

SHUHAN LIU

GSAPP WORK PORTFOLIO 2019-2023

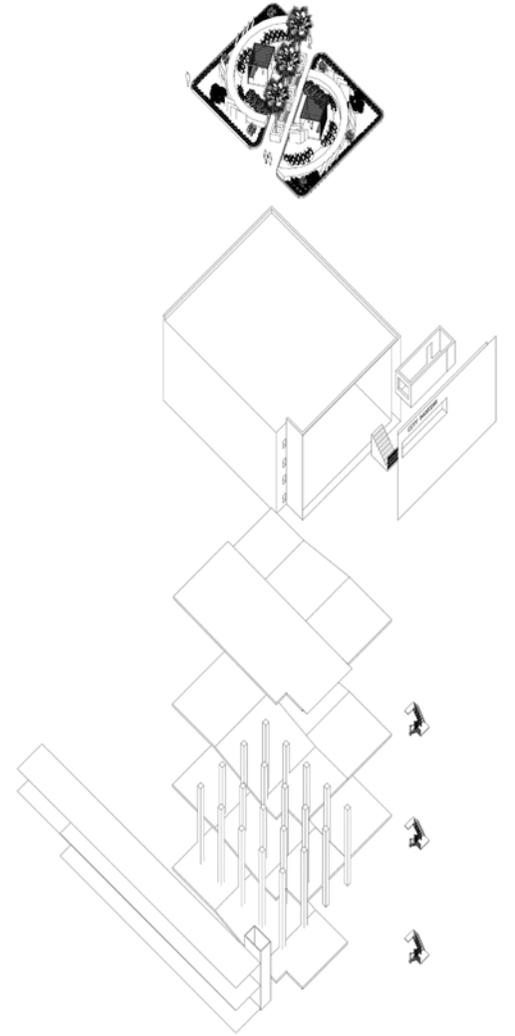
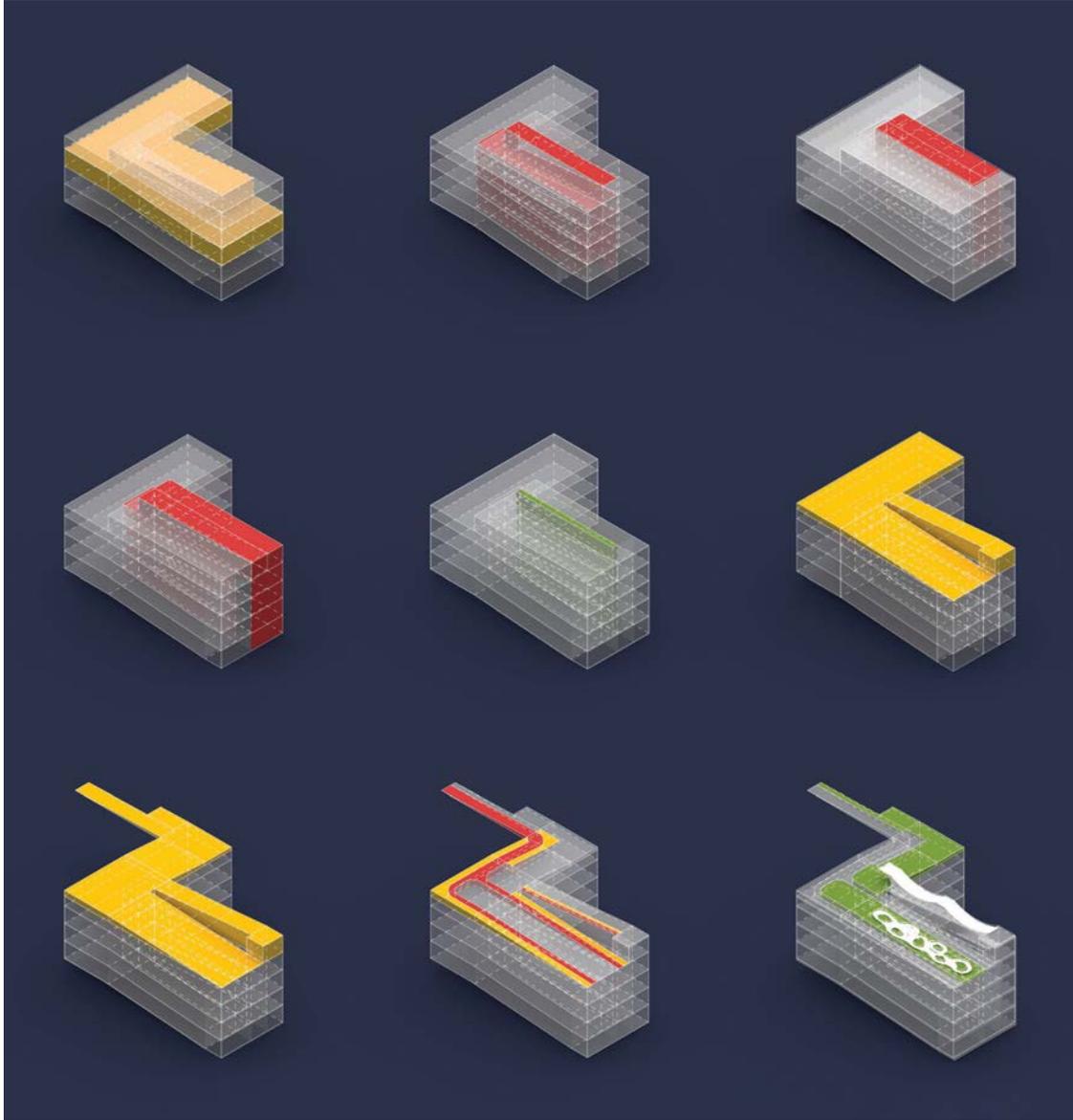
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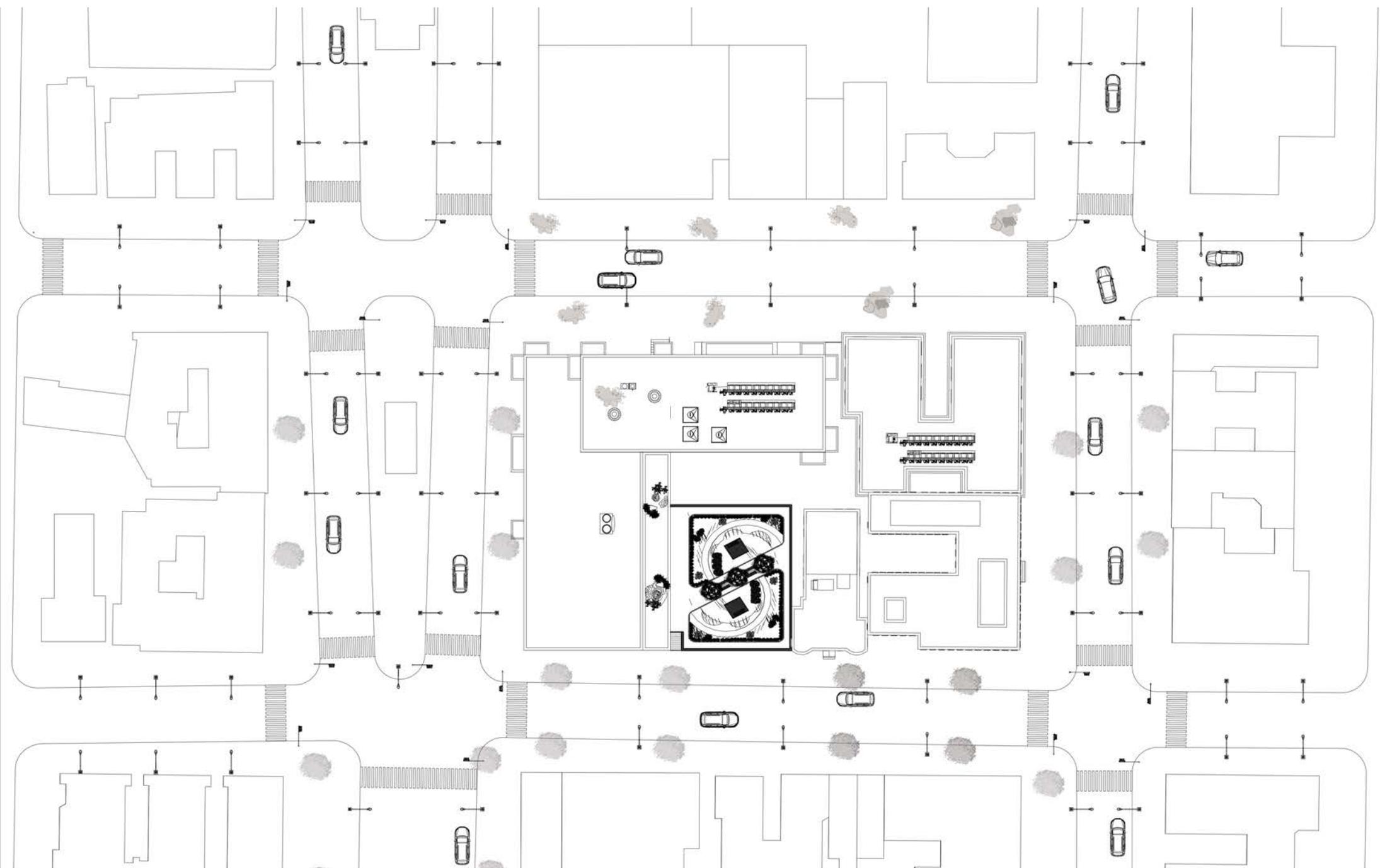
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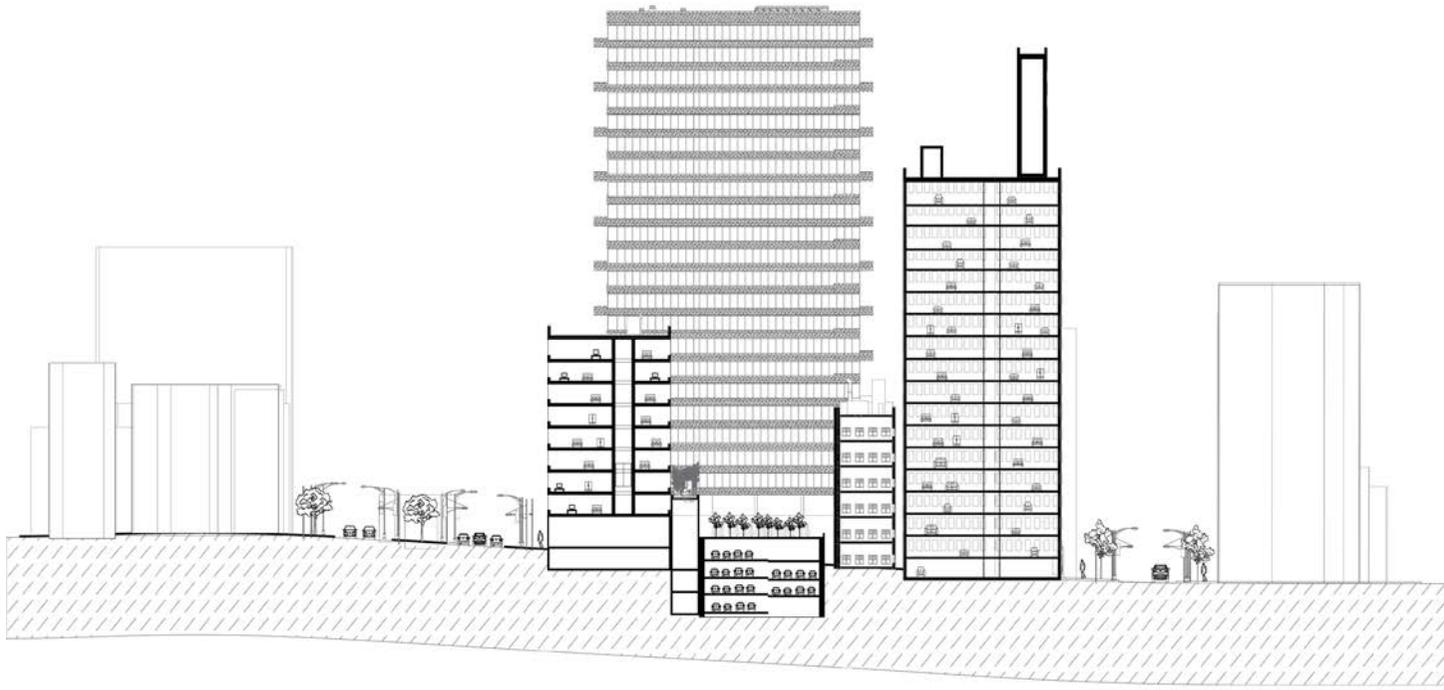
PARK & PARKING

Infrastructure Design
Individual work
Design Studio | GSAPP | 2019
Instructor: José Aragüez
Site: New York, USA

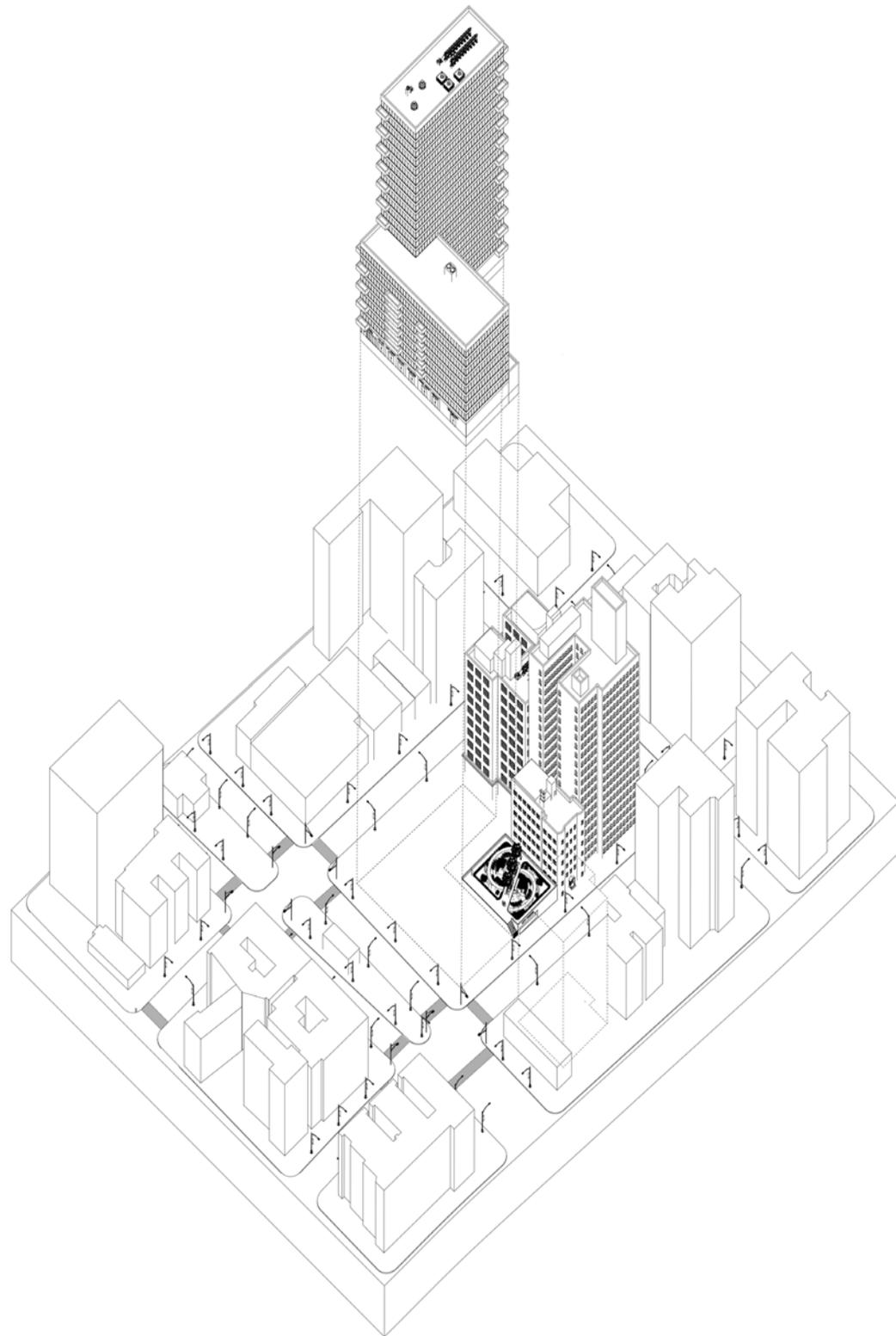
The "Parking and Park" architectural design concept is an innovative, environmentally-conscious approach to urban planning that seamlessly combines the practicality of a parking facility with the aesthetics and recreational benefits of a public park. This dual-purpose structure aims to maximize land usage and enhance the quality of life for urban dwellers by offering a functional space that meets the needs of both vehicle owners and city residents seeking green spaces for leisure and relaxation.

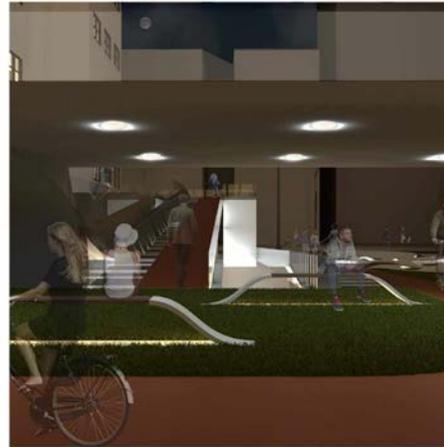


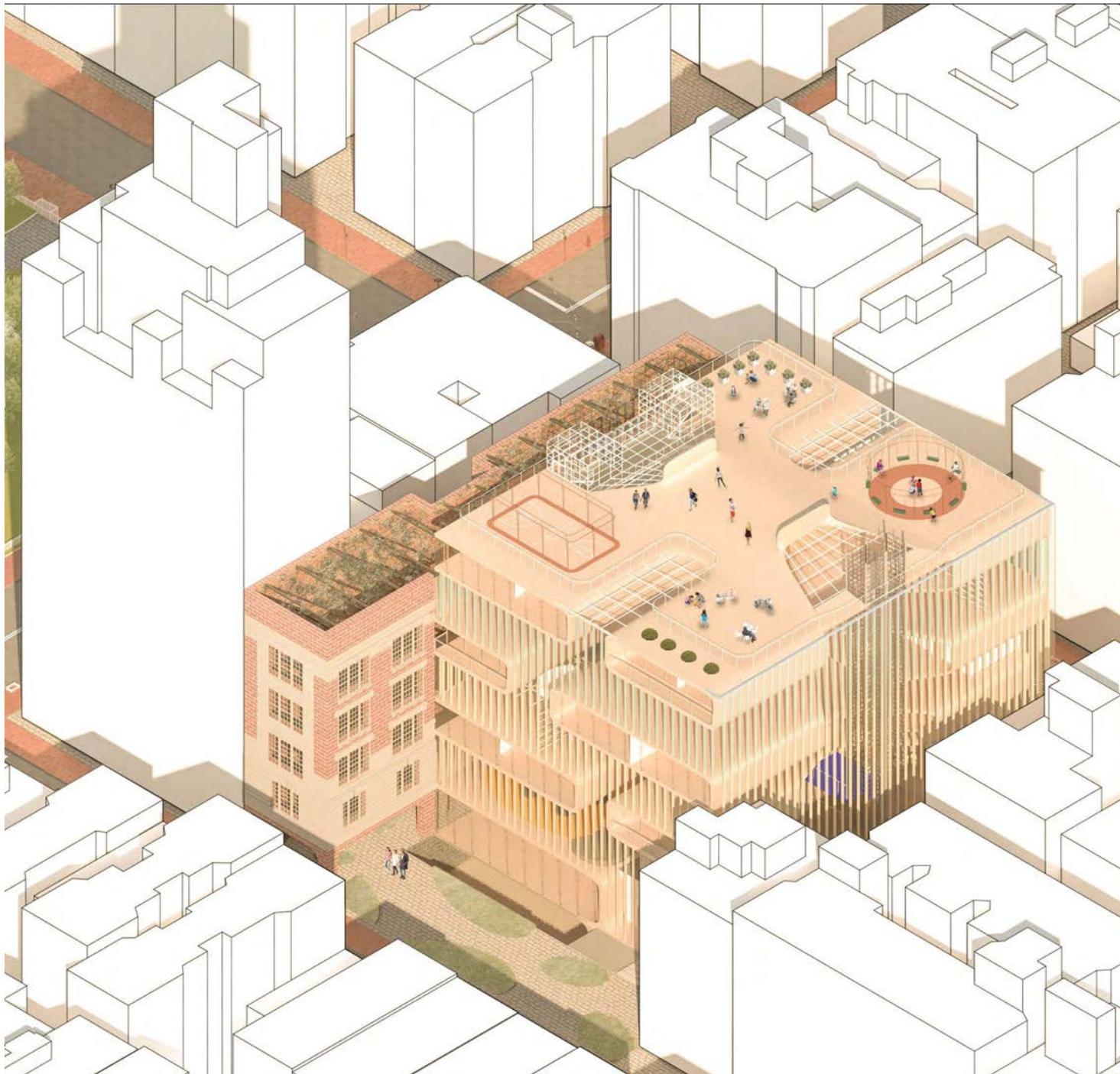












02

HORIZONTAL SCHOOL

School Design
Individual work
Design Studio | GSAPP | 2020
Instructor: José Aragüez
Site: New York, USA

PS64, situated on East 9th Street in the vibrant Lower East Side neighborhood of Manhattan, is undergoing a significant renovation aimed at transforming it into a cutting-edge educational facility. This innovative project is intended to revolutionize the traditional learning environment by reimagining the spatial distribution and flow within the school.

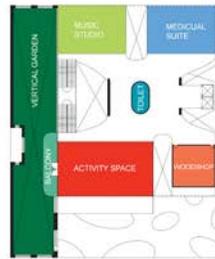
To implement this concept, the design team will classify various school activities into two main categories: active and still. Active spaces are intended for dynamic learning experiences and physical activities, while still spaces will be dedicated to calmer, more focused learning activities. By differentiating these zones, the design aims to create a balanced and well-organized educational environment that caters to the diverse needs of students and teachers alike.



