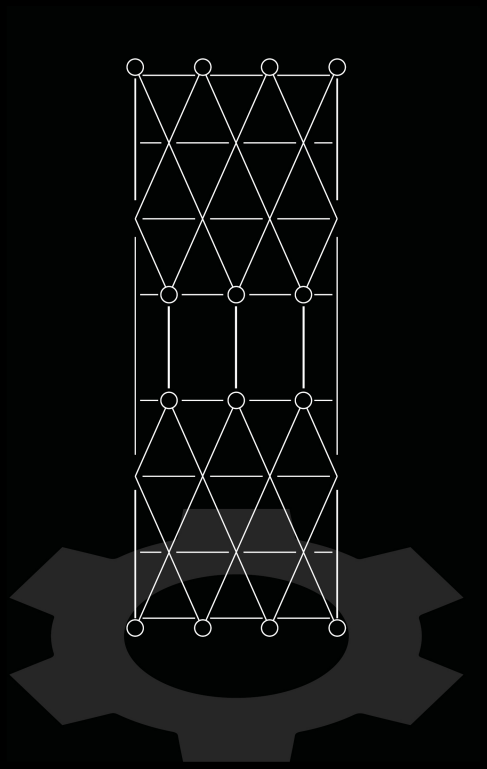


VERTICAL HIGH-TECH CAMPUS

Graduation Project - Jeroen van den Heuvel

complex projects

09/04/2020

spring semester

Introduction

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Design

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CHILE - 1973



CHILE - 1973



ECONOMIC REFORMATION

CHILE - 1973


PINOCHET:
- Overthrew Allende’s socialistic regime
- Open economic borders
- Privatizing of markets
- Globalizing economics

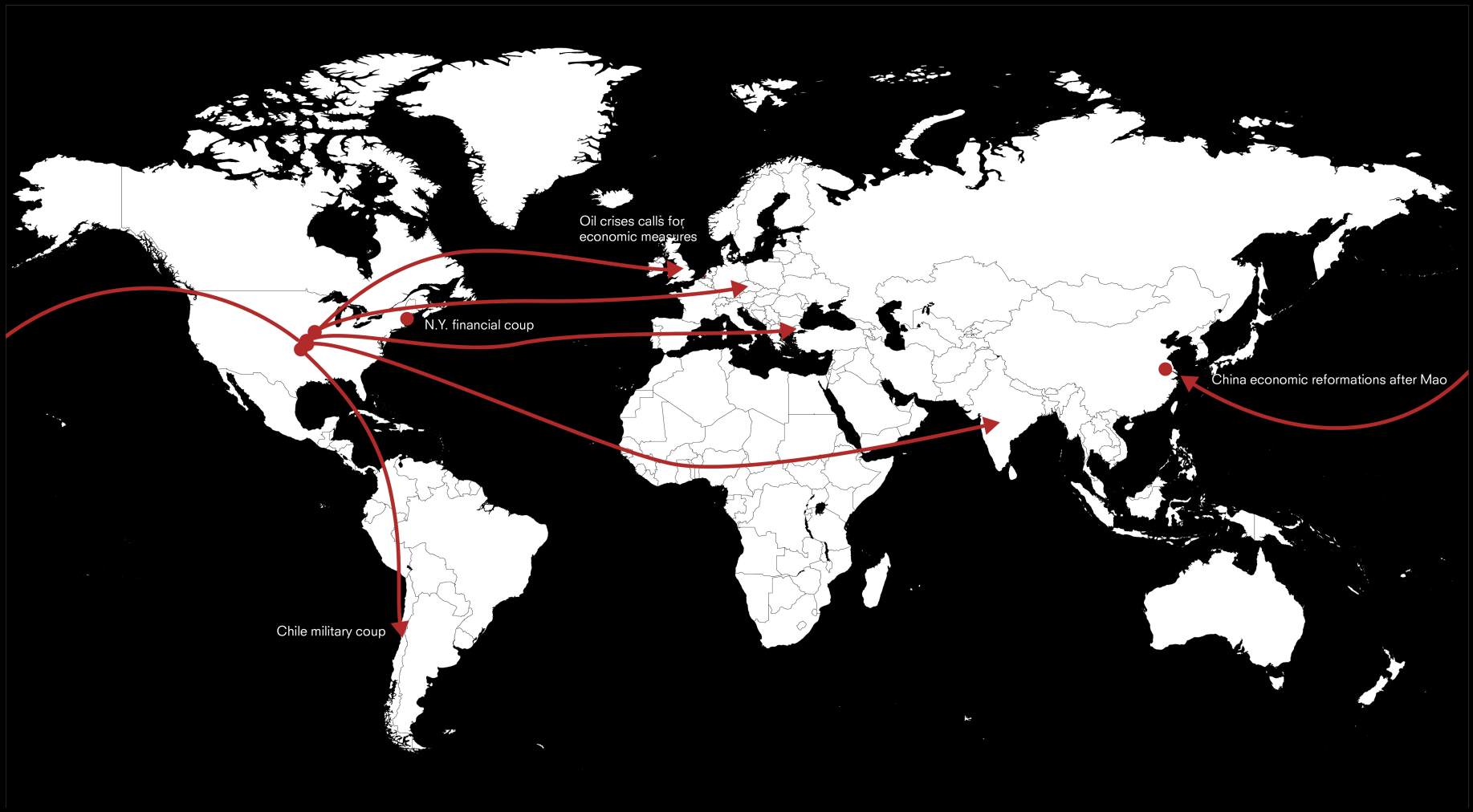
FROM A THEORETICAL SYSTEM TO A PRACTICAL IMPLEMENATION



ADAPTATION BY THE IMF AND WORLDBANK



MIGRATION OF THE ECONOMIC SYSTEM DURING ‘70S AND ‘80S



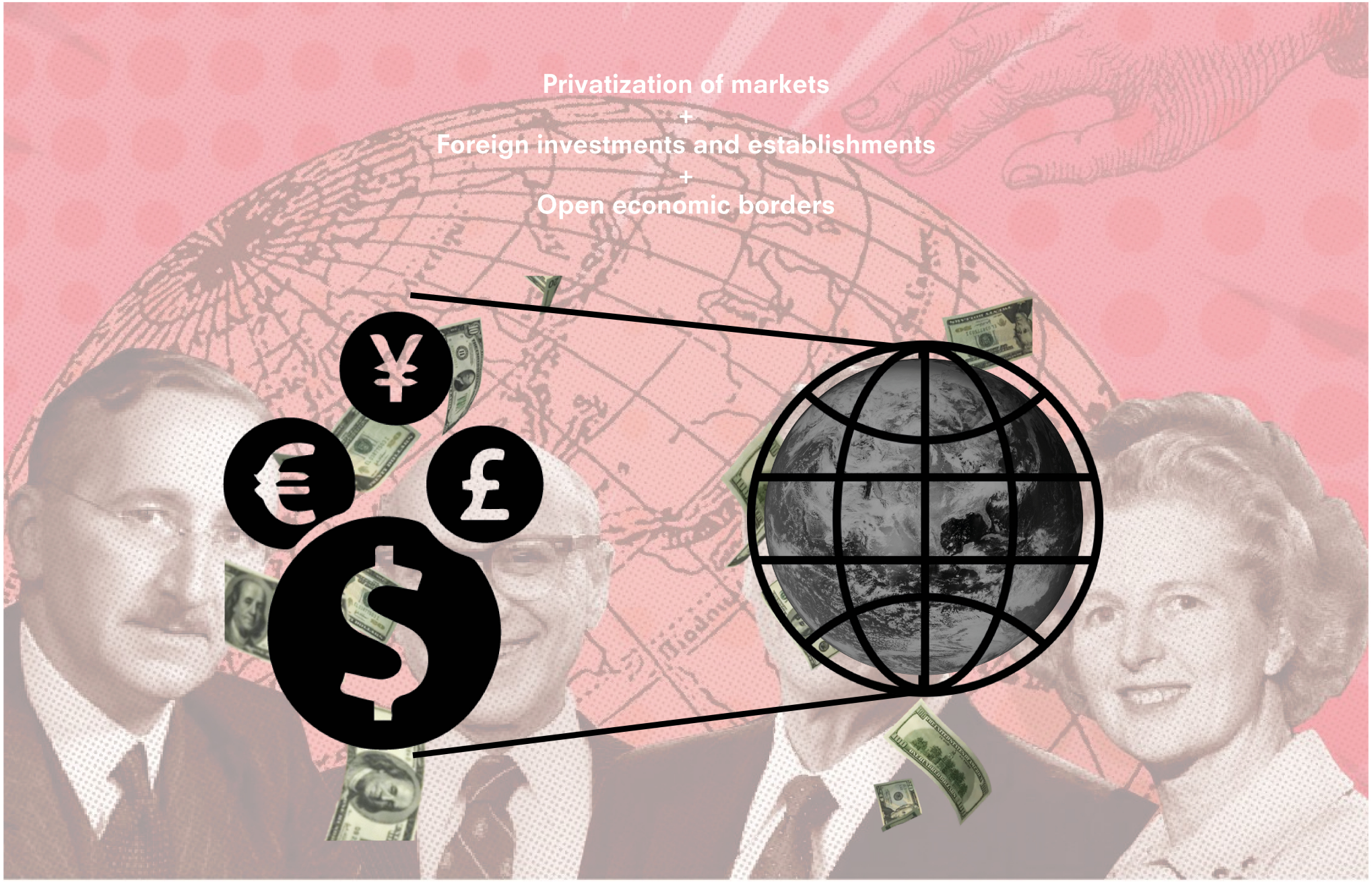
MIGRATION OF THE ECONOMIC SYSTEM DURING ‘70S AND ‘80S



Changing power and class relations, and the capitalist accumulation process, including the destruction of existing institutions.

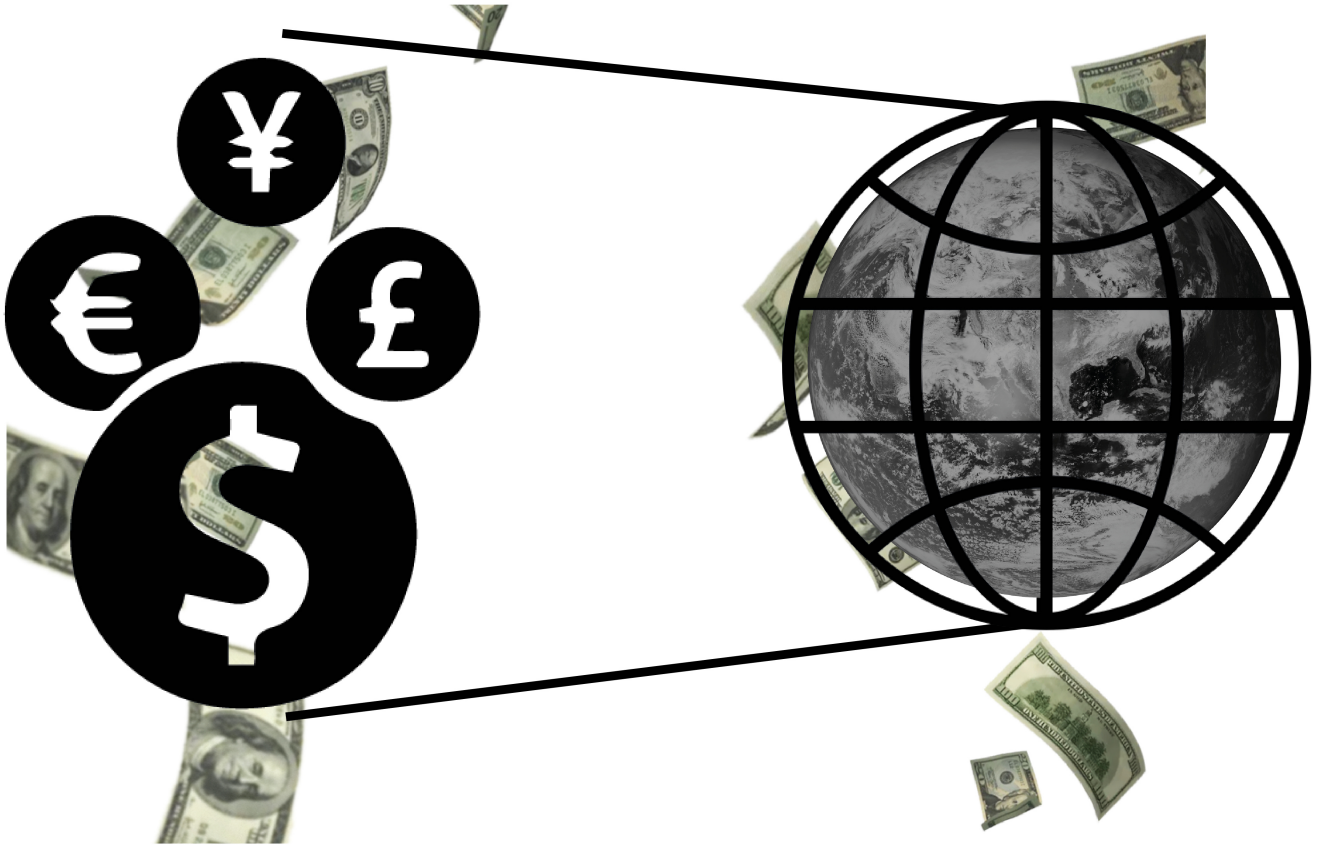
Based on David Harvey’s A Brief History of Neoliberalism

GLOBALIZING ECONOMICS

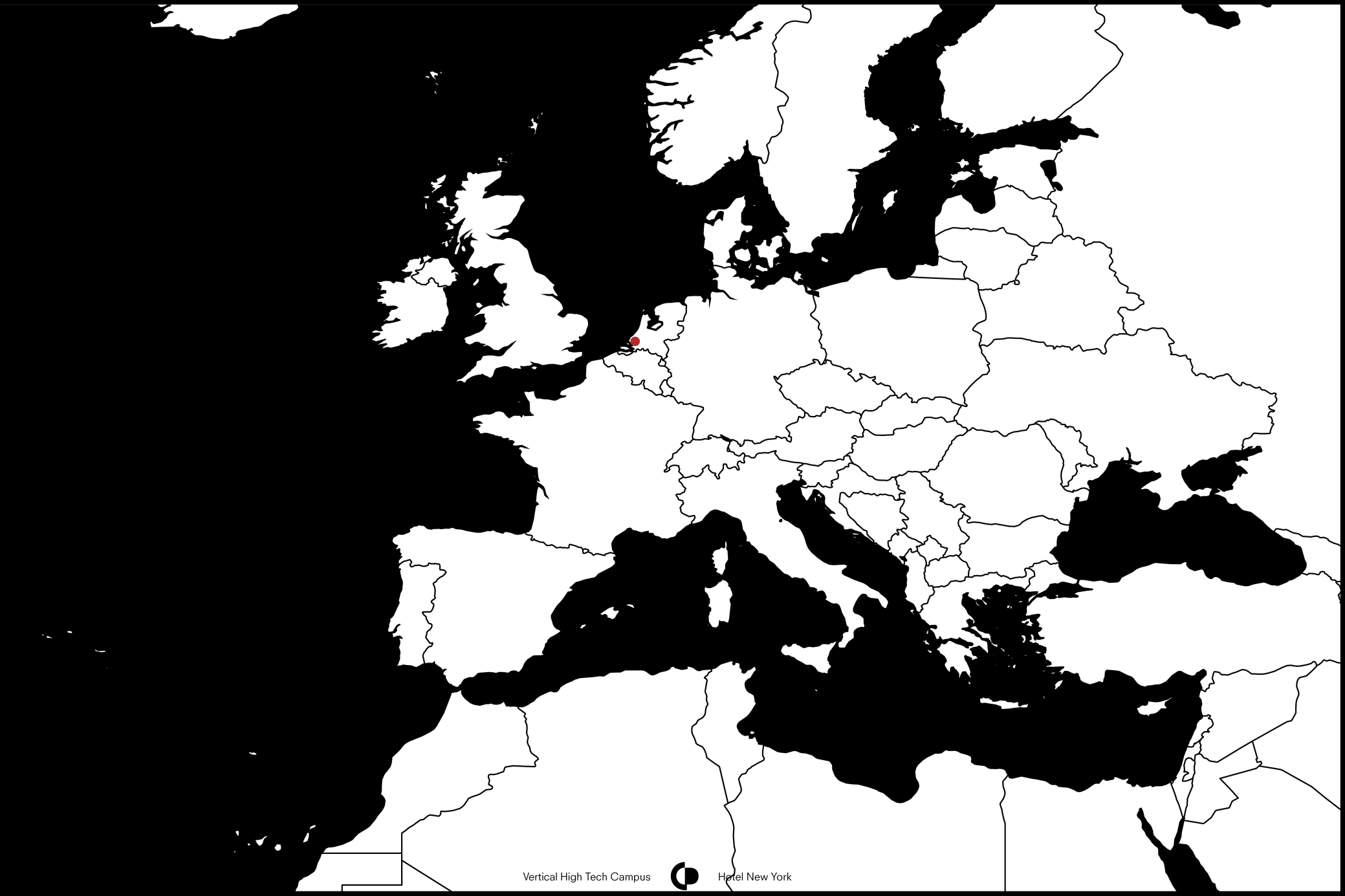


Globalizing economics

MIGRATION OF NEOLIBERALISM

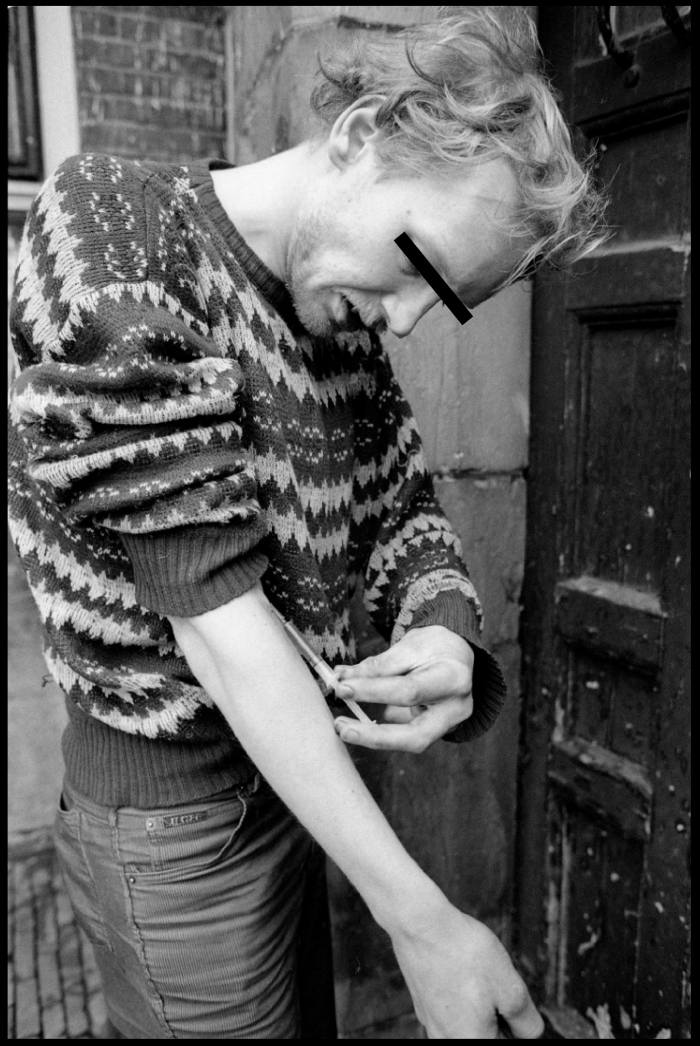


MIGRATION TO ROTTERDAM



70’S & 80’S IN ROTTERDAM





DESIRE FOR CHANGE DURING THE BLEAK ERA OF THE ‘70S



OIL CRISIS

+

DRUGS TREND

+

DULL AND BLEAK IMAGE OF ROTTERDAM

=

DESIRE FOR CHANGE



Rotterdam - 1987



Radical changes in city and government vision

Rotterdam - 1987



Vertical growth

+

Opening economic borders

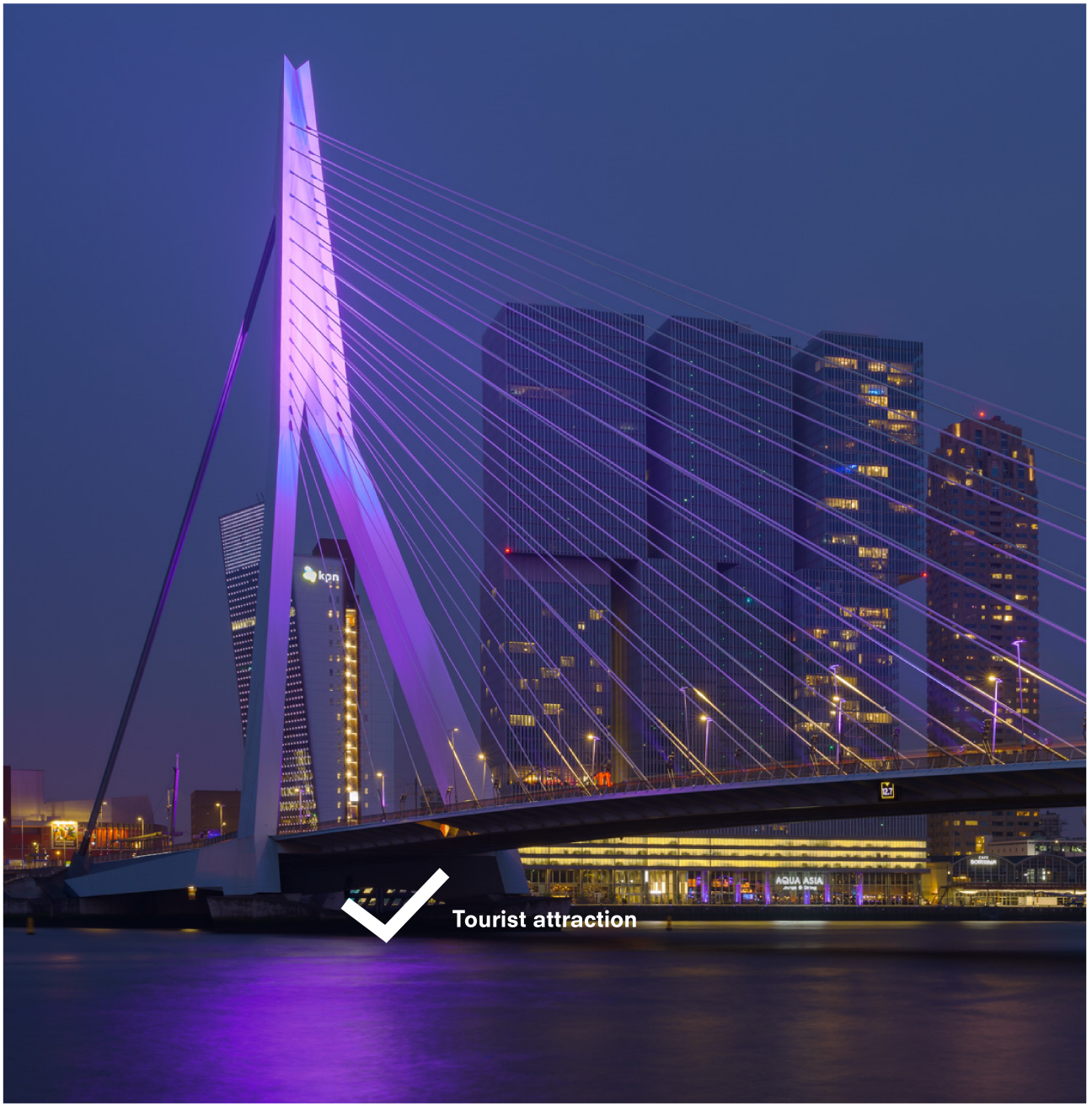
+

ATTRACTING AND RELYING ON FOREIGN COMPANIES

Rotterdam - 1987

34 years of progression later...

Rotterdam - Present



Rotterdam - Present



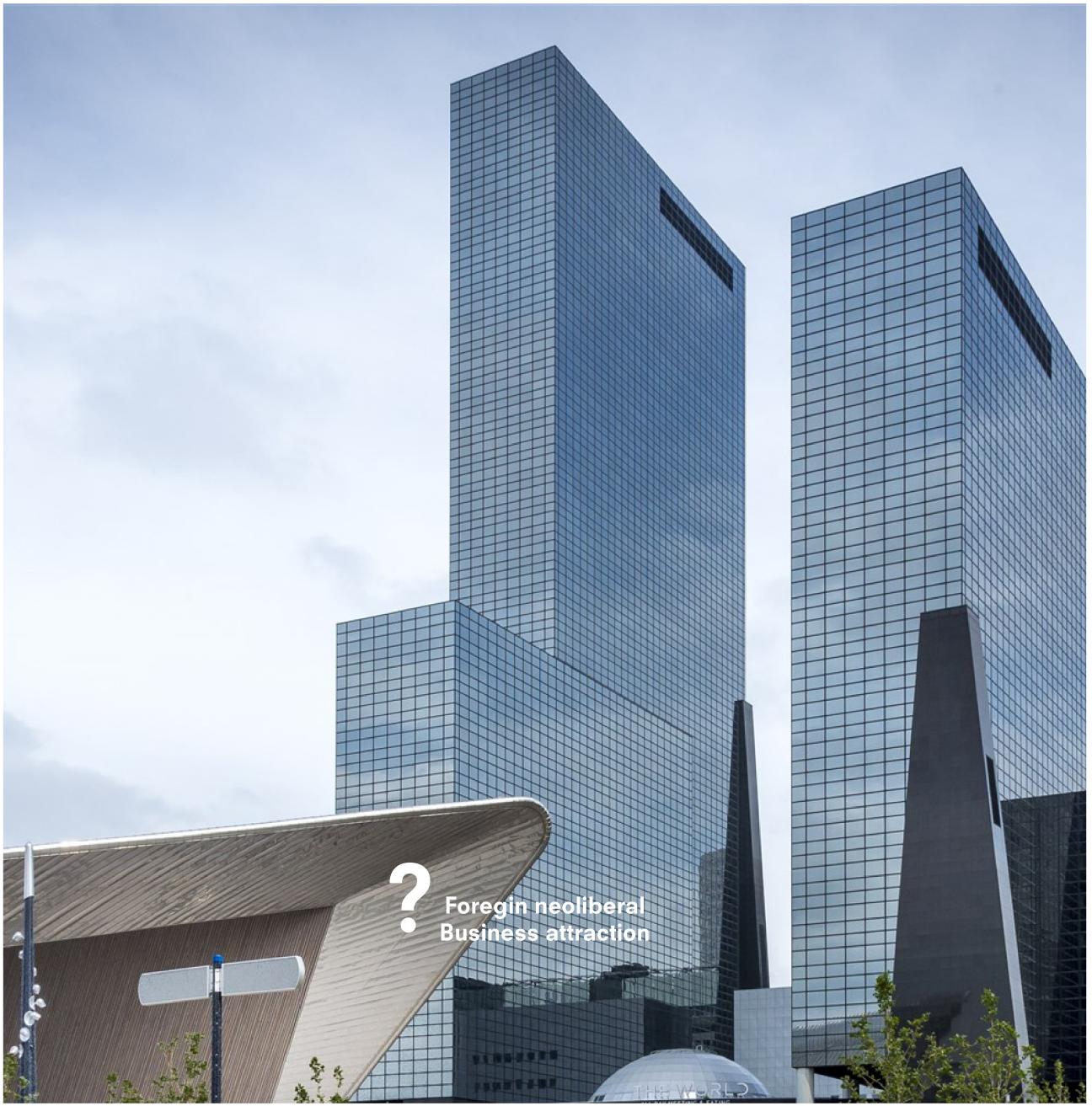
Rotterdam - Present



ROTTERDAM - PRESENT



ROTTERDAM - PRESENT



Vertical High Tech Campus Hotel New York

STRUGGLE FOR BUSINESS



Vertical High Tech Campus Hotel New York

RESEARCH QUESTION

HOW CAN THE CITY CENTER OF ROTTERDAM EMBODY THE DESIRE FOR FOREIGN COMPANIES AND BUSINESS BRANCHES?

Introduction

Research

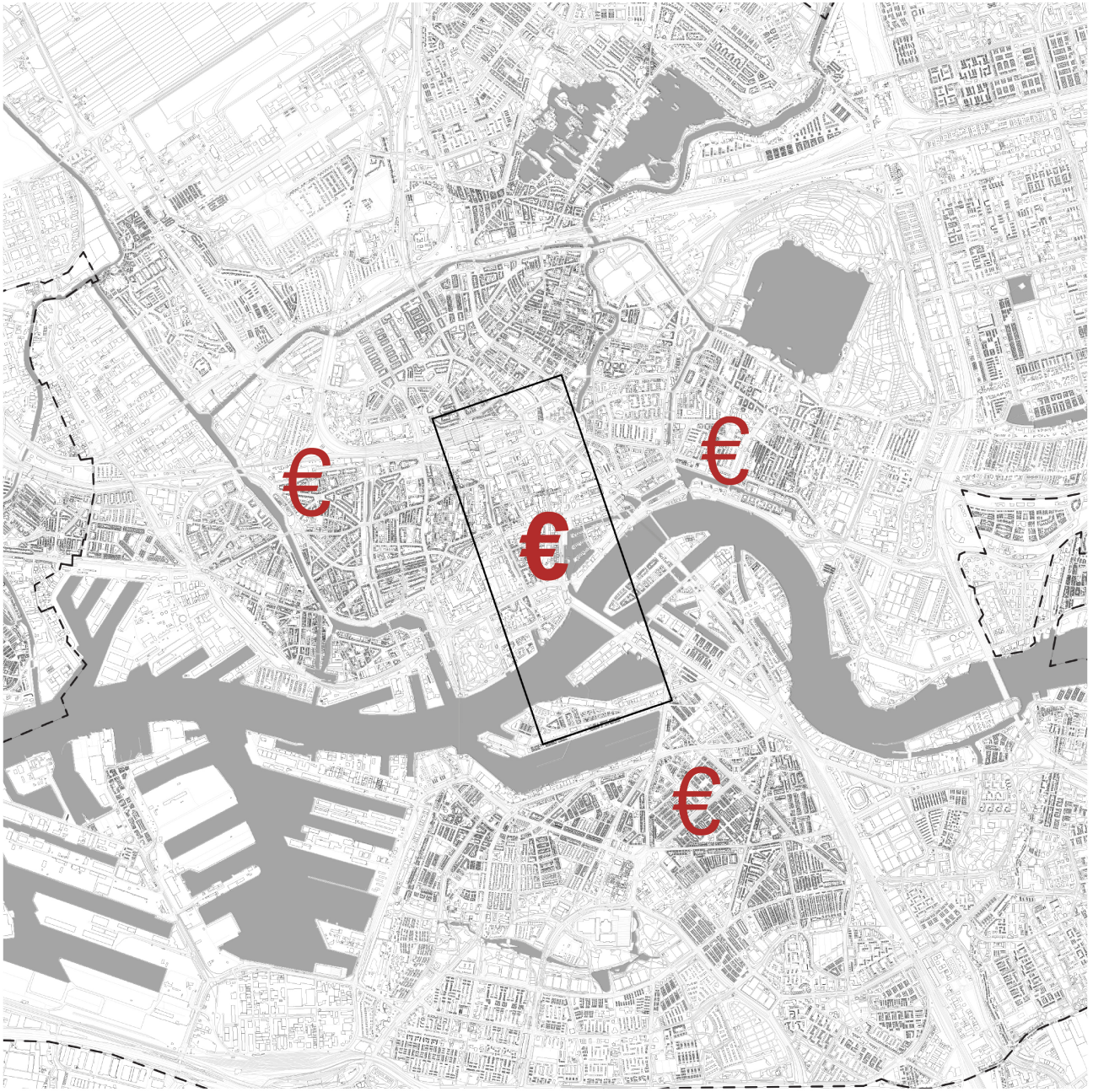
Design Brief

Design

Conclusion

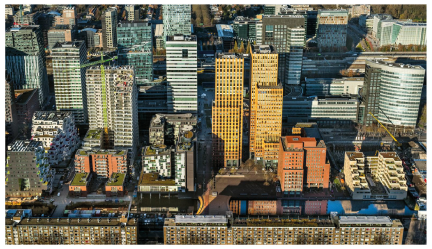
INDEX

POSITION OF THE CURRENT CITY CENTER

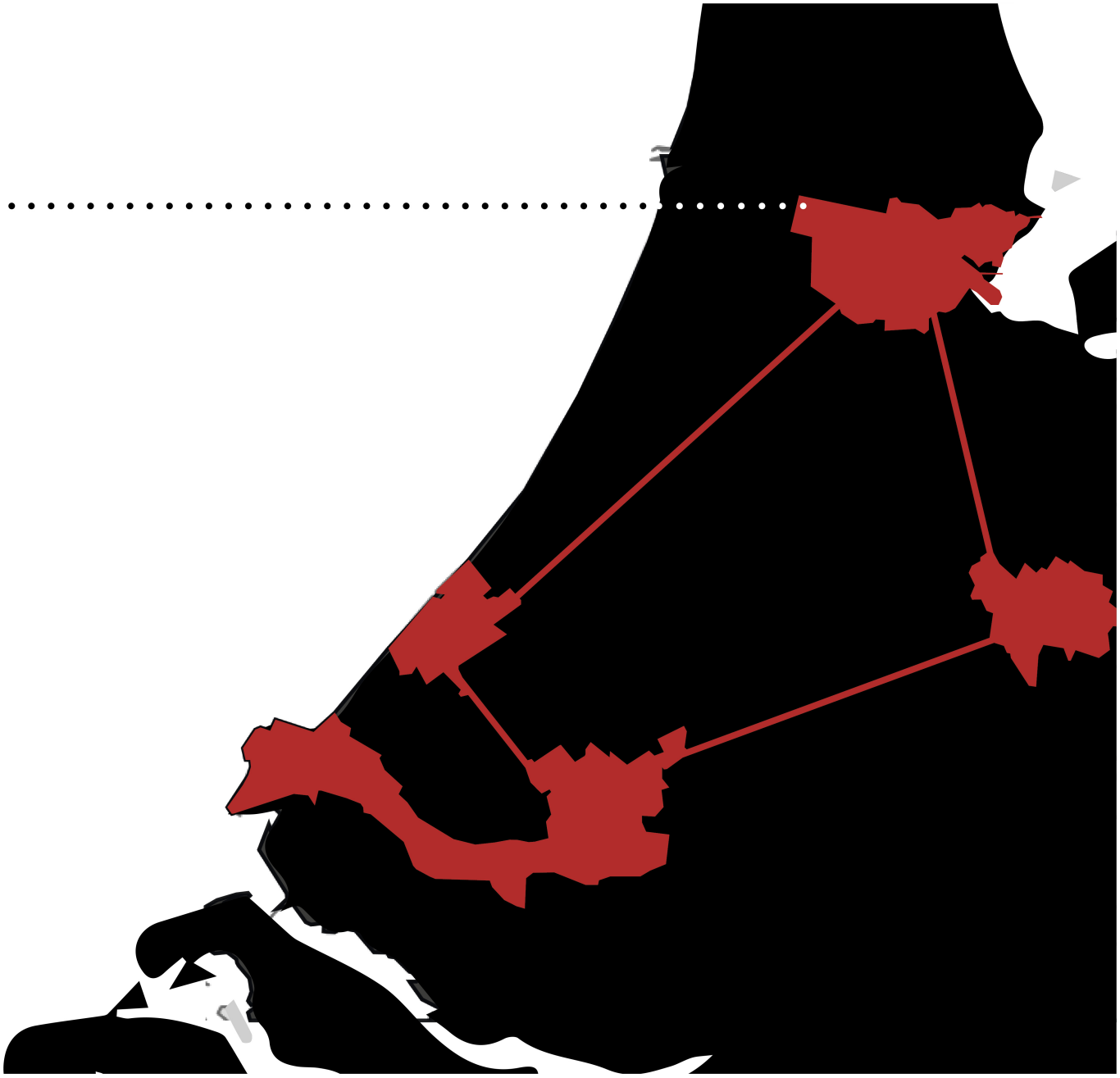


Vertical High Tech Campus Hotel New York

THE CONGLOMERATION OF THE RANDSTAD



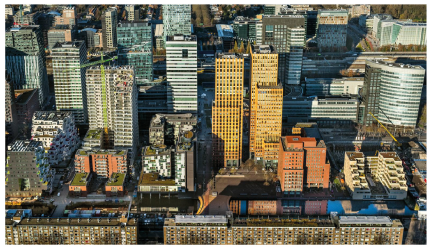
Amsterdam
banks and datcenters



Vertical High Tech Campu

Hotel New York

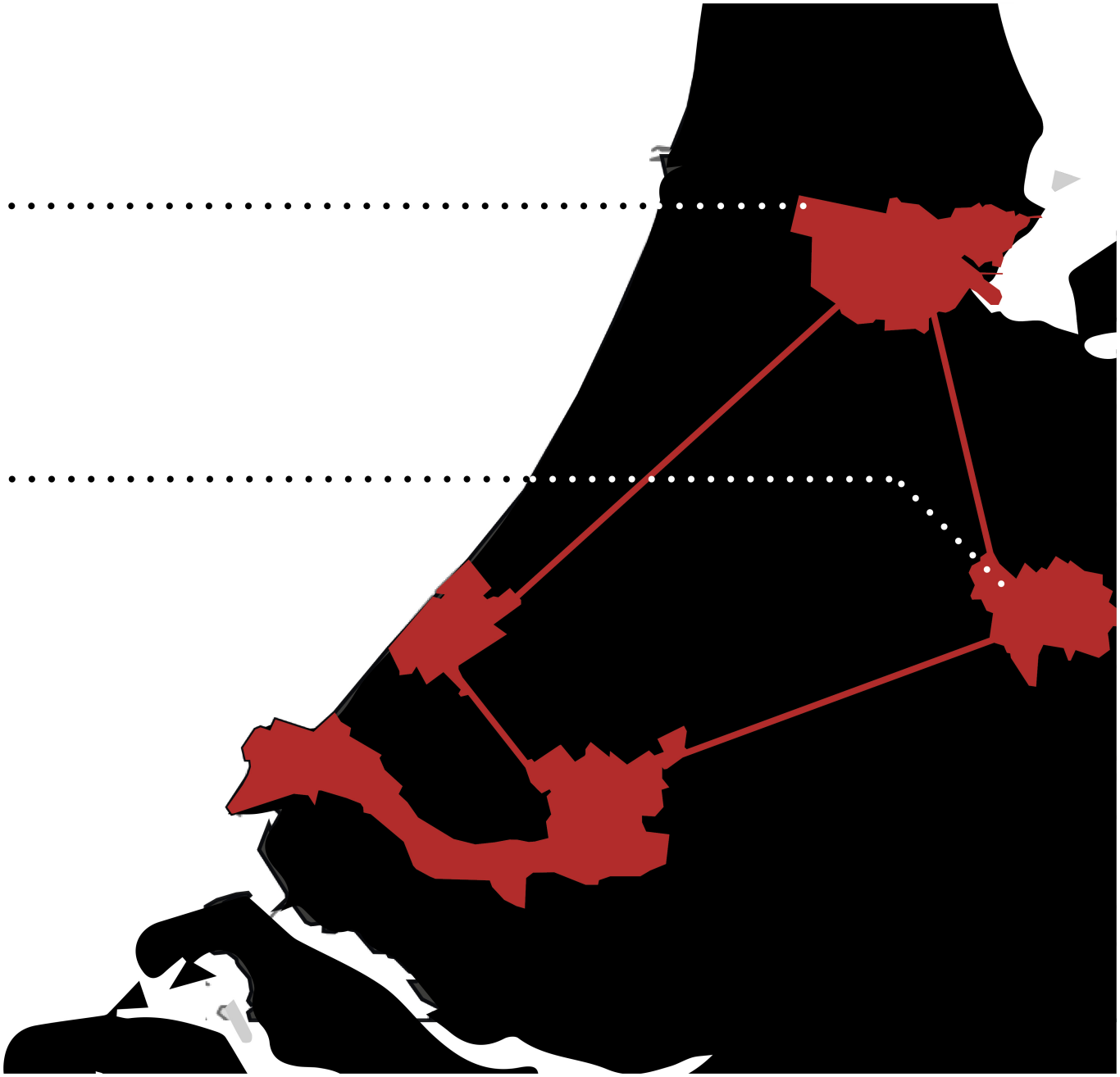
THE CONGLOMERATION OF THE RANDSTAD



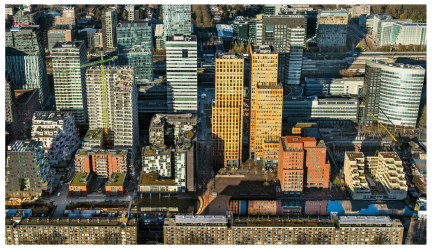
Amsterdam
banks and datcenters



Utrecht
retail trade



THE CONGLOMERATION OF THE RANDSTAD



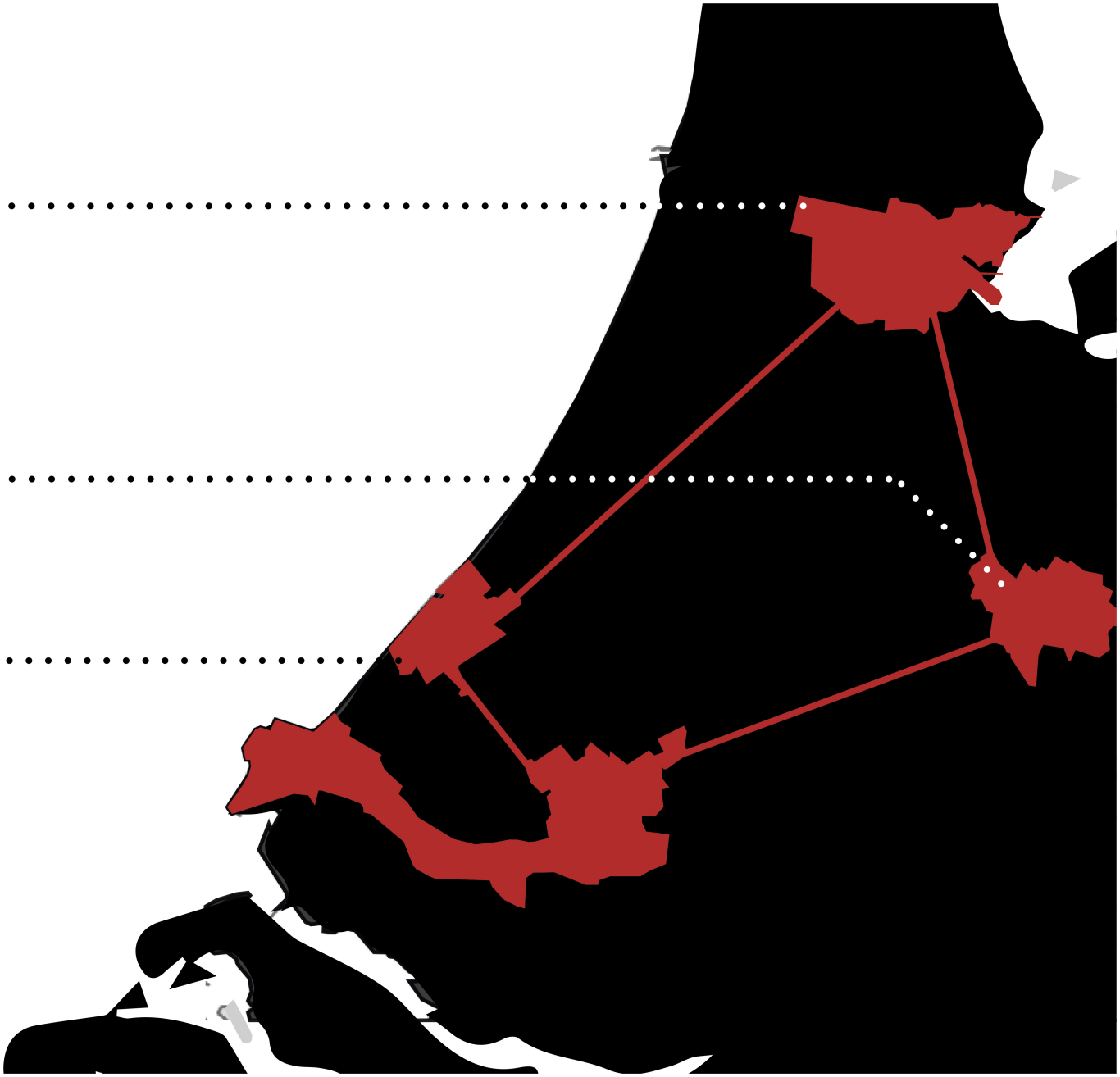
Amsterdam
banks and datcenters



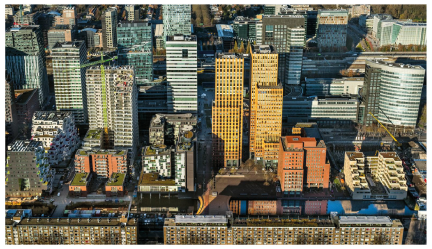
Utrecht
retail trade



The Hague
courts and ministeries



THE CONGLOMERATION OF THE RANDSTAD



Amsterdam
banks and datcenters

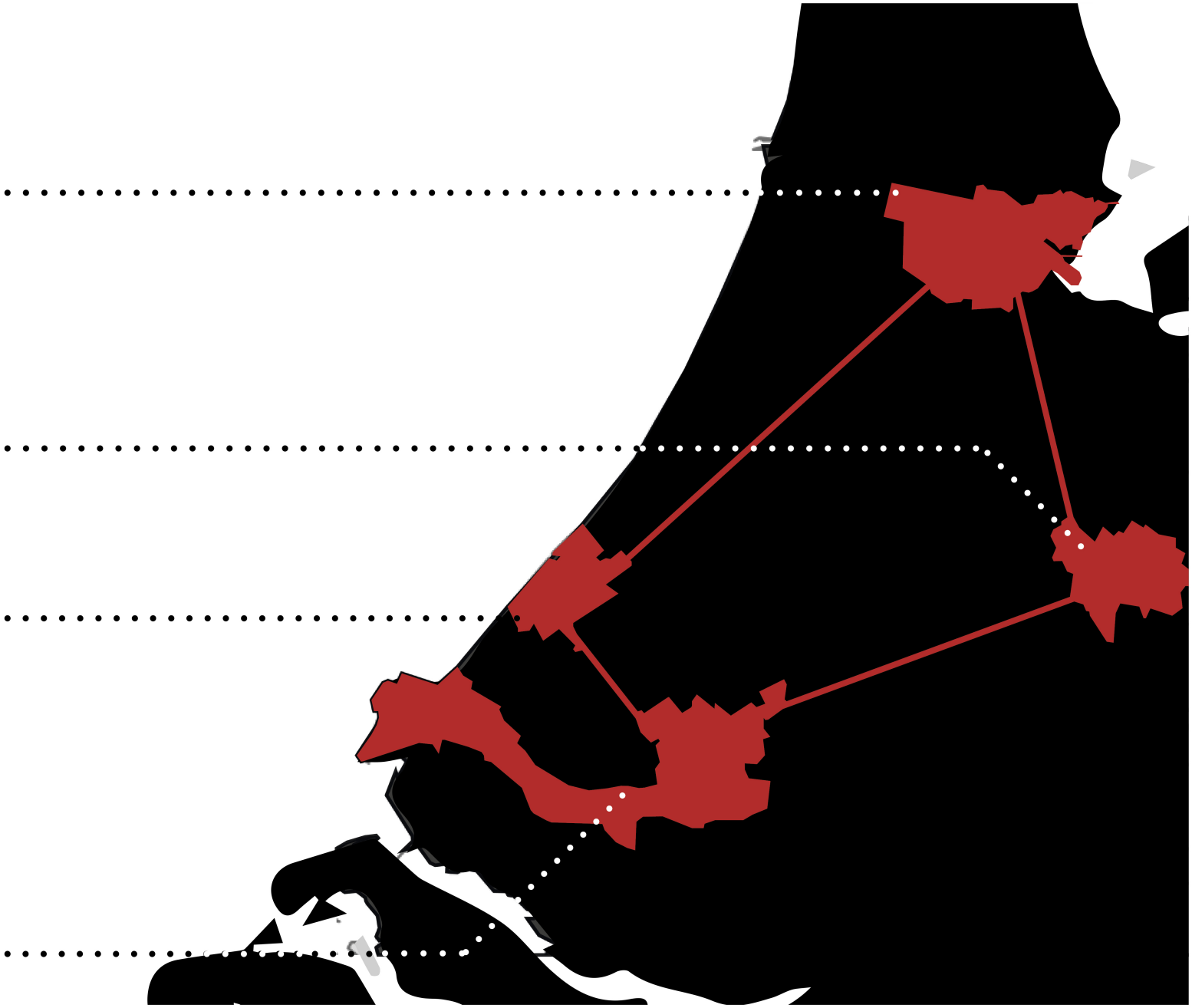


Utrecht
retail trade



The Hague
courts and ministeries

Rotterdam???



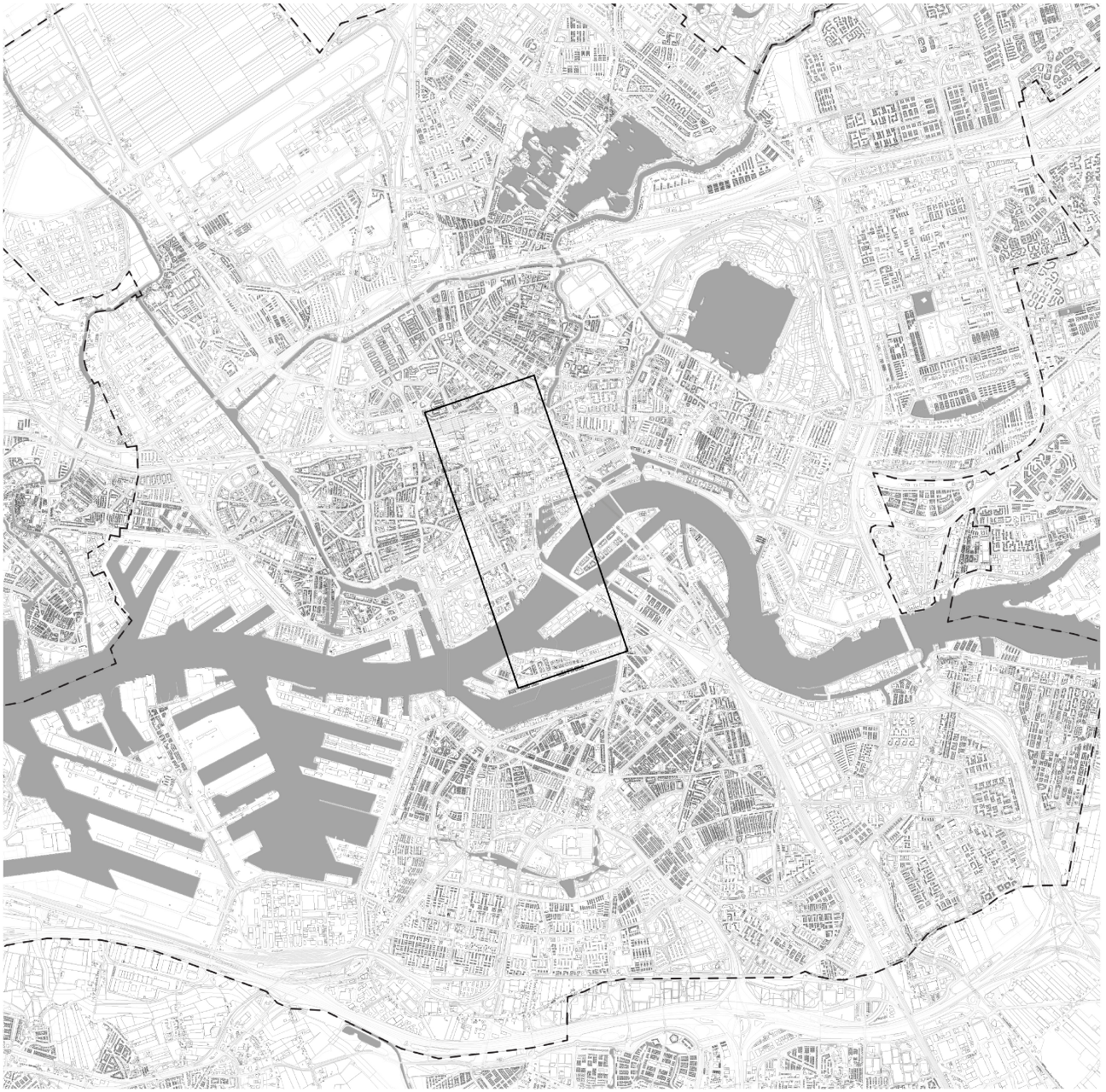
STATE OF THE CURRENT CITY CENTER



LACKING AN ECONOMIC AND BUSINESS IDENTITY



DISAPPEARANCE OF THE FORMER IDENTITIES

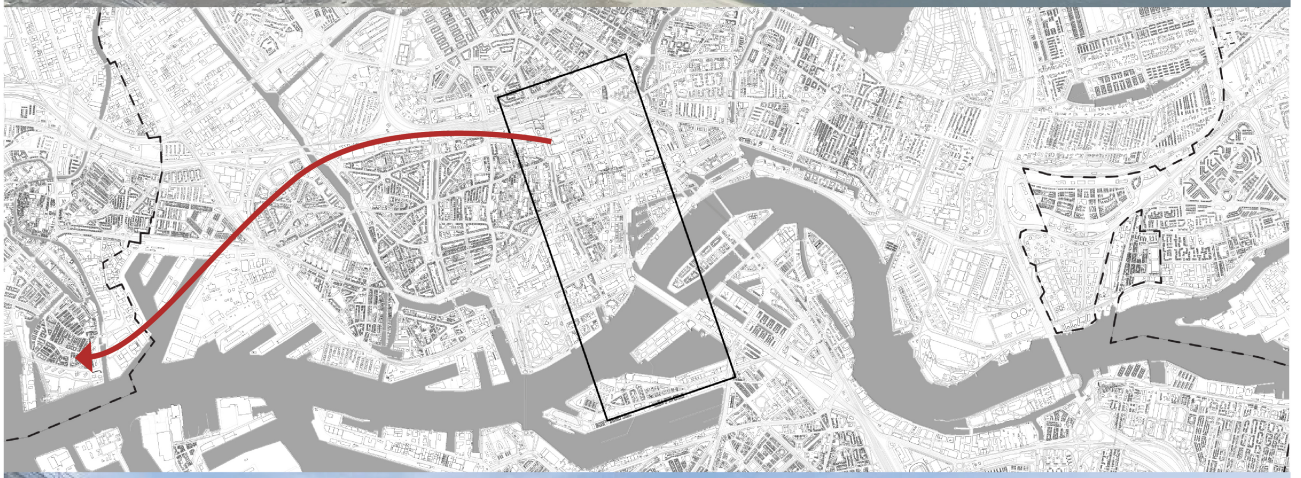


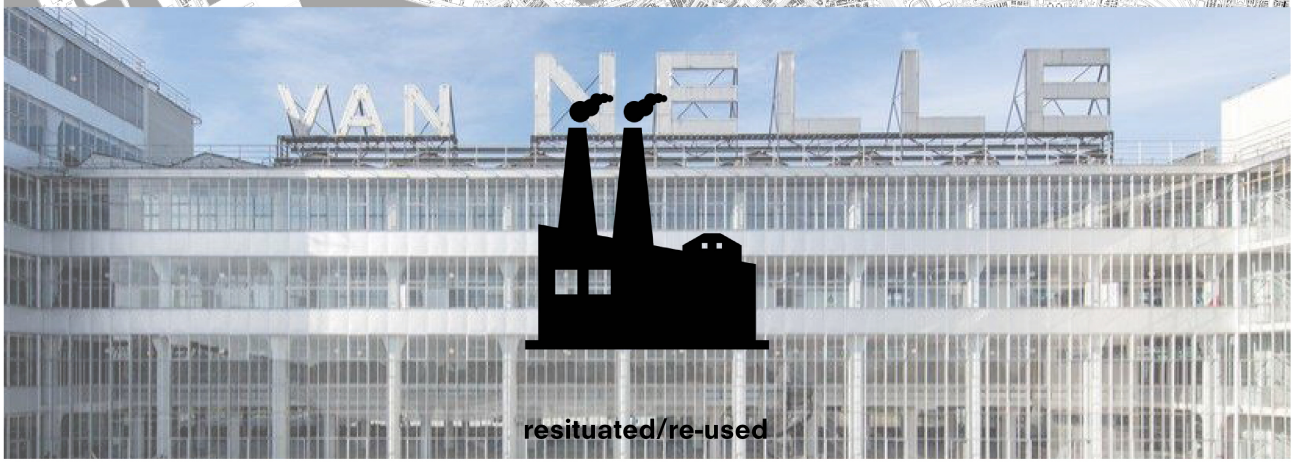
DISAPPEARANCE OF THE FORMER IDENTITIES



DISAPPEARANCE OF THE FORMER IDENTITIES







ECONOMIC POTENTIALS IN CURRENT CITY CENTER



ECONOMIC POTENTIALS IN CURRENT CITY CENTER



COMMON ISOLATED CENTRAL BUSINESS DISTRICTS & CAMPUSES



La Defense - Paris

COMMON ISOLATED CENTRAL BUSINESS DISTRICTS & CAMPUSES



La Defense - Paris



C.T. Business Area - Madrid

COMMON ISOLATED CENTRAL BUSINESS DISTRICTS & CAMPUSES



La Defense - Paris



C.T. Business Area - Madrid



Canary Wharf - London

COMMON ISOLATED CENTRAL BUSINESS DISTRICTS & CAMPUSES



La Defense - Paris



C.T. Business Area - Madrid

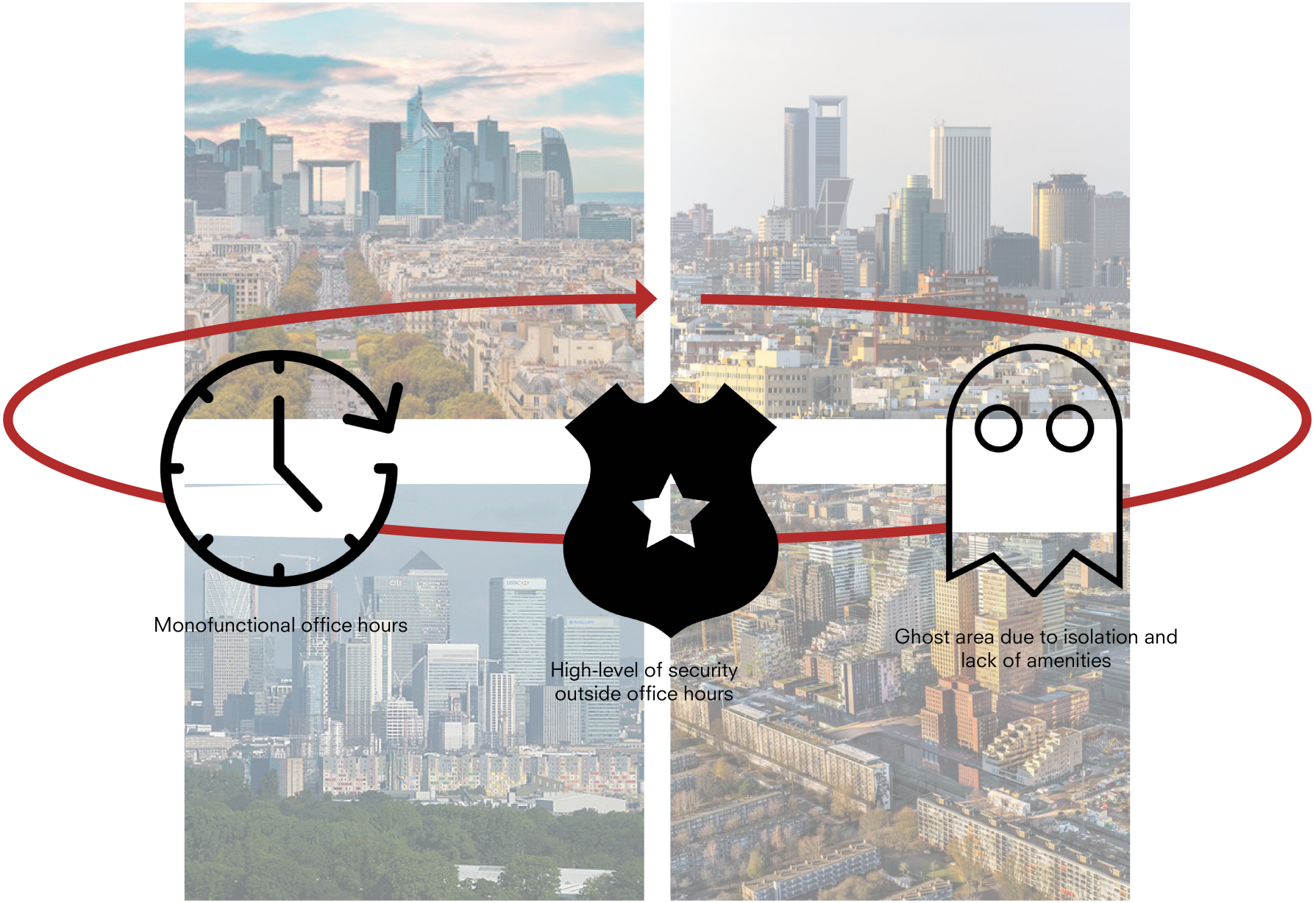


Canary Wharf - London



Zuidas - Amsterdam

COMMON ISOLATED CENTRAL BUSINESS DISTRICTS & CAMPUSES



ROTTERDAM: DISAPPEARANCE OF MONUMENTALITY IN WORLD WAR II



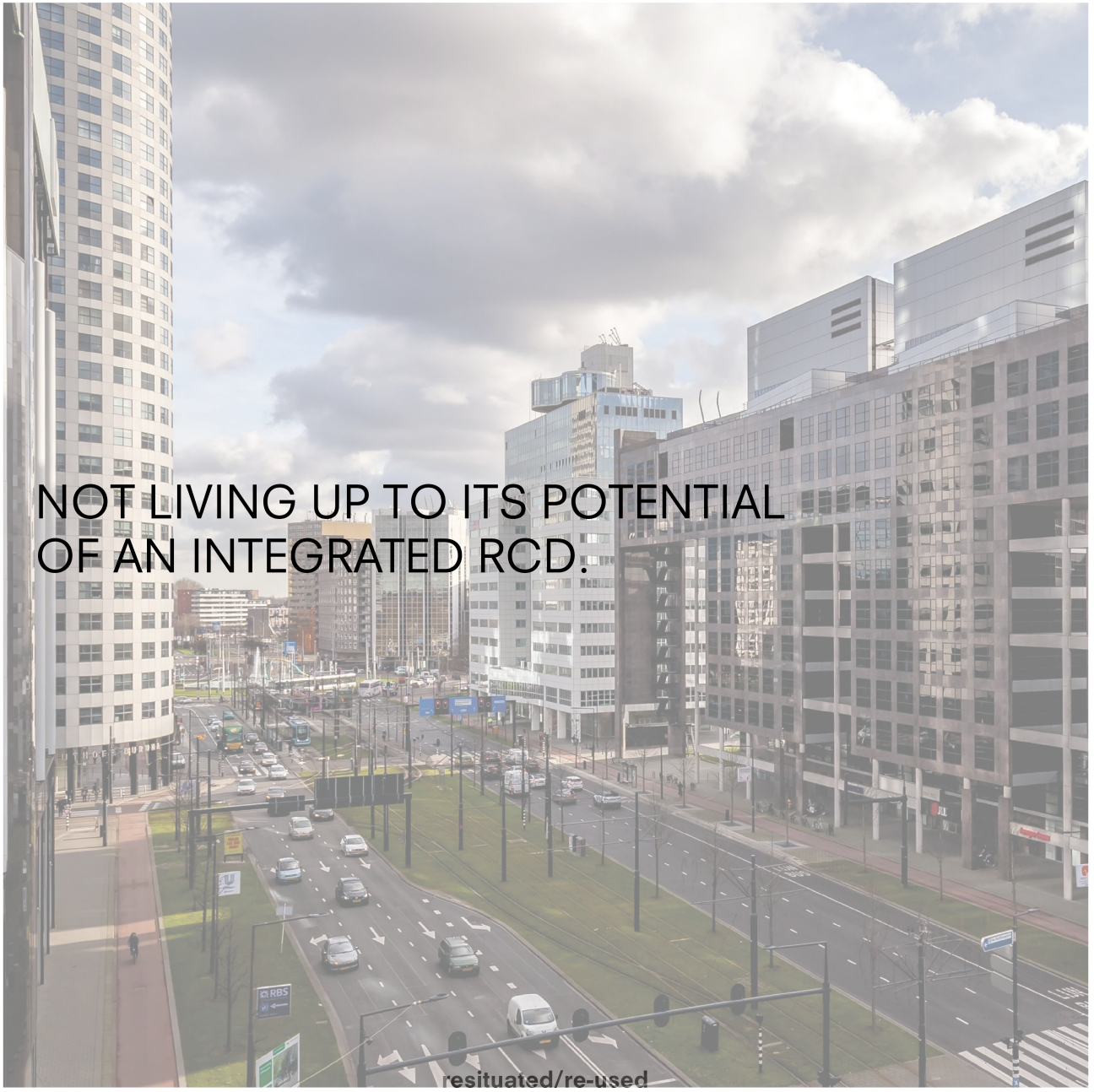
ROTTERDAM: INTEGRATED BUSINESS DISTRICT OF THE RCD



ROTTERDAM: INTEGRATED BUSINESS DISTRICT OF THE RCD



ROTTERDAM: INTEGRATED BUSINESS DISTRICT OF THE RCD



Vertical High Tech Campus Hotel New York

MONOFUNCTIONALITY



TRADITIONAL CORPORATE OFFICES

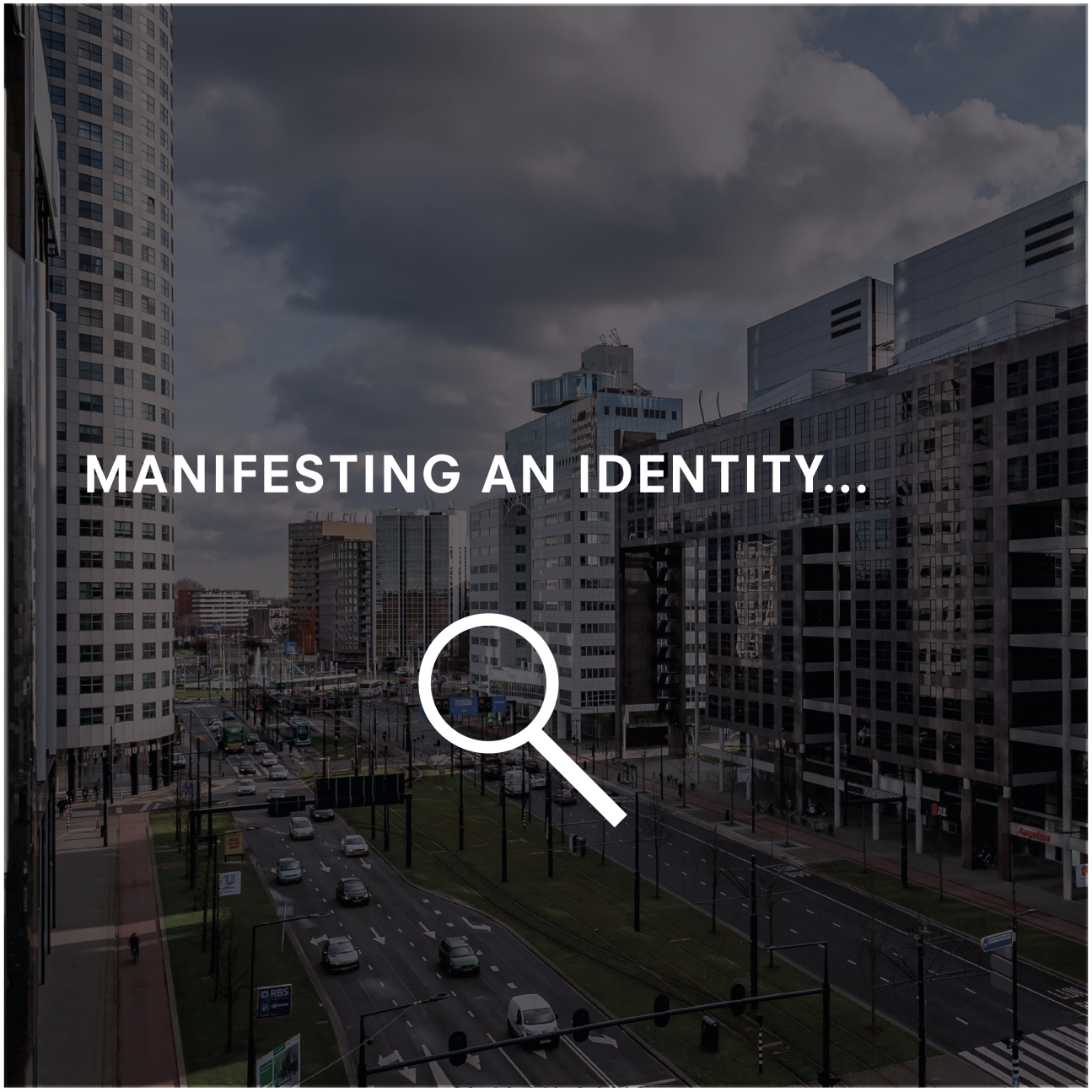


IDENTITY CRISIS



Vertical High Tech Campus Hotel New York

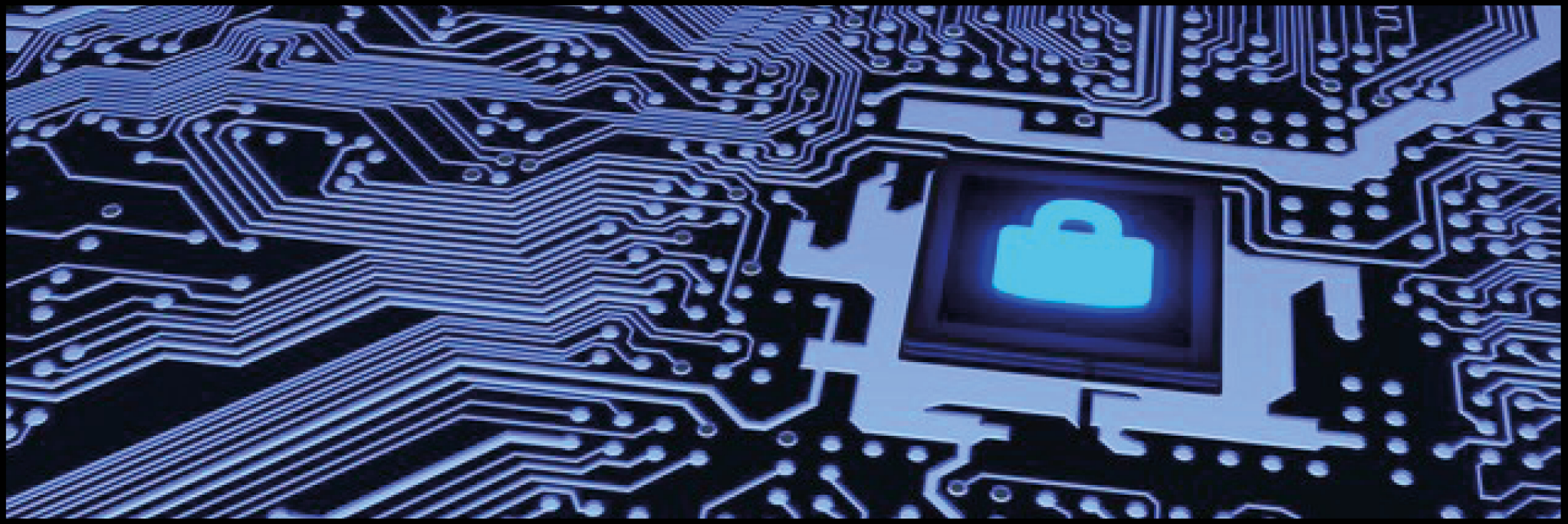
ROTTERDAM: INTEGRATED BUSINESS DISTRICT OF THE RCD



