MICROPRODUCTION HABITAT

Hotel New York

complex projects

09/07/2021

spring semester

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Research

Problem & Ambition

Functional Program

Urban Strategy

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CITIES HUBS OF CRAFTMANSHIP

XX CENTURY MASS PRODUCTION

THE EMMERGENCE OF GLOBAL BRANDS

CITIES DEINDUSTRIALIZATION

OFFICES DOMINATION

OPEN SPACE

START FOR THE CHANGES

SLA-1 - 1987

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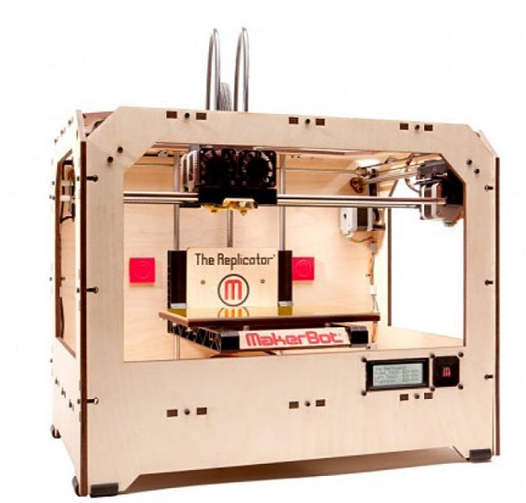
DIGITAL FABRICATION

(RAPID) PROTOTYPING

RAPID MANUFACTURING



MakerBot 1

Ejecting Plastic Molten Wire

MakerBot 2

DPI: 254
Proper for Prototyping

The Form 1

DPI: 1016
Ultimate Personal Fabrication

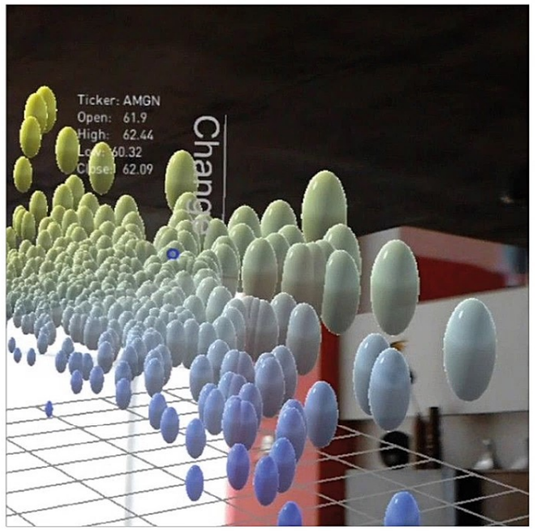
GLOBAL OPPORTUNITY

"THIS NEW INDUSTRIAL REVOLUTION WILL **CREATE A BILION LITTLE ENTREPRENEURIAL OPPORTUNITIES** THAT CAN BE DISCOVERED AND EXPLOITED BY SMART, CREATIVE PEOPLE."

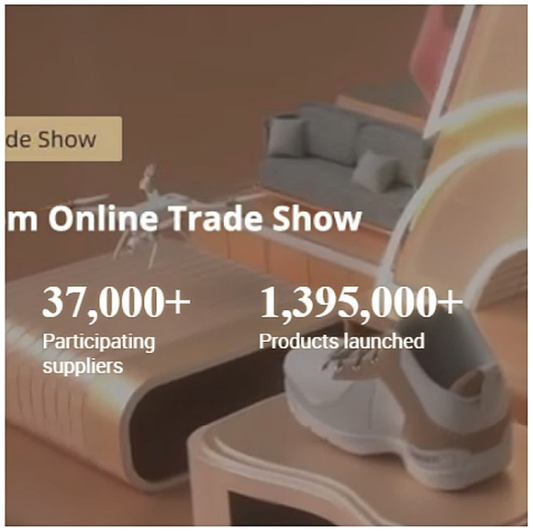
CHRIS ANDERSON, 2012

EASIER TO BECOME A PRODUCER

PRODUCING



FACTORIES IN THE CLOUD



VIRTUAL MICRO-FACTORIES

DESIGNING

OPEN-SOURCE DESIGN PLATFORMS

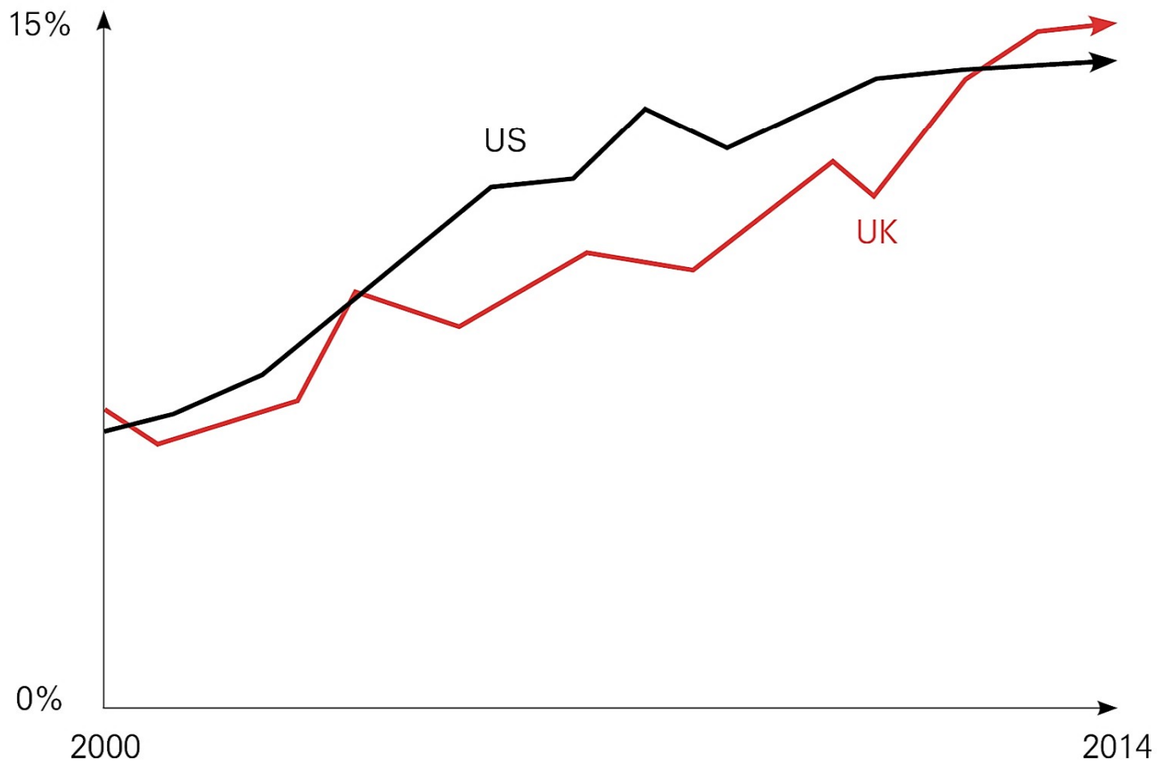
3 IN 1

RETAILER

PRODUCER

DESIGNER

SELF-EMPLOYMENT RISE



Rise of self-employment as % of total employment

http://whythings.net/work.html

RISE OF SOCIAL ENTERPRENEURSHIP

427 000 000
enterpreneurs worldwide

100 000 000
starups opening each year

https://innmind.com/articles/262

COMMON WORKSHOPS

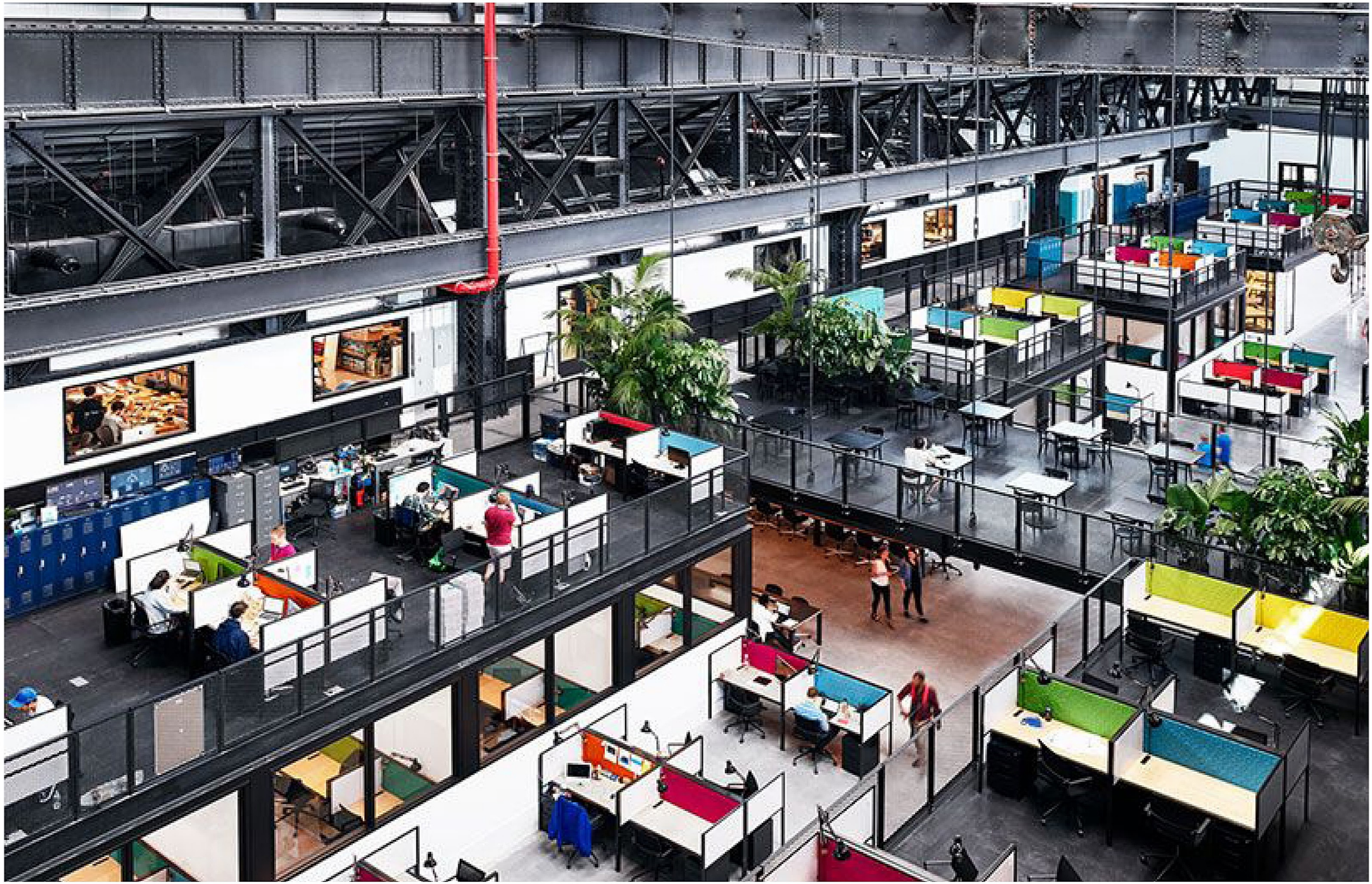
STARUP VILLAGES

THESIS STATEMENT:

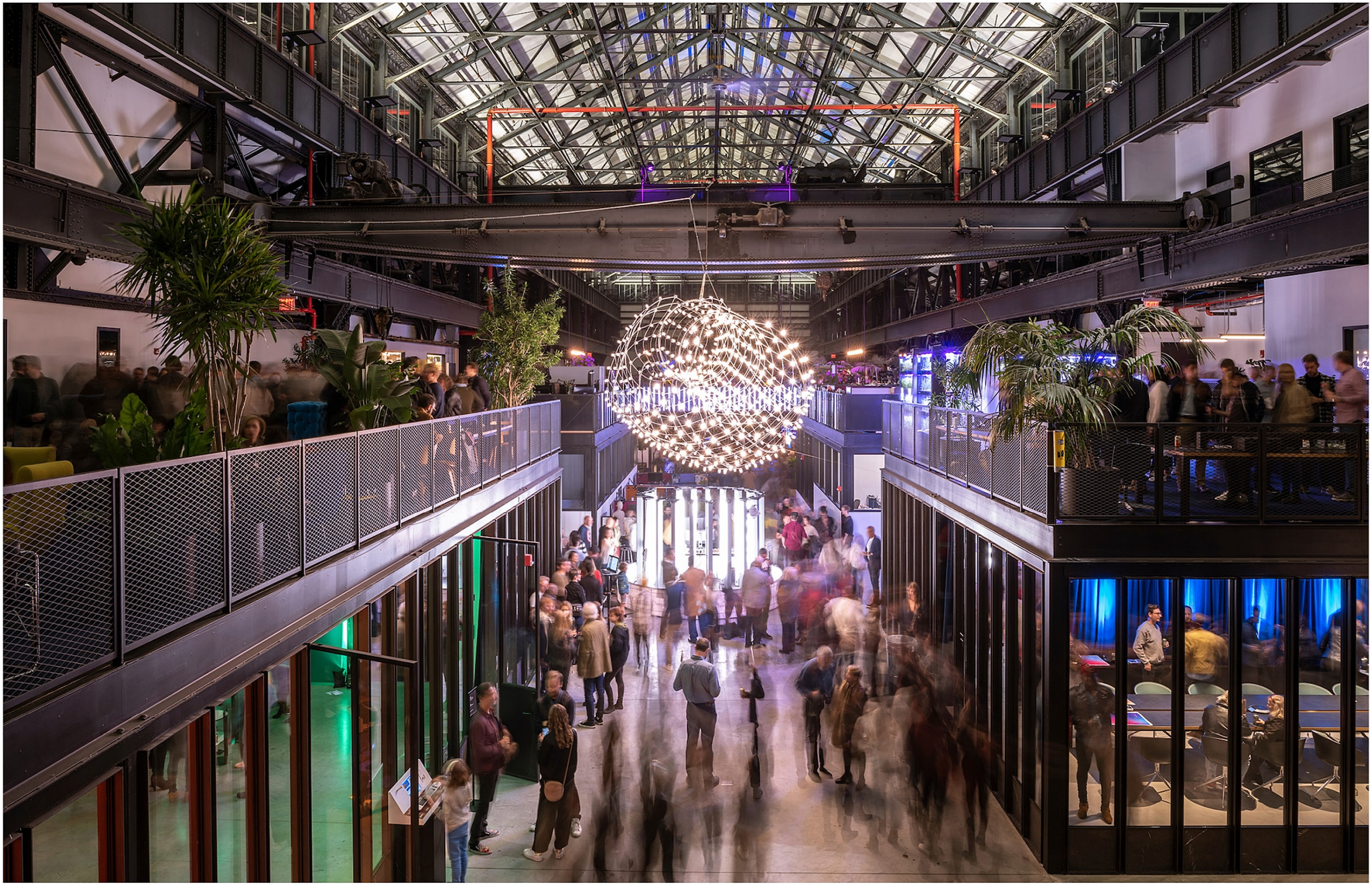
THE **TYPICAL WORKPLACE** AND THE NOTION OF **WORKER** ARE CHANGING.

INNOVATION WORKSHOPS - RDM Innovation Dock

TECHNOLOGY CENTERS - NEW LAB



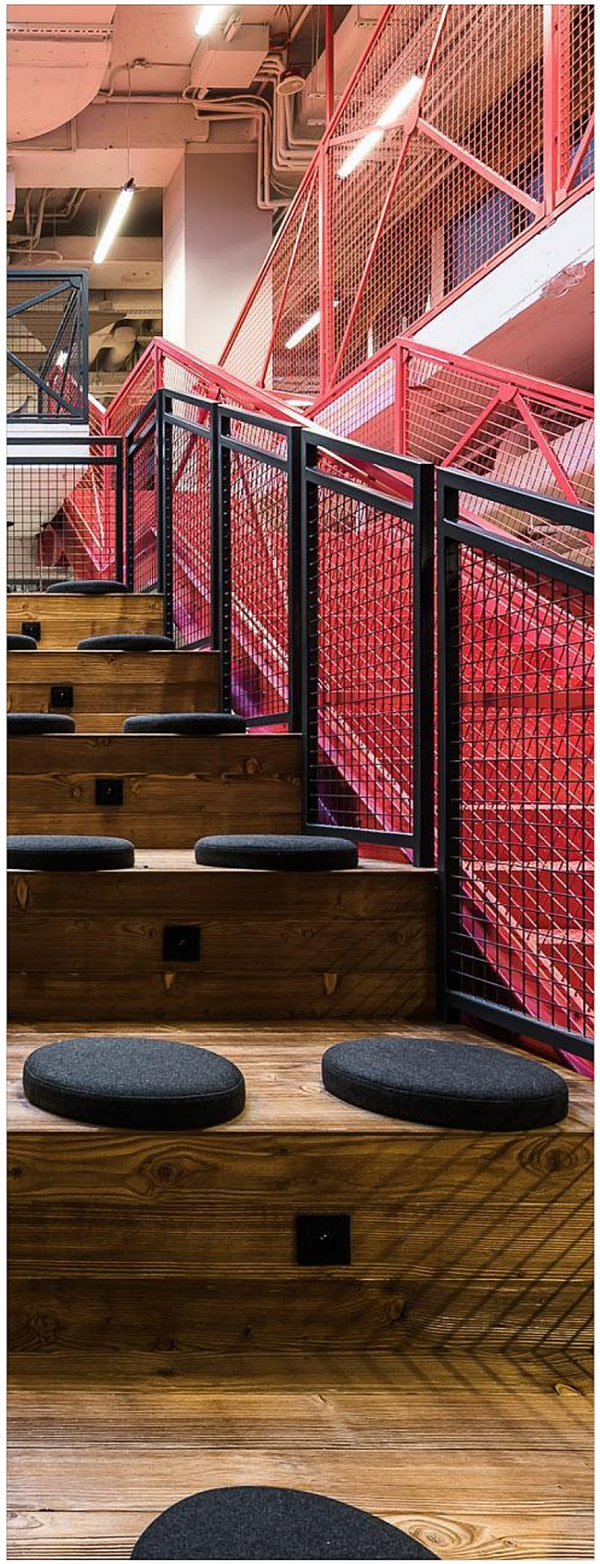
TECHNOLOGY CENTER - NEW LAB



START-UP CENTERS - MEDIA ICT

START-UP CENTERS - MEDIA ICT

COWORKING CENTERS - MEDIA ICT



MICROPRODUCTION EMBEDDEMENT POTENTIALS

REDUCED SCOPE

↓

LESS-INVASIVE

↓

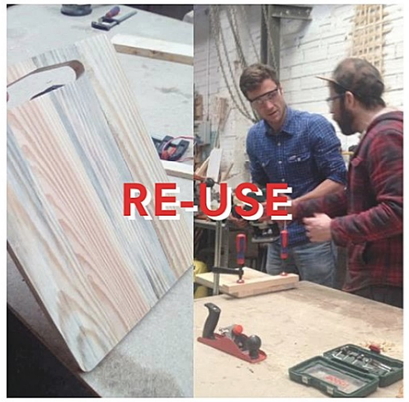
SOCIETY ACTIVATING

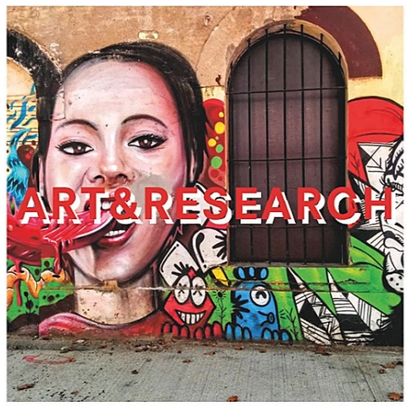
↓

CITIES REINDUSTRIALIZATION

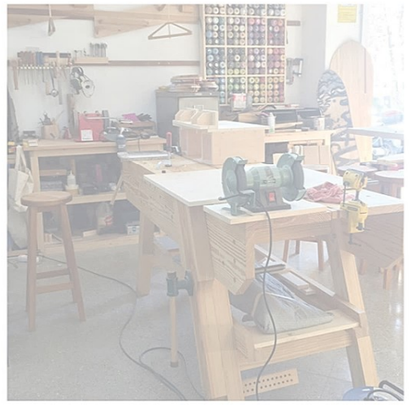
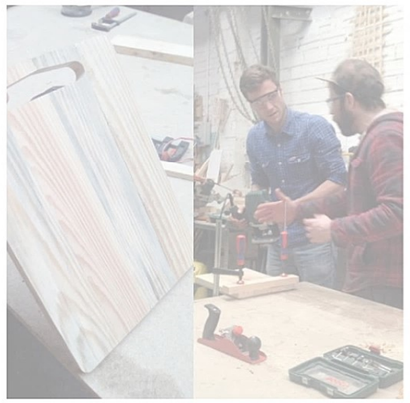
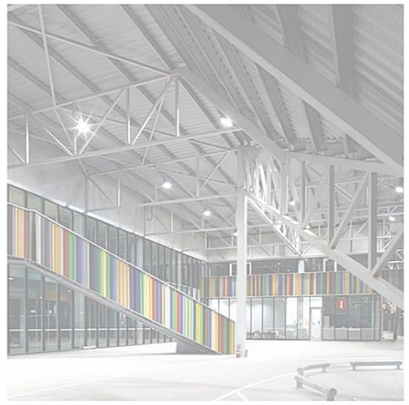
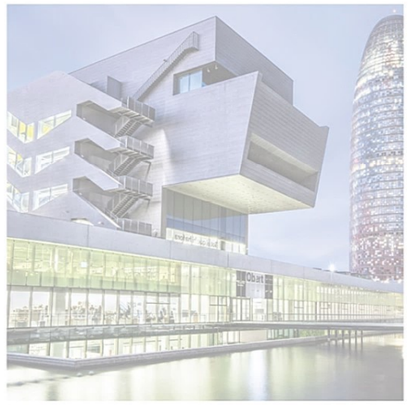
INCLUSIVE FABRICATION CITIES

INCLUSIVENESS AND DIVERSITY

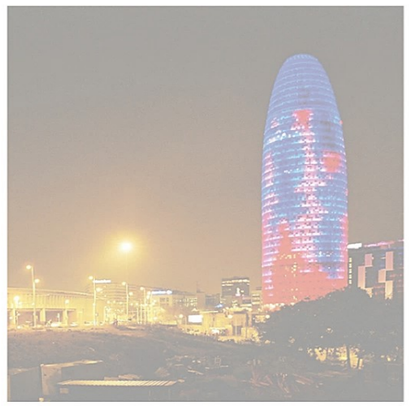


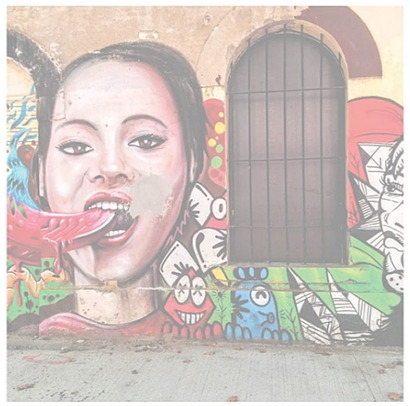


BOTTOM-UP STIMULATION



BOTTOM-UP APPROACH

FUNCTIONAL REACTIVATION

STAGNATED NEIGHBOURHOOD

MICROPRODUCTIVE ACTIVITY

FUNCTIONAL REACTIVATION

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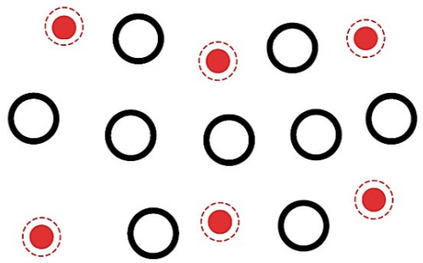
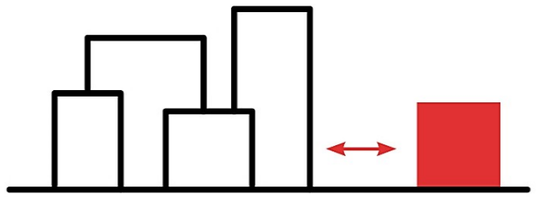
SPATIAL PROBLEMS TO SOLVE



PHYSICAL SEPARATION

- unables co-creation of users from different disciplines



DISTANCED FROM THE CITY

- unables perception of microproducers as enterpreneurs

NEW TYPOLOGY NEED

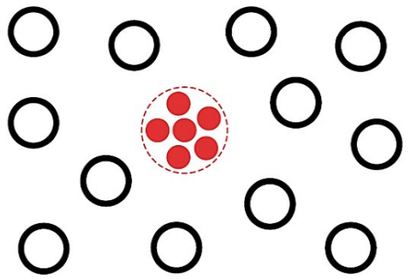
THERE IS A BIG POTENTIAL, BUT IT IS NOT YET THERE.

WE MISS INFRASTRUCTURE WHICH WILL LET MAKERS BECOME PERCEIVED AS PRODUCERS.

IT IS ONLY POSSIBLE, BY COLLABORATION AND BUSINESS ATTITUDE

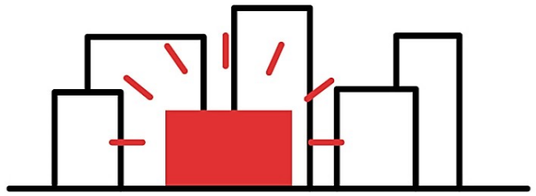
WILL HOLMAN, 2015

THE BETTER MODEL



LOCATION IN ONE SPOT

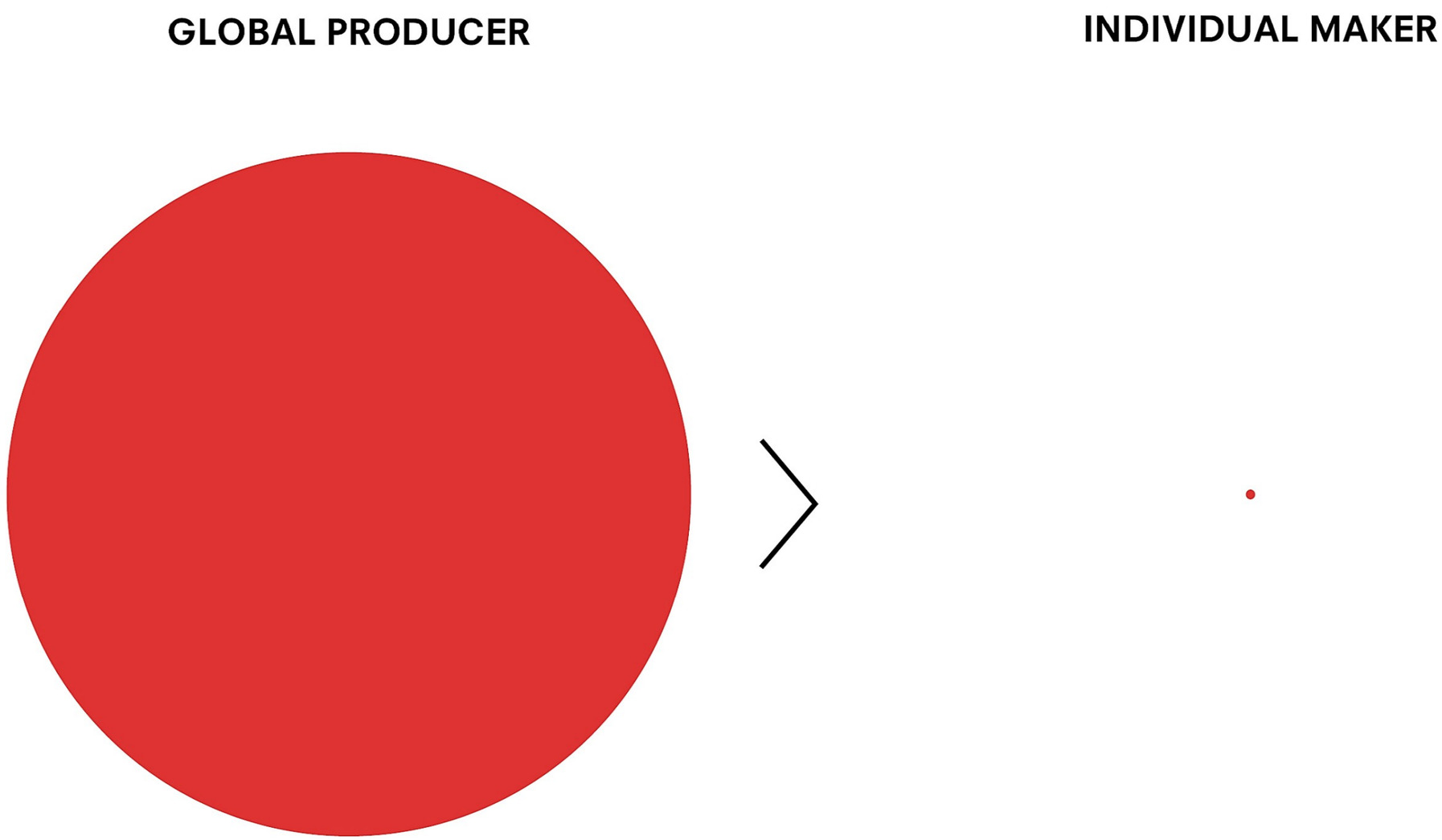
- creating the platform of co-creation



ACTIVE POSITION IN THE CITY

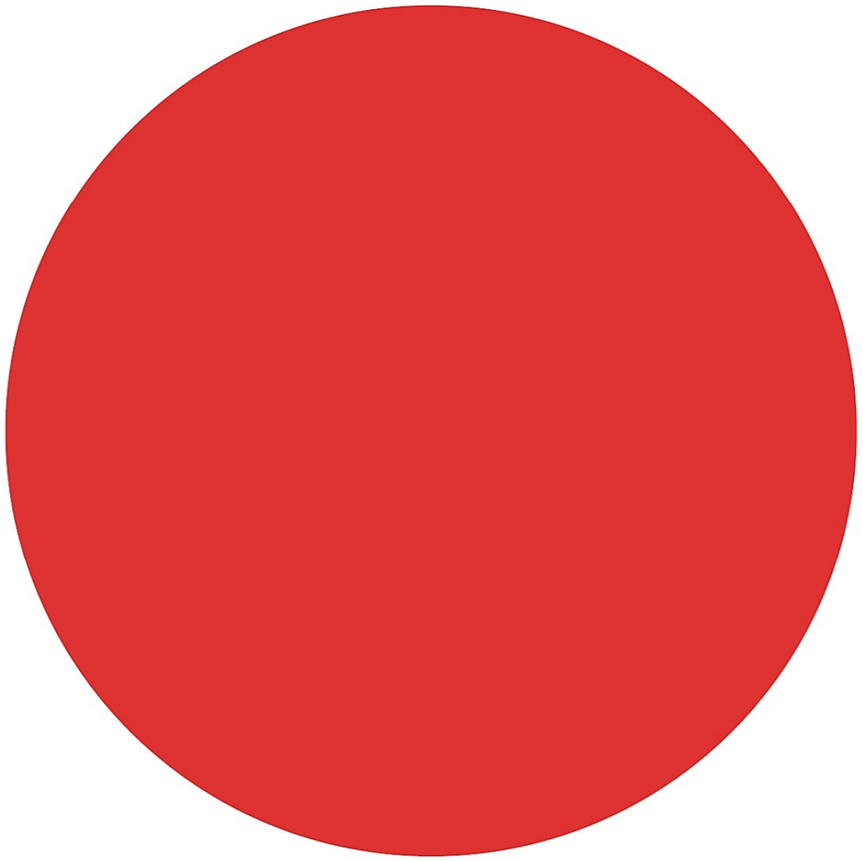
- supports perception of microproducers as enterpreneurs

ONE IS TO LITTLE

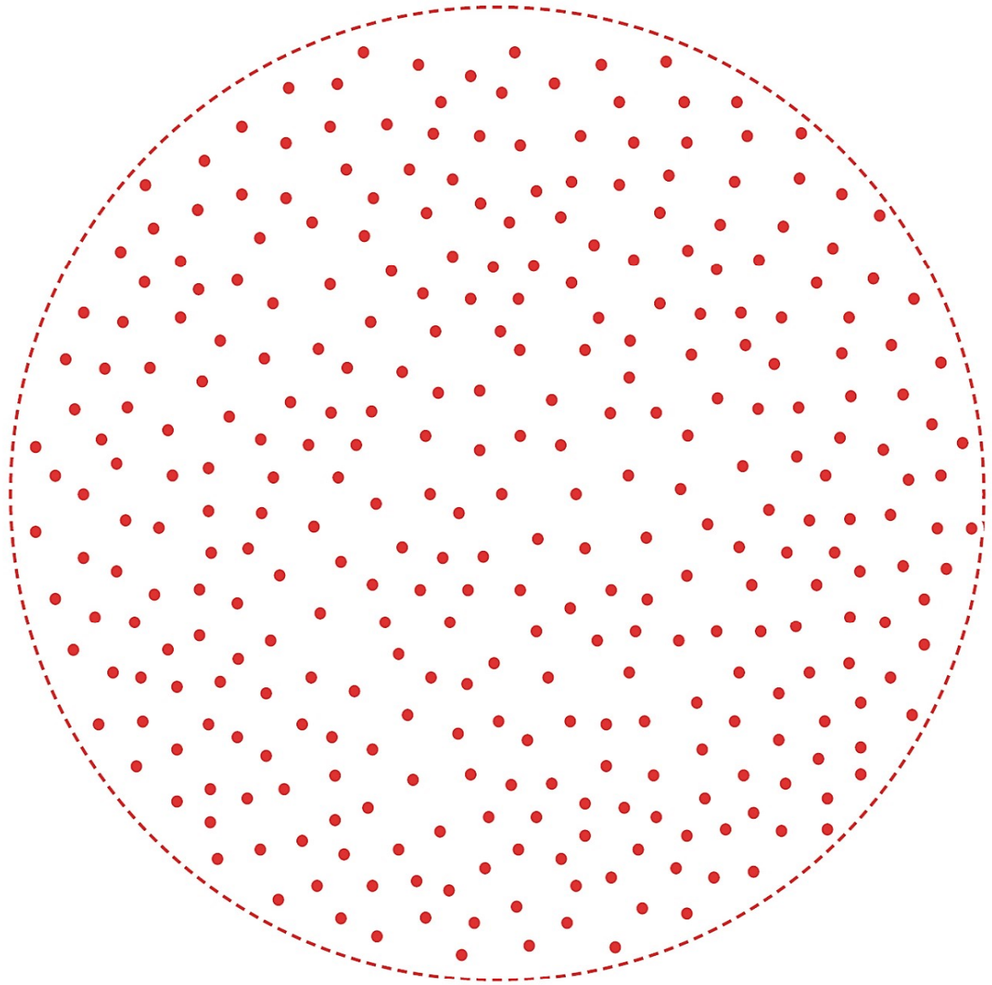


NETWORK TO BECOME COMPETITIVE

GLOBAL PRODUCER



INDIVIDUAL MAKERS NETWORK



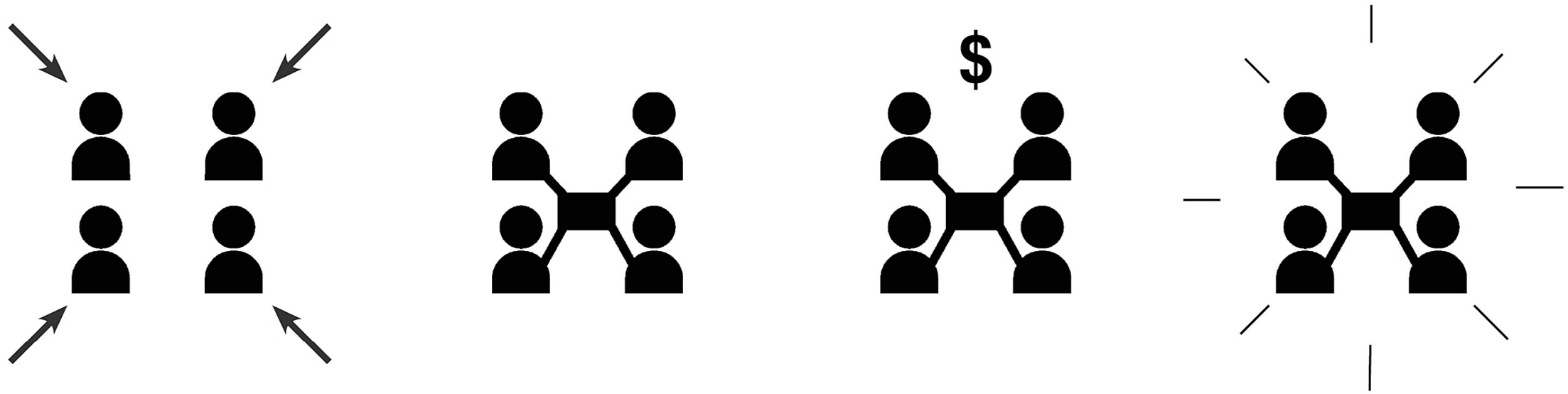
RESEARCH QUESTION:

HOW THE CONCEPT OF MICROPRODUCTION EMBEDDEMENT CAN SUPPORT THE POTENTIALLITY OF **SOCIAL ALLIANCES CREATION?**

AMBITION:

TO DESIGN THE **MISSING TYPOLOGY** THAT WILL MEET THE NEEDS OF NEW MIRCROPRODUCTION PARADIGMS

MAIN SPATIAL ASSETS



INCLUSIVE / DIVERSE

COLLABORATIVE

BUSINESS ORIENTED

EXPOSED

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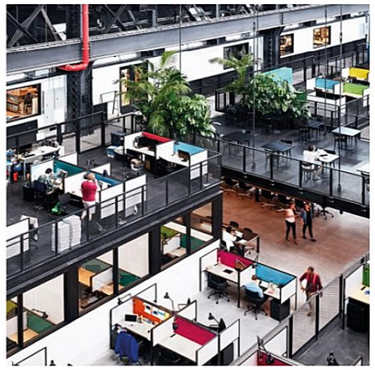
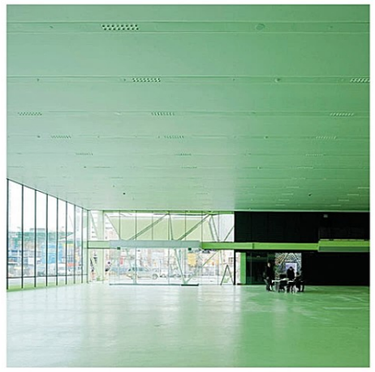
STUDIES EXAMPLES

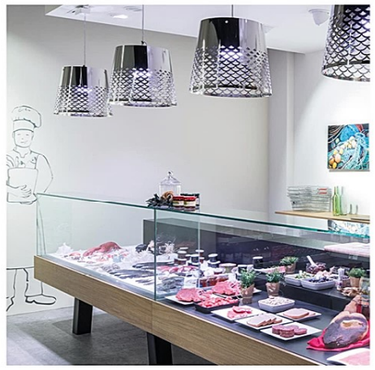


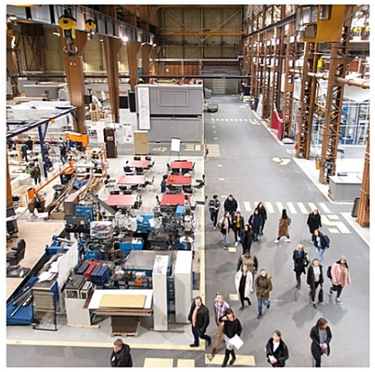









FUNCTIONAL PARTICLES

CO-CREATION

START-UPS

RETAIL

LEISURE

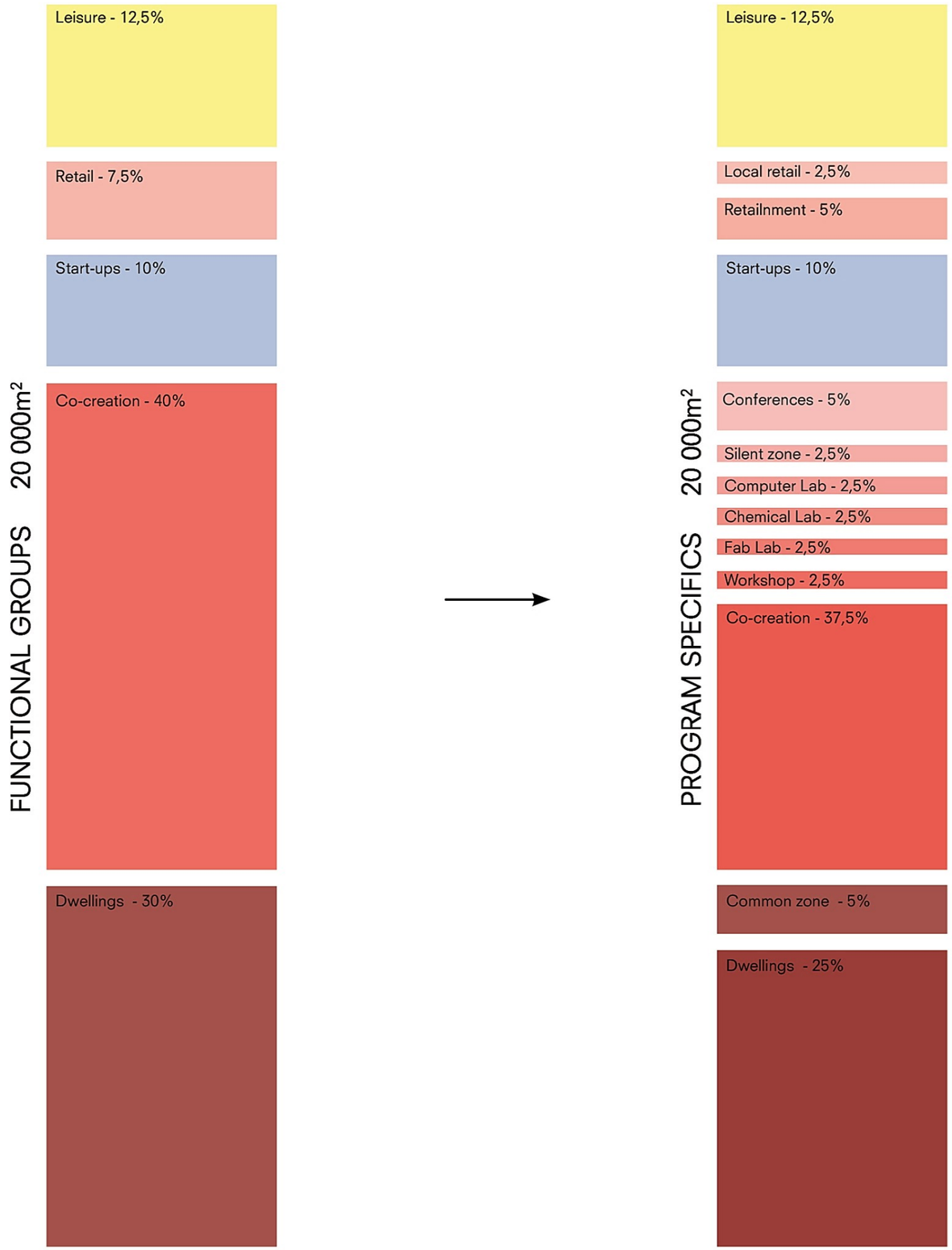
LIVING

- working attitude

- business attitude

- diversity & spatial activation

MICROPRODUCTION HABITAT PROGRAM



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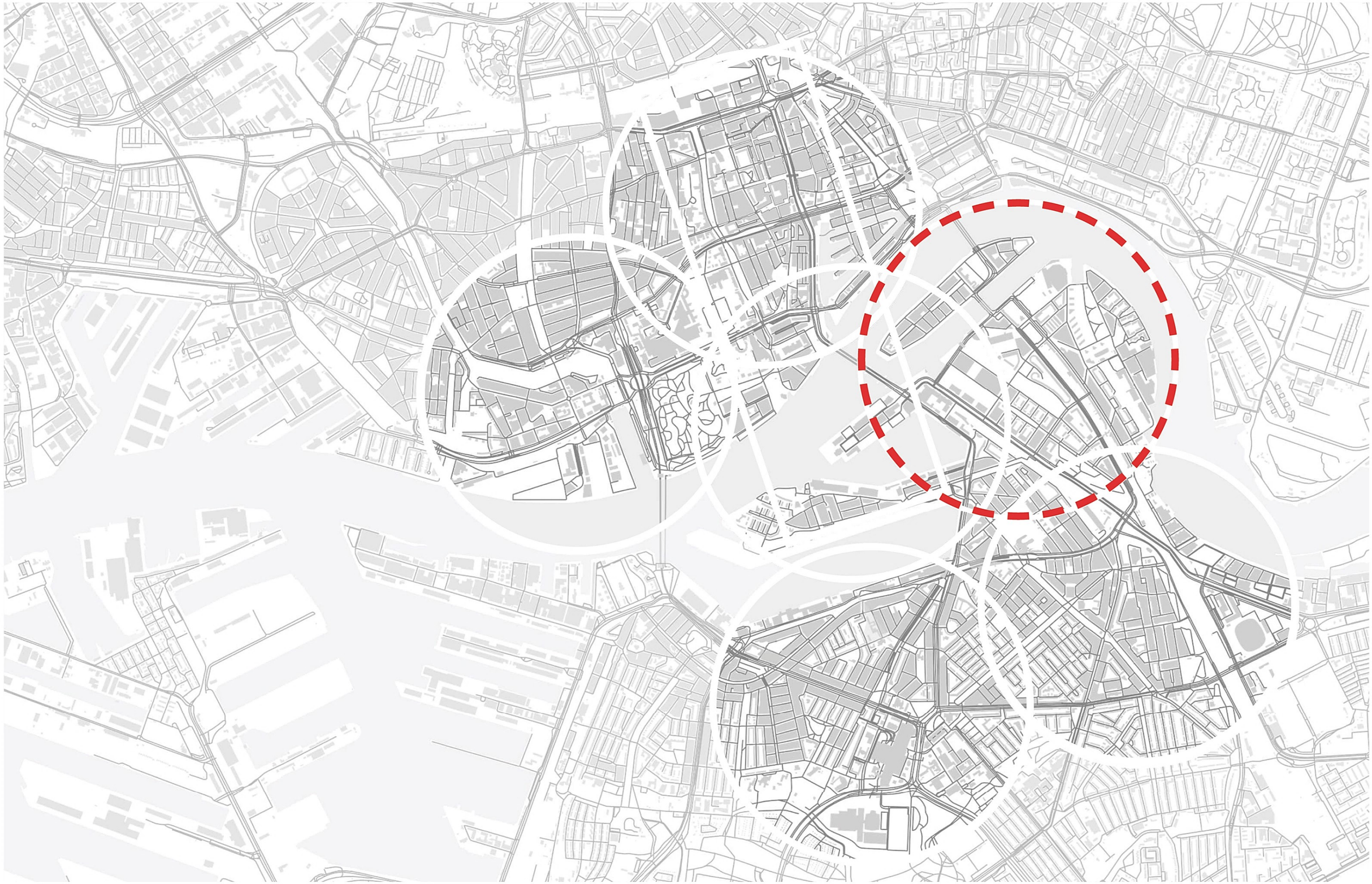
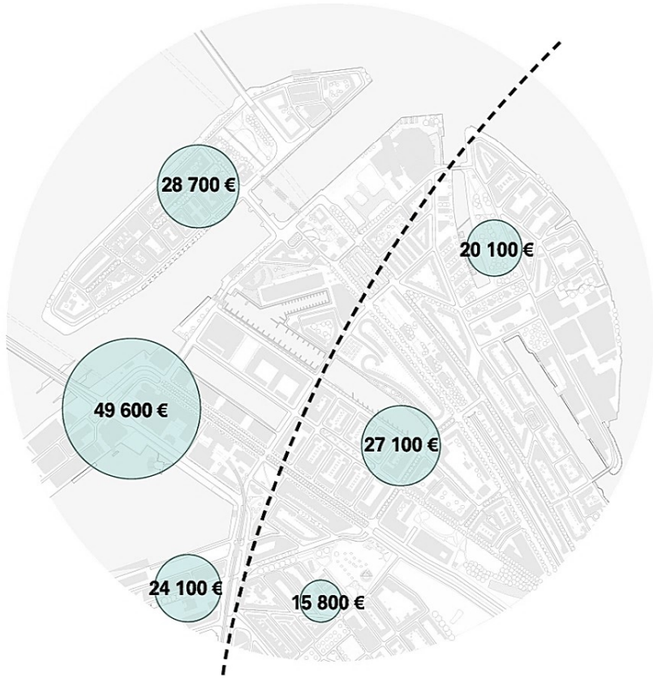
THE SITE - ROTTERDAM ZUID