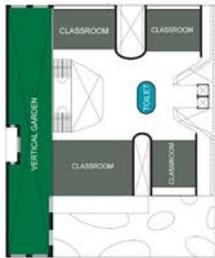
BASEMENT



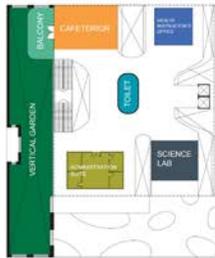
GROUND FLOOR



2ND FLOOR



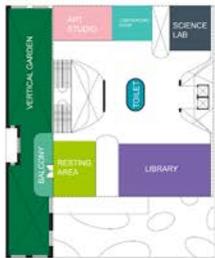
3RD FLOOR



4TH FLOOR



5TH FLOOR



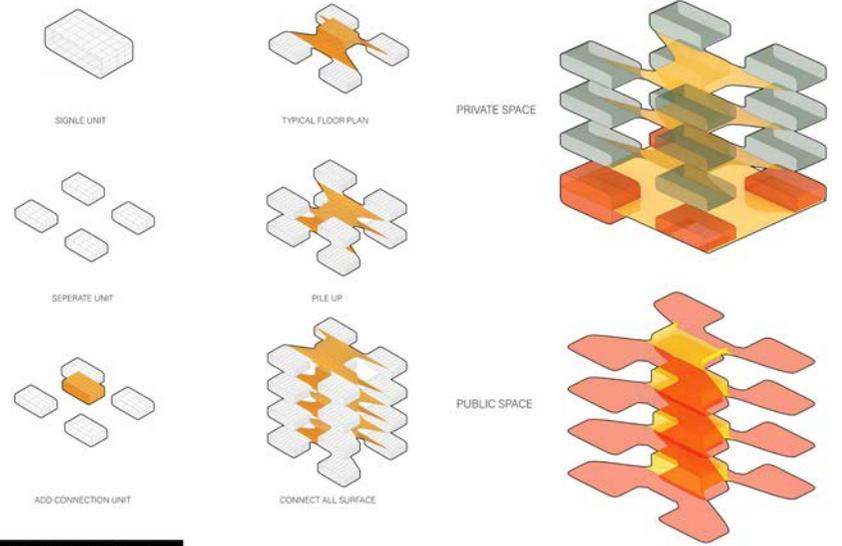
6TH FLOOR



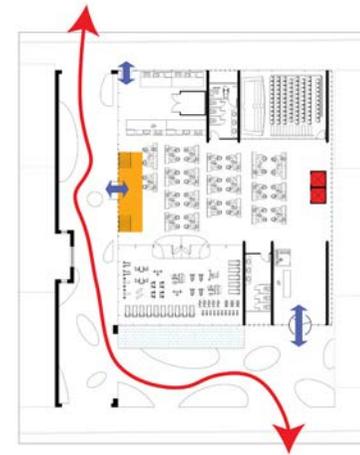
7TH FLOOR



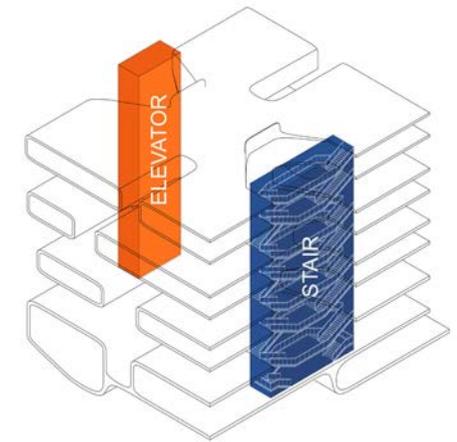
ROOFTOP



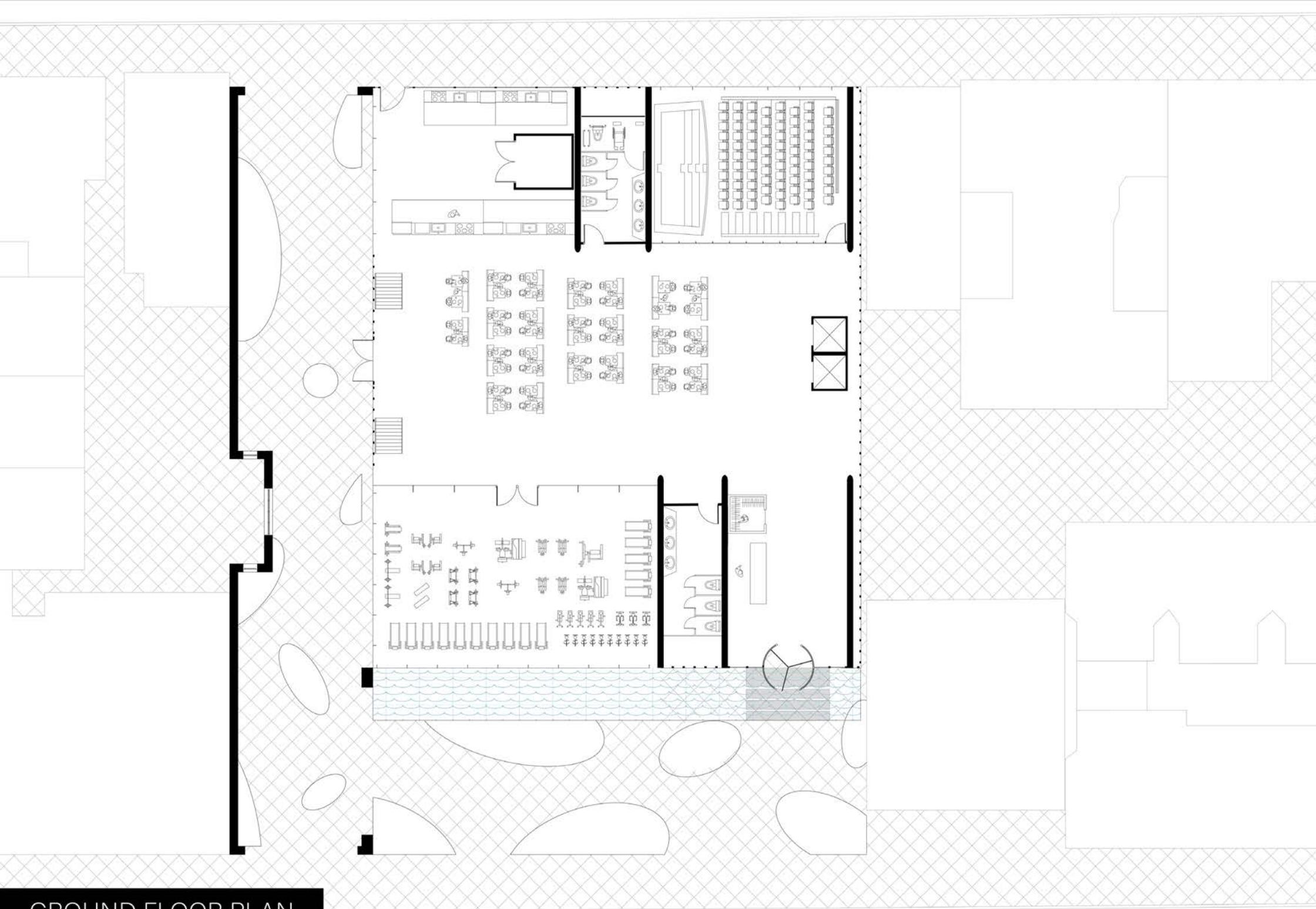
CONCEPT DRAWING



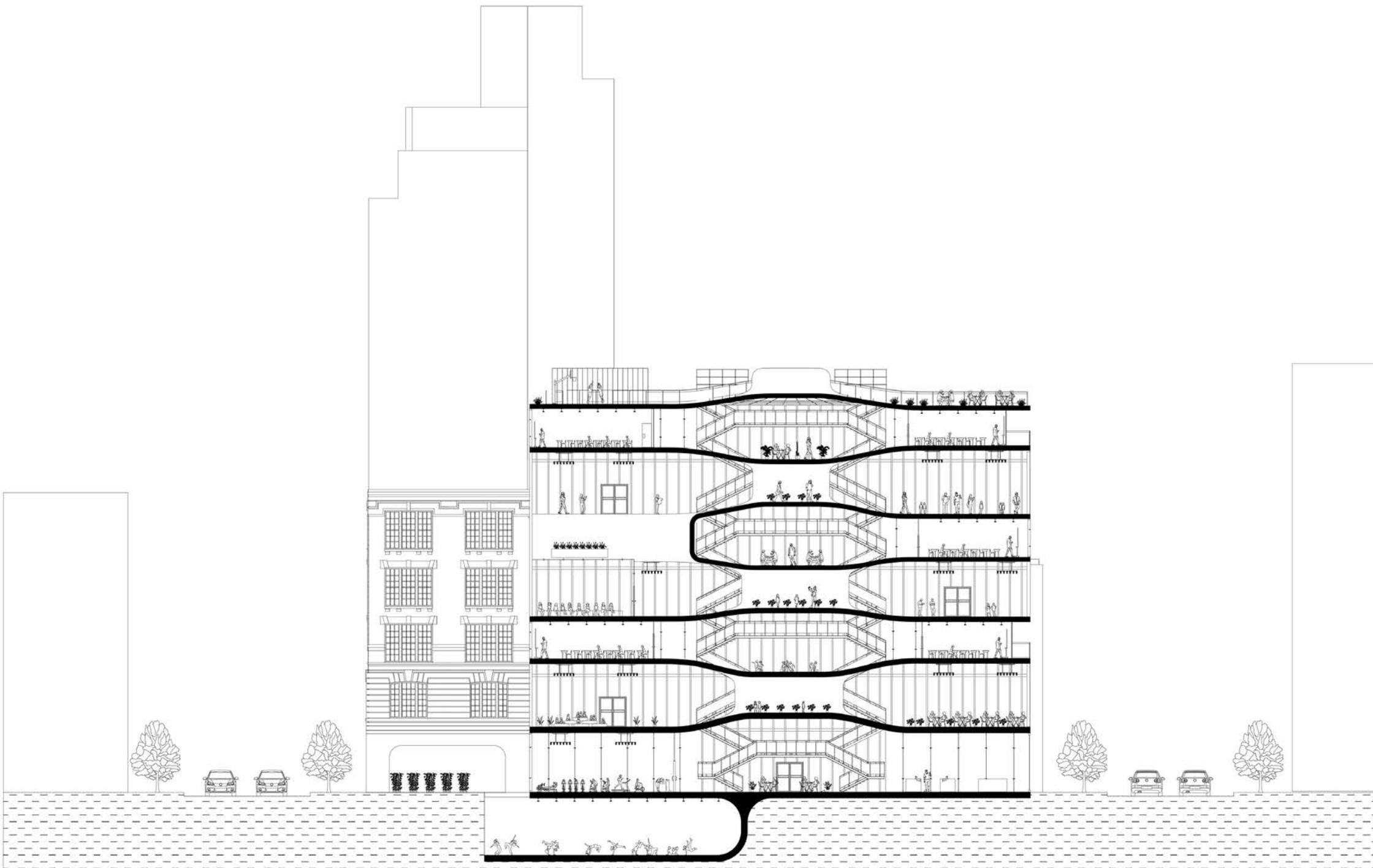
CIRCULATION DIAGRAM



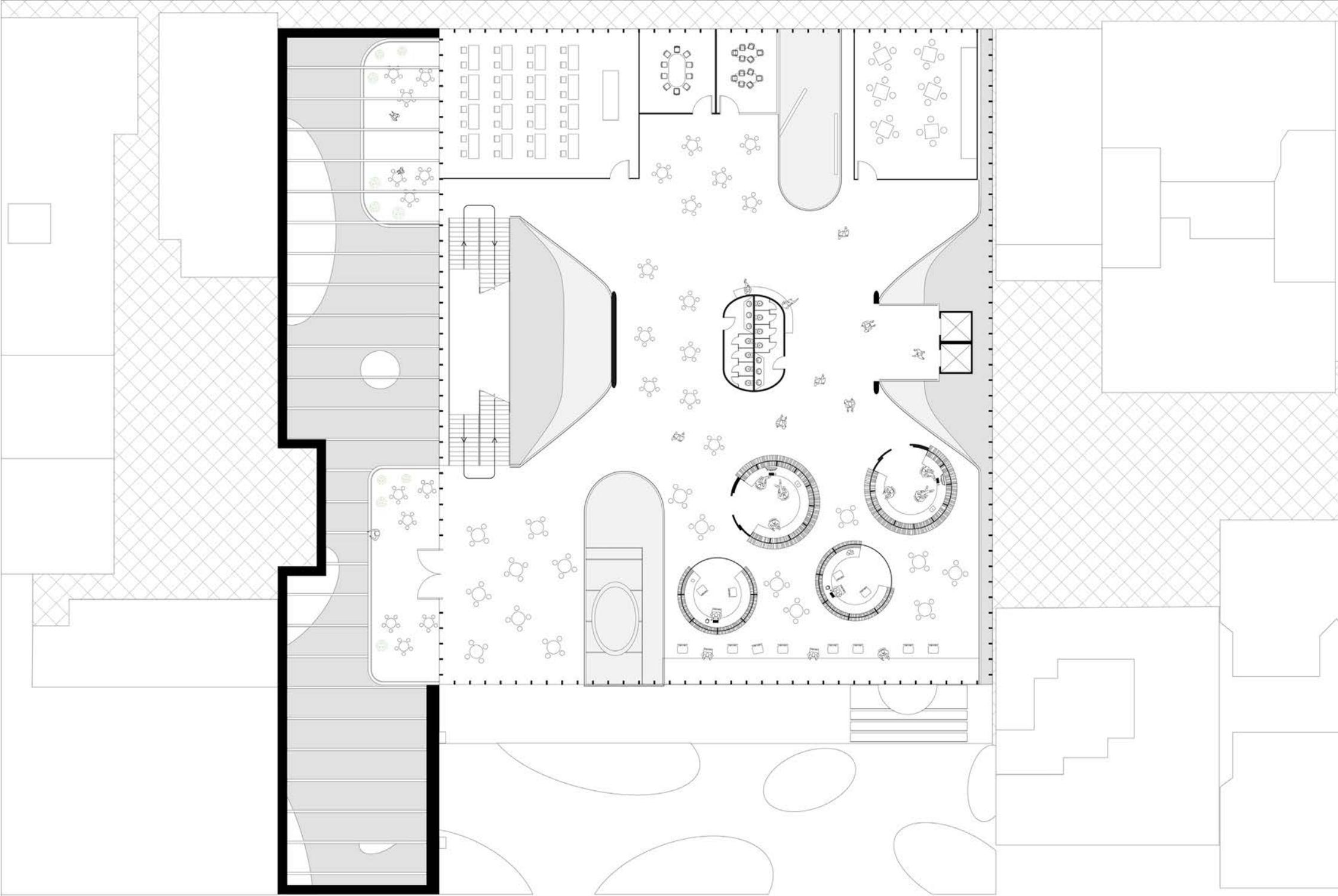
PROGRAM DIAGRAM



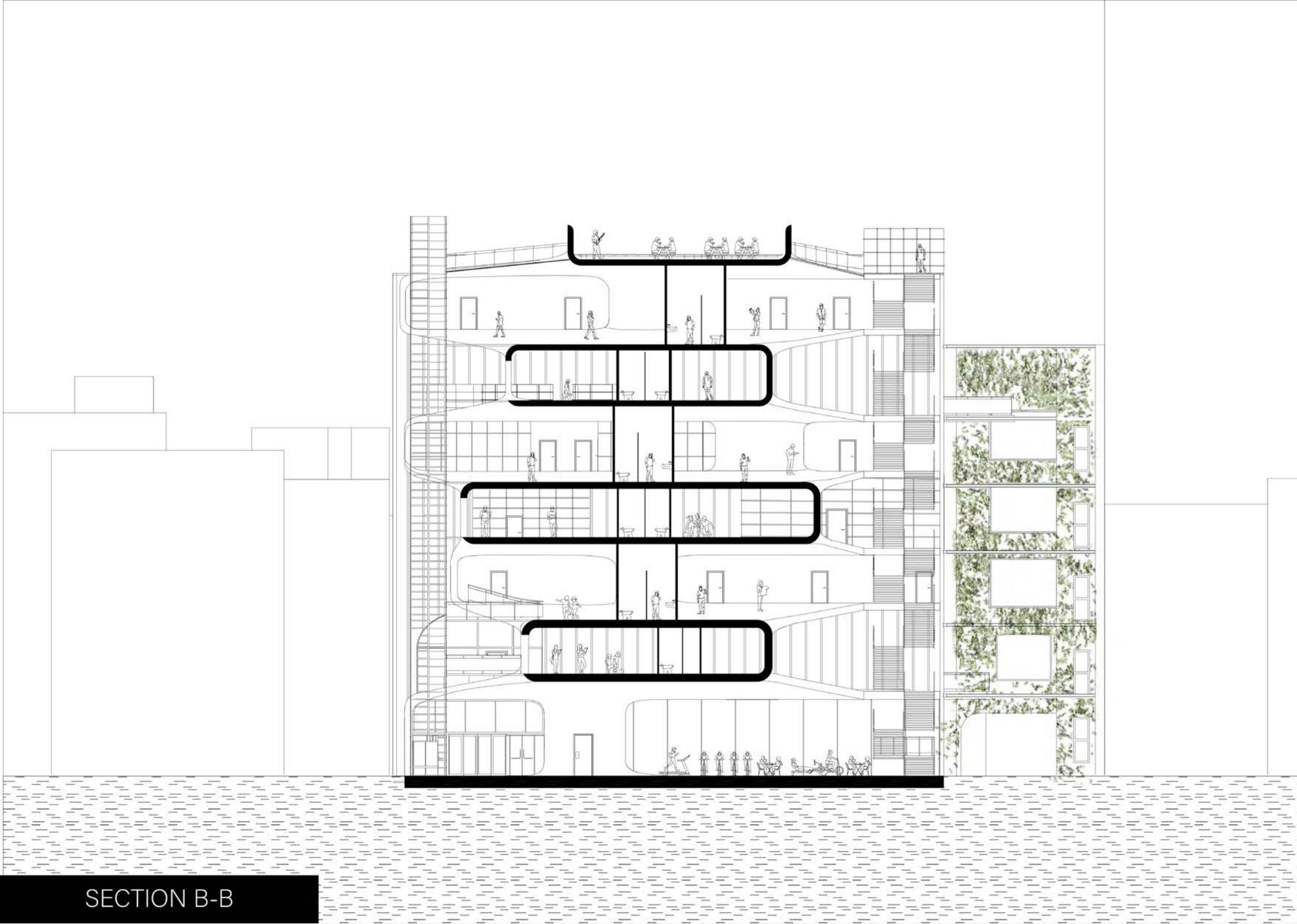
GROUND FLOOR PLAN



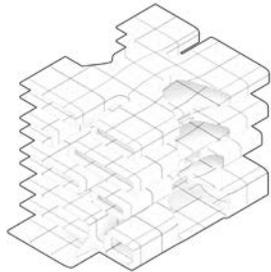
SECTION A-A



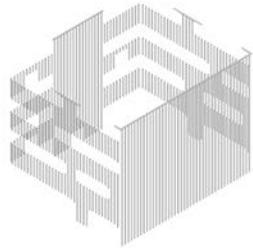
FORTH FLOOR PLAN



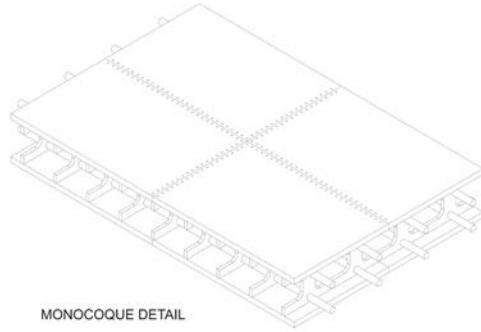
SECTION B-B



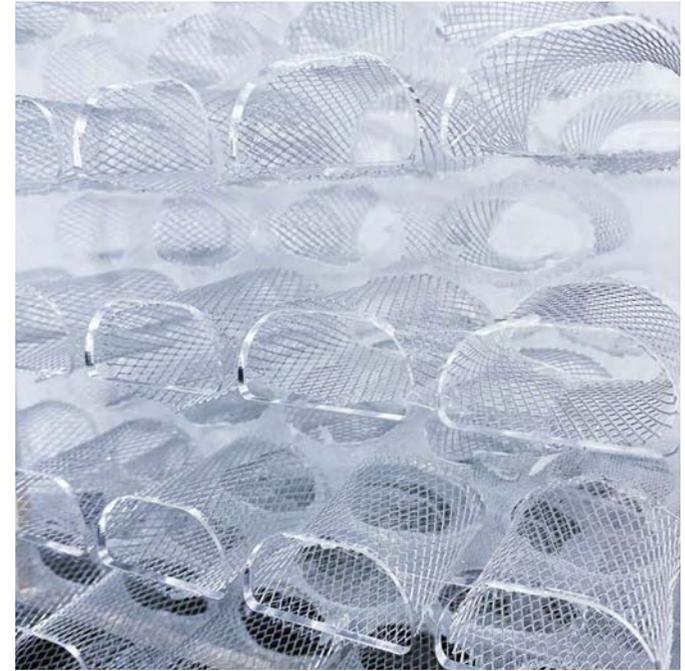
MONOCOQUE SHELL



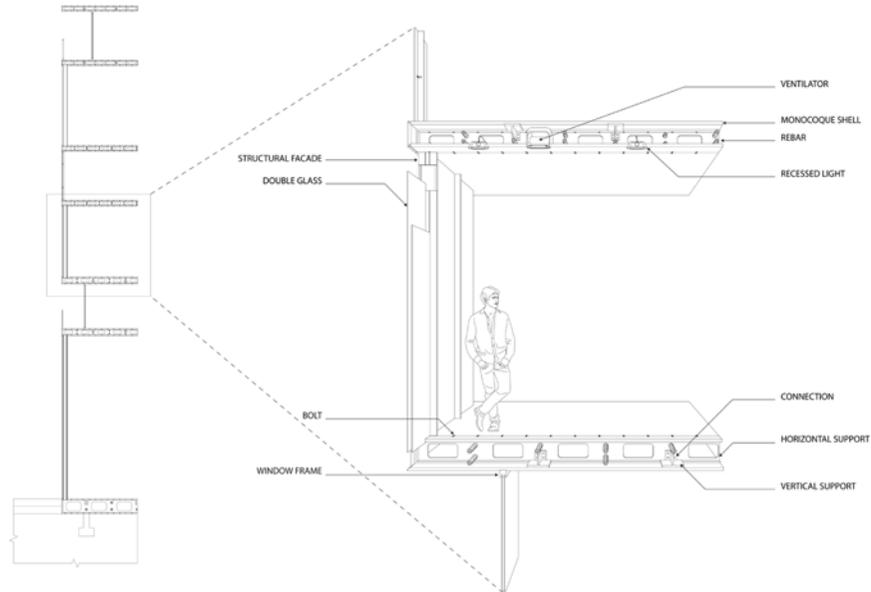
STRUCTURAL FACADE



MONOCOQUE DETAIL



STRUCTRAL SYSTEM



CONSTRUCTION DETAIL



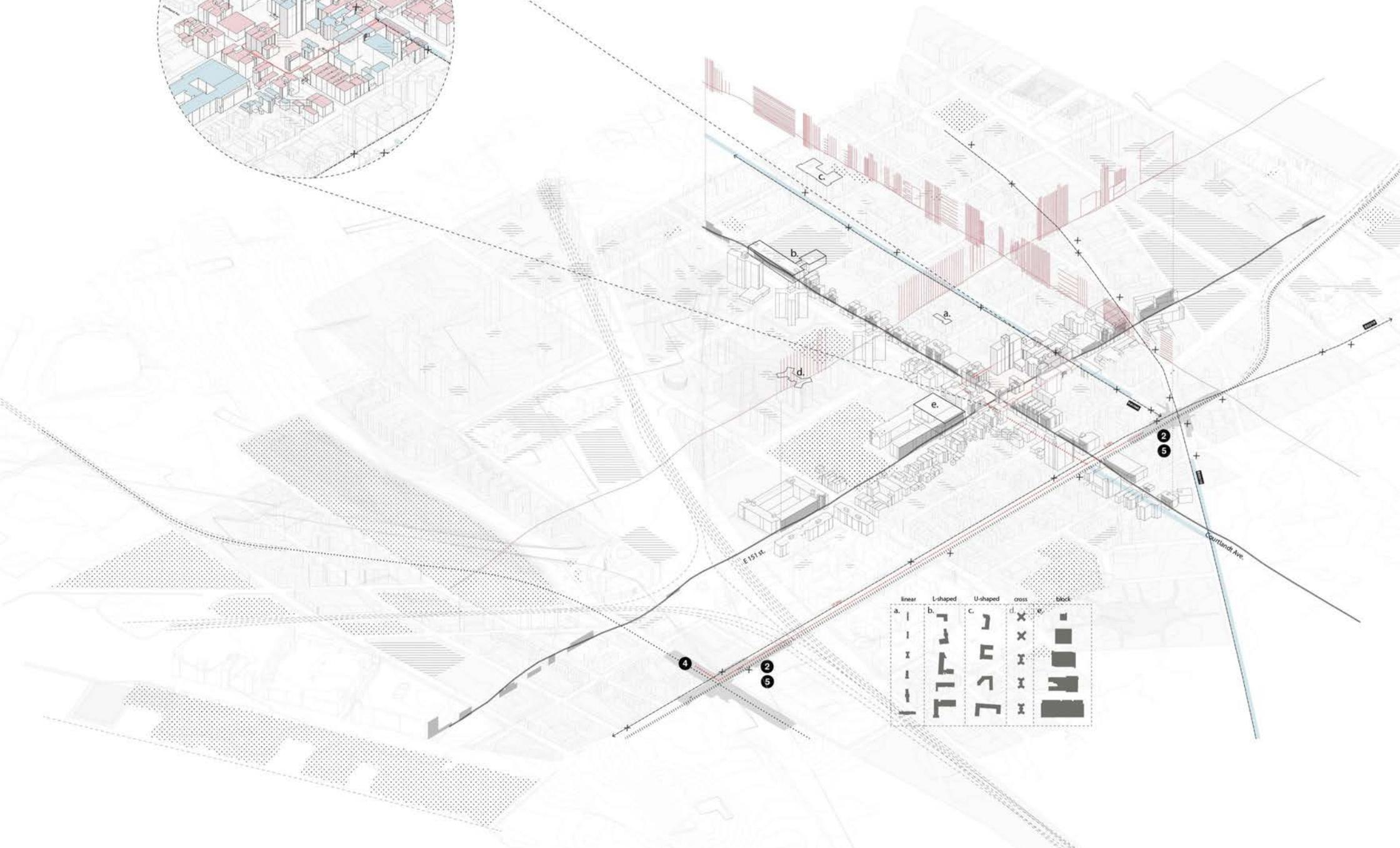
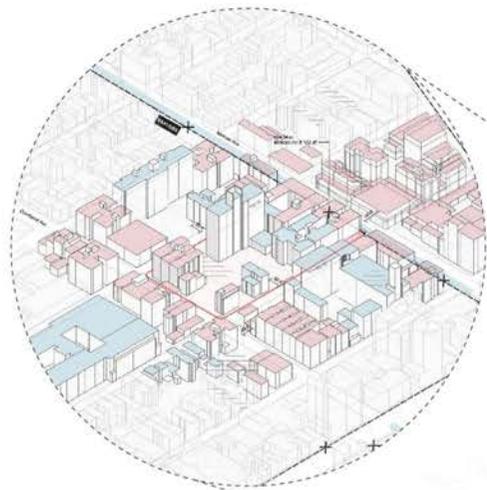


INTERMEDIATE DWELLING

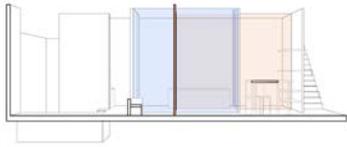


Housing Design
Group work with Karen Chen
Design Studio | GSAPP | 2020
Instructor: Mario Gooden
Site: New York, USA

Intermediate Dwelling questions the common private and public relationship in modern housing designs that establishes a clear distinction between the individual units and the rest of the social spaces. The project is designed with domestic scenarios, or units, that function with moveable walls and facades to maximize flexibility for transforming family sizes while also allowing a free relationship of multiple activities within one space.



