

PORTFOLIO OF MUYU WU

*M.Arch Portfolio Submission
GSAPP Columbia University*

Selected works from 2019-2022

CONTENTS

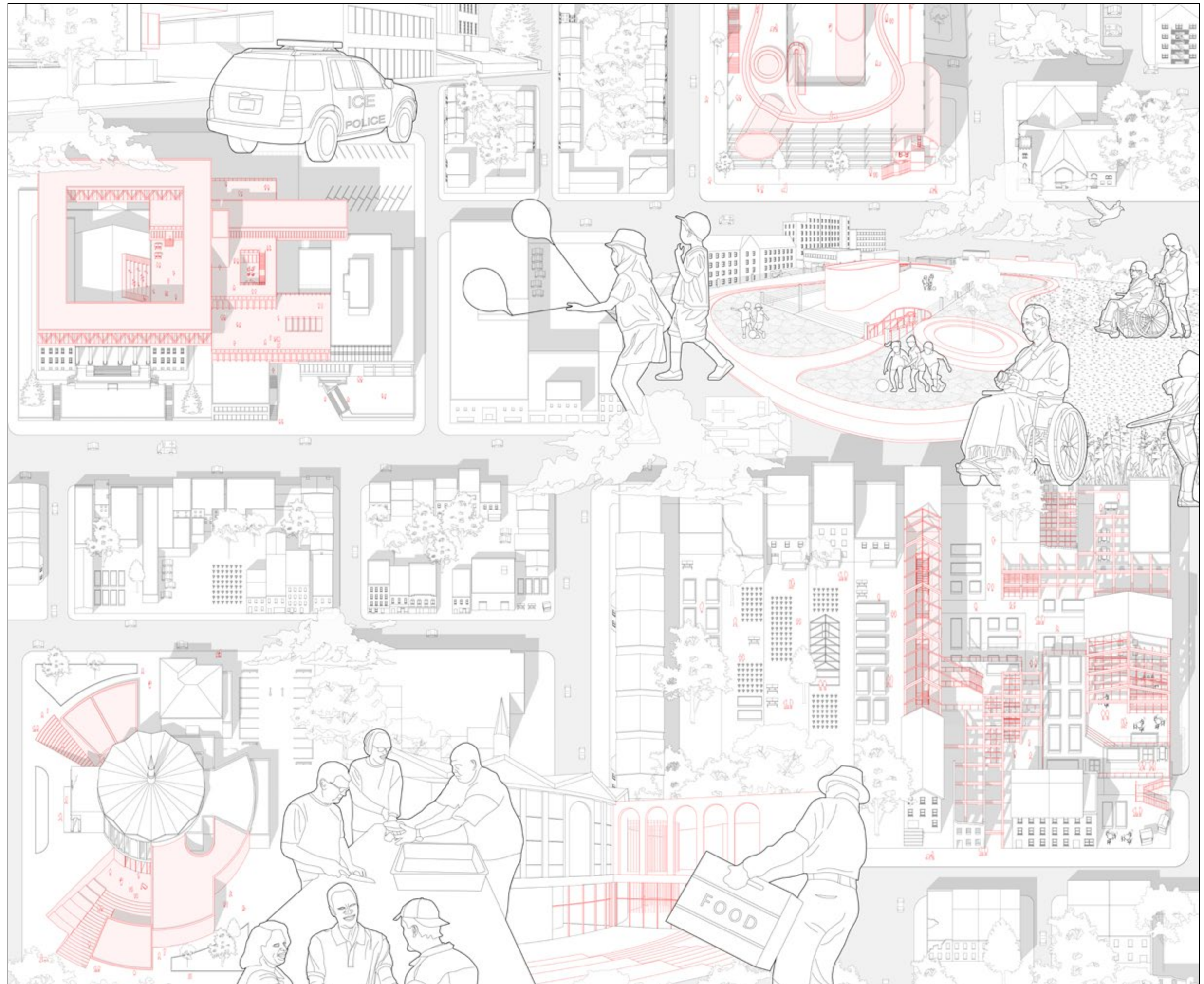
Academic Work

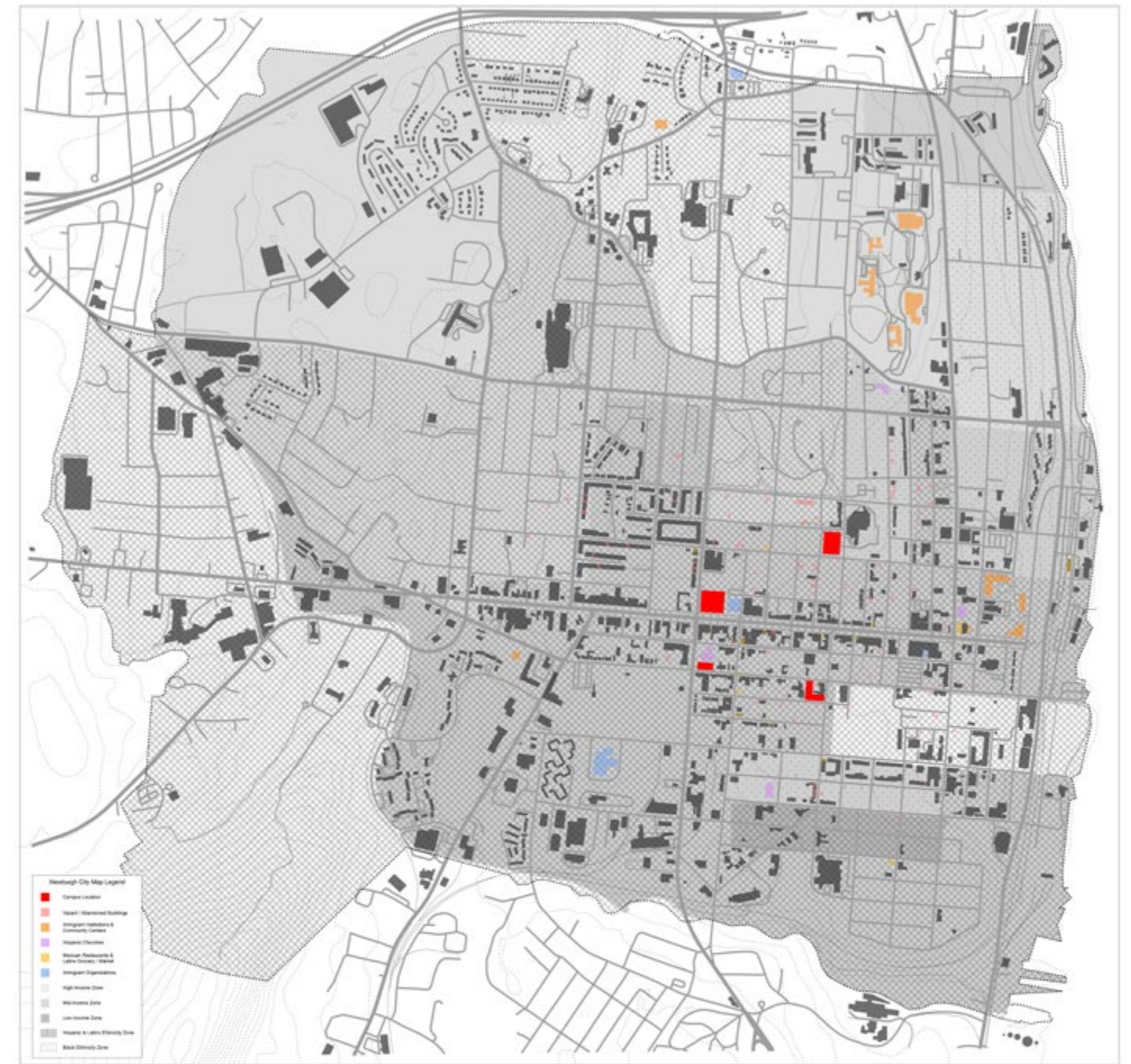
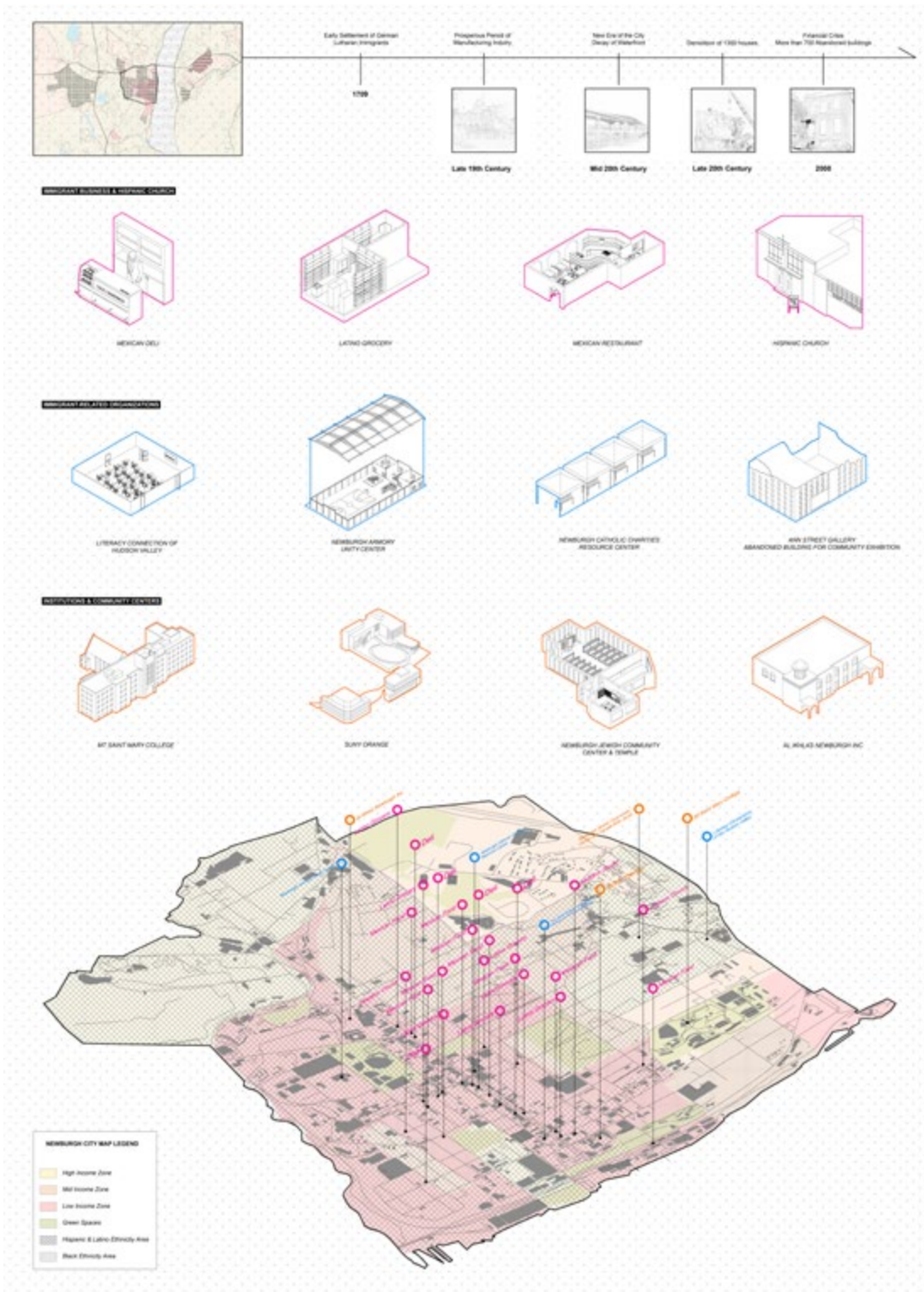
| | |
|---|-----------|
| <i>01 Sanctuary Campus - An Urban Antidote for Newburgh</i> | <i>01</i> |
| <i>Architecture / Urban Design - Renovation</i> | |
| <i>02 School as Palyground - A Laboratory of Fun</i> | <i>08</i> |
| <i>Architecture Design - School</i> | |
| <i>03 Habitat in Common</i> | <i>13</i> |
| <i>Architecture Design - Residential Housing</i> | |
| <i>04 The Melrose Community Centre</i> | <i>19</i> |
| <i>Architecture / Construction Design - Community Centre</i> | |
| <i>05 Walls, Not Barriers</i> | <i>23</i> |
| <i>Architecture Design - Temporary Shelter</i> | |
| <i>06 The Unburnt Forest</i> | <i>27</i> |
| <i>Architecture Design - Urban Island on Hudson River</i> | |
| <i>07 The Revolving House</i> | <i>33</i> |
| <i>Architecture Design - Small scale work and living space</i> | |
| <i>08 The Dancing Stripes</i> | <i>37</i> |
| <i>Facade Design - Office front</i> | |

01 Sanctuary Campus
An Urban Antidote for Newburgh

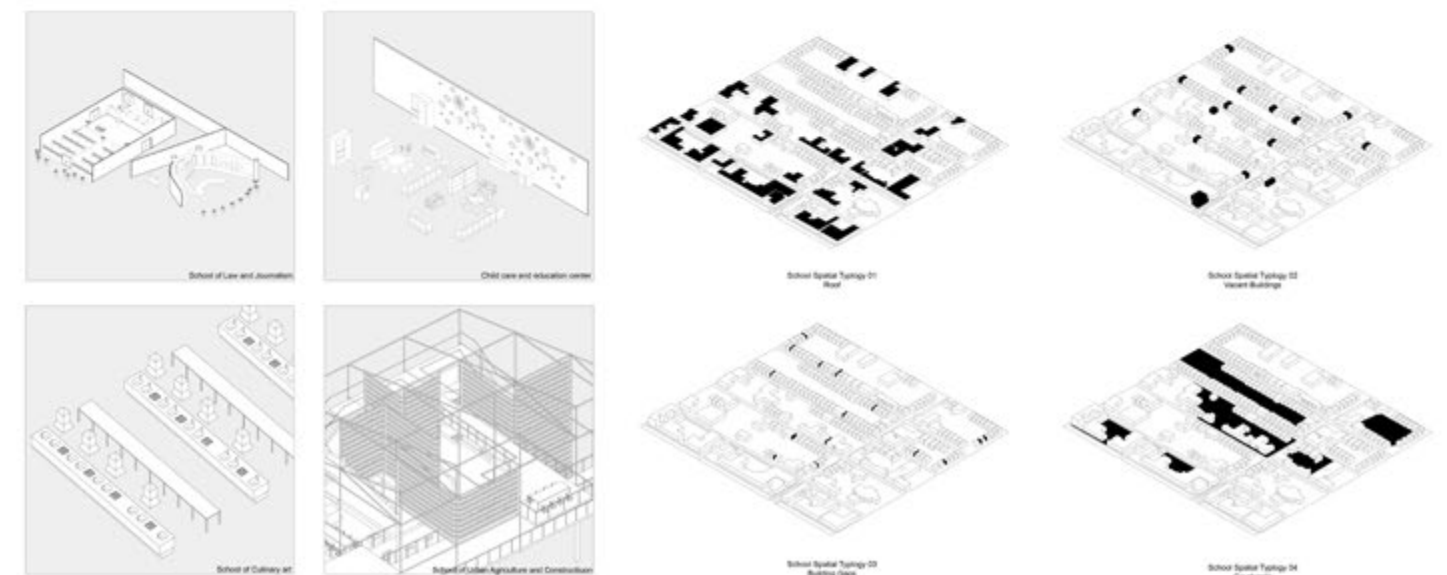
Group Work with Minghan Lin
Spring 2021
ACADEMIC

Urban Renovation Design of Newburgh
Site : Newburgh, Orange County, NY 12550

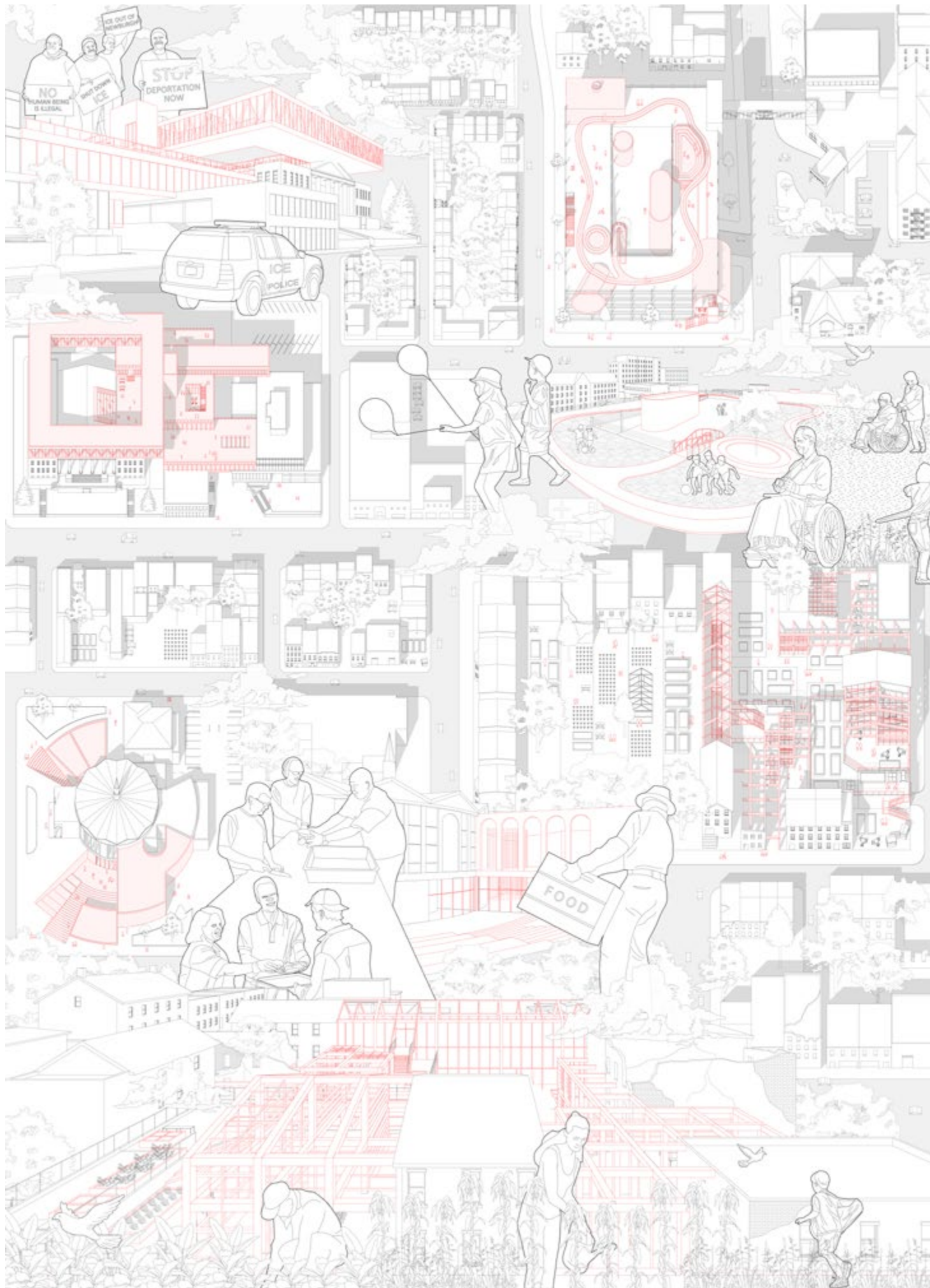




Following the intention of SUNY Orange to expand its campus in Newburgh in 2019, our project is intended to work with SUNY and other local organizations to create a new type of sanctuary campus distributed across the city. The programs are formed based upon both the main professions by the immigrants and the needs of the city so that these interventions also serve the general public and aim to rejuvenate Newburgh as a whole instead of exclusively reserved for the undocumented immigrants.



top: study of immigrant activity in Newburgh
right: closer study of Newburgh



Hudson Valley as a Sanctuary for Undocumented Immigrants



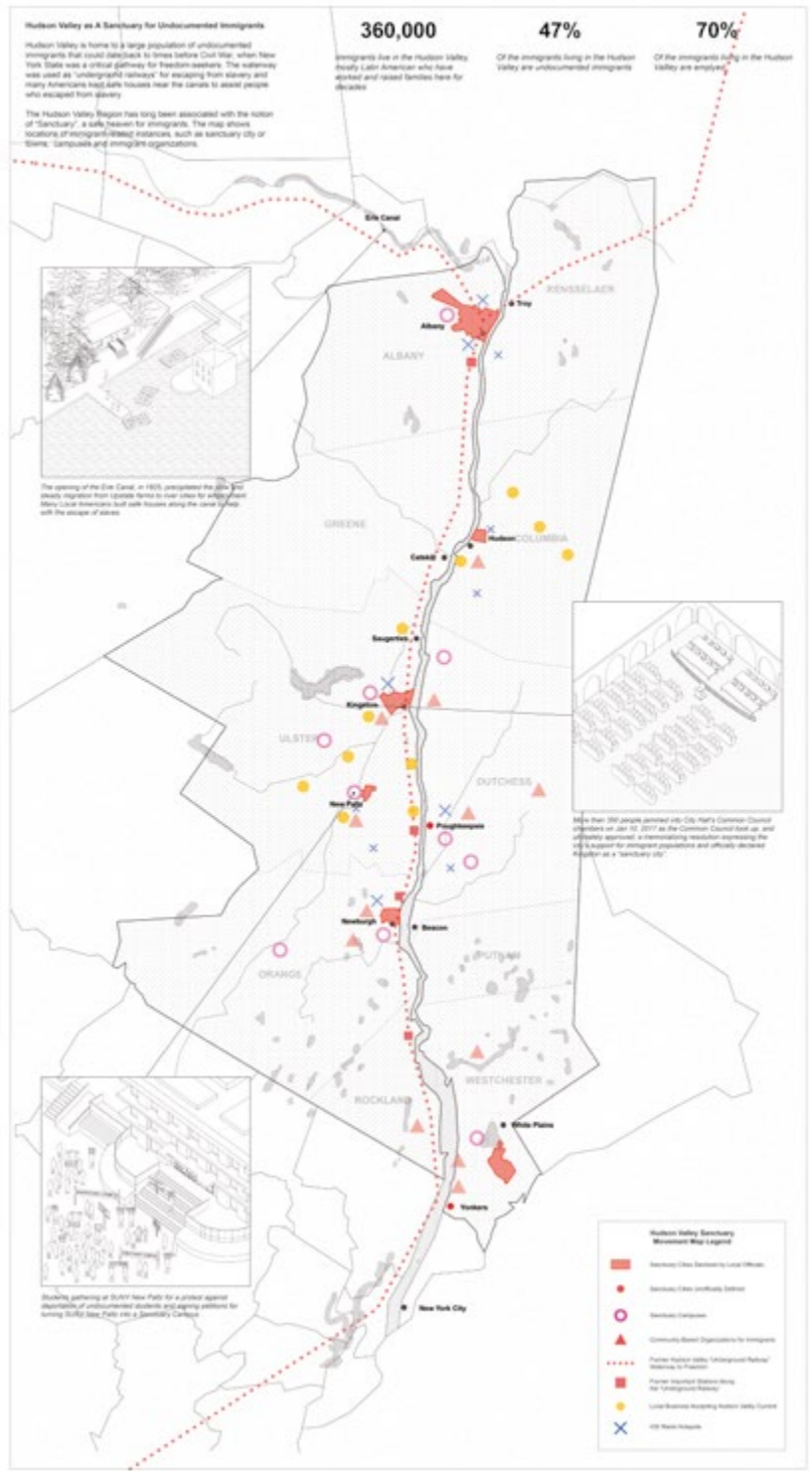
The Hudson Valley Region has long been associated with the notion of "sanctuary," a safe haven for immigrants. The map shows locations of immigrant-led responses, such as sanctuary city or towns, language and immigrant organizations.

Sanctuary Movement
"Sanctuary City/State" refers to municipal jurisdictions that limit their cooperation with the national government's effort to enforce immigration law.

- Selected Community-Based Organizations for Immigrants in Hudson Valley**
- UIDN
 - IYVIC
 - ywca

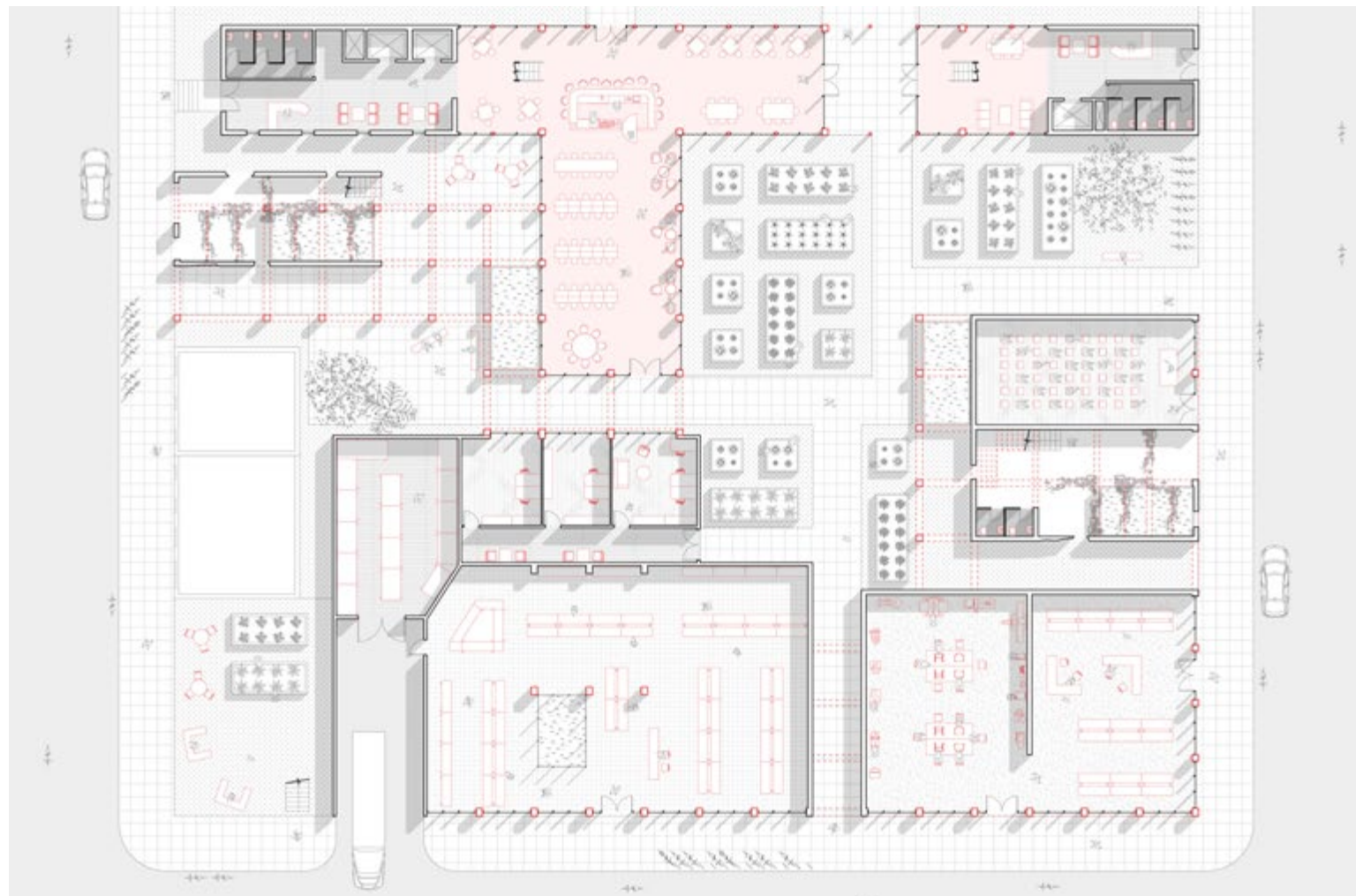


Main Undocumented Immigrants Professions
Undocumented immigrants make up more than half of the hired labor on farms, according to the USDA, while few data show their share in construction is about 15 percent. Overall they make up 5 percent of the US workforce.



