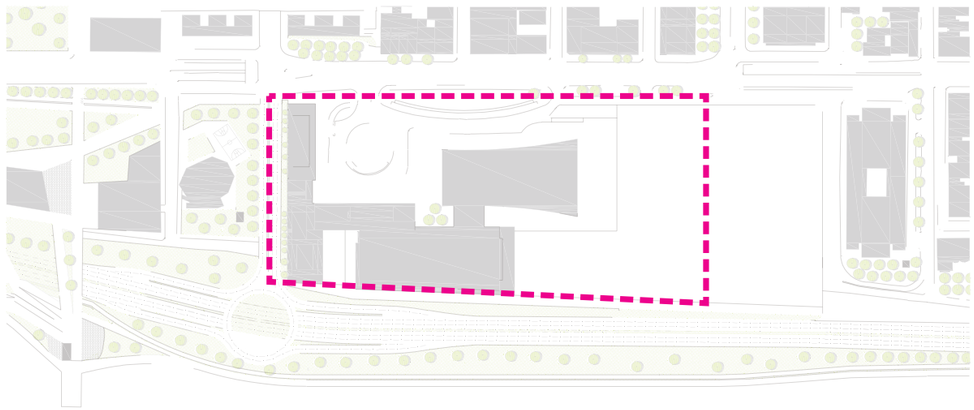
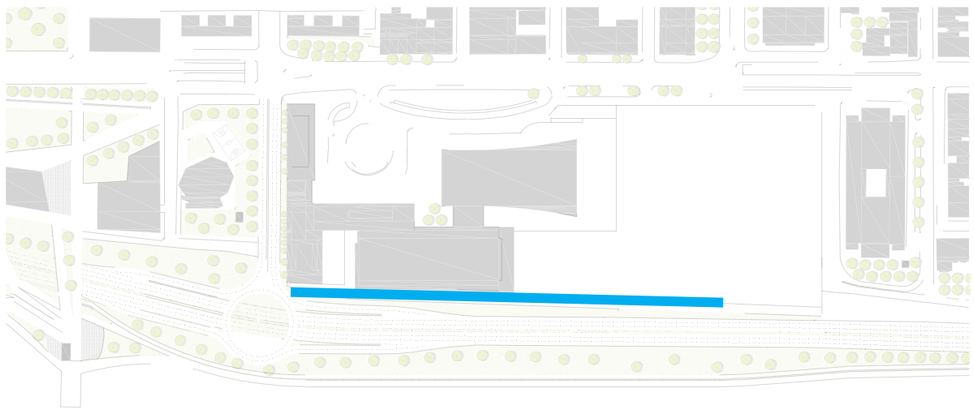




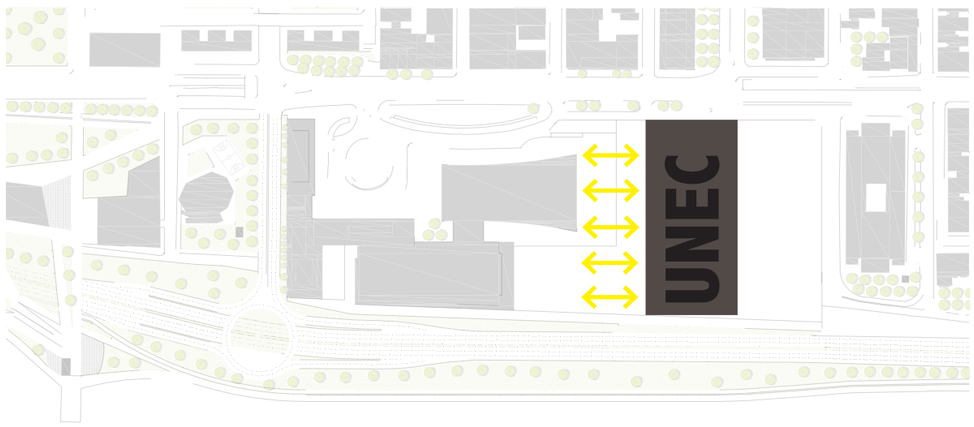
Security

Clear Boundary to UN Compound



Impression

Integrated Waterfront Elevation Impression of UN

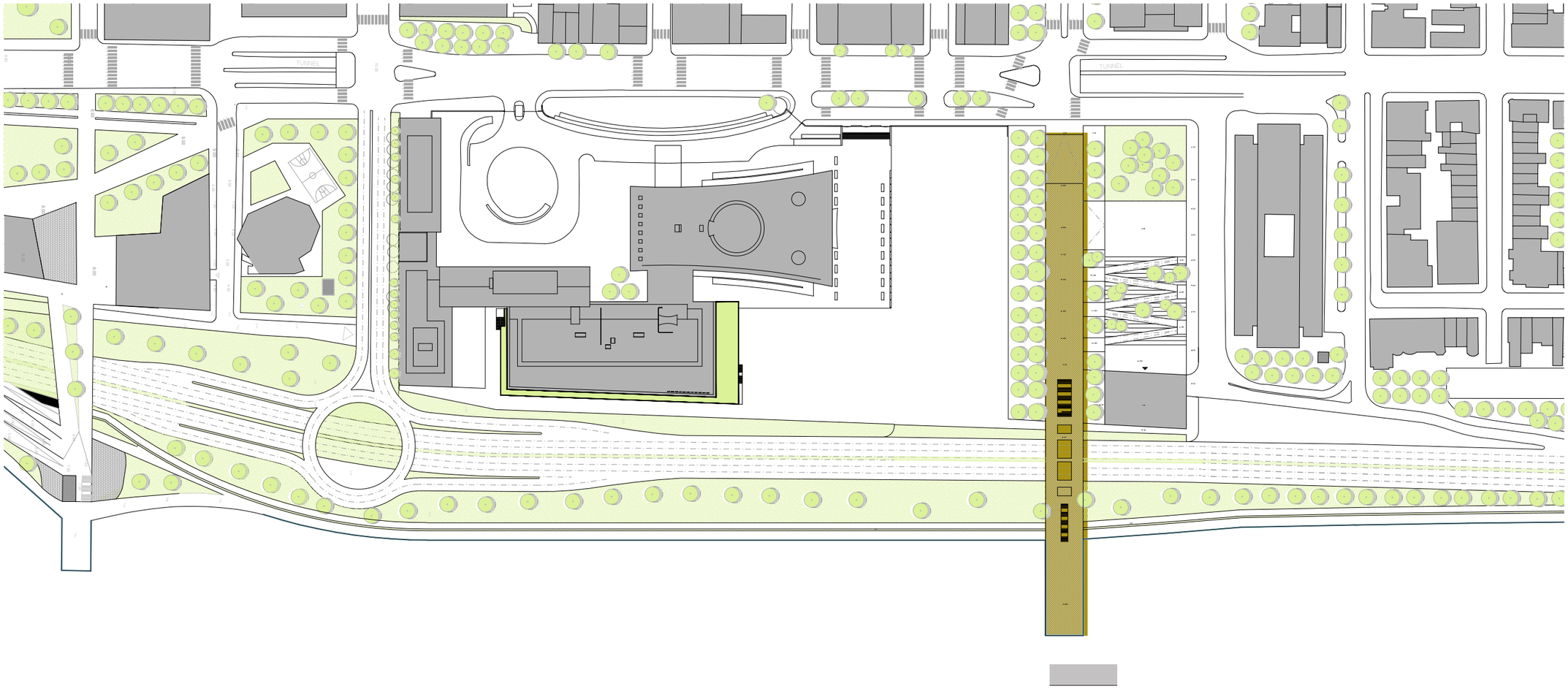


Circulation

Public Plaza and Main Connections

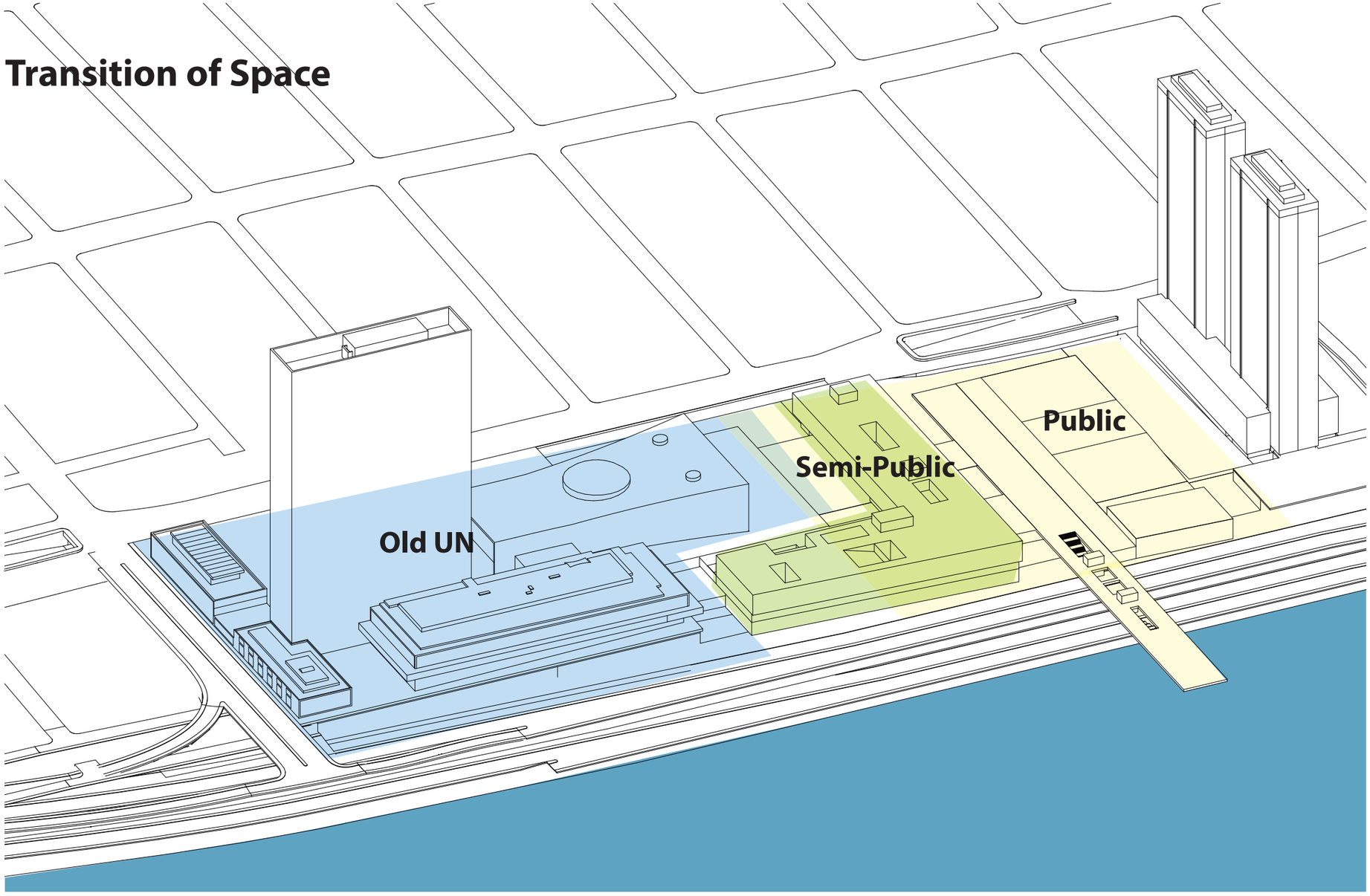
Conclusion of Master plan Design

Situation Plan
Landscape Design

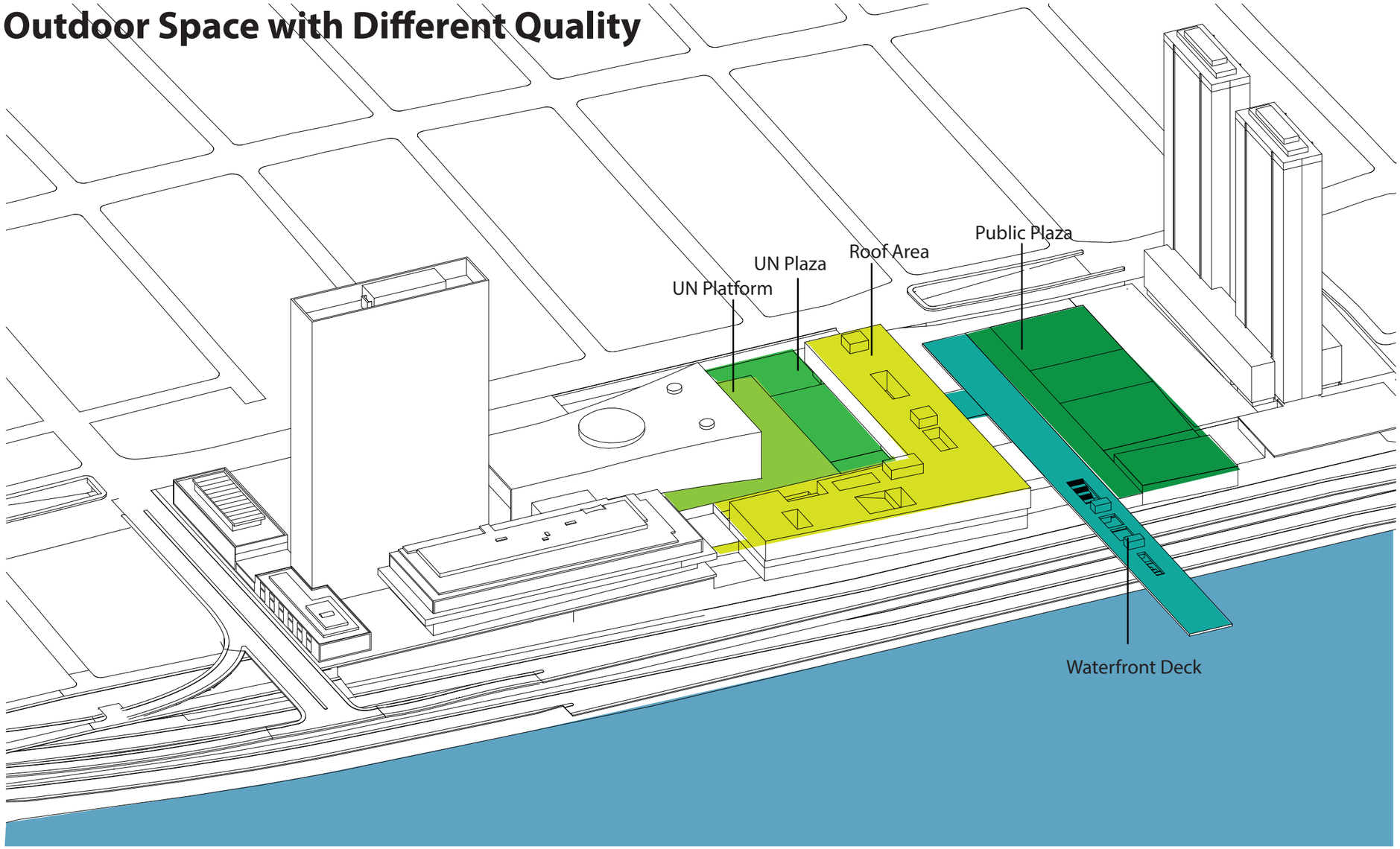


2. Landscape Design

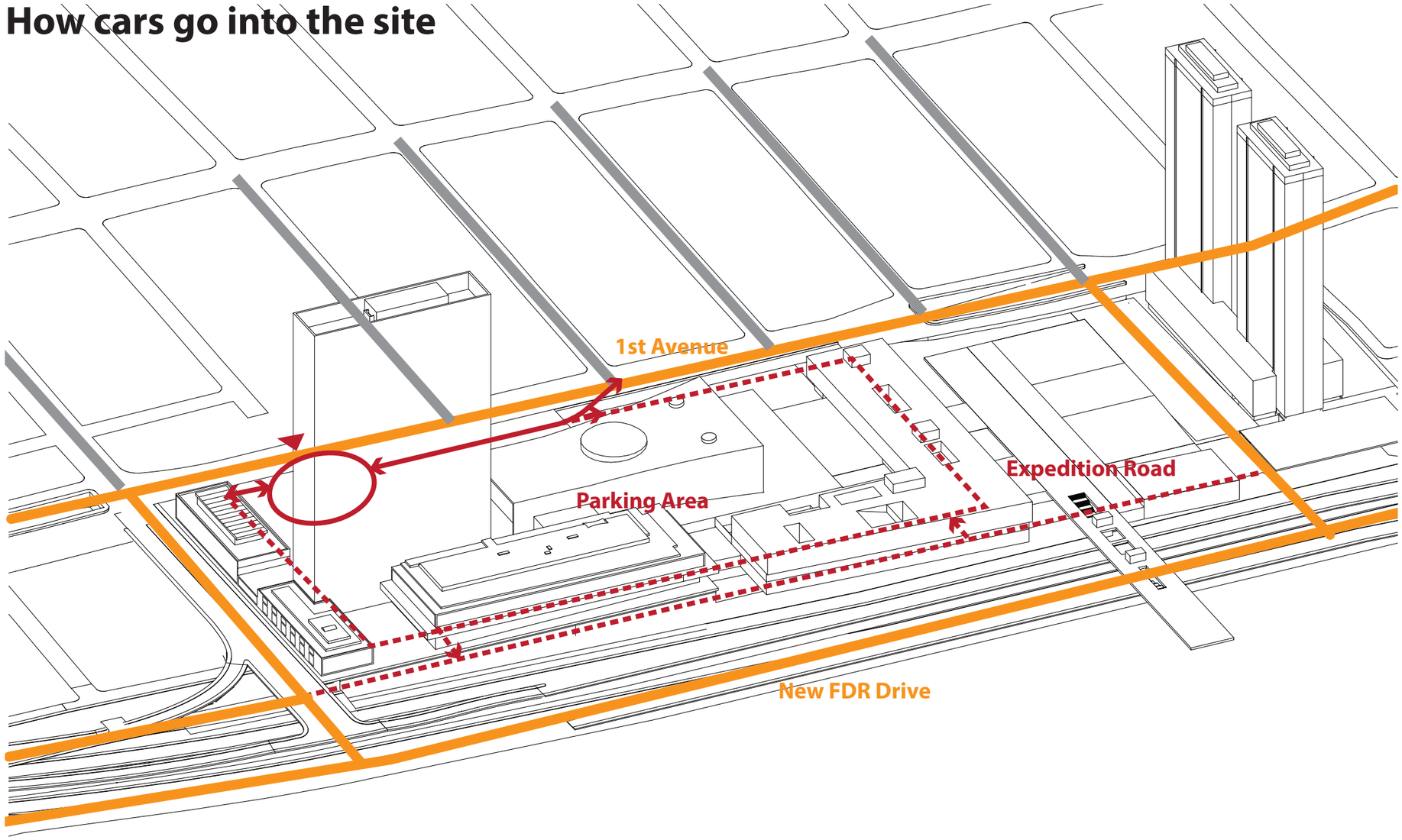
Transition of Space



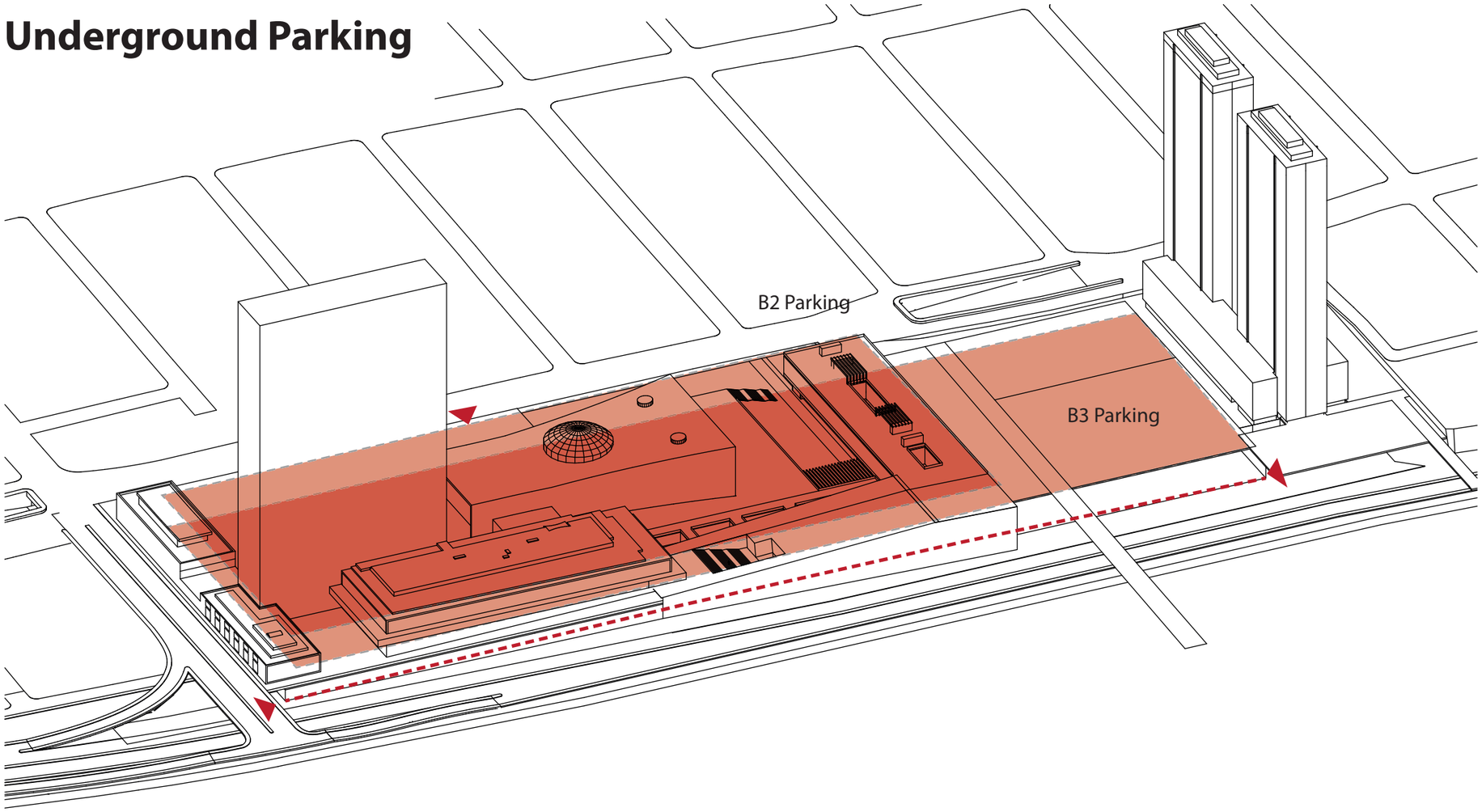
Outdoor Space with Different Quality



How cars go into the site

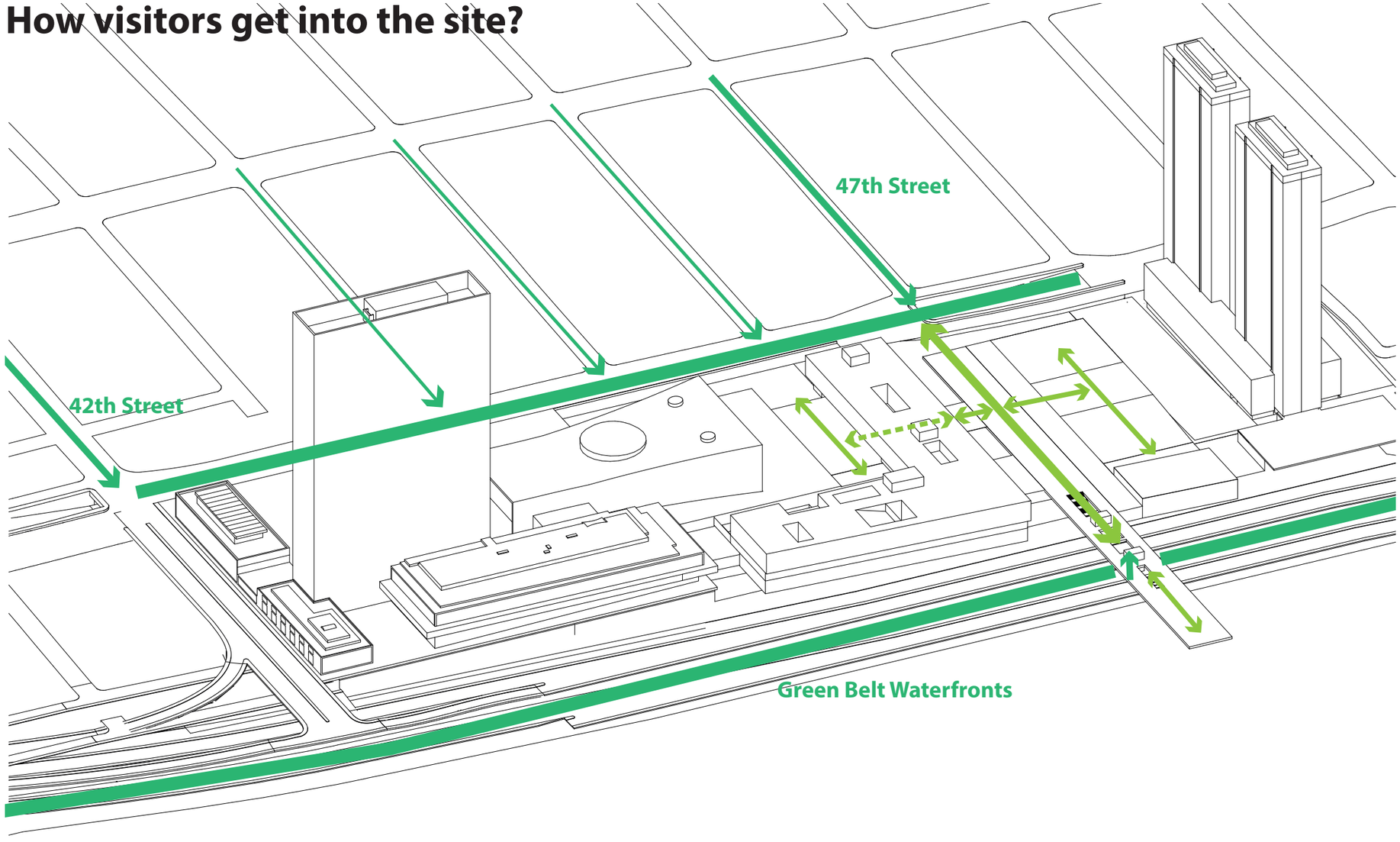


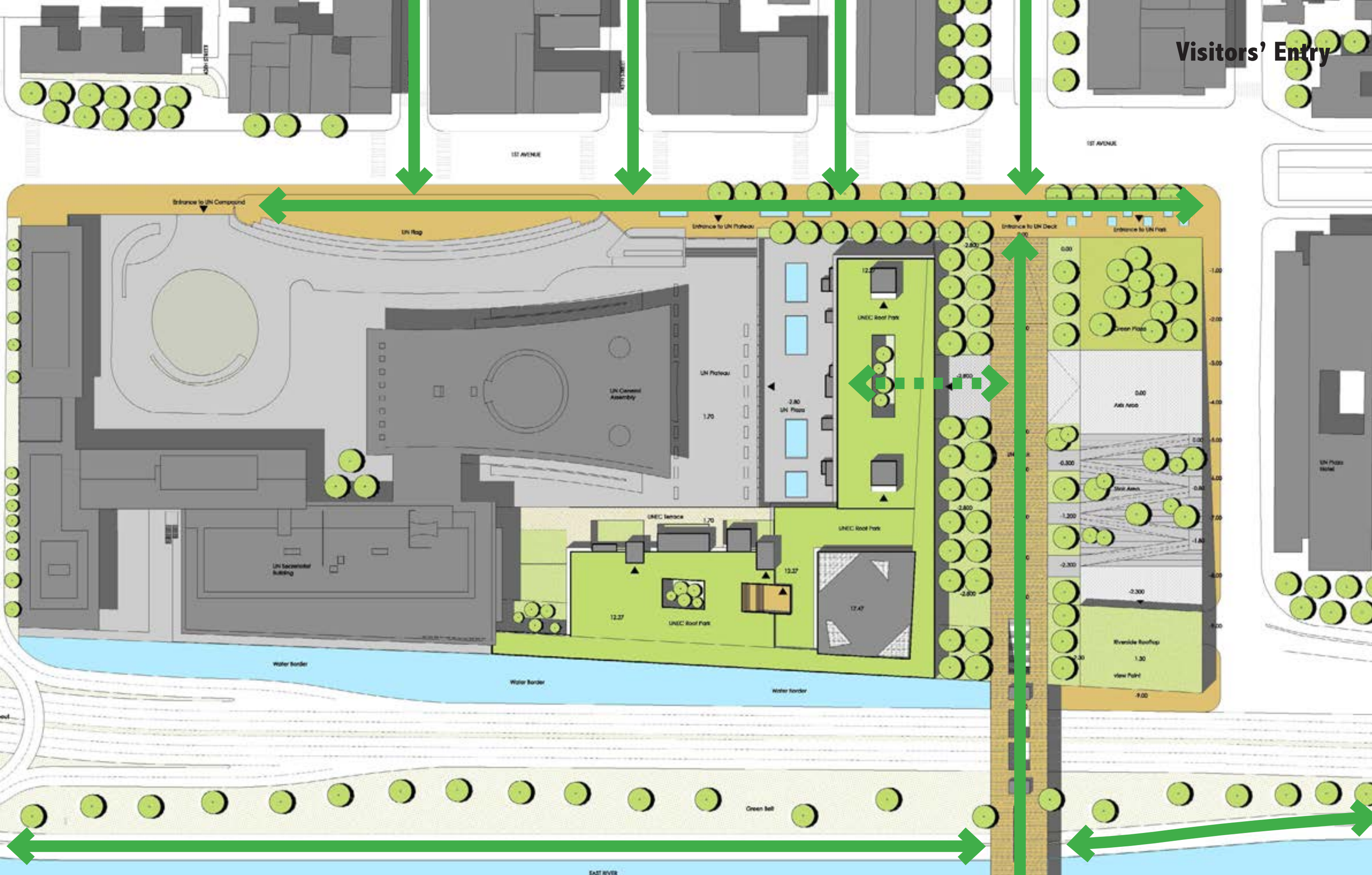
Underground Parking



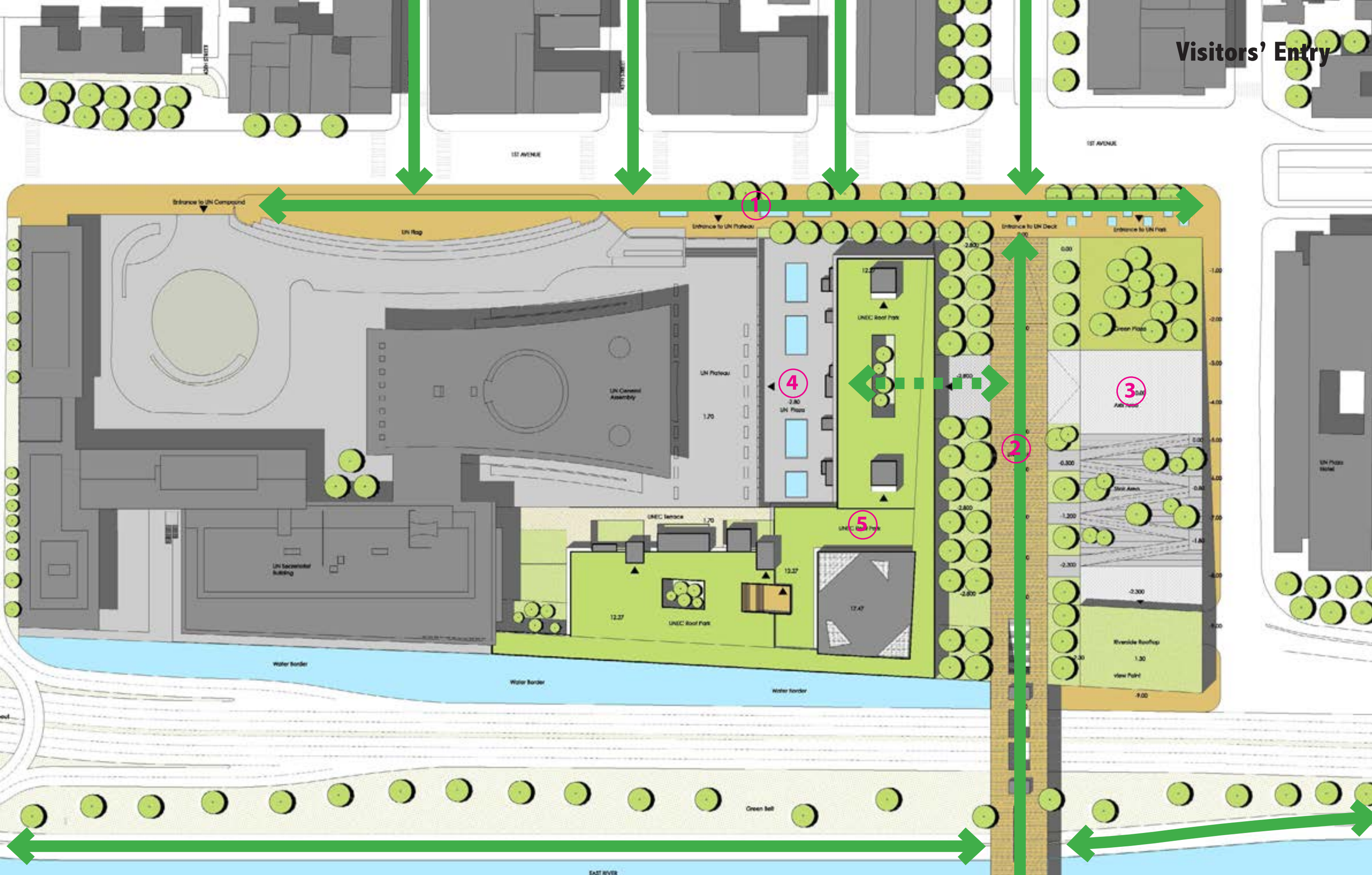
Underground Parking

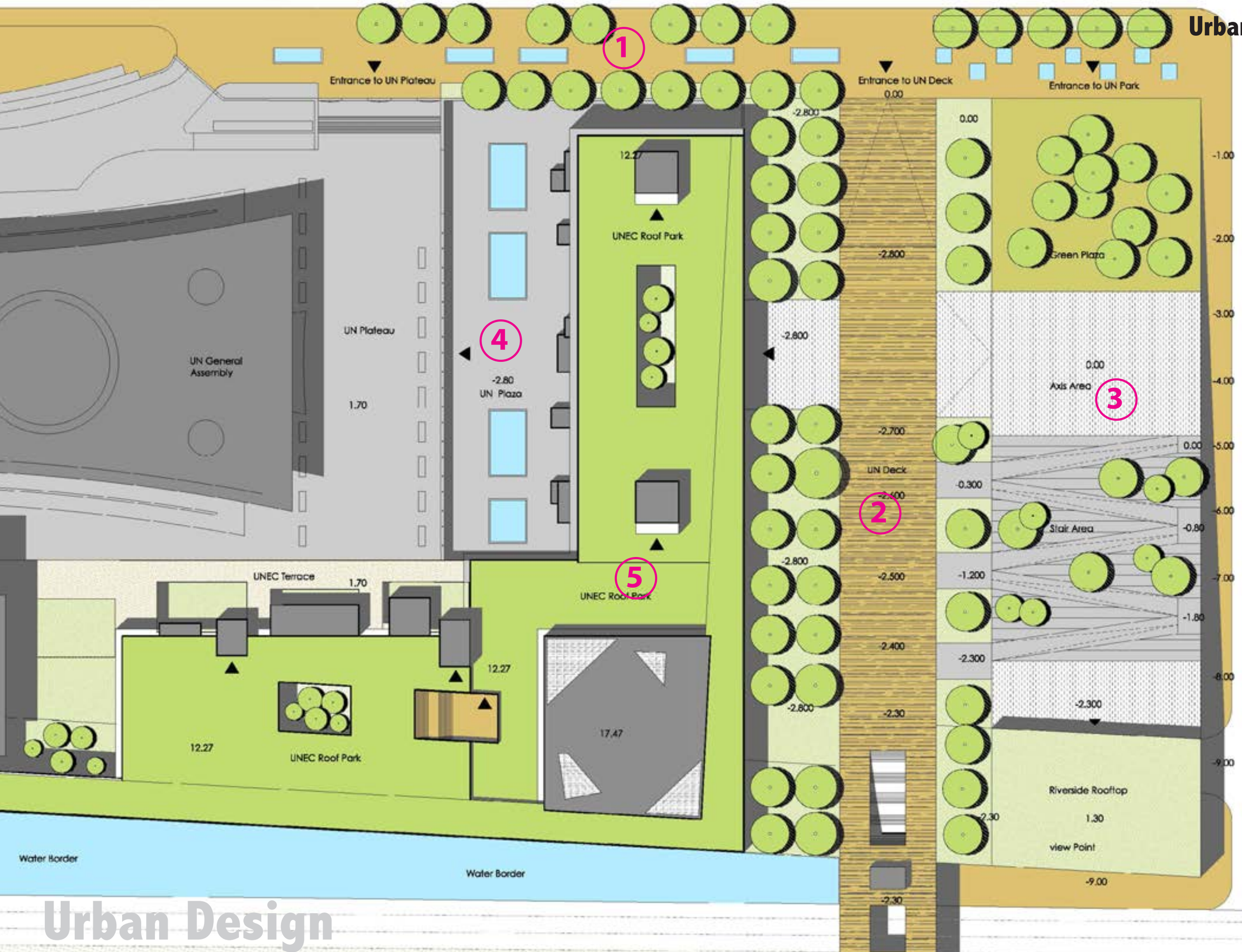
How visitors get into the site?



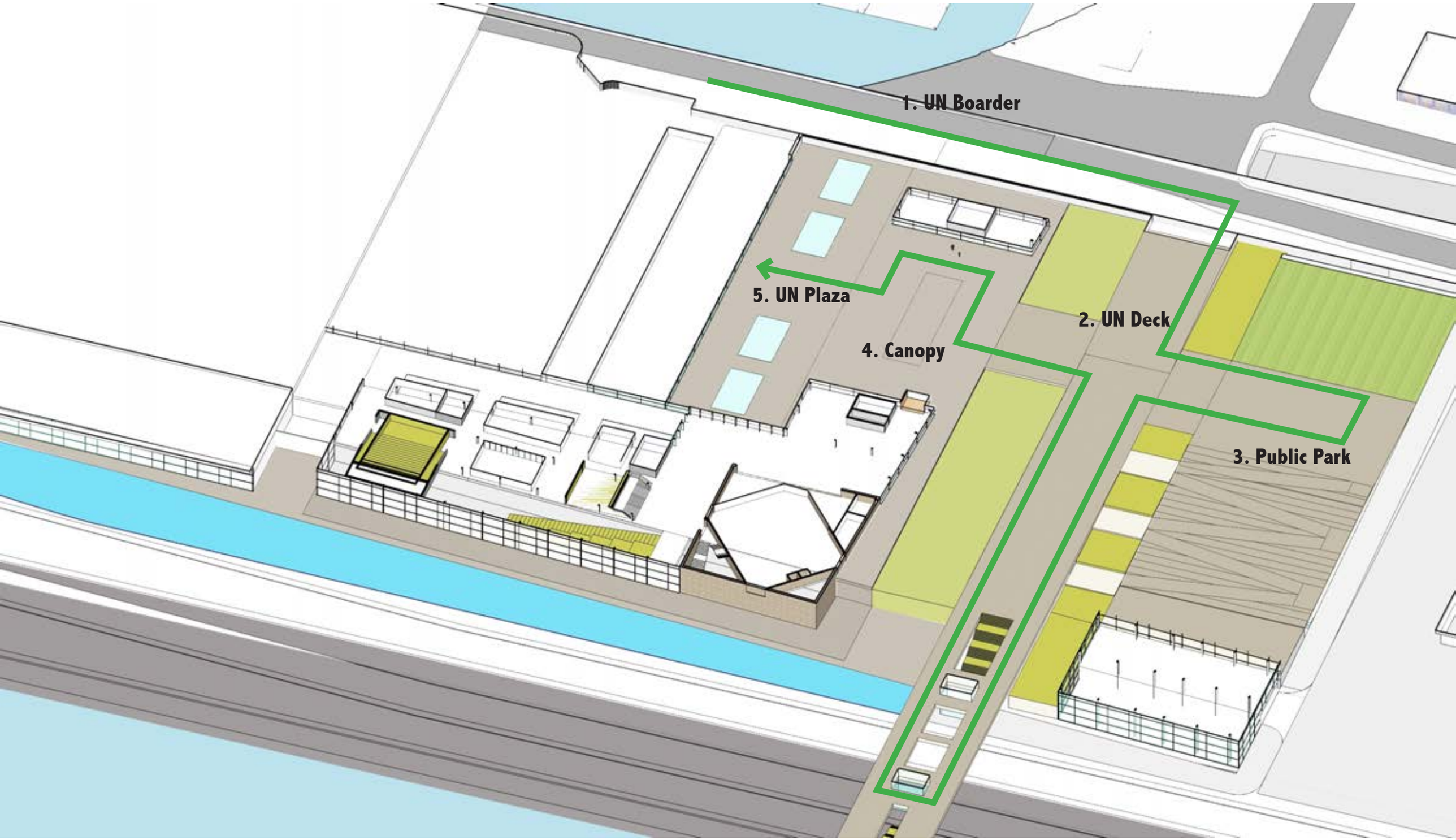


Urban Design

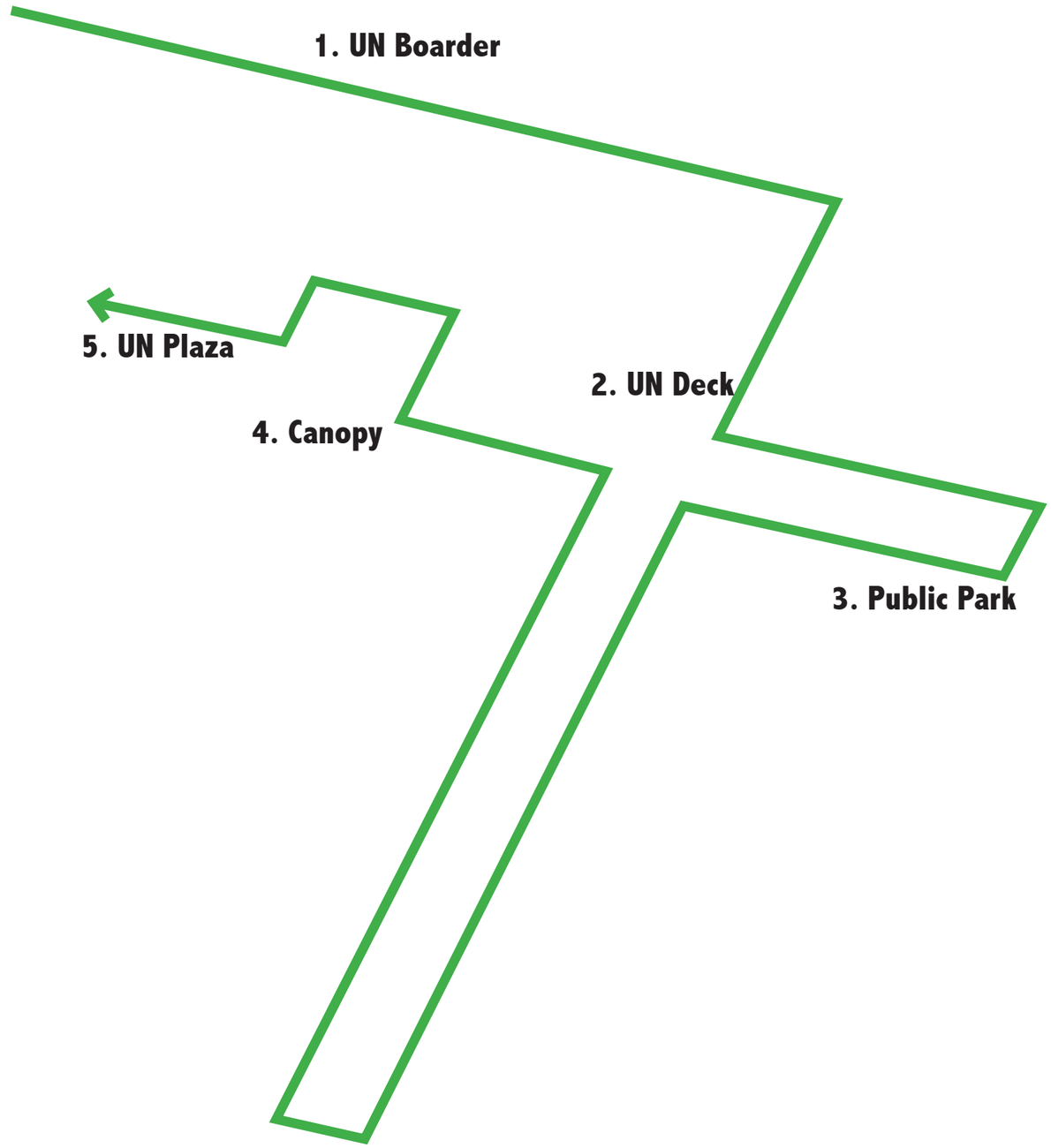

Visitors' Entry
1
2
3
4
5
Entrance to UN Compound
UN Flag
Entrance to UN Plateau
Entrance to UN Deck
Entrance to UN Park
UN Plateau
UN General Assembly
UN Plaza
UNEC Roof Park
Green Plaza
Visitor Center
Riverside Rooftop
view Point
UNEC Terrace
UNEC Roof Park
UN Secretariat Building
Water Border
Water Border
Water Border
Green Belt
EAST RIVER
1ST AVENUE
1ST AVENUE


1
Entrance to UN Plateau
Entrance to UN Deck
Entrance to UN Park
0.00
-2.800
12.27
UNEC Roof Park
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-7.00
-8.00
-9.00
UN Plateau
UN General Assembly
4
-2.80
UN Plaza
1.70
-2.800
-2.800
Green Plaza
0.00
Axis Area
3
-2.700
UN Deck
2
-0.300
Stair Area
-0.80
-1.200
-1.80
-2.800
-2.500
-2.400
-2.300
-2.800
-2.30
-2.300
5
UNEC Roof Park
UNEC Terrace
1.70
12.27
12.27
UNEC Roof Park
17.47
Riverside Rooftop
1.30
view Point
-2.30
-9.00
-2.30
Water Border
Water Border

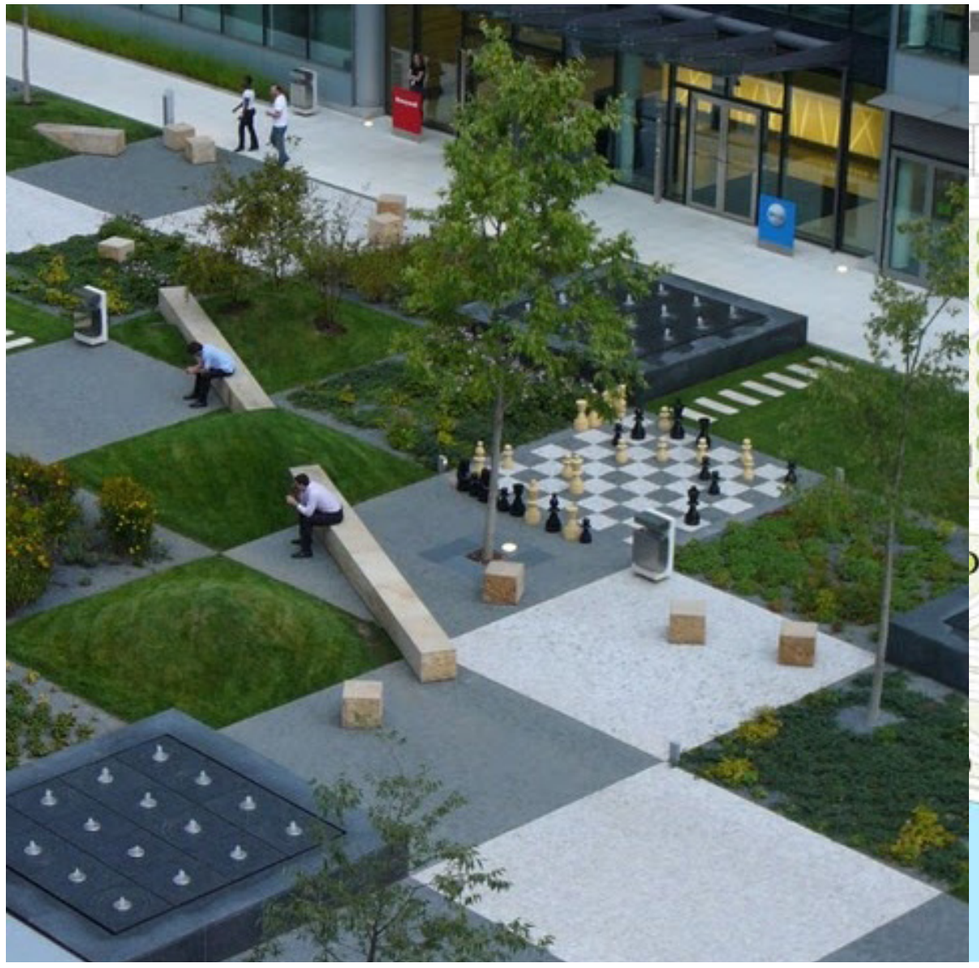
Visitors' Routine (Outdoor)

