



PORTFOLIO

Selected Works 2022-2025

Marc Yiheng Zhao

Architectural Designer | Columbia M.Arch '25

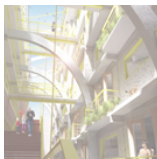
CONTENTS

PROJECT

1

DWELLING IN MOTION

Housing as Infrastructure, Promenade as Stage



2

THE PEOPLE’S BATHHOUSE AND PLUMBERS’ LIBERATION SCHOOL

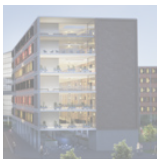
An Oasis for the Hidden Labor Behind New York’s Infrastructure



3

PHOENIX ACADEMY

A School and a Sanctuary: A Community of Learning, Resilience, and Belonging



4

THE URBAN HOMESTEAD

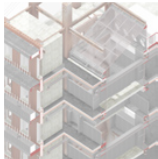
Greenhouse Living: Blending Agriculture and Residency for Sustainable Urban Spaces



5

CLUB MOGADOR - HOUSE CLUB REMIX

Redefining Nightlife with Sustainable Innovation



6

ELEVATE NOMAD

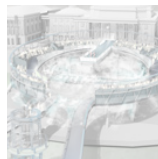
Designing for Vertical Equality



7

AFTER JAN 6 - A NEW INAUGURATION CEREMONY

Reclaiming the Platform: Ceremony, Memory, and the Architecture of Transition



8

VENDORA - THE DYNAMIC MARKET

Tracing Movement, Mapping Opportunity: A Platform for the Invisible Economy