Instead of a conventional enclosed campus, the scattered typology aims to blend in better with the existing urban fabric and create soft barriers, protecting the undocumented immigrants from deportation. More than providing a sheltered space, each of these four campuses serves beyond the means of protection and has its own unique functions and addresses different issues derived from the context they are interacting with, such as building vacancy, lack of healthcare, inaccessibility to health insurance, and food shortage. We envision these interventions will target on the needs of the undocumented immigrants as well as transform Newburgh together.

left: conceptual image of renovated newburgh
top: history study of immigrant and hudson valley



Plan

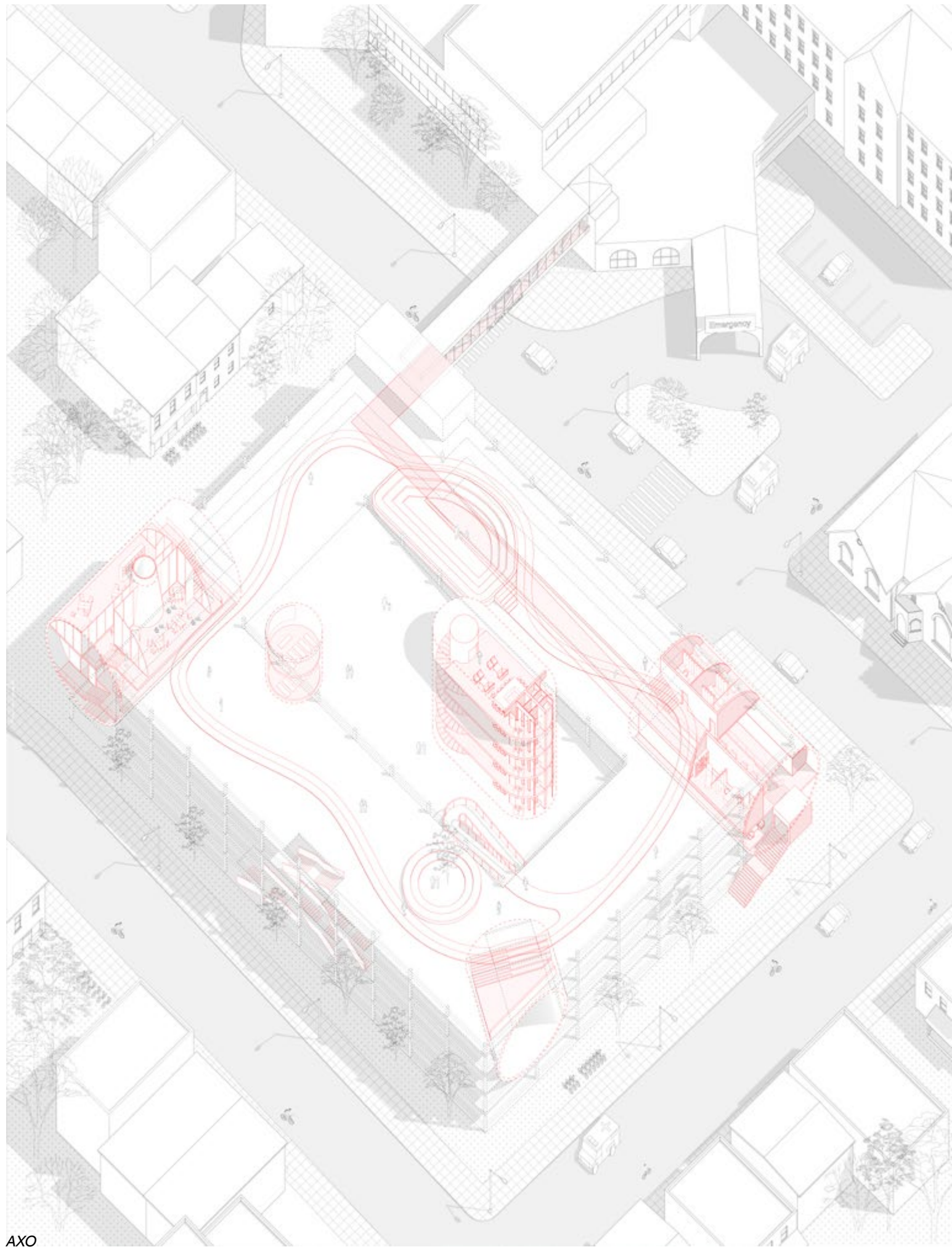


AXO



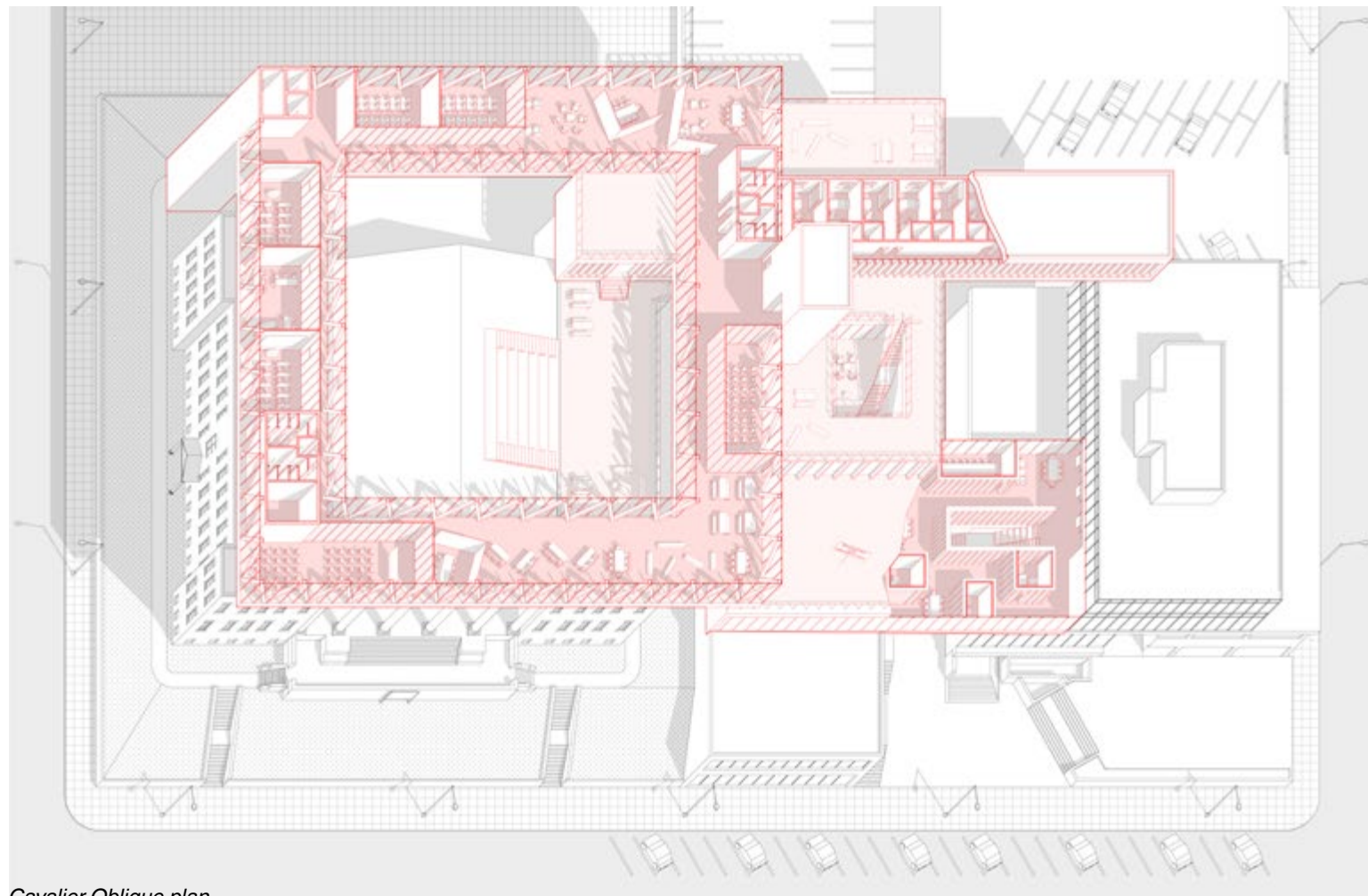
School of Urban Agriculture and Construction

Located next to a public housing, the school of urban agriculture and construction occupies an existing abandoned plot, renovating and reoccupying the derelict vacant buildings while providing public and social spaces for the community. The programs include a construction workshop, supermarket, communal lounge, and an addition of a greenhouse and classrooms. As a joint effort between two local non-profit organizations, Newburgh Urban Farm Food Initiative and Newburgh Restoration, the design incorporates new scaffolding structures to reinforce existing derelict structures as well as serve as frameworks for hydroponics farming, encouraging people to rethink about new ways of integrating farming into the city and reoccupation of abandoned urban spaces.

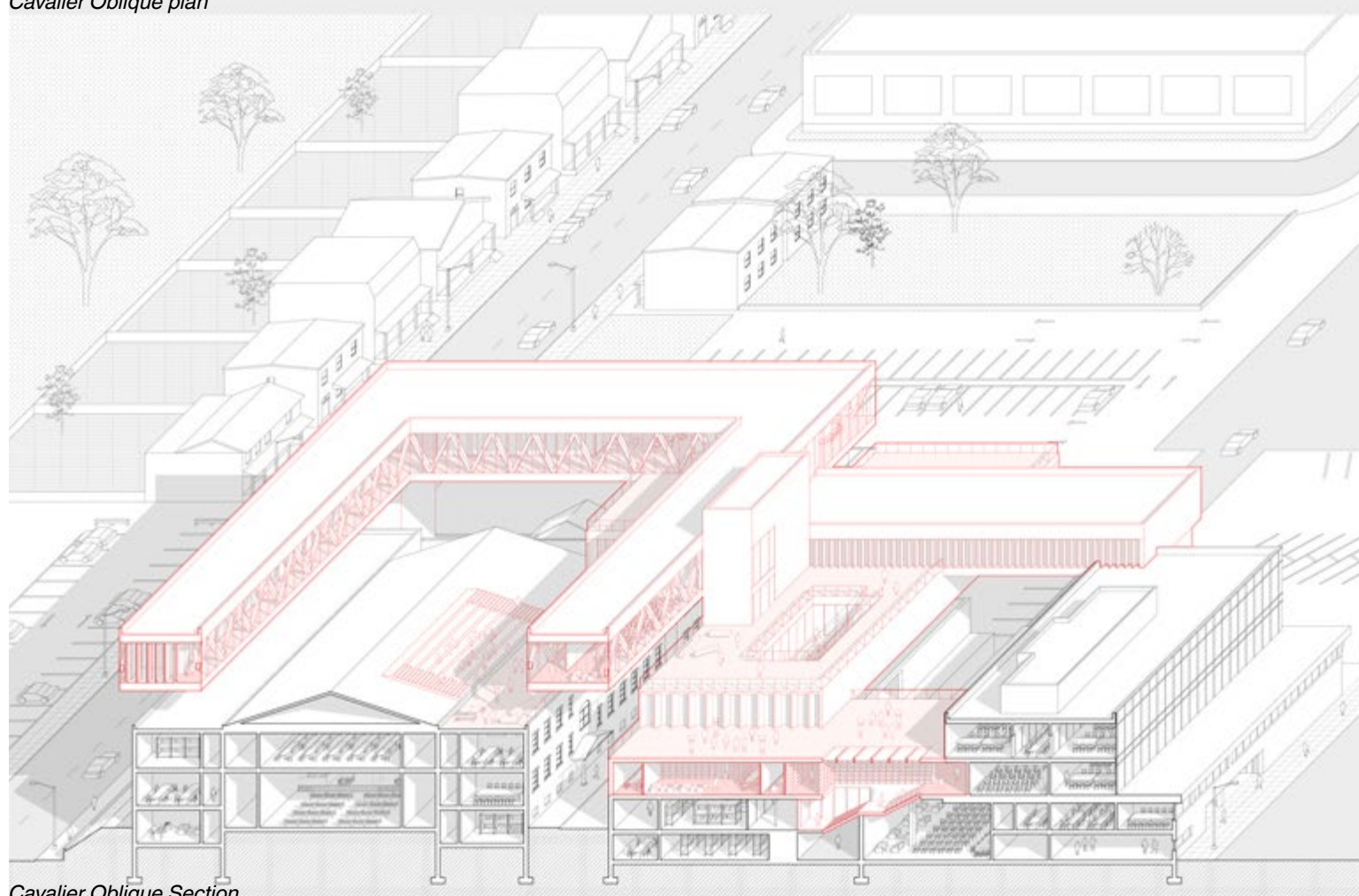


Center of Childcare and Health

Located within an existing parking lot to the adjacent public hospital, the center of health and childcare addresses the lack of childcare facilities and inaccessibility to health insurance for the immigrants. Taking the consideration of the property vacancy around the hospital, the massive five-story parking lot structure is gradually transformed into health-related habitable spaces as an extension of the public hospital, such as a health clinic, childcare education, yoga classrooms, gardens as well as sport venues for the youth.



Cavalier Oblique plan

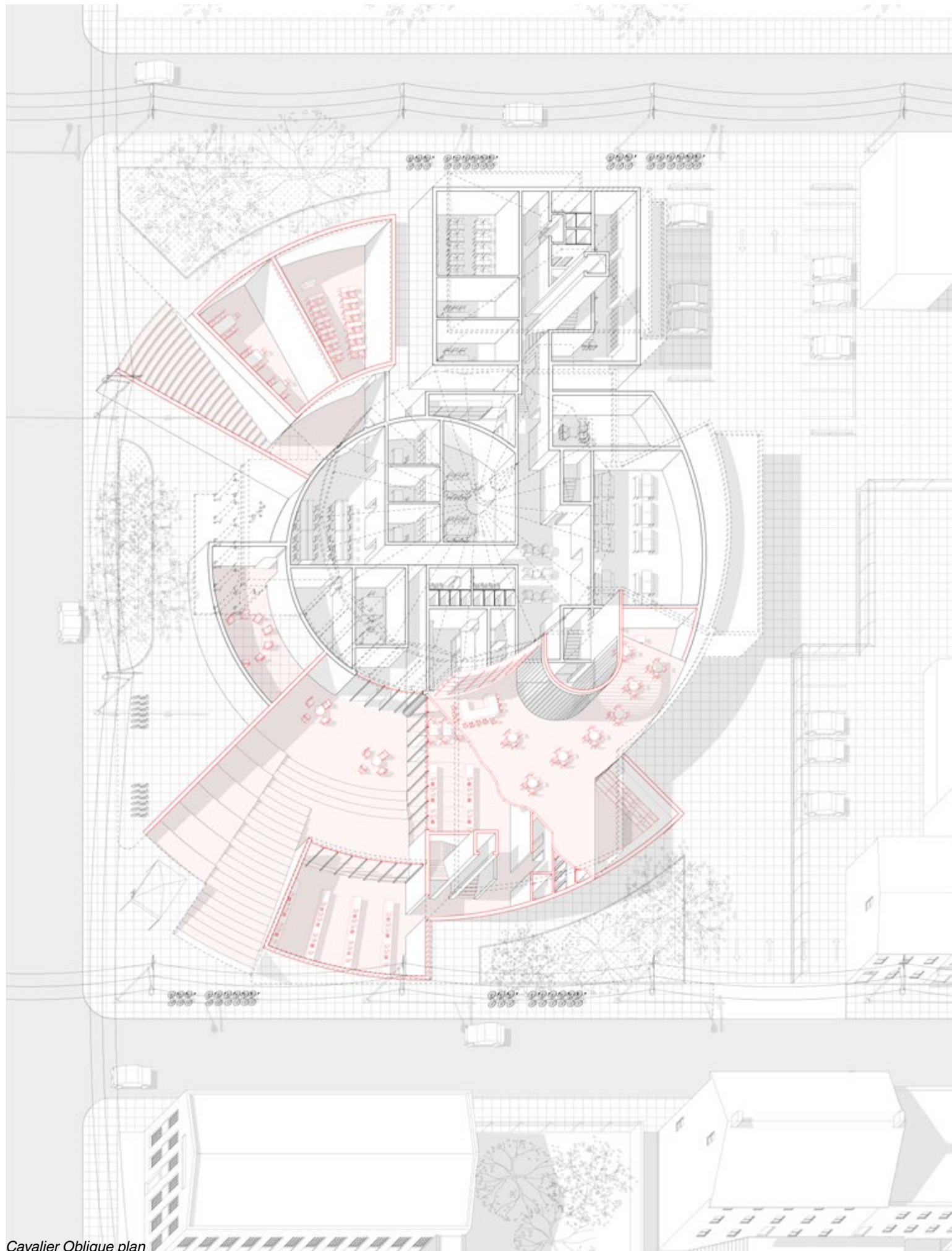


Cavalier Oblique Section



School of Law and Journalism

Hovering above the Newburgh City Court and connected with the catholic resource building, the school of law and journalism aims to empower the people through education of immigration law as well as offer opportunities for media propagation. The programs include a law school, journalism school, dorms for temporary stay, new office spaces for the not-profit organizations and a public library on the lower level as an entrance that's acting as a soft barrier between the ground level and the school programs above. The intervention is intentionally elevated as a statement to occupy on top of the existing buildings to gain more exposure for a central space where the undocumented immigrants could host protests and fight for their rights.



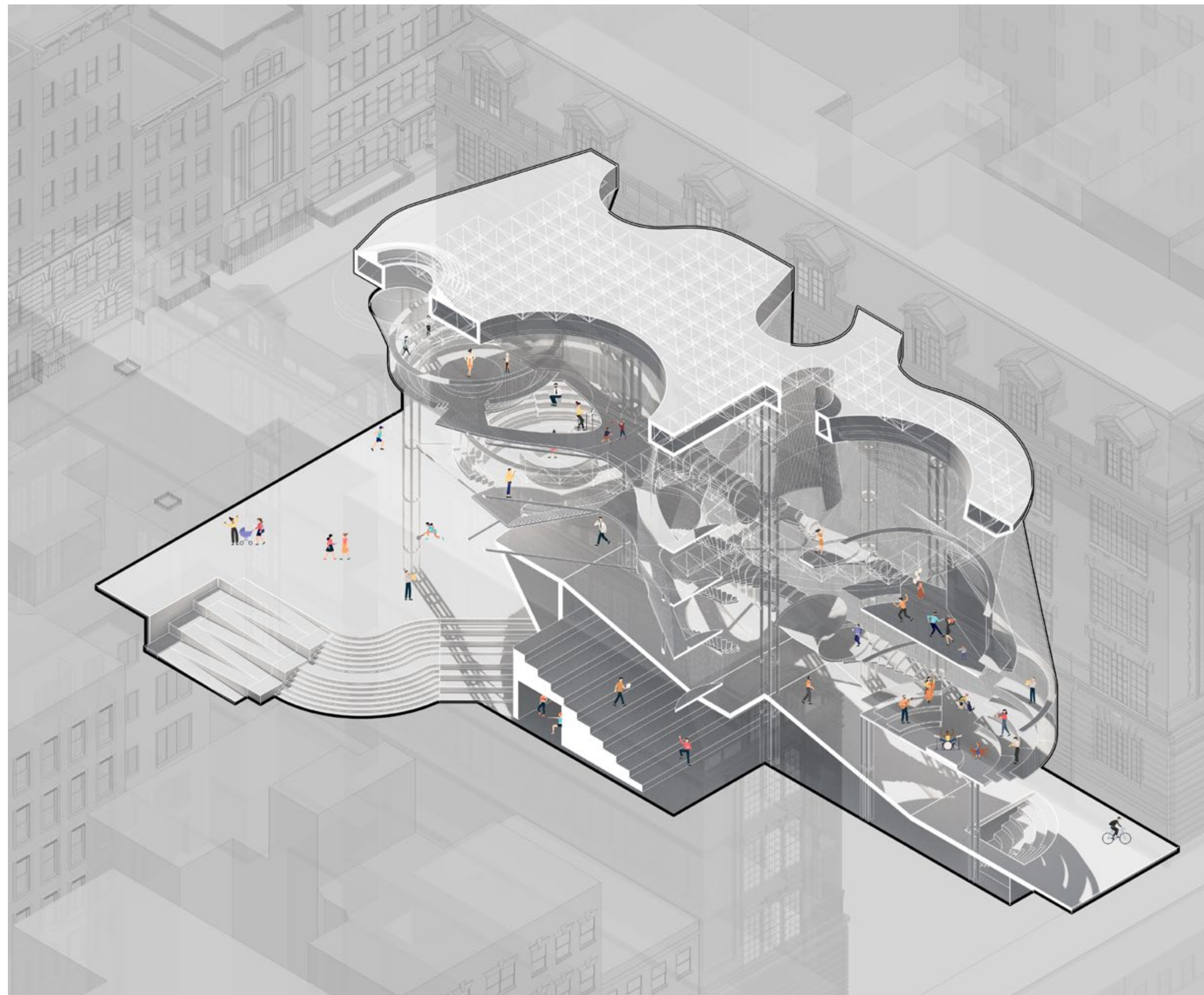
School of Culinary Art and Language

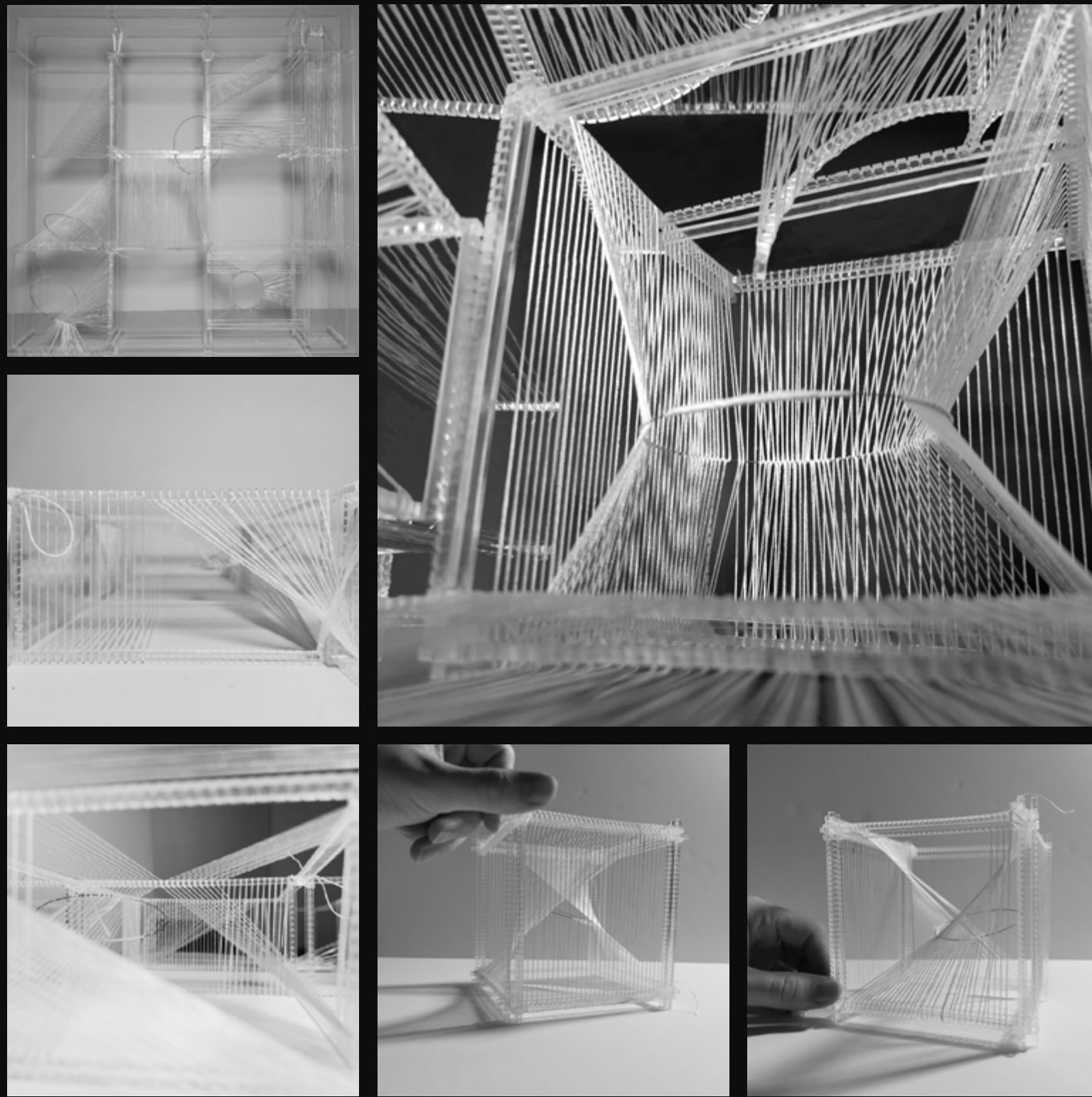
As an extension of a catholic church, the interventions include a mutual aid kitchen, a language learning center and a self-run community restaurant. As a further expansion of the basement space, the programs cater for the existing lack of spaces for the church as well as creating new spaces for community services, such as food distribution and religious education.