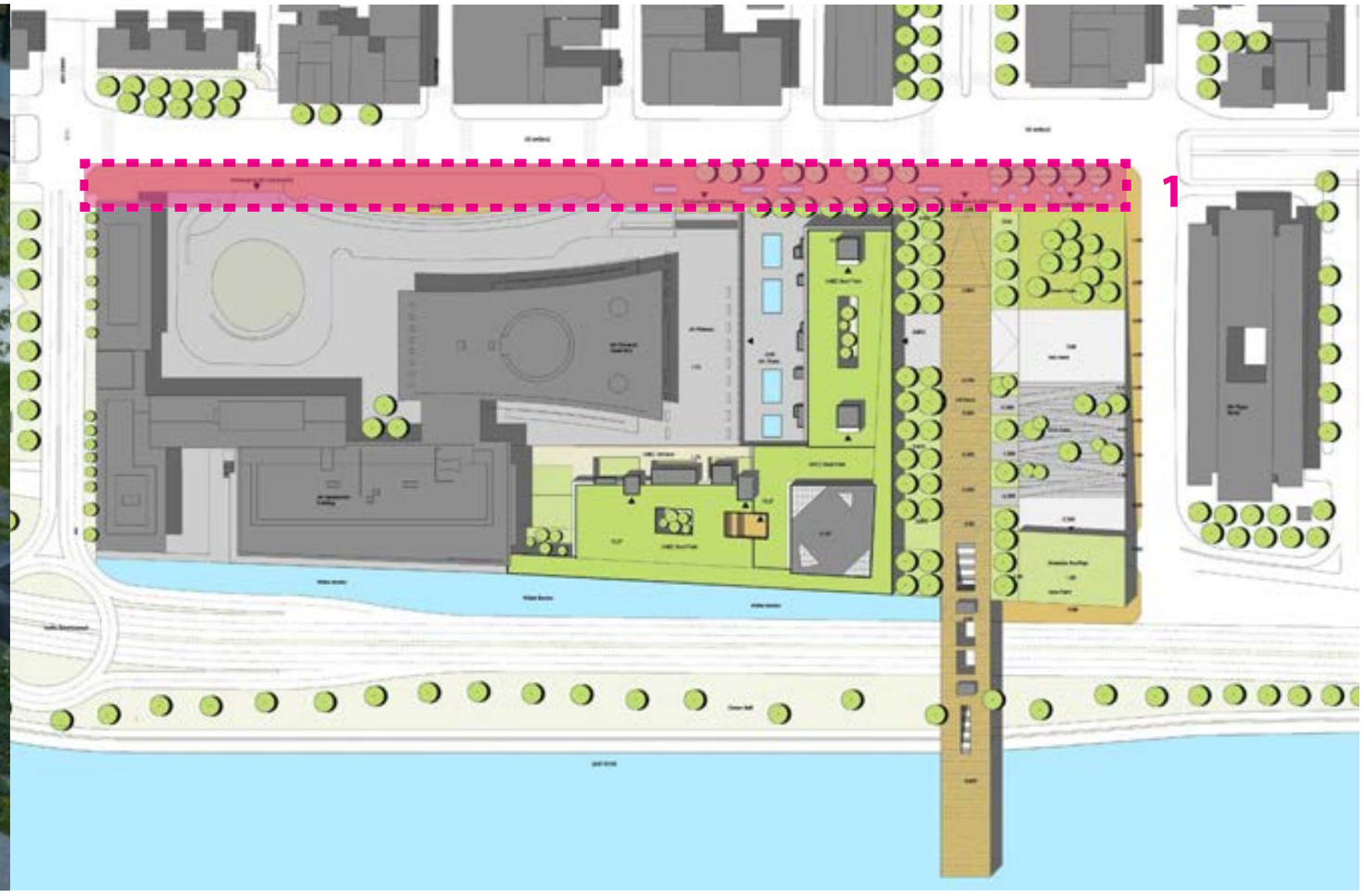


Visitors' Routine (Outdoor)



CHARACTER 1: UN BOARDER





Cigler Marani Architects, A-Class office project, The Park, in Prague 4

KEY VALUES:
-a new boarder along 1st Avenue for pedestrians
-a recreation zone for both vistors and inhabitats

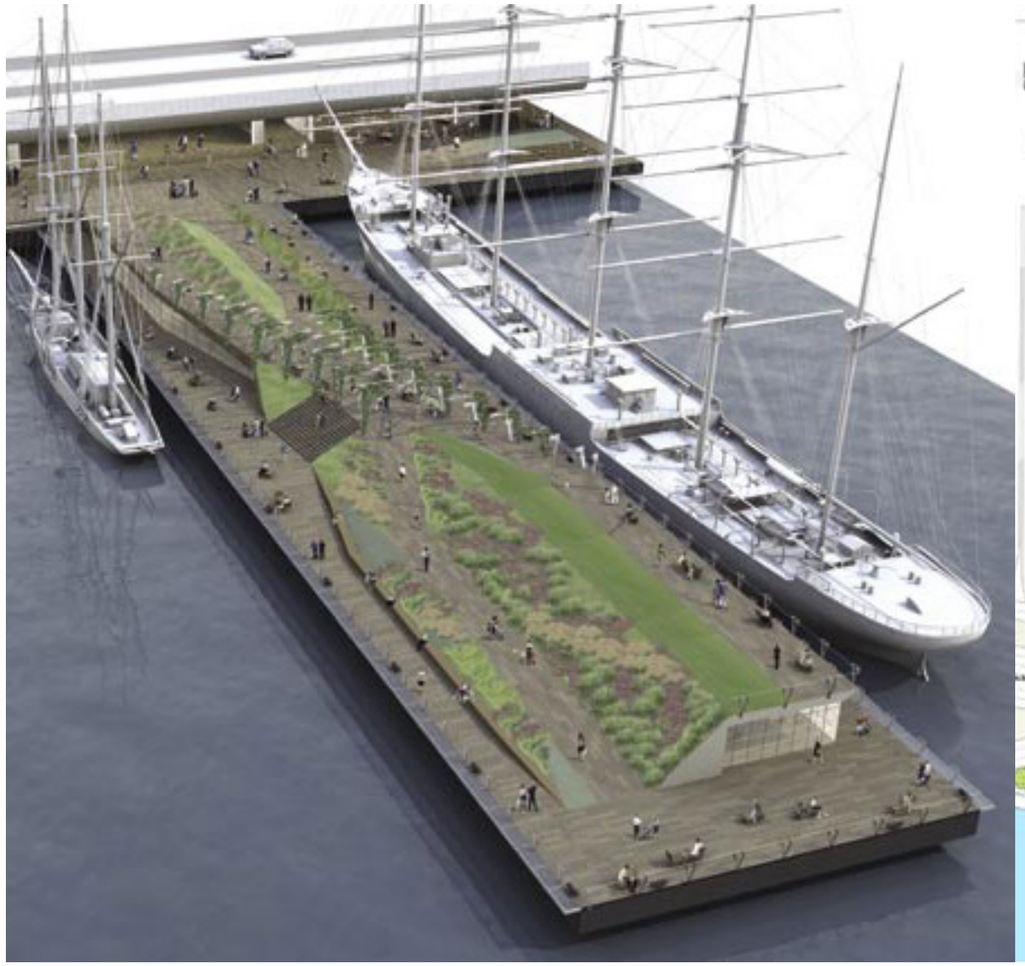
CHARACTER 1: CITY BOARDER

View along 1st Avenue, with green and water elements as filter from the city

CHARACTER 1: CITY BOARDER

View along 1st Avenue, with green and water elements as filter from the city

CHARACTER 2: UN DECK



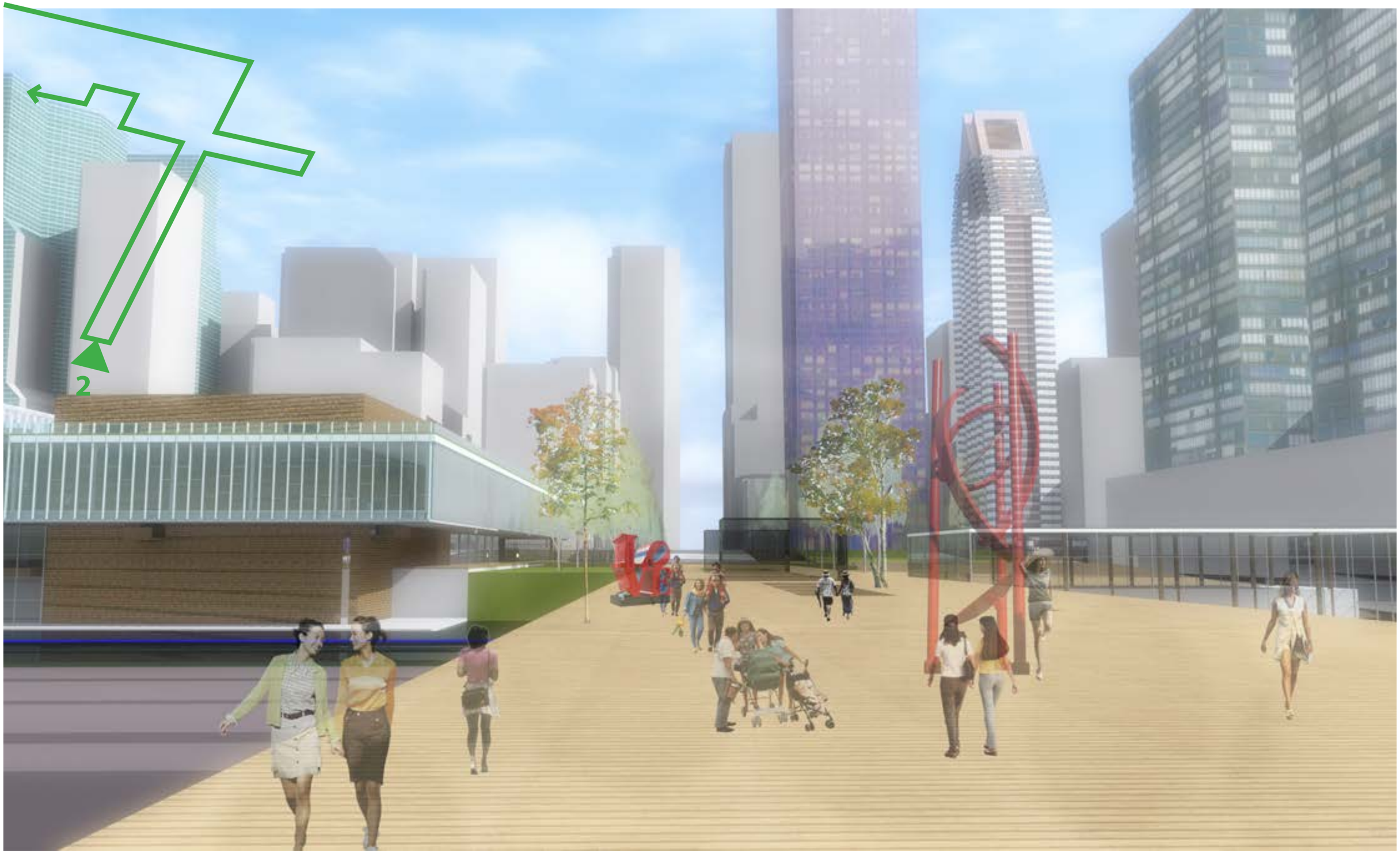
SHoP Architects, Pier 15, East River Waterfront Esplanade, NYC

KEY VALUES:
-a new axis connecting the city center to the waterfronts
-the green axis extended from the 47th street
-connecting the UN Park to the UN plaza

CHARACTER 2: UN DECK

View on the UN Deck axis (from city side)

CHARACTER 2: UN DECK


2

CHARACTER 3: PUBLIC PLAZA

Lundgaard & Tranberg Arkitekter, the City Dune, Copenhagen, Denmark

KEY VALUES:
-a new park in front of the UNEC
-open to public, equiped with restaurants, plazas,and green area

CHARACTER 3: PUBLIC PLAZA

View on the UN Park, facing the UNEC Entrance Canopy

CHARACTER 4: UN PLAZA

gerichtsgebäude st. pölten

KEY VALUES:
-a semi-private plaza open to people using the UNEC and UN
-a transition area from the public entrance area to the UN assembly hall

CHARACTER 4: UN PLAZA: CANOPY

CHARACTER 4: UN PLAZA

CHARACTER 4: UN PLAZA

3. Building Fit-in

Design Transformation

CONTEXT

The building is wedged into the plot according to the analysis step by step..
The site now connects the UN Compound to the Public 47th Street Plaza to the north and the waterfront to the east.

1st Avenue

Waterfronts

Design Transformation

ReUse

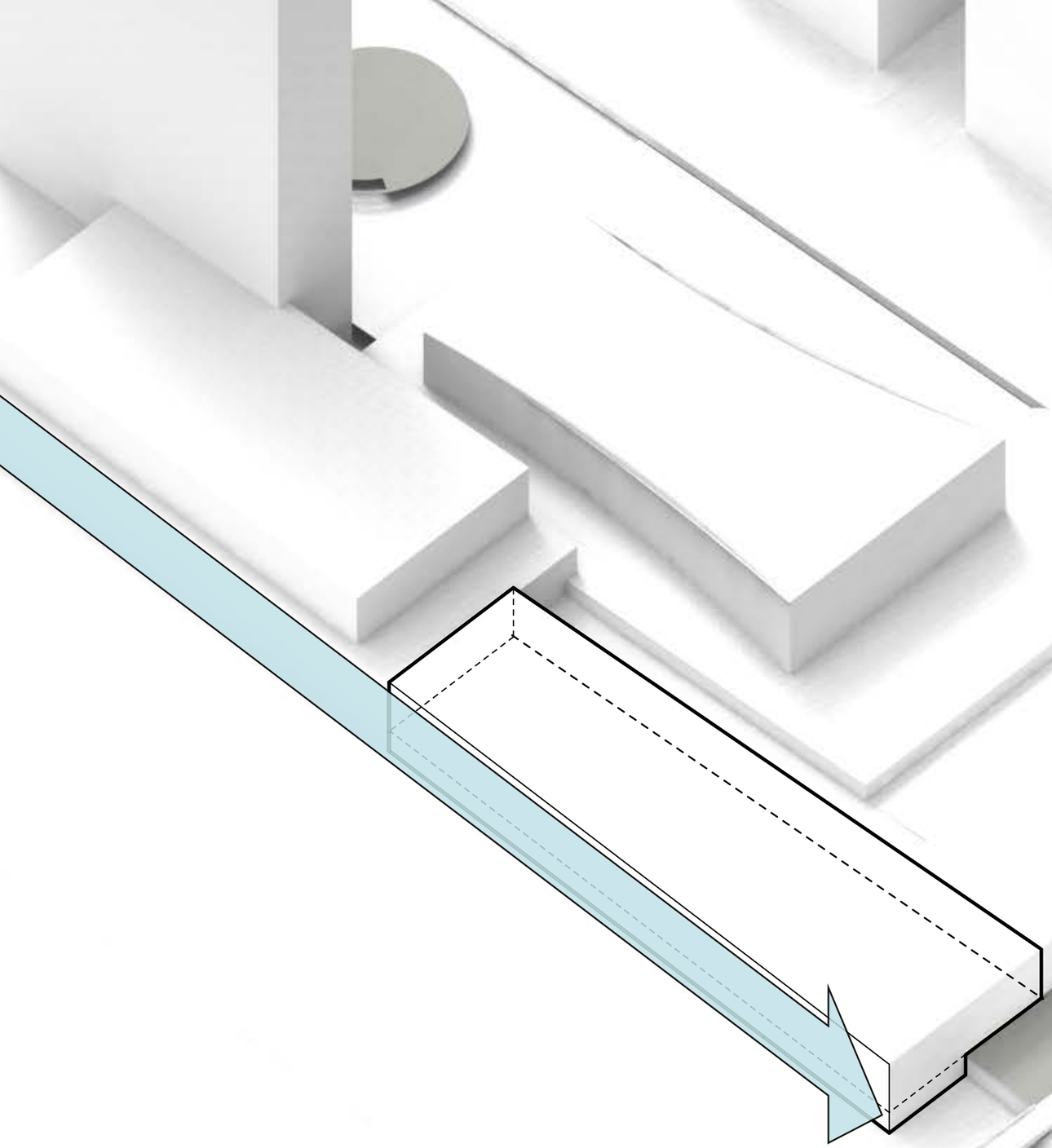
The space of 5000m$^{2\,i}$ is left after our group design remove the FDR closer to the River

FDR Drive

Design Transformation

WATERFRONT IMPRESSION

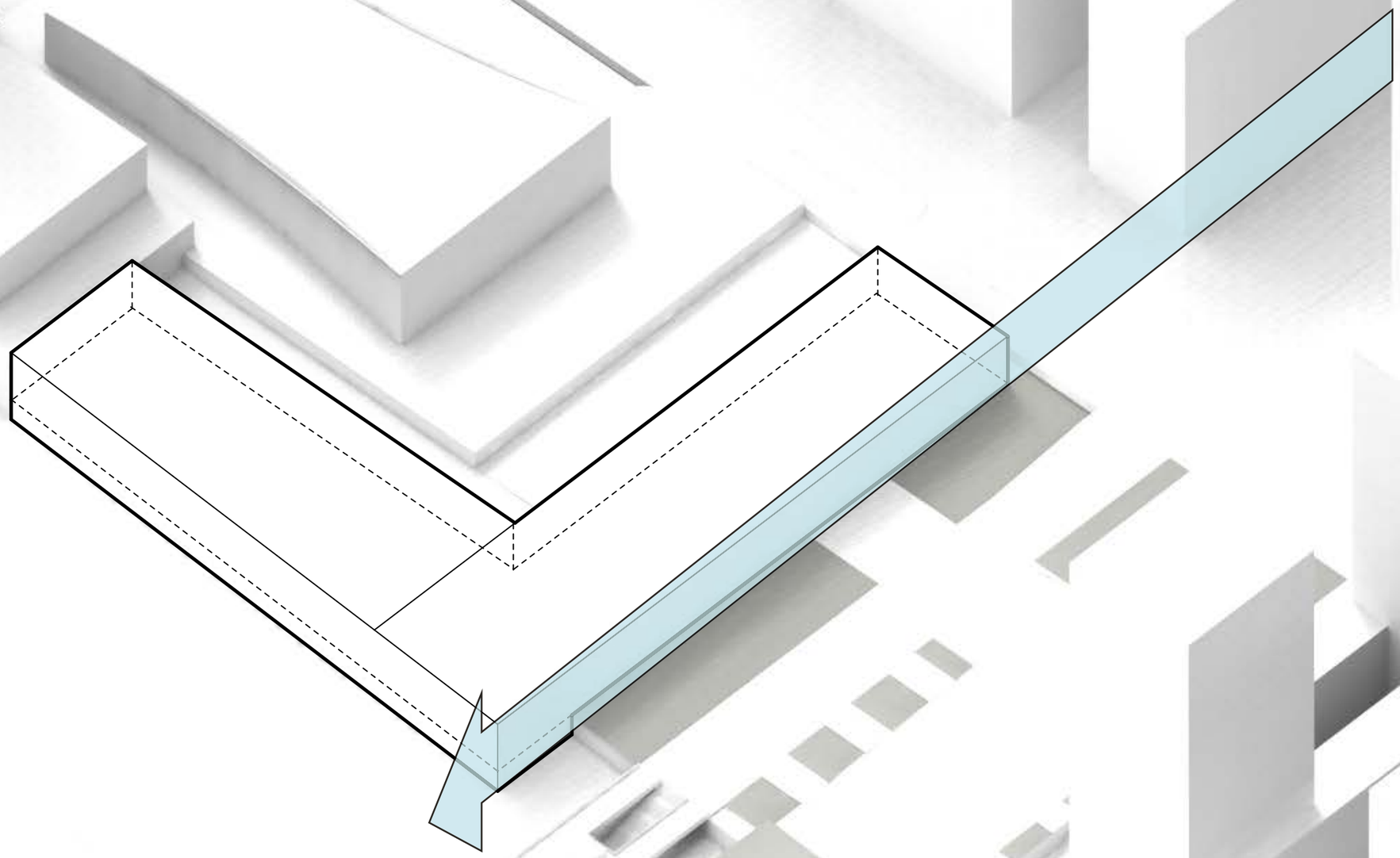
To give the UN Compound an integrated impression , the east elevation of UNEC should be an extension of the existing one.



Design Transformation

GREEN AXIS

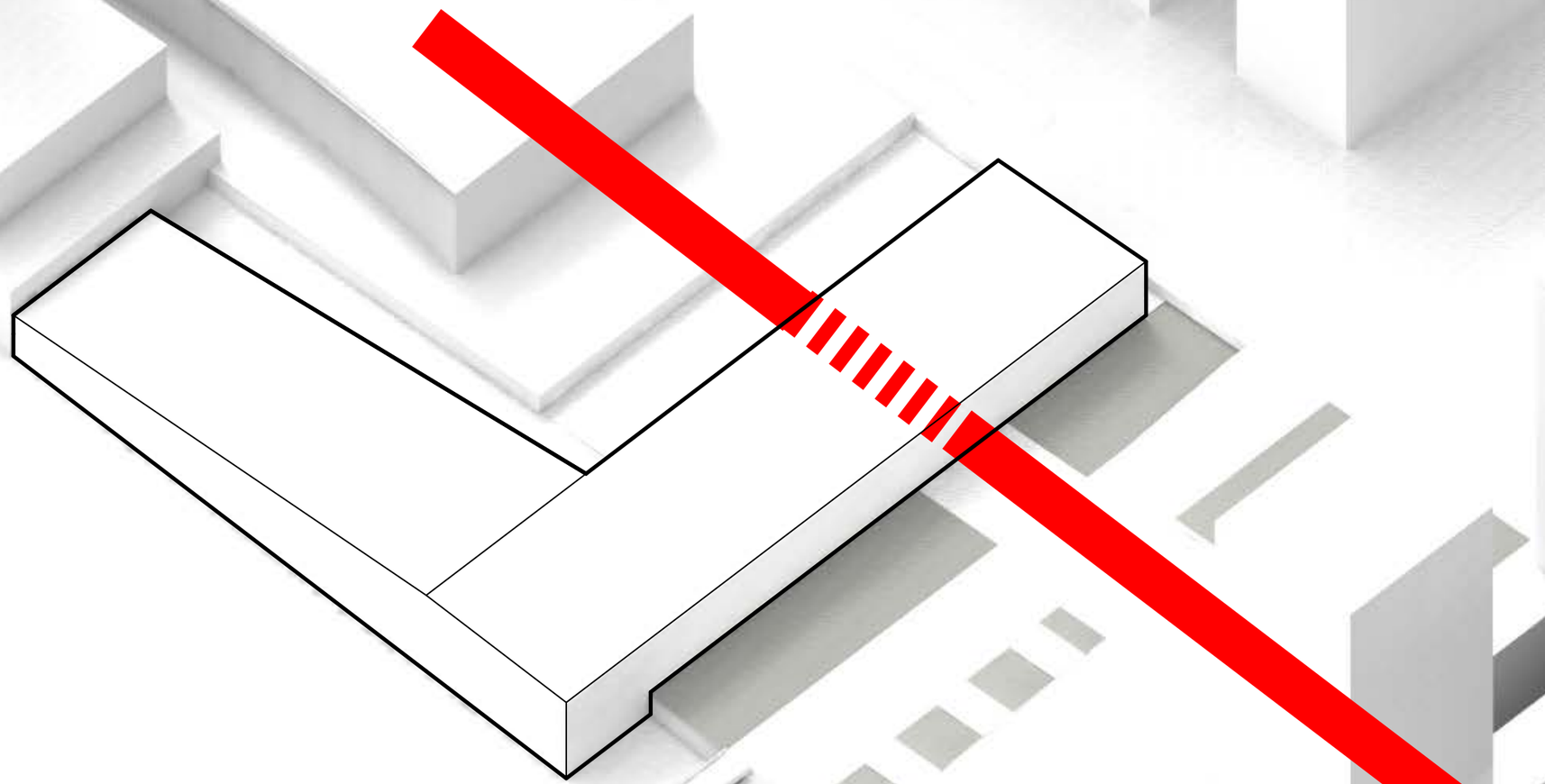
Not to stand on the green axis of 47th Street, another edge of UNEC is settled down.



Design Transformation

OPENING

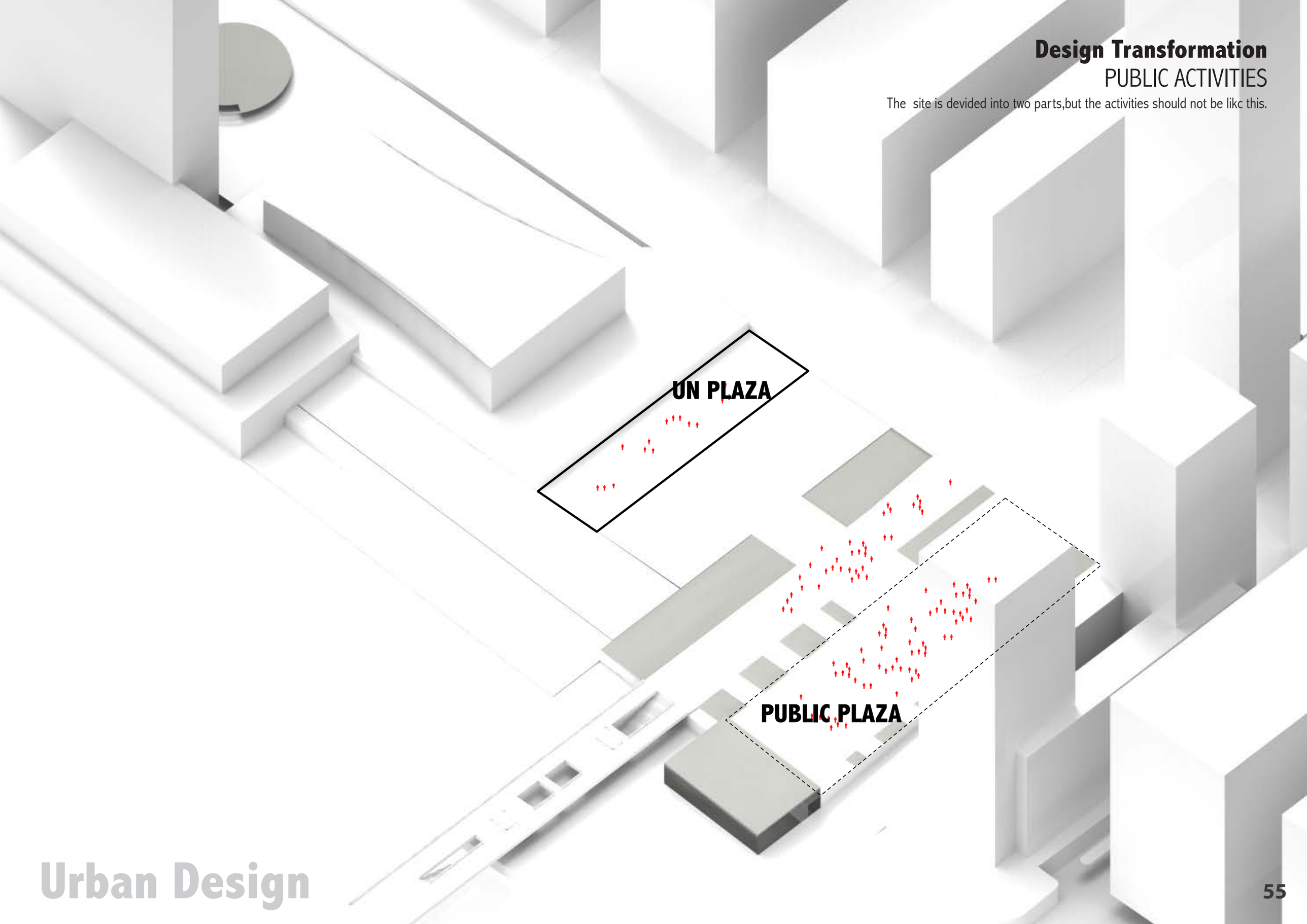
There is an invisible axis connecting the UN Council and the Towrer right to the site.



Design Transformation

PUBLIC ACTIVITIES

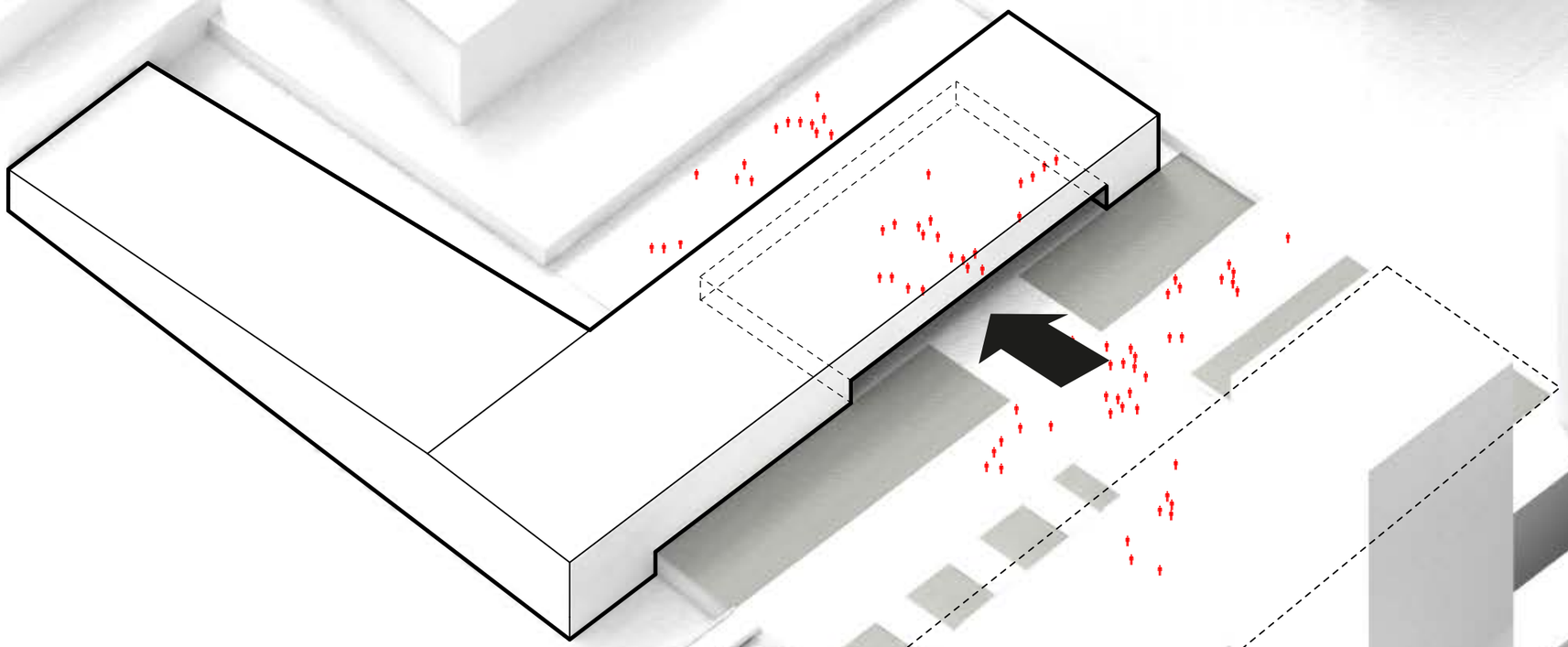
The site is devided into two parts,but the activities should not be likc this.



Design Transformation

OPENING

Towards the PUBLIC PLAZA, the envelope is pushed to create a canopy above the entrance to the UN Plaza.



Design Transformation

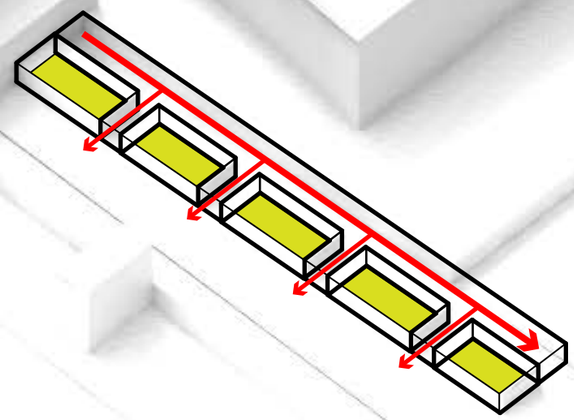
CONNECTION WITH EXISTING UN

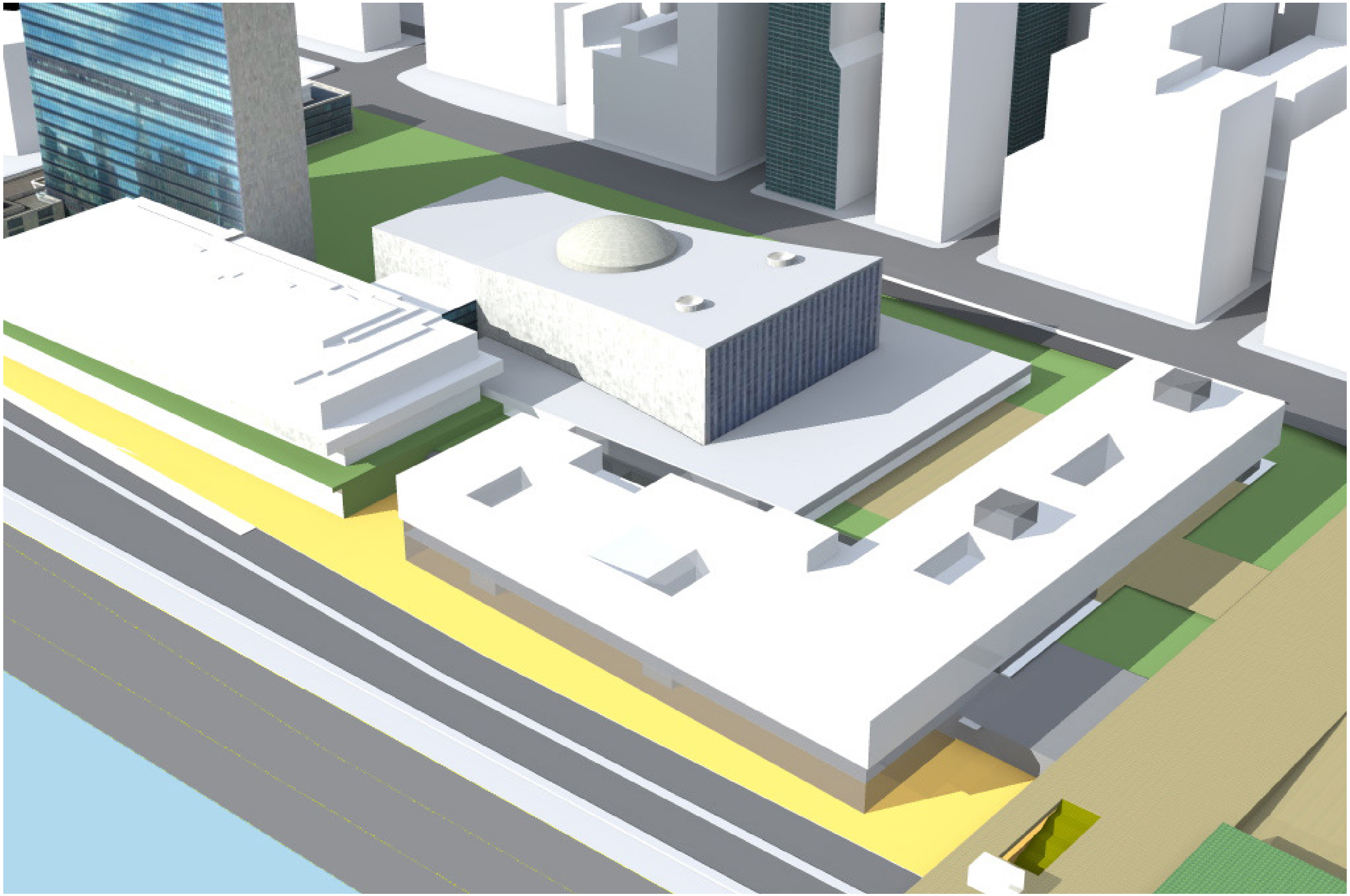
The area used to be the Rose Garden is used to build a corridor connecting the Existing UN and UNEC

Design Transformation

PRESERVE THE PLANTS

Leave the spaces for trees and use it as patio





Chapter 2
Architectural Design

1. Programs

Shared Facility

Entrance Area

- Safety Control 150㎡
- Entrance Hall 400㎡
- Wardrobe 60㎡
- Storage 60㎡
- Lockers 80㎡
- Office (5P) 50㎡
- Toilets 30㎡
- Info Desk 50㎡
- Card Distribution 50㎡

Collect

- Library 600㎡
- Reading Room 200㎡
- Office 870㎡
- Wardrobe 50㎡
- Wardrobe 50㎡
- Toilet 25㎡
- Info desk

Communication

Propagate

- Exposition Space 400㎡
- Shop 100㎡
- Product 150㎡
- Office 460㎡
- Press Room1 (200P) 300㎡
- Auditorium1 (600P) 900㎡
- Press Room2 (160P) 90㎡
- Bar 1 60㎡
- Toilets 75㎡
- Bar 2 50㎡
- Auditorium3 (50P) 80㎡
- Auditorium4 (50P) 80㎡
- Auditorium2 (300P) 400㎡
- Auditorium3 (120P) 200㎡
- Auditorium4 (120P) 200㎡

Office

Produce

- Brainstorm 20㎡
- Brainstorm 30㎡
- Brainstorm 50㎡
- Office (100P) 984㎡

General

- Archive Work Room 300㎡
- Repo 60㎡
- Archive Storage 400㎡
- Meeting room1 50P 200㎡
- Meeting room2 50P 200㎡
- Meeting Room3 20P 70㎡
- Meeting Room4 20P 70㎡
- Meeting Room5 20P 70㎡
- Meeting Room6 20P 70㎡
- Meeting Room7 20P 70㎡
- Meeting Room8 20P 70㎡
- Video Room1 40㎡
- Video Room2 40㎡
- Video Room3 40㎡
- Kitchen 40㎡
- Toilet Units 5X 100㎡
- Workshop Unit 2 120㎡
- Workshop Unit 1 300㎡
- Office 40P 420㎡

Facilities

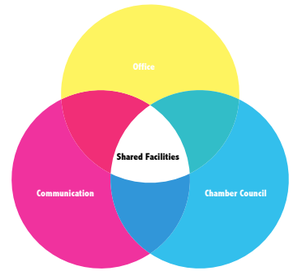
- Facility Management 300㎡
- Expedition 300㎡
- ICT 100㎡
- Delegate Lounge 150㎡
- Bar 70㎡
- Cleaning 9㎡
- Restaurant 300㎡
- Canteen 250㎡
- Kitchen 120㎡
- Kitchen 160㎡
- Storage 300㎡
- Storage 80㎡
- Buffet 80㎡

Chamber Council

Exchange

- Conference Hall 1400㎡
- Lobby/Lobbies 1200㎡
- Info desk 20㎡
- Wardrobe 100㎡
- Toilet 60㎡
- Coffee 160㎡
- Office (40P) 400㎡

User Group



Safety

Entrance Hall

Library

Reading Room

Facilities

Food

Exposition

Service

Press

Auditorium

Workshop

Meeting Rooms

Open-plan Office

Archive

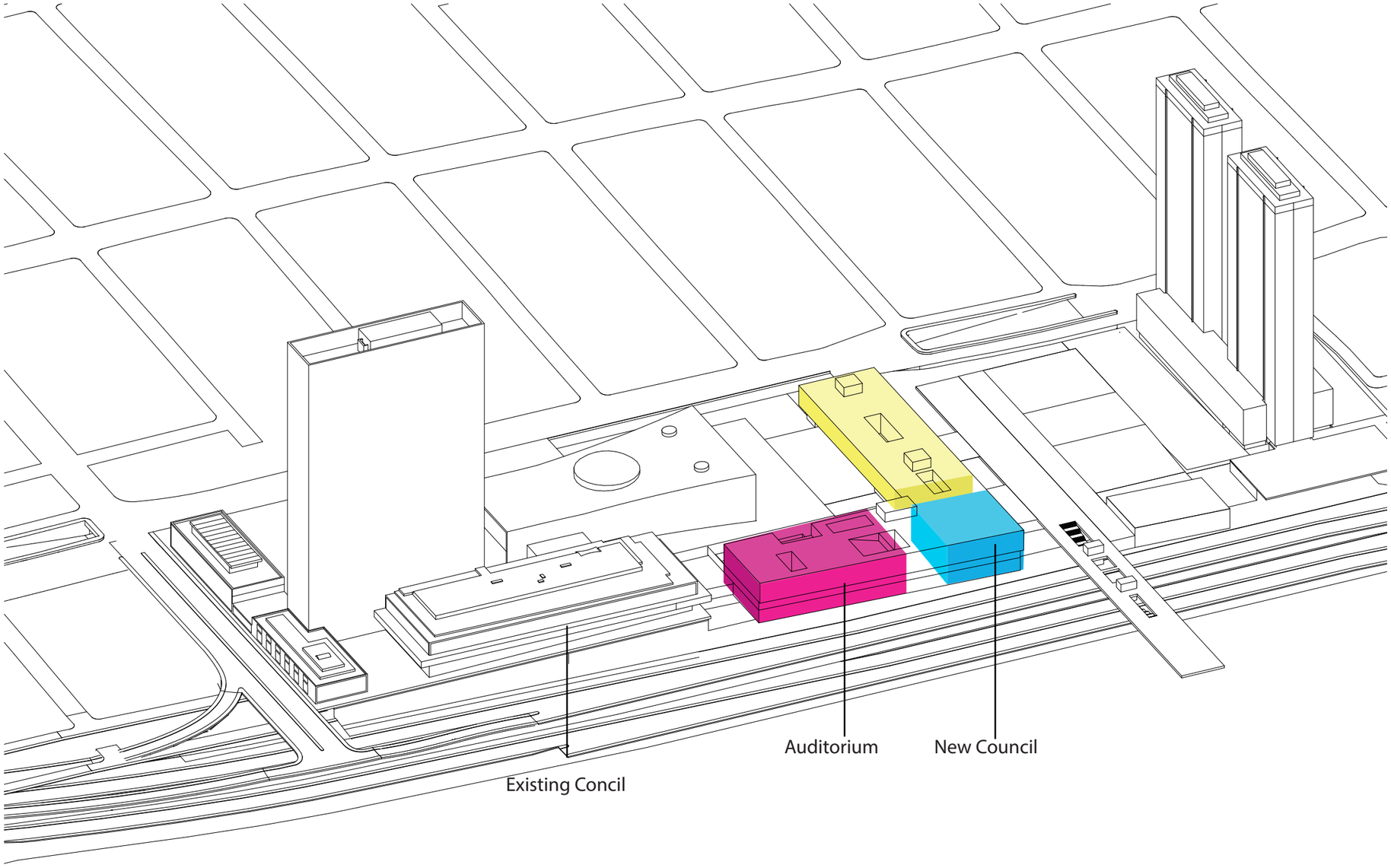
Conference

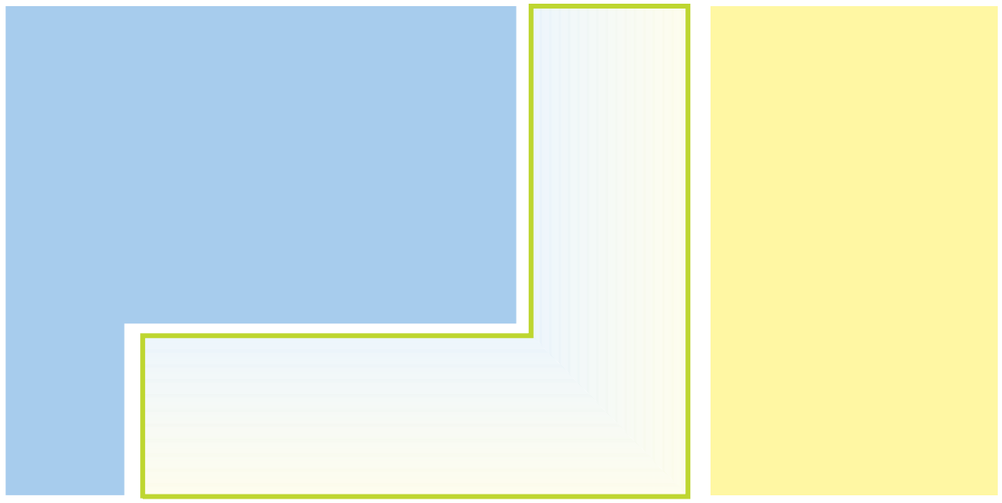
Conference

Lobby

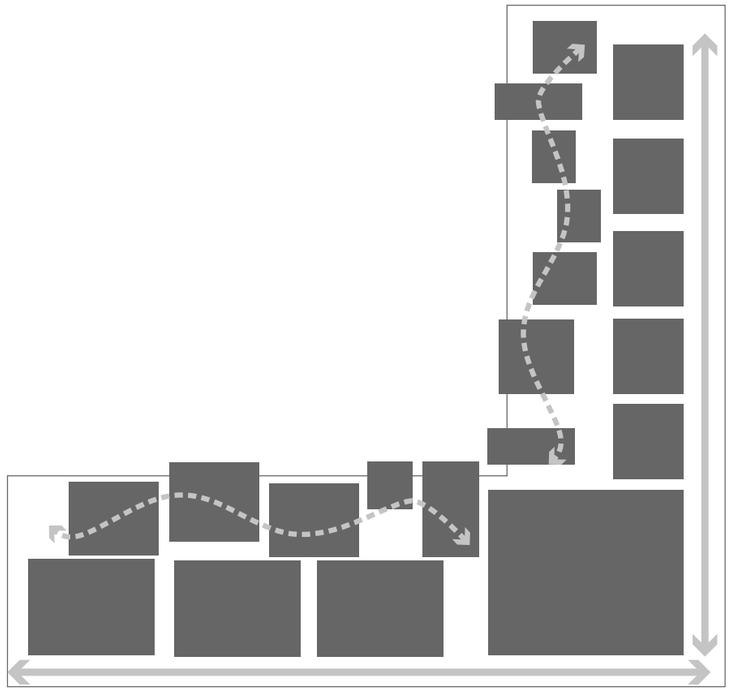
Cafe

Shared Facilities + **Communication** + **Office** + **Chamber Council**


Existing Concil
Auditorium
New Council

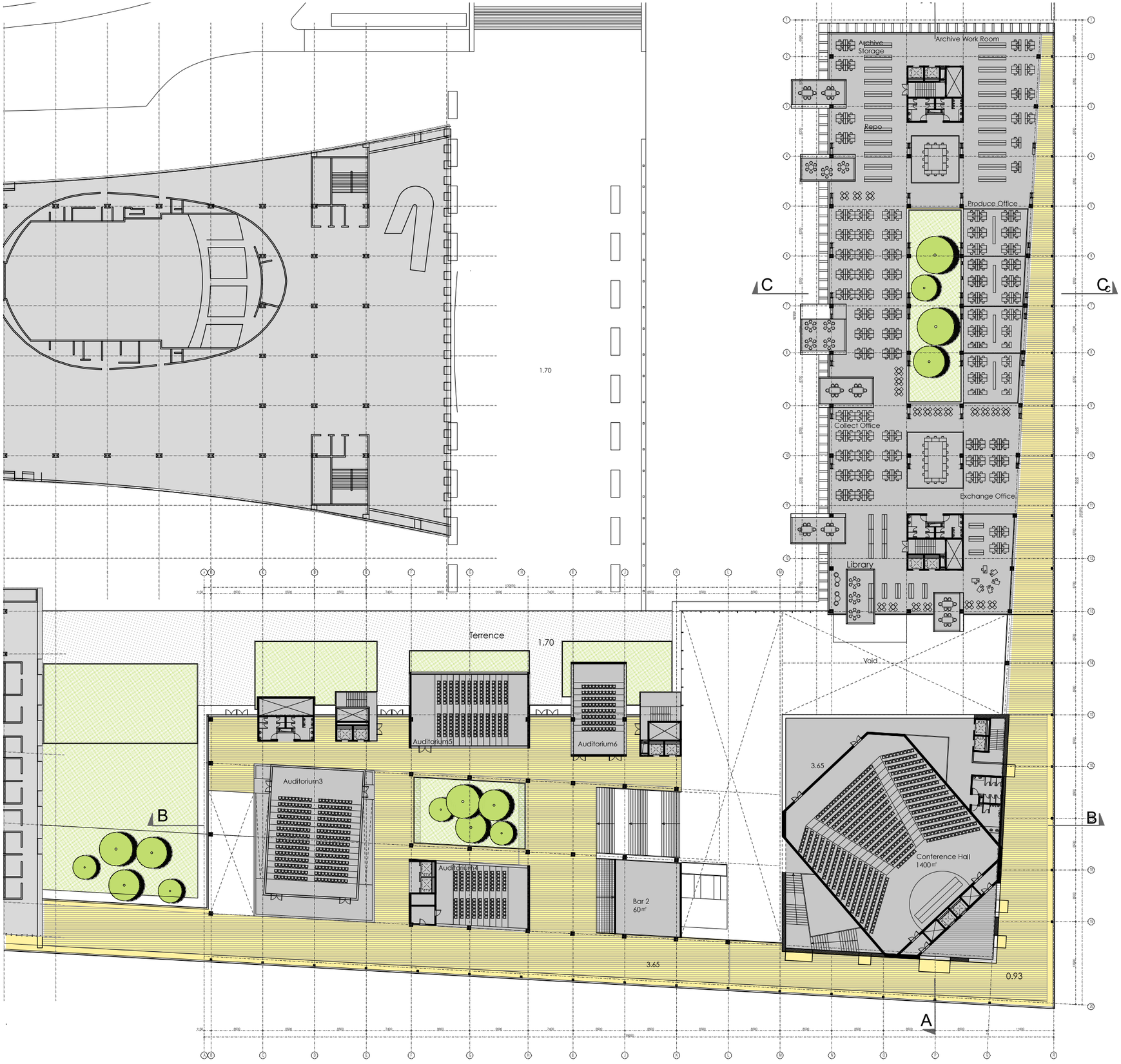


Transition in building layout



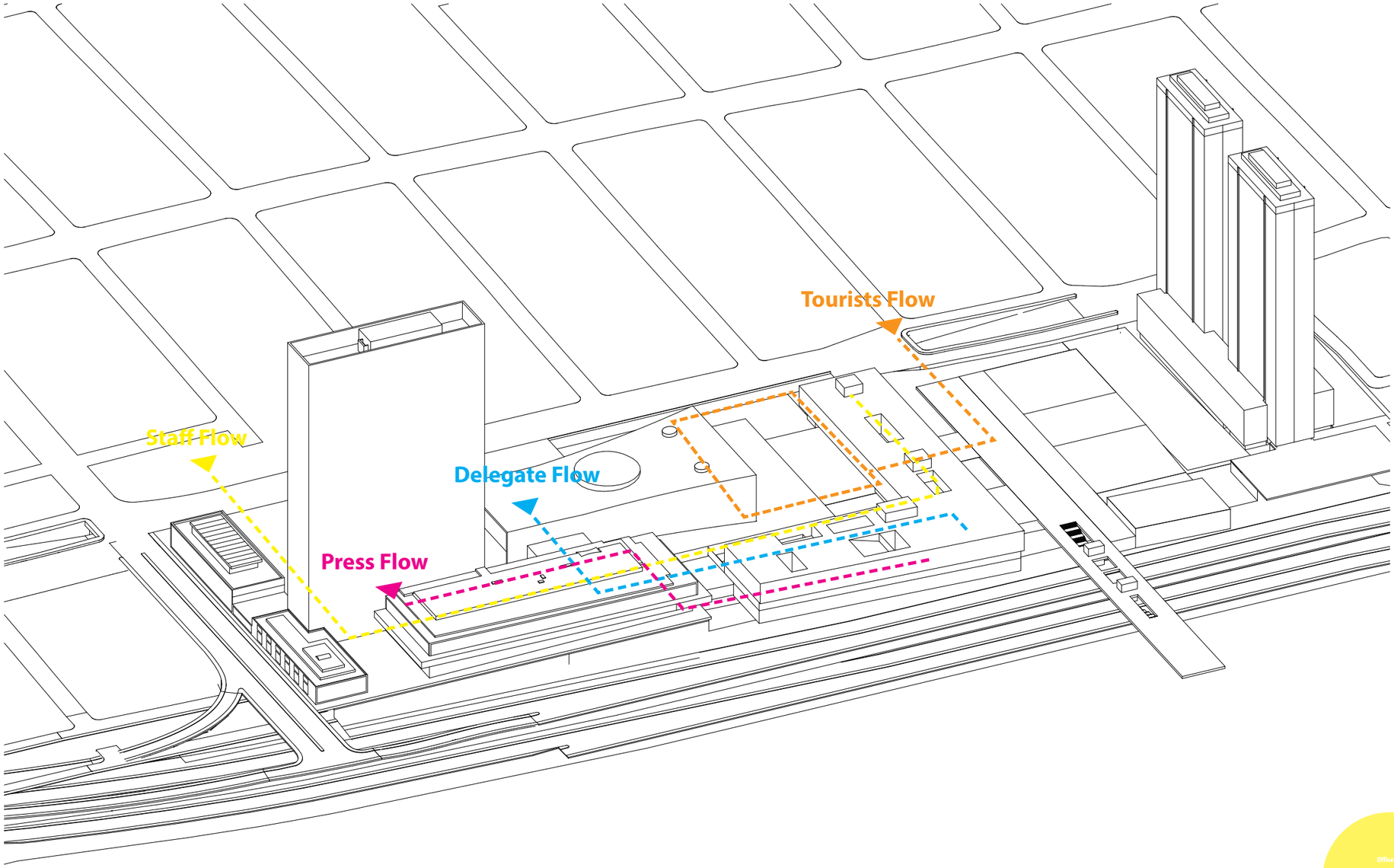
Transition in programs block

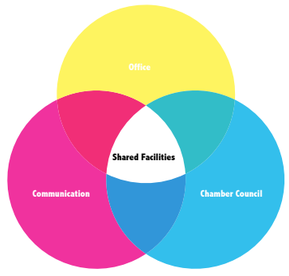
Floor Plan


Archive Storage
Archive Work Room
Repo
Produce Office
C
C
Collect Office
Exchange Office
Library
Yaid
Terrence
1.70
Auditorium5
Auditorium6
Auditorium3
Auditorium4
B
B
3.65
Bar 2
60㎡
Conference Hall
1400㎡
3.65
0.93
A