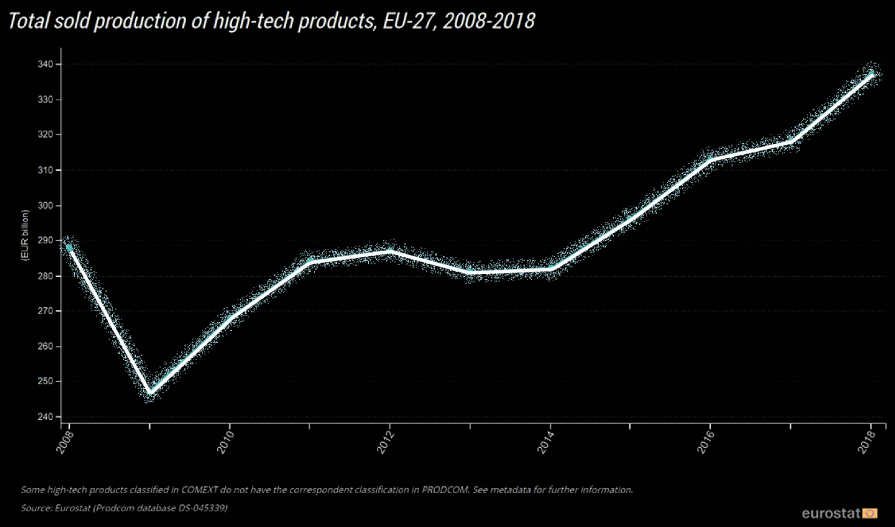
STATE OF THE ART ECONOMY IN HIGH-TECH



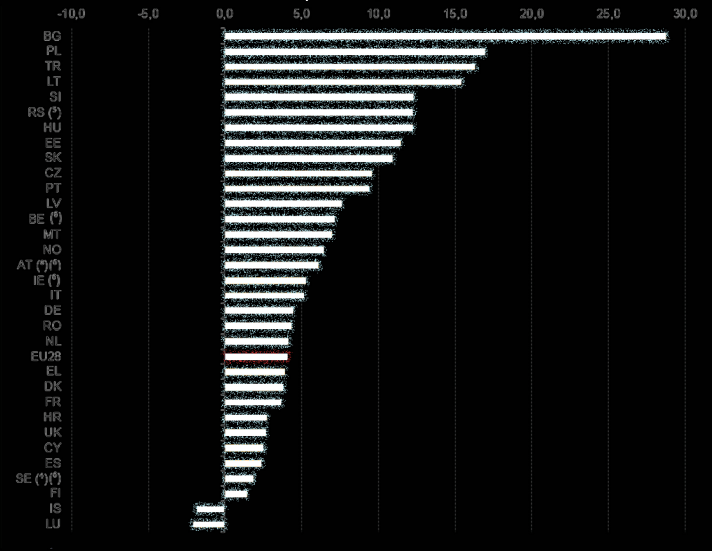
STATE OF THE ART ECONOMY IN HIGH-TECH



Total sold production of high-tech products, EU-27, 2008-2018



Average annual growth rate of R&D expenditure in high-tech business enterprises, 2008-2018



STATE OF THE ART ECONOMY IN HIGH-TECH



Globalizing economics

STATE OF THE ART ECONOMY IN HIGH-TECH



Globalizing economics



Promising results
and future

STATE OF THE ART ECONOMY IN HIGH-TECH



Globalizing economics



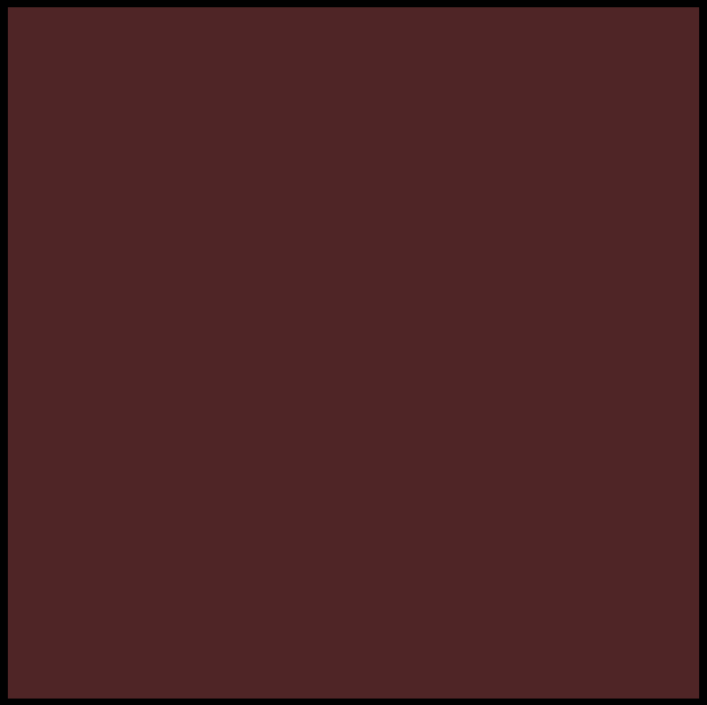
Promising results
and future



Inner-city integratable
due to small scale products

INTEGRATING A THEME

ESTHABLSIHING AN ECONOMICAL THEME



CONGLOMERATION OF THEMATIC OVERARCHING COMPANIES

Relying on business, production and innovation

Pharmaceutical, robotics, nano-tech, high-tech education
Venture capital in High-tech



HYDROGEN CARRIER

MEDCOR
Pharmaceuticals

Mythronics
Advanced Intelligent Automation

SOPHOS
ROBOTICS

SYNANO

Olympian

praxa
sense

+ADDITIONAL FUNCTIONS

INTEGRATING R&D AND STUDY HUB POTENTIALS

NEIGHBOURS OF

TU Delft

Erasmus MC

Erasmus University



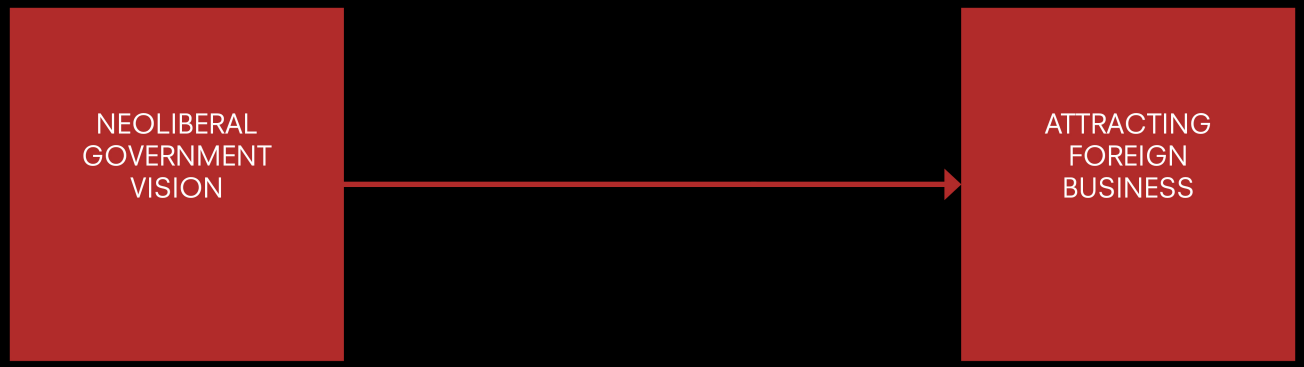
Vertical High Tech Campus

Hotel New York

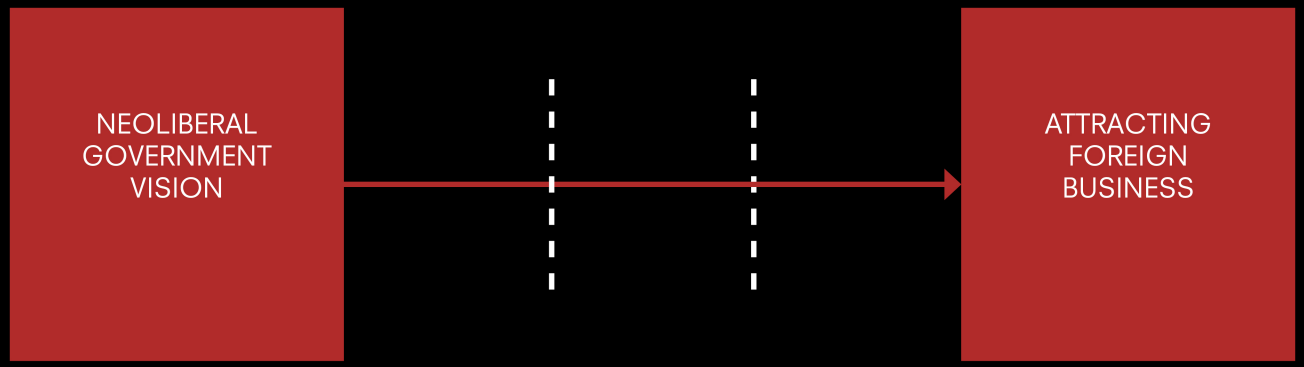
INNER CITY POTENTIALS OF REVISED PRODUCTION & RESEARCH AMENITIES



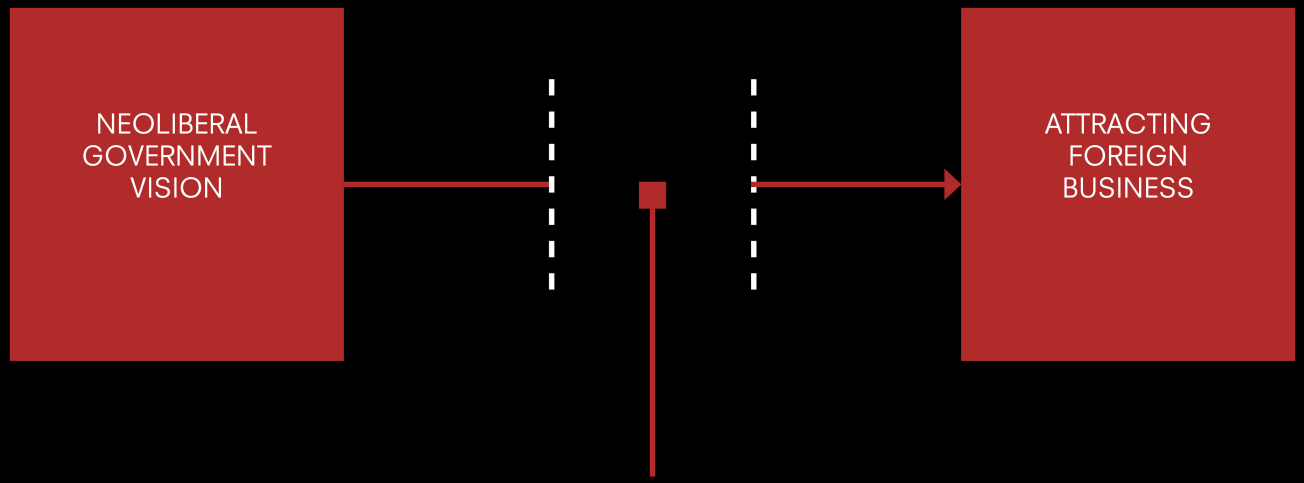
FUNCTION PROVISION



FUNCTION PROVISION



FUNCTION PROVISION



FUNCTION PROVISION



FUNCTION PROVISION

HIGH-TECH CAMPUS

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TRANSLATING THE COMMON HORIZONTAL CAMPUS IN THE CITY CENTER







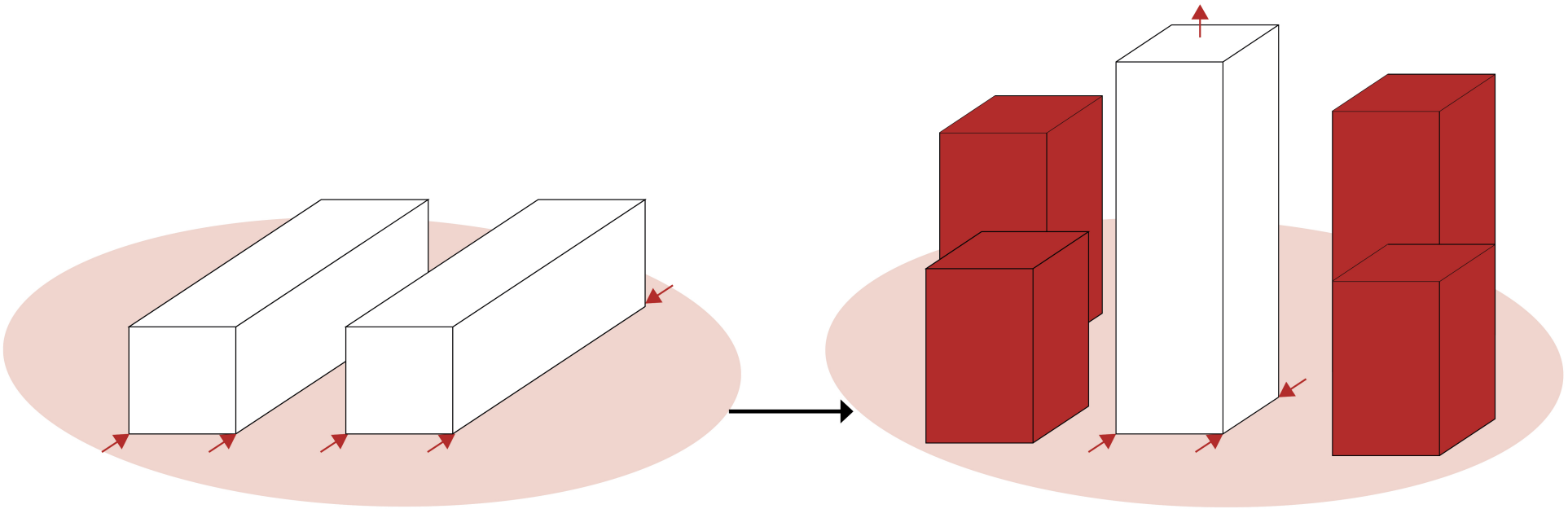


Vertical High Tech Campus

Hotel New York

Design Brief

INTO A VERTICAL INNER CENTER FACILITY



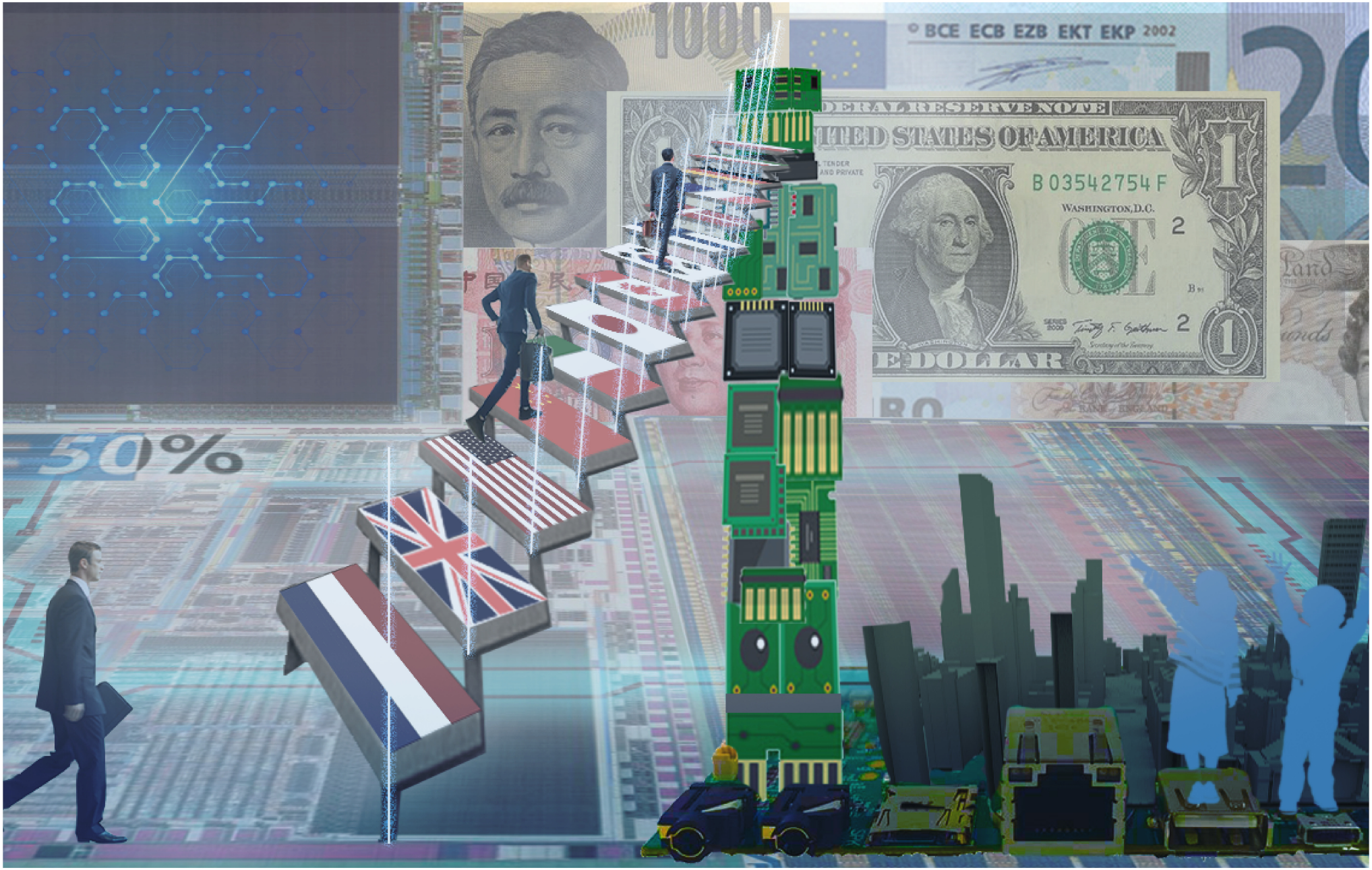
From horizontal

The isolated campus

To vertical transformation

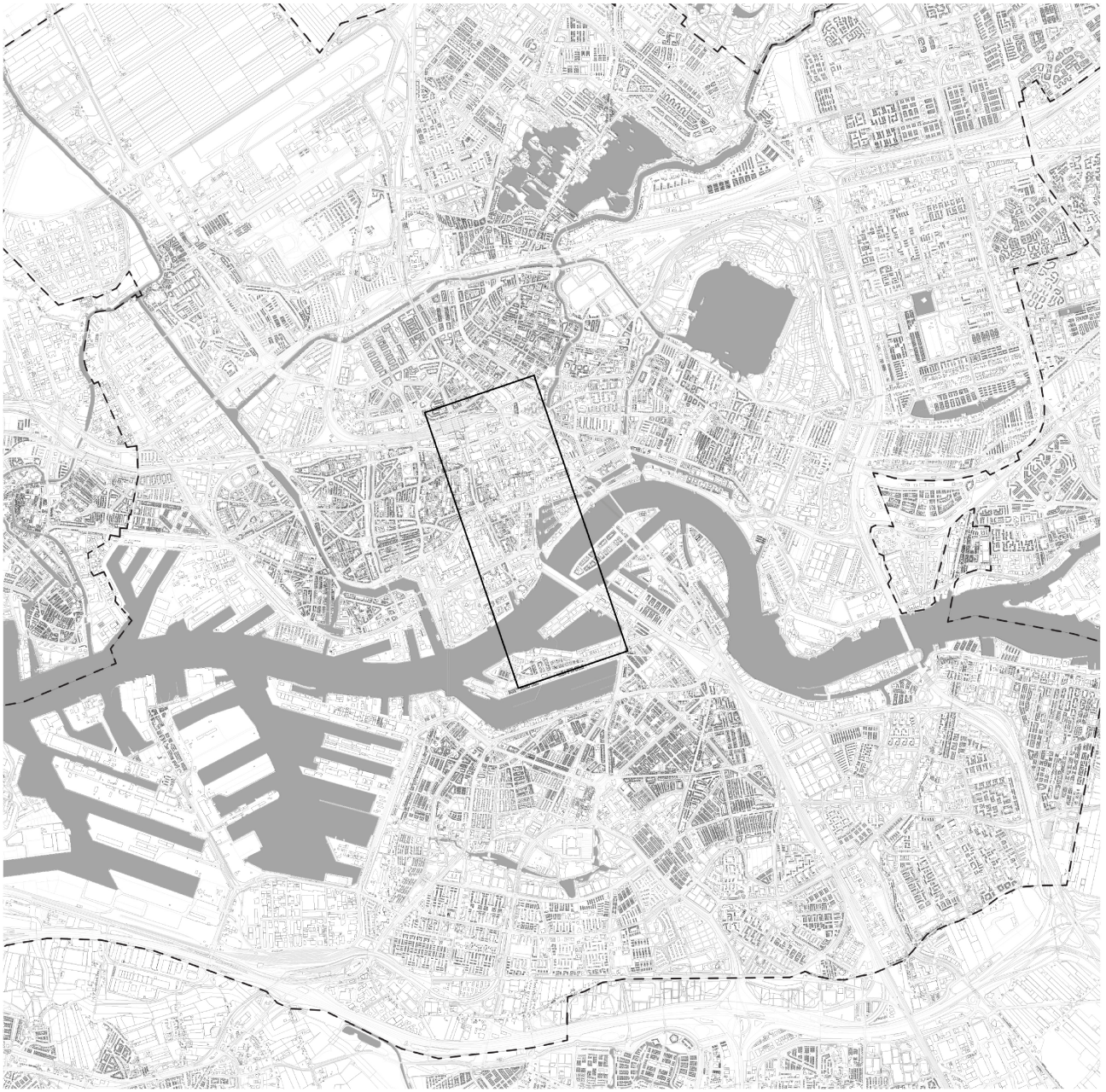
The integrated campus

VERTICAL ADAPTATION OF THE CAMPUS

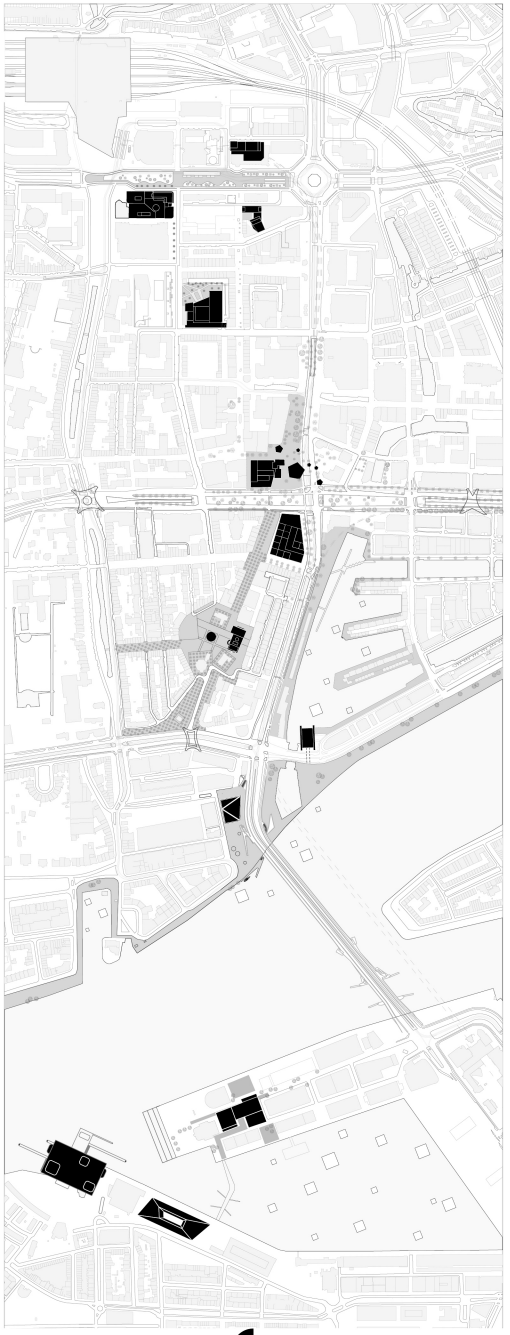


Design Brief

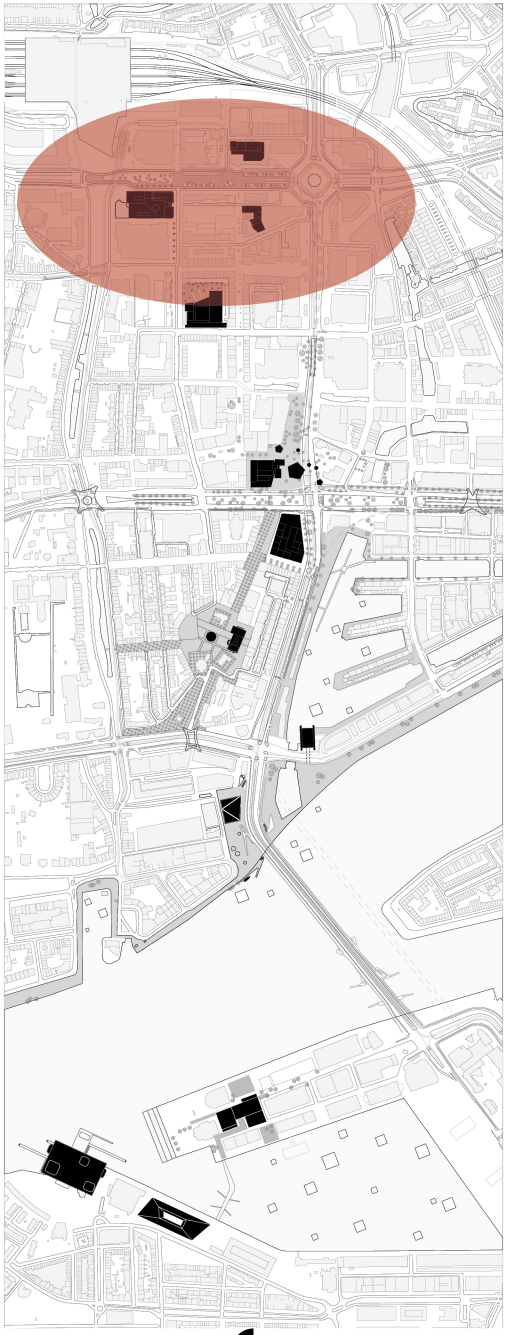
ROTTERDAM



INNER CENTER AREA



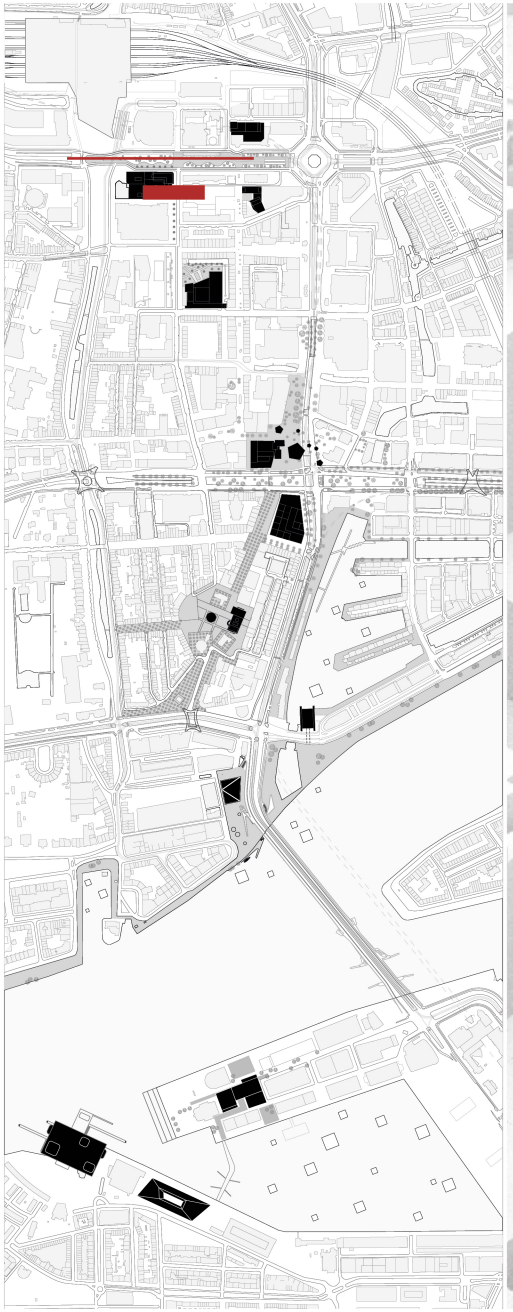
LOCATION LINKED TO THE RCD AREA

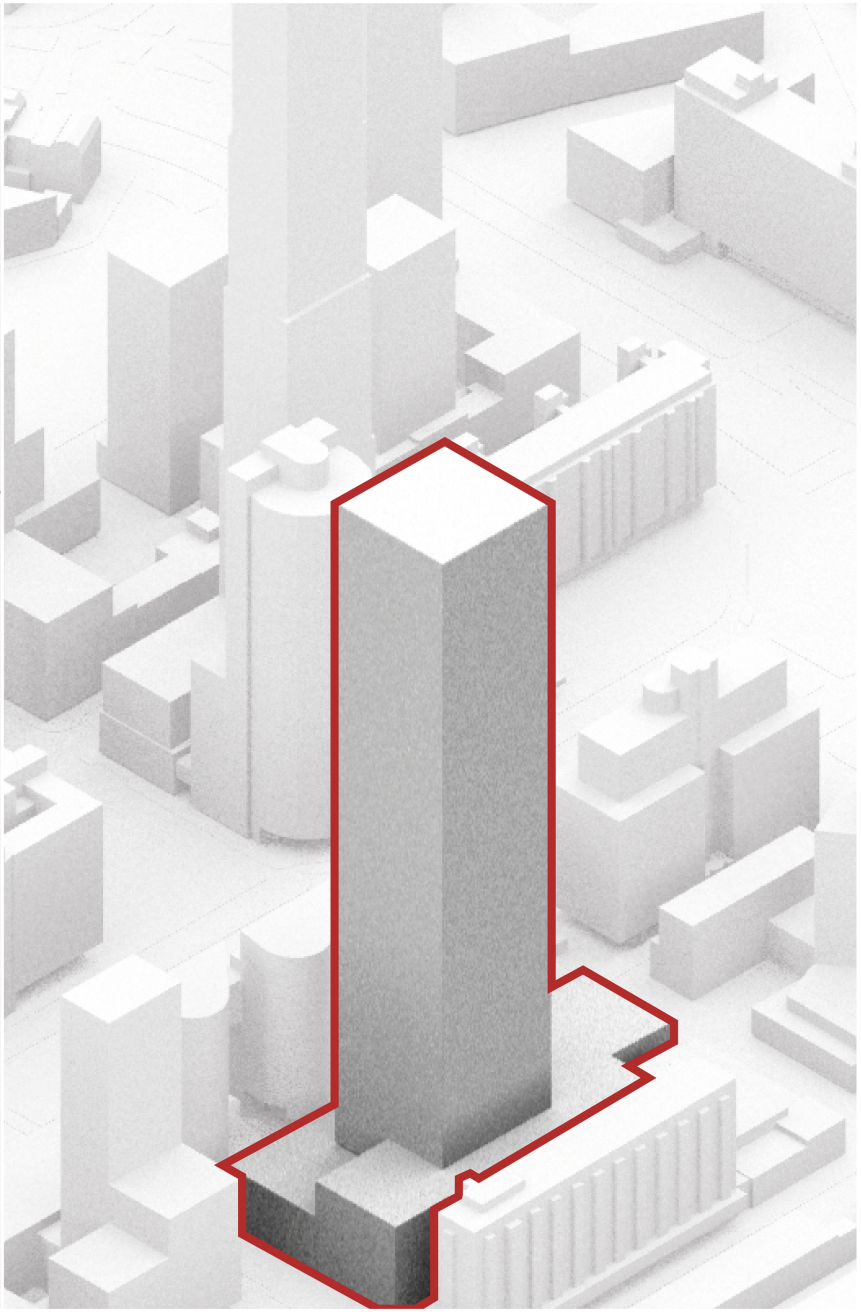


Vertical High Tech Campus

Hotel New York

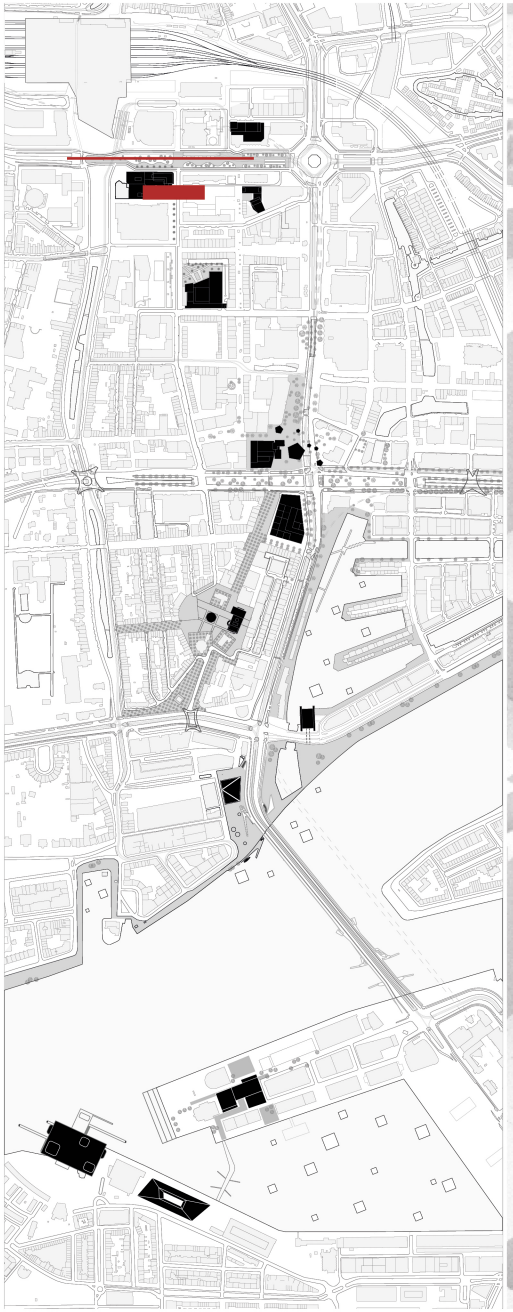
INITIAL LOCATION NEAR WEENA

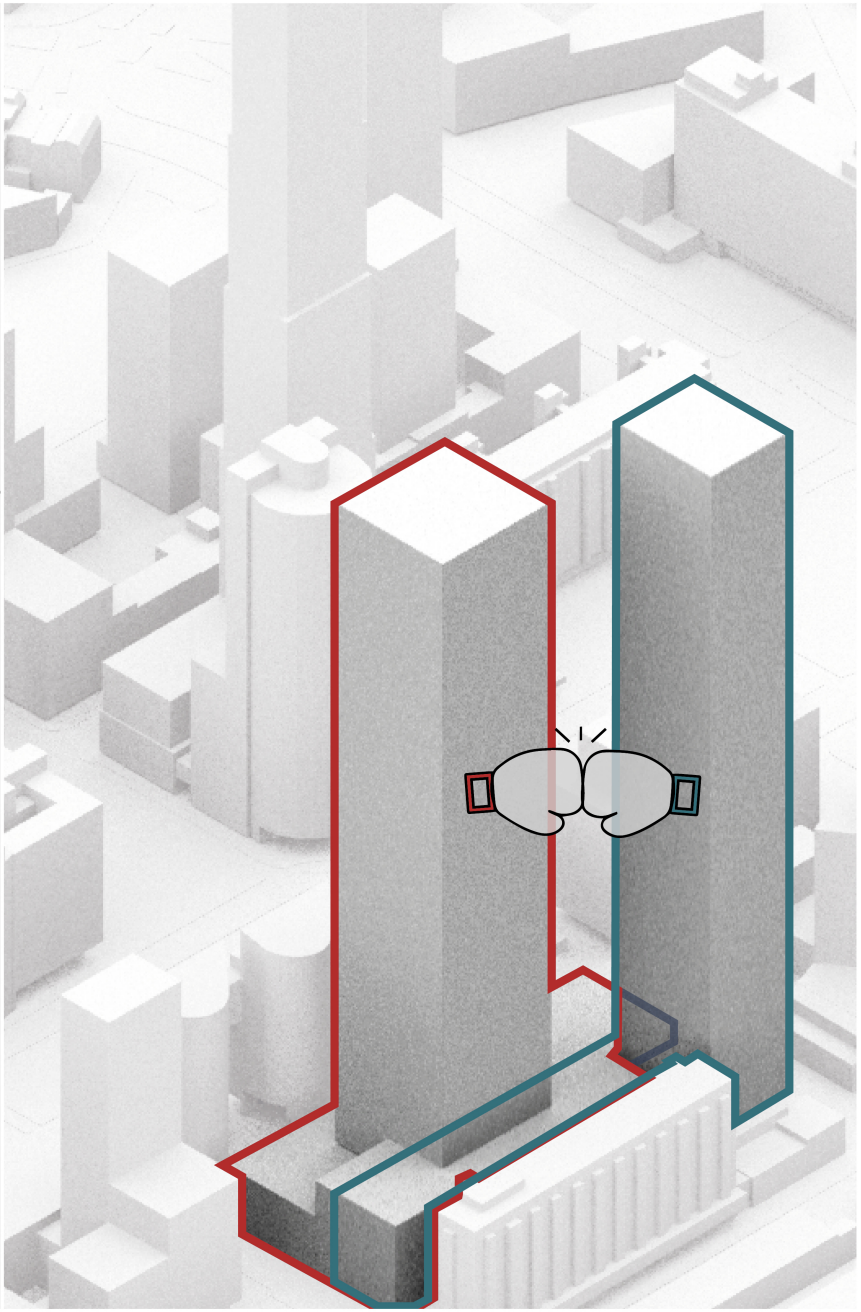




Design Brief

NEOLIBERAL GROWTH OF ROTTERDAM, EVEN DURING COVID

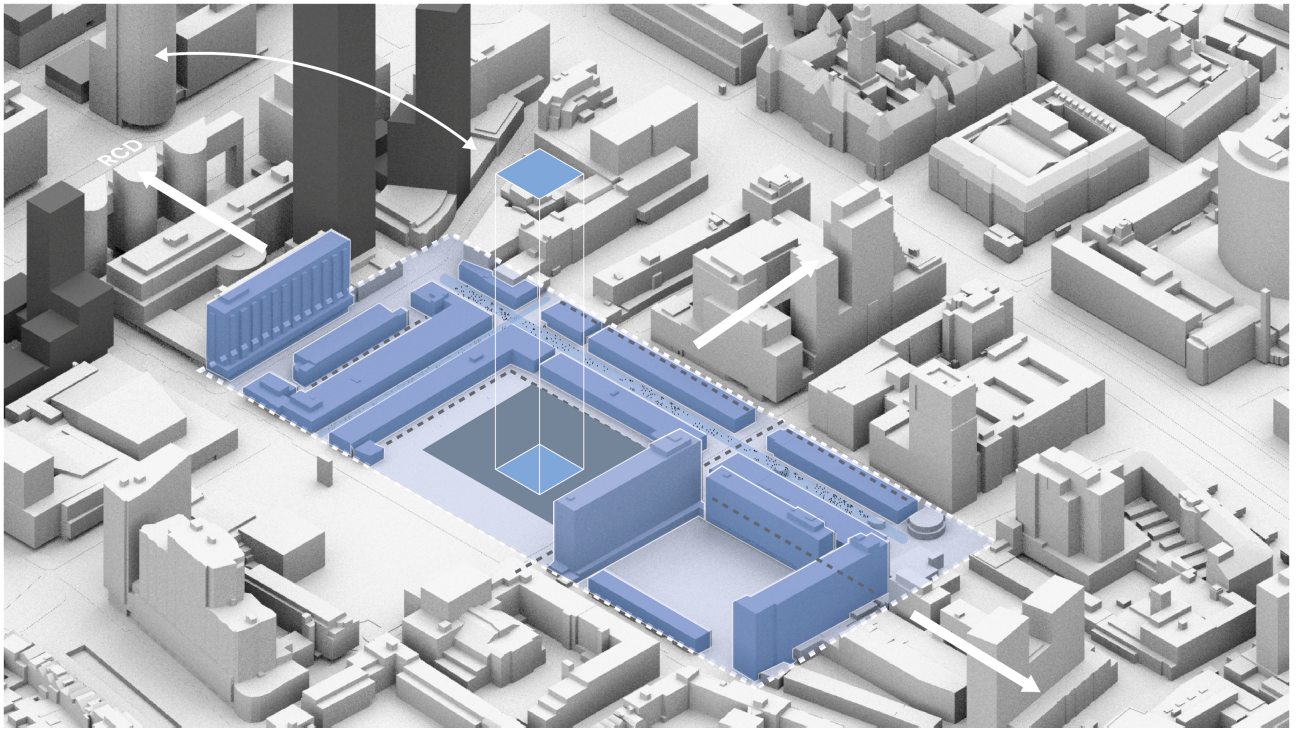




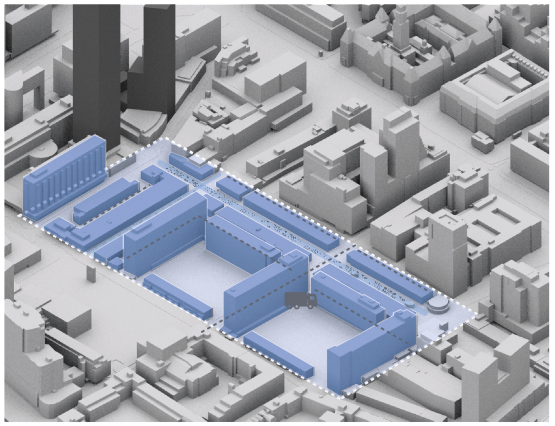
Vertical High Tech Campus

Hotel New York

RELOCATION TOT THE SOUTH BORDER OF THE RCD



THE WHY OF URBAN REVISIONS

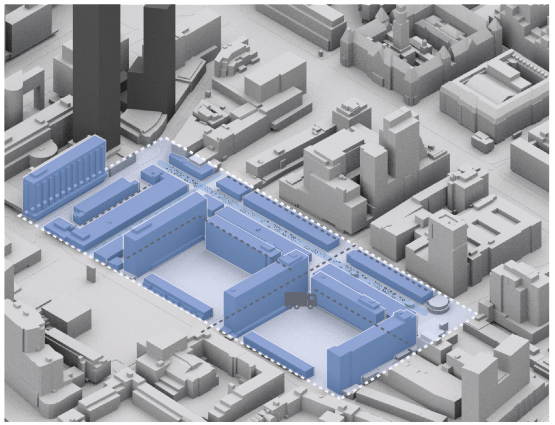


Unique shopping character of Lijnbaan disappeared

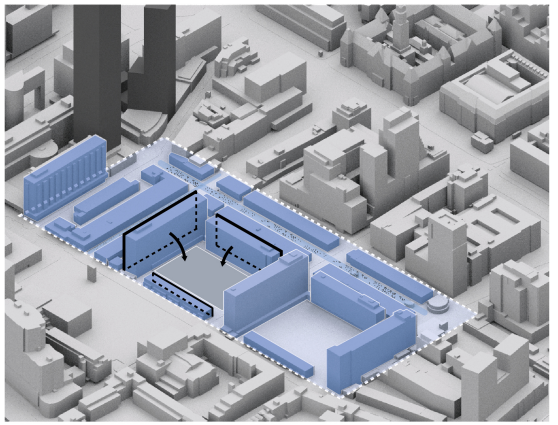


Design Brief

THE WHY OF URBAN REVISIONS



Unique shopping character of Lijnbaan disappeared



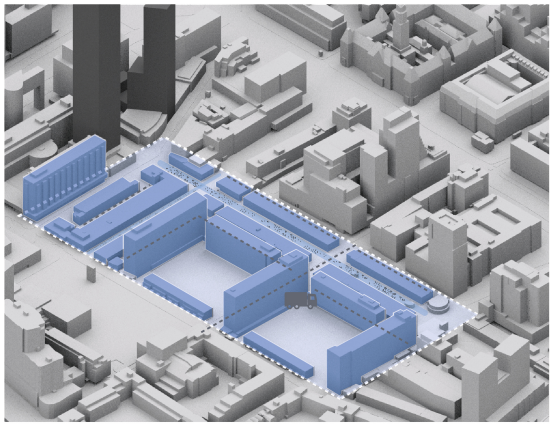
Introverted inner city block



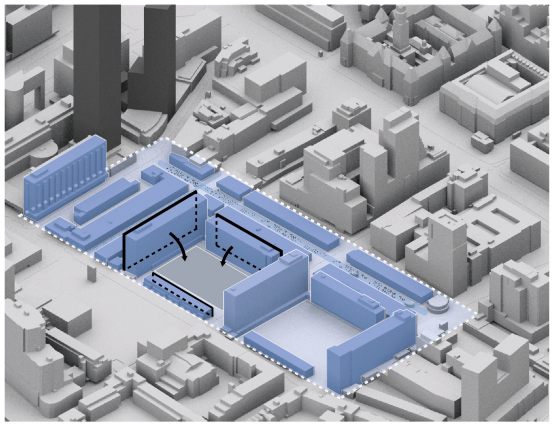


Design Brief

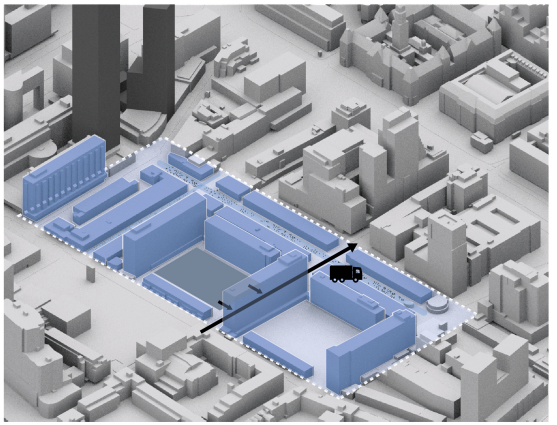
THE WHY OF URBAN REVISIONS



Unique shopping character of Lijnbaan disappeared

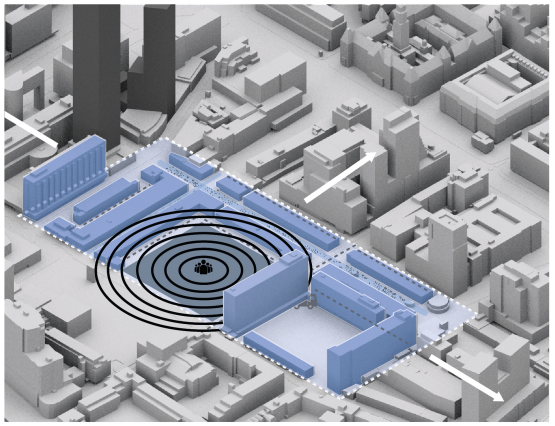


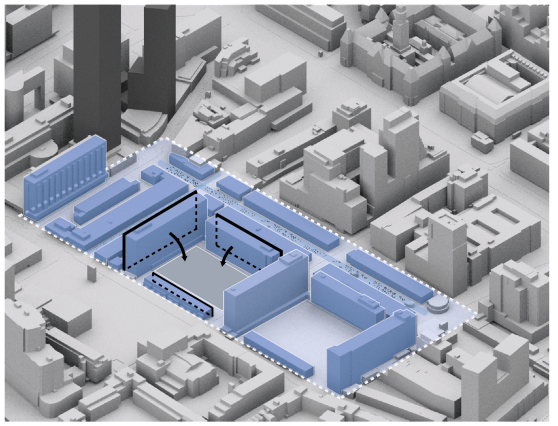
Introverted inner city block

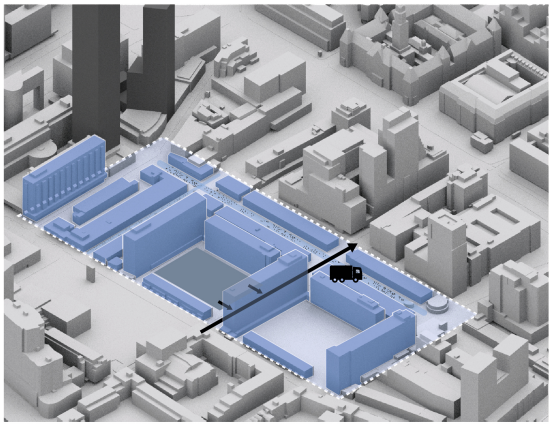


Private appropriation of courtyard in one of the most valuable city parts

REVISIONS







Injection in the middle block, where the Lijnbaan area ‘embraces’ the plot and desifies due to a new function

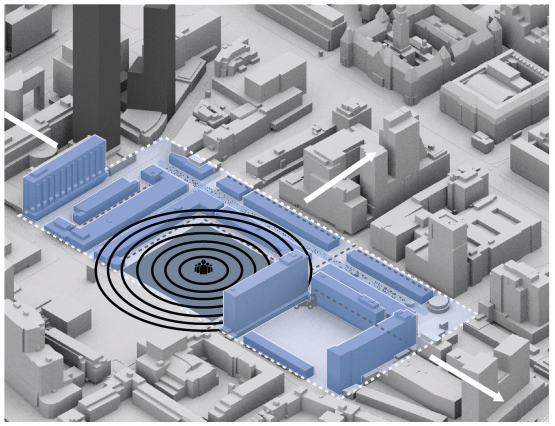






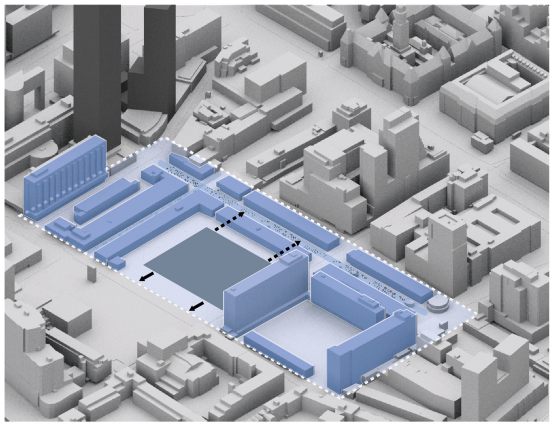
Design Brief

THE WHY OF URBAN REVISIONS



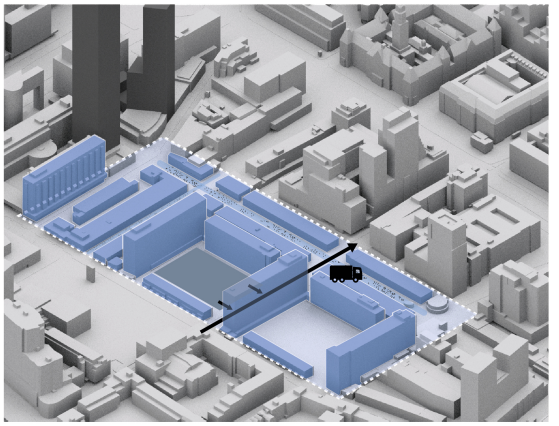
Injection in the middle block, where the Lijnbaan area ‘embraces’ this plot and desifies due a new function





Invert to an extroverted character;
to open up to the pedestrian flow and Schouwburgplein

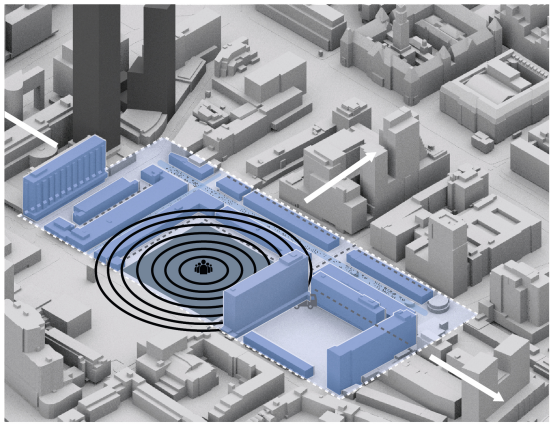






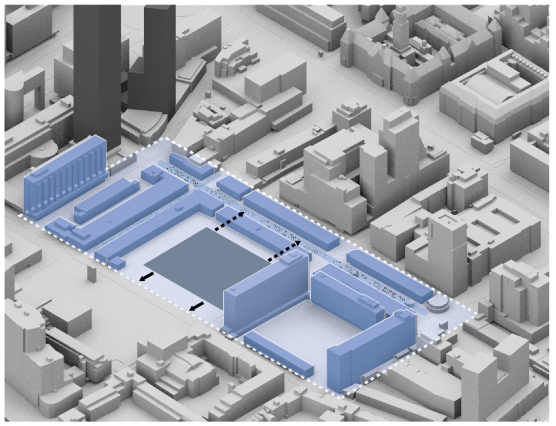
Design Brief

THE WHY OF URBAN REVISIONS



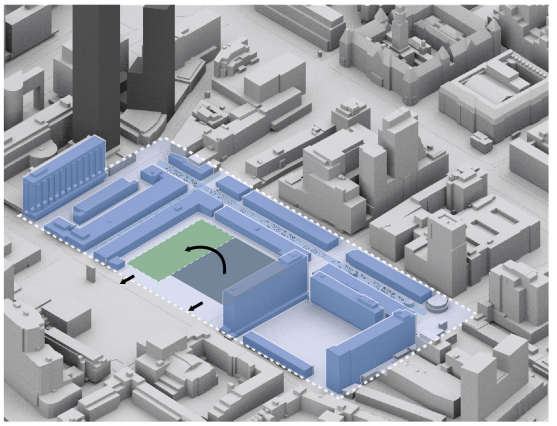
Injection in the middle block, where the Lijnbaan area
'embraces' this plot and desifies due a new function





Invert to a extroverted character;
to open up to the pedestrian flow and Schouwburgplein





Give more meaning to the green courtyard
Adds a new function of a small campus park



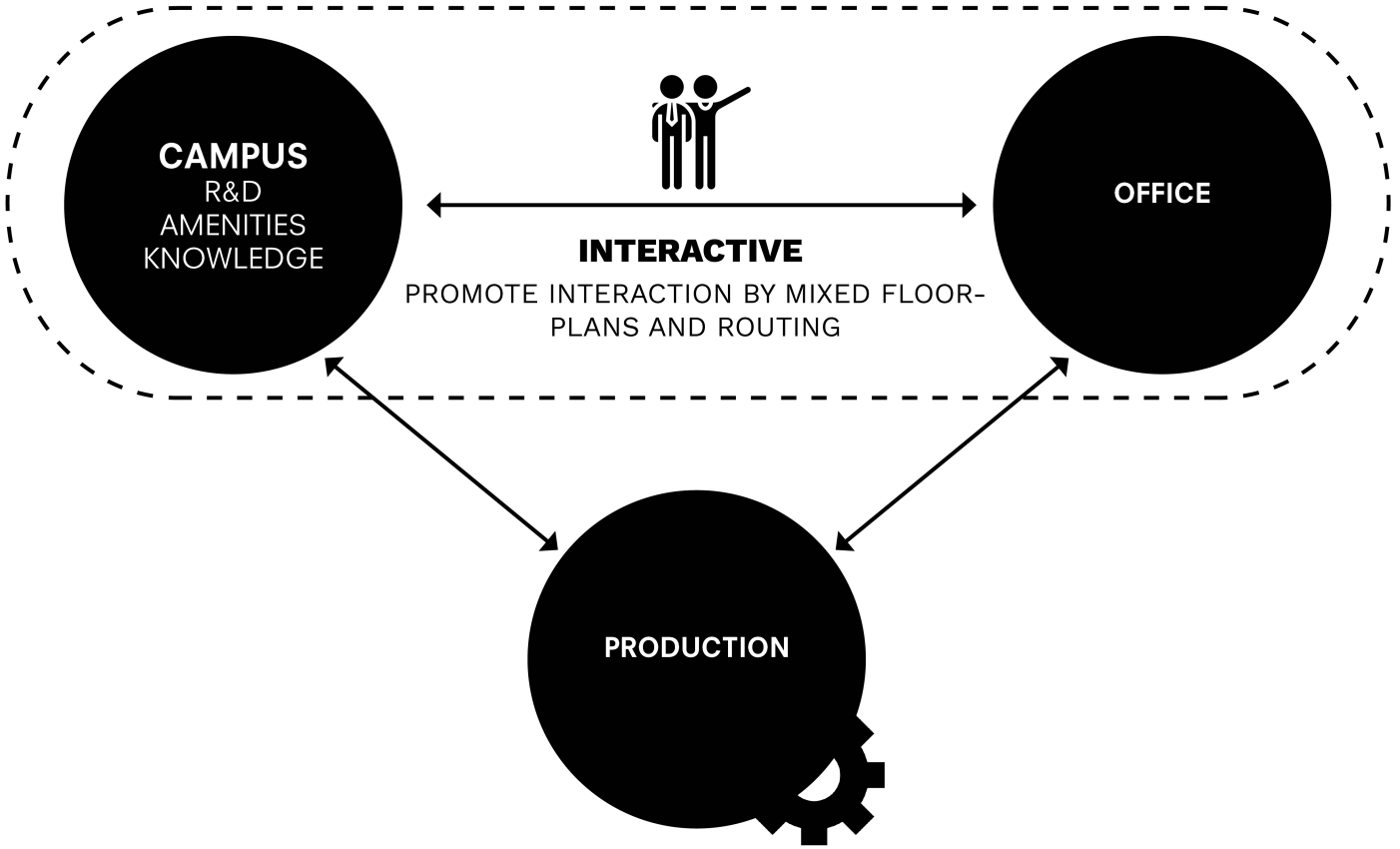
Design Brief

CITY CENTER STRATEGY



BALANCE OF PROGRAM DISTRIBUTION

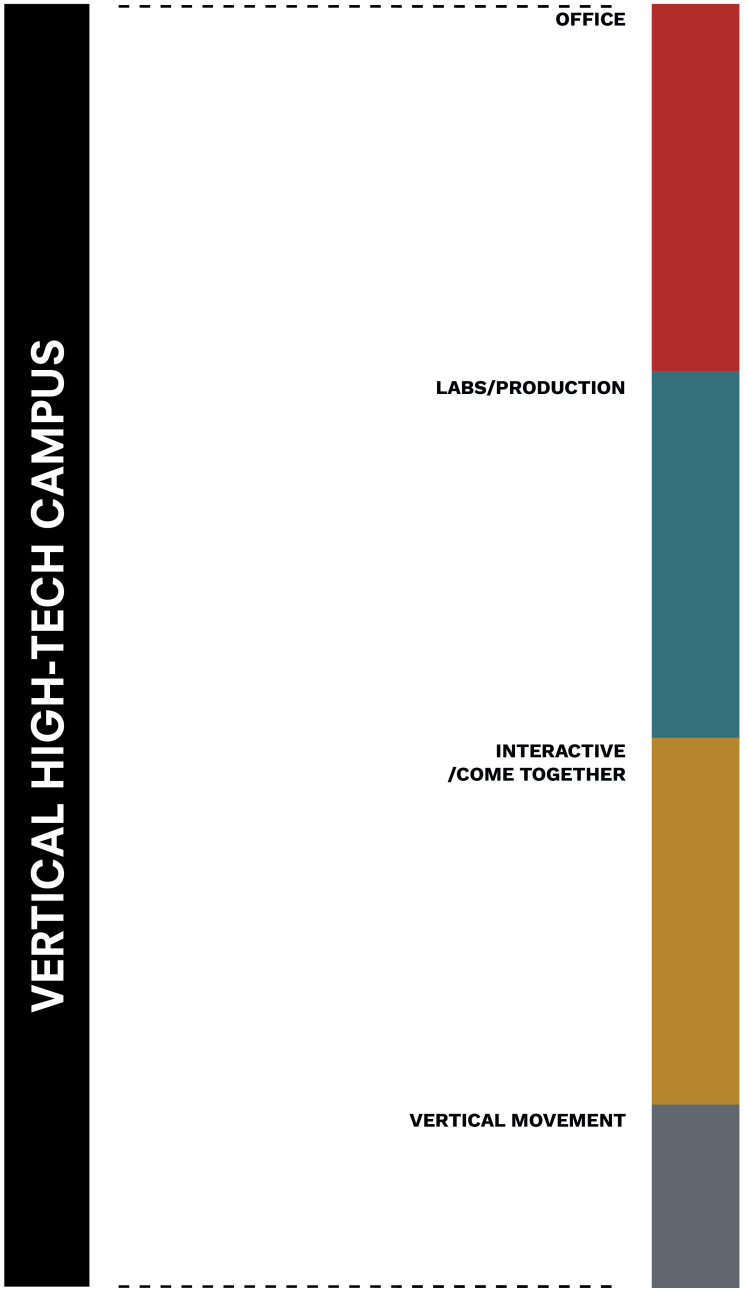
VERTICAL HIGH-TECH CAMPUS



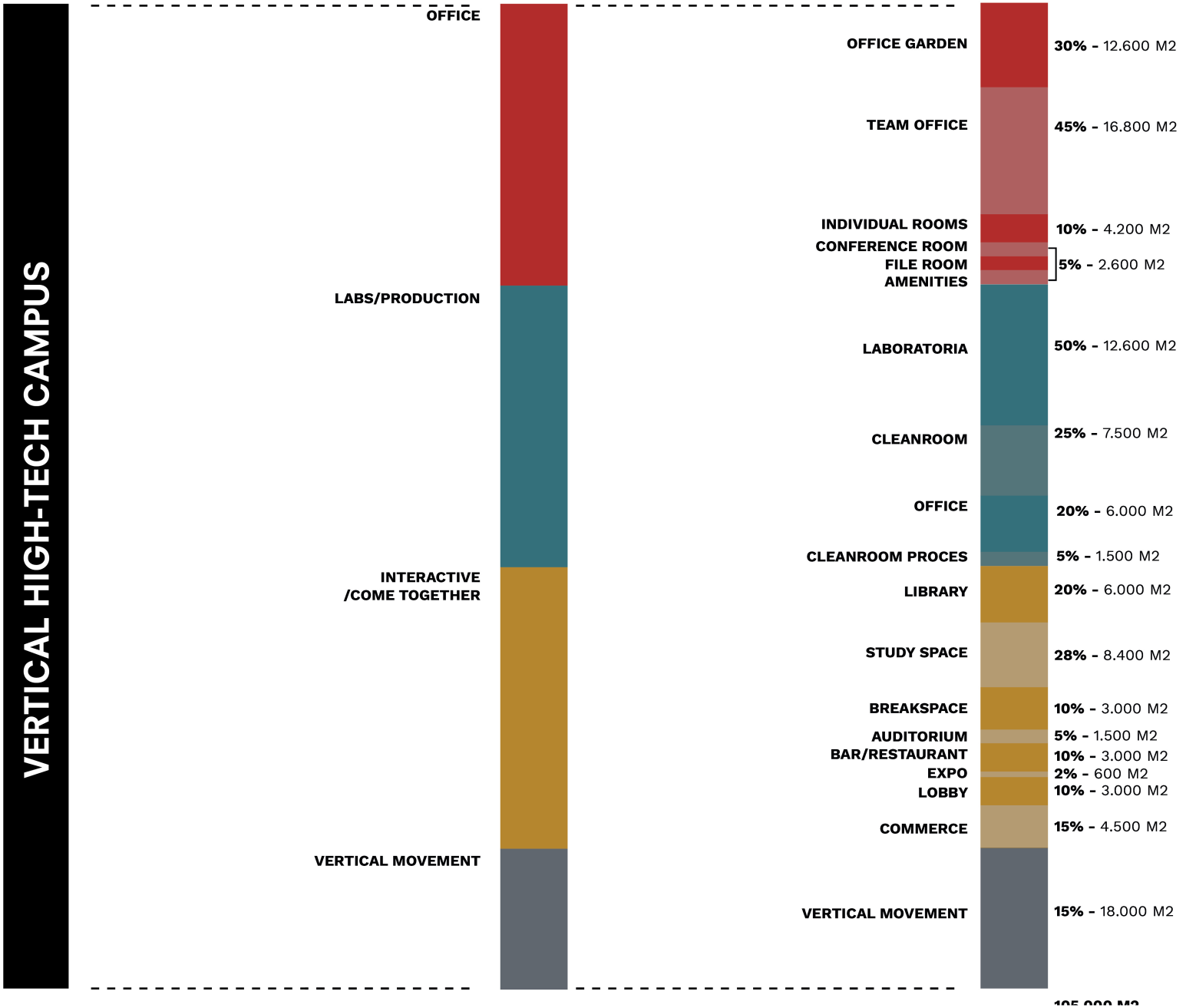
BALANCE OF PROGRAM DISTRIBUTION

VERTICAL HIGH-TECH CAMPUS

BALANCE OF PROGRAM DISTRIBUTION



BALANCE OF PROGRAM DISTRIBUTION



CAMPUS PROGRAM RULES



Incedental meeting between workers and researchers and students

CAMPUS PROGRAM RULES



Incedental meeting between workers and researchers and students



Mix of type of office plans

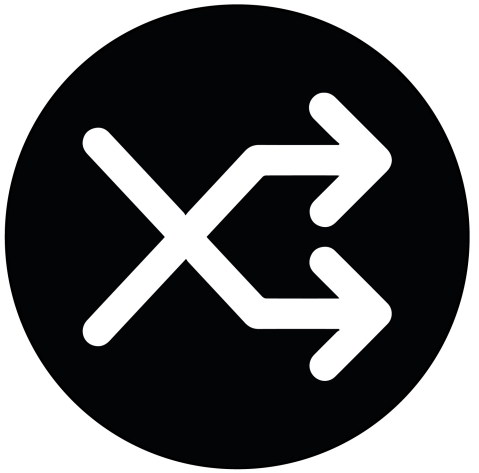
CAMPUS PROGRAM RULES



Incedental meeting between workers and researchers and students



Mix of type of office plans



A formal business route and informal student route

PROGRAMATTIC PRINCIPLE

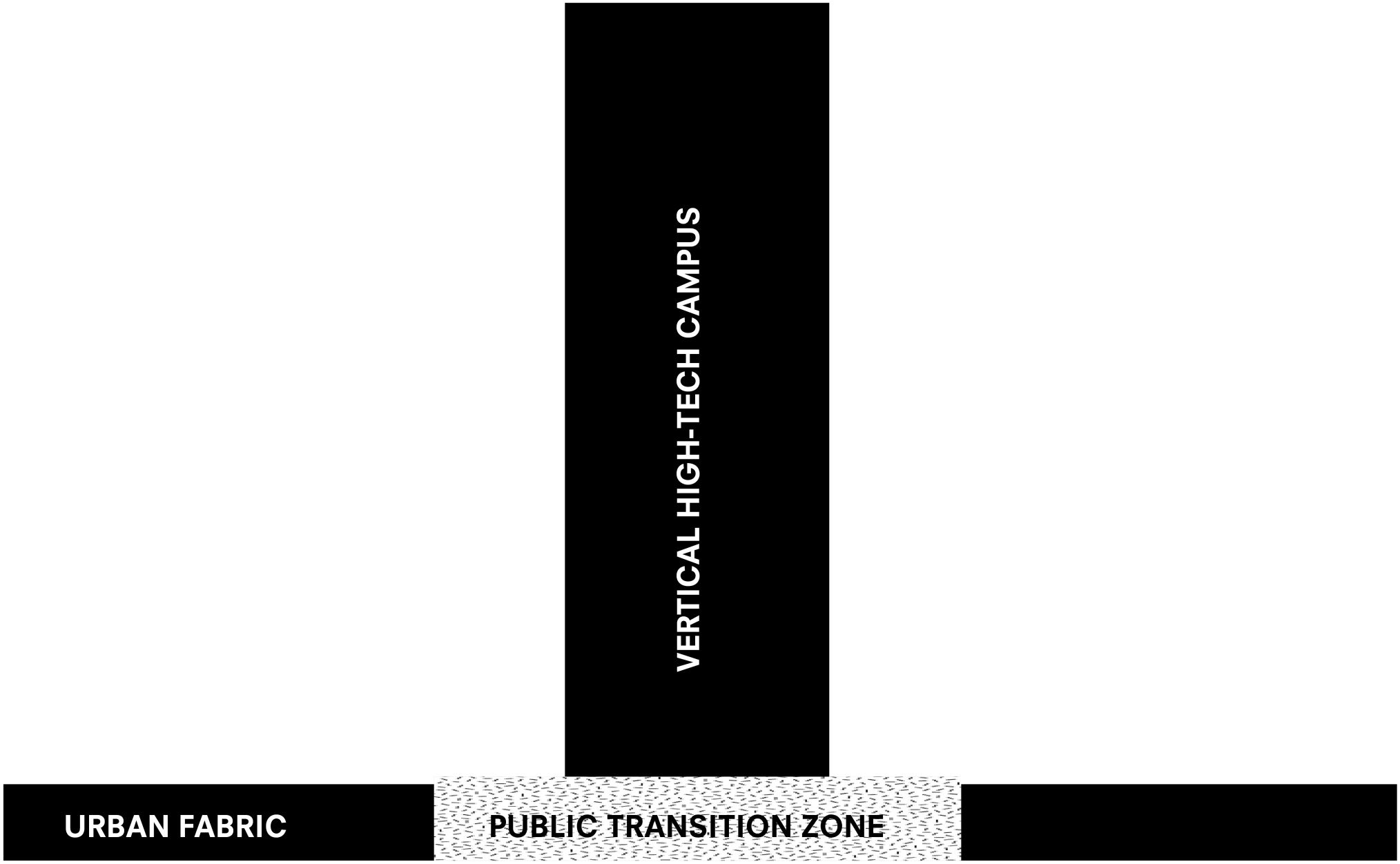
URBAN FABRIC

PROGRAMATTIC PRINCIPLE

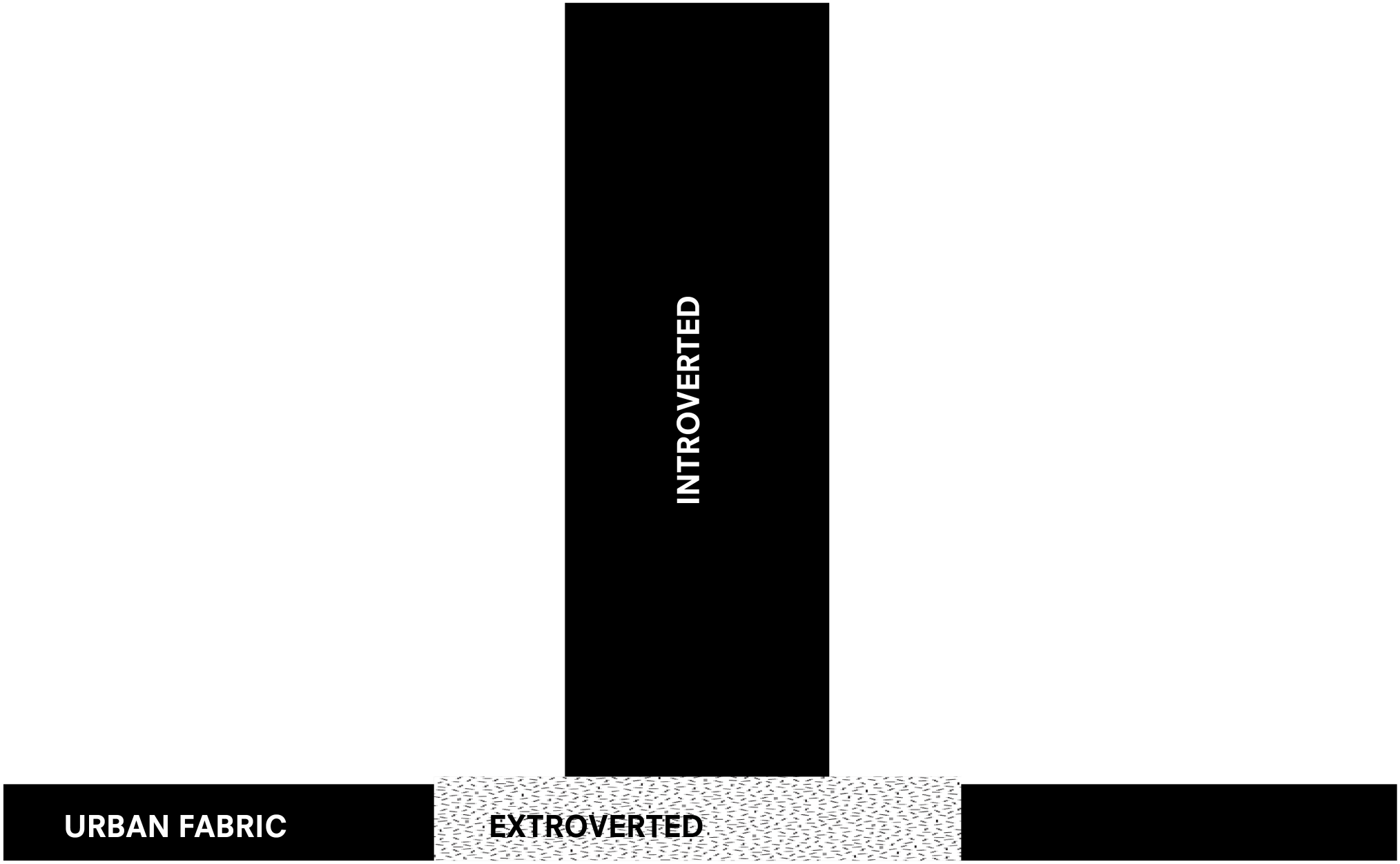
VERTICAL HIGH-TECH CAMPUS

URBAN FABRIC

PROGRAMATTIC PRINCIPLE



PROGRAMATTIC PRINCIPLE



URBAN INTEGRATION

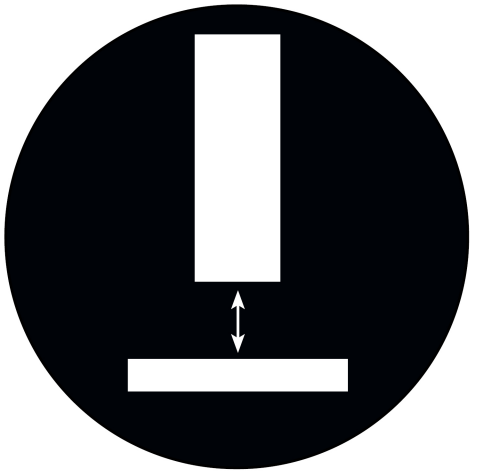


Subtle mass due to the sensitivity of Lijnbaan location

URBAN INTEGRATION



Subtle mass due to the sensitivity of Lijnbaan location

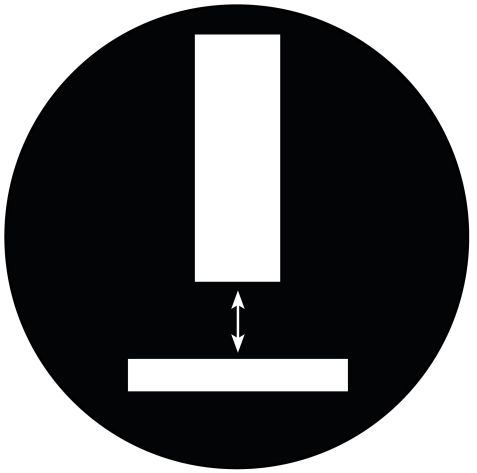


Clear distinguish of introverted tower with the urban connection at the plinth

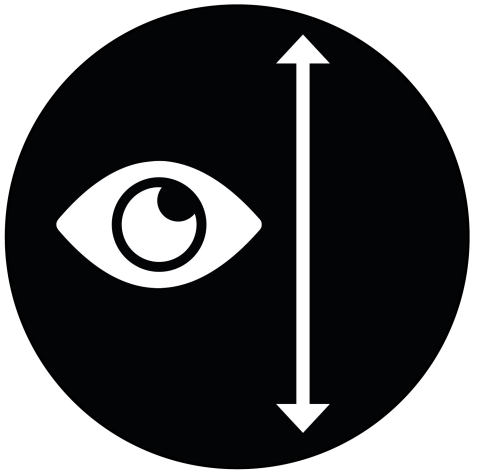
URBAN INTEGRATION



Subtle mass due to the sensitivity of Lijnbaan location



Clear distinguish of introverted tower with the urban connection at the plinth



Visible vertical journey on the outside to enhance the mobility as a vertical journey with connection to the urban life