02 School as Playground
A Laboratory of Fun

Individual Work
Spring 2020
ACADEMIC

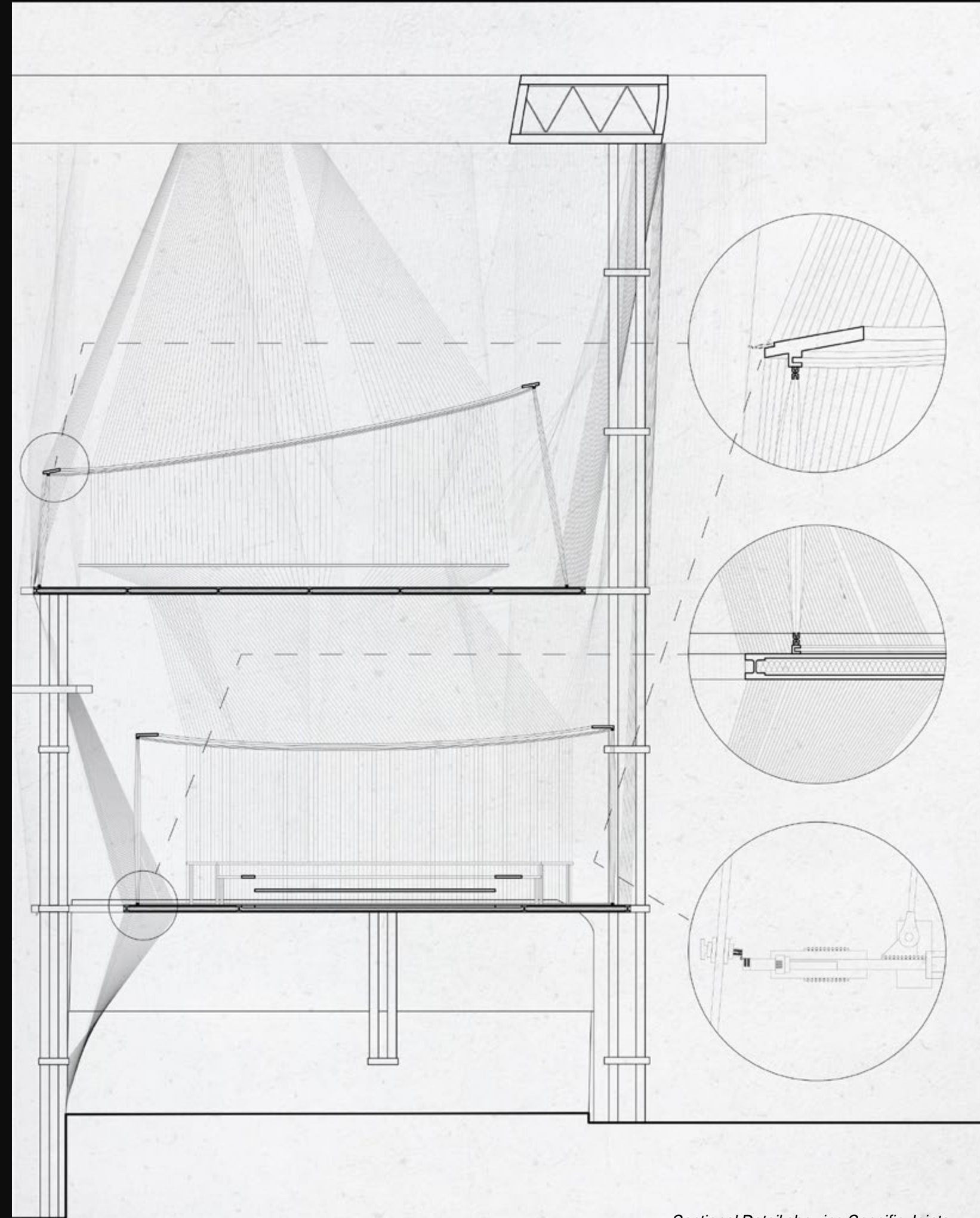
Architecture Design of P.S. 064 Robert Simon
Site : 348 E 10th St, New York, NY 10009
(Archived in the 2020 GSAPP 'ABSTRACT' Yearbook)



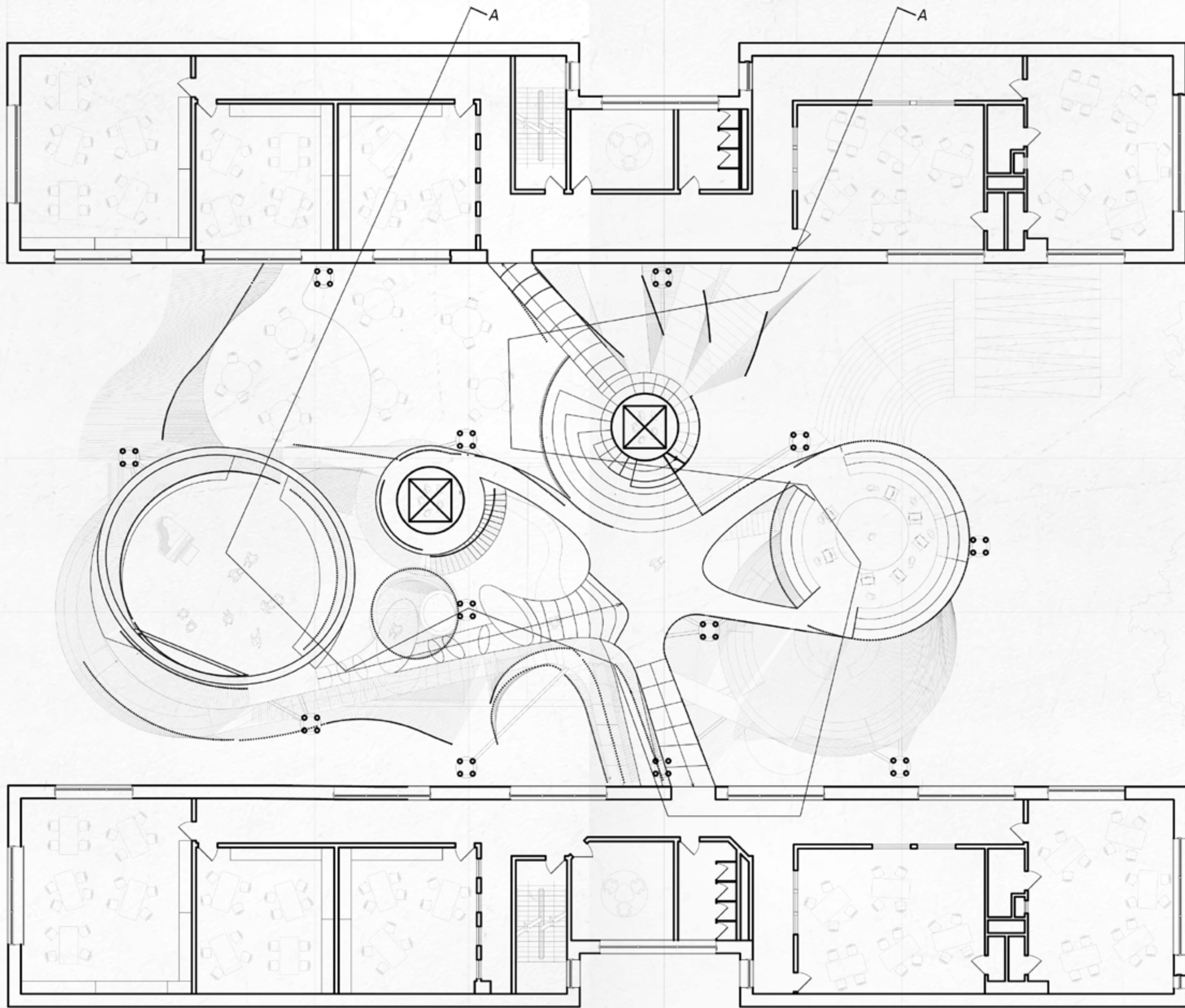


Model Experiment with the concept

According to the philosopher Maurice Merleau-Ponty, "It is not the eye which sees, but the body as a receptive totality." Spatial experience hence largely depends on how thresholds are framed and defined. Here, the threshold is informed by the haptic memory of a laser maze, where children inventively travel through spaces with different bodily gestures. Influenced by Claude Parent, the theory known as The Function of the Oblique is explored through inclined and curved surfaces that define habitable spaces, fully accessible circulation and programming. Students move up and down during their journeys through the building where inclined landscapes support an interior experience of play. In this school, movement is given elevated purpose, creating happiness in order to establish a new school dynamic in the 21st century.



Sectional Detail showing Specific Joints



SCHOOL



Third Floor Plan



*Momento I
Fun of Reading*



*Momento II
Fun of Art*



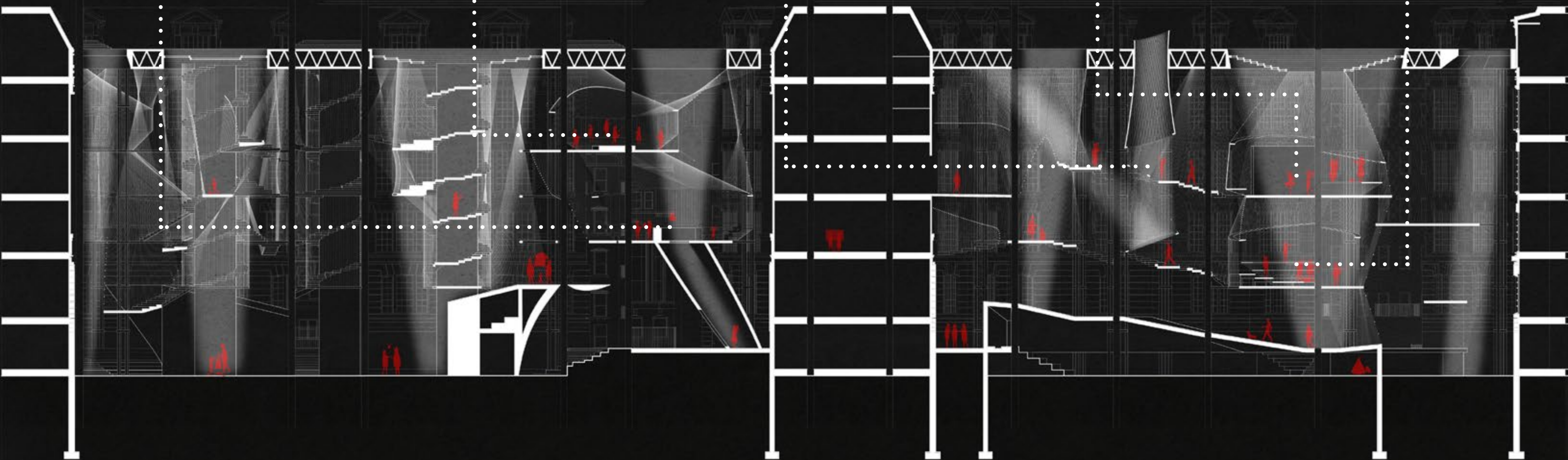
*Momento III
Fun of Installation*



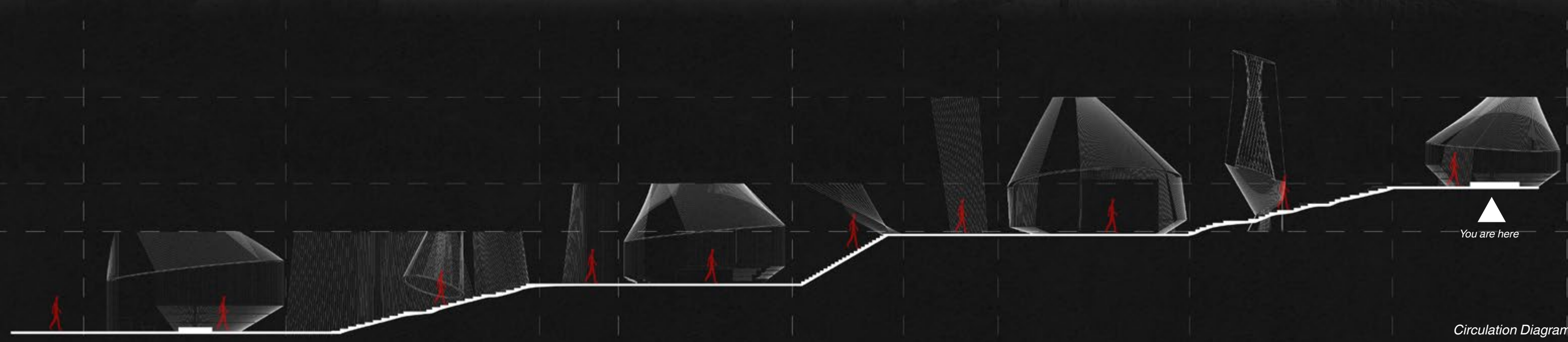
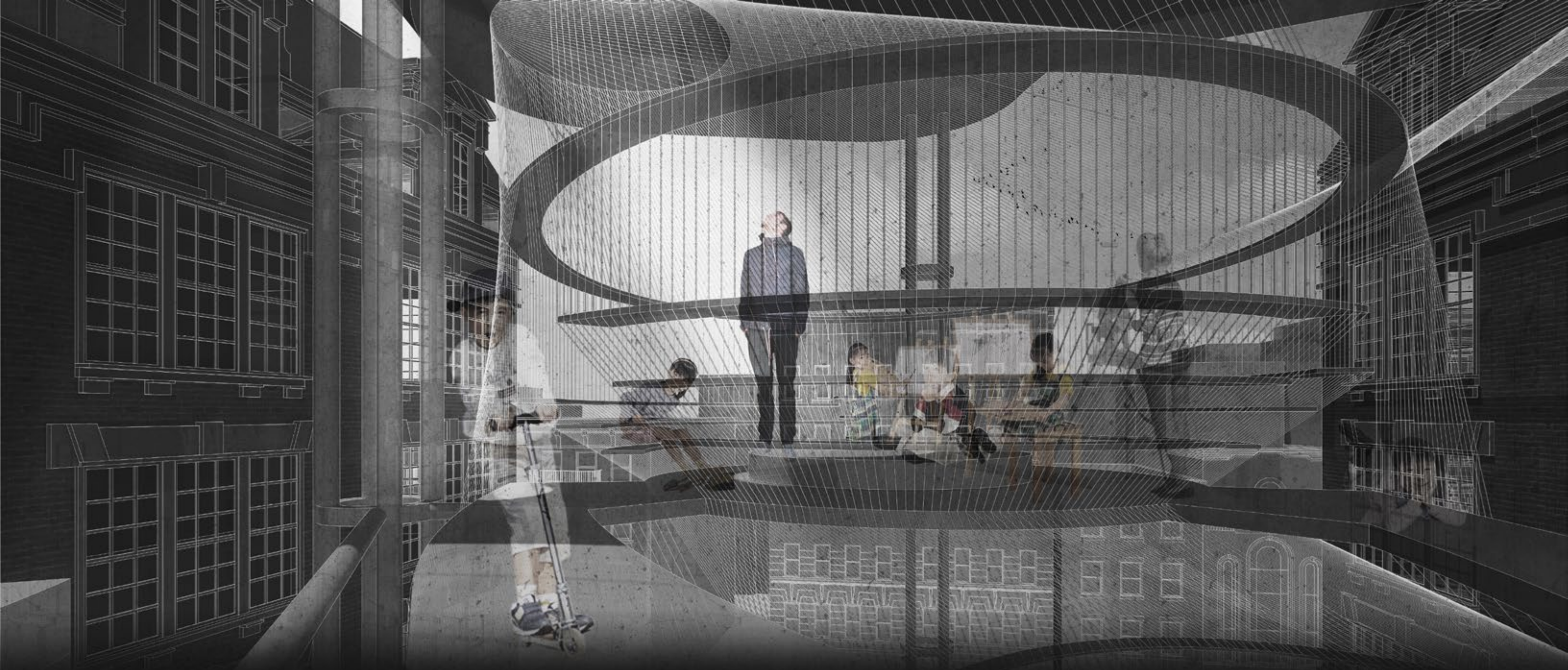
*Momento IV
Fun of Dancing*



*Momento V
Fun of Music*



Seccion AA with particular momentos



You are here

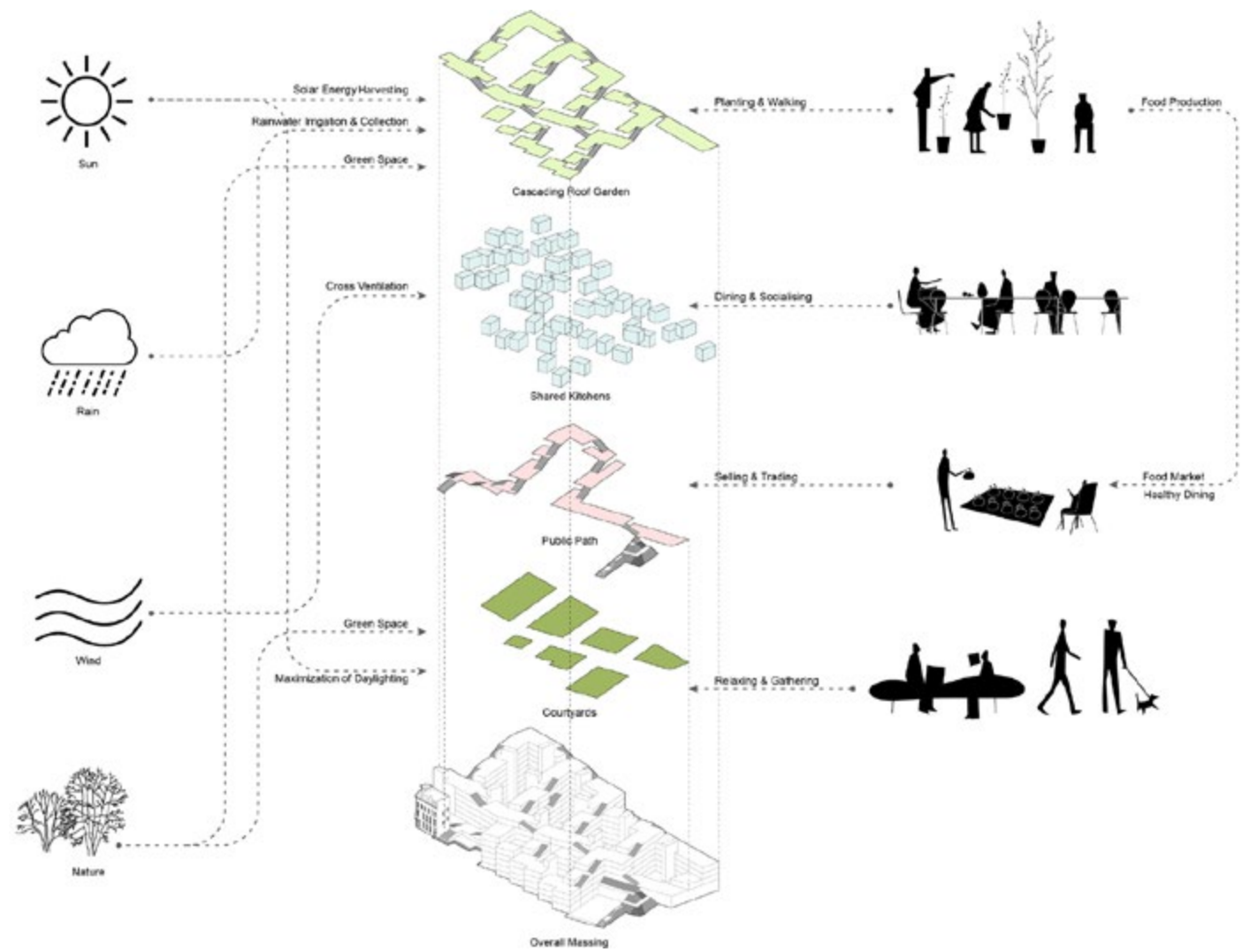
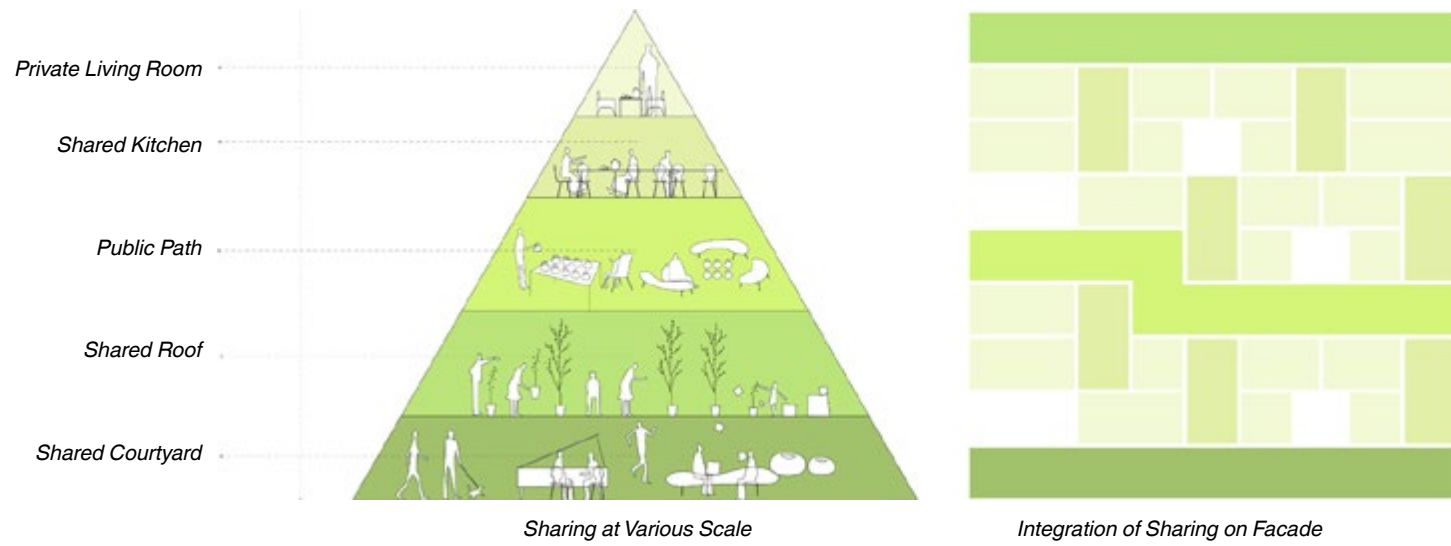
Circulation Diagram

03 Habitat in Common

*Group Work with Minghan Lin
Fall 2020
ACADEMIC*

*Architecture Design of Residential Housing
Site : 367 E 151st St, The Bronx, NY 10455
(Archived in the 2020 GSAPP 'ABSTRACT' Yearbook)*





Sharing = More Sustainable

There are four key components of our project that is dependent upon one another to some extent in terms of the scale of sharing and different human activities: the shared kitchen, public path, courtyards and shared roof landscape, each of which also responds to different environmental strategy of the building at both micro and macro scales.





Units Composition

A typical cluster consists of a kitchen shared by three units: a studio, a one-bedroom and a two-bedroom unit. The shared kitchen is the core of the families' living---a space more than cooking and dining, but a place to meet, talk, relax, planting or doing laundry. Intentionally designed to be a double height space, the kitchen not only connects residents living on the same level, but also encourages interaction vertically between one level and another. The double height space not only creates spatial generosity, but also takes the advantage of the mezzanine and turns it into an informal leisure space.



Double height kitchen space



Typical Floor Plan with unit compositions

There are four key components of our project that is dependent upon one another to some extent in terms of the scale of sharing and different human activities: the shared kitchen, public path, courtyards and shared roof landscape. The public path acts as a food ribbon with a series of events and programs shared between the housing community and the city.



Renovative relationship with Bronx Documentary Center

Sited at Melrose in Bronx, NYC, a heavily-dense residential neighborhood but with few comfortable amenities for serving people's daily needs, especially healthy food and dining. We recognize food and dining as the essence of homes---a social construct that is both an essential ritual of one's daily life and that could potentially bring people together and encourage other interactions around it. We believe sharing a kitchen between multiple families could maximize the efficiency of the shared space and minimize underutilized spaces. The AXO model here shows how the combination respects the old Bronx Documentary Center, generating a craftfully urban built environment with the Bronx Documentary Center.



Renovative relationship with Bronx Documentary Center

We strongly believe sharing leads to a more efficient, social and sustainable model of living. We see sharing not only as a method to eliminate underutilized appliances, but also an effective tool to bridge social segregation and stimulate human interaction, fostering a more intimate community relationship. The model here shows how the combination respects the old Bronx Documentary Center, generating a craftfully urban built environment with the Bronx Documentary Center from different perspectives.

