



COMPLEX PROJECTS

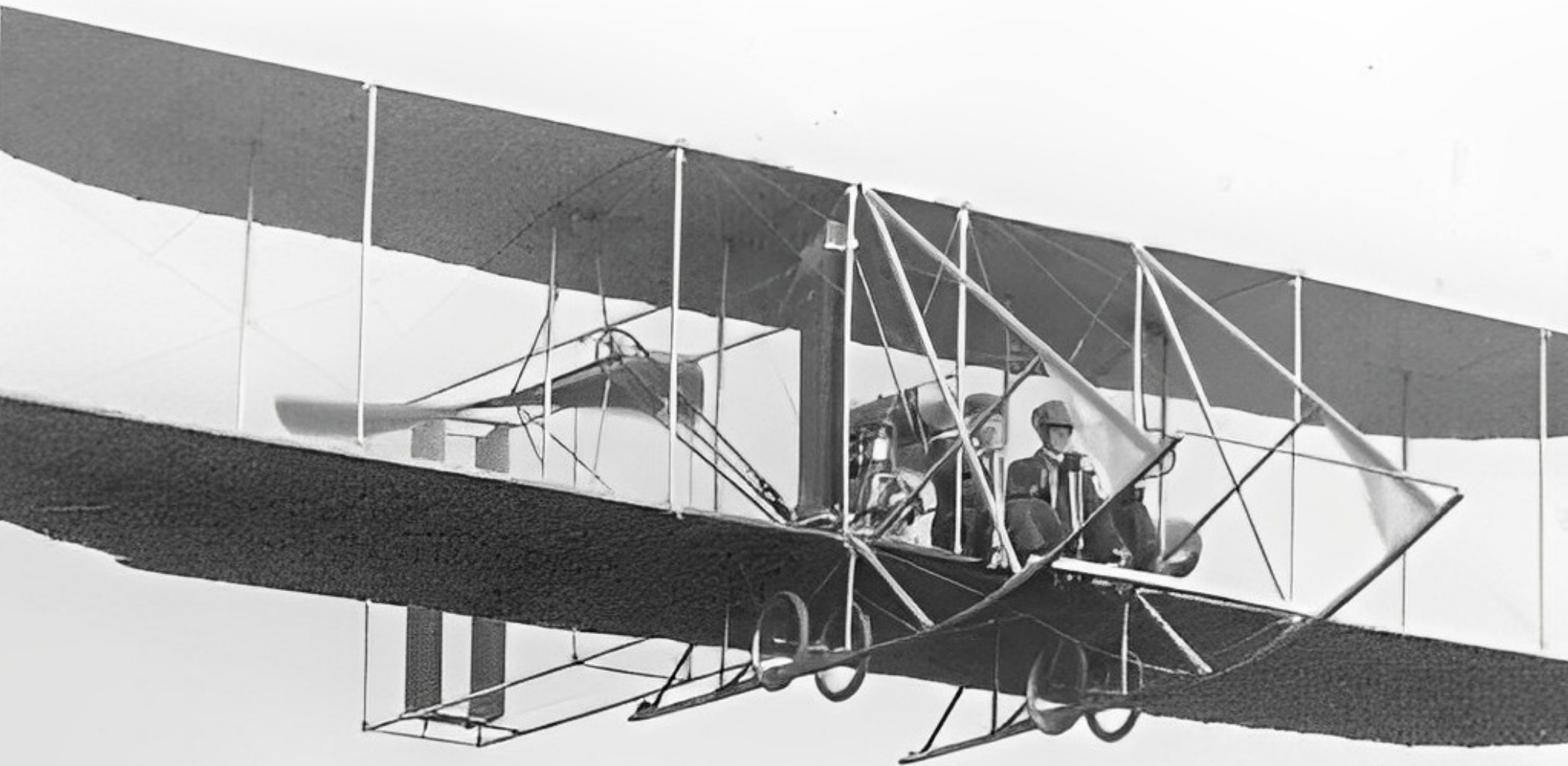
CARGO PLUS

Berlin Tegel Airport | The Cargo Terminal Design for Enhancing Working Conditions
Meng Chen
P5 | 19/01/2024



introduction

THE FIRST AIR FREIGHT



Silk

introduction

AIR MAIL



introduction

ALL-CARGO FLIGHTS

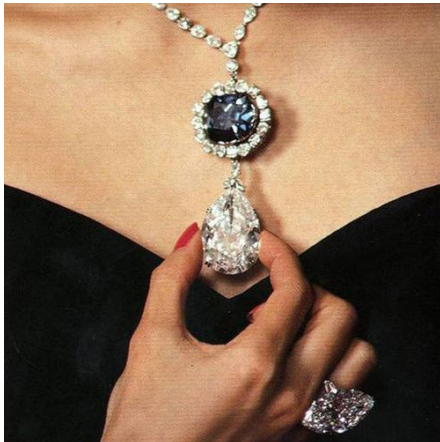


introduction

EXPRESS PARCEL DELIVERY



AIR CARGO CATEGORIZATION



High-value

fine art
antiques
electronics



Perishable

fresh produce
seafood
flowers

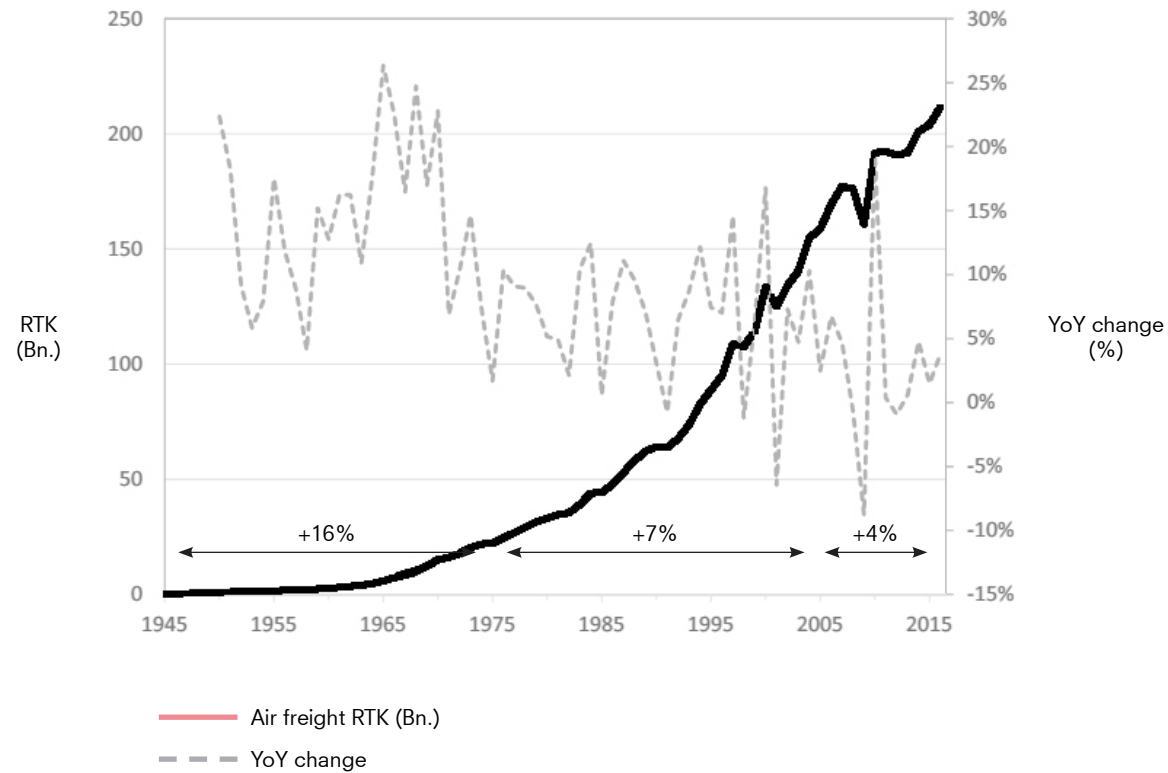


Urgent

medical supplies
pharmaceuticals
organs

introduction

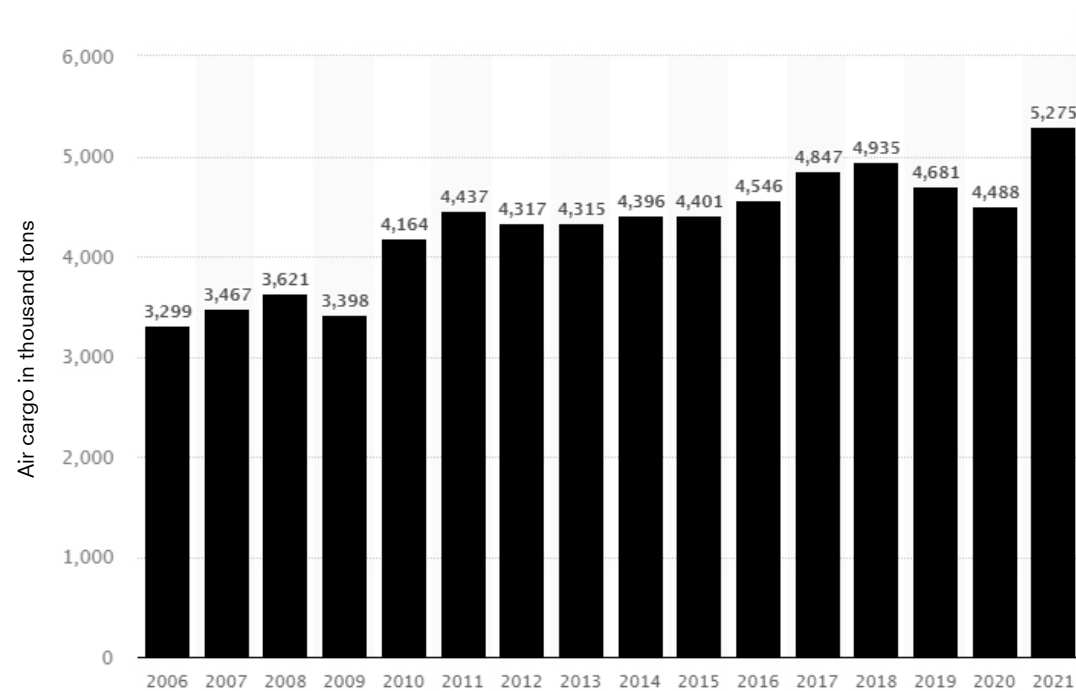
AIR CARGO MARKET



Constant Growth through History

Development of air freight volumes since 1945

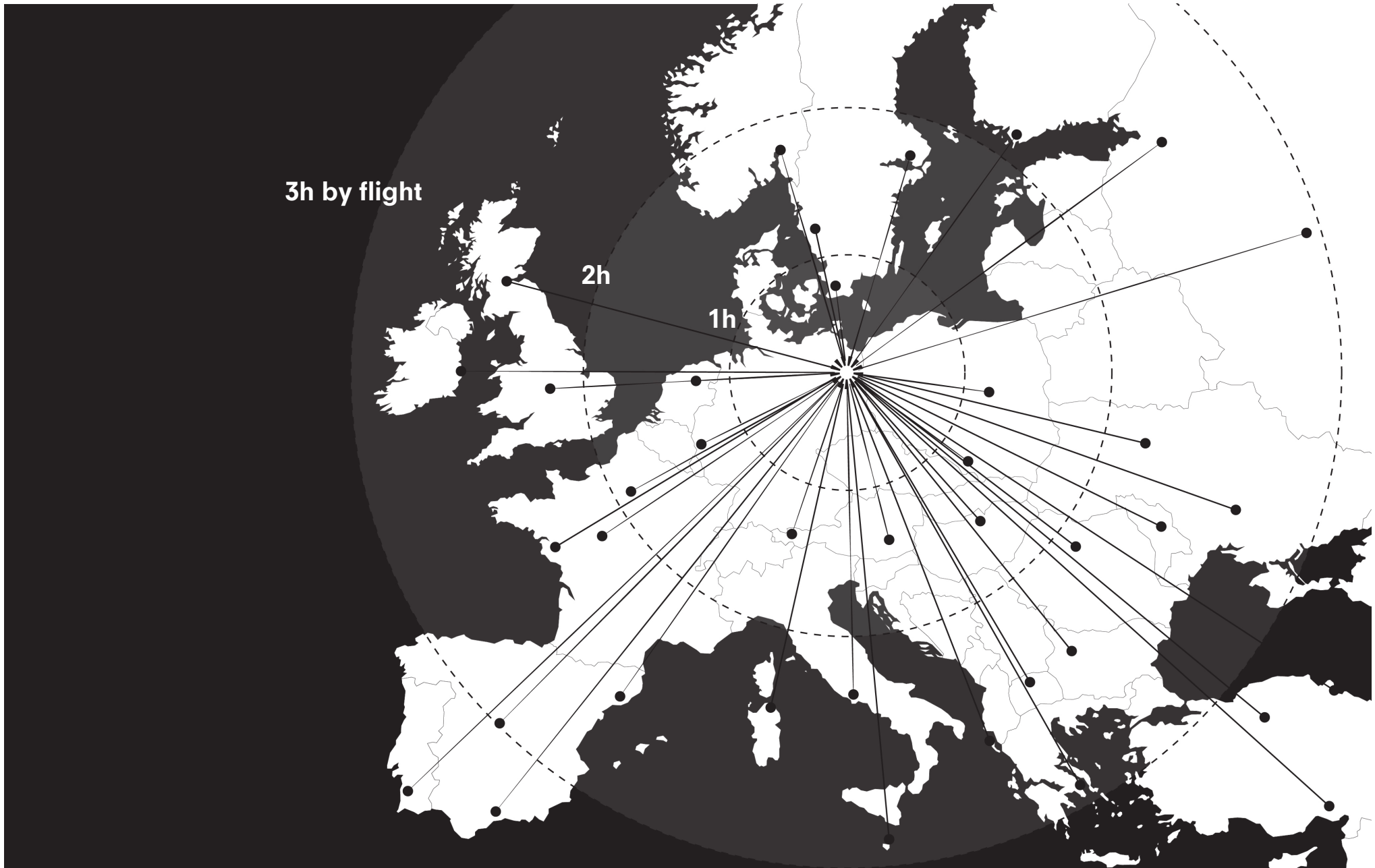
AIR CARGO MARKET IN GERMANY



Growth Rate 6.5% per year

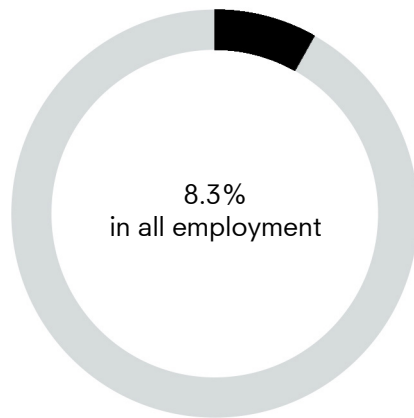
Transport volume of air cargo in Germany* from 2006 to 2021 (in 1,000 tons)

BERLIN'S BUSINESS LOCATION



introduction

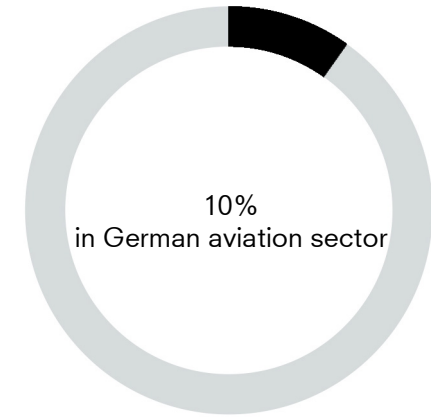
EMPLOYMENT



Logistics sector
2.5 million persons



Warehousing and handling
1.25 million persons



Air freight tasks
90,000 persons

Strong Logistics Sector in Germany

introduction

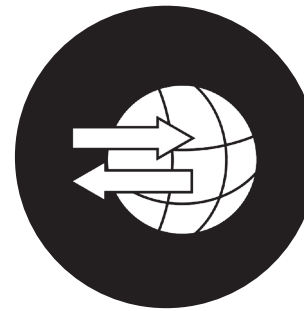
OPPORTUNITIES



Air Freight Growth



Strategic Business Location



Import and Export Hub



Strong Logistics Sector

Introduction

WORKING CONDITIONS

introduction

WORKING CONDITIONS



introduction

WORKING CONDITIONS



WORKING CONDITIONS



WORKING CONDITIONS



introduction

PROBLEM



Physical demands

Heavy lifting

Repetitive motions

Awkward postures

Prolonged standing or sitting



Mental demands

Time pressure

Rapidly changing technology

Shift work or irregular schedules

Emotional labor



Health impact

Musculoskeletal disorders

injuries

Mental stress

Sleep disorders



Architectural Neglect

Lack of natural light

Noisy environments

Extreme temperatures

Vibrations problem

RESEARCH QUESTION

**How can architecture design
offset demanding working conditions,
both functionally and mentally?**

introduction

FUTURE LOGISTICS



Robots and Automation



Digitization



Artificial Intelligence

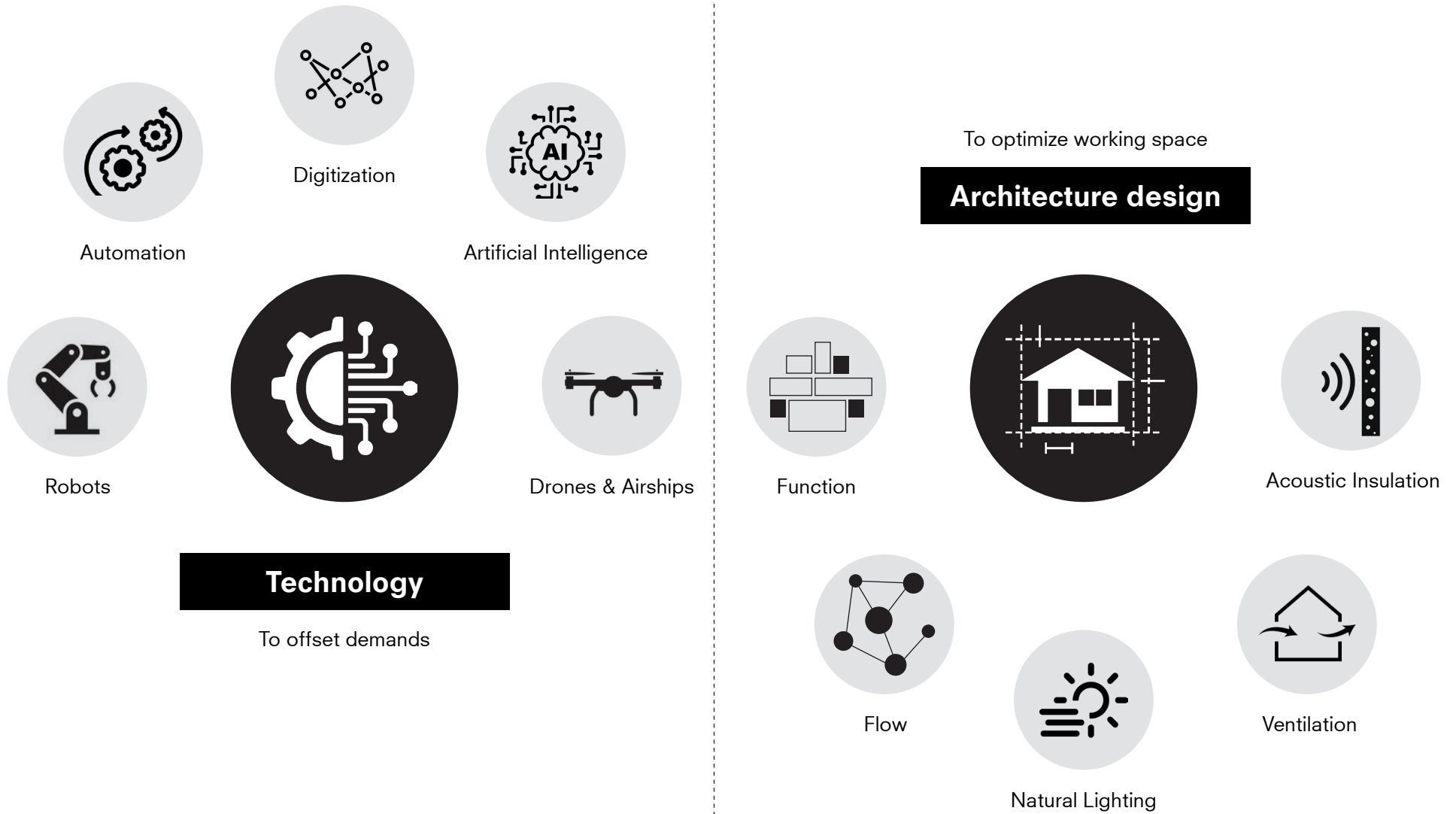


Drones & Airships

Technology will be the main driver.

introduction

HYPOTHESIS



INTRODUCTION

SITE

PROGRAM

CLIENT

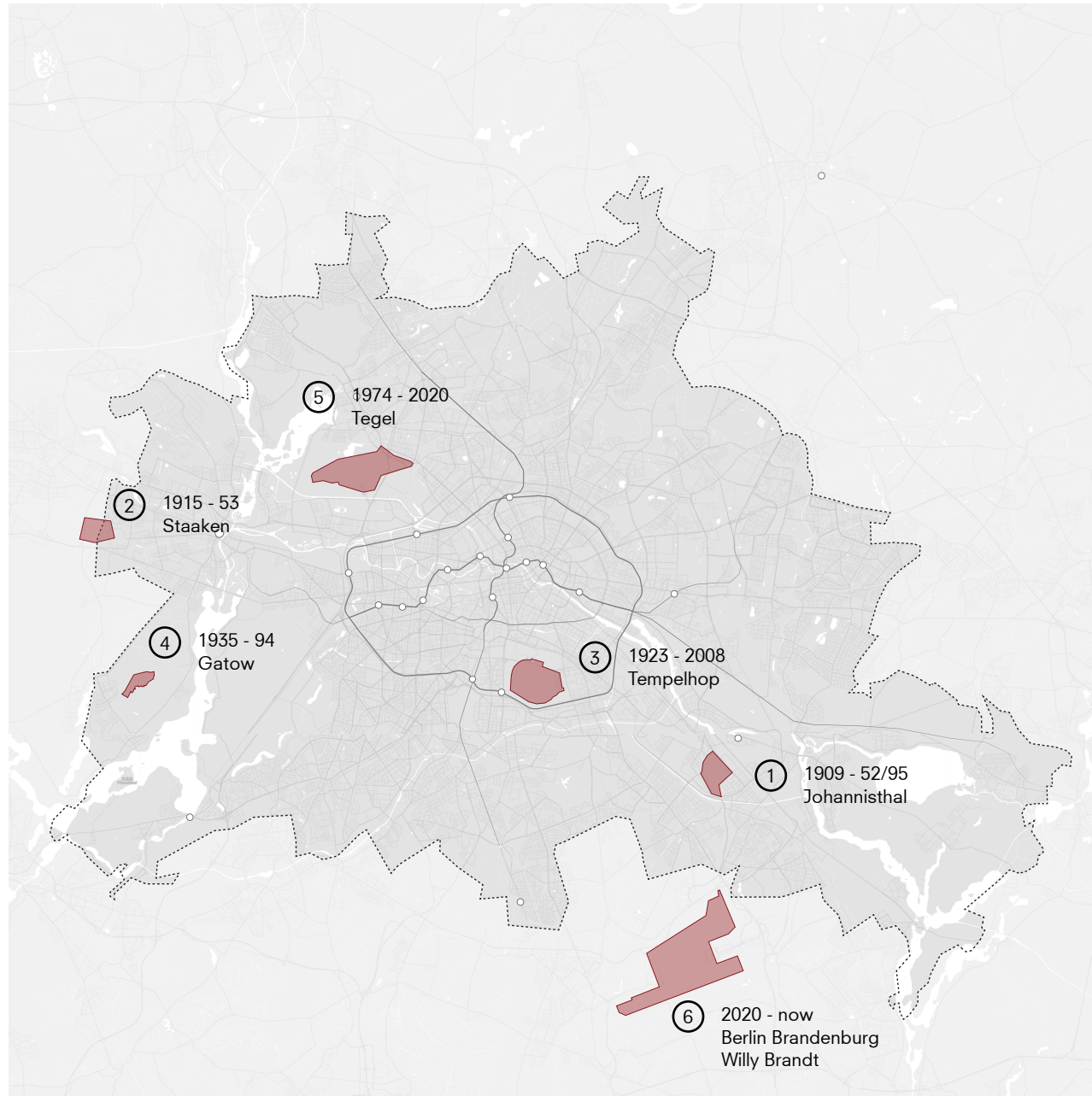
CONCEPT

IMPLEMENTATION

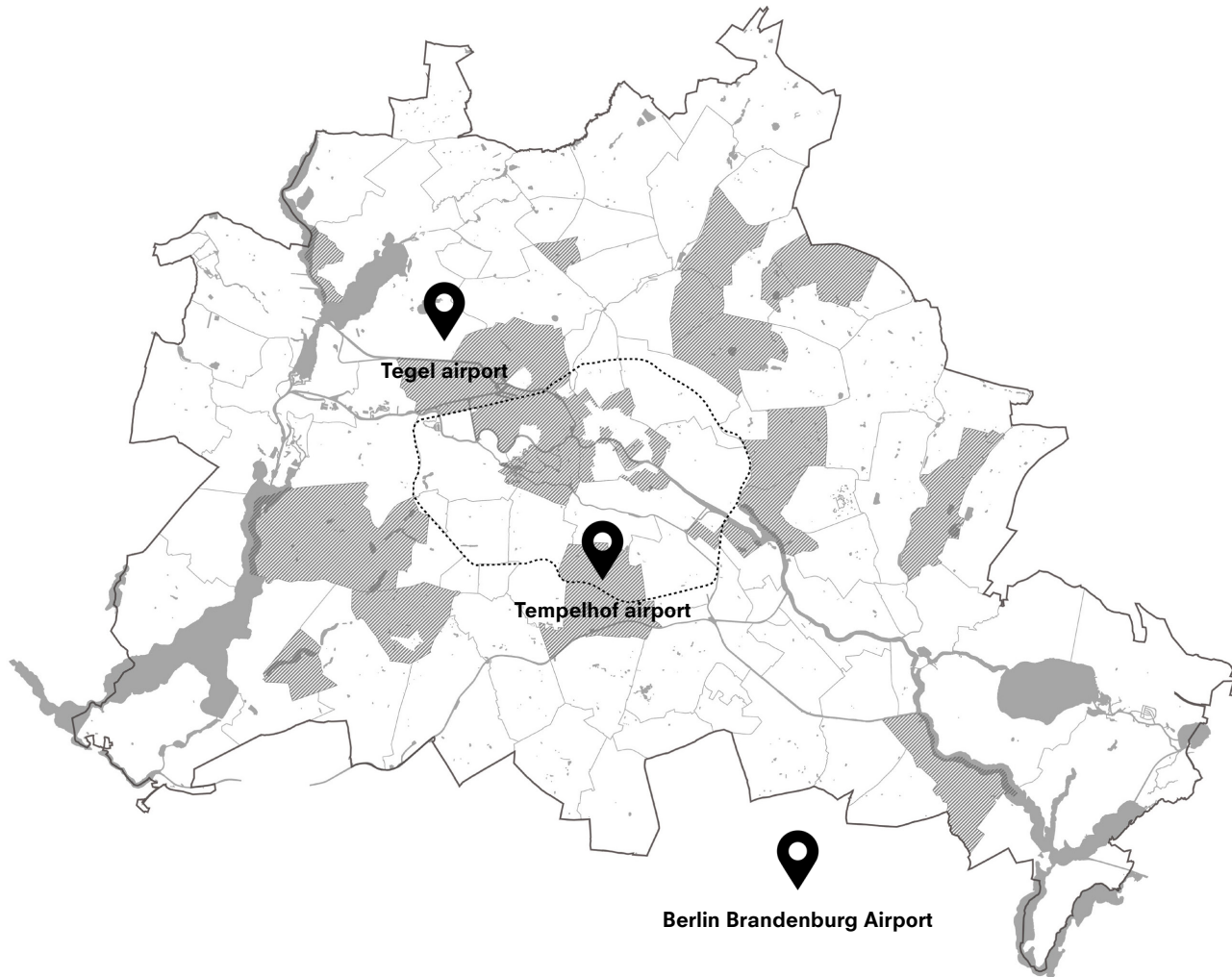
DEVELOPMENT

CONCLUSION

BERLIN AIRPORTS IN HISTORY



3 POSSIBLE AIRPORTS



site research

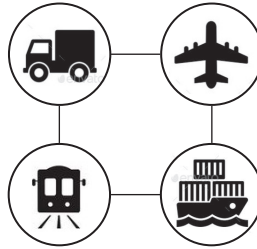
REQUIREMENTS

BUILDING TYPE



AIRPORT UTILIZATION

Sufficient runway: more than 2,8 km



INTEGRATED TRANSPORTATION

Seamless integration with road, rail, or waterway
within 1 kilometre of a main road and railway



LOW-DENSITY AREA

minimize the environmental affects

PROGRAM



COMMUTING EFFICIENCY

minimize commuting stress
30 minutes by car or public transportation



PUBLIC CONNECTIVITY

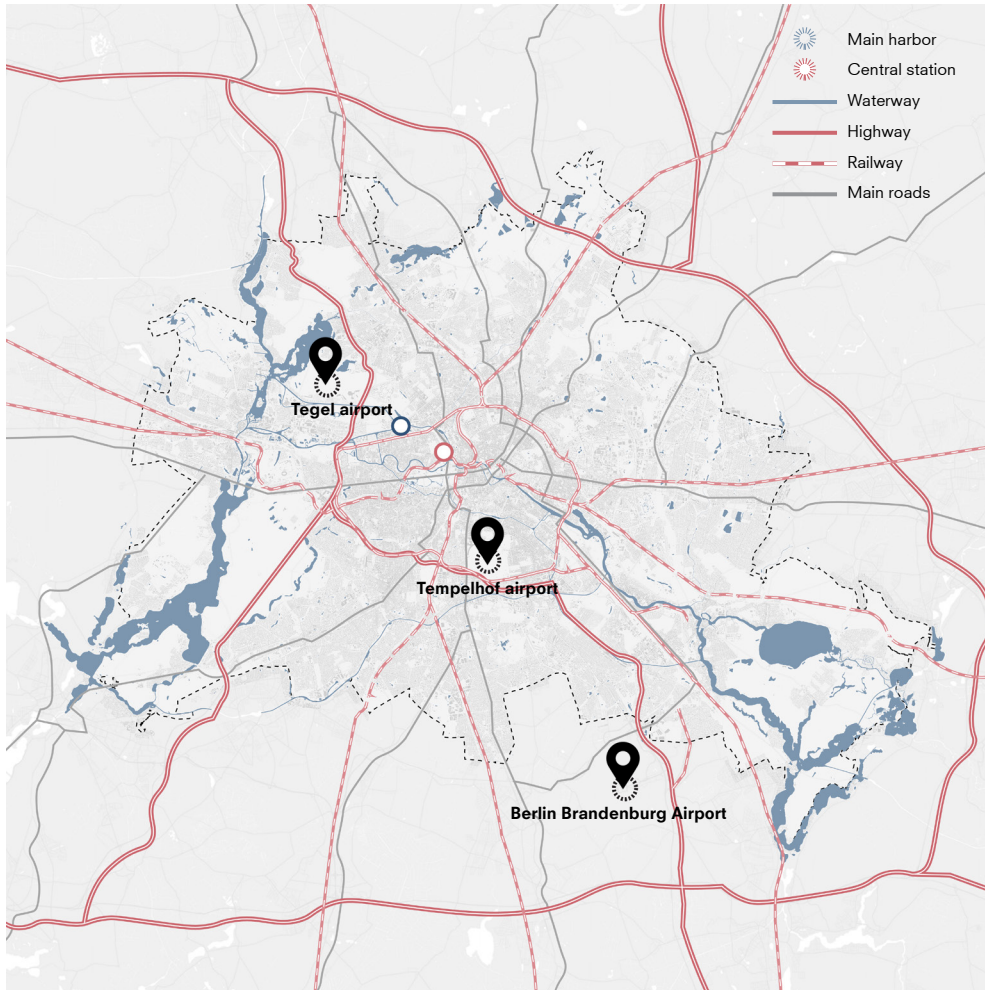
15-minute walking distance
to commercial amenities



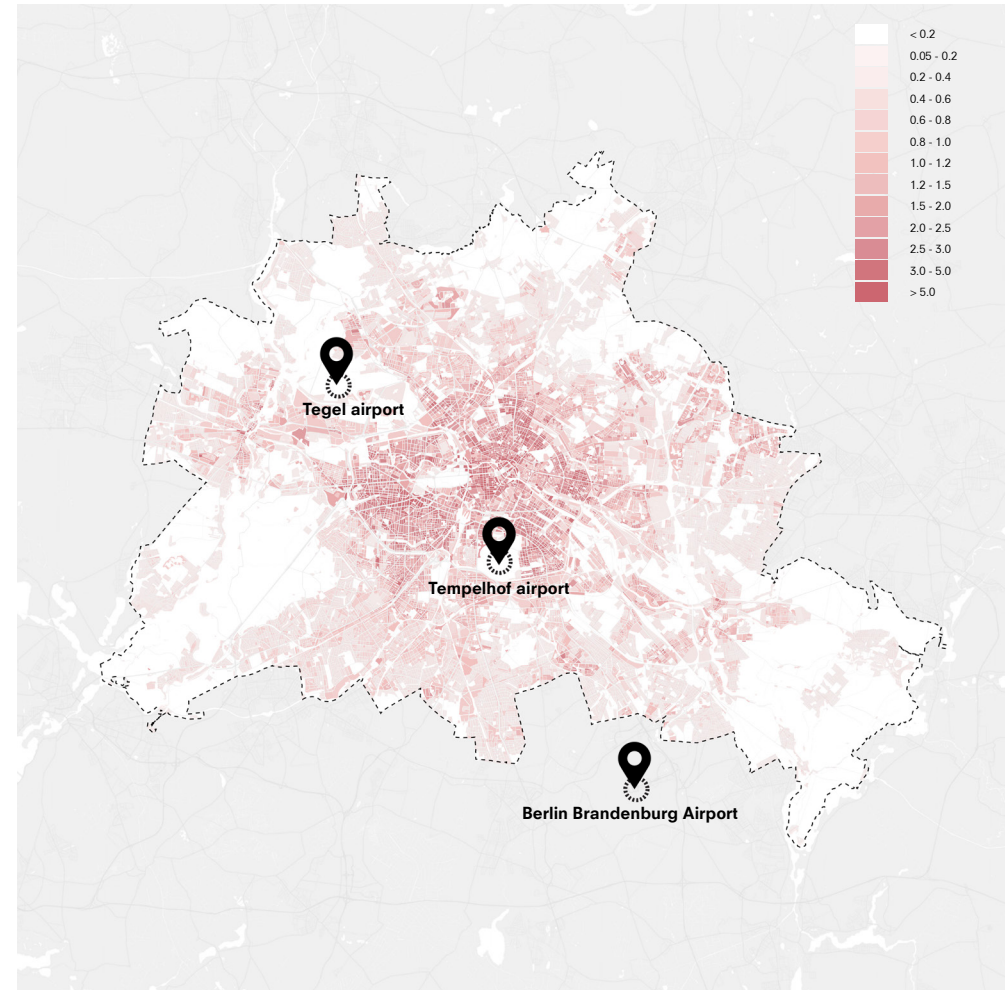
GREEN SPACE

15-minute walking distance of
a public park or green space

URBAN



Integrated Transportation



Urban Density

BERLIN BRANDENBURG AIRPORT



INTEGRATED TRANSPORTATION

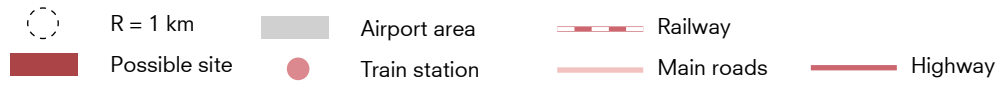
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FUTURE CONSTRAINS

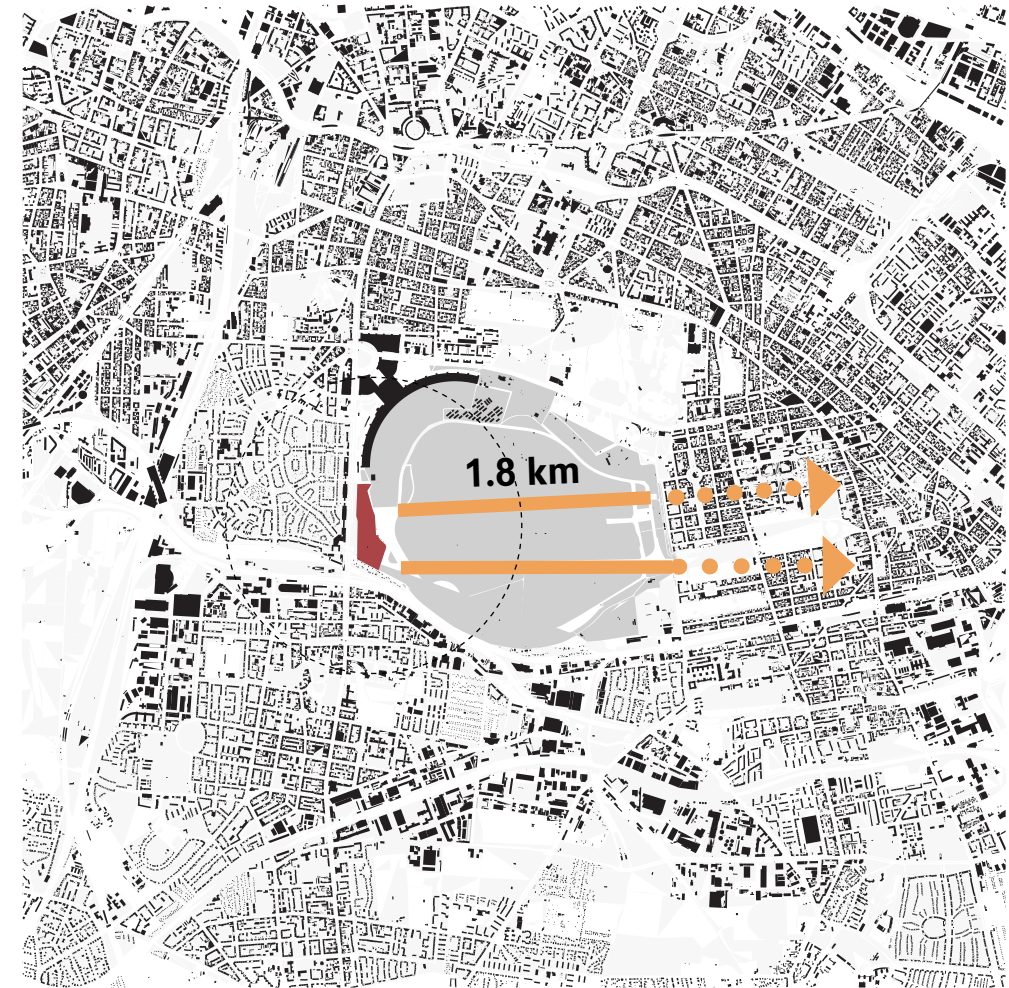
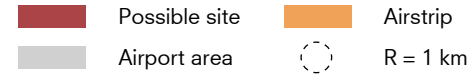
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TEMPELHOF AIRPORT



INTEGRATED TRANSPORTATION

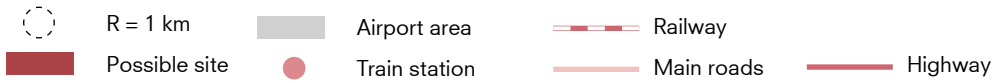
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AIRPORT UTILIZATION

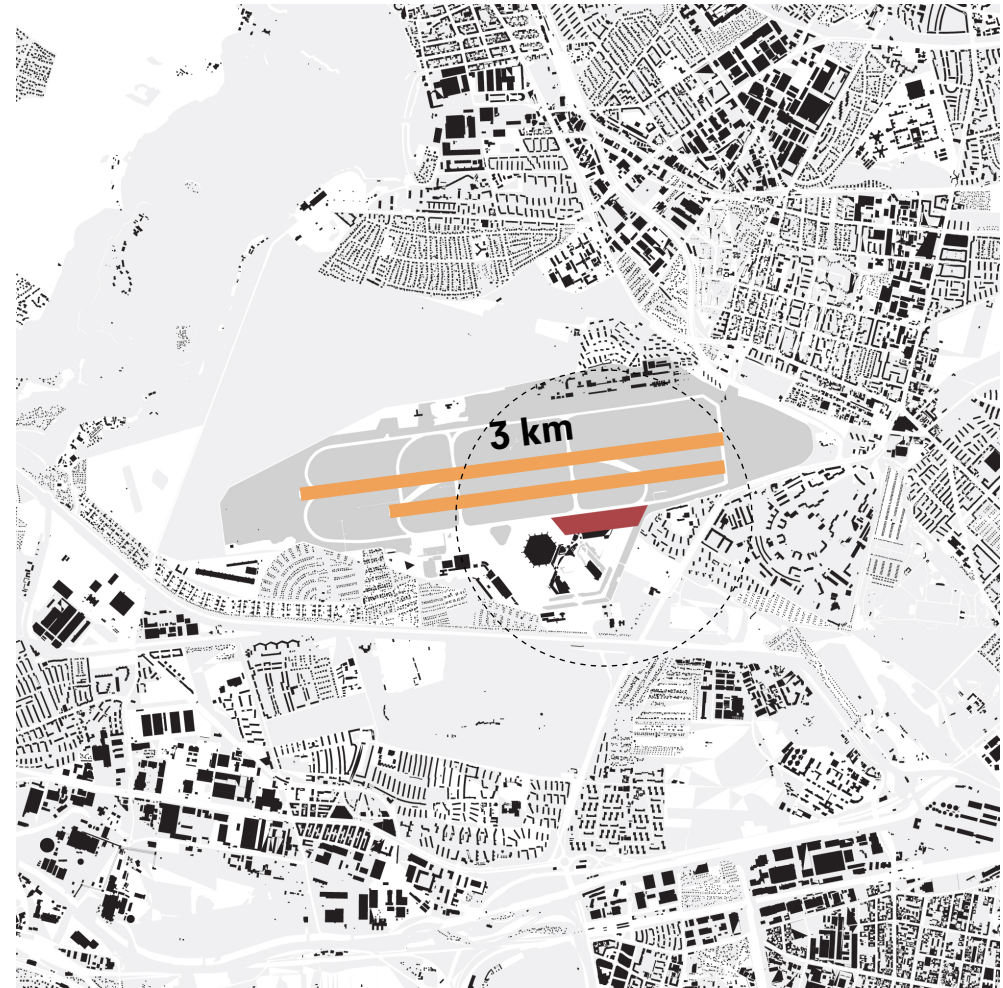
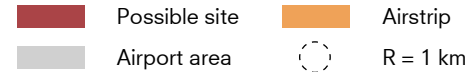
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TEGEL AIRPORT



INTEGRATED TRANSPORTATION

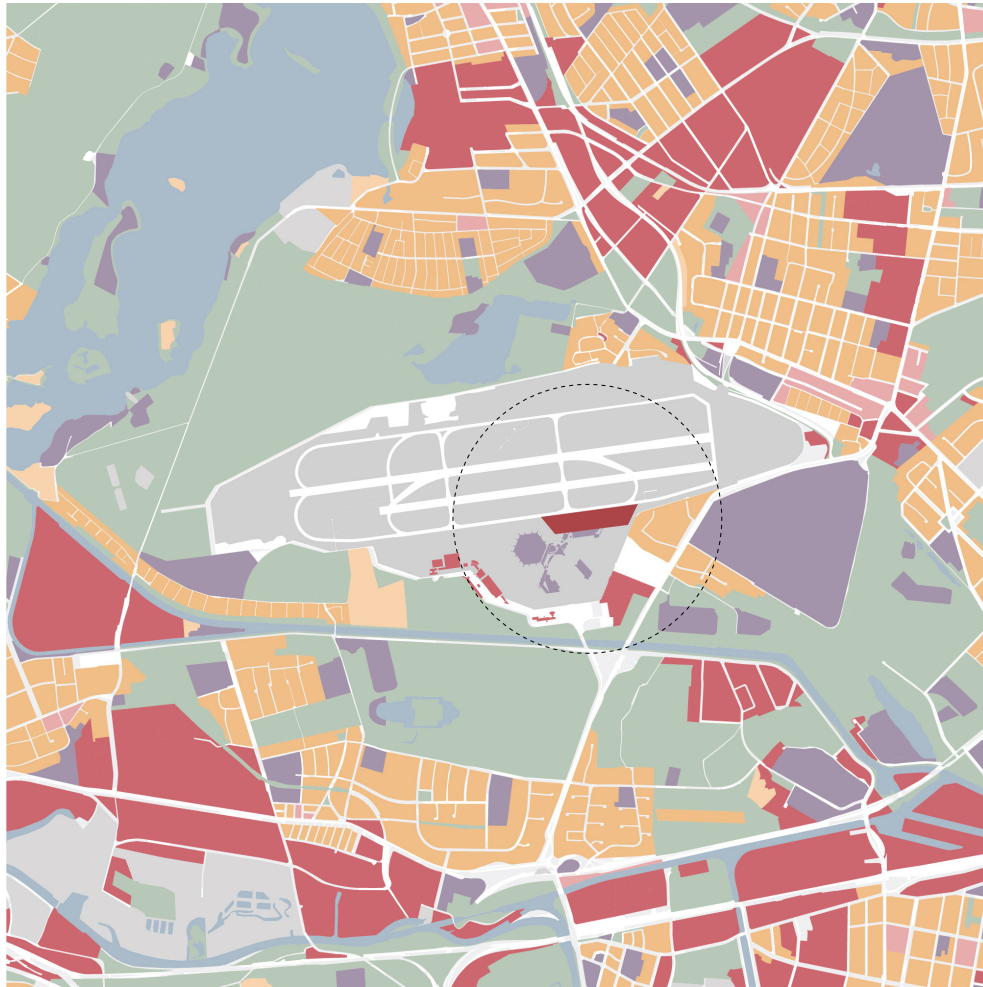
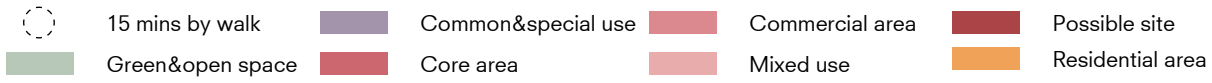
+



AIRPORT UTILIZATION

+

site research TEGEL AIRPORT



PUBLIC CONNECTIVITY

+



GREEN SPACE

+

HISTORY OF TEGEL AIRPORT

1948-1960



Military Airport

- Tegel Airport was built in the French Sector of West Berlin after World War II.

- Construction began in 1948, and the airport opened on November 5, 1948.

- **Cargo planes, were used to transport food, fuel, and other necessary supplies to the city's residents.**

- **The airlift became a vital lifeline, ensuring that the people of West Berlin had access to essential goods.**

1960s-1970s



Commercial airport

- In the 1960s and 1970s, Tegel underwent expansion to handle larger aircraft and growing passenger numbers.

