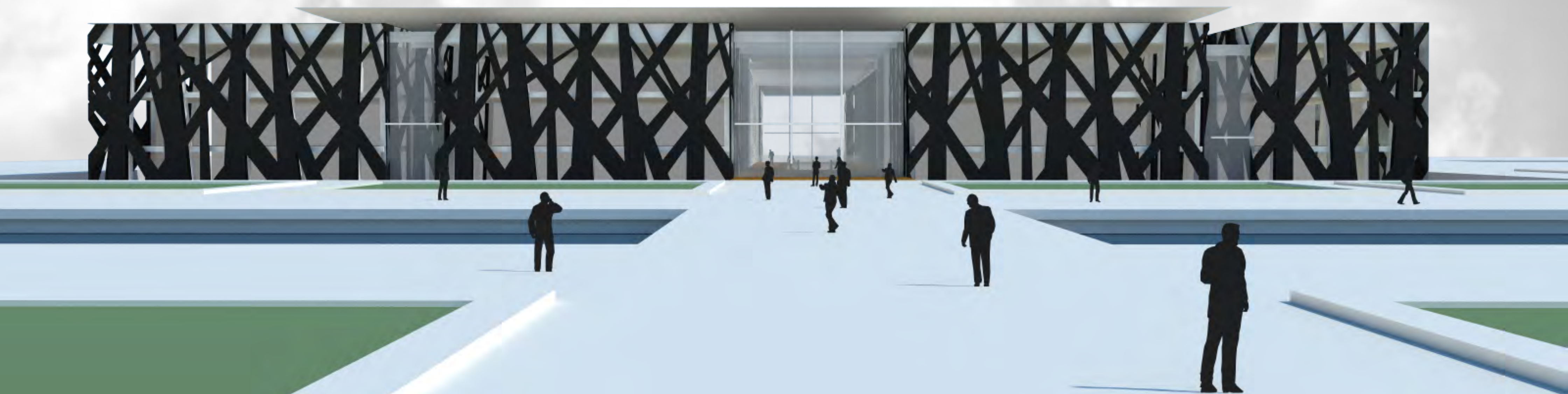


TIMO CARDOL | GRADUATION PRESENTATION | 3/2/2012
United Nations Environmental Council



ASSIGNMENT

UNITED NATIONS

LOCATION

MASTERPLAN

CONDITONS

VISION

PROGRAM BRIEF

CONCEPT

DESIGN

FACADE

CLIMATE

CONCLUSIVE

TIMO CARDOL | GRADUATION PRESENTATION
United Nations Environmental Council



ASSIGNMENT

TO PRESERVE OUR ENVIRONMENT, THE ONLY SOLUTION IS TO GUIDE IT TOWARDS SUSTAINABILITY. THUS, THE WORLD IS IN NEED OF A NEW AND INDEPENDENT

ENVIRONMENTAL AUTHORITY

THIS NEW AUTHORITY WILL FOREMOST HAVE TO:

- **CREATE AWARENESS** AMONG EVERYONE ON THE PLANET
- **EXCHANGE KNOWLEDGE** FOR SUSTAINABLE SOLUTIONS
- **MAKE RULES & LAWS** TO UNITE ENVIRONMENTAL ACTIONS

- 1968 CLUB OF ROME : BORDERS OF GROWTH RAPPORT
- 1972 UNITED NATIONS ENVIRONMENT PROGRAMME**
- 1983 WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT “BRUNDTLAND COMMISSION”
- 1992 United Nations Framework Convention on Climate Change (UNCFF)
- 1997 KYOTO-PROTOCOL BY UNCFF
- 2011 UNCFF 17TH COP MEETING IN DURBAN
- 2050 ...?

THE WORLD NEEDS LEADERSHIP ON ENVIRONMENTAL SUSTAINABILITY



1972 **UNITED NATIONS ENVIRONMENT PROGRAMME**

“TODAY OUR WORLD IS FACING UNPRECEDENTED ENVIRONMENTAL CHALLENGES
...BUT ALSO EXTRAORDINARY OPPORTUNITIES”



DEPLETION
(uitputting)



POLLUTION
(vervuiling)



GROWING NEEDS

“TODAY OUR WORLD IS FACING UNPRECEDENTED ENVIRONMENTAL CHALLENGES
...BUT ALSO EXTRAORDINARY OPPORTUNITIES”

TECHNOLOGY



SCIENCE



COMMUNICATION





DEPLETION



POLLUTION



GROWING NEEDS

UNITED NATIONS
ENVIRONMENTAL PROGRAM



+

UNITED NATIONS
ENVIRONMENTAL COUNCIL

TECHNOLOGY



SCIENCE



COMMUNICATION





UNITED NATIONS HEADQUARTERS
NEW YORK CITY



GENERAL ASSEMBLY



SECURITY COUNCIL



COUNCILS



SECRETARIAT

THE HAGUE

NEW YORK, MANHATTAN

GENEVA



UNITED NATIONS HEADQUARTERS
NEW UNEC AUTHORITY



GENERAL ASSEMBLY



SECURITY COUNCIL



COUNCILS



SECRETARIAT



ENVIRONMENTAL COUNCIL

NEW YORK, MANHATTAN



UNITED NATIONS HEADQUARTERS
MANHATTAN MIDTOWN EAST, NEW YORK CITY



42ND STREET

- CHRYSLER BUILDING
- GRAND CENTRAL
- TIMES SQUARE

HAMMARSKJOLD
PLAZA

48ND STREET

- ROCKEFELLER CENTRE
- TIMES SQUARE



UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY

1ST AVENUE

FDR EAST RIVER HIGHWAY



UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY

GRANDEUR & PEACEFUL LOCATION
UN PLAZA

DESIGNED BY THE OLD MASTERS:

LE CORBUSIER
W.K. HARRISON
OSCAR NIEMEYER



UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY

>2001

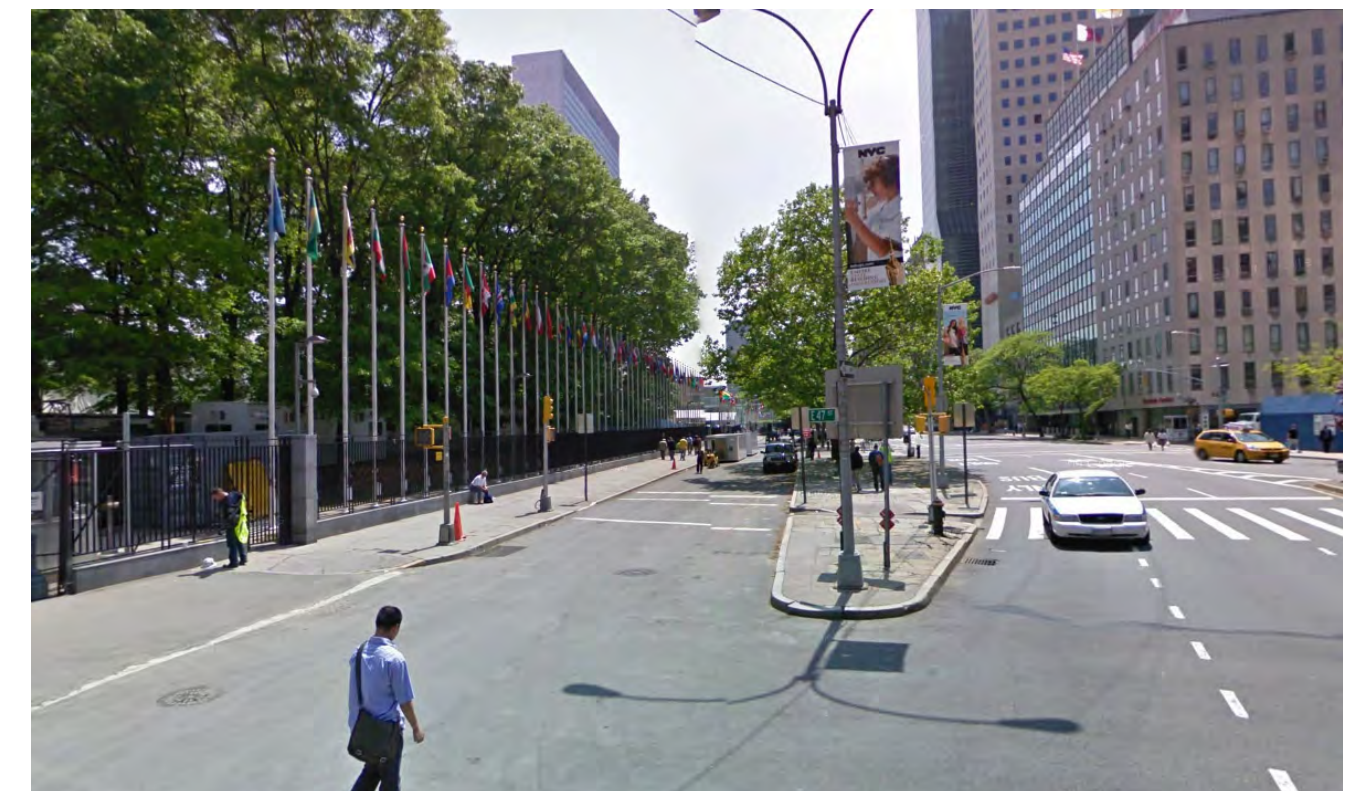
POST 9/11

SECURITY / ACCESSIBILITY
MEASURES ON THIS
INTERNATIONAL TERRITORY



DISTURBED & UNCLEAR ENTRANCE

>2001 STRICT BOUNDARY AROUND PLOT





UNITED NATIONS HEADQUARTERS
MANHATTAN, NEW YORK CITY

**FRANKLIN DELANO ROOSEVELT
HIGHWAY UNDERNEATH !**



FDR HIGHWAY ANALYSIS
FOUR POSSIBILITIES TO ALTER HIGHWAY

> **DEFINE SCALE**
+ MAKE PROFITABLE FOR WATERFRONT



1. CHANGE NOTHING

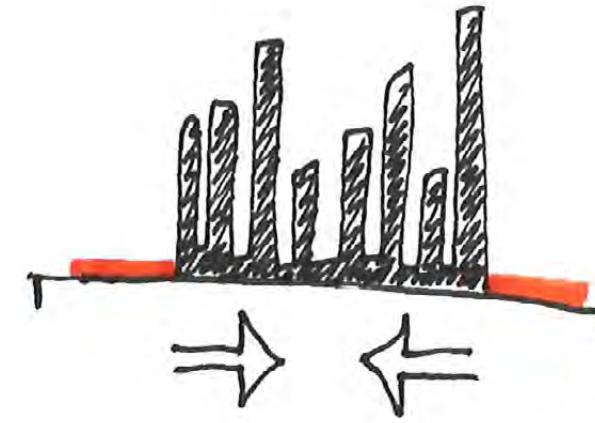
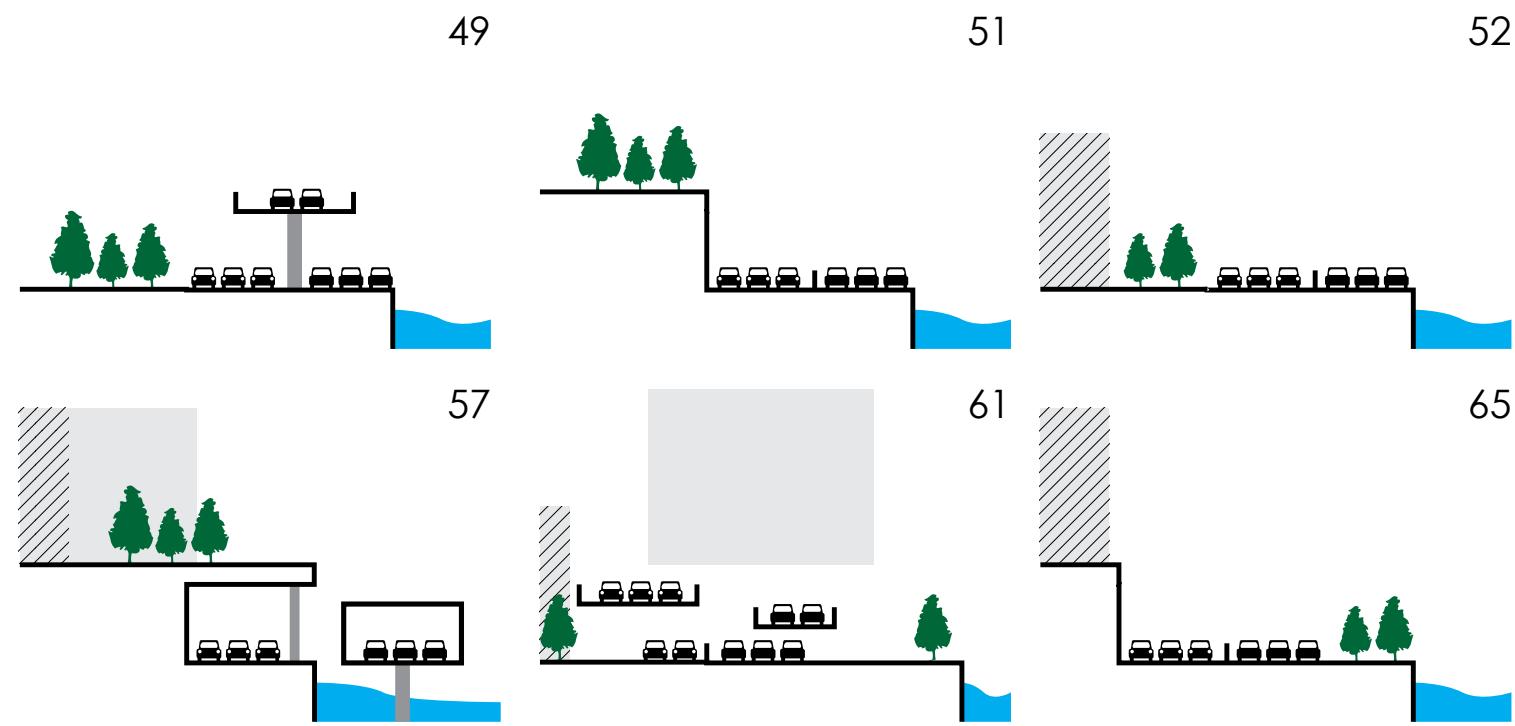
- UN problem stays

2. STOP HIGHWAY

- UN problem solves
- move UN highway problem

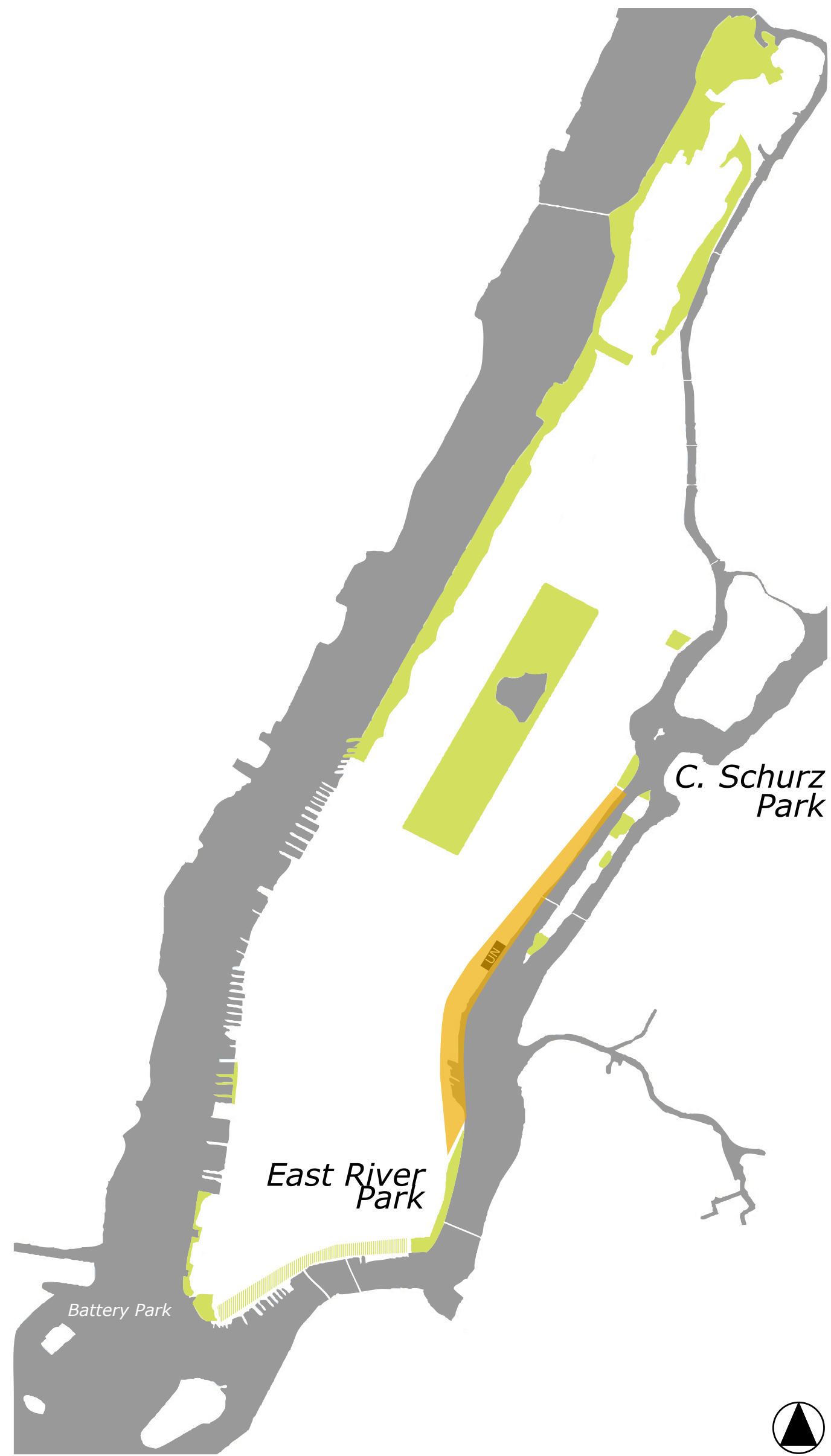
3. DIVERT THROUGH NYC CITY GRID

4. MAKE TUNNEL IN EAST RIVER



EAST RIVER WATERFRONT ANALYSIS
FDR BLOCKS CITY FROM BREATHING TO WATER

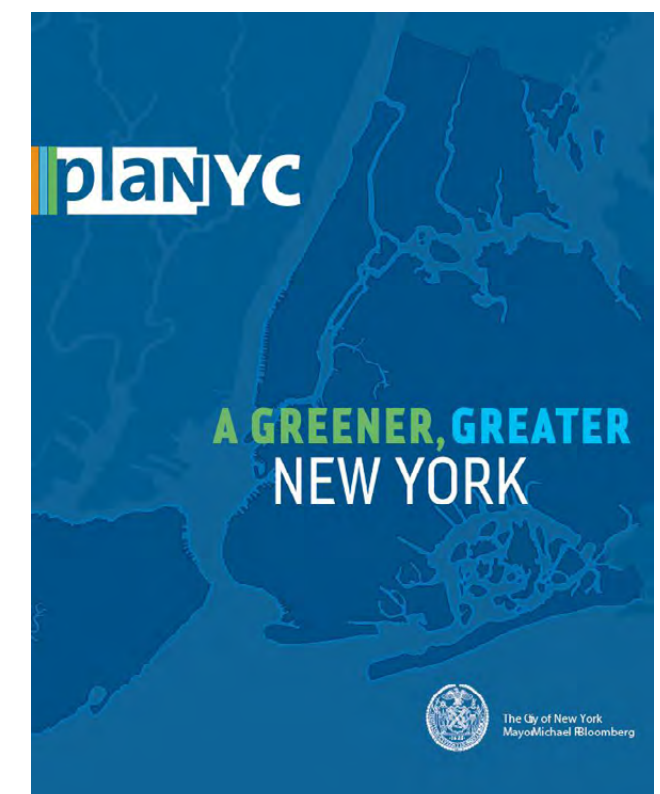


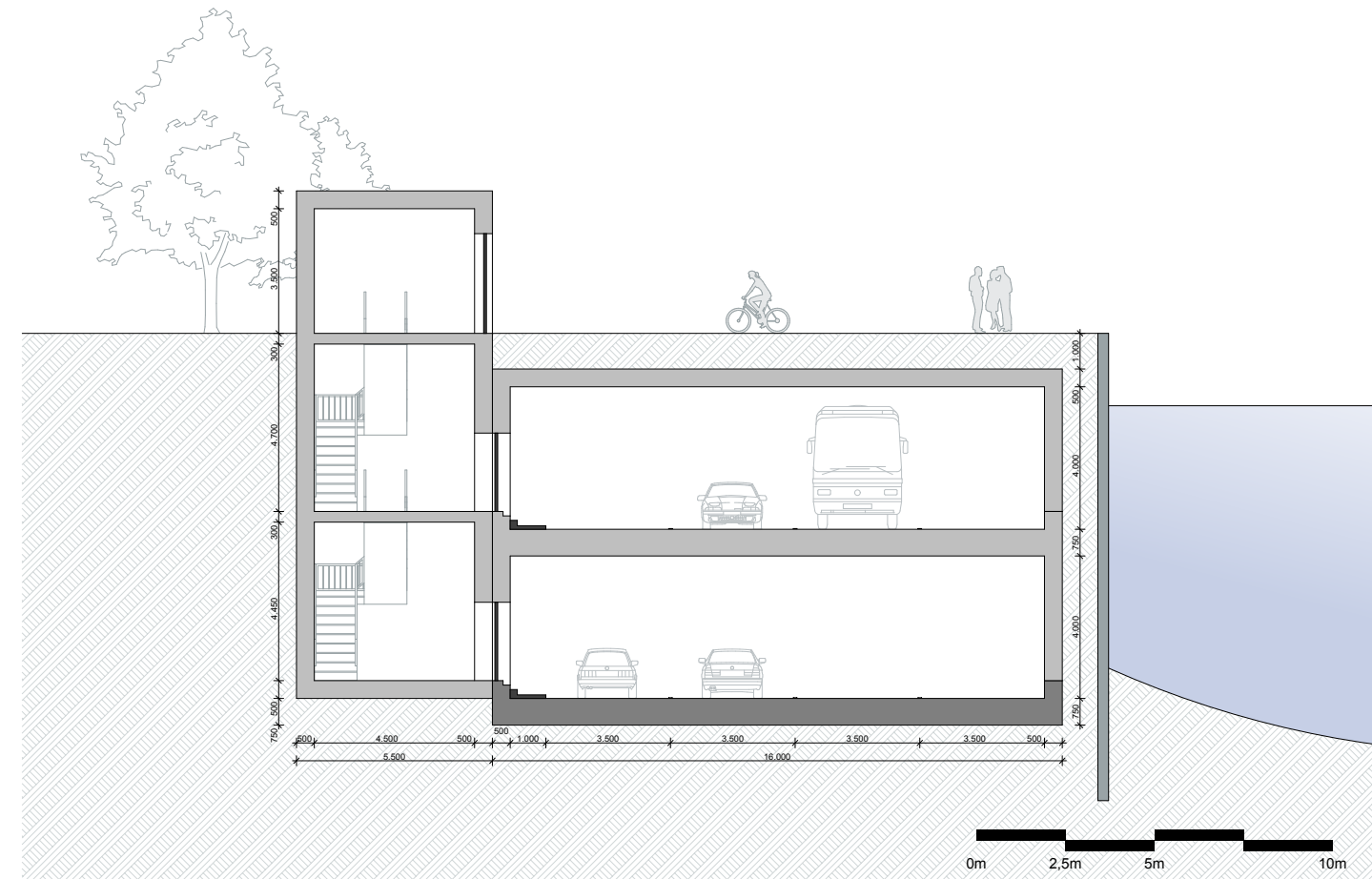


VISION PLAN EAST RIVER WATERFRONT MANHATTAN, NEW YORK CITY

ADAPT OTHER MASTERPLAN CONDITIONS

- + **PARK IN 10 MINUTES**
- + **CONNECT FRAGMENTED** EXISTING PARKS
- + **BICYCLE ROADS**
- + **WATERTAXI**
- + INCREASE **FACILITIES**
- + INCREASE **RECREATIONAL ZONES**





EAST RIVER WATERFRONT ANALYSIS

NEW TUNNEL WITH PARK ON TOP





BICYCLE PATHS



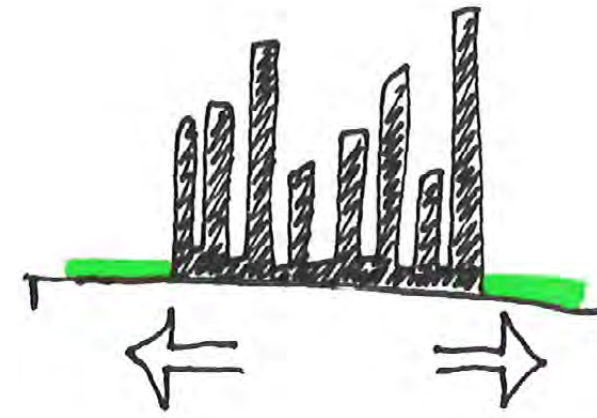
WATERTAXI



NYC PARKS ZONE INCREASED BY 20%

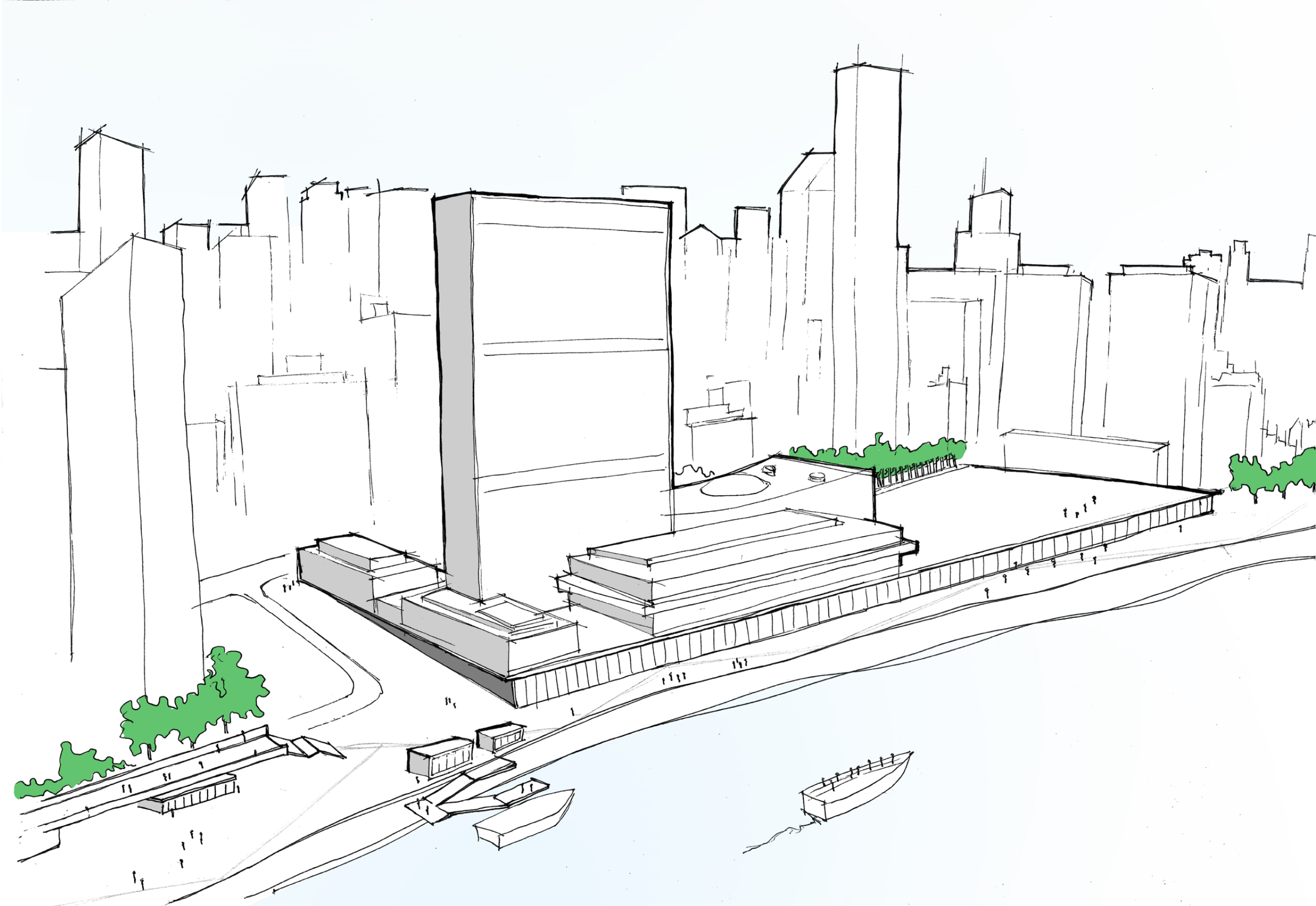


HIGHWAY PROBLEM SOLVED



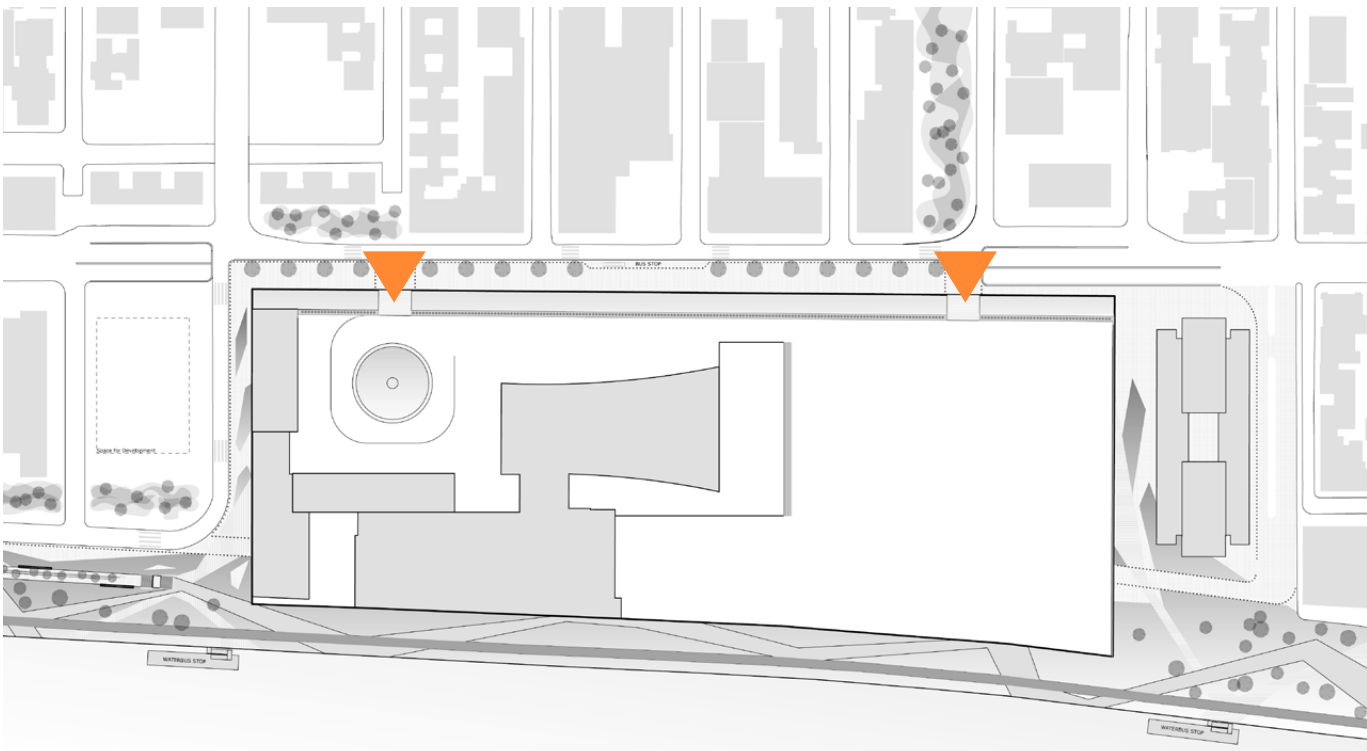
VISION PLAN EAST RIVER WATERFRONT MANHATTAN, NEW YORK CITY



