

/AMSTEL HEALTH BASE

ENGAGING IN HEALTH IN THE FUTURE CITY

P5 presentation

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COMPLEX PROJECTS
DEPARTMENT OF ARCHITECTURE
AMS MID CITY GRADUATION 2019

/ INTRO

Assignment
Future vision
Future society
Amsterdam

/ RESEARCH

A healthy future
Health trends
Problem statement
Project ambition

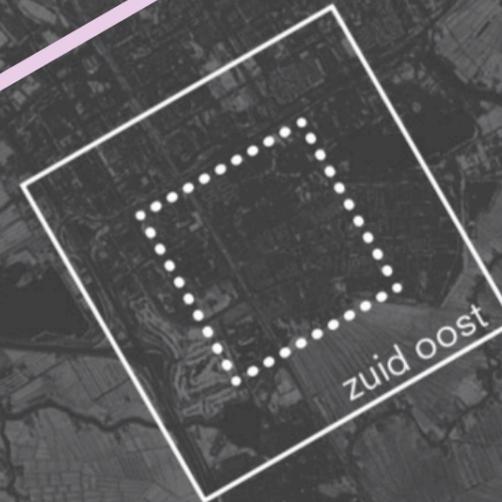
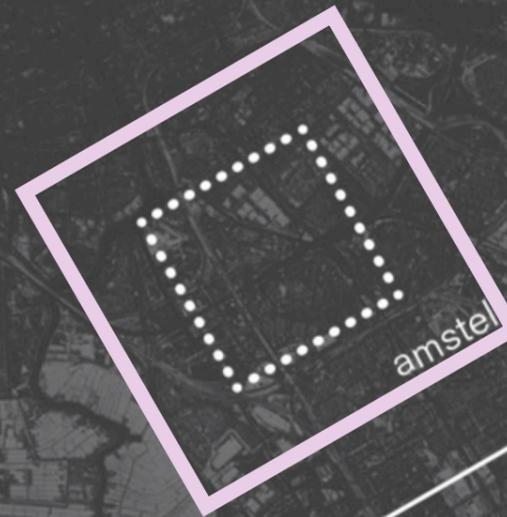
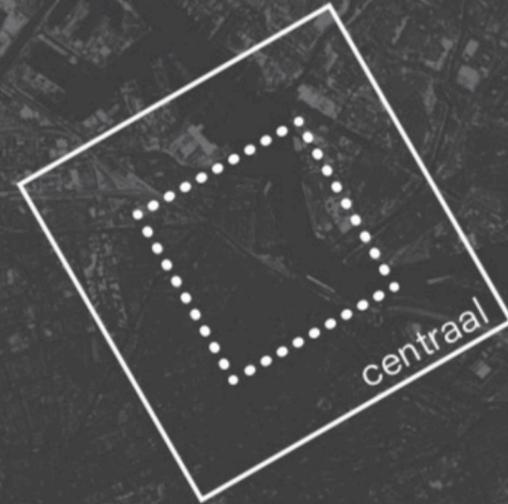
/ CONTEXT

Design principles
Experience
Program configuration
Site conditions

/ DESIGN

Form generation
Organisation
Building Structure
Sustainability

AMSTERDAM 2100





2020
Structure vision
Amsterdam municipality

2040
Structure vision
Amsterdam municipality

2050
Structure vision
AMS MID-City Amstel
17/18

2100
Structure vision
AMS MID-City Amstel
18/19

'Woonvisie Amsterdam tot 2020'

'Ontwerp structuurvisie
Amsterdam 2040
Economisch sterk en Duurzaam'

'Amstel 2050'
&
'Amsterdam 2050'

'Amstel 2100'

GROWING OF URBAN AREAS

“

BY 2050 68% OF
WORLD'S POPULATION
WILL LIVE IN CITIES

”

United Nations

“

AMSTERDAM IS THE
FASTEST GROWING
CITY IN THE
NETHERLANDS

”

Het Parool

“

AMSTERDAM WILL
HAVE A POPULATION
COUNT OF 1.567.349
IN 2100

”

Municipality of
Amsterdam

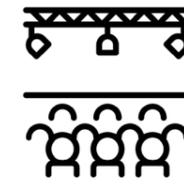
NOWADAYS



MATERIALISM



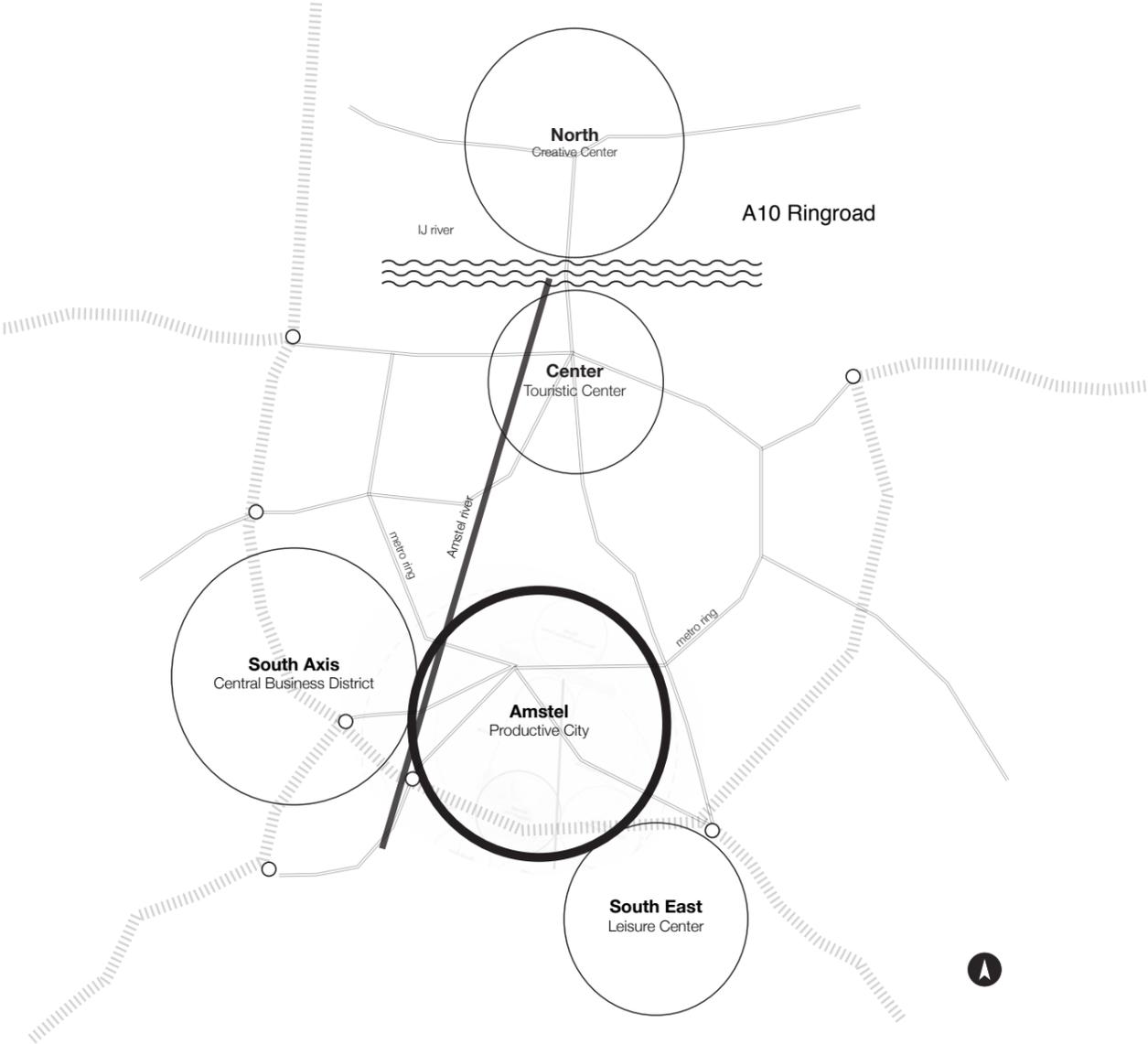
2100



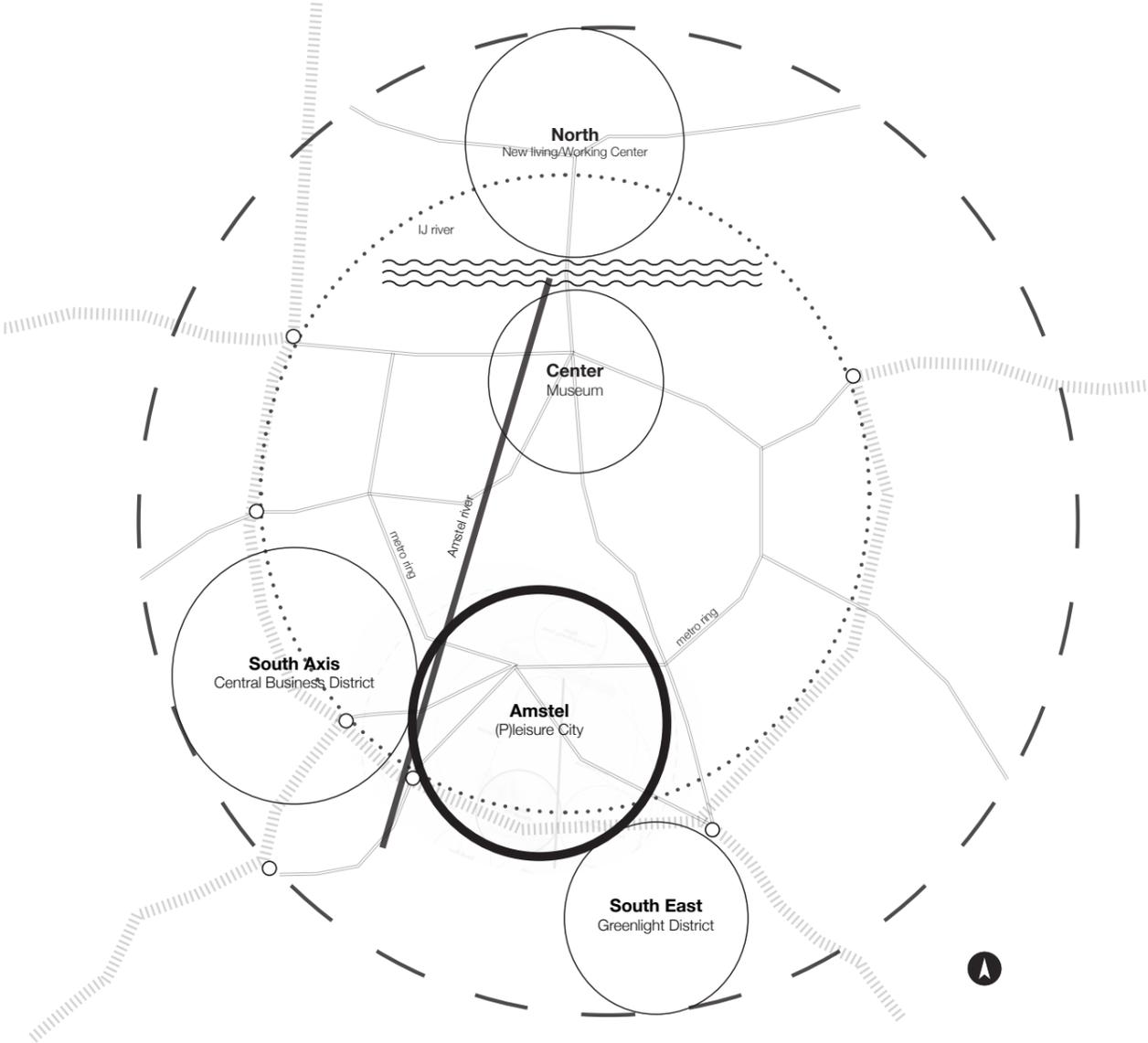
EXPERIENCES



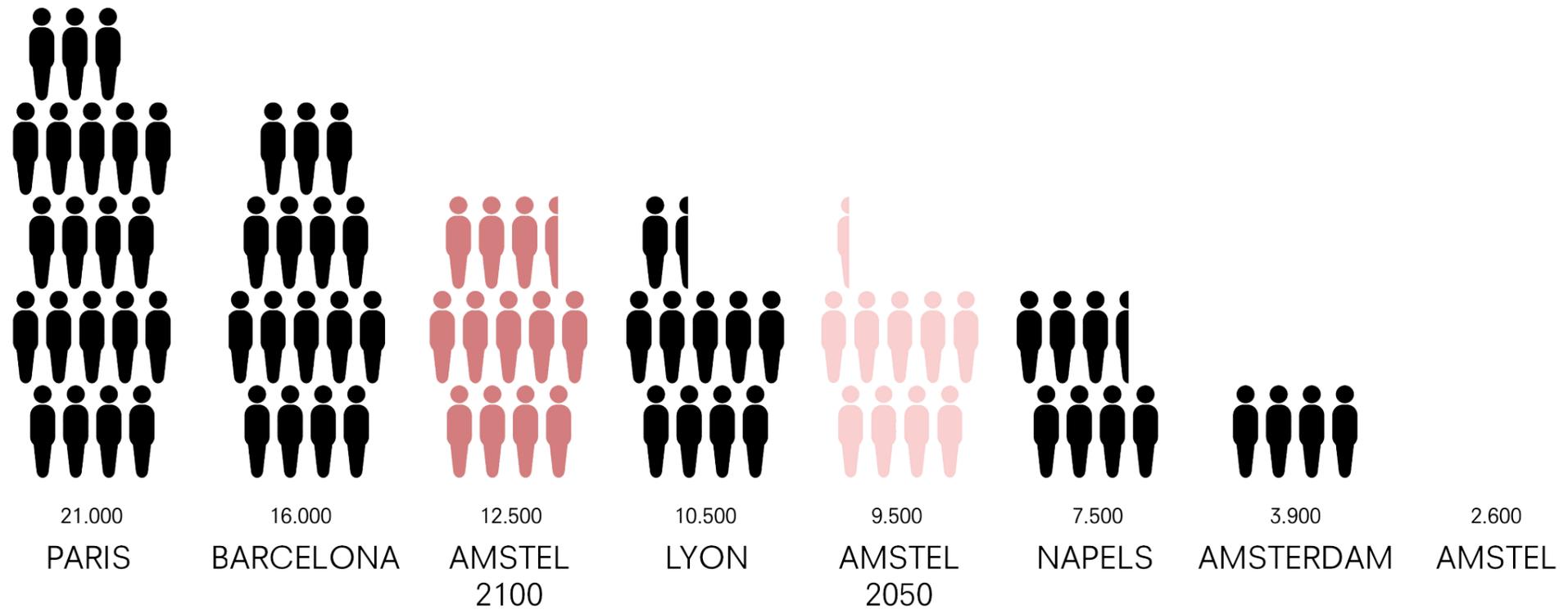
AMSTERDAM 2050



AMSTERDAM 2100

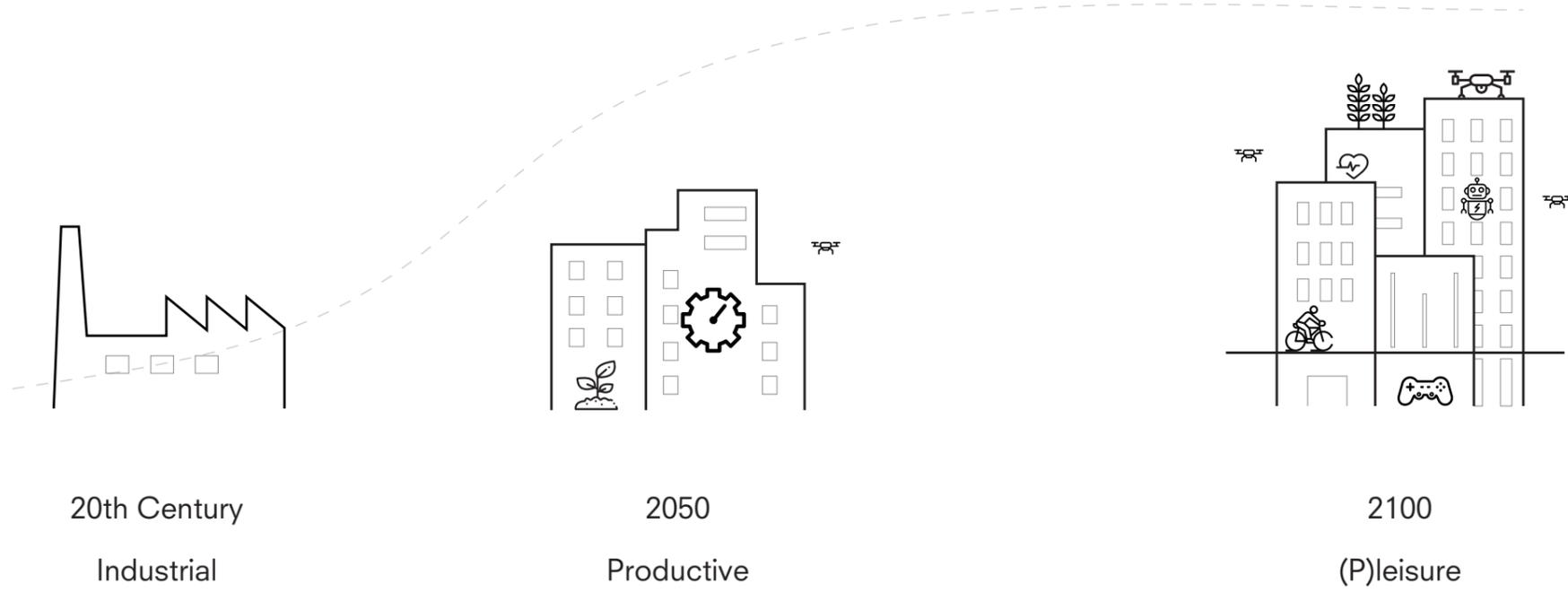


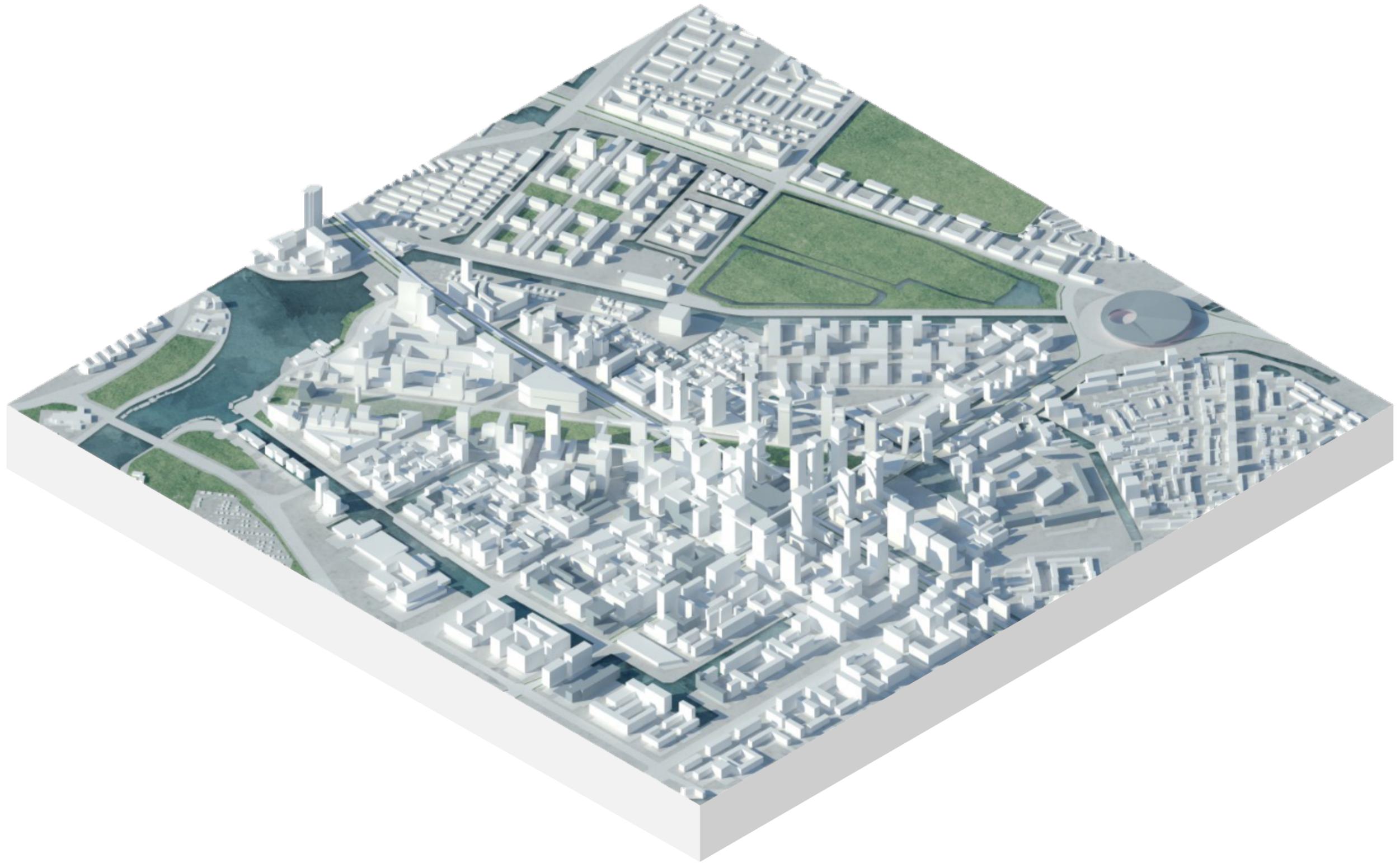
AMSTEL 2100 POPULATION TREND



 = 1000 residents/km 2

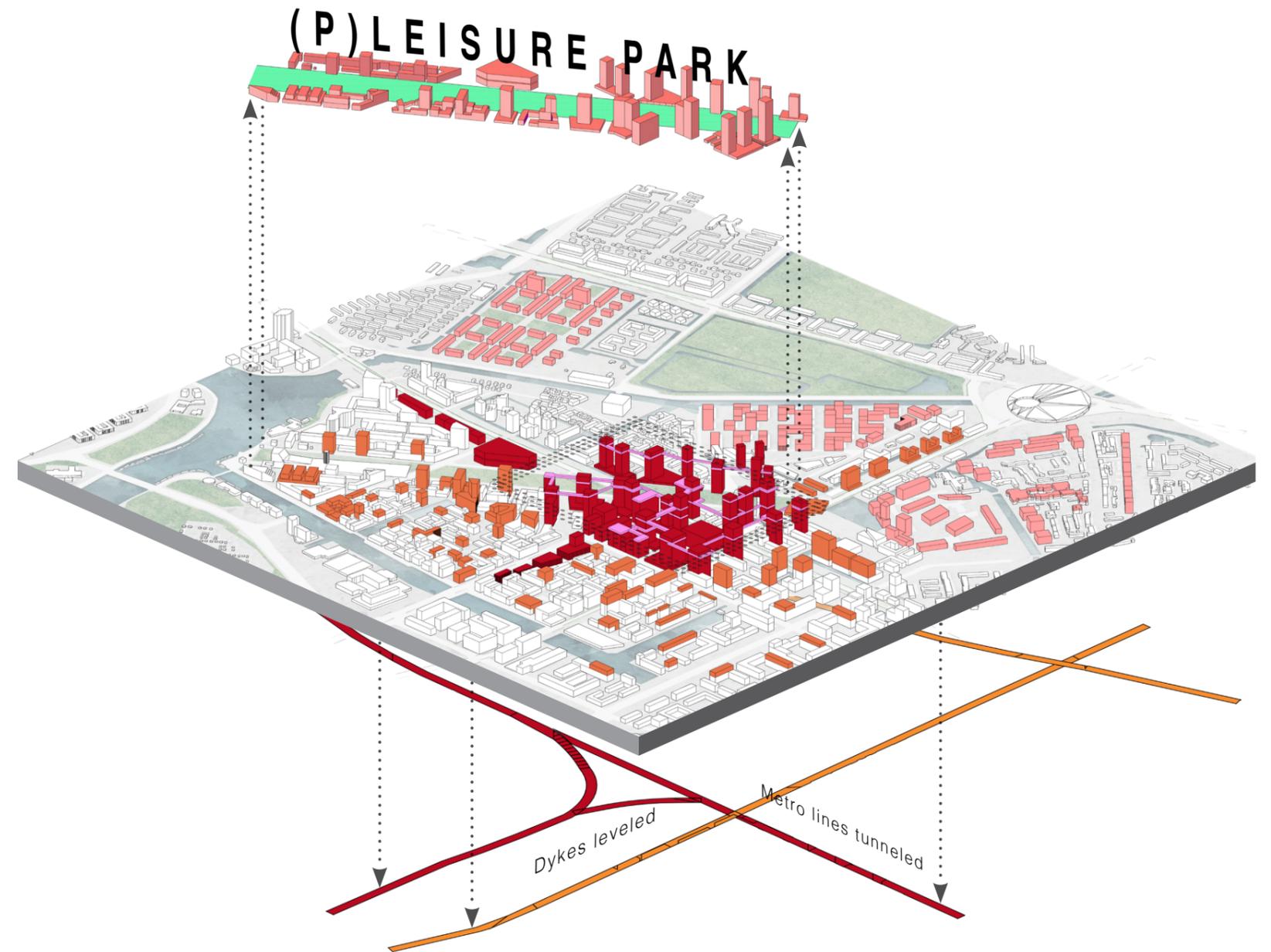
AMSTEL 2100 IDENTITY





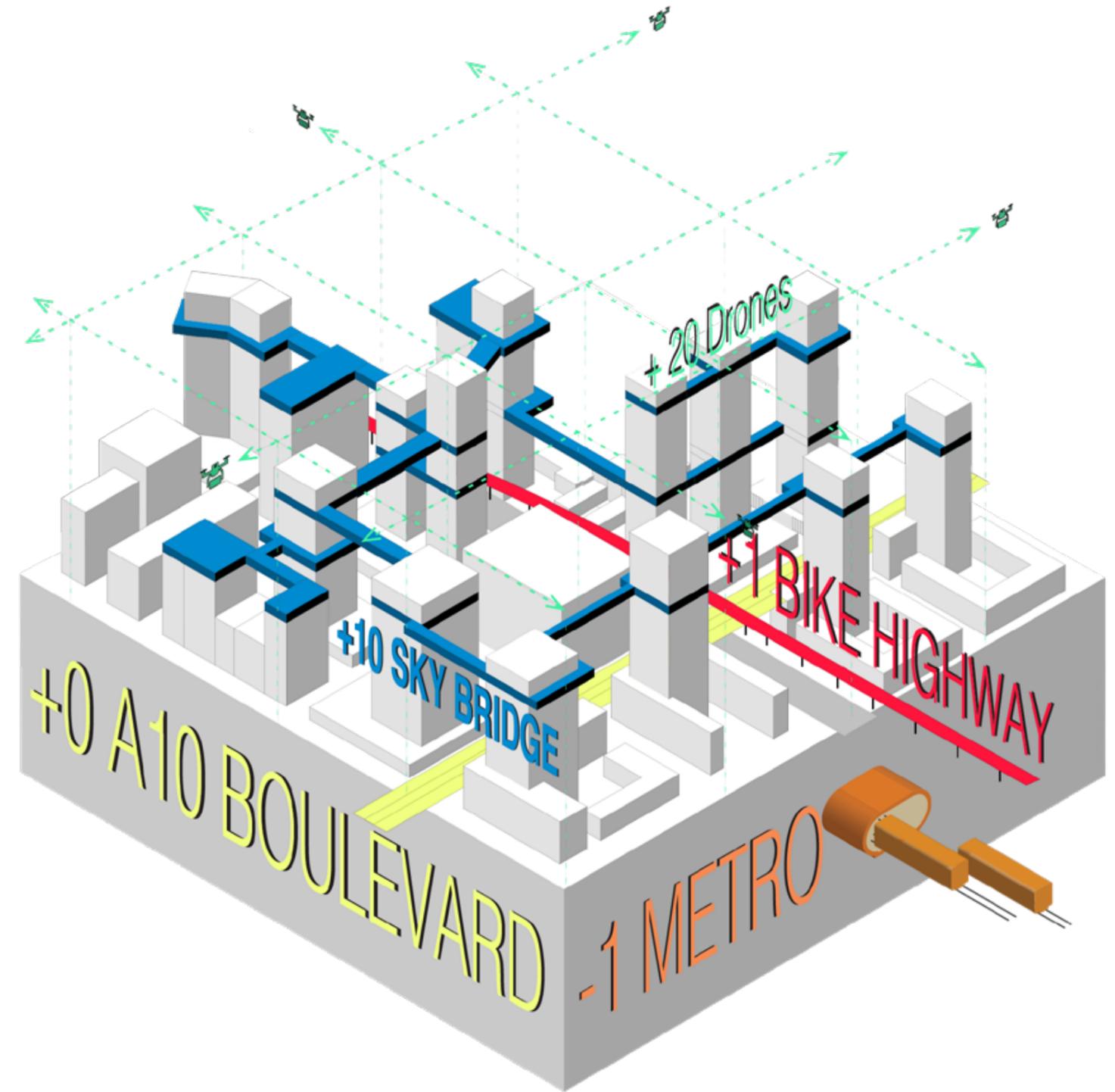
AMSTEL 2100 STRATEGY

- 1 Deal with infrastructure in the area in order to gain space for densification
- 2 Reinforce existing qualities in the area in order to emphasize local identity and hierarchy
- 3 Prepare for the vertical city and 3D urbanism



AMSTEL 2100 STRATEGY

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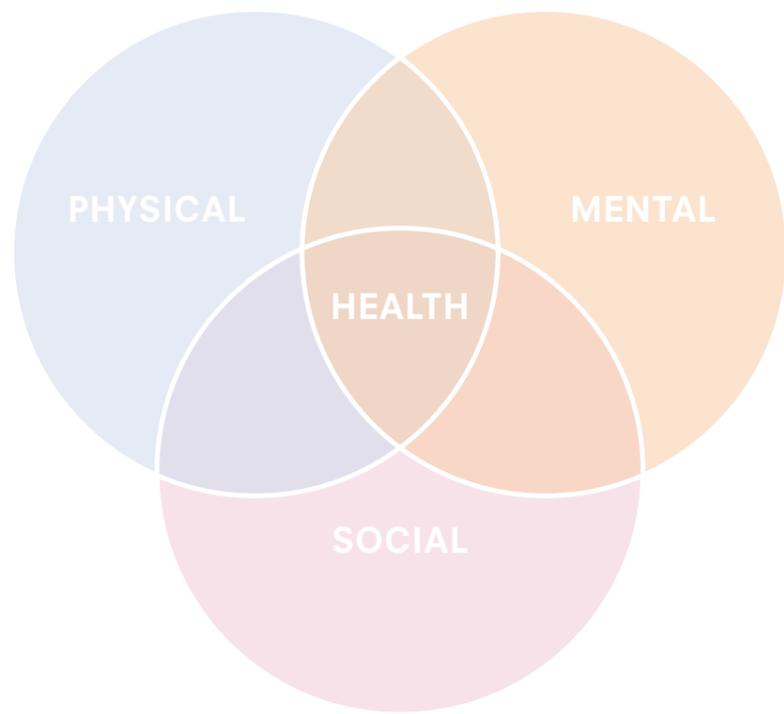
/THE FIRST
WEALTH
IS HEALTH