INDUSTRIAL HISTORY

FAST DEVELOPMENT - NEW FUNCTION

DEVELOPING WEST - STAGNATED EAST



Income per year

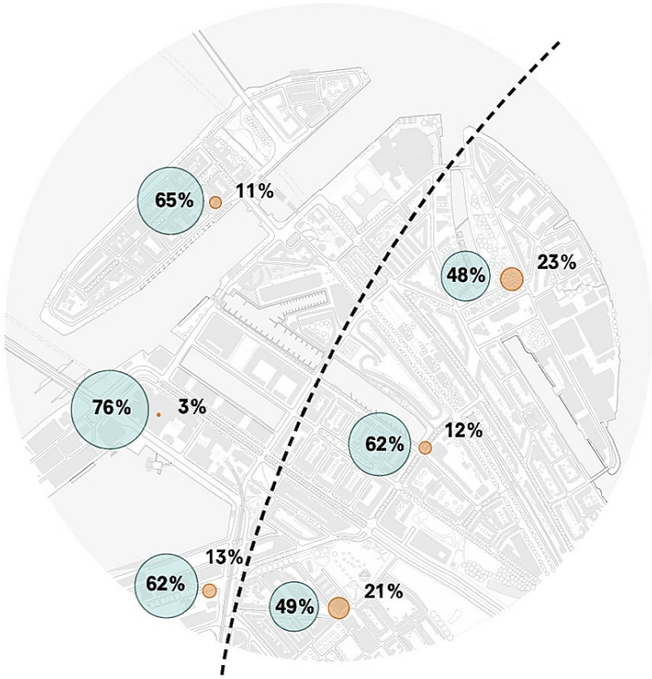
Country average: 36 500 Euro

Rotterdam average: 42 000 Euro

LEGEND:

District borders

Income



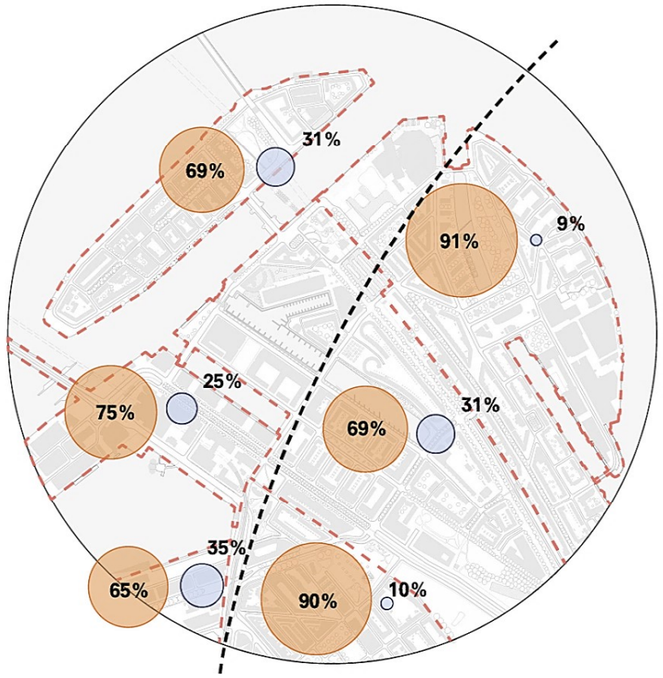
Employment

LEGEND:

District borders

Employed

Unemployed



House Ownership

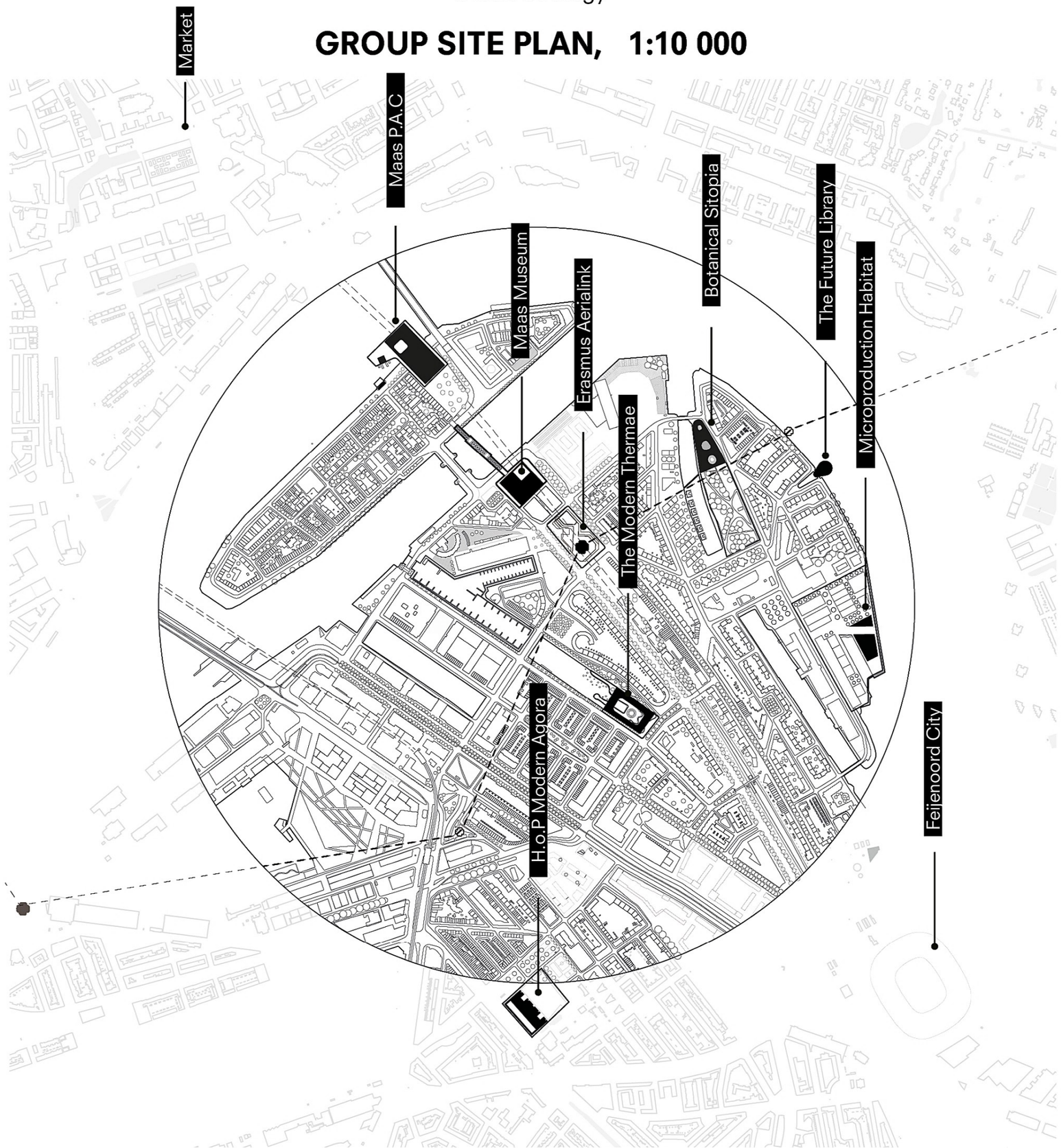
LEGEND:

District borders

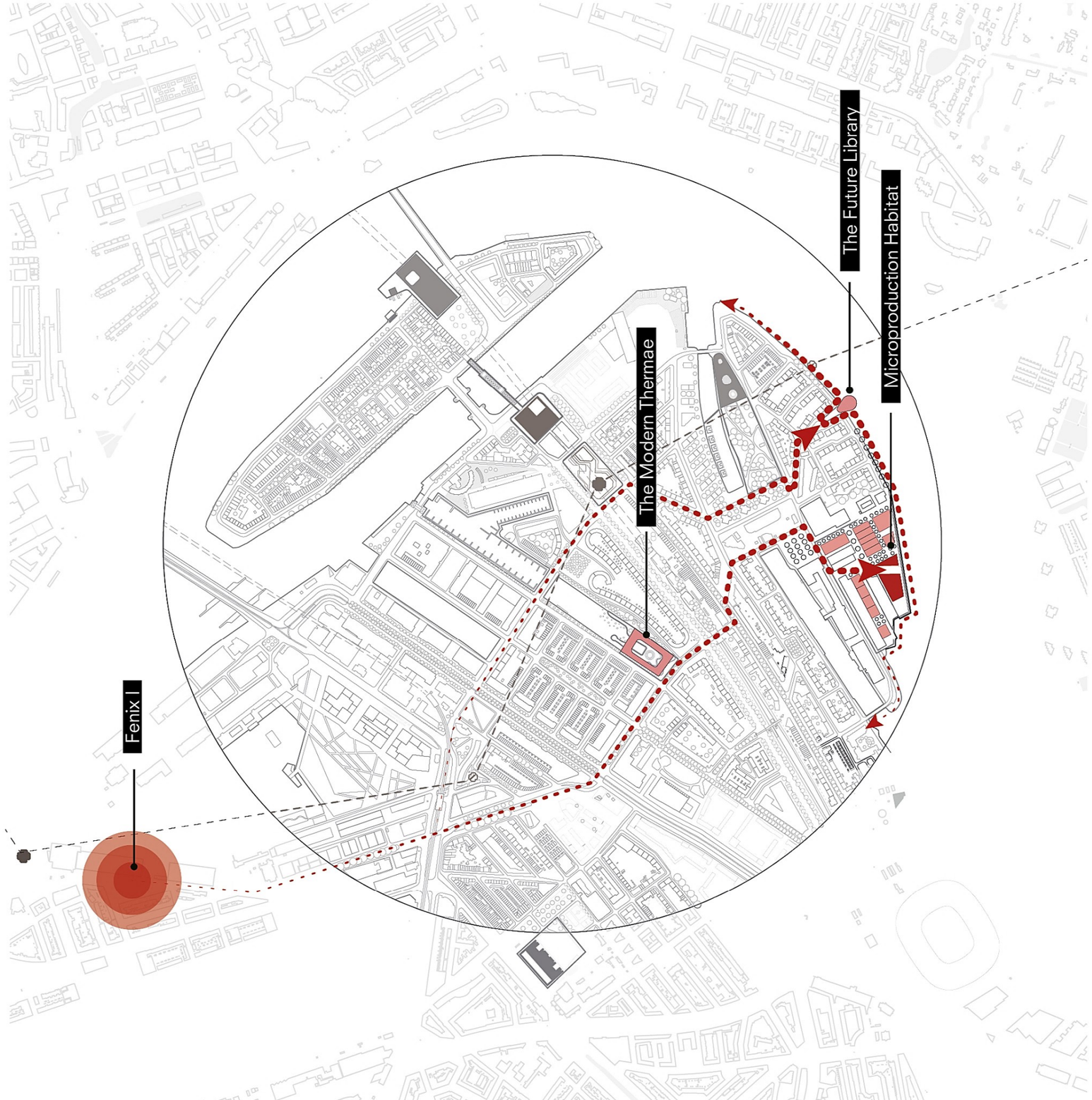
Rate of rented housing

Rate of private housing

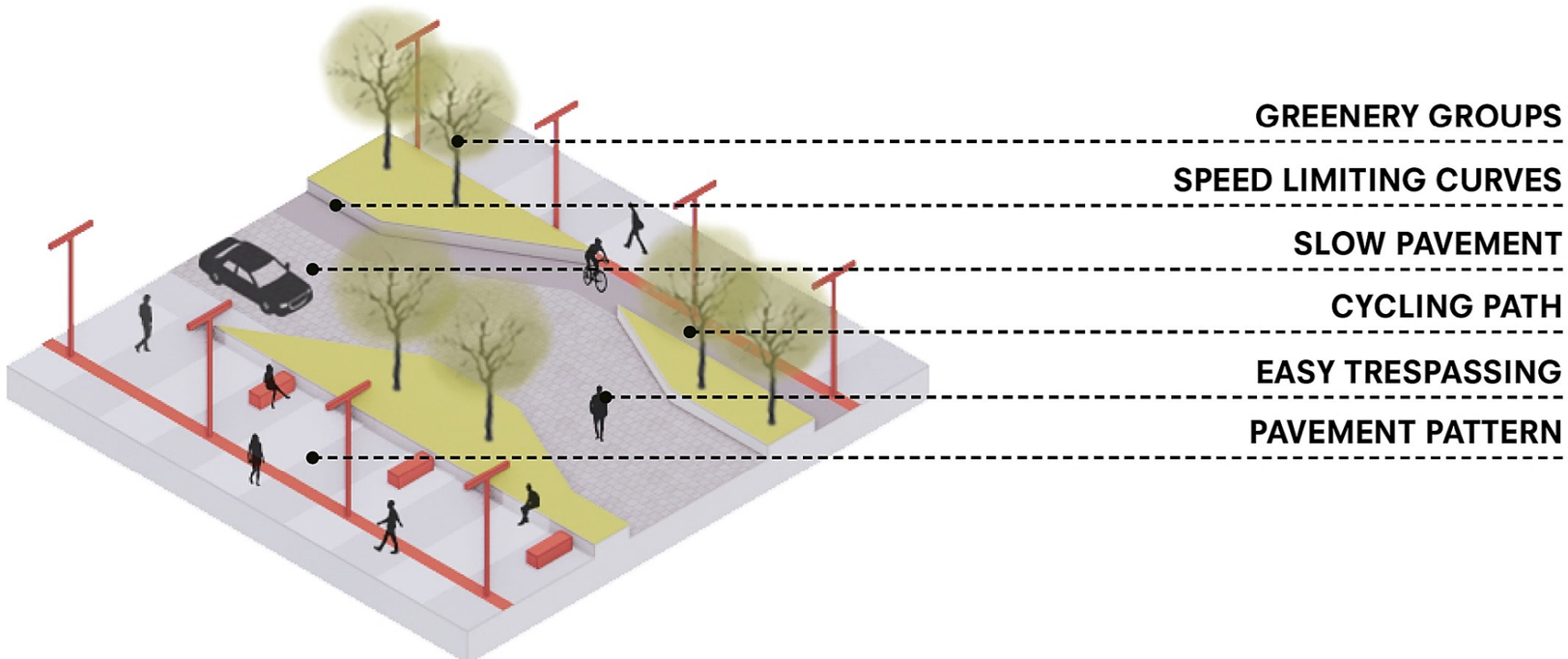
GROUP SITE PLAN, 1:10 000



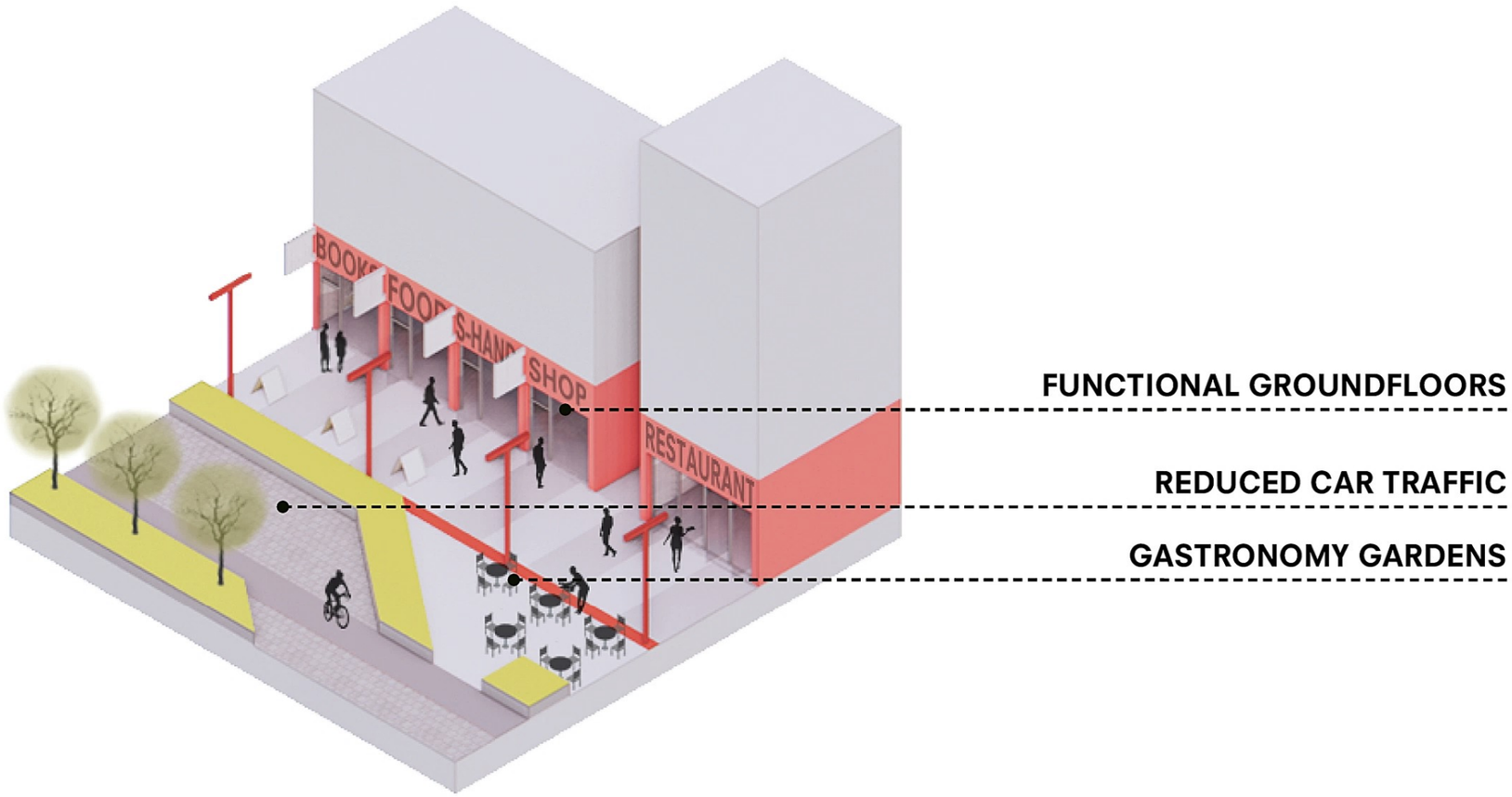
EAST-WEST ACTIVATION ALLEY



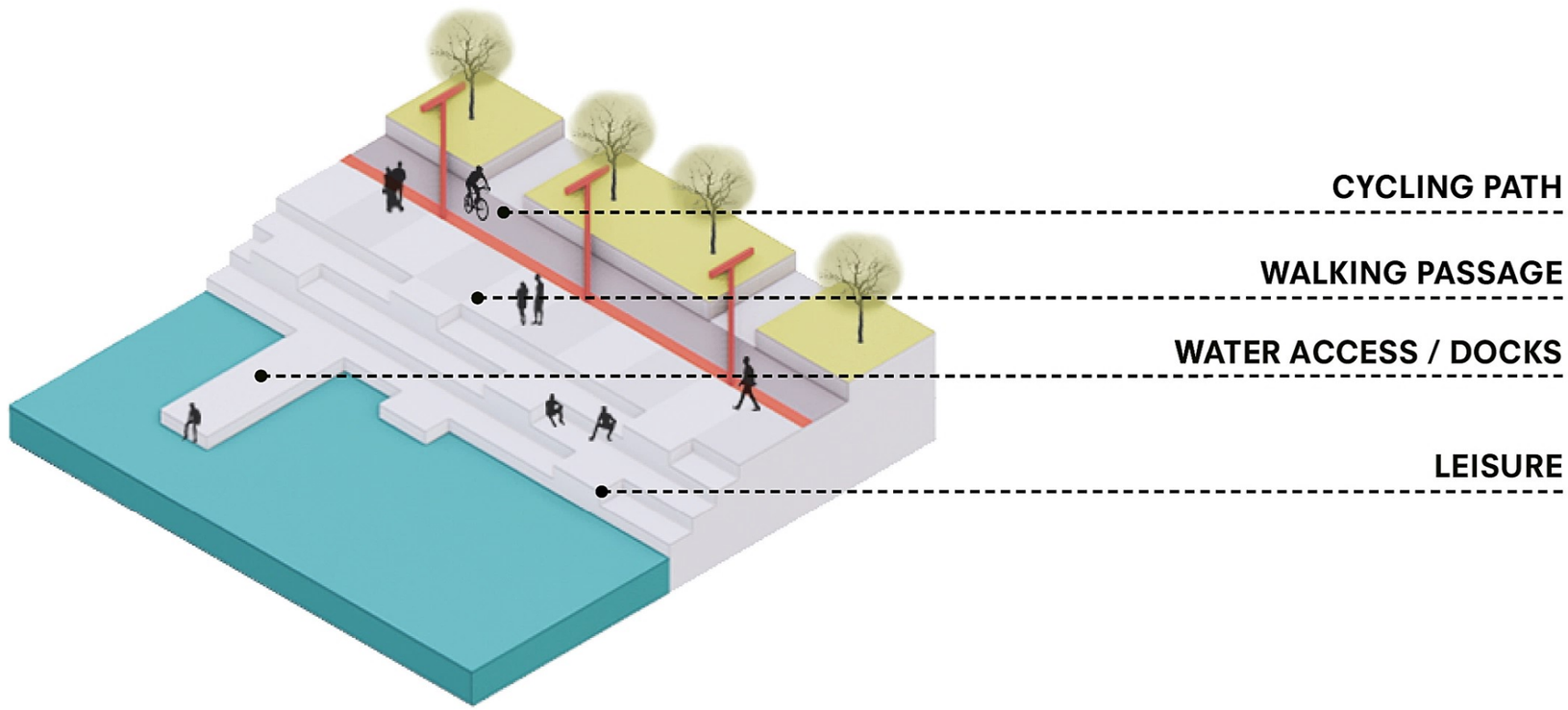
STREET LOOK UNIFICATION



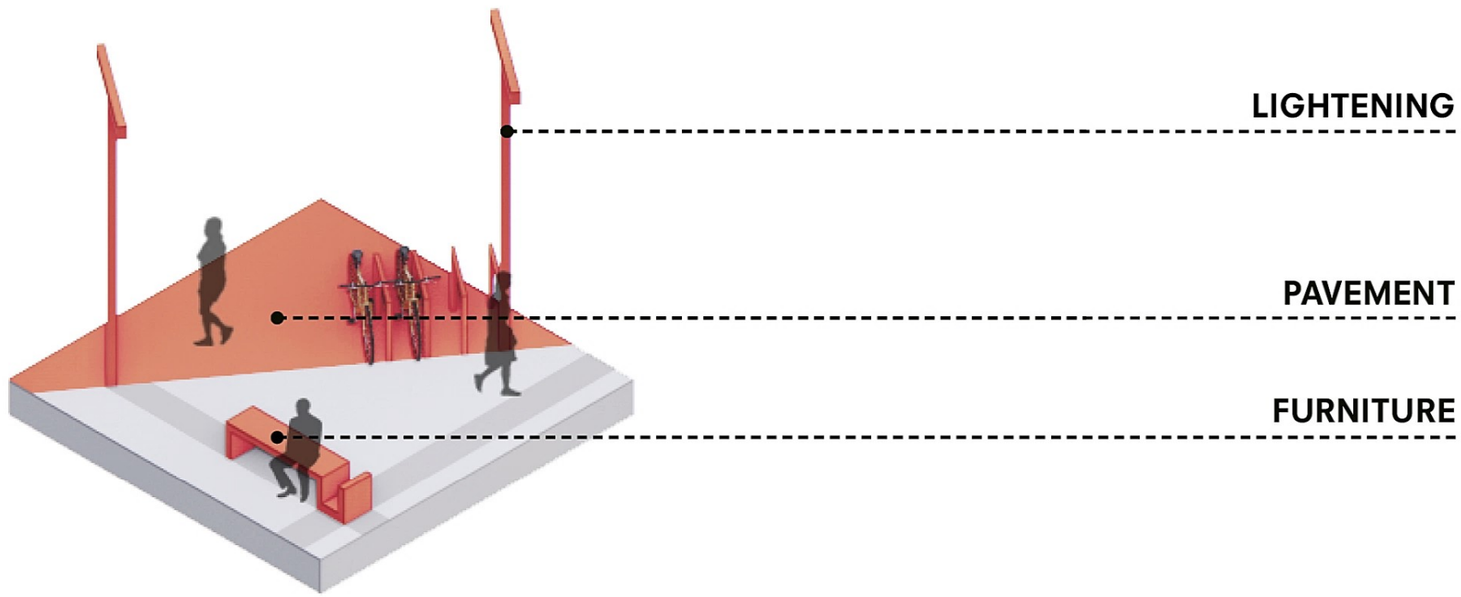
ACTIVATION OF GROUNDFLOORS



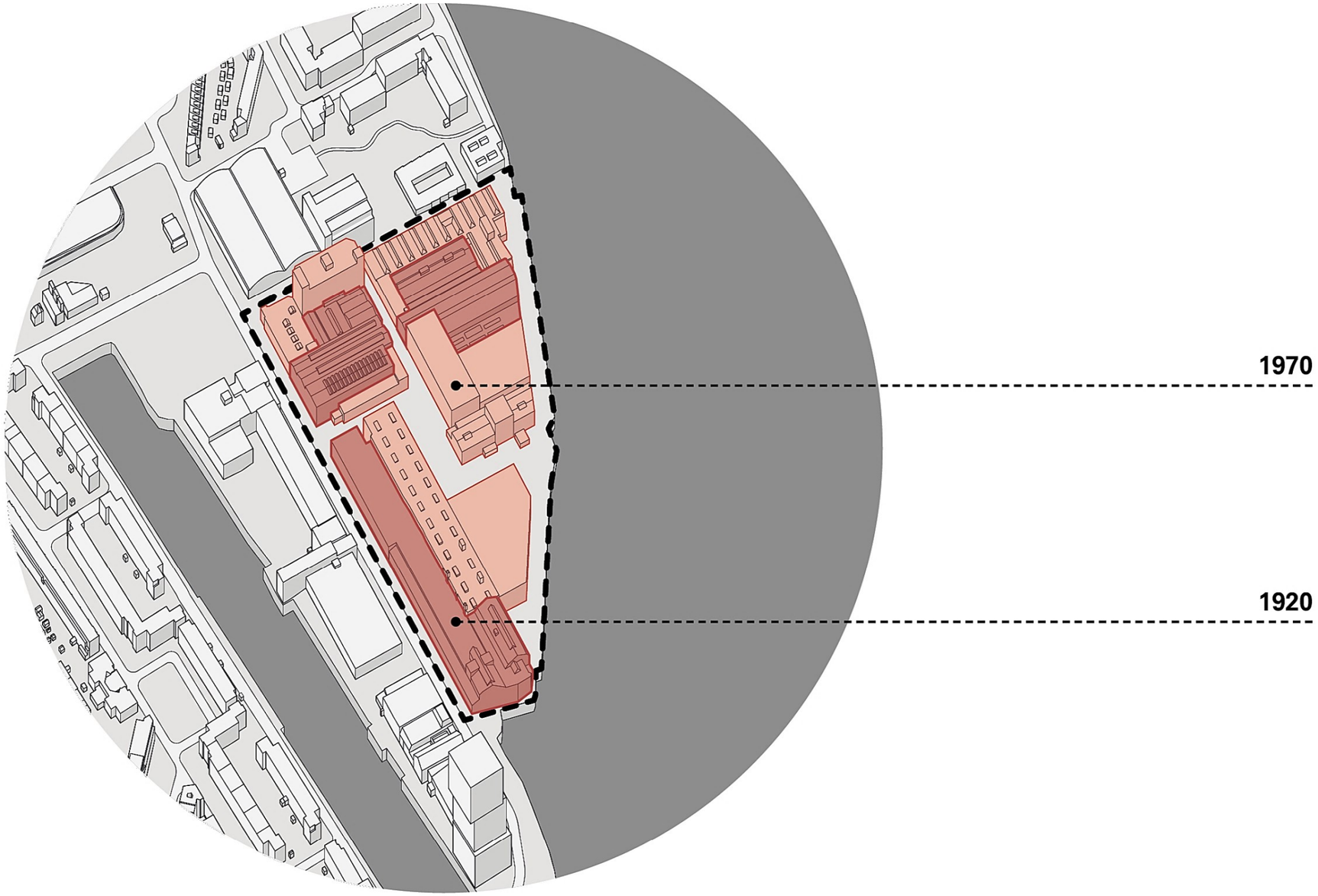
NEW WATERFRONT



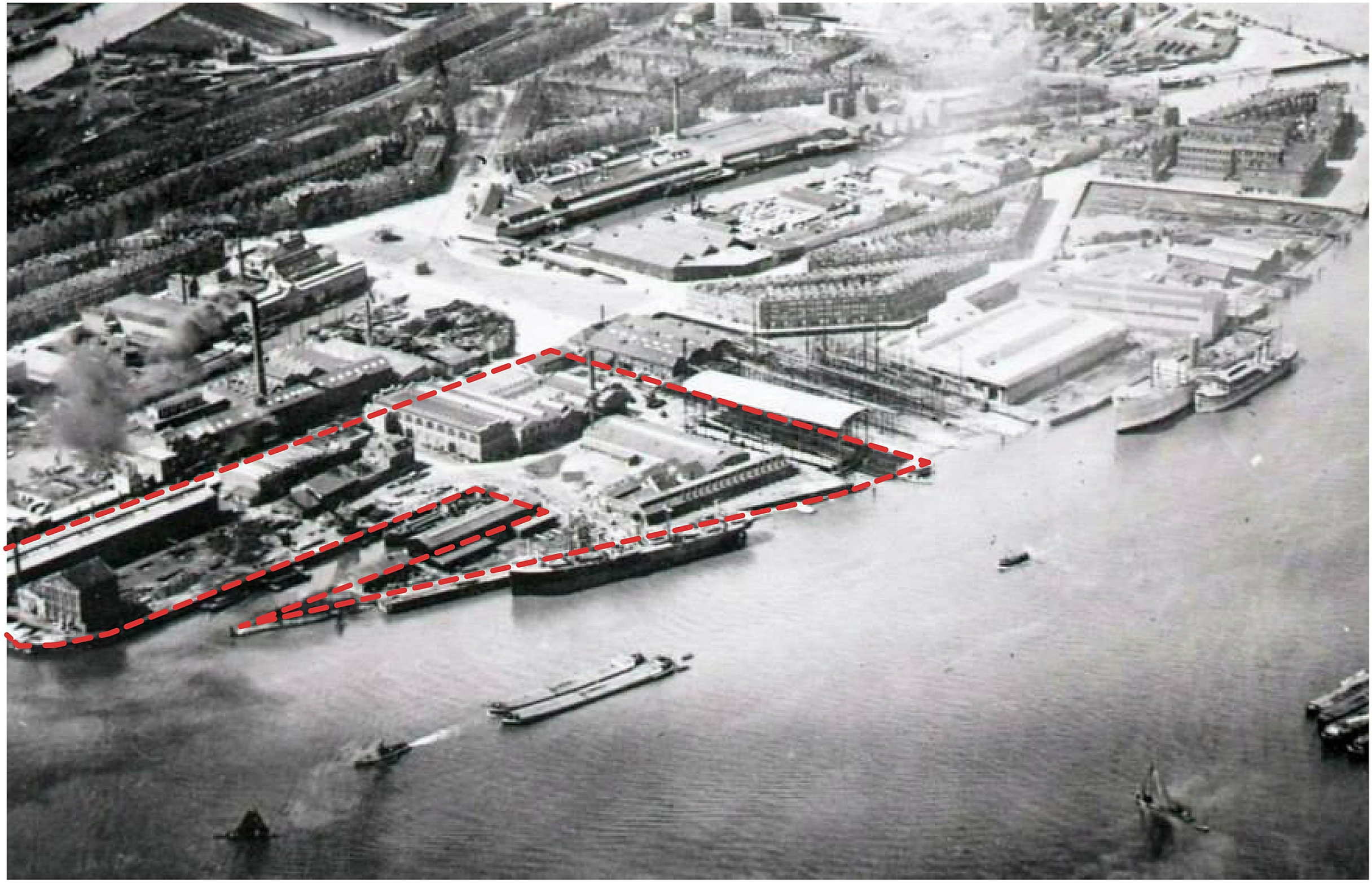
VISUAL IDENTIFICATION OF THE ALLEY



CURRENT STATE OF THE SITE

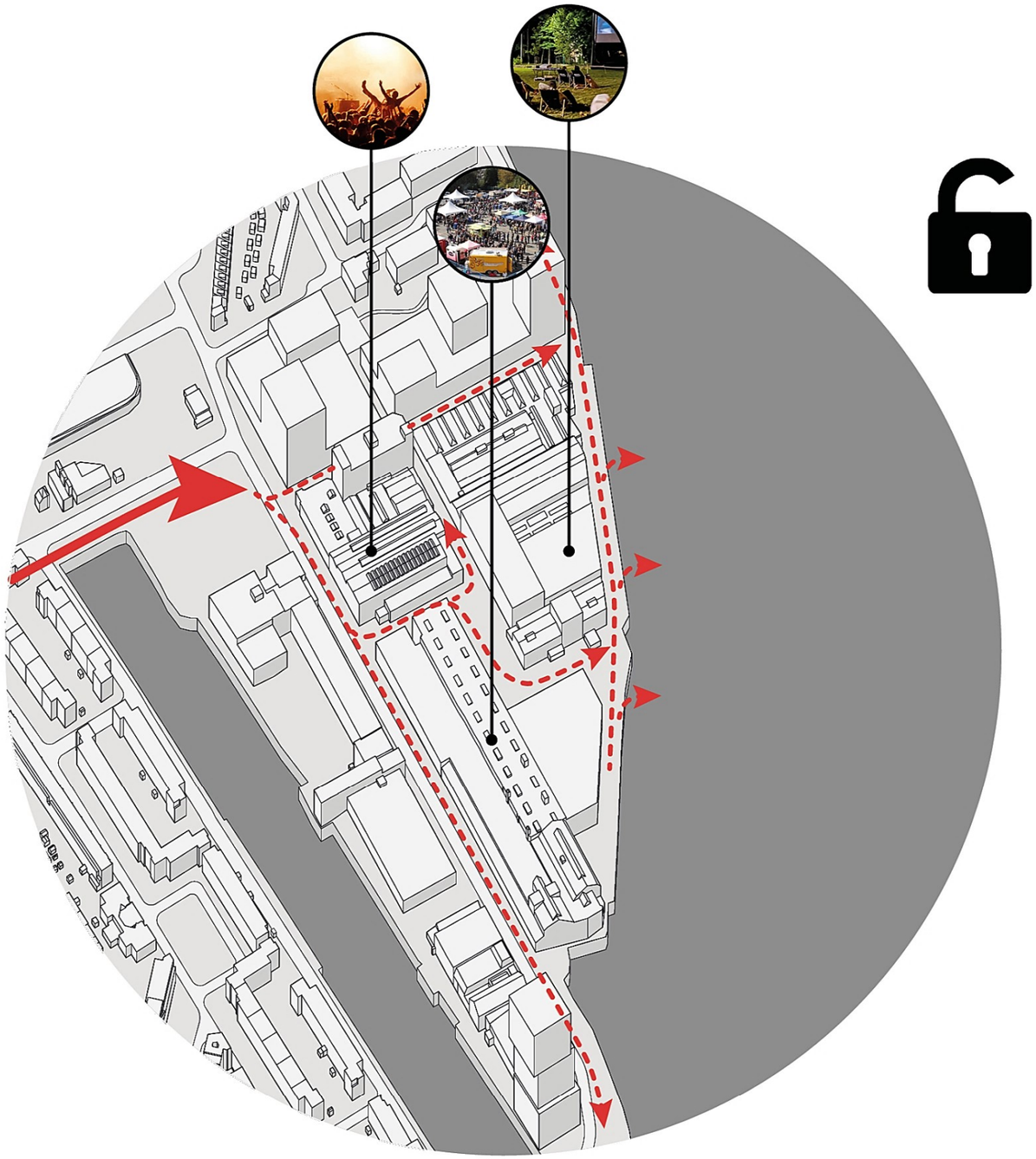


INDUSTRIAL IDENTITY - WILTON-FIJENOORD SHIPYARD

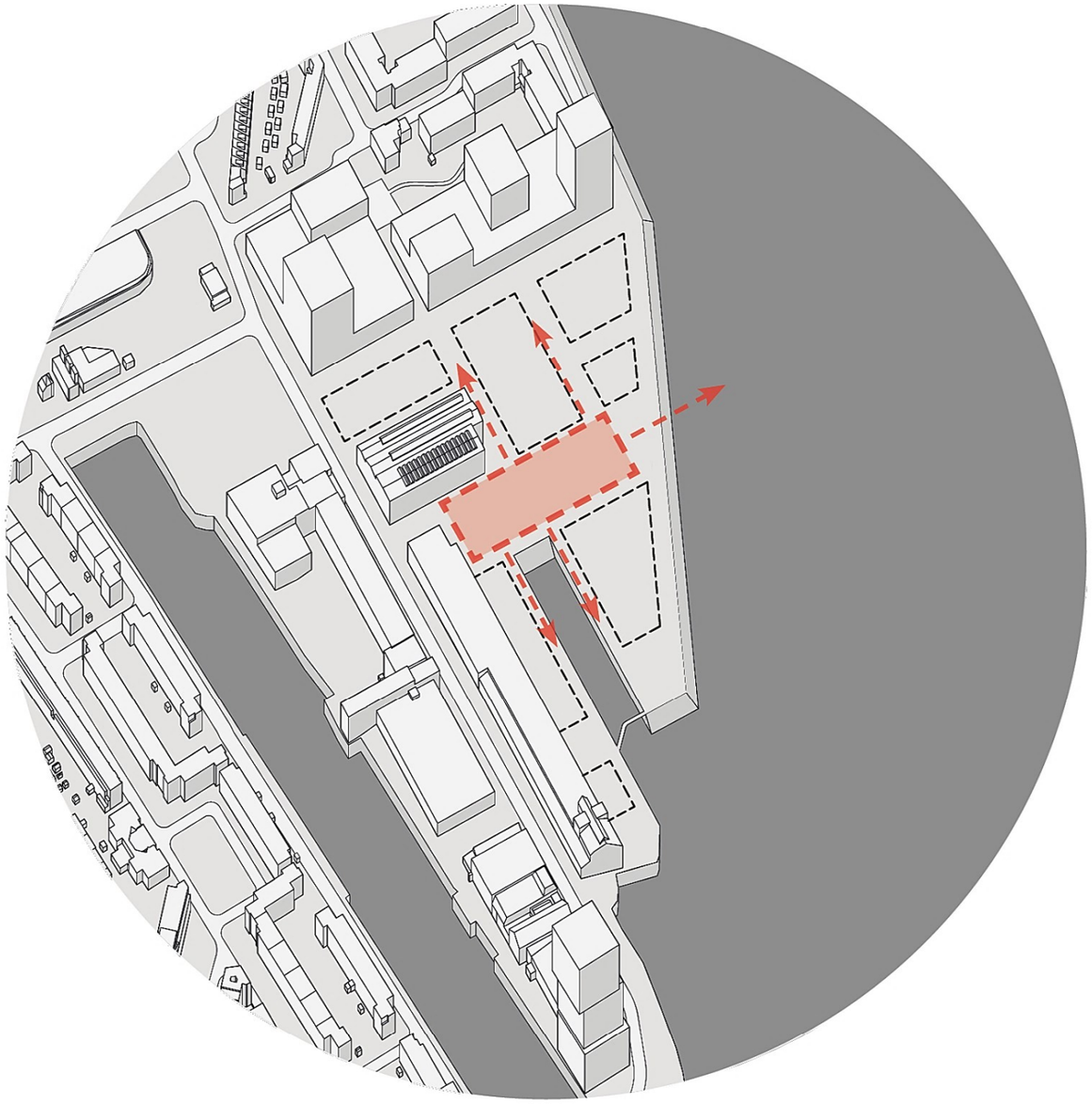


THE DEAD END - DEPRIVED OF FUNCTION

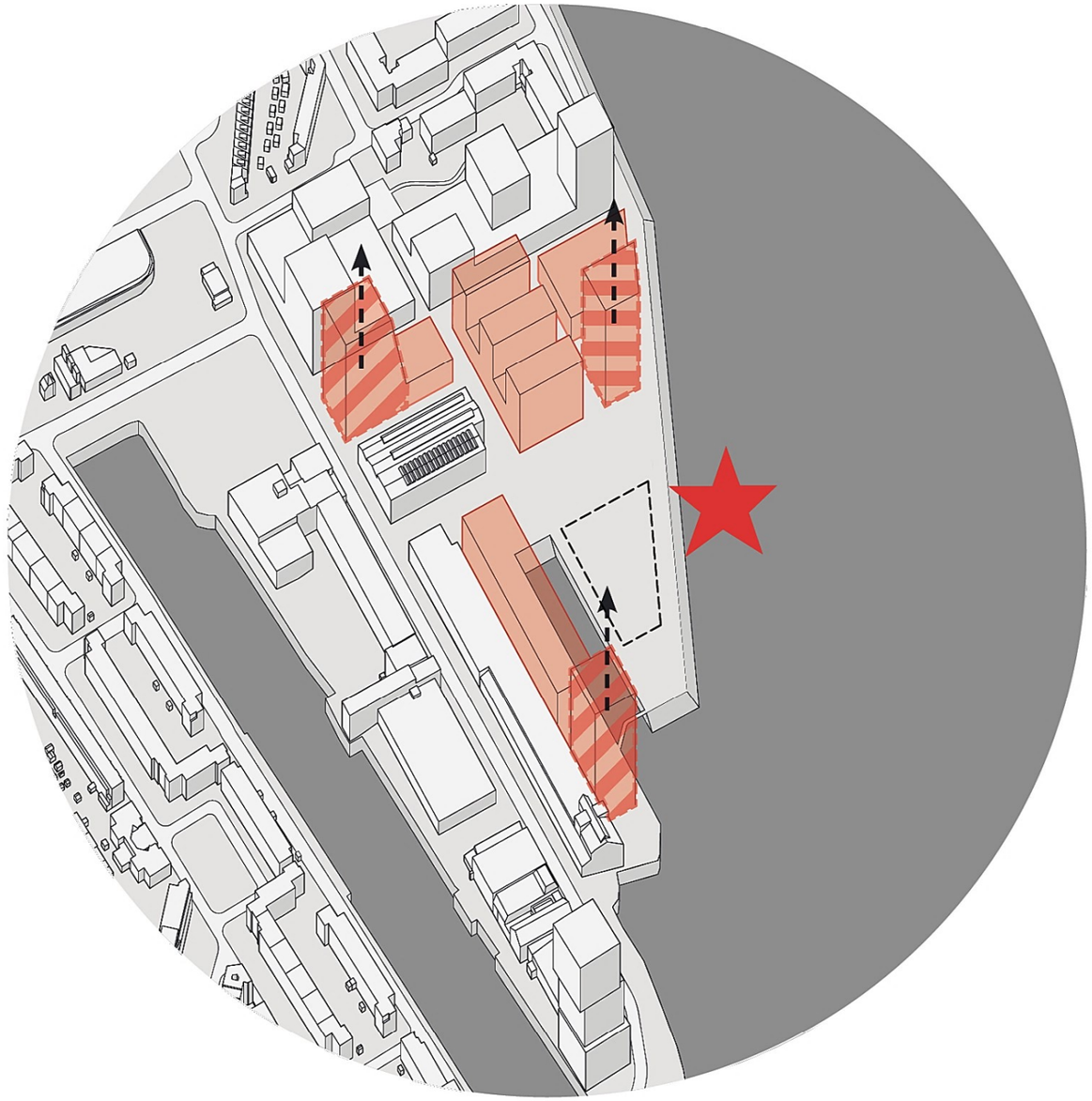
FISRT STAGE - INFORMAL ACTIVATION



DEMOLITION AND PARCELATION



MASSING - THE CENTRAL LANDMARK



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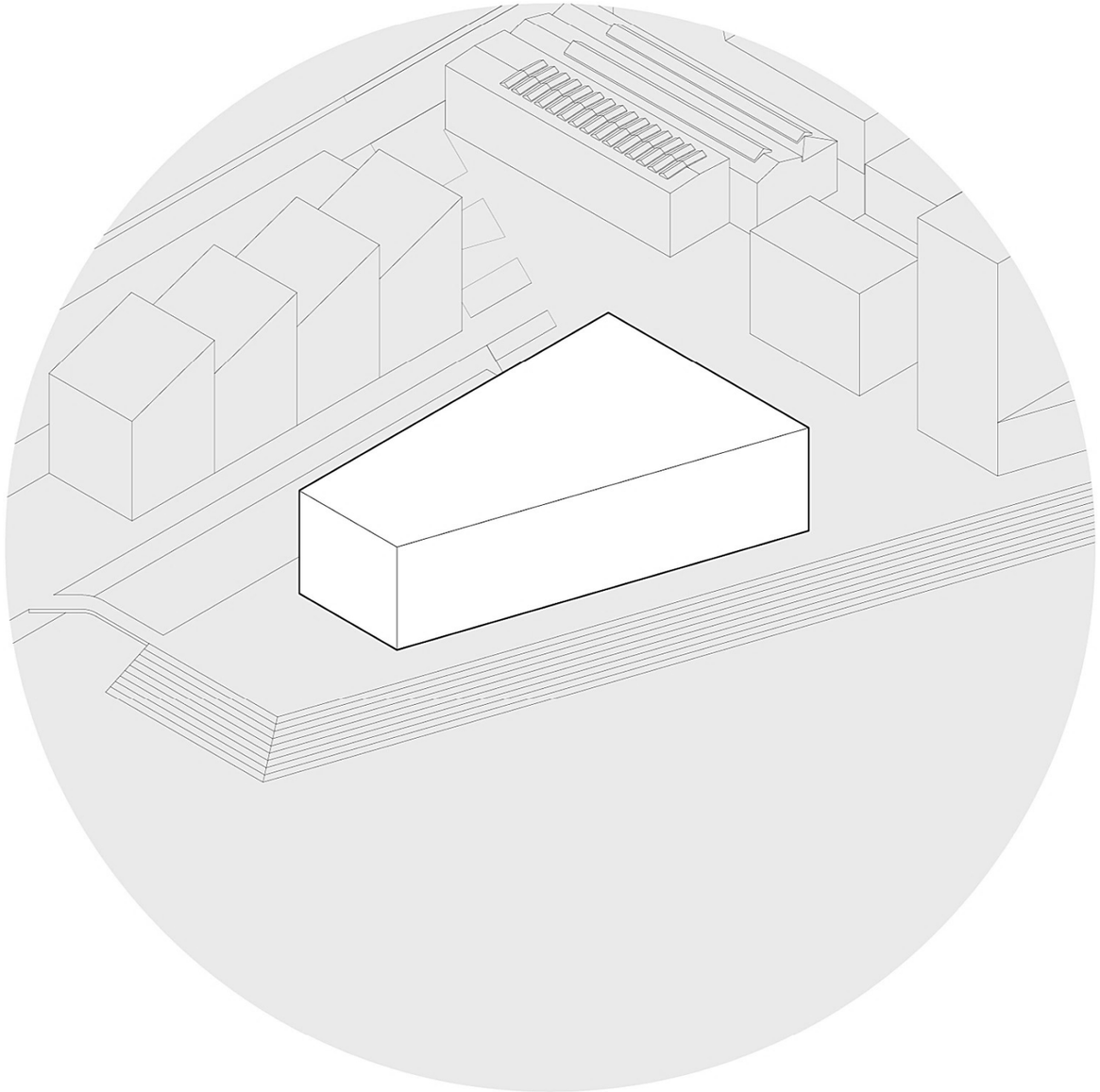
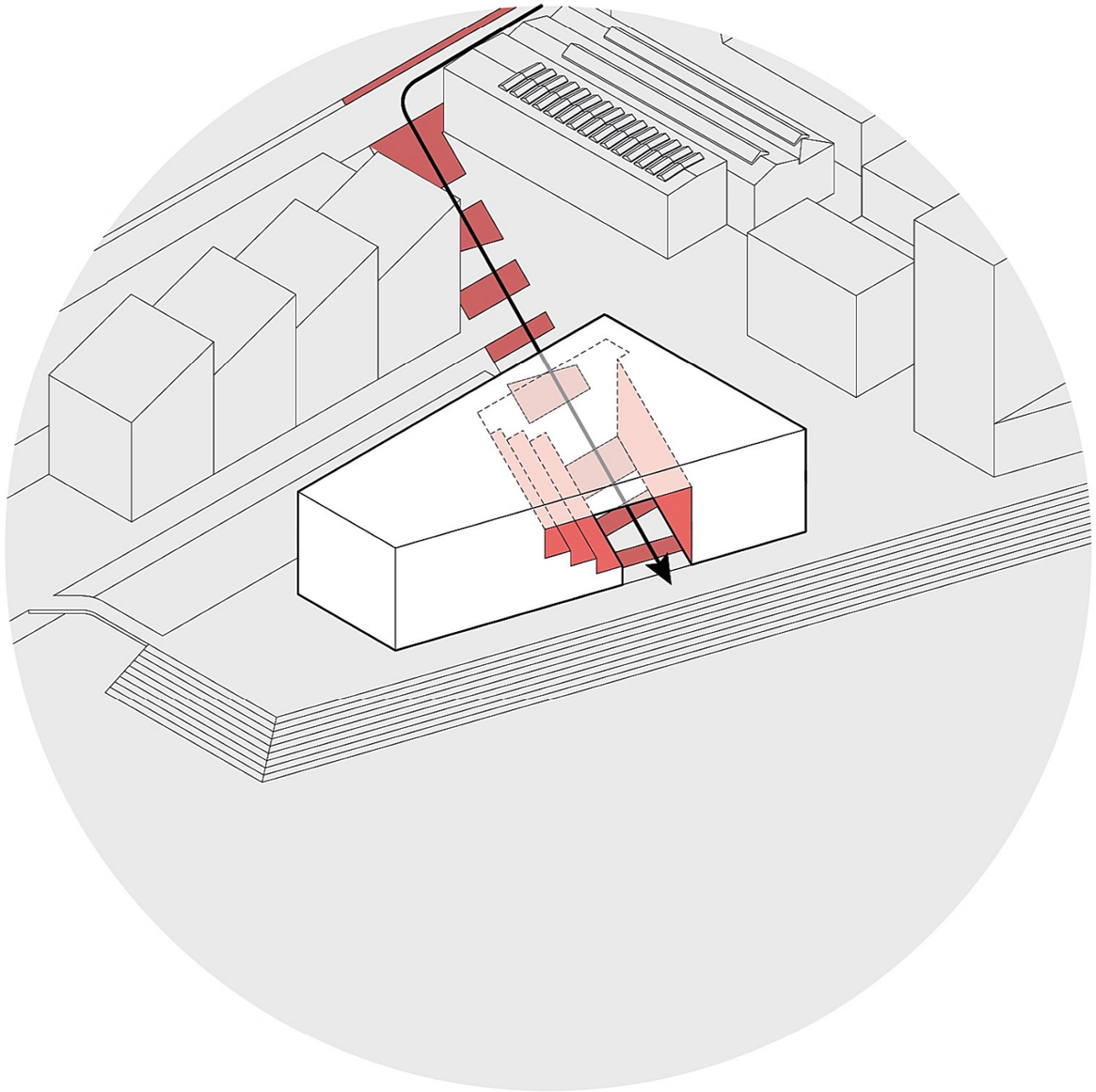
STEP no. 1



THE VOLUME

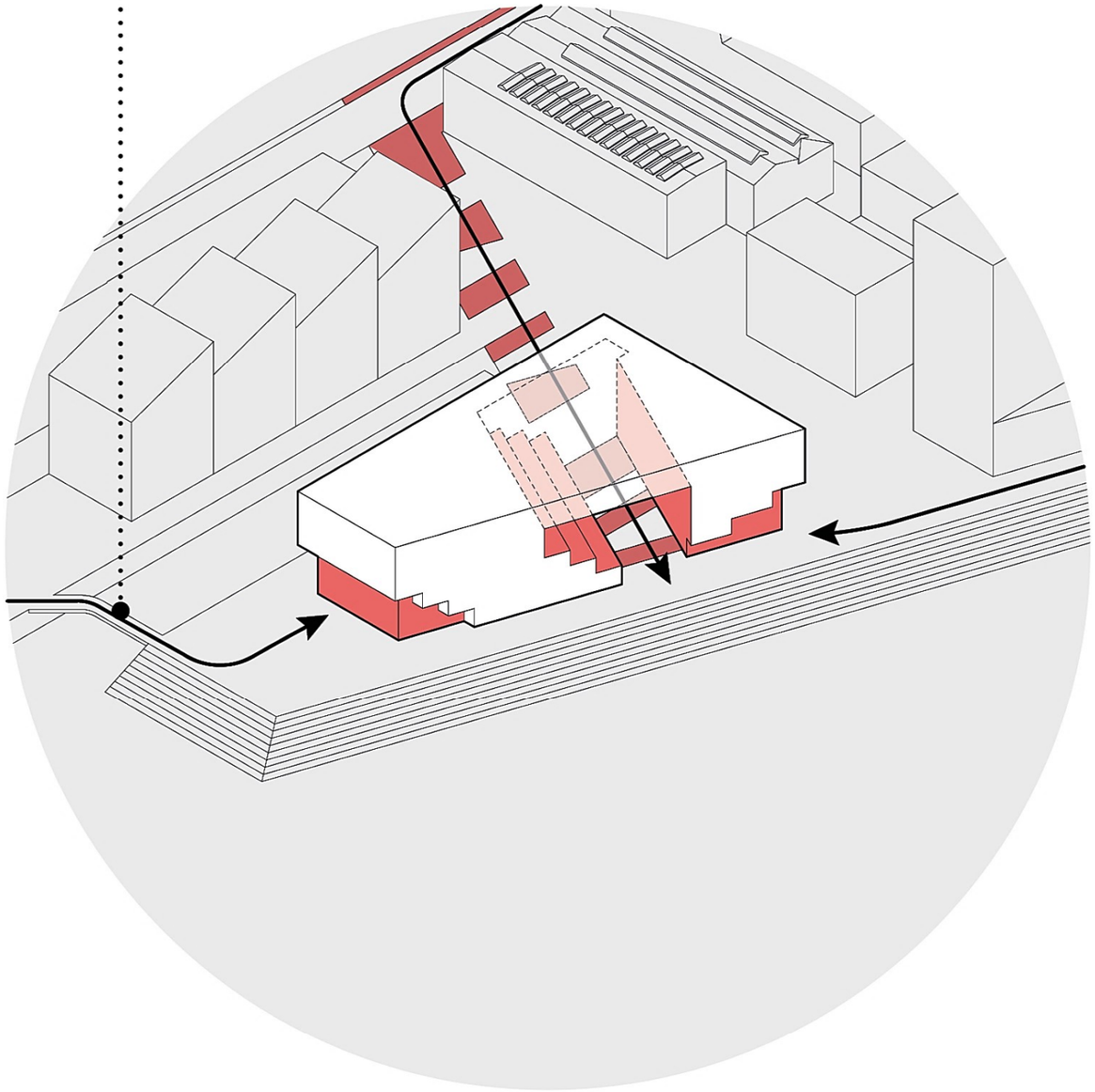
STEP no. 2



INNER PASSAGE AS A STREET CONTINUATION TO VANISH THE BORDERS

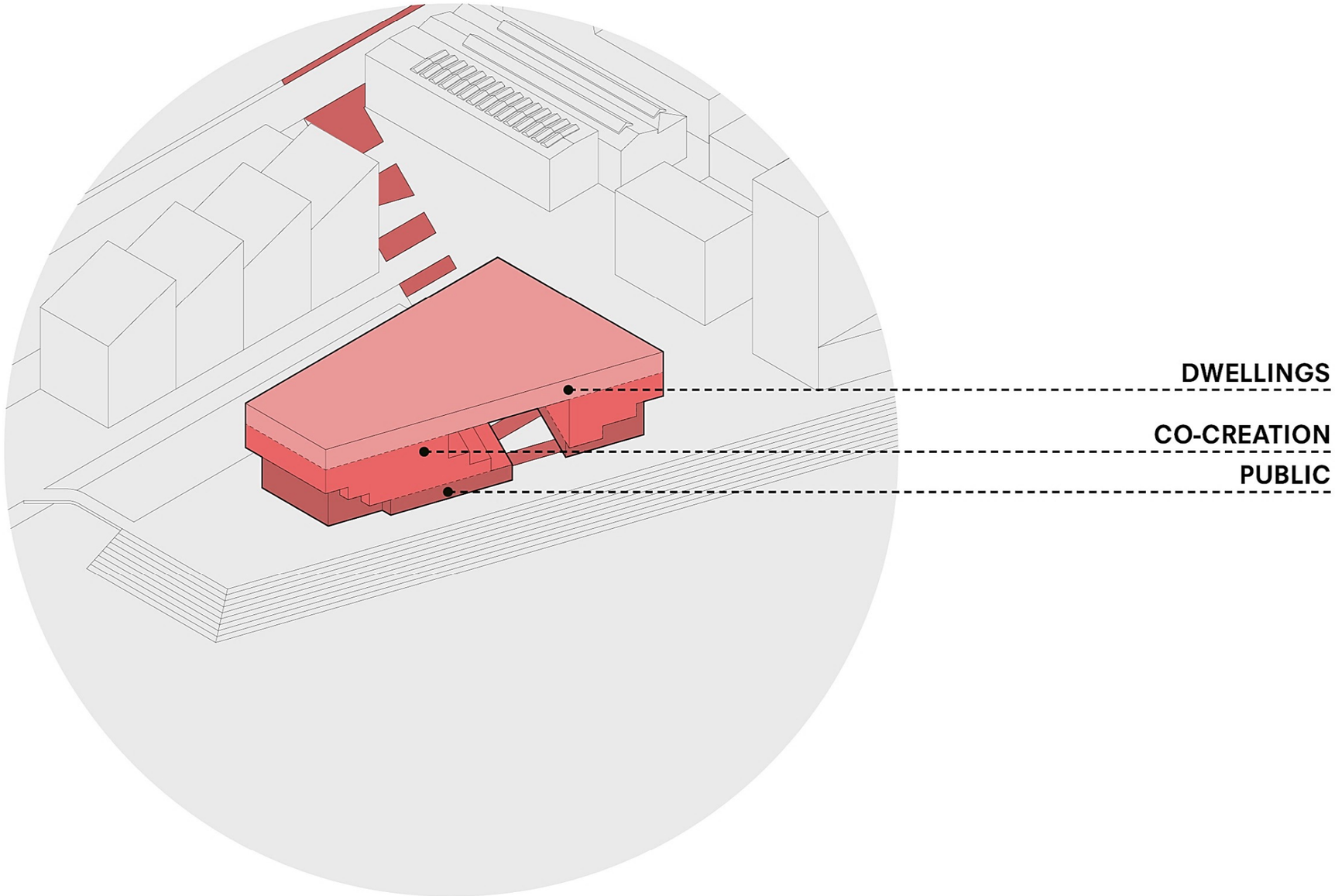
STEP no. 3

PEDESTRIAN
BRIDGE



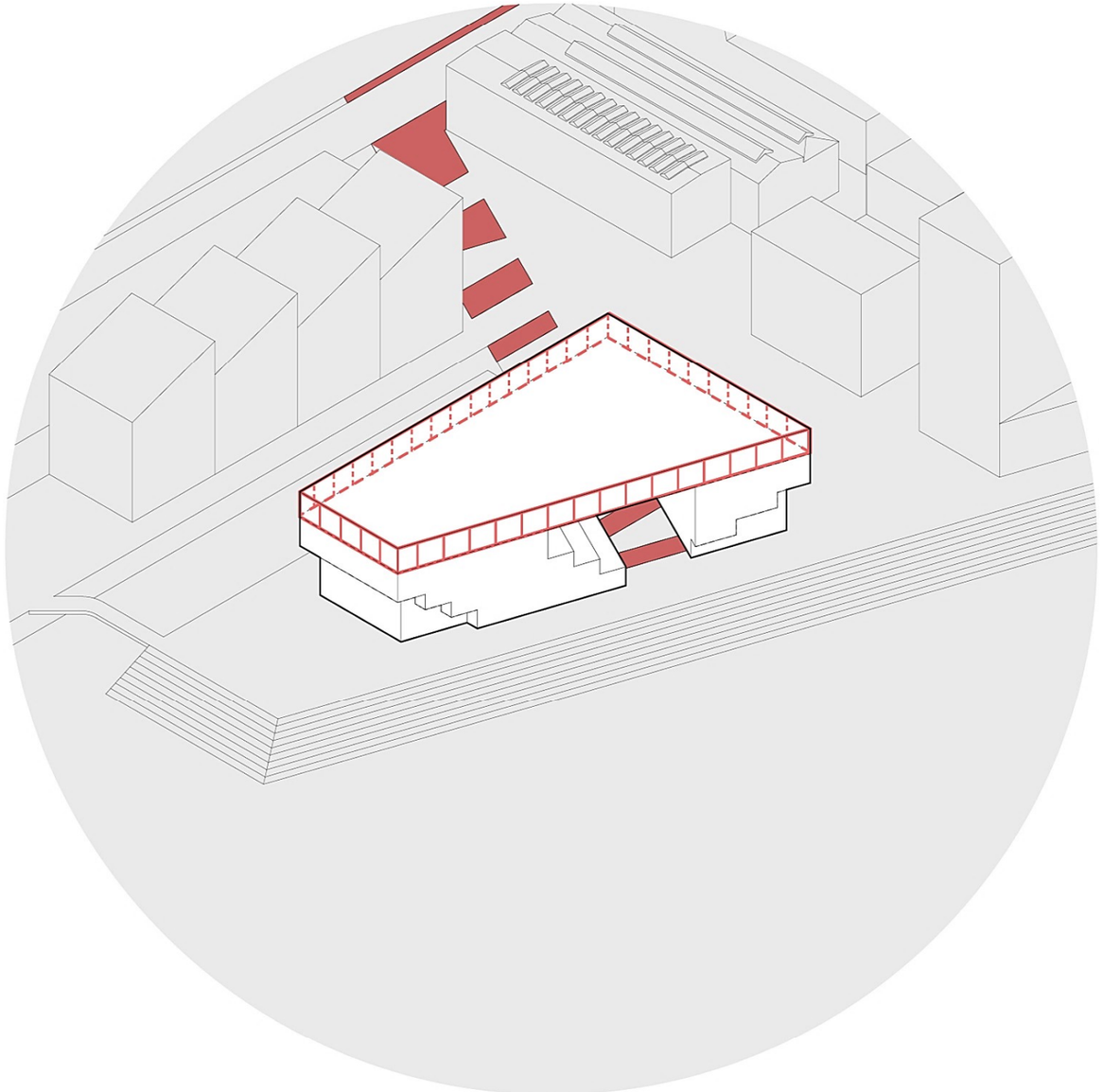
MOVEMENT AS A SHAPING FACTOR

STEP no. 4



PROGRAM DISTRIBUTION

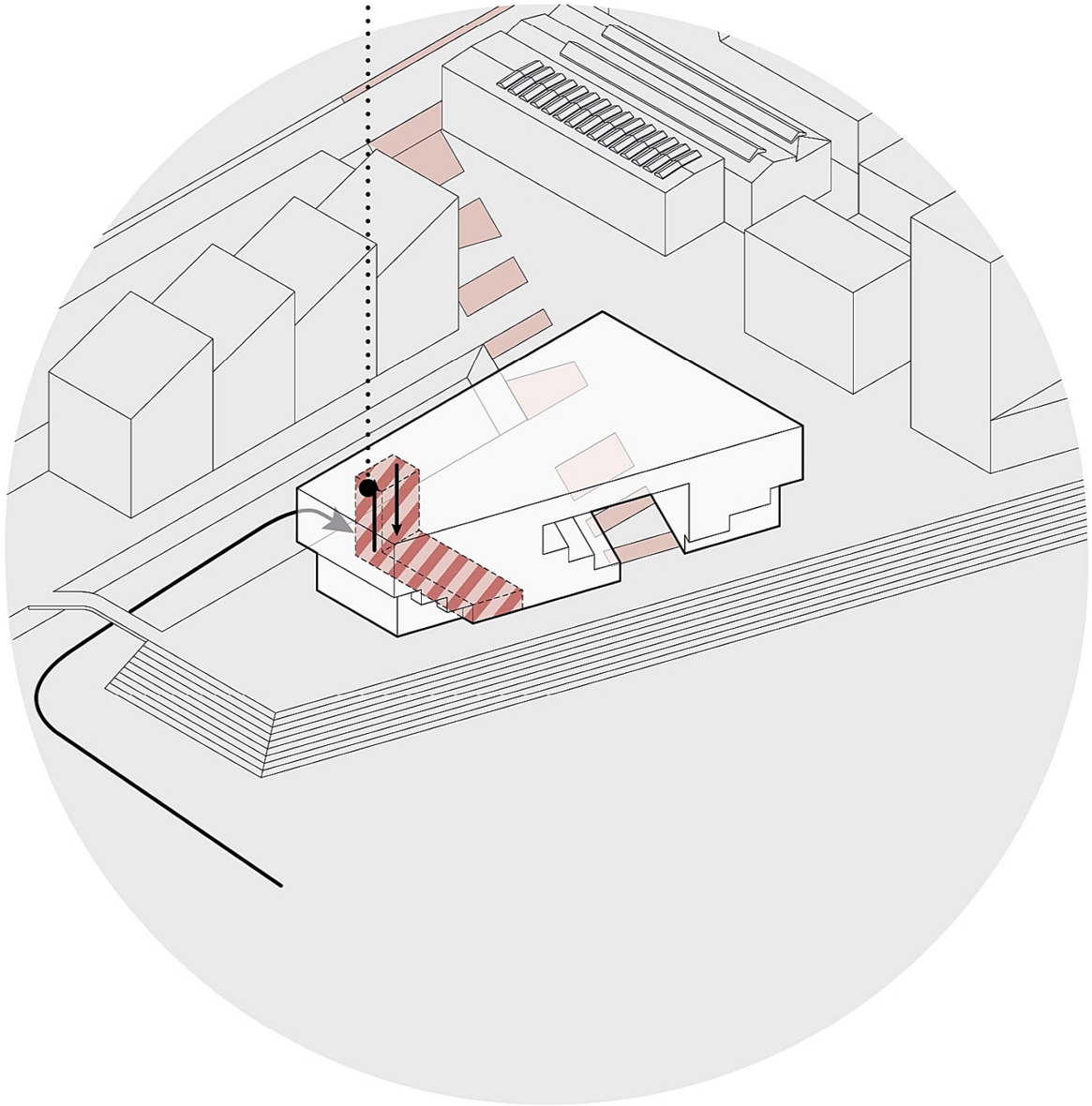
STEP no. 5



VIERENDEEL - CONSTRUCTION CONCEPT

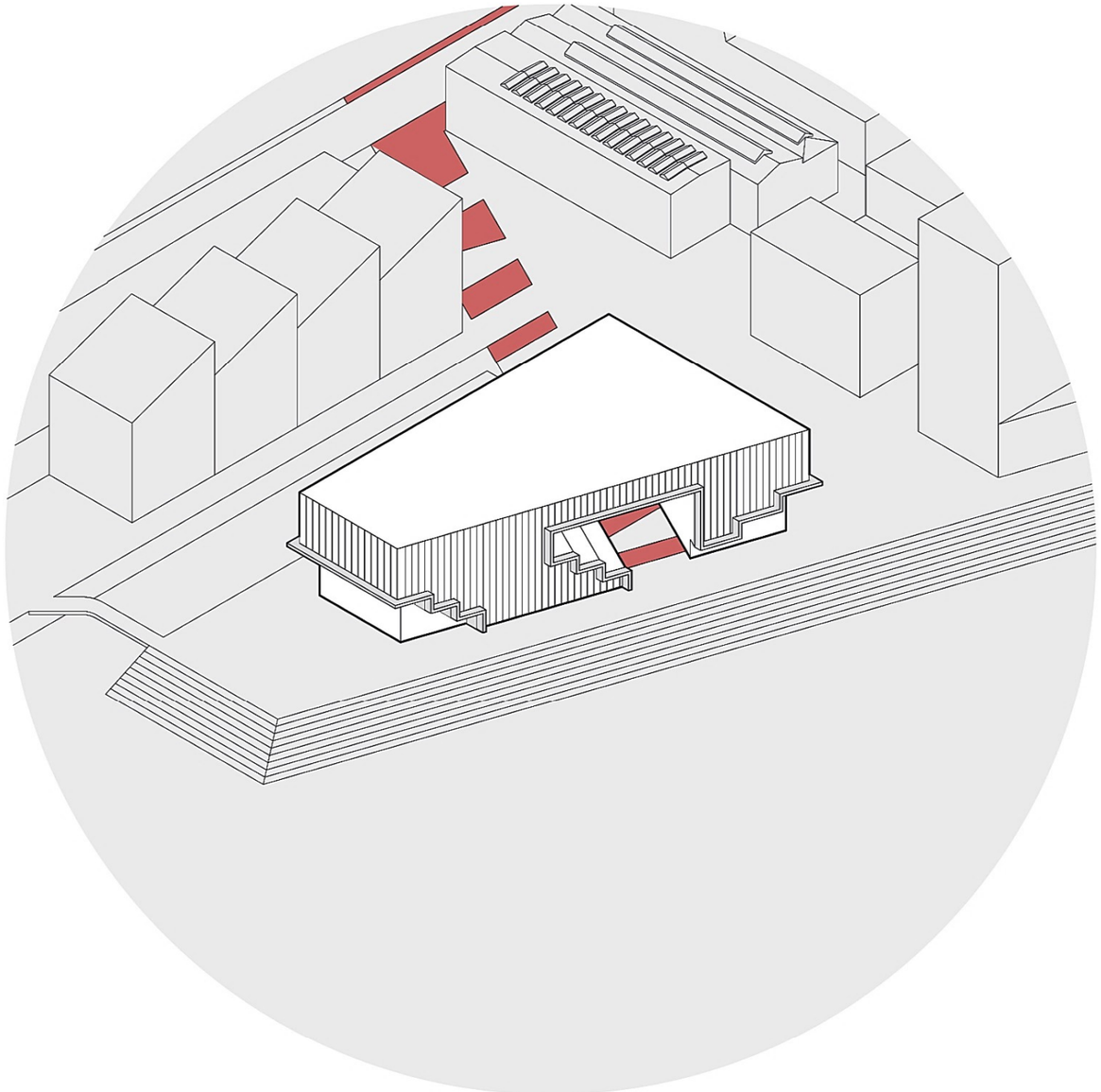
STEP no. 6

TECHNICAL CRANE



SERVICE BY WATER

STEP no. 7

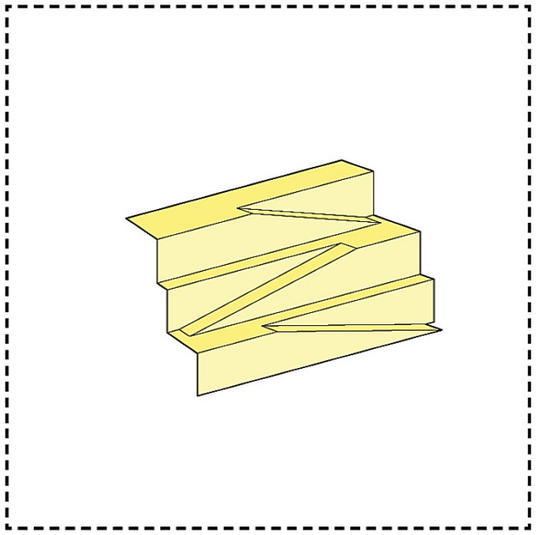


TWO FACES OF THE BUILDING

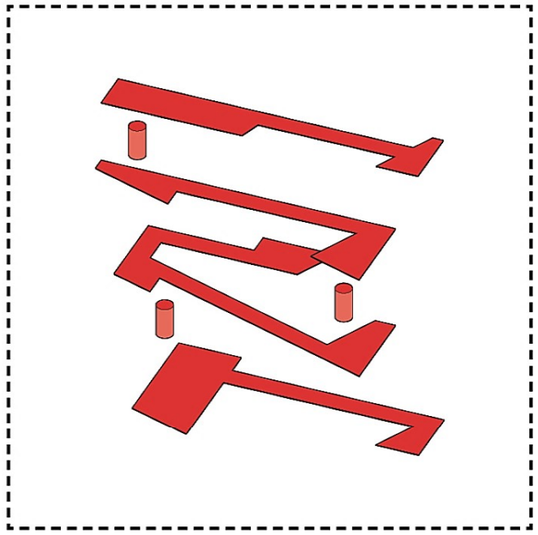
DESIGN QUESTION:

HOW TO **SPATIALLY ORGANISE** THE RICH FUNCTIONAL PROGRAM OF THE BUILDING?

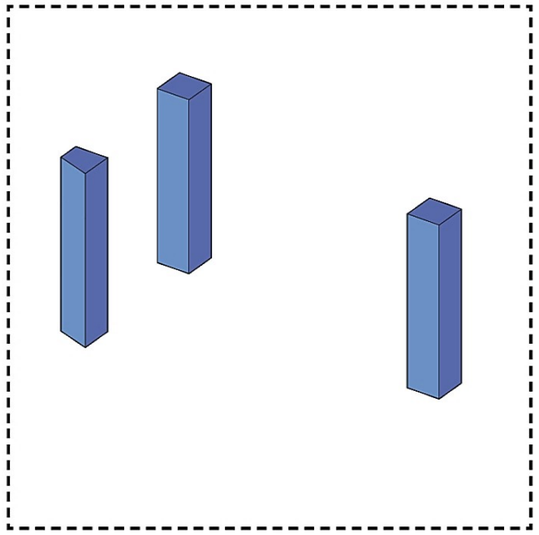
SET OF CONNECTIONS



VERTICAL

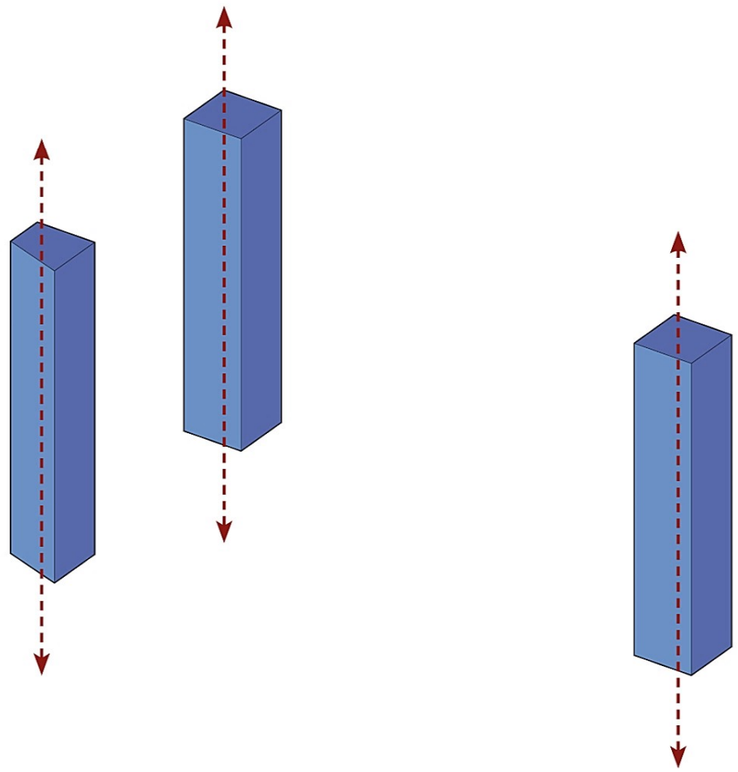


SECONDARY



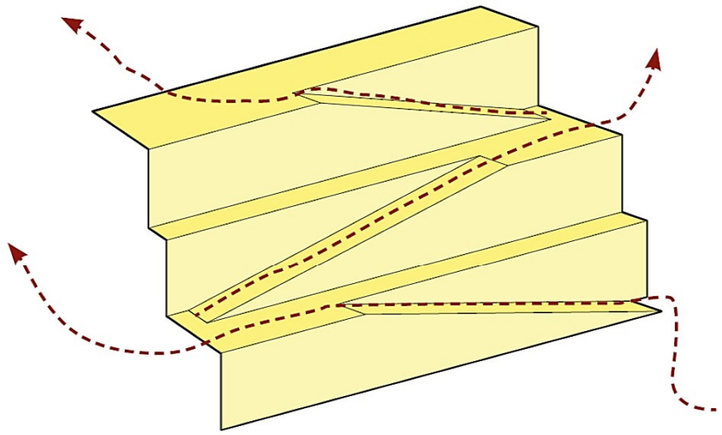
EVACUATING

FAST COMMUNICATION



EVACUATION CORES & ELEVATORS

VERTICAL DISTRIBUTION

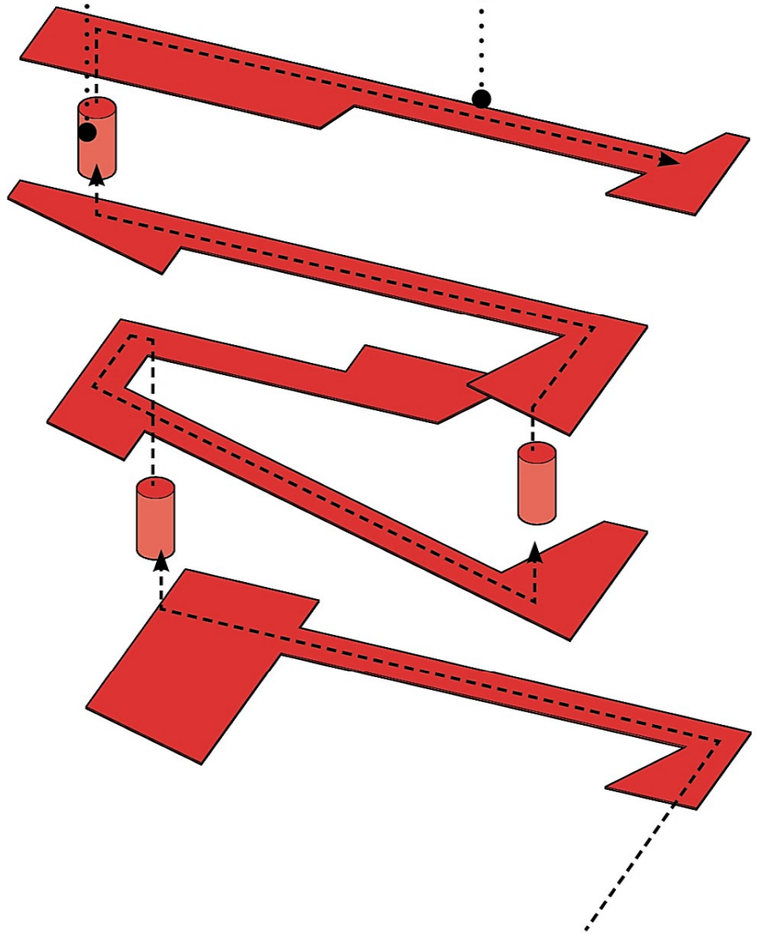


VERTICAL DISTRIBUTION - TRIBUNE

INNER STREET

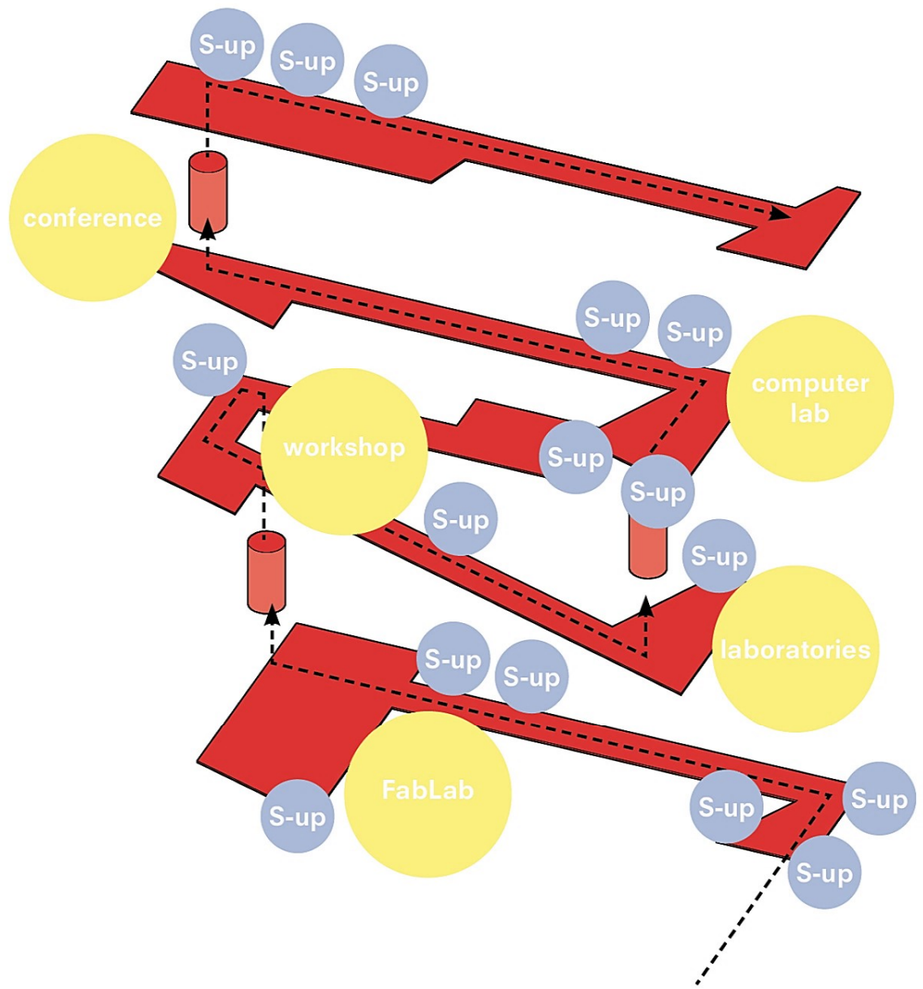
CONNECTING LEVELS

CONNECTING TWO
SIDES OF THE BUILDING



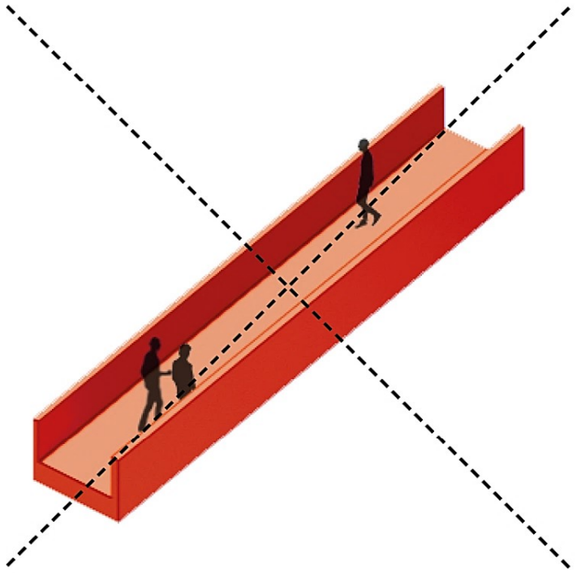
MEANDERING PATH VISIBLE FROM THE OUTSIDE