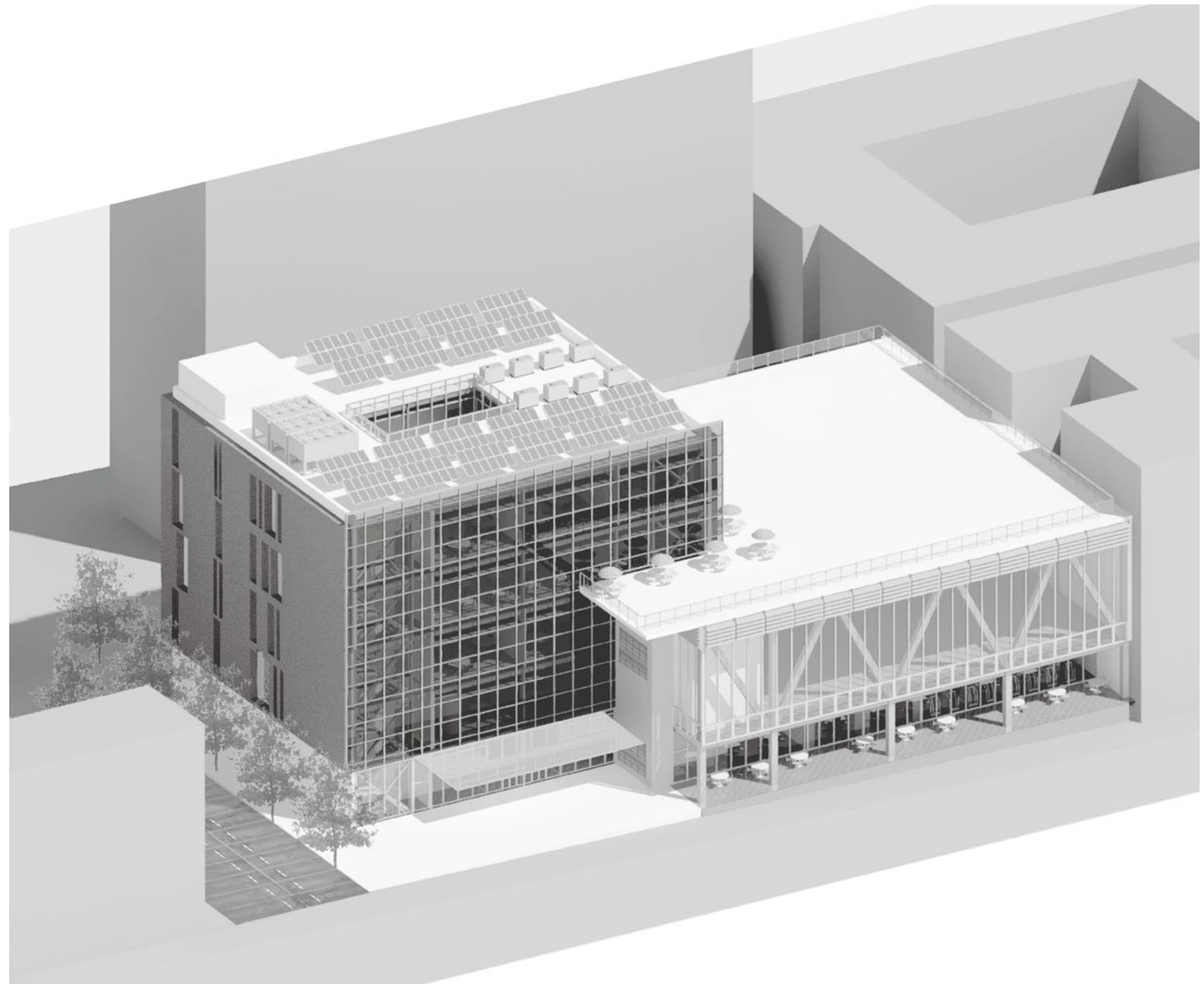


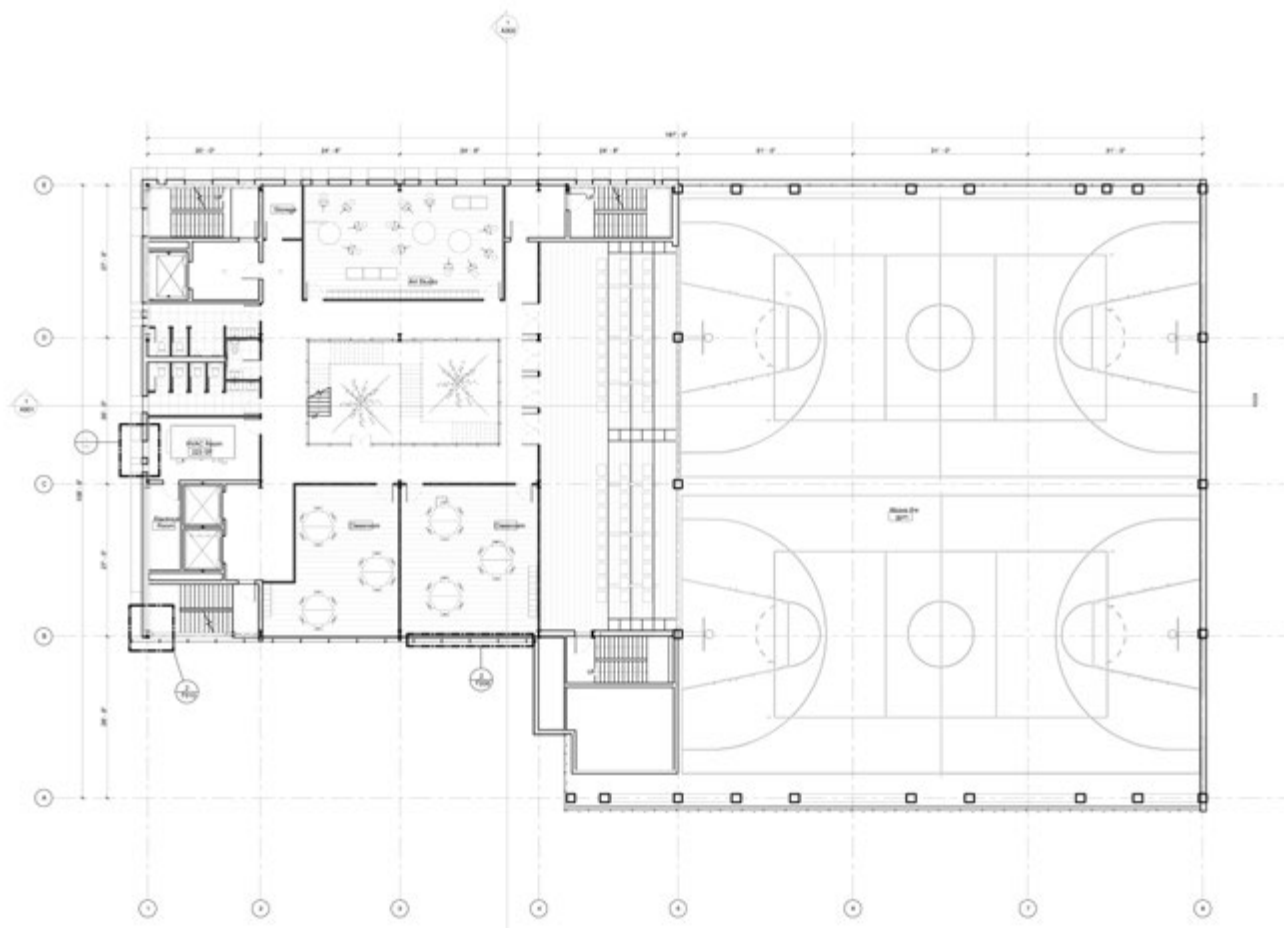
Waterpipe system section

04 The Melrose Community Centre

*Group Work with Chuqi Huang, Yi Liang and Duo Xu
Fall 2020
ACADEMIC*

*Tenical Proposal for The Melrose Community Centre
Site : 367 E 151st St, The Bronx, NY 10455*

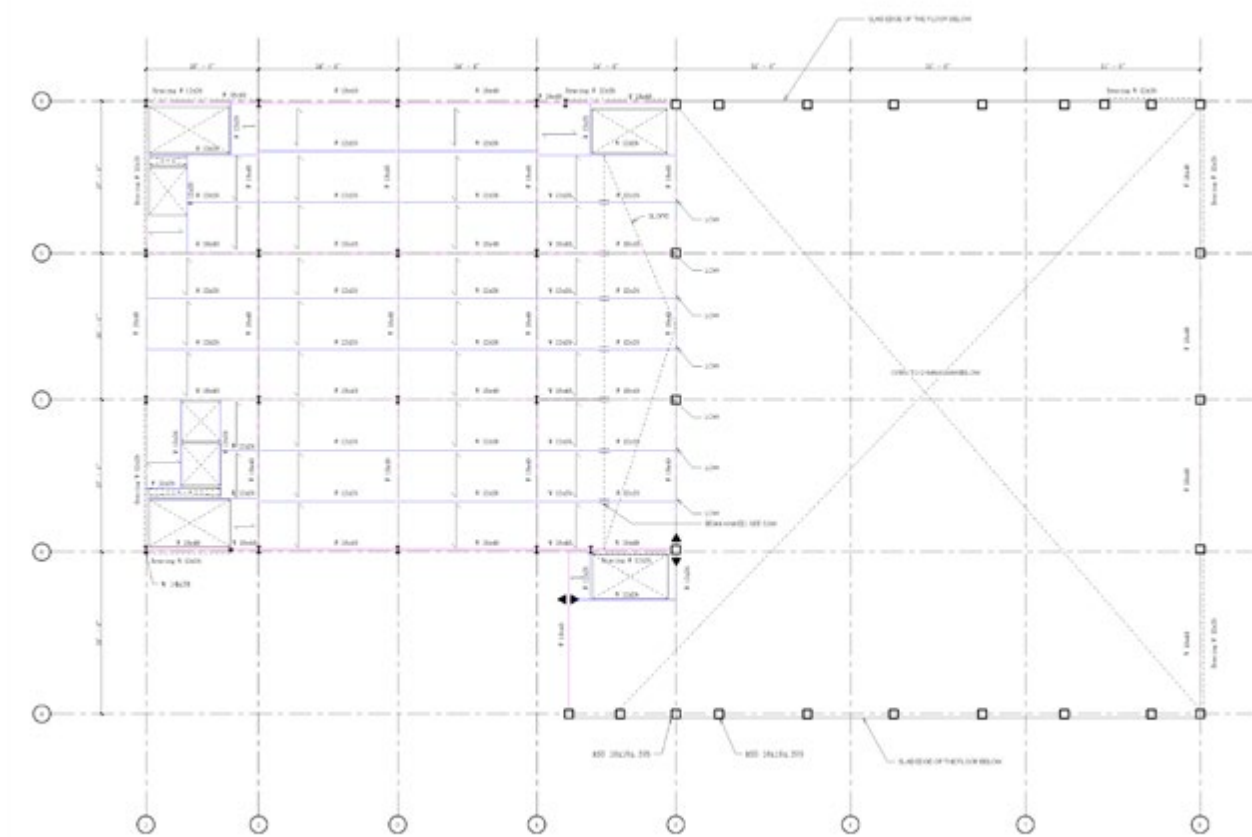




Third Floor Plan

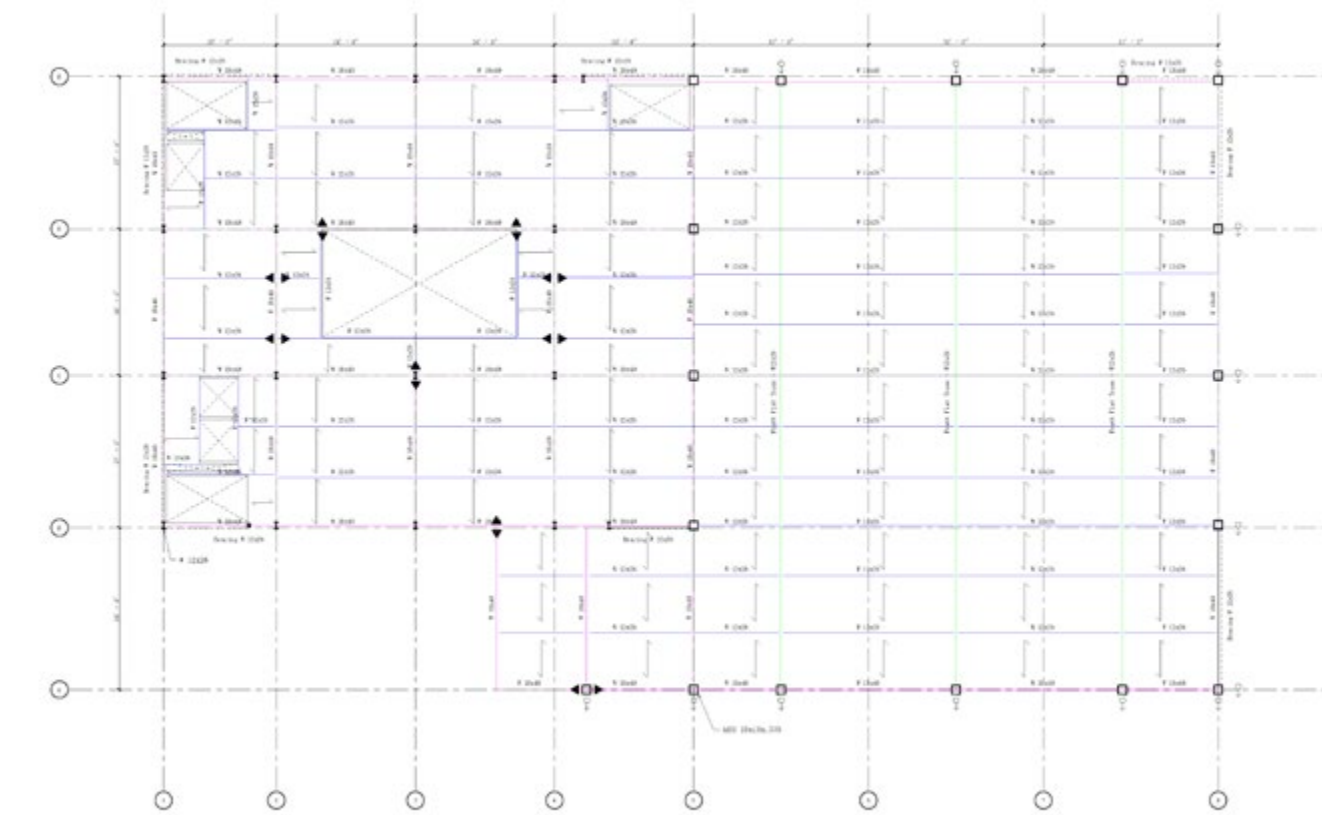


Fourth Floor Plan



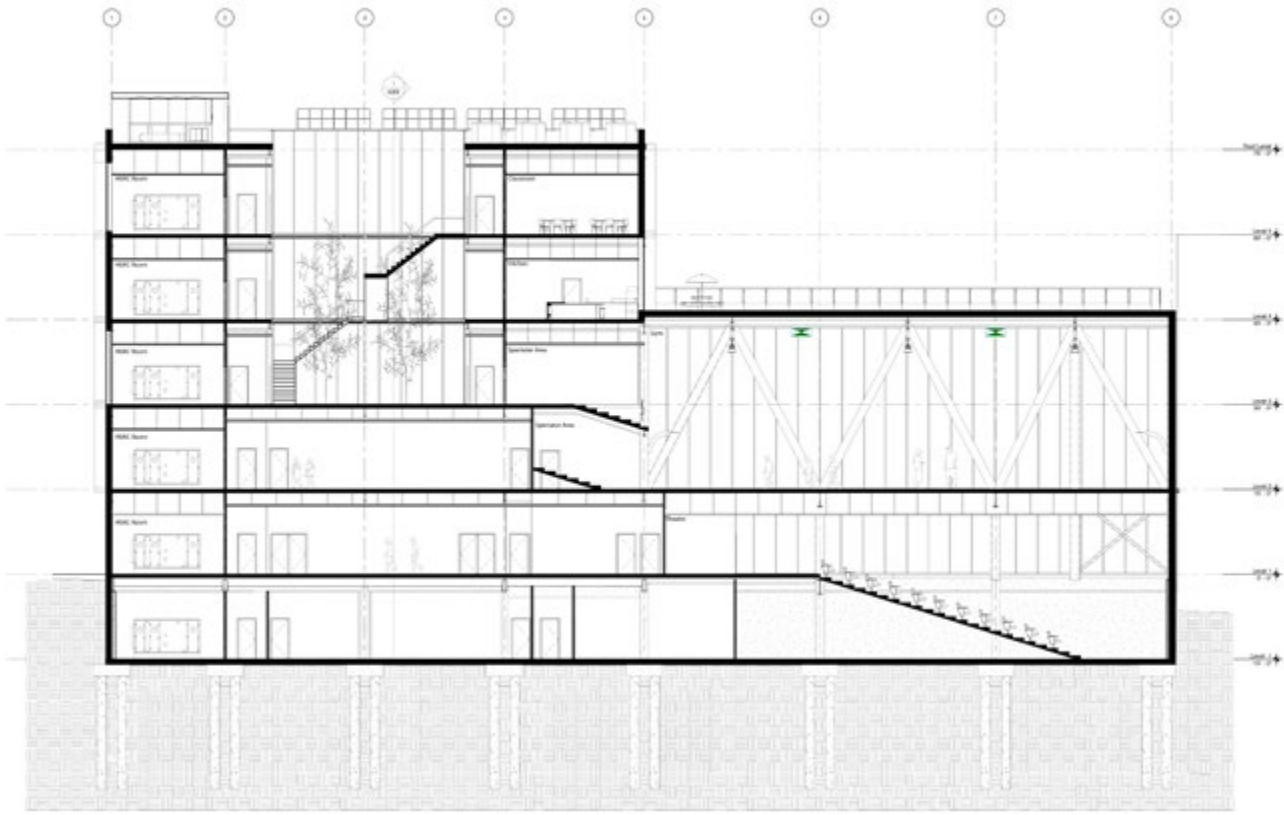
Level 3
1/4" = 1'-0"

Third Floor Structural Plan

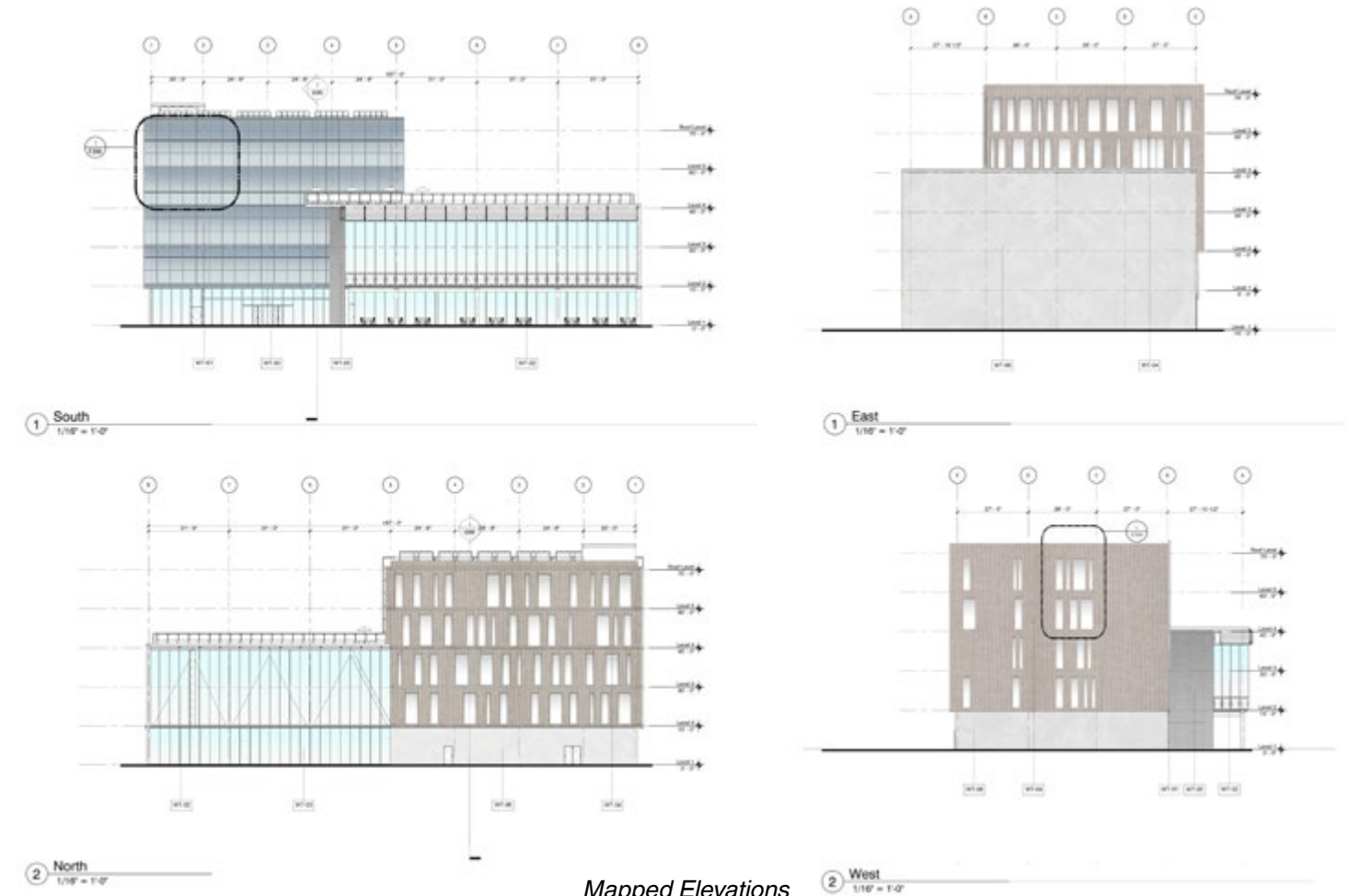


Level 4
1/4" = 1'-0"

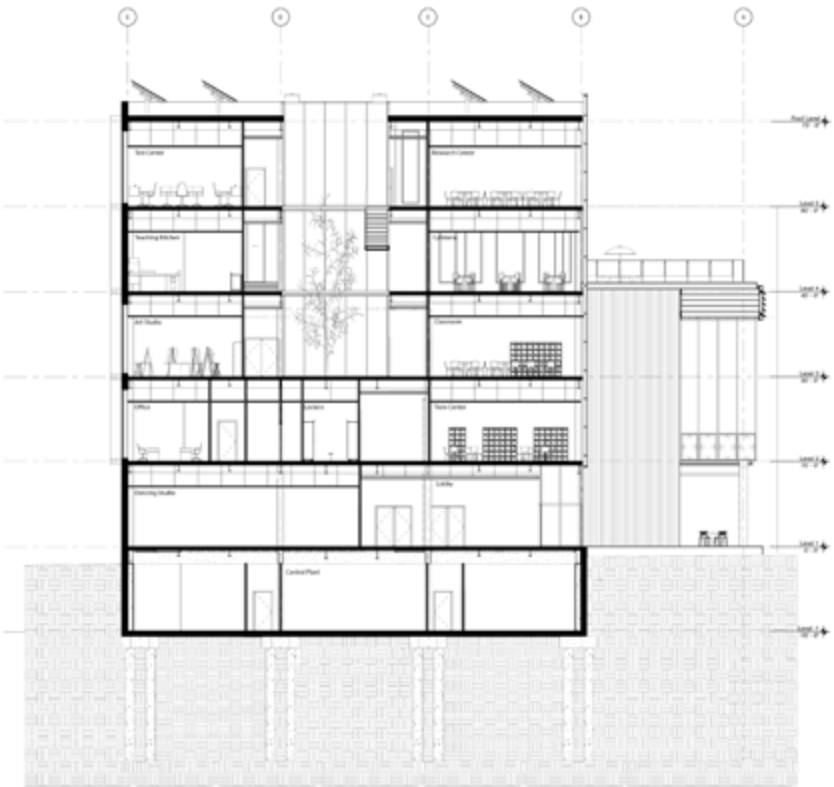
Fourth Floor Structural Plan



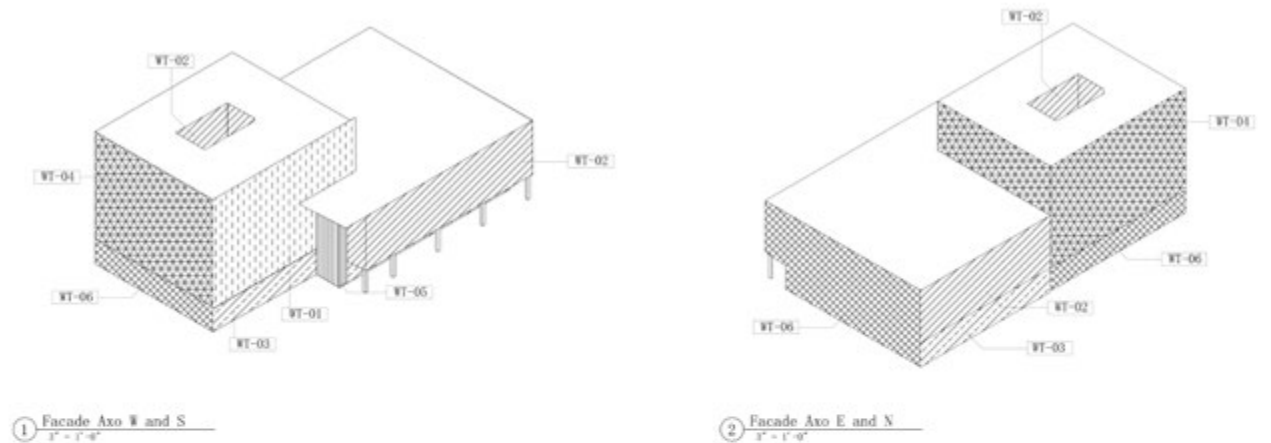
E-W Section 1/128"