Introduction

Research

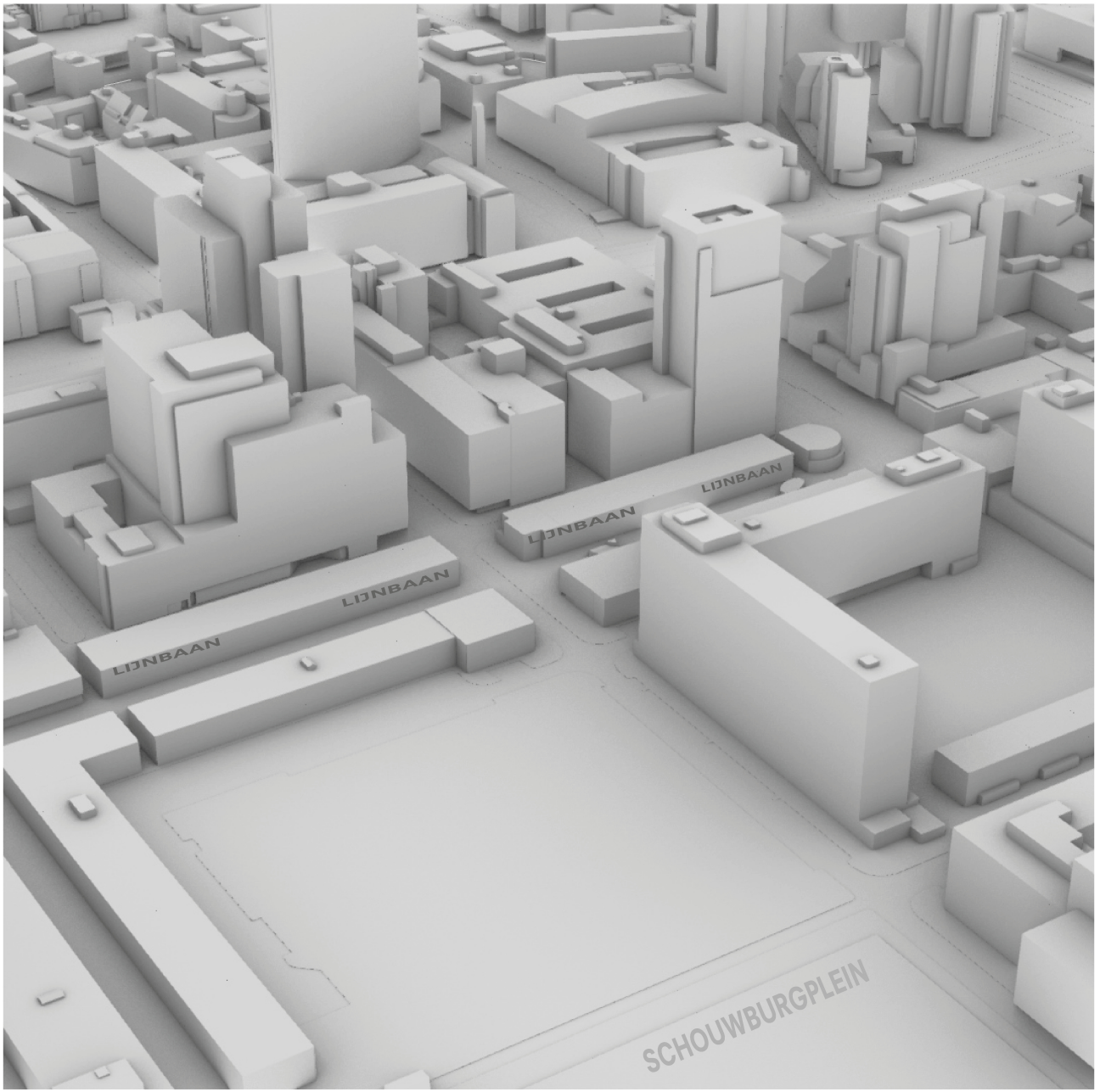
Design Brief

Design

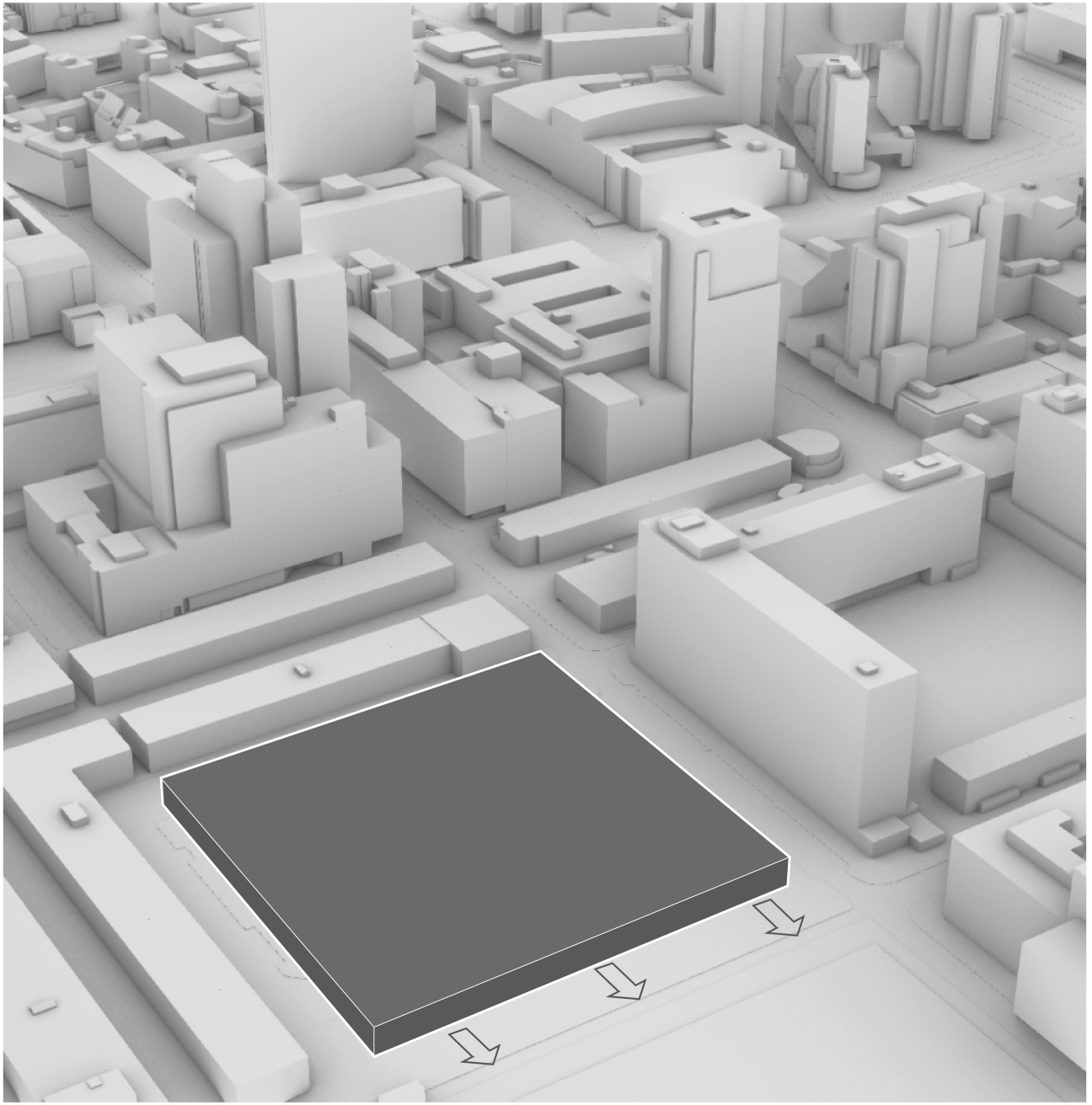
Conclusion

INDEX

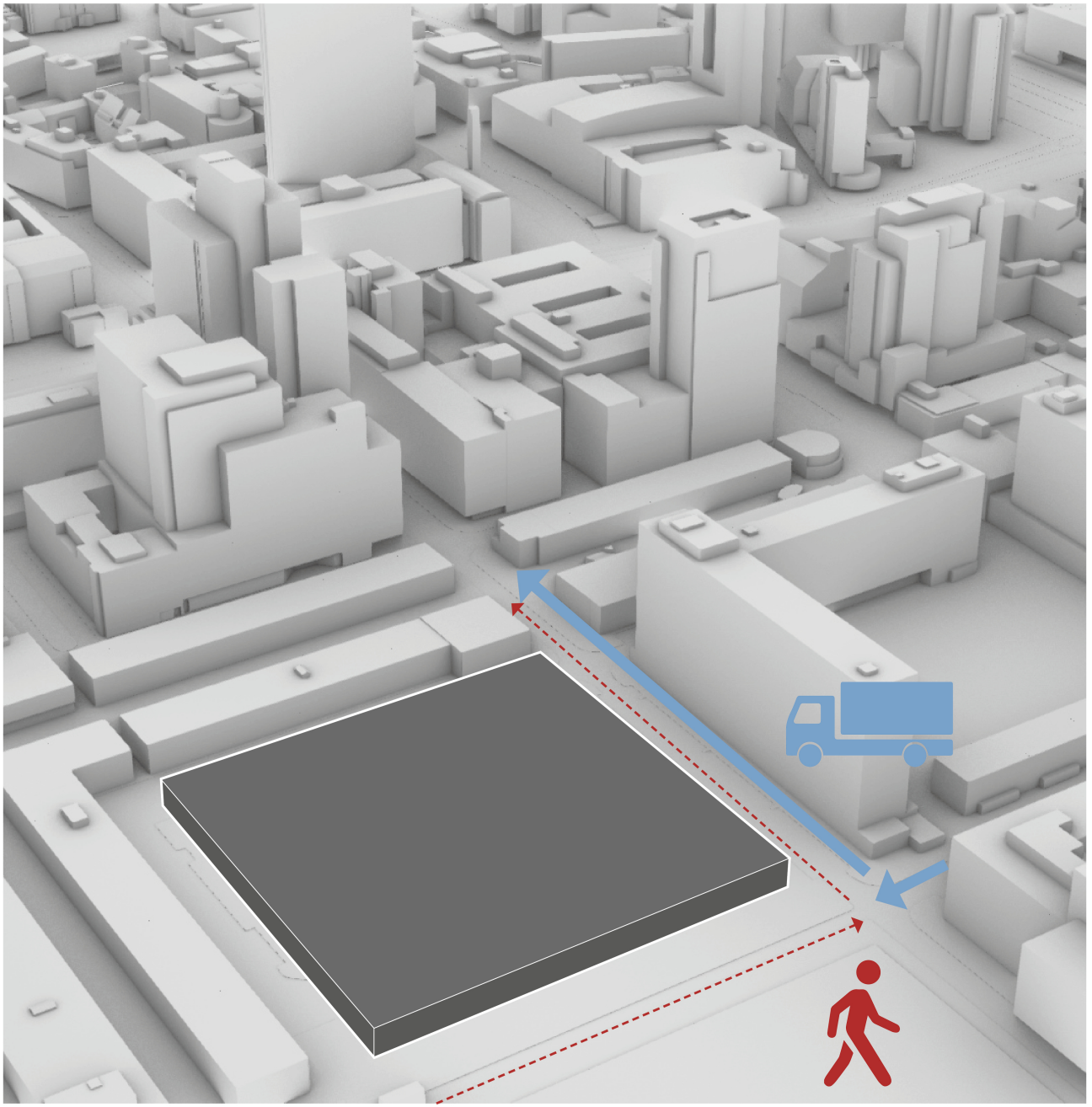
SITE



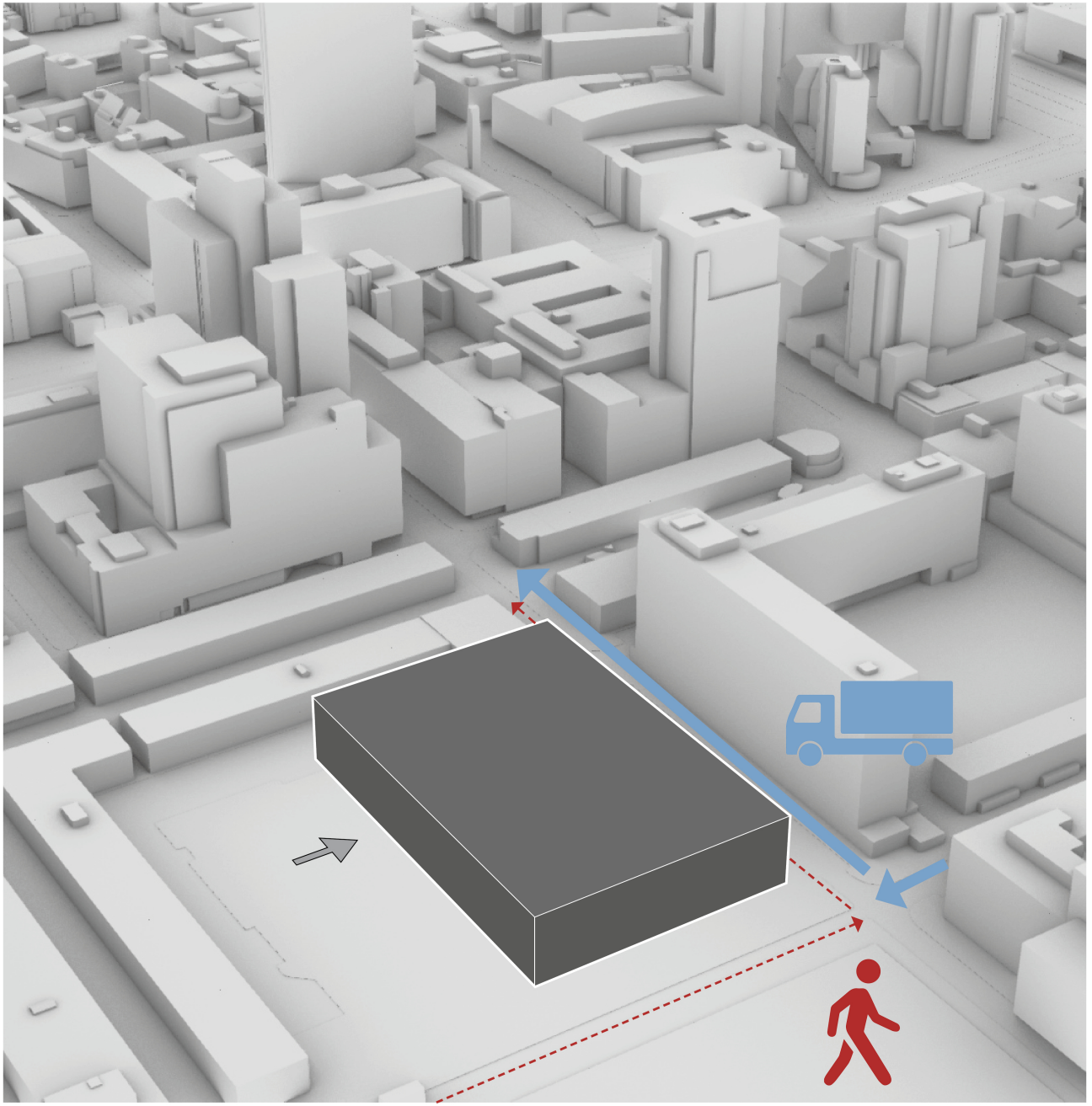
PUBLIC TRANSITION LOBBY



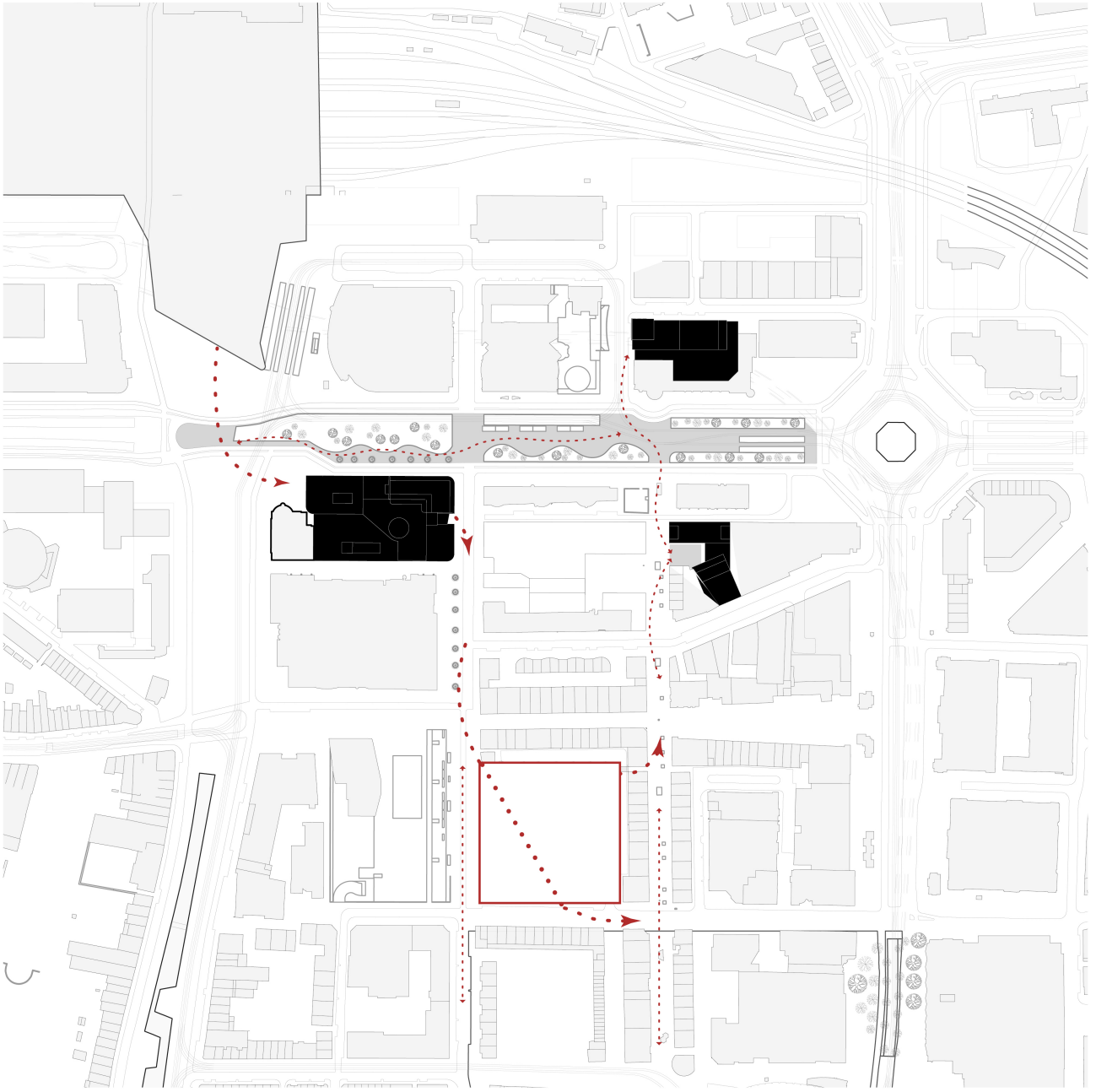
LOGISTICS & PUBLIC FLOW



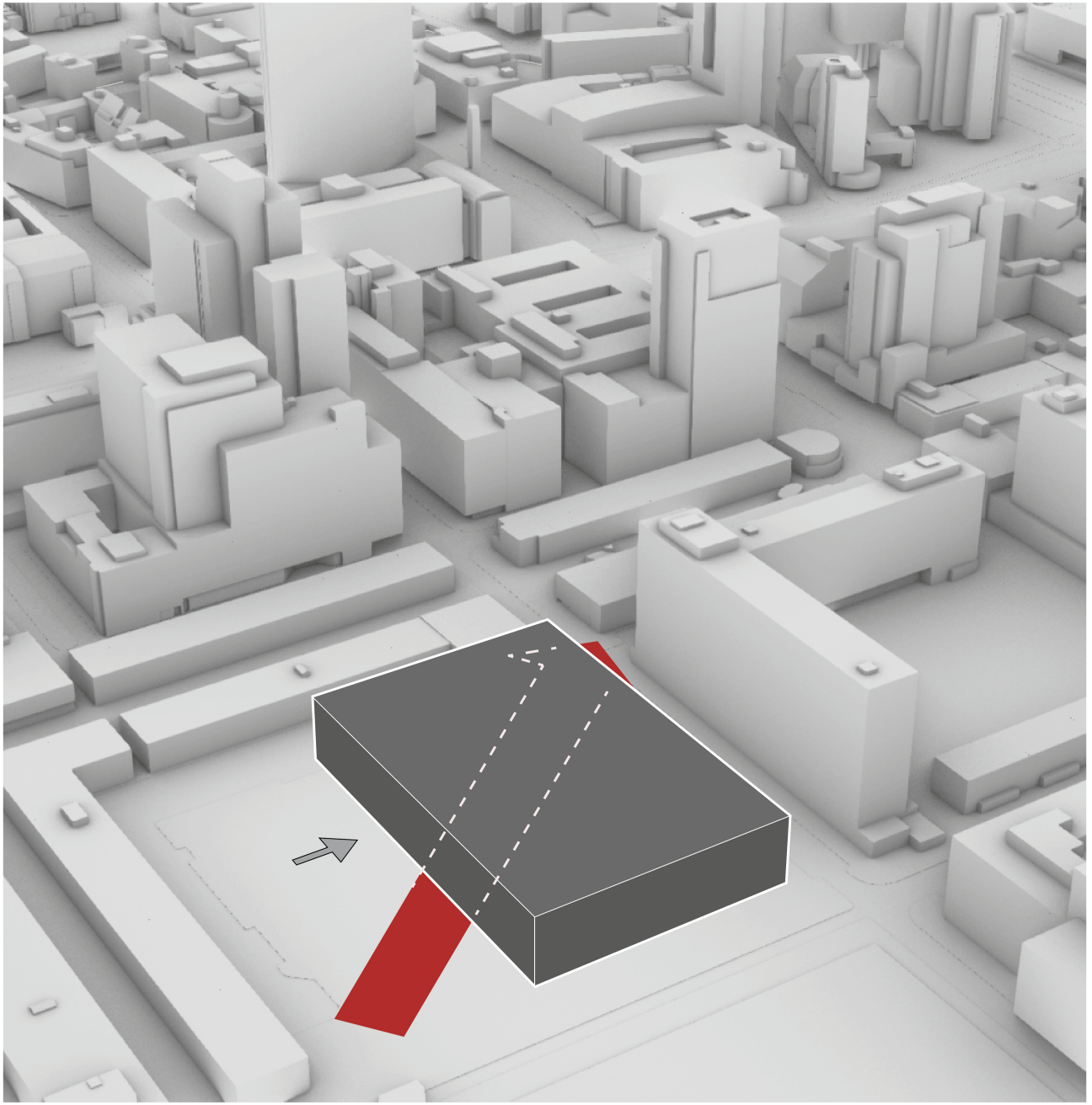
LOGISTICS & PUBLIC FLOW



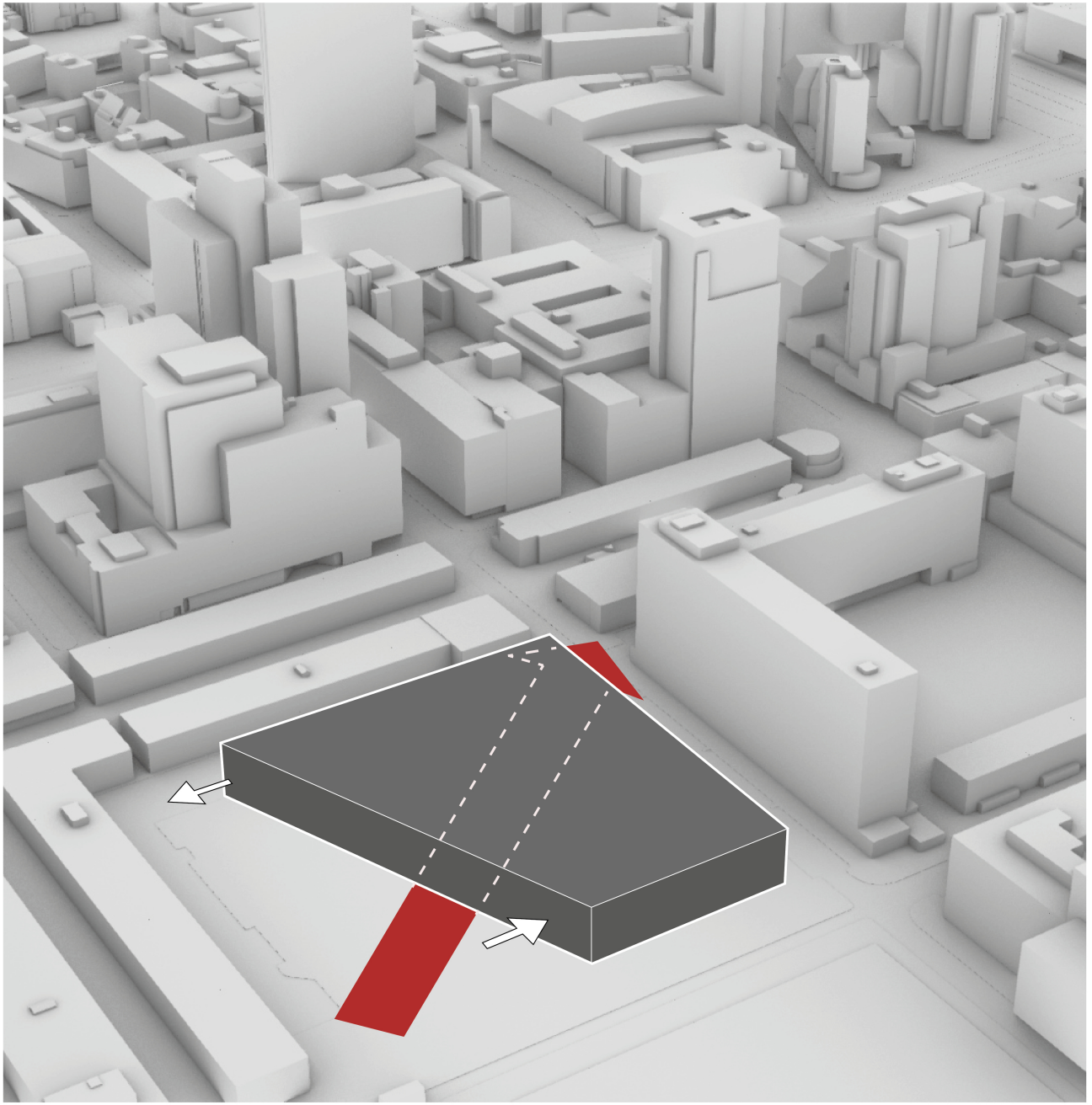
EXTENDING & INTEGRATING PUBLIC FLOW



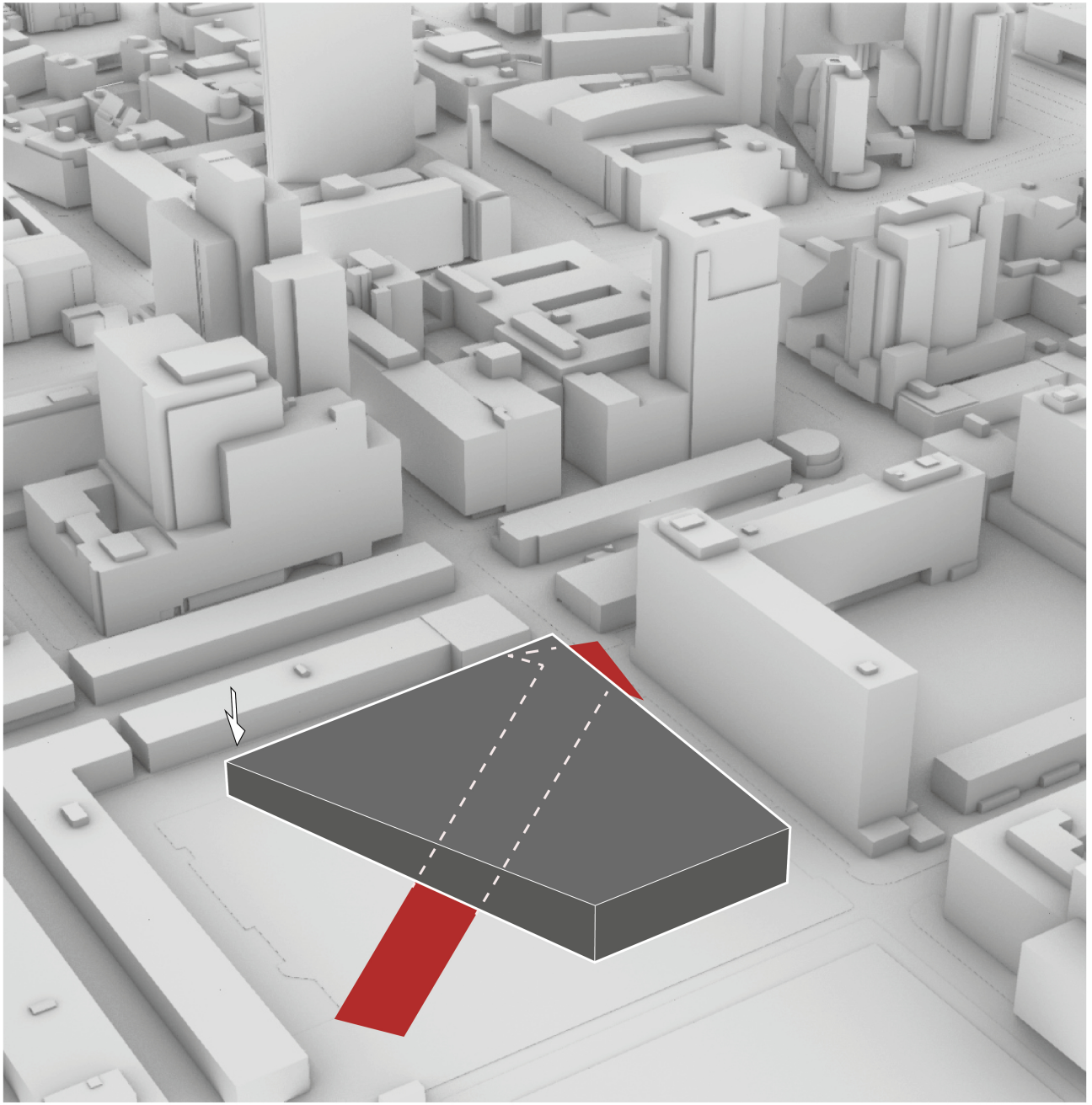
DIAGONAL CONNECTION



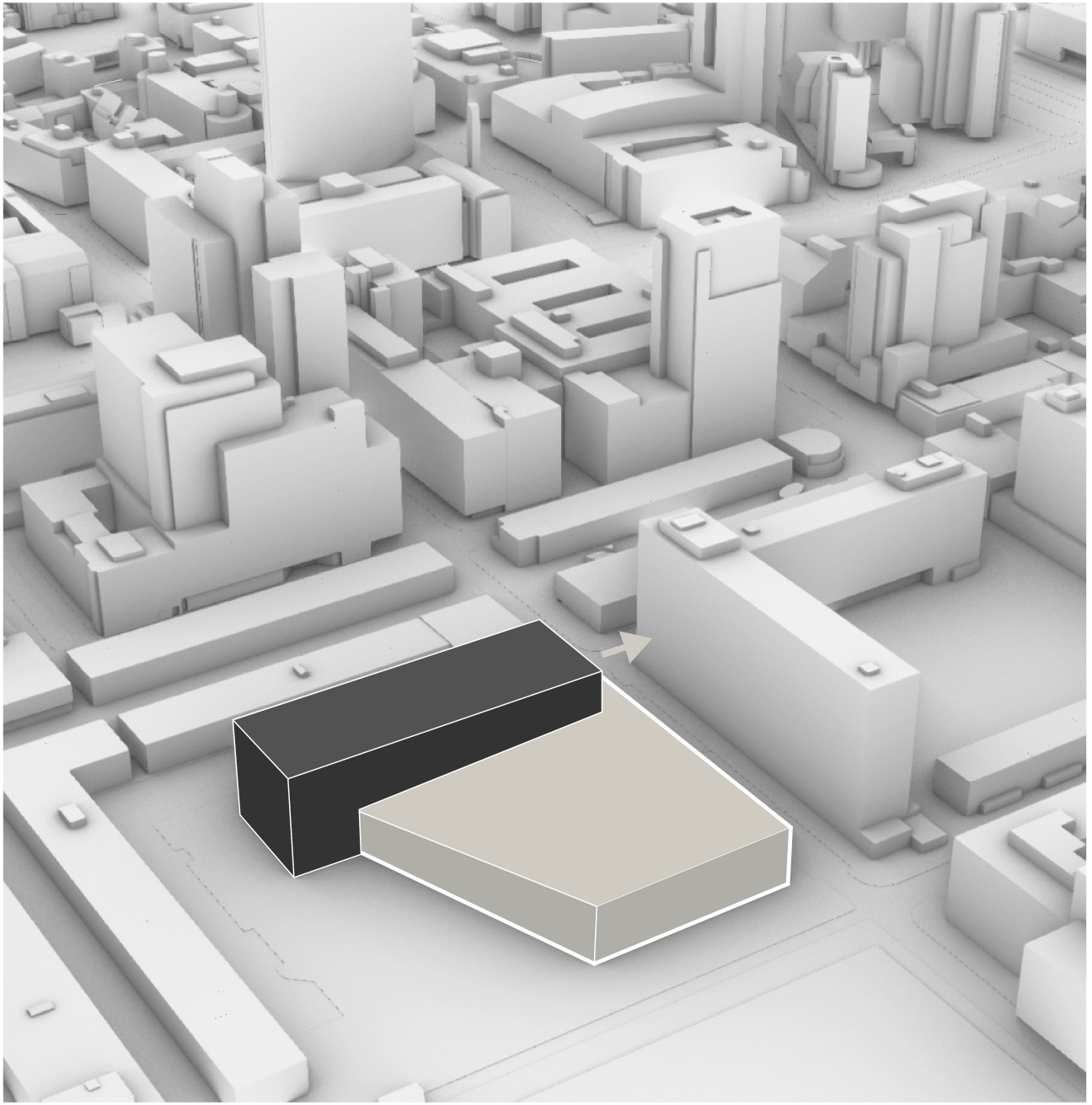
OPENING BUILDING ORIENTATION



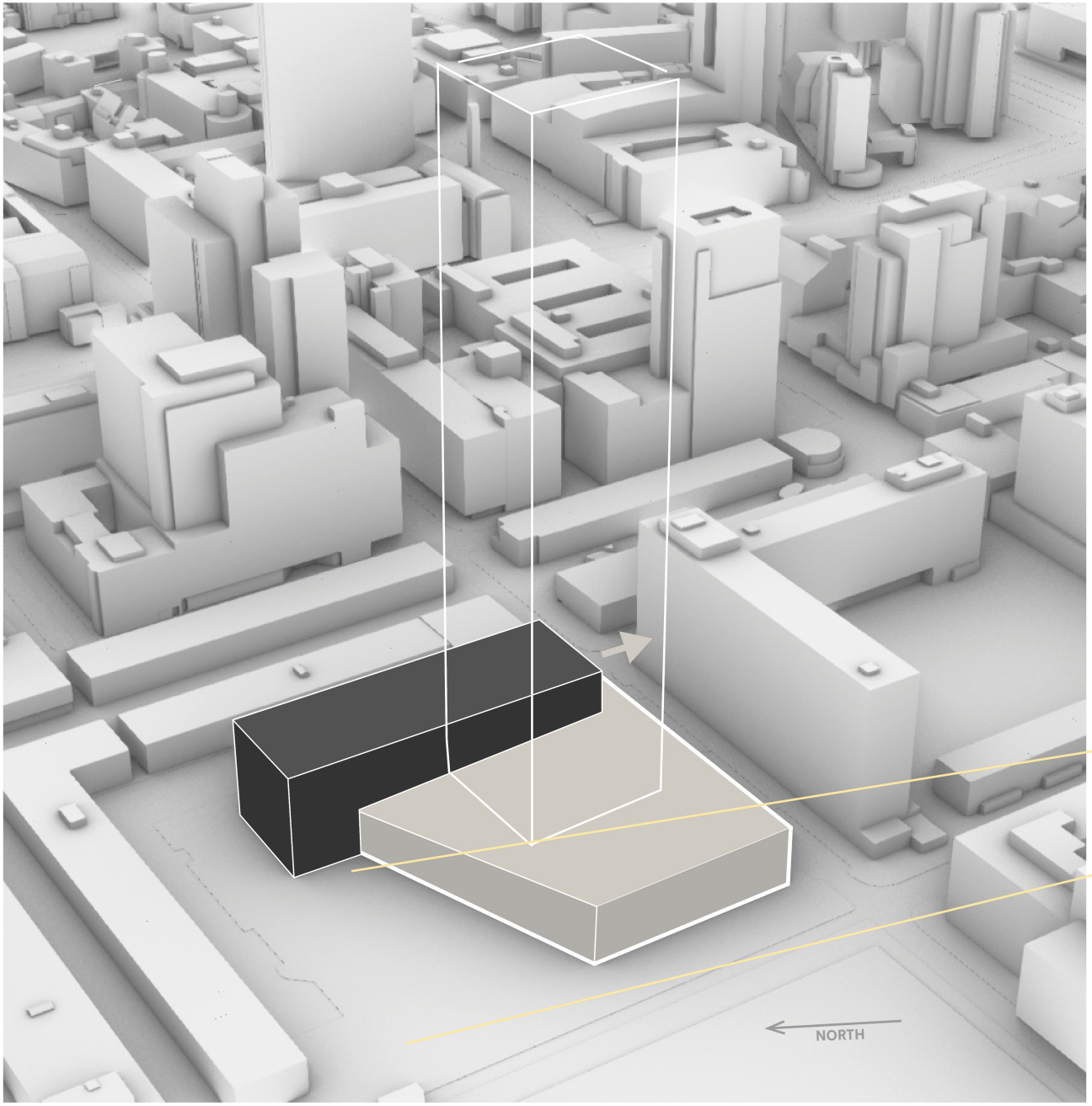
OPENING BUILDING ORIENTATION



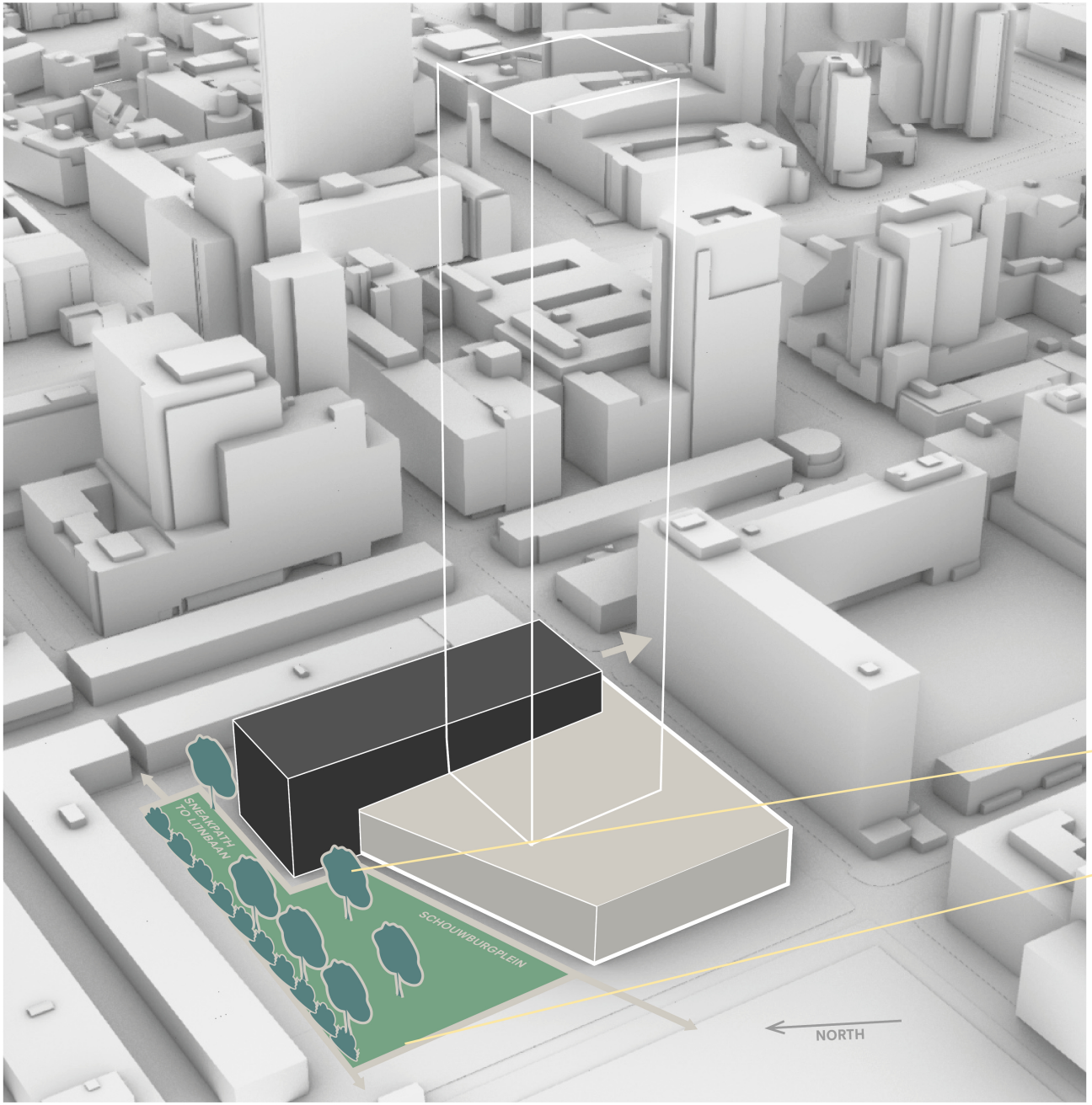
SEPARATE PRODUCTION BLOCK ON GROUND FLOOR



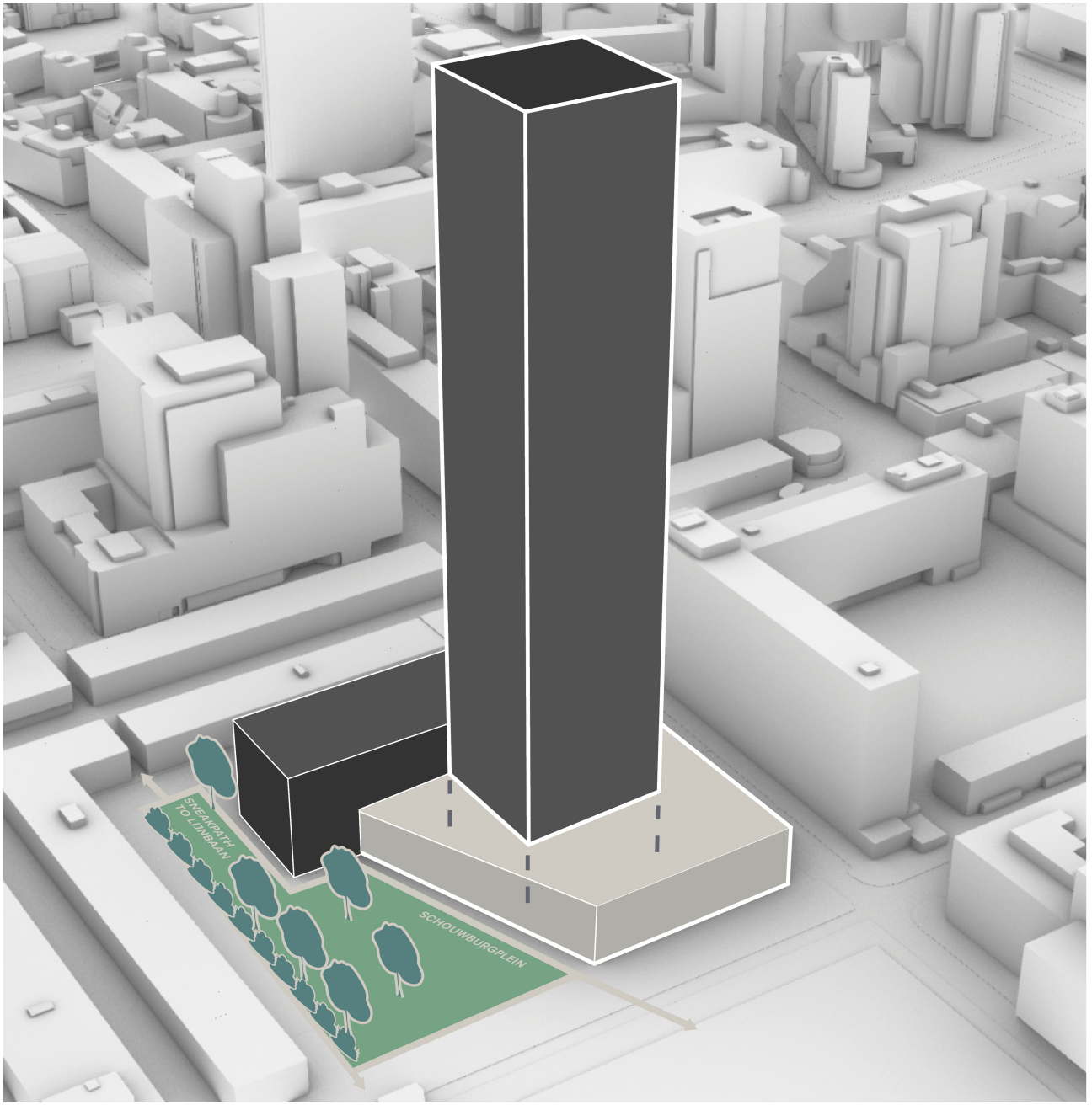
SUN ORIENTATION



COURTYARD REVISION TO CAMPUS PARK



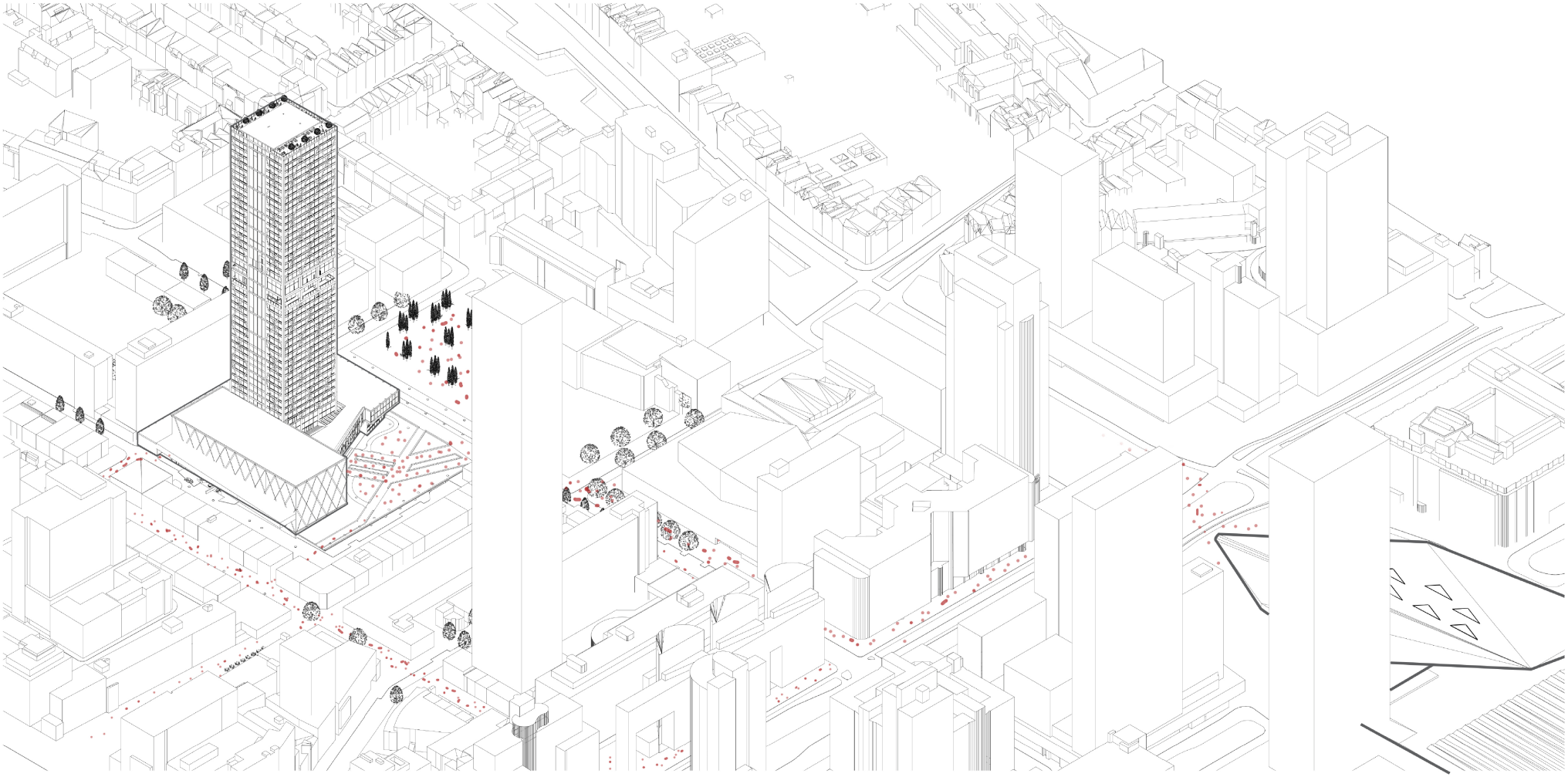
VERTICAL CAMPUS IMPLEMENATION IN MIDDLE OF BLOCK