- Terminal A was built for international flights, and Terminal C was added for domestic traffic.

1980s-1990s

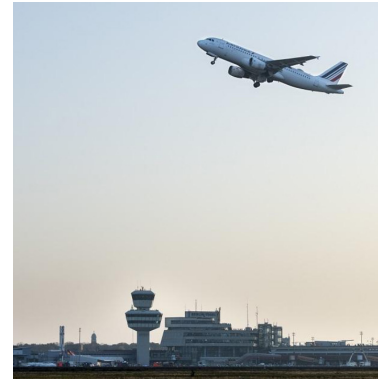


Modernization and International

- The airport became a significant international hub, serving airlines from around the world.

- Tegel's capacity neared its limits, and discussions about building a new airport for Berlin began.

2020-2021



Closure and Transition

- Tegel Airport ceased operations on November 8, 2020, after almost 72 years of service.

- The closure followed the opening of Berlin Brandenburg Airport (BER) on October 31, 2020.

After 2021



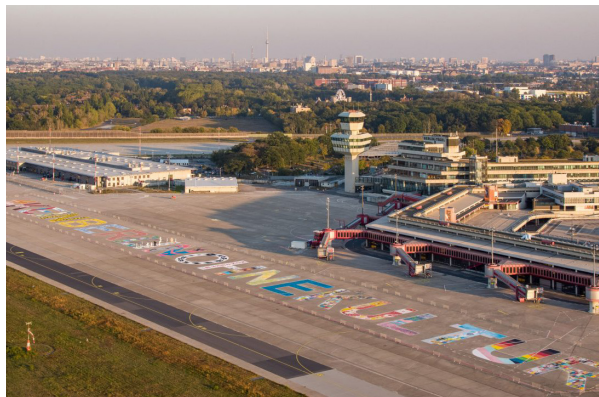
Urban Tech Republic

- Tegel's facilities are being repurposed, with plans for an innovation and research campus called "Urban Tech Republic."

- The iconic hexagonal terminal building will be preserved and transformed into a technology and business park.

site research

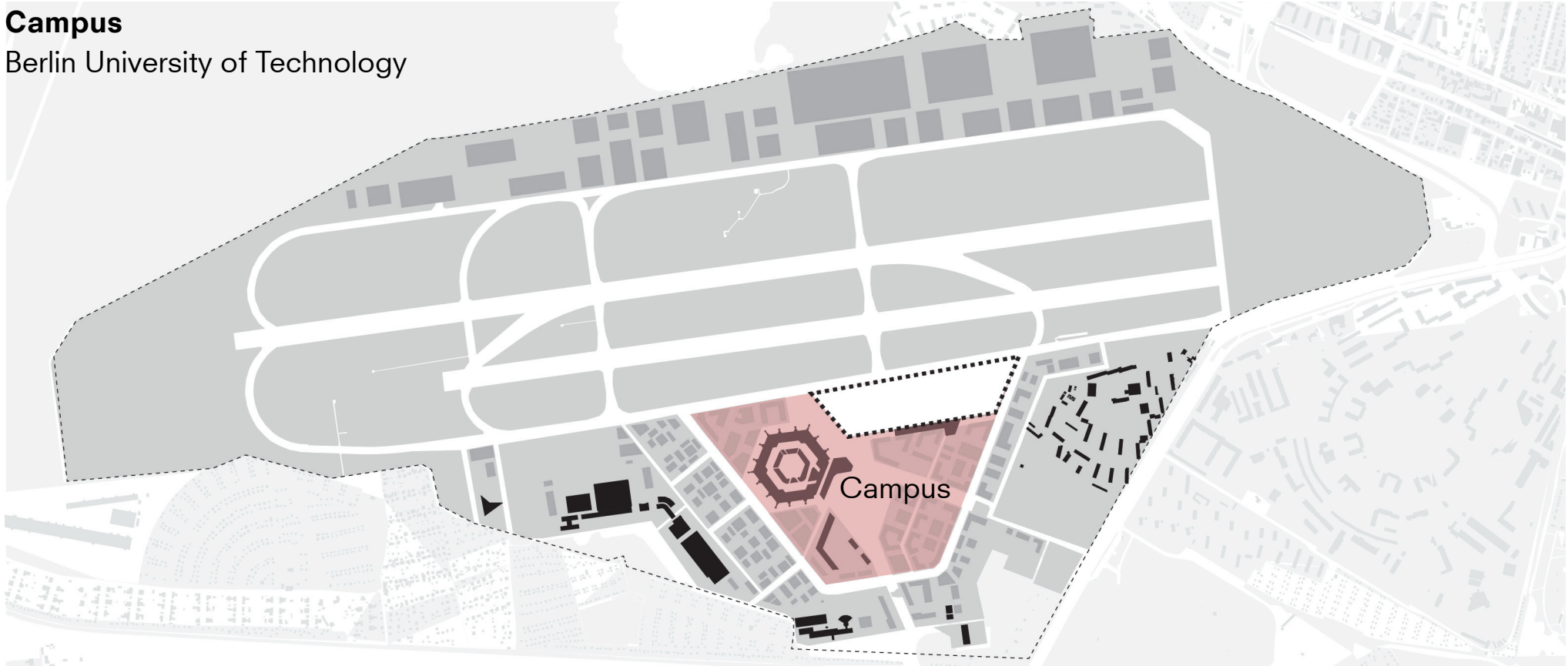
TEGEL AIRPORT



URBAN TECH REPUBLIC

Campus

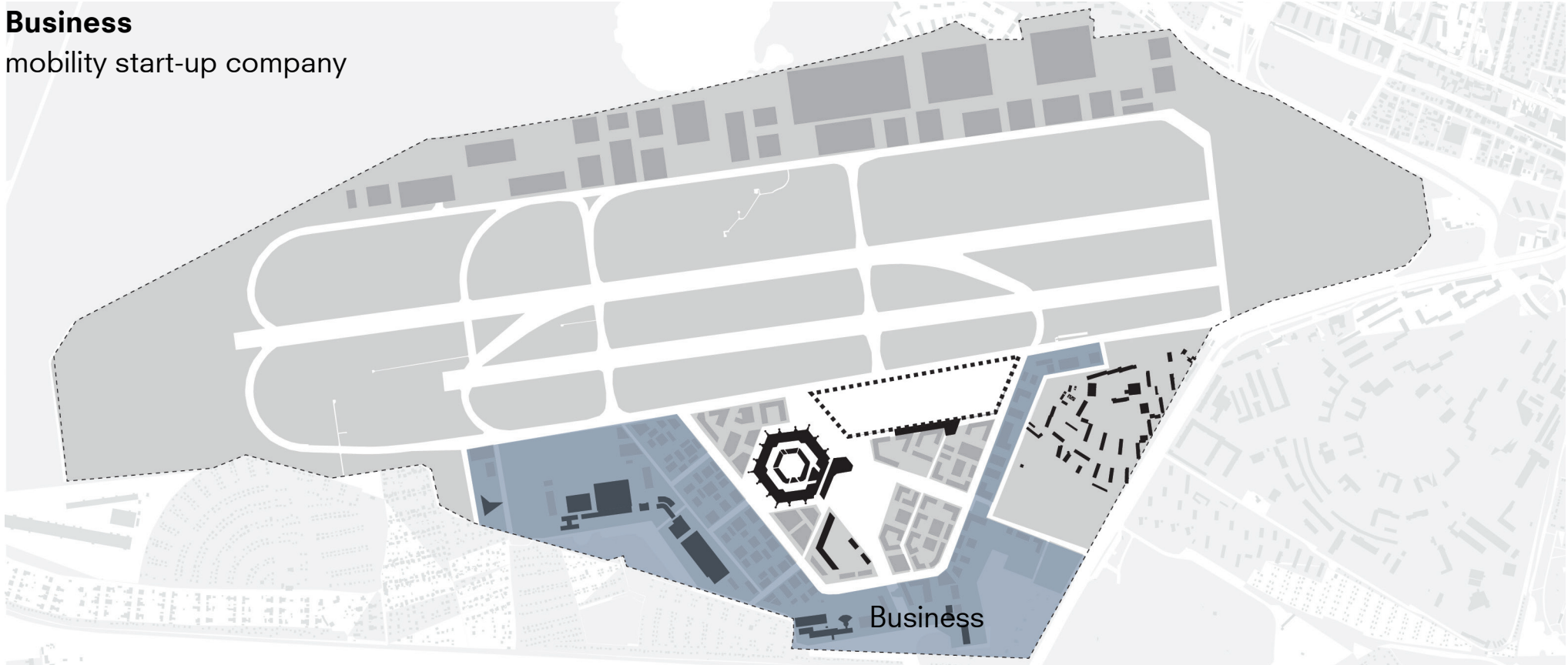
Berlin University of Technology



URBAN TECH REPUBLIC

Business

mobility start-up company



MOTOR AI

vay

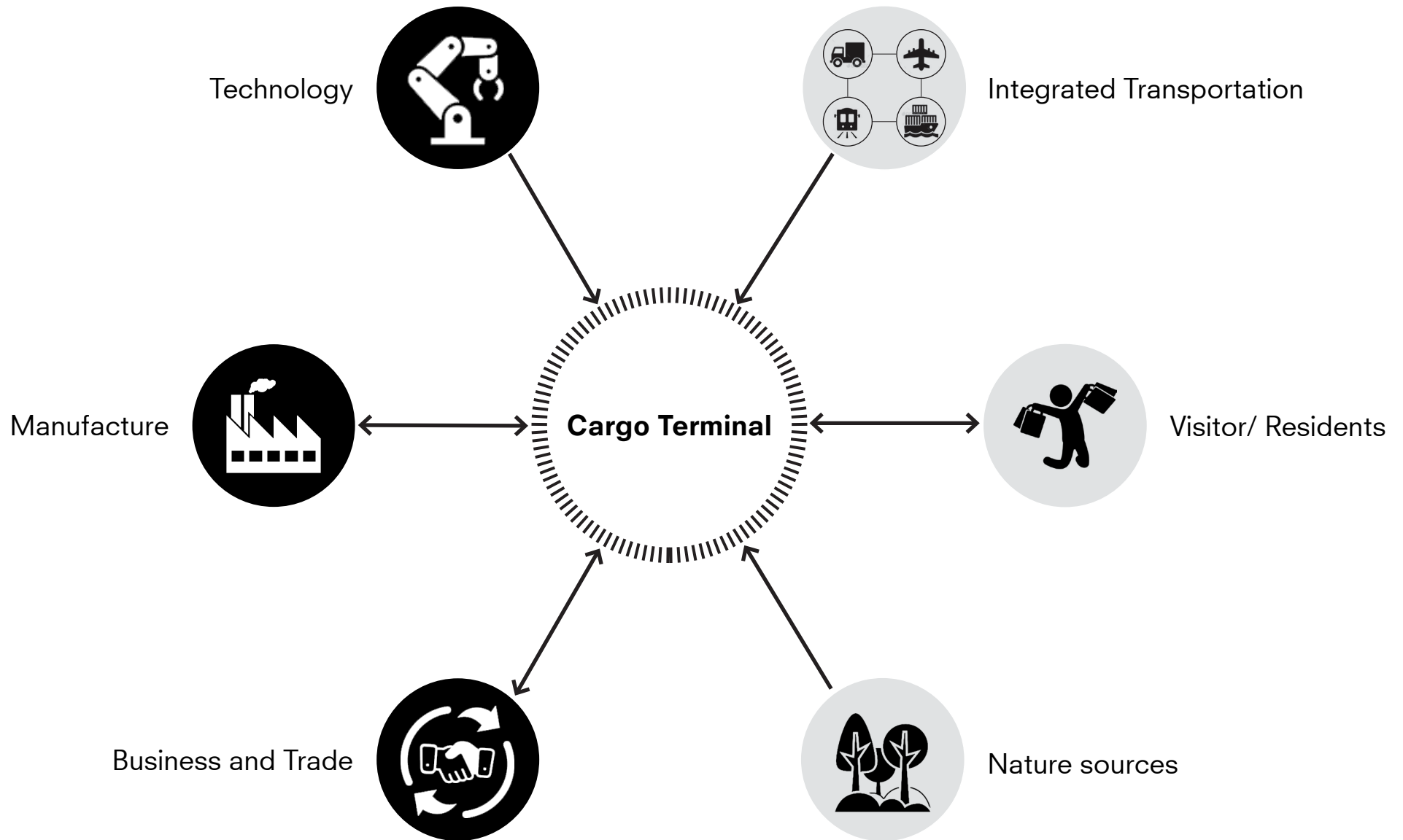
KIS'MI DIGITALES
TESTFELD
STADTVERKEHR

SIEMENS

EASY
MILE

BER FLUGHAFEN
BERLIN
BRANDENBURG

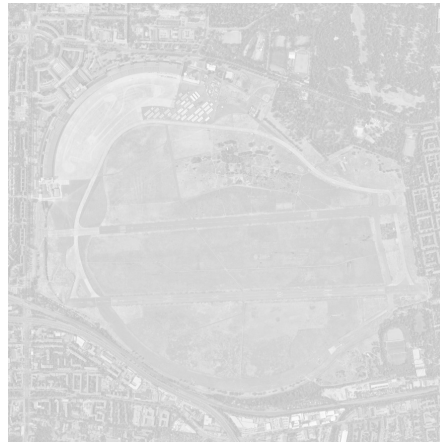
FUTURE POTENTIALS



SITE



Berlin Brandenburg Airport

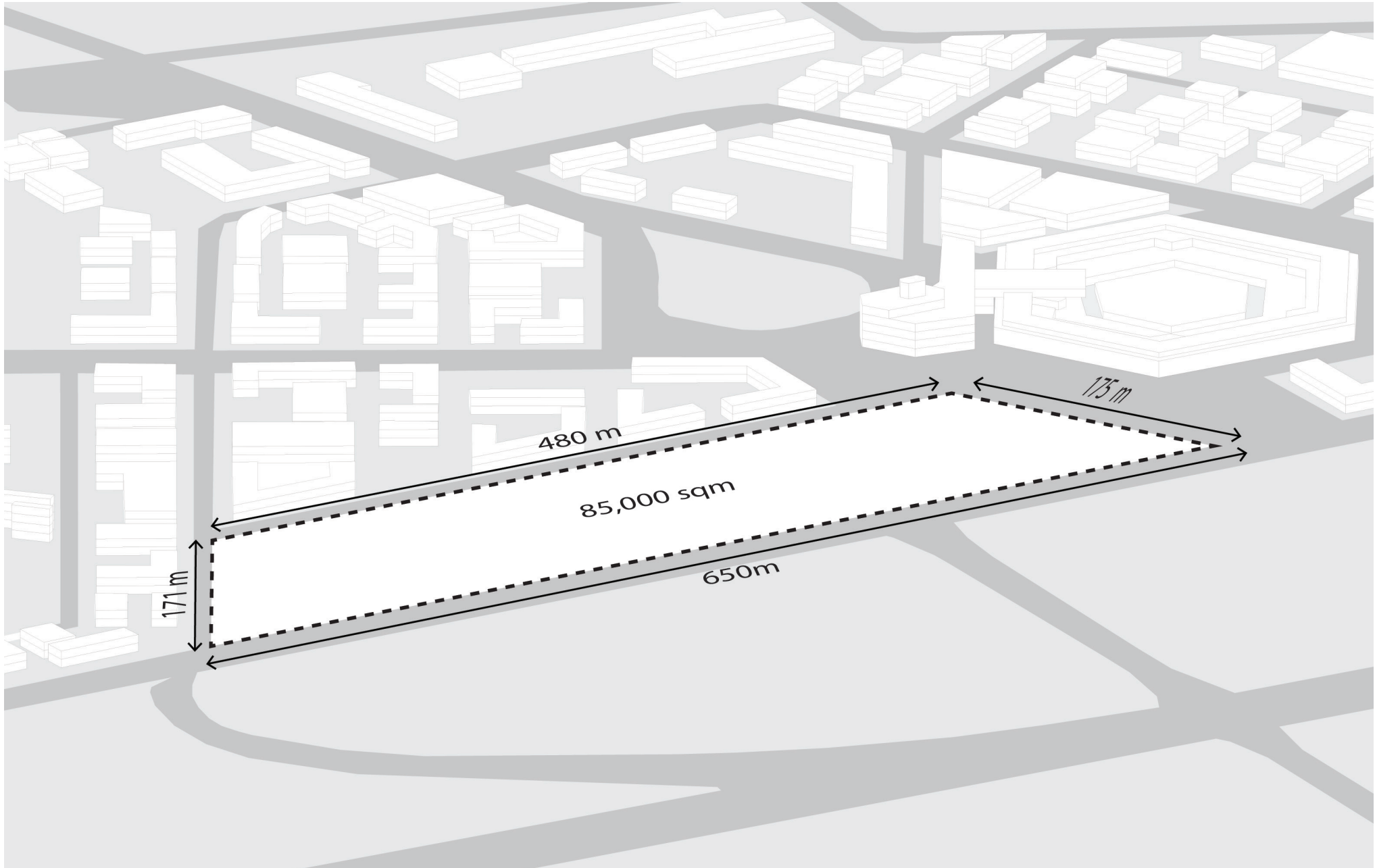


Tempelhof airport

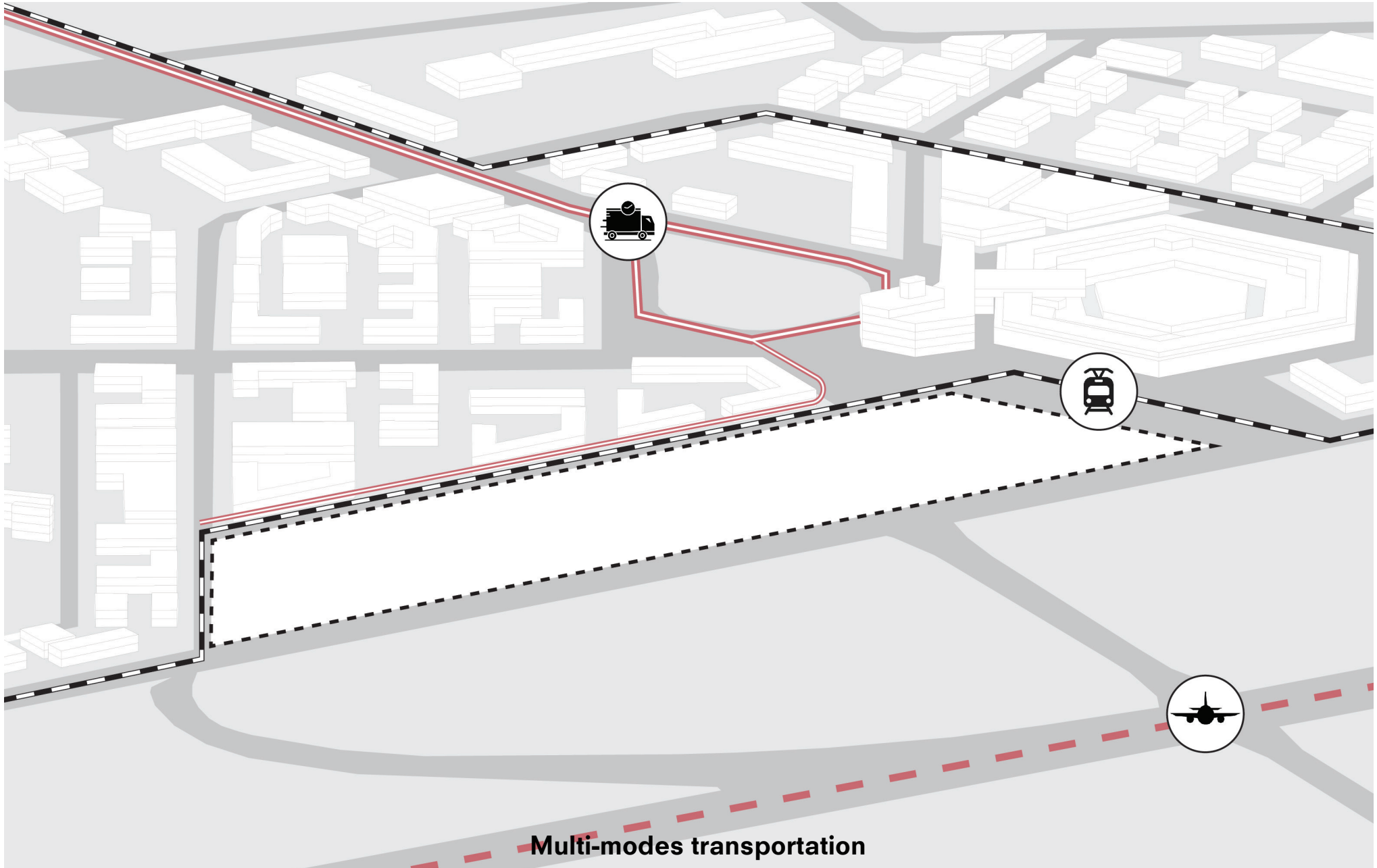


Tegel airport

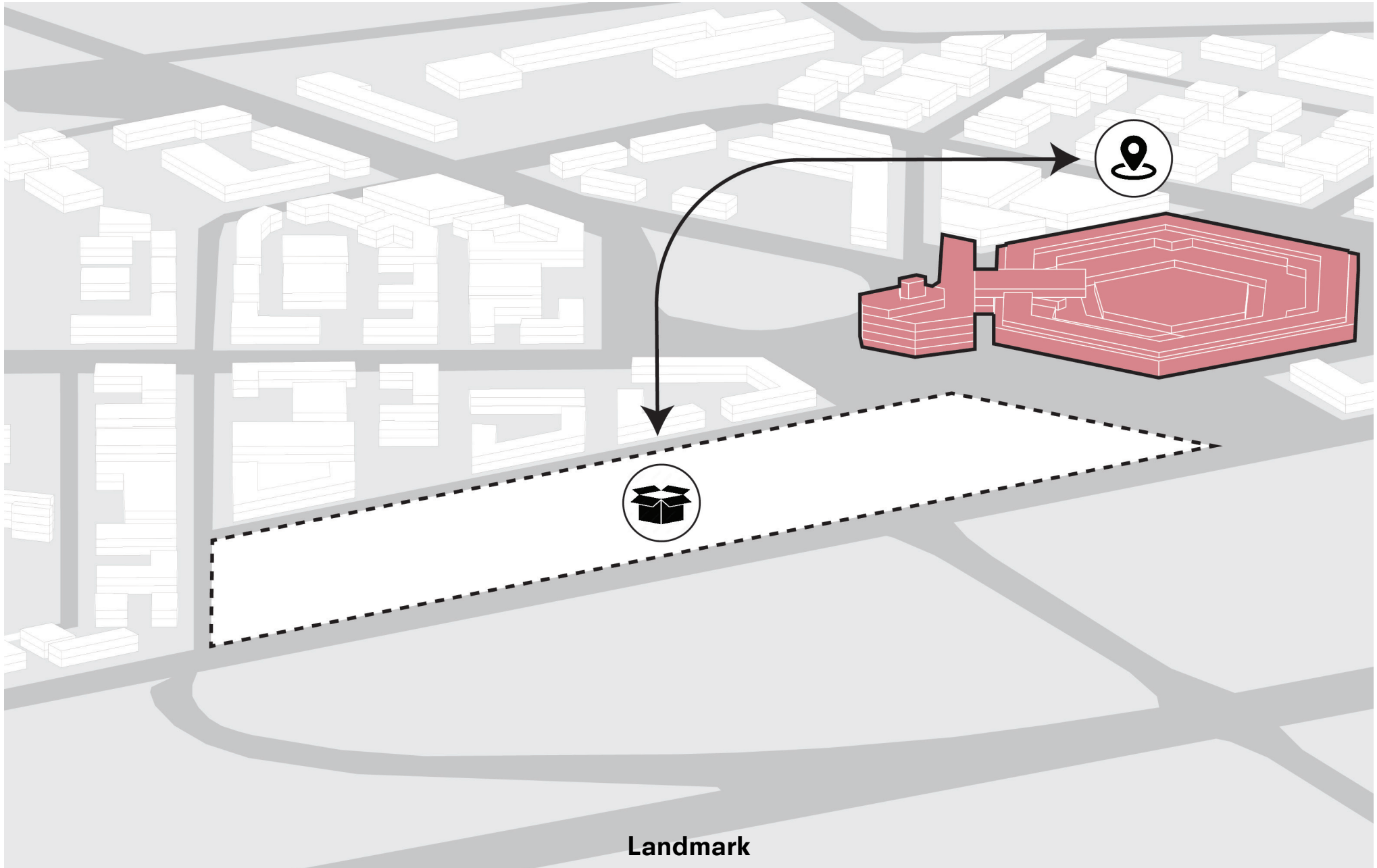
CONSTRAINTS AND OPPORTUNITIES



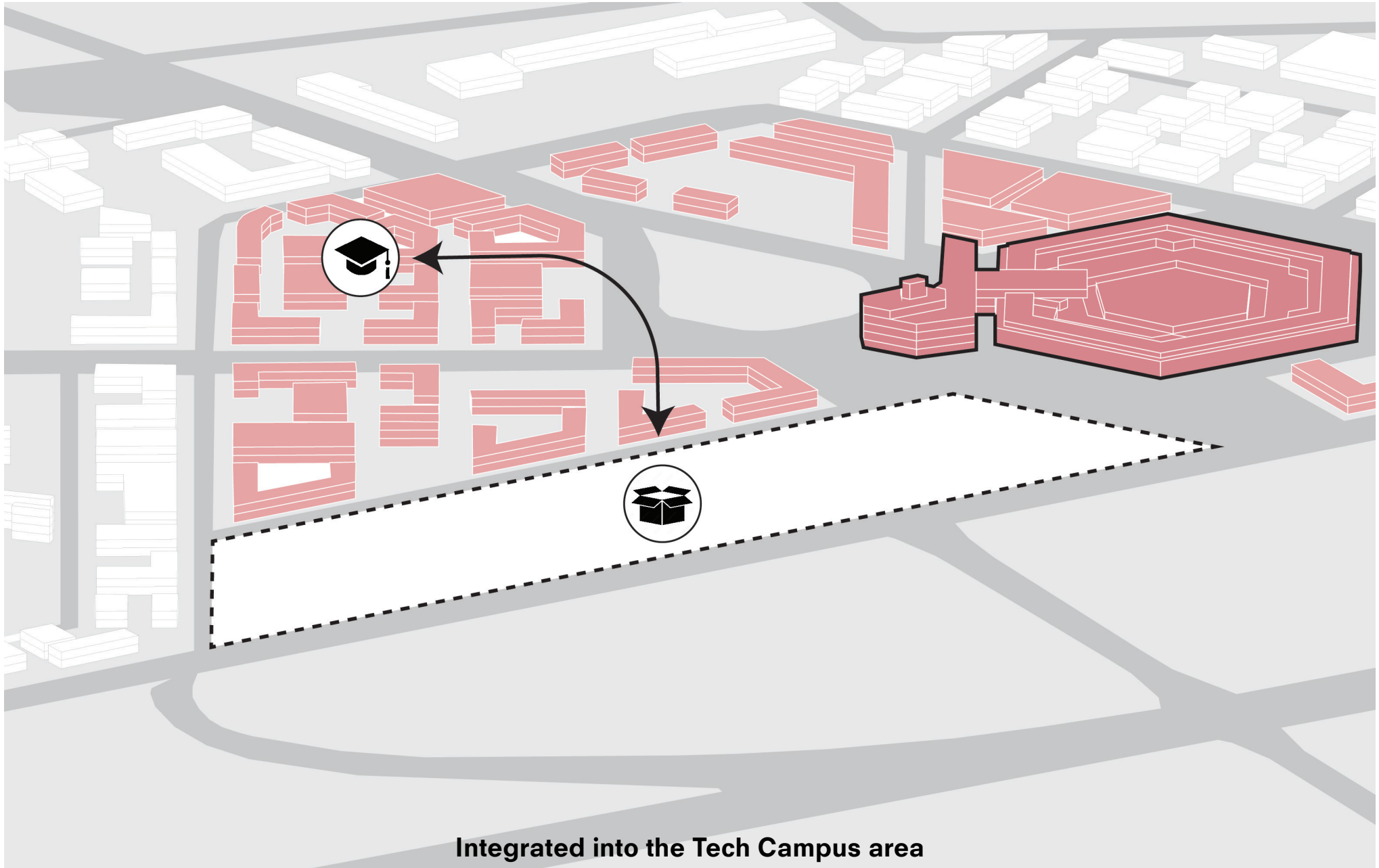
CONSTRAINTS AND OPPORTUNITIES



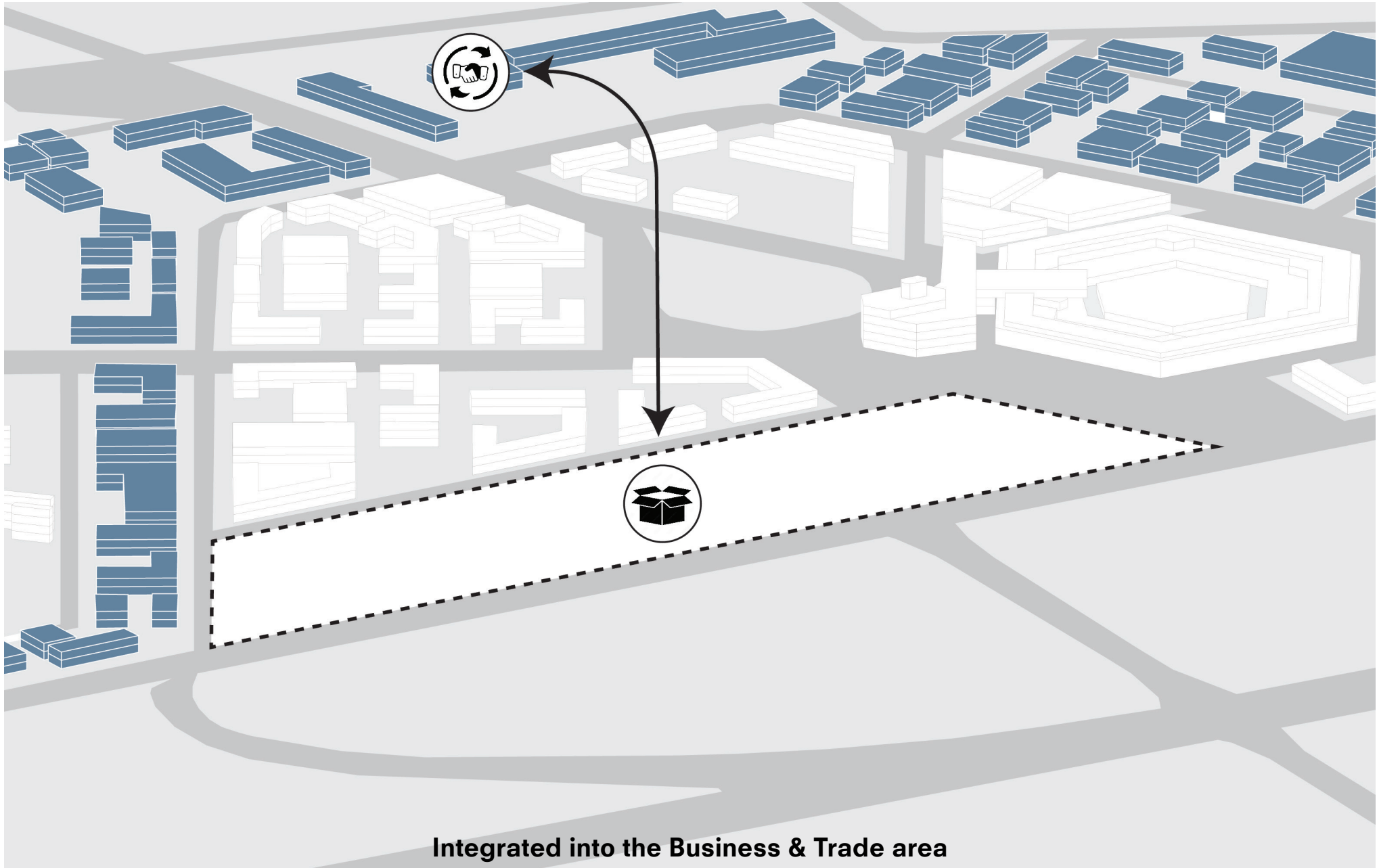
CONSTRAINTS AND OPPORTUNITIES



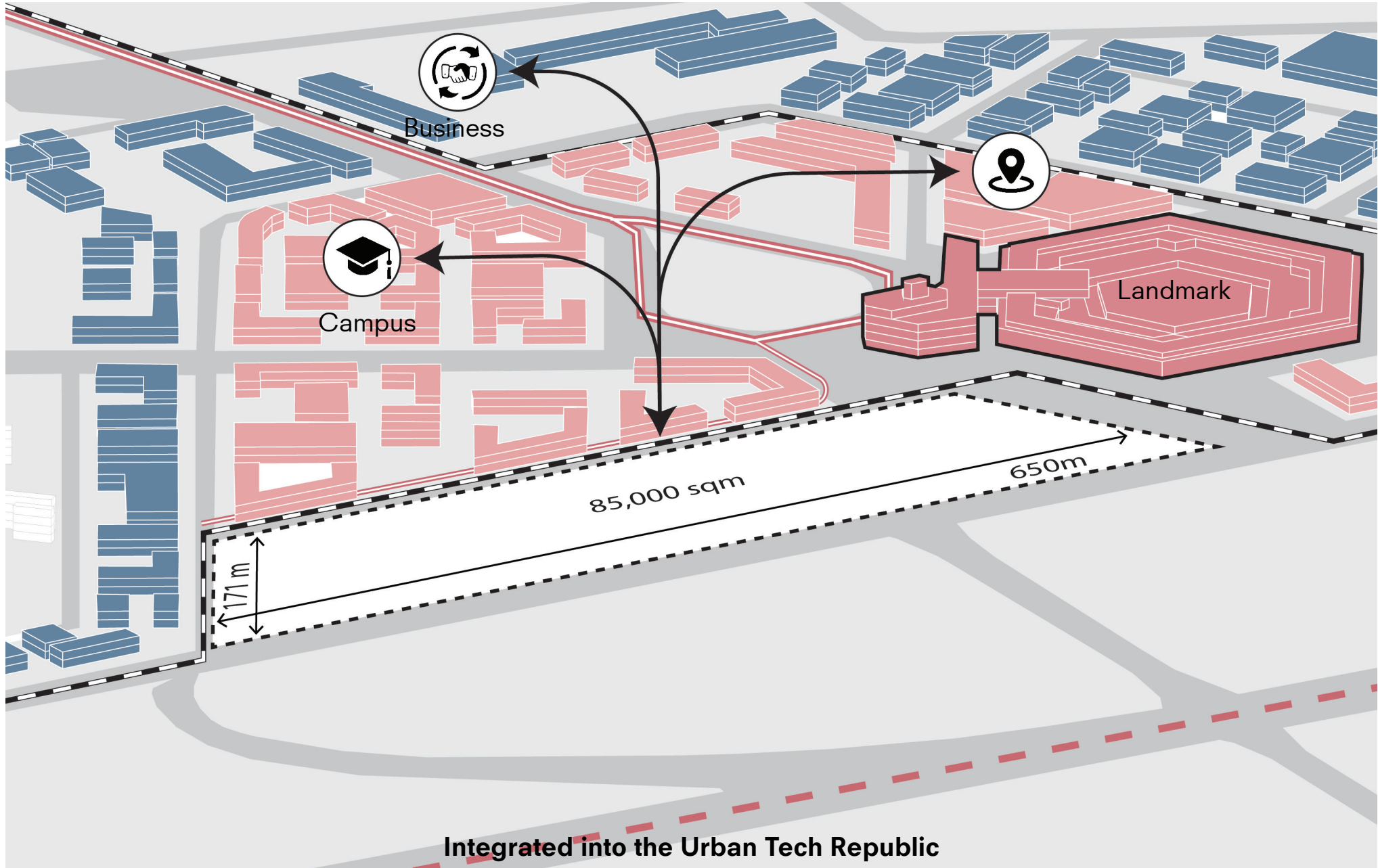
CONSTRAINTS AND OPPORTUNITIES



CONSTRAINTS AND OPPORTUNITIES



CONSTRAINTS AND OPPORTUNITIES



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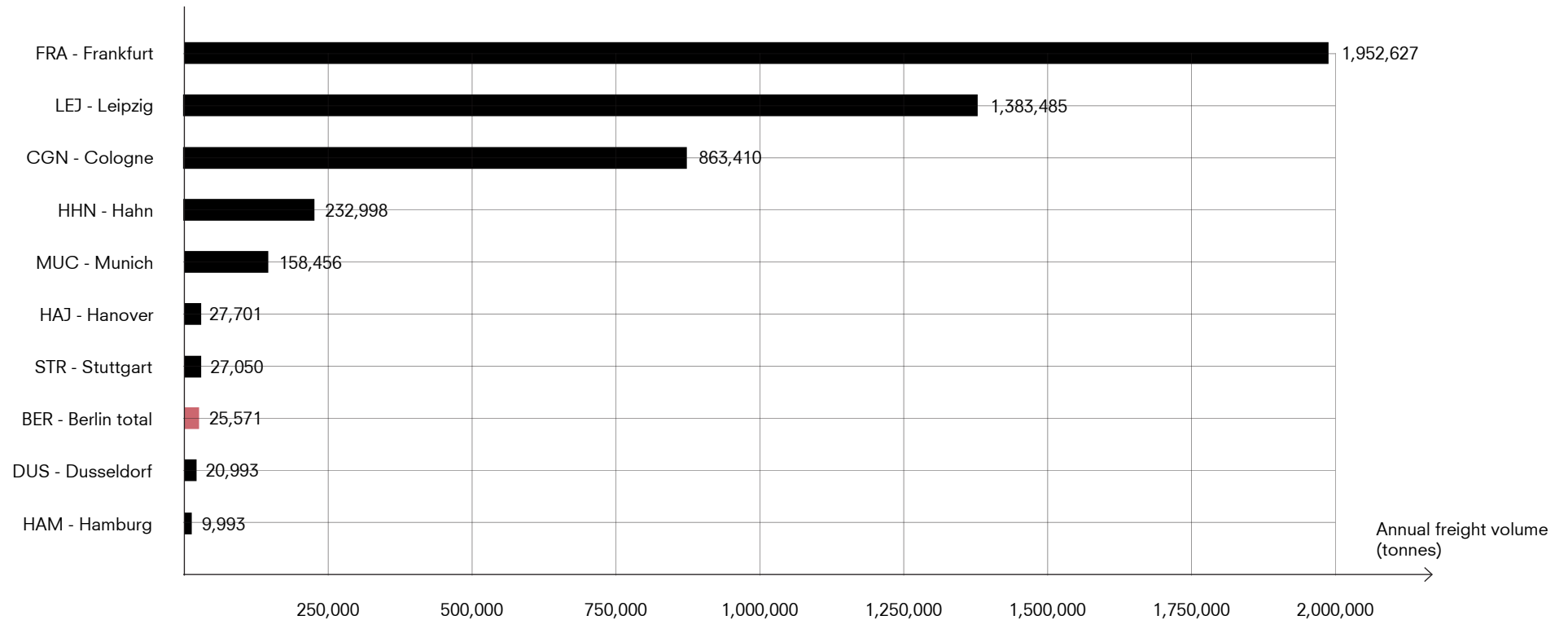
IMPLEMENTATION

DEVELOPMENT

CONCLUSION

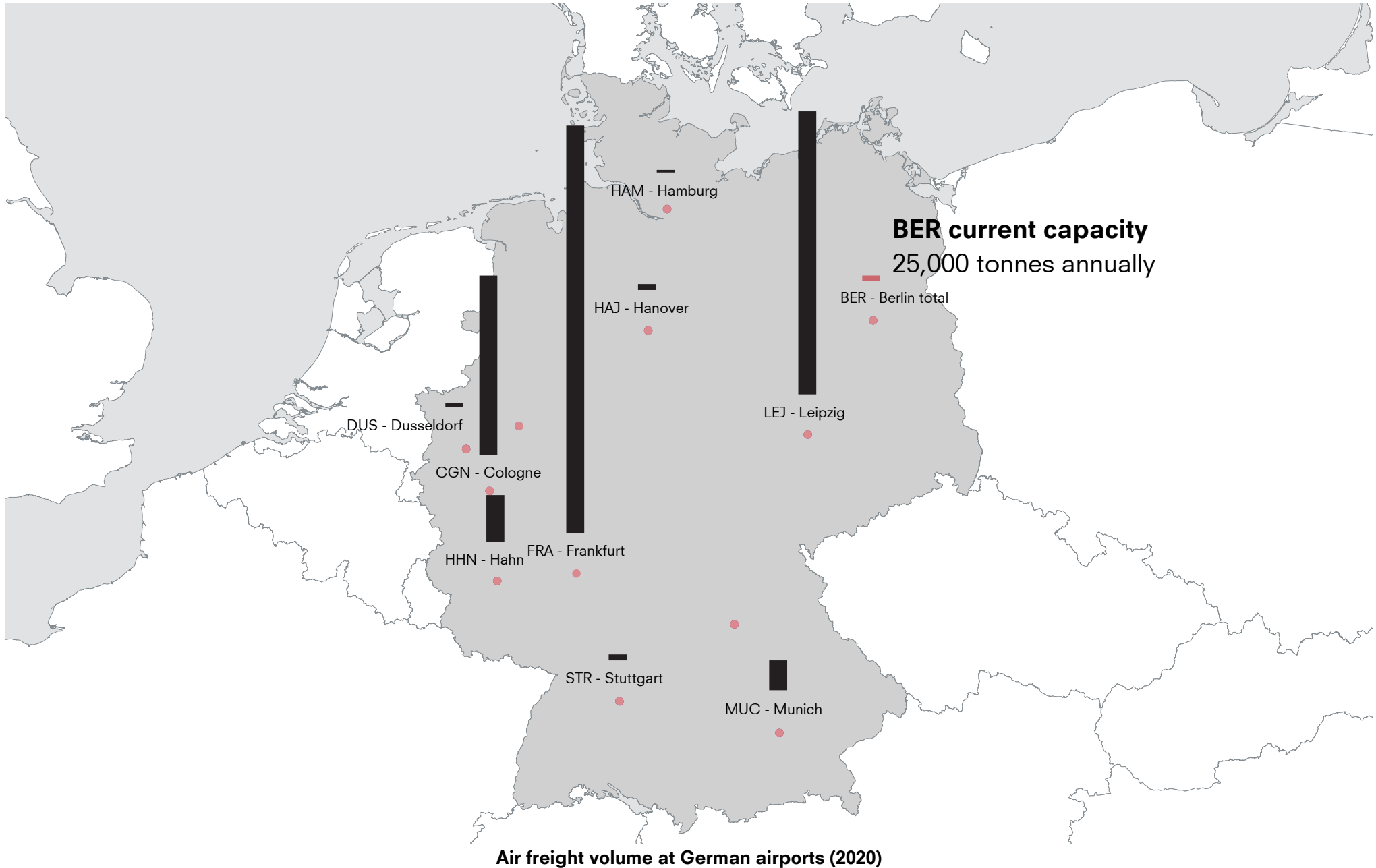
program research

CAPACITY RESEARCH



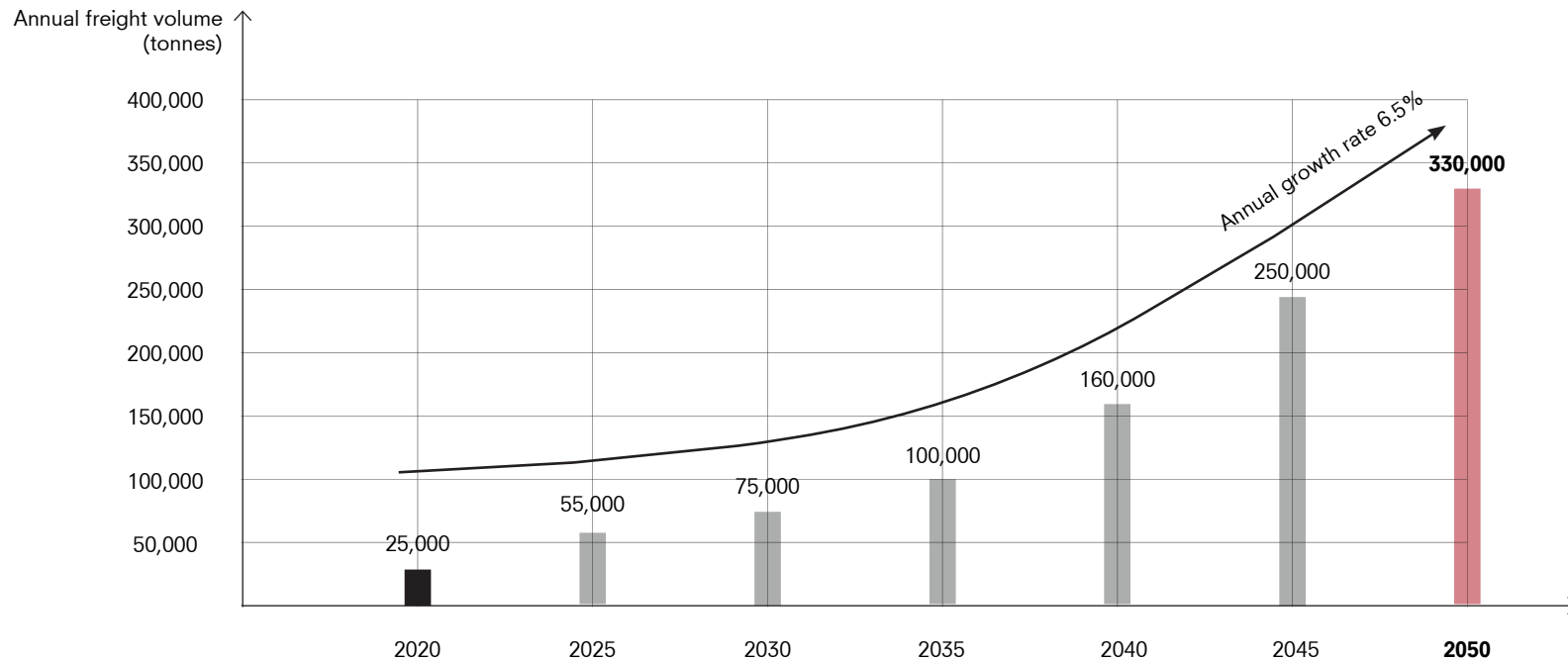
Air freight volume at German airports (2020)

