

Bundesministerium für digitale angelegenheiten

DESIGNING FOR A DIGITAL GOVERNMENT

P5

Ingo Aelbers

05/07/2023

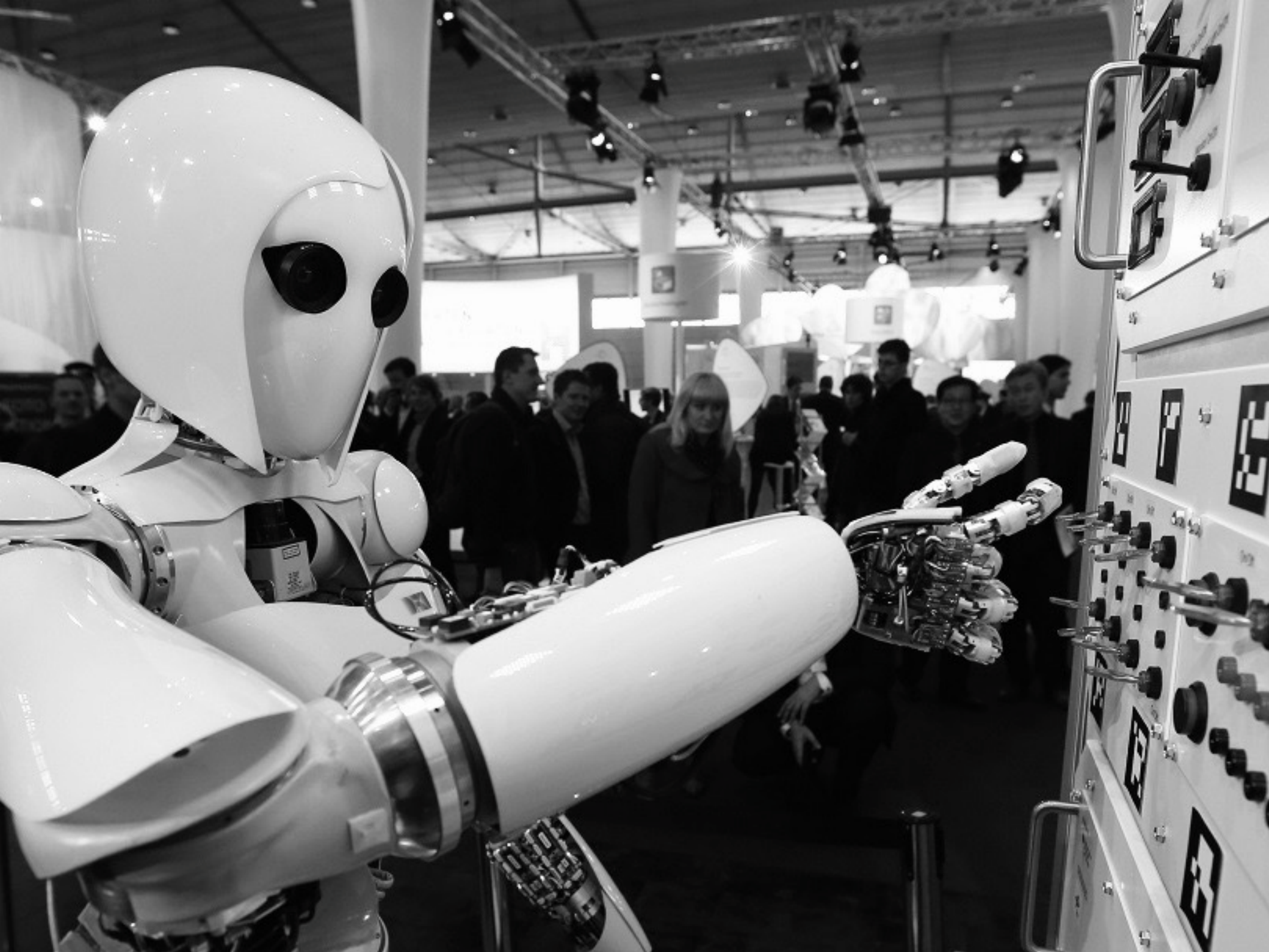
Introduction

GERMANY













DIGITAL CRISIS



DIGITAL PROBLEMS

GERMANY

Germany and digitalization: Why can't Europe's richest country get up to speed?

Digitalisation in Germany: an overview and what lies behind the delays

How Germany plans to catch up in tech

Where Europe's most powerful economy is falling behind

Germany has put digitalisation and sustainability as high priority on its G7 presidency agenda: Doris Dietze, Head of Division, German Federal Ministry of Finance

DIGITAL PROBLEMS

TECHNOLOGY | GERMANY

Why can't Europe's richest country go digital?

Janosch Delcker

07/16/2021

Chancellor Angela Merkel's digital adviser has called for far-reaching reforms to help catch up with the US, China and others, saying the division of power enshrined in the constitution is hampering much-needed progress.



Source: Deutsche Welle

DIGITAL PROBLEMS

Where Europe's most powerful economy is falling behind

By PAUL CARREL | Filed June 25, 2018, 10 a.m. GMT

MASSEN-NIEDERLAUSITZ, Germany - Until March of this year, goods arriving at family engineering firm Zemmler Siebanlagen in eastern Germany generated piles of paperwork and hours of manual cross checks. These days, stockman Ronny Mucha records deliveries on a specially designed tablet application that immediately updates other departments. It takes a fraction of the time.

The firm's founder, Heiko Zemmler, credits a government-backed scheme with "taking us through a psychological barrier" about digital technology. The inventory application is just a beginning, hopes Zemmler. One day he wants his welders and assembly line workers to be able to access design plans and lists of parts on a shared platform.

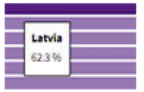
That's all common enough in modern factories from California to South Korea. But there's a problem. Zemmler needs high-speed internet capable of carrying large quantities of data to make the switch. "Broadband has come to many people, but unfortunately not to us," he said at his plant in the Brandenburg region, not far from the Polish border.

Europe's most powerful economy, at the forefront of industrial innovation for

RELATED CONTENT



Graphic: Jobs at risk from new technologies



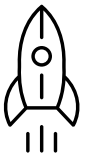
Graphic: The rise of fibre



Video: Germany's digital deficit

Source: Reuters

DIGITAL PROBLEMS



Reluctant tech. sector initiatives/startups



Inadequate digital government & administration infrastructure



Compromised cybersecurity



Dependency on foreign countries for hardware



Lack of digital resources in rural areas



Shortage of digital facilities in education

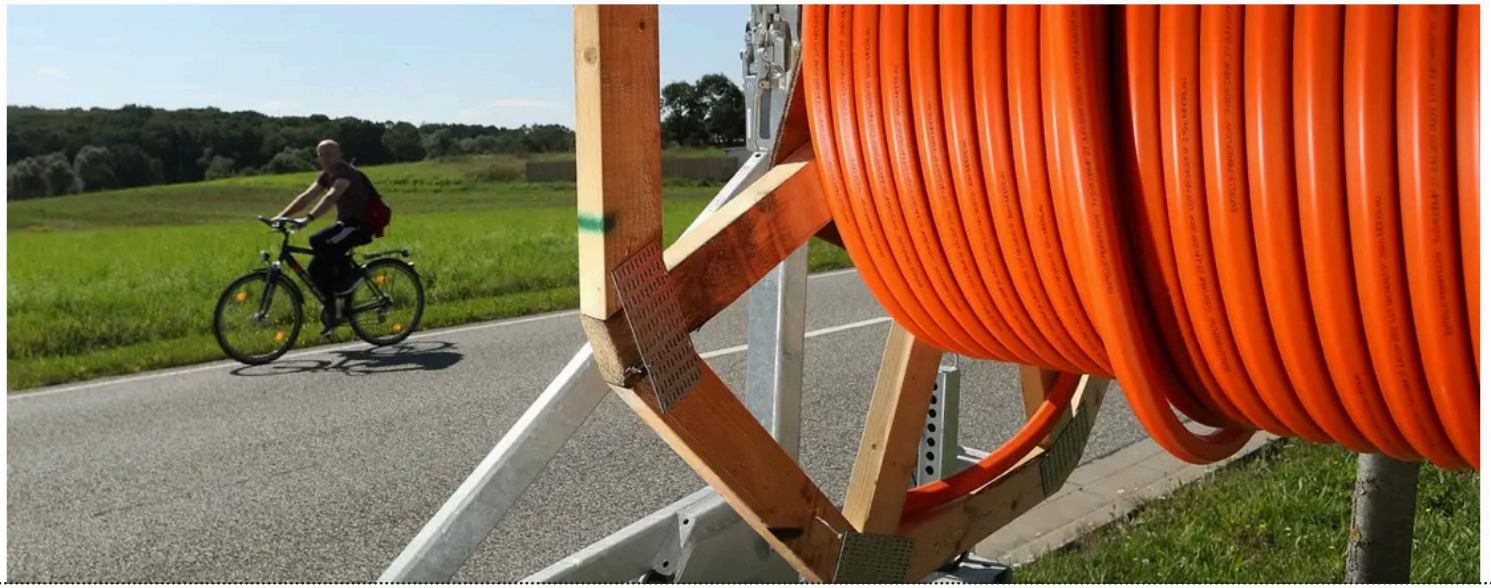
DIGITAL PROBLEMS

POLITICS | **GERMANY**

How Germany plans to catch up in tech

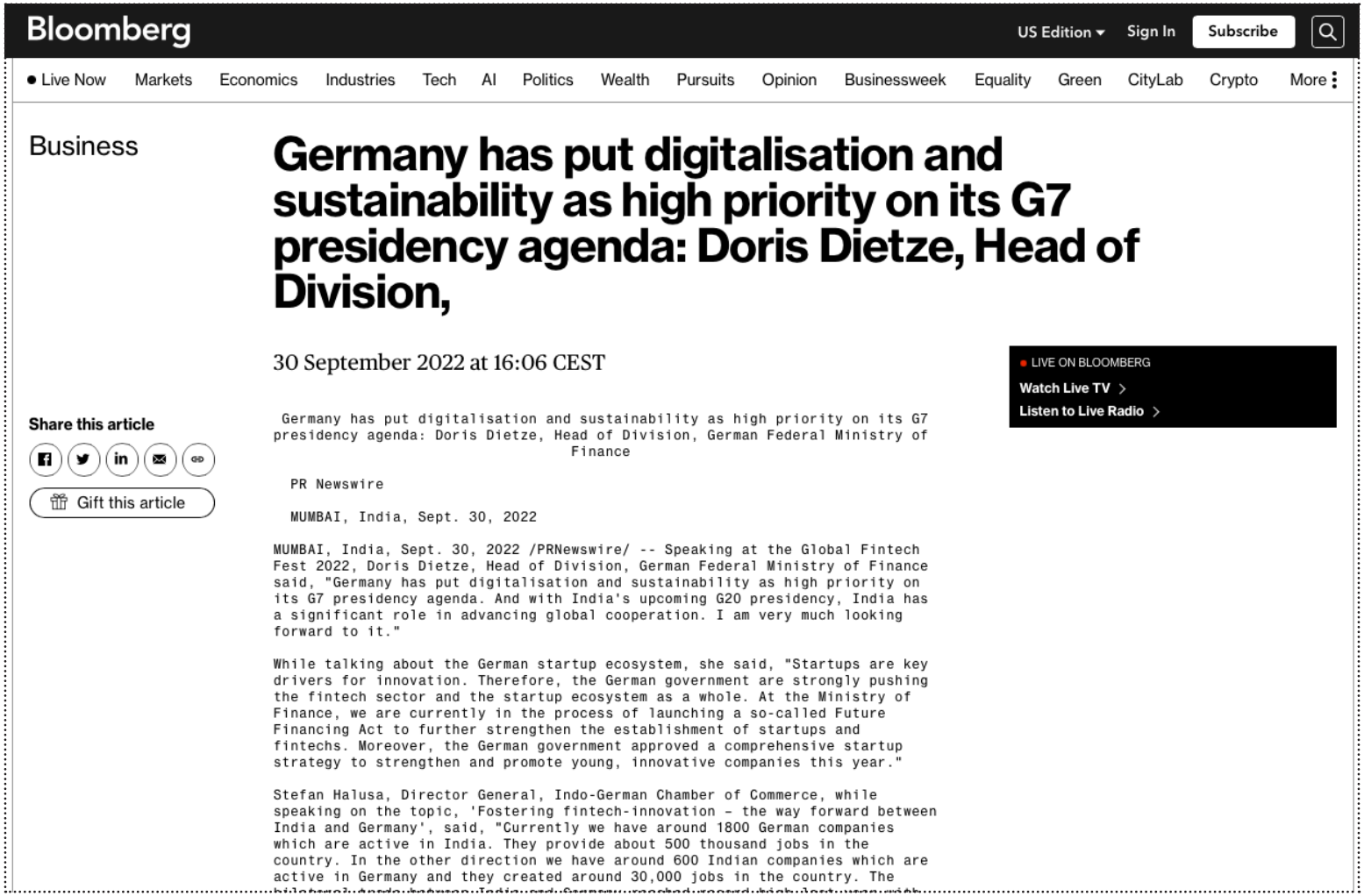
Janosch Delcker
08/31/2022

Europe's largest economy, Germany is falling behind in technology — and the country's leaders know it. Here's how they want to turn things around in the coming three years with their new "digital strategy."



Source: Deutsche Welle

DIGITAL PROBLEMS



Bloomberg

US Edition ▾ Sign In Subscribe

● Live Now Markets Economics Industries Tech AI Politics Wealth Pursuits Opinion Businessweek Equality Green CityLab Crypto More

Business

Germany has put digitalisation and sustainability as high priority on its G7 presidency agenda: Doris Dietze, Head of Division,

30 September 2022 at 16:06 CEST

● LIVE ON BLOOMBERG
Watch Live TV >
Listen to Live Radio >

Share this article

Gift this article

Germany has put digitalisation and sustainability as high priority on its G7 presidency agenda: Doris Dietze, Head of Division, German Federal Ministry of Finance

PR Newswire

MUMBAI, India, Sept. 30, 2022

MUMBAI, India, Sept. 30, 2022 /PRNewswire/ -- Speaking at the Global Fintech Fest 2022, Doris Dietze, Head of Division, German Federal Ministry of Finance said, "Germany has put digitalisation and sustainability as high priority on its G7 presidency agenda. And with India's upcoming G20 presidency, India has a significant role in advancing global cooperation. I am very much looking forward to it."

While talking about the German startup ecosystem, she said, "Startups are key drivers for innovation. Therefore, the German government are strongly pushing the fintech sector and the startup ecosystem as a whole. At the Ministry of Finance, we are currently in the process of launching a so-called Future Financing Act to further strengthen the establishment of startups and fintechs. Moreover, the German government approved a comprehensive startup strategy to strengthen and promote young, innovative companies this year."

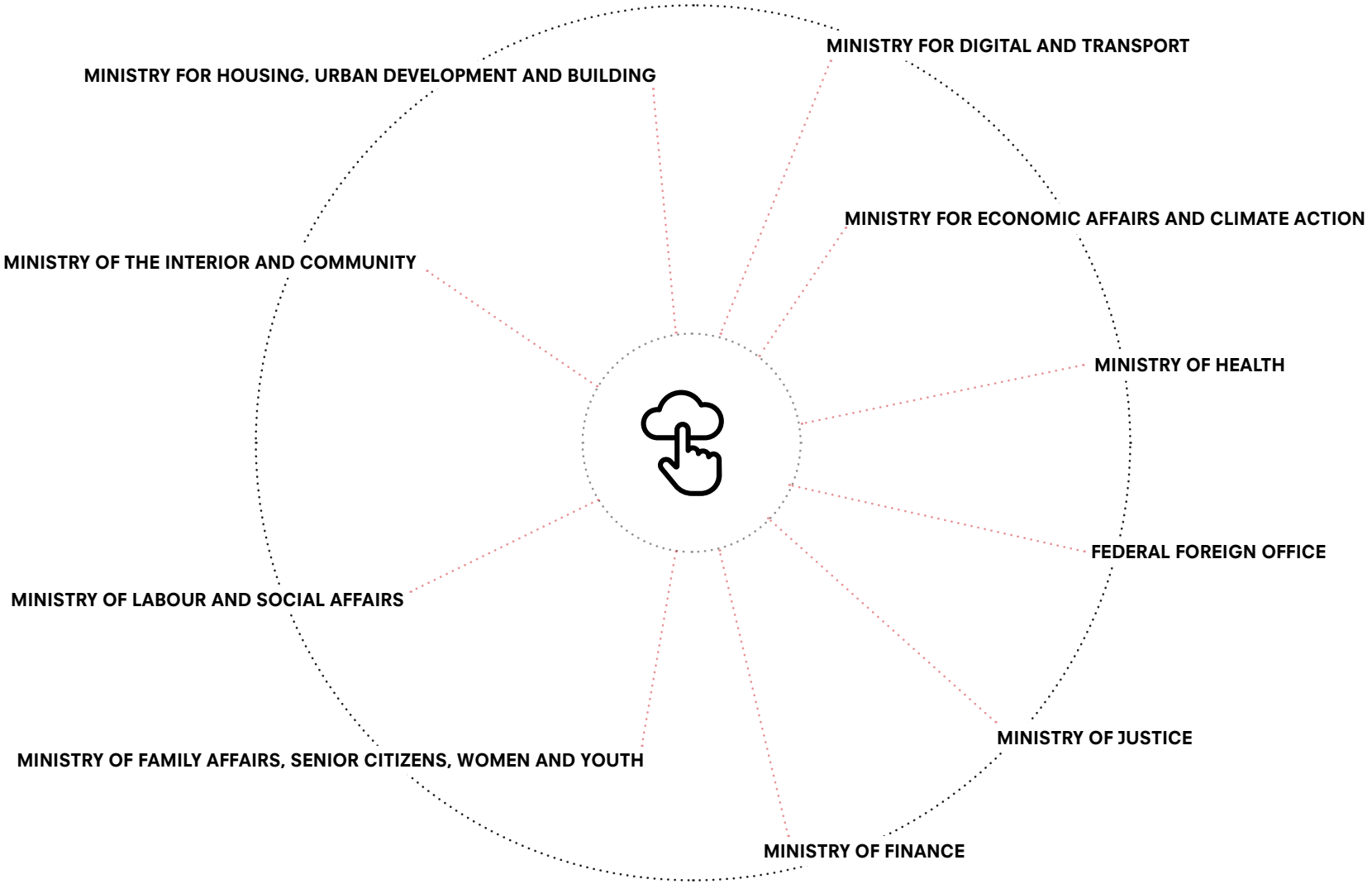
Stefan Halusa, Director General, Indo-German Chamber of Commerce, while speaking on the topic, 'Fostering fintech-innovation – the way forward between India and Germany', said, "Currently we have around 1800 German companies which are active in India. They provide about 500 thousand jobs in the country. In the other direction we have around 600 Indian companies which are active in Germany and they created around 30,000 jobs in the country. The

Source: Bloomberg

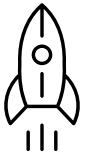
“COULD A DIGITAL AFFAIRS MINISTRY BE THE SOLUTION?”

- DEUTSCHE WELLE, 2021

GOVERNMENTAL TECHNOLOGY HUB



DIGITAL SOLUTIONS



FINANCE TECH. SECTOR INITIATIVES/STARTUPS



DIGITIZE GOVERNMENT & CITIZEN DATA



ASSIST CYBER TERRORISM DEFENCE



FACILITATE THE DIGITAL ECONOMY



INCREASE DIGITAL LITERACY

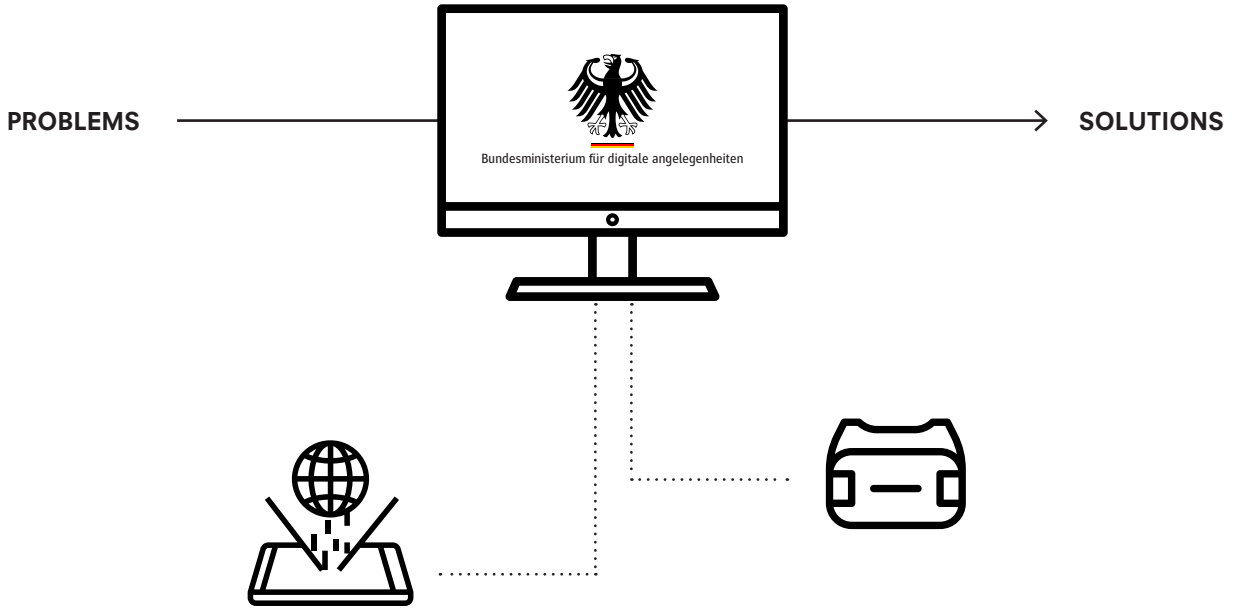


INCREASE NATIONAL ACCESS TO ONLINE RESOURCES

DIGITAL SOLUTIONS



DIGITAL SOLUTIONS



PROJECT AMBITIONS



Bundesministerium für digitale angelegenheiten

DIGITAL SOLUTIONS



INSTEAD OF...



MONUMENTS TO TRADITION

(FEDERAL MINISTRY OF FINANCE)

INSTEAD OF...



CLOSED-OFF INSTITUTIONS

(FEDERAL MINISTRY OF THE INTERIOR)

ARCHITECTURAL AMBITIONS



SYMBOL OF INNOVATION



INVITES COLLABORATION



PROJECTS IT OUTWARDS

RESEARCH AIM

DIGITAL ENGAGEMENT IN ALL FACETS OF THE BUILDING


DIGITAL ENGAGEMENT IN ALL
FACETS OF THE BUILDING

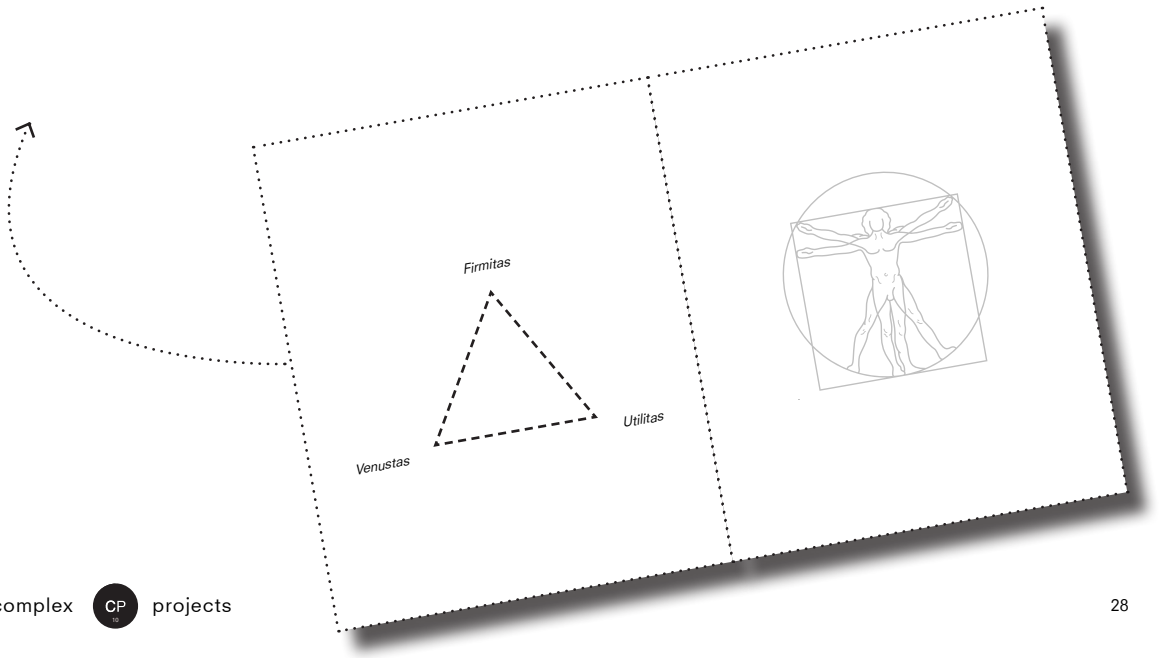
RESEARCH QUESTION

How can digitalisation be incorporated into the built environment?

RESEARCH QUESTION

How can digitalisation be incorporated into the built environment?

Expression *Program* *Digital Tools*



INTRODUCTION

RESEARCH

DESIGN BRIEF

DESIGN DEV.

IMPLEMENTATION

ADVANCING

INTRODUCTION

RESEARCH

DESIGN BRIEF

- *STAKEHOLDERS*
- *PROGRAM*
- *LOCATION*

DESIGN DEV.

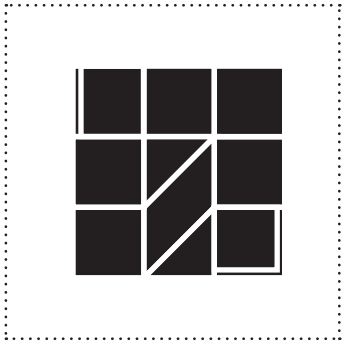
IMPLEMENTATION

ADVANCING

Design Brief

STAKEHOLDERS

FEDERAL OFFICE FOR BUILDING AND REGIONAL PLANNING



INITIATOR

MINISTRY OF DIGITAL AFFAIRS



USERS

GOVERNMENT OF BERLIN

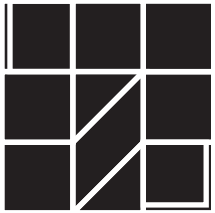


CITY

Design Brief

STAKEHOLDERS

FEDERAL OFFICE FOR BUILDING AND REGIONAL PLANNING



INITIATOR

MINISTRY OF DIGITAL AFFAIRS



USERS

GOVERNMENT OF BERLIN



CITY

THE FEDERAL GOVERNMENT

Design Brief

INITIATOR

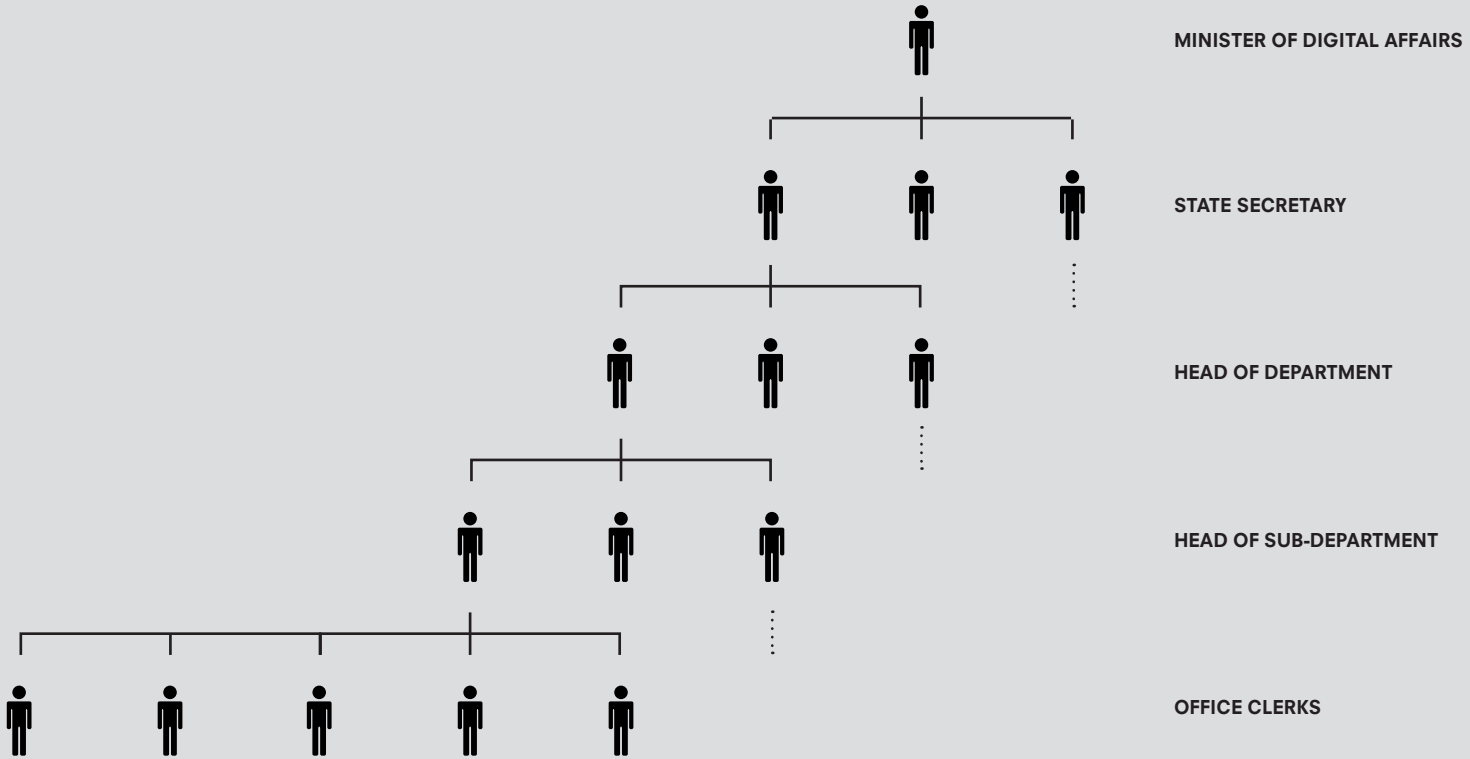
FEDERAL OFFICE FOR BUILDING AND REGIONAL PLANNING



+ 16 MINISTERS

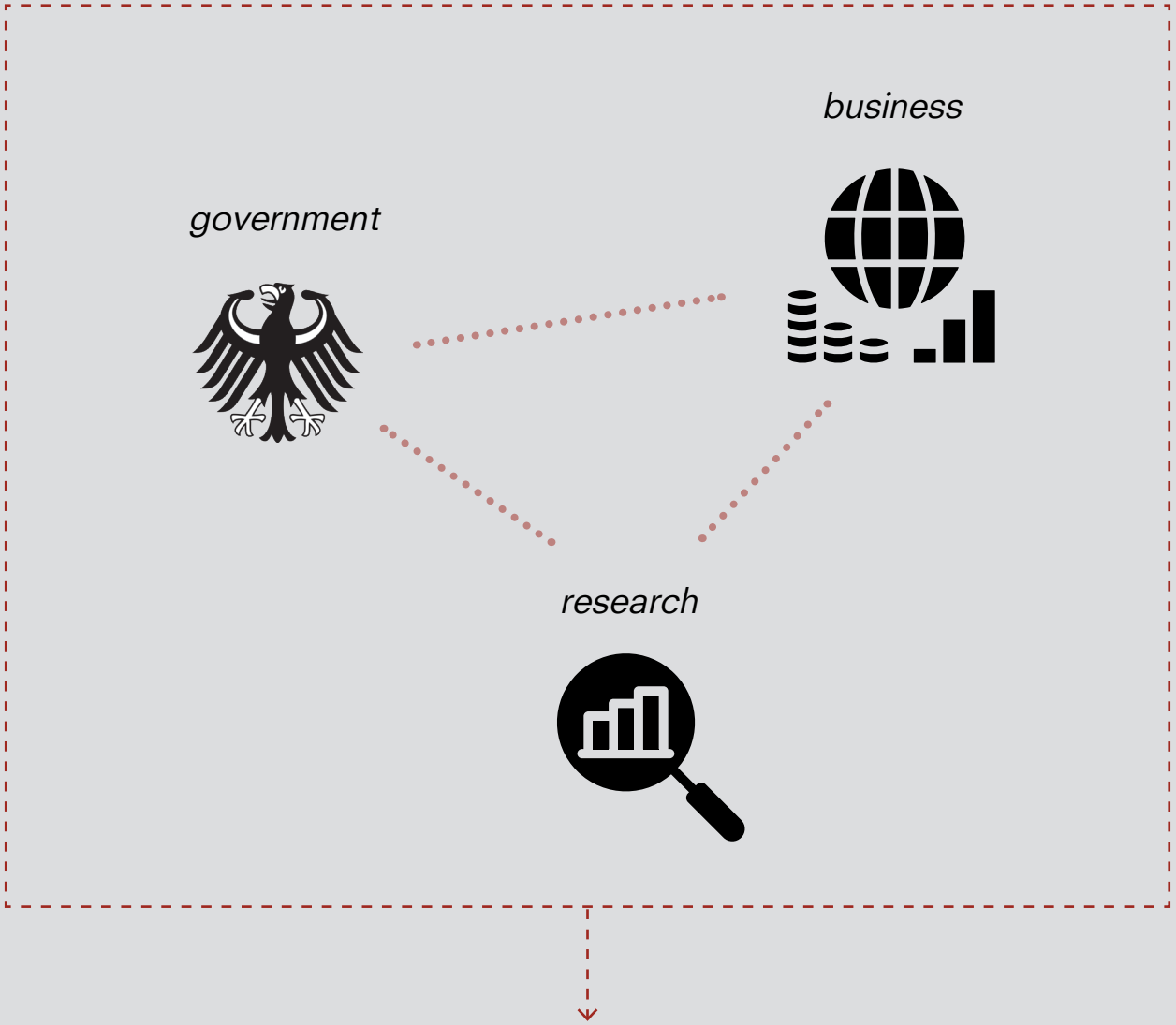
Design Brief

USERS



Design Brief

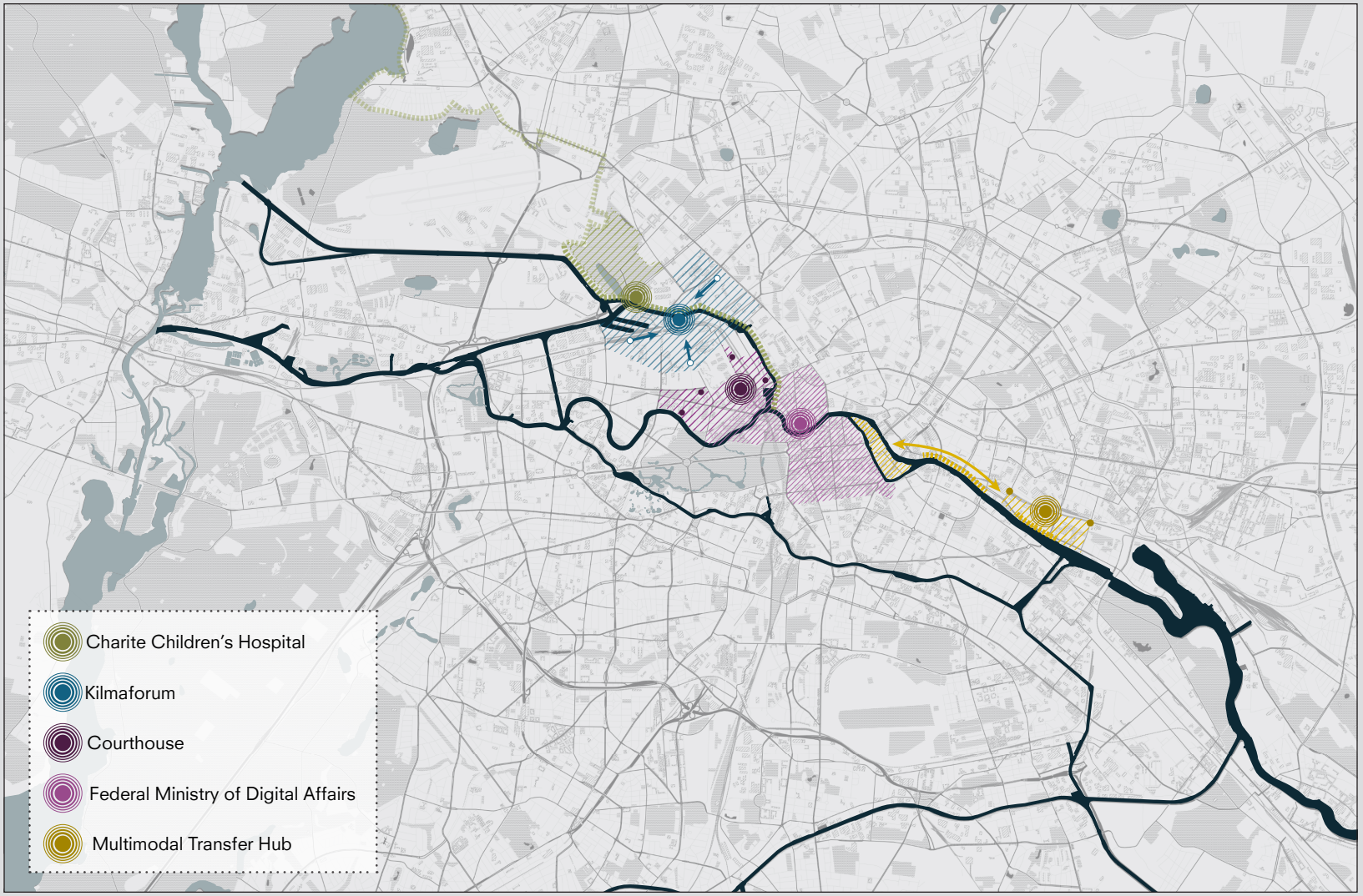
CITY

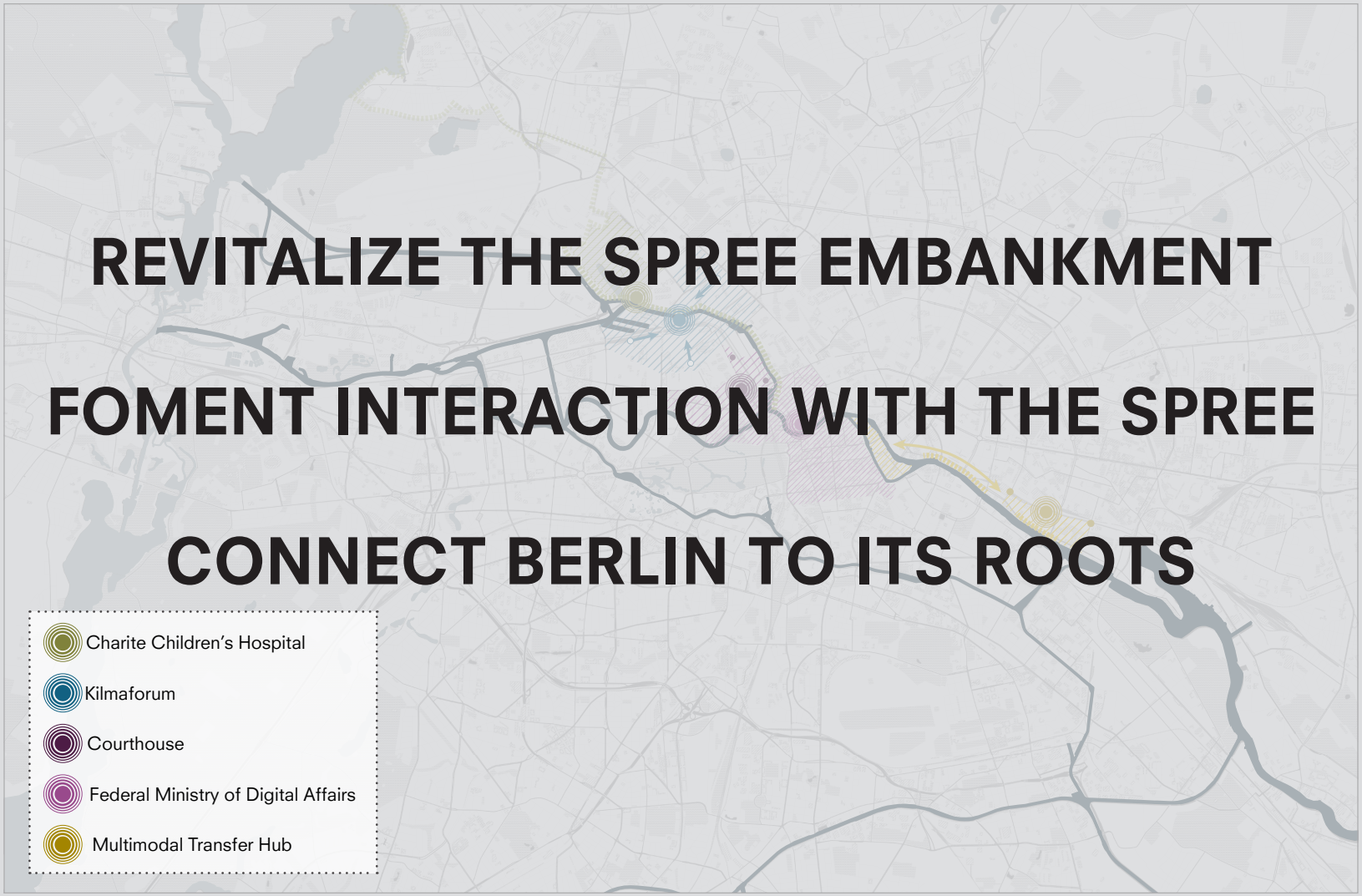


INNOVATION & STARTUPS

Design Brief

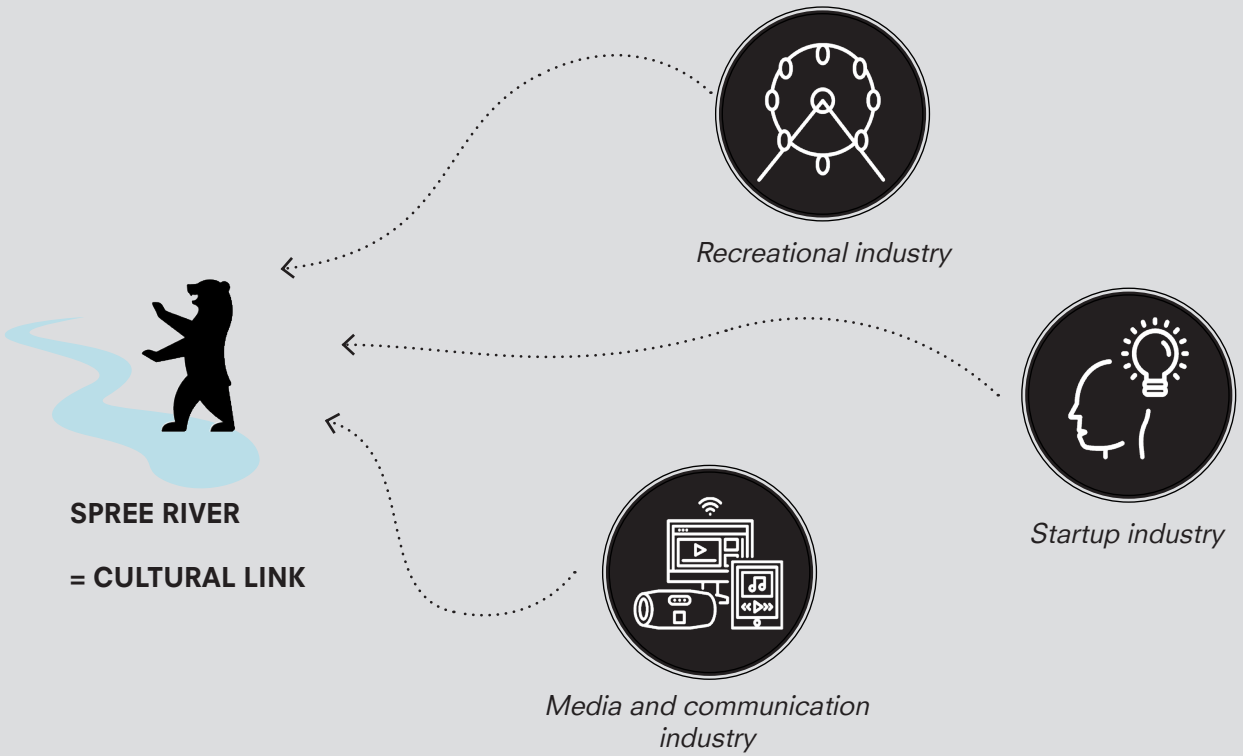
CITY




REVITALIZE THE SPREE EMBANKMENT
FOMENT INTERACTION WITH THE SPREE
CONNECT BERLIN TO ITS ROOTS
Charite Children's Hospital
Kilmaforum
Courthouse
Federal Ministry of Digital Affairs
Multimodal Transfer Hub

Design Brief

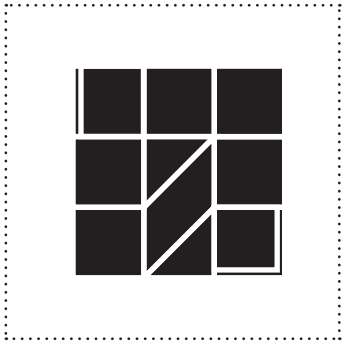
CITY



Design Brief

MINISTRY POPULATION

FEDERAL OFFICE FOR BUILDING AND REGIONAL PLANNING



INITIATOR

MINISTRY OF DIGITAL AFFAIRS



USERS

GOVERNMENT OF BERLIN



CITY

GUESTS



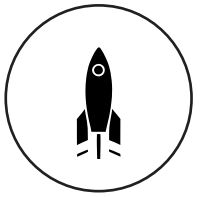
OFFICE WORKERS



VIPs



STARTUPS



HOW DO WE ACCOMMODATE THEM?