ADV6: DWELLING IN MOTION

Housing as Infrastructure, Promenade as Stage

Function: Artist Housing + Elevated Promenade + Crisis-Ready Public Space

Location: C. Joaquín Velázquez de León 29, San Rafael, CDMX

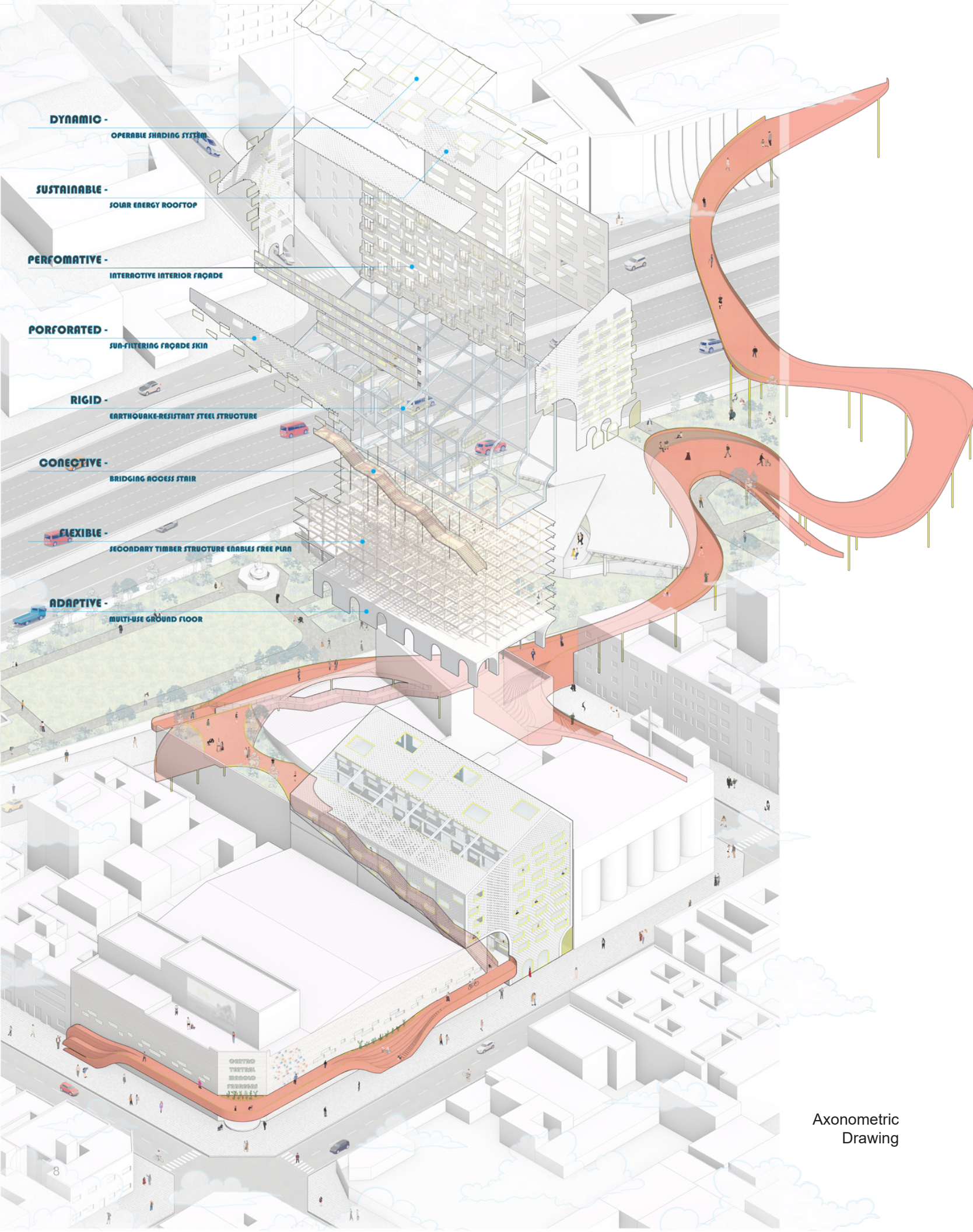
Date: Jan 2025 - May 2025

Course: GSAPP Advance 6 Studio

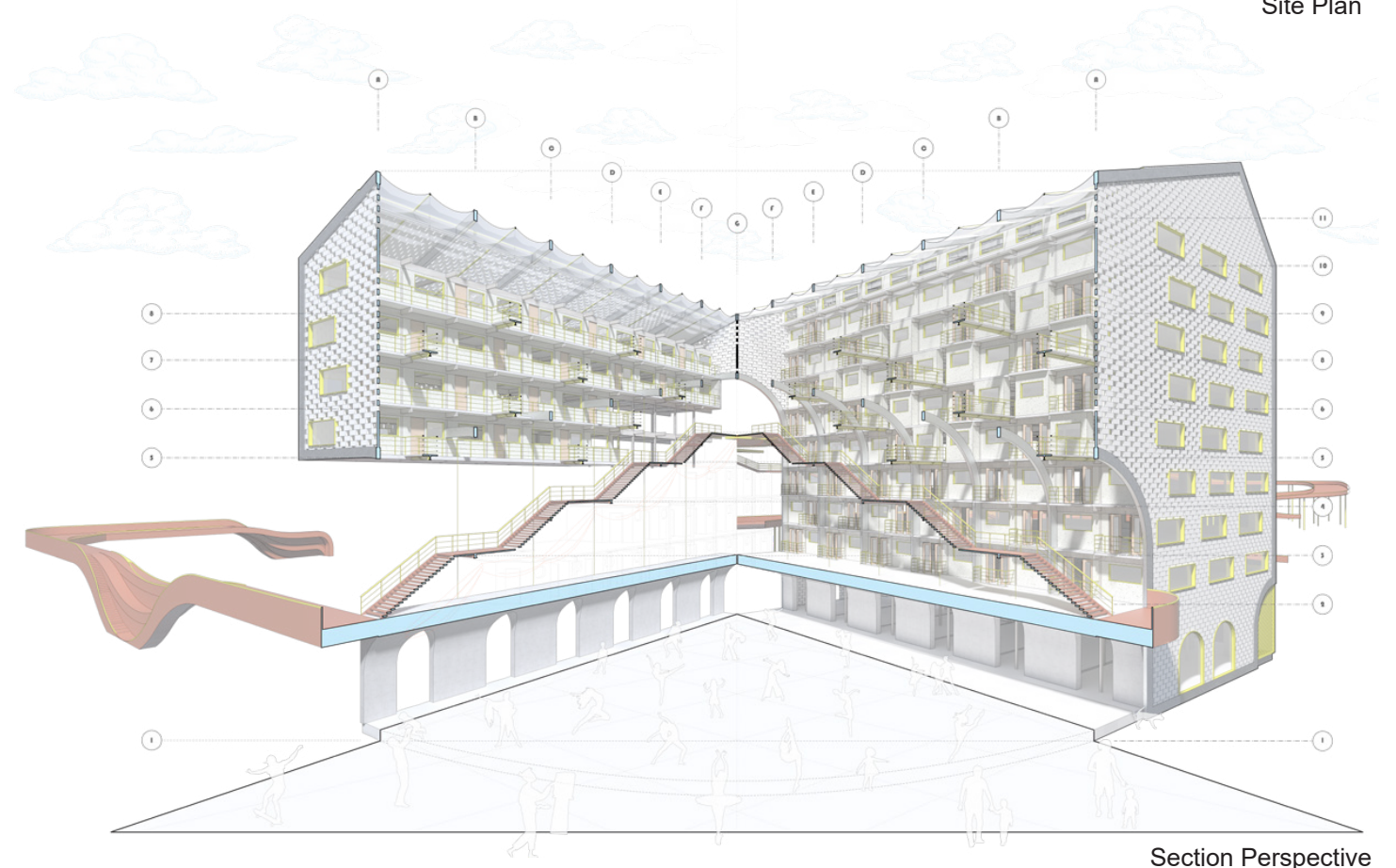
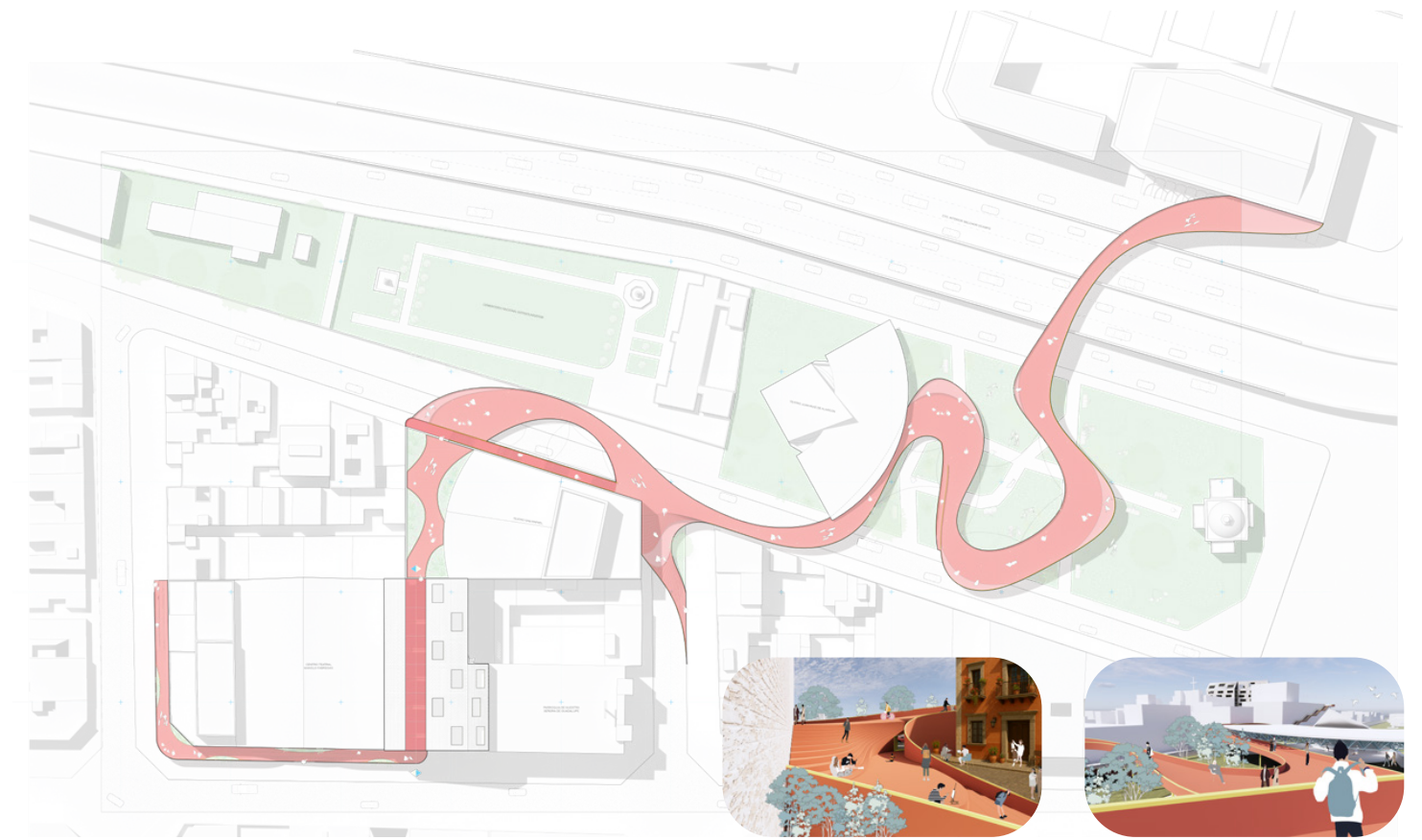
Instructor: Gabriela Carrillo & Thomas De Monchaux

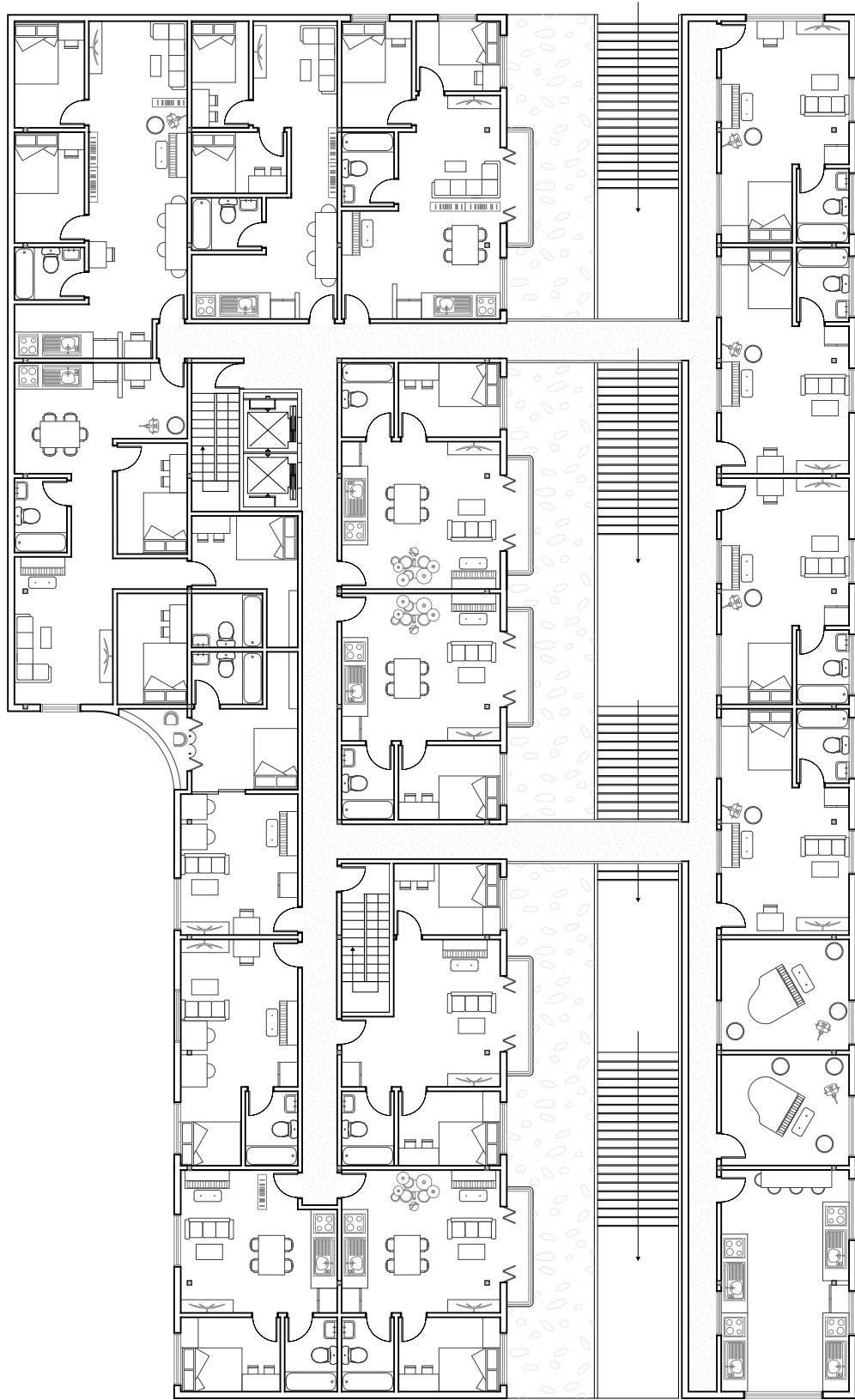
Group Member: Yiheng Zhao, Alex Faza

Dwelling in Motion transforms a former office building in San Rafael, Mexico City into supportive housing for emerging performance artists, while reactivating a once-vibrant cultural district now in decline. The project combines flexible, earthquake-resilient social housing with an elevated promenade that stitches together nearby theaters, parks, and overlooked urban spaces. Serving as circulation, public stage, and emergency shelter, the promenade connects private dwelling with public life—offering a resilient, community-driven model for urban regeneration in Mexico City.