CAPACITY RESEARCH



program research

CAPACITY ESTIMATION

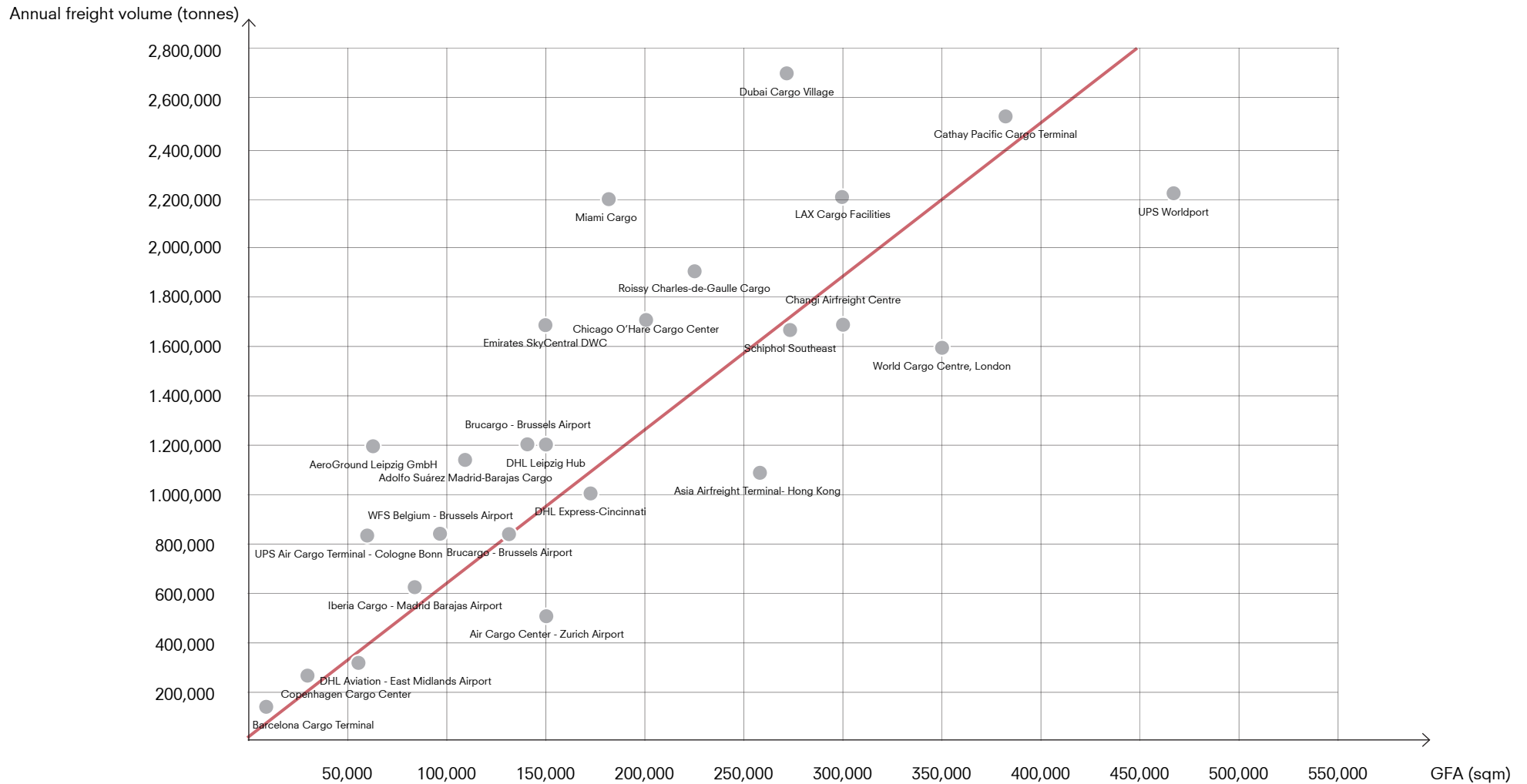


Annual freight volume in 2050

Capacity estimation: **330,000 tonnes**

program research

GFA ESTIMATION



The existing facility utilization ratio: **0.14 m²/t**

Reference: Maynard, Mike, et al. "Air Cargo Facility Planning and Development." ACRP Web-Only Document ACRP 03-24 (2015).

program research

GFA ESTIMATION



$$0.14 \text{ m}^2/\text{t} \quad \times \quad 330,000 \text{ t} \quad = \quad 46,000 \text{ m}^2$$

The existing facility utilization ratio was 0.14 m²/t per annual ton of air cargo

Capacity estimation in 2050

GFA estimation for cargo building

GFA of Cargo Building

+/- 46,000 m²

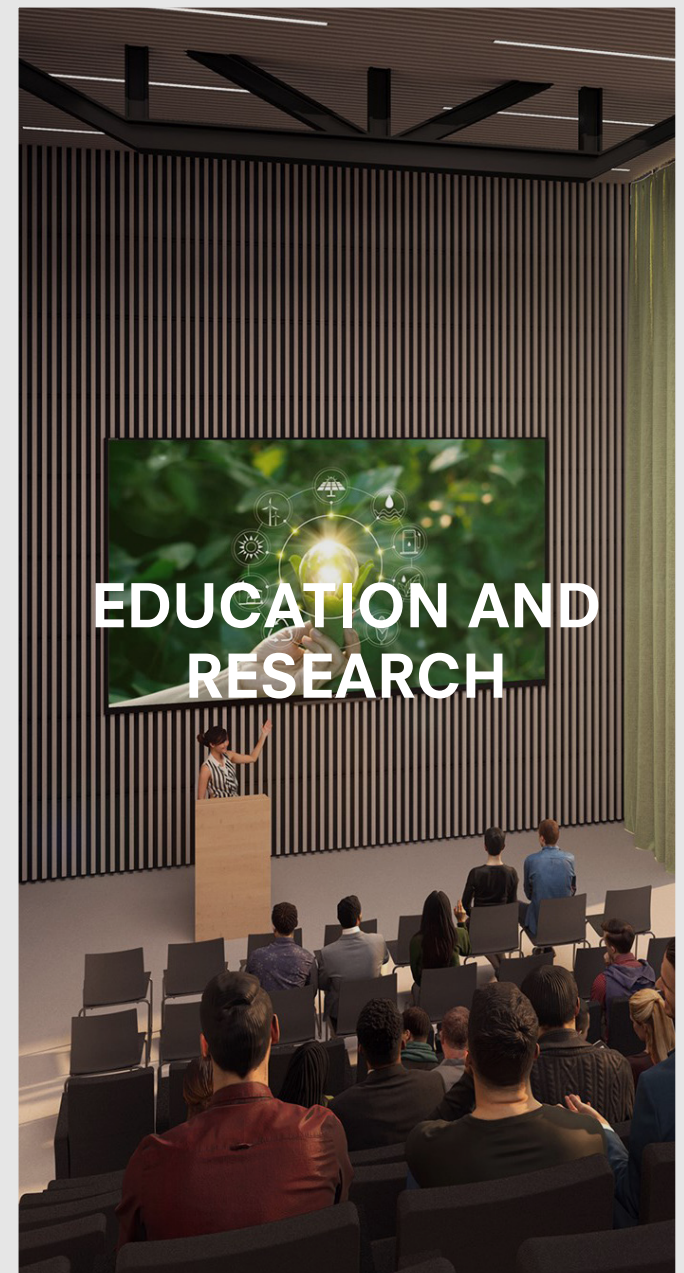
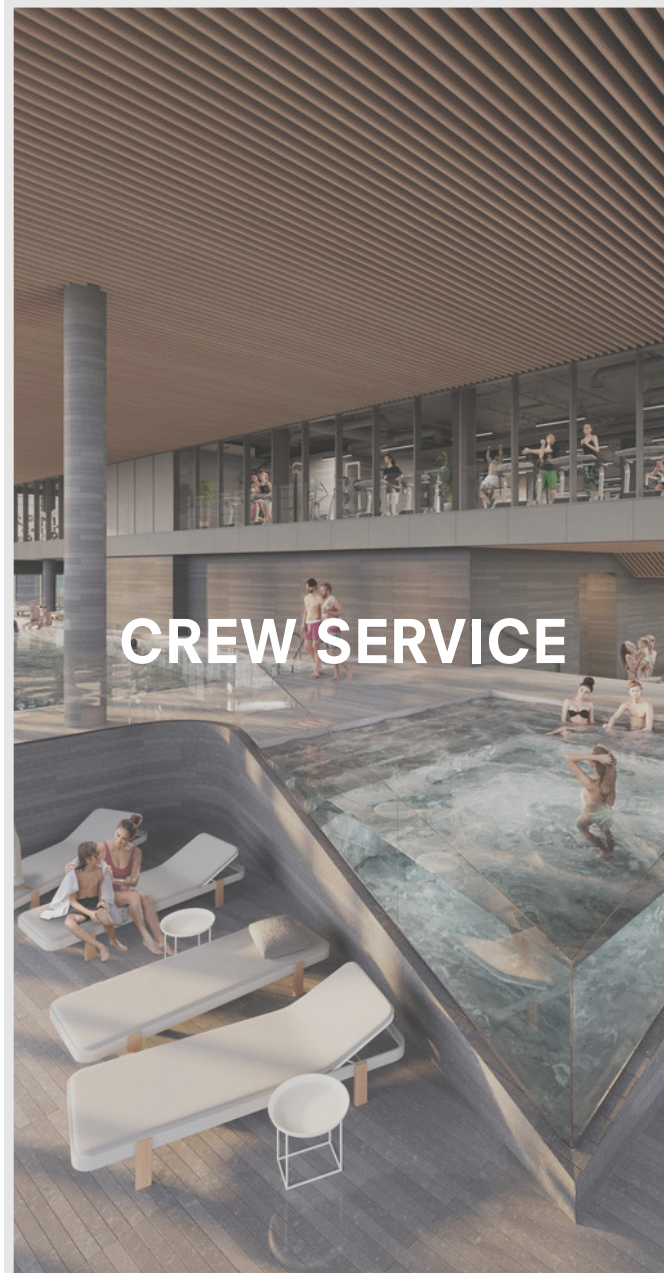
Reference: Maynard, Mike, et al. "Air Cargo Facility Planning and Development." ACRP Web-Only Document ACRP 03-24 (2015).