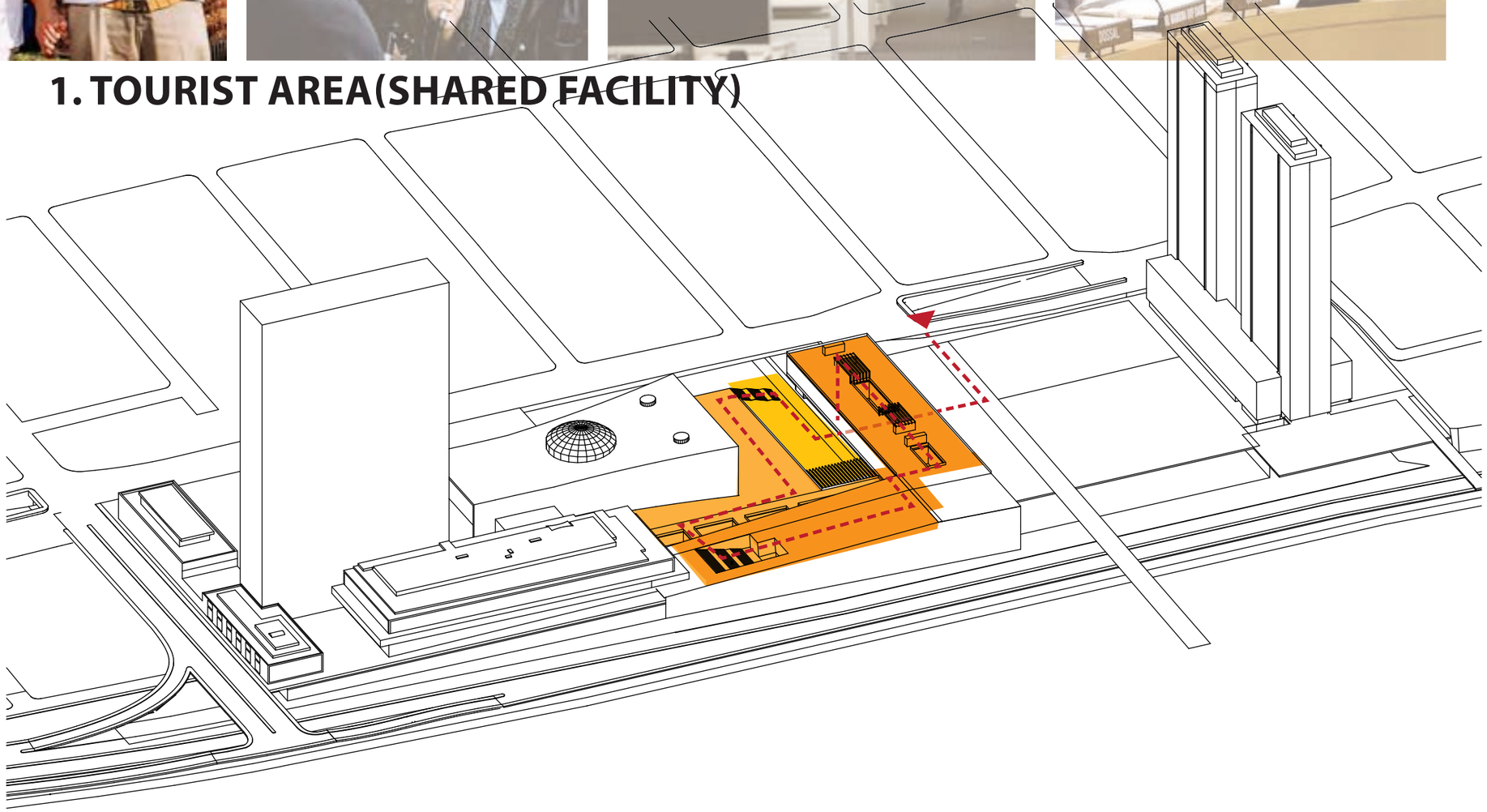
2. Walking through UNEC

1. VISTORS
2. PRESS
3. DELEGATES
4. STAFF


Tourists Flow
Staff Flow
Delegate Flow
Press Flow

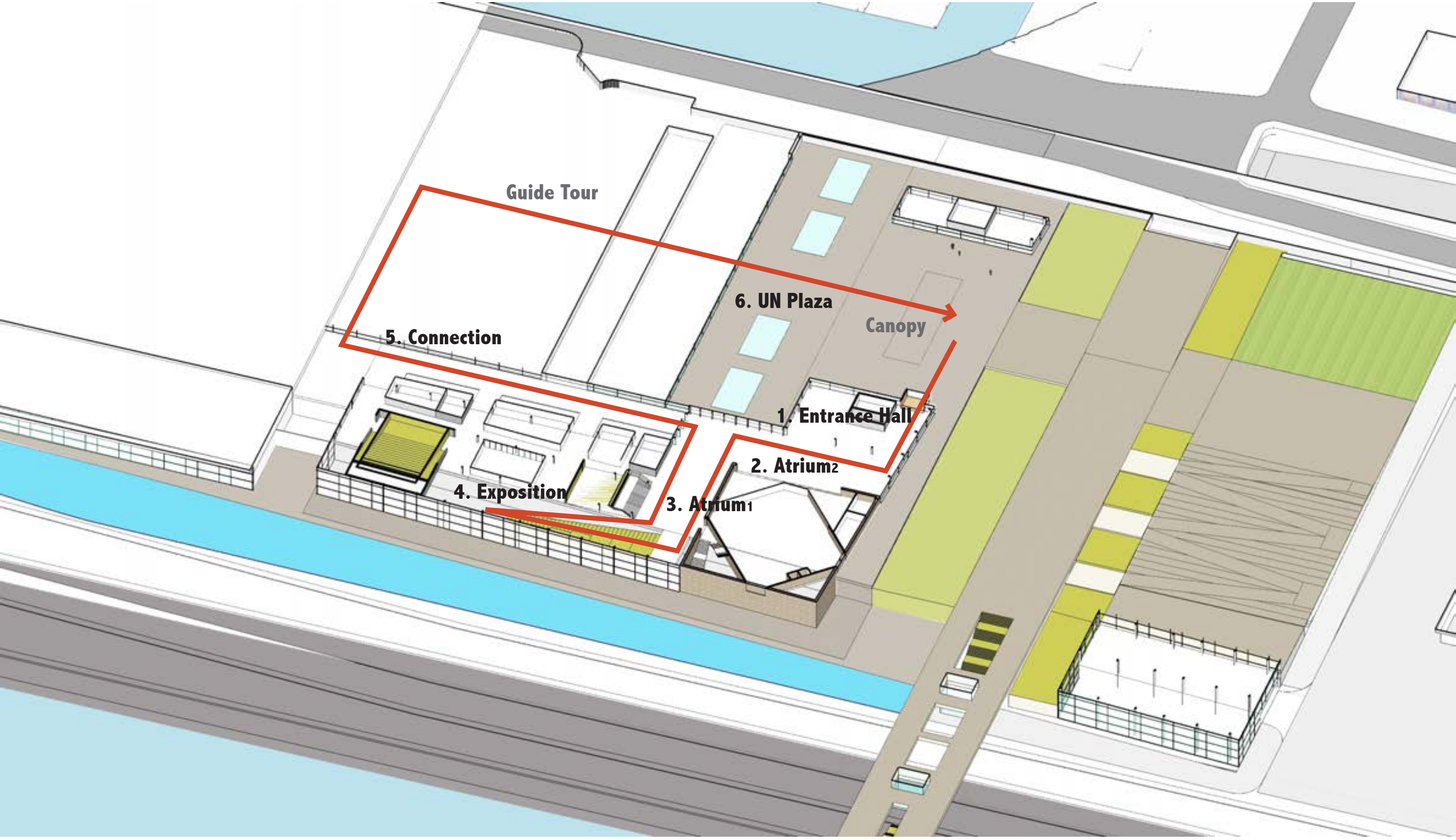

Office
Shared Facilities
Communication
Chamber Council

1. TOURIST AREA(SHARED FACILITY)

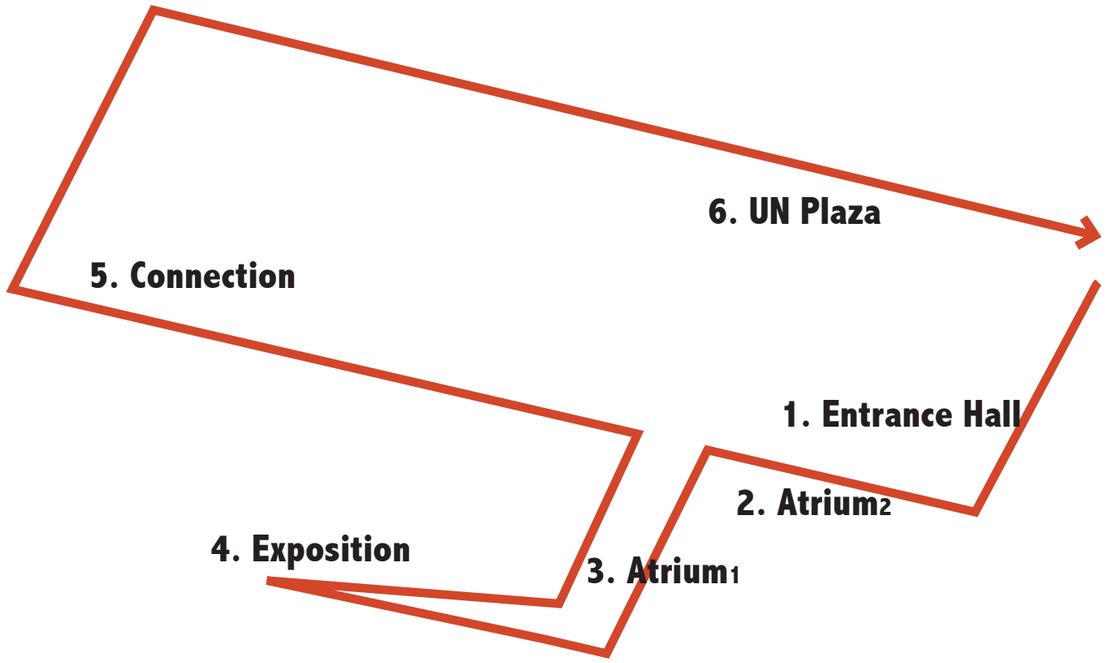


Tourist Function

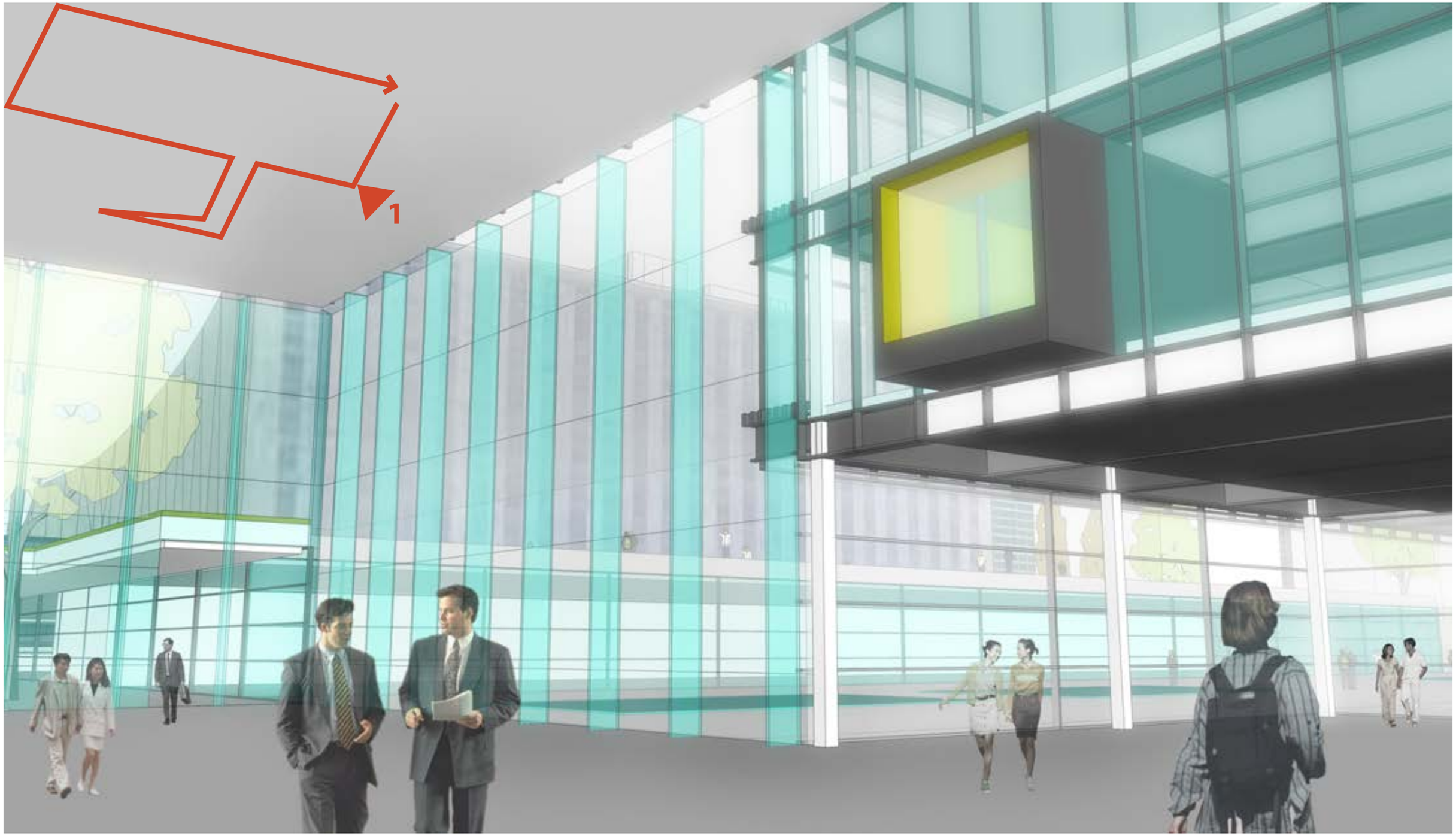
Visitors' Routine (Indoor)



Visitors' Routine (Indoor)

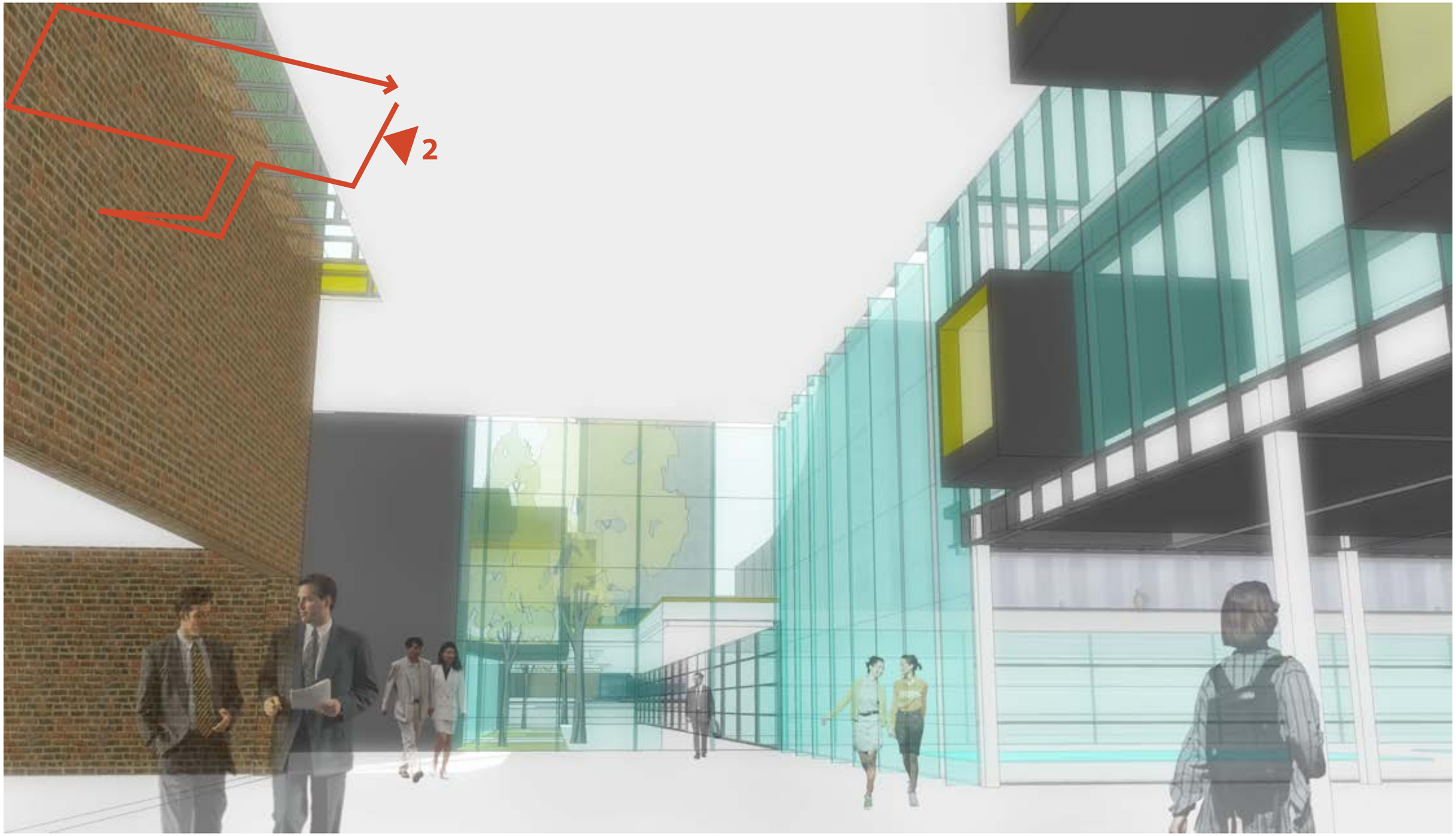


1. Entrance Hall

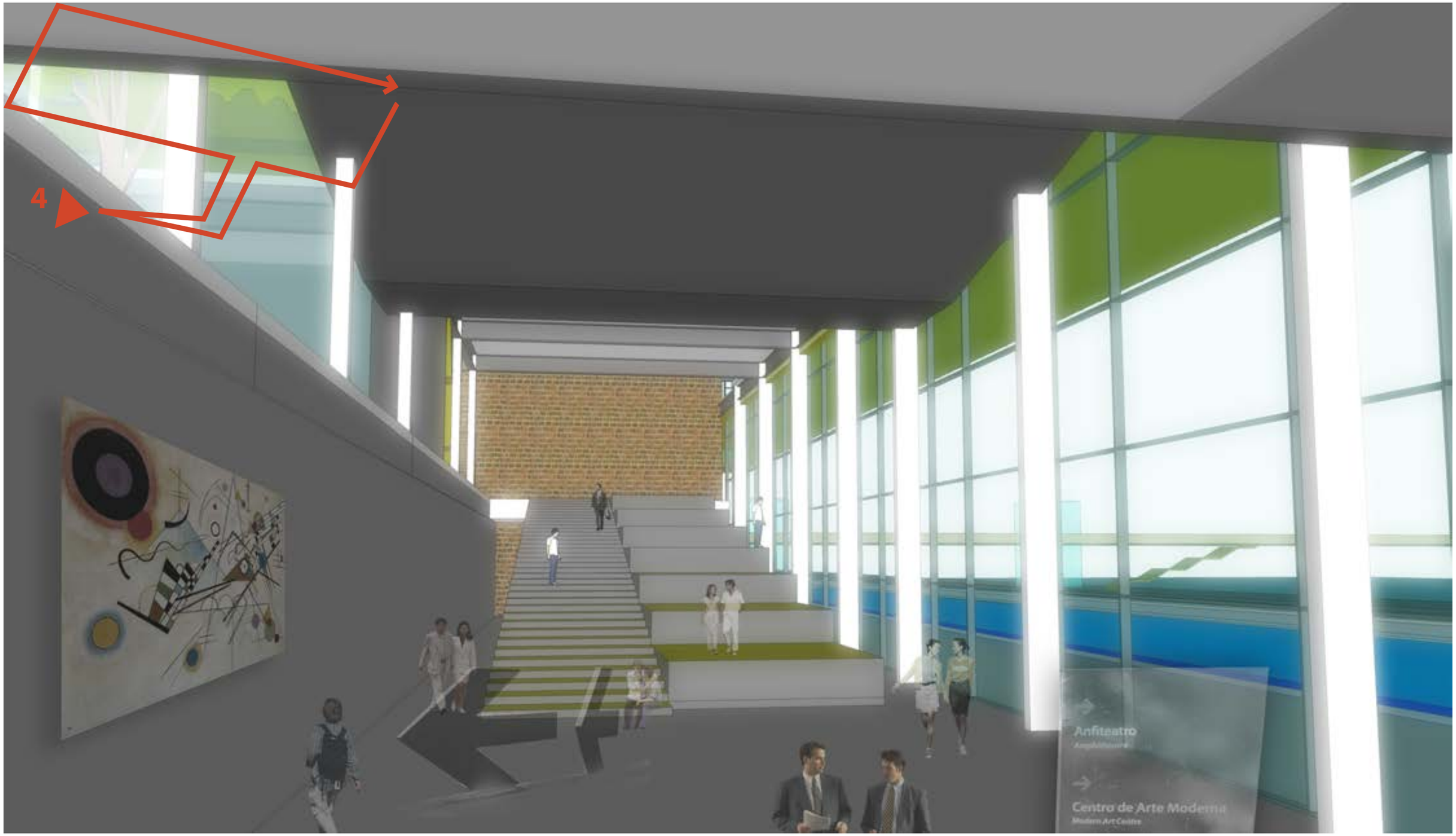


2. Atium1:Transition space between Chamber Council & Office Wing

Shared Facility



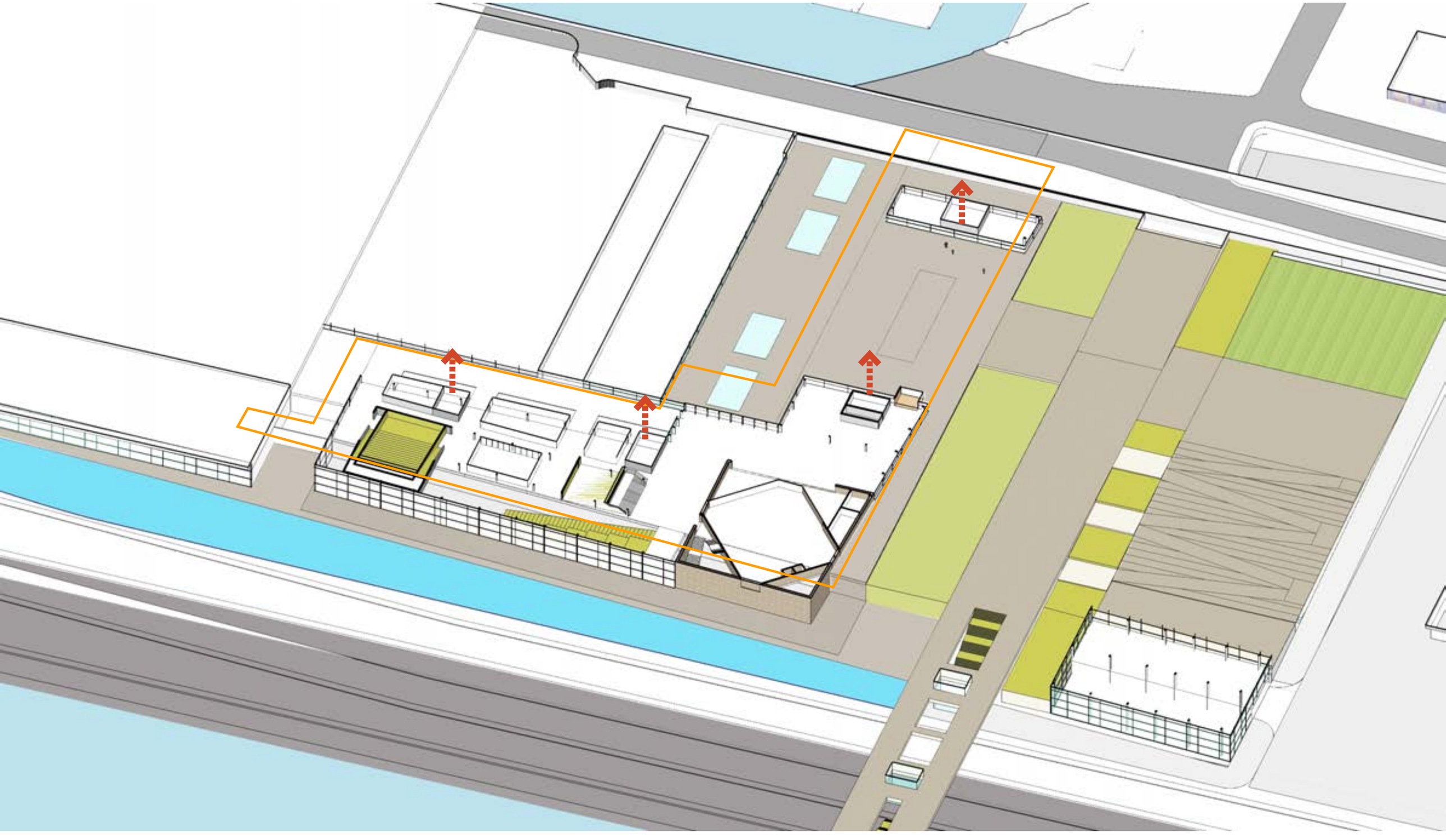
3. Atium2:Transition space between Chamber Council & Auditorium


4
Anfiteatro
Centro de Arte Moderna

5. Connection: Between UNEC & Existing UN

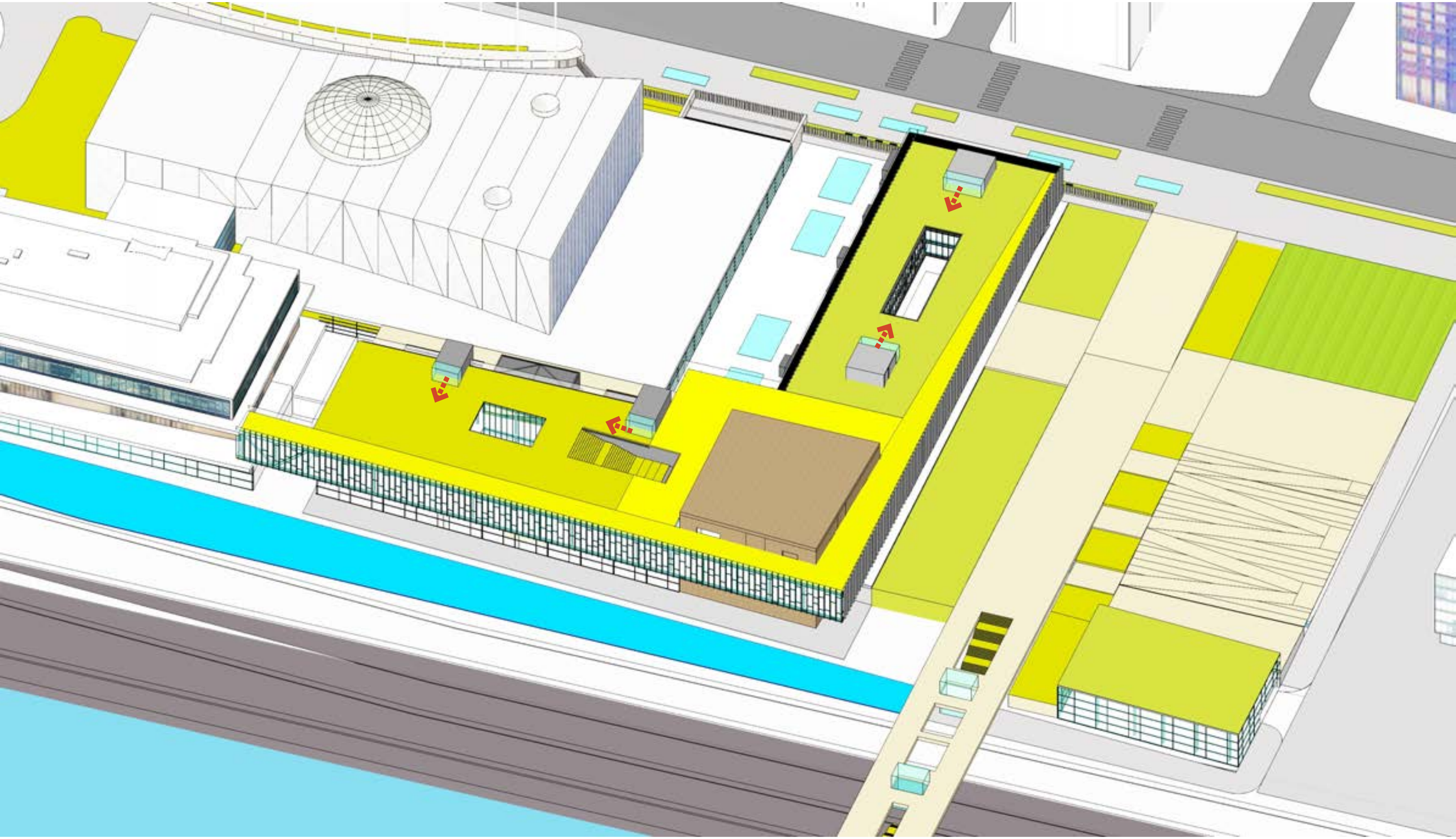
Vertical transport with Elevators

Access to the Roof

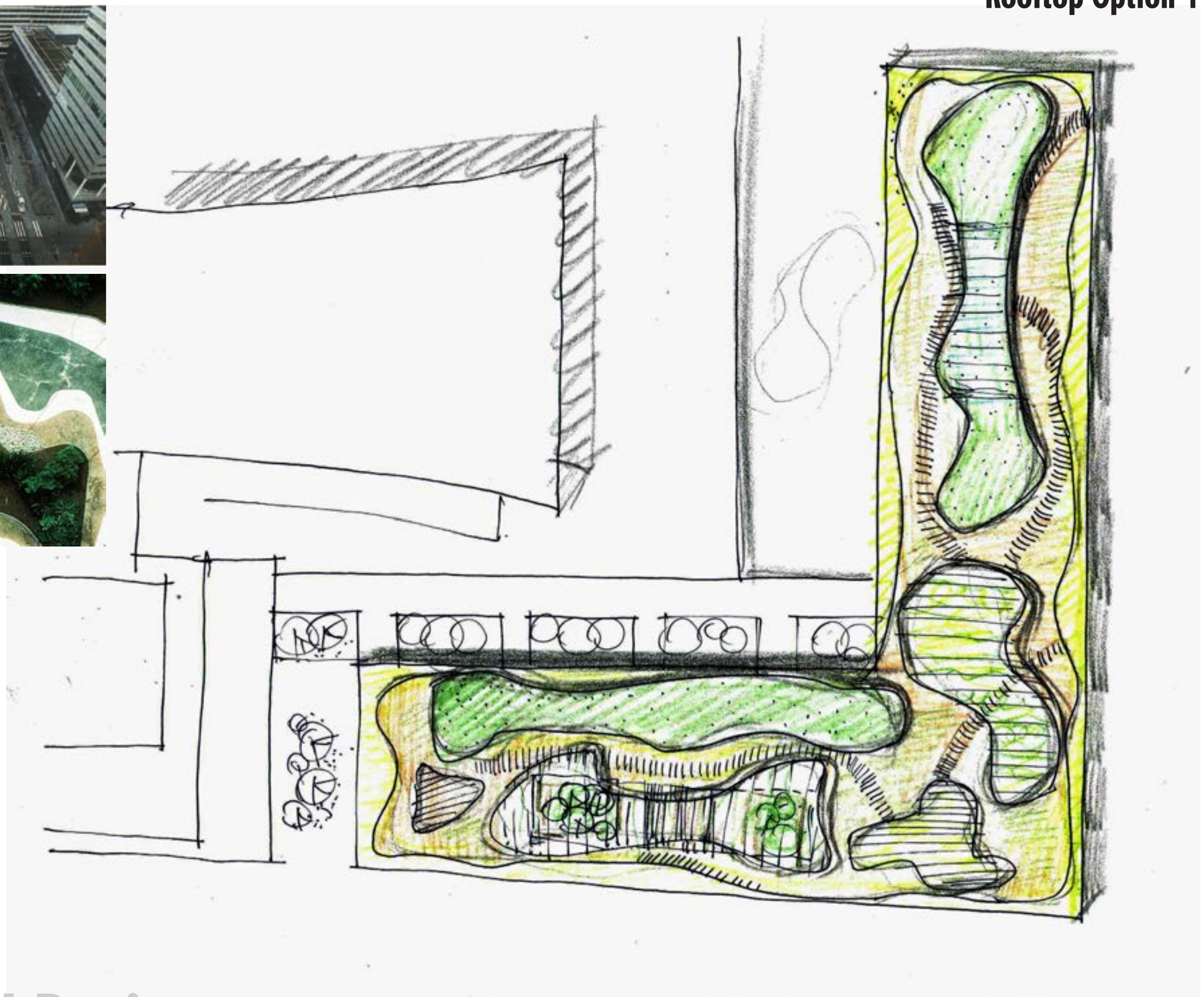


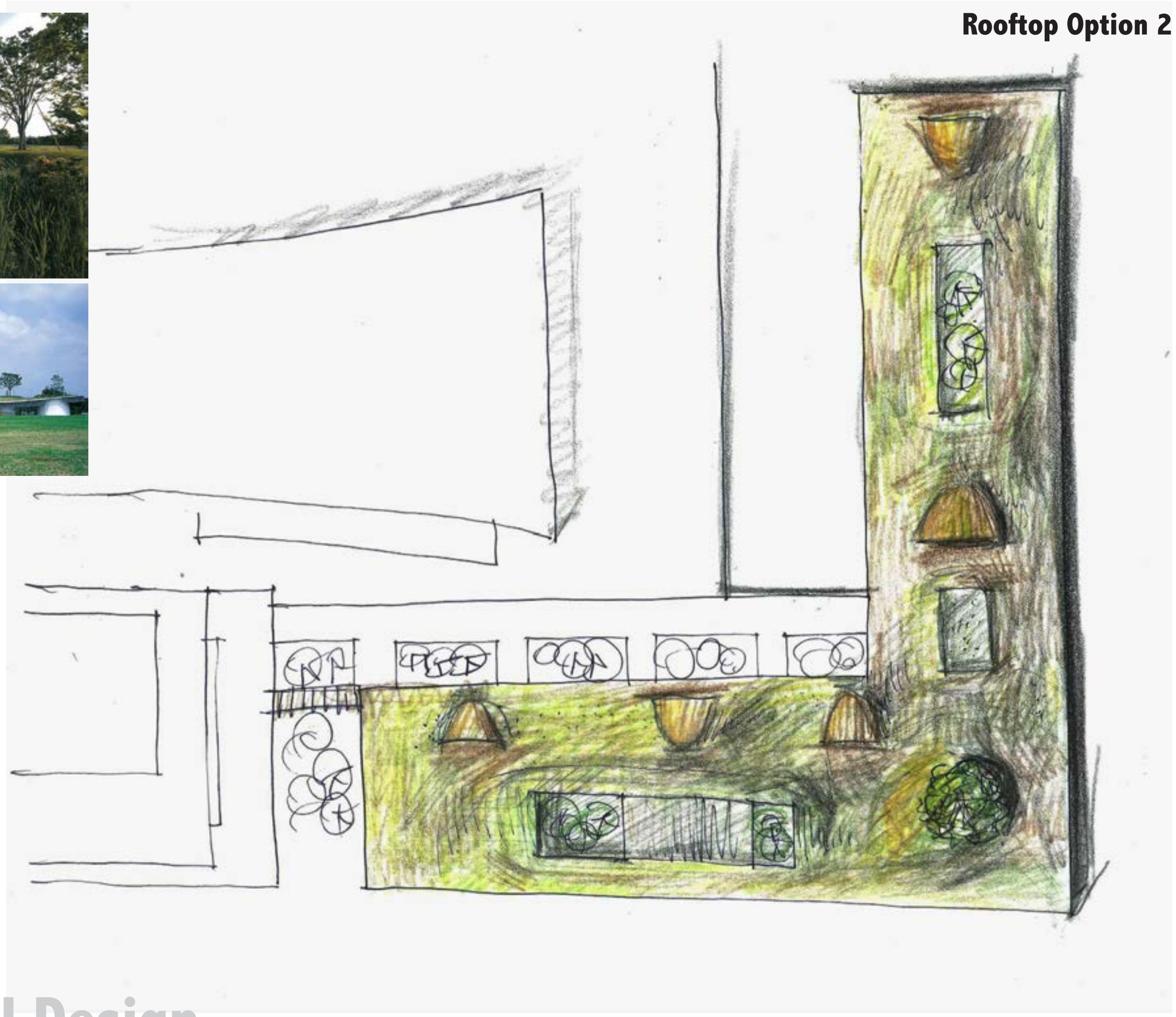
Vertical transport with Elevators

Access to the Roof



3. Roof Design

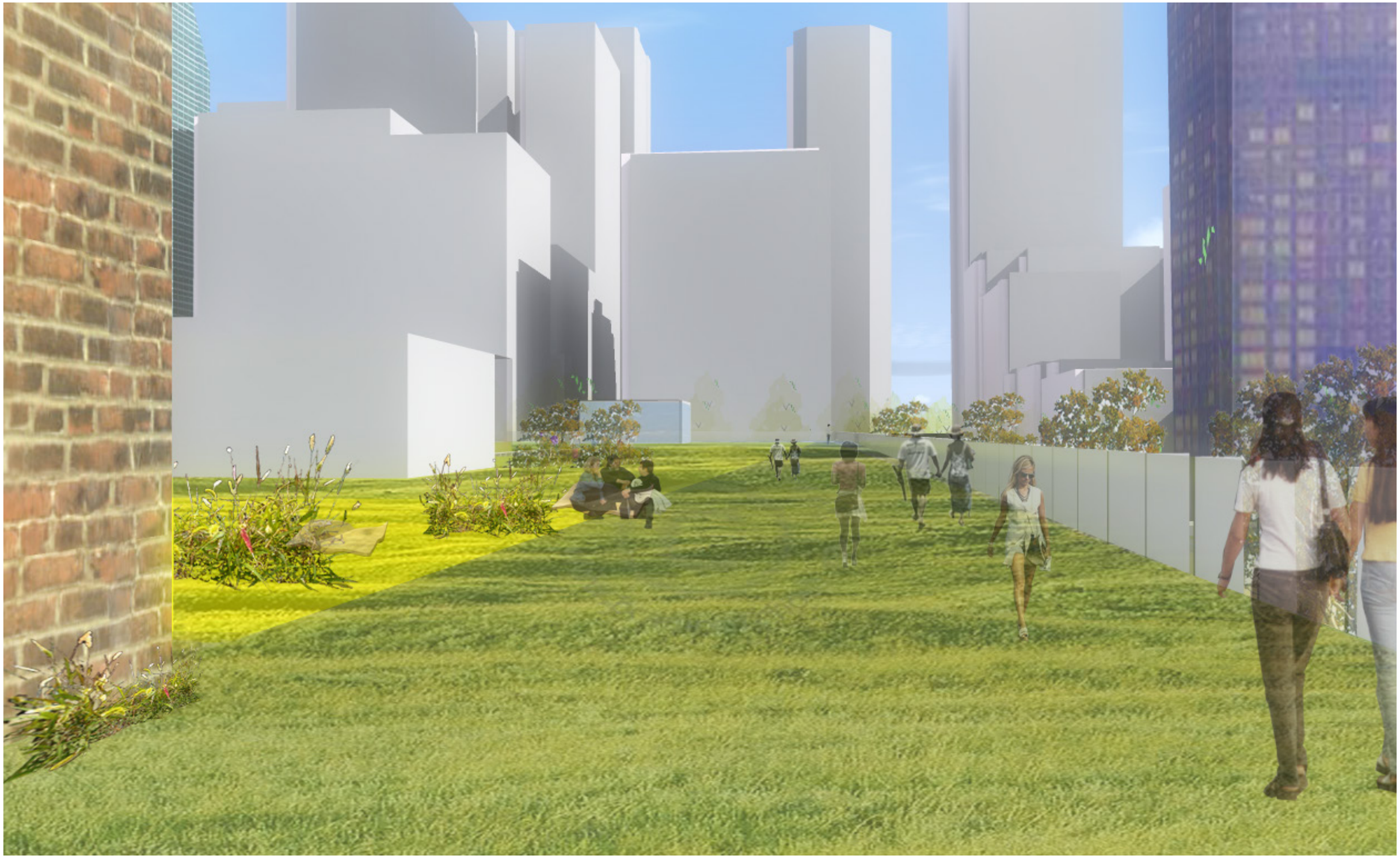




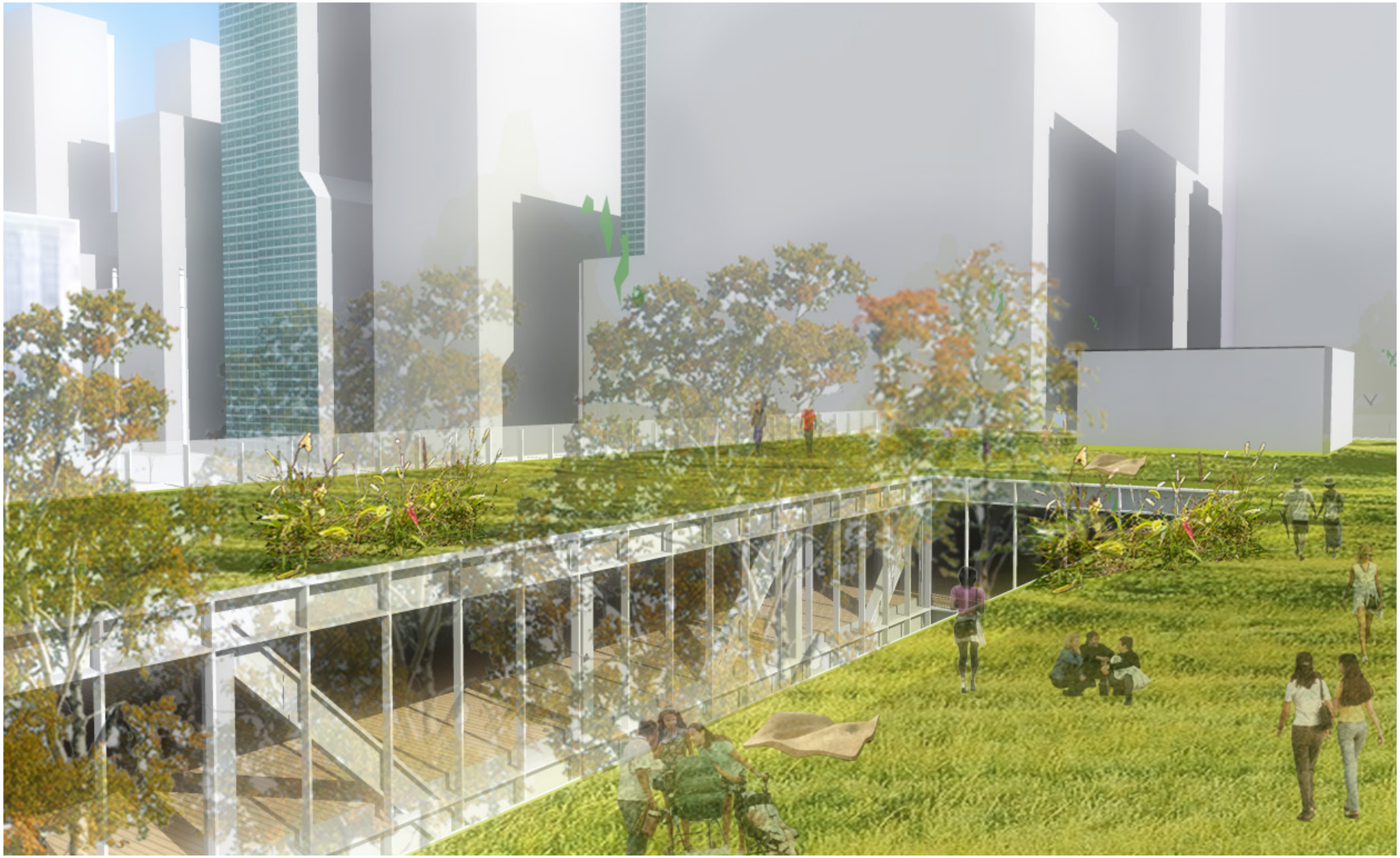
Rooftop Option 3

Final Roof Design

Outdoor Space on Rooftop



Outdoor Space on Rooftop



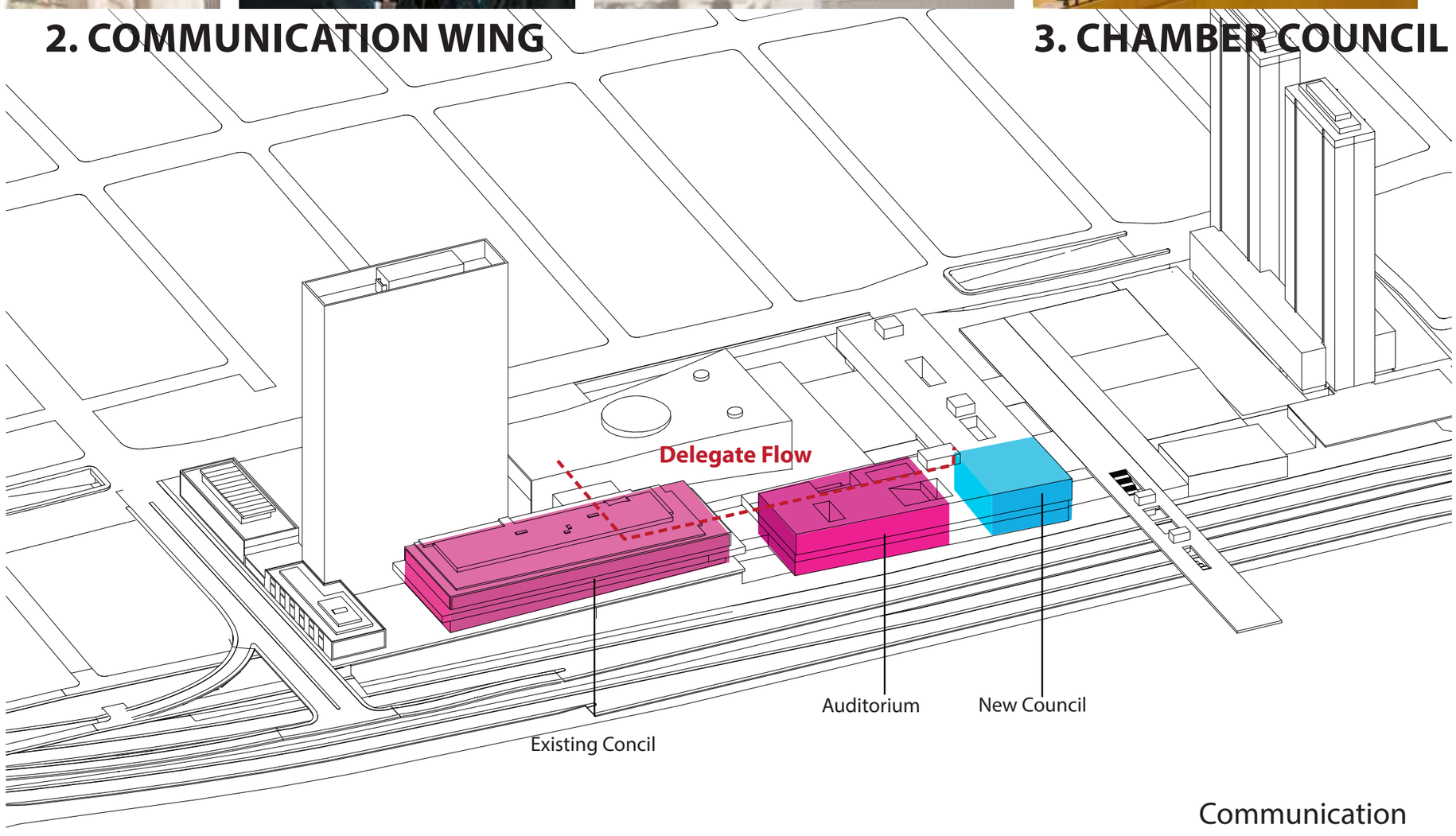
Outdoor Space on Rooftop

2. Walking through UNEC

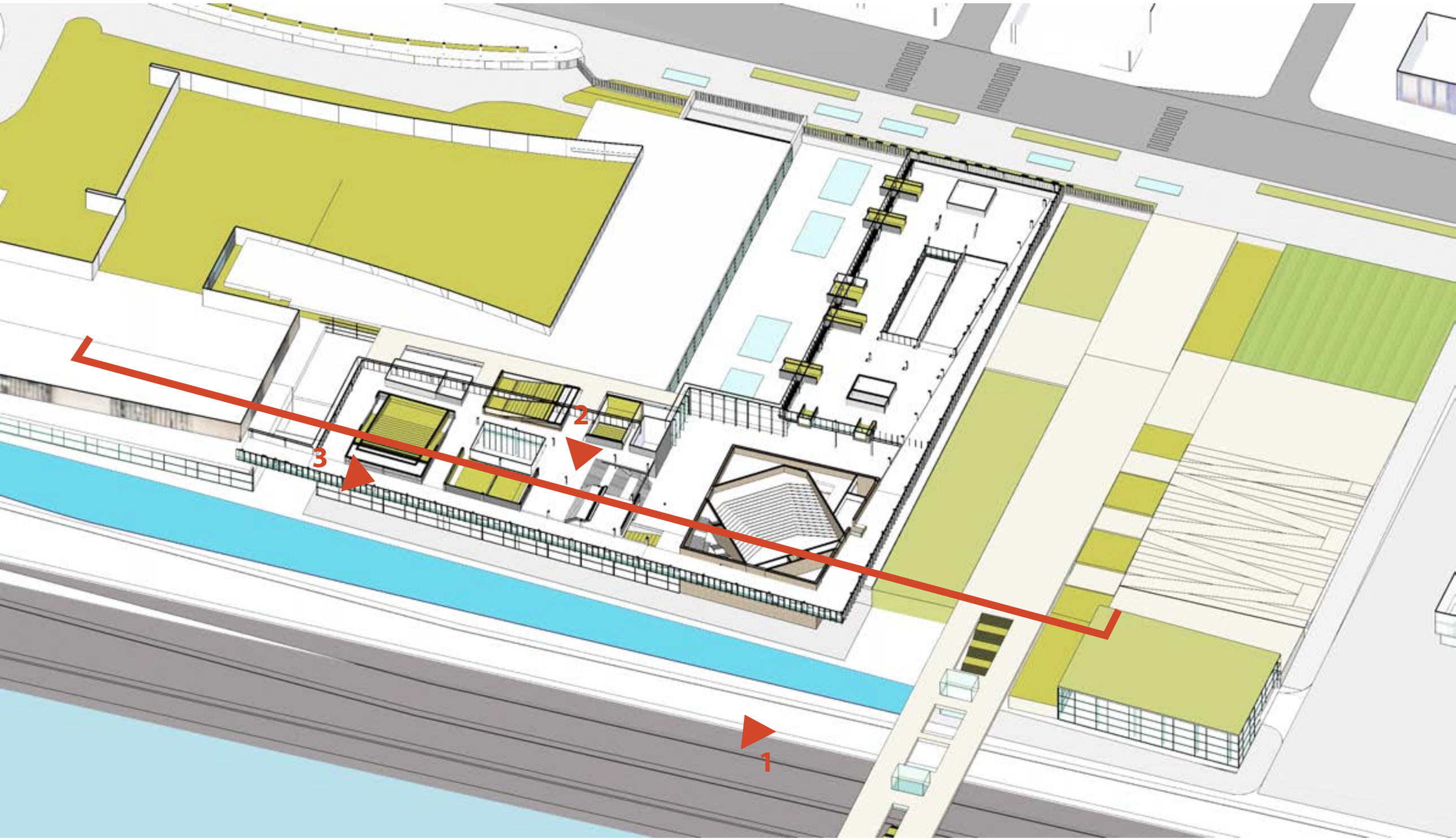
1. VISTORS
2. PRESS
3. DELEGATES
4. STAFF