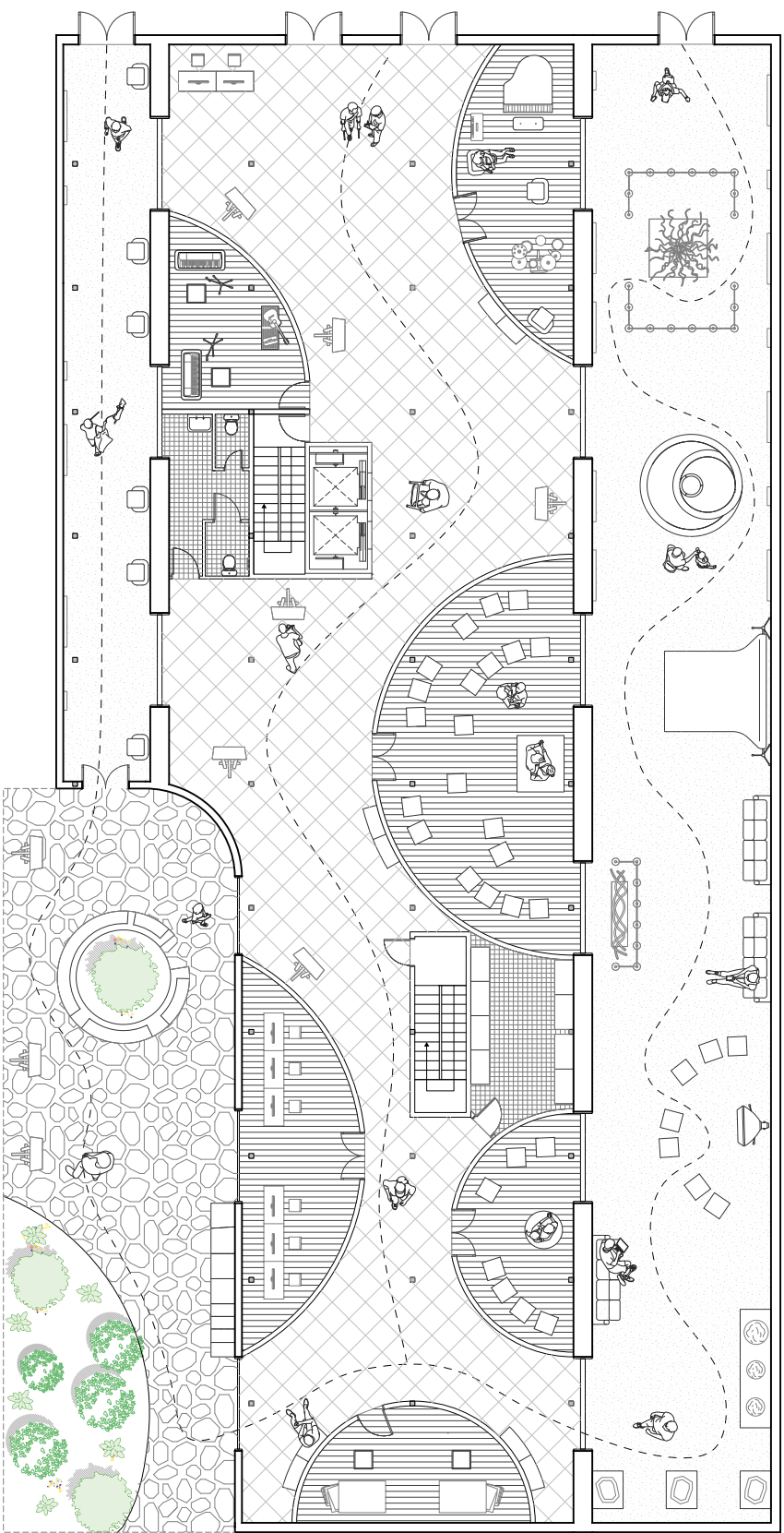


Axonometric
Drawing

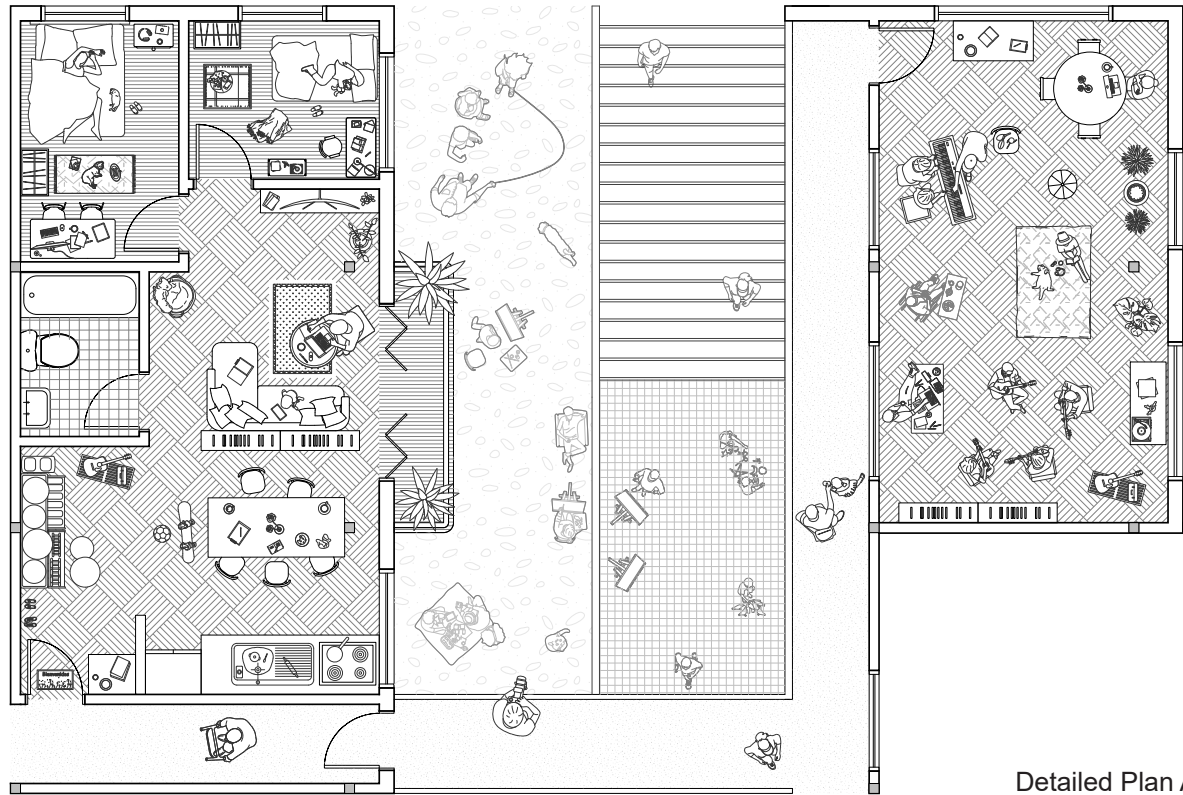




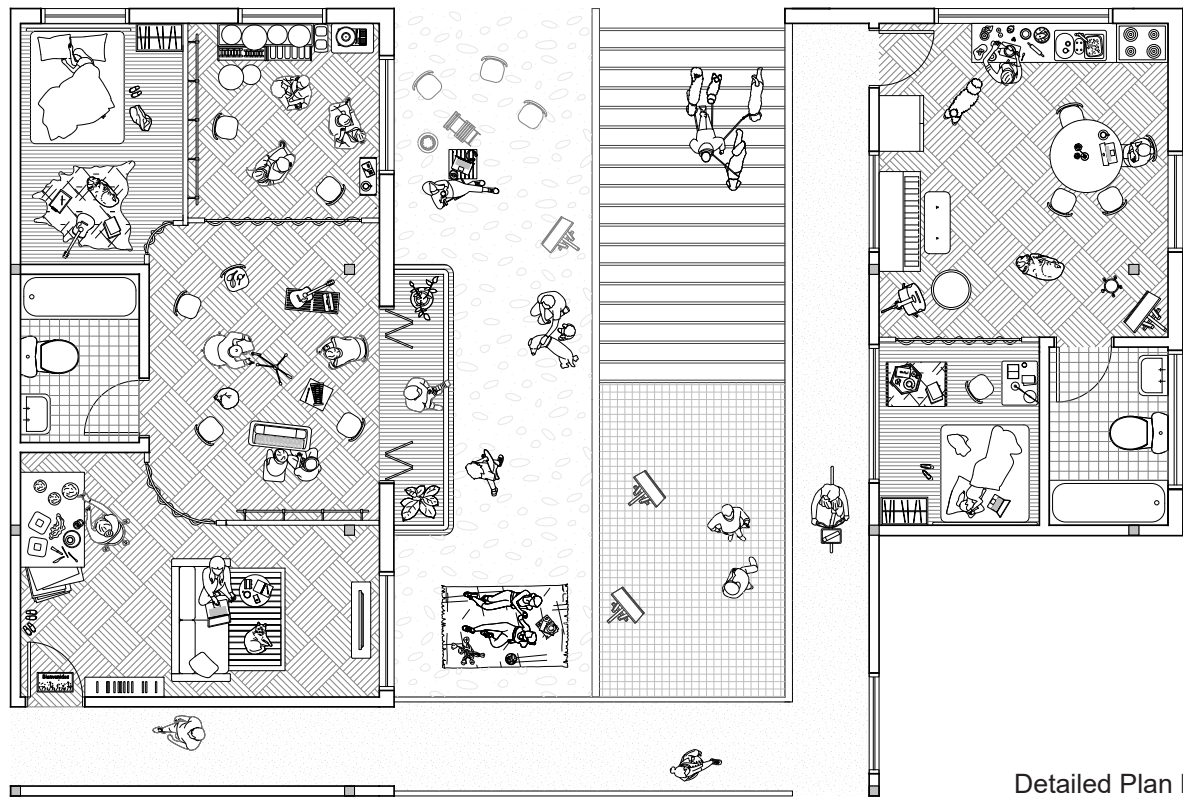
Typical Floor Plan



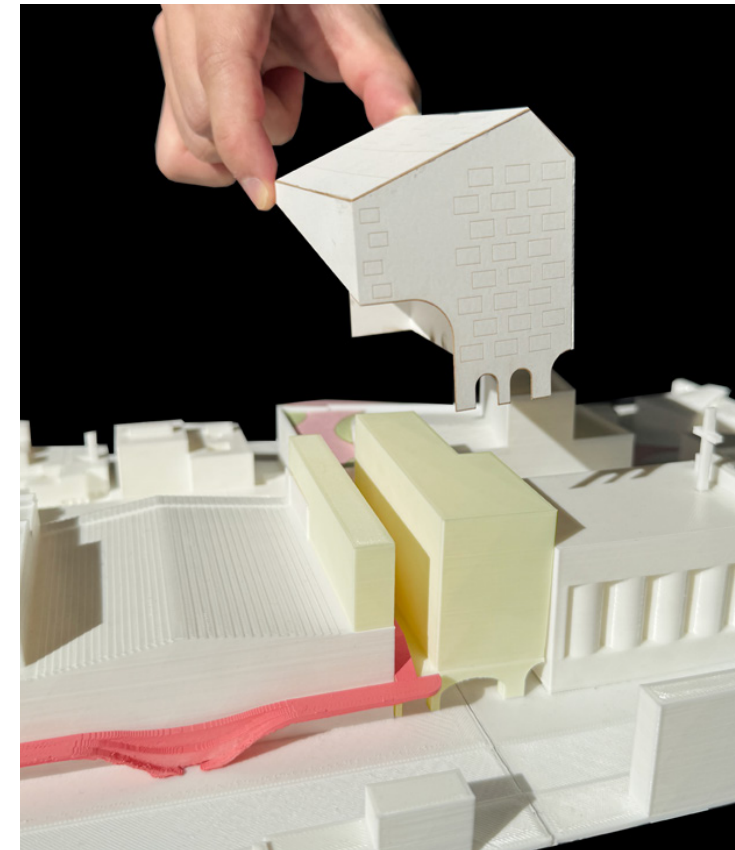
Ground Floor Plan



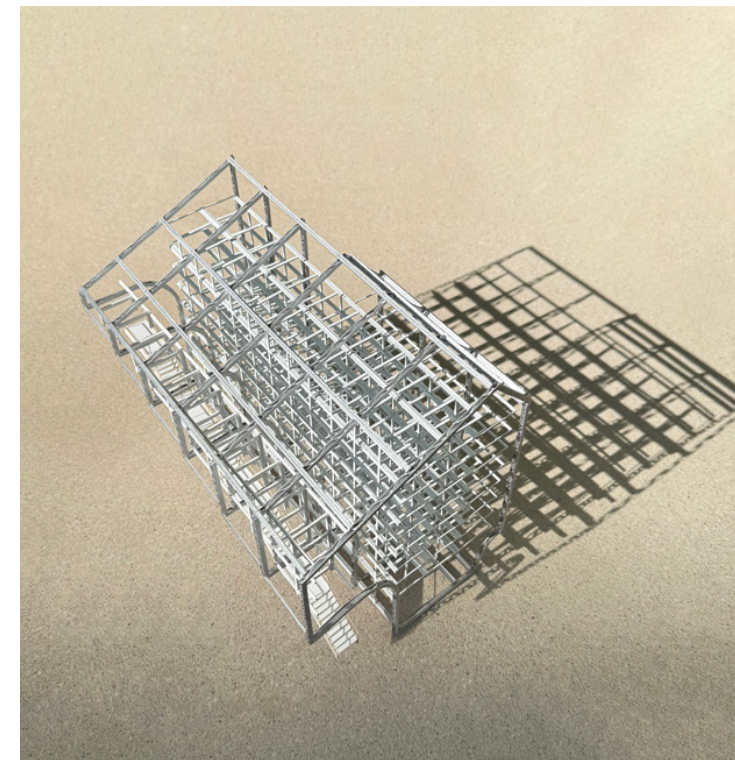
Detailed Plan A



Detailed Plan B

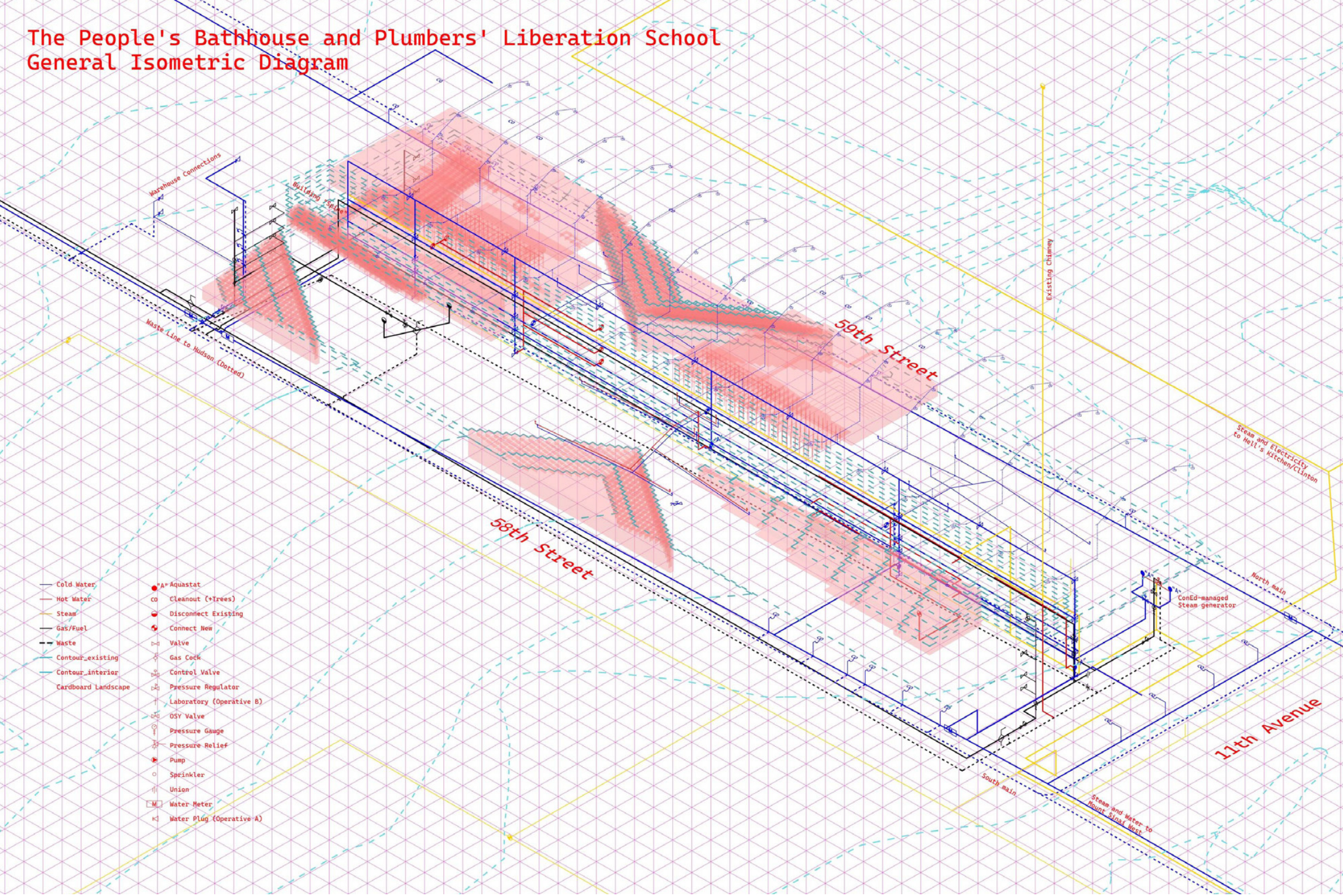


Massing Model



Dual Structural - Earthquake Resilient

The People's Bathhouse and Plumbers' Liberation School
General Isometric Diagram



Namo Buddhaya
Namo Dhammaya
Namo Sanghaya

With boundless respect and devotion, we consecrate this powerplant to the Three Jewels — the Buddha, the embodiment of enlightenment; the Dharma, the path of liberation; and the Sangha, the community of those who walk the path of virtue.

HENCEFORTH

For all *Mandarin and Cantonese*-speaking plumbing/steamfitting workers and trainees residing in Manhattan, may we find here a site of reparation for the suffering encountered in the course of our journeys, for the toils today of the hidden labor of our bodies, and for the fugitivity of our reception in this land.

The People's Bathhouse and Plumbers' Liberation School is dedicated to the Beneficiaries' equitable access to **occupational healing, human connection, and political education** (the "ultimate benefits") commensurate with the whole of Manahatta.

Article 1: Benefits

Water cannot be owned, only cared for.
The same is true for the bodies of water's stewards, who traverse the poché of New York, bearing postures, burns, toxins, and loneliness to maintain the liveability of the City. The Bathhouse and Liberation School inverts the closure of the poché into a cardboard landscape dedicated to healing the injuries that result from the stewardship of water.