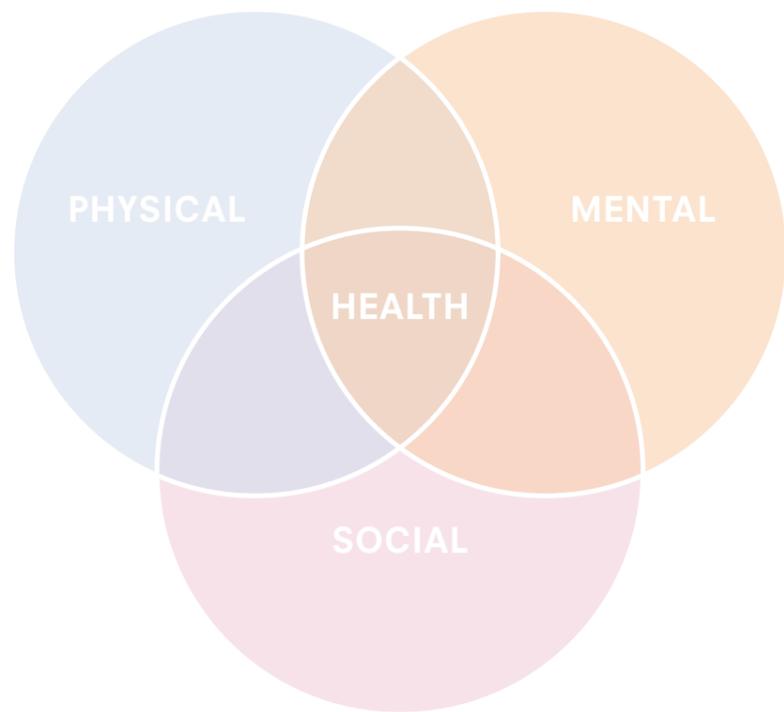
Ralph Waldo Emerson, 1860



CURRENT DEVELOPMENT WITHIN HEALTH



CURRENT DEVELOPMENT WITHIN HEALTH



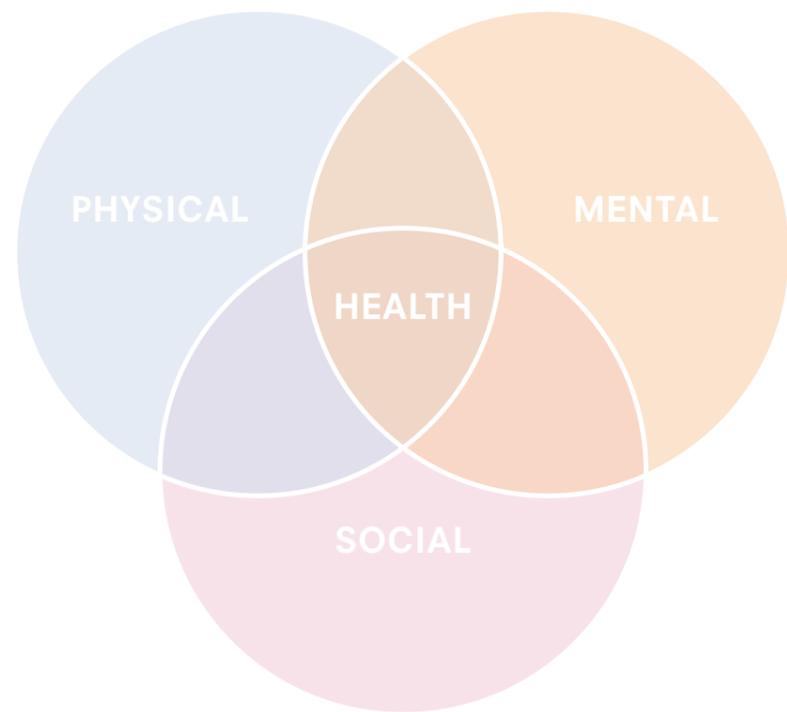
Treatment



Prevention



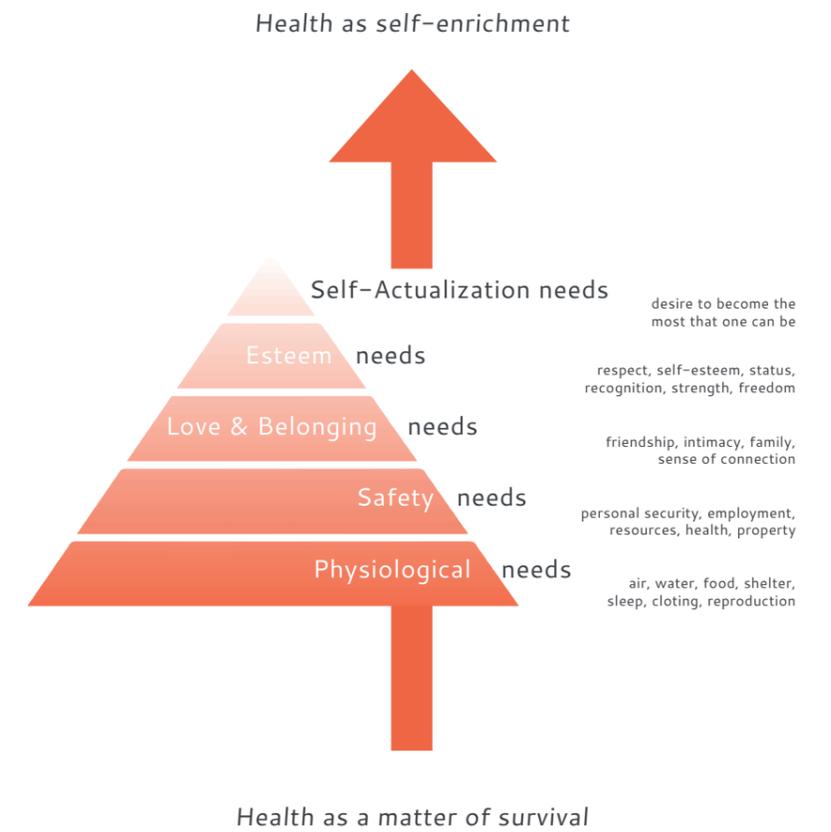
CURRENT DEVELOPMENT WITHIN HEALTH



Treatment



Prevention



PROBLEM STATEMENT

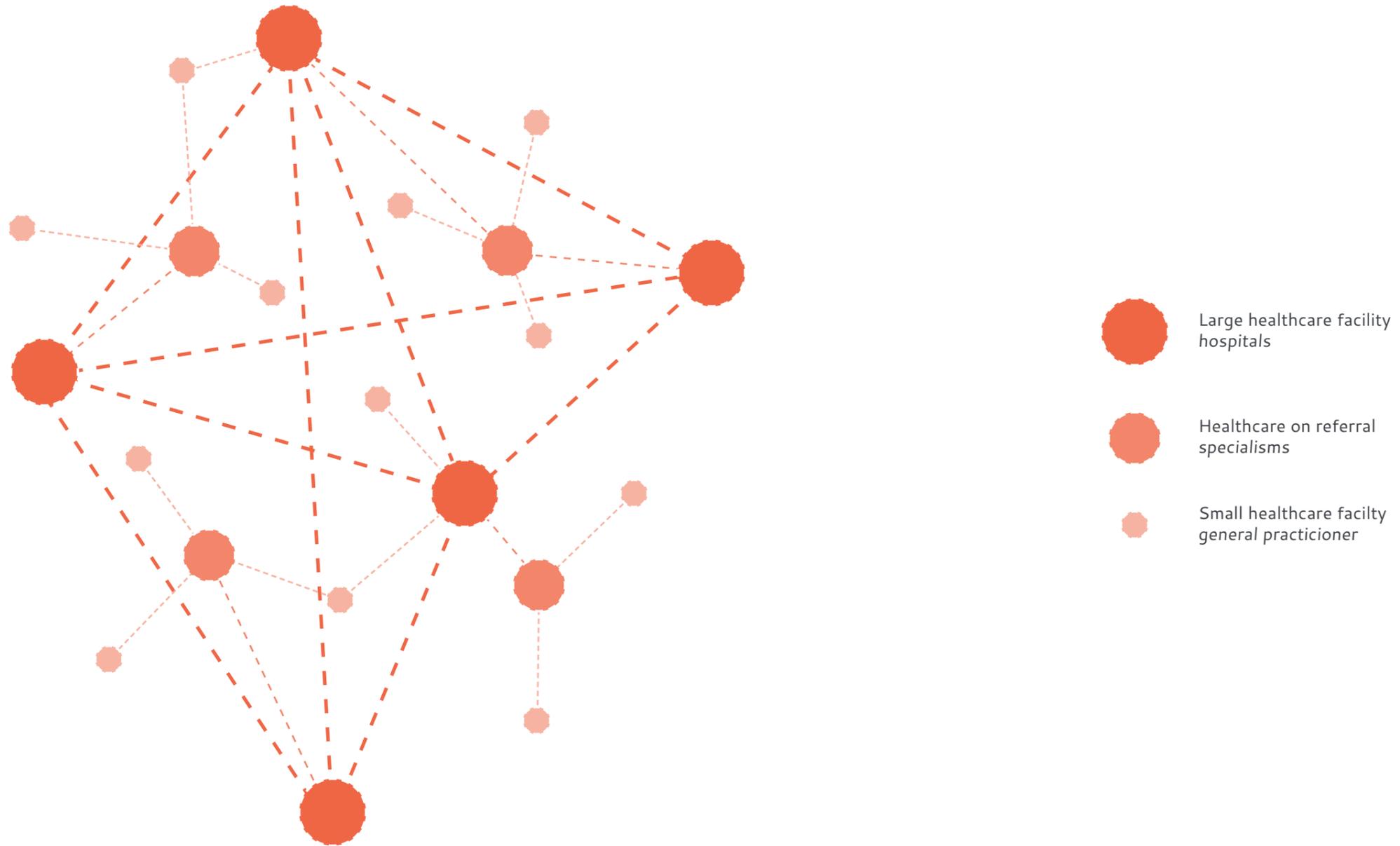
“

with the future population growth and technological developments the current healthcare system is not sustainable

”

HEALTH RESEARCH

CURRENT DEVELOPMENT WITHIN HEALTH



CURRENT DEVELOPMENT WITHIN HEALTH

UNFRIENDLY CHARACTER OF HOSPITALS



lack of privacy

the farewell of friends and family



spending the night with strangers

minimum contact with responsible doctors



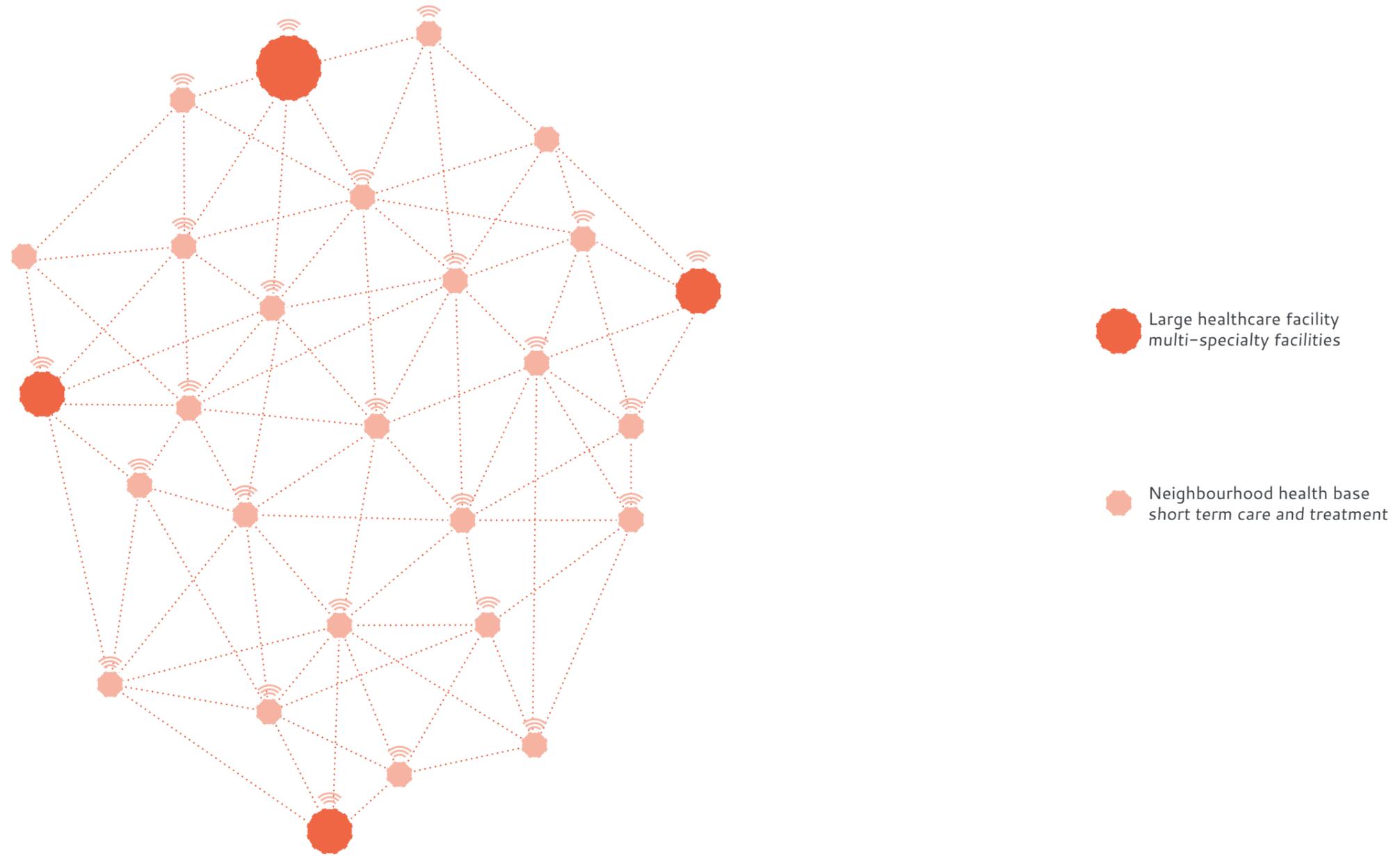
overabundance of contact with different staff

poor acoustics



feeling of loss by logistics

FUTURE OF HEALTH



FUTURE OF HEALTH



PROJECT AMBITION



/AMSTEL HEALTH BASE

a house of health for the Amstel community

It has same day treatments, provides medical and environmental education, serves as a social meeting place and therefore has an important public role in the urban context of the Amstel

PROJECT STRATEGY

CONCEPT

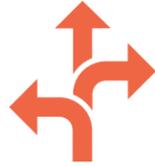


A JOURNEY OF PROGRESSION



PUBLIC ROLE

ORGANISATION



EFFICIENT PATIENT LOGISTICS



DISTINCTION IN PATIENT FLOWS

MATERIALISATION



HEALING ENVIRONMENT

RESEARCH DESIGN PRINCIPLES

SOCIAL AND MENTAL HEALTH PRINCIPLES

access to green, active, social and safe places



HEALING ENVIRONMENT PRINCIPLES

facilitate autonomy, privacy, personalization, social comfort and workflow



THE EXPERIENCE



PROJECT AMBITION

2100

Amstel 2100 inhabitants: 150.000

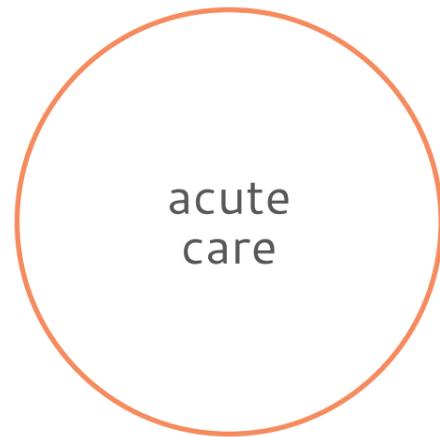


1 clinical admission per 35 inhabitants



1 emergency case per 10 inhabitants

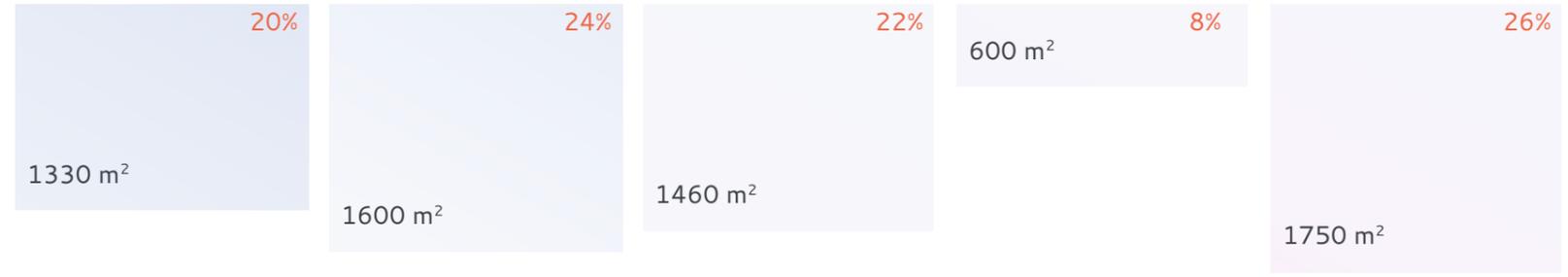
triple medical department focus



a visit to the Amstel Health Base is autonomous and ambulantory

PROJECT PROGRAM

	General	Acute care	Outpatient care	Mental health	Public
entrance	50 m ²	trauma center 80 m ²	preparation center 600 m ²	exam room 50 m ²	visiting area 700 m ²
foyer	100 m ²	operation center 200 m ²	operation center 60 m ²	group therapy 100 m ²	food area 400 m ²
pod storage	500 m ²	treatment center 400 m ²	recovery center 200 m ²	consultation rooms 220 m ²	playground 250 m ²
logistic circulation	150 m ²	recovery center 320 m ²	employee space 50 m ²	employee space 50 m ²	exhibition space 400 m ²
office	50 m ²	employee cafeteria 50 m ²	employee cafeteria 70 m ²	toilets 30 m ²	
installation space	100 m ²	toilets 70 m ²	installations 30 m ²	circulation 150 m ²	
drone logistics	300 m ²	installations 200 m ²	circulation 250 m ²		
medical supplies storage	80 m ²	circulation 250 m ²			

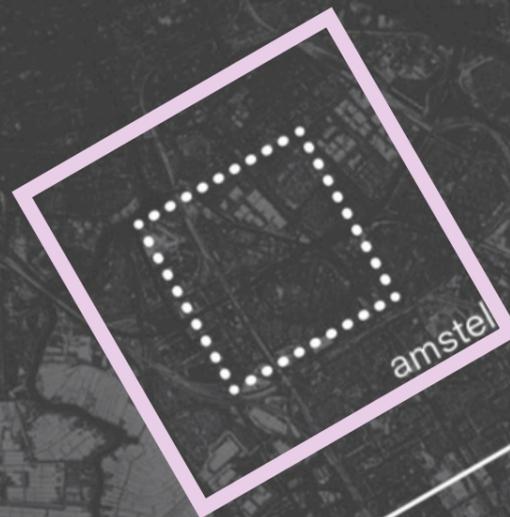
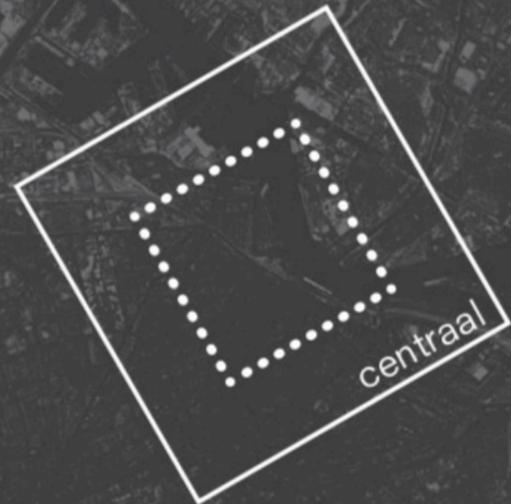


6740 m²

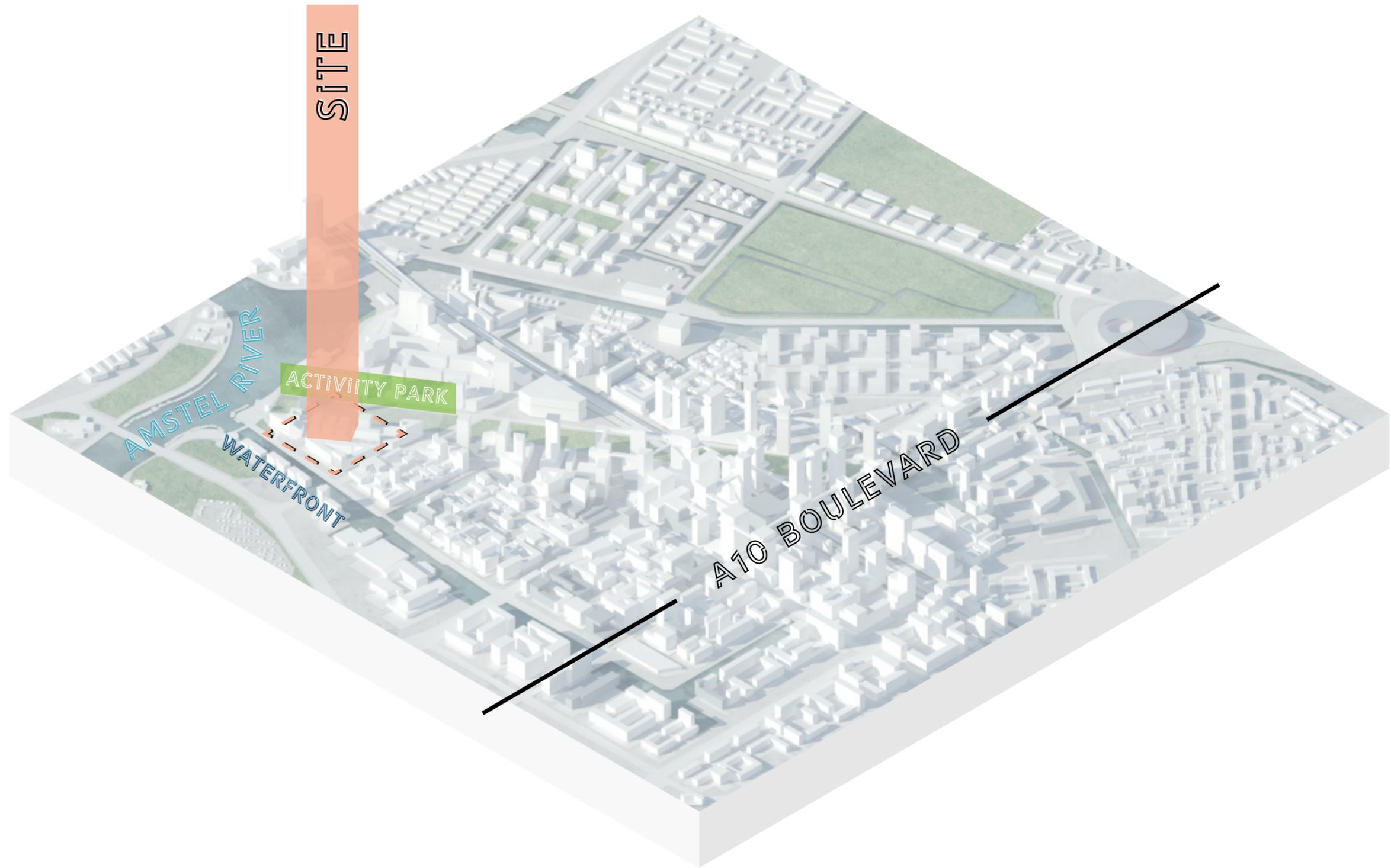
Category	Percentage	Total Area (m ²)
PUBLIC	24%	1750 m ²
MENTAL HEALTH	8%	600 m ²
OUTPATIENT	22%	1460 m ²
ACUTE	24%	1600 m ²
GENERAL	20%	1330 m ²