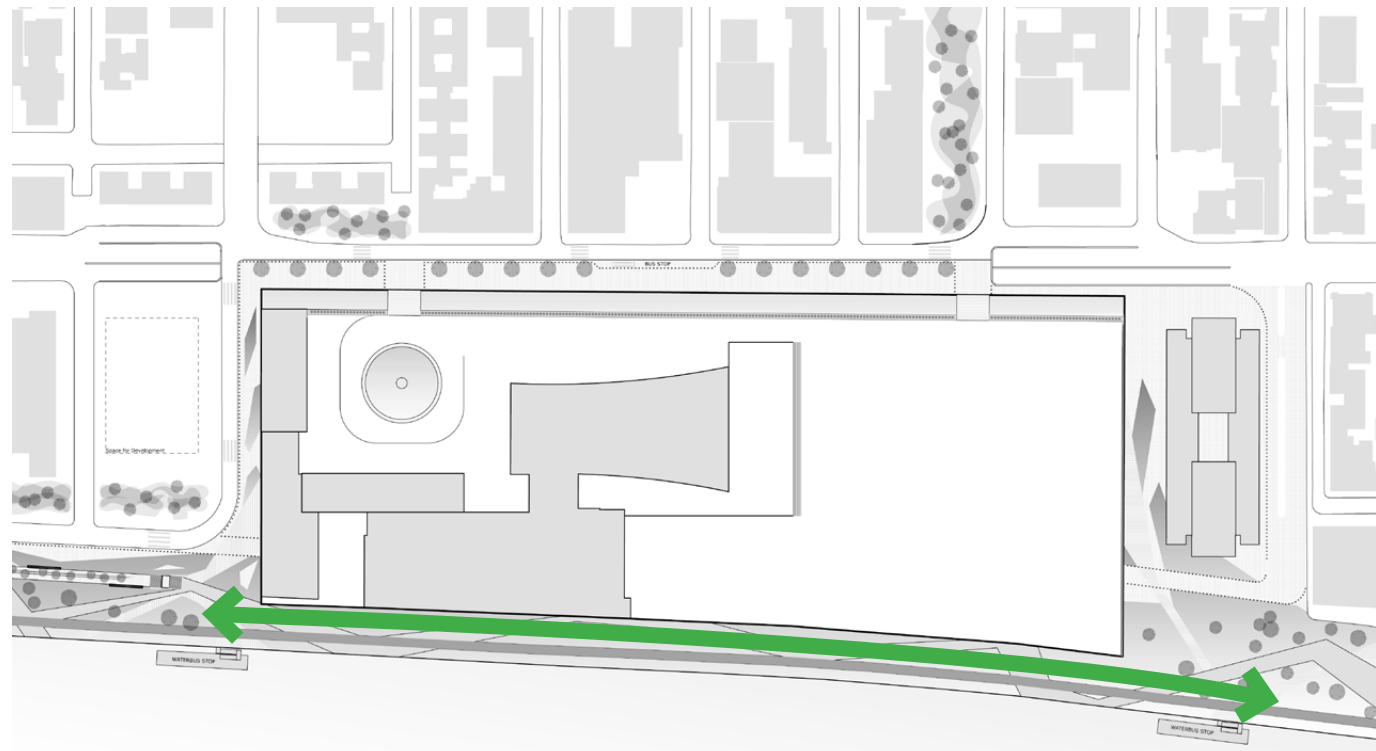


MASTERPLAN EAST RIVER WATERFRONT NEW PRECONDITIONS

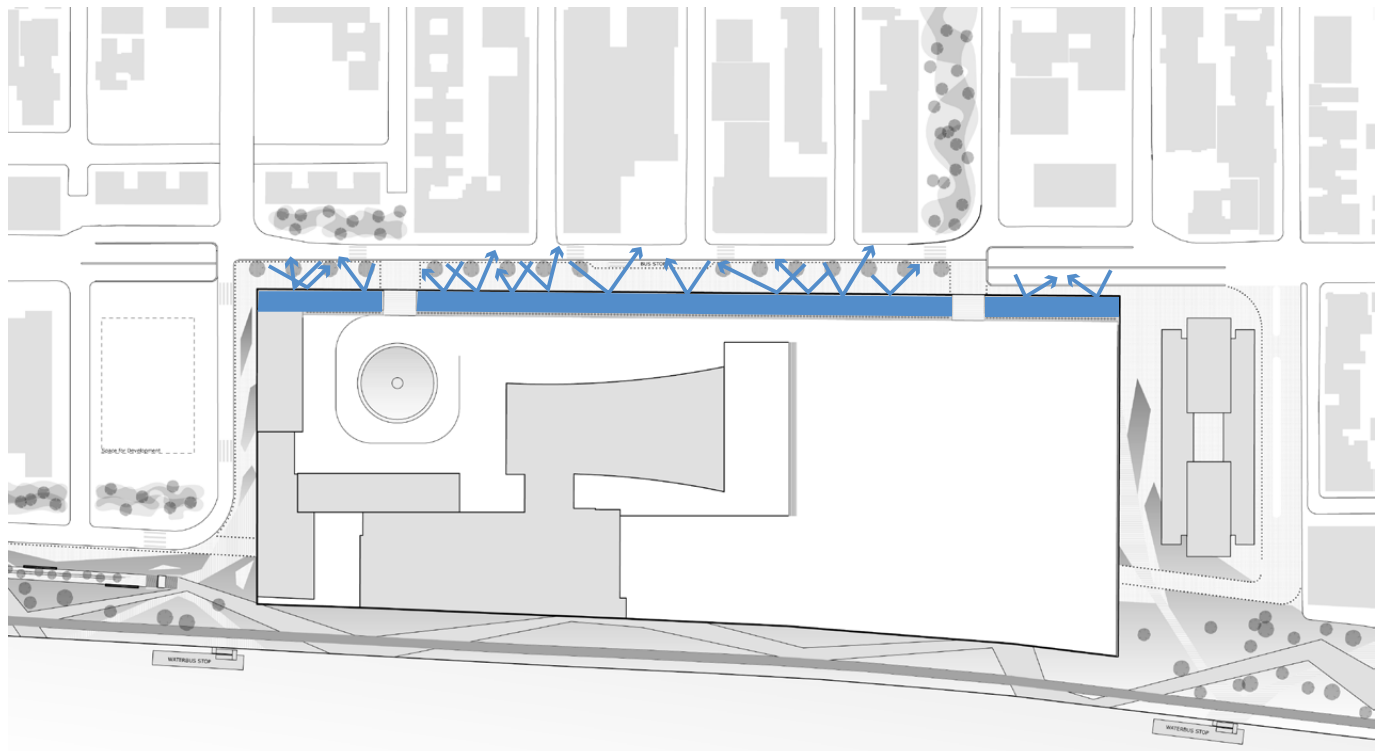
MASTERPLAN EAST RIVER WATERFRONT
NEW PRECONDITIONS



CLEAR ENTRANCES TO INTERNATIONAL TERRITORY



NEW PARKZONE + PEDESTRIAN ROUTE



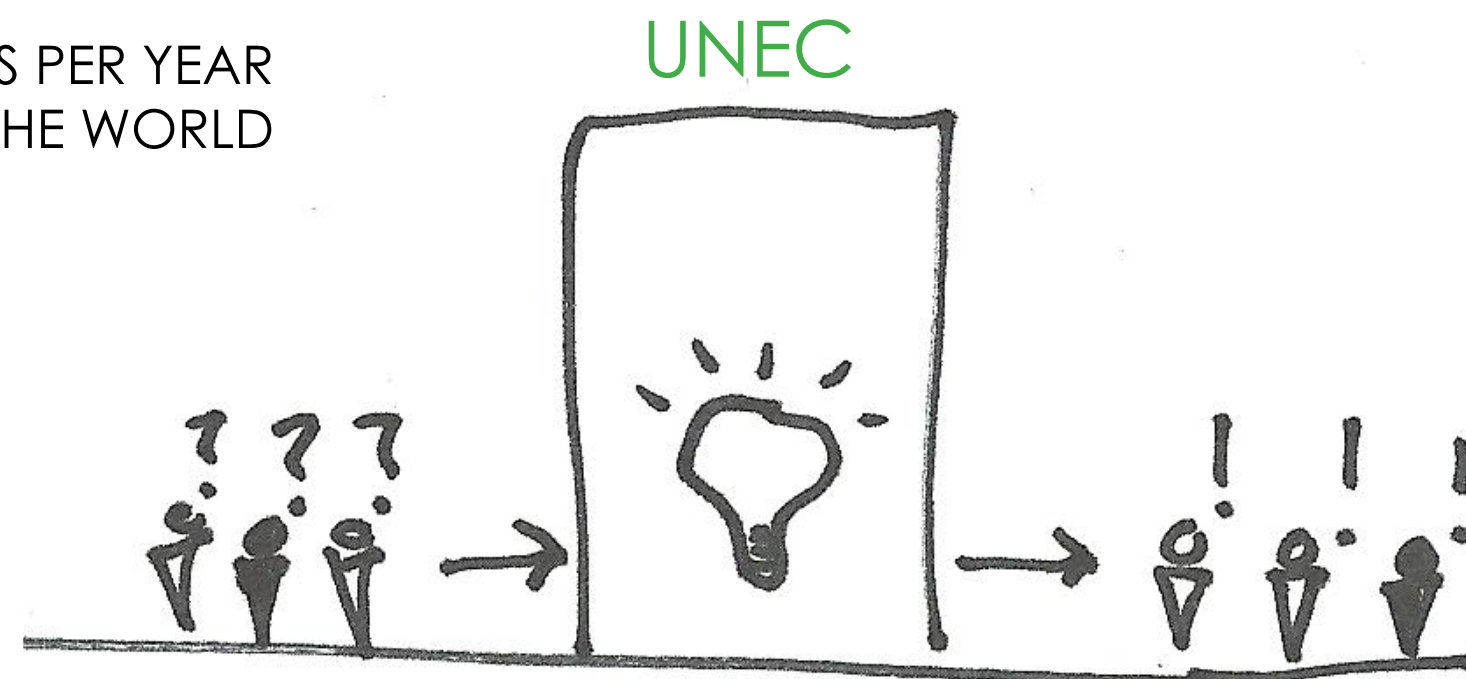
WATERBUFFER FOR SAFETY ON WATERFRONT

VISION

WHAT SHOULD THE
UNITED NATIONS ENVIRONMENTAL COUNCIL
ACHIEVE?

SUSTAINABILITY (FINALLY)

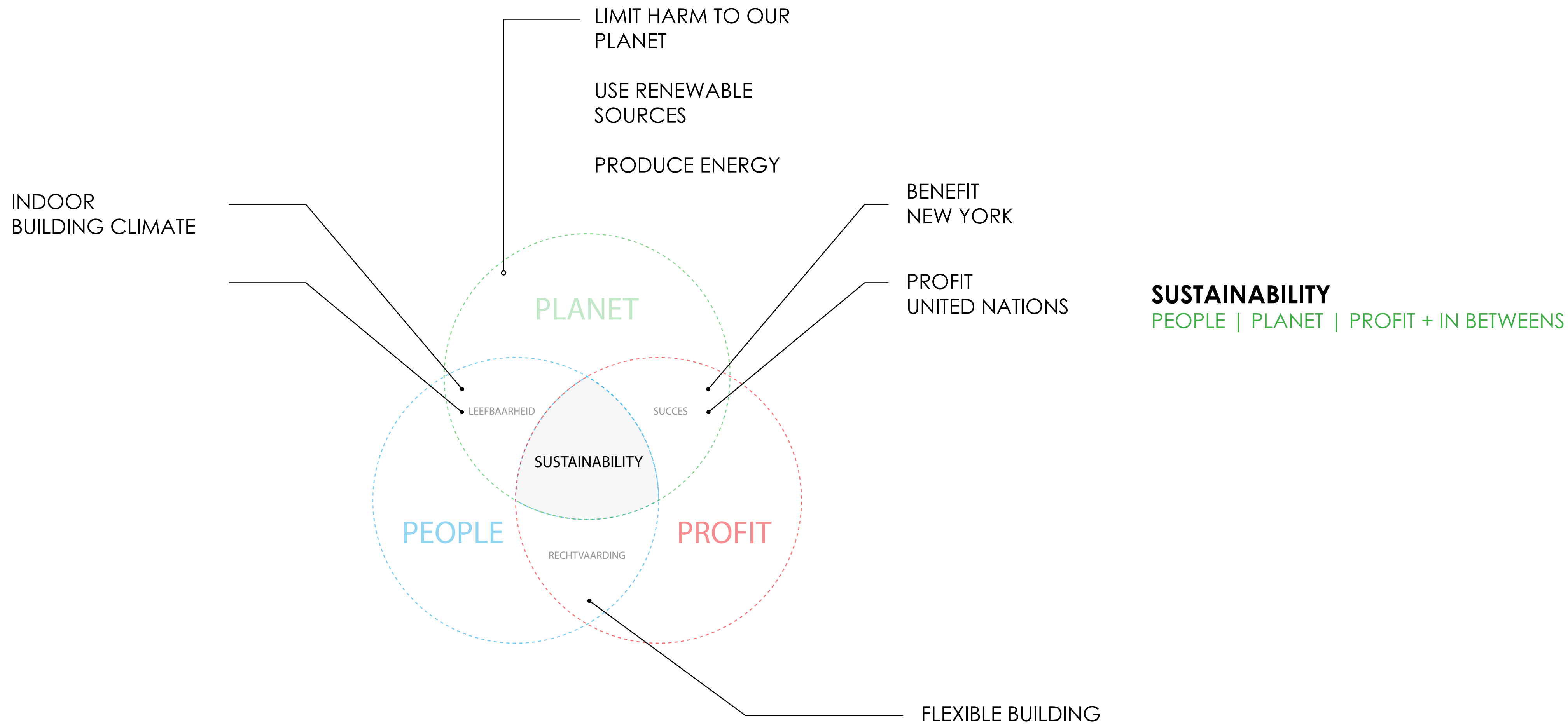
1.200.000 VISITORS PER YEAR
FROM ALL OVER THE WORLD

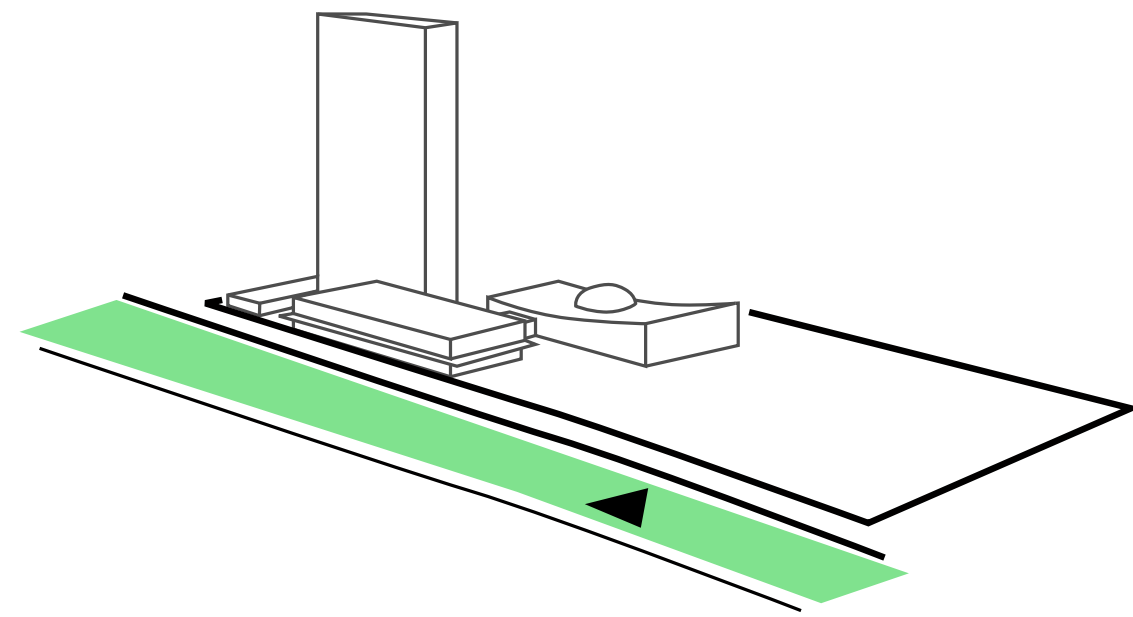


AWARENESS

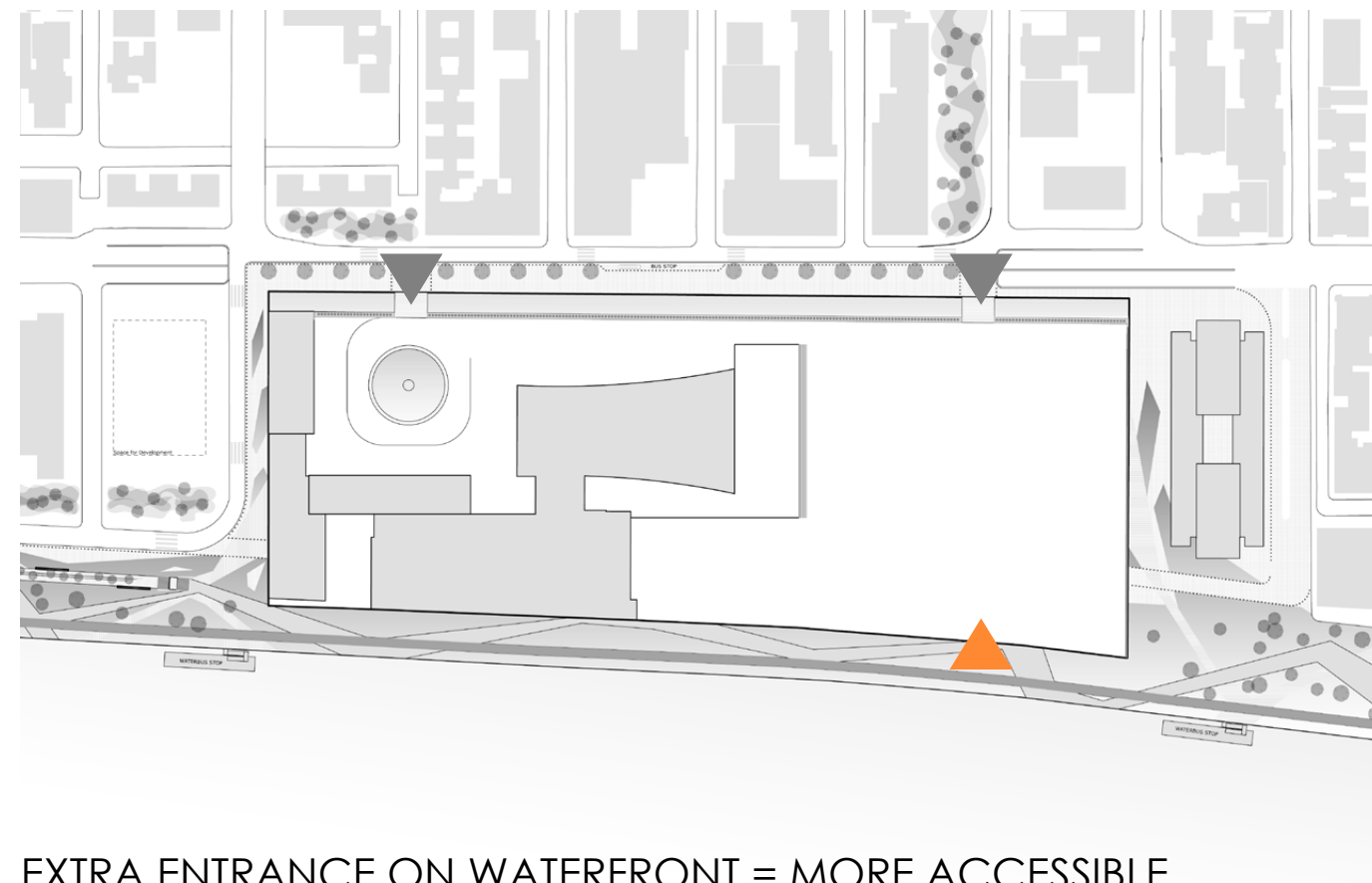
BUILDING SHOULD CONTAIN A FUNCTION THAT
MAKE EVERYONE ON THE PLANET AWARE OF

1. THEIR ENVIRONMENT
2. SUSTAINABILITY

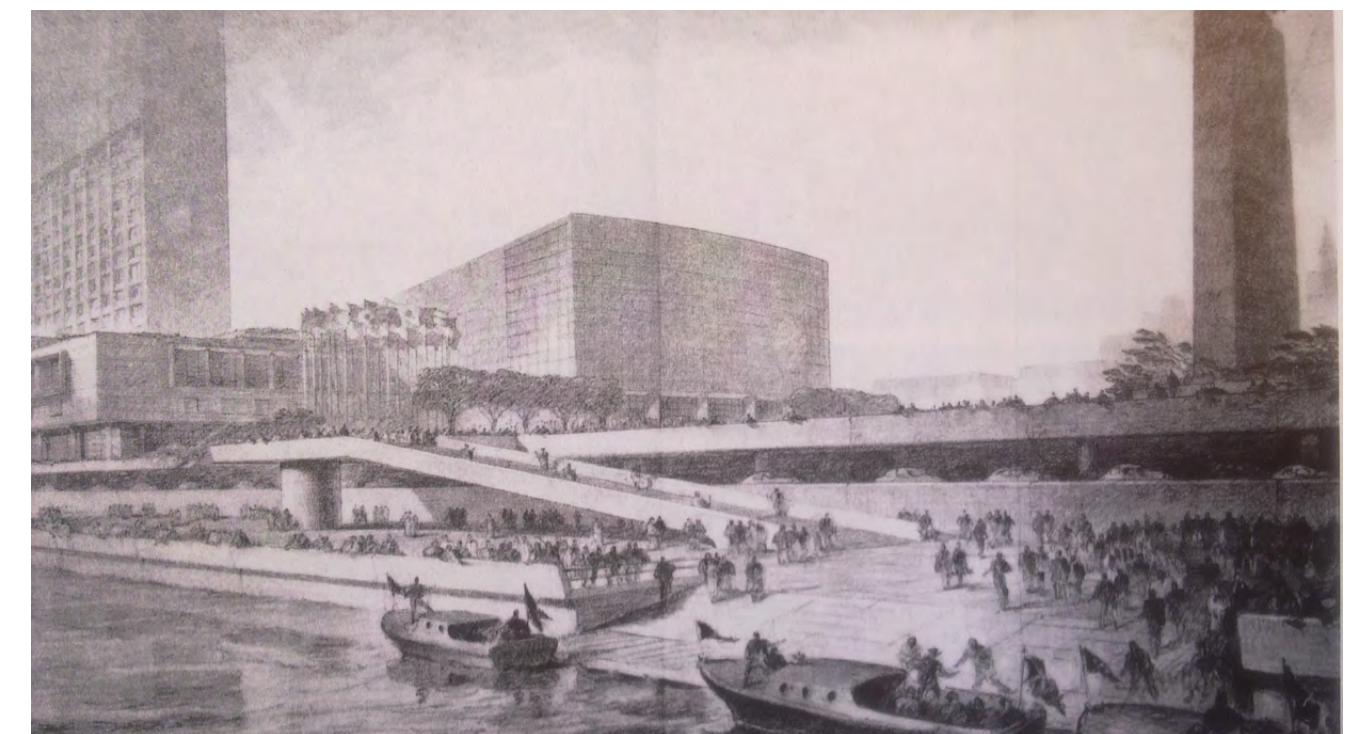




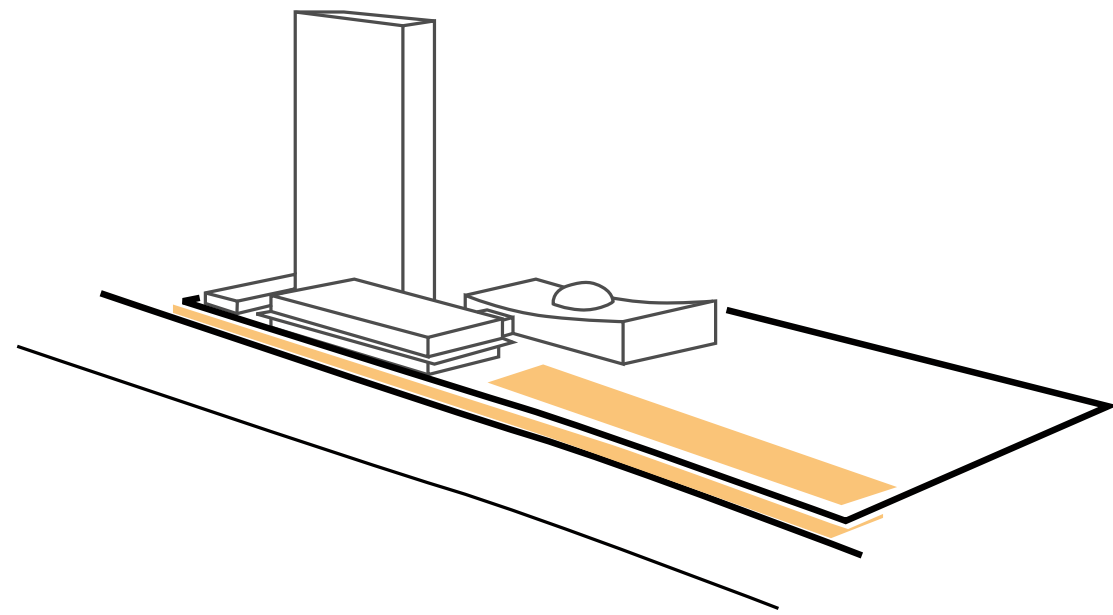
WATERFRONT ENTRANCE
BOULEVARD ON BUILDING ENTRANCE



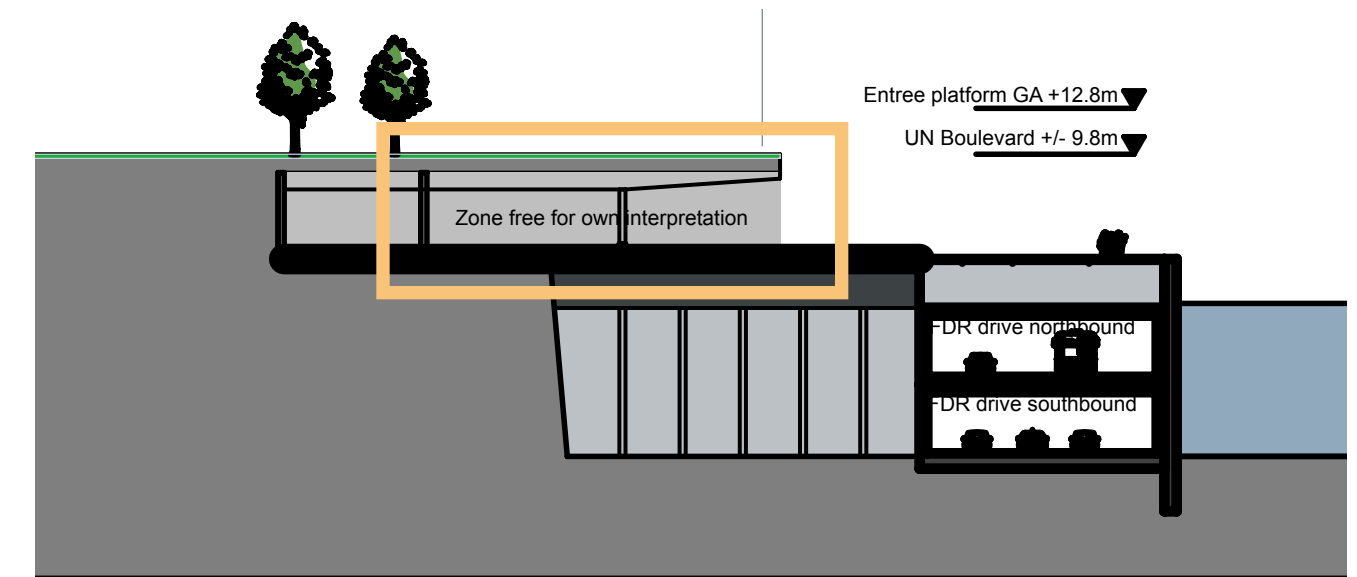
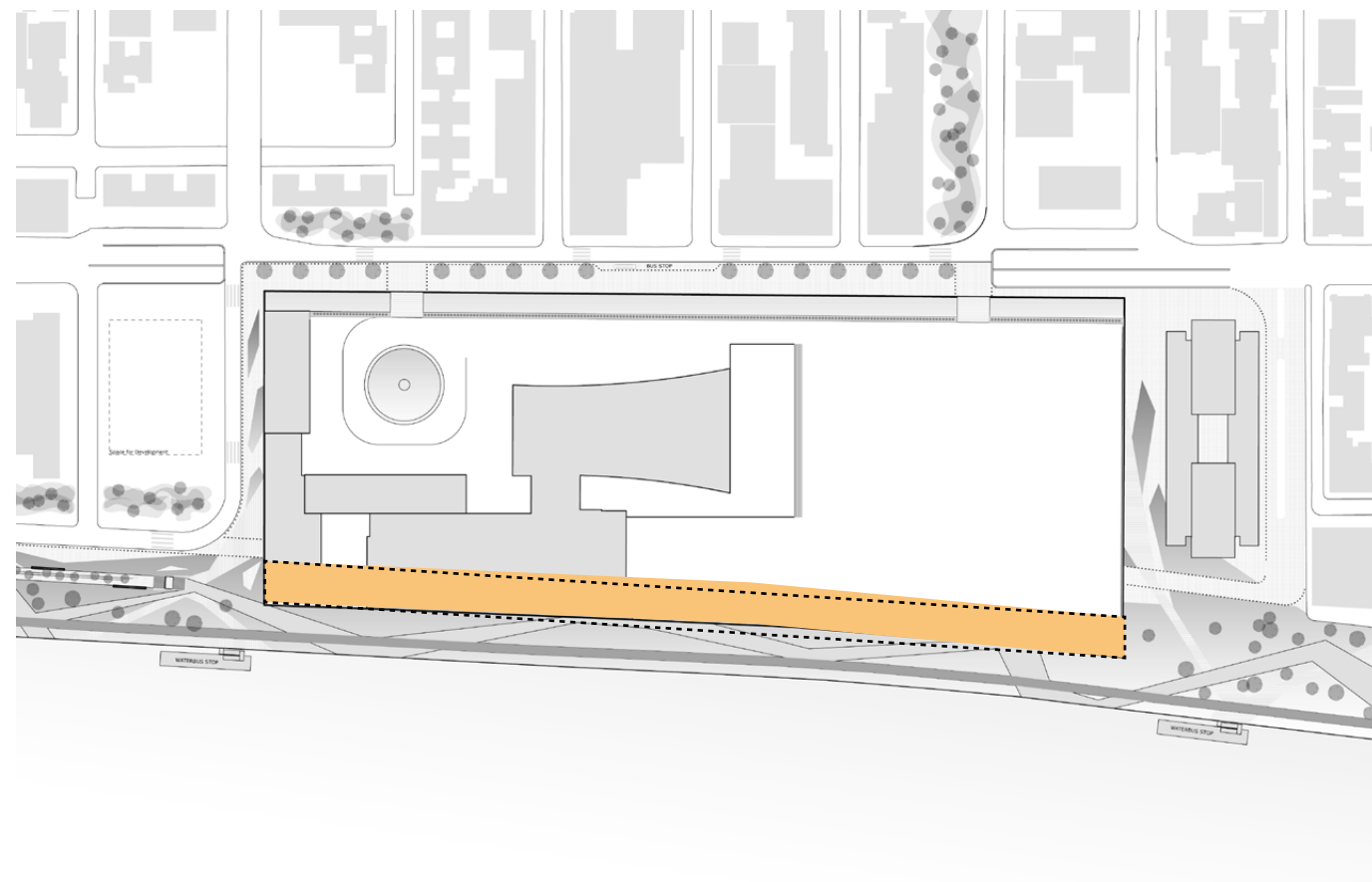
EXTRA ENTRANCE ON WATERFRONT = MORE ACCESSIBLE

