

INTERACTION GRID

ITMO HIGHPARK COMPETITION

KOSMOS ARCHITECTS 17.11.2018

SITE AND PROGRAM

NEW HIGHPARK CONNECTION

EXISTING UNIVERSITY
BUILDINGS

ITMO HIGHPARK SITE



Kievskoe Shosse

Kondakopshino

Lesnoe

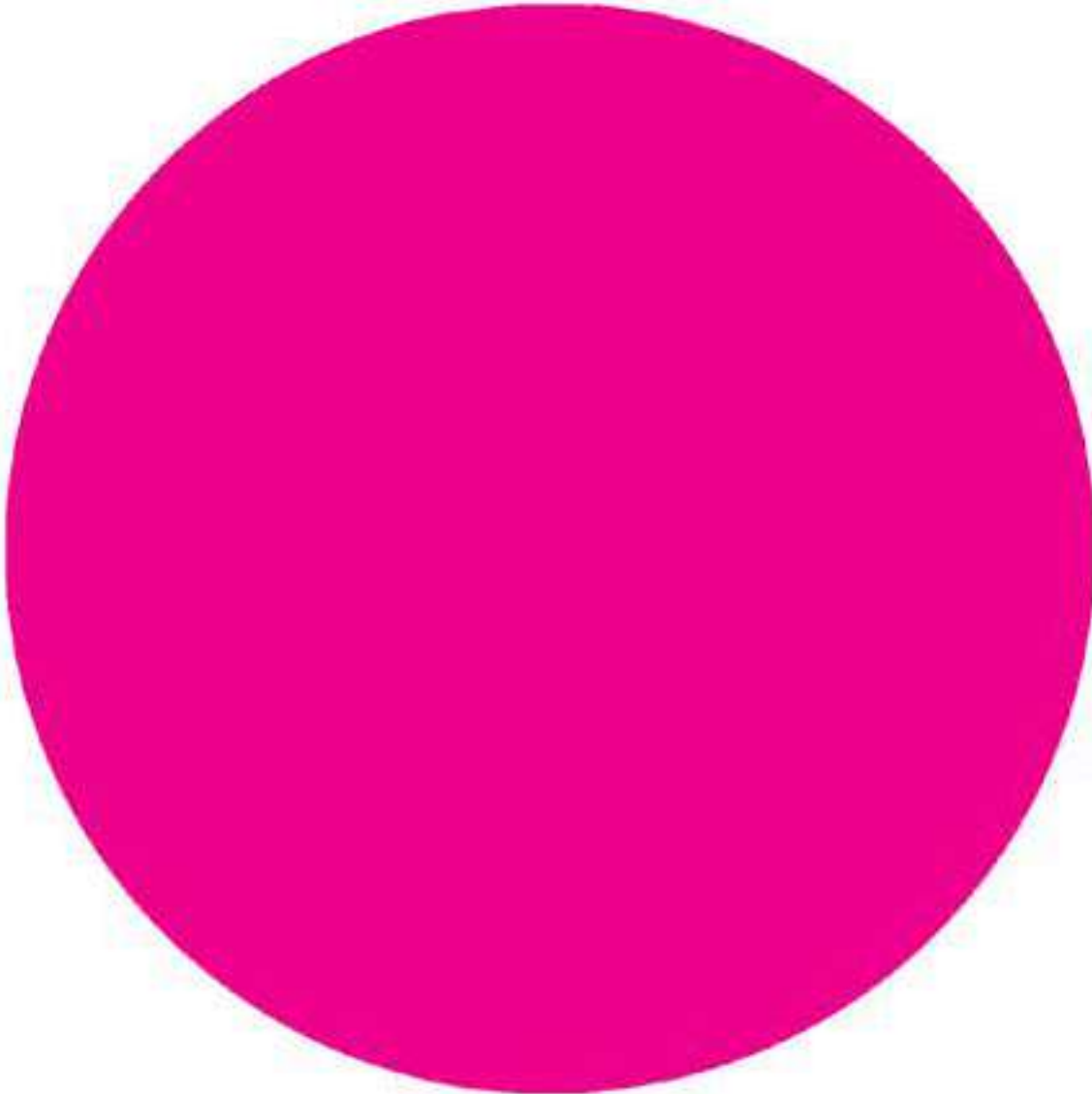
ITMO HIGHPARK SITE

SITE CONDITION: EMPTY FIELD

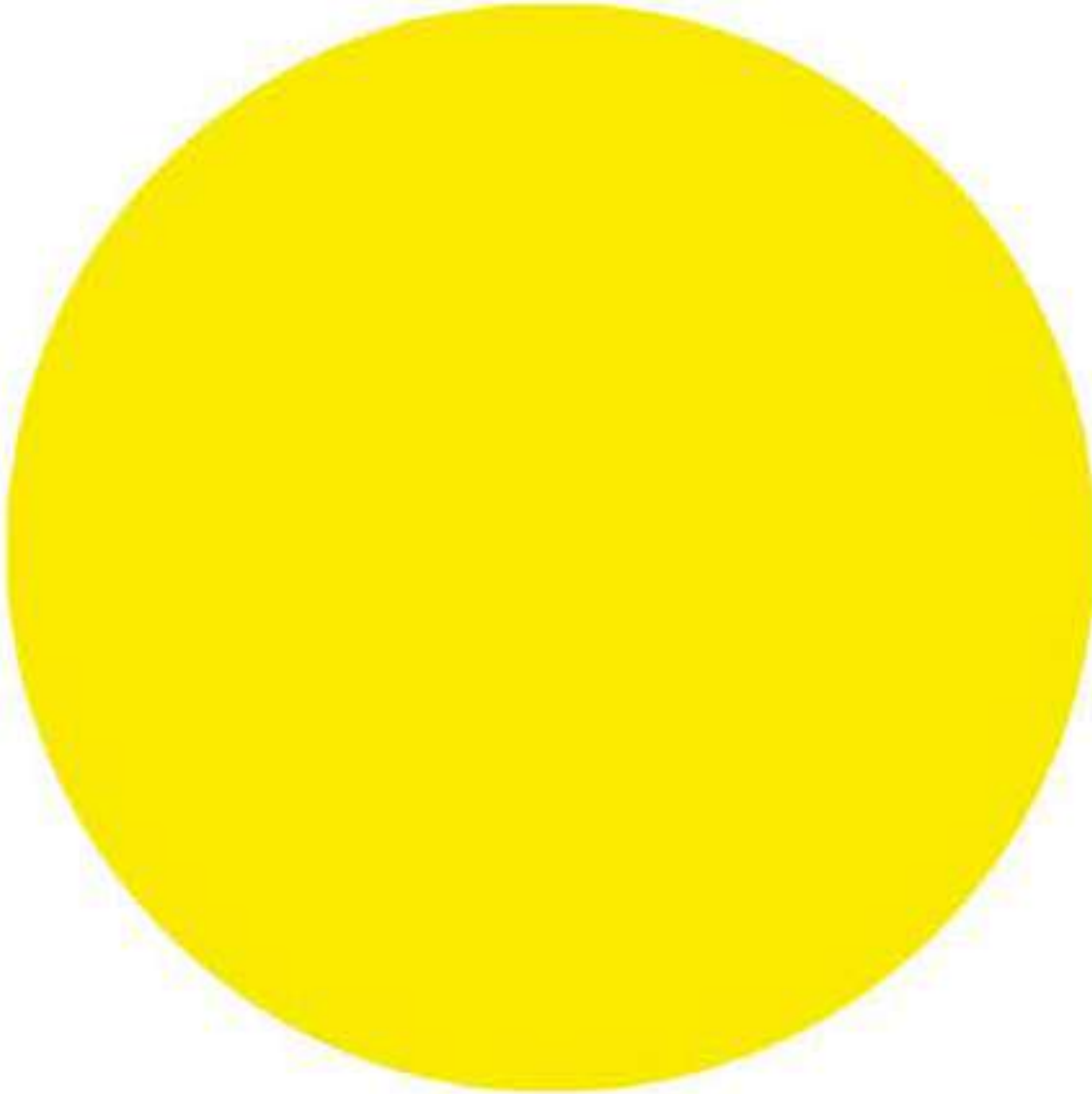


THREE MAIN PROGRAMS

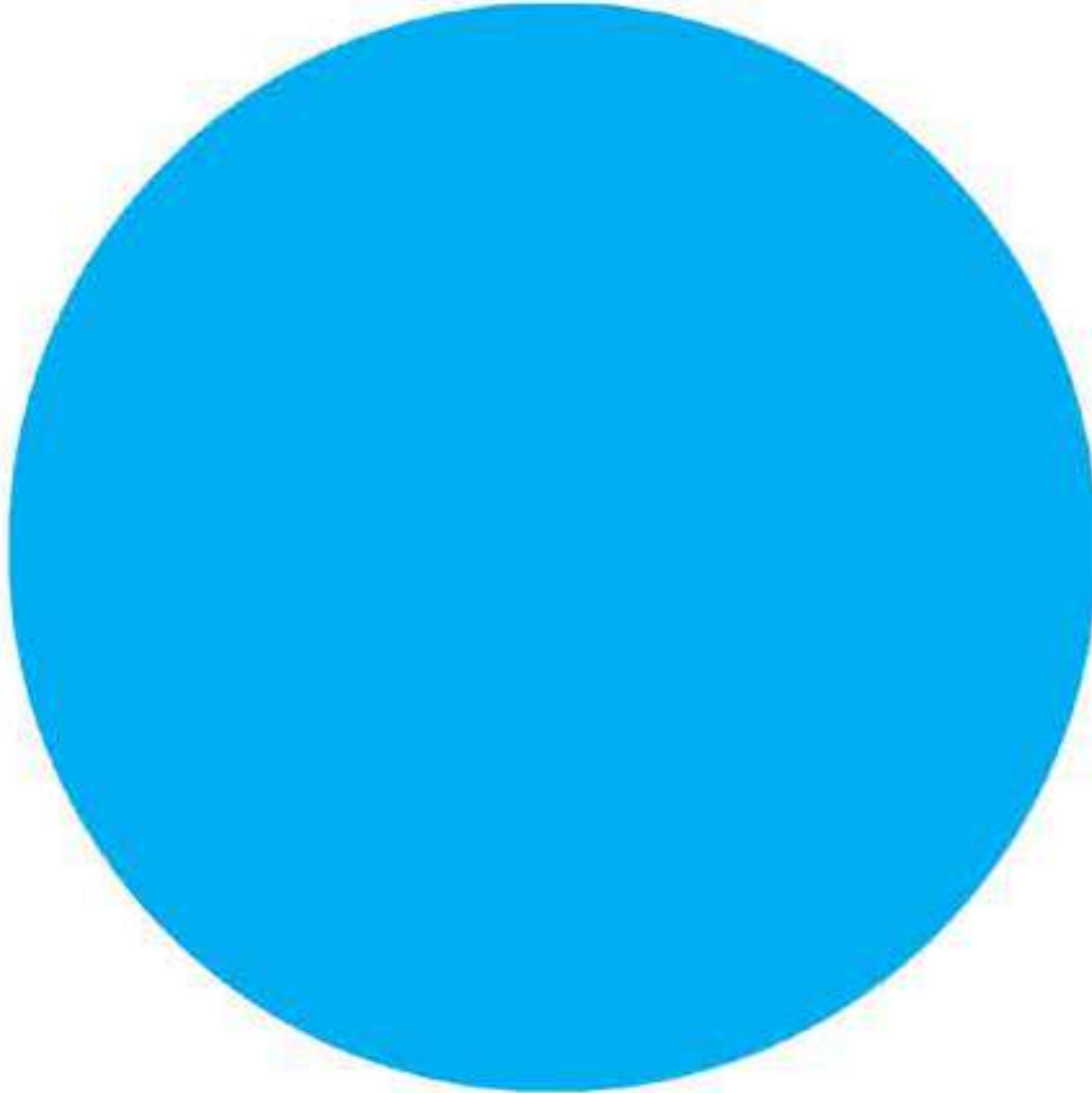
Production



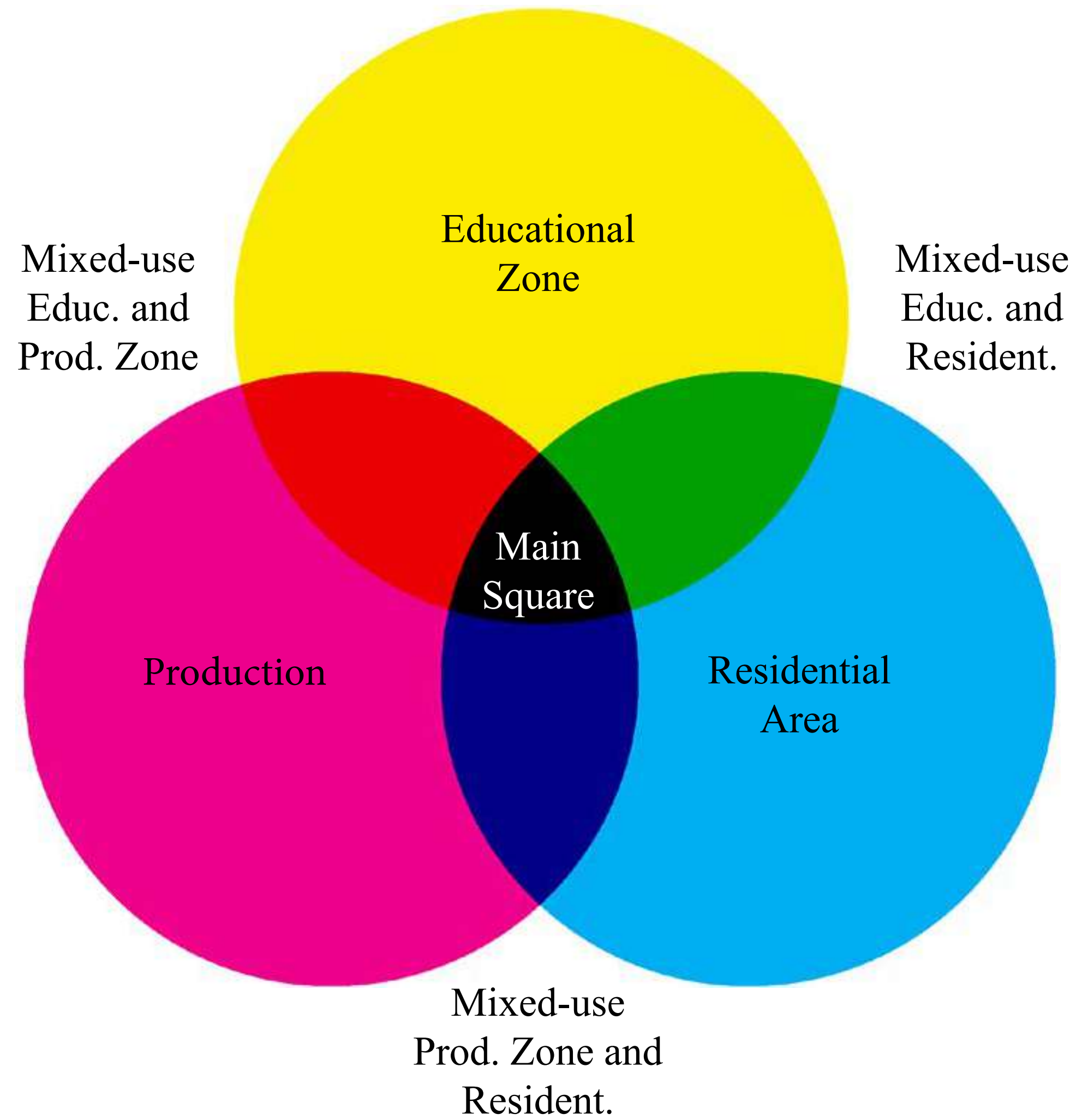
Education



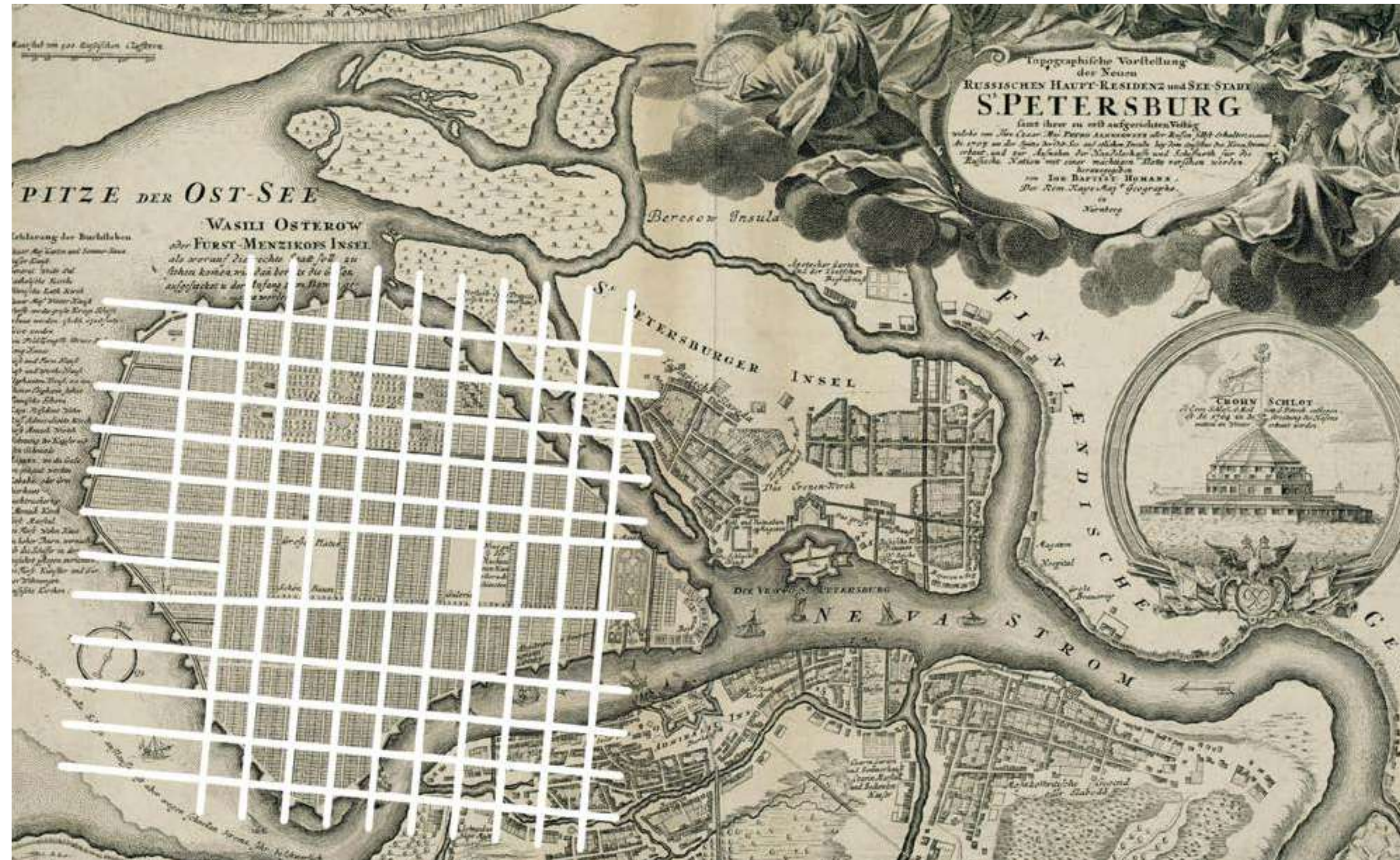
Residence



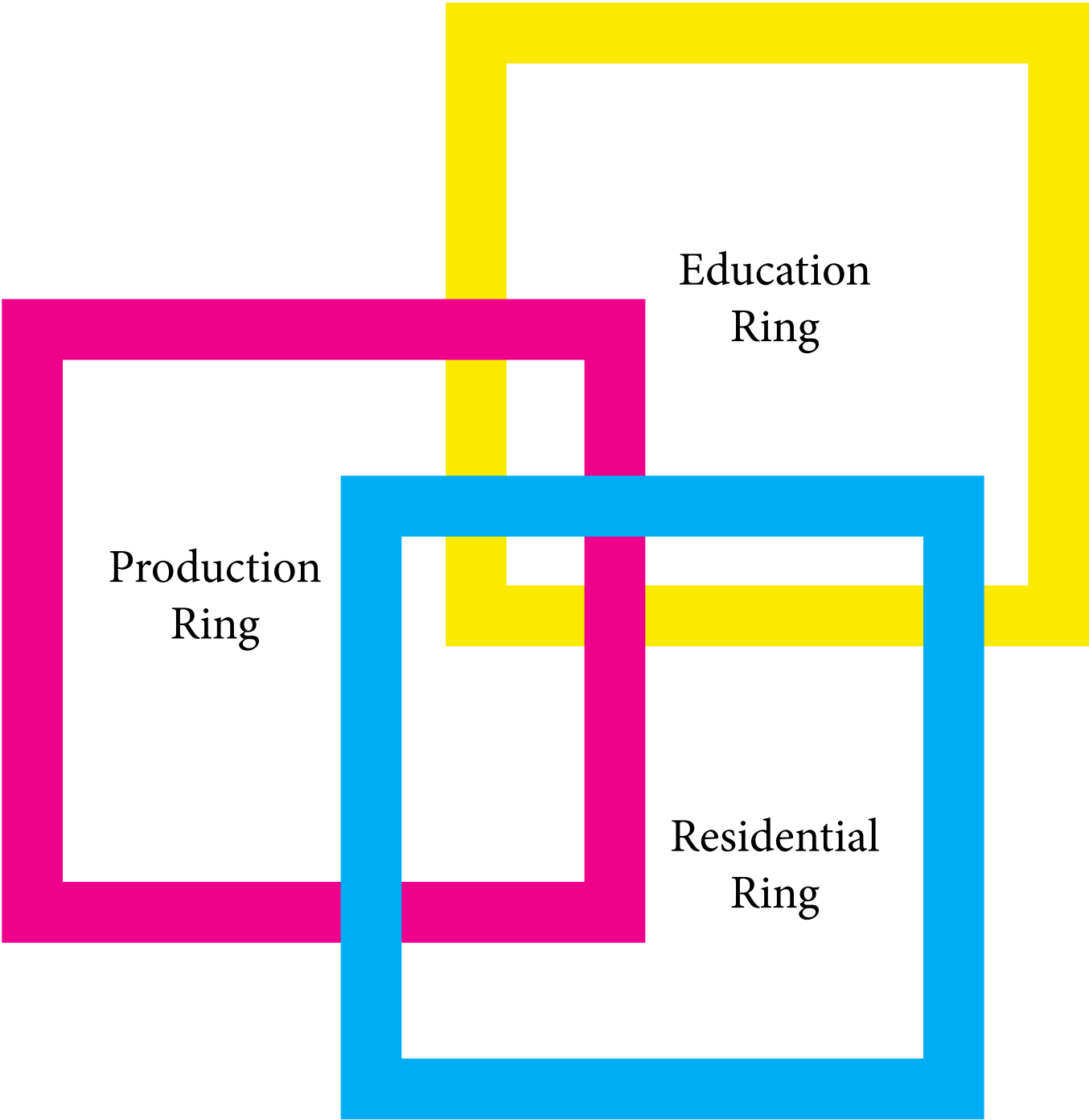
PROGRAM: CORE FUNCTIONS AND OVERLAP



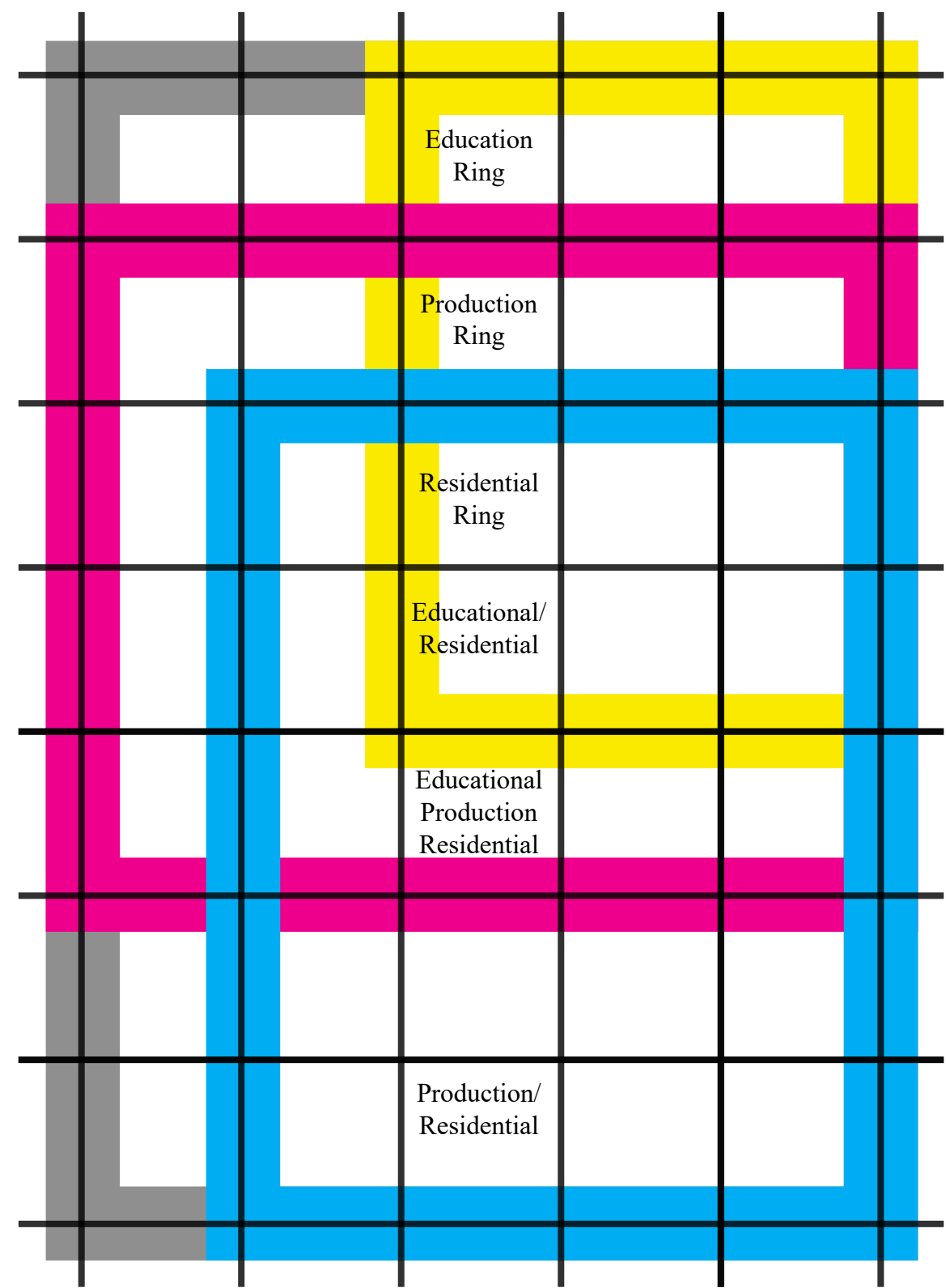
ORTHOGONAL URBAN GRID - BASE OF SAINT PETERSBURG



OVERLAP OF THE FUNCTIONAL LOOPS



APPLICATION OF IDEAL ORTHOGONAL GRID



Each function takes a shape of a rectangular loop. The loops are organized according to urban grid, and create new areas of functional fluidity in the overlapping areas.