GENERAL CARGO TERMINAL



program research

EXTRA PROGRAM



program research

CREW SERVICE



Relaxation lounge



24/7 Canteen



Thermal & Therapy

program research

PUBLIC SERVICE



Exhibition



Auction



Restaurant & Market

EDUCATION AND RESEARCH



Lecture Halls



Innovation labs



Collaborative Spaces

program research

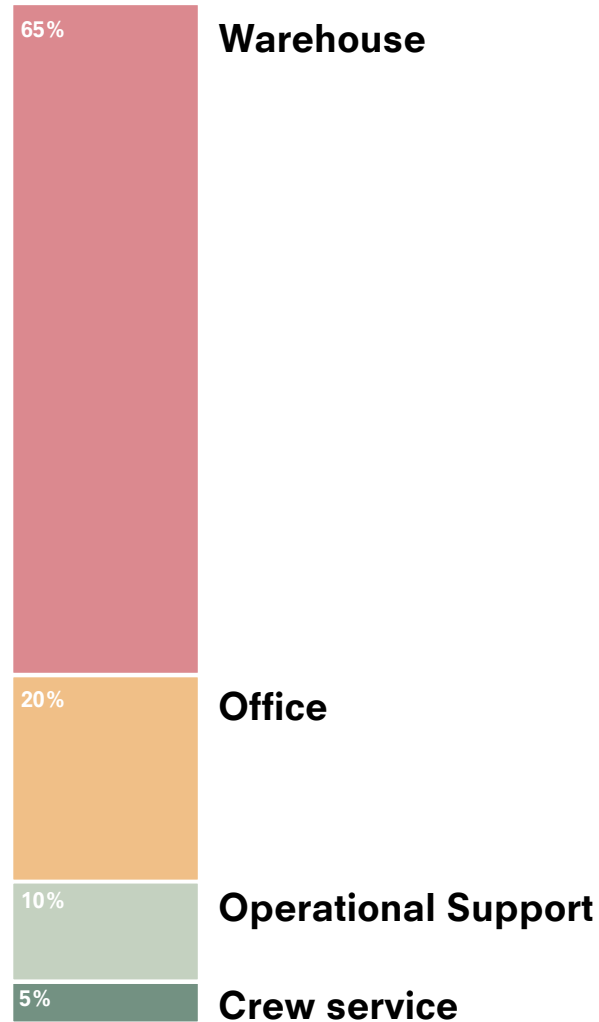
BENCHMARKING

Warehouse, Office, Support and service



program

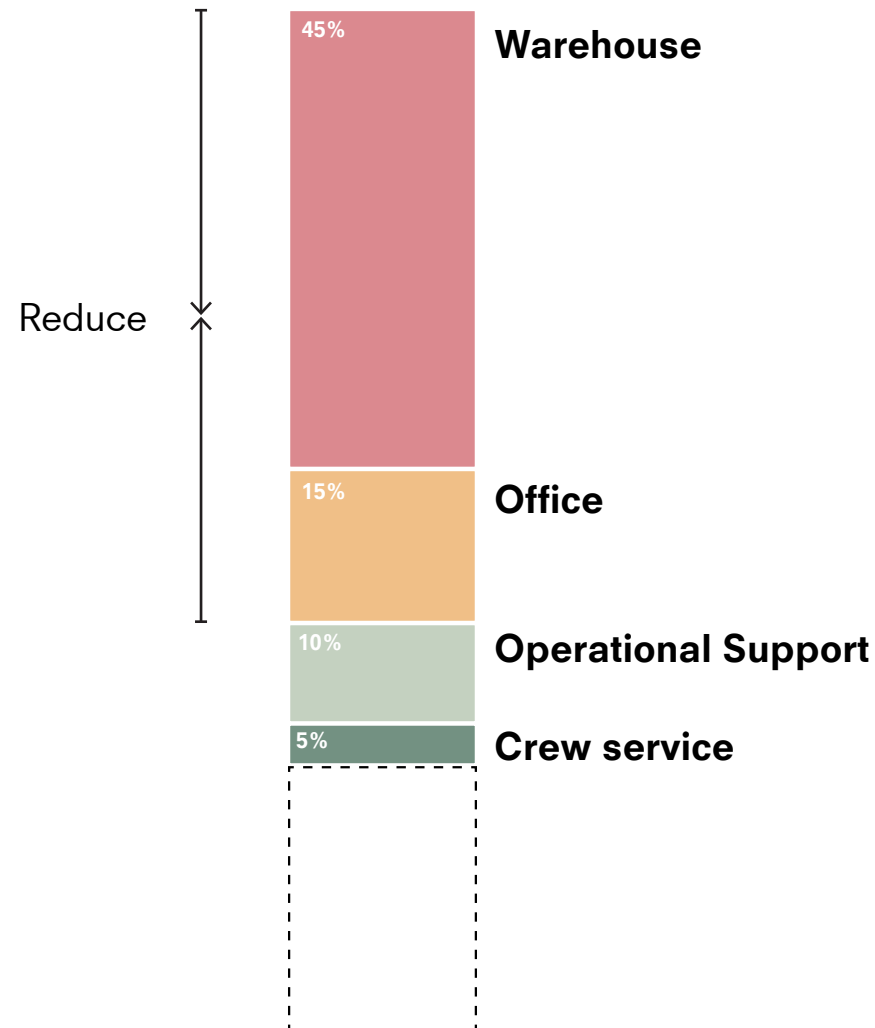
PROGRAM BREAKDOWN



General Cargo Terminal

program

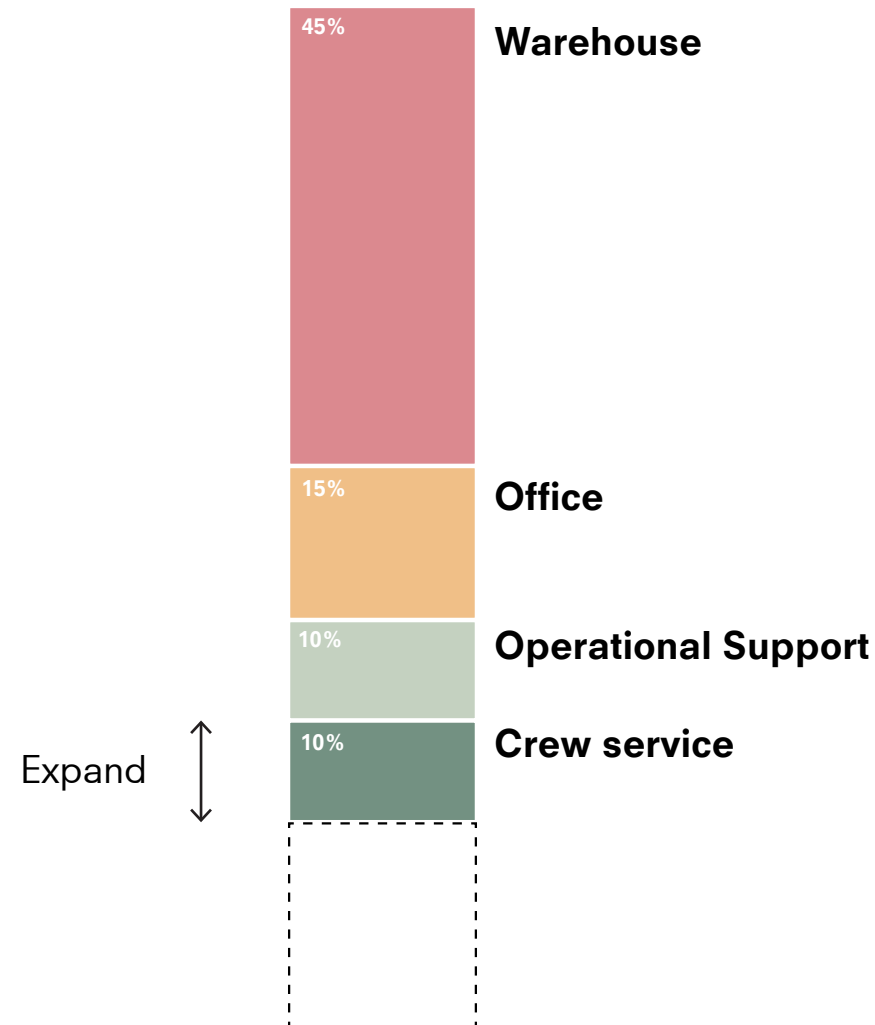
PROGRAM BREAKDOWN



Program

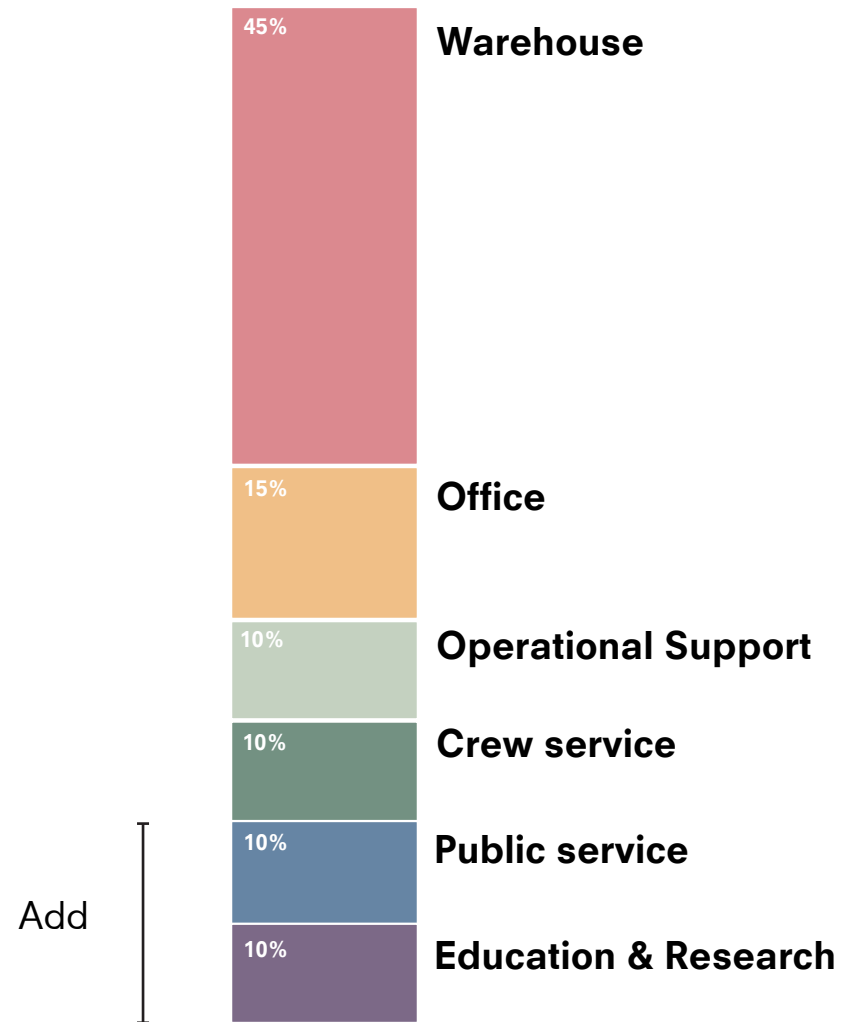
program

PROGRAM BREAKDOWN



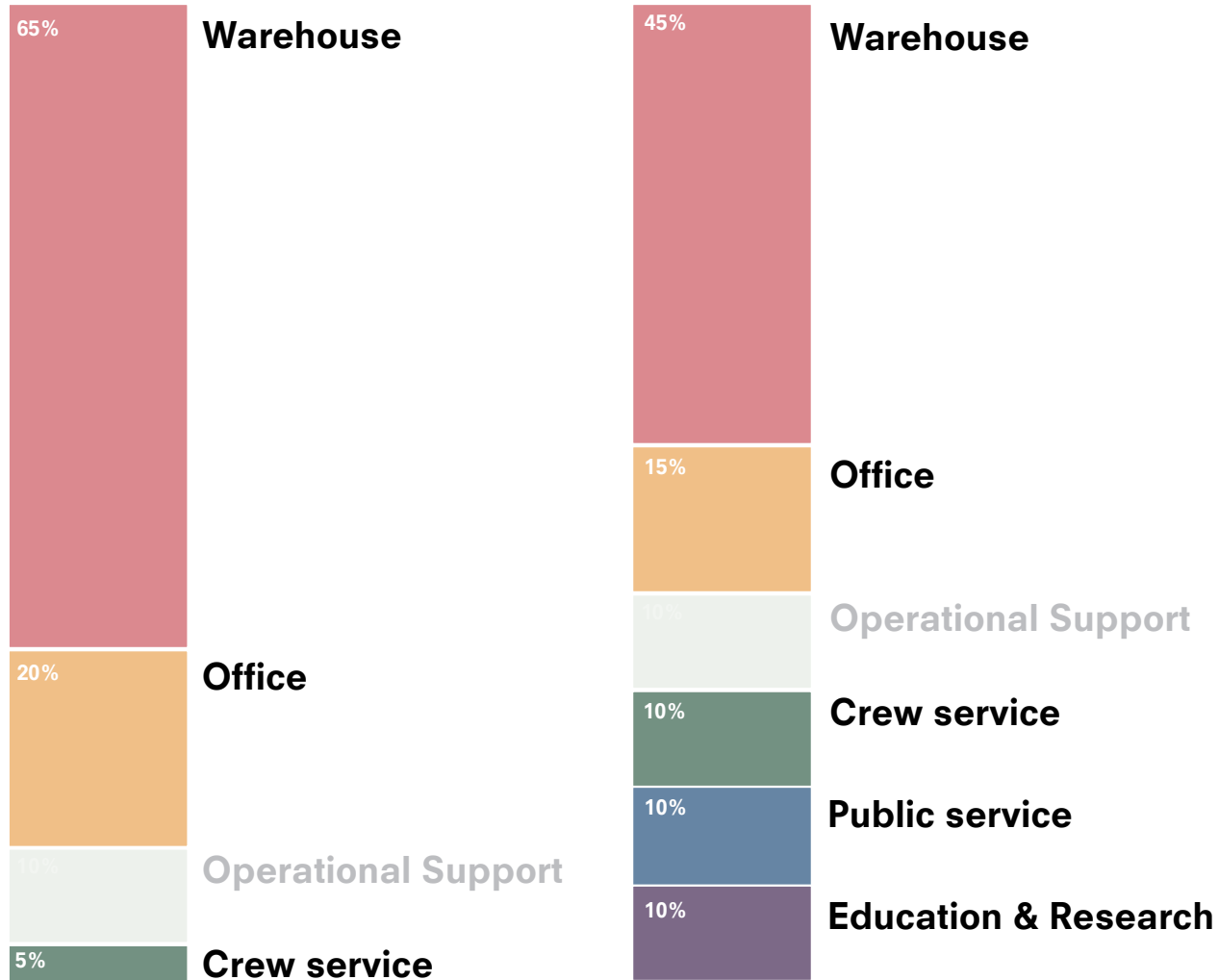
program

PROGRAM BREAKDOWN



Program

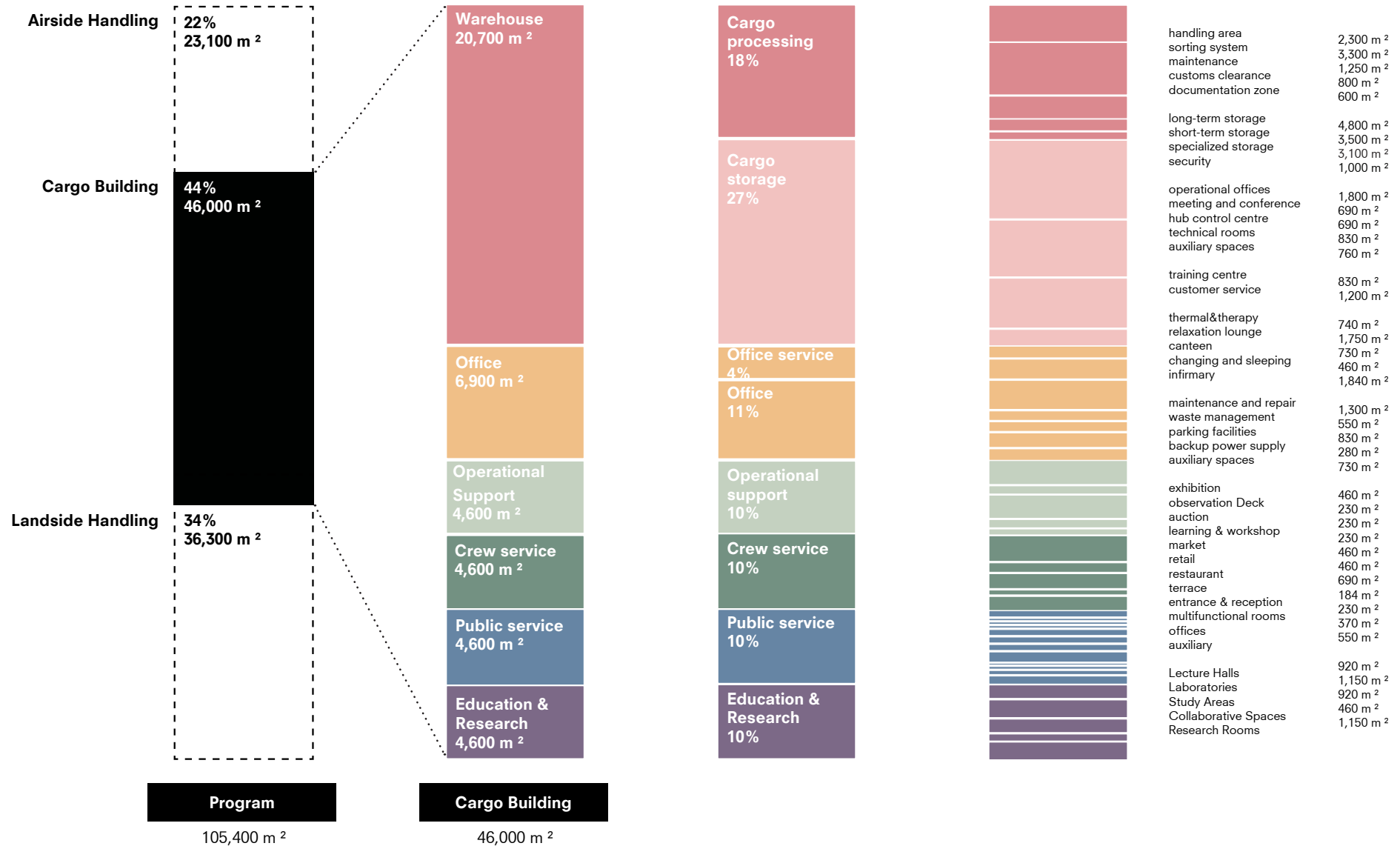
MAIN DIFFERENCES



General Cargo Terminal

Program

program PROGRAM OVERVIEW



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DEVELOPMENT

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CLIENTS IN HISTORY



client research

MAIN CLIENT



DHL

Leading integrator | Dominance in the EU | Head-quartered in Germany

client research

DHL AMBITIONS

Green Logistic



Zero Emissions by 2050

Technology Innovation



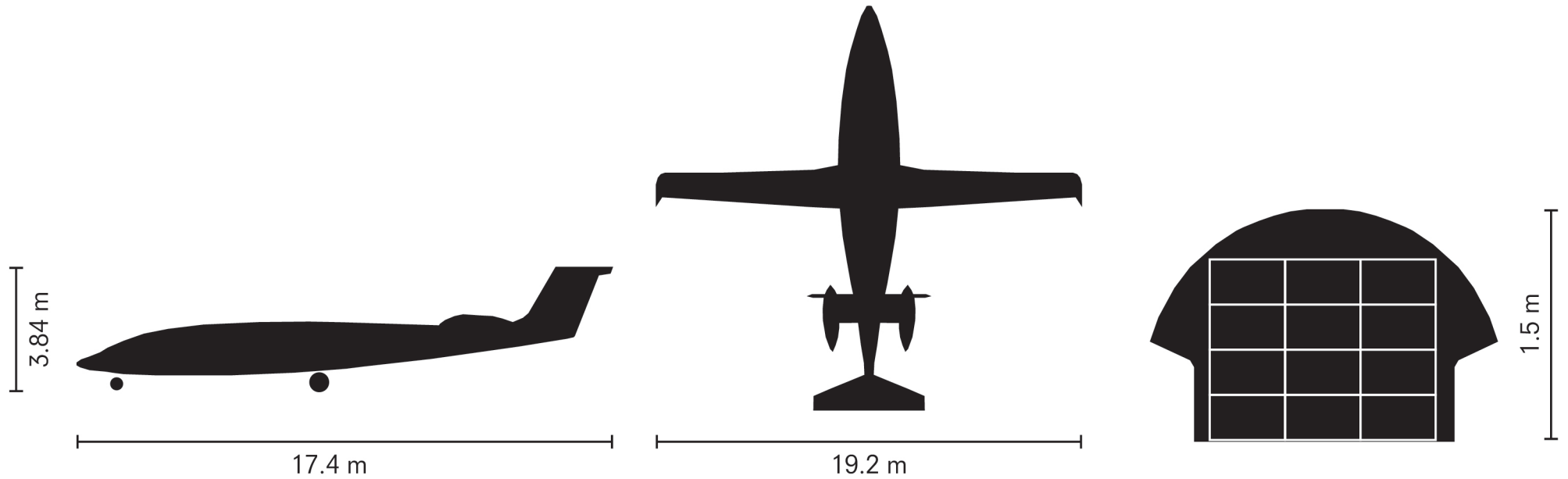
Digitalization & Automation

Global Supply Chain



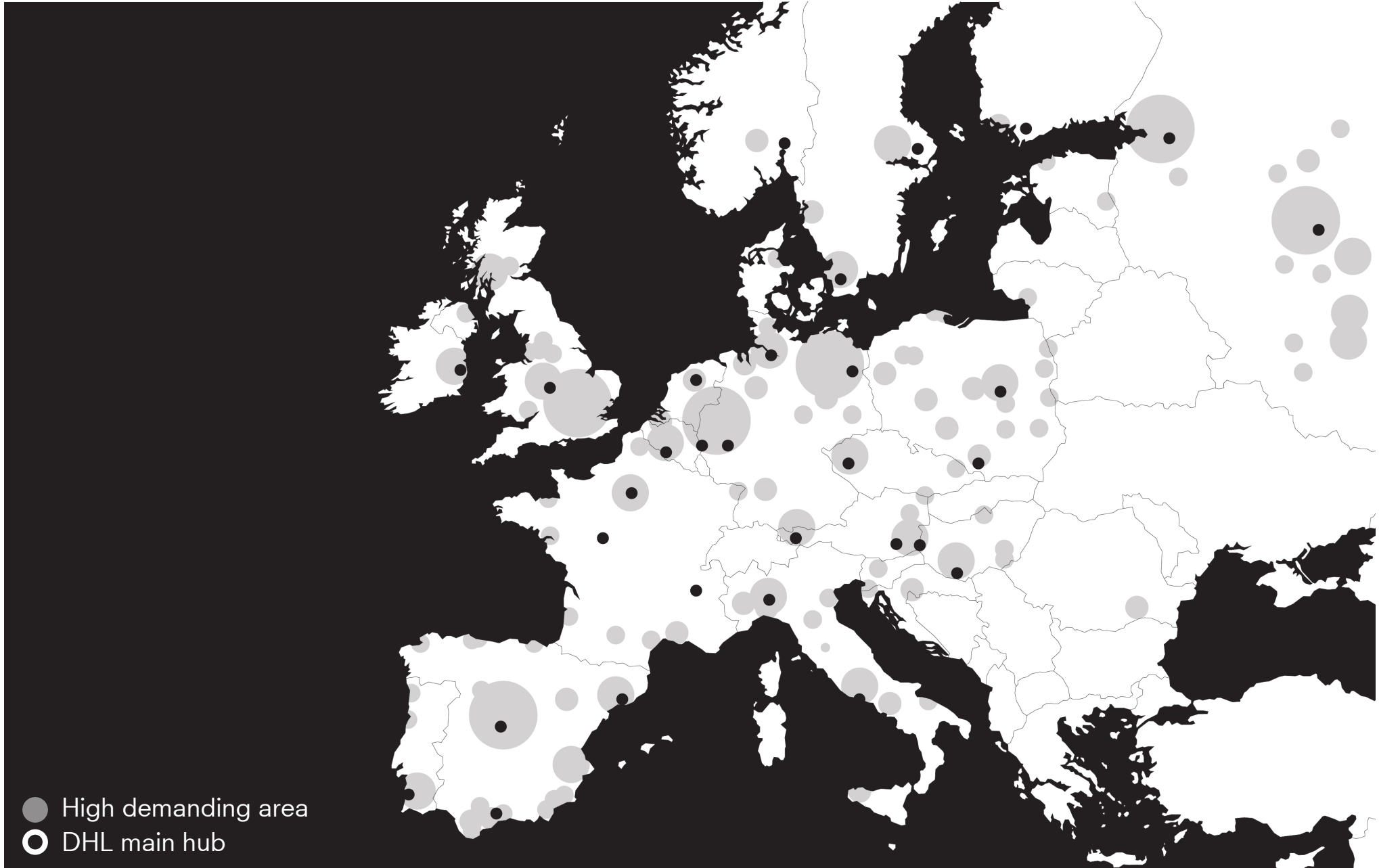
Strengthening European Network

AIRCRAFT DIMENSIONS

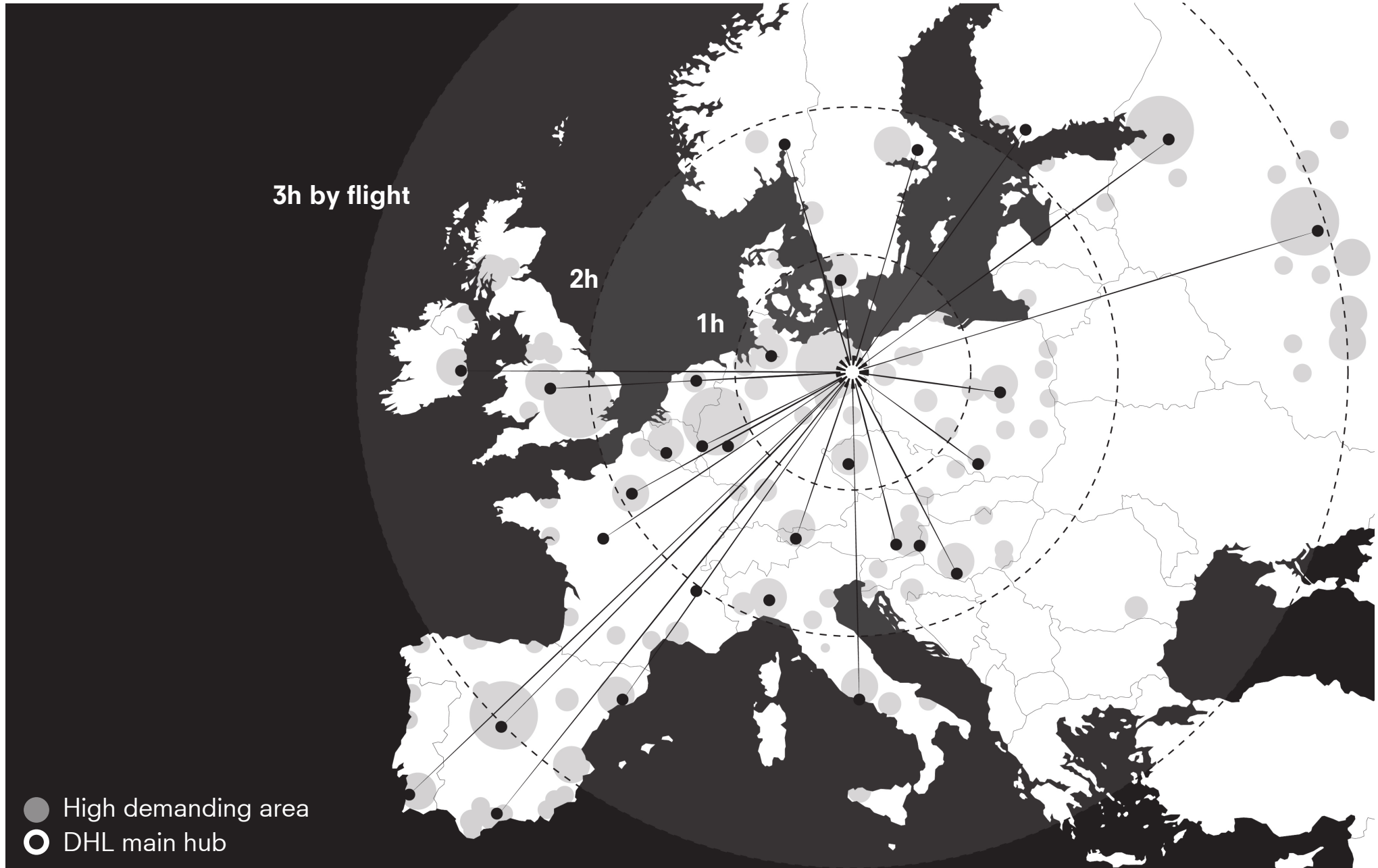


DHL: Zero-emission E-Cargo Aircraft

DOMINANCE IN THE EU



THE FUTURE EU HUB



client research

URBAN TECH REPUBLIC

Tegel Project GmbH

Berlin University of Technology

Mobility Companies

TEGEL PROJEKT GMBH



MOTOR AI

vay

SIEMENS

easy
MILE

Leading the Transformation

Fuelling Innovation and Education

Creating the Future of Transport

client

CLIENT SUMMARY

DHL

Urban Tech Republic



X

Tegel Projekt GmbH

Berlin University of Technology

Mobility Companies

TEGEL PROJEKT GMBH



vay

SIEMENS

EASY MILE

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PROJECT AMBITIONS



EFFICIENT & SUSTAINABLE



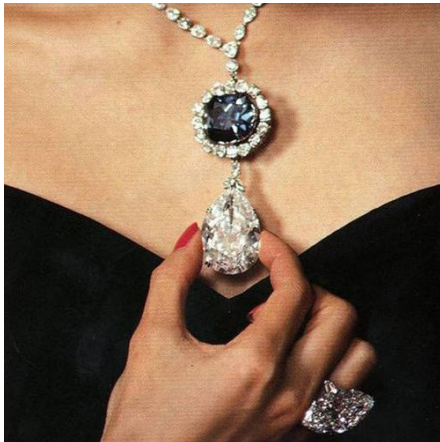
WORKER CENTRIC



URBAN INTEGRATION

concept

MAXIMIZE AIR CARGO VALUE



High-value

fine art
antiques
electronics



Perishable

fresh produce
seafood
flowers



Urgent

medical supplies
pharmaceuticals
organs

concept

HIGH-VALUE GOODS



Storage + Museum = Cabinet of Curiosities

concept

PERISHABLE GOODS



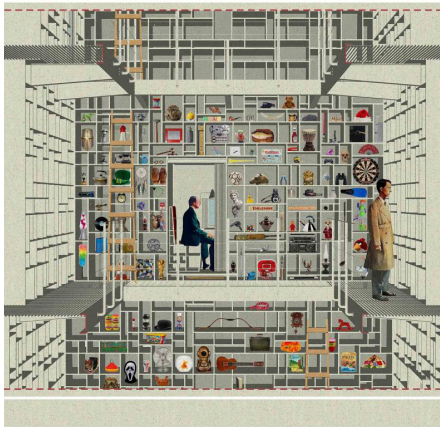
Crew Canteen



Public Market

concept

WAREHOUSE CATEGORIZATION



High-value
High-secured
Cabinet of Curiosity



Urgent
Fast Process
Linear Processing track

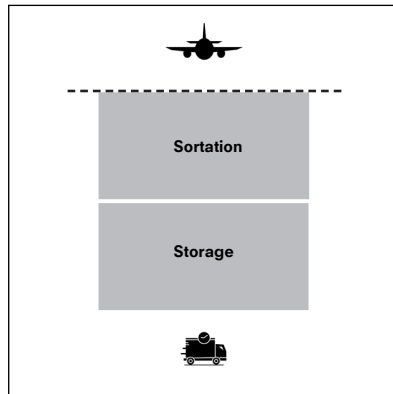


Perishable
Temperature Control Room
Hygienic

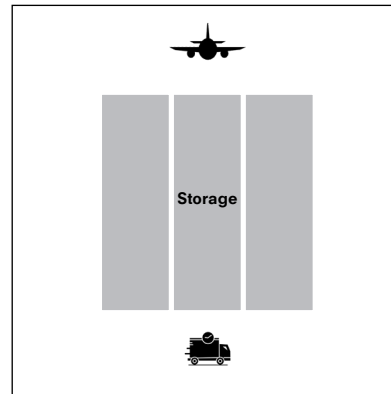
concept

DESIGN PRINCIPLE

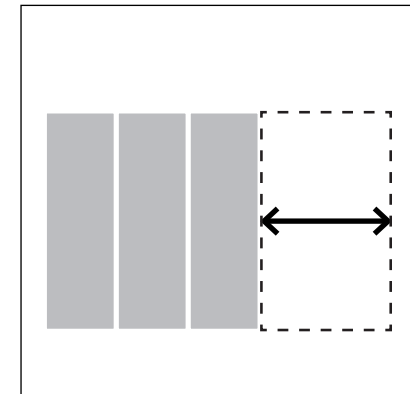
WORKER - CENTRIC SPACE



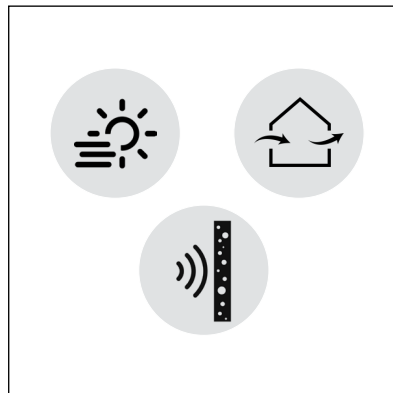
Landside Boundary



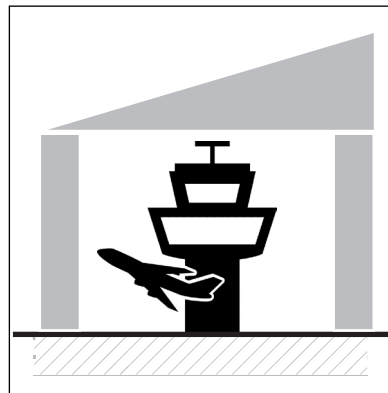
Warehouse Layout



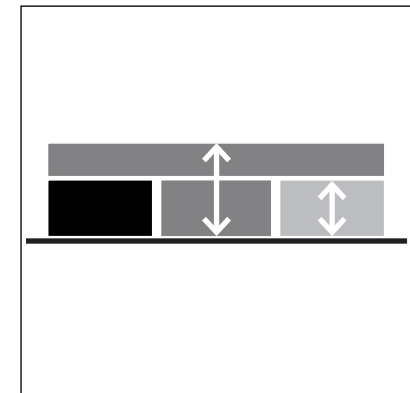
Flexible



Spatial Quality



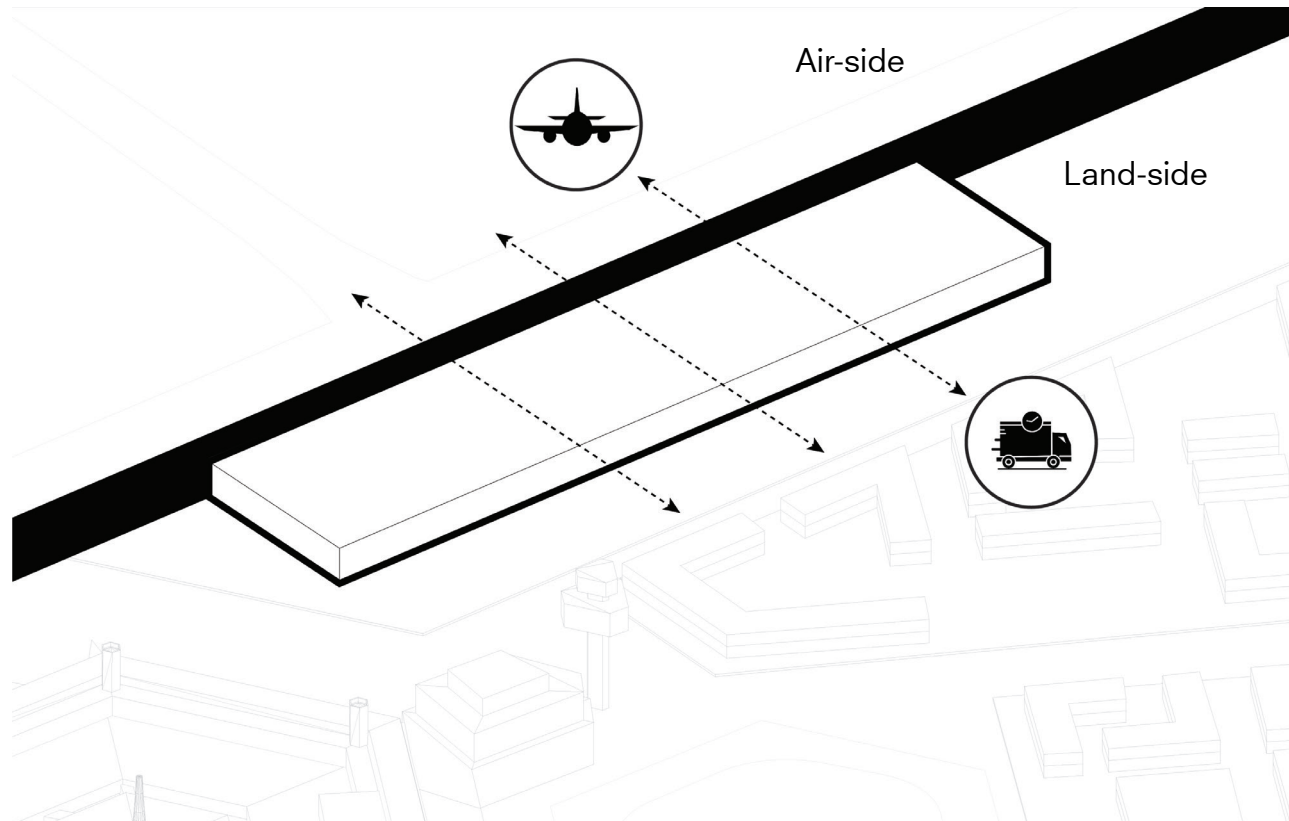
Iconic Entrance



Private | Public Flow

concept

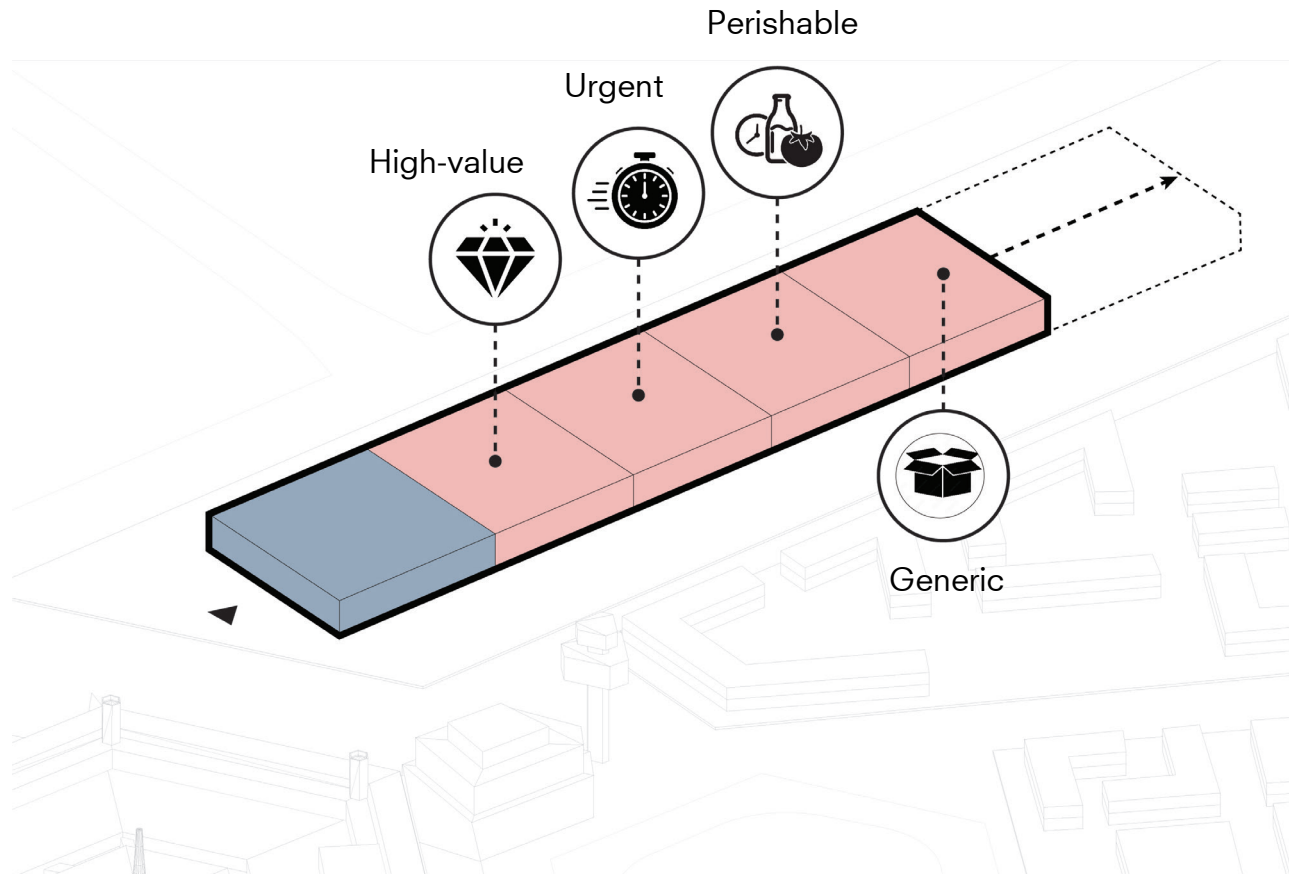
DESIGN PROCESS



AIR-SIDE LAND-SIDE BOUNDARY

concept

DESIGN PROCESS

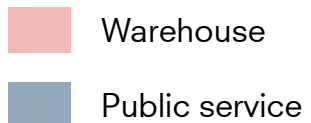
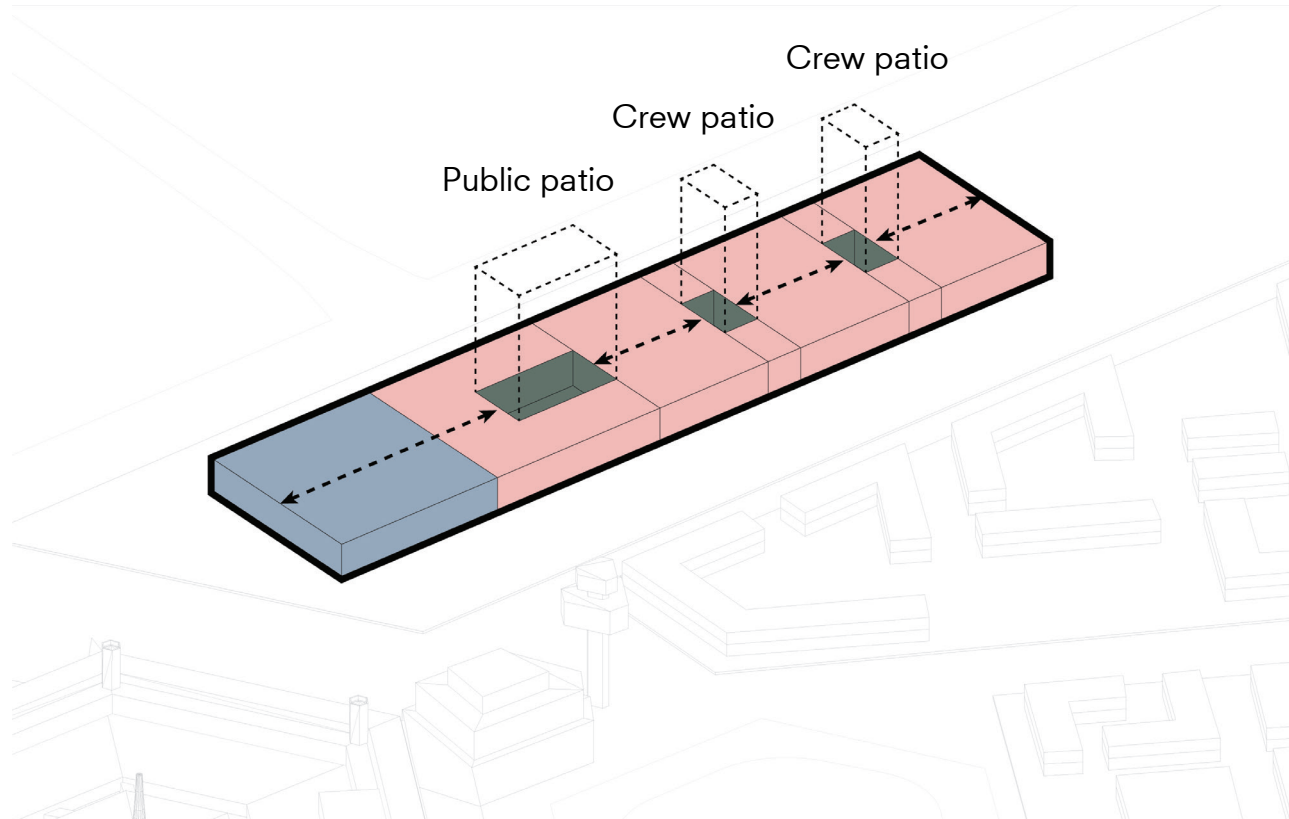


- Warehouse
- Public service

MODULAR WAREHOUSE

concept

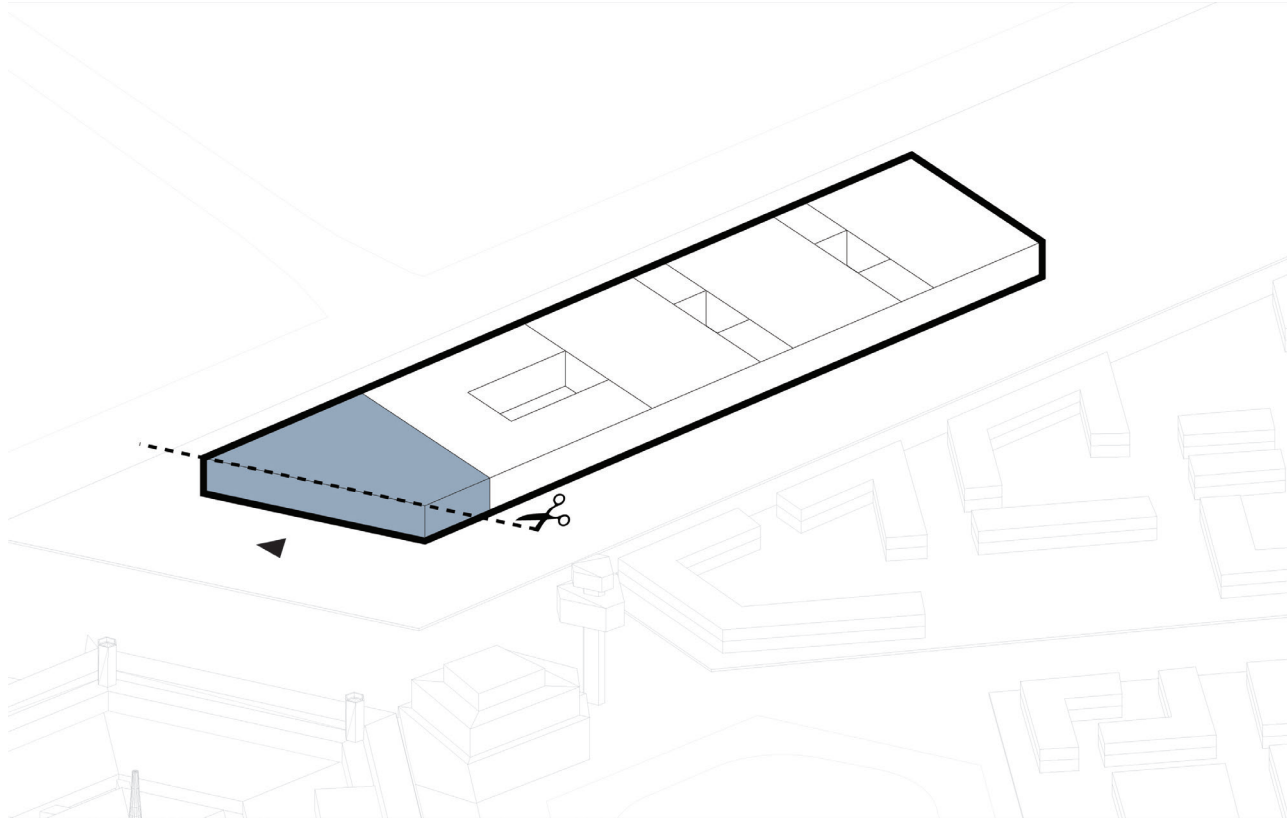
DESIGN PROCESS



PATIO | AXIS

concept

DESIGN PROCESS

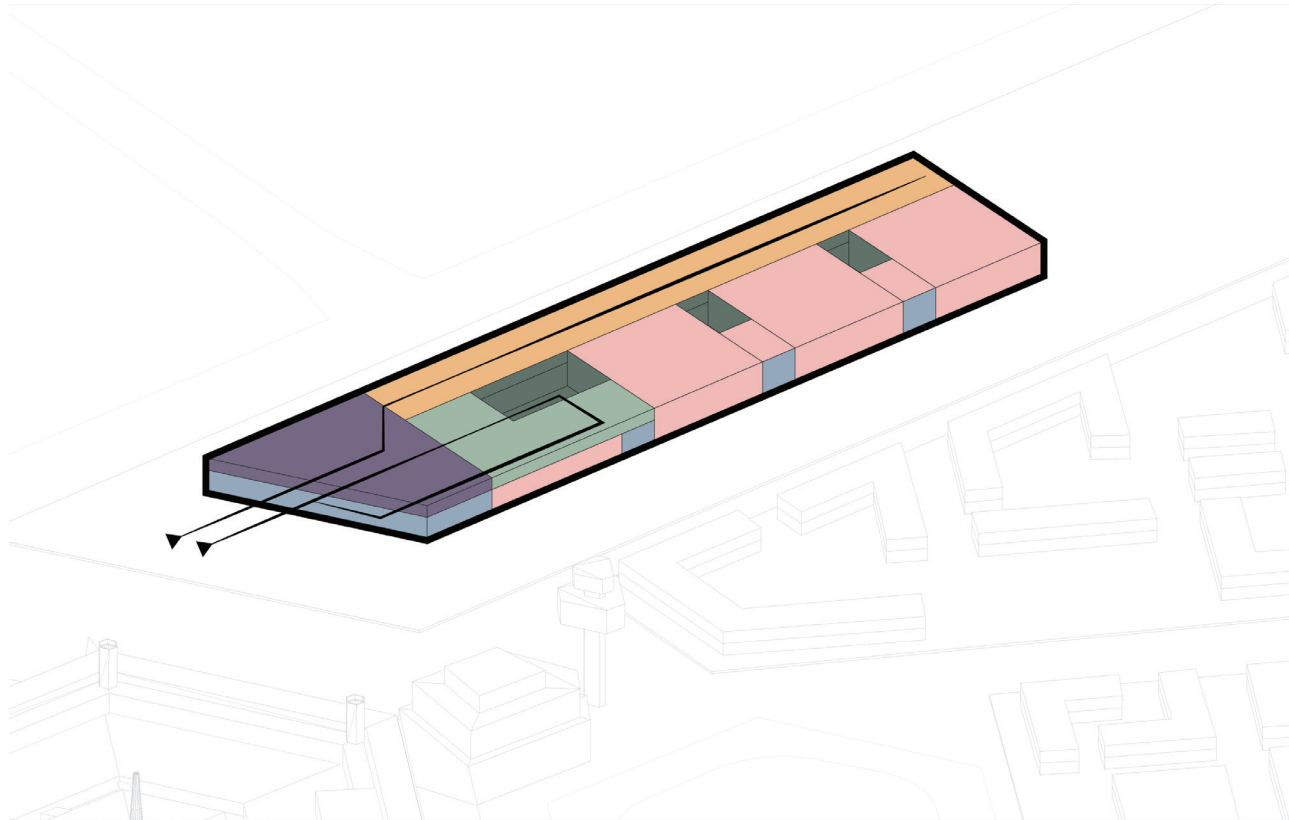


 Public service

ICONIC ENTRANCE

concept

DESIGN PROCESS



Crew service

Patio

Warehouse

Public service

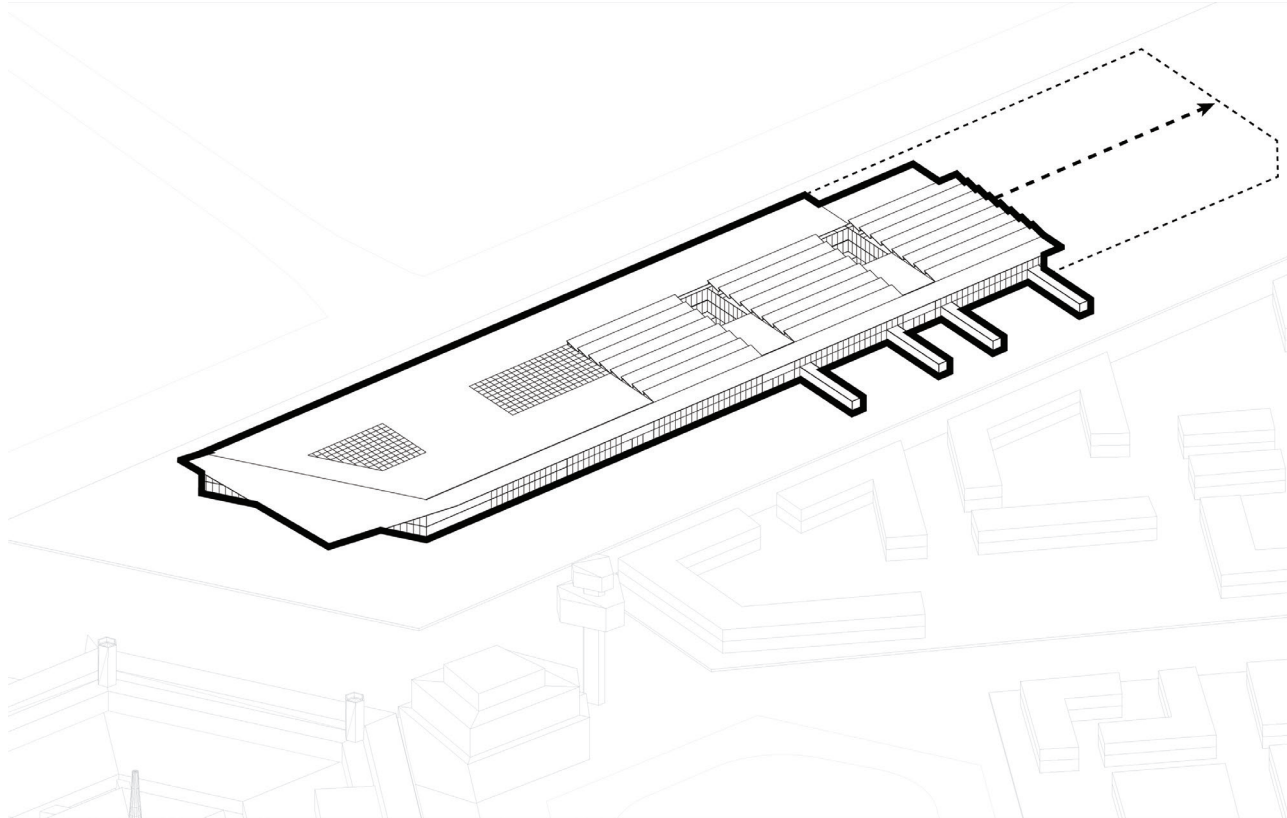
Office

Education area

FUNCTION | FLOW

concept

DESIGN PROCESS



THE DESIGN

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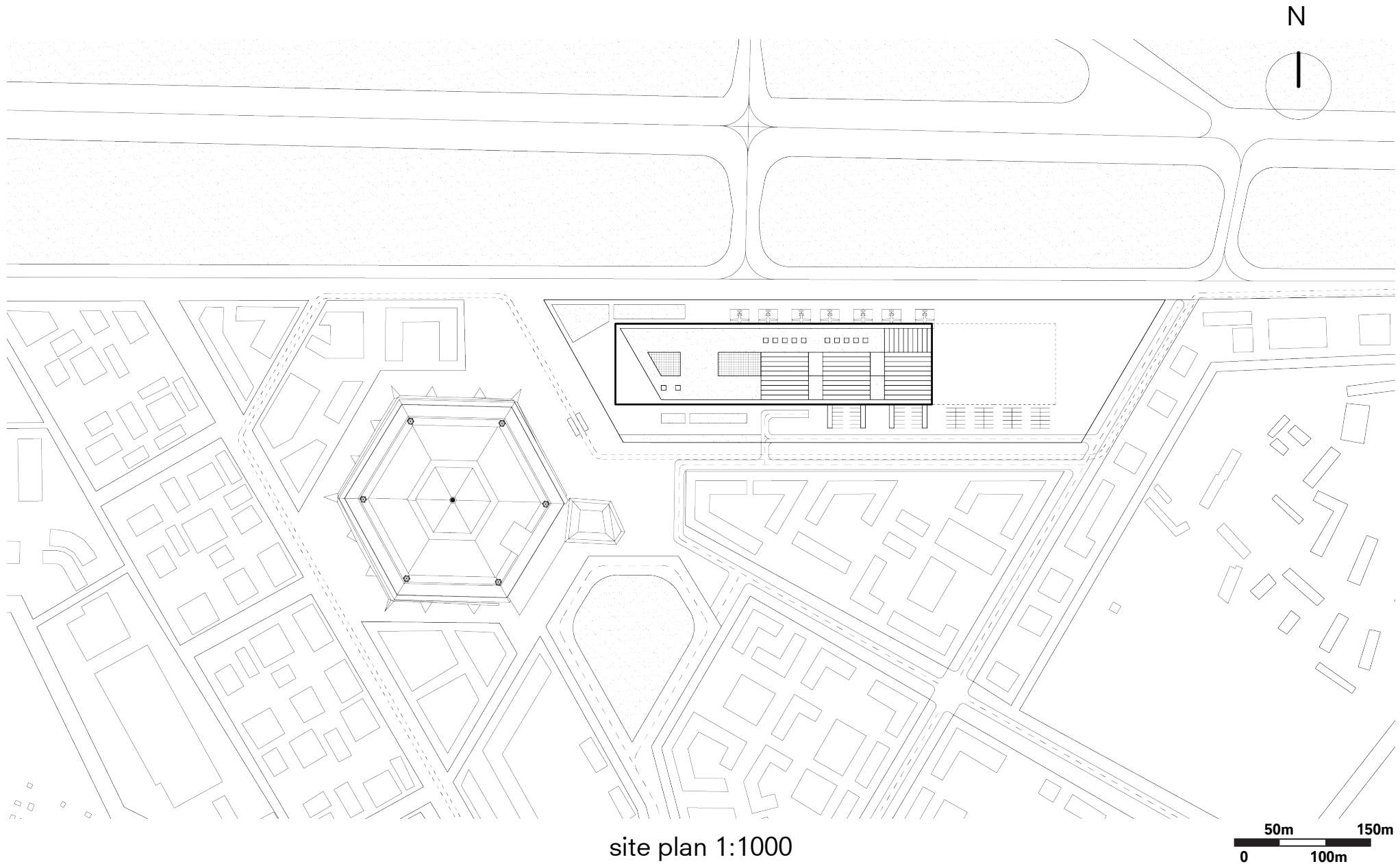
IMPLEMENTATION