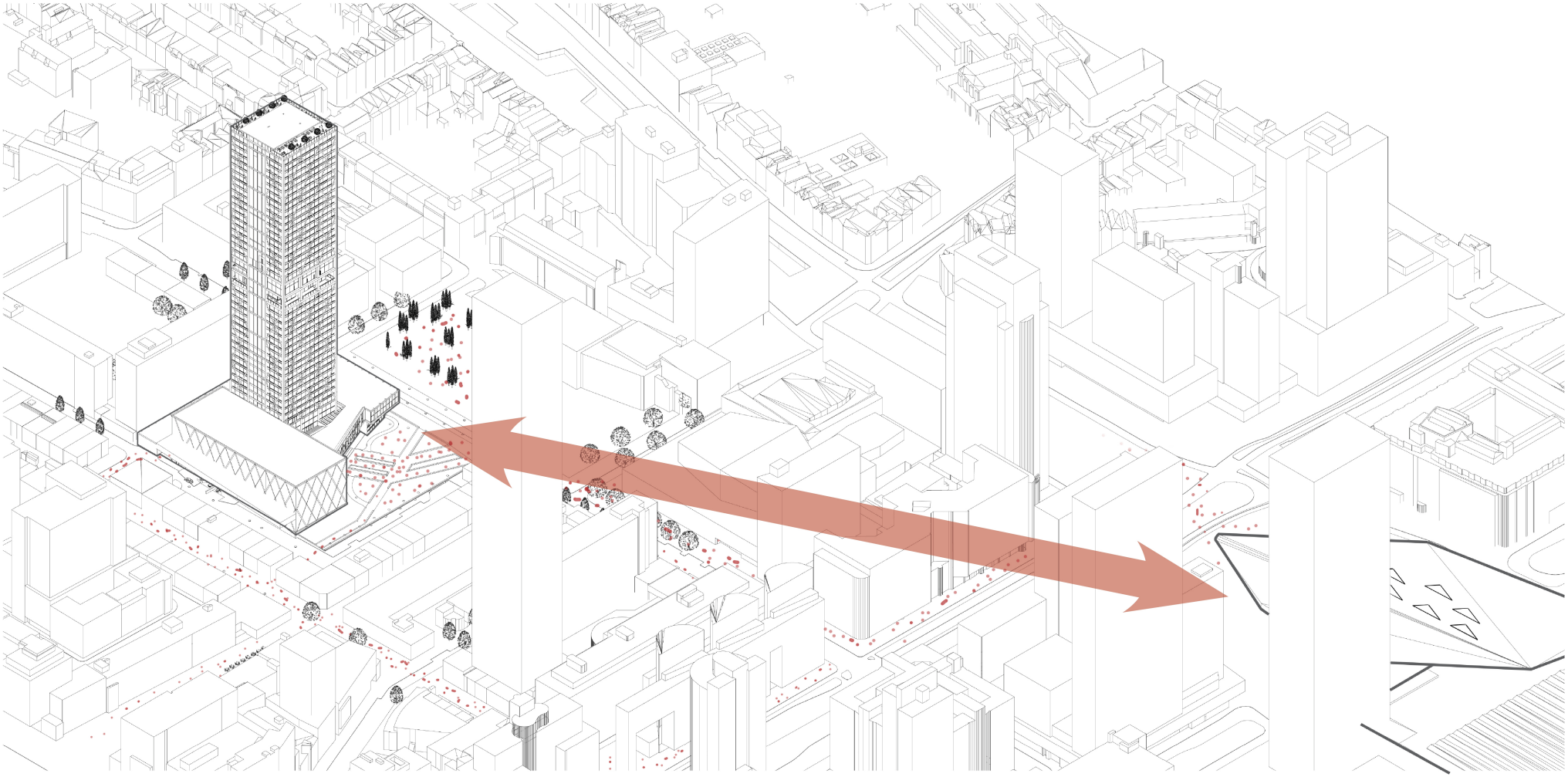
VERTICAL HIGH TECH CAMPUS AXO



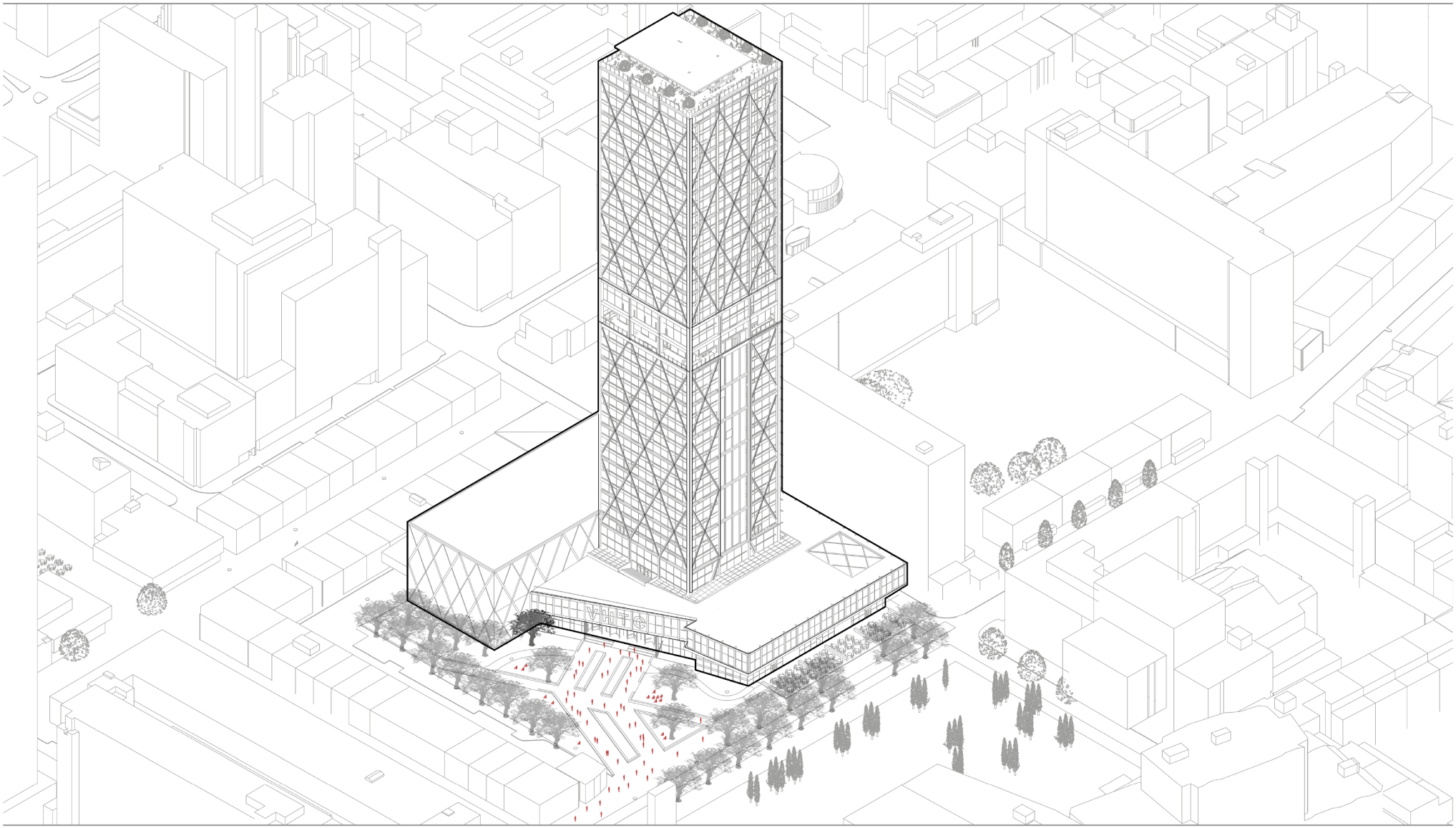
FLOW FROM STATION THROUGH THE RCD



EXTENSION OF THE RCD, CONNECTED WITH SOUTHERN AMENITIES

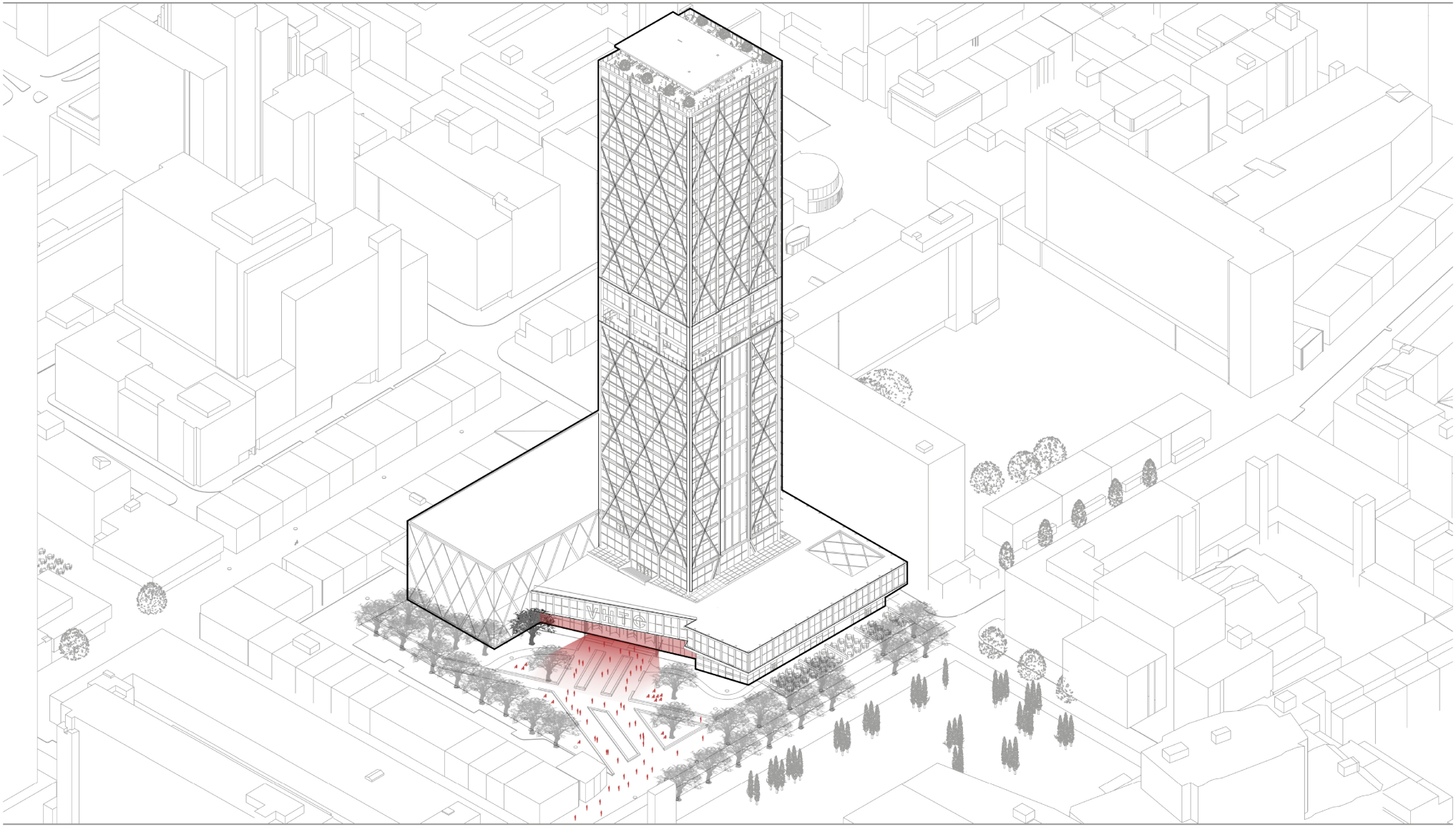


VERTICAL HIGH TECH CAMPUS AXO



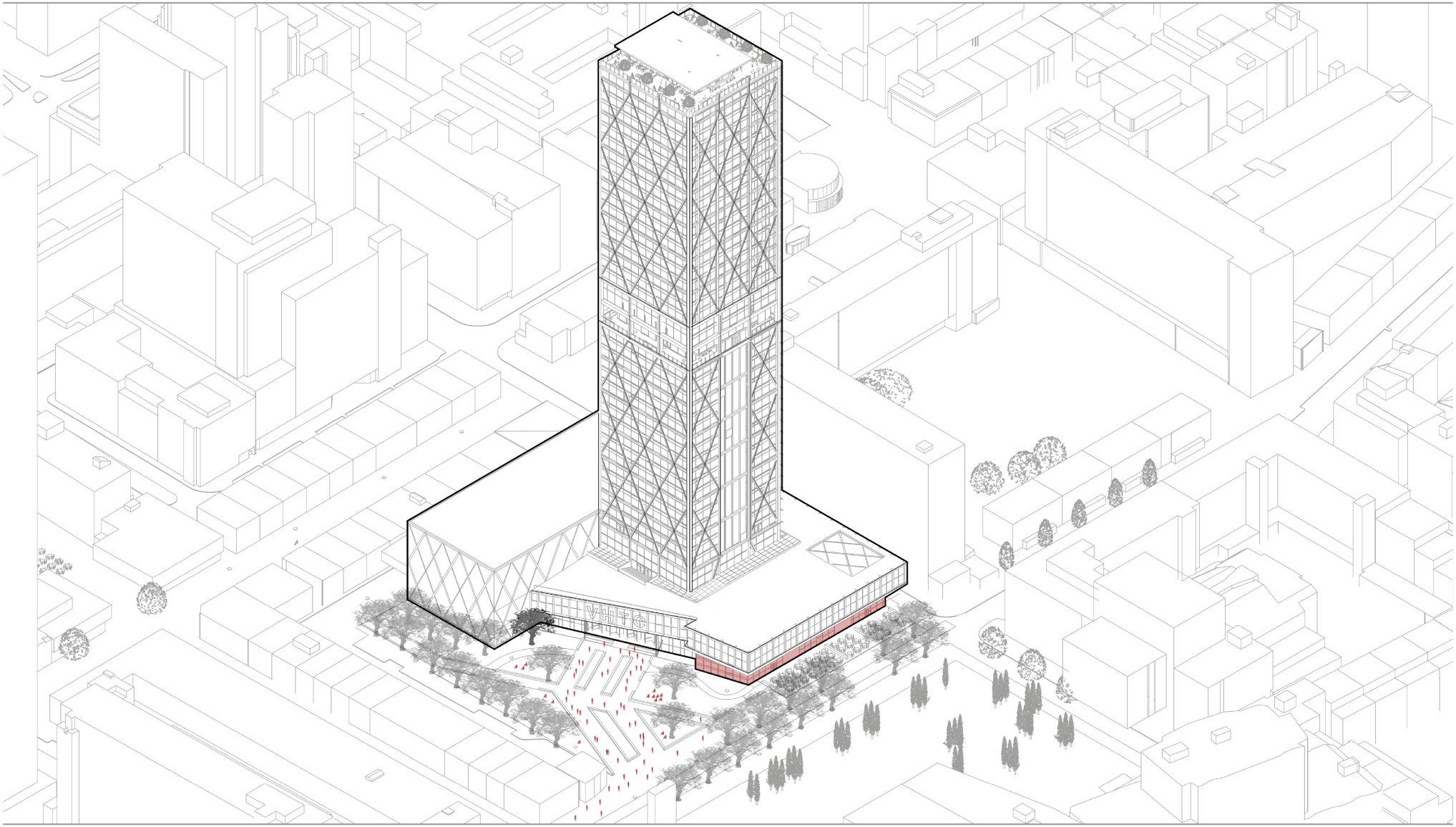
Concept

ENTRANCE



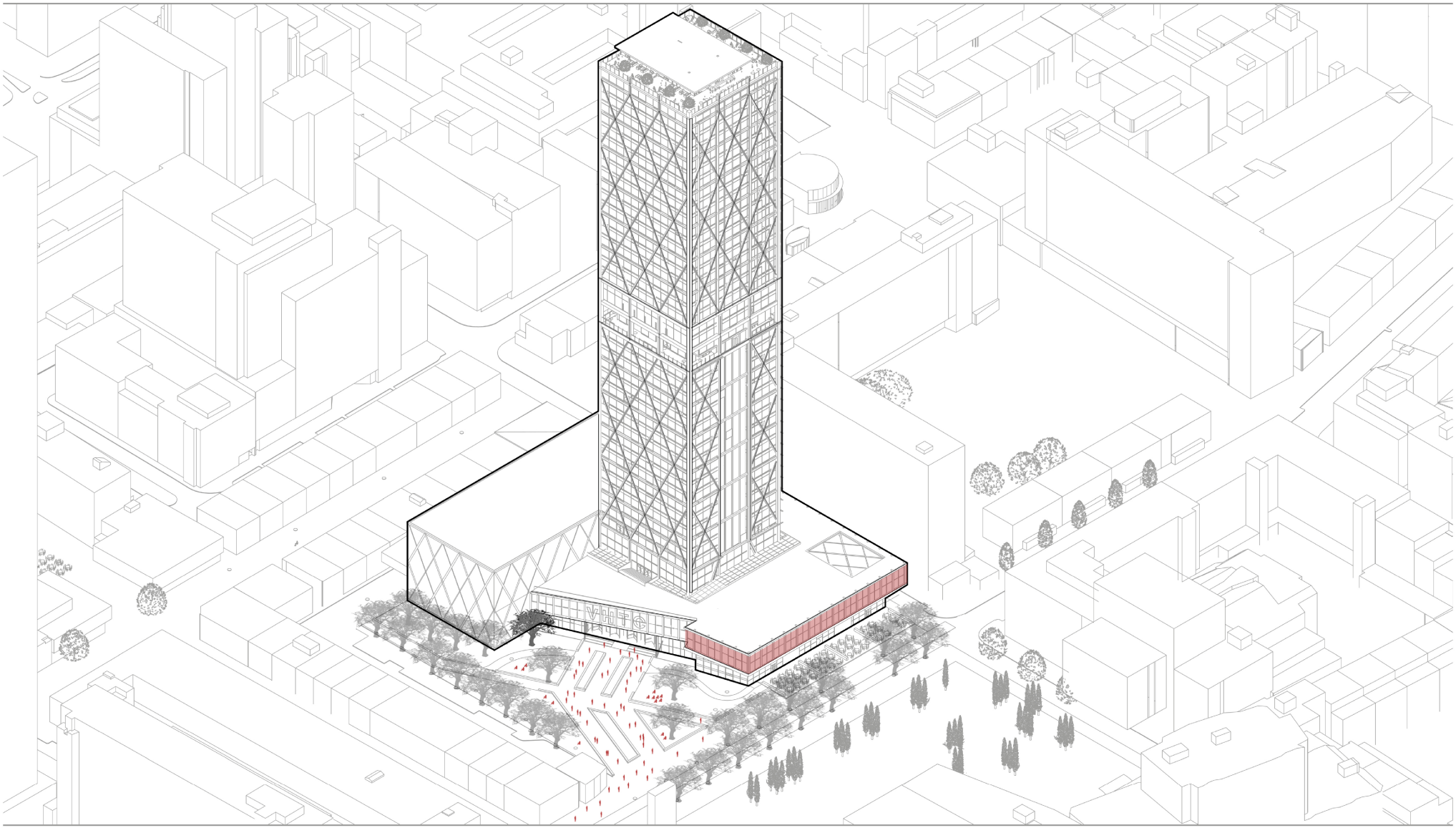
Concept

TERRACE REVISION



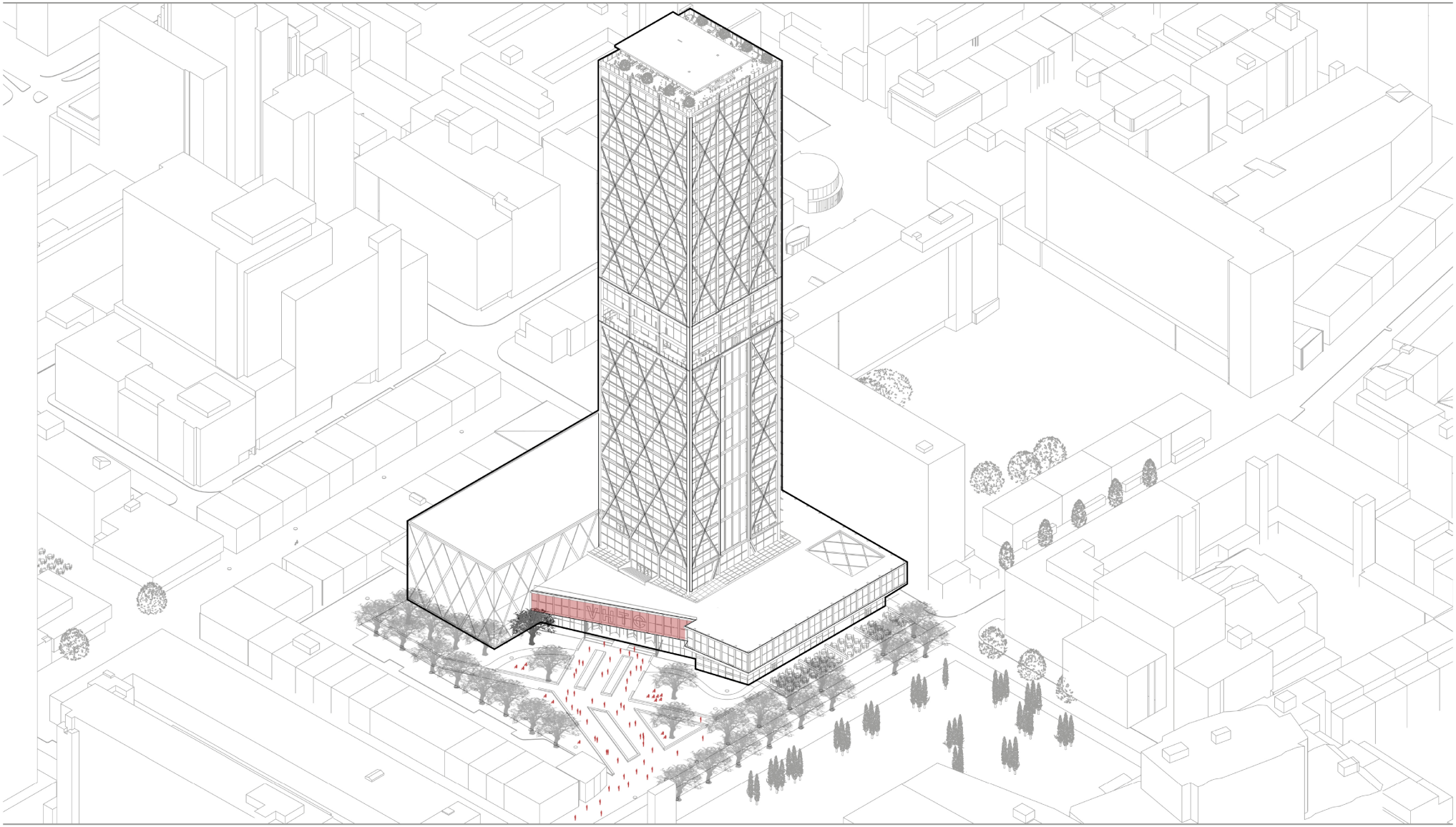
Concept

COMMERCE & RESTAURANT



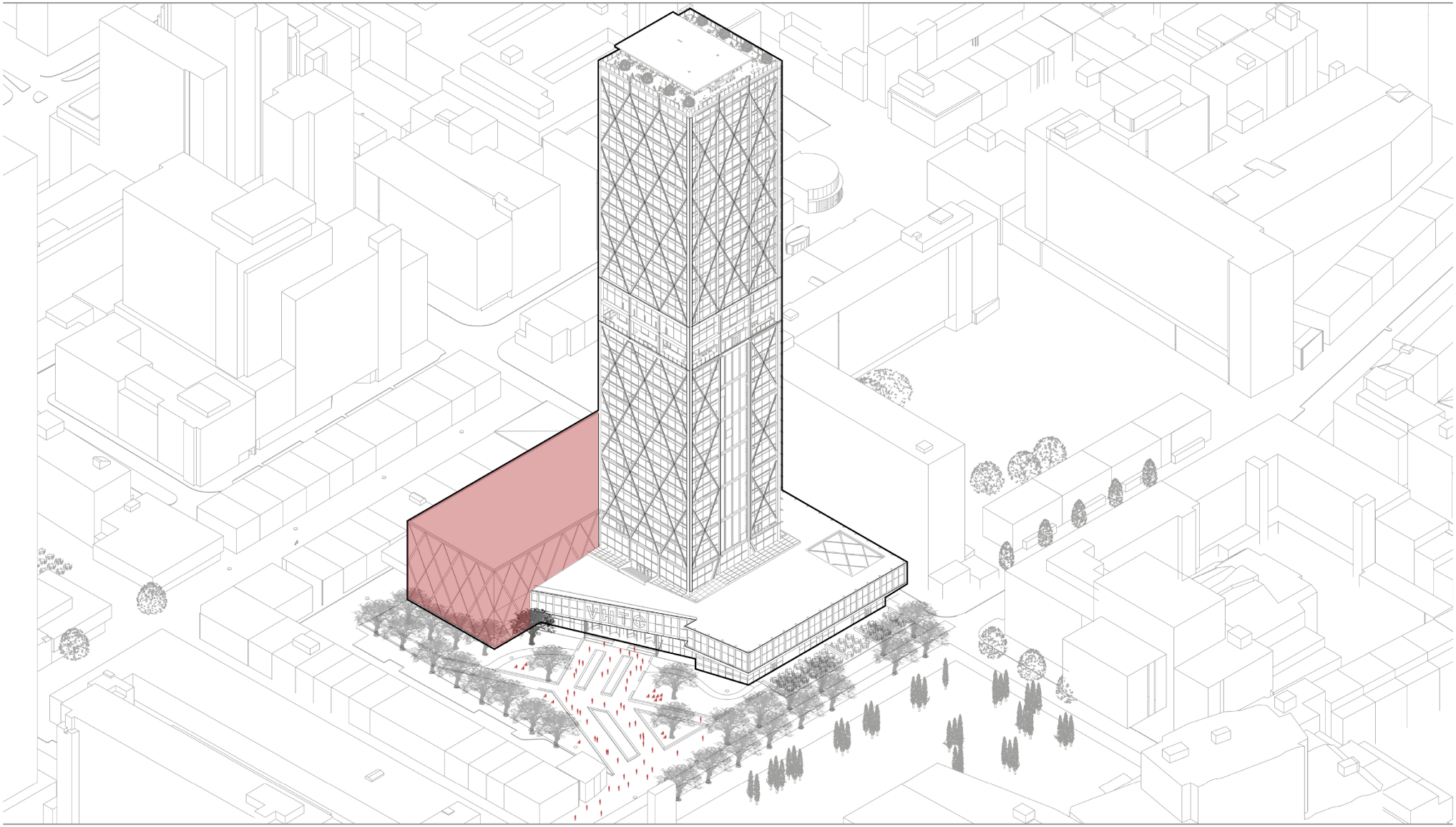
Concept

EXPO



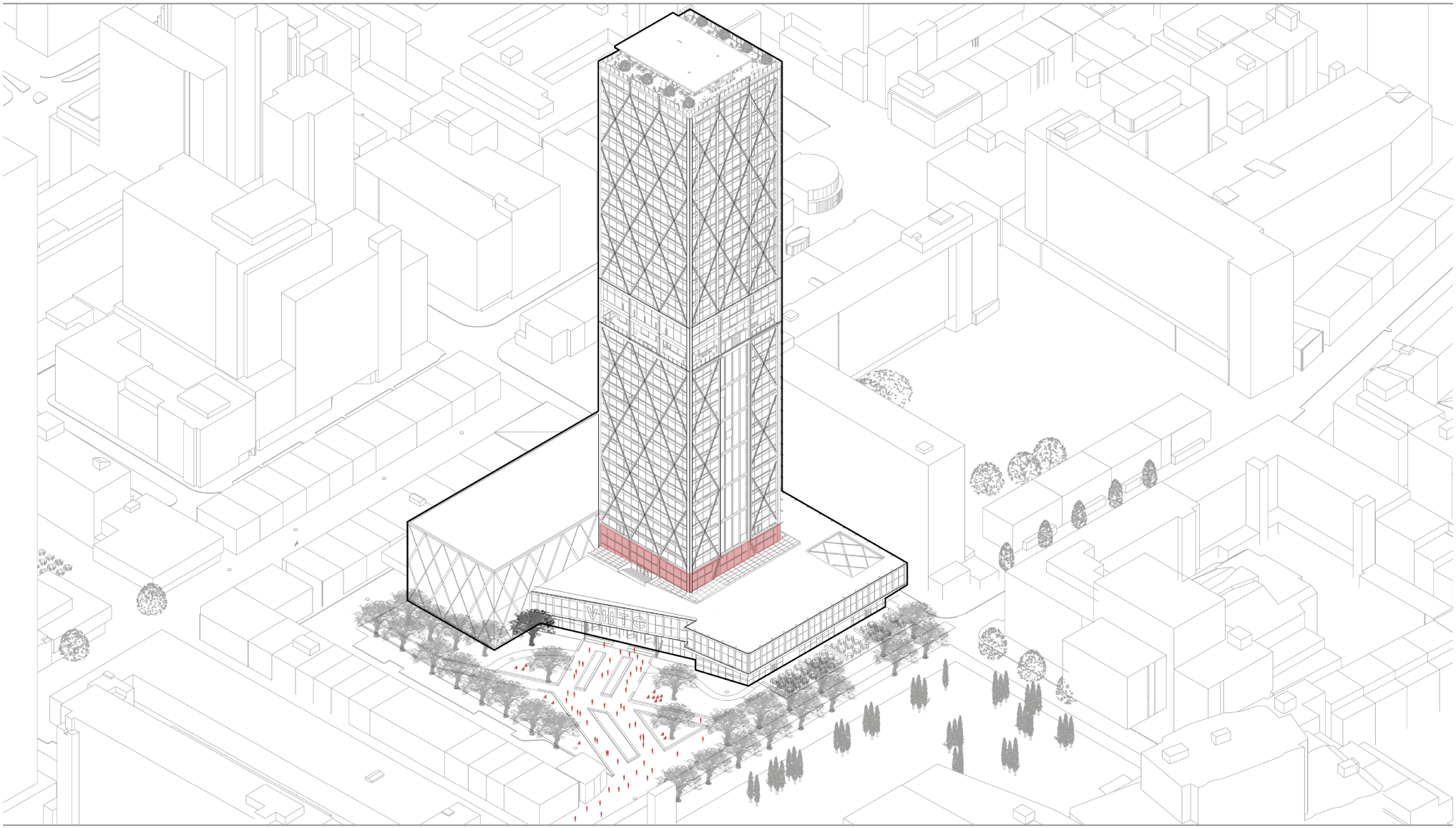
Concept

PRODUCTION HUB



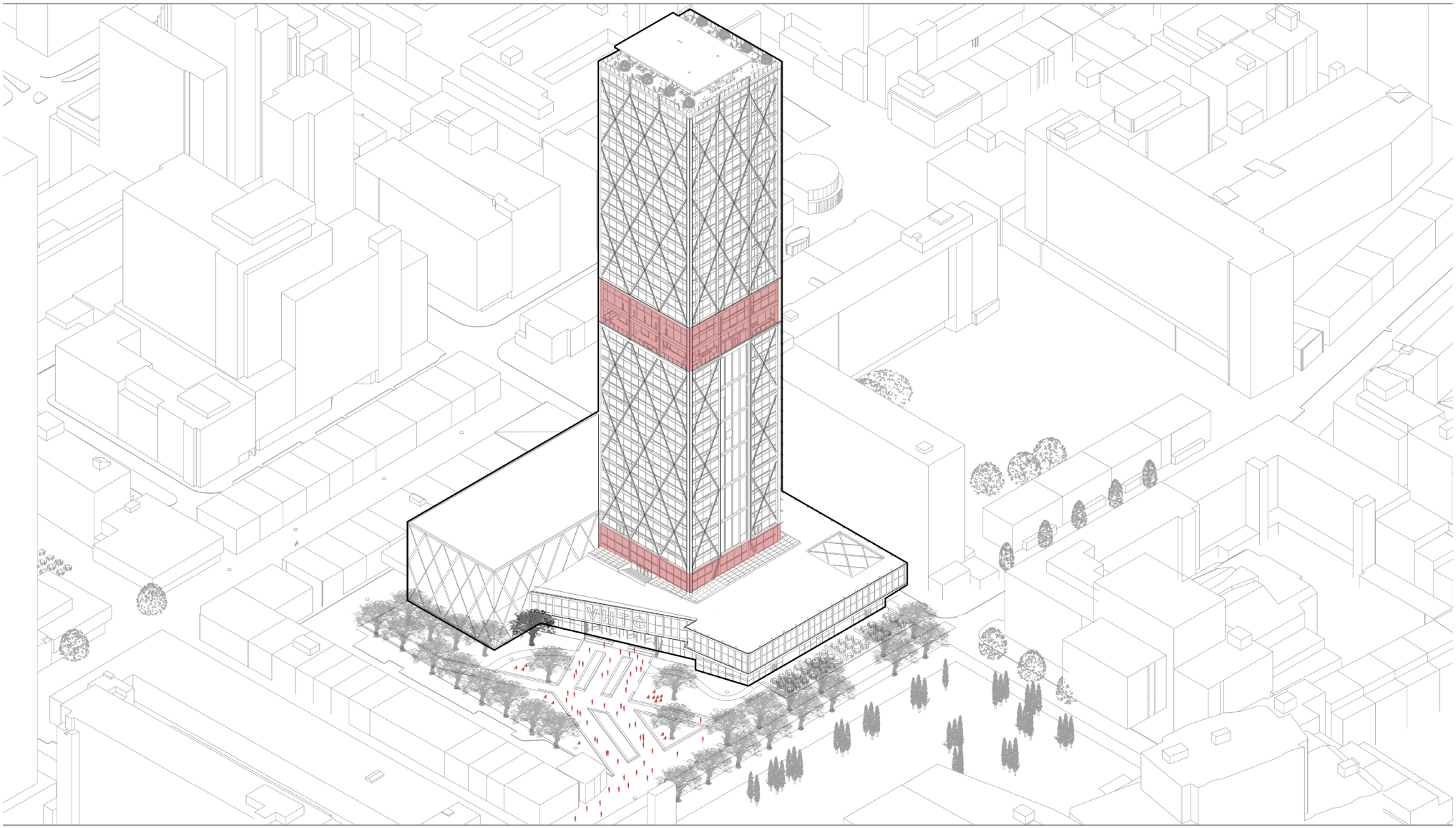
Concept

INTERACTIVE COLLECTIVE CAMPUS; AUDITORIUM



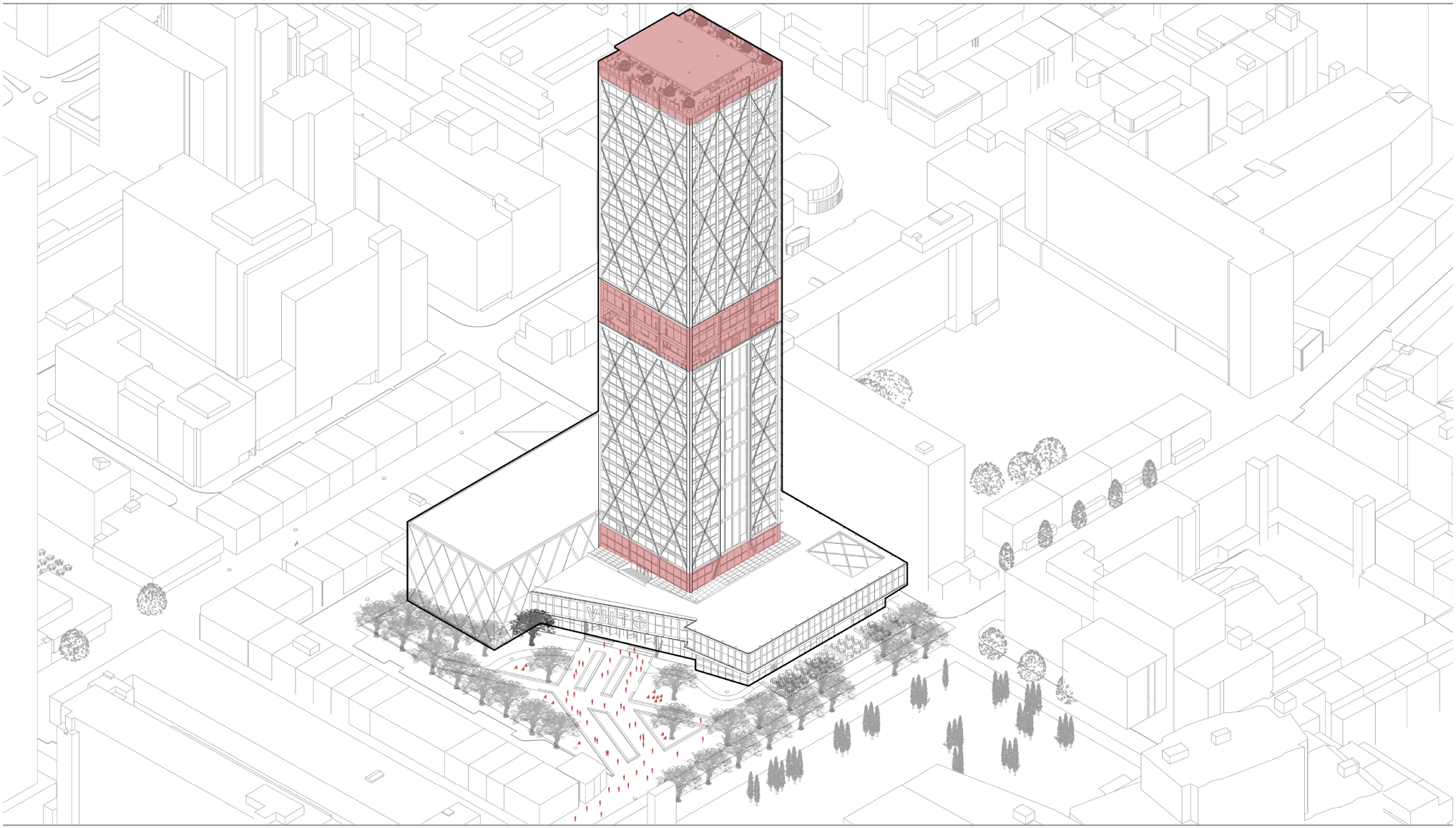
Concept

INTERACTIVE COLLECTIVE CAMPUS; SKYLOBBY + LIBRARY

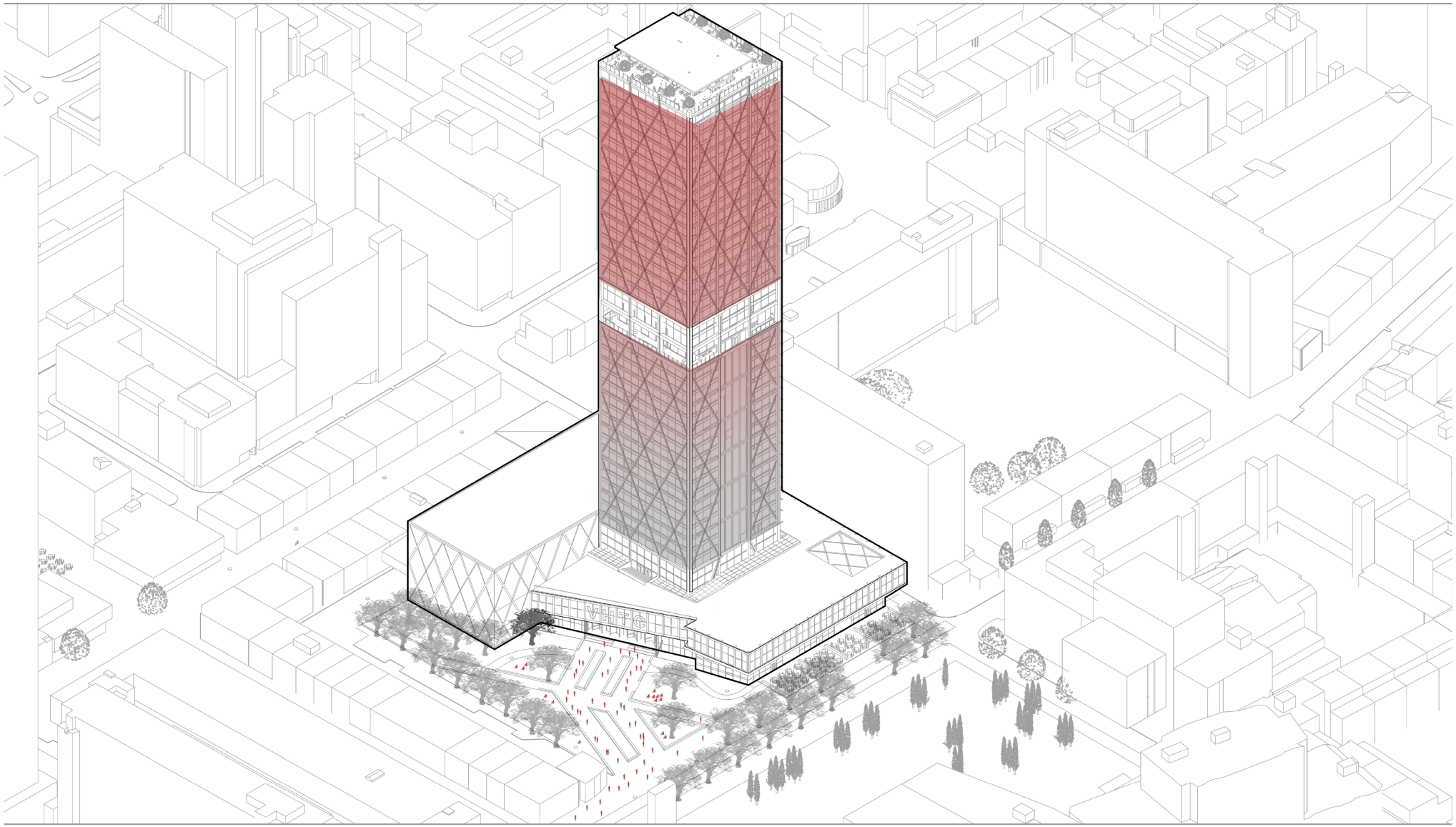


Concept

INTERACTIVE COLLECTIVE CAMPUS; ROOFTOP BAR



Office / Lab distribution tower

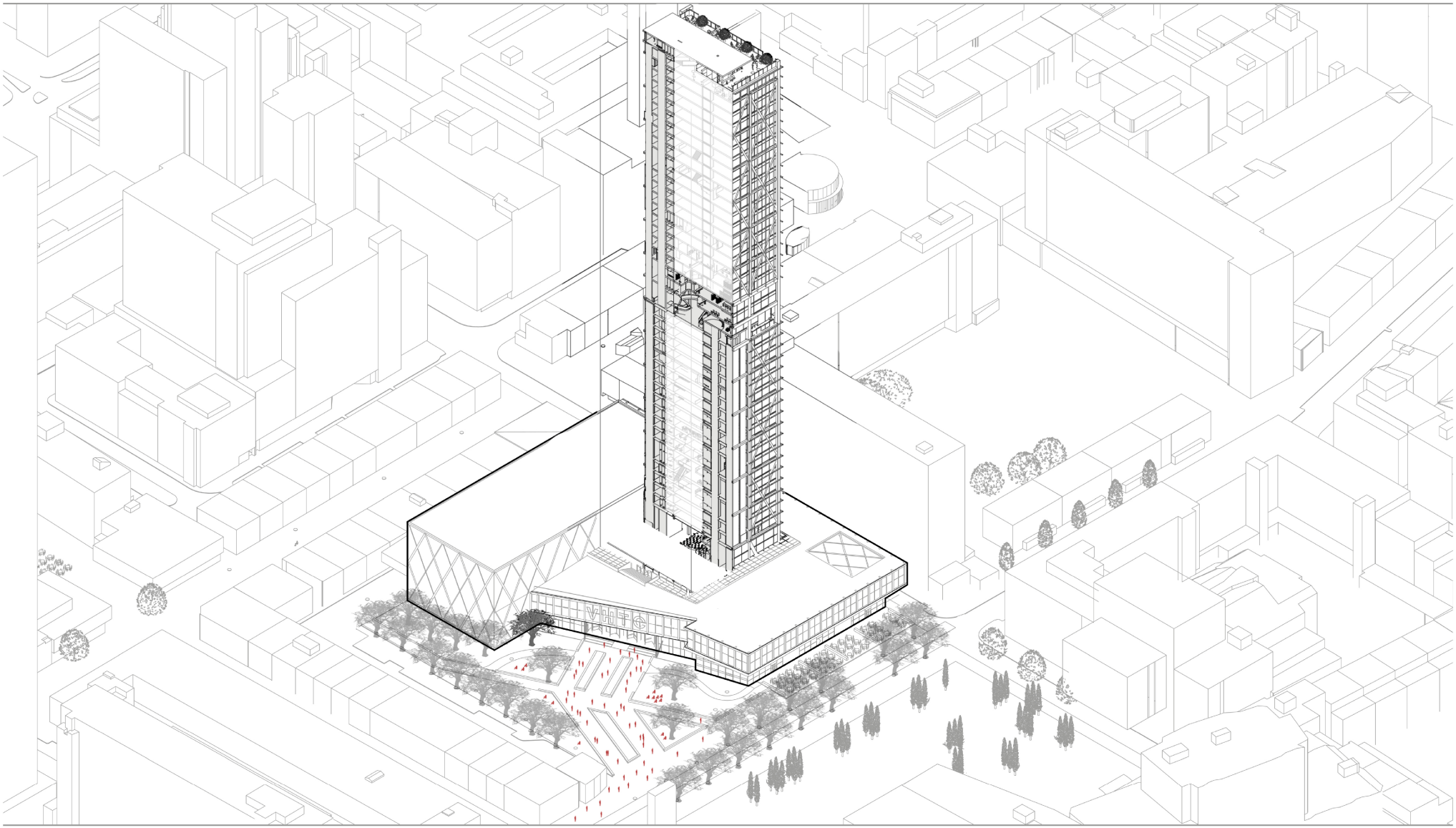


Concept

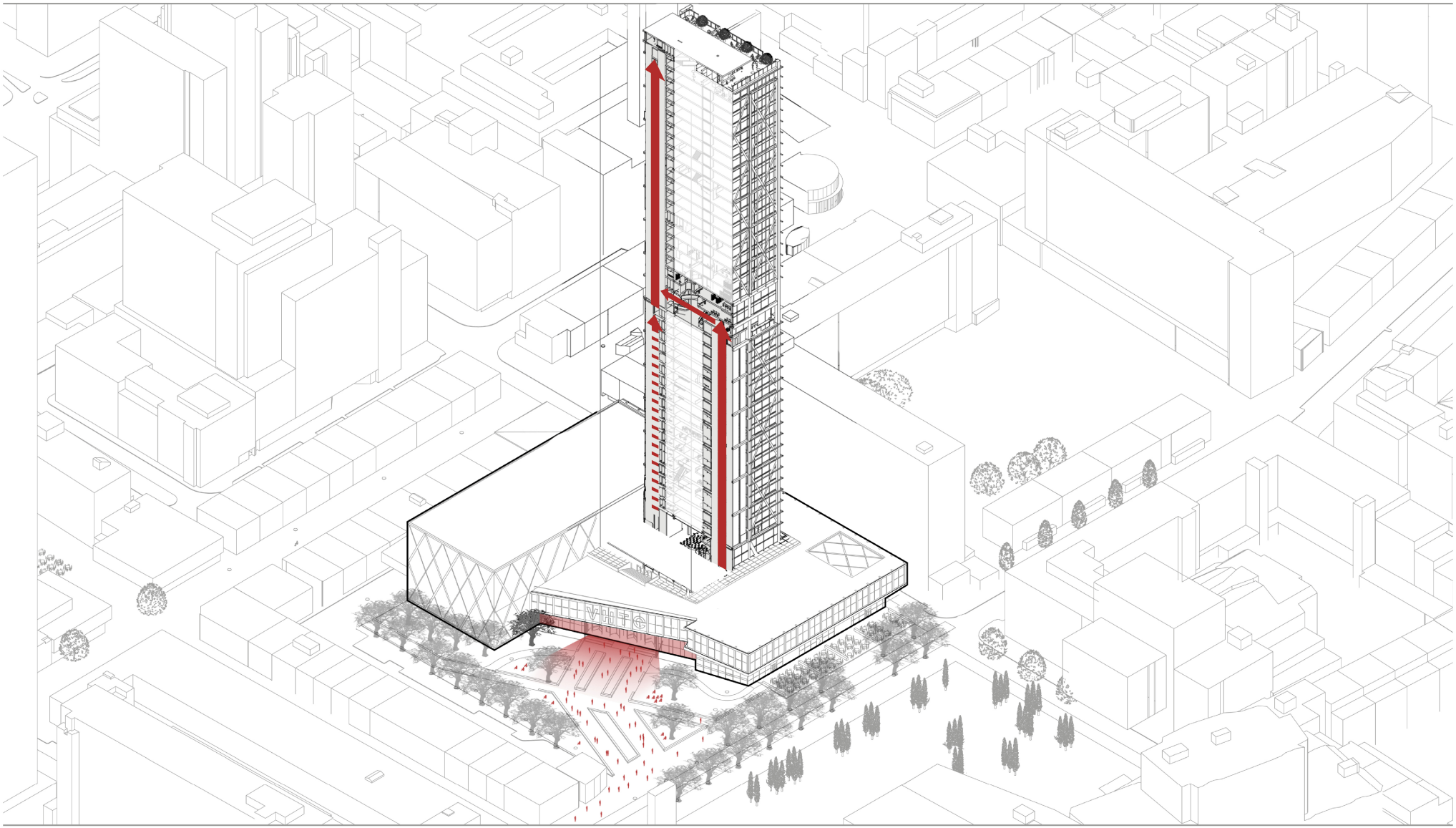
Expression of functions in facade



Split core principle



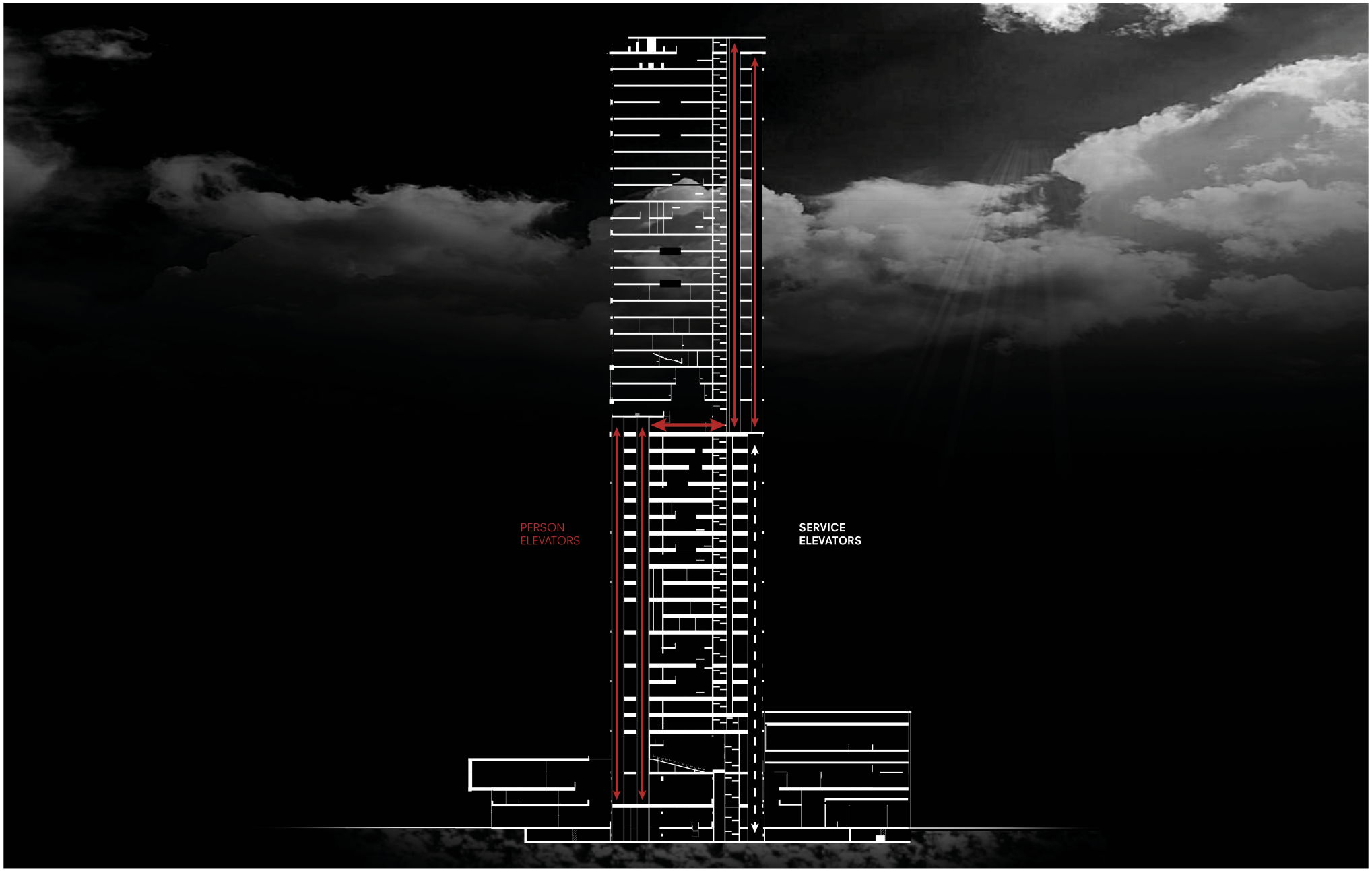
Split core principle



Split core principle

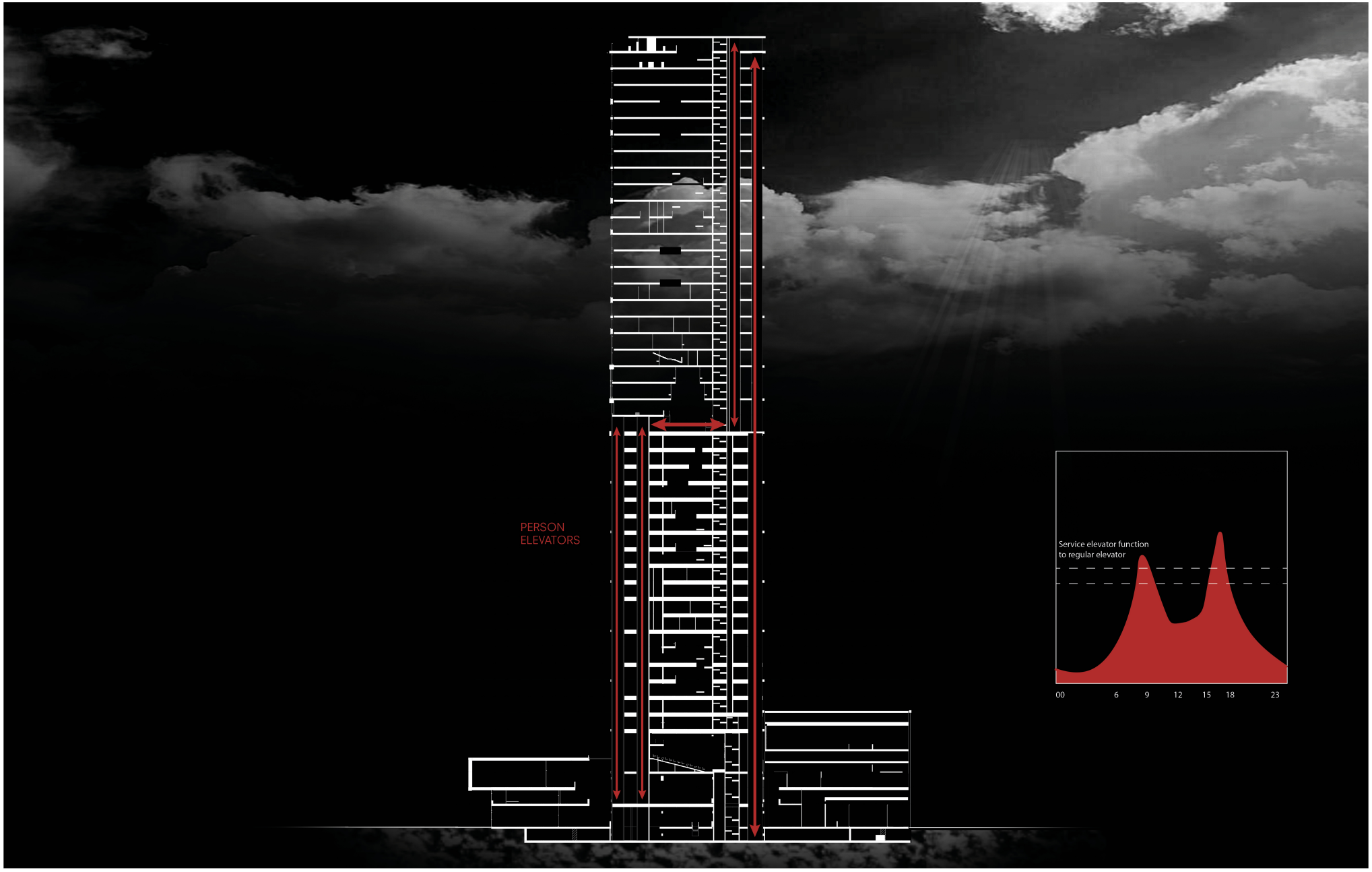


REGULAR HOURS

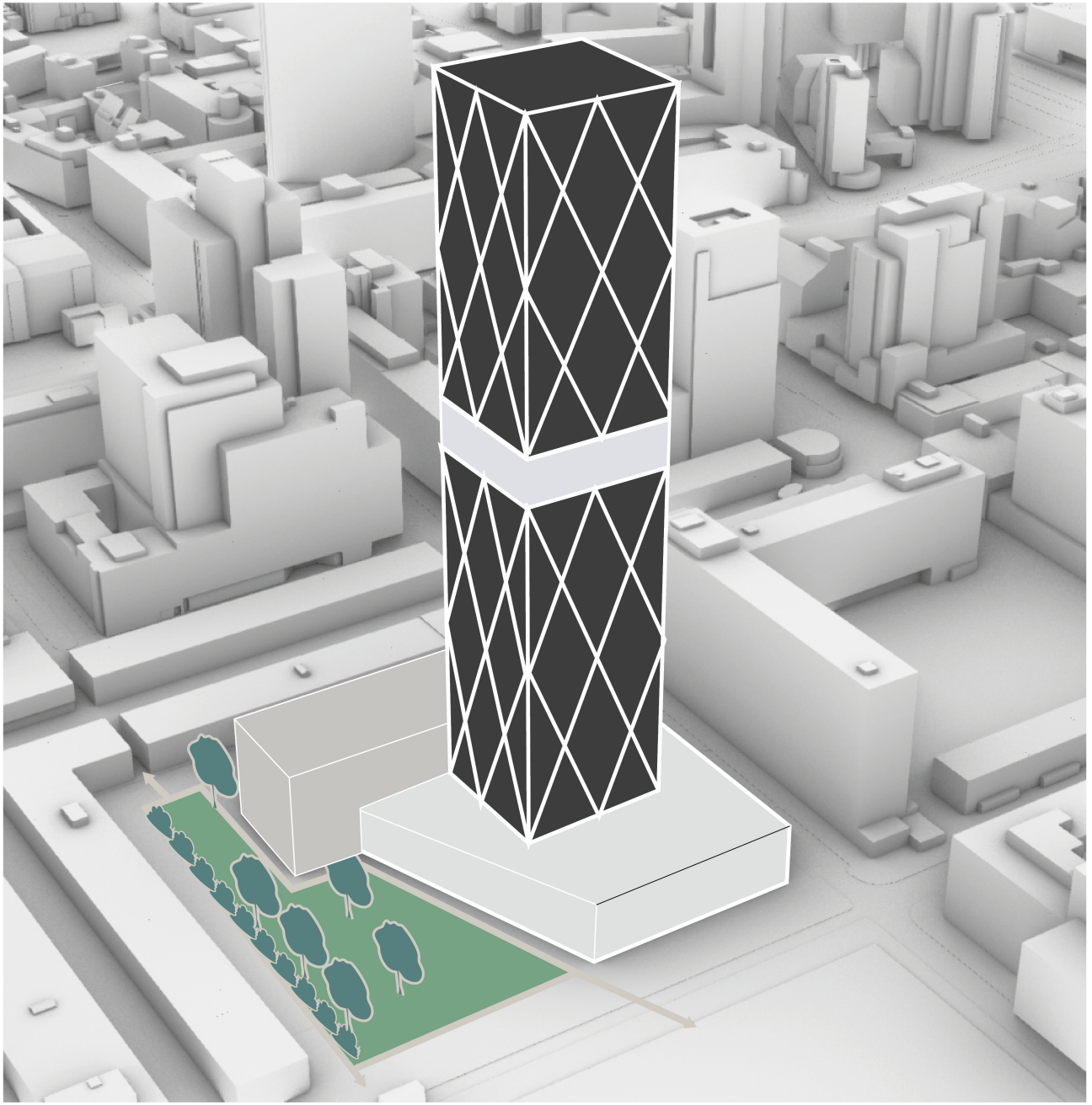


Concept

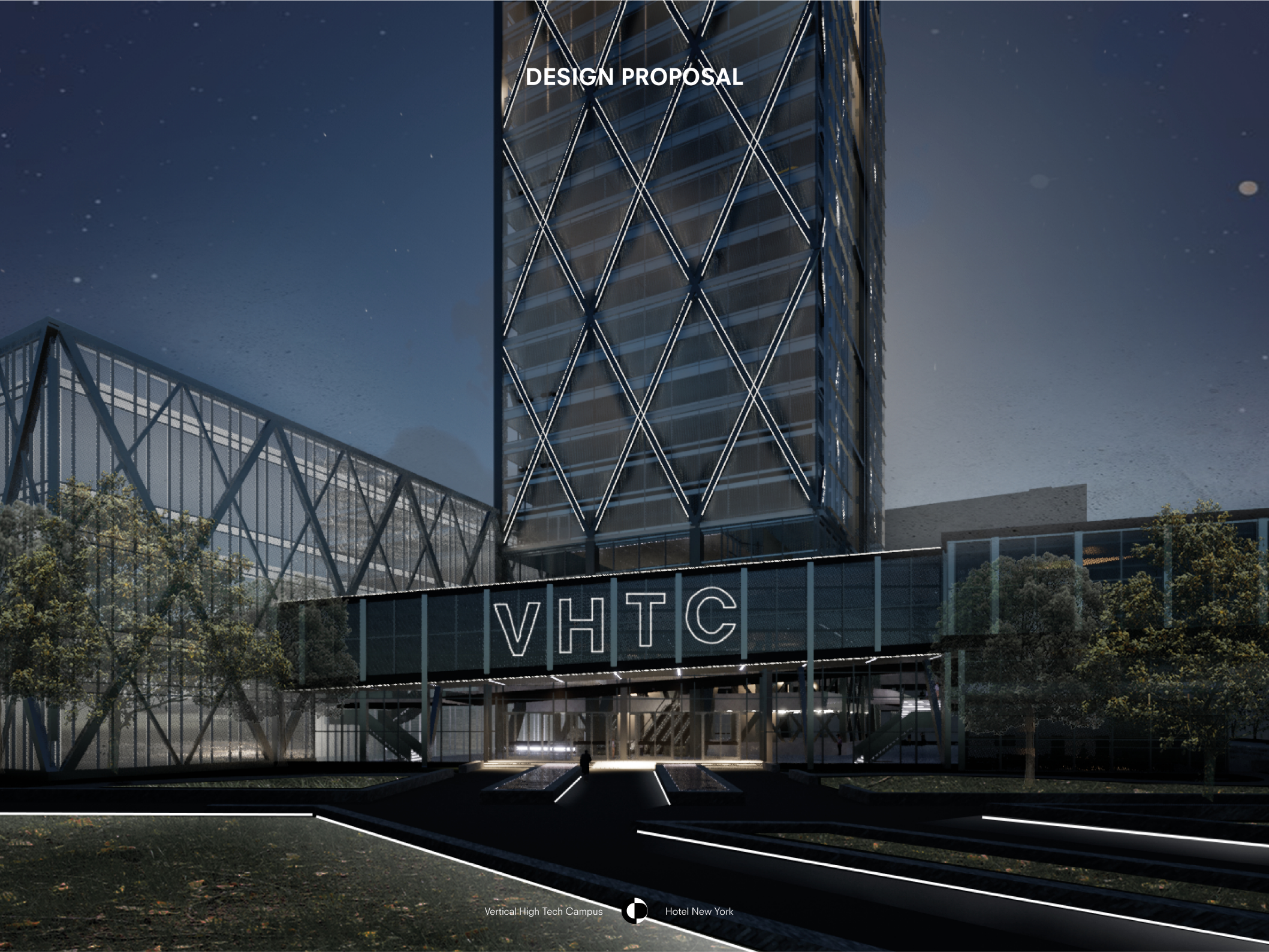
PEAK HOURS



DIAGRID STRUCTURE

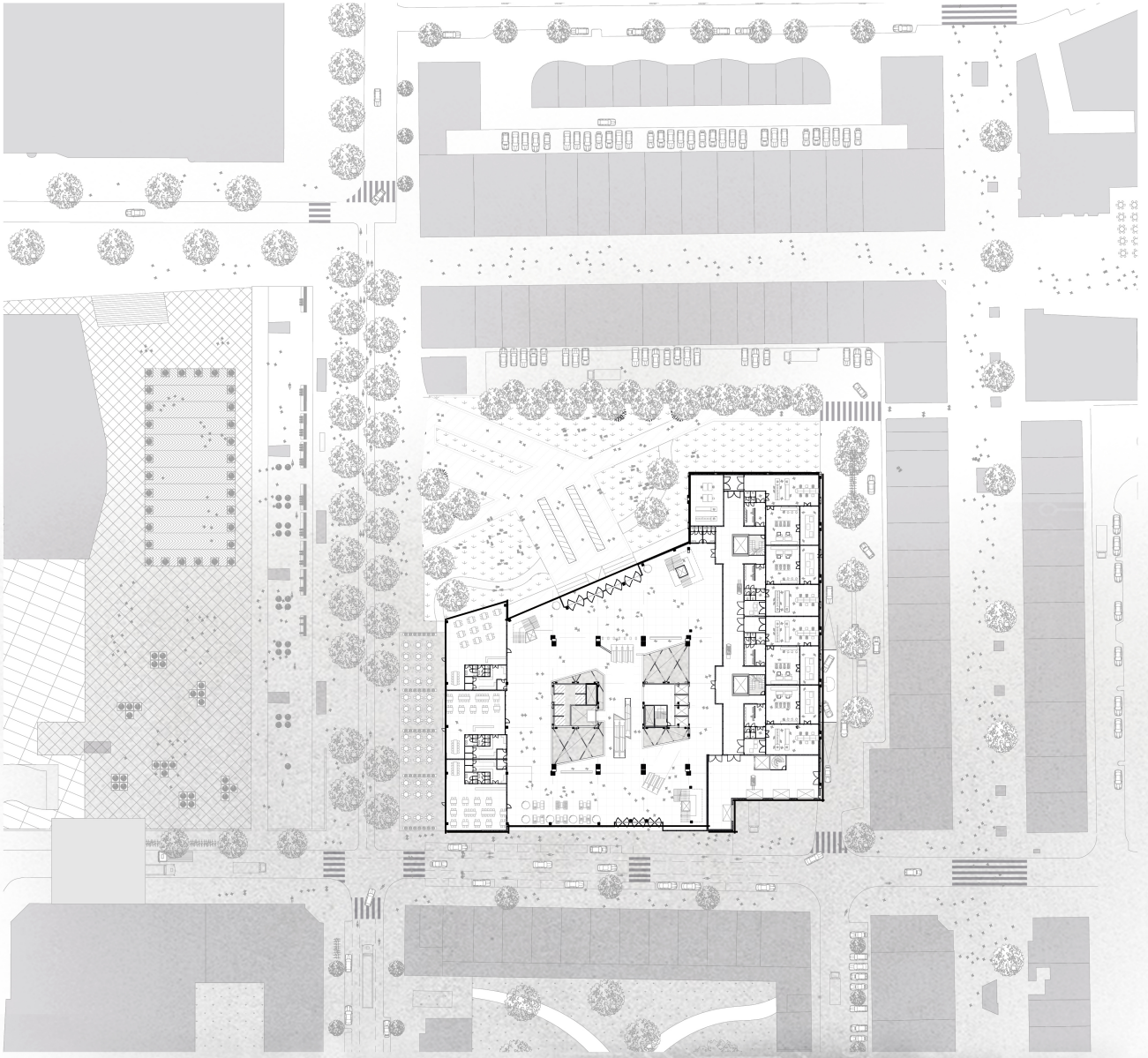


DESIGN PROPOSAL



Vertical High Tech Campus Hotel New York

THE URBAN FABRIC

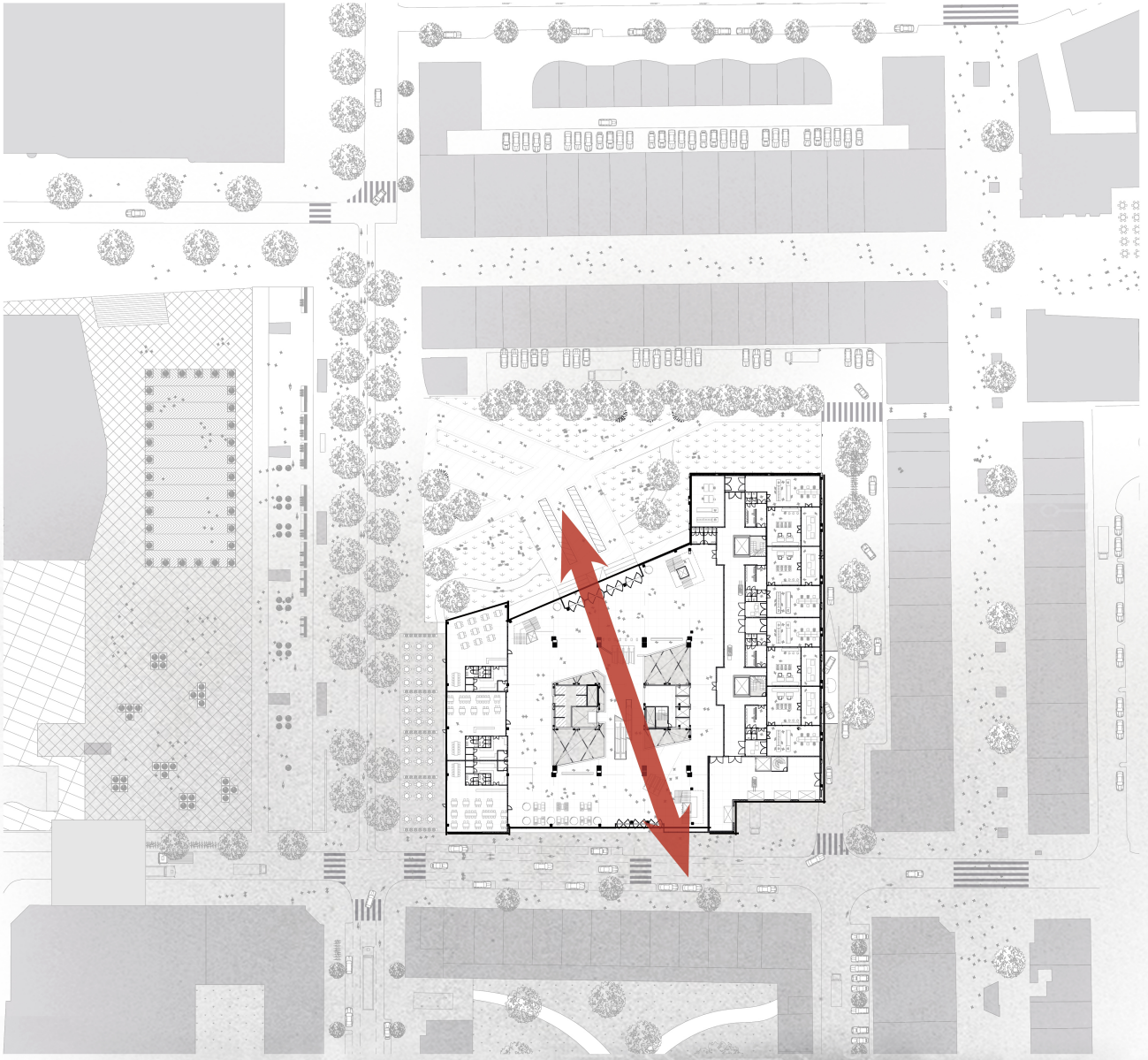


Urban implementation - 1:500

URBAN PLAN | SCALE: 1:500

N

DIAGONAL PUBLIC FLOW

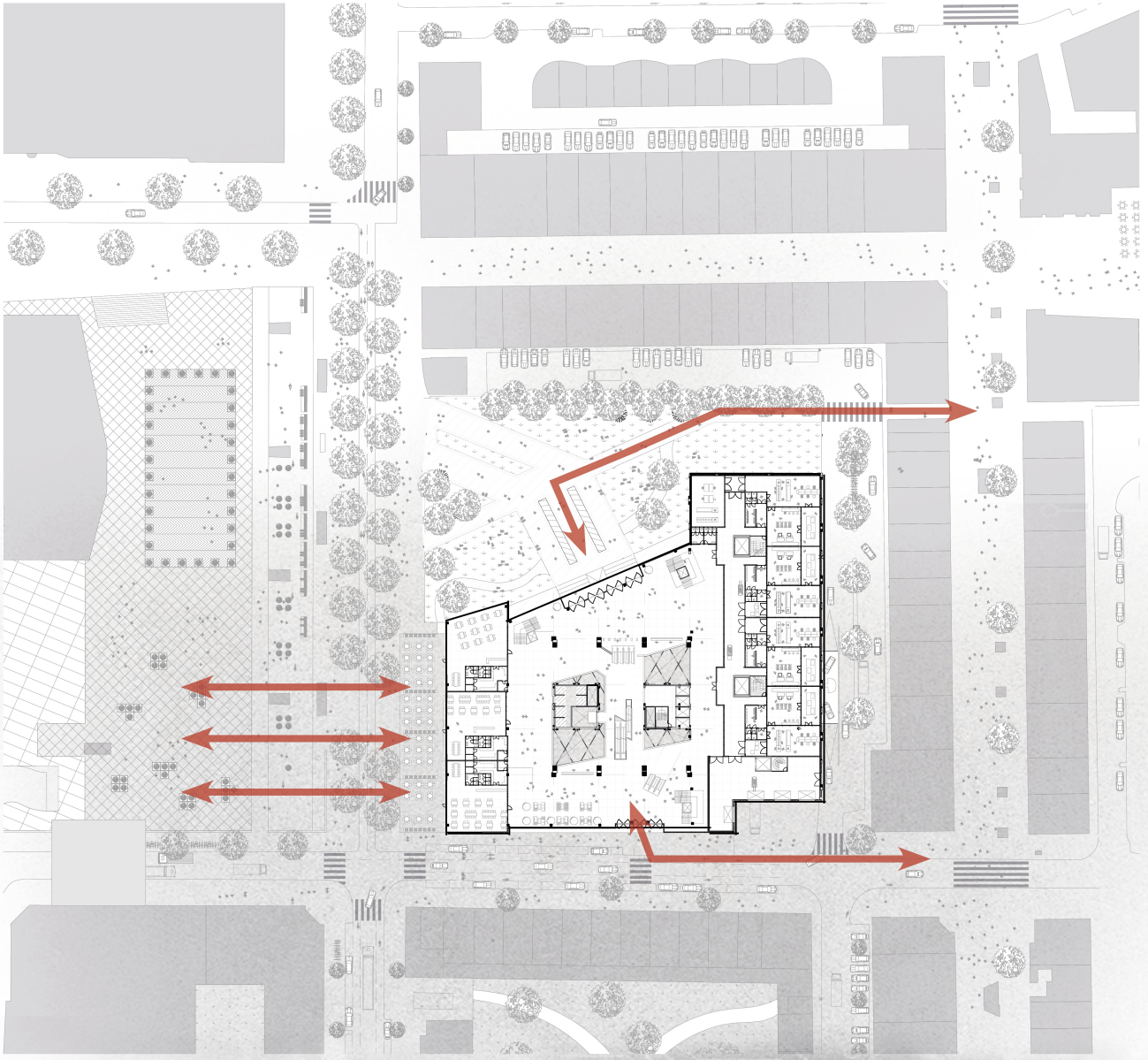


Urban implementation - 1:500

URBAN PLAN | SCALE: 1:500

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AMENITIES CONNECTION

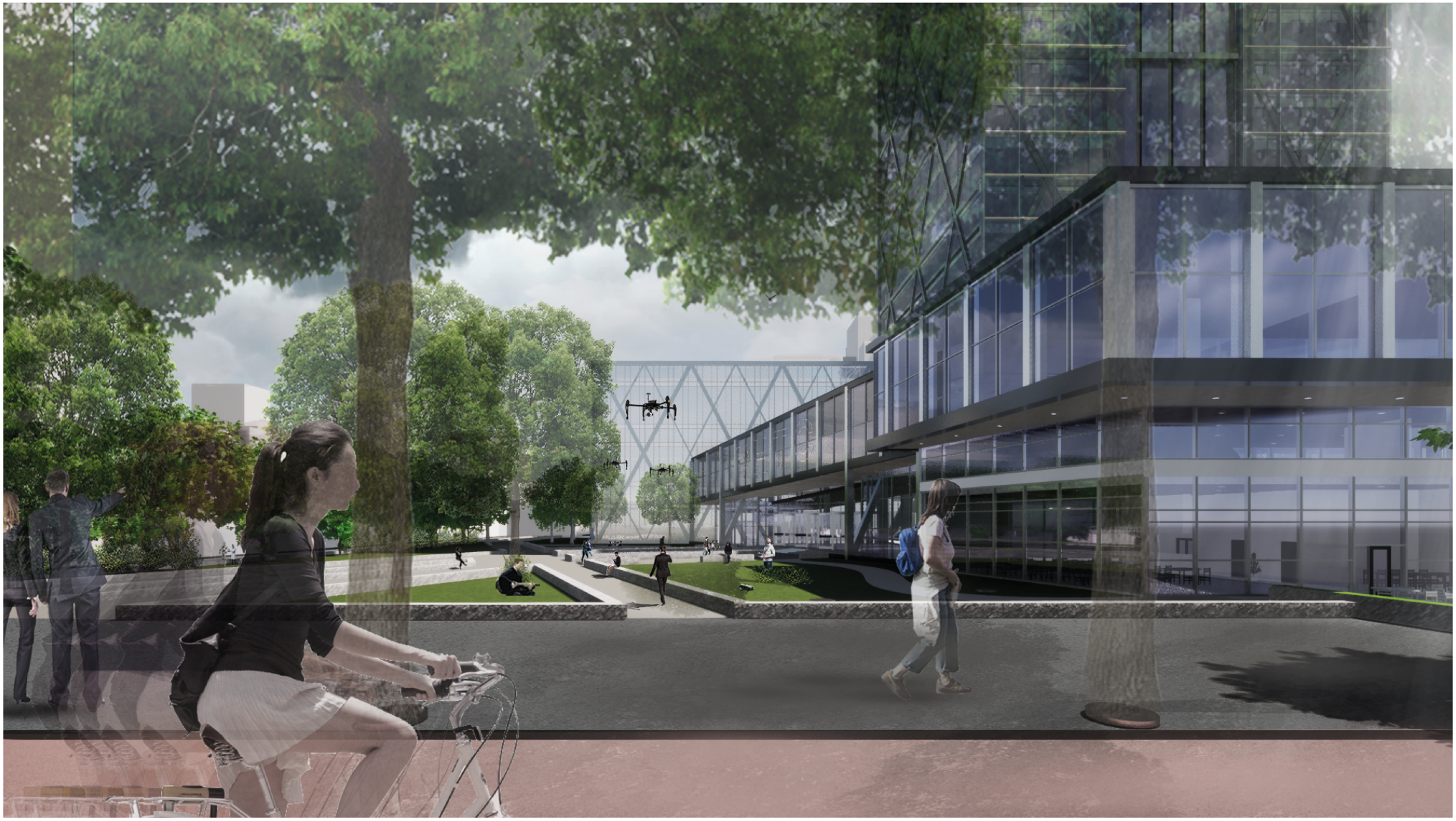


Urban implementation - 1:500

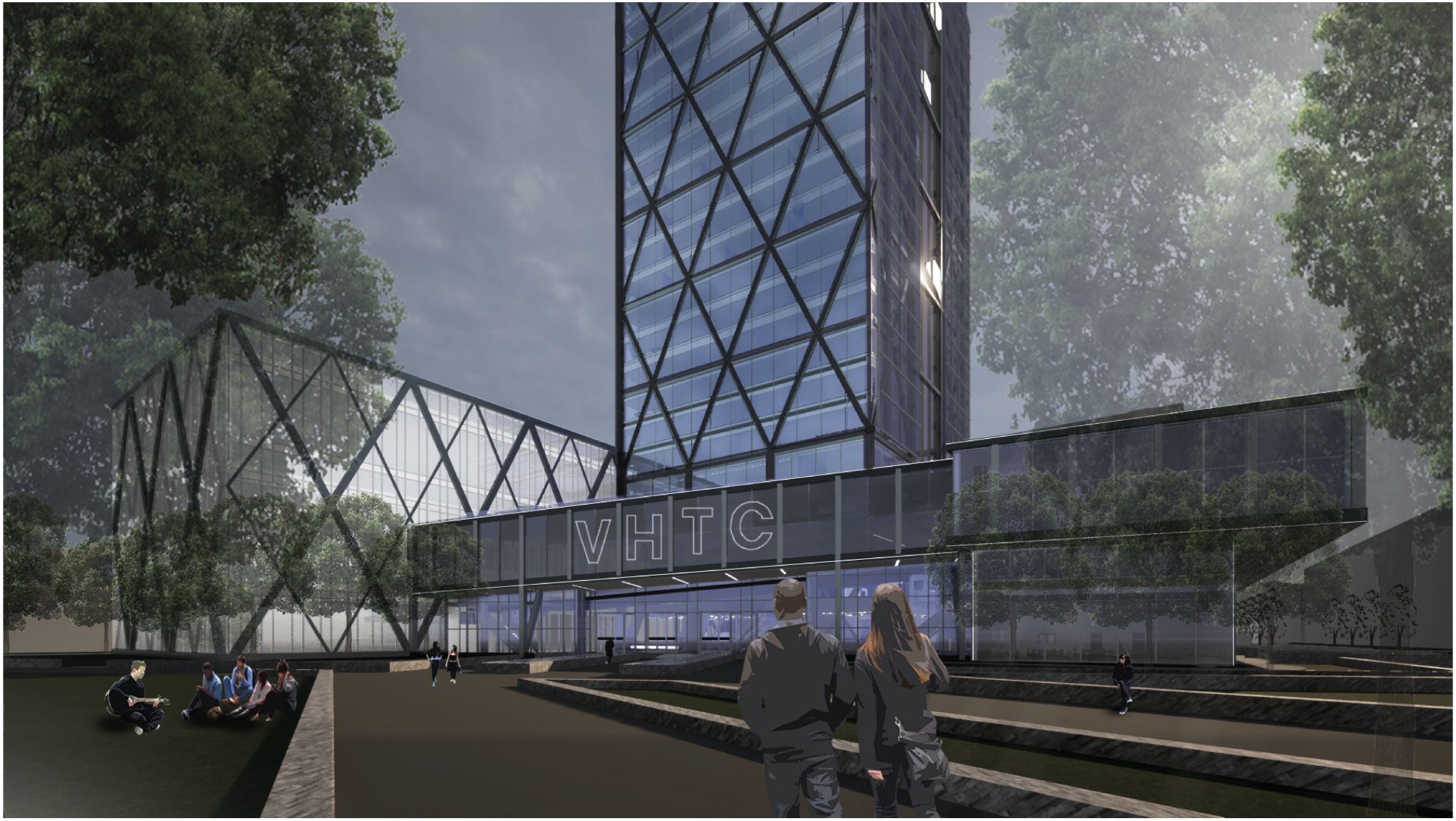
URBAN PLAN | SCALE: 1:500

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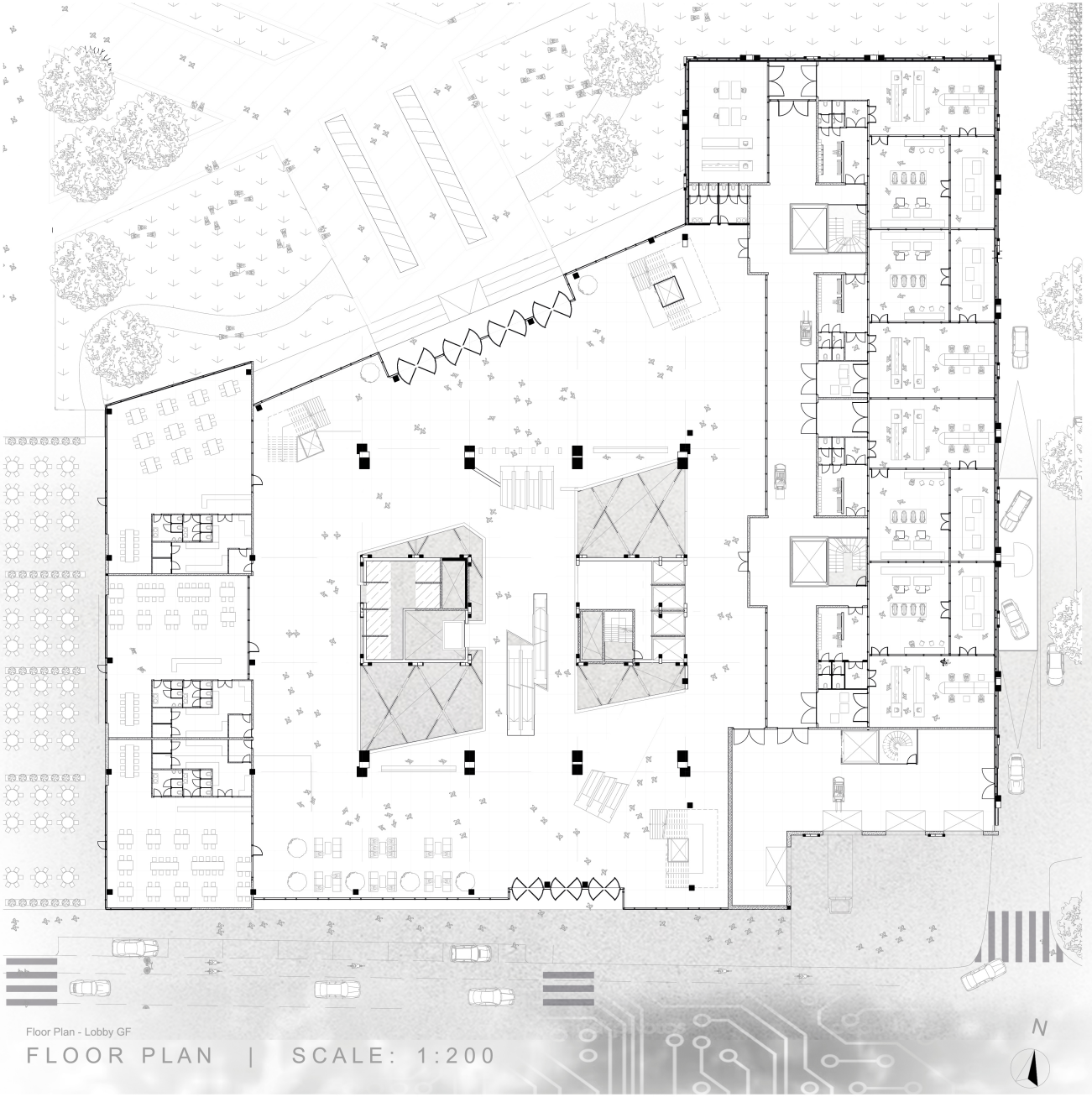
CAMPUS PARK FROM THE SIDE