PROJECT SITE

SITE

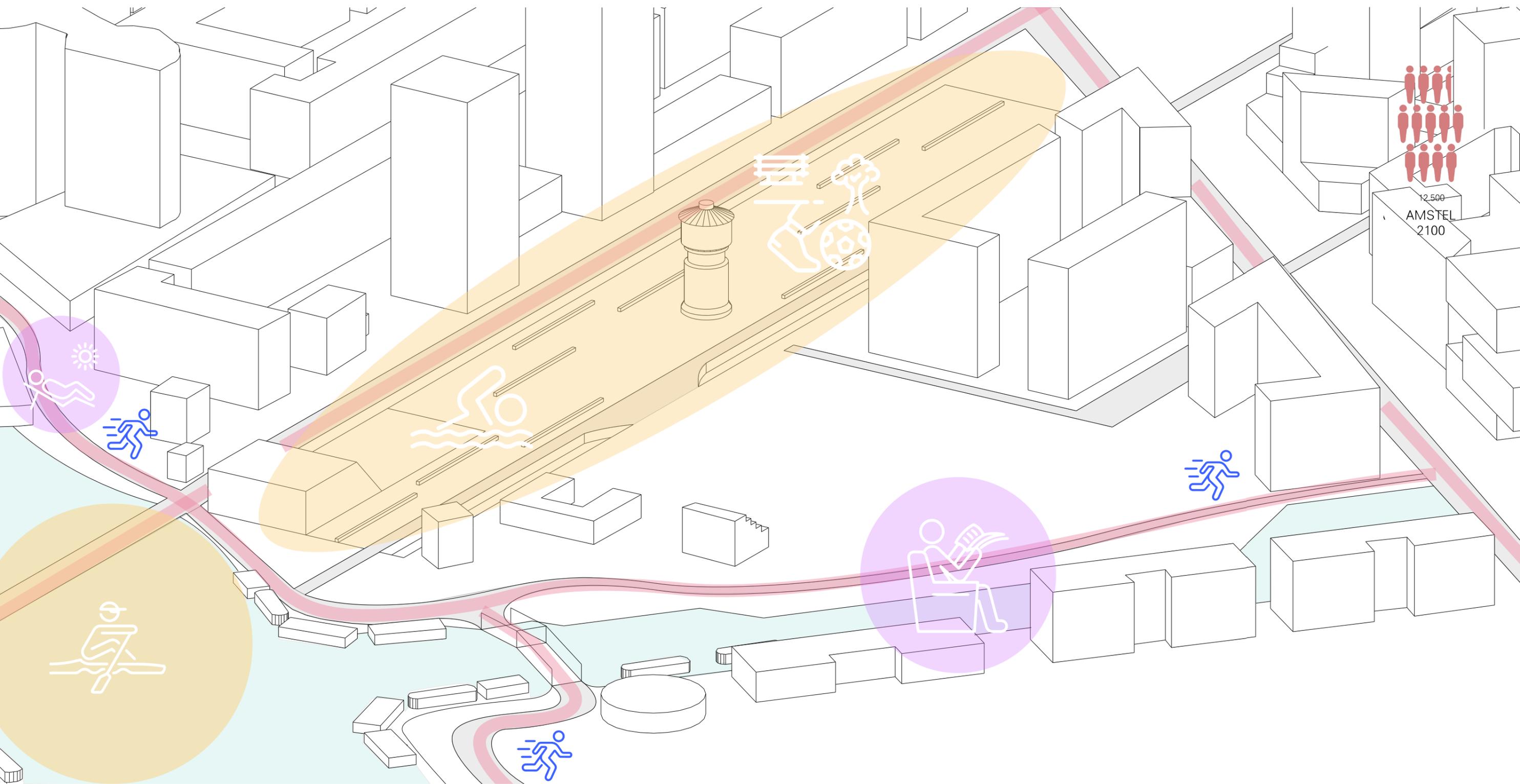


SITE

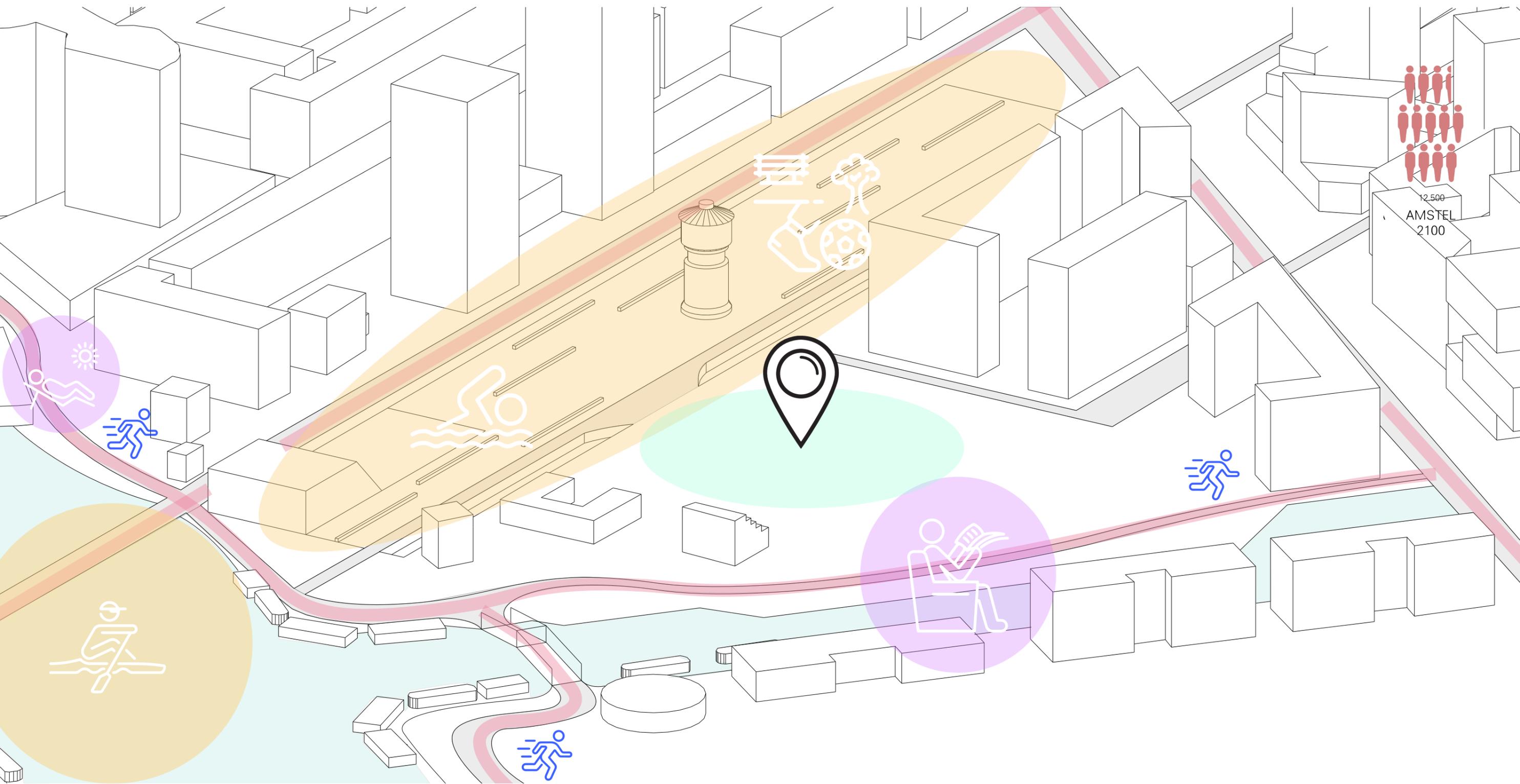




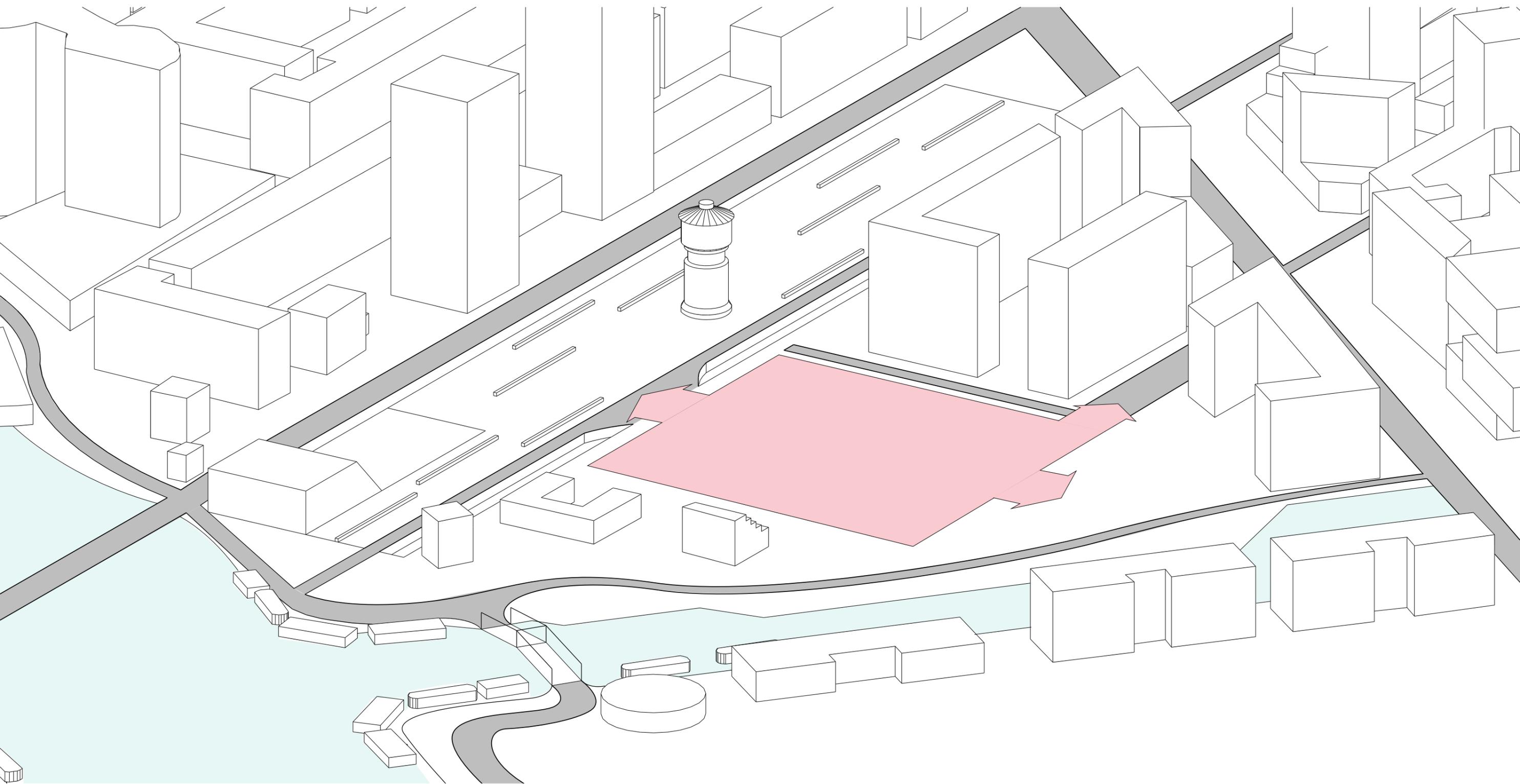
FORM GENERATION; CONCEPT PUBLIC ROLE



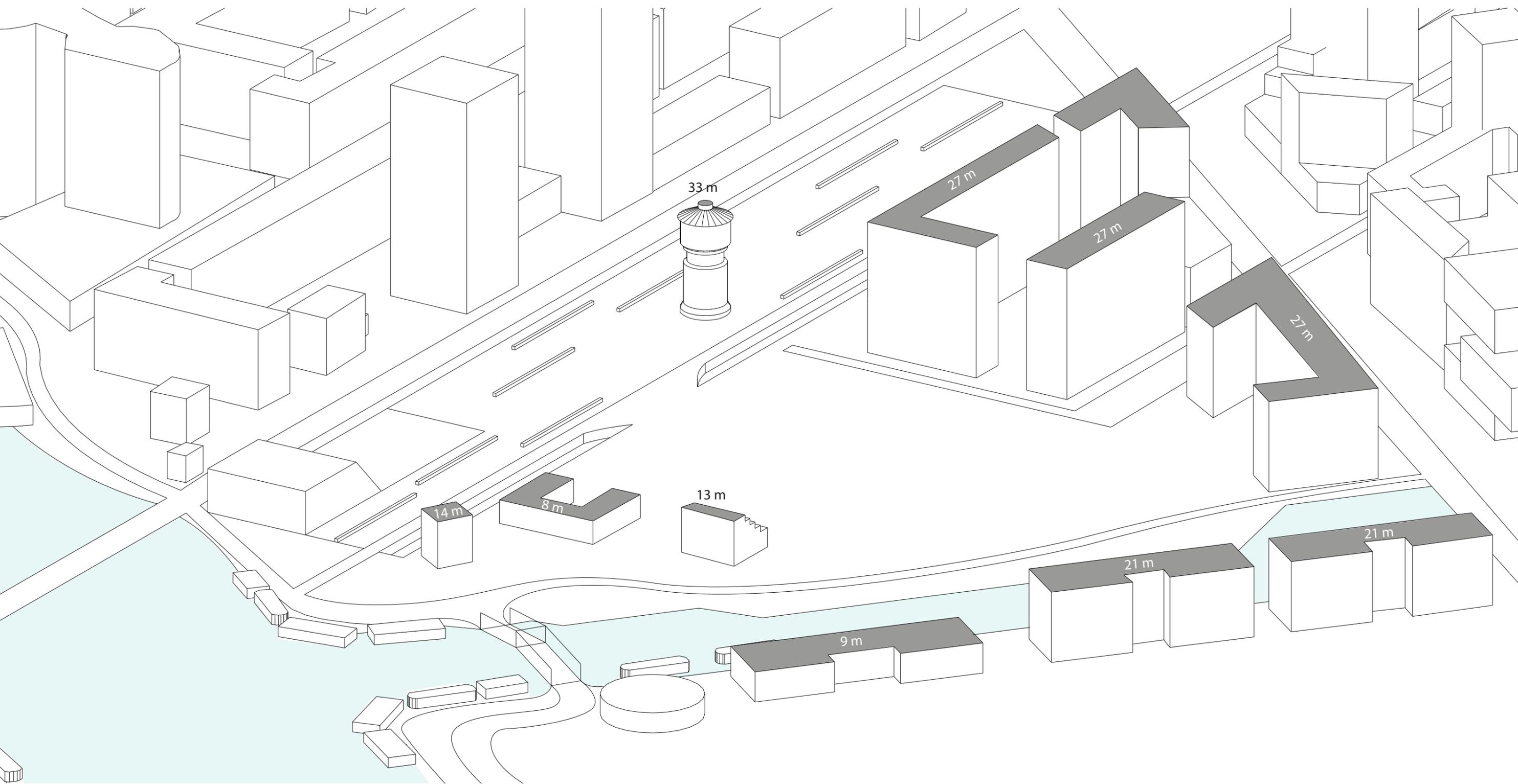
FORM GENERATION; CONCEPT PUBLIC ROLE



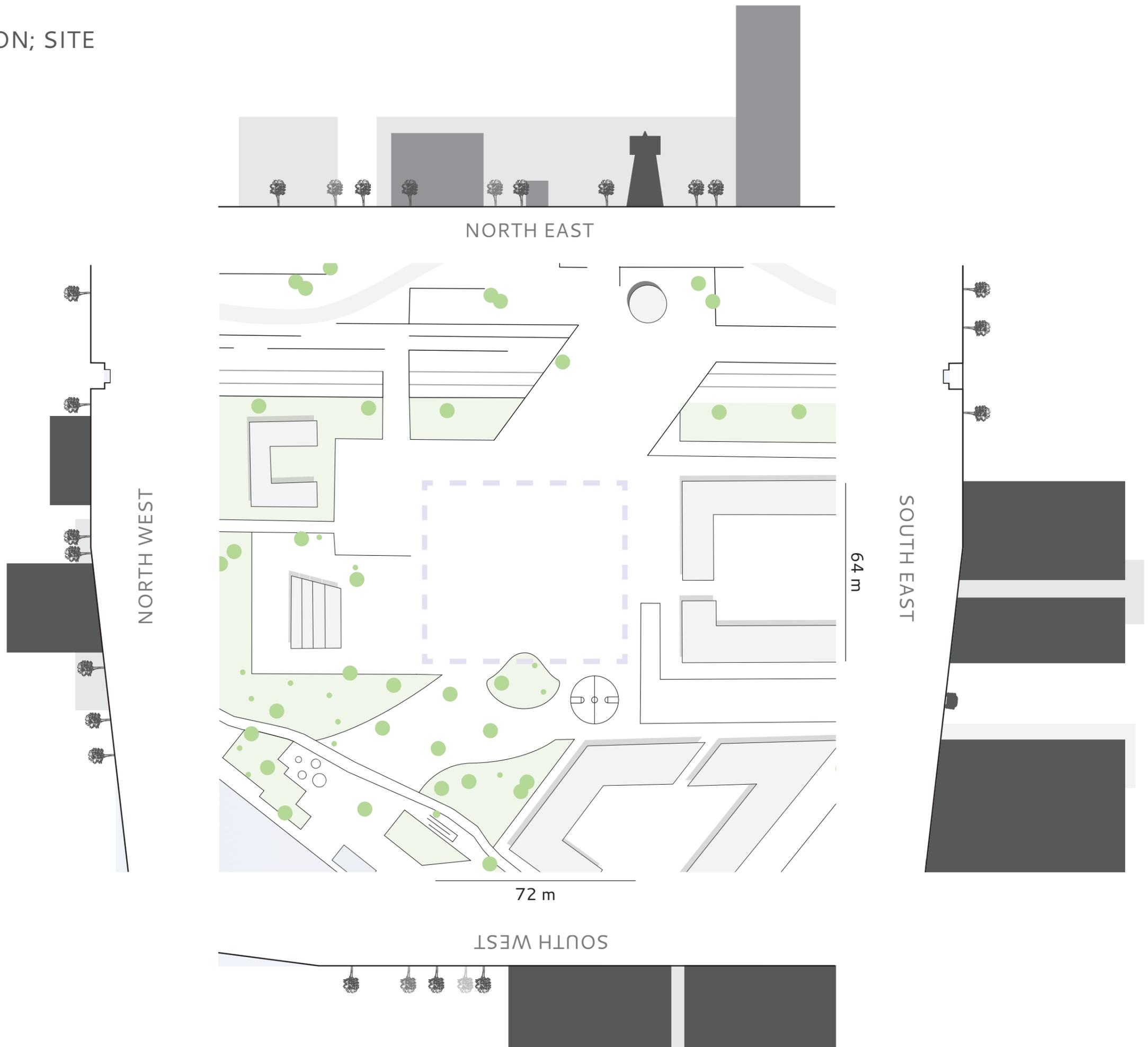
FORM GENERATION; CONNECTIVITY



FORM GENERATION; HEIGHT

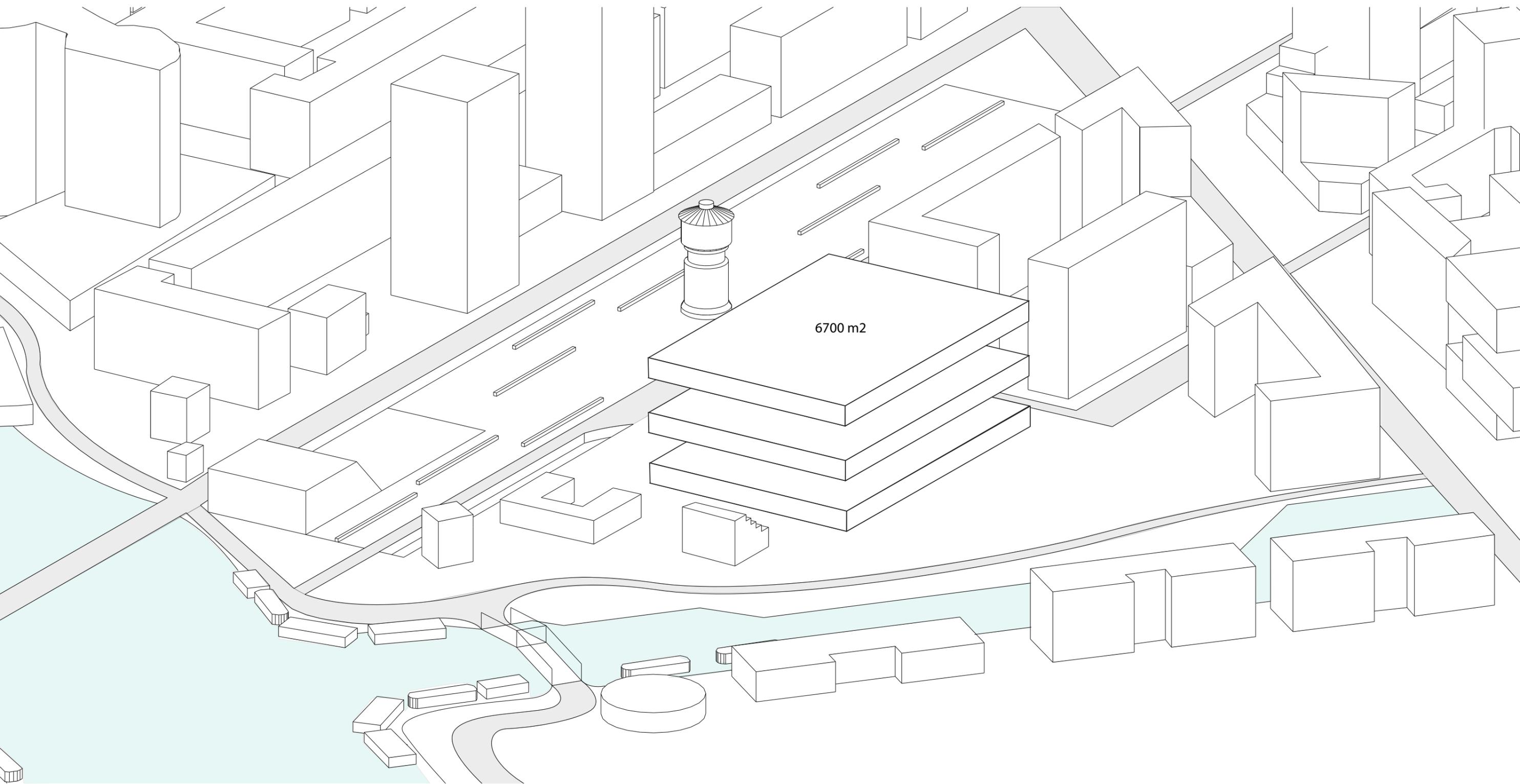


FORM GENERATION; SITE

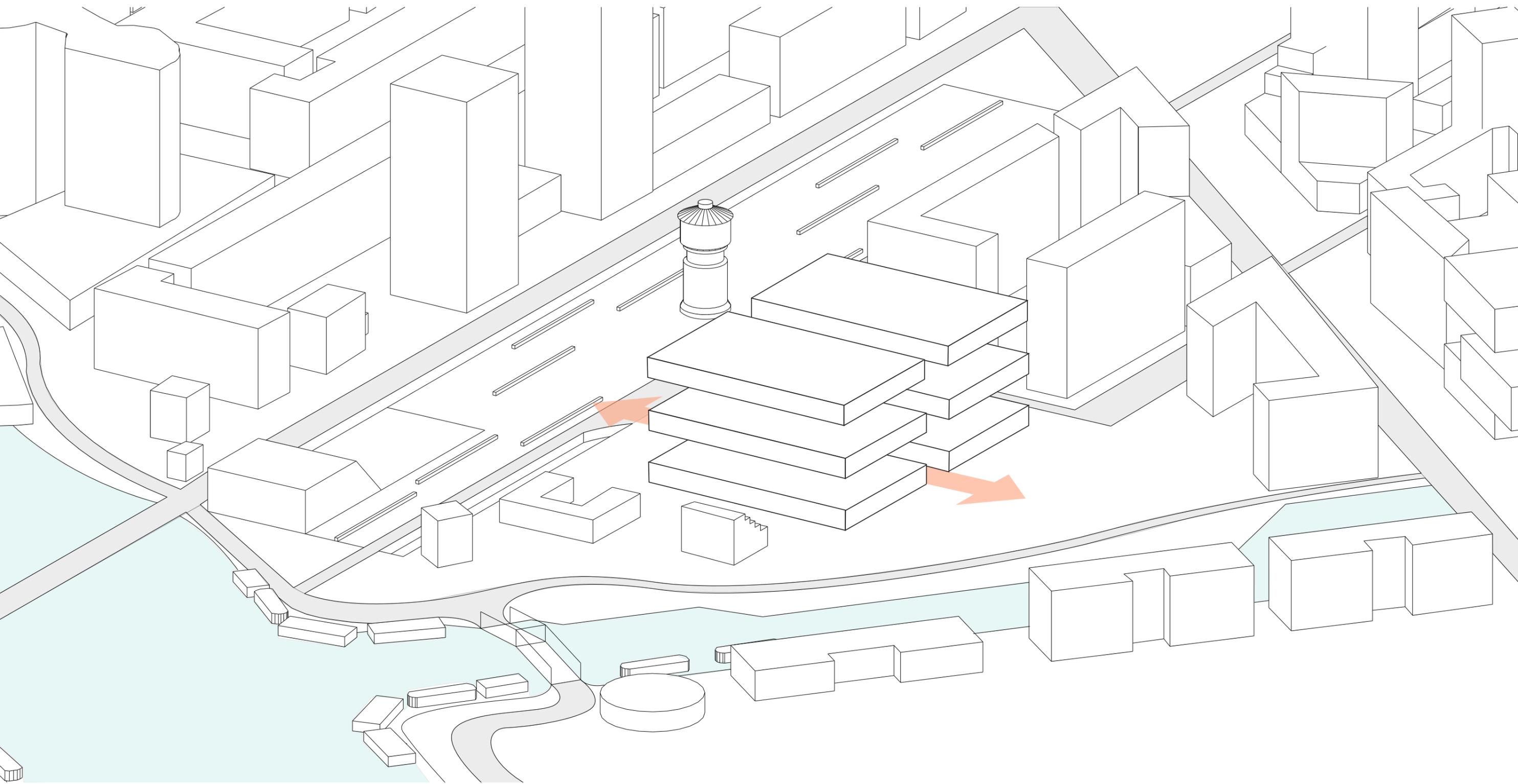


DESIGN SYNTHESIS

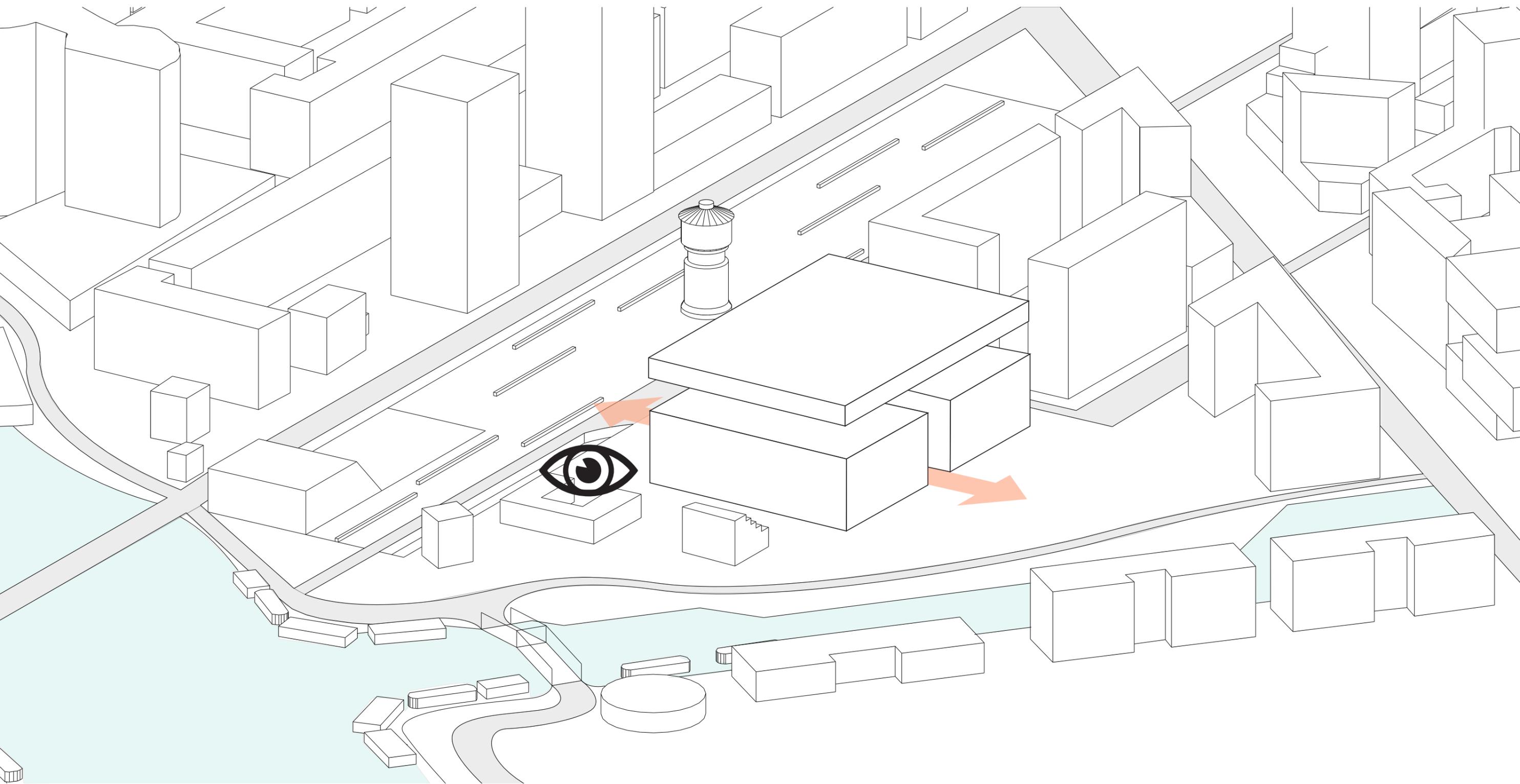
FORM GENERATION; SHAPES



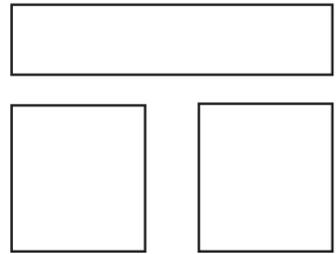
FORM GENERATION; SHAPES



FORM GENERATION; SHAPES



THE CONCEPT



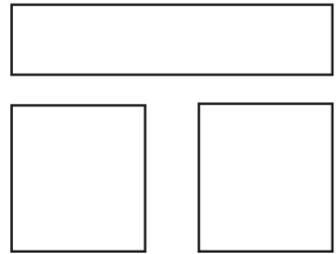
3 DEPARTMENTS

MENTAL CARE

ACUTE

OUTPATIENT

THE CONCEPT

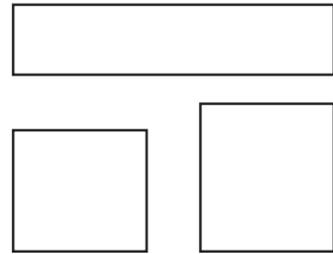


3 DEPARTMENTS

MENTAL CARE

ACUTE

OUTPATIENT



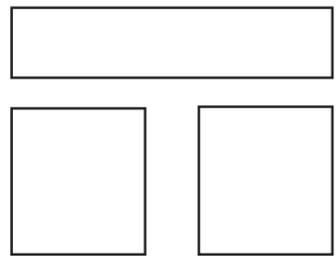
3 DEPARTMENTS

views / public / rest

sensitive / private / acces

ambulant / views

THE CONCEPT

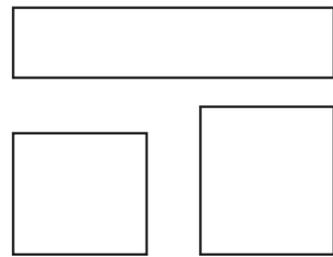


3 DEPARTMENTS

MENTAL CARE

ACUTE

OUTPATIENT

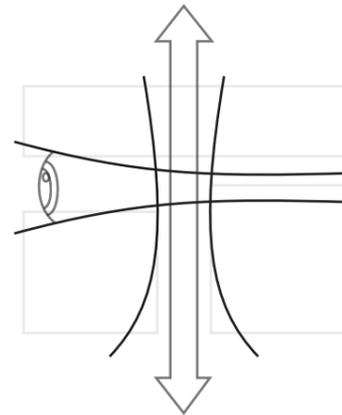


3 DEPARTMENTS

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sensitive / private / acces

ambulant / views

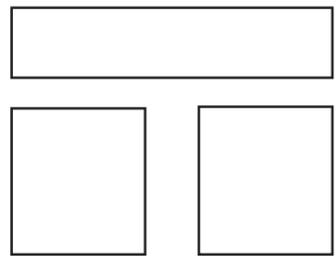


SITE OPPORTUNITIES

views

connection

THE CONCEPT

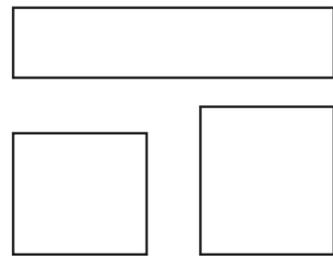


3 DEPARTMENTS

MENTAL CARE

ACUTE

OUTPATIENT

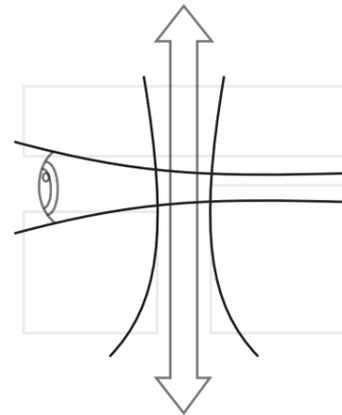


3 DEPARTMENTS

views / public / rest

sensitive / private / acces

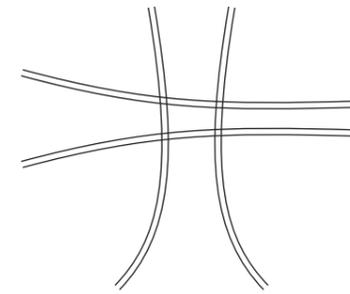
ambulant / views



SITE OPPORTUNITIES

views

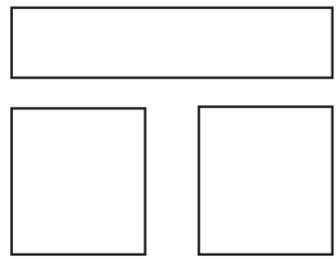
connection



BRANDING

creating recognition in the
community

THE CONCEPT

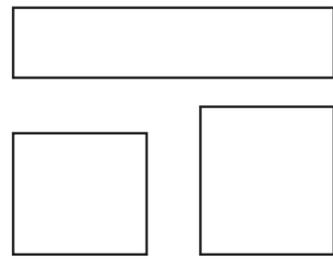