Before we begin work, may our hands be prepared for precision of the cuts, joints, and welds. May our minds be clear in the tracing of isometrics. And may our whole bodies be readied for the contortions of wherever our labor takes us. May we be reminded each day of our agency in the infrastructure of the city through the liberation pedagogy of the School.

And when we return, may our muscles find realignment in the gym, our bodies be unburdened in the saunas. May the herbs of the baths draw out the toxins absorbed in the course of their labor. Steam purifies our bodies, as it purifies the tools of the hospital. Long and lonely our work may be, may we find connection in the extimacy of the social baths, and again be reminded of our agency in the infrastructure of the city.

Article 2: Site

The Site is defined by its function as an irreplaceable node of infrastructure in the sanitation and steam systems of Hell's Kitchen and Lincoln Square. The physical assets of the site are thus inclusive of:
A1: the entirety of the IRT Powerhouse not in active use for steam or electrical production
A2: Pier 99 and the associated paper waste sorting and processing
A3: Pier 99 and its associated sanitation sorting and storage capacity
A4: Any subterranean tunnels and pipes used to deliver steam or fuel between the piers and the closest hospital
This Site shall operate in perpetuity for any equivalent functional infrastructure, including but not limited to, the replacement of steam pipes with natural gas for electrical power, or waste pipes with fiber optic tunnels, or any other infrastructural installation that makes use of the same class of labor.