DIVERSITY AND FLUIDITY OF FUNCTIONS

Logistic Center	Parking	Center for Photonic & Quant. tech.	Center for Health & Life Science.	Cent. Data Processing
Production Zone	Production Ring	Center for Photonic & Quant. tech.	Main Garden	Center for Information Technol.
Production Zone	Hotel	Library/ Mediateque	Main Garden	Center for Information Technol.
Business Incubator	Main Square	Grand Steps	Showroom	Main Auditorium
Production Zone	Nat. Urban Science Center	Production Zone	Production Zone	Sports Center
Parking	Professor Dormitory	Live Work Units	Live Work Units	Student Unit with Dining
Sports Center	Student Dormitory	Student Dormitory	Student Dormitory	Student Dormitory

THREE LOOPS - THREE DIFFERENT ATMOSPHERES



MASTERPLAN

LOW HORIZONTAL SKYLINE PUNCTUATED BY VERTICAL LANDMARKS



Panorama of Saint Petersburg

CITY OF THE SAME HIGHT WITH EMPHAZISED PUBLIC SPACES



Reference: Saint Petersburg historical development

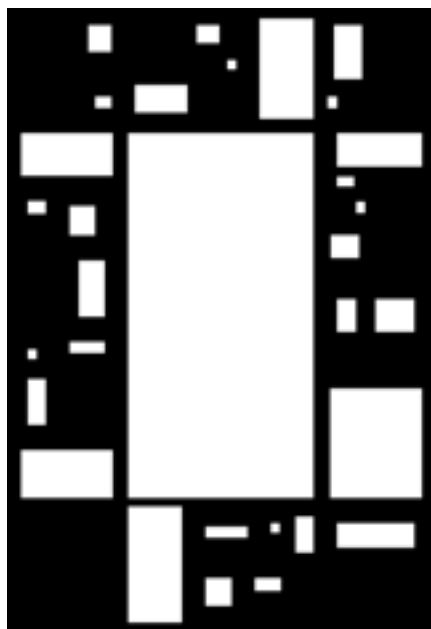


3 PRINCIPLES OF SAINT PETERSBURG

DENSITY + GREEN AREAS



Map of central Saint Petersburg: dense urban blocks intermingled with squares, gardens, parks and other voids.



Urban scale «XL»:
Educational slab

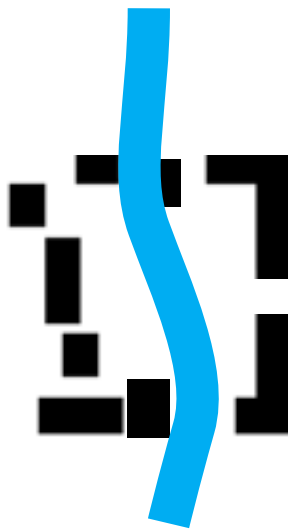
RIVER AS A KEY ELEMENT



INTERACTION COURTYARD



Reference: Interior courtyards of Hermitage building in Saint Petersburg.

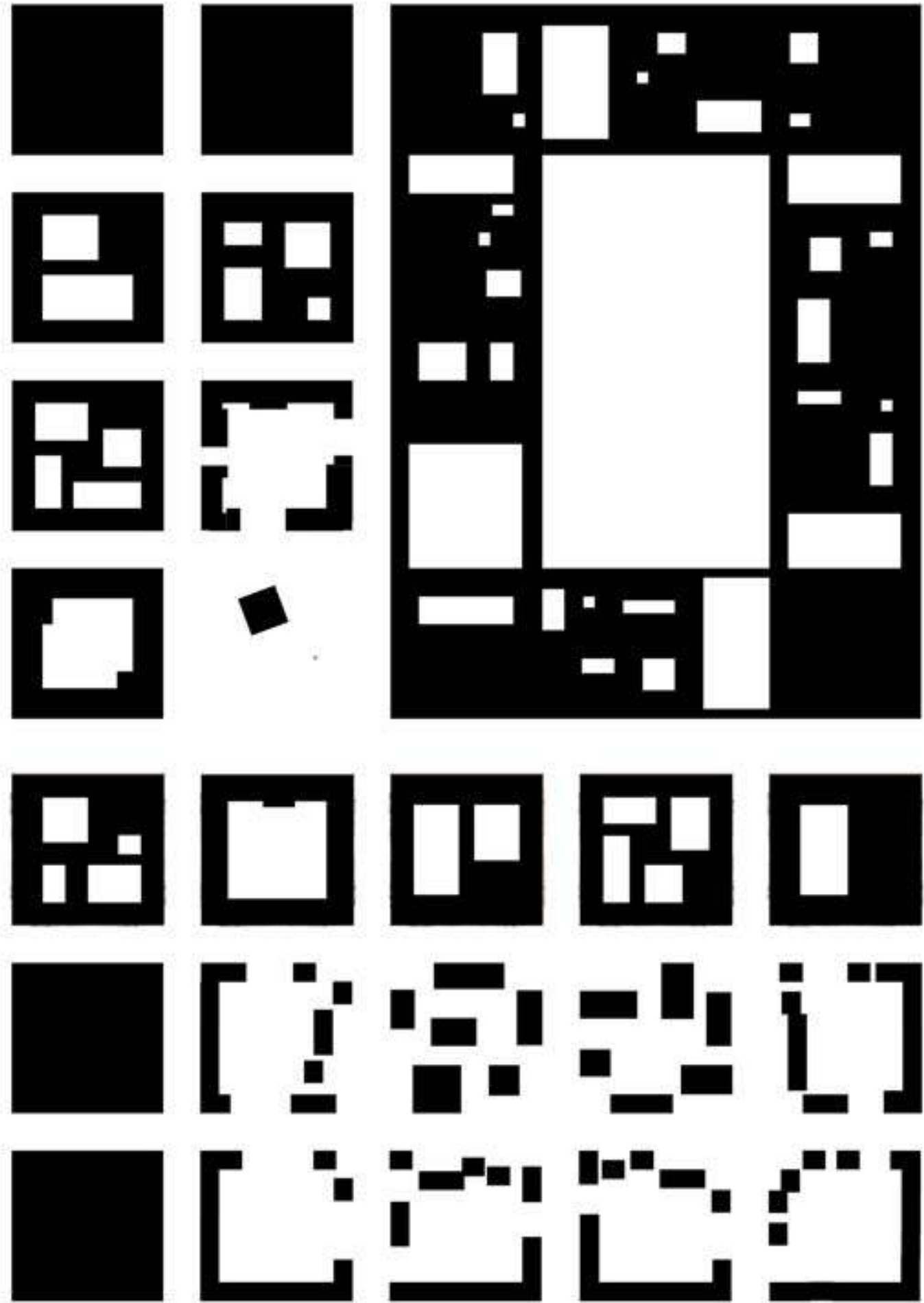


Urban scale «S»:
residential area

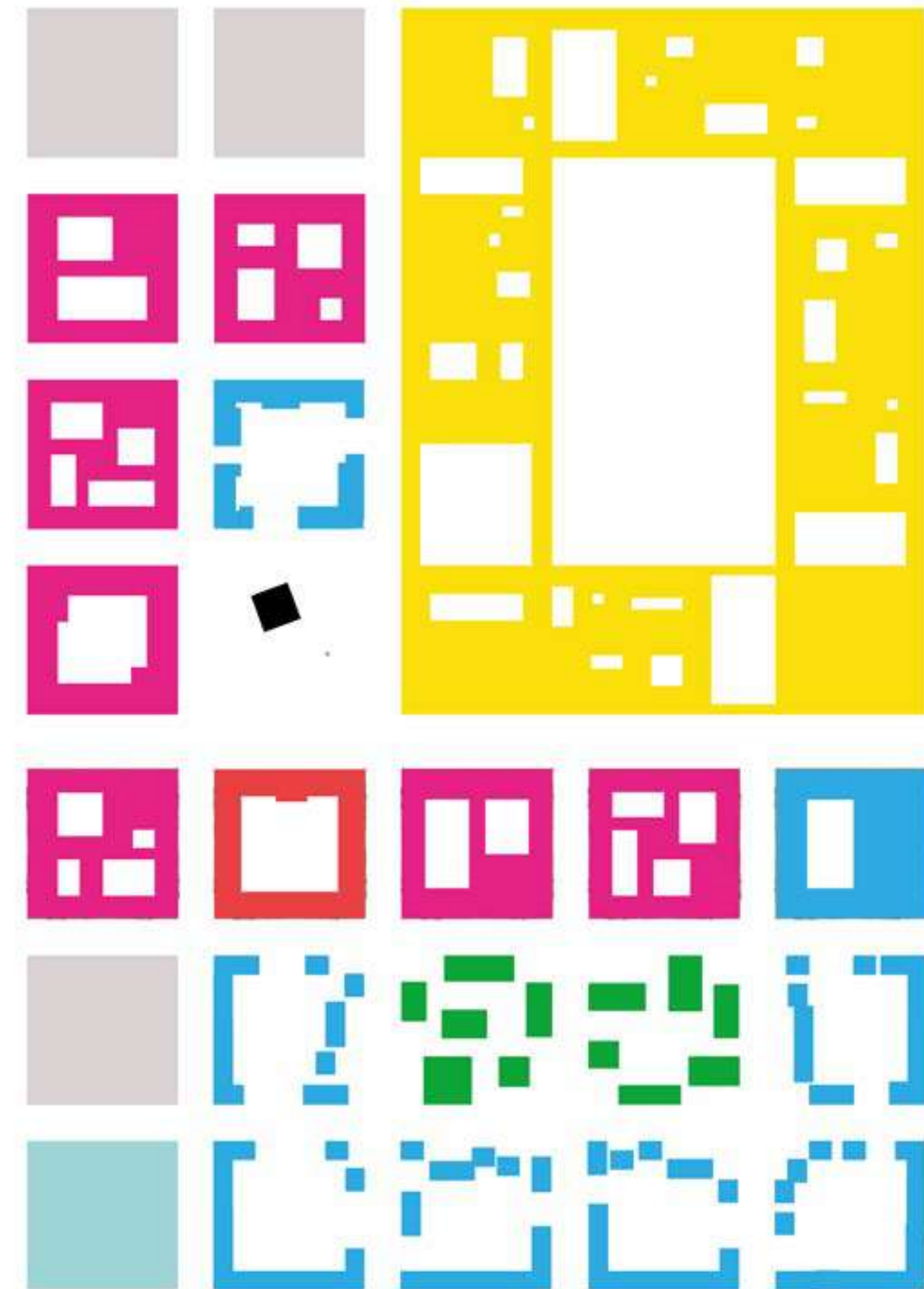


Urban scale «L»:
production zone

CO-DIMENSION OF THE OPENED AND BUILT SPACE



3 LOOPS: 3 DIFFERENT ATMOSPHERES, 3 DIFFERENT SCALES





ARCHITECTURAL ENSEMBLE

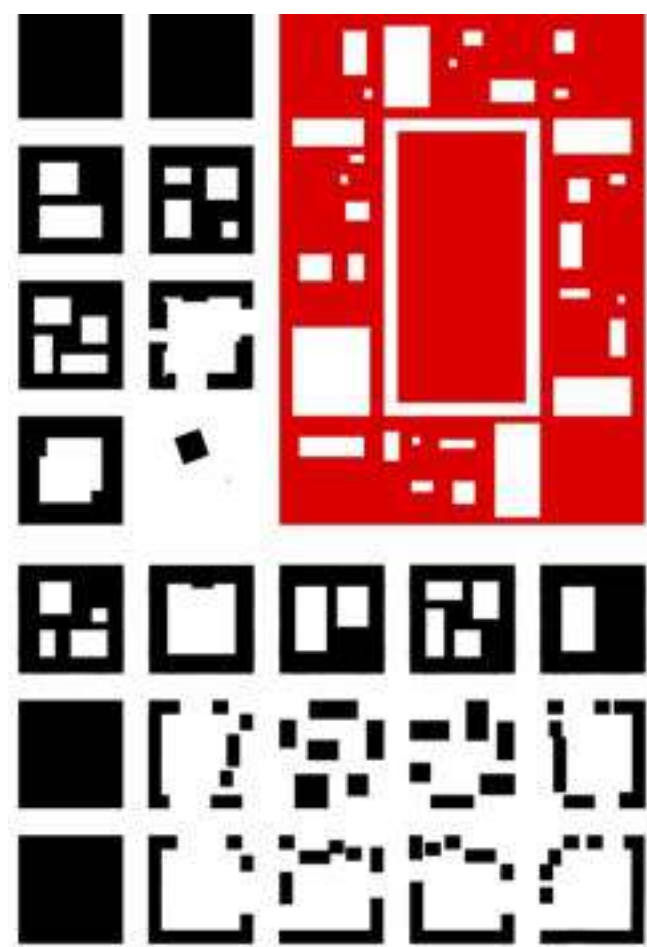
WELL-CONNECTED HUMAN SCALE ENSEMBLE WITH VERTICAL LANDMARKS



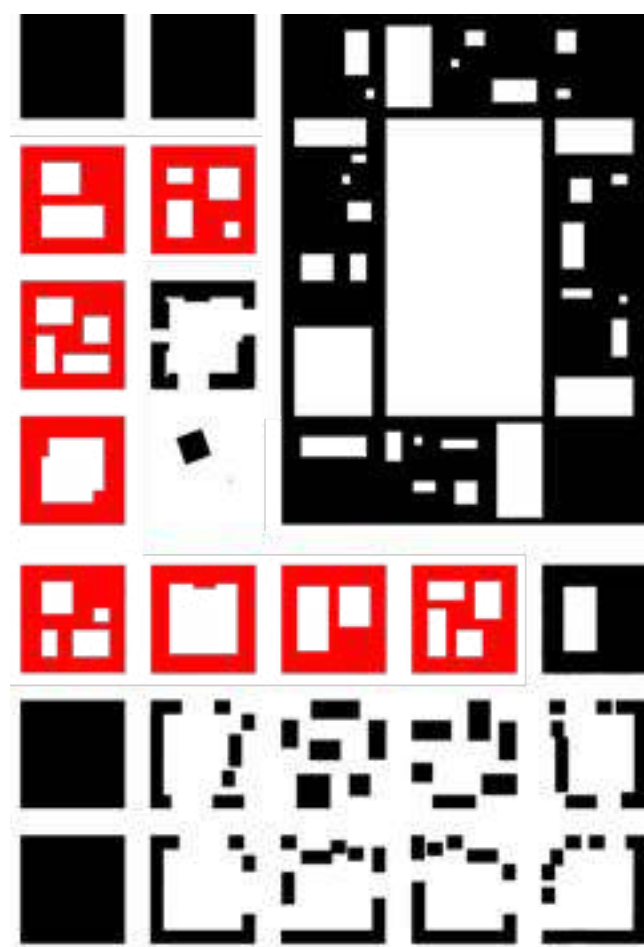
Reference: Peter-Paul Fortress



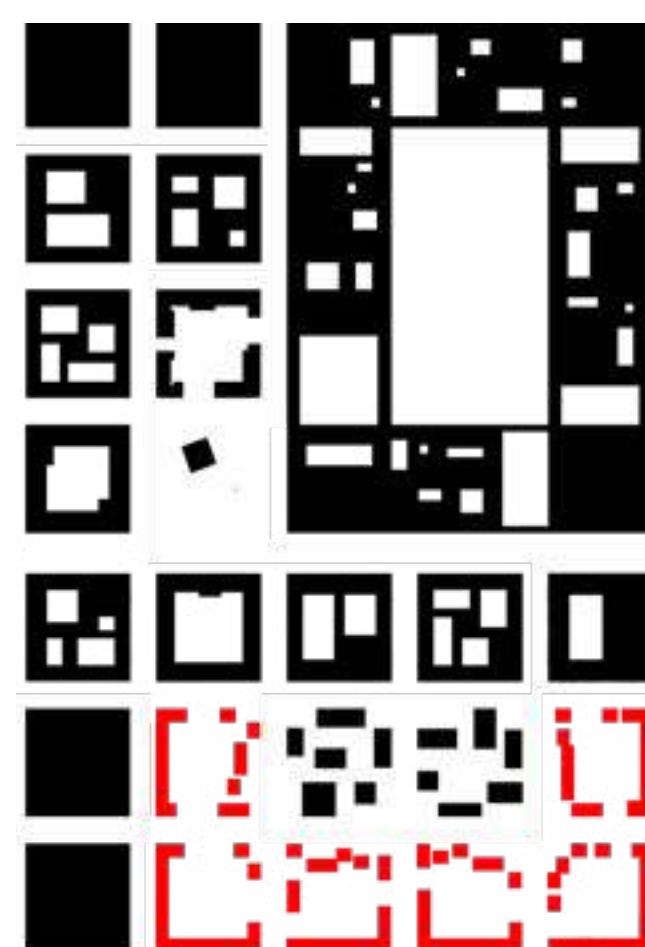
ELEMENTS



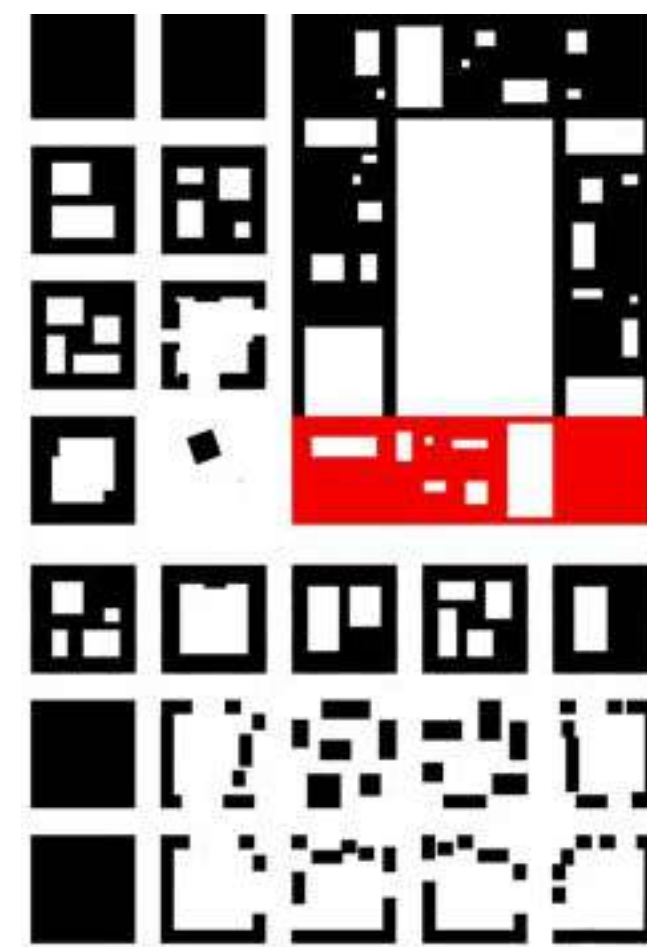
EDUCATIONAL ZONE



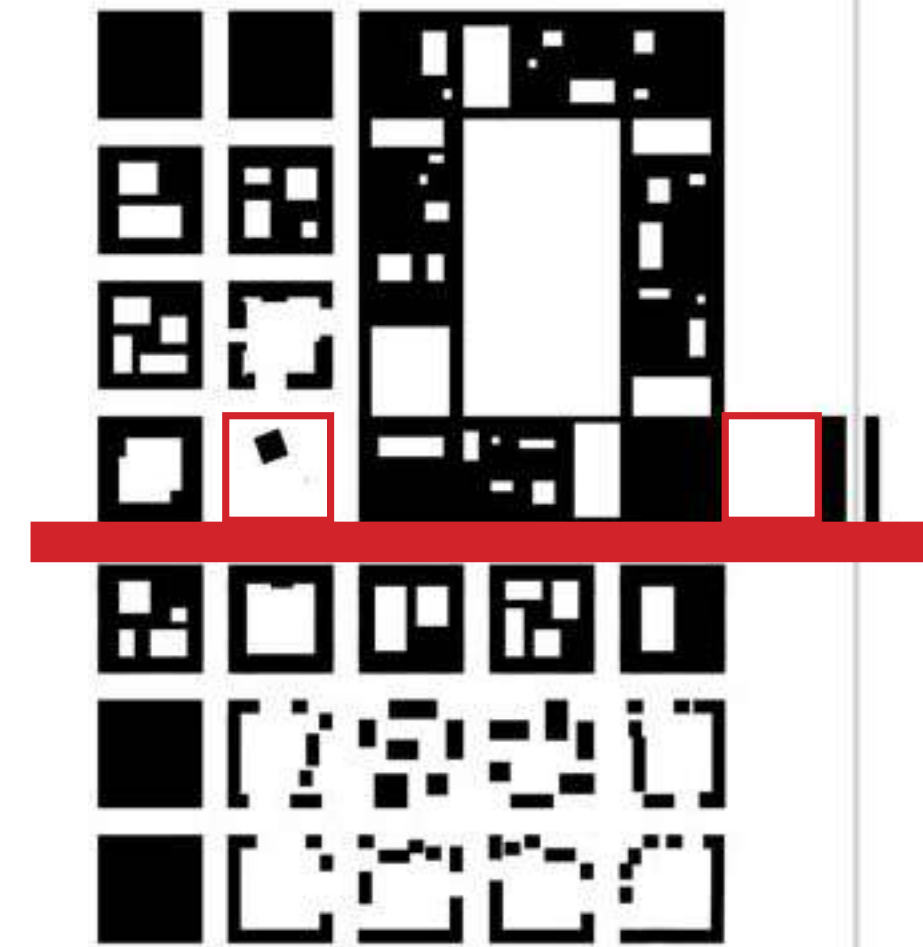
INNOVATION CENTER



STUDENT
DORMITORIES

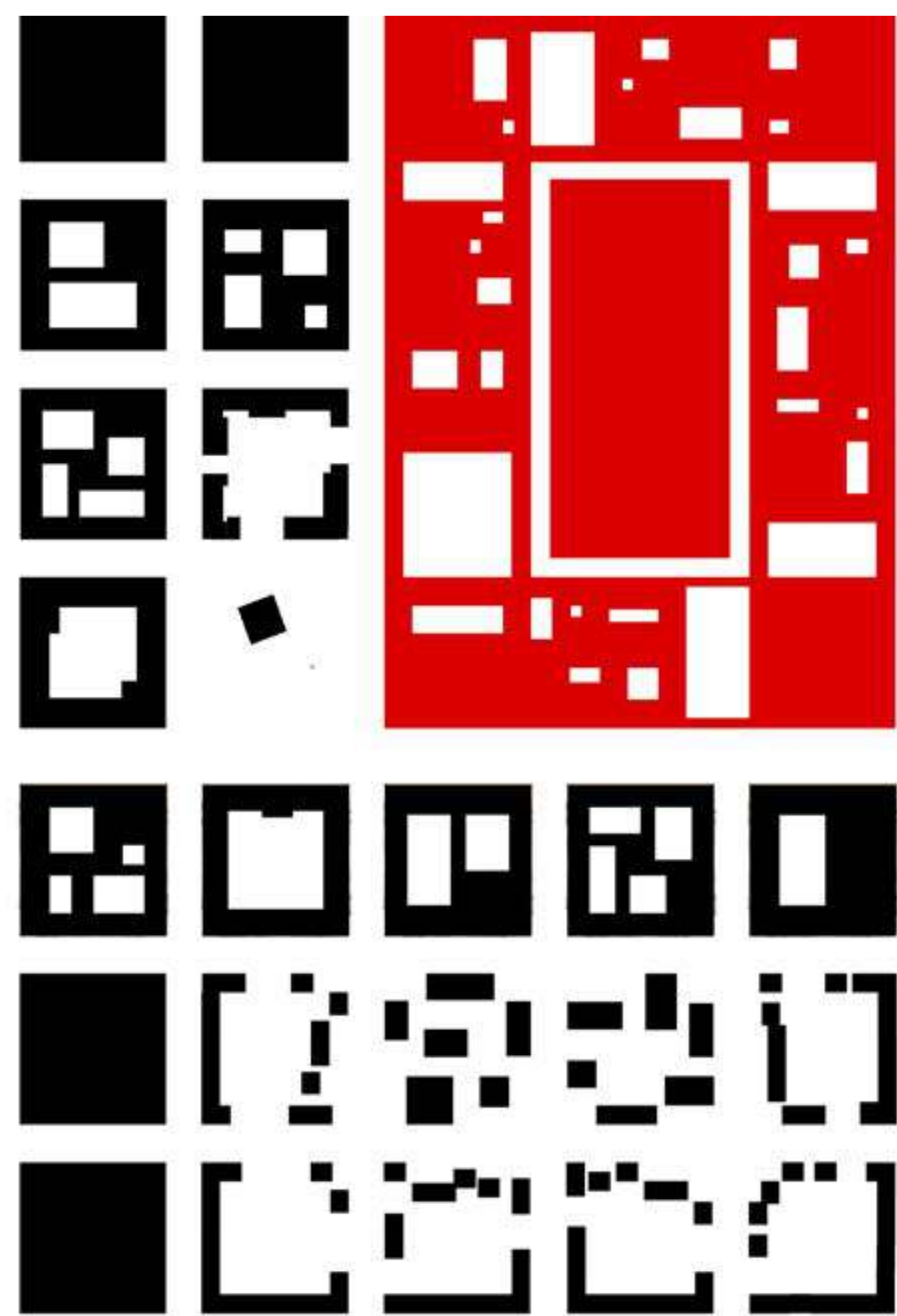


ACADEMIC MAIN
BUILDING



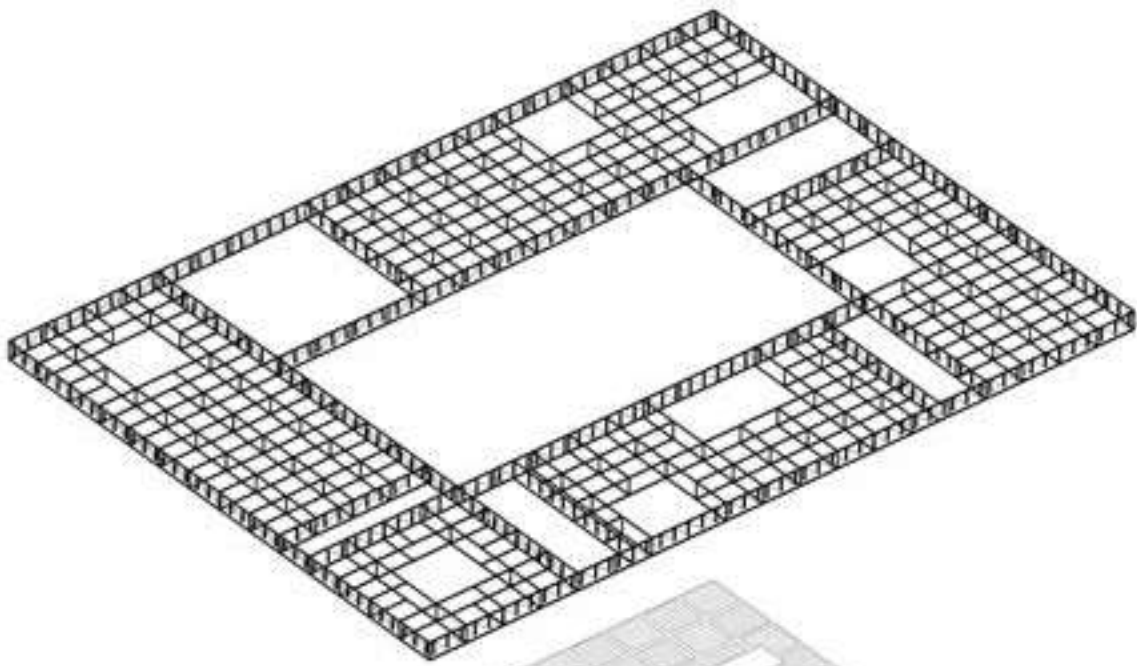
MAIN BOULEVARD,
ENTRANCE SQUARE
AND MAIN SQUARE