3 DEPARTMENTS

MENTAL CARE

ACUTE

OUTPATIENT

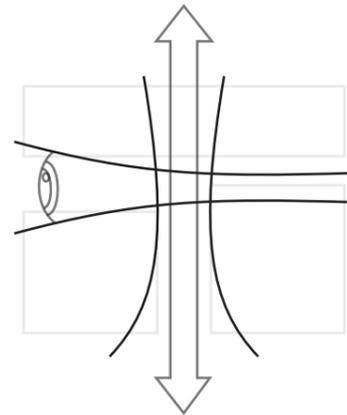


3 DEPARTMENTS

views / public / rest

sensitive / private / acces

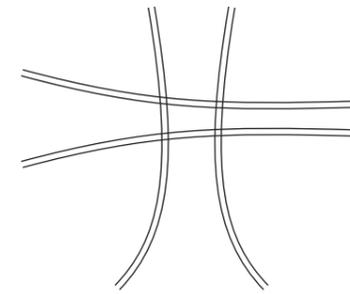
ambulant / views



SITE OPPORTUNITIES

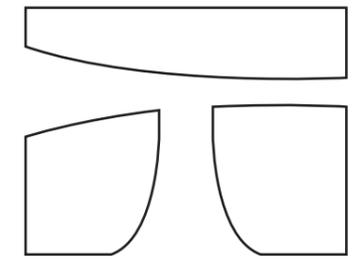
views

connection



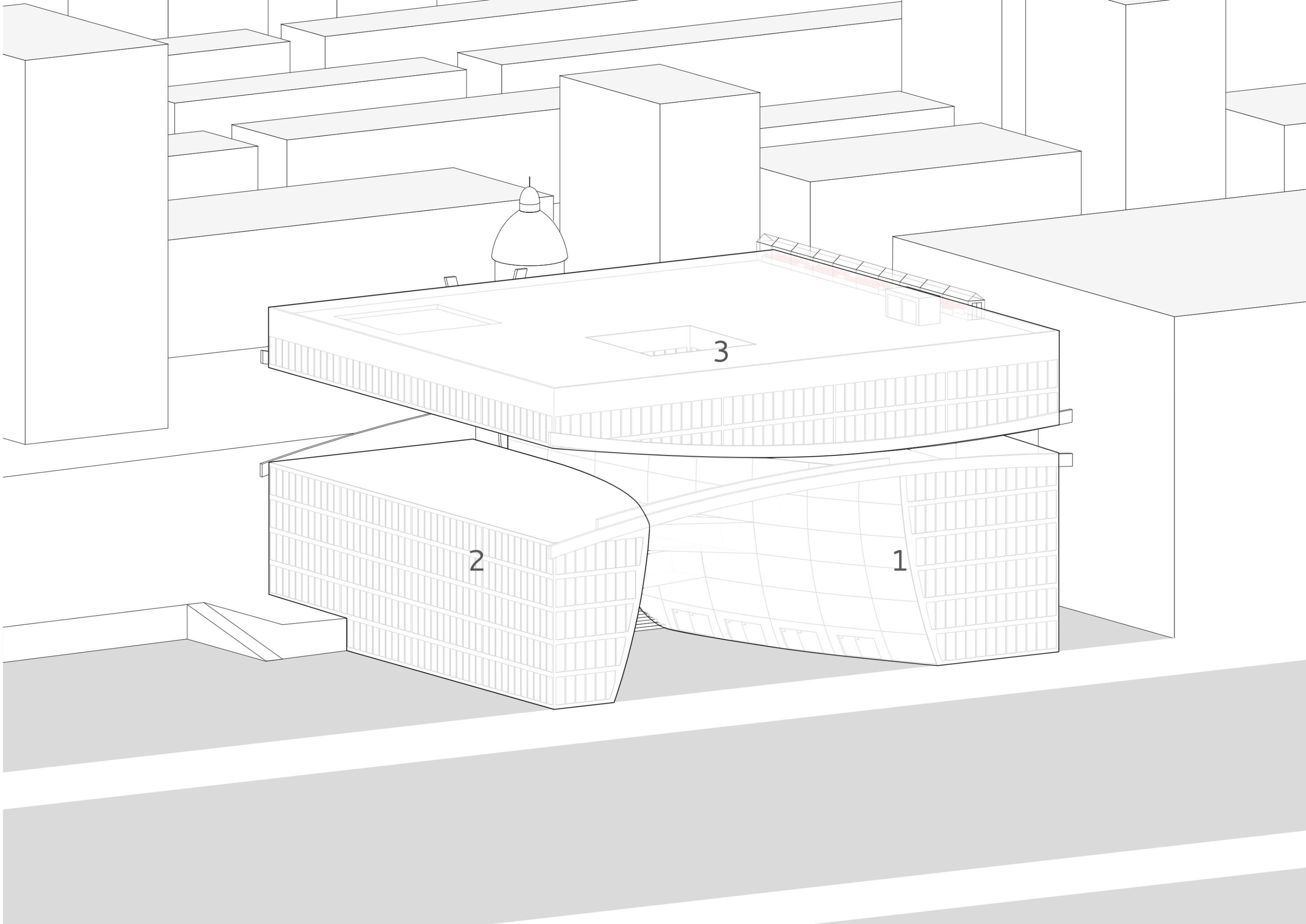
BRANDING

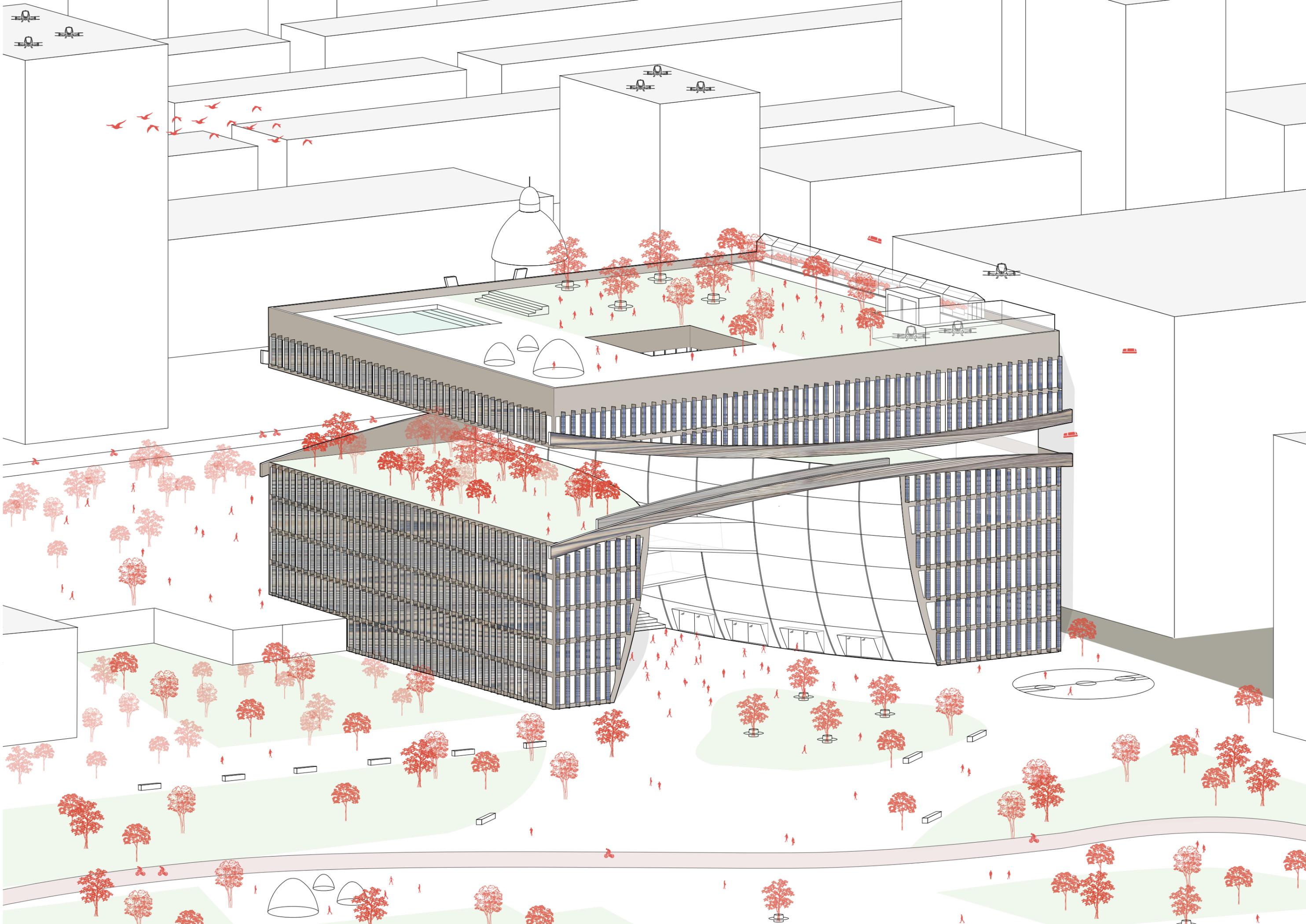
creating recognition in the
community



A HEALTH BASE

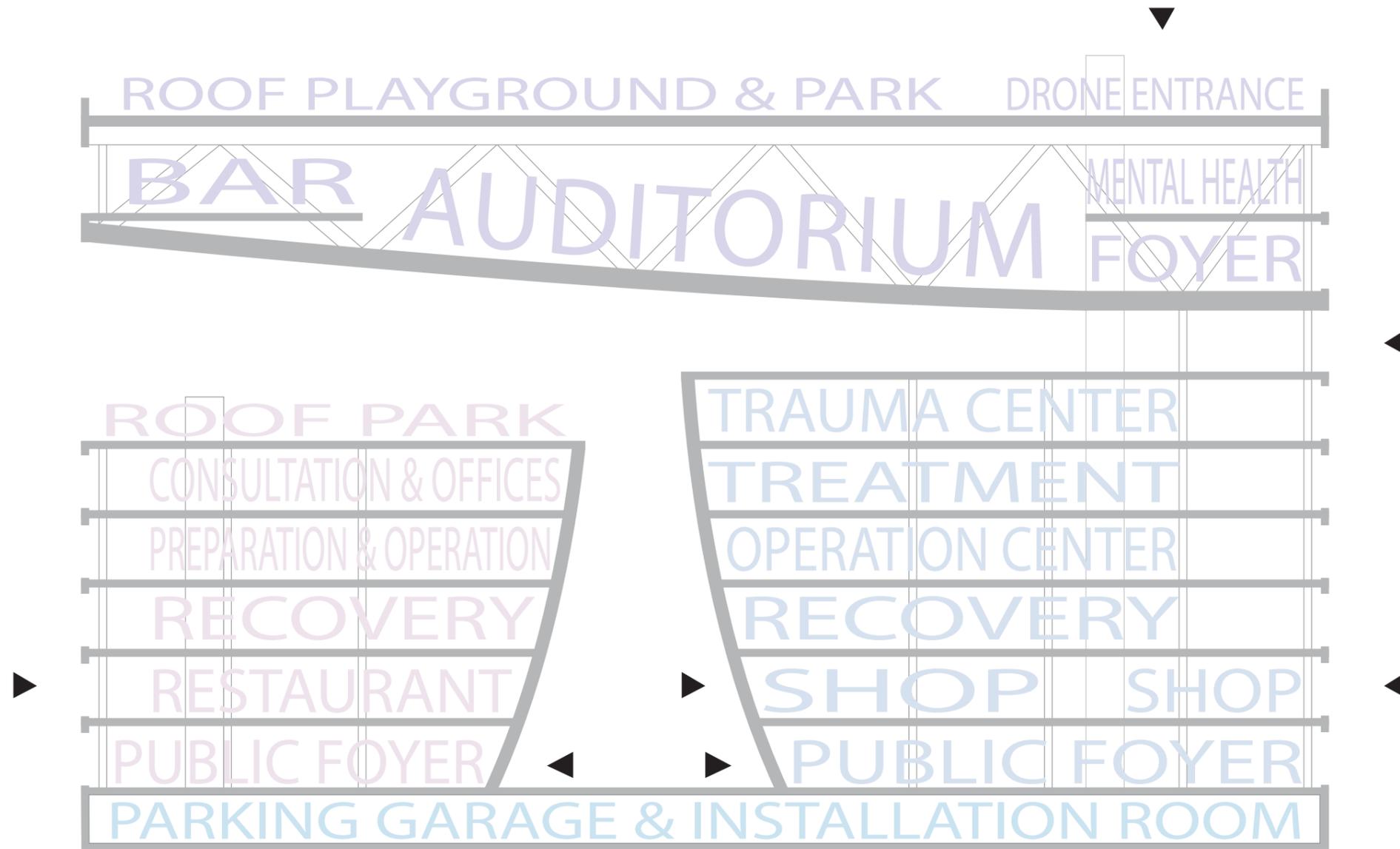
the formal concept



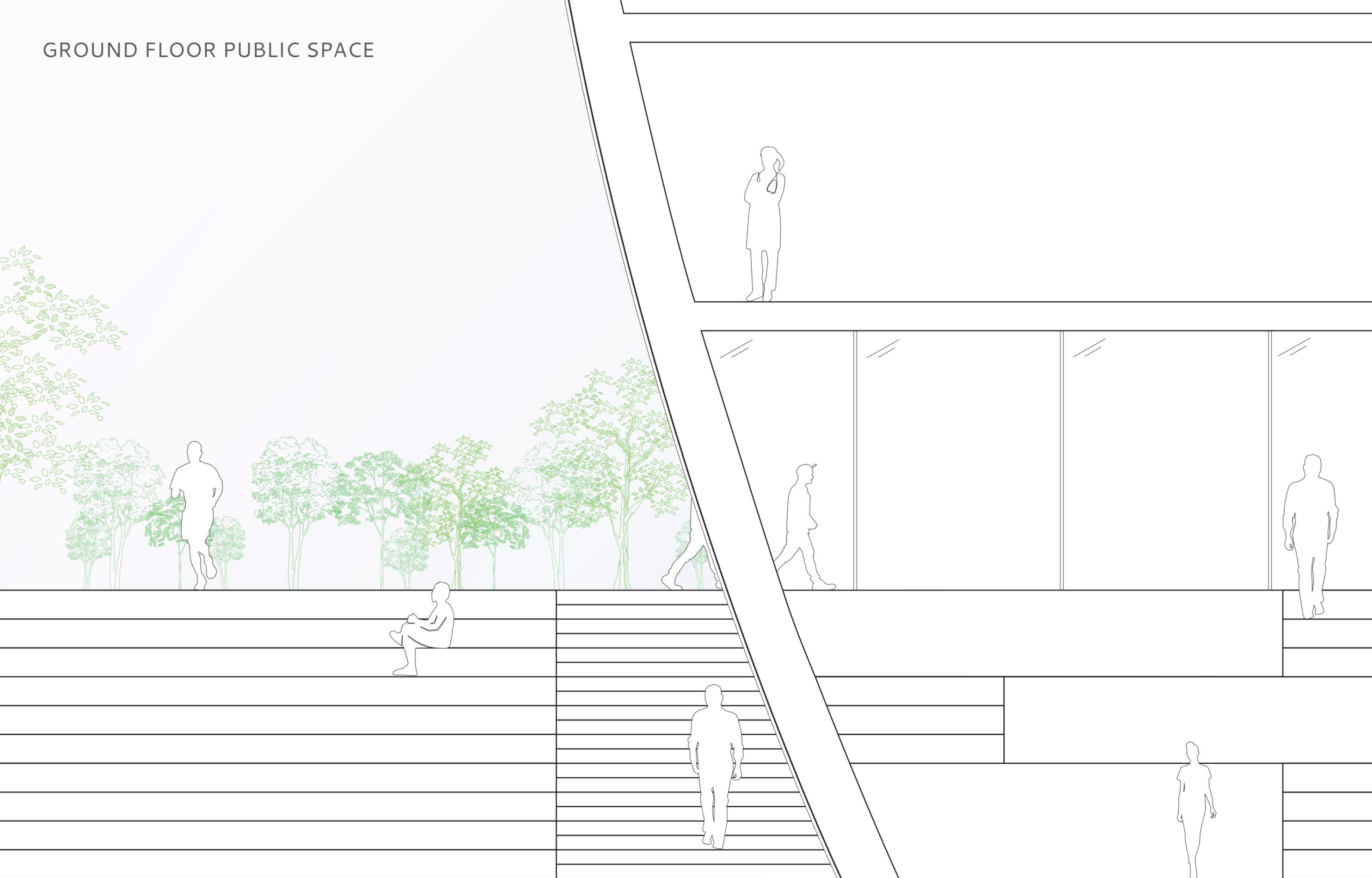


PROGRAM & ORGANISATION

PROGRAM



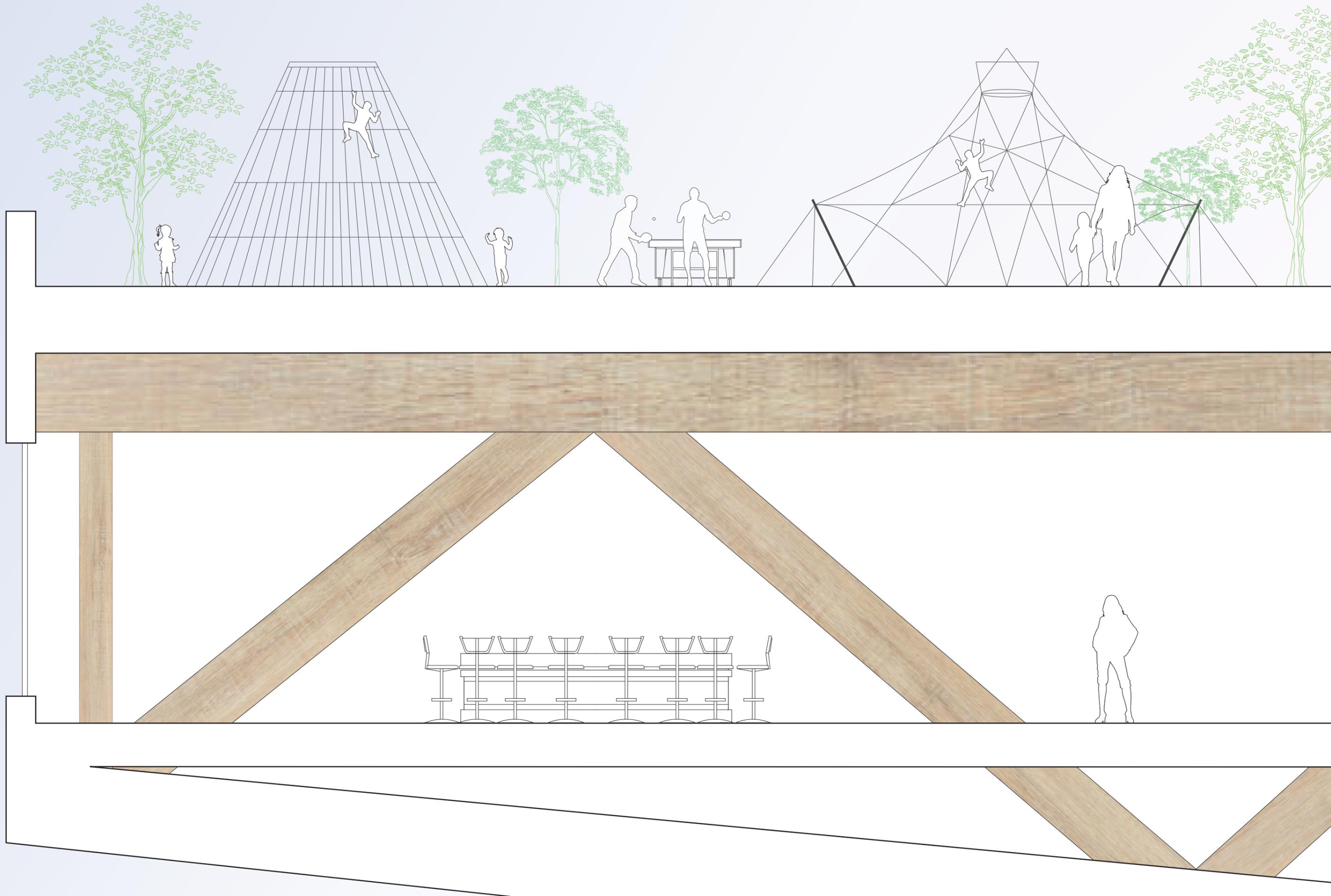
GROUND FLOOR PUBLIC SPACE

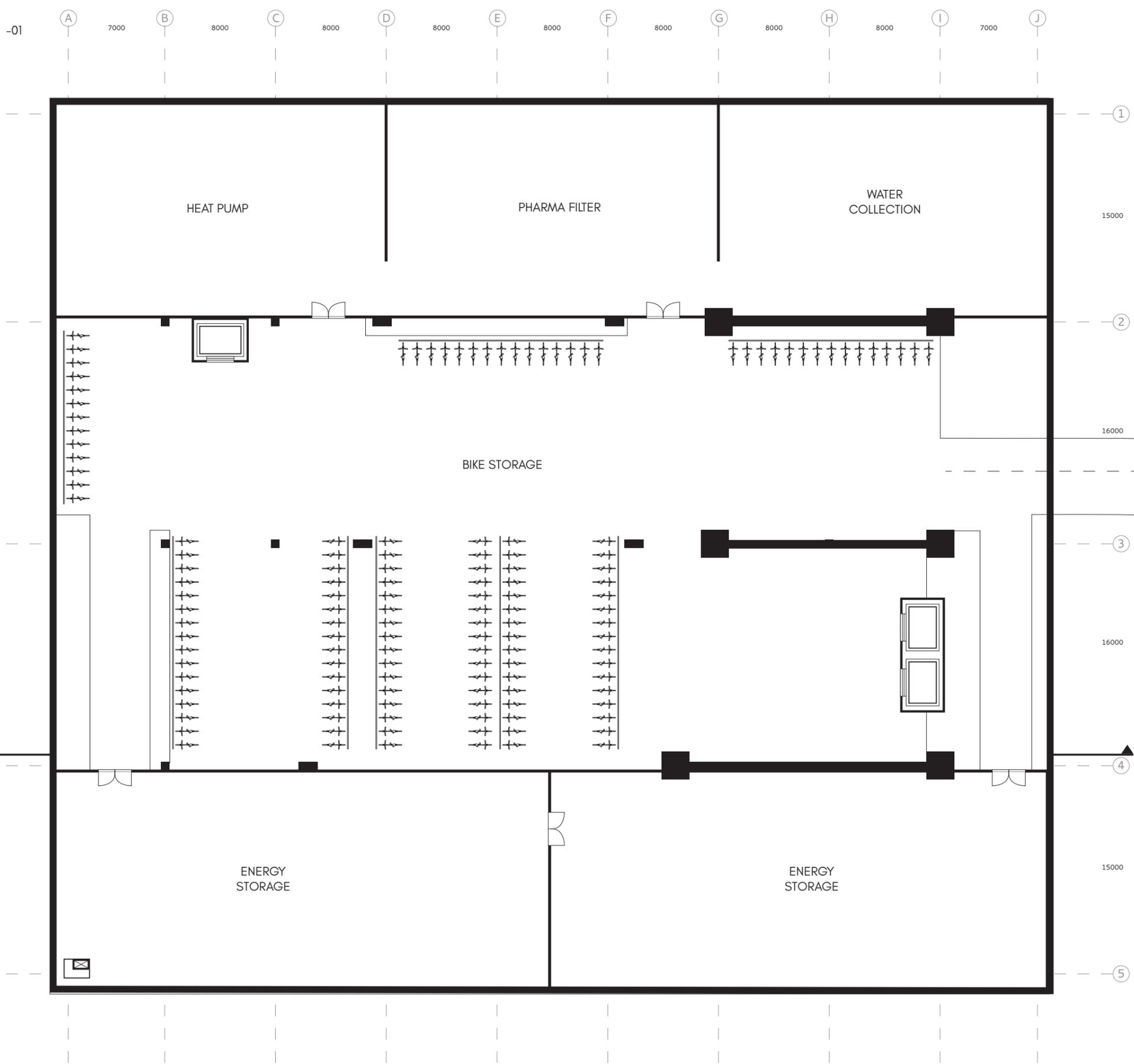


MIDDLE PUBLIC SPACE



ROOF PUBLIC SPACE





-01

A

7000

B

8000

C

8000

D

8000

E

8000

F

8000

G

8000

H

8000

I

7000

J

1

15000

2

16000

3

16000

4

15000

5

HEAT PUMP

PHARMA FILTER

WATER COLLECTION

BIKE STORAGE

ENERGY STORAGE

ENERGY STORAGE





00

A

7000

B

8000

C

8000

D

8000

E

8000

F

8000

G

8000

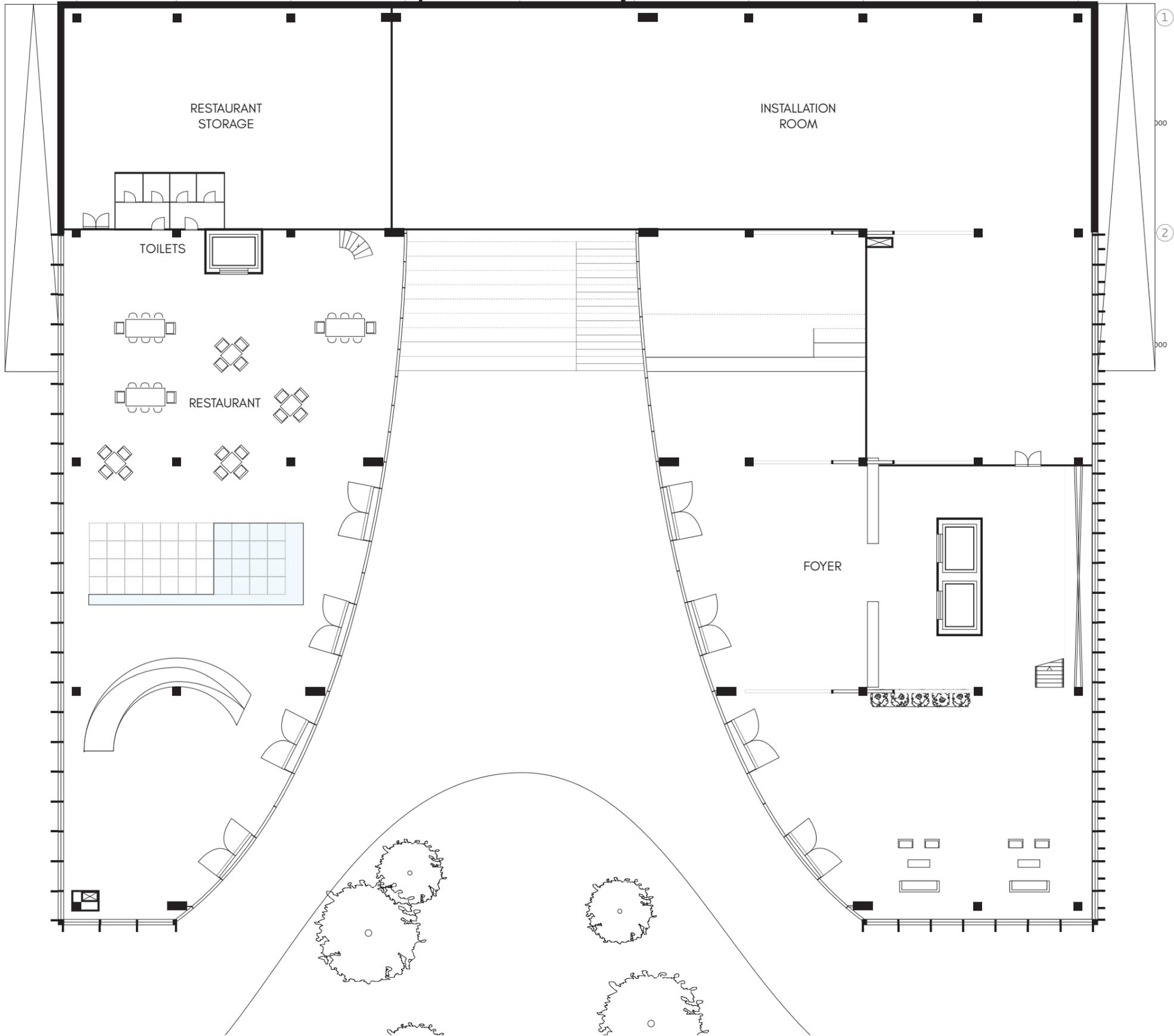
H

8000

I

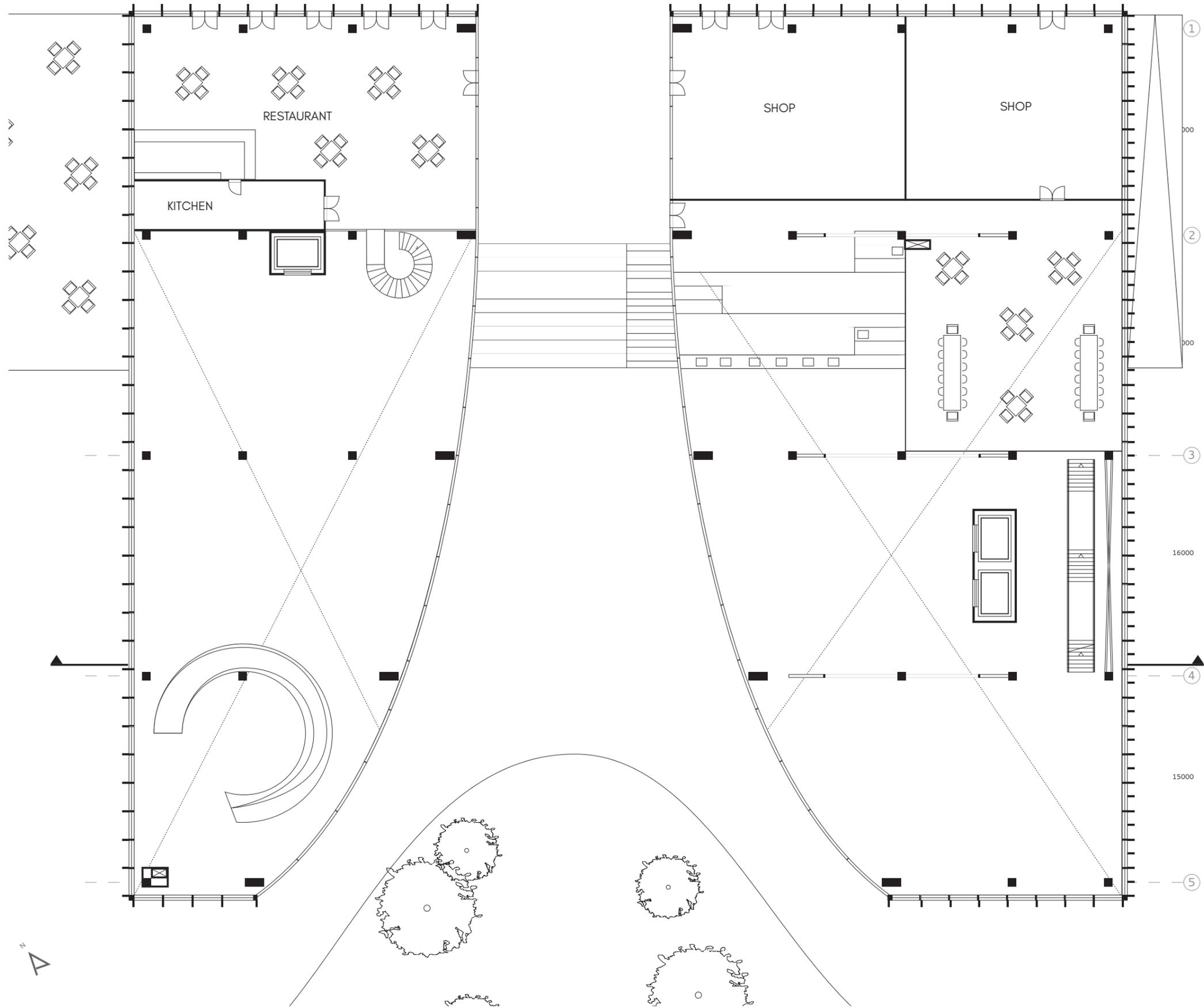
7000

J





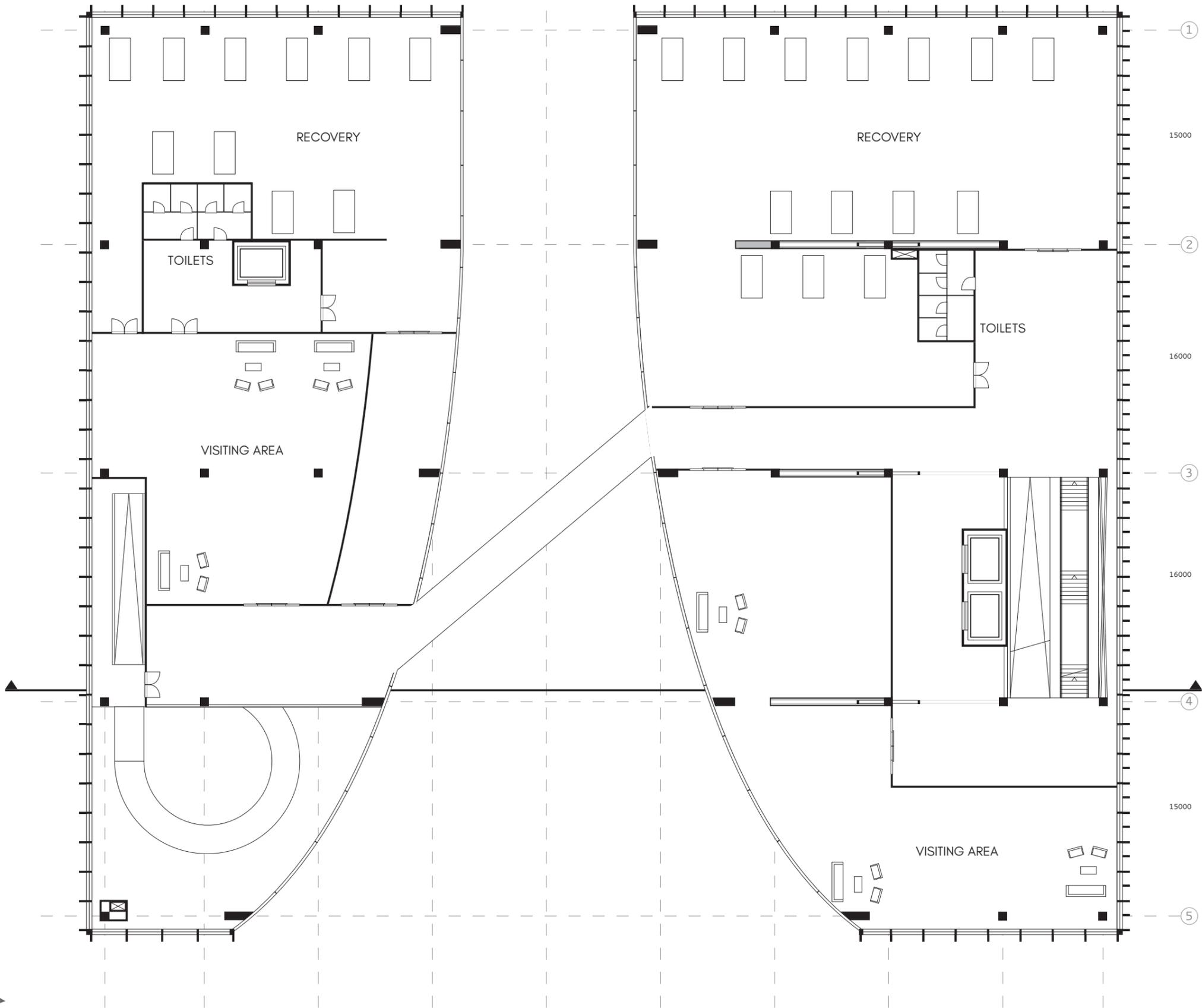
01





02

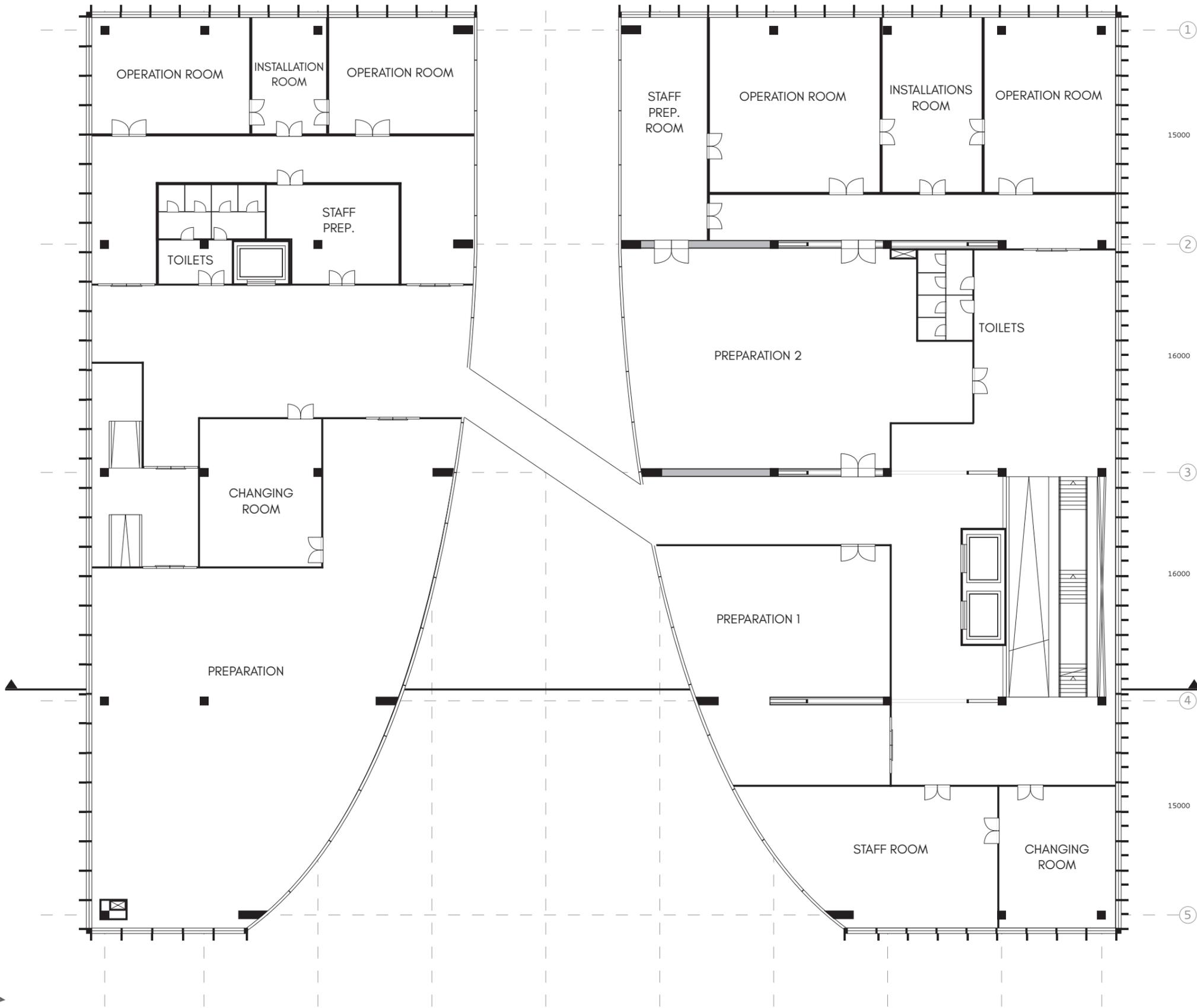
A 7000 B 8000 C 8000 D 8000 E 8000 F 8000 G 8000 H 8000 I 7000 J





03

A 7000 B 8000 C 8000 D 8000 E 8000 F 8000 G 8000 H 8000 I 7000 J



1

15000

2

16000

3

16000

4

15000

5





04

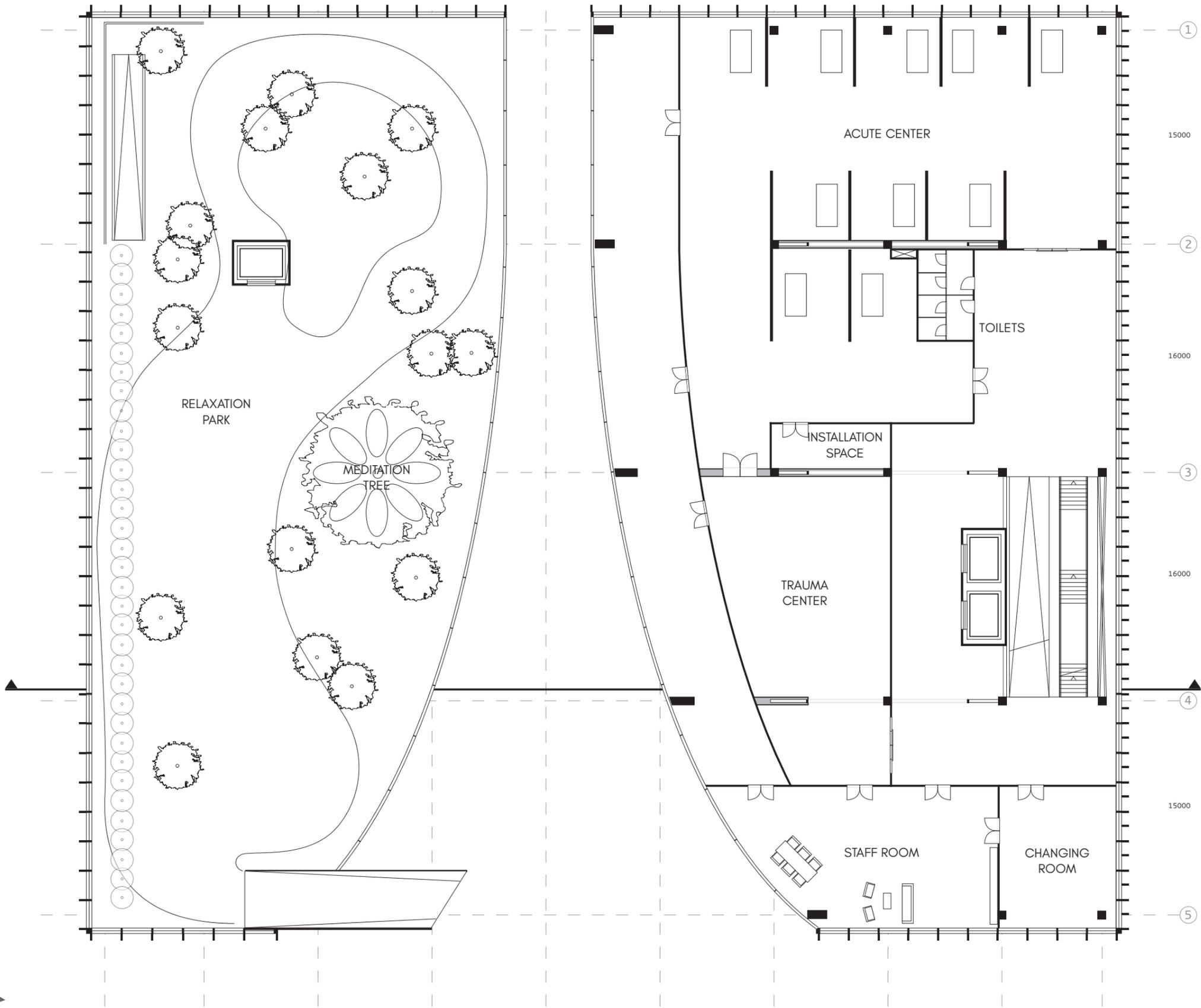
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05

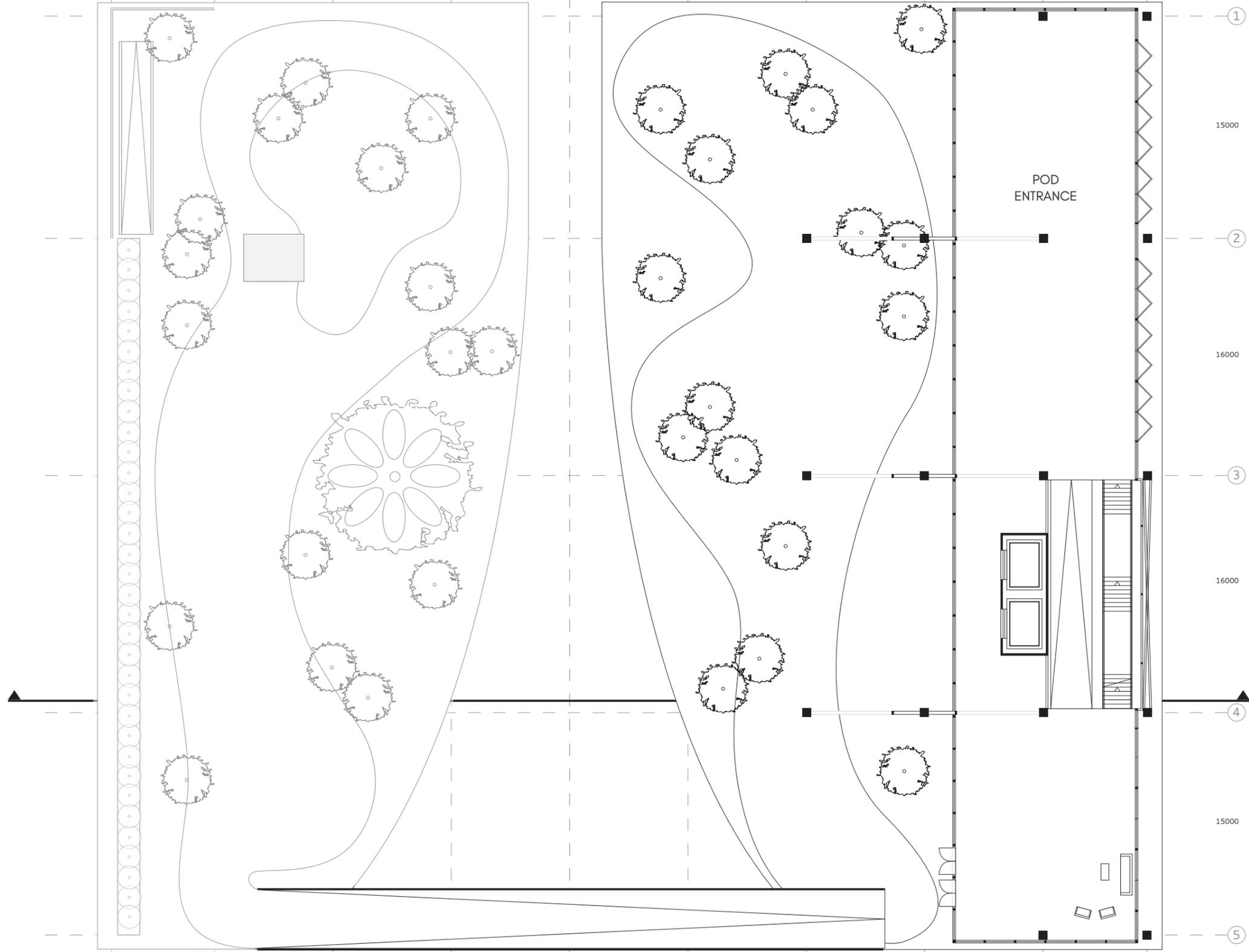
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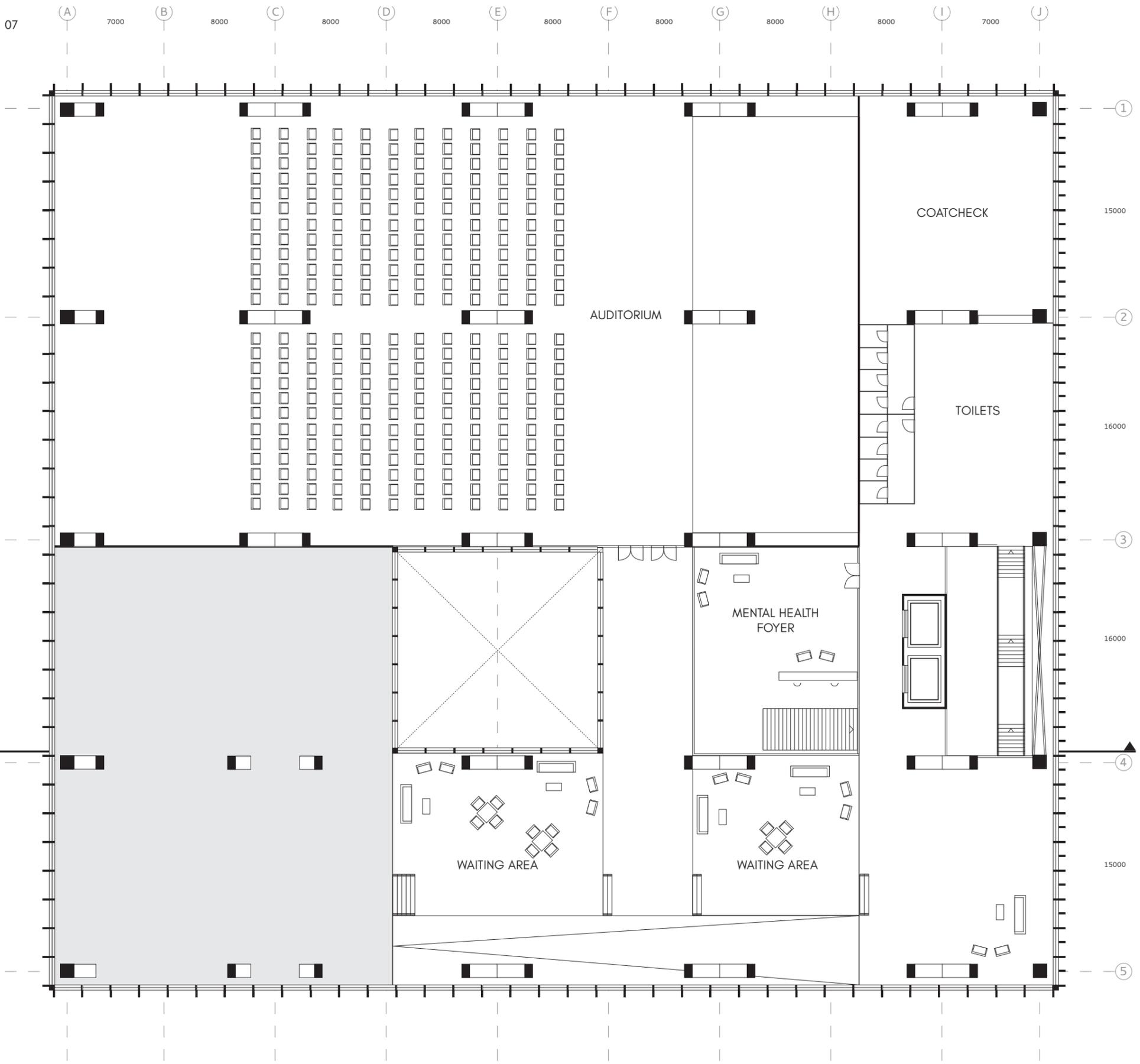




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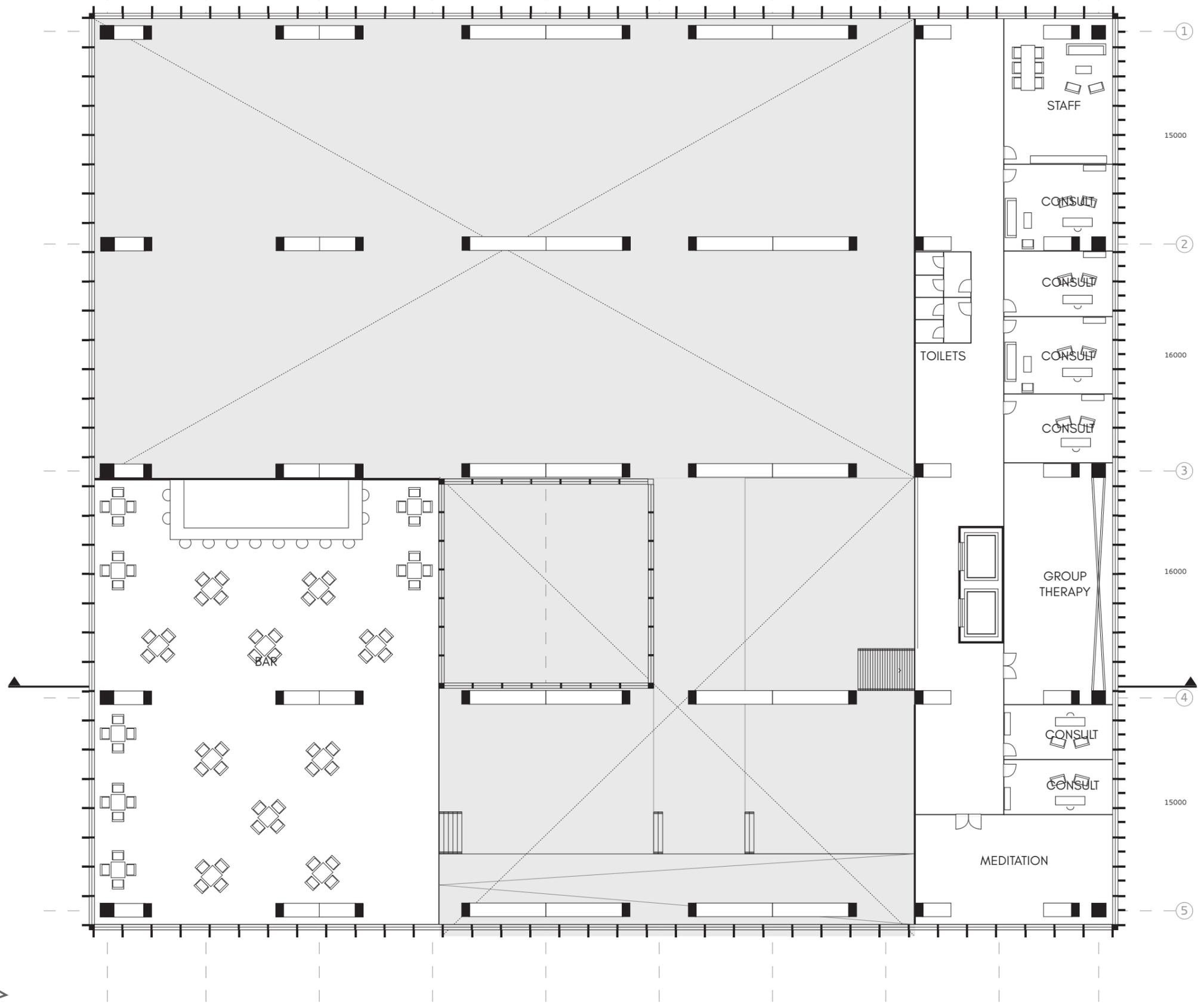