PROGRAM CASE STUDY OVERVIEW



Ministry of Finance
Den Haag, Netherlands



Ministry of Defence
Paris, France



Ministry of Development and Housing
Sevilla, Spain



Rijnstraat 8
Den Haag, Netherlands



Ministry of Education and Health
Rio de Janeiro, Brazil



Ministry of the Environment
Berlin, Germany



Ministry for Digital and Transport
Berlin, Germany



Ministry of the Interior and Community
Berlin, Germany

PROGRAM CASE STUDY OVERVIEW

RENOVATION



Ministry of Finance
Den Haag, Netherlands



Ministry of Defence
Paris, France



Ministry of Development and Housing
Sevilla, Spain

RENOVATION



Rijnstraat 8
Den Haag, Netherlands



Ministry of Education and Health
Rio de Janeiro, Brazil



Ministry of the Environment
Berlin, Germany

EXTENSION



Ministry for Digital and Transport
Berlin, Germany

NEW



Ministry of the Interior and Community
Berlin, Germany

PROGRAM CASE STUDY

RIJNSTRAAT 8, NL

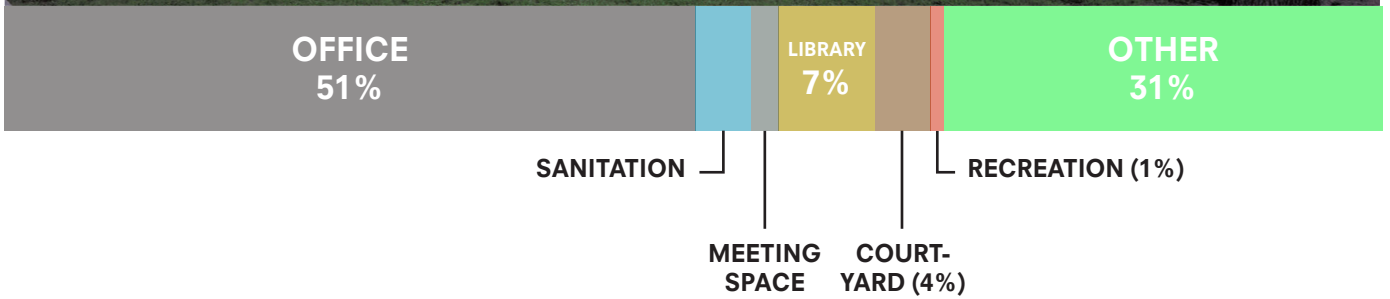




PROGRAM CASE STUDY

FEDERAL MINISTRY OF DIGITAL AND TRANSPORT, DE





PROGRAM CASE STUDY

FEDERAL MINISTRY OF THE INTERIOR, DE



PROGRAM CASE STUDY

MINISTRY OF FINANCE, NL

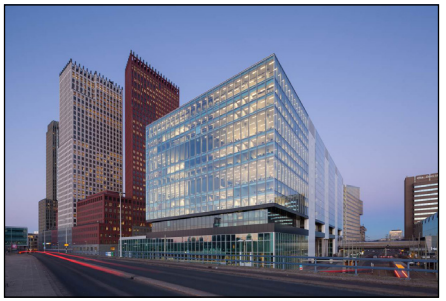




SLIDE TITLE



Ministry of Finance
Den Haag, Netherlands



Rijnstraat 8
Den Haag, Netherlands



Ministry for Digital and Transport
Berlin, Germany



Ministry of the Interior and Community
Berlin, Germany

Design Brief

OFFICE LAYOUT



Ministry of Finance
Den Haag, Netherlands



Rijnstraat 8
Den Haag, Netherlands



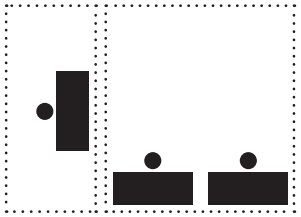
Ministry for Digital and Transport
Berlin, Germany



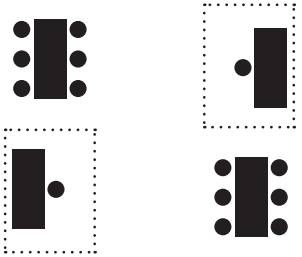
Ministry of the Interior and Community
Berlin, Germany

Design Brief

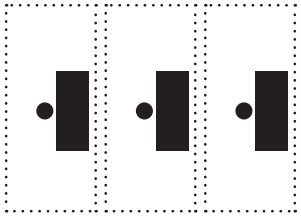
OFFICE TYPE



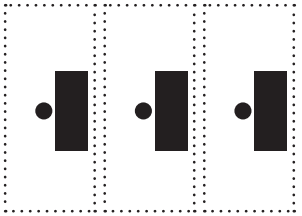
Ministry of Finance
Den Haag, Netherlands



Rijnstraat 8
Den Haag, Netherlands



Ministry for Digital and Transport
Berlin, Germany



Ministry of the Interior and Community
Berlin, Germany

Design Brief

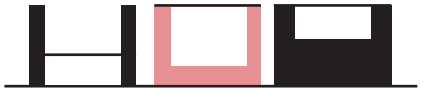
BUILDING ENTRY



Ministry of Finance
Den Haag, Netherlands



Rijnstraat 8
Den Haag, Netherlands



Ministry for Digital and Transport
Berlin, Germany



Ministry of the Interior and Community
Berlin, Germany

Design Brief

PROGRAM

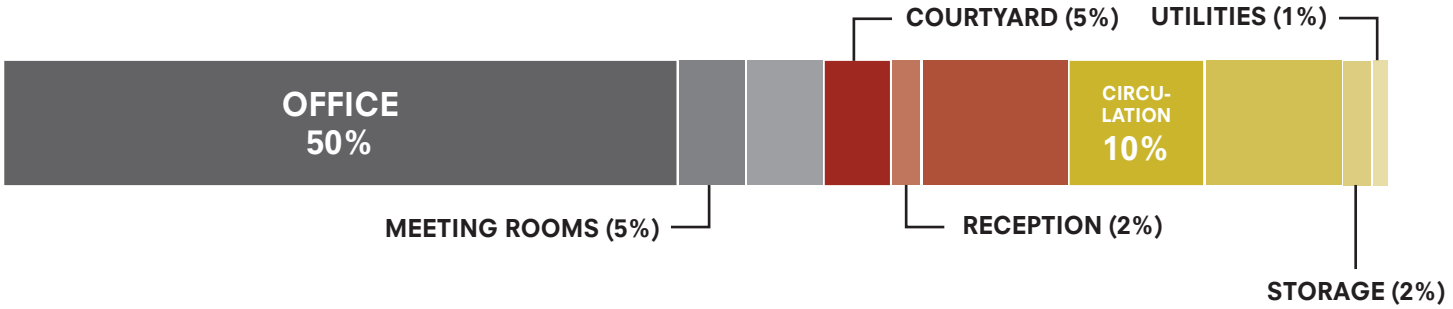
preliminary composition



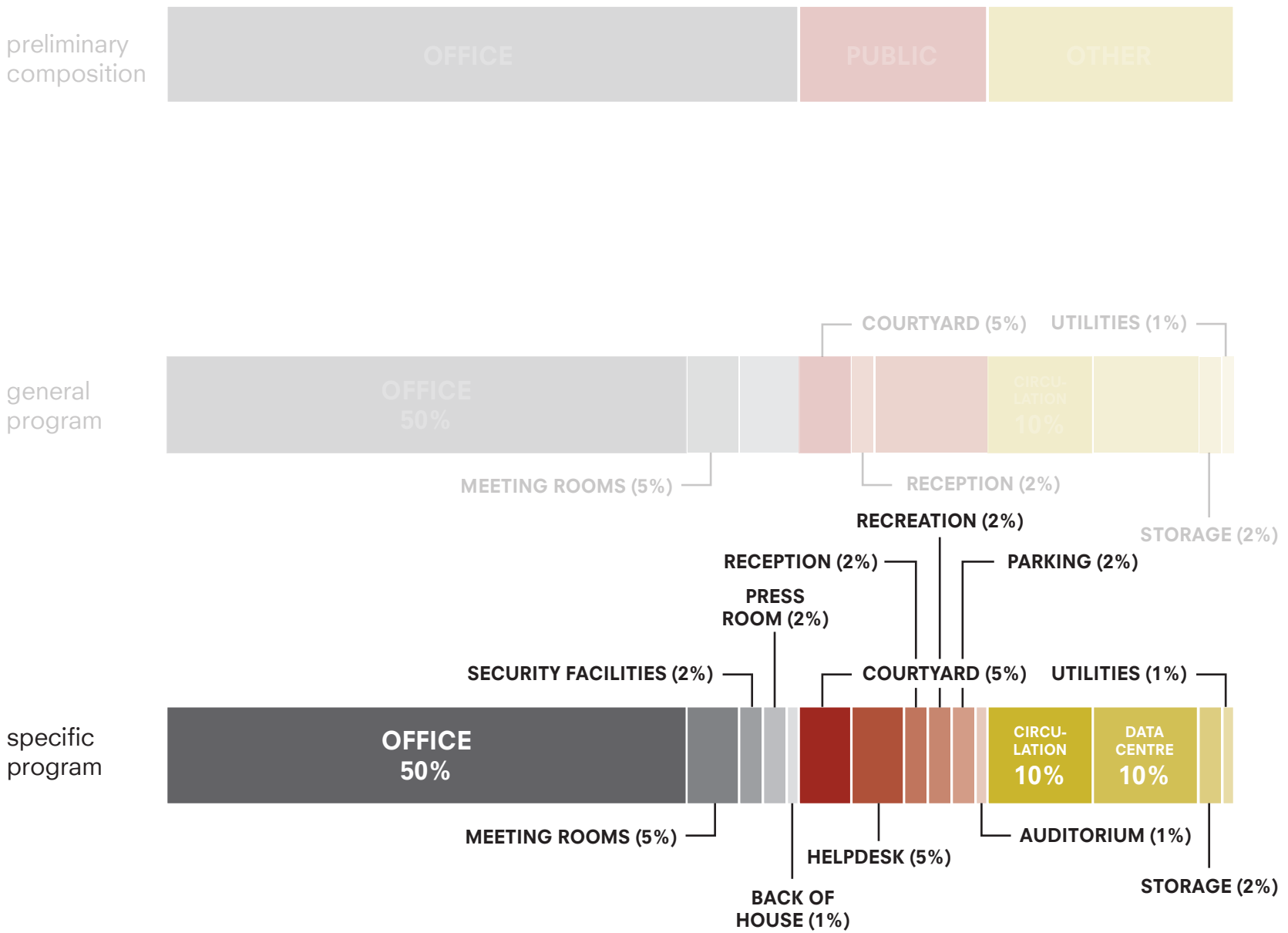
PROGRAM

preliminary composition

general program



PROGRAM

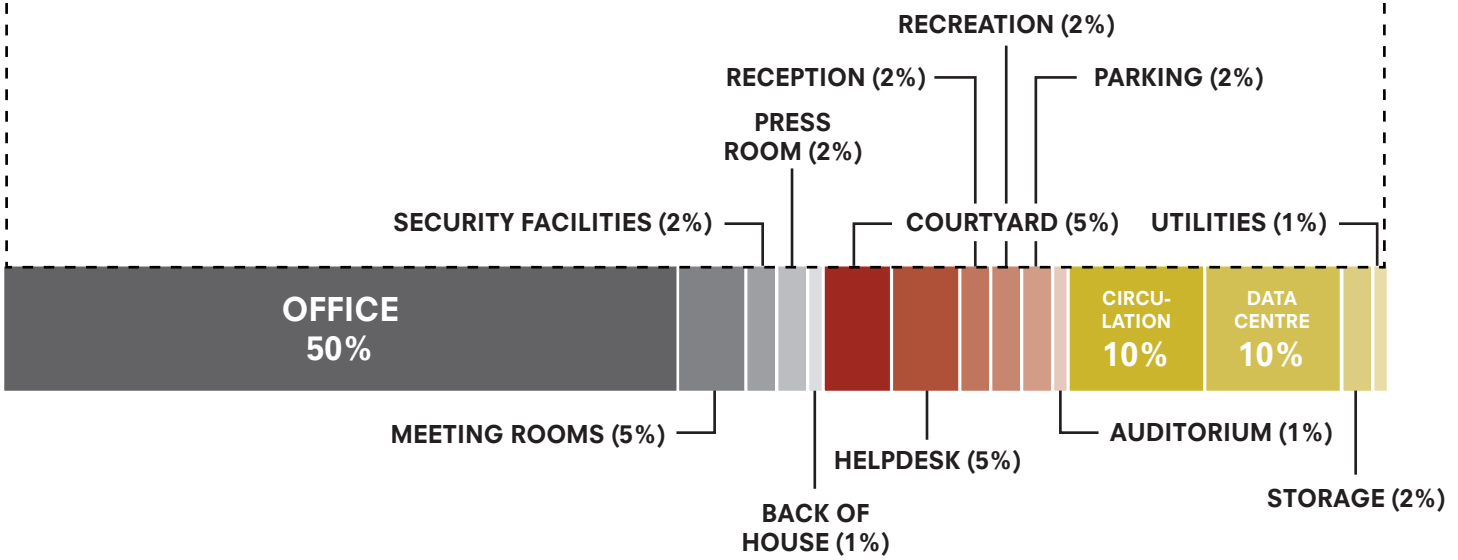

preliminary composition
OFFICE
PUBLIC
OTHER
general program
OFFICE 50%
CIRCU-LATION 10%
COURTYARD (5%)
UTILITIES (1%)
MEETING ROOMS (5%)
RECEPTION (2%)
STORAGE (2%)
specific program
OFFICE 50%
RECREATION (2%)
RECEPTION (2%)
PARKING (2%)
PRESS ROOM (2%)
SECURITY FACILITIES (2%)
COURTYARD (5%)
UTILITIES (1%)
CIRCU-LATION 10%
DATA CENTRE 10%
MEETING ROOMS (5%)
HELPDESK (5%)
AUDITORIUM (1%)
BACK OF HOUSE (1%)
STORAGE (2%)

Design Brief

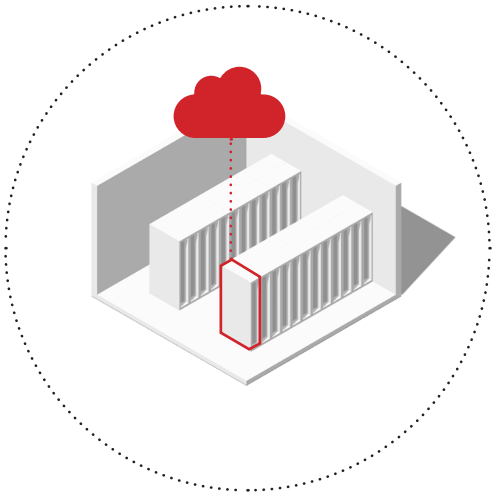
FINAL PROGRAM

Bundesministerium für digitale angelegenheiten

± 40,000 m²



ADDITIONAL PROGRAM



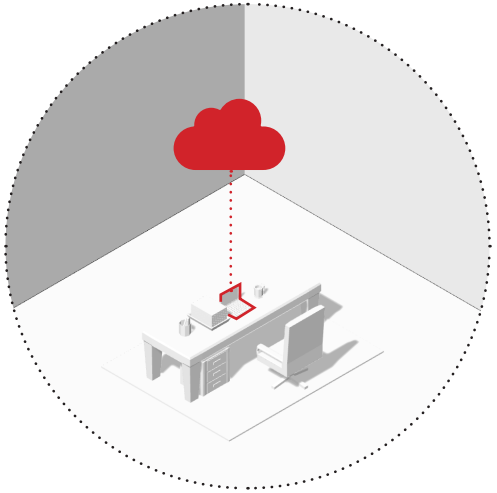
- **Federal cloud hub service**
- **For 42U standardised data racks**
- **Detached from public environment**

DATA CENTRE

10%

Design Brief

CRITICAL SPACES

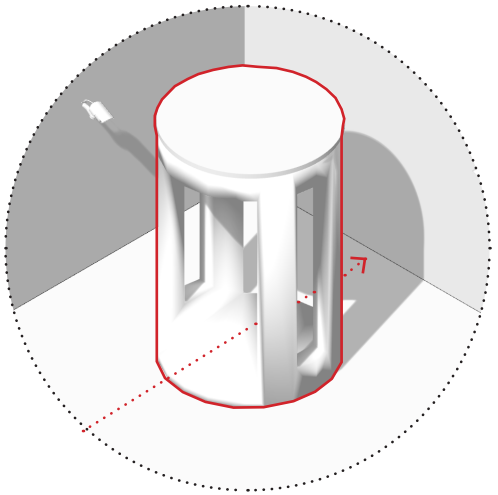


OFFICE

50%

- **approximately 15 m² per office cubicle**
- **flexible technology space**
- **flexworking accommodation**

CRITICAL SPACES

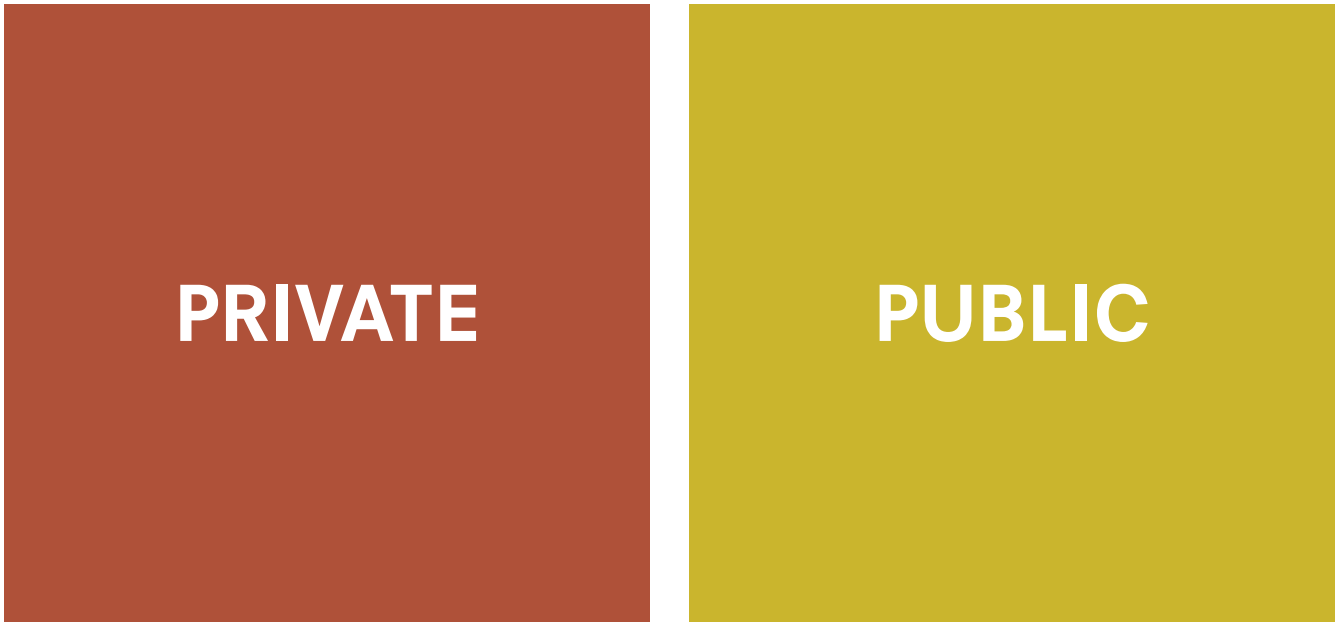


- **checkpoints for population filter**
- **flow control**
- **CCTV office**

SECURITY FACILITIES

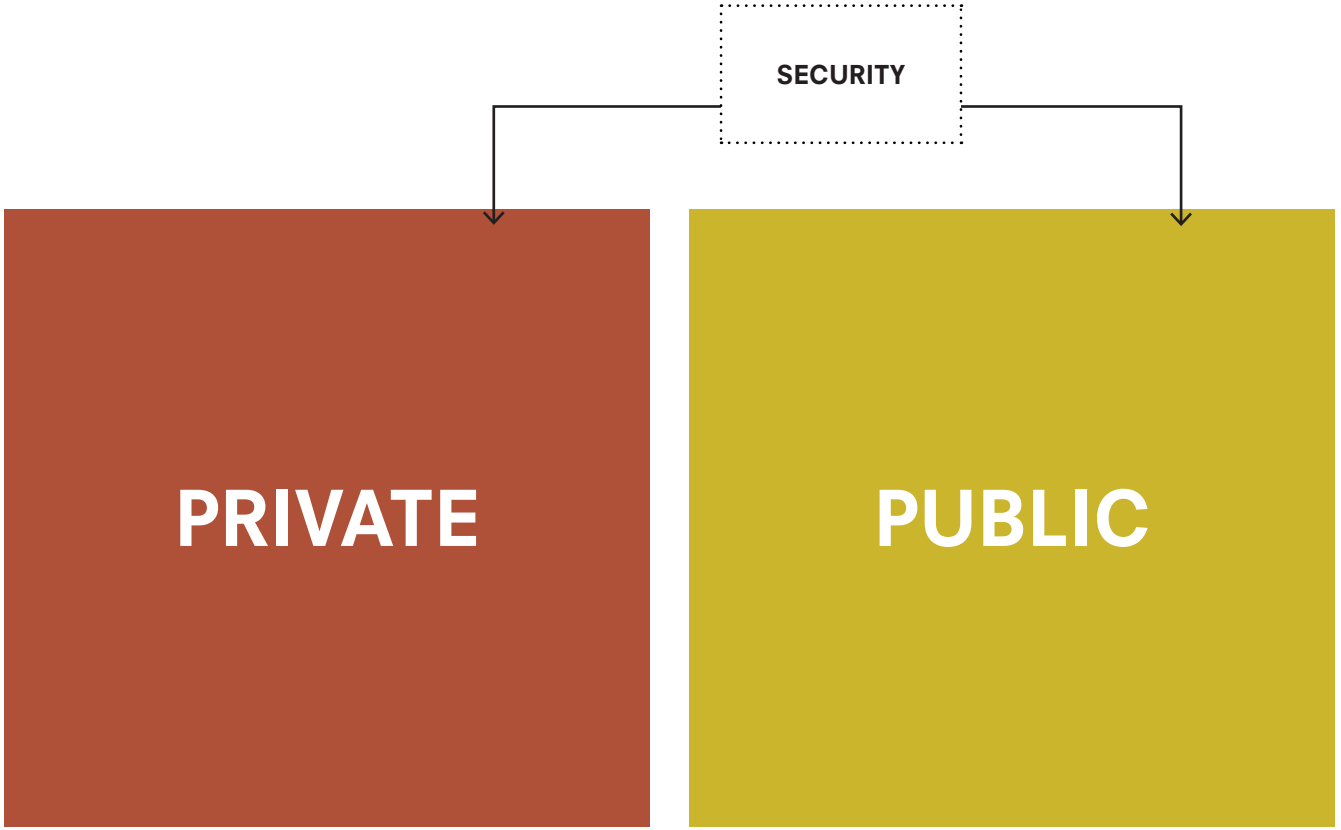
2%

PROGRAM FLOWS



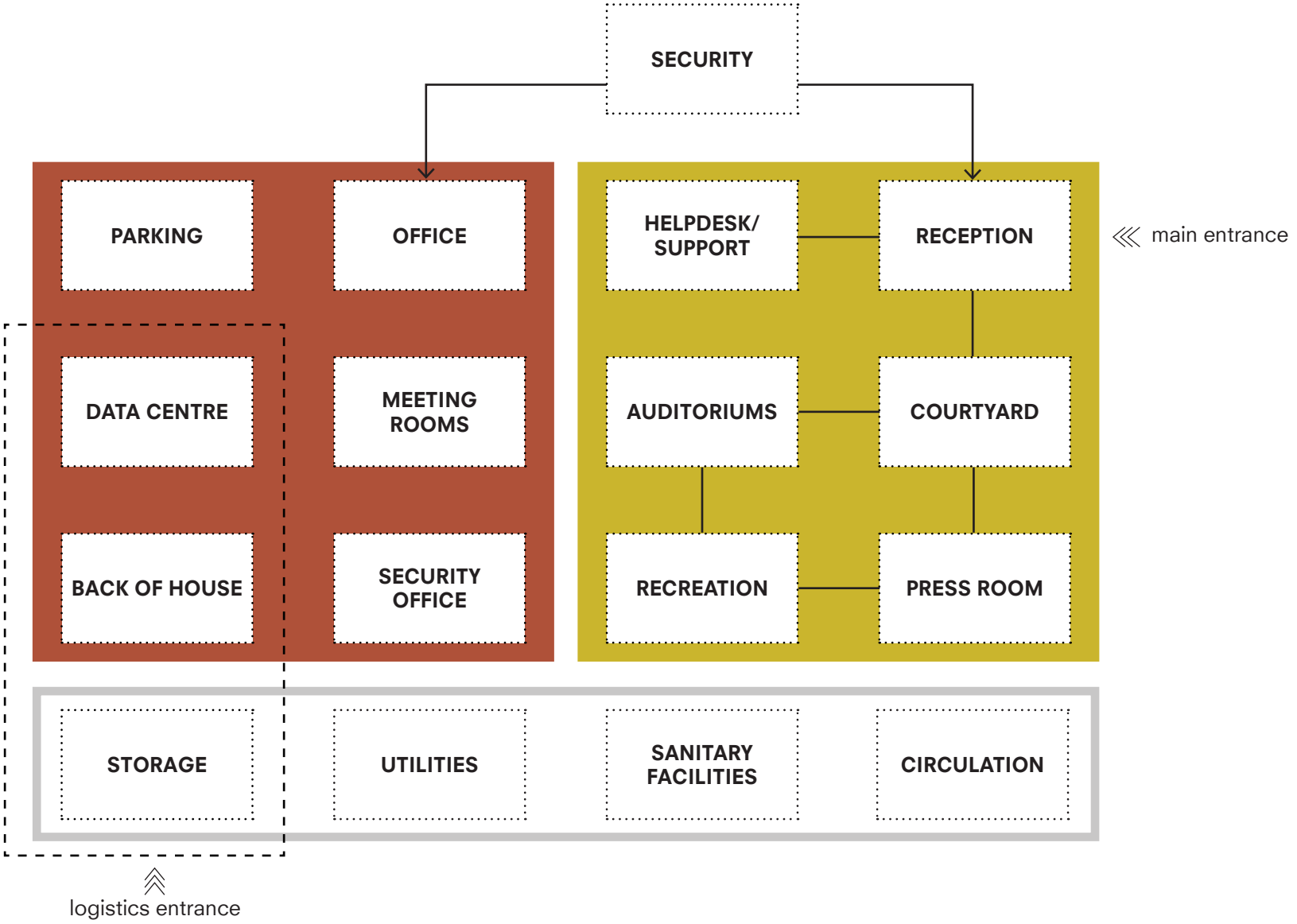
Design Brief

PROGRAM FLOWS



Design Brief

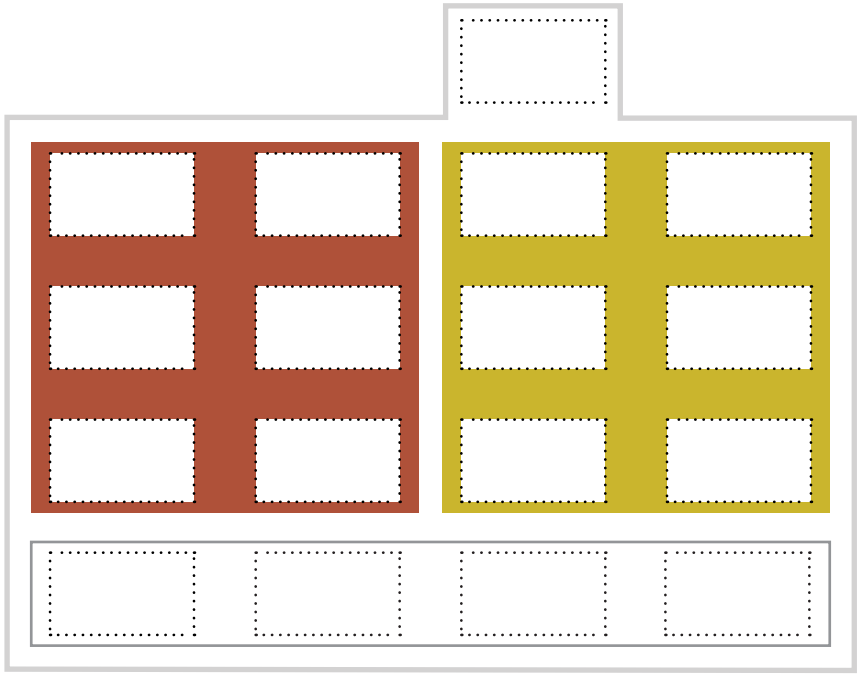
PROGRAM FLOWS



Design Brief

PROGRAM FLOWS

Innovation complex

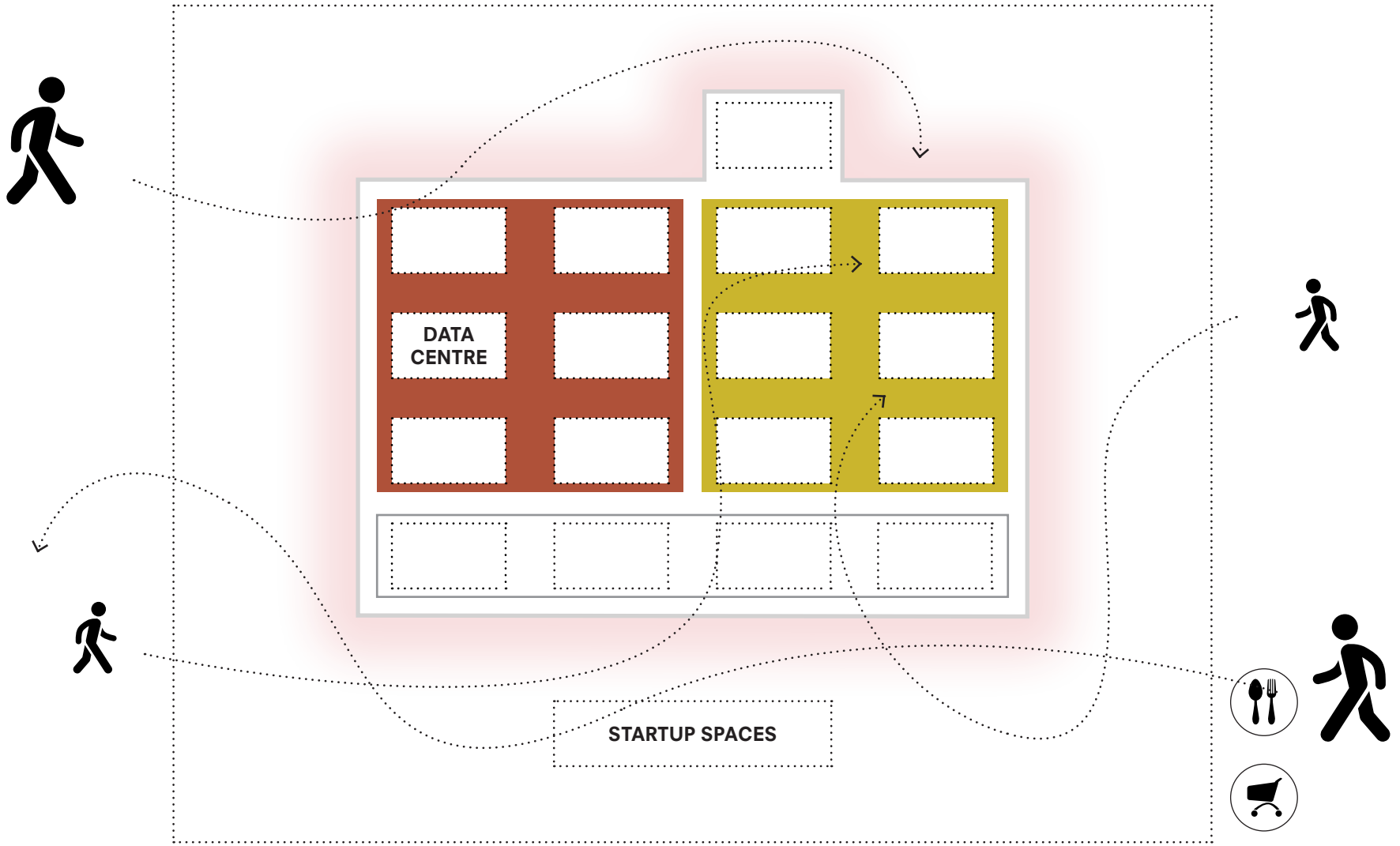


STARTUP SPACES

Design Brief

PROGRAM FLOWS

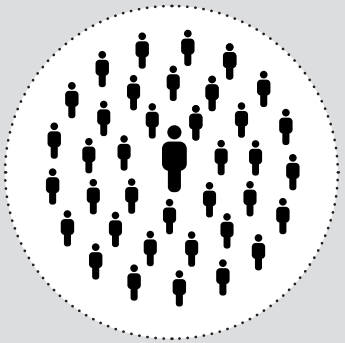
Innovation complex



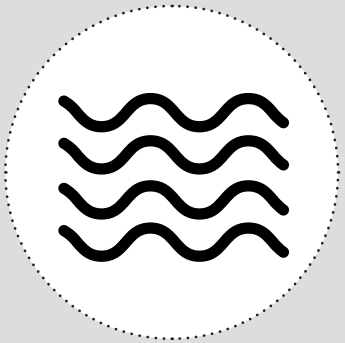
LOCATION REQUIREMENTS



DISTRICT WITH FSI > 1.5



DISTRICT WITH POP. DENSITY > 9,000 PPL/KM²



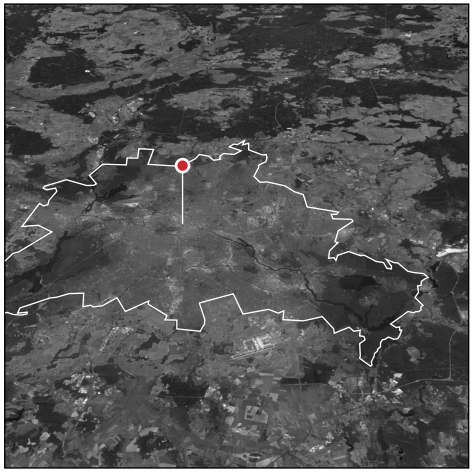
LOCATED ALONG THE SPREE RIVER



SCHIFFBAUERDAMM

LOCATION OVERVIEW

XL
BERLIN



L
BERLIN-MITTE



M
GOVERNMENT DISTRICT



S
SCHIFFBAUERDAMM

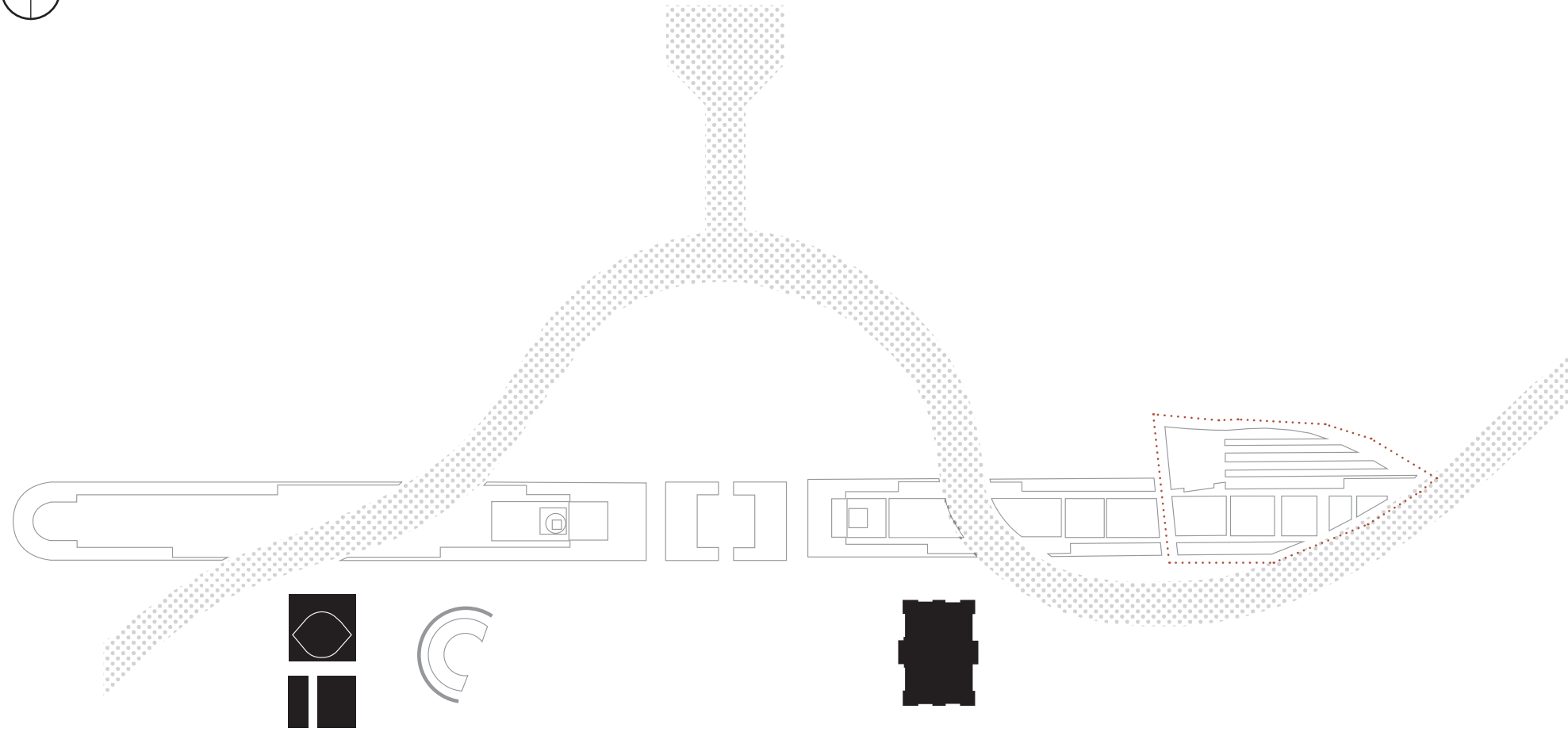


LOCATION OVERVIEW



Design Brief

LOCATION VISION



PARLIAMENT OF SHORT DISTANCES

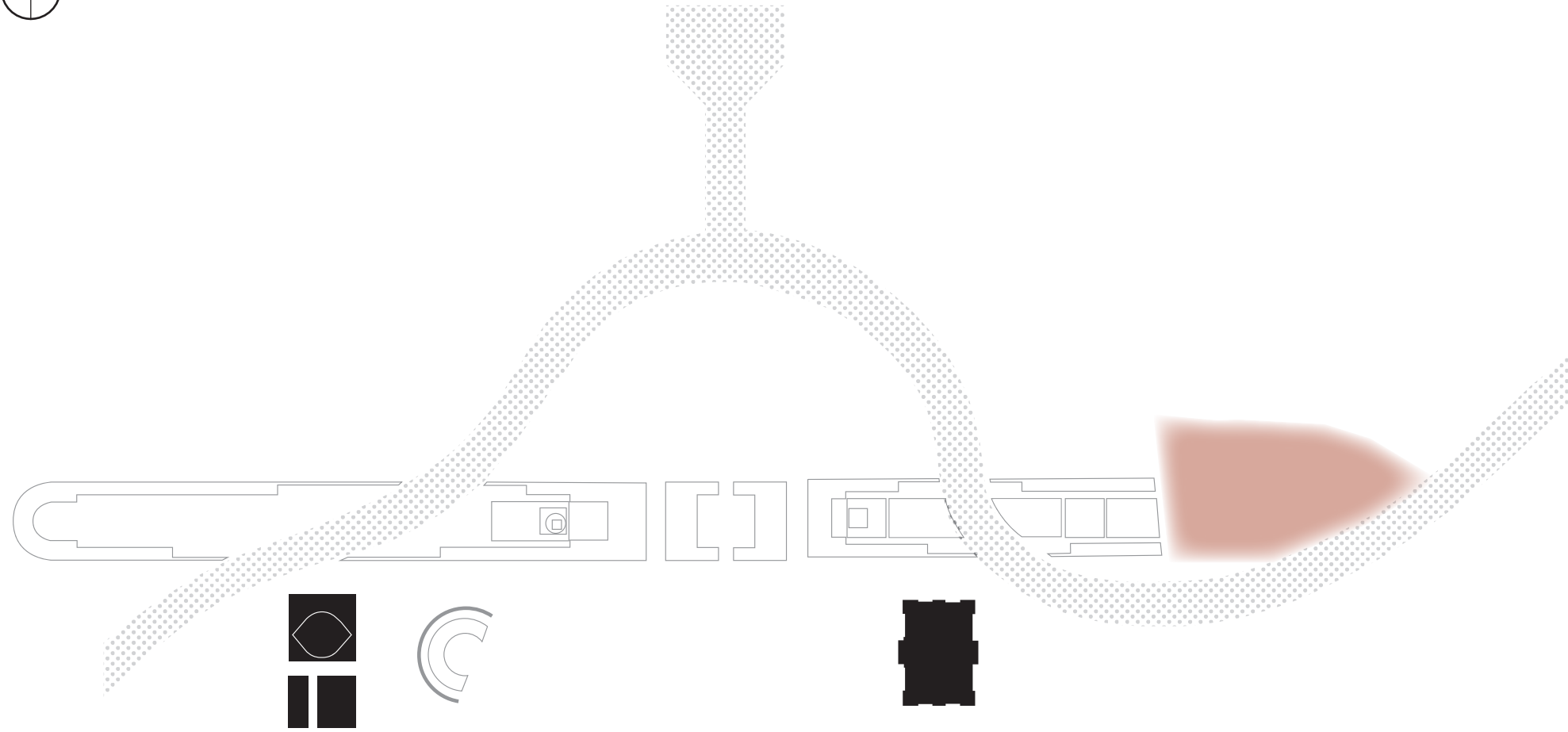
EFFICIENT FOOTPRINT

PRESERVED THE SPREEPARK

0 25 50 75 100

Design Brief

LOCATION VISION



NEXT STEP ALONG THE TIMELINE

PLUG-IN STATUS

MISSING PIECE OF THE PUZZLE

0 25 50 75 100

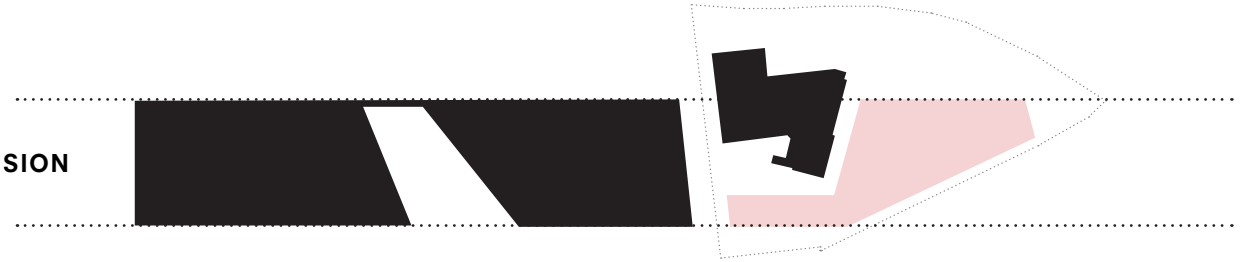
Design Brief

RESPONSE TO CONTEXT

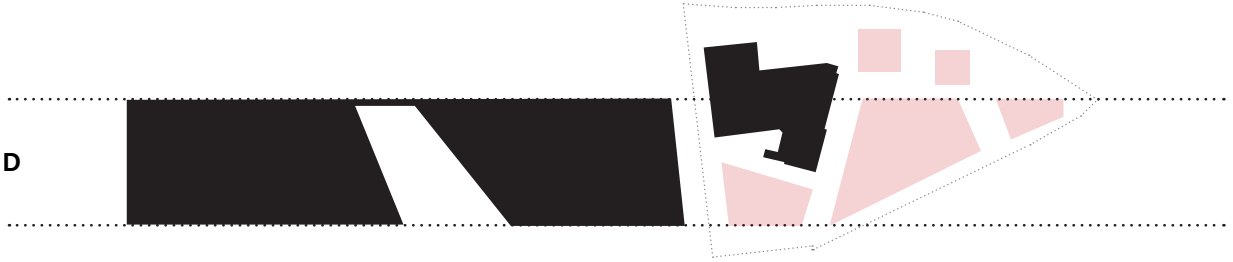
NEW URBAN LAYOUT



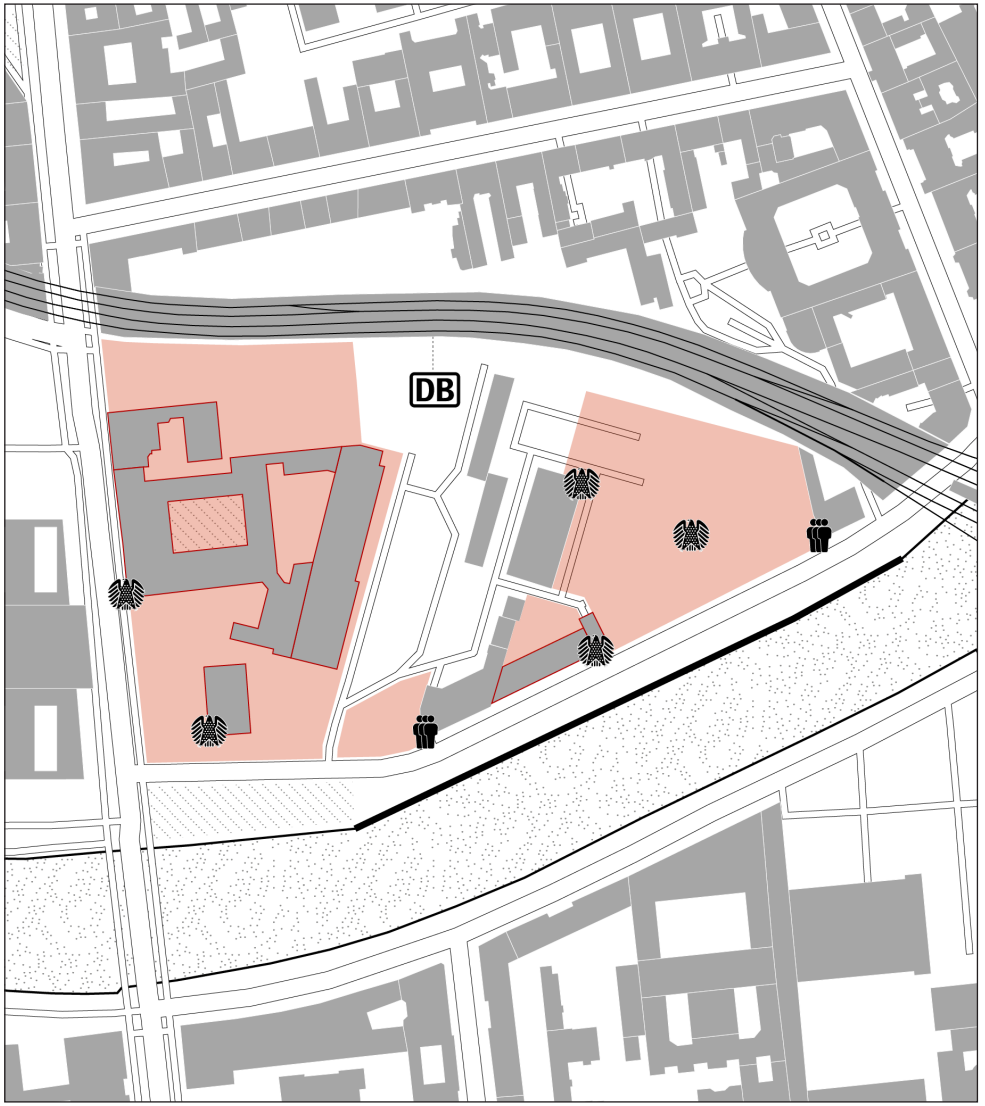
CONTINUATION OF VISION

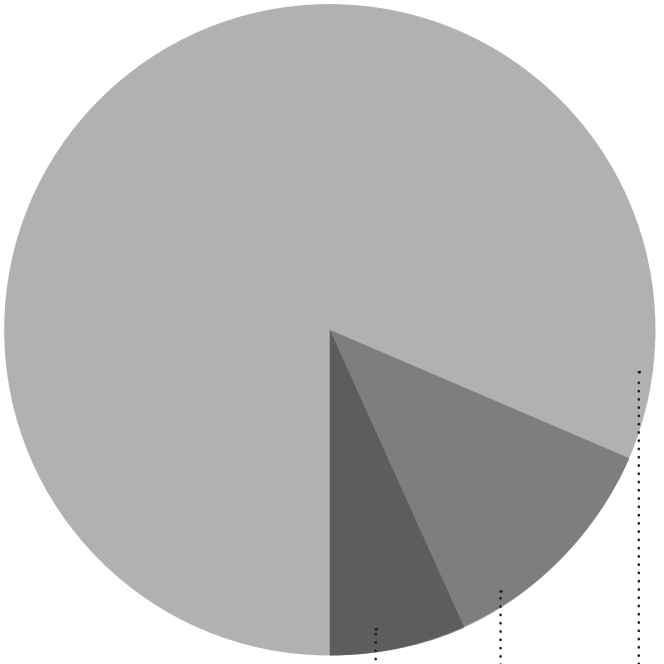


RESPECTFUL HYBRID



LOCATION SUMMARY





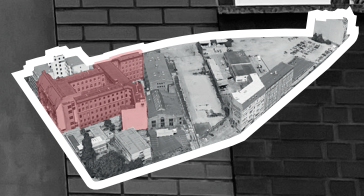
6.9%
Deutsche Bahn AG

11.7%
Privately Owned

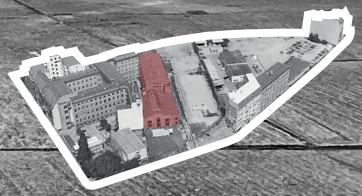
81.3%
Federal Government


30

FORMER IMPERIAL PATENT OFFICE



FORMER B.E.W.A.G. BOILER




P
Sport-
fahrzeuge





INTRODUCTION

RESEARCH

DESIGN BRIEF

DESIGN DEV.