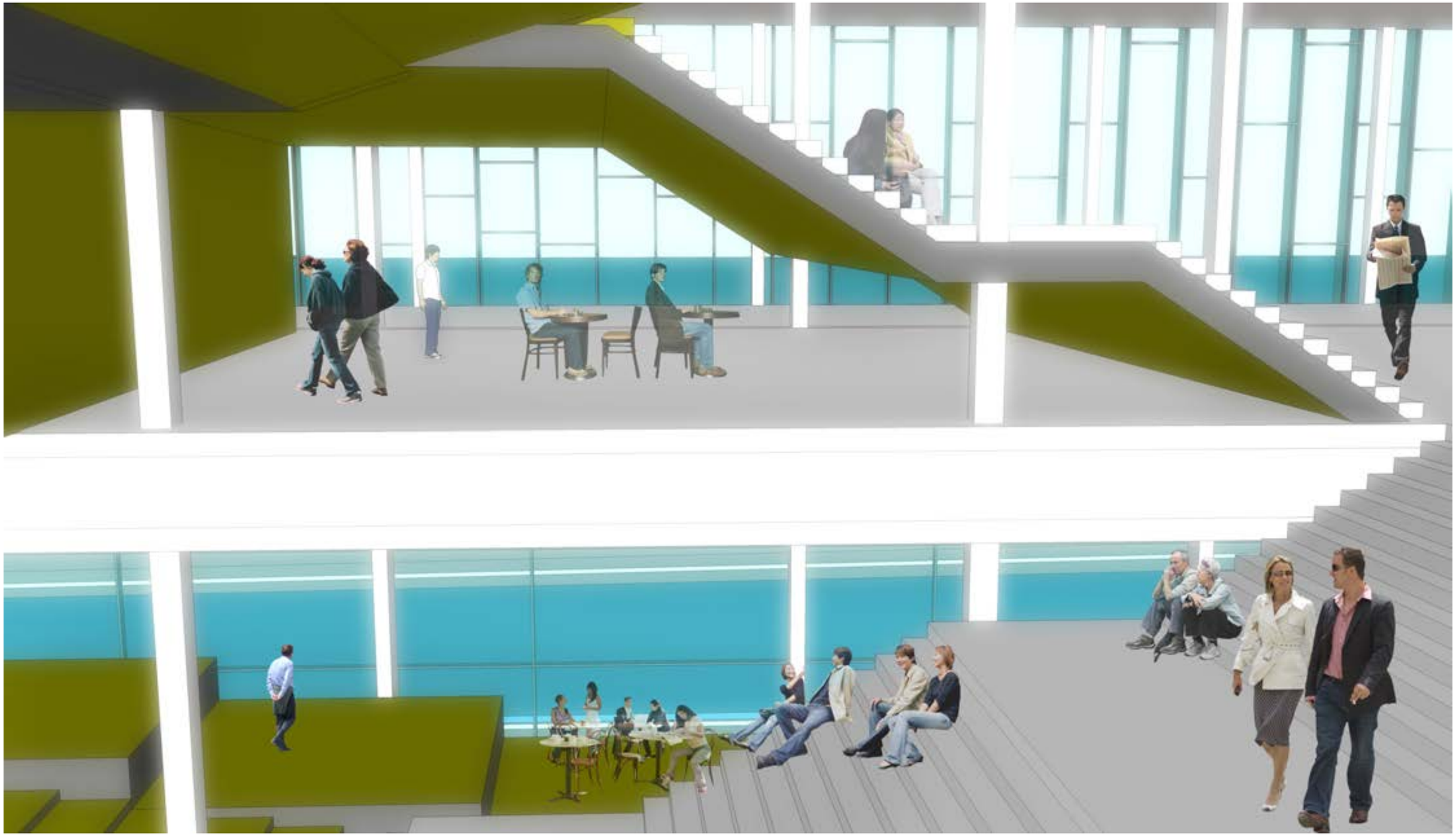
2. COMMUNICATION WING

3. CHAMBER COUNCIL



Communication

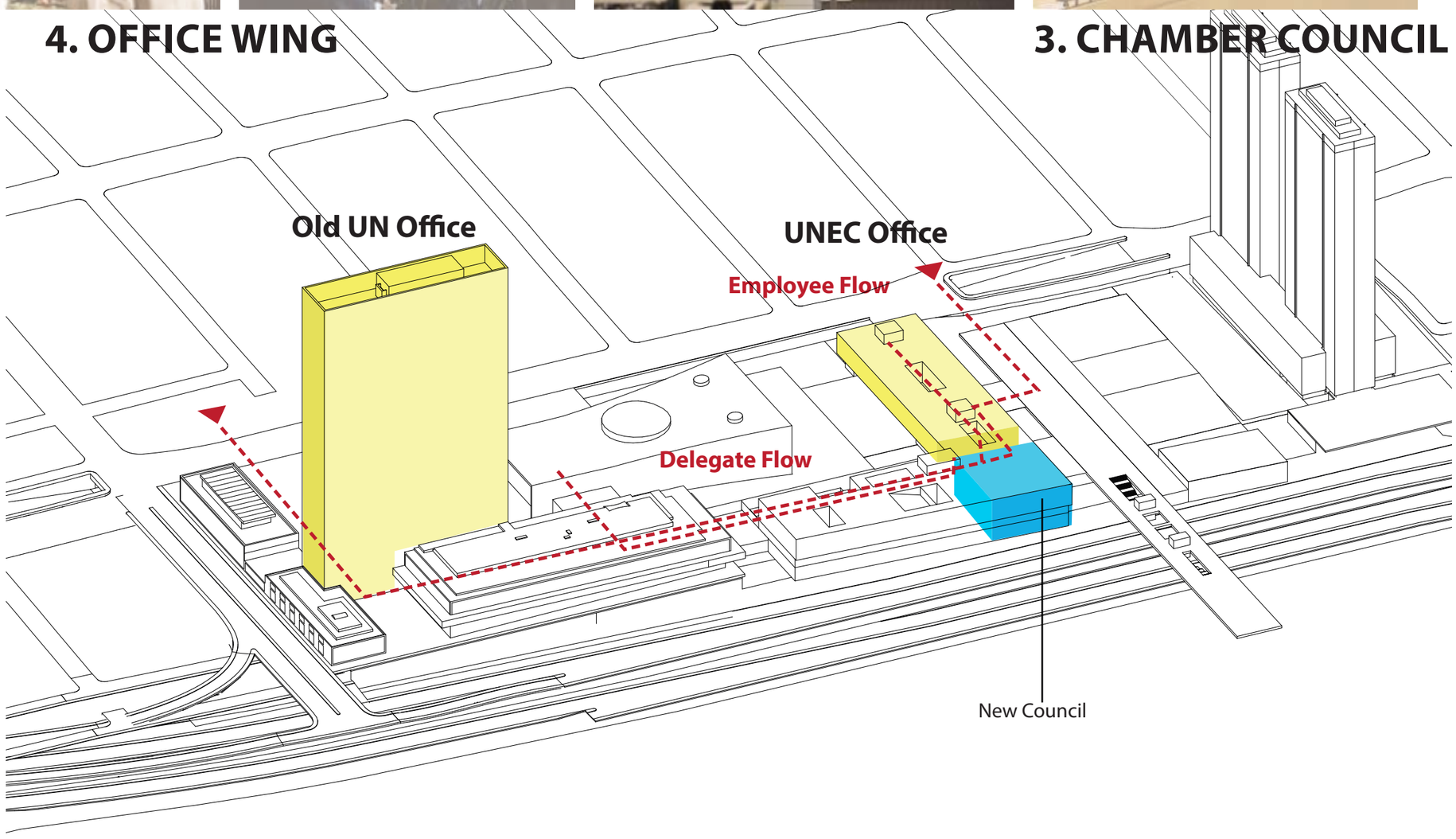

1
2
3

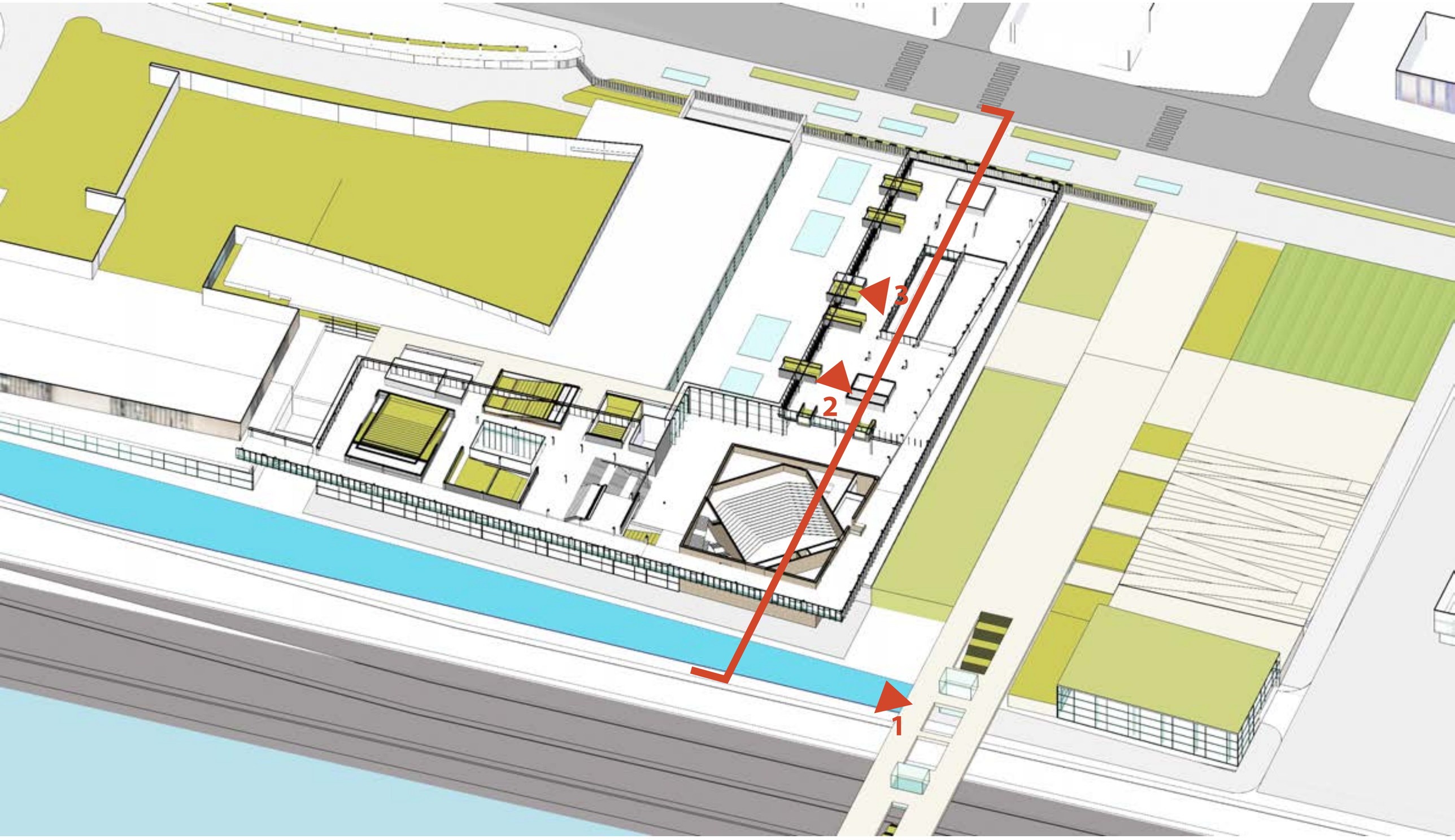


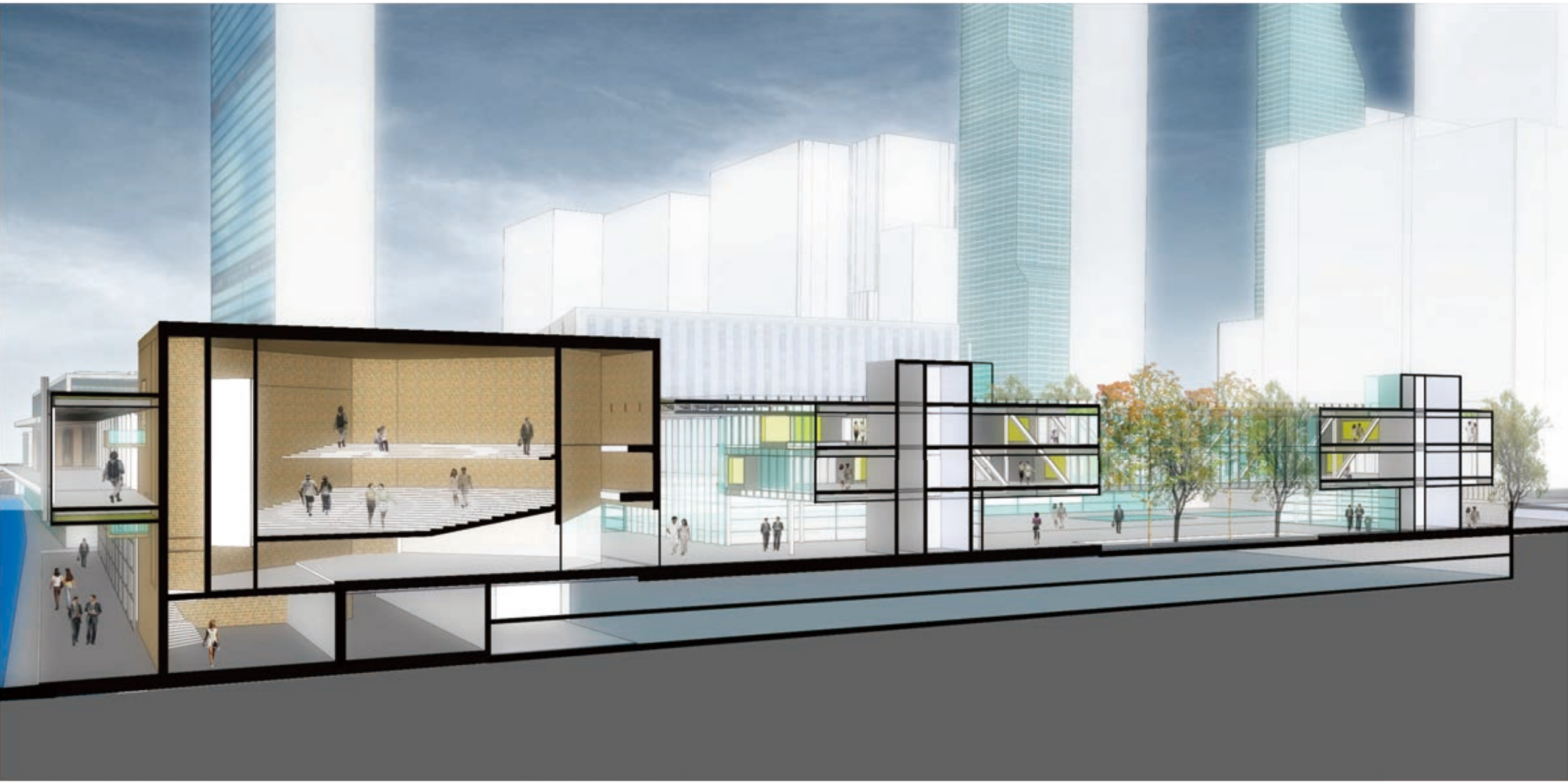
Cantilever Corridor

4. OFFICE WING

3. CHAMBER COUNCIL




3
2
1

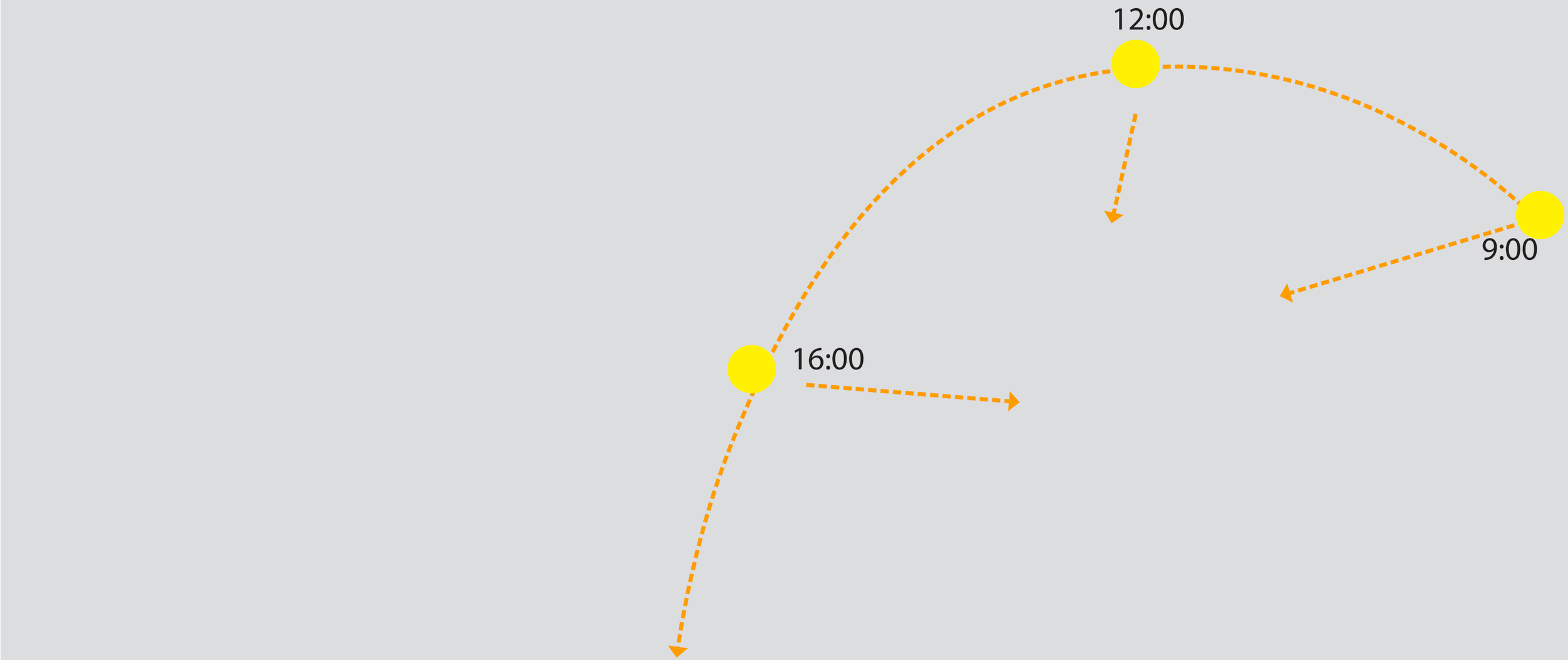


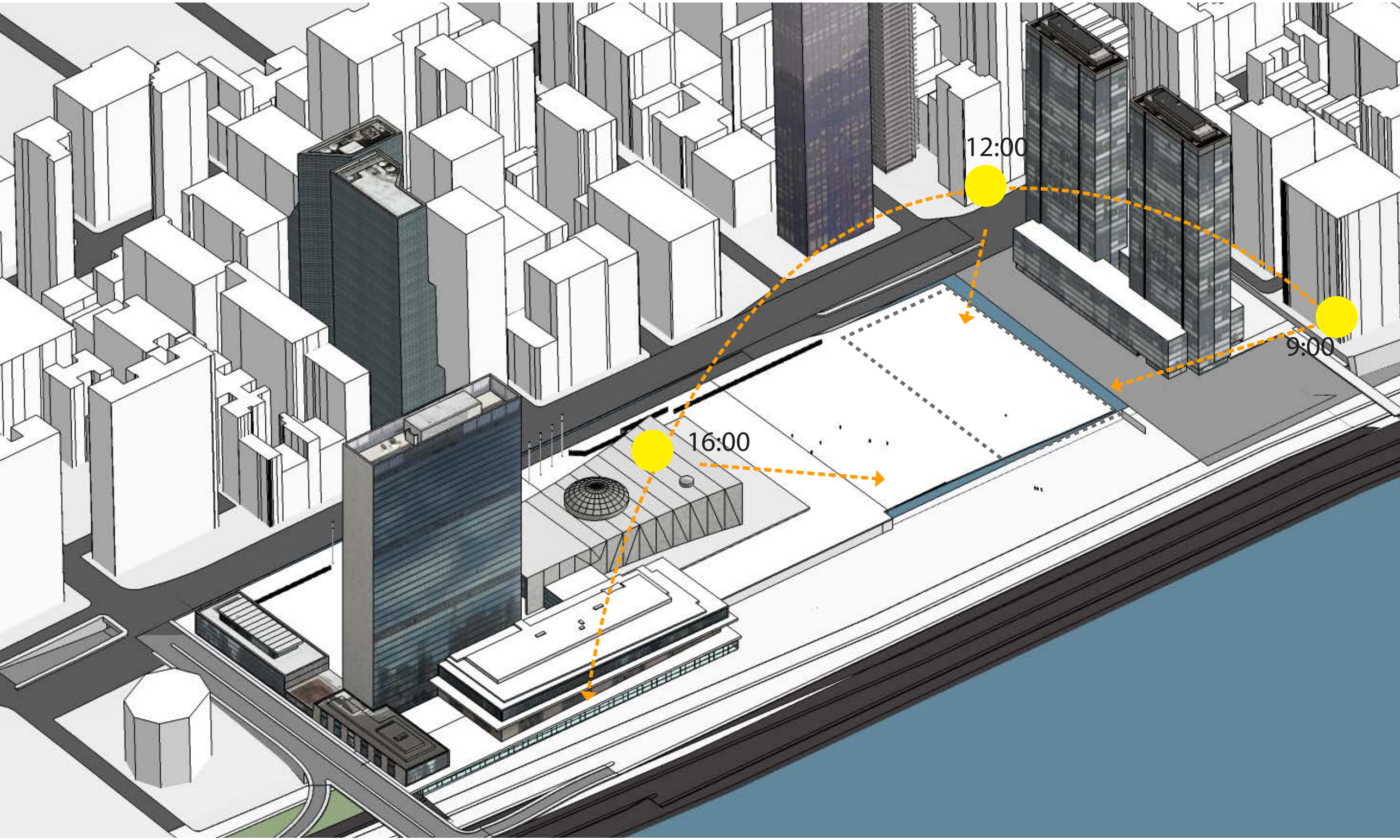
Chapter 3
Sustainability

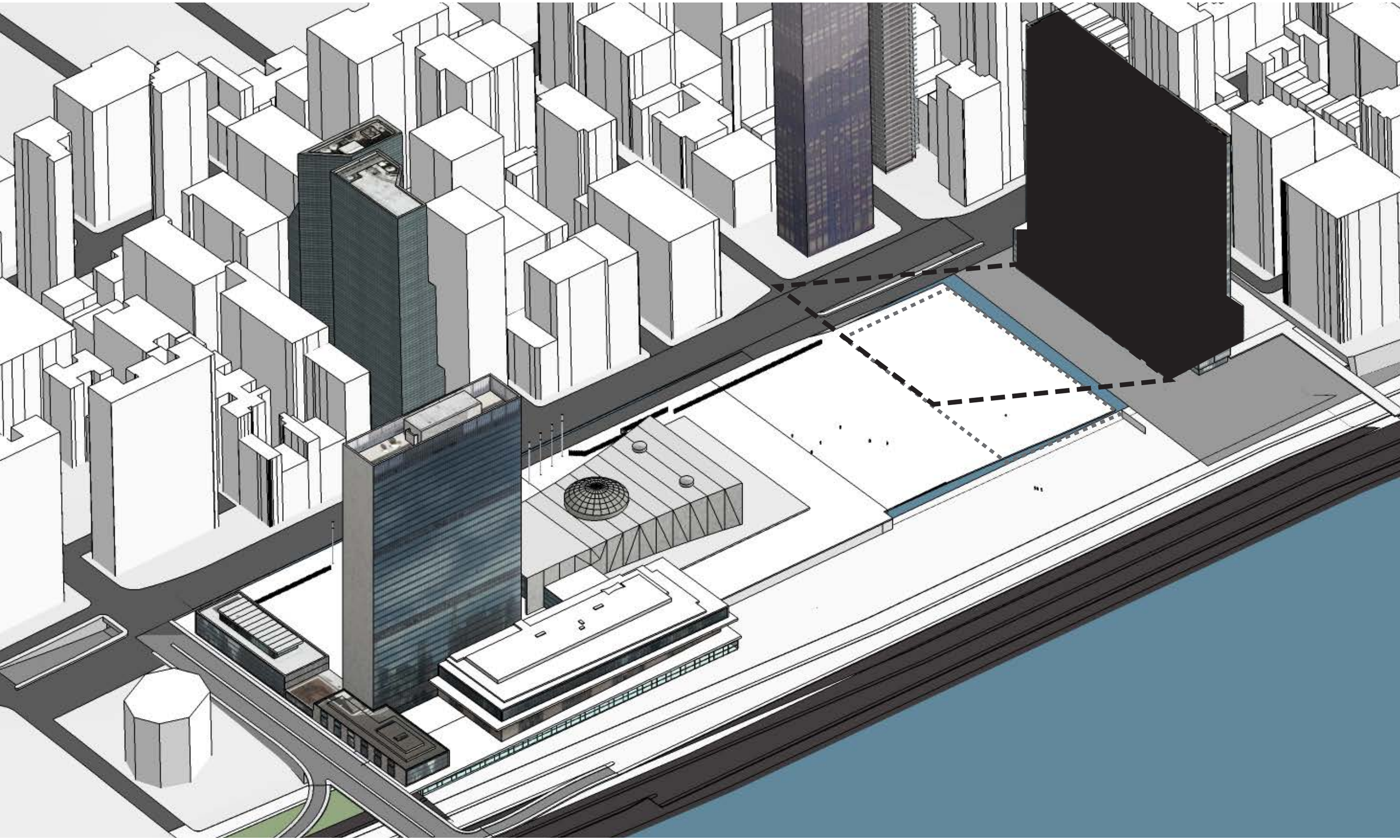
TECHNICAL EXPRESSION

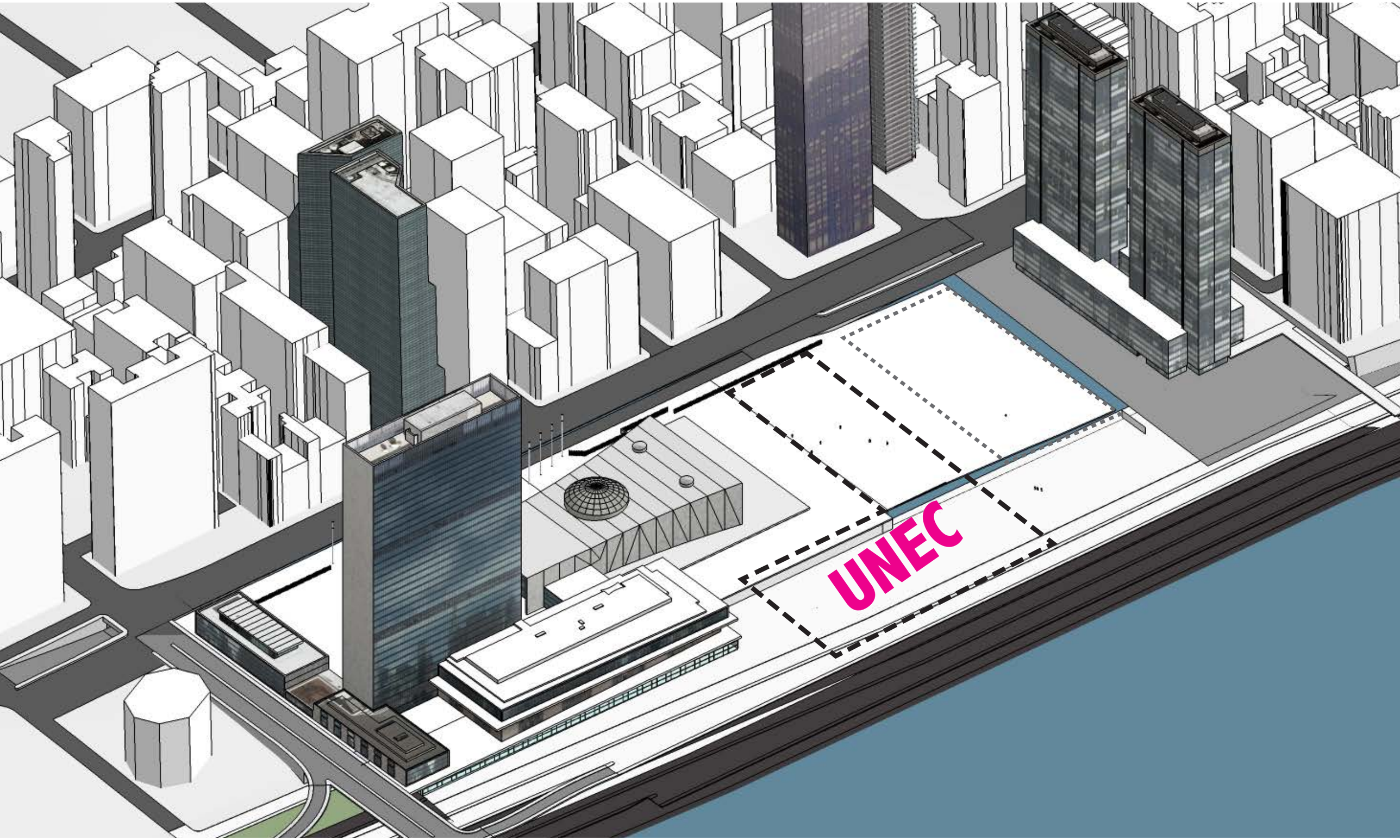
1. LOCATION
2. FLEXIBLE LAYOUT
3. STRUCTURE
4. CLIMATE
5. FACADE
6. DETAILS

1. Building Location

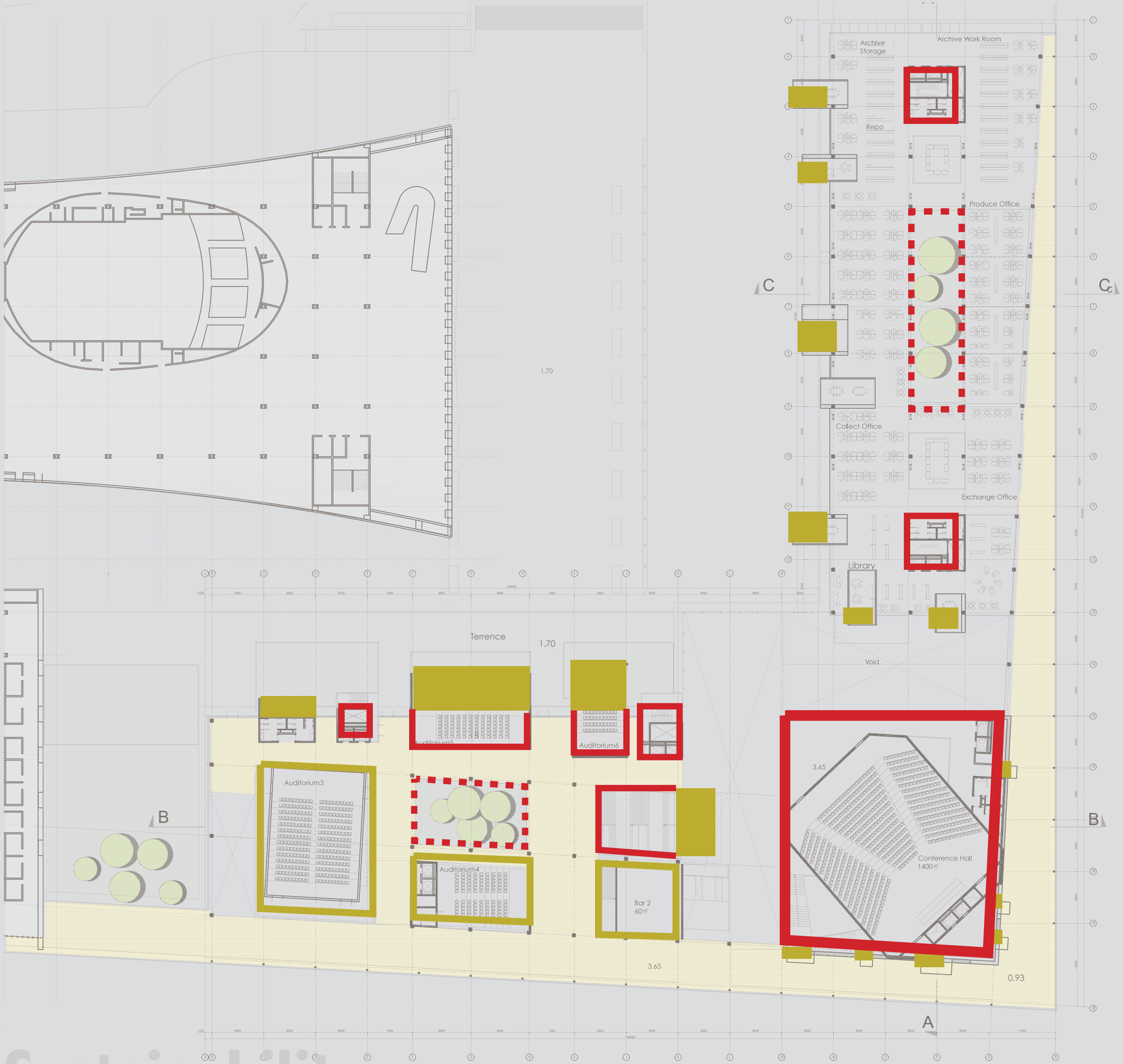



12:00
9:00
16:00




UNEC

Flexible Building Layout

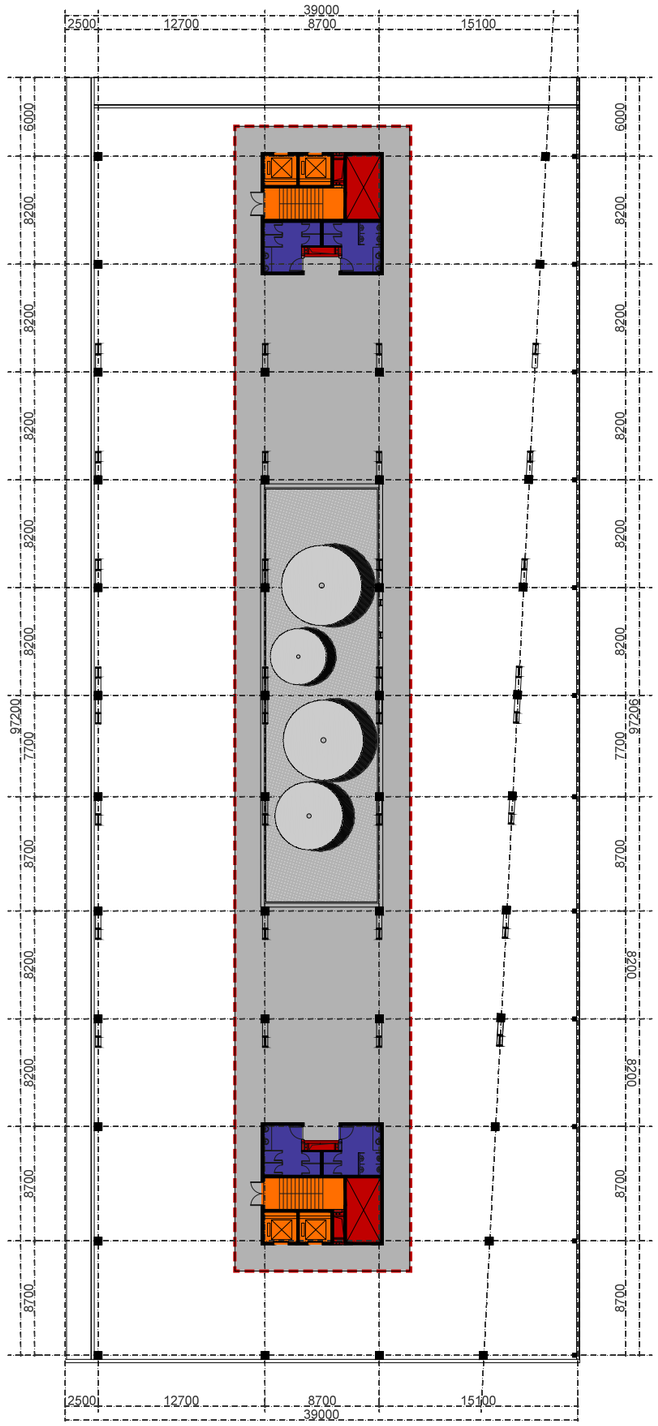


Flexible

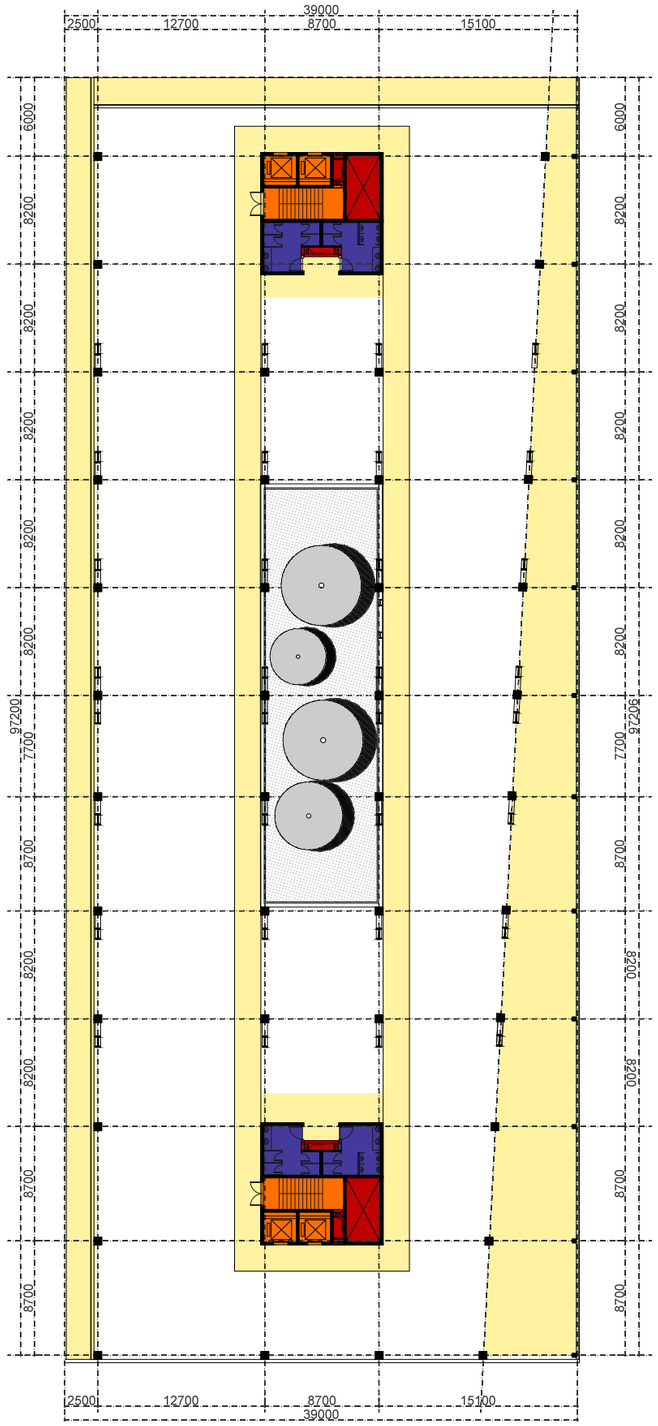
Fixed

Sustainability

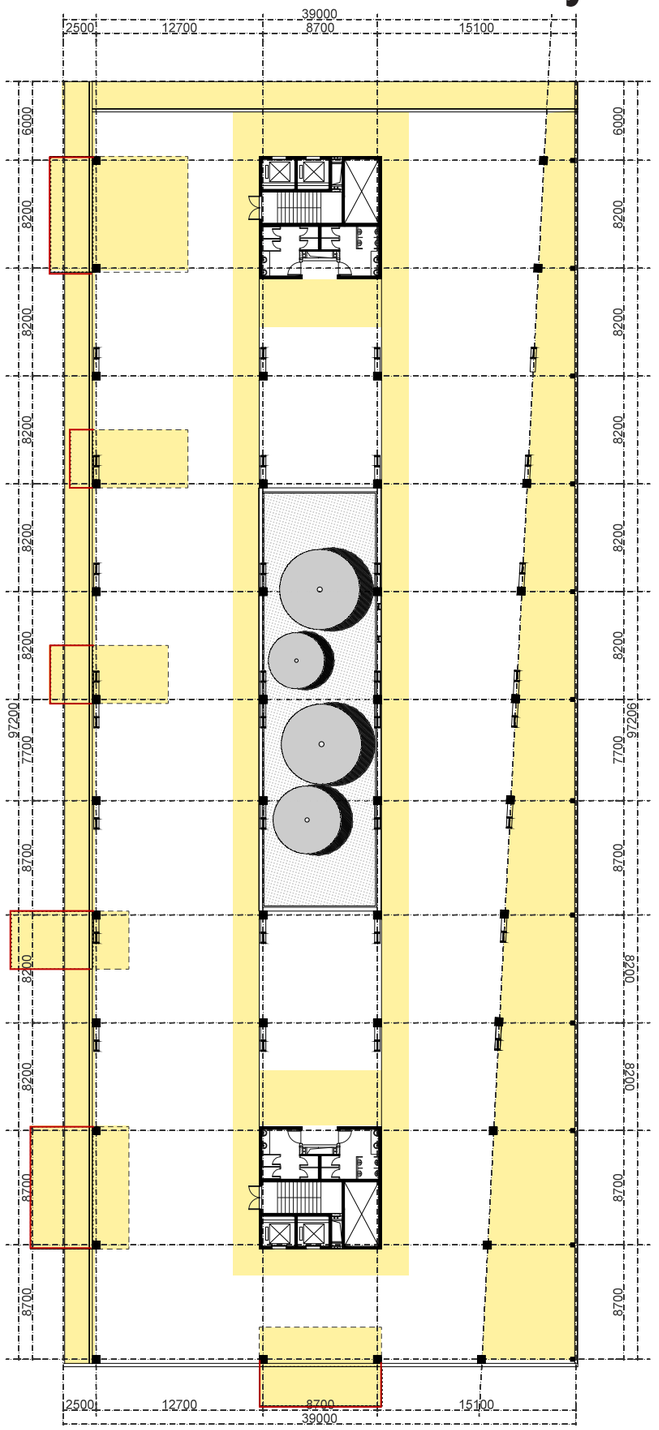
Office Layout



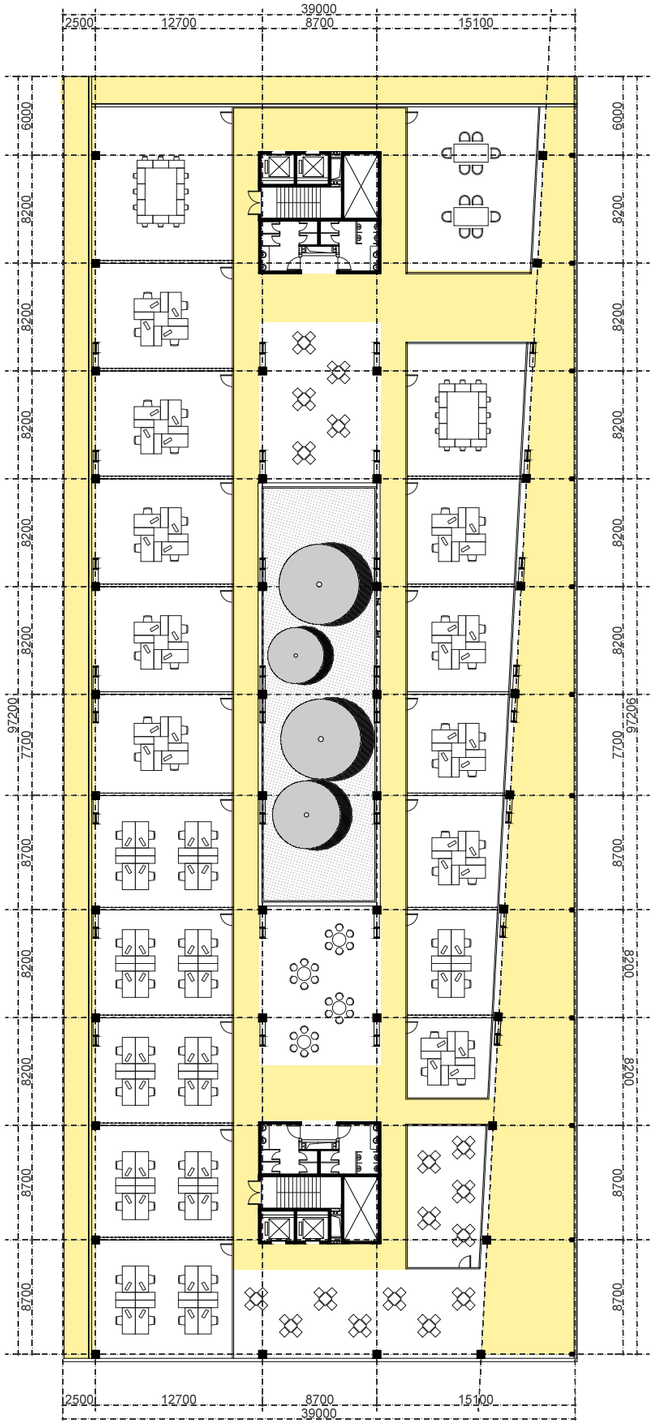
-Centralized cores: installations and shafts
-Middle zone: circulation area and patio
-Office Area: size to unit size of 7.7 meter, 8.2meter and 8.7 meter



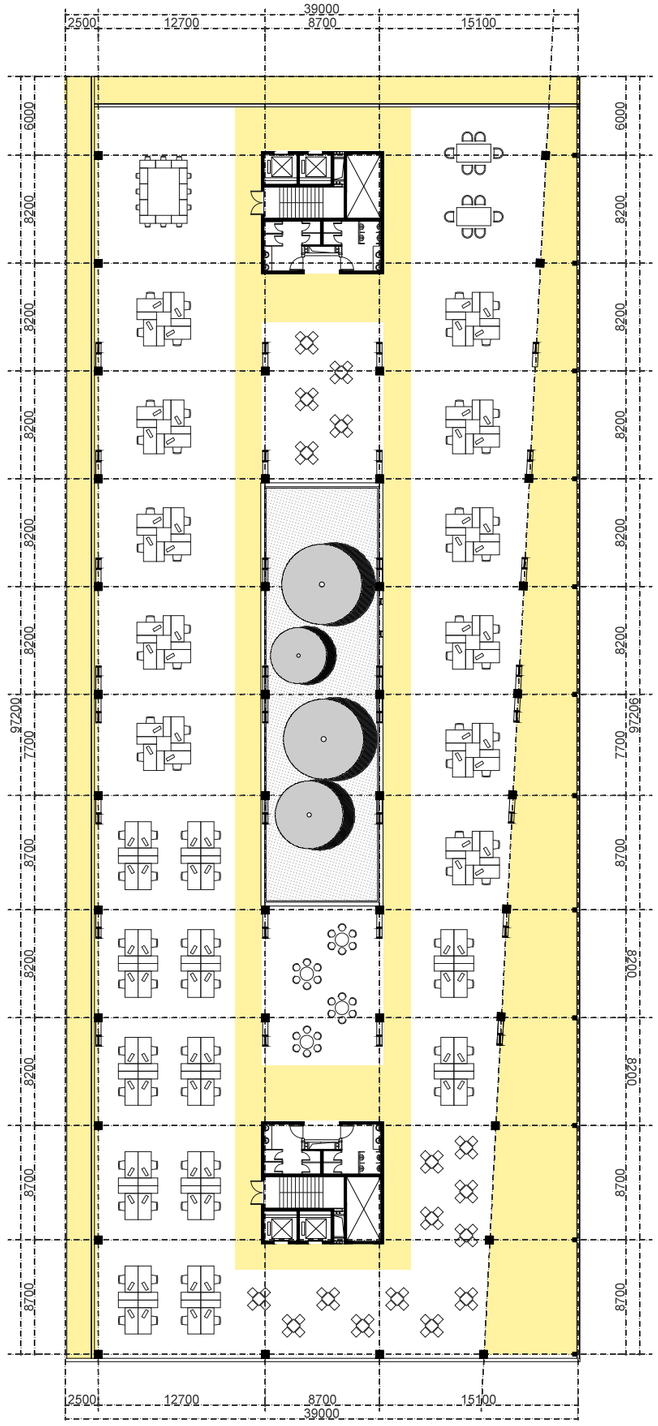
-Routing zone in the center
-Main connection on the north side
-Semi-outhdoor corridor on south side