Article 3: Donors

Support for the management and maintenance of the Waqf shall be derived from the following sources:
S1: Regular donations by the Donor community, namely, the residents of private housing in Hell's Kitchen and Lincoln Square
S2: Medical services provided by Mount Sinai West or the closest hospital serving the Site
S3: The Department of Sanitation to provide up delivery and processing of up to eight thousand bales of cardboard per year

Article 4: Management

Effective 6 December 2024, the Mahayana Buddhist Temple in coordination with UA Local 1 shall, on an annual basis, elect a Mudir from among their Sangha responsible for the management and distribution of the abovementioned Benefits. In addition, this Mudir shall determine the conditions, form, and duration of any occupation of the People's Bathhouse.

Article 5: Right to Strike

In recognition of the means of exclusion and quarantine by which the Chinatowns of Turtle Island were formed, may no recipient of the services of the Site forget the unseen labor of plumbers and steamfitters, and may they never forget IF
The Beneficiaries' access to the ultimate benefits defined above be systemically challenged by any failure on the part of the Donors to meet the agreed-upon conditions defined by the elected Mudir of the Mahayana Buddhist Temple,
THEN
The Beneficiaries may invoke their right to occupy the site and to halt its functioning, so as to deny the steam, power, and sanitation services to its immediate neighbors.