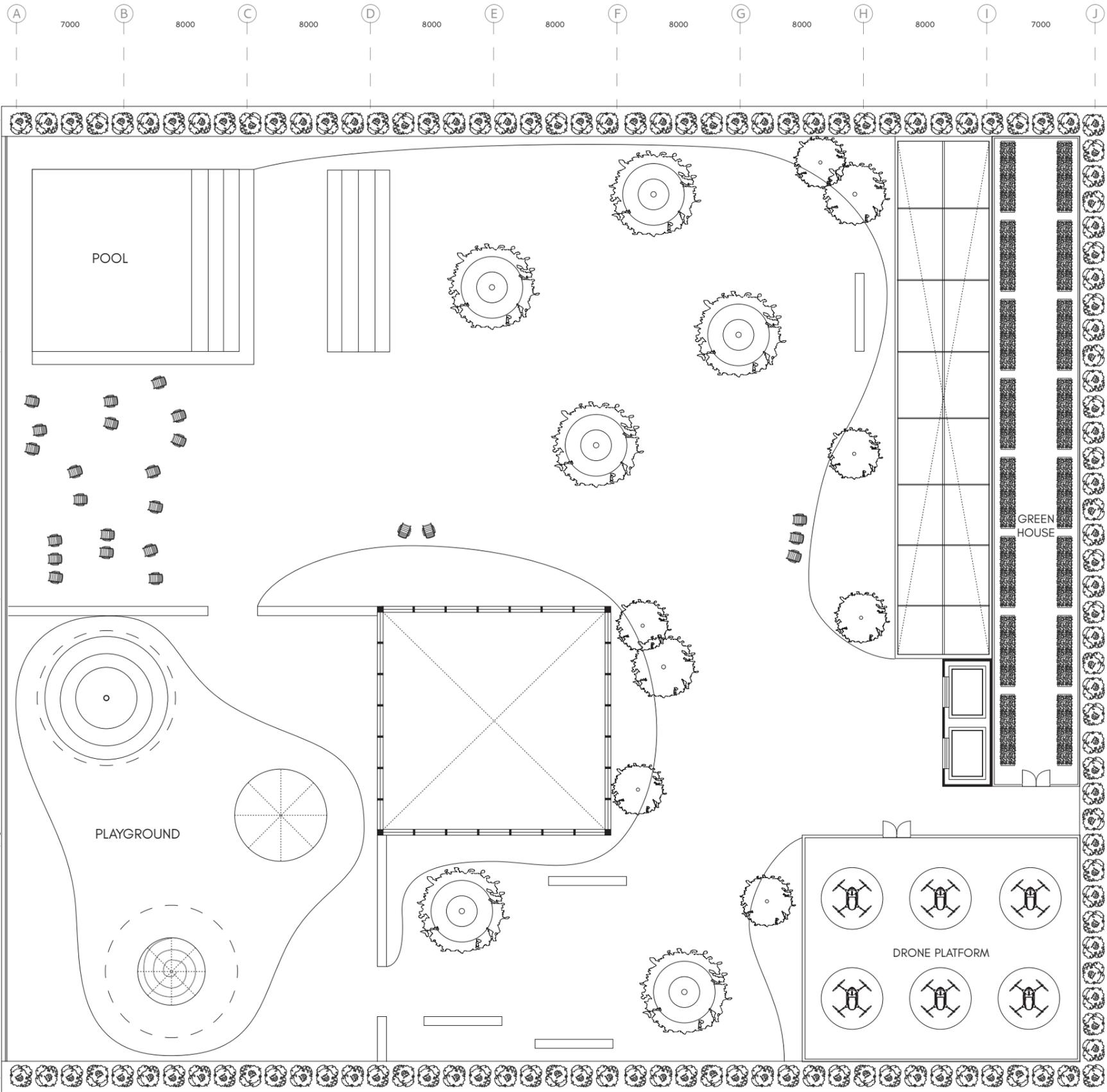




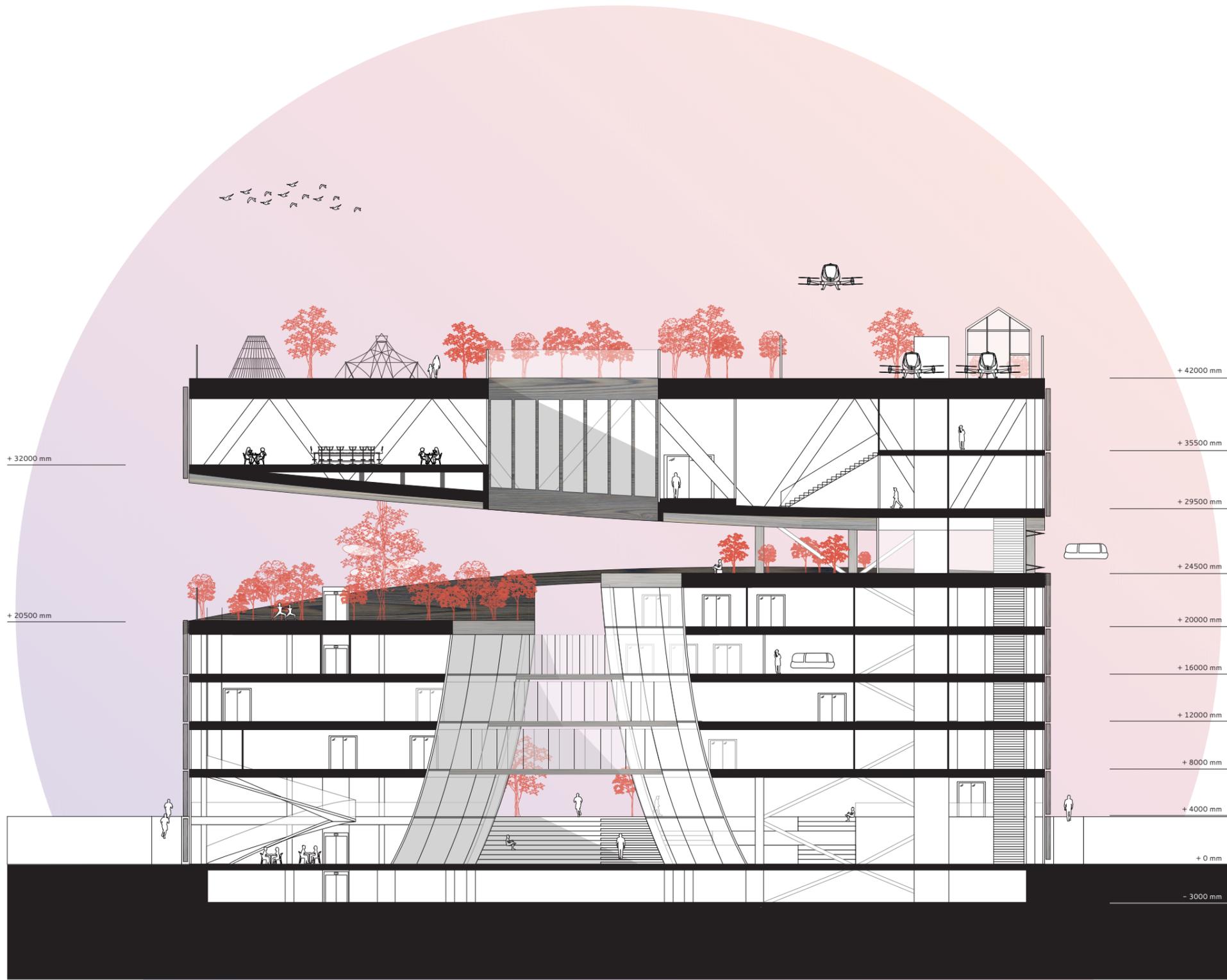
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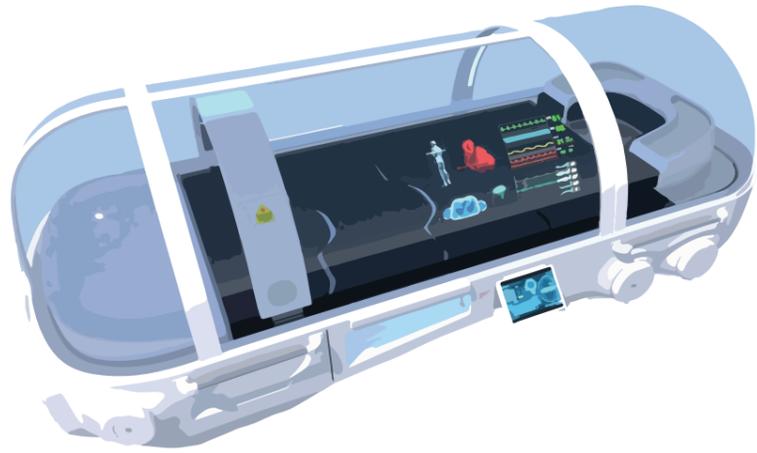




1:200
8000 mm

+ 42000 mm
+ 35500 mm
+ 29500 mm
+ 24500 mm
+ 20000 mm
+ 16000 mm
+ 12000 mm
+ 8000 mm
+ 4000 mm
+ 0 mm
- 3000 mm

USERS



PODS

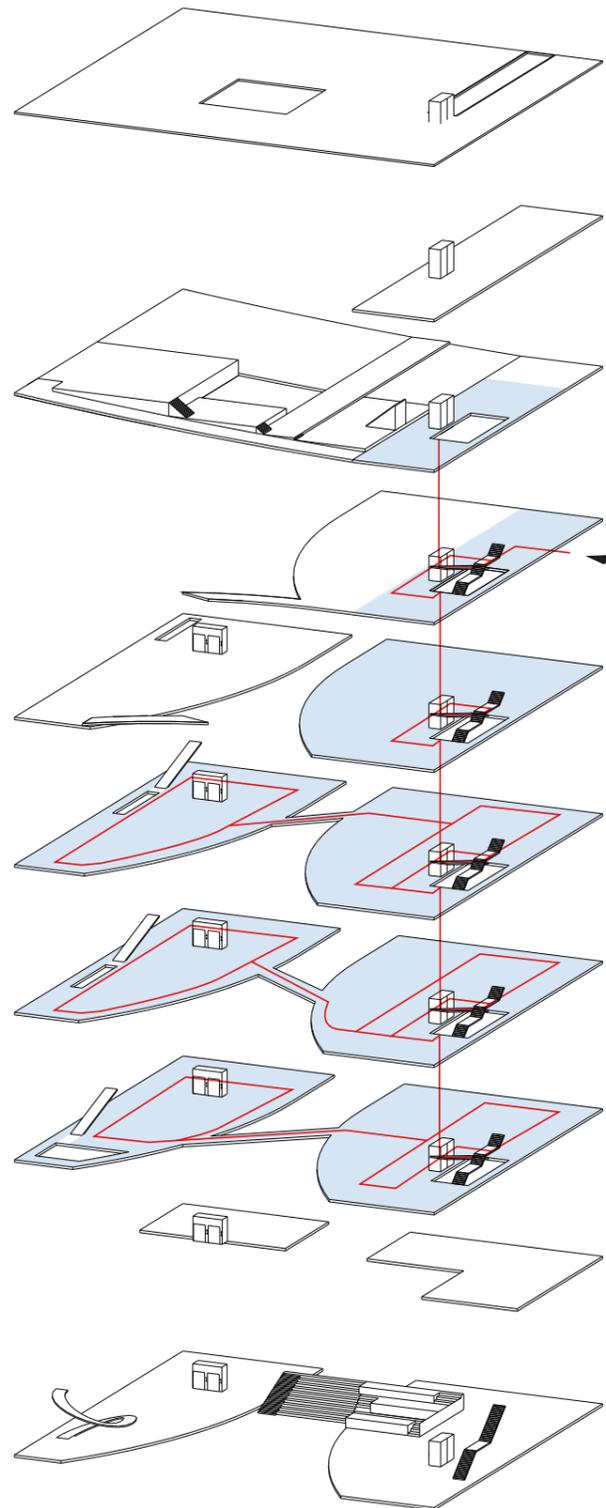
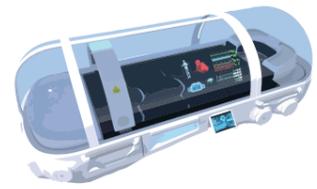


STAFF

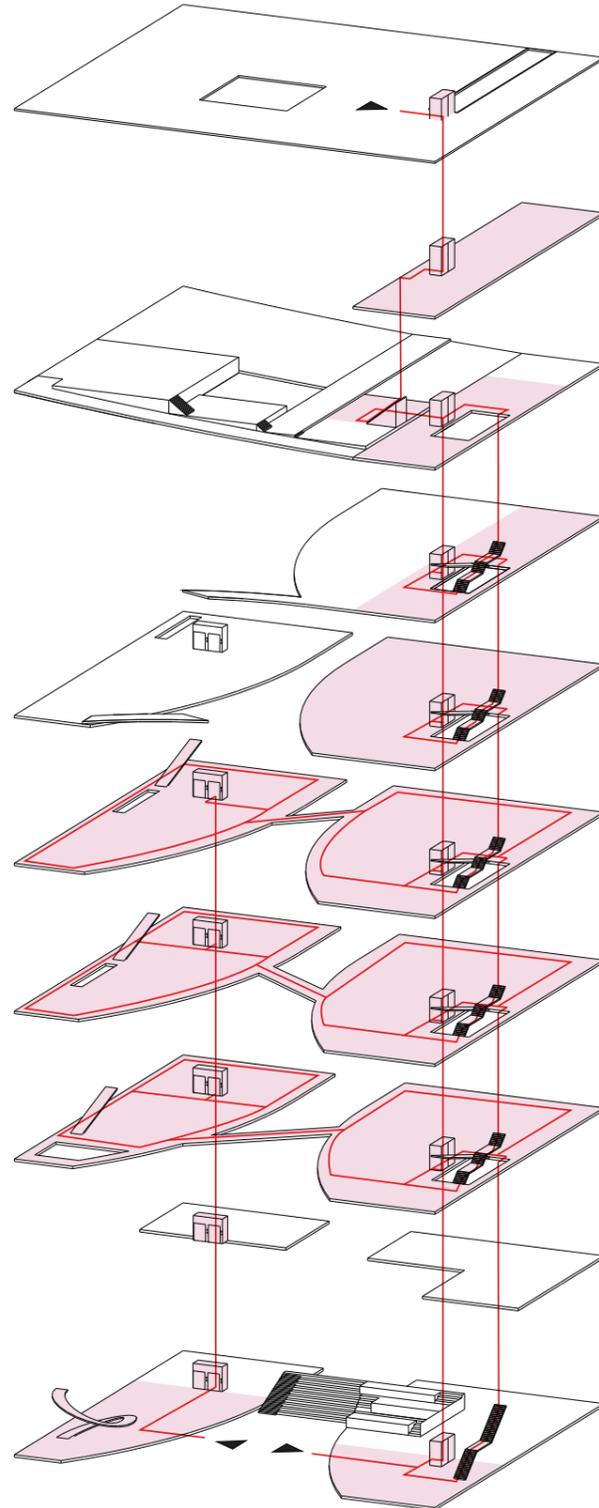


PUBLIC

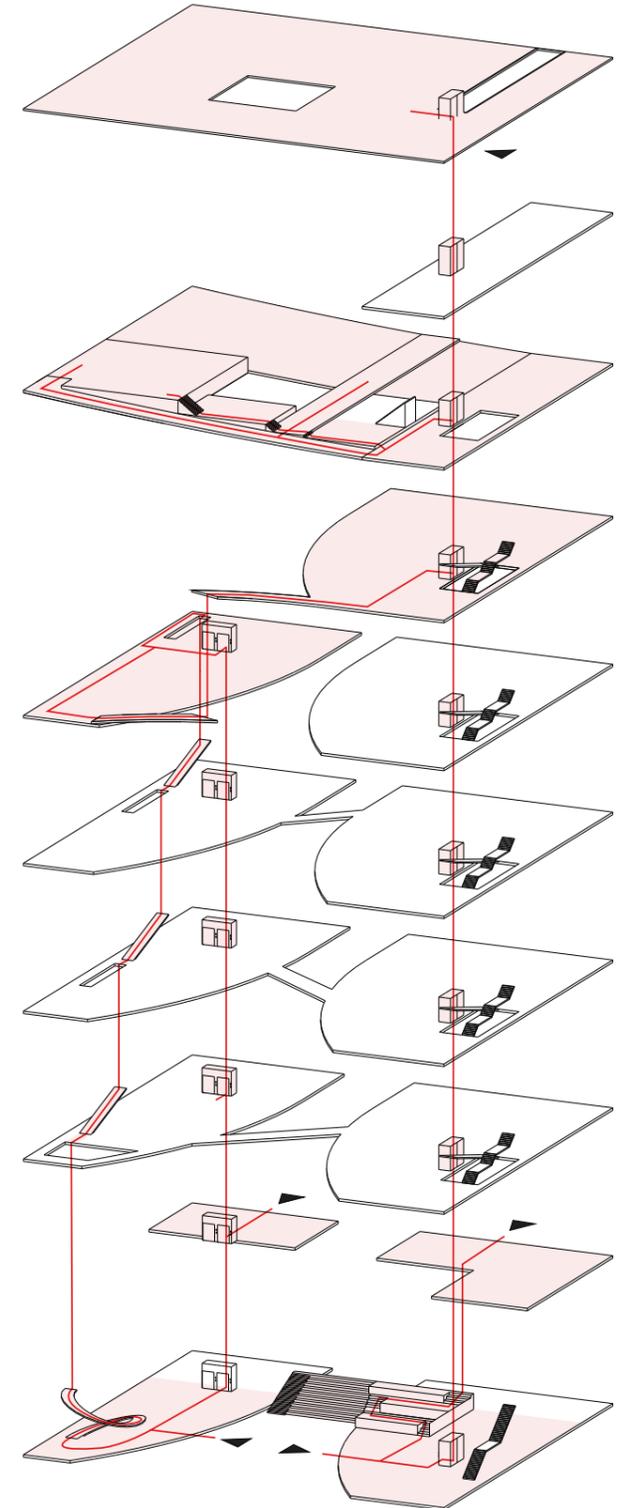
ACCESSIBILITY PODS



ACCESSIBILITY STAFF



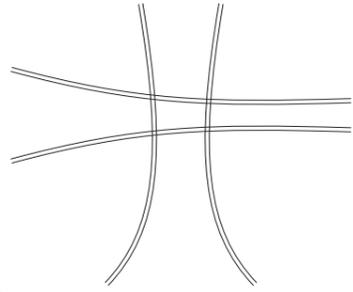
ACCESSIBILITY PUBLIC



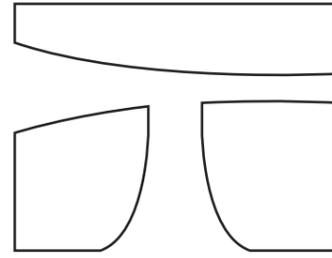
BUILDING TECHNOLOGY

ASSEMBLY BUILDING

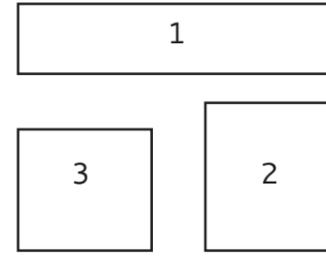
mass penetration



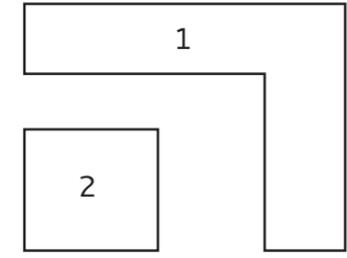
vision



accent

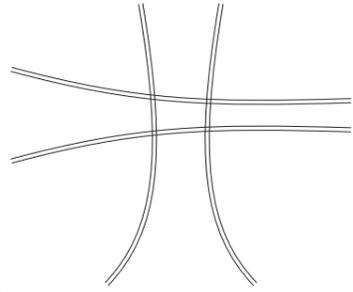


structure

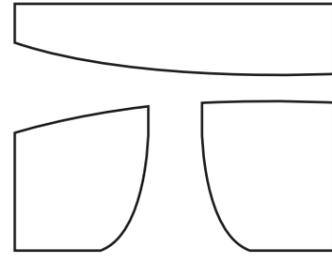


ASSEMBLY BUILDING

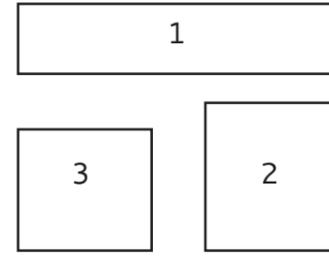
mass penetration



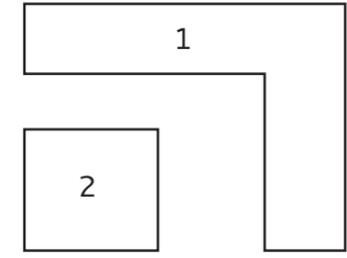
vision



accent

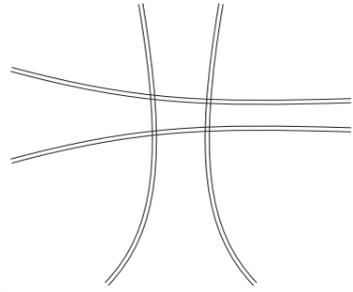


structure

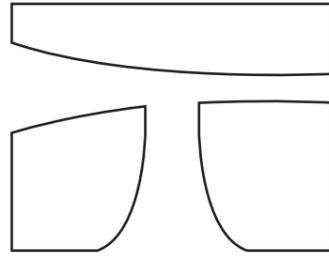


ASSEMBLY BUILDING

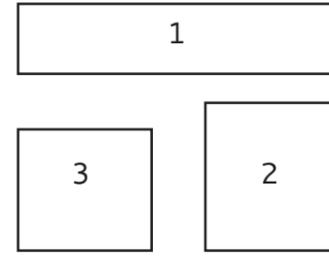
mass penetration



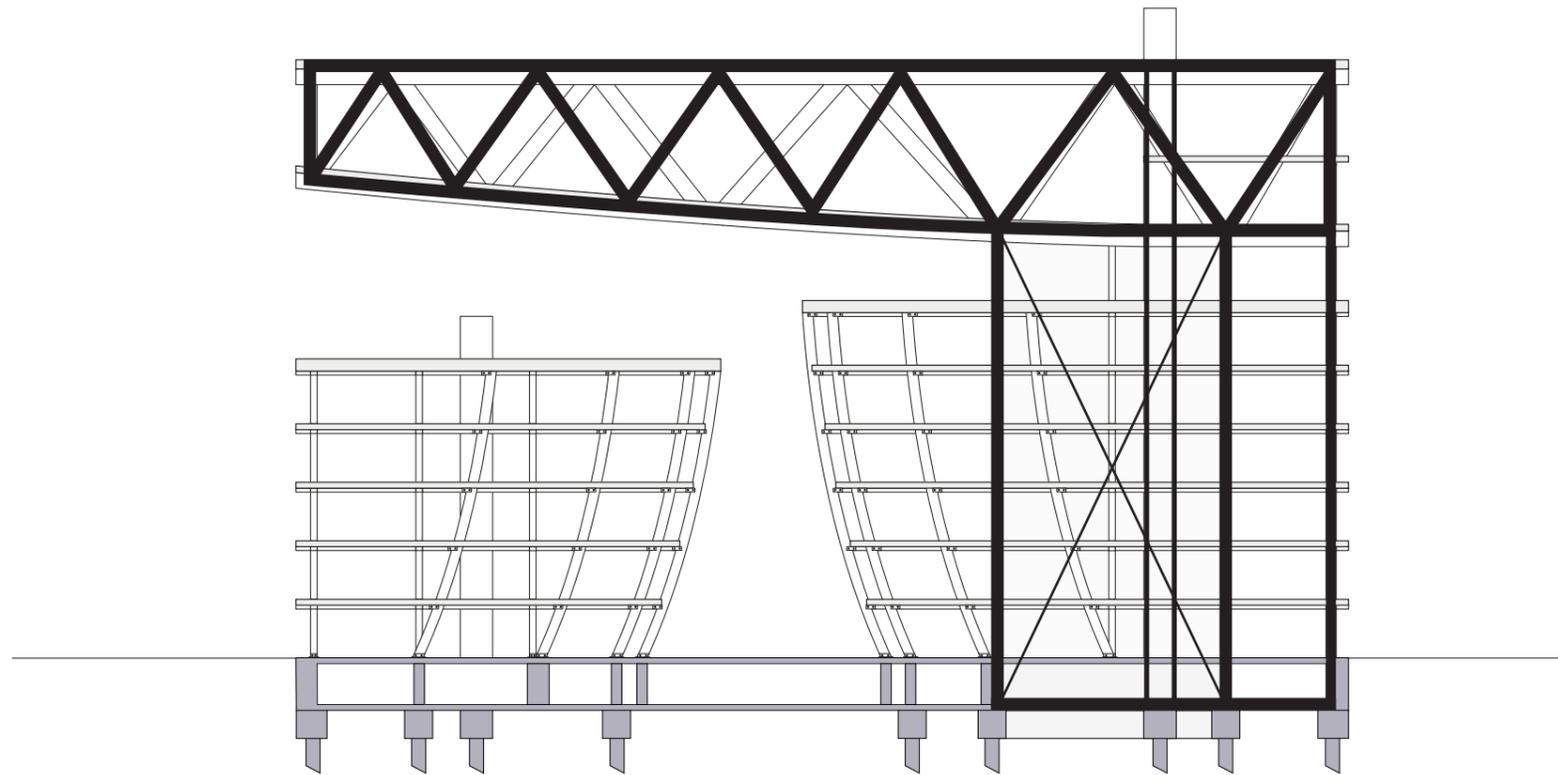
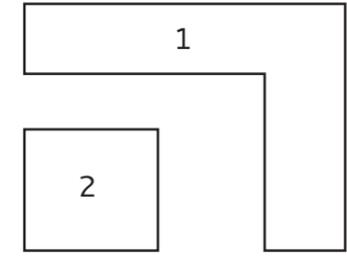
vision



accent

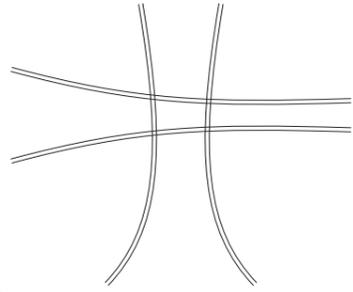


structure

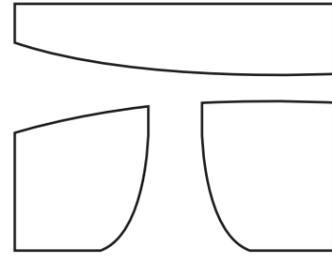


ASSEMBLY BUILDING

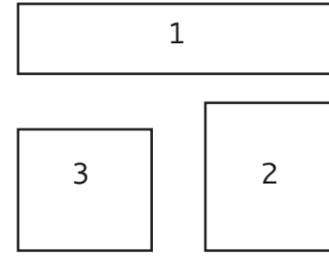
mass penetration



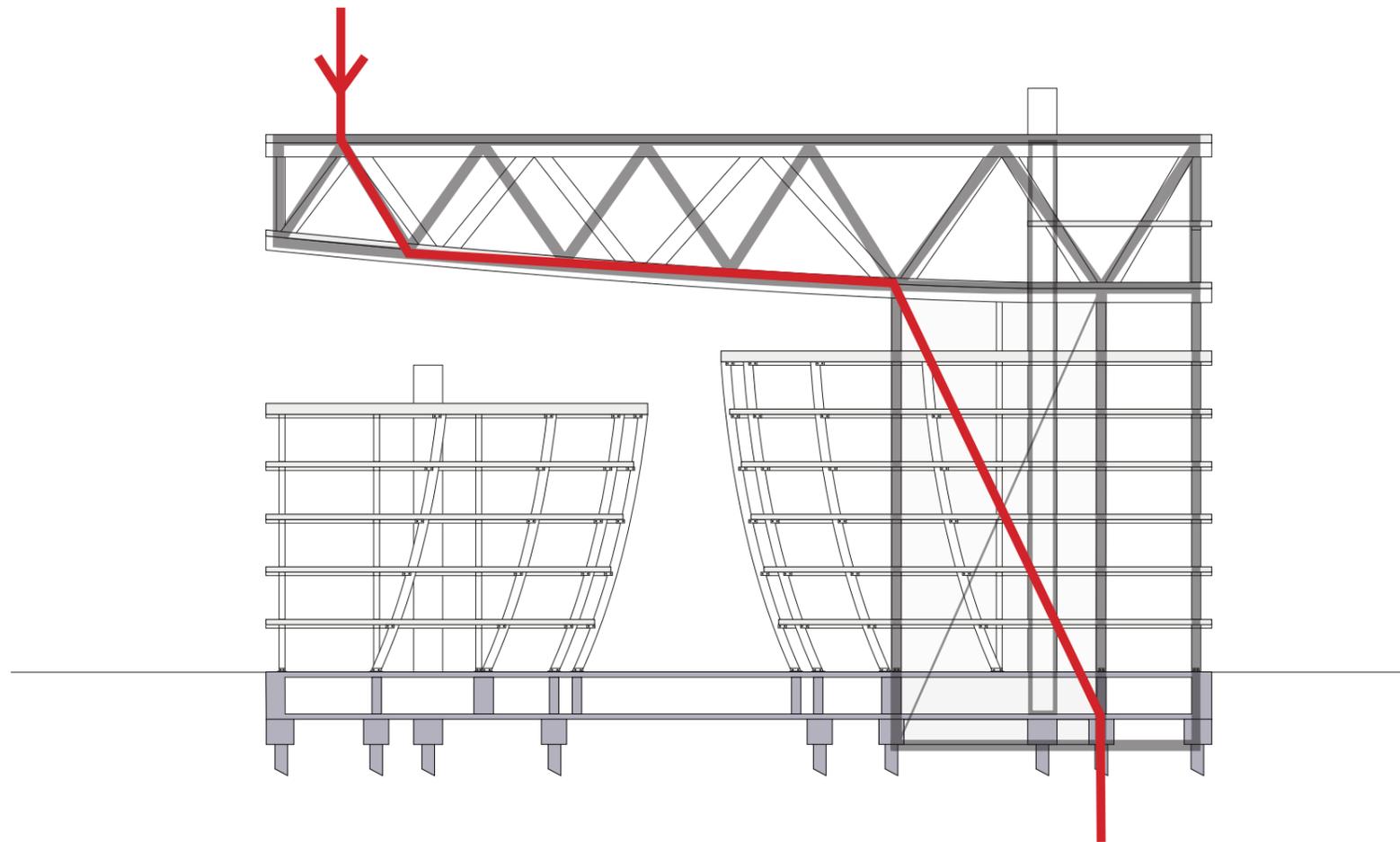
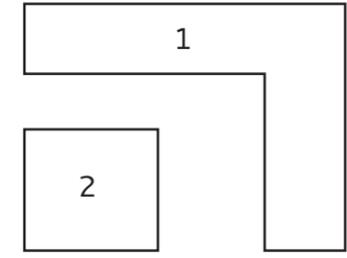
vision