EDUCATIONAL ZONE

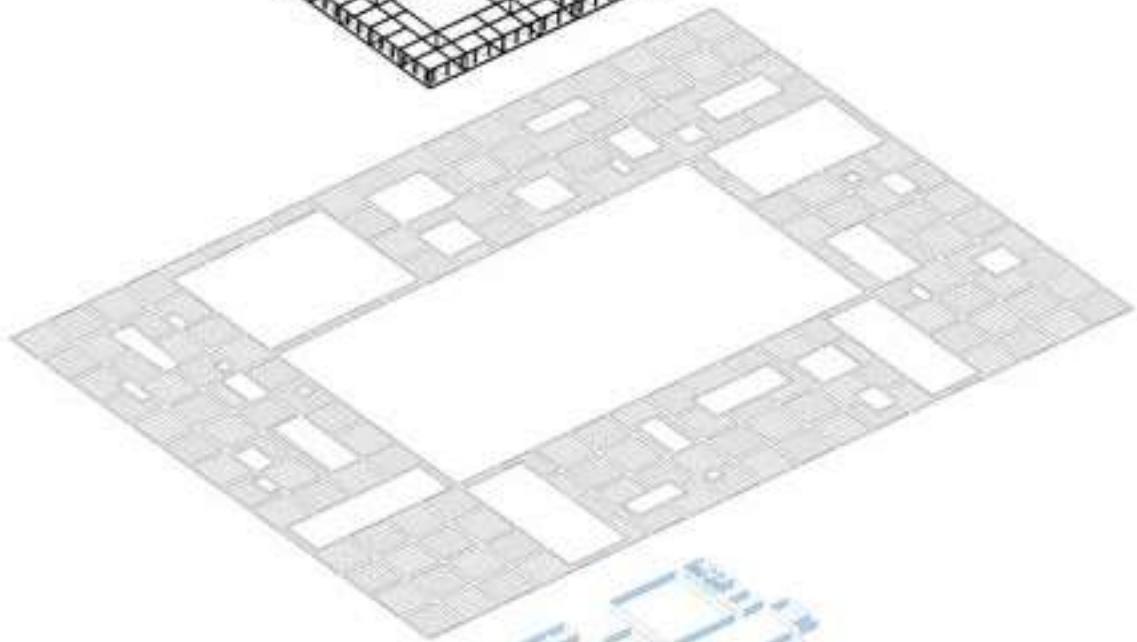




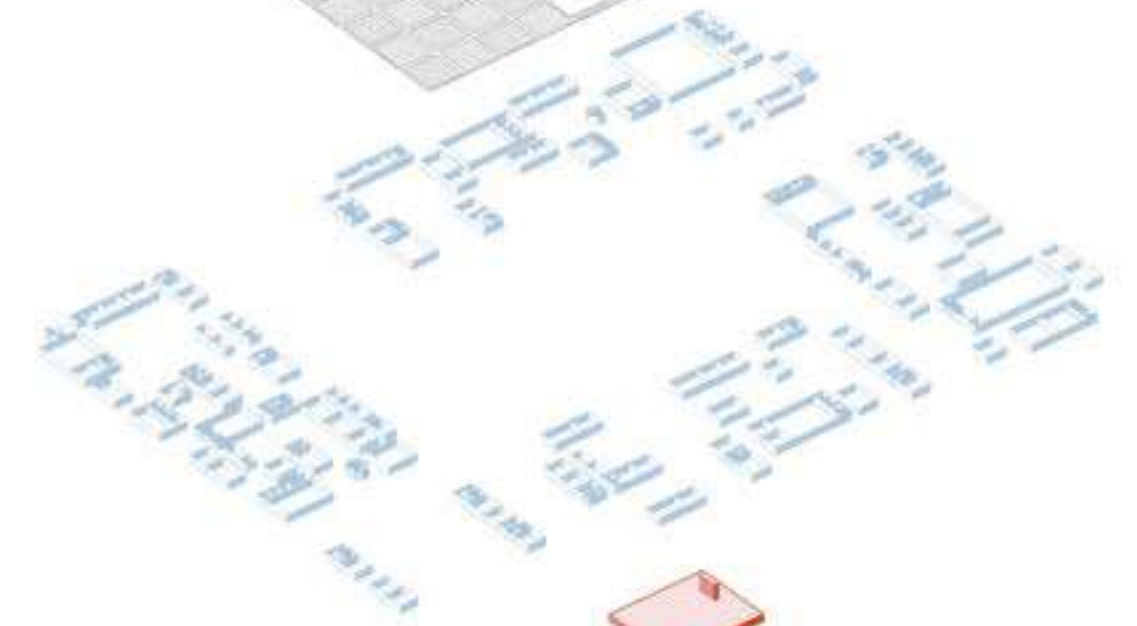
FLEXIBILITY AND ADJUSTABILITY OF ENTIRE EDUCATIONAL ZONE



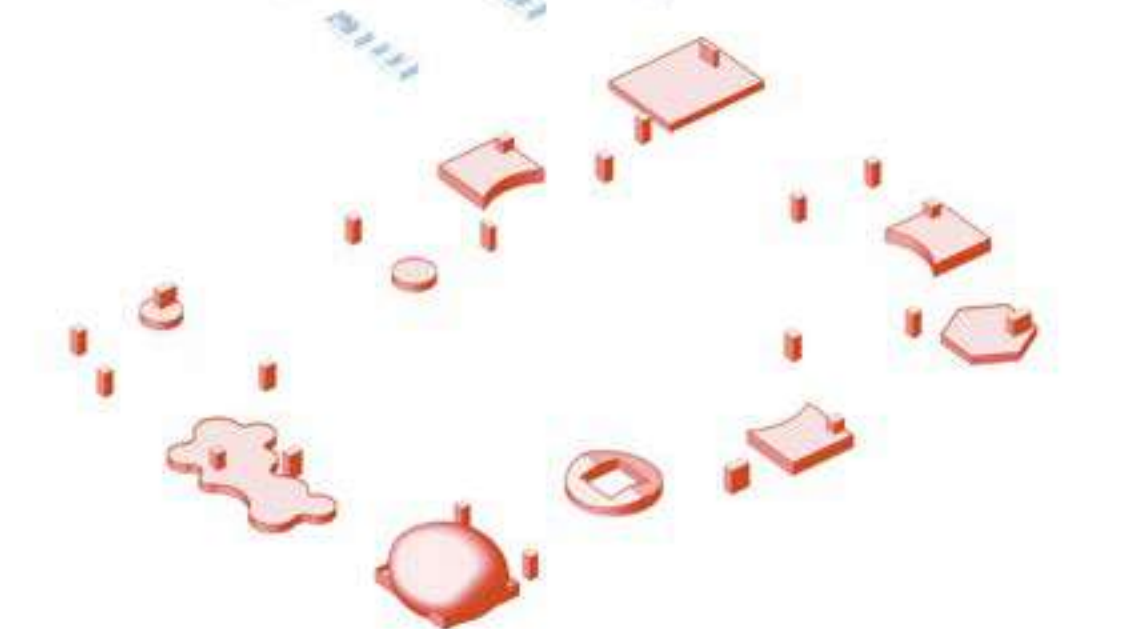
Superstructure



Flexible floor plates could be adjusted depend on university needs

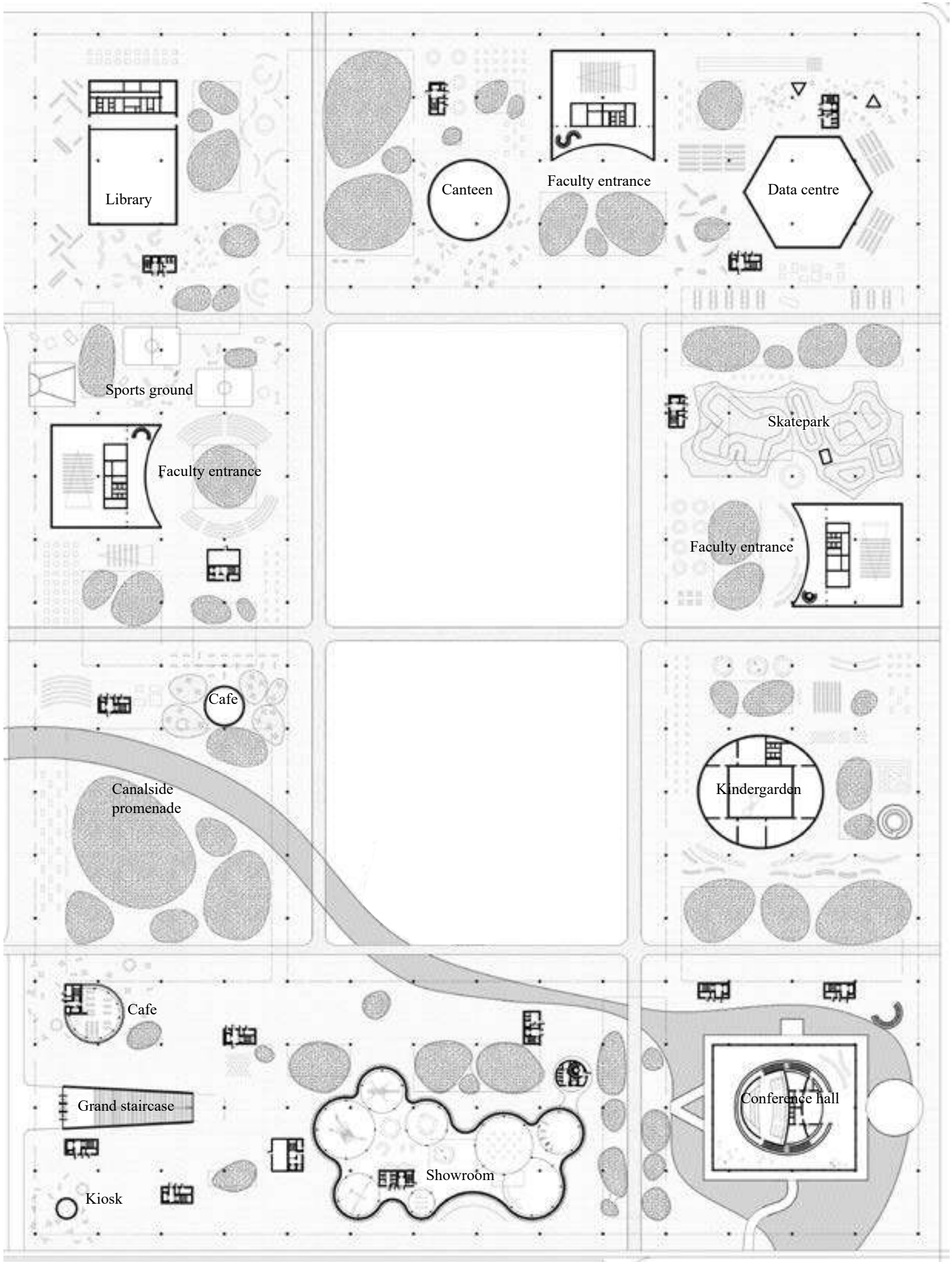


Movable partitions could be adjusted depend on faculty and students needs



Social amenities
Pavilions with public program could be rebuild and change the function depend on city needs

LOCATION OF THE PAVILIONS REFLECTS INTERSECTION OF THE FUNCTIONAL RINGS



PAVILIONS OF DIFFERENT PUBLIC PROGRAMS ON THE GROUND LEVEL
UNITED BY EDUCATIONAL SLAB ON TOP



PARK IN THE MIDDLE OF THE HIGH PARK: PLACE OF INTERACTION AND KNOWLEDGE EXCHANGE



Reference: Saint Petersburg Letniy Garden (Summer Garden)



ITMO SUMMER GARDEN

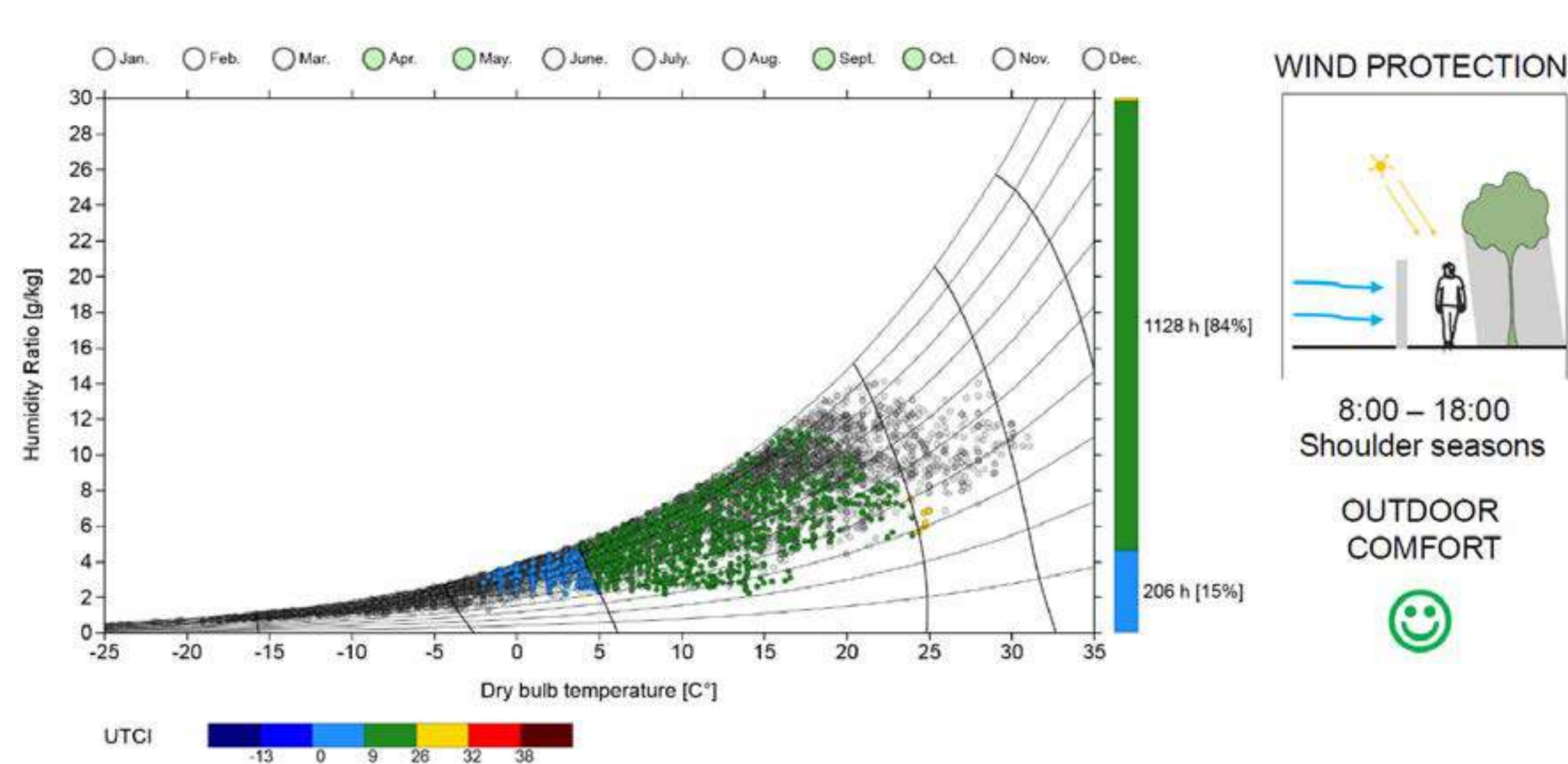
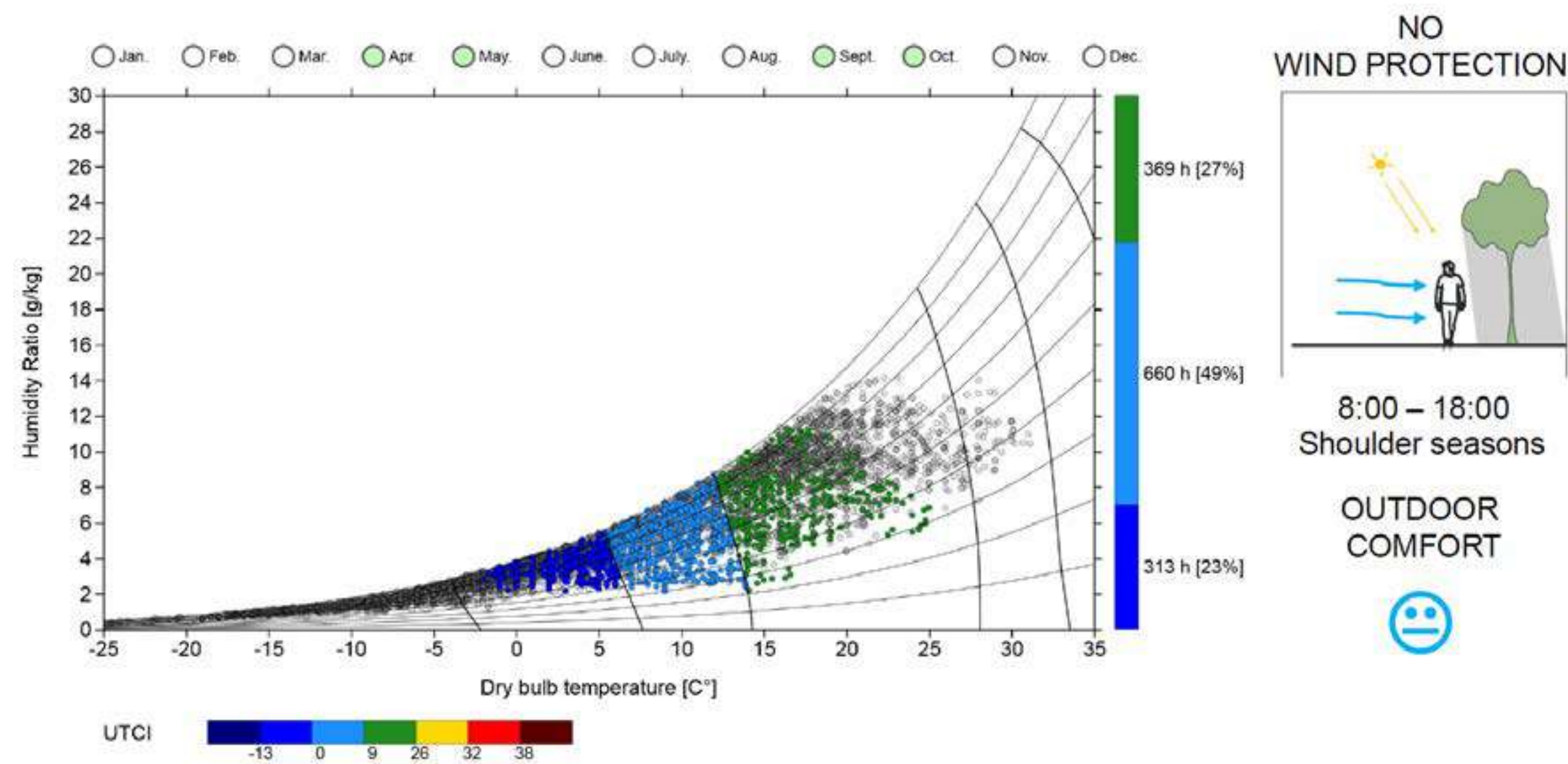


Plan

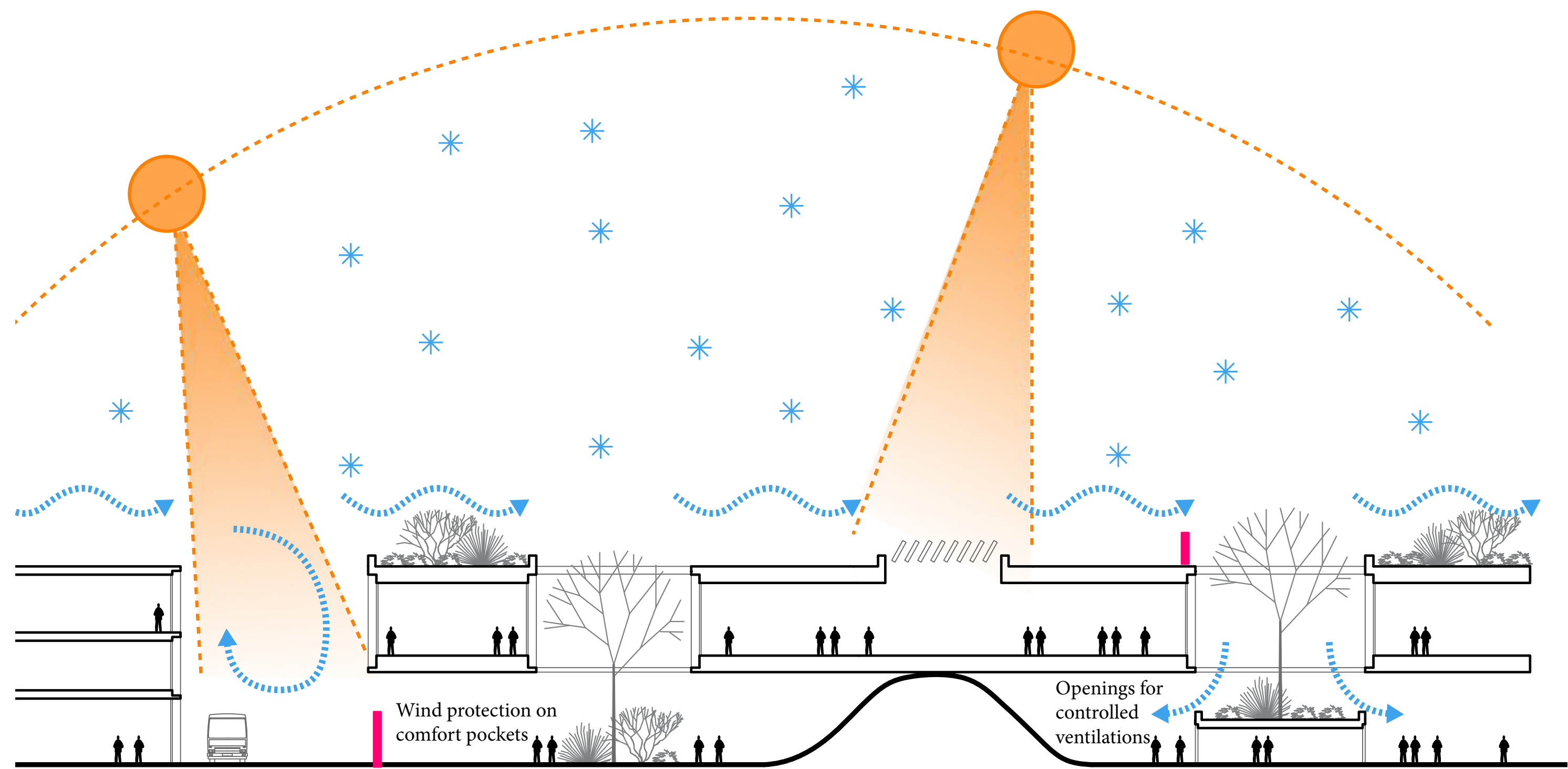


Axonometry

CLIMATE COMFORT. WIND PROTECTION CAN IMPROVE COMFORTABLE HOURS BY +60%

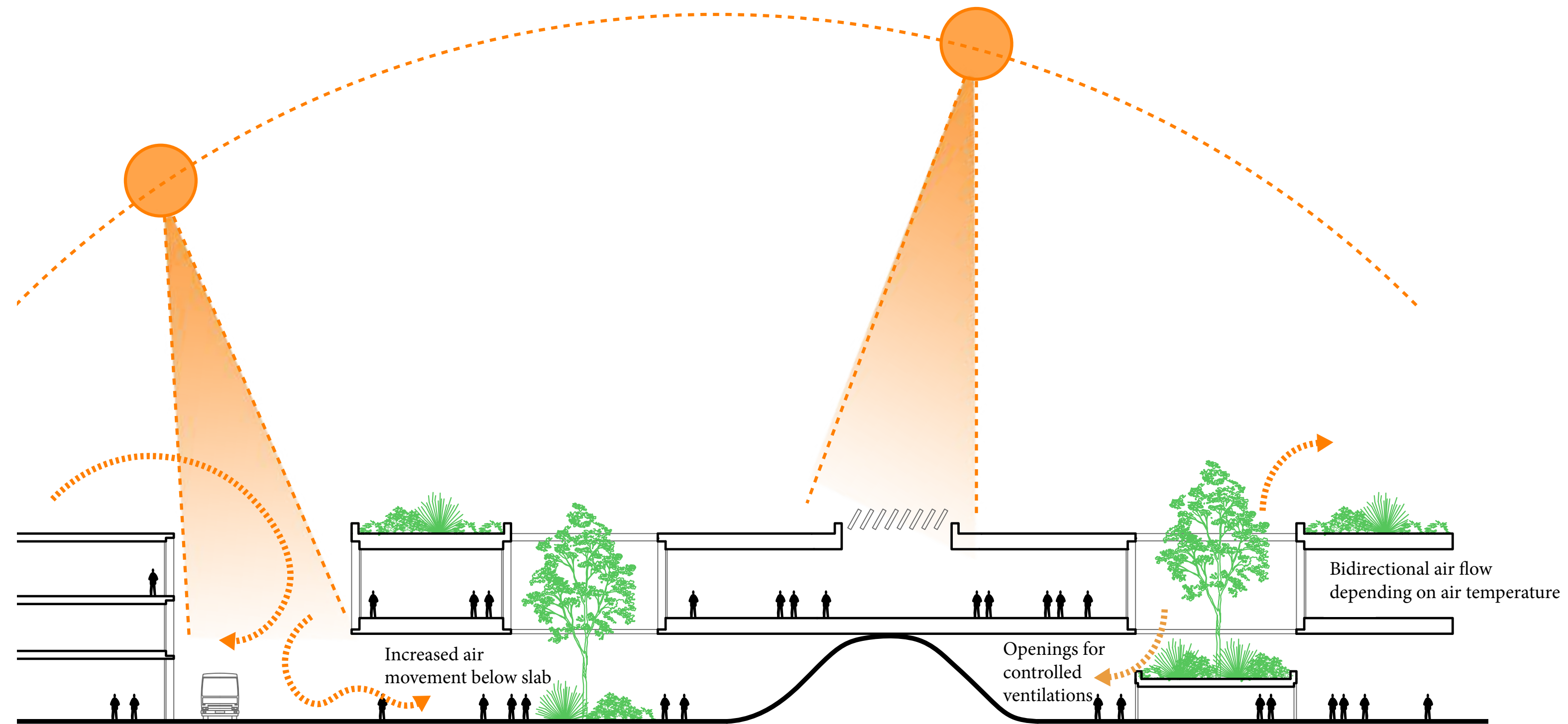


WIND PROTECTION IN WINTER. INCREASING THE
OUTDOOR COMFORT FROM 3 TO 6 MONTHS



Climate comfort diagram. Winter

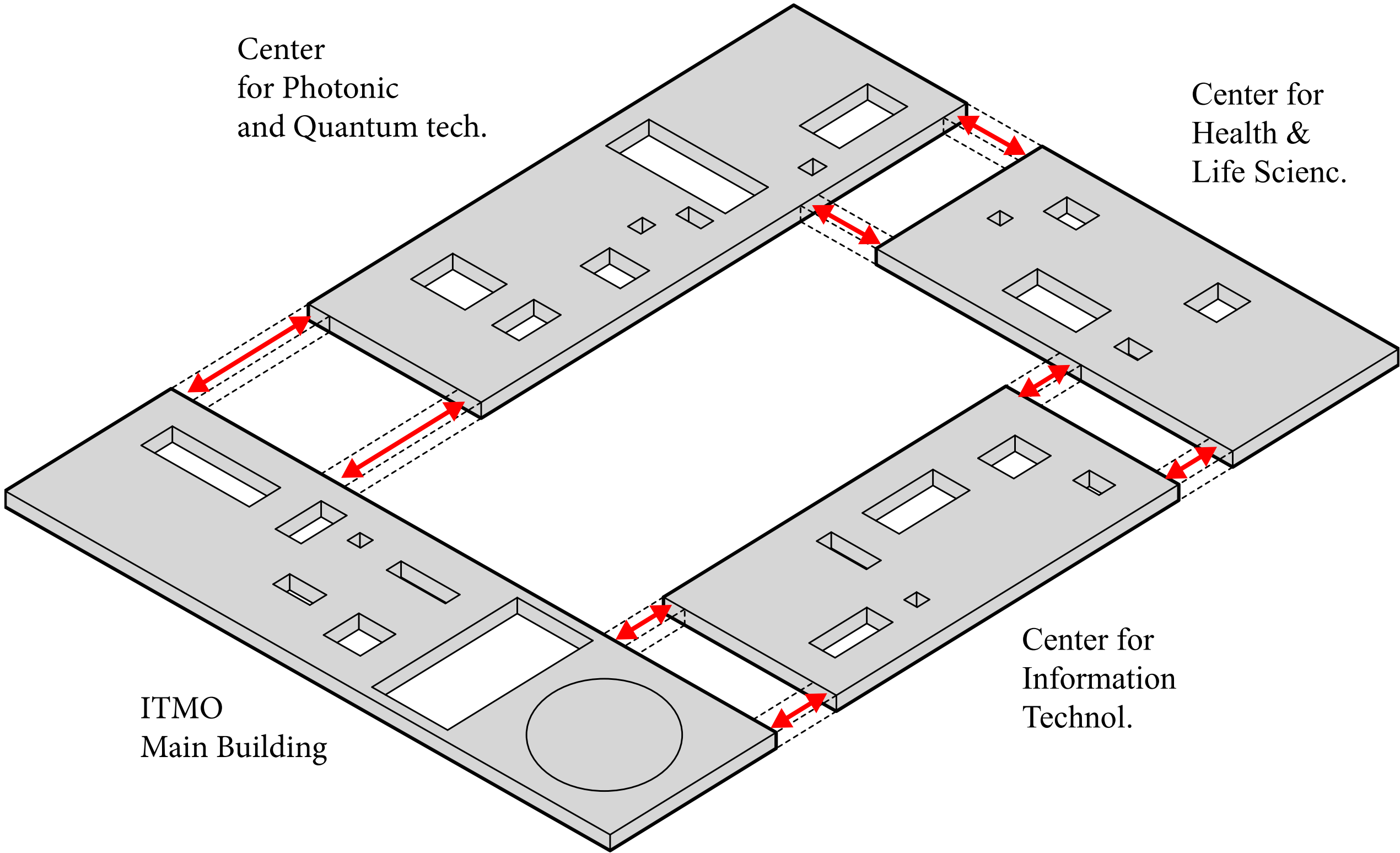
HIGHER AIR EXCHANGE RATE AND FASTER AIR MOVEMENT IN SUMMER