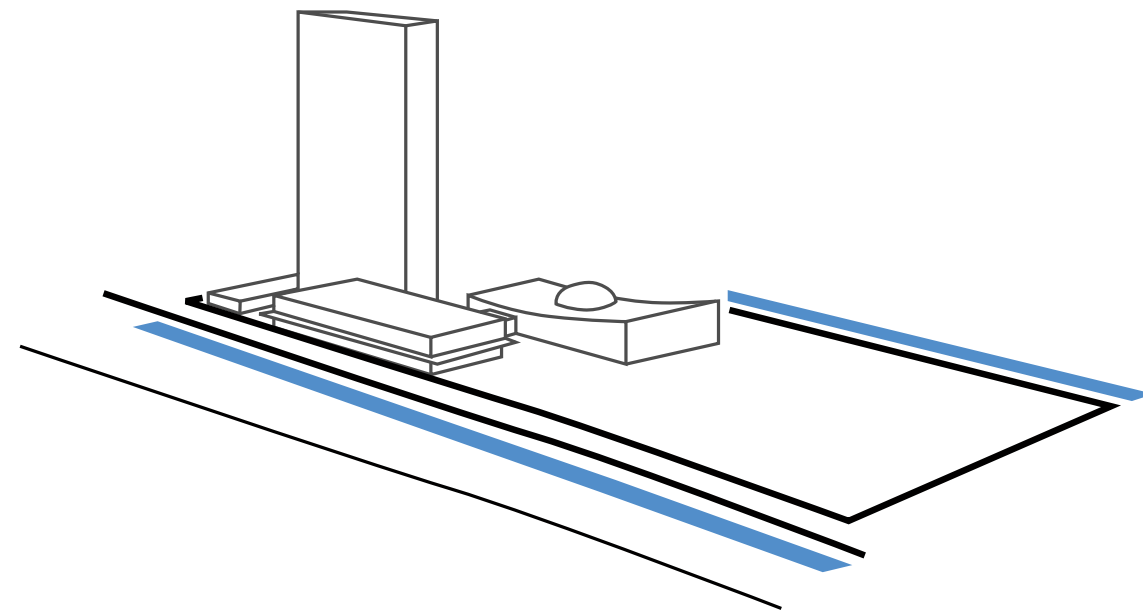


DESIGN SKETCH IN 1945

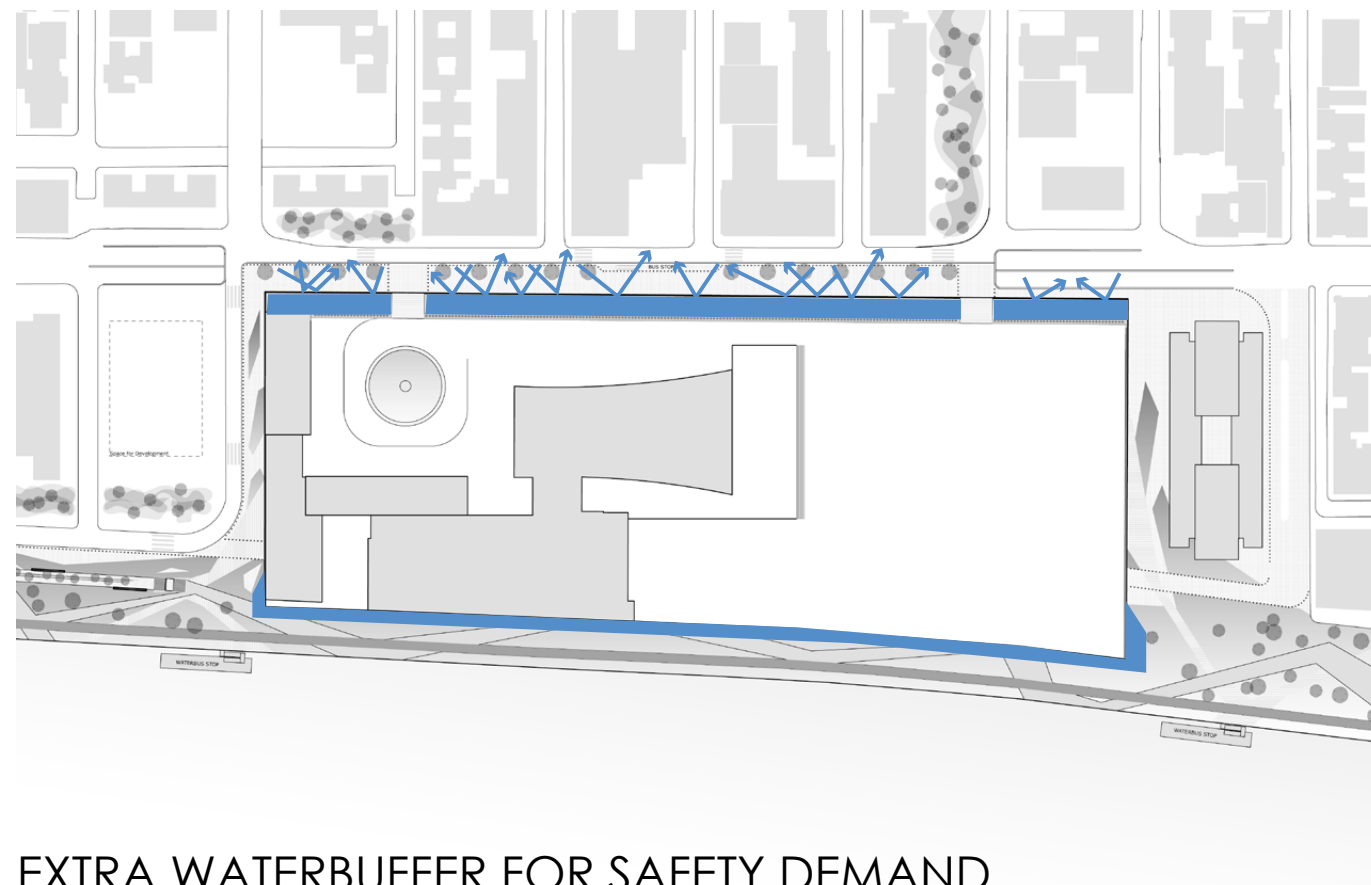


EMPHASIZE BUILDING ON FREE FDR SPACE
 RE-USE 5.000 M² FORMER HIGHWAY SPACE

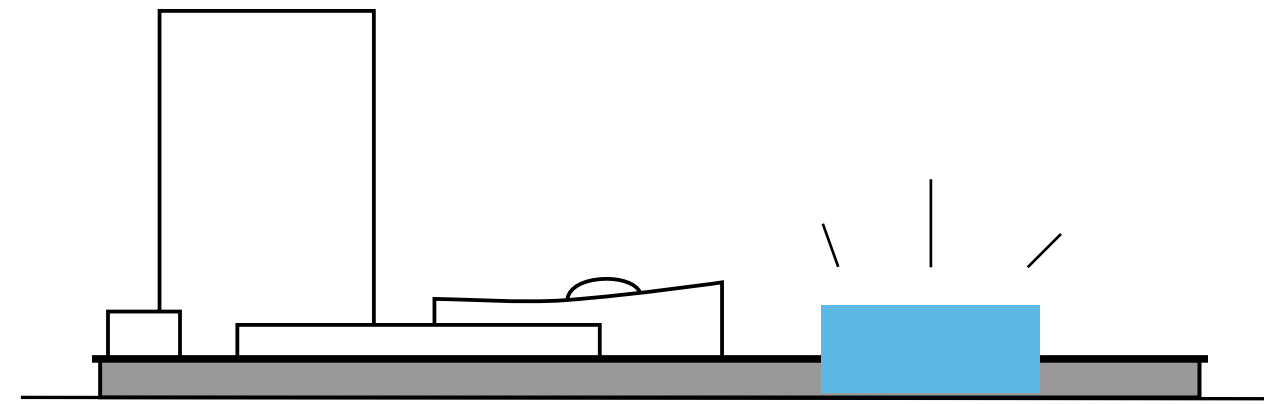




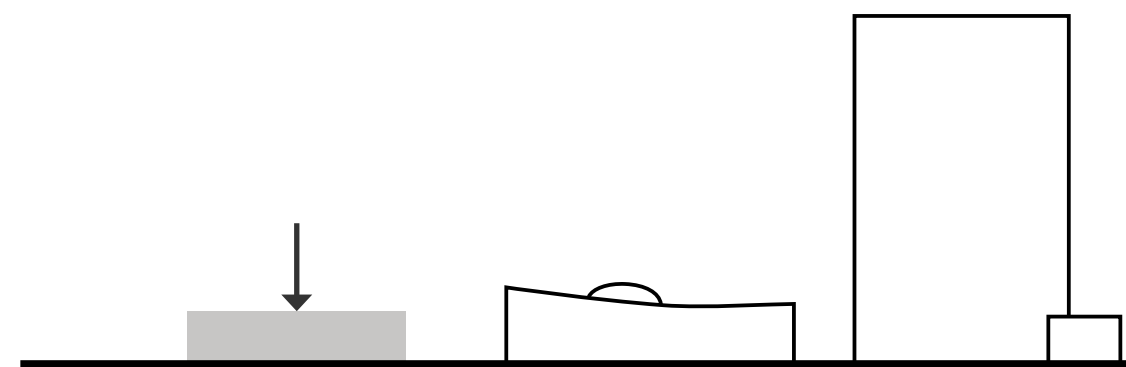
WATERBUFFER
EXTRA WATERBUFFER ON WATERSIDE
FOR SAFETY DEMAND BY DEMOLISHING CAISSON



EXTRA WATERBUFFER FOR SAFETY DEMAND

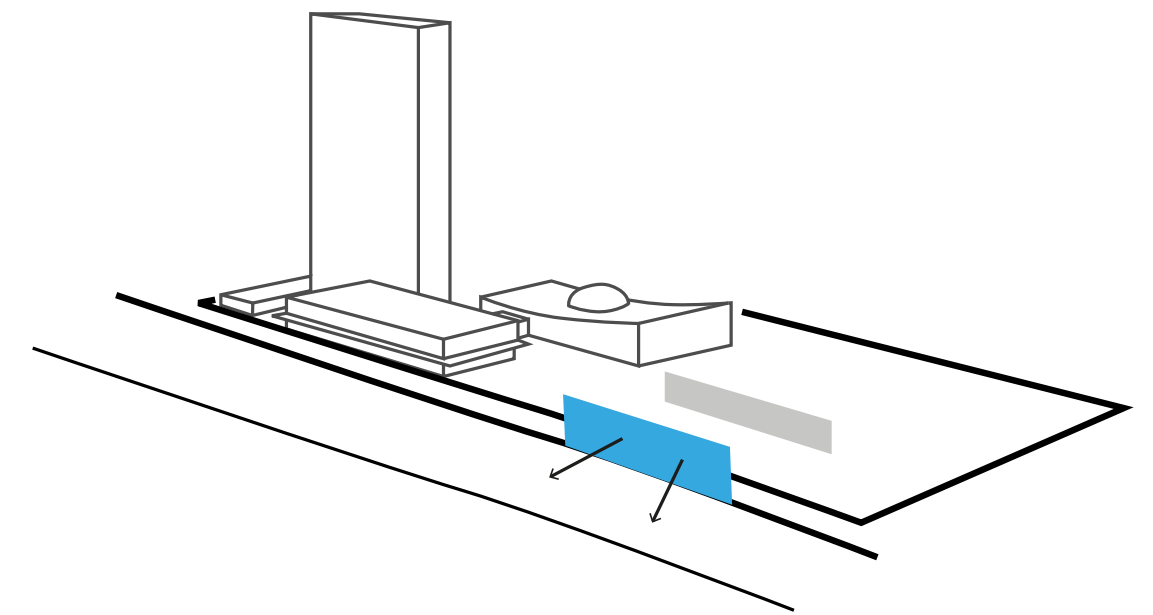


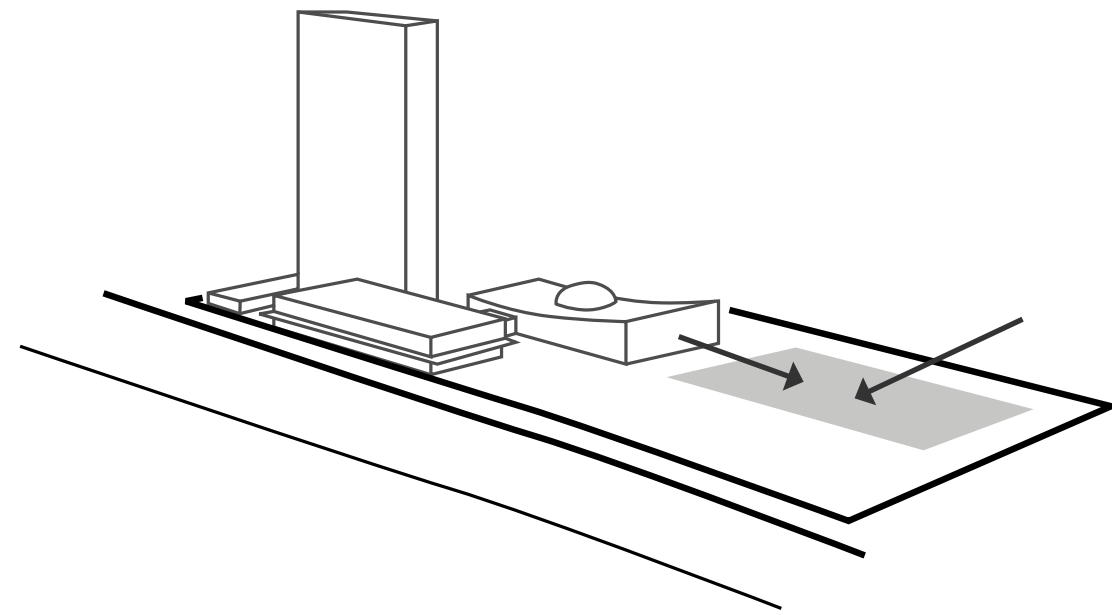
WATERFRONT: DOMINANT NEW FACADE



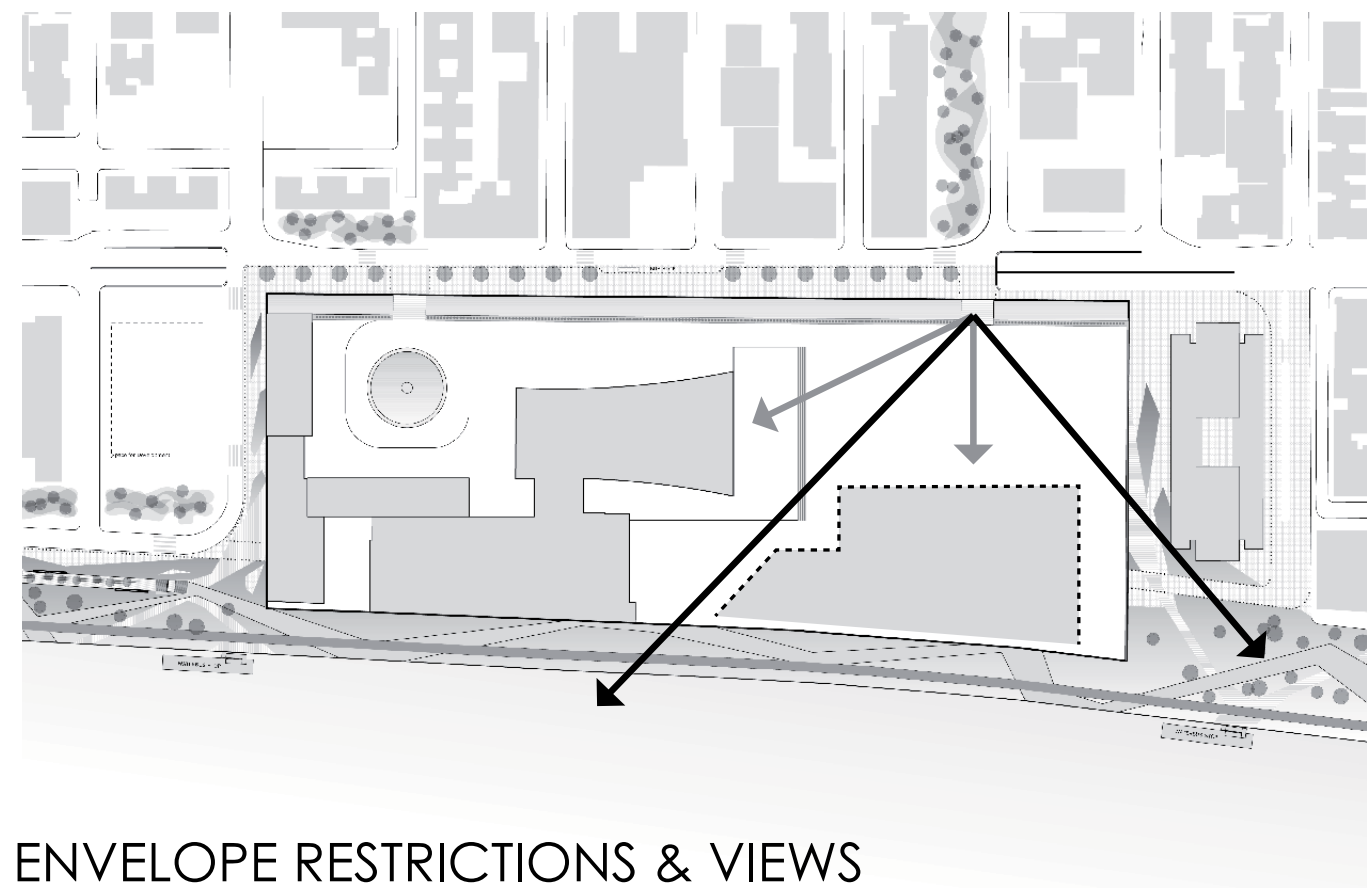
CITY SIDE: GENERAL ASSEMBLY & SECRETARIAT
DOMINANT

SUBORDINATE & DOMINANT FACADE
WATER AND CITY ENTRANCE

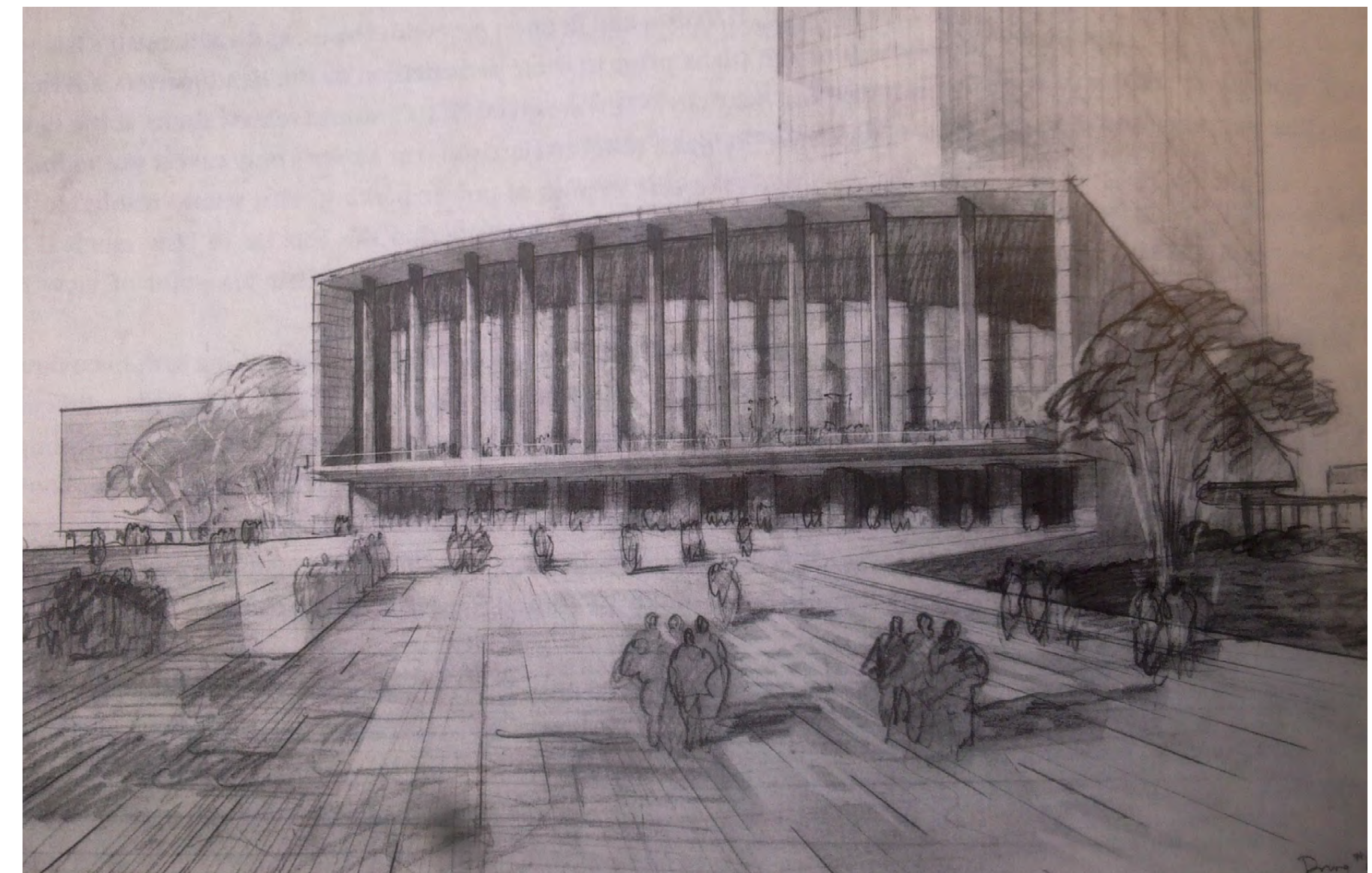


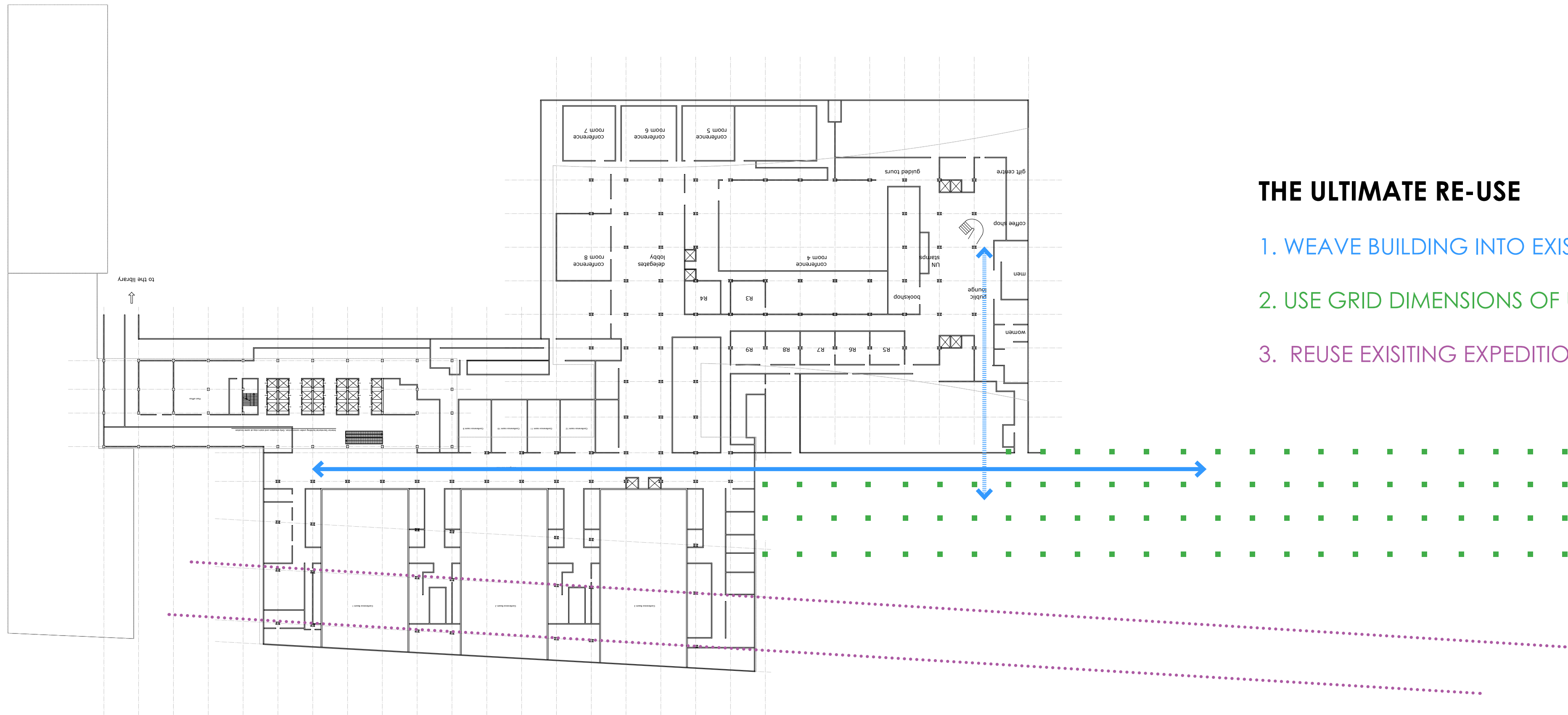


RESTORE UN PLAZA
 KEEP EXISTING PODIUM EDGES FREE
 MAKE PUBLIC SQUARE (as designed in 1945)



ENVELOPE RESTRICTIONS & VIEWS





THE ULTIMATE RE-USE

- 1. WEAVE BUILDING INTO EXISTING STRUCTURES
- 2. USE GRID DIMENSIONS OF UN COMPLEX
- 3. REUSE EXISTING EXPEDITION ROAD



COLLECT

PRODUCE

PROPAGATE

EXCHANGE

UN ENVIRONMENTAL COUNCIL
PROGRAM BRIEF

COLLECT

LIBRARY

PRODUCE

OFFICES

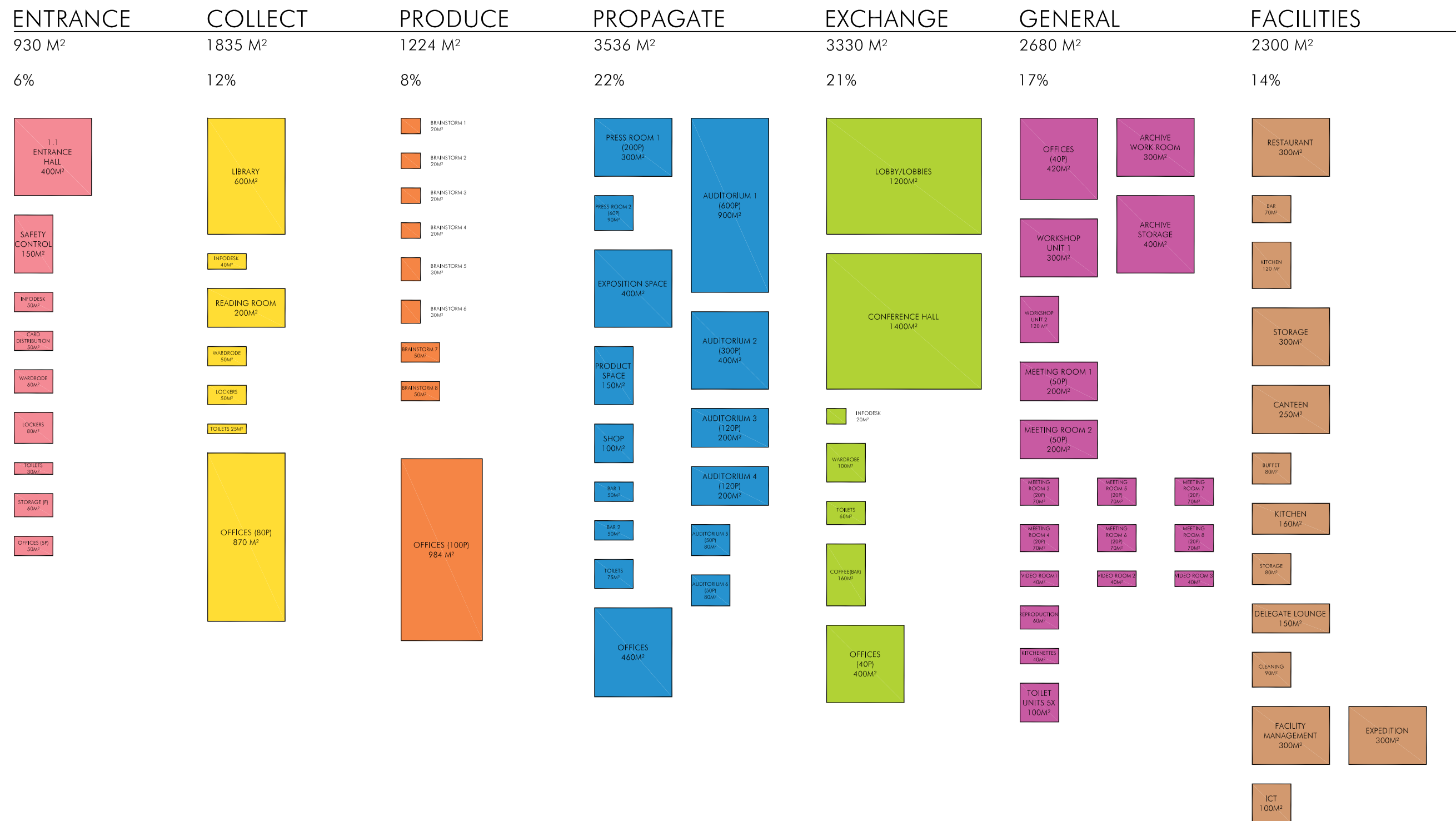
PROPAGATE

AUDITORIA

EXCHANGE

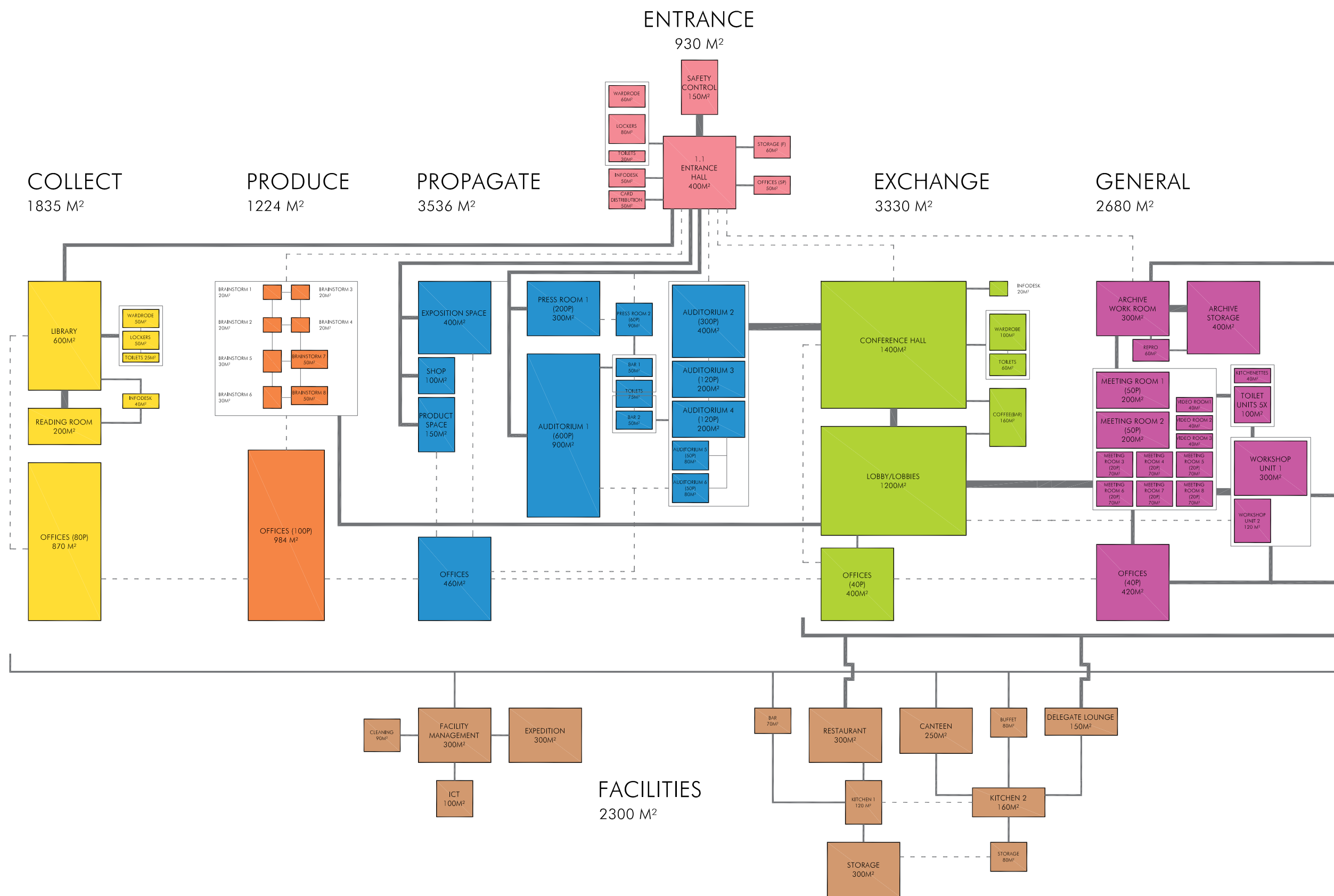
COUNCIL ROOM

UN ENVIRONMENTAL COUNCIL
REPRESENTATIVE FUNCTIONS



UNEC PROGRAM BRIEF
PROGRAM BRIEF TOTAL

15.500 M2 NETTO
= A VERY BIG BUILDING



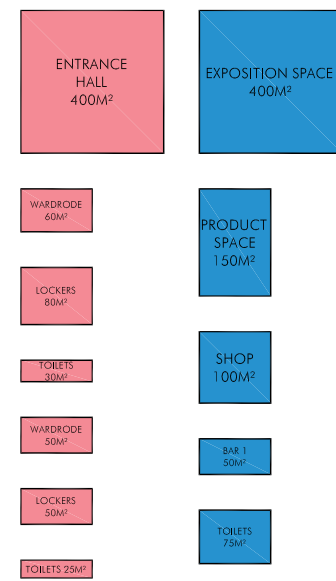
UNEC PROGRAM BRIEF
SORTED BY CONNECTIONS