IMPLEMETATION

CONCLUSION

Design Brief

DESIGN FOCUS

Waterfront Development



Reuse of site elements

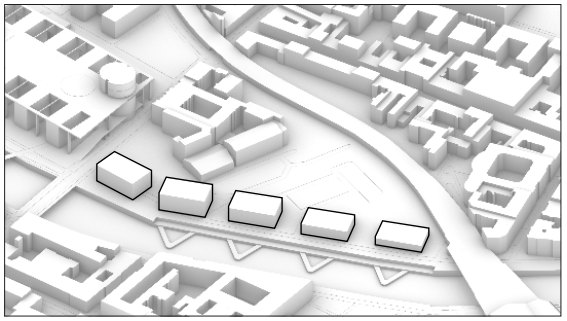
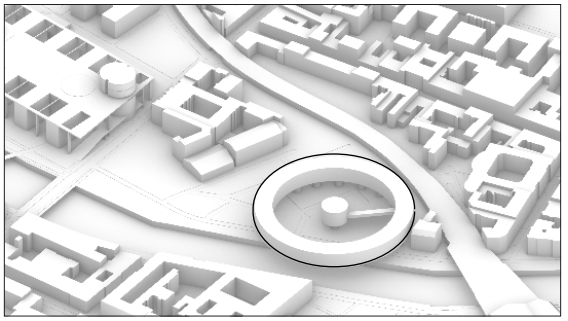
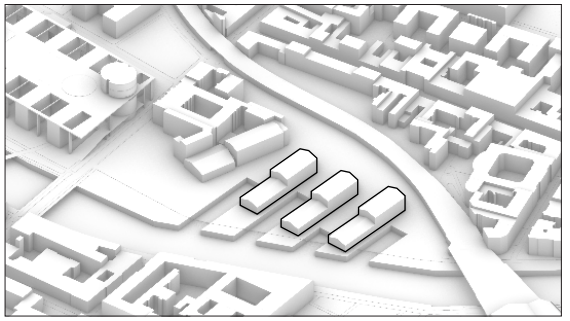
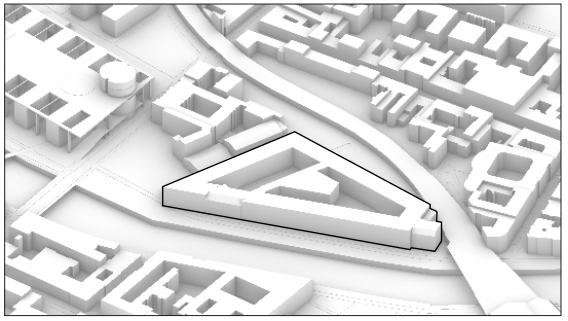
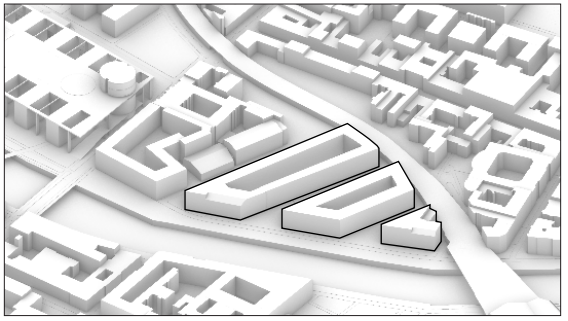
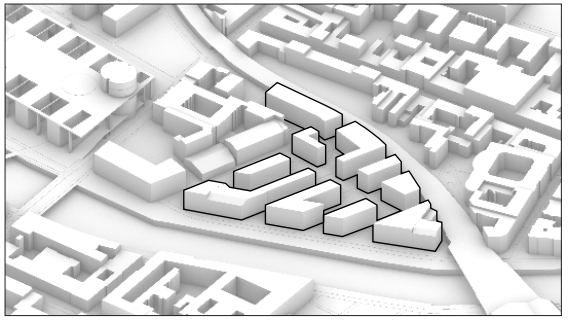
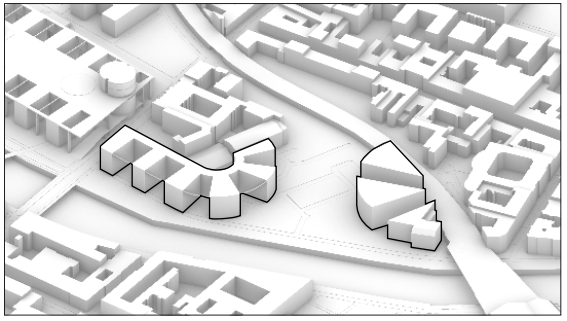
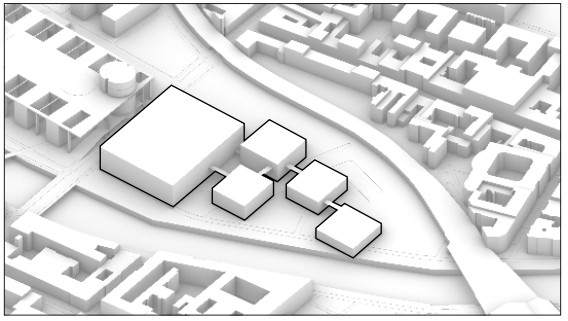
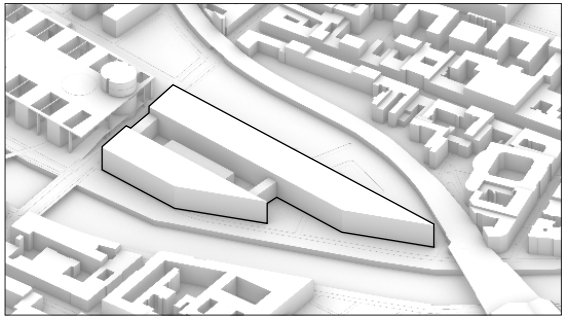


Evolve the Federal Ribbon



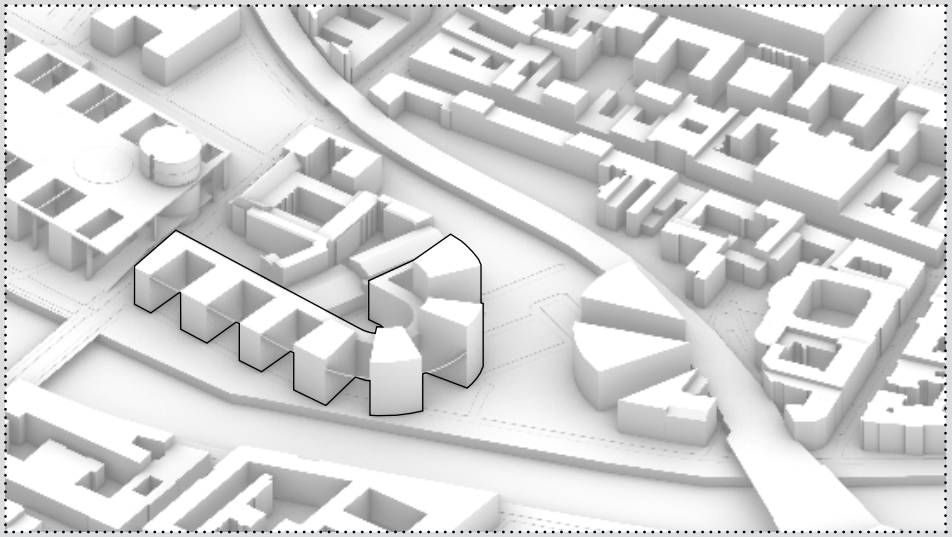
Design Development

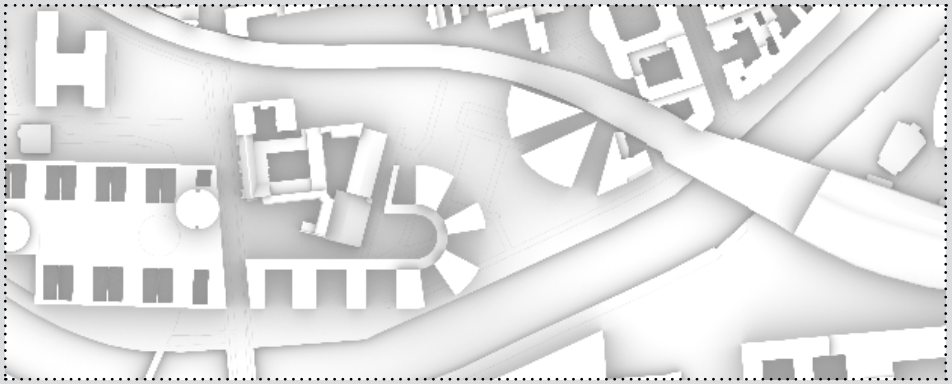
MASSING STUDIES

Design Development

DESIGN CONCEPT 1



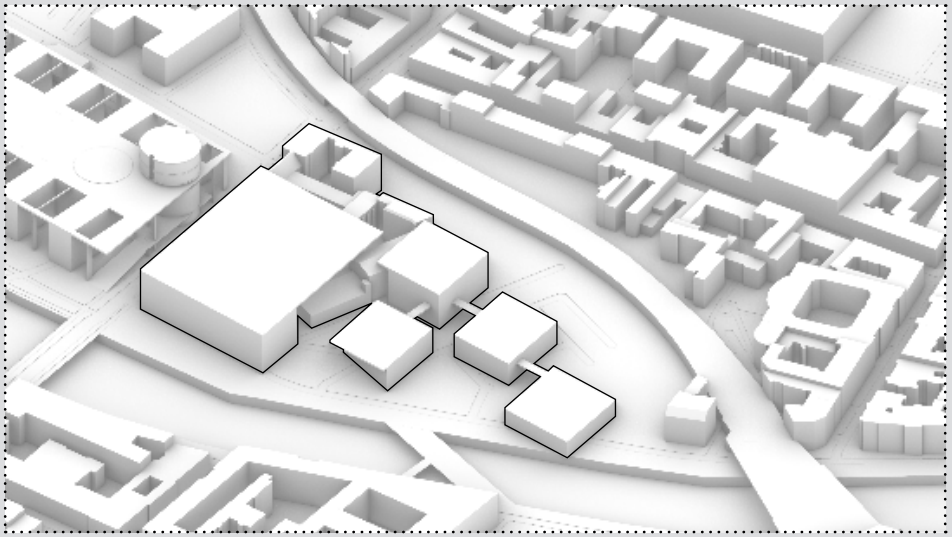


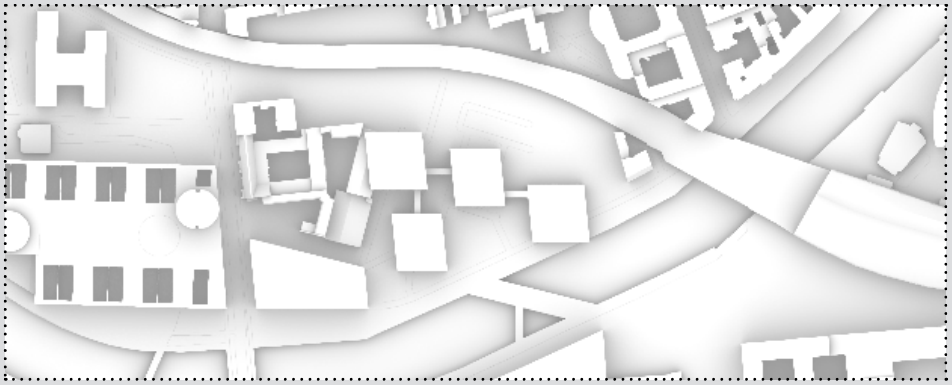
RECOGNISABLE VERNACULAR

CONSERVATIVE APPROACH

Design Development

DESIGN OPTION 2



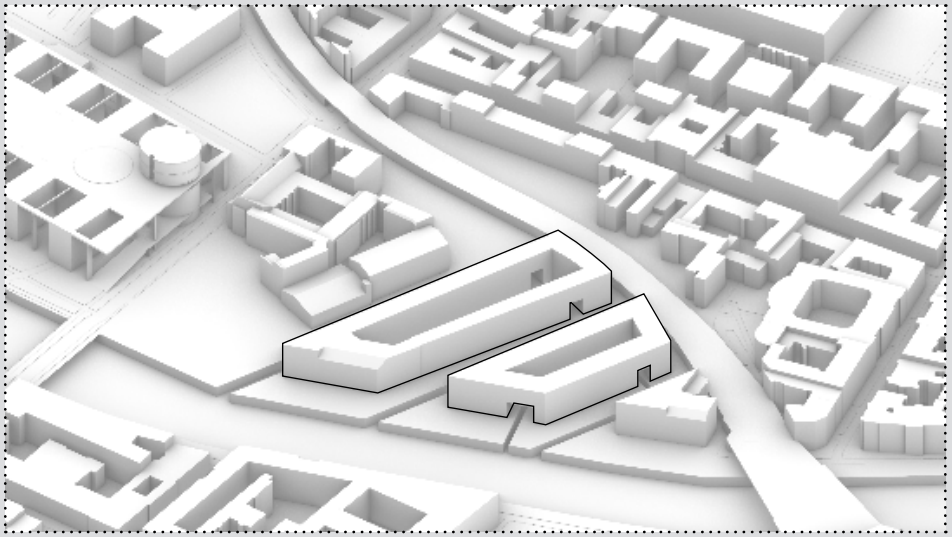


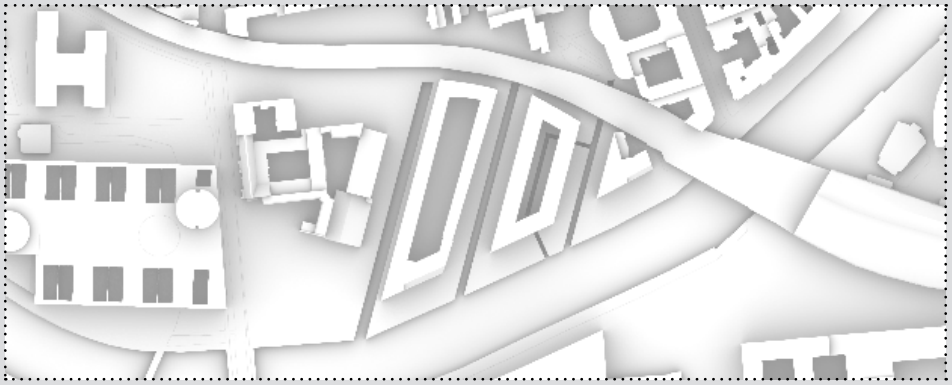
CLEAR DIVISION OF FUNCTIONS

URBAN VILLAGE APPROACH

Design Development

DESIGN OPTION 3





RESIDENTIAL AESTHETIC

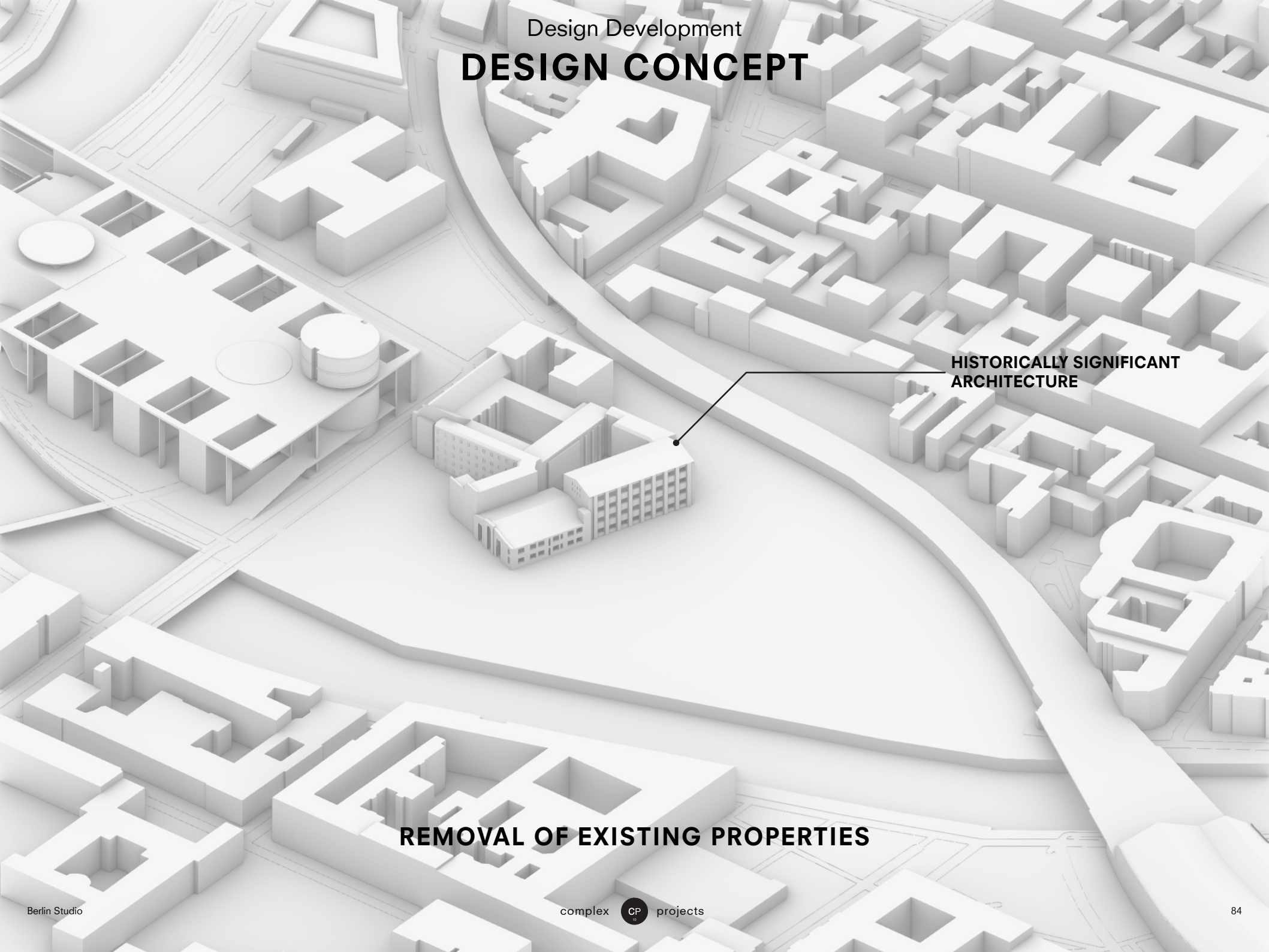
APPROACHABLE URBAN SCALE

Design Development

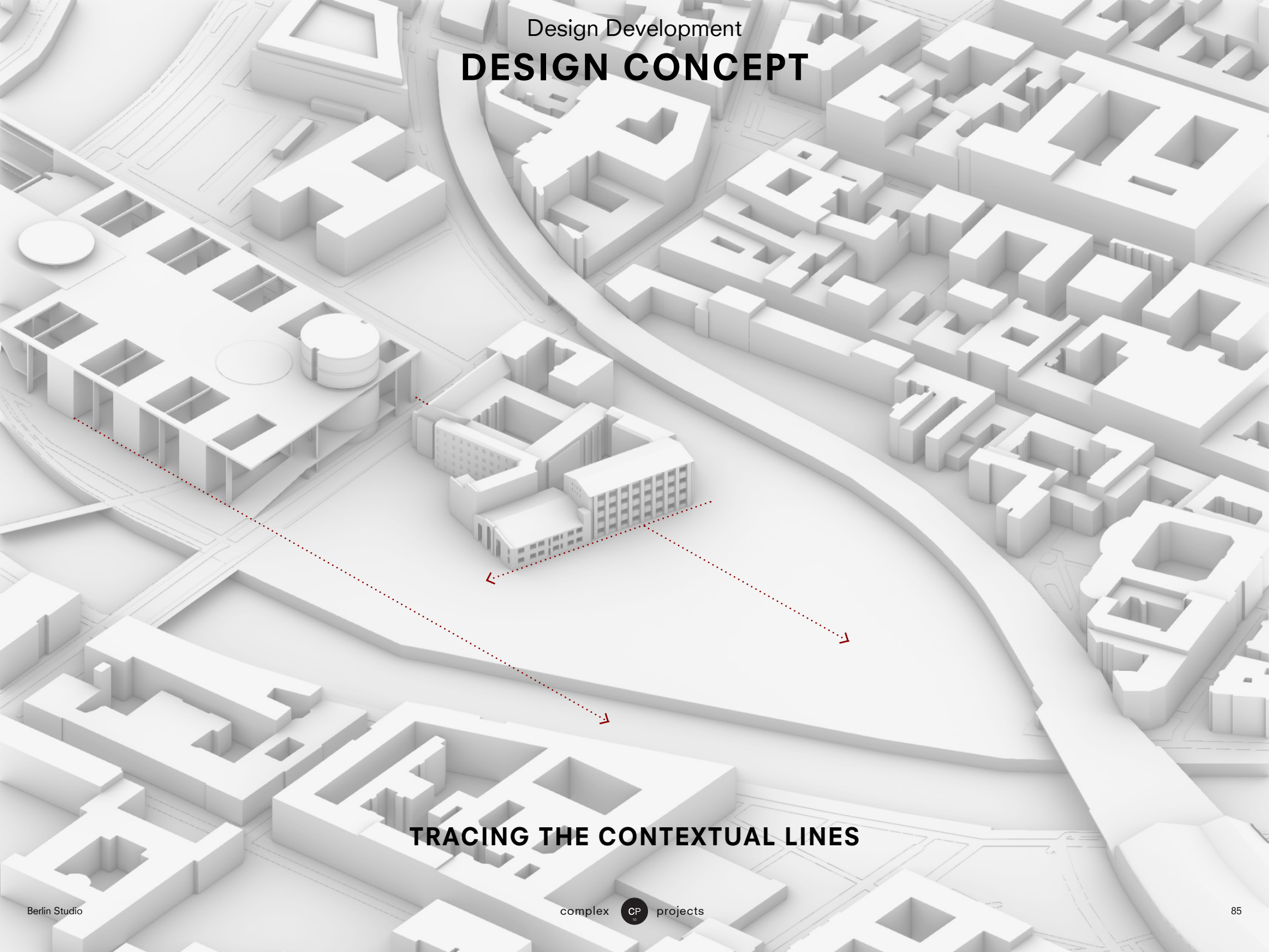
DESIGN CONCEPT



DESIGN CONCEPT

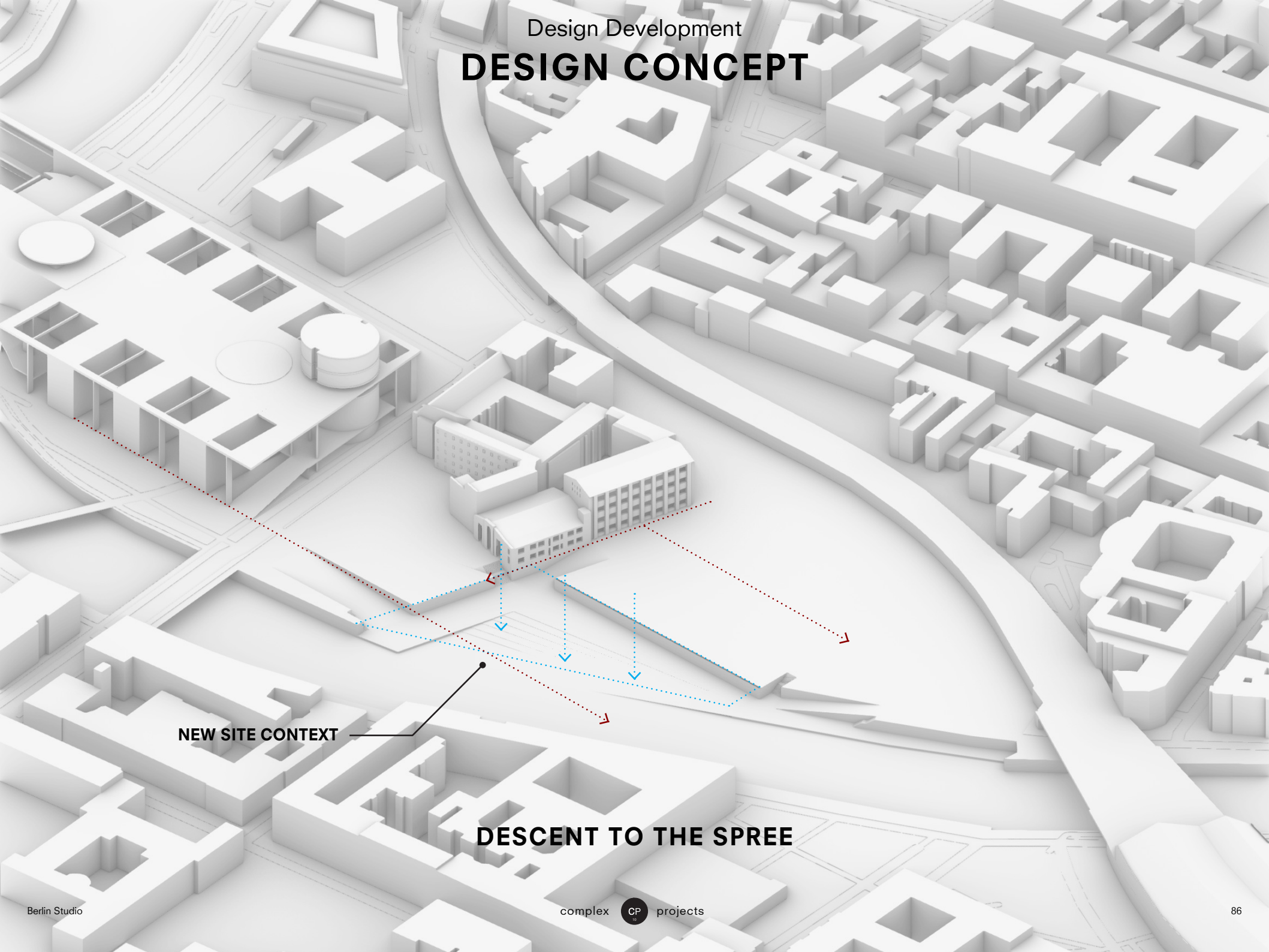


DESIGN CONCEPT



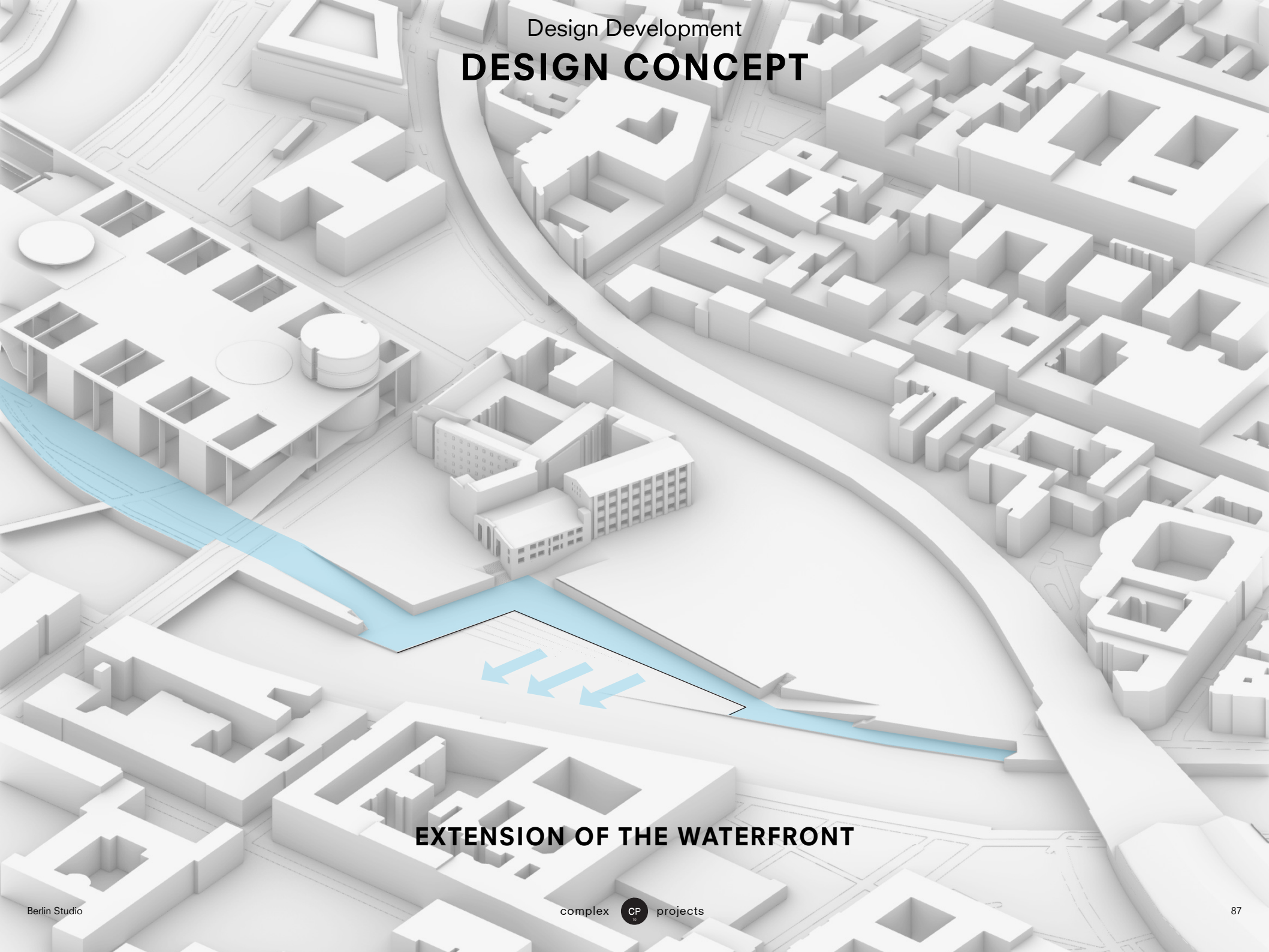
TRACING THE CONTEXTUAL LINES

DESIGN CONCEPT



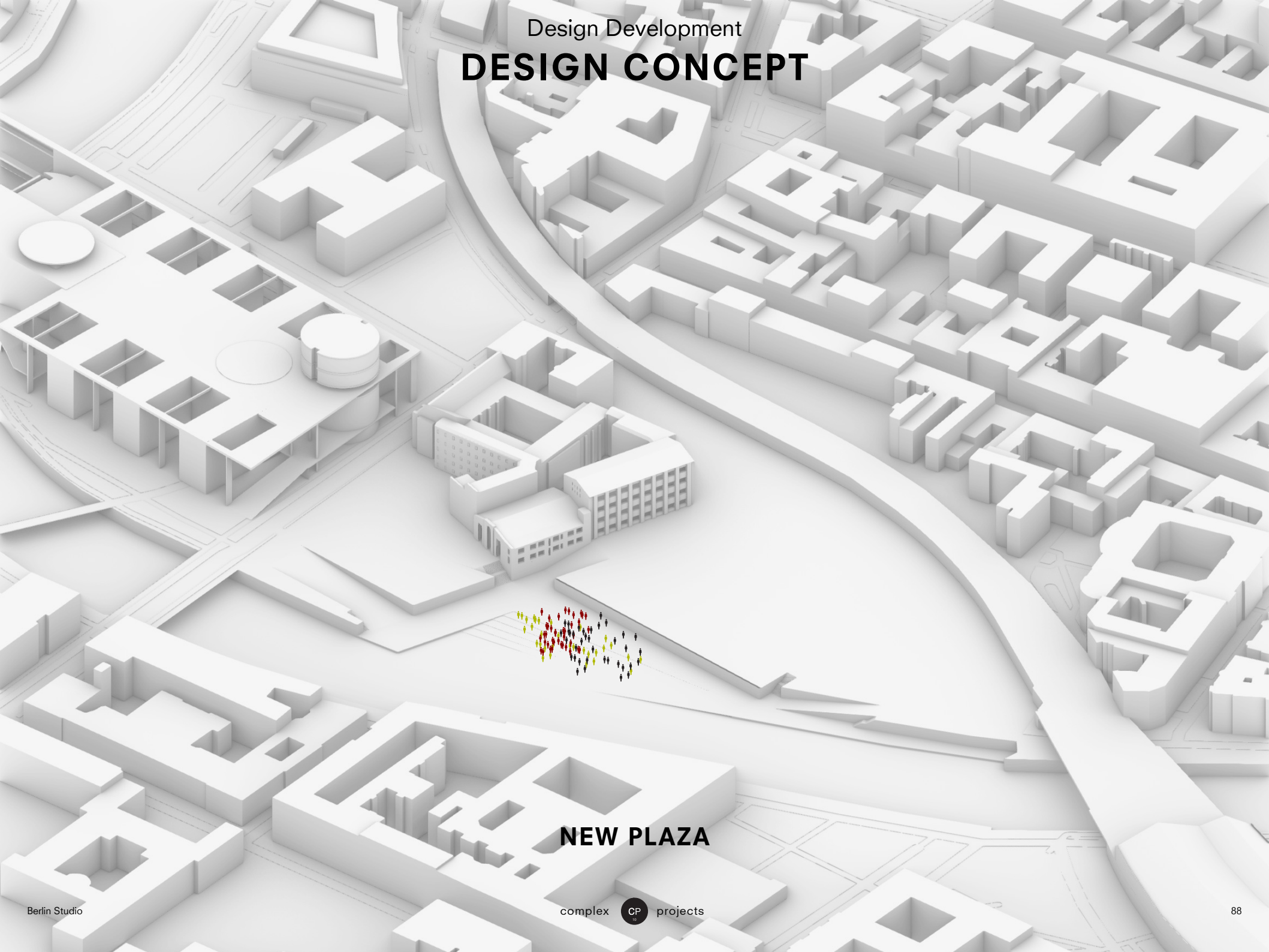
DESCENT TO THE SPREE

DESIGN CONCEPT



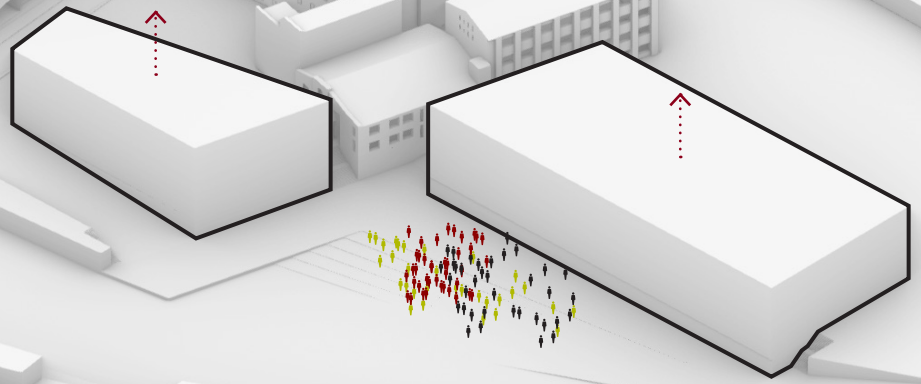
EXTENSION OF THE WATERFRONT

DESIGN CONCEPT



NEW PLAZA

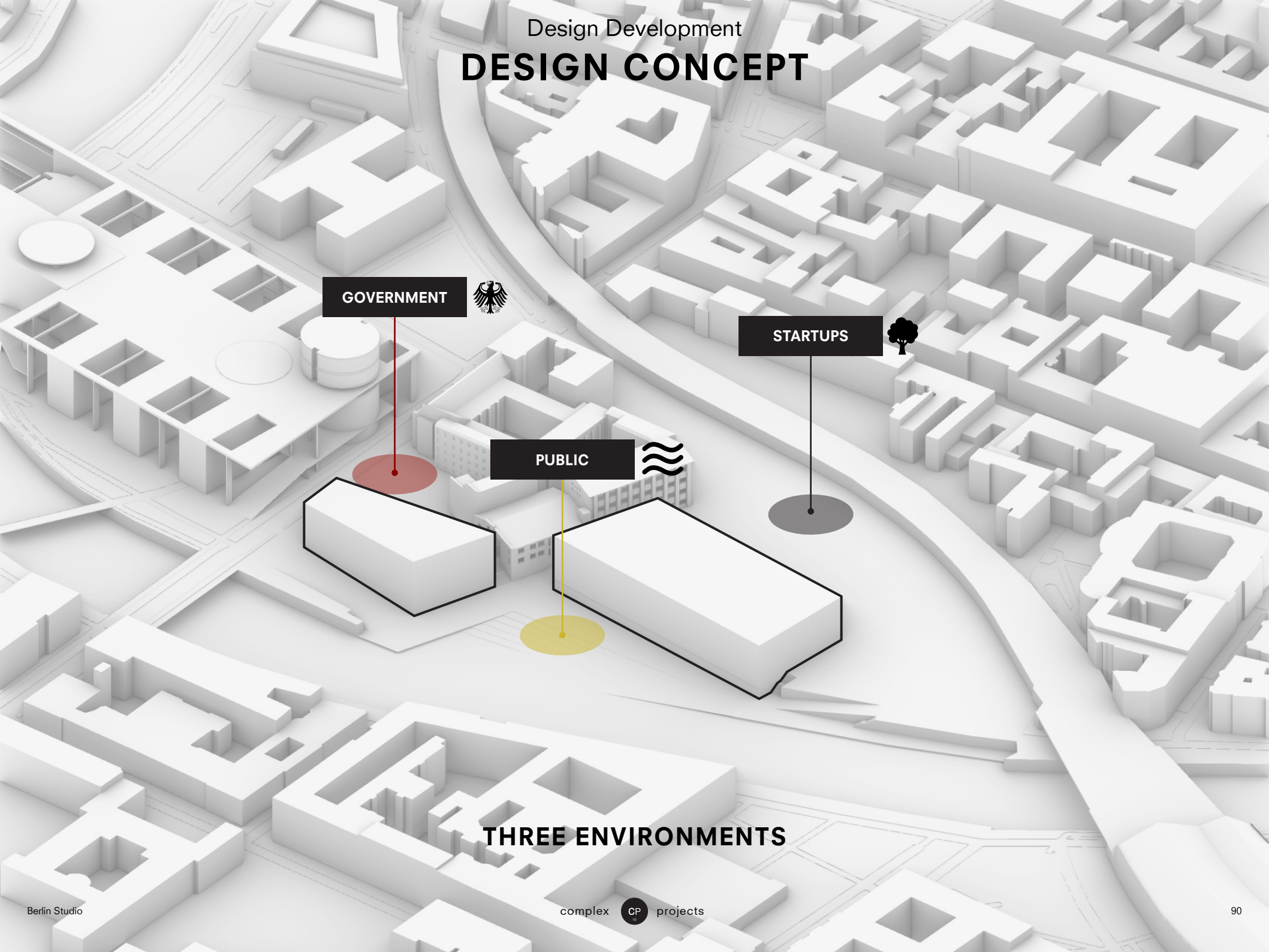
DESIGN CONCEPT



MASSES MOULDED FROM CONTEXT

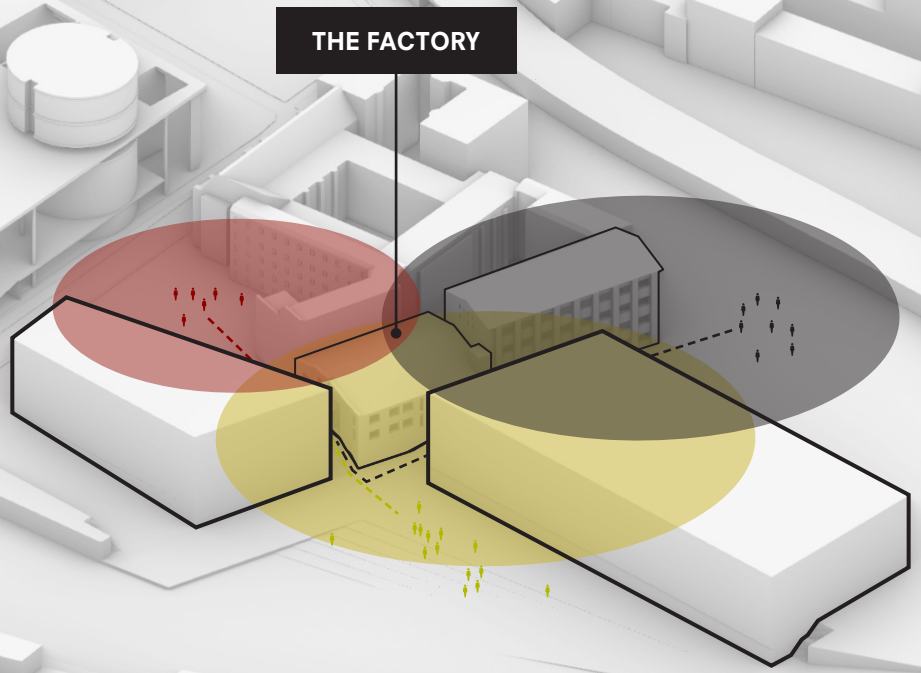
Design Development

DESIGN CONCEPT



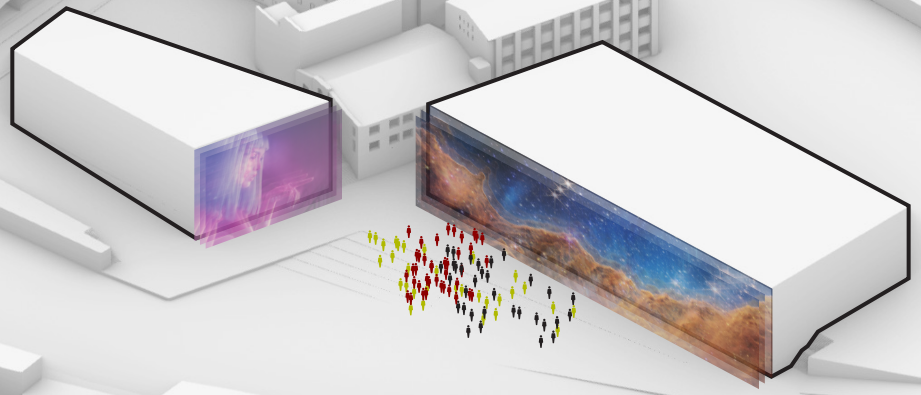
THREE ENVIRONMENTS

DESIGN CONCEPT



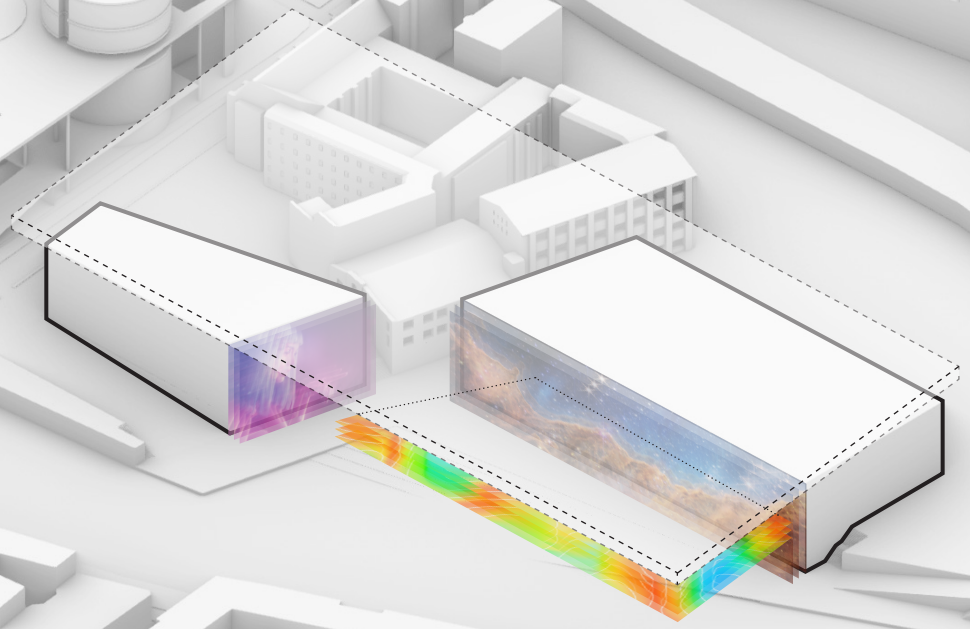
AT THE HEART. THE TECHNOLOGY NEXUS.