Namo Amitufo
南无阿弥陀佛

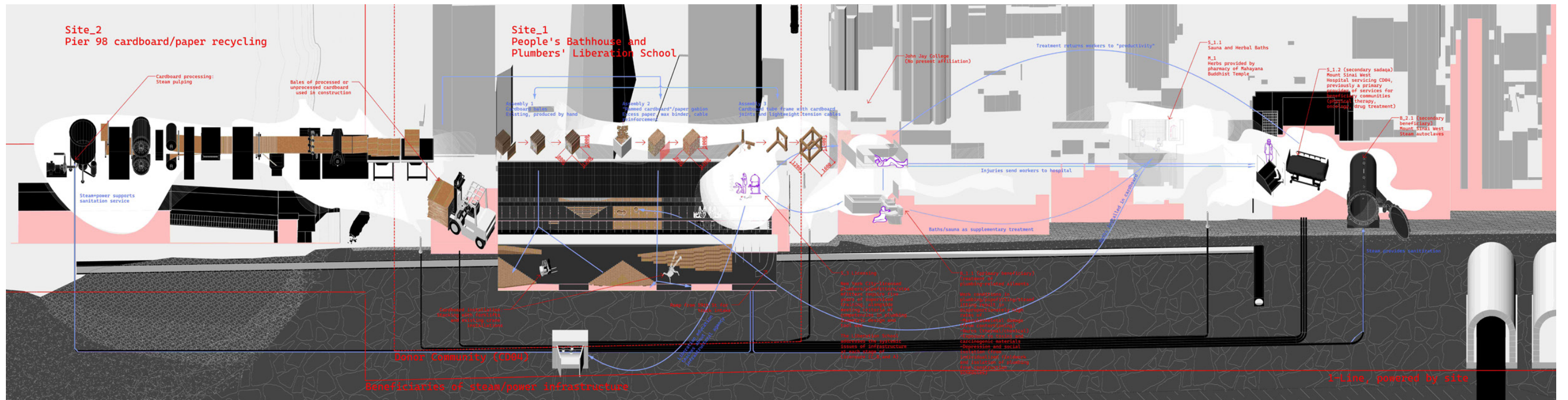
WAFQ OF THE PROJECT

ADV 5: THE PEOPLE’S BATHHOUSE AND PLUMBERS’ LIB-
ERATION SCHOOL

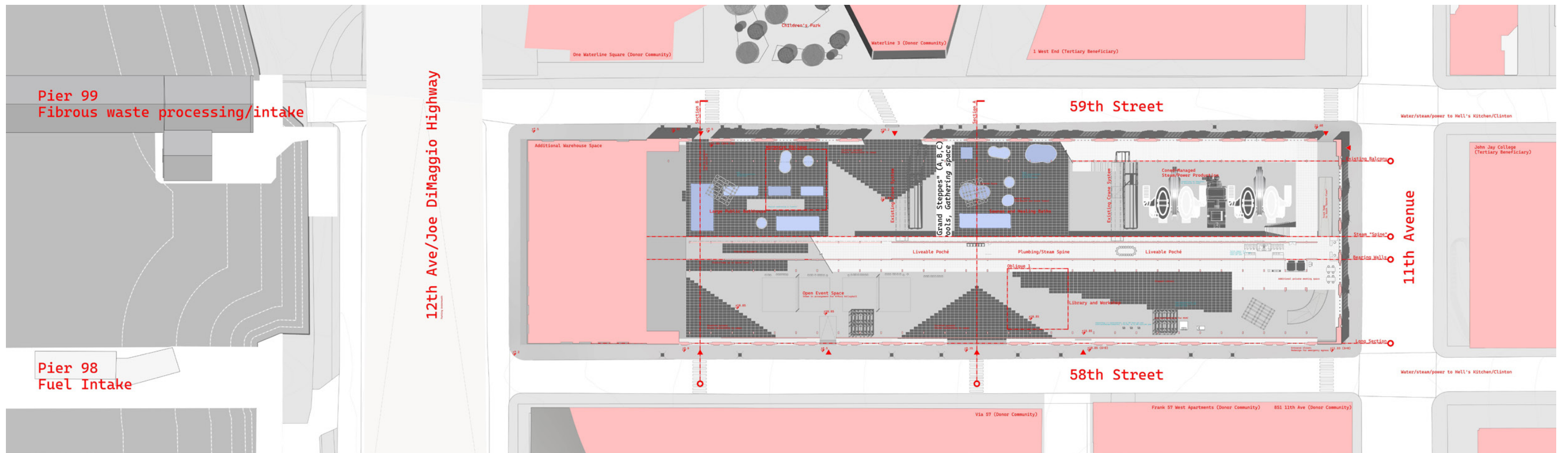
An Oasis for the Hidden Labor Behind New York’s Infrastructure

Function: Worker Wellness, Political Education
Location: 840 12th Ave, New York, NY
Date: Sept 2024 – Dec 2024
Course: GSAPP Advanced 5 Studio
Instructor: Ziad Jamaledidine
Group Members: Yiheng Zhao, Val Flânon

The People's Bathhouse and Plumbers' Liberation School reimagines the historic IRT Powerhouse as a sanctuary for Mandarin and Cantonese-speaking plumbing and steamfitting workers in Manhattan. Combining wellness facilities and training spaces, the project supports both physical healing and professional development. By repurposing parts of the Powerhouse and Pier 99, it transforms hidden infrastructure into a dignified space of care, community, and political education—honoring the labor that keeps the city running. Through the construction of a waqf, the studio formalizes the project's social contract, establishing a framework for long-term stewardship, equitable access, and the beneficiaries' right to claim this space and benefits within the city.

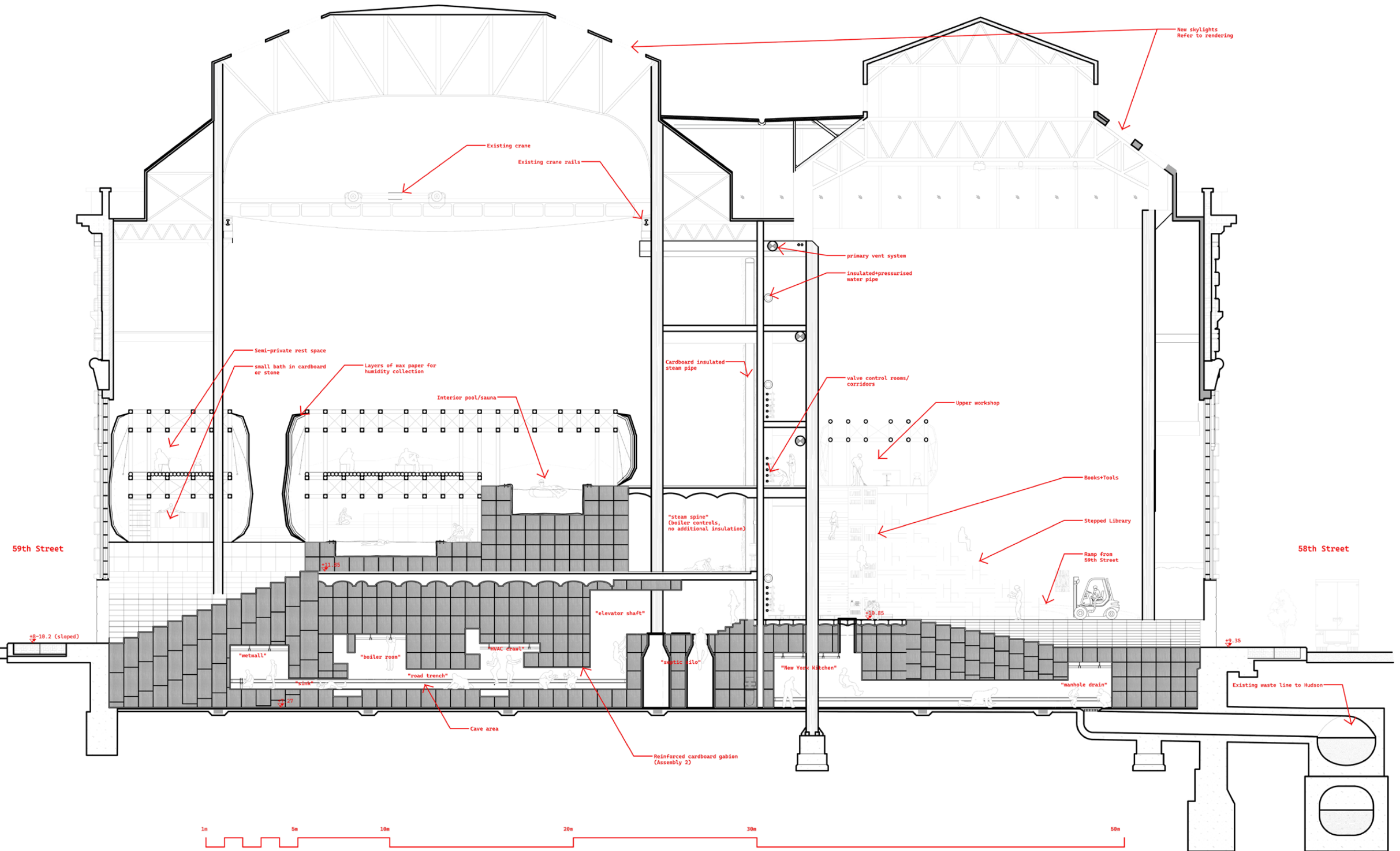


This long section maps the integrated system of the People's Bathhouse and Plumbers' Liberation School, from cardboard recycling at Pier 99 to construction within the IRT Powerhouse. Recycled cardboard is processed, baled, and stacked using forklifts and cranes to form structural and healing spaces, including saunas and baths. These facilities address work-related injuries common among steamfitters, supported by Mount Sinai West and herbal treatments from the Mahayana Temple. The Liberation School, designed inside the IRT Powerhouse alongside the bathhouse, provides licensing education and political training, reinforcing workers' agency. A reciprocal relationship with the donor neighborhood sustains the project through service exchange and material donations.