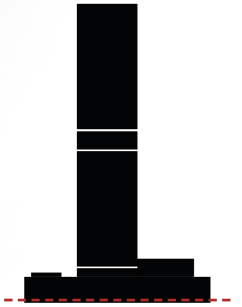


APPROACH VIEW

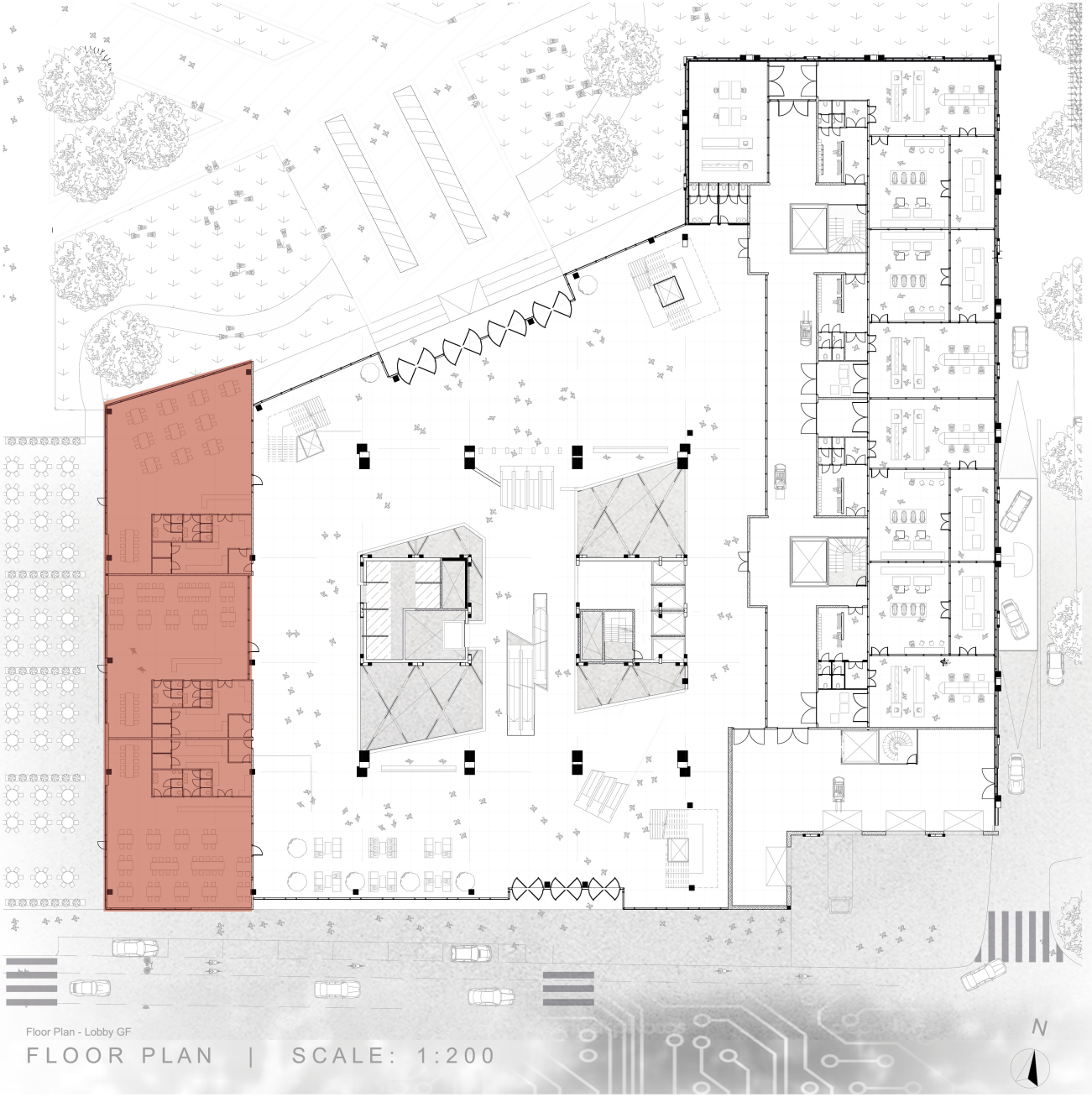


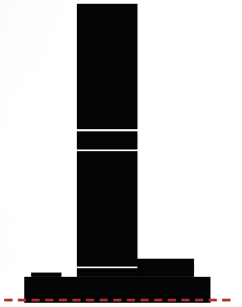
PUBLIC LOBBY



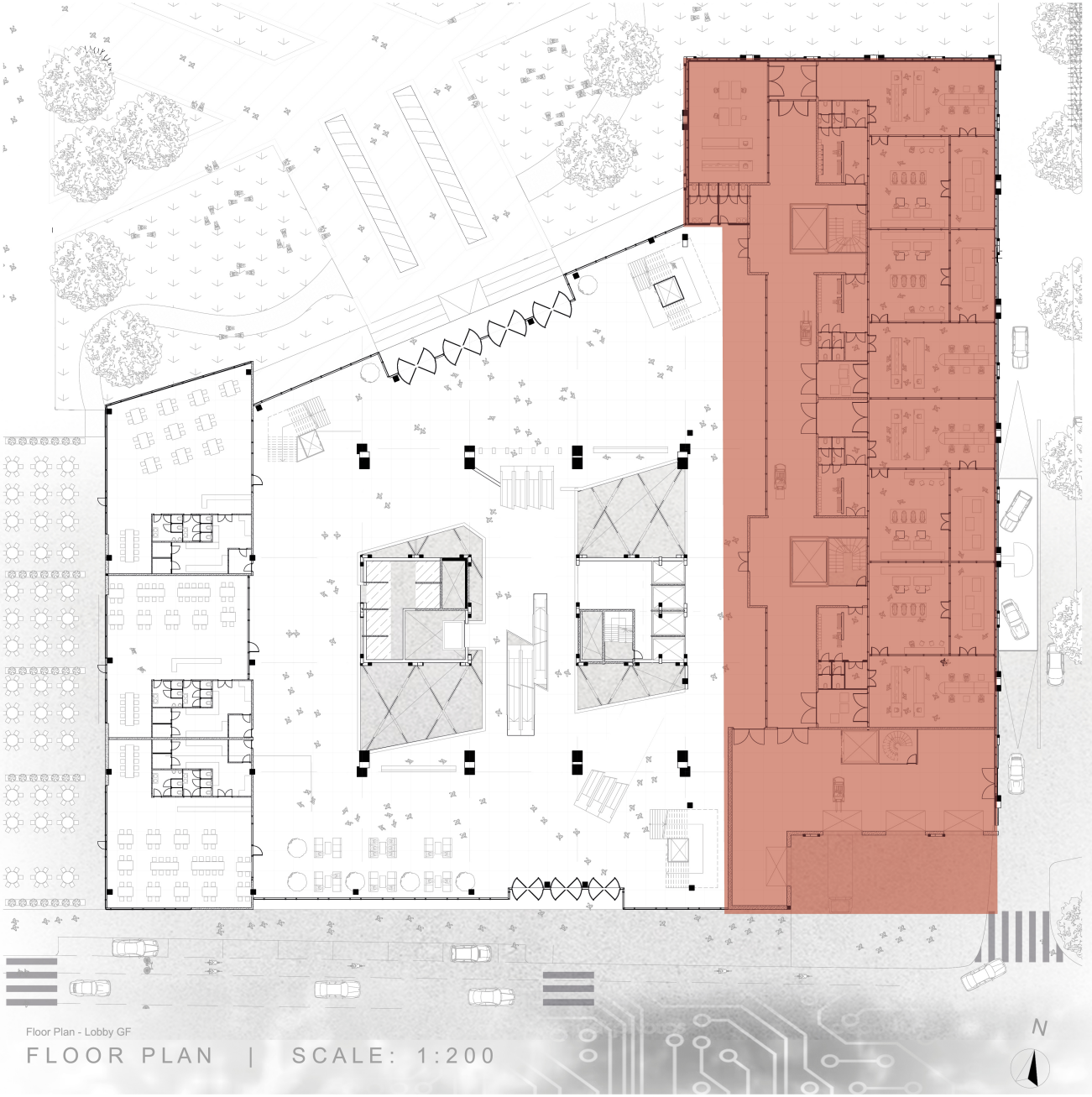


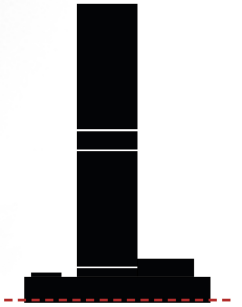
BAR & RESTAURANT



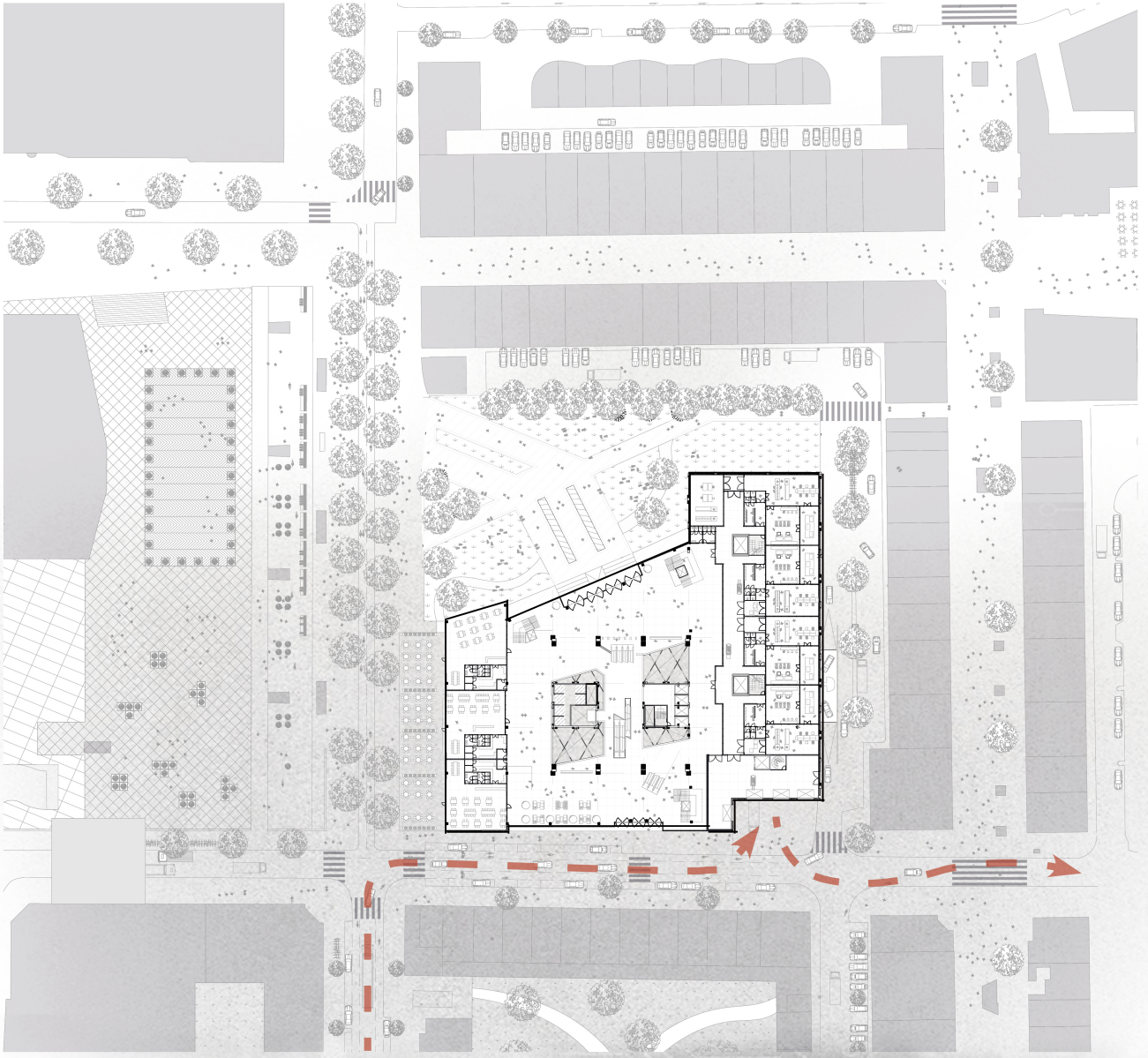


PRODUCTION HUB





PRODUCTION HUB LOGISTICS

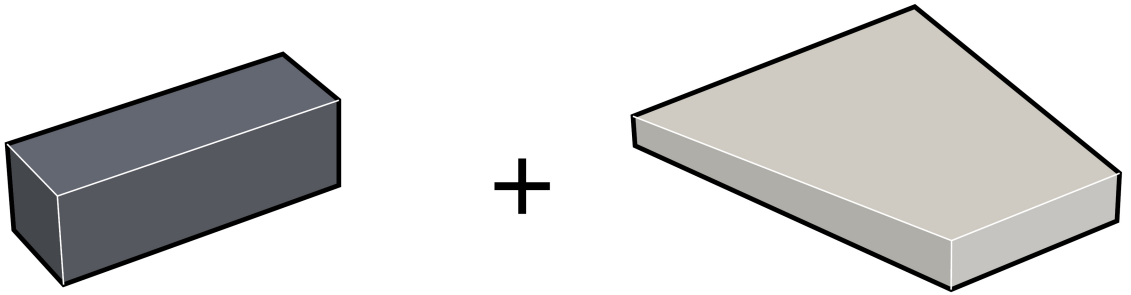


Urban implementation - 1:500

URBAN PLAN | SCALE: 1:500

N

PRODUCTION HUB PRINCIPLE



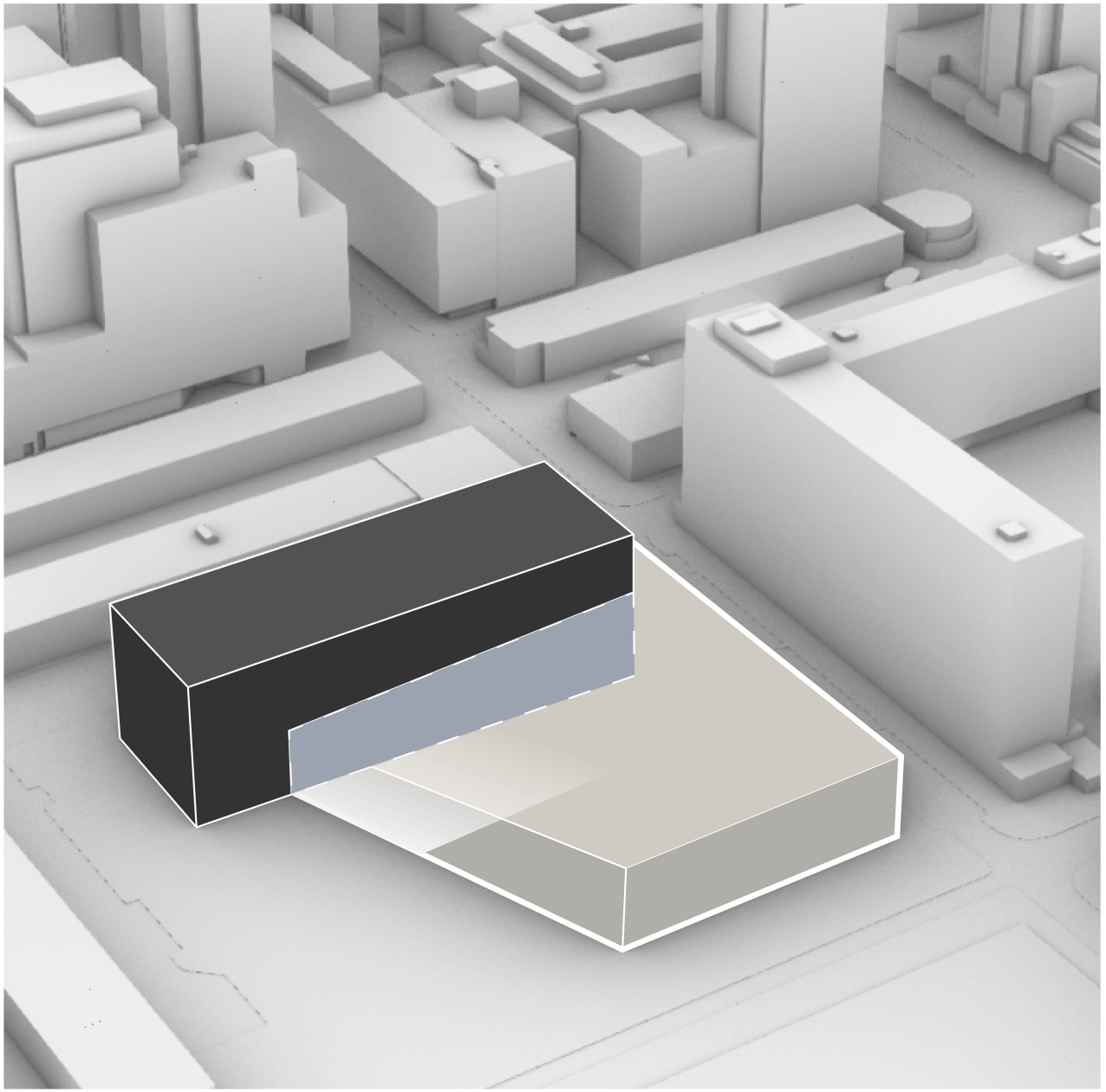
PRODUCTION MASS

Solid & Semi private

PUBLIC LOBBY MASS

Light & Open

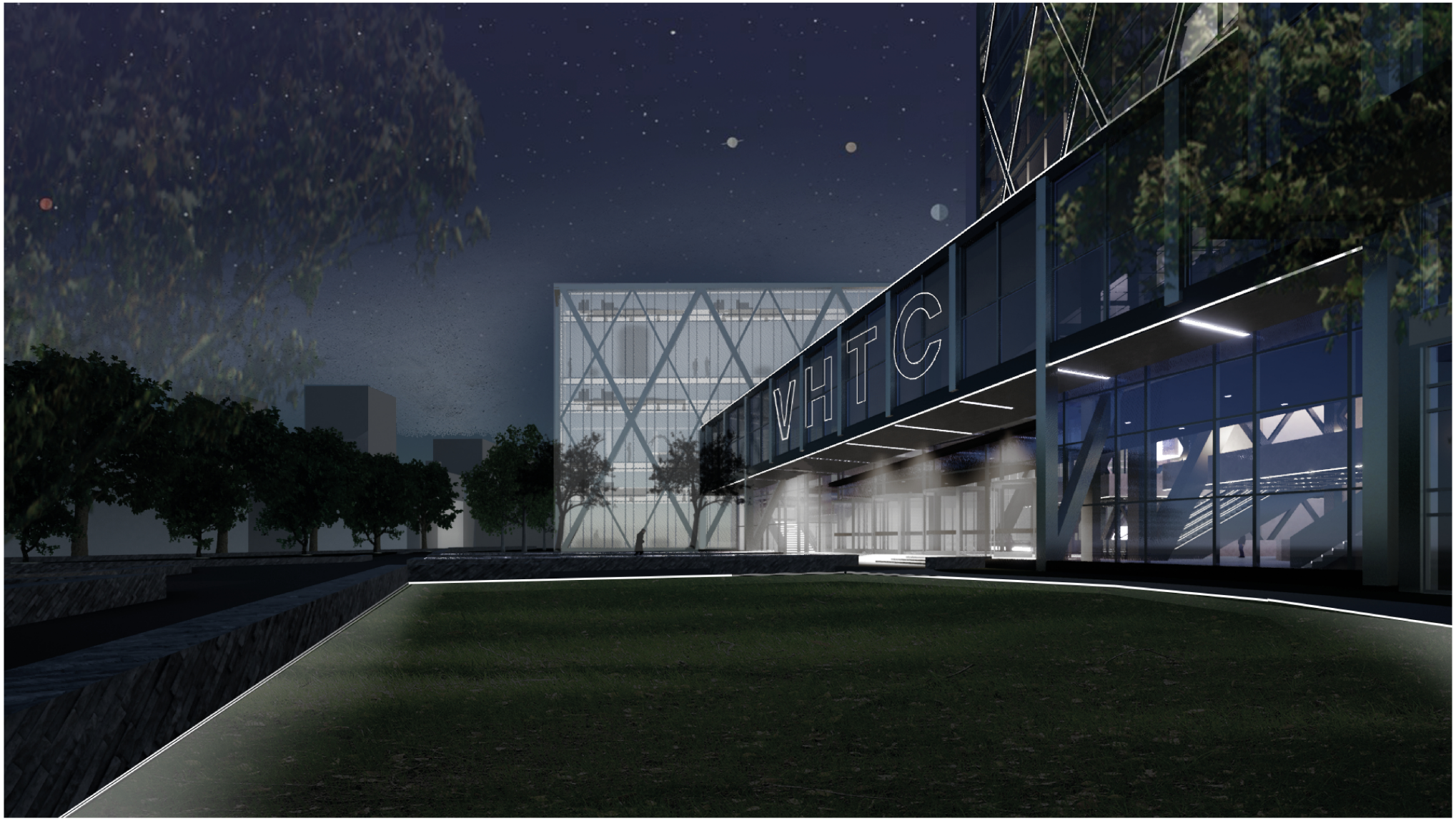
PRODUCTION HUB PRINCIPLE



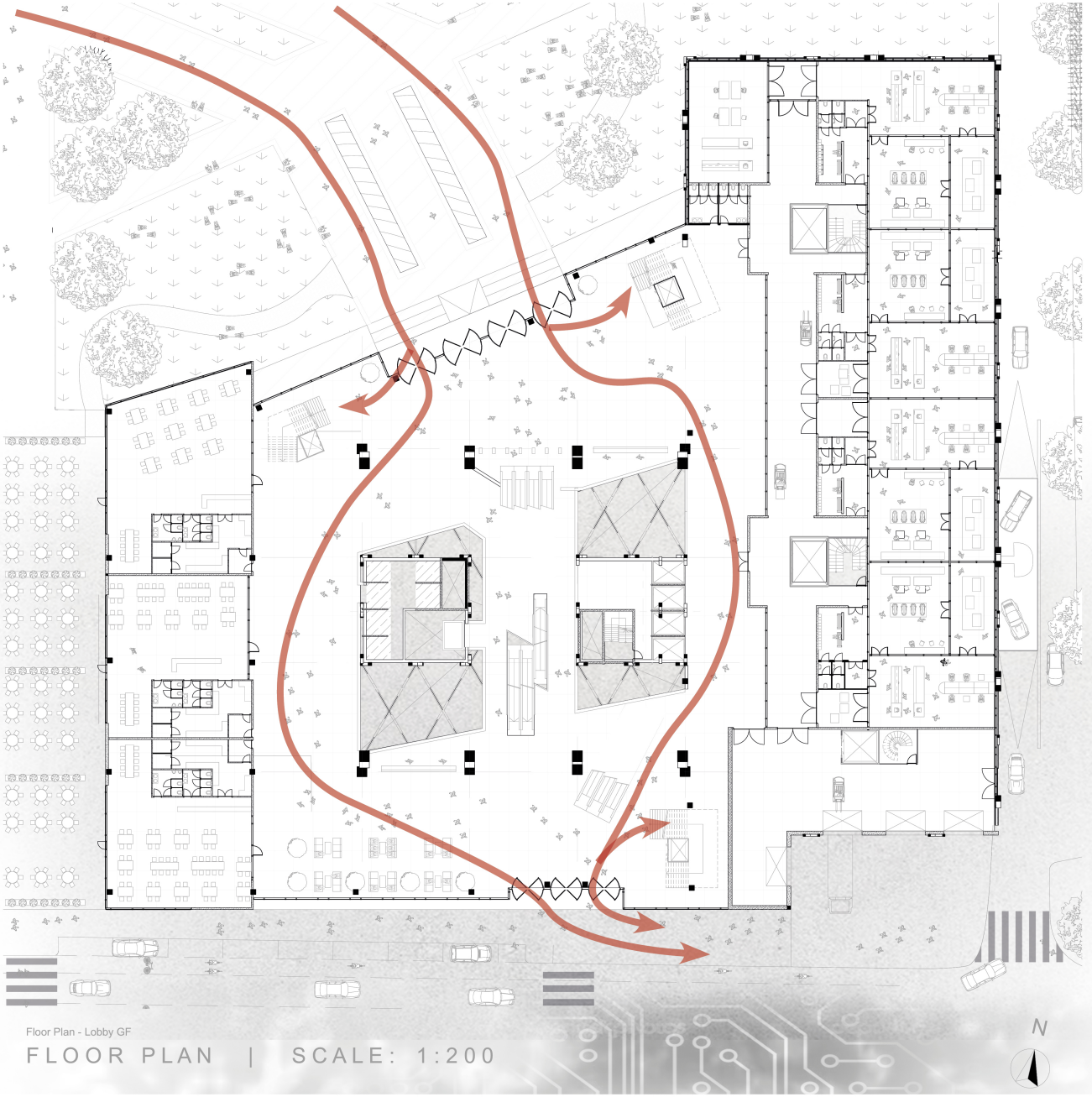
PRODUCTION HUB INTERIOR

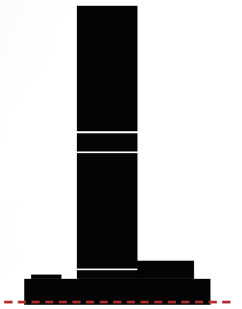


EXTERIOR LIGHTBOX IN THE EVENING

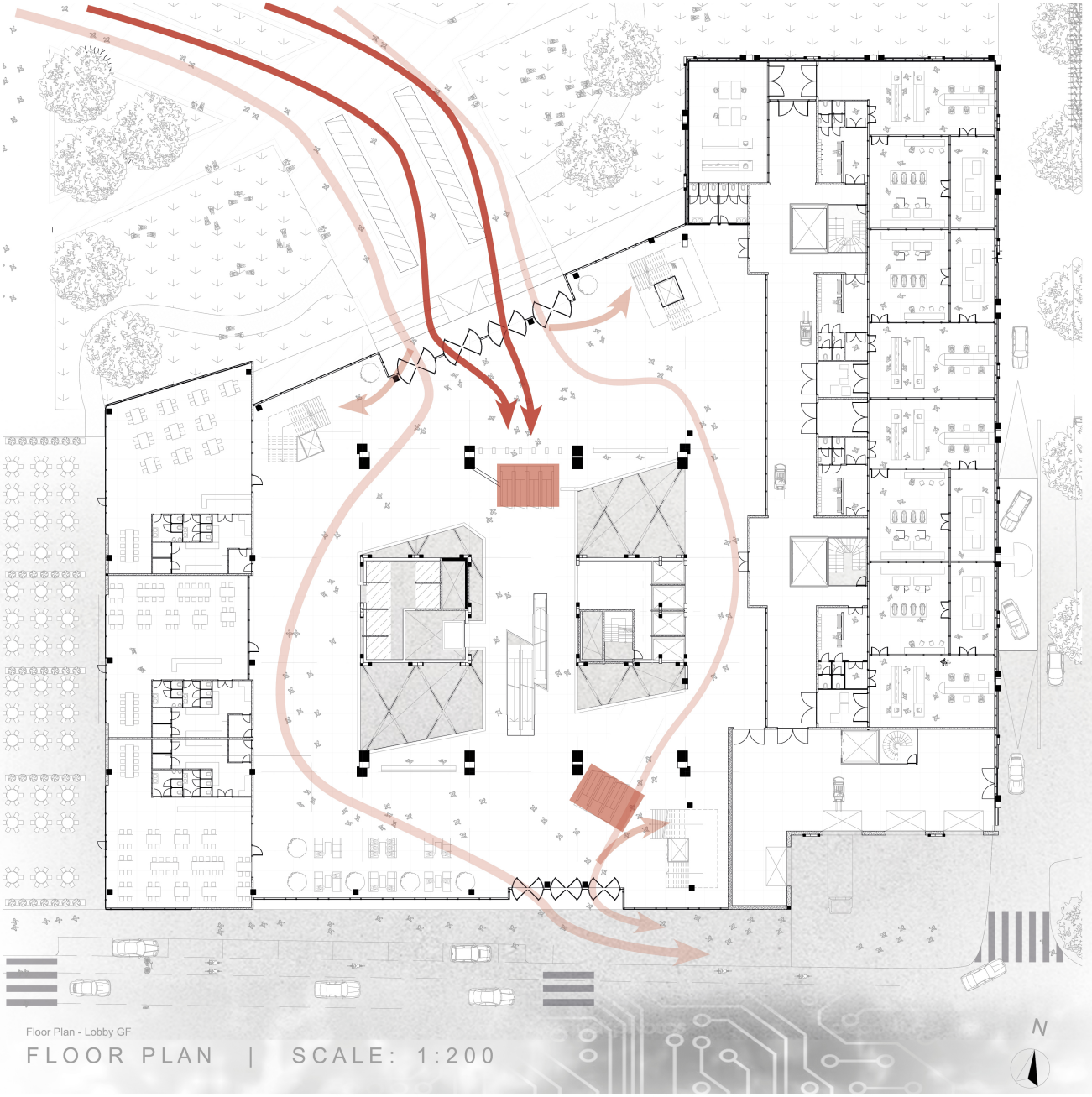


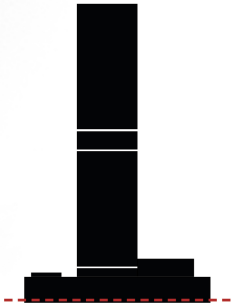
PUBLIC FLOW





WORKER & STUDENT FLOW





LOBBY ENTRANCE



PRODUCTION HUB VISUALS

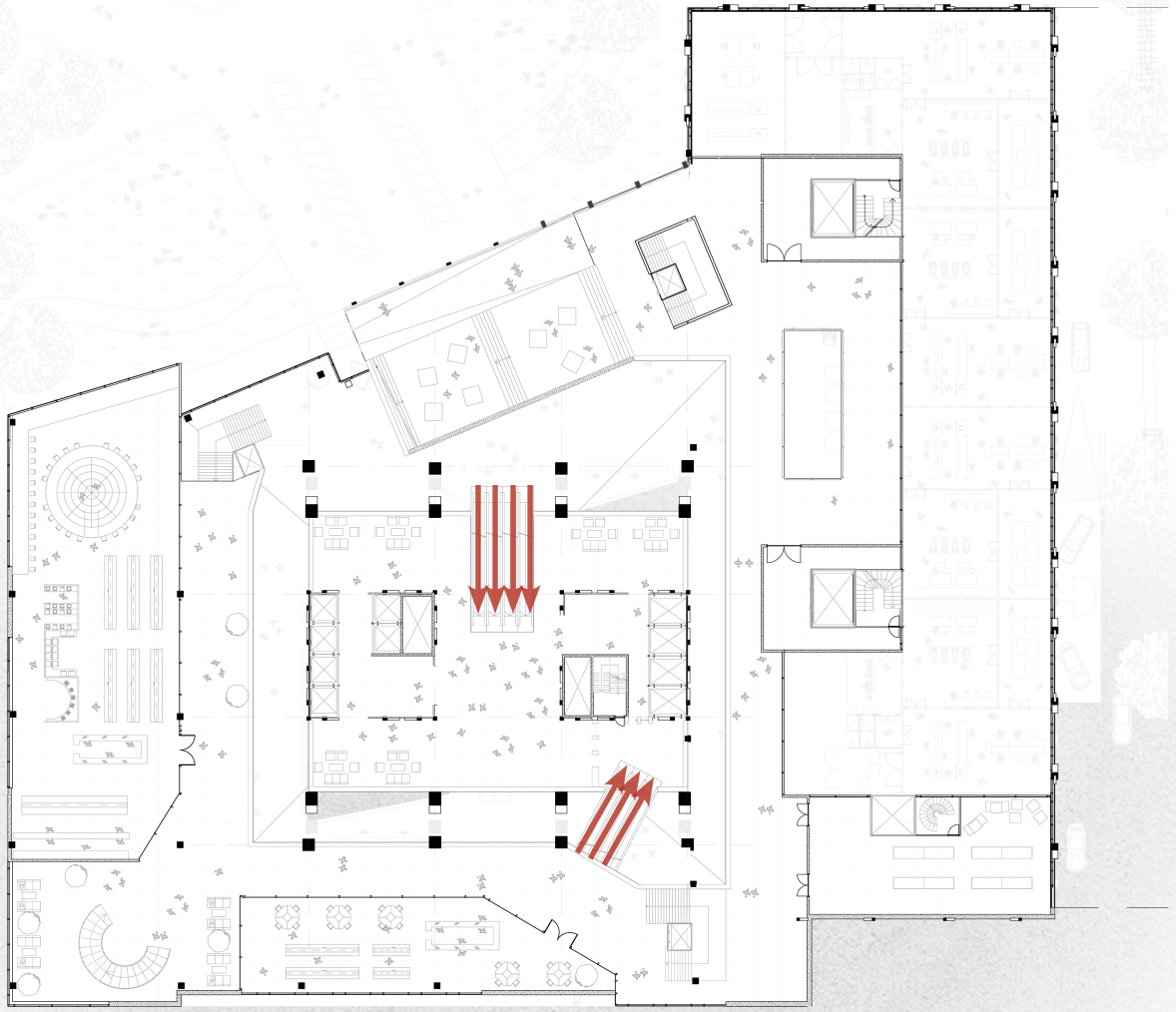


TO THE TOWER



LOBBY SECOND FLOOR

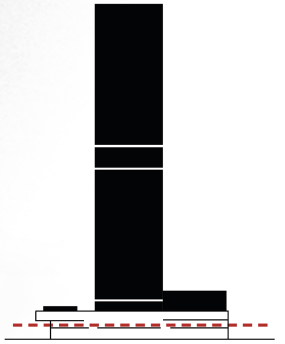
BUSINESS & STUDENTS



Floor Plan - Lobby +1

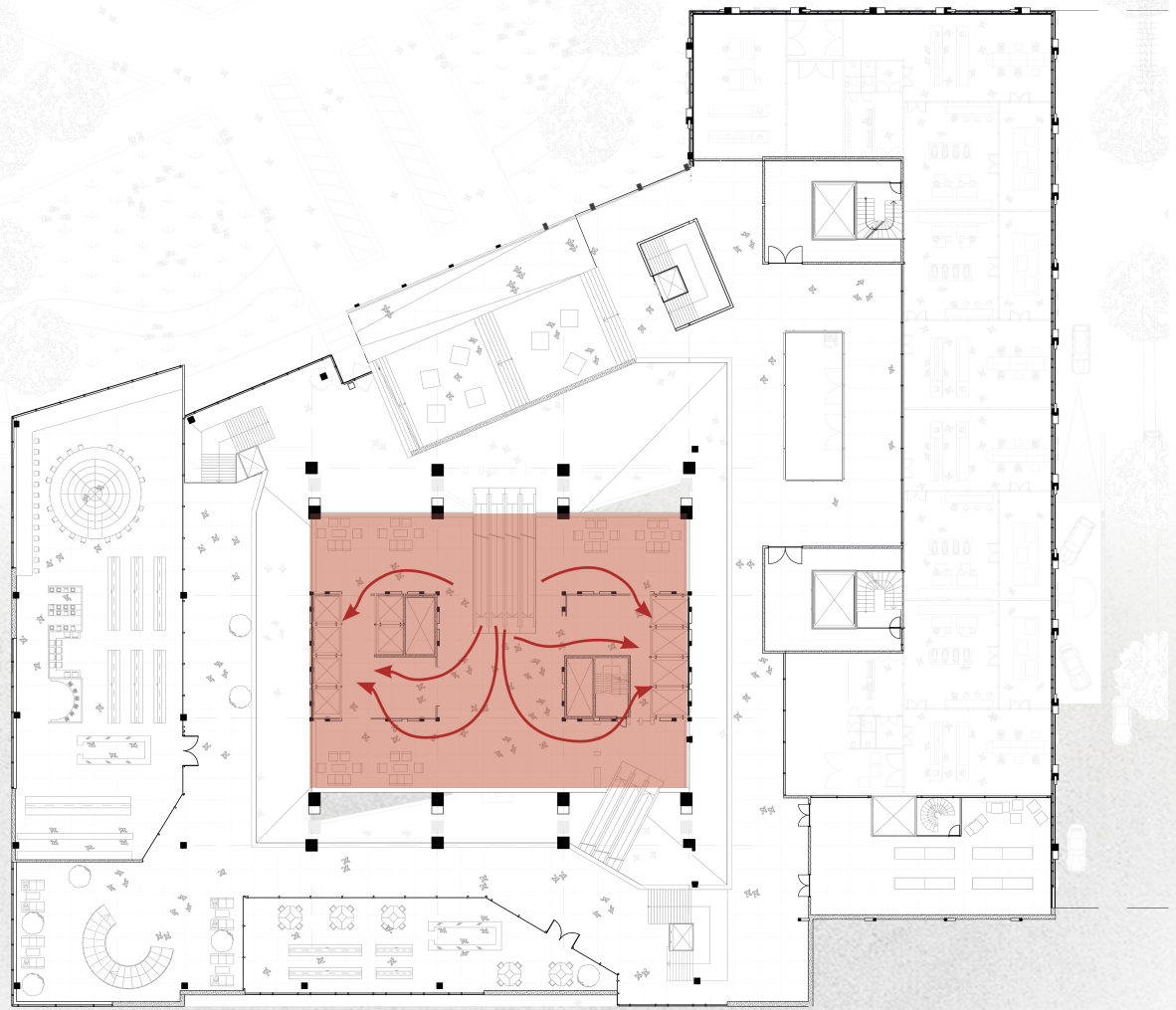
FLOOR PLAN | SCALE: 1:200

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ENTRANCE TOWER SEPARATED BLOCK ISOLATION

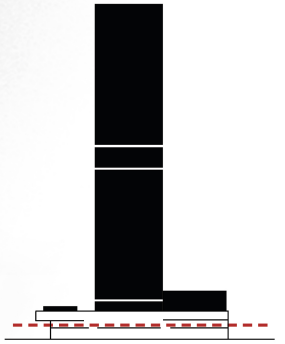
BUSINESS & STUDENTS



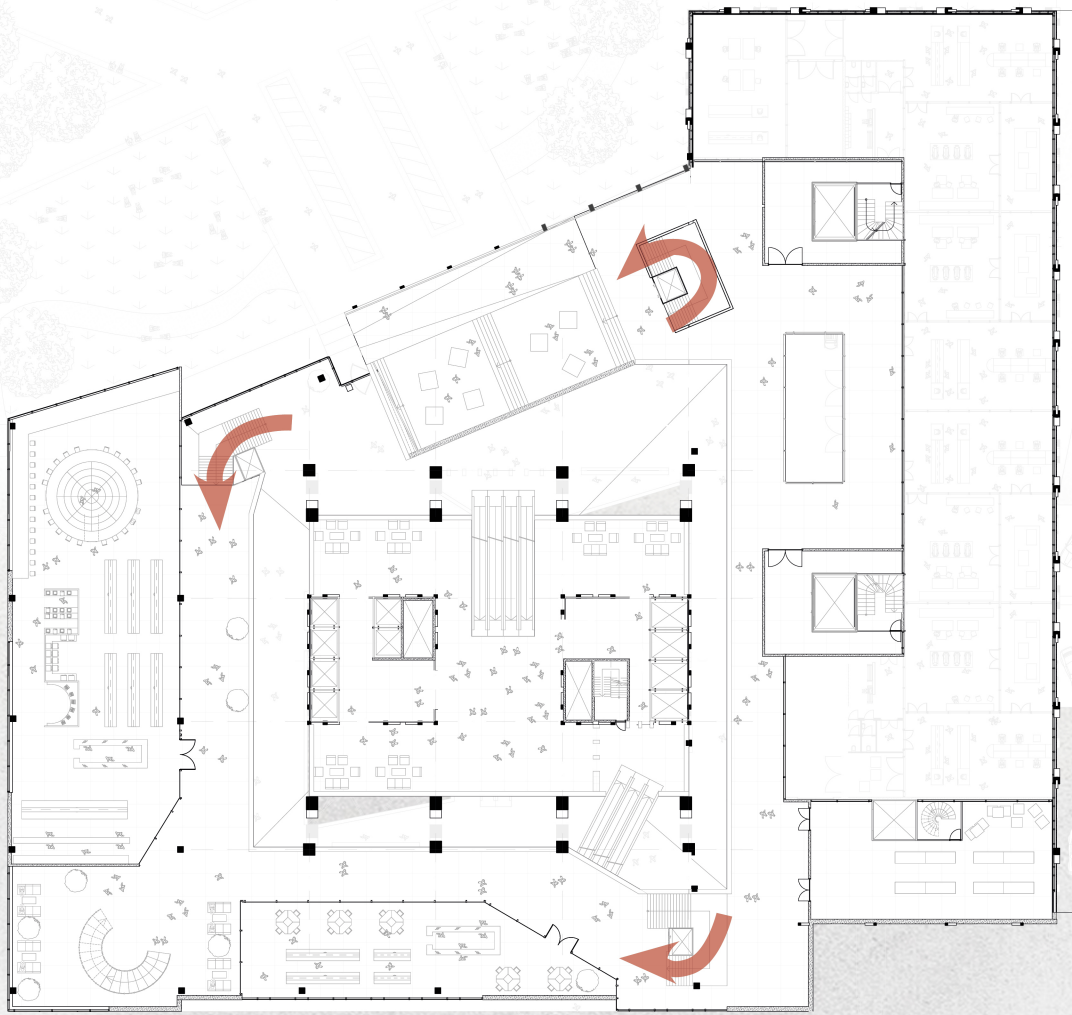
Floor Plan - Lobby +1

FLOOR PLAN | SCALE: 1:200

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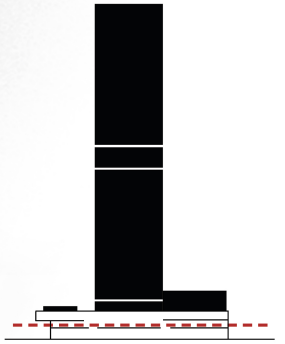


PUBLIC ROUTE





PUBLIC

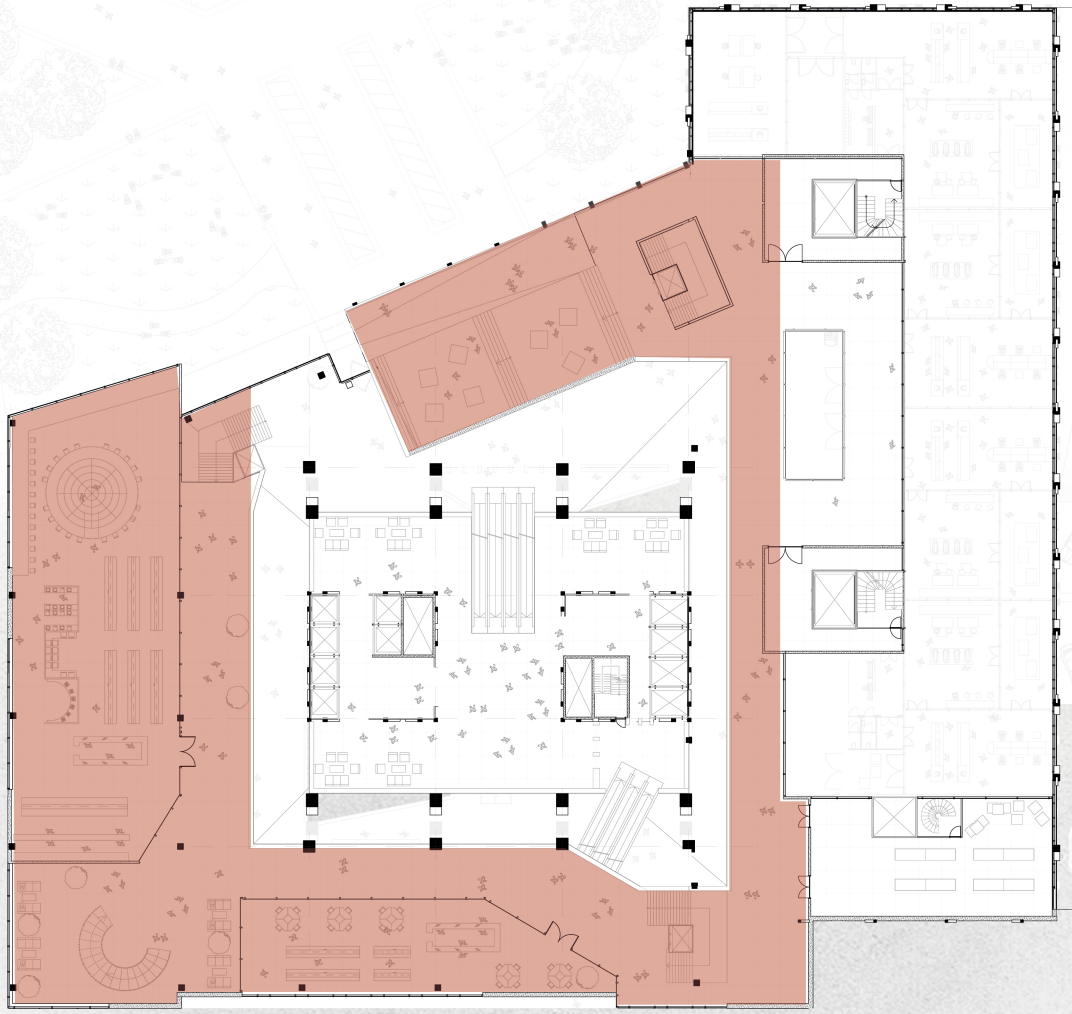


Floor Plan - Lobby +1

FLOOR PLAN | SCALE: 1:200

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EMBRACED BY PUBLIC FUNTION WITH VISUAL CONNECTIONS



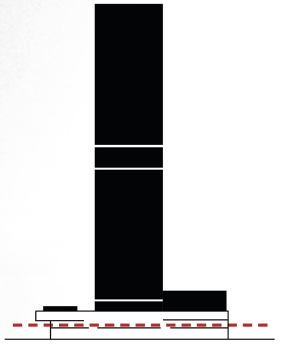
Floor Plan - Lobby +1

FLOOR PLAN | SCALE: 1:200

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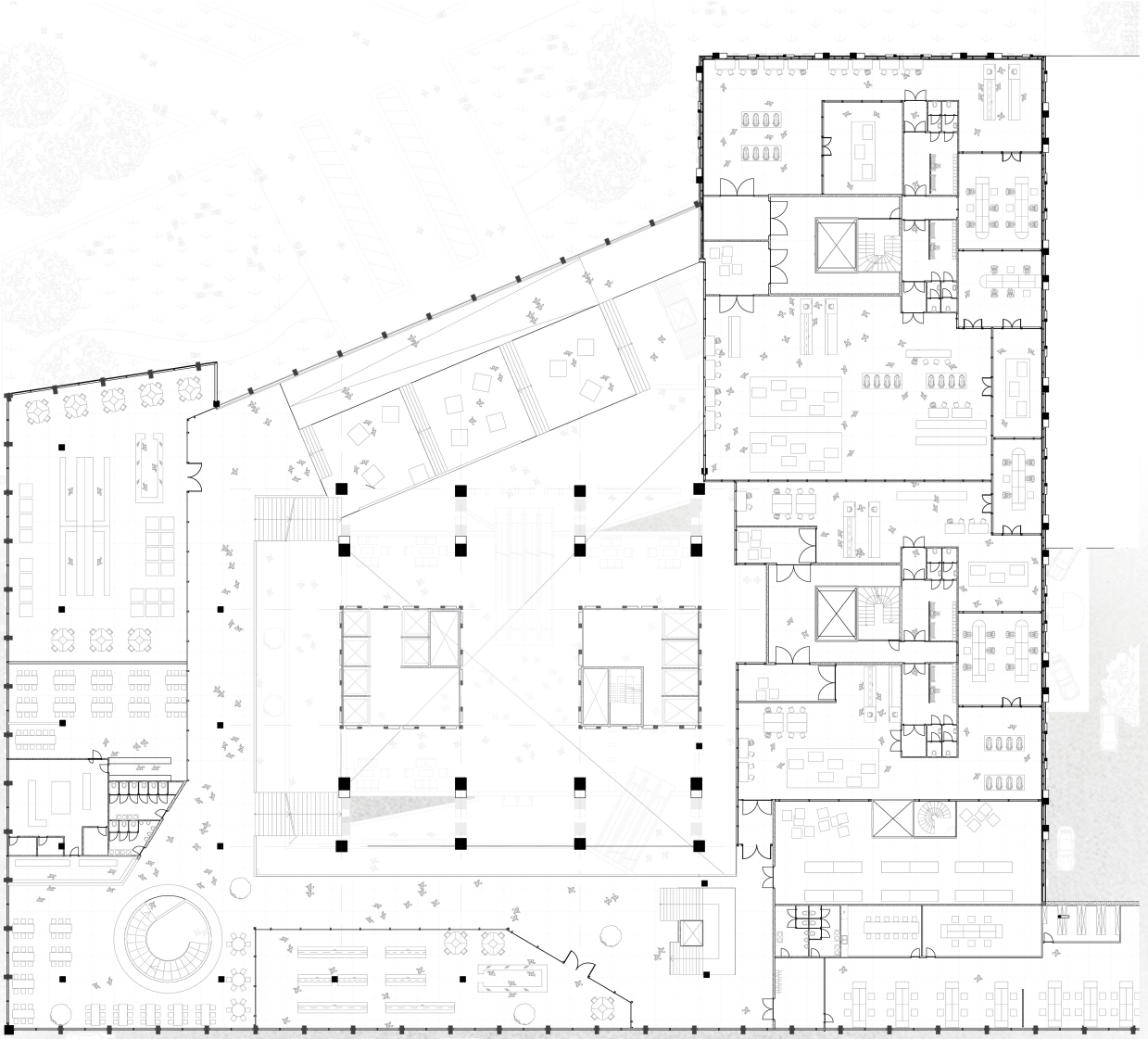
PUBLIC



PUBLIC COMMERCE & THE ELEVATORS



TOP FLOOR LOBBY



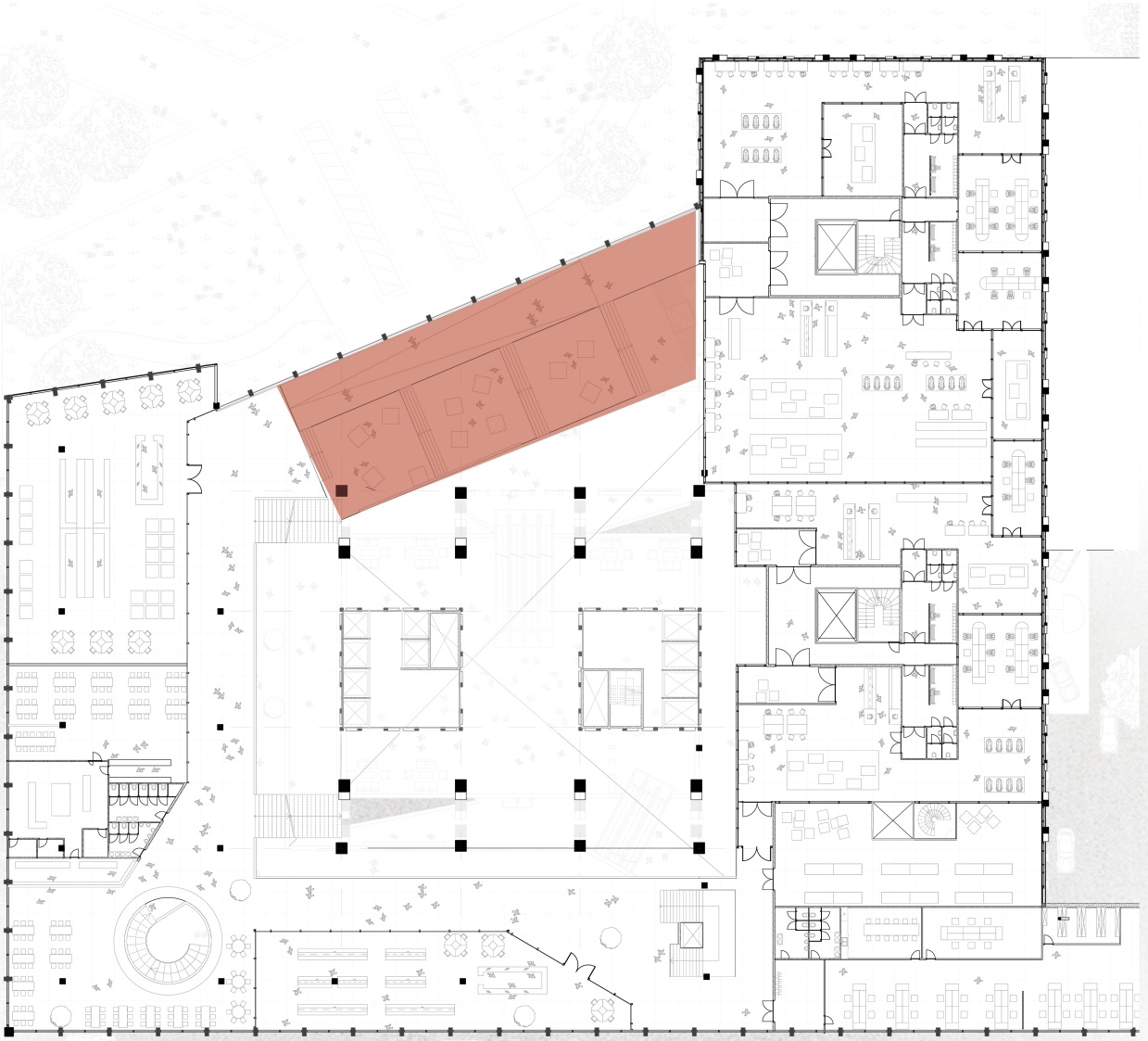
Floor Plan - Lobby +2

FLOOR PLAN | SCALE: 1:200

N



EXPOSITION SPACE



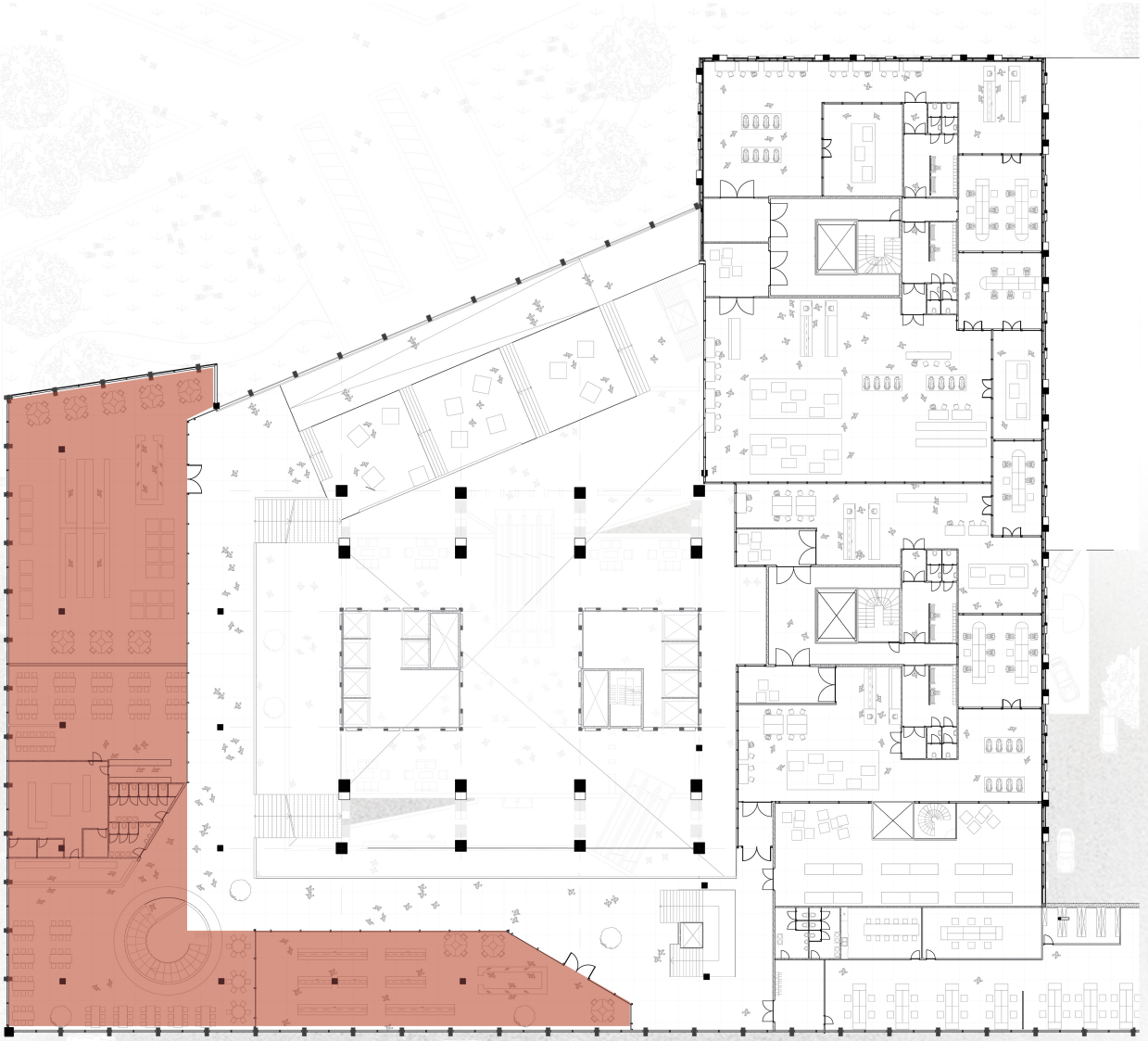
Floor Plan - Lobby +2

FLOOR PLAN | SCALE: 1:200

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COMMERCE & OPEN LUNCHROOM



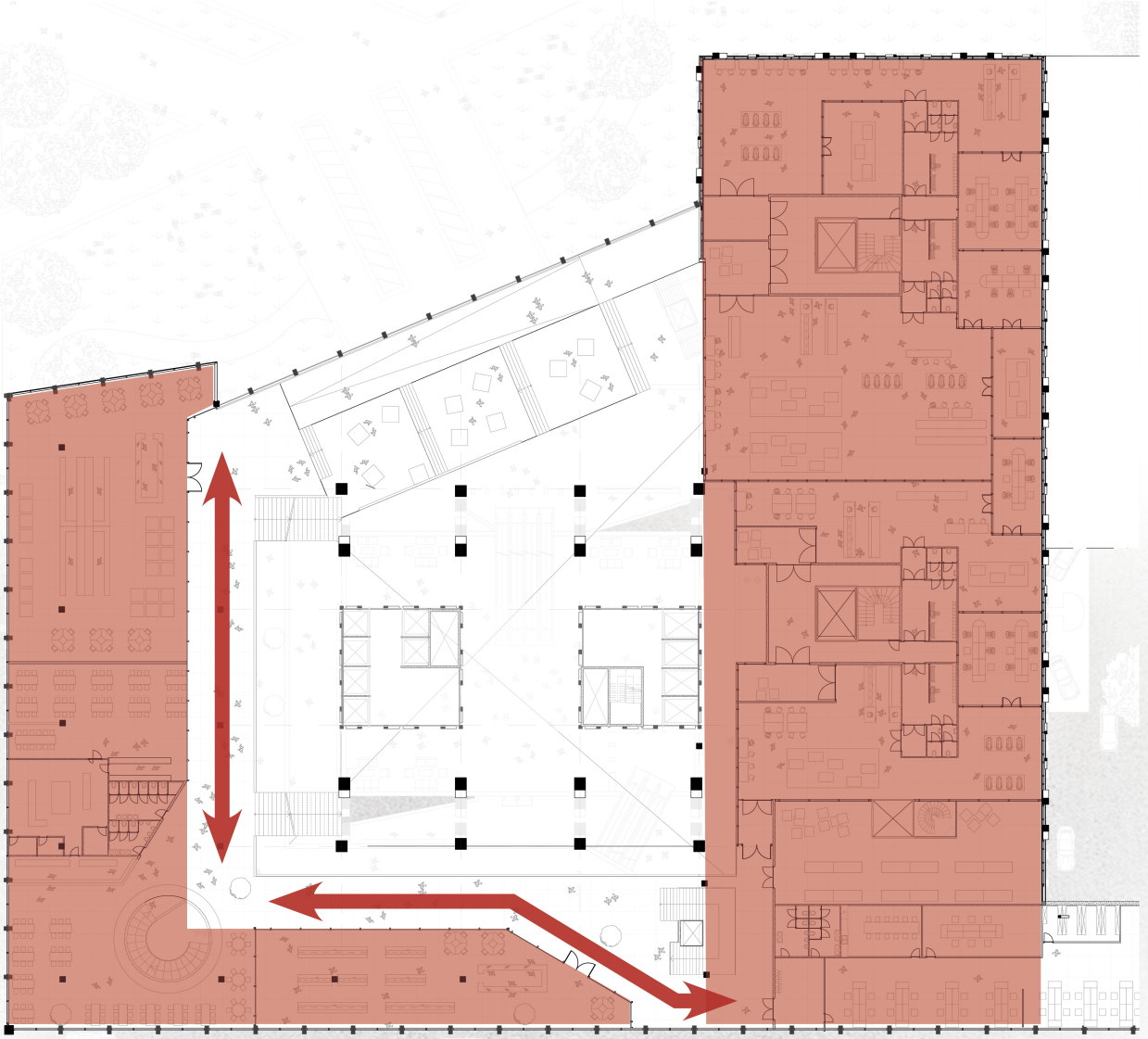
Floor Plan - Lobby +2

FLOOR PLAN | SCALE: 1:200

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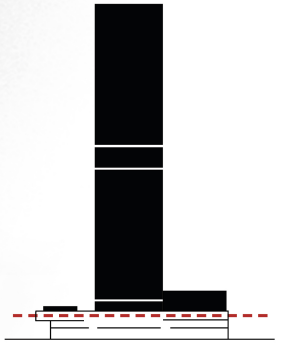
CONNECTION WITH PRODUCTION HUB (DIRECT CUSTOMAZIBILITY HIGH-TECH)