= COMPLEX PROGRAM



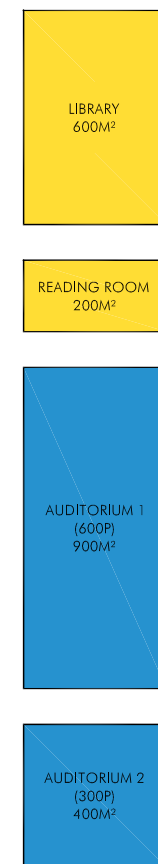
PUBLIC
1470M²

9.3%



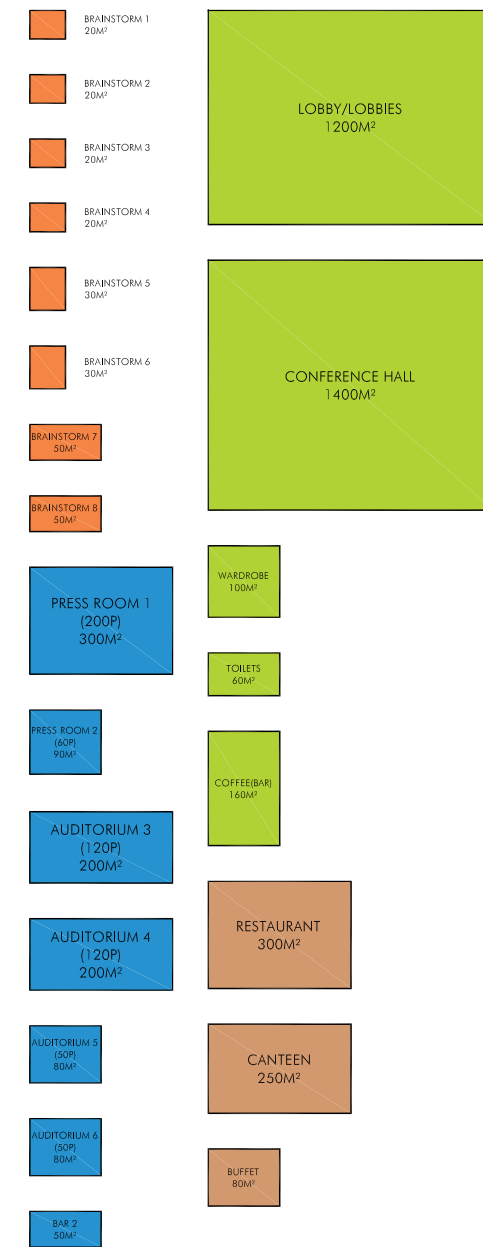
SEMI-PUBLIC
2100 M²

13.3%



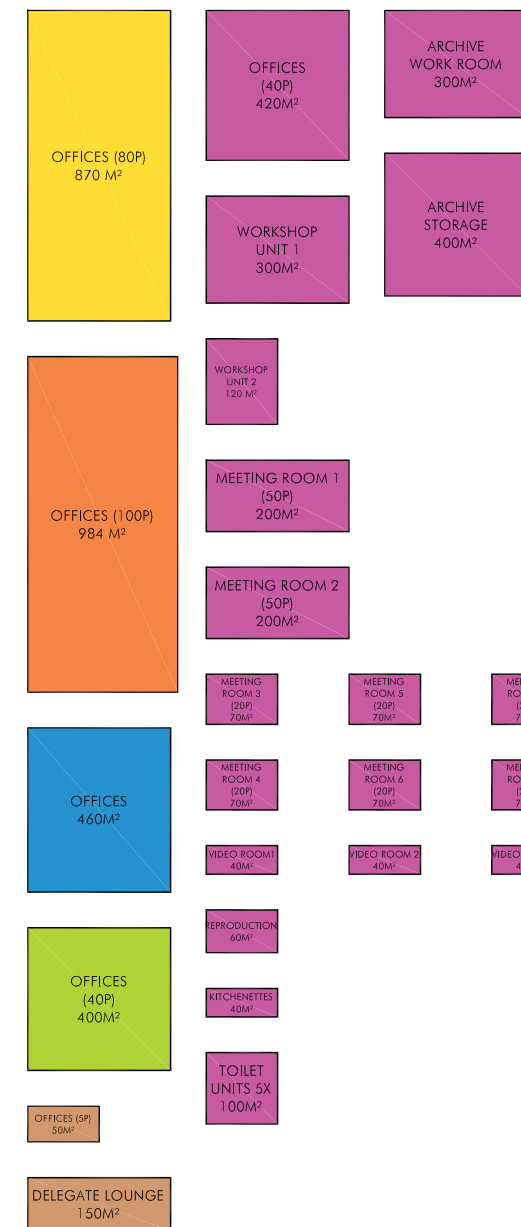
PRESS & BUSINESS +
4790 M²

30.2%



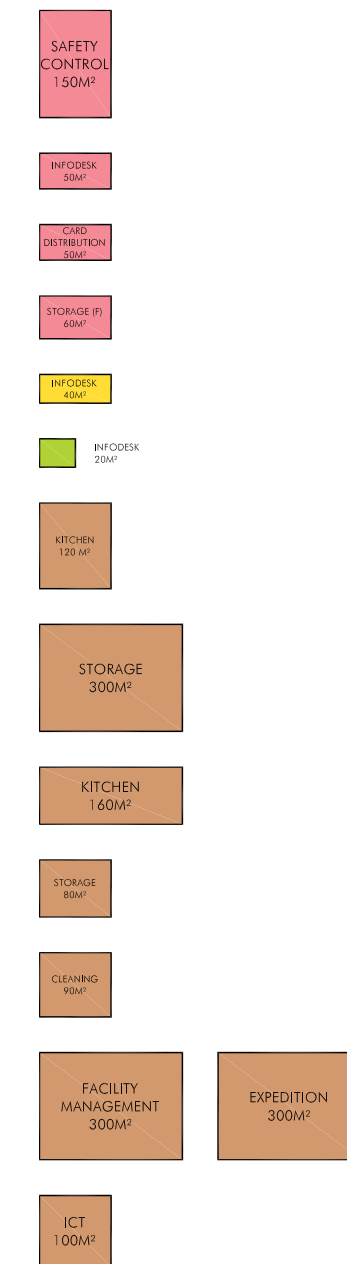
DELEGATES +
5594 M²

35.3%

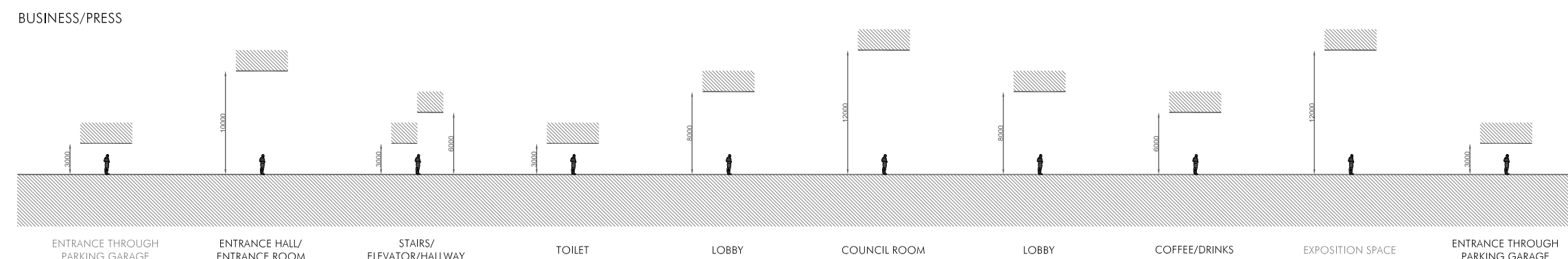
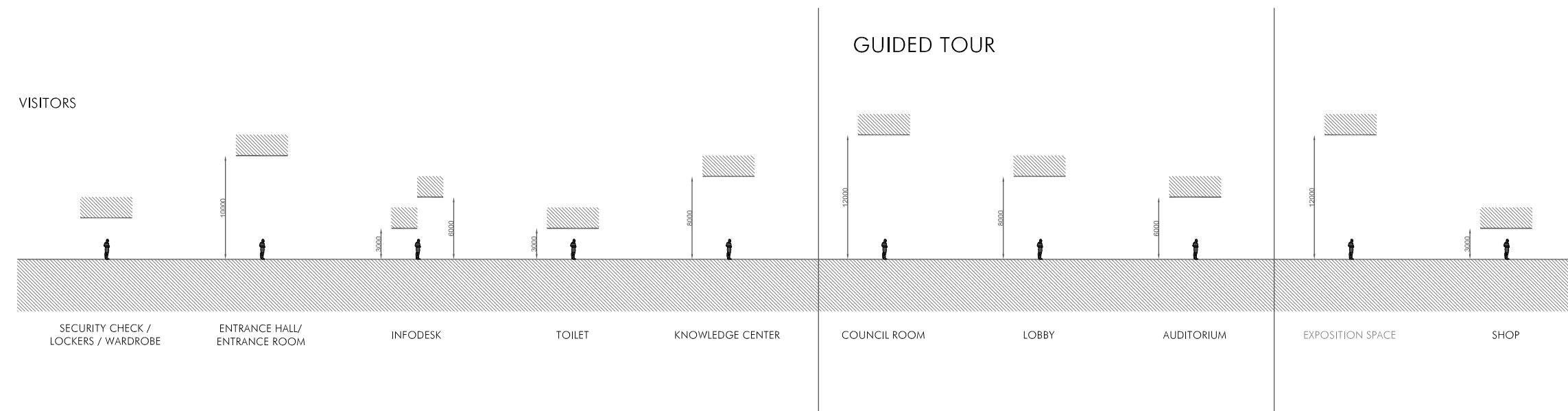
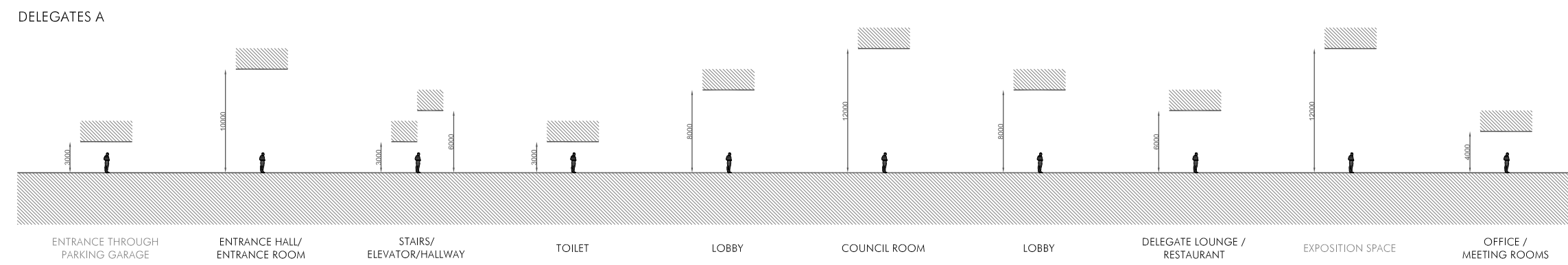


EMPLOYEES
1820 M²

11.5%



UNEC PROGRAM BRIEF
SORTED BY USERS



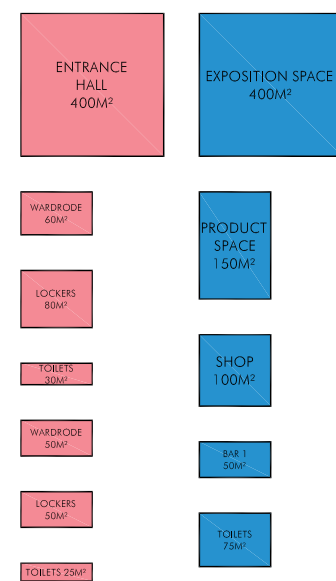
BUILDING PATHS PER USER

WHAT DOES A USER TYPE DO IN THIS BUILDING

PEOPLE COULD MISS EACH OTHER!

- FOR A SUCCESSFULL UNEC BUILDING, USERS NEED TO BE VISIBLE

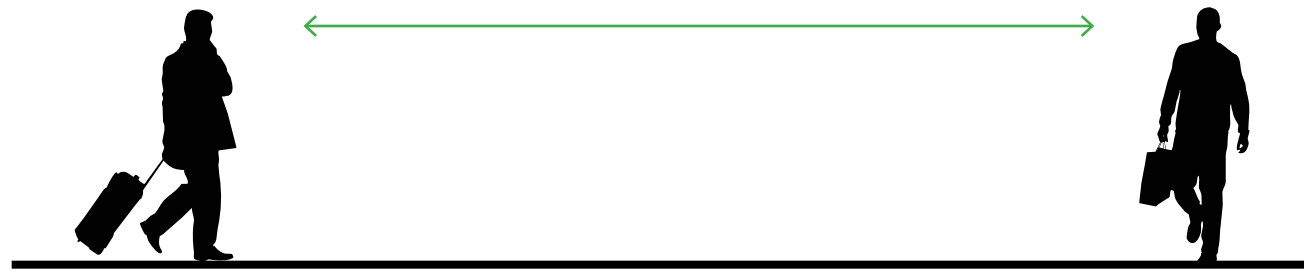
PUBLIC
1470M²
9.3%



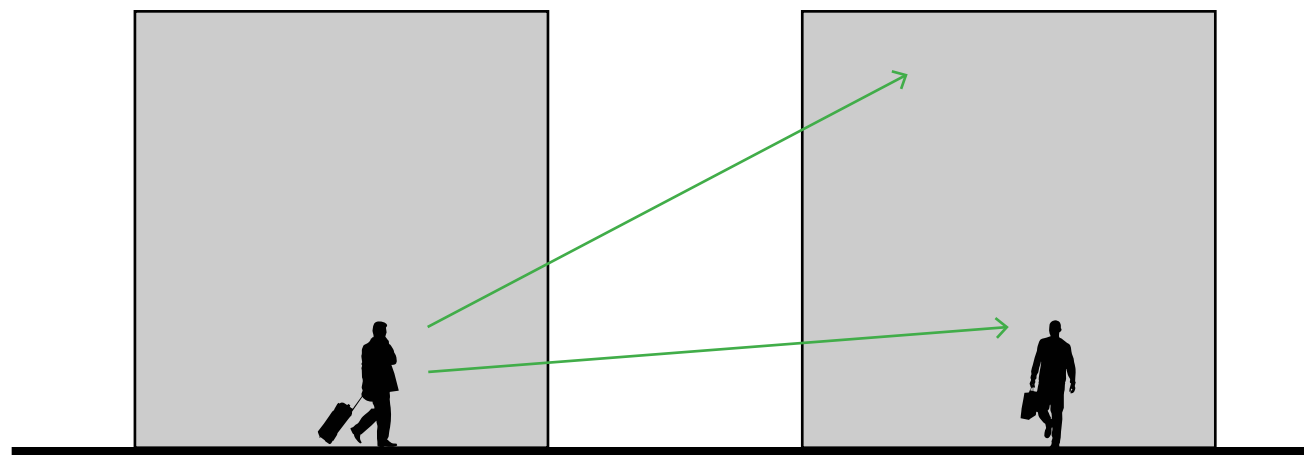
PUBLIC DOMAIN IS ONLY 9.3%
HOW TO MAKE PEOPLE AWARE OF THE UNEC?

TO HELP THE UNEC MISSION,
EVERY PERSON NEEDS TO KNOW
WHAT IS GOING ON HERE.

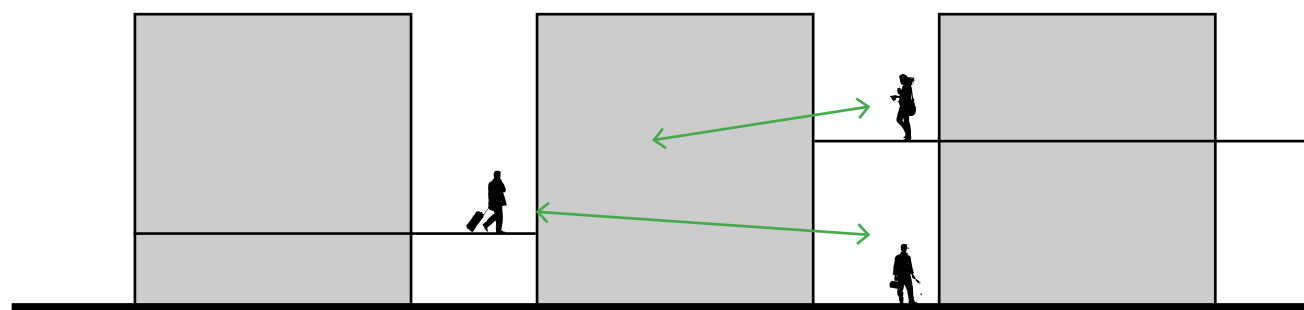
AWARENESS !



STREETS
 OVERVIEW IN COMPLEXITY
 MAKE BUILDING 'MORE PUBLIC'

