

RESILIENT D e n C I T Y



POST-SANDY RECONSTRUCTION OF JERSEY CITY'S WATERFRONT
COSIMO CONSERVA_MATTEO FERRARESE_VINCE MARCHETTO_MATTIA TINTORI

CLIFF

TU DELFT
EXPLORE LAB 19
MATTIA TINTORI
mattia.tintori@gmail.com
4298020



1. Introduction
2. Masterplan
3. District
4. Shape
5. Surroundings
6. Building
7. Programme
8. Programme positioning / Routing
9. Structure
10. Climate Concept
11. Materialisation

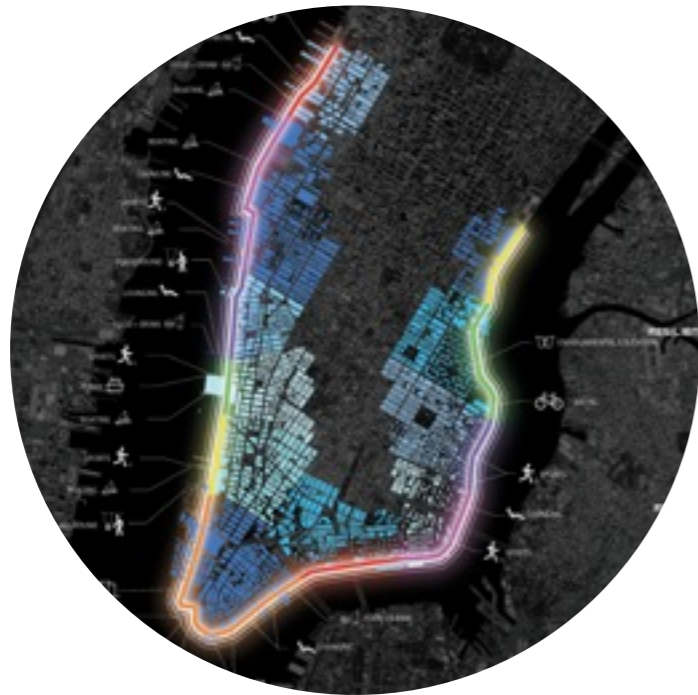
1•

introduction

EXPLORE LAB 19

REBUILD BY DESIGN

NEW YORK



HOBOKEN



BRONX



LONG ISLAND



MEADOWLANDS



STATEN ISLAND

JERSEY CITY





RISK

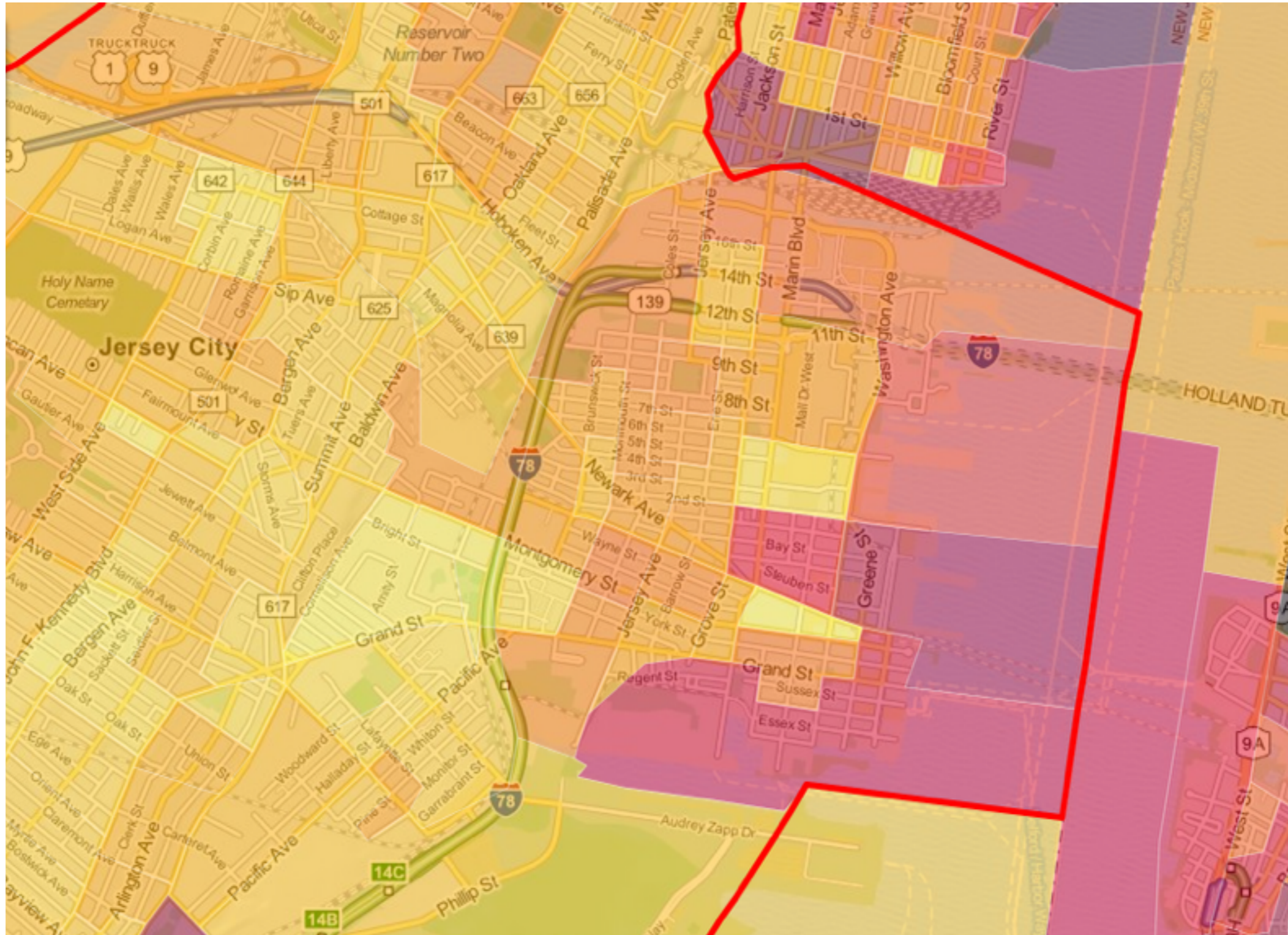
↓ Uptown & The Bronx 1

EFFECT

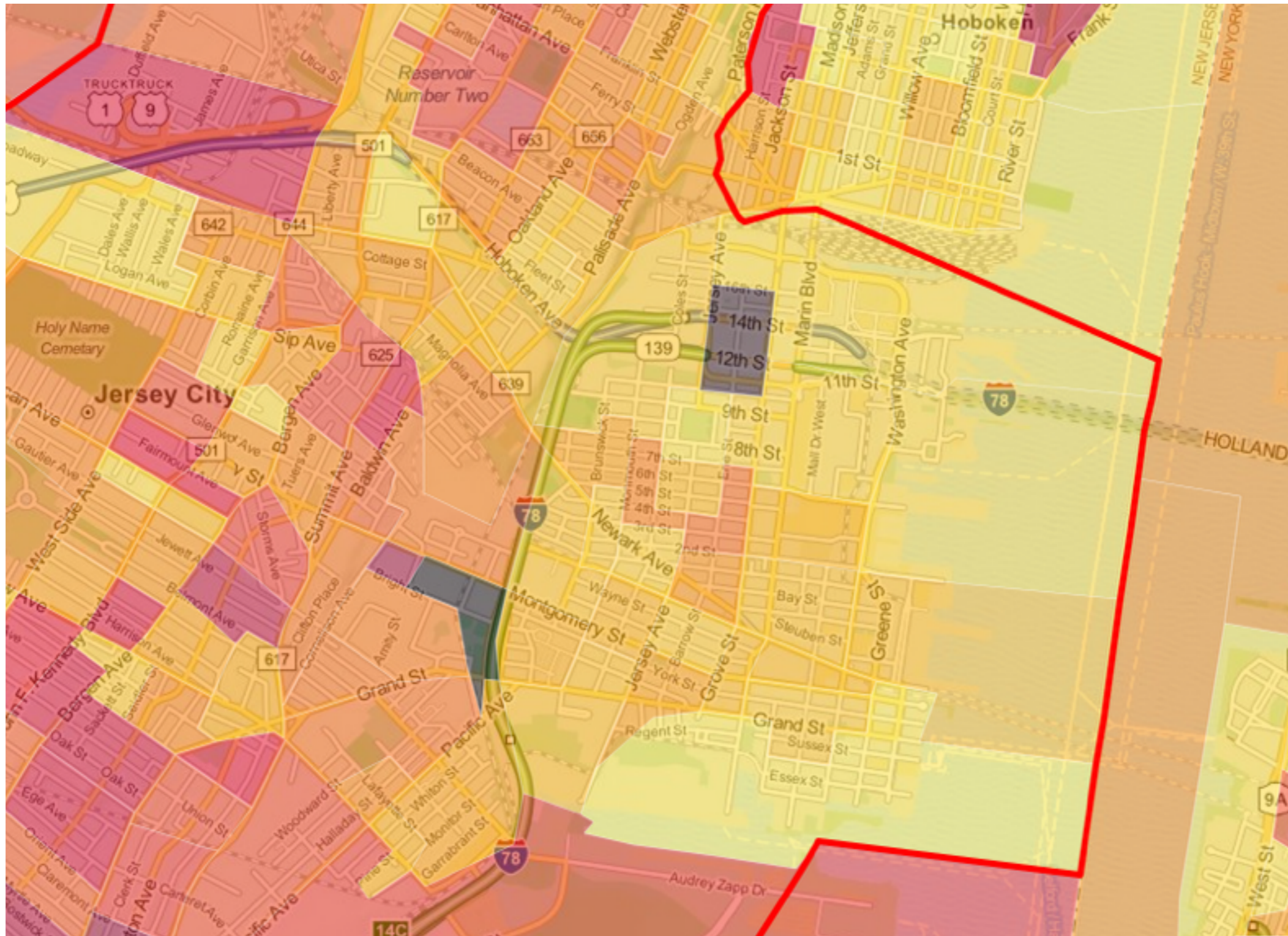


POTENTIAL

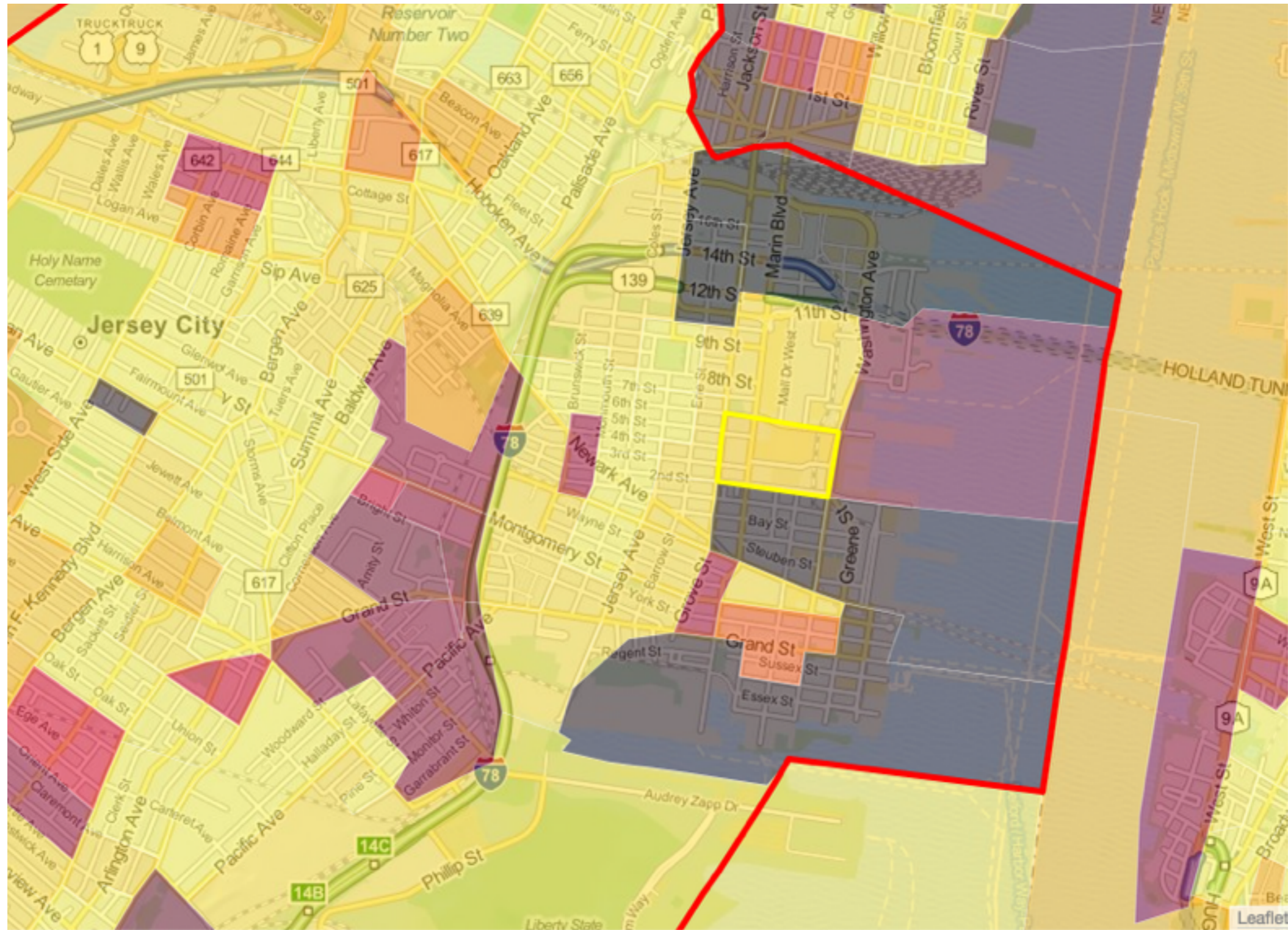
INCOME



UNEMPLOYMENT



BUILDING MEDIAN YEAR BUILT



OPPORTUNITIES

The waterfront is the **richest area**

the **most modern** one

and the one with **less unemployment**

CLIMATE CHANGE

SEA LEVEL RISE

HURRICANE SANDY

NATIONAL FLOOD INSURANCE PROGRAM

LOCAL BUILDING CODES

PROJECT RESILIENT DENSITY

PROBLEM CATEGORY 1: MULTI-PURPOSE LEEVE

PROBLEM CATEGORY 2: GREEN NETWORK

PROBLEM CATEGORY 3: DENSITY

PROBLEM CATEGORY 4: PUBLIC SPACES

- | | | | |
|--|---|---|---|
| <ul style="list-style-type: none"> • GLOBAL CLIMATE CHANGE • SEA LEVEL RISE • CLIMATE FUTURE PROJECTIONS • TOPOGRAPHY • SITE GEOLOGY • RISK AND VUNERABLITES ANALYSIS • SEAWALL HEIGHT • SEAWALL LOCATION • DEFINE OVERALL SITE AREA • INTEGRATION WITH DIFFERENT PROGRAM • INTERACTION WITH THE WATER • PHASING • COSTS/BENEFITS | <ul style="list-style-type: none"> • GLOBAL CLIMATE CHANGE • EXTREME RAIN EVENTS • AREA OF DOWNTOWN JERSEY CITY • WATER VOLUME • EXISTING SEWER SYSTEM • WATER MANAGEMENT STRATEGY • PUMP LOCATIONS • PARK SIZE STUDY • LANDSCAPE ELEMENTS • AMENITY OPTIONS • PARK VIEWS • PHASING • COSTS/BENEFITS | <ul style="list-style-type: none"> • OVERALL BUILDING SQ. FT. • AREA OF SITE • LOT COVERAGE • OVERALL FAR • NETWORK DENSITY • PERCENT OF EACH USE • COST OF INFRASTRUCTURE • VALUE OF LAND • BUILDING CONSTRUCTION COSTS • PROFESSIONAL FEES • MARKET ABSORPTION RATE • PROJECT DURATION • PHASING • RENT VS SELL SCHEMES • DEVELOPEBR'S NET PROFIT • JERSEY CITY'S NET PROFIT • URBAN FORM OF DENSITY • FINANCIAL CYCLES • POLITICAL CYCLES | <ul style="list-style-type: none"> • INCREASE PRIORITY TO PEDESTRIANS • NARROW UNITS • MANY DETAILS AND FACADE RHYTHMNS • MULTIPLE FUNCTIONS AT STREET LEVEL • ICONIC STATUES AND SOFT EDGES • INVITING AND DIVERSE OPEN SPACE • MINIMIZING CAR USE • ACTIVITIES AND EVENTS • LIVELY, SAFE AND SUSTAINABLE STREETS • INCLUSION OF BLUE AND GREEN NETWORKS |
|--|---|---|---|