DESIGN CONCEPT



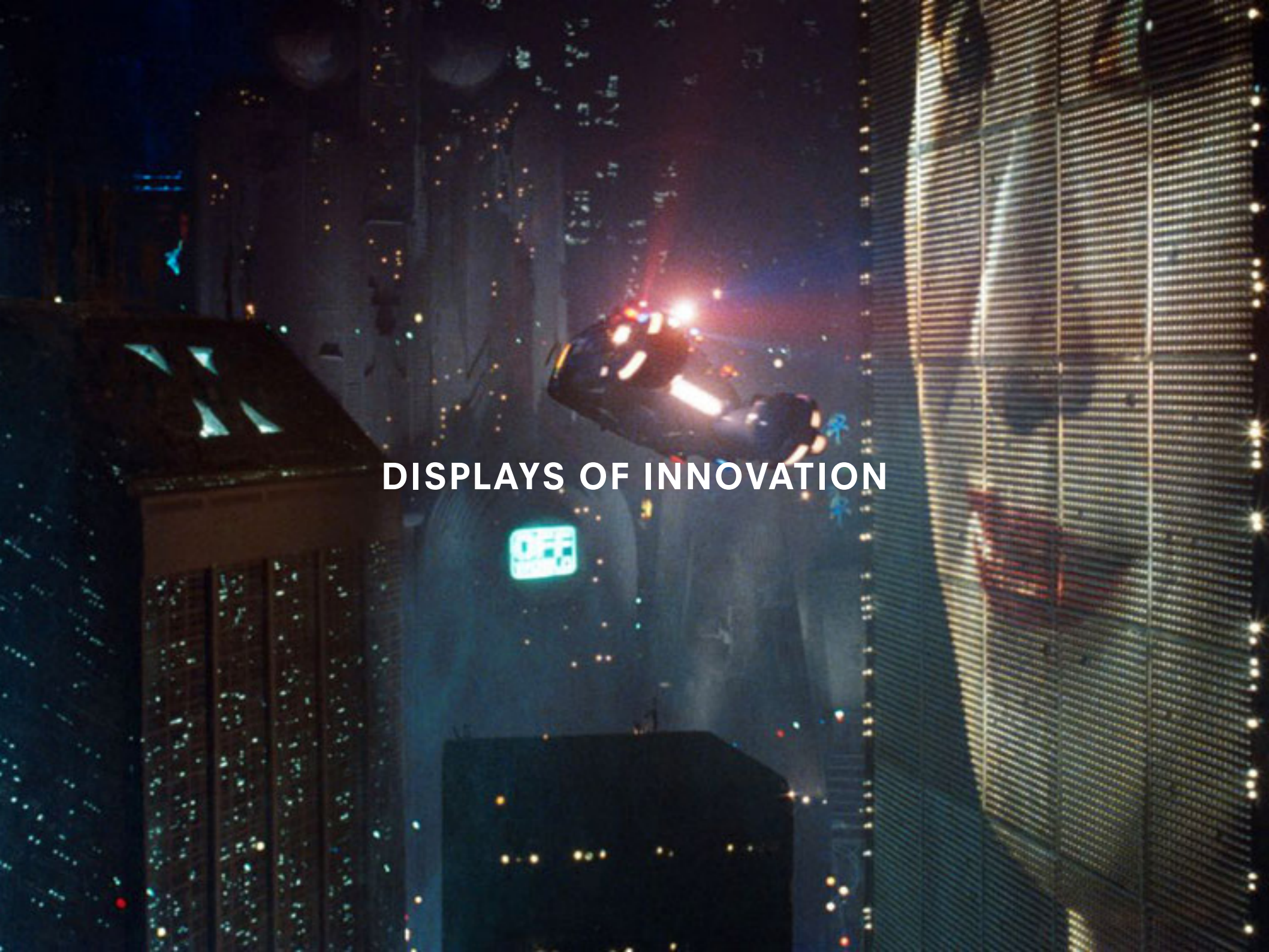
THE DIGITAL EXPERIENCE

DESIGN CONCEPT



THE DIGITAL EXPERIENCE EVERYWHERE


TECHNOLOGY AS A MEANS TO INSPIRE


DISPLAYS OF INNOVATION

Design Development

DESIGN CONCEPT



Design Development

DESIGN CONCEPT



Design Development

FEDERAL MINISTRY OF DIGITAL AFFAIRS



Content

INTRODUCTION

RESEARCH

DESIGN BRIEF

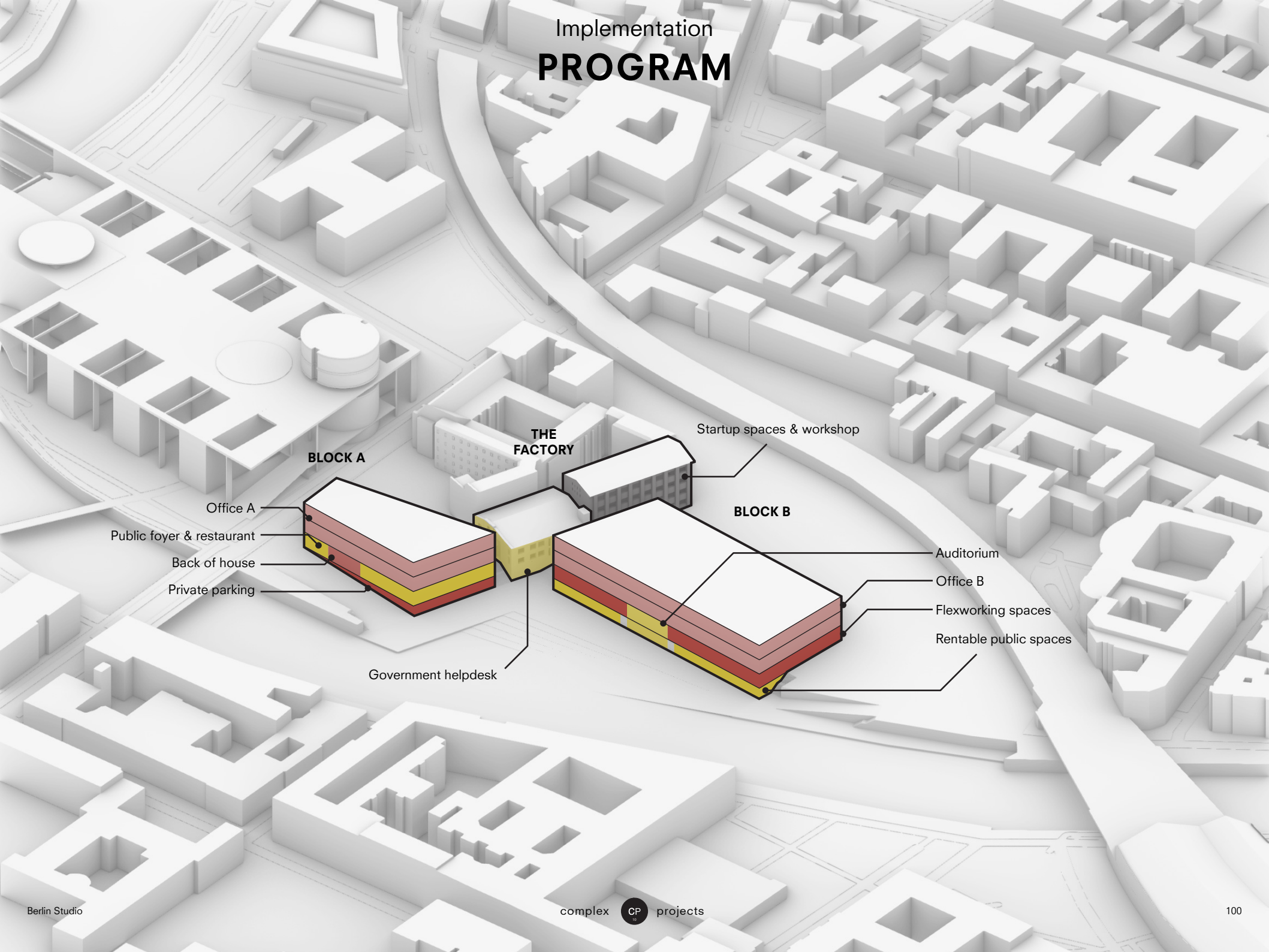
DESIGN DEV.