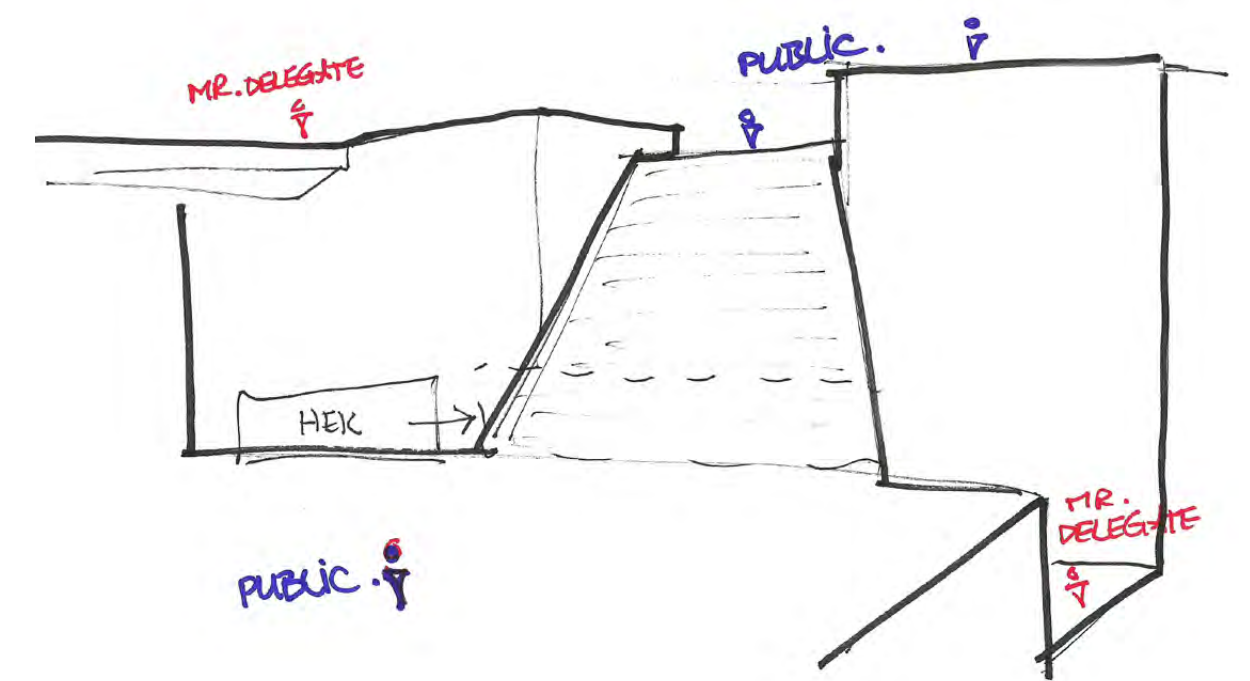


BLOCKS
 IMPLICITY & FLEXIBILITY IN BUILDING FUNCTIONS

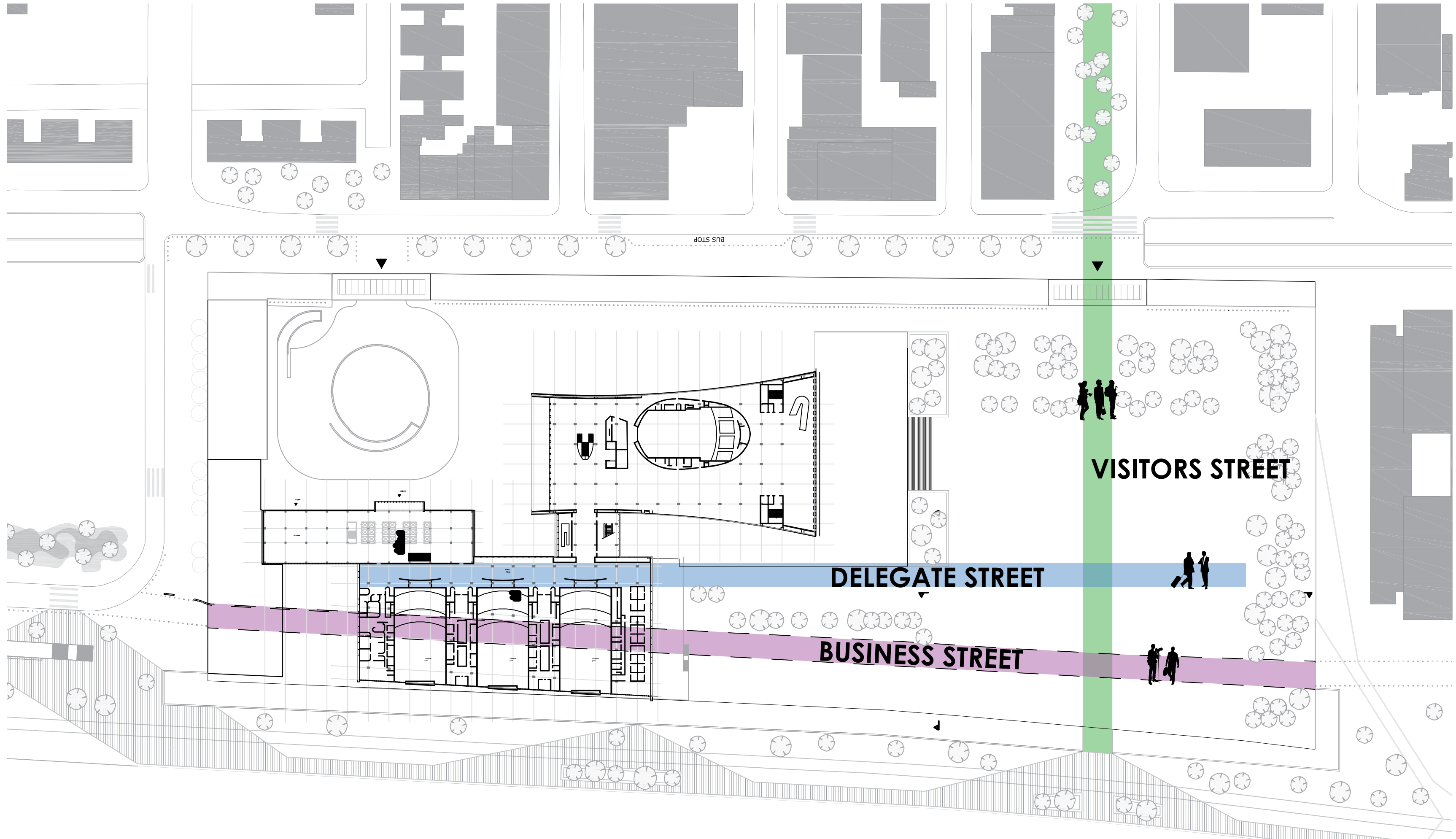


LEVELS
 DOMAIN FOR EACH TYPE OF USER
 VISIBLE CONNECTION IN BUILDING

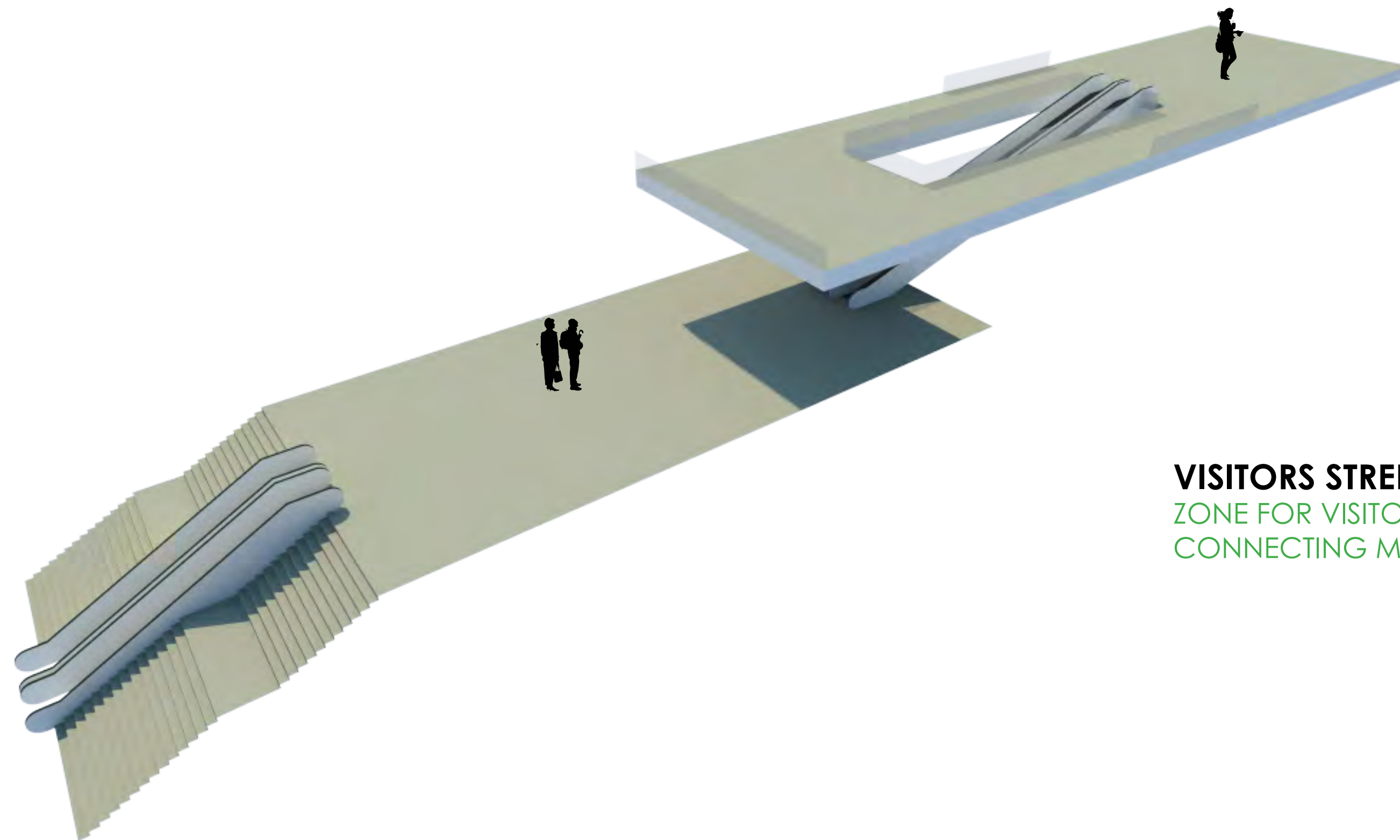
CONCEPT



DAG HAMMERSKJOLD PLAZA ON 47TH STREET



UNEC
water entrance



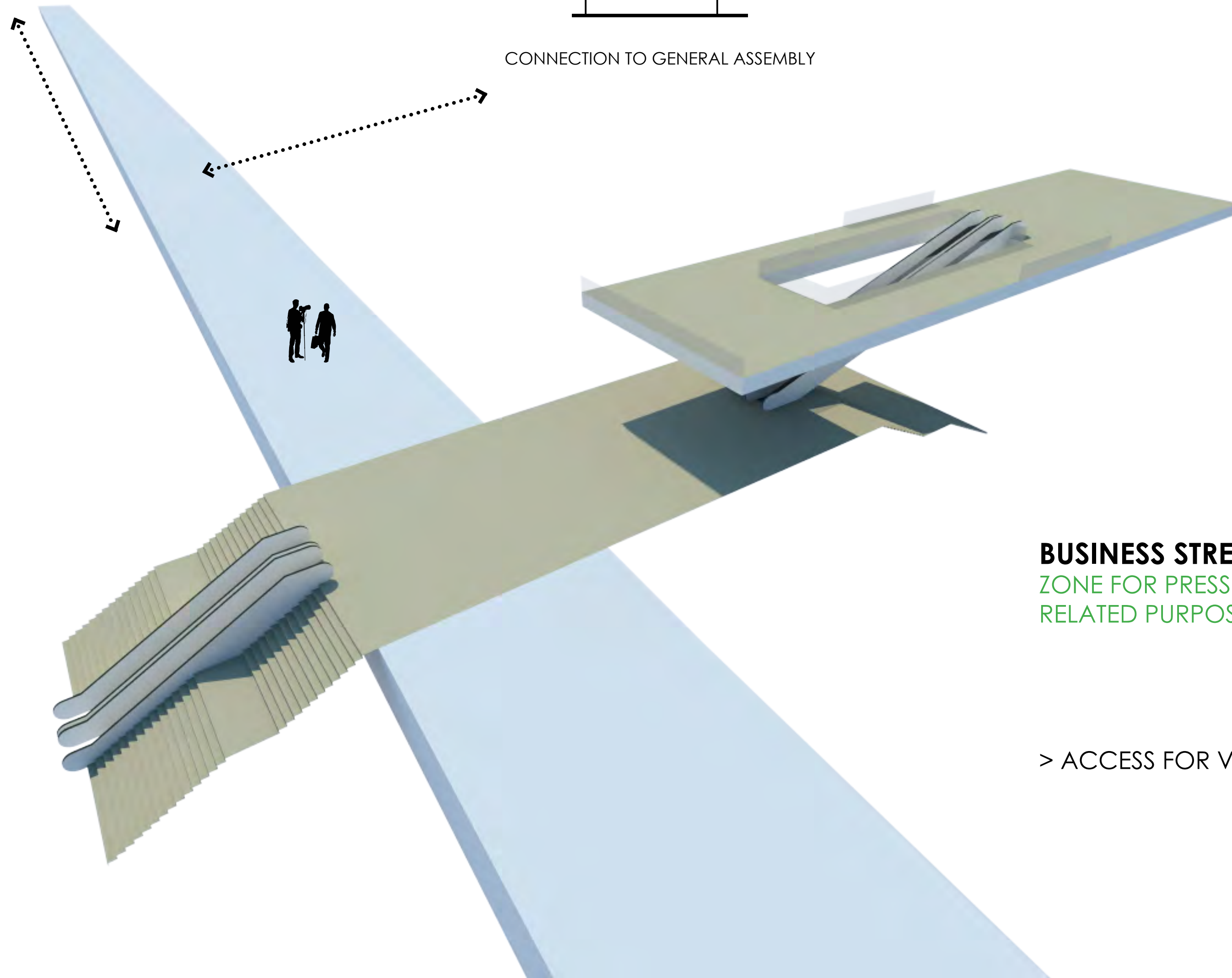
UN plaza

VISITORS STREET
ZONE FOR VISITORS
CONNECTING MAIN ENTRANCES

CONFERENCE BUILDING



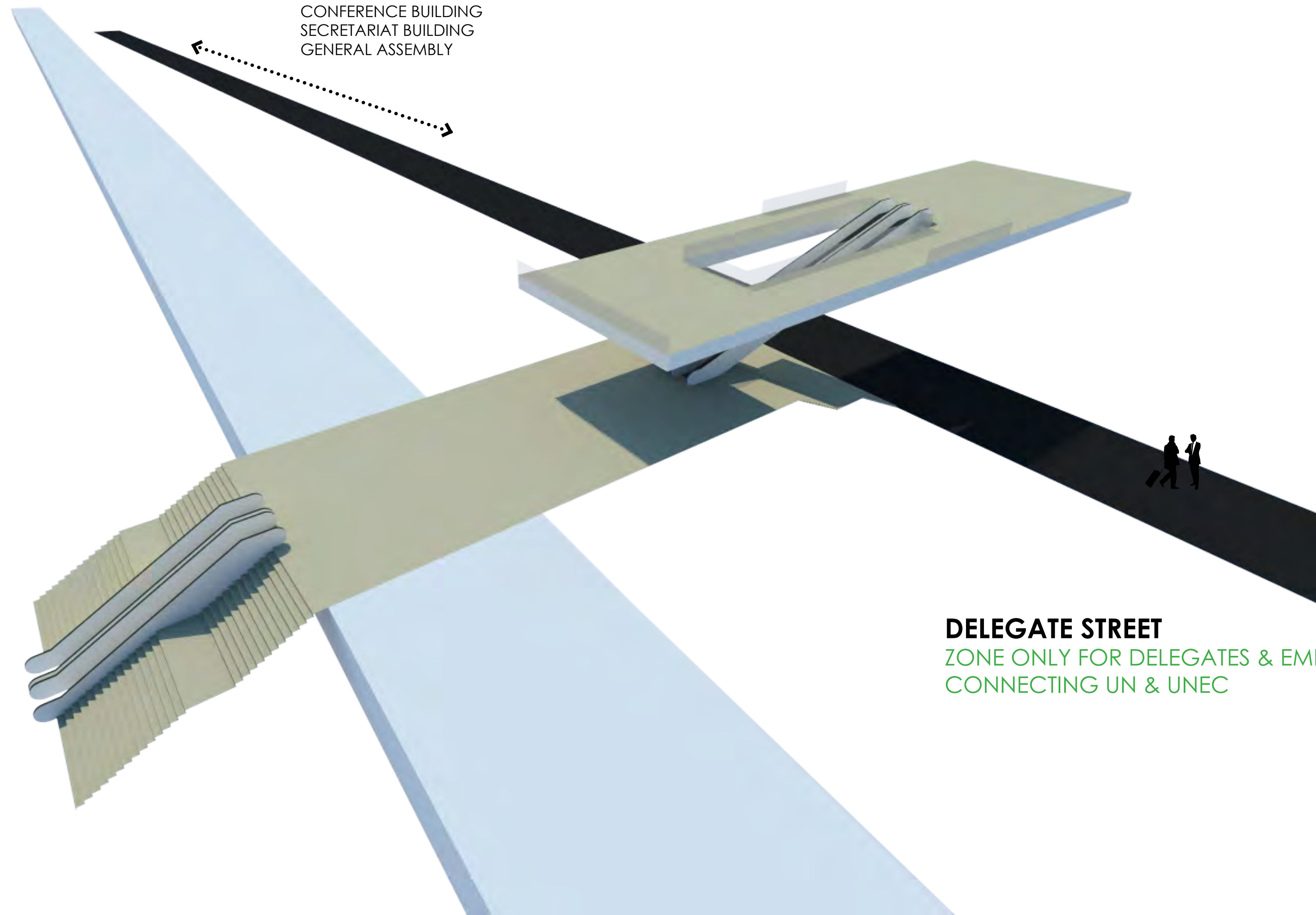
CONNECTION TO GENERAL ASSEMBLY



BUSINESS STREET

ZONE FOR PRESS AND BUSINESS
RELATED PURPOSES

> ACCESS FOR VISITORS VIA TOUR GUIDE

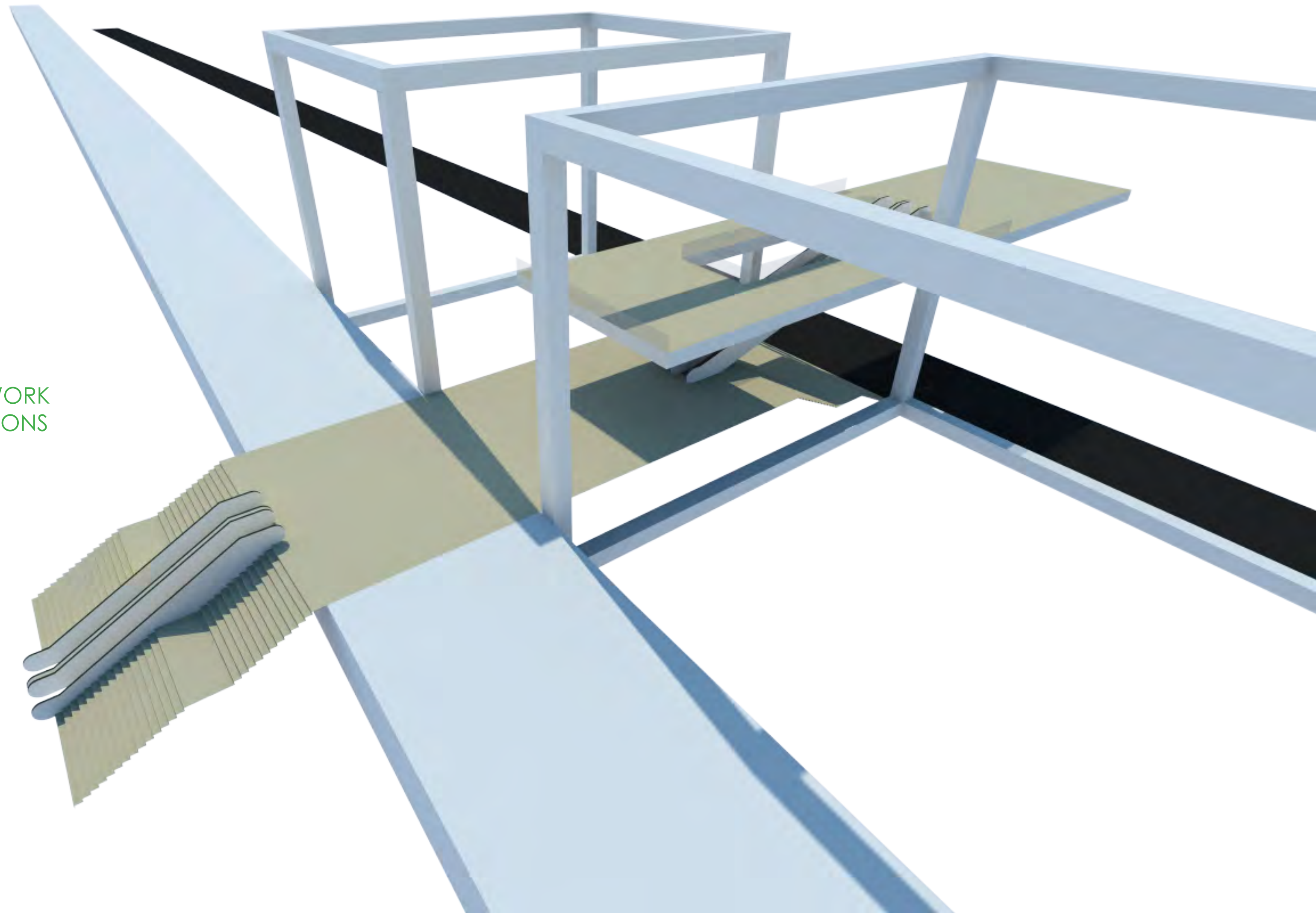


CONFERENCE BUILDING
SECRETARIAT BUILDING
GENERAL ASSEMBLY

DELEGATE STREET
ZONE ONLY FOR DELEGATES & EMPLOYEES
CONNECTING UN & UNEC

HEART OF THE BUILDING

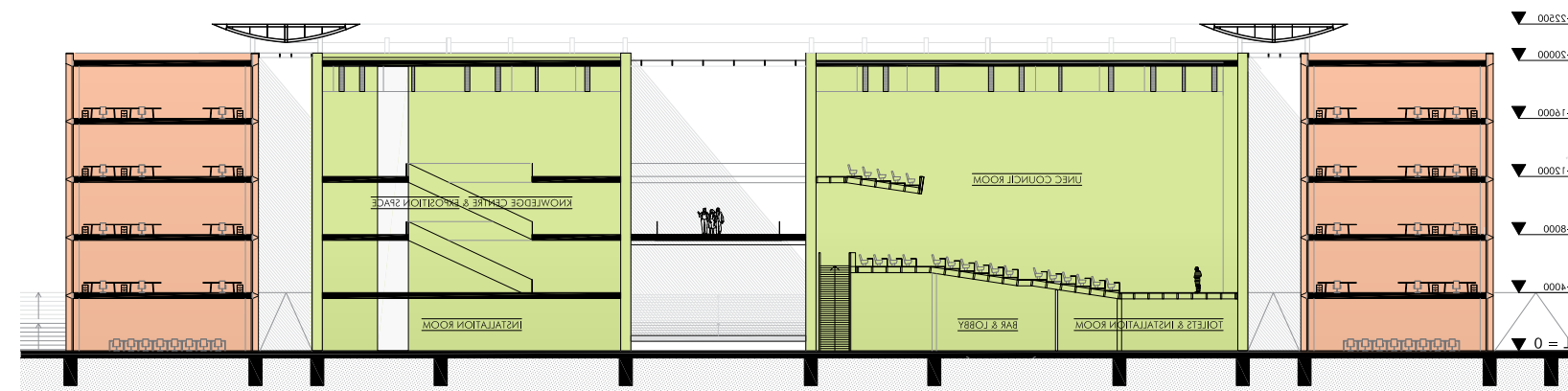
INTERSECTIONS SPAN FRAMEWORK
FOR MOST IMPORTANT FUNCTIONS





BUILDING HEART
VISITORS STREET

- KNOWLEDGE CENTER (L)
- COUNCIL ROOM (R)



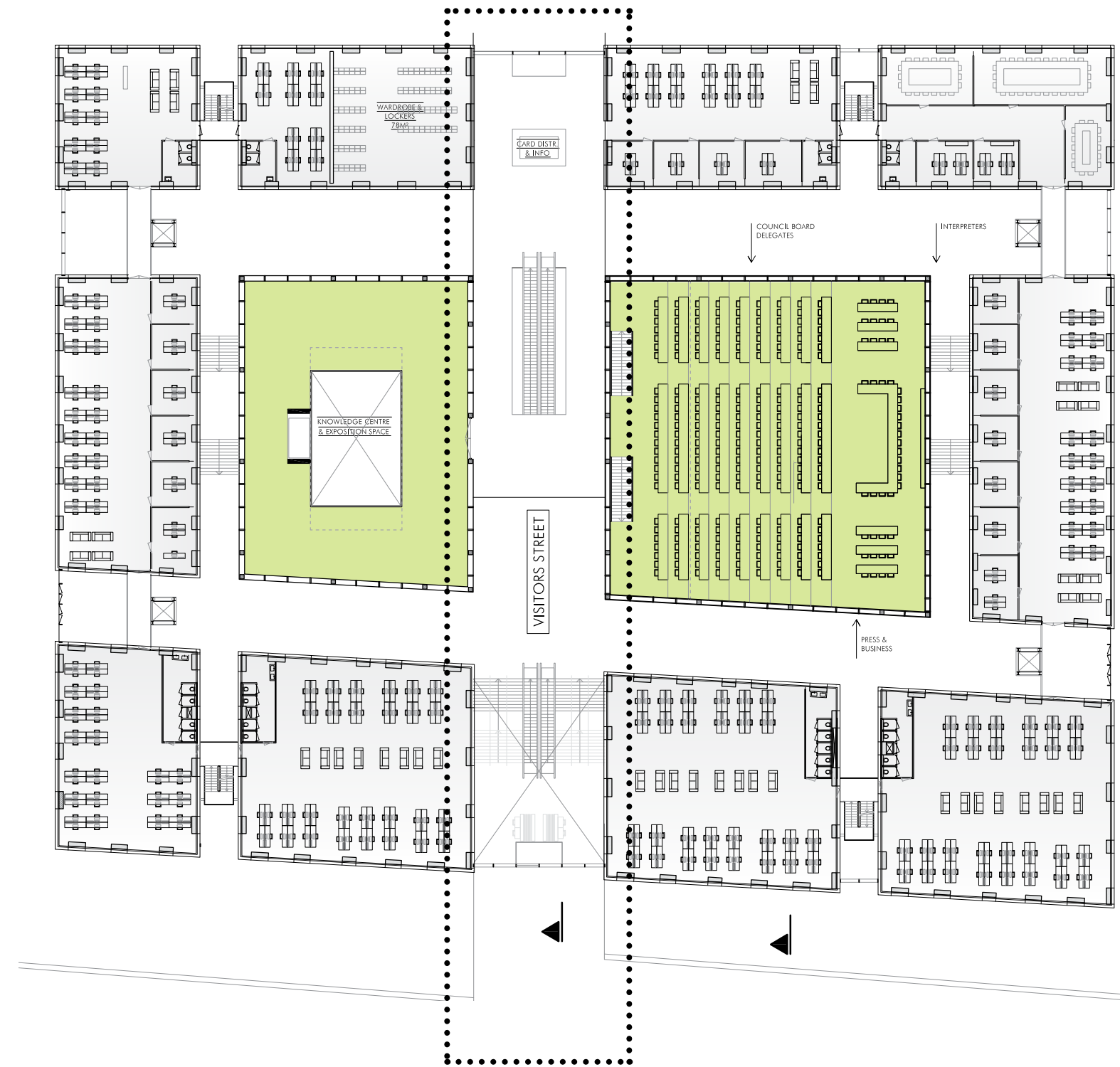


UNEC Council Room



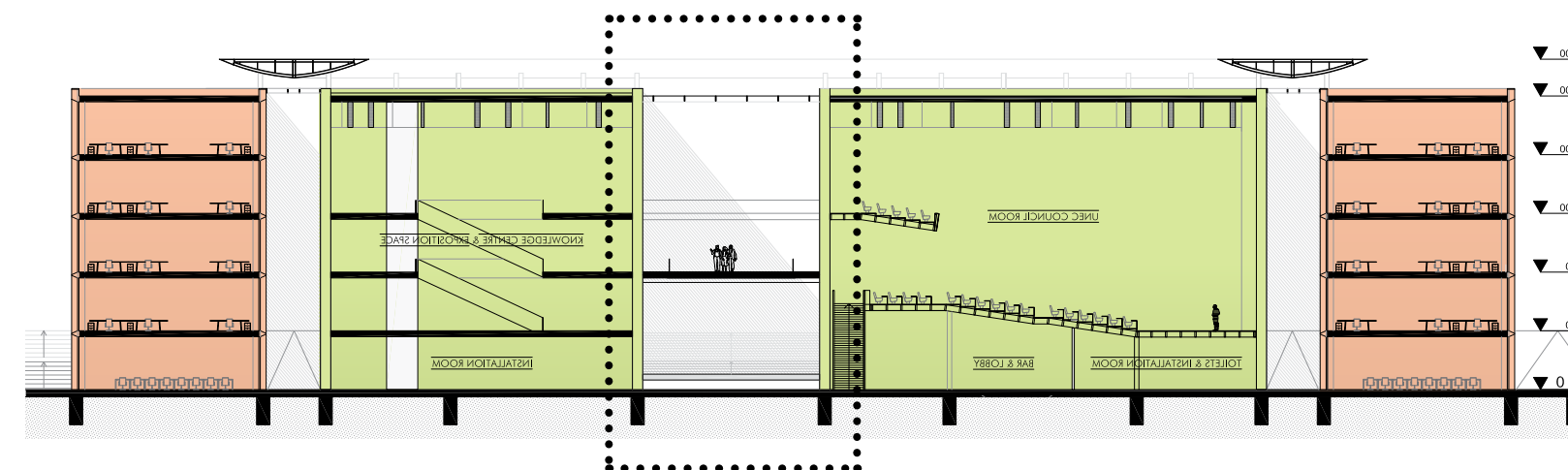
← TAKE A TOUR
IN THE UNEC BUILDING

MISSION 7 Knowledge Center



BUILDING HEART
VISITORS STREET

ZONE OF THE VISITORS





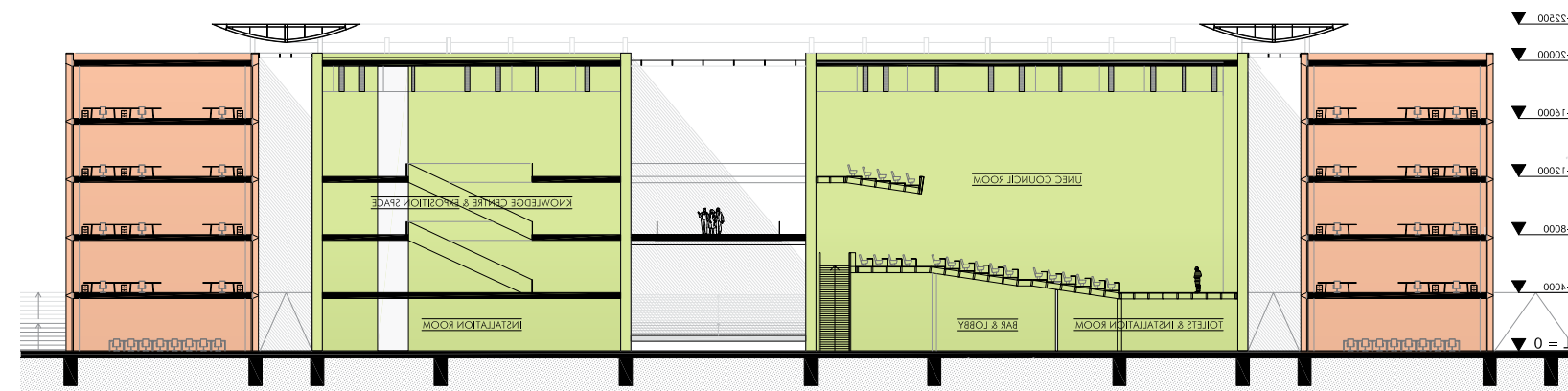
BUILDING HEART
VISITORS STREET

- KNOWLEDGE CENTER (L)
- COUNCIL ROOM (R)



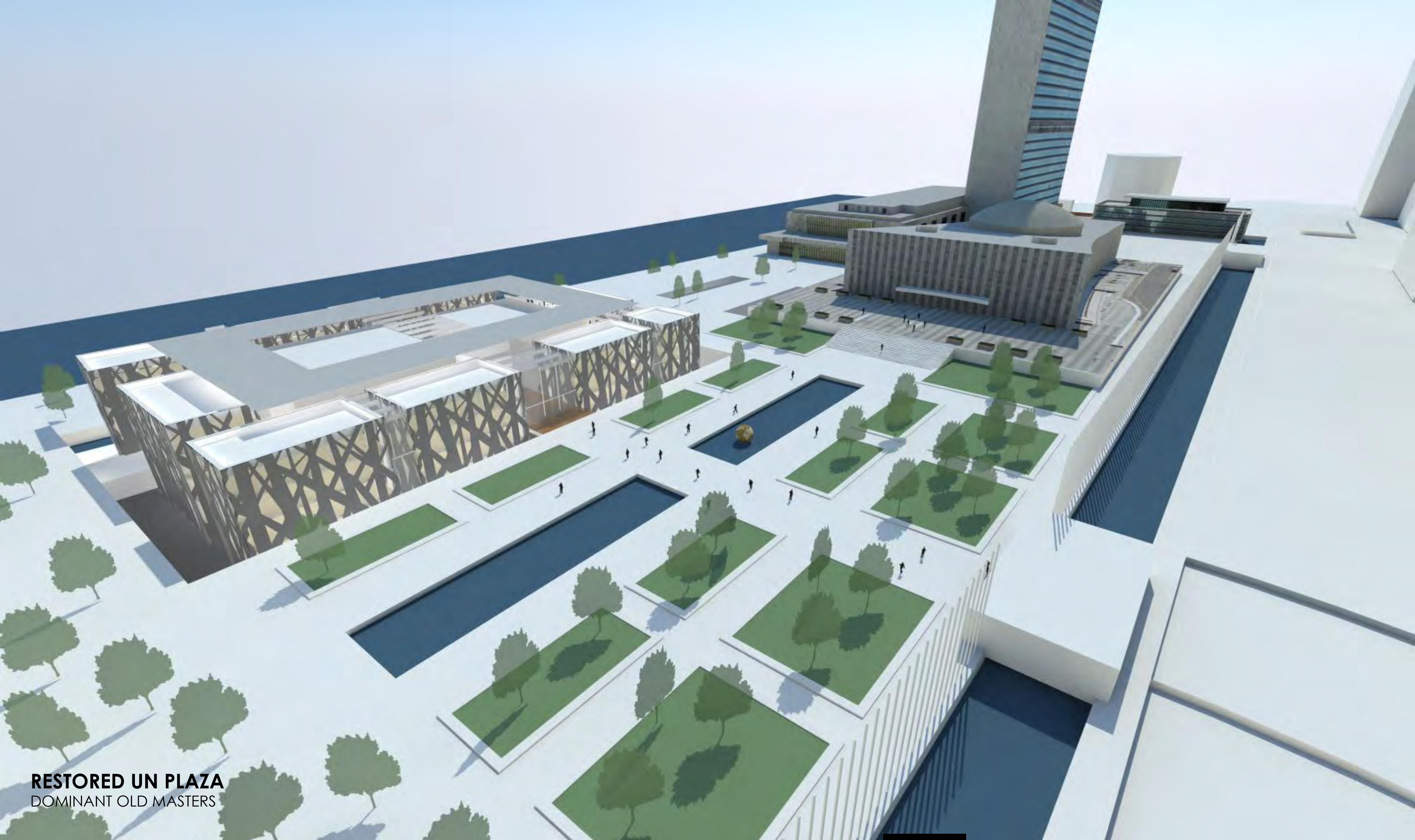
OFFICES RING
FLEXIBILITY

ZONE OF THE EMPLOYEES

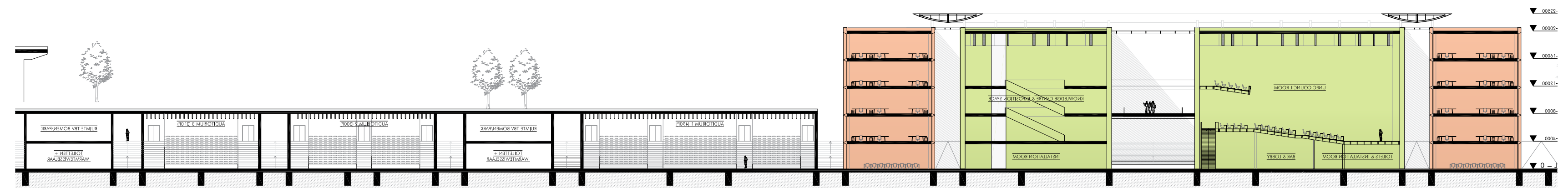




PUBLIC FUNCTIONS ON WATERSIDE
 DISPLAY FUNCTION FOR THE UNEC



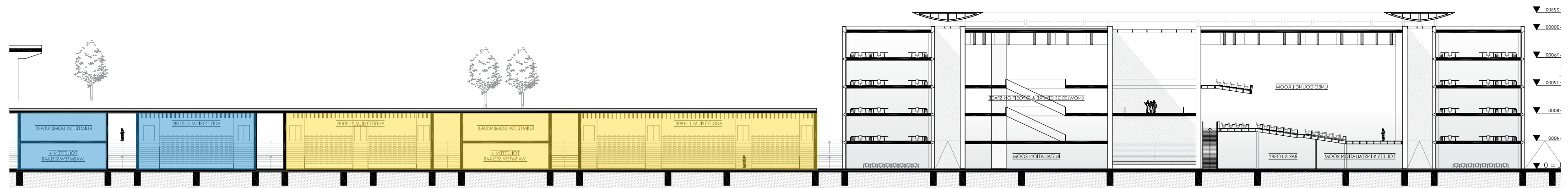
RESTORED UN PLAZA
DOMINANT OLD MASTERS

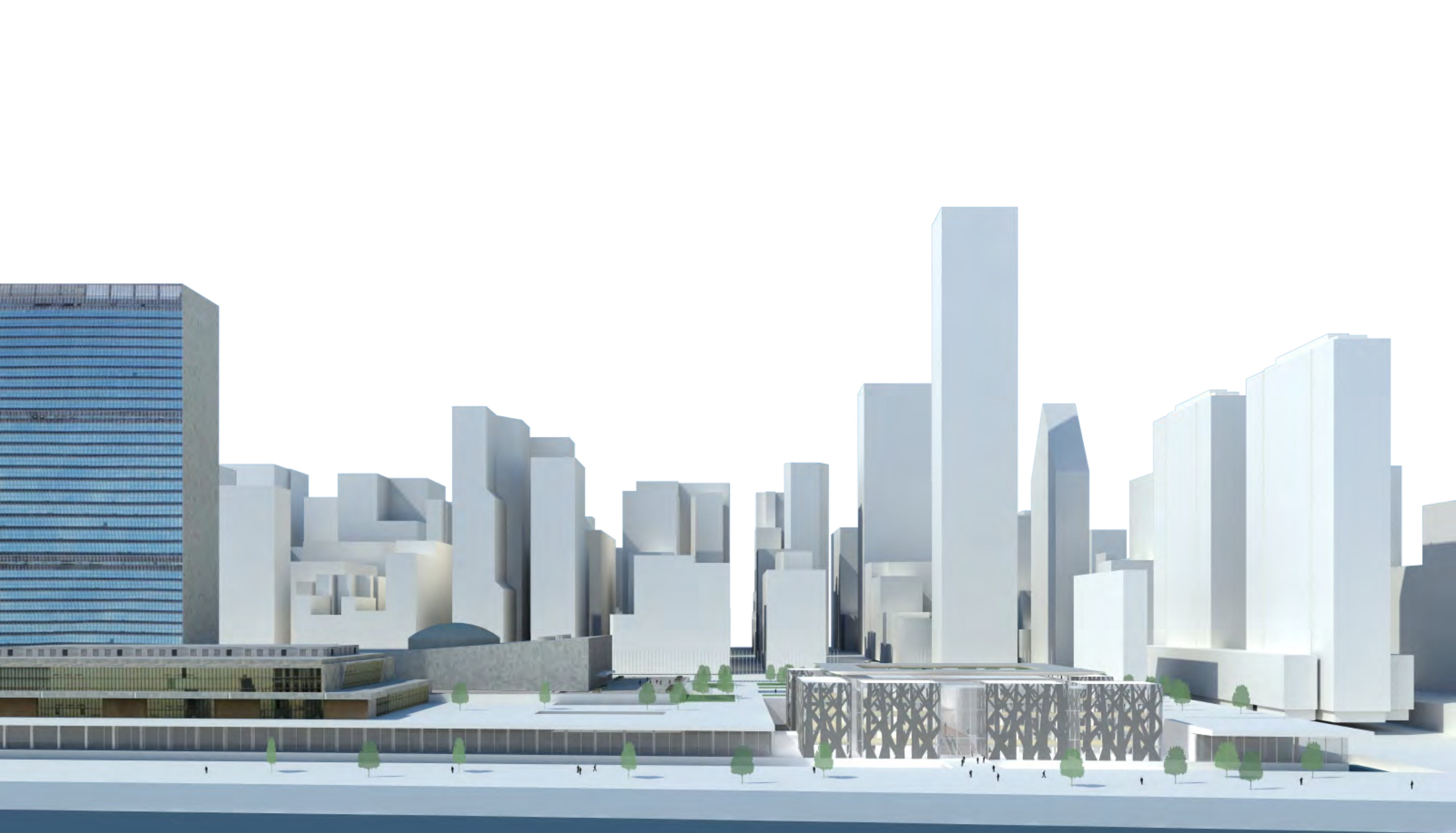


-1 FLOOR



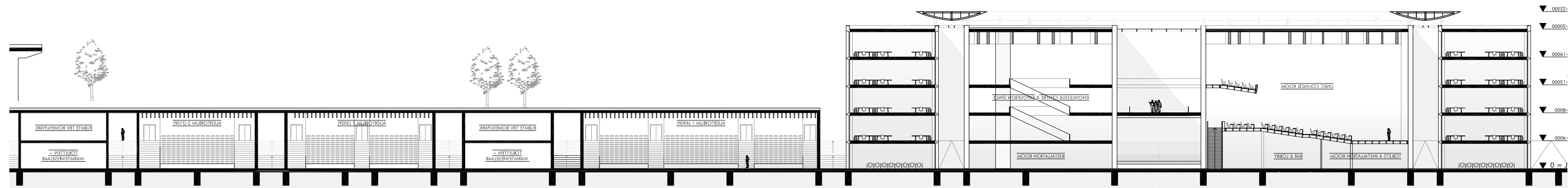
WATER FUNCTIONS





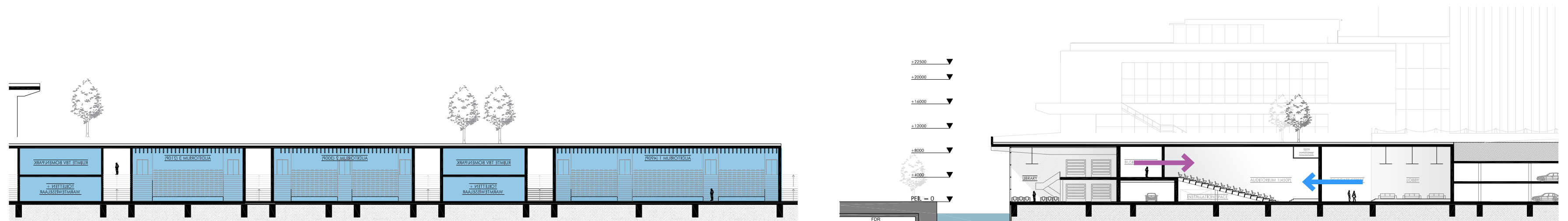


SUPPORTING FUNCTIONS



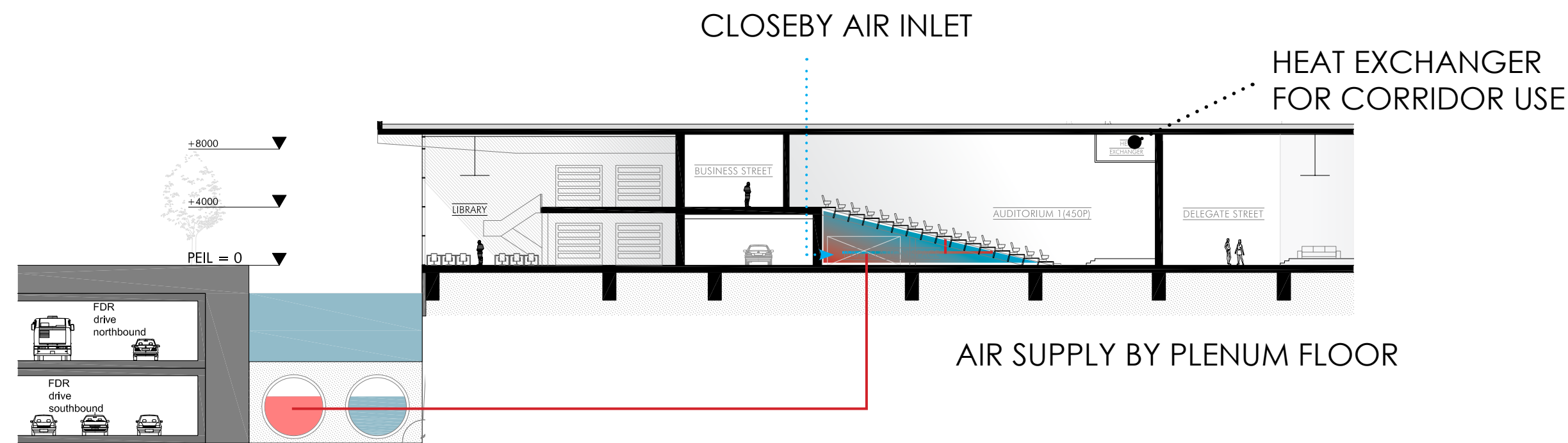


AUDITORIA

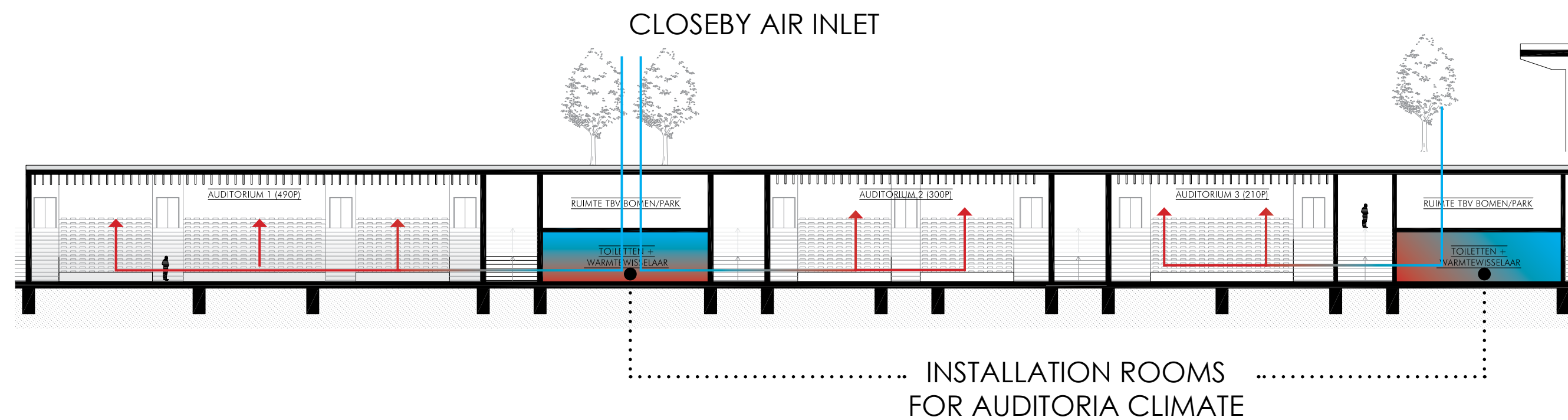


CLIMATE

- BOXES
- CONNECTING PART



AUDITORIA
ALL AIR SYSTEMS + 'UNDERGROUND'