Mapped Elevations



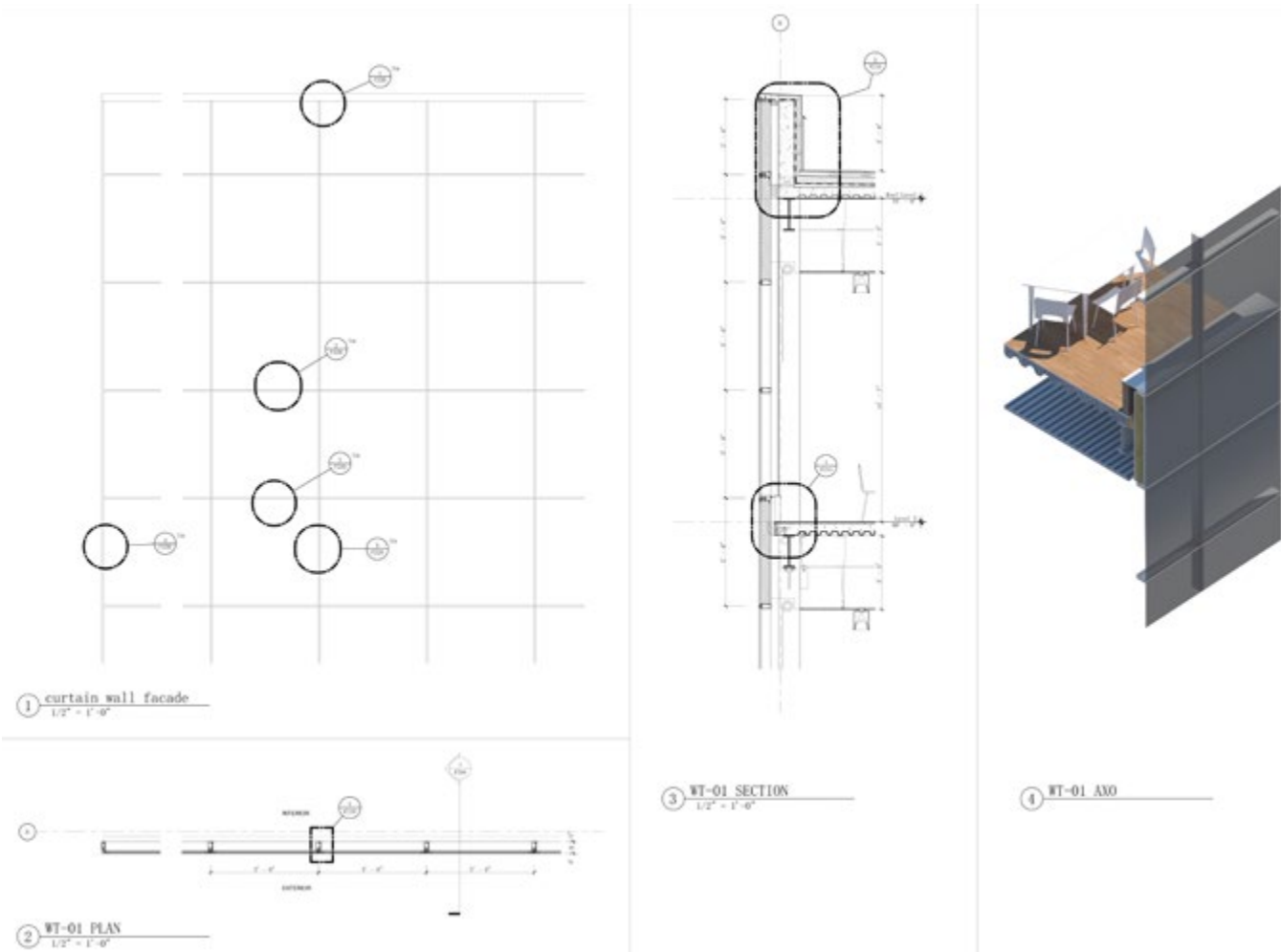
N-S Section 1/128"



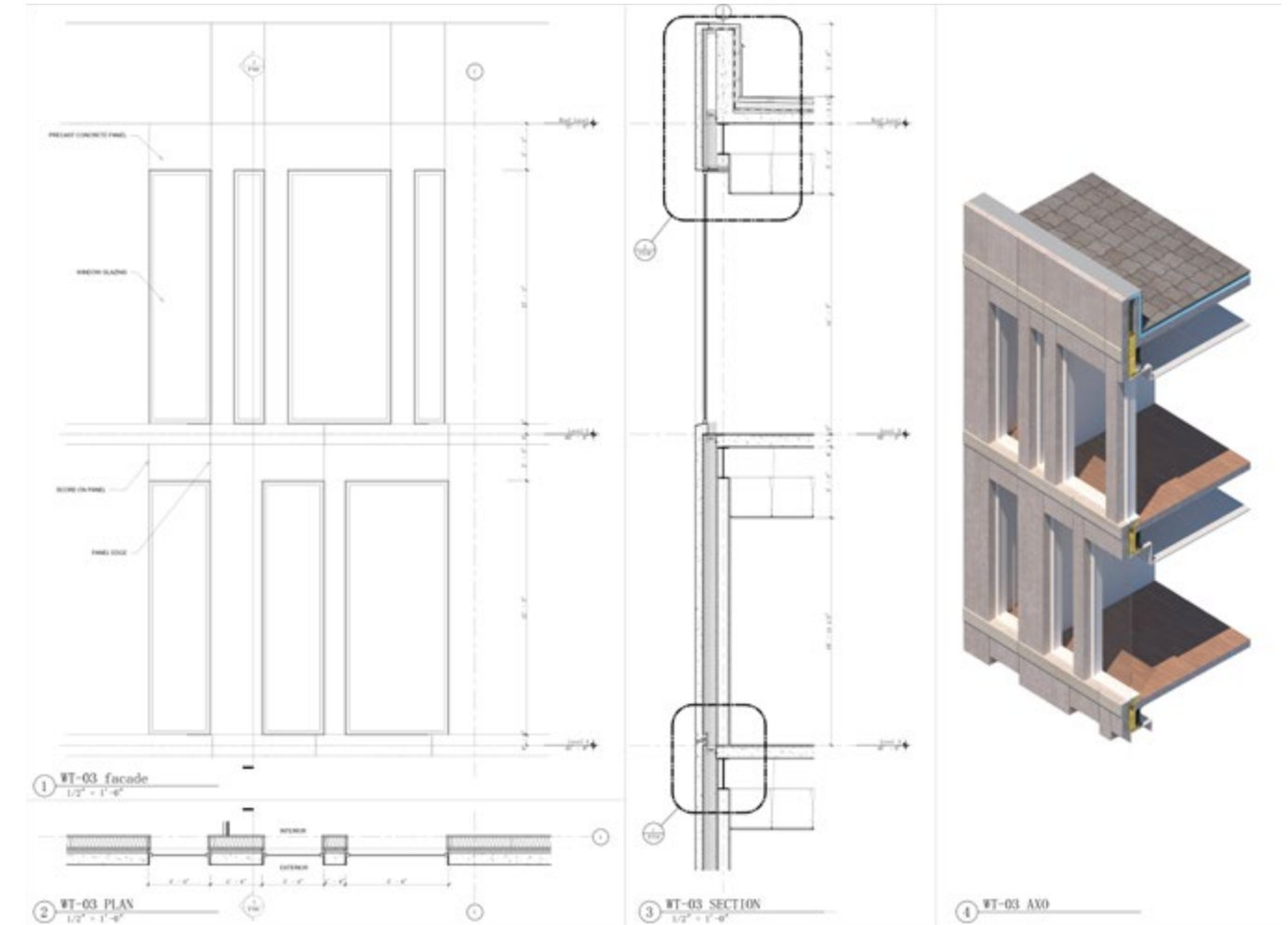
| WALL TYPES | DESCRIPTION | AREA (SF) |
|------------|---|-----------|
| WT-01 | SSG curtain wall system with ceramic frit glazing | 5,632 SF |
| WT-02 | Glazing curtain wall with operable windows | 6,504 SF |
| WT-03 | Glazing curtain wall with doors | 4,115 SF |
| WT-04 | Metal studs wall with precast concrete panels | 9,654 SF |
| WT-05 | Metal studs wall with metal panels | 981 SF |
| WT-06 | EIFS wall system | 7,836 SF |

| MAT. TYPE | MAT. MARK | MAT. MATERIAL | LOCATION | DESCRIPTION |
|------------|-----------|----------------------|----------------|---|
| GLASS | GLZ-01 | IGU | WT-01 | 10MM CL GLASS - 10MM AS - 10MM E GLASS, LOW-E COATING ON SURFACE 2, CUSTOM PATTERN CERAMIC FRIT |
| GLASS | GLZ-02 | IGU | WT-02 | 10MM CL GLASS - 10MM AS - 10MM E GLASS, LOW-E COATING ON SURFACE 2 |
| GLASS | GLZ-03 | IGU | WT-03 | 10MM CL LOW IRON GLASS - 10MM AS - 10MM LOW IRON E GLASS, LOW-E COATING ON SURFACE 2 |
| GLASS | GLZ-04 | LAMINATED MONOLITHIC | WT-02 | 10MM HS LOW IRON + 0.38MM DXP/PLSTY + 10MM HS LOW IRON |
| METAL | MLT-01 | ALUMINUM | WT-01 | POWDER COATED ALUMINUM MULLION, COLOR: WHITE |
| METAL | MLT-02 | STEEL | WT-01 | GALVANIZED STEEL BACK FINN |
| METAL | MLT-03 | ALUMINUM | WT-04 | POWDER COATED ALUMINUM PANELS, COLOR: WHITE |
| METAL | MLT-04 | ALUMINUM | WT-05 | POWDER COATED ALUMINUM COVER PLATE, COLOR: BRONZE |
| METAL | MLT-05 | ALUMINUM | WT-03 | ALUMINUM STOREFRONT WINDOW FRAME |
| CONCRETE | CRT-01 | CONCRETE | WT-03 | PRECAST CONCRETE PANELS WITH INSULATION AND OUTER FINISH |
| INSULATION | INS-01 | MINERAL WOOL | | |
| INSULATION | INS-02 | POLYSTYRENE | TERRACES, ROOF | RIGID INSULATION |

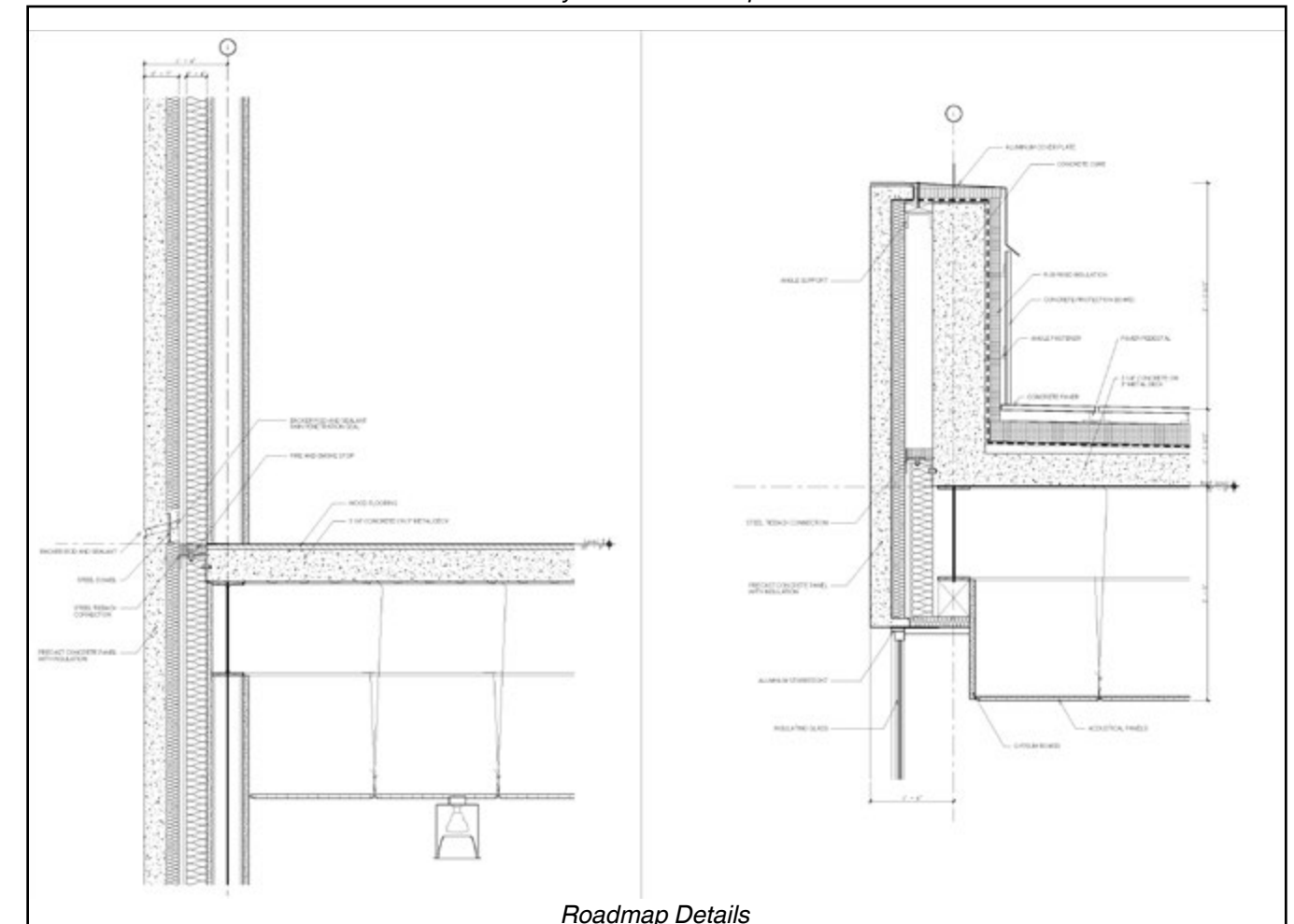
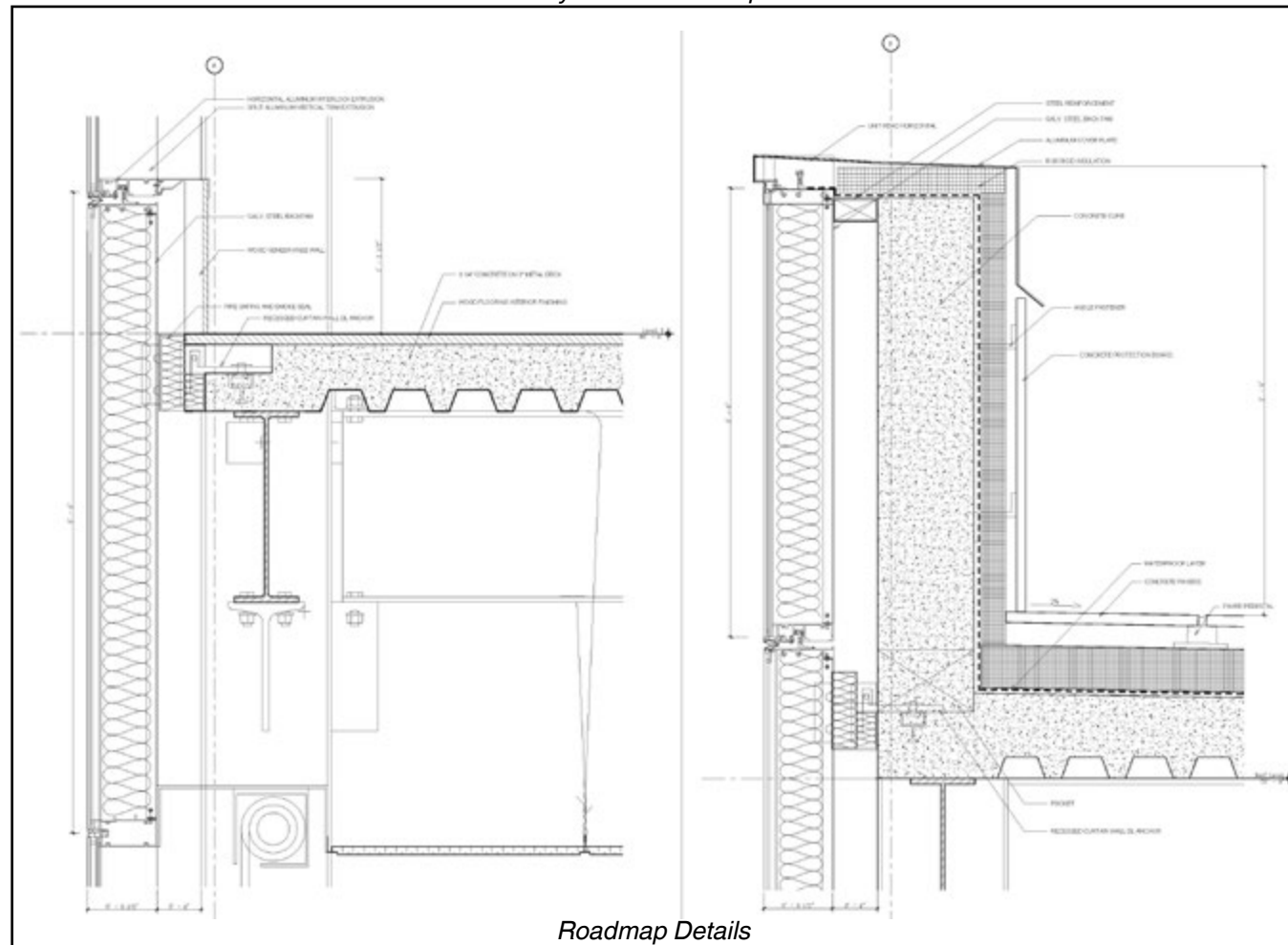
Facade AXOs with Material Schedules



System 1 Roadmap



System 2 Roadmap



05 Walls, not barriers

*Individual Work
Fall 2019
ACADEMIC*

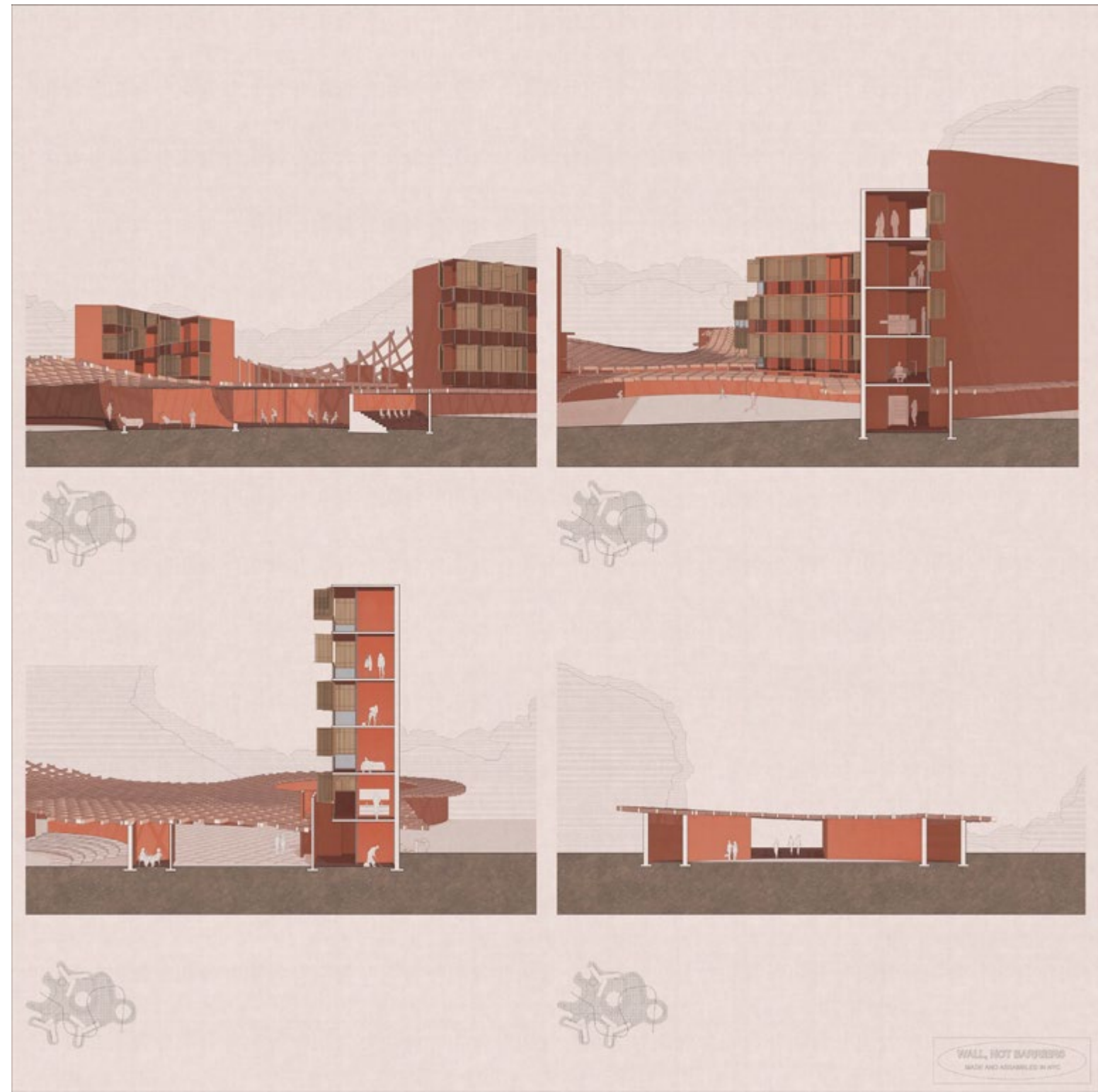
*Temporary shelter in Broadway, Manhattan
Site : New York, USA
(Archived in the 2019 GSAPP 'ABSTRACT' Yearbook)*





Fourth Floor Plan

- | | | |
|--------------------------------|-----------------------------|---------------------------------|
| <i>A - Medical Centre</i> | <i>E - Amphitheatre</i> | <i>I - Music Cornor</i> |
| <i>B - Residential Units</i> | <i>F - Workshop</i> | <i>J - Communication Cornor</i> |
| <i>C - Classroom</i> | <i>G - Observation Deck</i> | |
| <i>D - Communication Space</i> | <i>H - Exhibition Space</i> | |



Four Sections

People stay for 12 months, gradually honing practical skills, like repairing shoes, at the side of their knowledgeable guide. Intellectual occurs as a classroom and workshop space; Social occurs as small communication rooms; Ethical appears as medical center; and Political appears as an observation deck. The series culminates in an exhibition space, before graduation, allowing conversations to happen between homeless people and general public, even a job fair. Thus, the building is not only a dwelling but also a space for learning, reflecting, observing, equipping people to emerge and re-engage society.



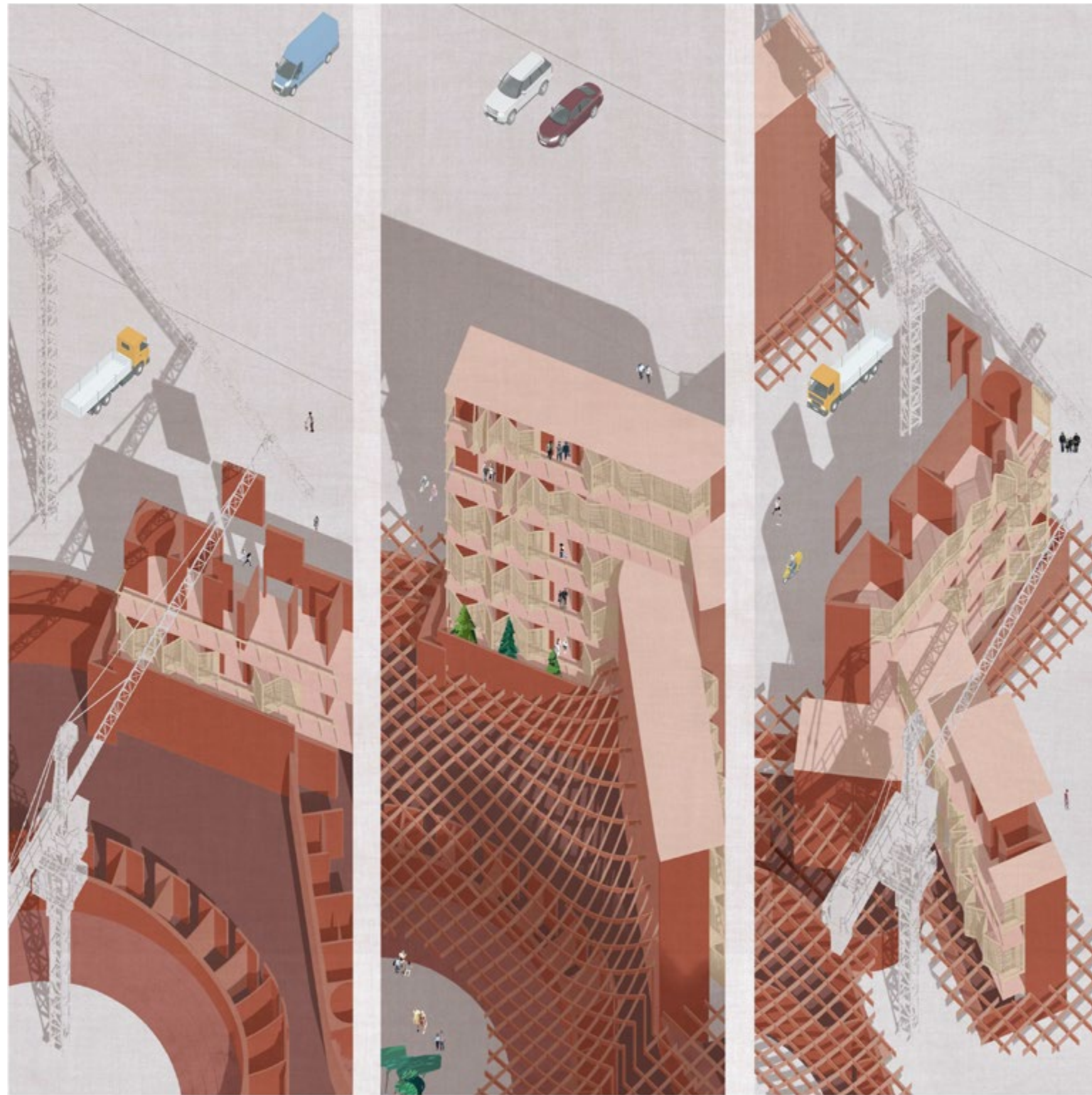
COMMUNICATION SPACE

The waffle structure acts as the roof and façade, controlling natural light and shadow, while also starting to shape the space. For example, the communication rooms are shorter compared to the corridor next to them when it comes to the room height, as those communication rooms are more private, restricted to certain usages and people.