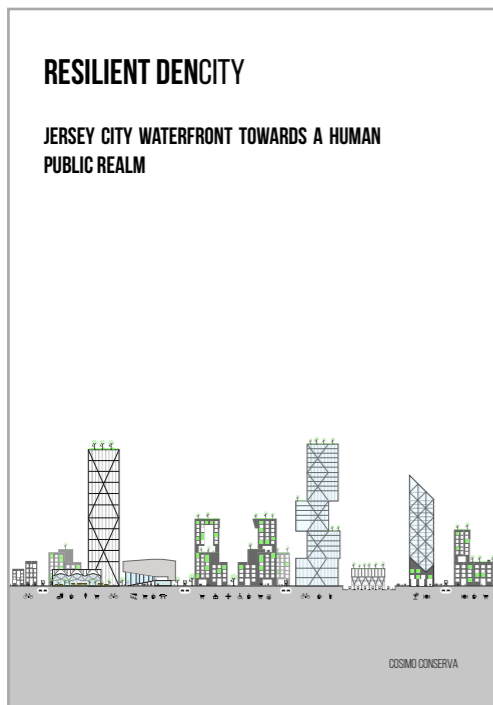
RESEARCH

PUBLIC SPACES

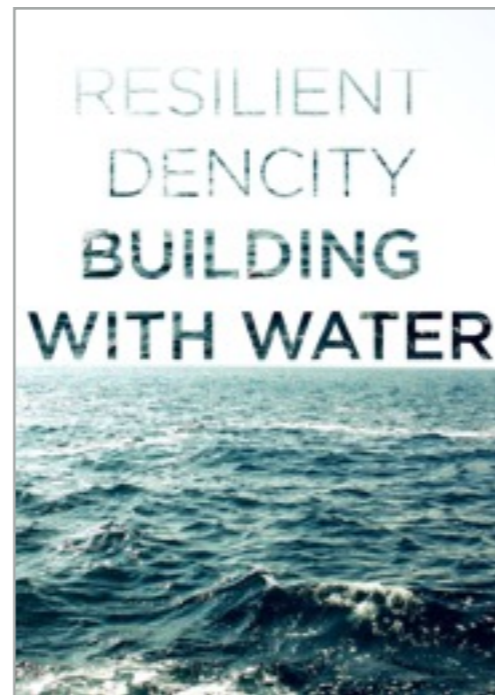
FLOOD PROTECTION

GREEN NETWORK

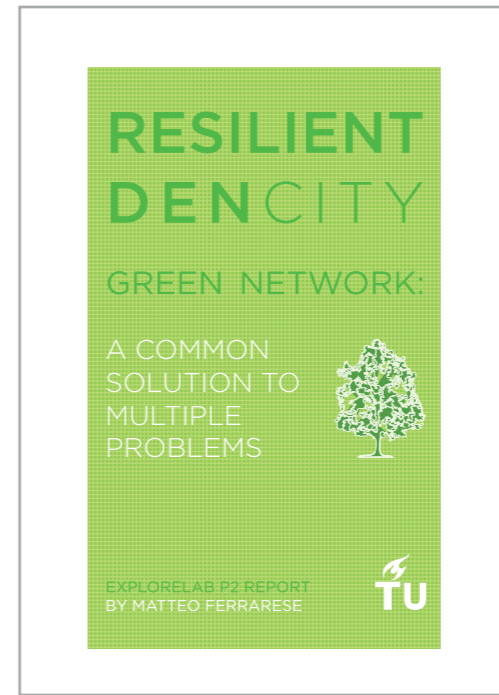
DENSITY



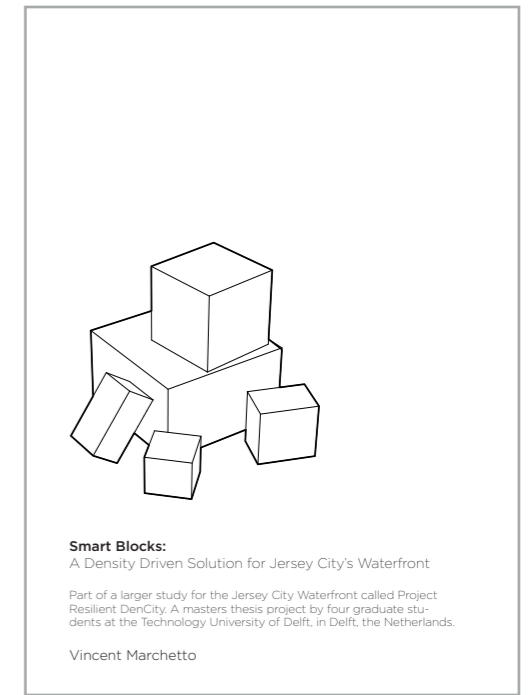
COSIMO CONSERVA



MATTIA TINTORI



MATTEO FERRARESE



VINCE MARCHETTO

RESEARCH

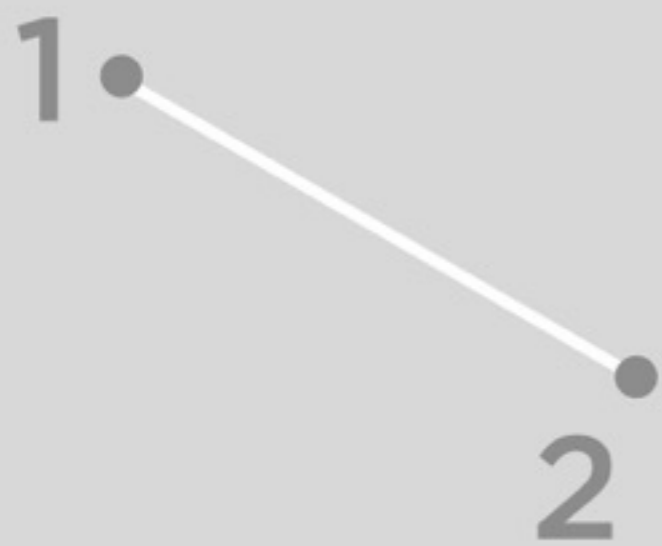
PUBLIC SPACES

FLOOD PROTECTION

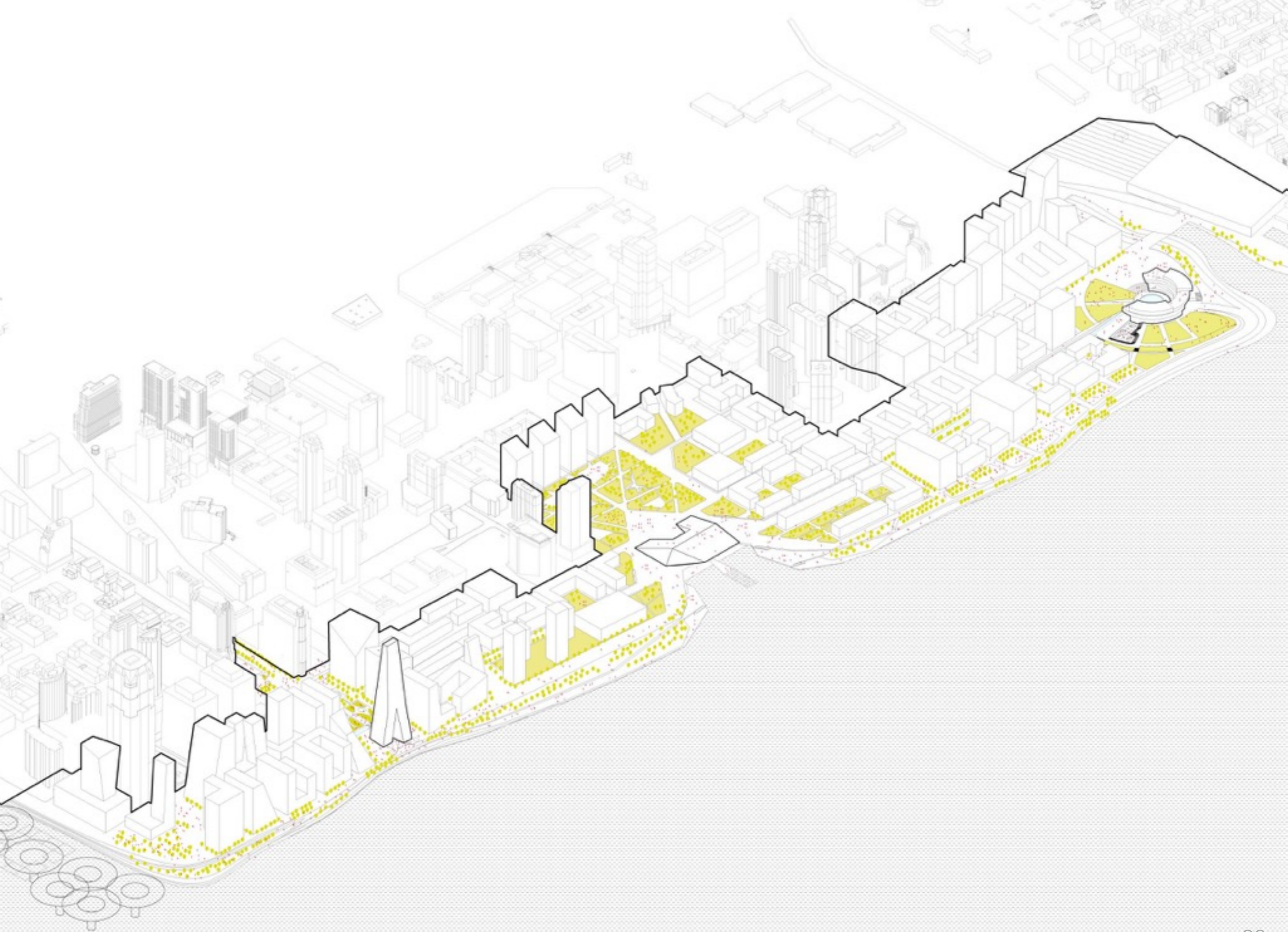
GREEN NETWORK

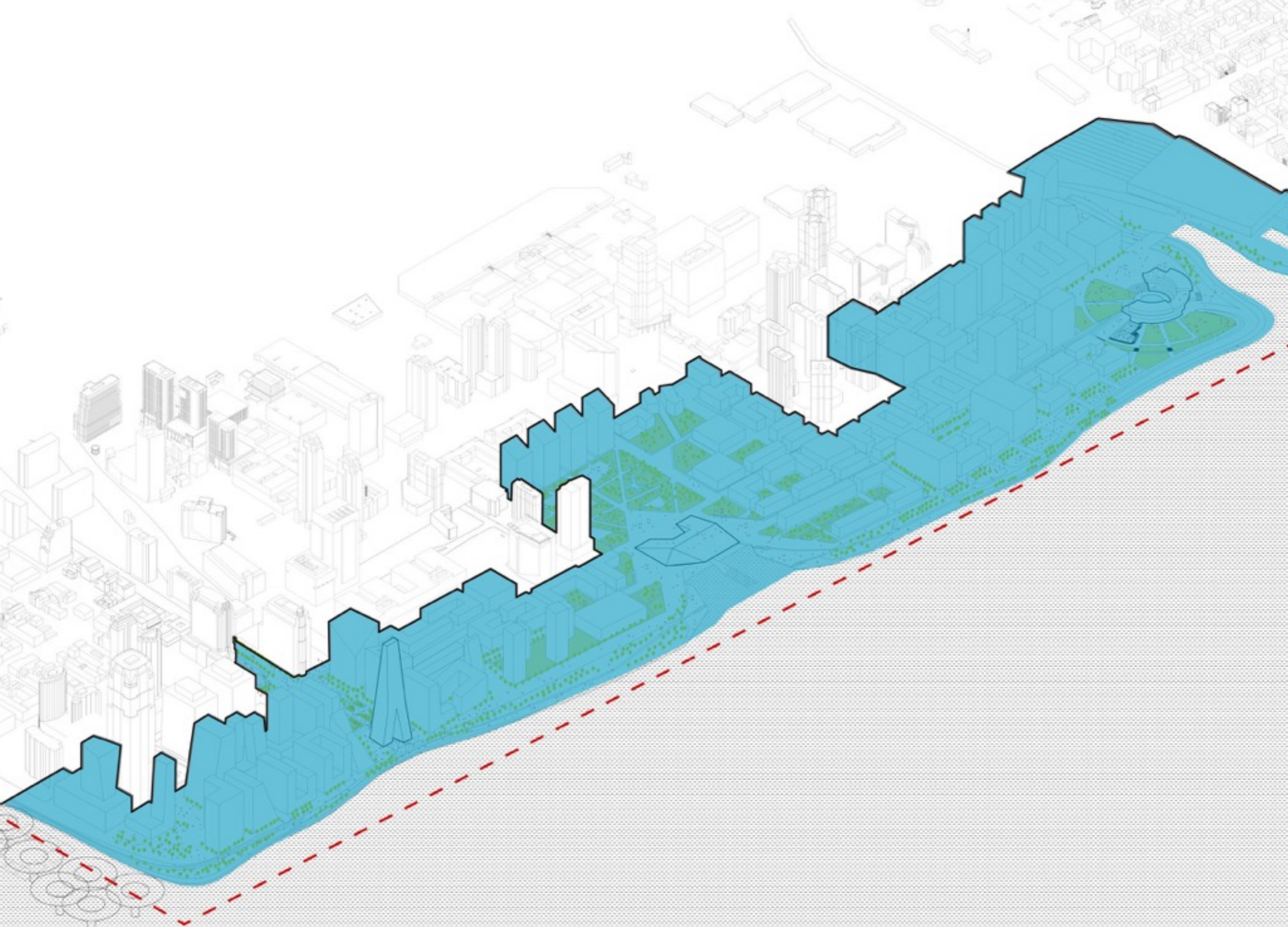
DENSITY

MASTERPLAN



masterplan







LE FRAK

JCRA+
STATE OF NJ

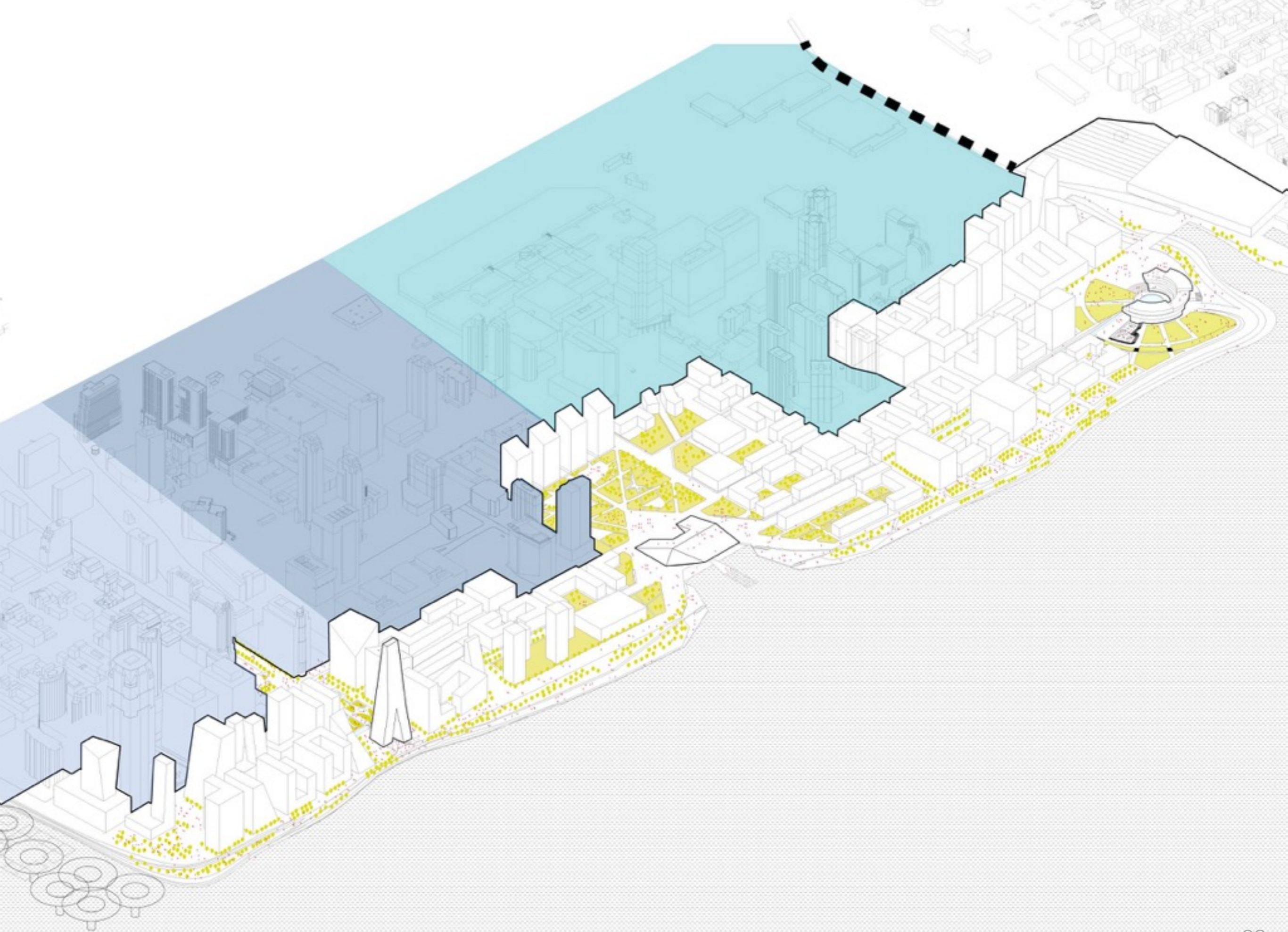
MACK CALI
EQR

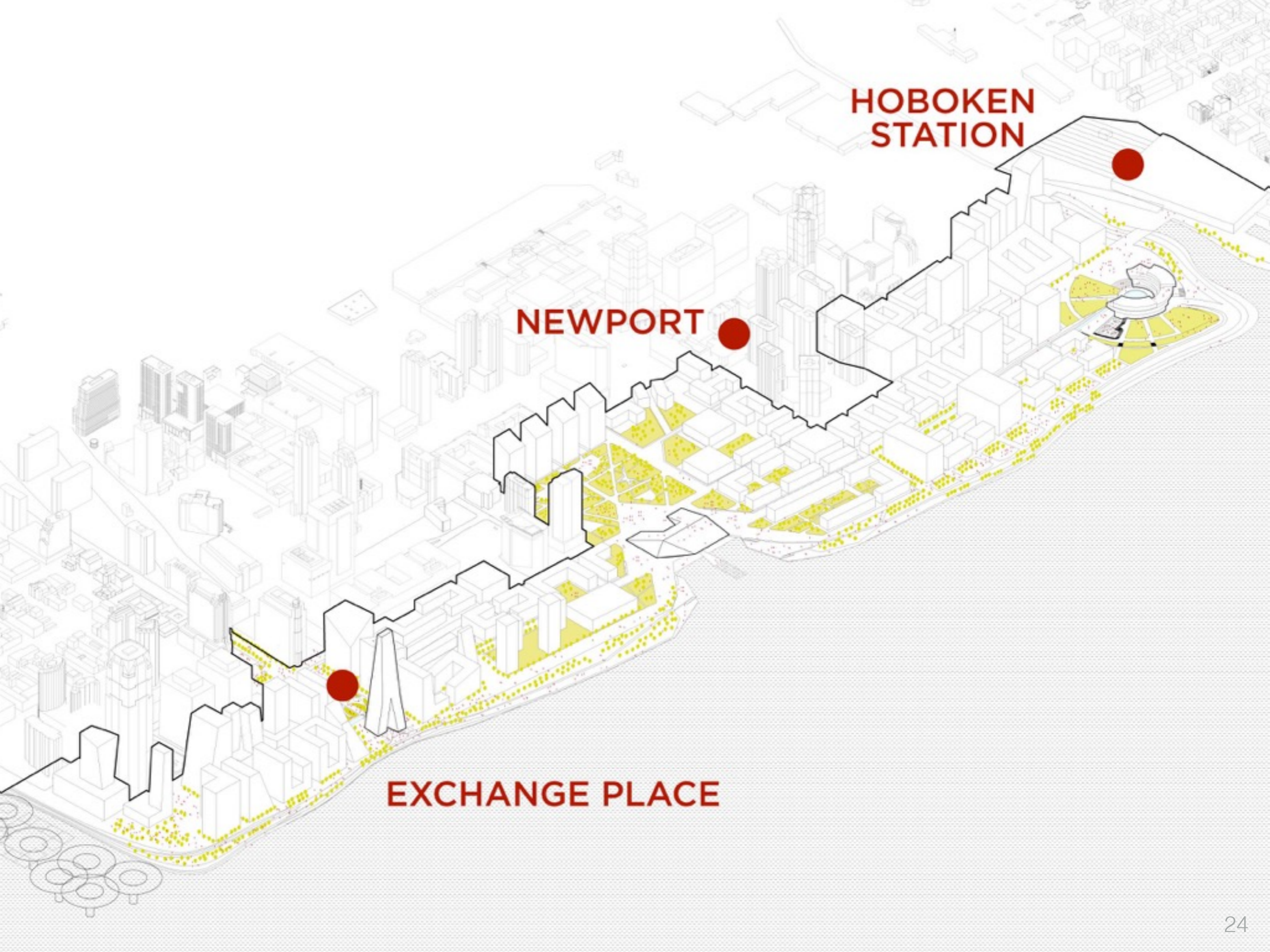
JERSEY
CITY

GOLDMAN
SACHS

MVA

EPA

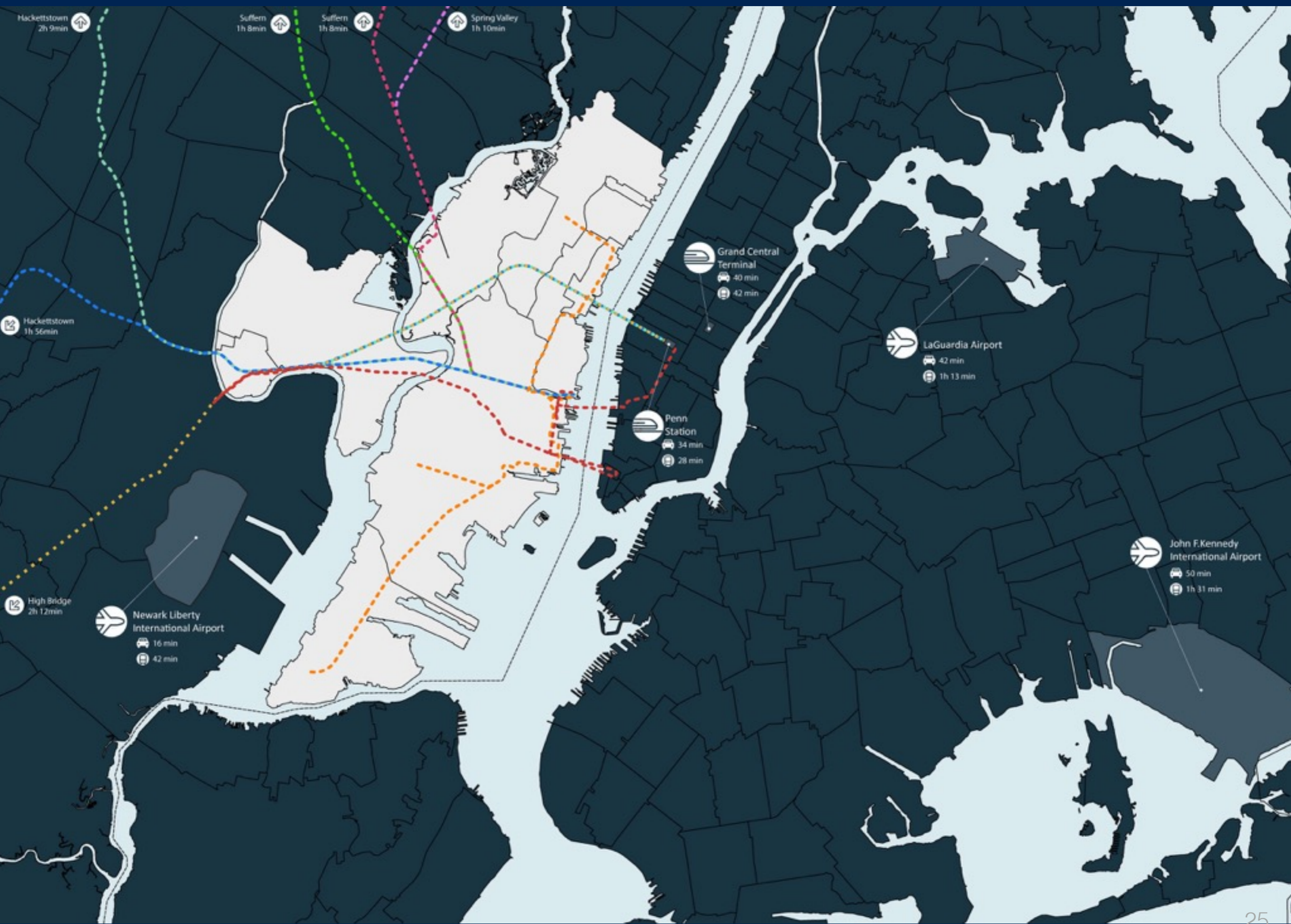




**HOBOKEN
STATION**

NEWPORT

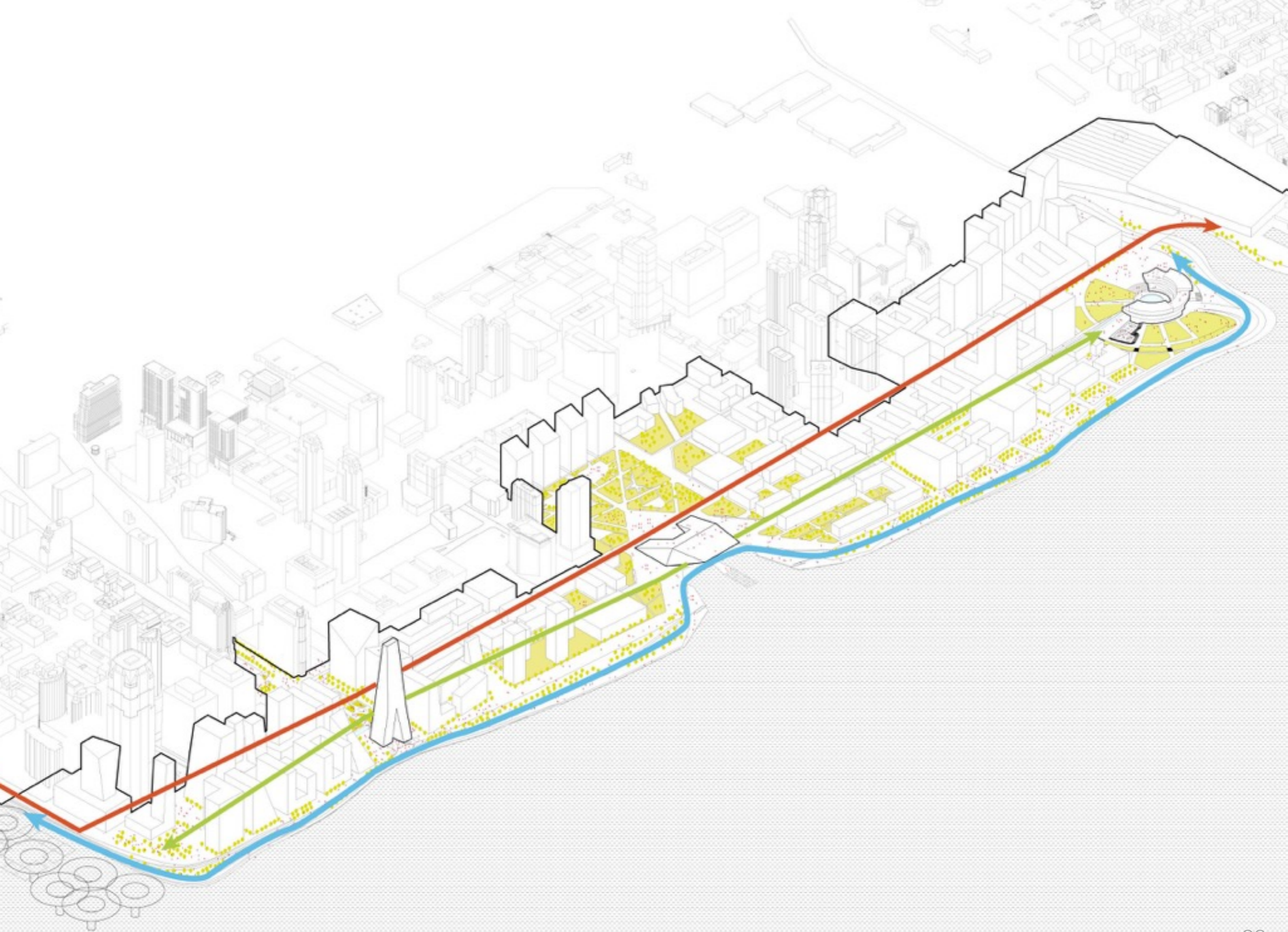
EXCHANGE PLACE



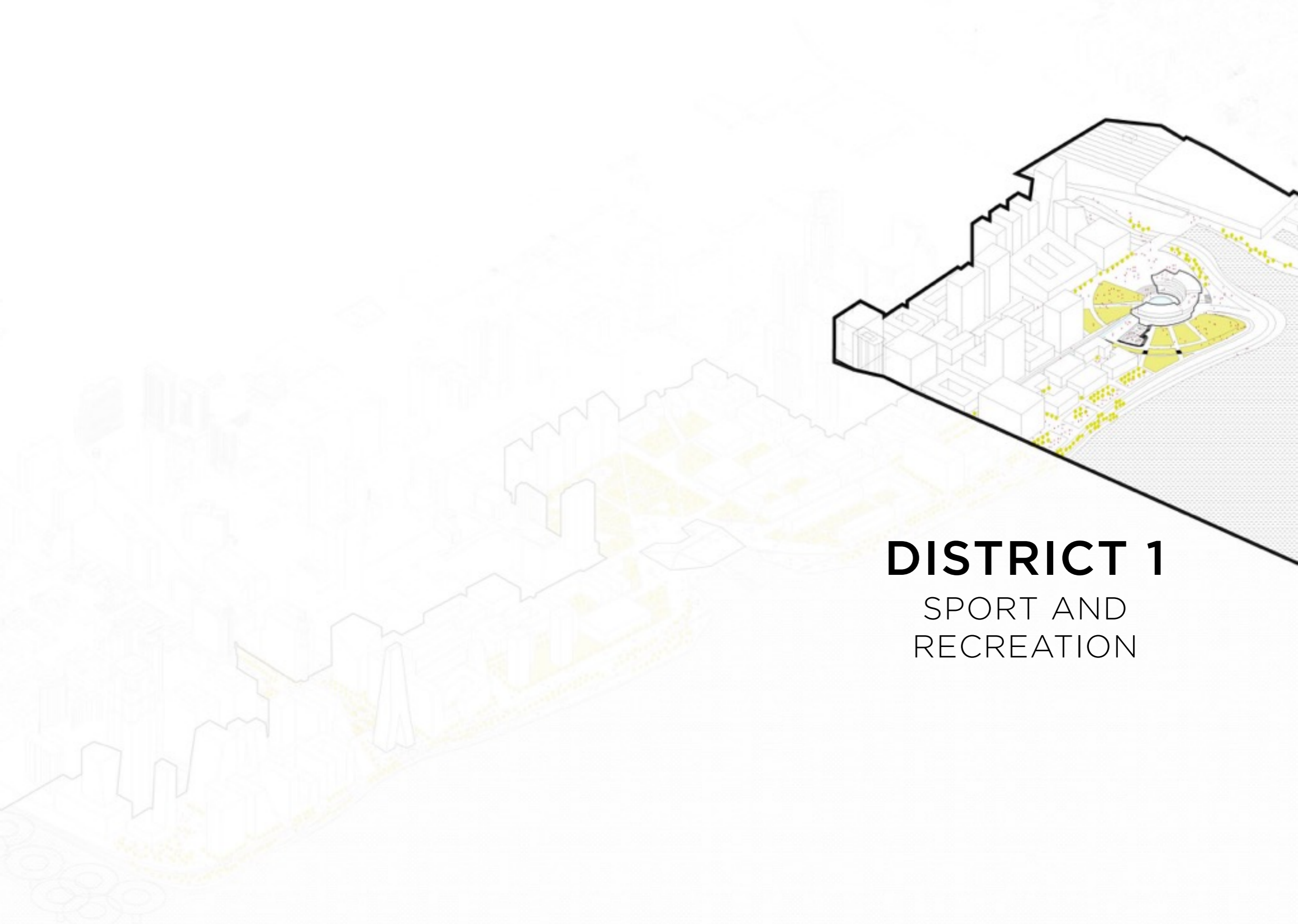
VISION

Propose an **integrative** strategy and design that will make Jersey City **resilient** to extreme climate episodes, while fostering prosperity and **boosting** image and liveability.

Create **alternatives** for urban mobility, contributing to the well-being of citizens and integrity of the environment



Create a **iconic places** that
will make JC recognisable
as a desirable place to live,
work and invest

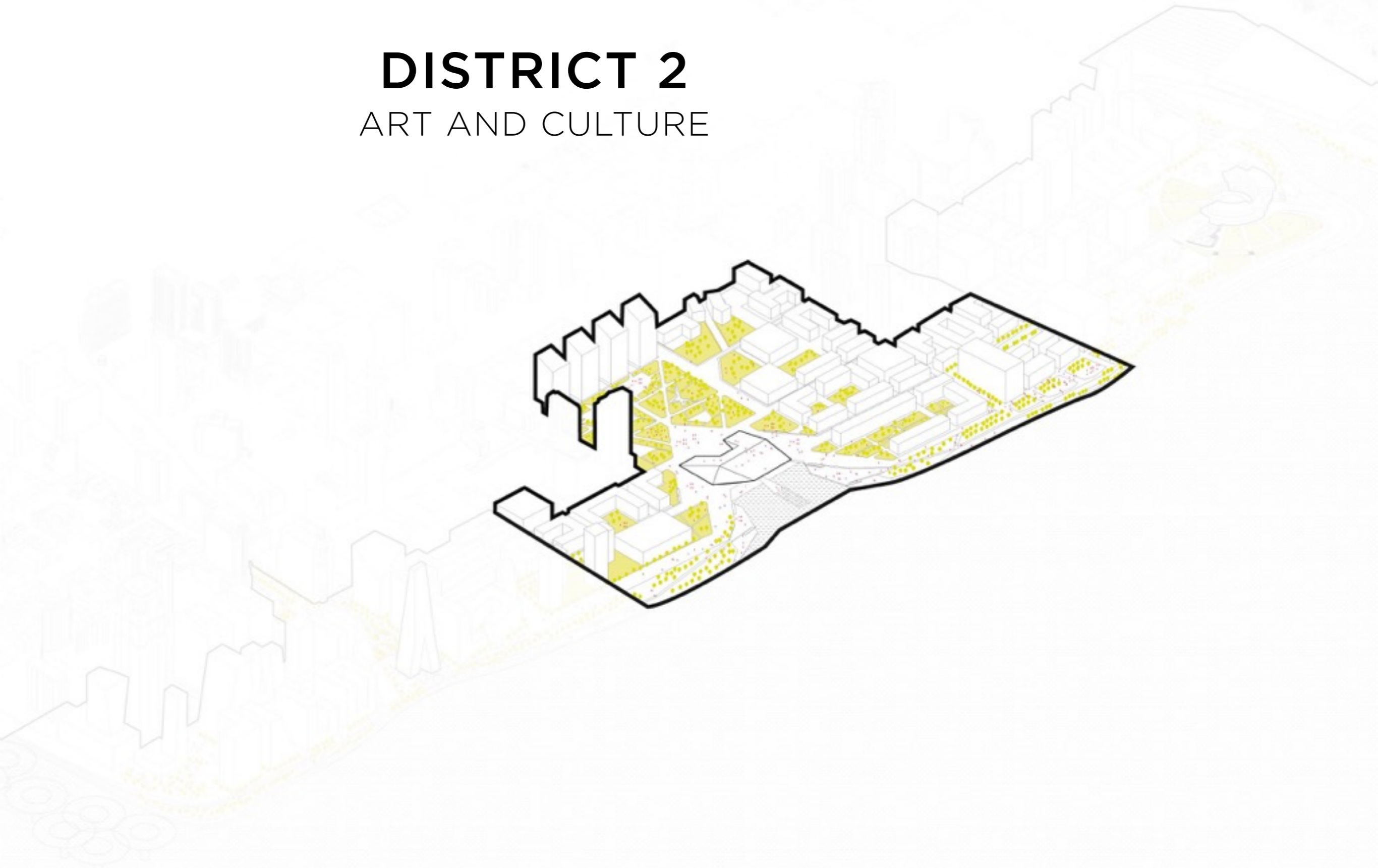