Climate comfort diagram. Summer

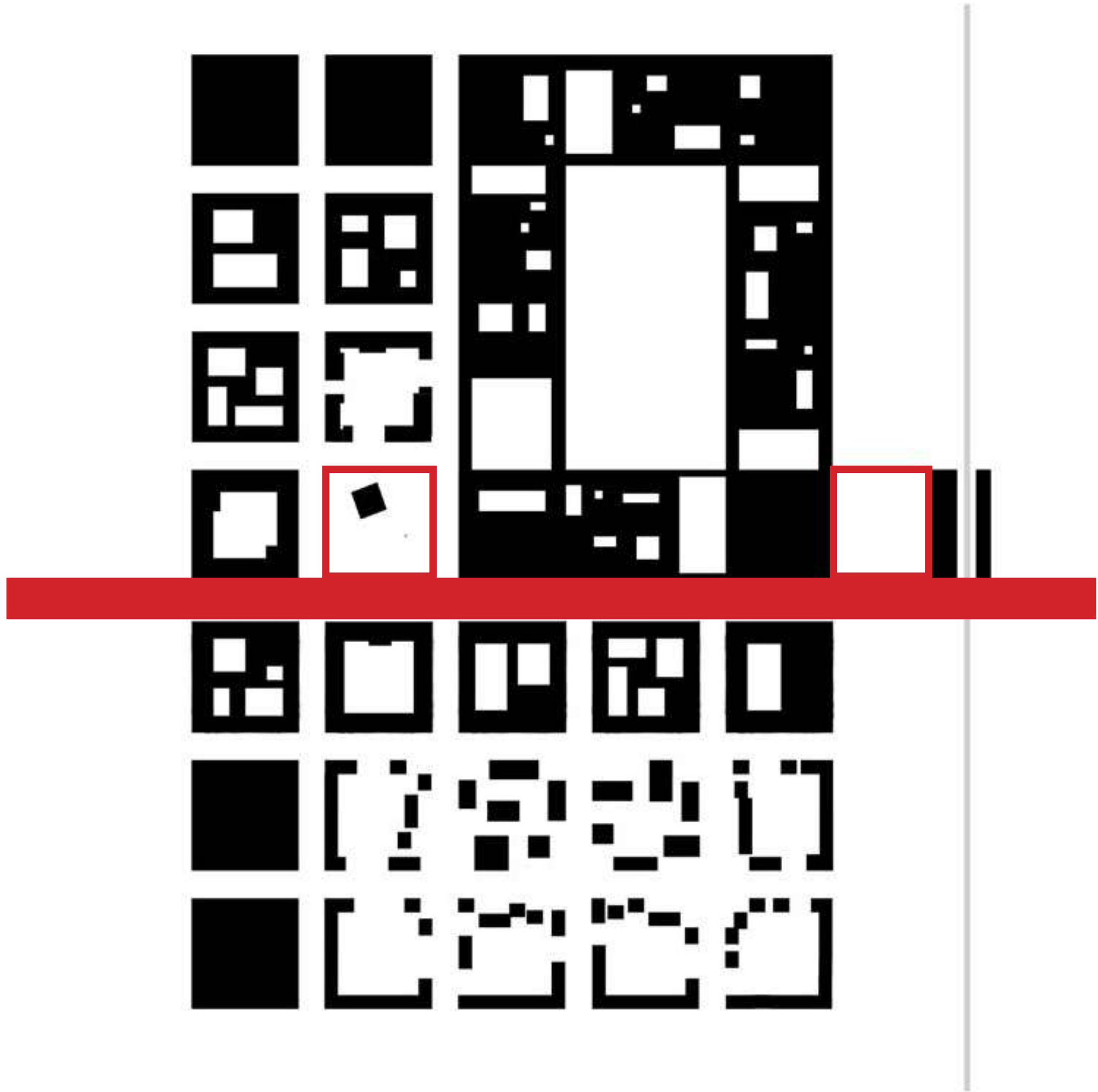


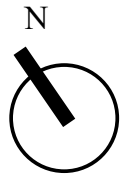
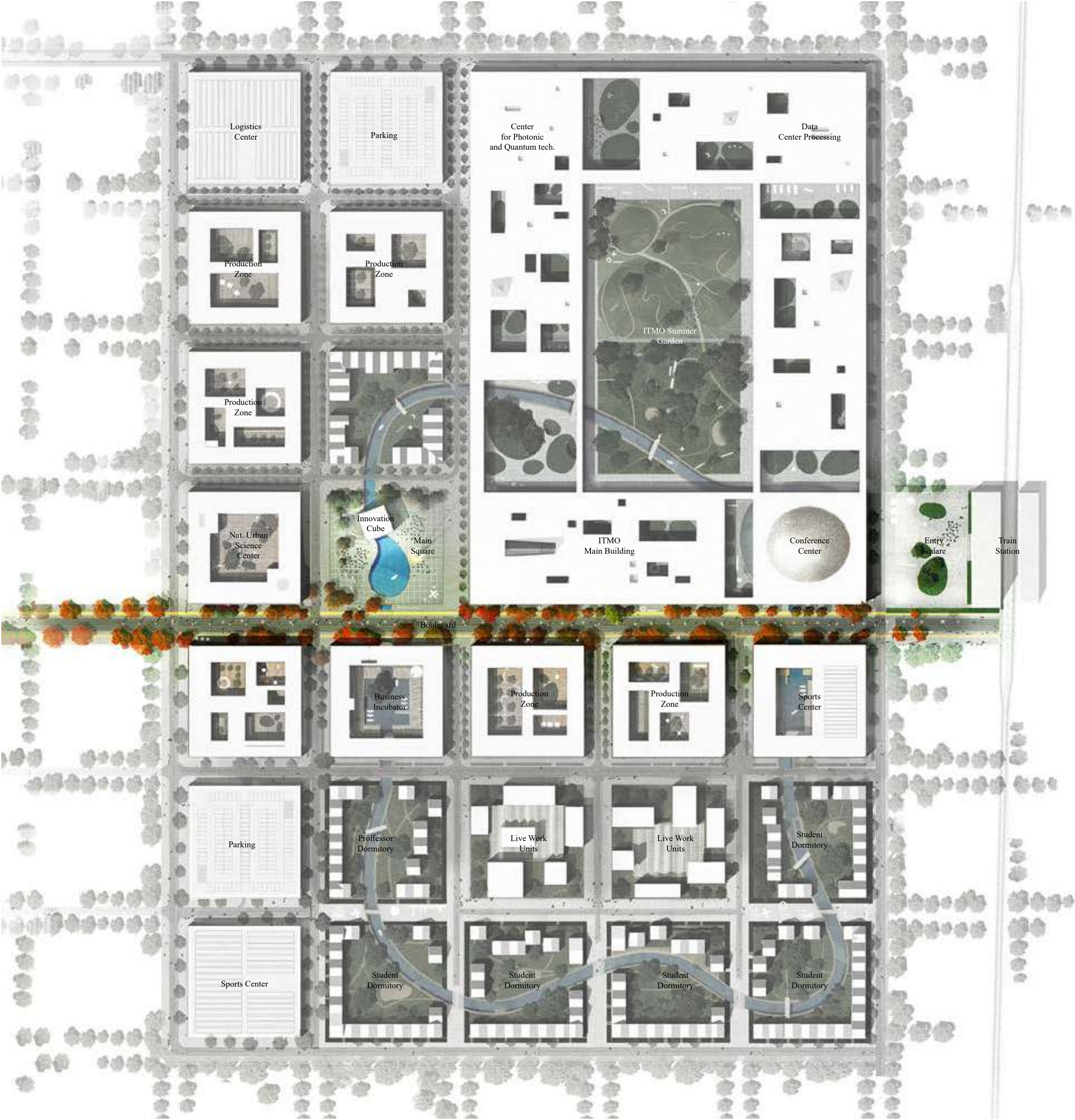
EDUCATION RING IS CONSTRUCTED AS FOUR INDEPENDENT BUILDINGS

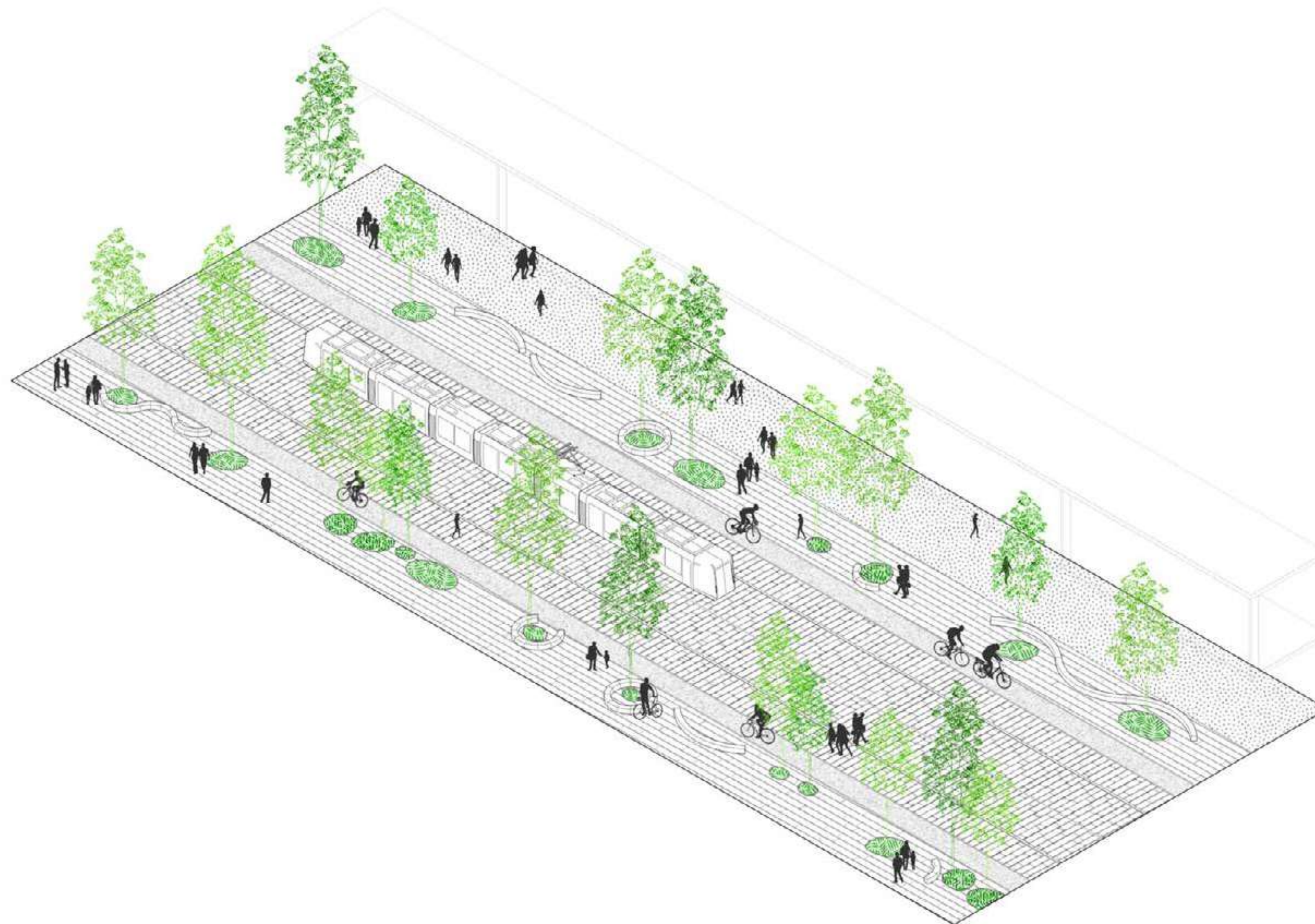


MAIN BOULEVARD

**MAIN BOULEVARD - INTEGRATION AXIS WITH YUZHNIY AND
CONNECTION ELEMENT OF THE TWO SQUARES**







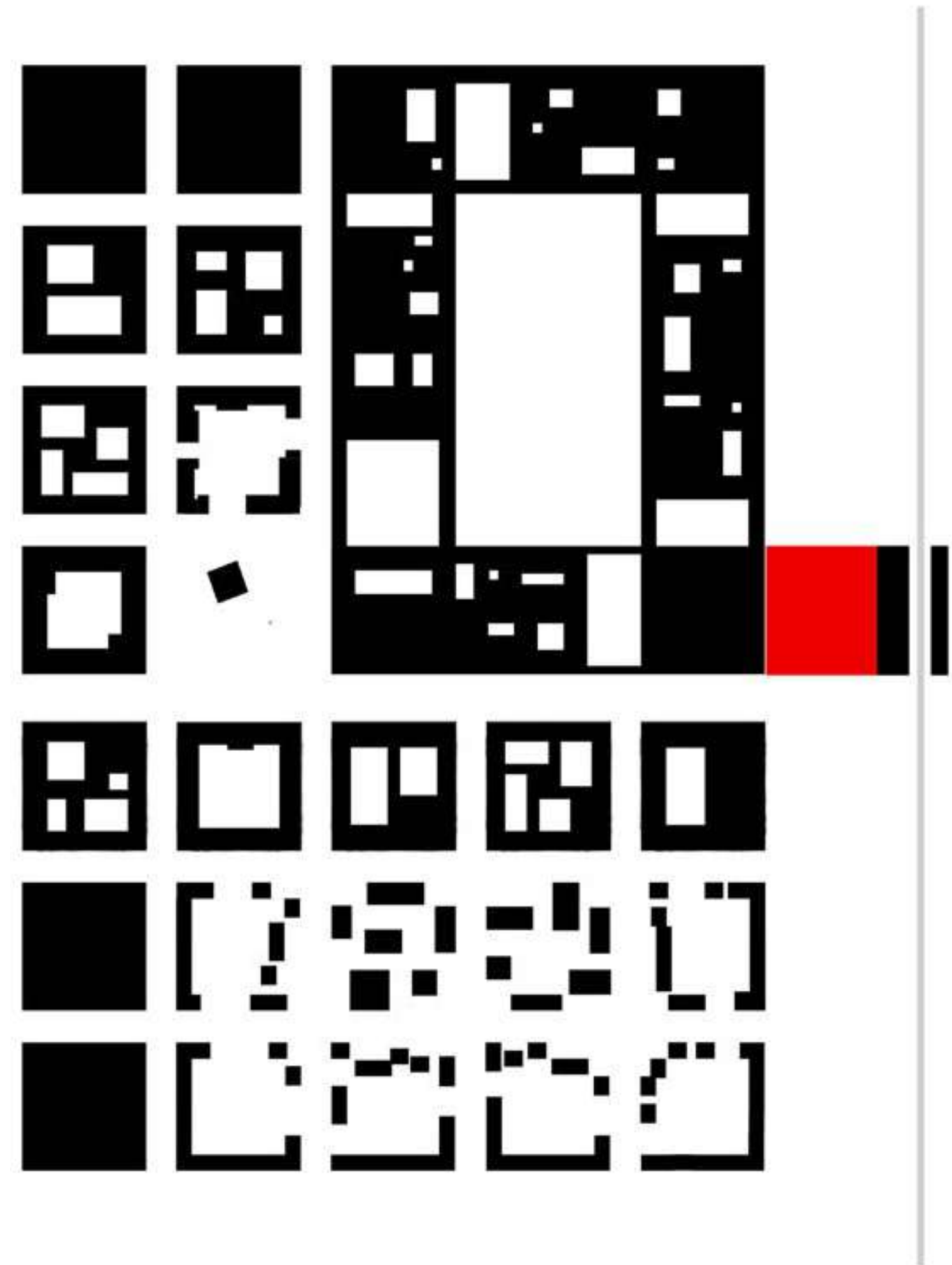
THE WHOLE CAMPUS CAN BE NAVIGATED THROUGH COVERED
PEDESTRAIN STREET



Academic main building section

ENTRANCE SQUARE

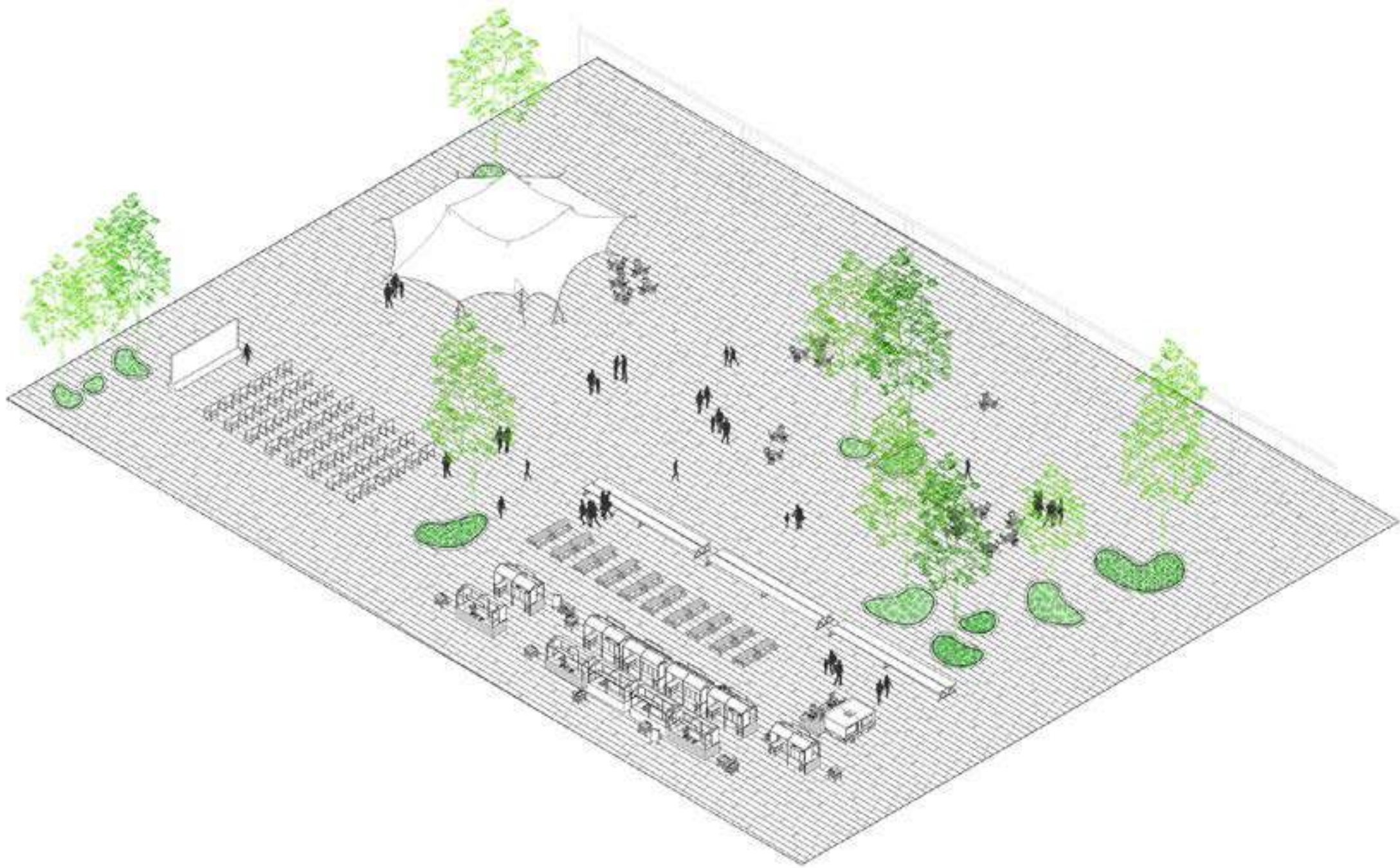
**ENTRANCE SQUARE - LOCATED INBETWEEN RAILWAY STATION AND
MAIN ACADEMIC BUILDING**