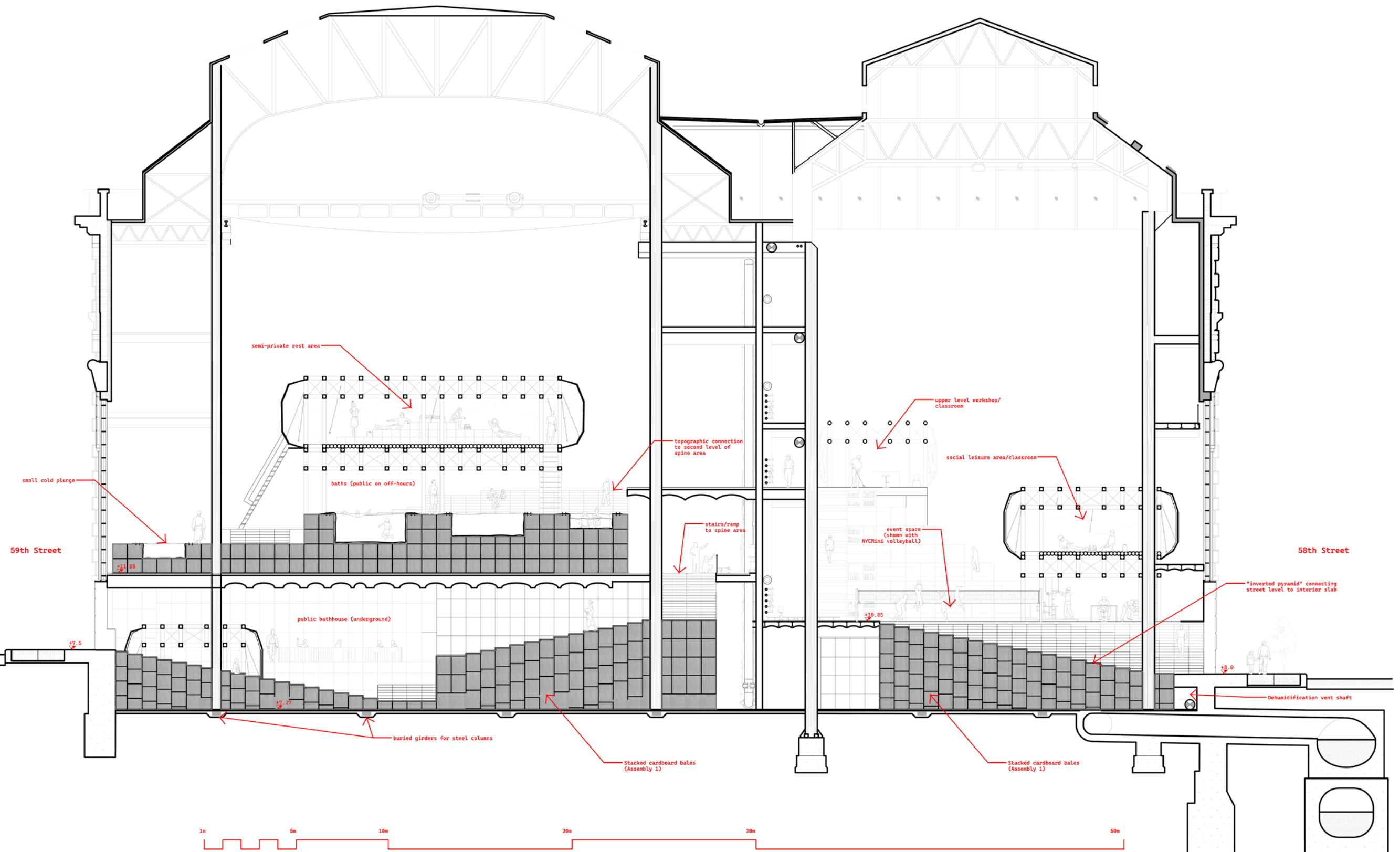
Site Plan

Section A 1:100

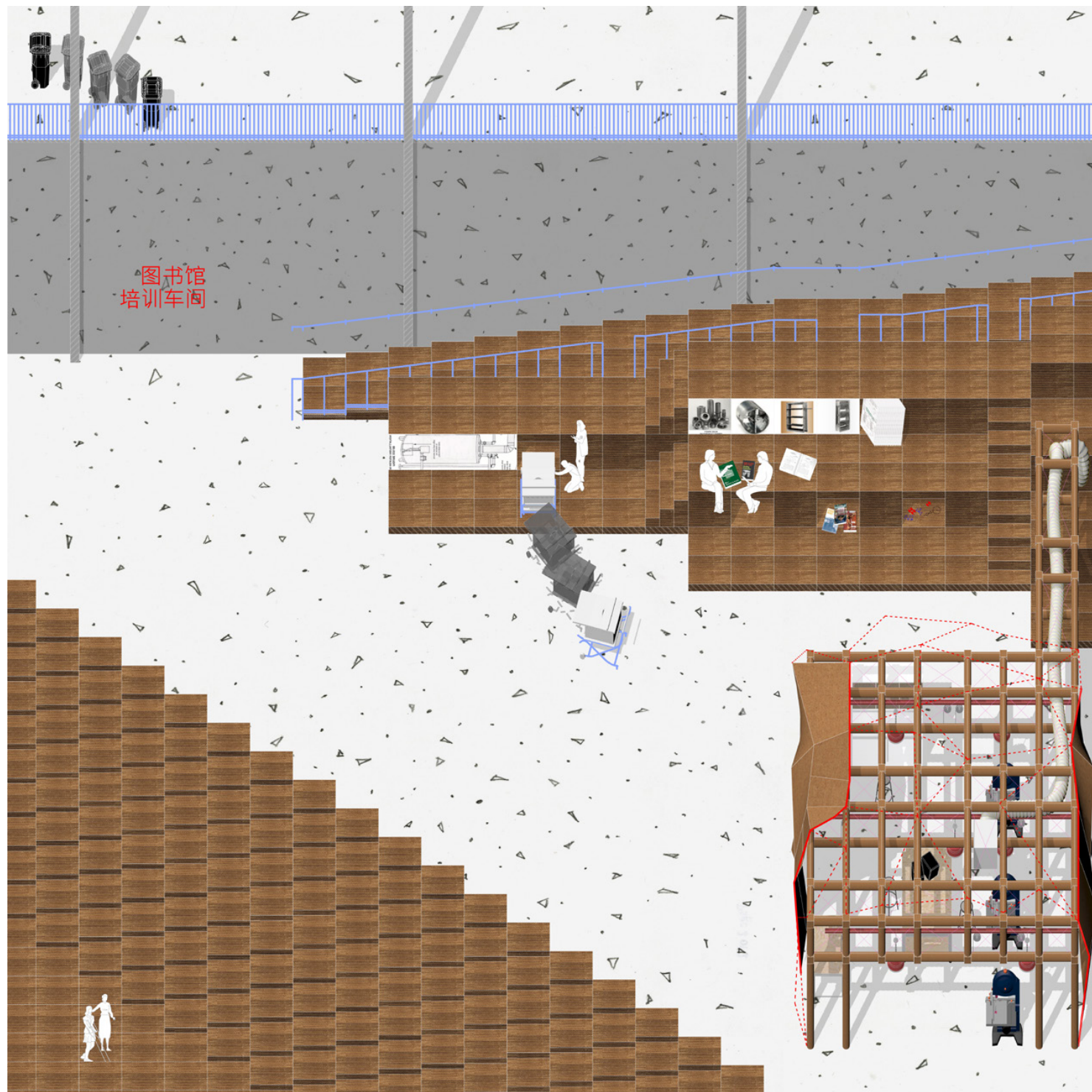


Section A featuring bathhouse, small-scale cardboard structures, and the underground training space