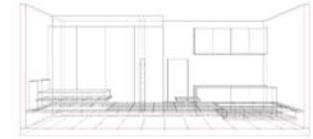
	linear	L-shaped	U-shaped	cross	block
a.		L	U	x	■
b.		L	U	x	■
c.		L	U	x	■
d.		L	U	x	■
e.		L	U	x	■



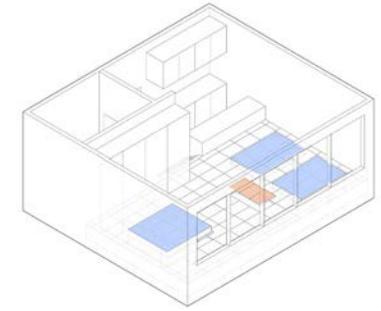
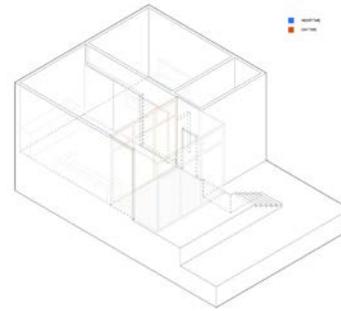
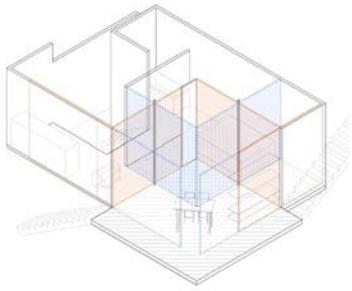
DOMESTIC SCENARIO: STUDY 1 DAY & NIGHT PROGRAM SHIFT BY PIVOTING WALL



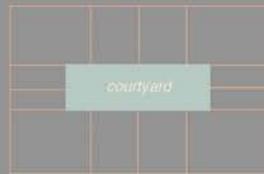
DOMESTIC SCENARIO: STUDY 2 SHIFTING VERTICAL PLANES



DOMESTIC SCENARIO: STUDY 3 SHIFTING HORIZONTAL PLANES



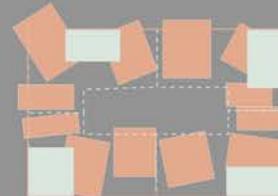
site area



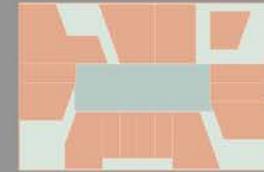
public courtyard for light and gathering of private units



introduce intermediate spaces amongst smaller unit clusters



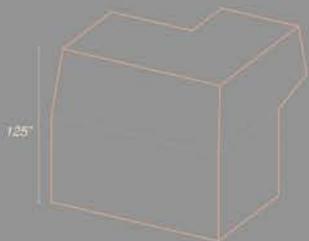
shift to accommodate the intermediates



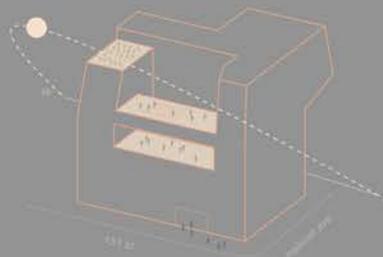
intermediate spaces as buffer between the public and private



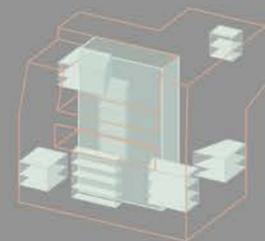
open up fixed partitions to further blur public-private boundaries



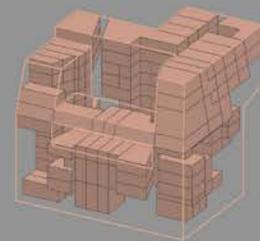
building envelope



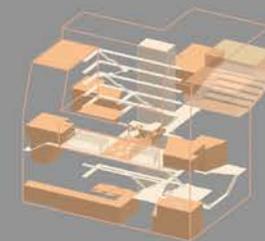
courtyard and terraces carved out to maximize sunlight



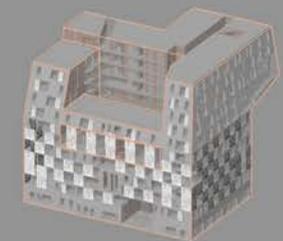
intermediate spaces accessed from central courtyard



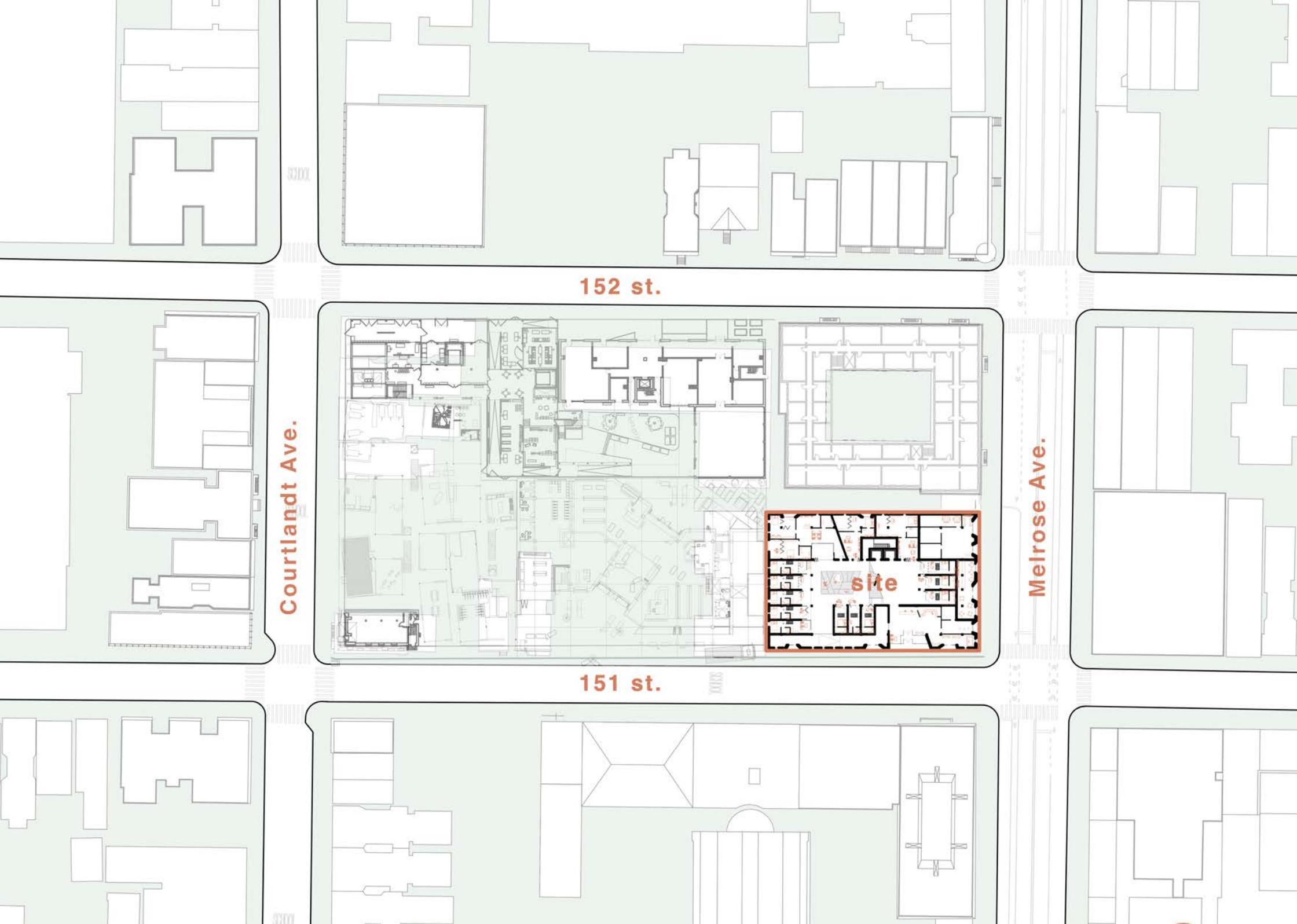
128 domestic scenarios rearranged with voids for intermediate spaces



community programs and circulation encourage physical activity and neighbors encounters



recessed windows and moveable facade panels for shading



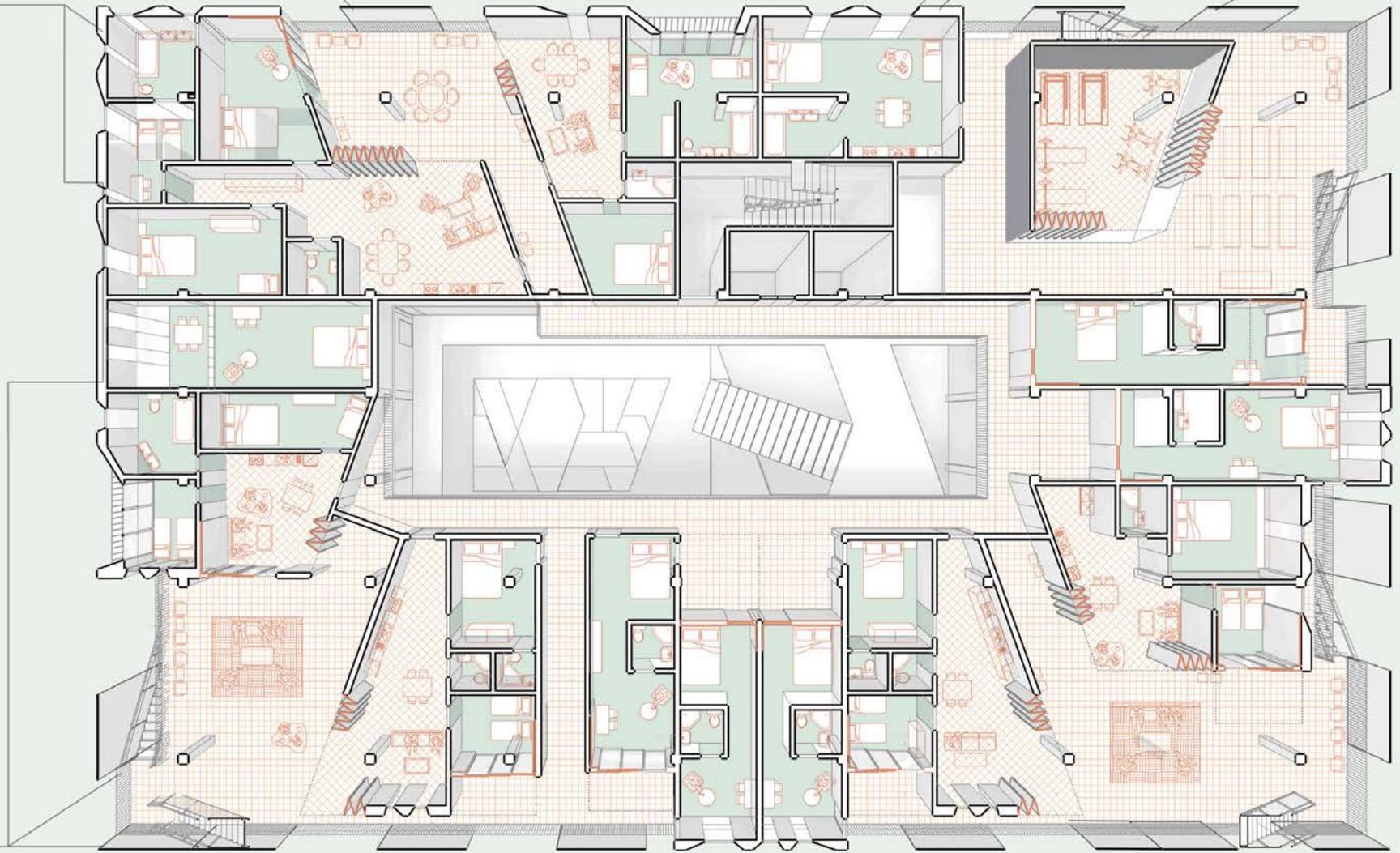
152 st.

Courtlandt Ave.