**ENTRANCE SQUARE - PLACE OF INTEGRATION. MULTIPURPOSE
SPACE FOR CITIZENS OF YUZHNIY AND CAMPUS**

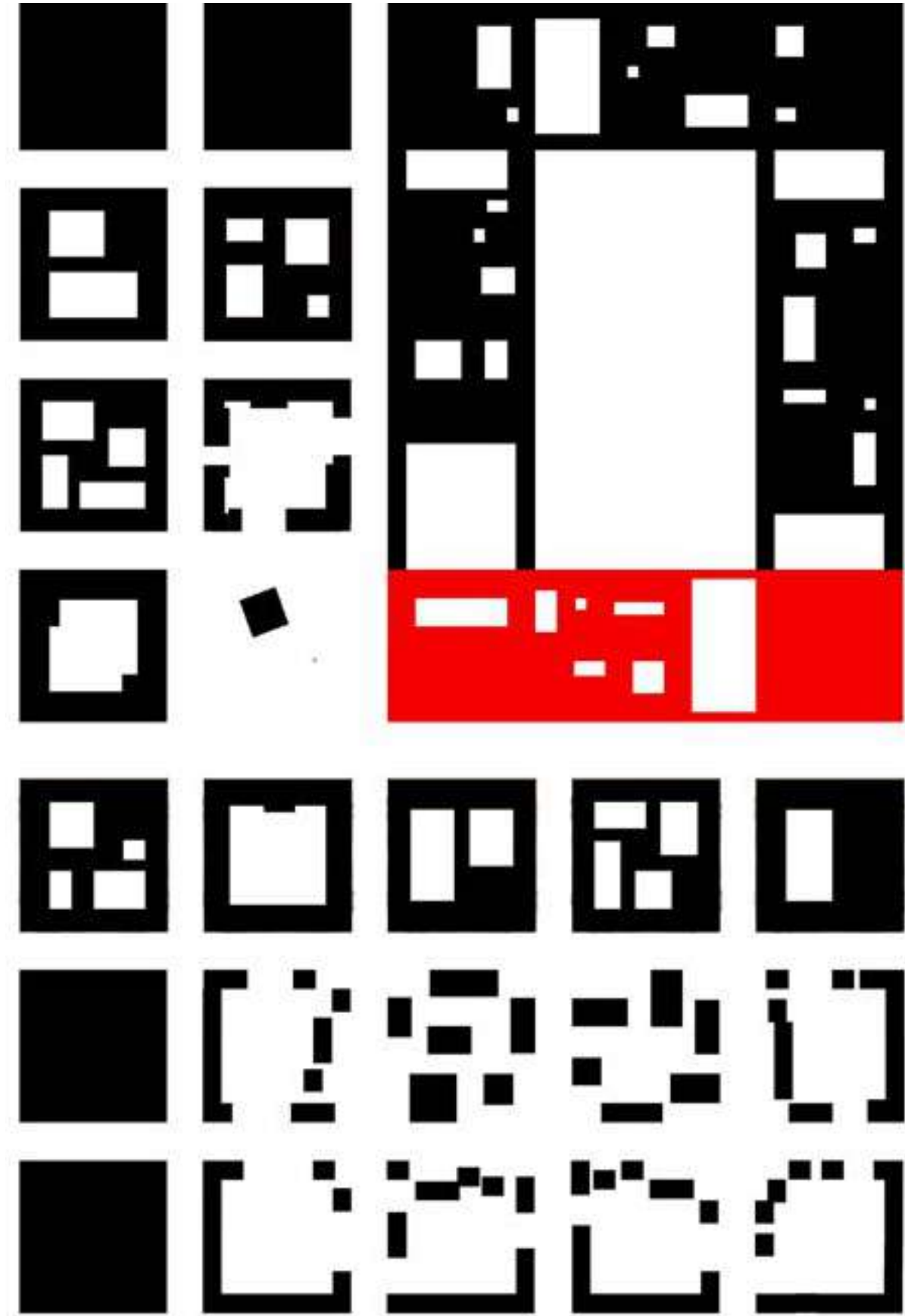


Plan



Axonometry

ITMO HIGHPARK MAIN BUILDING



DOME AS A GATHERING SPACE



Saint Isaac's Cathedral

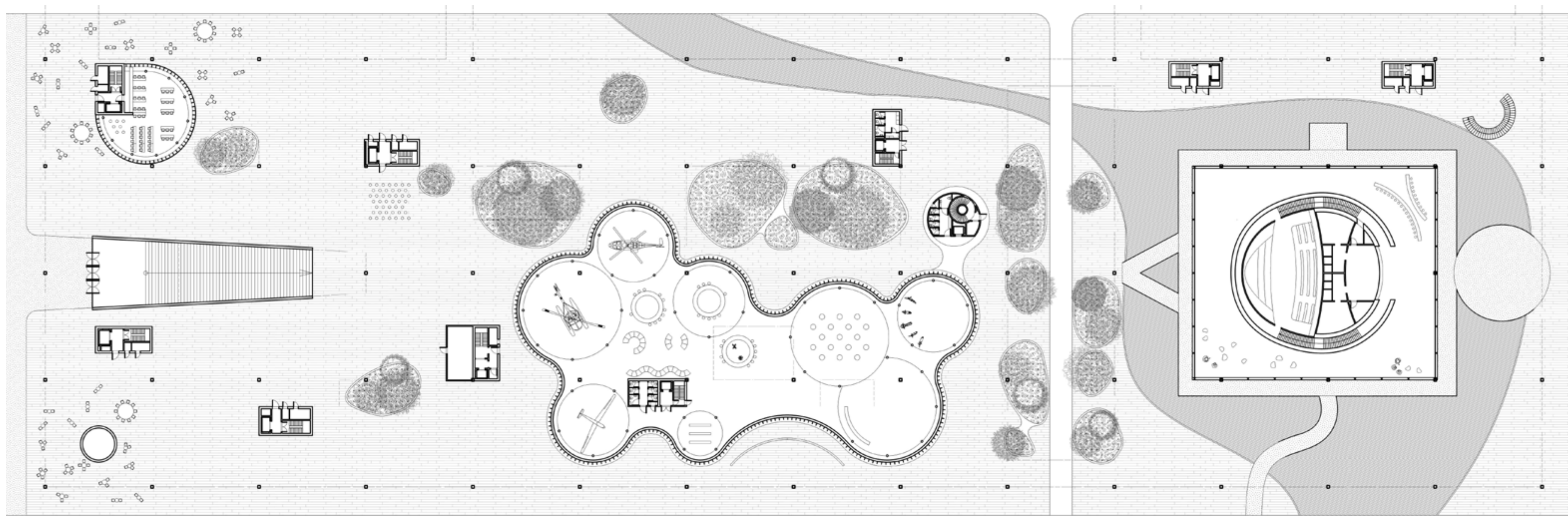


ITMO HIGHPARK COMPETITION

ITMO MAIN BUILDING



Academic main building facade

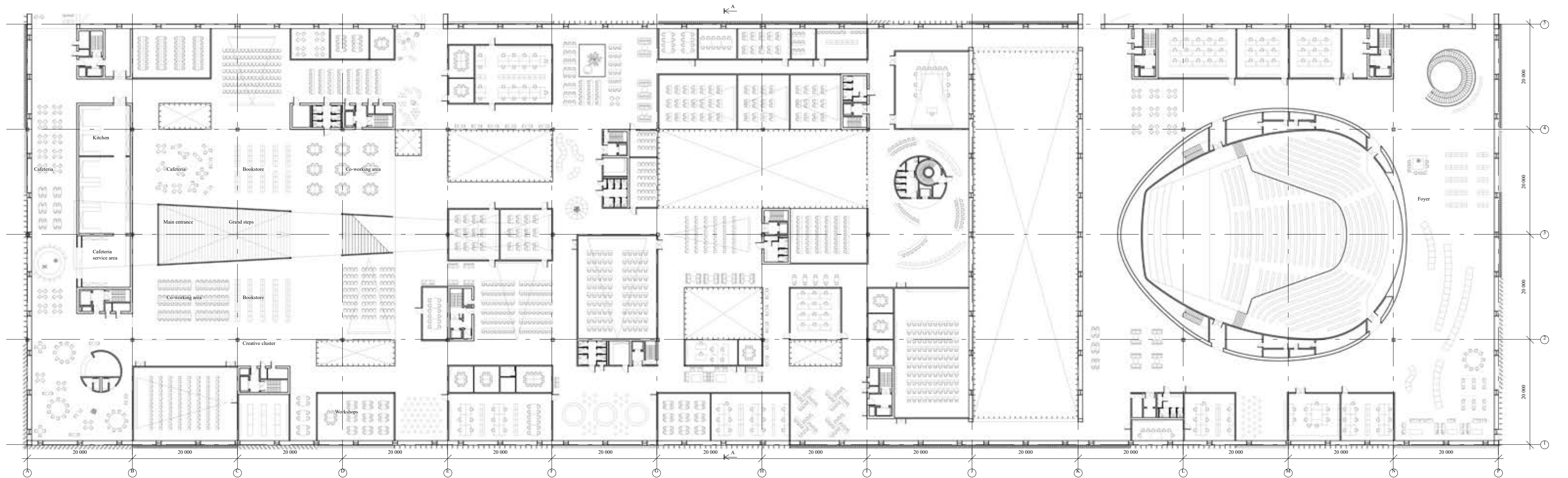


Academic main building ground level (0.000 m)



ITMO HIGH PARK COMPETITION

EDUCATIONAL ZONE



Academic main building level 1 (+ 6.500 m)

GRAND STEPS AS INFORMAL AUDITORIUM



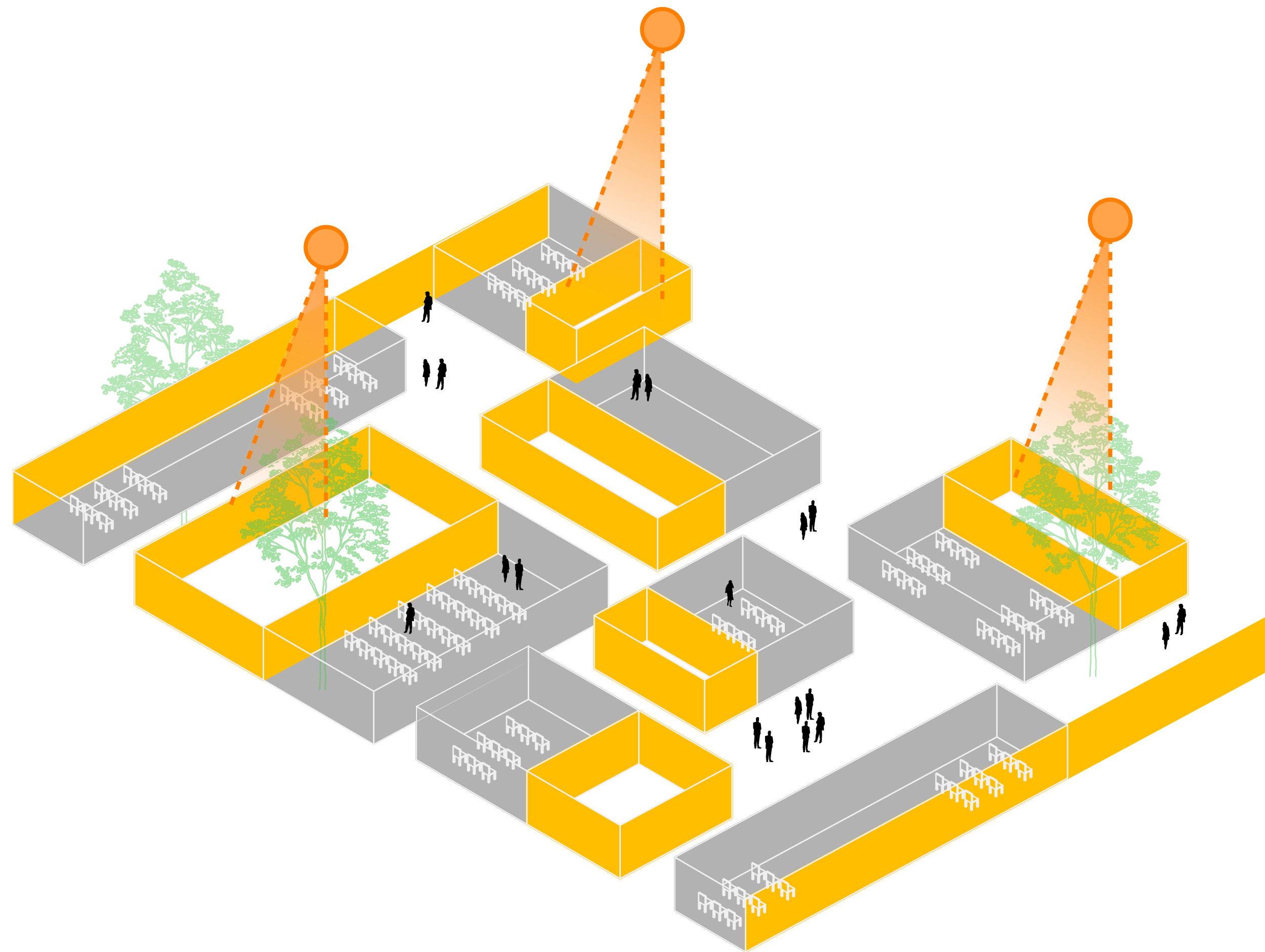
Reference: «Low Steps» of Columbia University



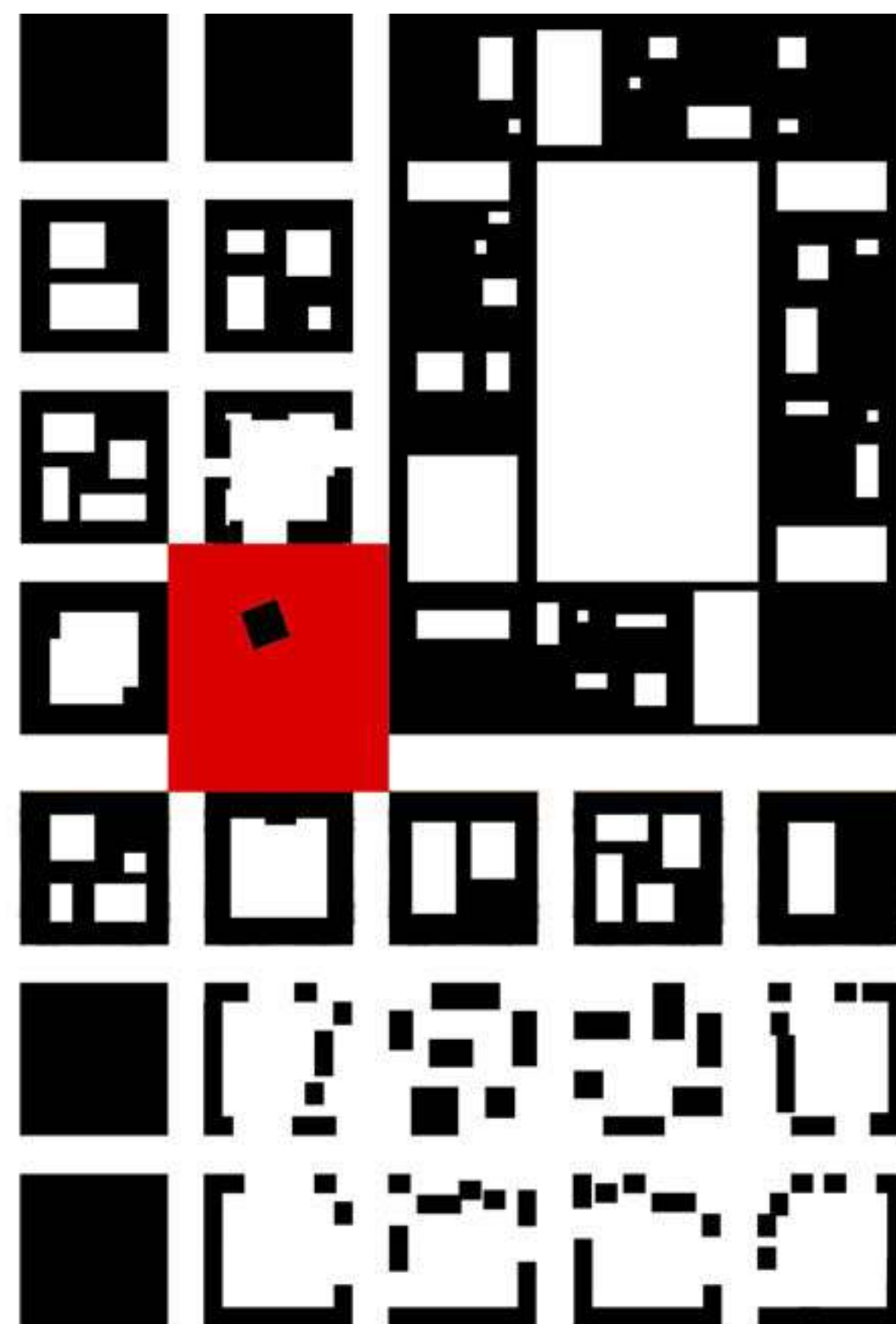
ITMO HIGHPARK COMPETITION

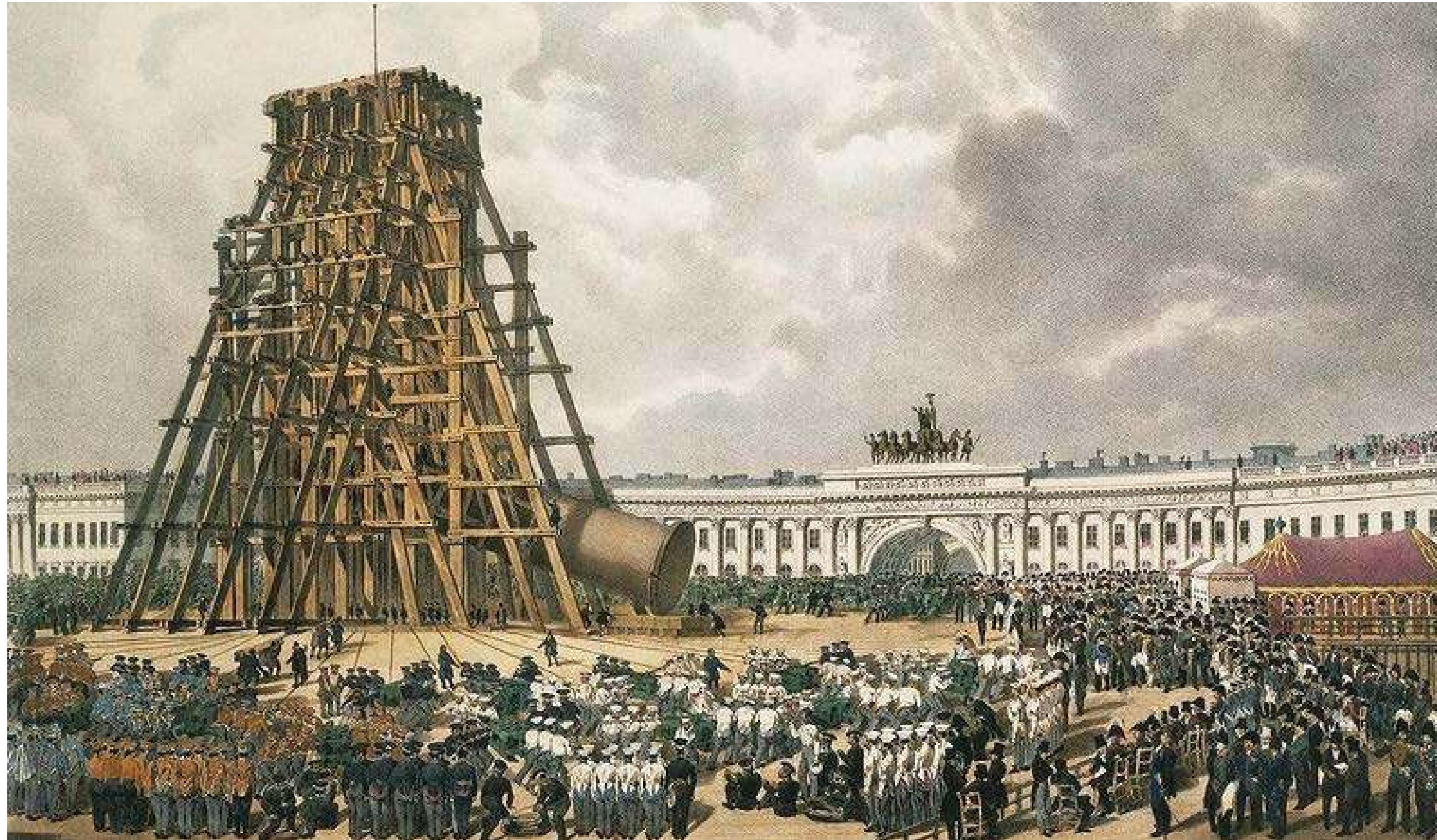
ITMO MAIN BUILDING

CLASSROOMS WITH DAYLIGHT AND NATURAL VENTILATION

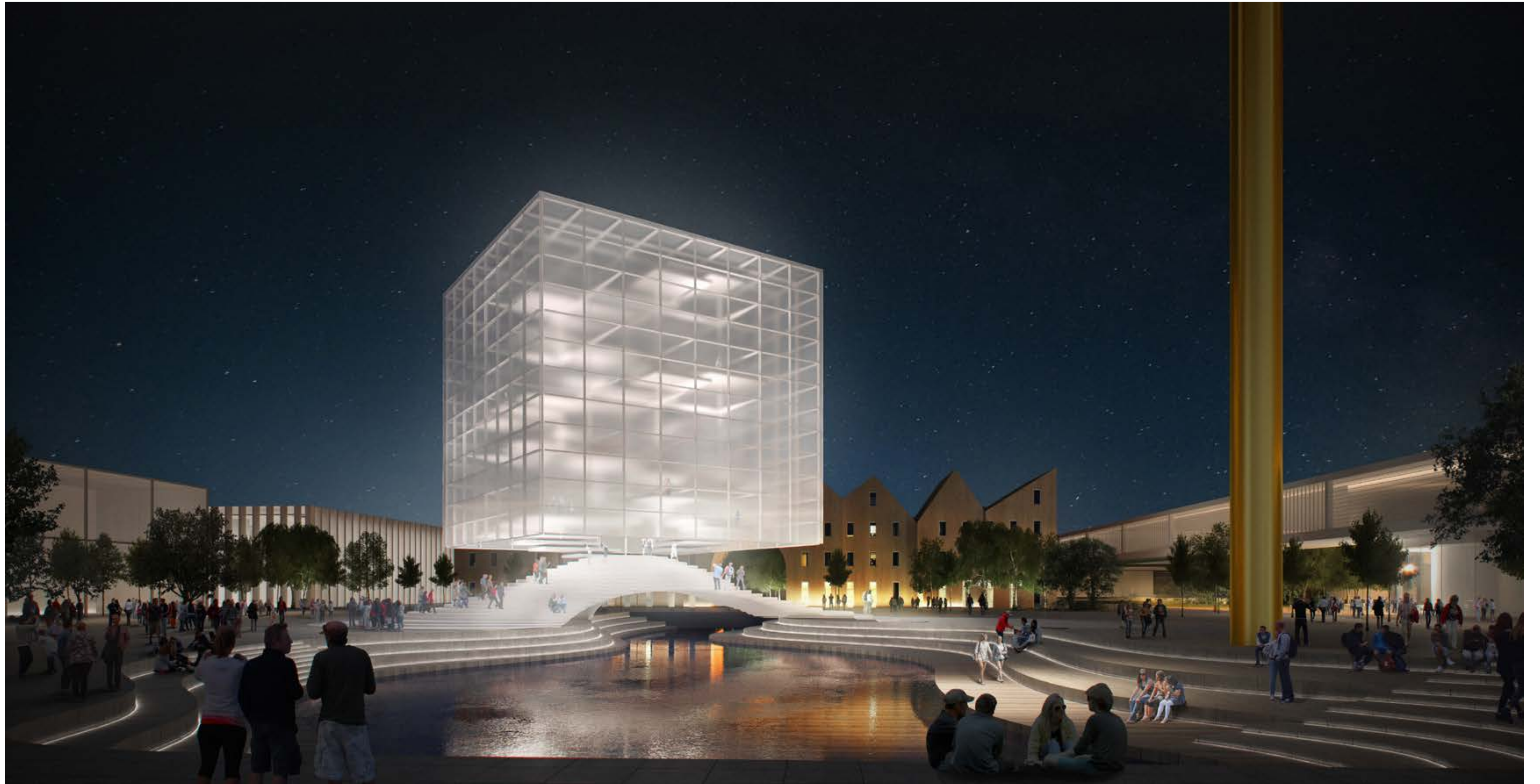


MAIN SQUARE





Reference: Construction of the Alexandriyskiy Pillar on the Palace Square





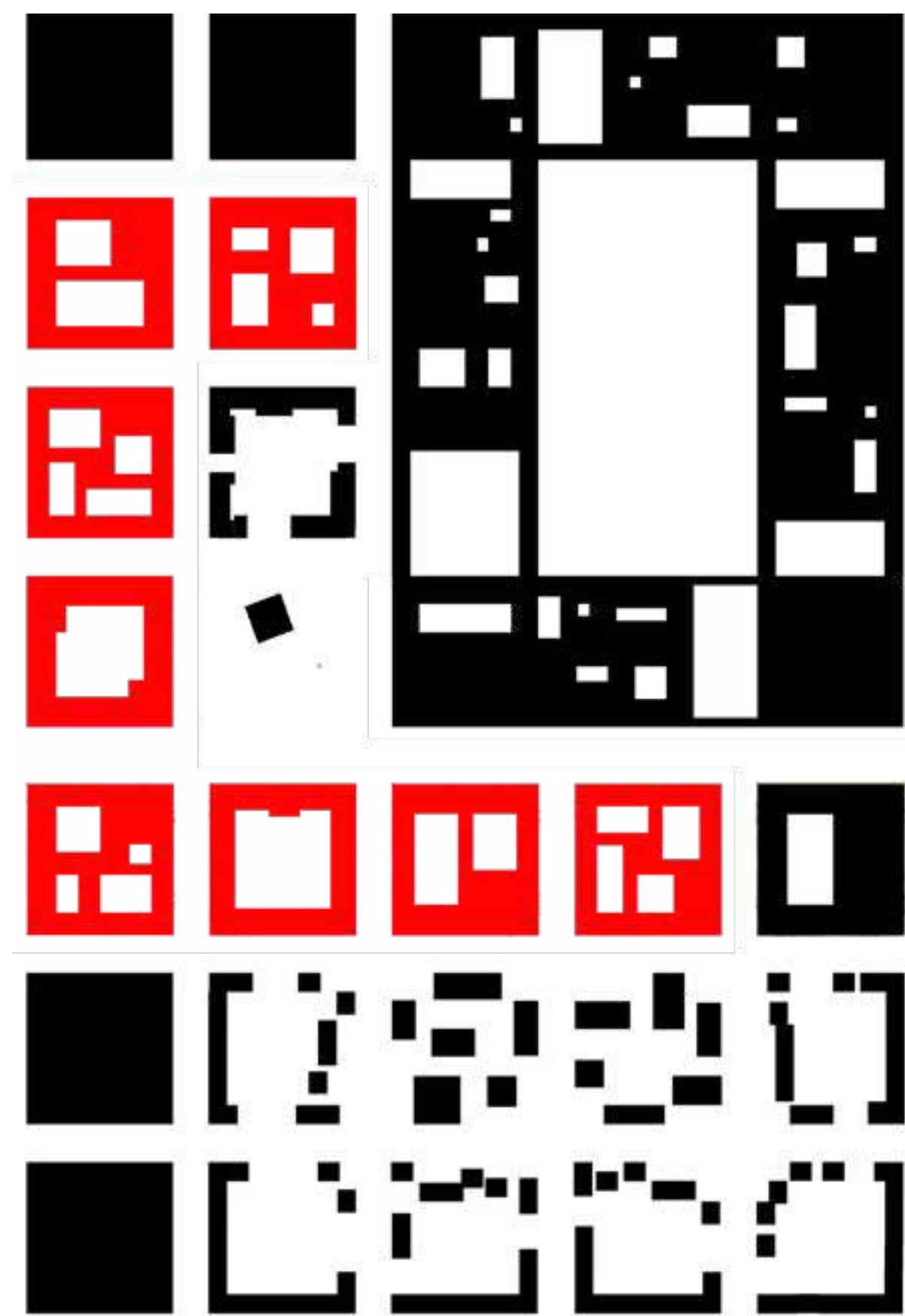
Reference: Alexandriyskiy Pillar on the Palace Square