DEVELOPMENT

CONCLUSION

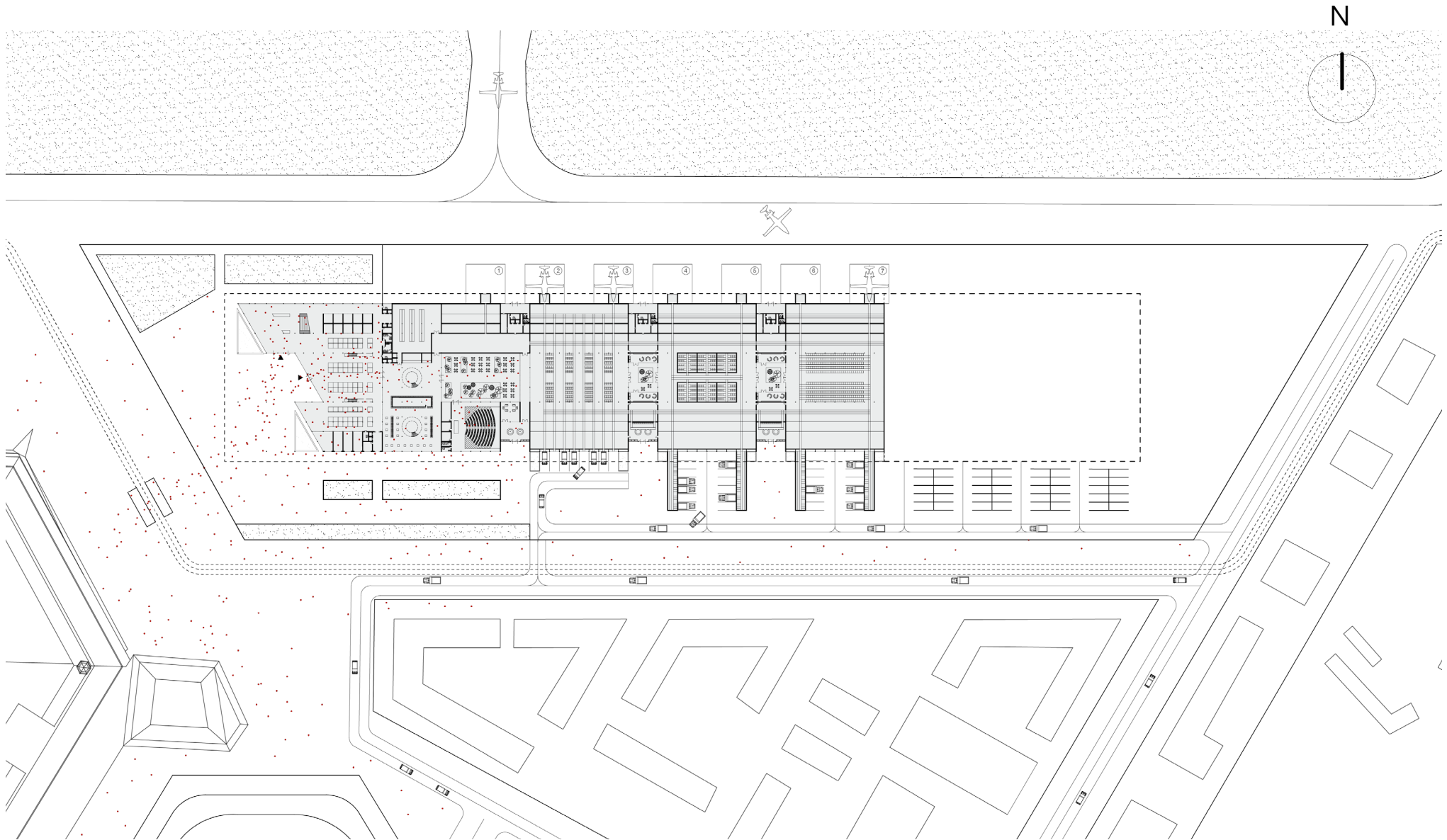
implementation

SITE PLAN

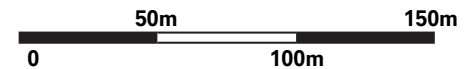


implementation

URBAN IMPLEMENTATION

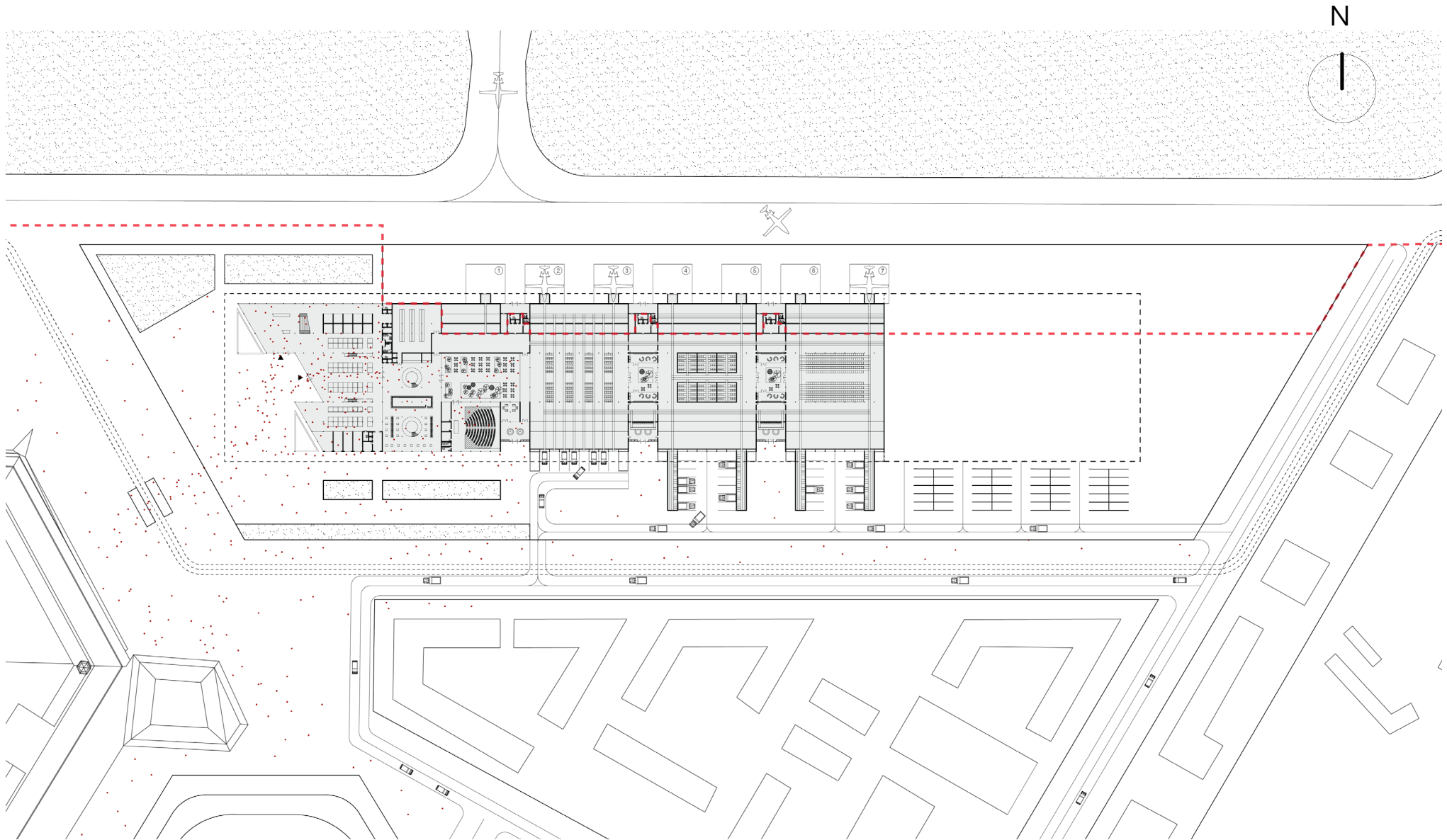


urban implementation 1:500

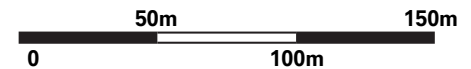


implementation

URBAN IMPLEMENTATION

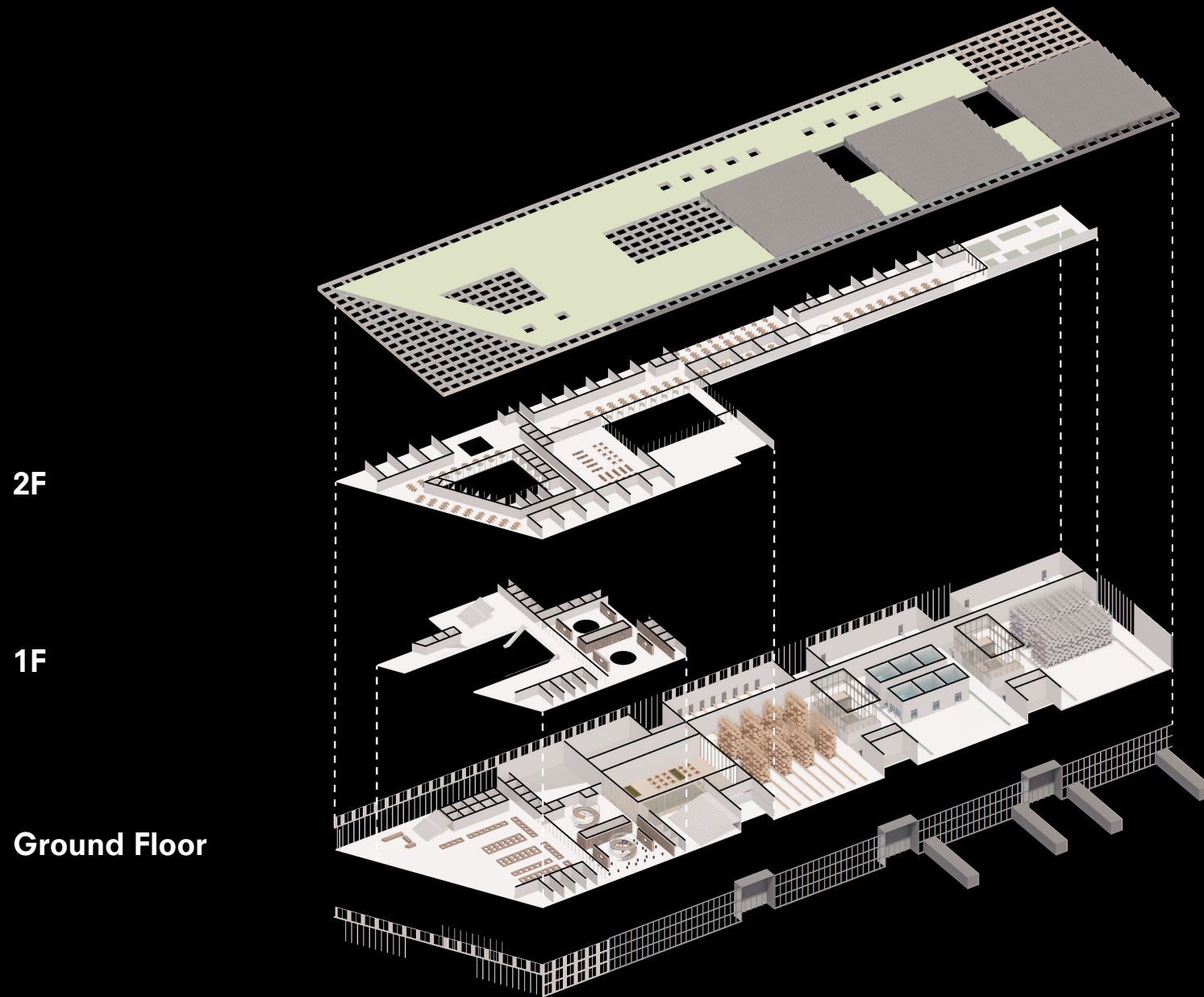


urban implementation 1:500



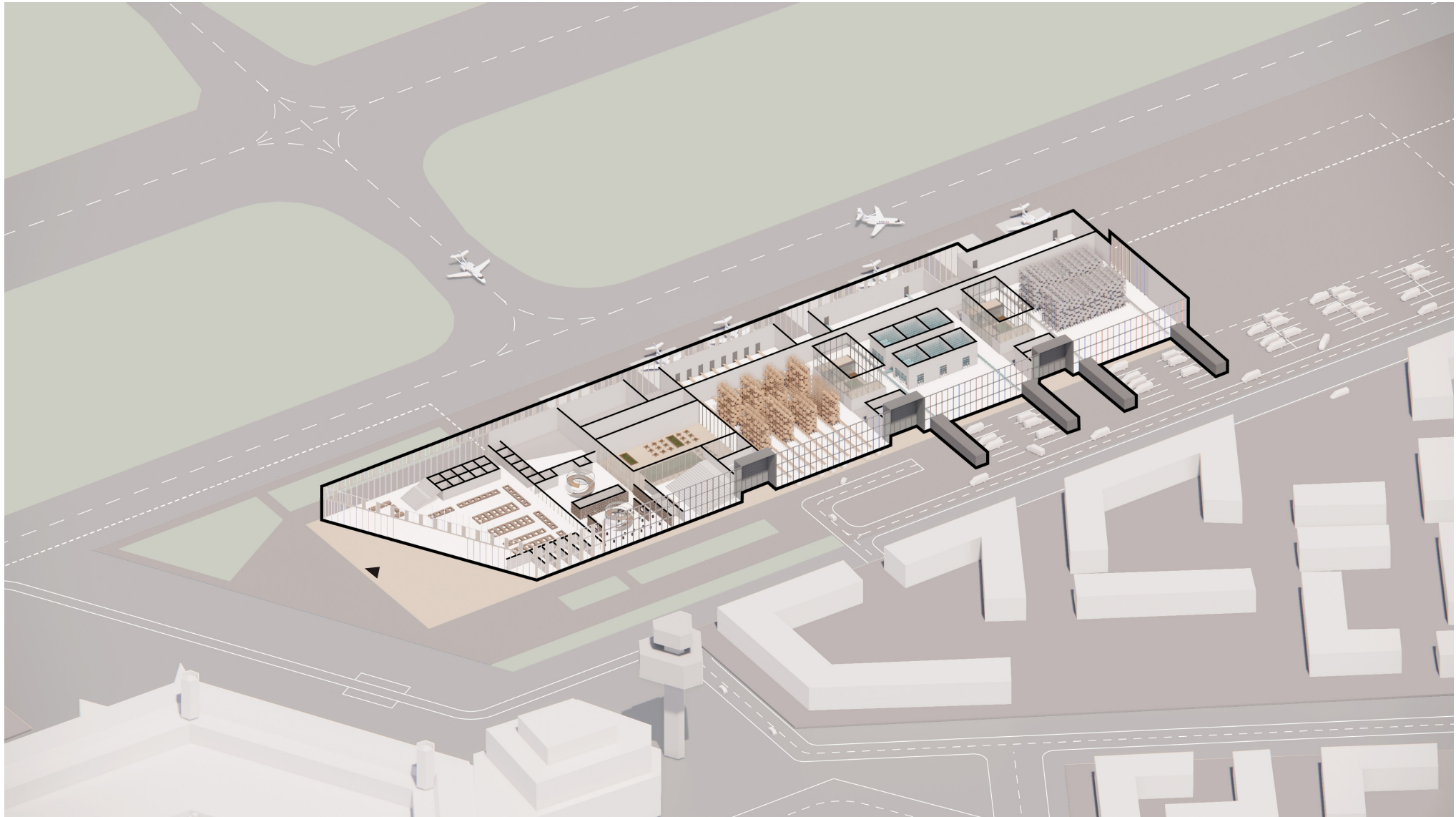
implementation

ORGANIZATION



implementation

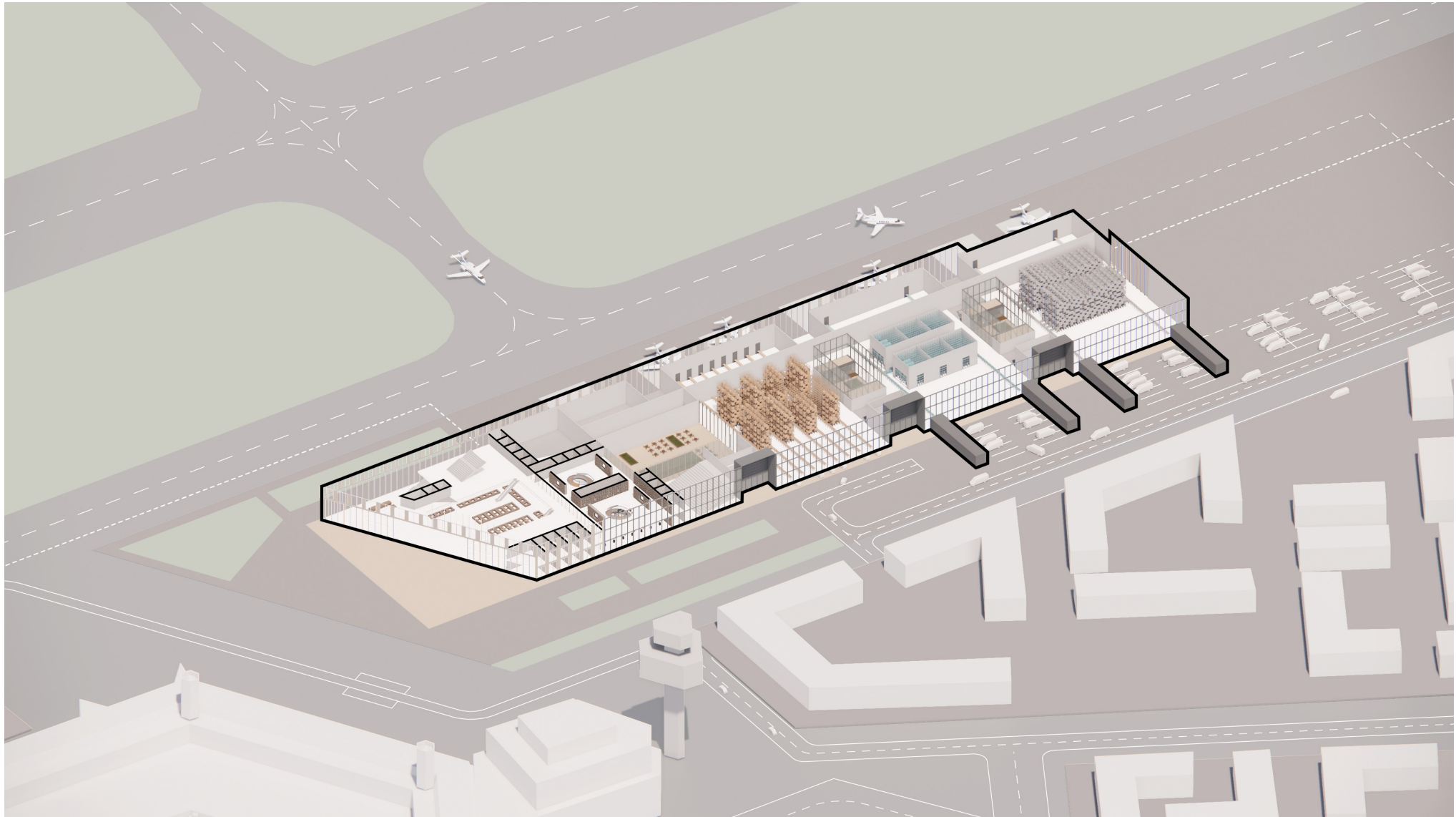
ORGANIZATION



Ground floor

implementation

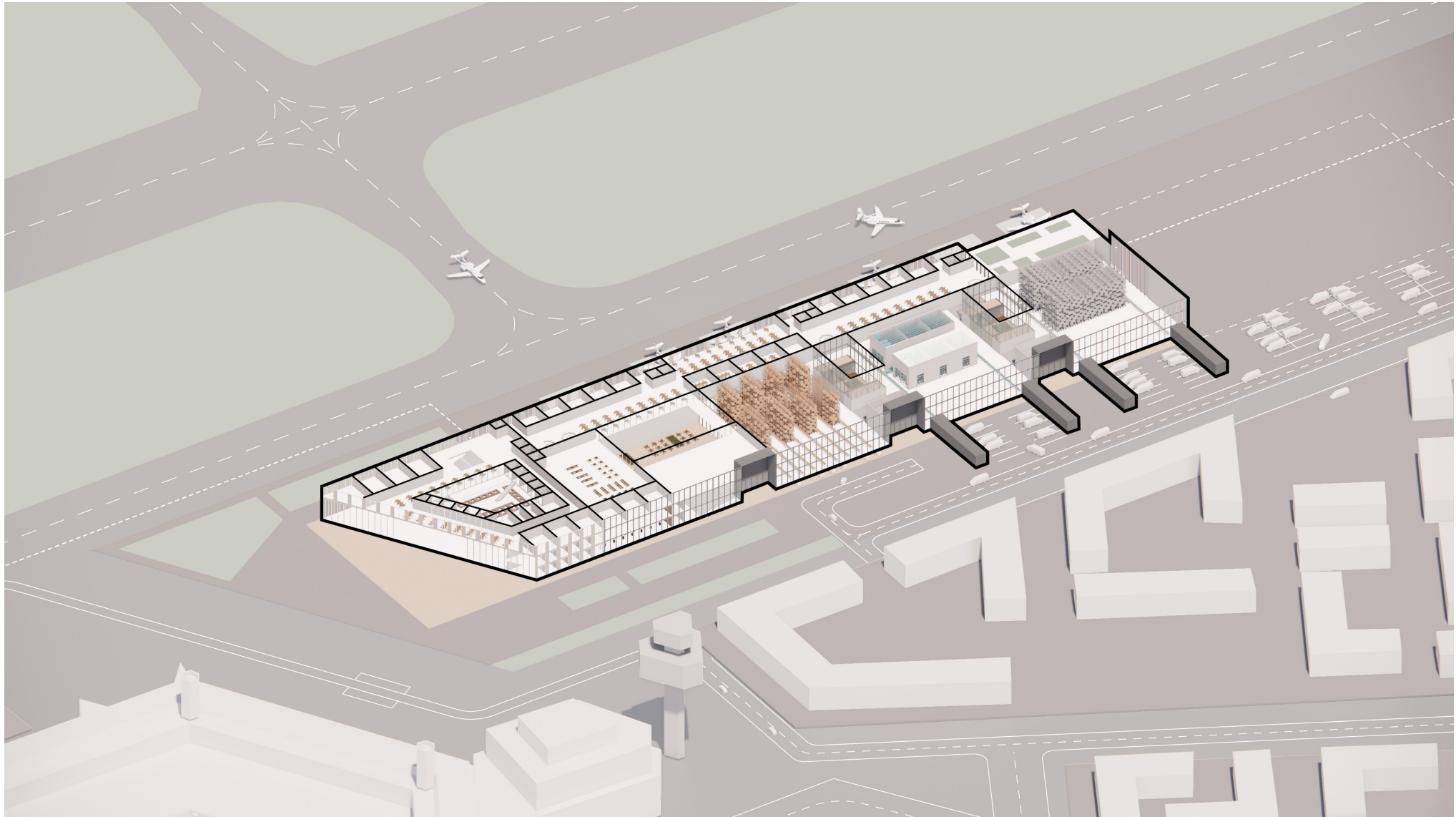
ORGANIZATION



1F

implementation

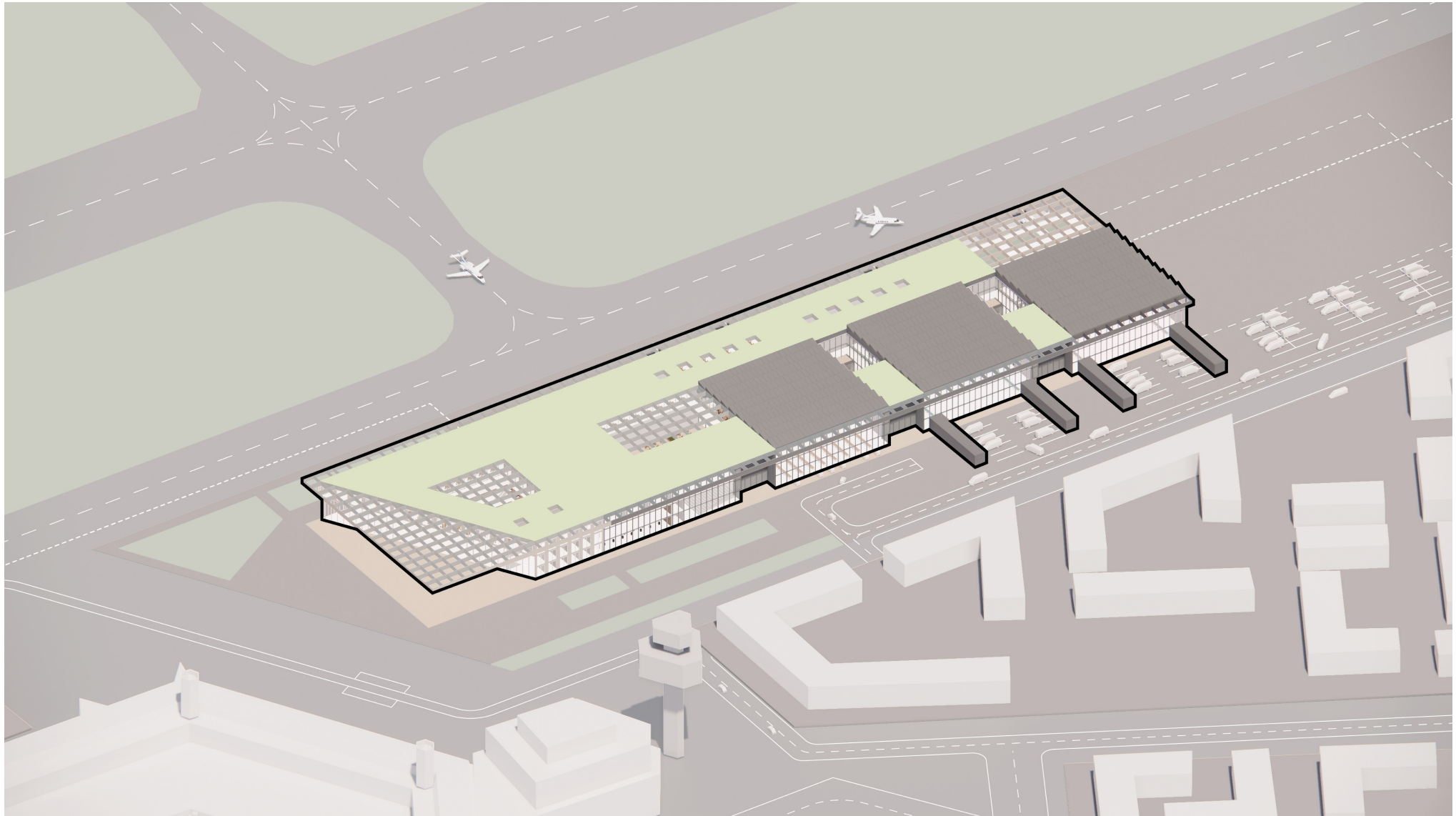
ORGANIZATION



2F

implementation

ORGANIZATION

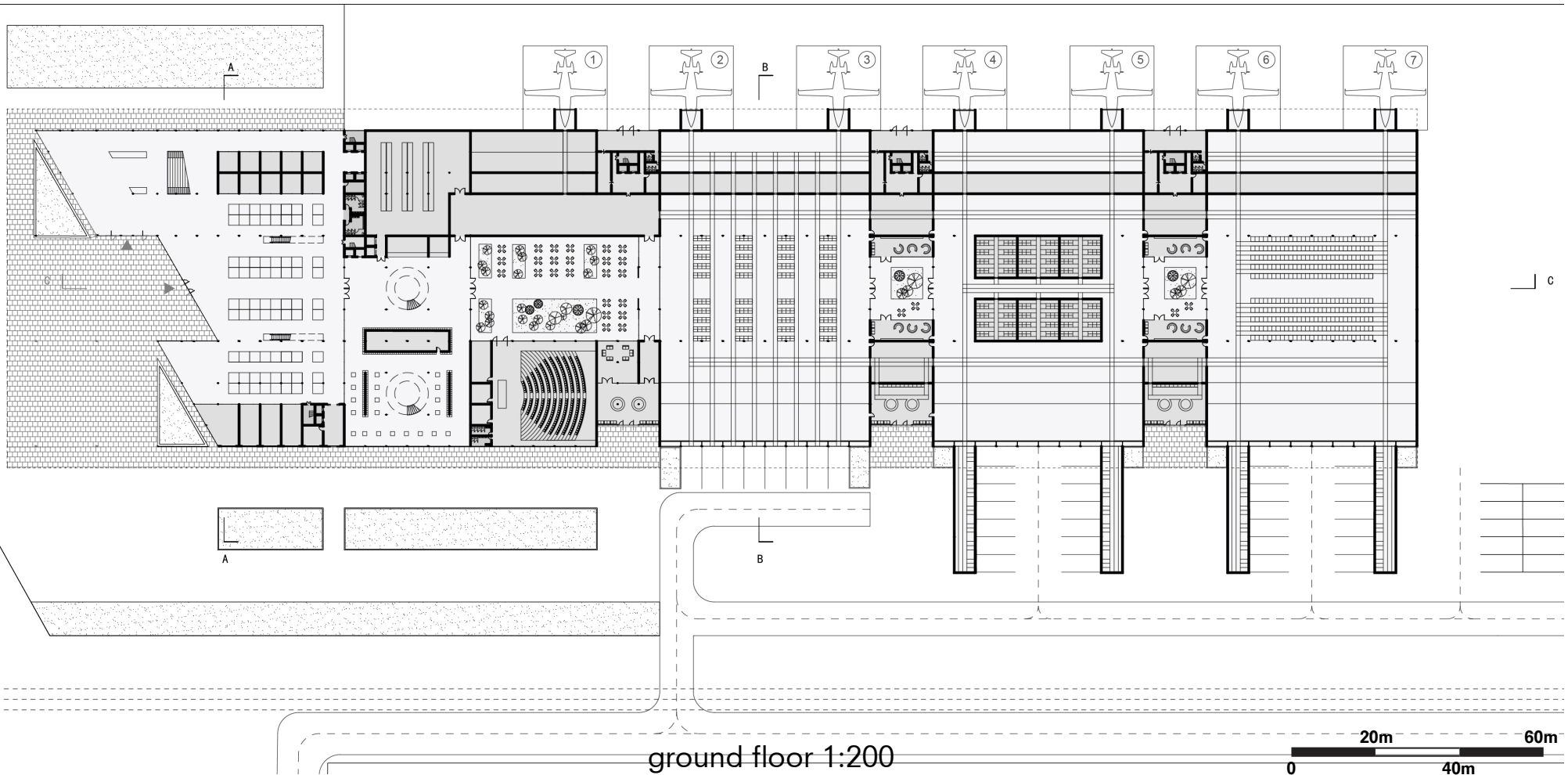


ROOF

implementation

GROUND FLOOR

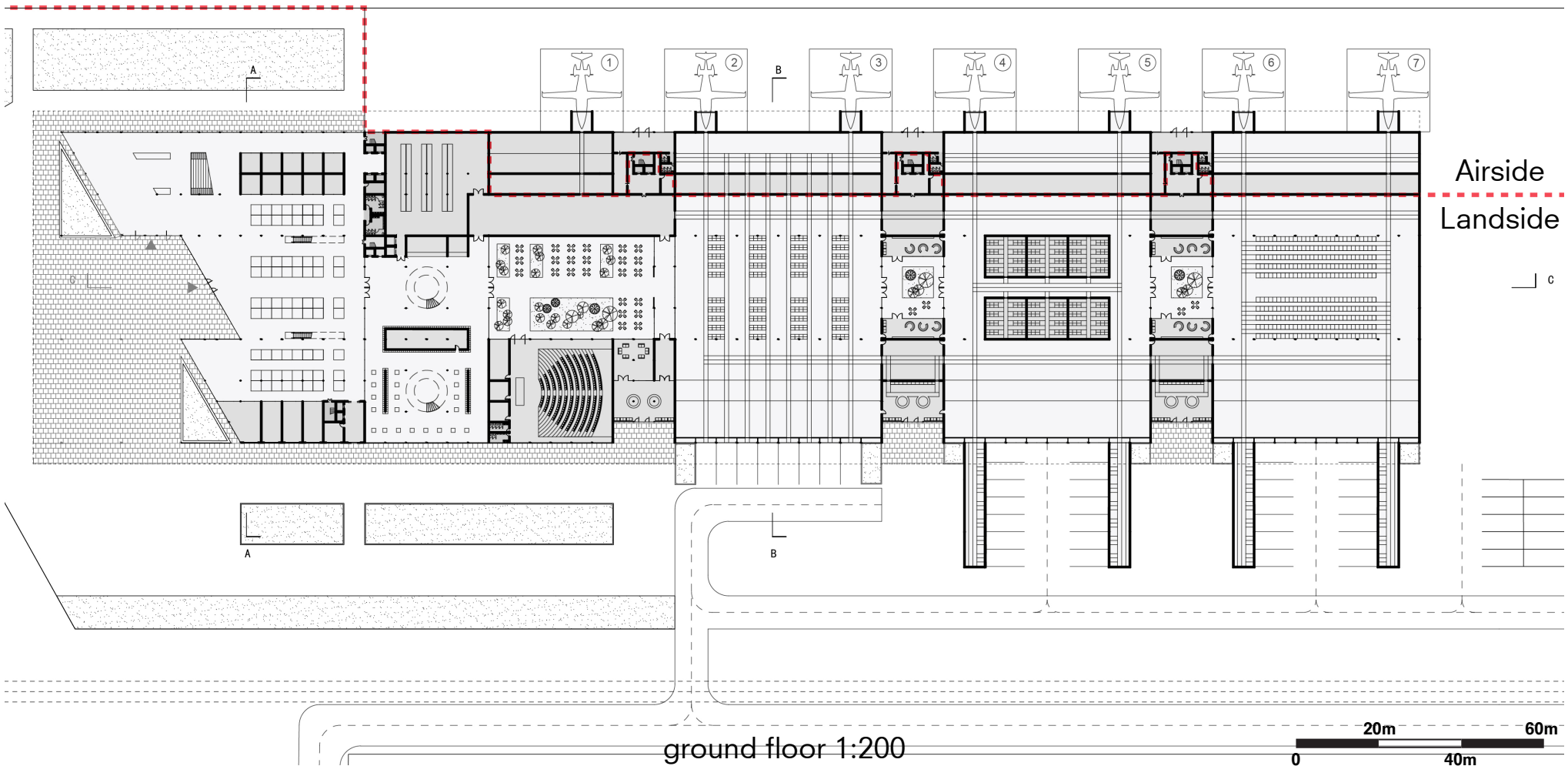
N



implementation

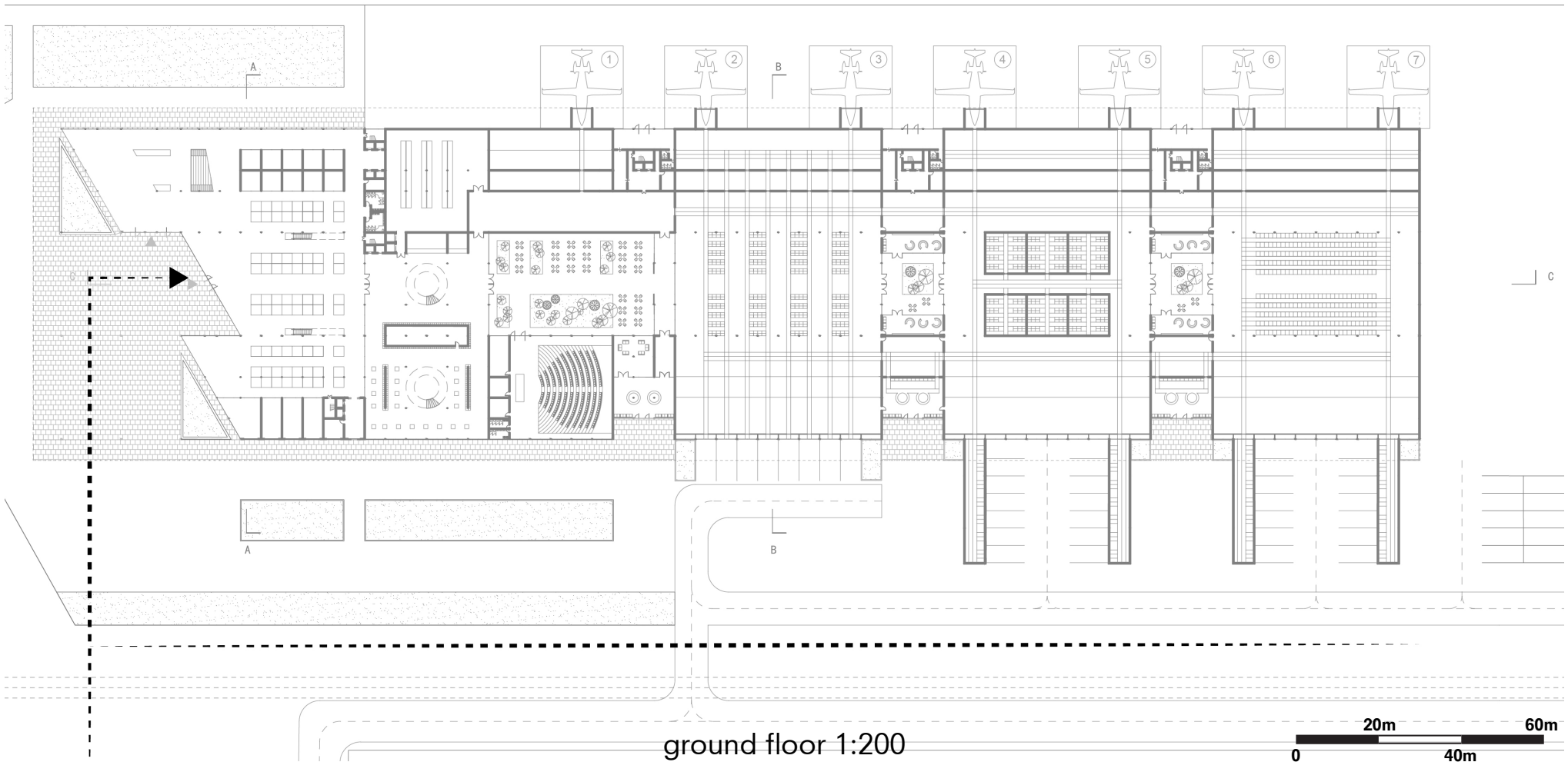
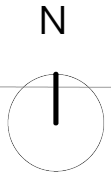
AIRSIDE/LANDSIDE

N



implementation

APPROACHING



implementation
ENTRANCE



implementation

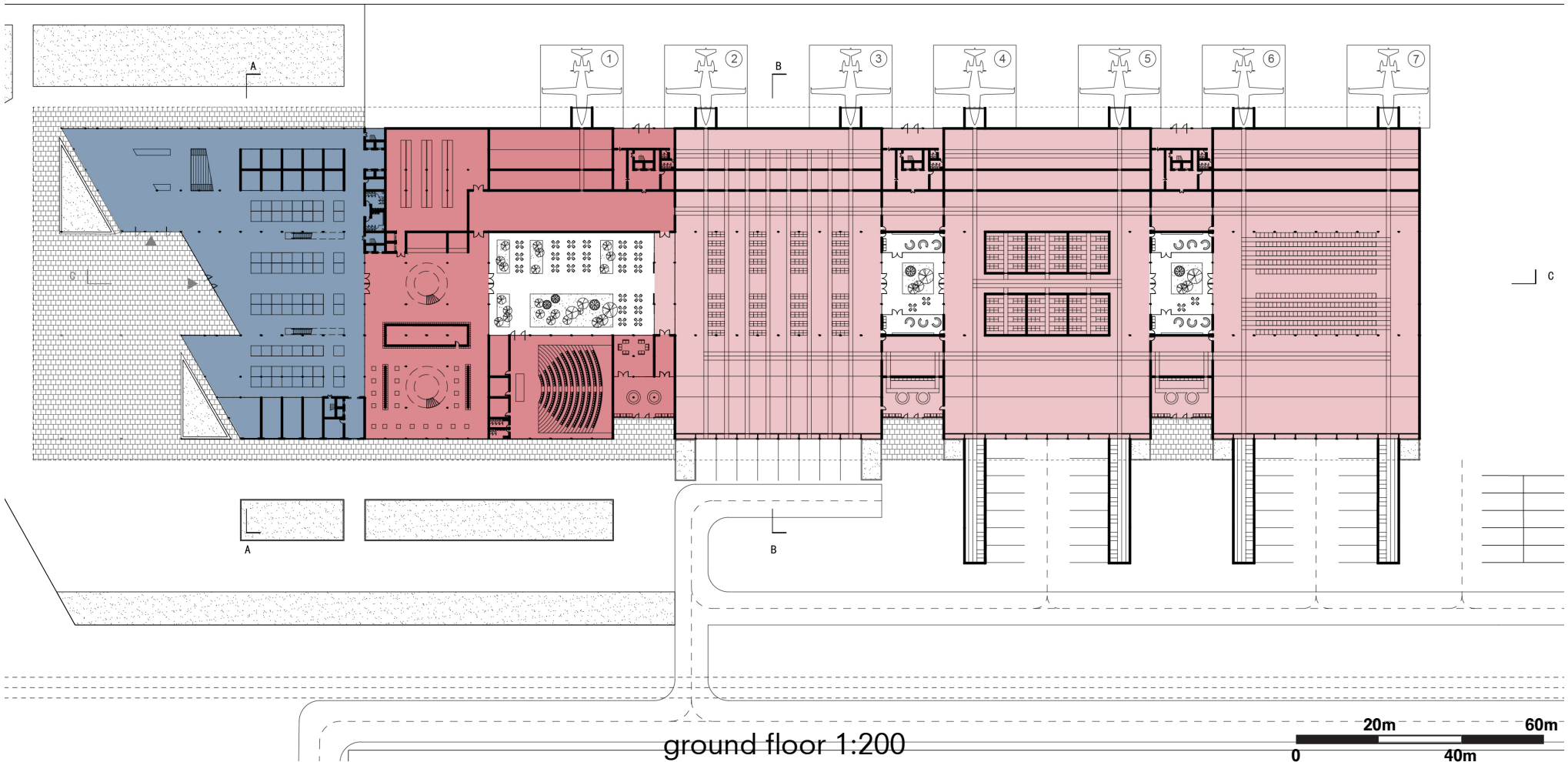
URBAN SIDE



implementation FUNCTION

- public area
- high-value warehouse
- other warehouse

N

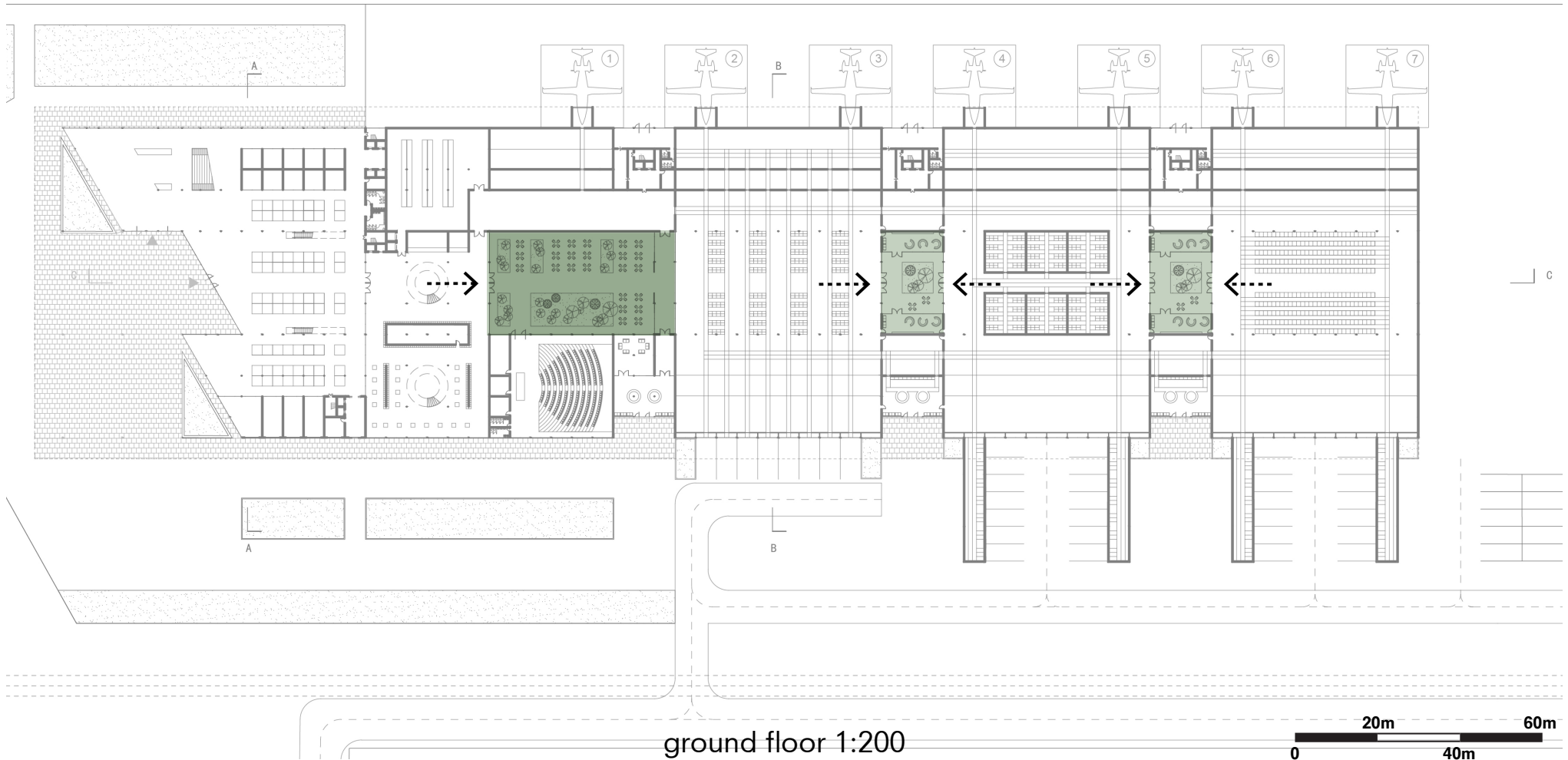
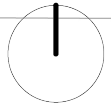


implementation

PATIO

- enclosed/public patio
- outdoor/private patio

N

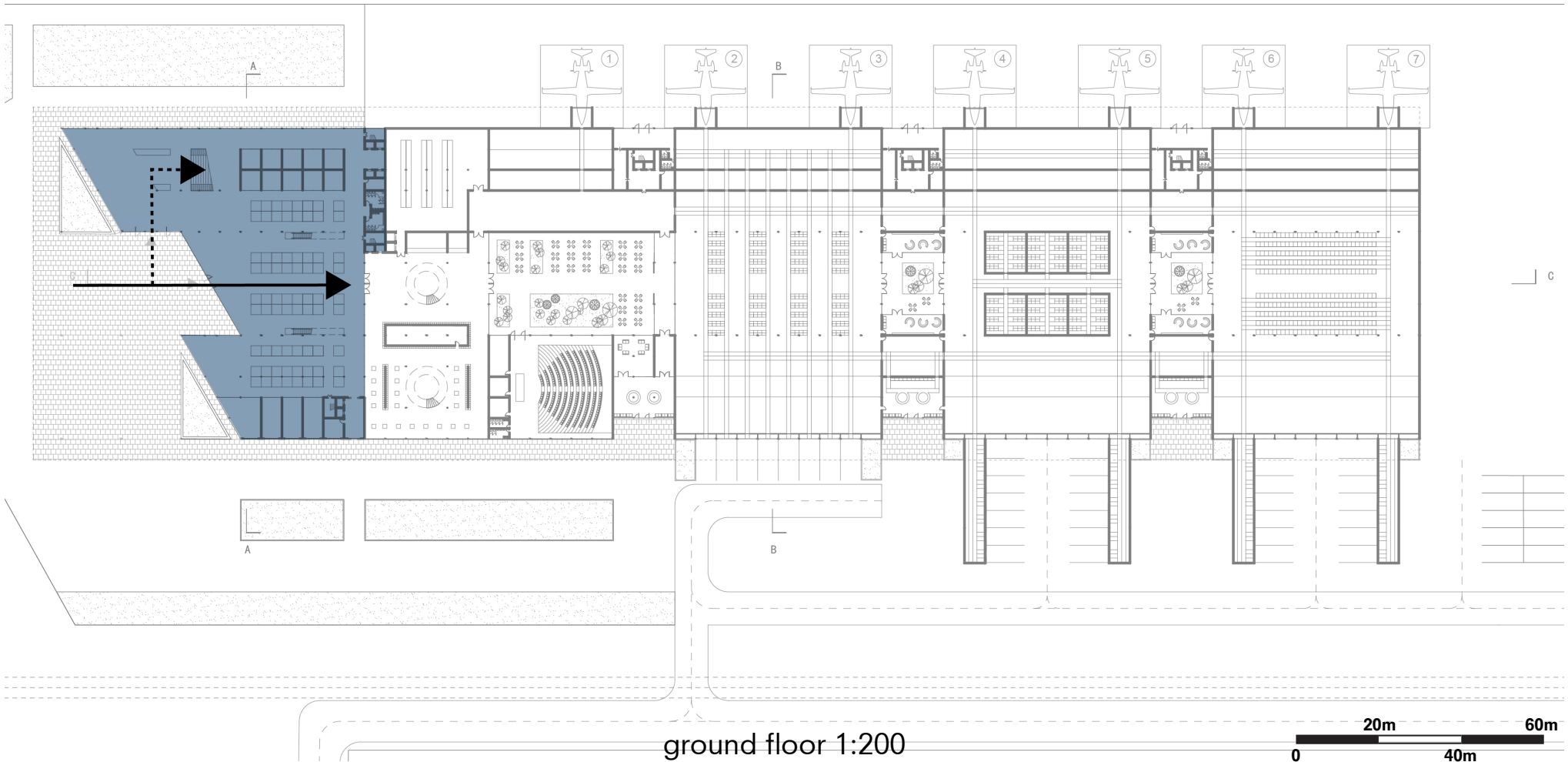


implementation

PUBLIC AREA

public area

N

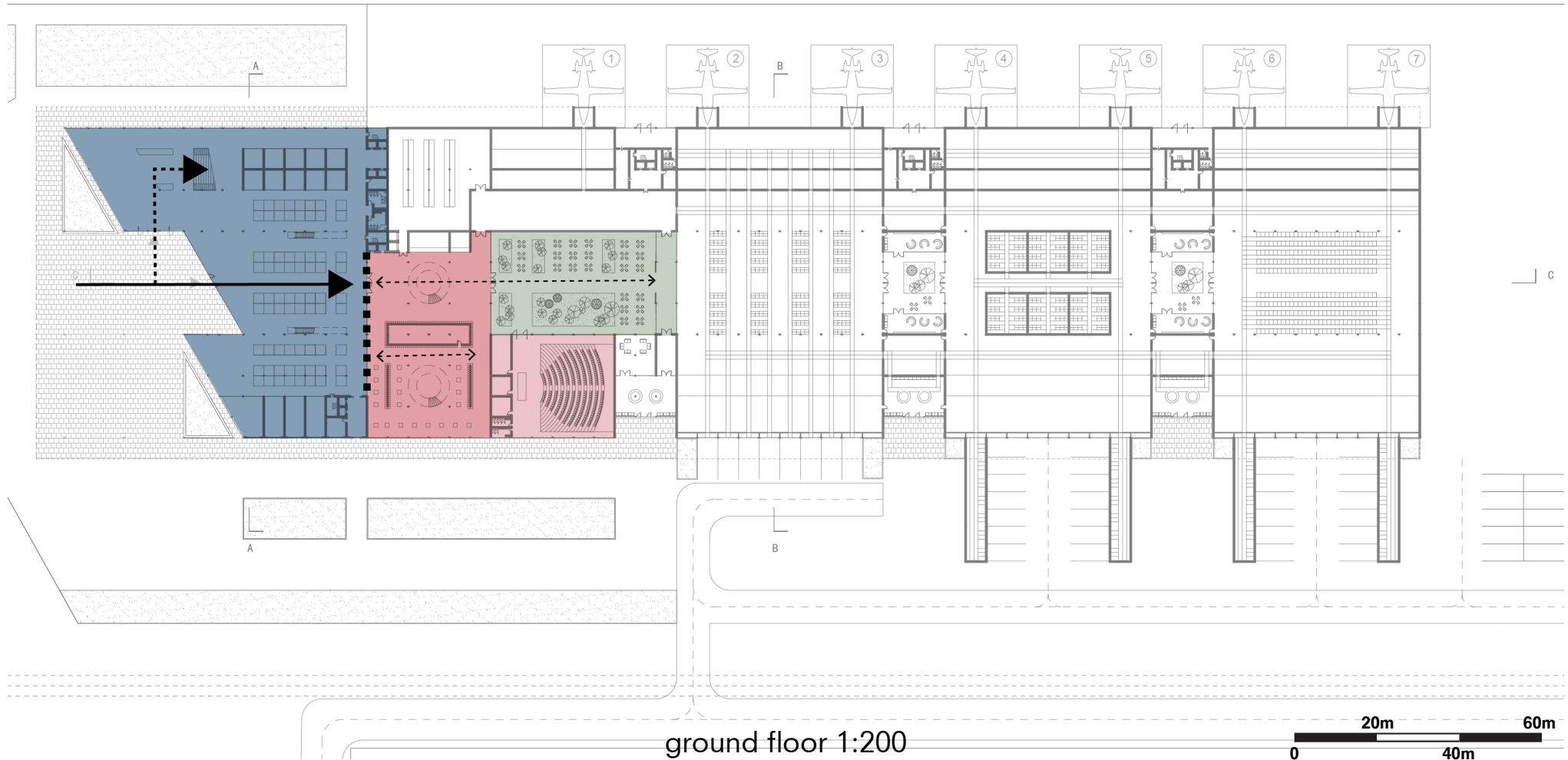


implementation

PUBLIC AREA

- public area
- cabinet of curiosity
- auction
- patio

N



implementation

PUBLIC MARKET



implementation

HIGH-VALUE WAREHOUSE



implementation

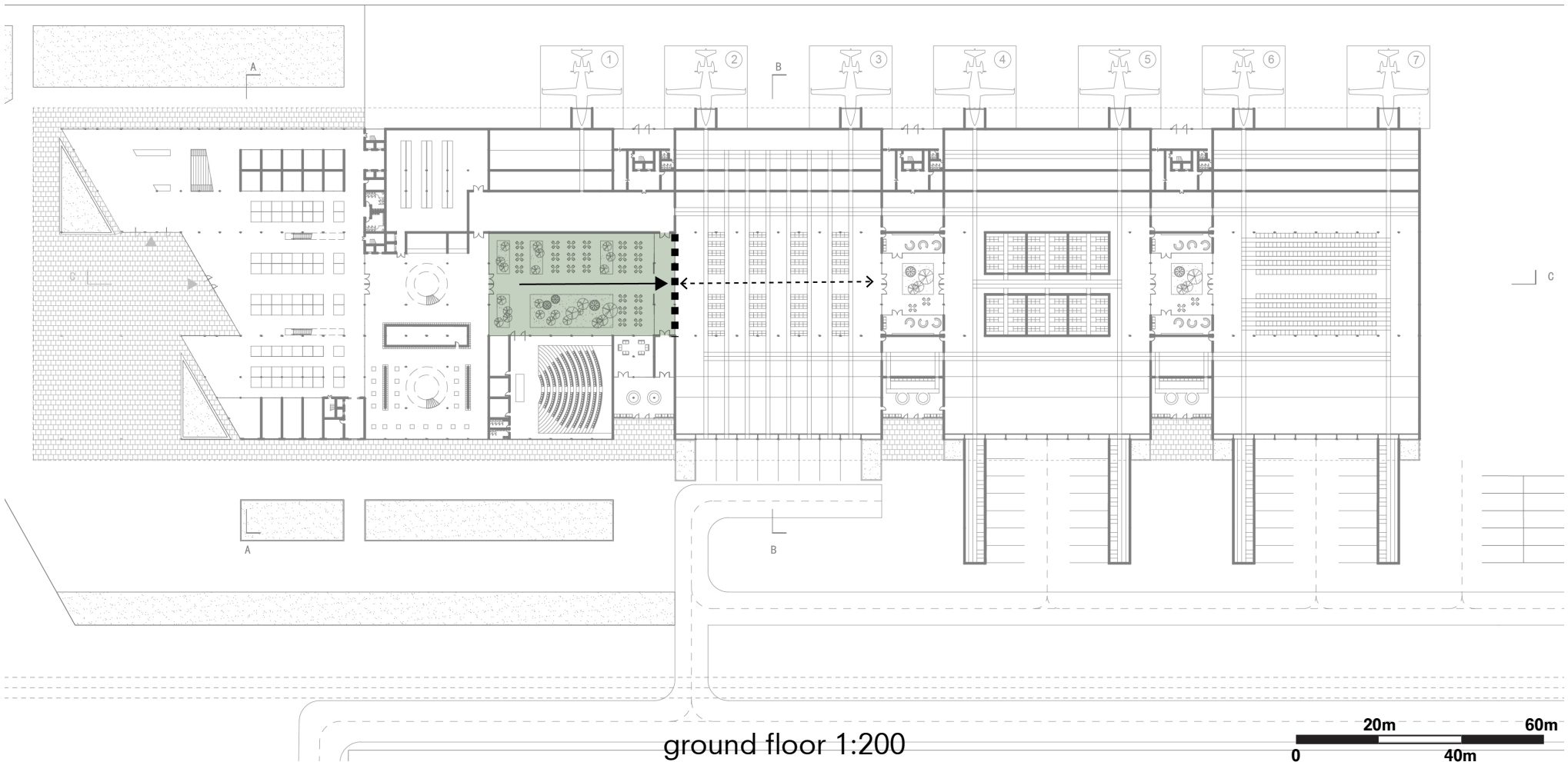
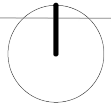
HIGH-VALUE WAREHOUSE



implementation **PUBLIC PATIO**

patio

N



implementation

PUBLIC PATIO



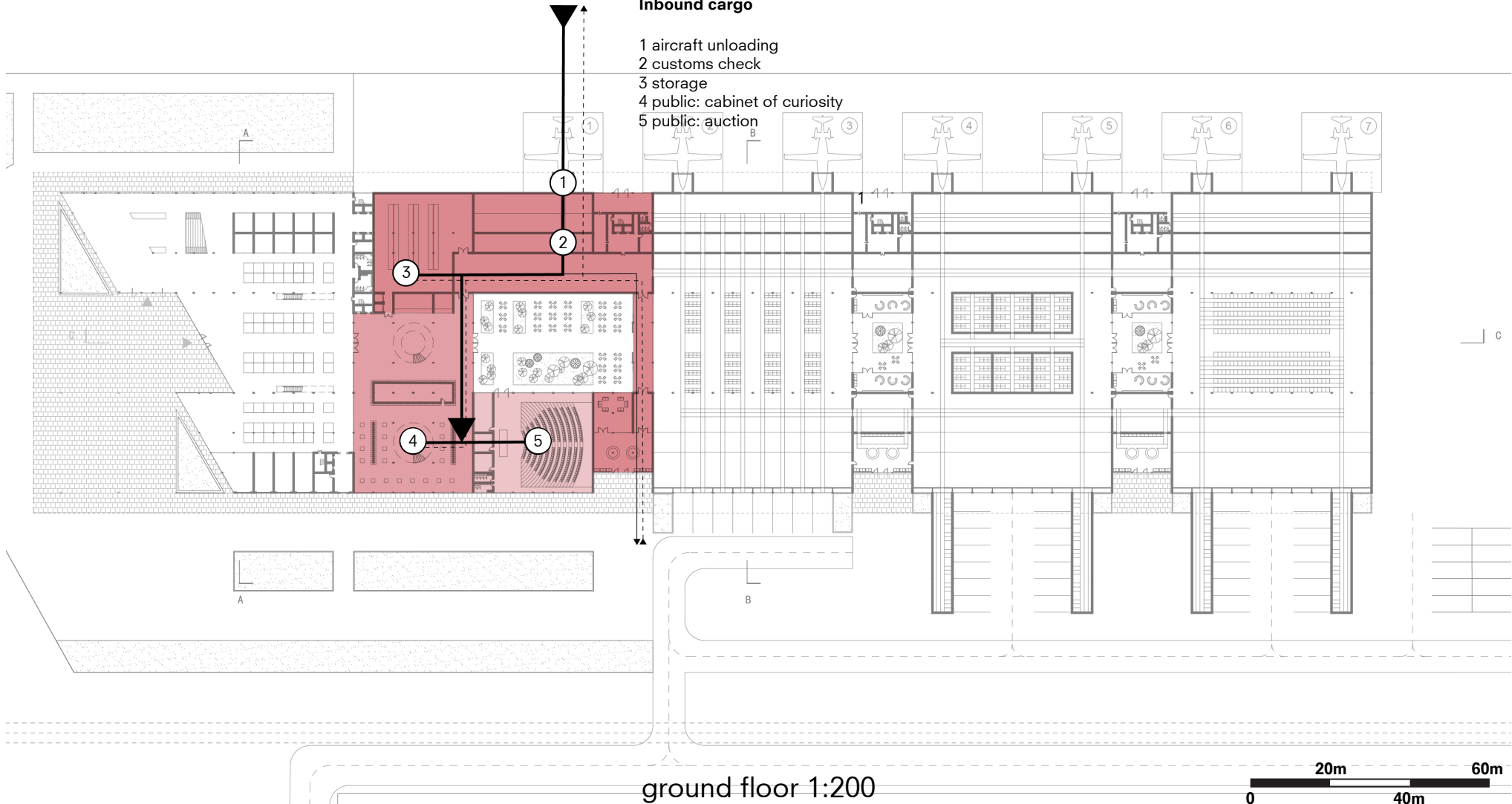
HIGH-VALUE WAREHOUSE

- private area
- public: cabinet of curiosity
- public: auction


N

Inbound cargo

- 1 aircraft unloading
- 2 customs check
- 3 storage
- 4 public: cabinet of curiosity
- 5 public: auction