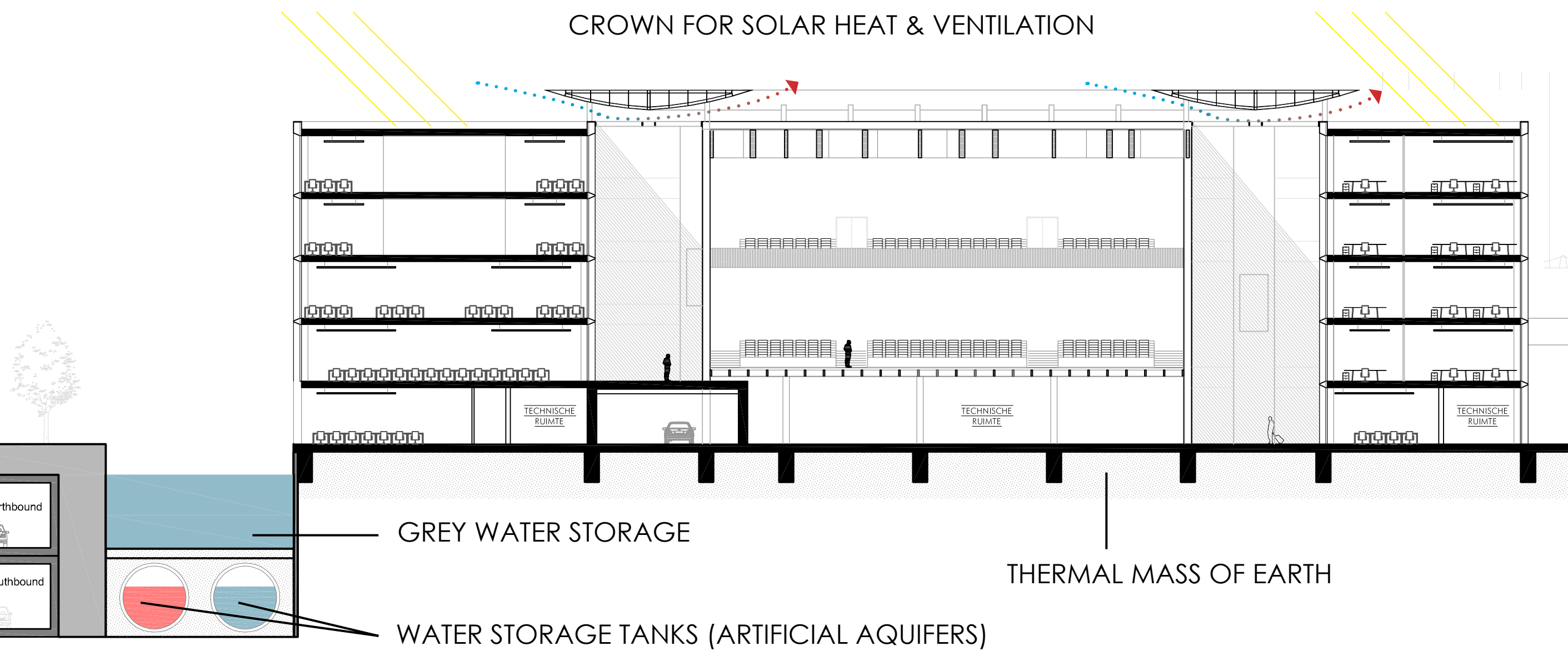


PV FOILS ON ROOF

PV FOILS

CROWN FOR SOLAR HEAT & VENTILATION

RENEWABLE SOURCES



GREY WATER STORAGE

THERMAL MASS OF EARTH

WATER STORAGE TANKS (ARTIFICIAL AQUIFERS)

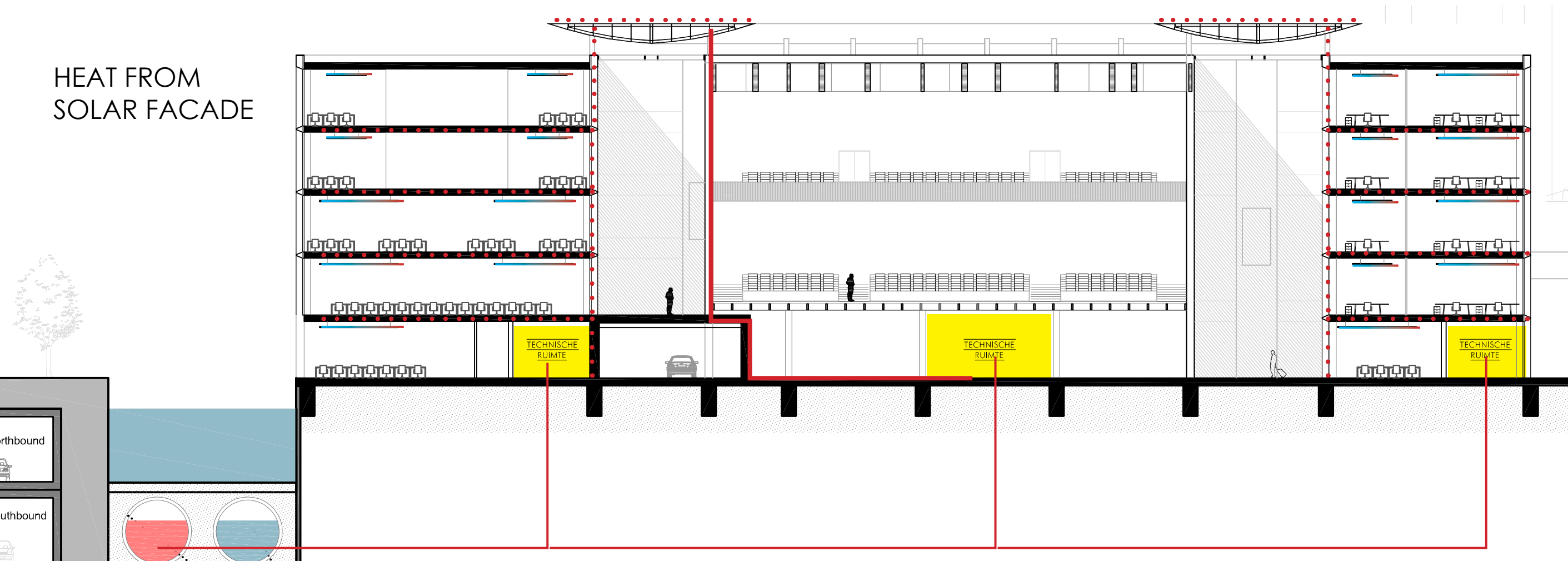
■ WARM WATER
■ THERMAL SHELF

LOW TEMP. HEATING BY
CONCRETE CORE ACTIVATION

SOLAR COLLECTORS ON CROWN (SUMMER USE)

HEAT FROM
SOLAR FACADE

HEATING
COLD SEASON

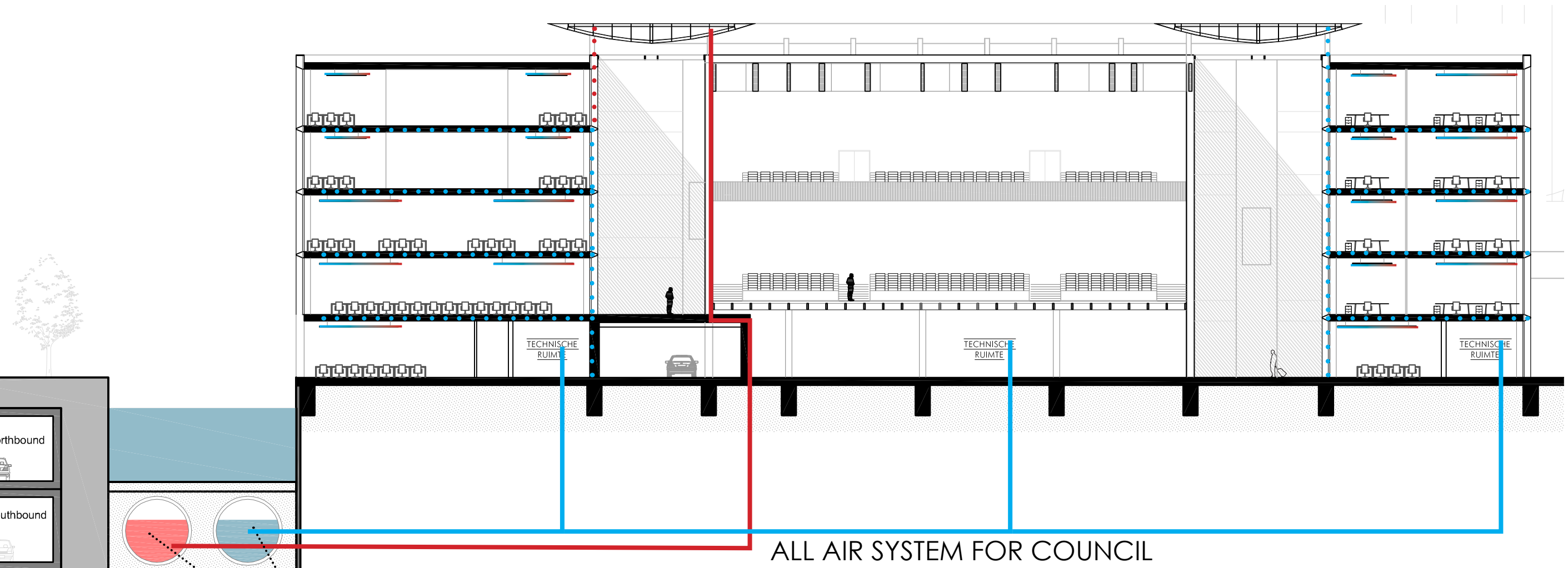


STORE COLD WATER/USE WARM WATER IN TANKS + USE SOLAR
COLLECTORS FOR TAP WATER & CONCRETE CORE ACTIVATION

■ COLD WATER ■ WARM WATER
■ THERMAL SHELF

LOW TEMP. COOLING BY
CONCRETE CORE ACTIVATION

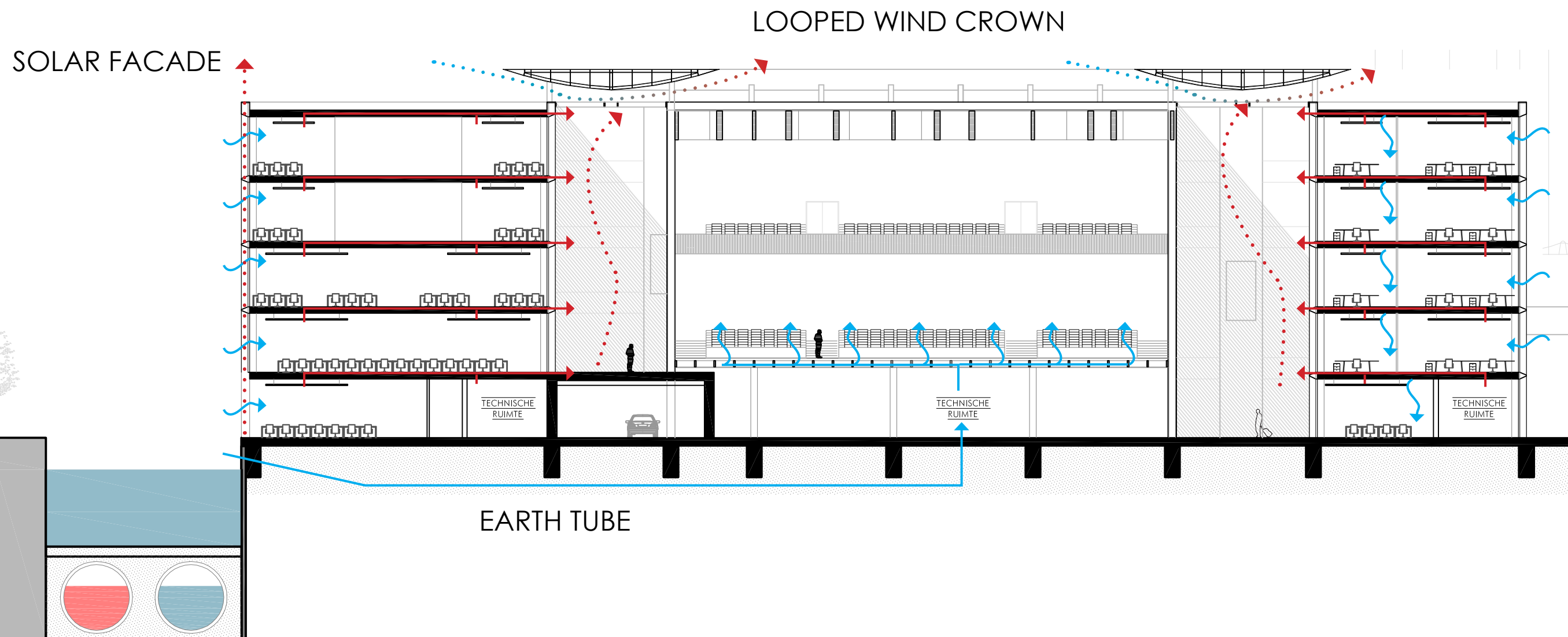
COOLING
WARM SEASON



STORE WARM WATER/ USE COLD WATER IN TANKS (ARTIFICIAL AQUIFERS)

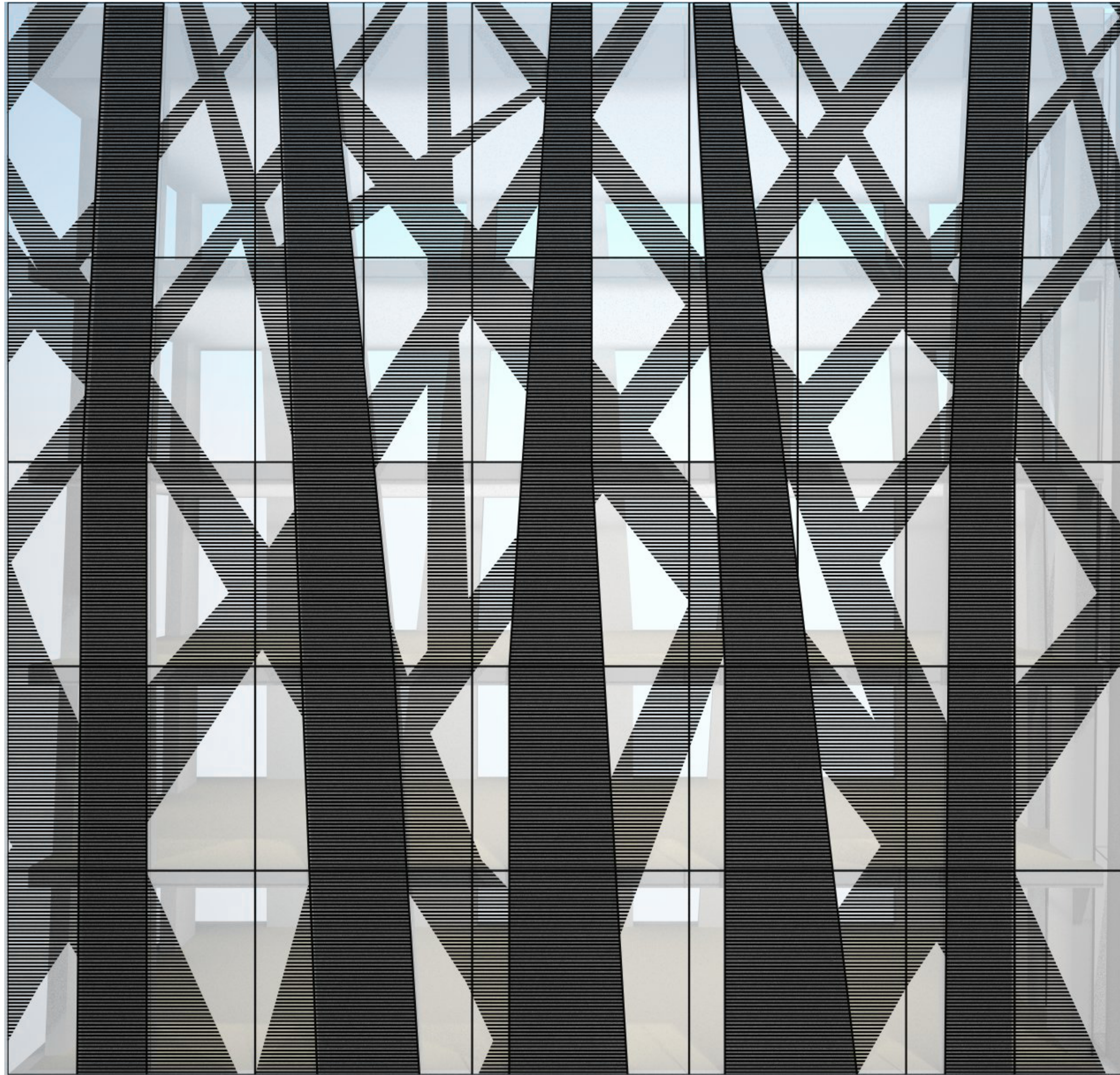
■ FRESH AIR ■ USED AIR

NATURAL VENTILATION BY SUN & WIND
(WITH MECHANICAL BACKUP)

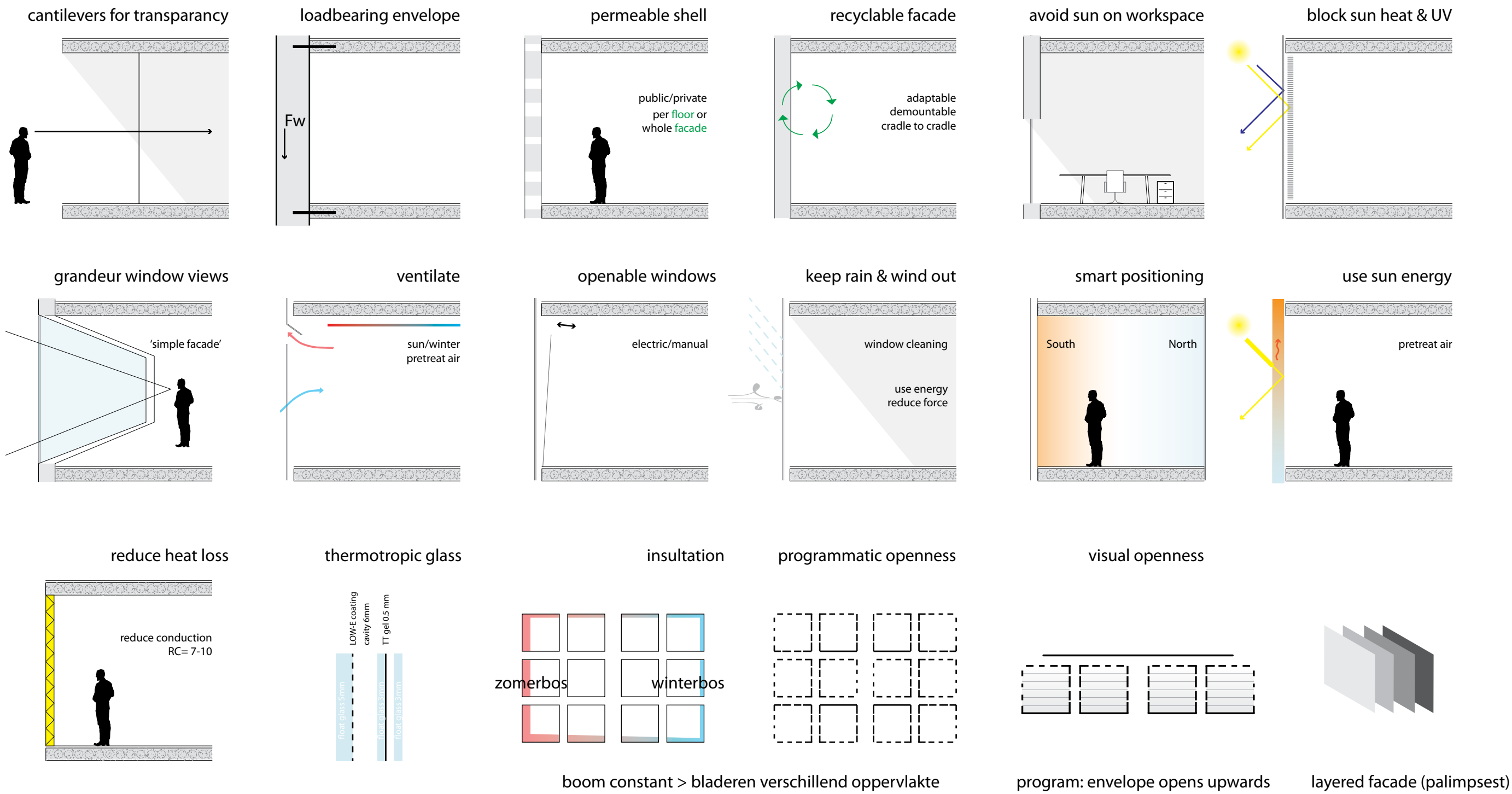


VENTILATION

- EARTH TUBES
- WIND CROWN
- SOLAR FACADE

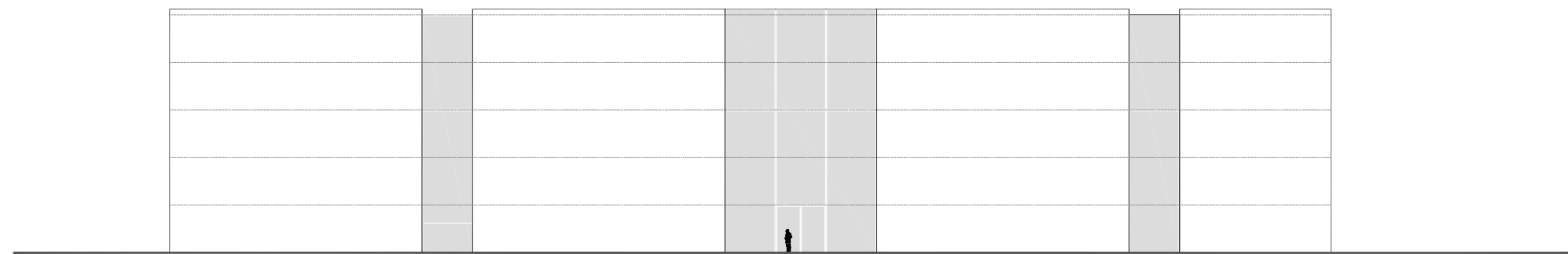


FACADE
• BOXES

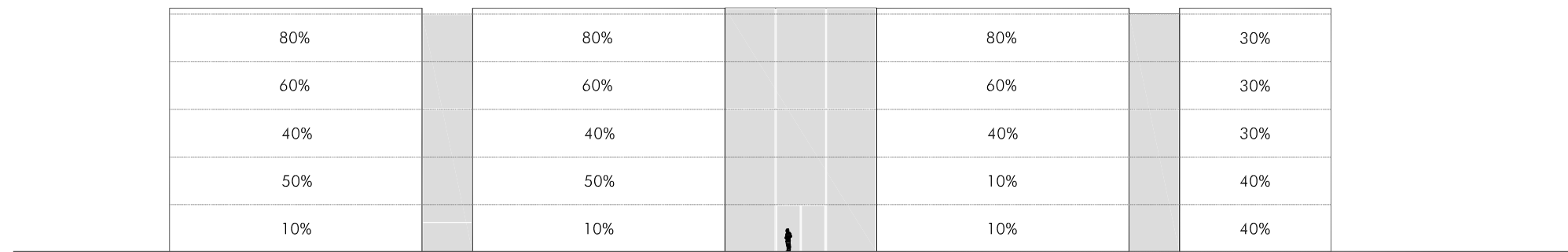


FACADE REQUIREMENTS

FLOORS WILL PROVIDE ROOM FOR BUILDING FUNCTIONS



DAYLIGHT REQUIREMENTS BY PROGRAM: ASCENDING UPWARDS

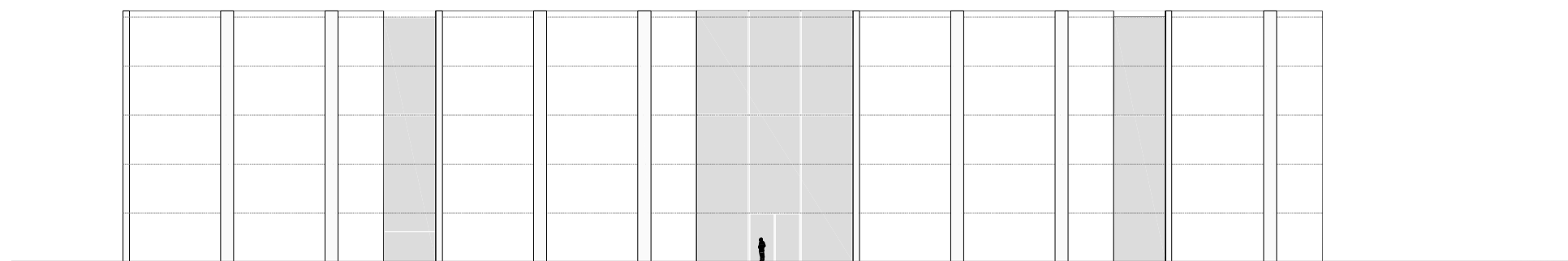


FACADE

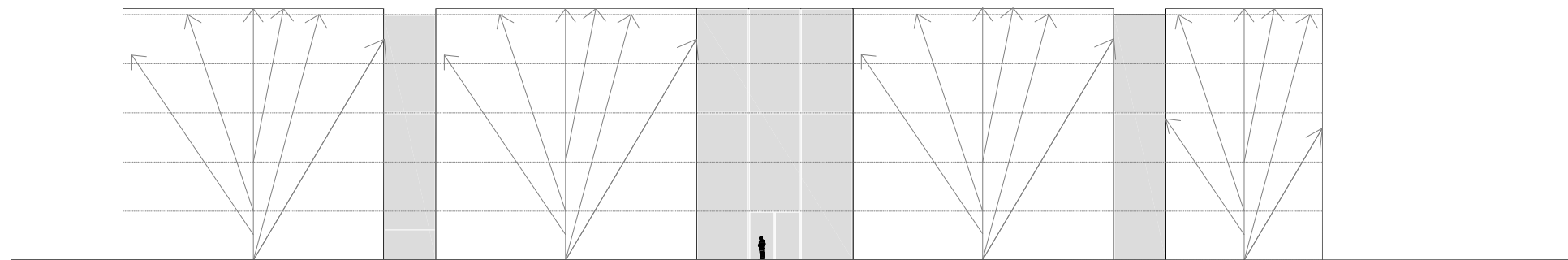
5 FLOORS

PROGRAM REQUIRES DIFFERENT DAYLIGHT

STRUCTURE IN FACADE ON EXISTING UN GRID
20% CLOSED



FACADE CONCEPT:
OPEN TREE STRUCTURE CREATES A TRANSPARANT PUBLIC BUILDING

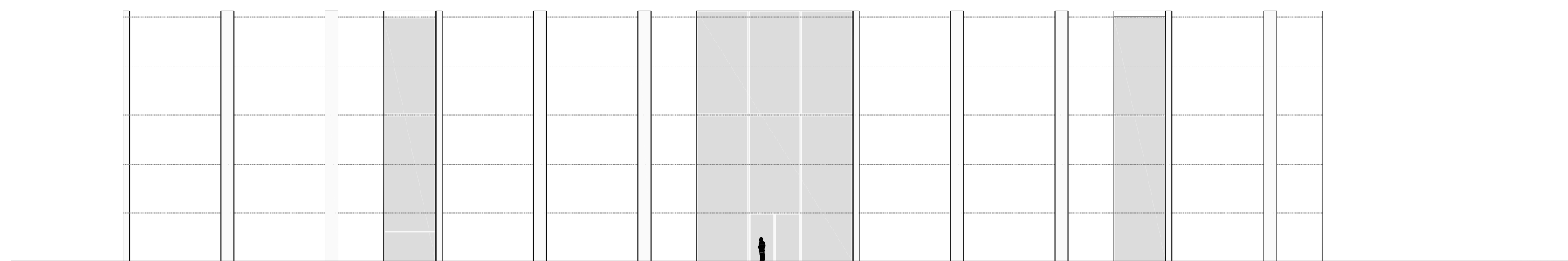


FACADE

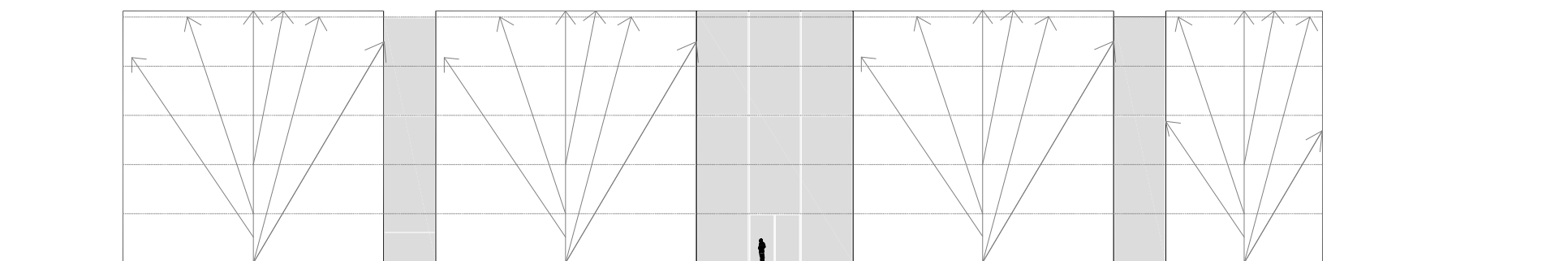
STRUCTURE IN FACADE

TREE TRUNKS AS COLUMNS + LEAVES AS PATTERNS

STRUCTURE IN FACADE ON EXISTING UN GRID
20% CLOSED



FACADE CONCEPT:
OPEN TREE STRUCTURE CREATES A TRANSPARANT PUBLIC BUILDING



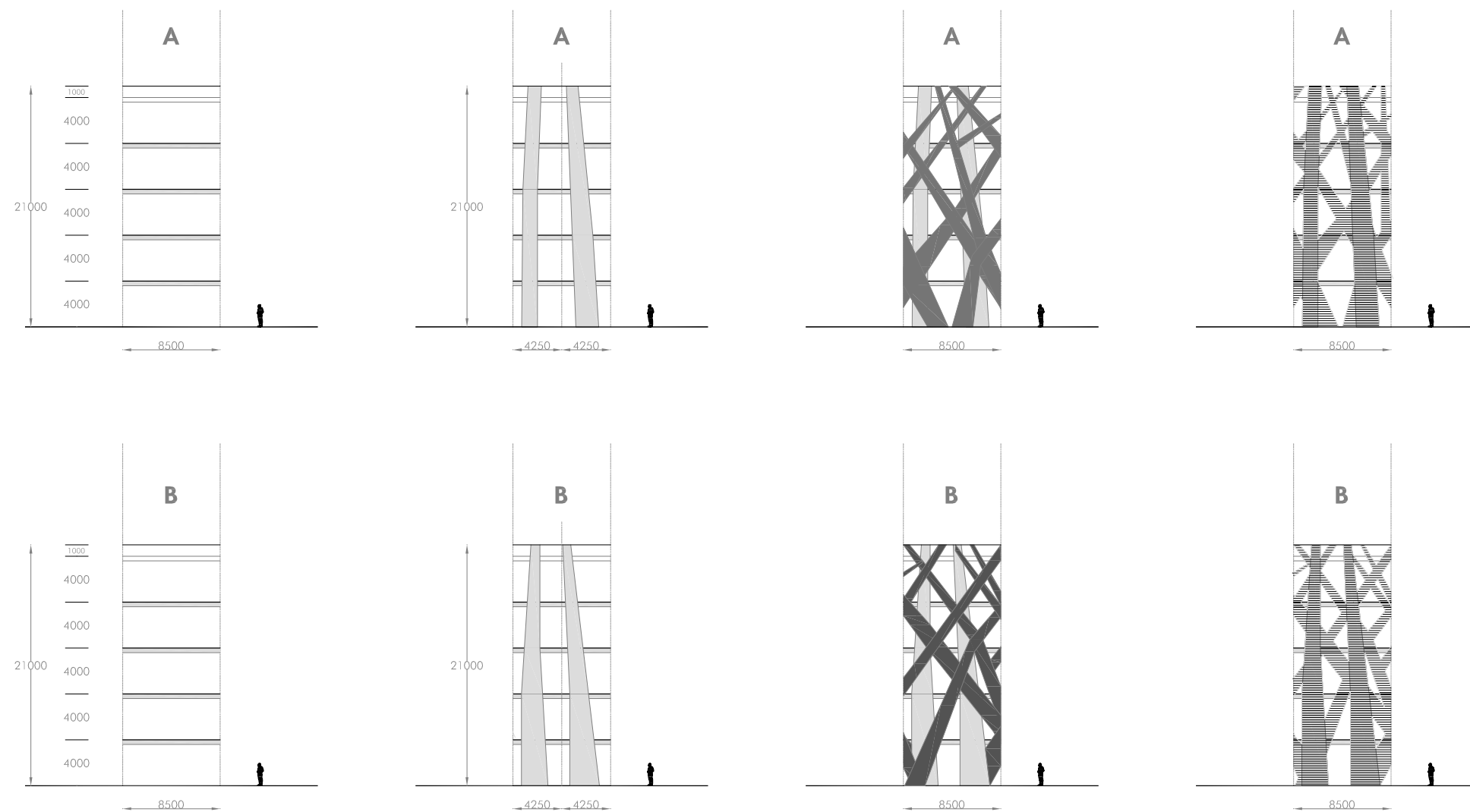
FACADE

STRUCTURE IN FACADE

TREE TRUNKS AS COLUMNS + LEAVES AS PATTERNS:

METAPHOR FOR THE MISSION

STRUCTURE OF THE BUILDING BLENDS IN WITH AN ABSTRACTING PATTERN



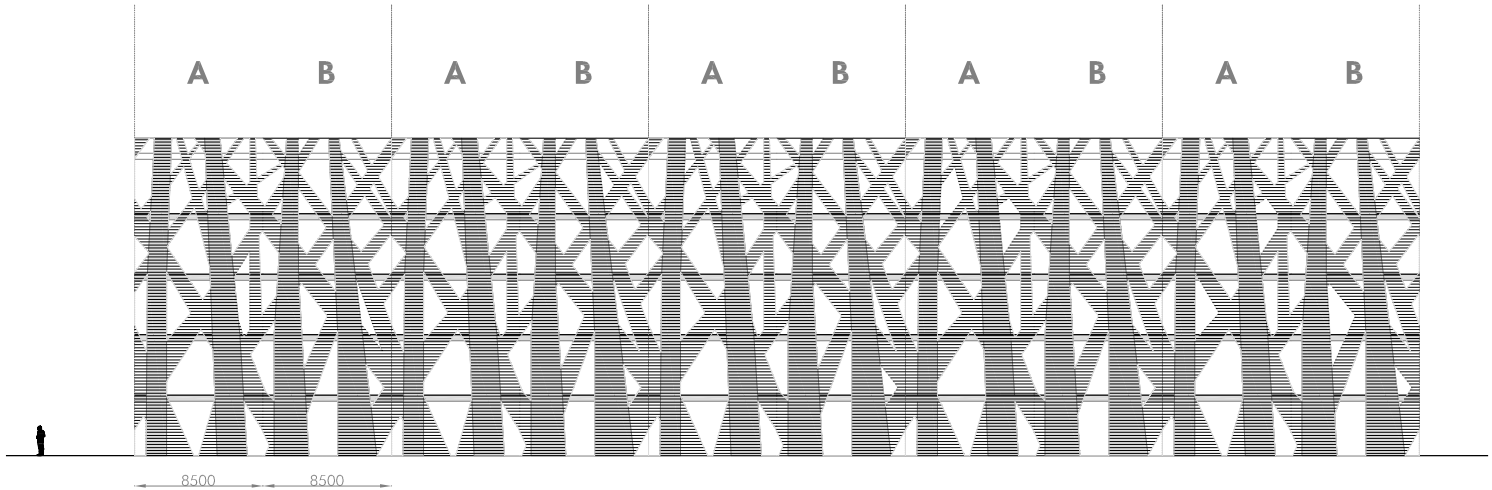
FACADE

- FLOORS
- STRUCTURE
- PATTERN

OVERLAPPING LAYERED FACADE

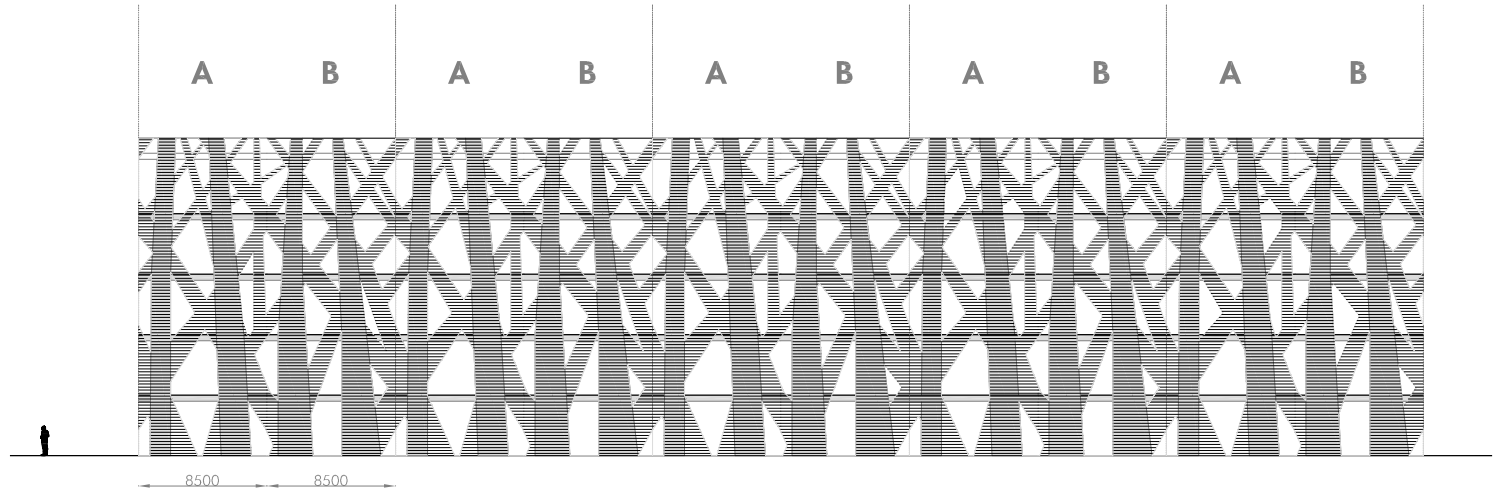
FACADE

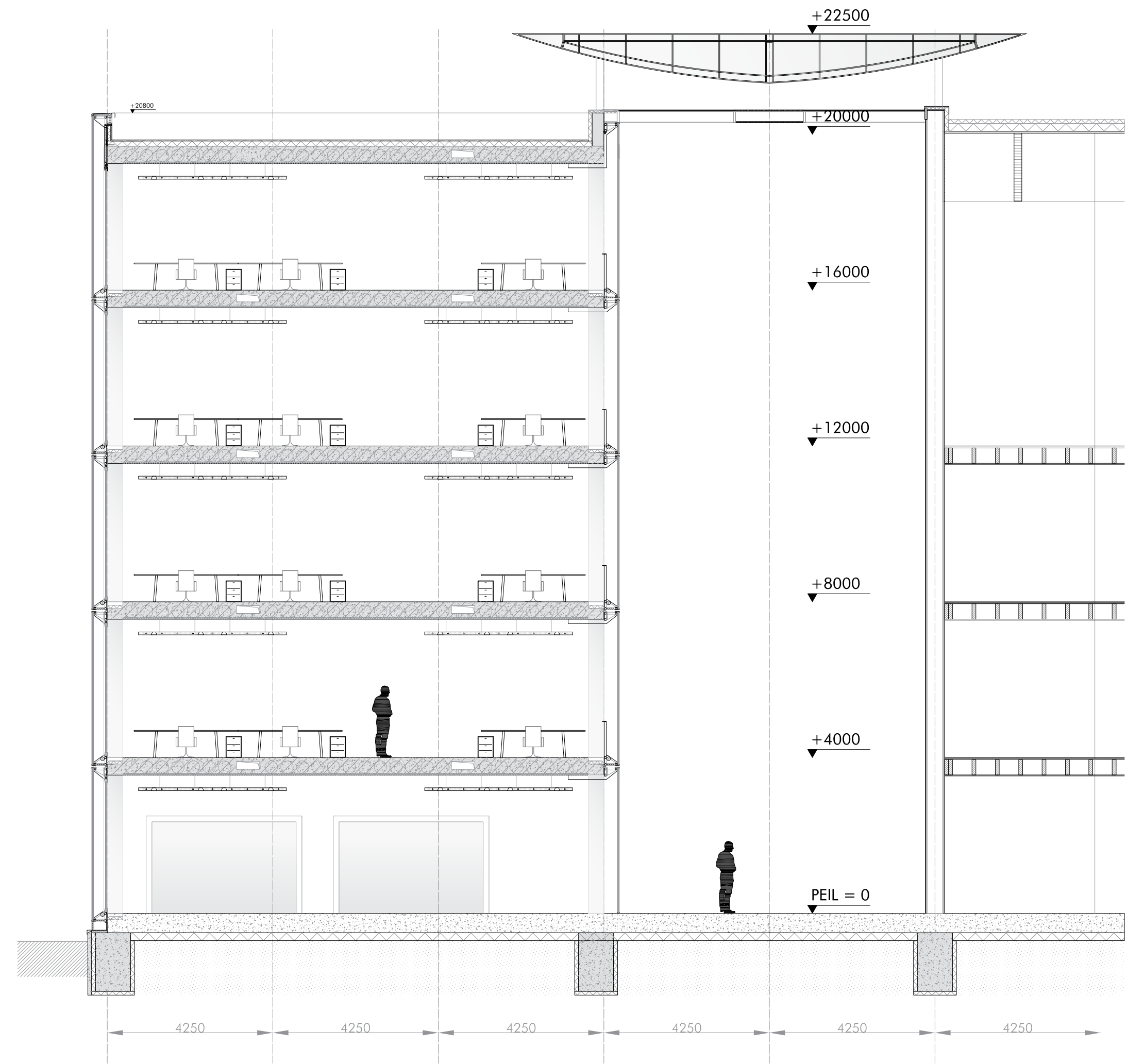
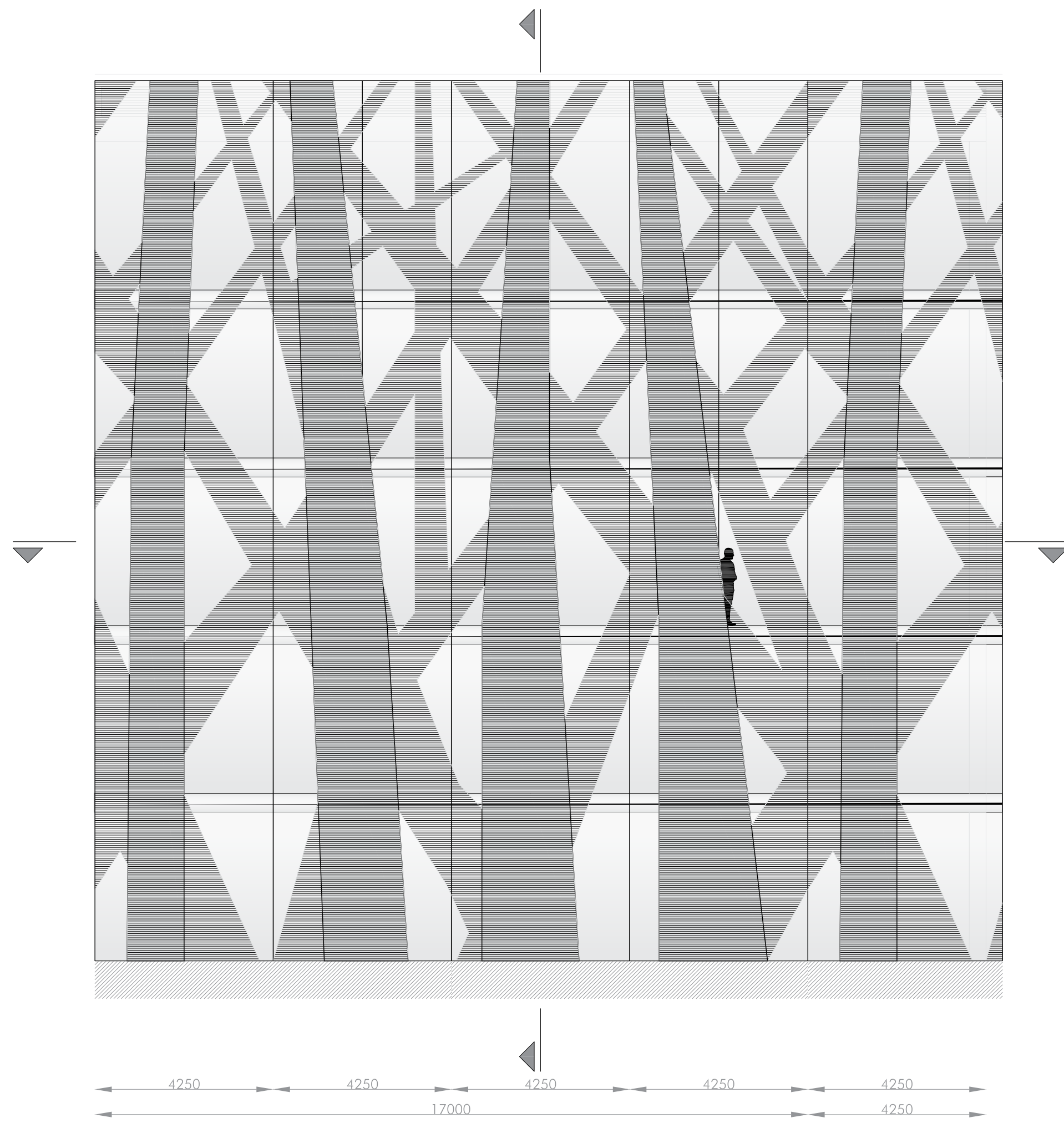
PATTERN WILL CLOTH THE ENVELOPE



FACADE

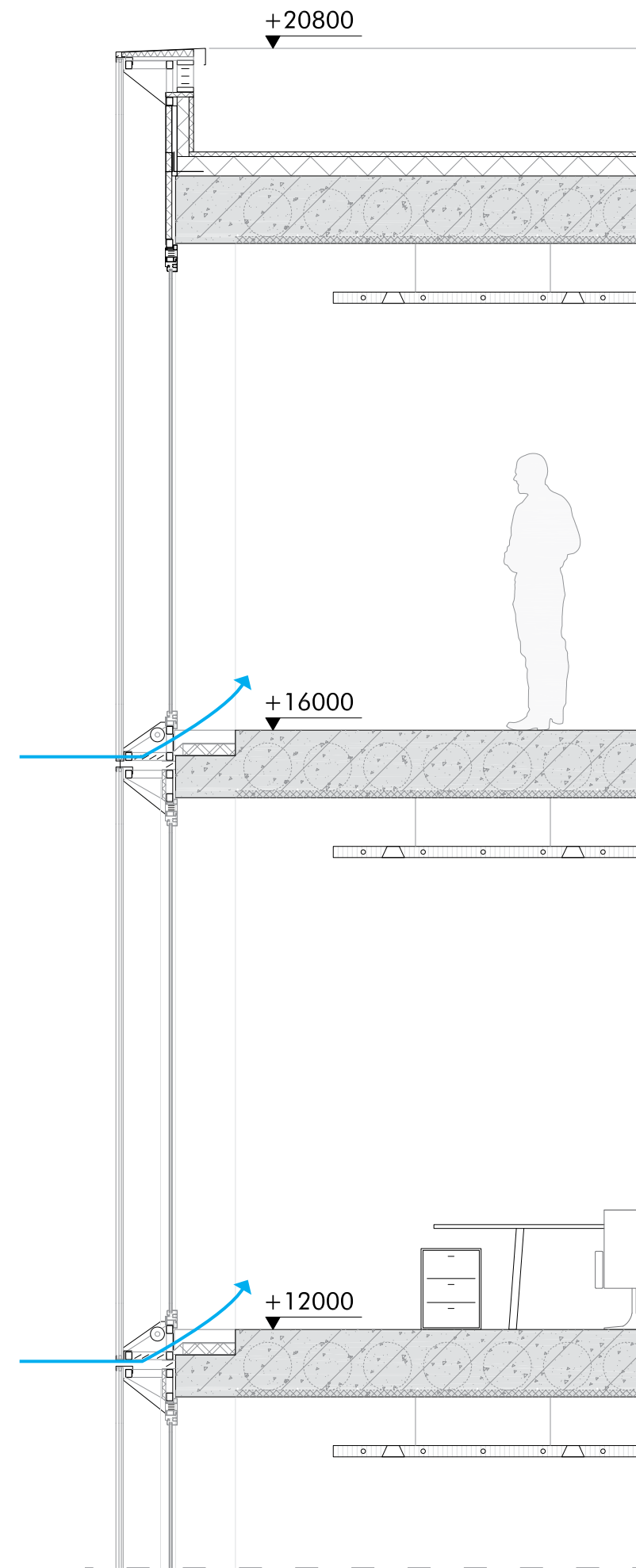
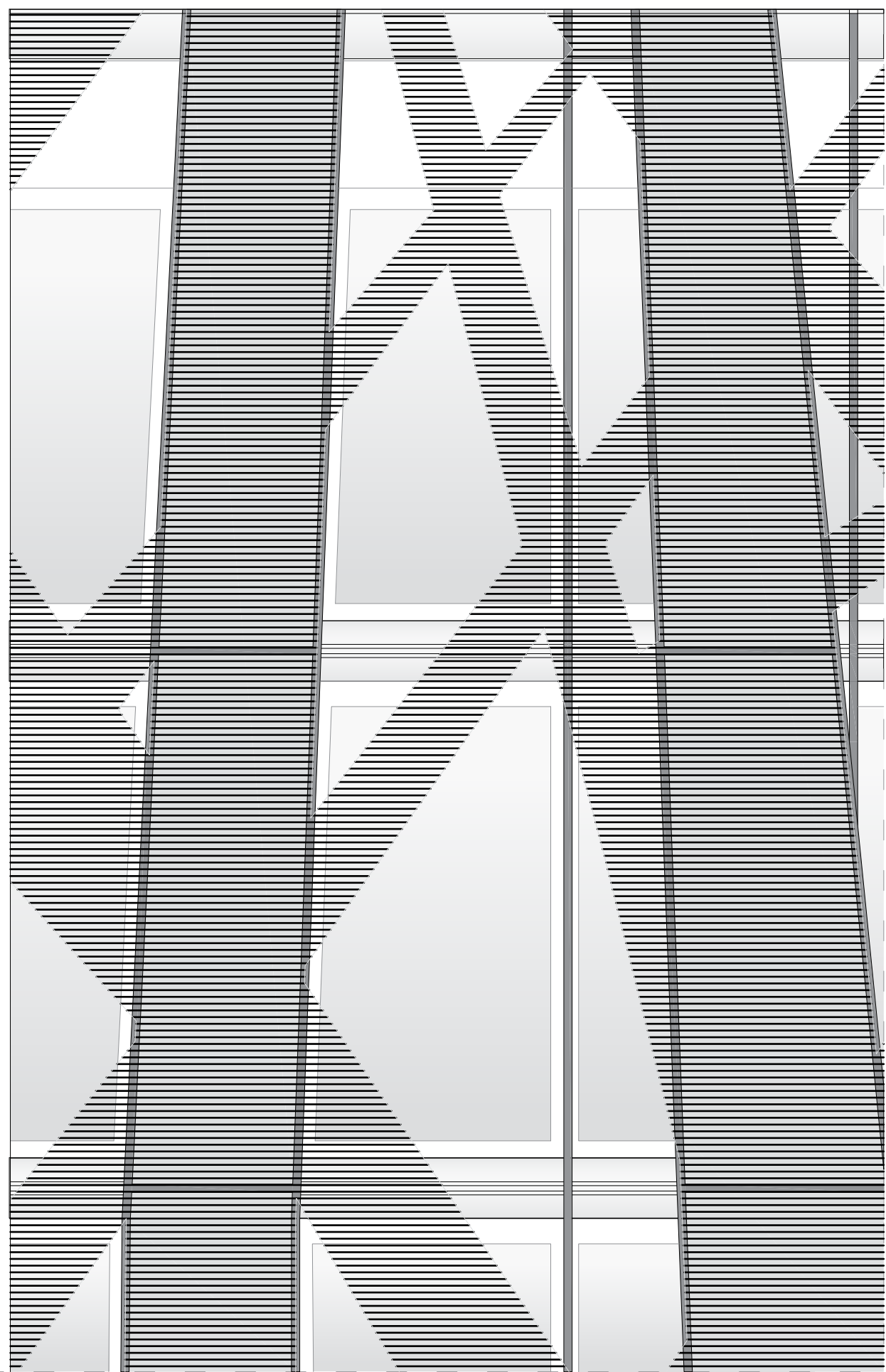
PATTERN WILL CLOTH THE ENVELOPE





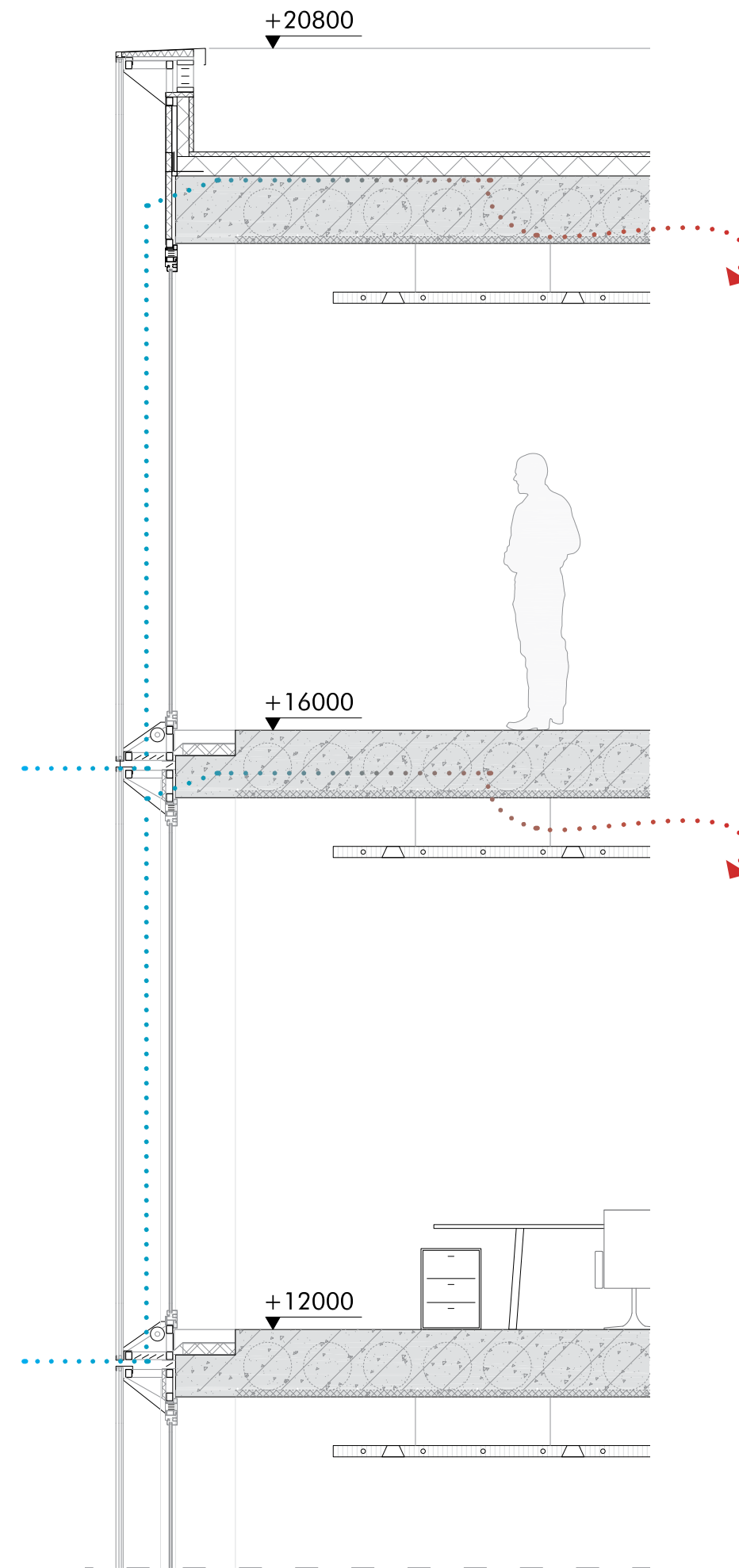
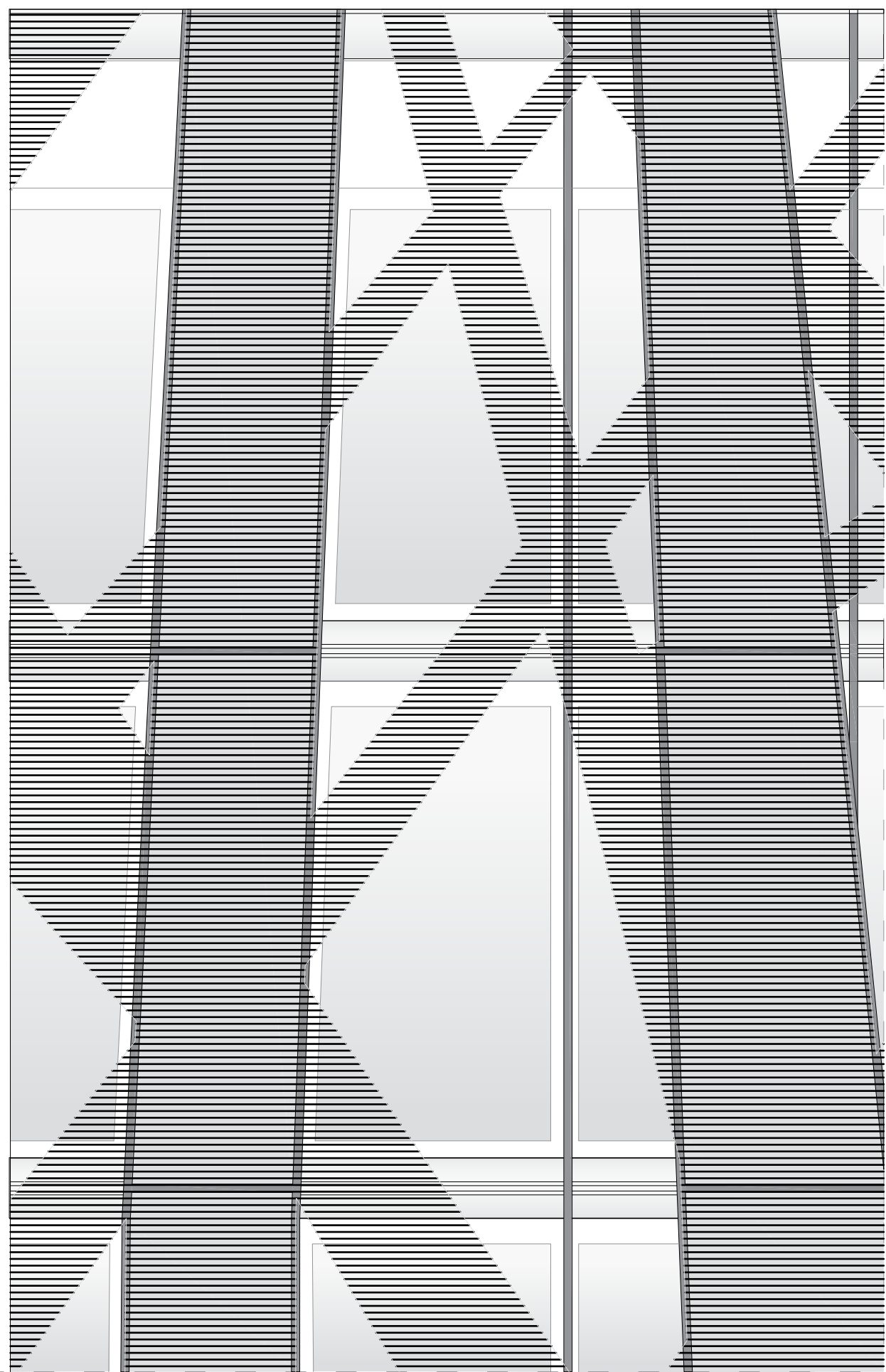


OFFICE FLOOR on waterside



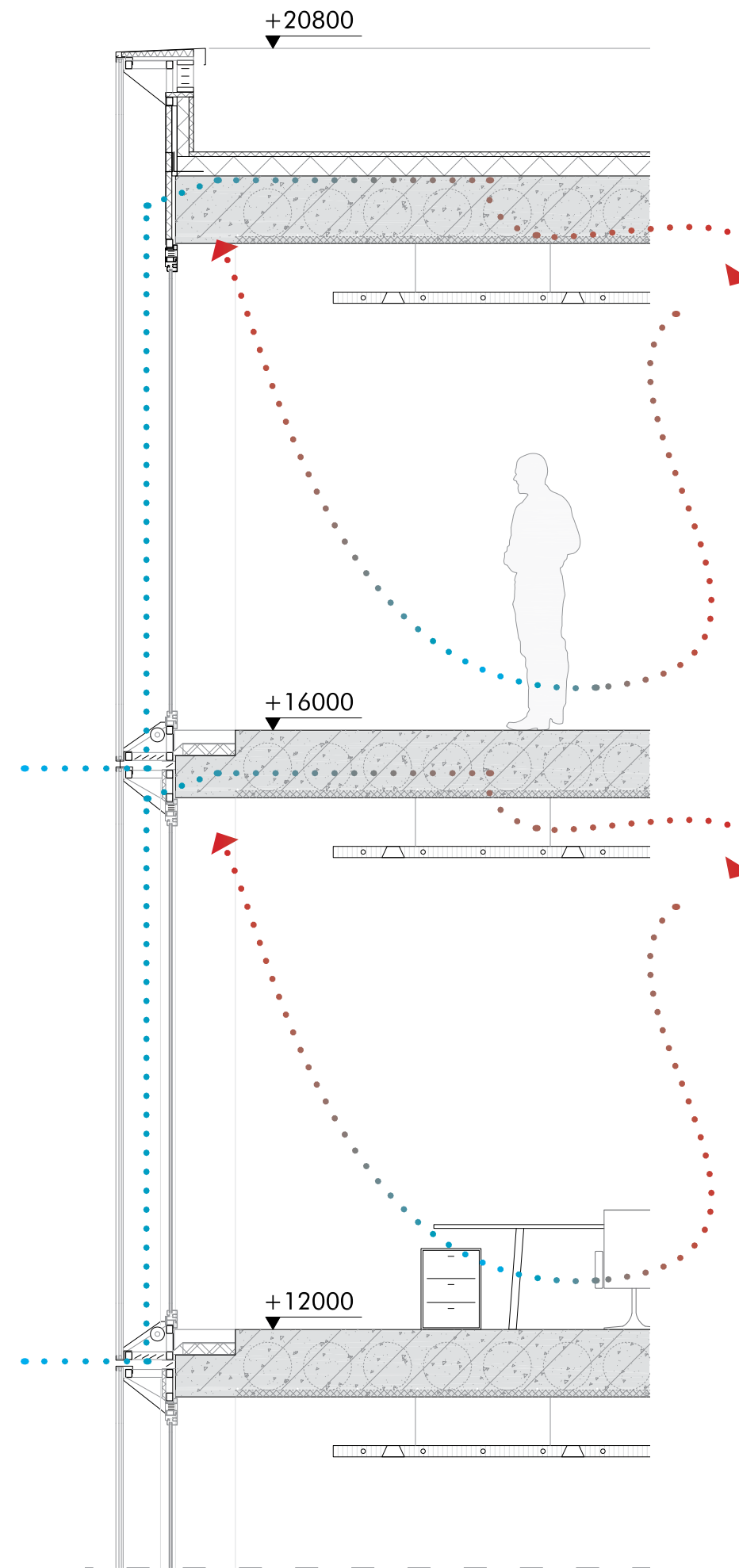
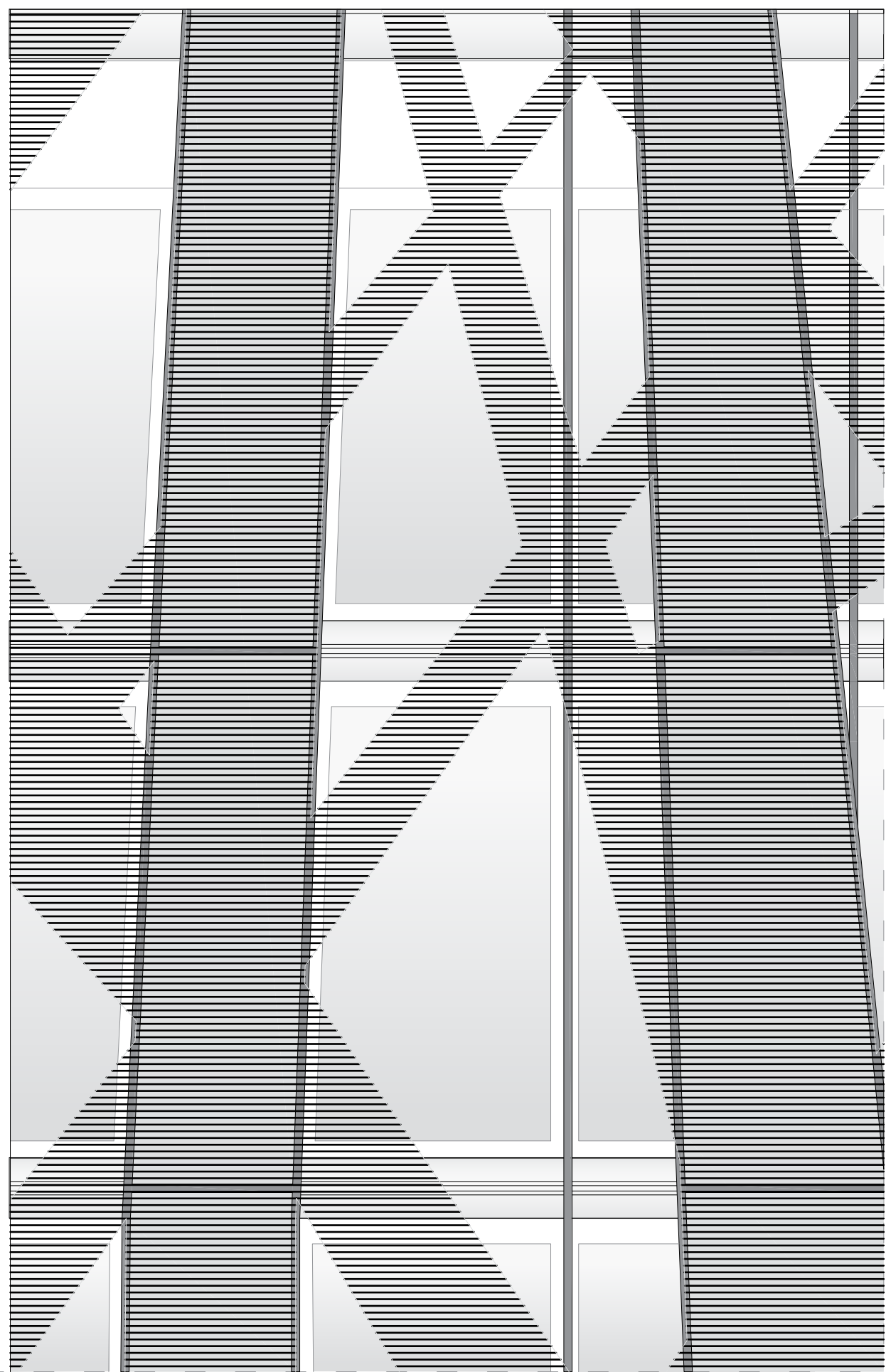
NATURAL VENTILATION
INLET BETWEEN GLAZING PANES