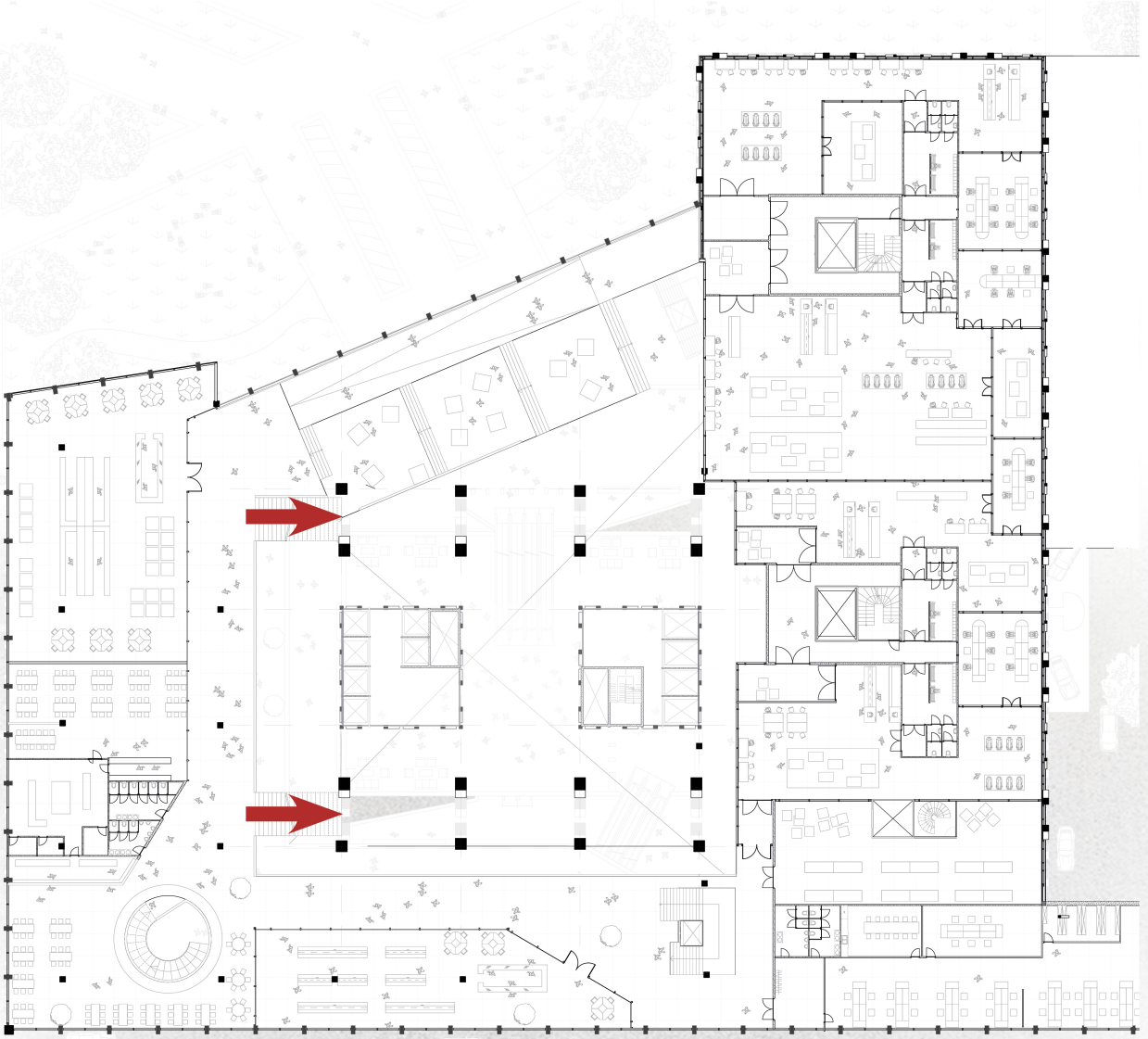
Floor Plan - Lobby +2

FLOOR PLAN | SCALE: 1:200

N



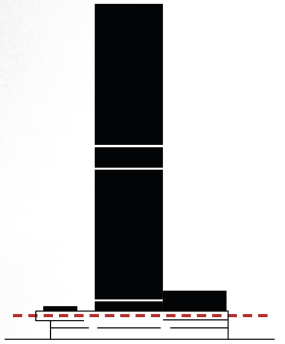
PUBLIC ENTRANCE AUDITORIUM



Floor Plan - Lobby +2

FLOOR PLAN | SCALE: 1:200

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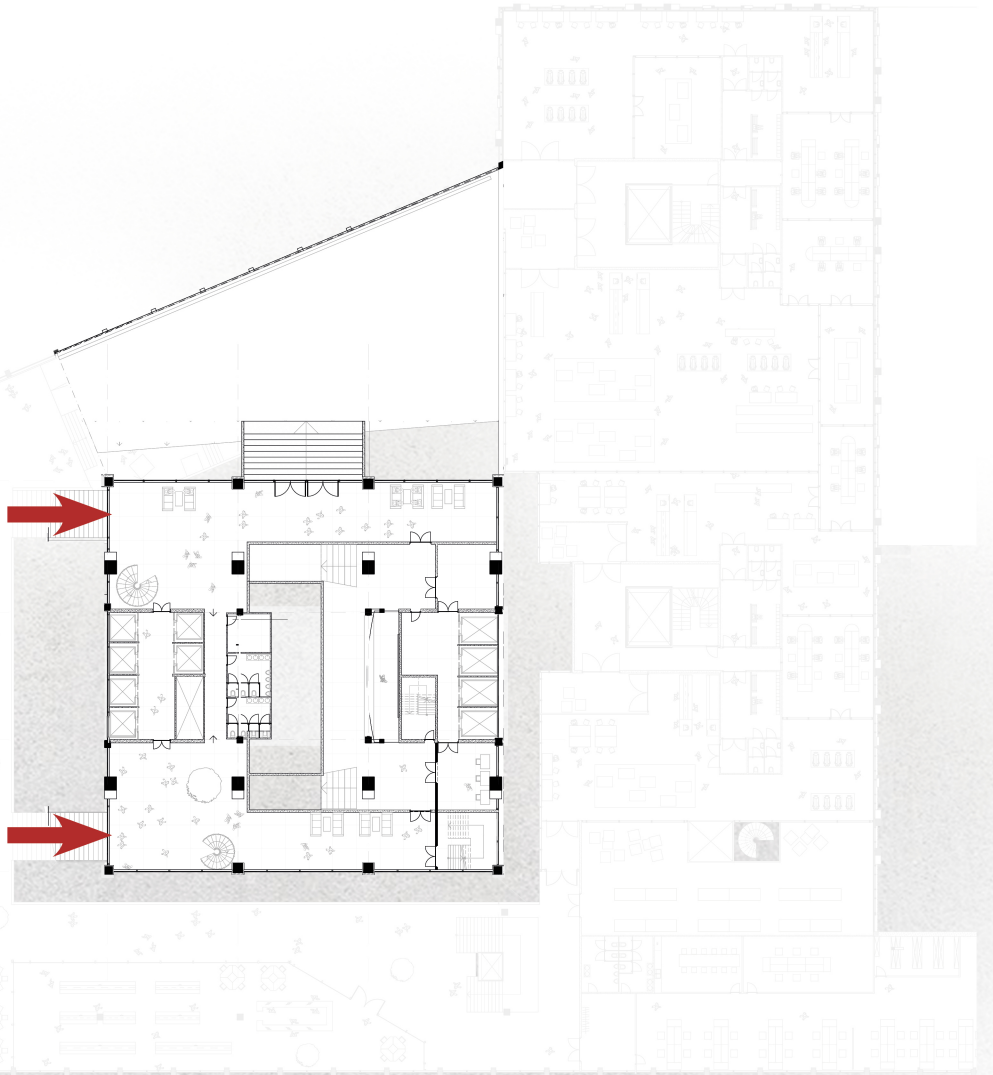


Design

AUDITORIUM



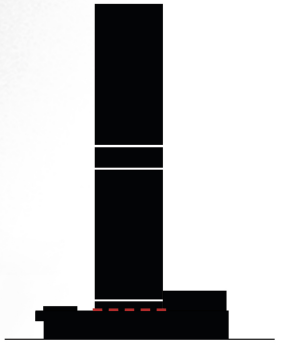
AUDITORIUM LOBBY



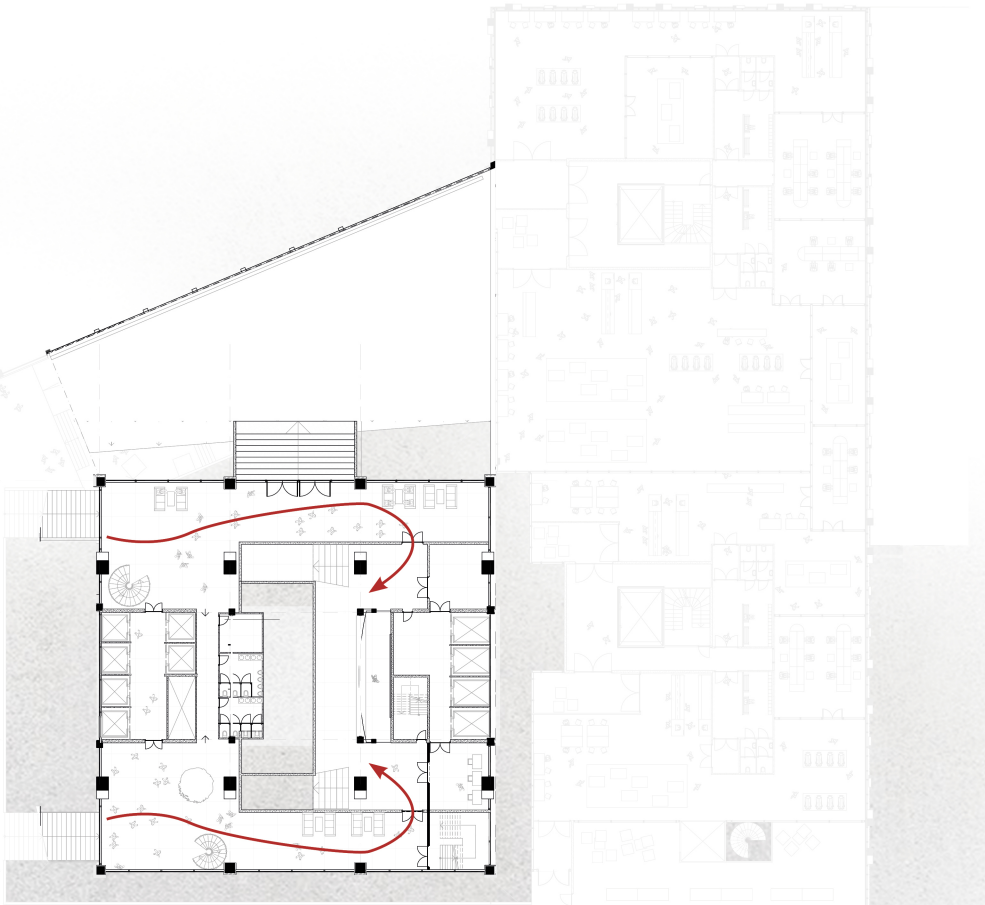
Auditorium - GF

TOWER PLAN | SCALE: 1:200

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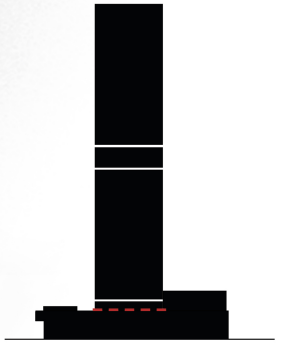
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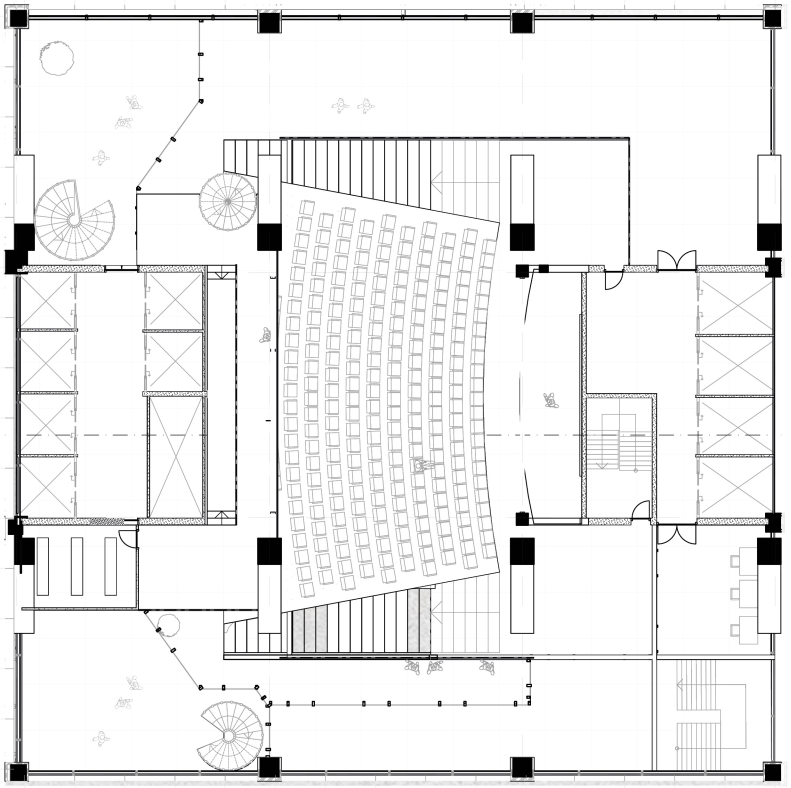
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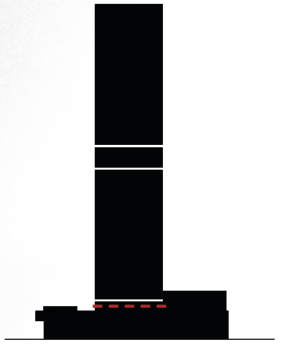
TOWER PLAN | SCALE: 1:200

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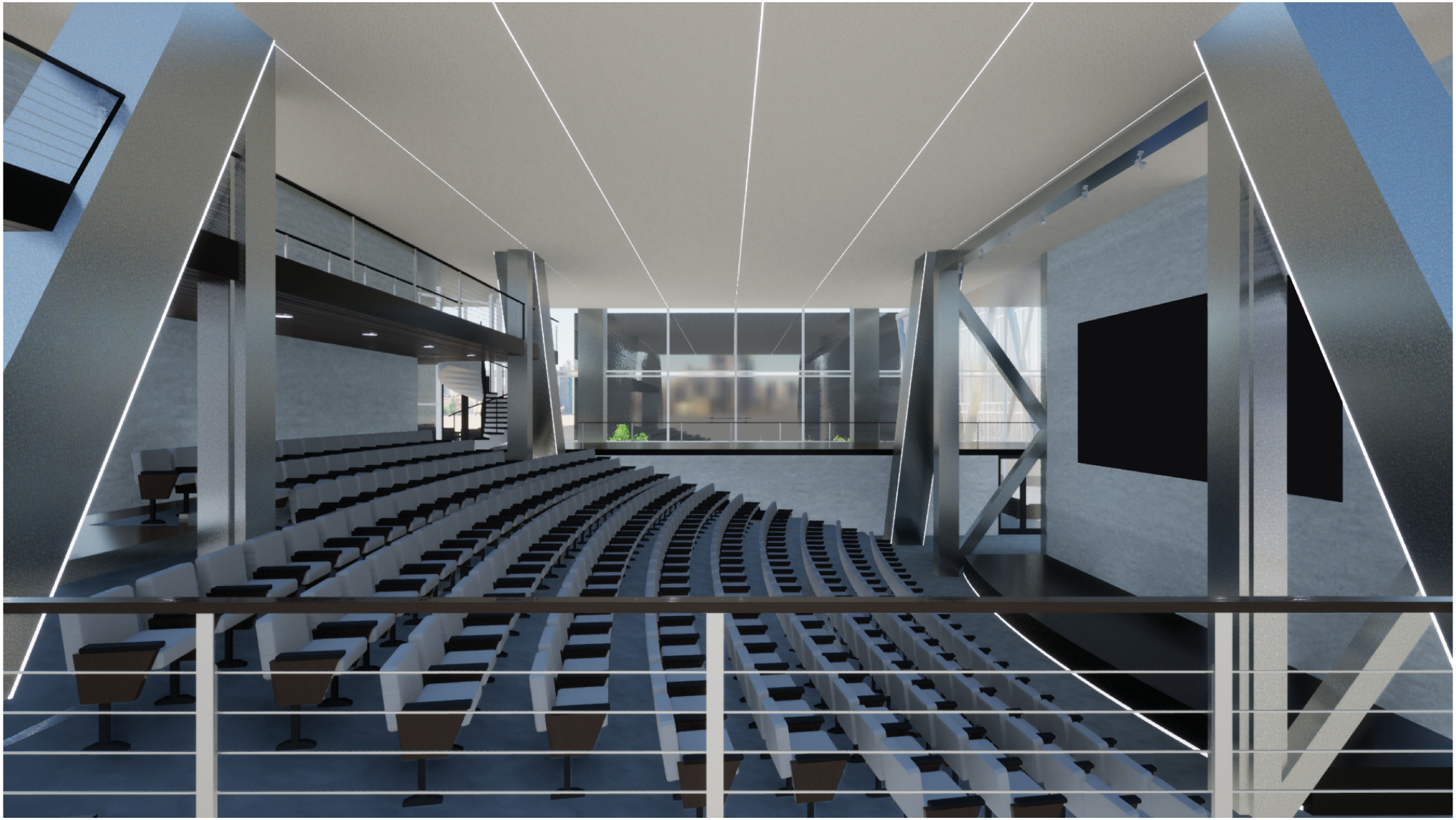


AUDITORIUM





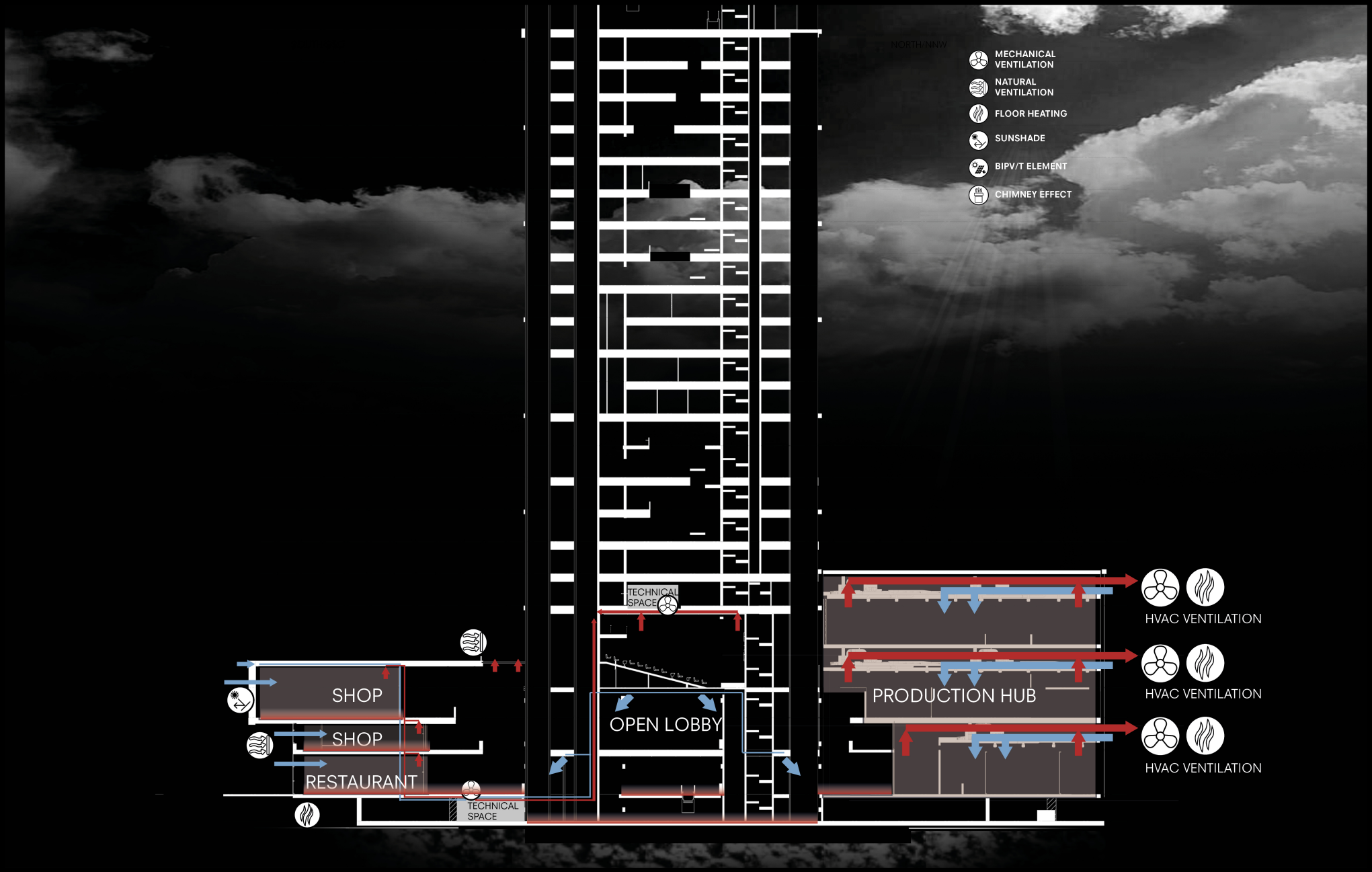
AUDITORIUM



EVENING LECTURES



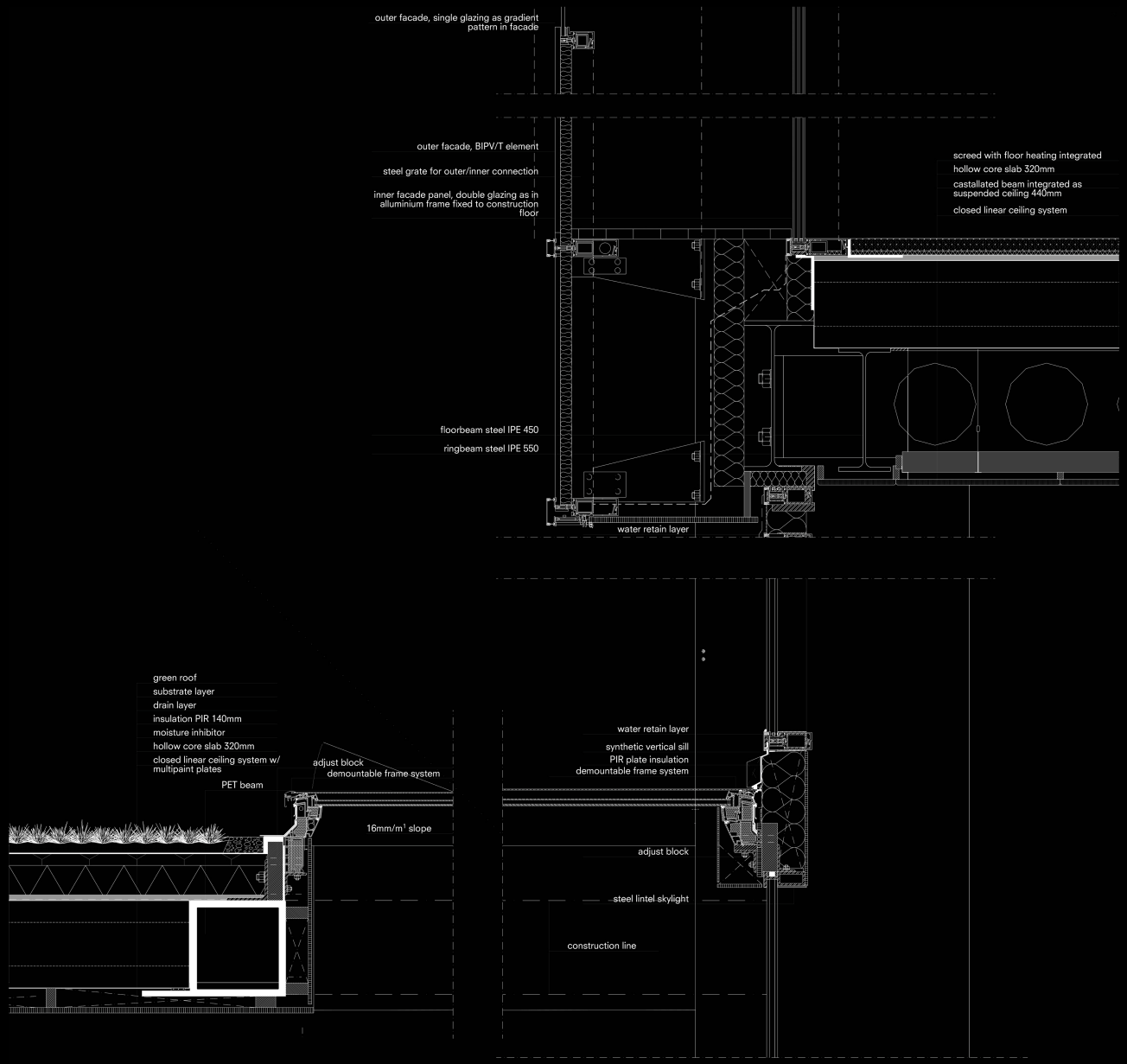
CLIMATE PRINCIPLE LOBBY - WINTER



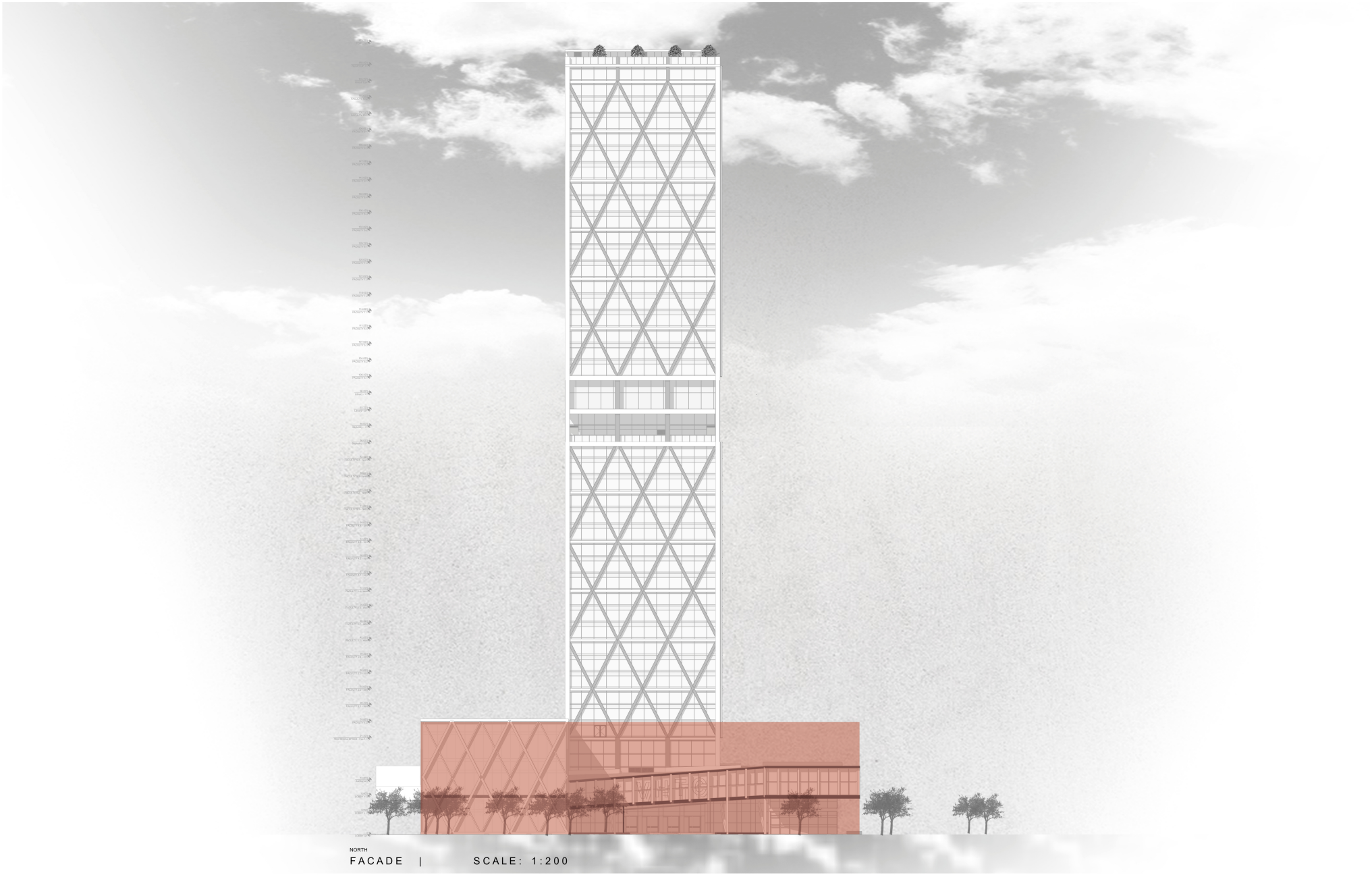
CLIMATE PRINCIPLE LOBBY - SUMMER



DETAIL - LOBBY TO TOWER WITH SKYLIGHT

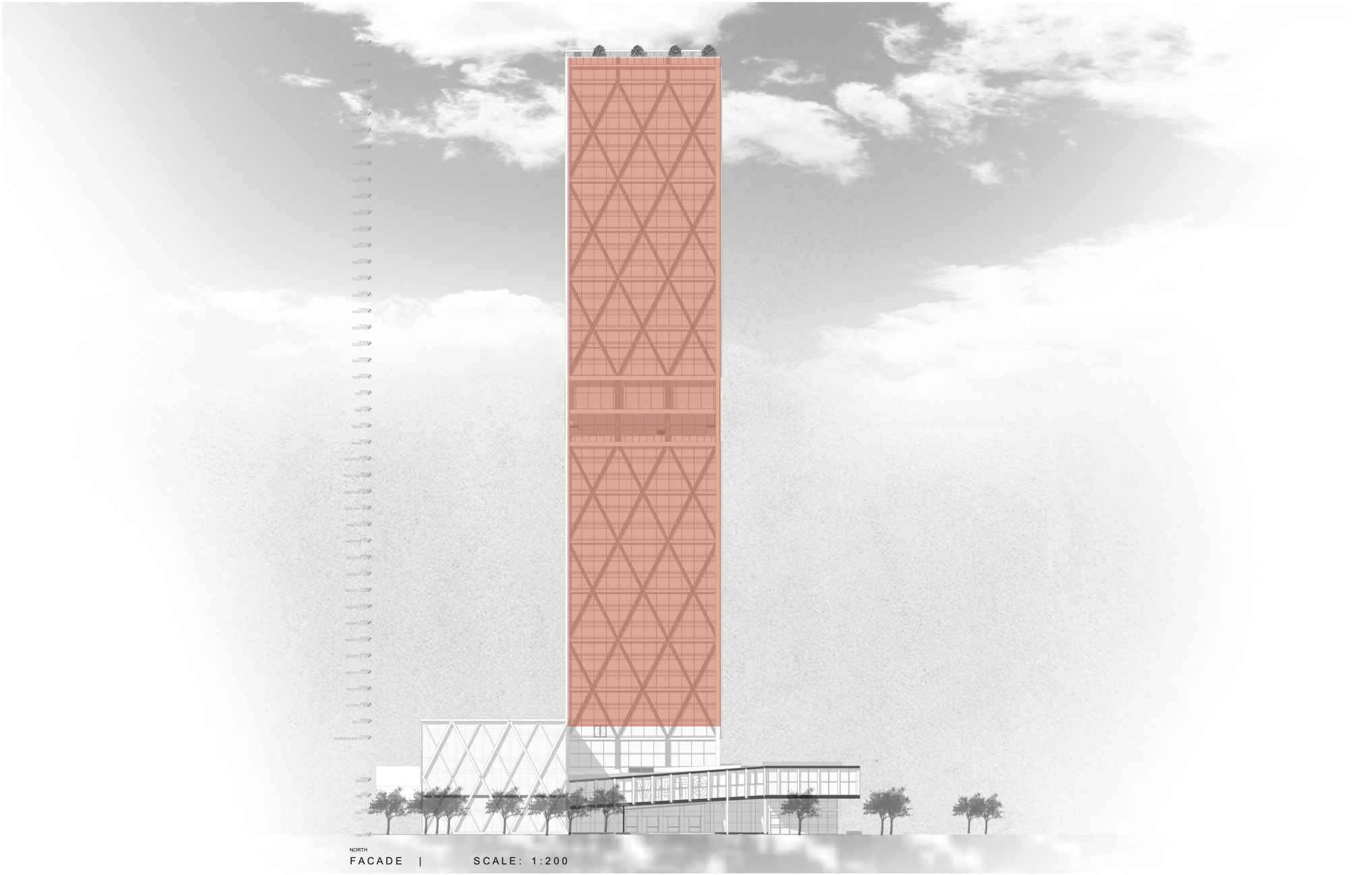


FROM PUBLIC LOBBY TO TOWER



NORTH
FACADE | SCALE: 1:200

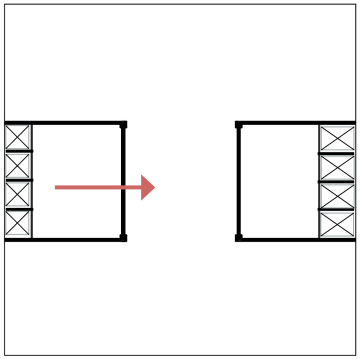
FROM PUBLIC LOBBY TO TOWER



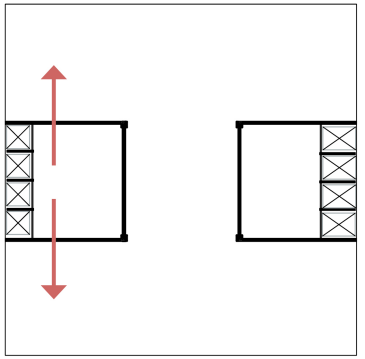
NORTH
FACADE | SCALE: 1:200

SPLIT CORE CONCEPT

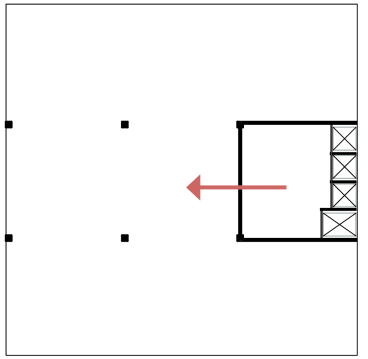
Concept



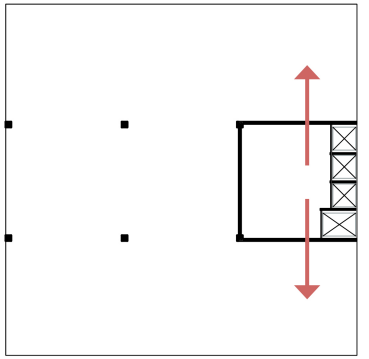
Double Core ; centralised
Lower Tower



Double Core ; sideways
Lower Tower



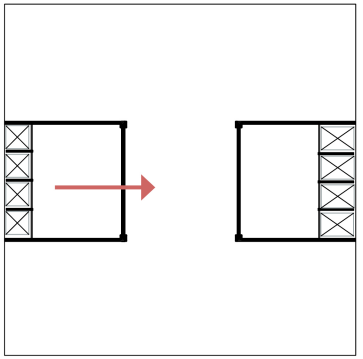
Single Core ; Centralised
Higher Tower



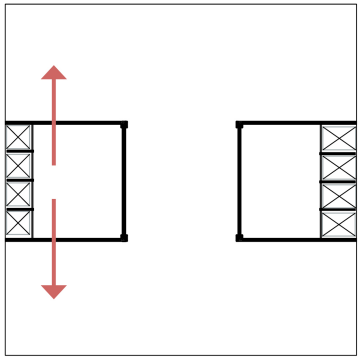
Single Core ; Sideways
Higher Tower

SPLIT CORE CONCEPT

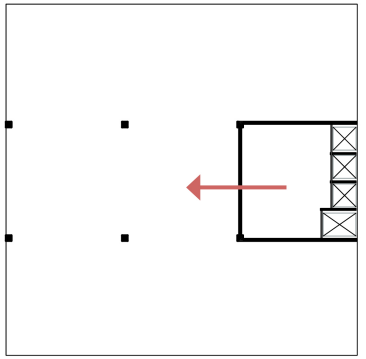
Concept



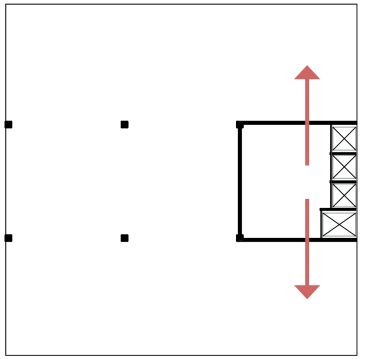
Double Core ; centralised
Lower Tower



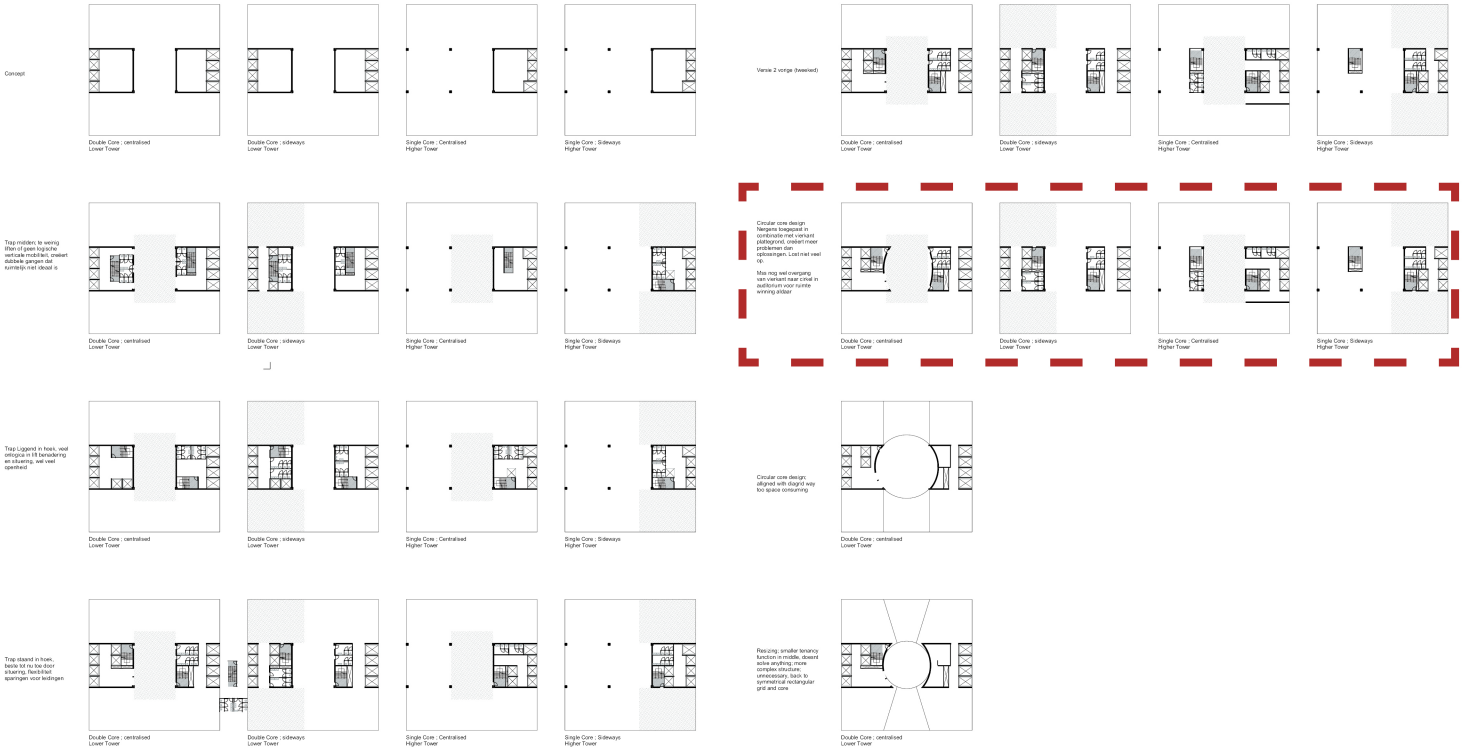
Double Core ; sideways
Lower Tower



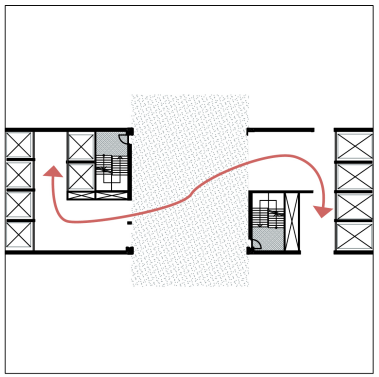
Single Core ; Centralised
Higher Tower



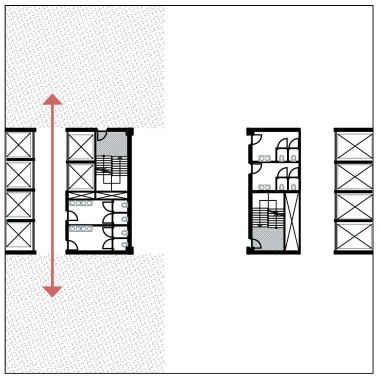
Single Core ; Sideways
Higher Tower



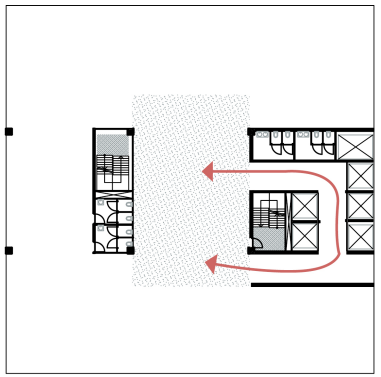
SPLIT CORE CONCEPT



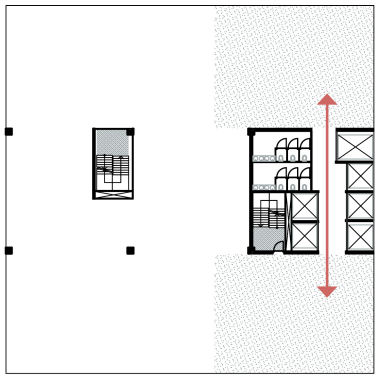
Double Core ; centralised
Lower Tower



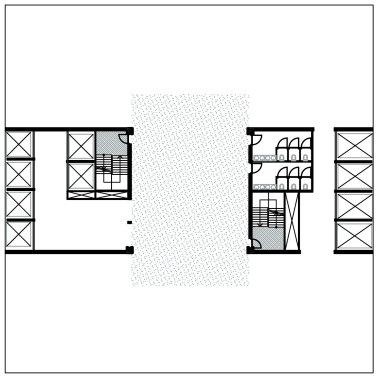
Double Core ; sideways
Lower Tower



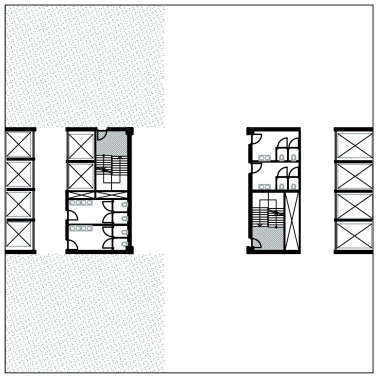
Single Core ; Centralised
Higher Tower



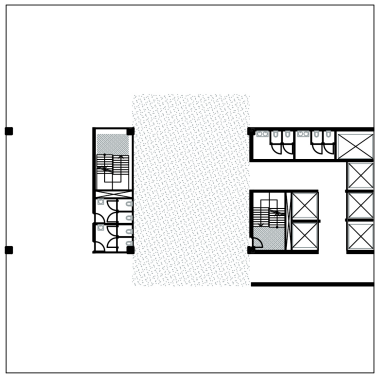
Single Core ; Sideways
Higher Tower



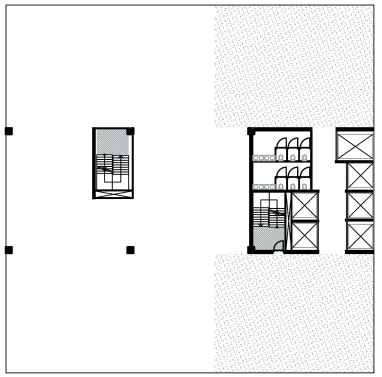
Double Core ; centralised
Lower Tower



Double Core ; sideways
Lower Tower



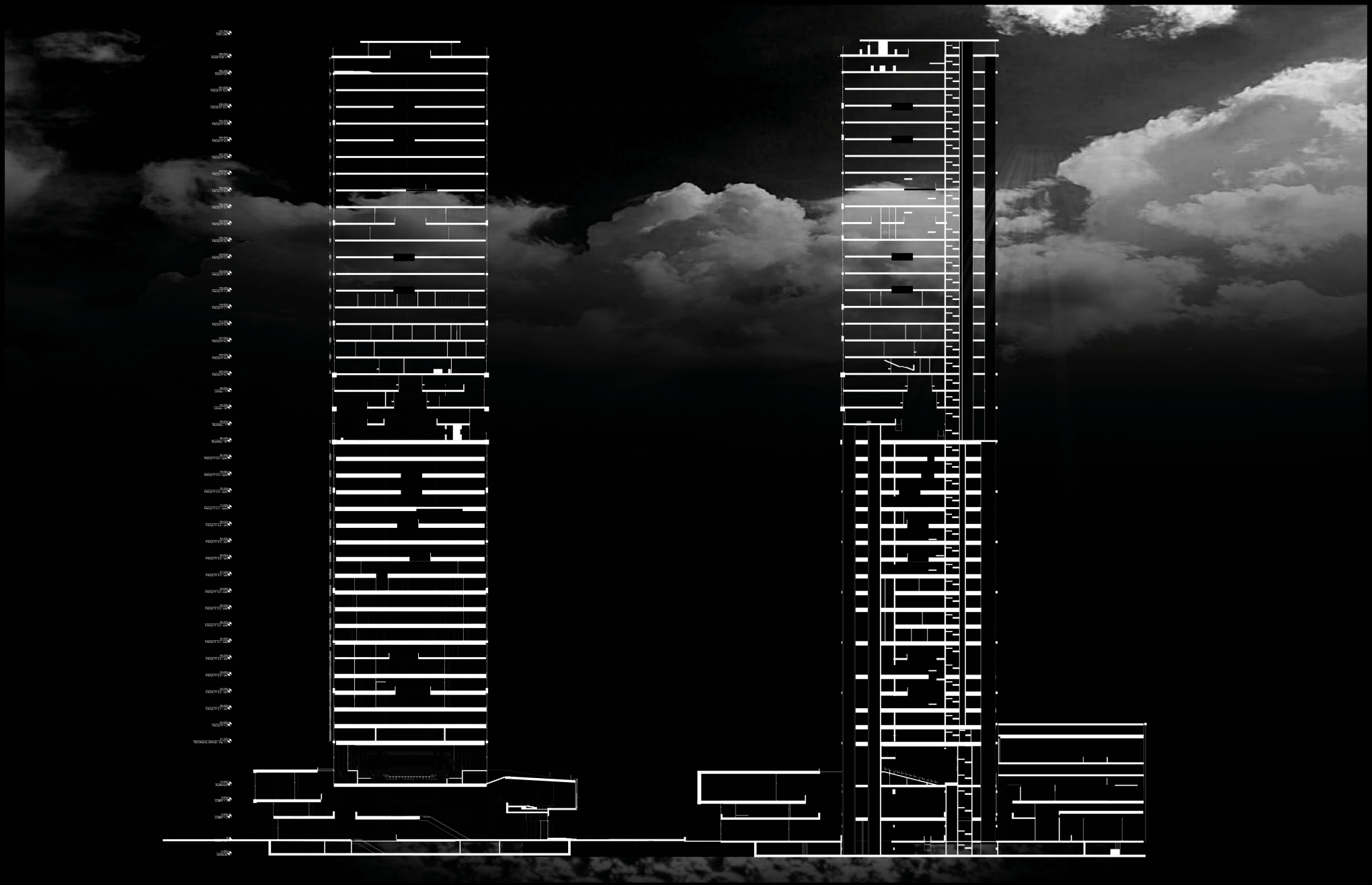
Single Core ; Centralised
Higher Tower



Single Core ; Sideways
Higher Tower

Design

VERTICAL JOURNEY UPWARDS



Vertical High Tech Campus

Hotel New York

TILTED ENTRANCE TOWER ELEVATORS



PUBLIC SEPARATED ; COLLECTIVE INTERACTIVE



Vertical High Tech Campus

Hotel New York

Design

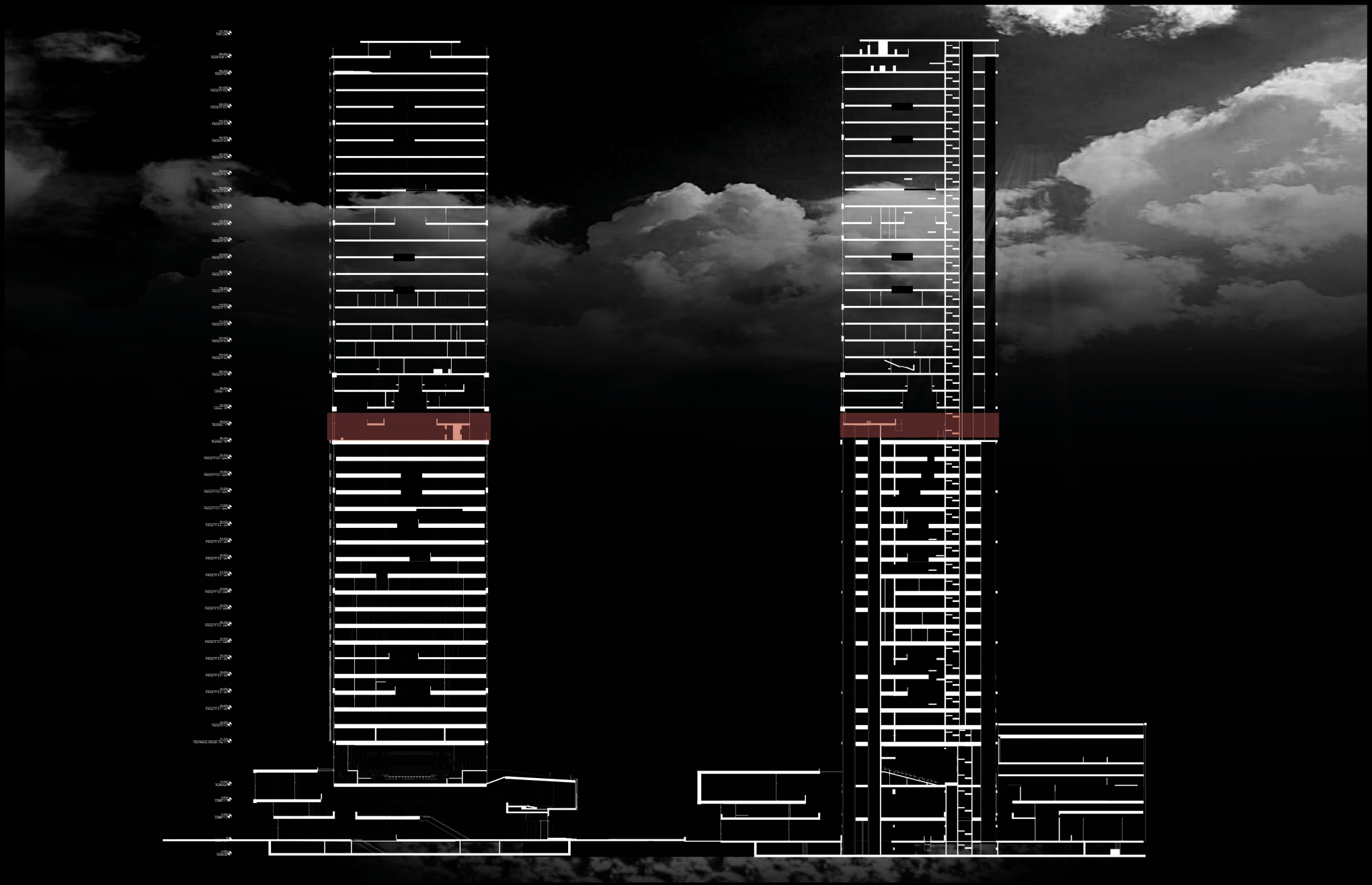
VISUALLY INTERACTIVE TO URBAN CONTEXT



Vertical High Tech Campus

Hotel New York

INCEDENTAL MEETING INTERACTIVE



Design

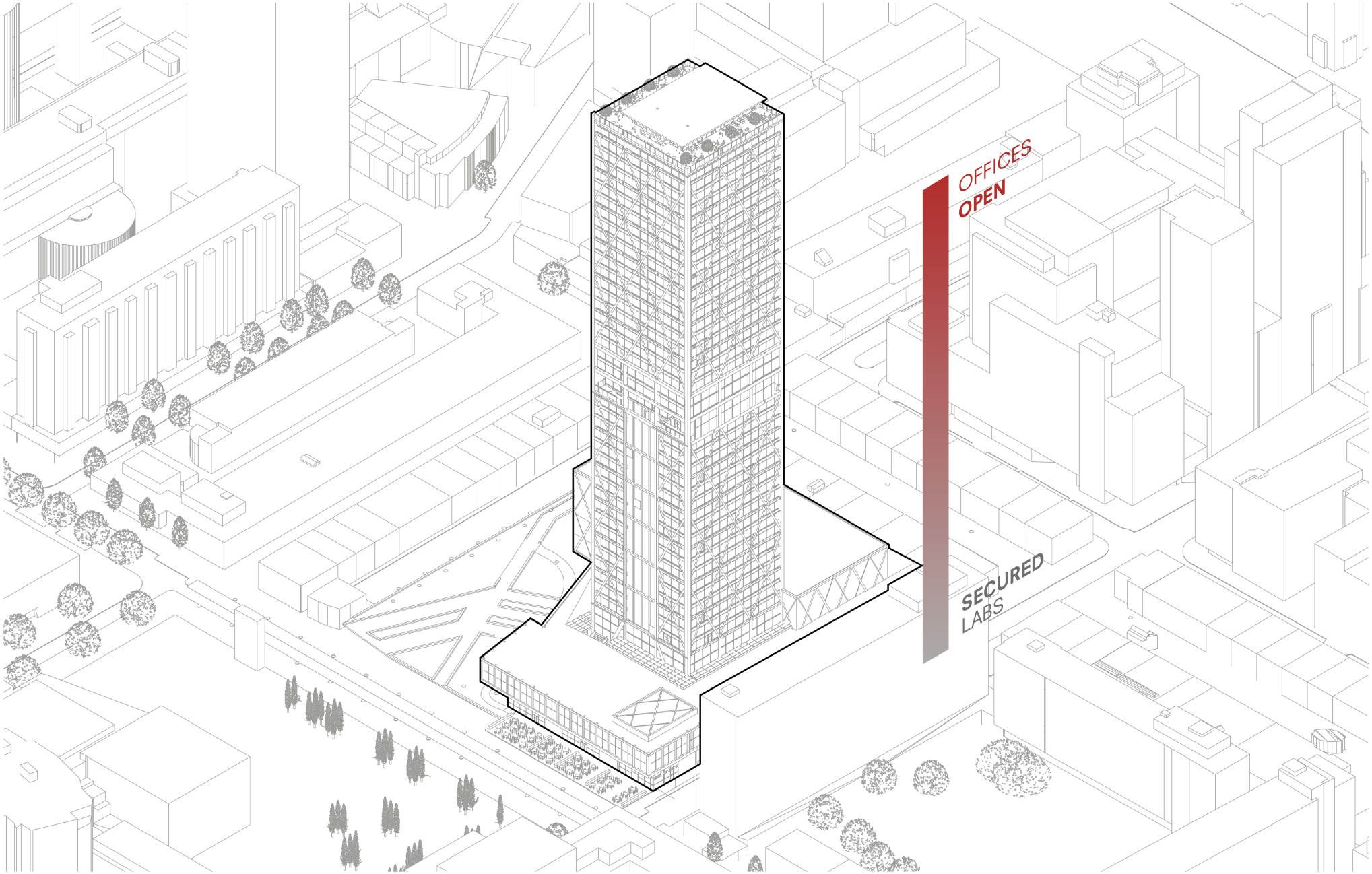
VISUALLY INTERACTIVE TO URBAN CONTEXT



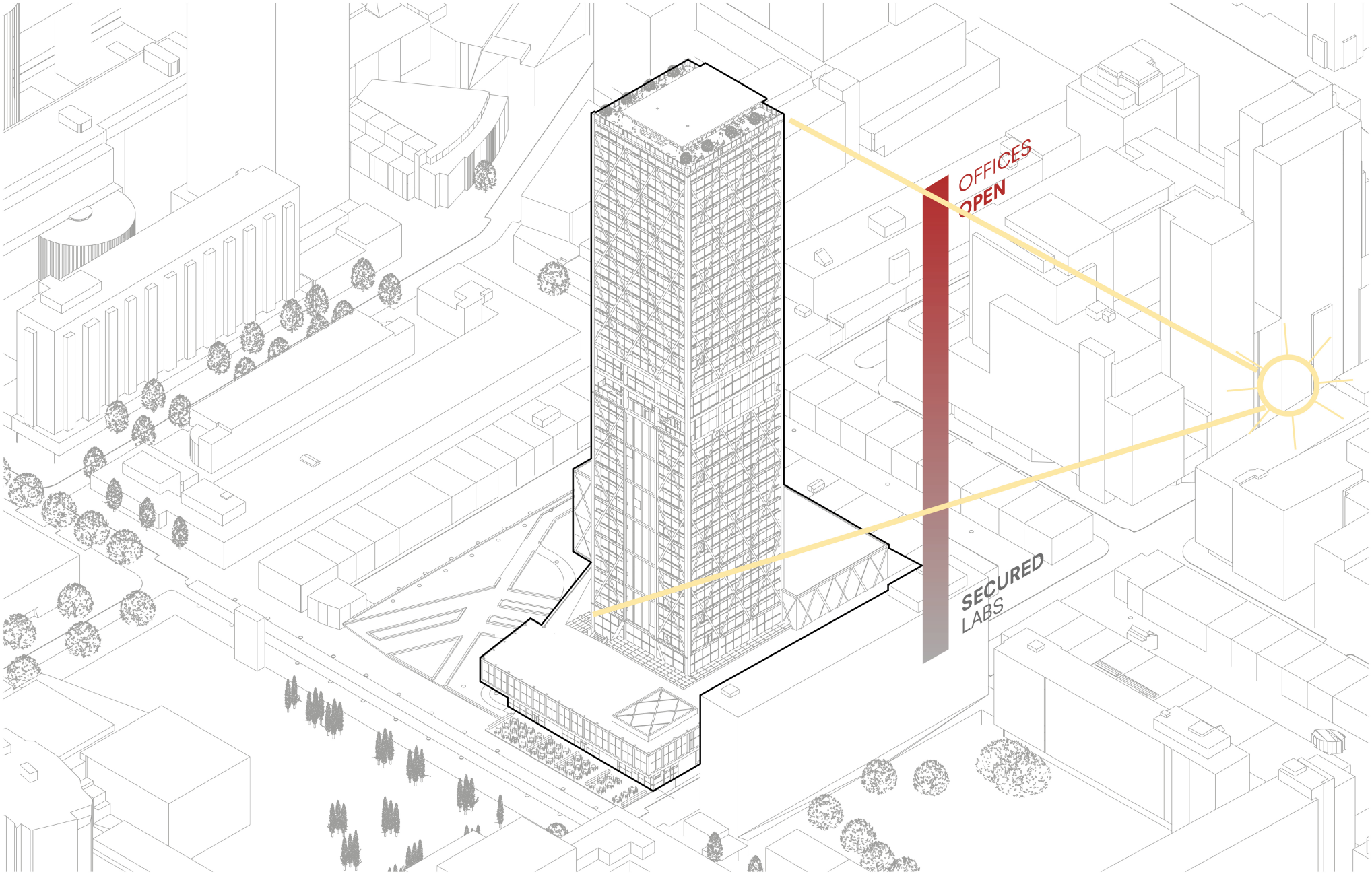
Vertical High Tech Campus

Hotel New York

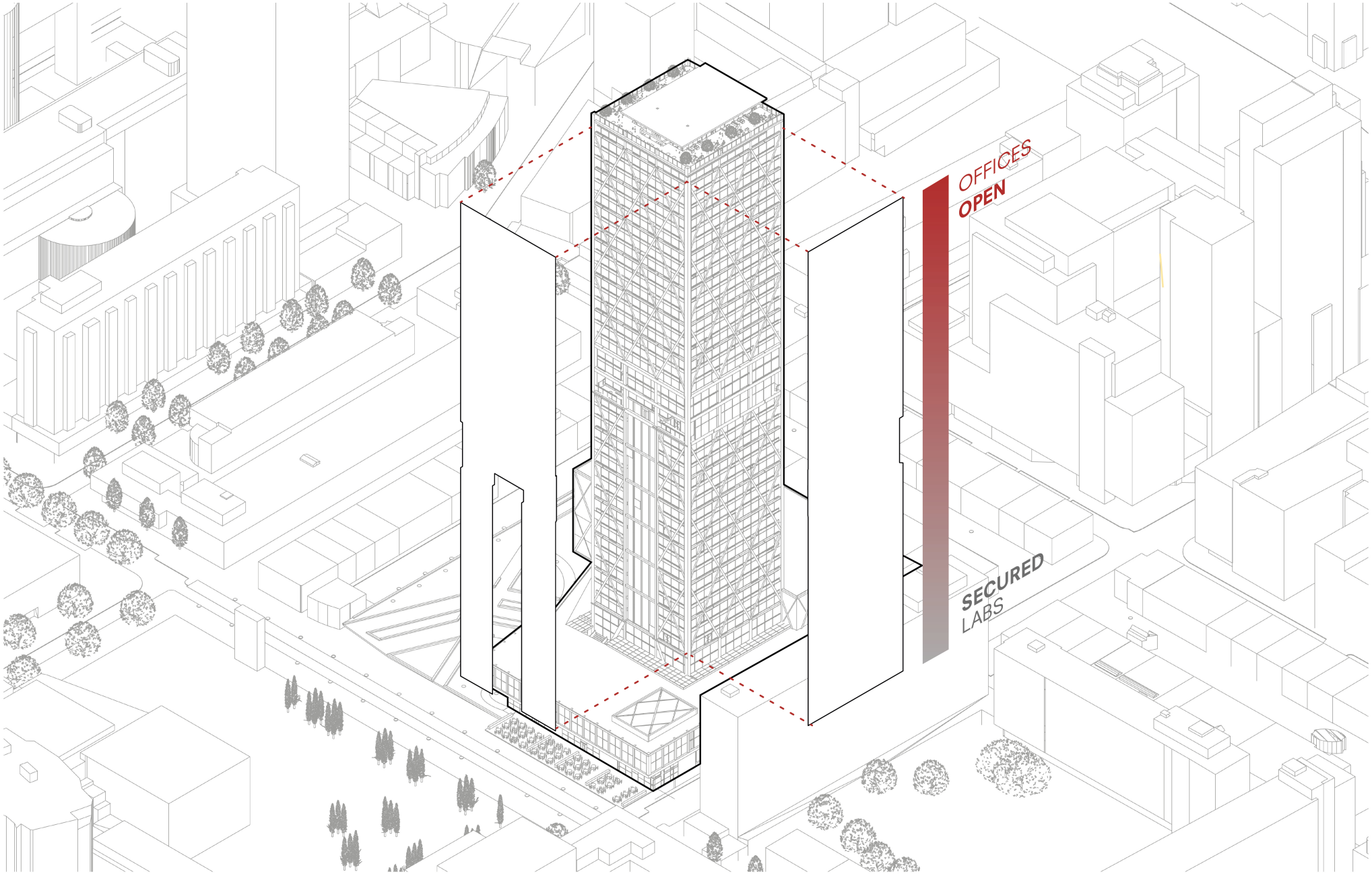
SOUTH ORIENTATION



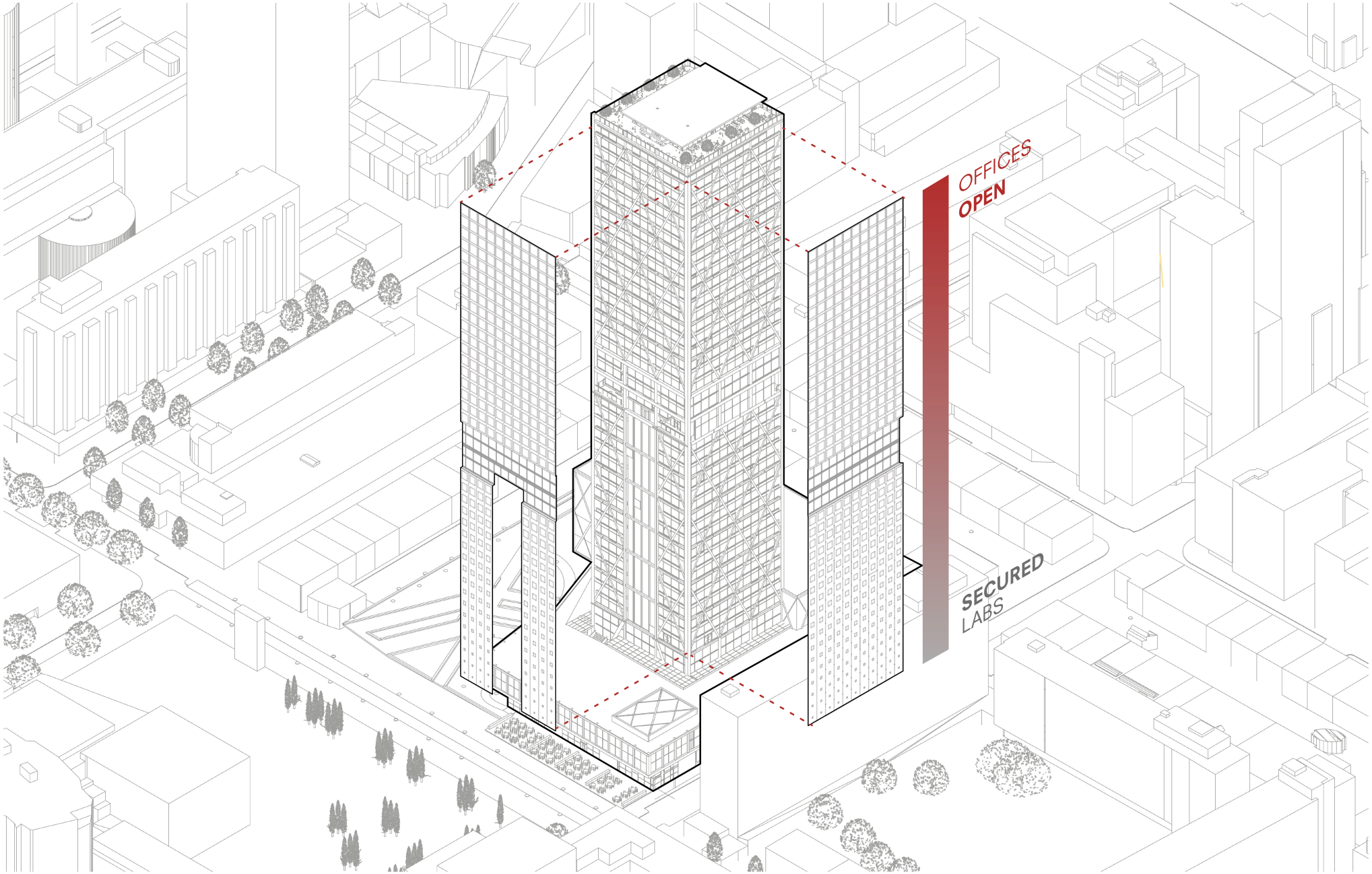
SOUTH ORIENTATION



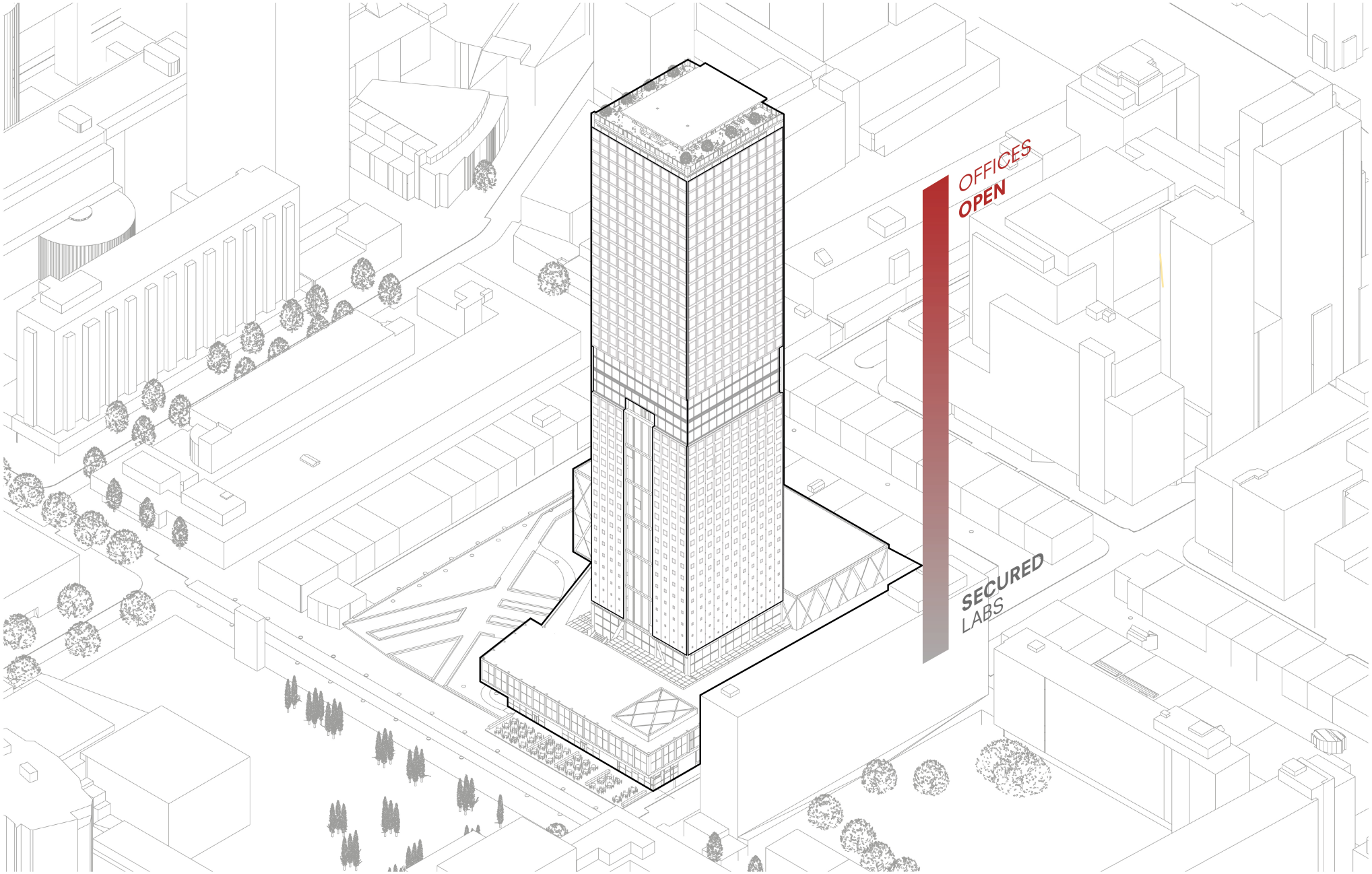
SEMI TRANSPARANT GRADIENT IN RELATION TO FUNCTIONS