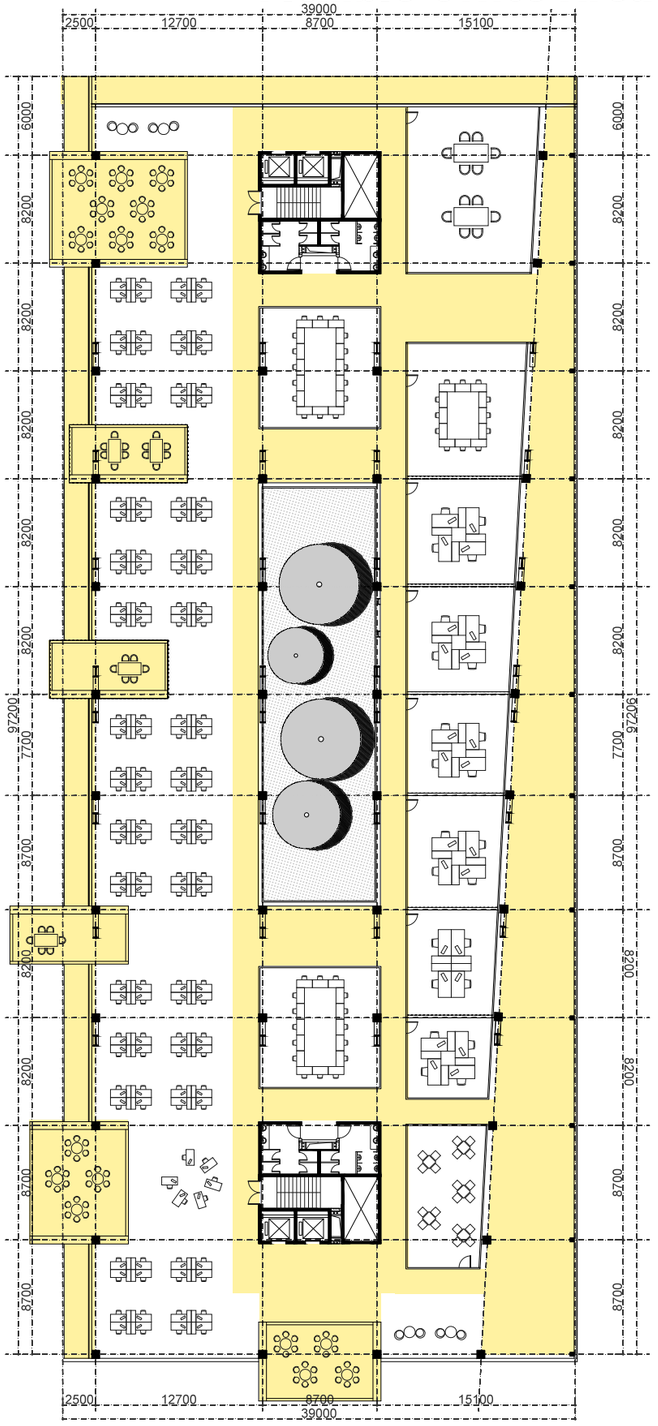
-Prefabricated concrete box are integrated on each floor
-Box area used as informal meeting