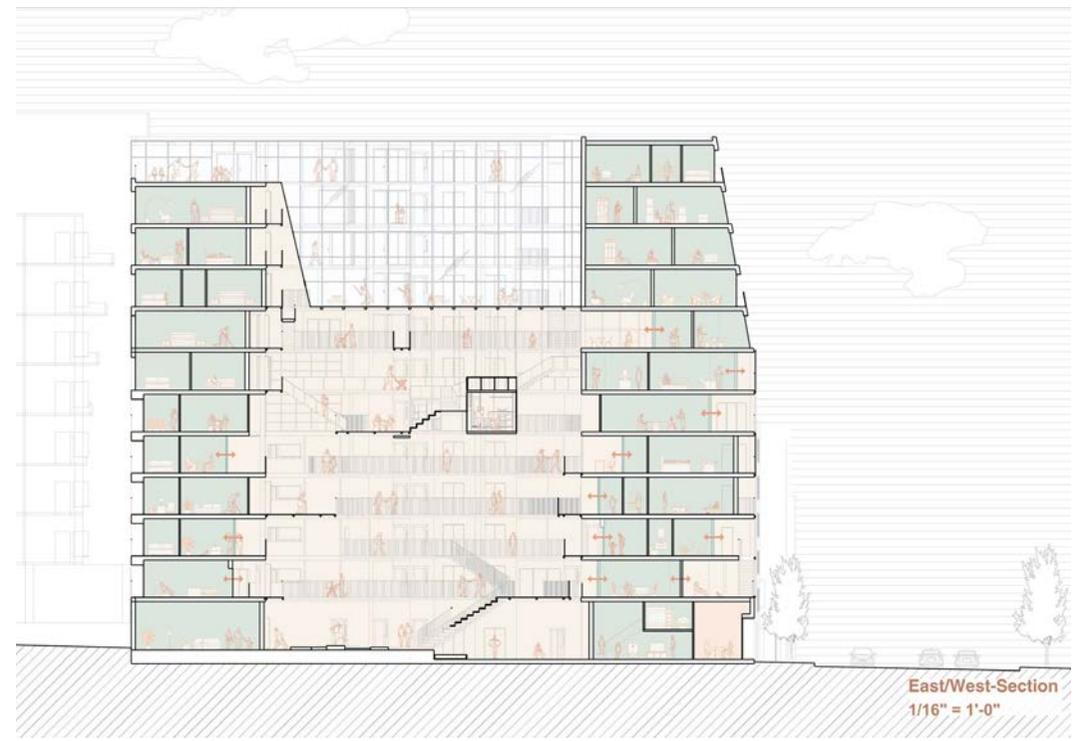
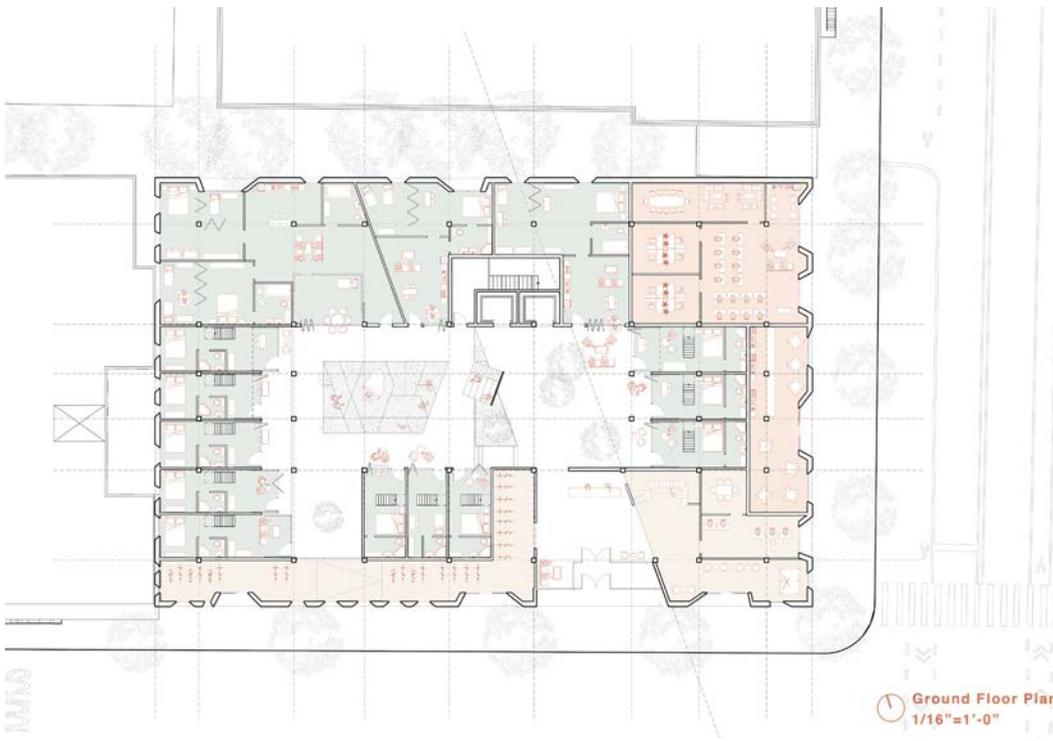
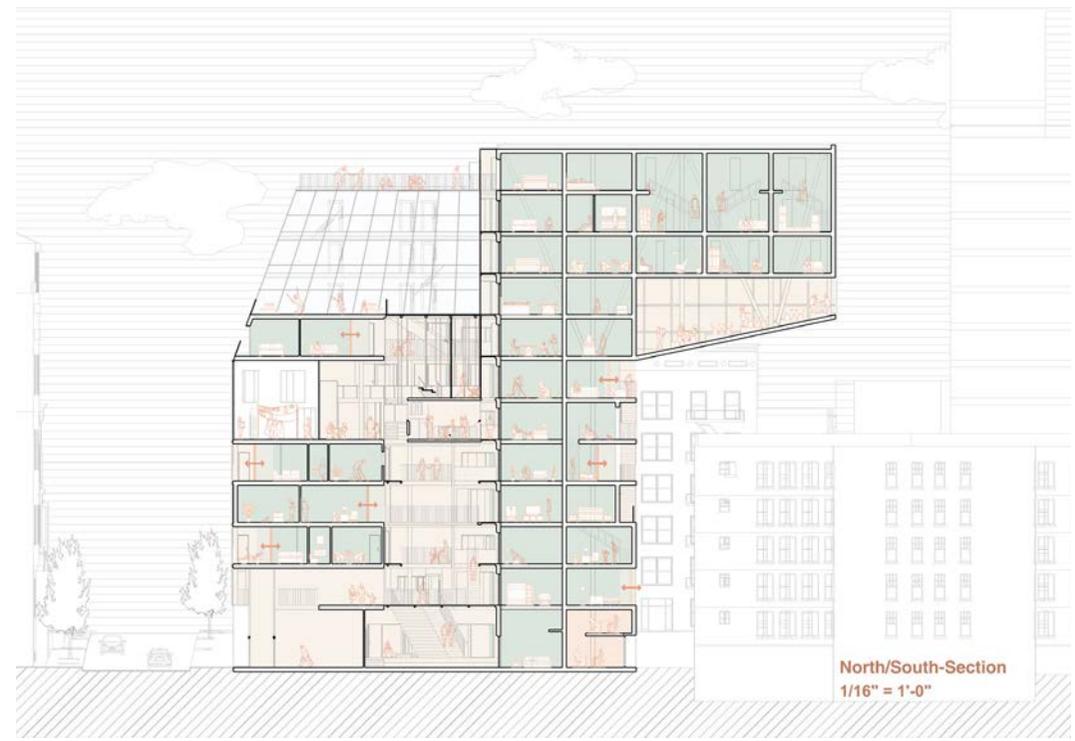
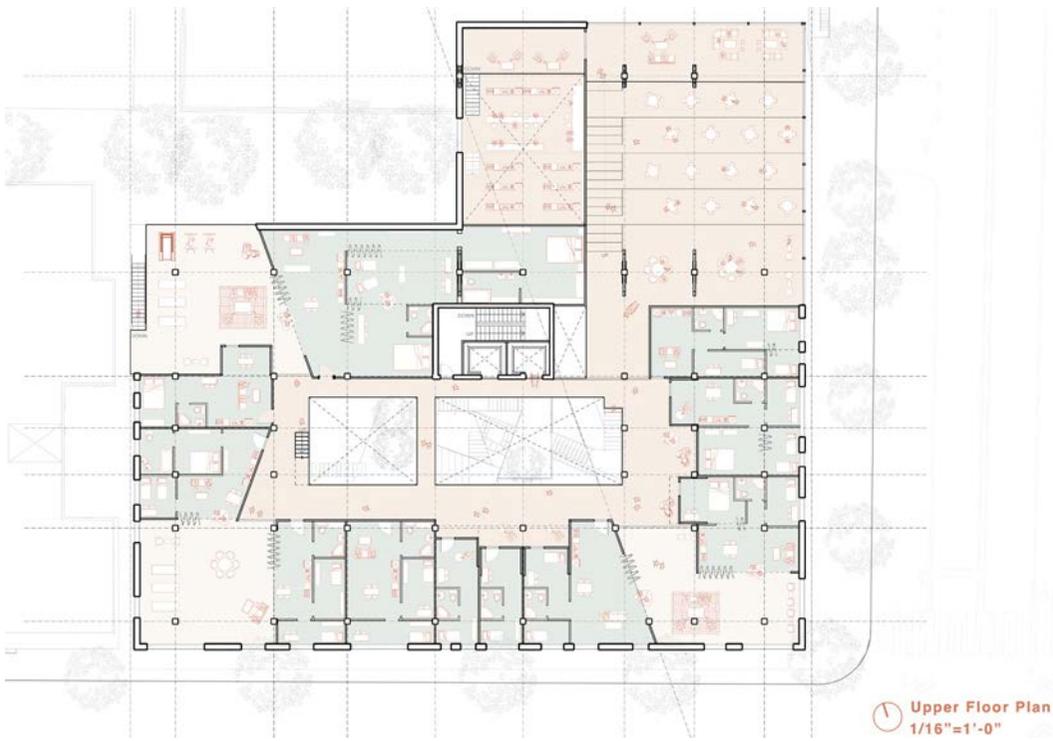
Melrose Ave.

151 st.

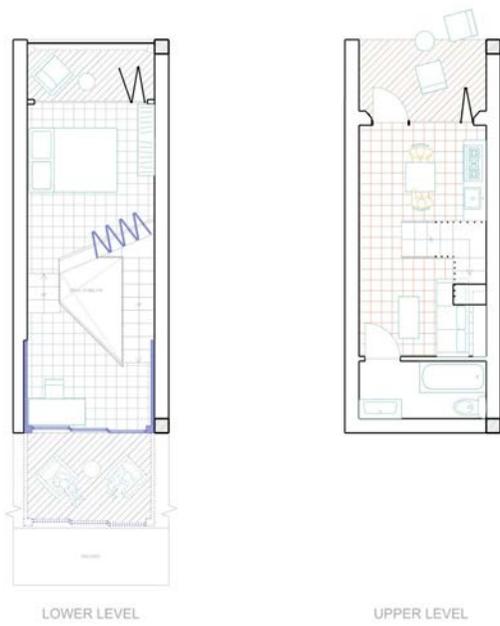
site



3rd Floor Plan Perspective
1/16"=1'-0"



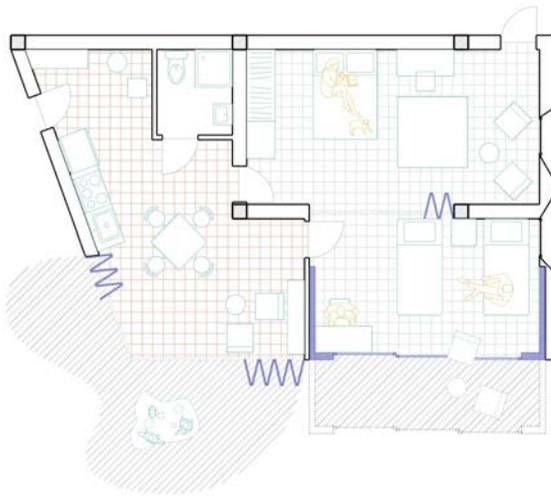




LOWER LEVEL

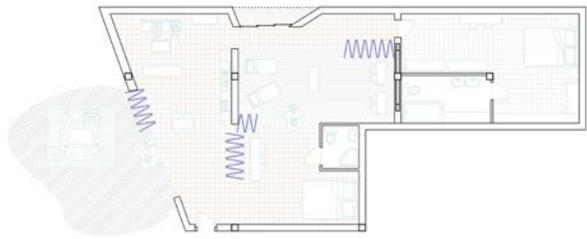
UPPER LEVEL

DOMESTIC SCENARIO FOR 1-2 PERSON : 2ND FLOOR SLEEPING/
WORKING SPACE



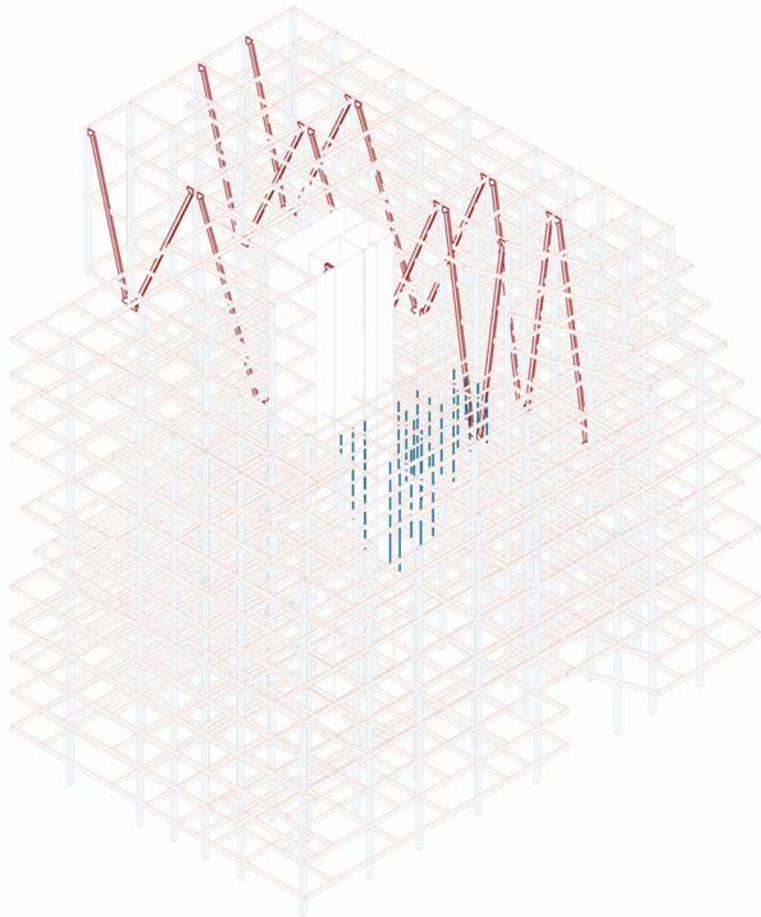
DOMESTIC SCENARIO FOR 2-3 PERSON: EATING/ENTERTAINING
SPACE



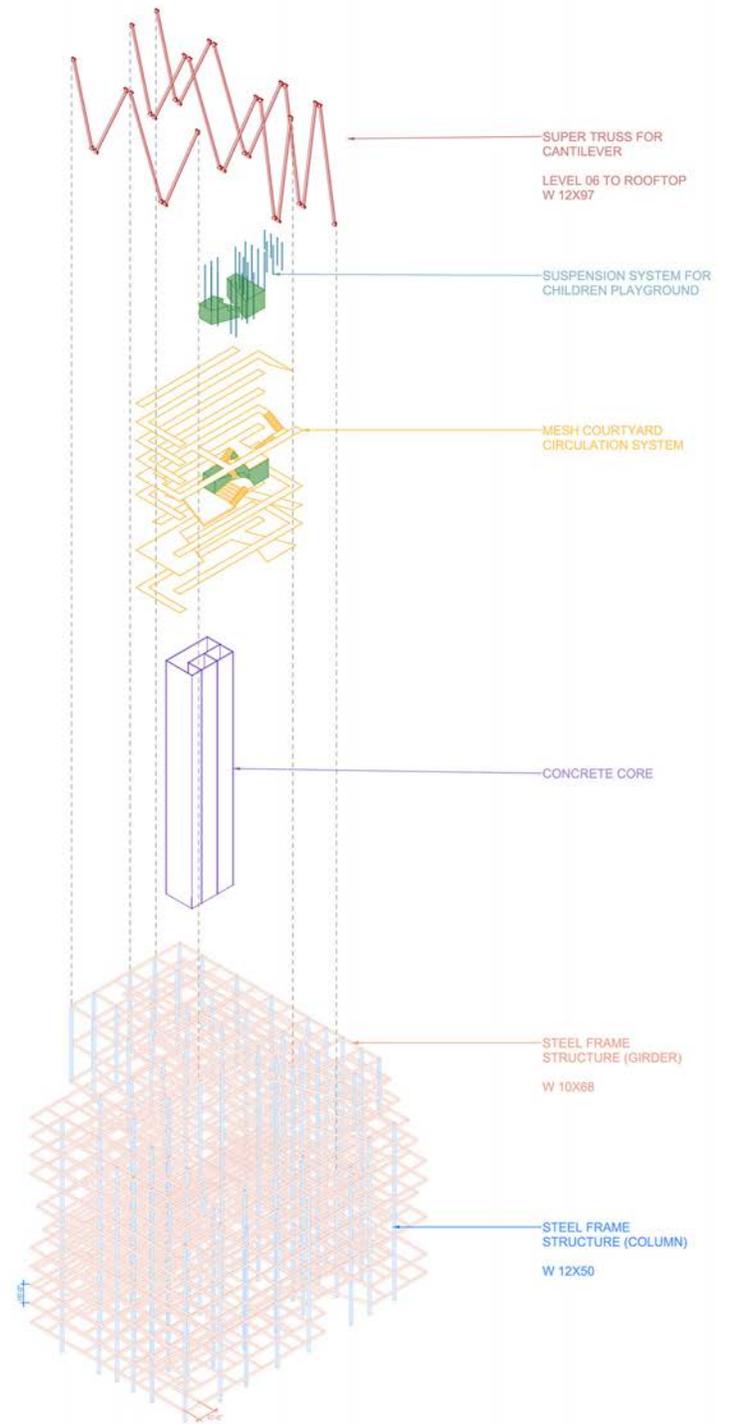


DOMESTIC SCENARIO 3: SLEEPING/WORKING SPACE

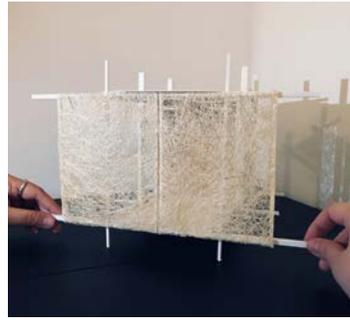
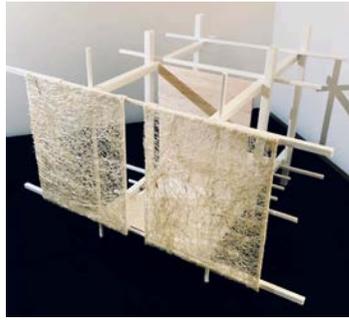
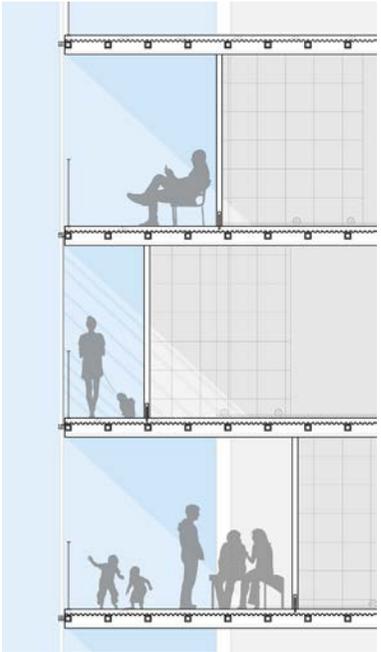




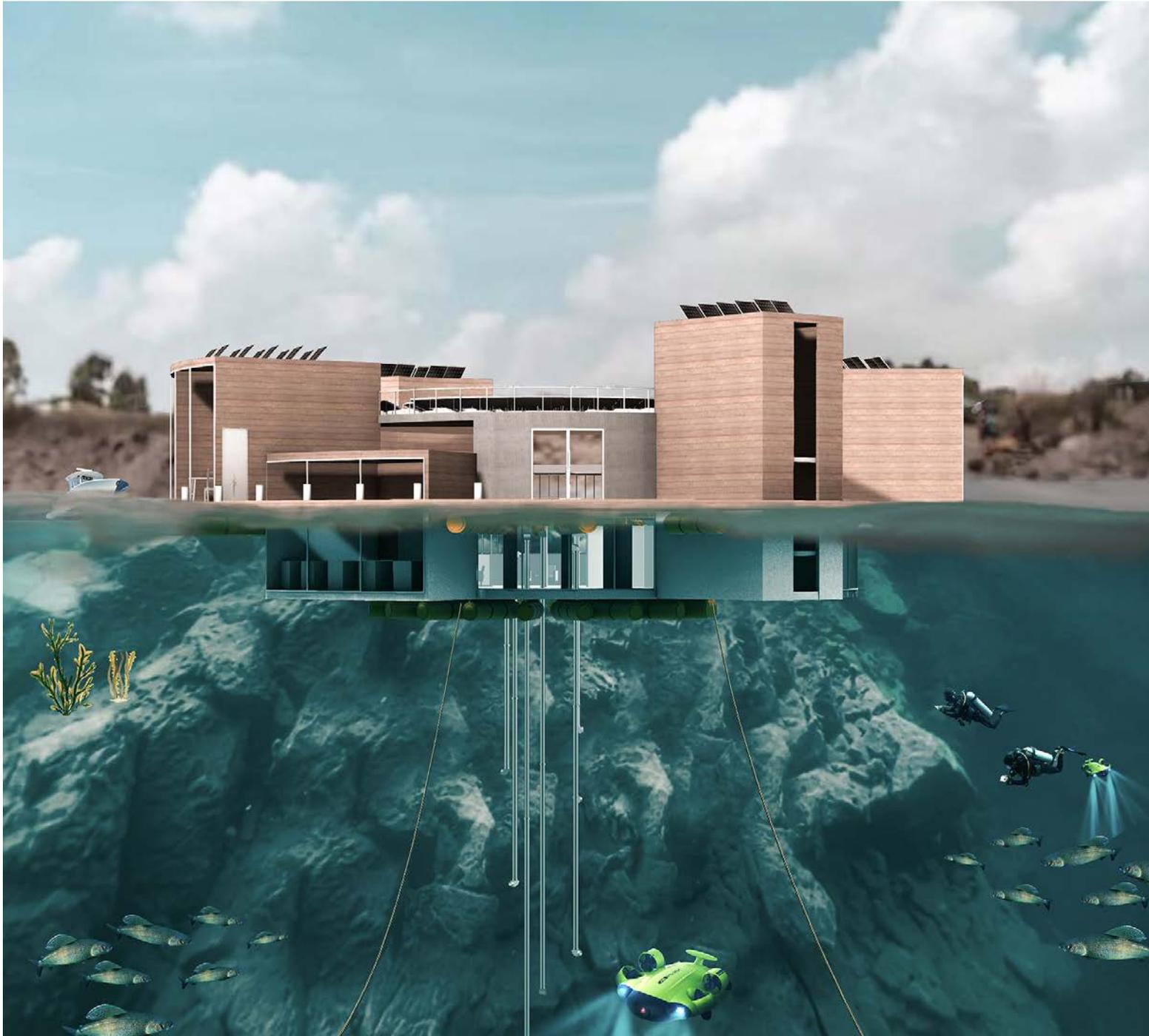
STRUCTURAL ANALYSIS: STEEL STRUCTURE AXON