URGENT WAREHOUSE

 urgent warehouse

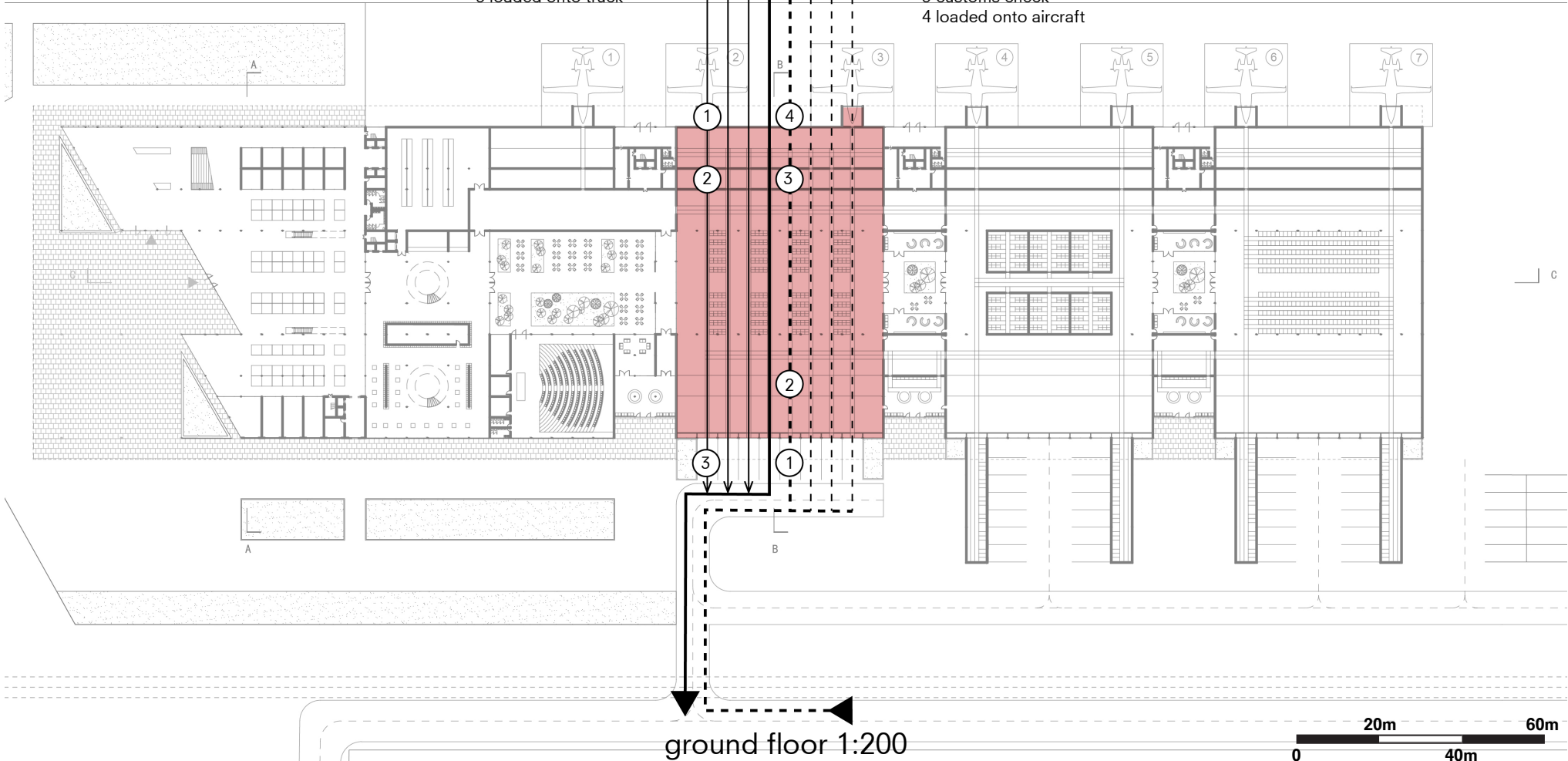
N

Inbound cargo

- 1 aircraft unloading
- 2 customs check
- 3 loaded onto truck

Outbound cargo

- 1 truck unload
- 2 cargo reception
- 3 customs check
- 4 loaded onto aircraft




ground floor 1:200

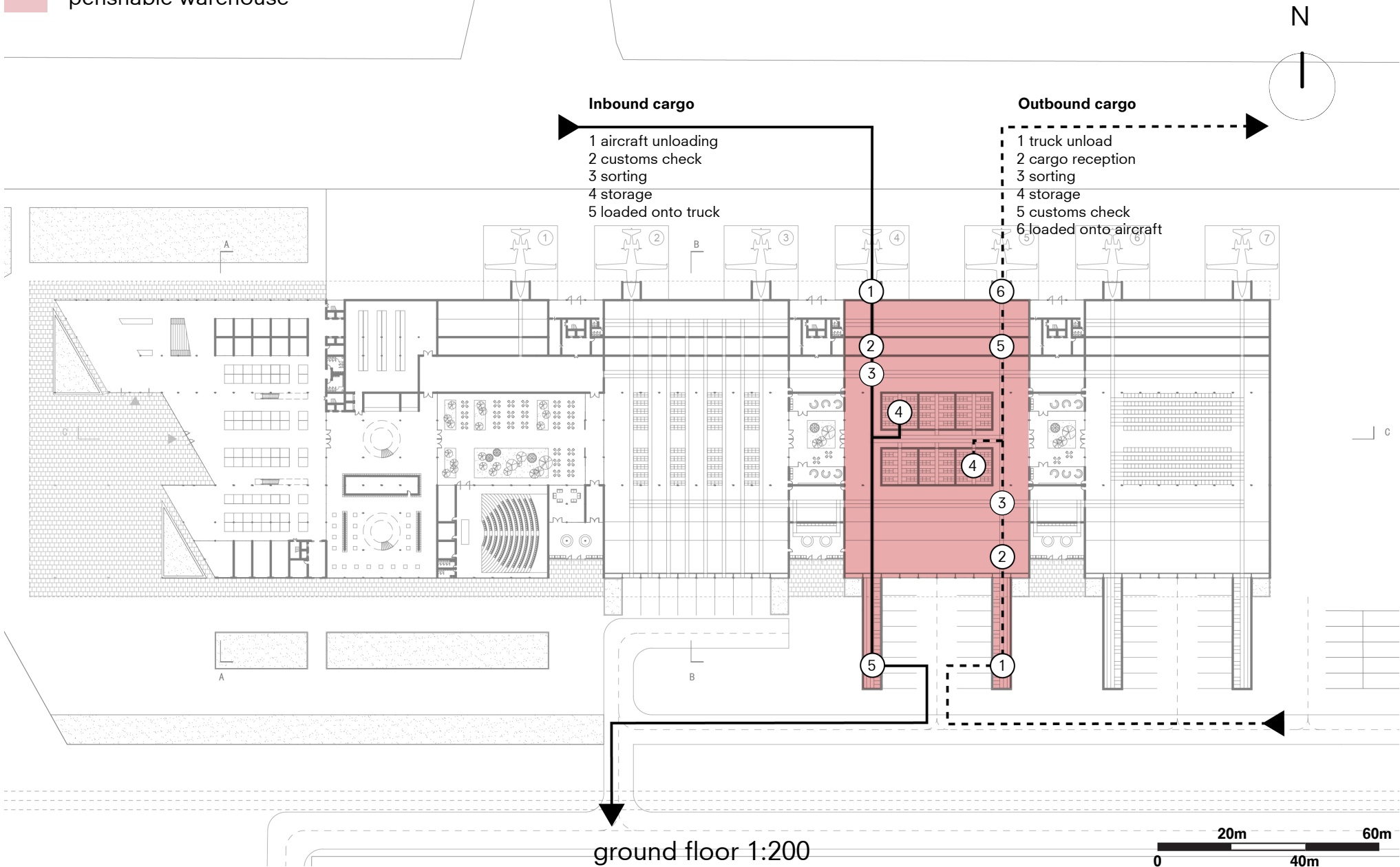
implementation

URGENT WAREHOUSE



PERISHABLE WAREHOUSE

 perishable warehouse



implementation

PERISHABLE WAREHOUSE

PERISHABLE
TEMPERATURE CONTROLLED



implementation

GENERIC WAREHOUSE

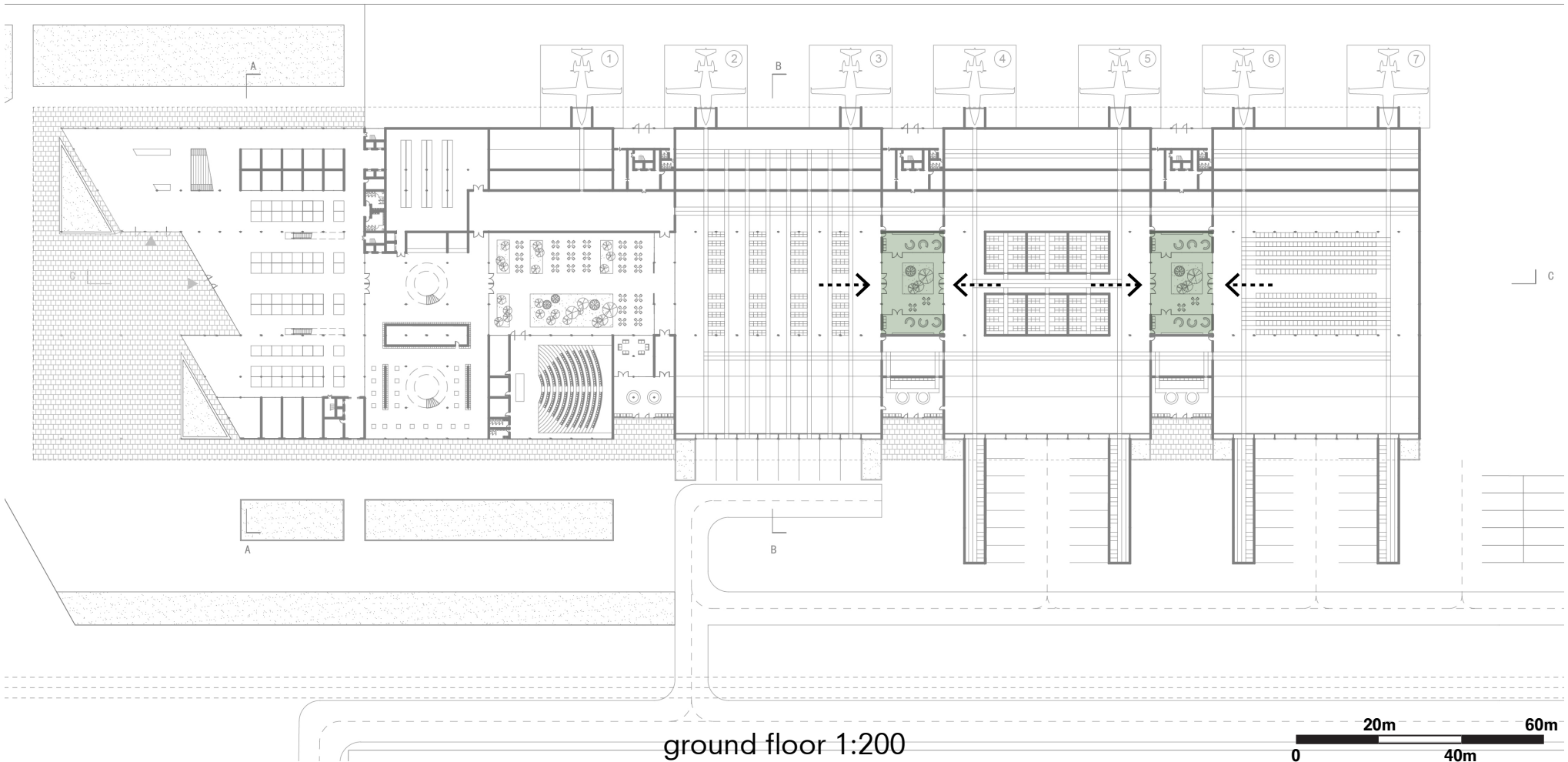


implementation

WAREHOUSE PATIO

patio

N



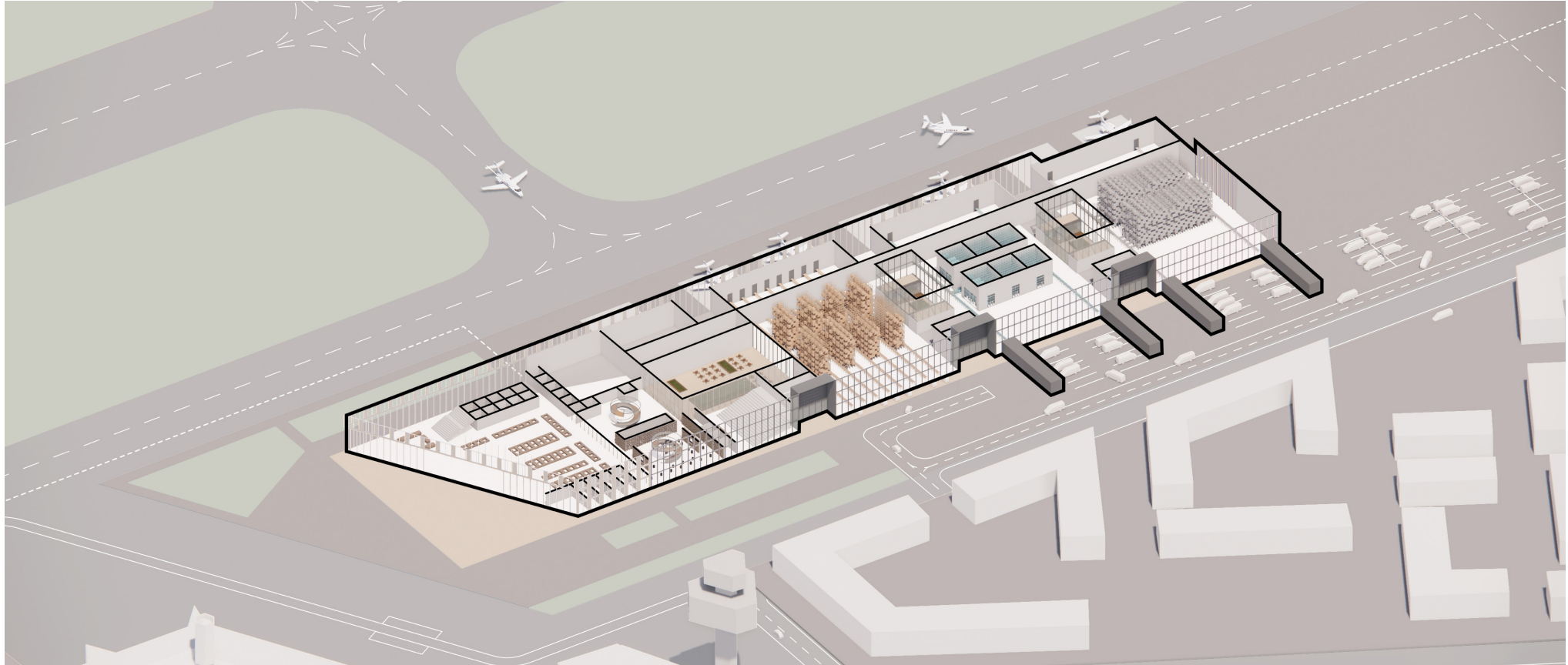
implementation

WAREHOUSE PATIO



implementation

GROUND FLOOR SUMMARY



High-value



Urgent



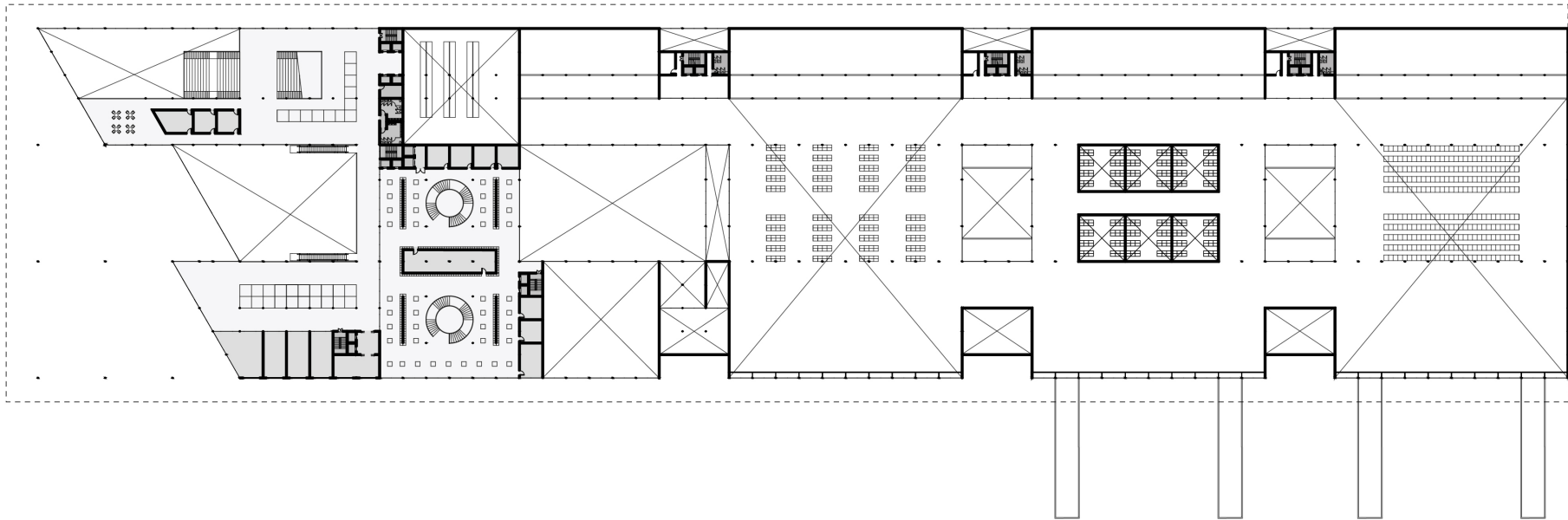
Perishable



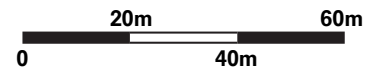
Generic

implementation

1F

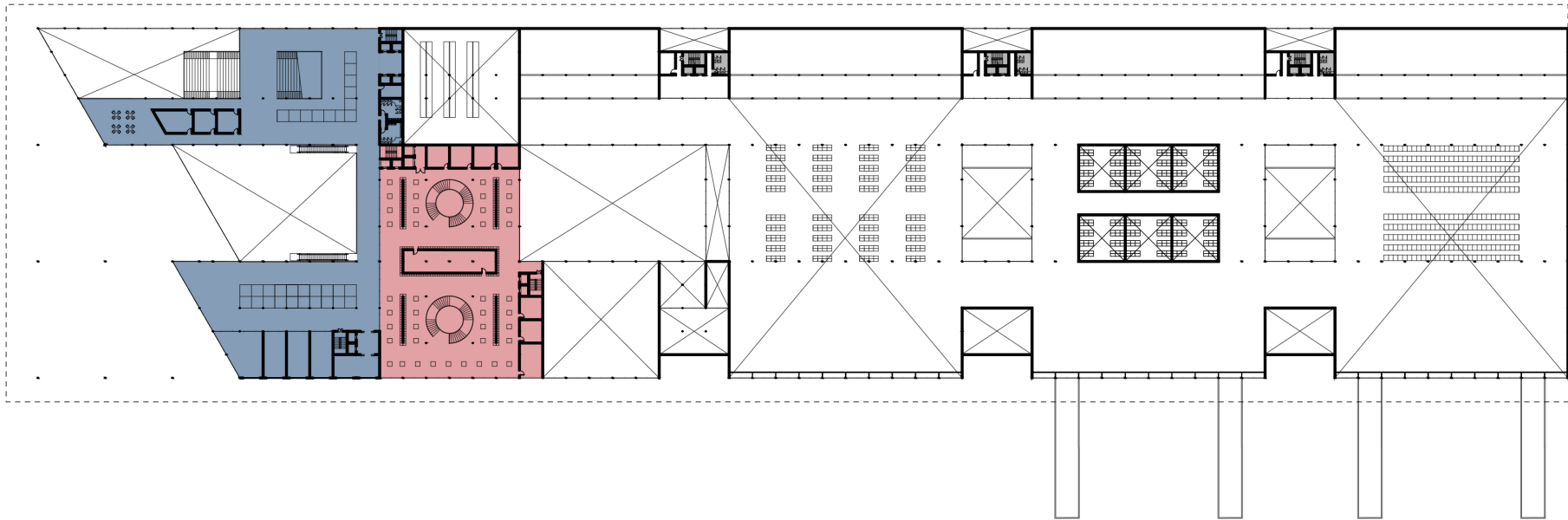
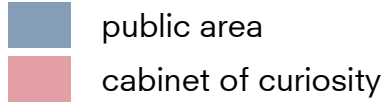


1F 1:200

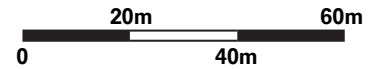


implementation

FUNCTION

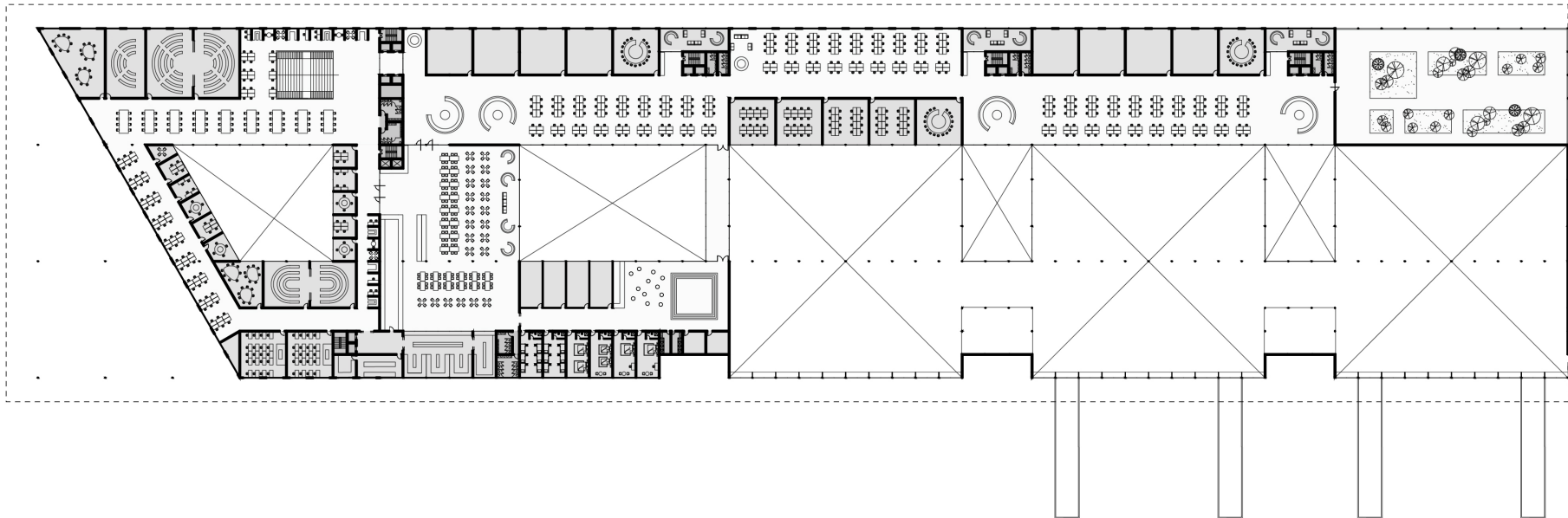


1F 1:200

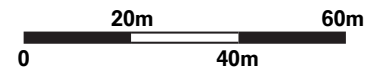


implementation

2F

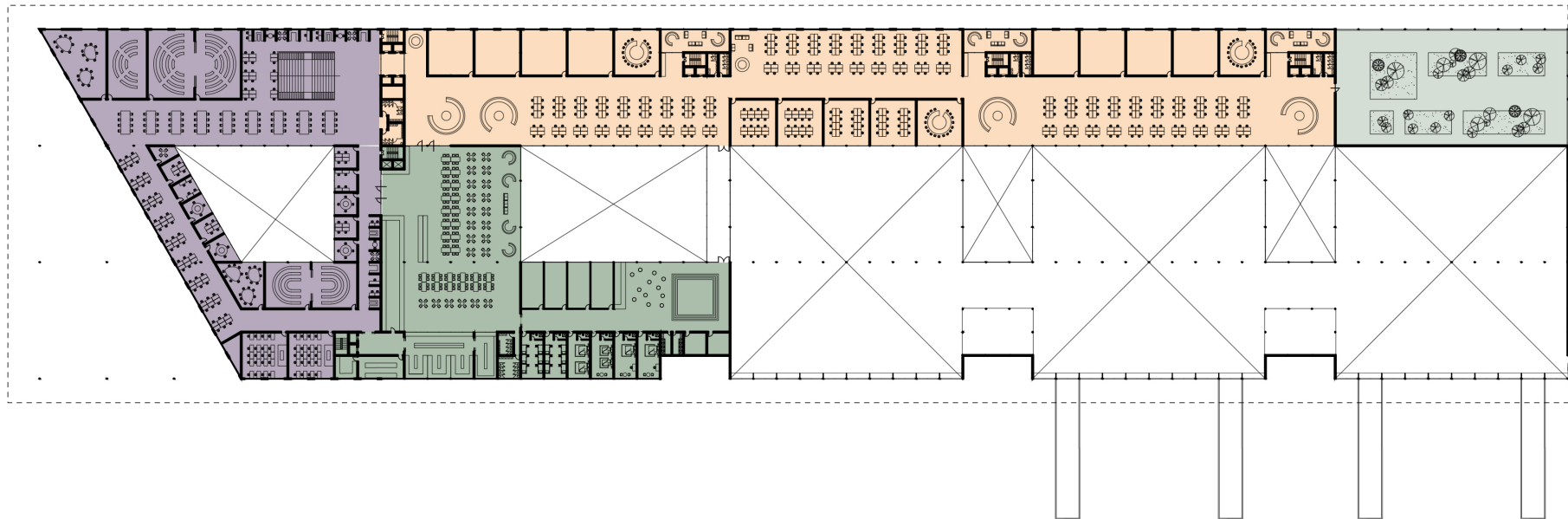


2F 1:200

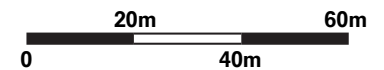


implementation FUCTION

- education area
- office
- crew service
- outdoor garden




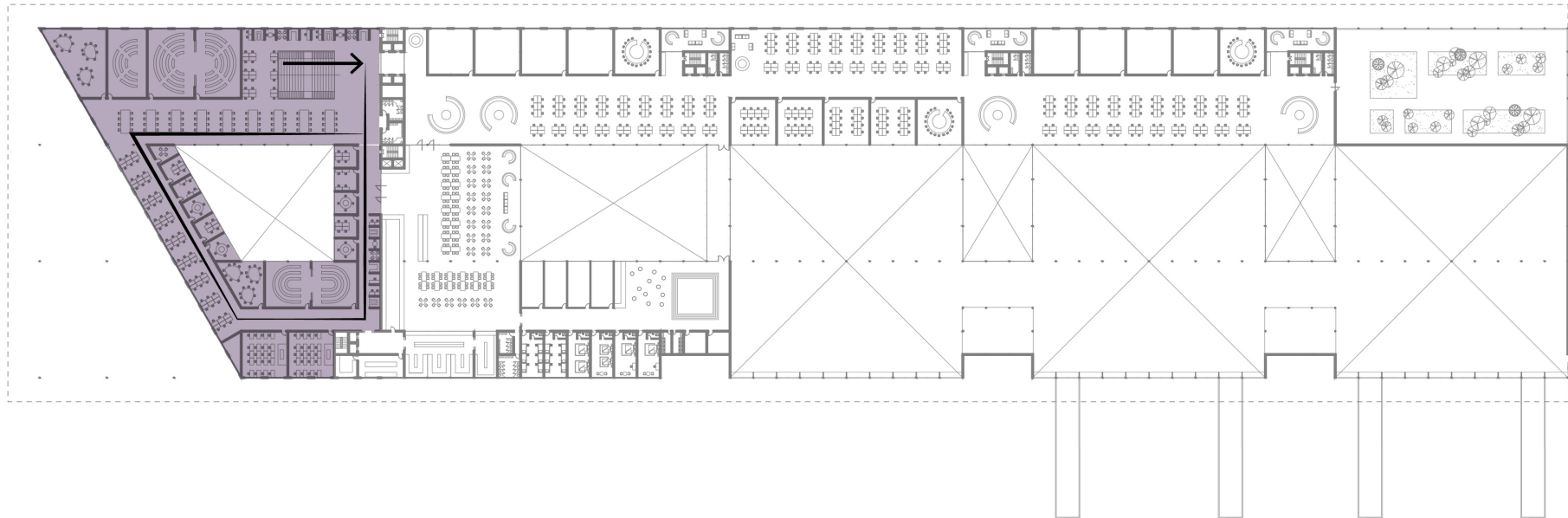
2F 1:200



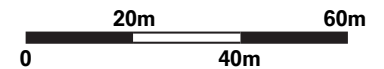
implementation

EDUCATION AREA

 education area




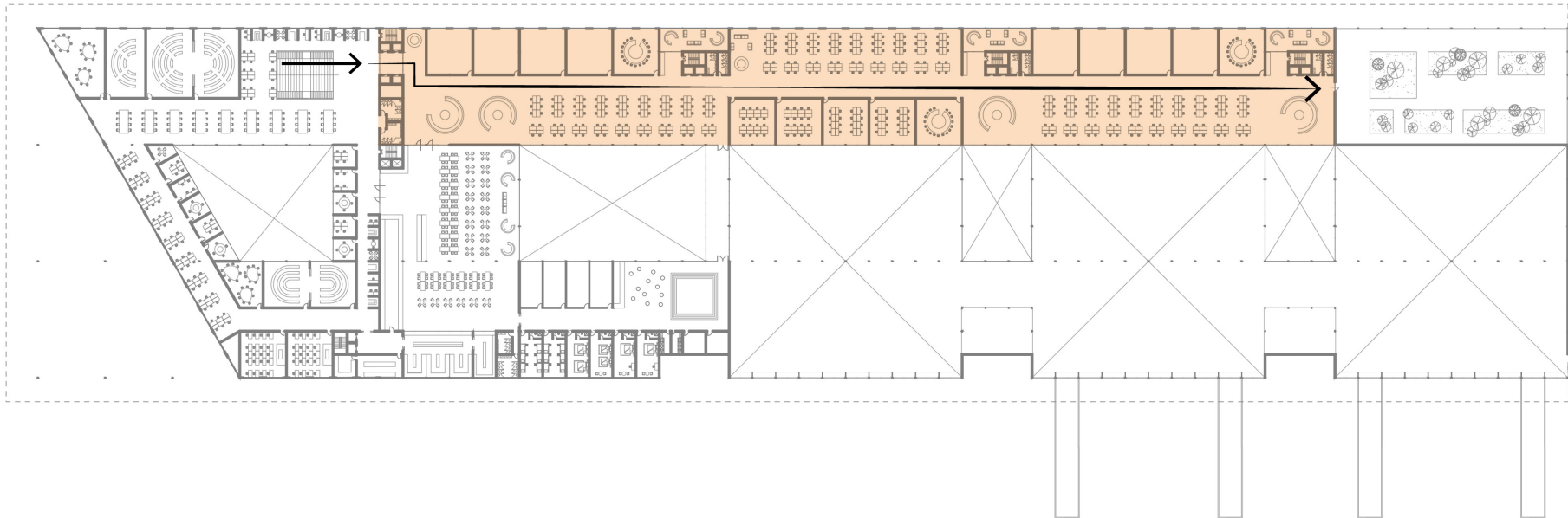
2F 1:200



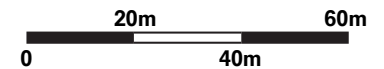
implementation

OFFICE

 office

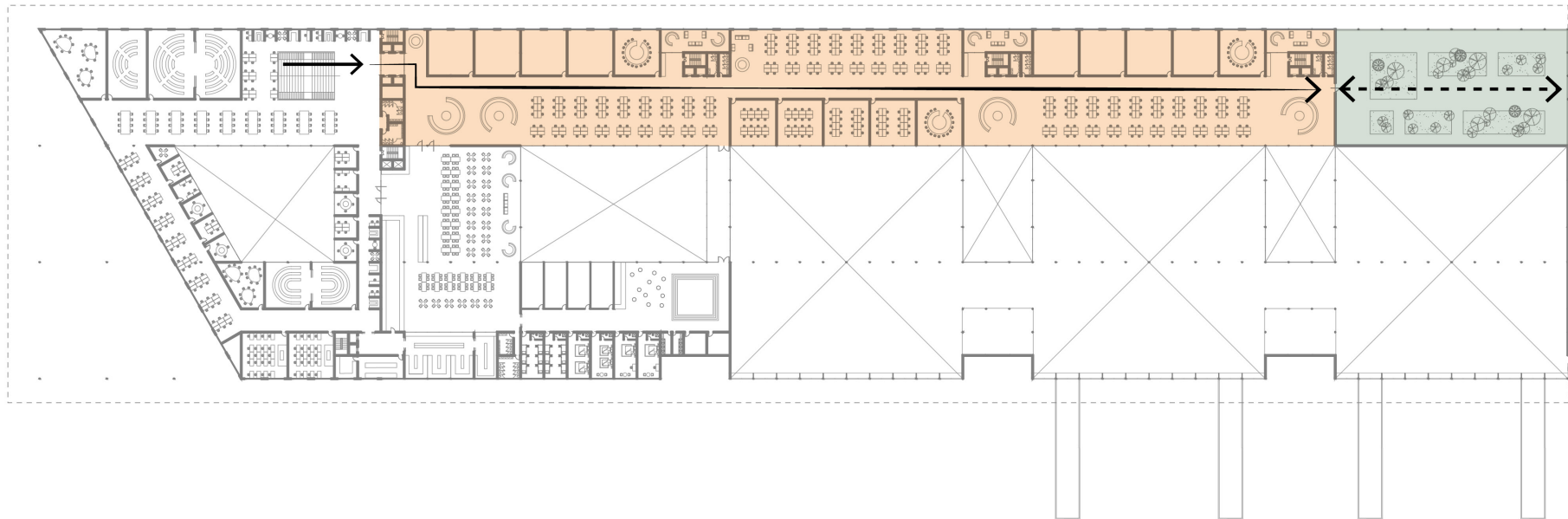
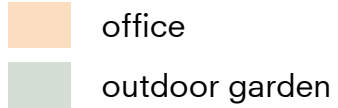


2F 1:200

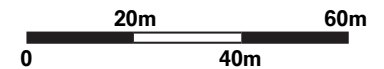


implementation

OFFICE

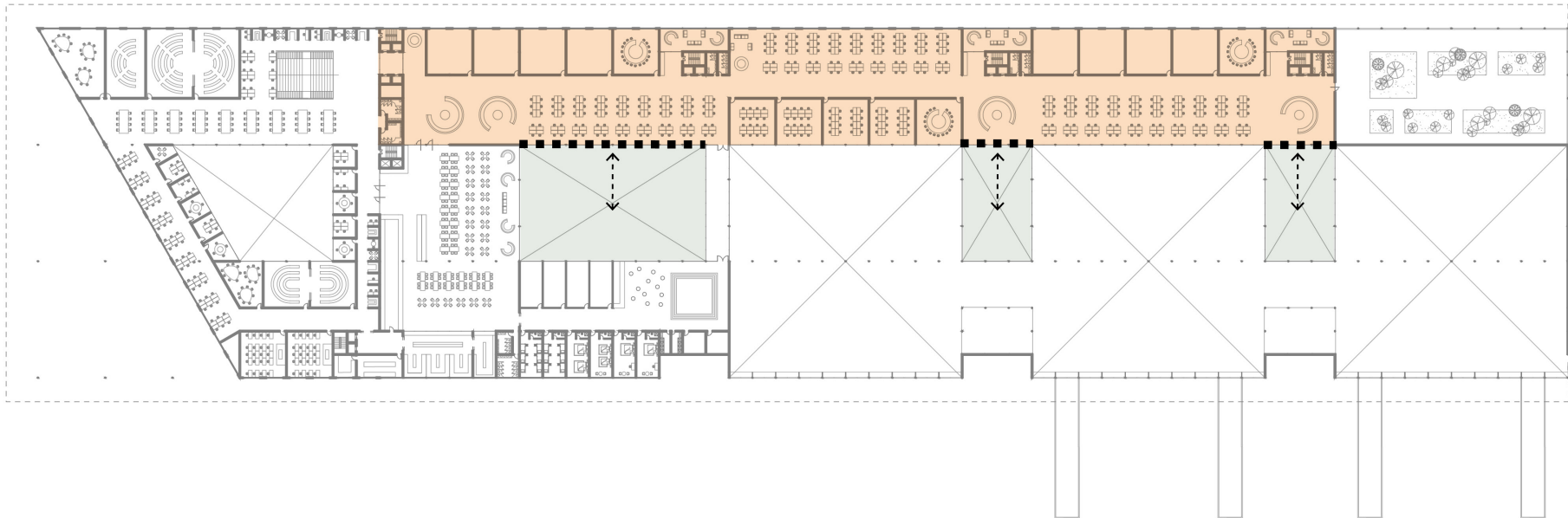
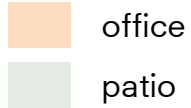


2F 1:200

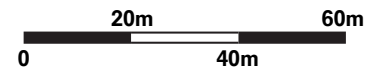


implementation

OFFICE

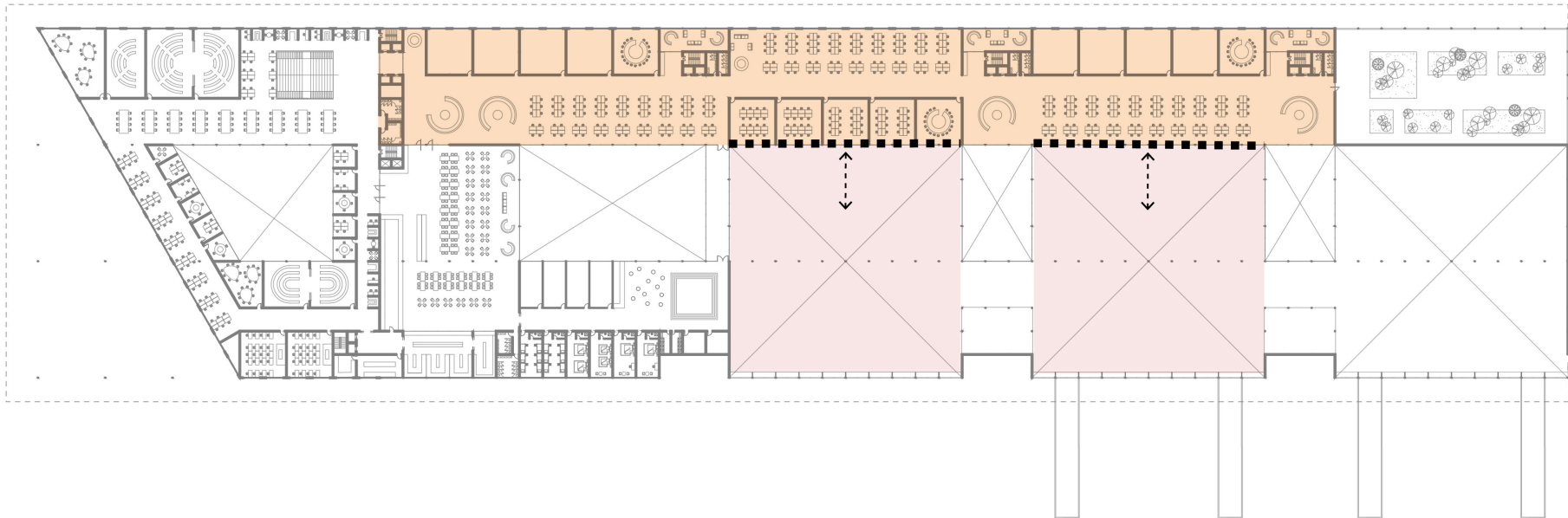
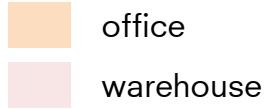


2F 1:200

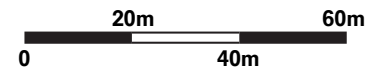


implementation

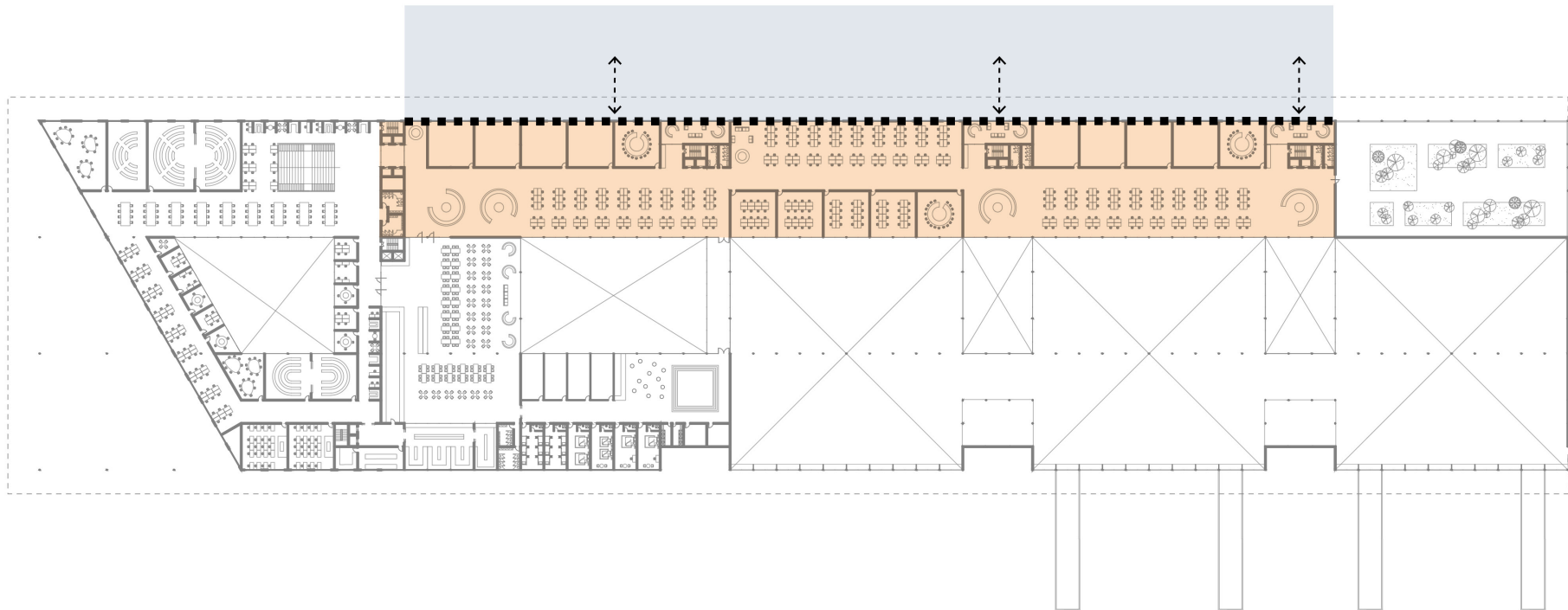
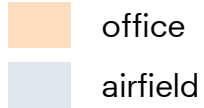
OFFICE



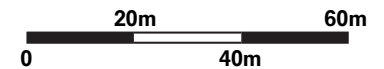
2F 1:200



implementation **OFFICE**



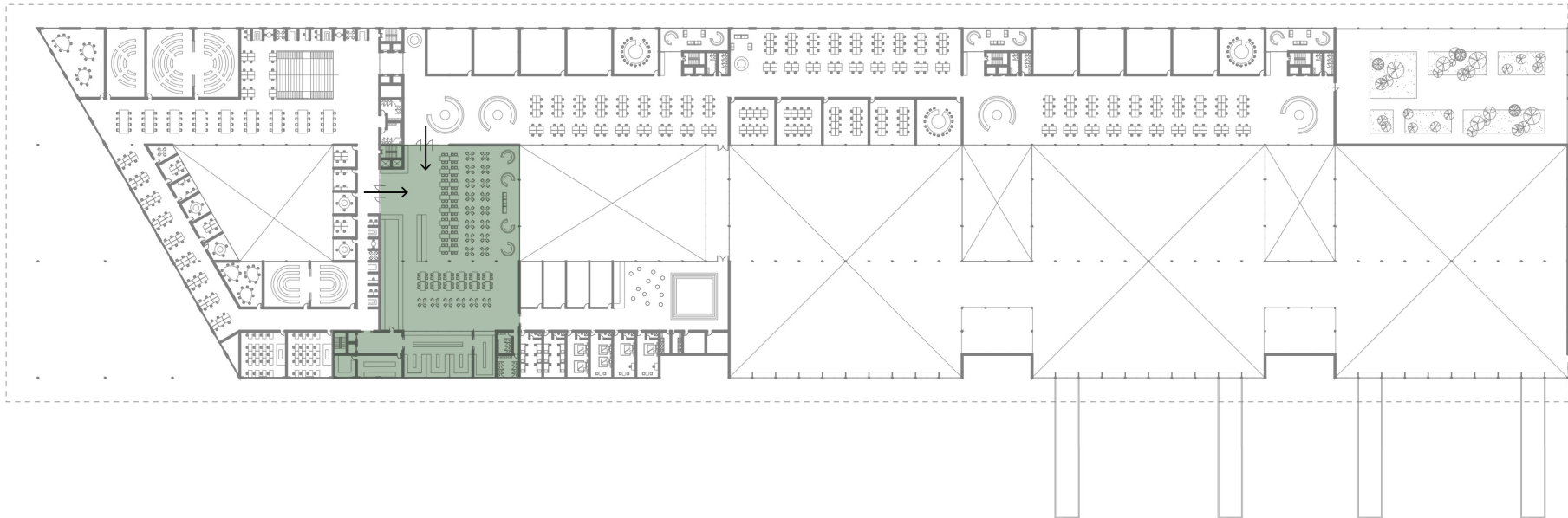
2F 1:200



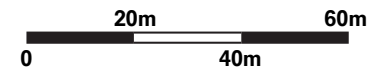
implementation

SERVICE AREA

canteen: crew/worker/researchers



2F 1:200



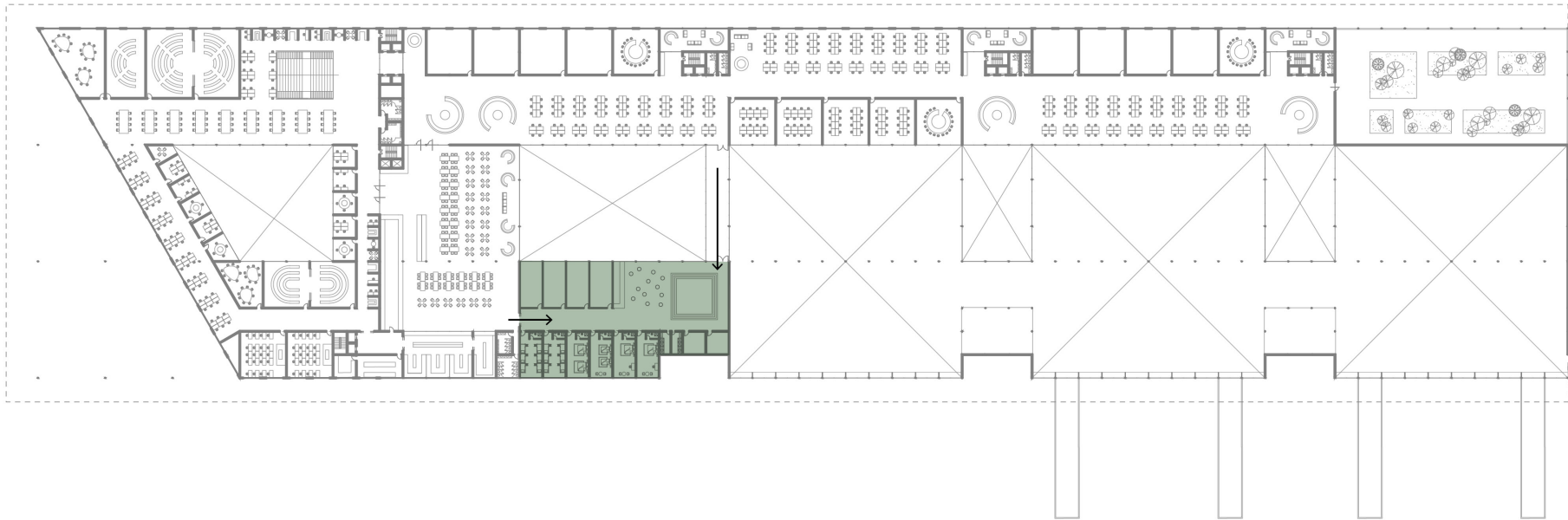
implementation
CANTEEN



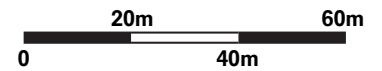
implementation

SERVICE AREA

crew service: relaxation lounge / recreation room / sleeping room / thermal and therapy / infirmary



2F 1:200



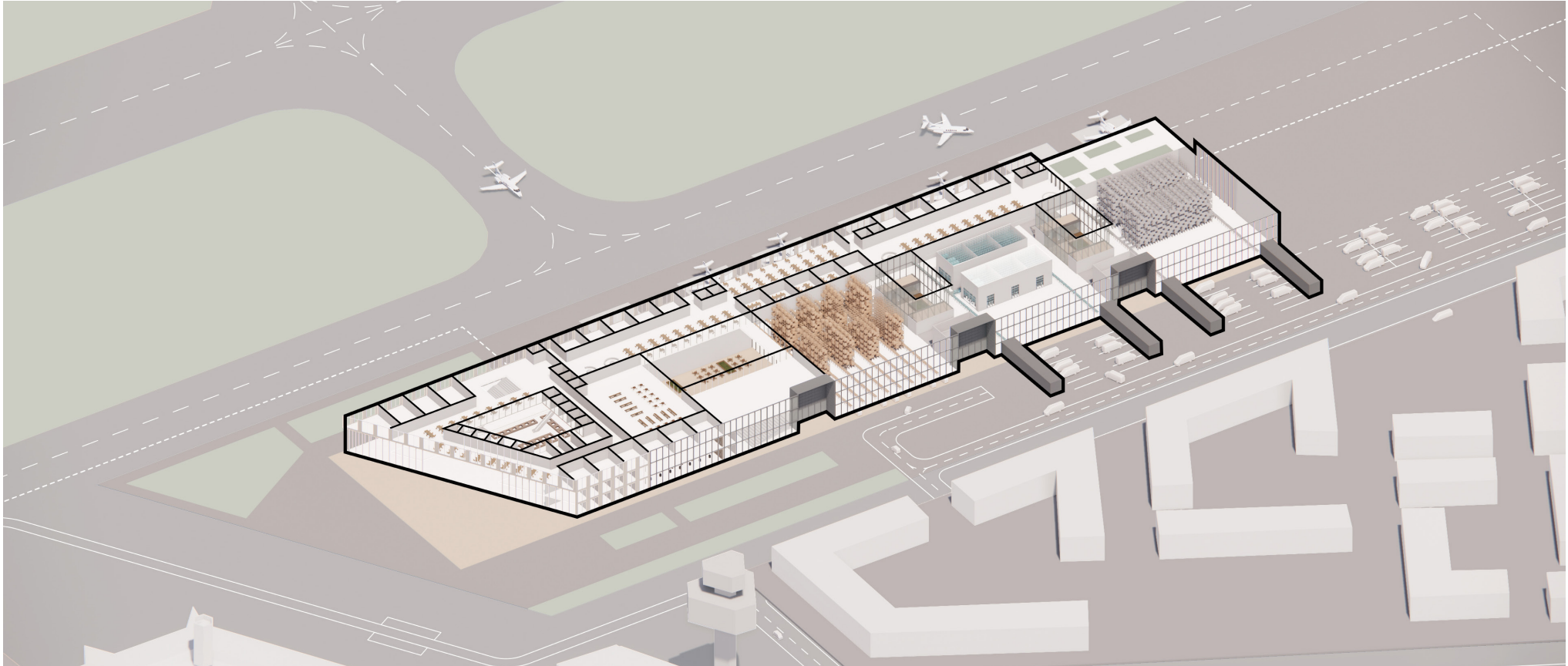
implementation

THERMAL & THERAPY



implementation

2F SUMMARY



Office

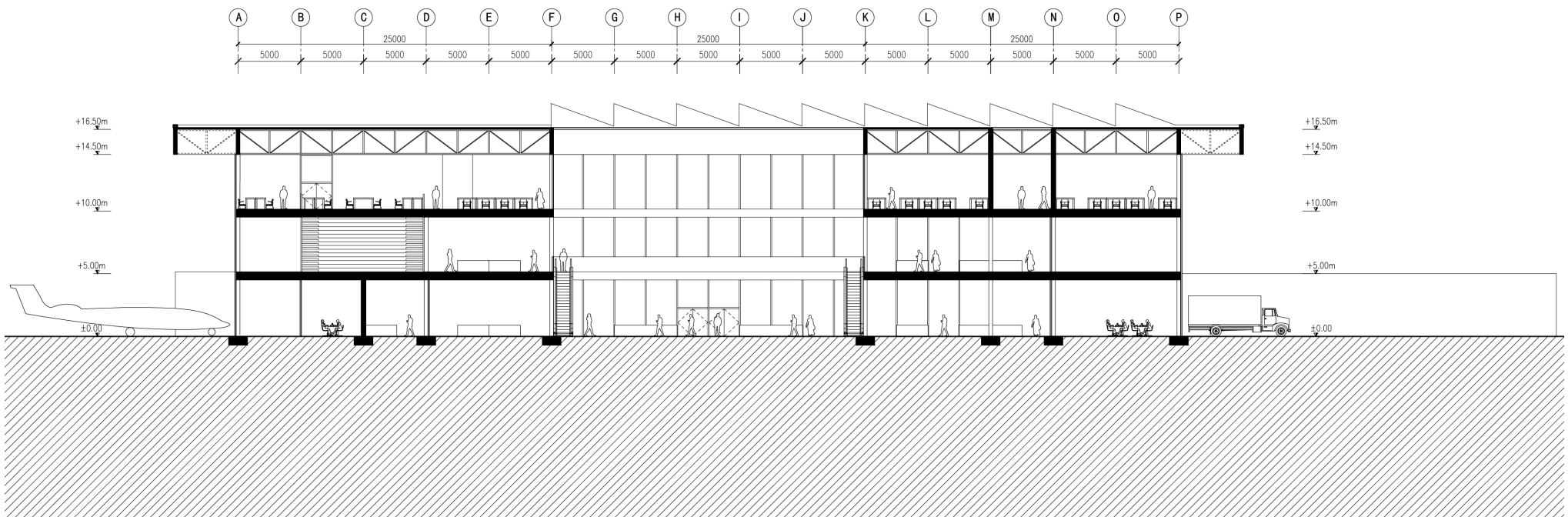
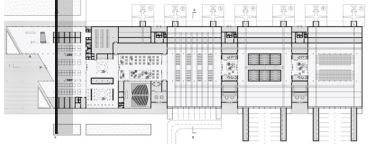