PLAN-Cell office
scale 1:350

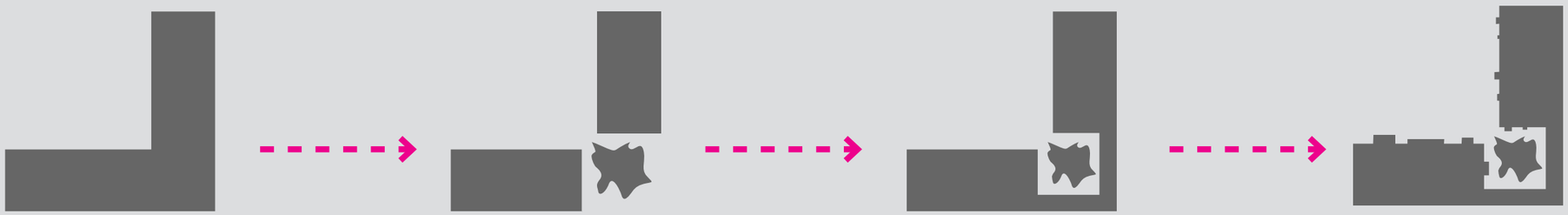


PLAN-Open plan Floor
scale 1:350



PLAN-Mixed(cell office+open plan+box)
scale 1:350

Strategy



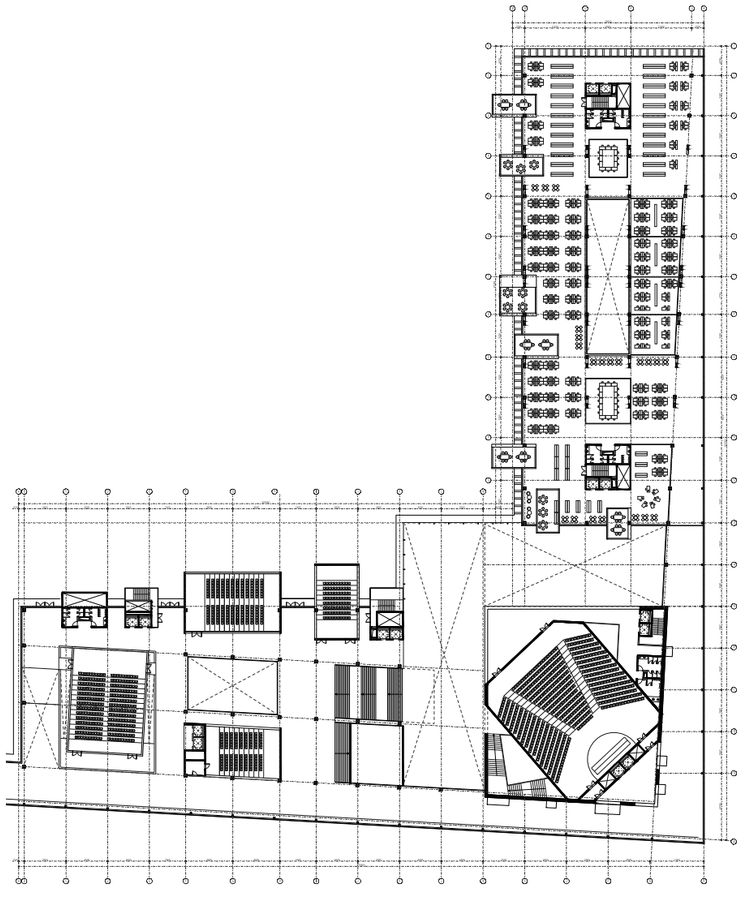
Step 1: L Shape

Step 2: Special Corner

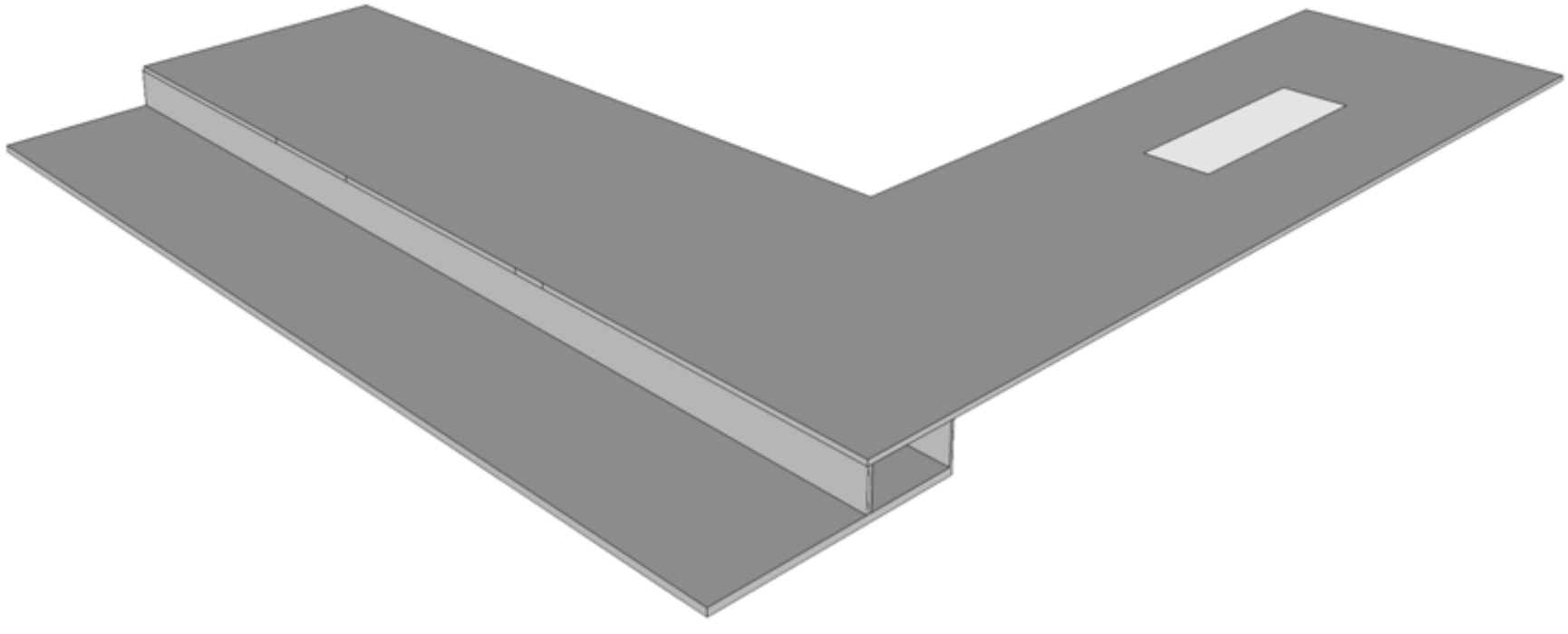
Step 3: Connection

Step 4: Differentiate
inner and outer facade

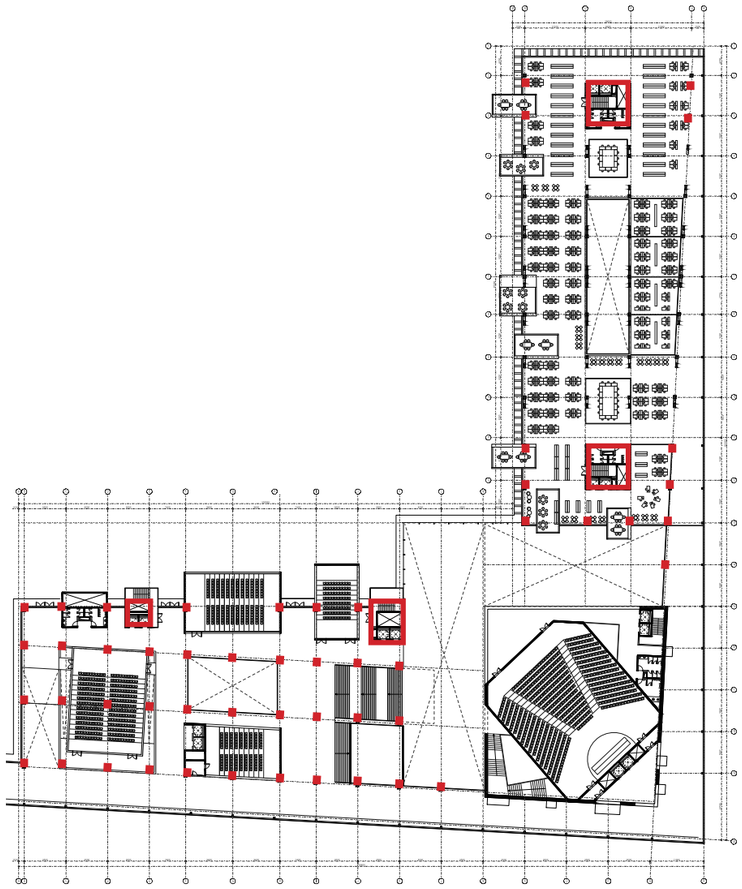
Sustainability



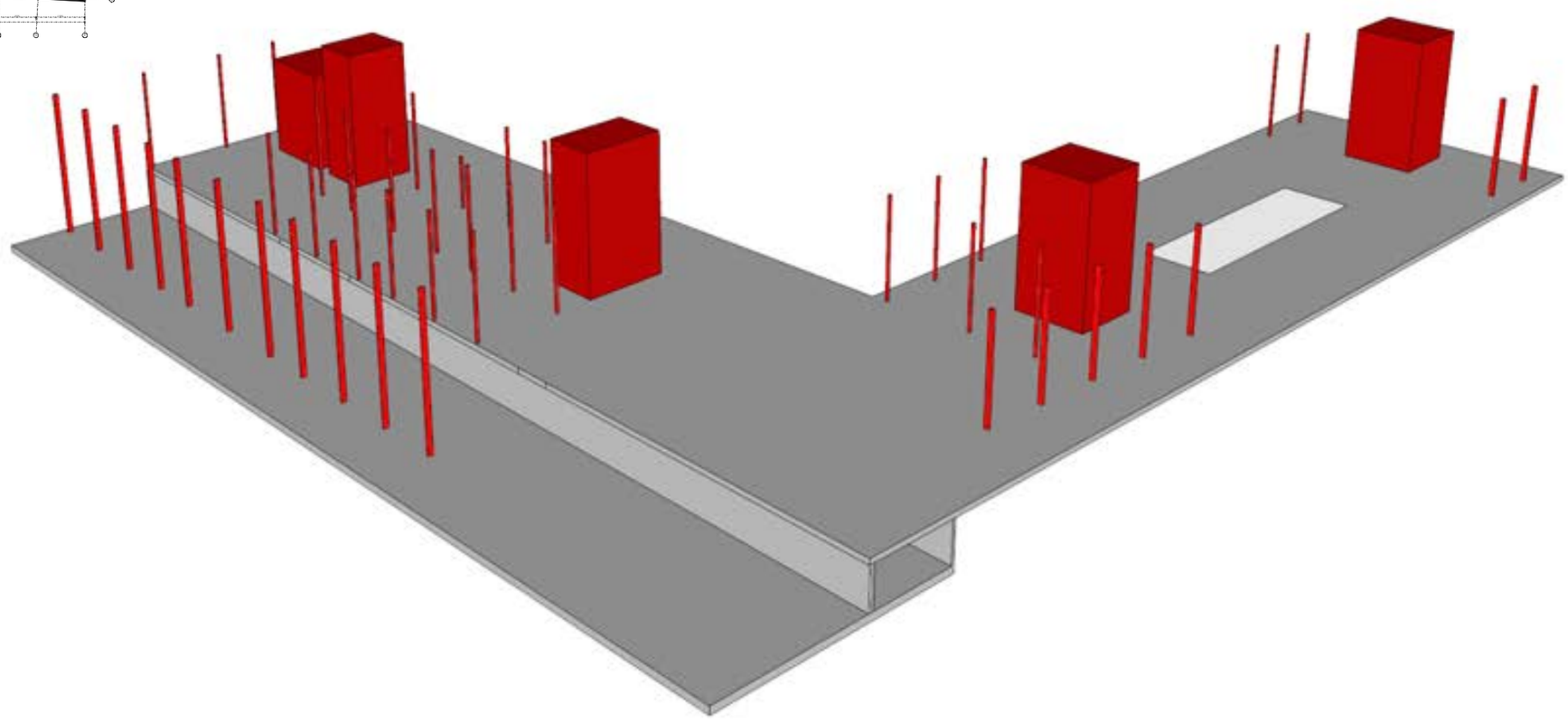
BASE

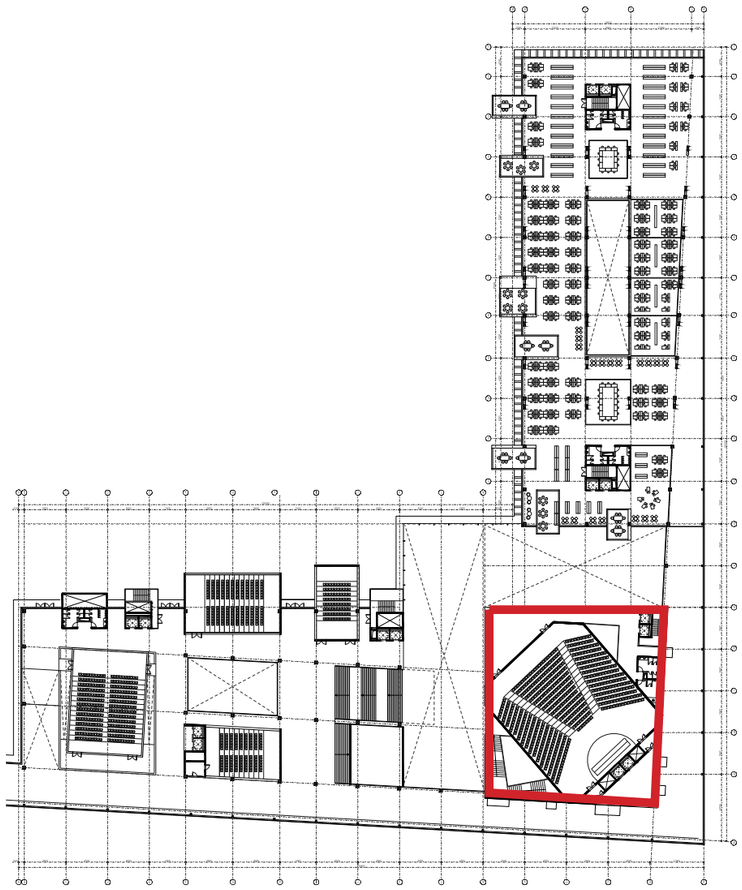


Sustainability

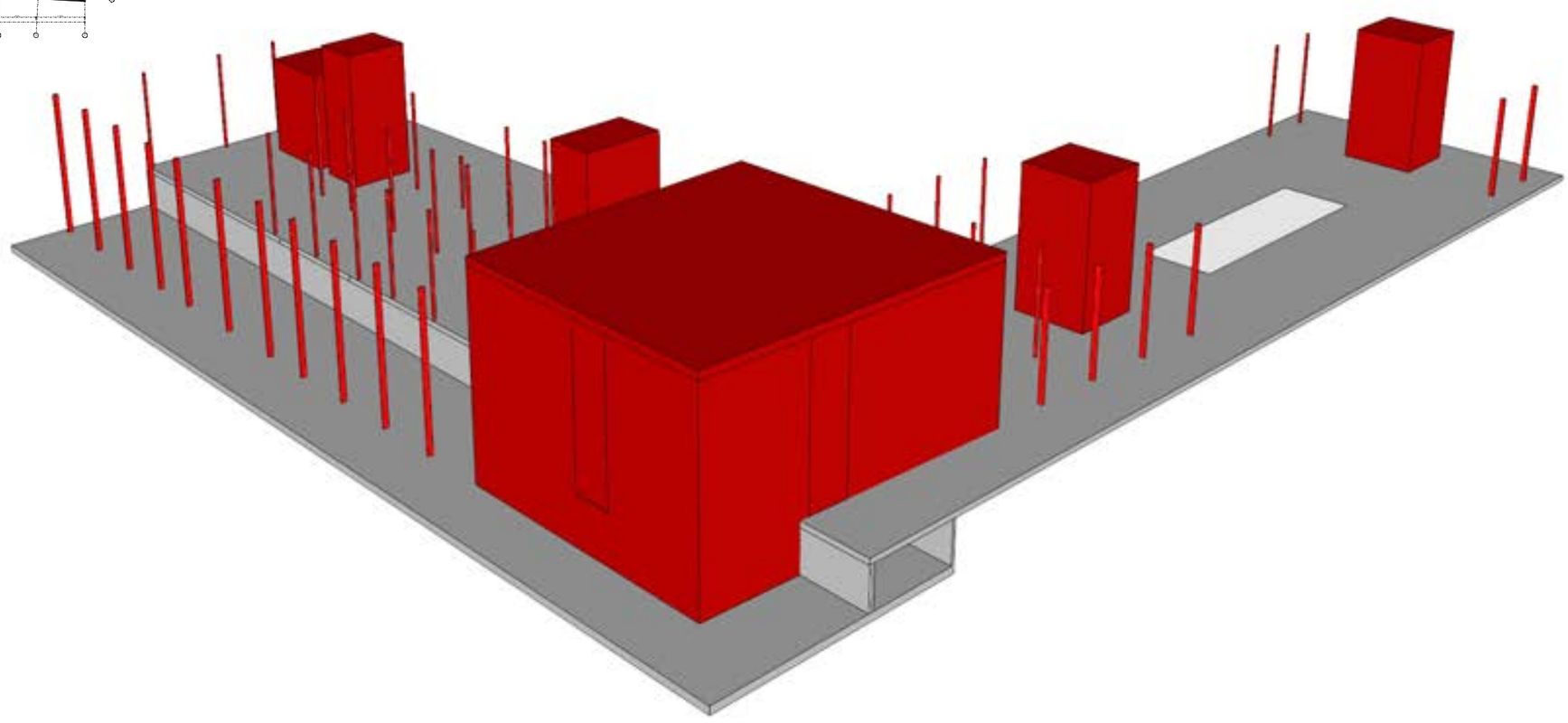


COLUMNS AND CORES

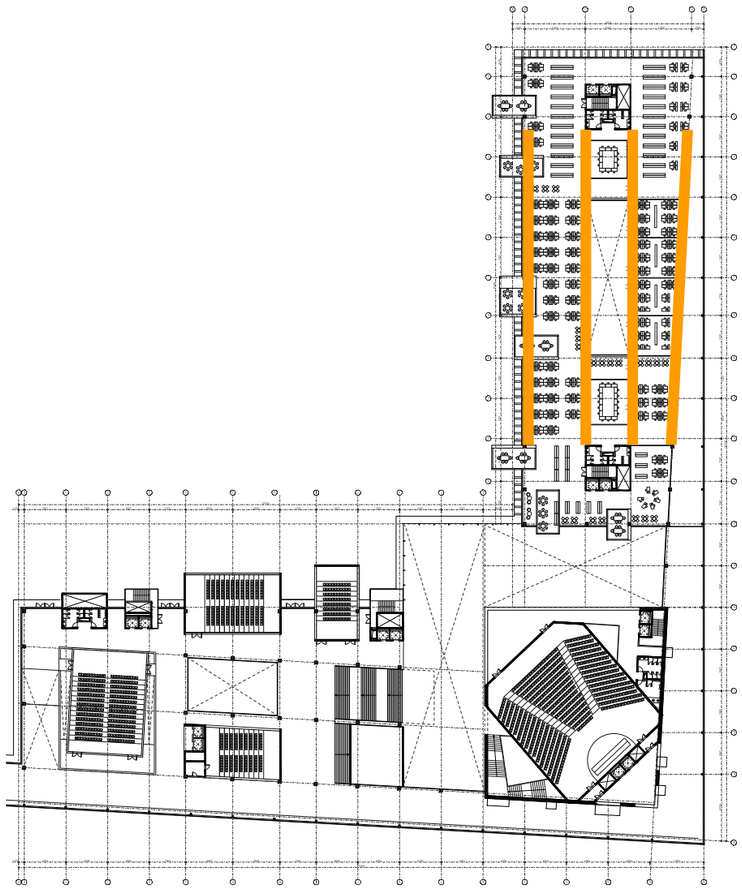




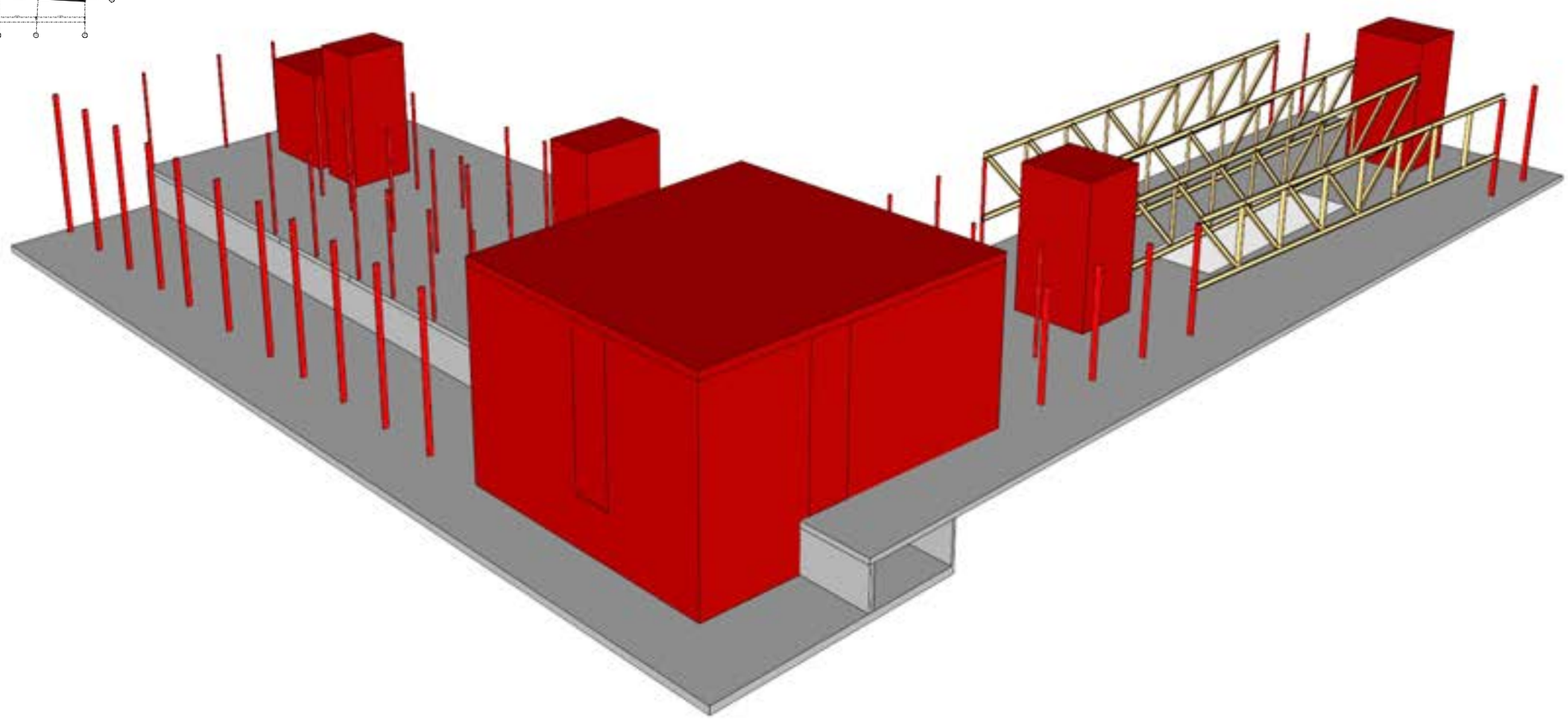
CHAMBER COUNCIL UNIT



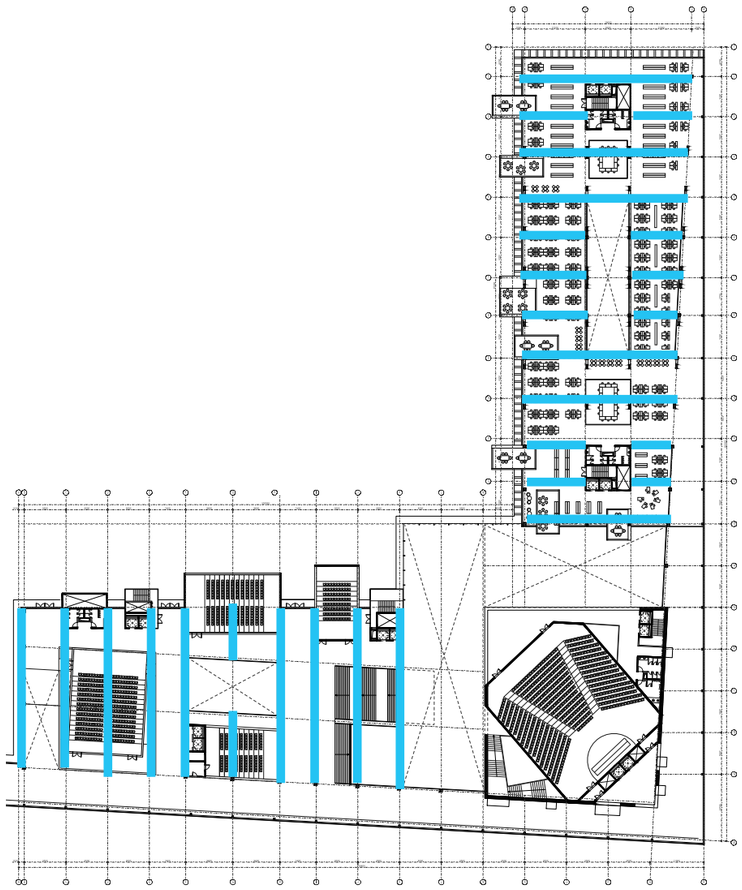
Sustainability



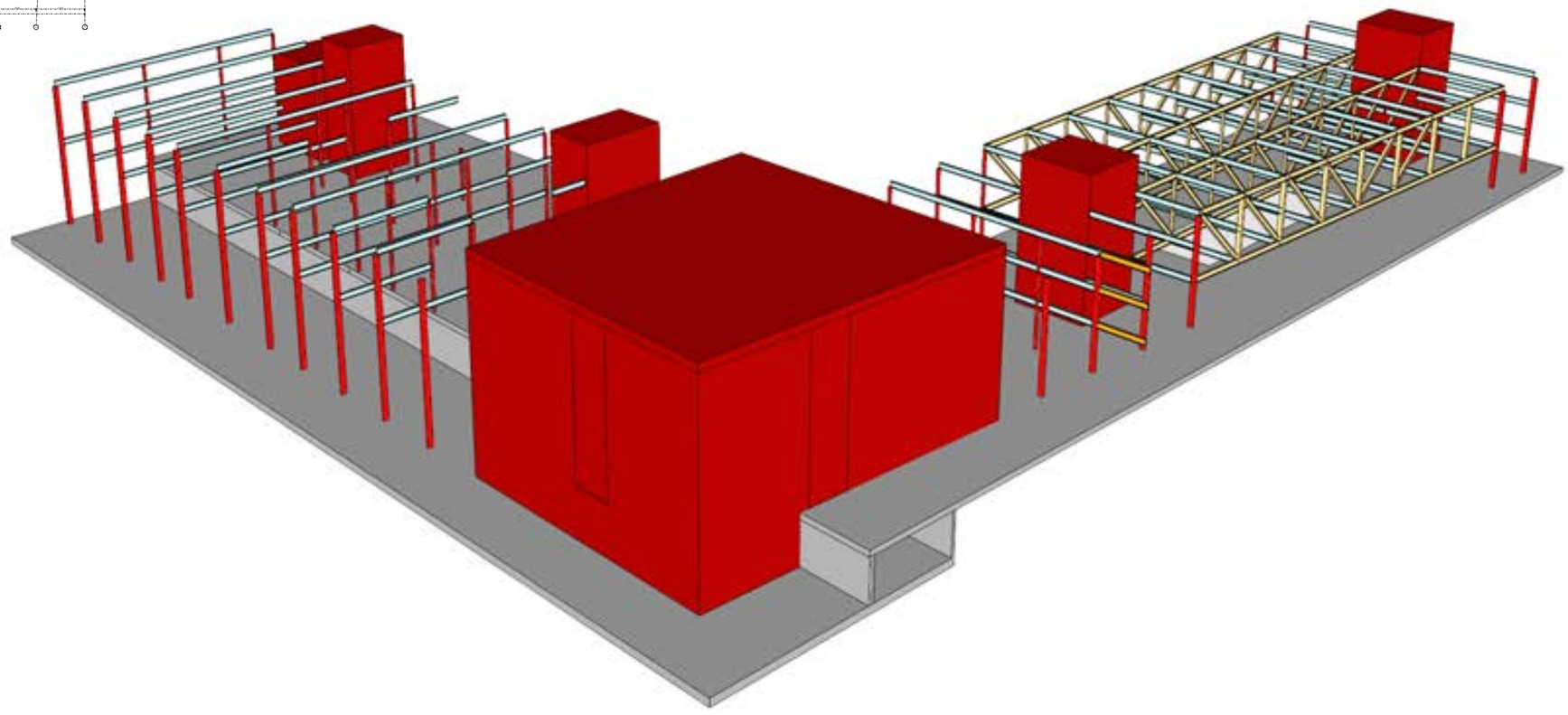
TRUSS

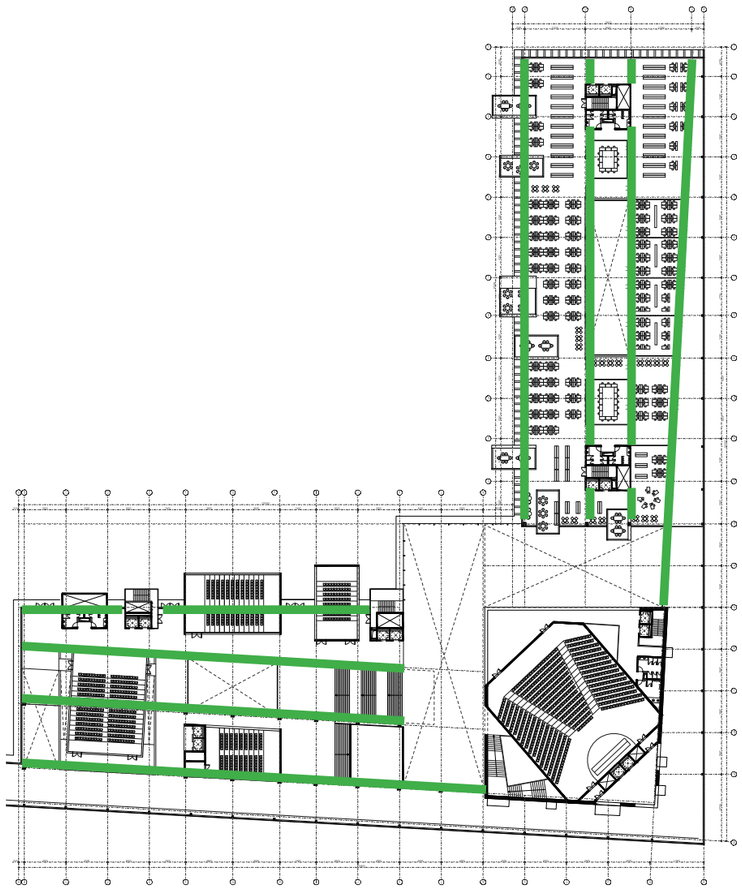


Sustainability

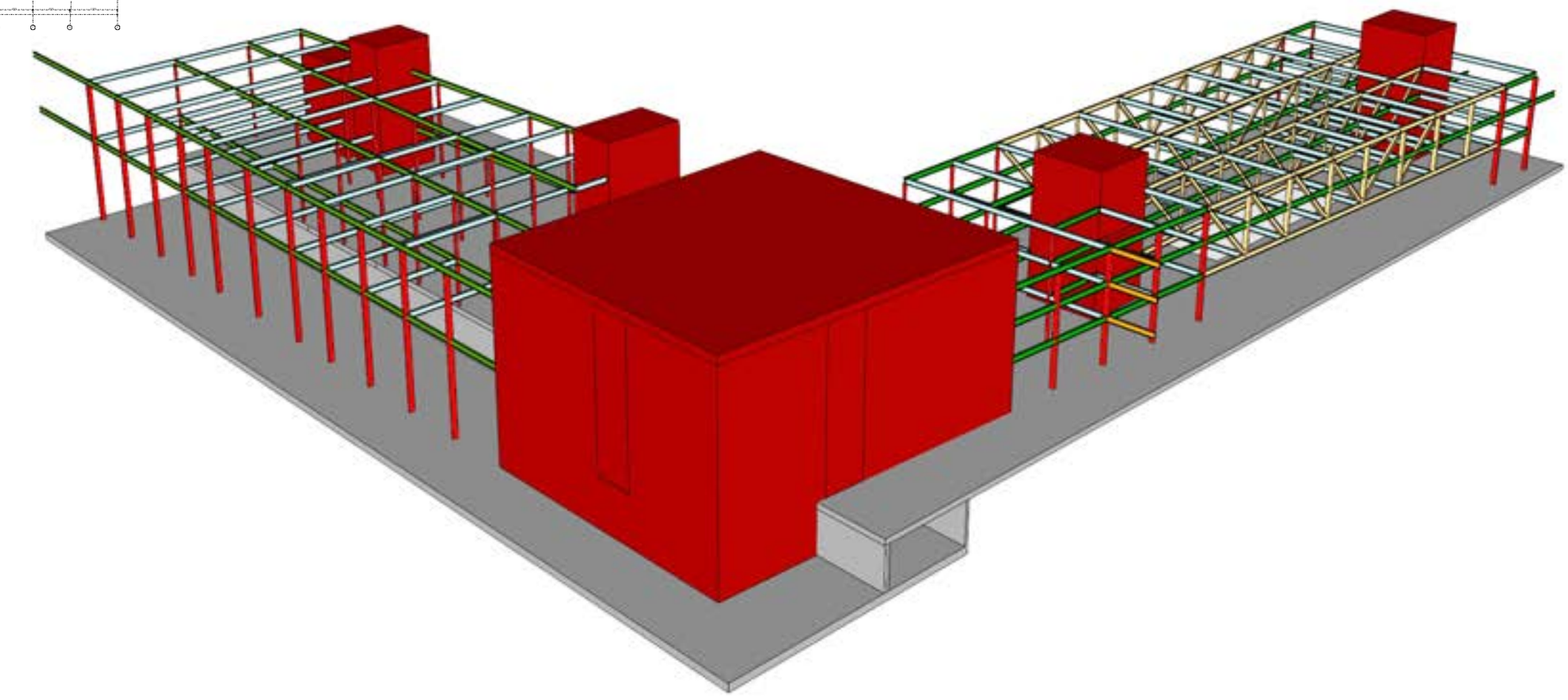


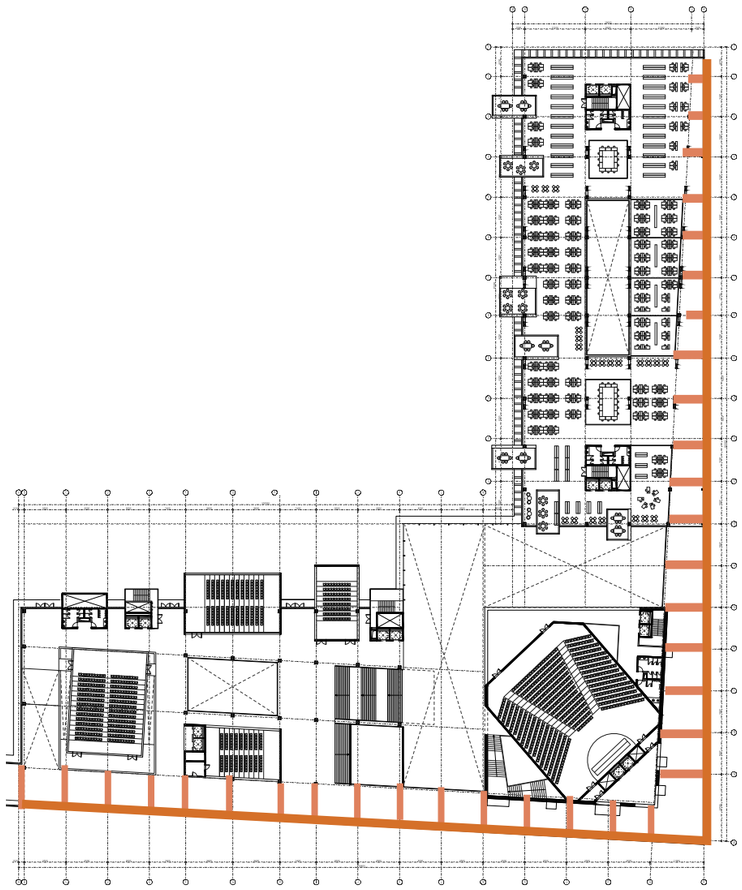
LOAD BEARING BEAMS



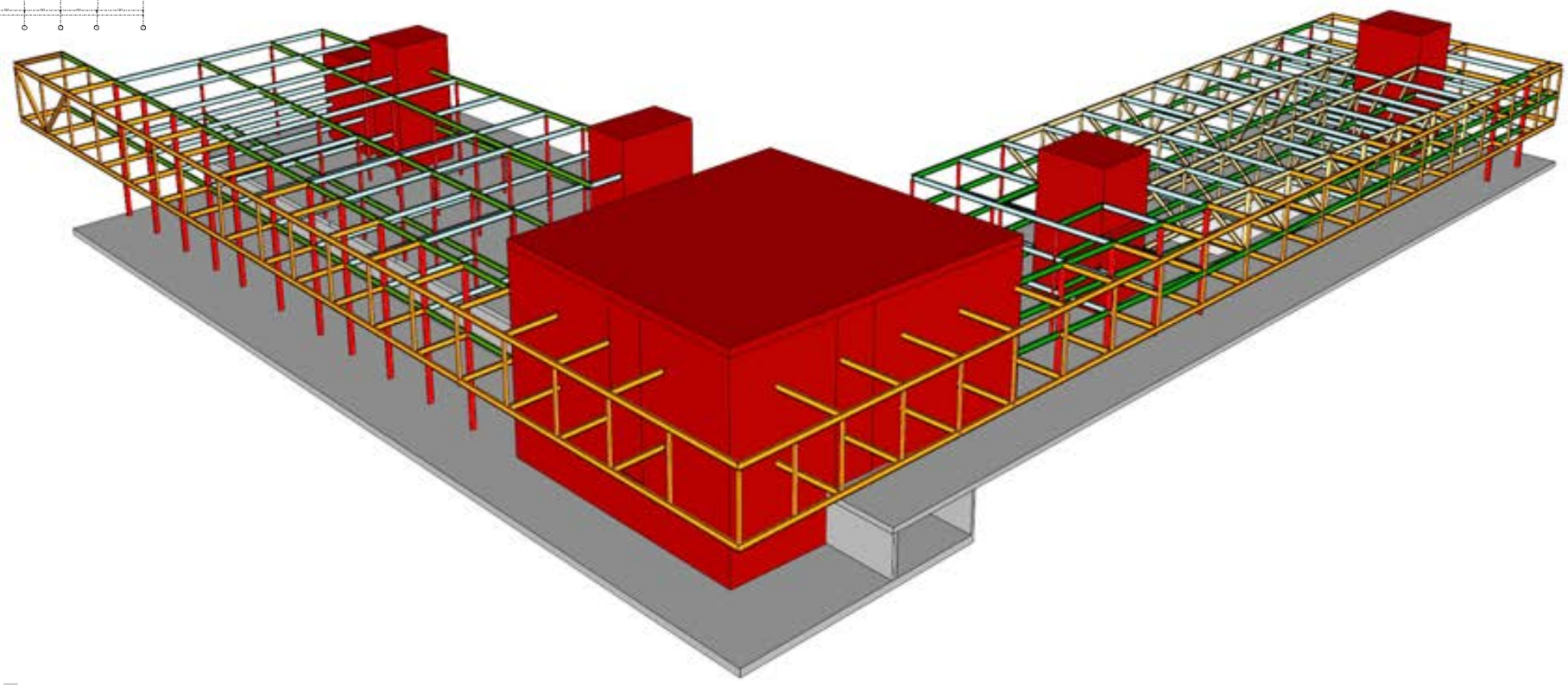


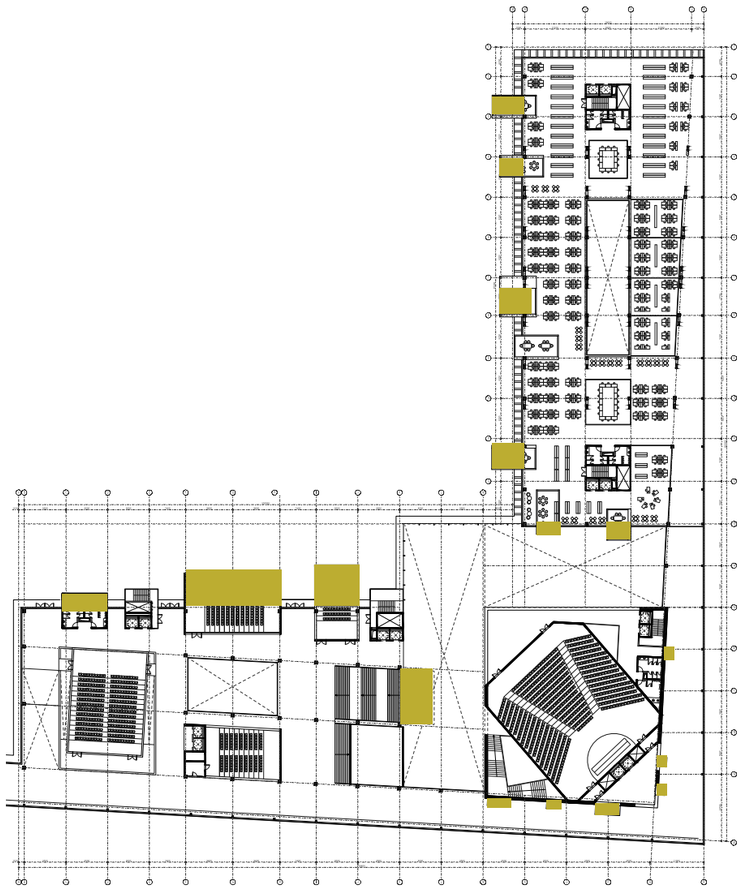
SUPPORTING BEARING BEAMS



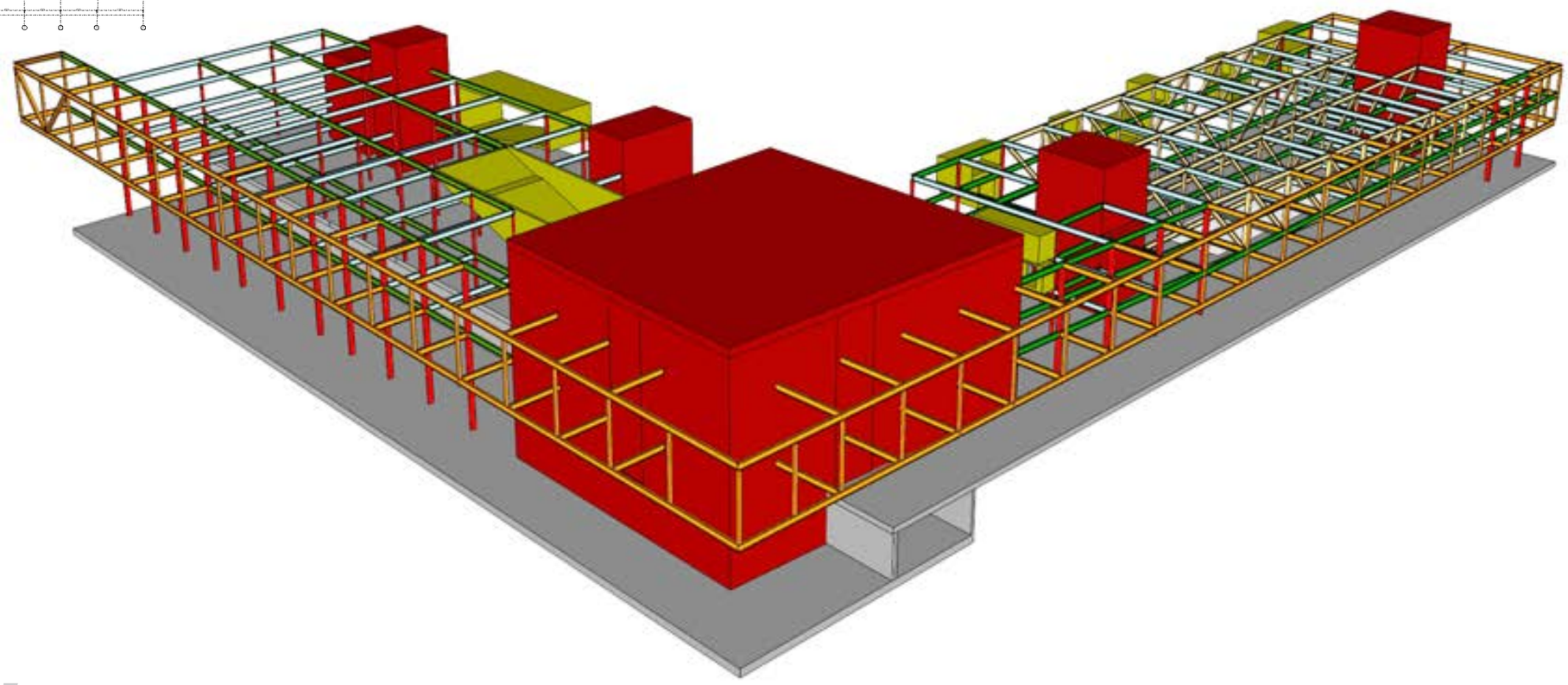


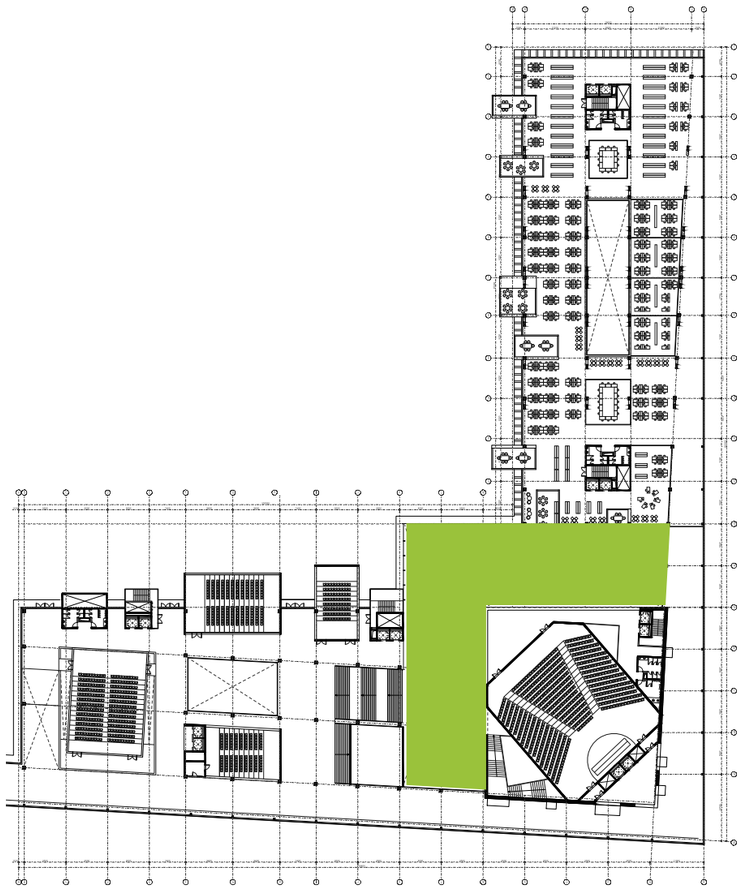
CANTILEVER CORRIDOR





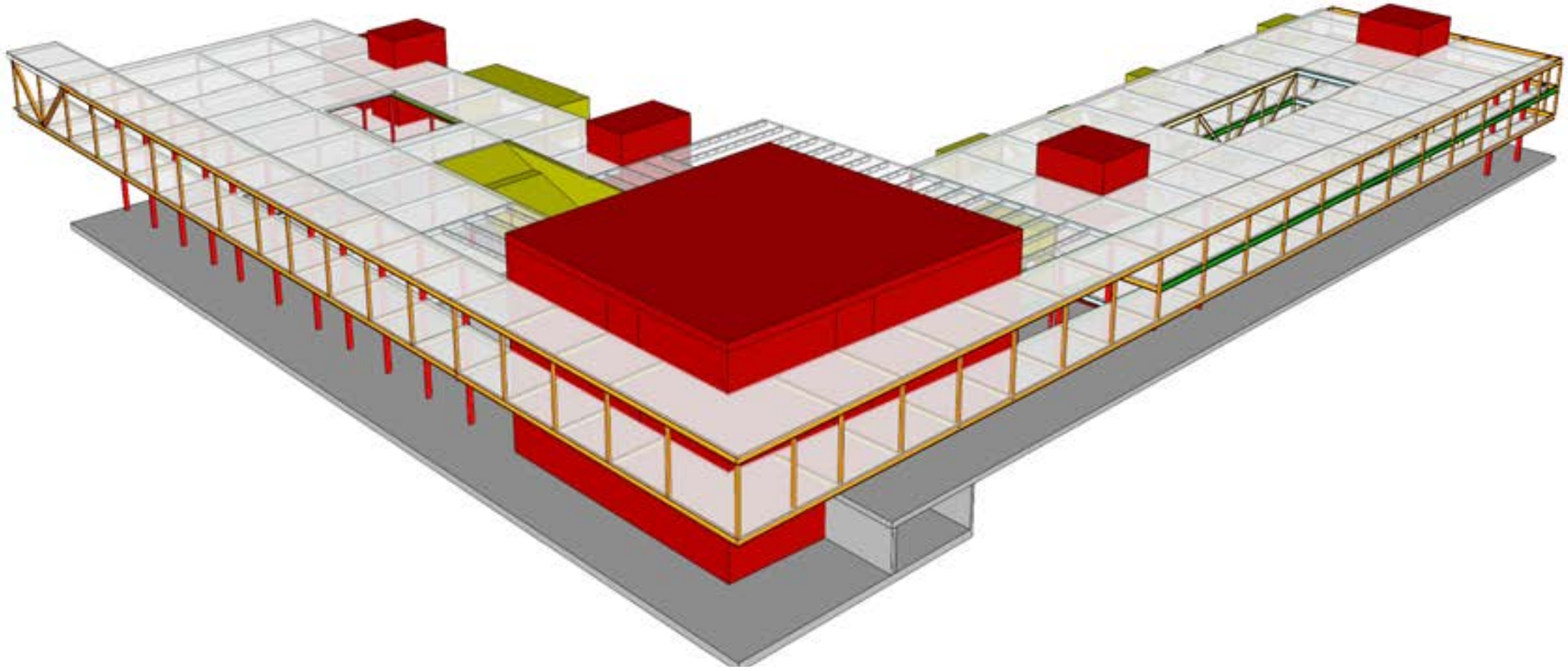
HANGING BOX

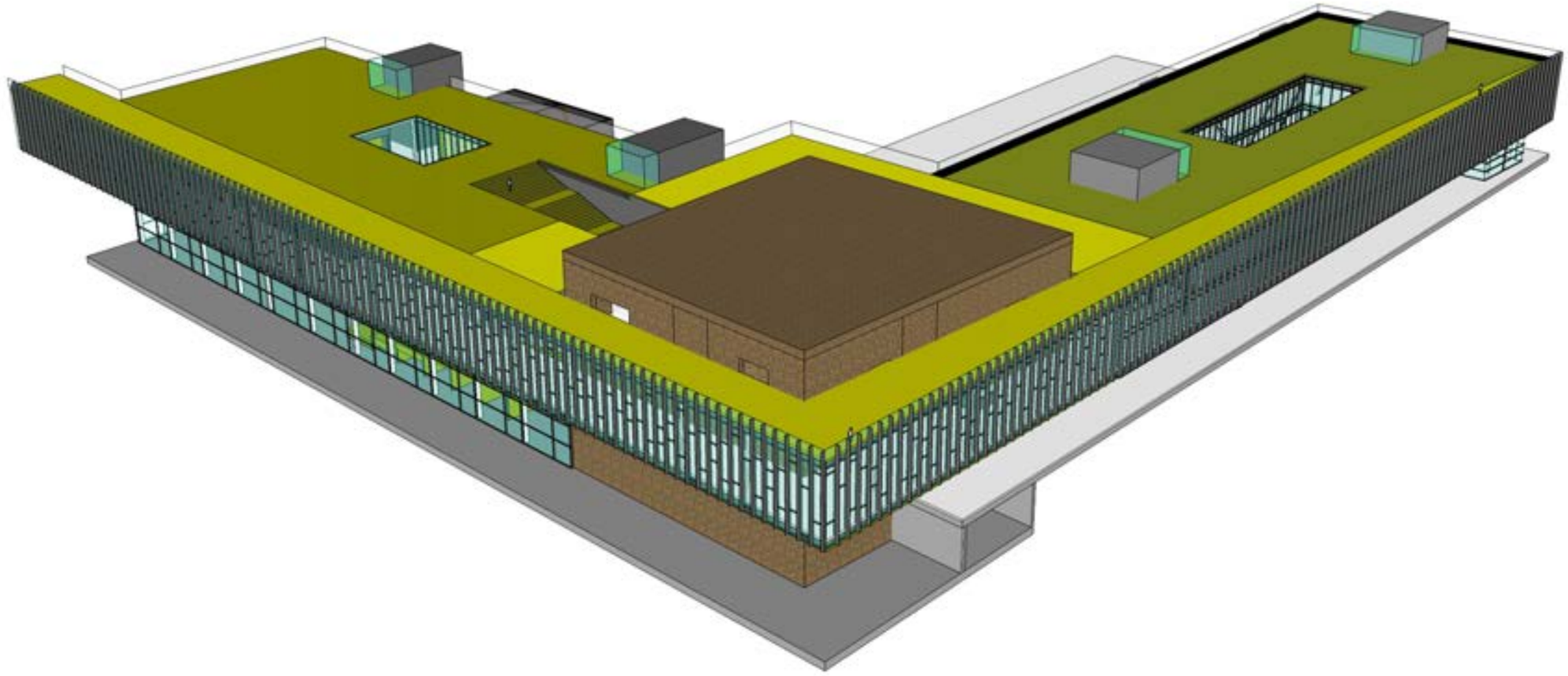




CONNECTION ATRIUM ROOF

SLAB





Office: Natural Ventilation

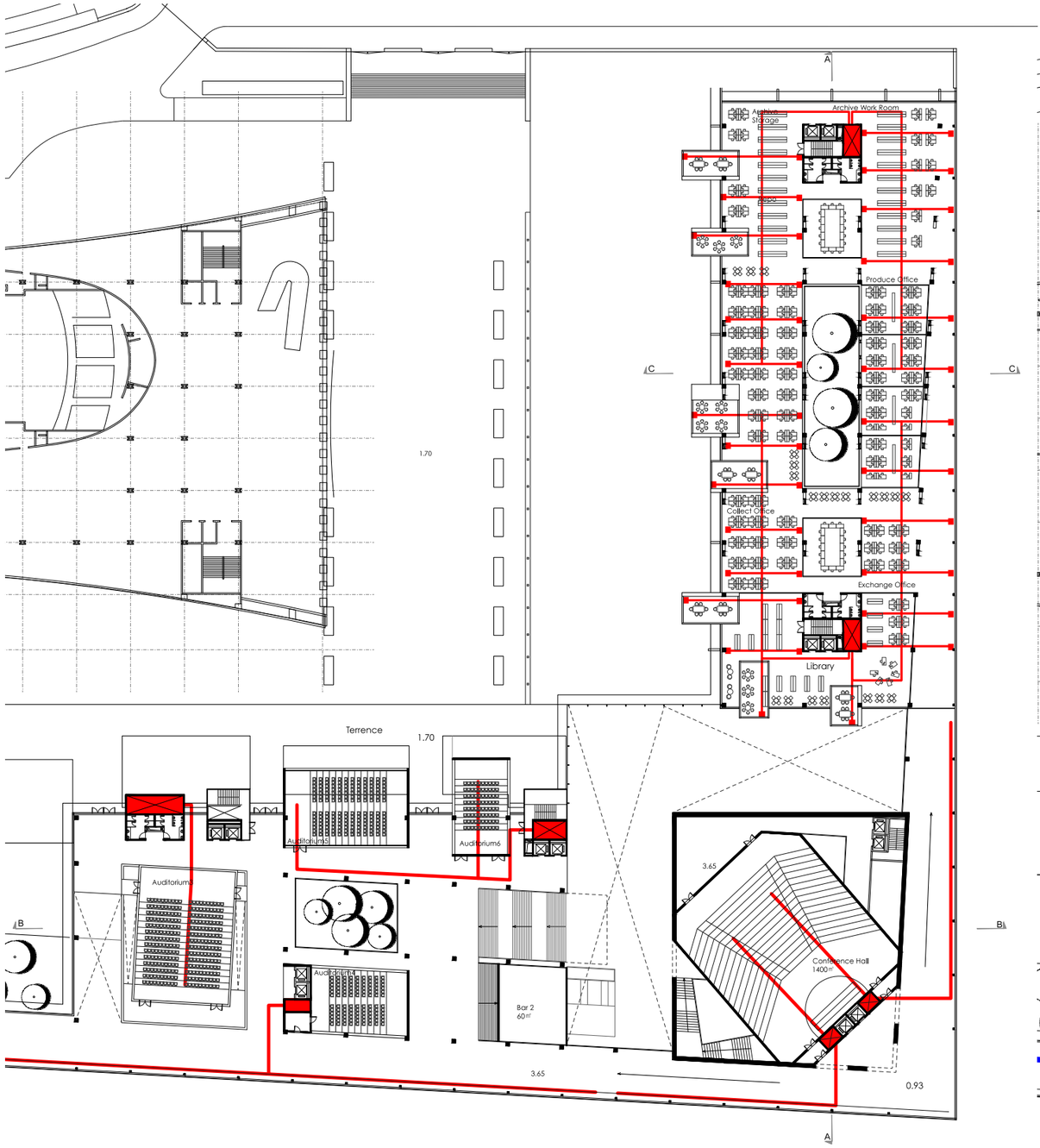
Evenly use

Operable Window for natural ventilation

Auditorium and Council Chamber: Mechanical Ventilation

All-air System, Peak Loads

Air system


A
Archive Storage
Archive Work Room
Produce Office
C
C1
1.70
Collect Office
Exchange Office
Library
Terrence
1.70
Auditorium5
Auditorium6
Auditorium4
Auditorium3
B
B1
3.65
Conference Hall
1400㎡
Bar 2
60㎡
3.65
0.93
A


A
Archive Storage
Archive Work Room
Produce Office
C
C1
1.70
Collect Office
Exchange Office
Library
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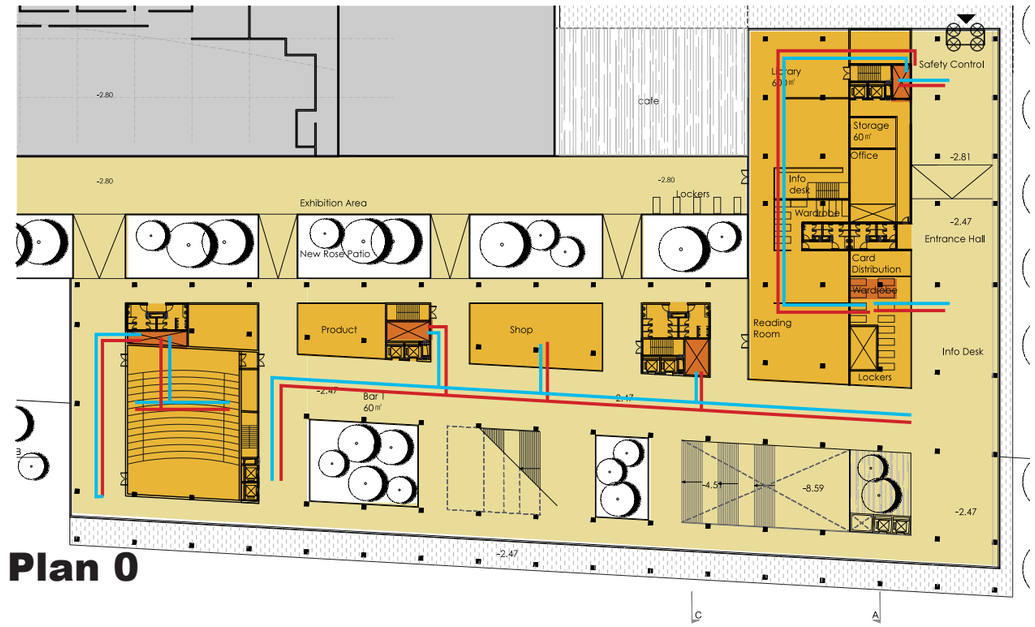
1.70
Auditorium5
Auditorium6
Auditorium4
Auditorium3
B
B1
3.65
Conference Hall
1400㎡
Bar 2
60㎡
3.65
0.93
A

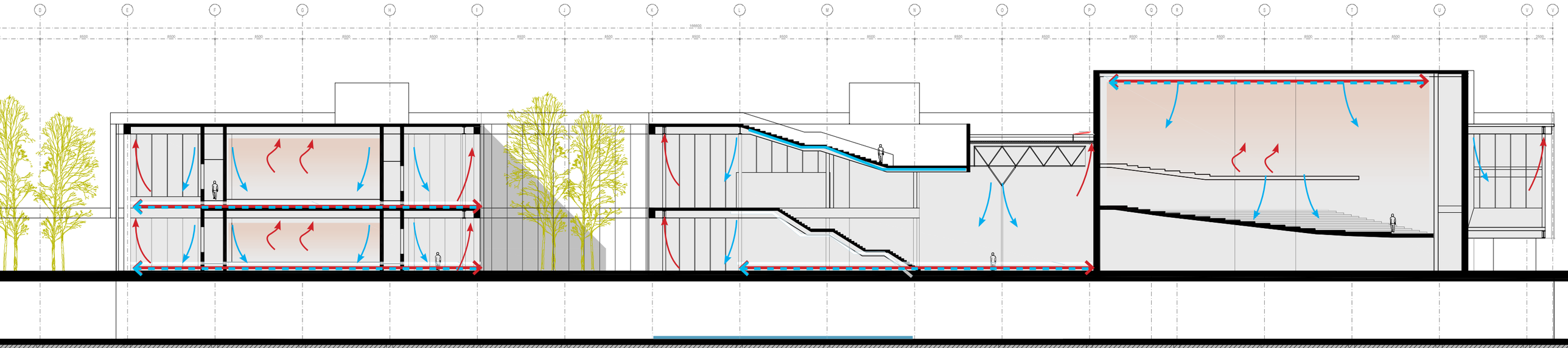
Auditorium Part

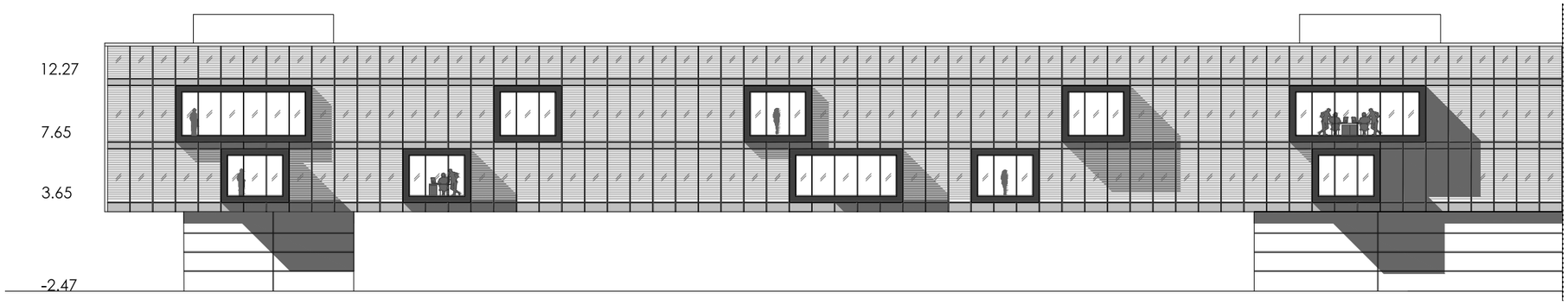
Fresh Air

Exhausted Air

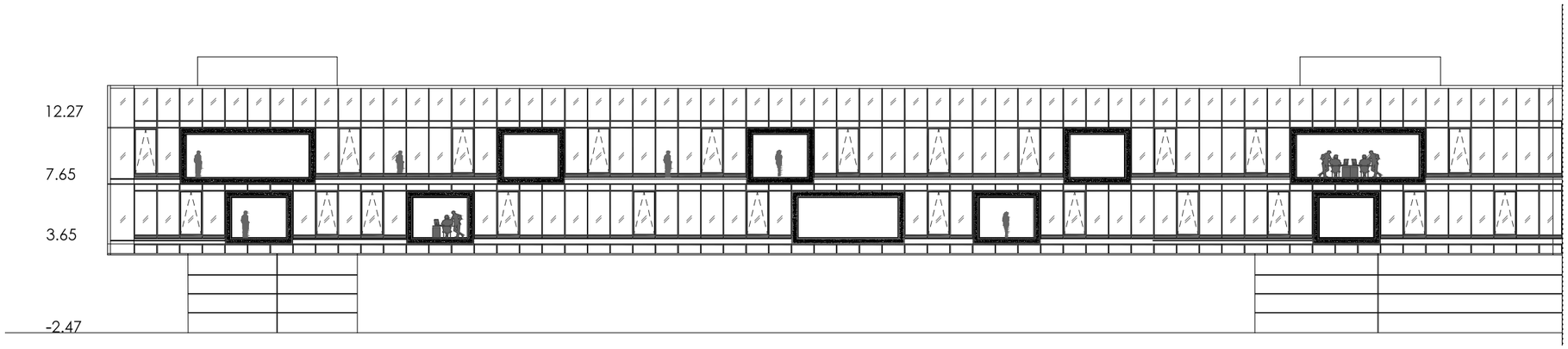


Plan 0