STRUCTURAL ANALYSIS: STEEL STRUCTURE COMPONENTS EXPLODED AXON



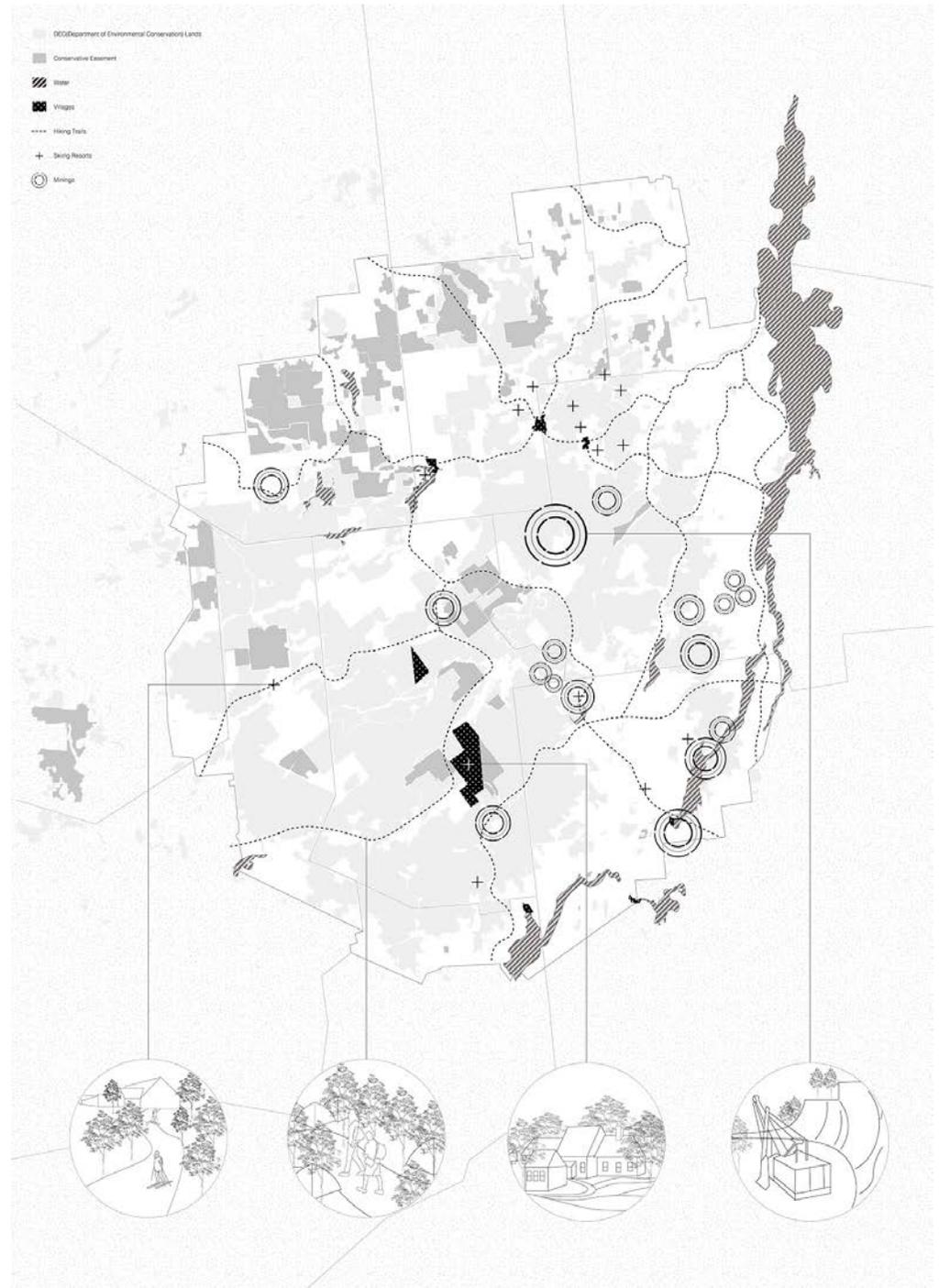
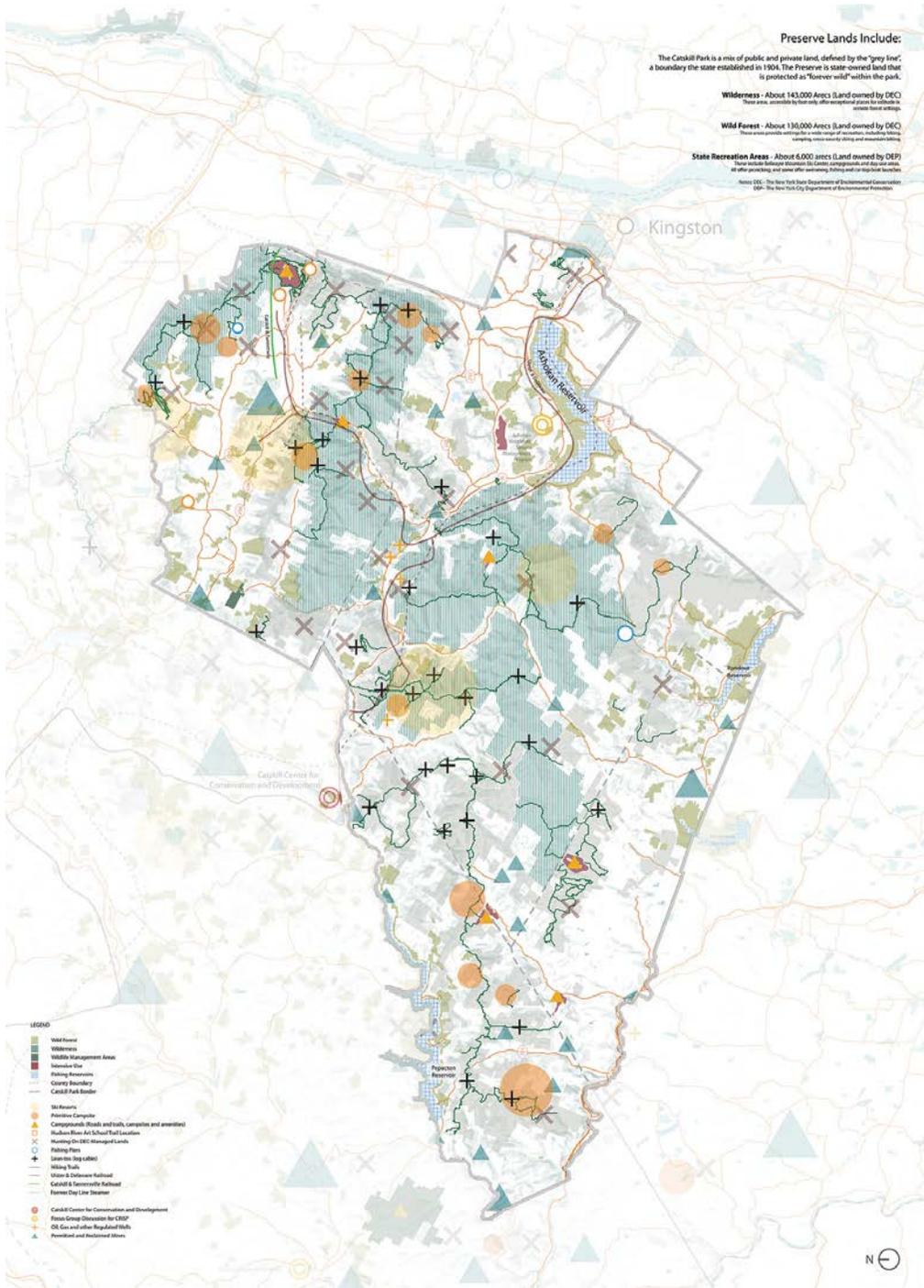
TAHAWUS EXTRACTION TRAIL

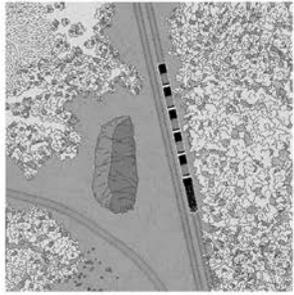


Sanctory Design
Group work with Duo Xu
Design Studio | GSAPP | 2021
Instructor: Nayhun Hwang
Site: New York, USA

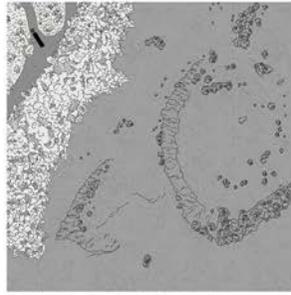
Tahawus is a former iron and titanium mine located in Adirondacks Mountain, Hudson Valley, abandoned since 1989.

This project focuses on the tremendous topography of Tahawus and challenges the notion of Adirondacks as natural and untouched sanctuary. Twelve small-scale field stations are designed reacting to different interfaces of extractive conditions. A new trail, connected to the existing scenic ones, is proposed to invite people into the untrodden mining area and experience the stations.

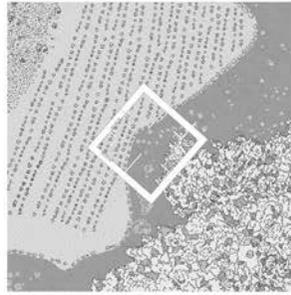




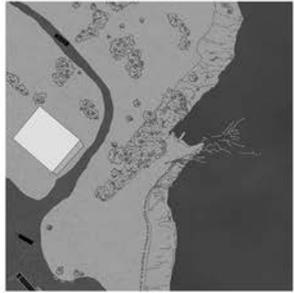
① FOREST — NAKED LAND — GRAVEL — TRAIN — FOREST



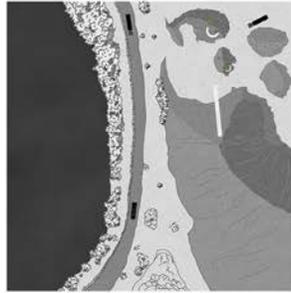
② FOREST — ROAD — FOREST — INDUSTRIES REMOVAL AREA



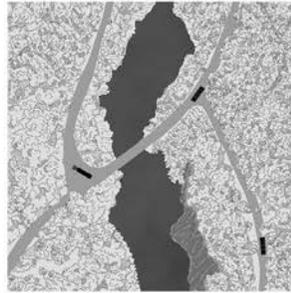
③ ARTIFICIAL RECOVERY LAND — NATURAL RECOVERY LAND — FOREST



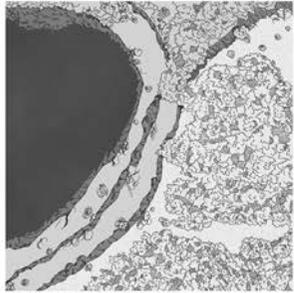
④ NAKED LAND — ROAD — NAKED LAND — MINE WATER



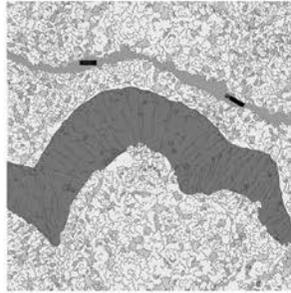
⑤ MINE WATER — NATURAL RECOVERY LAND — ROAD — TAILING PILE



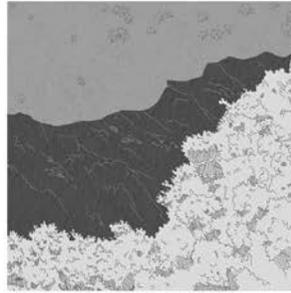
⑥ FOREST — ROAD — HUDSON RIVER — FOREST



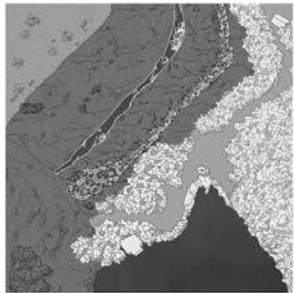
⑦ FOREST — MINE CHOPPED MOUNTAIN — MINE WATER



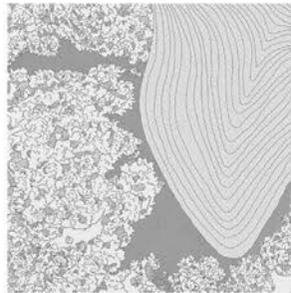
⑧ FOREST — ROAD — FOREST — GRAVEL SLOPE — FOREST



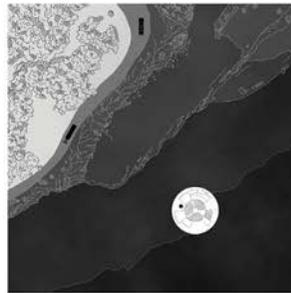
⑨ NAKED LAND — GRAVEL SLOPE — NATURAL RECOVERY LAND



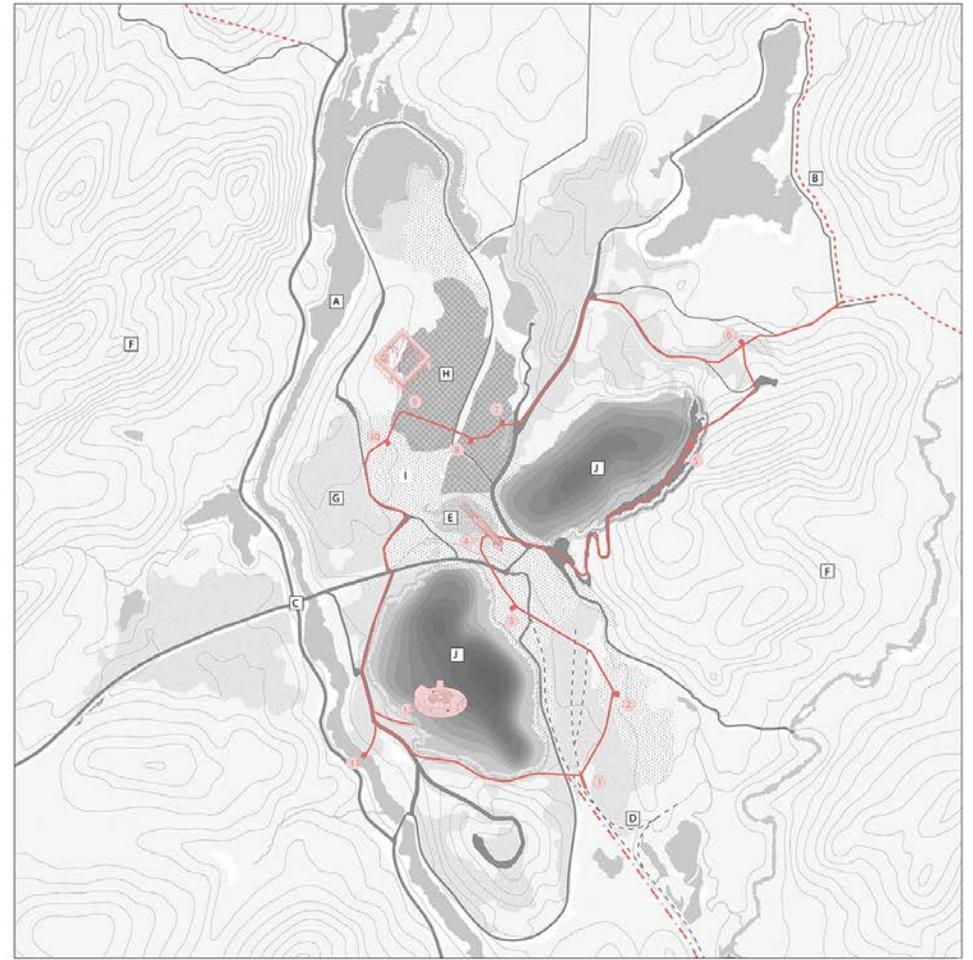
⑩ NATURAL RECOVERY LAND — GRAVEL SLOPE — ROAD — FOREST



⑪ FOREST — ARTIFICIAL RECOVERY LAND



⑫ NATURAL RECOVERY LAND — ROAD — GRAVEL — MINE WATER



A. RIVER



B. TRAIL



C. ROAD



D. TRAIN



E. TAILING PILE



F. NATURAL FOREST



G. NATURAL RECOVERY



H. ARTIFICIAL RECOVERY

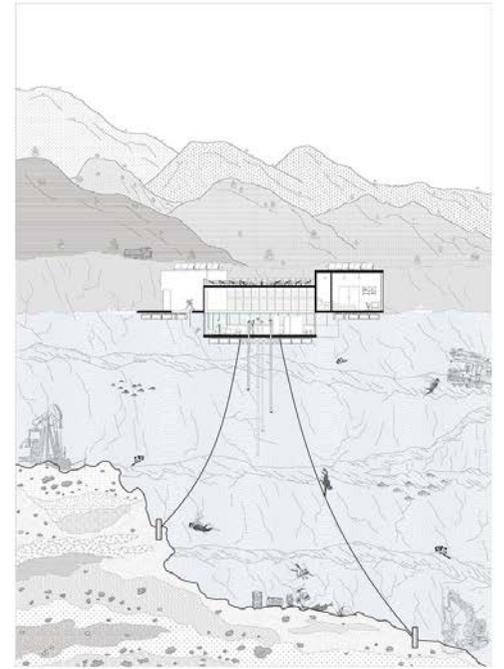
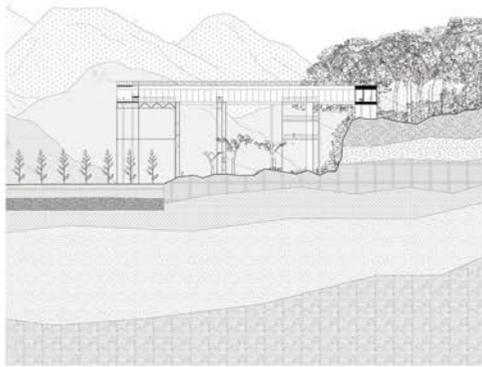
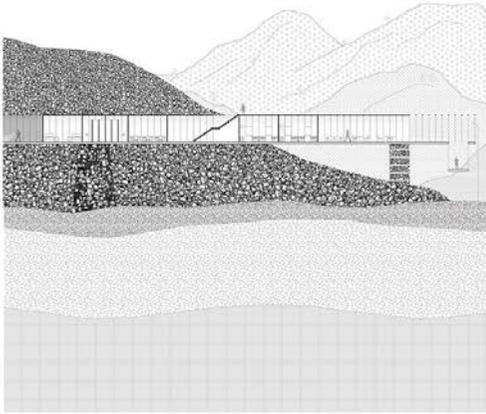
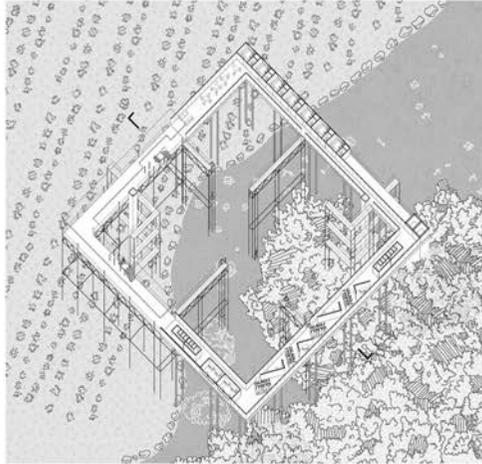
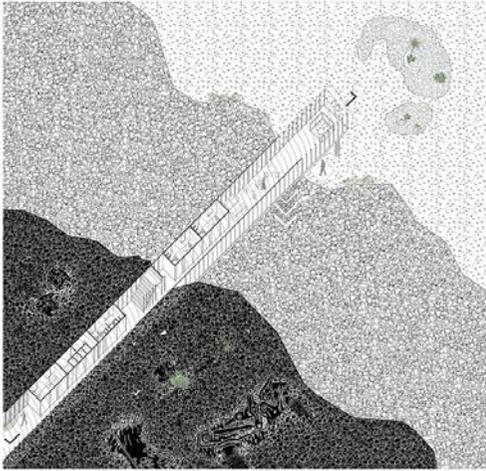


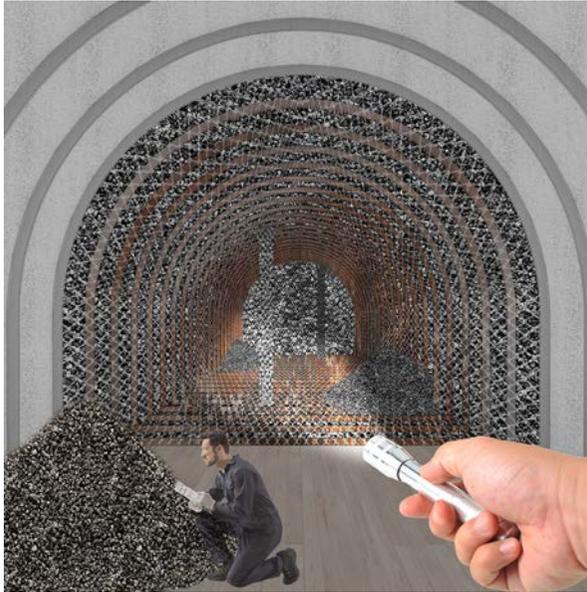
I. NAKED LAND



J. MINE







NEW SCHOOL OF ATHENS



Infrastructure Design
Group work with Yangxi Liu
Design Studio | GSAPP | 2022
Instructor: Michael Bell
Site: New York, USA

Instead of covering the CBE with a park, we are forward to provide a more temporary and affordable structure to across it and wait for the frog leap on technology, which will temporarily solve the safety, noise and pollution problem. This space will transfer CBE with a inflable light belt and chain-link theme playground for kids and those original playground can change to indoor "school of Athens" for different educational program. What we want to create is the opportunity to meet art and fundamental science in the city for those children who used to be uninterested or hard to contact with them.