CONNECTING THE FUNCTIONS

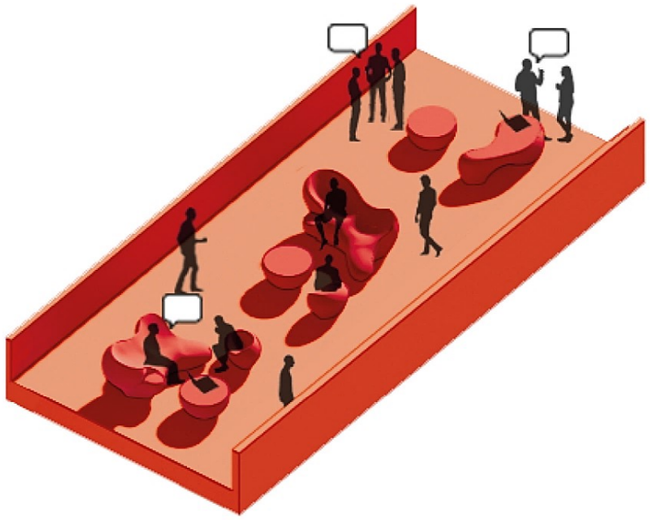


COLLABORATIVE SPACE & COMMUNICATION

NOT ONLY COMMUNICATION PATH



NOT ONLY COMMUNICATION

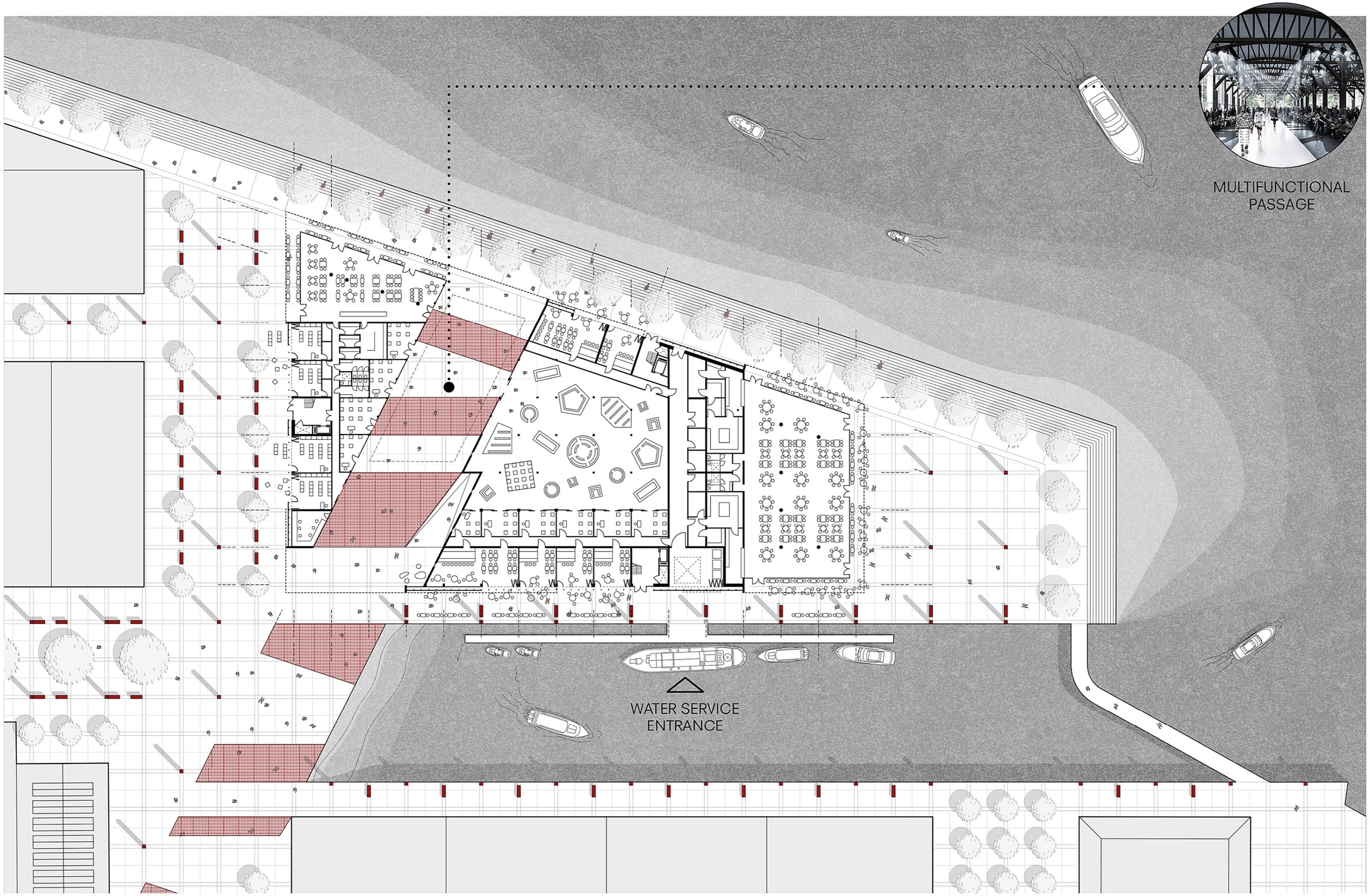


SPACE OF WORK AND ACTIVITIES

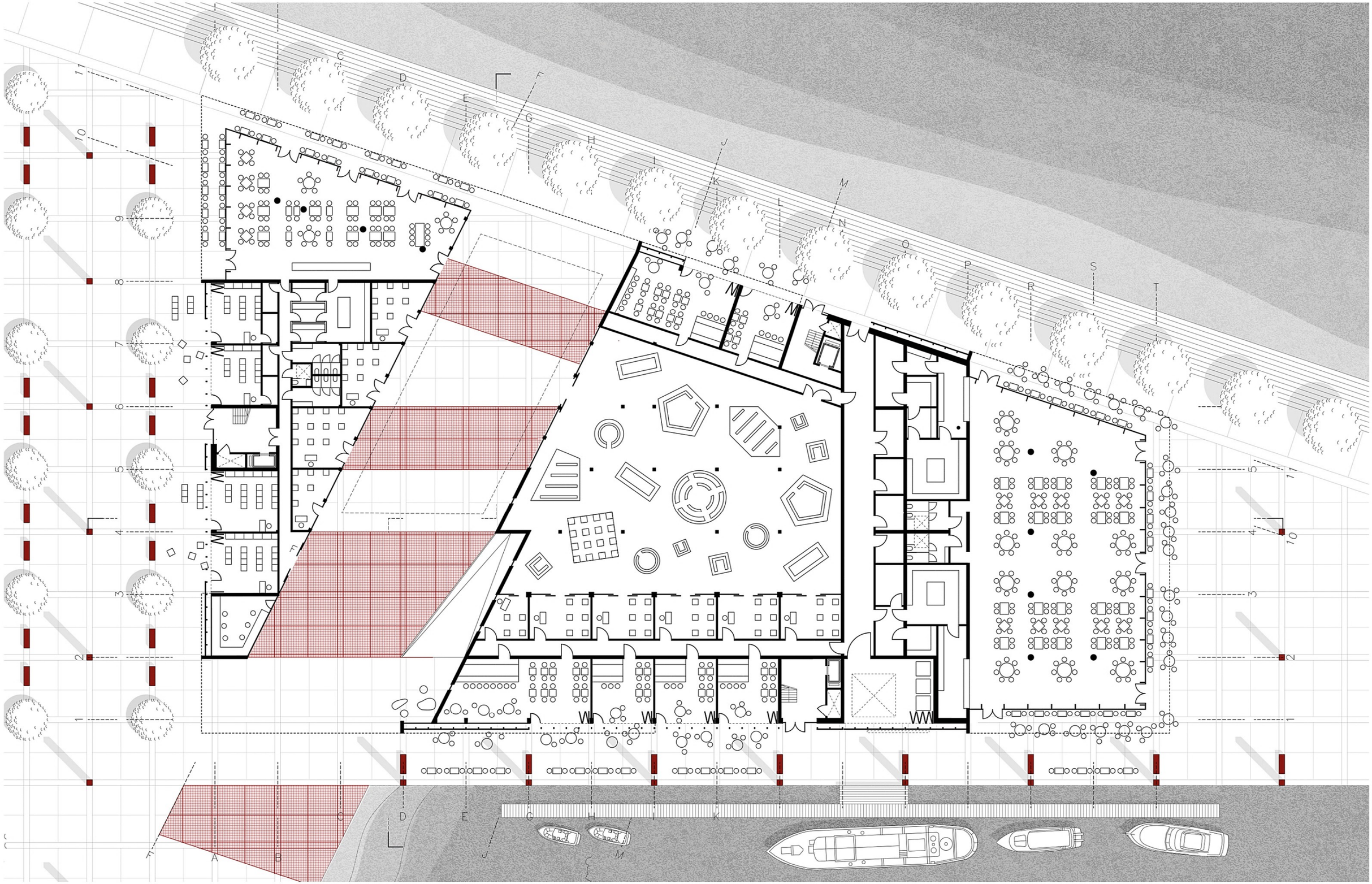
SITE PLAN, 1:1 000

0m 50m 100m

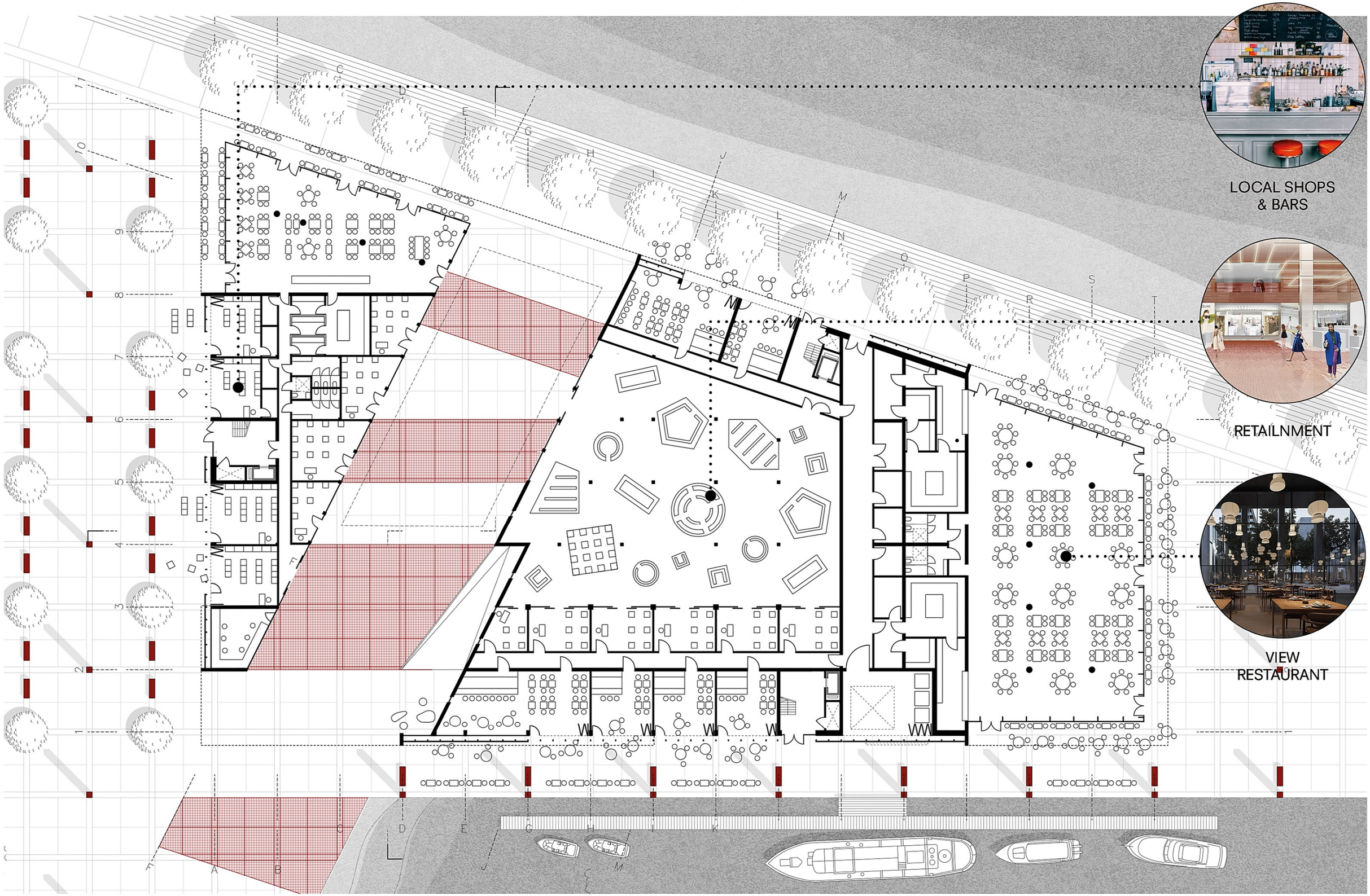
URBAN IMPLEMENTATION, 1:500



GROUNDFLOOR, 1:200



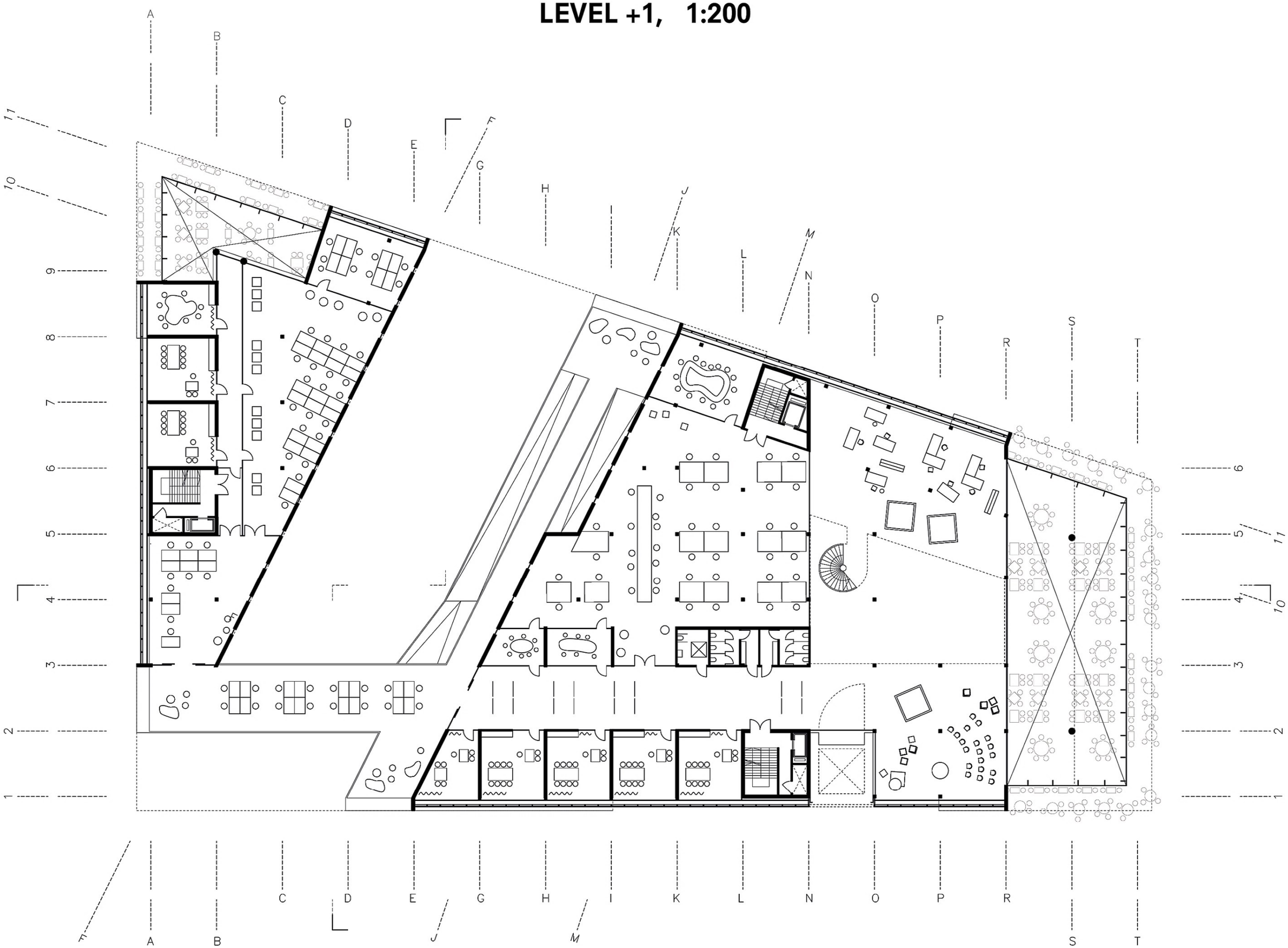
GROUNDFLOOR, 1:200



VIEW RESTAURANT

MERGE OF ACTIVITIES

LEVEL +1, 1:200



0m 10m 20m

LEVEL +1, 1:200

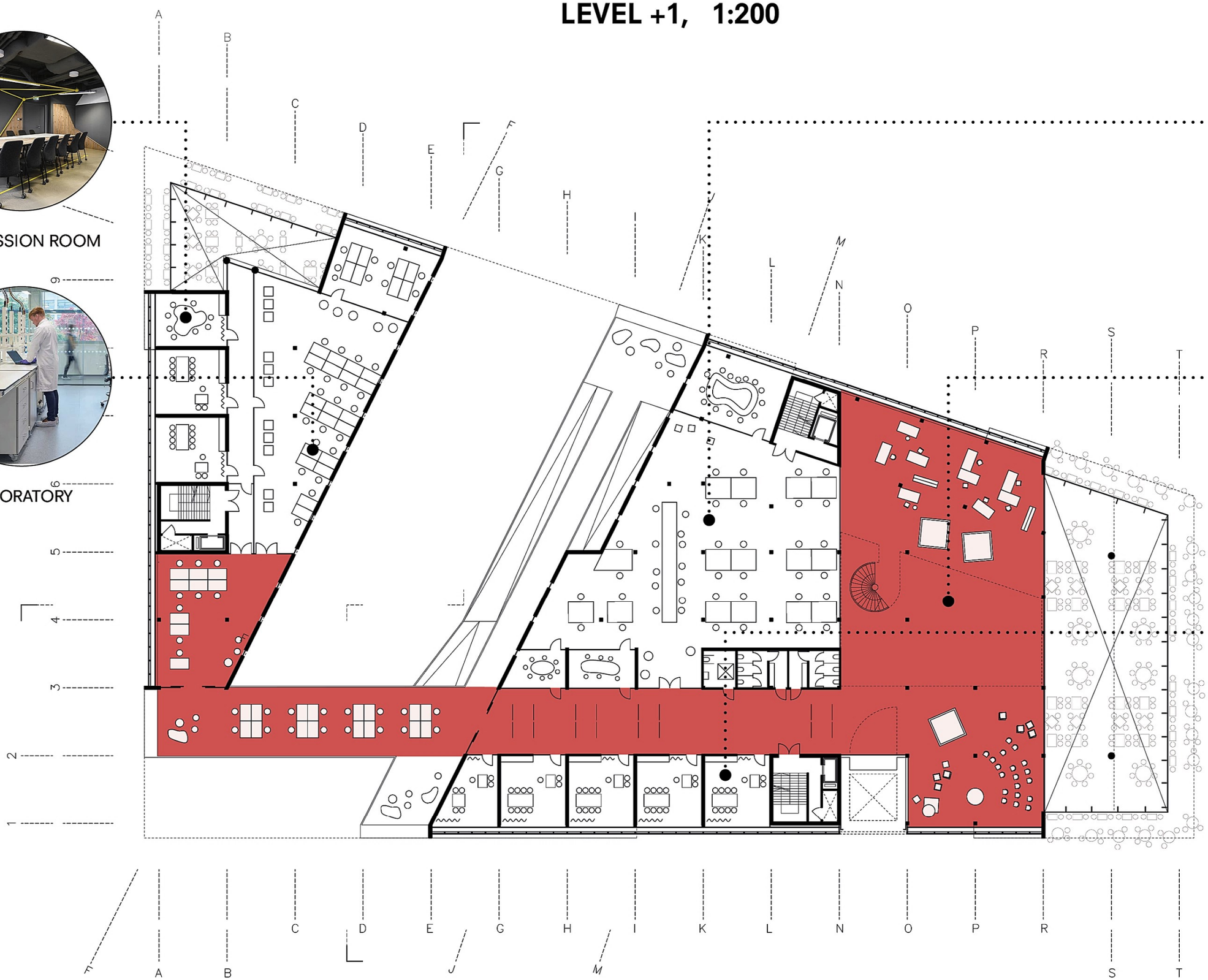
DISCUSSION ROOM

LABORATORY

WORKSHOP

DOUBLE HEIGHT WORKSHOP

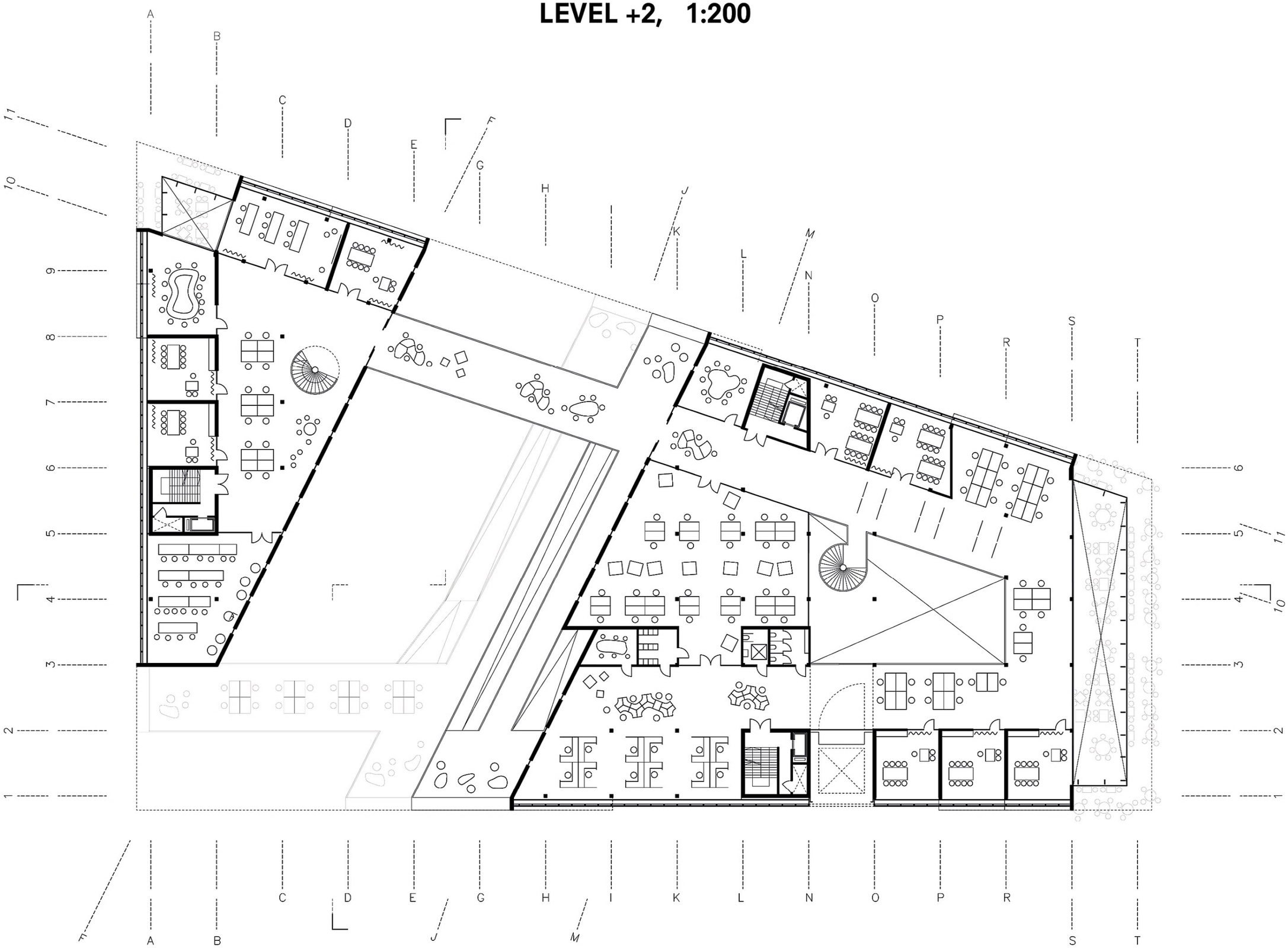
START-UPS



0m 10m 20m

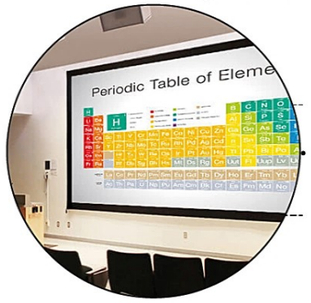
CHEMICAL LABORATORY

LEVEL +2, 1:200



LEVEL +2, 1:200

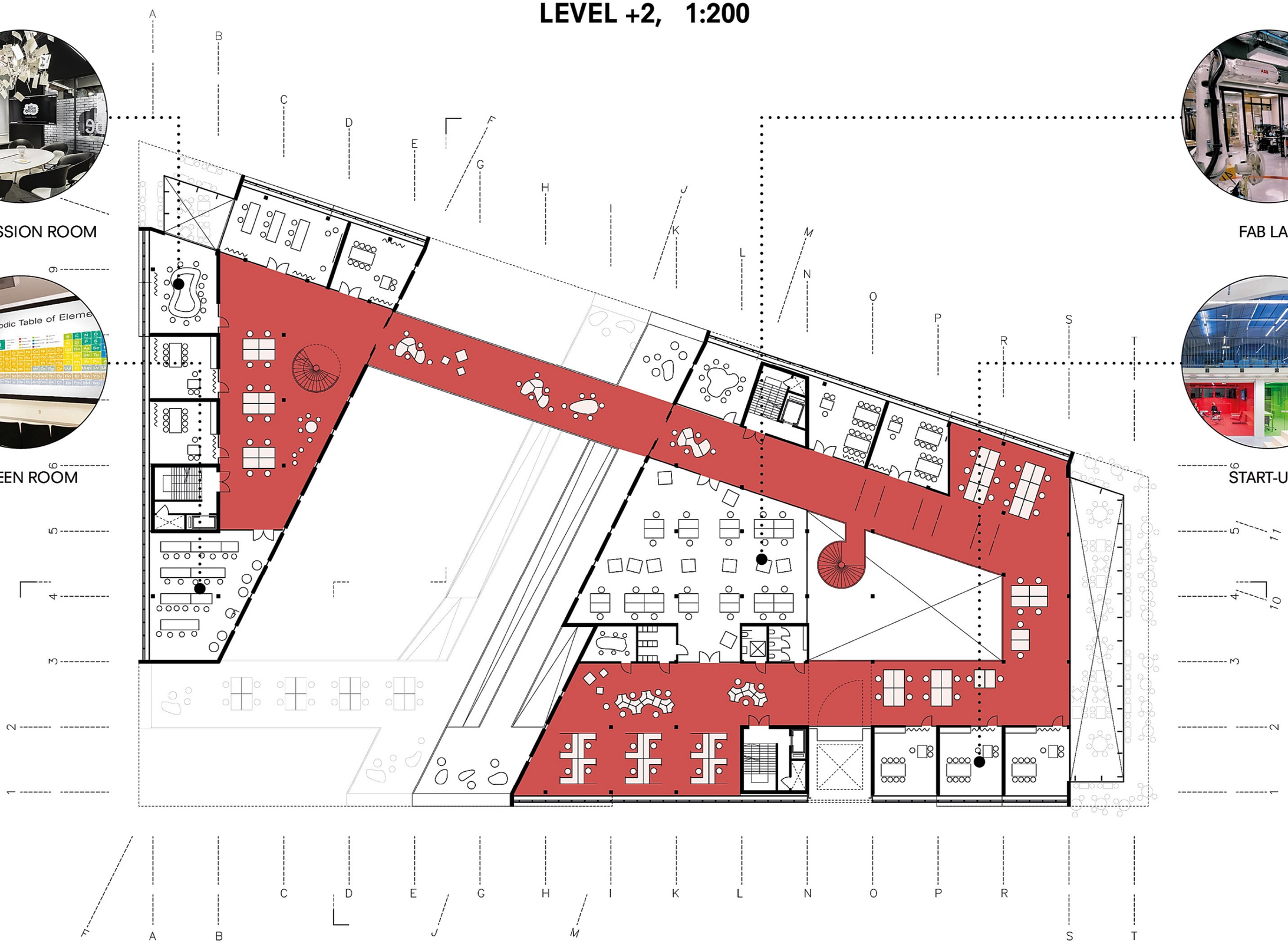
DISCUSSION ROOM



SCREEN ROOM

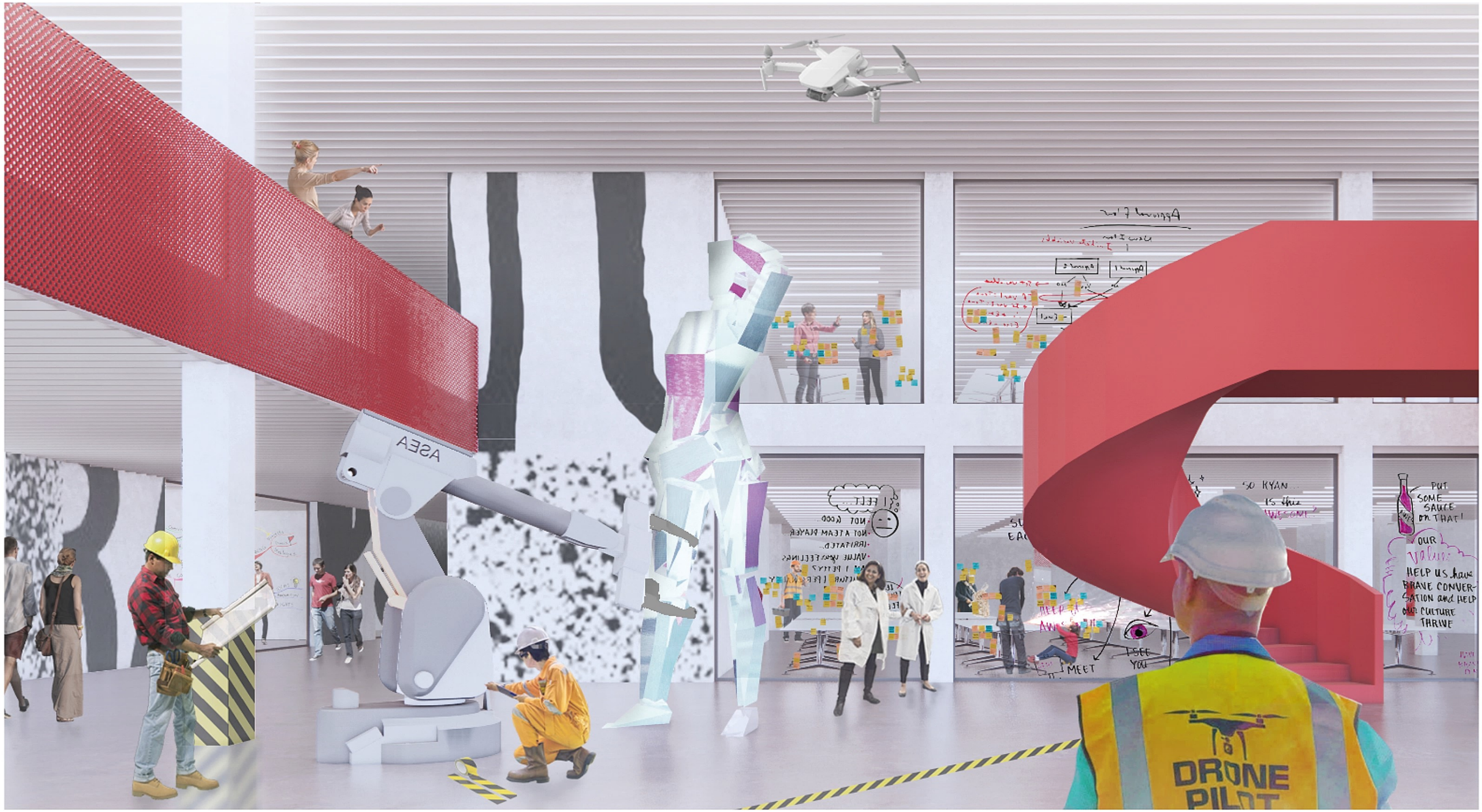
FAB LAB

START-UPS



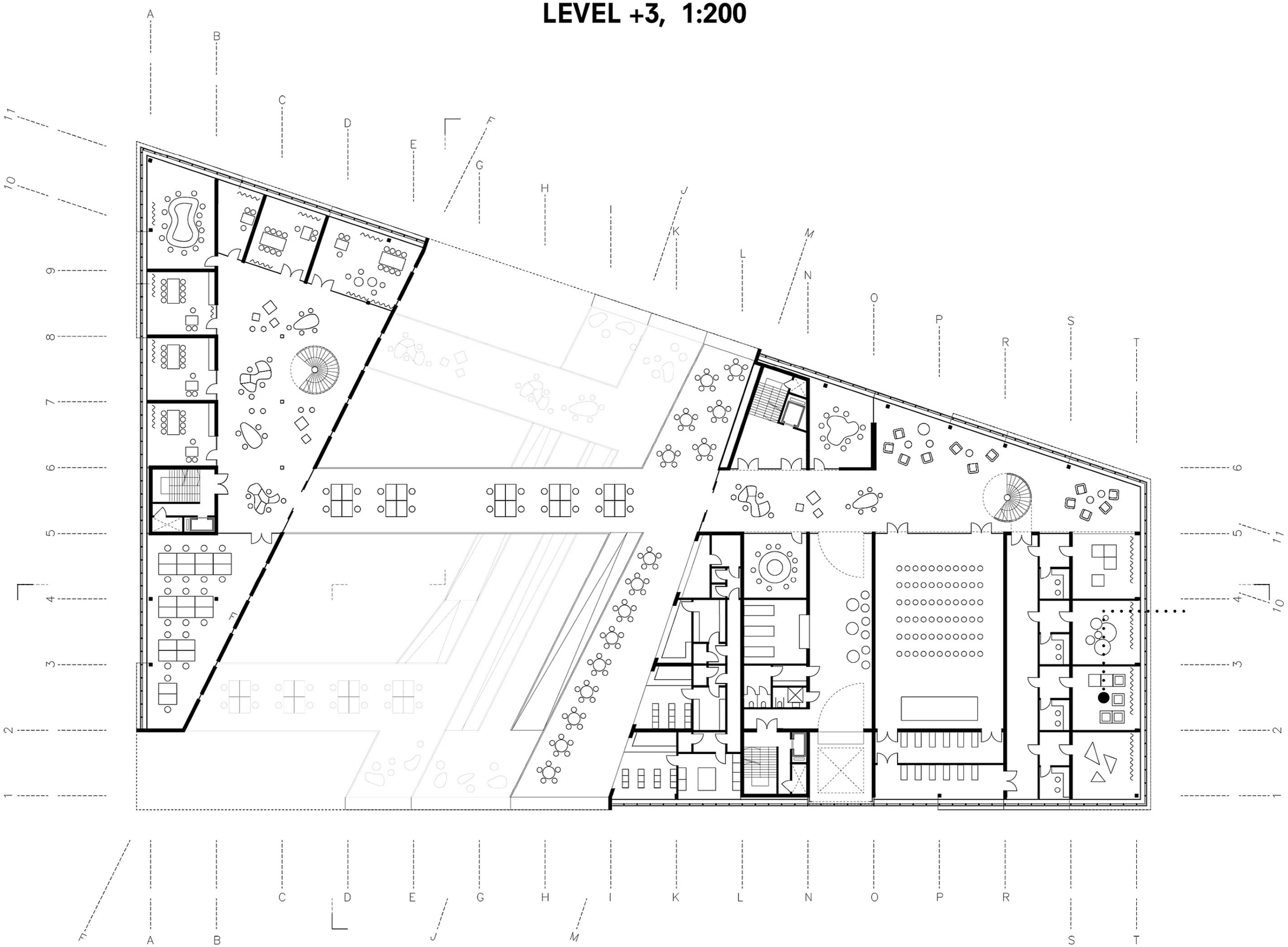
0m 10m 20m

DOUBLE FLOOR WORKSHOP

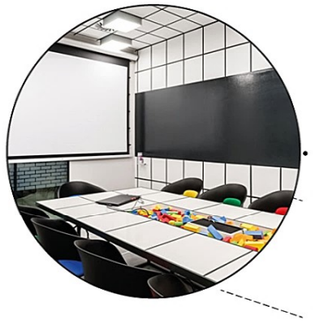


INNER STREET

LEVEL +3, 1:200



LEVEL +3, 1:200

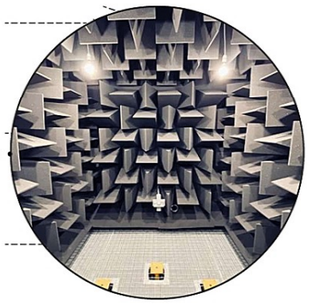


START-UPS

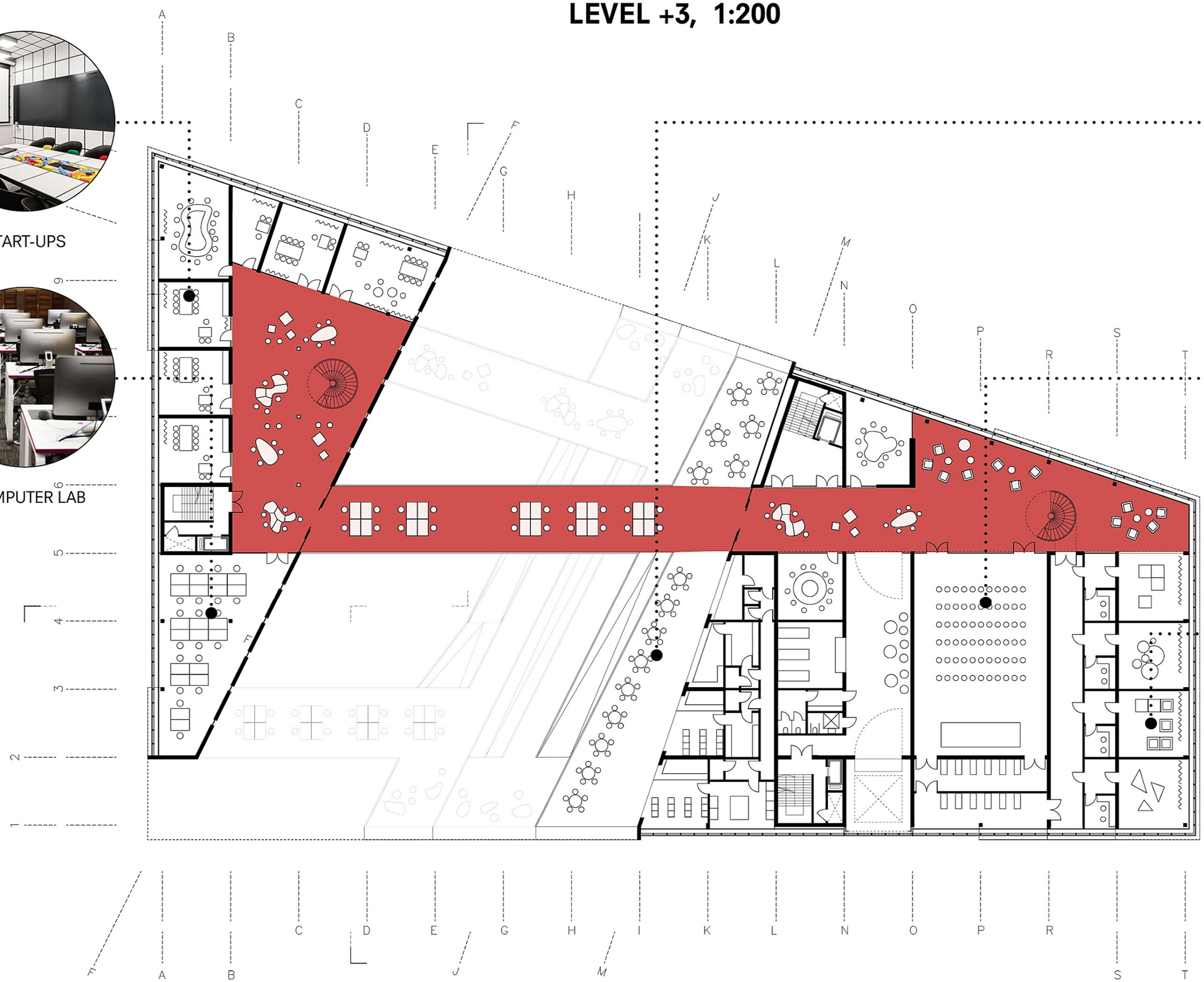
COMPUTER LAB

CAFE

CONFERENCE

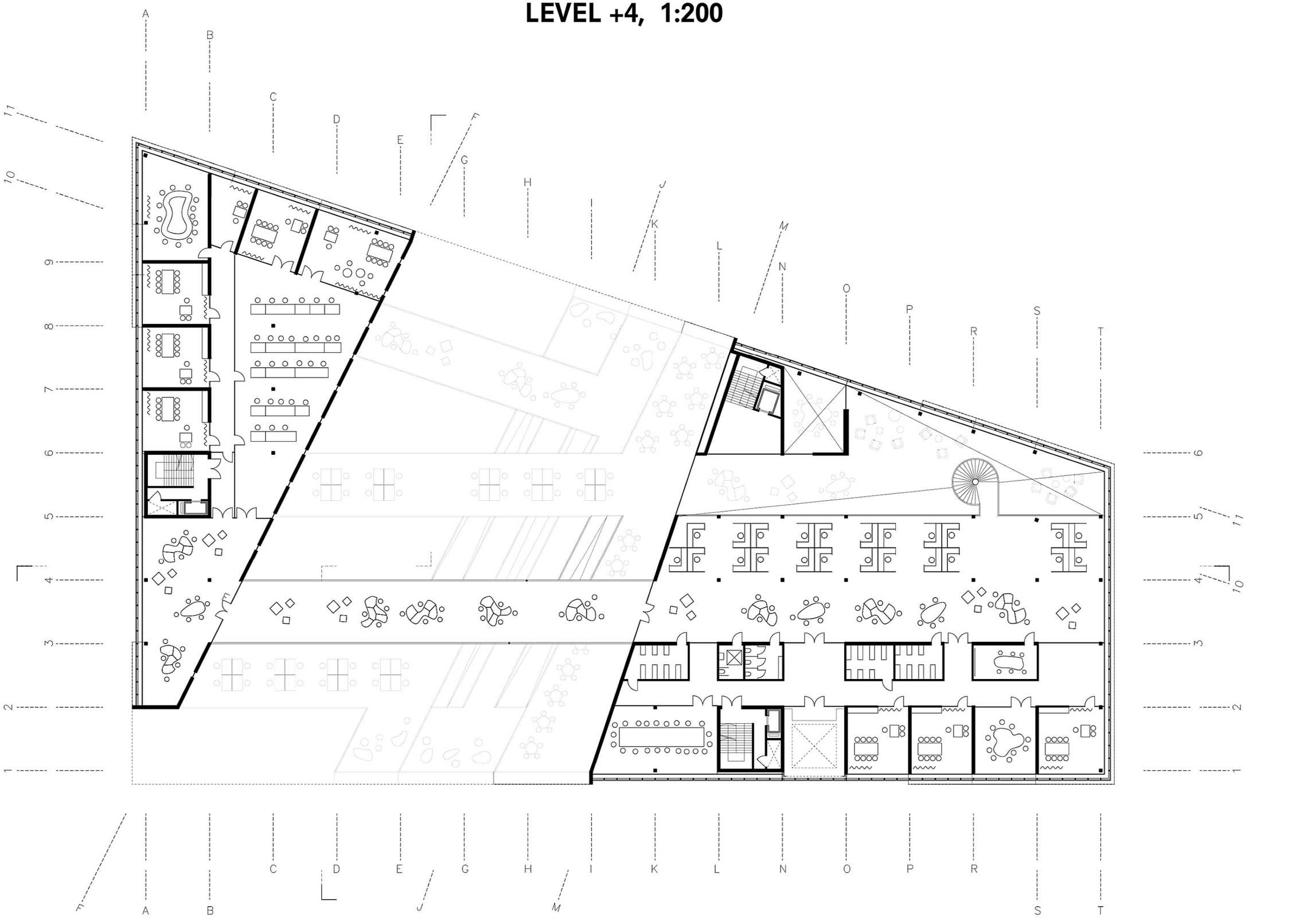


AUDIO LABS



0m 10m 20m

LEVEL +4, 1:200



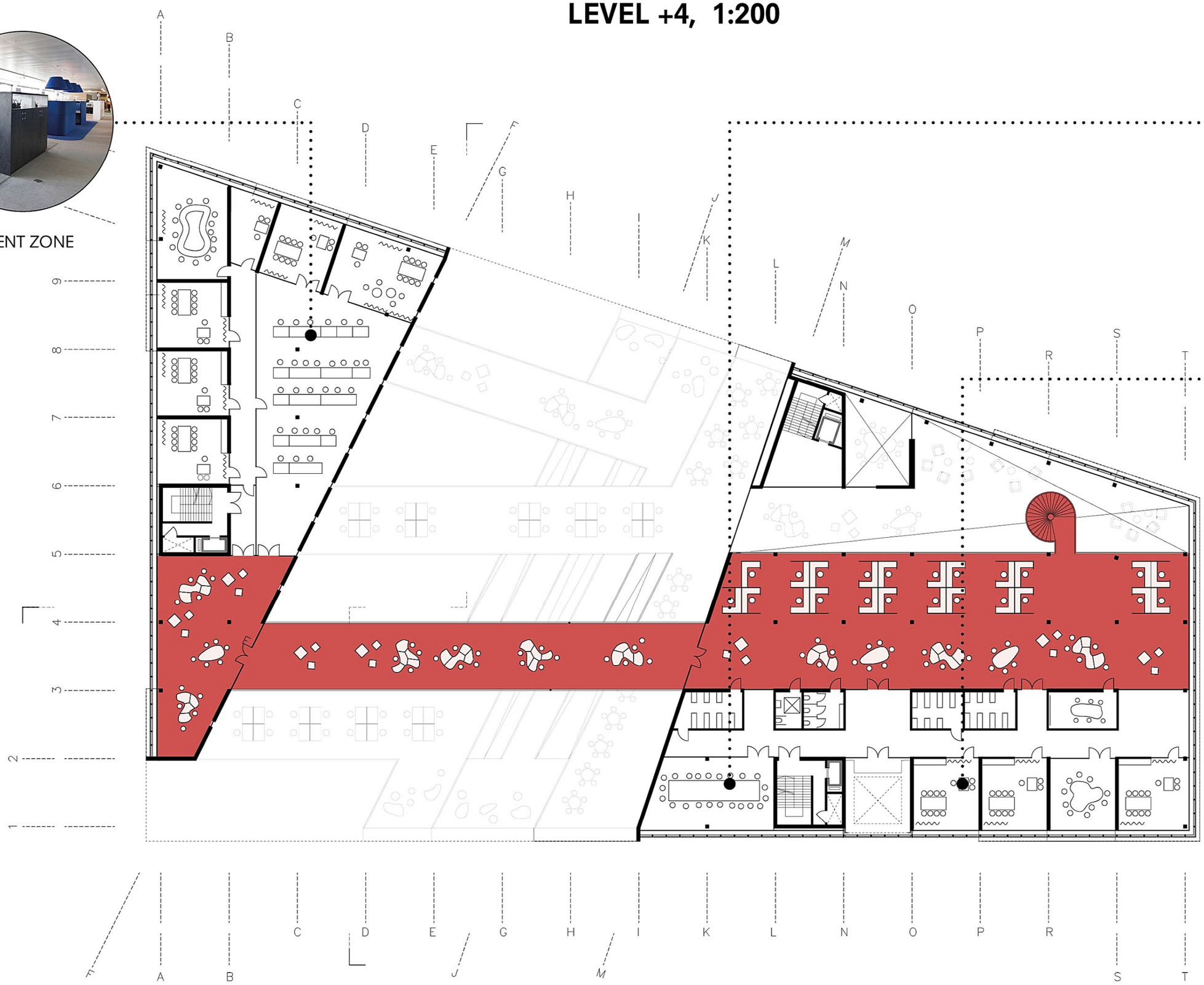
0m 10m 20m

LEVEL +4, 1:200

SILENT ZONE

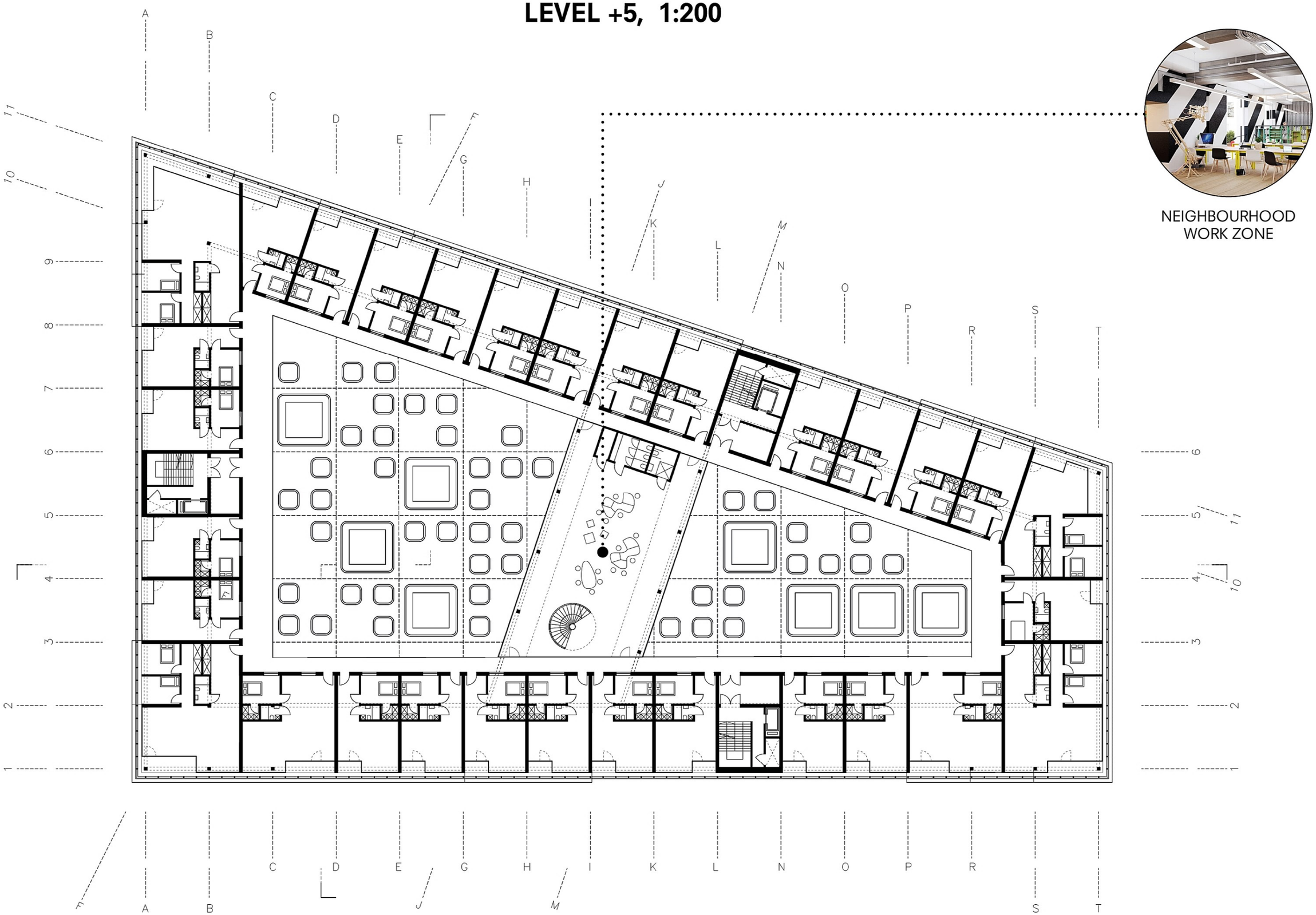
DISCUSSION ROOM

START-UPS

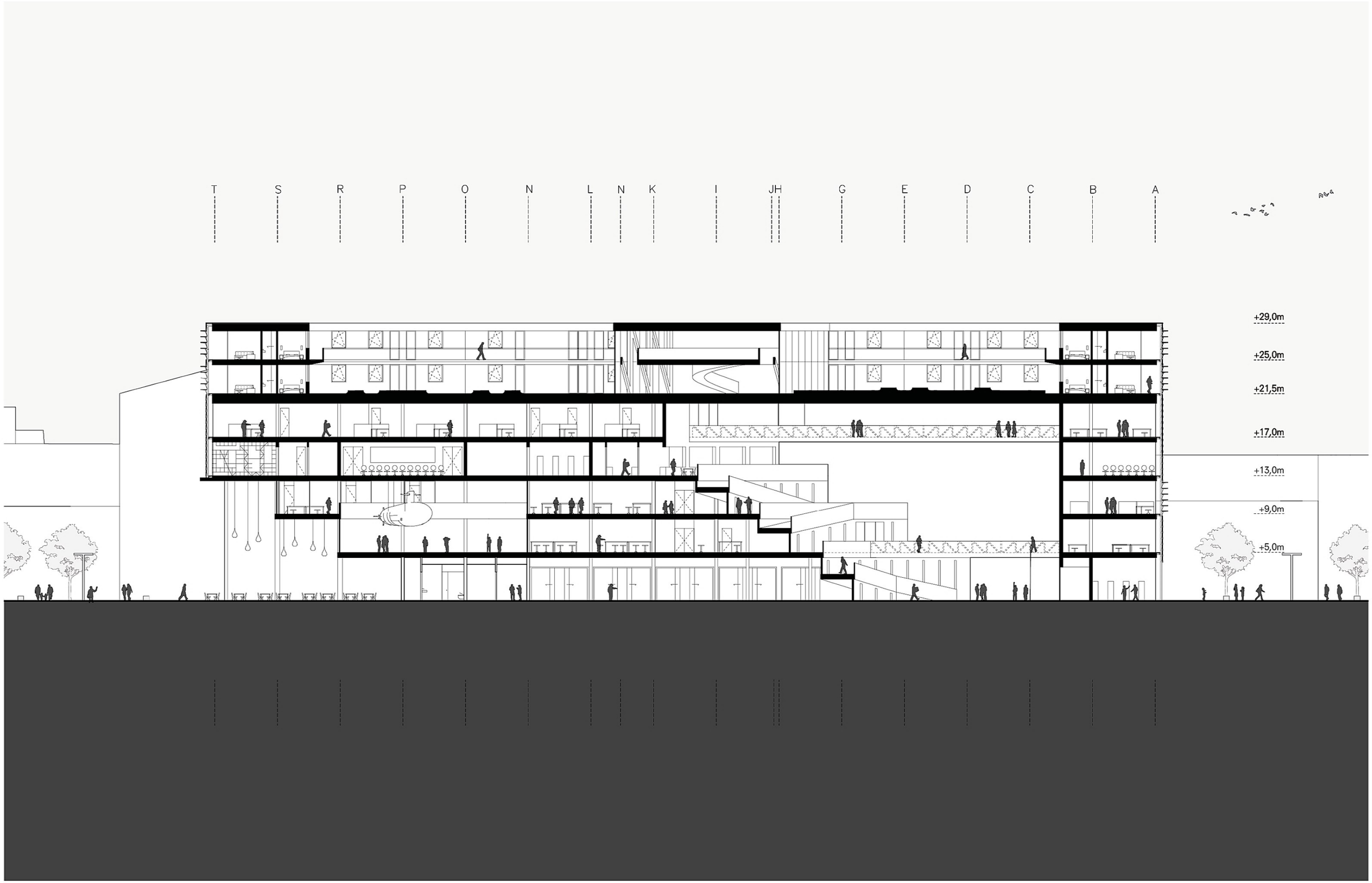


0m 10m 20m

LEVEL +5, 1:200



LONGITUDINAL SECTION, 1:200