IMPLEMENTATION

CONCLUSION

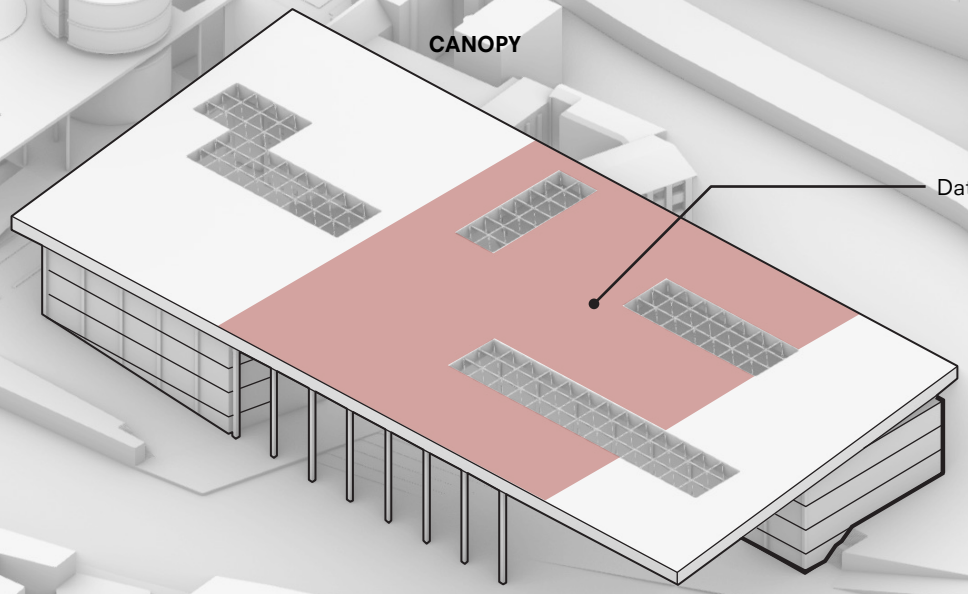
Implementation

PROGRAM

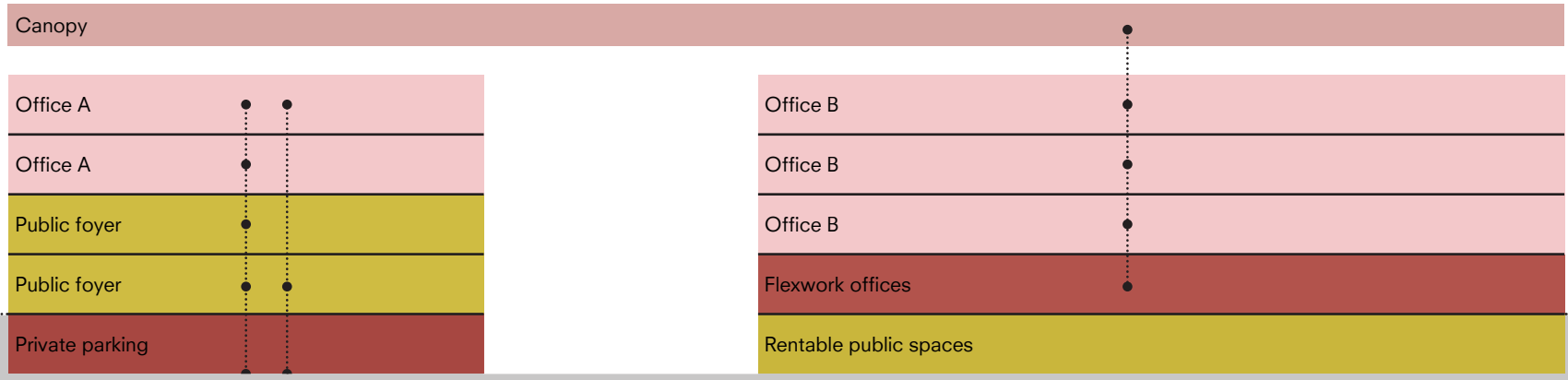


Implementation

PROGRAM



ELEVATOR CHART



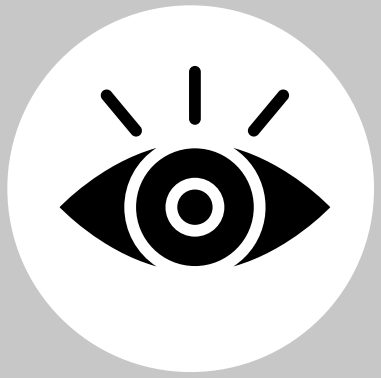
DESIGN OUTCOMES



APPROACHABLE



SECURE



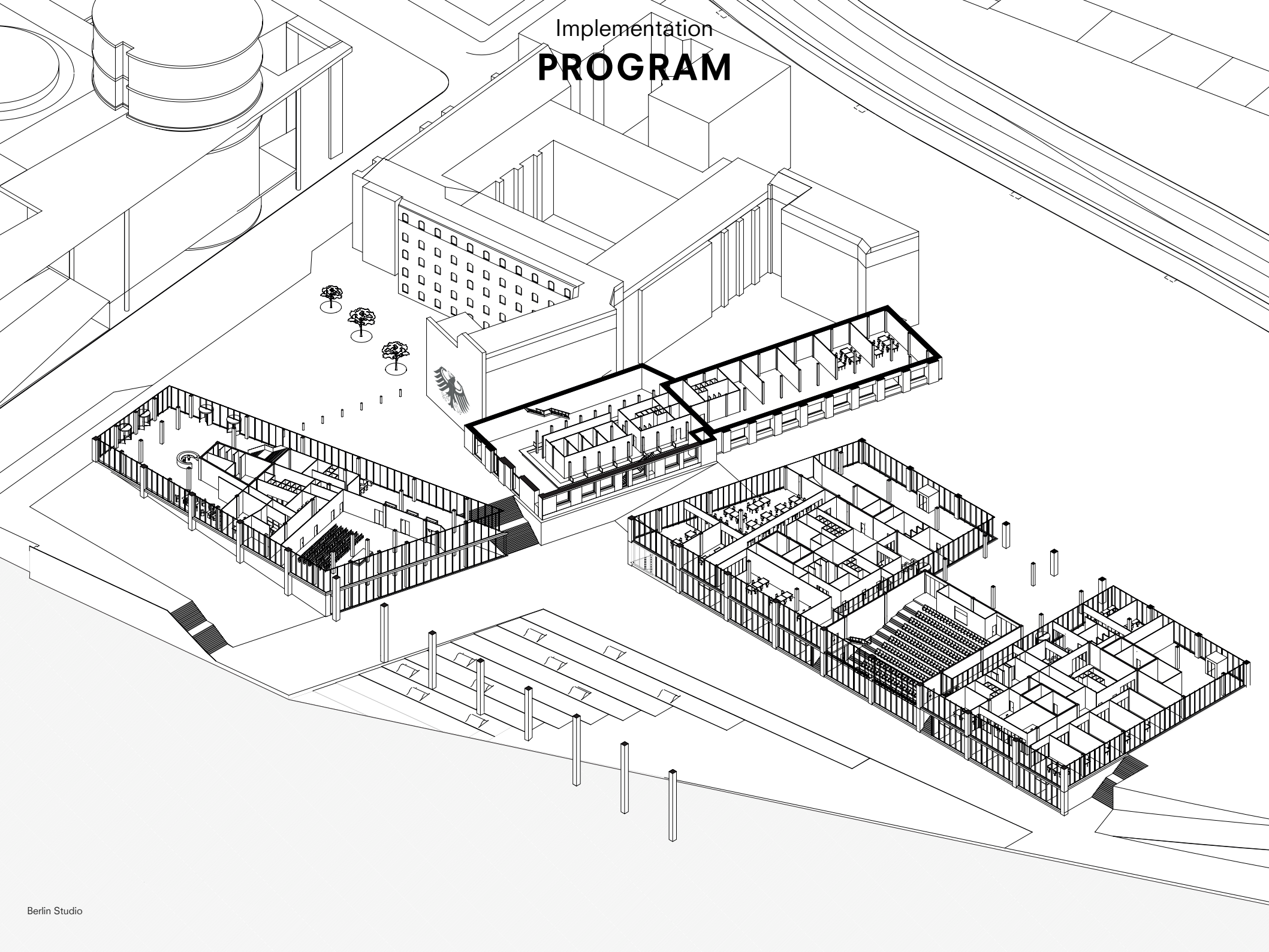
VISIBLE

IT’S BEST IF I SHOW YOU



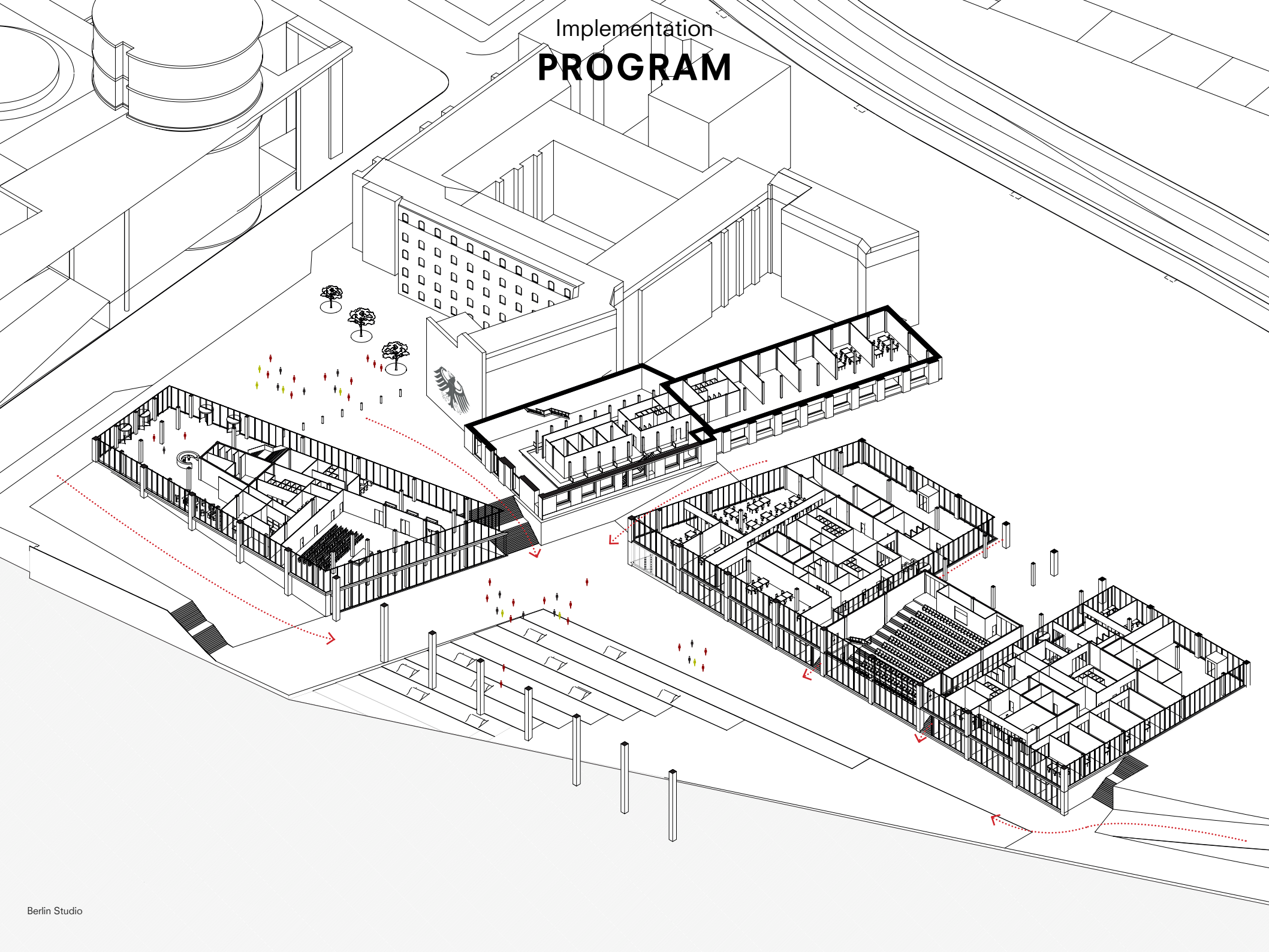
Implementation

PROGRAM



Implementation

PROGRAM



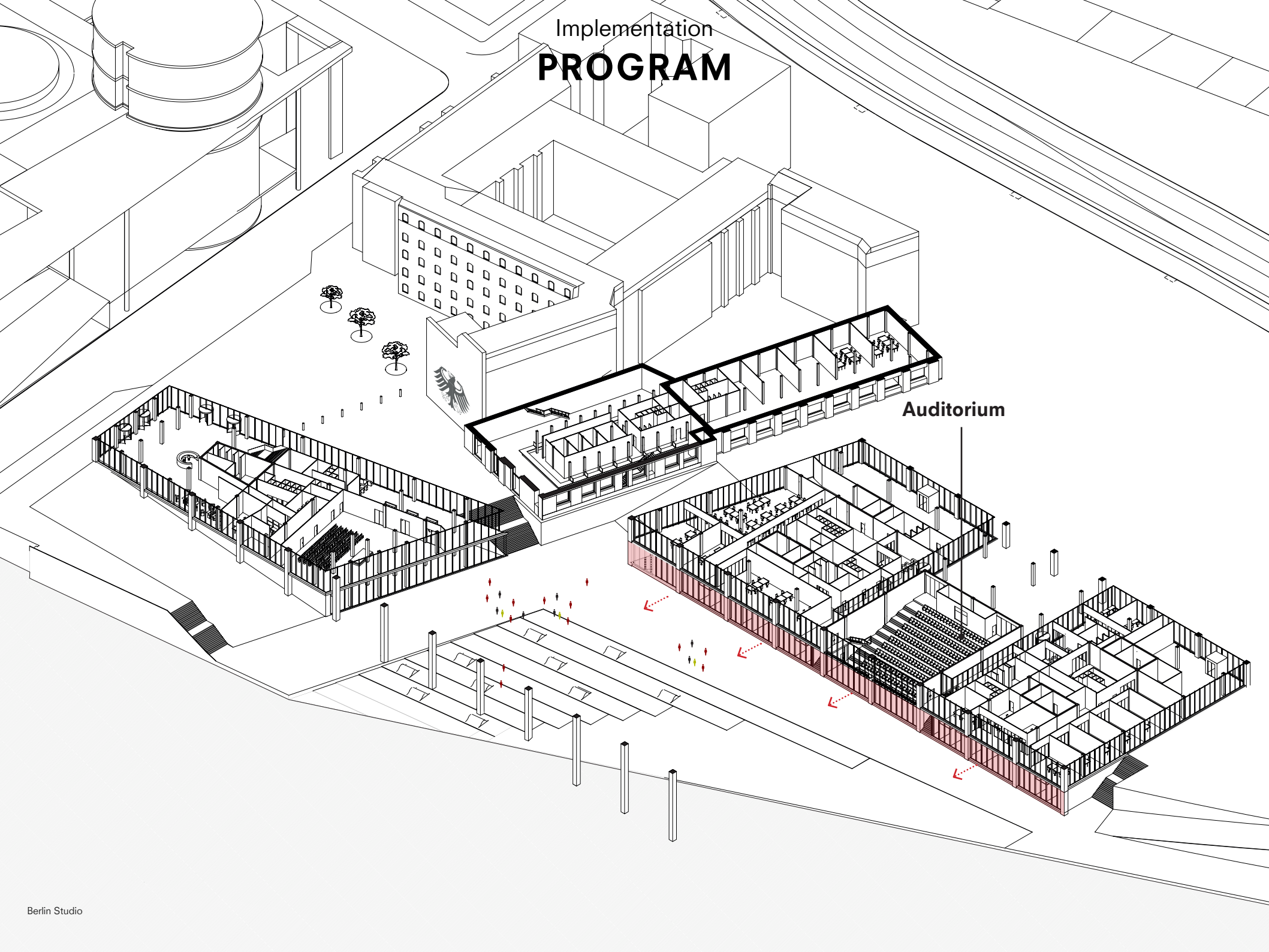
Implementation

PROGRAM

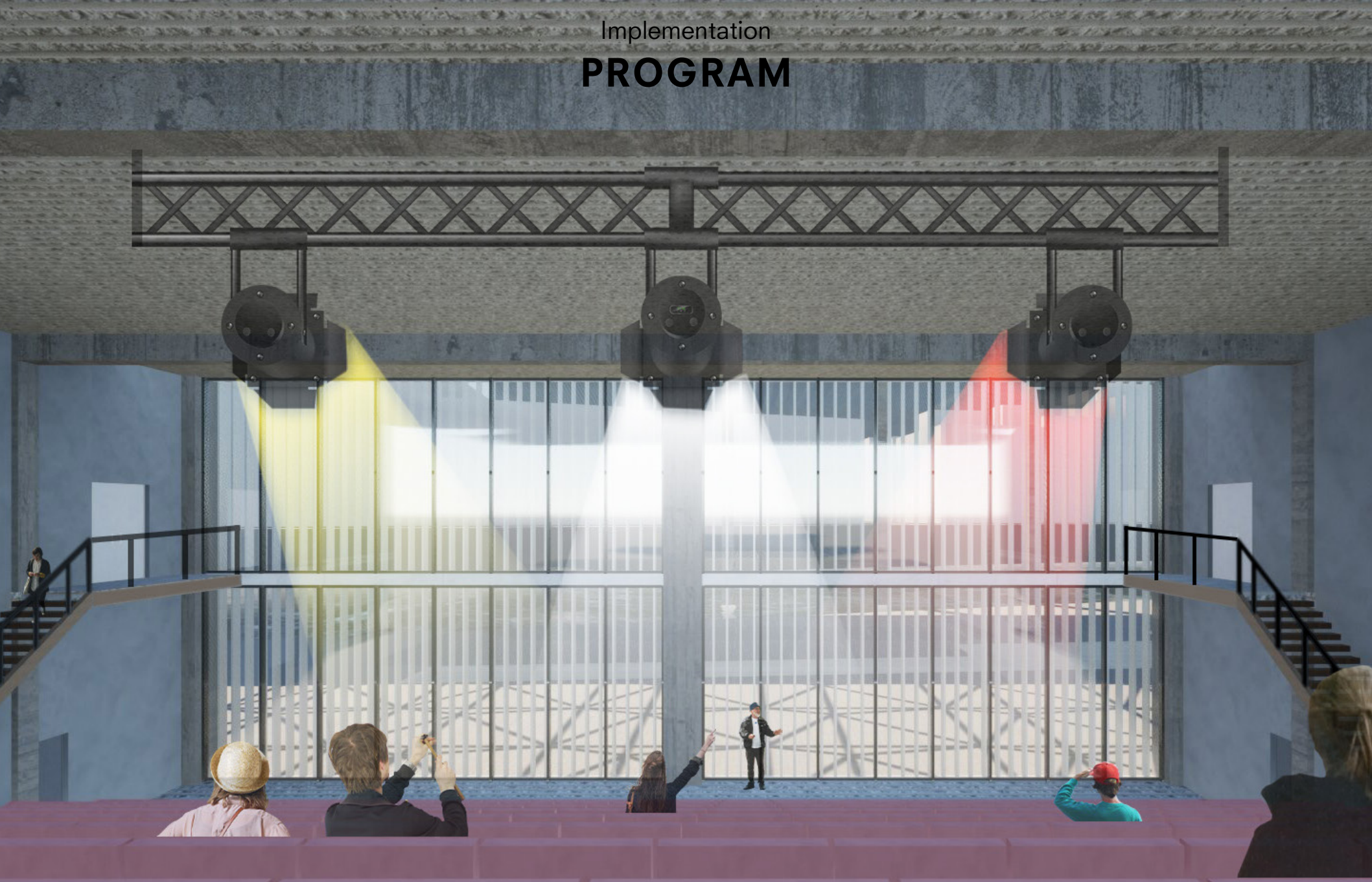


Implementation

PROGRAM

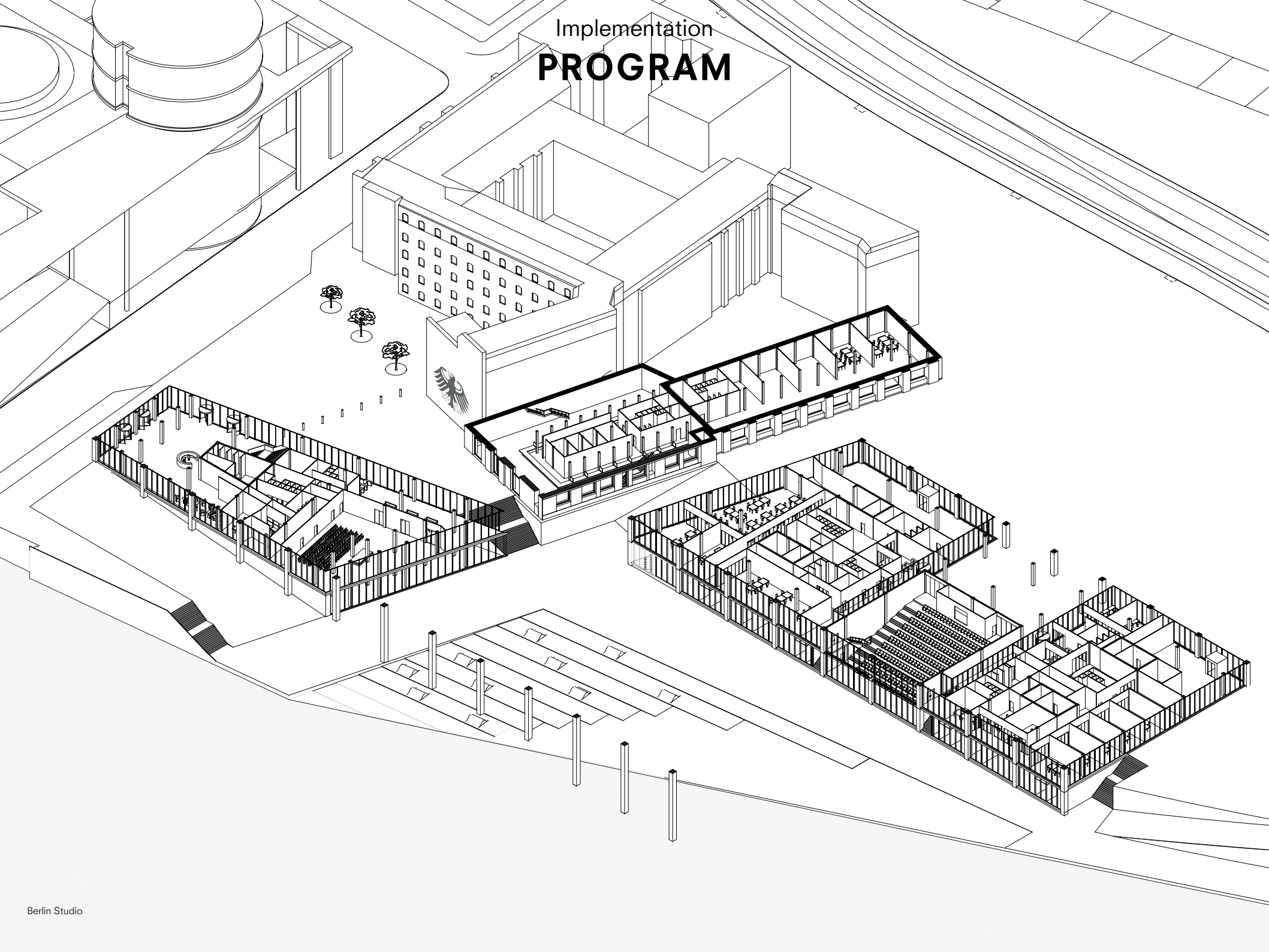


PROGRAM

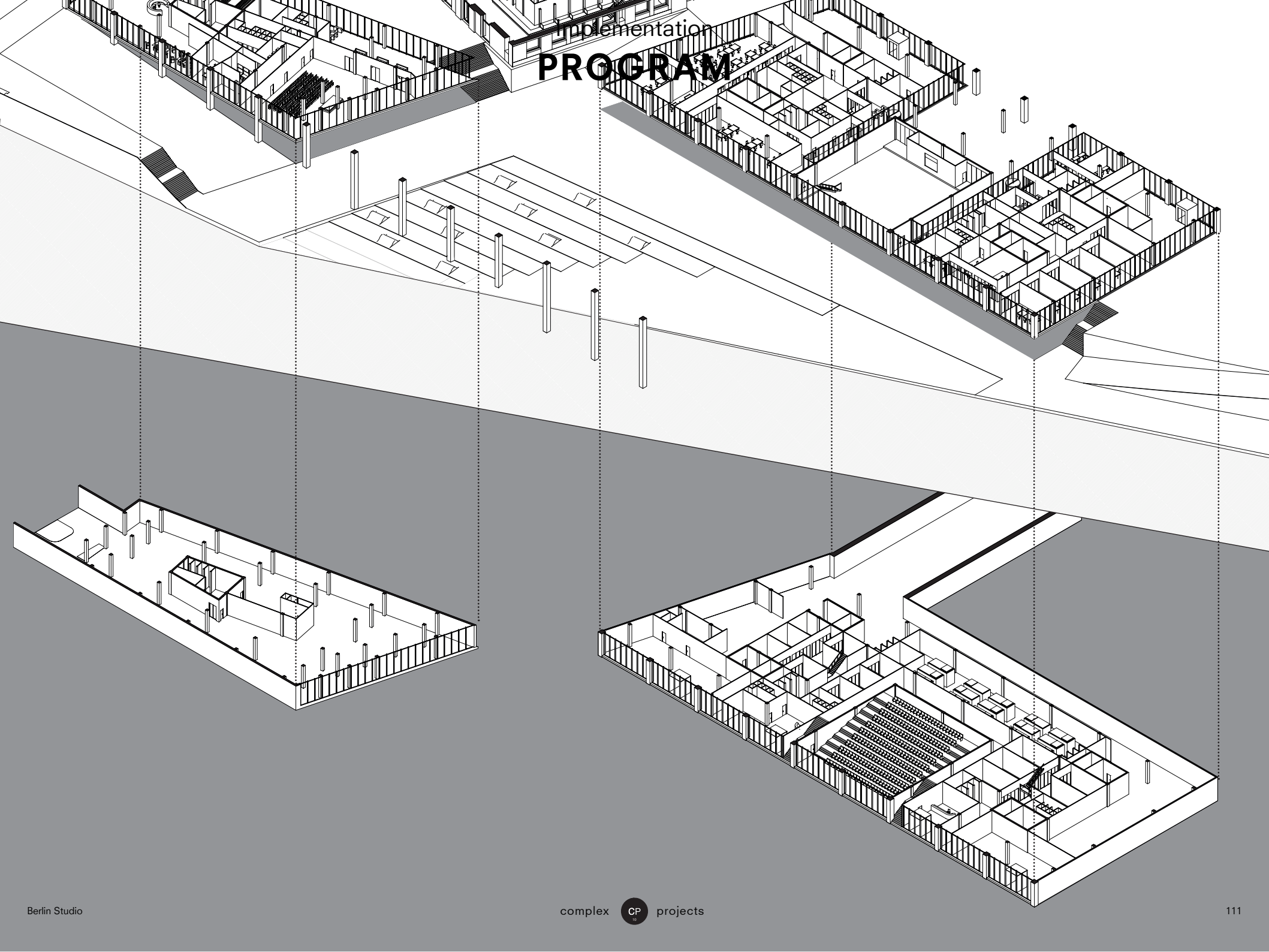


Implementation

PROGRAM



PROGRAM

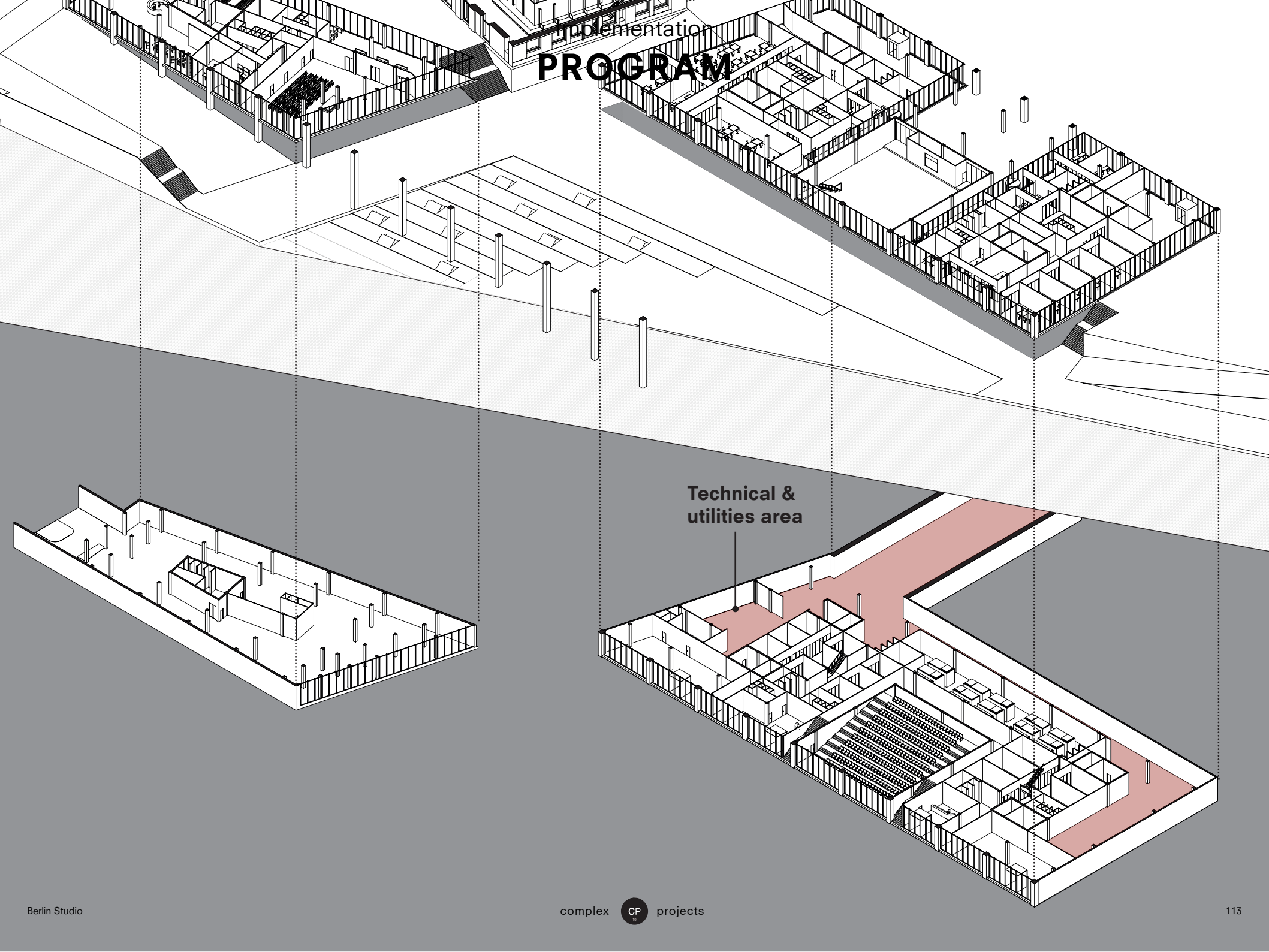


Implementation

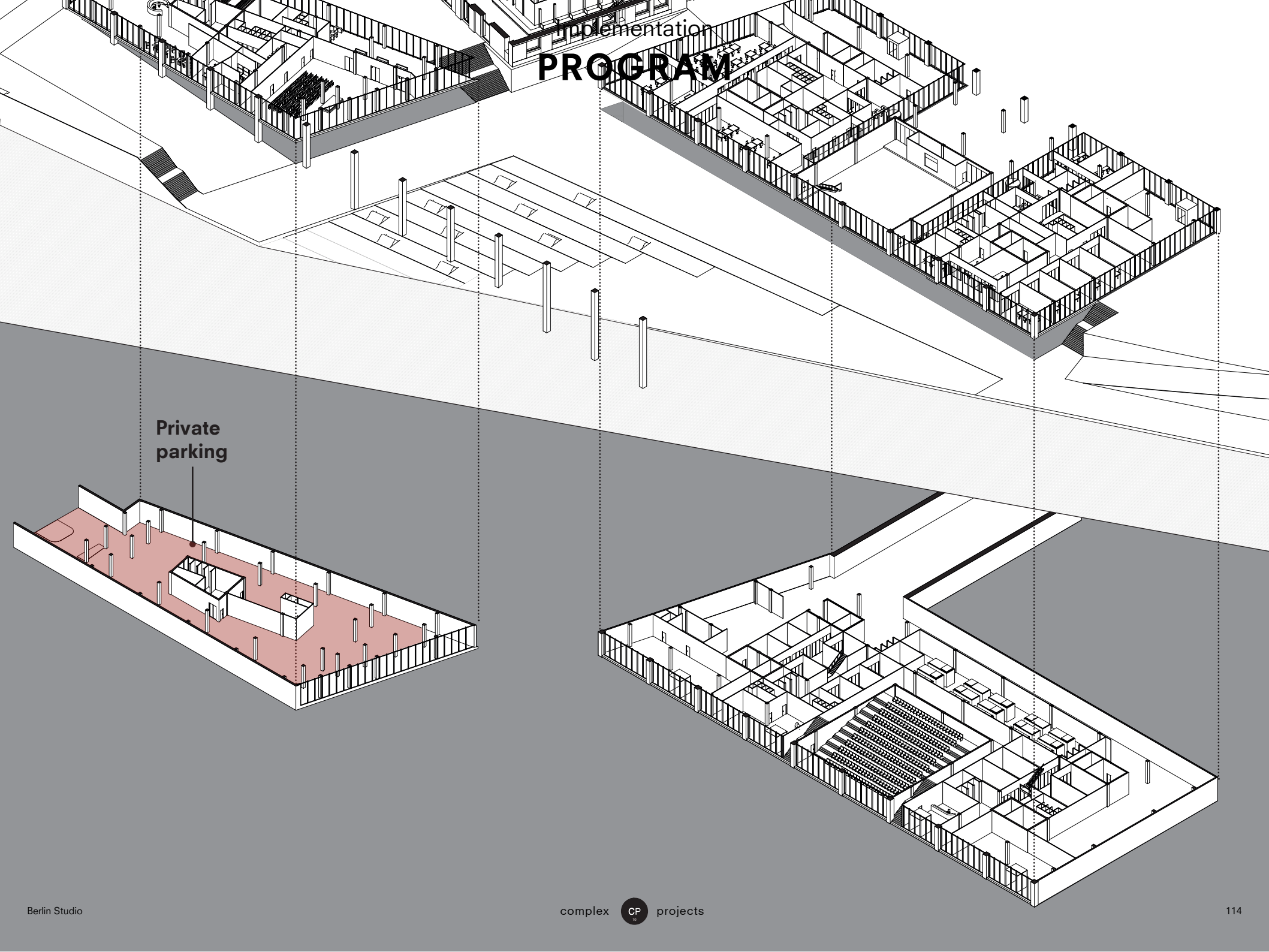
PROGRAM



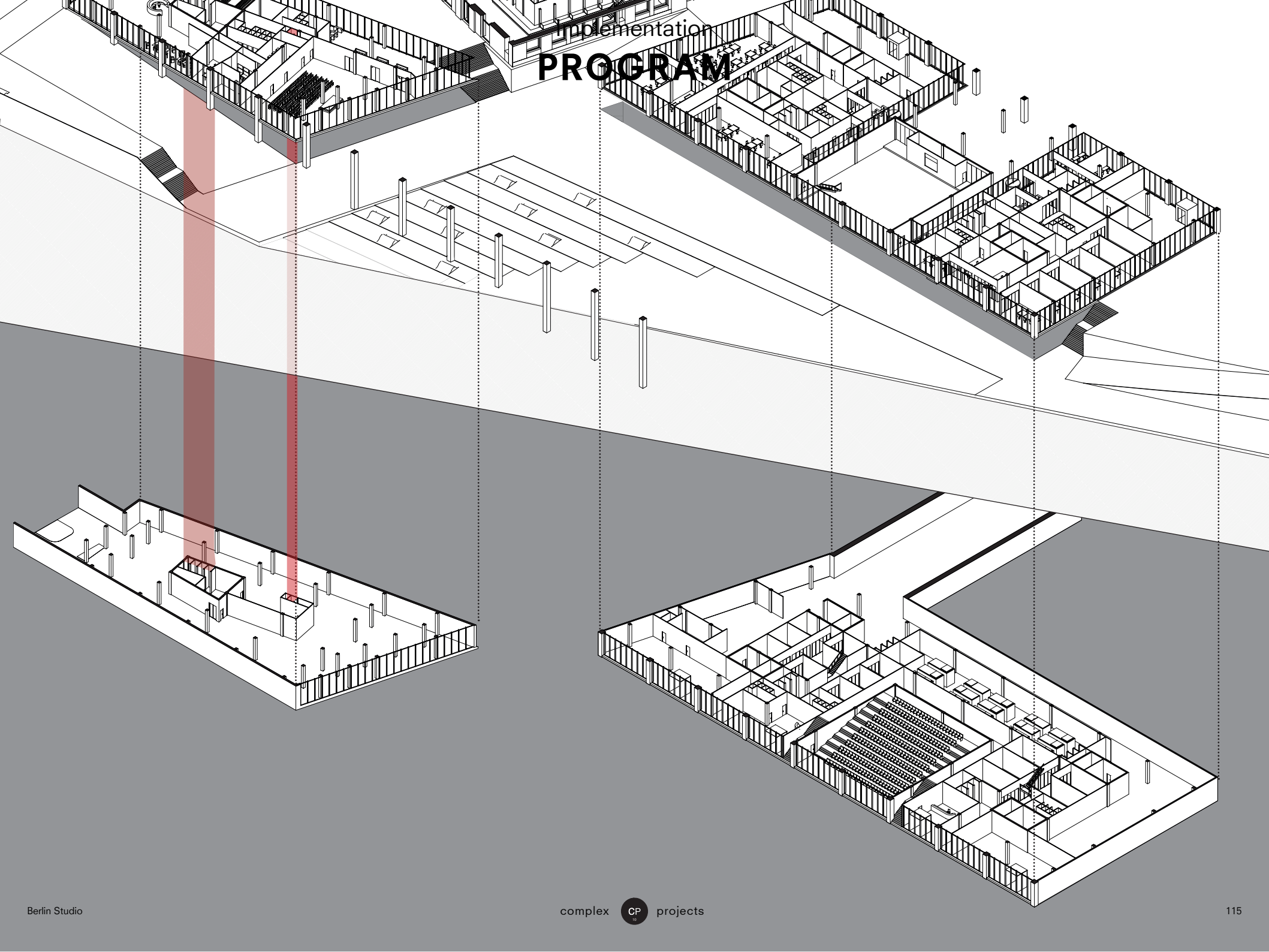
PROGRAM



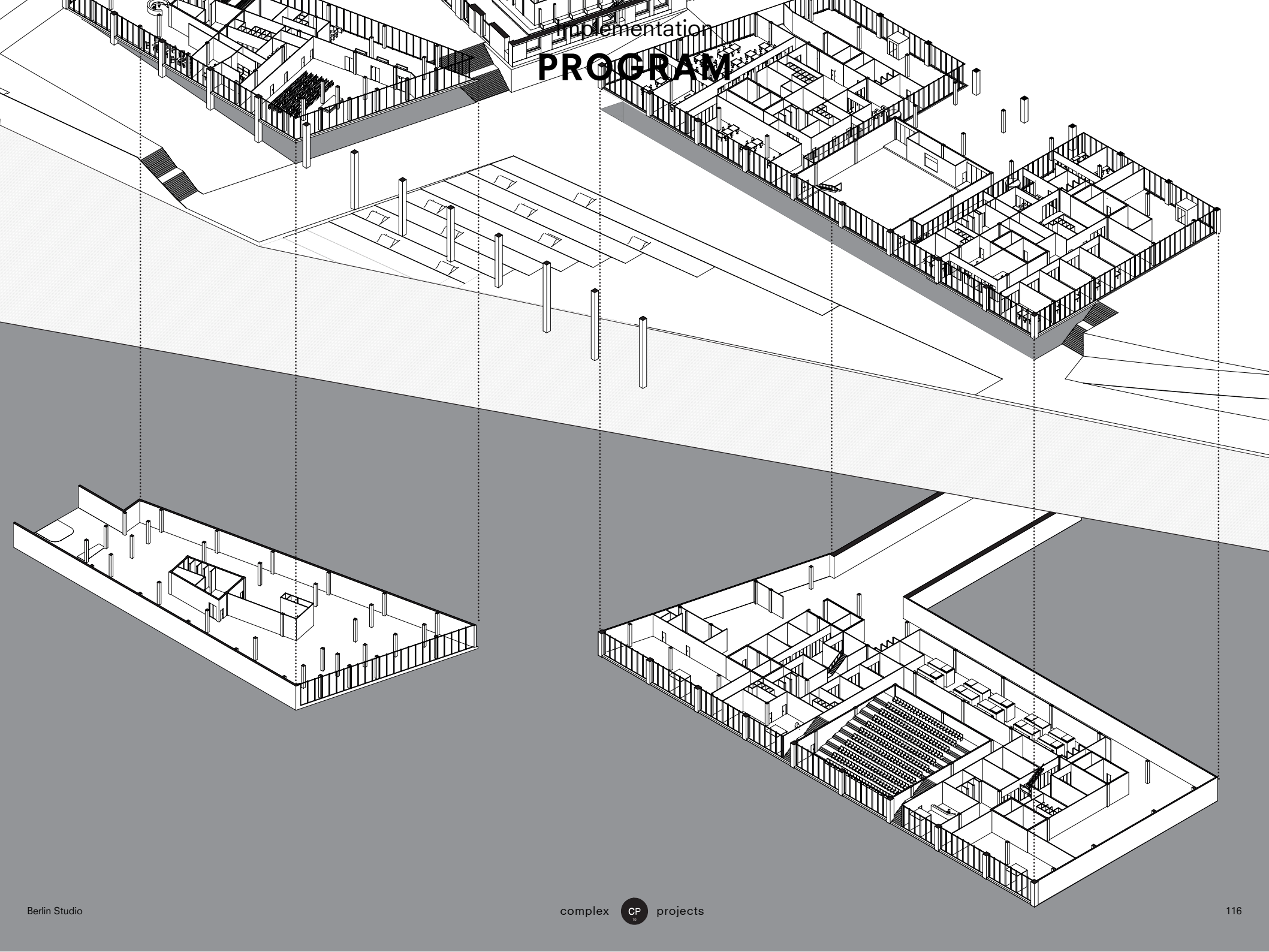
PROGRAM



PROGRAM

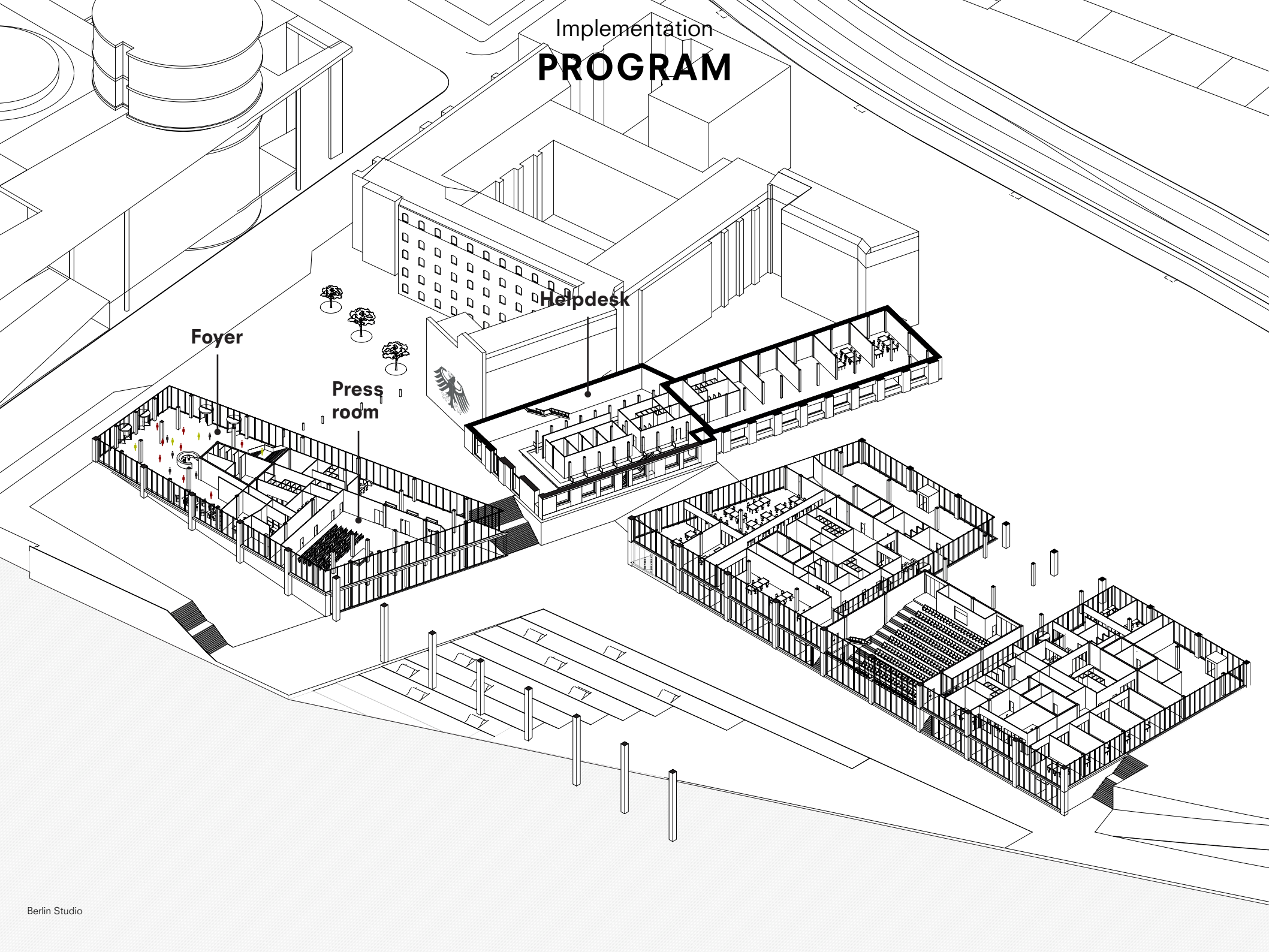


PROGRAM



Implementation

PROGRAM



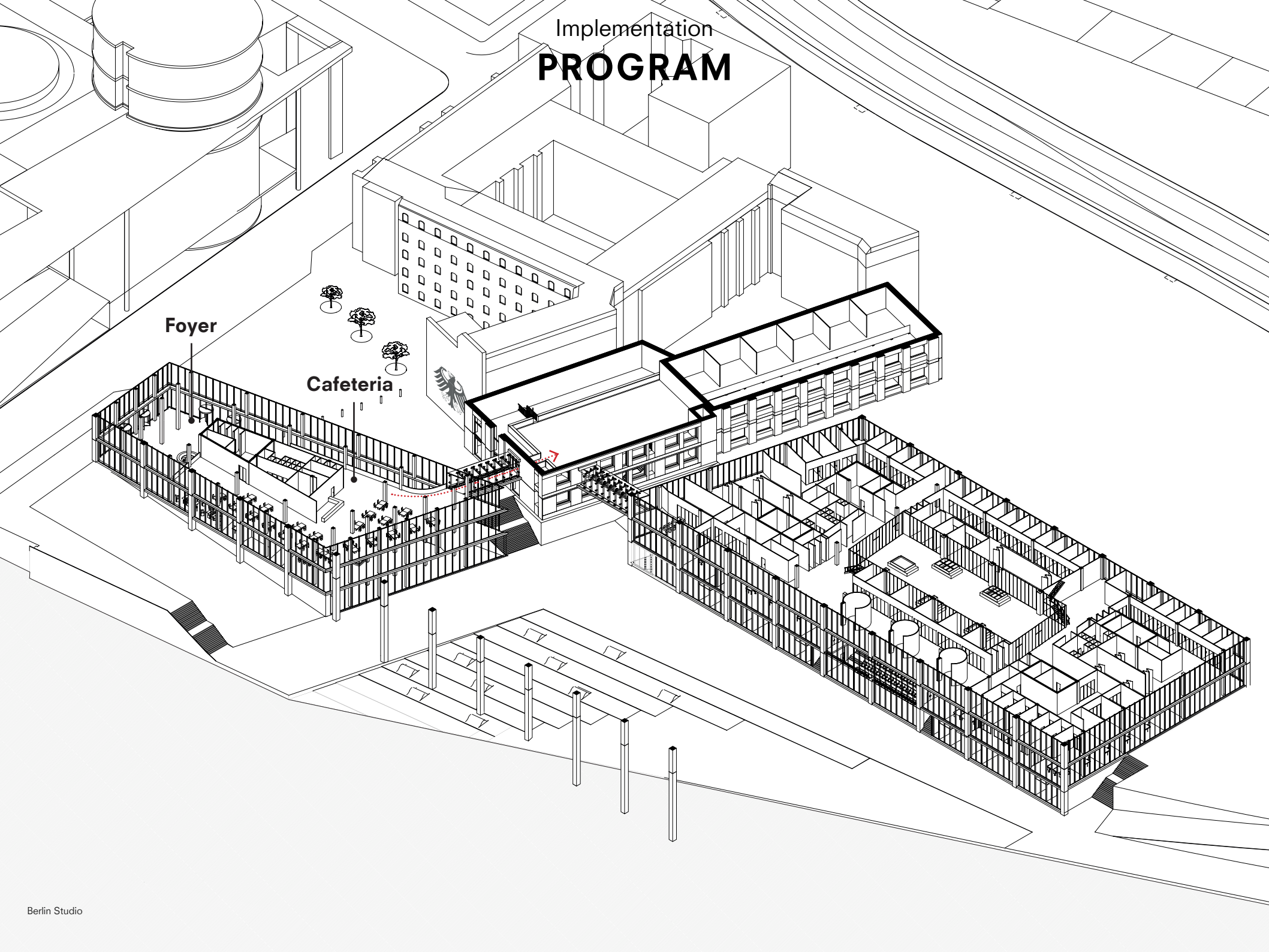
Implementation

PROGRAM



Implementation

PROGRAM



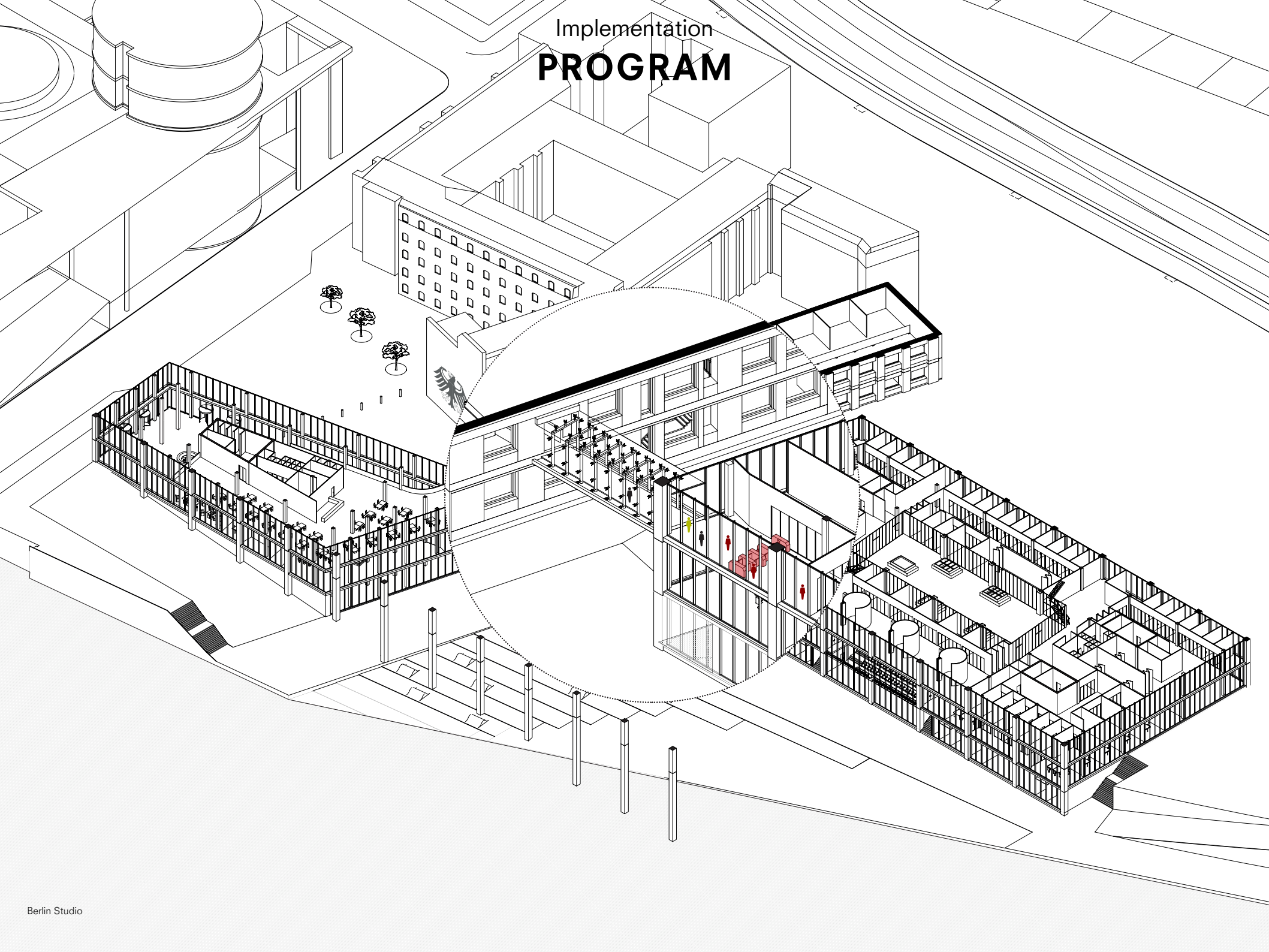
Implementation

PROGRAM



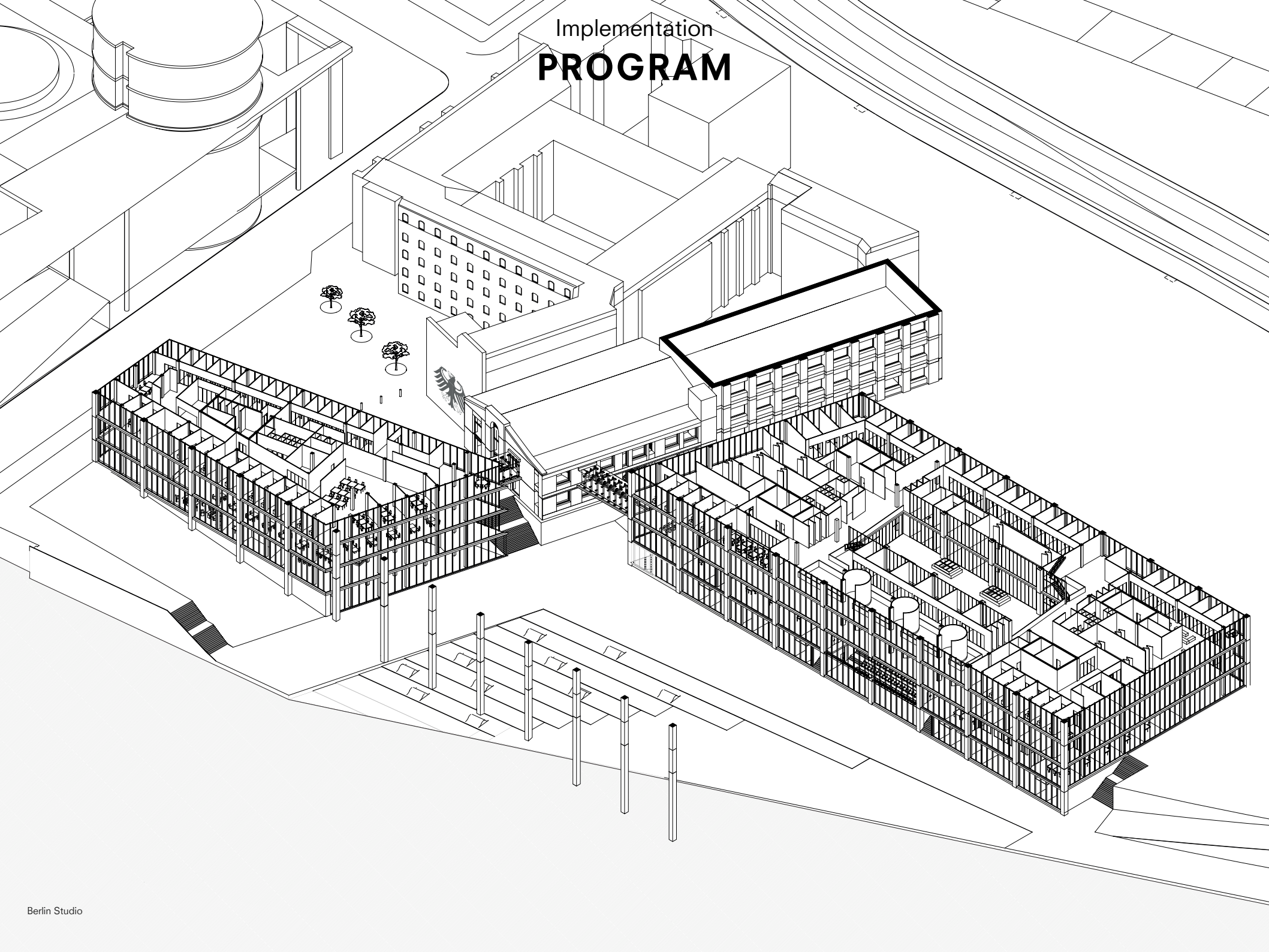
Implementation

PROGRAM



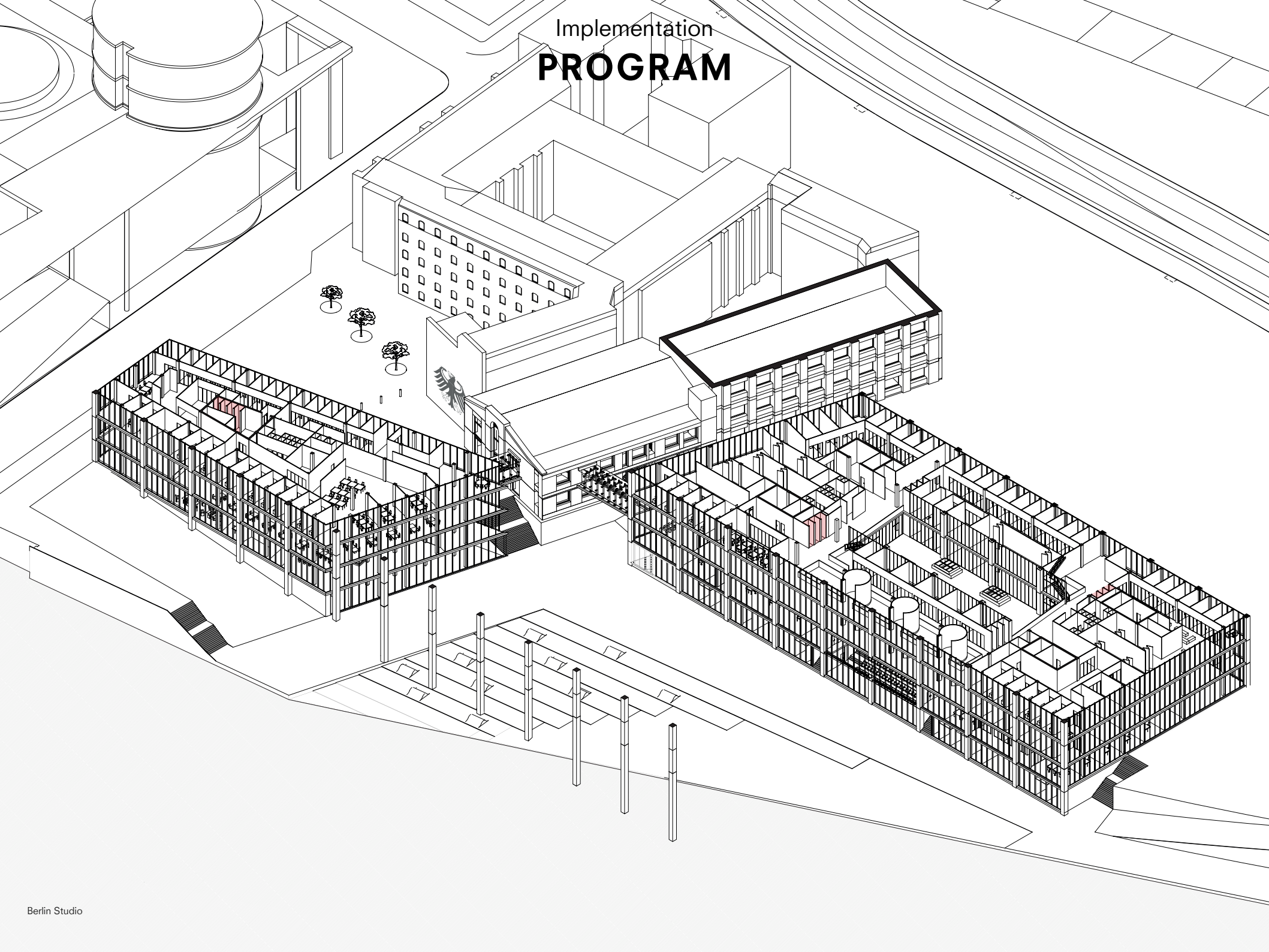
Implementation

PROGRAM



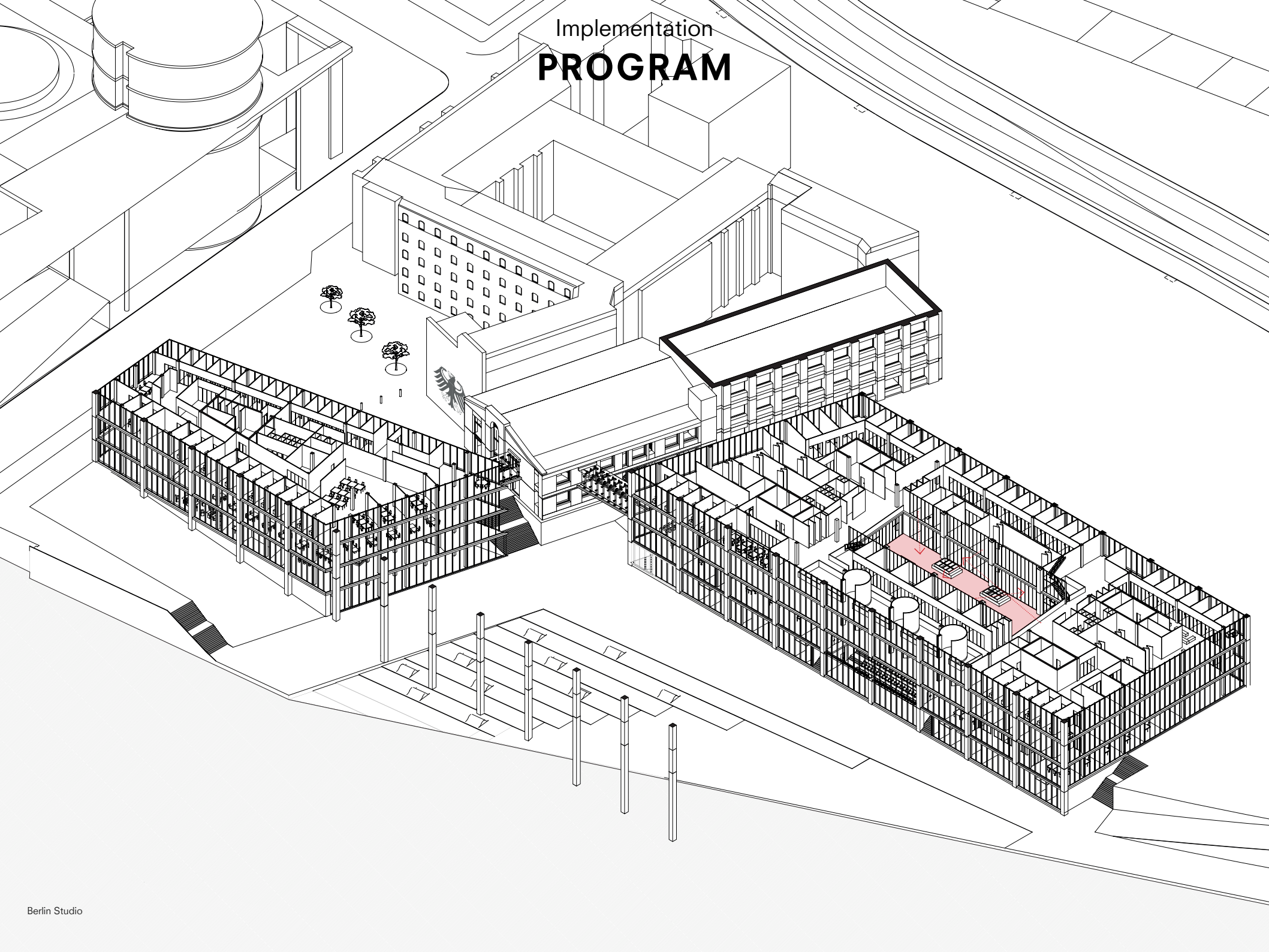
Implementation

PROGRAM



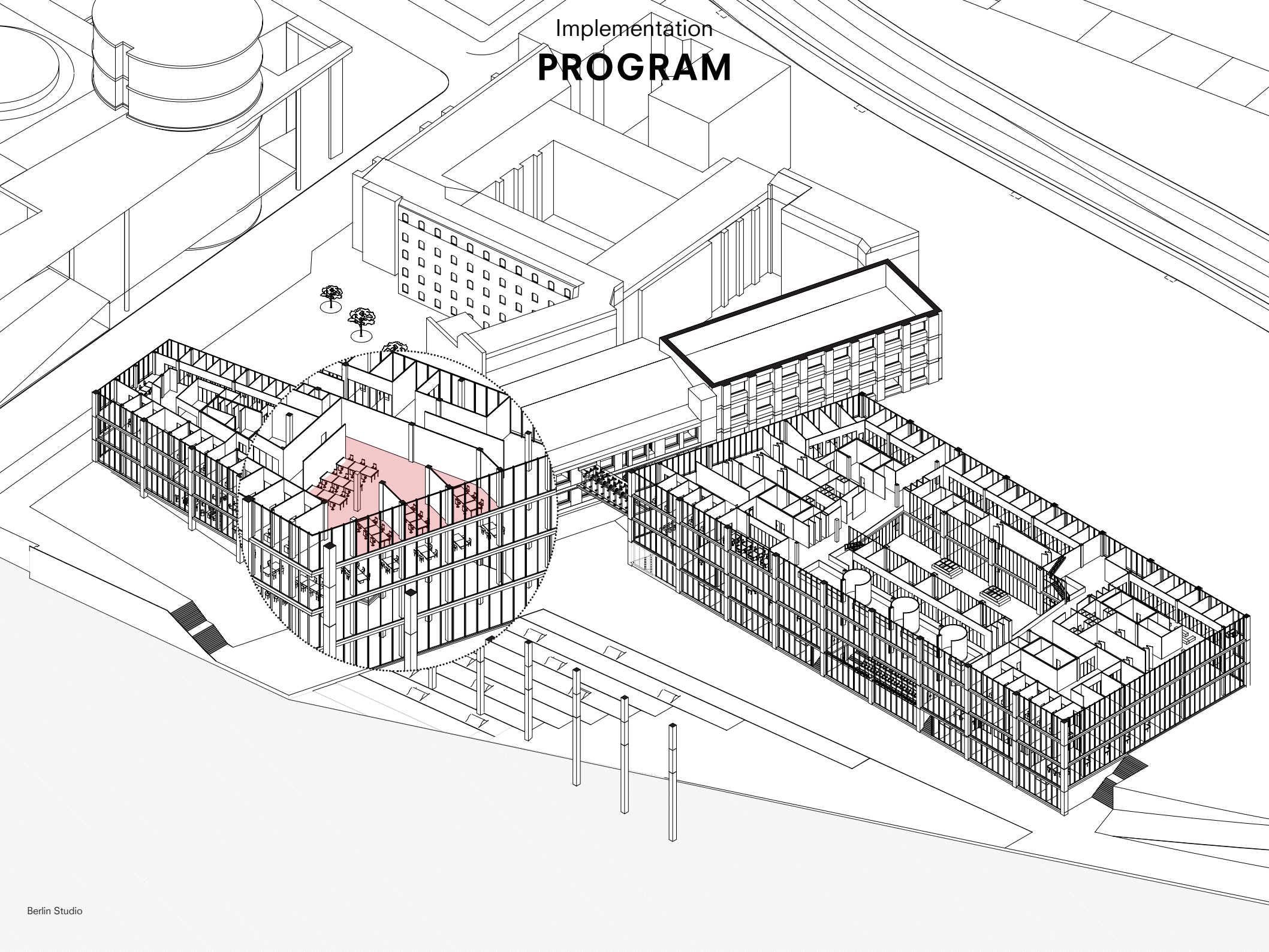
Implementation

PROGRAM



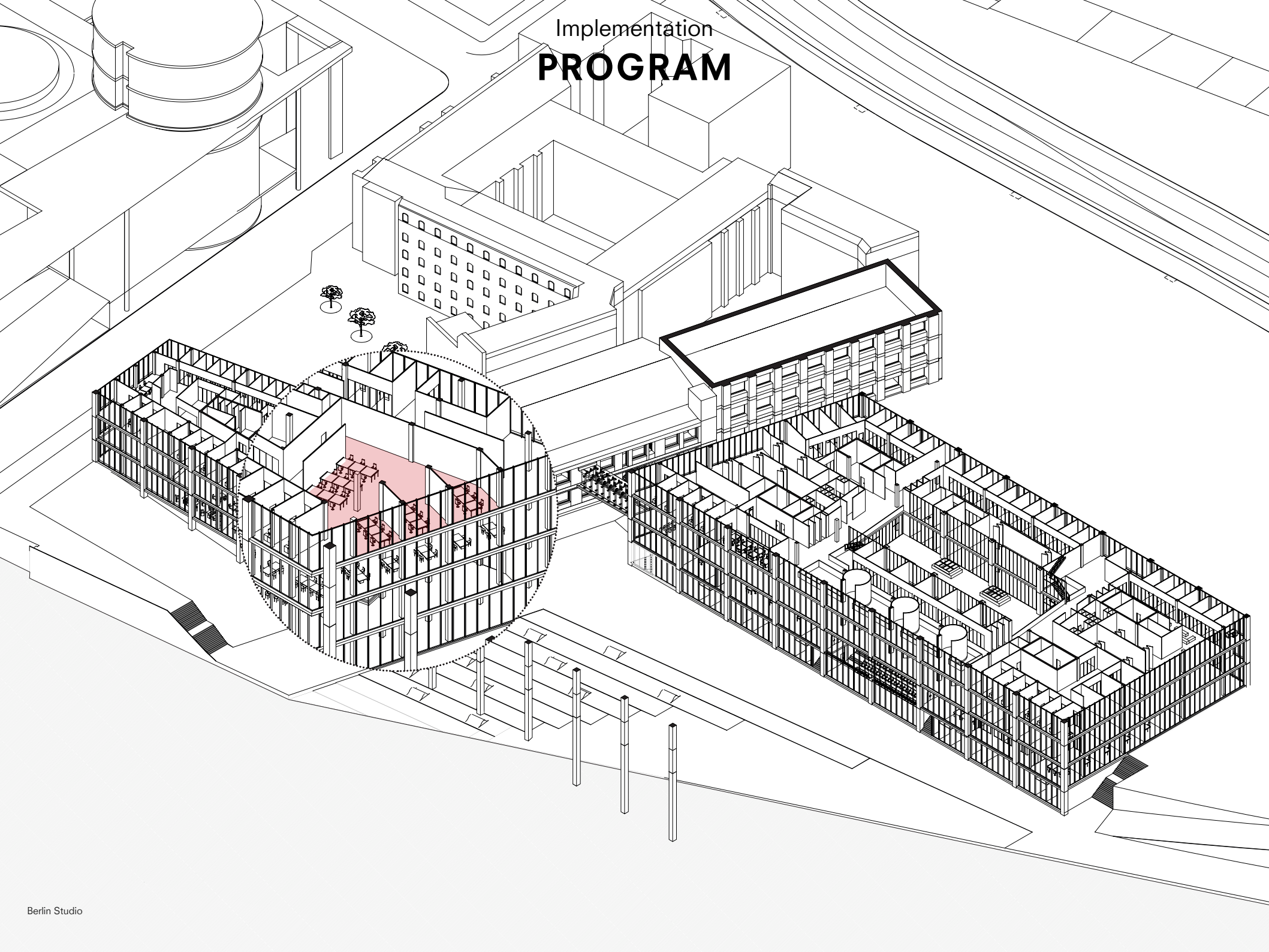
Implementation

PROGRAM



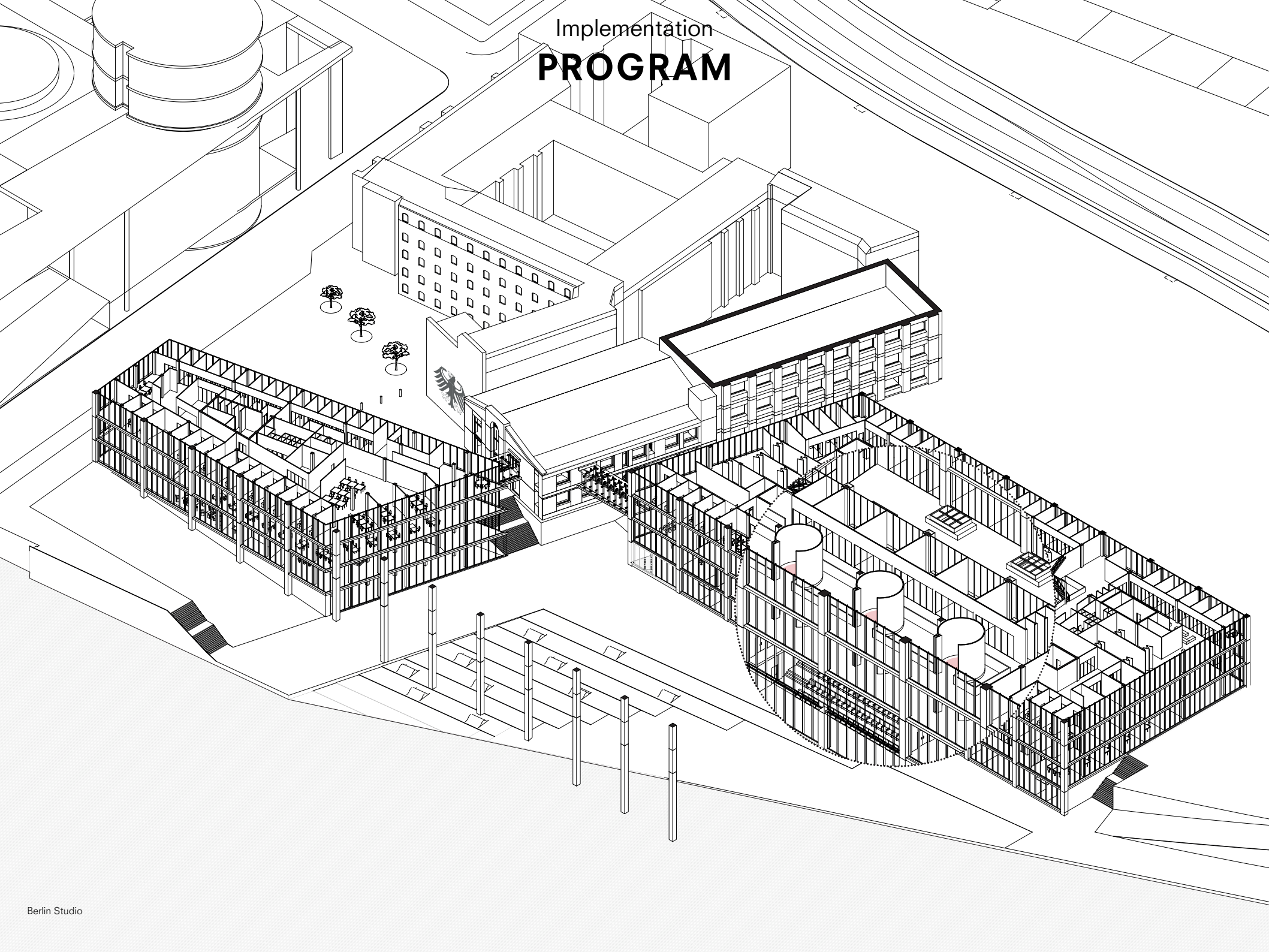
Implementation

PROGRAM



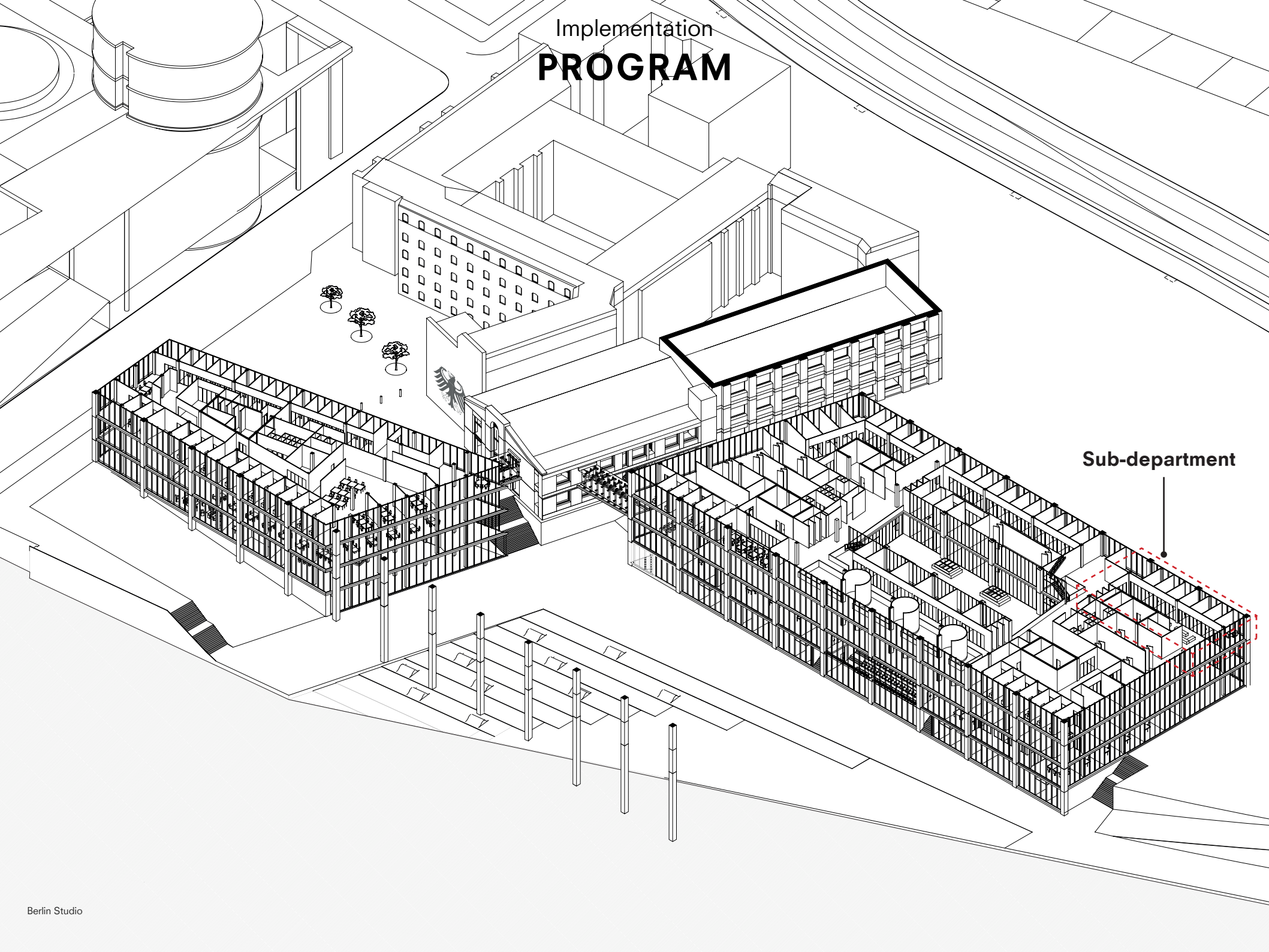
Implementation

PROGRAM

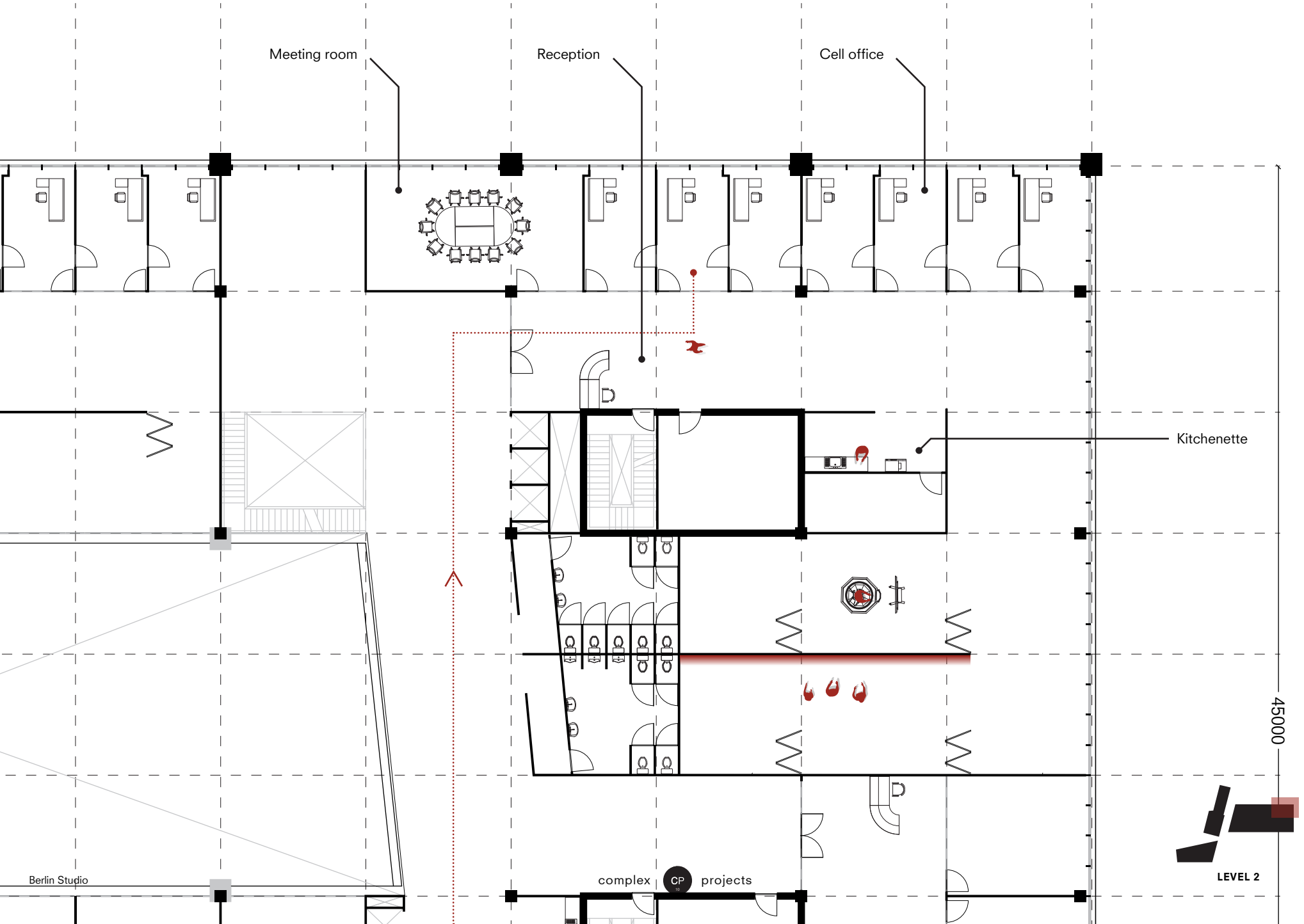


Implementation

PROGRAM



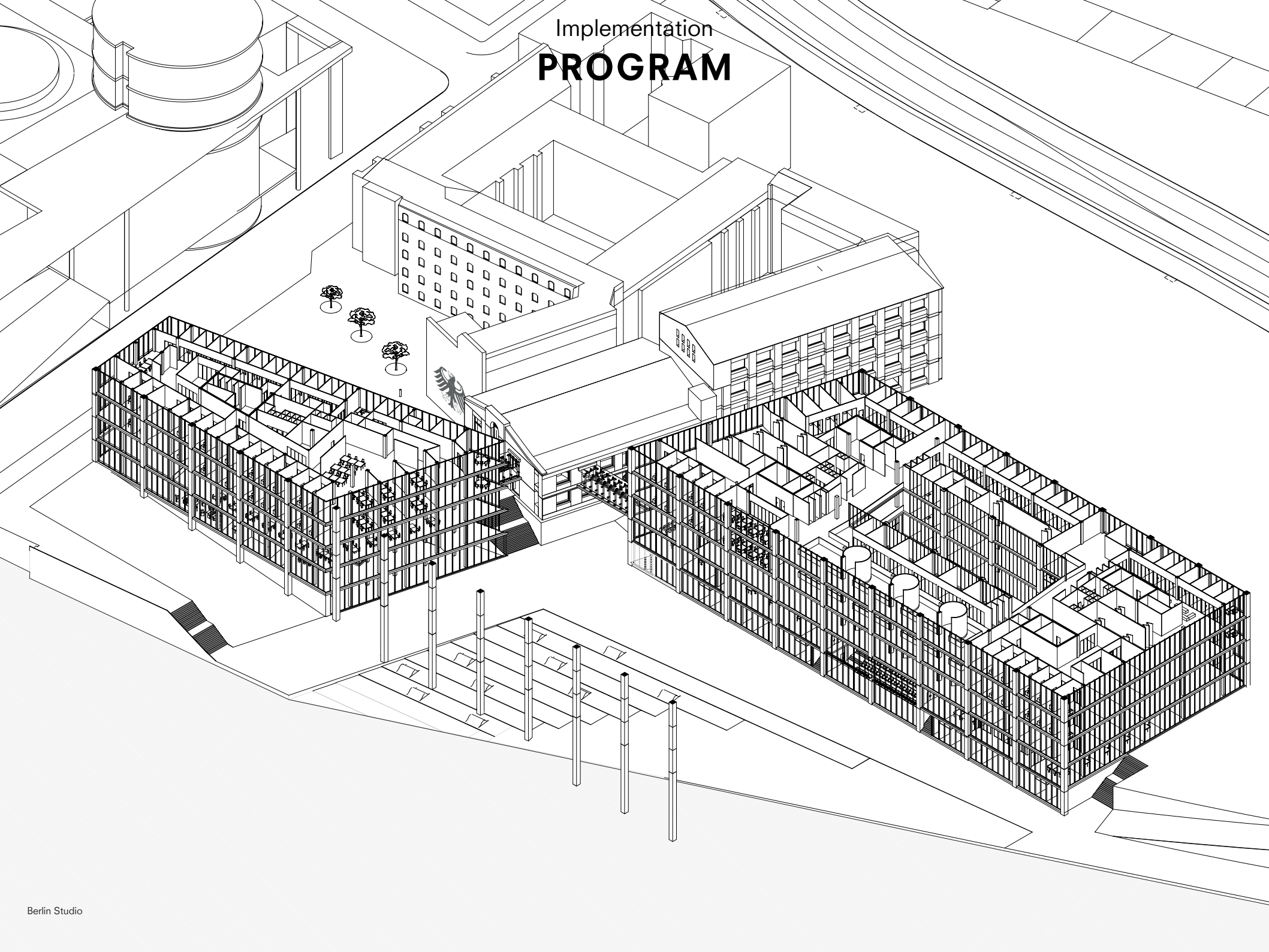