ITMO HIGHPARK COMPETITION

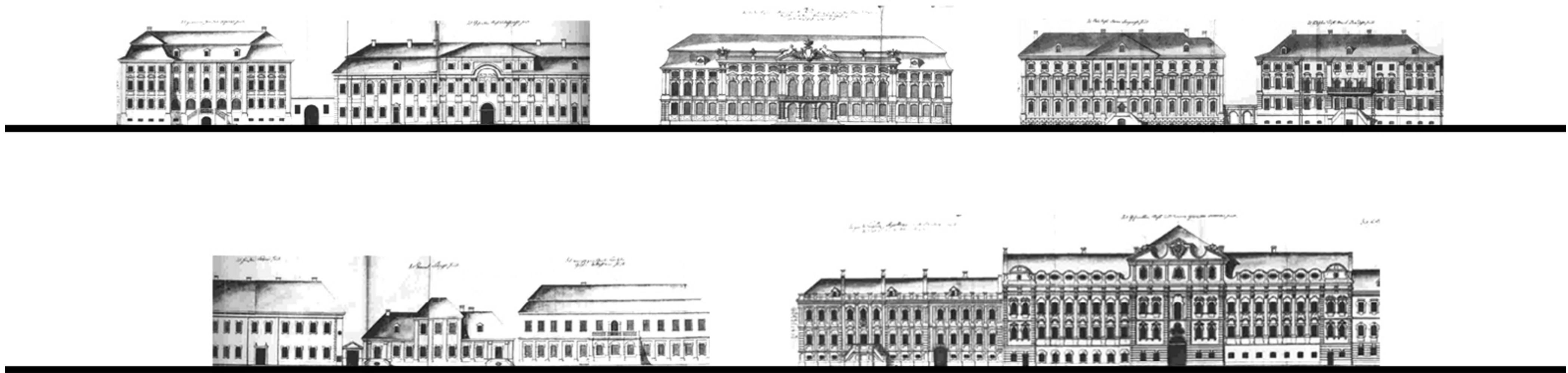
INNOVATION CENTER

INNOVATION CENTER





MAIN BOULEVARD BUILDINGS GUIDELINES



Reference: Obraztsovy Dom of St. Petersburg



Principal section through the office buildings



Main boulevard facade

ICONIC SAIN PETERSBURG COURTYARDS

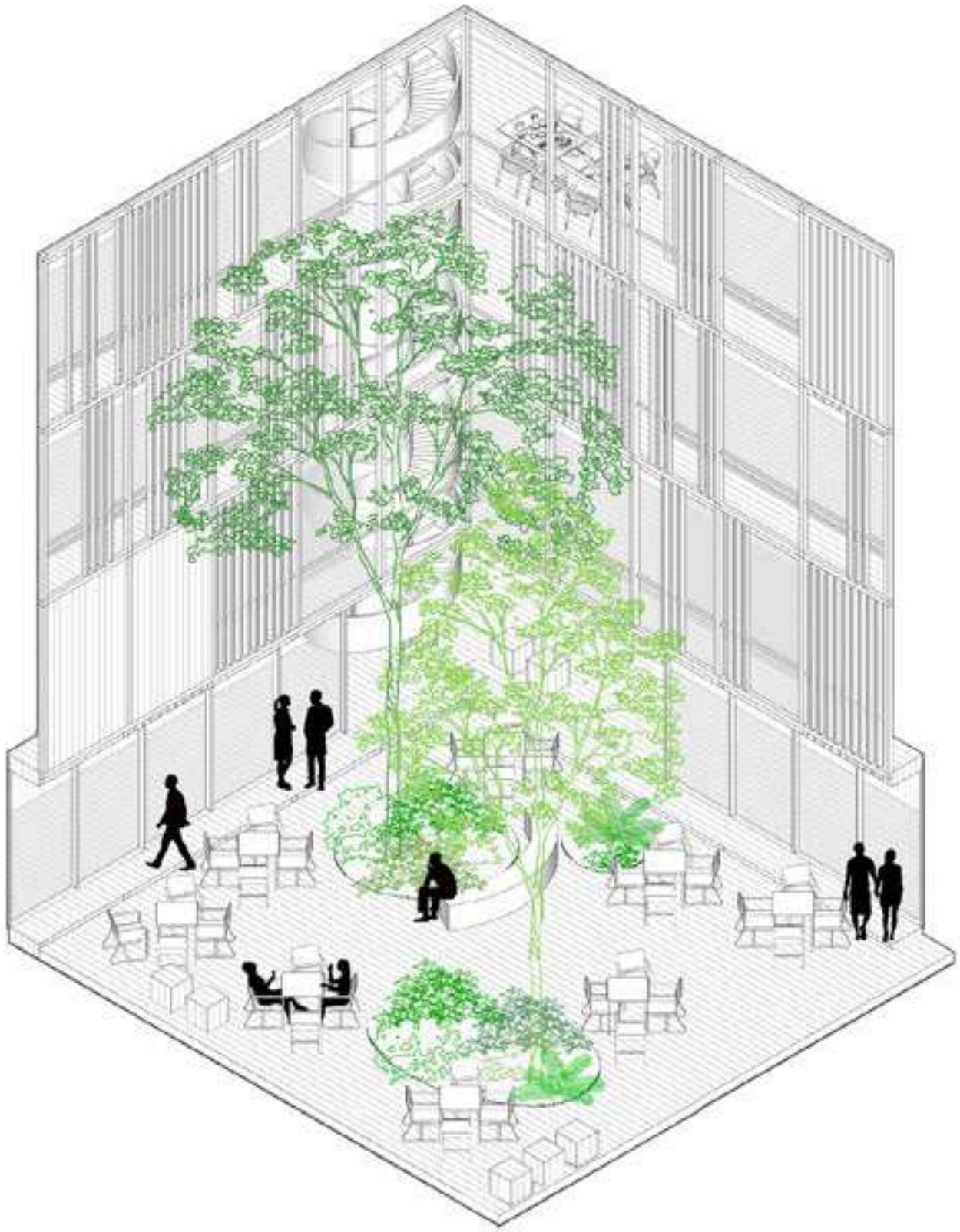


Reference: interior courtyard

OFFICE COURTYARD



Plan



Axonometry



CITY OF WATER CANALS AND ARCHES

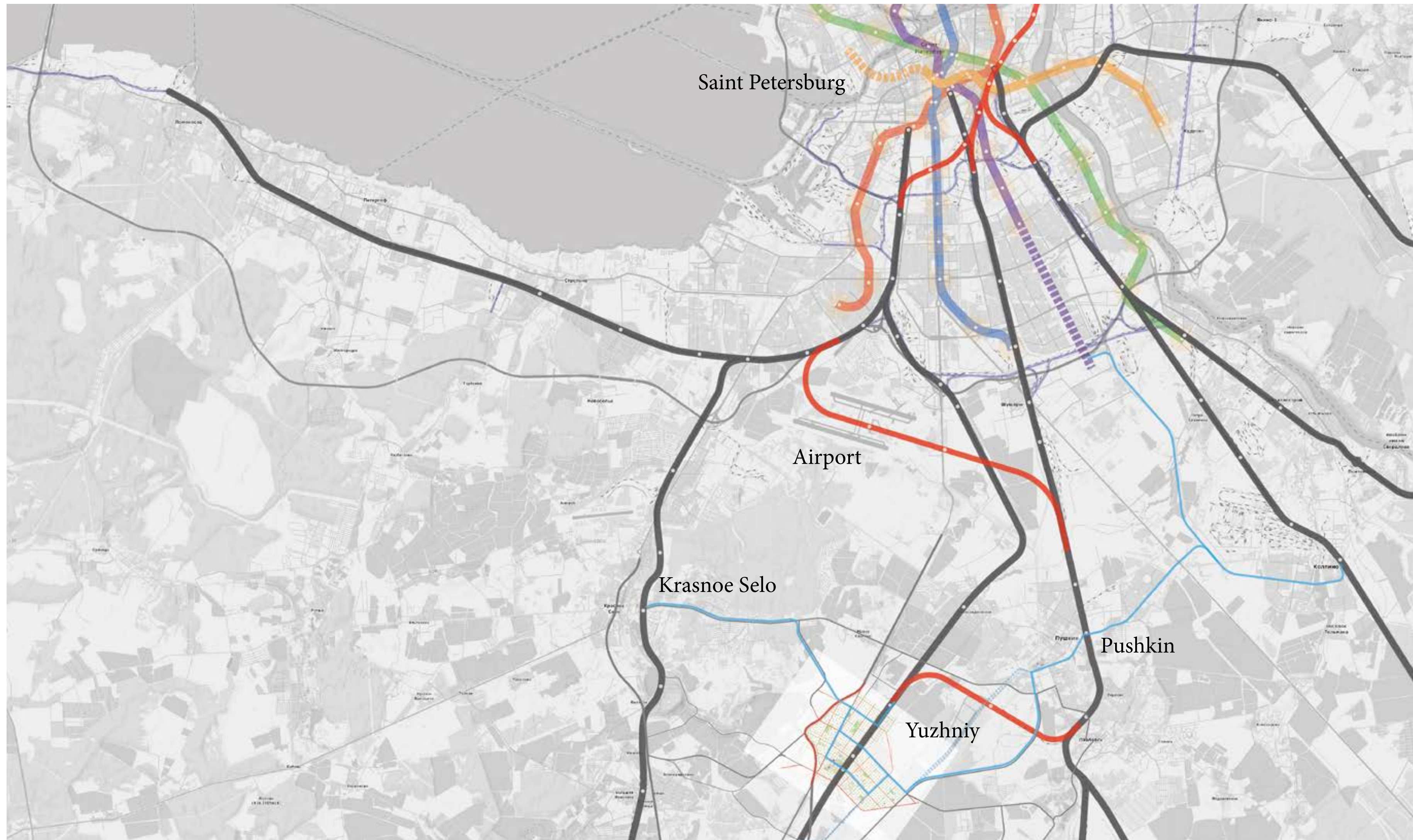


Reference: cantilevering building above the chanel, Saint Petersburg

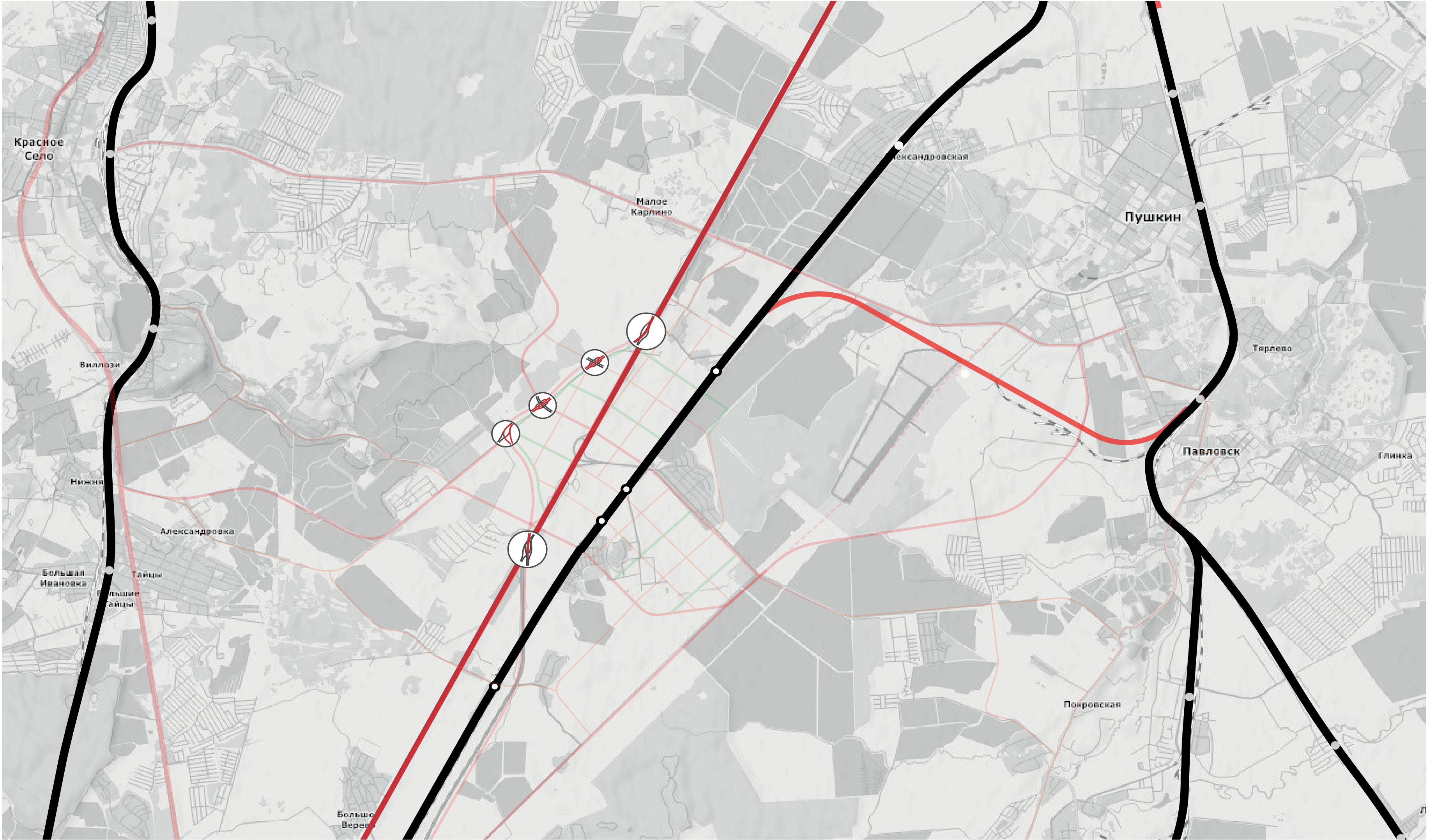


TRANSPORT SOLUTIONS

INTEGRATED TRANSPORT FRAMEWORK ON REGIONAL SCALE



STRONG CONNECTIONS TO NEIGHBOURING CITIES



HAVING THE RAILWAY MOVED INSIDE A TUNNEL, AND THE ROAD SHIFTED TOWARDS THE WESTERN EDGE OF YUZHNIY

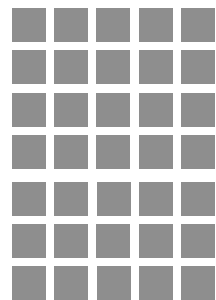


Before:
Fragmented city divided by railway line and the
St.Petersburg – Kiev highway

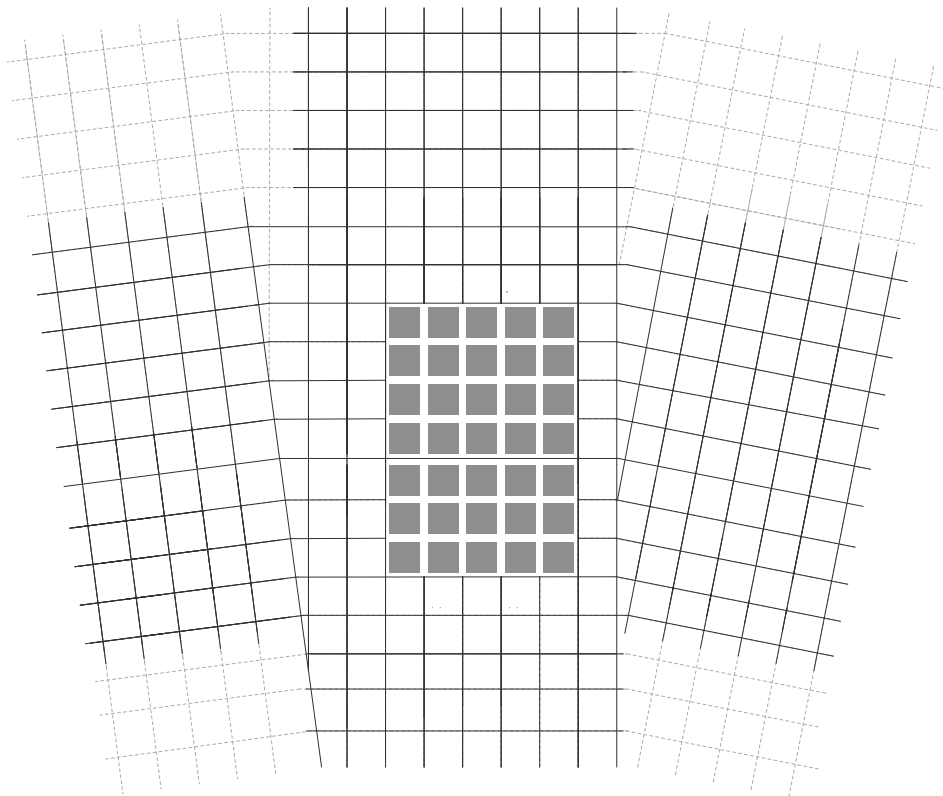


After:
Integrity, permeability, and interconnectedness
of the area

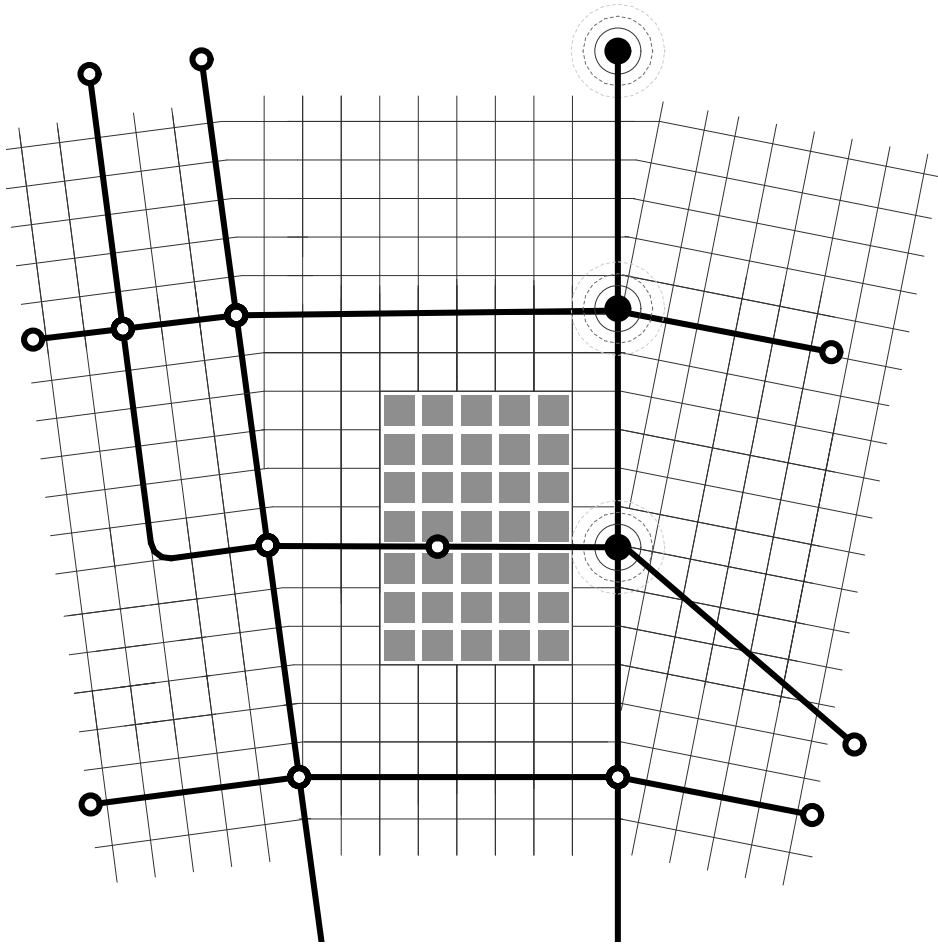
CONTINUITY, CONNECTIVITY AND DENSITY OF THE URBAN FABRIC



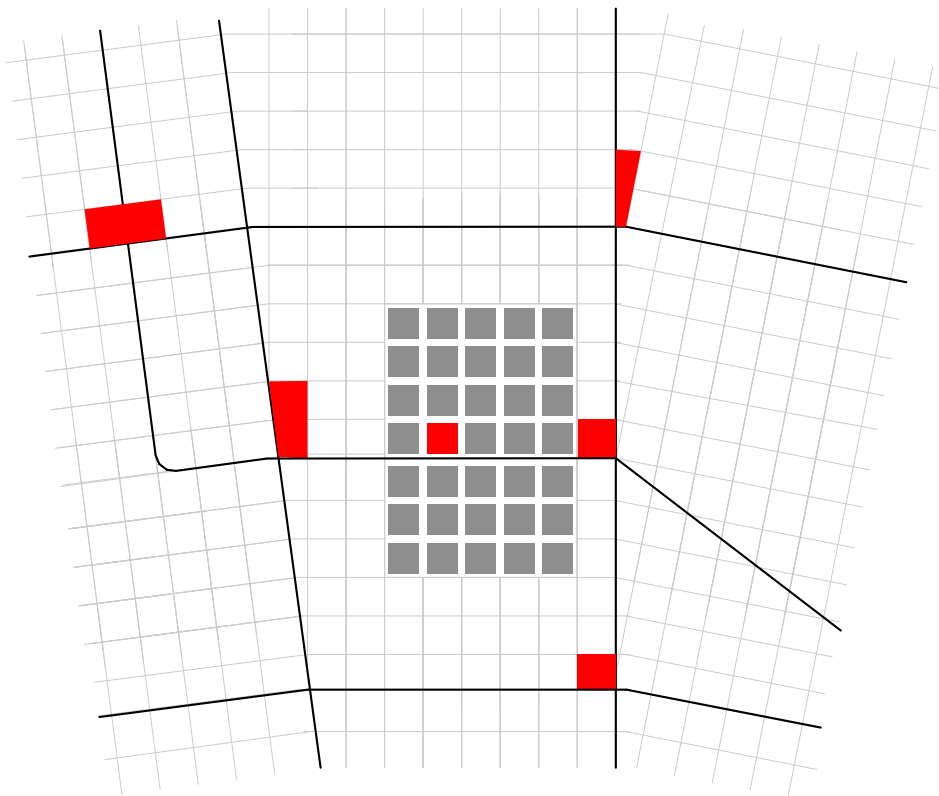
Base of the transport grid



Development of transport grid



Development of public transport

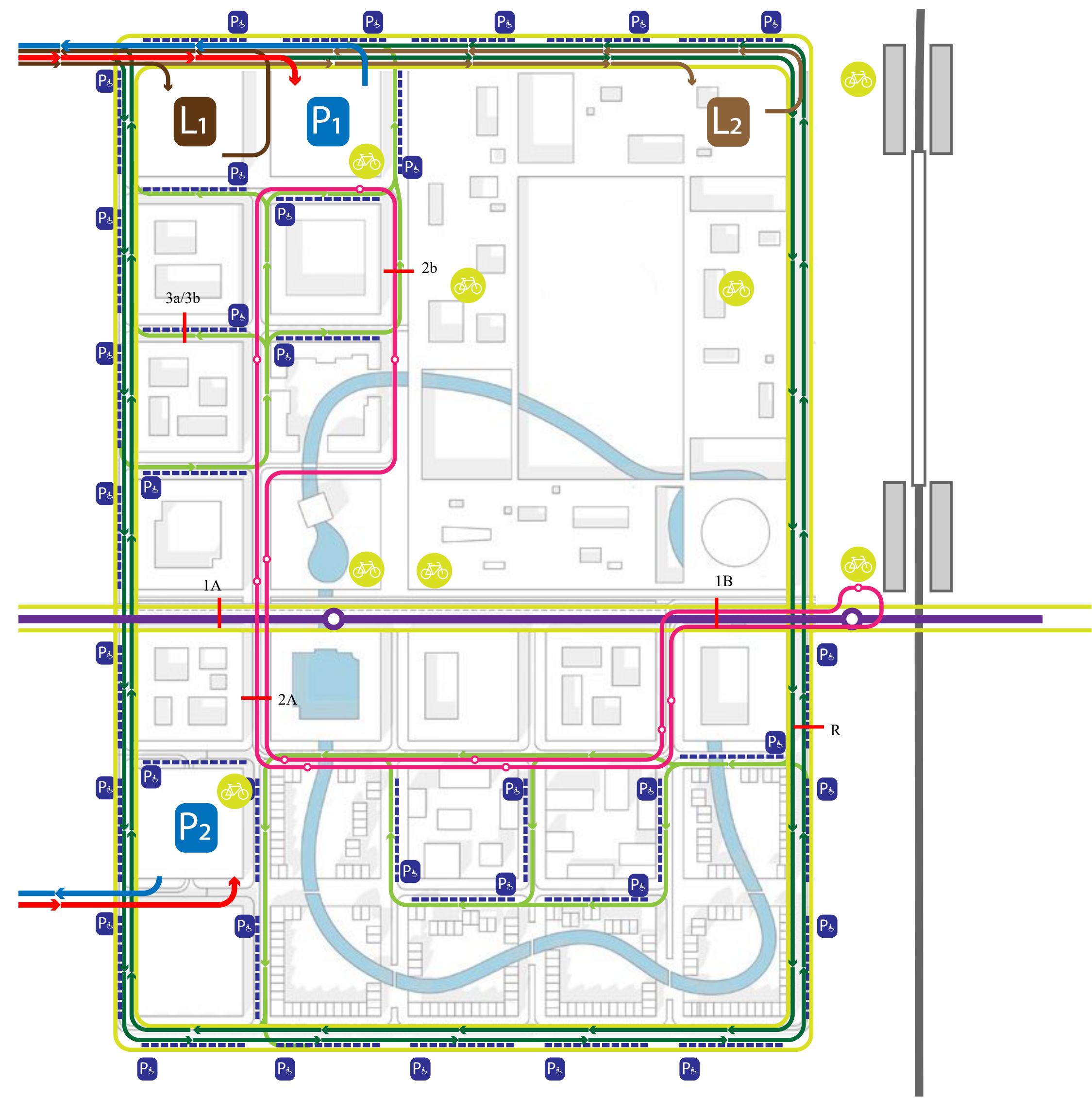


Connection of public spaces

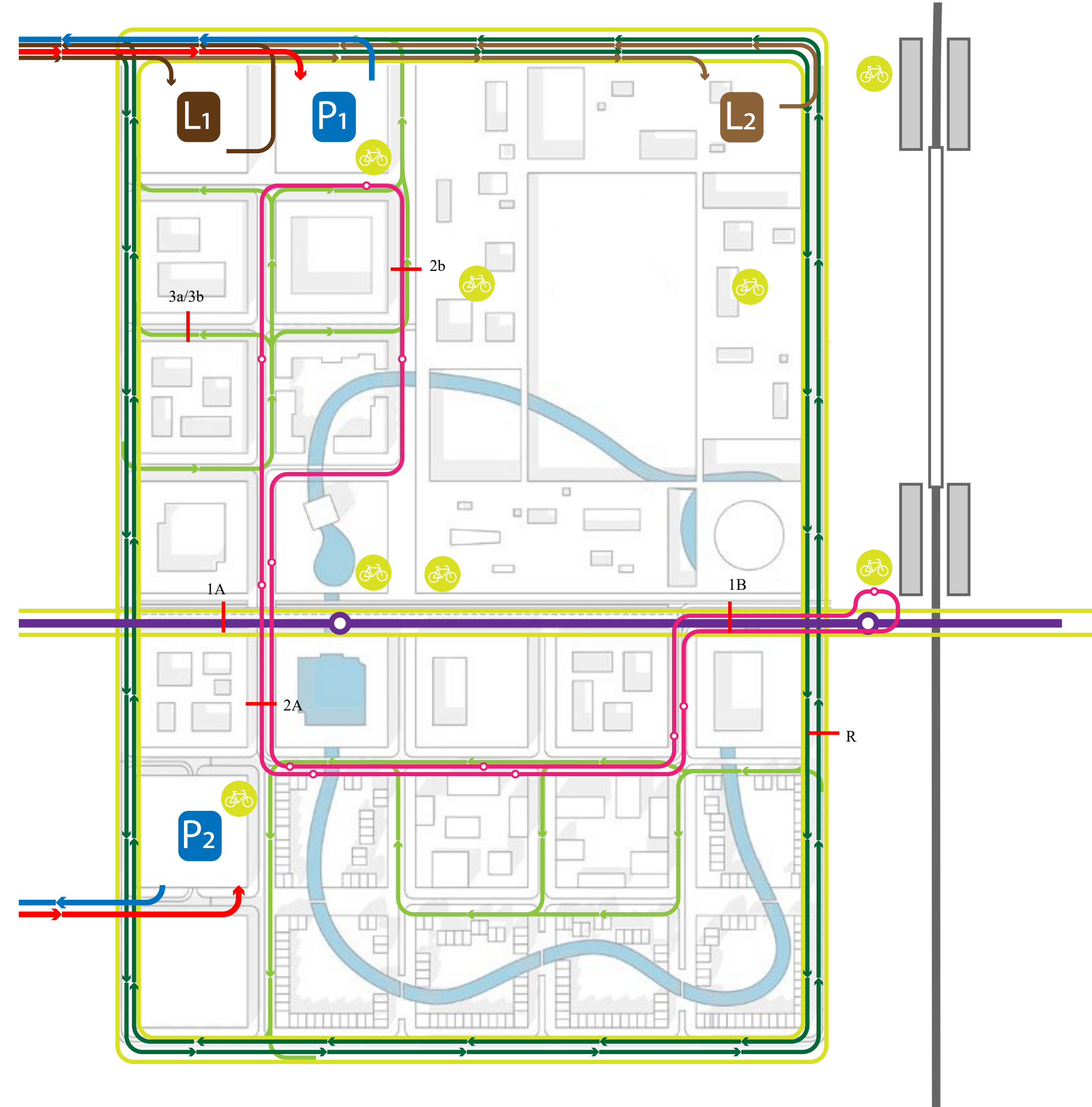
**CONNECTED GRID OF STREETS AND BLOCKS OF THE HIGHPARK
WILL DEFINE THE SURROUNDING CONTEXT, TO WHICH THE CAMPUS**