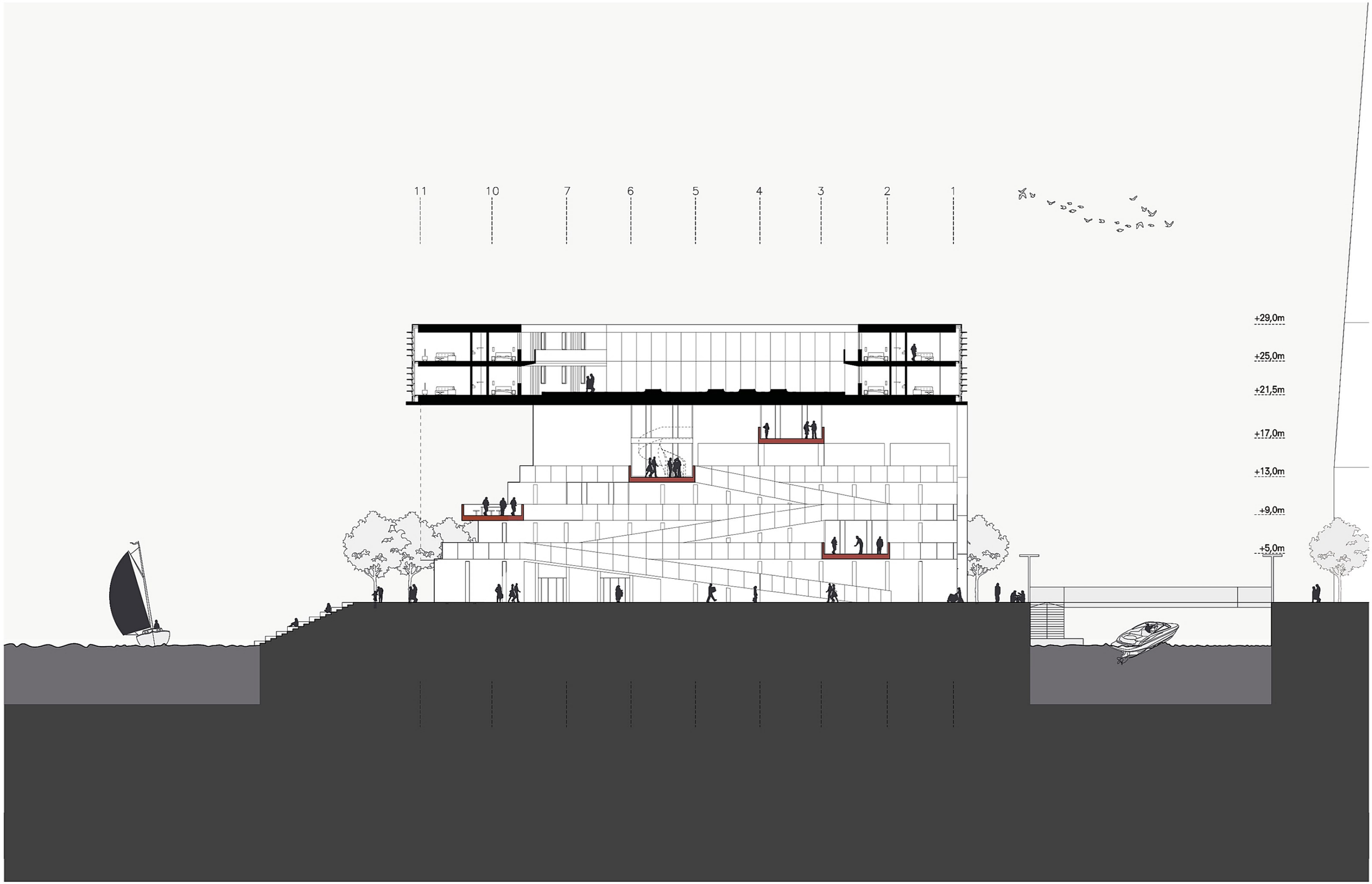


0m 10m 20m

LONGITUDINAL SECTION, 1:200

0m 10m 20m

CROSS SECTION, 1:200

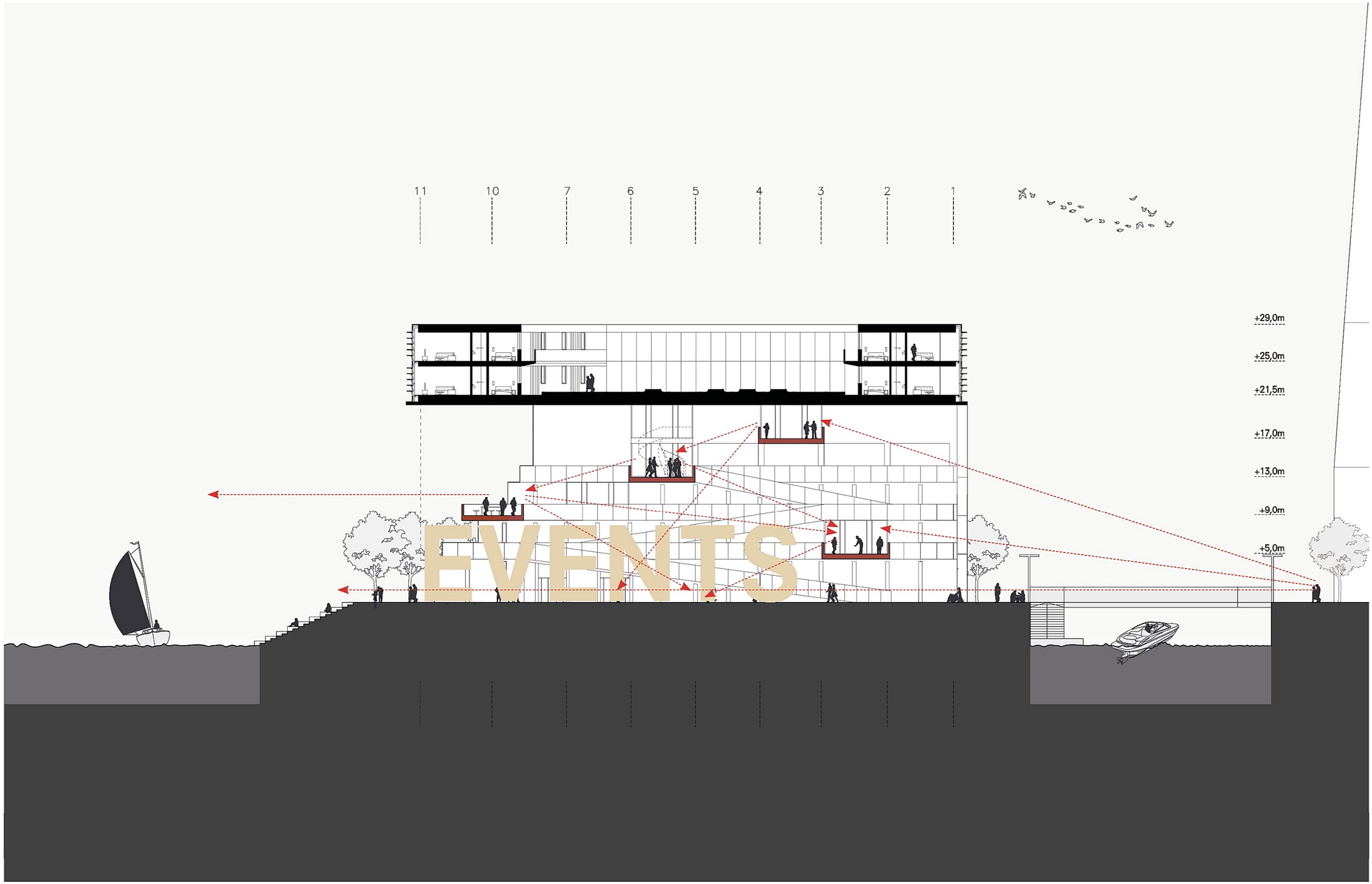


0m 10m 20m

TRANSVERSAL PASSAGE

BACKGROUND FOR ACTIVITIES

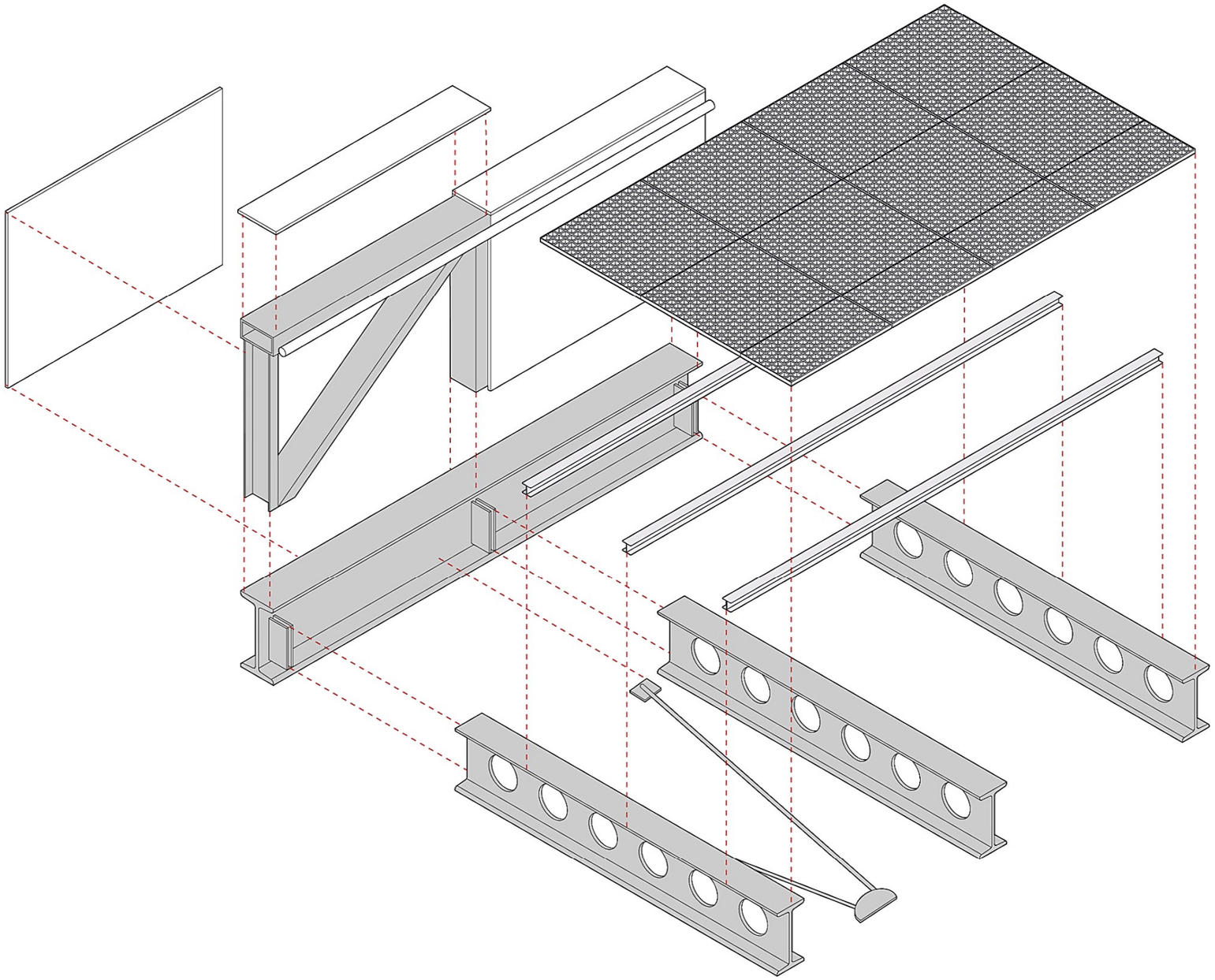
CROSS SECTION, 1:200



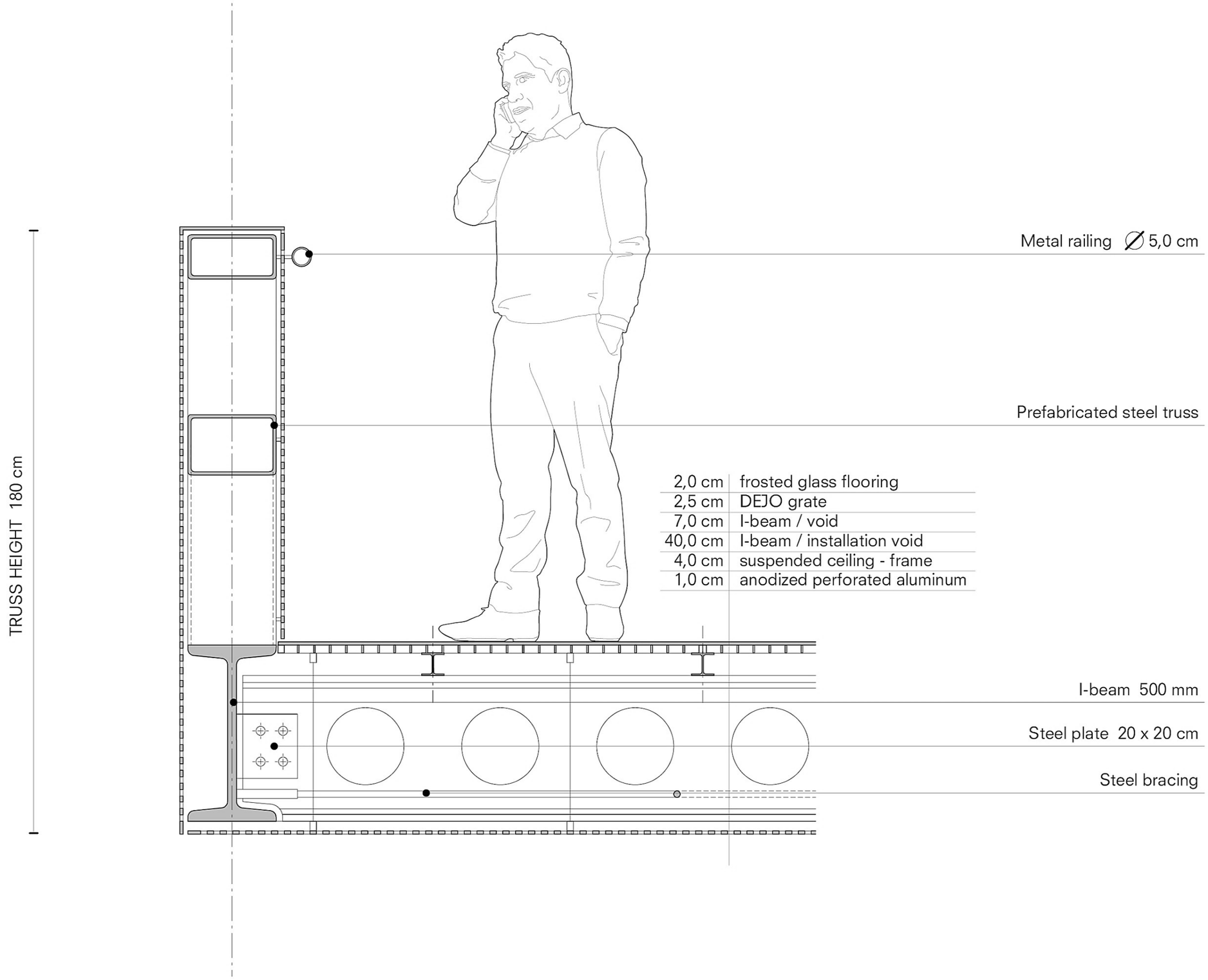
0m 10m 20m

THE OPEN PASSAGE VIEW AS AN INTRODUCTION OF THE BUILDING

THE BRIDGE - MAIN STRUCTURAL ELEMENTS

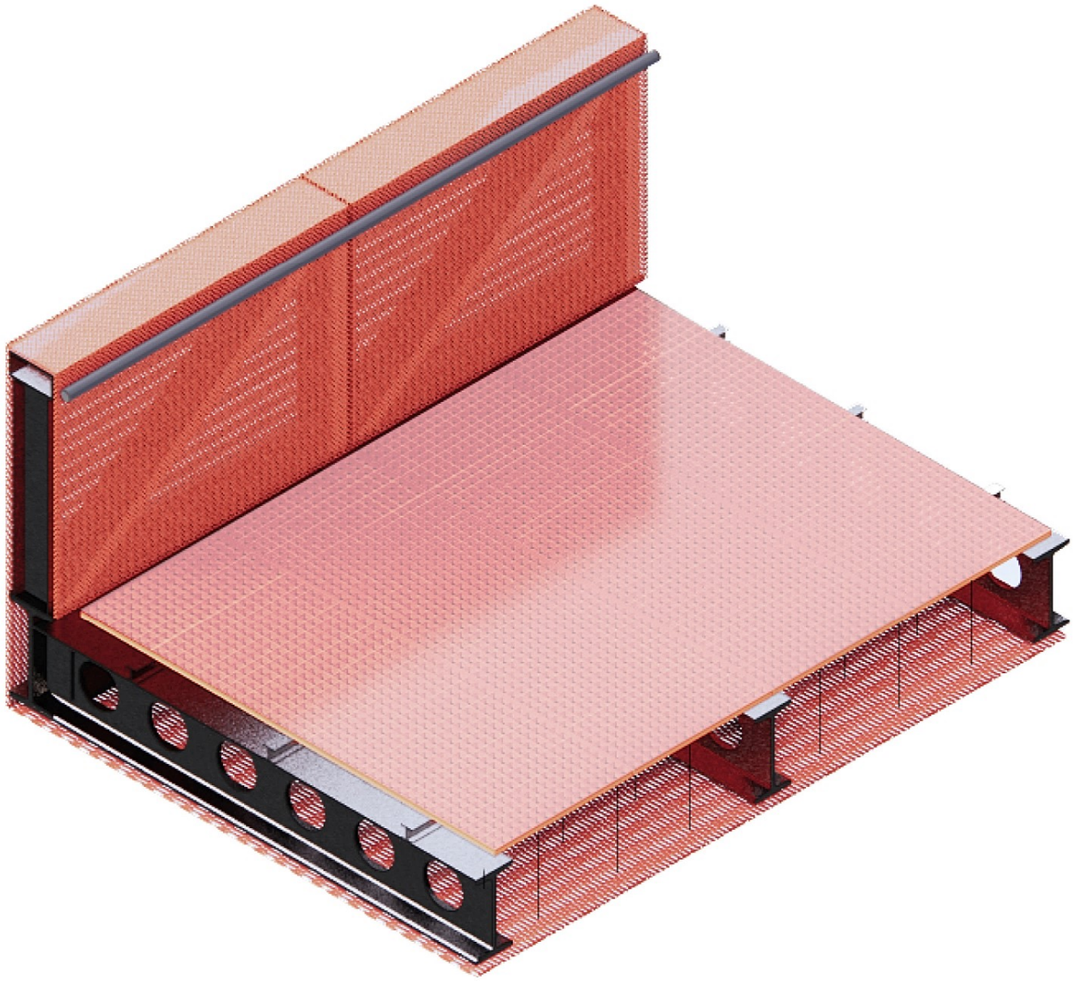


THE BRIDGE DETAIL, 1:5

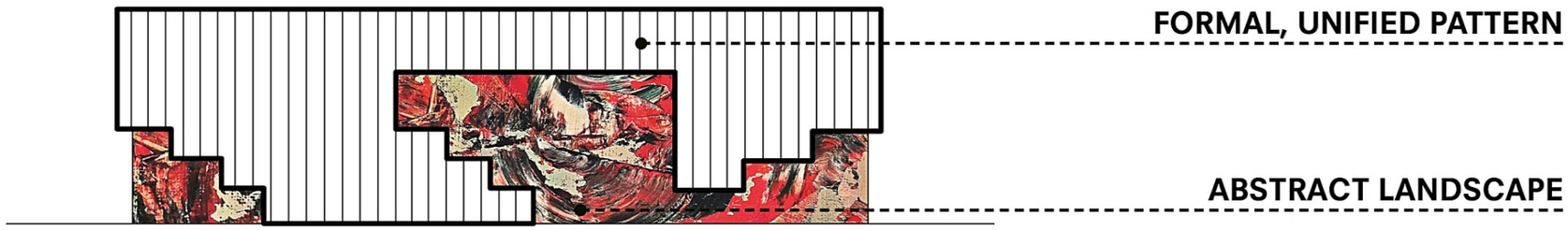


0cm 10cm 30cm 50cm 100cm

THE BRIDGE DESIGN



FACADE DESIGN



TWO FACES

FACADE DESIGN

INFORMAL FACE

INFORMAL FACADE DESIGN QUESTION:

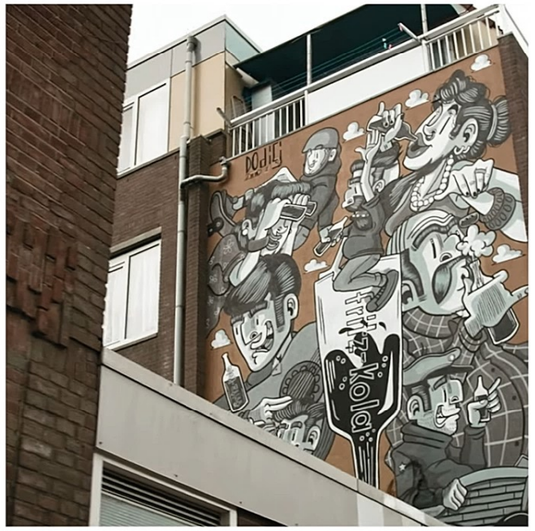
HOW TO REPRESENT **VALUES OF LOCALISM AND DIGITALISATION** BY FACADE DESIGN?

STREET ART AS ROTTERDAM SOUTH VALUE

MURALS AS AN ADVERTISENMENT OF NEIGHBOURHOOD

THE HOTSPOT OF STREET ART FESTIVAL

STREET ARTISTS



DODICI

DOURONE

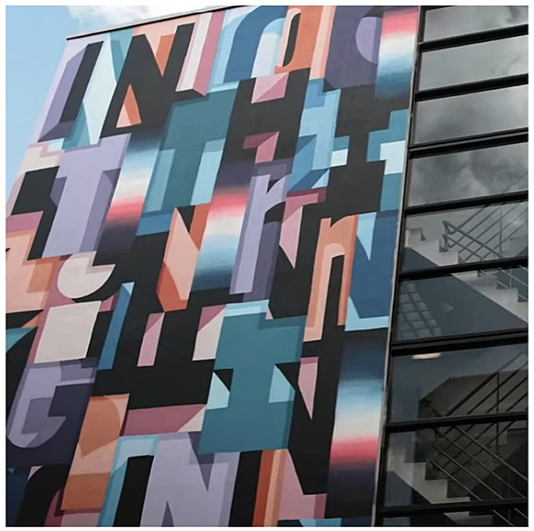
MURMURE

T. MIEL x SMUG (NL)

DANNY RUMBL (NL)

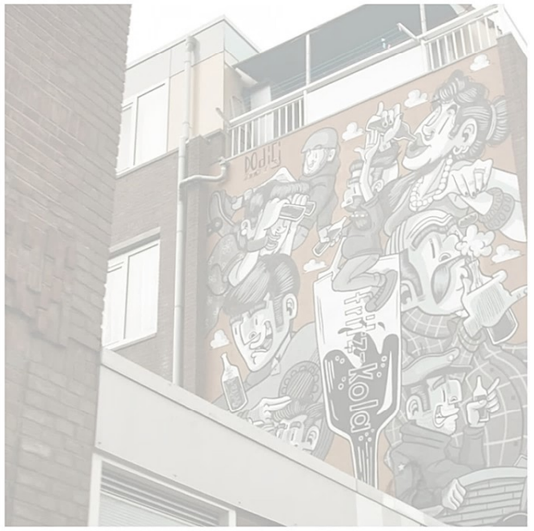
DIDIER J. MATHIEU

SUPER A (NL)



SAID KINOS (NL)

STREET ARTISTS

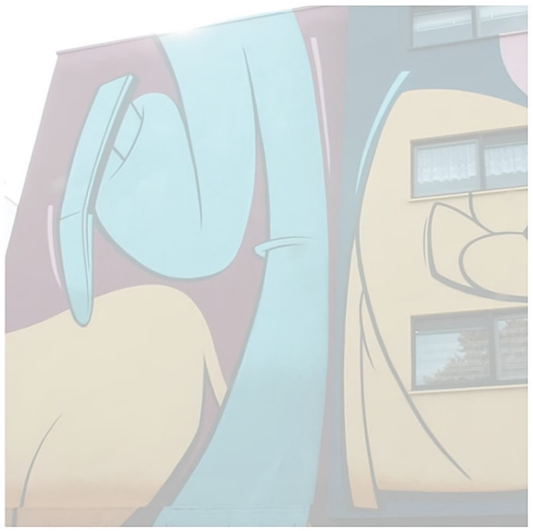


DODICI

DOURONE

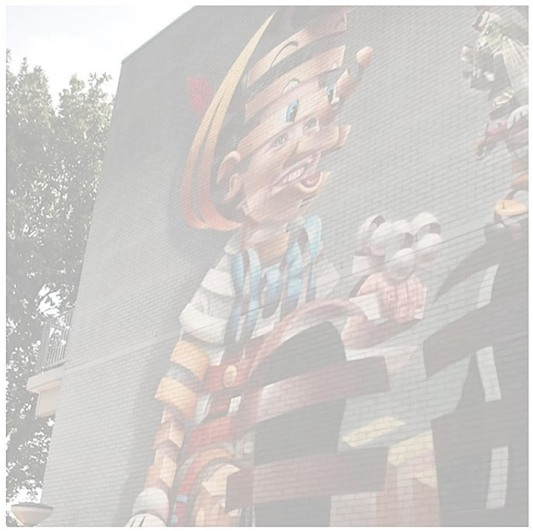
MURMURE

T. MIEL x SMUG (NL)

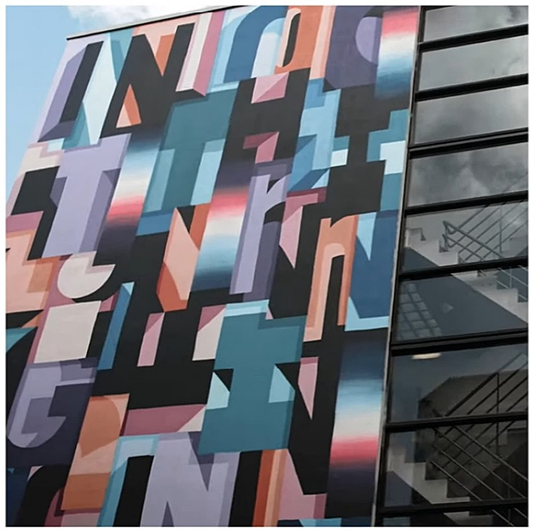


DANNY RUMBL (NL)

DIDIER J. MATHIEU



SUPER A (NL)



SAID KINOS (NL)

SAID KINOS

SAID KINOS IS AN ARTIST WHO **LIVES AND WORKS IN ROTTERDAM**, THE NETHERLANDS.

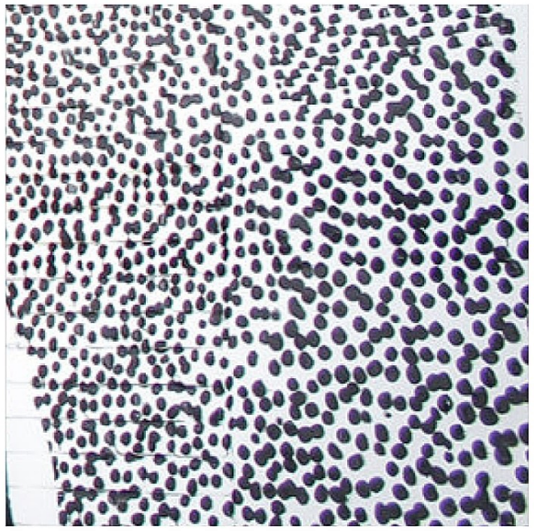
IN HIS WORK, IS FASCINATED BY HOW **DIGITALISATION** INFLUENCES COMMUNICATION BETWEEN PEOPLE.