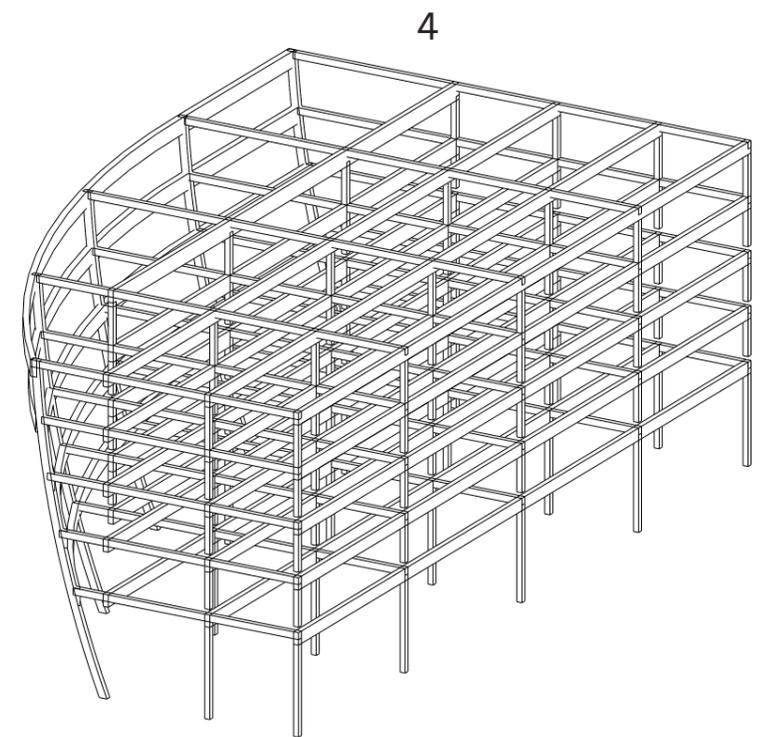
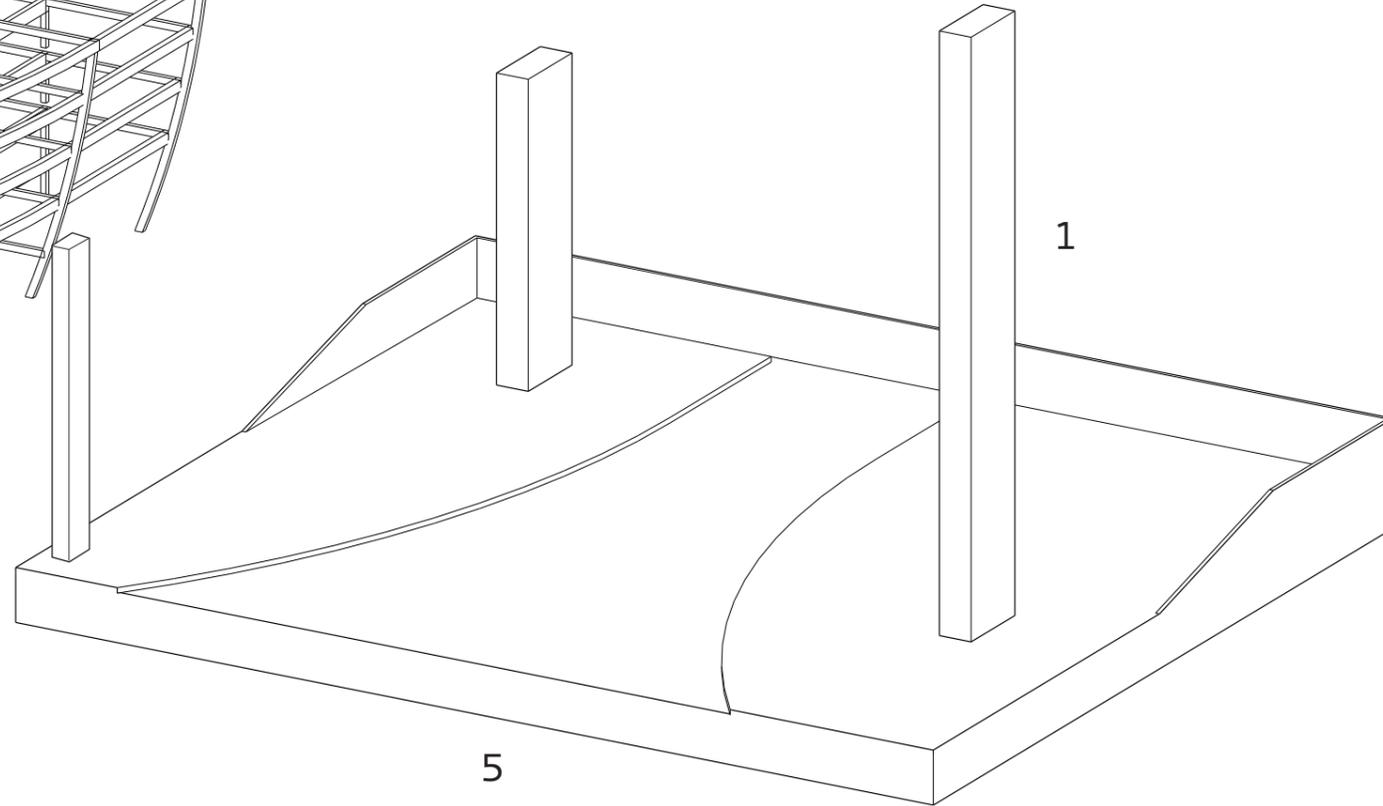
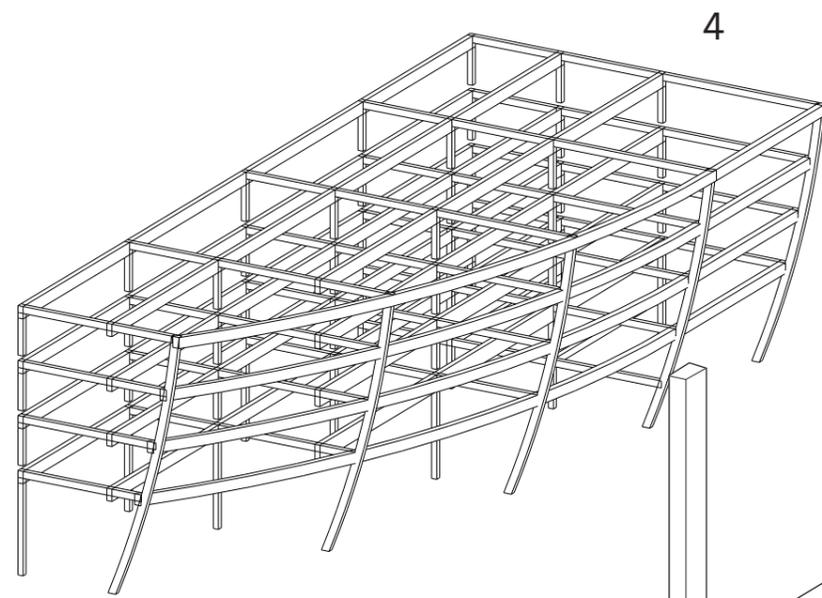
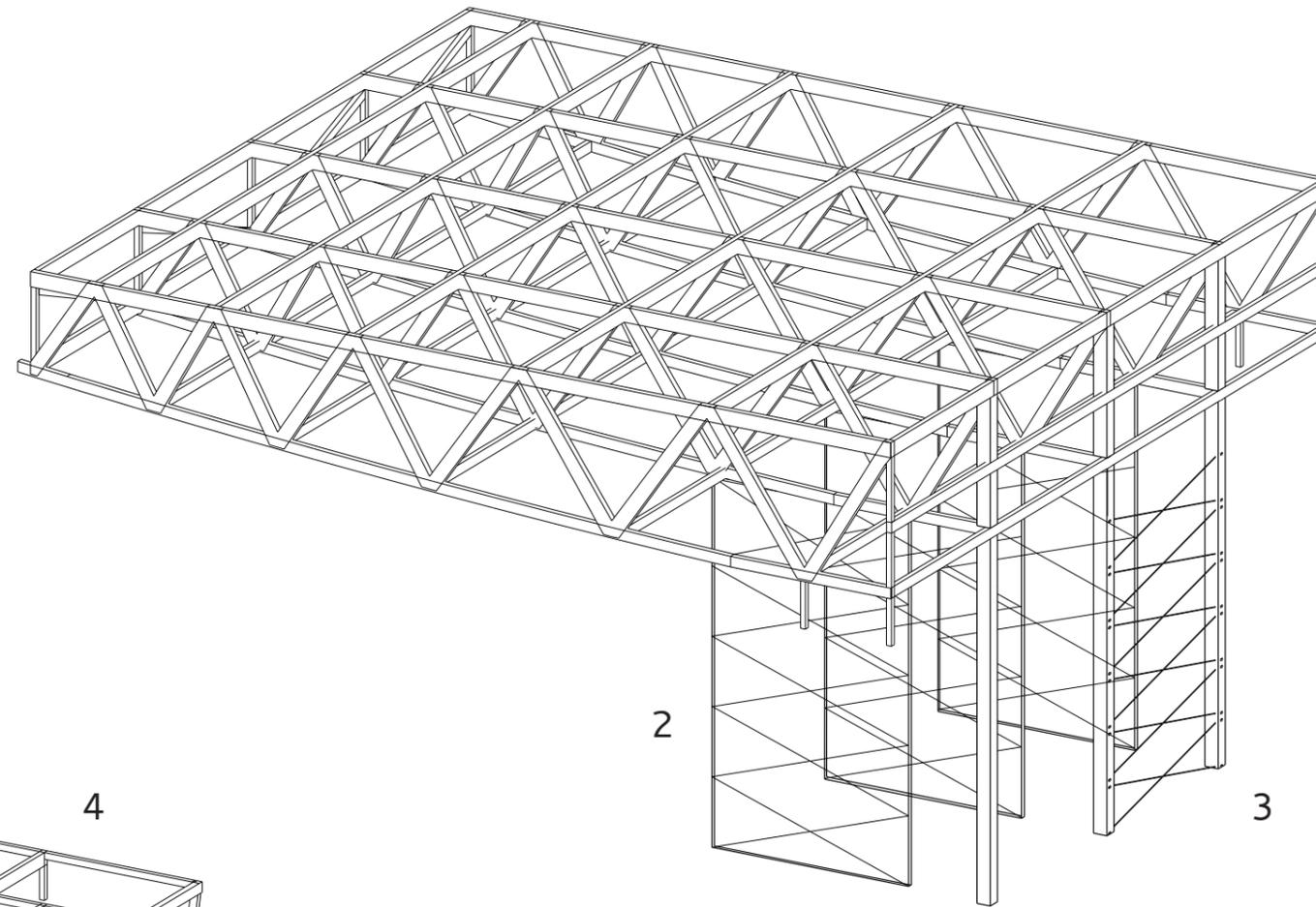
accent



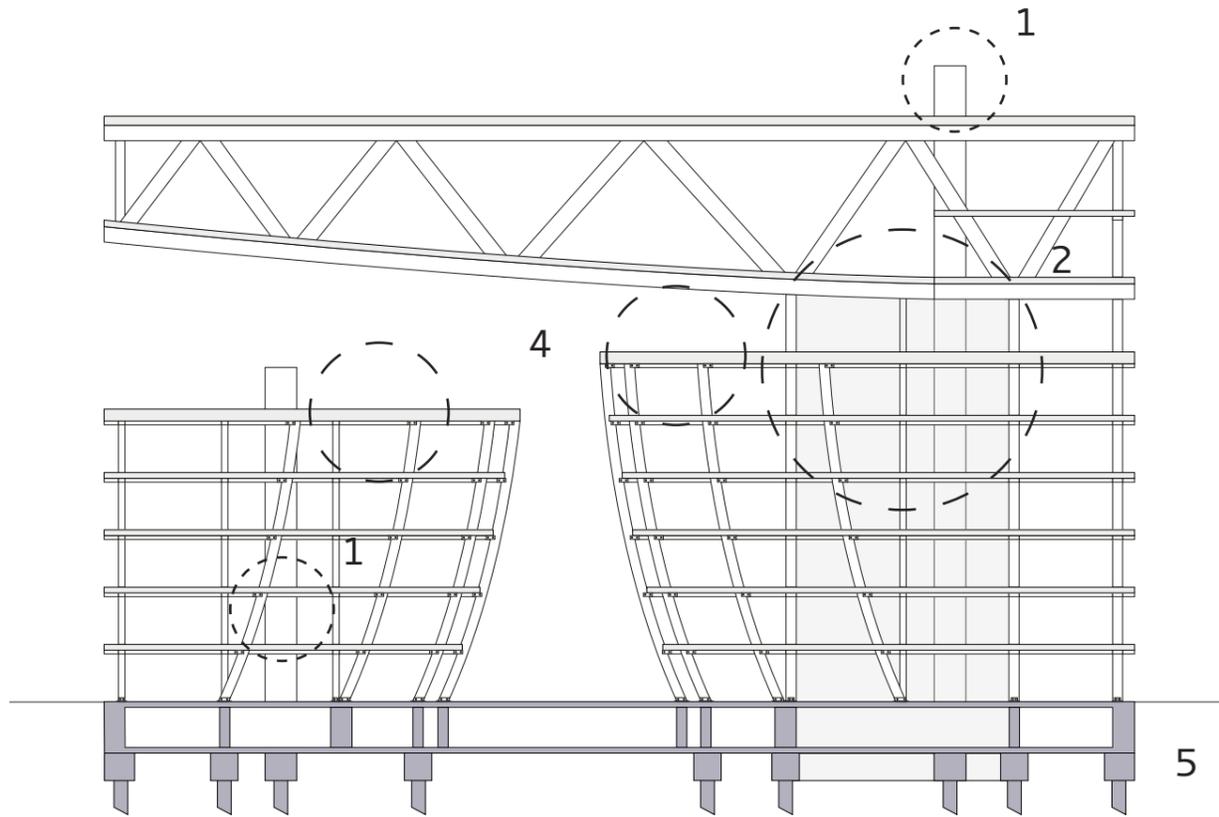
structure



STRUCTURE CONCEPT



STABILITY



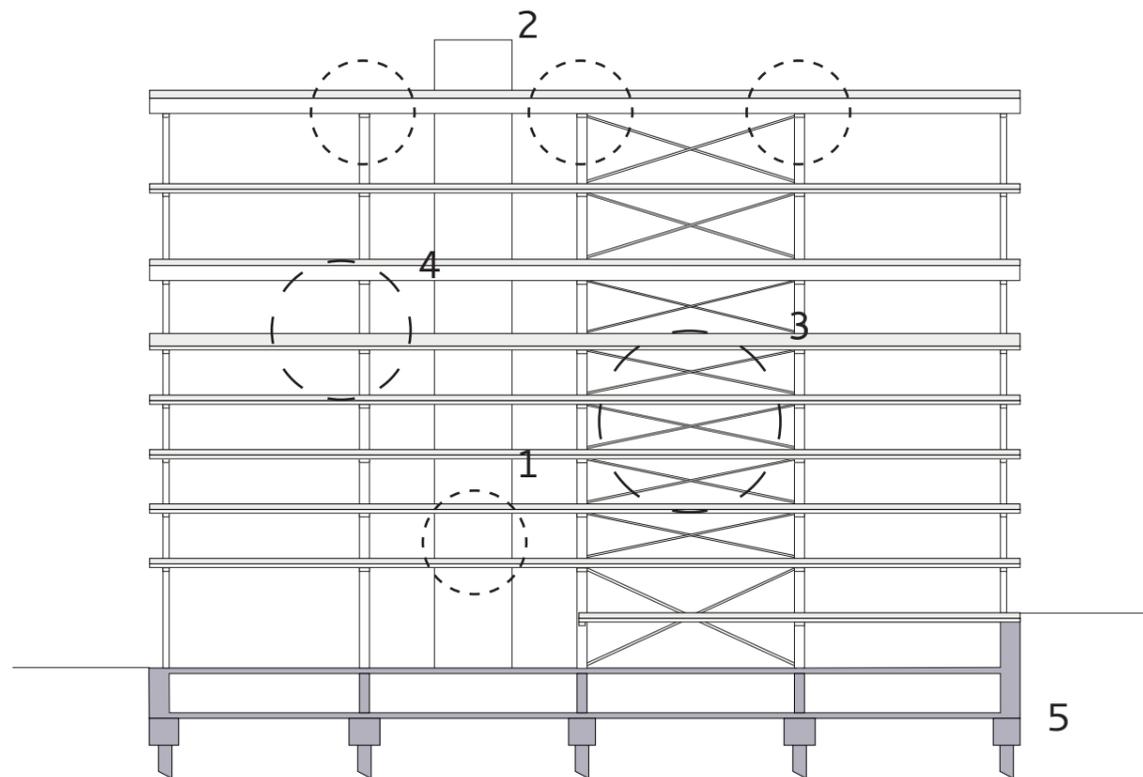
1 elevator cores

2 stability disks

3 stability bracing

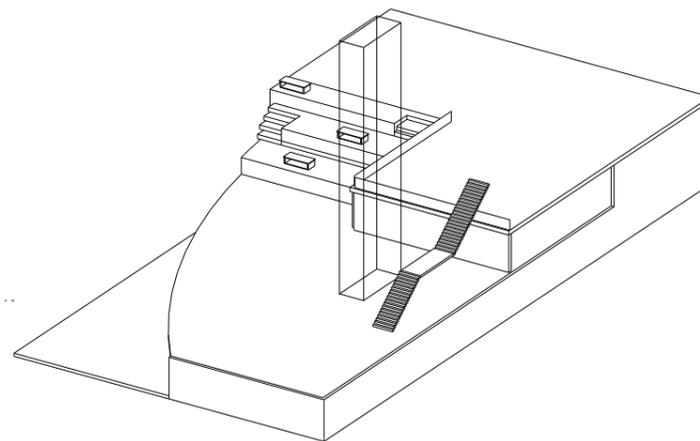
4 thickened floors

5 concrete ground floor and foundation



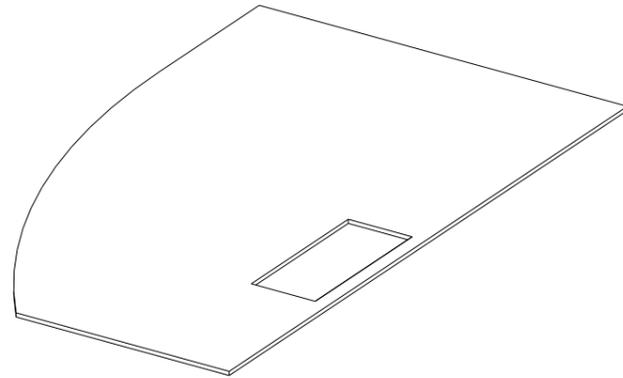
ASSEMBLY ONE BUILDING PART

Concrete ground floor
with elevator core

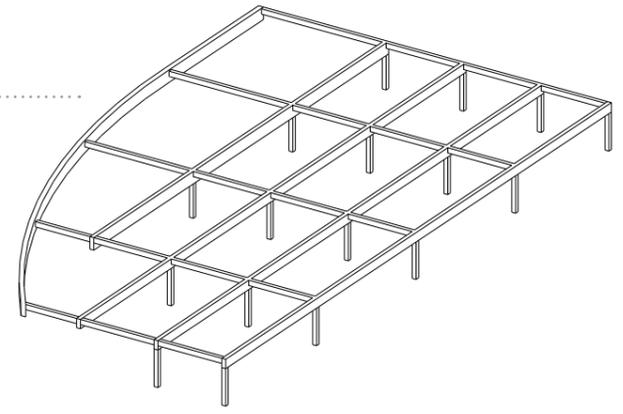


ASSEMBLY ONE BUILDING PART

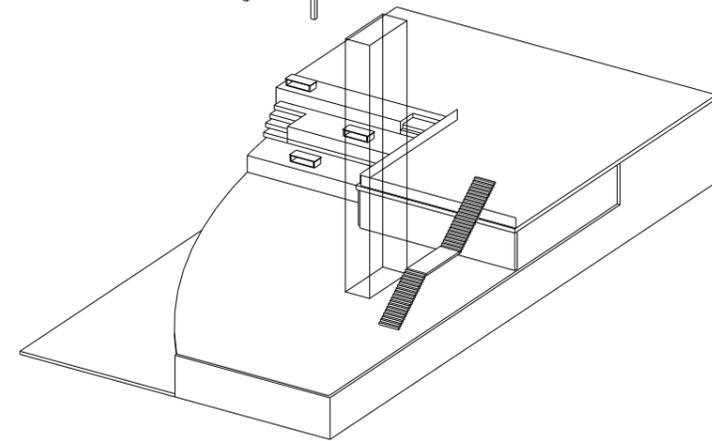
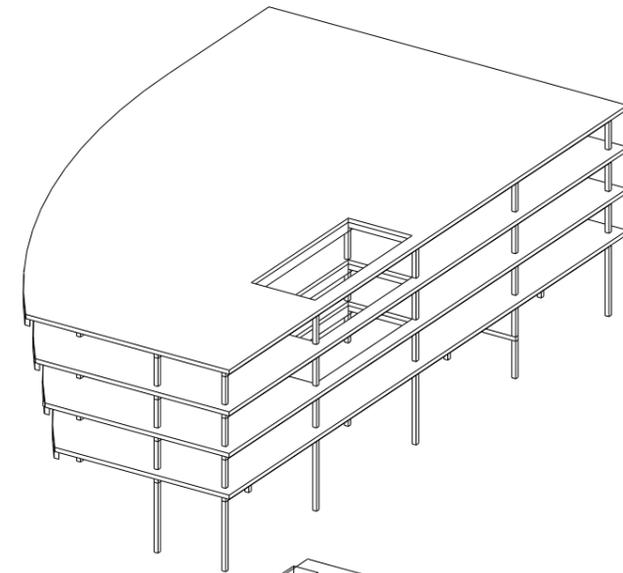
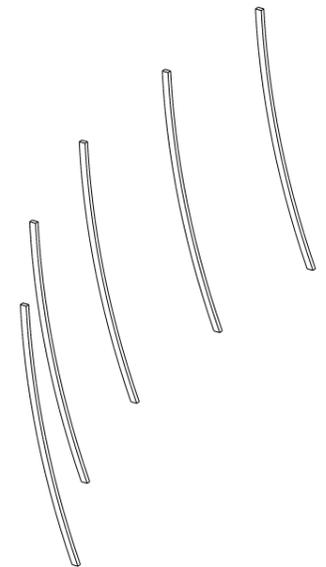
CLT flooring



Laminated timber beams & columns

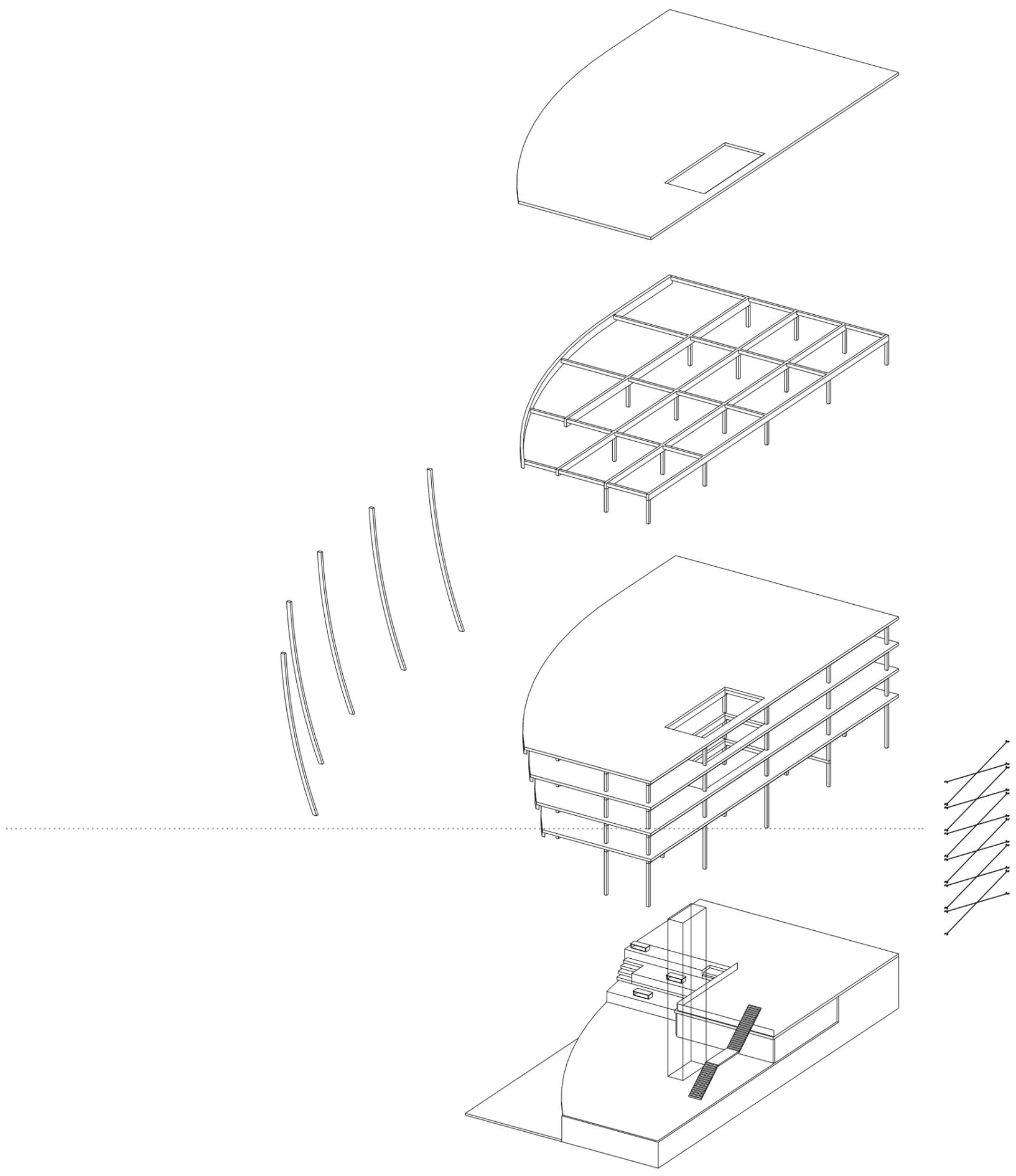


Laminated timber beams & columns

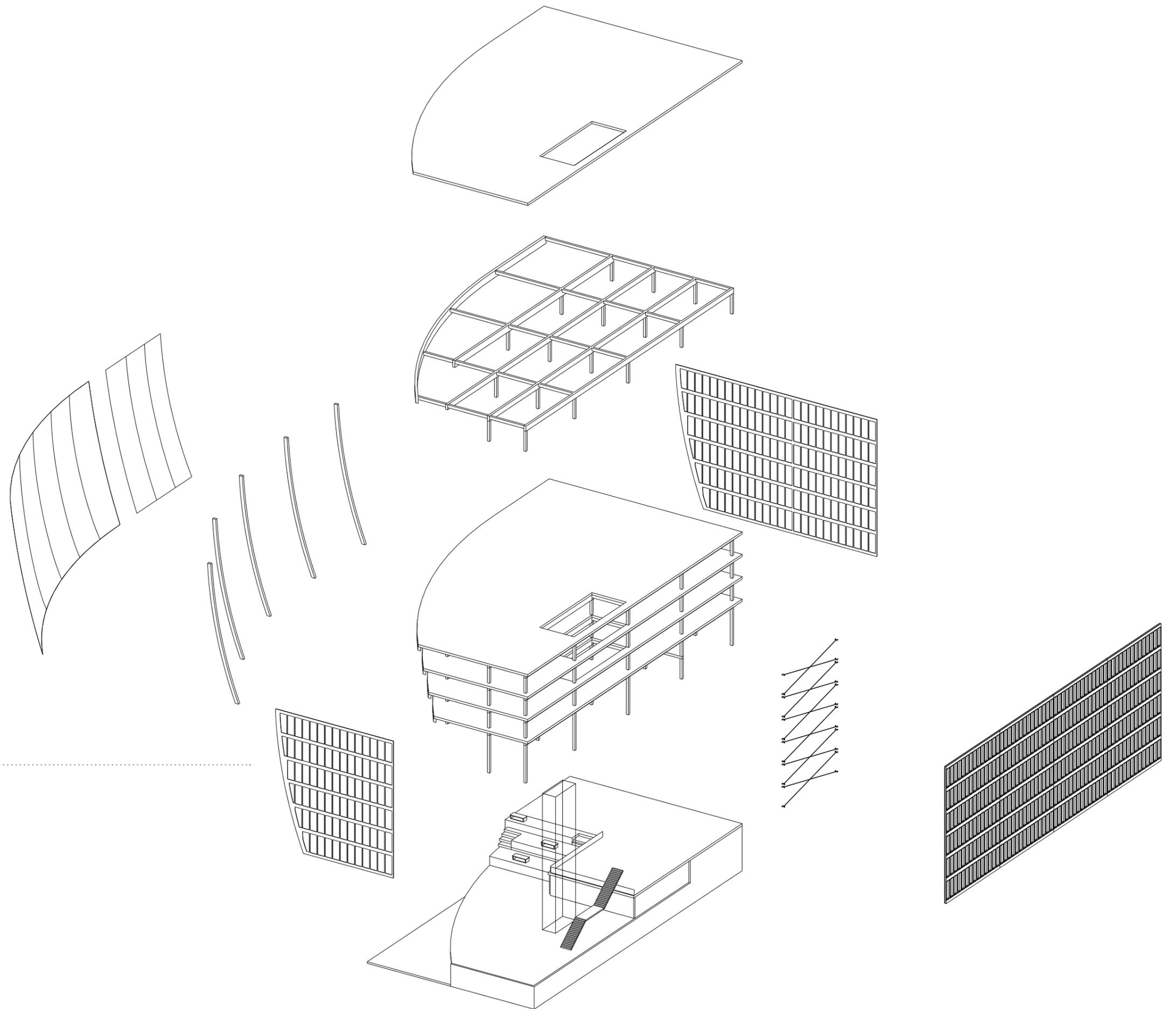


ASSEMBLY ONE BUILDING PART

Steel stability bracing

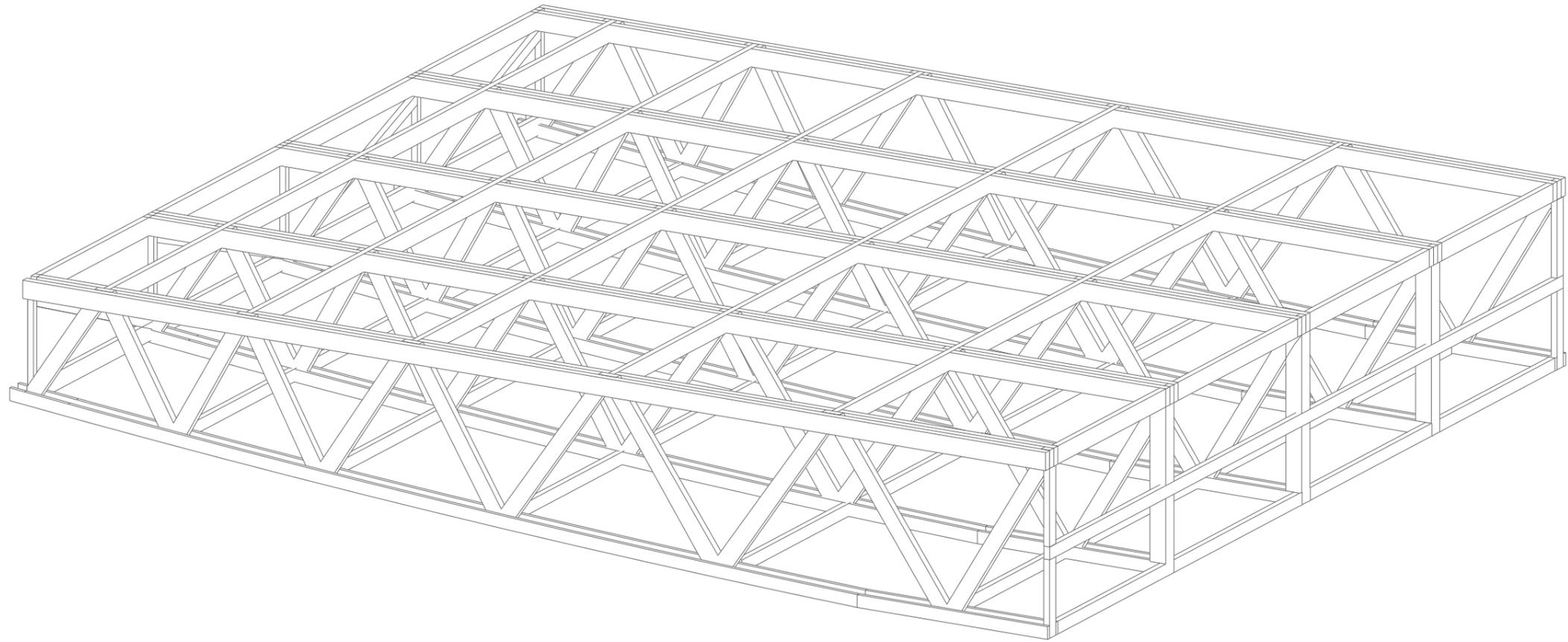
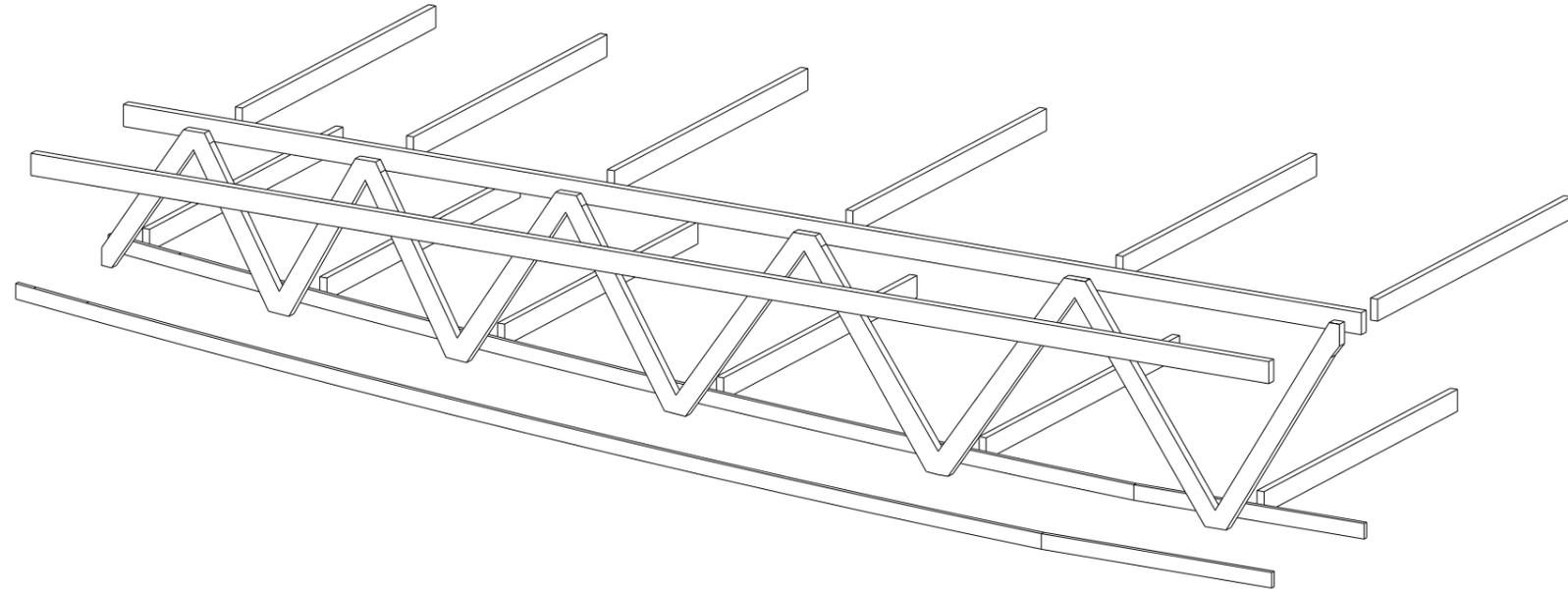