DISTRICT 1

SPORT AND
RECREATION

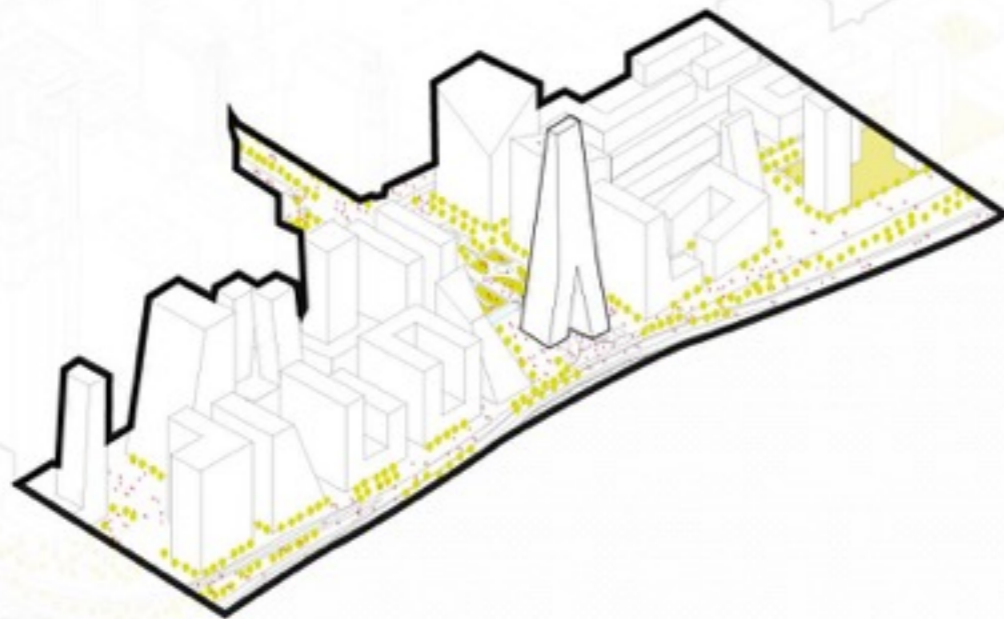
DISTRICT 2

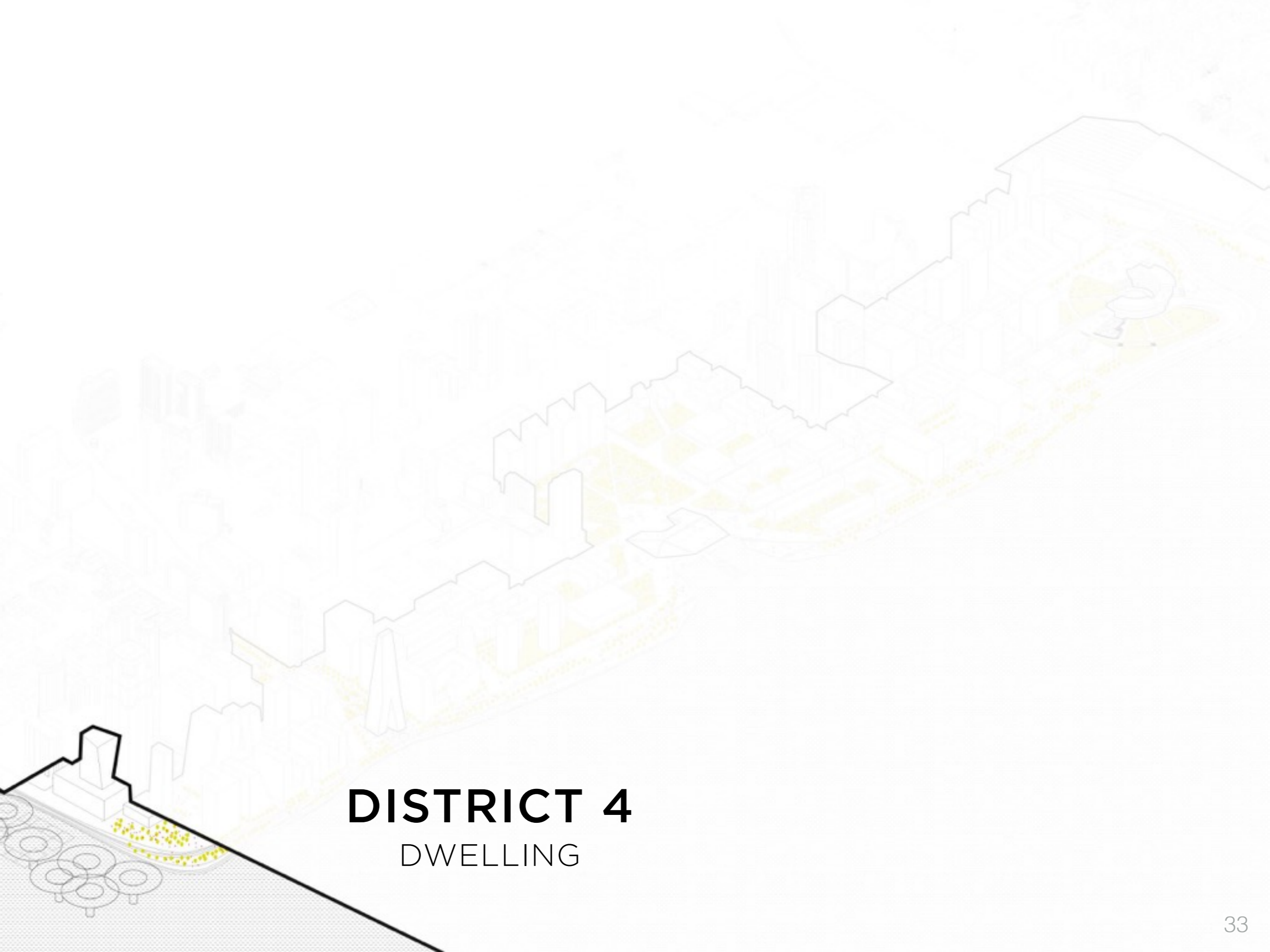
ART AND CULTURE



DISTRICT 3

OFFICE AND
FINANCIAL DISTRICT



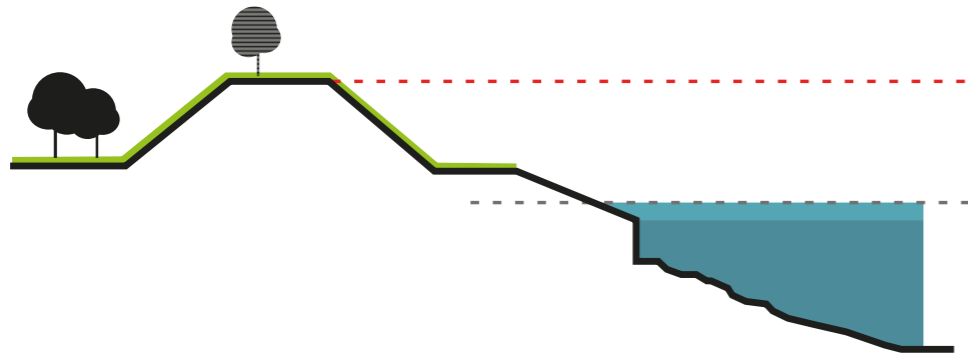


DISTRICT 4
DWELLING

Create opportunities for
Jersey City's residents to be
able to **touch / interact /
enjoy / live** the water.

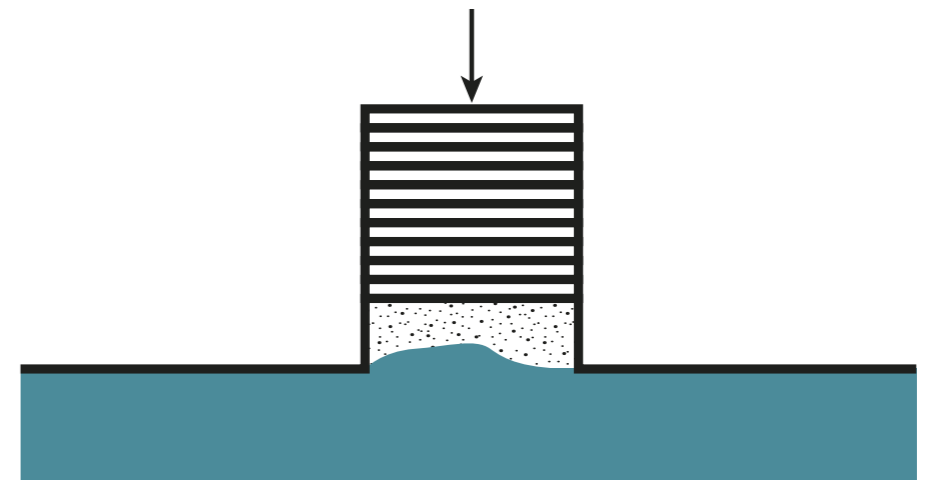
3

1



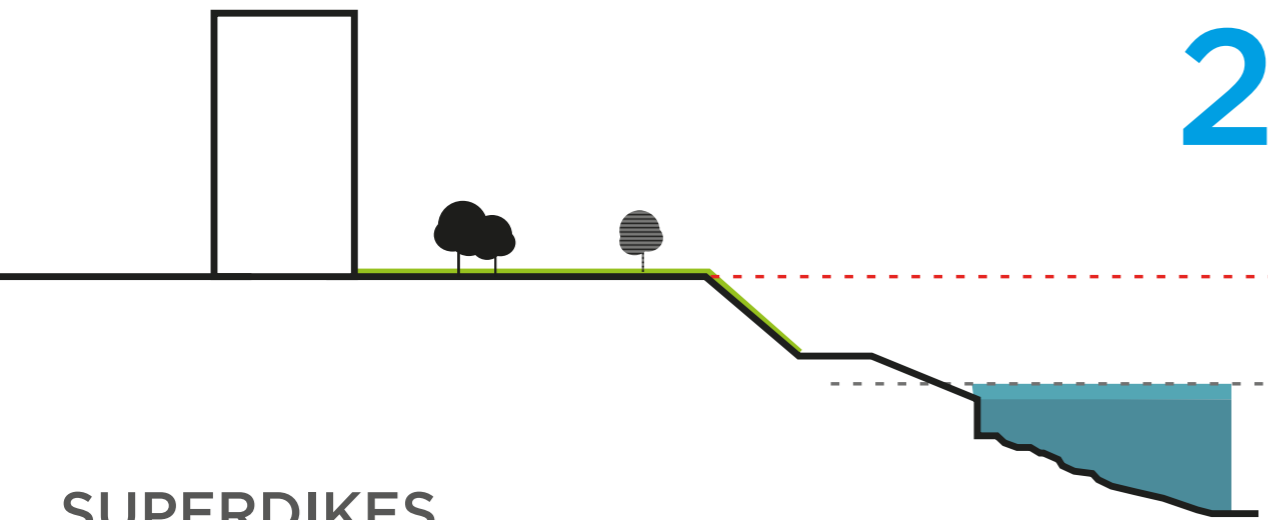
GREEN DIKES

4



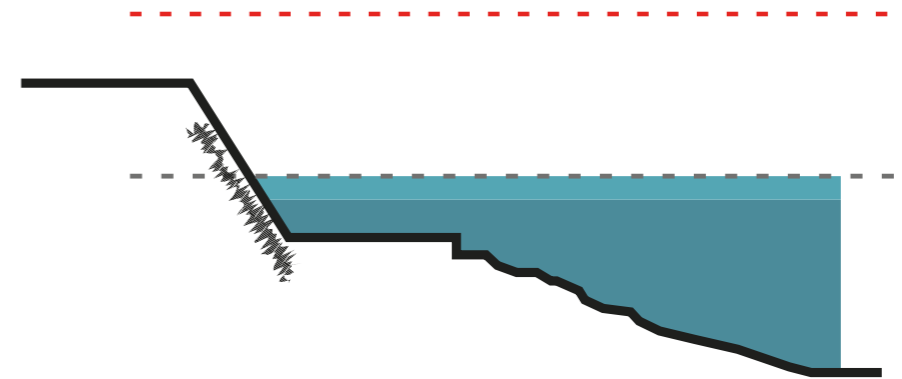
ACCESS PERPENDICULAR TO THE SEA

2



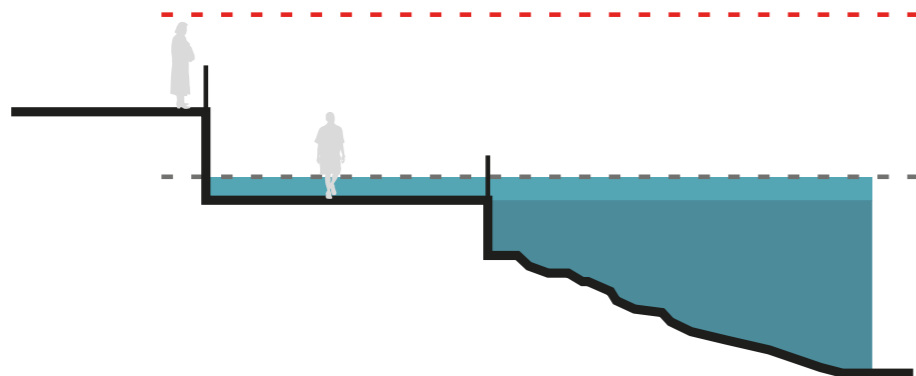
SUPERDIKES

5



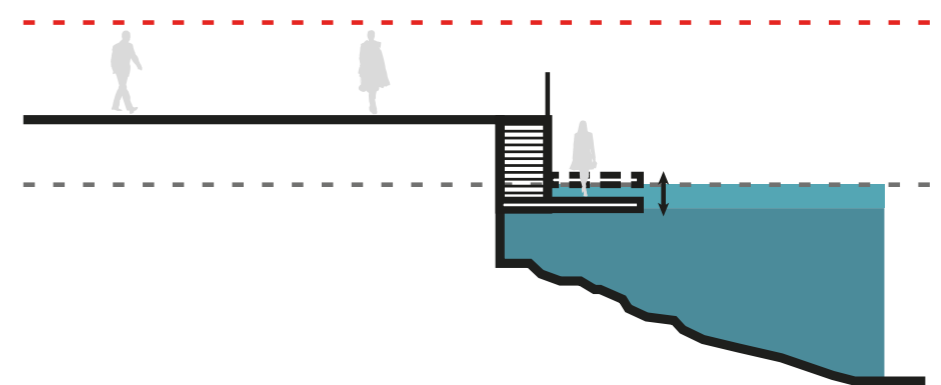
NEW EMBANKMENT WALLS

3



INTERMEDIATE LEVELS

6

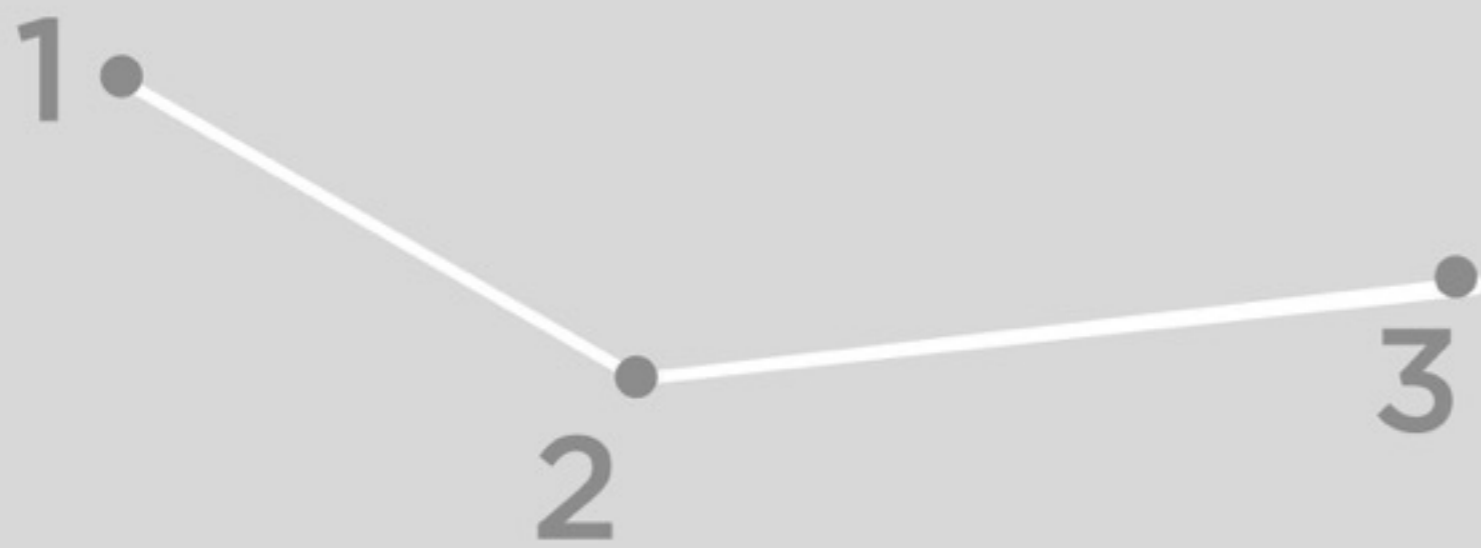


FLOATING PIERS



Design an environment
that will create public
goods and foster
economic prosperity.

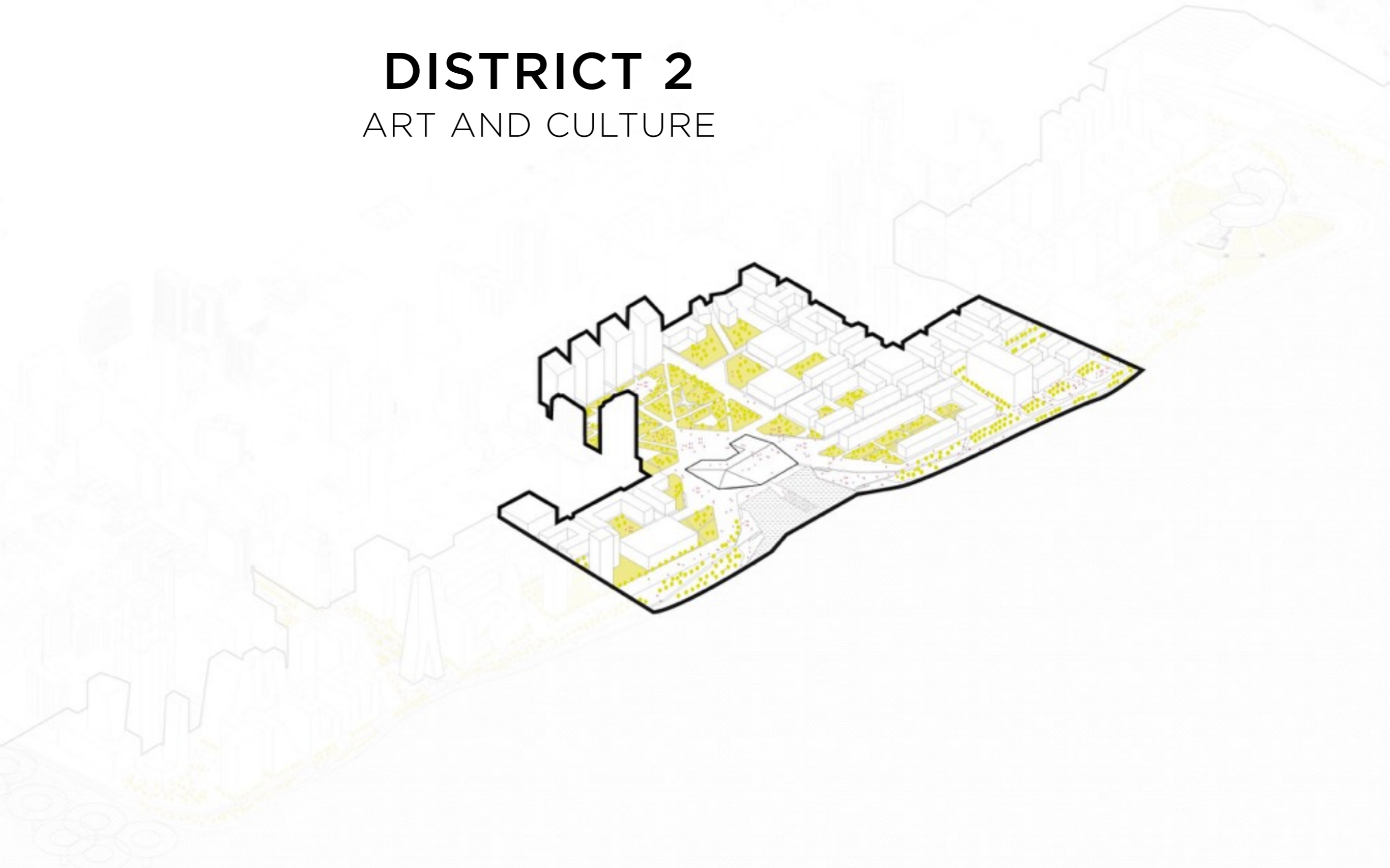
4



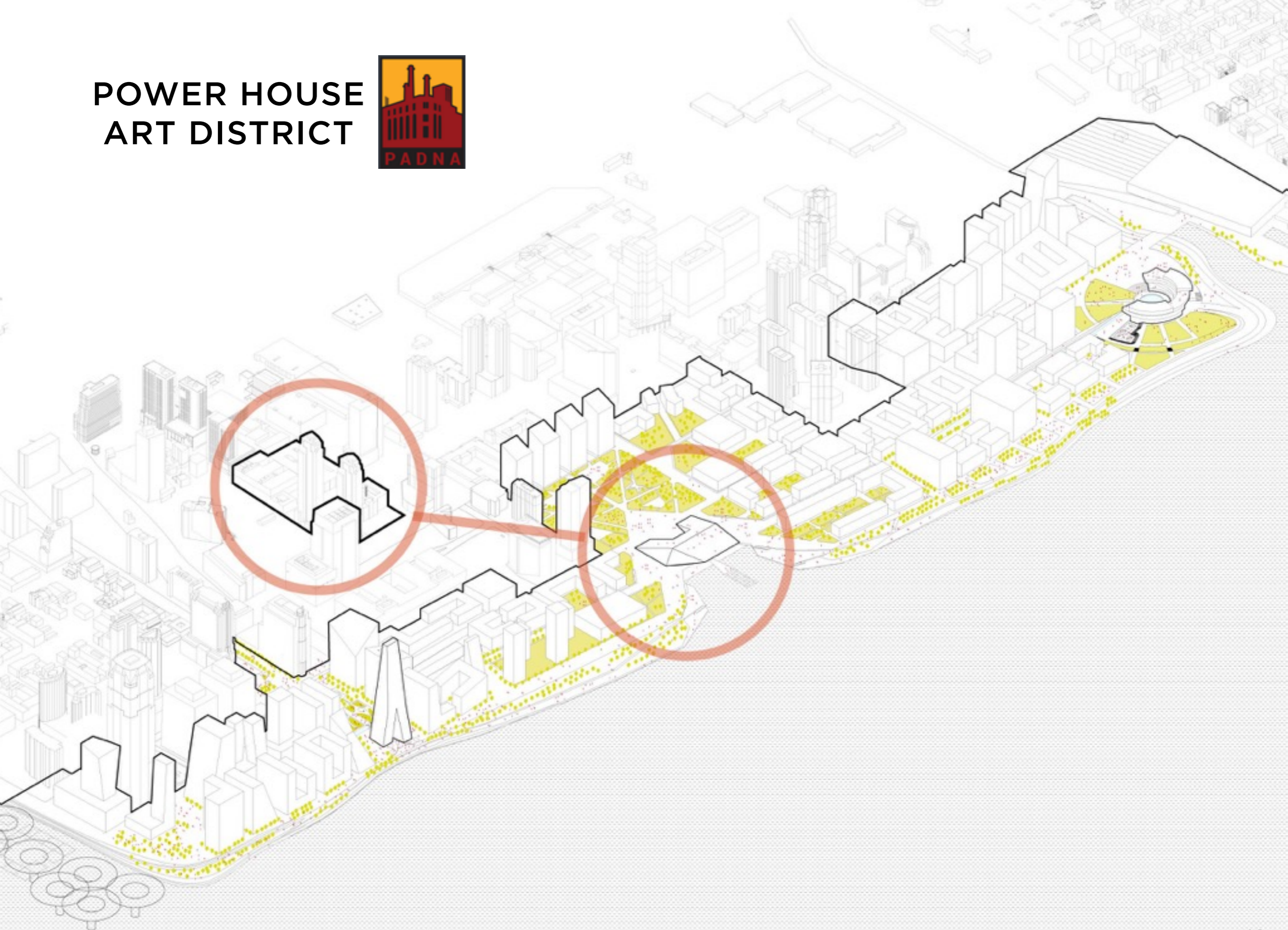
district

DISTRICT 2

ART AND CULTURE



POWER HOUSE ART DISTRICT





CULTURE



CULTURE



A scenic autumn park with large trees and a path. The sun is shining through the trees, creating a warm, golden glow. The ground is covered in fallen leaves, and a few people are walking on a path in the foreground. The overall atmosphere is peaceful and relaxing.