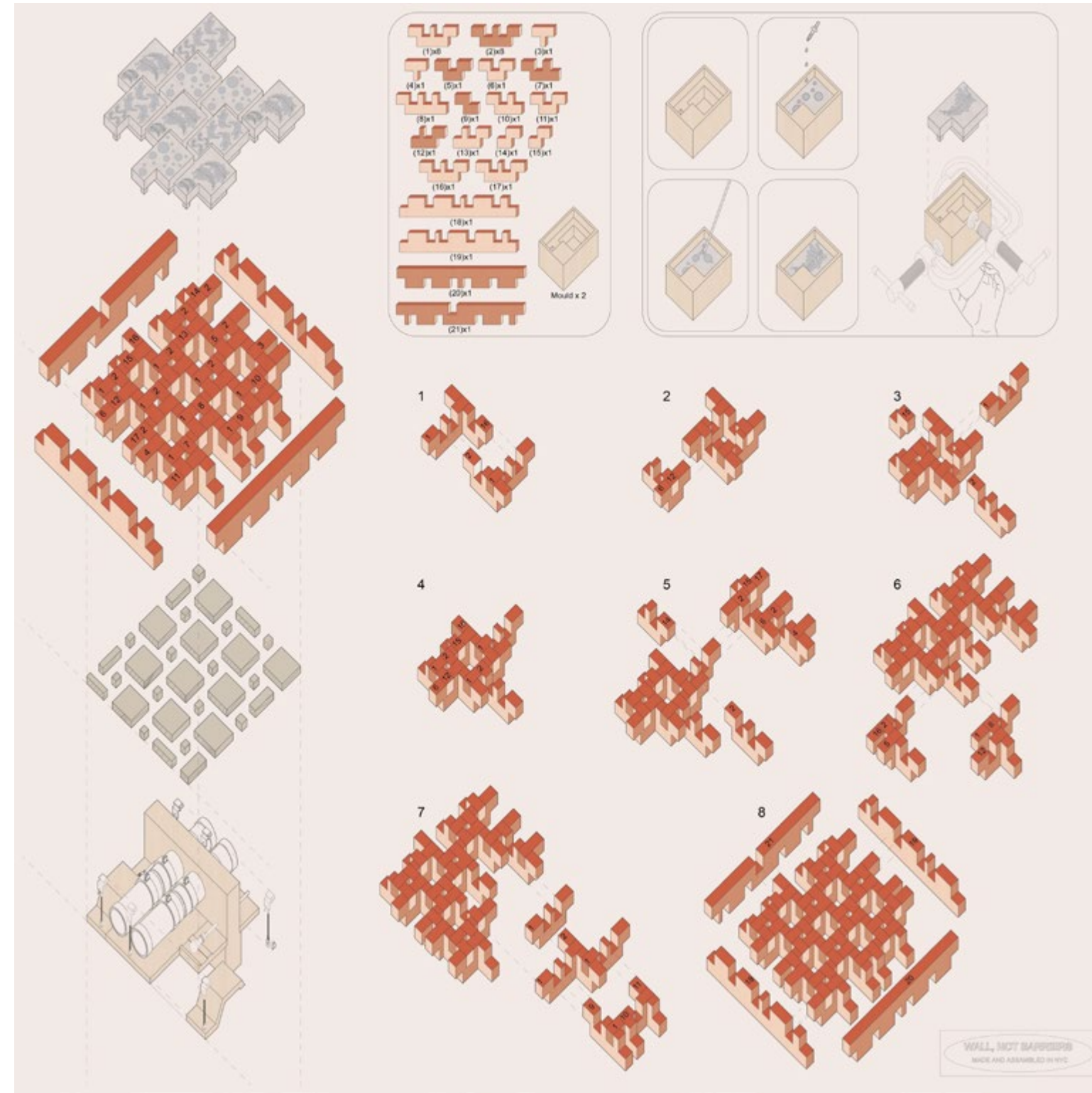
WORKSHOP SPACE

The process addresses the building more into a teaching tool, which means that extra skills to be taught during the stay in terms of maintaining the building, constructing furniture and even designing the space on their own.



CONSTRUCTION PROCESS

The first recorded use of the term "Grand Tour" was by Richard Lassels, in 1670. By definition, "a traveler", accompanied by "a knowledgeable guide", traveled with the goal of achieving four areas in human development: intellectual, social, ethical and political awareness. Grand tourists returned from their journey with objects as evidence of their development, such as crates full of books and works of art, which would then be displayed to the public in the form of a gallery, library or museum built in that purpose. Although initiated as a form of cultivating bourgeois society, this process in education and re-presentation could fundamentally redefine our attitude towards citizens that find themselves without a home. The image above shows the construction process of the building.



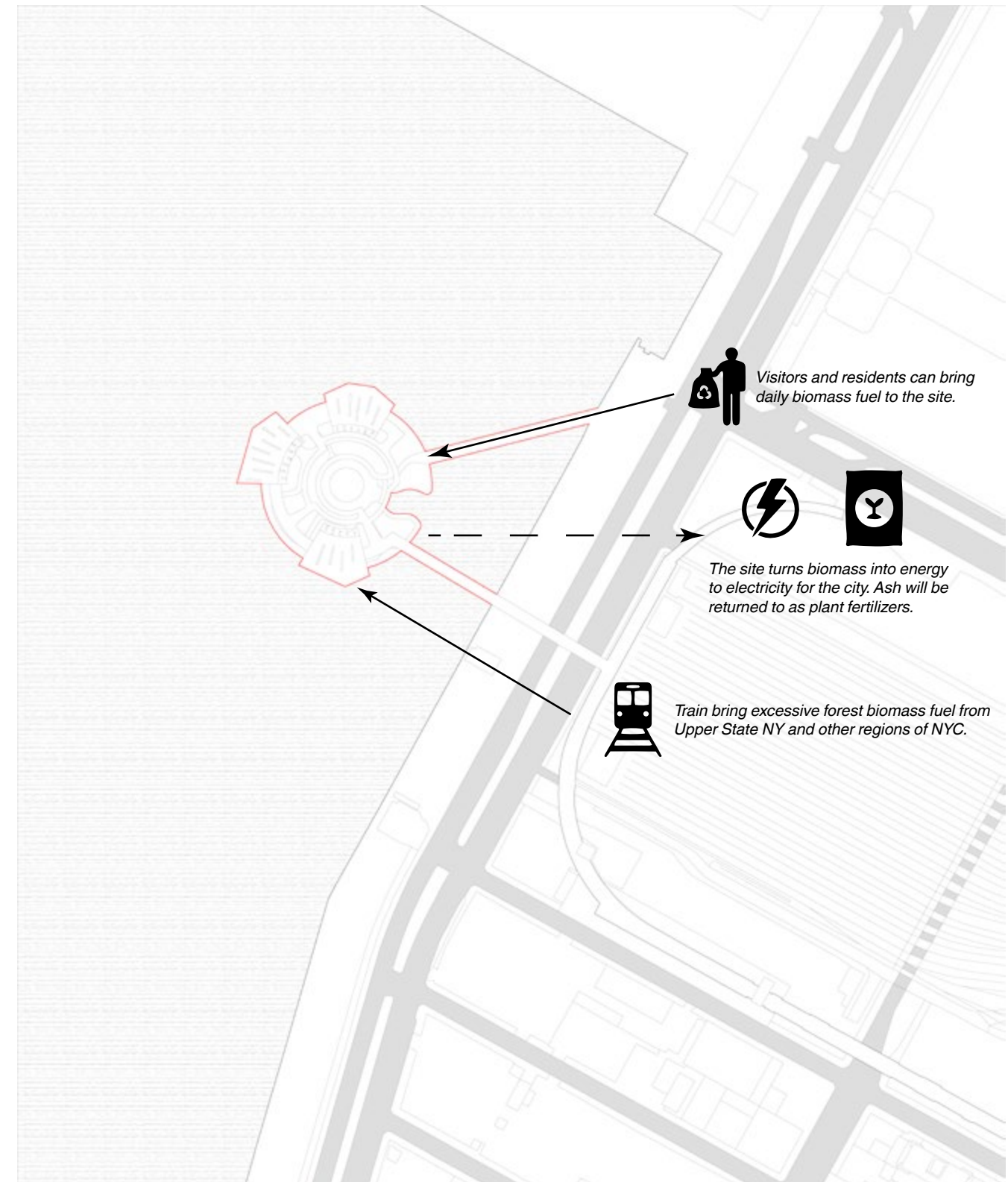
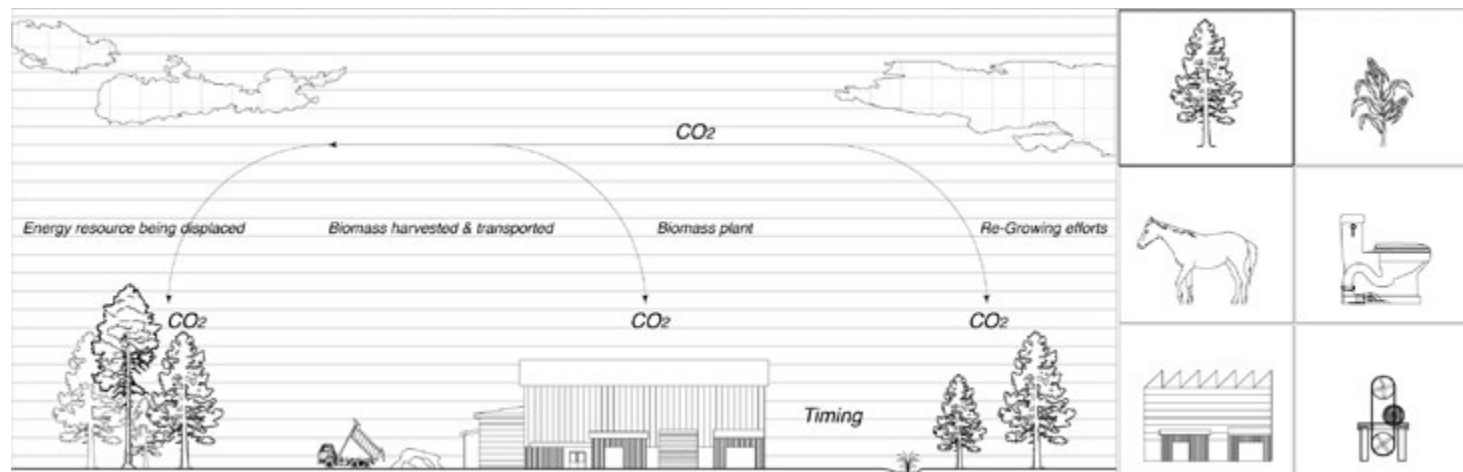
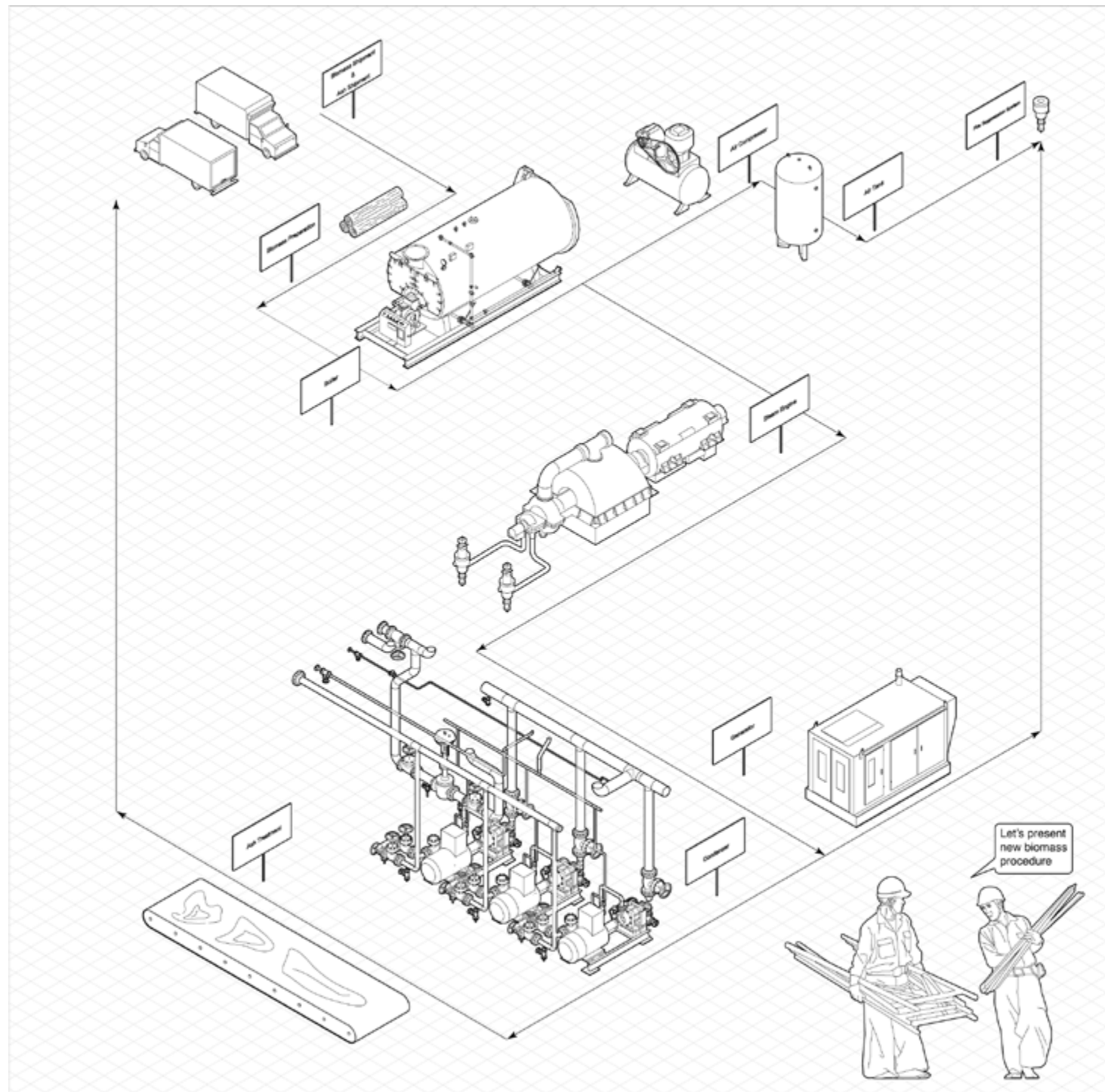
JOINT CONSTRUCTION DETAIL

Walls, not barriers is a temporary home and that introduces an architectural series of dialogues that support the four steps of human development outlined originally as the Grand Tour. Thresholds between the very public space of the sidewalk and surrounding park and semi-public education, communication, and making spaces, and finally private dwelling spaces are mediated by manipulating the role of walls. From the outside, the complex looks like a collection of opaque masses, but in fact, they are internally carved into rooms that expand and contract, carrying all "Grand Tour" functions along their length. The image above shows how the floor is assembled in the building.

06 The Unburnt Forest
A Unique Urban Island

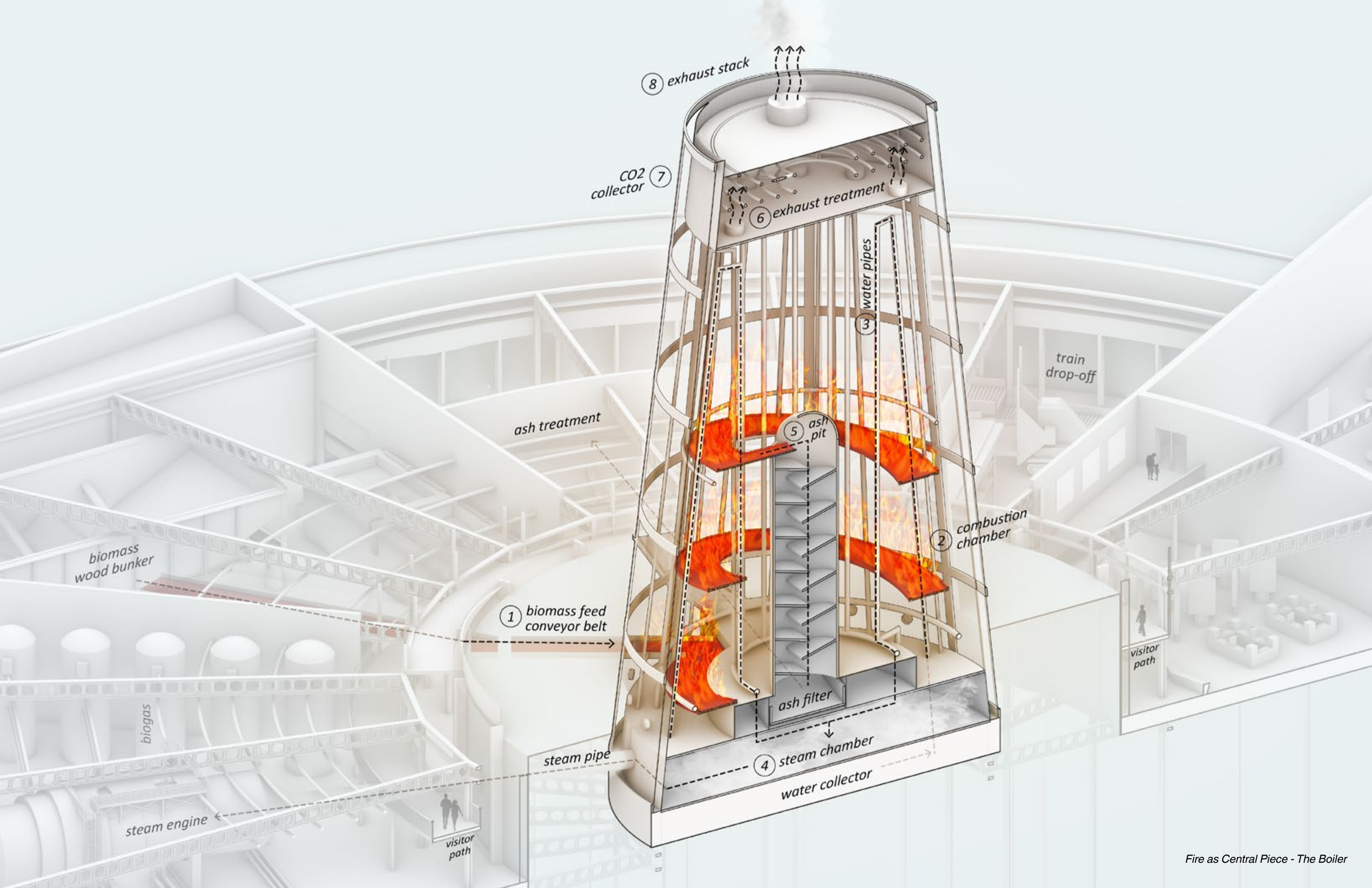
Group Work with Peicong Zhang, Karen Chen
Fall 2021
ACADEMIC
New Island on Hudson River
Site : Hudson River, New York City, NY 10001





The project innovates in programs by intertwining the use of fire in biomass plant with fire experiential and exhibition spaces. Visitors are invited to experience fire through understanding its function and how it generates new purposes of the other three elements. Finally through the project, fire is no longer seen as a danger but rather a catalyst for creation, allowing the coexistence of fire and forest.