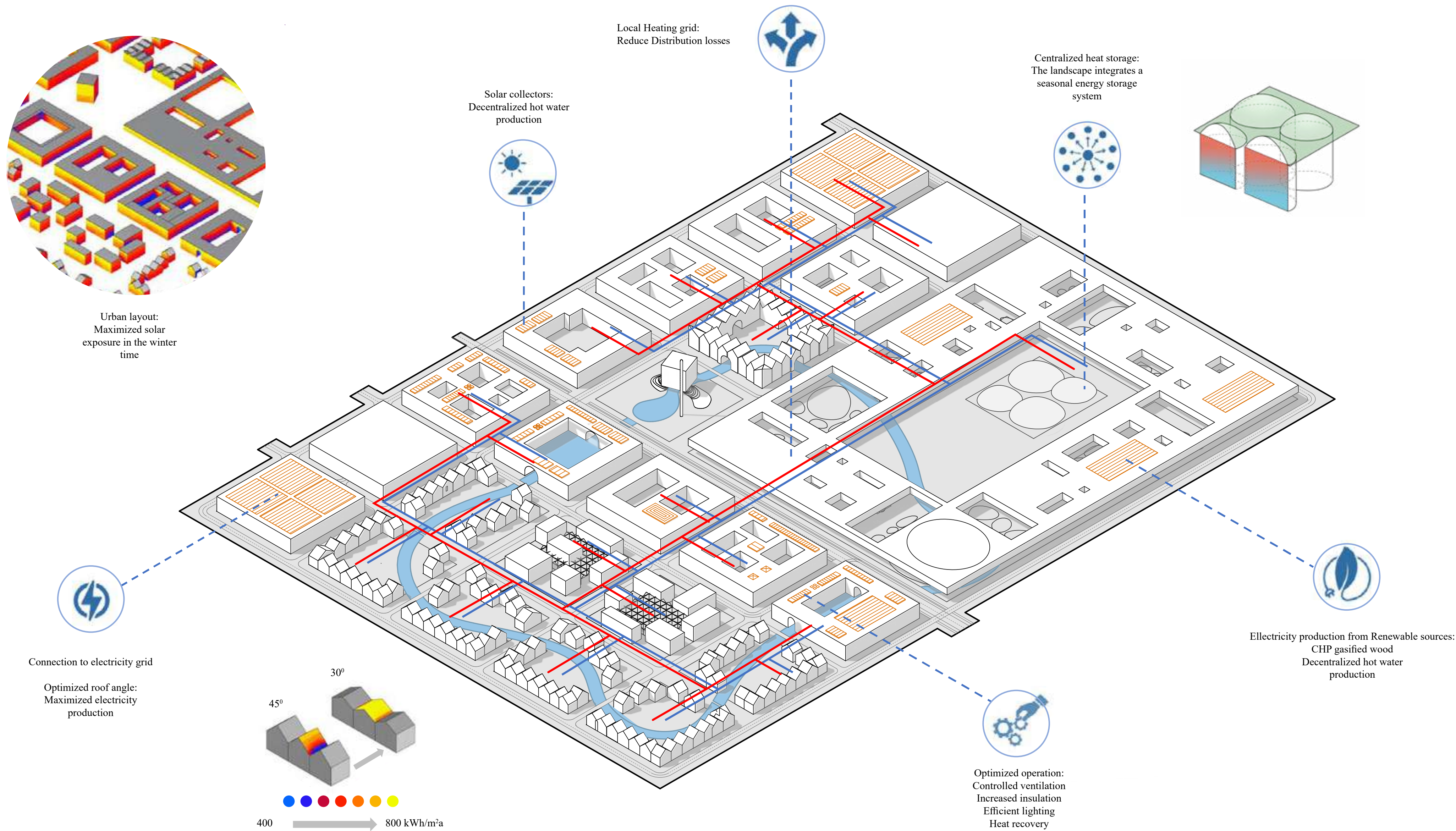
PROGRESSIVE TRANSPORT SCHEME



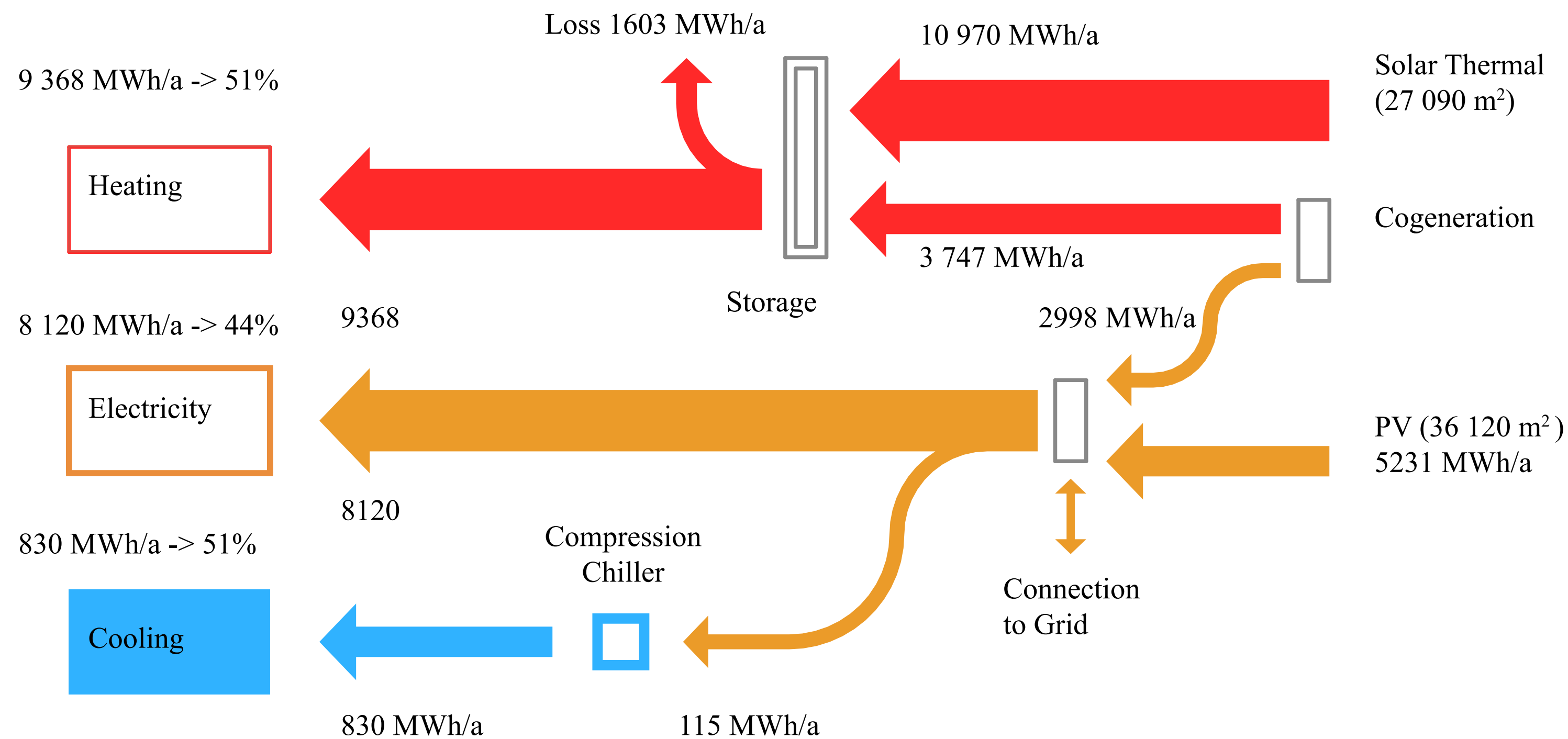
INNOVATION TRANSPORT SCHEME



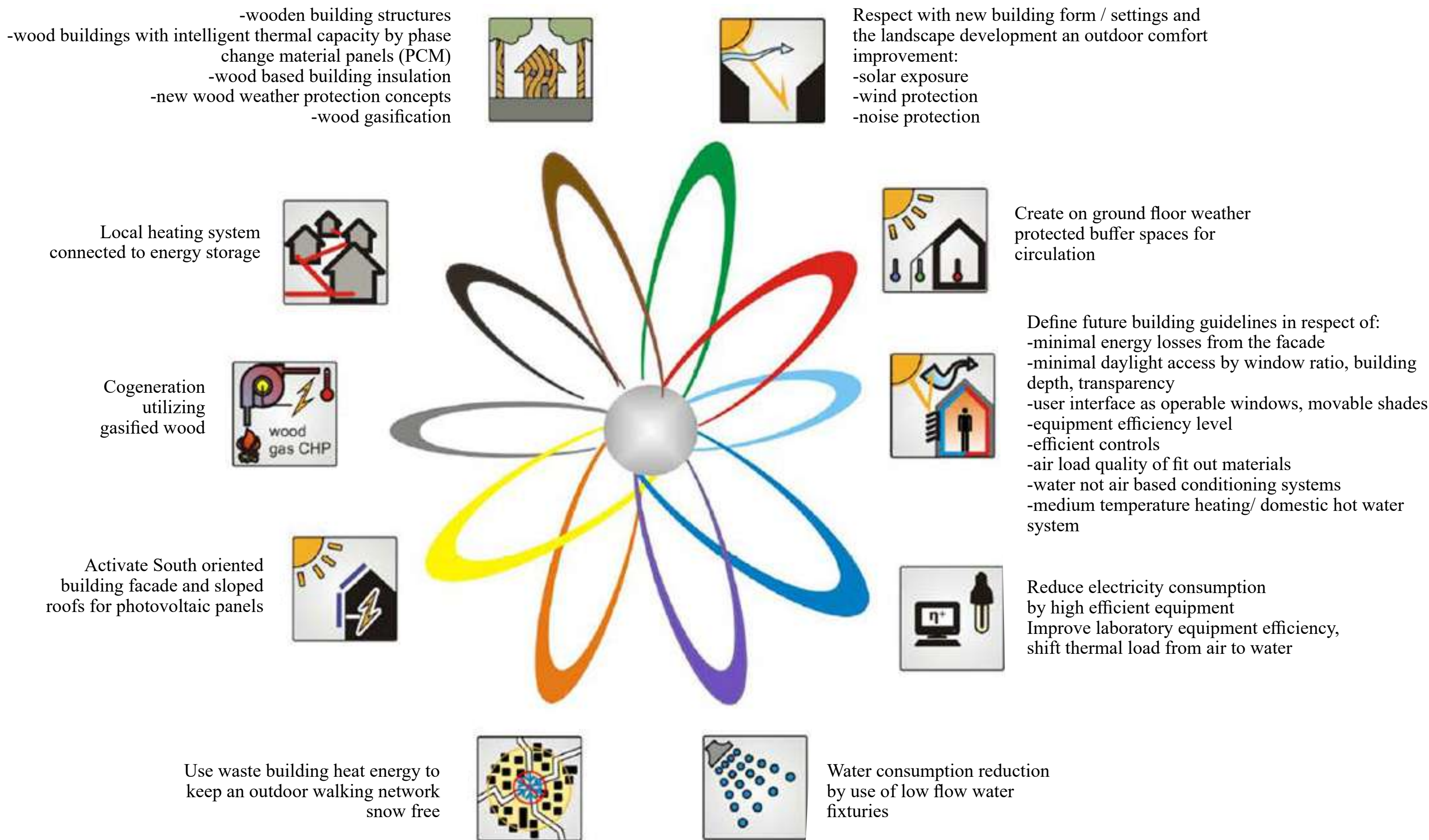
SITE ENGINEERING SUPPLY



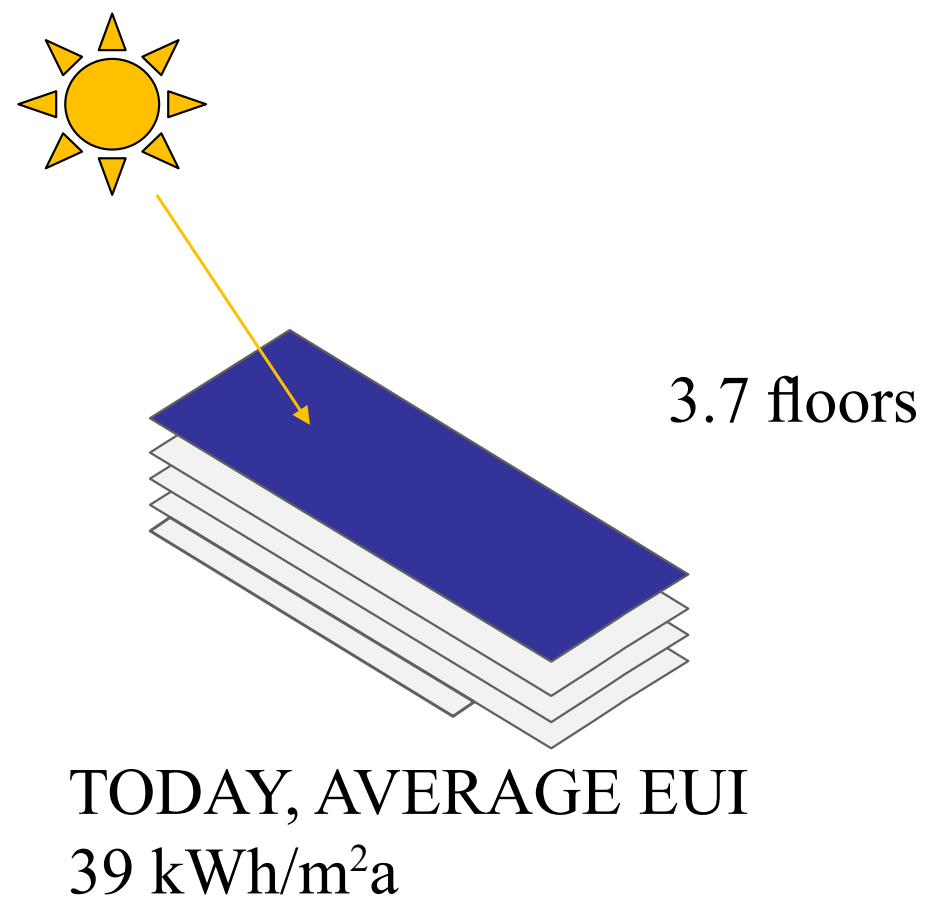
ENERGY FLUX



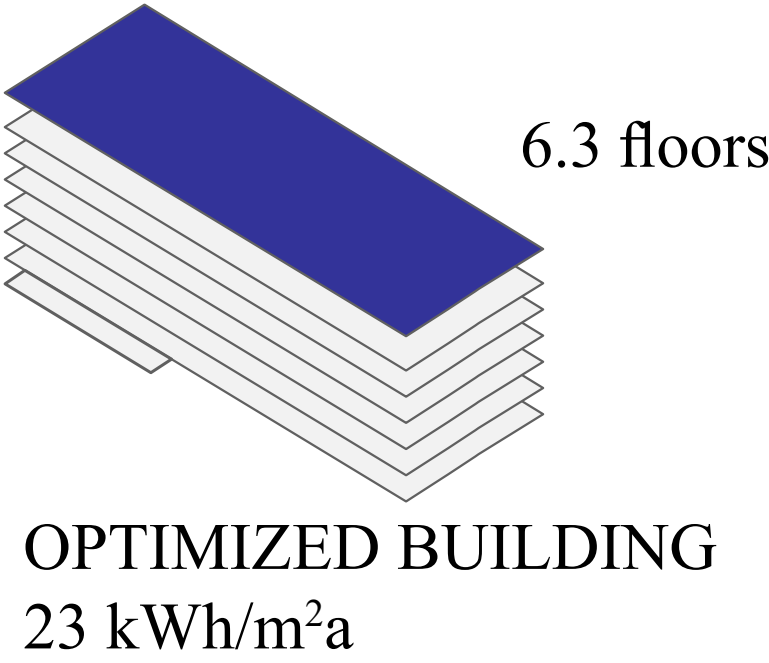
HIGH COMFORT - LOW IMPACT CAMPUS TOOL BOX



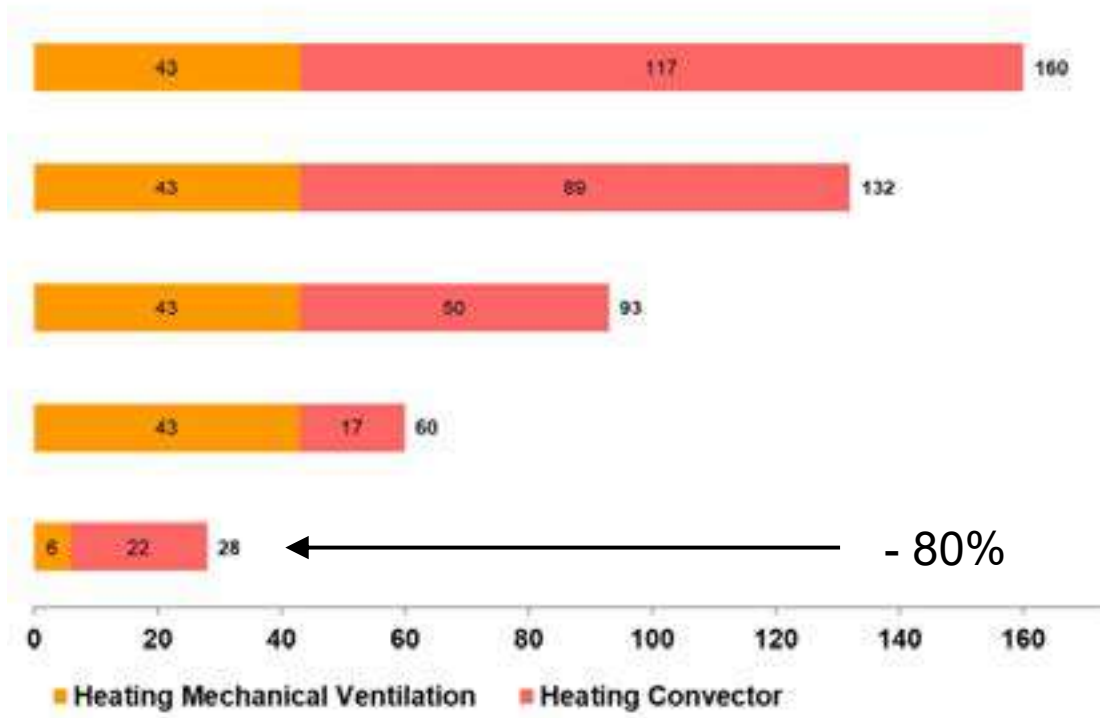
ENERGY DEMAND. OFFICE



OFFICE



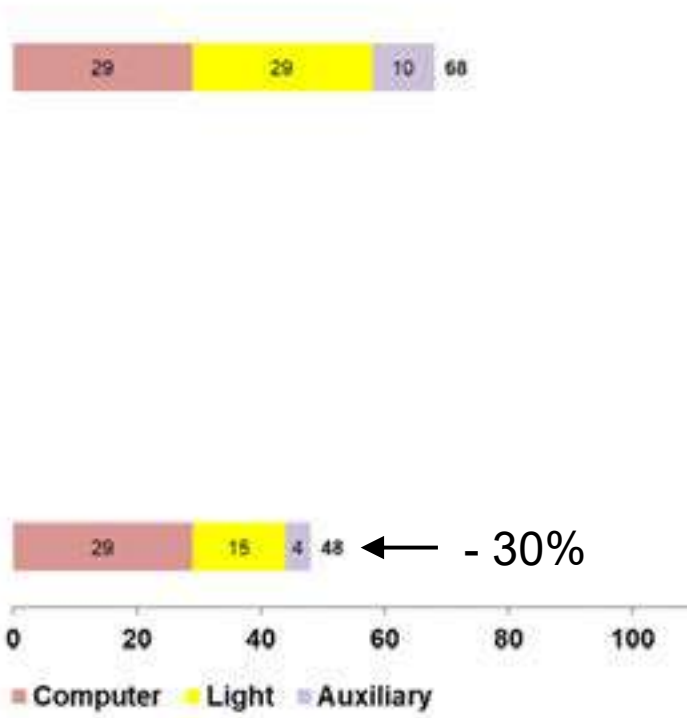
Heating



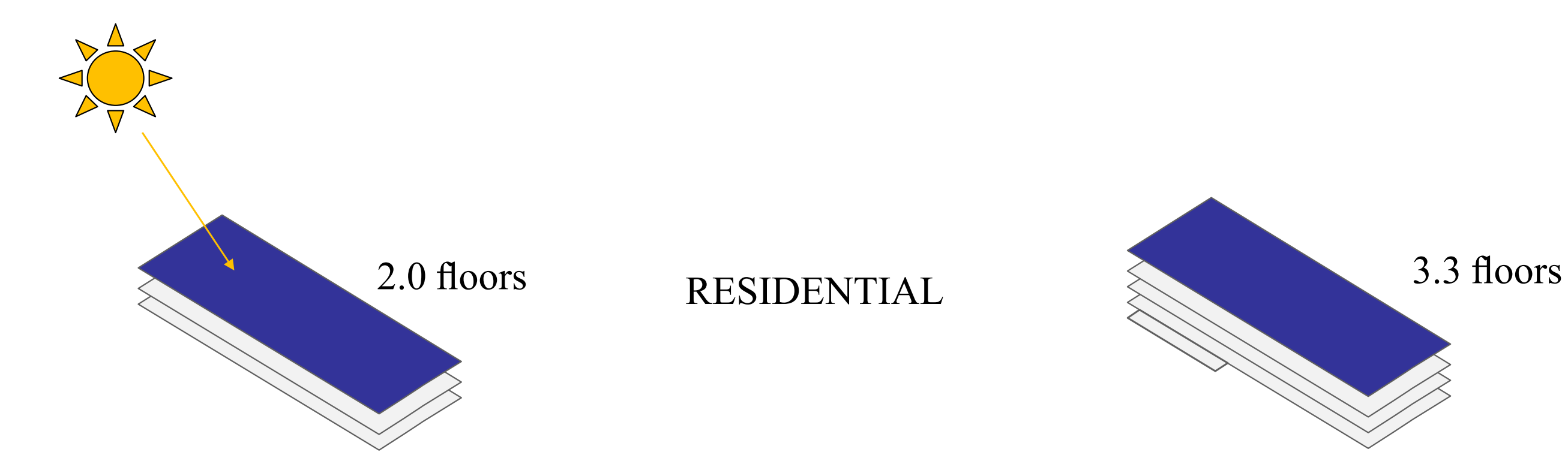
today

- optimized insulation
- optimized glazing
- optimized infiltration
- optimized systems

Electricity

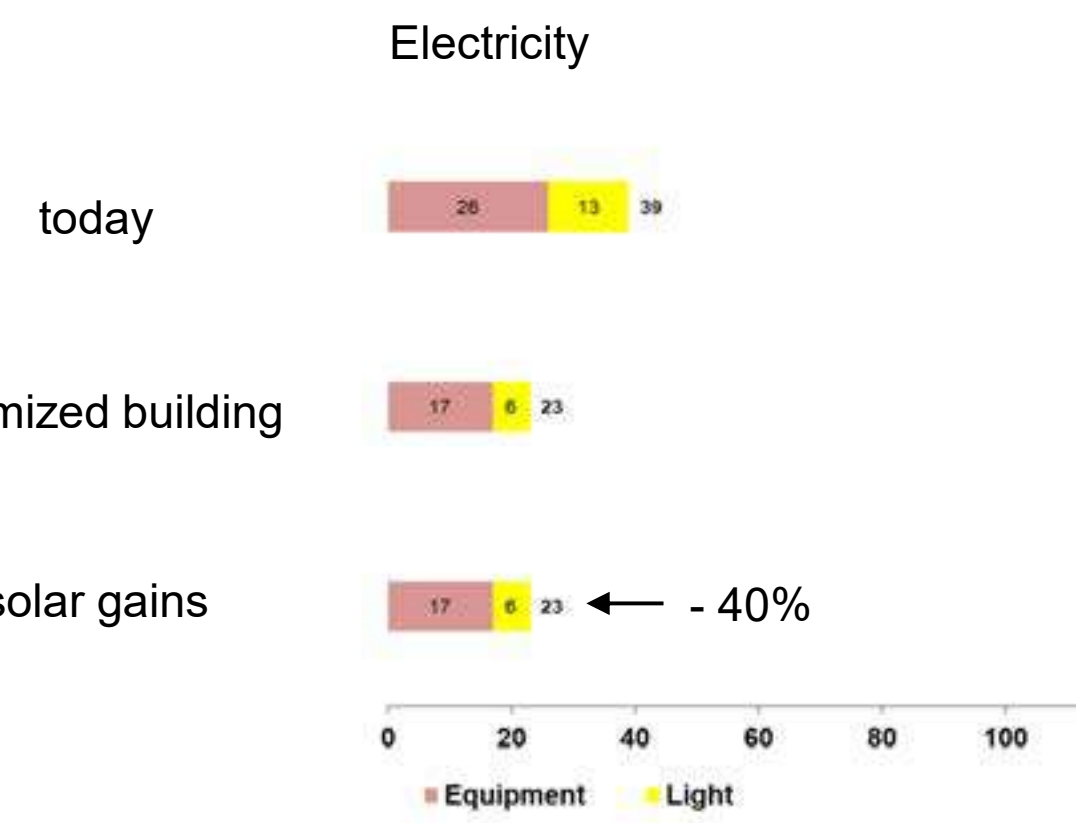
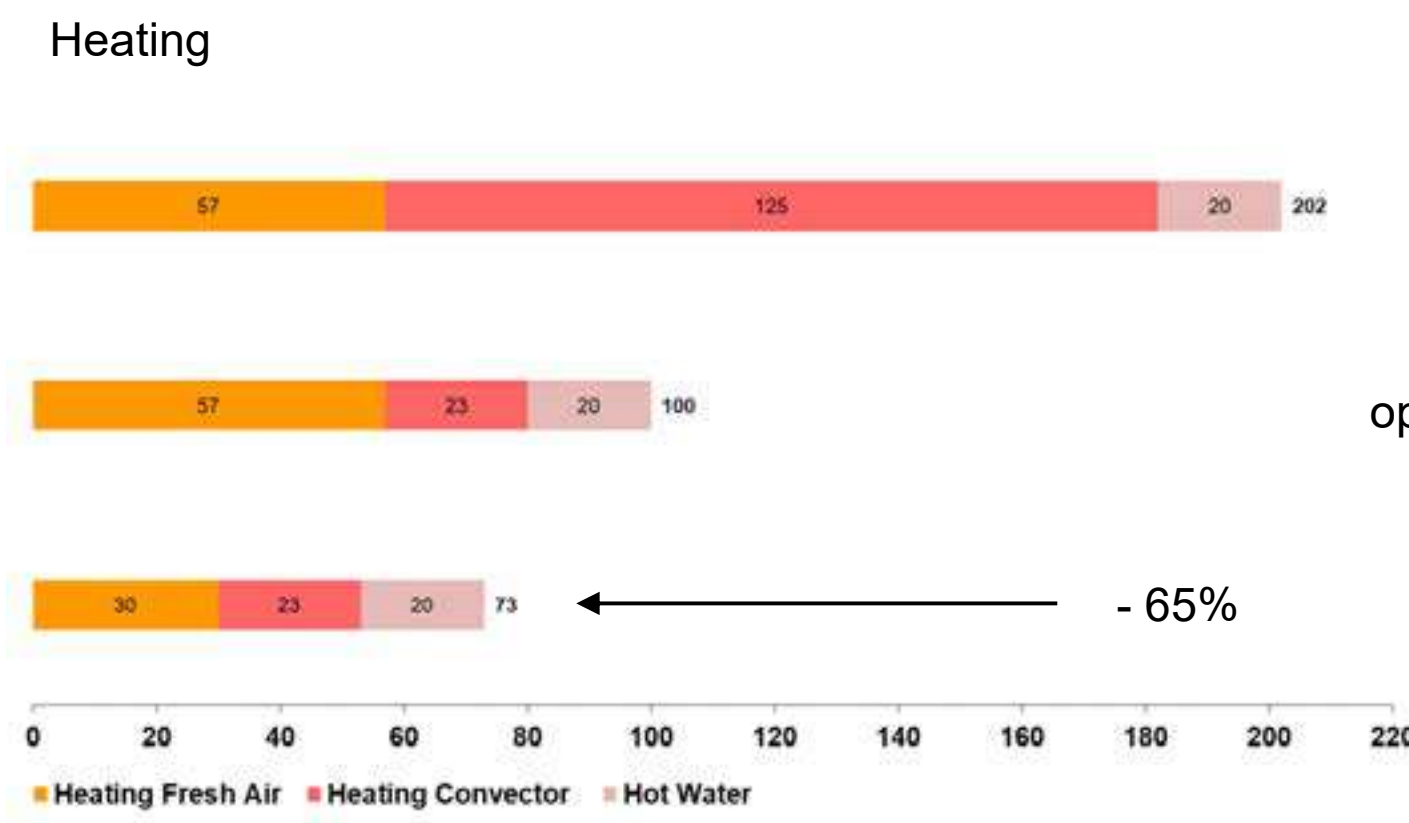