RELAX

CULTURE



RELAX





LEISURE



CULTURE



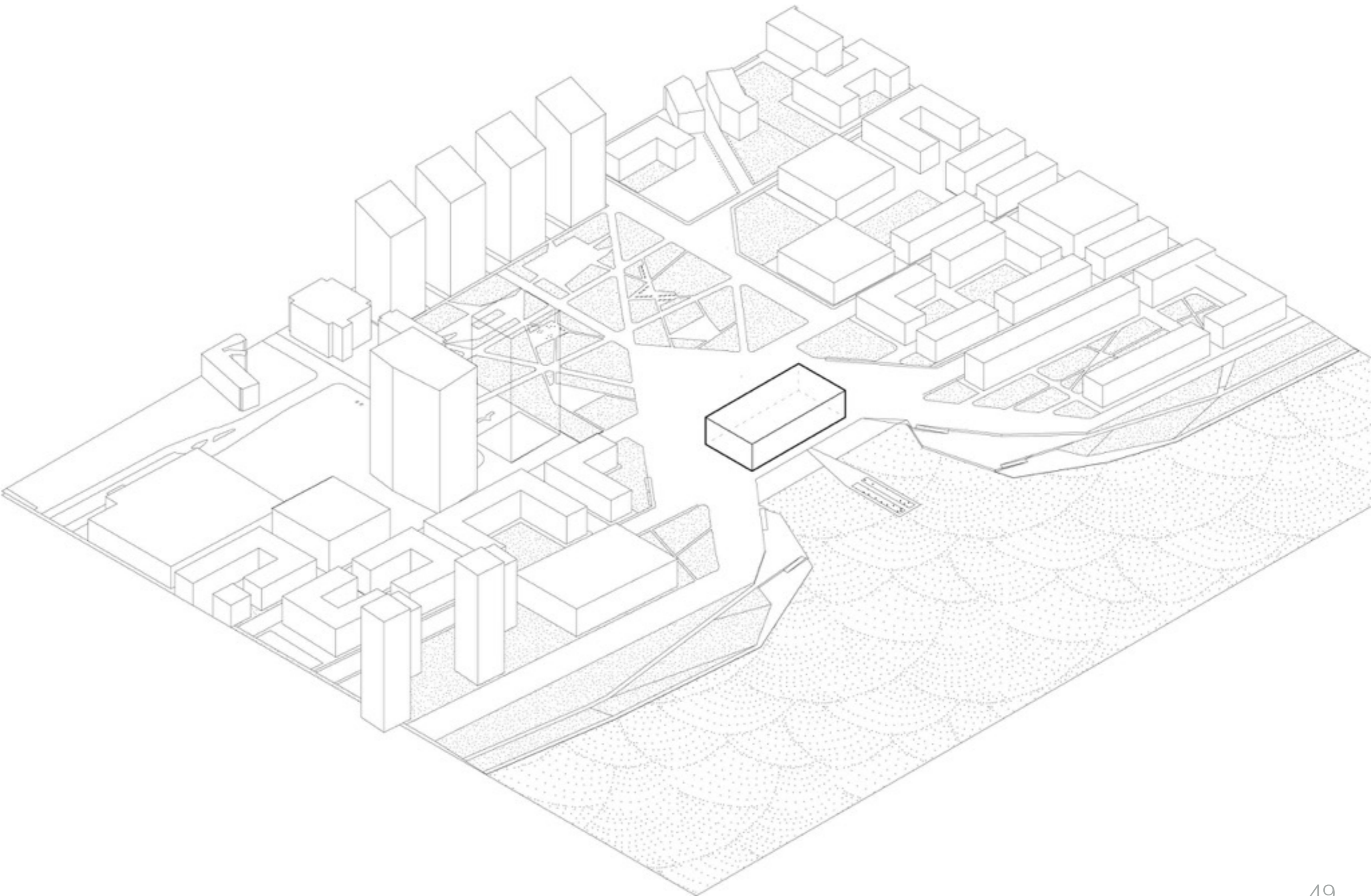
RELAX

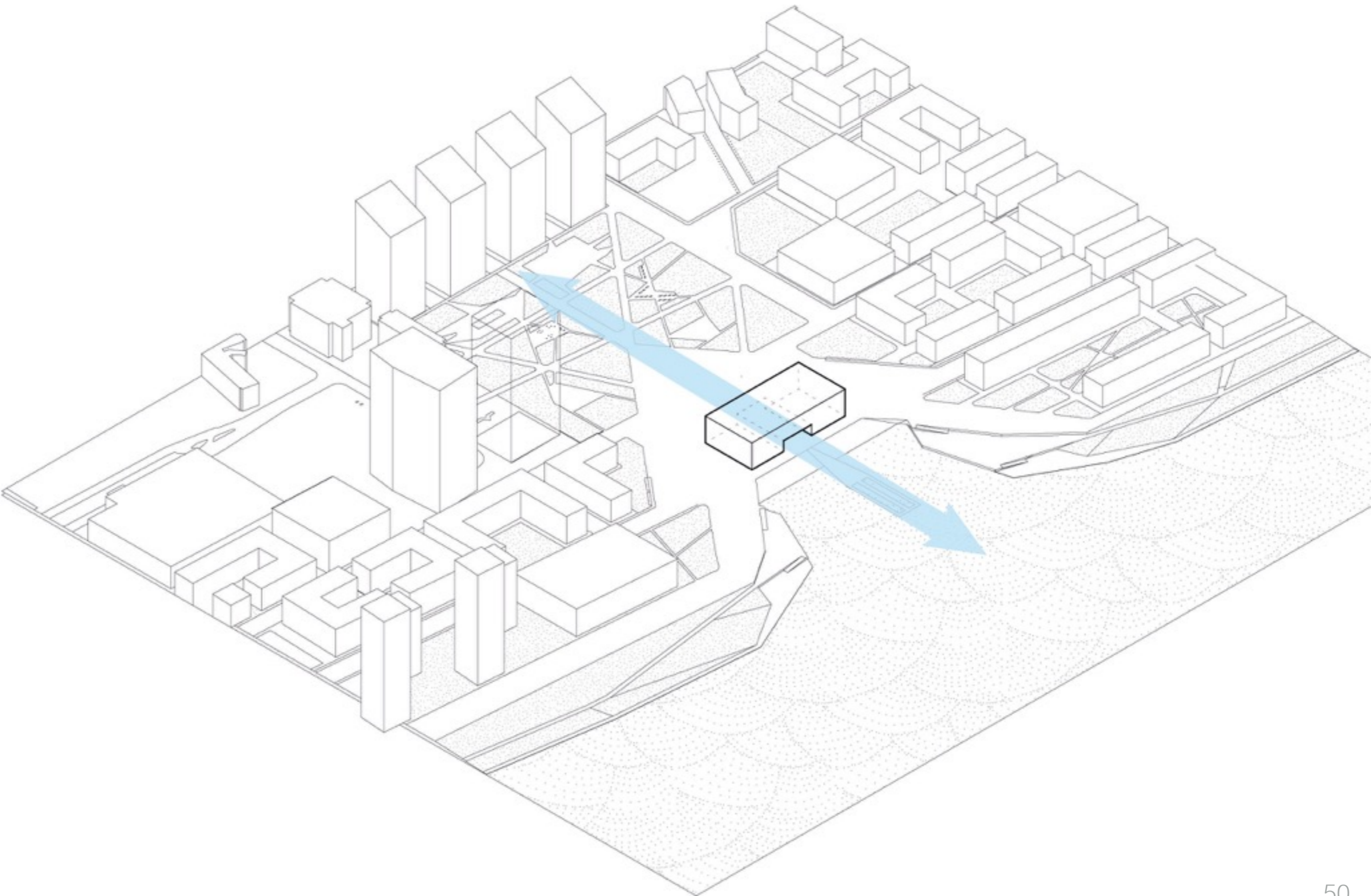


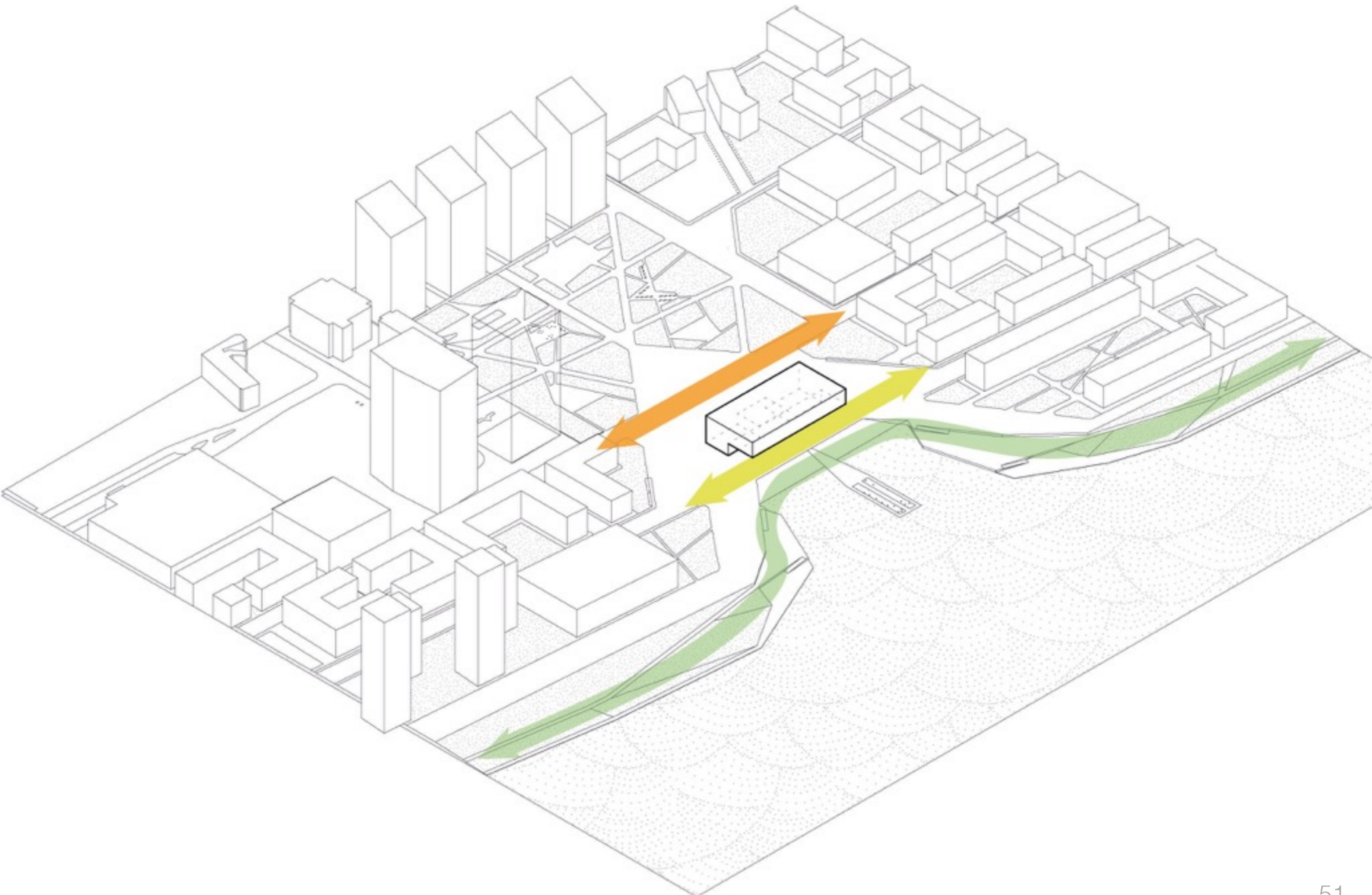
LEISURE

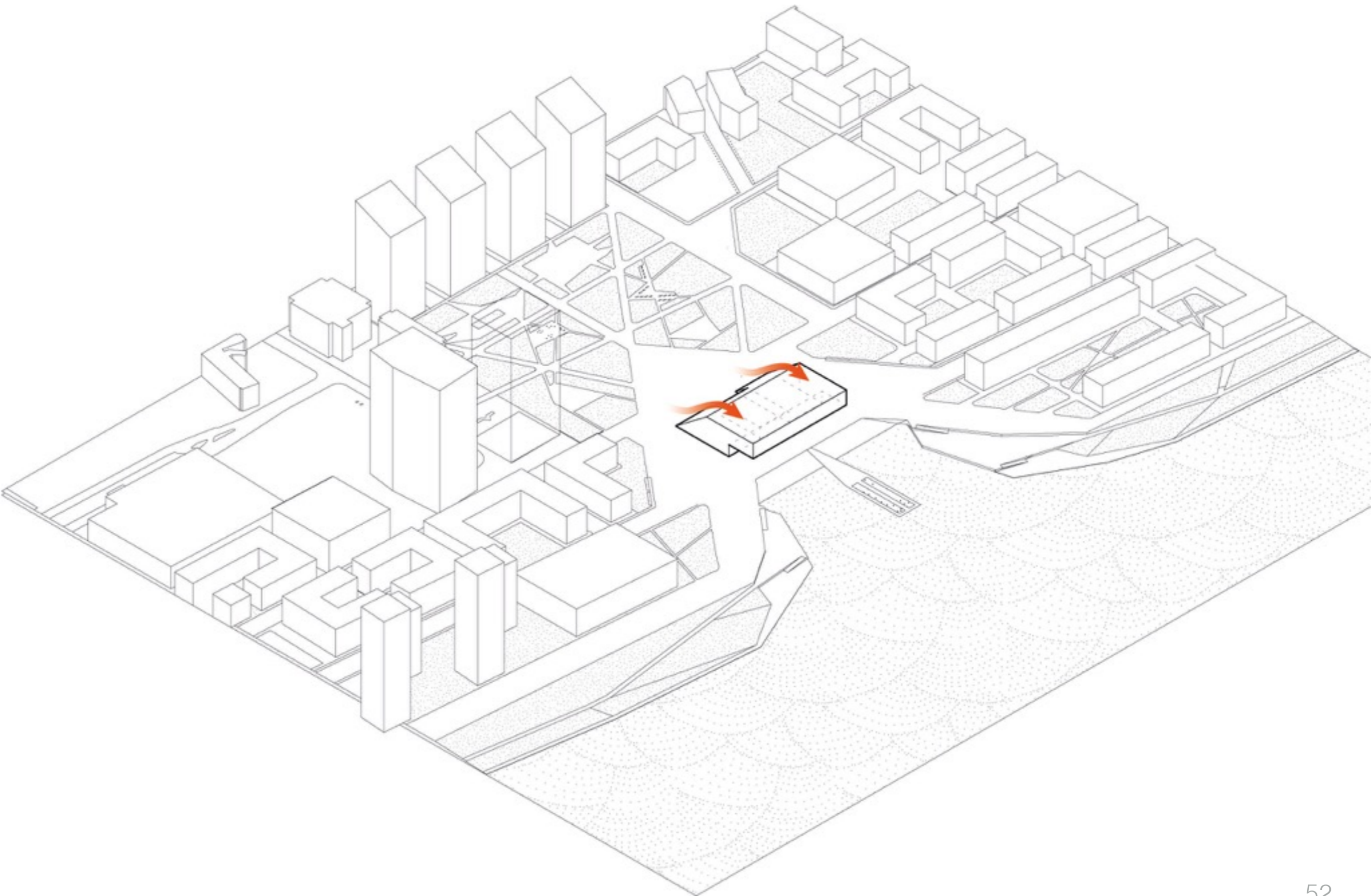


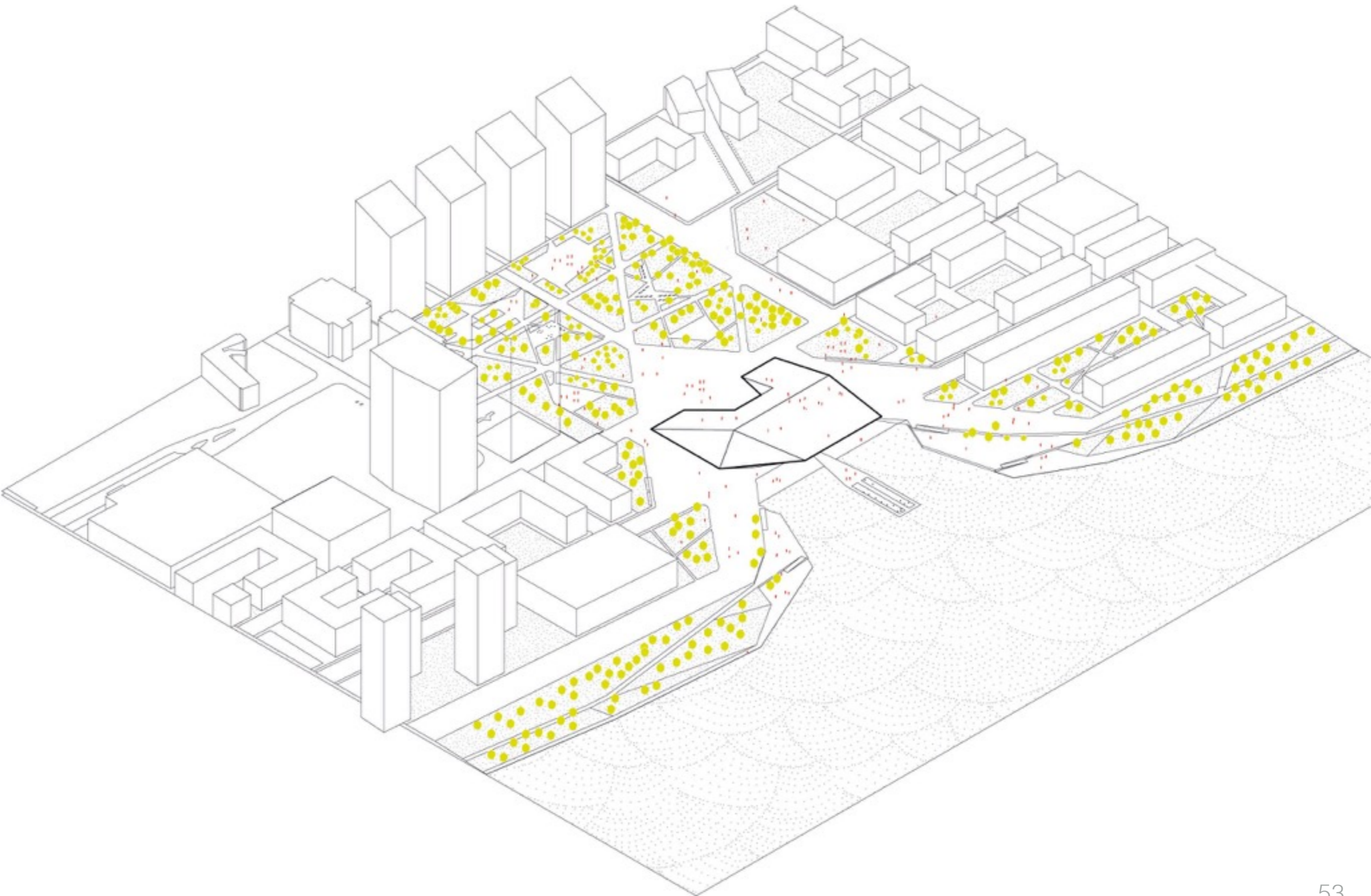
shape

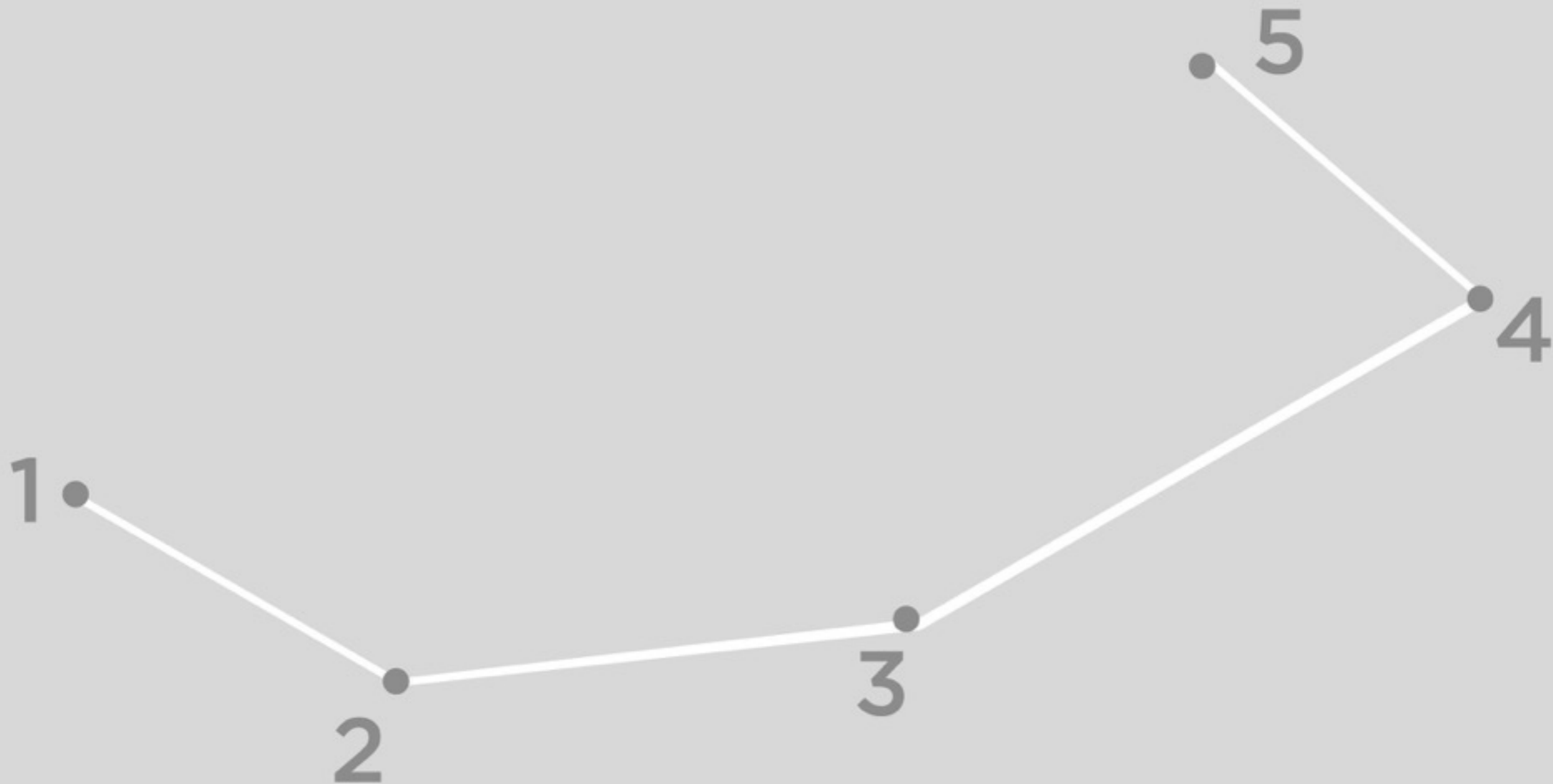




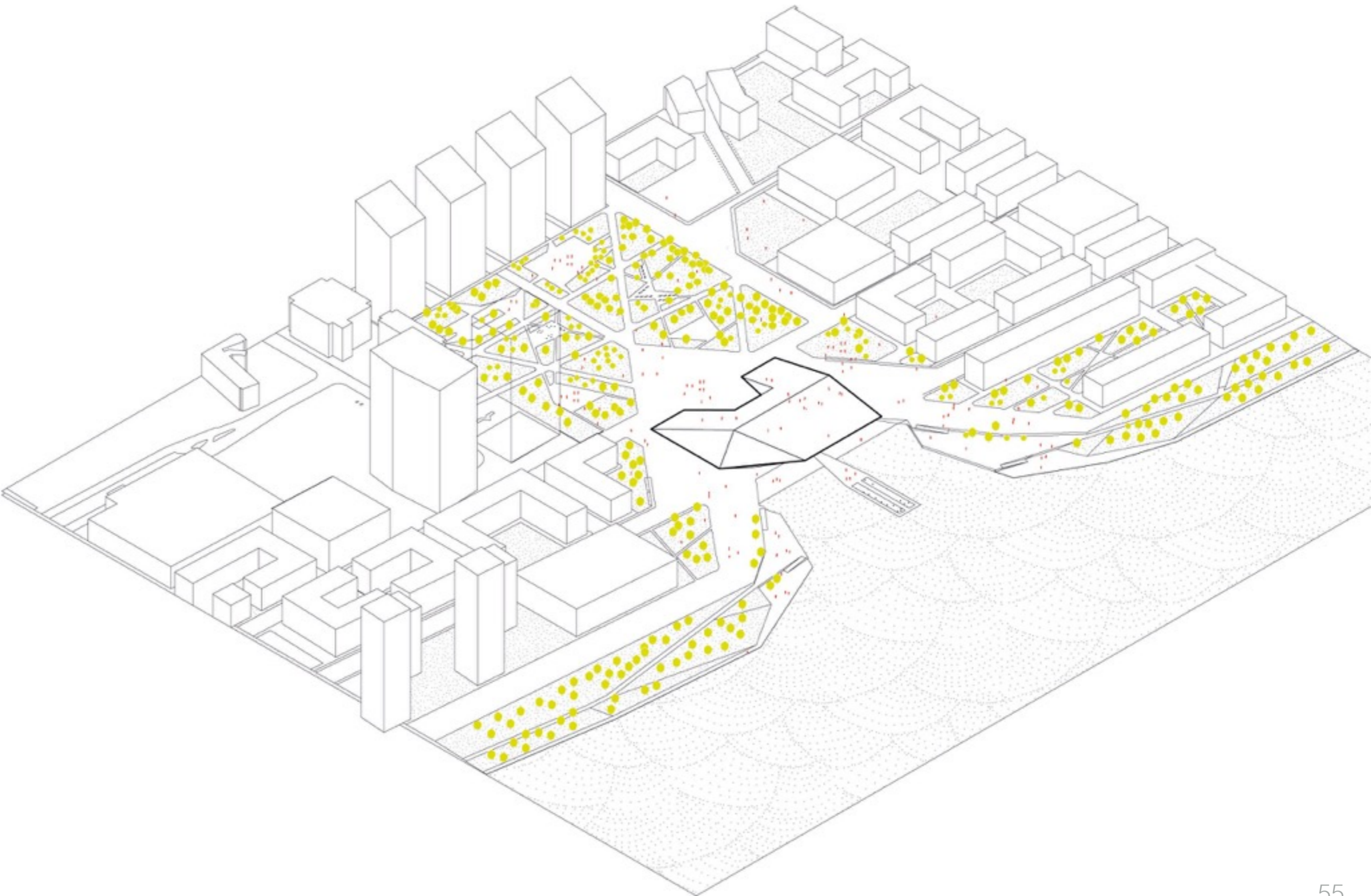


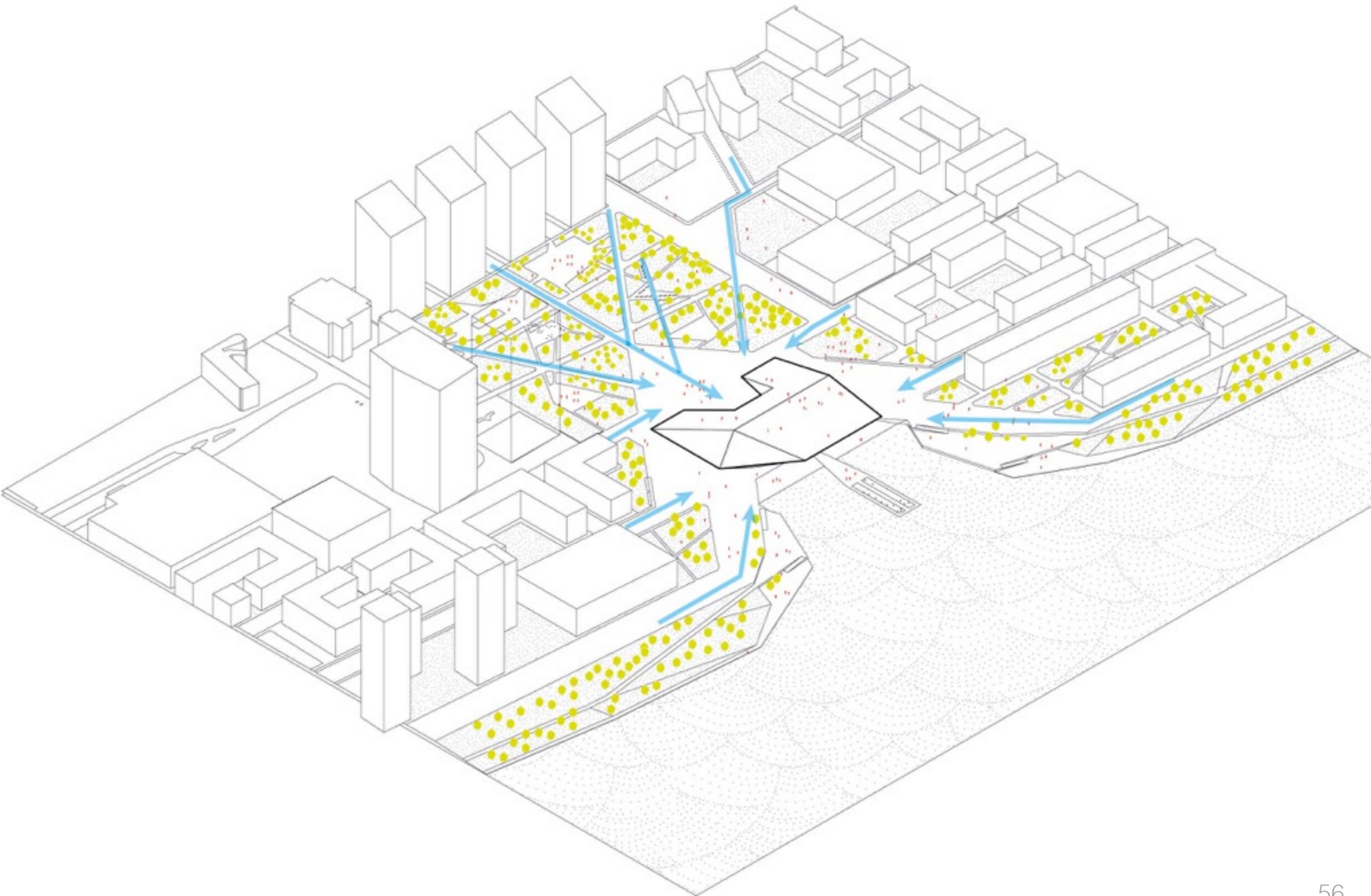


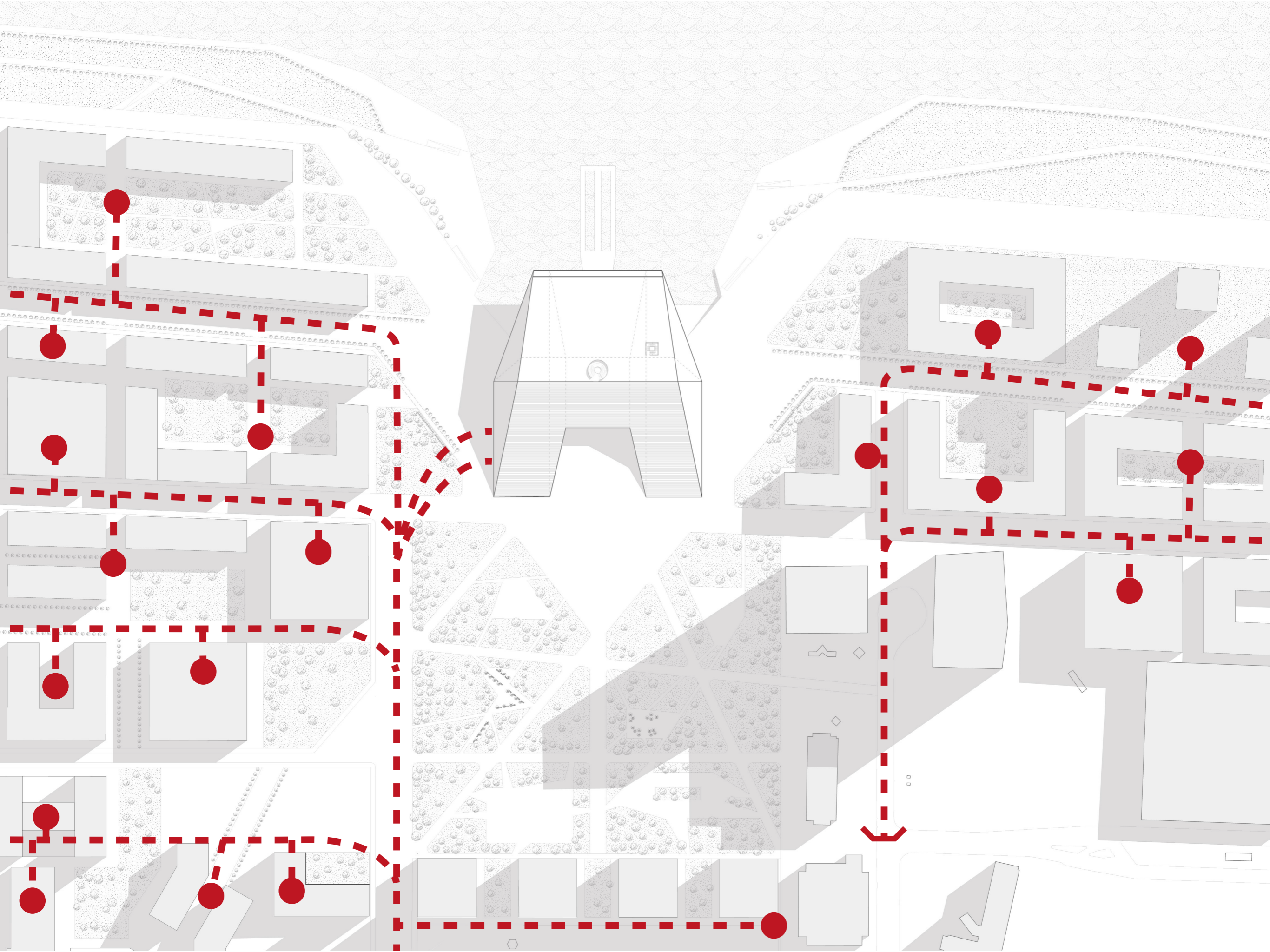




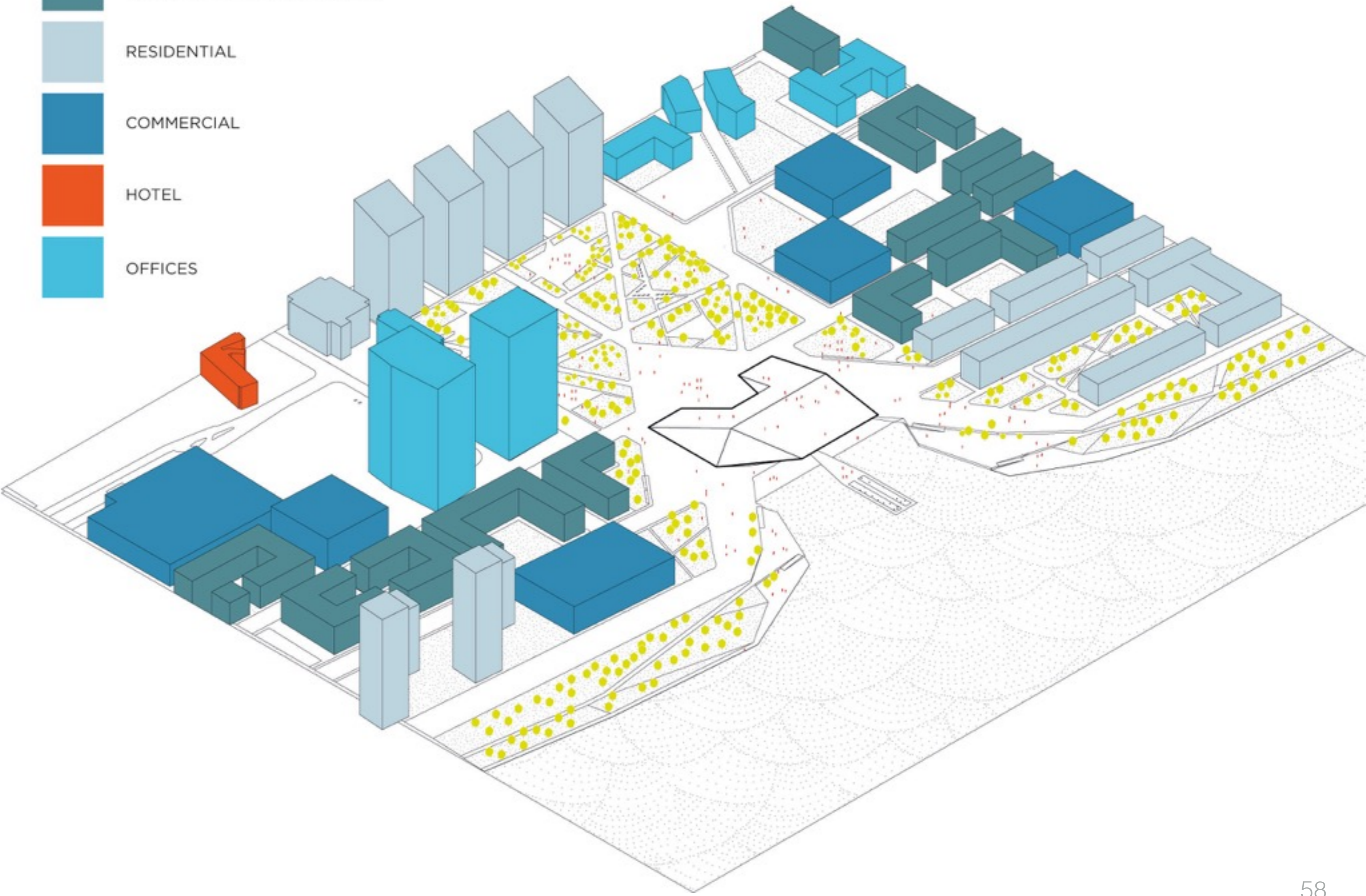
surroundings

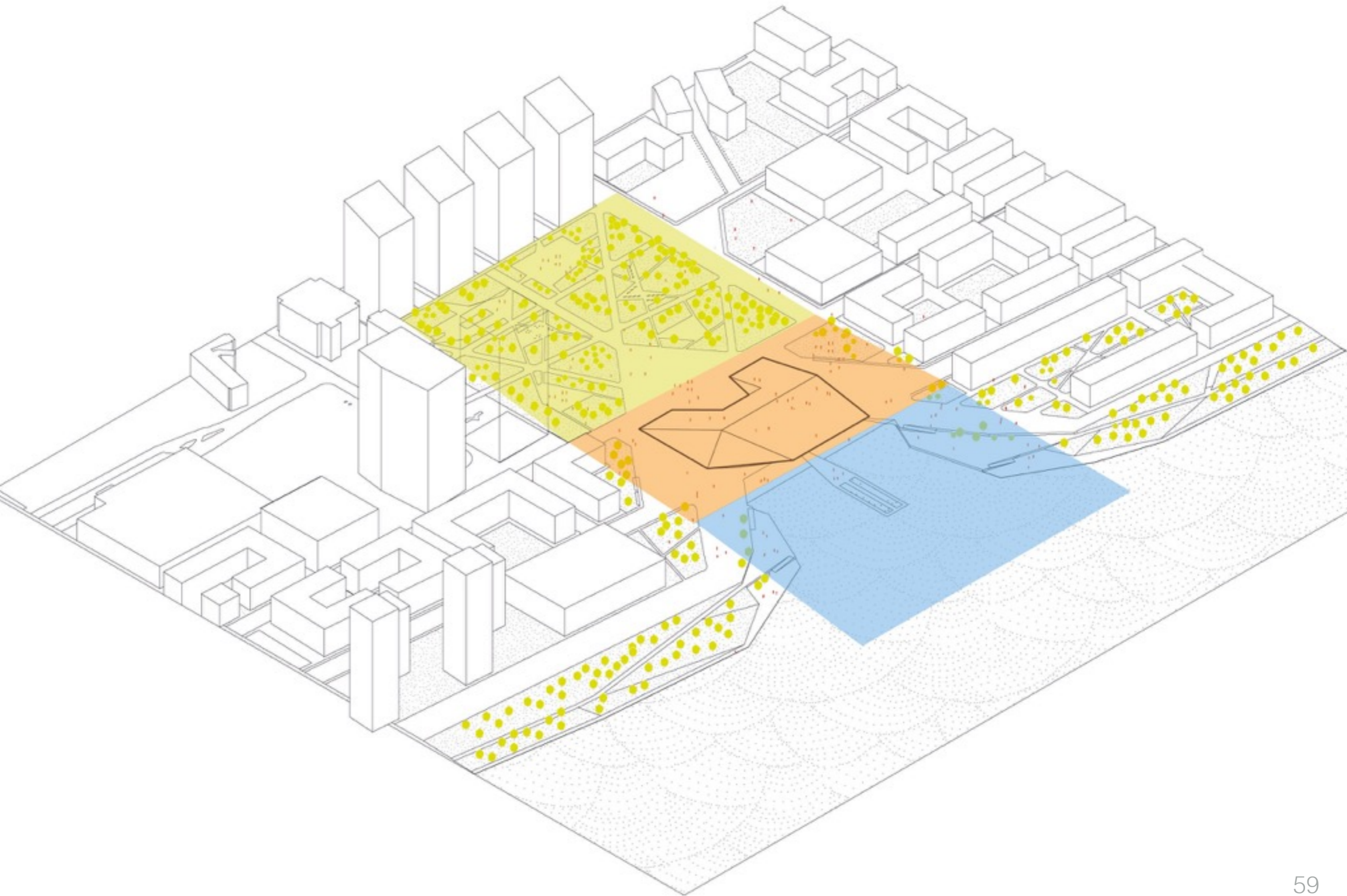


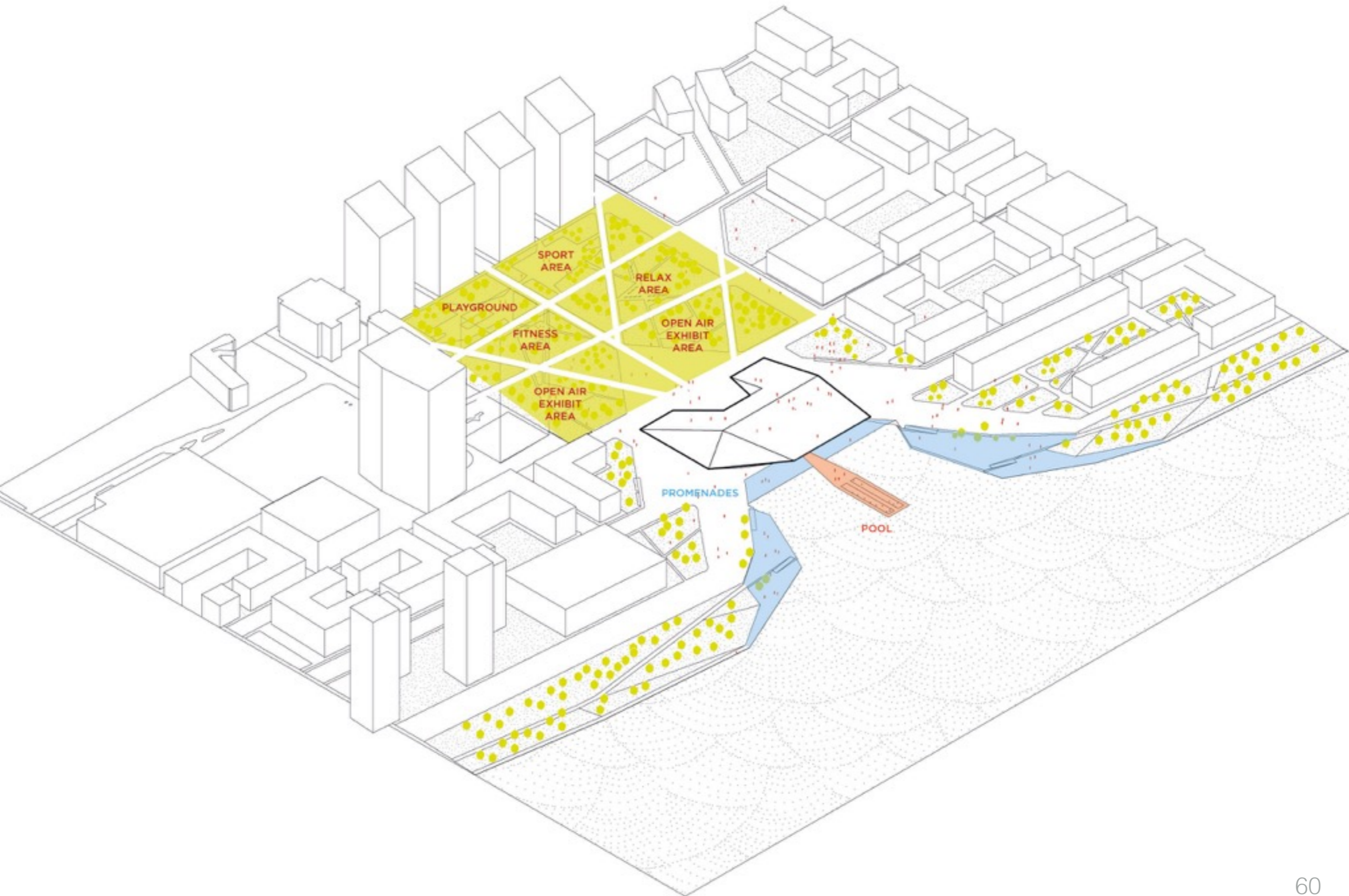




- RESIDENTIAL_
COMMERCIAL GROUND FLOOR
- RESIDENTIAL
- COMMERCIAL
- HOTEL
- OFFICES









building

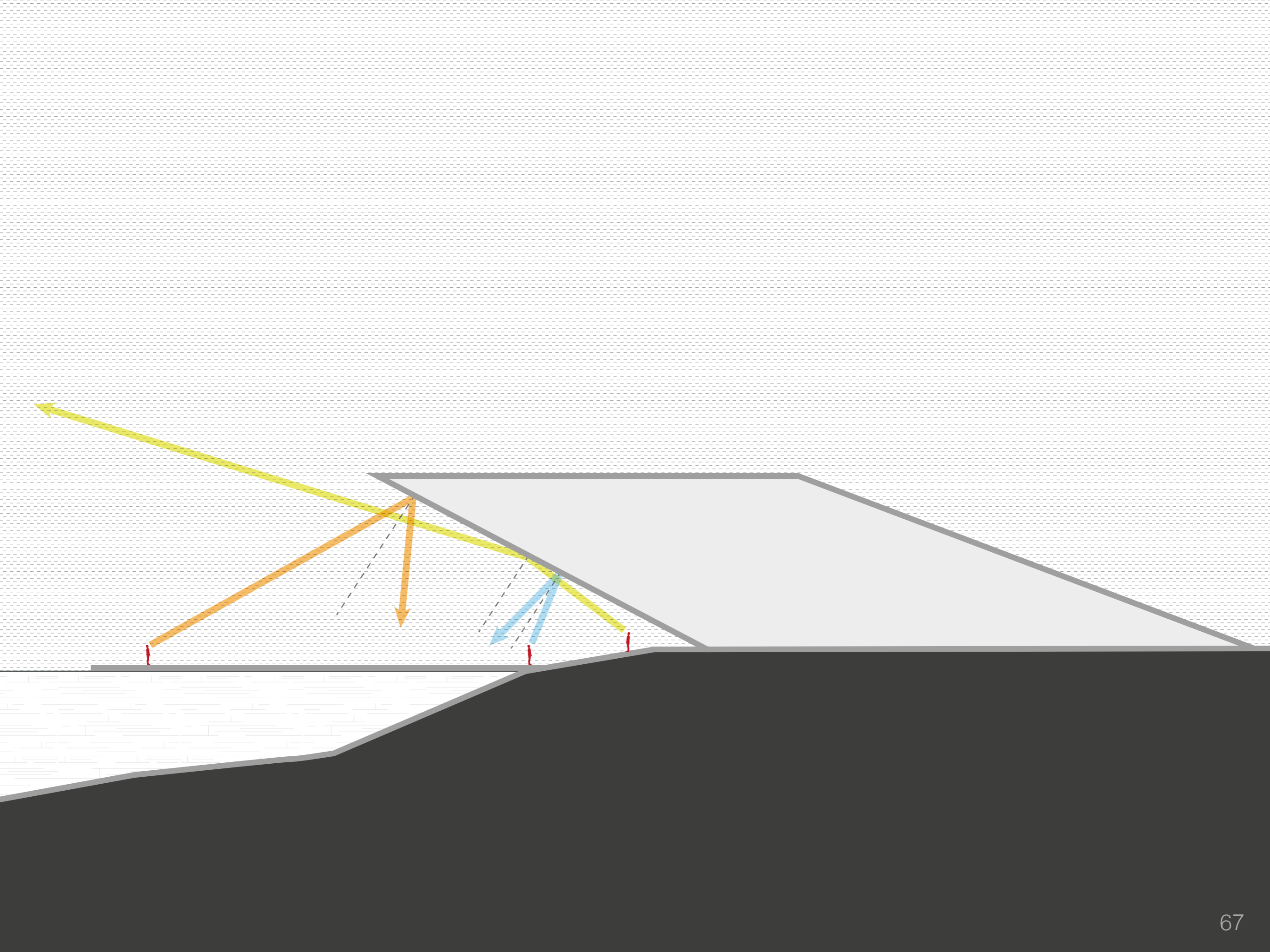
CLIFF



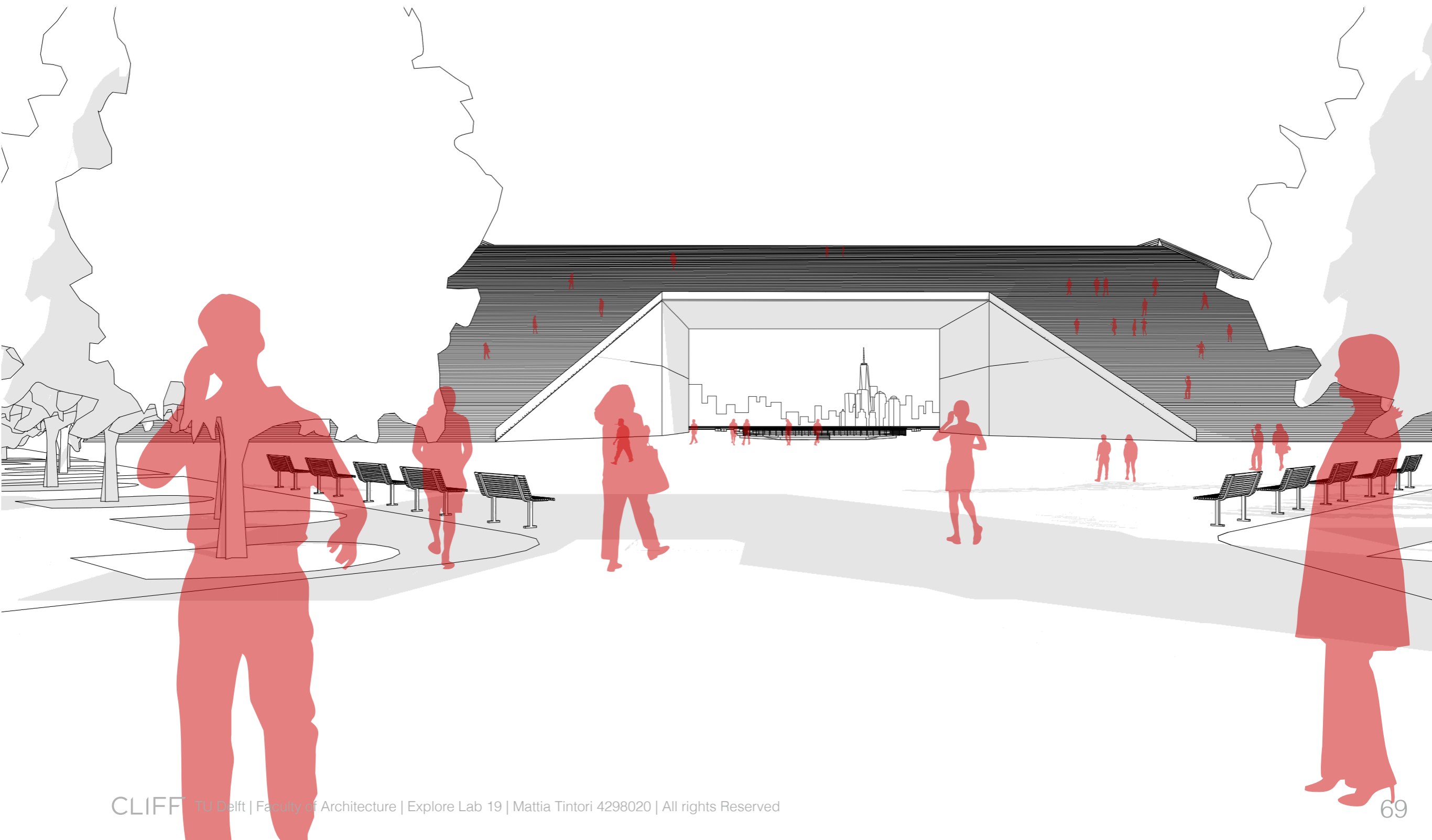








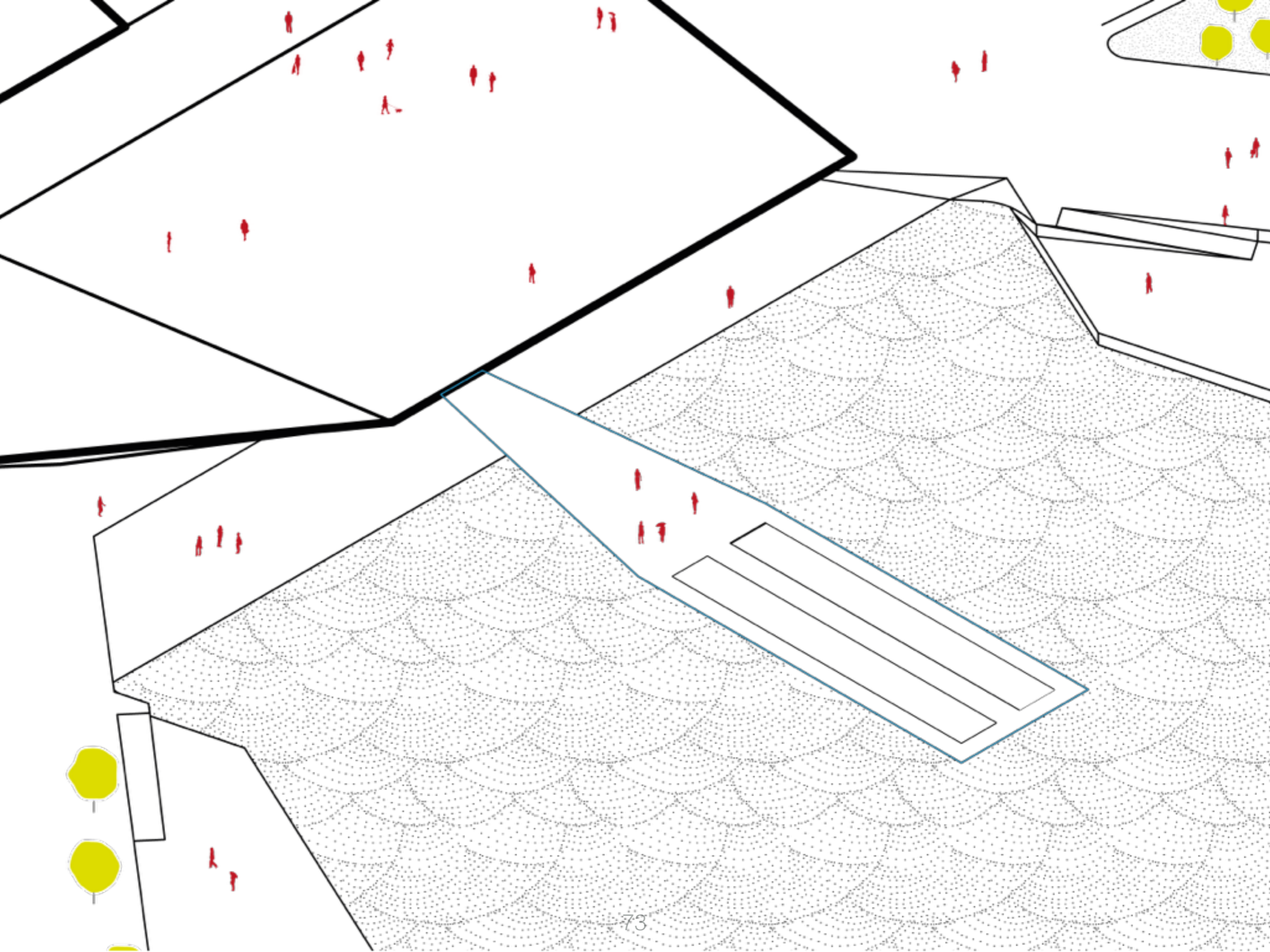












RELAX POOL

SPORT POOL

LAYERED FILTRATION SYSTEM

1 Primary Screening
Prevents Objects and contaminants of 150 Microns and larger from passing through:

WILDLIFE	FLOATABLES & DEBRIS	GREASE & OIL	SEDIMENTS	SUSPENDED SOLIDS

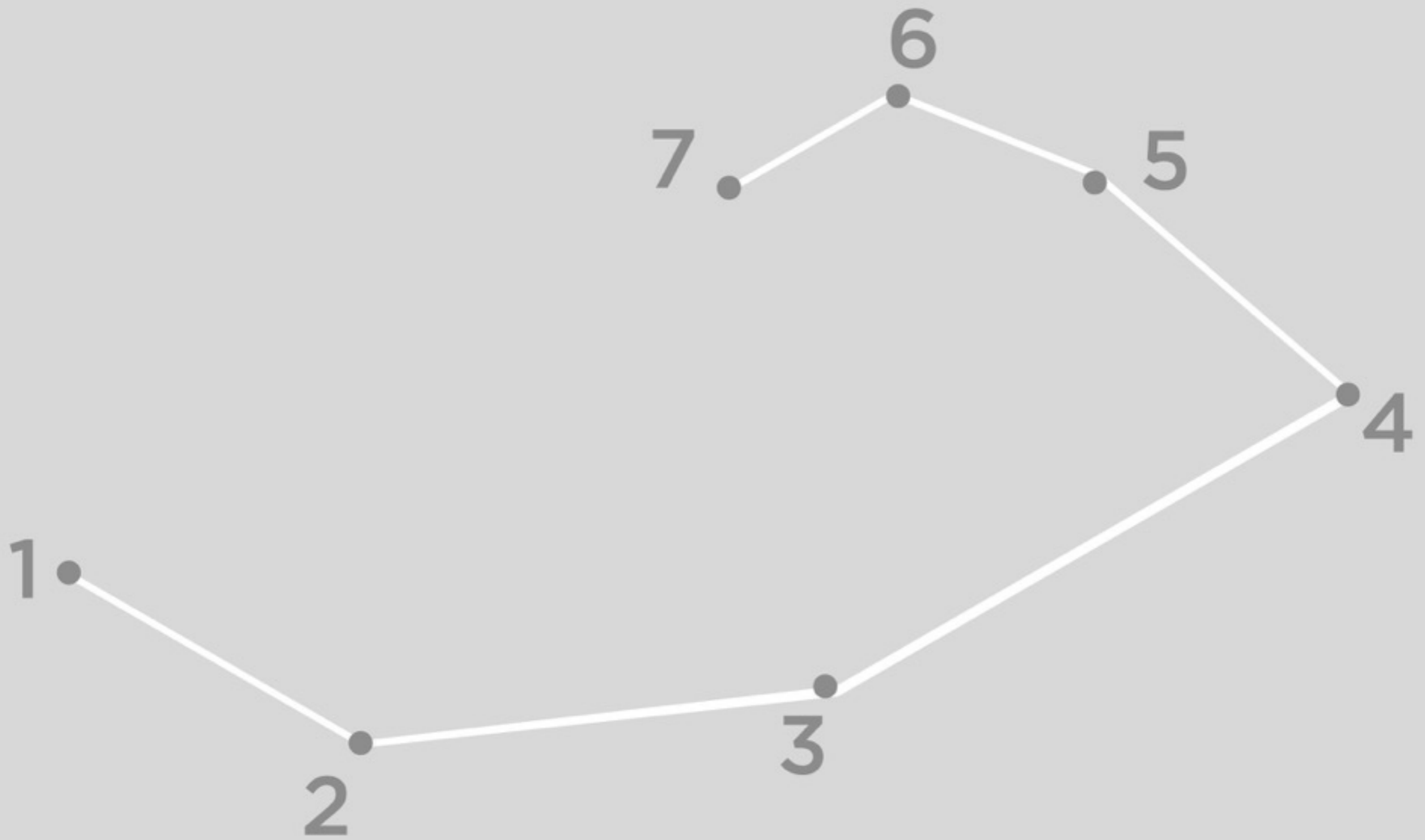
2 Secondary Filtration
Removes Contaminants down to 1 Micron:

SUSPENDED SOLIDS	ORGANIC MATTER	ALGAE	BACTERIA

3 Disinfection
Deactivation of microorganisms:

BACTERIA	VIRUSES





programme

Exhibition
9800 sqm

Hall
1600 sqm

**Temporary
exhibit**
800 sqm

**Transformable
space**
1300 sqm

Offices
1100 sqm

Storage
4200 sqm

Cafè / Bar
840 sqm

Restaurants
1250 sqm

Parking
9600 sqm

Morning

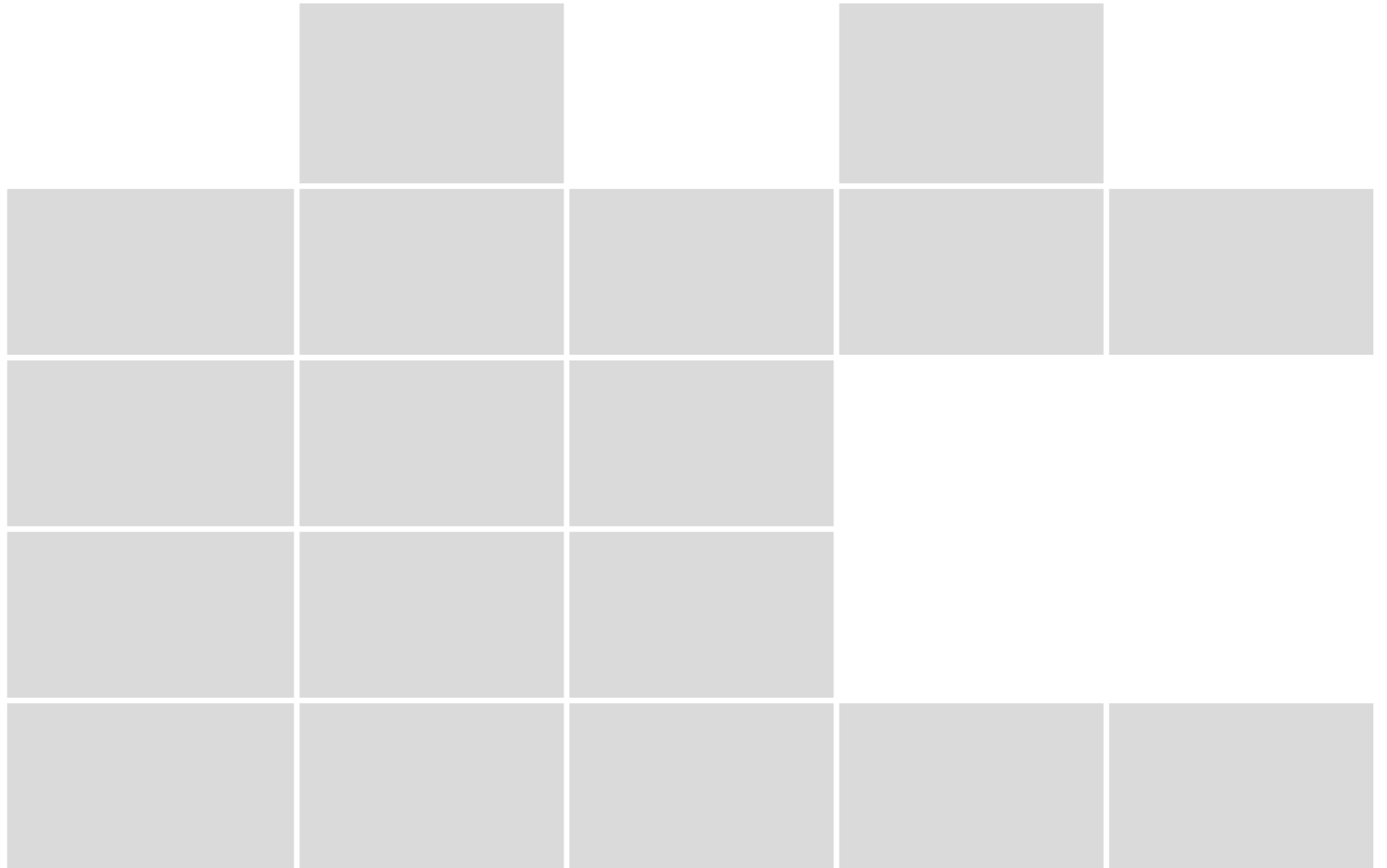
Lunch

Afternoon

Dinner

Night

Restaurants

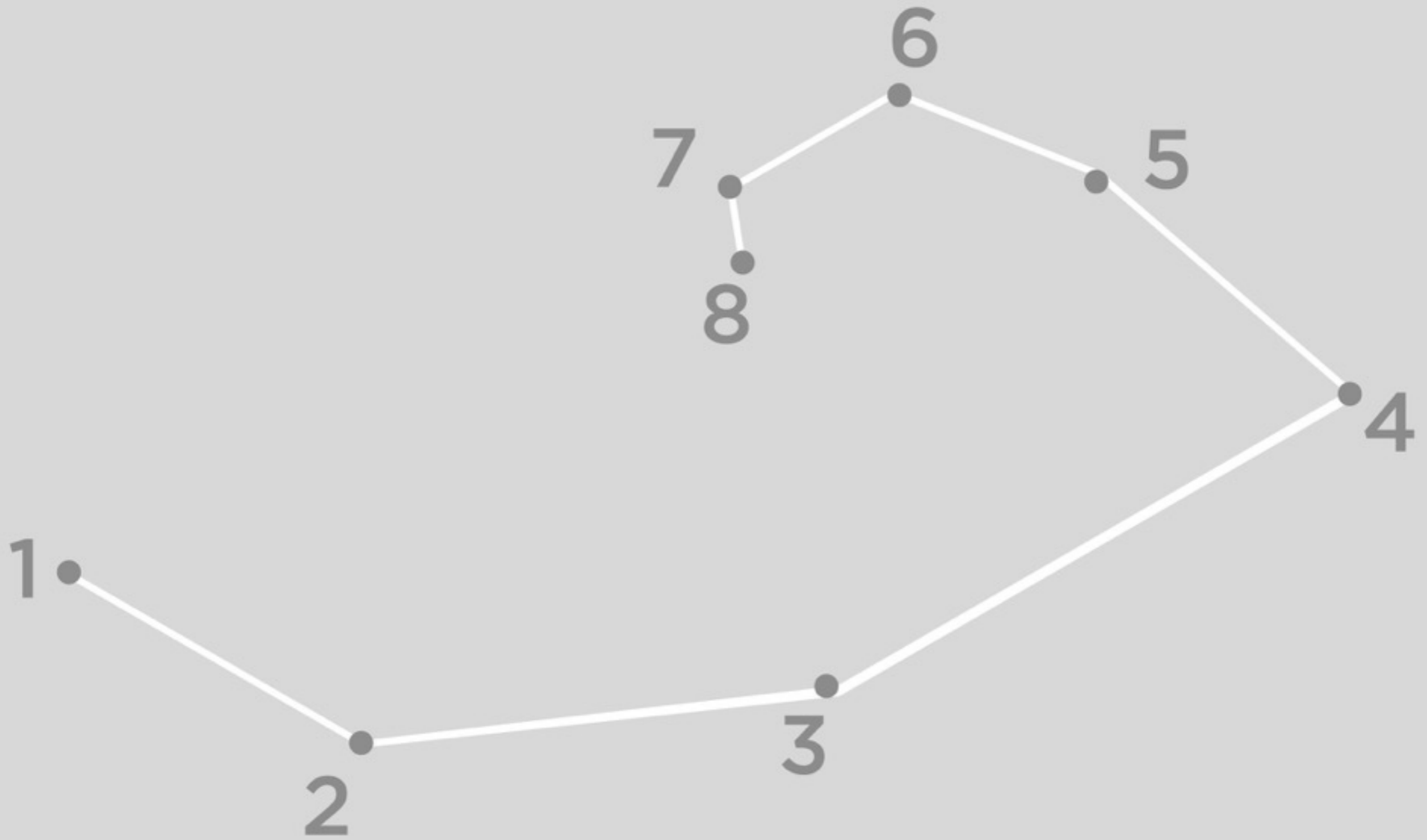


Cafè

Offices

Museum

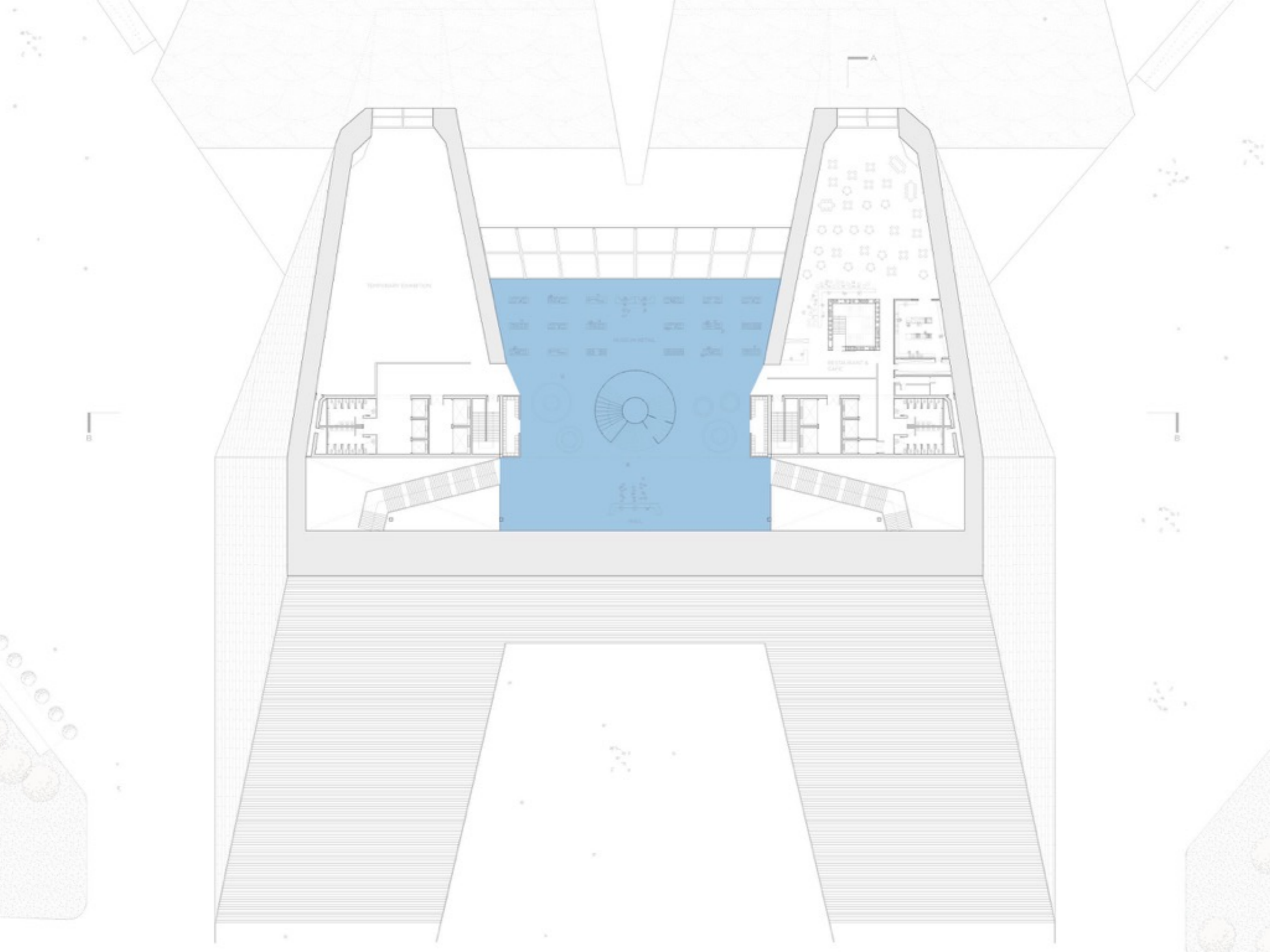
Parking



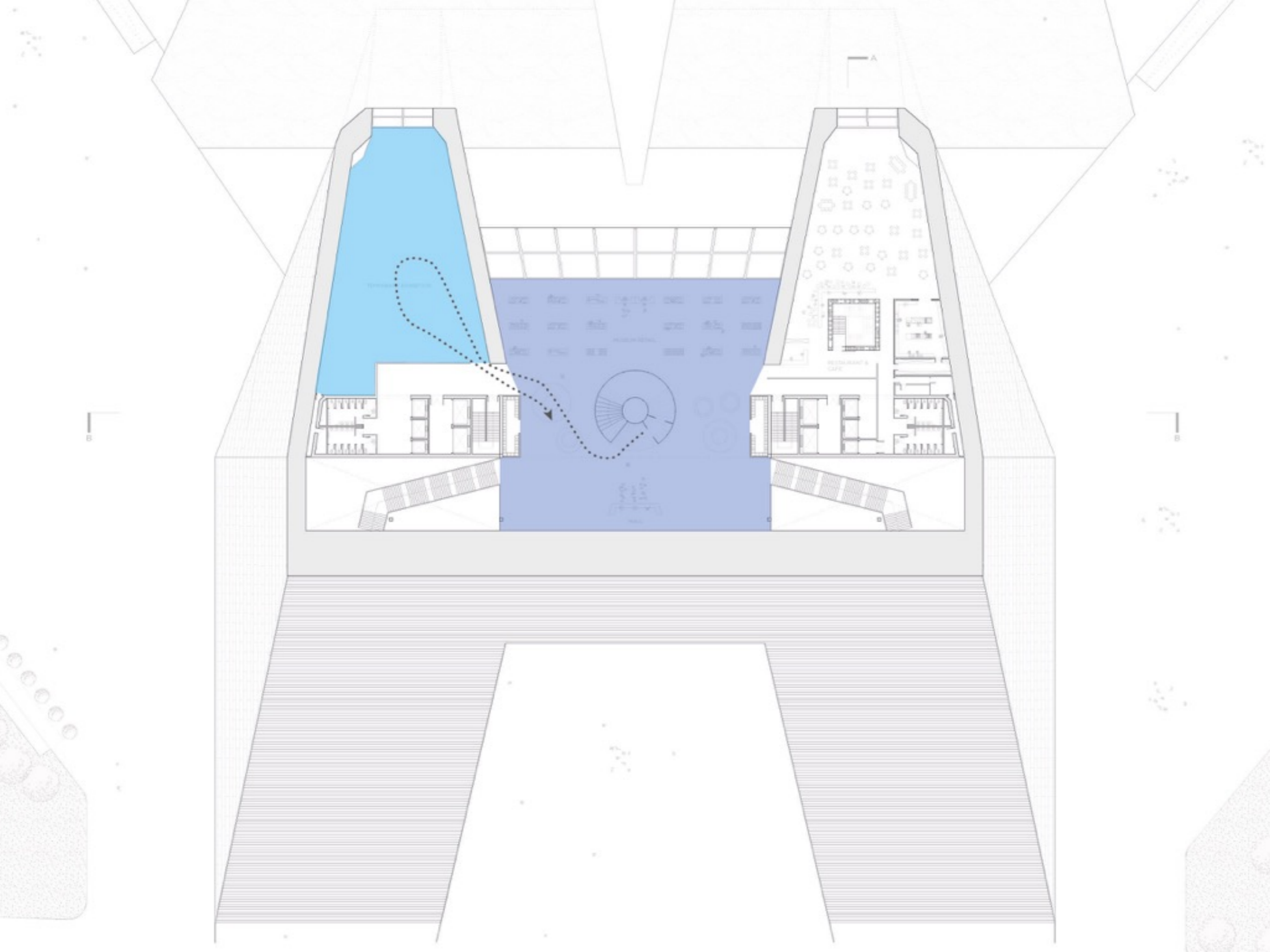
programme positioning & routing

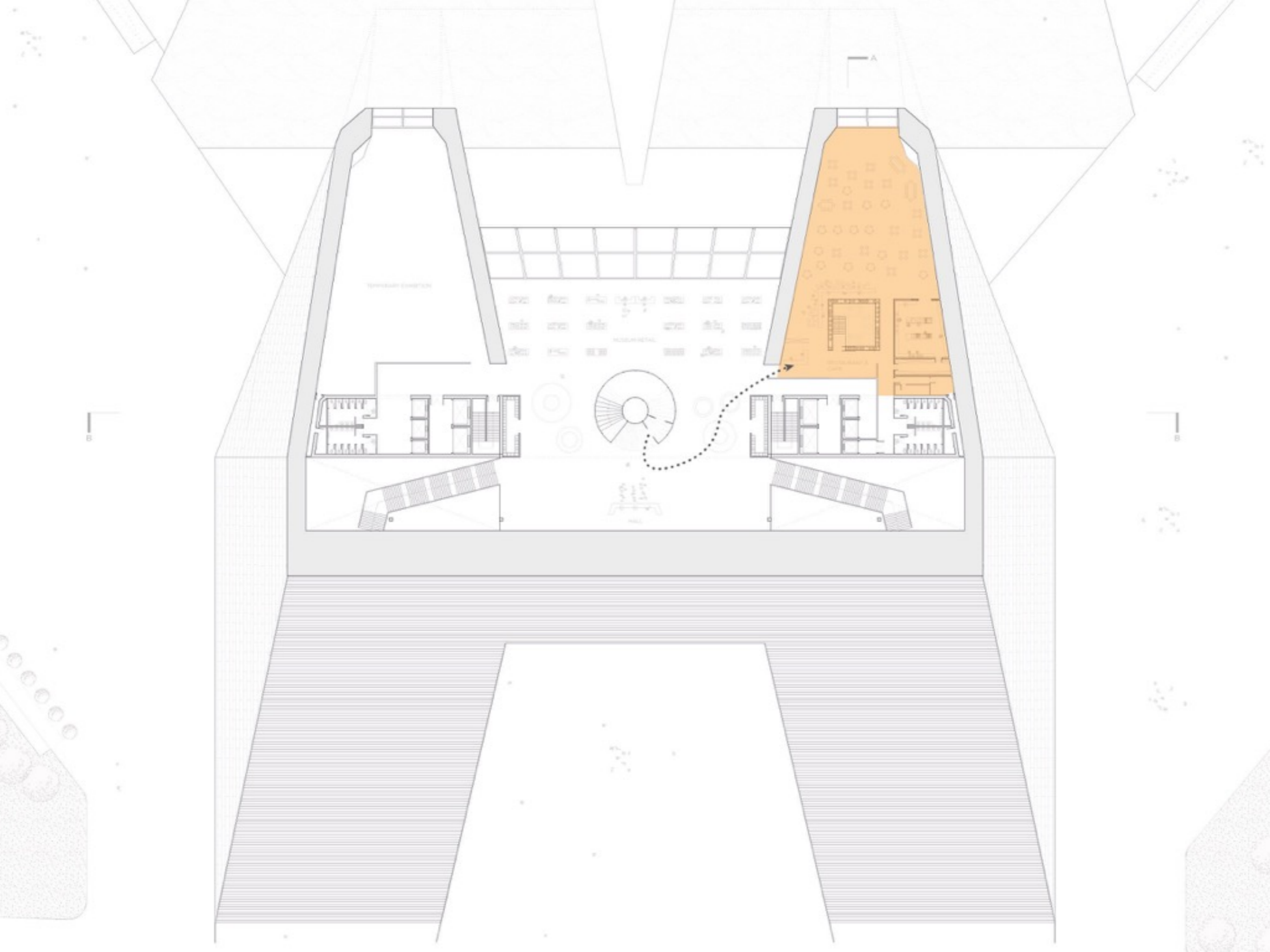


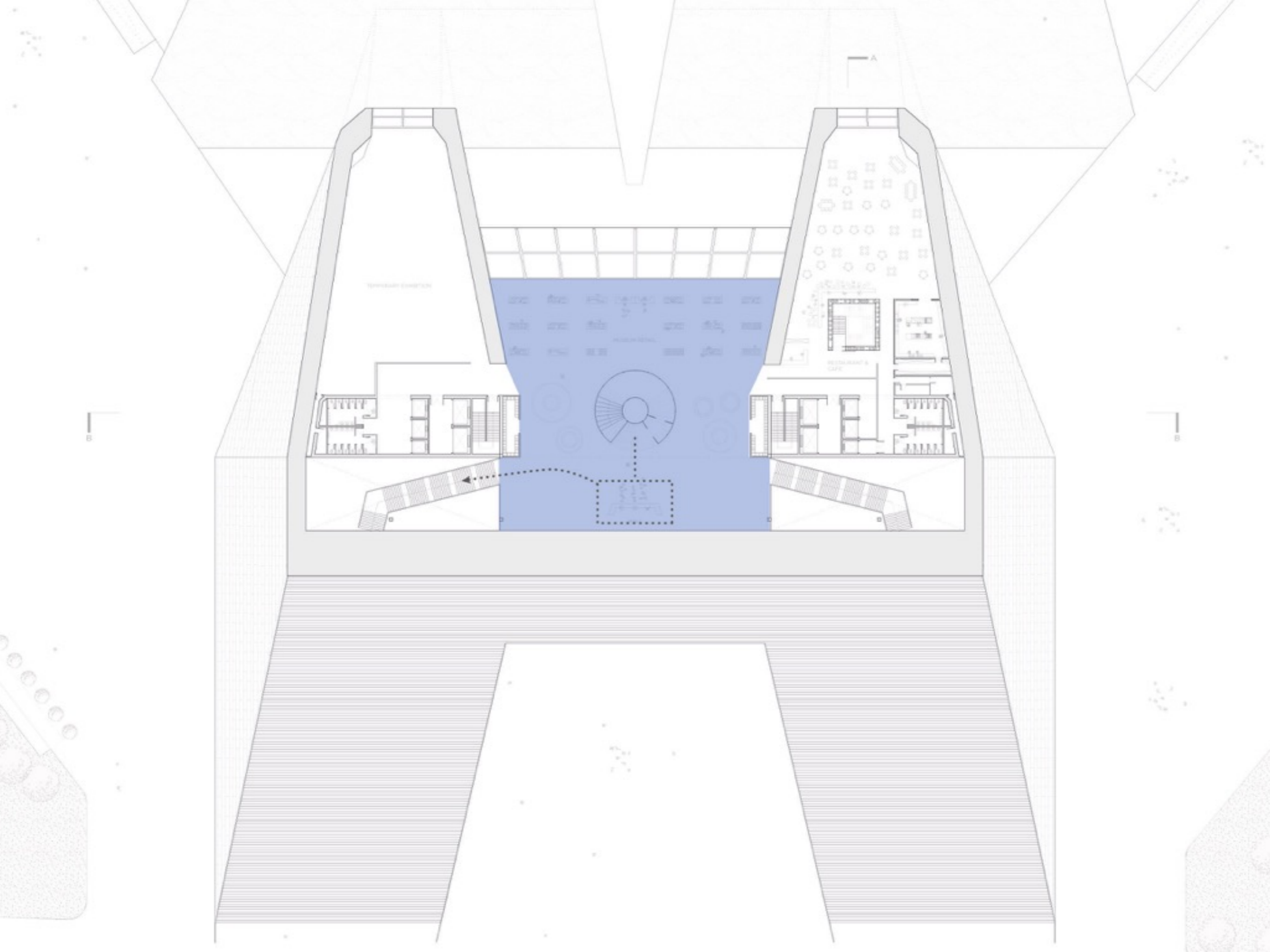




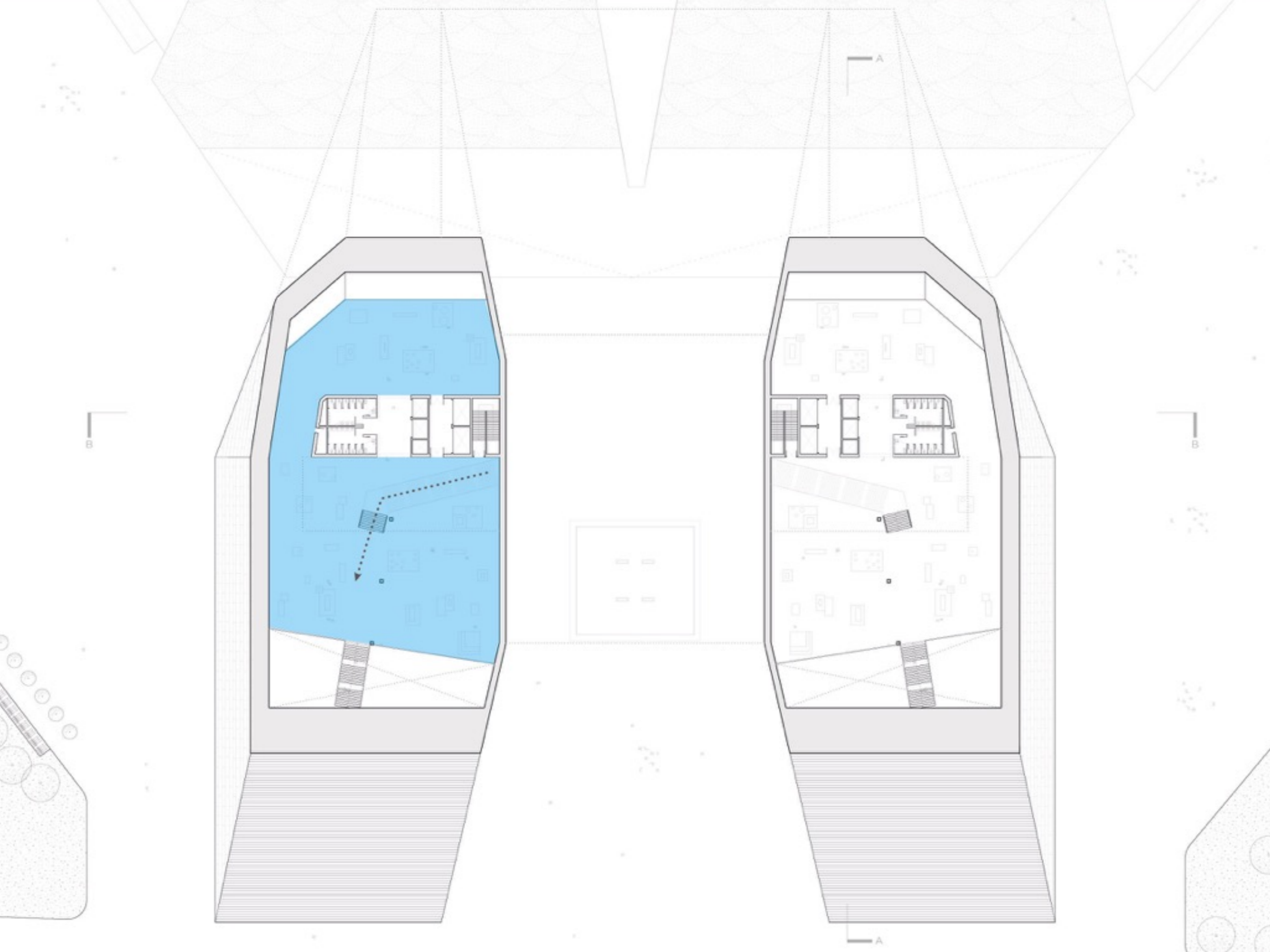




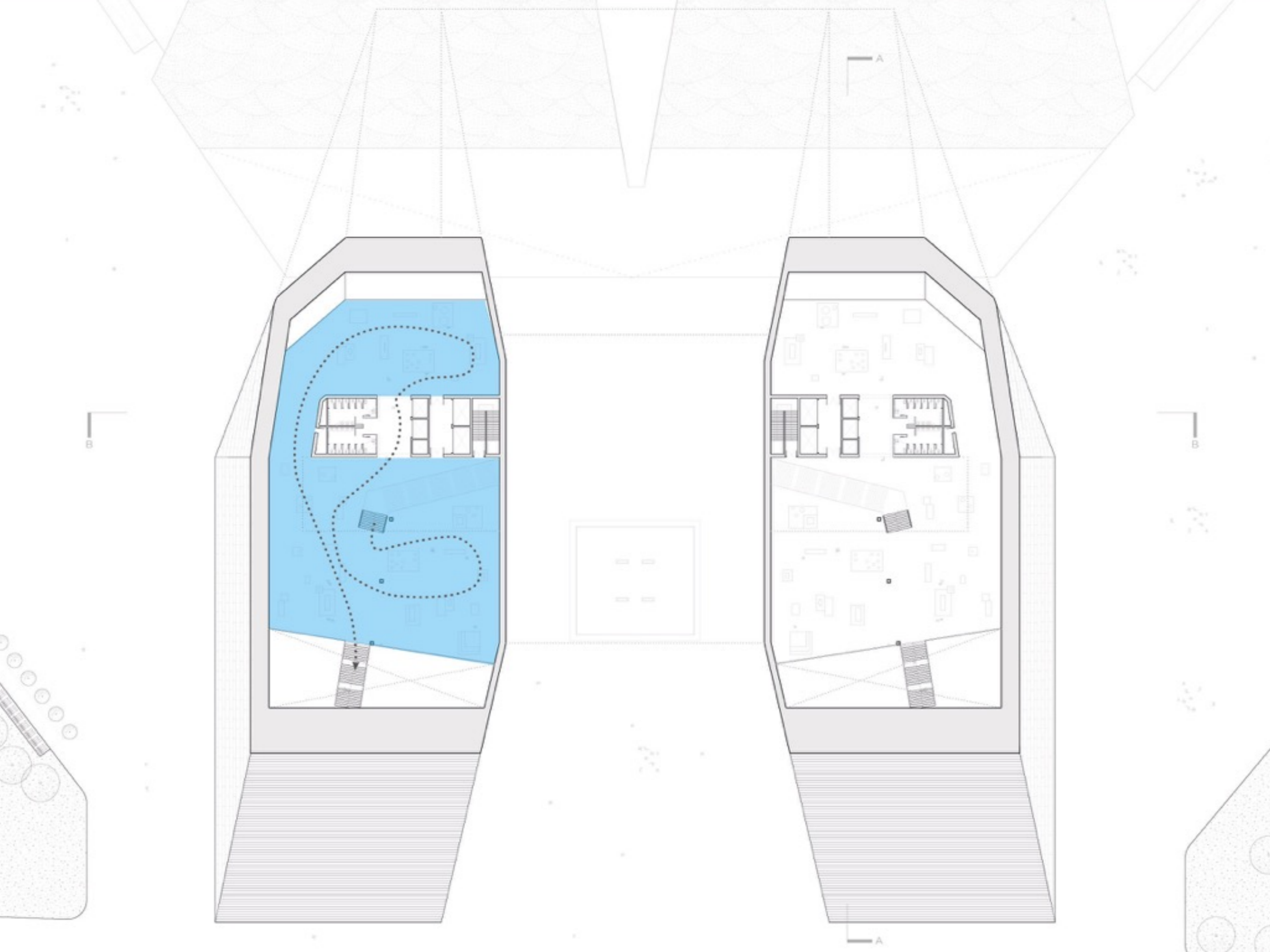






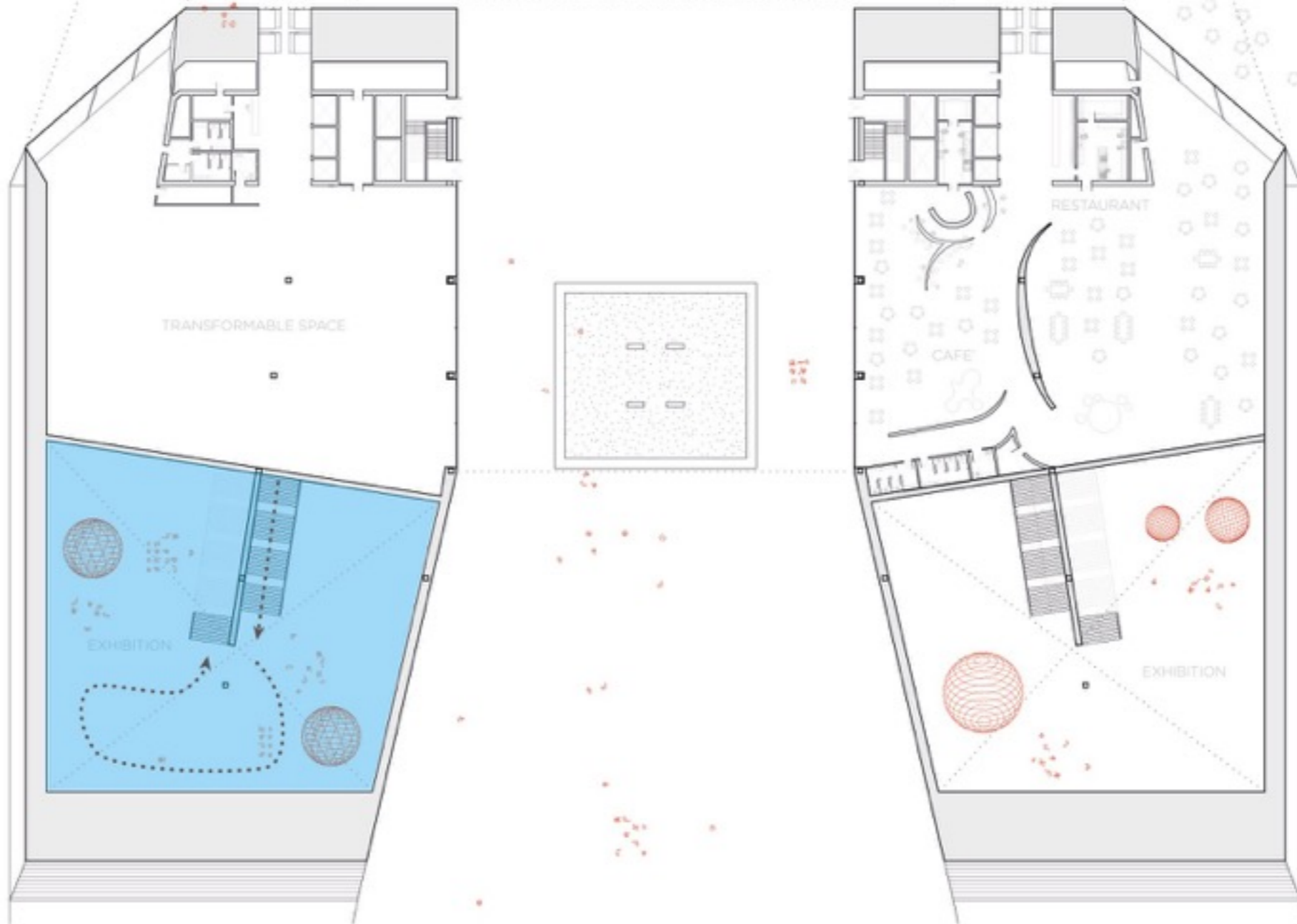






LOW TIDE

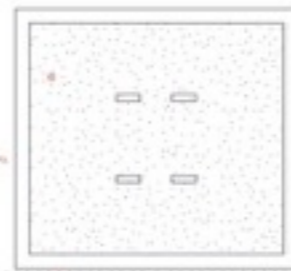
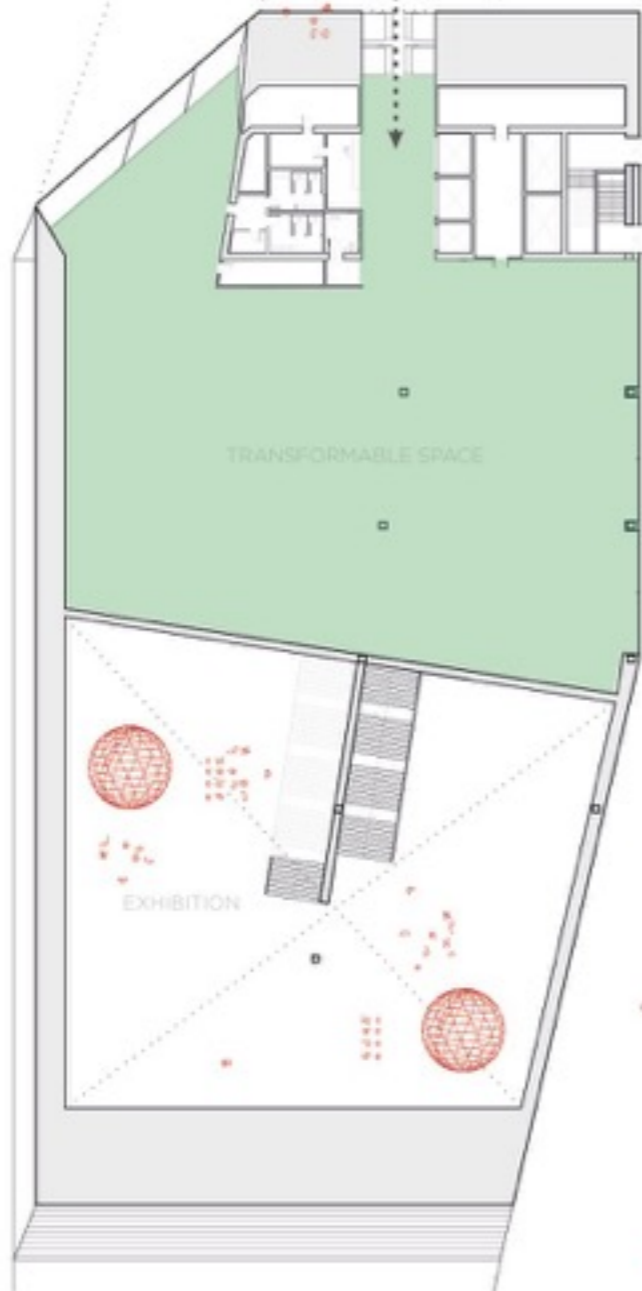
100 YRS FLOOD
+2100 SLR
(HIGH PROJECTION)



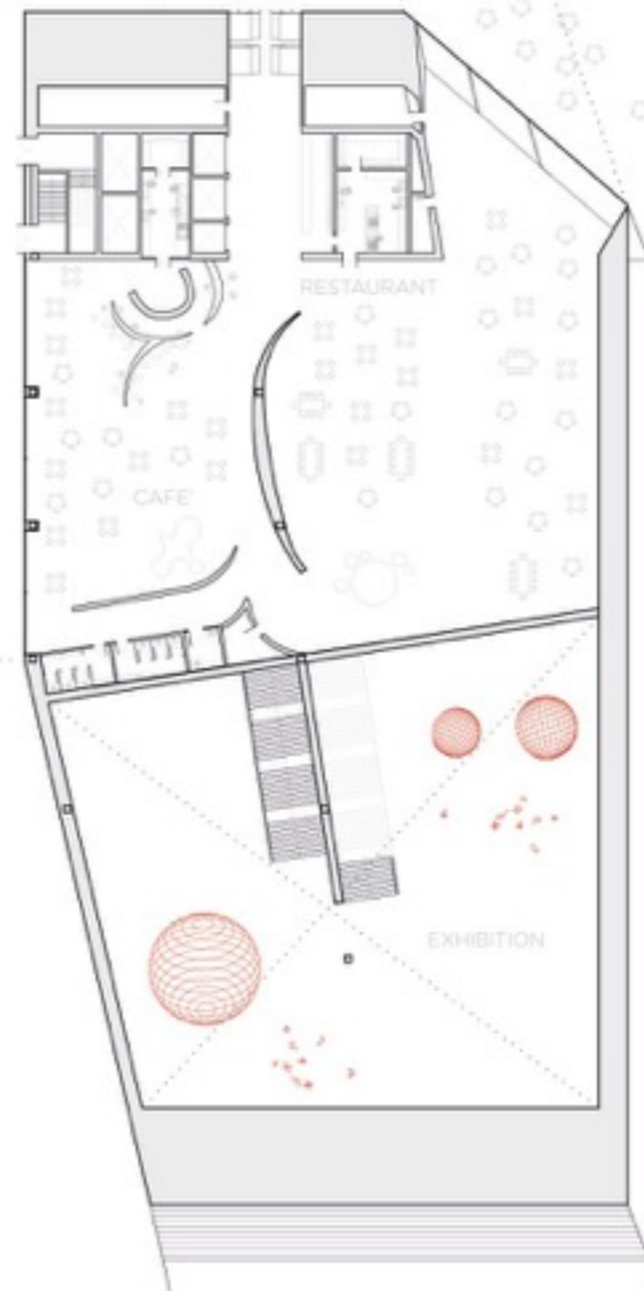


LOW TIDE

100 YRS FLOOD
+2100 SLR
(HIGH PROJECTION)



100



LOW TIDE

100 YRS FLOOD
+2100 SLR
(HIGH PROJECTION)

B

B

TRANSFORMABLE SPACE

EXHIBITION

EXHIBITION

CAFE

1st

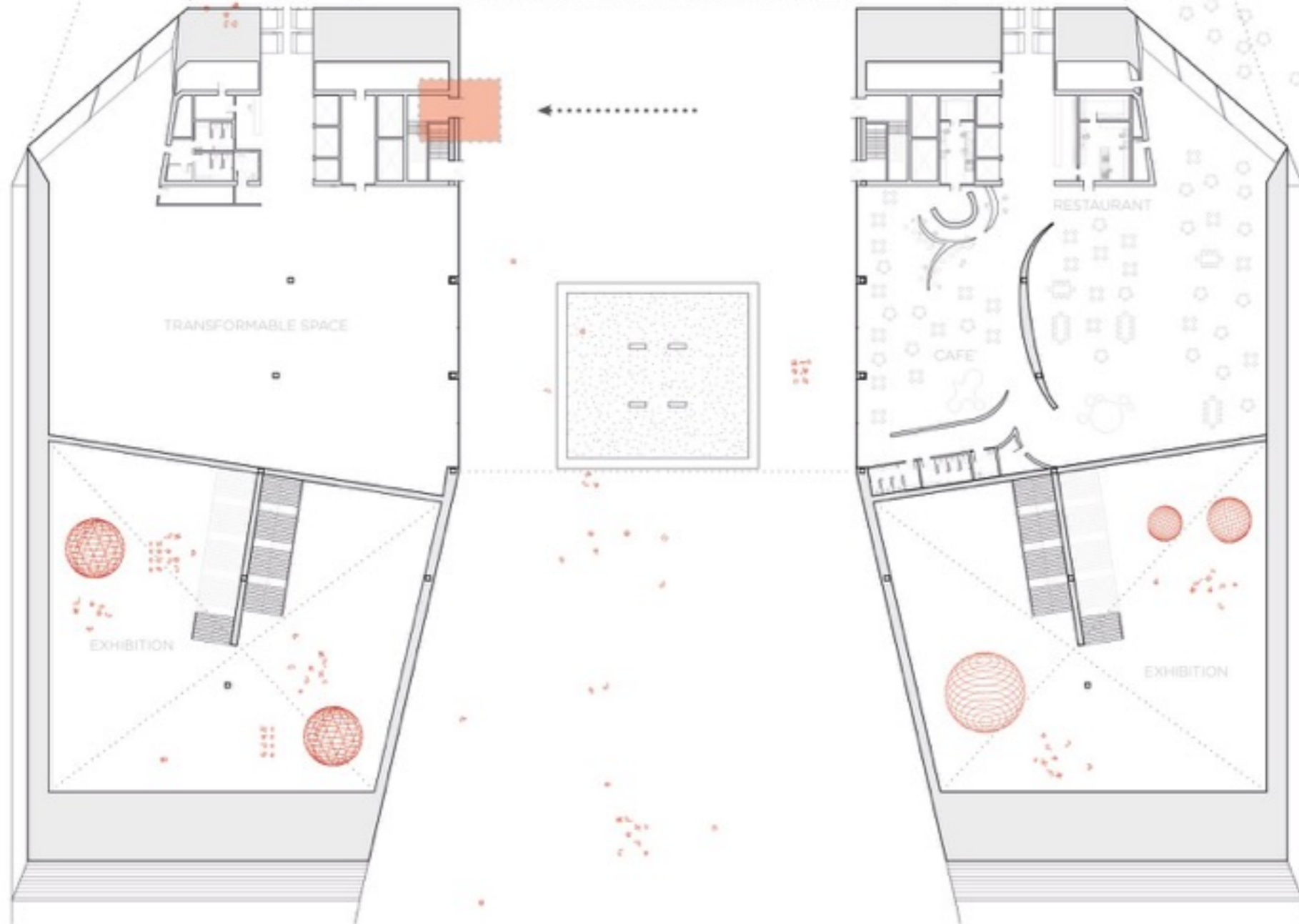


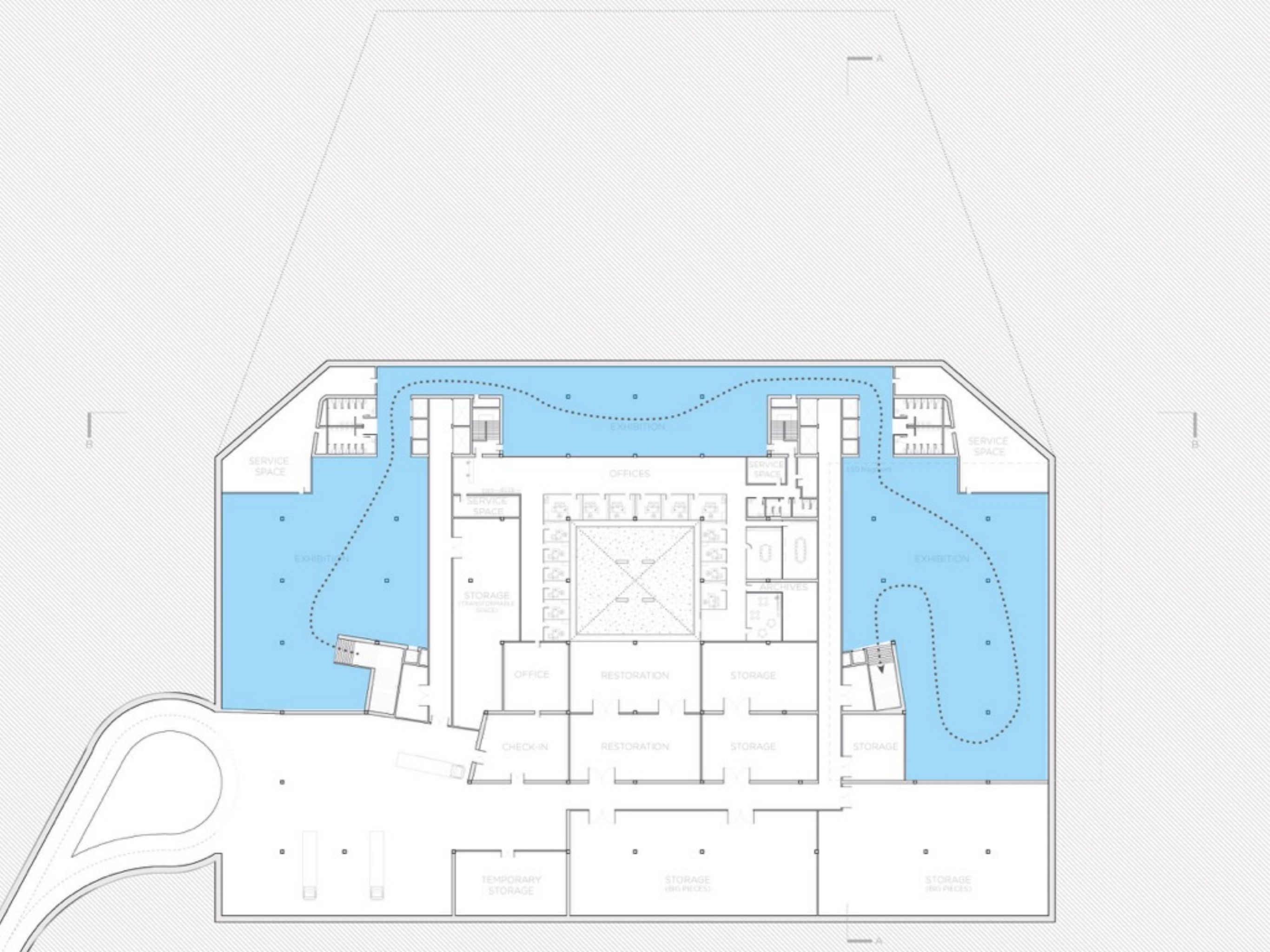
LOW TIDE

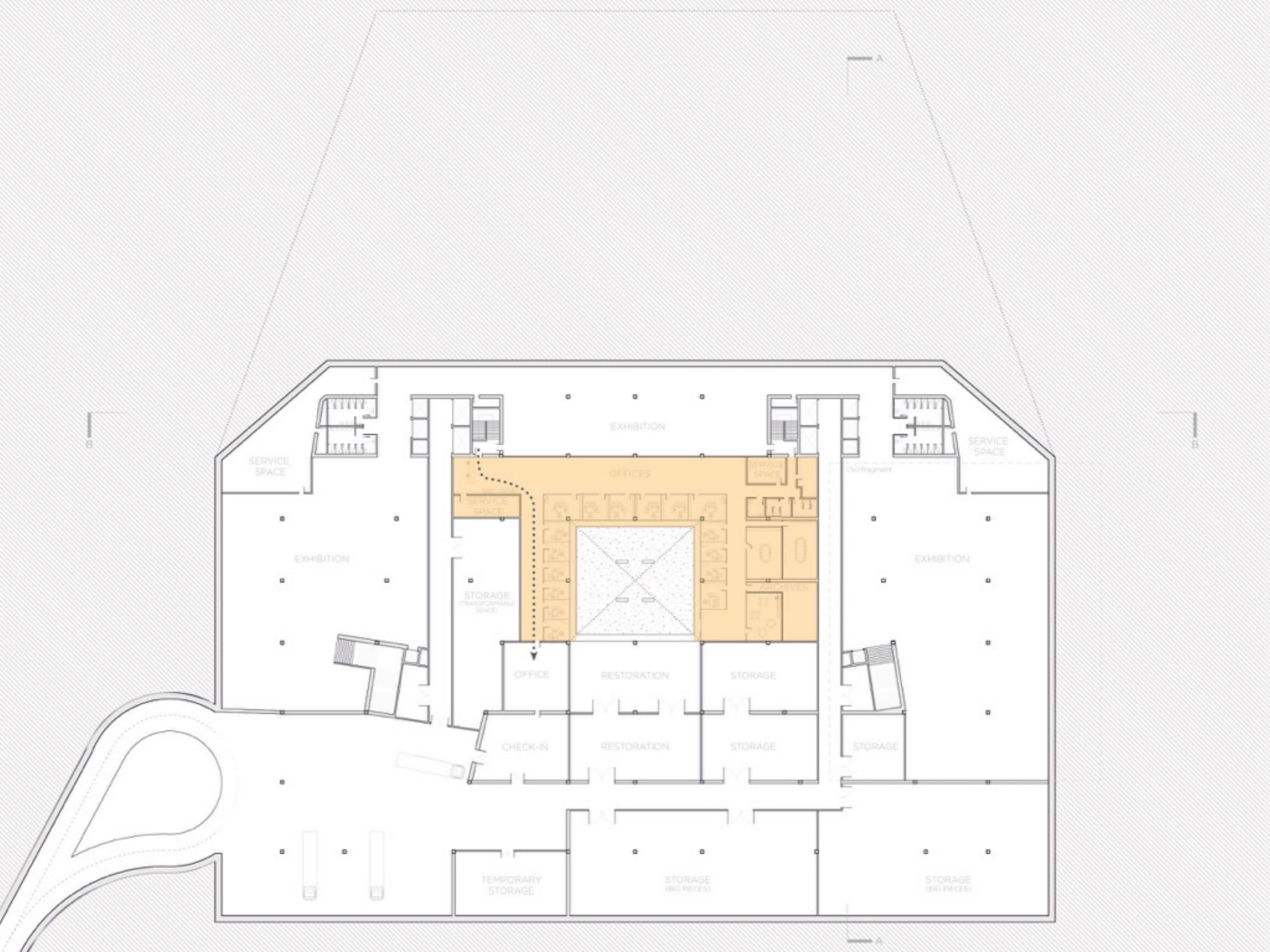
100 YRS FLOOD
+2100 SLR
(HIGH PROJECTION)