Number and Percent of Students Homeless



Increase in Number of Homeless Students



Geographic Patterns of Math Proficiency



Four-Year Graduation Rate of Homeless Students



Daycare in Bronx



Public School in Bronx



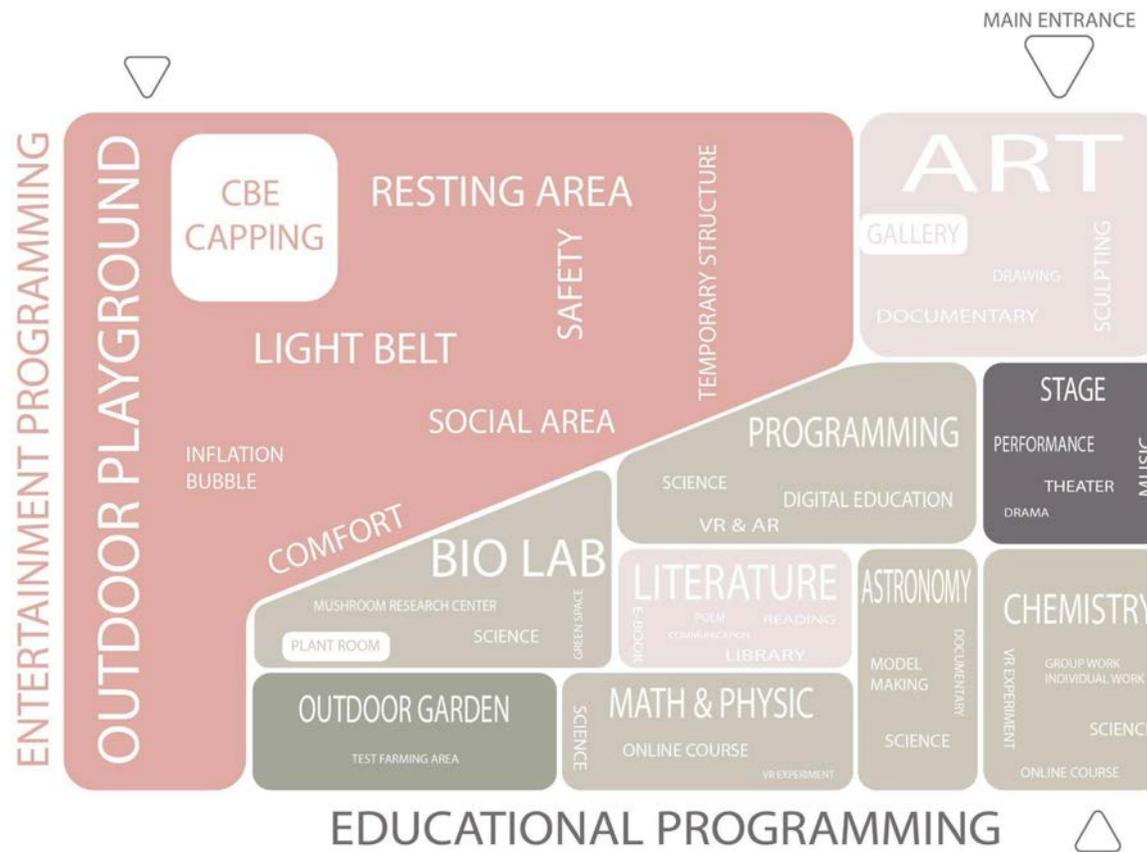
Site Location

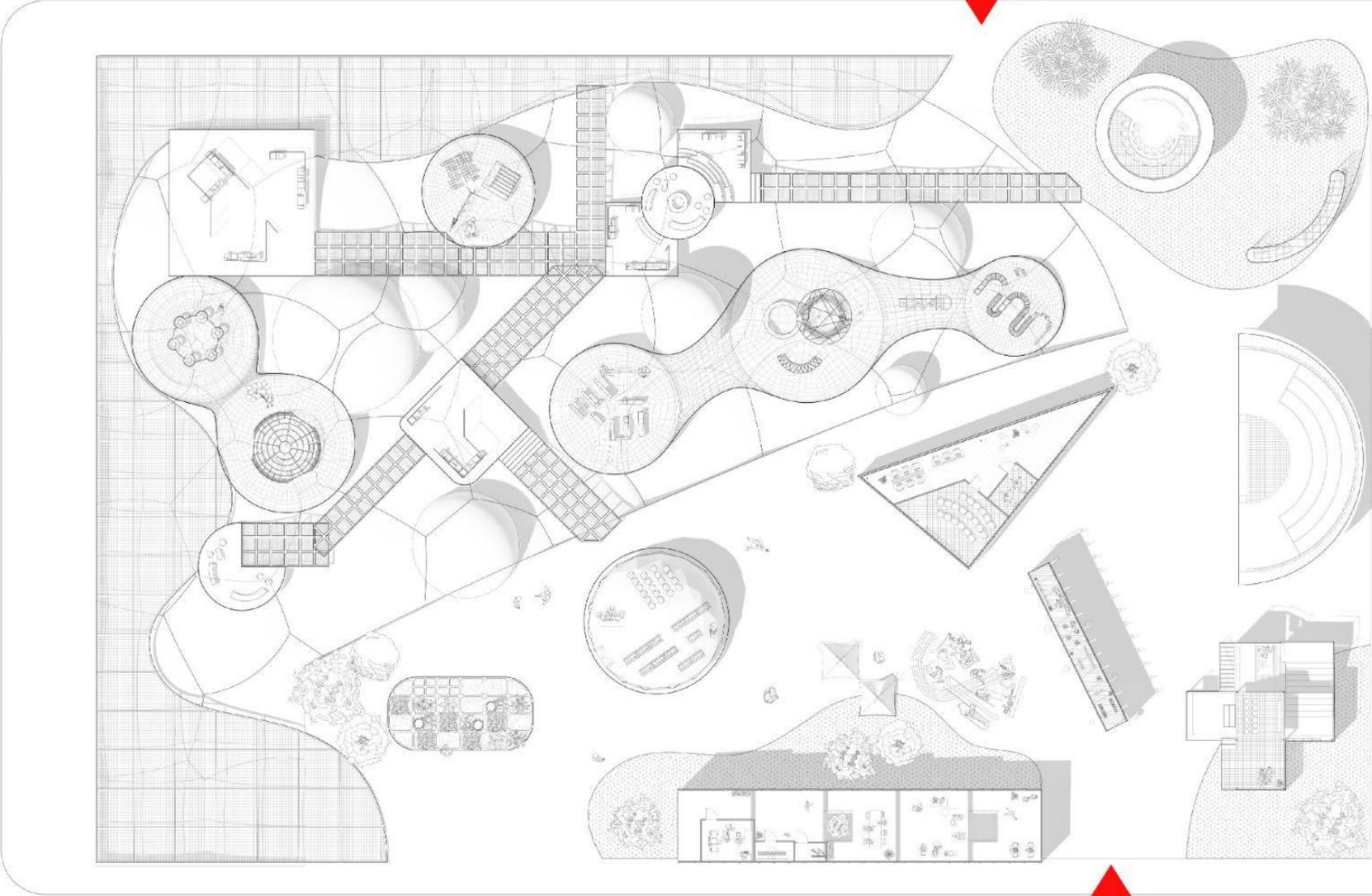


250m
0 250m



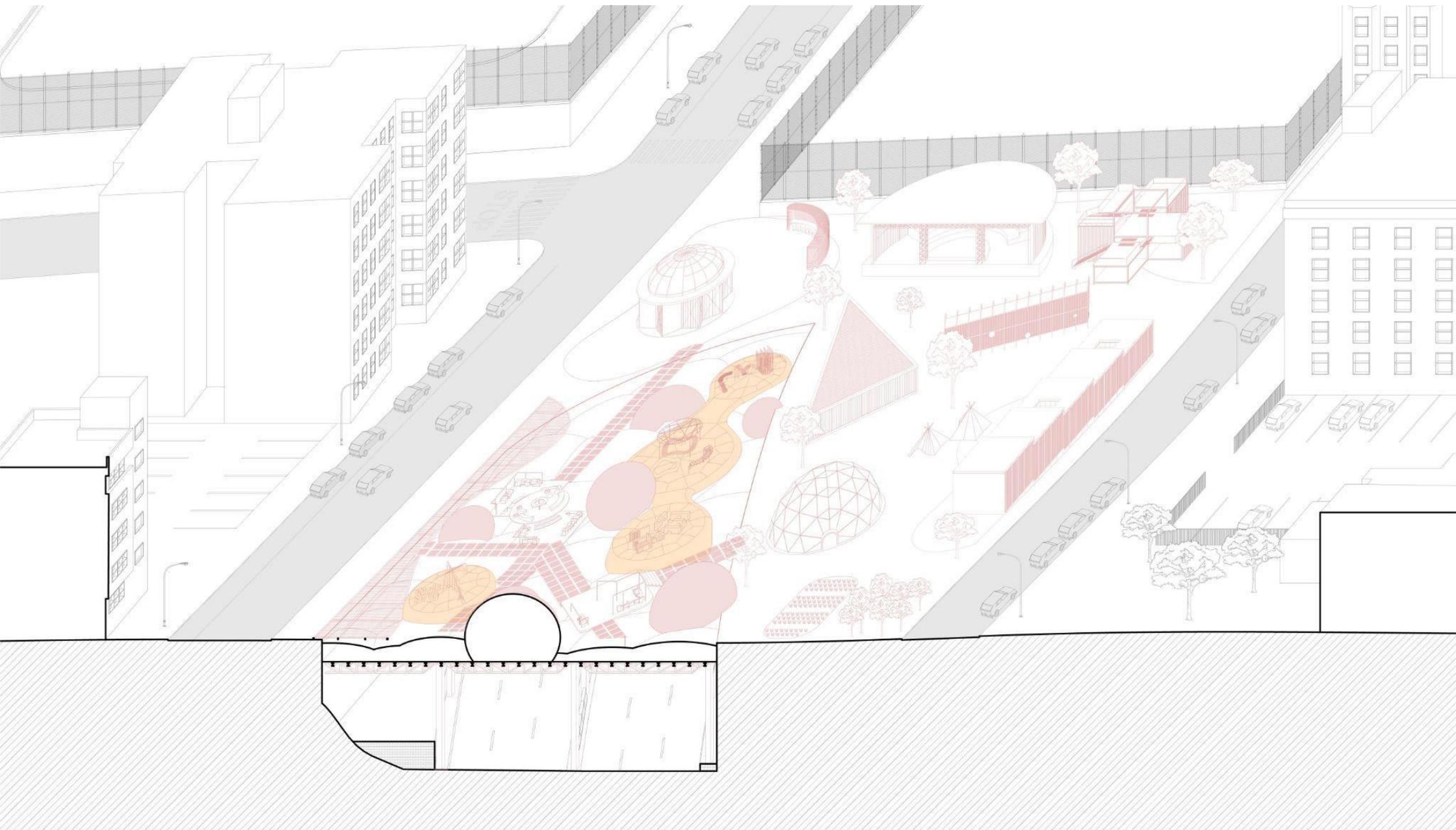




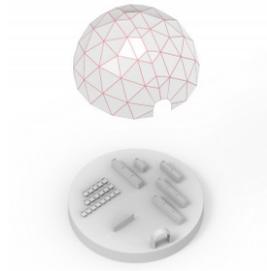


10m

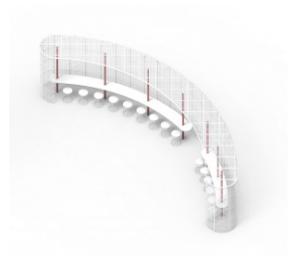




Section Axonometric



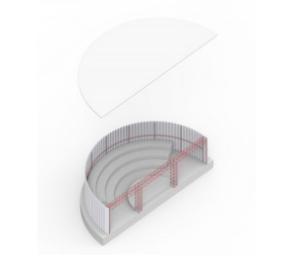
Bio Lab



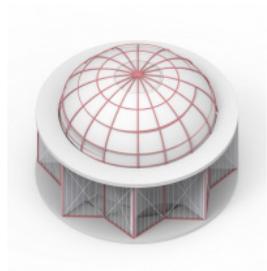
Food Bar



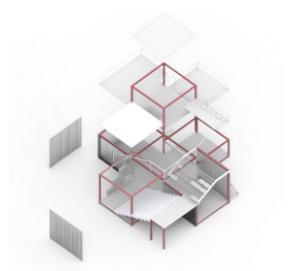
Literature & Art



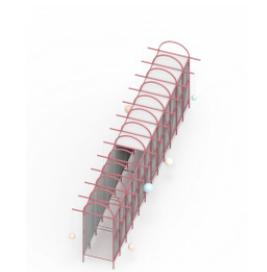
Stage



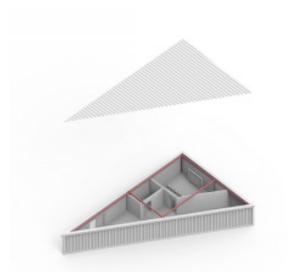
Library



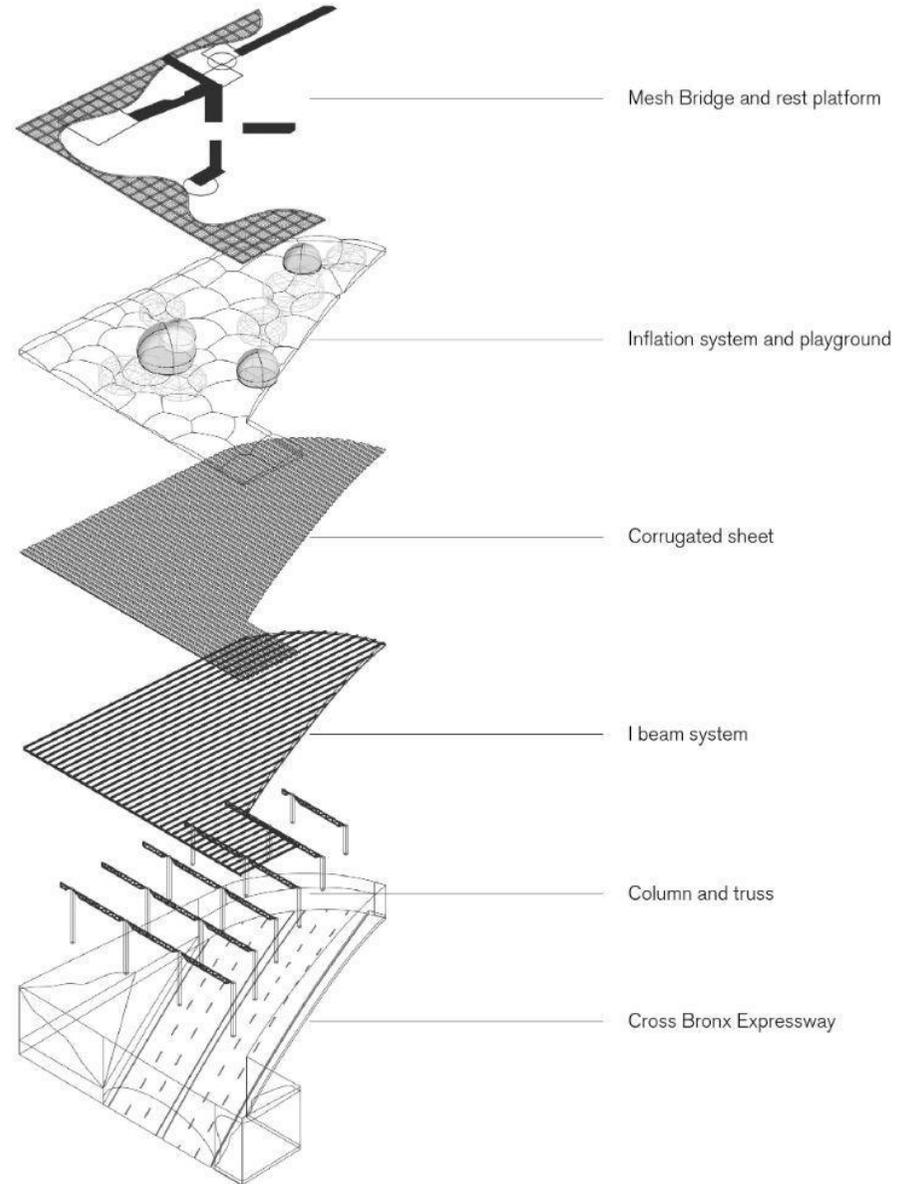
Science



Art Gallery



VR Room



MUSEUM OF LEARNING

Renovation Design
Group work with Xi Jin and Minsoo Jeon
Design Studio | GSAPP | 2023
Instructor: Galia Solomonoff
Site: Buenos Aires, Argentina

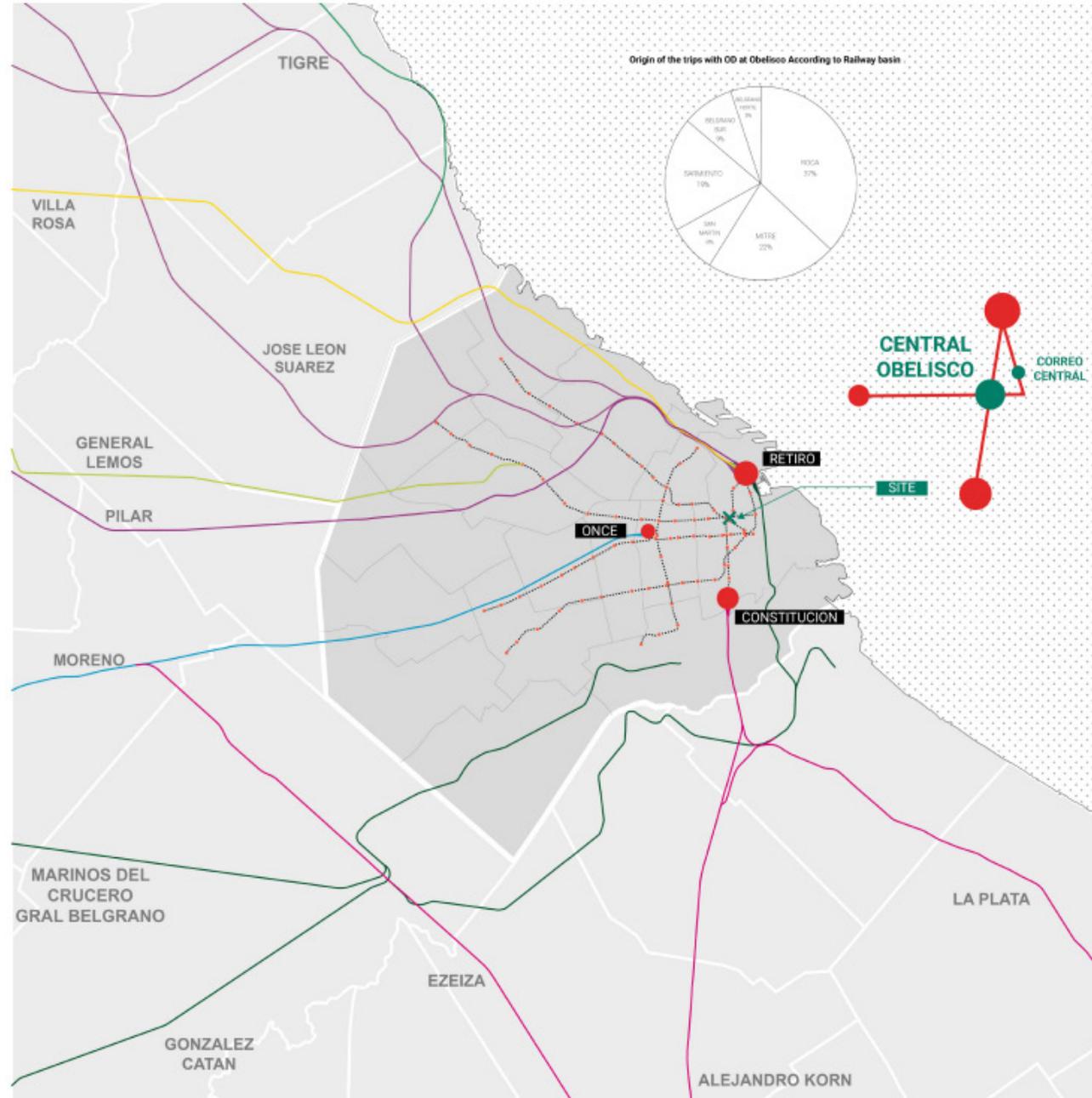
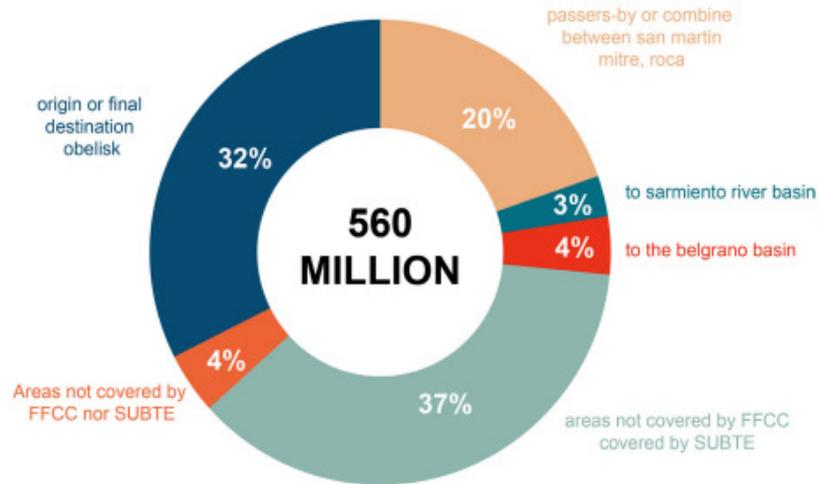
Edificio Del Plata is an abandoned municipal building in central Buenos Aires. Given the publicity and accessibility of the site, this proposal suggests a transformation for a career-oriented urban learning facility that aims to reduce the current mismatch between education and occupation by providing information, certificate training, and career consulting services. The building provides different scales of learning facilities from classrooms for small groups, labs, and production studios, to auditoriums for hundreds of people. Public and private are considered not binary but a spectrum of experiences. The building promotes a new style of learning with no time limits and commitments. The structural strategy includes reinforcing existing columns, inserting new systems, and adding structurally independent volumes and a new core.