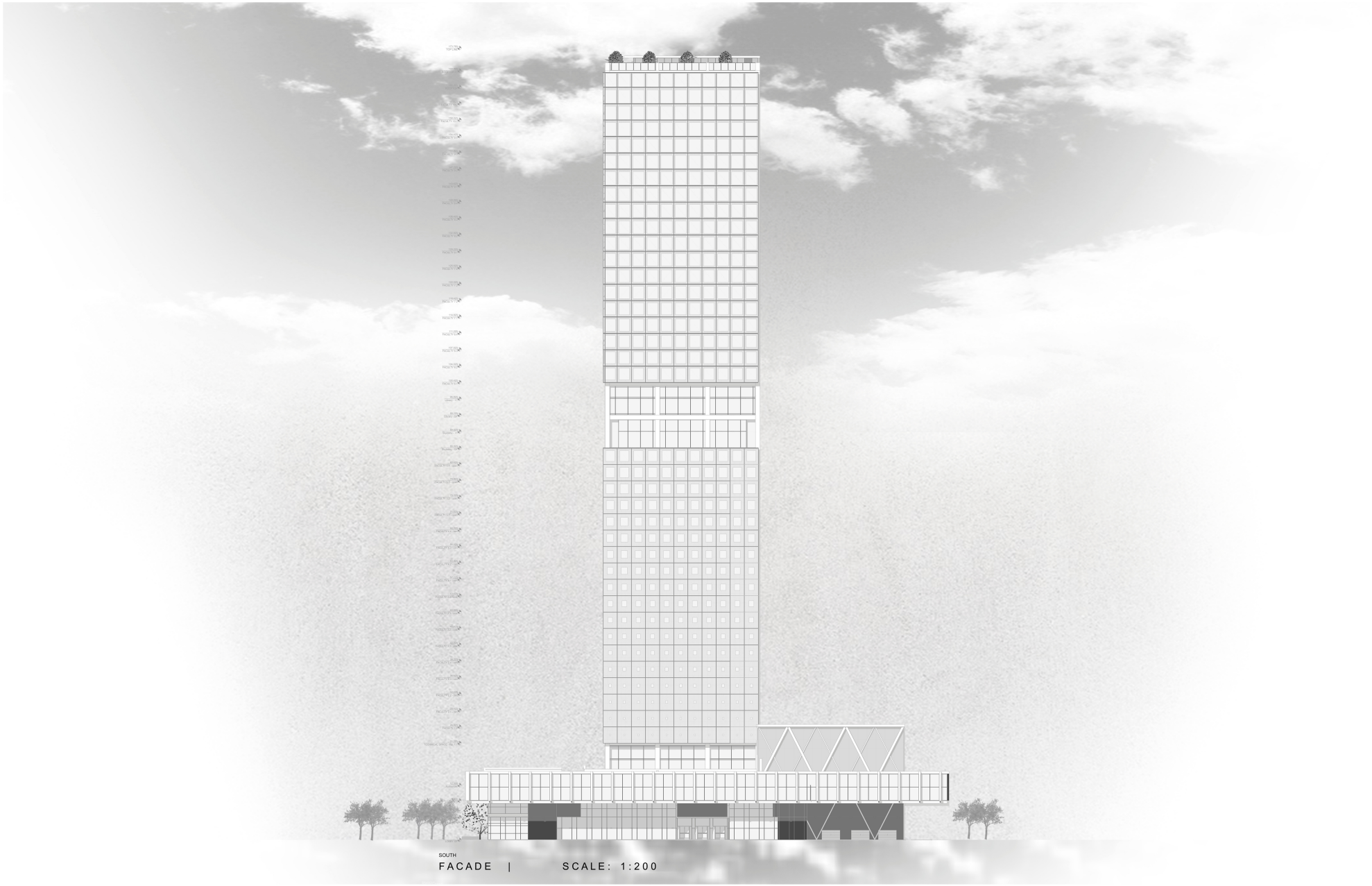
SEMI TRANSPARANT GRADIENT IN RELATION TO FUNCTIONS



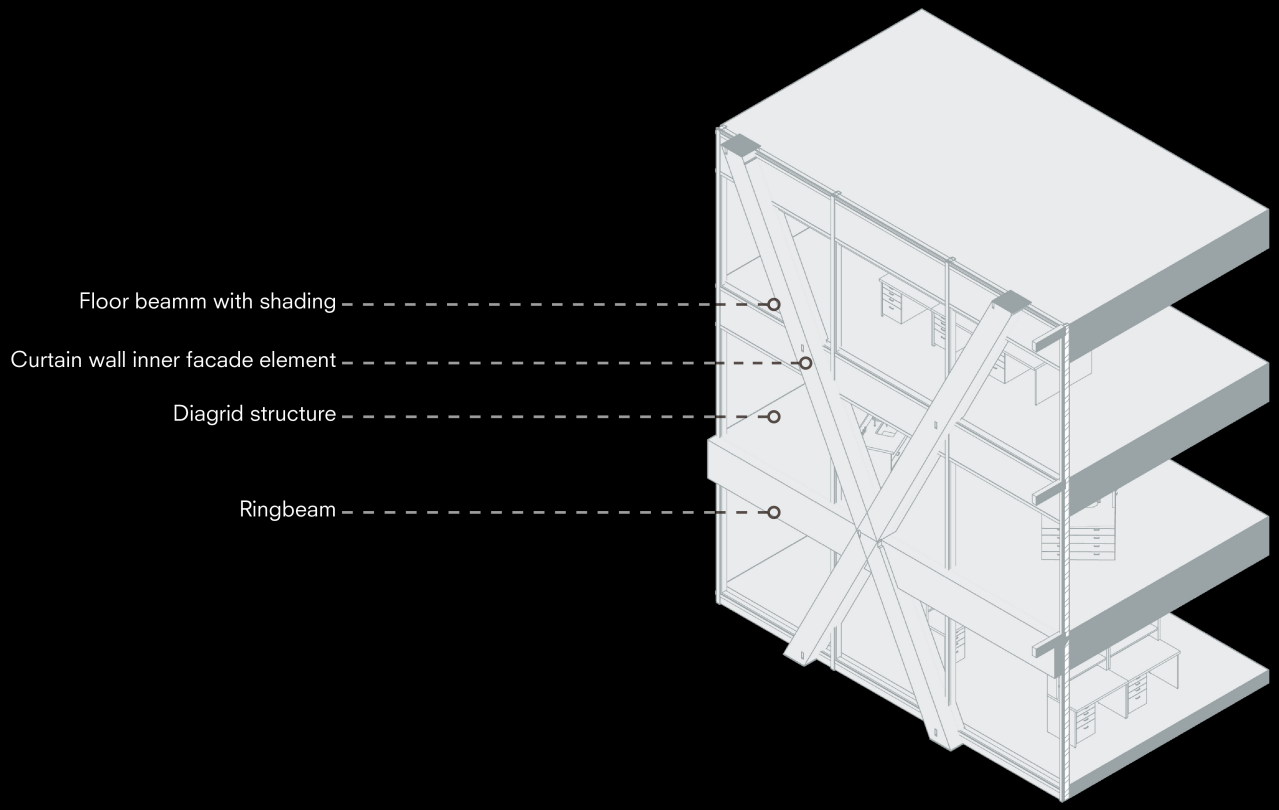
SEMI TRANSPARANT GRADIENT IN RELATION TO FUNCTIONS



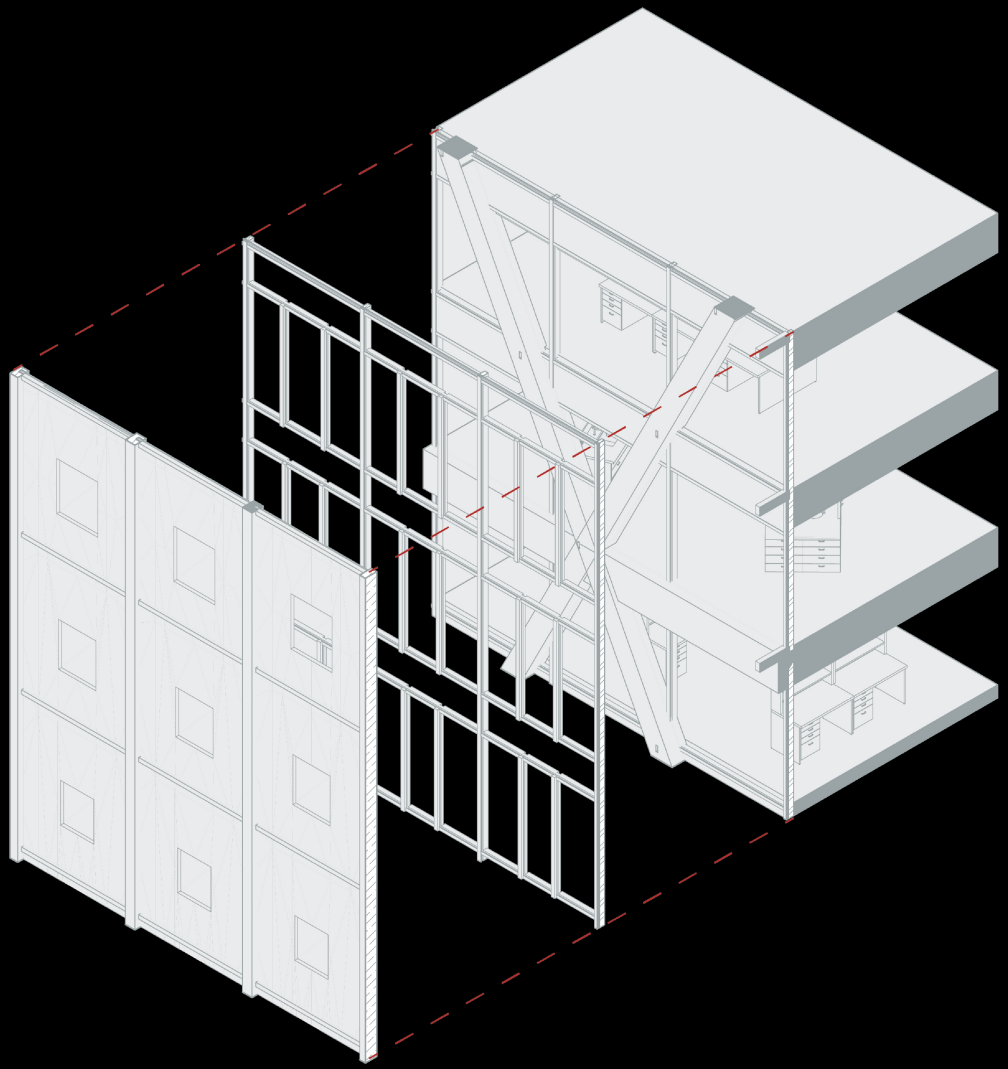
SOUTH FACADE



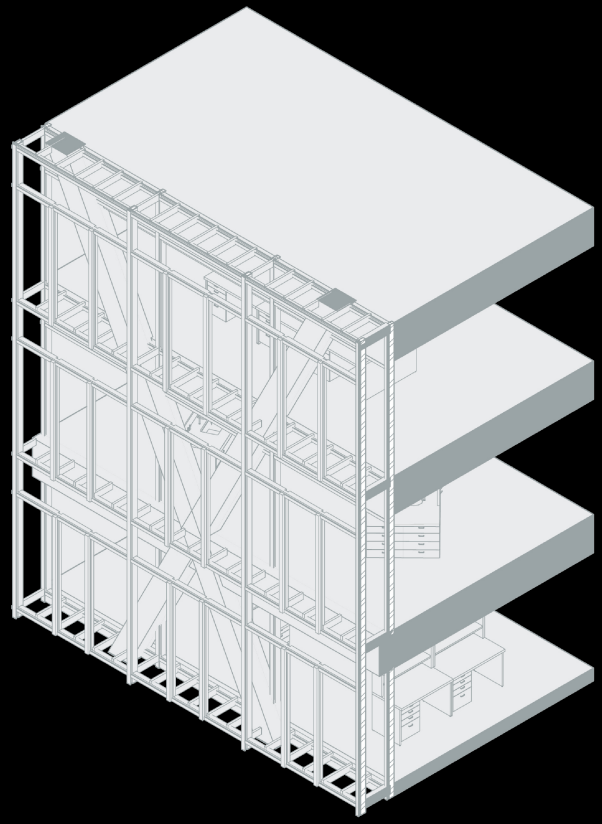
CLIMATE FACADE SECTION



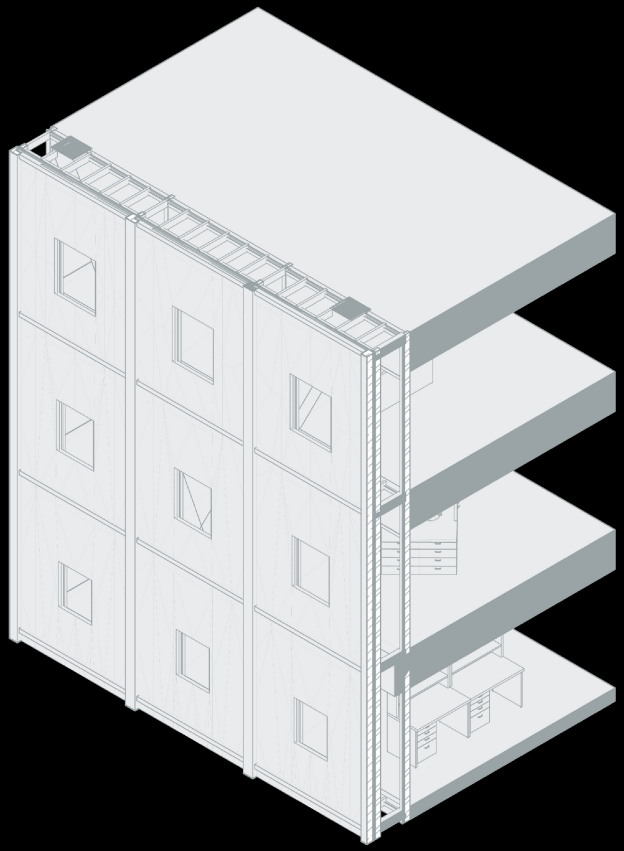
CLIMATE FACADE SECTION



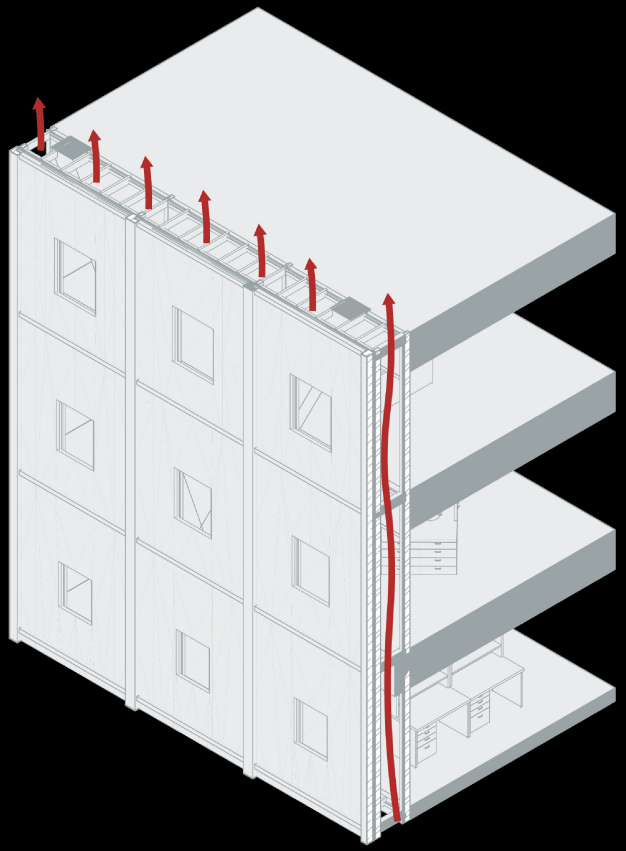
CLIMATE FACADE SECTION



CLIMATE FACADE SECTION

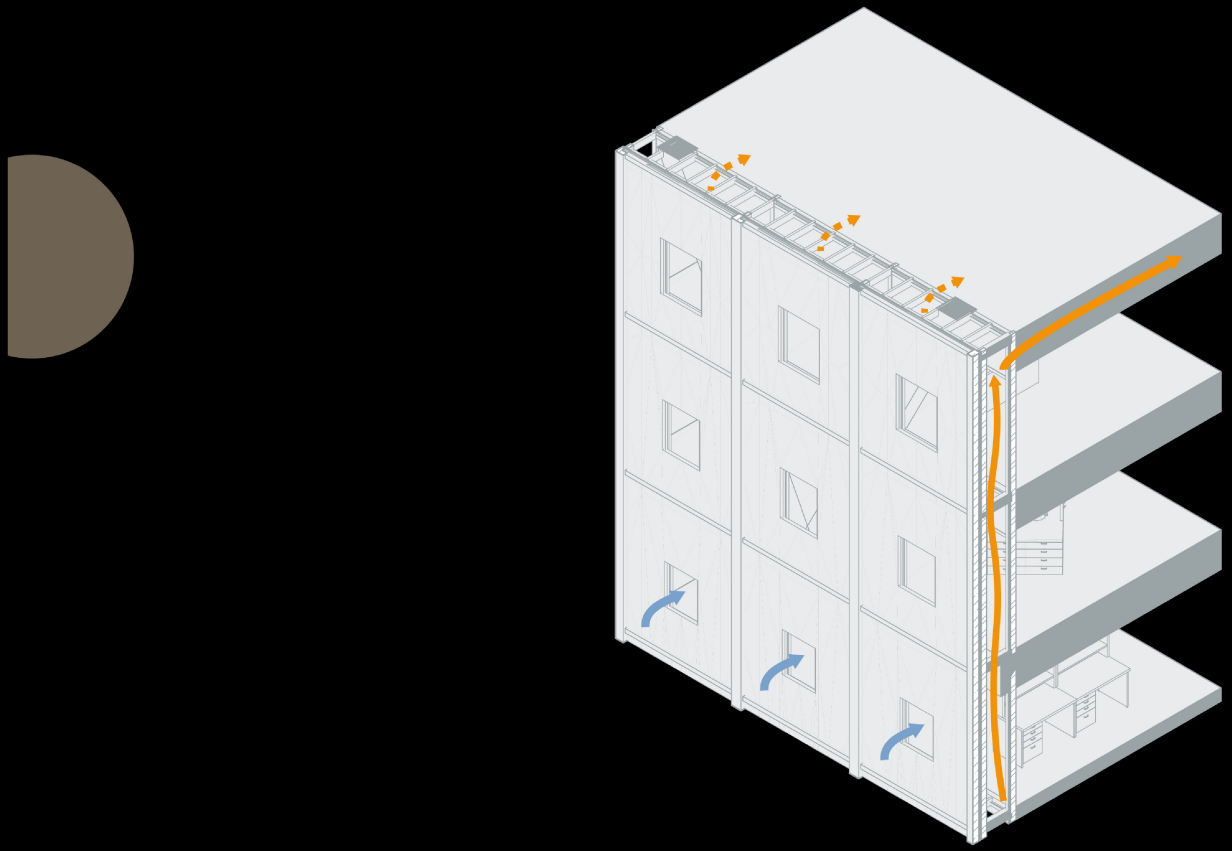


CLIMATE FACADE SECTION



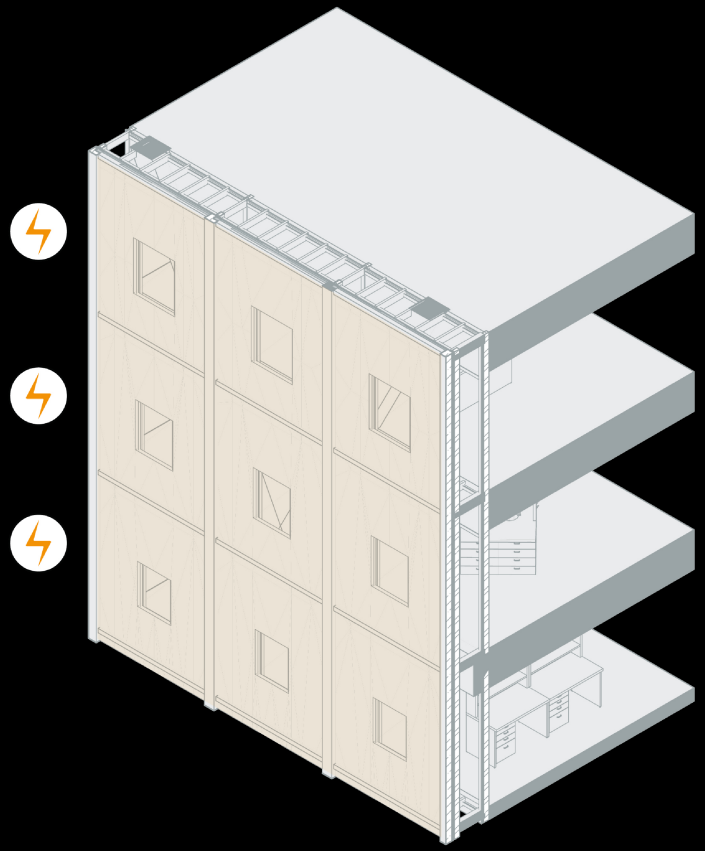
SUMMER

CLIMATE FACADE SECTION



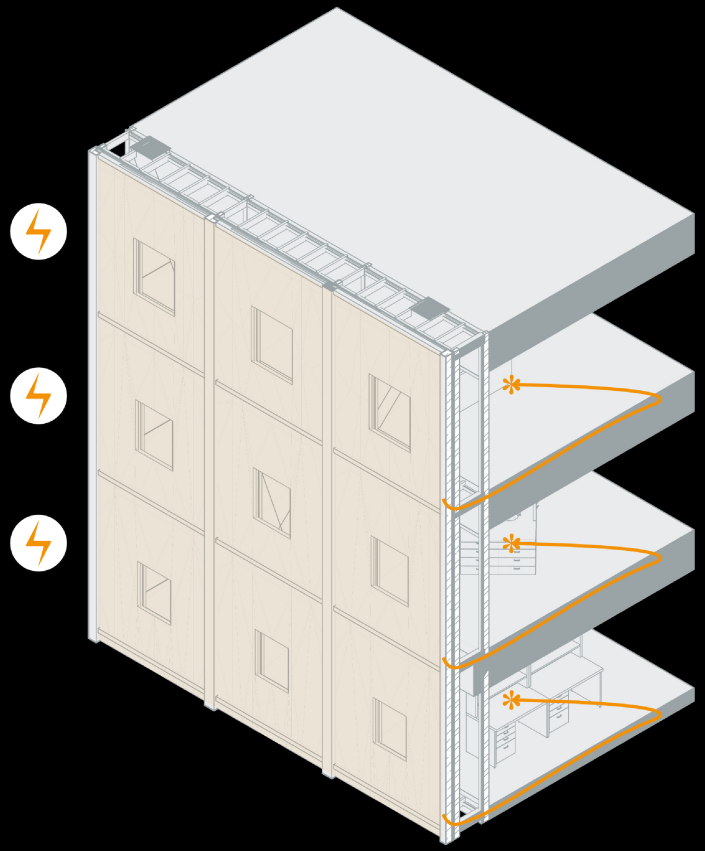
WINTER

CLIMATE FACADE SECTION



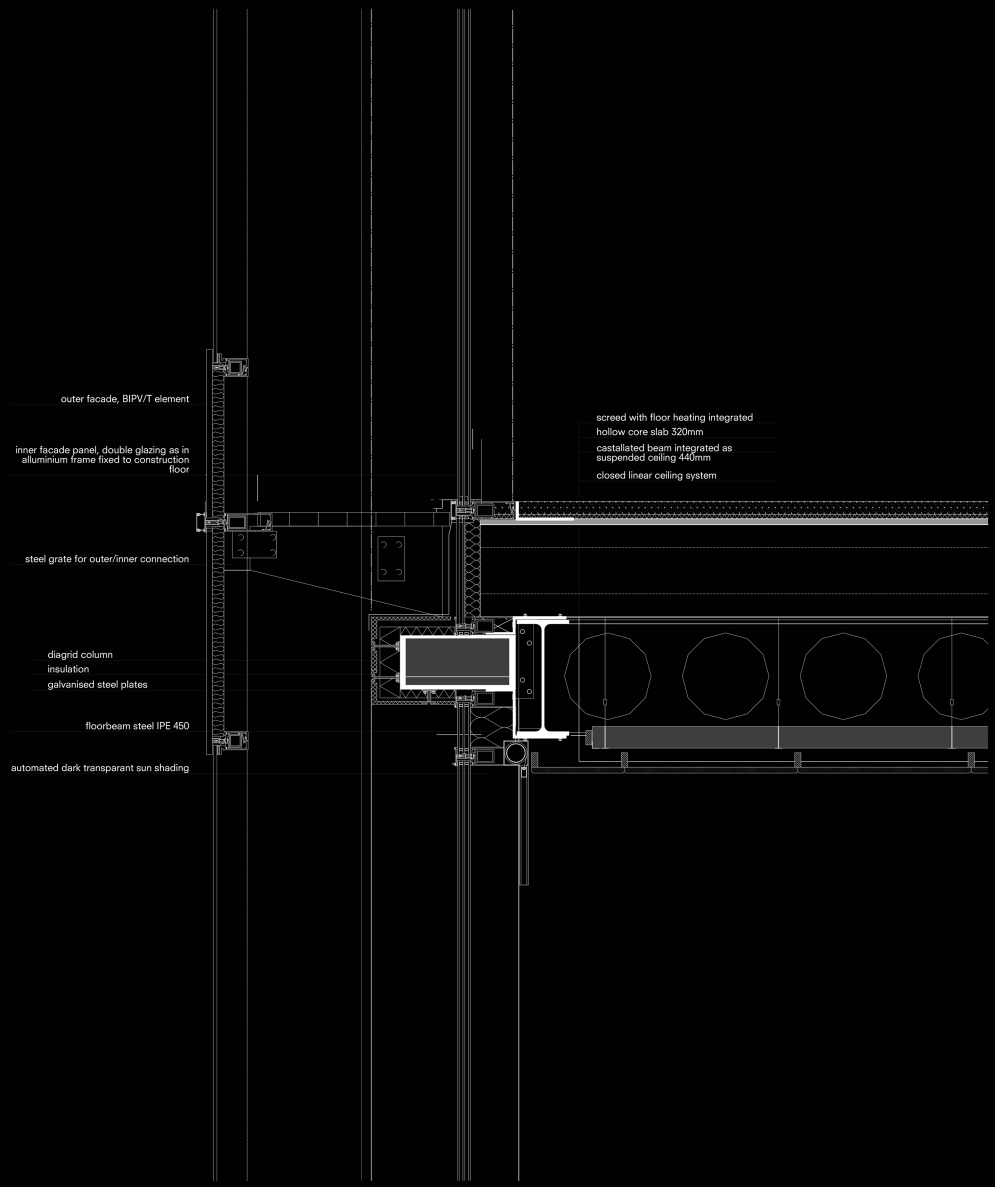
BIPV/t facade

CLIMATE FACADE SECTION

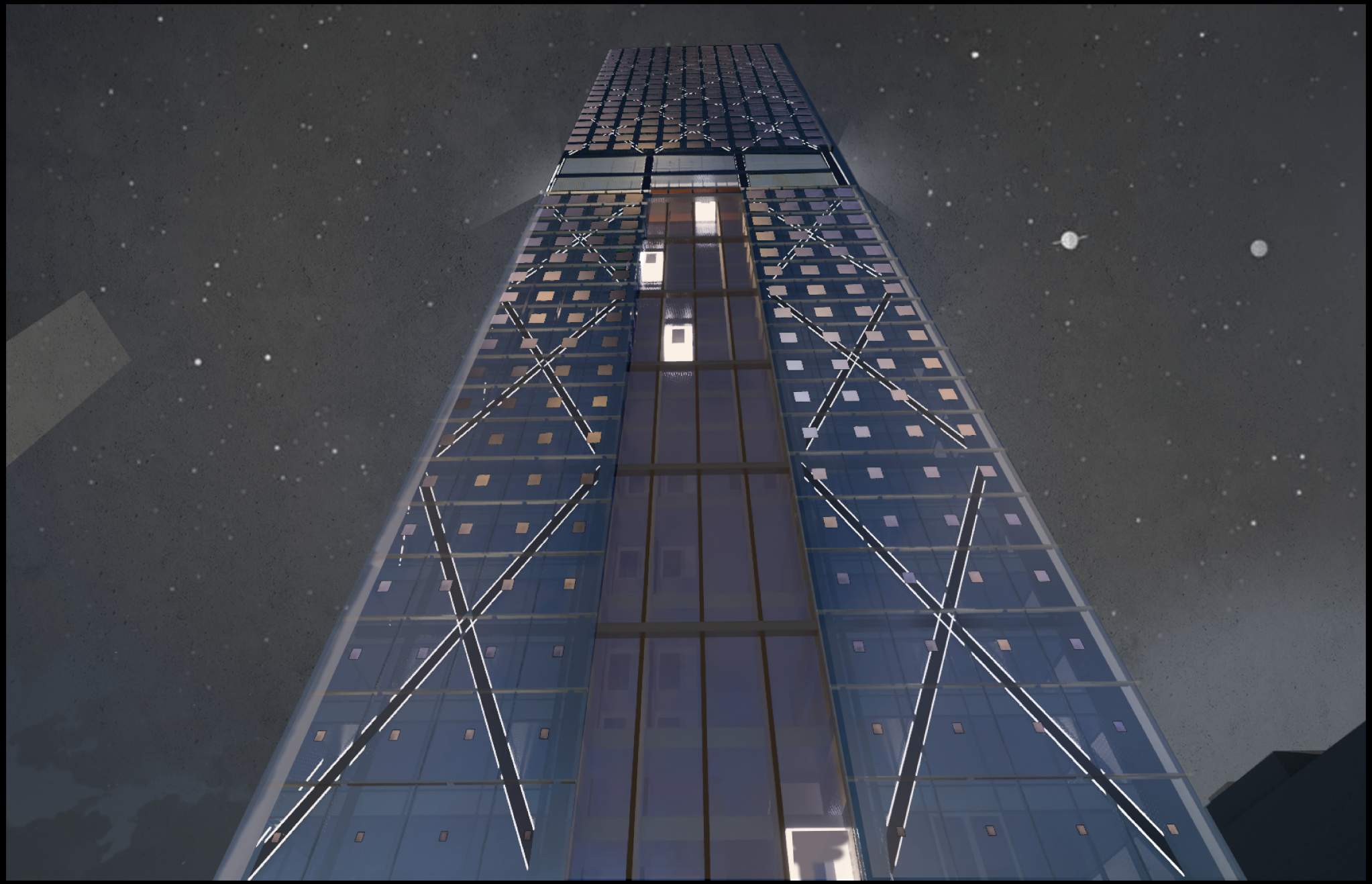


BIPV/t facade

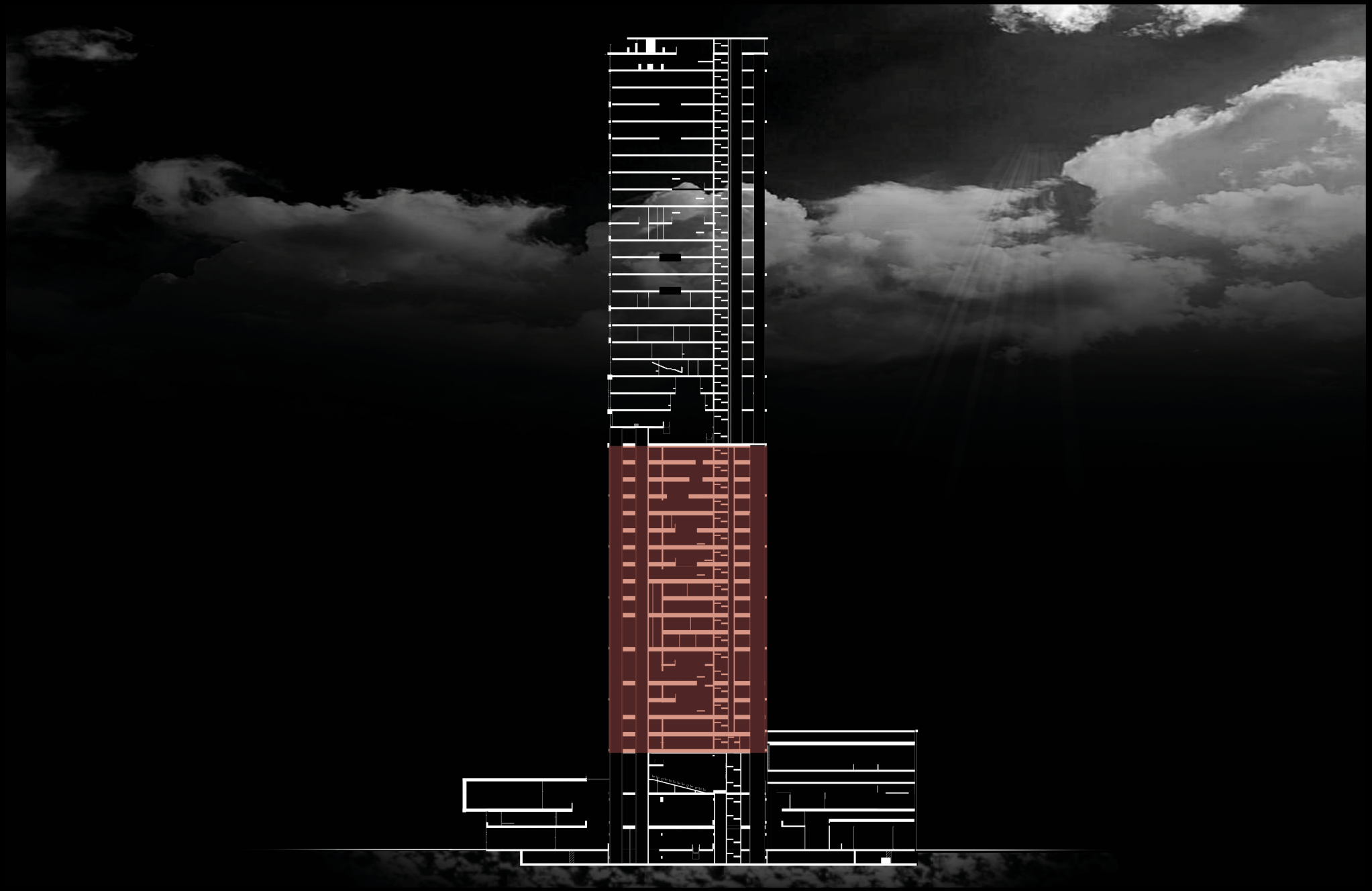
DETAIL CLIMATE FACADE JOINT



BEACON OF GRADIENT LIGHT



LOWER TOWER



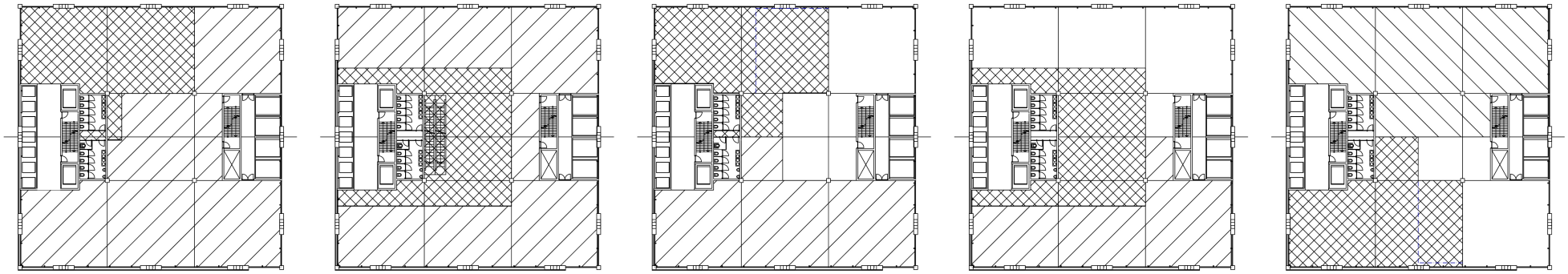
MIXED OFFICE PLANS: FACULTIES

Interactive

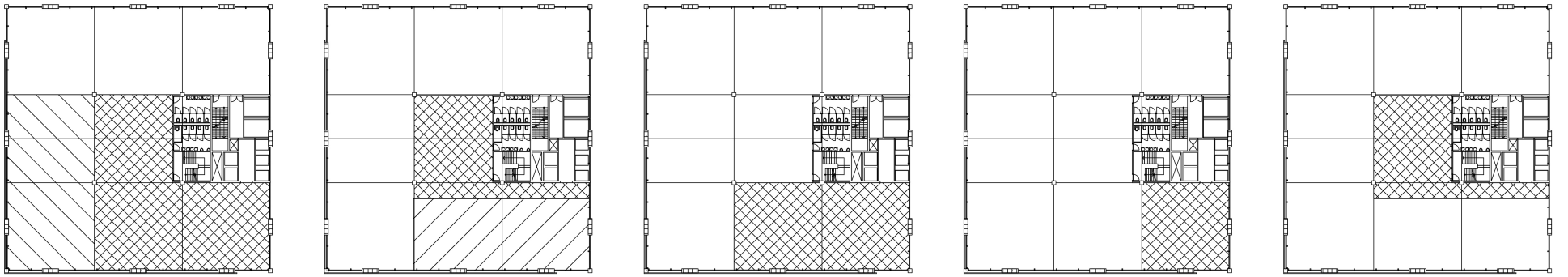
Labs

Office

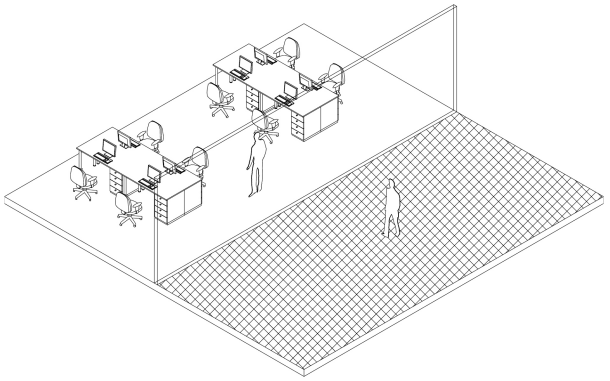
Lower Tower (Double core)



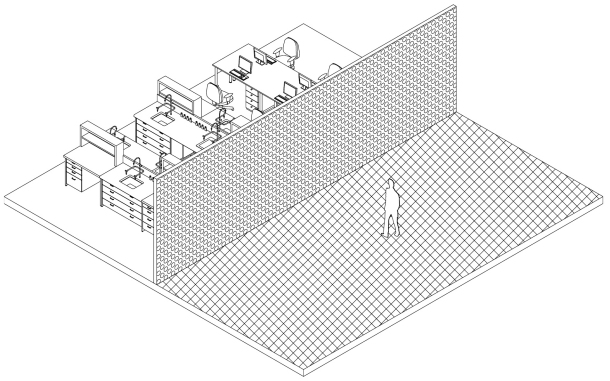
Upper Tower (Single core)



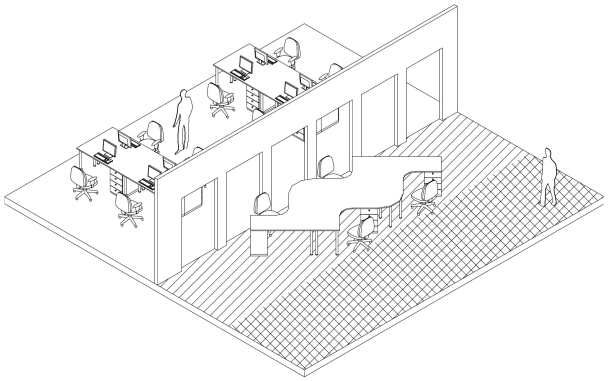
MIXED OFFICE PLANS



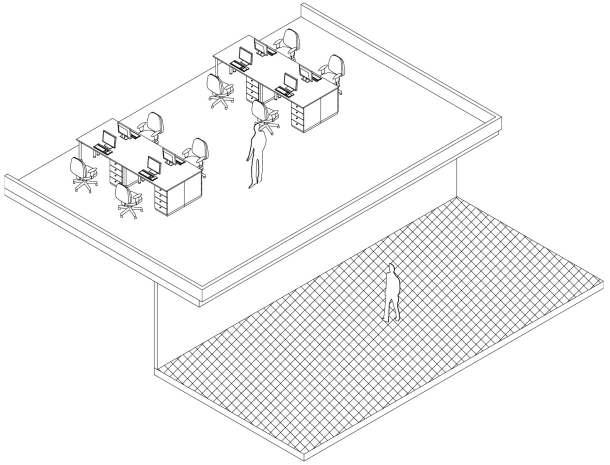
Transparant wall



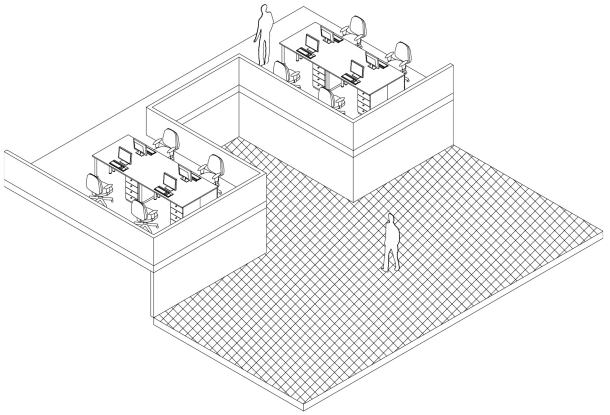
Perforated wall



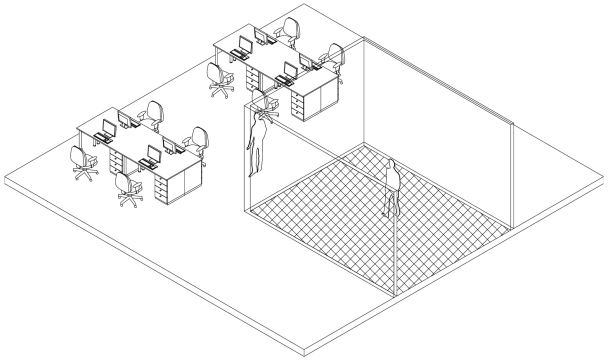
Blurred office boundary open wall



Lifted

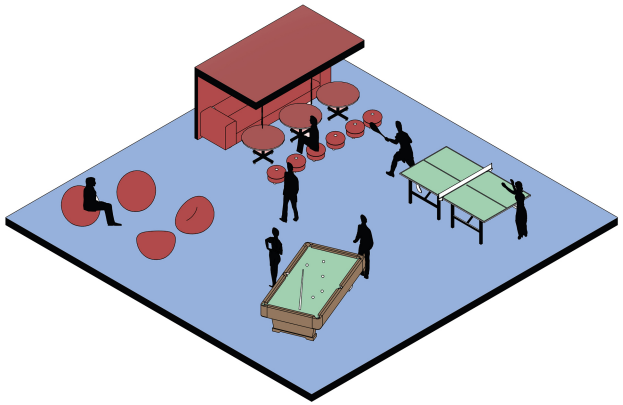


Informal voids

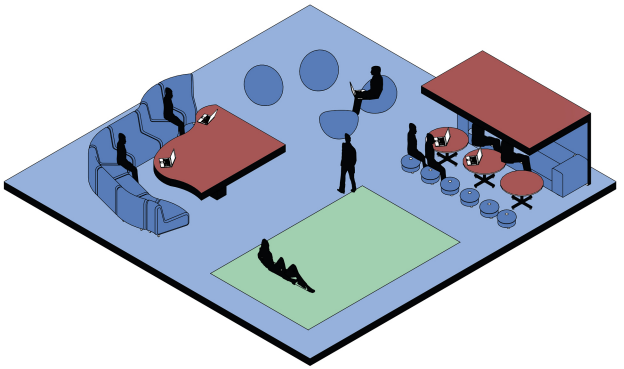


Visual interactive core box

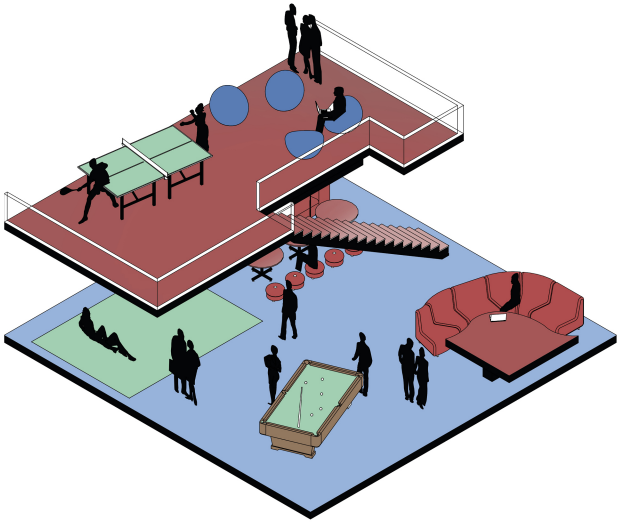
SMALLER INTERACTIVE ZONES IN FACULTIES



Pausing



Studying



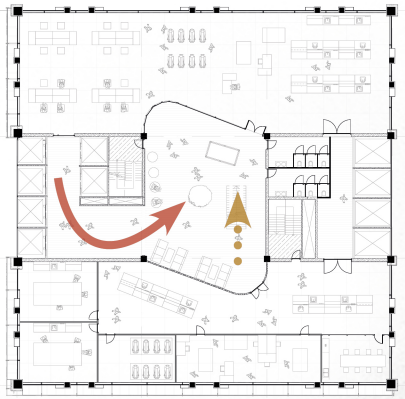
Collaborative meeting

FORMAL AND INFORMAL ROUTE



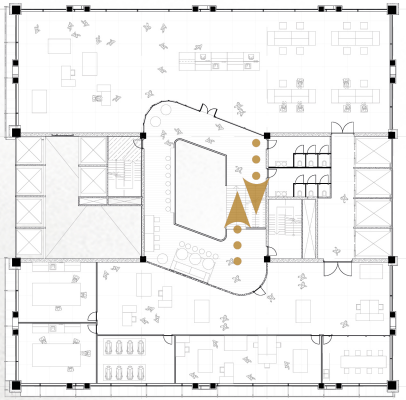
CENTRALISED ORIENTED FACULTY

FLOOR 1



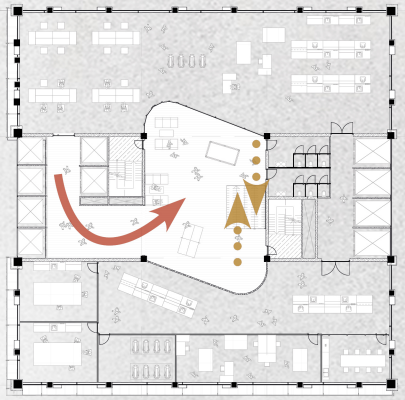
Faculty 2.1 - Centralised
TOWER PLAN | SCALE: 1:200

FLOOR 2



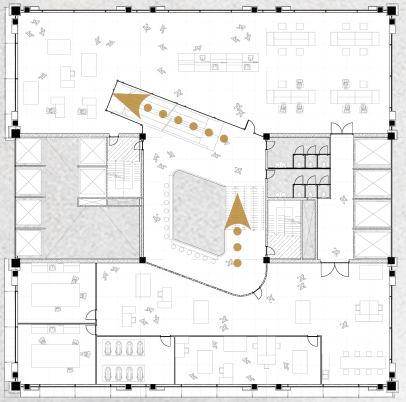
Faculty 2.2 - Centralised
TOWER PLAN | SCALE: 1:200

FLOOR 3

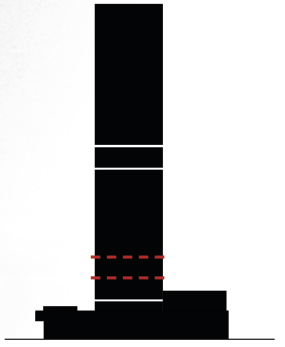


Faculty 2.3 - Centralised
TOWER PLAN | SCALE: 1:200

FLOOR 4



Faculty 2.4 - Centralised
TOWER PLAN | SCALE: 1:200

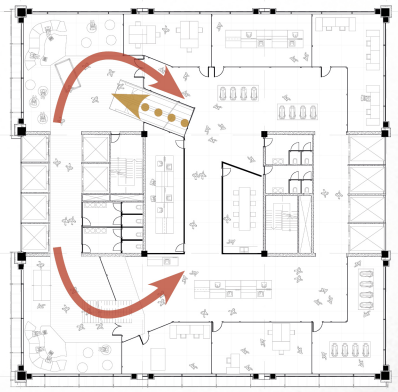


CENTRALISED ORIENTED FACULTY



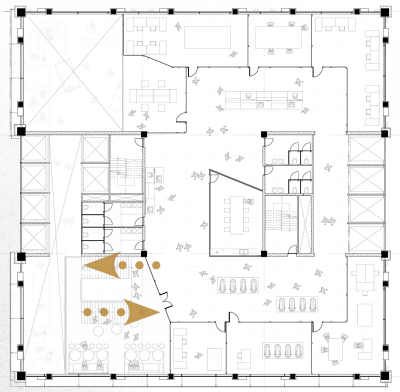
CORNER ORIENTED FACULTY

FLOOR 1



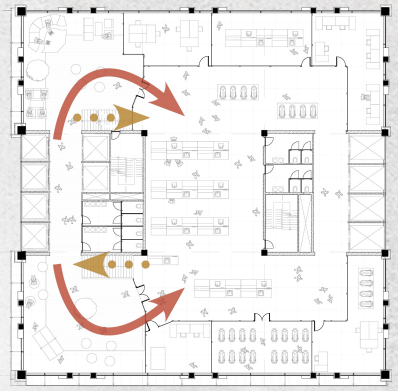
Faculty 3.1 - Side interactive
TOWER PLAN | SCALE: 1:200

FLOOR 2



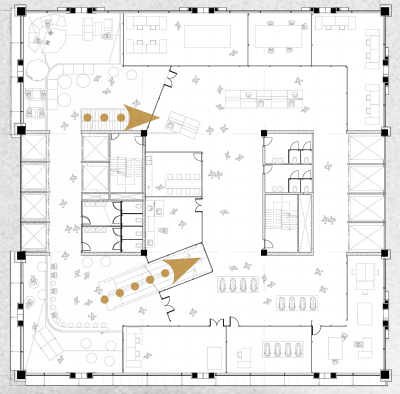
Faculty 3.2 - Side interactive
TOWER PLAN | SCALE: 1:200

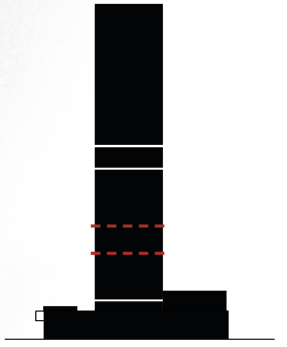
FLOOR 3



Faculty 3.3 - Side interactive
TOWER PLAN | SCALE: 1:200

FLOOR 4





CORNER ORIENTED FACULTY

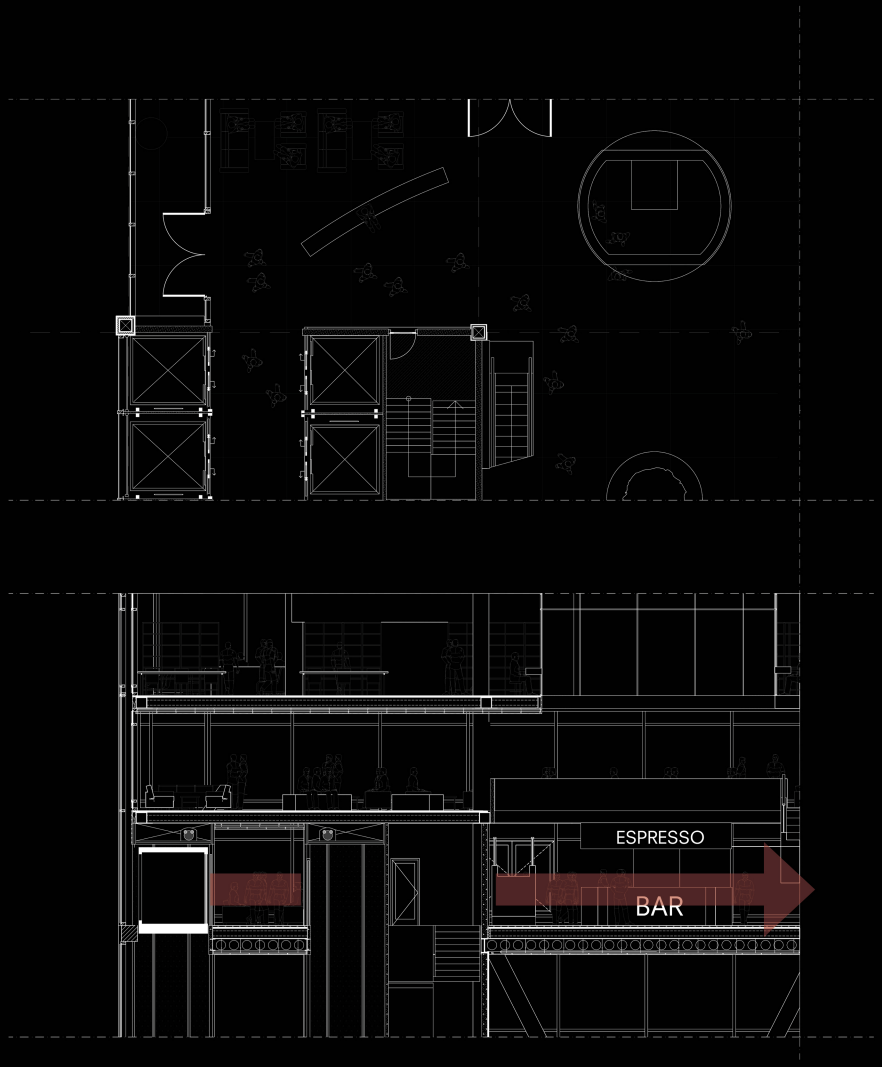


CENTRALISED INTERACTIVE SPACE OF THE SKYLOBBY

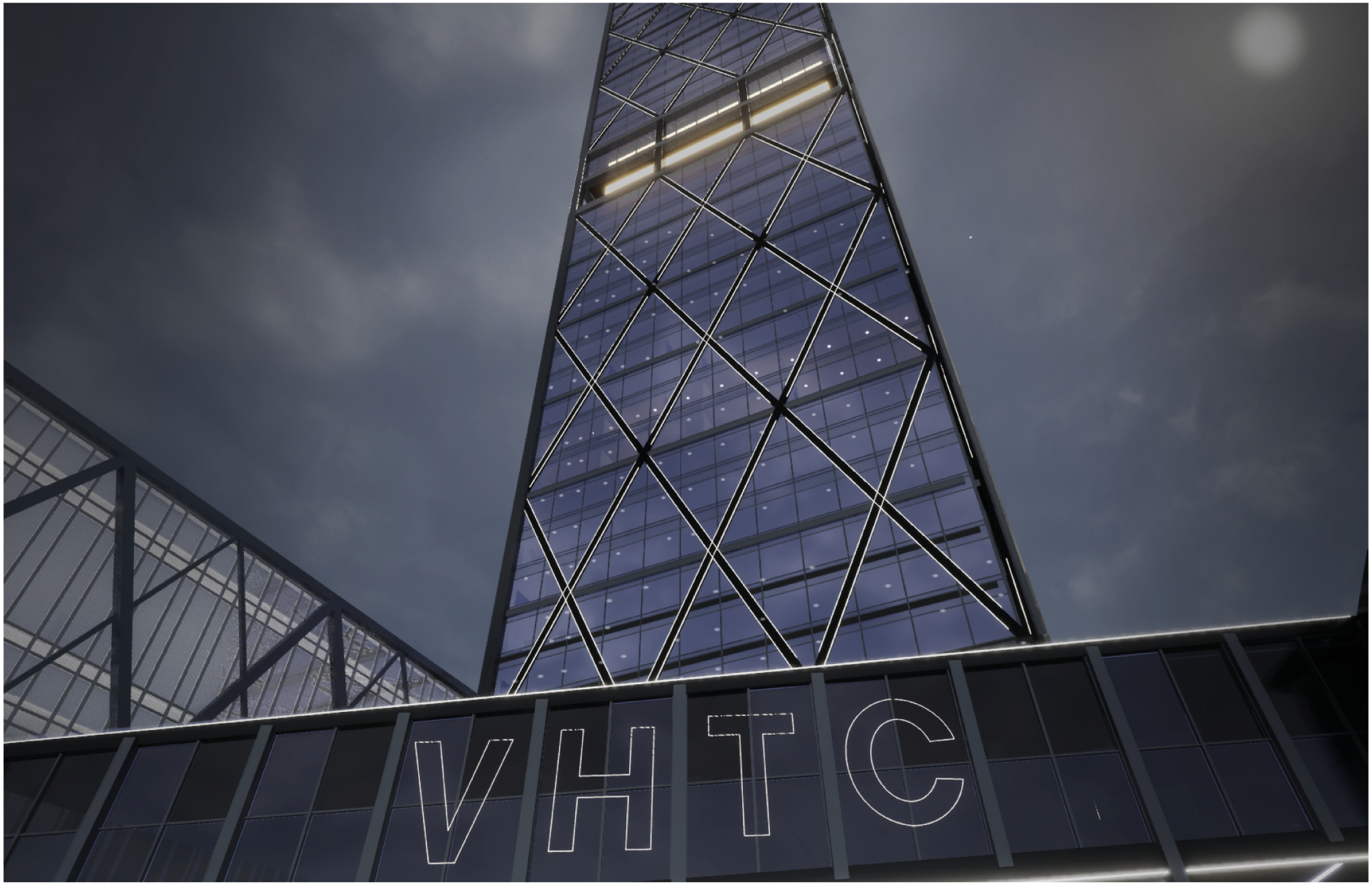


Design

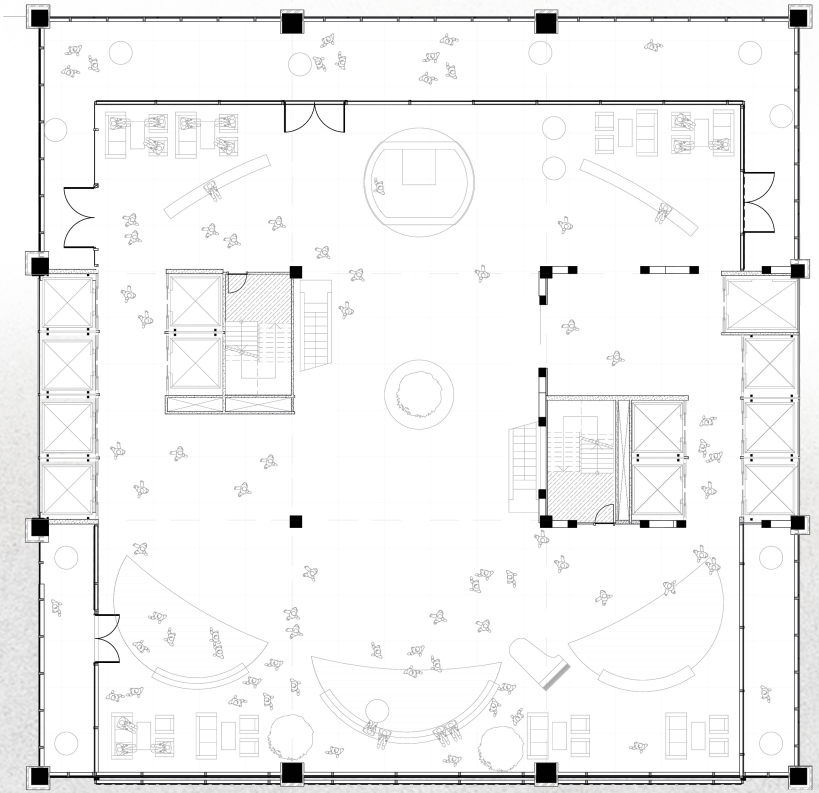
TRANSITION OF ELEVATORS



FACADE ACCENT WITH CLEAR GLASS



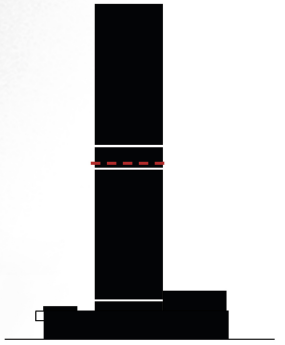
SKYLOBBY



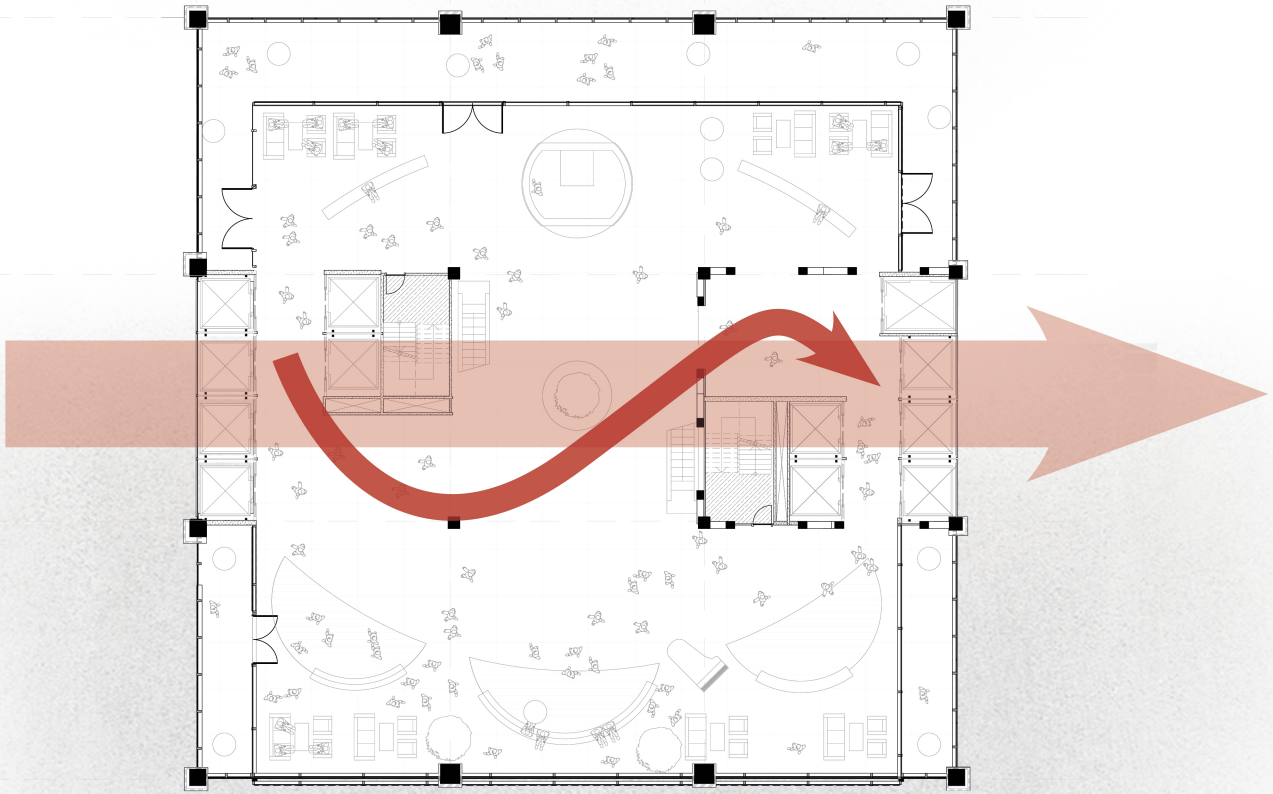
Skylobby - GF

TOWER PLAN | SCALE: 1:200

N



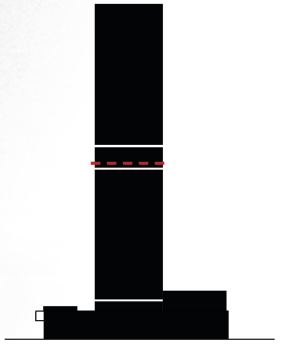
MOVEMENT AXIS



Skylobby - GF

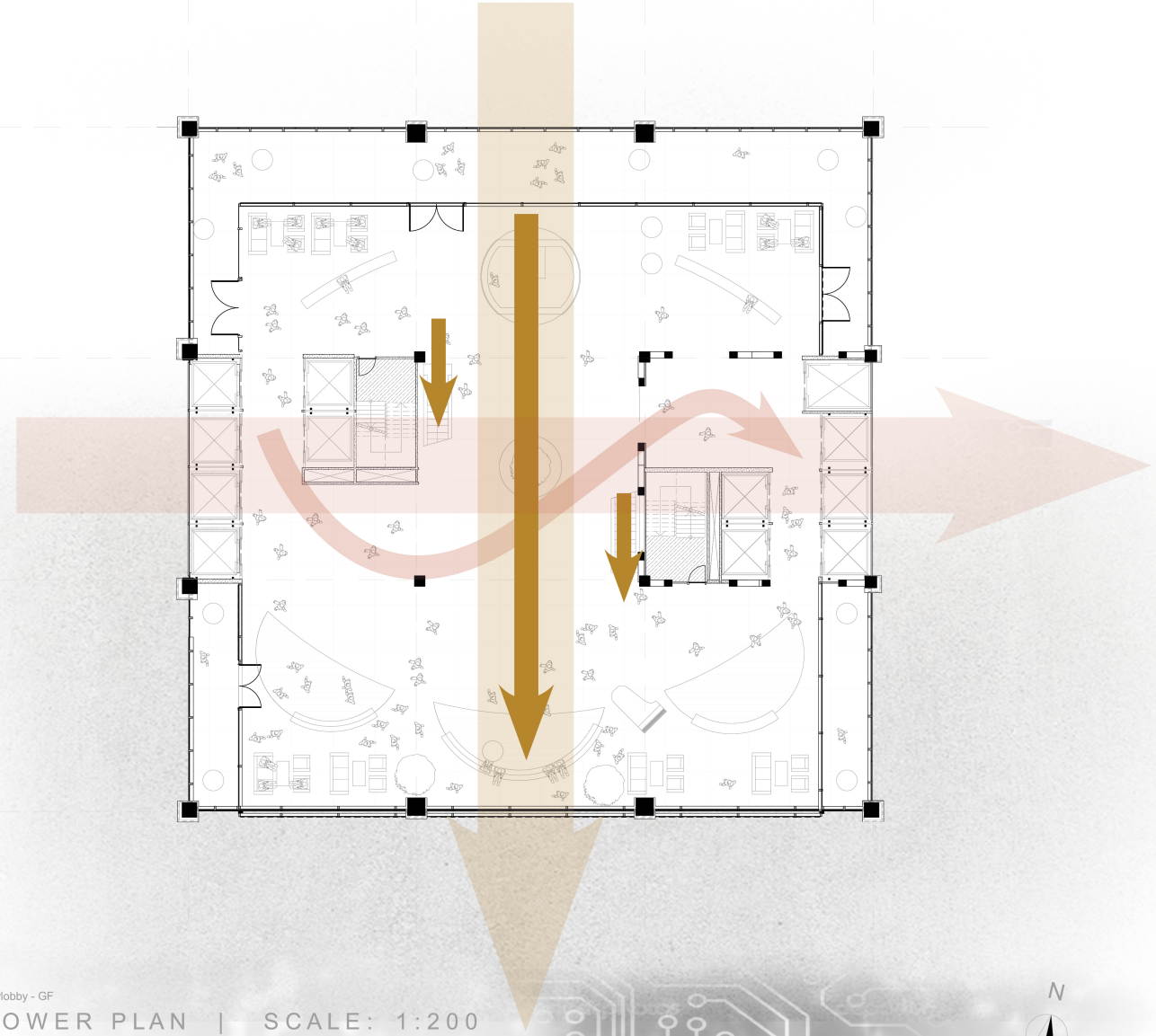
TOWER PLAN | SCALE: 1:200

N



BREAK SPACE AXIS



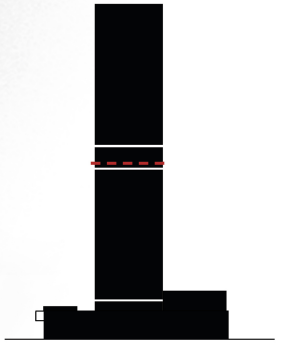




Skylobby - GF

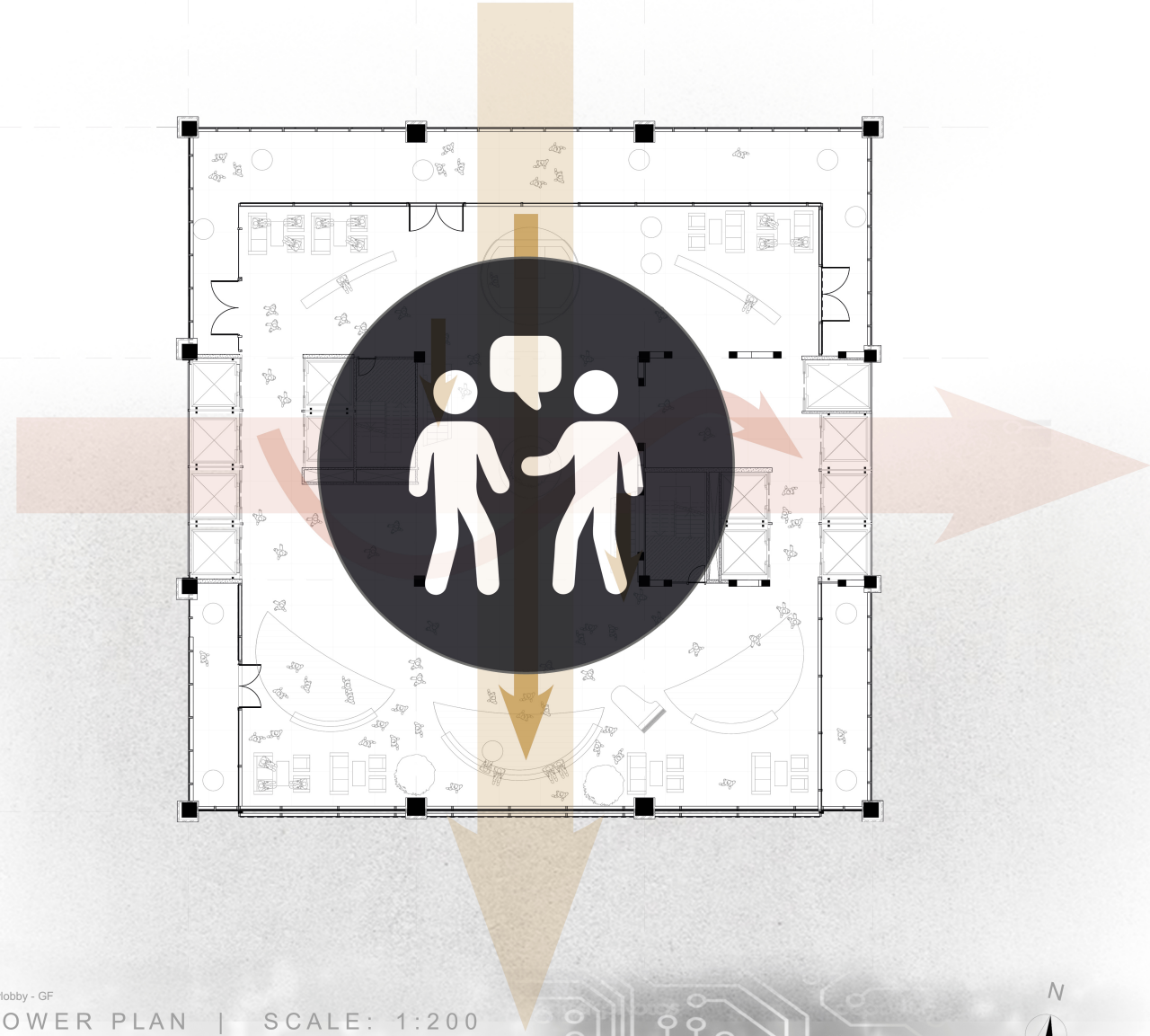
TOWER PLAN | SCALE: 1:200

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INCEDENTAL MEETING & RECOGNIZABILITY