left: Biomass procedure and CO₂ neutrality
top: site map of the proposed island



⑧ exhaust stack

CO2 collector ⑦

⑥ exhaust treatment

③ water pipes

ash treatment

⑤ ash pit

② combustion chamber

biomass wood bunker

① biomass feed conveyor belt

visitor path

biogas

steam pipe

④ steam chamber

water collector

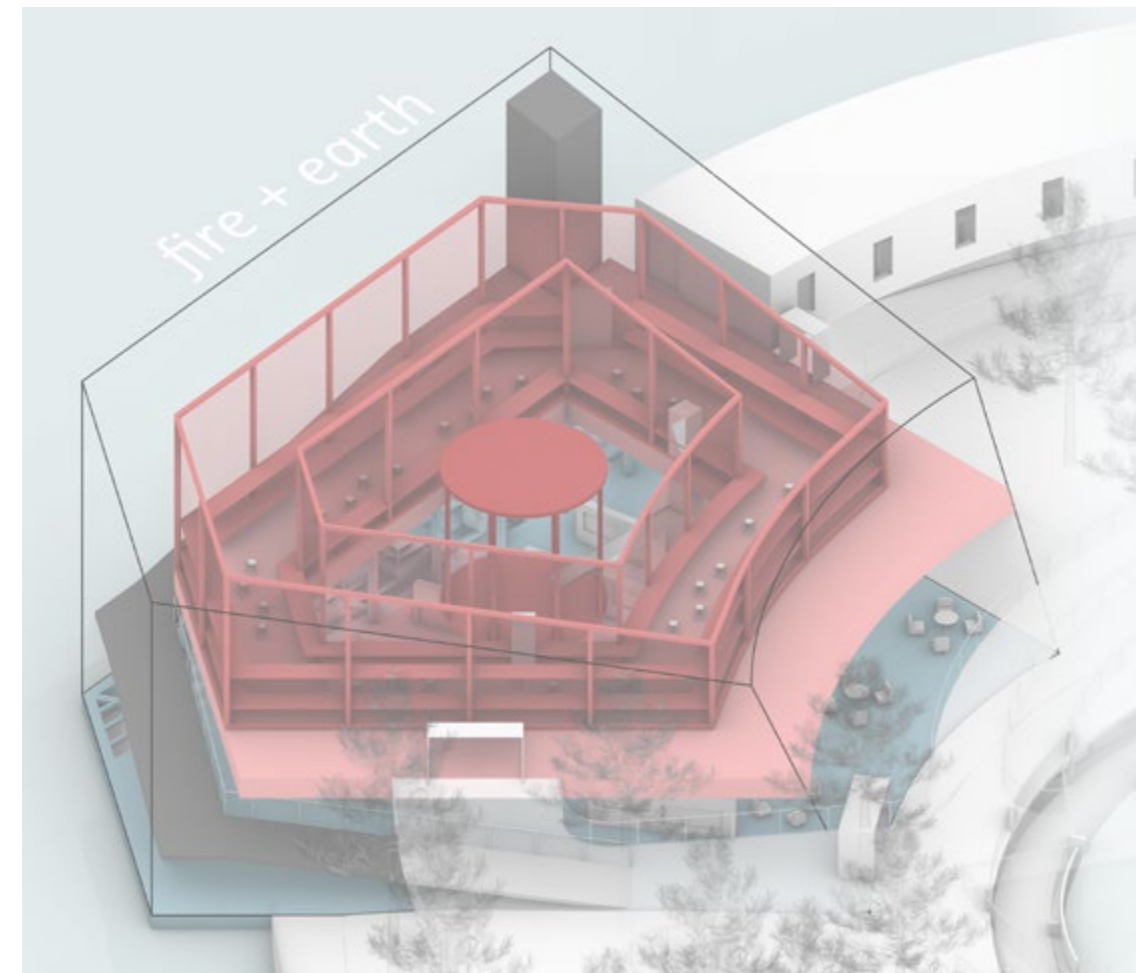
steam engine

visitor path

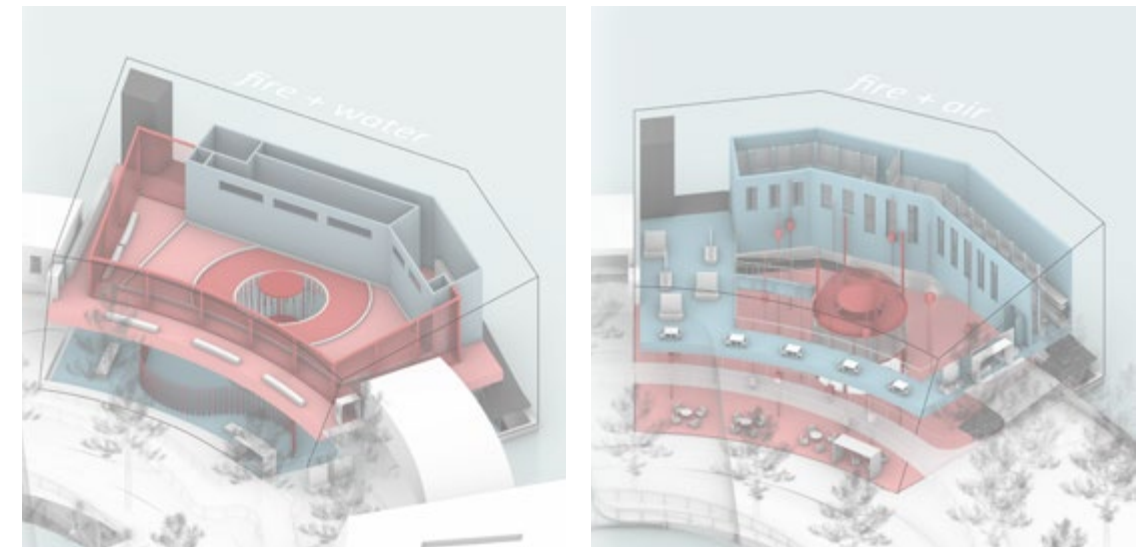
train drop-off



Fire & Earth: Terracotta Exhibition

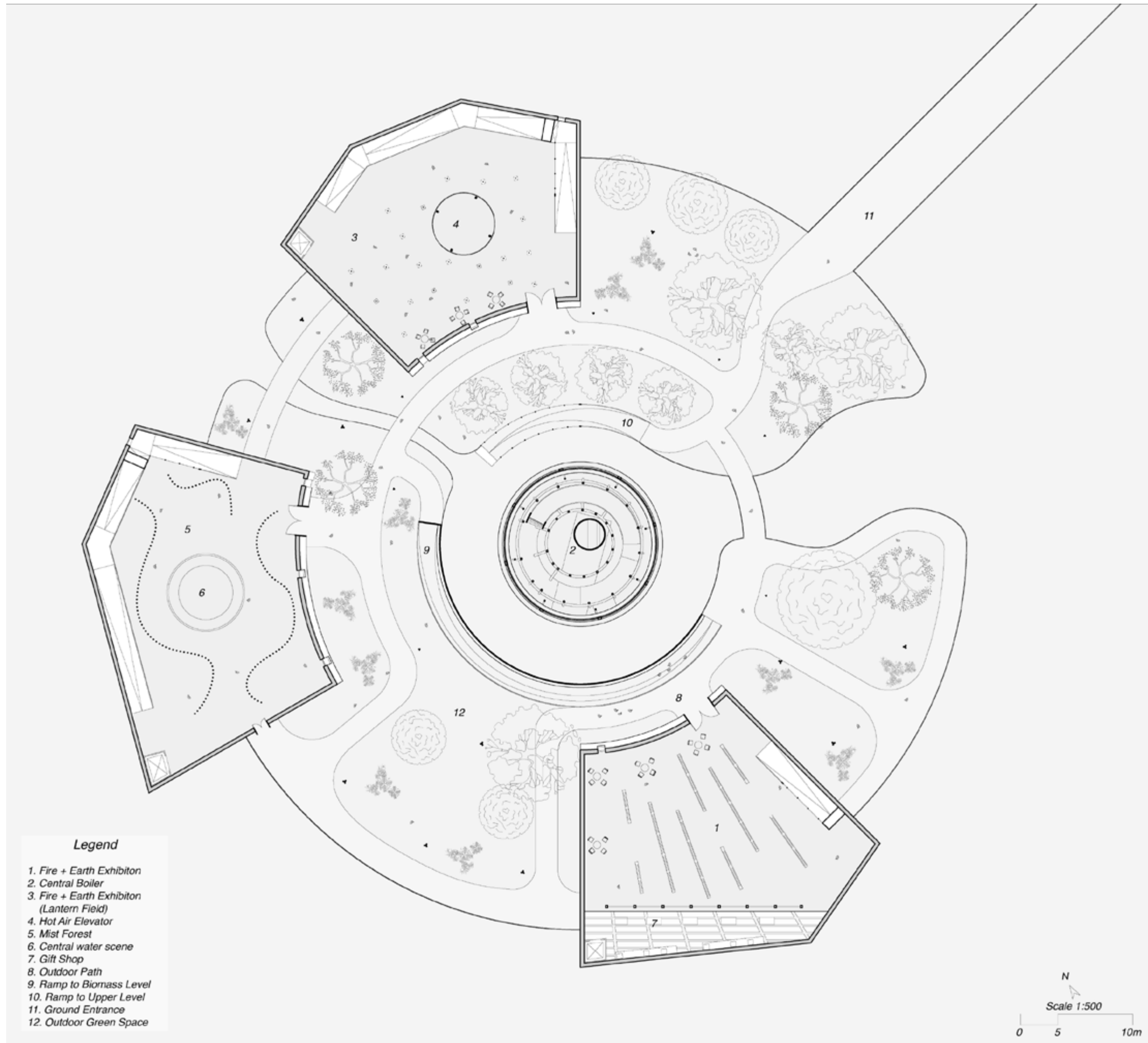
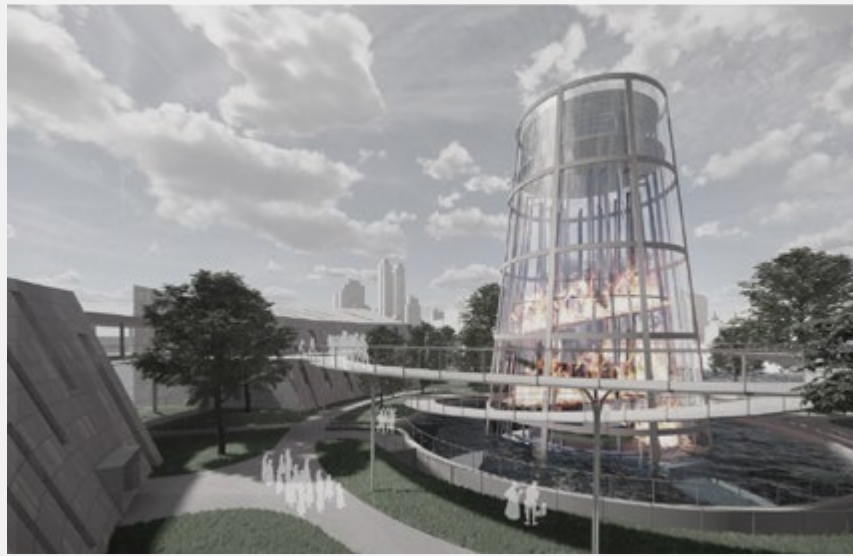
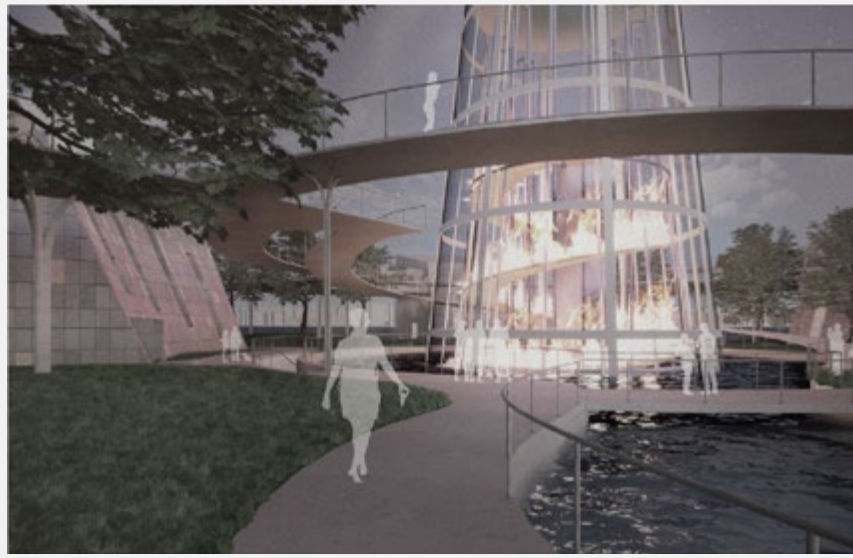
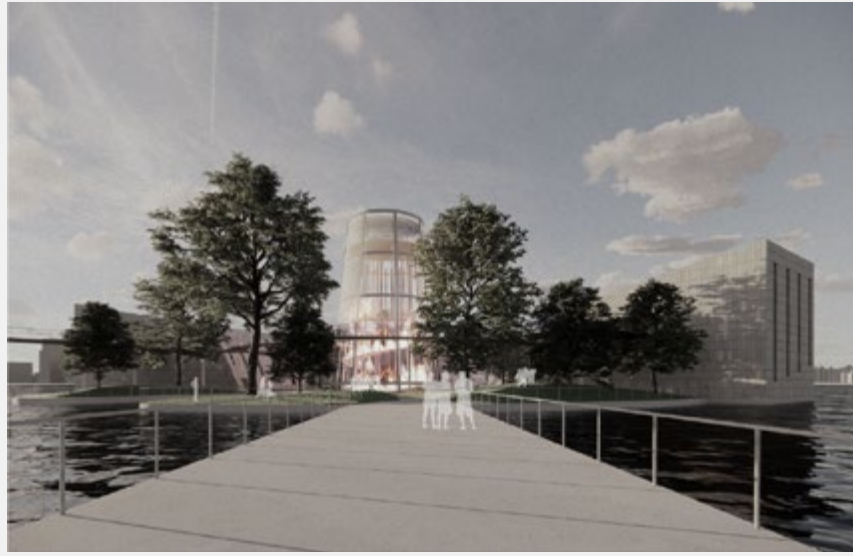


Fire & Air: Lantern Field



3 Pavilions with 3 elements

Zooming into the three pavilions, all of them are designed with a similar typology of a central atrium hosting a boiler or burner, and circulations on the periphery. A relatively open ground floor allows for a more immersive experience for visitors entering the exhibitions. The earth pavilion investigates how fire can transform soil into terracotta and pottery. With a similar layout, the water pavilion investigates what happens to water when it is heated by fire. The air pavilion investigates the concept of hot air expanding.



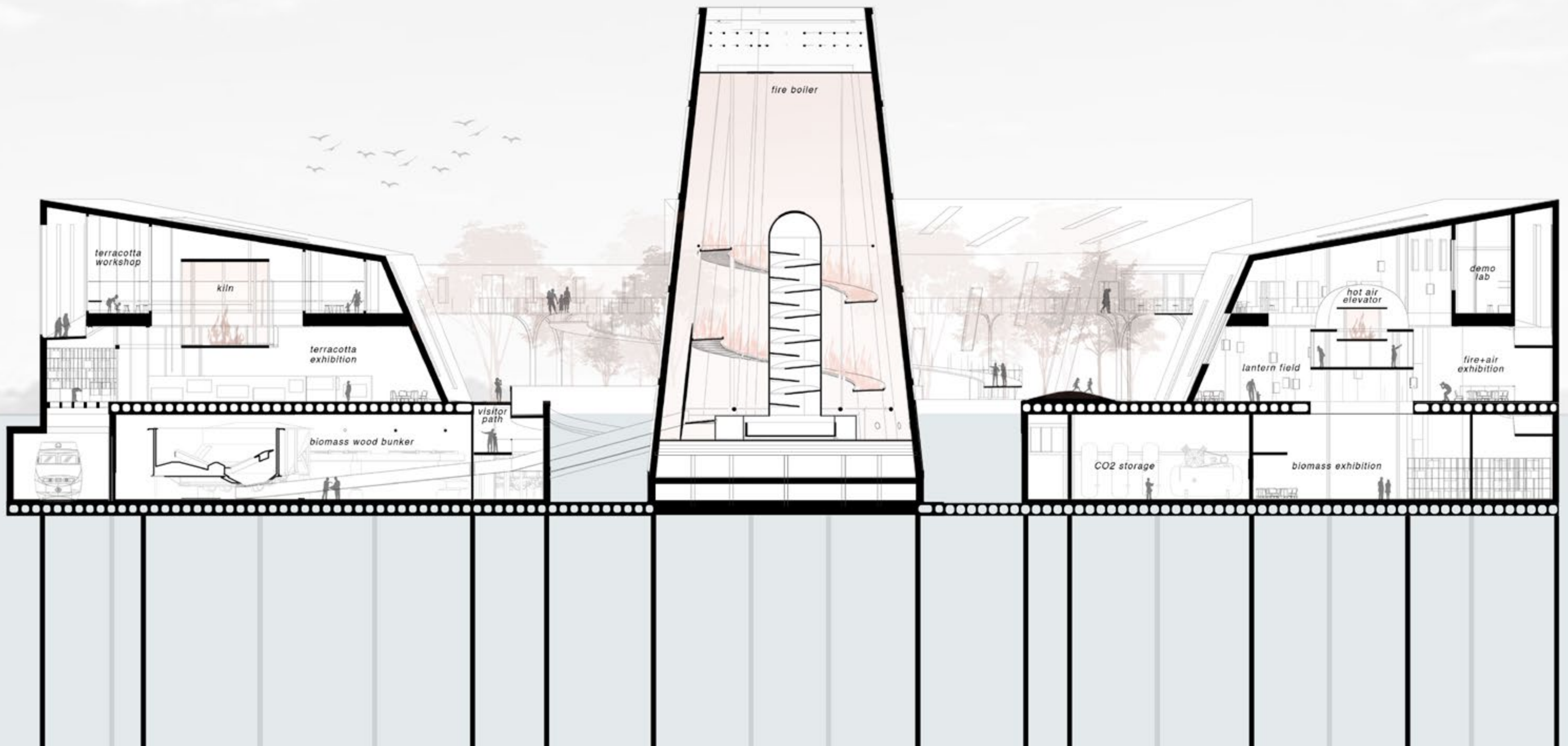
Legend

- 1. Fire + Earth Exhibiton
- 2. Central Boiler
- 3. Fire + Earth Exhibiton (Lantern Field)
- 4. Hot Air Elevator
- 5. Mist Forest
- 6. Central water scene
- 7. Gift Shop
- 8. Outdoor Path
- 9. Ramp to Biomass Level
- 10. Ramp to Upper Level
- 11. Ground Entrance
- 12. Outdoor Green Space



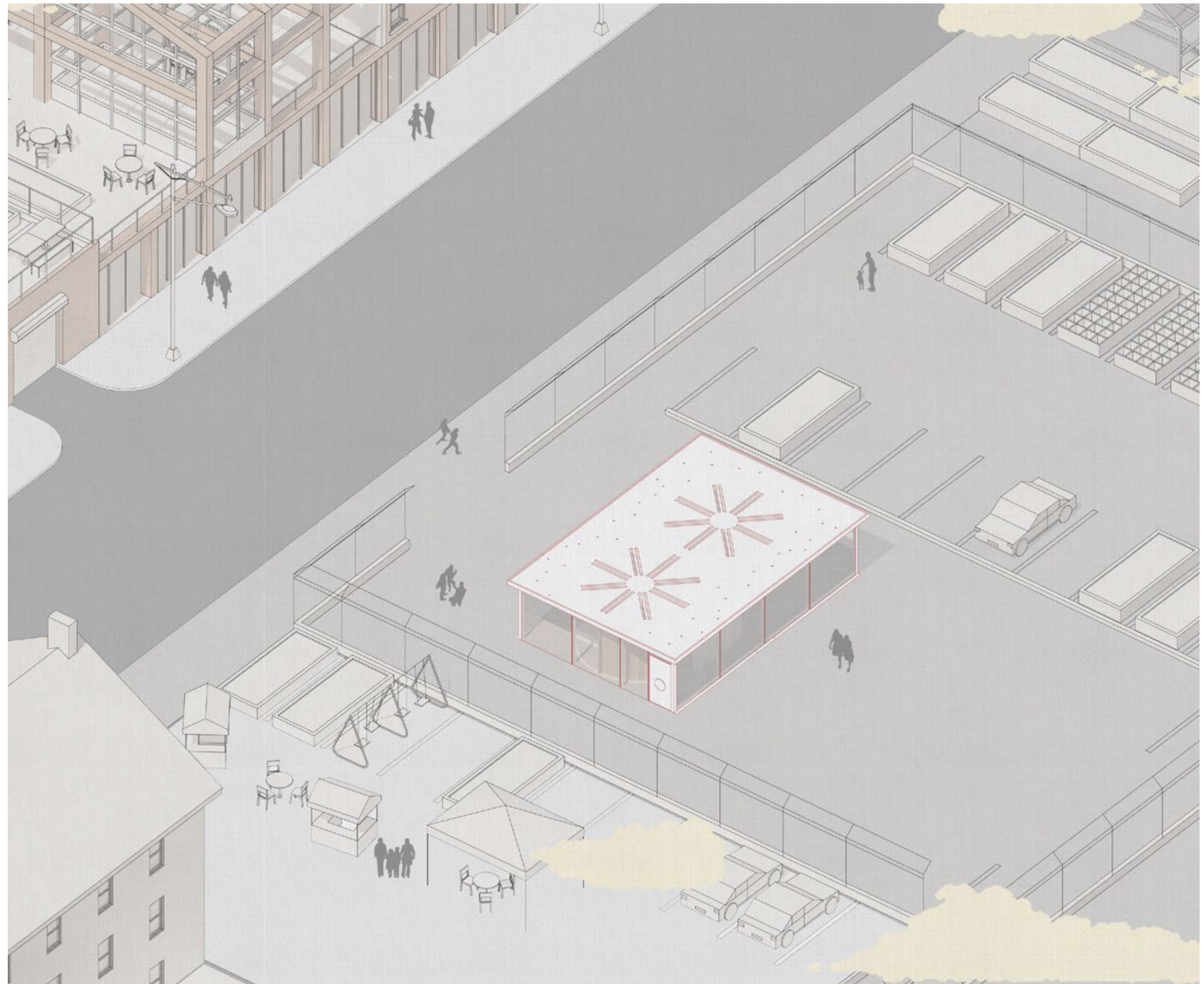
Ground level floor plan with renderings

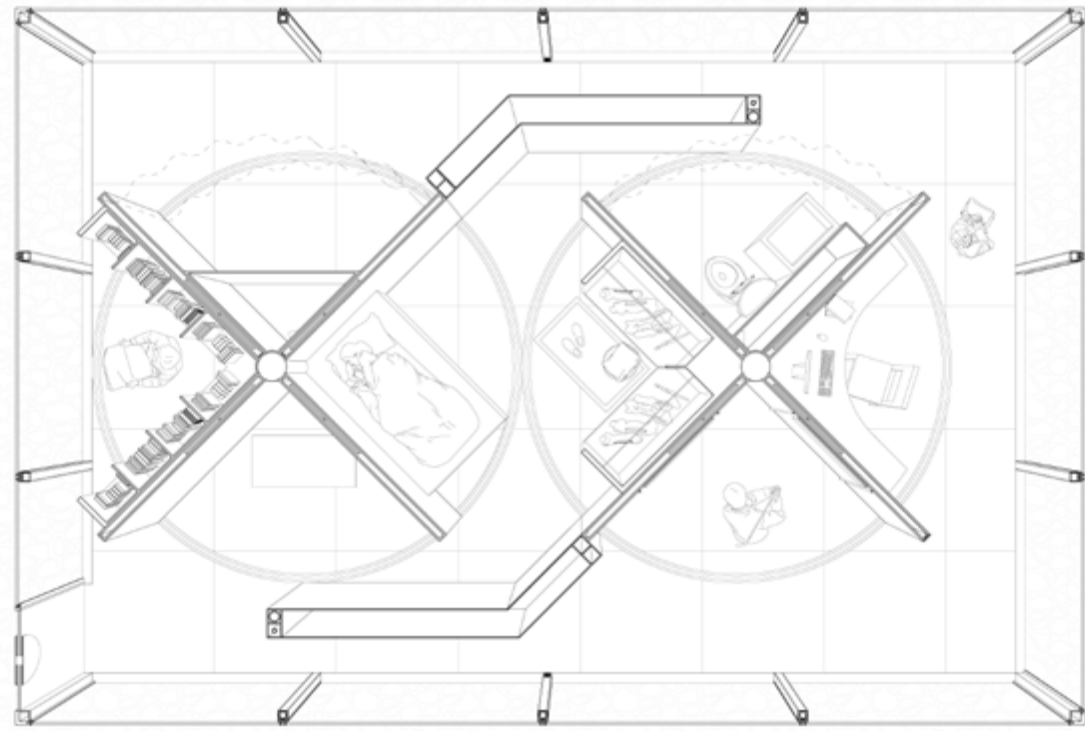
The design intention includes a free exploration of the urban forest and pavilions while having a consistent view of the central fire. With entrances facing the fire and connecting to the path, people are reminded of the importance of fire as the first thing on site. The notion is further emphasized when they enter the pavilions and see the secondary fire pieces.



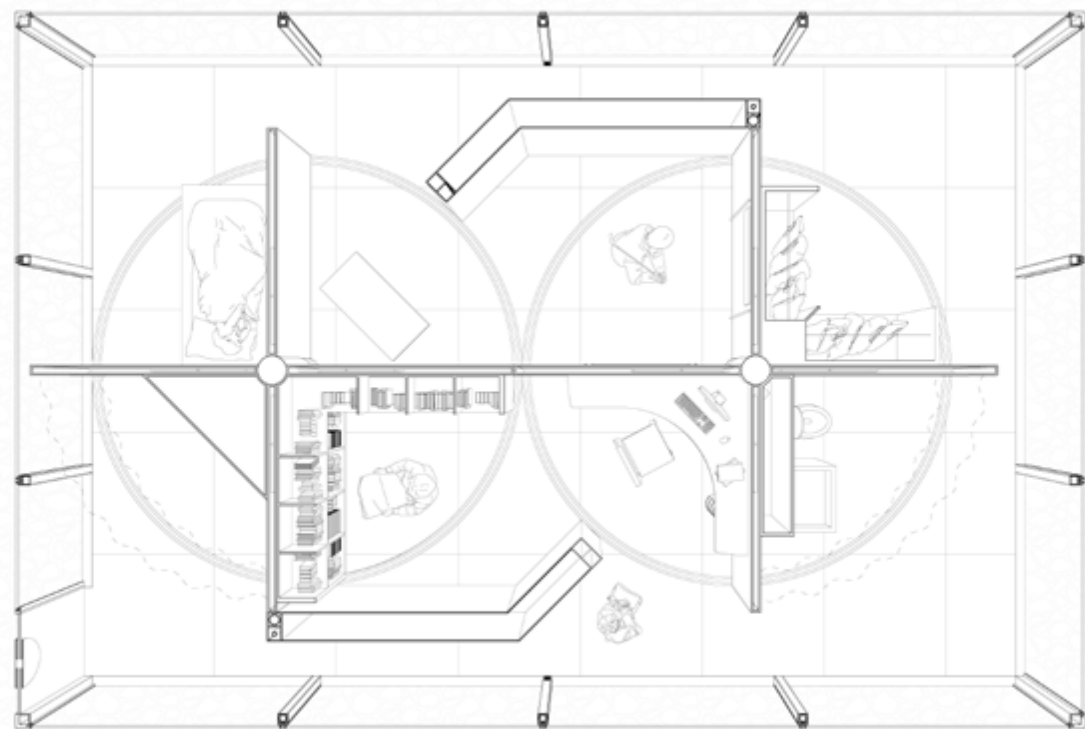
07 The Revolving House
A Healthier Future

Individual Work
Spring 2021
ACADEMIC
Future small scale work and living space
Site : Anywhere