Site Condition

transportation

CENTRAL OBELISCO STATION



EDUCATION IN CITY OF BUENOS AIRES:

TOTAL NUMBER OF UNIVERSITIES: 42

DROPOUT: 73%
ATTENDANCE AT LEAST 75%

UNDERGRADUATE AND GRADUATE DEGREE
GRADUATE AVERAGE CALENDAR YEAR



STUDENTS, PROGRAMS BY BRANCH OF STUDY

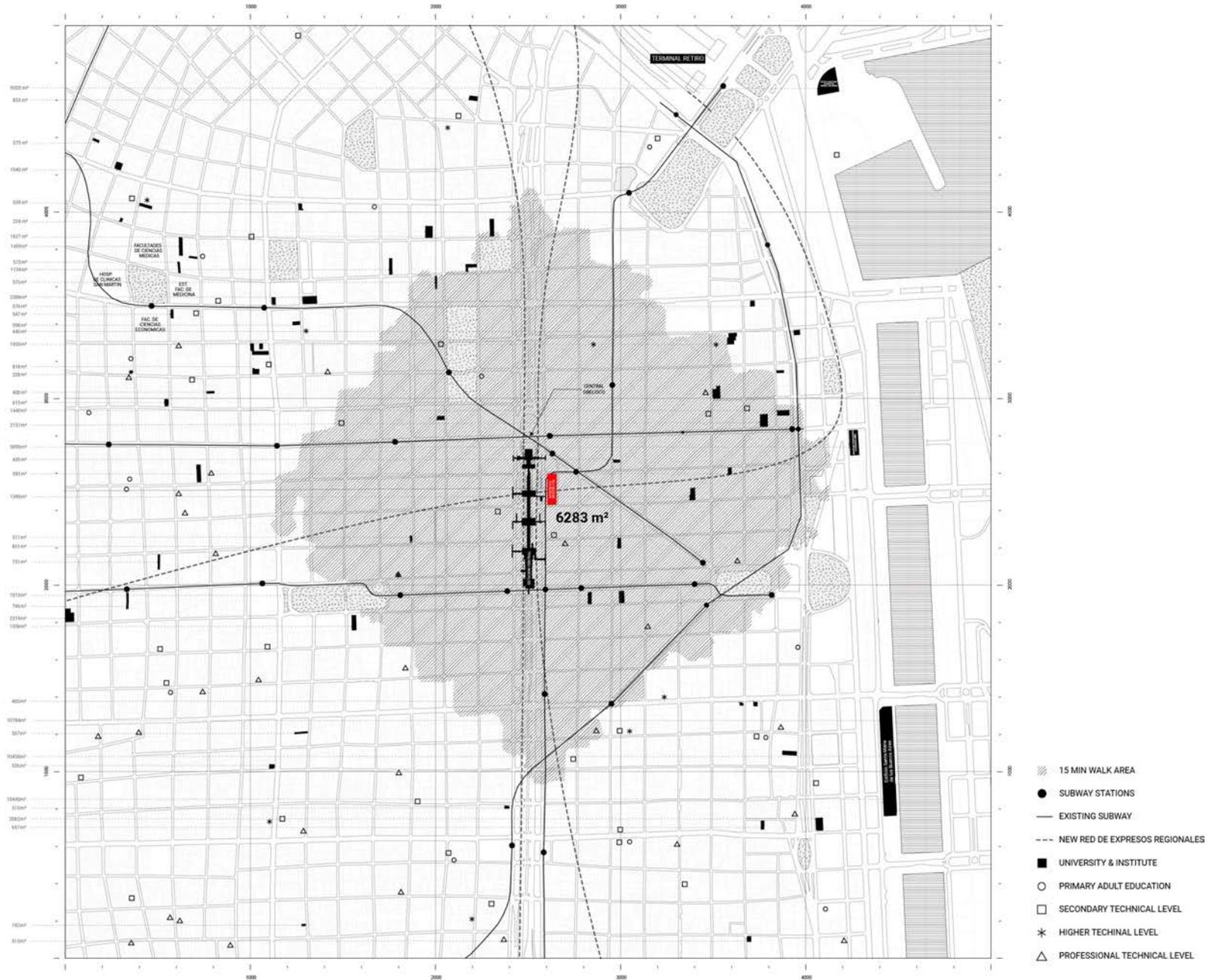
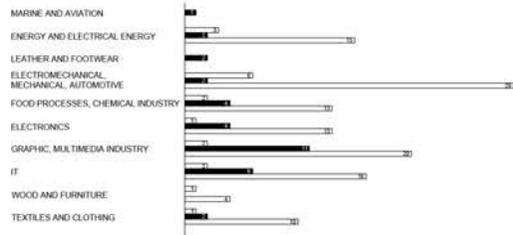


TOTAL NUMBER OF QUALIFICATIONS: 173

TVET NUMBER OF DEGREES AND ENROLLMENT IN BUENOS AIRES

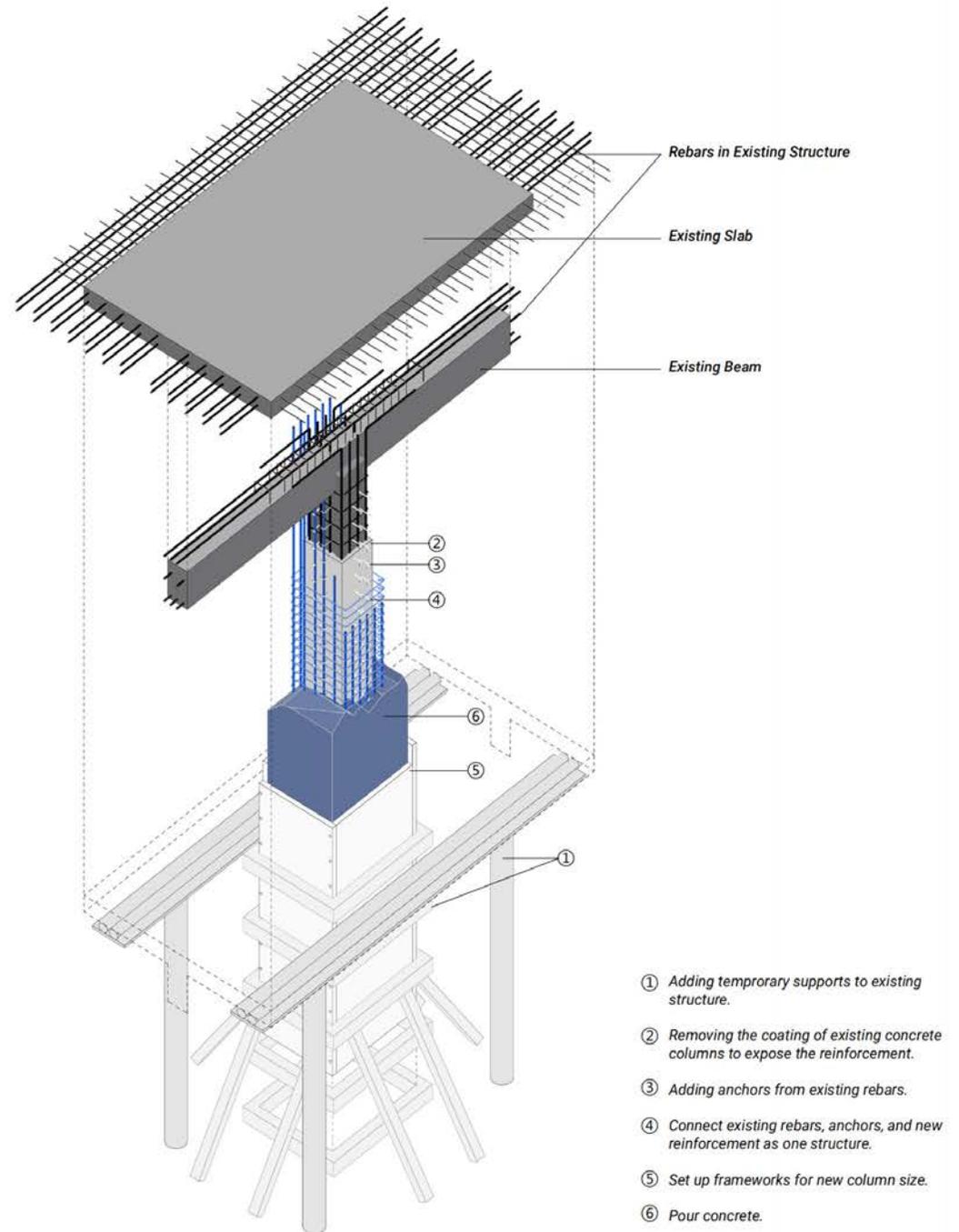


TVET SCHOOL NUMBER BY SECTOR IN BUENOS AIRES



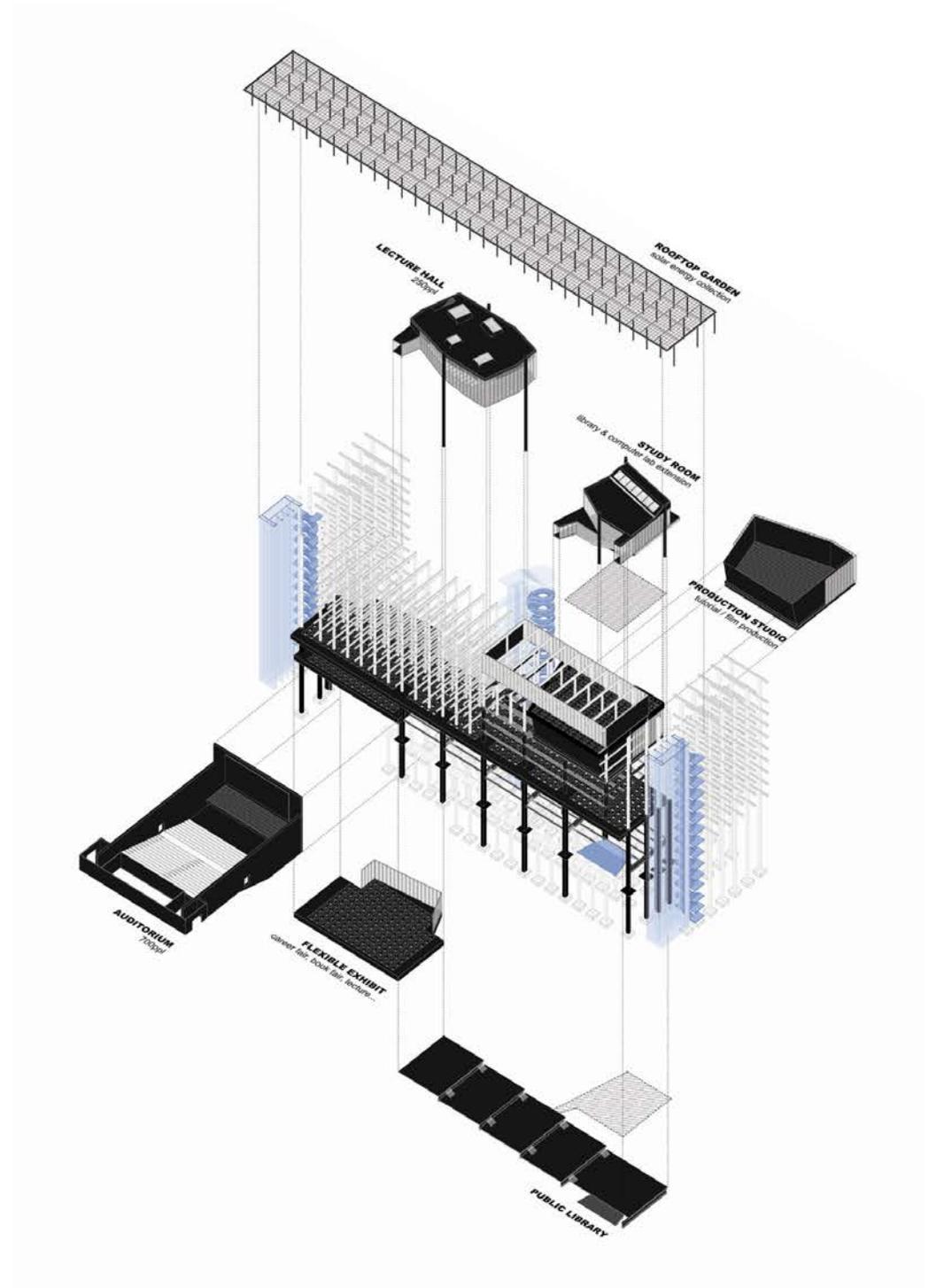
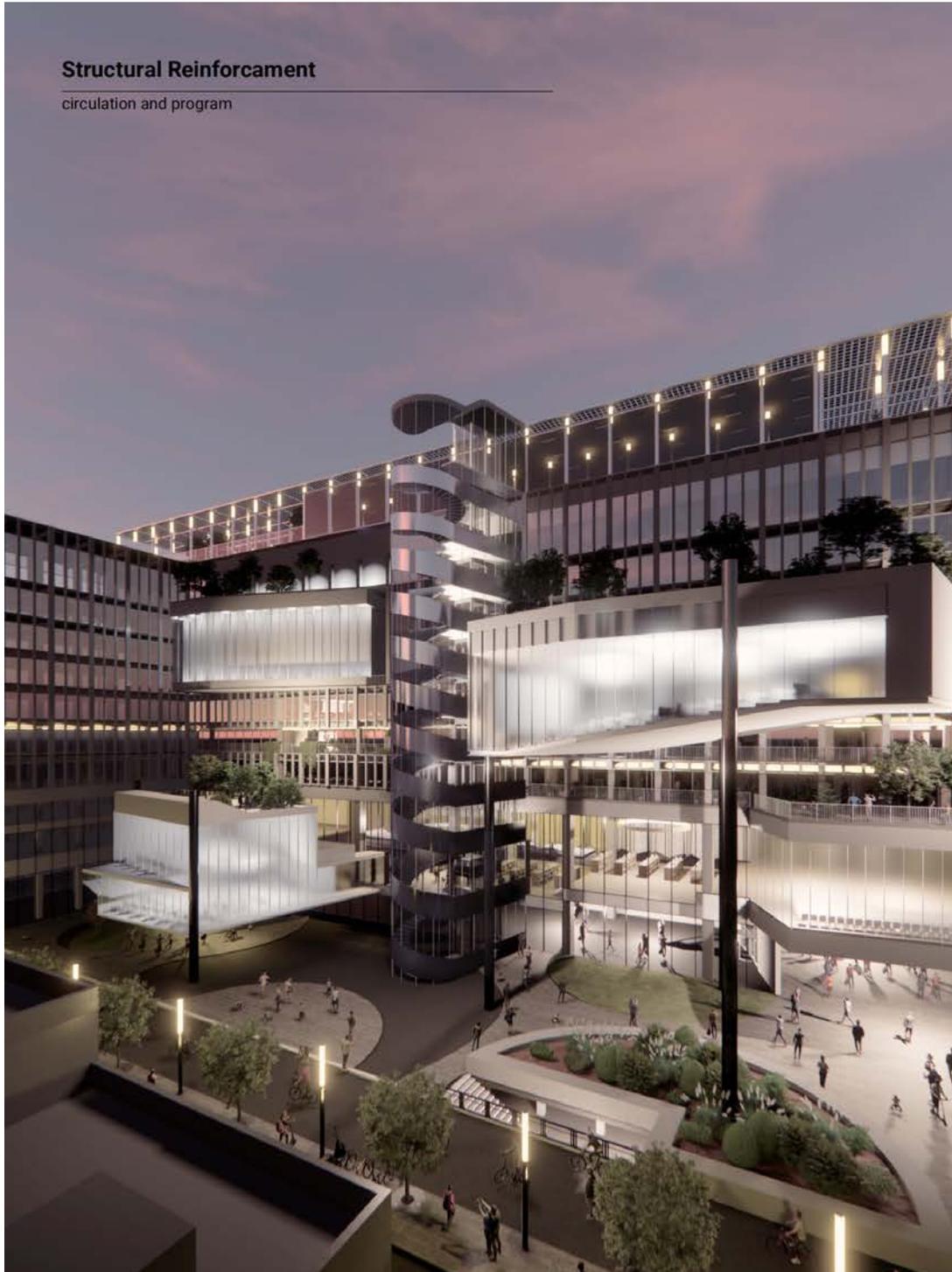
Structural Reinforcement