PROGRAM



LEVEL 2

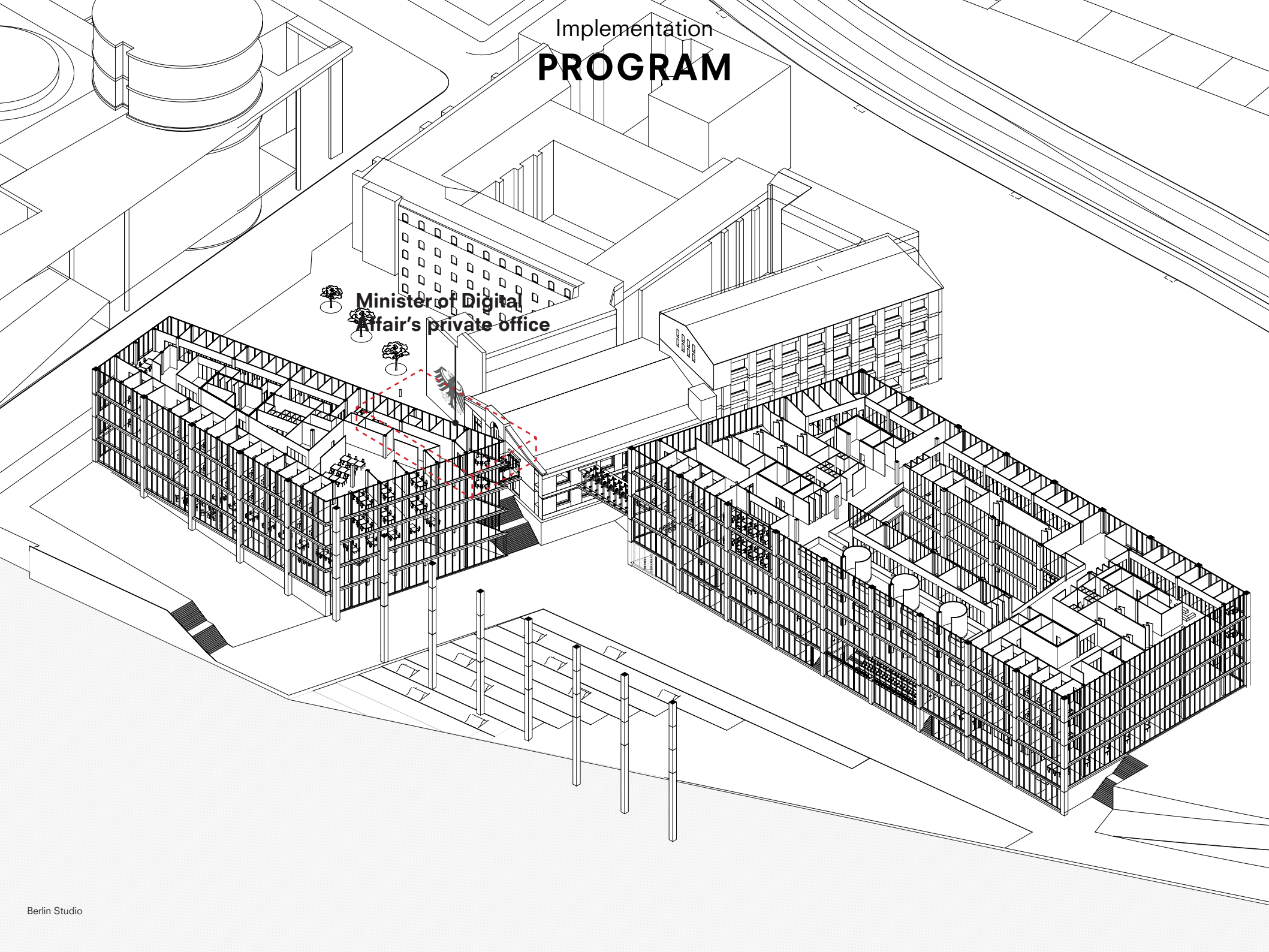
Implementation

PROGRAM



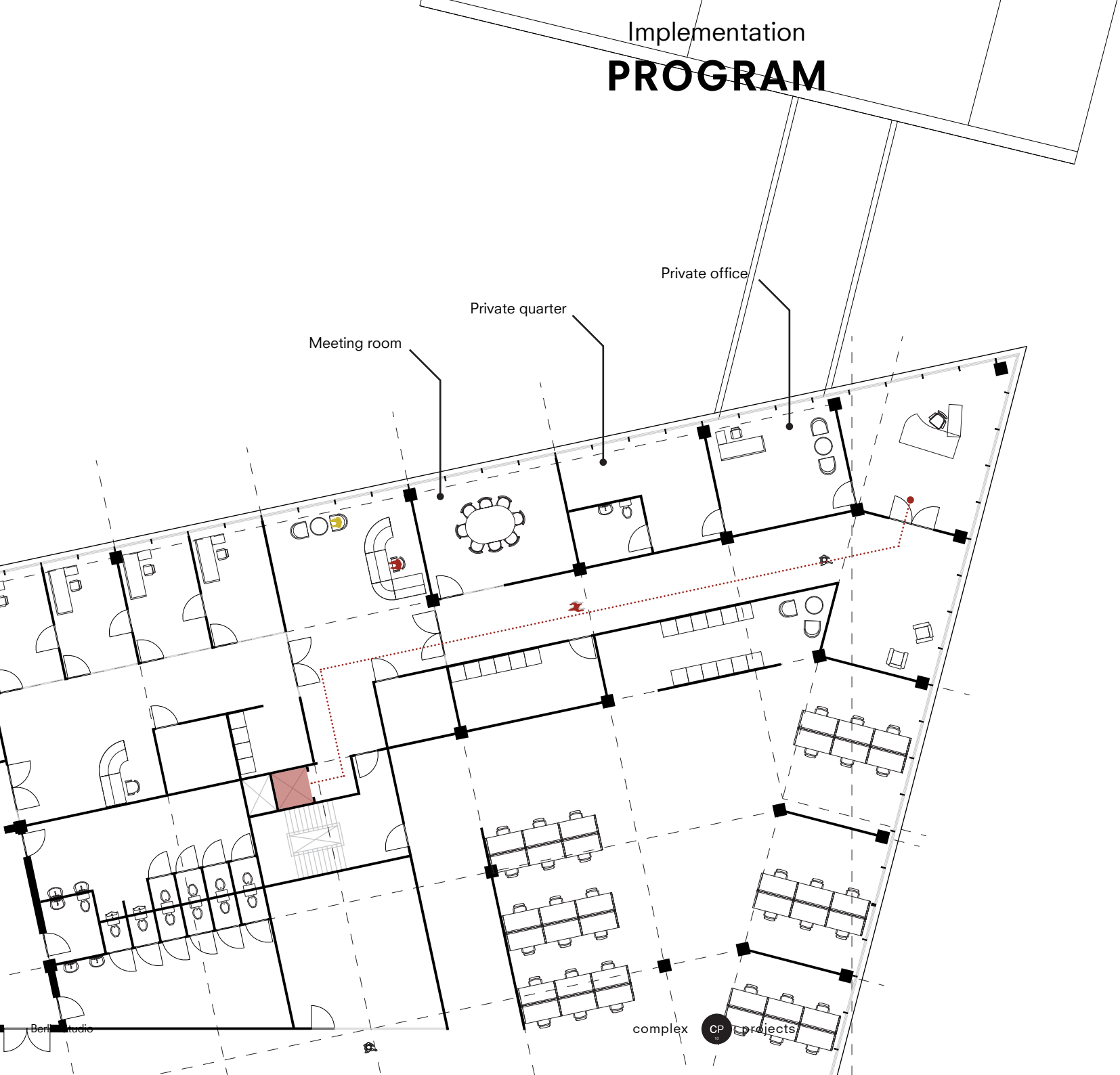
Implementation

PROGRAM



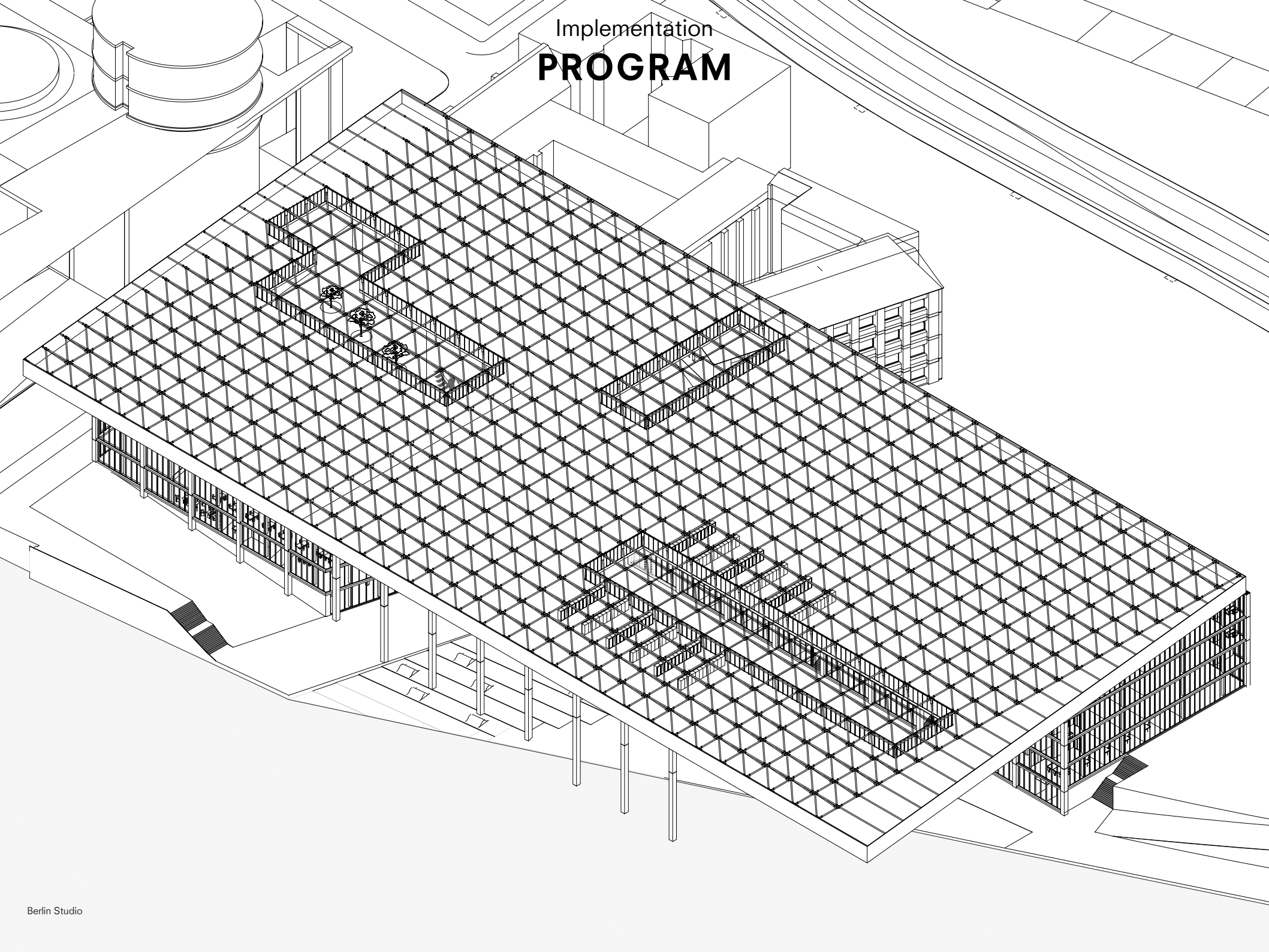
Implementation

PROGRAM



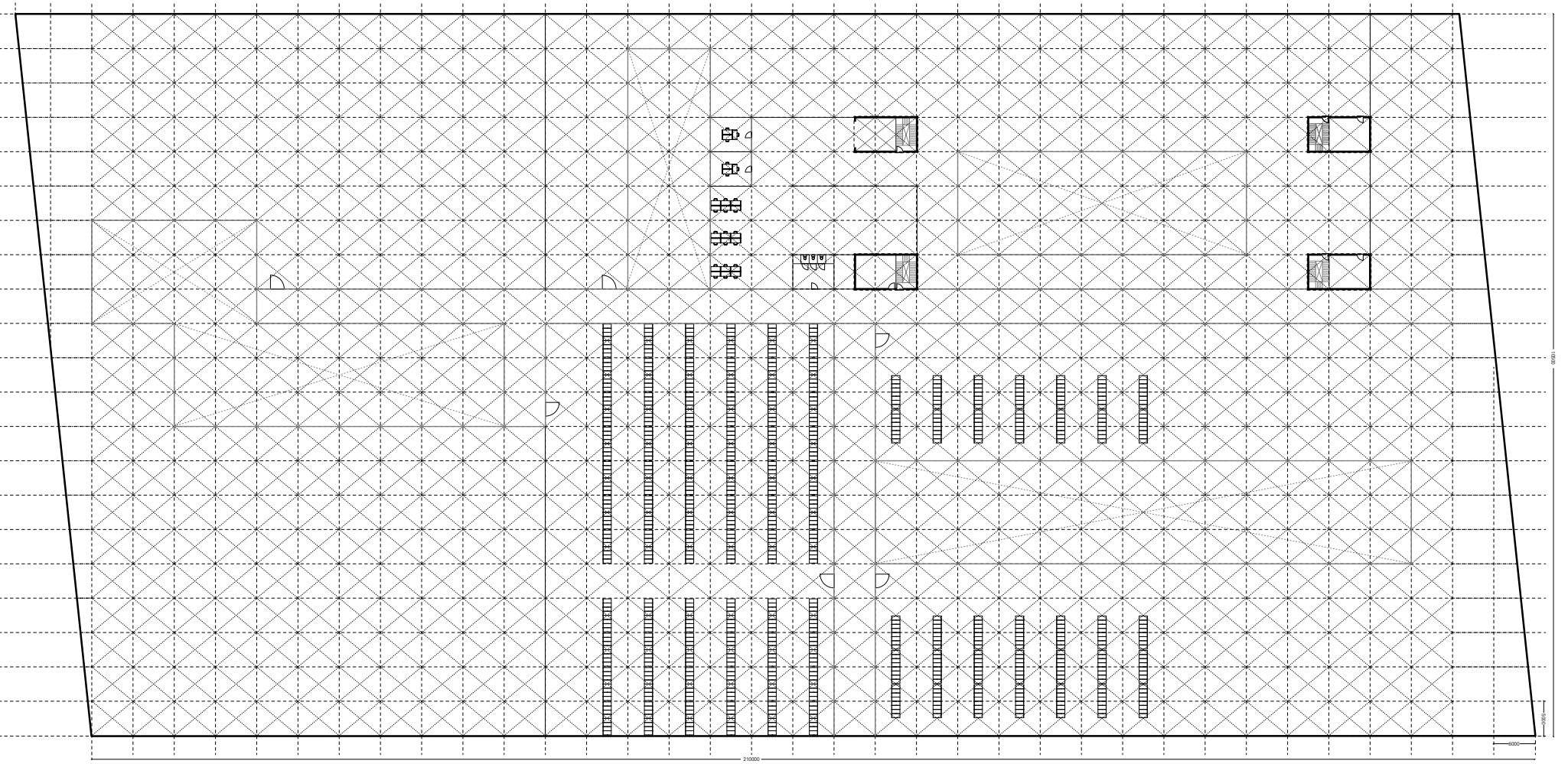
Implementation

PROGRAM



Implementation

PROGRAM



DATA CENTRE

ASSUMING

Solar panel efficiency = 20%
Power usage effectiveness = 1.5

POWER CONSUMPTION

3800 m^2 x 200 W/m^2 = 760,000 W

TOTAL CONSUMPTION

760,000 W x 1.5 (PUE) = 1,140,000 W

SOLAR PANEL OUTPUT

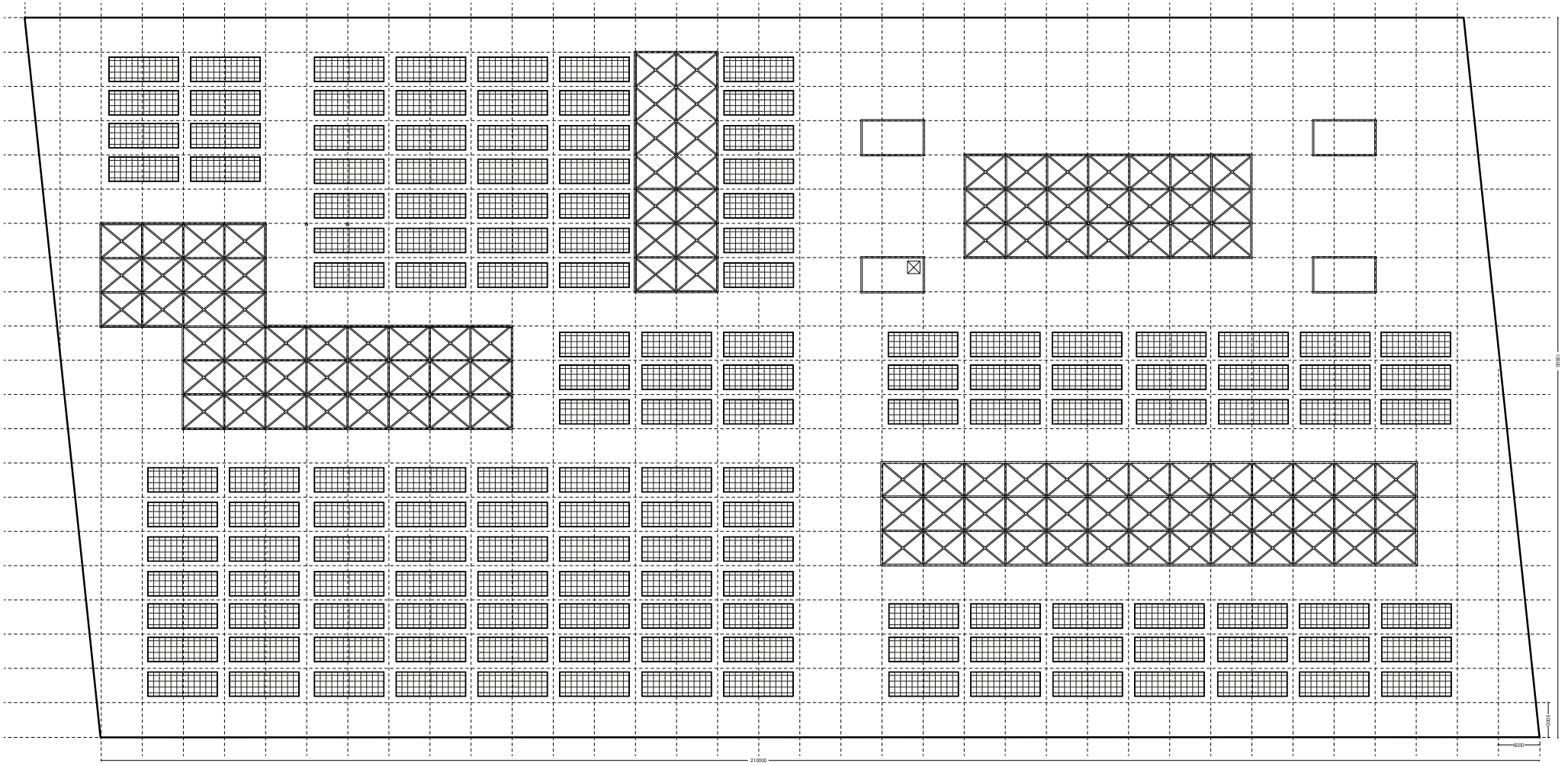
22,000 m^2 x 1000 W/m^2 x 0.2 (efficiency) = 4,400,000 W

SOLAR PANEL OUTPUT
4,400,000 W

MAX. REQUIRED ENERGY
1,140,000 W

Implementation

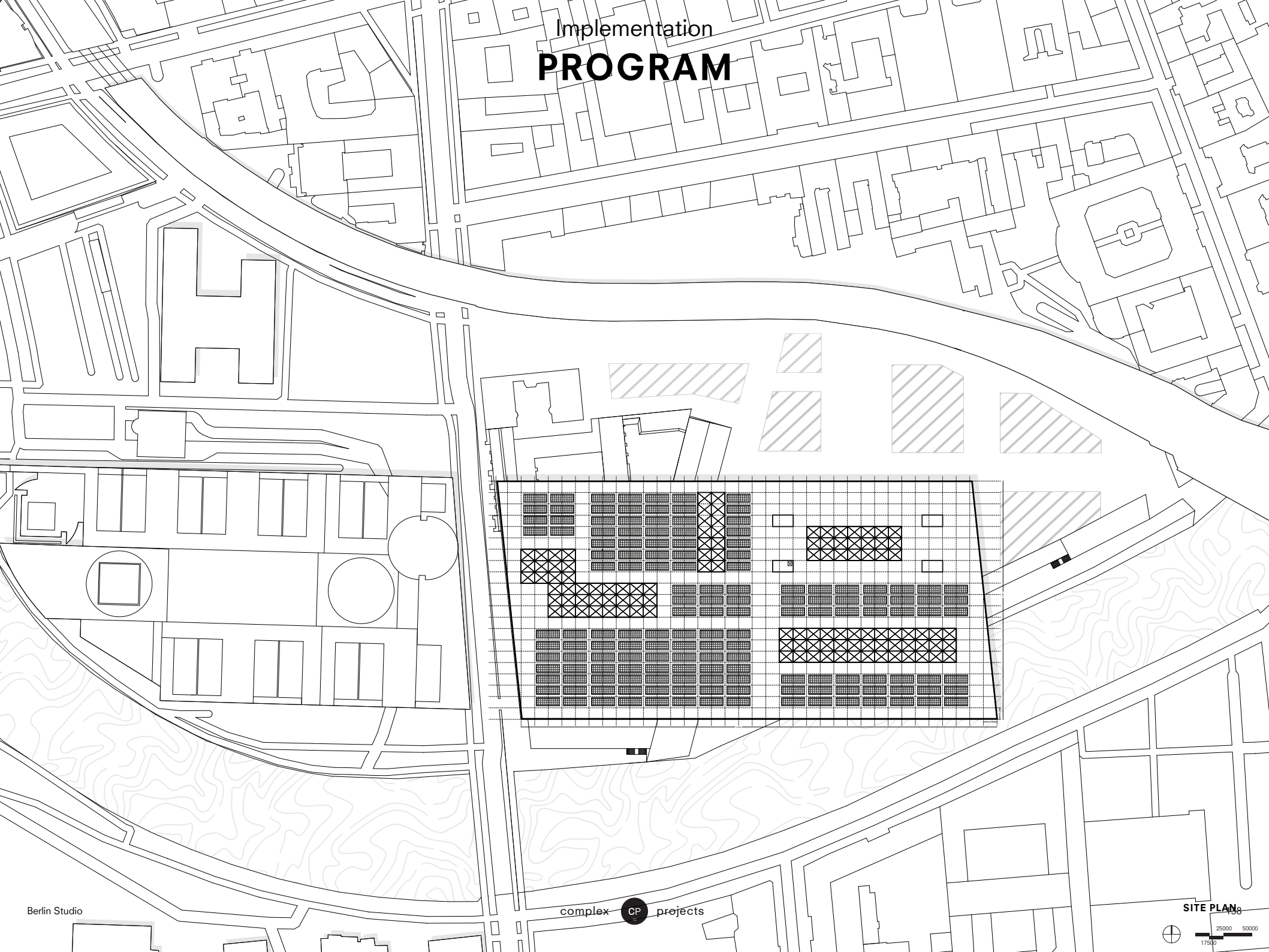
PROGRAM



1750 2500 5000 (mm)

Implementation

PROGRAM



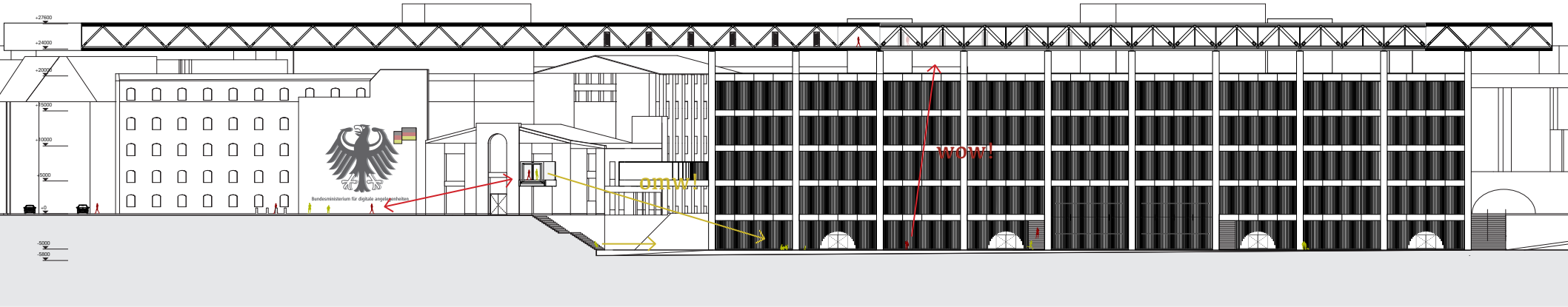
SITE PLAN

25000 50000

17500

Implementation

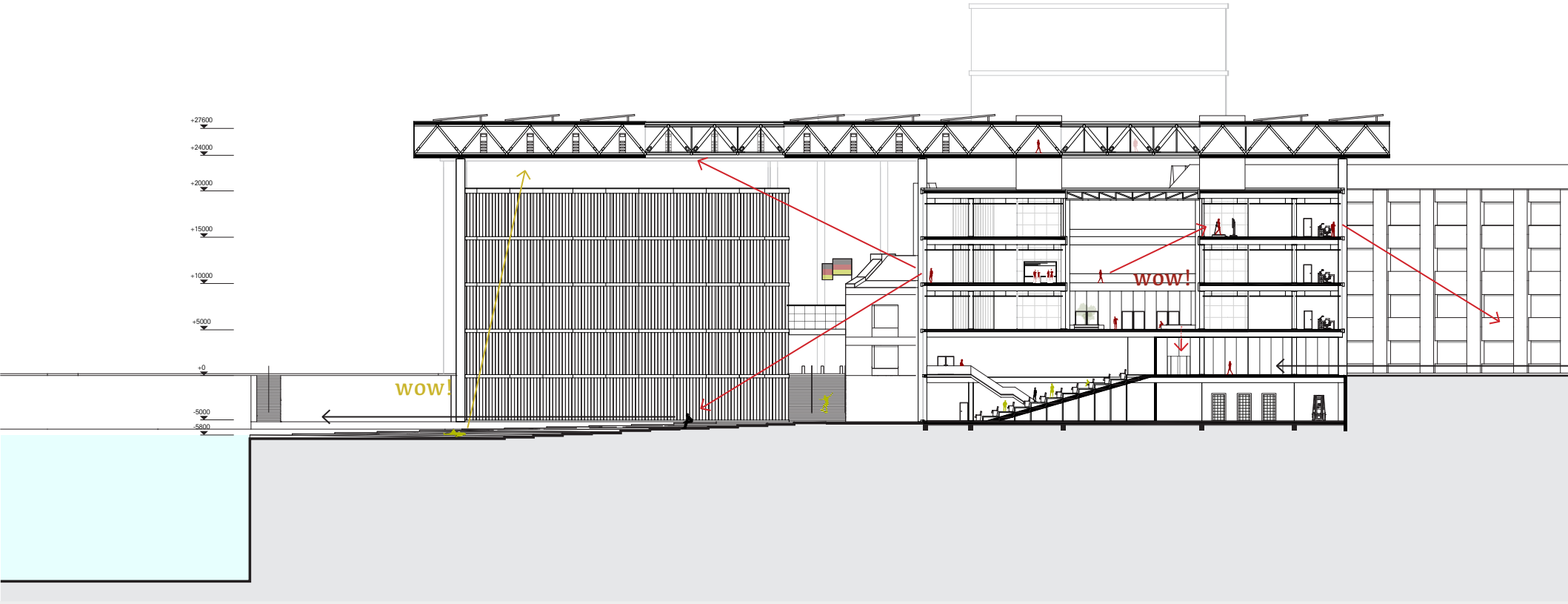
AN ENVIRONMENT OF INTERACTION



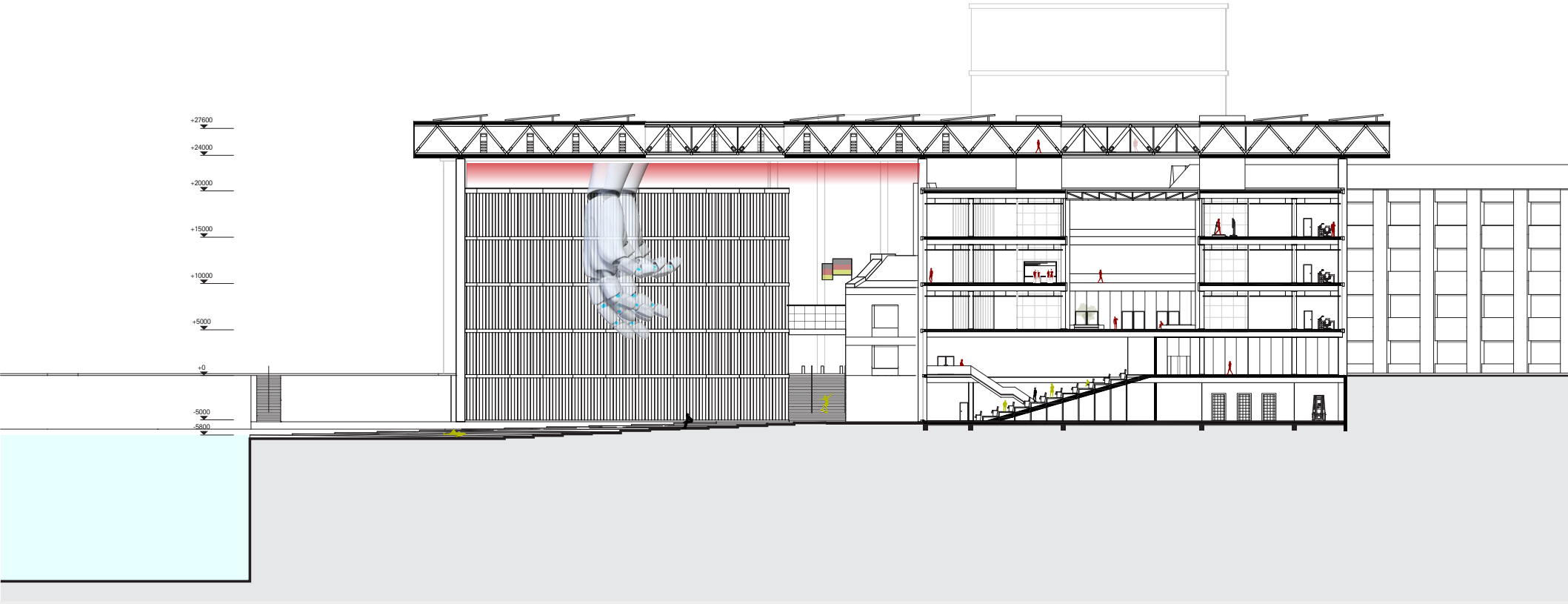
PROGRAM



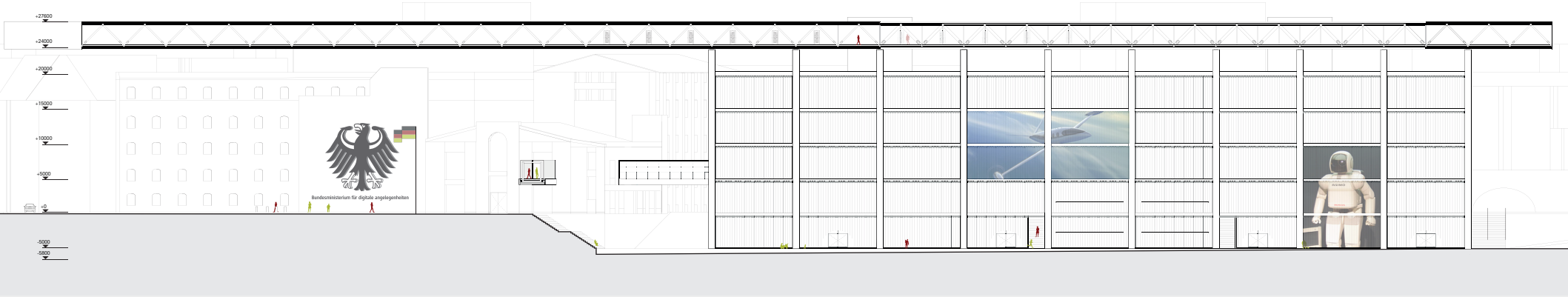
AN ENVIRONMENT OF INTERACTION



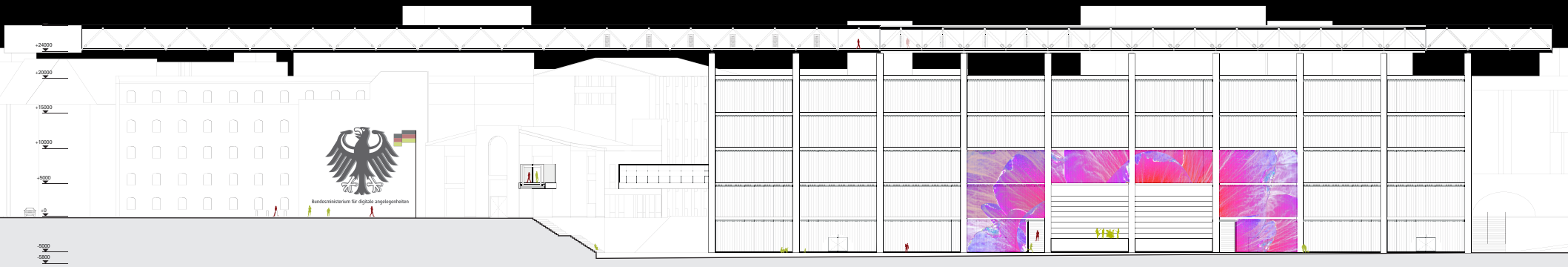
AN ENVIRONMENT OF INTERACTION HUMAN AND DIGITAL



THE BUILDING AS A DISPLAY



THE BUILDING AS A DISPLAY

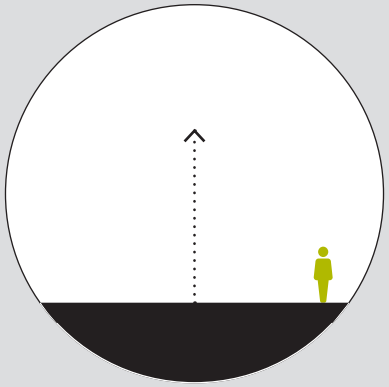


ROLE OF THE FACADE

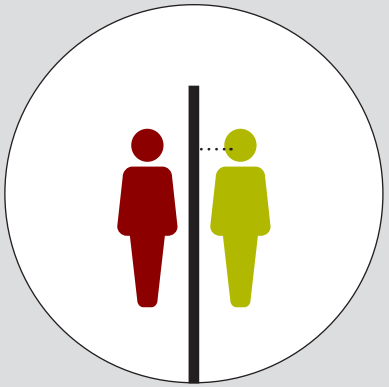
FACADE PRINCIPLES



FORMAL AESTHETIC



EMPHASIZE VERTICALITY



PRIVACY CONTROL

FACADE PRINCIPLES



RECOGNISABLE YET AN EVOLUTION OF AN EXISTING VERNACULAR

FACADE PRINCIPLES



FINAL STEP OF THE URBAN PLAN

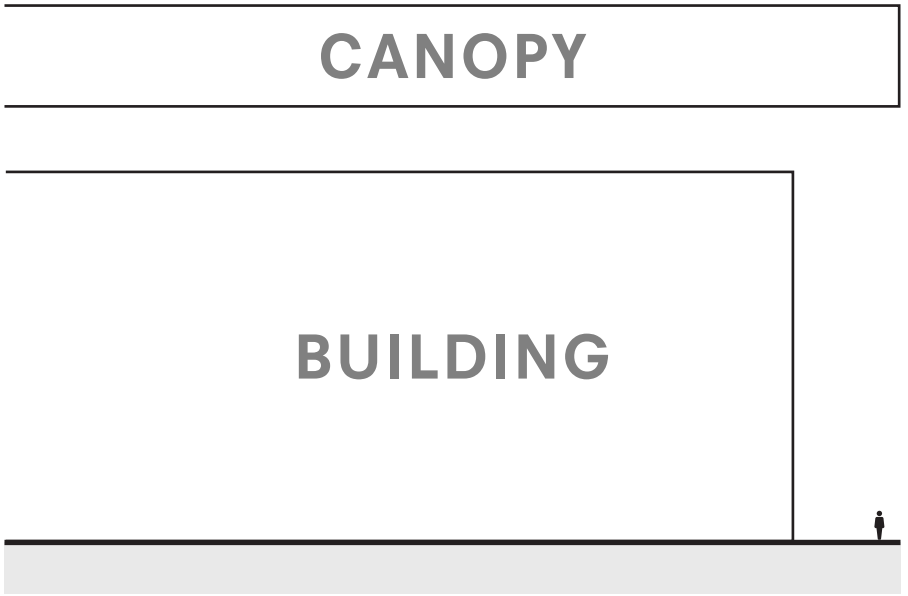
FACADE PRINCIPLES



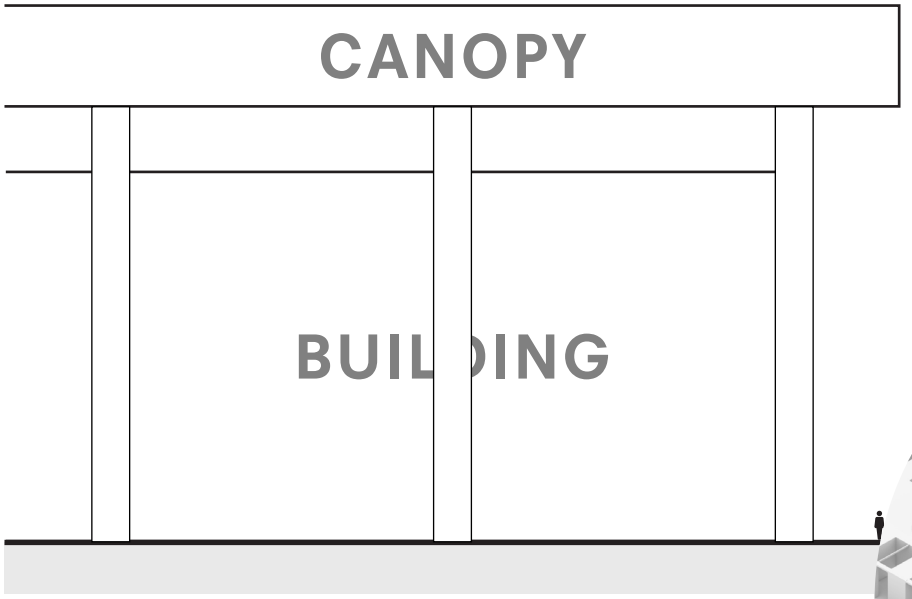
EMPHASISES VERTICALITY, YET MAINTAINS AN OPEN IMPRESSION