WIDEWALLS.CH, 2017

ELEMENTS OF FASCINATION

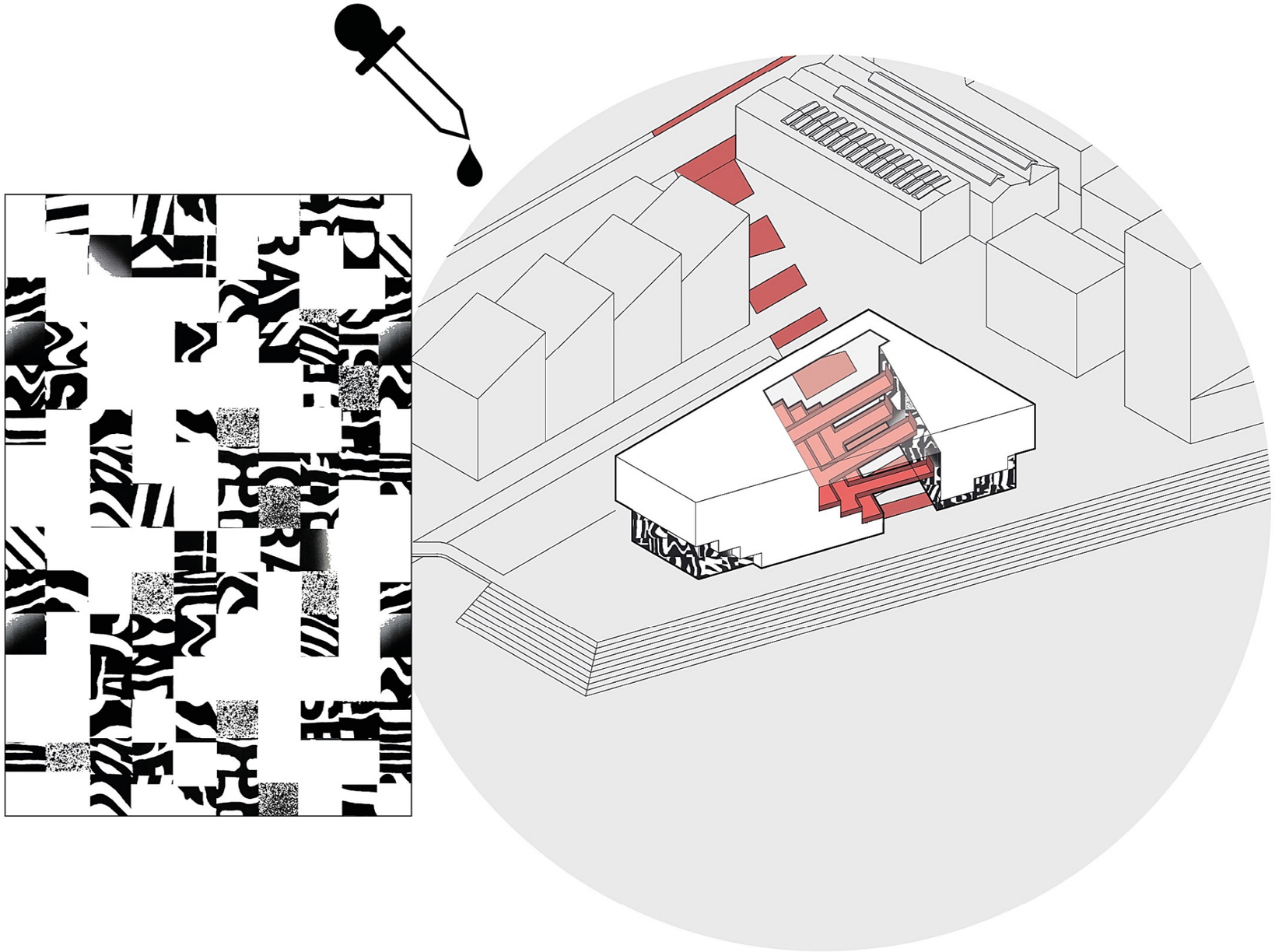
BINARY SYSTEM

PIXELIZATION



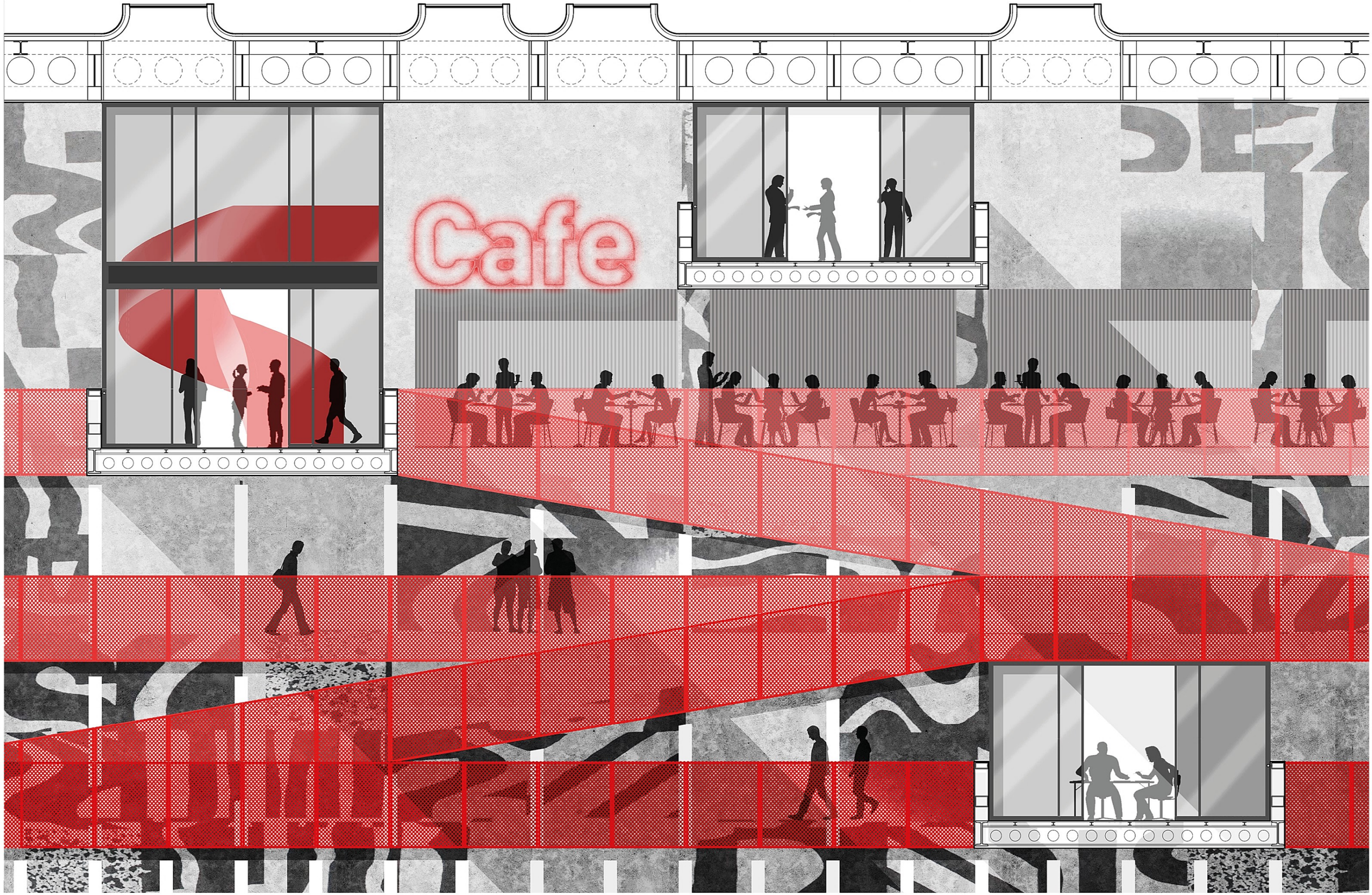
NOISE

PASSAGE DESIGN



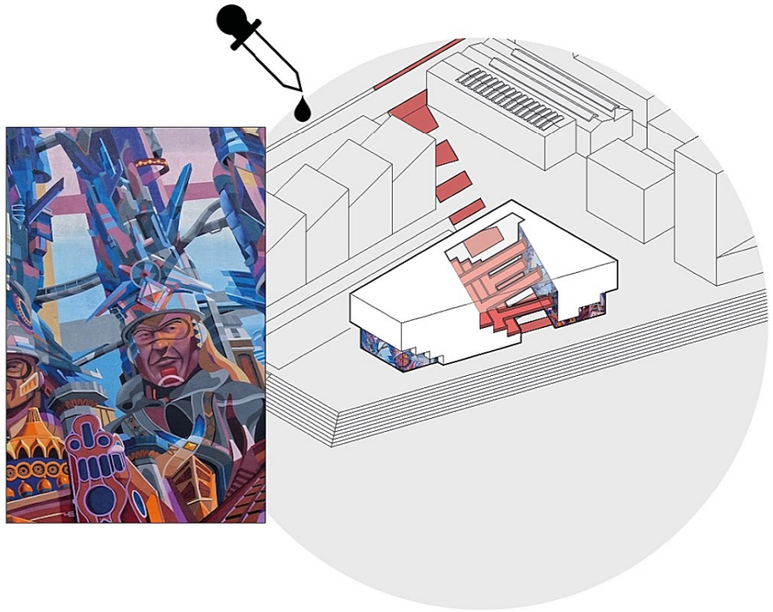
MURAL IMPLEMENTATION

PASSAGE MATERIALIZATION FRAGMENT, 1:50



0m 1m 2,5m 5m

PART OF THE STREET ART FESTIVAL



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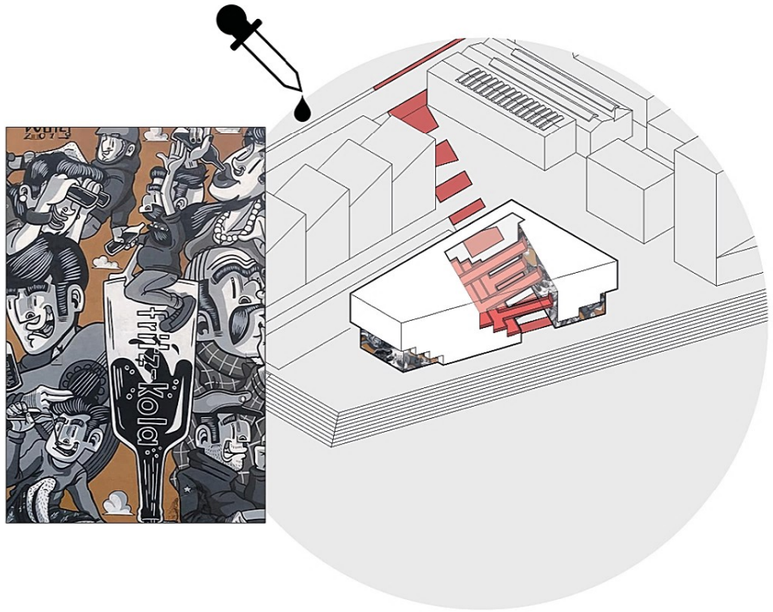

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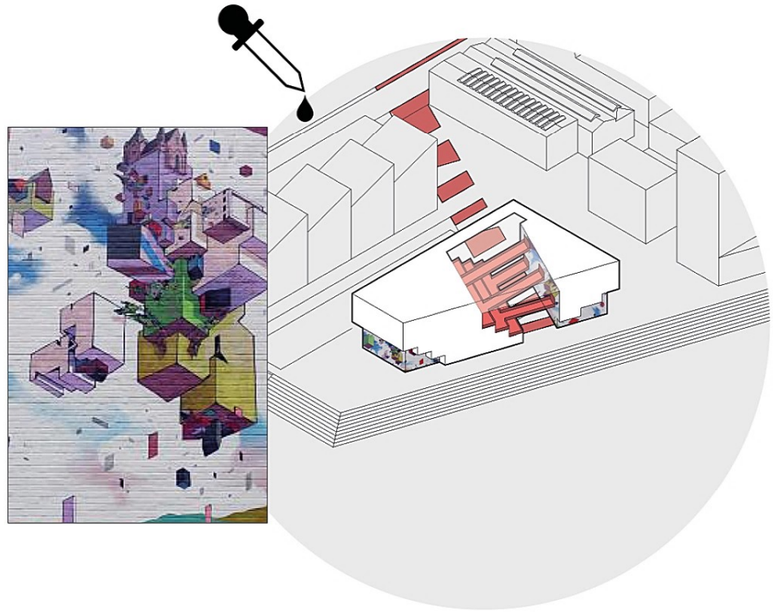

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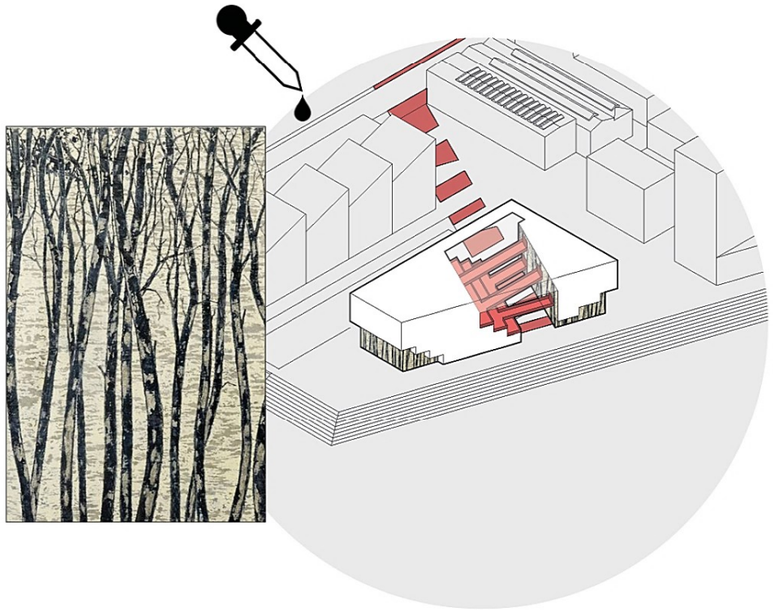

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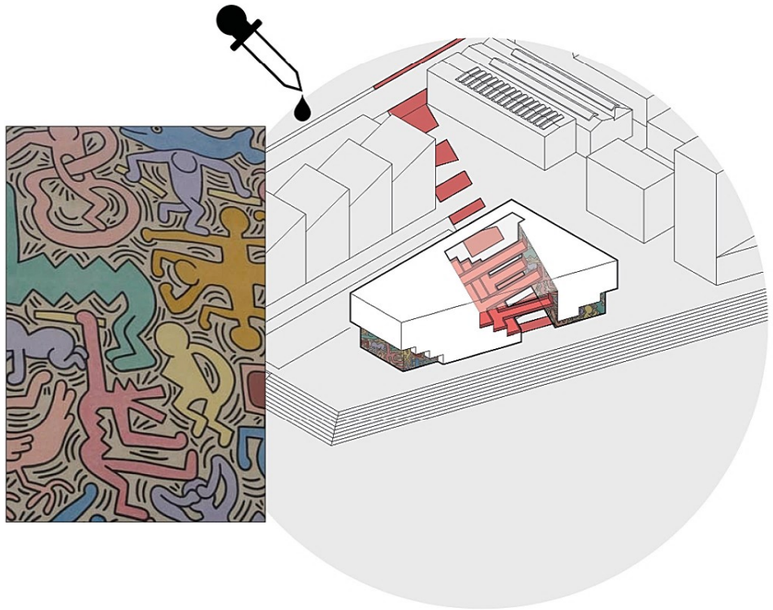

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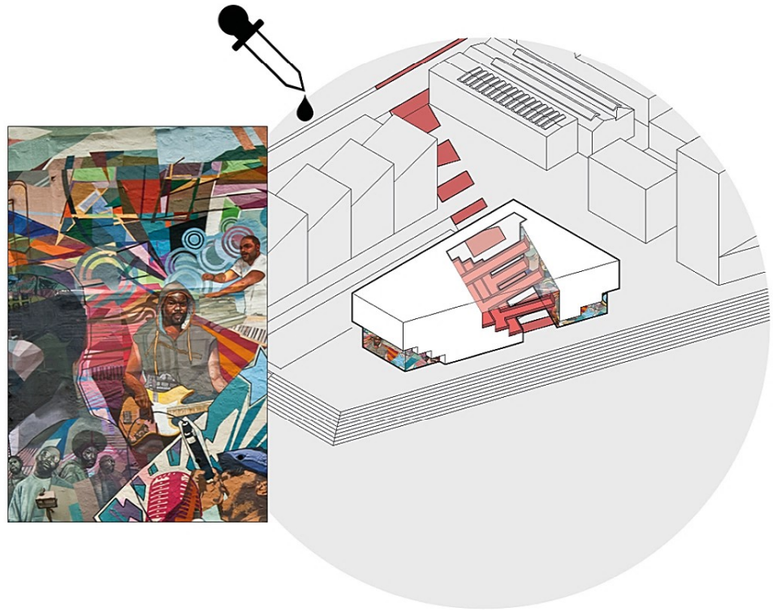
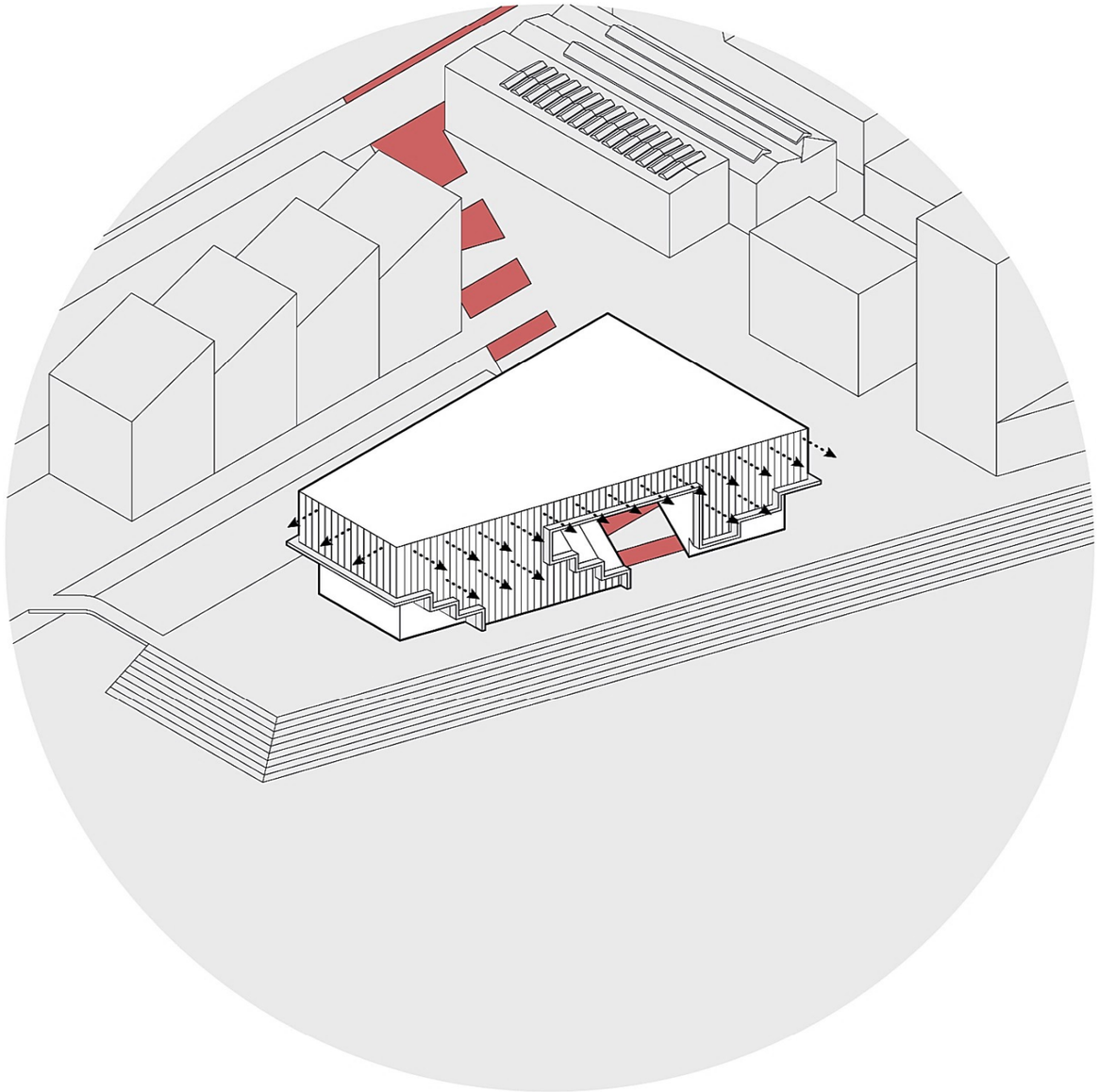


2055

FACADE DESIGN

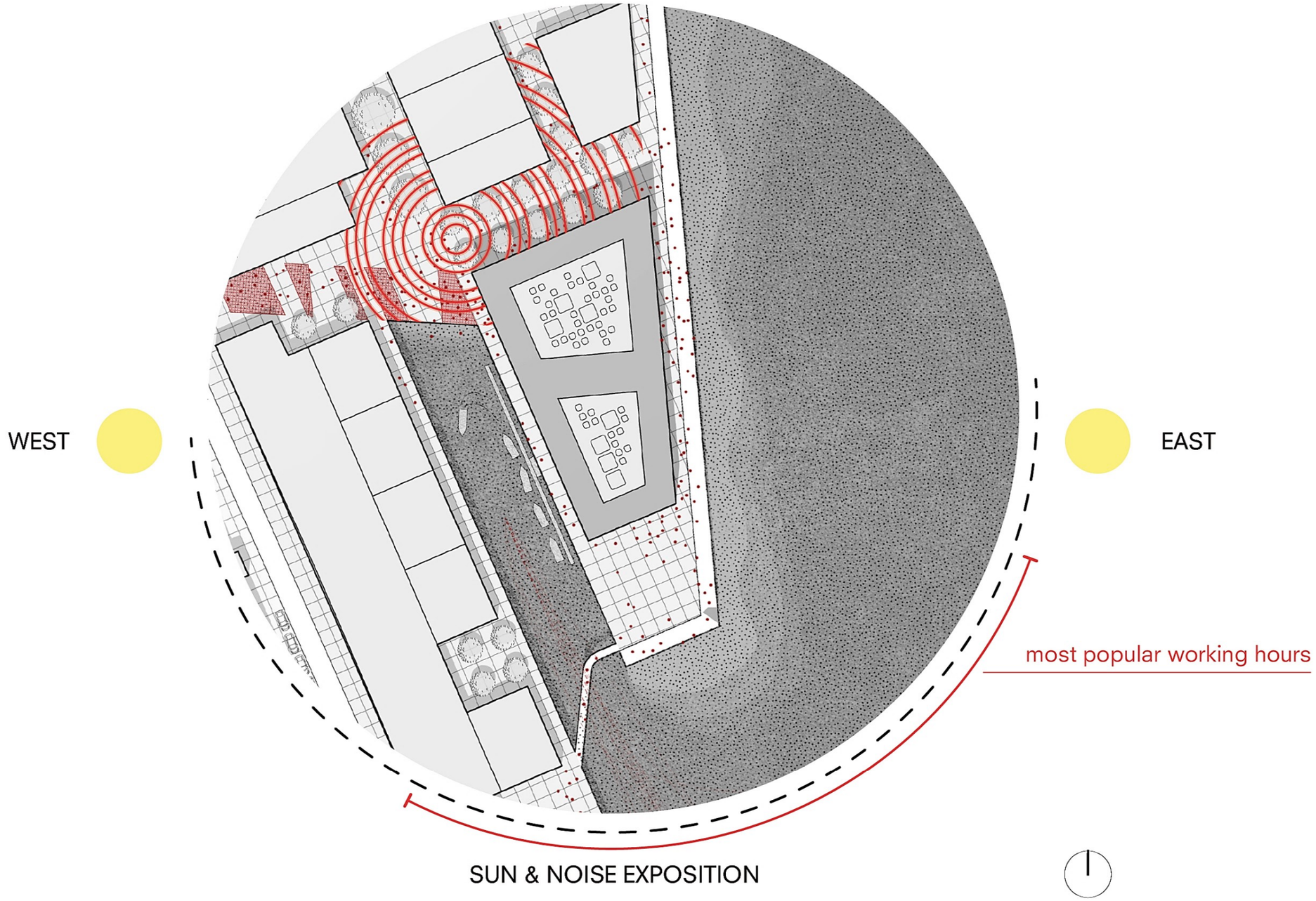
OUTER SKIN

IMPORTANCE OF THE VIEW



EXCEPTIONAL SURROUNDING QUALITIES - VIEW MAXIMIZATION

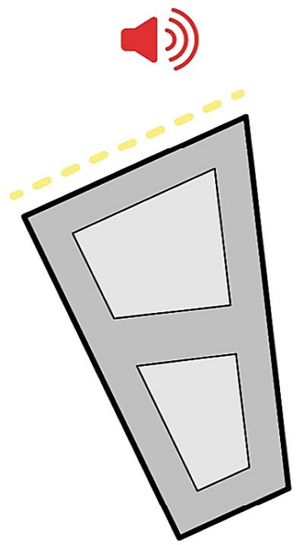
FACADE AFFECTING CONDITIONS



FORMAL FACADE DESIGN QUESTION:

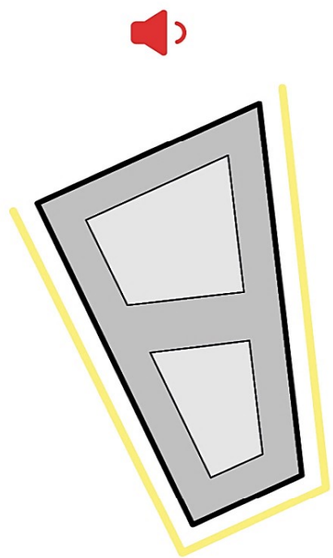
HOW TO **MAXIMIZE THE VIEW** WHILE MAINTAINING **PROTECTION FROM THE SUN AND SOUND**?

SUN AND SOUND EXPOSURE



WEAKER SUN EXPOSURE &
STRONG SOUND EXPOSURE

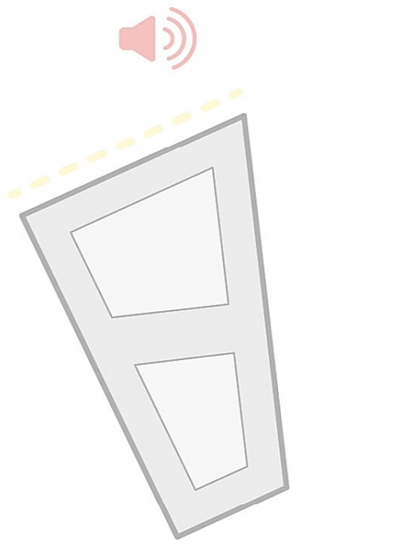
- N facade



STRONG SUN EXPOSURE &
WEAKER SOUND EXPOSURE

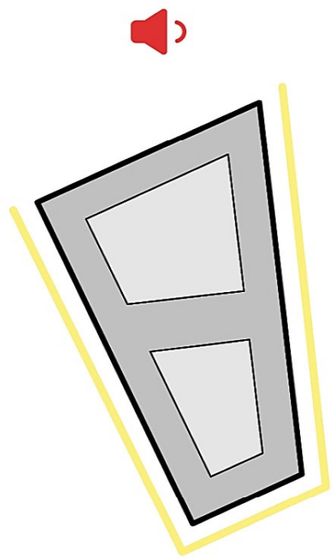
- E, W, S facades

SUN AND SOUND EXPOSURE



WEAKER SUN EXPOSURE &
STRONG SOUND EXPOSURE

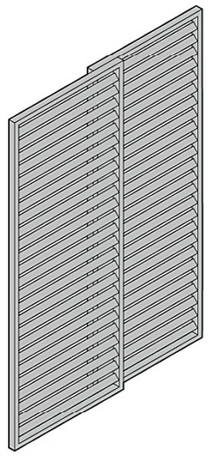
- N facade



STRONG SUN EXPOSURE &
WEAKER SOUND EXPOSURE

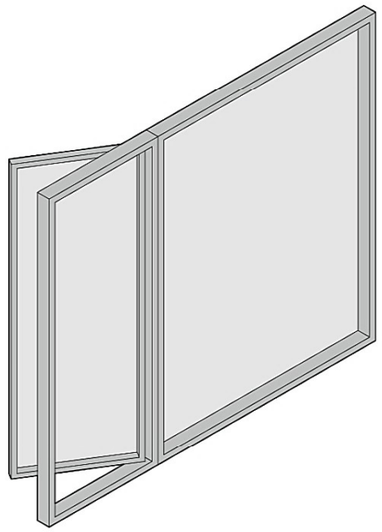
- E, W, S facades

3 ELEMENTS OF SUN PROTECTION



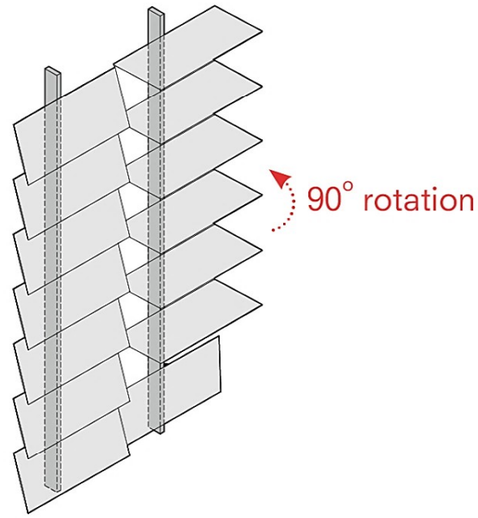
INNER SHADES

- sunrays protection



WINDOWS

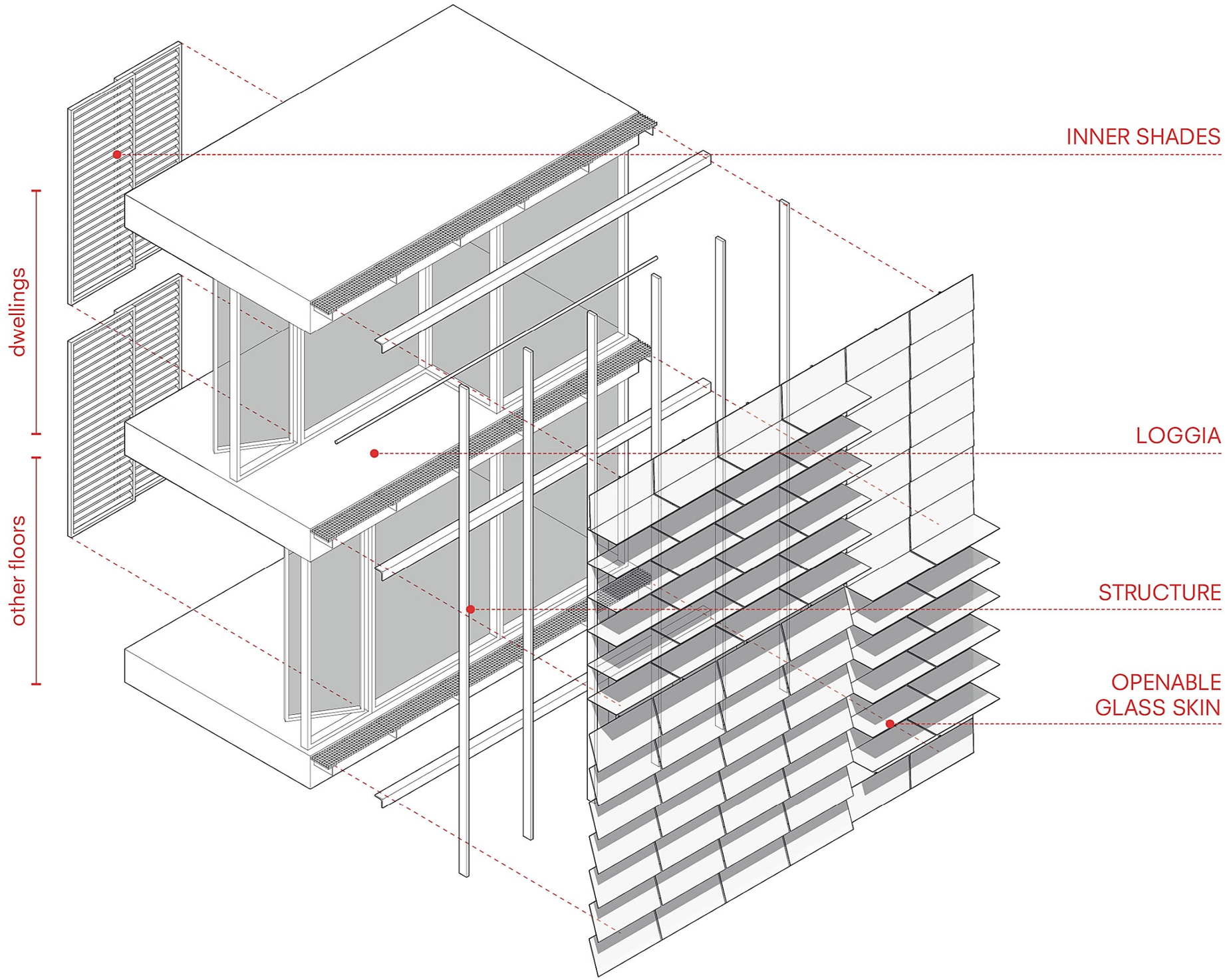
- climate barier



MOTORIZED GLASS LOUVRES

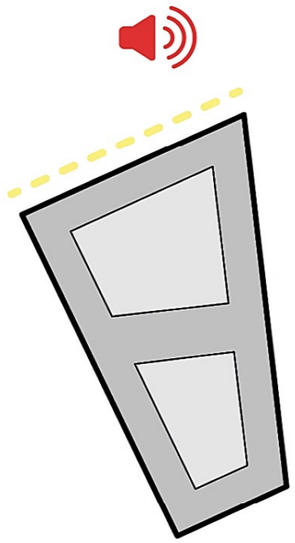
- overheating protection

DOUBLE-SKIN FACADE STRUCTURE



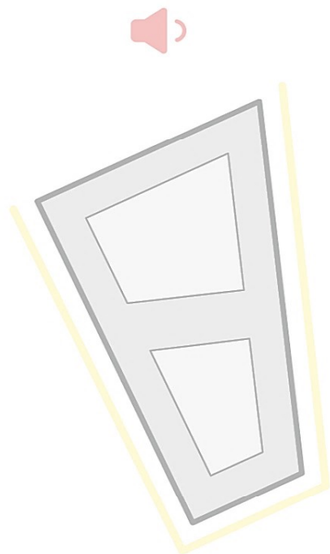
FACADE DESIGN

NORTHERN FACADE



WEAKER SUN EXPOSURE &
STRONG SOUND EXPOSURE

- N facade



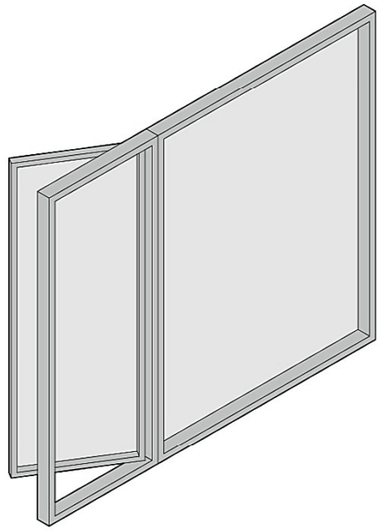
STRONG SUN EXPOSURE &
WEAKER SOUND EXPOSURE