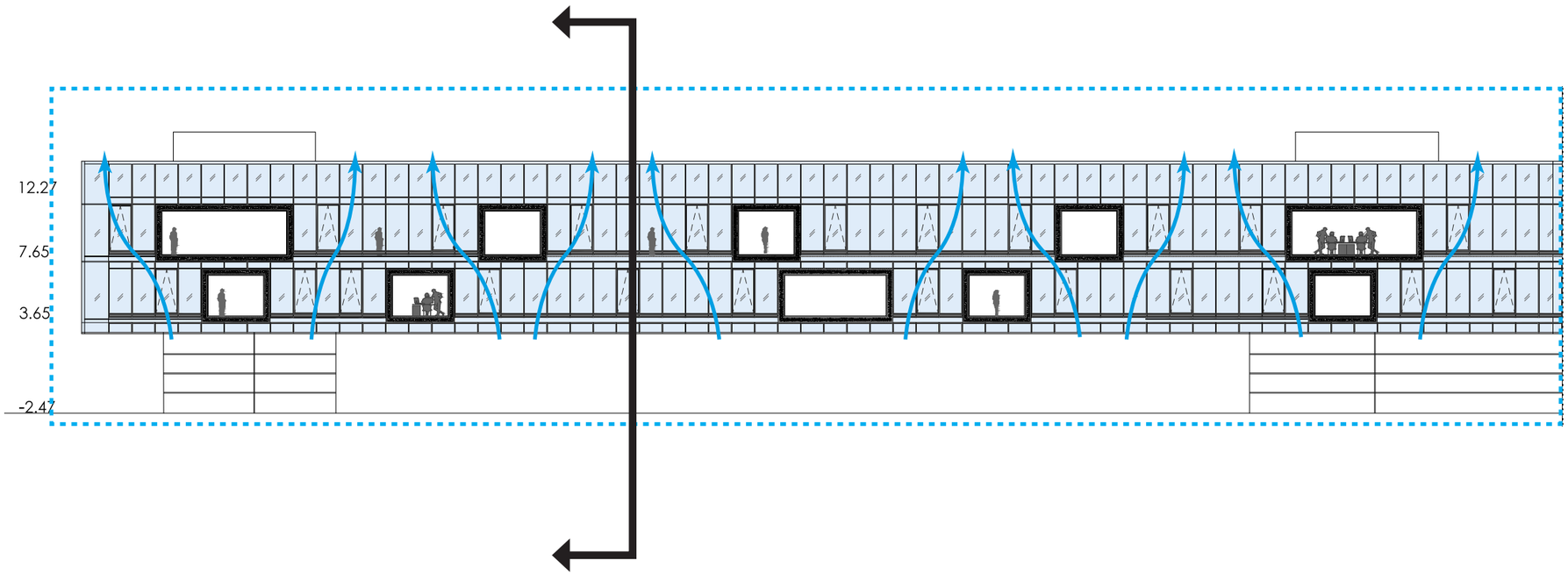




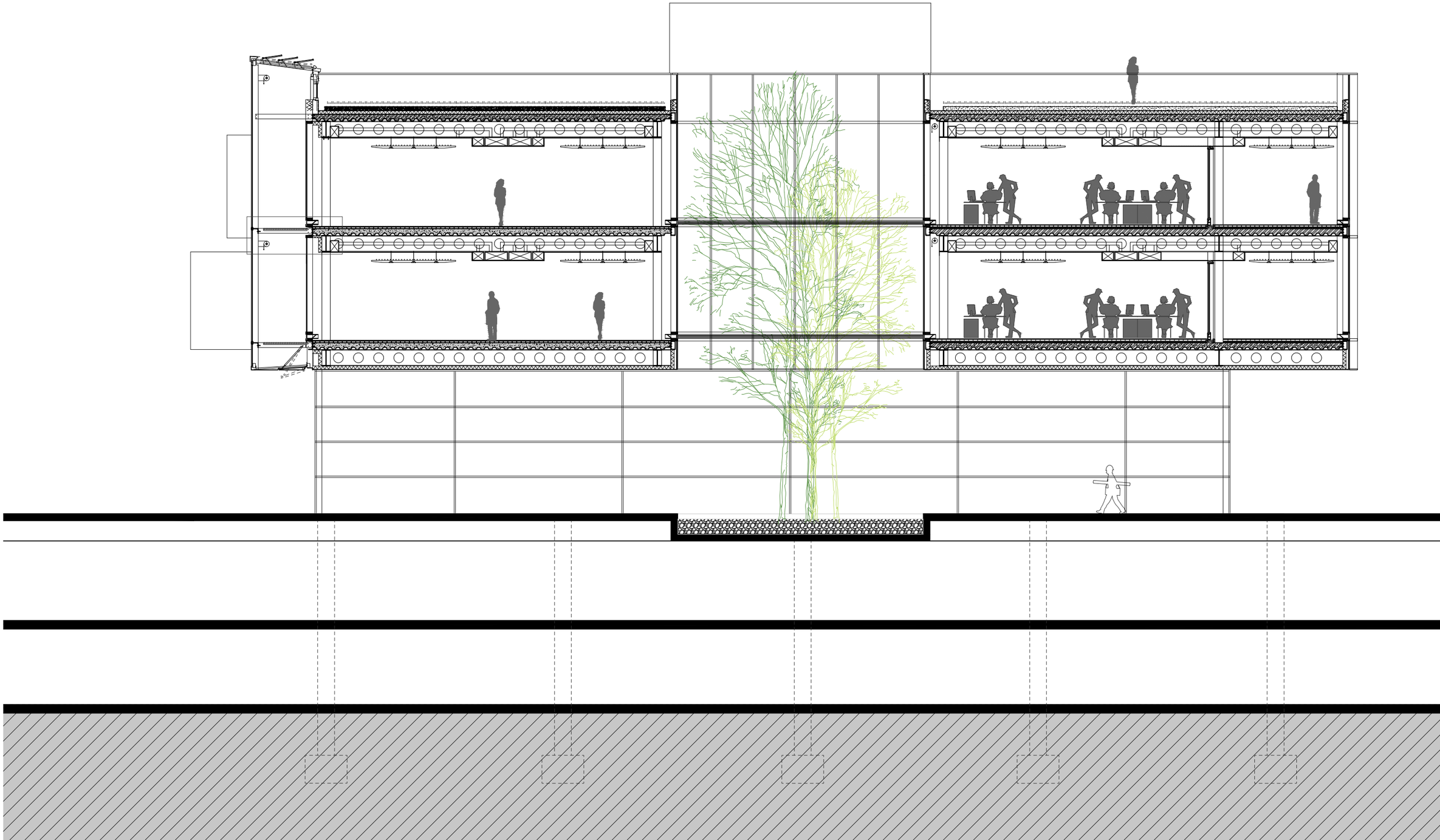
SOUTH FACADE (OUTER FACADE)
scale 1: 350



SOUTH FACADE (INNER FACADE)
scale 1: 350



Air flow inside the in-between space on south facade



Summer Situation

Cool Air

Fresh Air

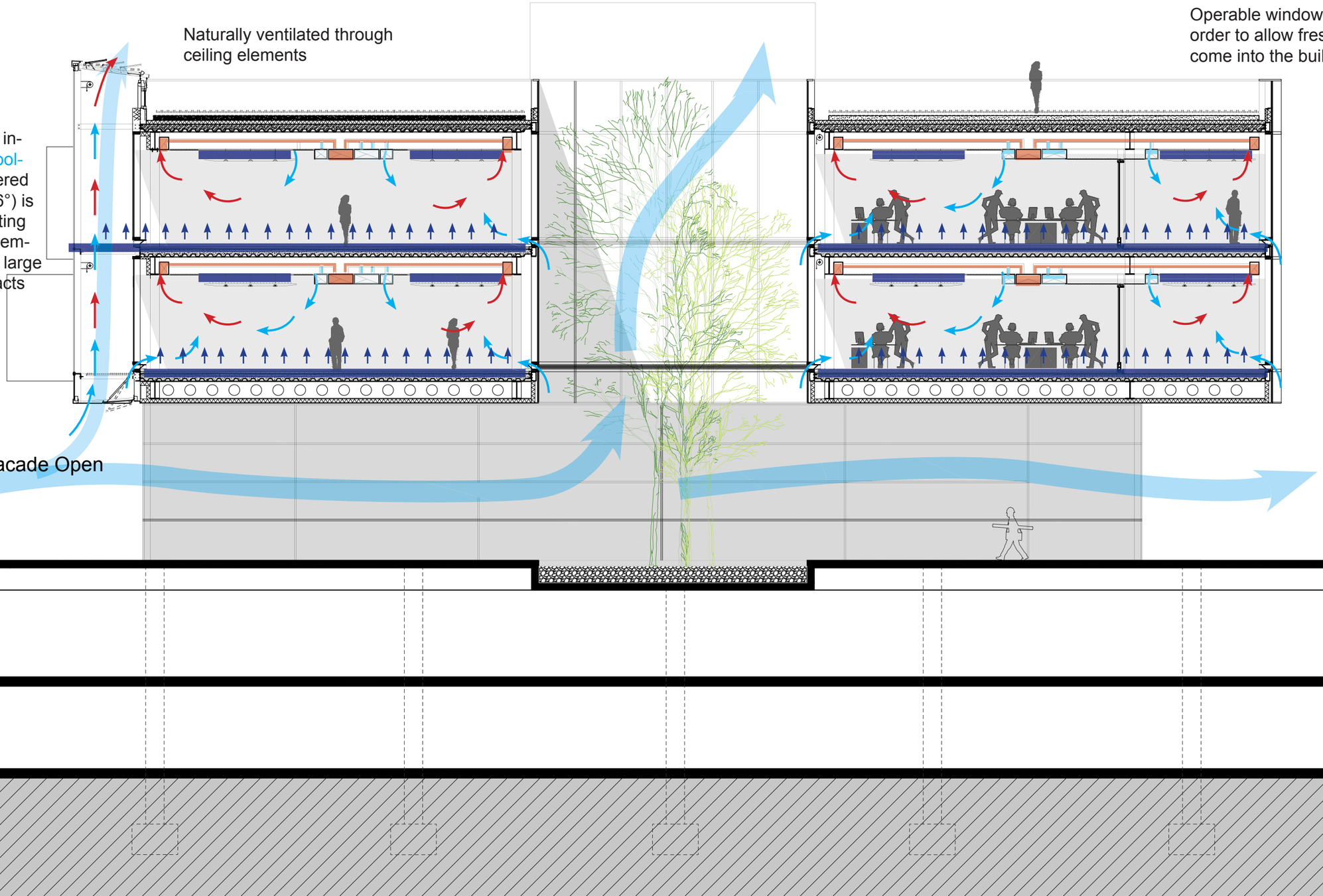
Exhausted Air

Naturally ventilated through ceiling elements

Operable windows in order to allow fresh air to come into the building

Concrete Core Activation

Hollow slab floor system with integrated hydronic pipes for cooling of the floor mass. A tempered water-glycol solution (16° - 26°) is circulating in the pipes, adjusting according to the need of the temperature of the concrete. The large surface area of the floor detracts warmth out of the room air.



Double glazed facade Open

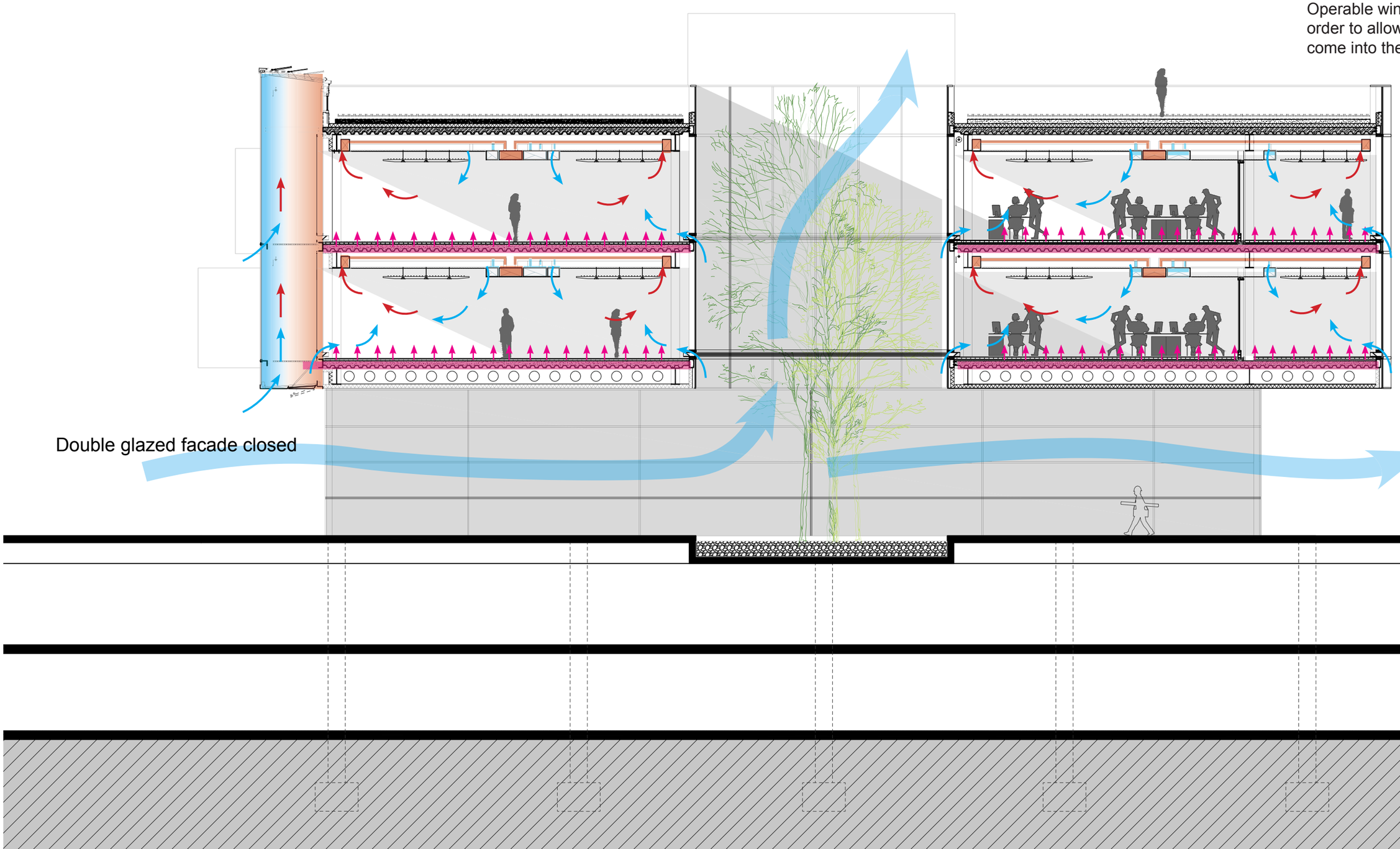
Winter Situation

Heated Air

Fresh Air

Exhausted Air

Operable windows in order to allow fresh air to come into the building



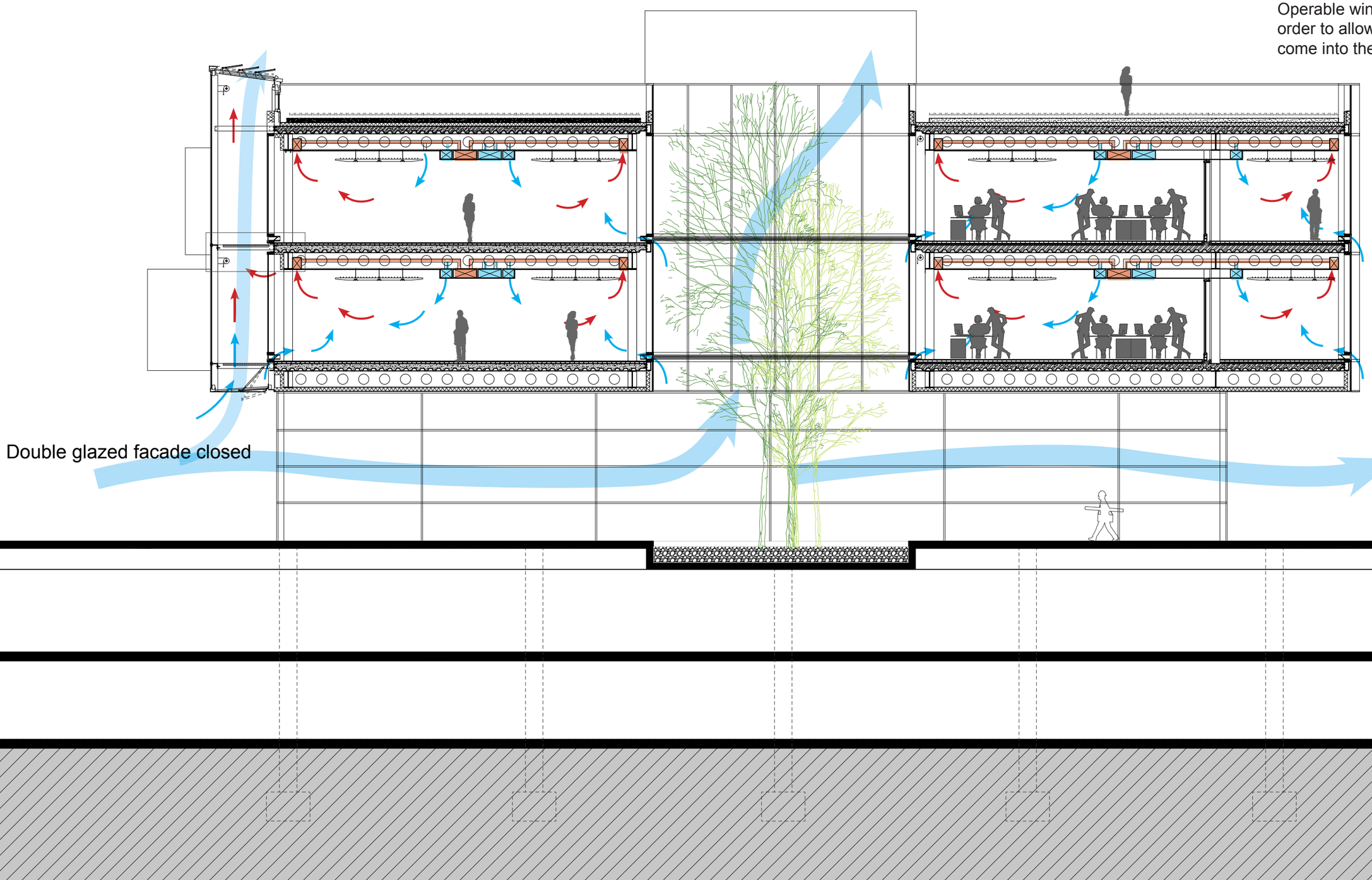
Double glazed facade closed

Spring/ Fall Situation

Fresh Air

Exhausted Air

Operable windows in order to allow fresh air to come into the building

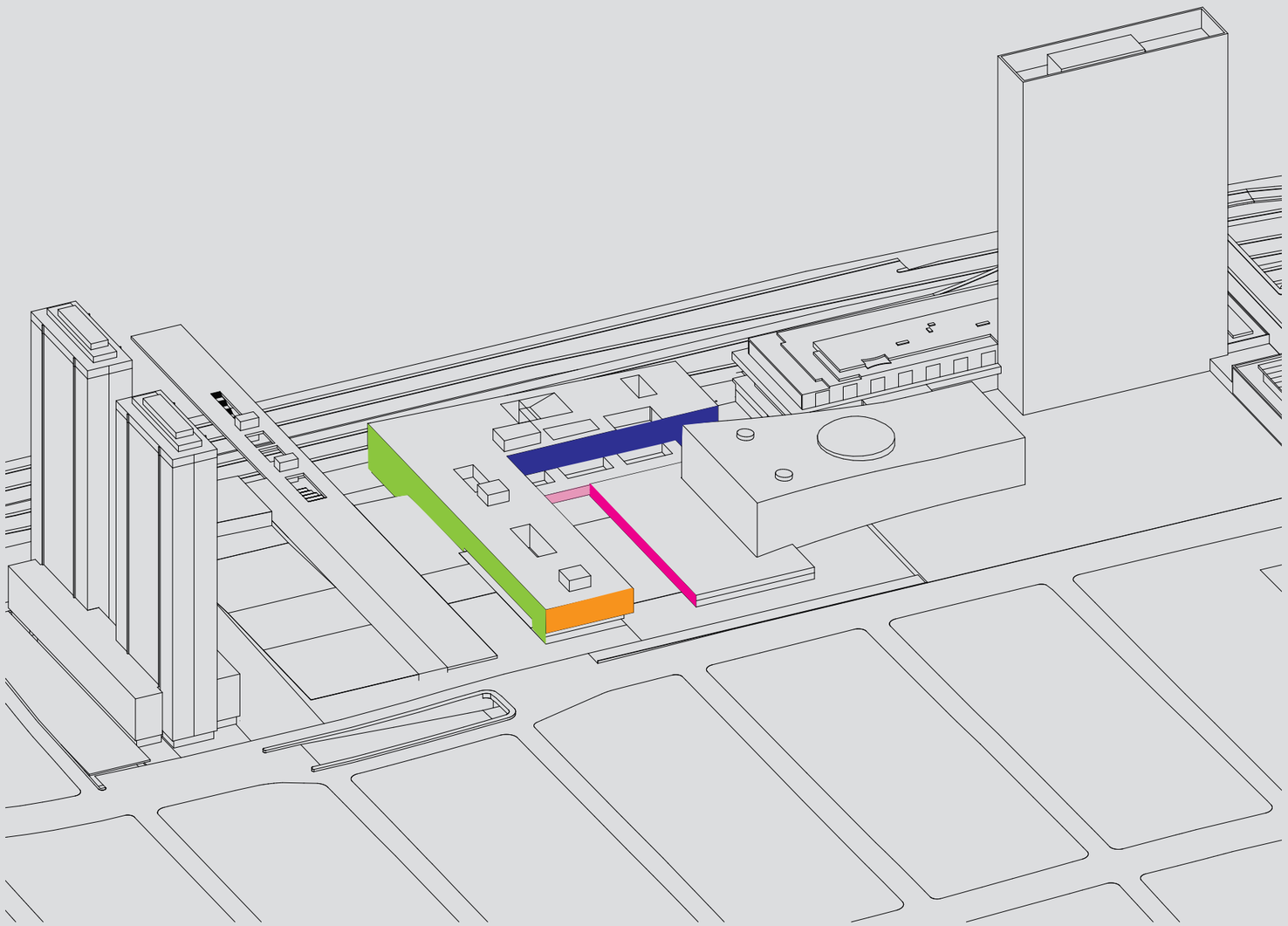


Double glazed facade closed

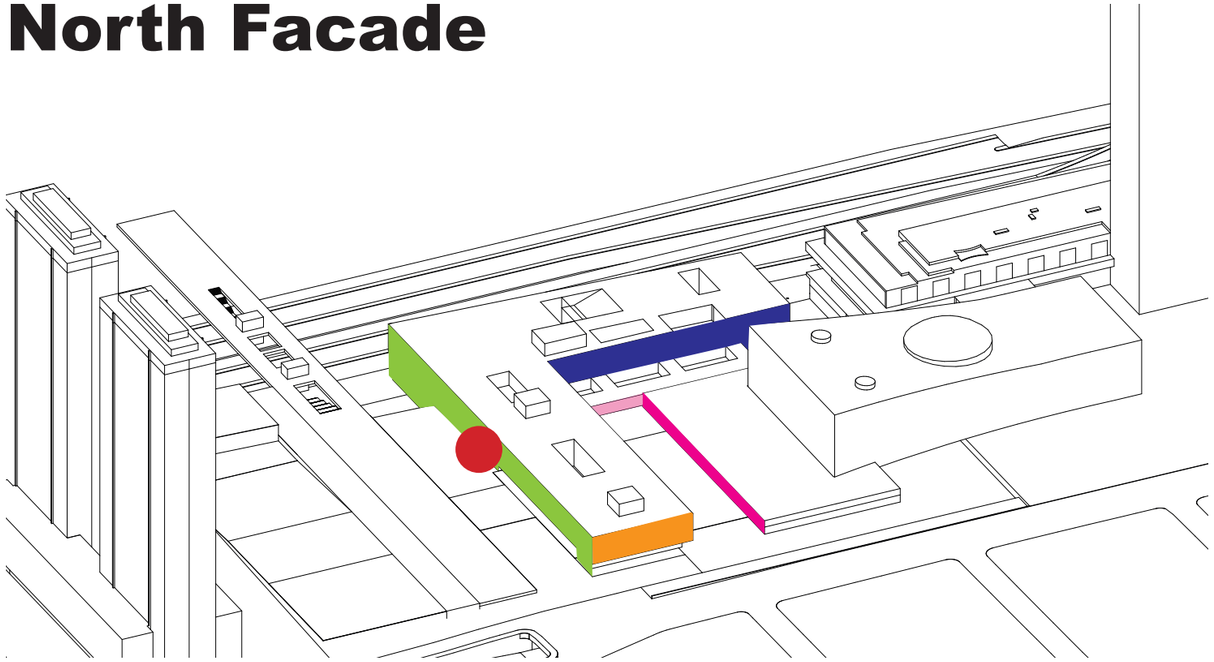
1 North Facade

2 East Facade

3 South Facade



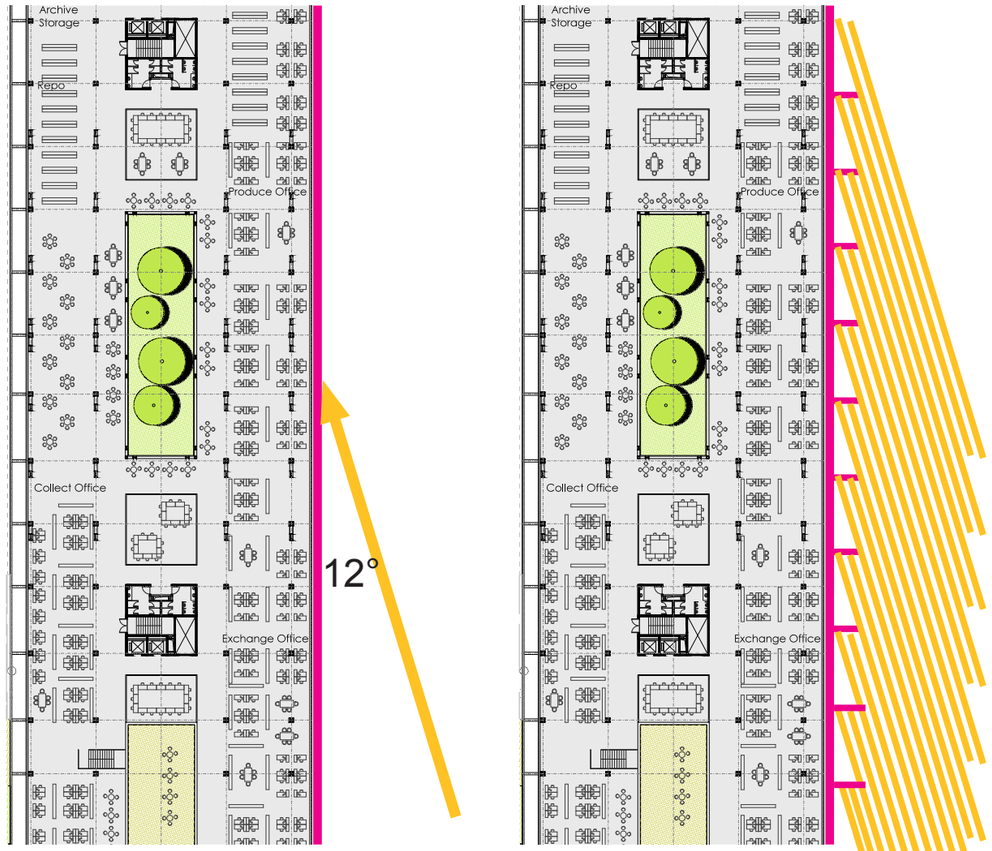
North Facade



Shading Principle

Shading

Summer
8 am



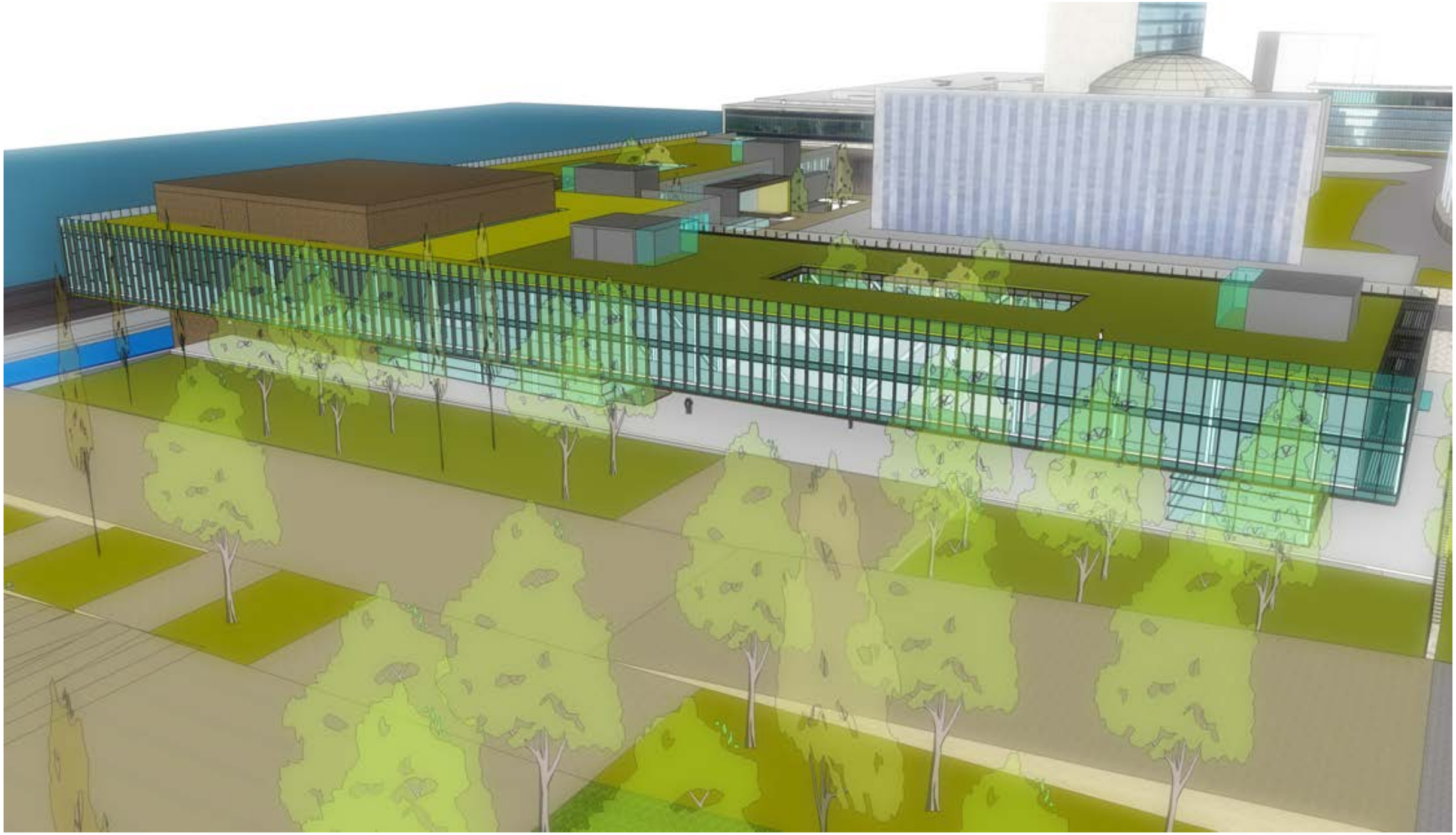
INPUTS

fin depth	425	latitude	40 ° North
fin thickness	50	show values	Shading %
fin spacing	2000	orientation	NORTHEAST
fin tilt	0 degrees		

calculate

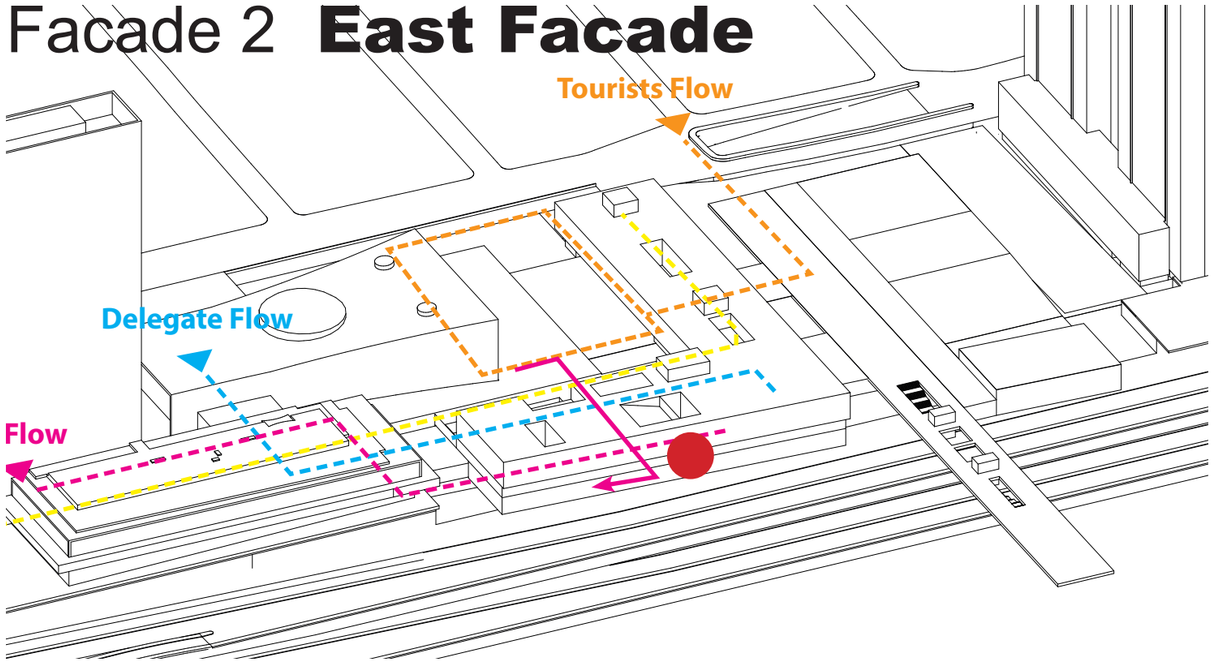
	MORNING									AFTERNOON								
	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	
Jan					100%													Jan
Feb				47%	80%	100%												Feb
Mar				35%	53%	100%												Mar
Apr			19%	25%	36%	60%	100%											Apr
May		11%	15%	20%	27%	40%	85%											May
Jun		9%	13%	18%	23%	33%	59%											Jun
Jul		10%	14%	18%	25%	35%	68%											Jul
Aug			17%	23%	31%	49%	100%											Aug
Sep			22%	30%	44%	83%												Sep
Oct				41%	67%	100%												Oct
Nov					100%													Nov
Dec					100%													Dec
	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	
	MORNING									AFTERNOON								