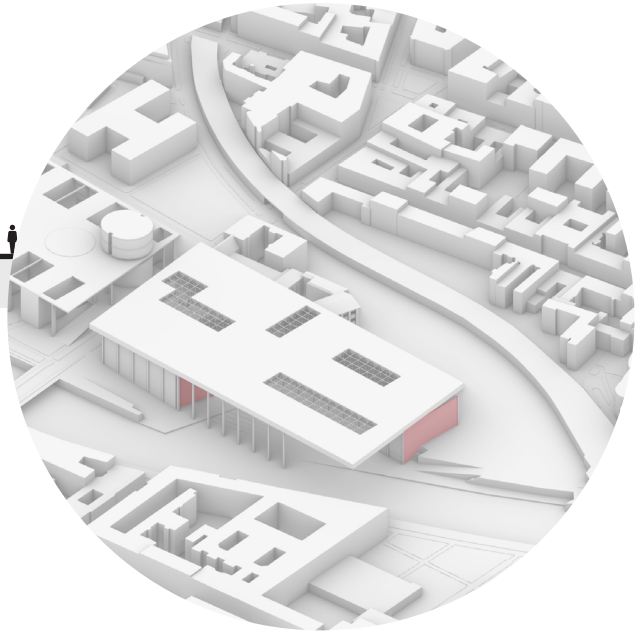
Implementation

FACADE DEVELOPMENT

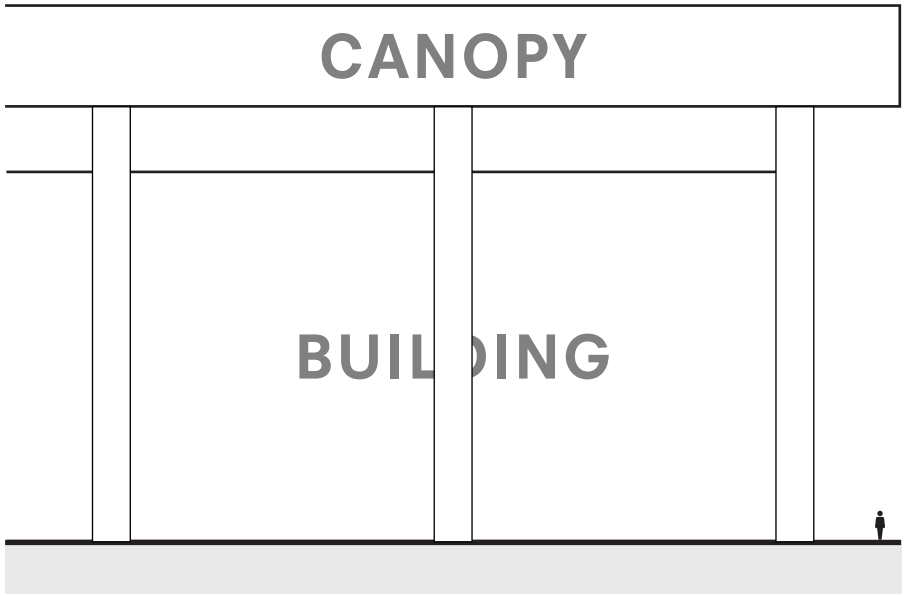


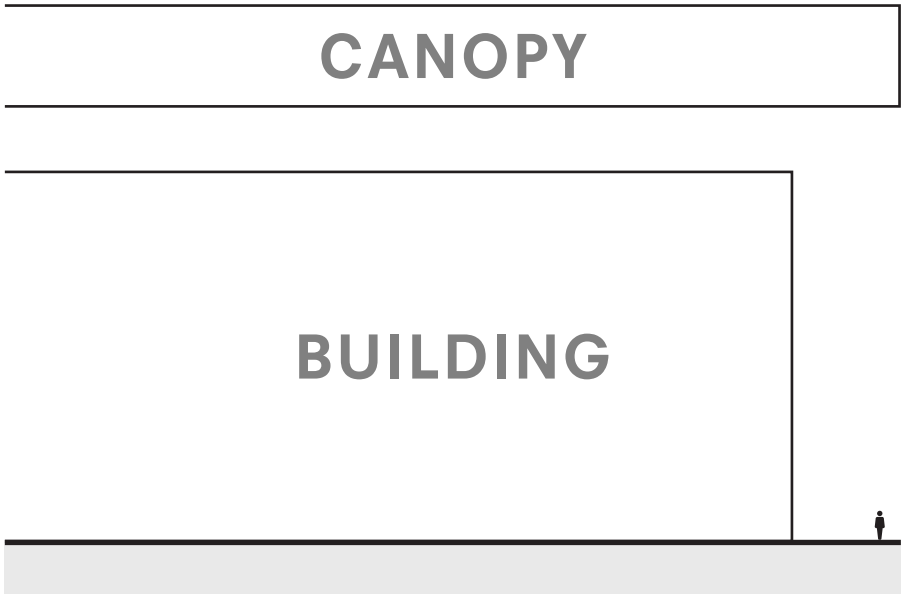
FACADE DEVELOPMENT



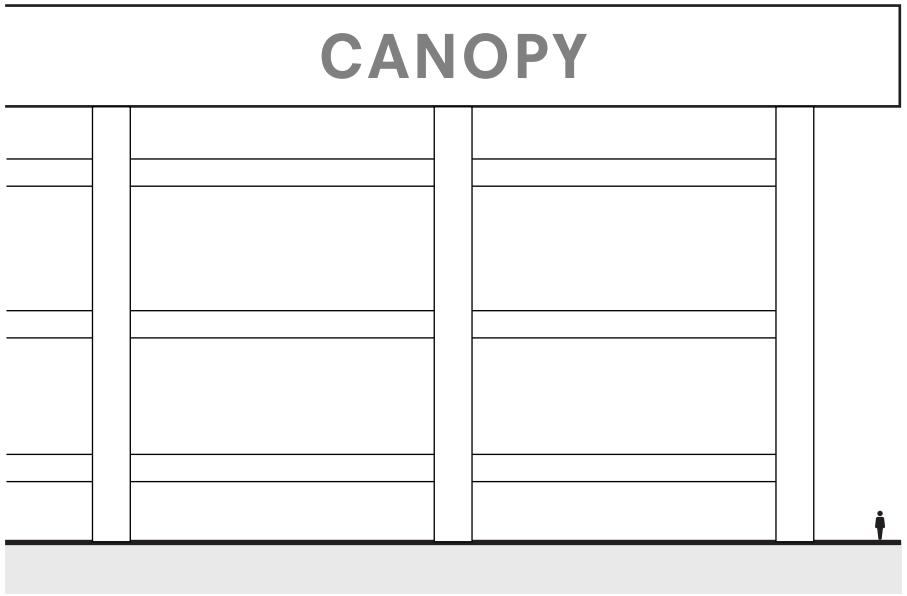


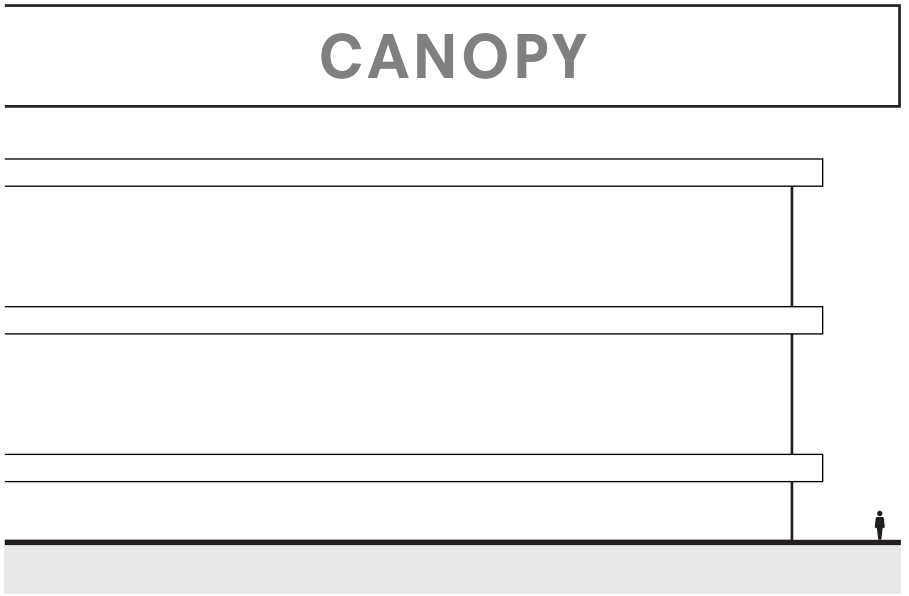
FACADE DEVELOPMENT



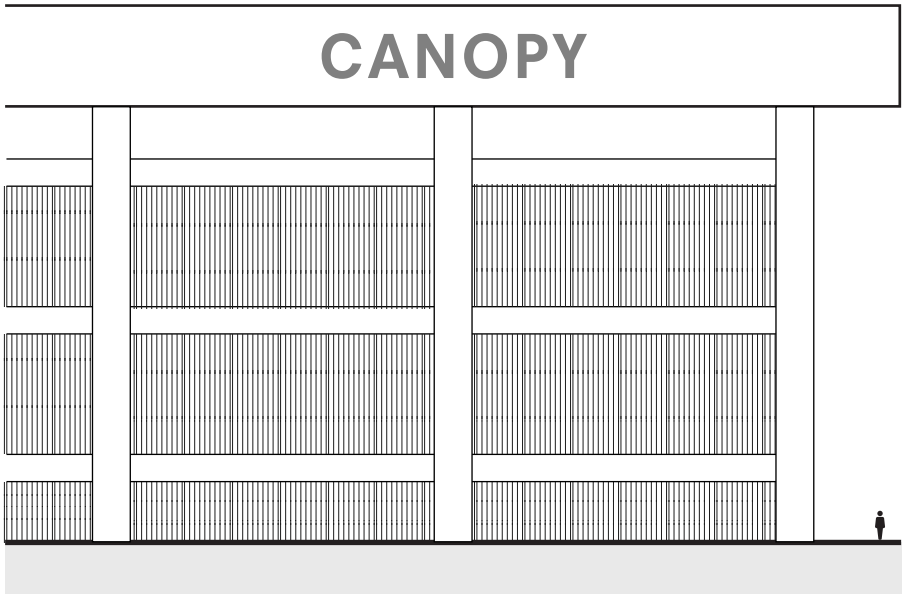


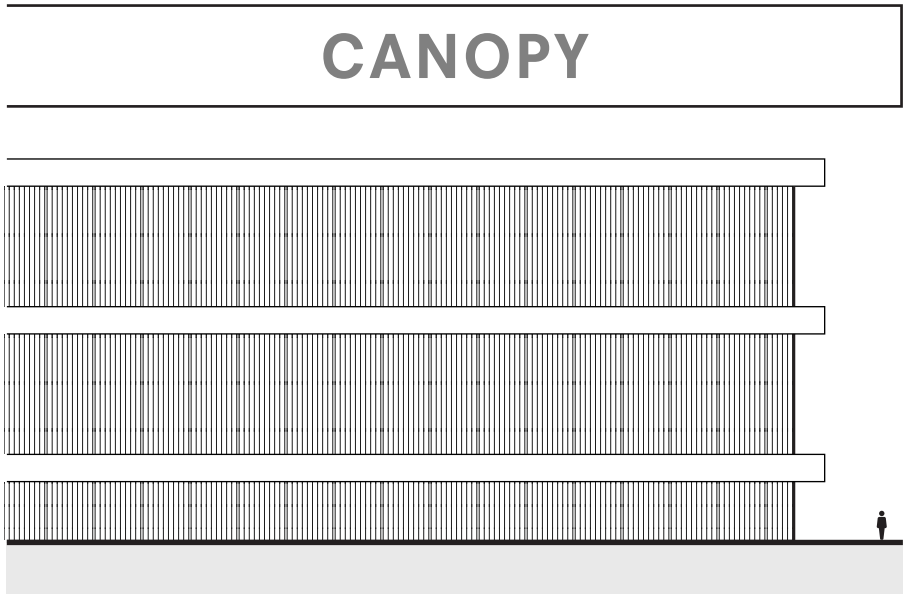
FACADE DEVELOPMENT





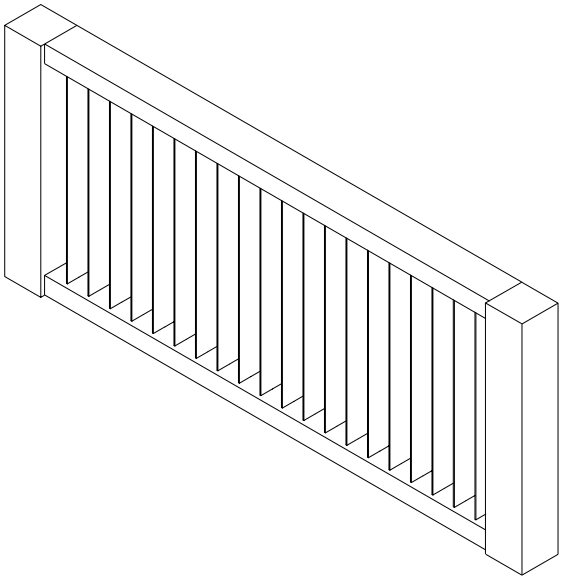
FACADE DEVELOPMENT

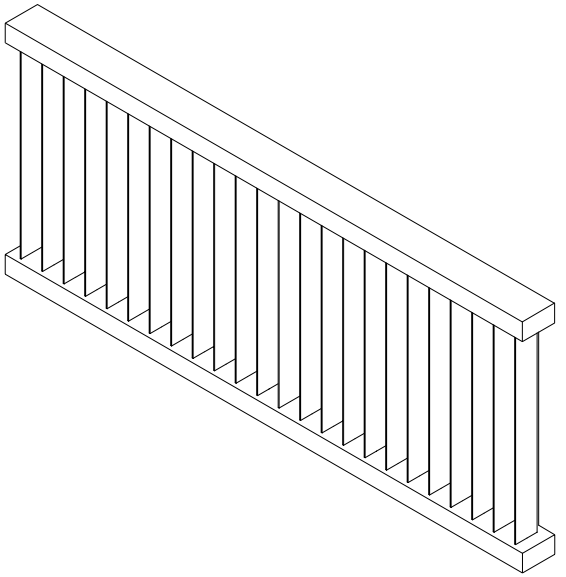




FACADE DEVELOPMENT

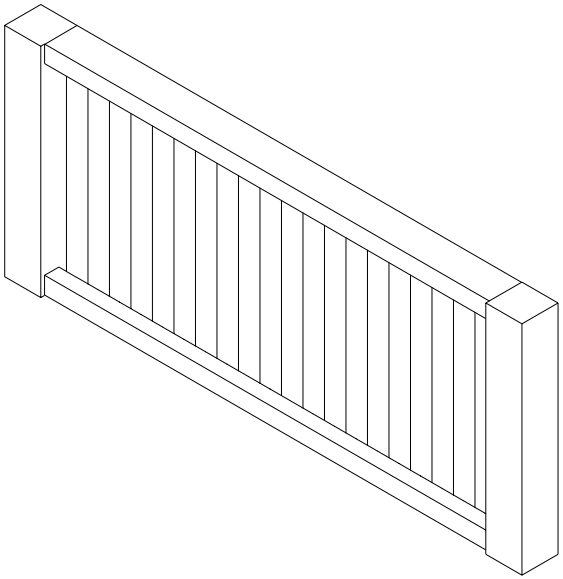
OPEN ORIENTATION

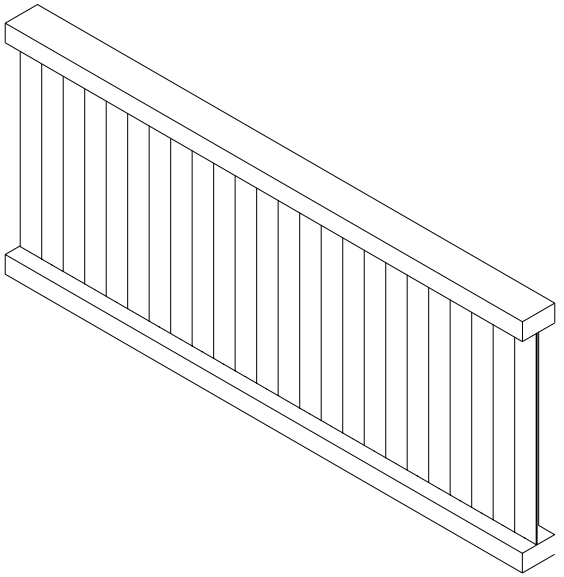




FACADE DEVELOPMENT

CLOSED ORIENTATION

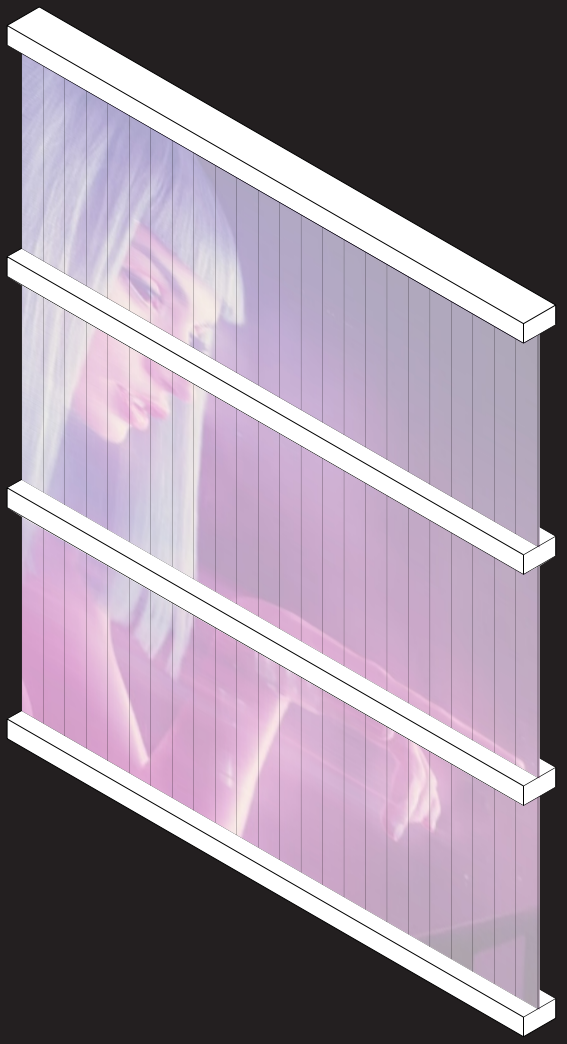




Implementation

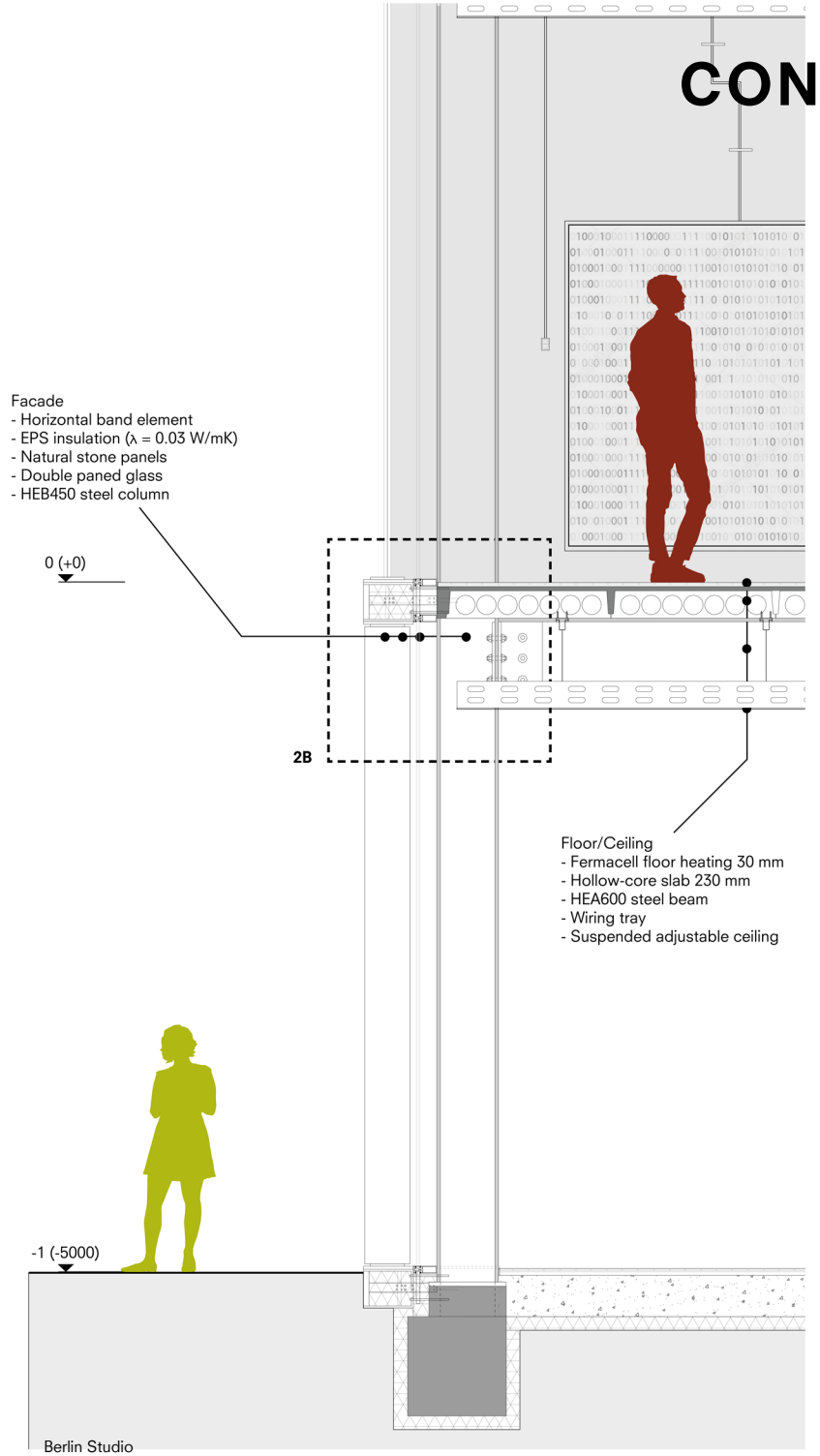
FACADE DEVELOPMENT

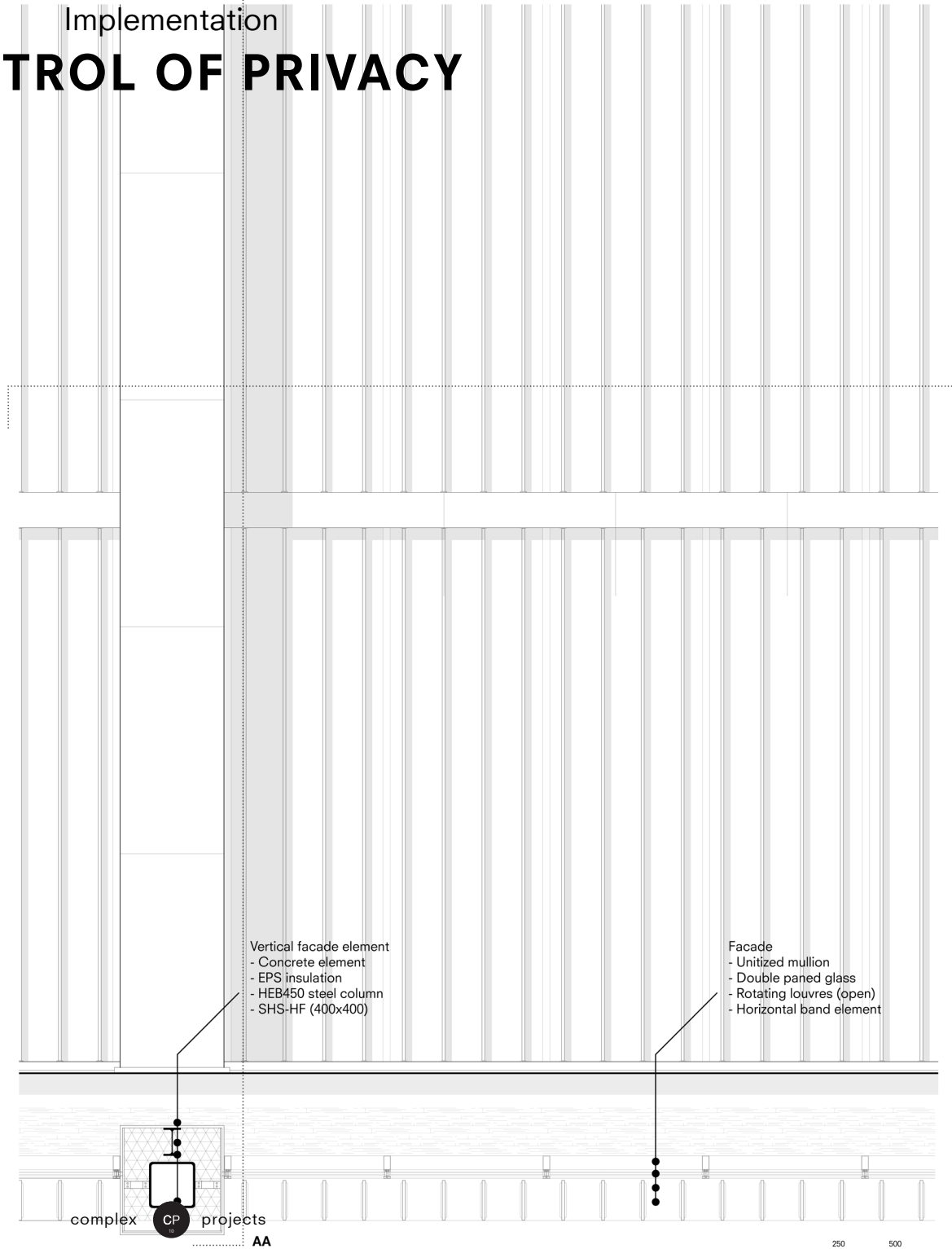




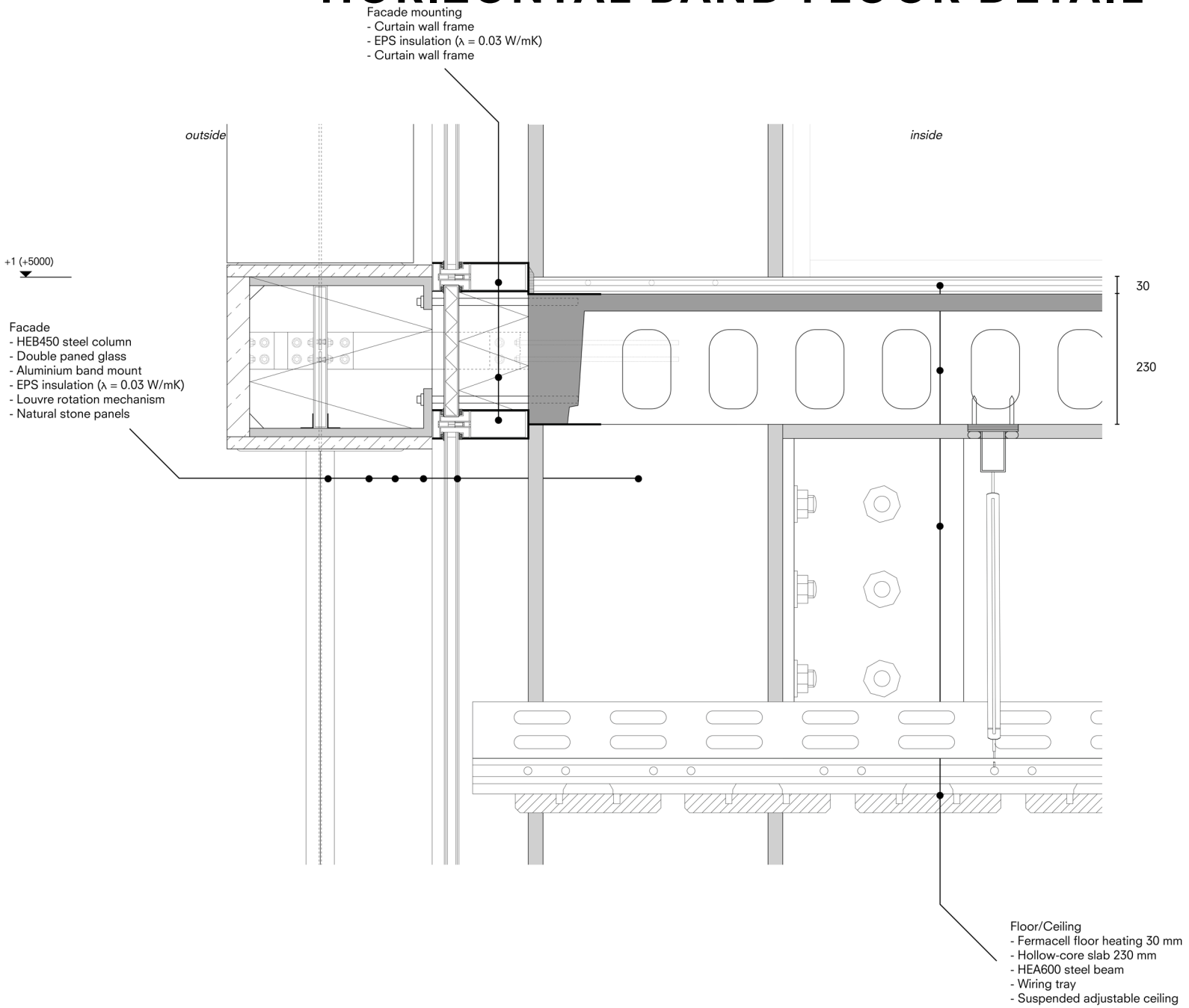
Implementation

CONTROL OF PRIVACY



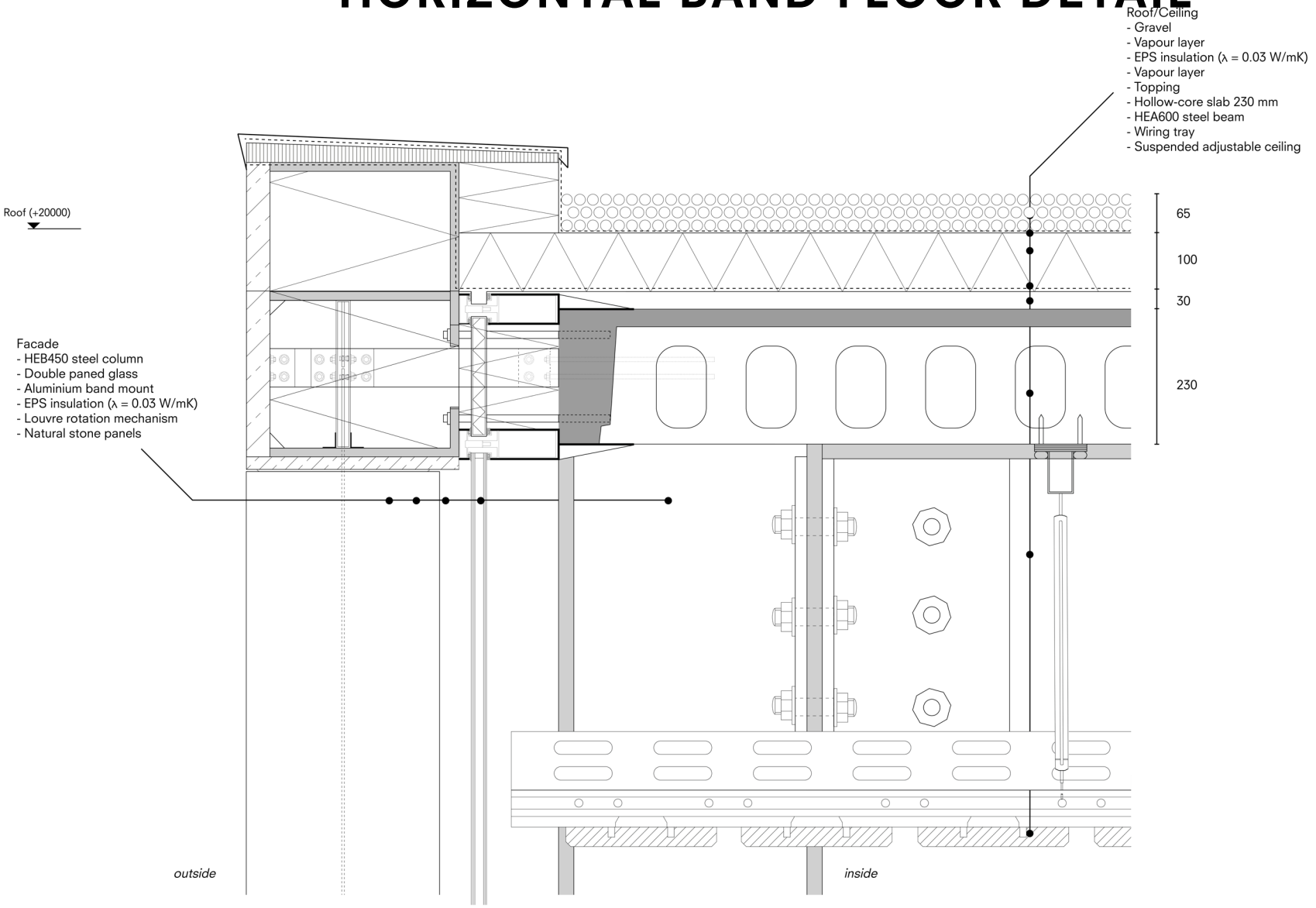


HORIZONTAL BAND FLOOR DETAIL



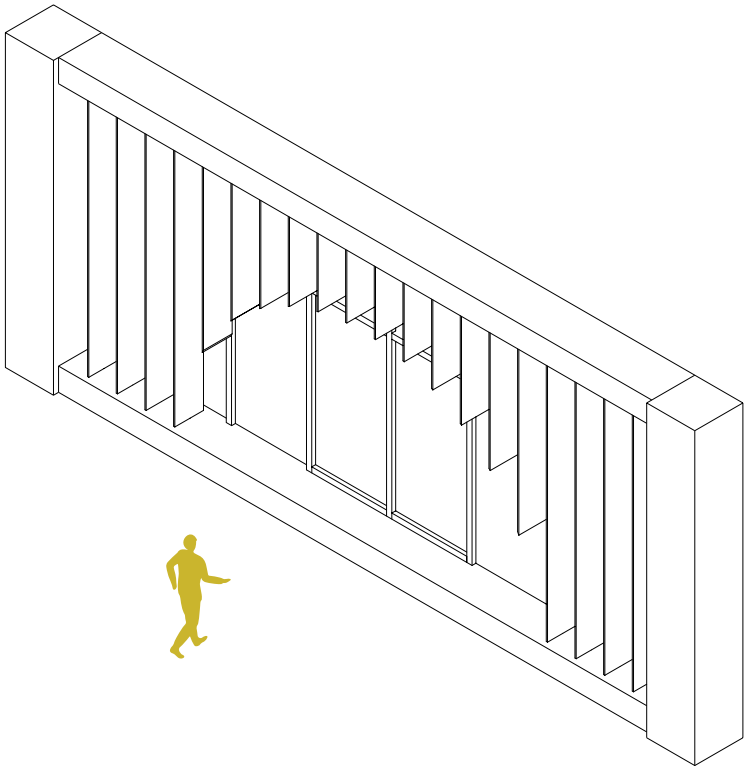
250 500 1000

HORIZONTAL BAND FLOOR DETAIL



250 500 1000

FACADE AS AN INDICATOR OF TRANSPARENCY



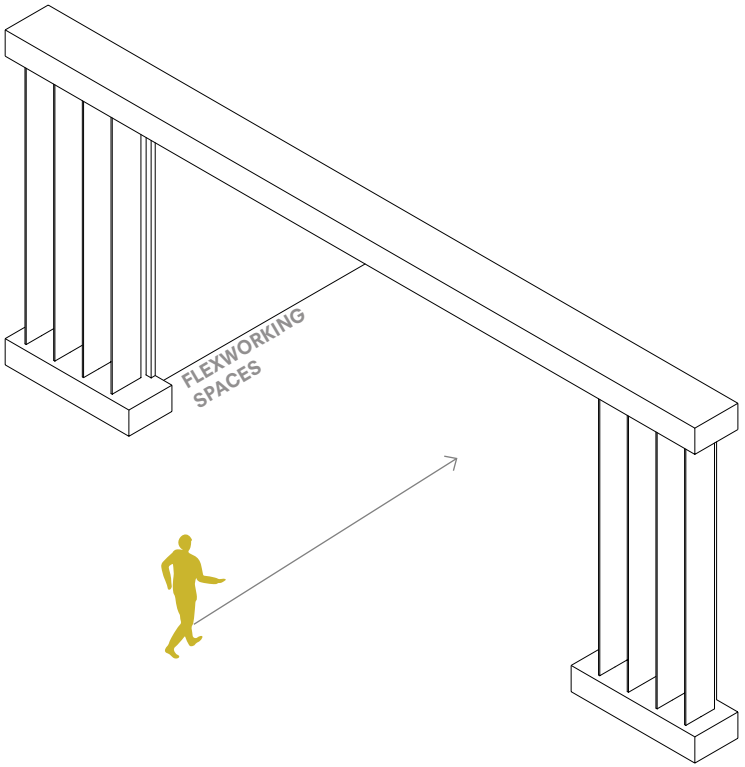
ASSOCIATION WITH OPPORTUNITY







FACADE AS AN INDICATOR OF TRANSPARENCY



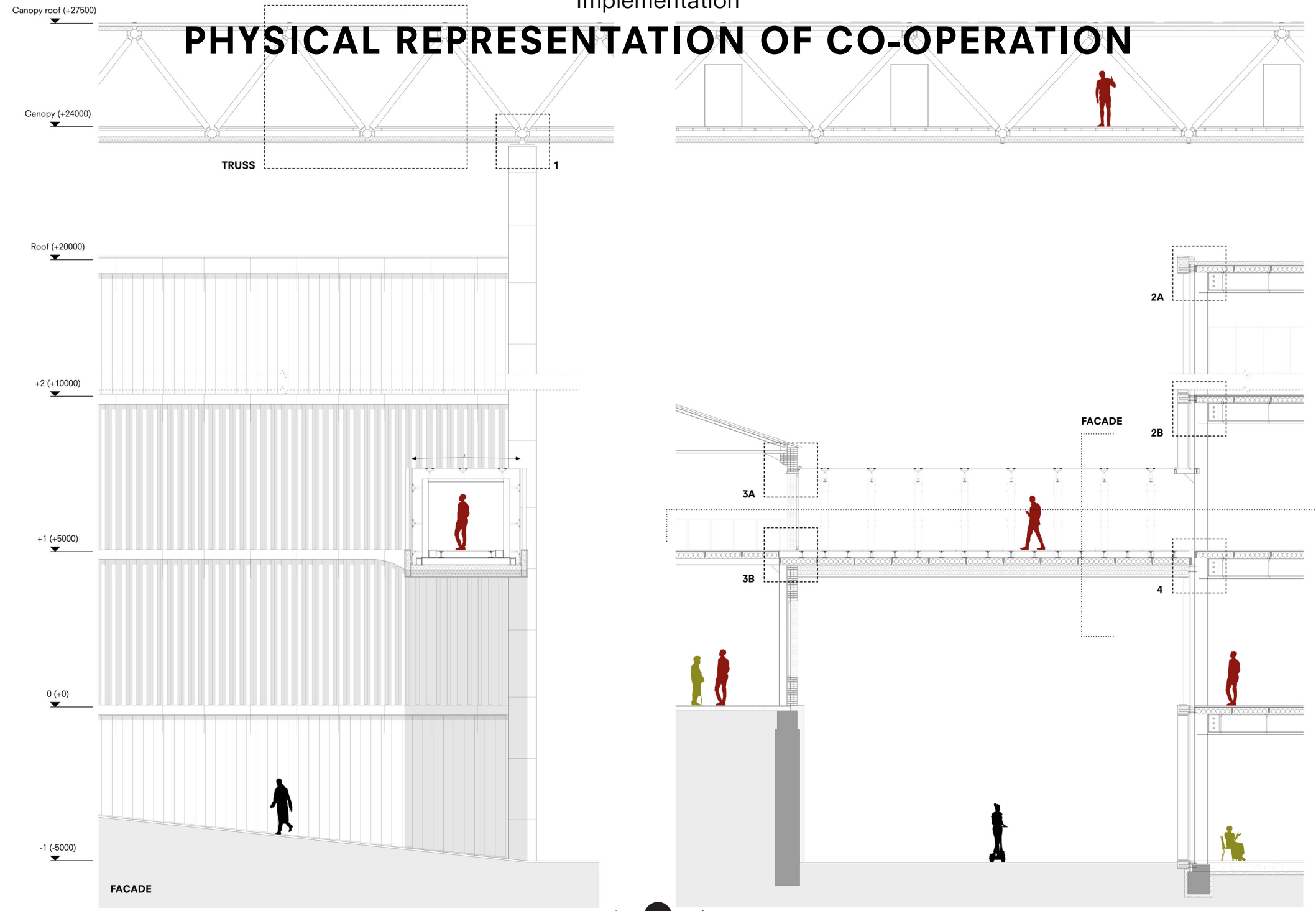
CONTEXTUALISED PASSAGE







PHYSICAL REPRESENTATION OF CO-OPERATION

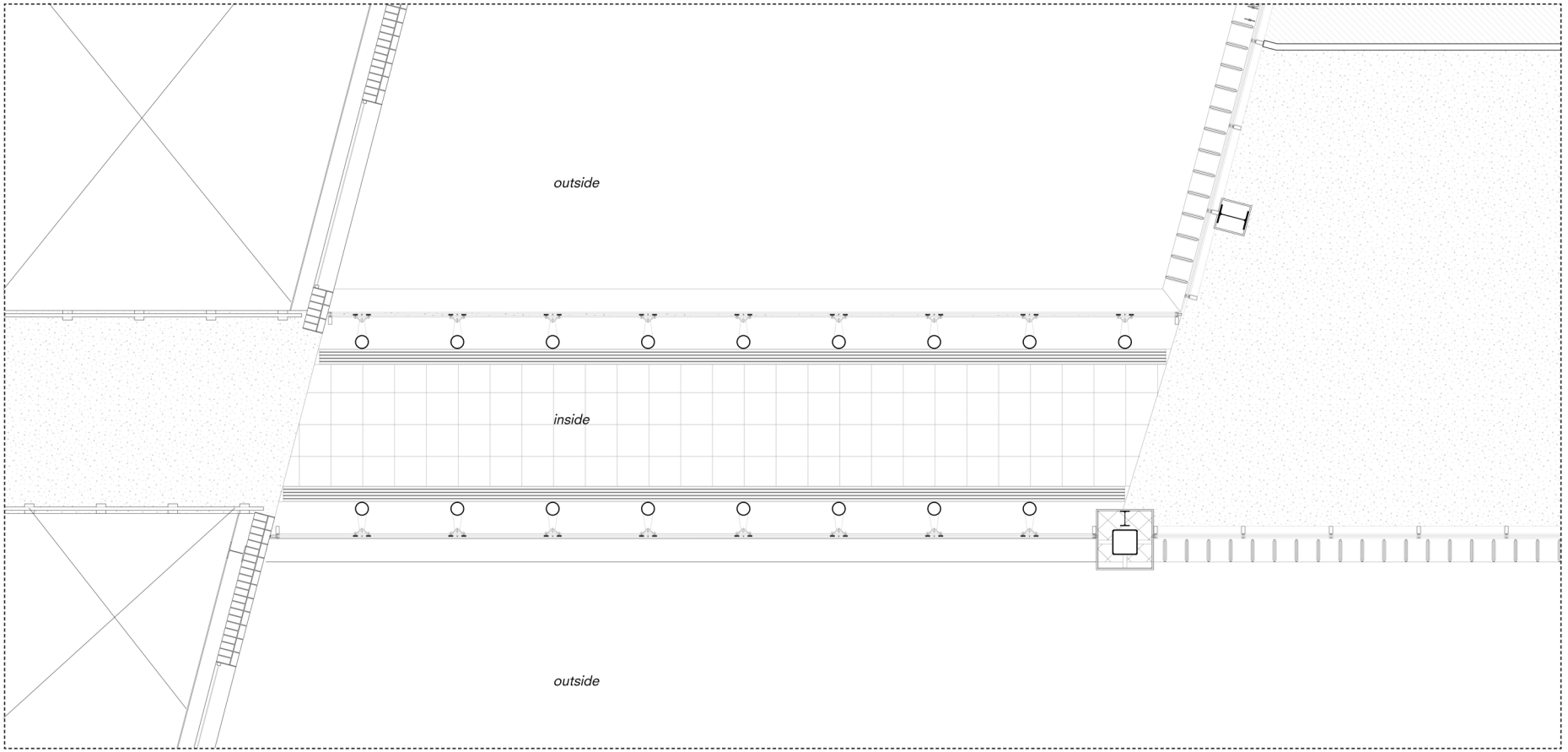


PHYSICAL REPRESENTATION OF CO-OPERATION

BB

PUBLIC

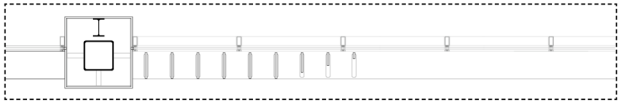
PRIVATE



CLOSED ORIENTATION

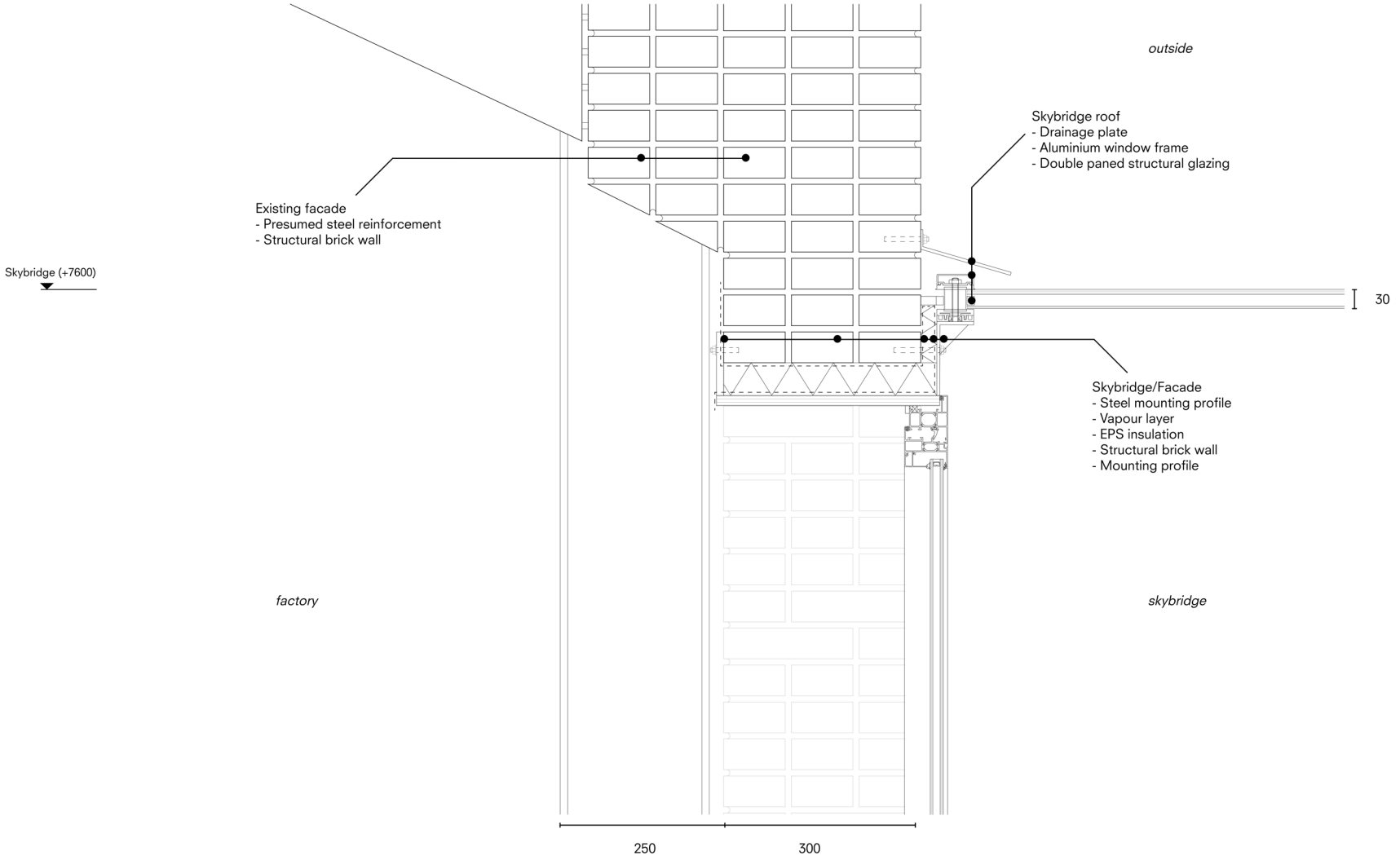


FACADE VARIATION

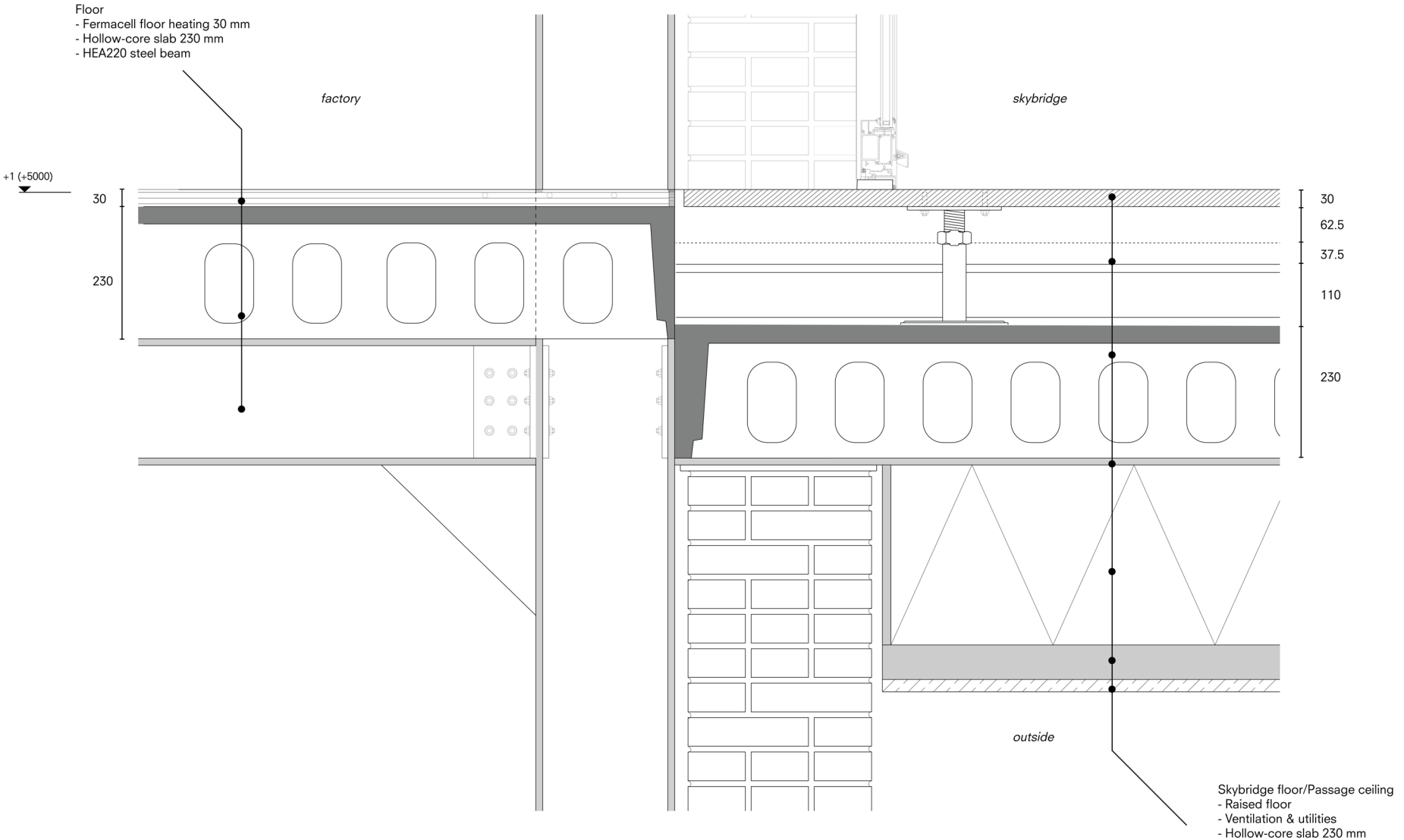


250 500 1000

SKYBRIDGE ROOF DETAIL (FACTORY-SIDE)