Education

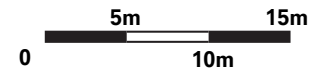


Crew Service

implementation
SECTION A-A

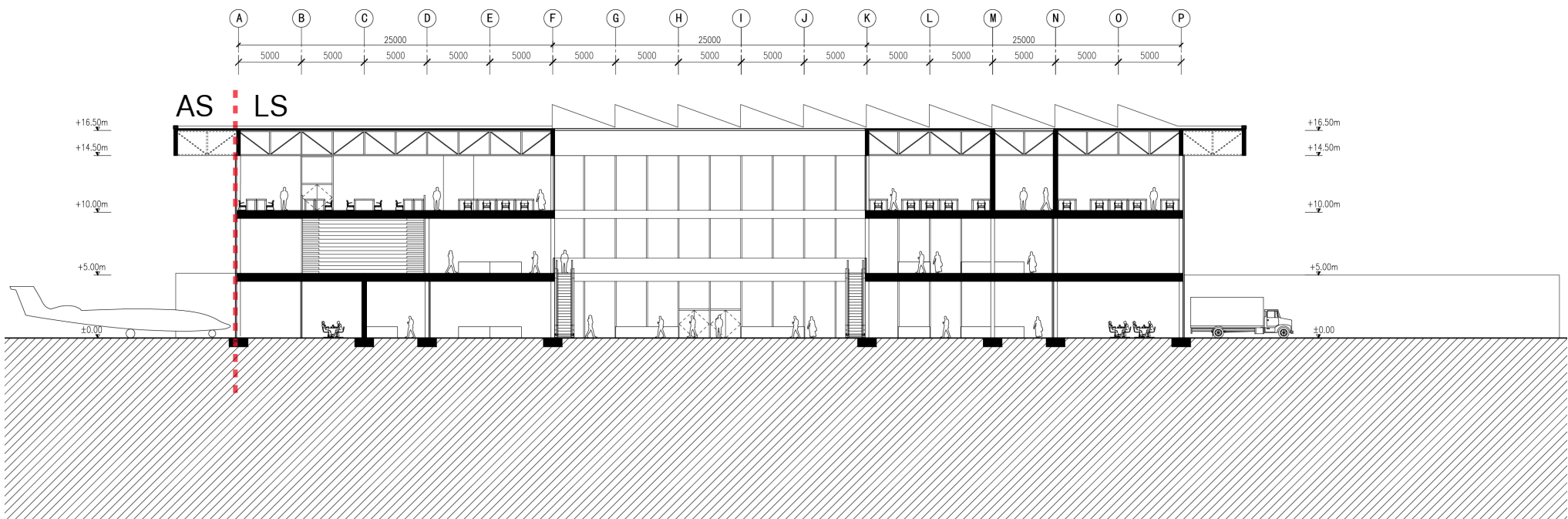
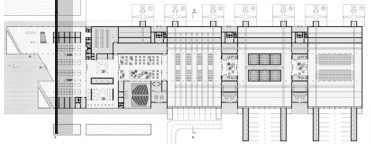


section a-a 1:200

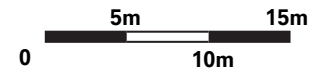


implementation

AIRSIDE/LANDSIDE

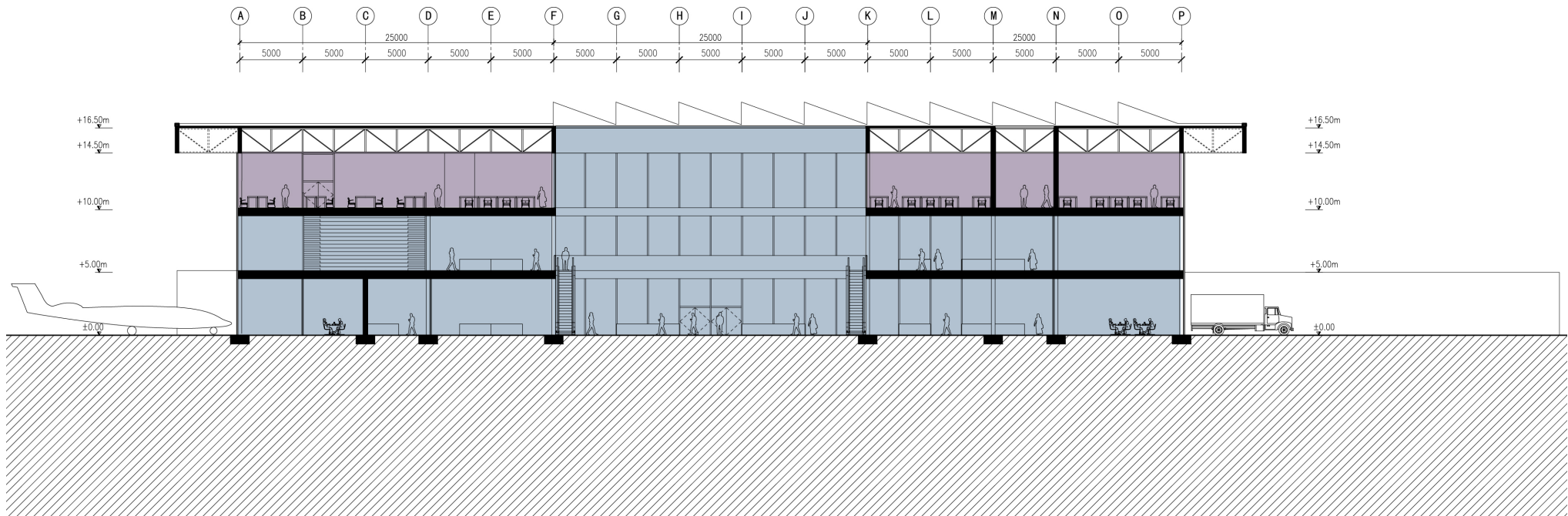


section a-a 1:200

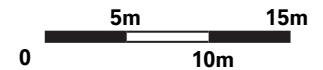


implementation FUNCTION

- education area: lecture hall / innovation labs / collaborative space
- public area: market / retail

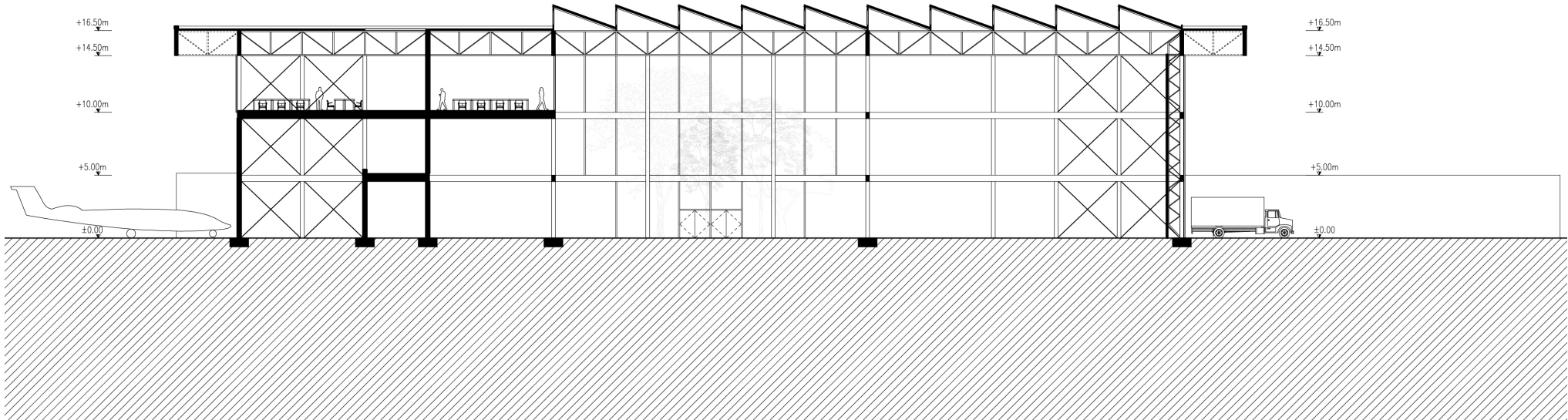
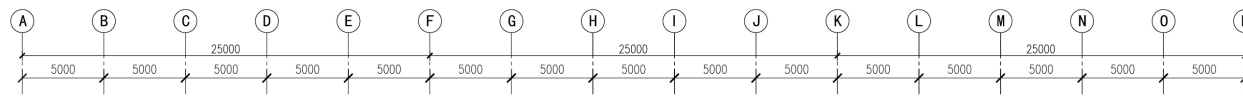
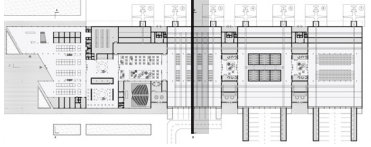


section a-a 1:200

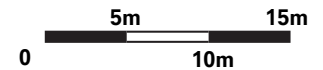


implementation

SECTION B-B

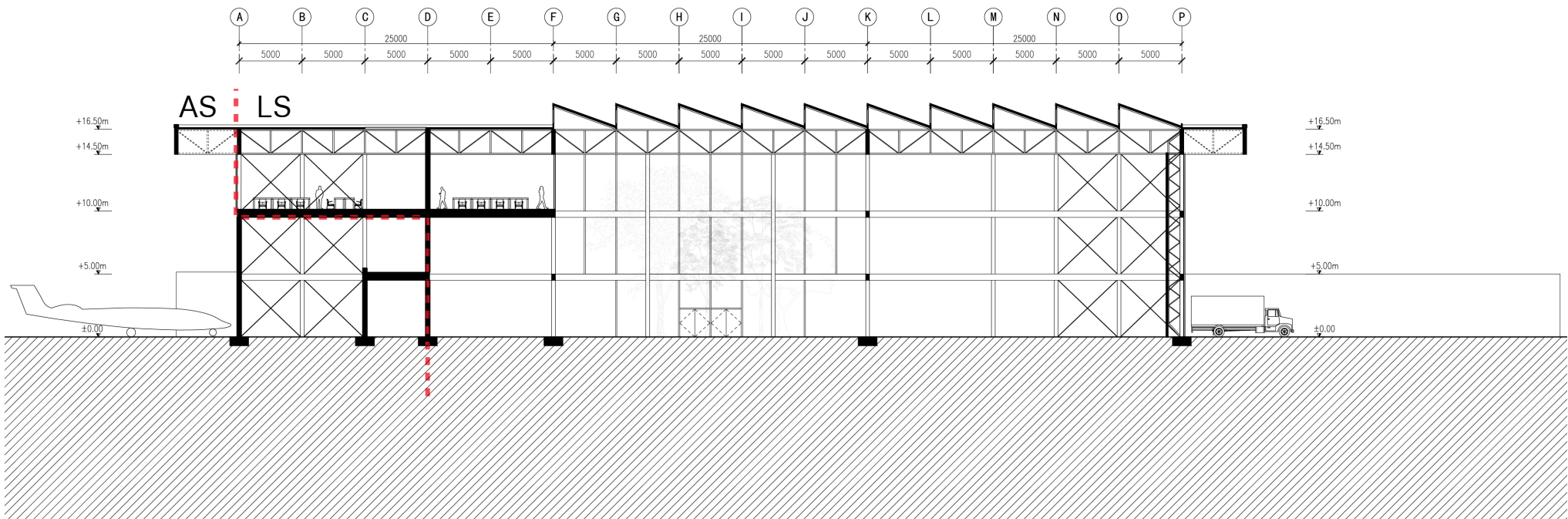
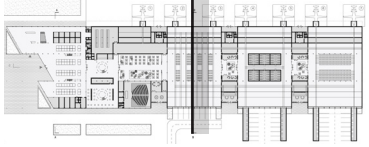


section b-b 1:200

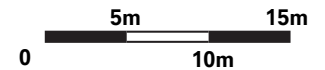


implementation

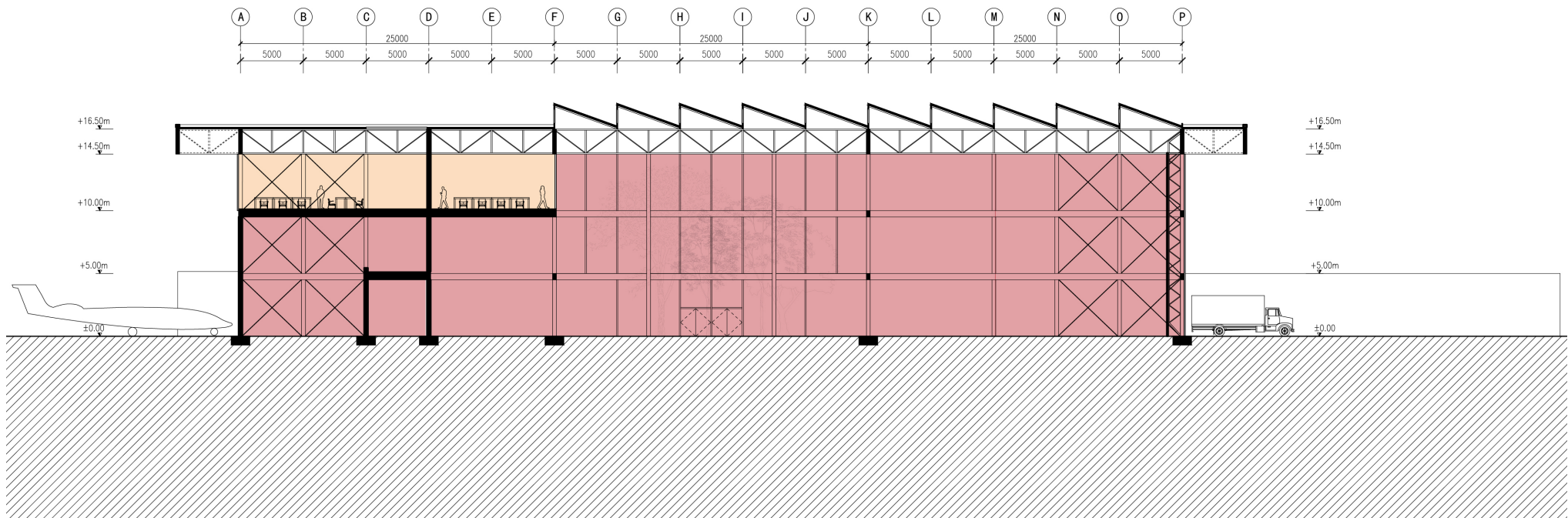
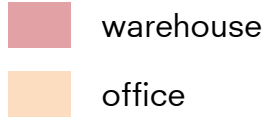
AIRSIDE/LANDSIDE



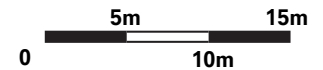
section b-b 1:200



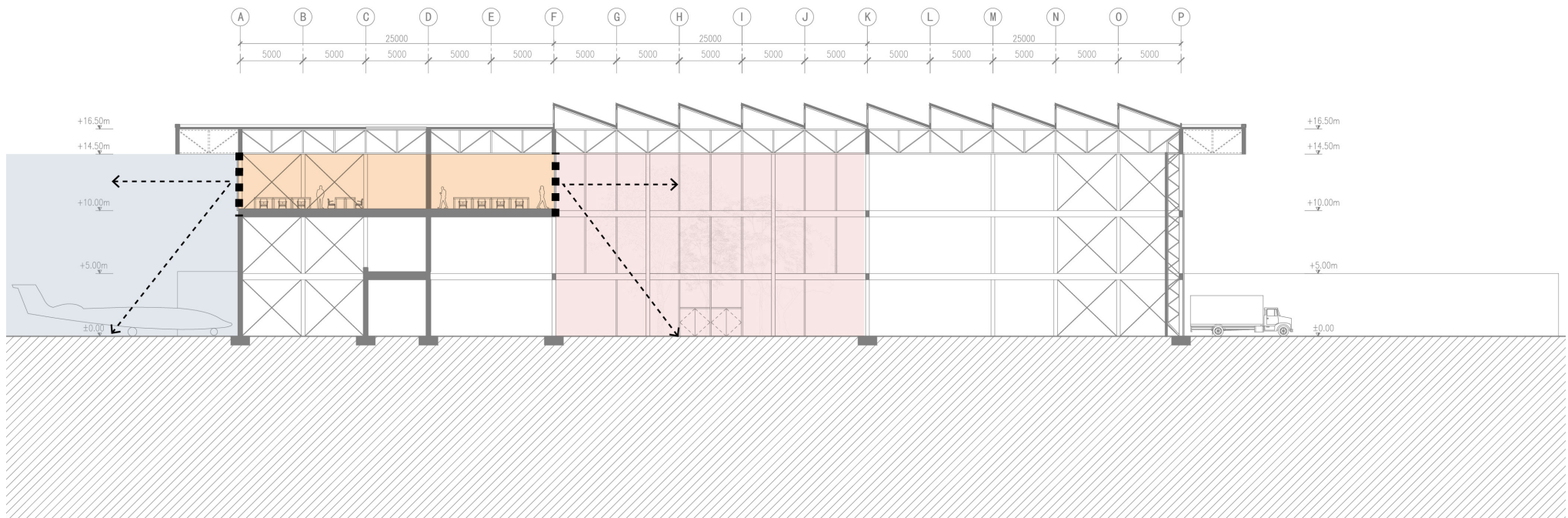
implementation FUNCTION



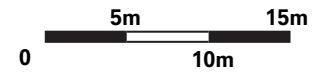
section b-b 1:200



implementation **OFFICE**

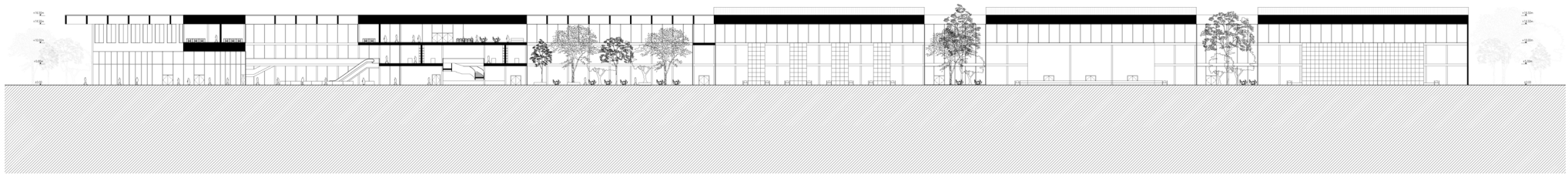


section b-b 1:200

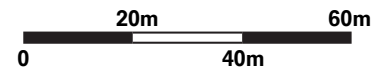


implementation

SECTION C-C



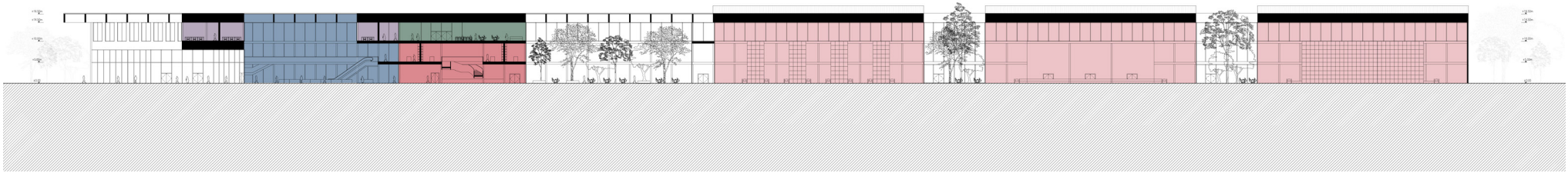
section c-c 1:200



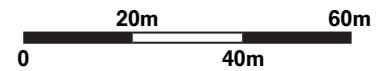
implementation

FUNCTION

- warehouse
- cabinet of curiosity
- public market
- education area
- worker service area



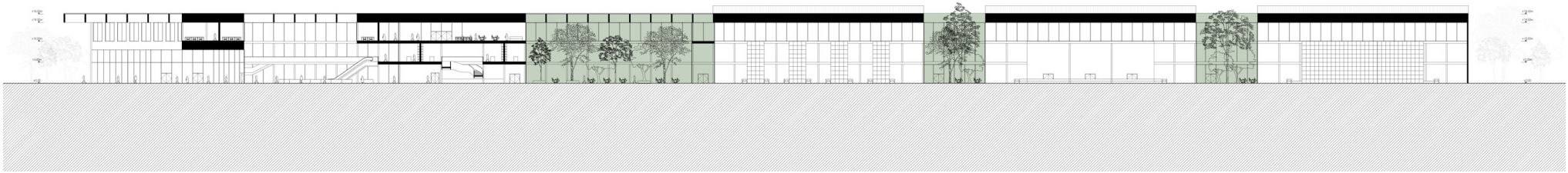
section c-c 1:200



implementation

PATIO

 patio

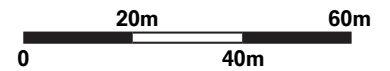


section c-c 1:200

0 20m 40m 60m

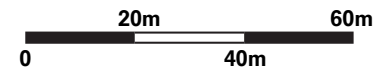
implementation

SOUTH ELEVATION

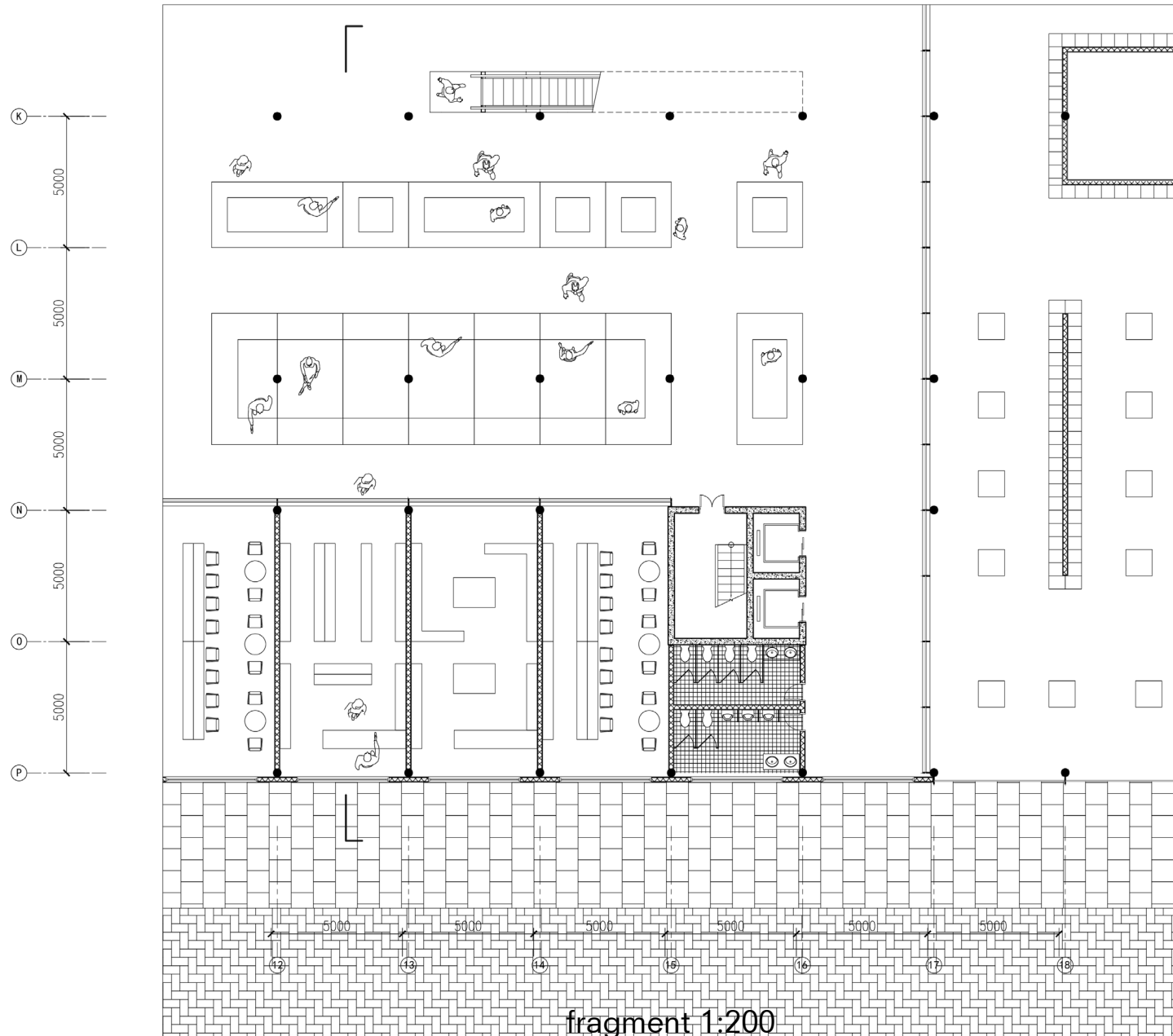


implementation

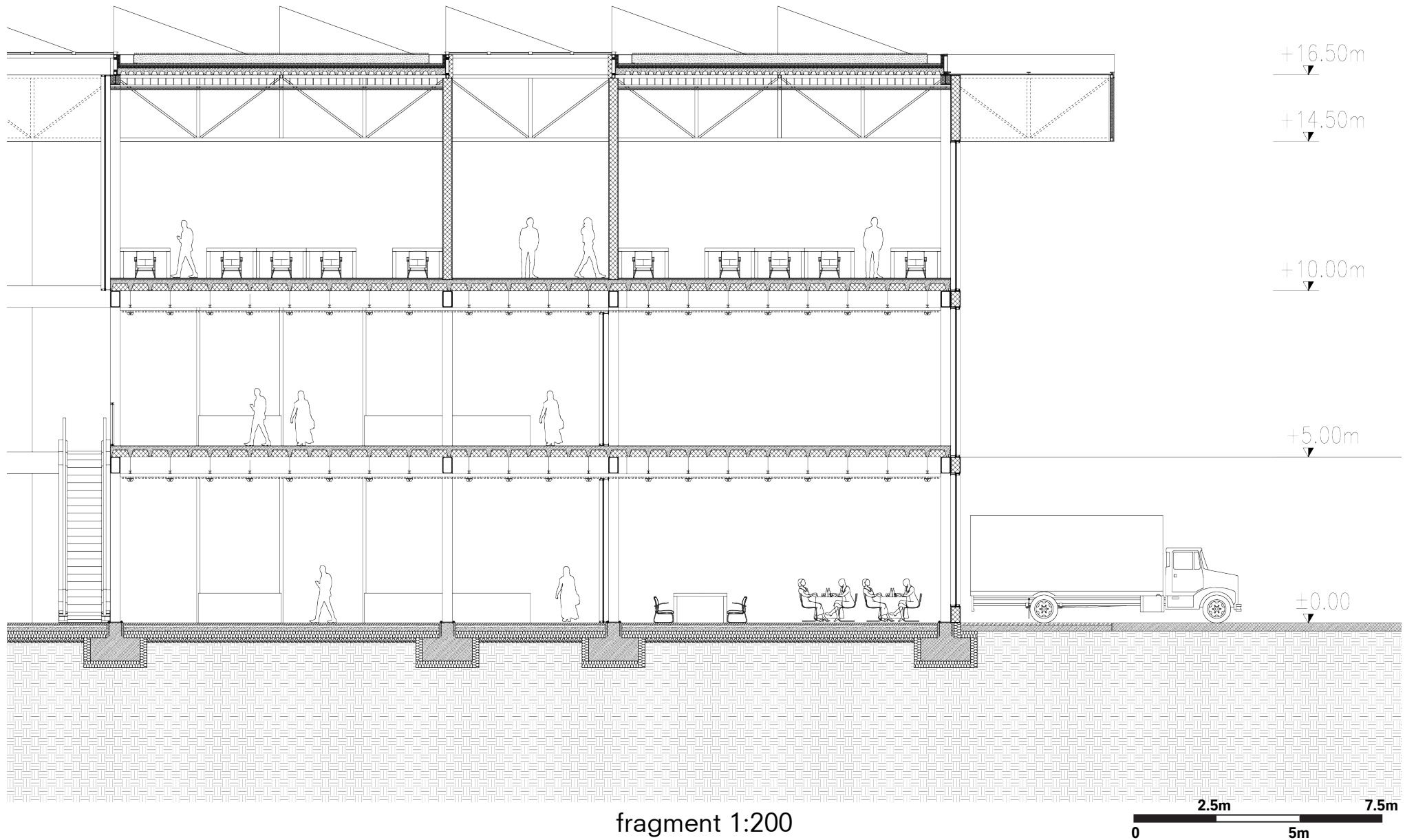
NORTH ELEVATION



implementation FRAGMENT

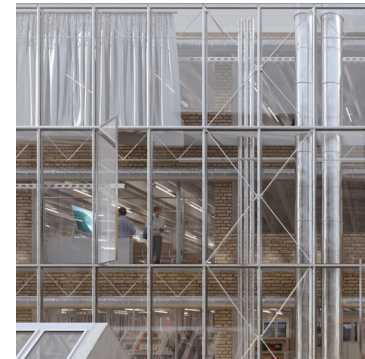
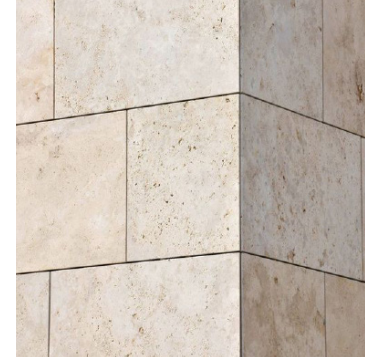


implementation
FRAGMENT



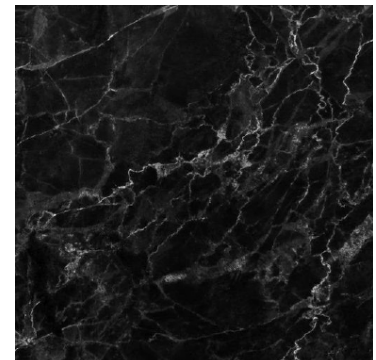
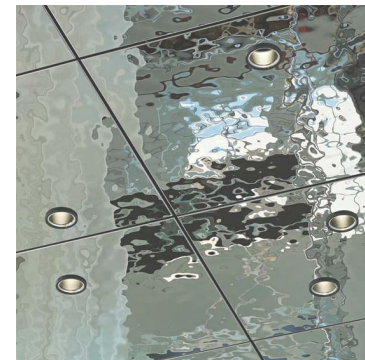
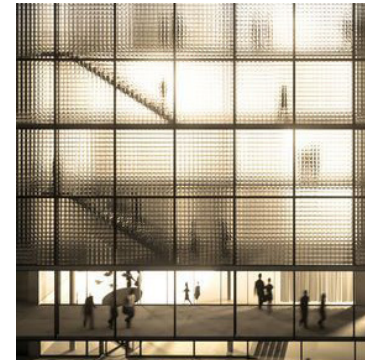
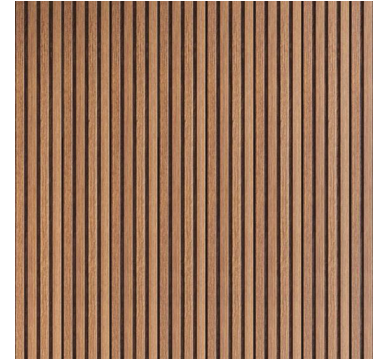
implementation

EXTERIOR MATERIAL

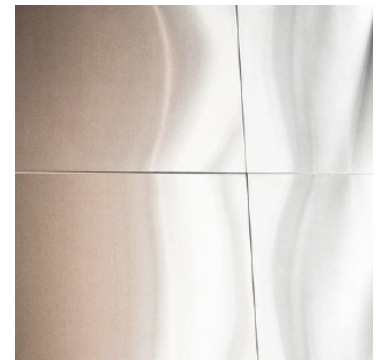
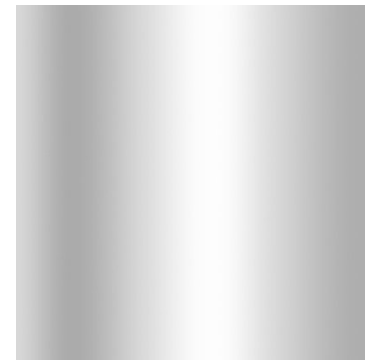
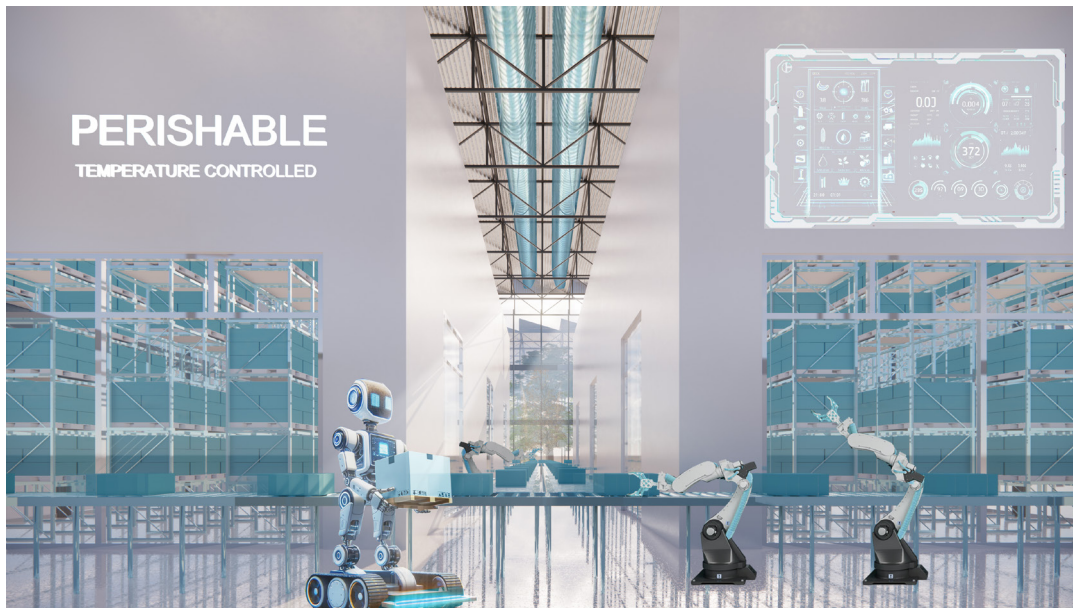
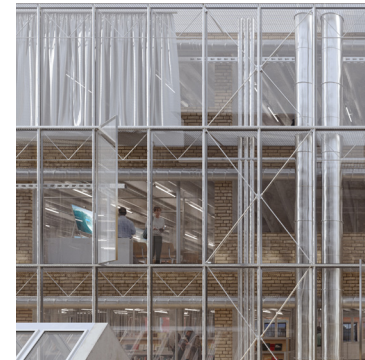


implementation

INTERIOR MATERIAL



implementation INTERIOR MATERIAL



INTRODUCTION

SITE

PROGRAM

CLIENT

CONCEPT

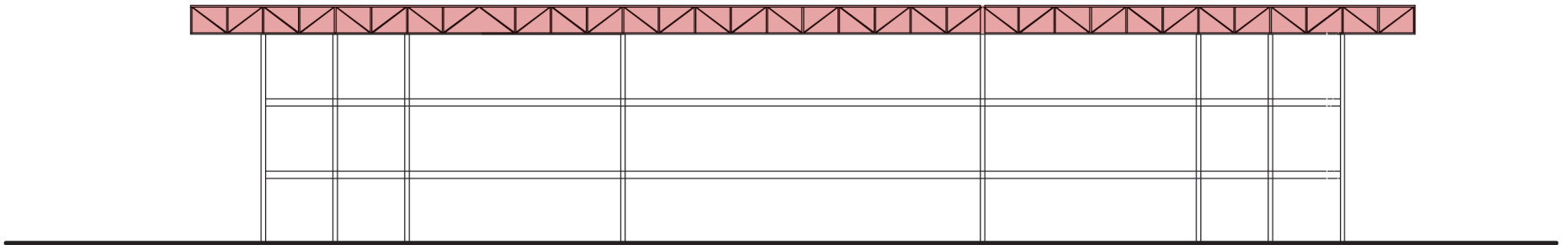
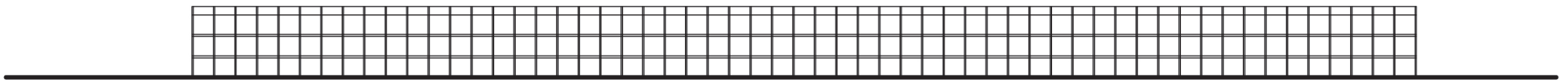
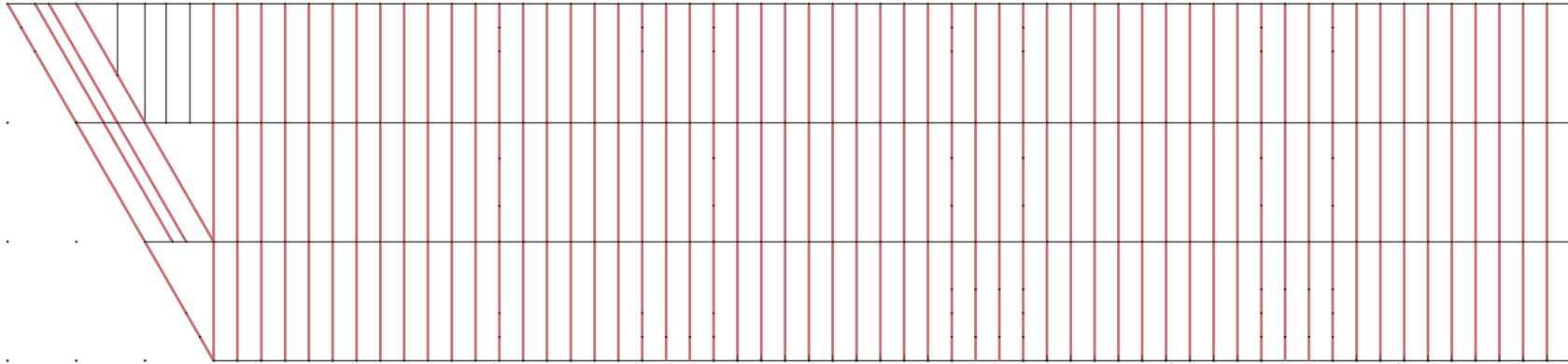
IMPLEMENTATION

DEVELOPMENT

CONCLUSION

development

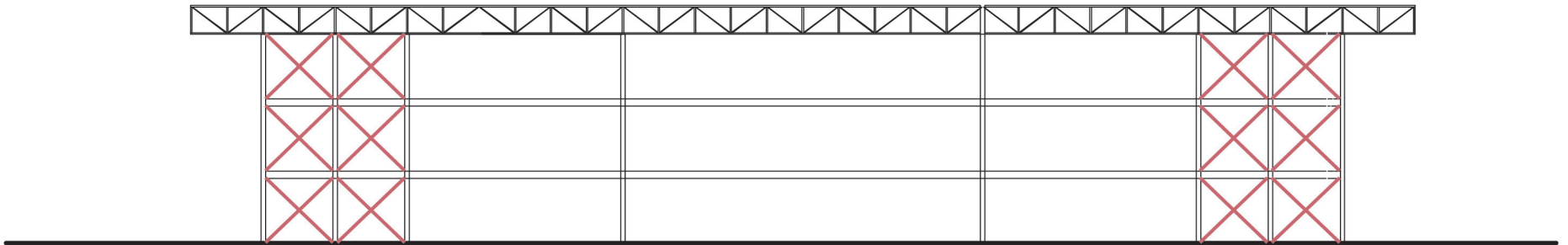
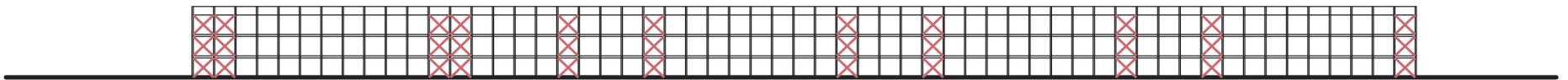
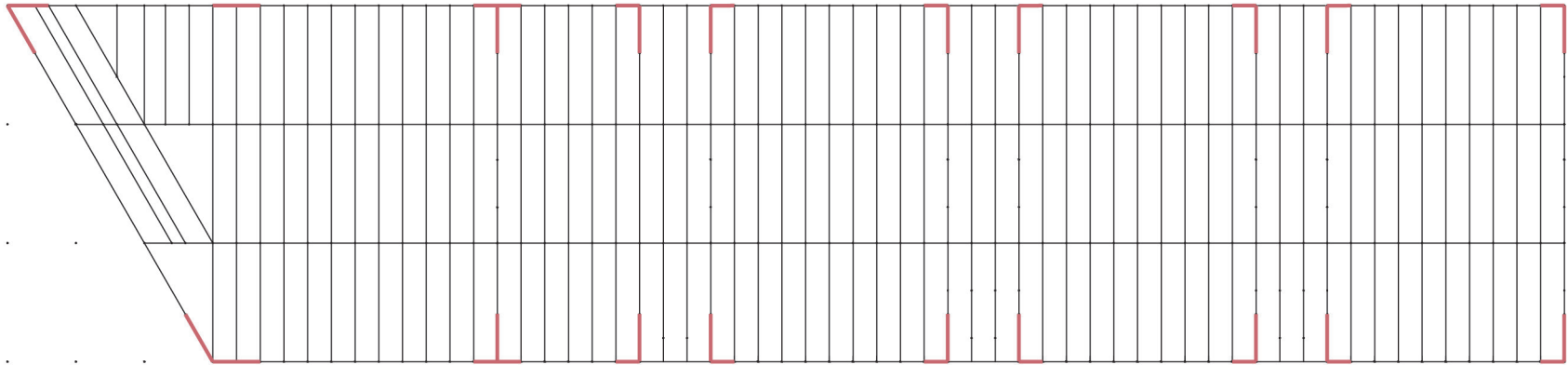
STRUCTURE



STEEL TRUSS

development

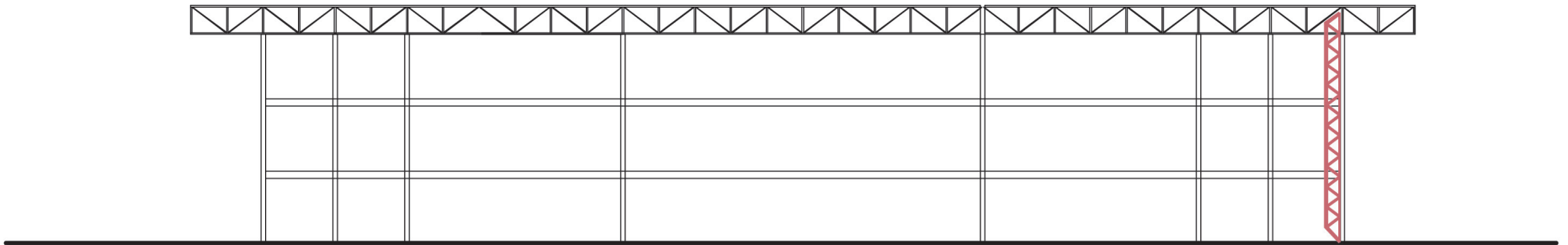
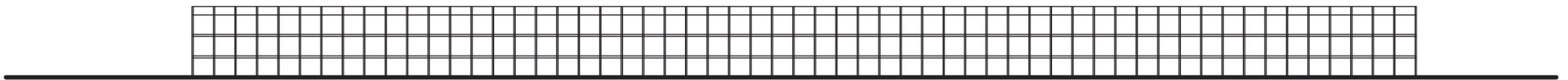
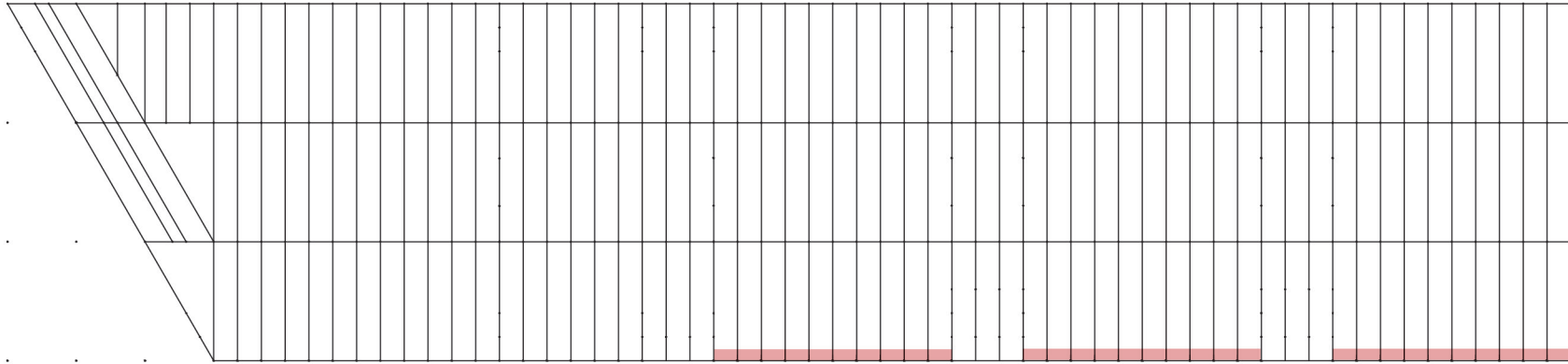
STRUCTURE