Perspective plan - Rotation mode 1

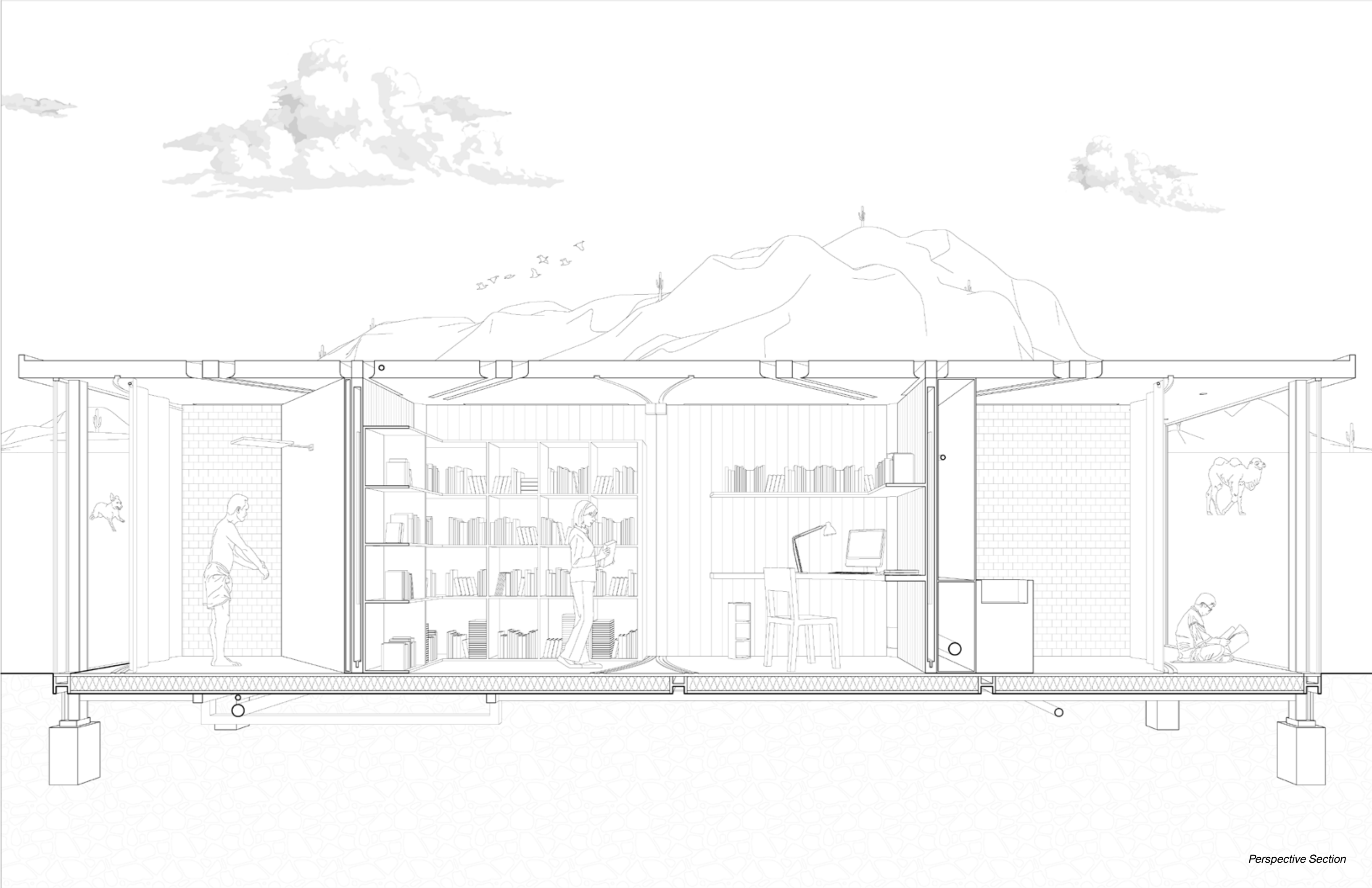


Perspective plan - Rotation mode 2

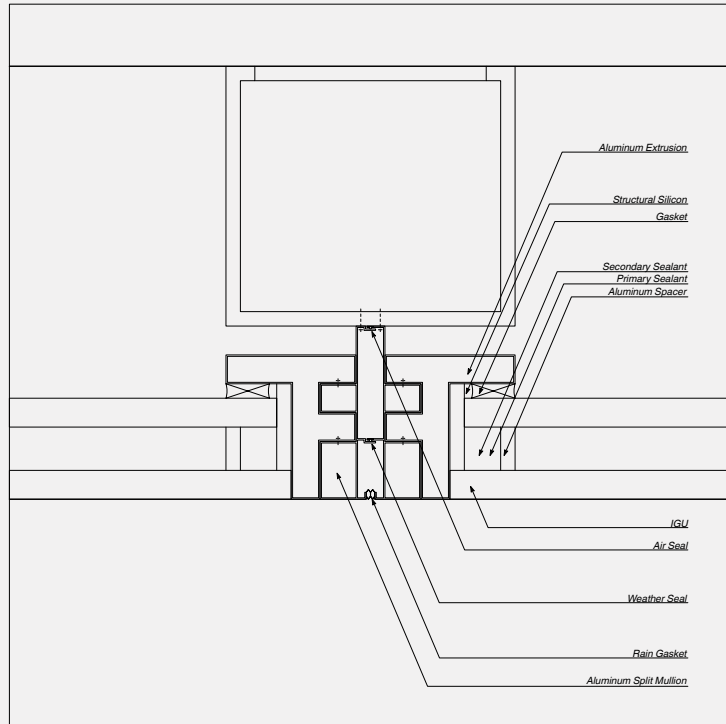
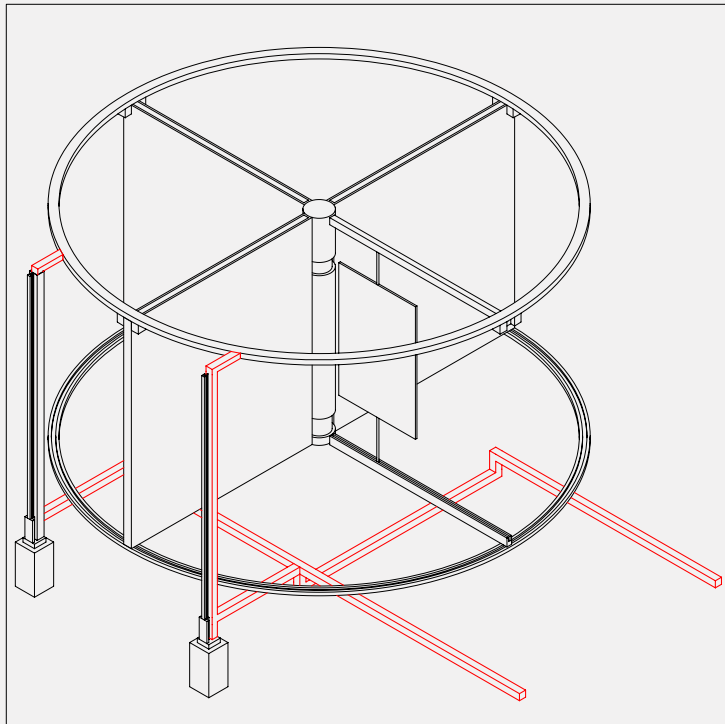
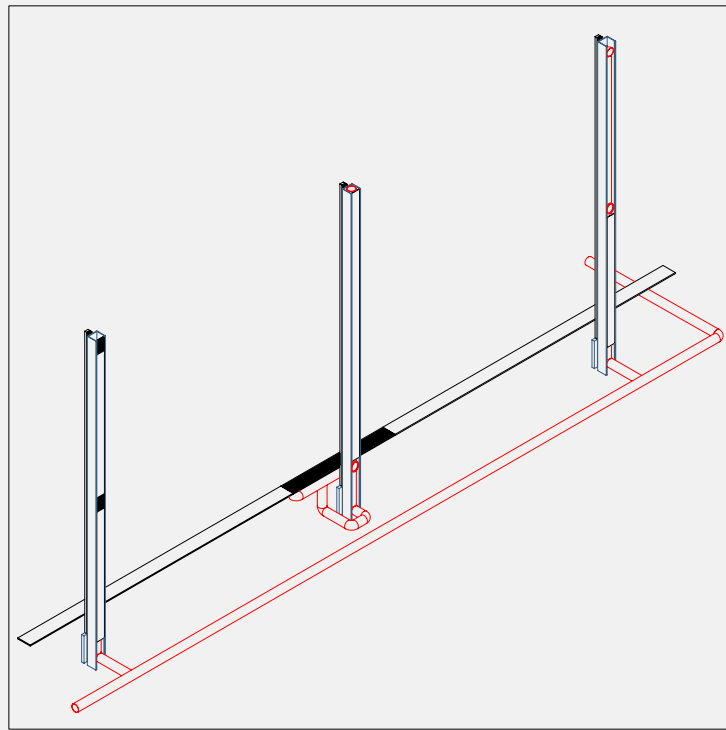
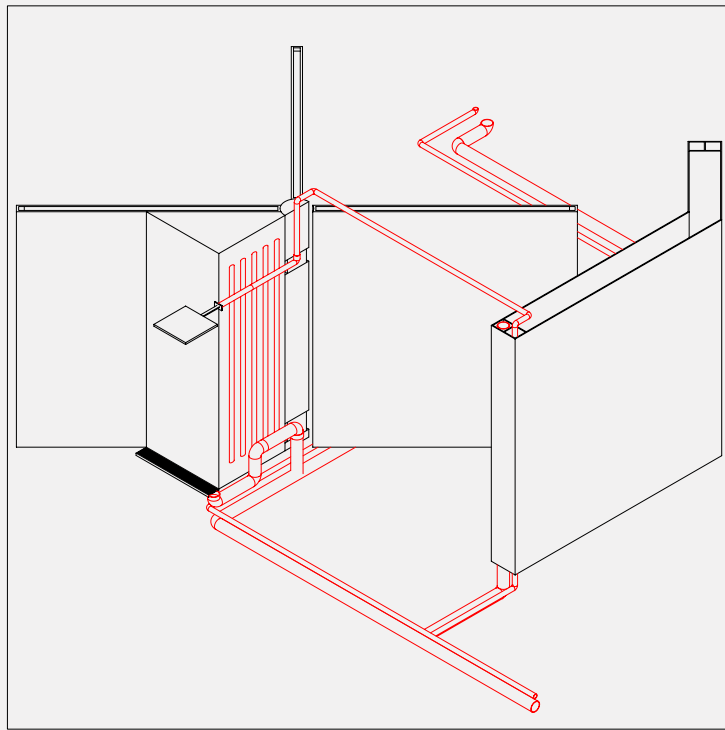


A healthier future and architecture

The current stage of living and working conditions are disjointed, resulting in the possibility of excessive overtime employment. The goal of this design is to combine the building with the future of the health industry. When to work, exercise, and rest will be determined by the user and the building itself. In this situation, a more peaceful, healthier way of working and living is encouraged. The physical and mental health of its users is always a priority in this building, and the privacy and spatial activities of people are also monitored by the entire system. As a result, the adaptability of the interior space becomes critical. Due to the aforementioned requirements, the interior walls must begin to rotate in response to the demand, resulting in a unique spatial experience.



Perspective Section



Technical Detail - How does the building work as a unison

The walls are embedded with a scanner that scans the human body's health at all times so that the building can determine the current state of the person and change to form a space suitable for the user's activities. All structural components are combined with an auxiliary function of the structure, for example, the window mullion is not only its own function, but also a structural column and a duct for the electrical and air supply system, in order to make the complete building appear lighter. The water tank is built into the central wall. Because the problem of water supply was complicated by the continually shifting walls and spaces, the central cylinder was turned into a rotating structure, which solved the problem of the bathroom's constantly changing location.



- Electricity Ducts
- HVAC Ducts
- Water Pipes
- Structure

Worm View of MEP system



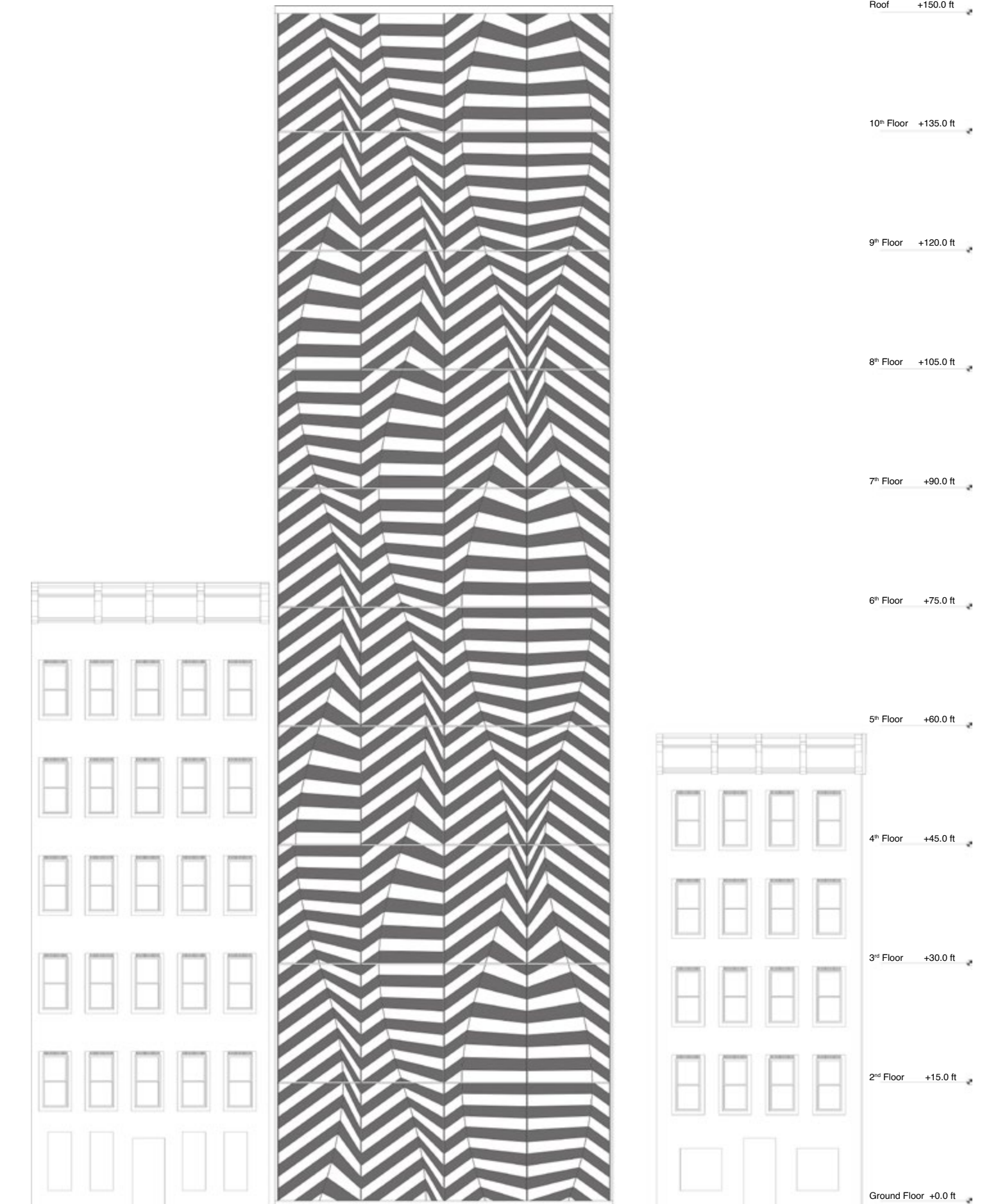
Window Detail

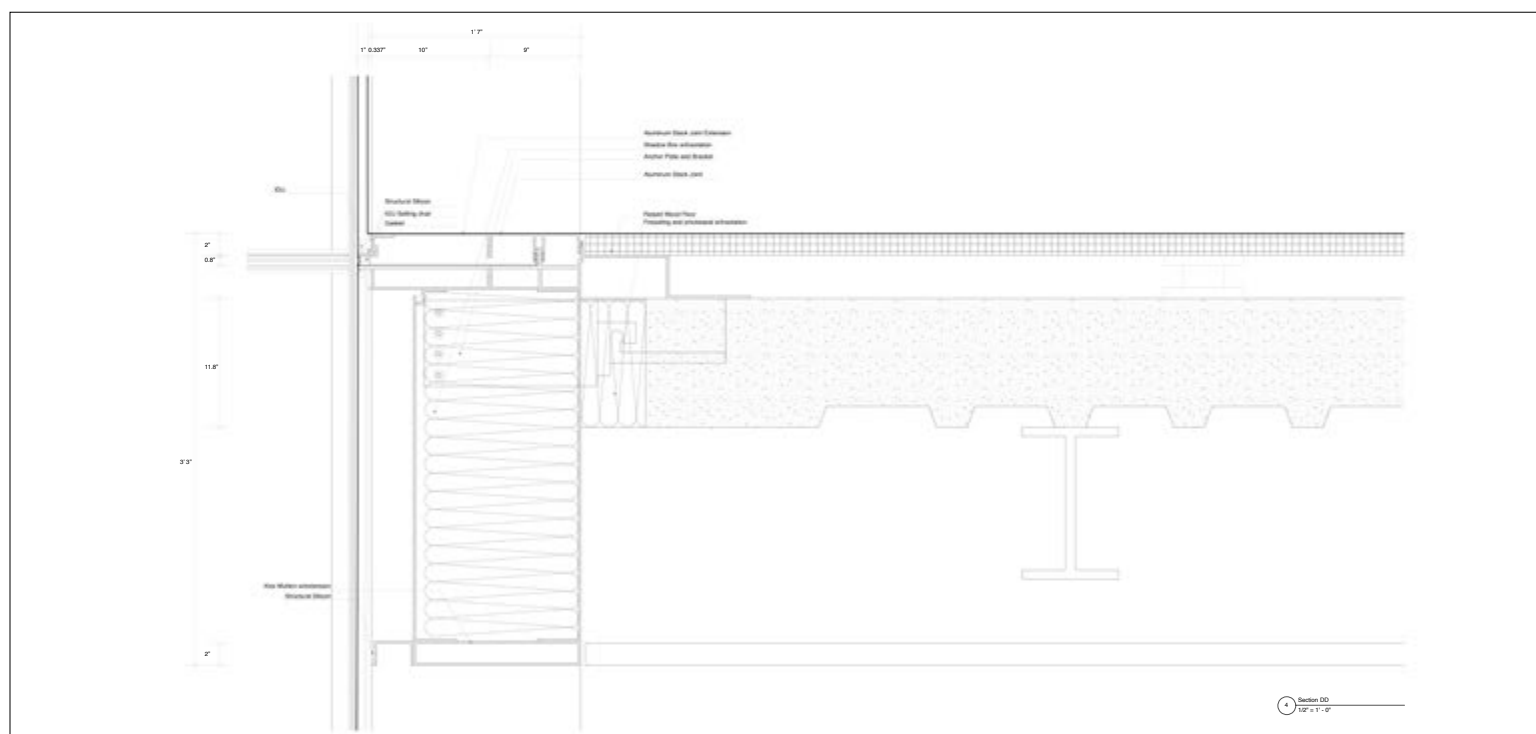
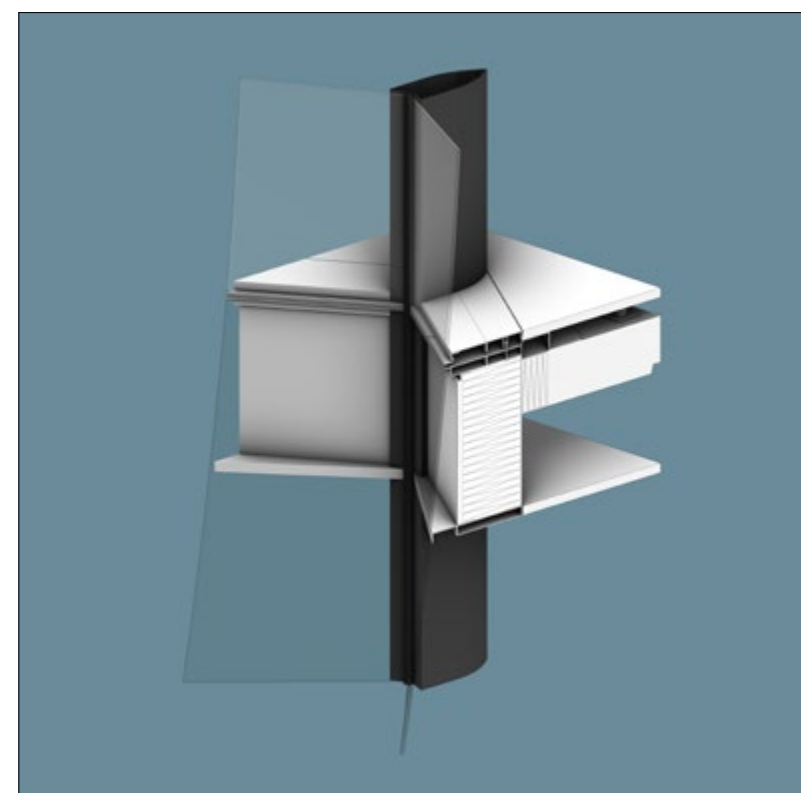
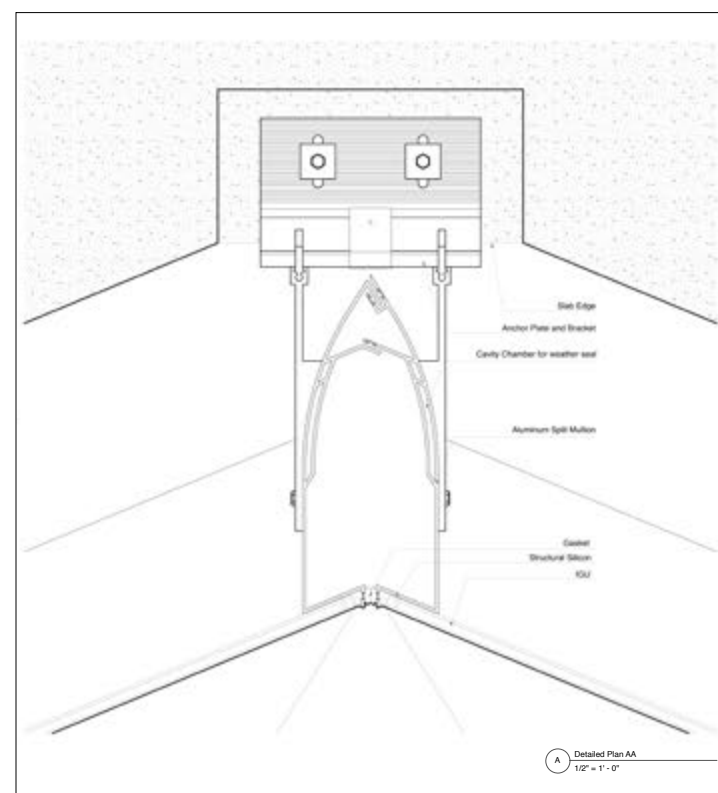
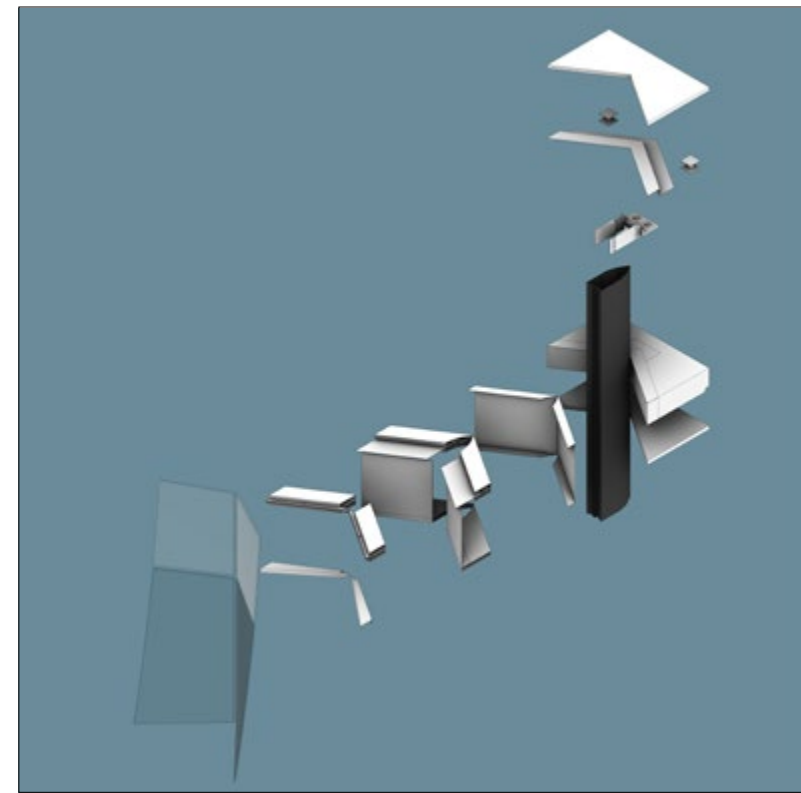
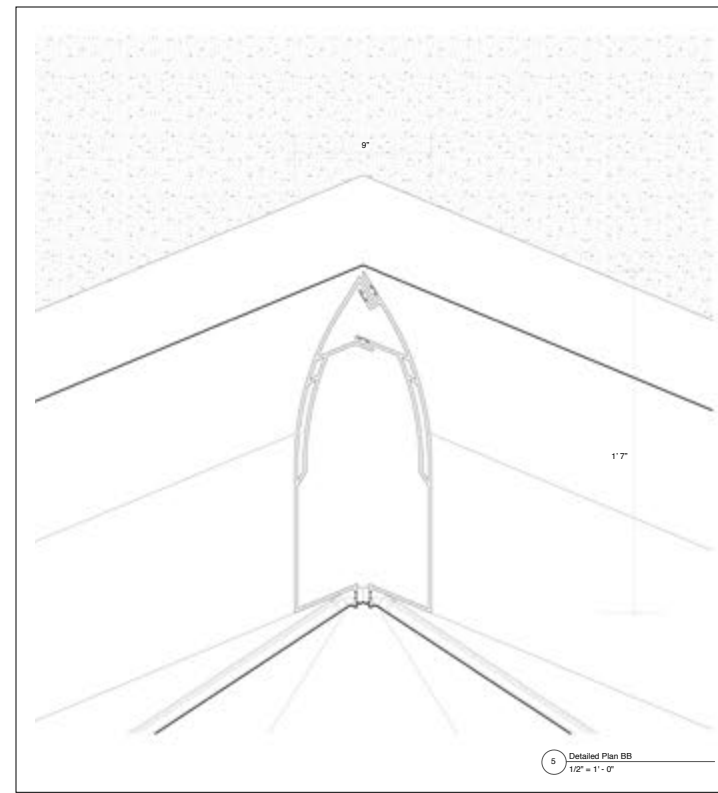
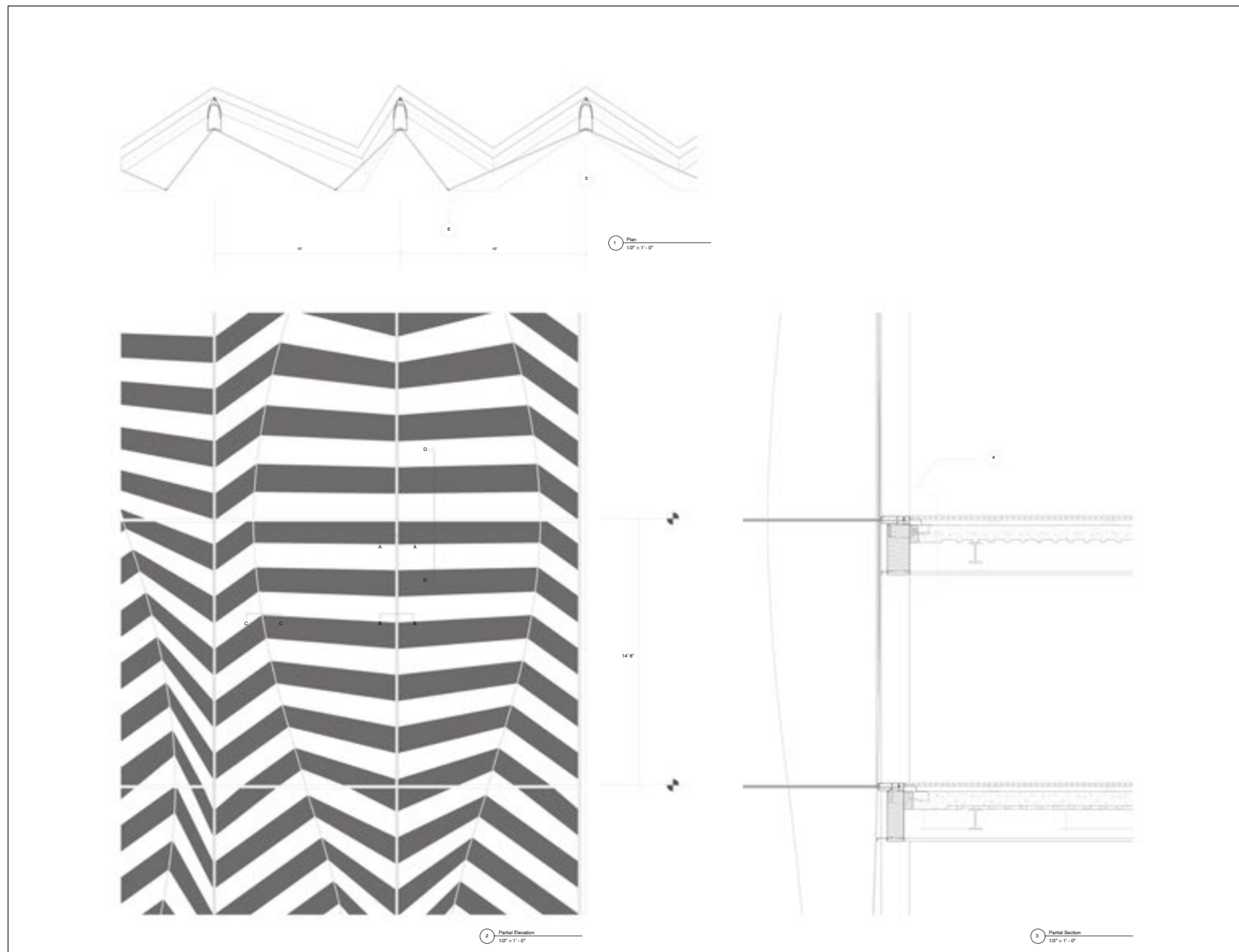


Revolving wall detail

08 The Dancing Stripes

Individual Work
Fall 2021
ACADEMIC
Facade Design of East Village Office
Site : 368 E 10th St, New York, NY 10009





Inspired by Bridget Riley's drawing, the new designed gallery in East Village owns a 3-dimensional façade that plays with curvature. Visual experiences vary from interior to exterior due to the manufacture of glass. Curtain wall consists of unitized extruded aluminum frames with 2 unique curved (could be hot bended or Slumped) IGUs, Aluminum stack joints with unique aluminum stack joint extensions.

left: Roadmap system 1 with detailed stack joint section
top: Mullion details with axonometric view