- E, W, S facades

2 ELEMENTS OF SUN PROTECTION

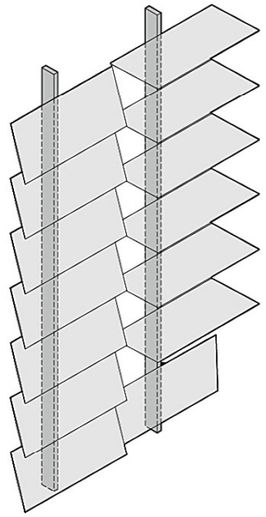
INNER SHADES

- sunrays protection



WINDOWS

- climate barier

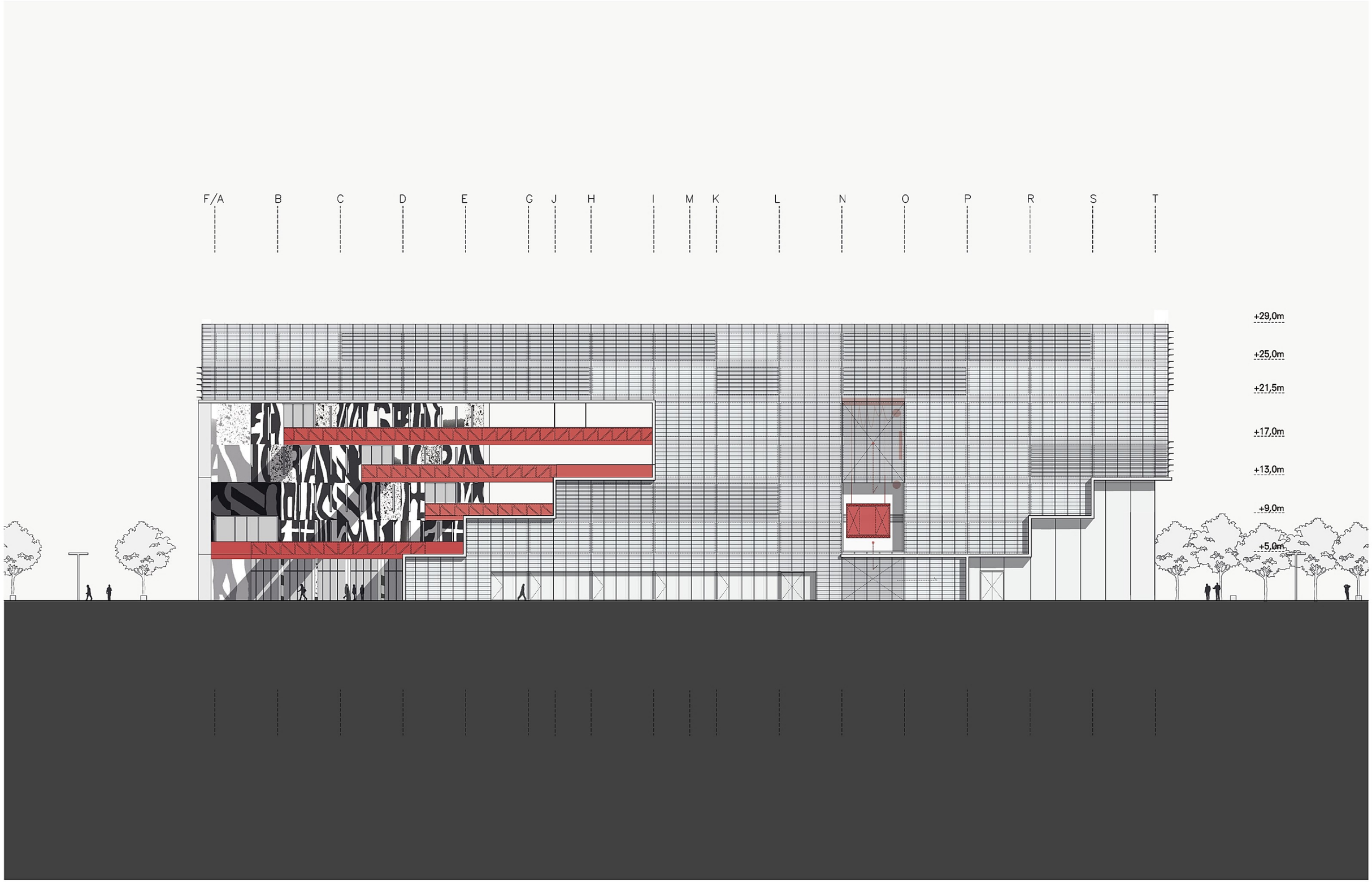


FIXED GLASS LOUVRES

- acoustic protection

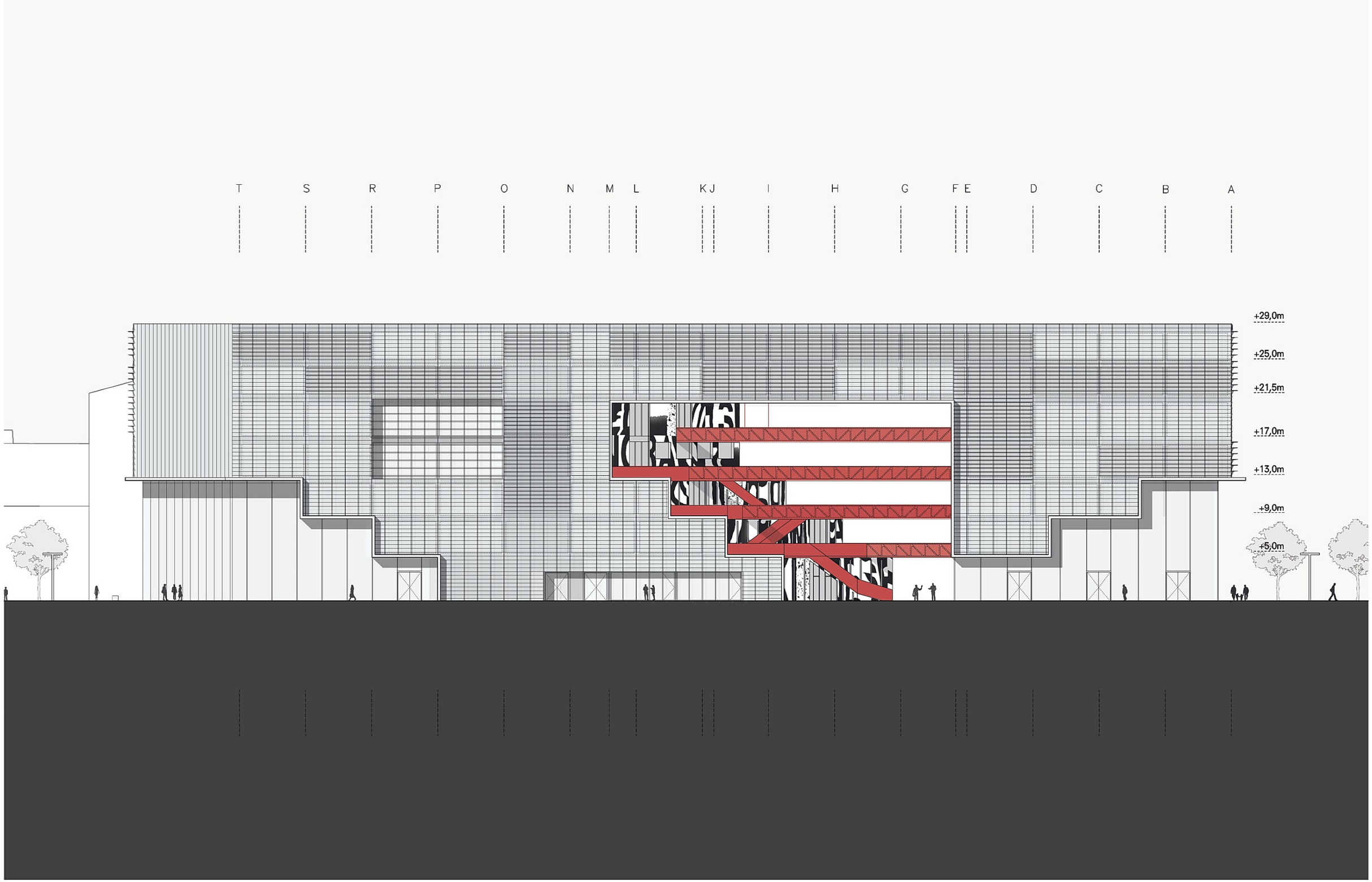
THE VIEW FROM THE INSIDE

WESTERN FACADE, 1:200



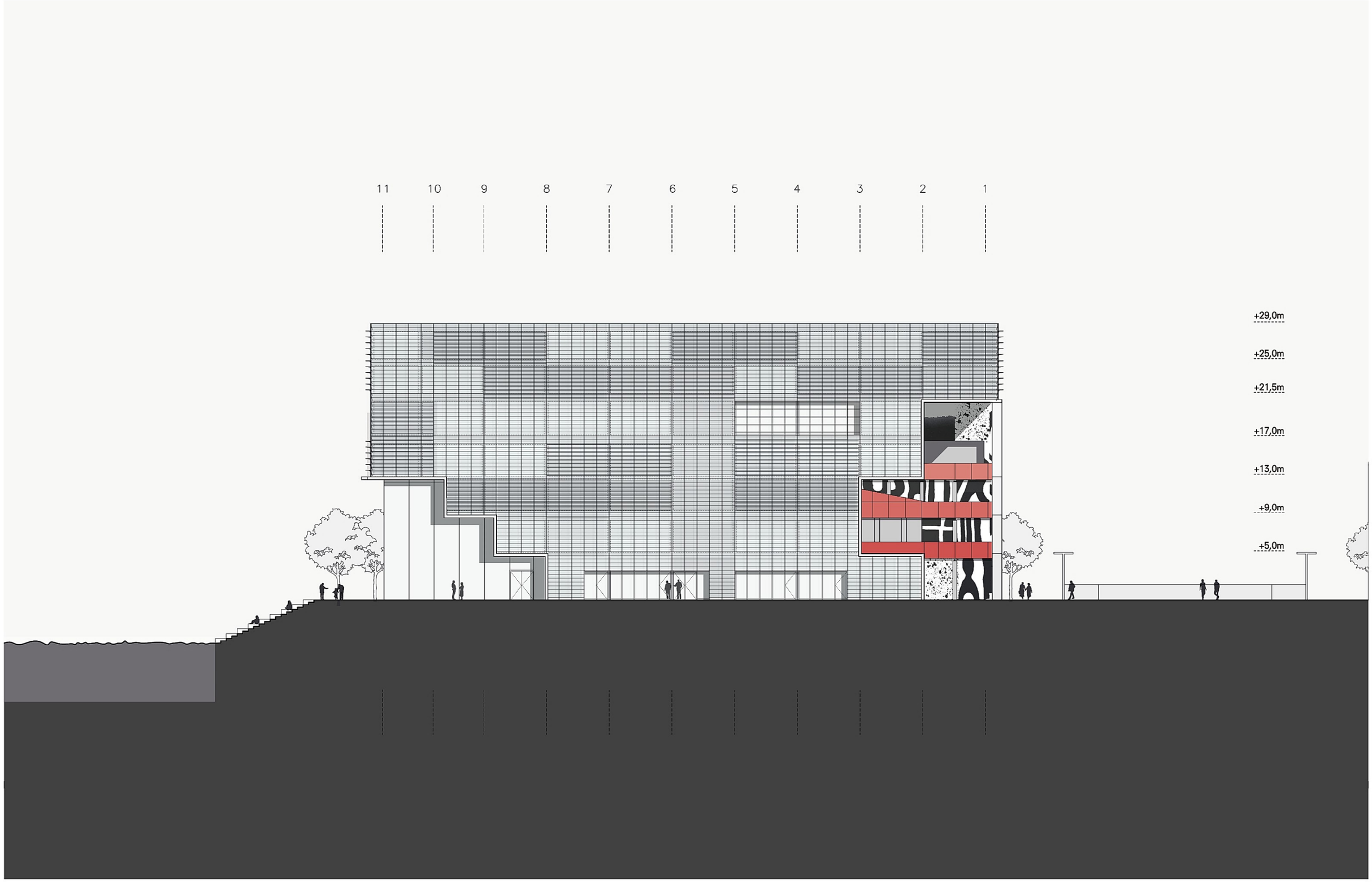
0m 10m 20m

EASTERN FACADE, 1:200



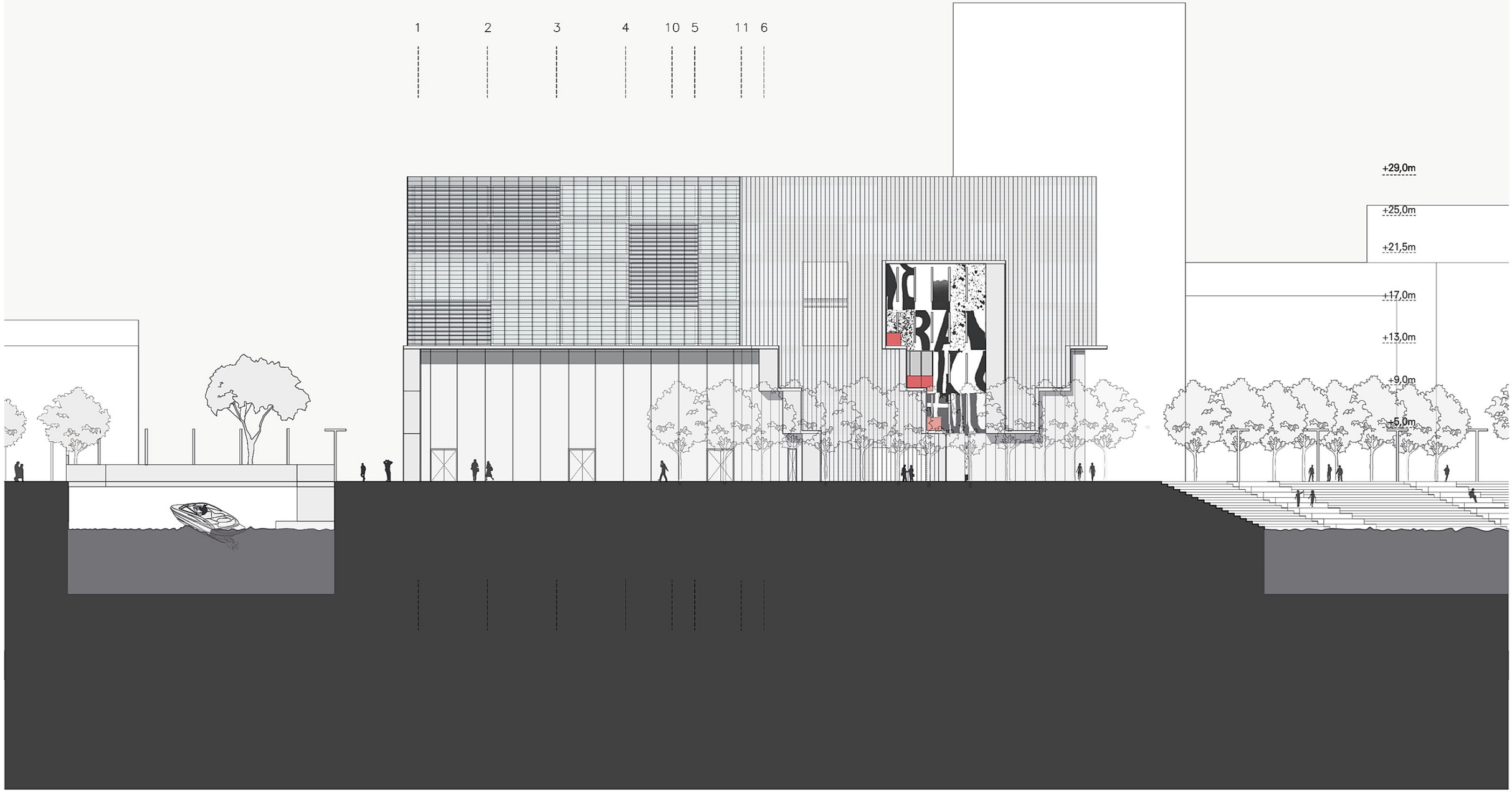
0m 10m 20m

NORTHERN FACADE, 1:200



0m 10m 20m

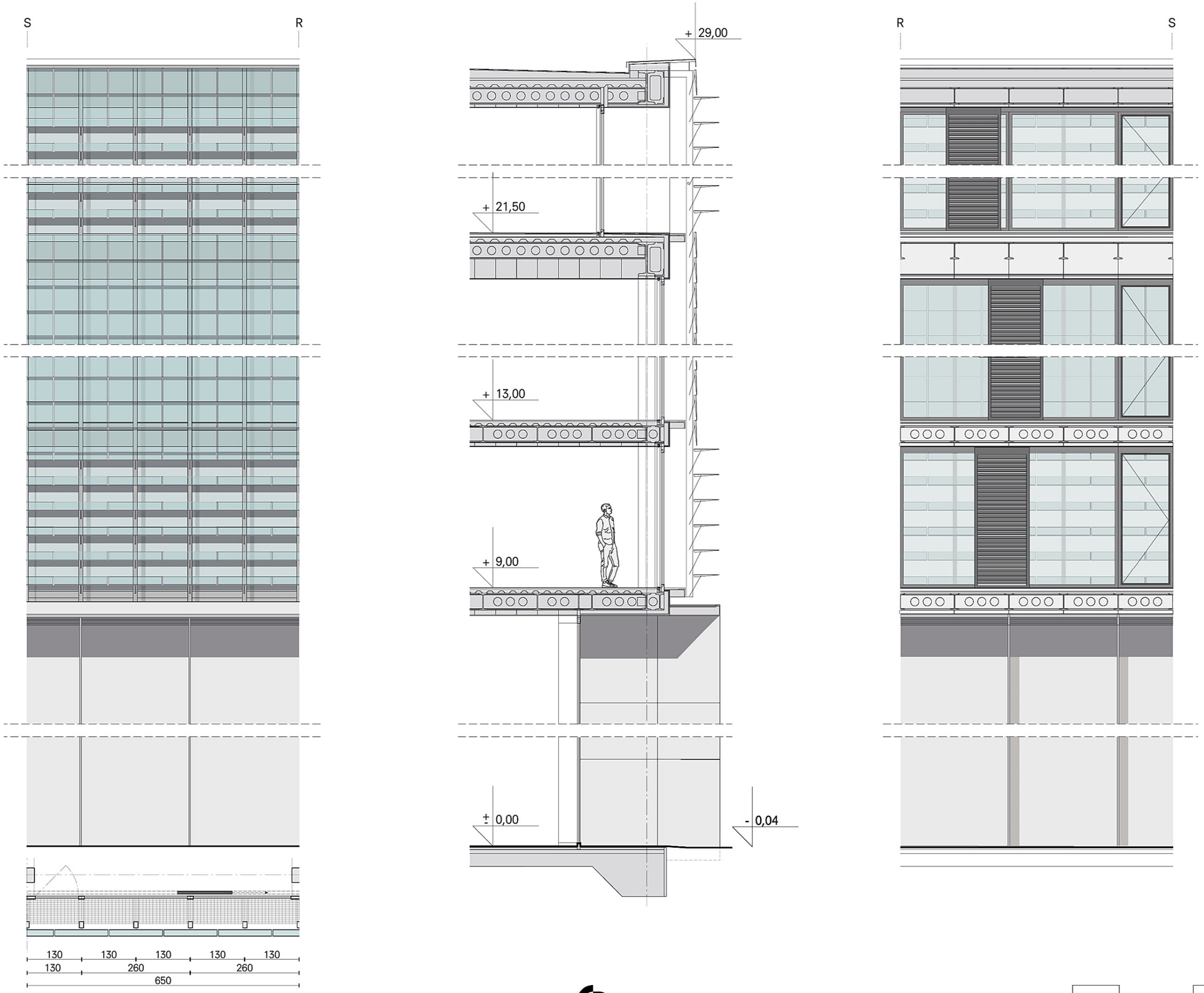
SOUTHERN FACADE, 1:200



0m 10m 20m

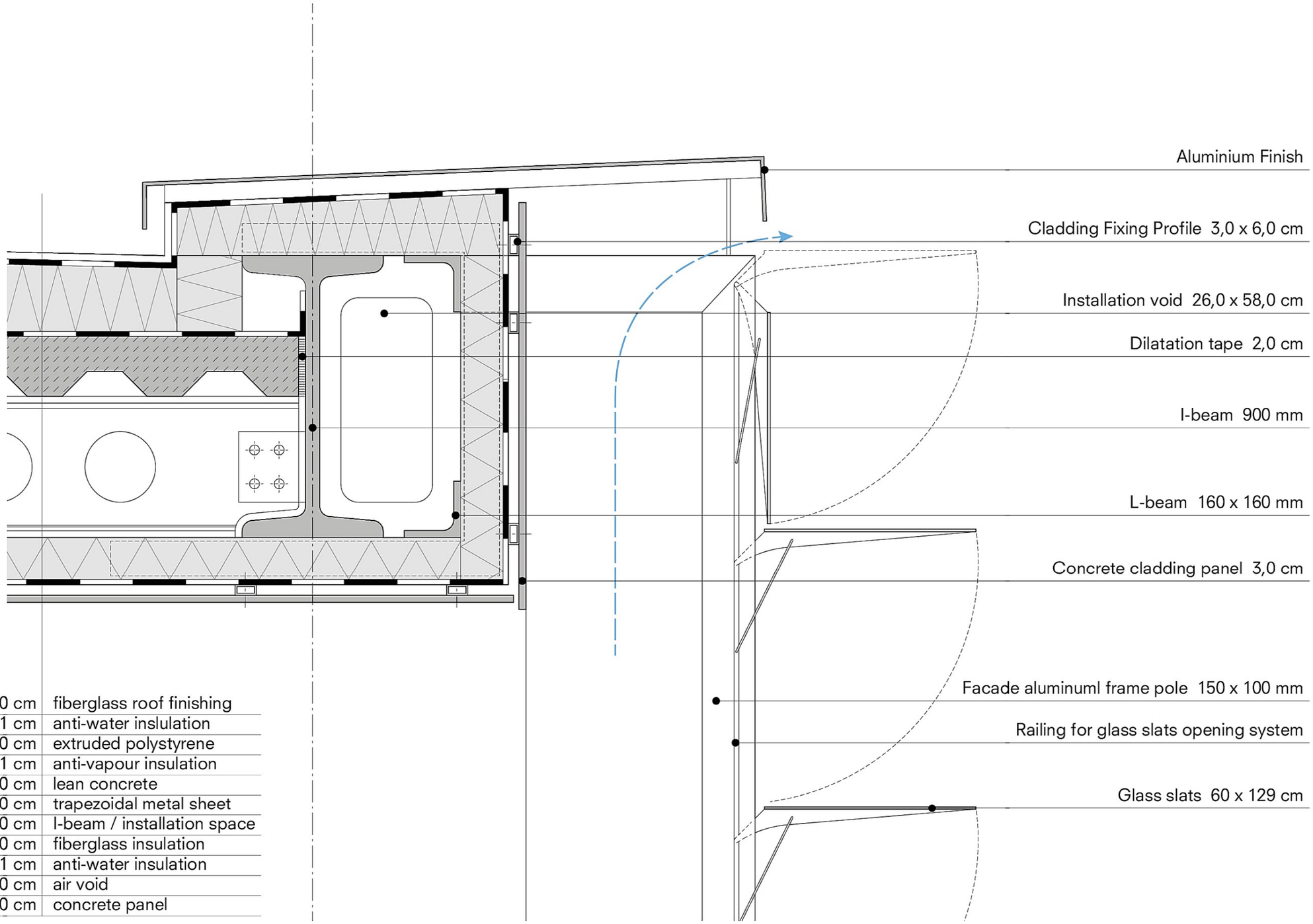
THE VIEW FROM THE MAAS

ENVELOPE FRAGMENT, 1:20



0m 1m 2,5m 5m

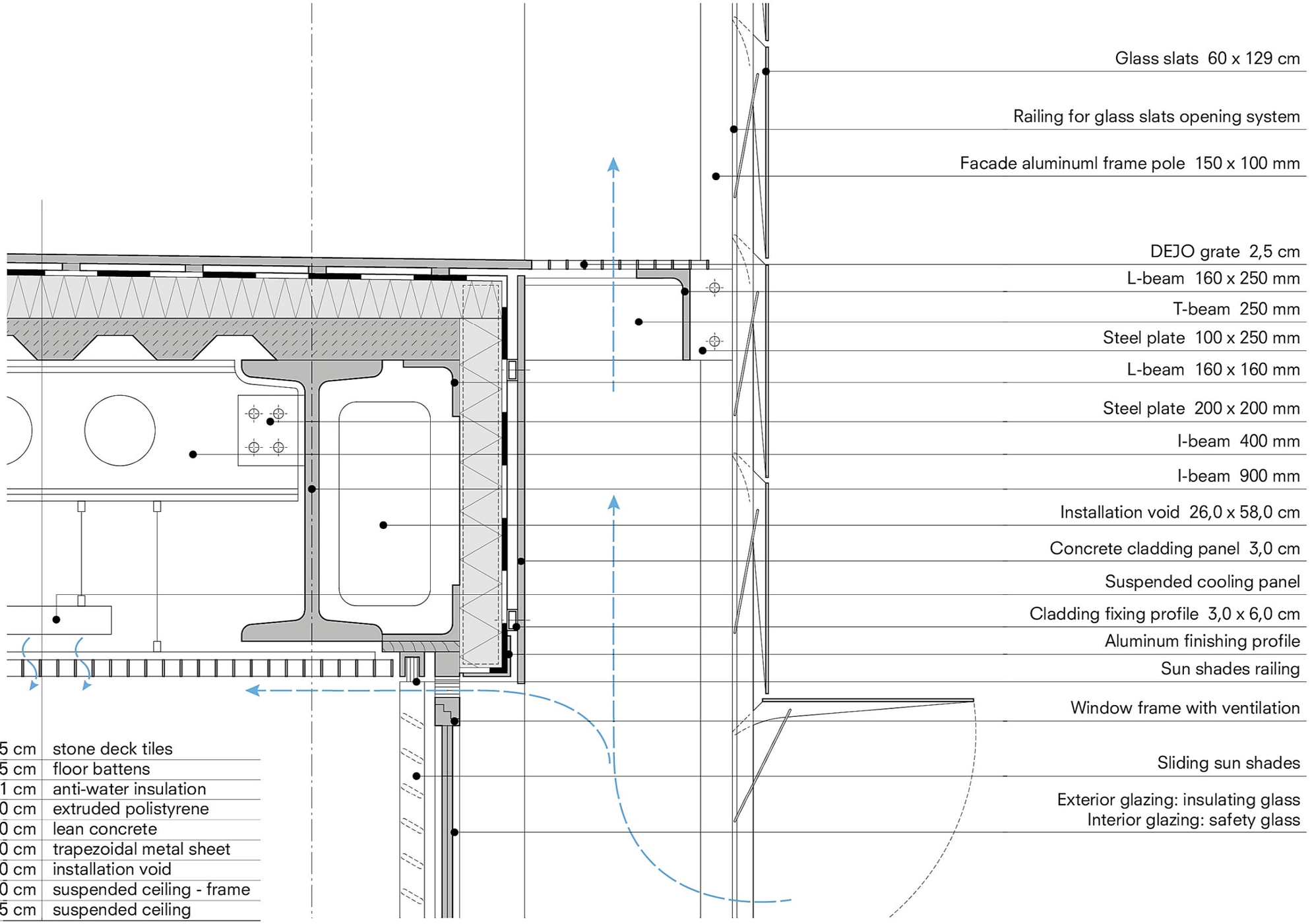
ROOF DETAIL, 1:5



1,0 cm	fiberglass roof finishing
0,1 cm	anti-water inslulation
17,0 cm	extruded polystyrene
0,1 cm	anti-vapour insulation
10,0 cm	lean concrete
7,0 cm	trapezoidal metal sheet
40,0 cm	I-beam / installation space
12,0 cm	fiberglass insulation
0,1 cm	anti-water insulation
3,0 cm	air void
2,0 cm	concrete panel

0cm 10cm 30cm 50cm 100cm

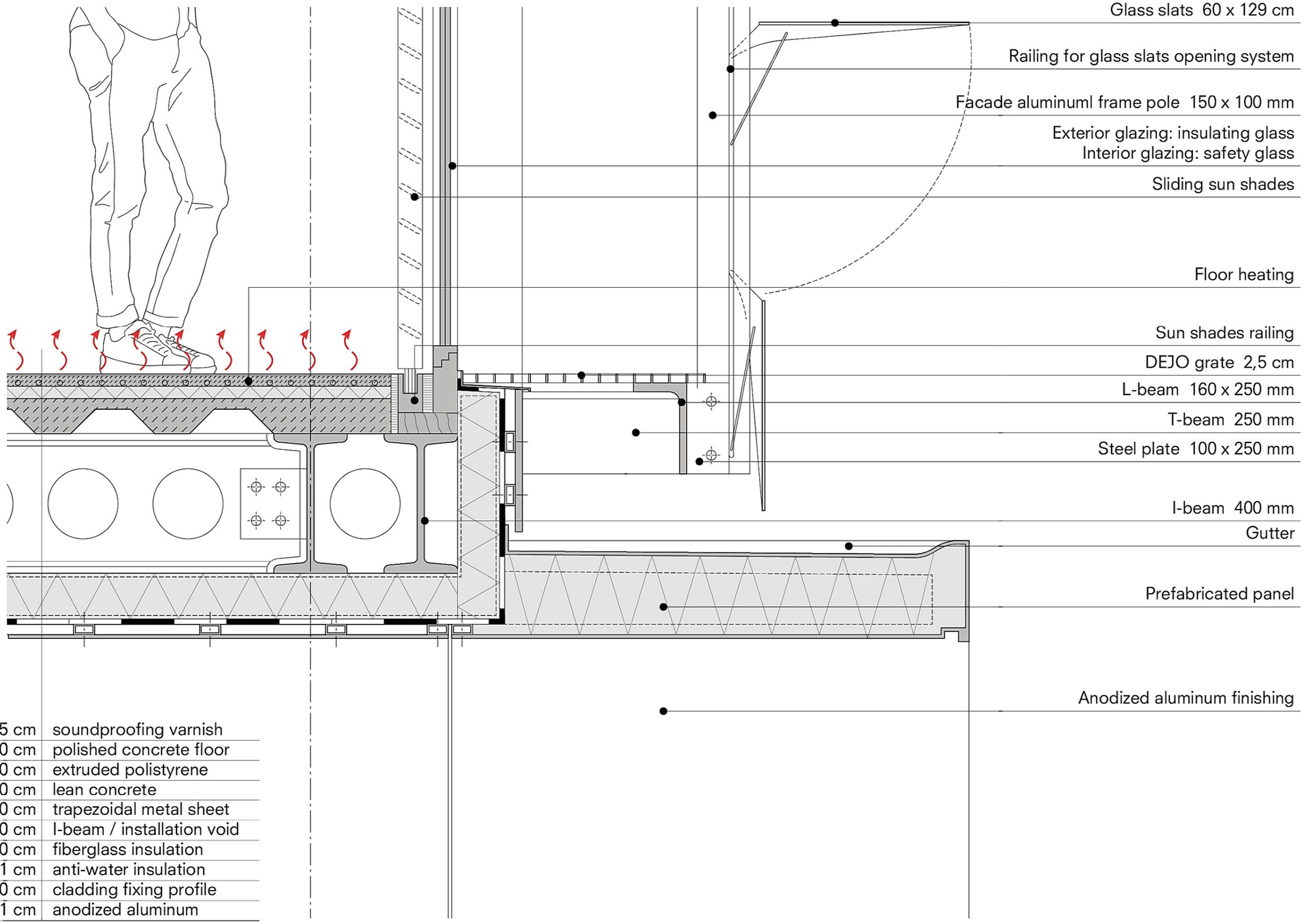
MIDDLE PART DETAIL, 1:5



2,5 cm	stone deck tiles
2,5 cm	floor battens
0,01 cm	anti-water insulation
15,0 cm	extruded polistyrene
5,0 cm	lean concrete
7,0 cm	trapezoidal metal sheet
90 cm	installation void
2,0 cm	suspended ceiling - frame
4,5 cm	suspended ceiling

0cm 10cm 30cm 50cm 100cm

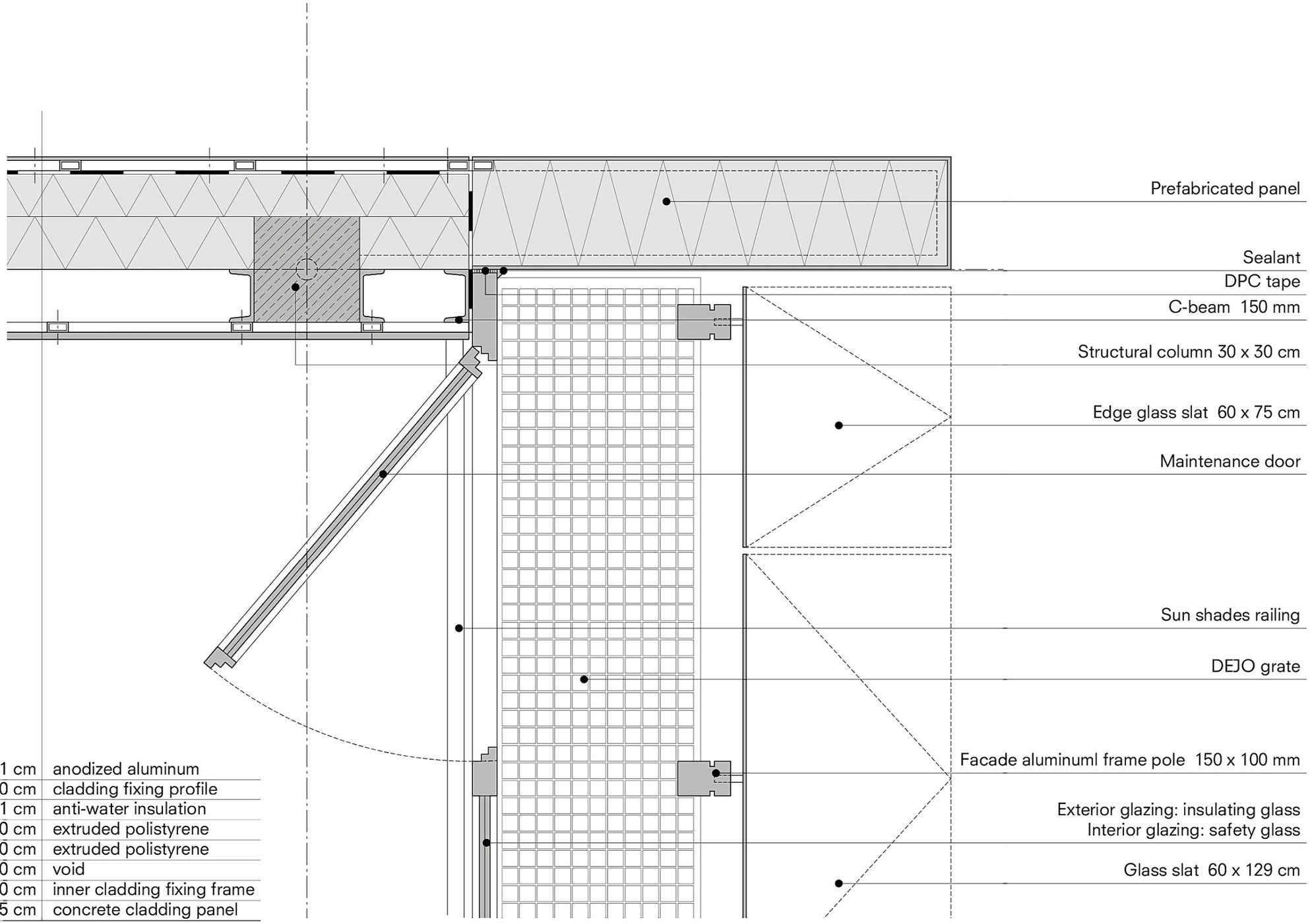
RIBBON DETAIL, 1:5



0,5 cm	soundproofing varnish
3,0 cm	polished concrete floor
3,0 cm	extruded polistyrene
5,0 cm	lean concrete
4,0 cm	trapezoidal metal sheet
40,0 cm	I-beam / installation void
13,0 cm	fiberglass insulation
0,01 cm	anti-water insulation
3,0 cm	cladding fixing profile
0,01 cm	anodized aluminum

0cm 10cm 30cm 50cm 100cm

THE HORIZONTAL DETAIL, 1:5



0,1 cm	anodized aluminum
3,0 cm	cladding fixing profile
0,1 cm	anti-water insulation
10,0 cm	extruded polistyrene
15,0 cm	extruded polistyrene
15,0 cm	void
3,0 cm	inner cladding fixing frame
2,5 cm	concrete cladding panel

0cm 10cm 30cm 50cm 100cm

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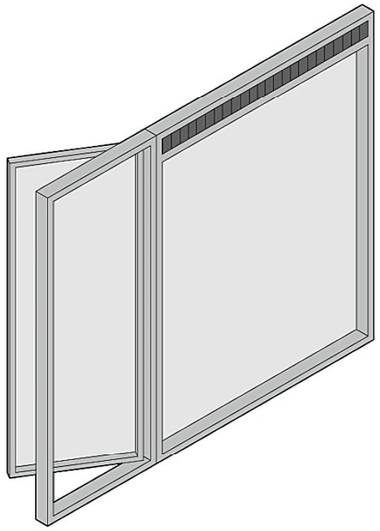
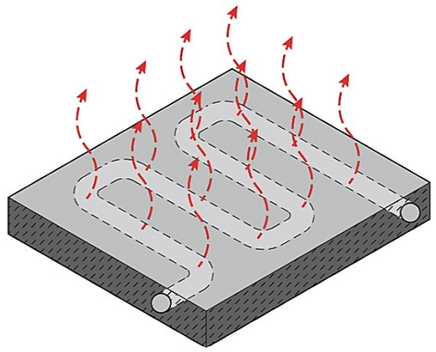
3 ELEMENTS OF CLIMATE REGULATION