ASSEMBLY ONE BUILDING PART



Timber facades

ASSEMBLY TOP TRUSS

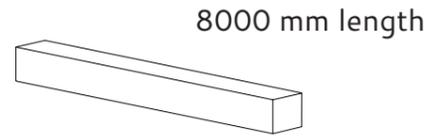


STRUCTURE FLOORING

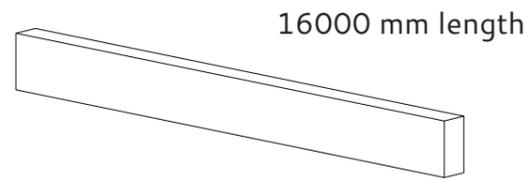
Beams

Grid: 8000 x 8000 mm
16000 x 8000 mm

500 mm width
500 mm thick



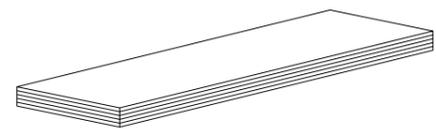
500 mm width
950 mm thick



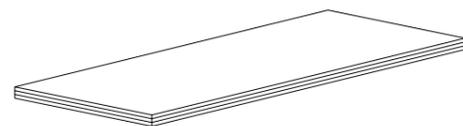
CLT floor panels

Grid: 8000 x 8000 mm

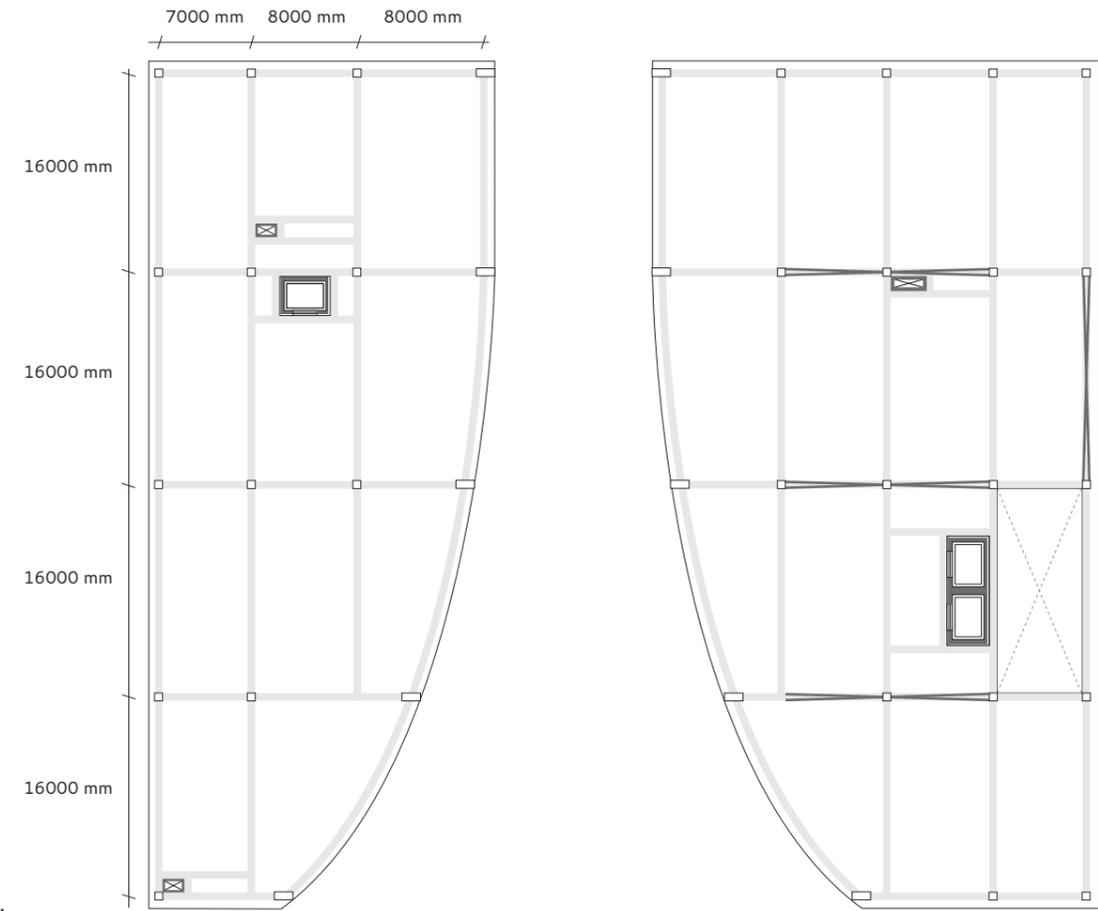
1200 mm width
170 mm thick



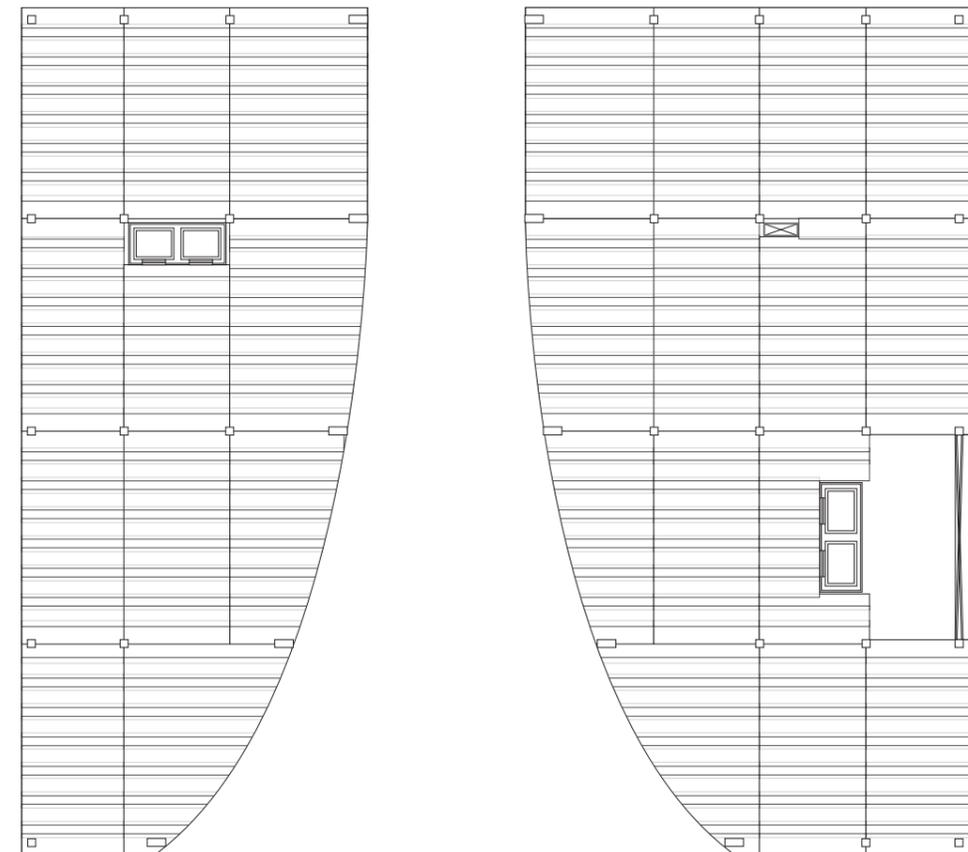
1600 mm width
120 mm thick



Beam structure



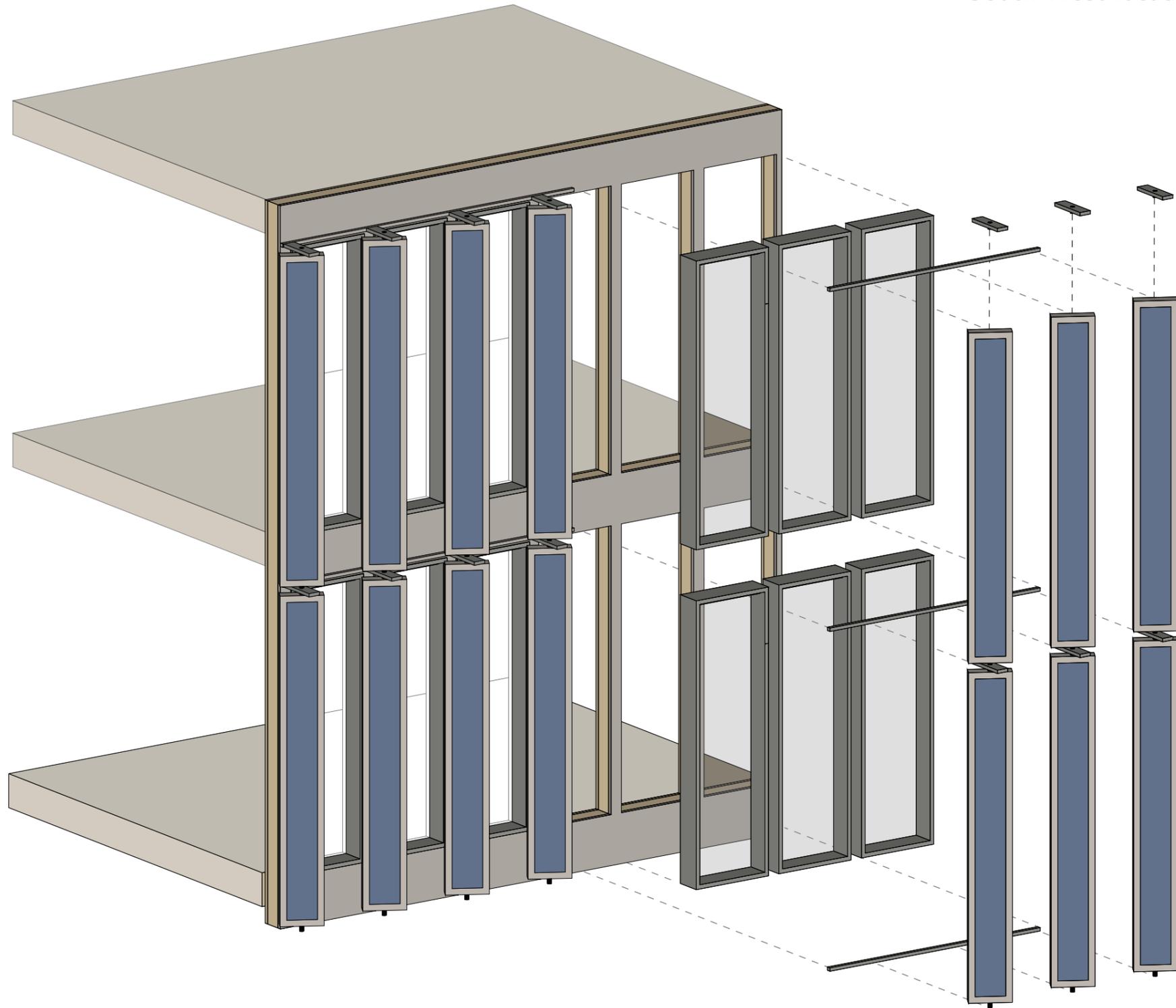
Floor structure



SUSTAINABILITY

FACADE PRINCIPAL

South West facade



Interior timber wall finish

Insulating layer of nanowood

Exterior layer of burned wood

Window frames

Louvres fixing

Louvres - variable per facade orientation

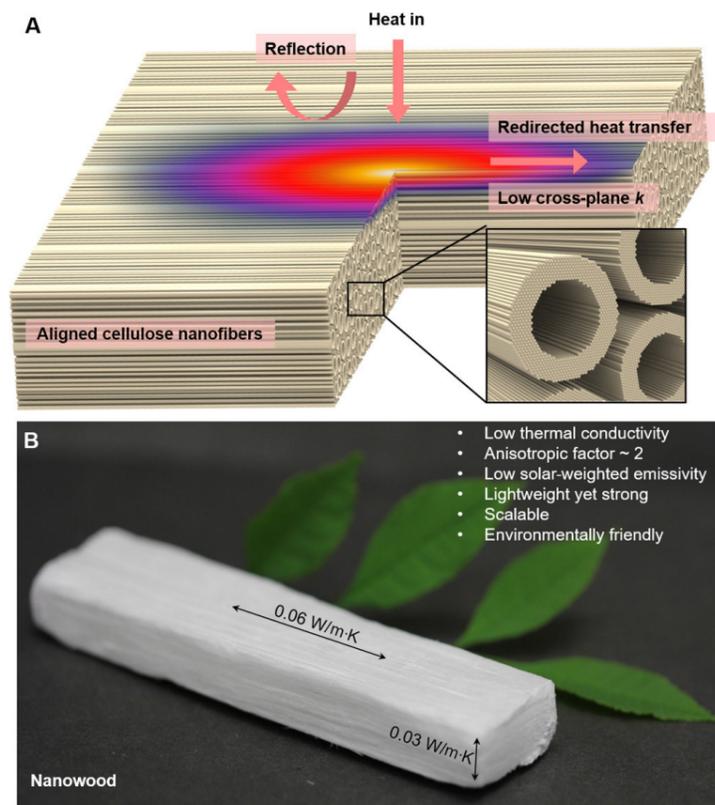
FACADE MATERIAL

Interior

Exterior

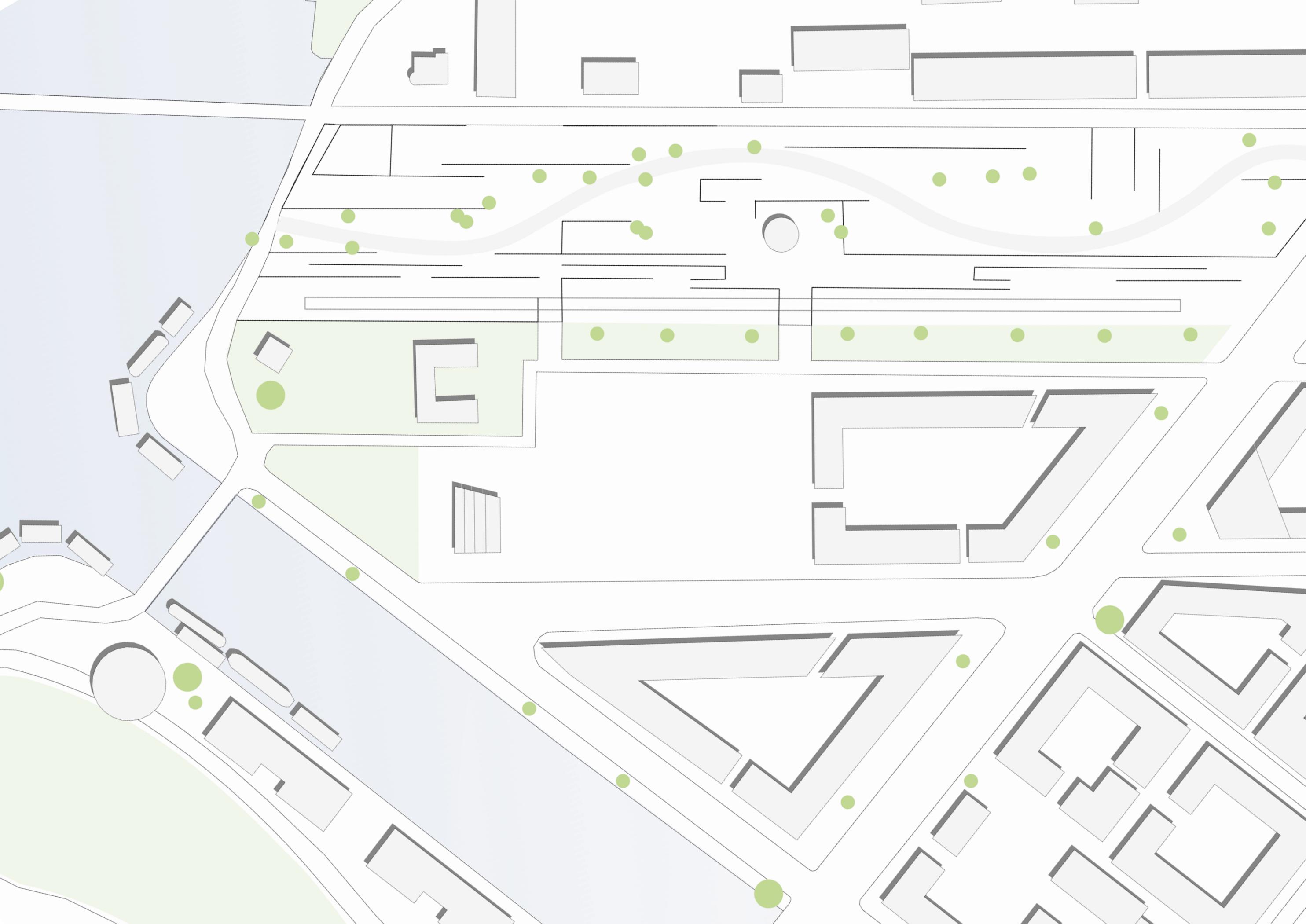
Insulating nanowood

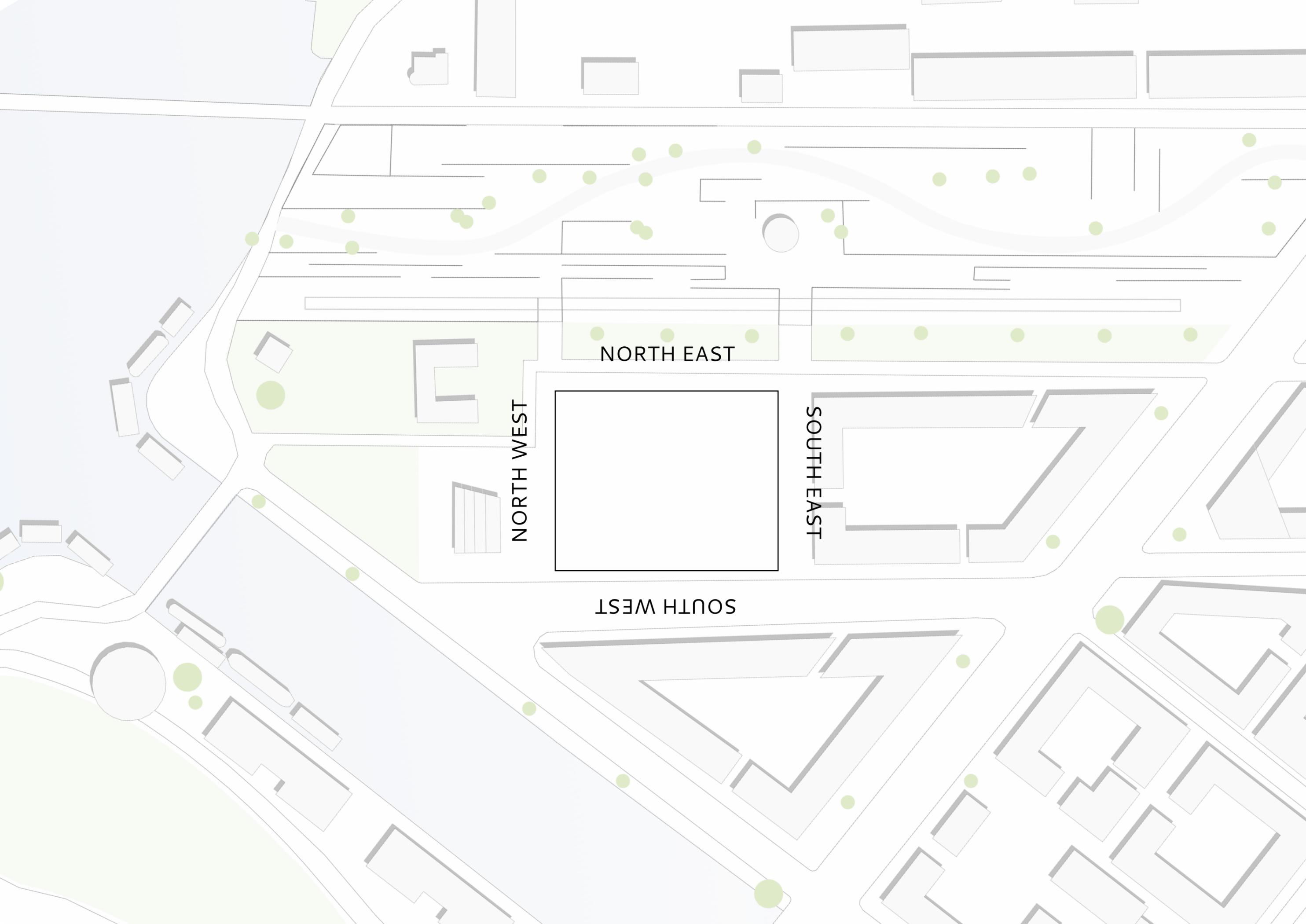
Burned wood – shou sugi ban



- excellent thermal insulation properties; 0.03 W/m·K
- high mechanical strength
- sustainable

- durability (repel insects, prevents fungal implantation and water infiltration)
- stability
- fire resistance





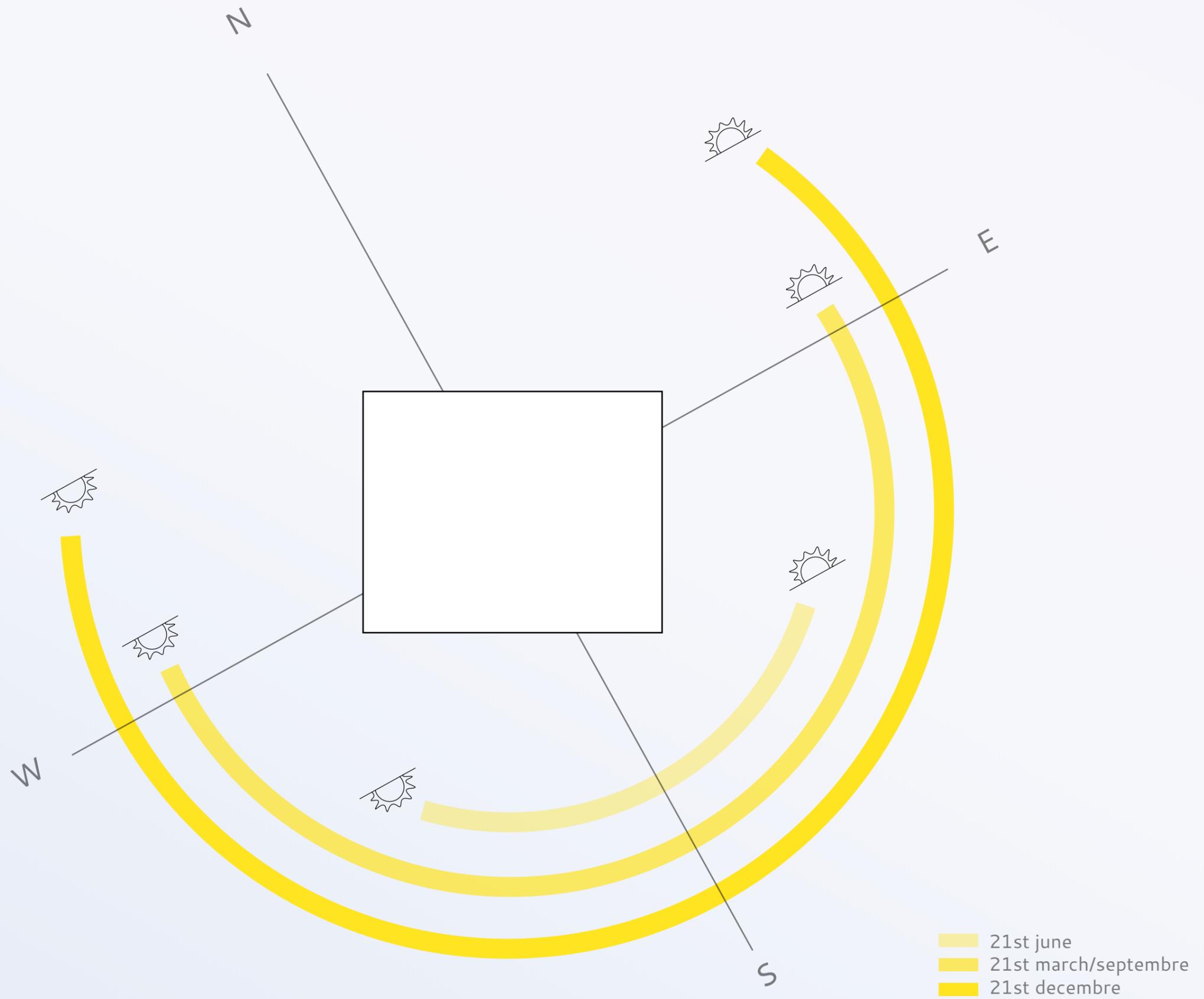
NORTH EAST

NORTH WEST

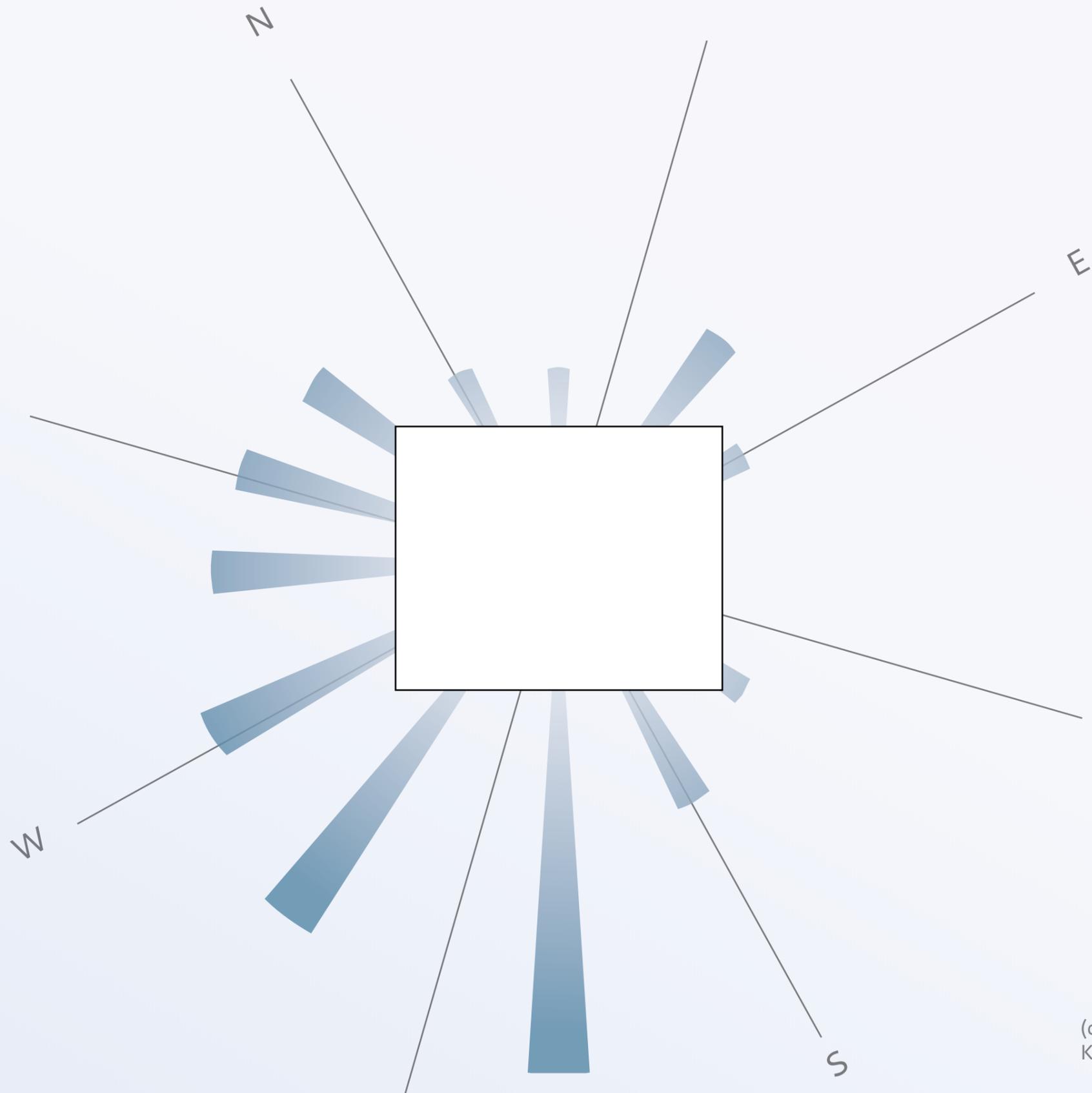
SOUTH EAST

SOUTH WEST

SUN ORIENTATON



SUN ORIENTATON

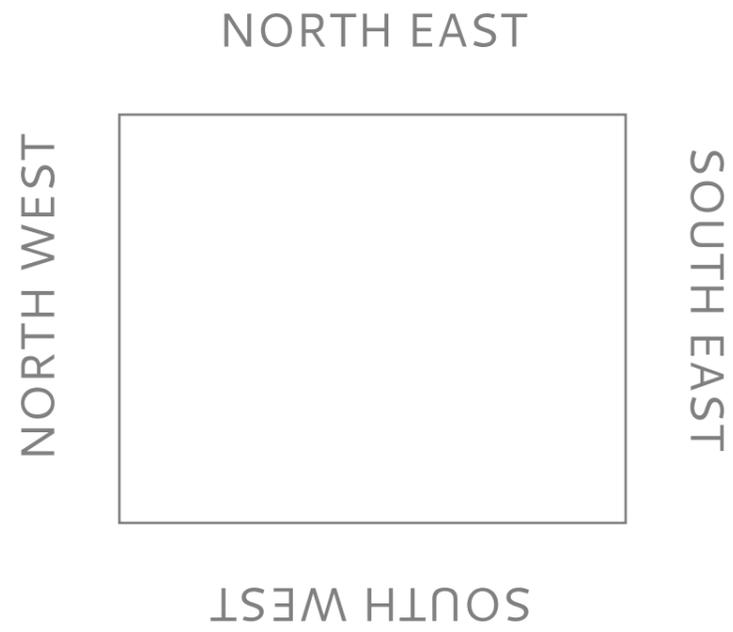


FACADE PRINCIPAL

SITE
Amstel river - views

CONDITIONS
much wind & sun exposure - passive opportunities

WIND ENERGY



FACADE PRINCIPAL

SITE
Sports recreation – Activity Park

CONDITIONS
low wind & sun exposure – much daylight



NORTH EAST

NORTH WEST



SOUTH EAST

SOUTH WEST

SITE
Amstel river – views

CONDITIONS
much wind & sun exposure – passive opportunities

WIND ENERGY



FACADE PRINCIPAL

SITE
Sports recreation – Activity Park

CONDITIONS
low wind & sun exposure – much daylight



NORTH EAST



NORTH WEST

SOUTH EAST

SOUTH WEST

SITE
Housing block – closed facade

CONDITIONS
shadow & high sun exposure



SITE
Amstel river – views

CONDITIONS
much wind & sun exposure – passive opportunities

WIND ENERGY



FACADE PRINCIPAL

SITE
Sports recreation – Activity Park

CONDITIONS
low wind & sun exposure – much daylight



NORTH EAST



SITE
Housing block – closed facade

CONDITIONS
shadow & high sun exposure



SITE
Amstel river – views

CONDITIONS
much wind & sun exposure – passive opportunities



SOUTH WEST

SOLAR ENERGY

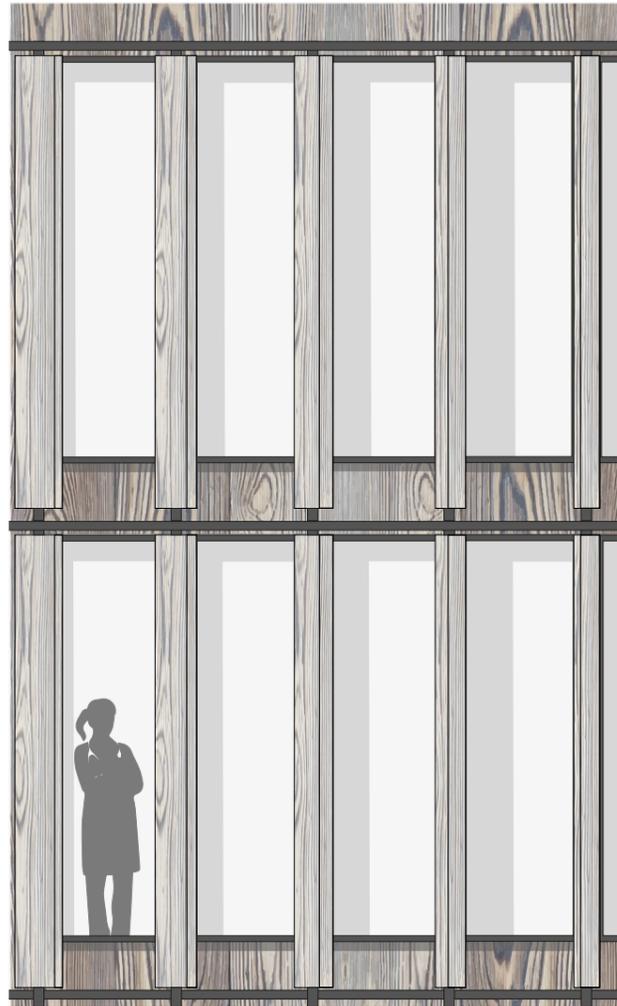


SITE
Square with green – waterfront

CONDITIONS
much wind & sun exposure – passive opportunities

FACADE PRINCIPAL

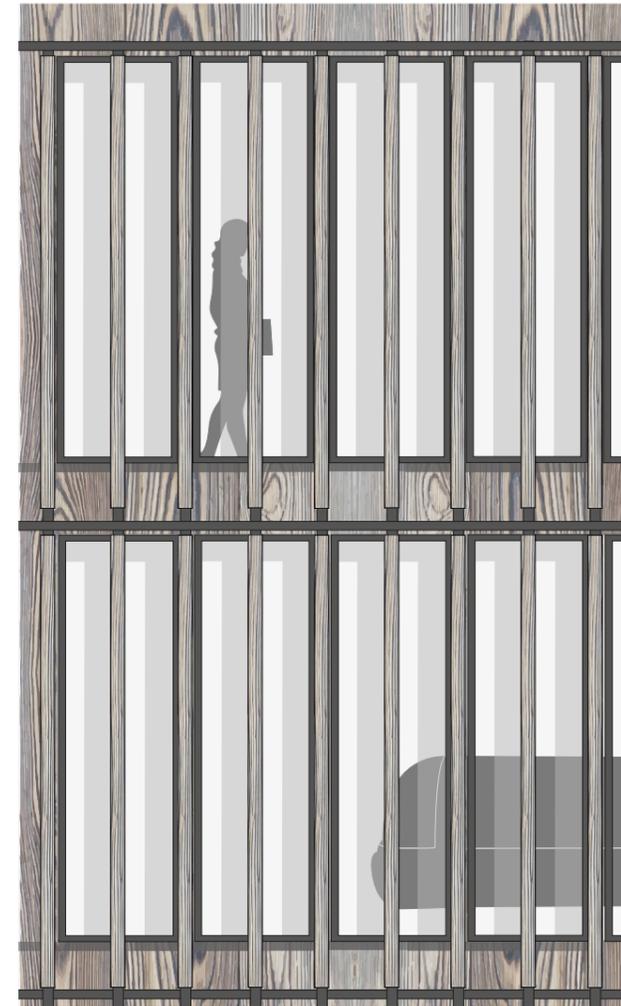
NORTH WEST



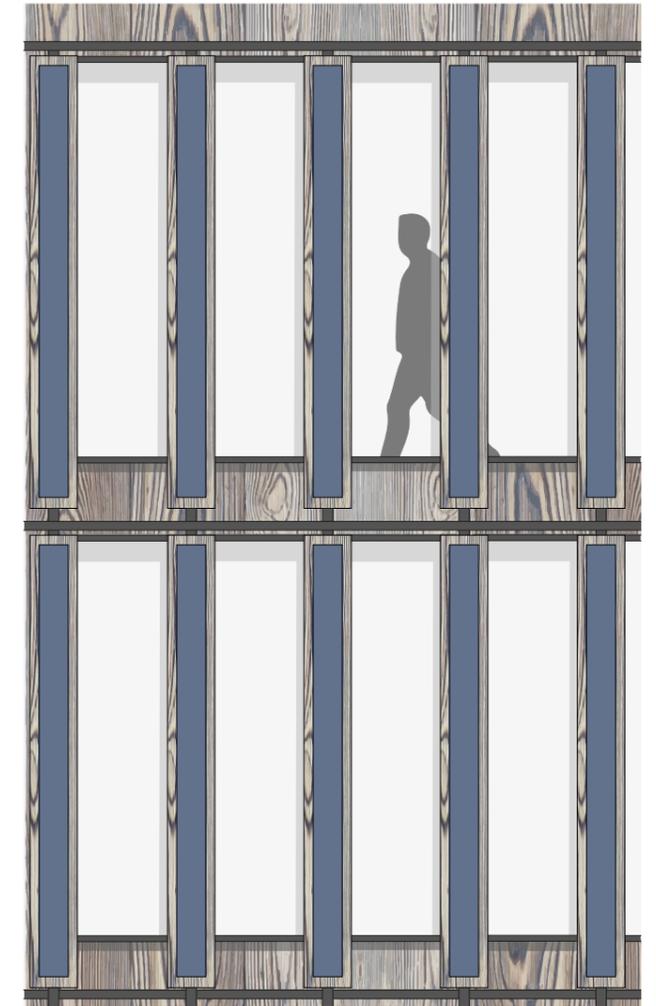
NORTH EAST



SOUTH EAST



SOUTH WEST



WIND ENERGY



GREEN



DENSE



SOLAR ENERGY



CLIMATE DEMAND



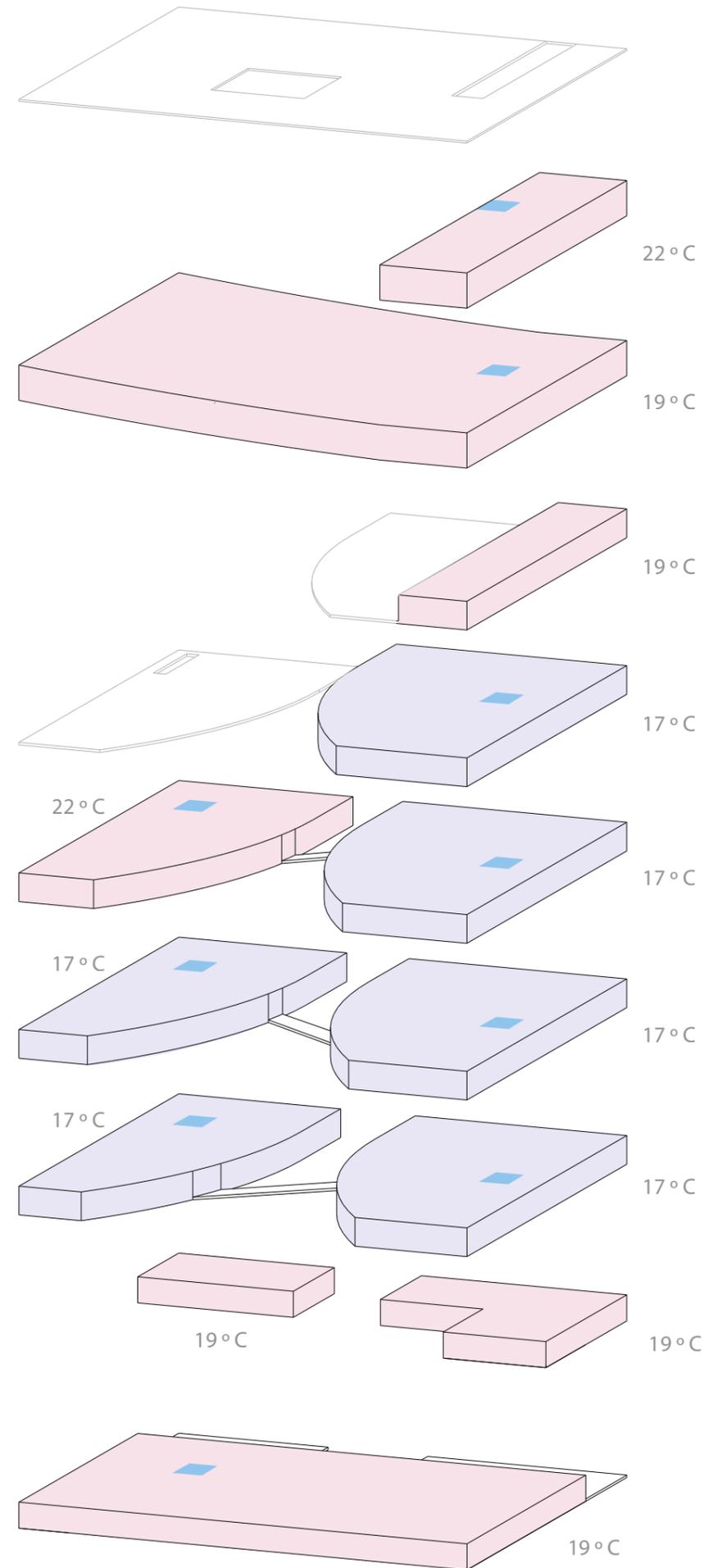
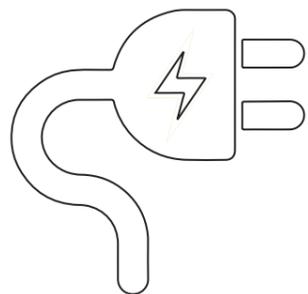
MEDICAL FUNCTIONS;
Require clean and cool air