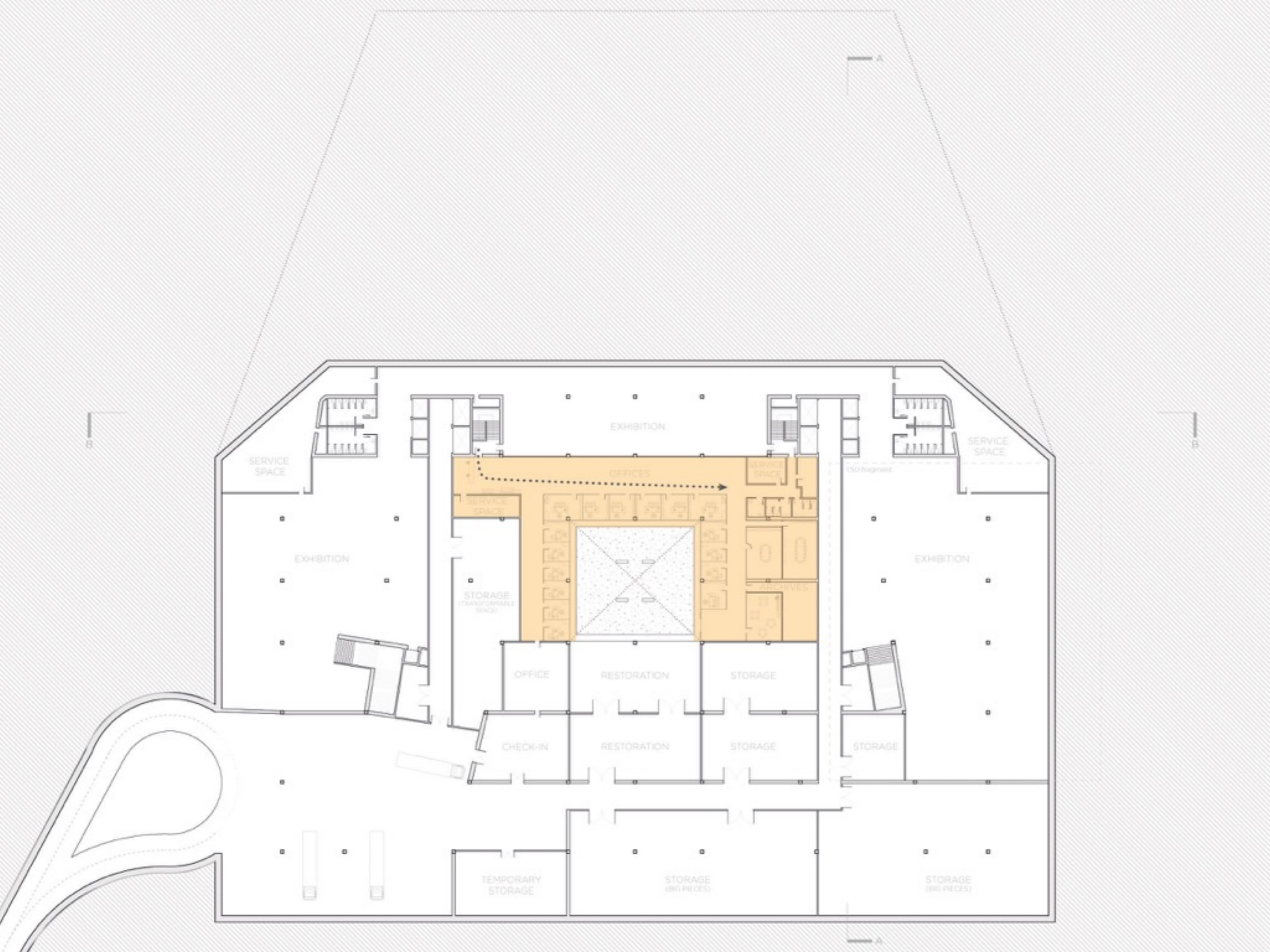
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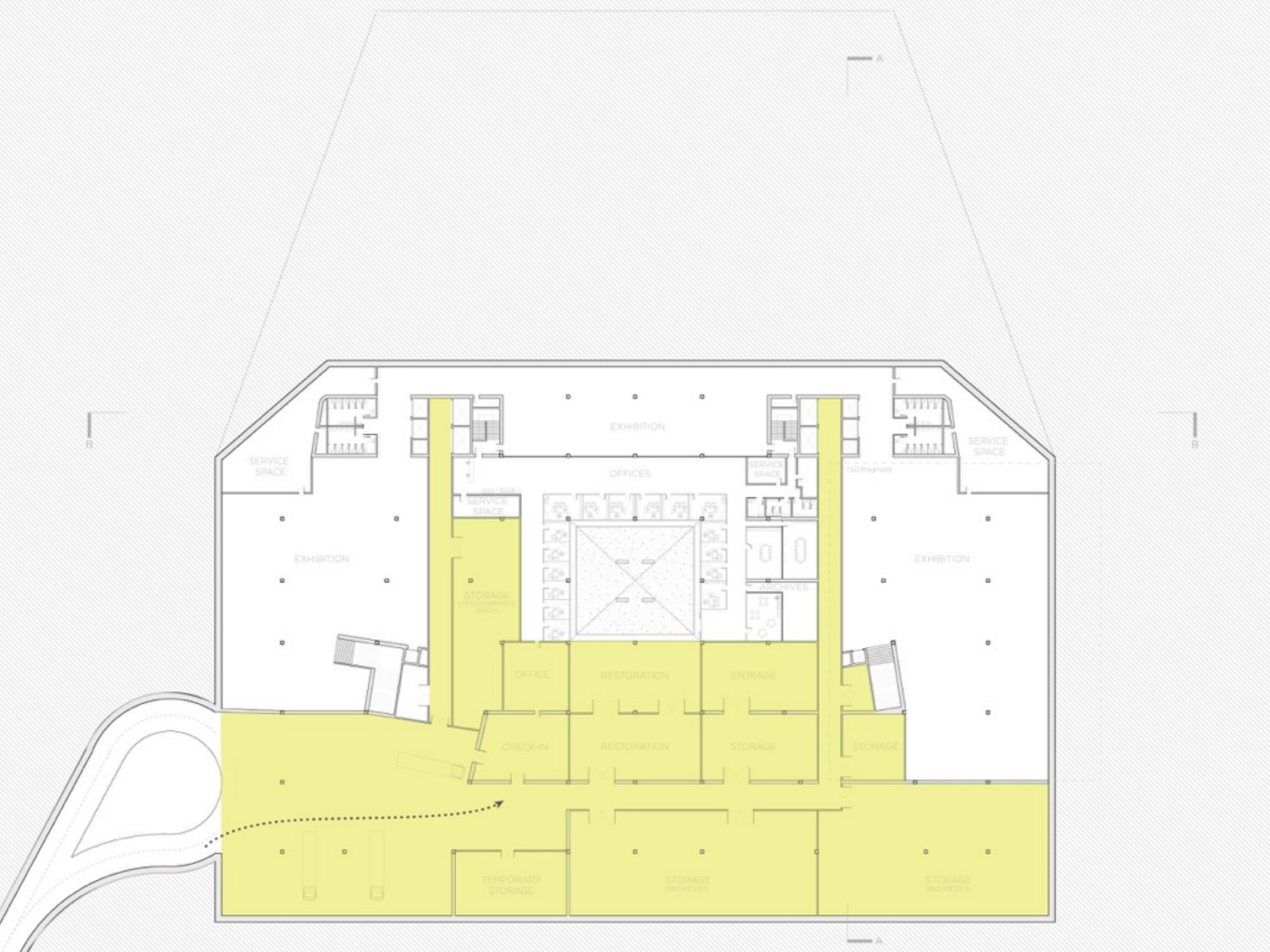
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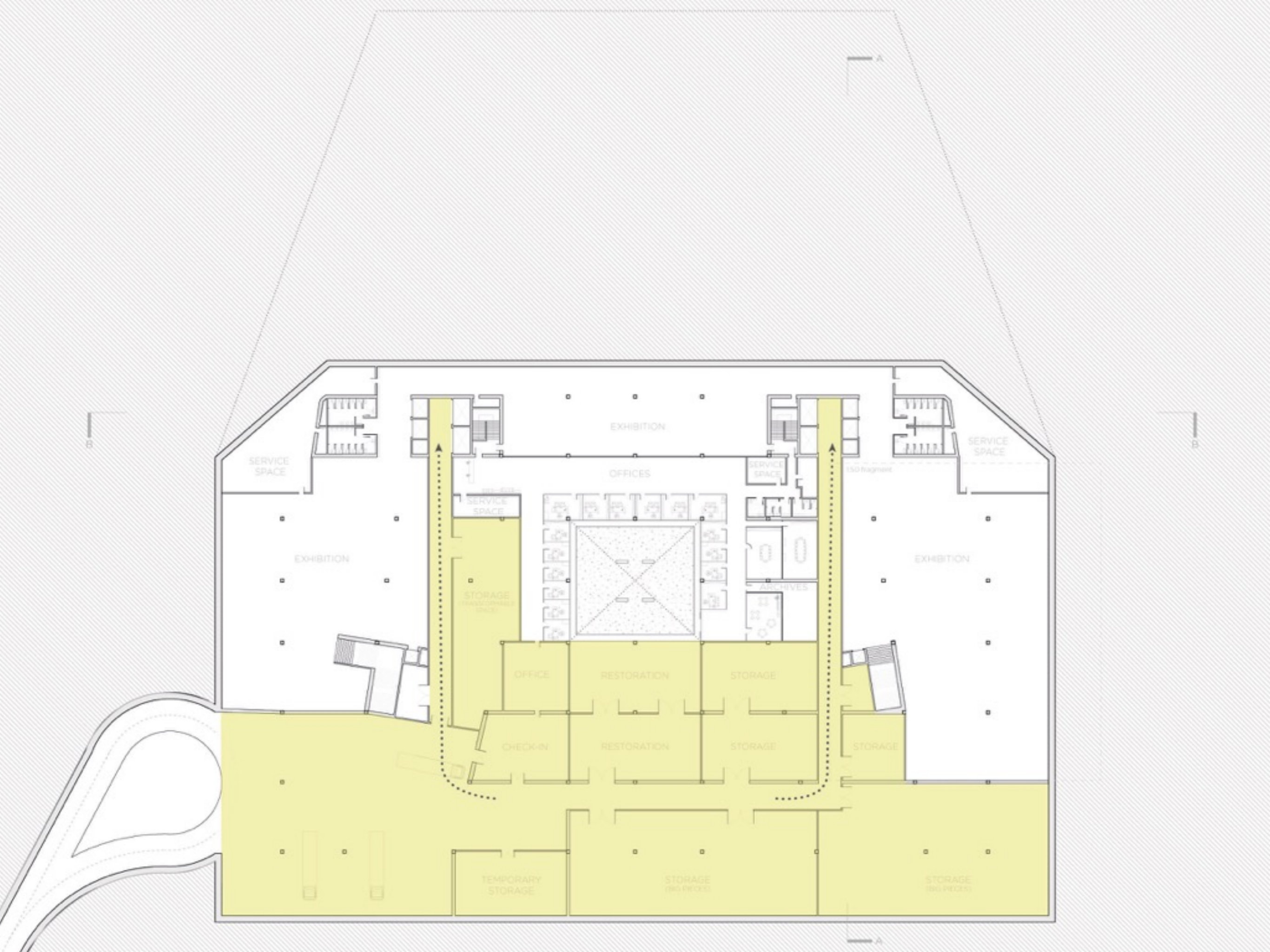


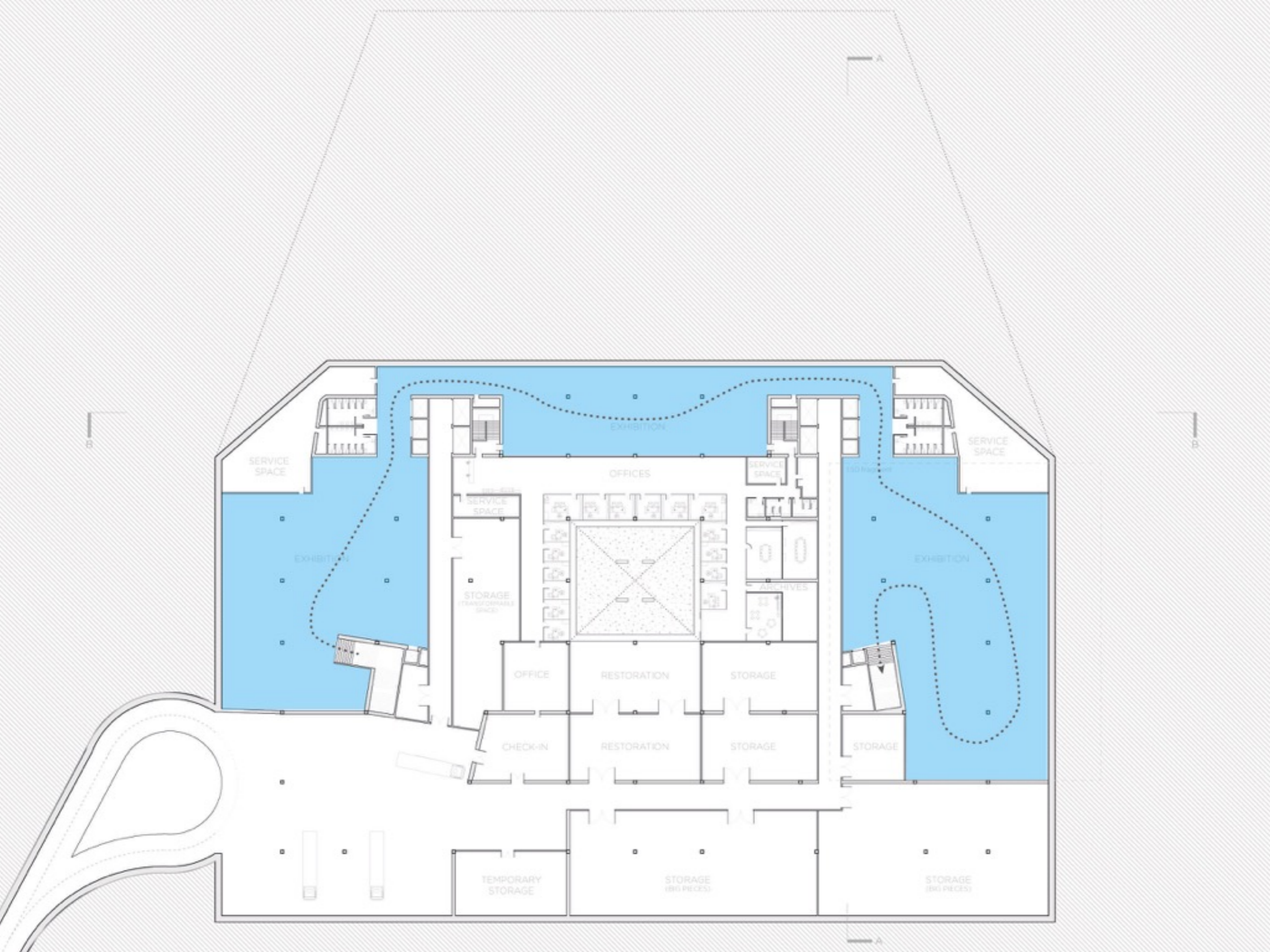










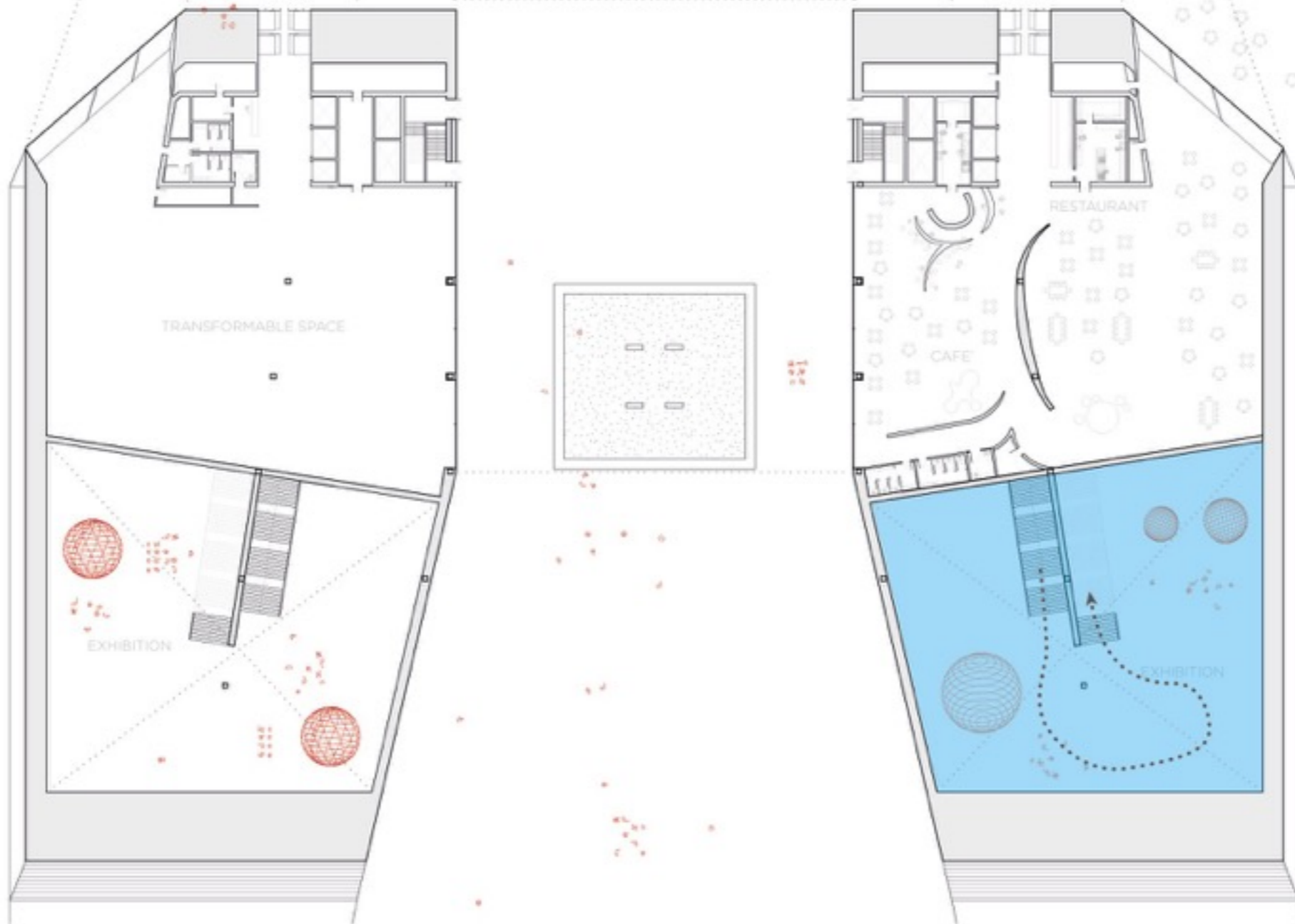


LOW TIDE

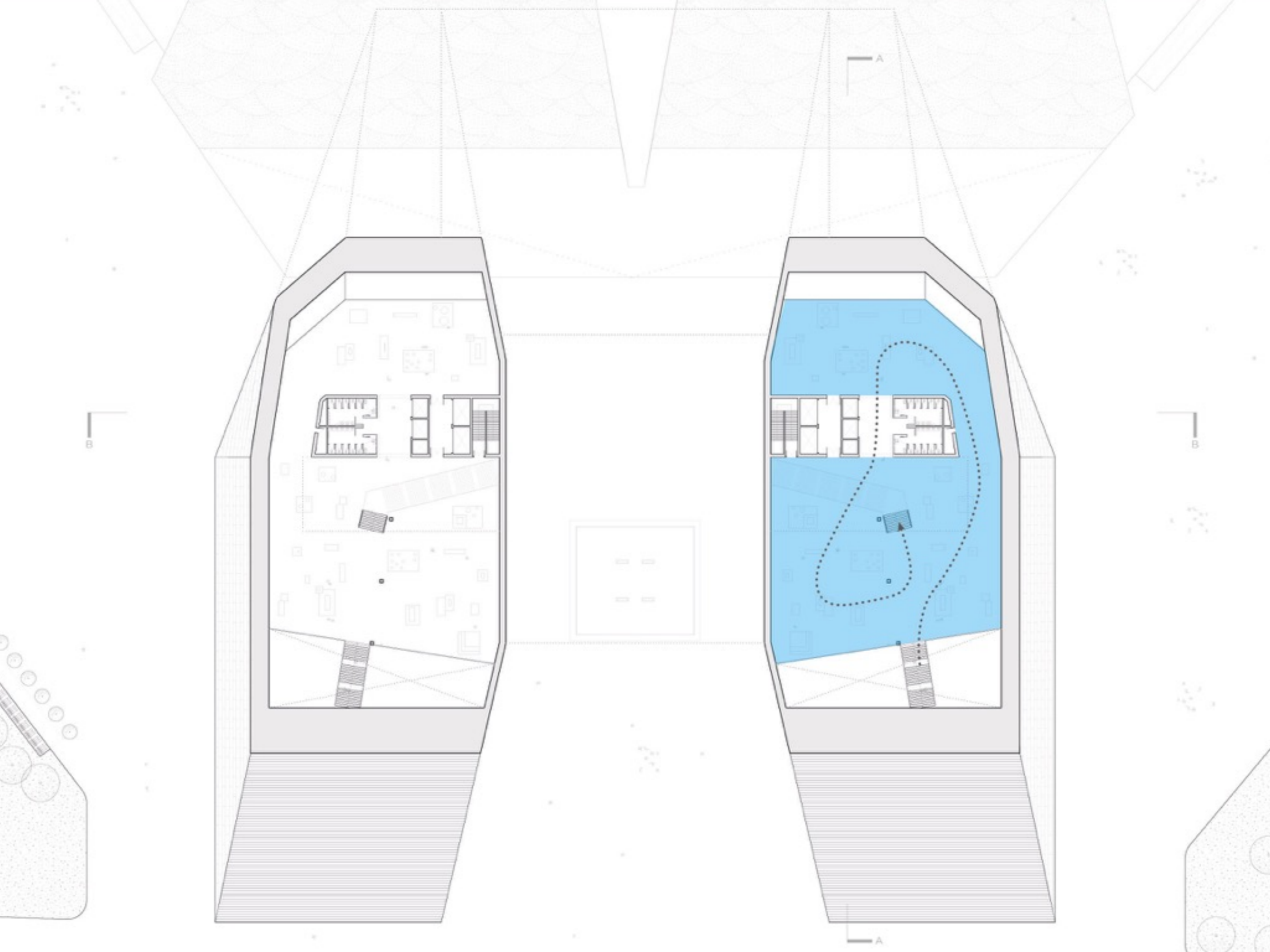
100 YRS FLOOD
+2100 SLR
(HIGH PROJECTION)

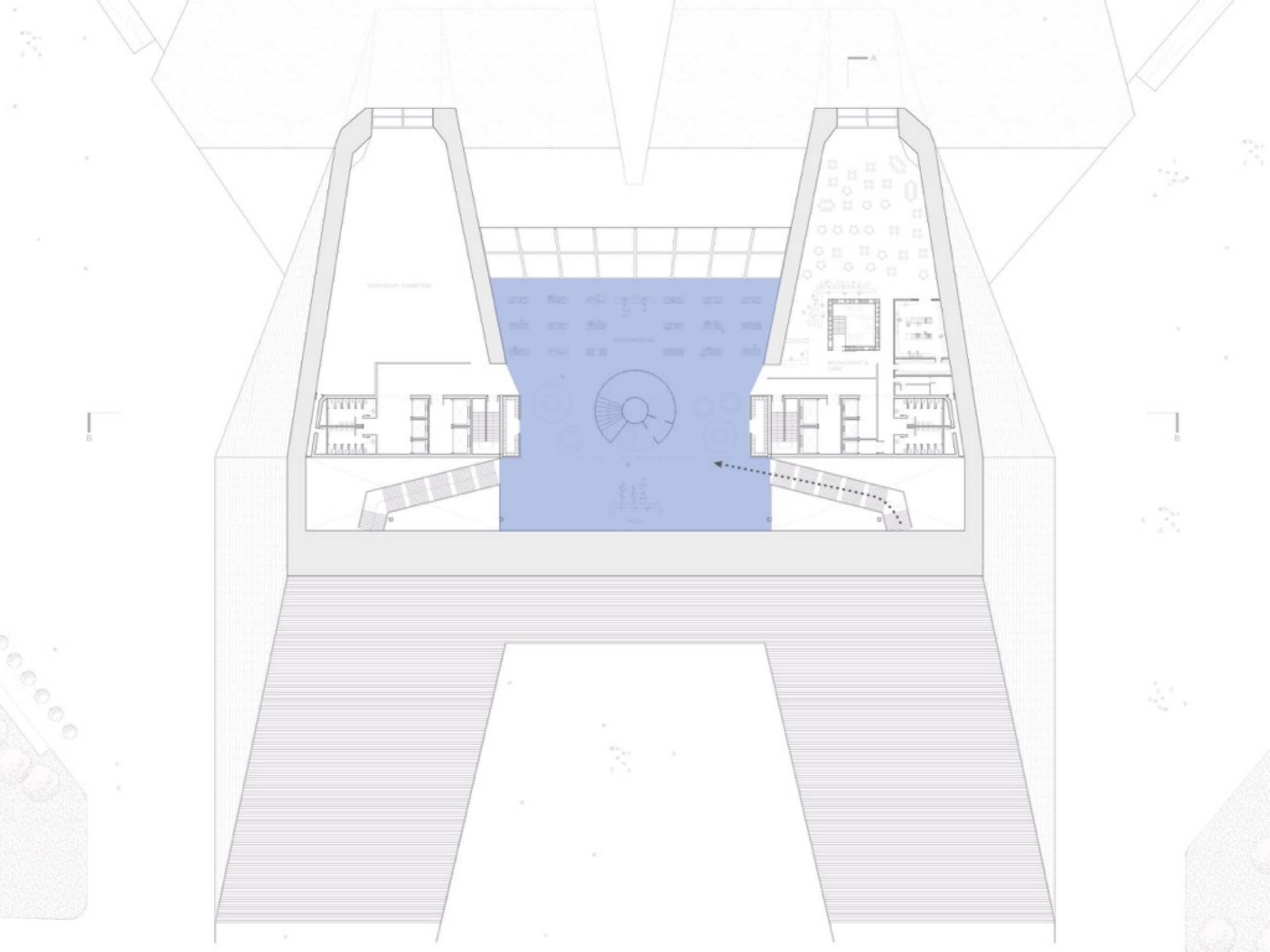
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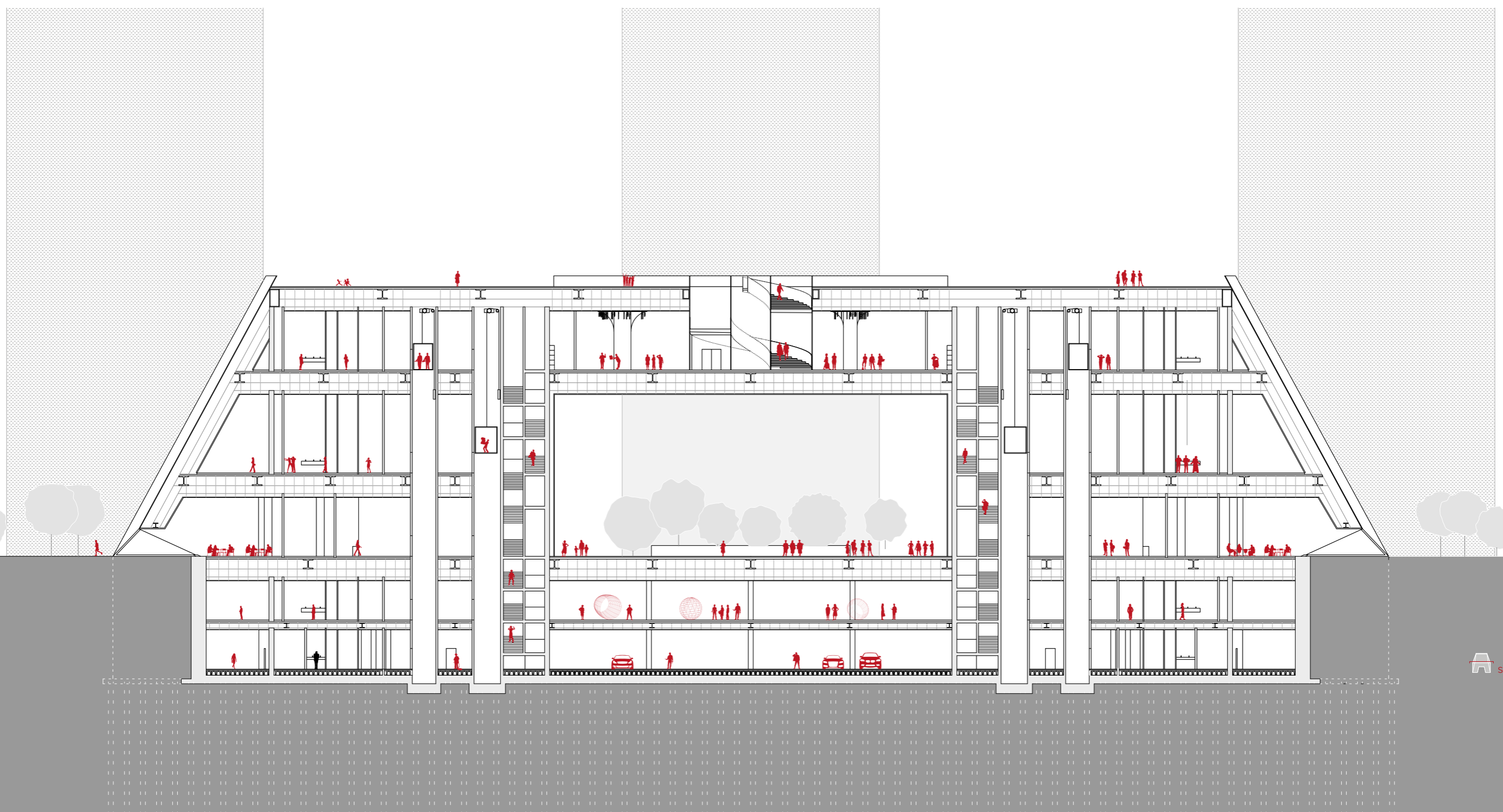
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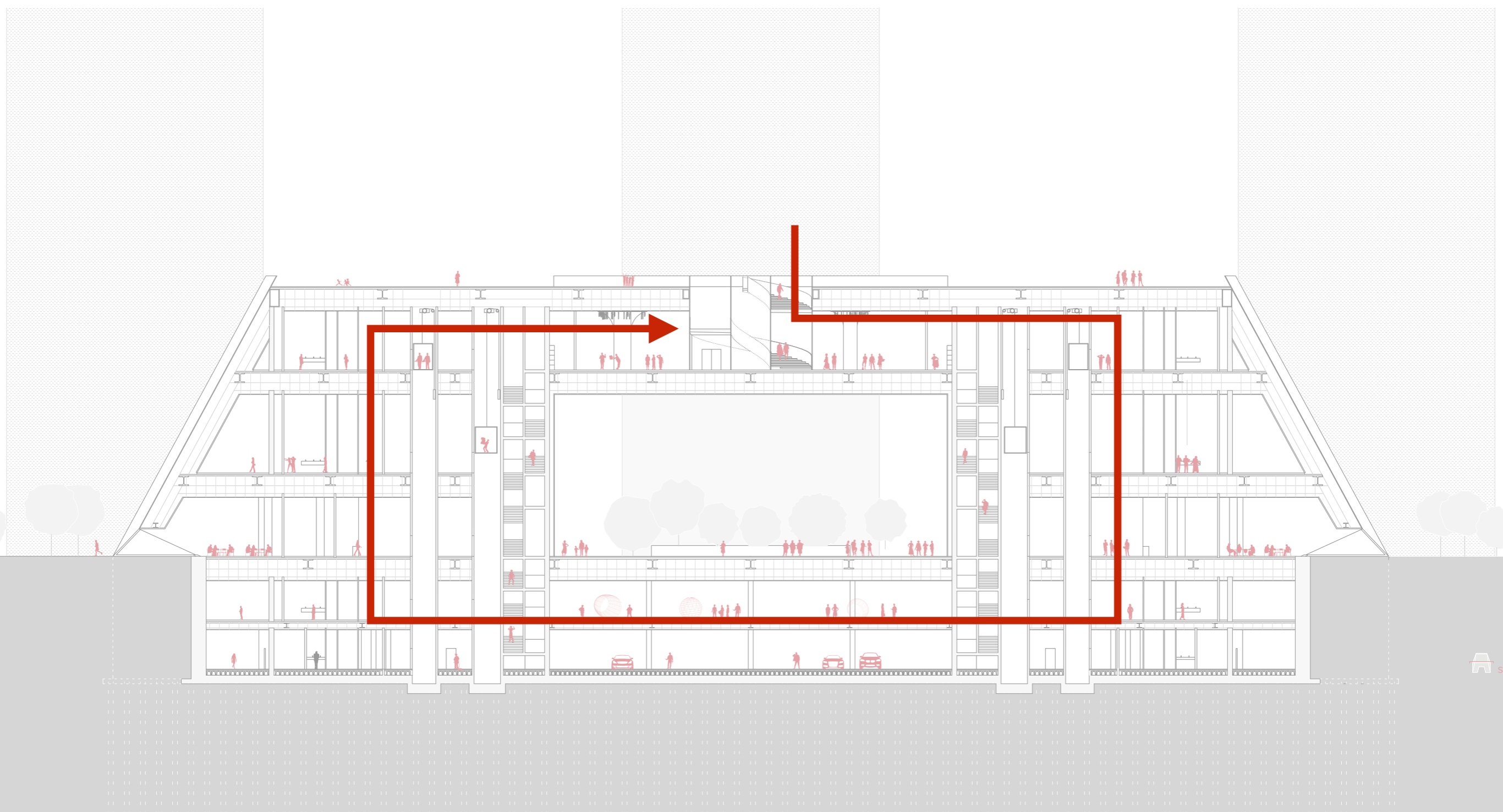