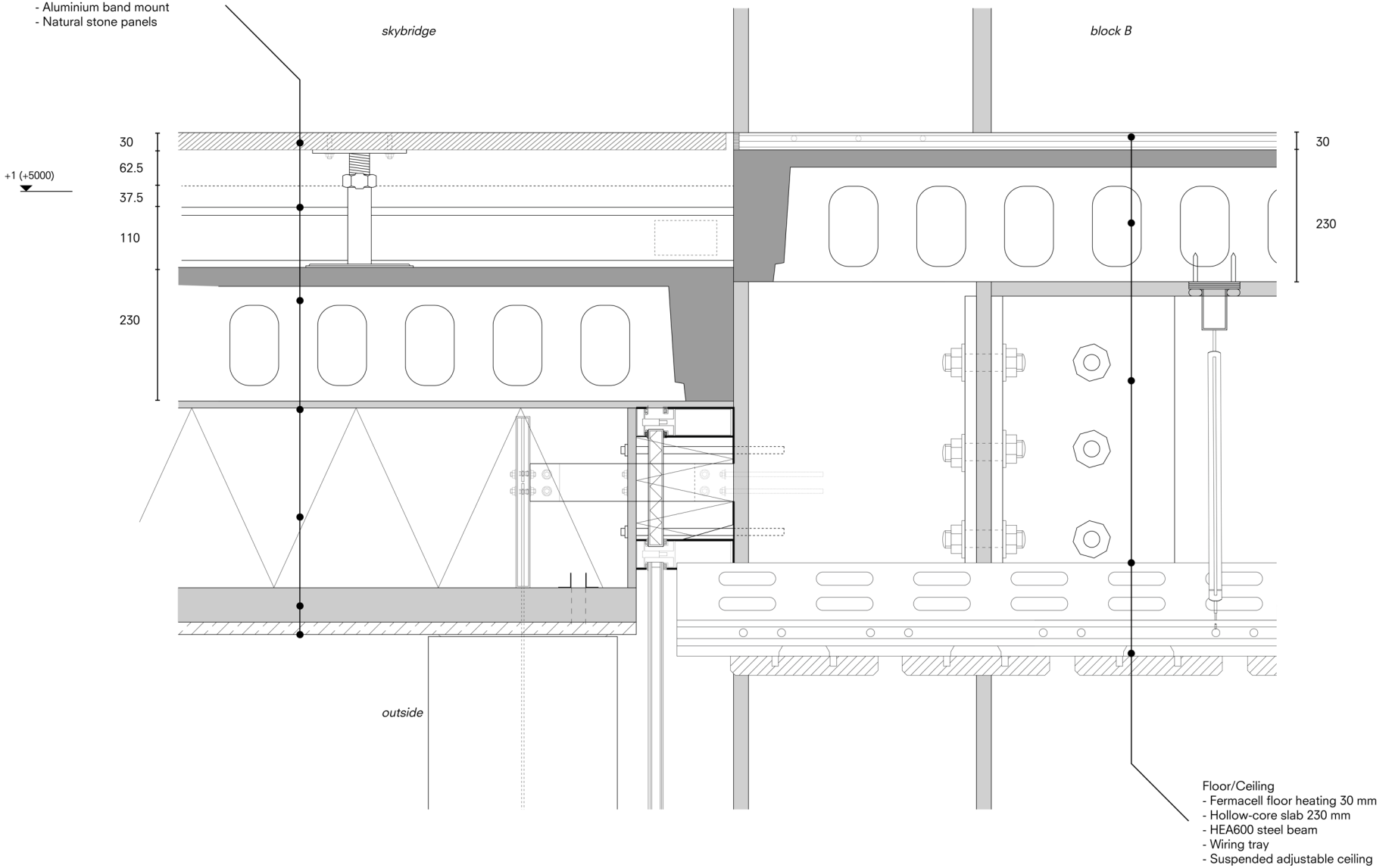
SKYBRIDGE FLOOR DETAIL (FACTORY-SIDE)



250 500 1000

SKYBRIDGE FLOOR DETAIL (BLOCK B-SIDE)

Skybridge floor/Passage ceiling
- Raised floor
- Ventilation & utilities
- Hollow-core slab 230 mm
- Steel corner profile
- EPS insulation (λ = 0.03 W/mK)
- Aluminium band mount
- Natural stone panels

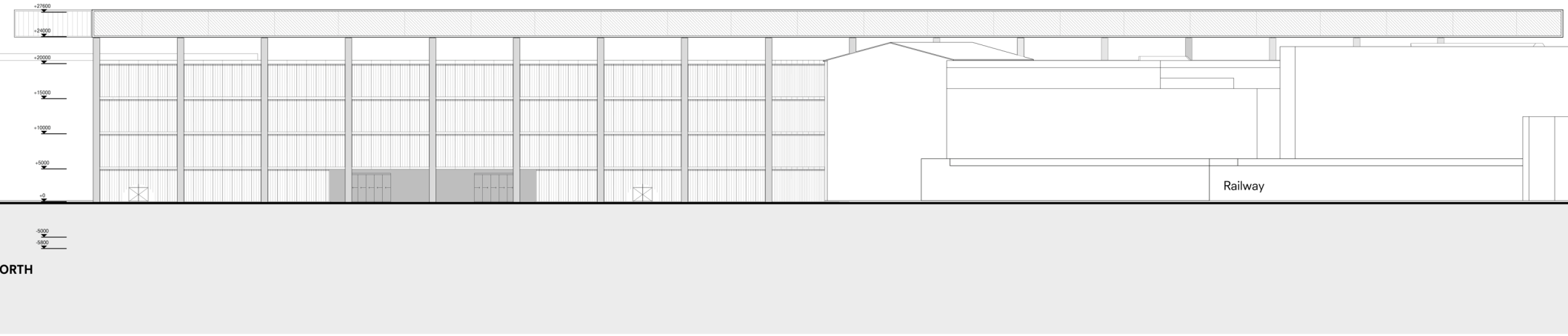


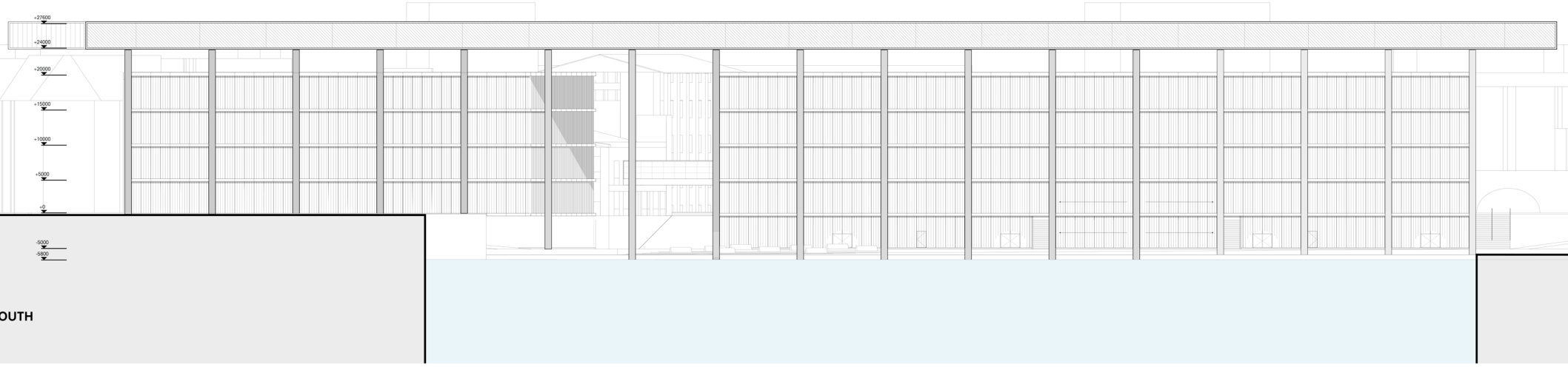
Floor/Ceiling
- Fermacell floor heating 30 mm
- Hollow-core slab 230 mm
- HEA600 steel beam
- Wiring tray
- Suspended adjustable ceiling

250 500 1000

Implementation

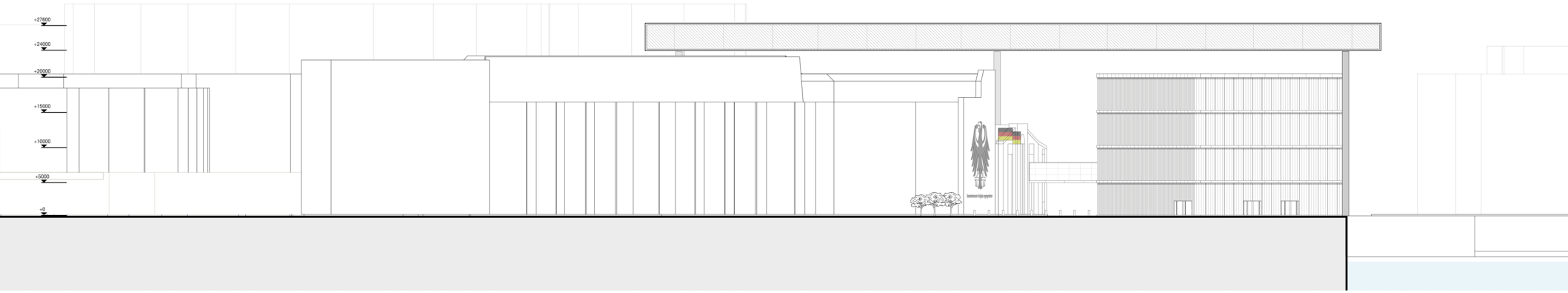
ELEVATION

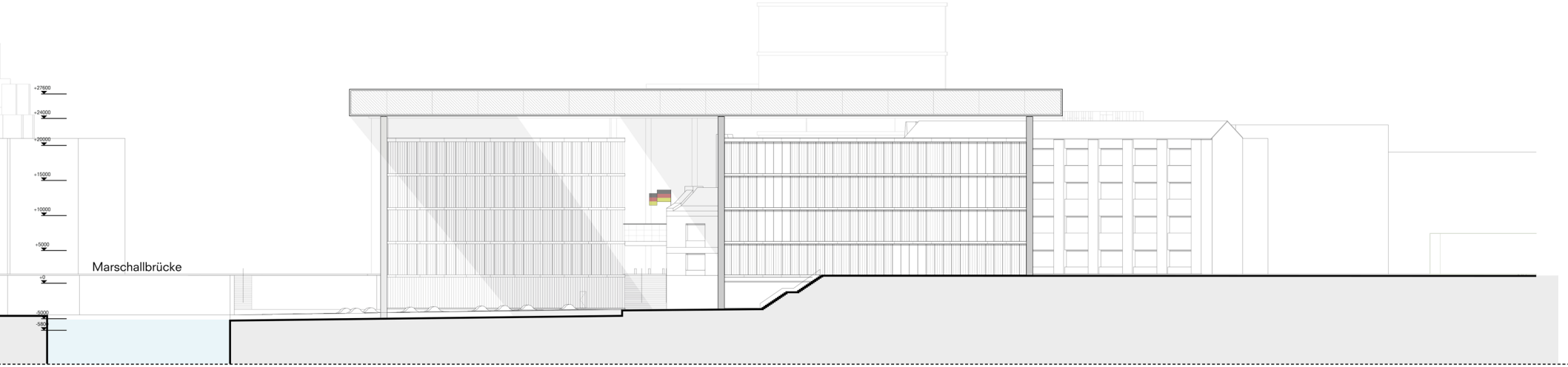




1750 2500 5000

ELEVATION





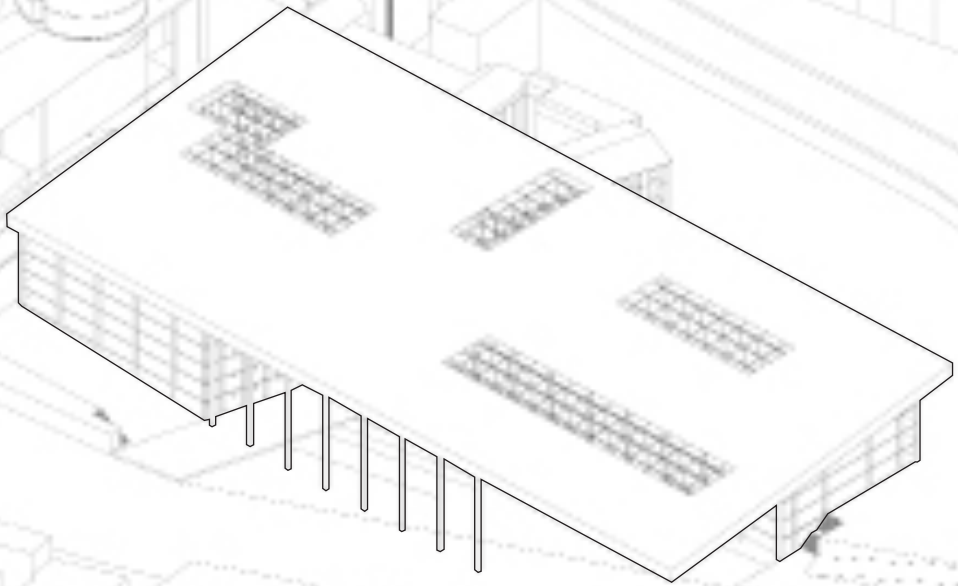
1750 2500 5000

HOW DOES IT WORK?



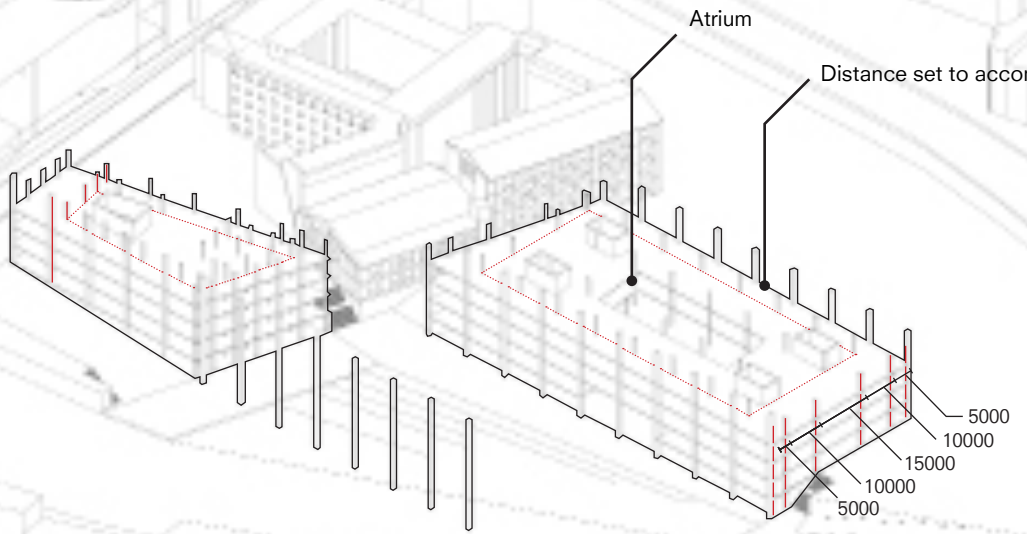
HOW DOES IT WORK?

CONSTRUCTION DIAGRAM



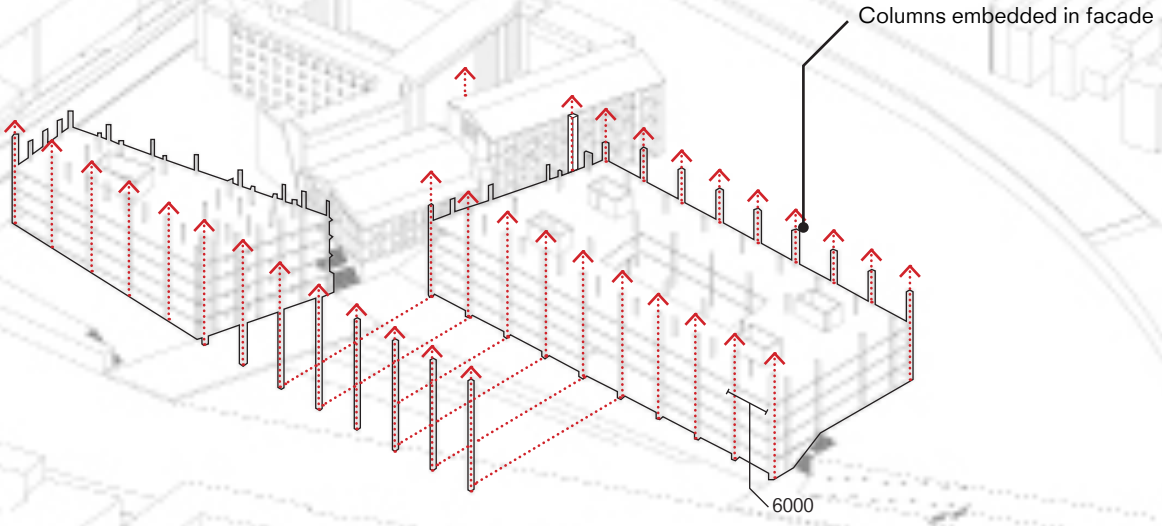
Implementation

STRUCTURAL GRID OPTIMISED FOR THE OFFICE LAYOUT

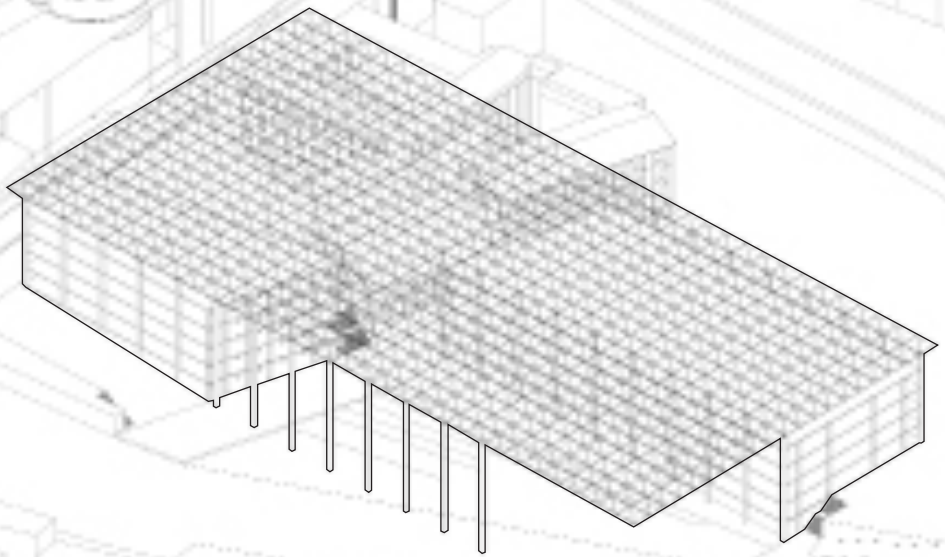


Implementation

STRUCTURAL GRID ALLIGNED TO CANOPY

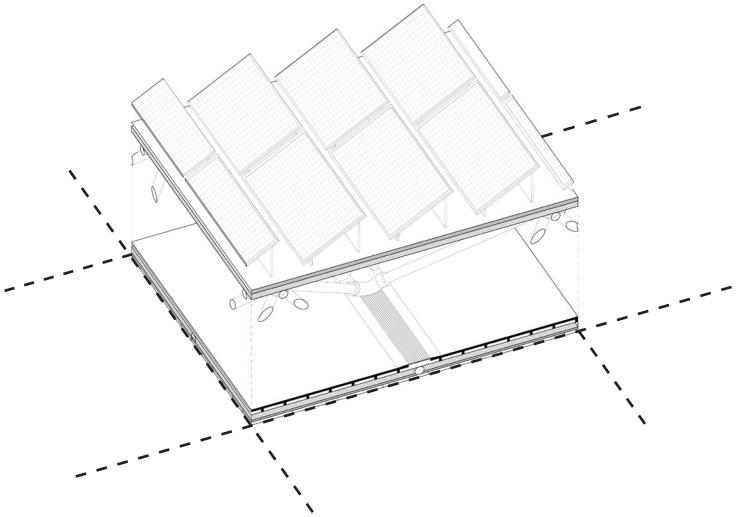


TRUSS STRUCTURE

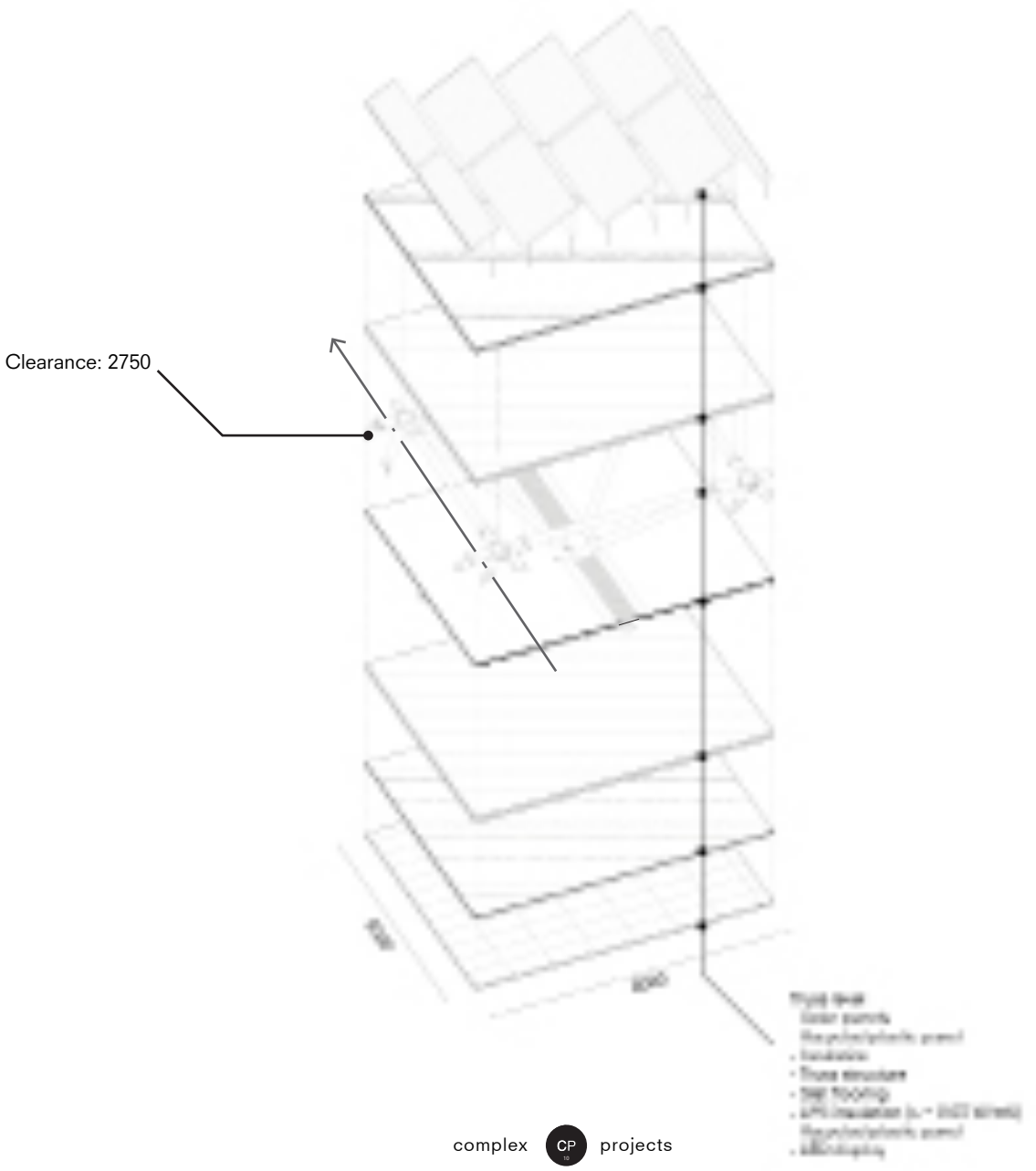


Implementation

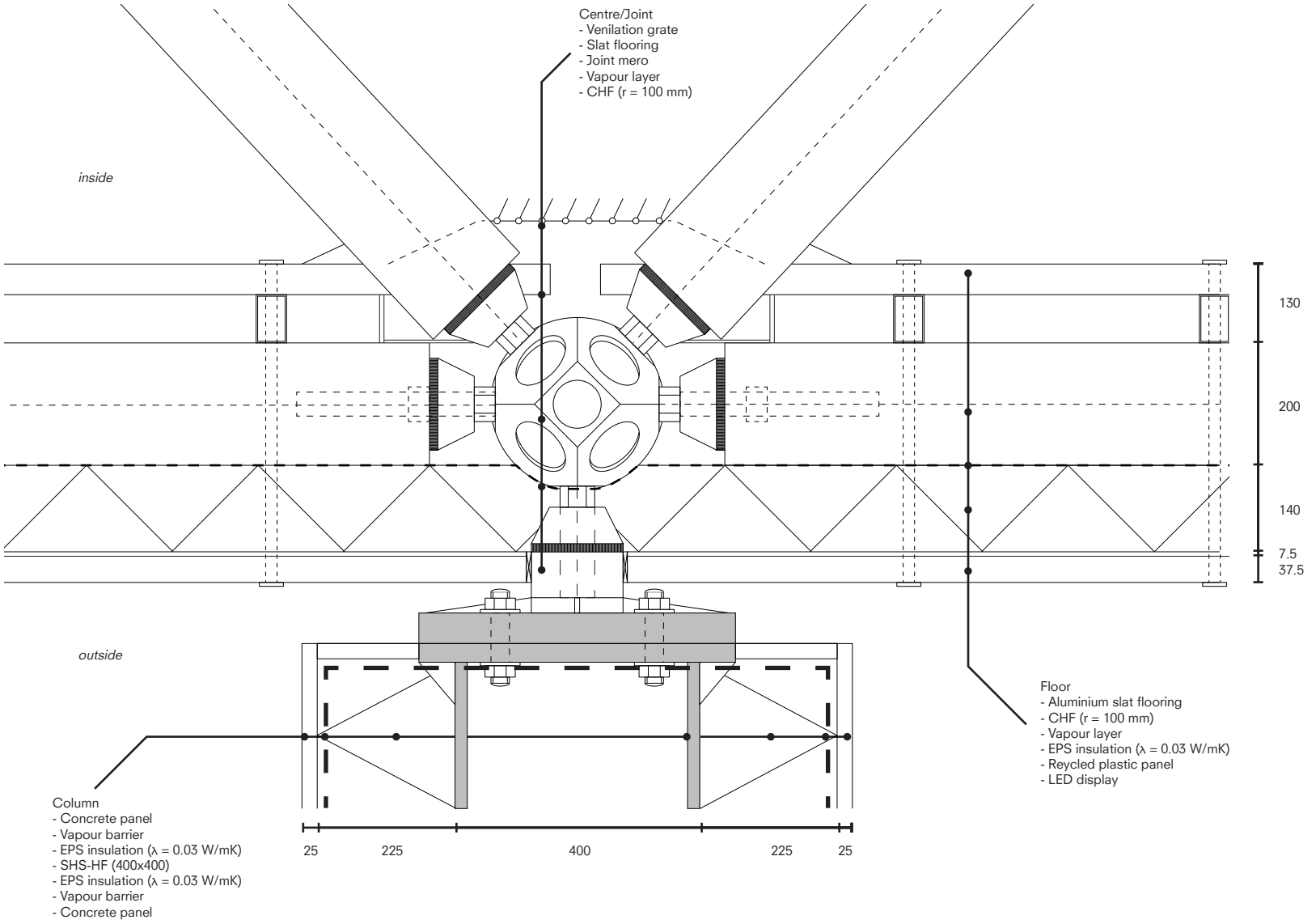
TRUSS STRUCTURE



TRUSS STRUCTURE

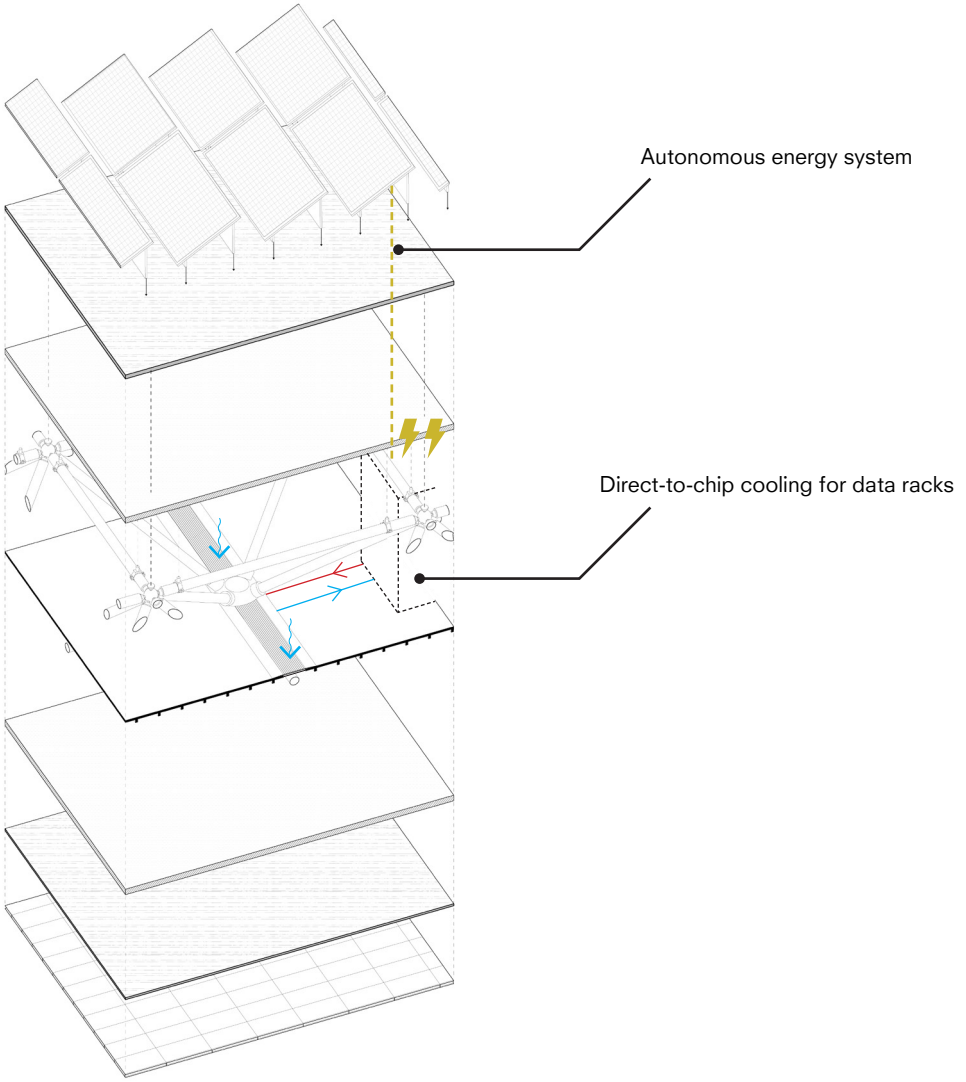


CANOPY TO COLUMN DETAIL

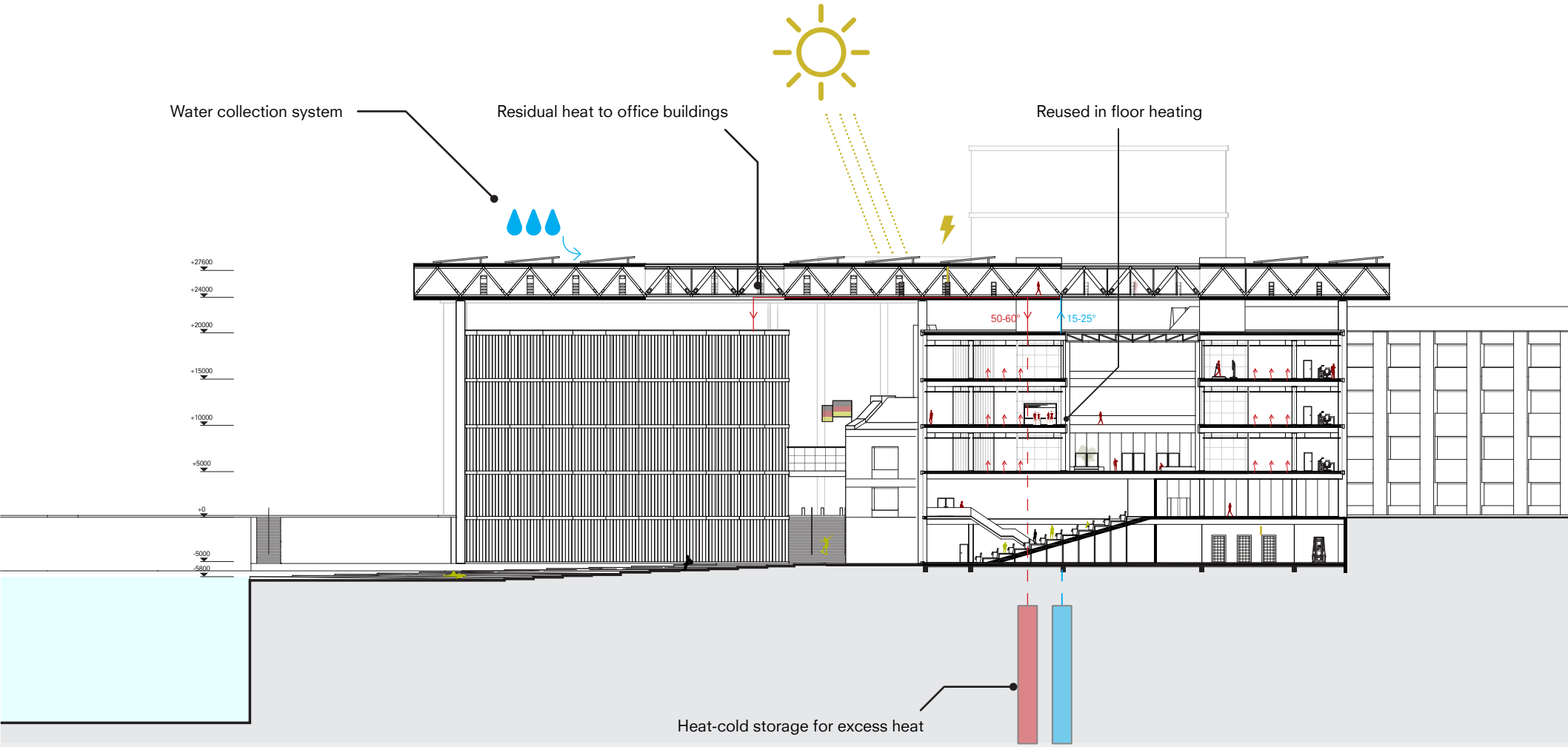


Implementation

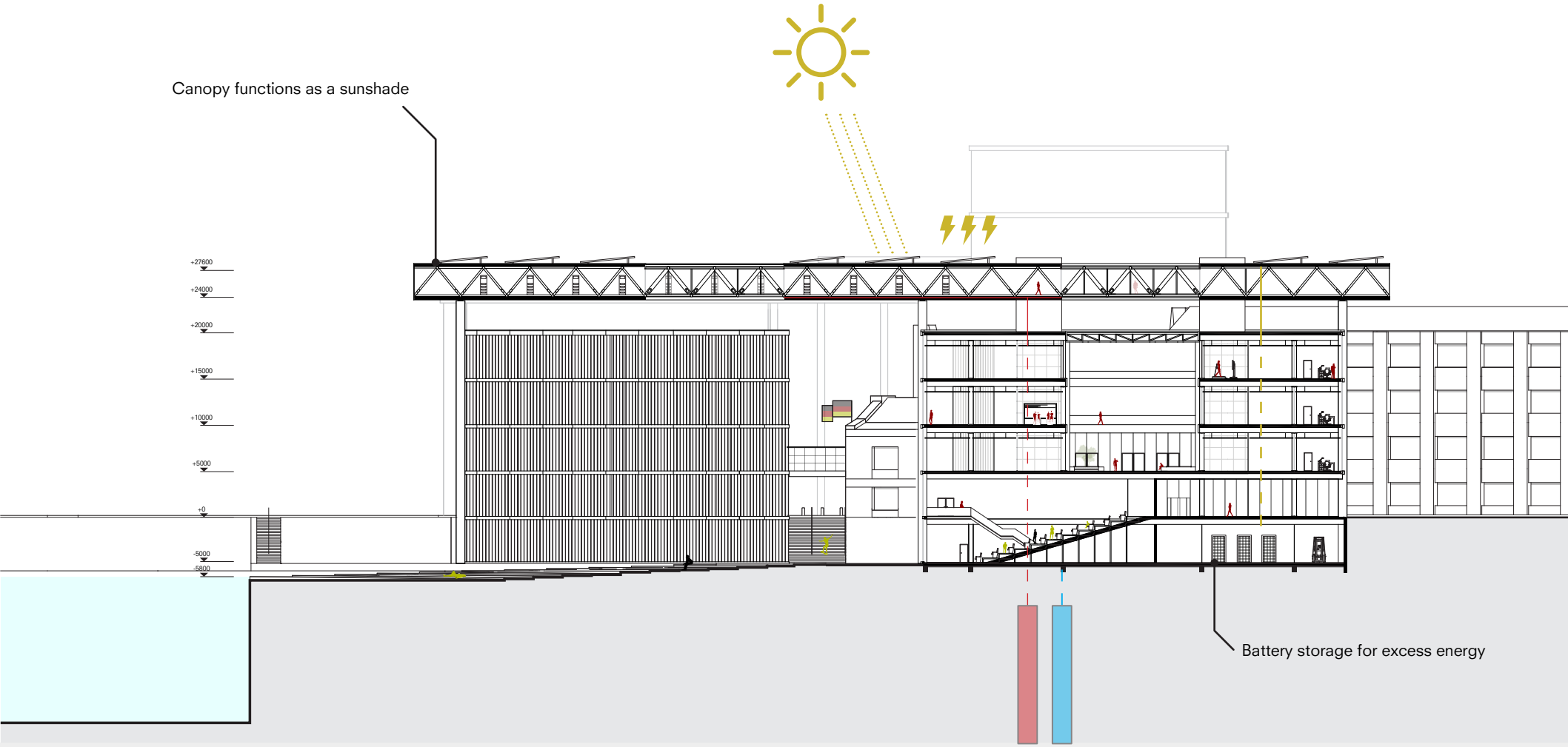
TRUSS STRUCTURE



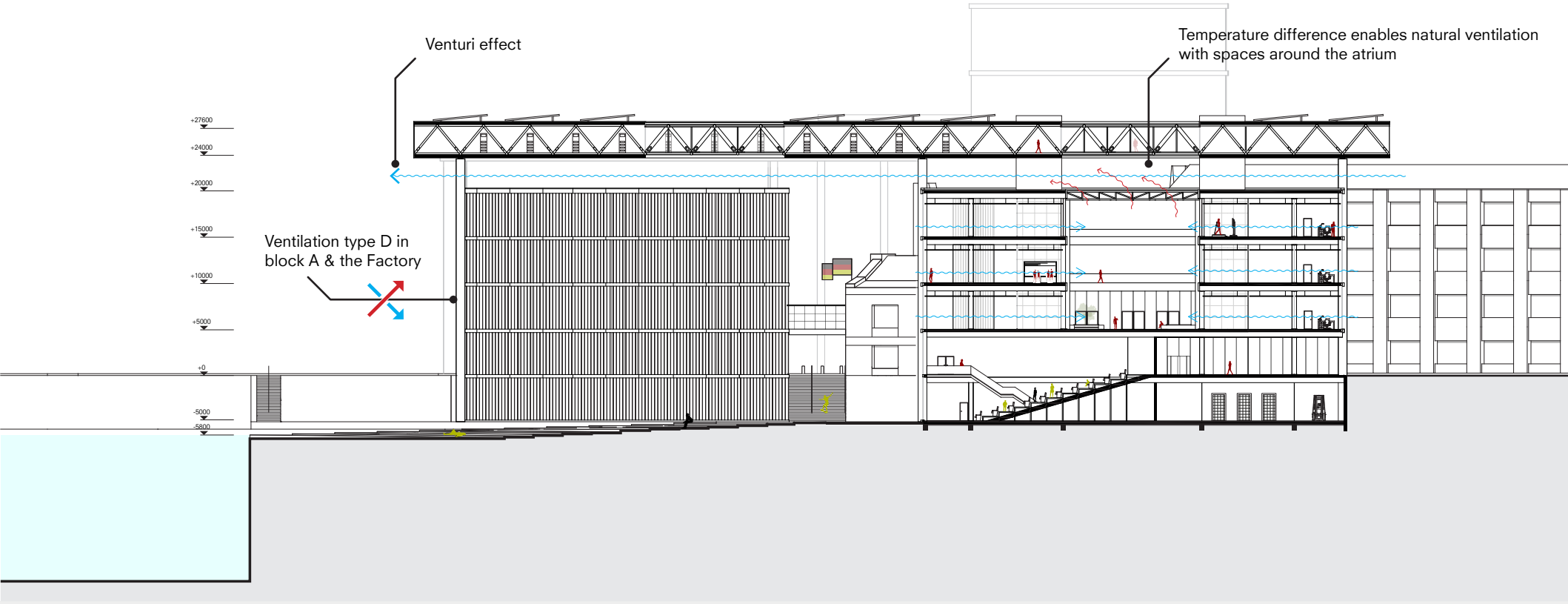
CLIMATE PRINCIPLE: WINTER



CLIMATE PRINCIPLE: SUMMER



VENTILATION PRINCIPLE



INTRODUCTION

RESEARCH

DESIGN BRIEF

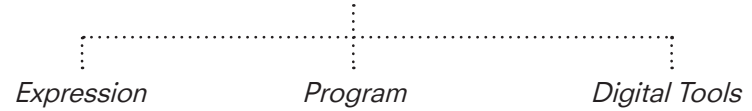
DESIGN DEV.

IMPLEMENTATION

CONCLUSION

RESEARCH QUESTION RECAP

How can digitalisation be incorporated into the built environment?



DESIGN AMBITION



SYMBOL OF INNOVATION



INVITES COLLABORATION



PROJECTS IT OUTWARDS

DESIGN AMBITIONS



EXTROVERTED BUILDING

INTERFACES WITH THE ENVIRONMENT

FUTURE-PROOF


Tempelhof
Kreuzberg
Wilhelmstraße








IT FITS RIGHT IN.

thank you