ENERGY DEMAND. RESIDENTIAL



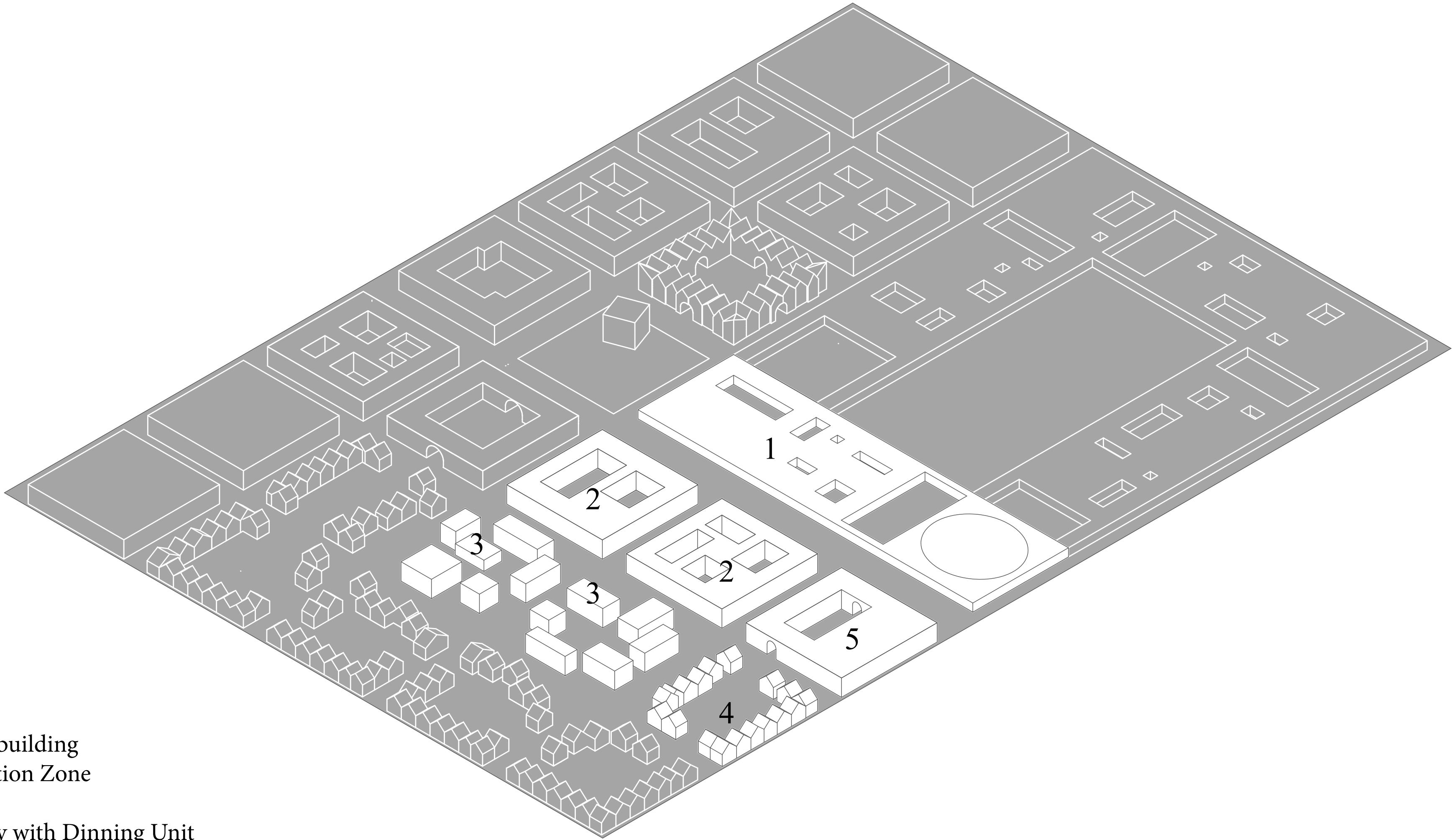
TODAY, AVERAGE EUI
68 kWh/m²a

OPTIMIZED BUILDING
44 kWh/m²a



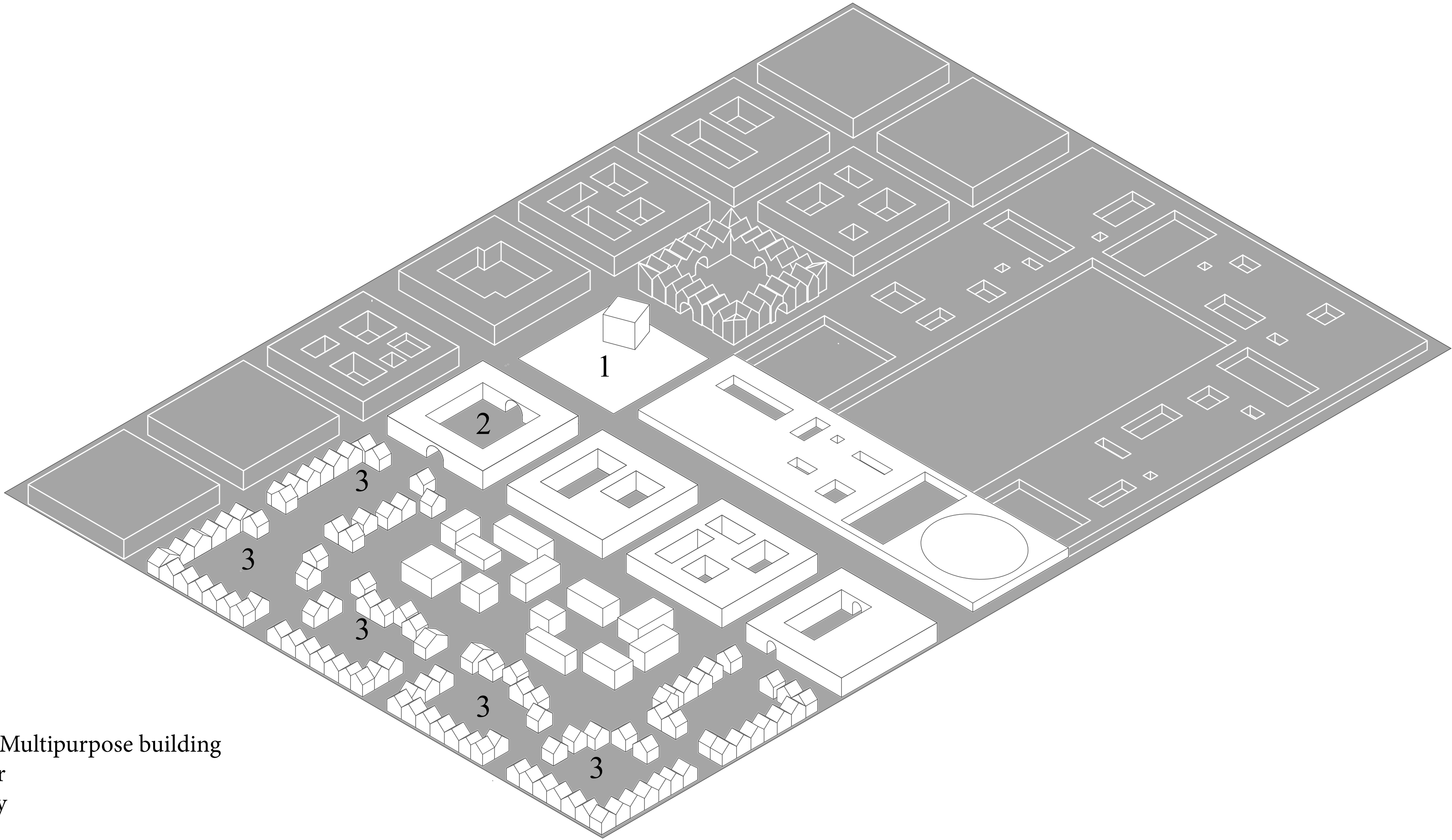
IMPLEMENTATION

STAGE 1



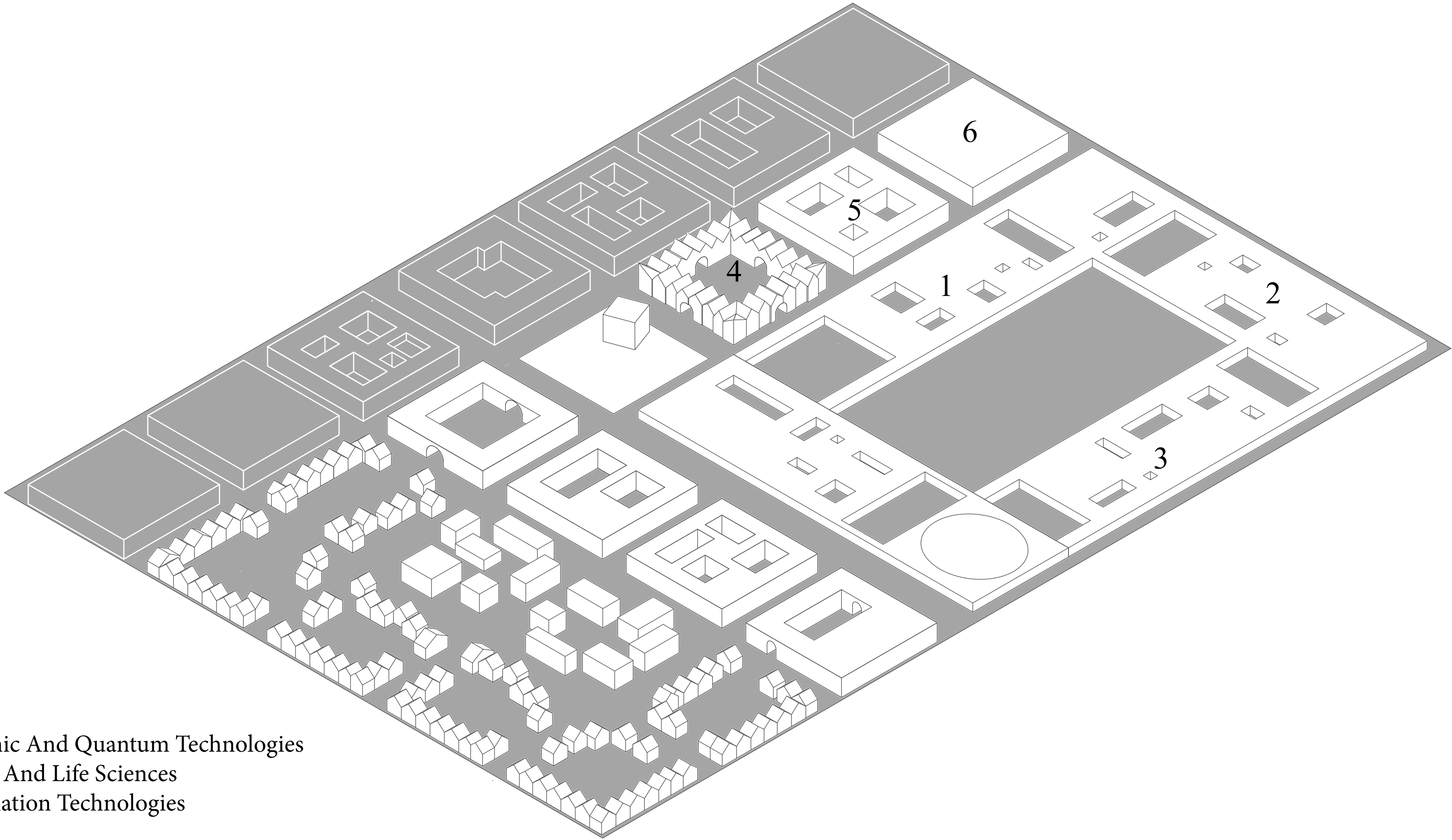
- 1. Academic (main) building
- 2. Advanced Production Zone
- 3. Live-Work Units
- 4. Student Dormitory with Dinning Unit
- 5. Sport Center

STAGE 2



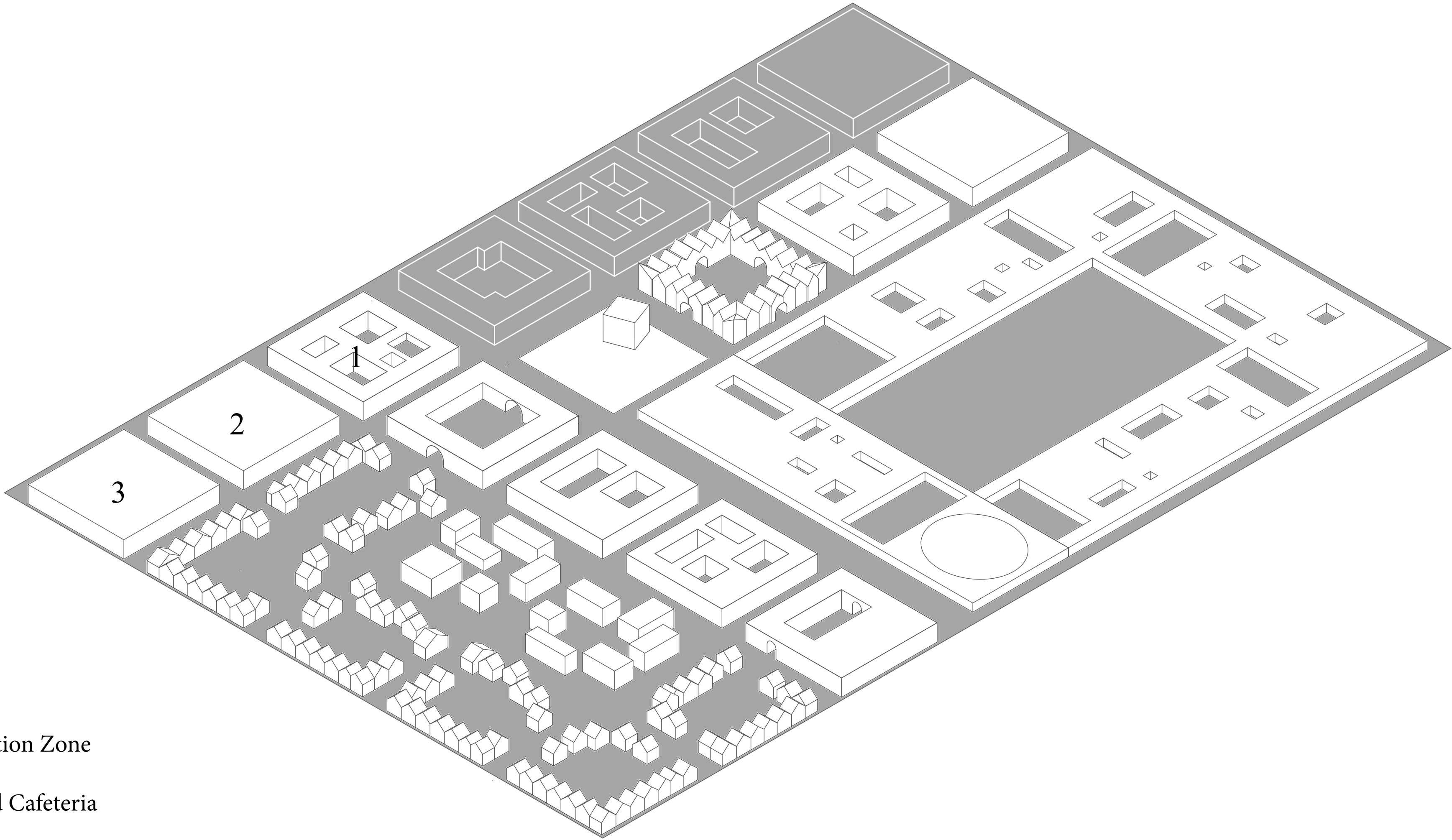
- 1. Main Square with Multipurpose building
- 2. Business Incubator
- 3. Student Dormitory

STAGE 3



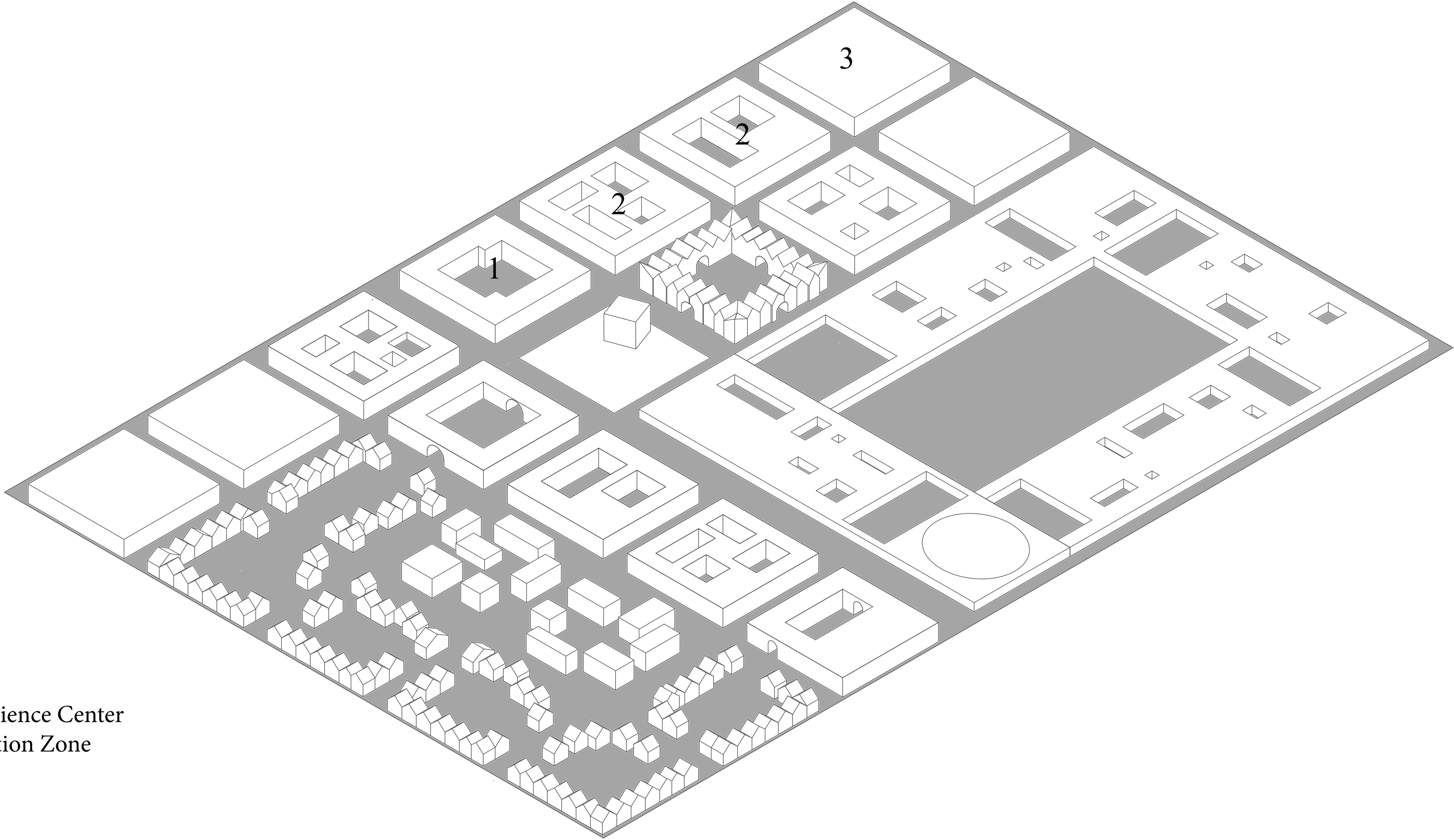
- 1. Centre For Photonic And Quantum Technologies
- 2. Centre For Health And Life Sciences
- 3. Centre For Information Technologies
- 4. Hotel
- 5. Advanced Production Zone
- 6. Parking

STAGE 4



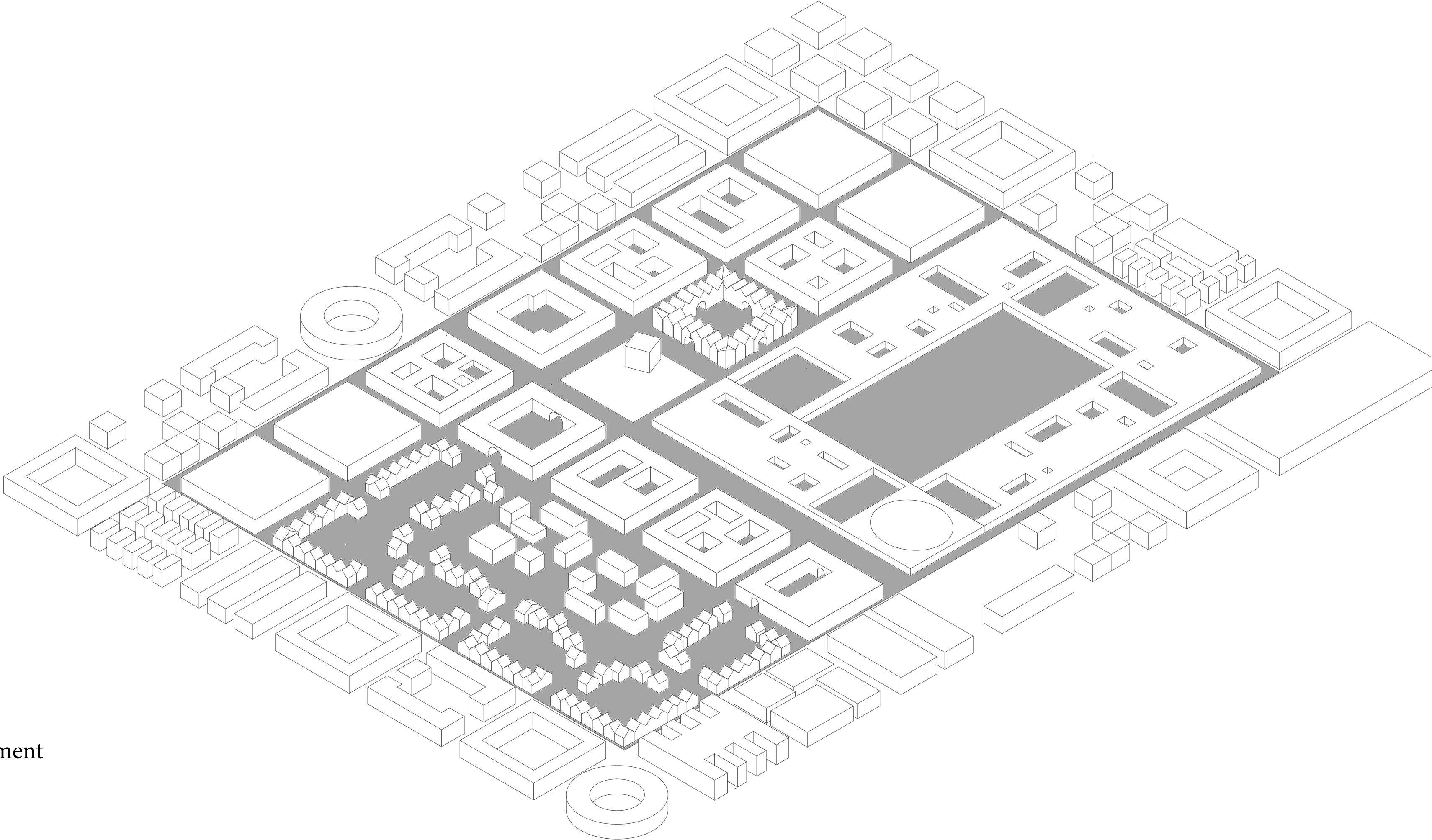
- 1. Advanced Production Zone
- 2. Parking
- 3. Sports Centre And Cafeteria

STAGE 5



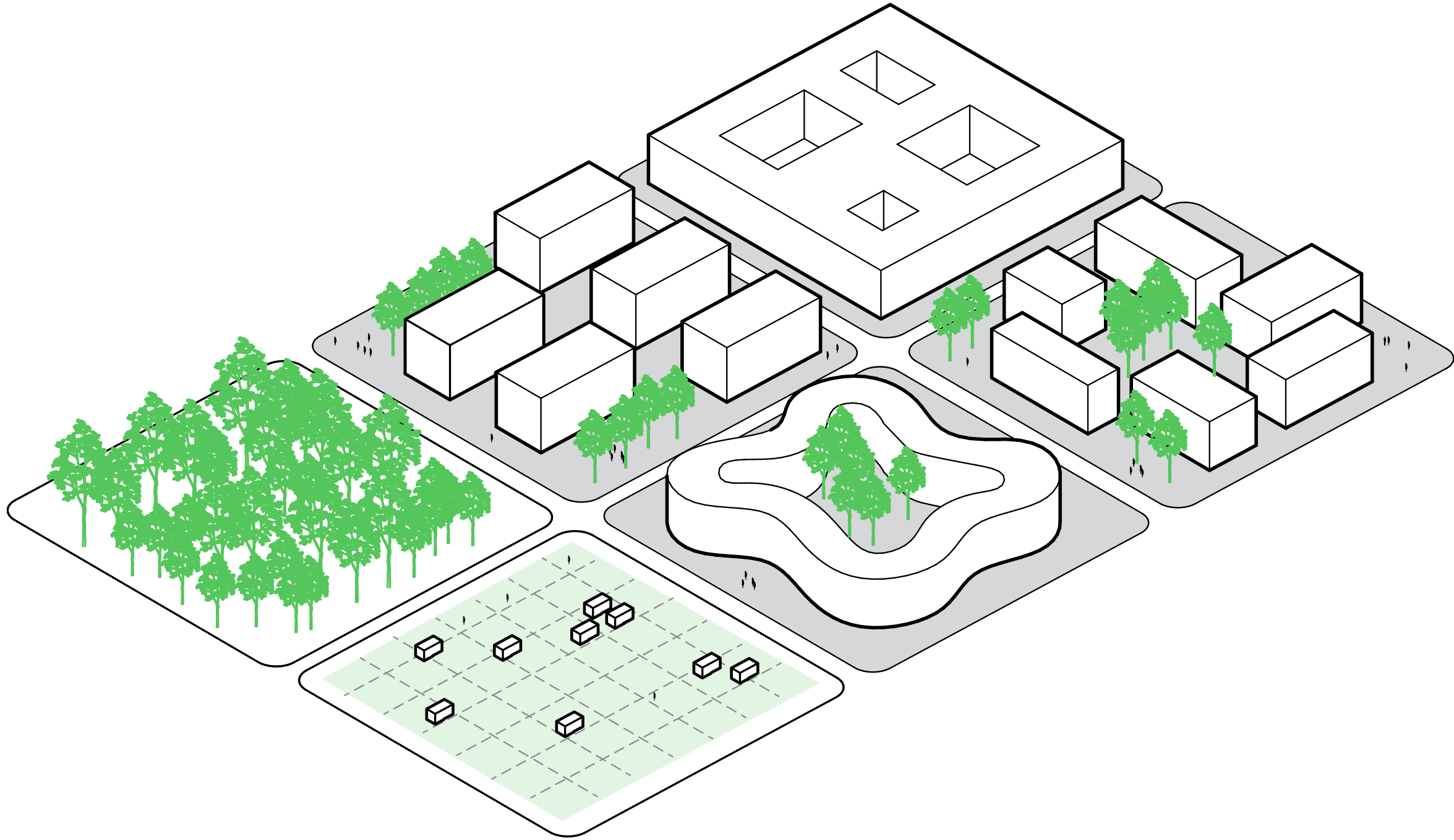
- 1. National Urban Science Center
- 2. Advanced Production Zone
- 3. Logistic center

STAGE 6



Surrounding development

RIGID GRID - FLEXIBLE DEVELOPMENT



PROSPECTS









ITMO HIGHPARK COMPETITION

PROSPECTS