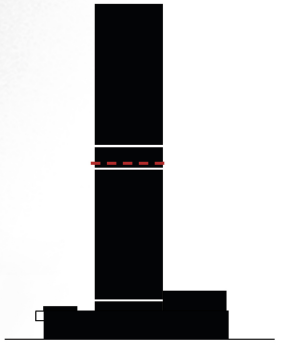




Skylobby - GF

TOWER PLAN | SCALE: 1:200

N



SKYLOBBY



SKYLOBBY



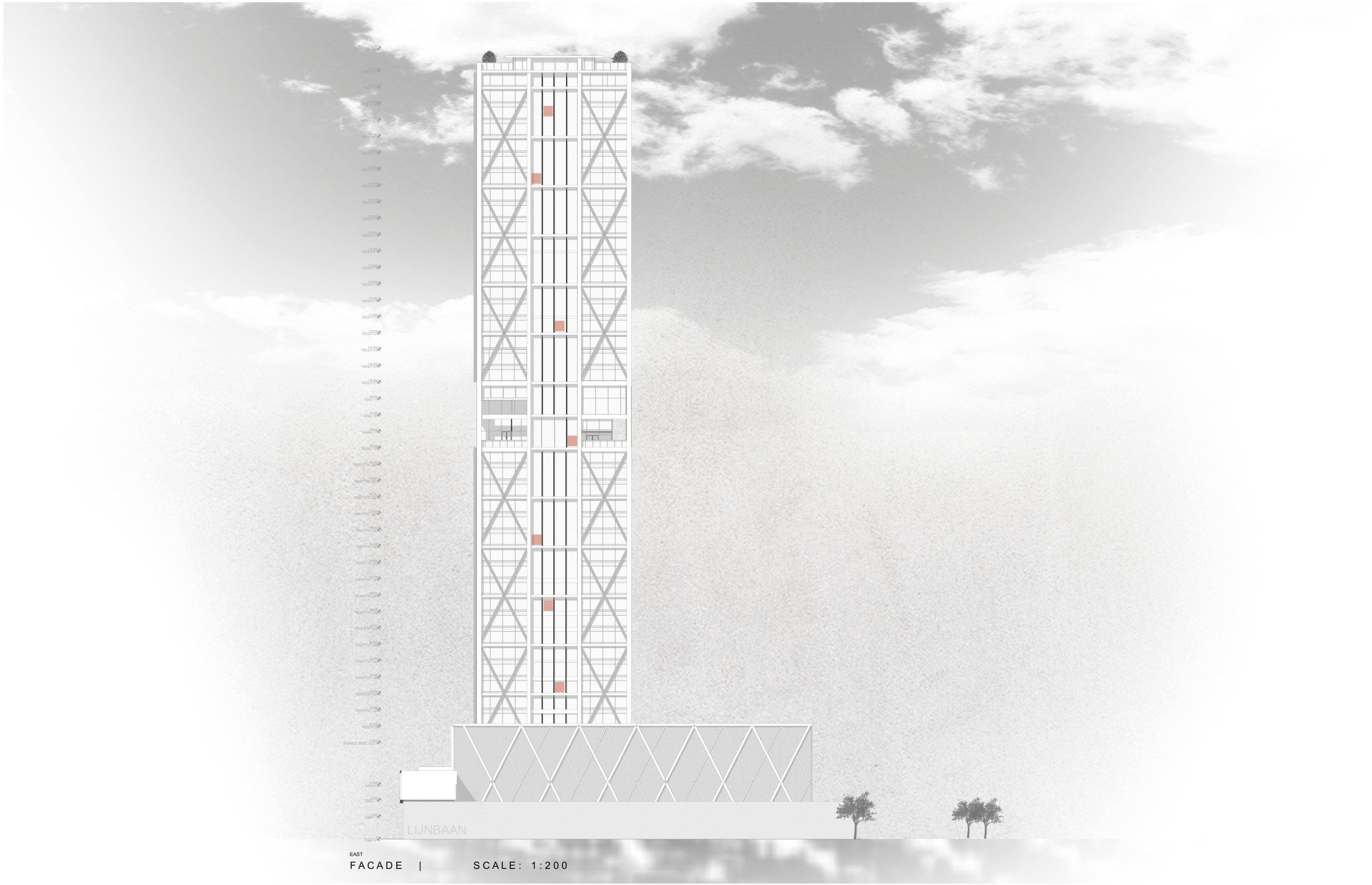
SKYLOBBY



INTERACTIVE PRINCIPLE WITH BUSINESS OFFICES

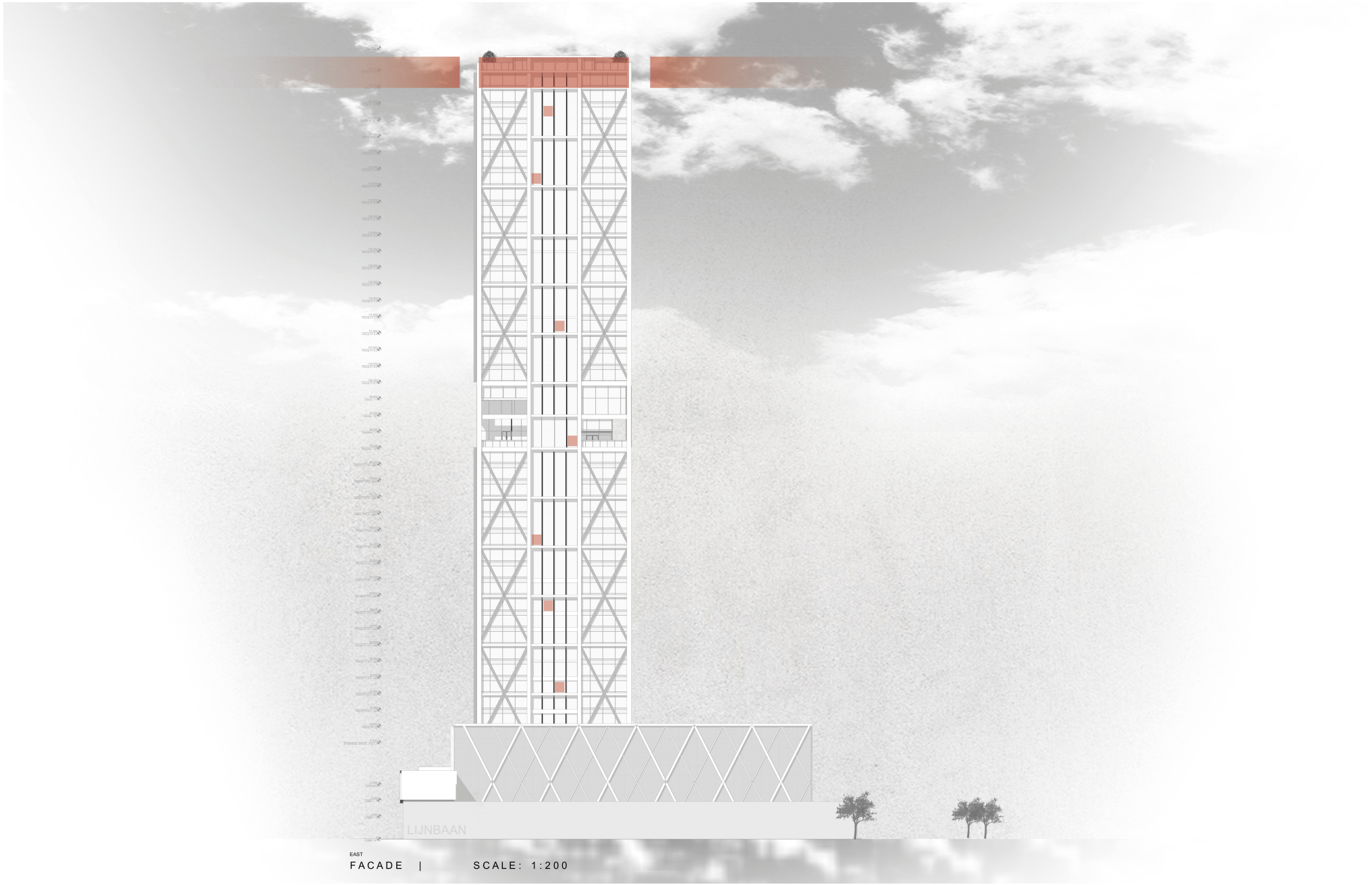


EAST FACADE



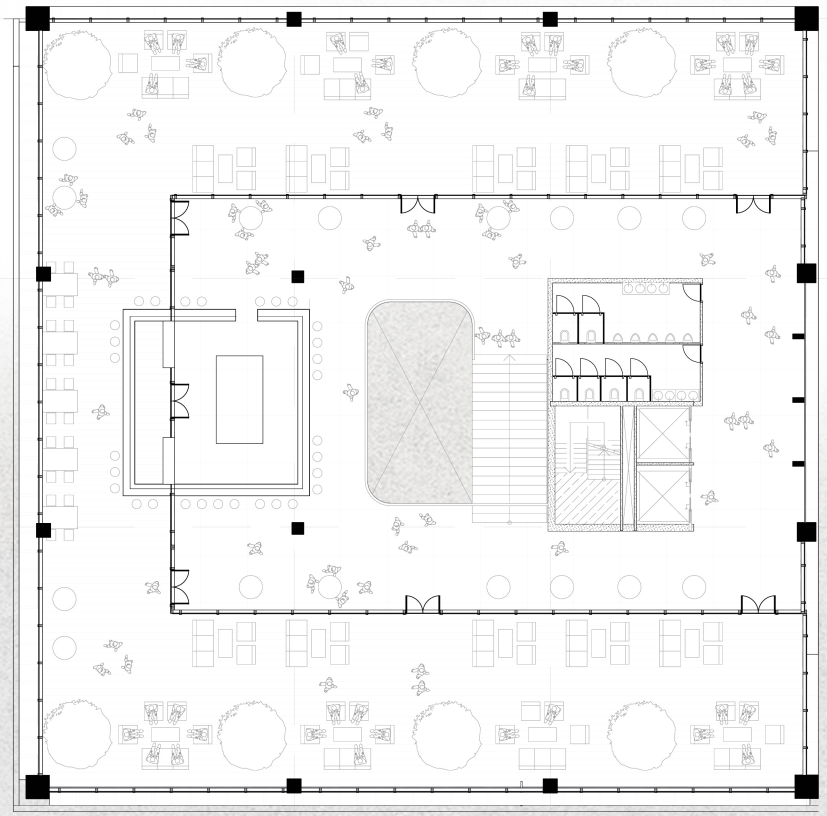
EAST
FACADE | SCALE: 1:200

TO THE TOP INTERACTIVE BLOCK



EAST
FACADE | SCALE: 1:200

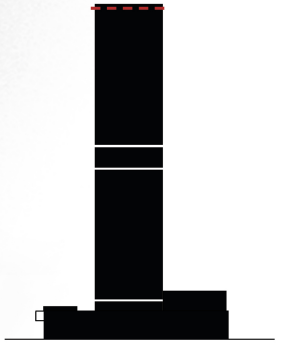
ROOFTOP BAR



Rooftop Bar - F1

TOWER PLAN | SCALE: 1:200

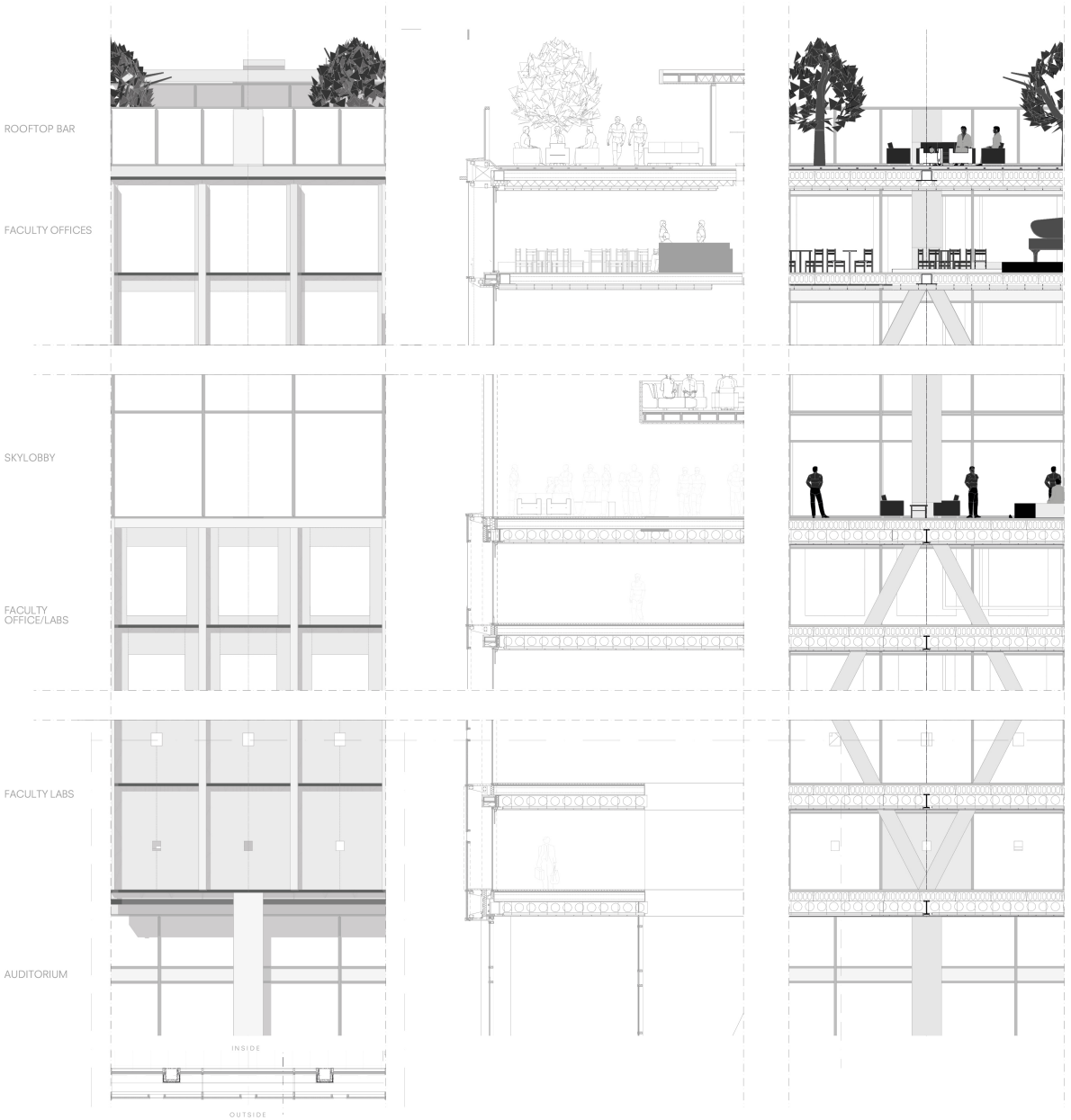
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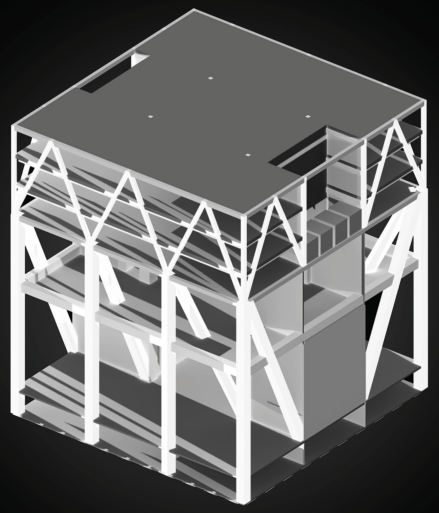
ROOFTOP BAR



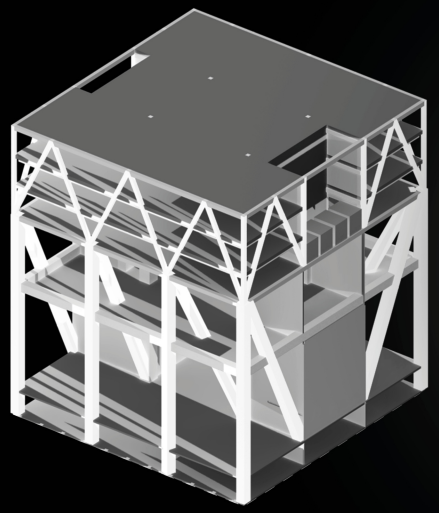
FACADE CONSTRUCTION

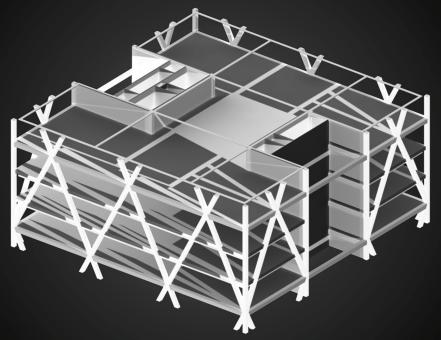


CONSTRUCTION ELEMENTS TOWER

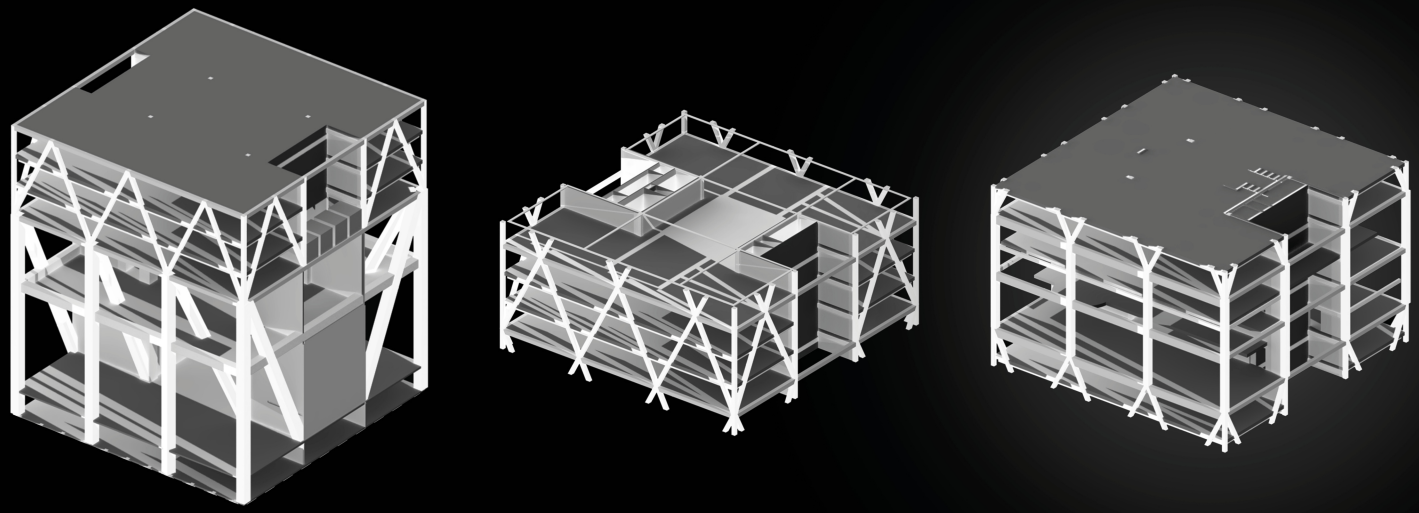


CONSTRUCTION ELEMENTS TOWER

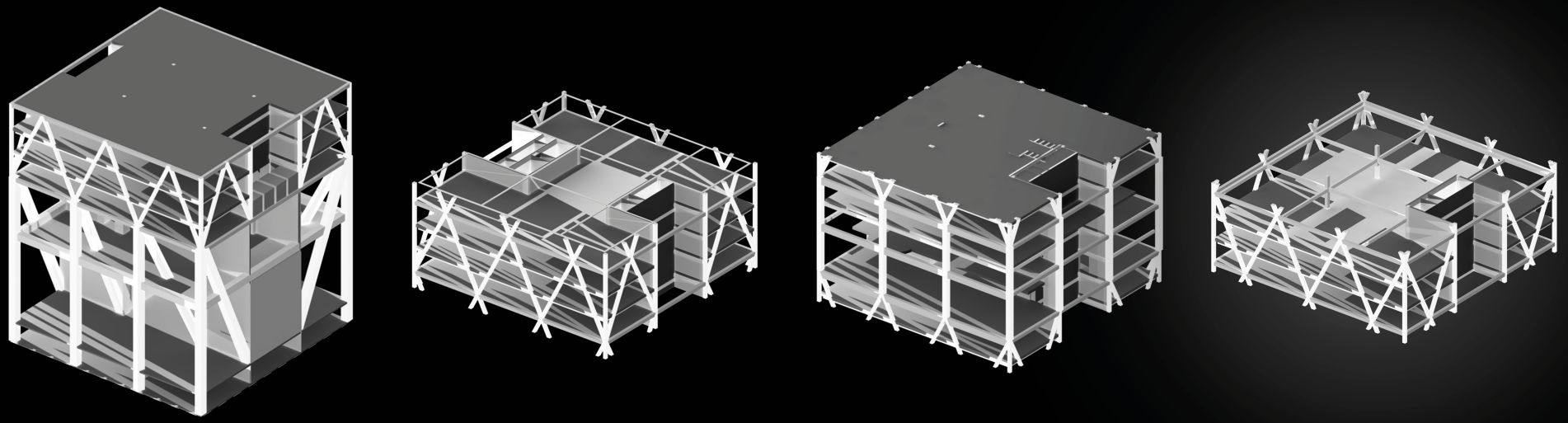




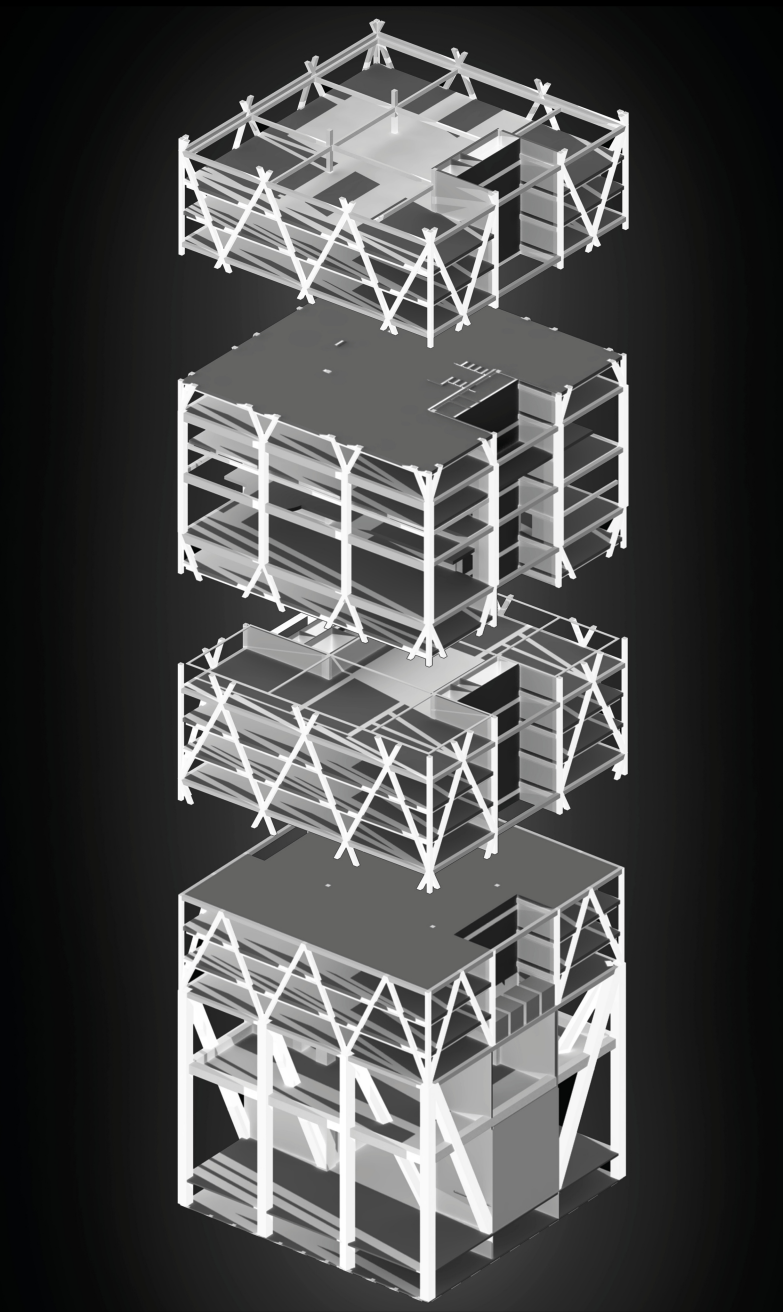
CONSTRUCTION ELEMENTS TOWER



CONSTRUCTION ELEMENTS TOWER

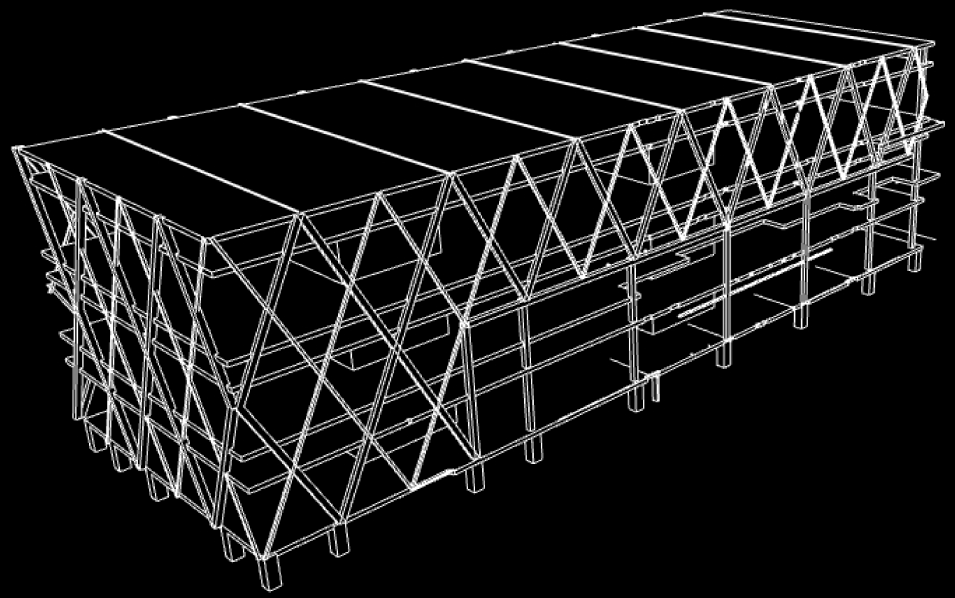


CONSTRUCTION ELEMENTS TOWER



Design

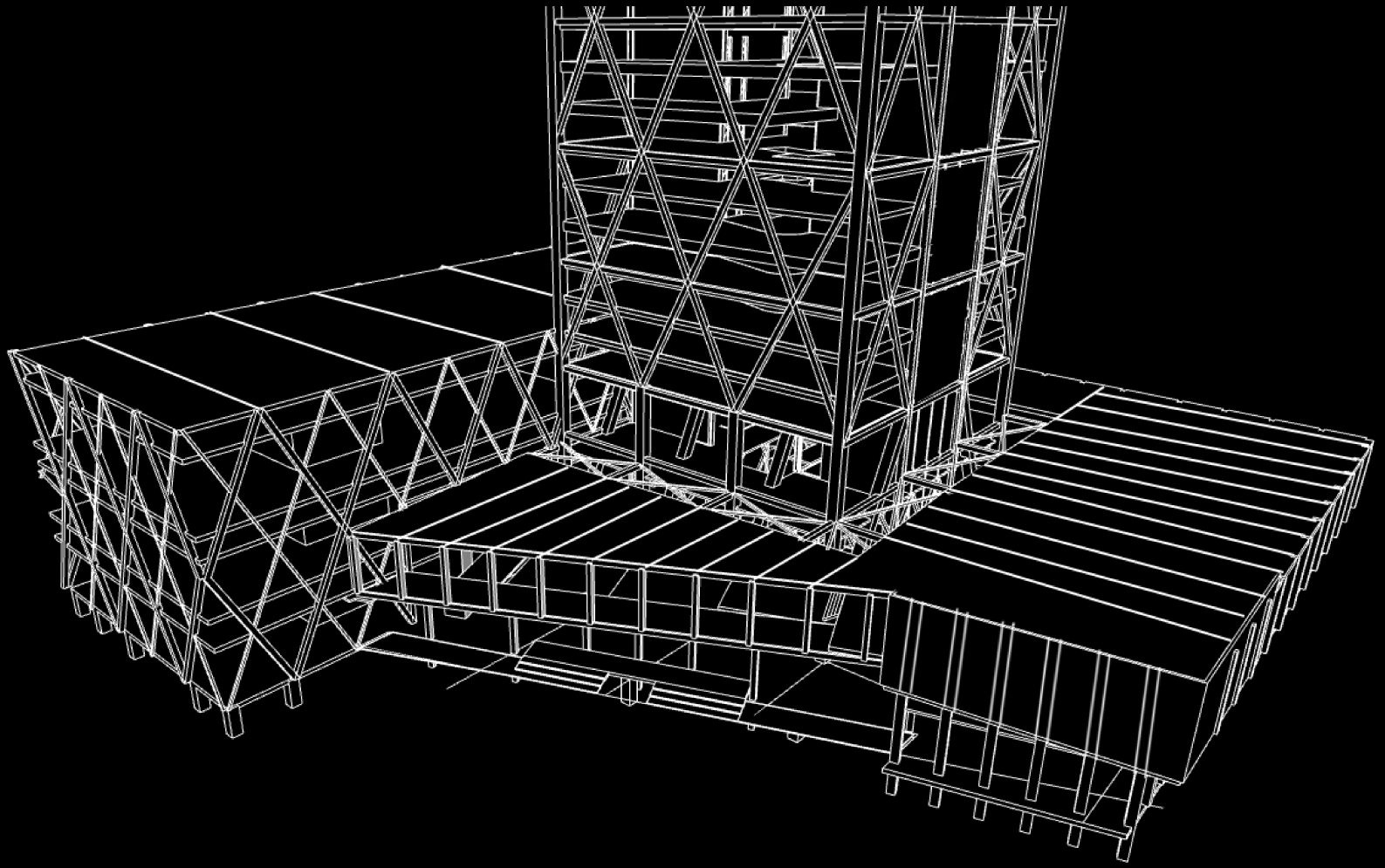
CONSTRUCTION PRODUCTION HUB



DIAGRID

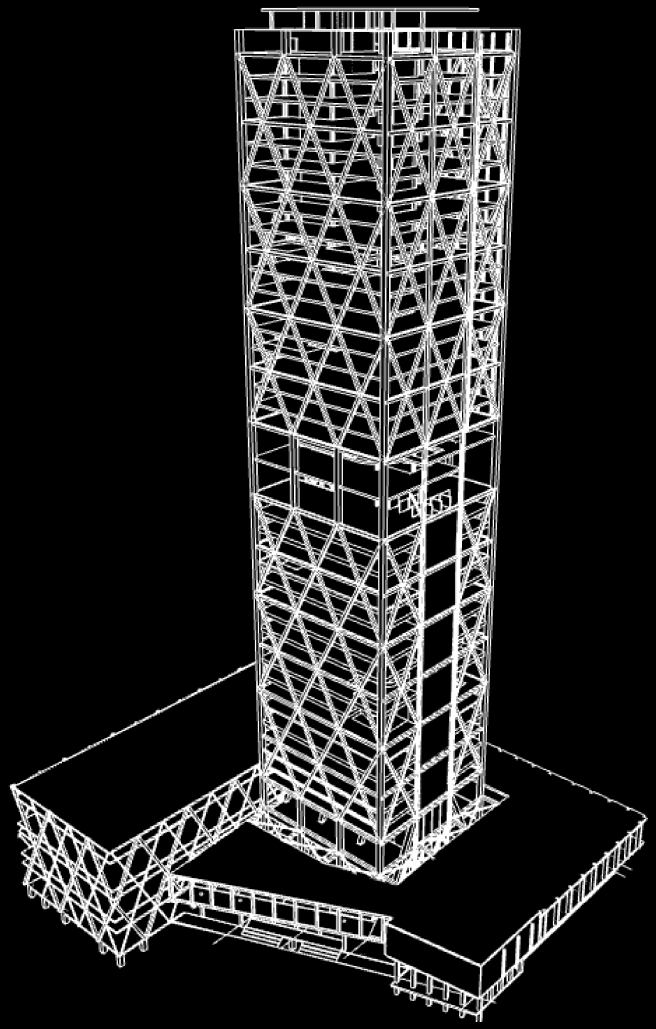
Design

CONSTRUCTION LOBBY + TOWER

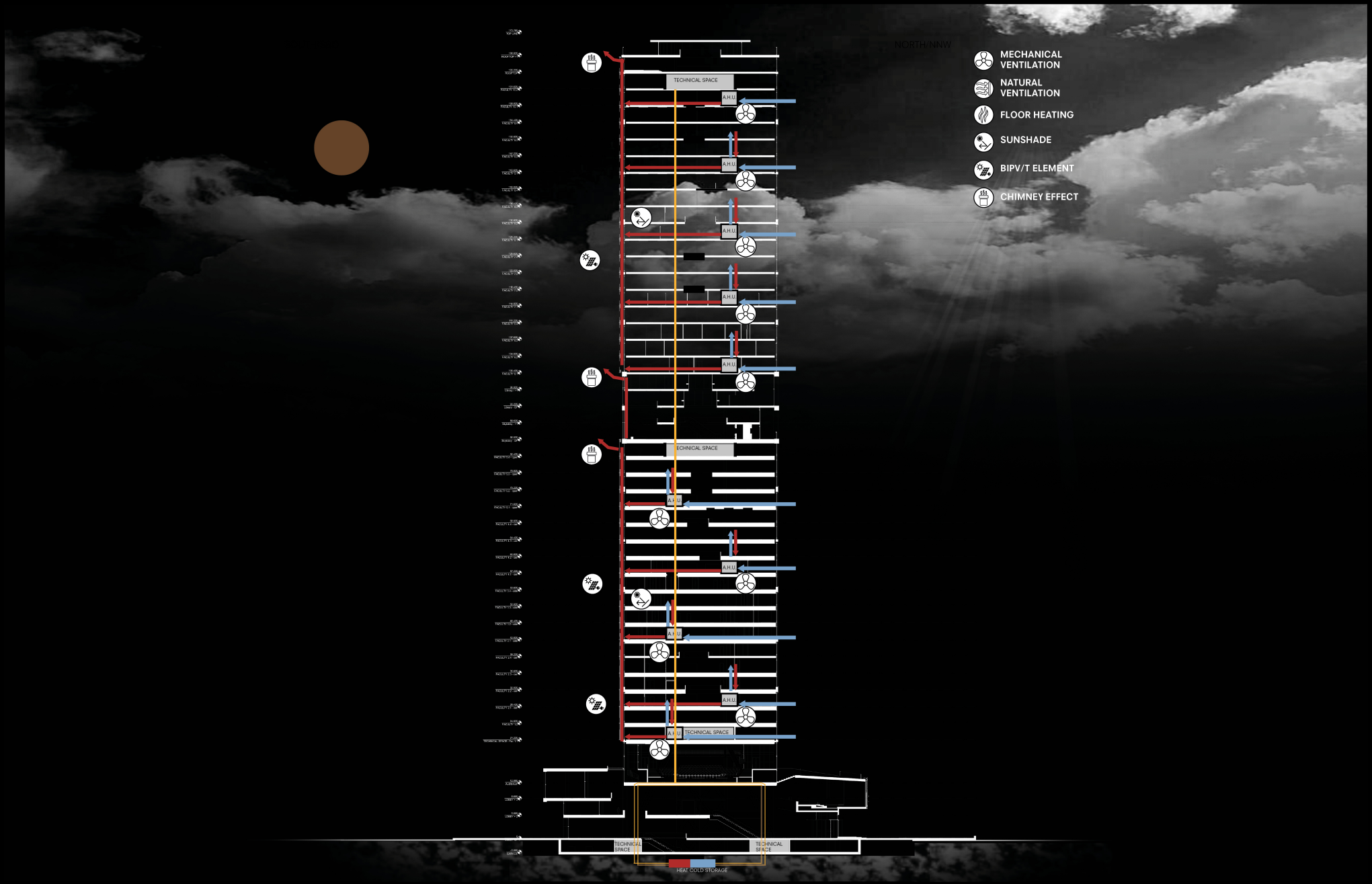


VIERENDEEL JOINTS + DIAGRID

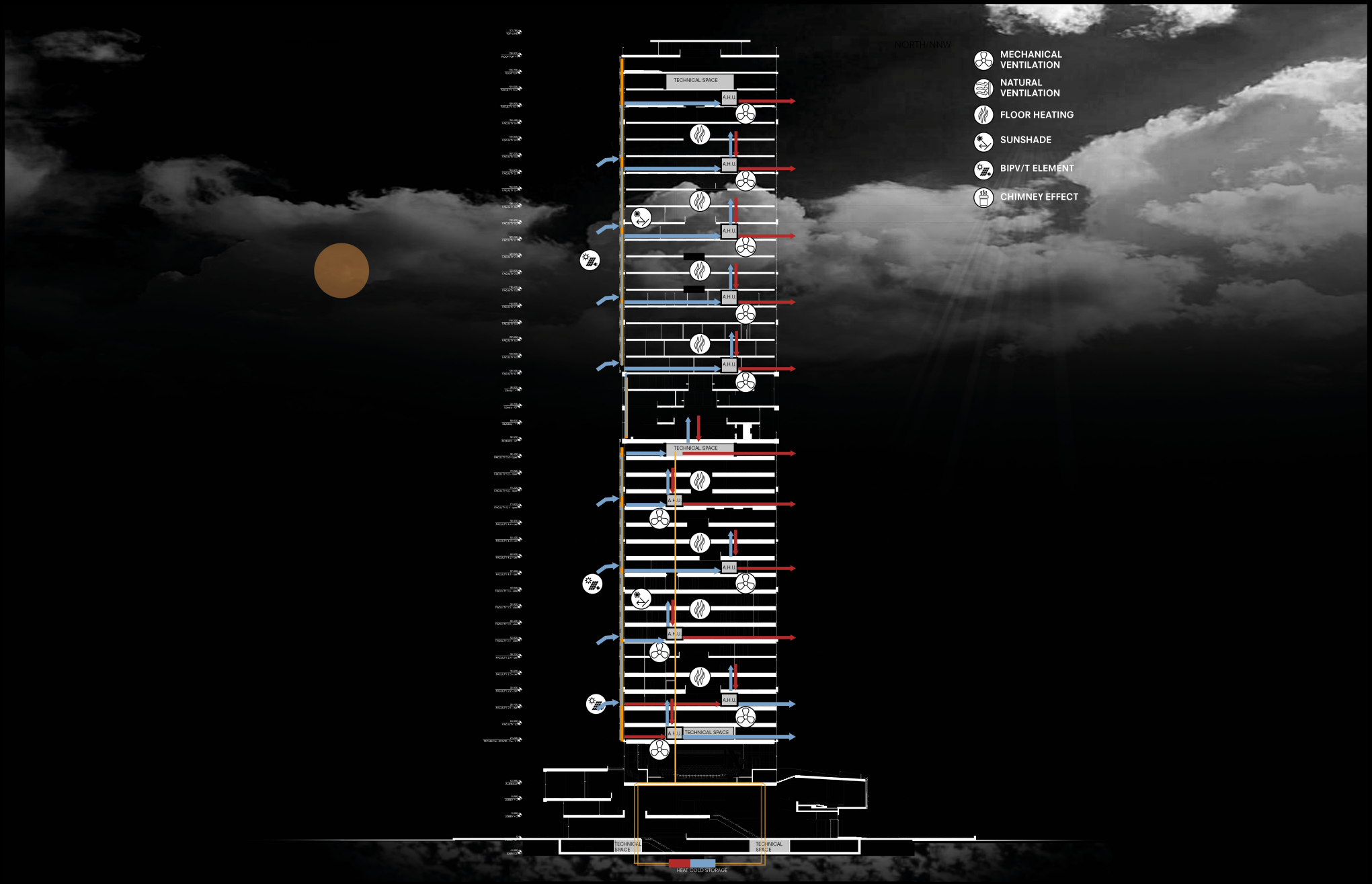
CONSTRUCTION OF THE VERTICAL CAMPUS



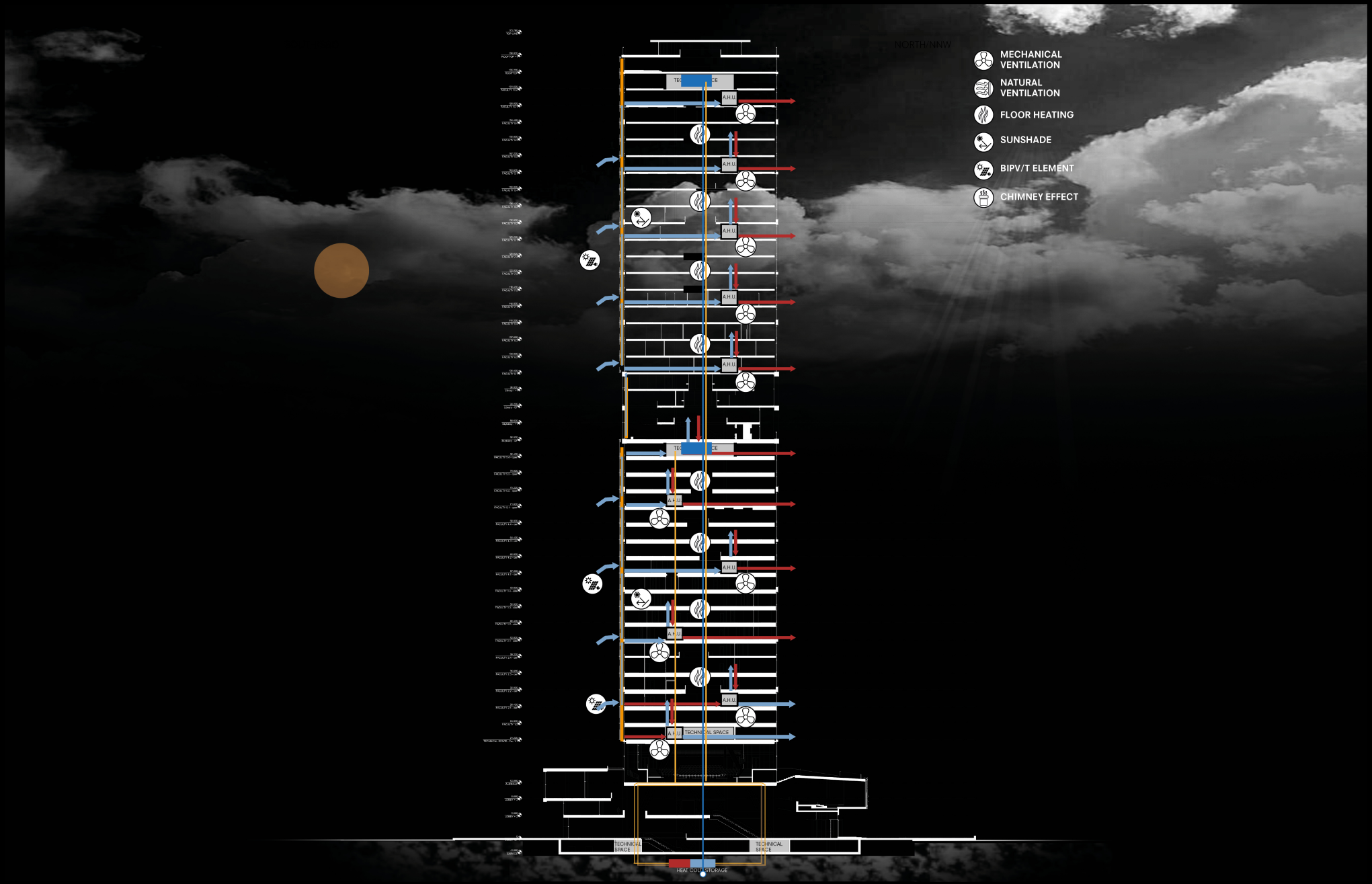
CLIMATE SCHEME TOWER - SUMMER



CLIMATE SCHEME TOWER - WINTER



CLIMATE SCHEME TOWER - WATER



Introduction

Research

Design Brief

Concept

Implementation

Development

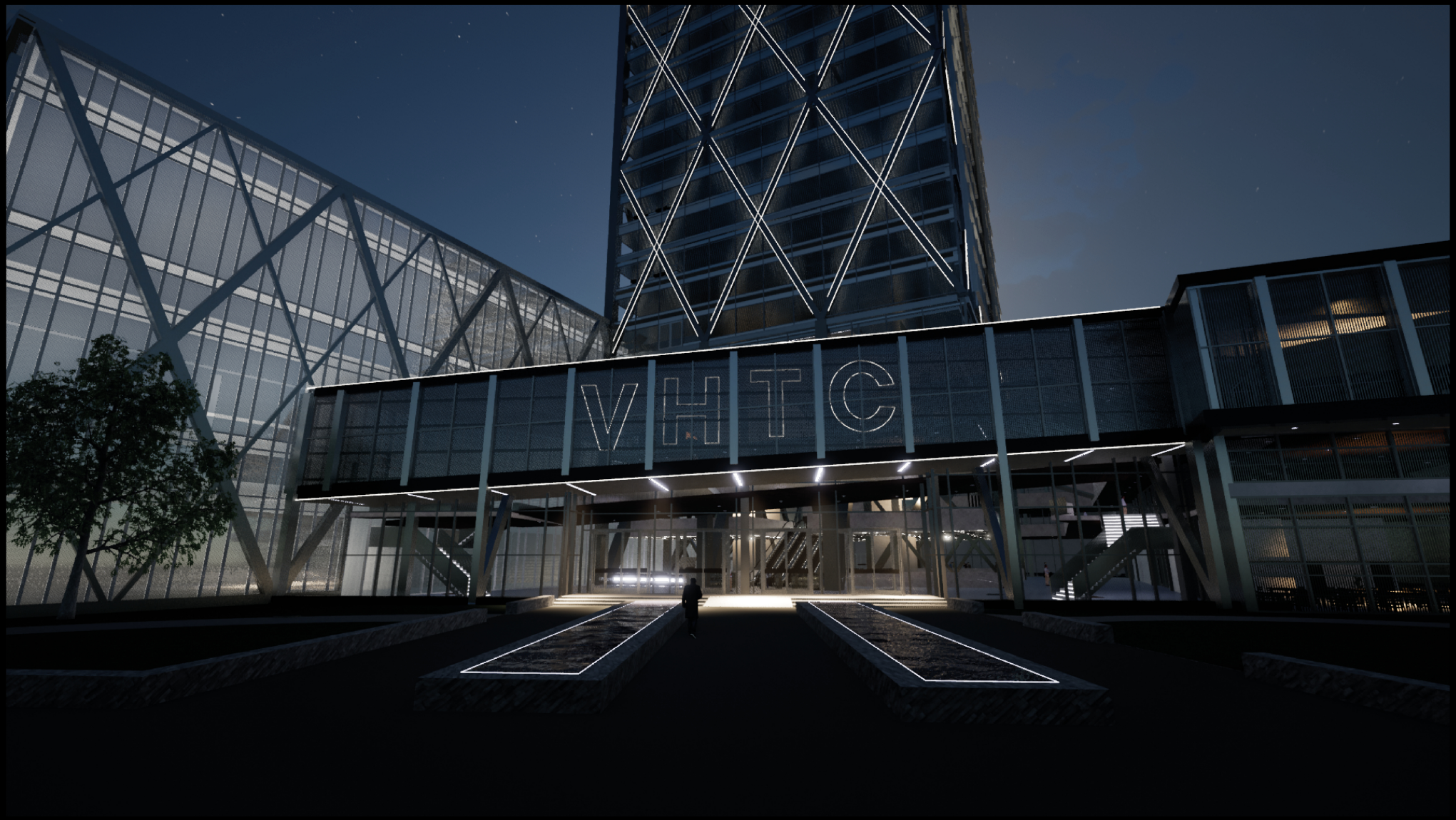
Conclusion

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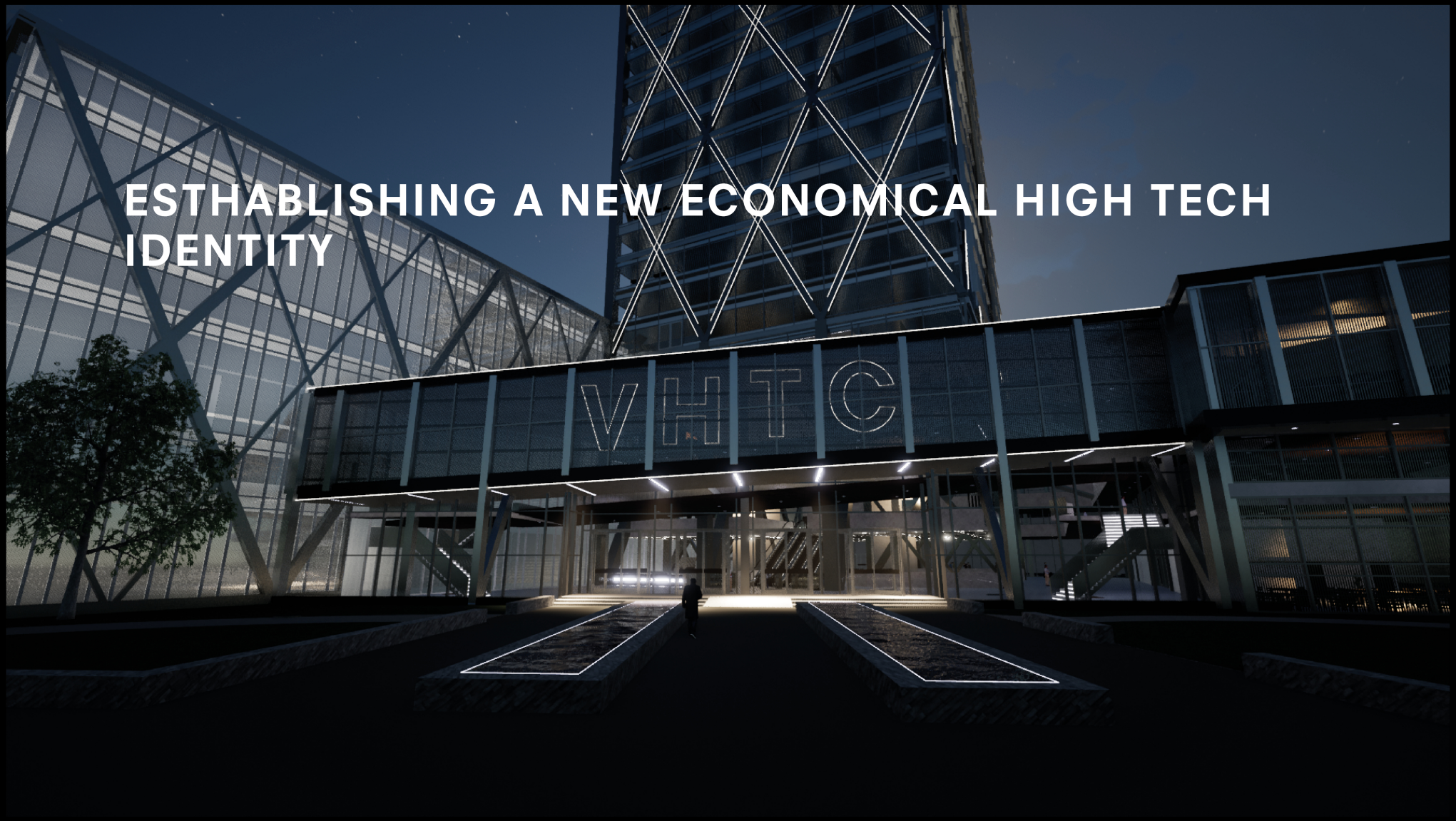
RESEARCH QUESTION

HOW CAN THE CITY CENTER OF ROTTERDAM EMBODY THE DESIRE FOR FOREIGN COMPANIES AND BUSINESS BRANCHES?

RESULT

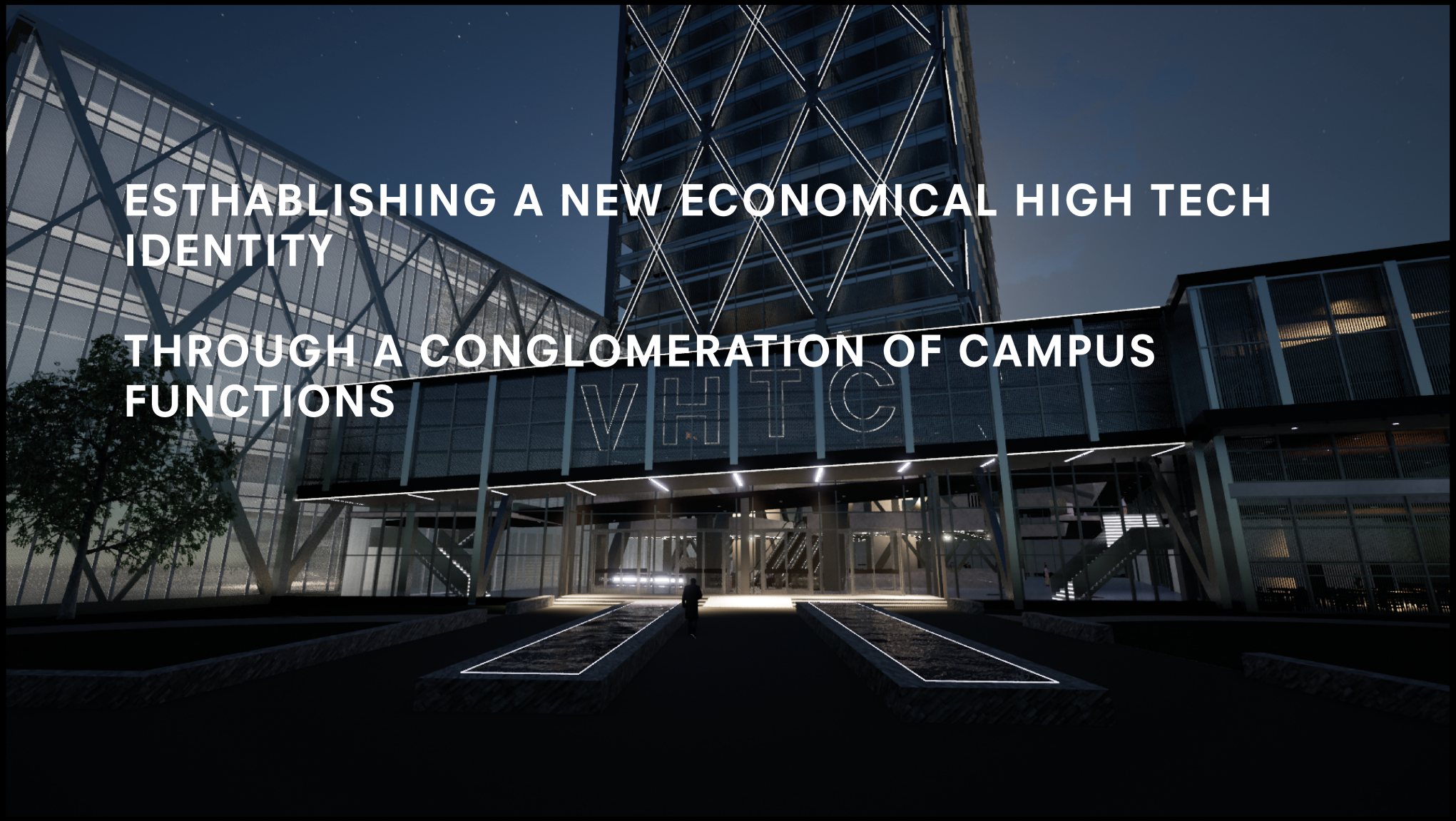


RESULT



ESTHABLISHING A NEW ECONOMICAL HIGH TECH IDENTITY

RESULT



ESTHABLISHING A NEW ECONOMICAL HIGH TECH IDENTITY

THROUGH A CONGLOMERATION OF CAMPUS FUNCTIONS

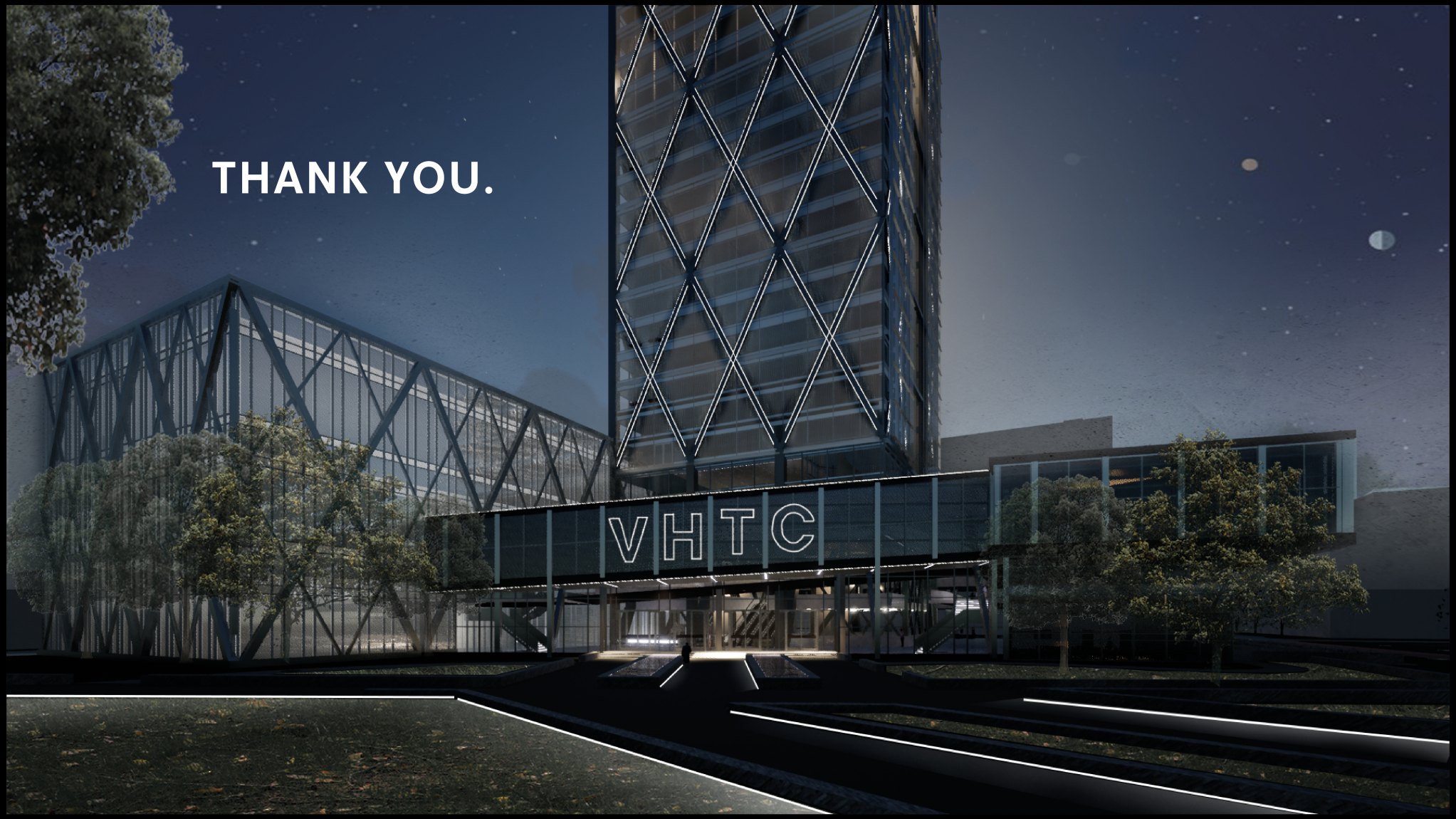
RESULT



ESTHABLISHING A NEW ECONOMICAL HIGH TECH IDENTITY

THROUGH A CONGLOMERATION OF CAMPUS FUNCTIONS

IN A DENSIFIED CITY CENTER OF ROTTERDAM


THANK YOU.
VHTC