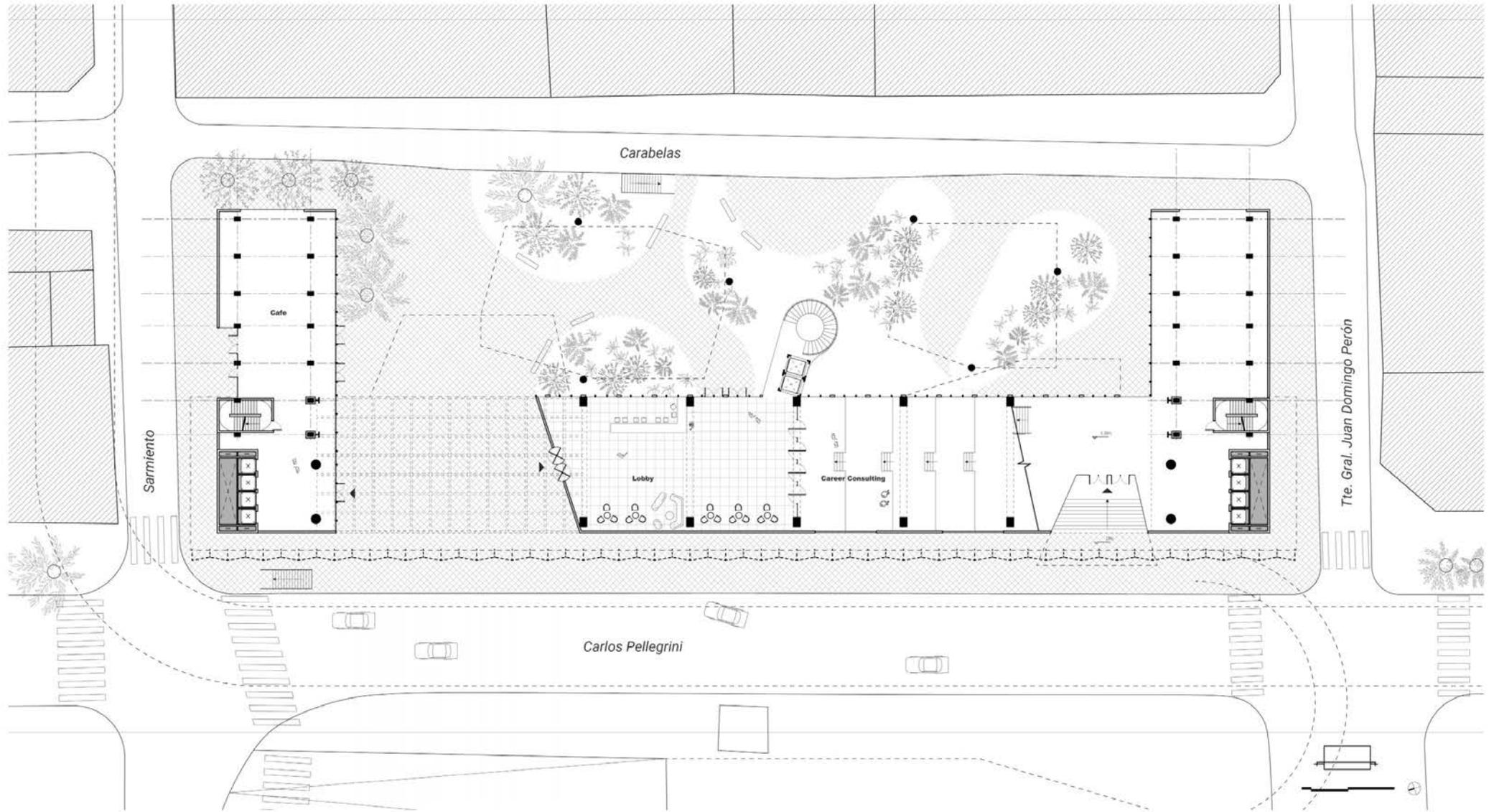
concrete column reinforcement procedure



Structural Reinforcement

circulation and program

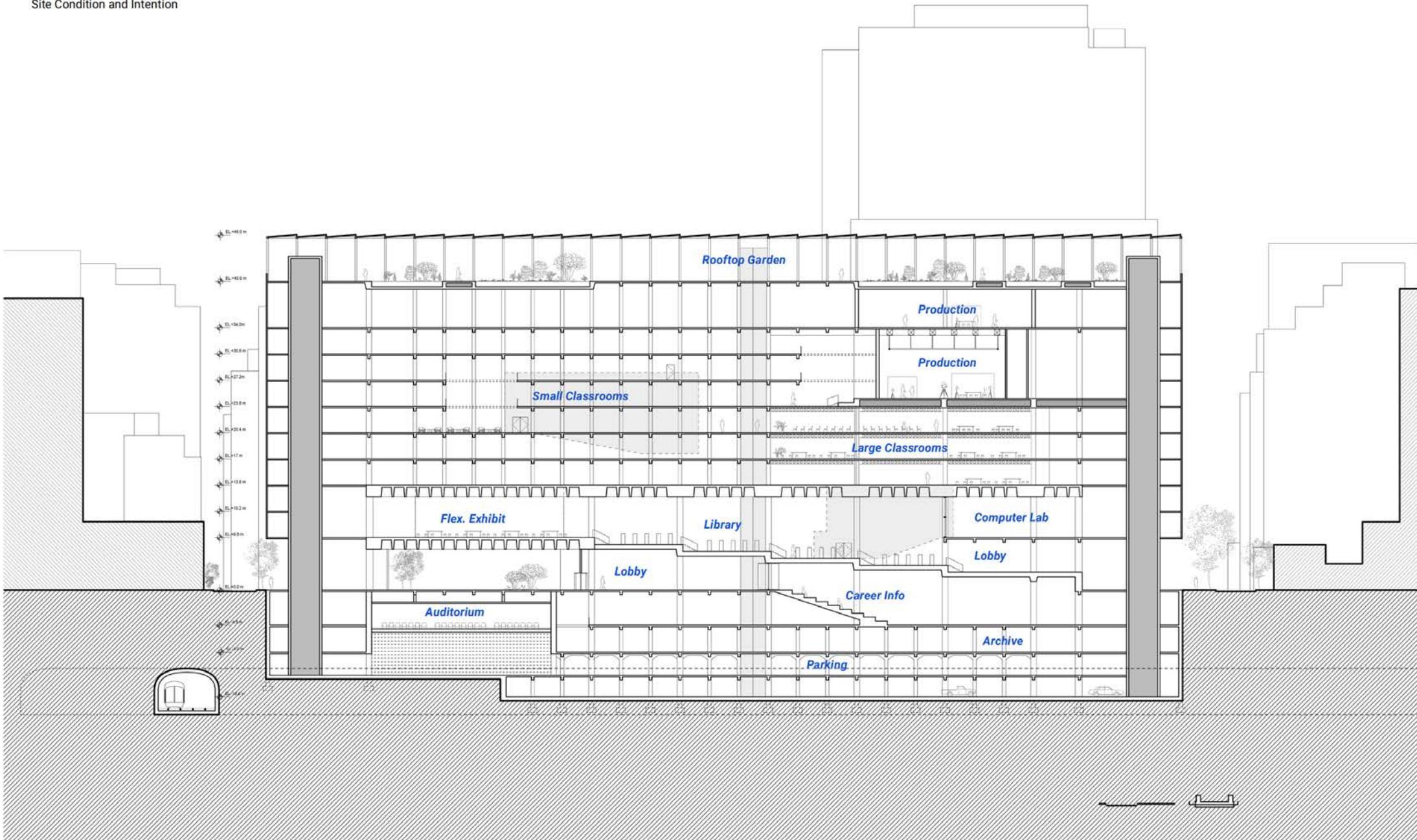




Transportation & Connectivity

Site Condition and Intention

Long. Section



Facade Strategy

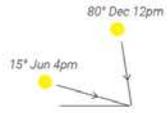
openess and connectivity

West Facade



Natural Ventilation & Facade System

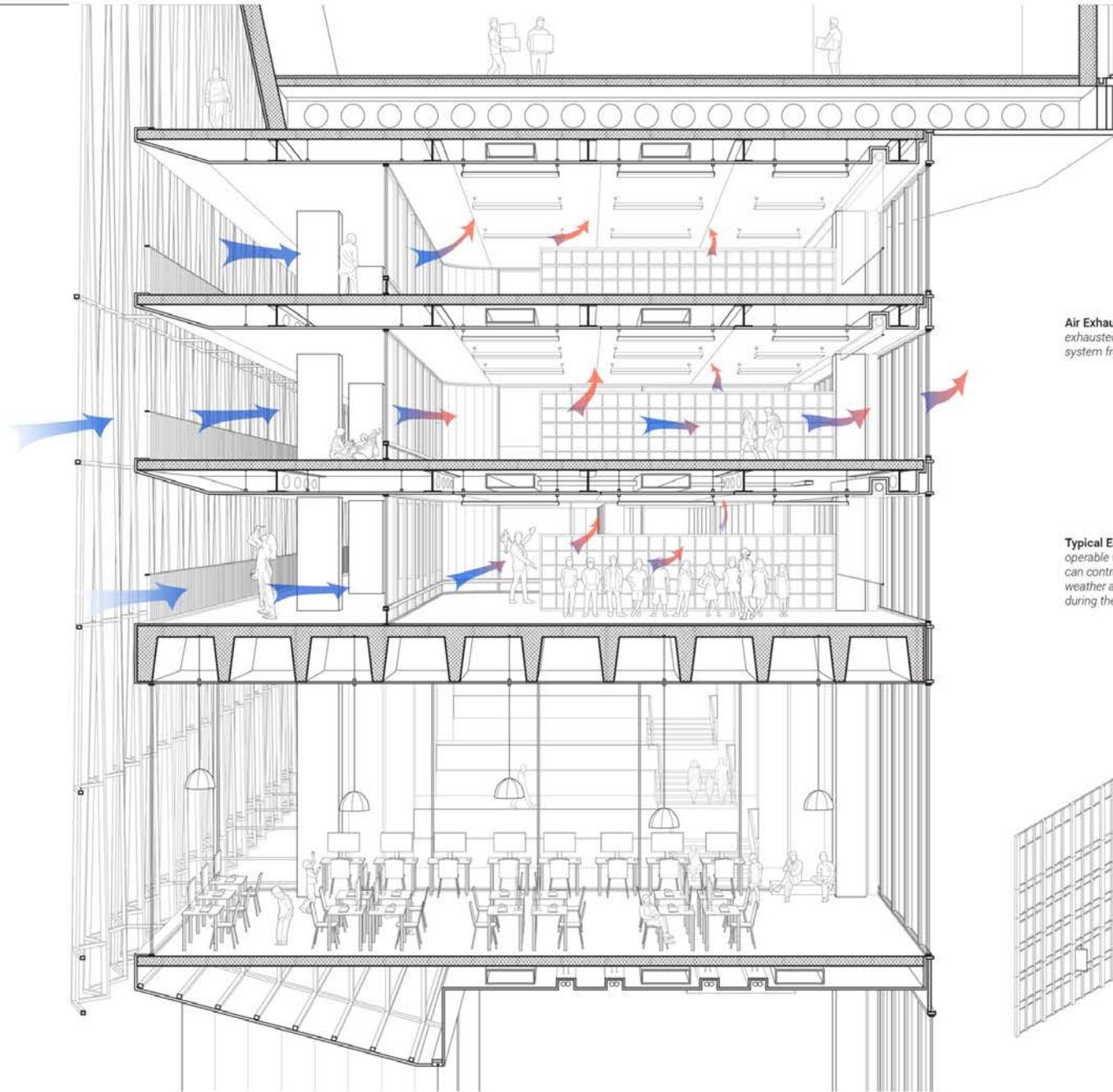
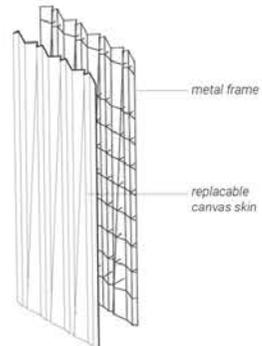
as the bridge of public & private



West Facade as Shading Tool
the front facade is a layer of fabric that allows air to travel through.

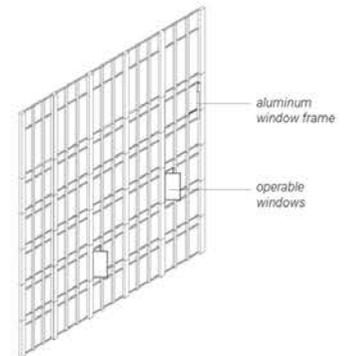
Fresh Air Intake
to take advantage of the narrow width of the building, fresh air flows through the shade and operable windows of classrooms.

Recessed Outdoor Space
on medium-sized classroom levels, glass facade is pushed back to allow more outdoor space.



Air Exhaustion
exhausted air ventilates back to system from the ceiling.

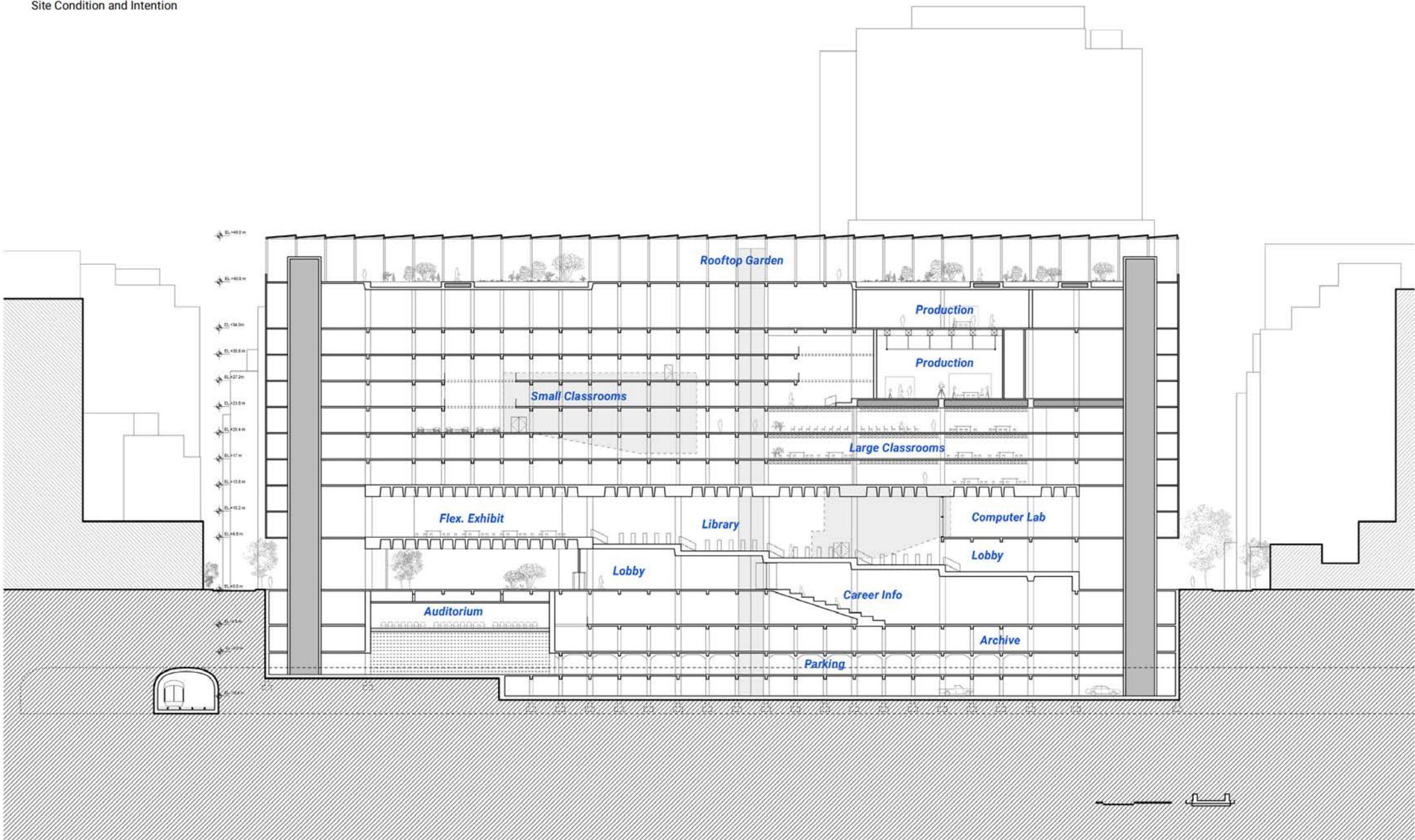
Typical East Facade
operable windows with clear glass can control the air flow in pleasant weather and maximize daylight during the day.



Transportation & Connectivity

Site Condition and Intention

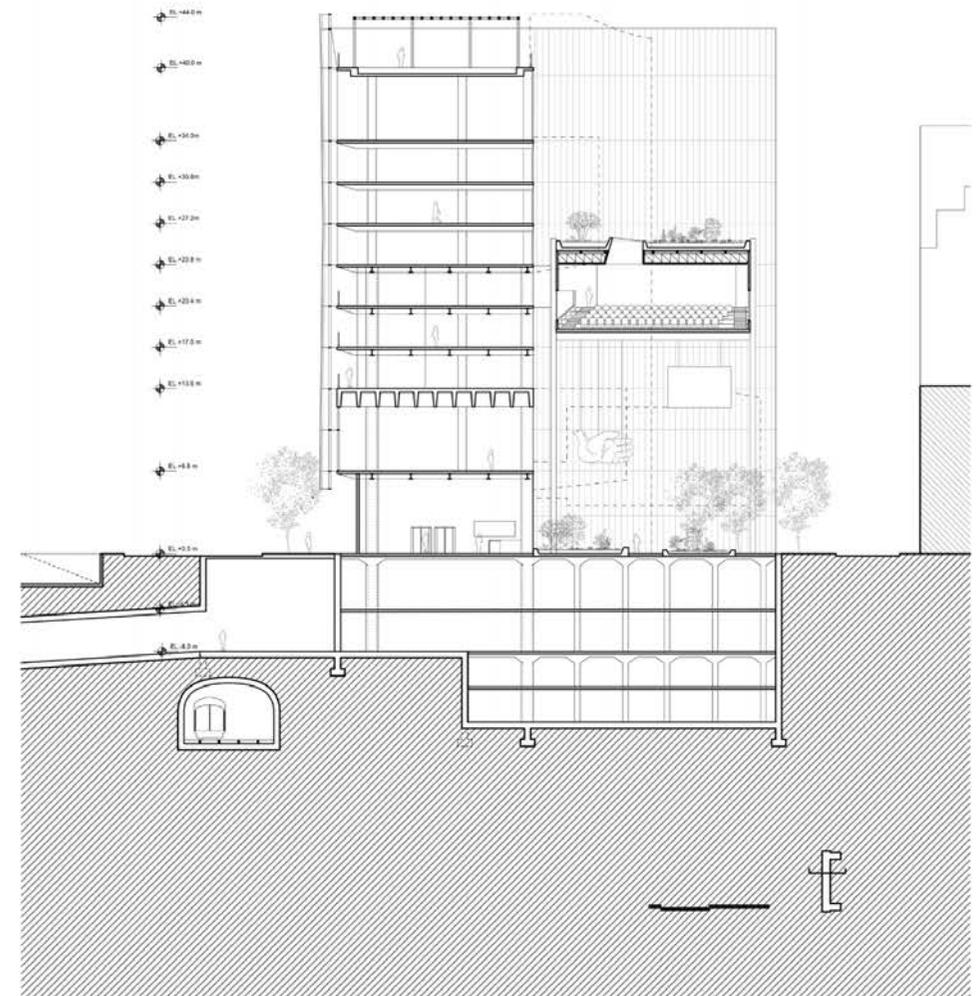
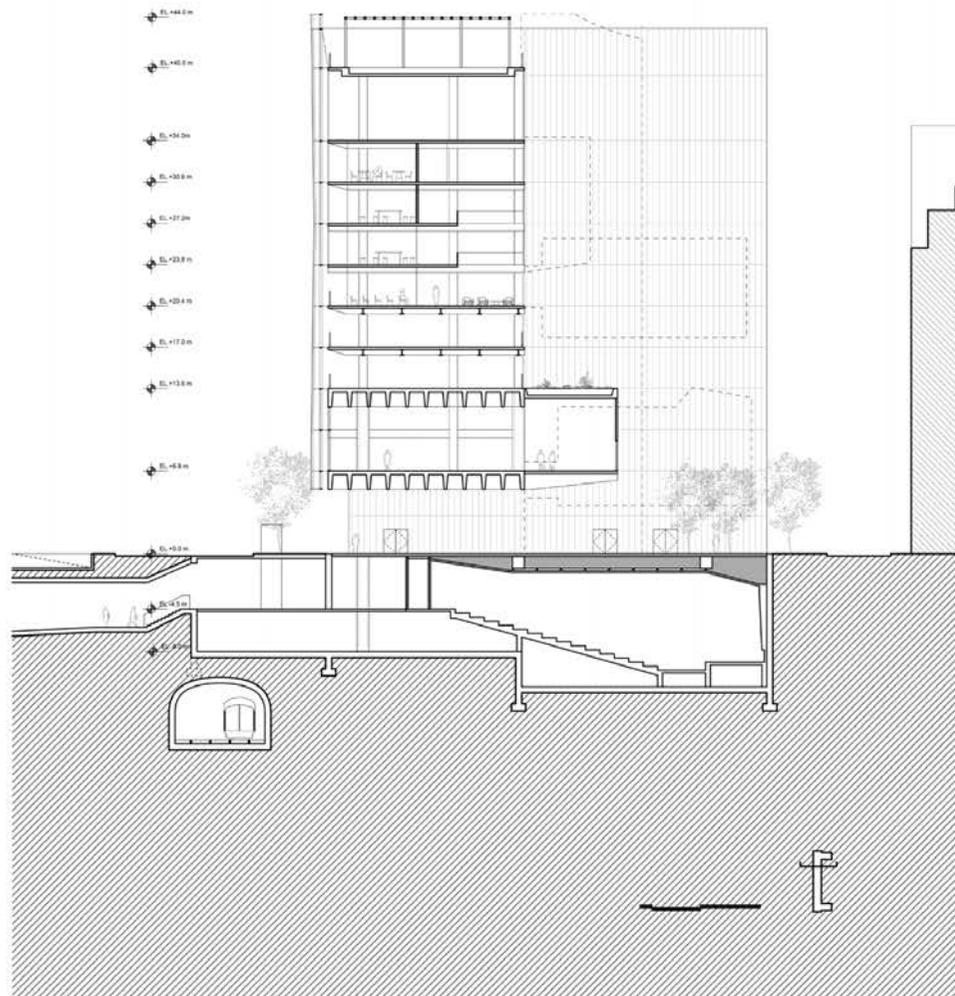
Long. Section



Transportation & Connectivity

Site Condition and Intention

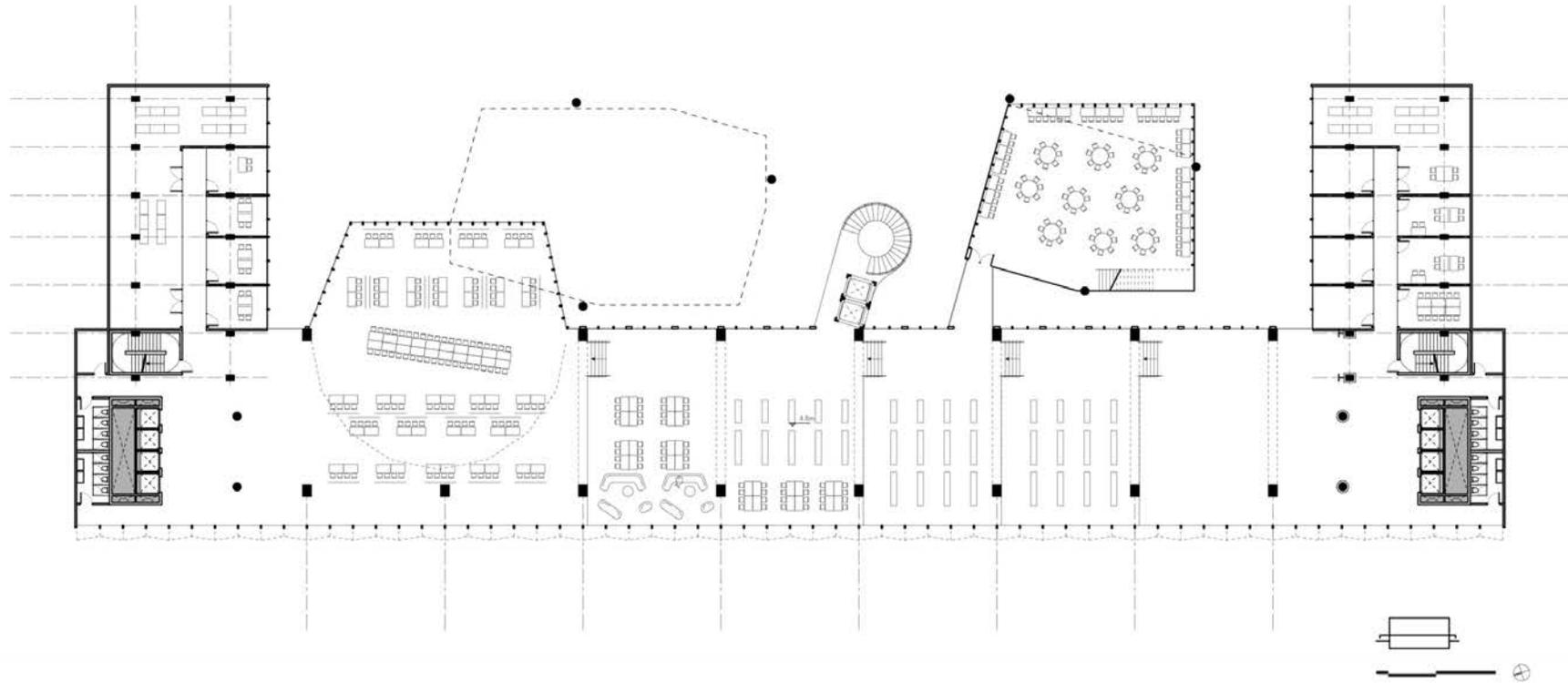
North + Mid. Cross Section



Program and Connections

as the bridge of old and new

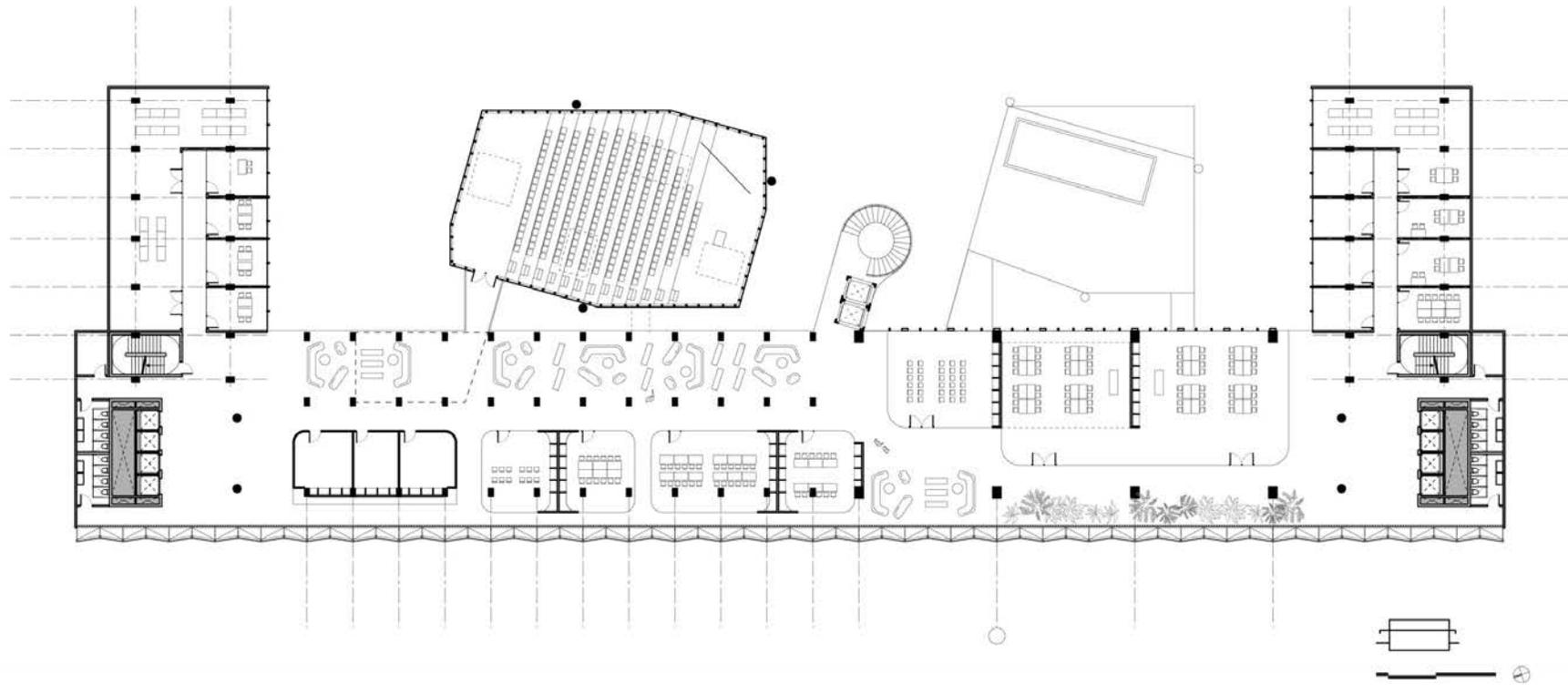
F3



Program and Connections

as the bridge of old and new

F7



Program and Connections

as the bridge of old and new

F9