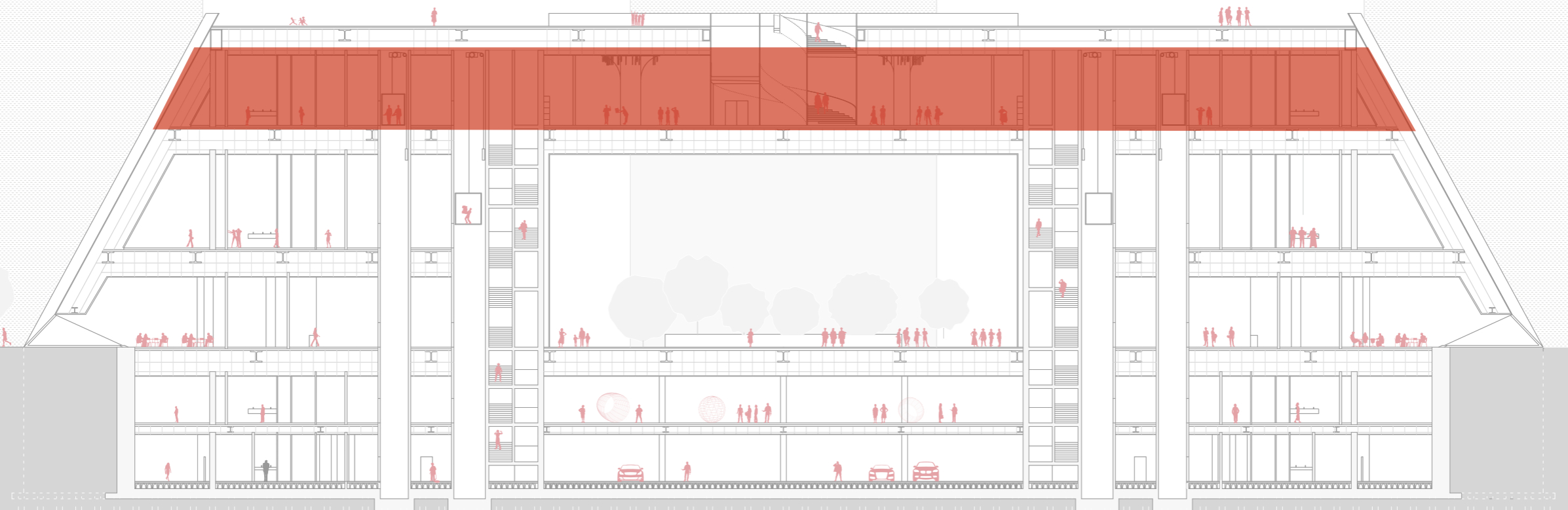


SECTION B-B | scale 1:200



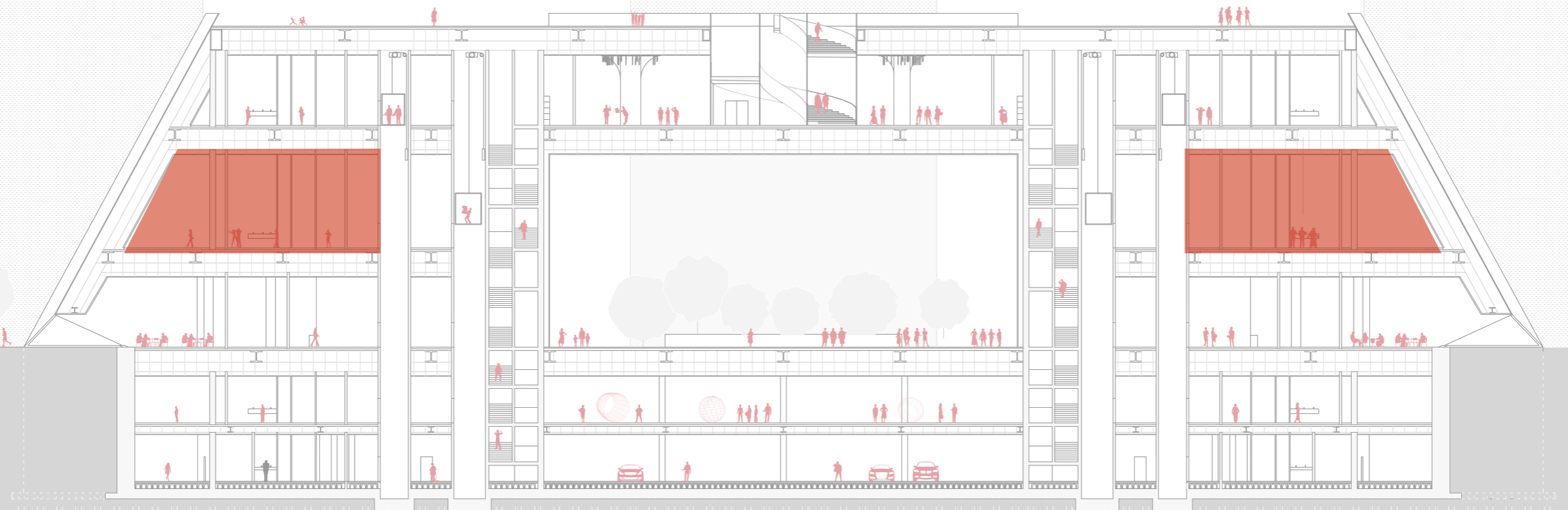
SECTION B-B | scale 1:200

6m



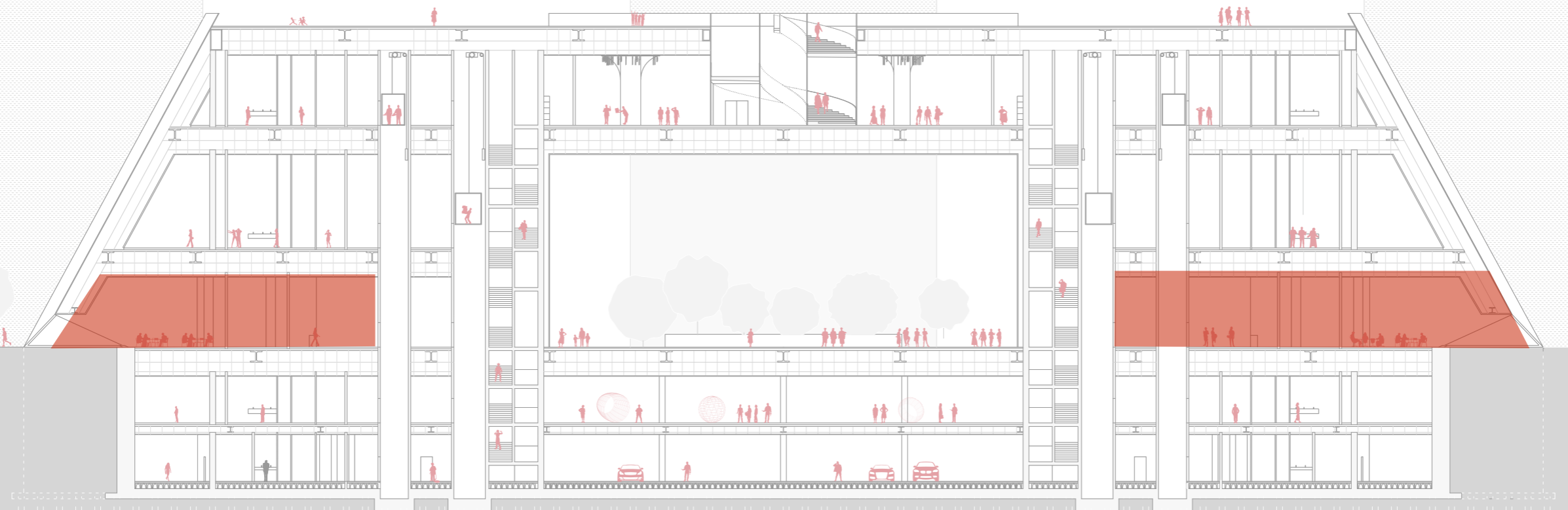
SECTION B-B | scale 1:200

8m



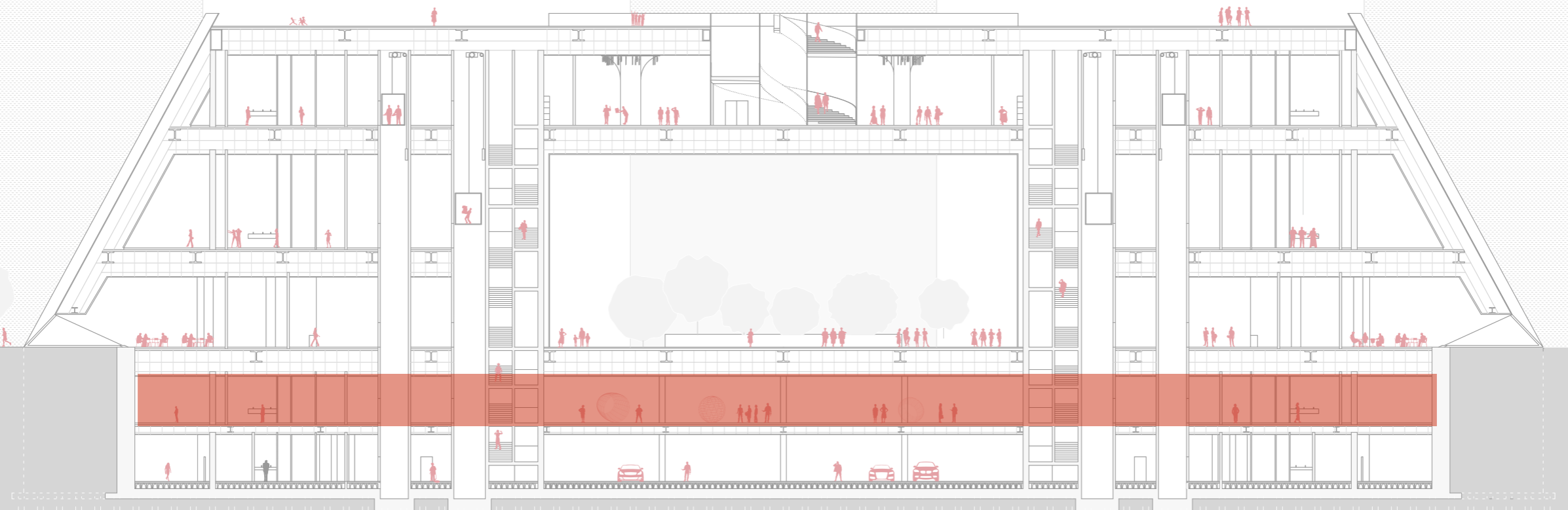
SECTION B-B | scale 1:200

6m

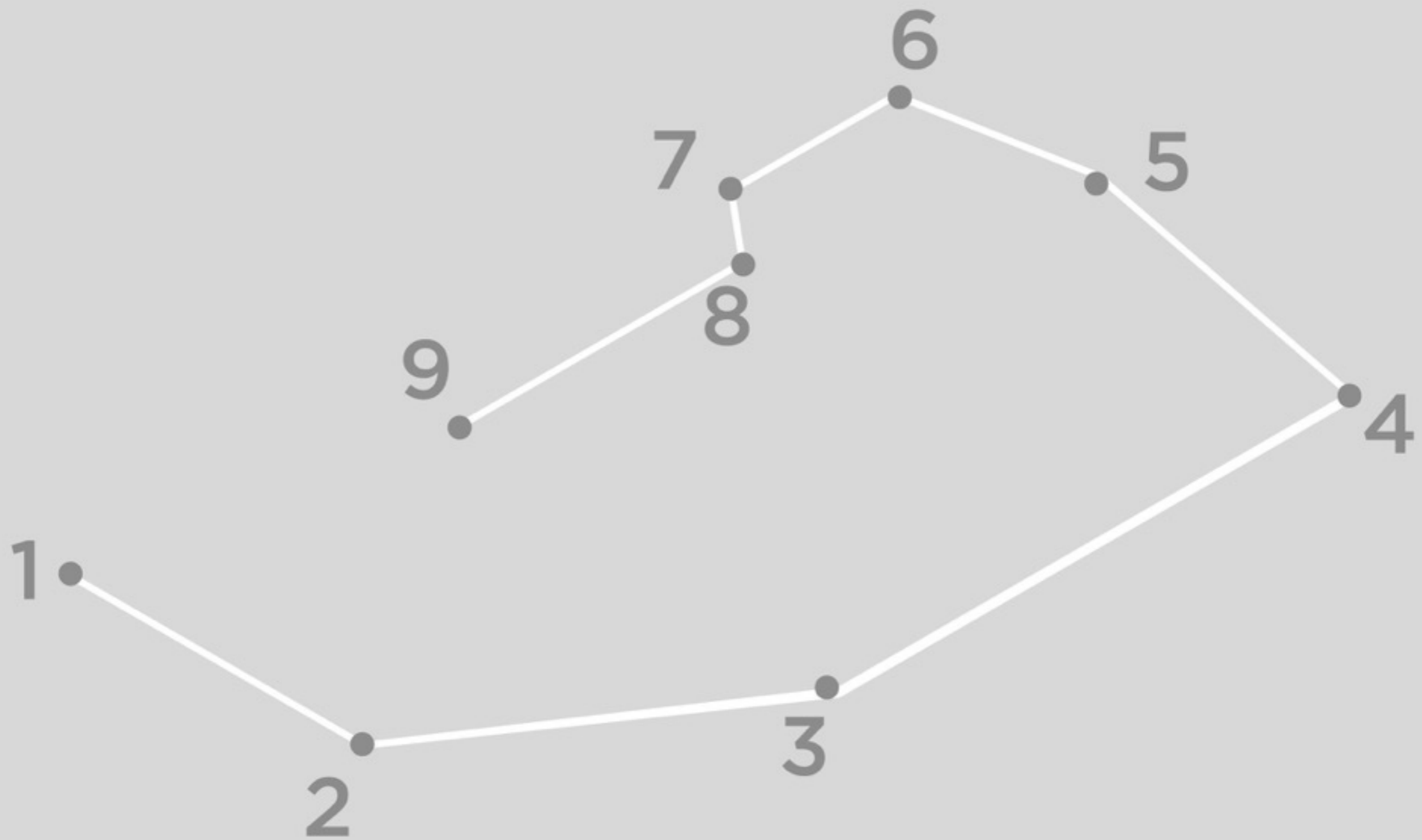


SECTION B-B | scale 1:200

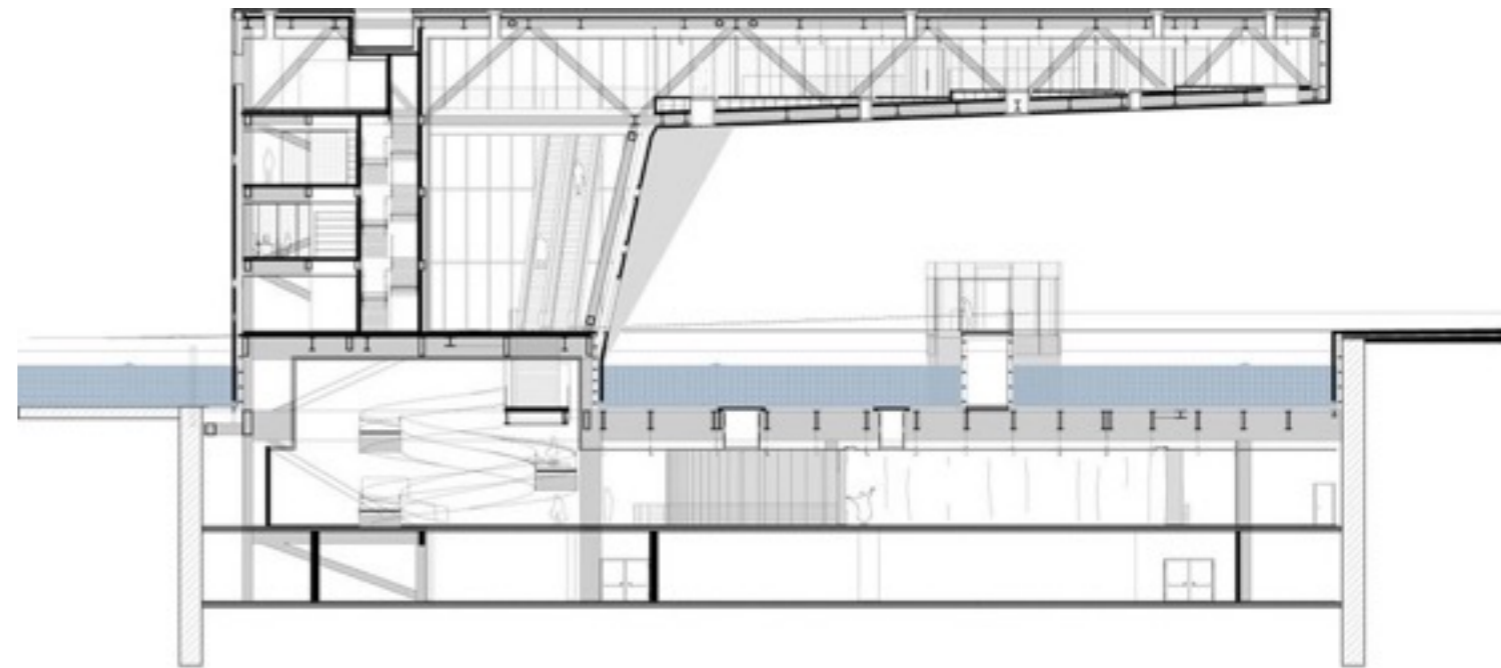
4m



SECTION B-B | scale 1:200



structure



Boeri Architects-Marseille

Palacio de congreso princesa Letizia



Cais das Artes
Paulo Mendes da
Rocha & METRO





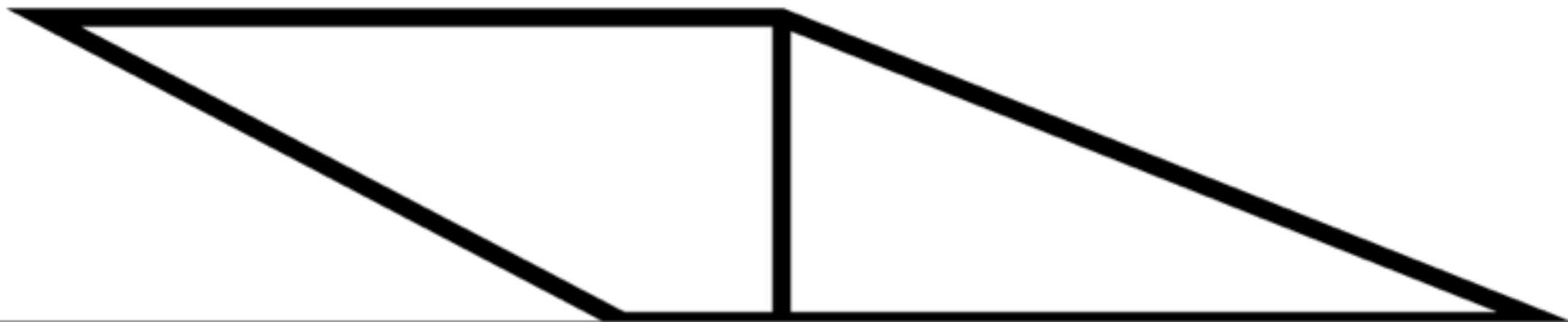
FRANS BIJLAARD

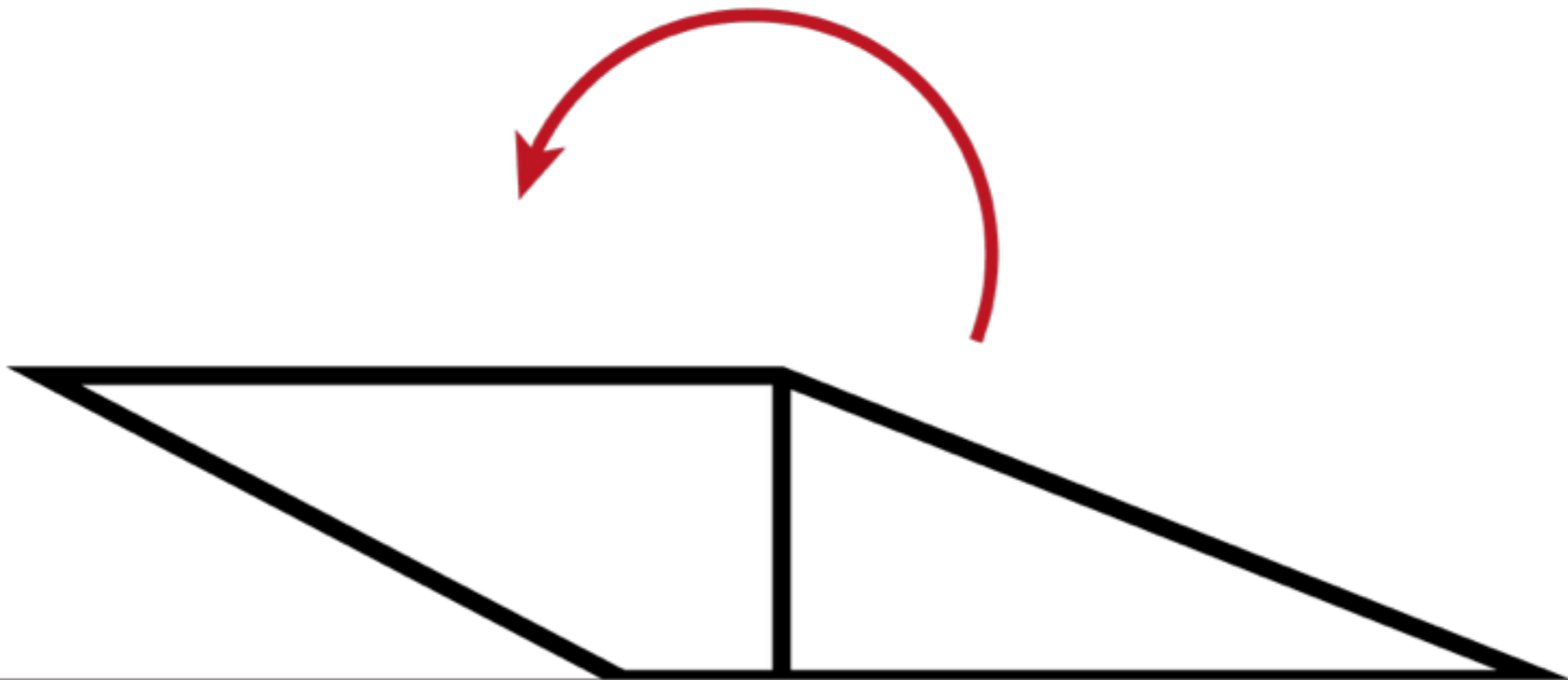
Department Design and
Construction
Structural and Building
Engineering
Steel Structures

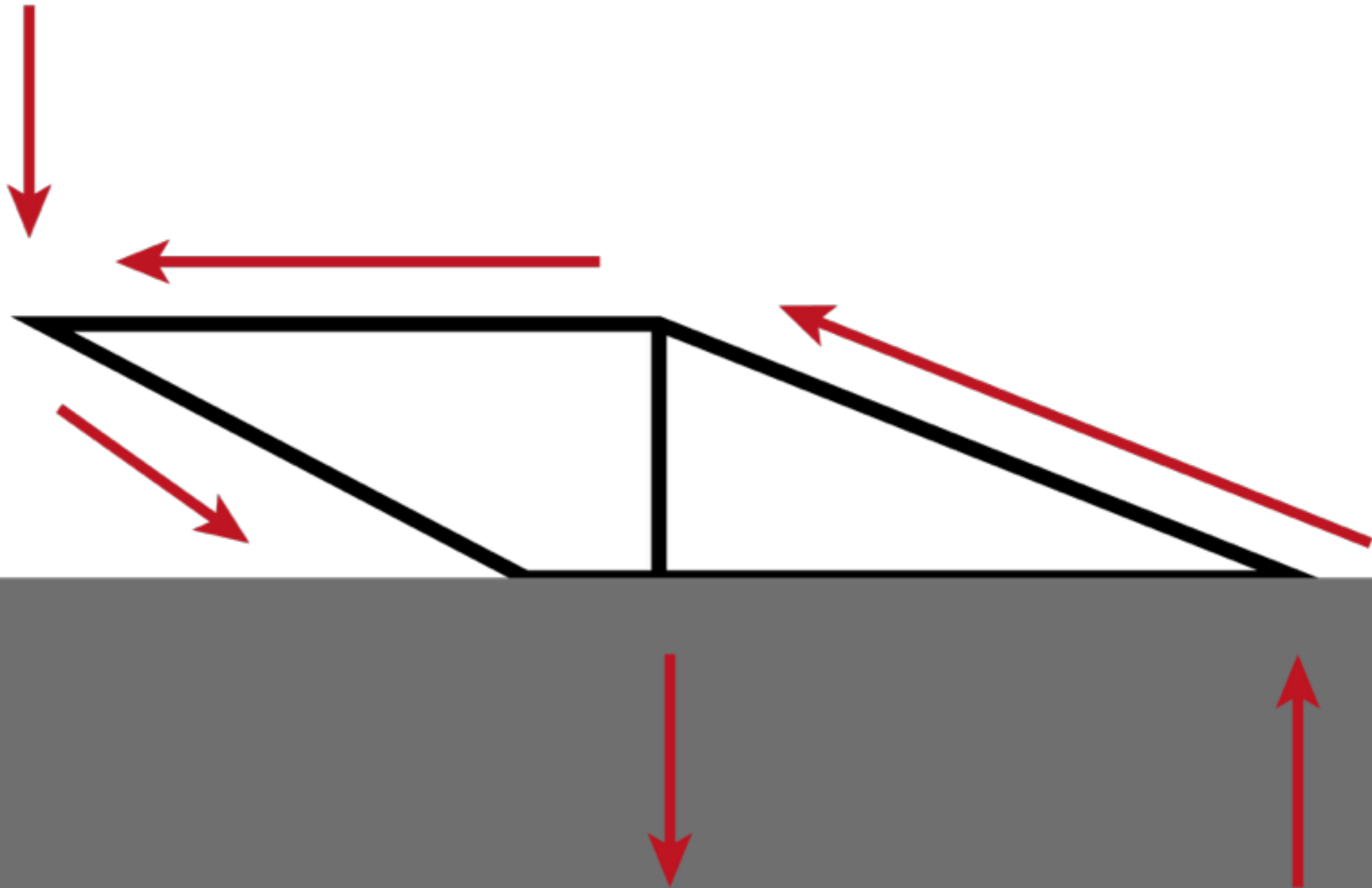


ROB NIJSSE

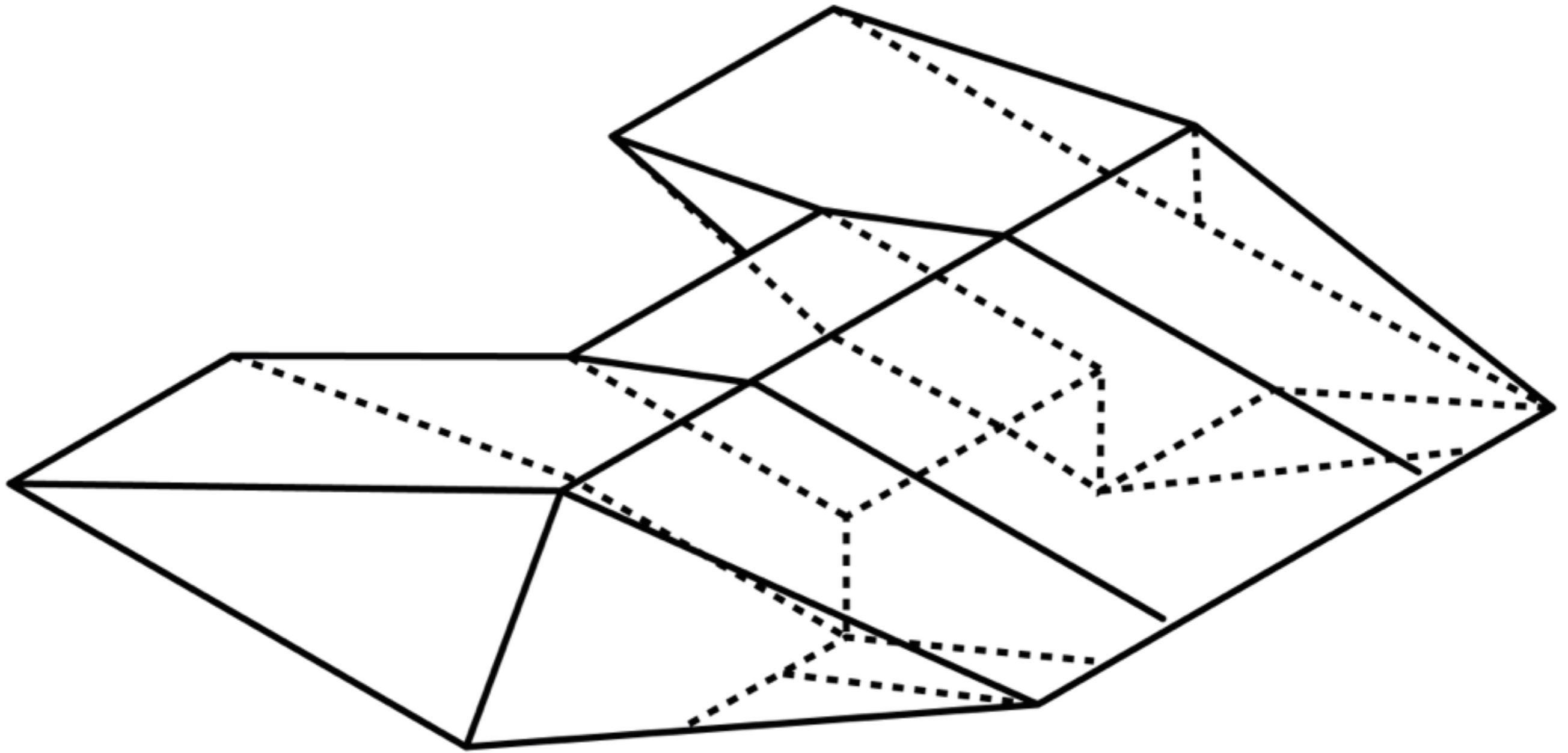
Professor of Structural Design -
Department of Architectural
Engineering + Technology

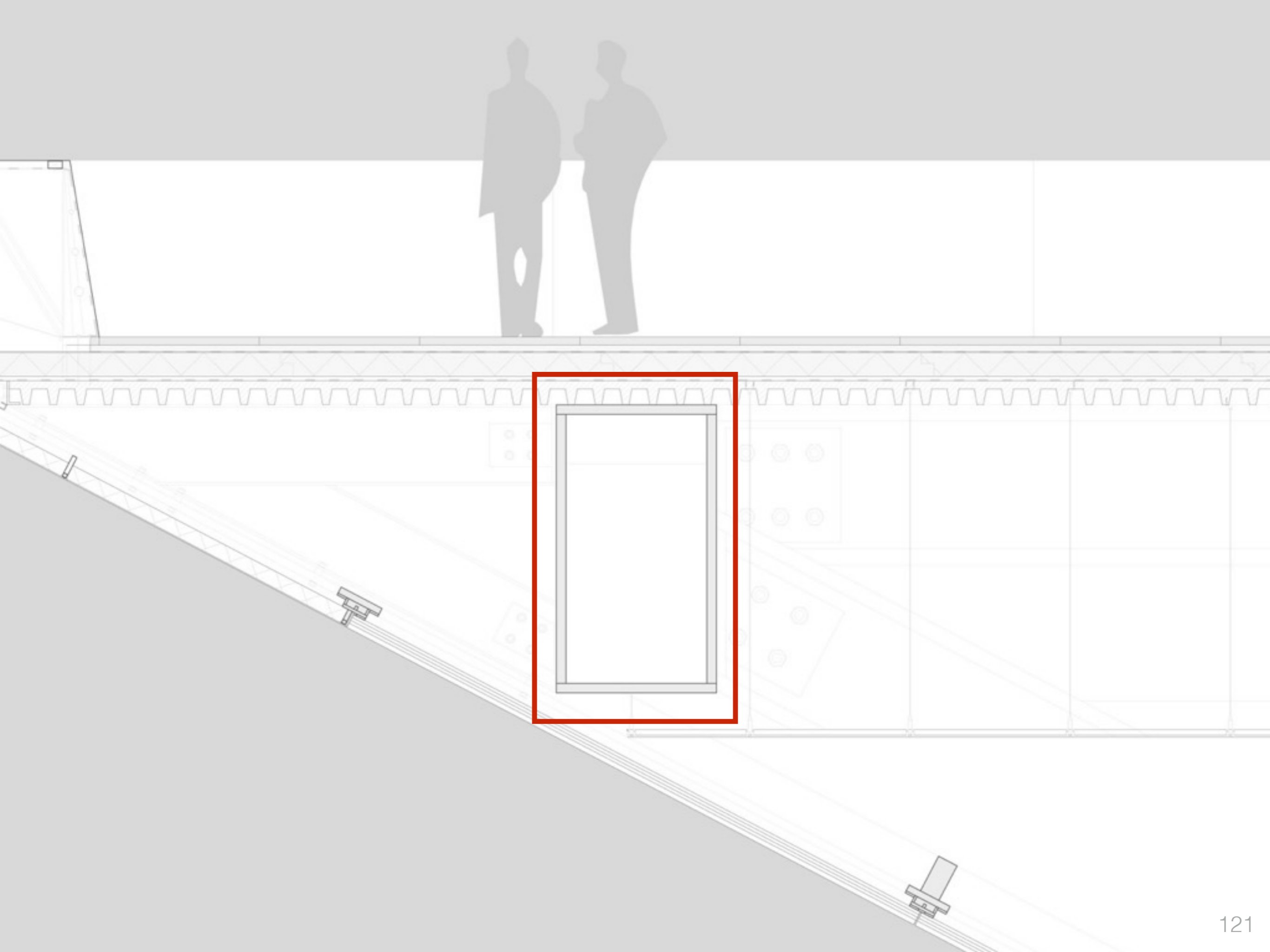


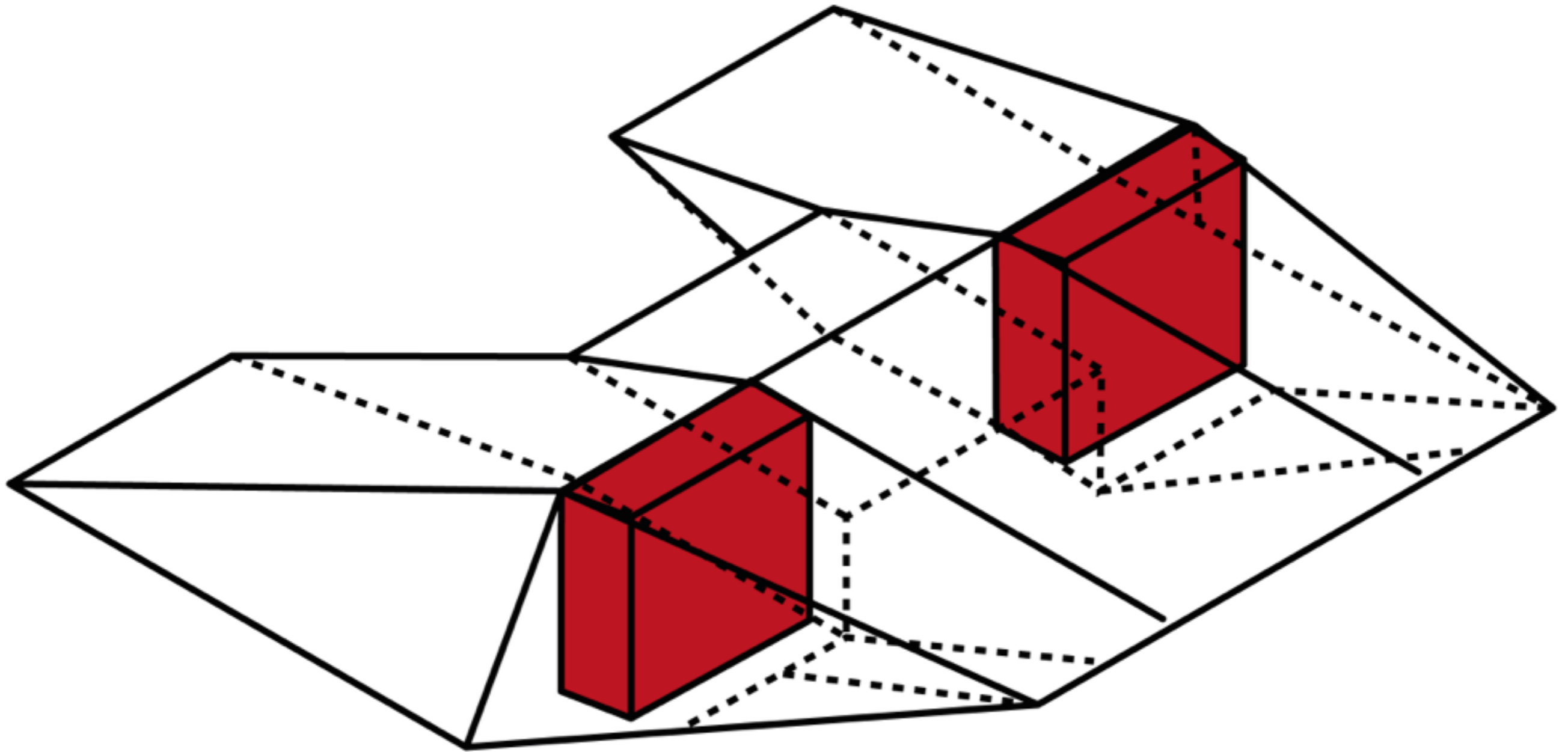


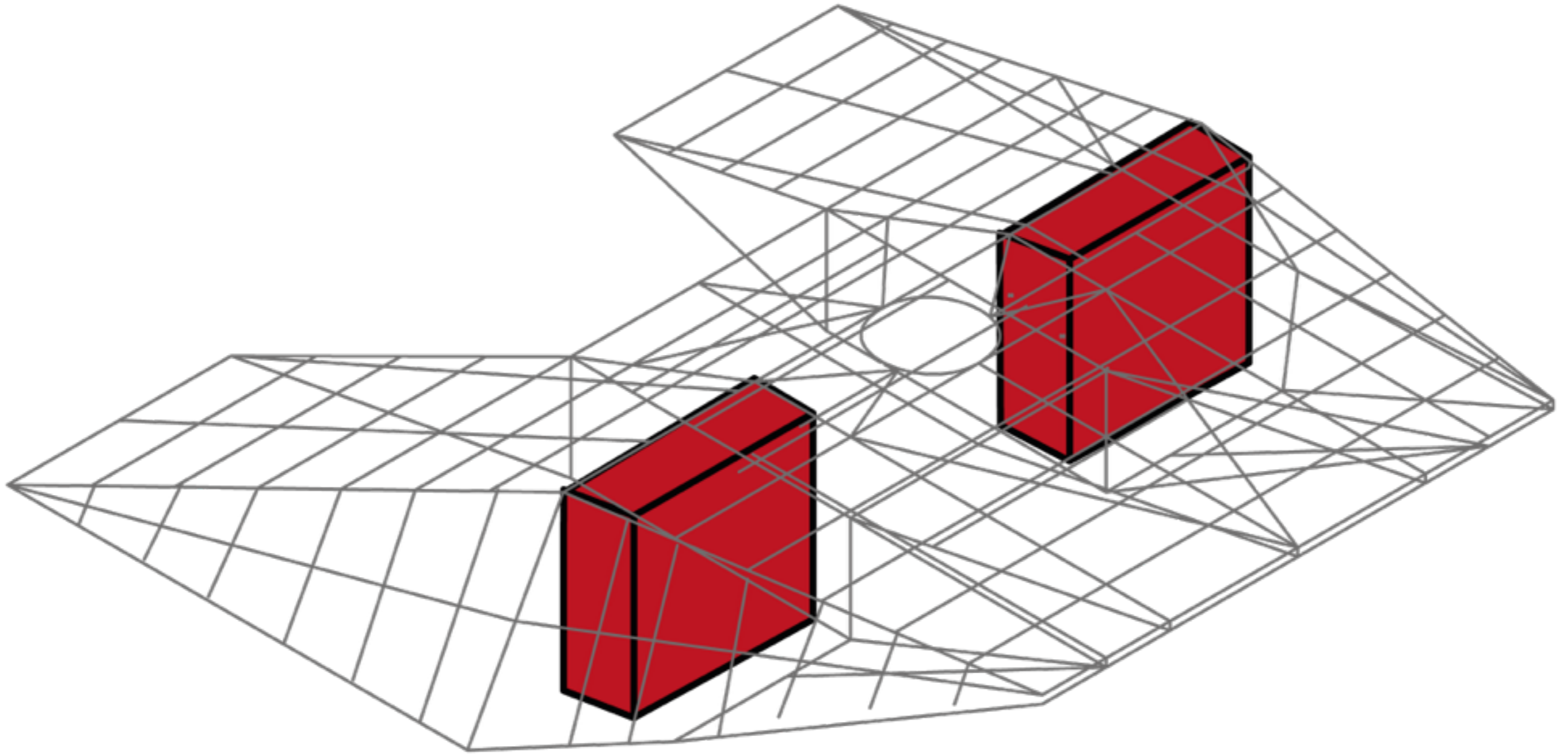


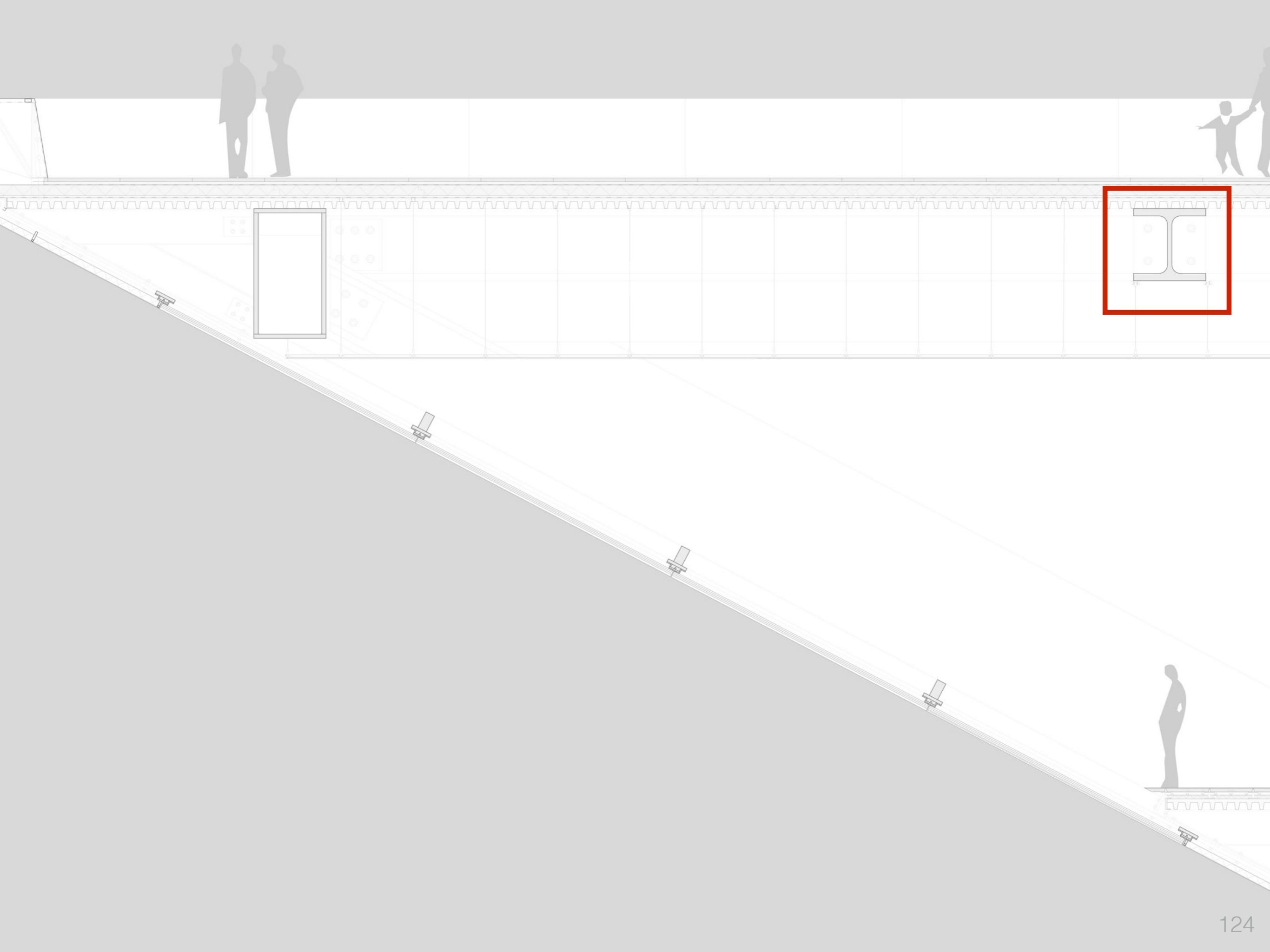


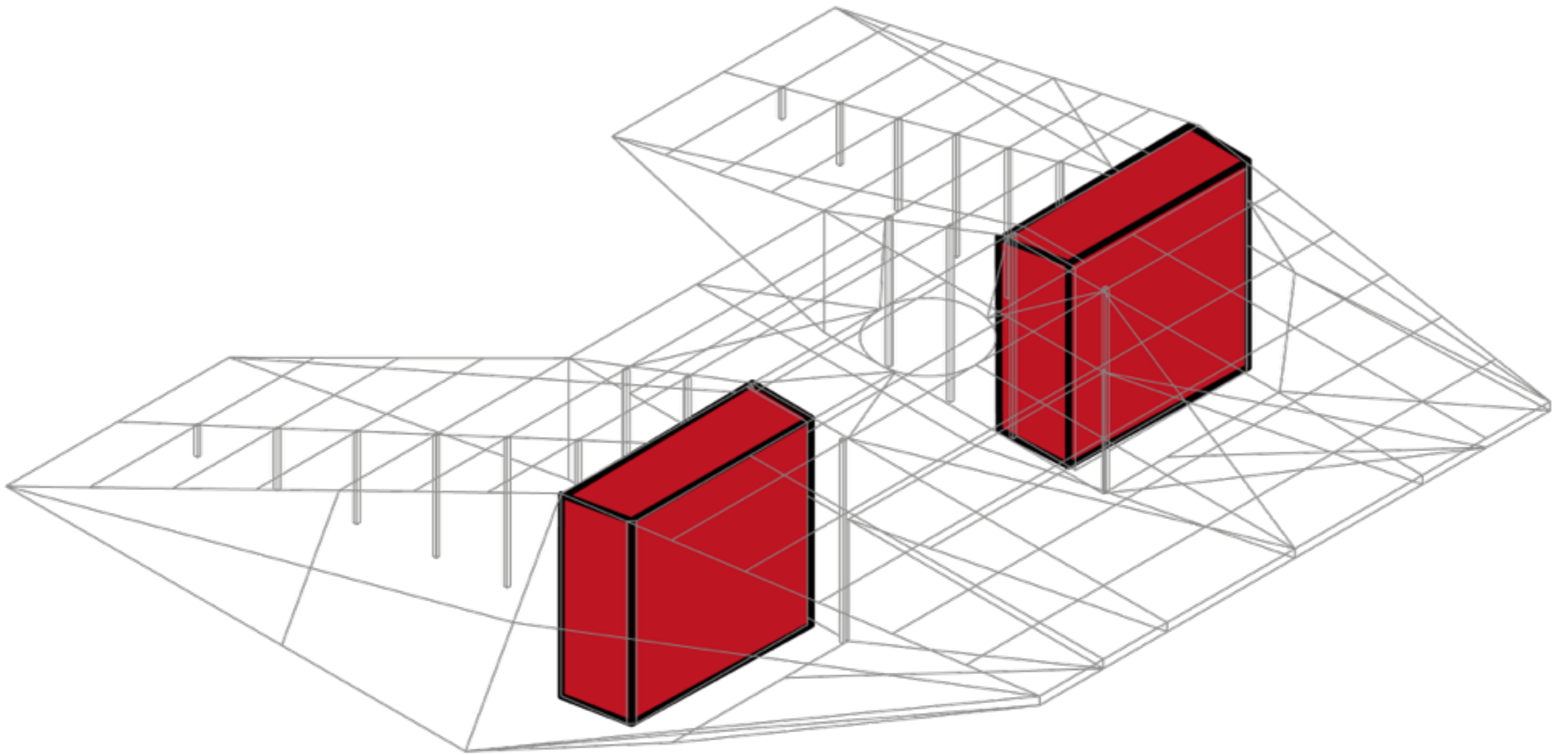


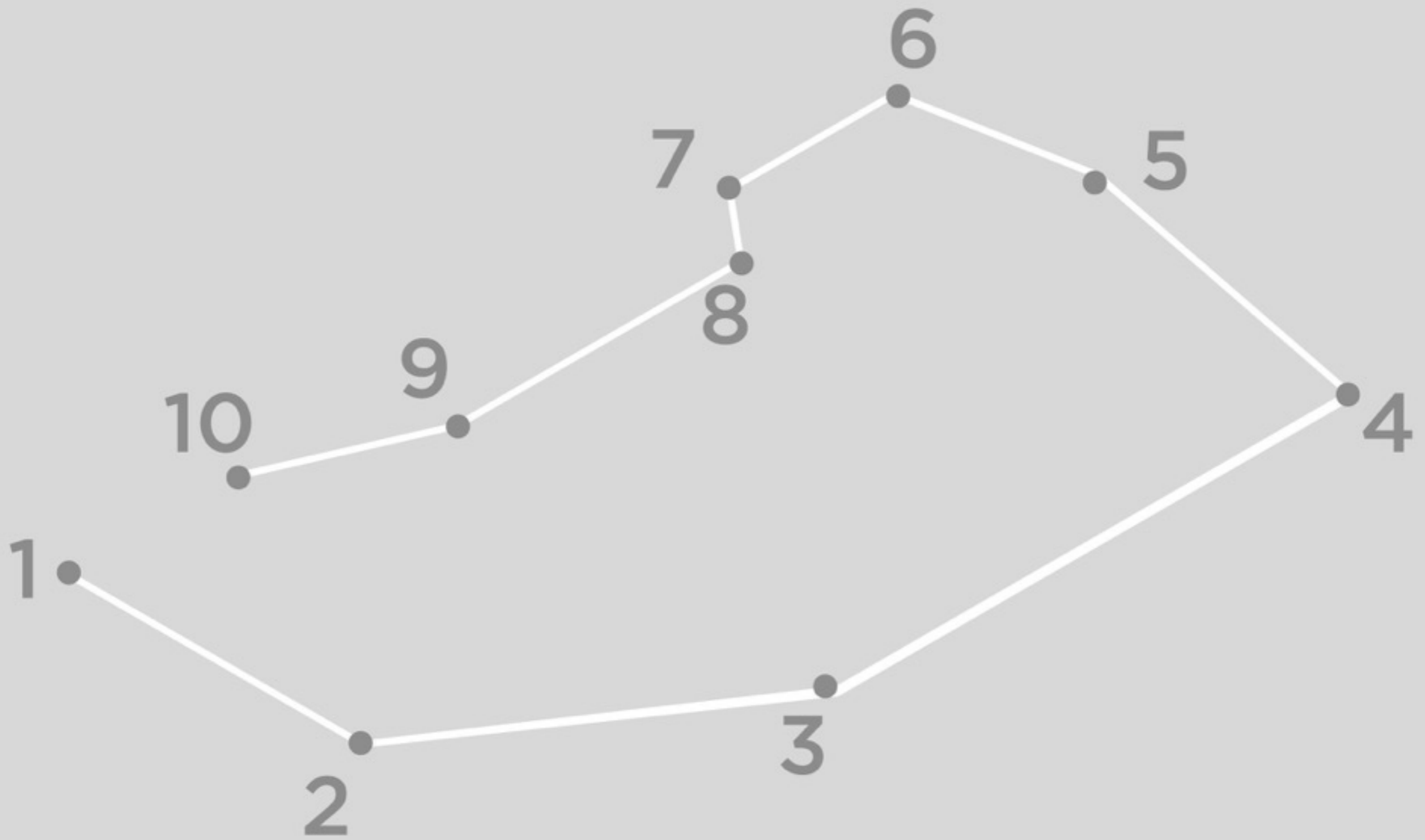












climate concept

-2°C



rainwater collection

exhaust air
(CO2 detectors)