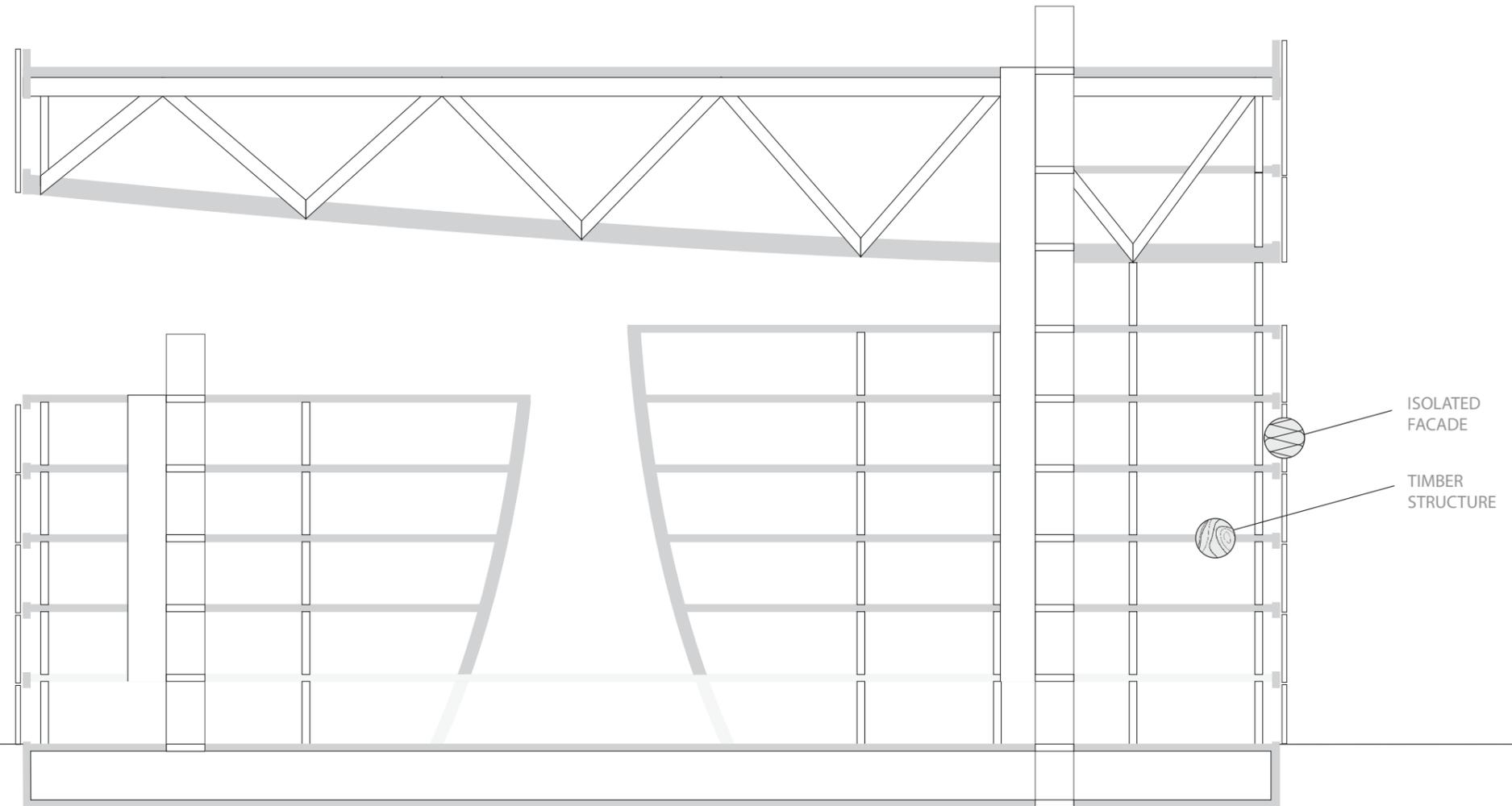
PUBLIC AND OFFICE FUNCTIONS;
Require steady temperature and good airconditioning



WET AREAS;
Require air supply and exhaust



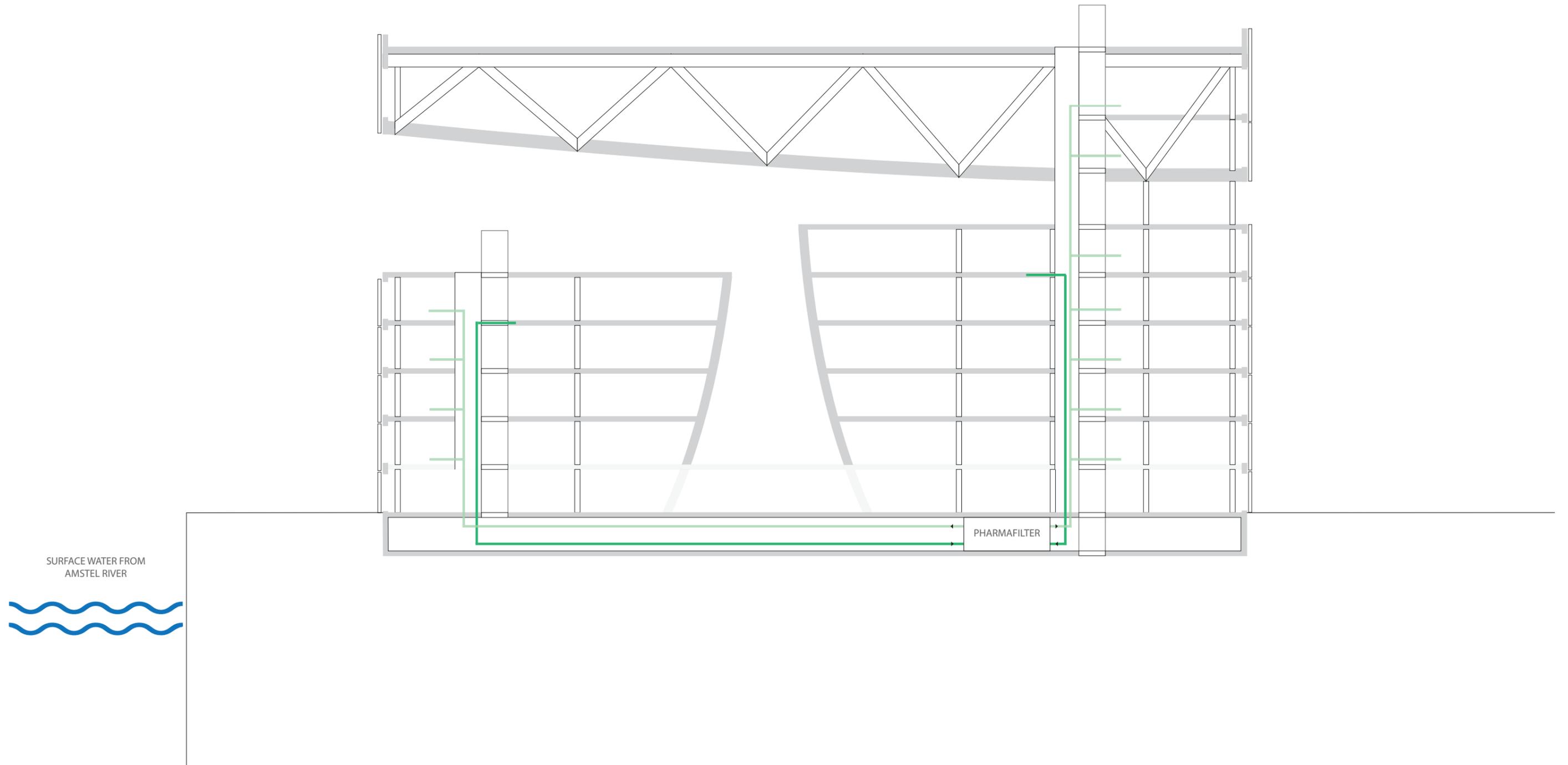
CLIMATE SUSTAINABILITY



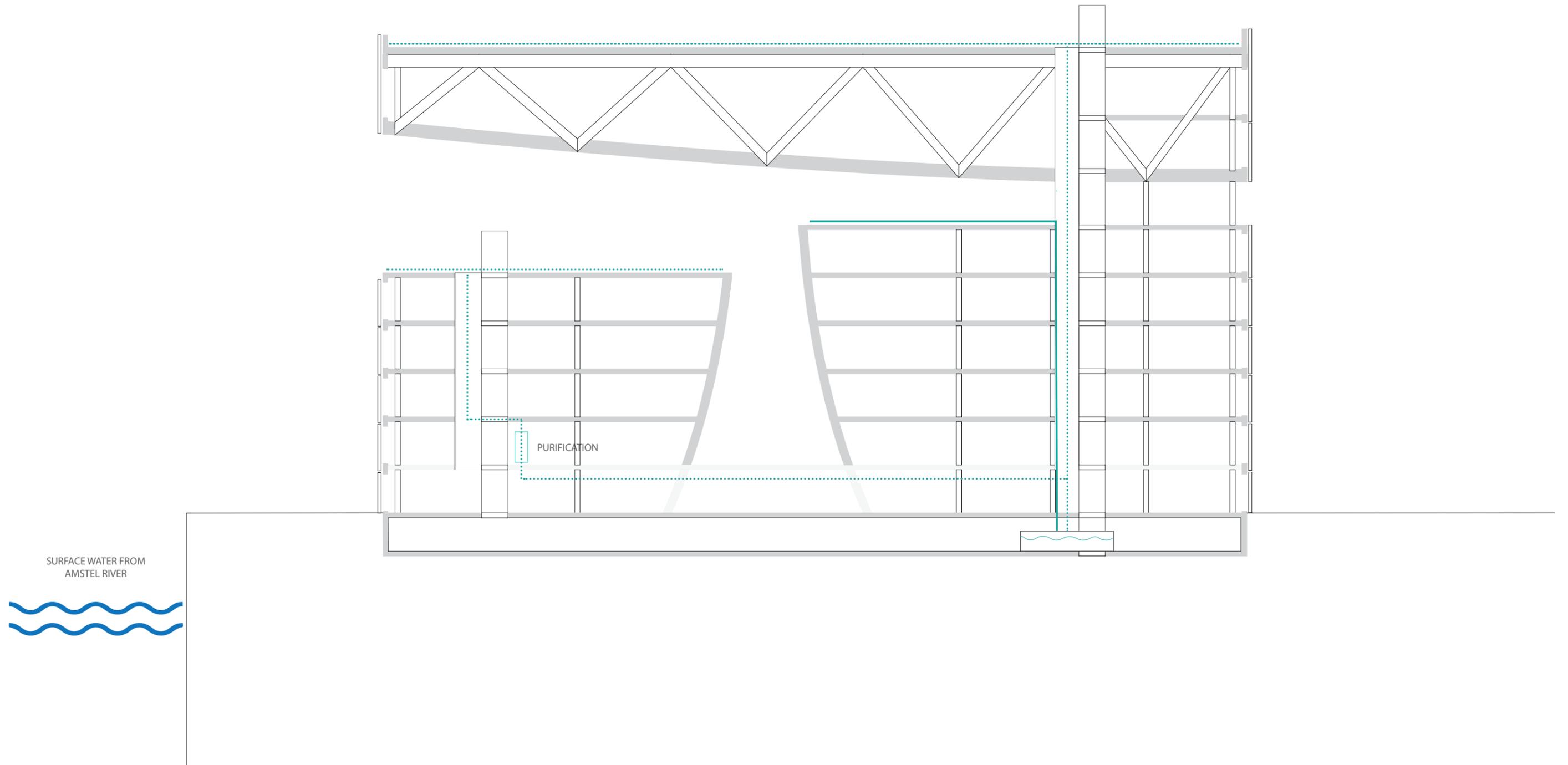
SURFACE WATER FROM
AMSTEL RIVER



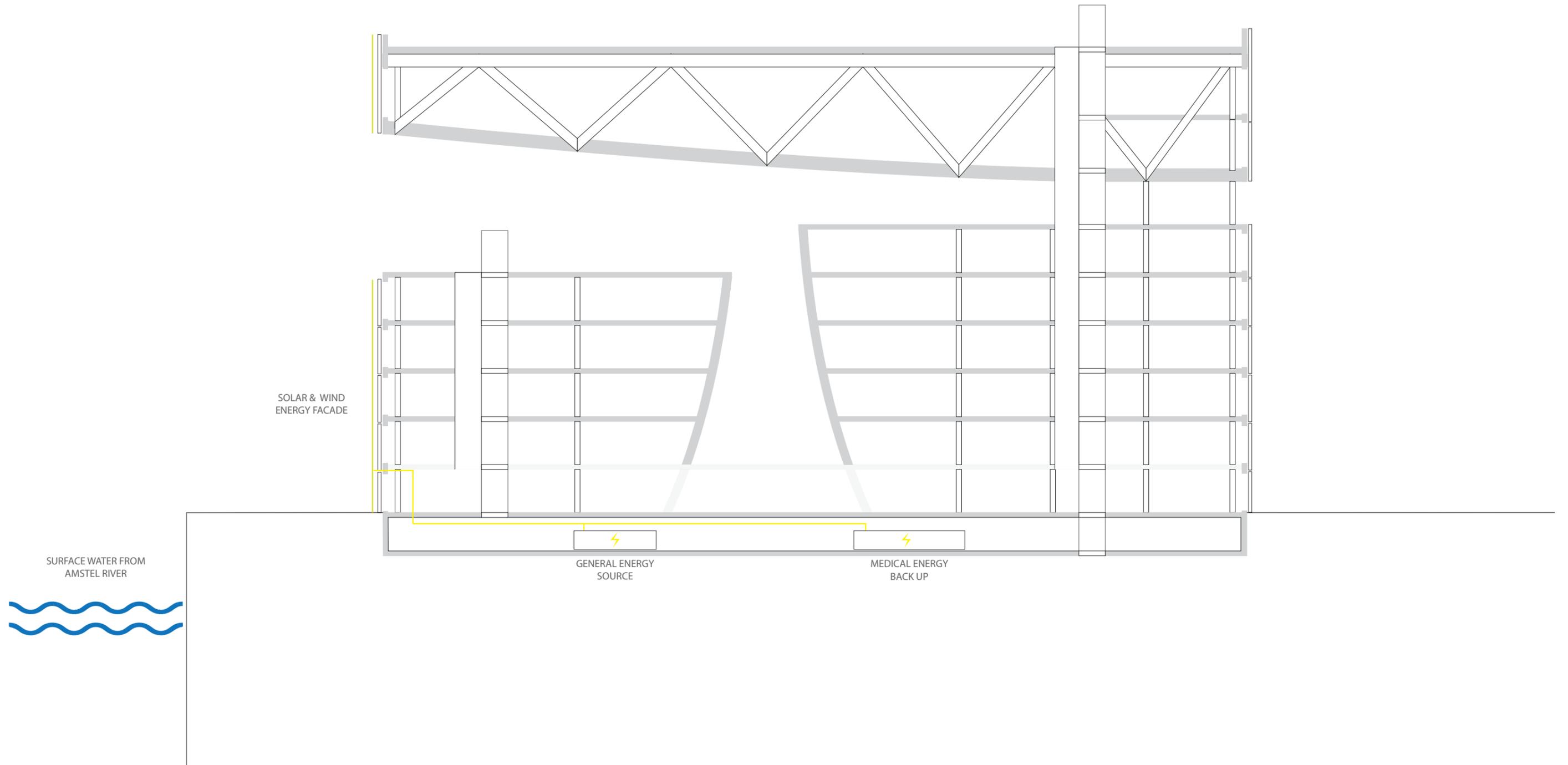
CLIMATE SUSTAINABILITY



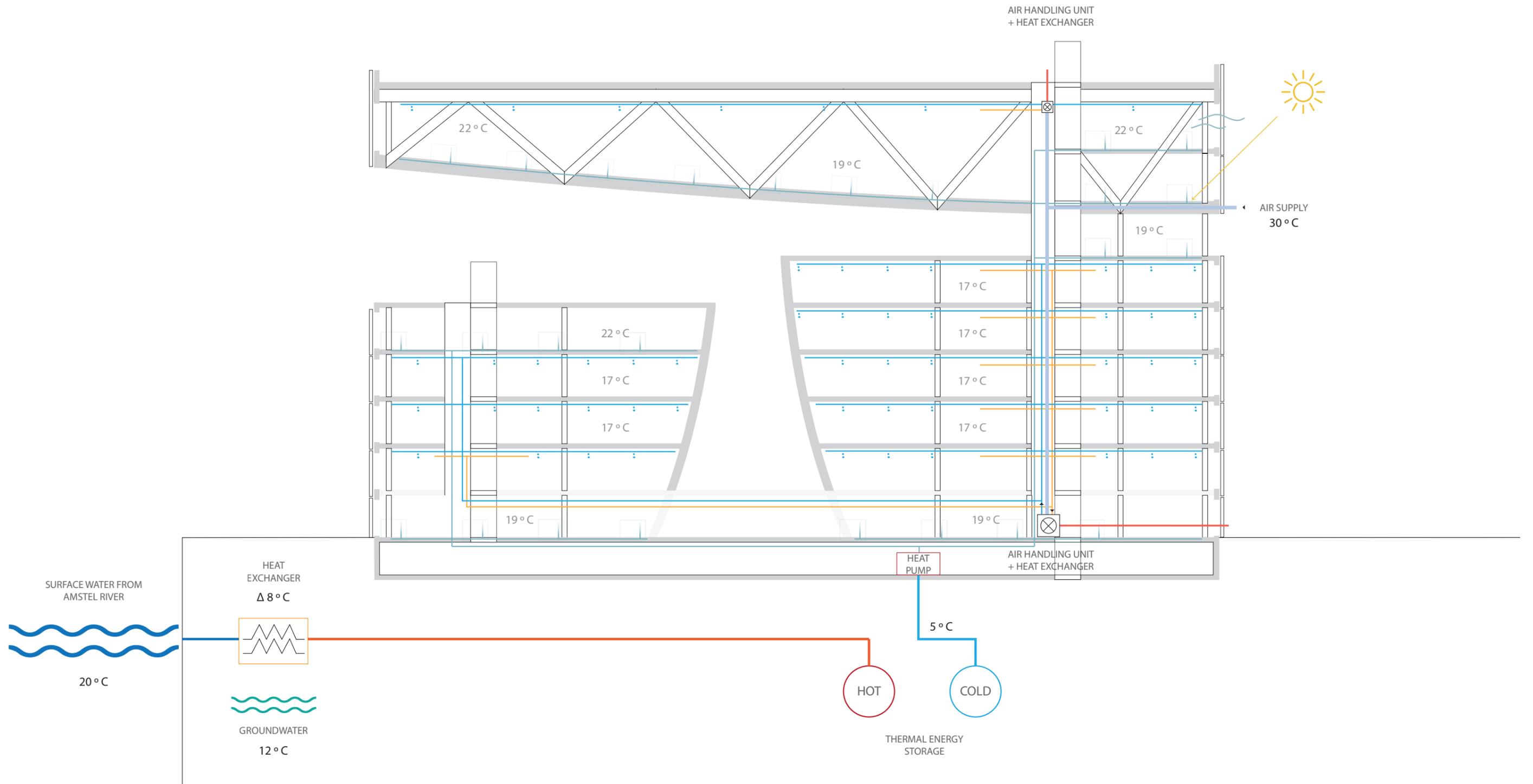
CLIMATE SUSTAINABILITY



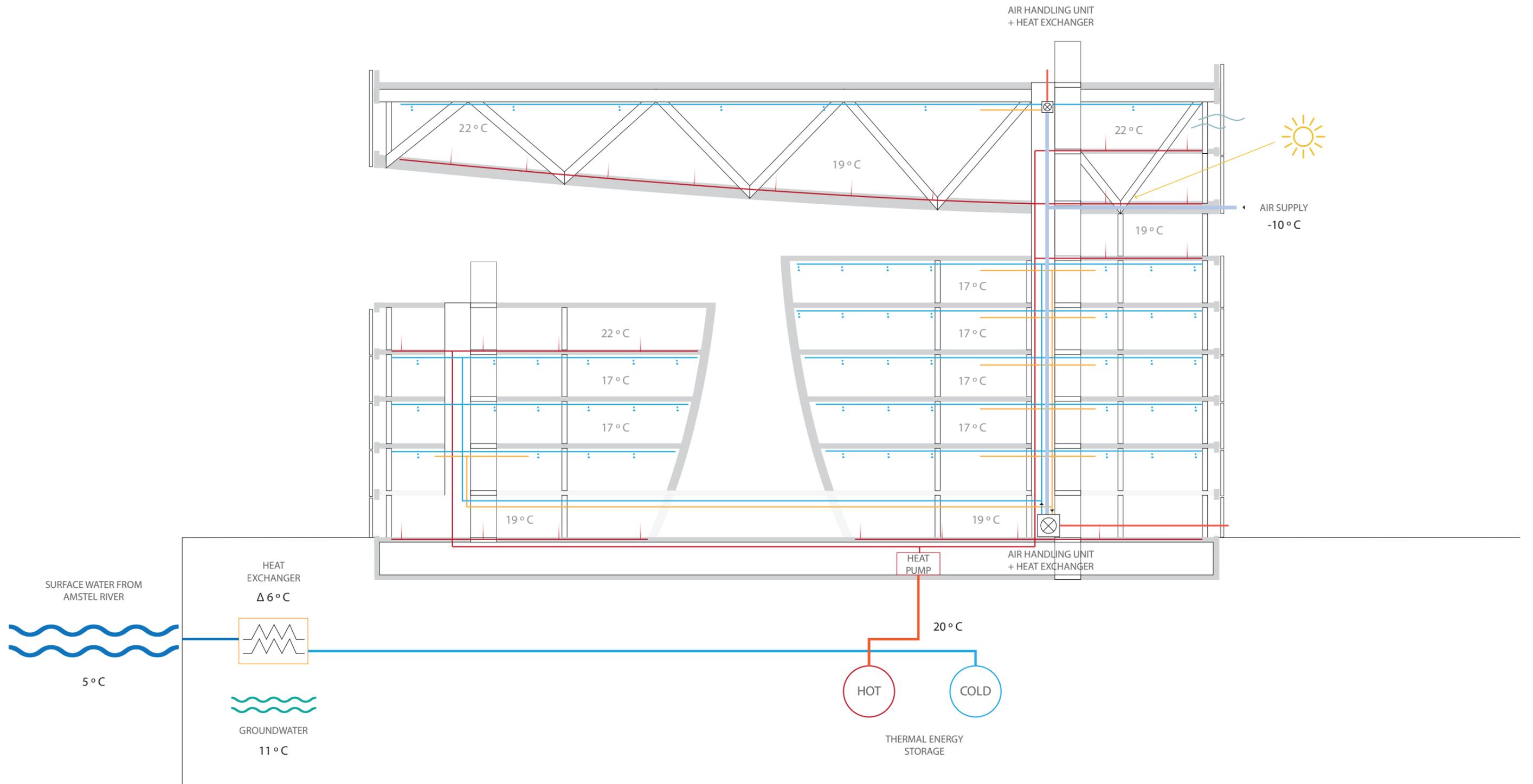
CLIMATE SUSTAINABILITY



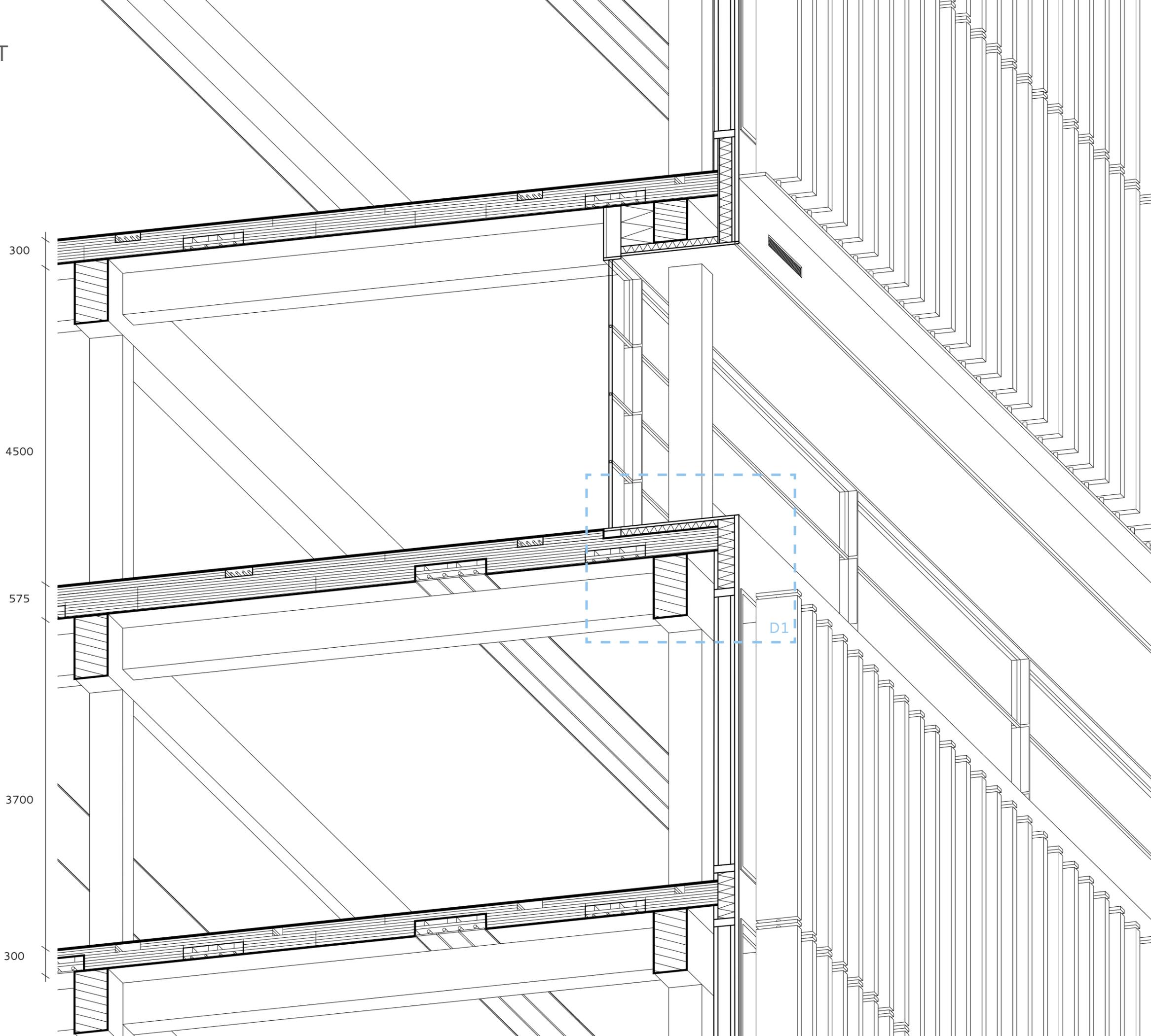
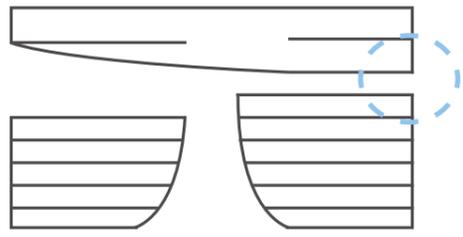
CLIMATE SYSTEM SUMMER



CLIMATE SYSTEM WINTER



1:20 FACADE FRAGMENT



SOUTH EAST FACADE

Public foyer
Pod entrance
Acute floor

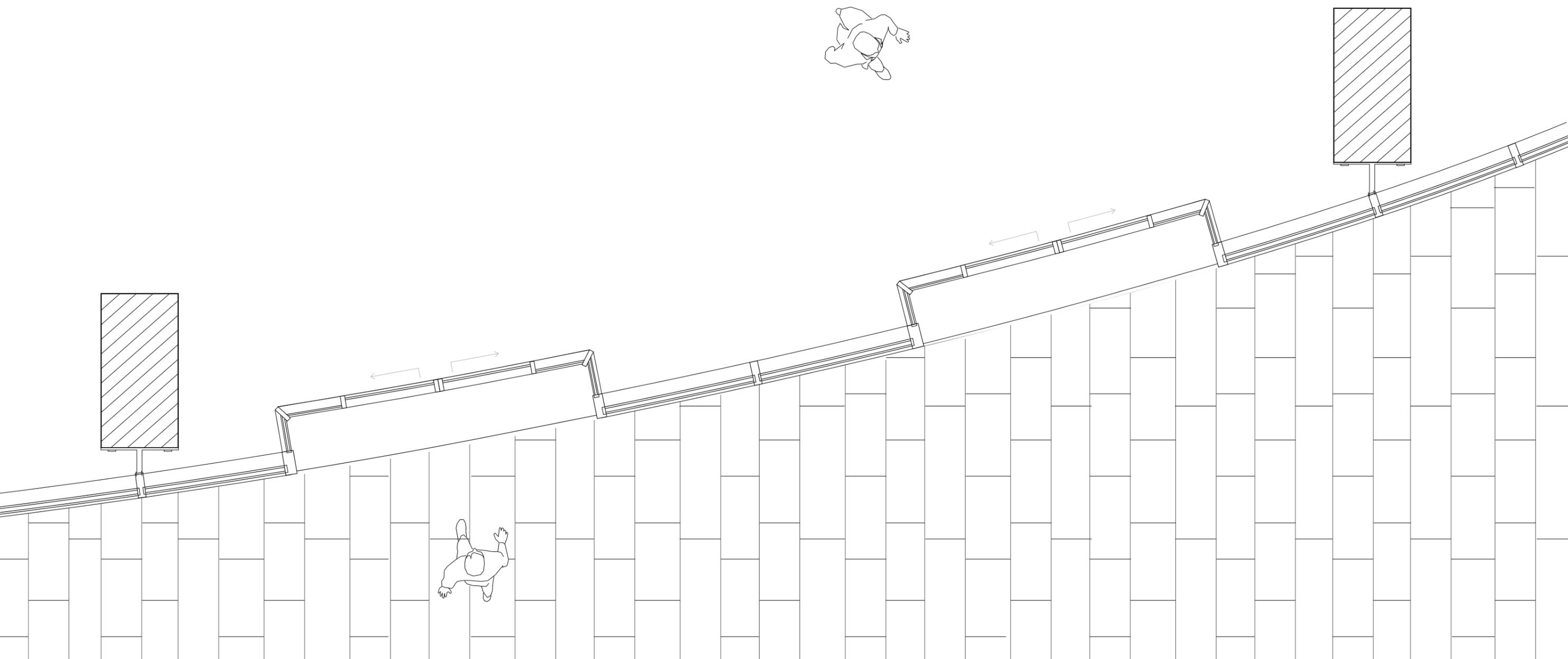
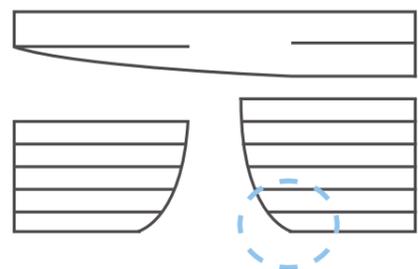
Recessed glass facade for Pods

Difference in floor thickness

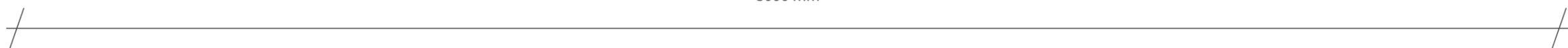
Difference in climate system

Fresh air supply

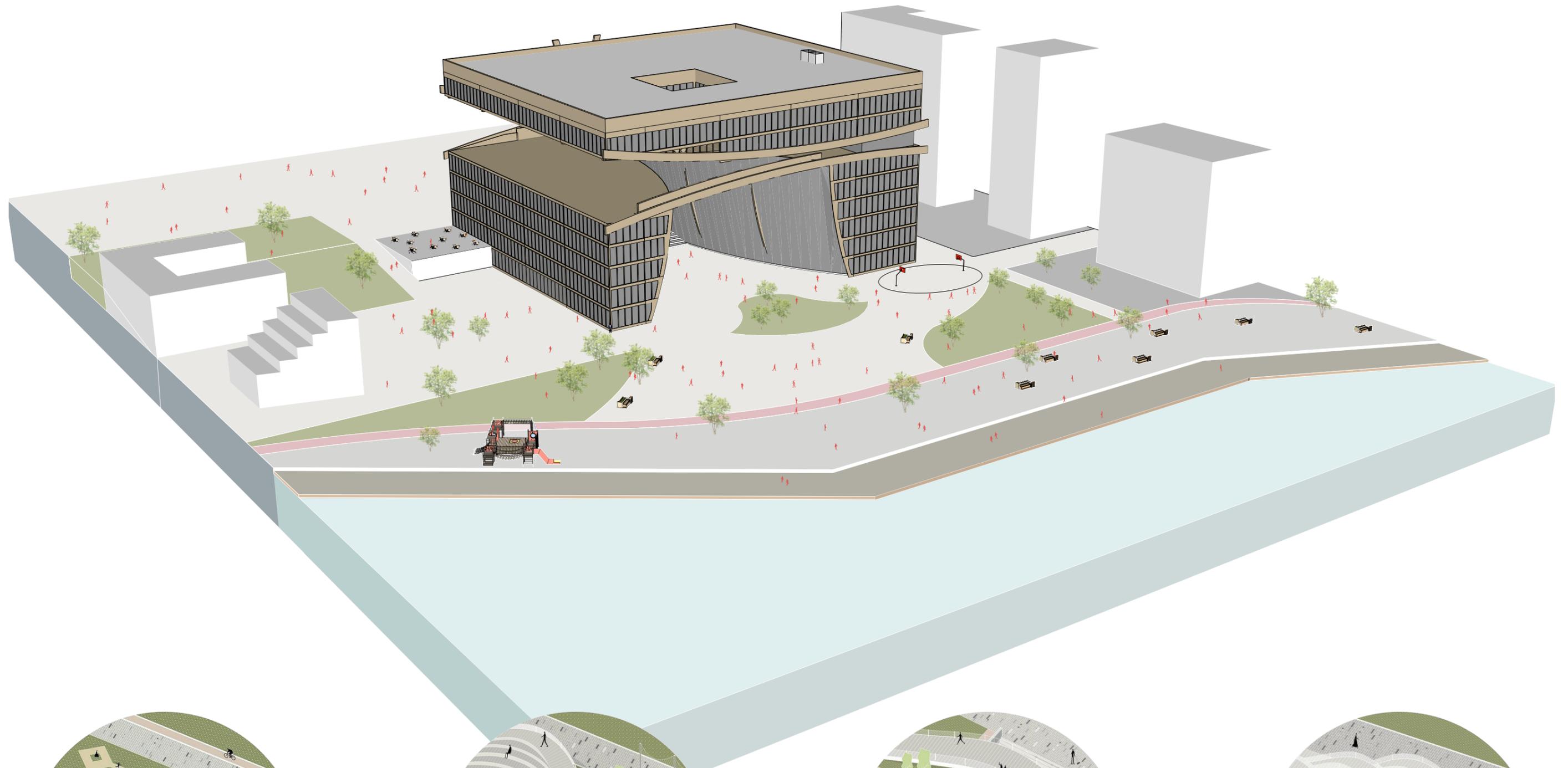
1:20 FACADE FRAGMENT D2



8000 mm



WATERFRONT





IAmstel
HEALTH
BASE