SUPPLIED BY **WATER FROM AQUIFERS**



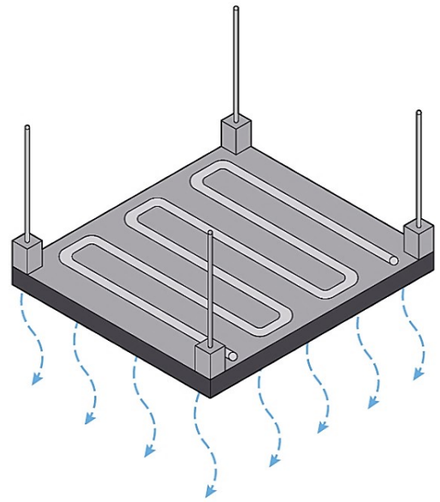
CROSS VENTILATION

- cross ventilation



FLOOR HEATING

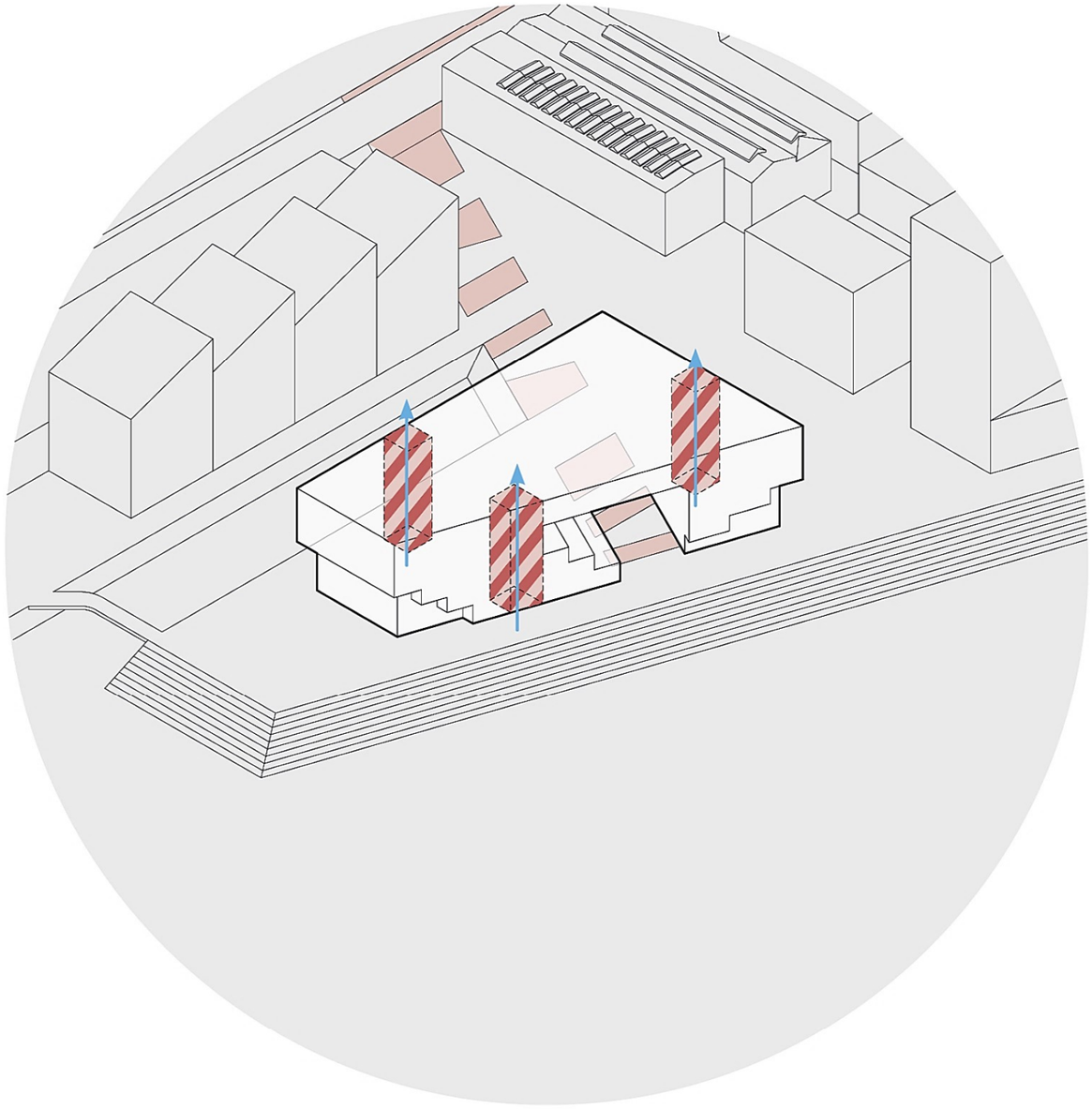
- winter heating



COOLING PANELS

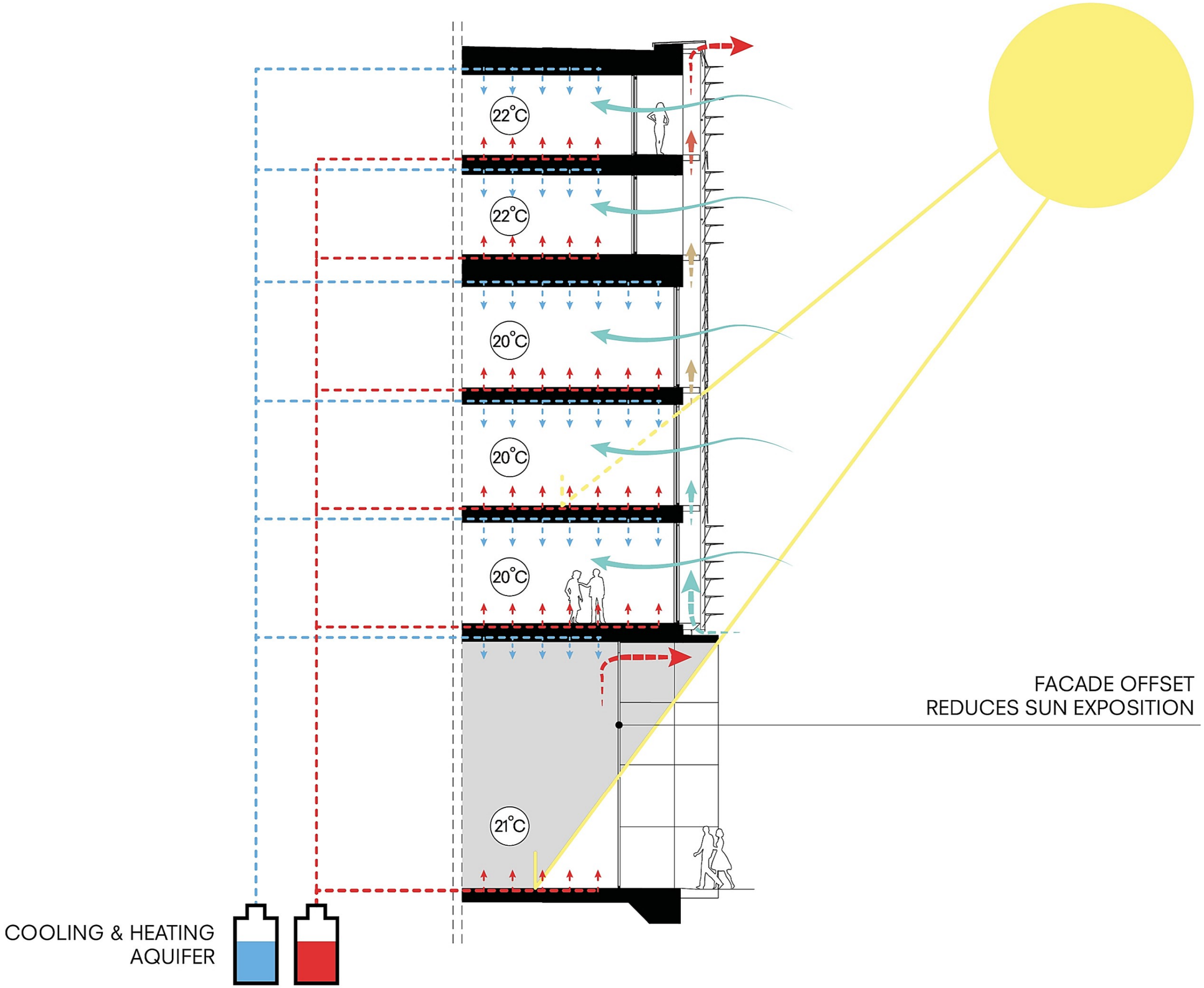
- summer cooling

AQUIFERS WATER DISTRIBUTION

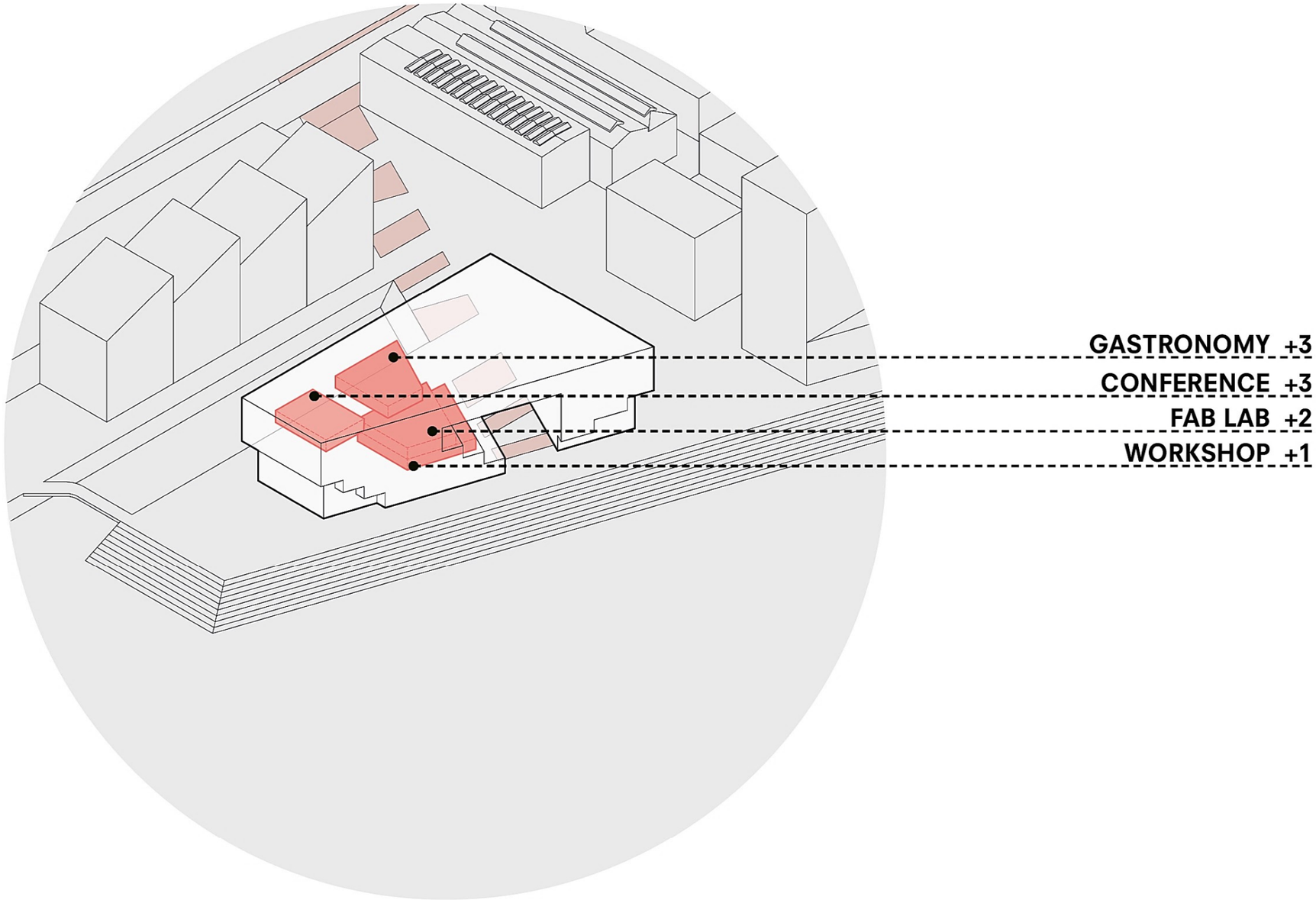


WATER DISTRIBUTION THRUOGH CORES

CLIMATE SCHEME

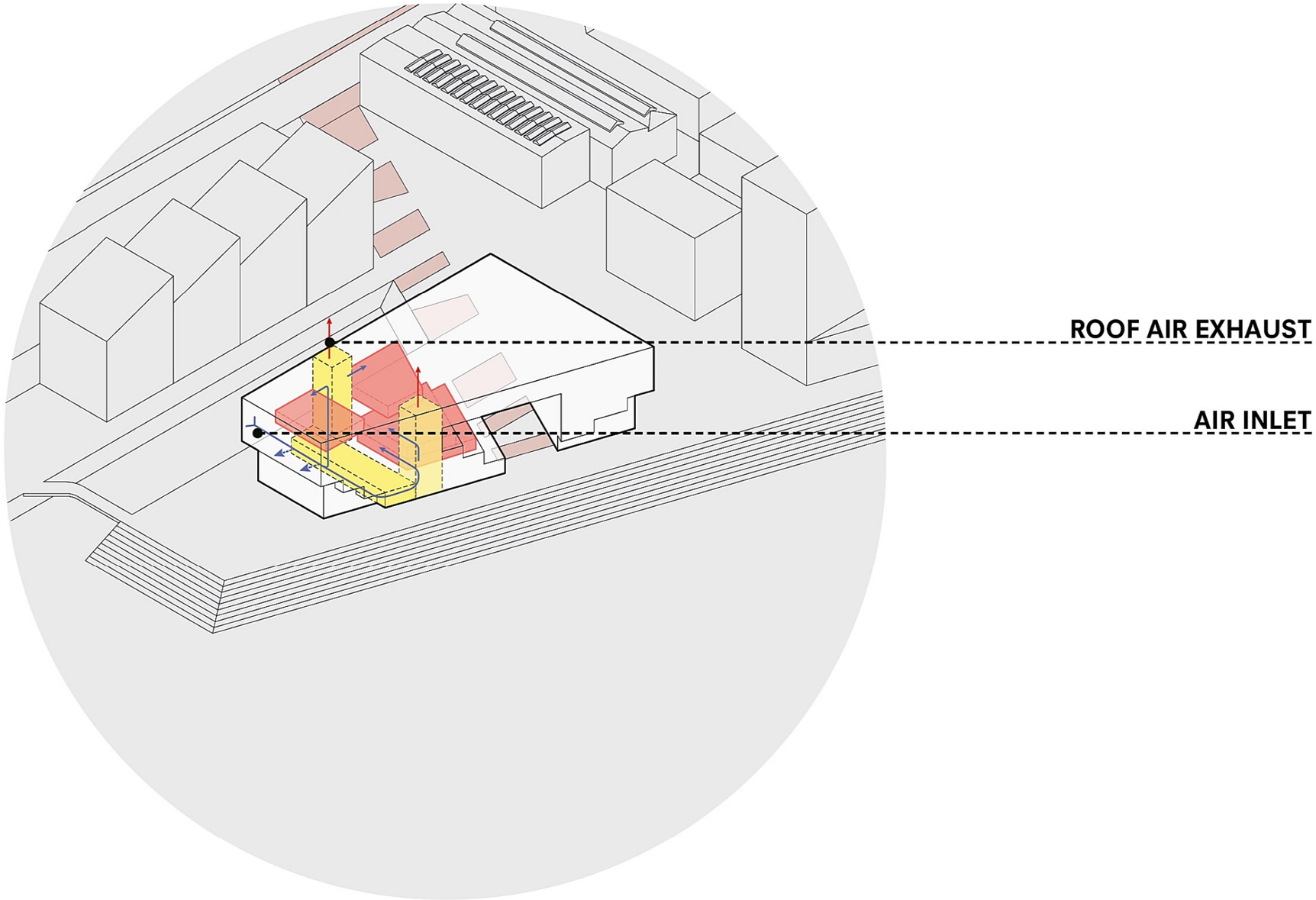


MECHANICAL VENTILATION SUPPORT



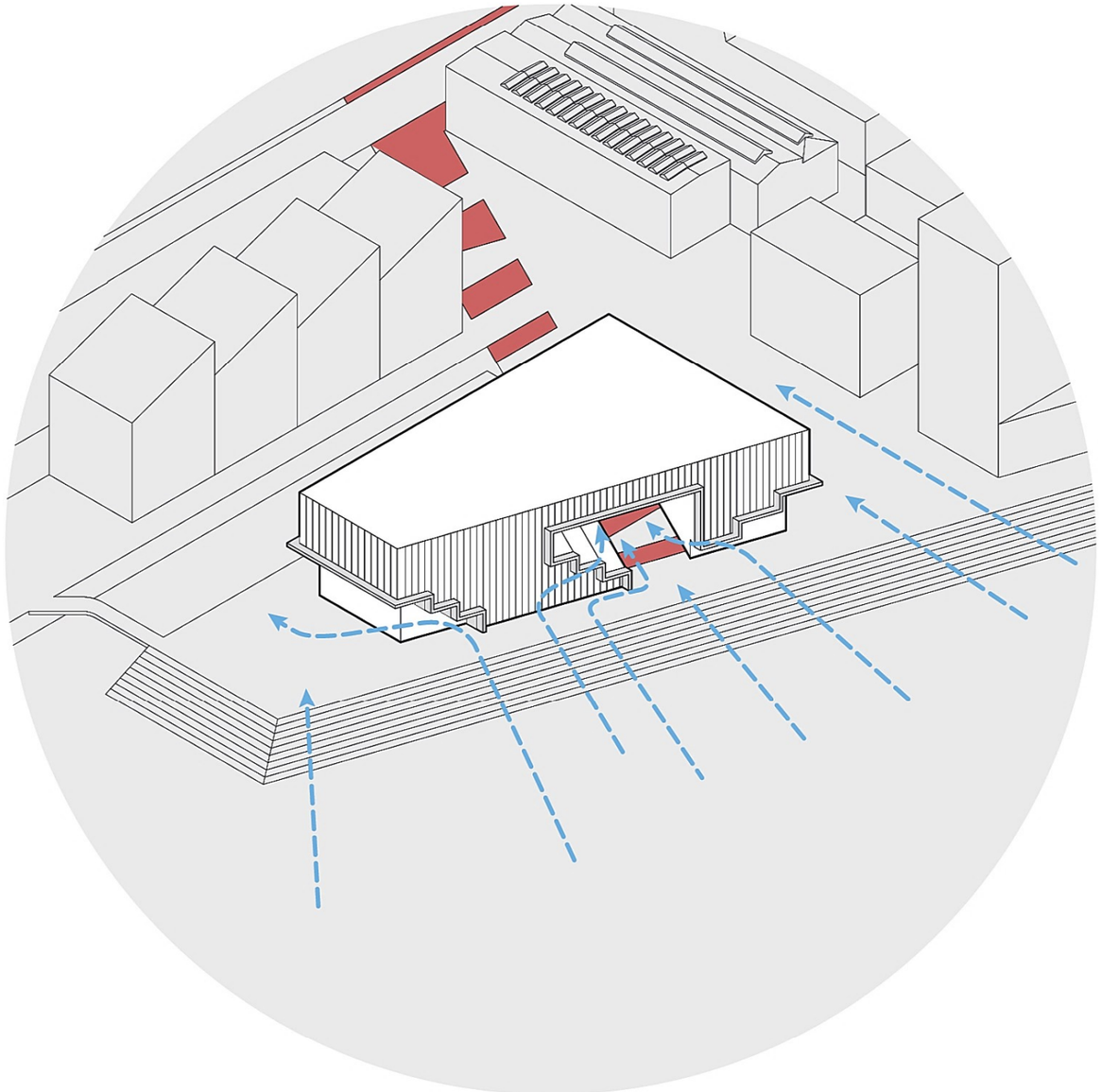
NEED MECHANICAL VENTILATION SUPPORT

AIR DUCTING



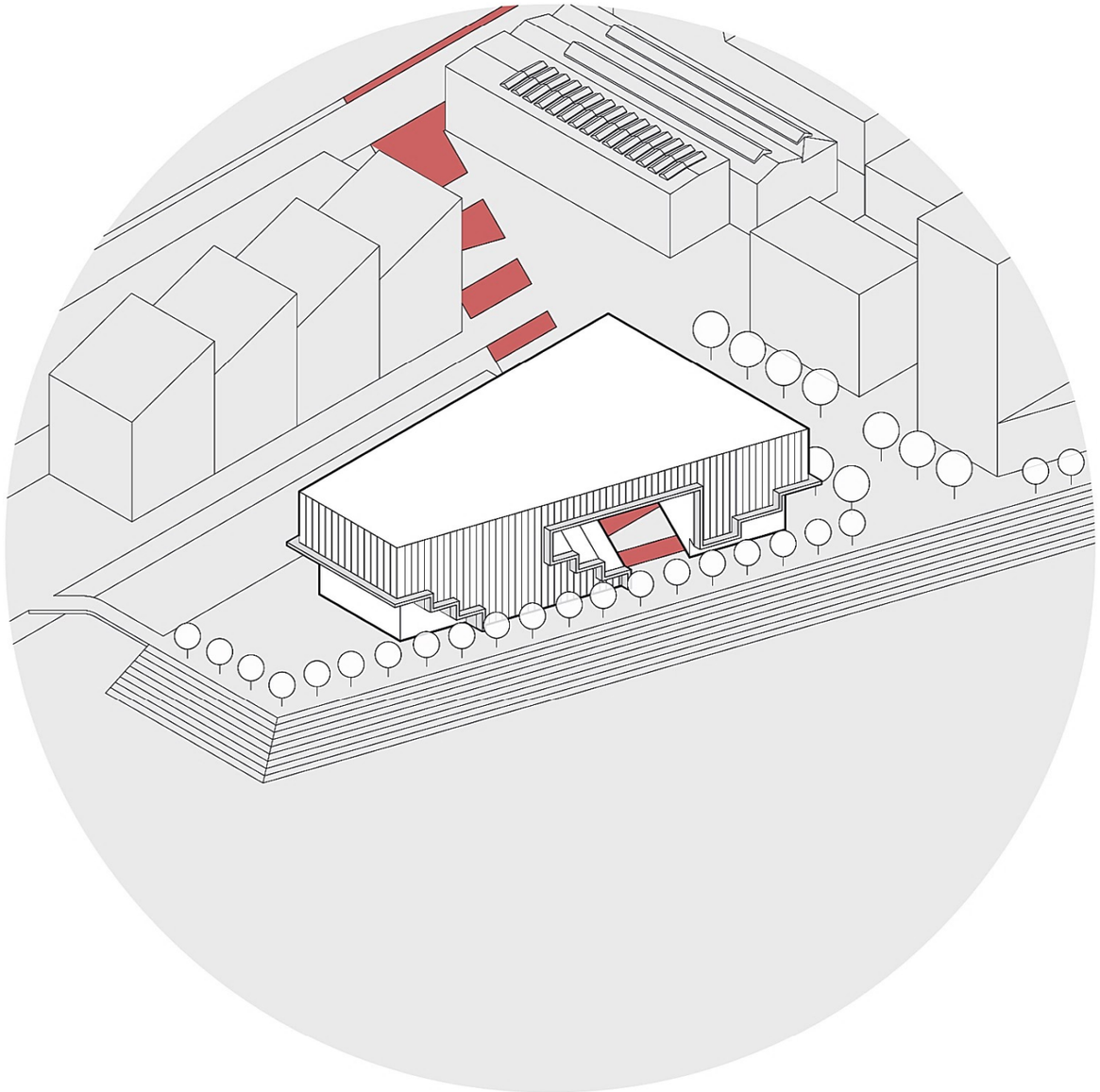
MECHANICAL VENTILATION DUCTING

WIND EXPOSURE



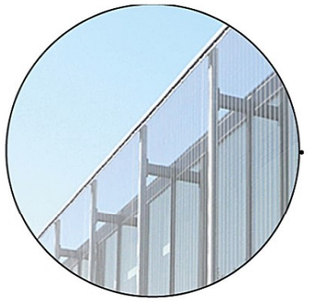
WIND BLOW

FIRST LEVEL OF PROTECTION

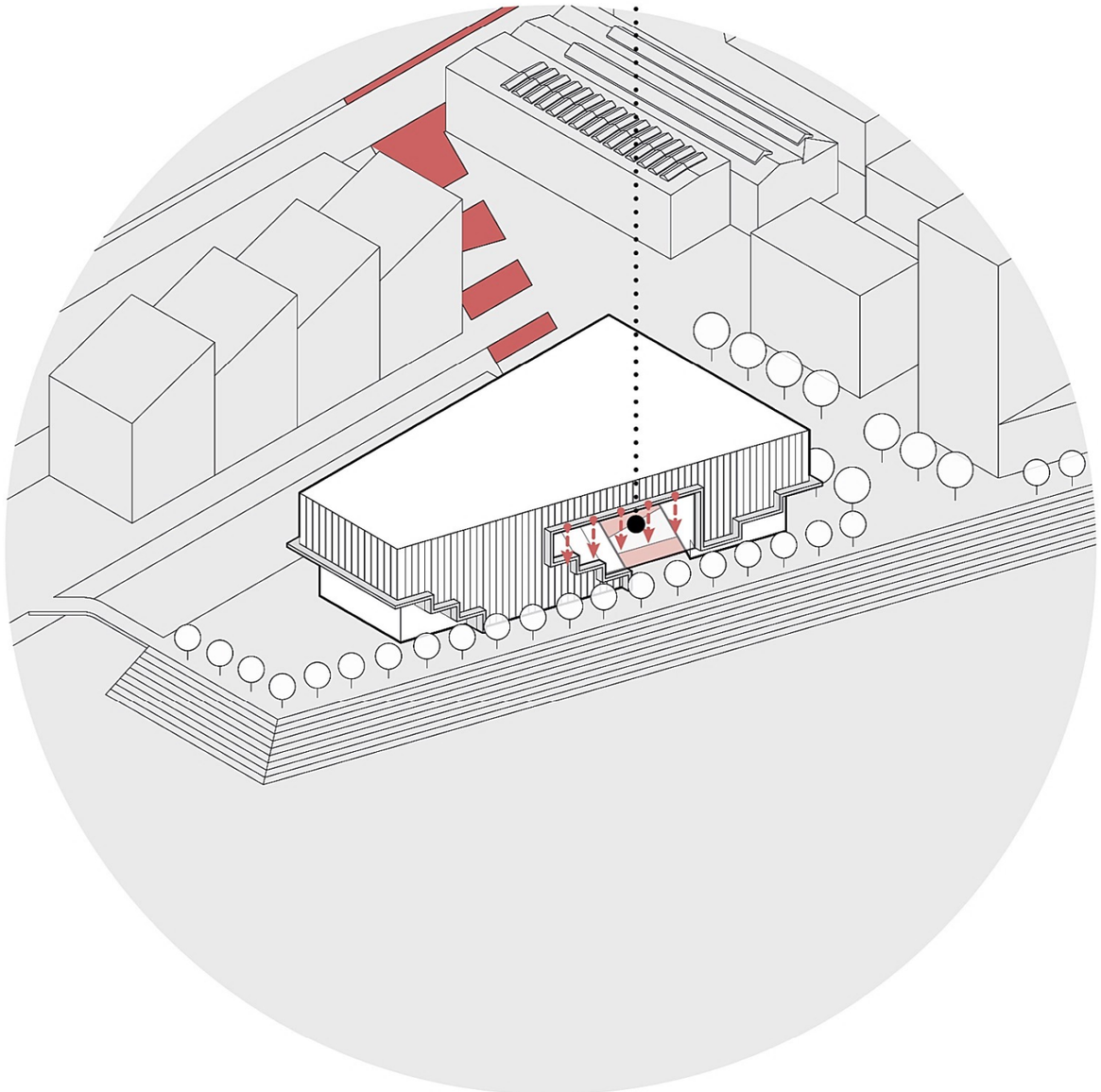


URBAN GREENERY - PEDESTRIAN LEVEL PROTECTION

SECOND LEVEL OF PROTECTION



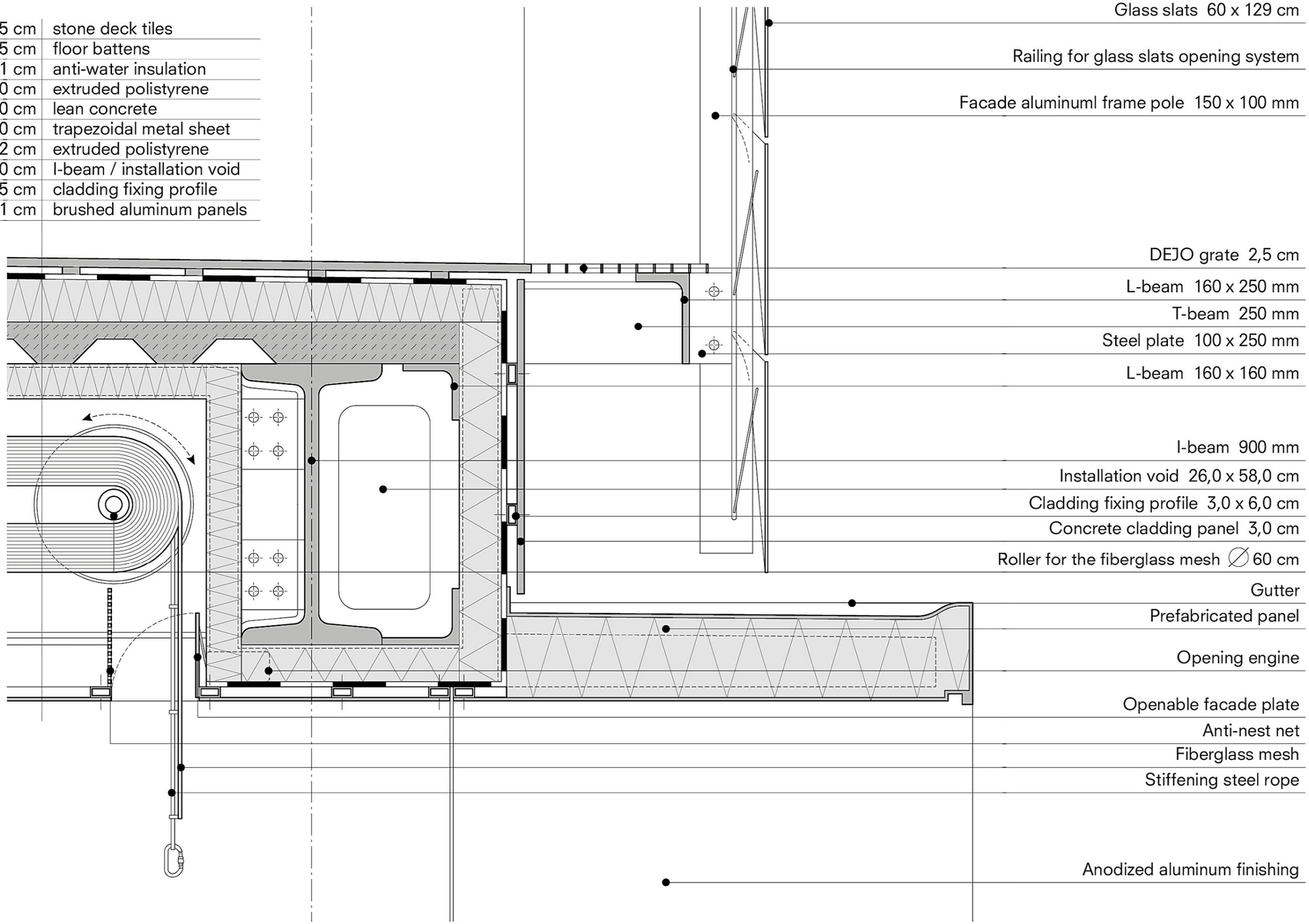
FIBERGLASS MESH



OPENABLE FIBERGLASS MESH - UPPER LEVELS PROTECTION

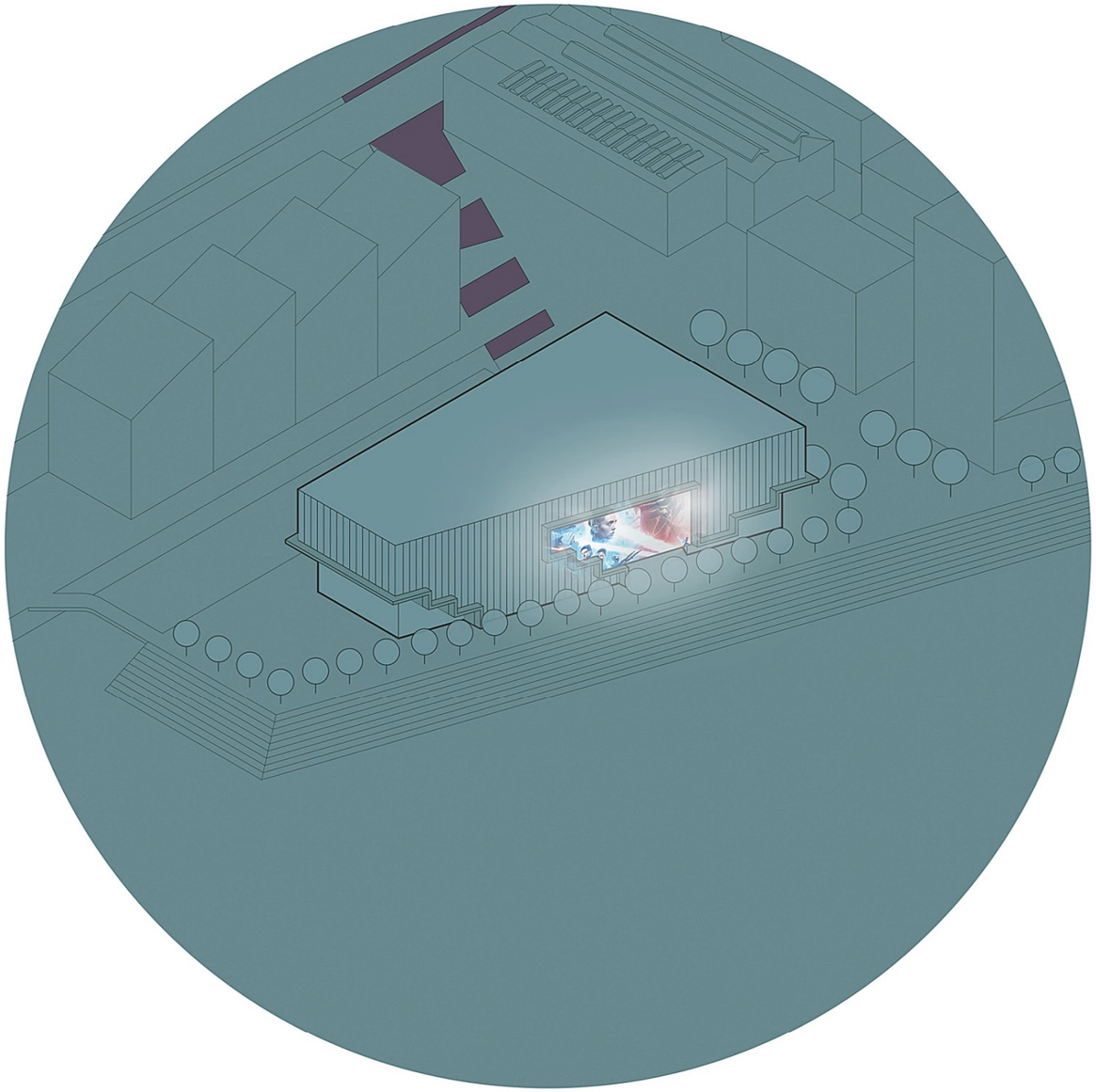
FIBERGLASS MESH HIDING SYSTEM DETAIL

2,5 cm	stone deck tiles
2,5 cm	floor battens
0,01 cm	anti-water insulation
15,0 cm	extruded polistyrene
5,0 cm	lean concrete
7,0 cm	trapezoidal metal sheet
12 cm	extruded polistyrene
90,0 cm	I-beam / installation void
2,5 cm	cladding fixing profile
0,01 cm	brushed aluminum panels



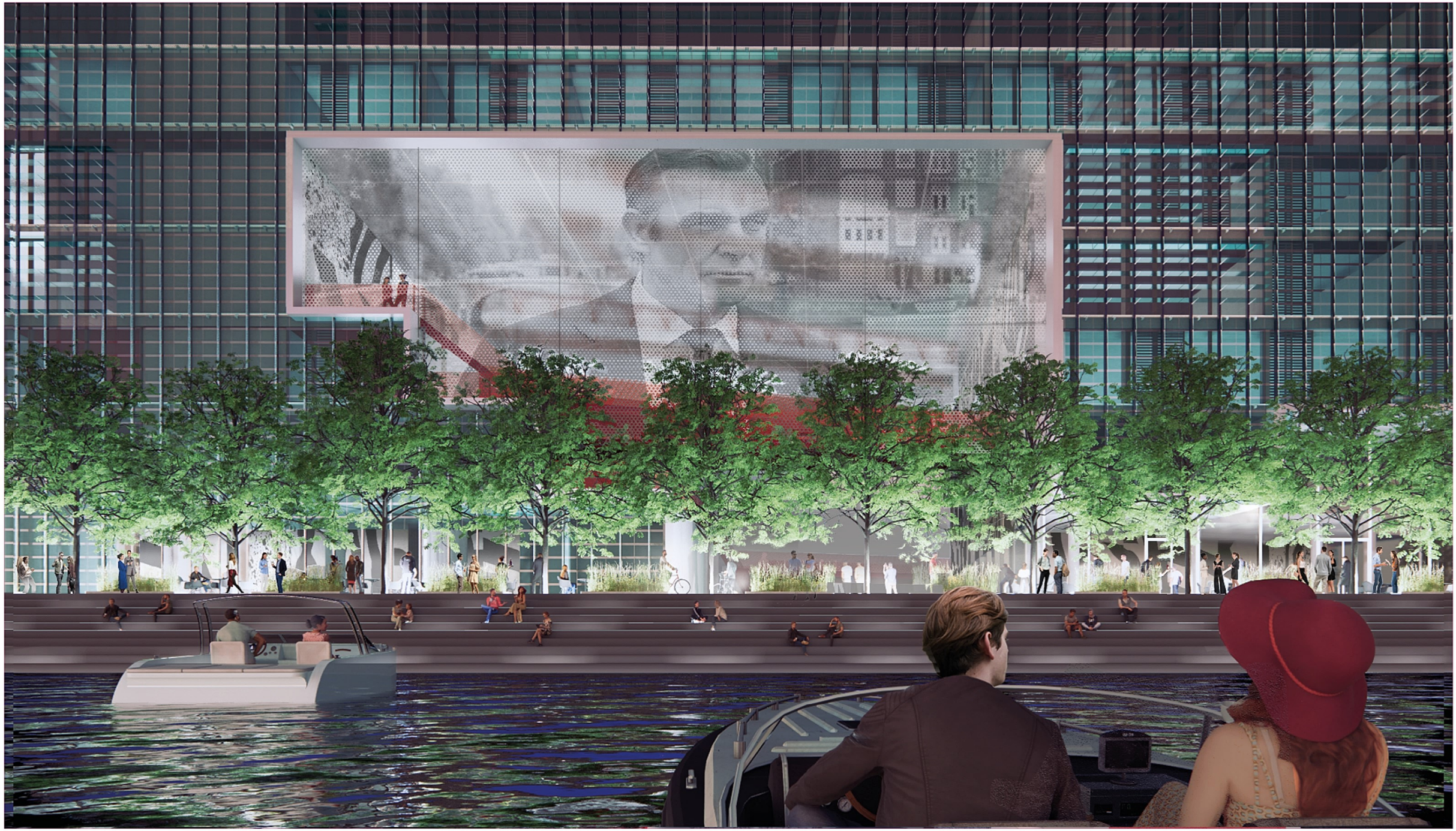
0cm 10cm 30cm 50cm 100cm

ADDITIONAL FUNCTION AT NIGHT

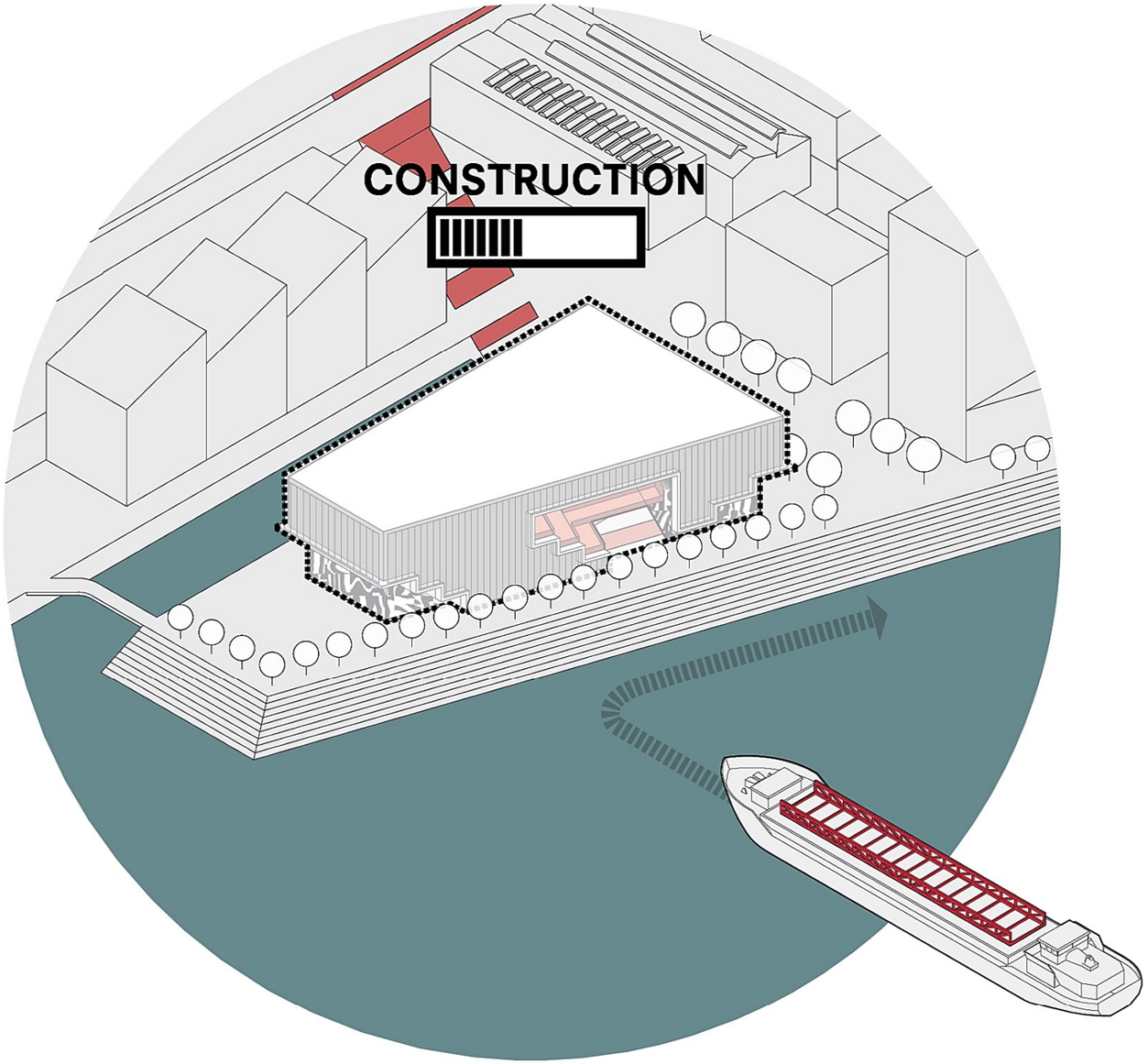


NIGHT SCREEN

FACADE AT NIGHT AS A DISPLAY

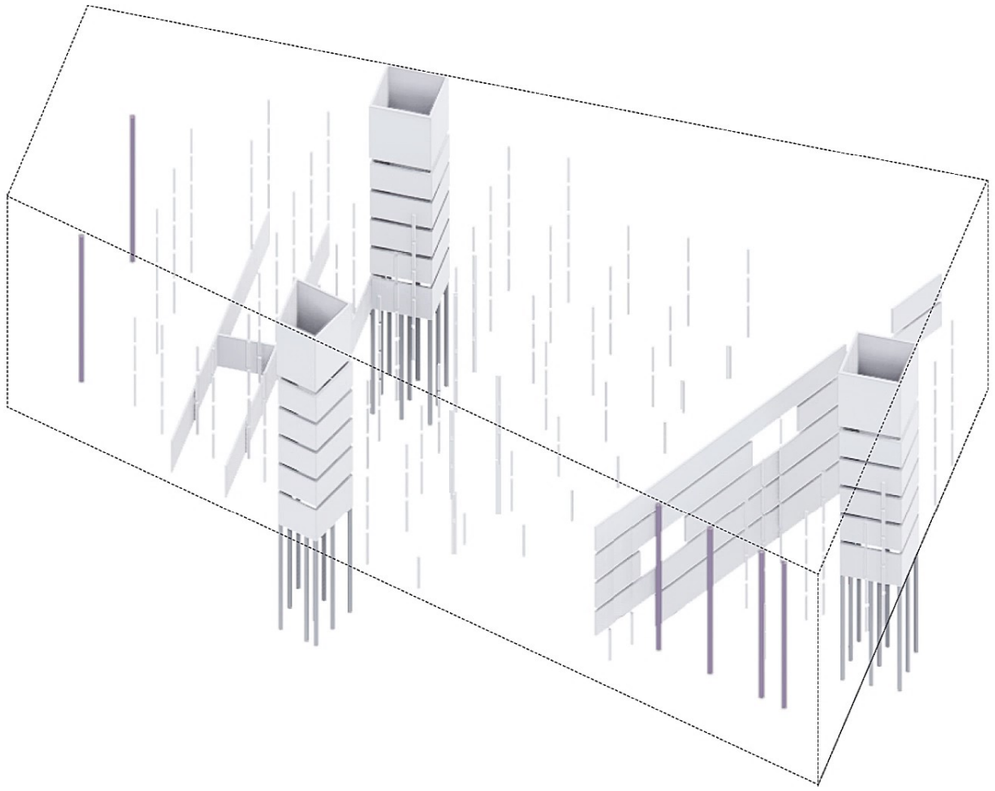


CONSTRUCTION PROCESS - SUSTAINABILITY



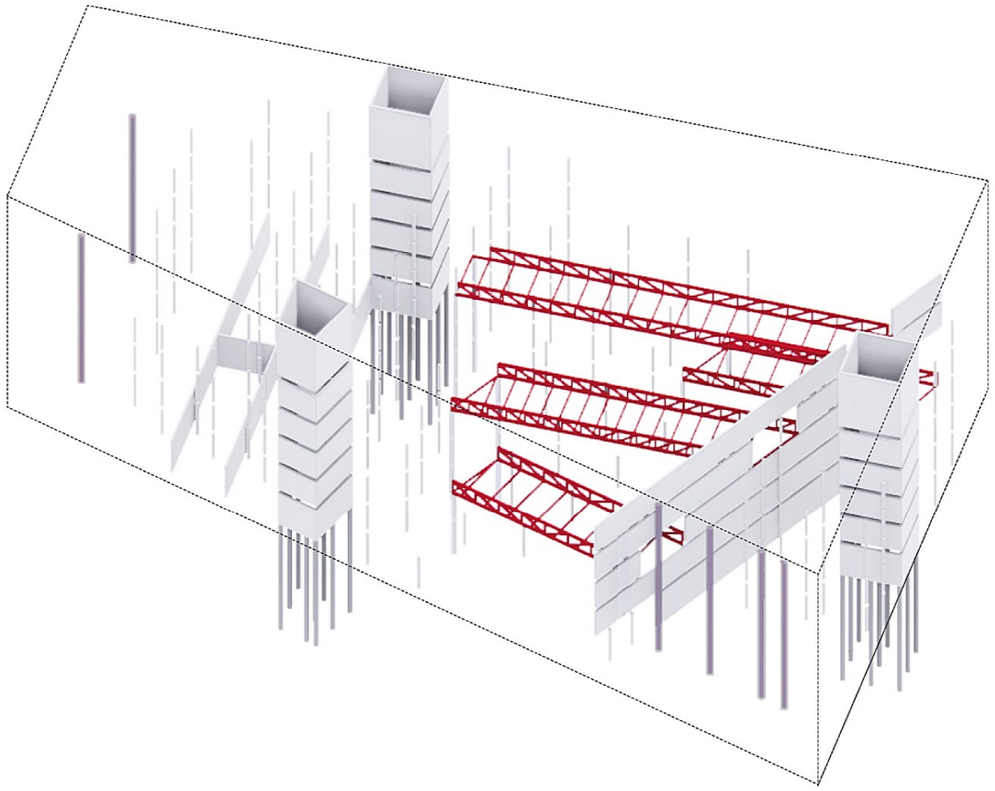
TRANSPORTATION PRESSURES REDUCTION DUE TO WATER SERVICE

ASSEMBLY STEPS - no. 1



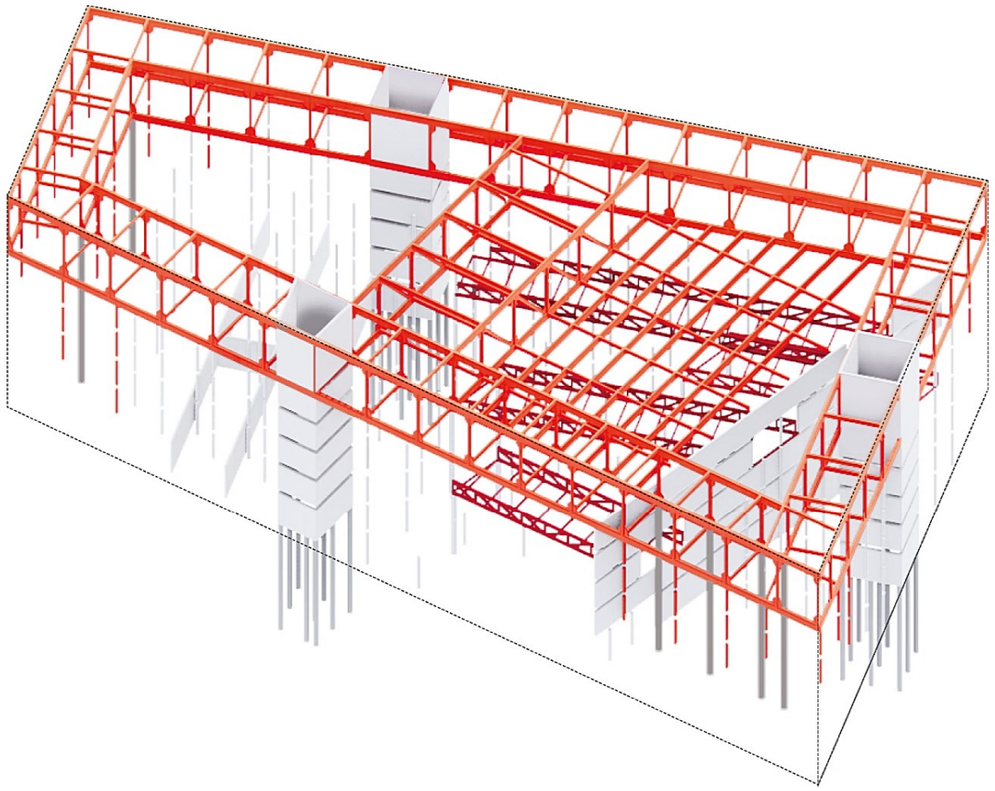
CONCRETE ELEMENTS

ASSEMBLY STEPS - no. 2



PREFABRICATED BRIDGES

ASSEMBLY STEPS - no. 3



STEEL STRUCTURE

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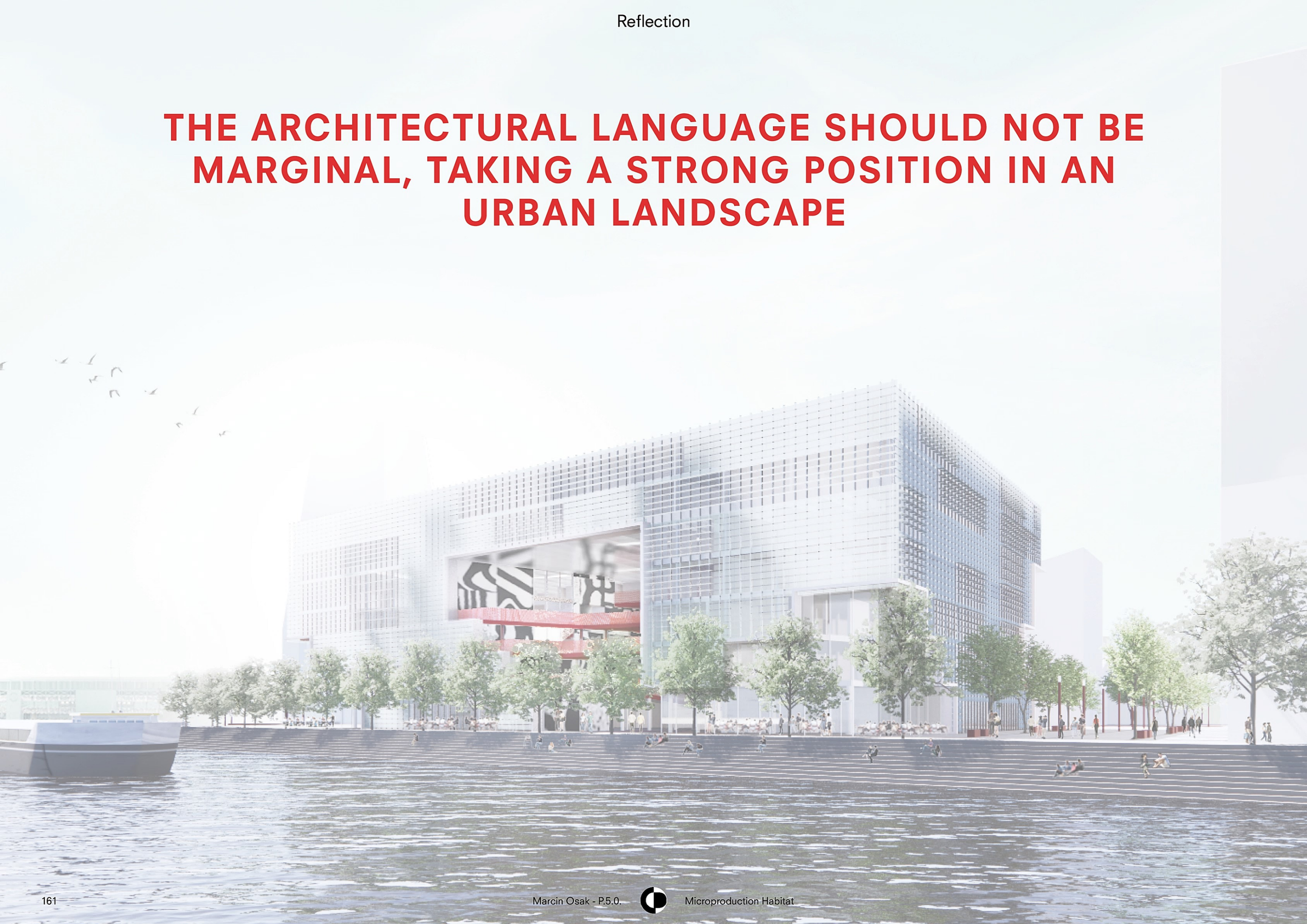
TO LET MICROPRODUCTION BE SUCCESSFUL, MAKING HAS TO BECOME THE PART OF PUBLIC EXPERIENCE

THE ROLE OF AN ARCHITECT IS TO DESIGN BOTH, THE ARENA FOR SOCIAL CROSSOVERS...

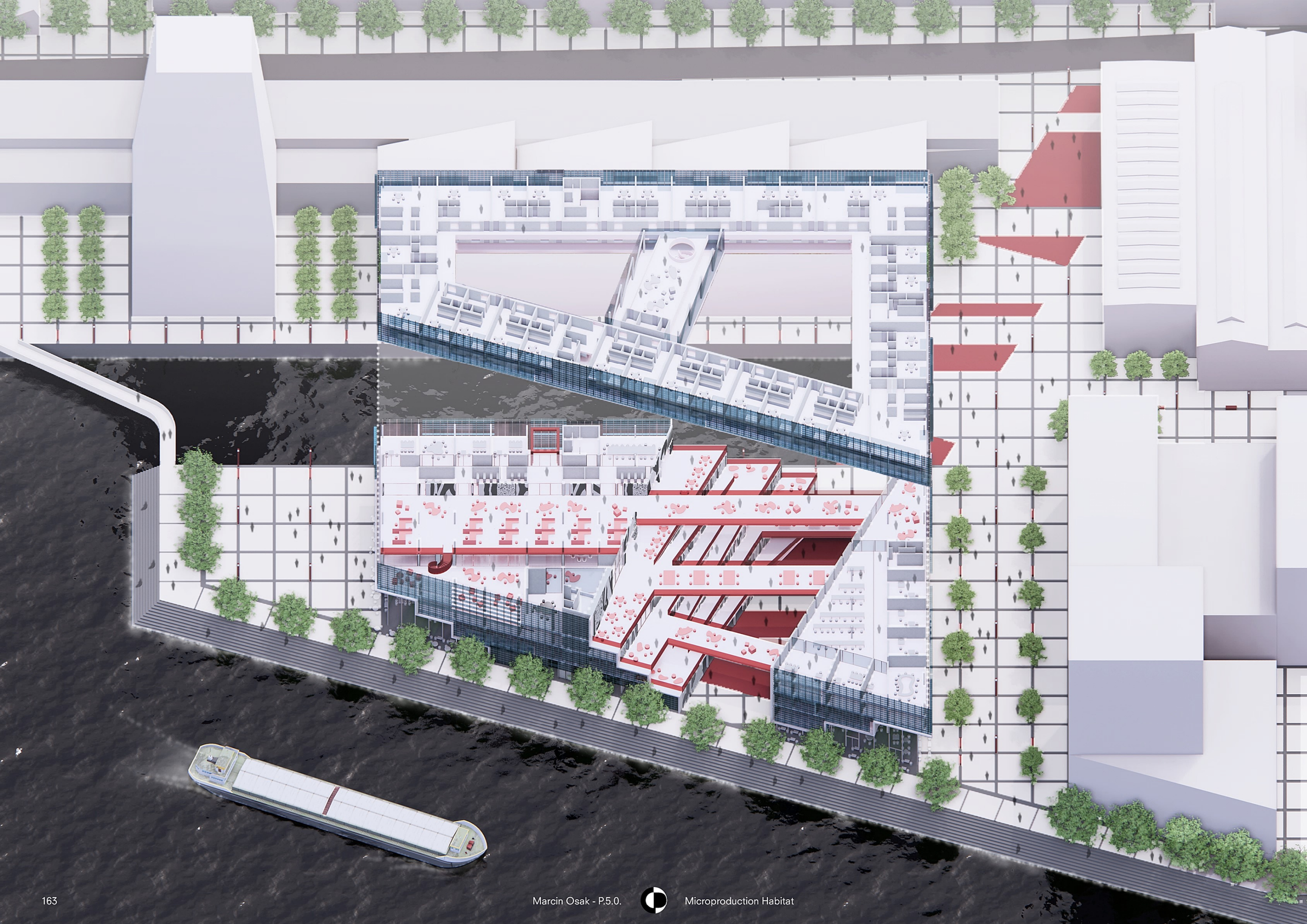
... AND THE UNIVERSAL BACKROUND FOR COUNTLESS PROFESSIONAL ACTIVITIES...

... WITHOUT SPECIFYING THE PROCESSES WHICH WILL TAKE PLACE INSIDE.

THE ARCHITECTURAL LANGUAGE SHOULD NOT BE MARGINAL, TAKING A STRONG POSITION IN AN URBAN LANDSCAPE



ONLY THEN, THE MICROPRODUCERS WILL STOP BE PERCEIVED AS HOBBYSTS BUT A REAL ENTERPRENEURS.




THANK YOU.
complex projects