cross ventilation

fresh air taken from the patio

HVAC

radiant floor

20°C

electricity is generated by a tidal stream generator and stored into a battery to be conserved when it is needed

rainwater storage

20°C

filter

main tank

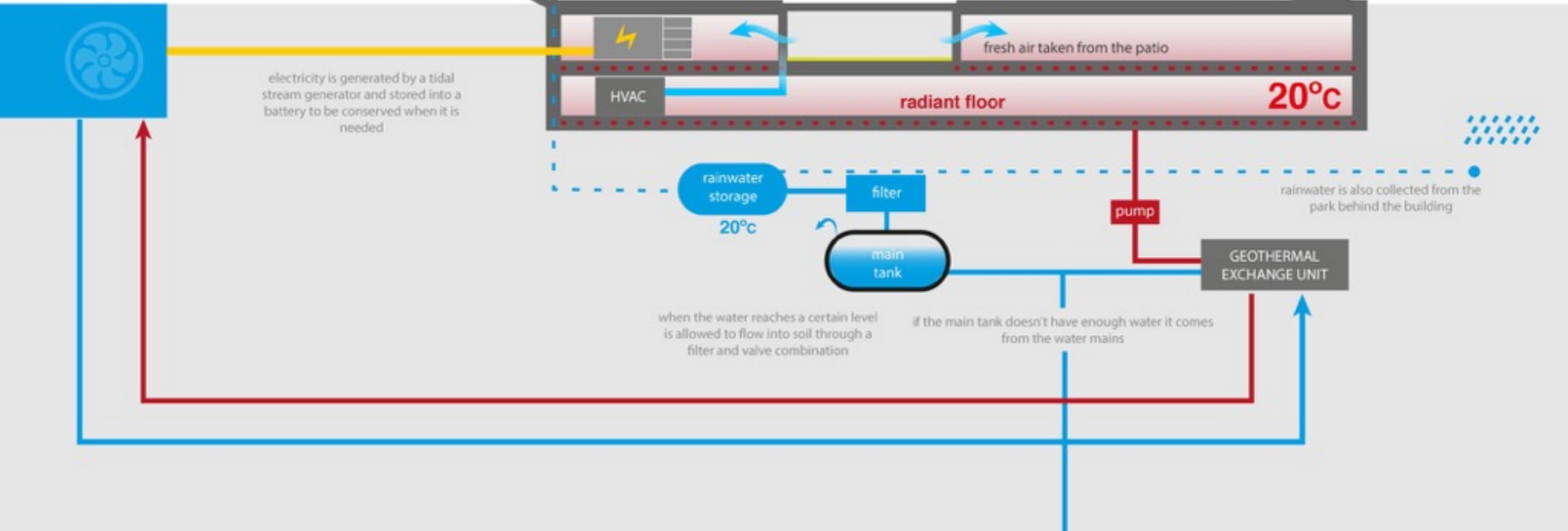
pump

GEOTHERMAL EXCHANGE UNIT

rainwater is also collected from the park behind the building

when the water reaches a certain level is allowed to flow into soil through a filter and valve combination

if the main tank doesn't have enough water it comes from the water mains



26°C 

 rainwater collection

exhaust and warm air (CO2 detectors)

cross ventilation

fresh air taken from the patio

HVAC

cooling floor

23°C

electricity is generated by a tidal stream generator and stored into a battery to be conserved when it is needed

rainwater storage
20°C

filter

main tank

pump

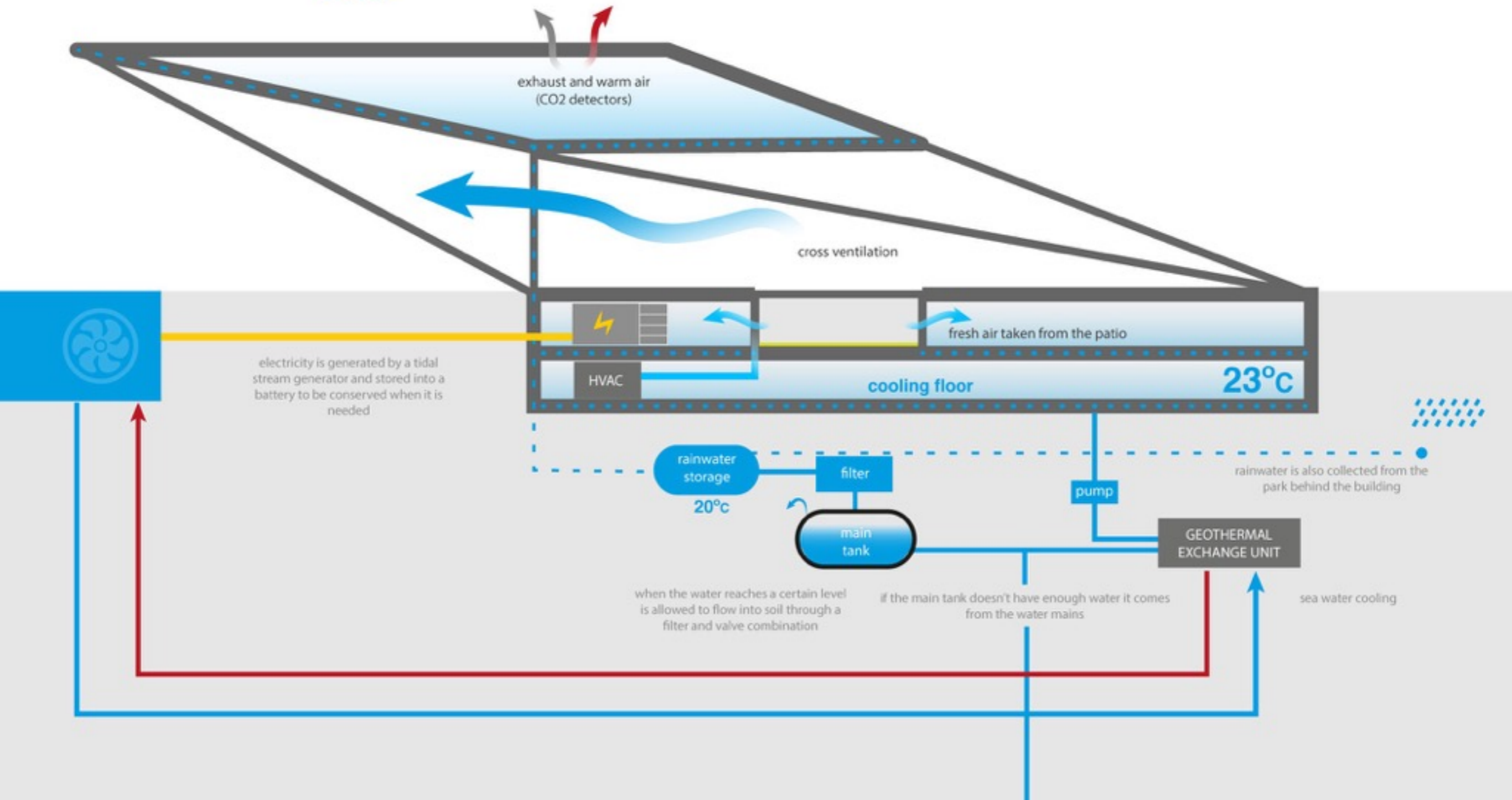
GEOTHERMAL EXCHANGE UNIT

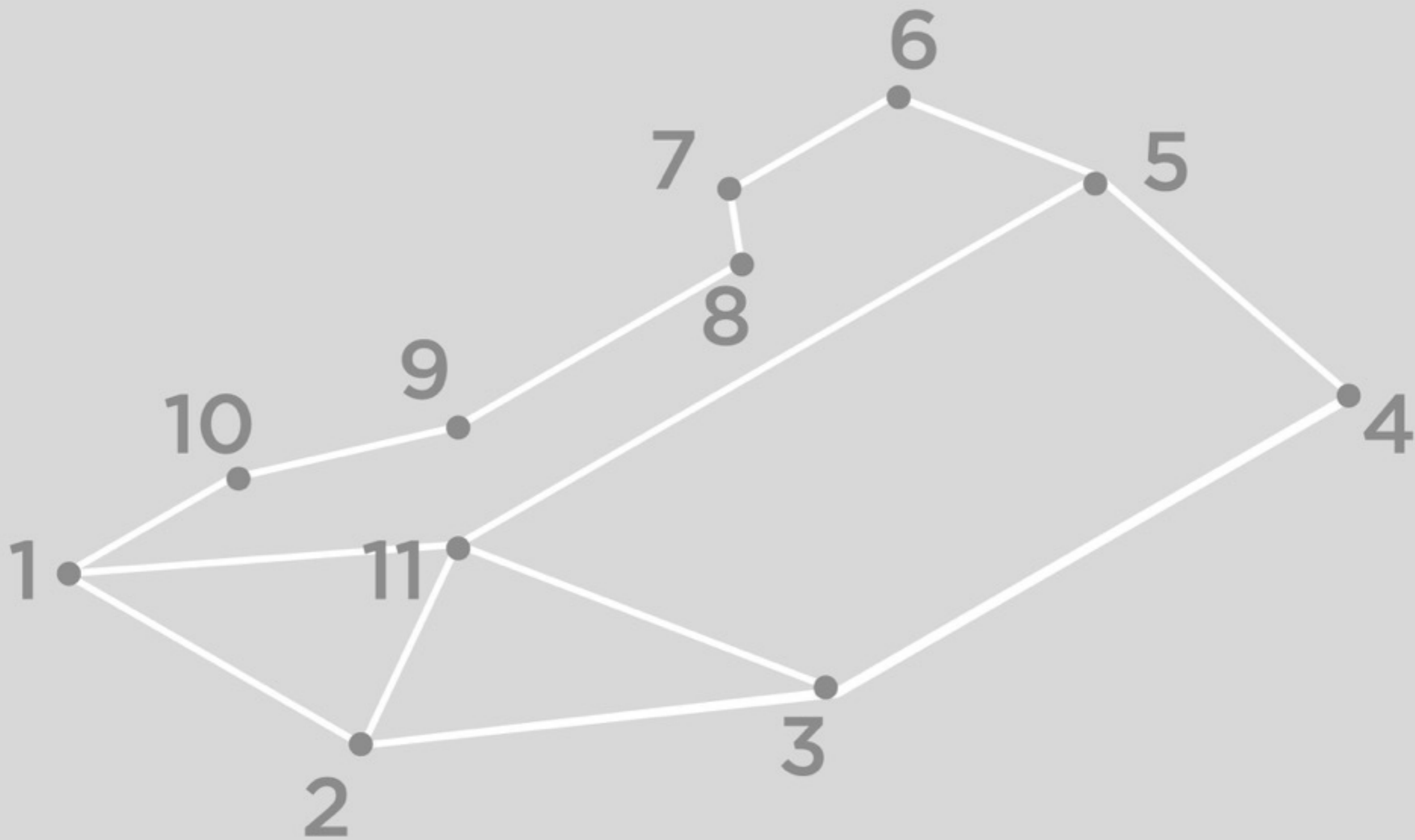
rainwater is also collected from the park behind the building

when the water reaches a certain level is allowed to flow into soil through a filter and valve combination

if the main tank doesn't have enough water it comes from the water mains

sea water cooling





materialization

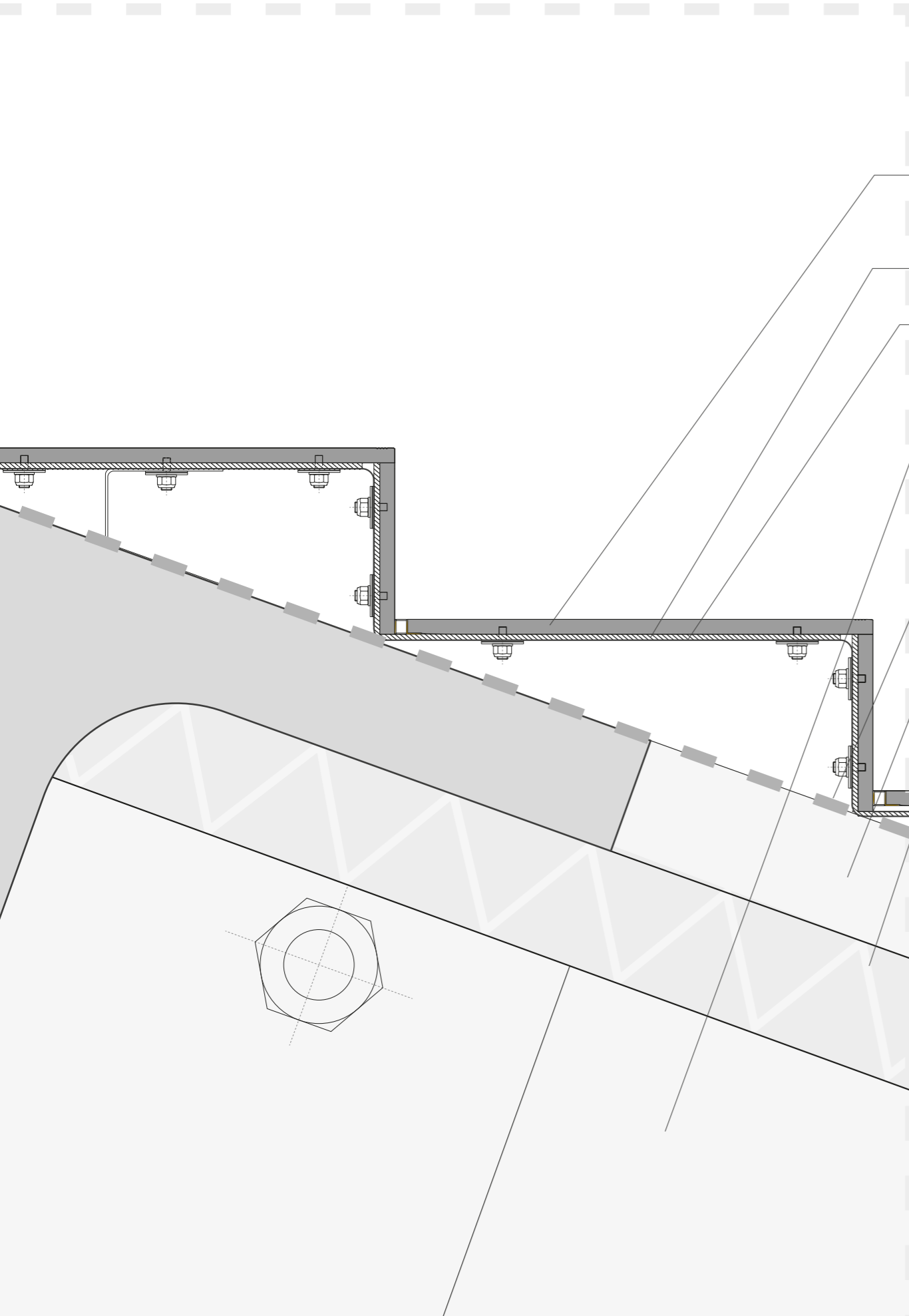
facade



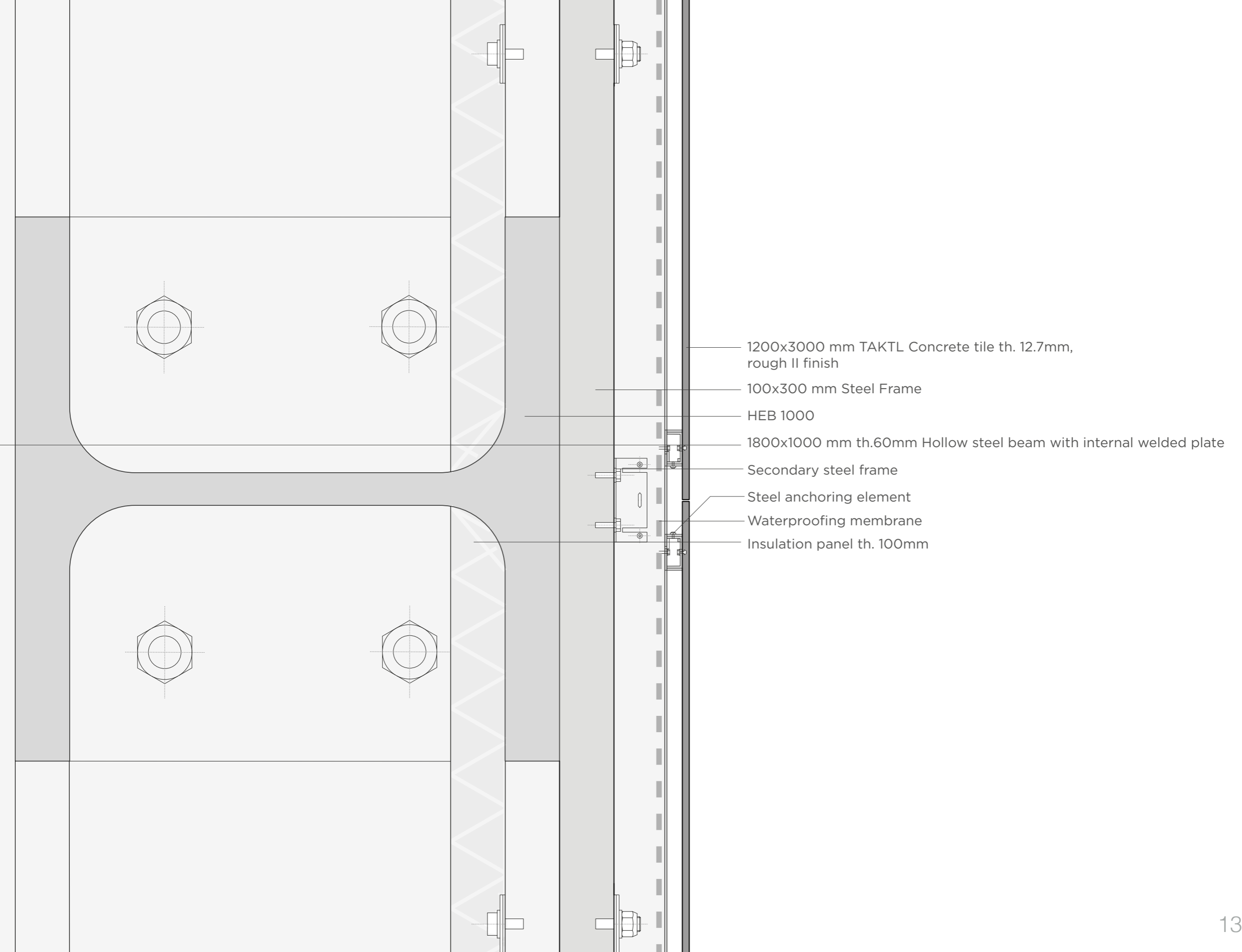








- 1200x3000 mm TAKTL Concrete tile th. 12.7mm, rough II finish
- Shock absorber panel
- 3mm Galvanized steel sheet
- 1800x1000 mm th.60mm Hollow steel beam with internal welded plate
- Waterproofing membrane
- HEB 1000
- Insulation panel th. 100mm



1200x3000 mm TAKTL Concrete tile th. 12.7mm, rough II finish

100x300 mm Steel Frame

HEB 1000

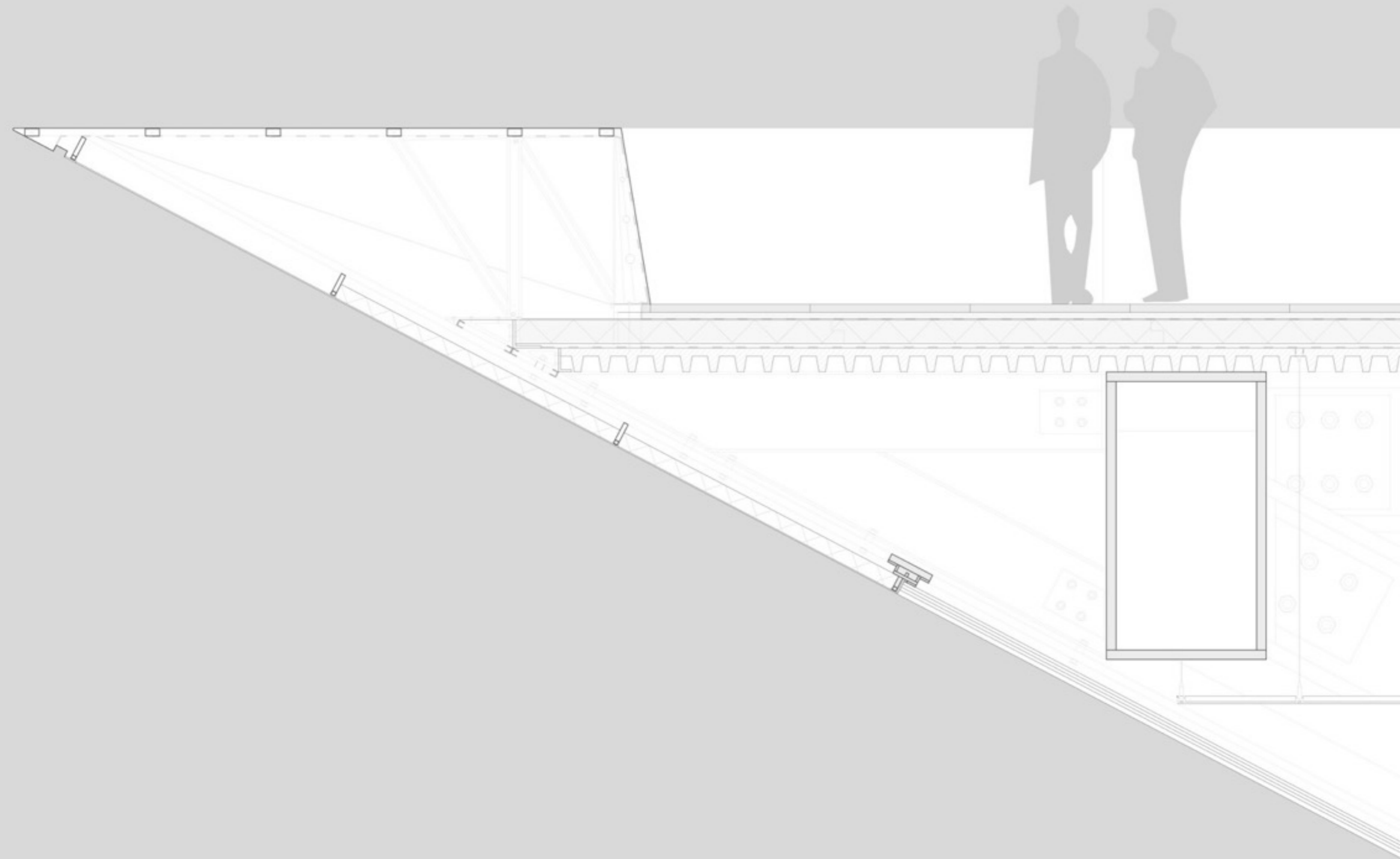
1800x1000 mm th.60mm Hollow steel beam with internal welded plate

Secondary steel frame

Steel anchoring element

Waterproofing membrane

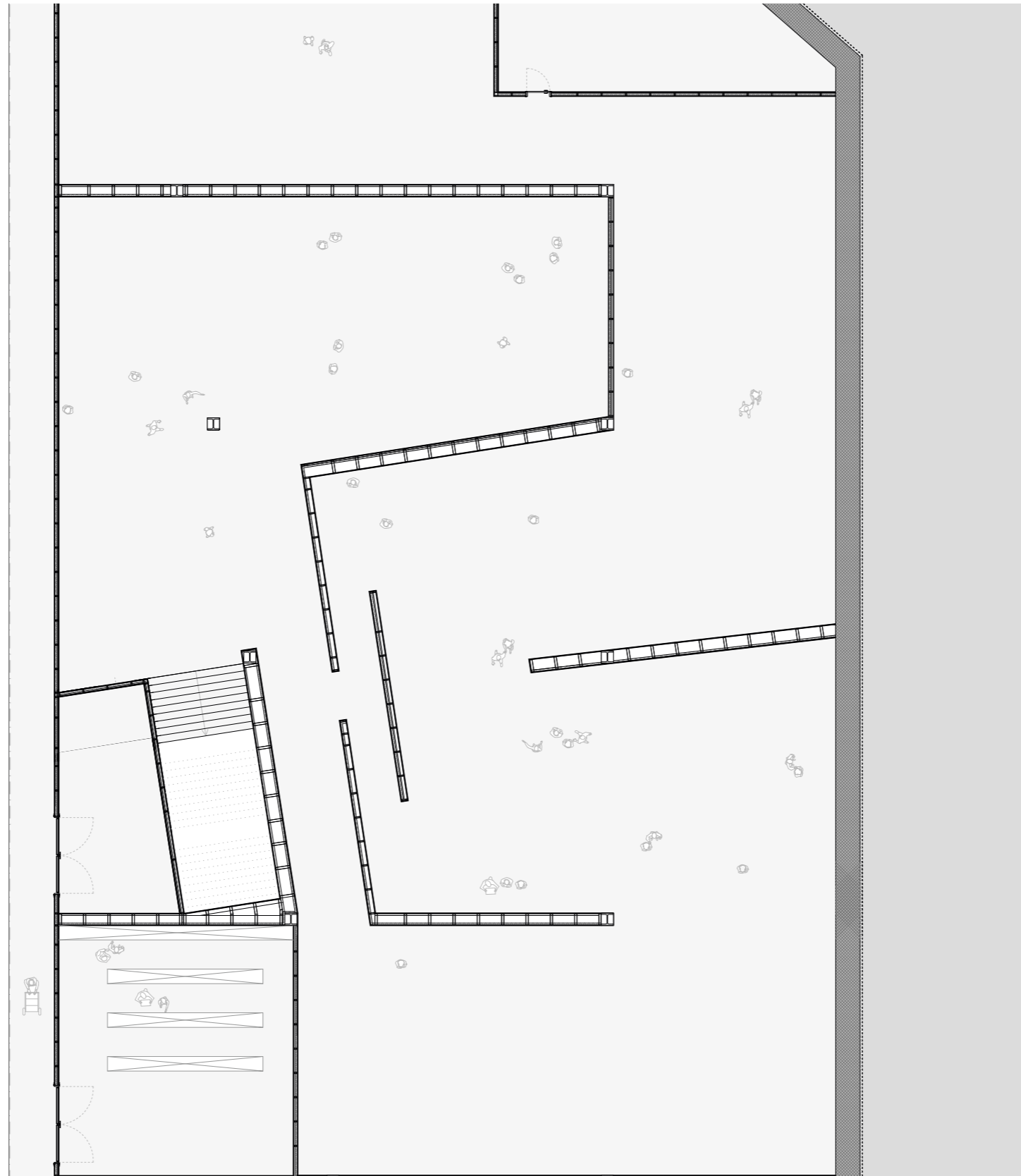
Insulation panel th. 100mm





interior

SCREENS





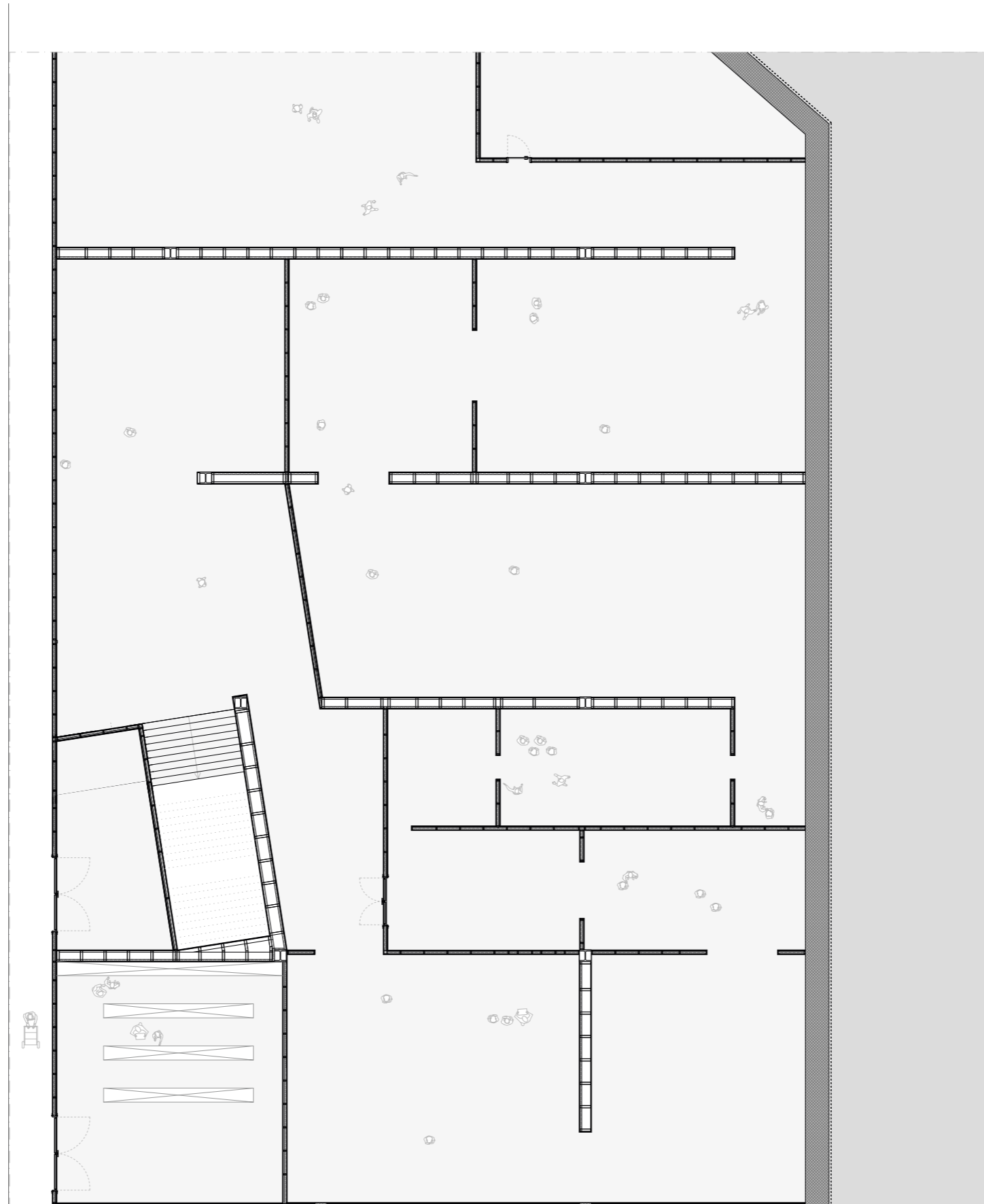
A man in a dark suit and tie stands on the left side of the gallery, looking towards the center.



Two men in dark suits stand in the center-right of the gallery, looking at the large colorful abstract painting.

A man in a dark suit stands on the far right side of the gallery, looking towards the center.

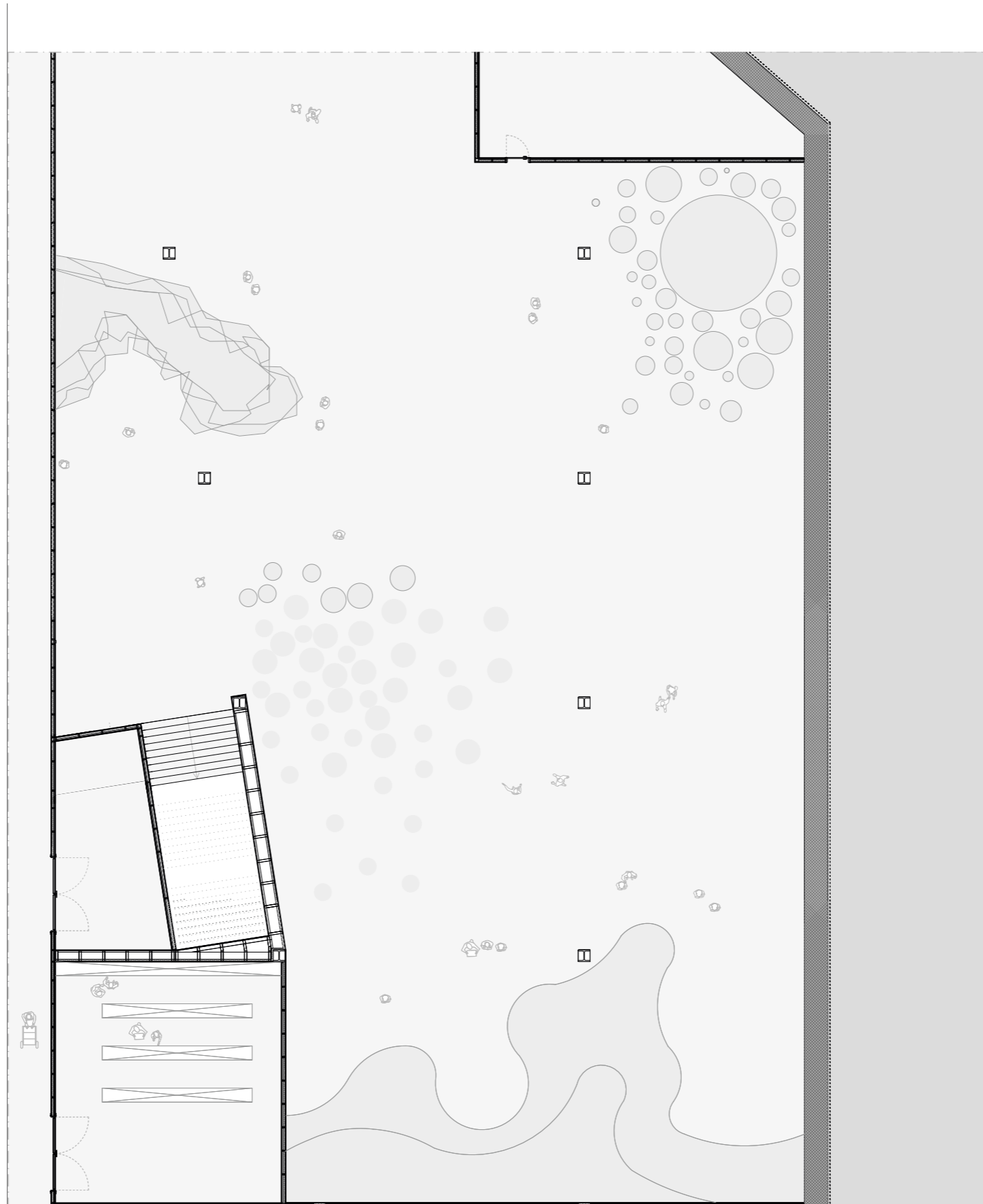
CLOSED ROOMS







OPEN SPACES







CLIFF

TU DELFT
EXPLORE LAB 19
MATTIA TINTORI
mattia.tintori@gmail.com
4298020