North Facade



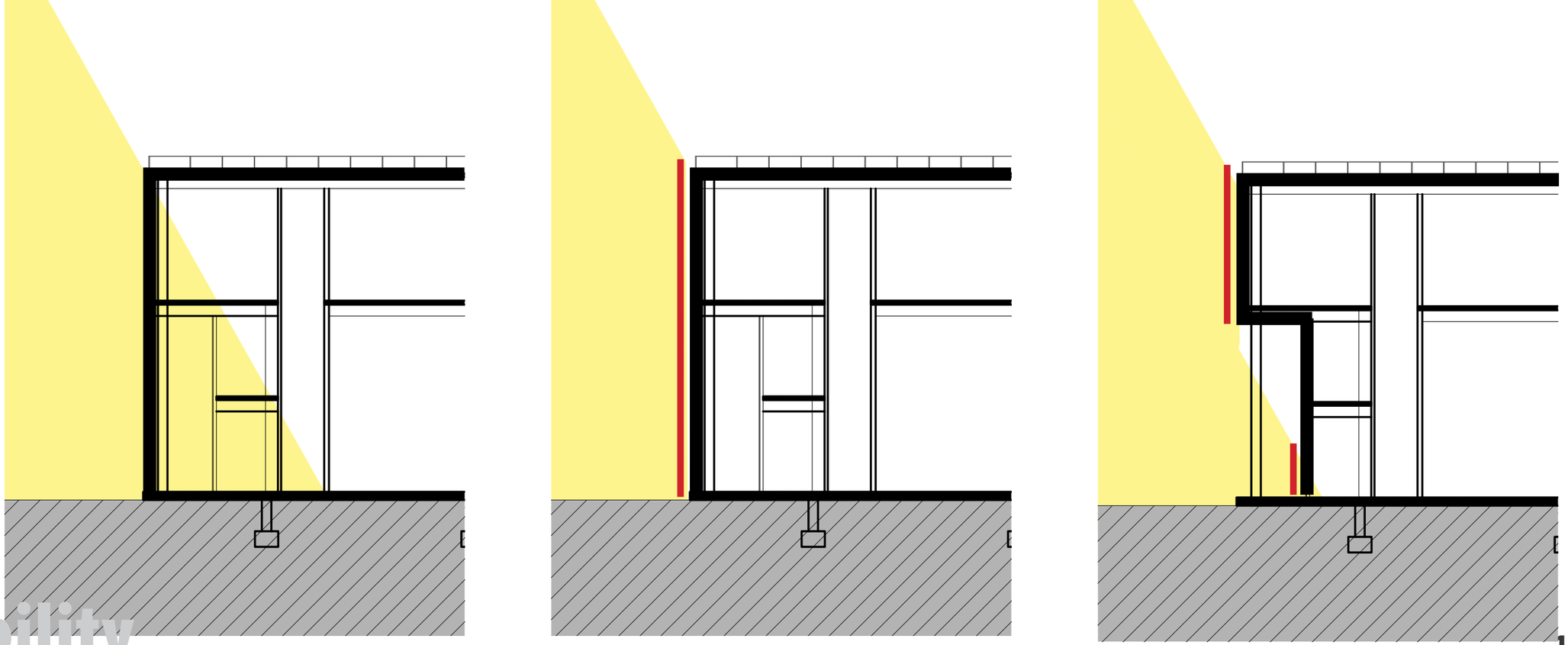
Sustainability

Facade 2 **East Facade**

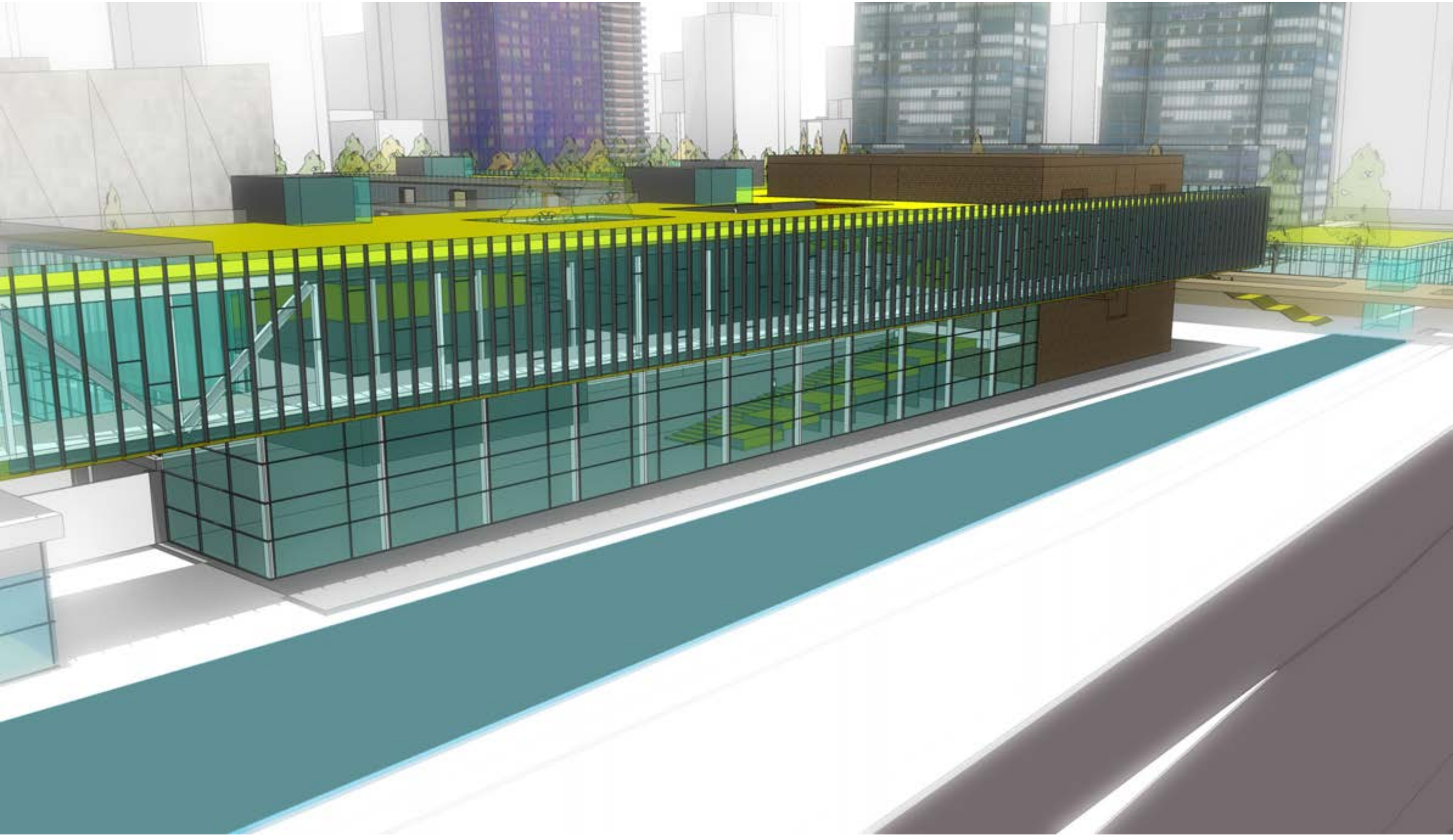


Shading

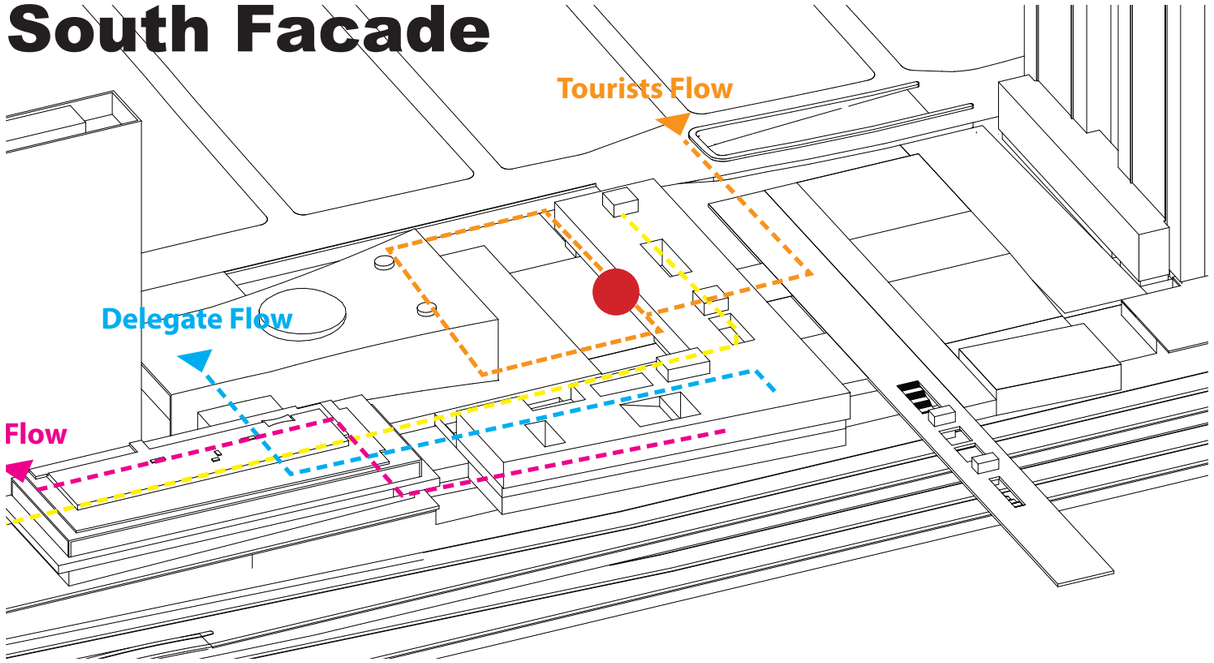
Summer
Sun Angle=72°

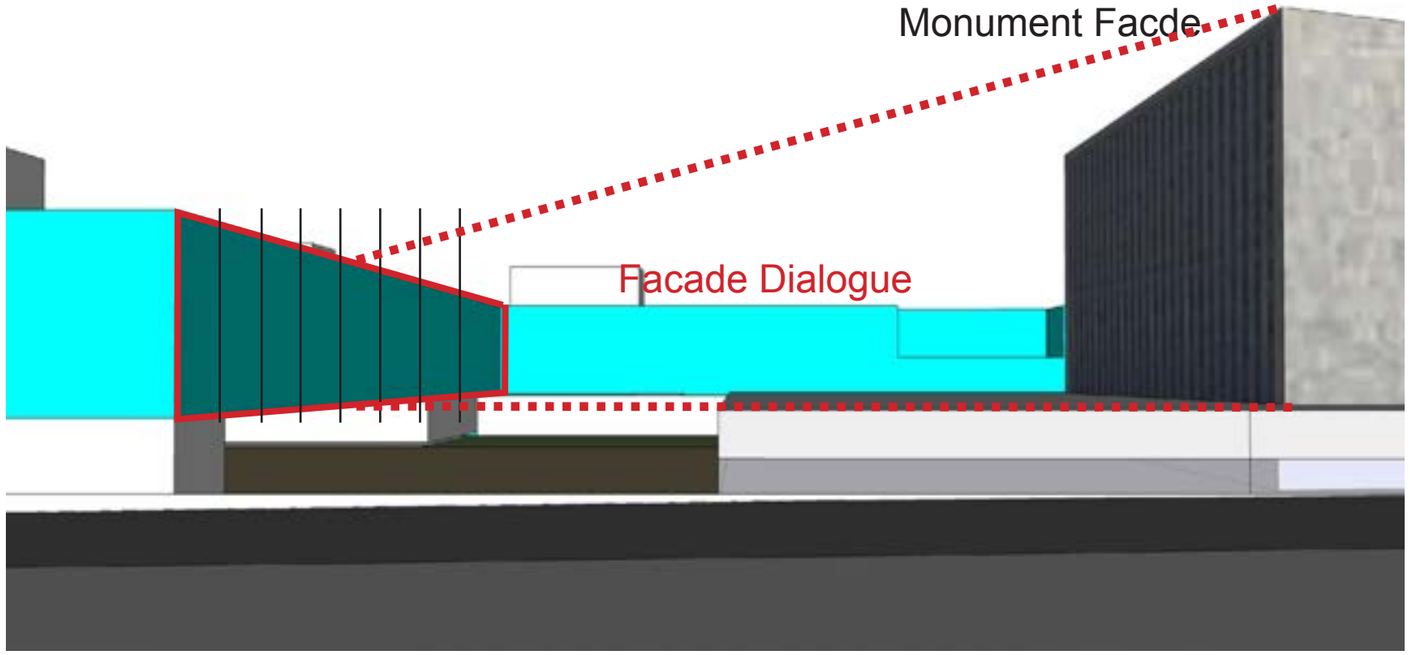


East Facde

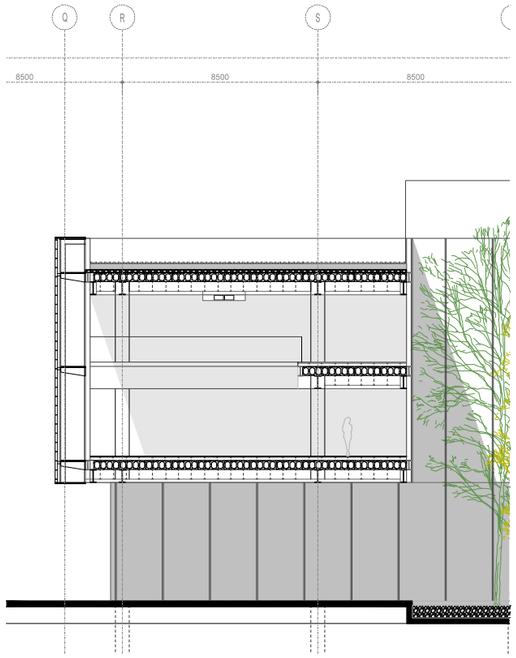


South Facade

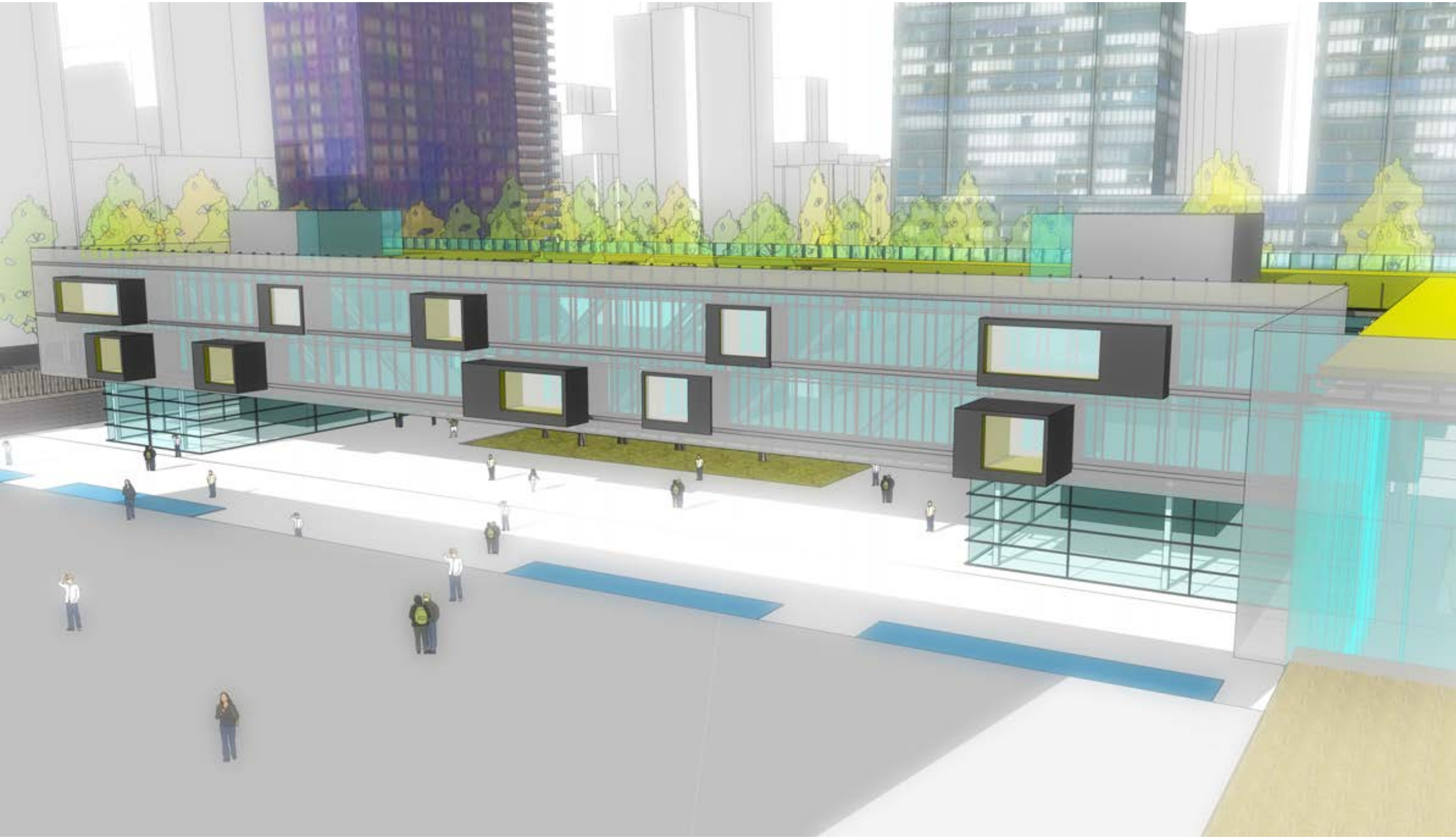




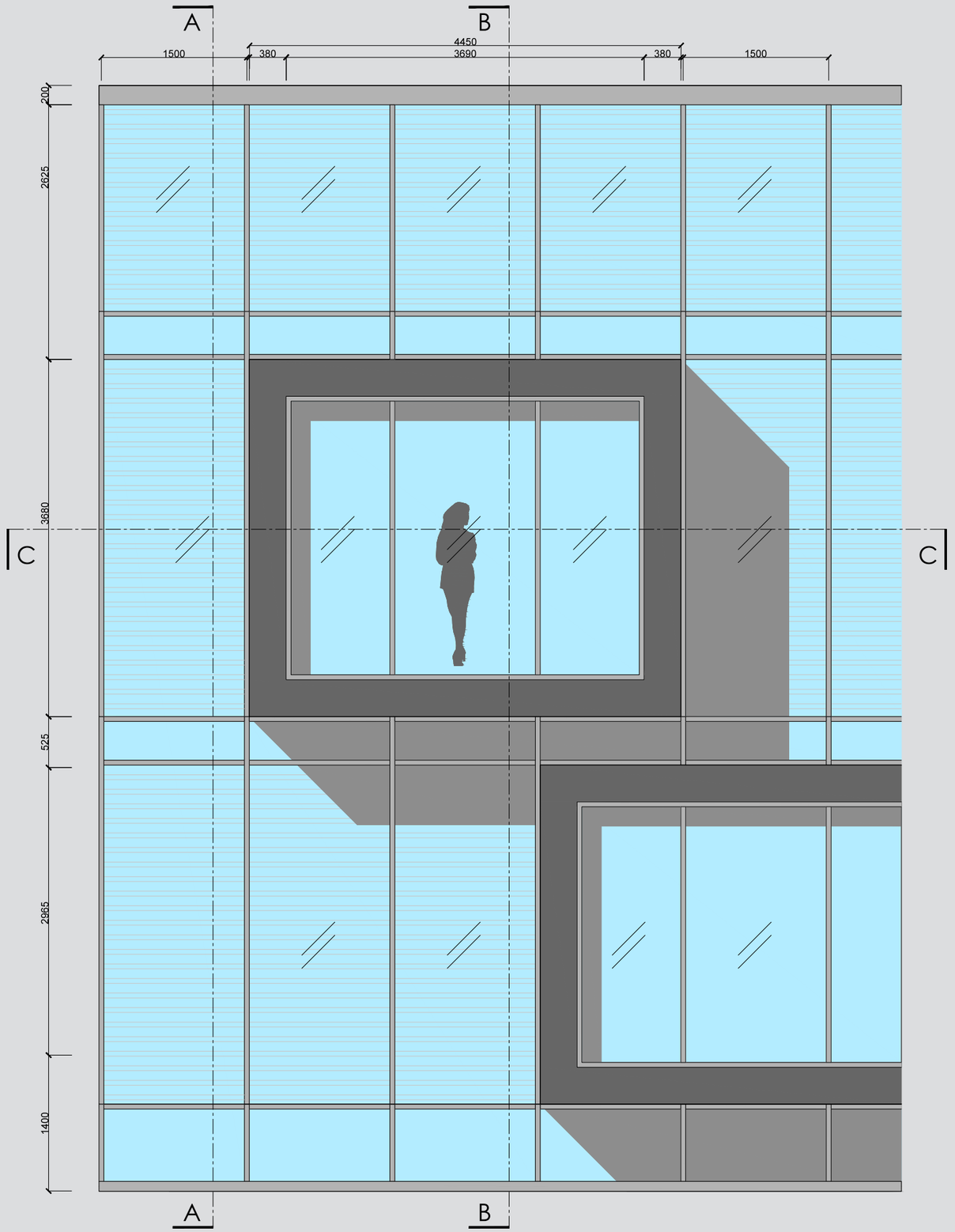
Shading Principle

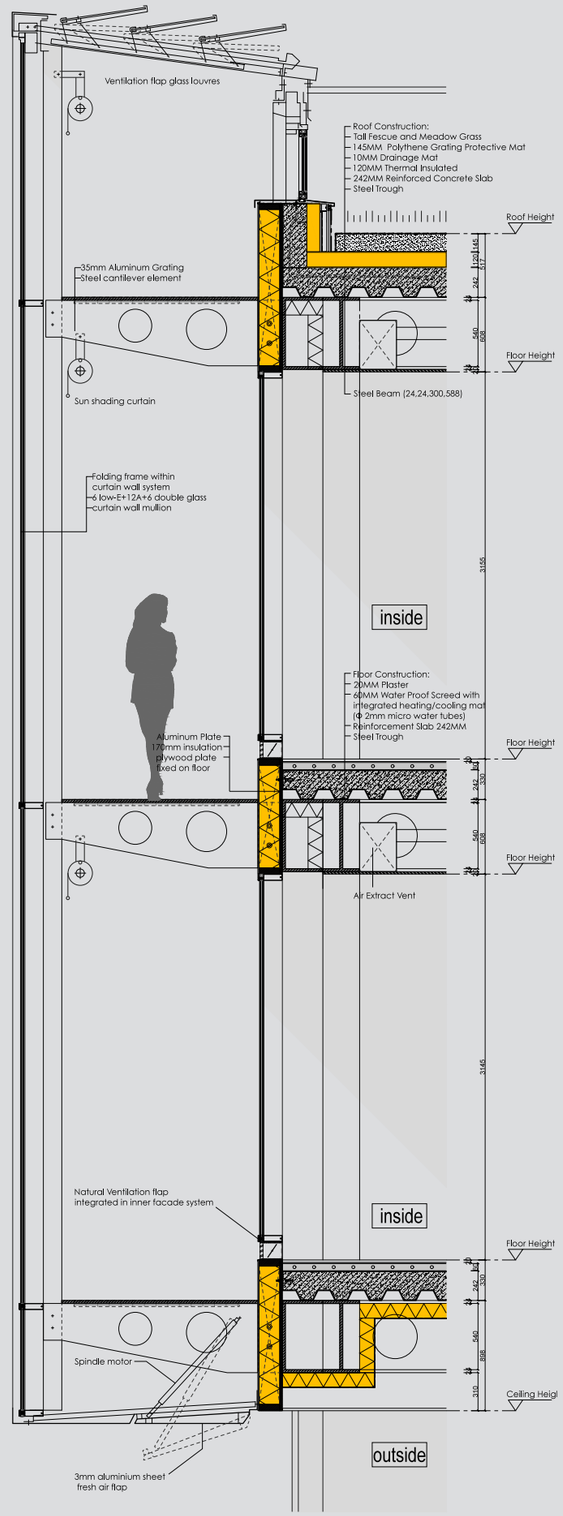


South Facde

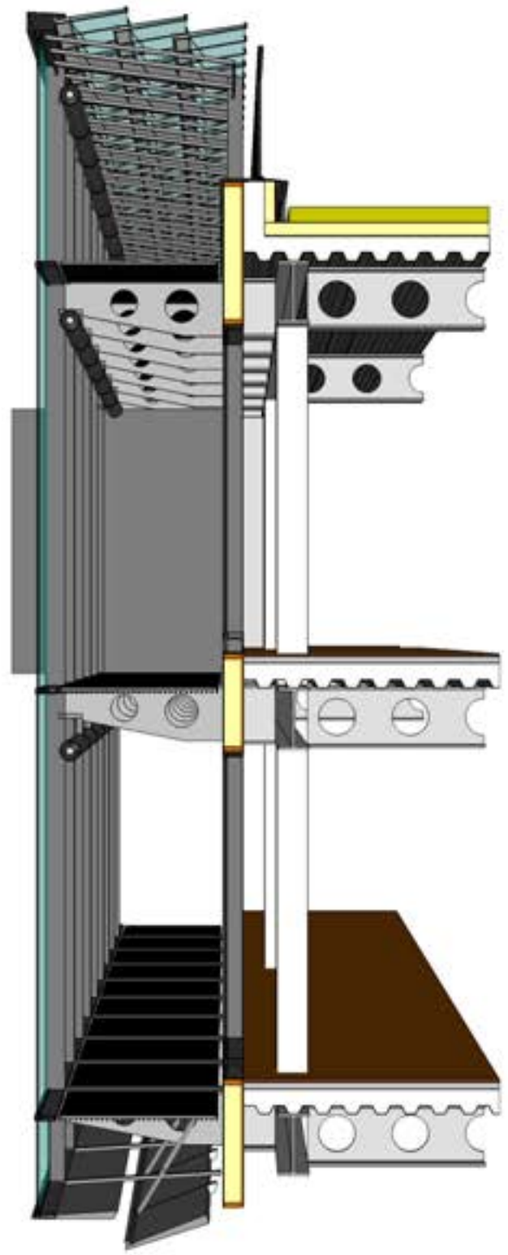


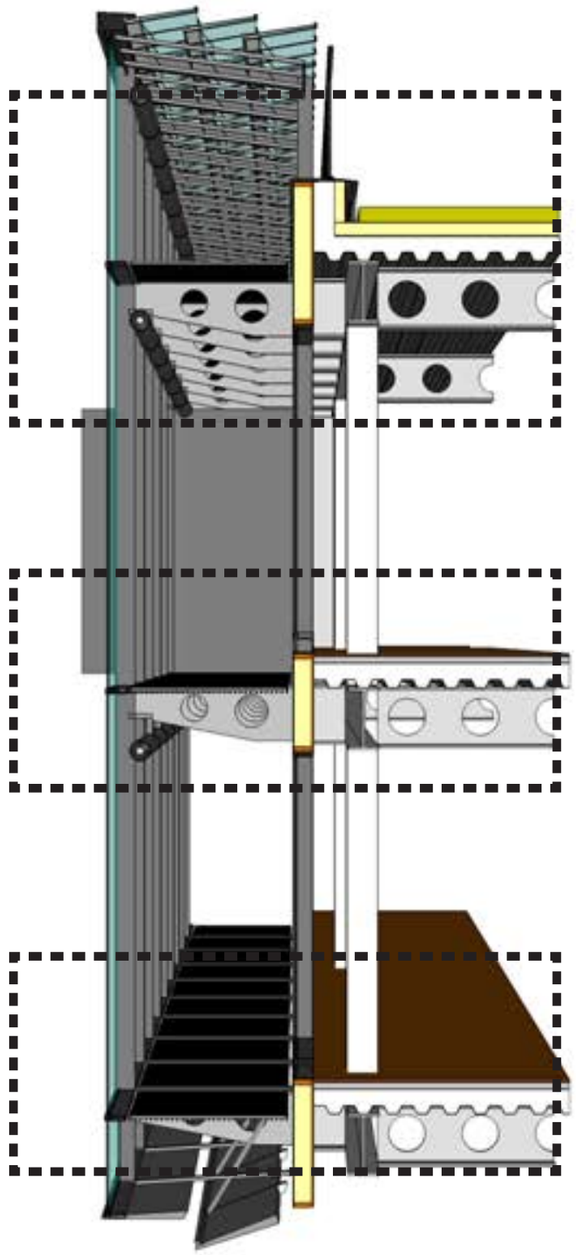
6. Details



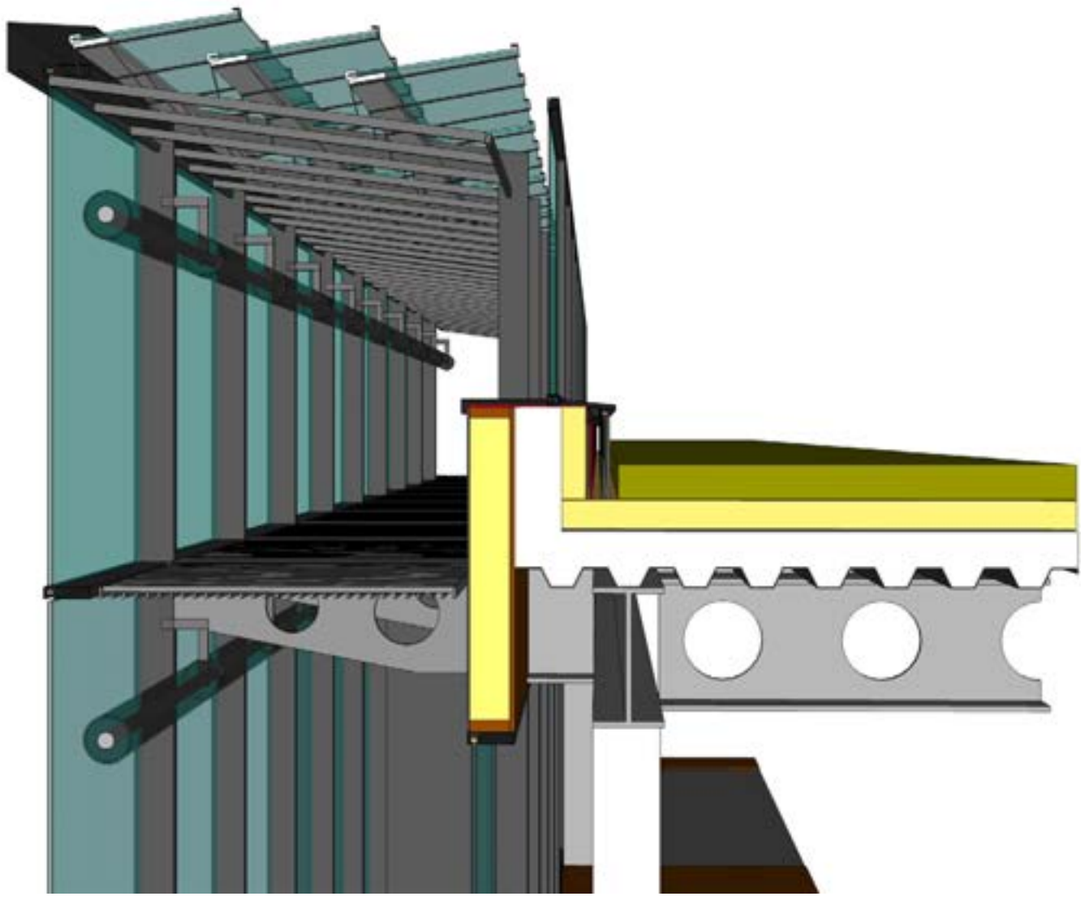


Sustainability

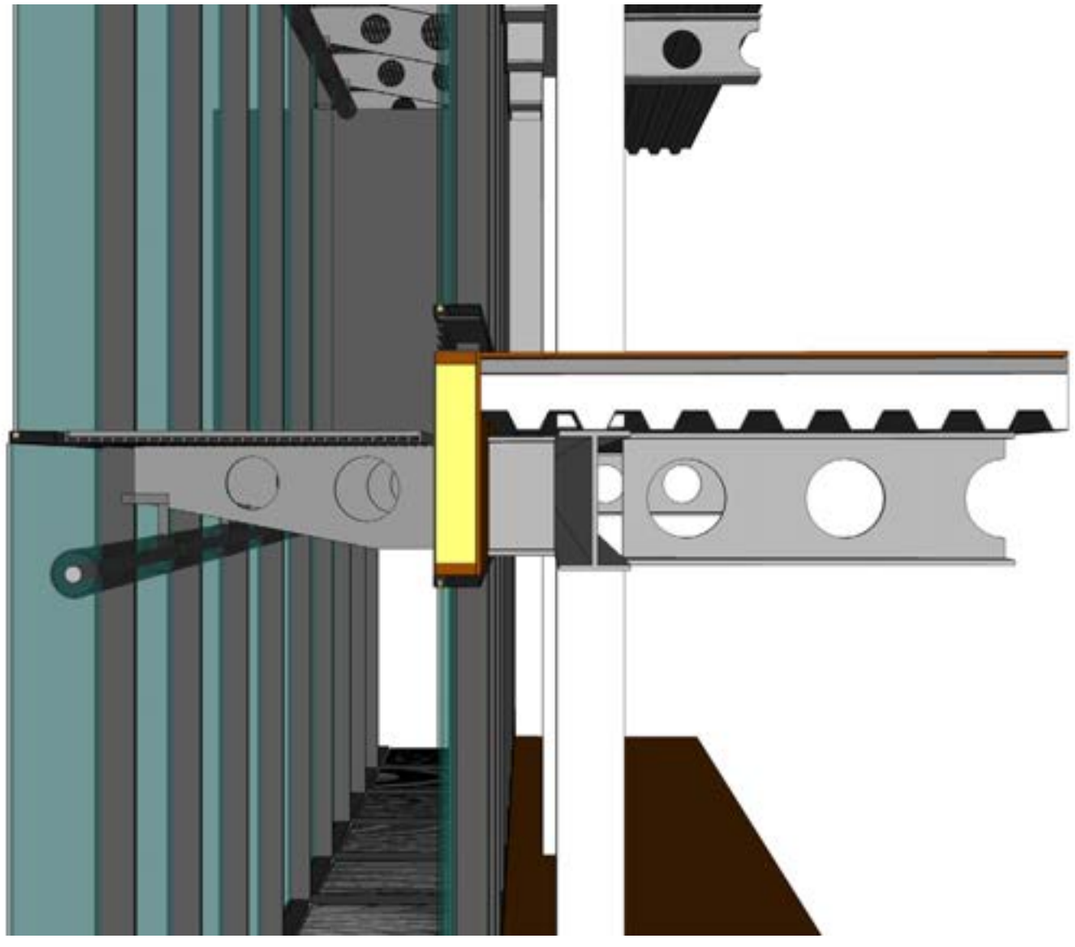




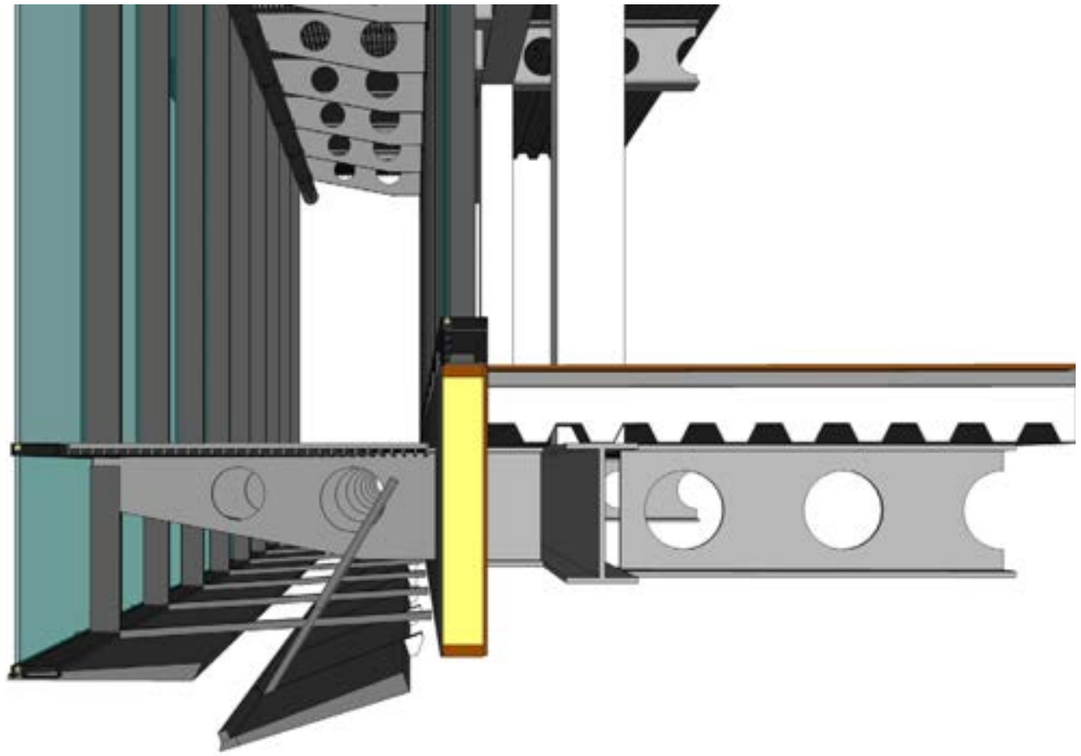
Facade Fragment- Top

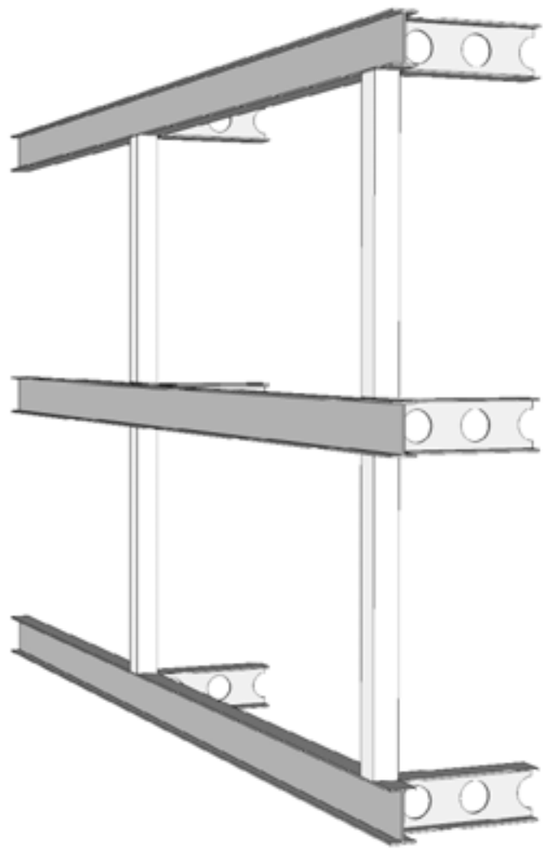


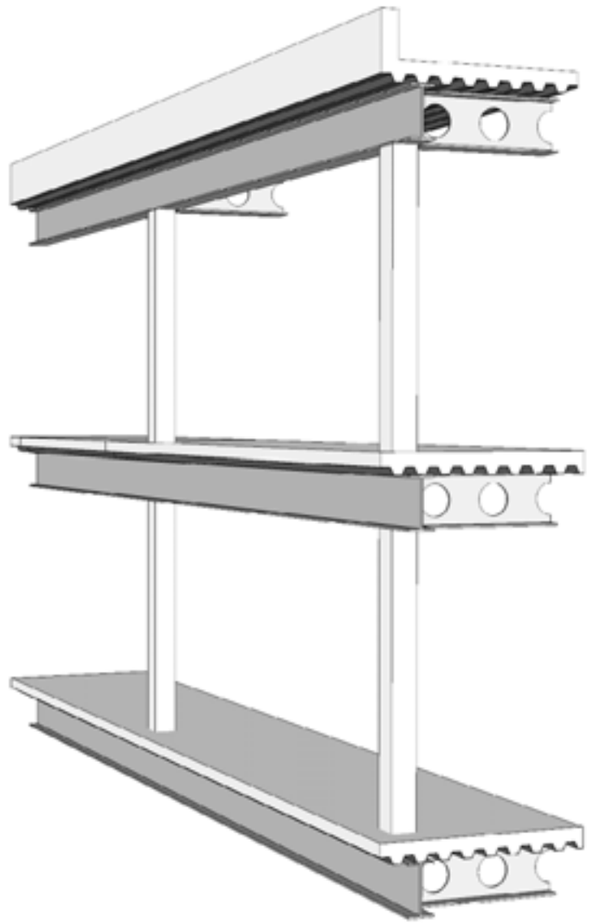
Facade Fragment- Middle

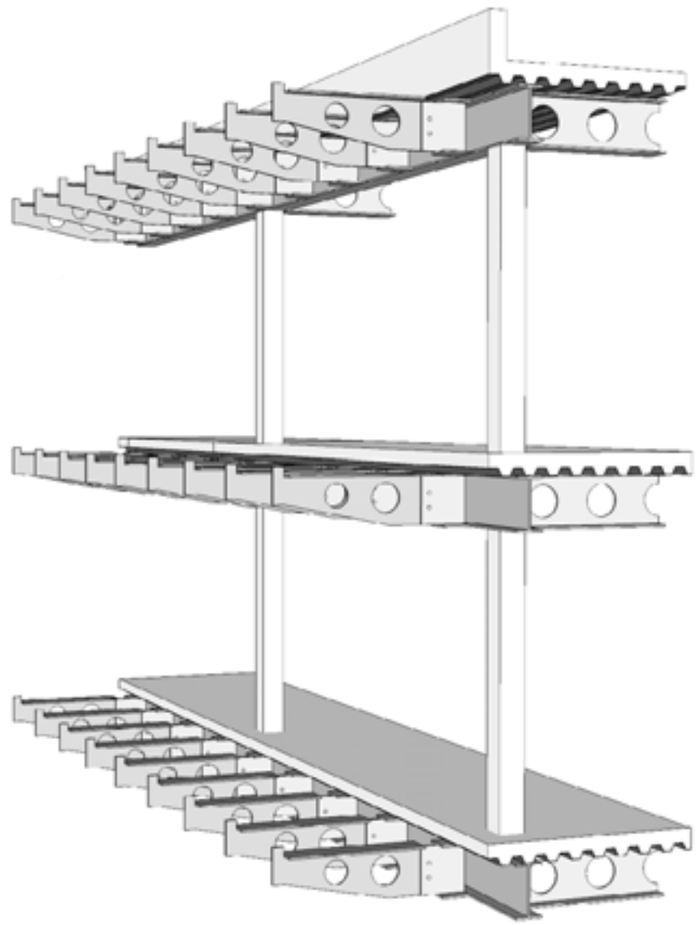


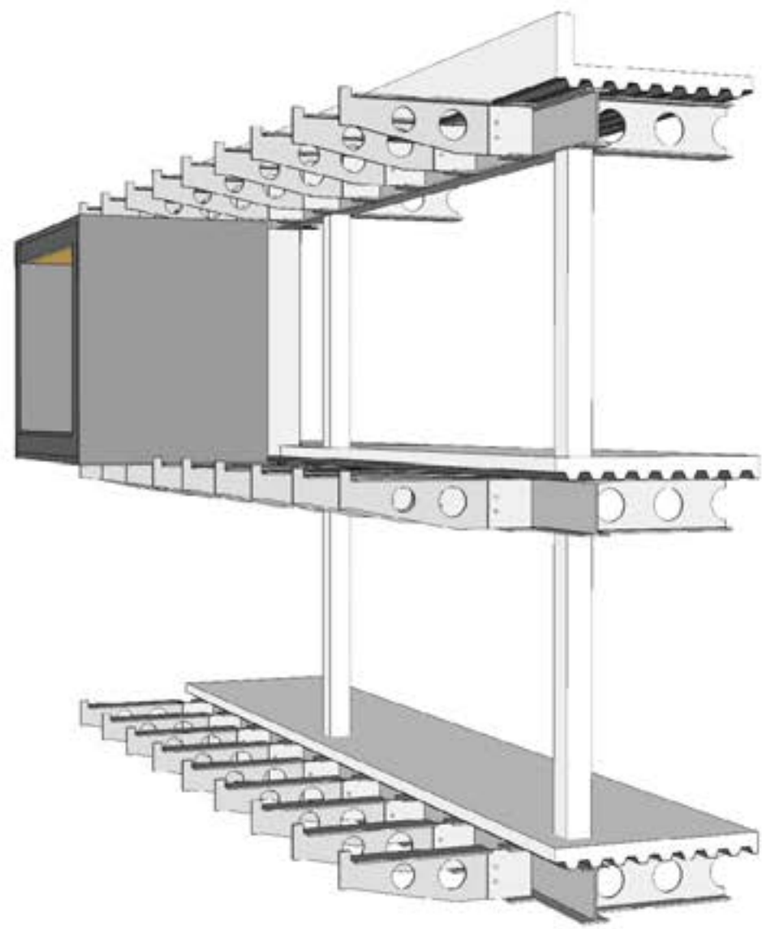
Facade Fragment- Bottom



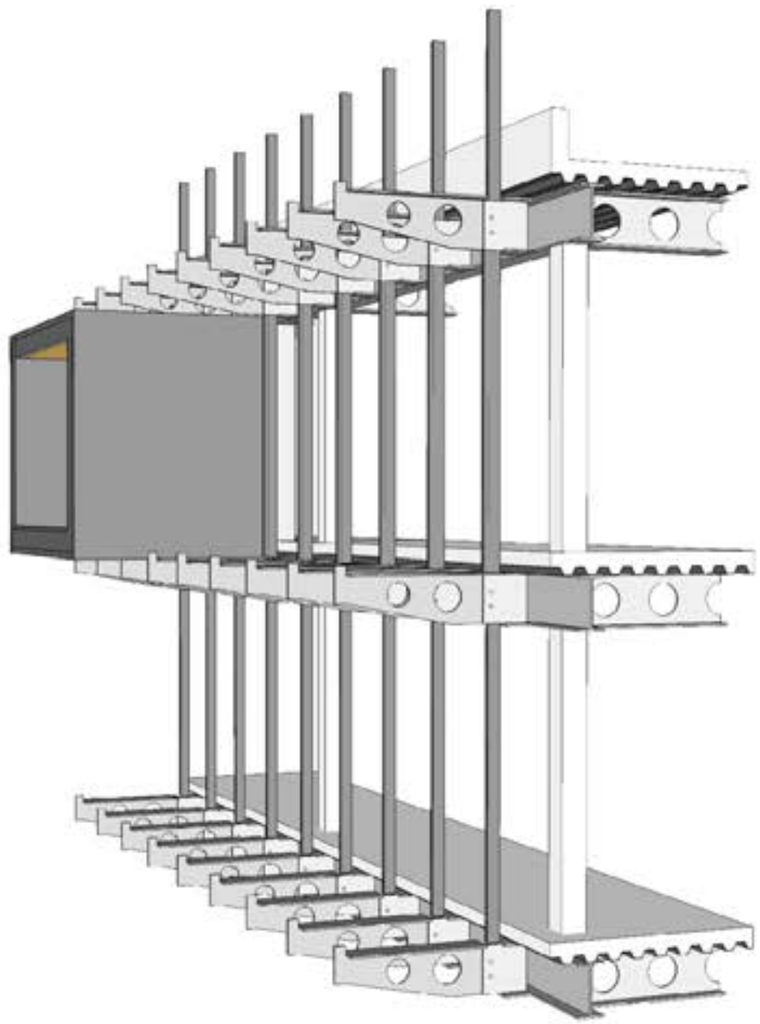


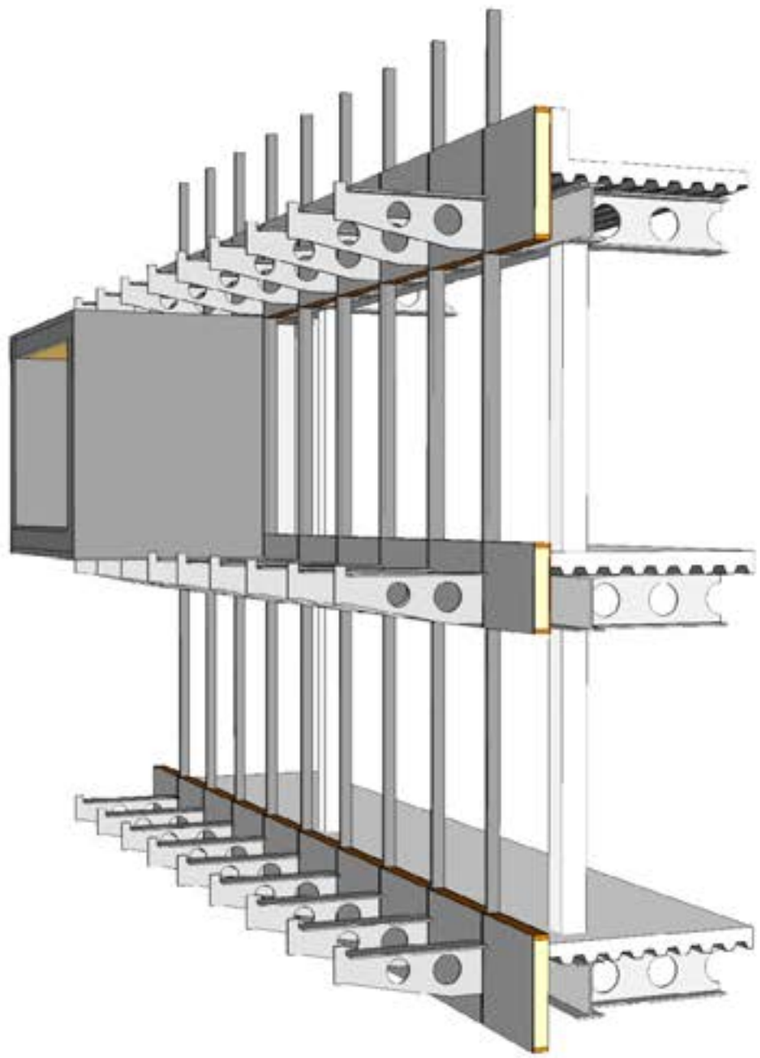




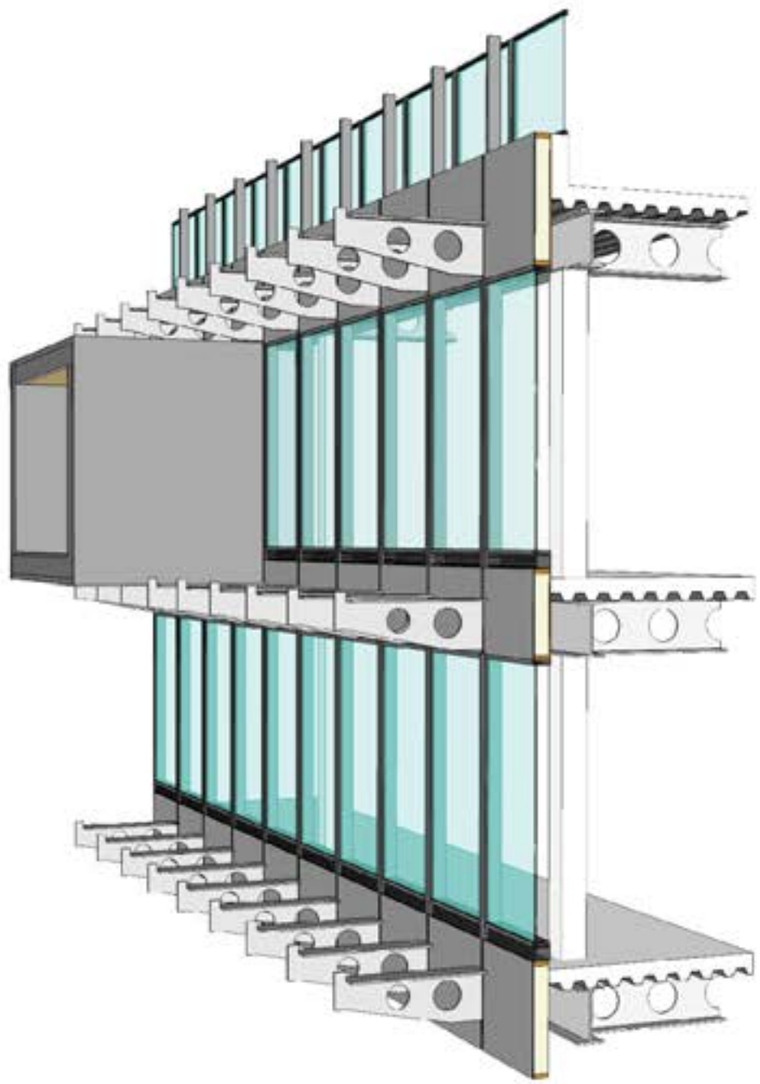


Facade Fragment- Construction Steps





Facade Fragment- Construction Steps



Facade Fragment- Construction Steps

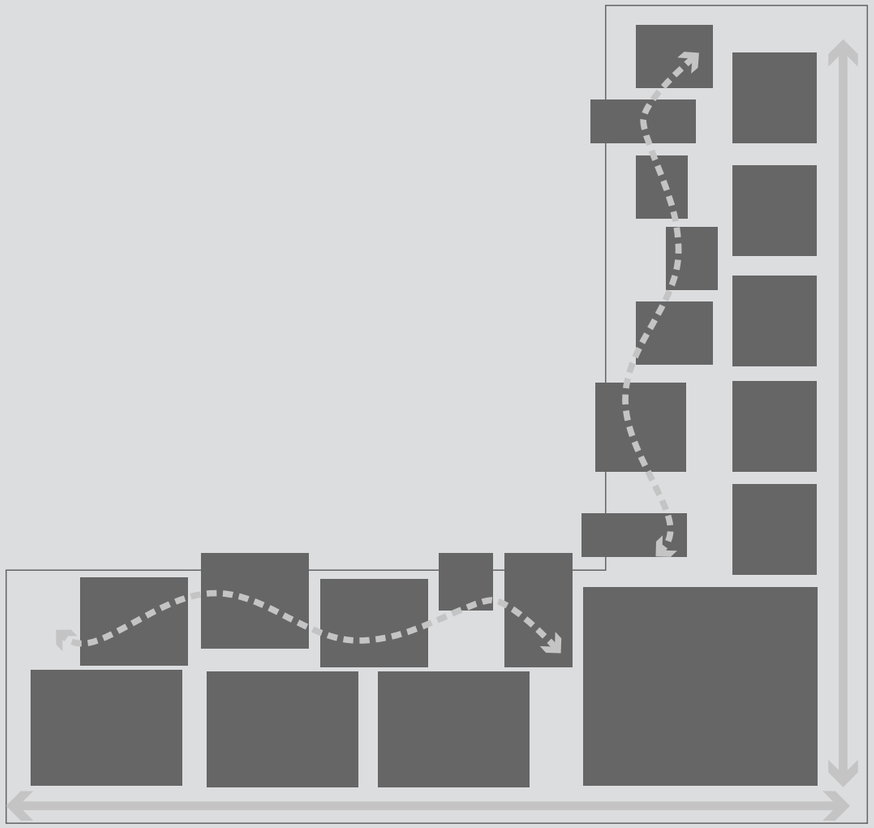
Facade Fragment- Construction Steps

Facade Fragment- Construction Steps

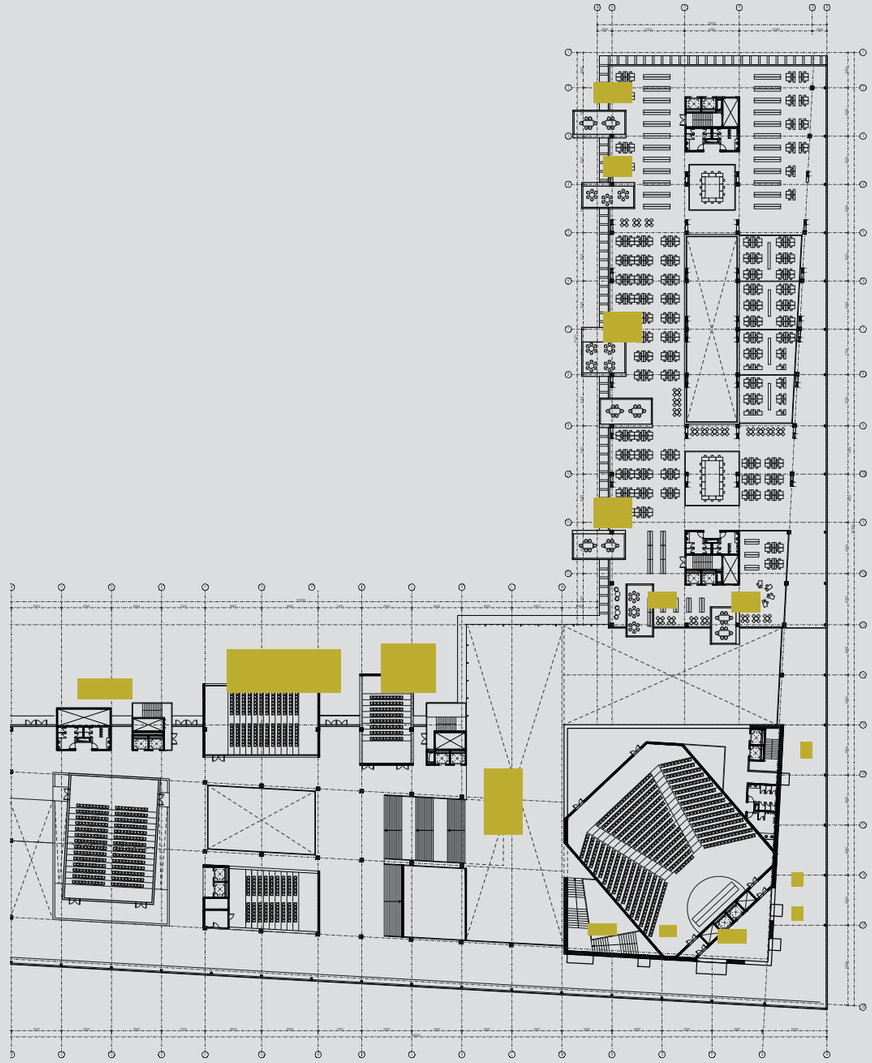
Facade Fragment- Construction Steps

Facade Fragment- Construction Steps

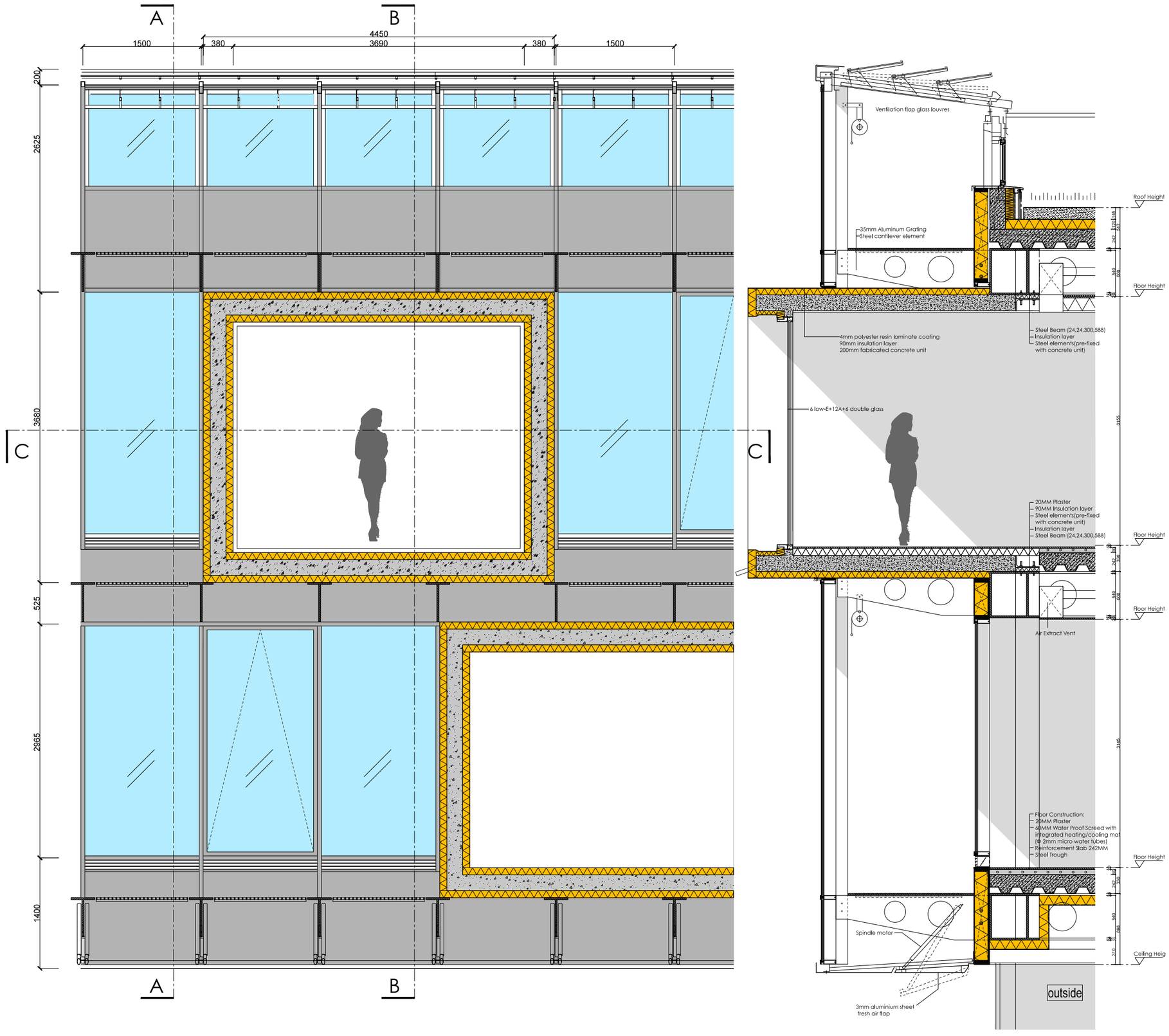
Hanging Box



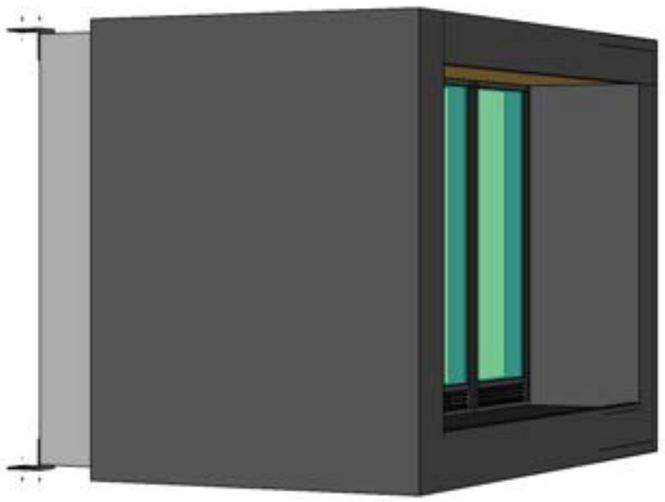
Transition in programs block

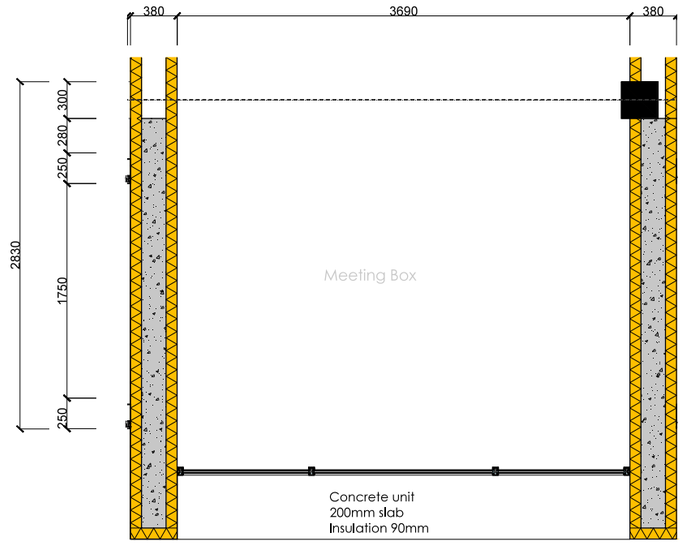


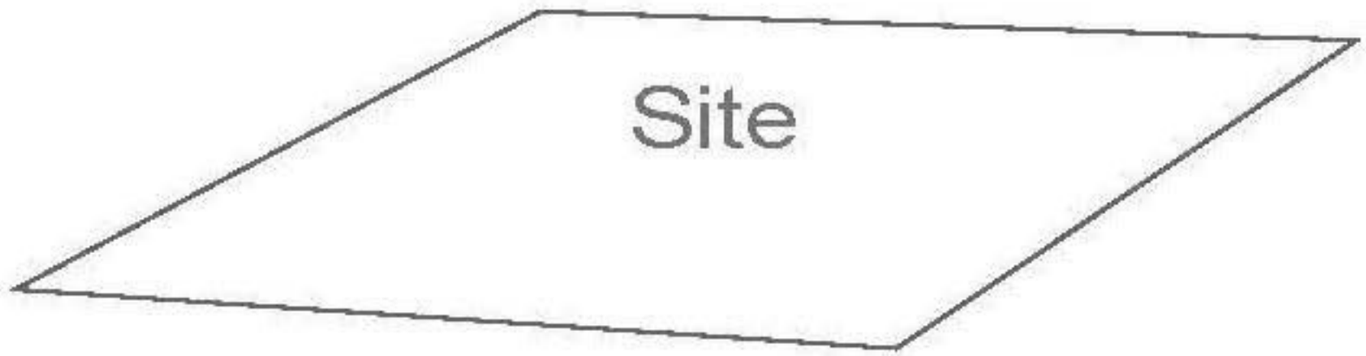
Hanging box as the key components in UNEC


A
B
4450
1500
380
3690
380
1500
200
2625
3680
C
525
2965
1400
A
B
Ventilation flap glass louvres
35mm Aluminum Grating
Steel cantilever element
Roof Height
Floor Height
4mm polyester resin laminate coating
90mm insulation layer
200mm fabricated concrete unit
Steel Beam (24,24,300,588)
Insulation layer
Steel elements(pre-fixed
with concrete unit)
6 low-E+12A+6 double glass
C
20MM Plaster
90MM Insulation layer
Steel elements(pre-fixed
with concrete unit)
Insulation layer
Steel Beam (24,24,300,588)
Floor Height
Floor Height
Air Extract Vent
Floor Construction:
20MM Plaster
60MM Water Proof Screed with
integrated heating/cooling mat
(Φ 2mm micro water tubes)
Reinforcement Slab 242MM
Steel Trough
Floor Height
Spindle motor
Ceiling Heig
outside
3mm aluminium sheet
fresh air flap

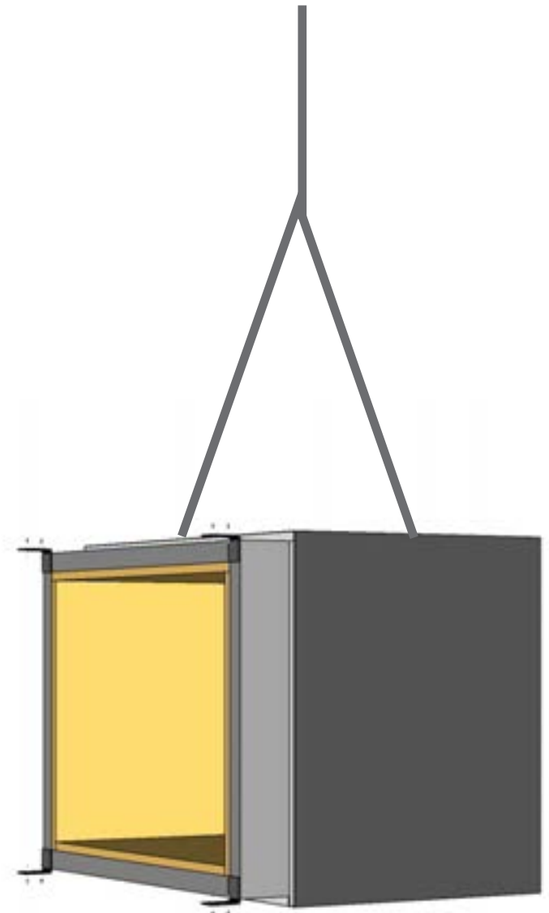
Hanging Box

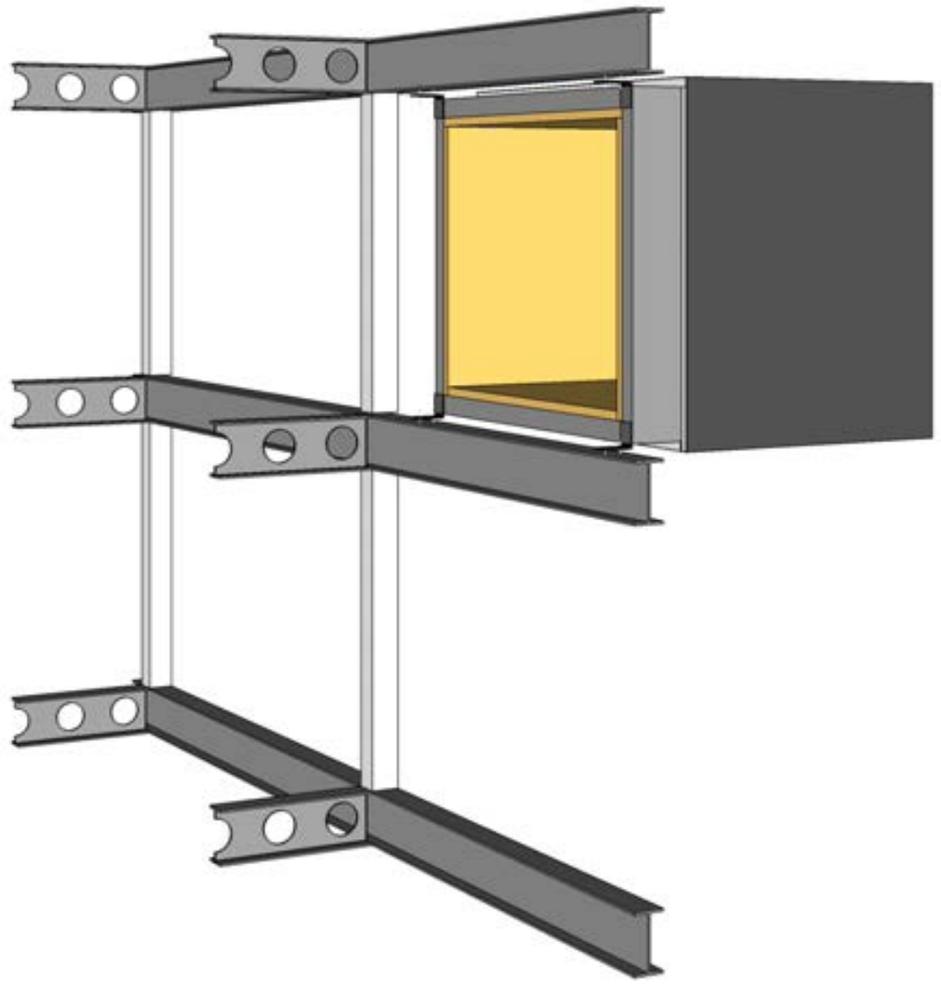


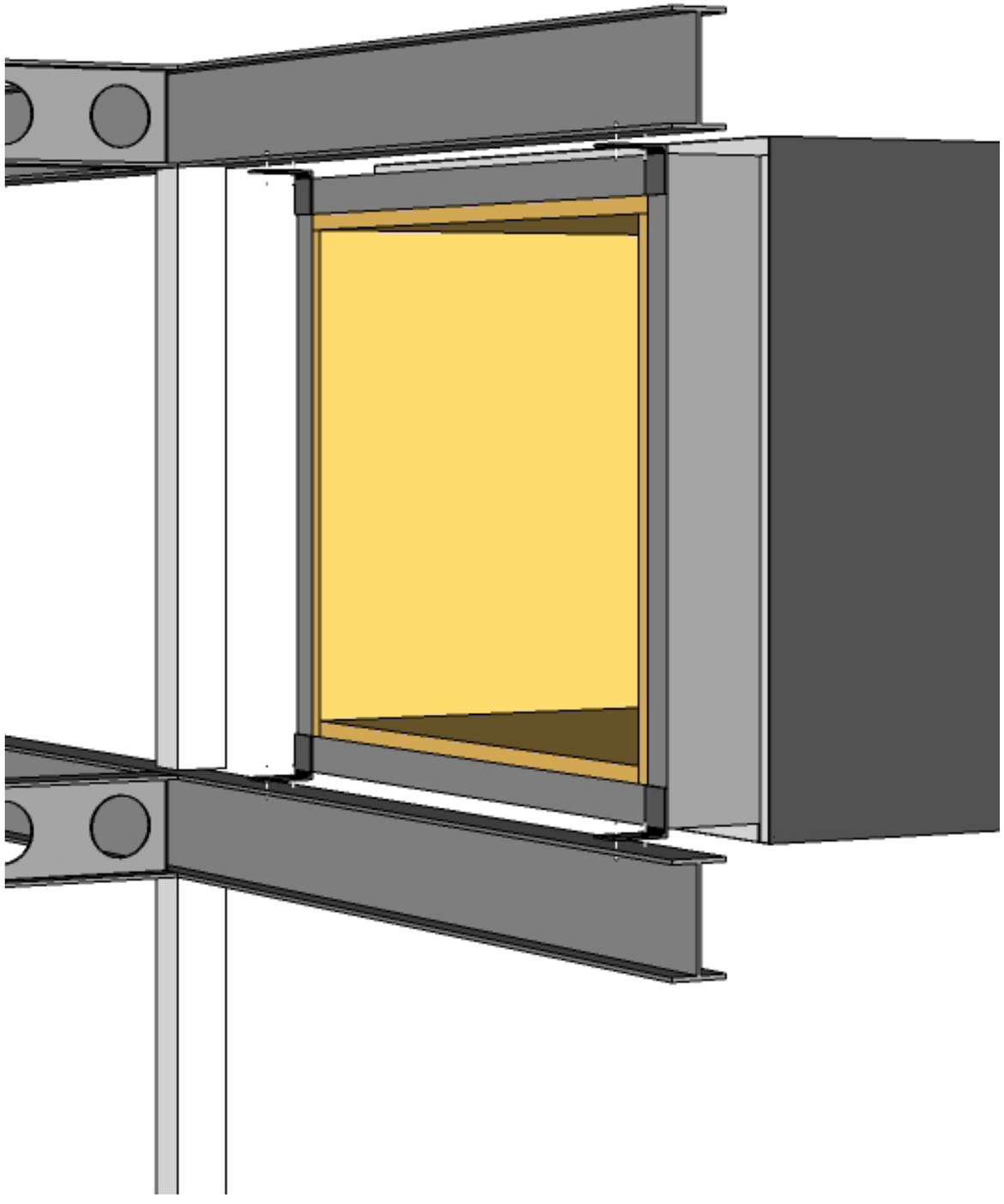

380
3690
380
300
280
250
2830
1750
250
Meeting Box
Concrete unit
200mm slab
Insulation 90mm

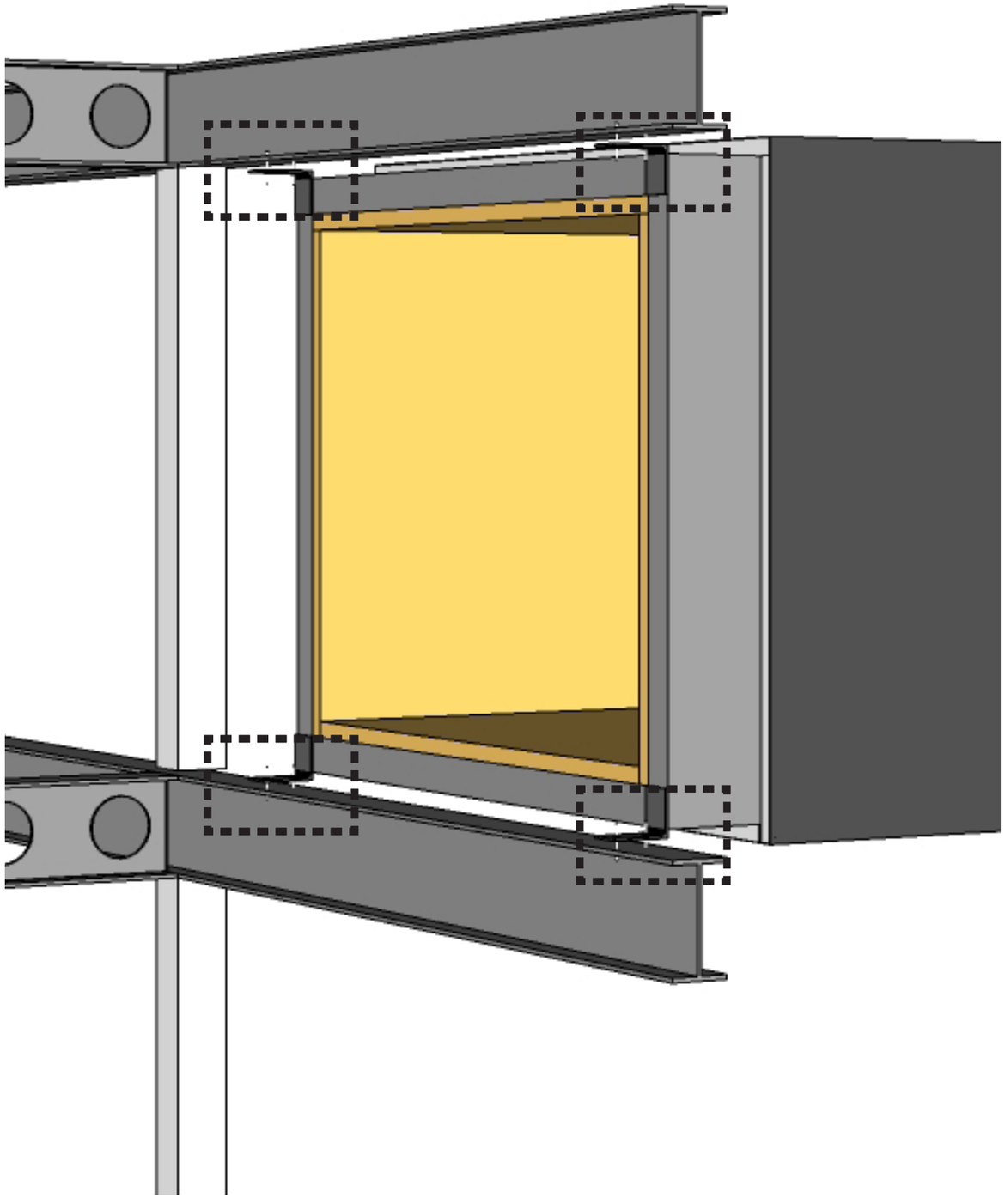

Site

Hanging Box

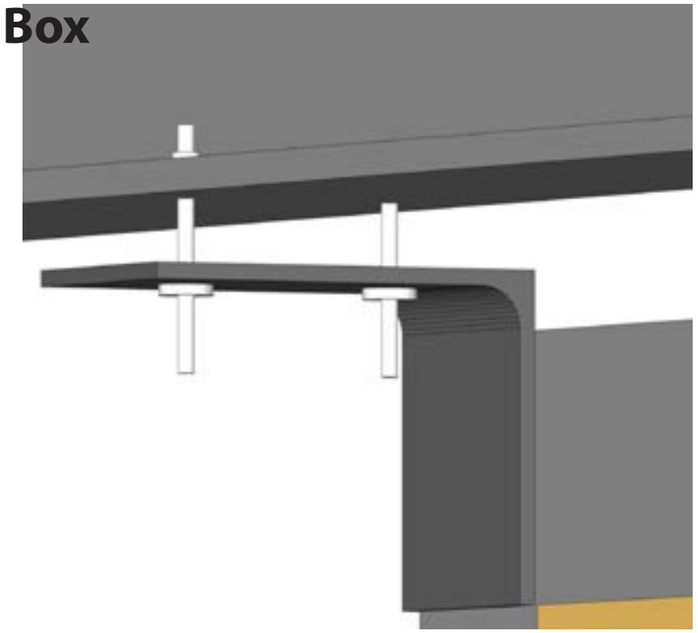


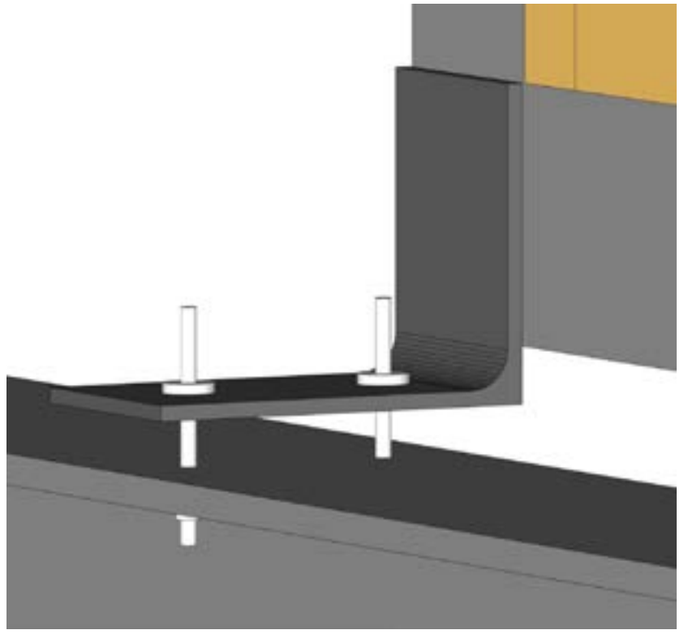


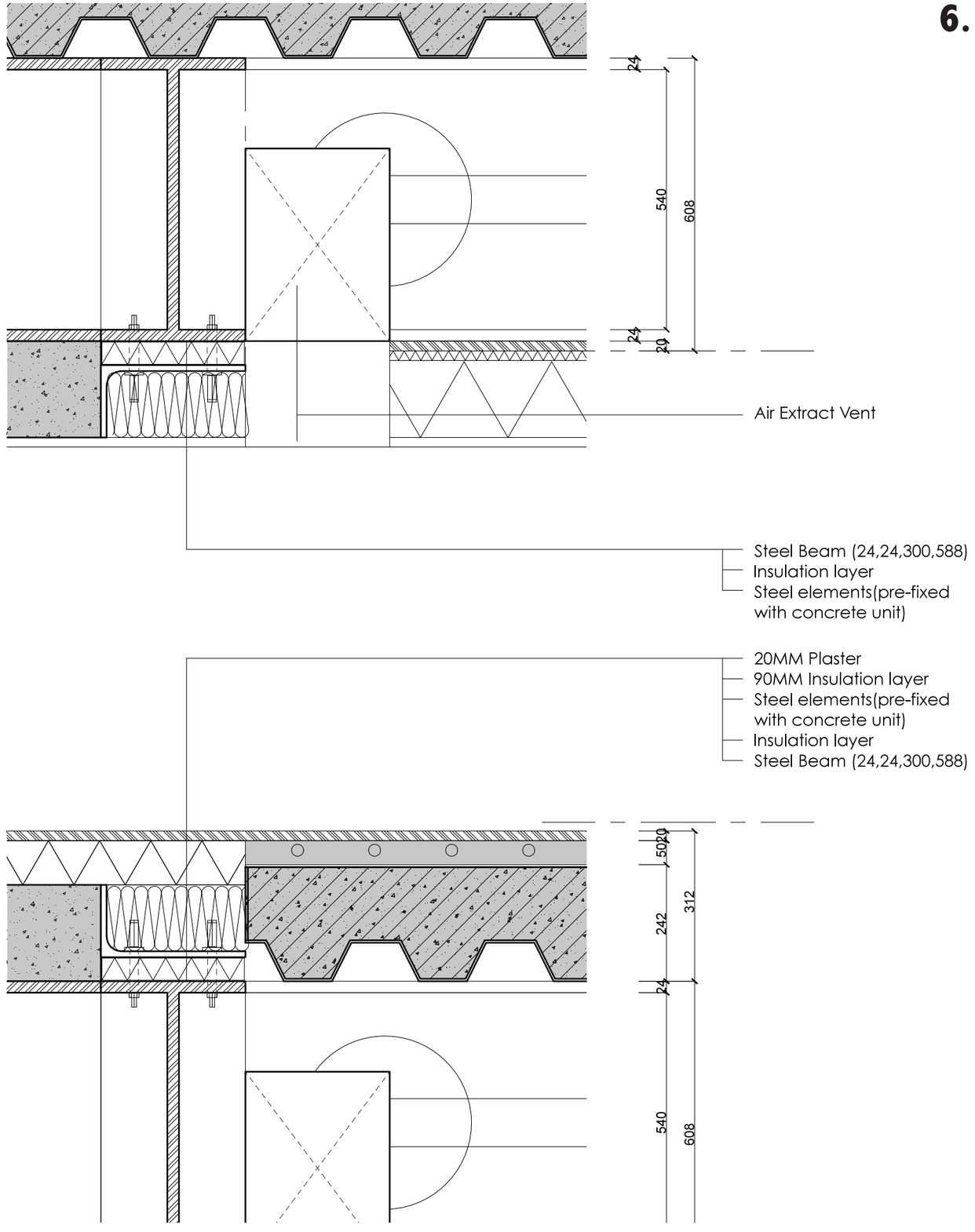




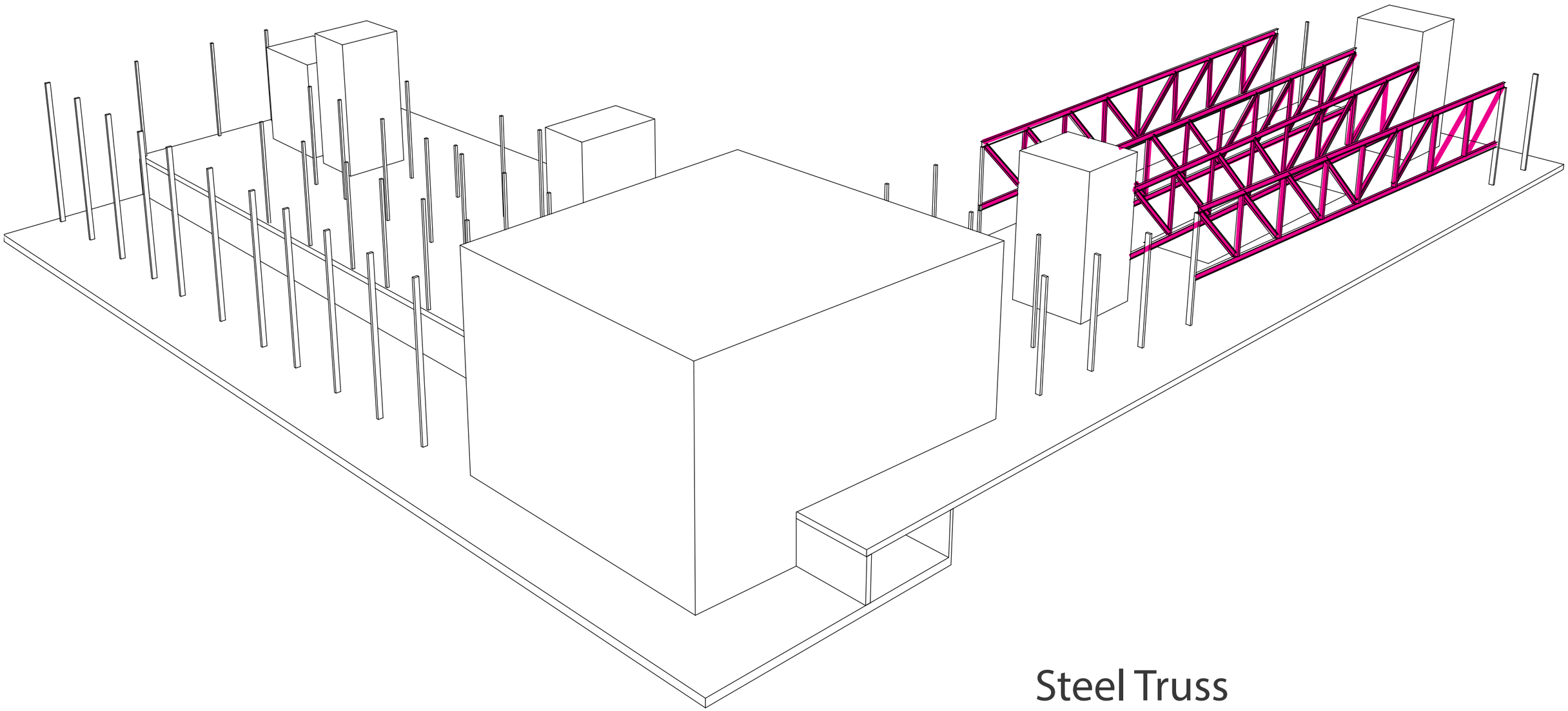
Hanging Box





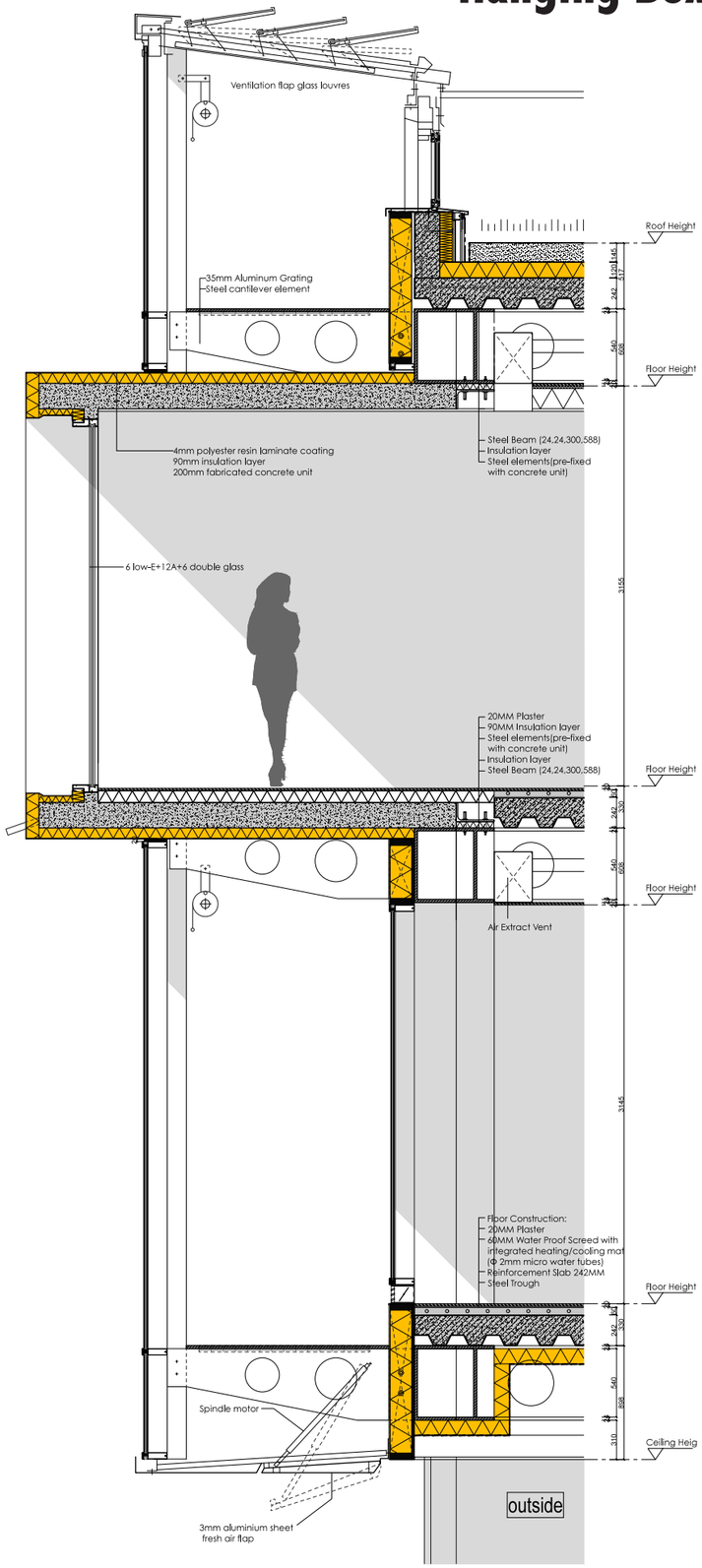

24
540
608
24
20
Air Extract Vent
Steel Beam (24,24,300,588)
Insulation layer
Steel elements(pre-fixed
with concrete unit)
20MM Plaster
90MM Insulation layer
Steel elements(pre-fixed
with concrete unit)
Insulation layer
Steel Beam (24,24,300,588)
5020
242
24
312
540
608

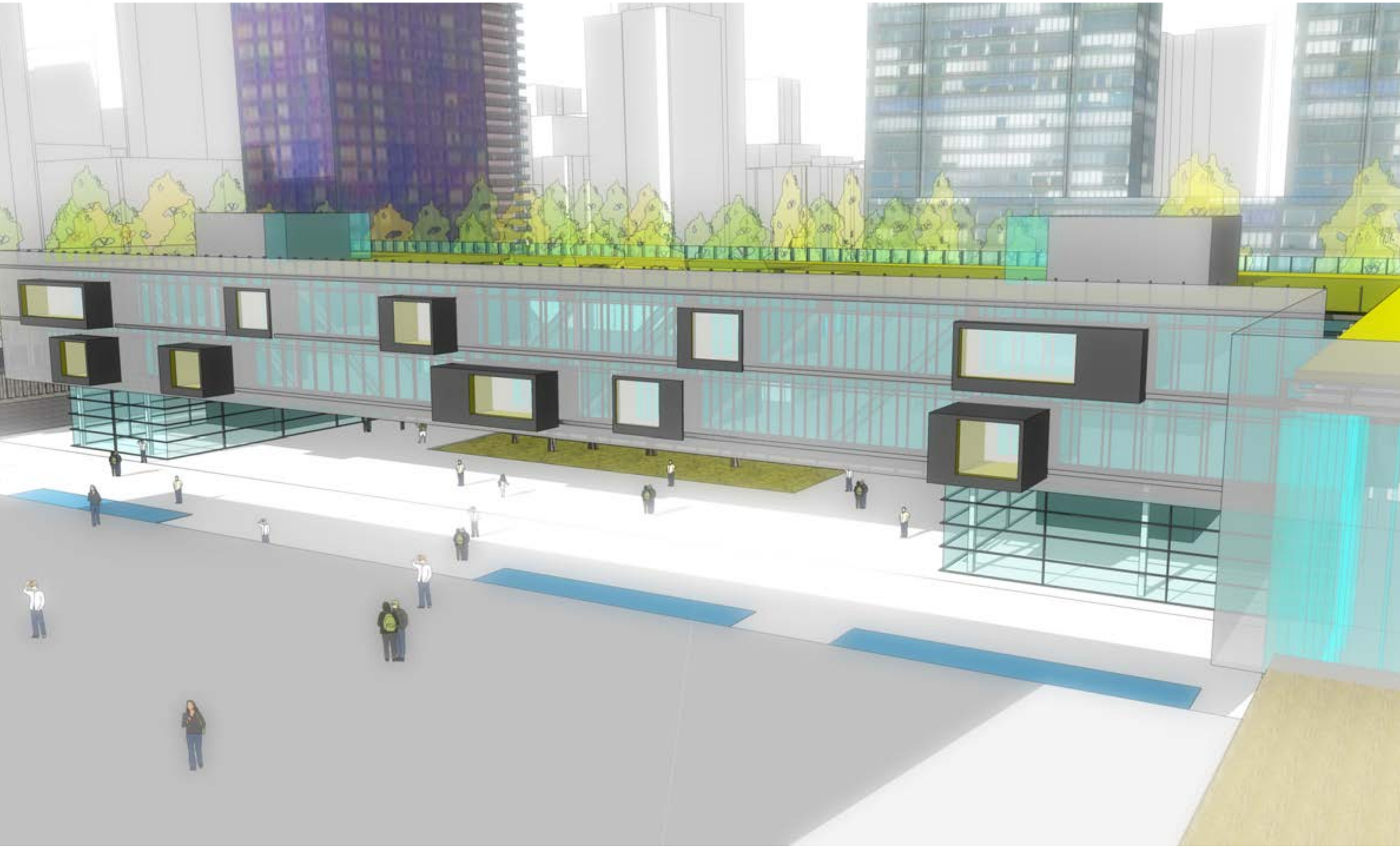
EMOTIONAL EXPRESSION



Steel Truss

Hanging Box


Ventilation flap glass louvres
35mm Aluminum Grating
Steel cantilever element
Roof Height
Floor Height
4mm polyester resin laminate coating
90mm insulation layer
200mm fabricated concrete unit
Steel Beam (24.24.300.588)
Insulation layer
Steel elements(pre-fixed with concrete unit)
6 low-E+12A+6 double glass
3165
20MM Plaster
90MM Insulation layer
Steel elements(pre-fixed with concrete unit)
Insulation layer
Steel Beam (24.24.300.588)
Floor Height
Floor Height
Air Extract Vent
3165
Floor Construction:
20MM Plaster
60MM Water Proof Screed with integrated heating/cooling mat (Ø 2mm micro water tubes)
Reinforcement Slab 242MM
Steel Trough
Floor Height
Spindle motor
Ceiling Heig
outside
3mm aluminium sheet
fresh air flap



Conclusion

1. LOCATION
2. FLEXIBLE LAYOUT
3. STRUCTURE
4. CLIMATE
5. FACADE
6. DETAILS

Thank you