BRACING

development

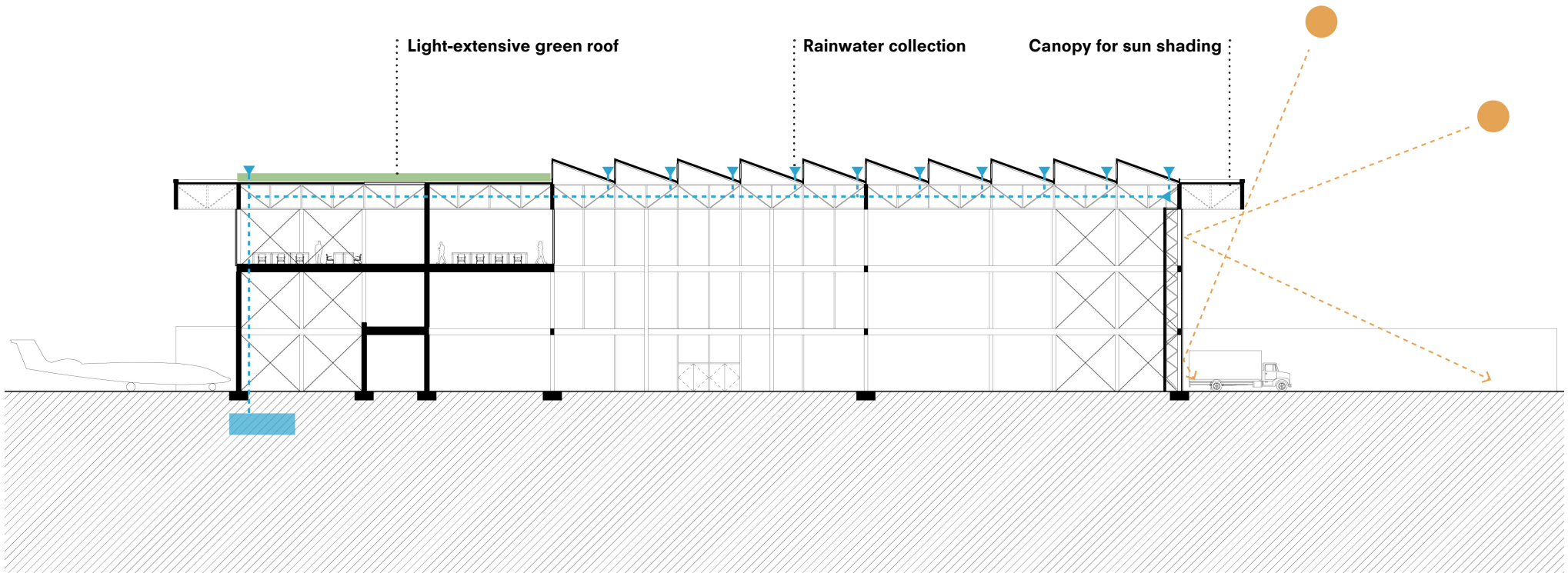
STRUCTURE



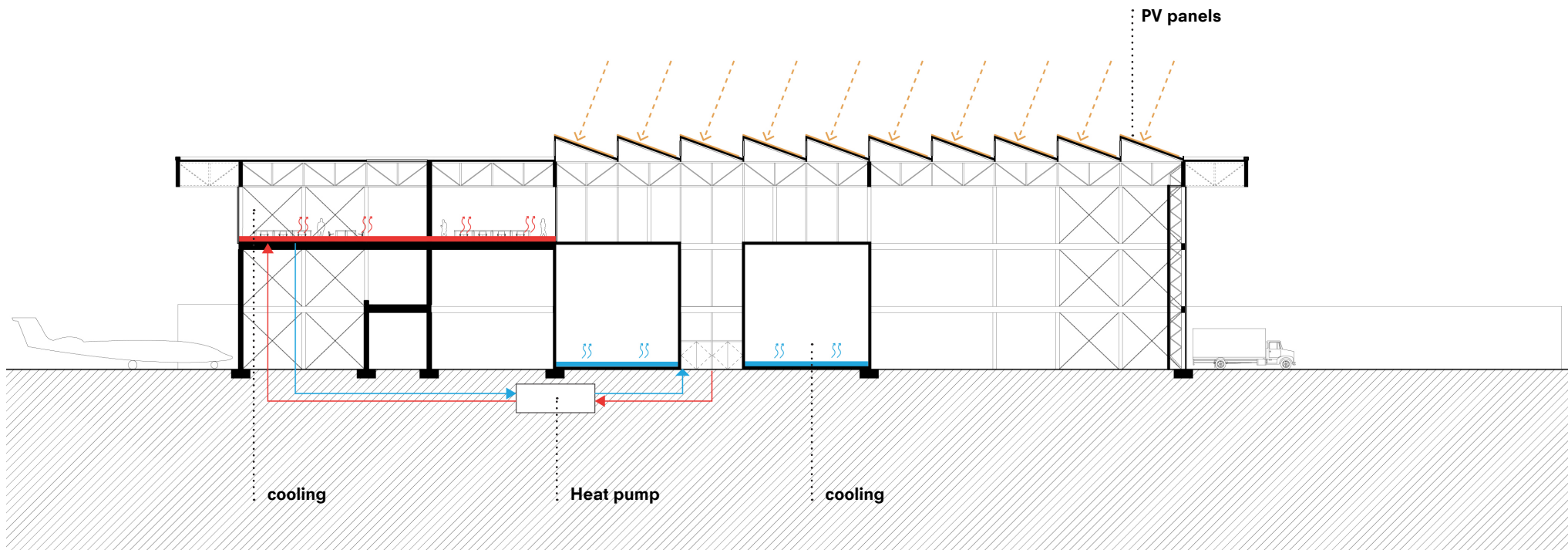
WIND-BRACING

development

CLIMATE STRATEGY

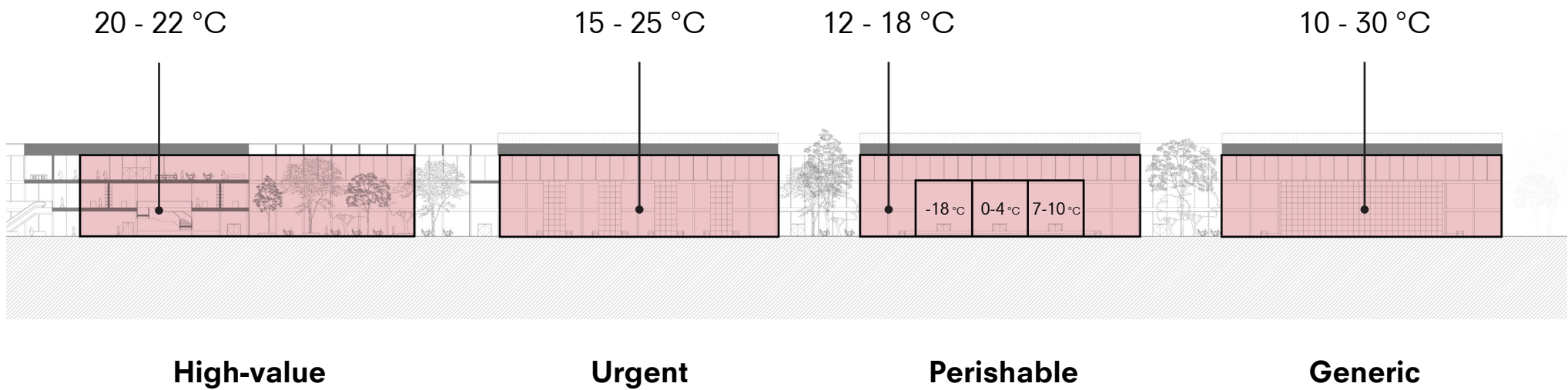


development **ENERGY**



development

INDOOR CLIMATE CONTROL



development

INDOOR CLIMATE CONTROL



High-value

Urgent

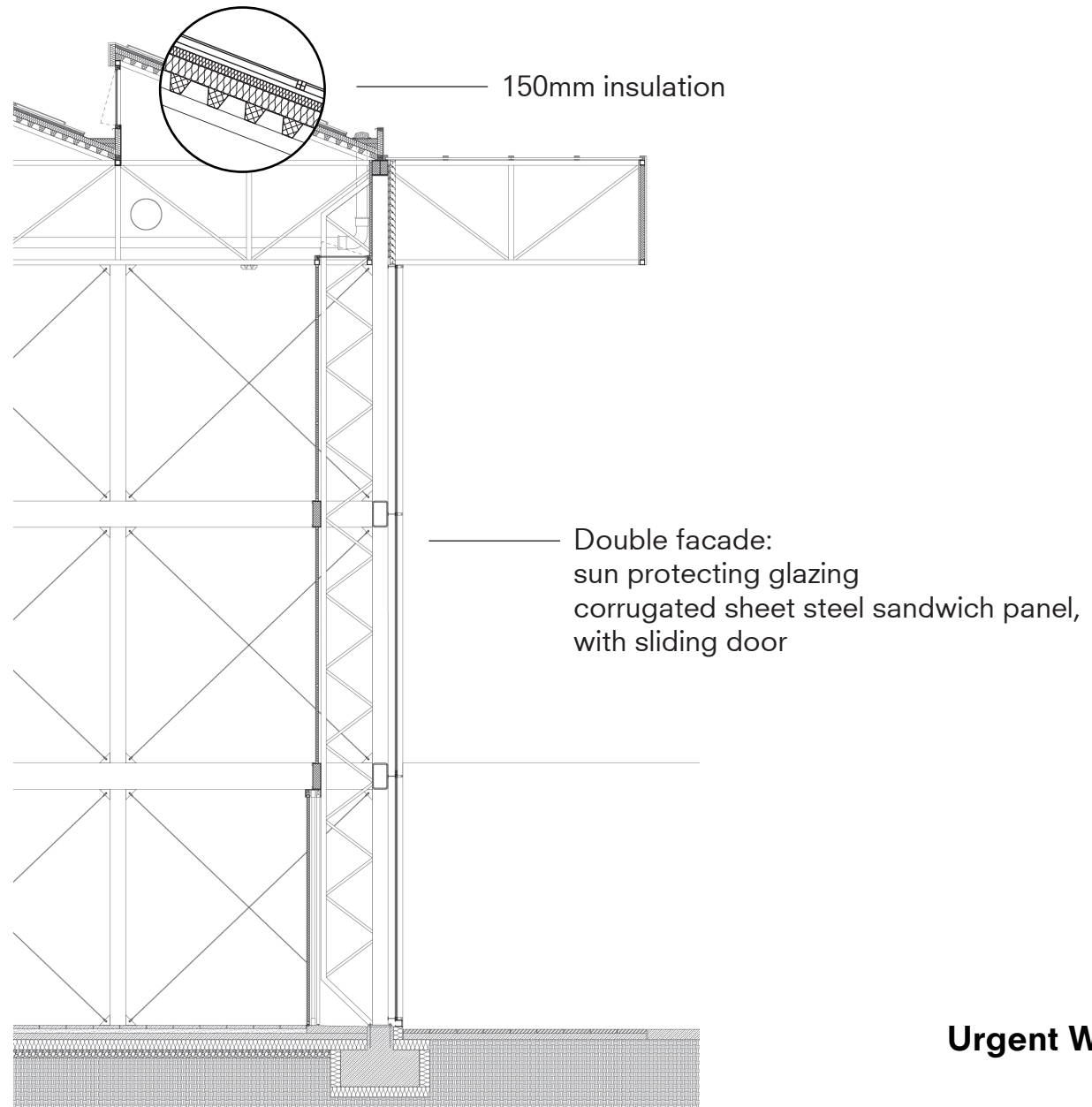
Perishable

Generic

SOUTH FACADE CLIMATE STRATEGY

development

INDOOR CLIMATE CONTROL

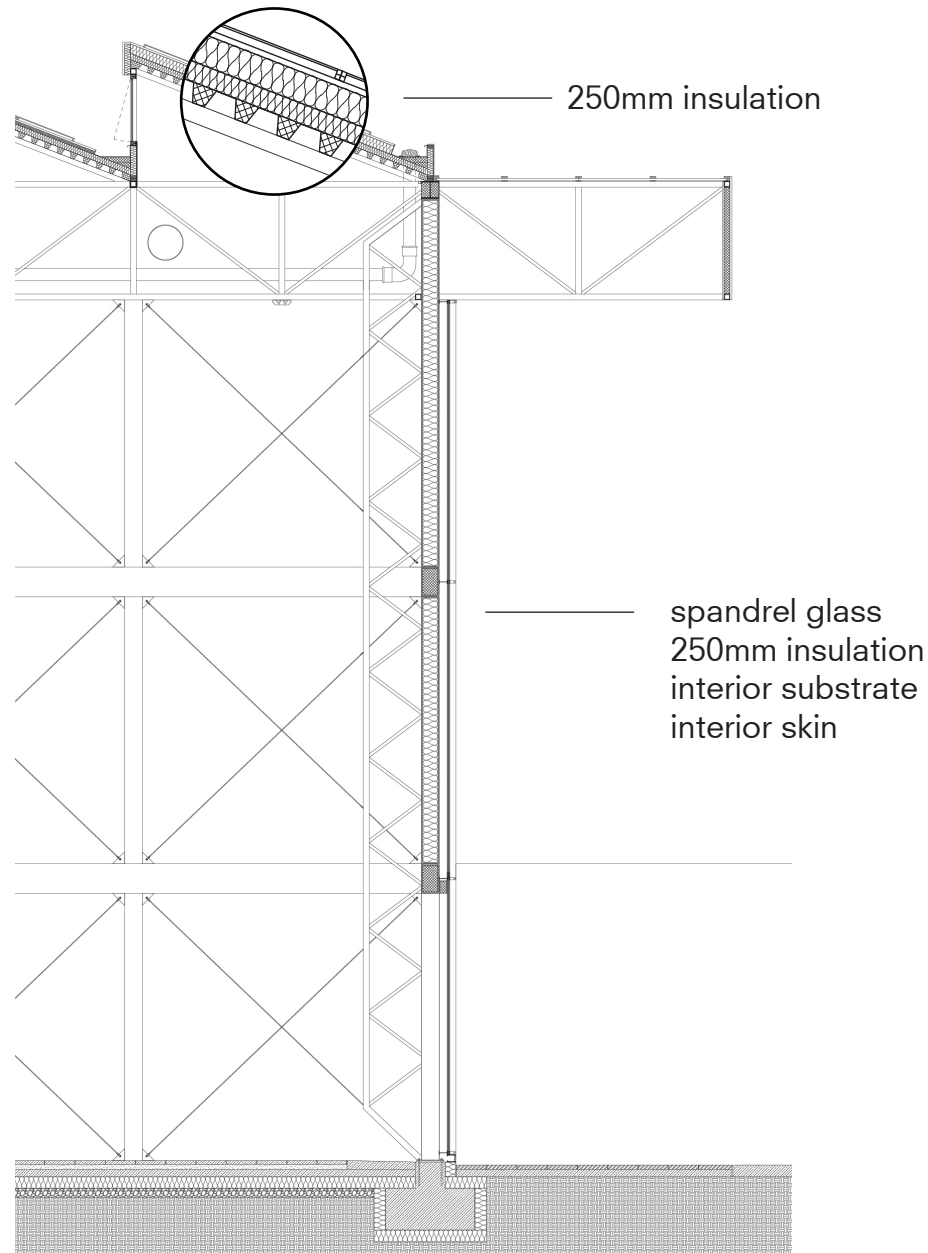


Urgent Warehouse

15 - 25 °C

development

INDOOR CLIMATE CONTROL

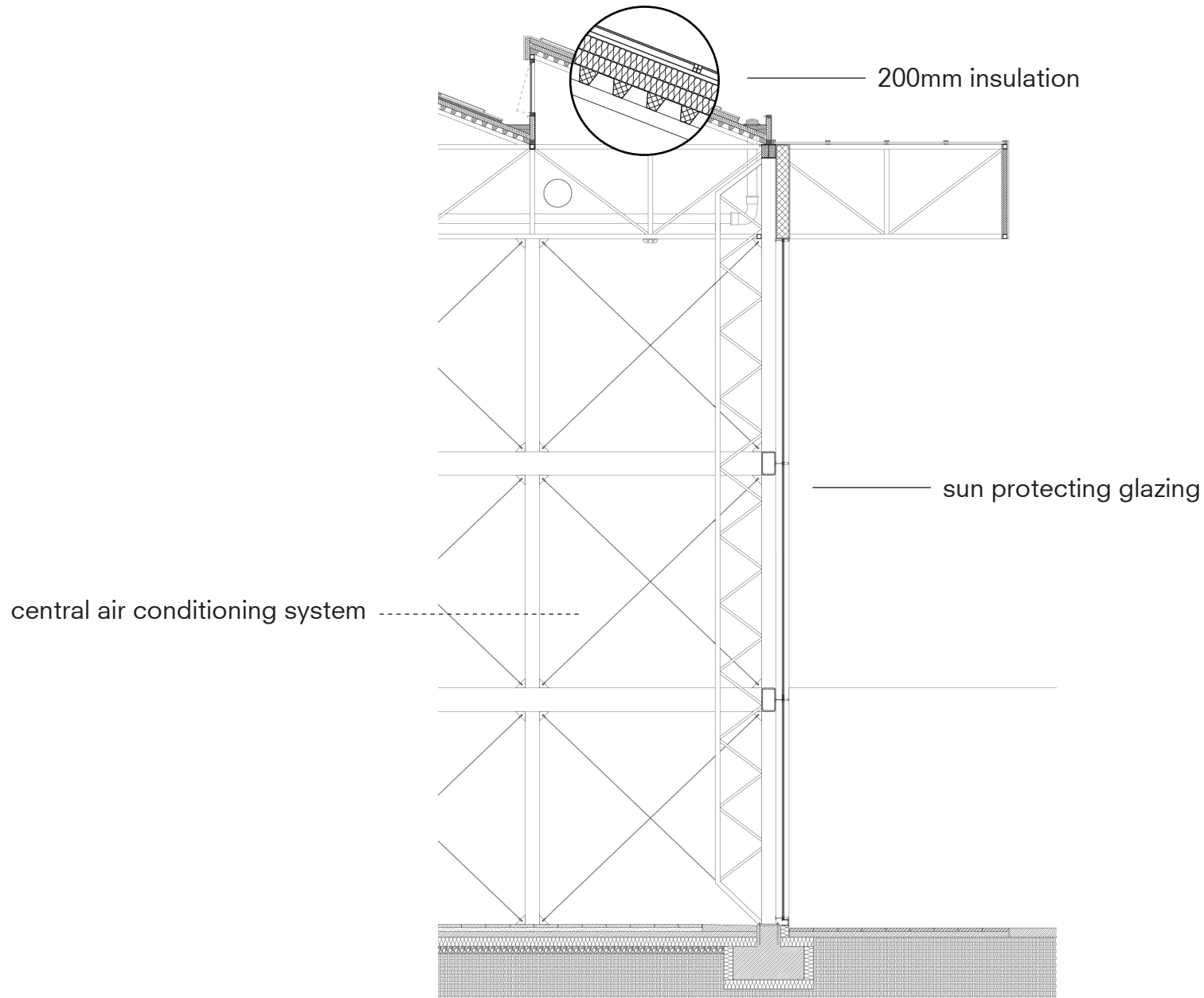


Perishable Warehouse

12 - 18 °C

development

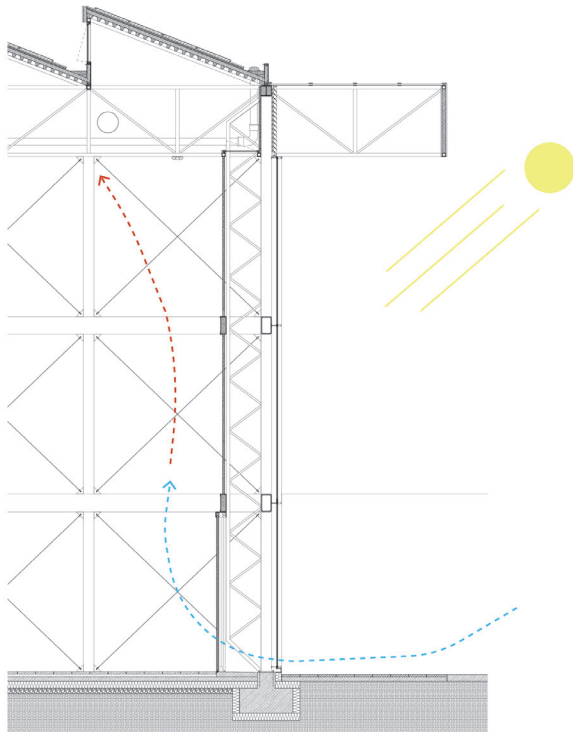
INDOOR CLIMATE CONTROL



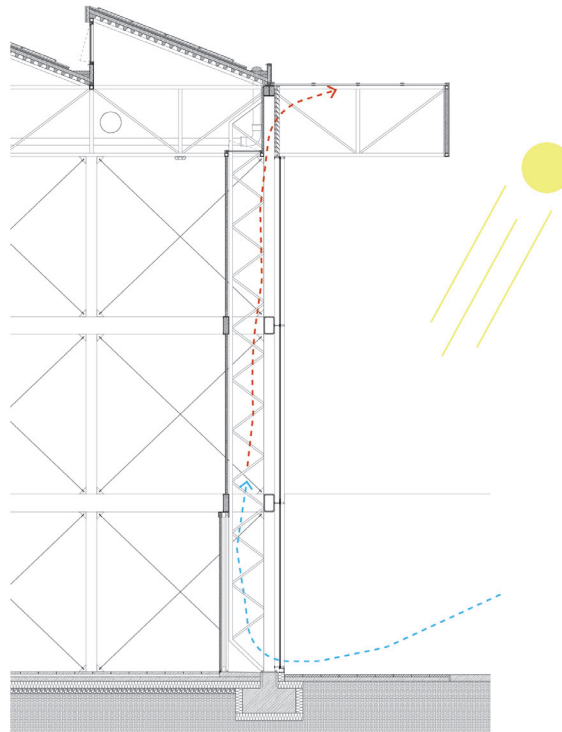
High-value Warehouse
20 - 22 °C

development

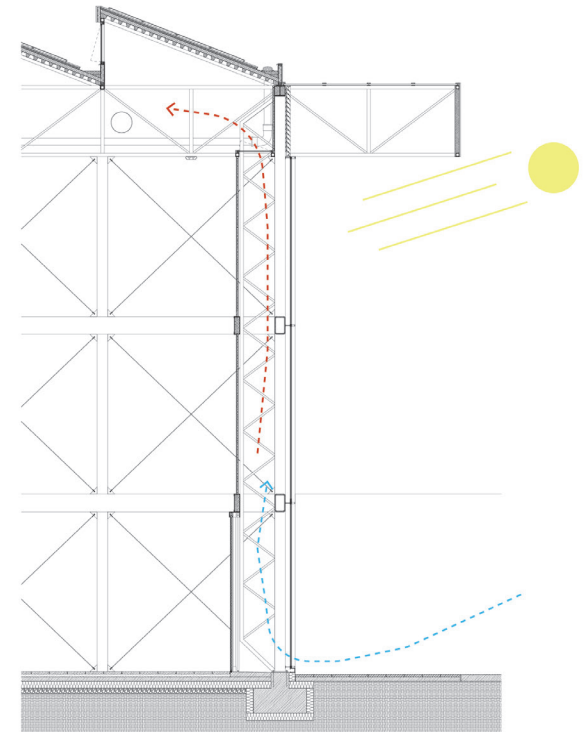
INDOOR CLIMATE CONTROL



spring/autumn



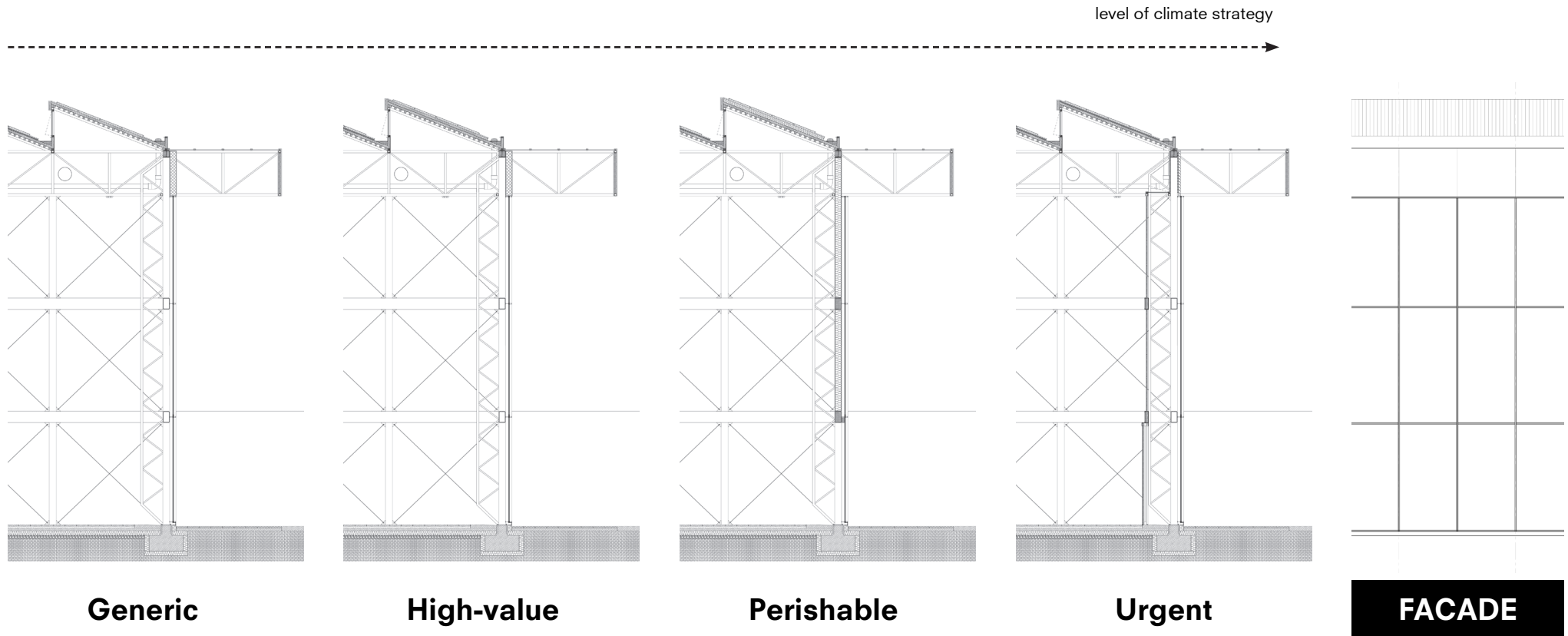
summer



winter

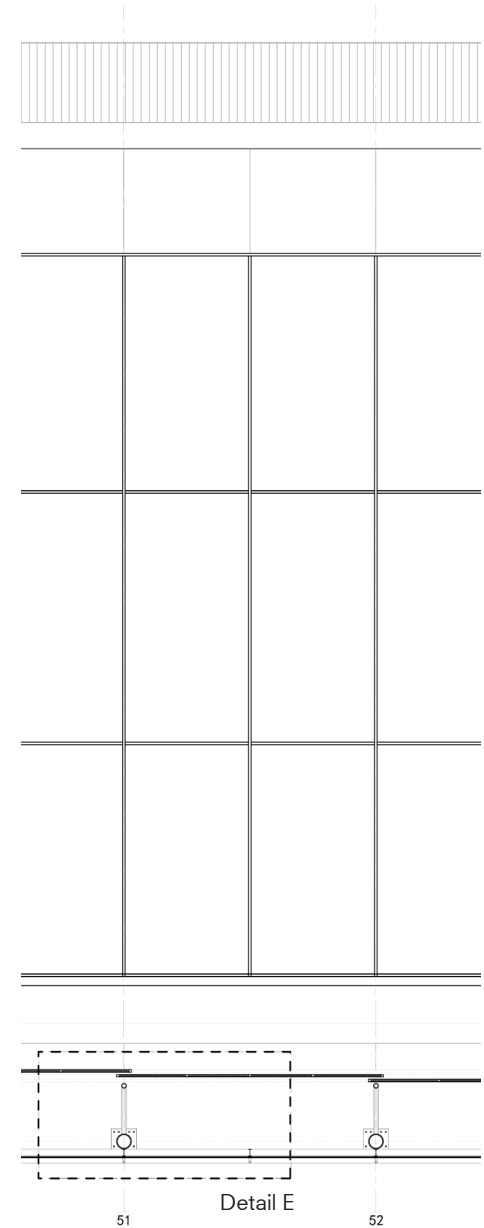
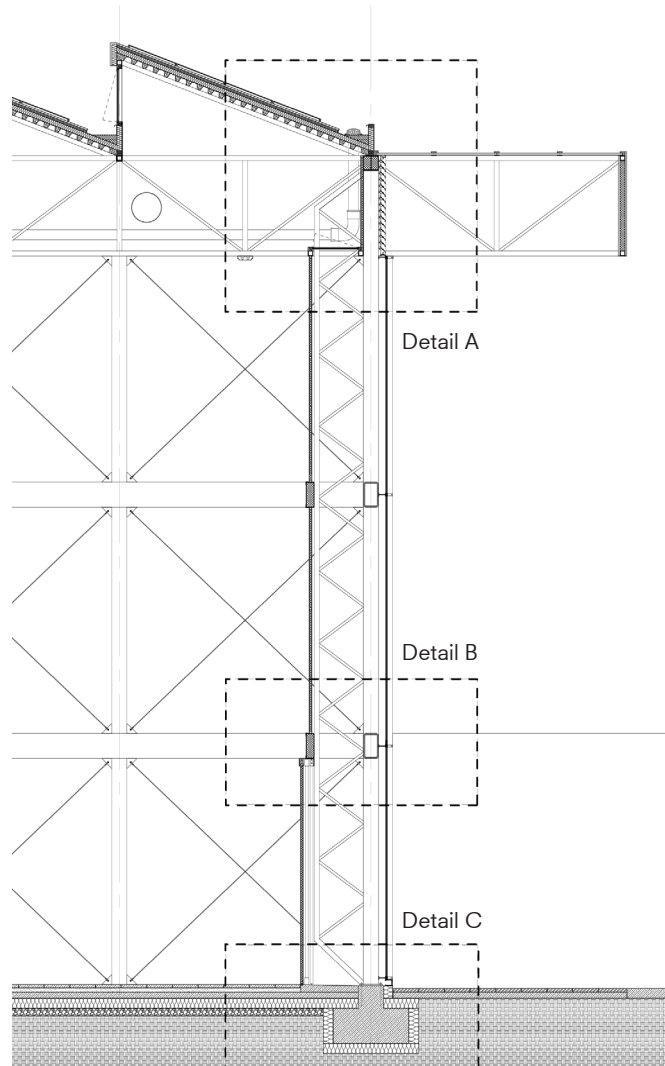
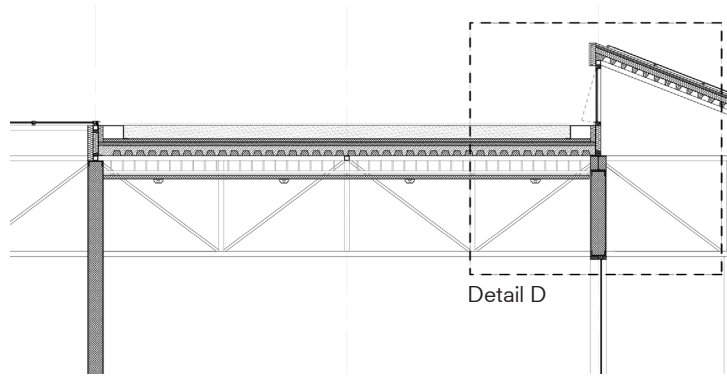
development

CLIMATE STRATEGY AND FACADE



development

FACADE DETAIL



0 2.5m 5m 7.5m

facade detail 1:20

development

DETAIL A 1:5

1
photovoltaic module on aluminium
frame
30.5/0.6 mm pre-bent corrugated
sheet steel decking
sealant layer
150mm thermal insulation
vapour barrier
acoustical insulation
acoustical steel deck

2
gutter

3
40mm polycarbonate panel

4
2000mm steel truss

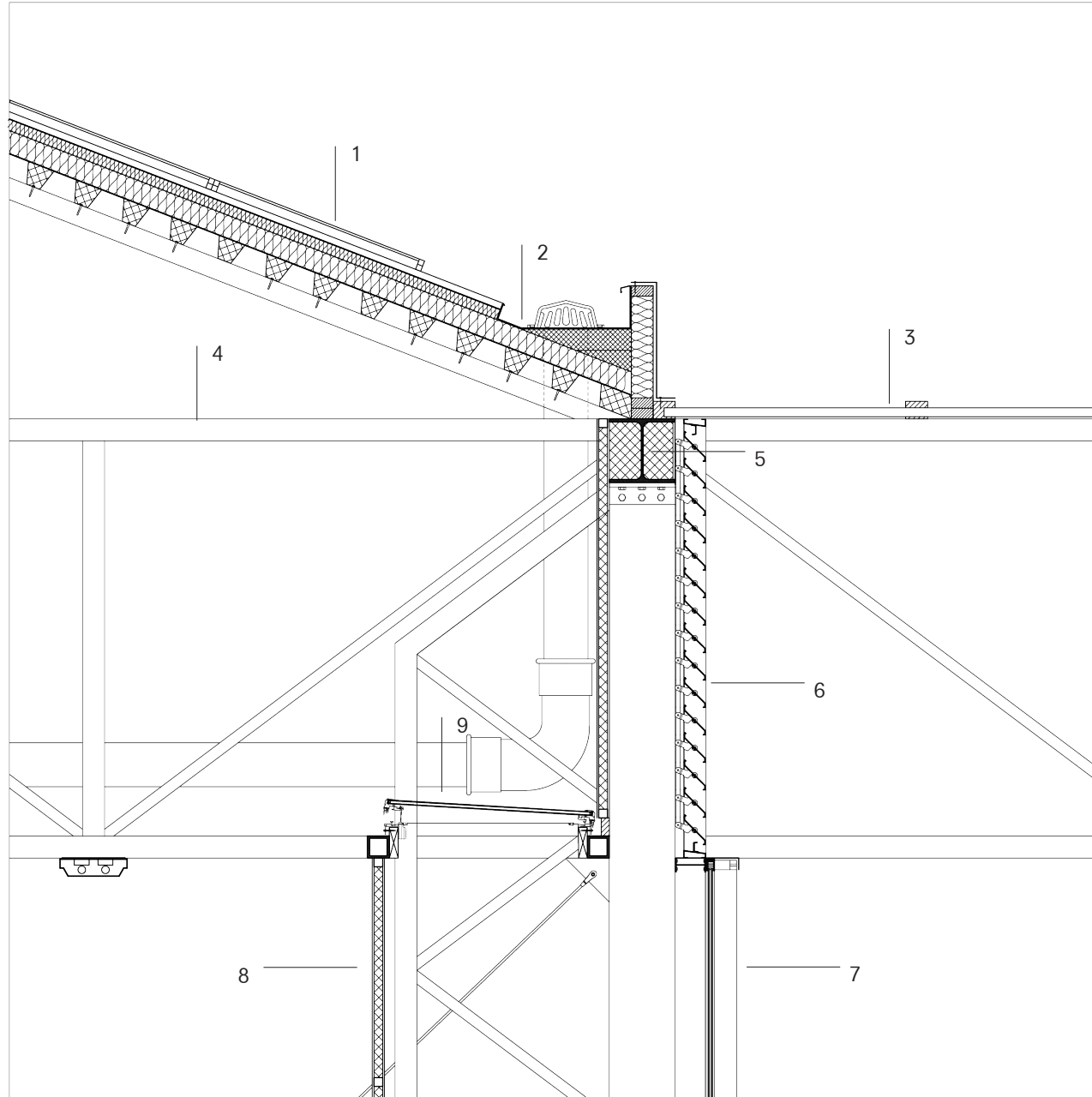
5
300mm I beams

6
140mm operable aluminium louvre

7
sun protecting glazing: 8 mm float
glass + 16 mm cavity + 2× 5 mm
laminated safety glass

8
8 mm galv. corrugated sheet steel
sandwich panel sliding gate,
white finish on 60/40 mm steel
RHS frame; 40 mm inlaid thermal
insulation; 8 mm galv. corrugated
sheet steel, white finish

9
mechanically operable window

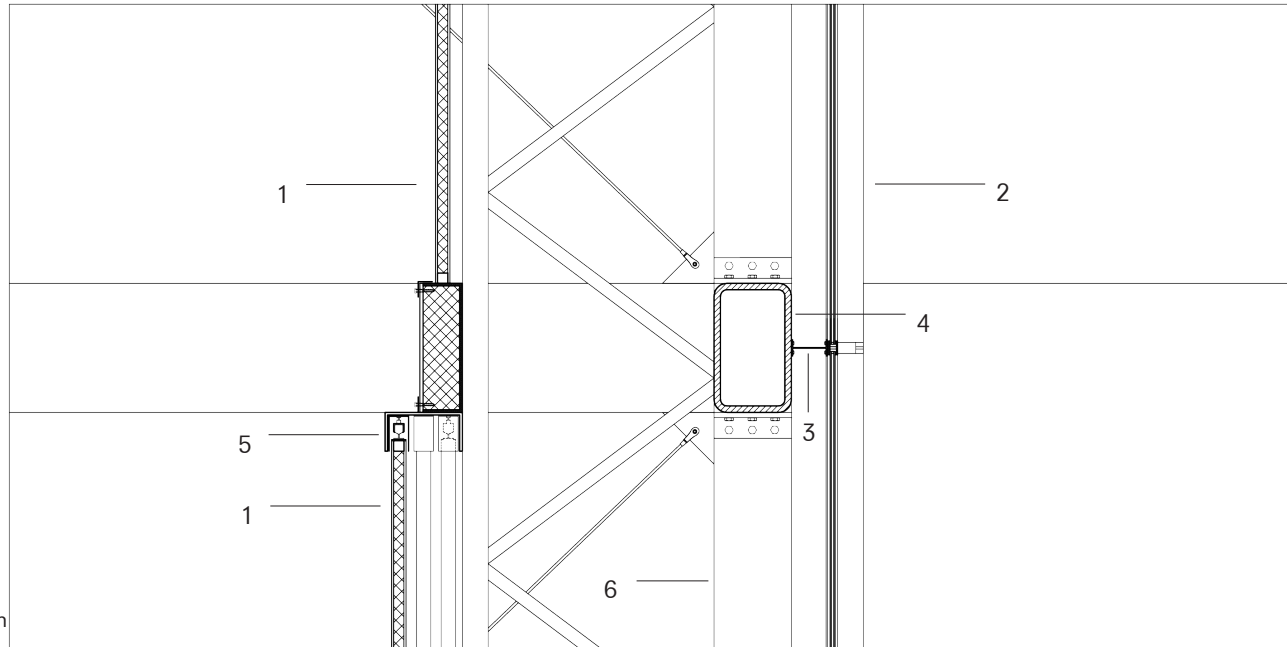


0 0.5m 1m 1.5m 2m 2.5m

development

DETAIL B 1:5

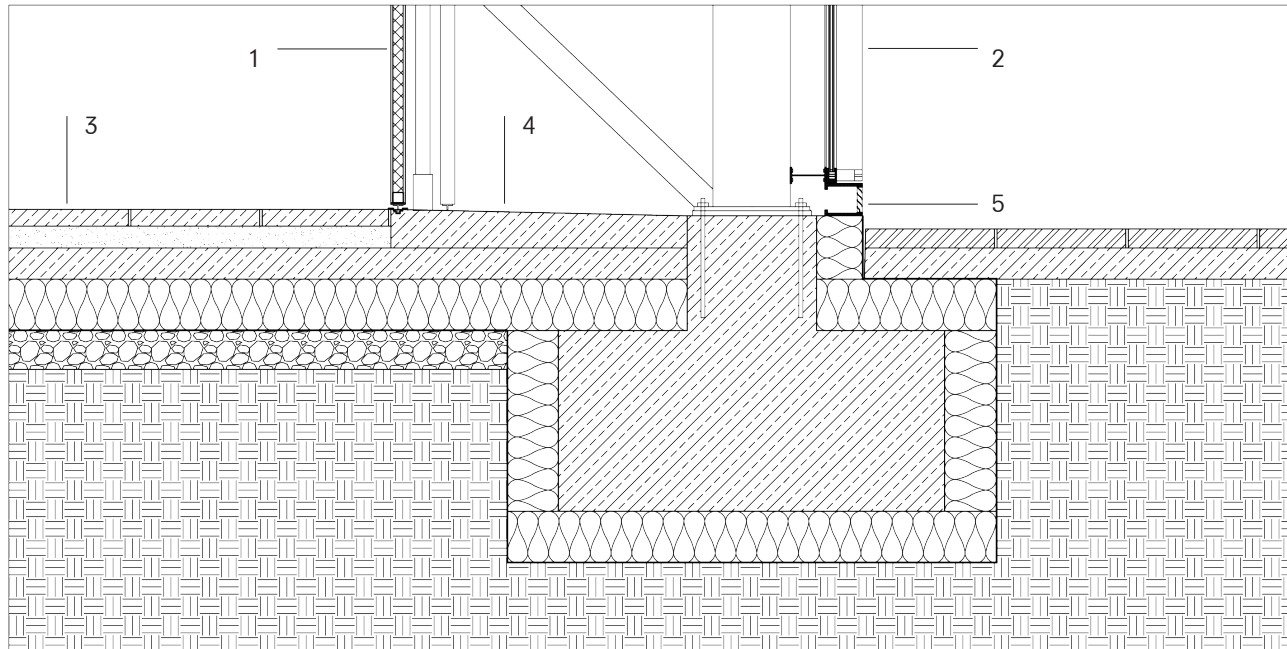
- 1
8 mm galv. corrugated sheet steel
sandwich panel sliding gate,
white finish on 60/40 mm steel
RHS frame; 40 mm inlaid thermal
insulation; 8 mm galv. corrugated
sheet steel, white finish
- 2
sun protecting glazing: 8 mm float
glass + 16 mm cavity + 2× 5 mm
laminated safety glass
- 3
steel I-section rail 140mm deep
(IPE 140), mechanically stressed
- 4
300mm/500mm rectangular steel
beam,
black coating
- 5
150/300 steel channel sliding gate
lintel
- 6
300mm diameter circular steel column
black coating



development

DETAIL C 1:5

- 1
8 mm galv. corrugated sheet steel
sandwich panel sliding gate,
white finish on 60/40 mm steel
RHS frame; 40 mm inlaid thermal
insulation; 8 mm galv. corrugated
sheet steel, white finish
- 2
sun protecting glazing: 8 mm float
glass + 16 mm cavity + 2× 5 mm
laminated safety glass
- 3
floor construction:
65 mm concrete pavers
85 mm mortar bed
120 mm reinforced concrete floor
200 insulation
sealant layer
150 crushed stone drainage layer
- 4
150 mm reinf. concrete to falls,
hydrophobic treatment;
- 5
operable aluminium louvre



development

DETAIL D 1:5

1
vegetation layer
50 mm substrate
70mm drainage layer
70 mm thermal insulation
vapour barrier
reinforced concrete composite ceiling
acoustic insulation

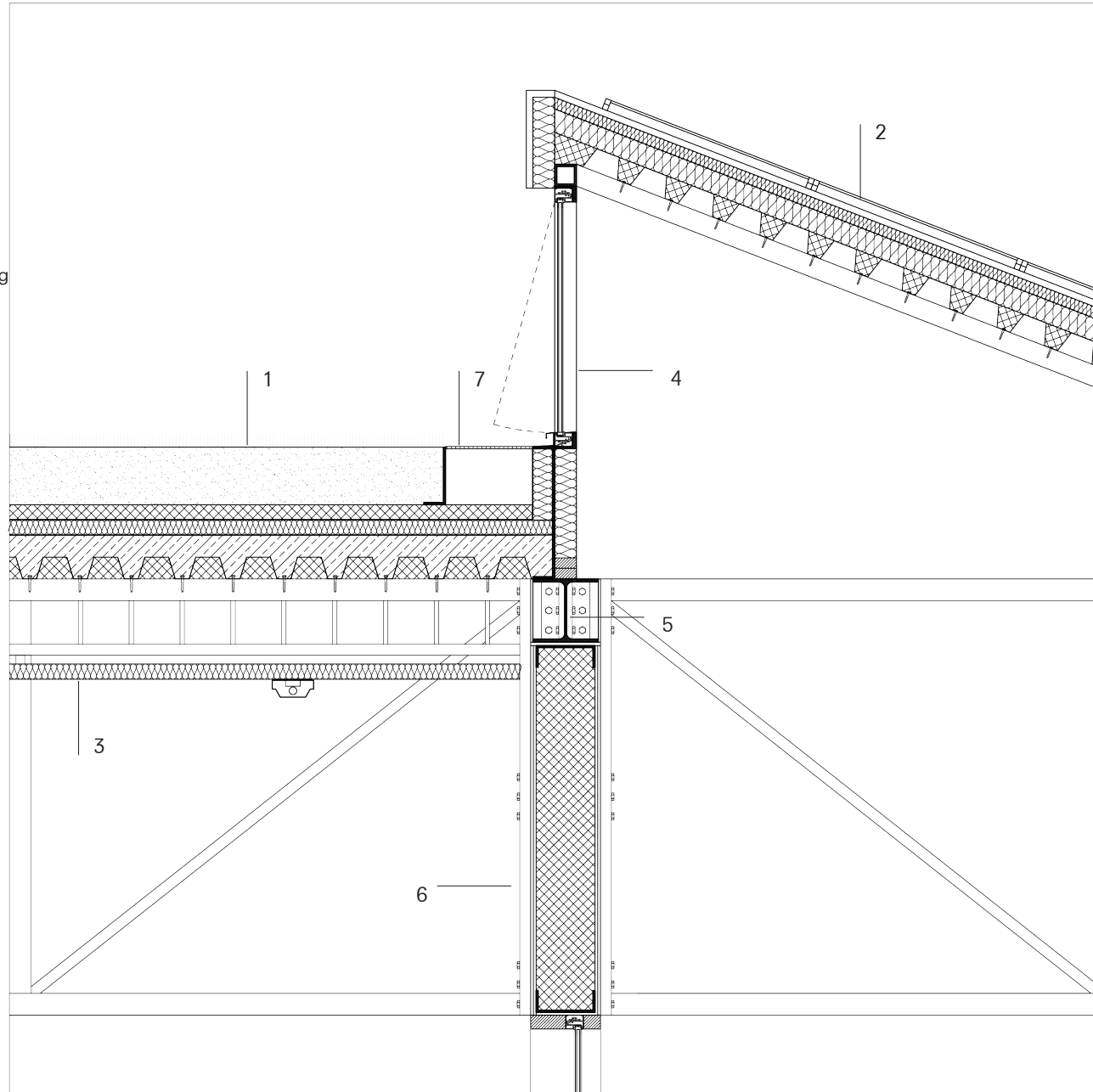
2
photovoltaic module on aluminium
frame
30.5/0.6 mm pre-bent corrugated
sheet steel decking
sealant layer
150mm thermal insulation
vapour barrier
acoustical insulation
acoustical steel deck

3
2 mm perforated aluminium
acoustic panel

4
mechanically operable window

5
300mm I beams

6
wall construction:
2x 12.5 mm gypsum board;
vapour barrier;
250 mm steel channel
250 mm inlaid mineral
wool thermal insulation
2x 12.5 mm waterproof gypsum



0.5m 1m 1.5m 2m 2.5m

development

DETAIL E 1:5

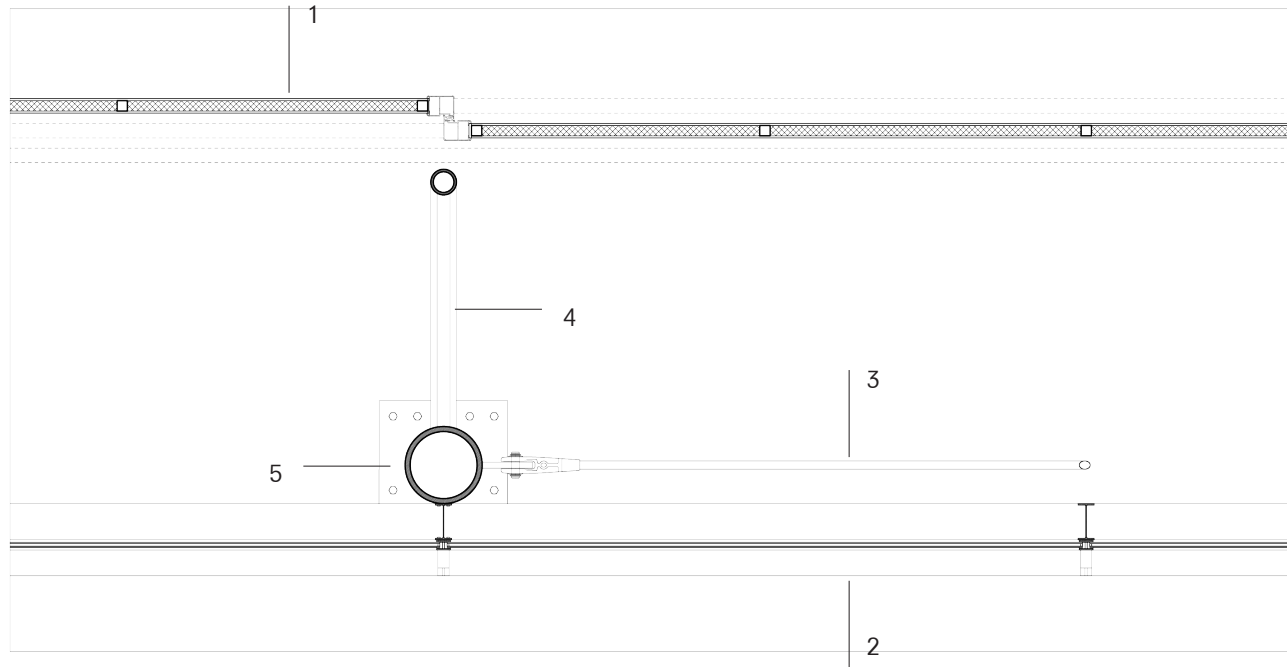
1
sliding door construction:
8 mm galv. corrugated sheet steel
sandwich panel sliding gate,
white finish on 60/40 mm steel
RHS frame; 40 mm inlaid thermal
insulation; 8 mm galv. corrugated
sheet steel, white finish

2
sun protecting glazing: 8 mm float
glass + 16 mm cavity + 2× 5 mm
laminated safety glass

3
X-shaped steel bracing with ten-
sion rod

4
steel wind bracing systems for high
glass curtain walls

5
300mm diameter circular steel
column



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CONCLUSION

conclusion

CONCLUSION

High-value



Urgent



Perishable



Generic

For Cargo

conclusion

CONCLUSION

Entrance



Market



Cabinet of Curiosity



Public Patio

For Public

conclusion

CONCLUSION

Warehouse



Crew Patio



Canteen



Thermal & Therapy

For Crew's Well-being

RESEARCH QUESTION

**How can architecture design
offset demanding working conditions,
both functionally and mentally?**

conclusion

CARGO PLUS



THANK YOU!