WARM SEASON



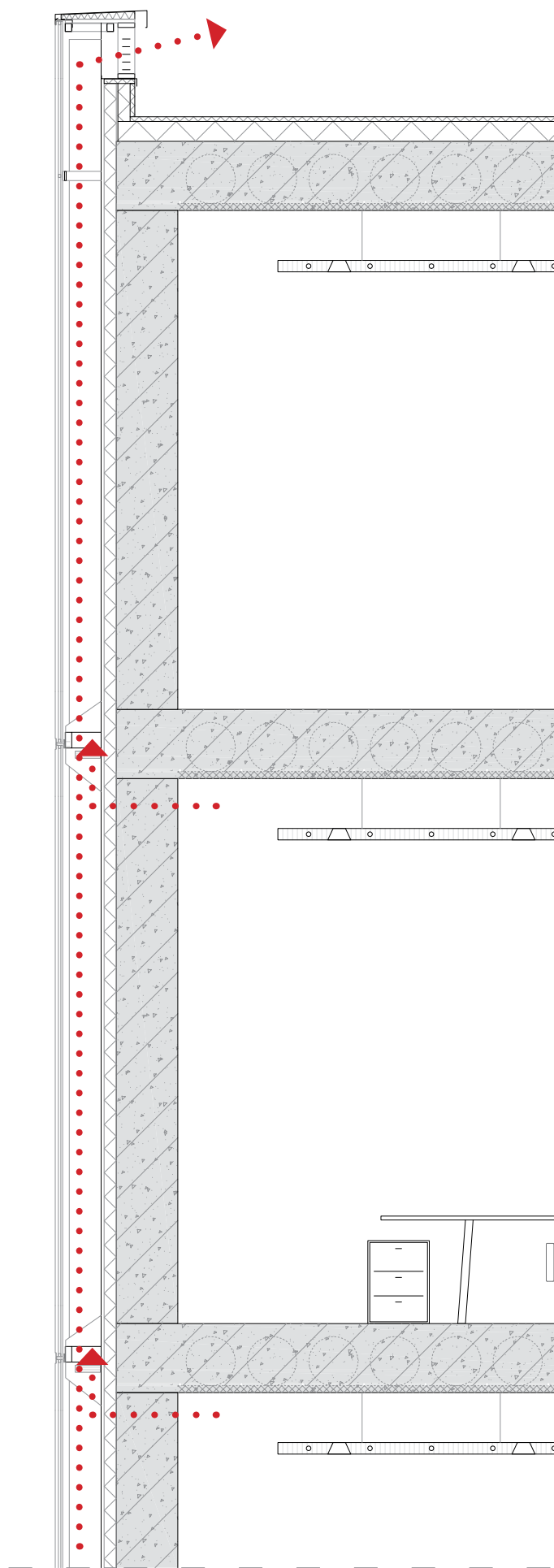
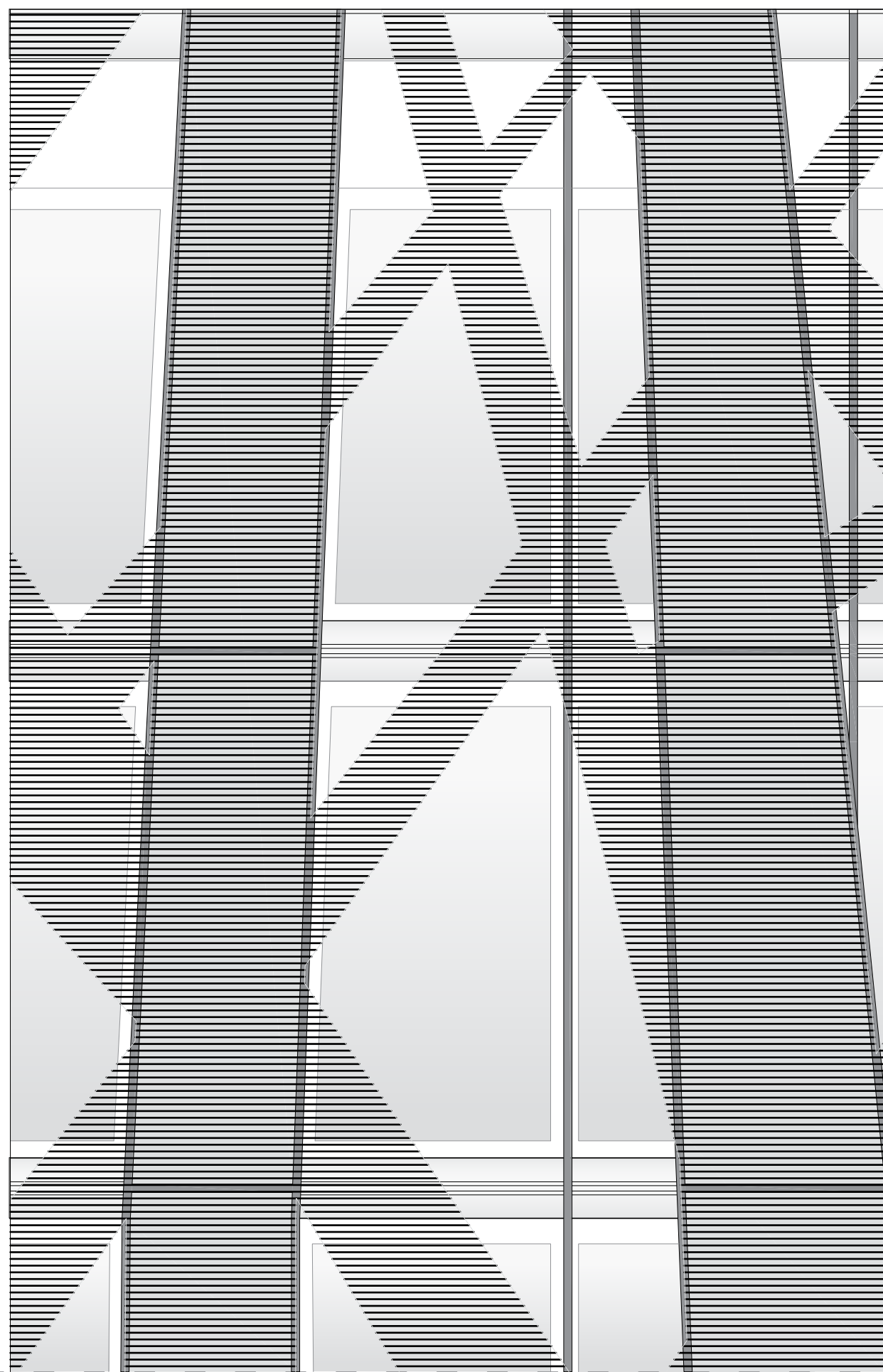
NATURAL VENTILATION
INLET BETWEEN GLAZING PANES

COLD SEASON:
AIR IS NATURALLY PRECONDITIONED



NATURAL VENTILATION
INLET BETWEEN GLAZING PANES

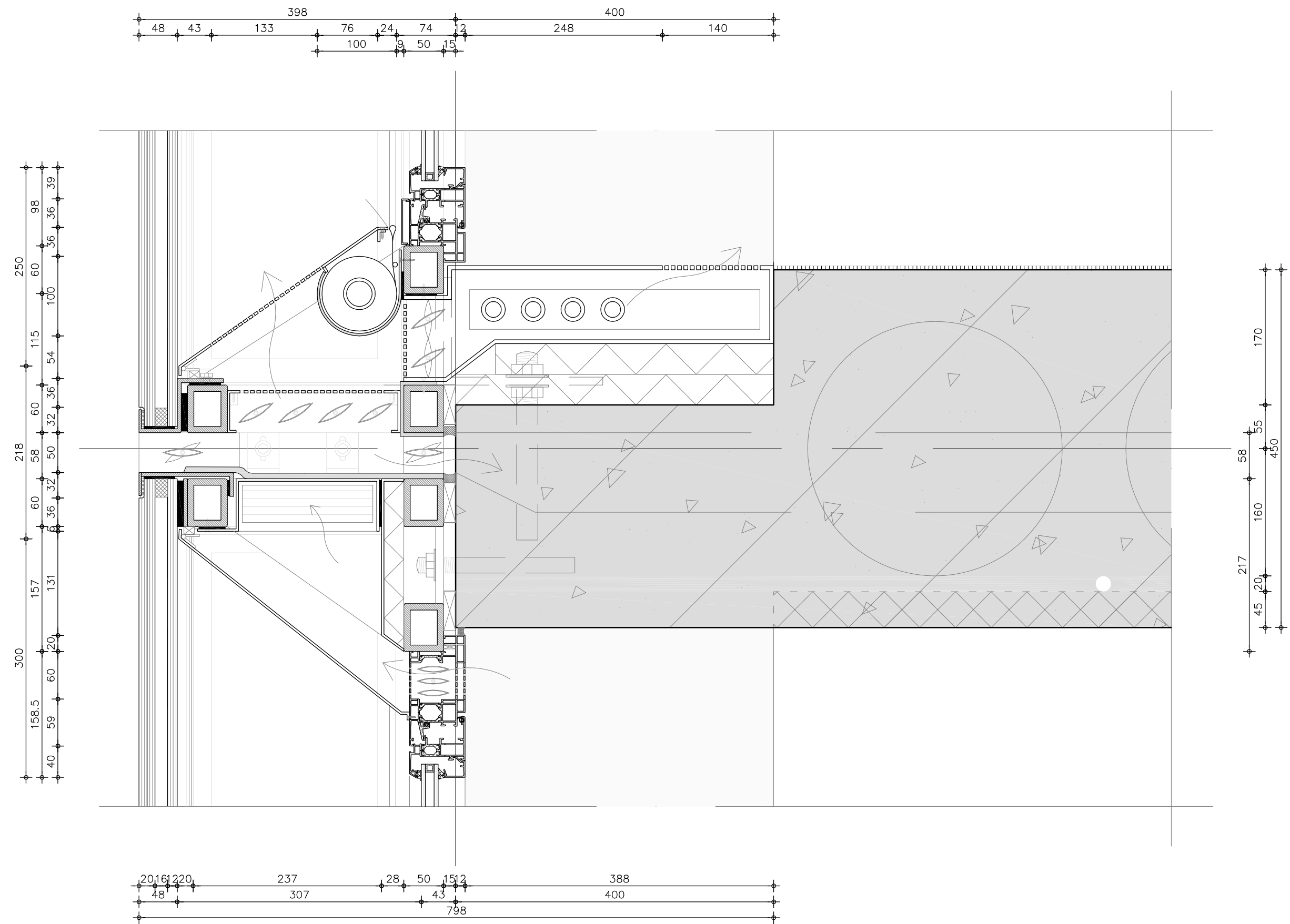
COLD SEASON:
AIR RETURNS NATURALLY TO GRATE
BY UNDERPRESSURE



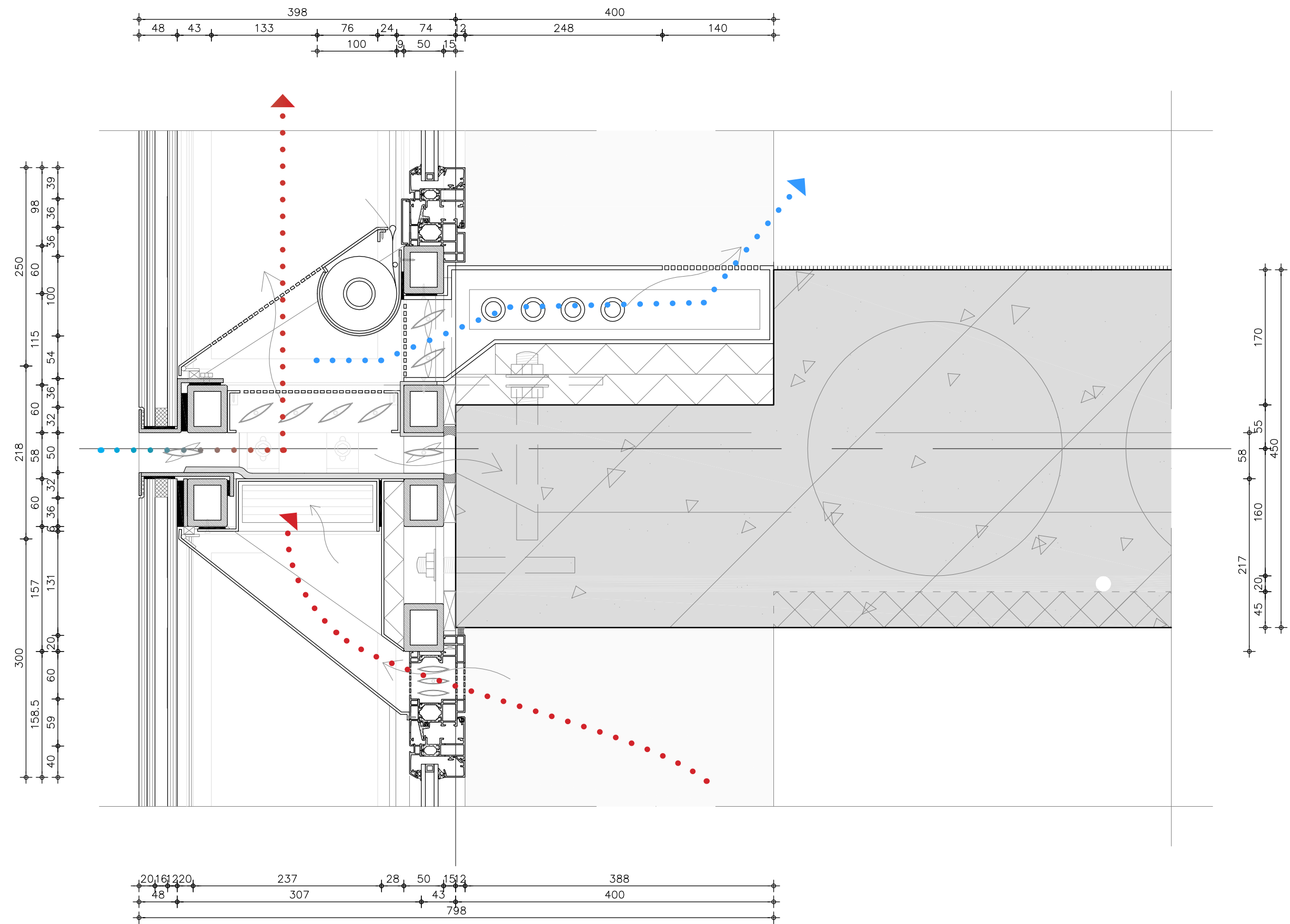
SOLAR CHIMNEY

EXHAUST FROM BOX WINDOWS

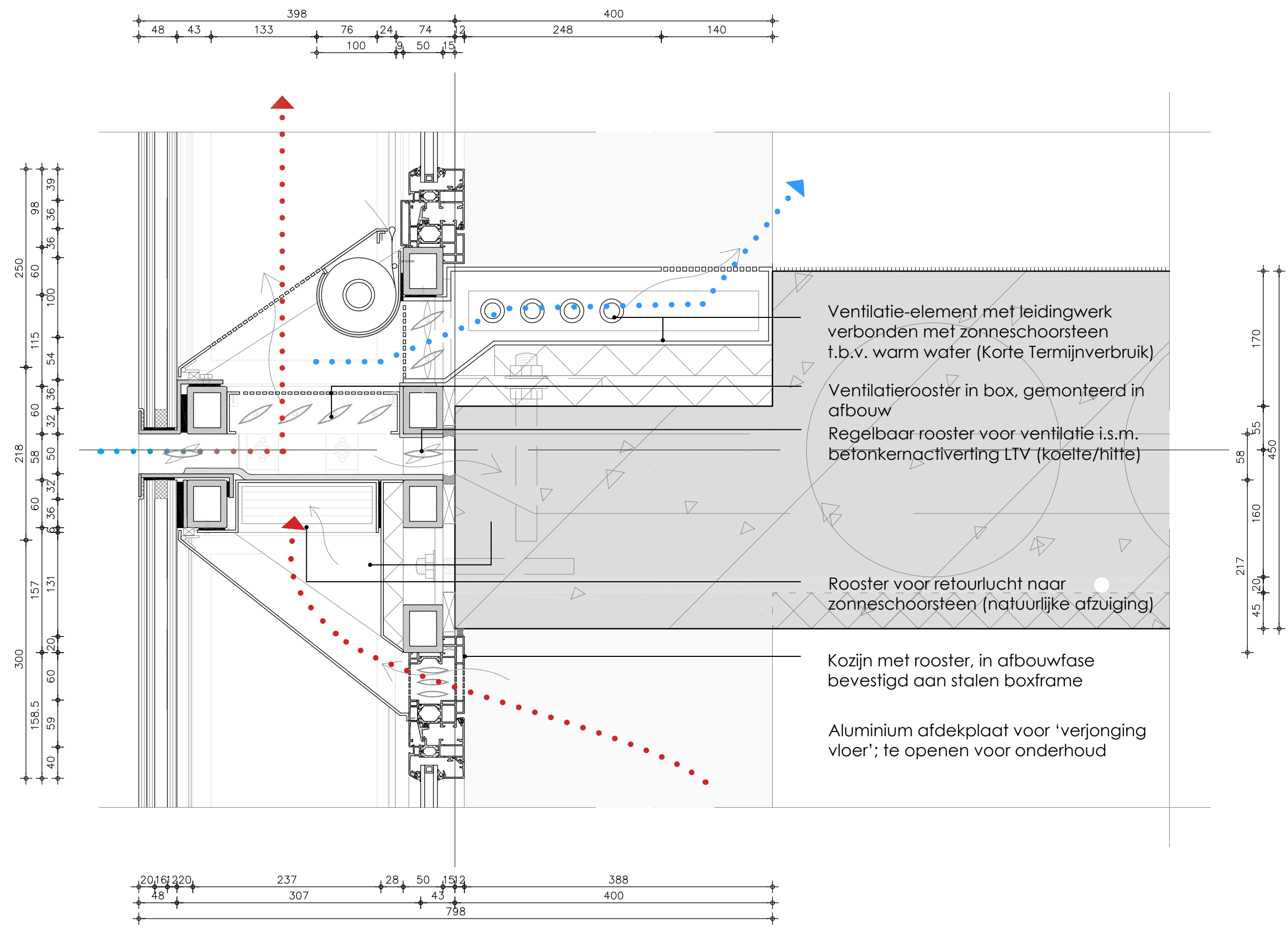
- + CAUSES UNDERPRESSURE = VENTILATION FLOW
- + WARM (TAP) WATER FOR FREE !



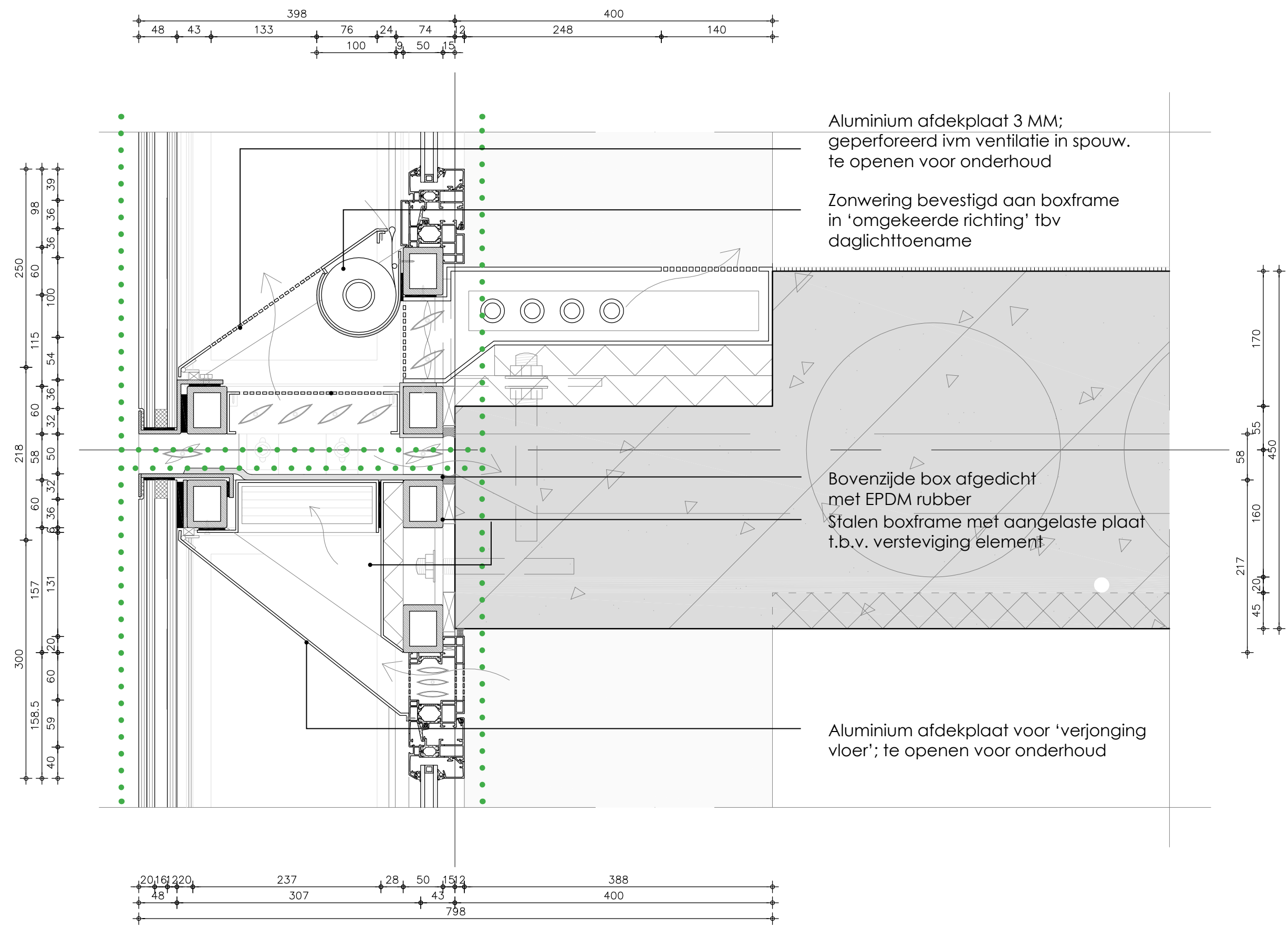
VERTICAL DETAIL ON WINDOW BOX



VERTICAL DETAIL ON WINDOW BOX

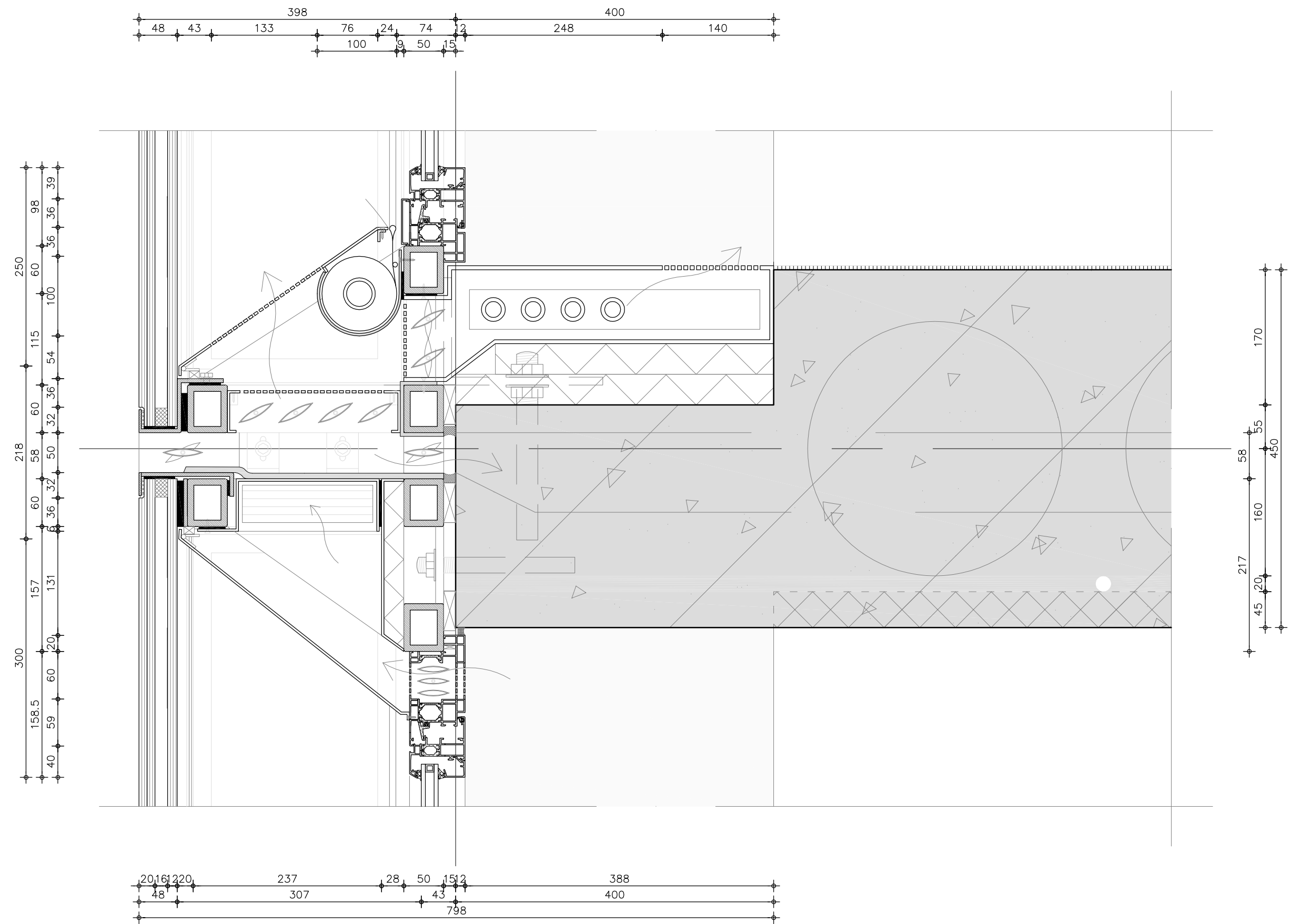


VERTICAL DETAIL ON WINDOW BOX



VERTICAL DETAIL ON WINDOW BOX

FACADE BOXES

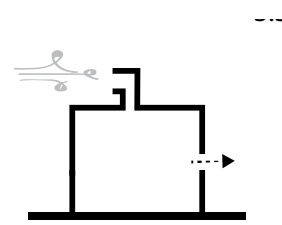


VERTICAL DETAIL ON WINDOW BOX

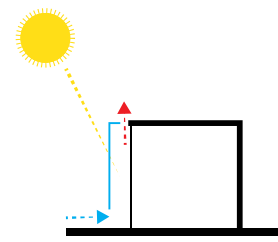
- NEW **PARK** FOR NYC
- NEW UN **ENTRANCE** ON 1ST AVE
- NEW **WATER ENTRANCE** ON PARK
- **RE-USE** OF FDR
- KEEPING INTACT **EXPEDITION**
- **EXTEND** EXISTING STRUCTURE
- CONNECT TO EXISTING UN BUILDINGS
- EXTEND UN PROGRAM PROPERLY
- KNOWLEDGE CENTER FOR AWARENESS
- 10.000 M² FLEXIBLE OFFICE SPACE
- ENERGY PRODUCTION BY PV CELLS
- SMART VENTILATION I
- FAST CONSTRUCTION METHOD
- RECYCLABLE MATERIALS
- **ADAPTIVE TO NEW YORK CITY CLIMATE**

CONCLUSION
AN ADEQUATE UNEC BUILDING!

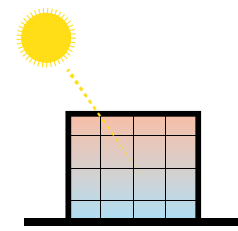
SUMMARY OF CLIMATE ADAPTIVENESS IN DESIGN



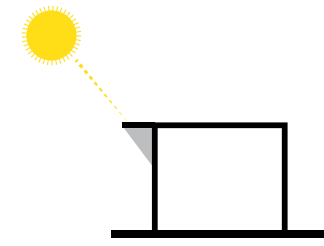
CROWN VENTILATION



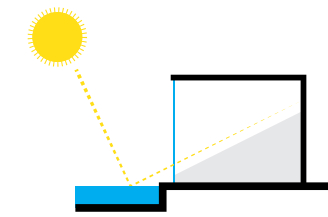
SOLAR CHIMNEY



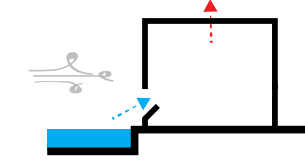
SUN ABSORBING PV CELLS IN GLASS



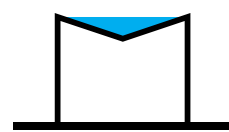
BENEFIT FROM CANTILEVER



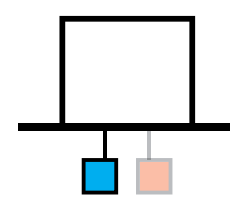
WATER REFLECTION



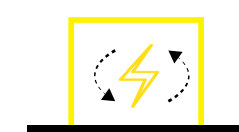
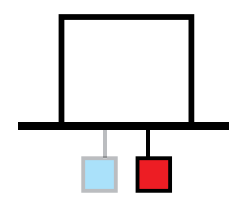
USE WATER BASSIN COLD



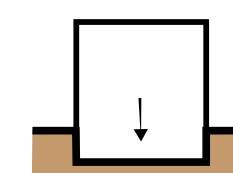
STORAGE & REUSE OF RAIN WATER



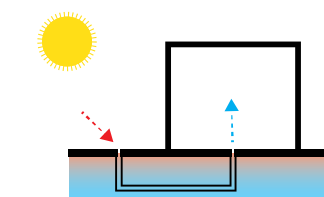
STORE HEAT & COLD IN 'AQUIFER' (SEASON DEPENDENT)



ENERGY (RE)GENERATION



THERMAL MASS



EARTH TUBES

- NEW **PARK** FOR NYC
- NEW UN **ENTRANCE** ON 1ST AVE
- NEW **WATER ENTRANCE** ON PARK
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- **COUNCIL TO HOST SUSTAINABLE AUTHORITY**

CONCLUSION
AN ADEQUATE UNEC BUILDING!

TIMO CARDOL | GRADUATION PRESENTATION | 3/2/2012
United Nations Environmental Council