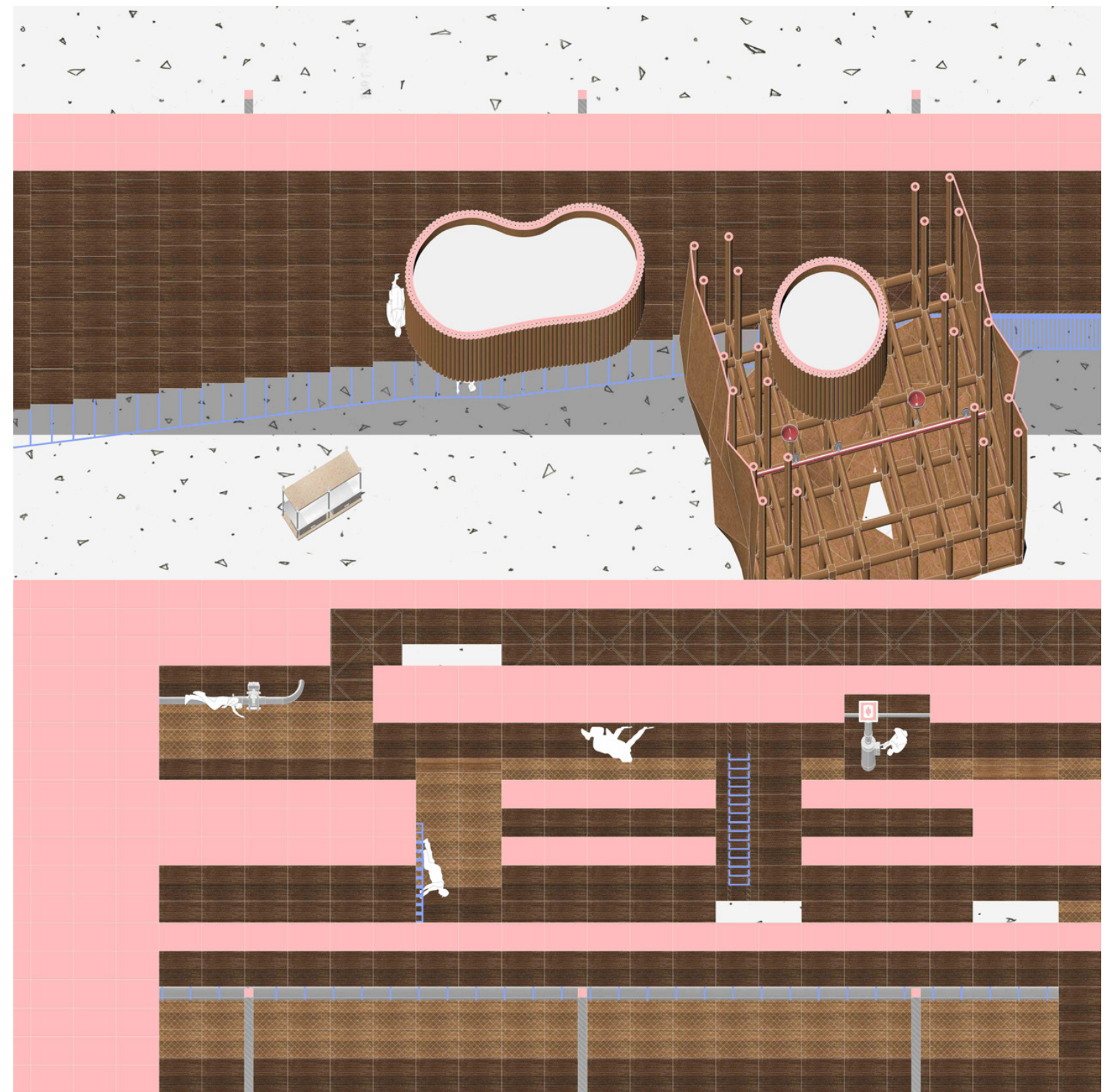
Section B 1:100



Section B featuring bathhouse, small-scale cardboard structures, stacked stairs, and the Plumbers' Library



Oblique A: Plumbers' Library



Oblique B: Plumbers' Bathhouse and Underground Training



ADV4: PHOENIX ACADEMY

A School and a Sanctuary: A Community of Learning, Resilience, and Belonging

Function: Community Resilience Hub (Refugee Housing, Education)

Location: Enterprise Ave, Brooklyn, NY

Date: Jan 2024 - May 2024

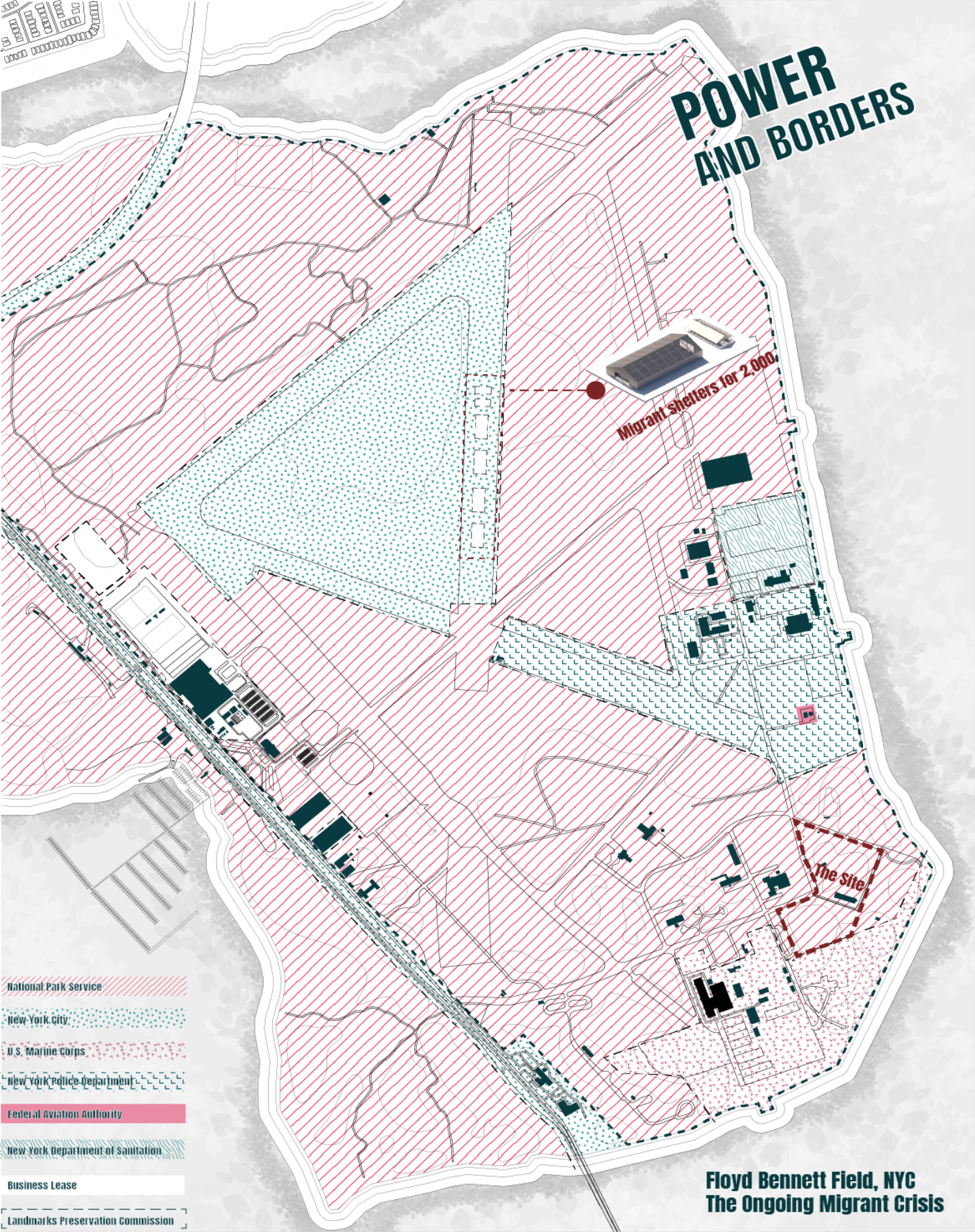
Course: GSAPP Advance 4 Studio

Instructor: Håvard Breivik-Khan

Group Member: Yiheng Zhao, James Churchill

Historically, schools have served as emergency shelters, but are rarely designed to accommodate large influxes of visitors without disruption. Our proposal reimagines the public school as a flexible space that not only educates the young, but also supports the elderly, infirm, and displaced. Phoenix Academy aims to transform the school into a welcoming, expansive, and adaptable public space that responds to shifting needs, offering shelter in an ethical and comfortable way. Our research explores the overlap between residential and educational functions, introducing a new typology that balances residential, common, and educational spaces across a 24-hour cycle.

Site Analysis



OVERCROWDING



Each tent houses ~500 people with no communal space. Small dining tents have limited capacity.

Sleeping Quarters and Dining Area

Living Space



Cramped sleeping arrangements at FBF, with poor ventilation and lighting, hinder infant sleep quality. Tight circulation also restricts movement, reducing resident comfort.

Sleeping Quarters

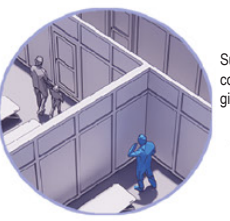
ACCESSIBILITY



Cramped sleeping layouts at FBF, with poor ventilation and lighting, disrupt infant sleep. Tight circulation restricts movement, reducing resident comfort.

Restrooms

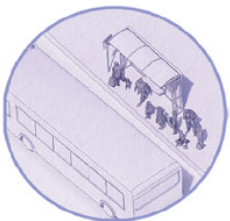
PRIVACY



Substandard partition walls at FBF compromise privacy, increasing contagion risks, particularly for children and infants.

Sleeping Quarters

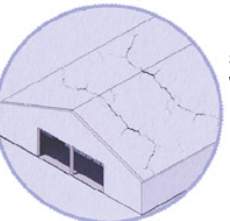
TRANSPORTATION



Residents at FBF endure a 15-minute, 0.75-mile walk from Runway 19 to the bus stop, with commutes up to 90 minutes, exacerbating their challenging living conditions.

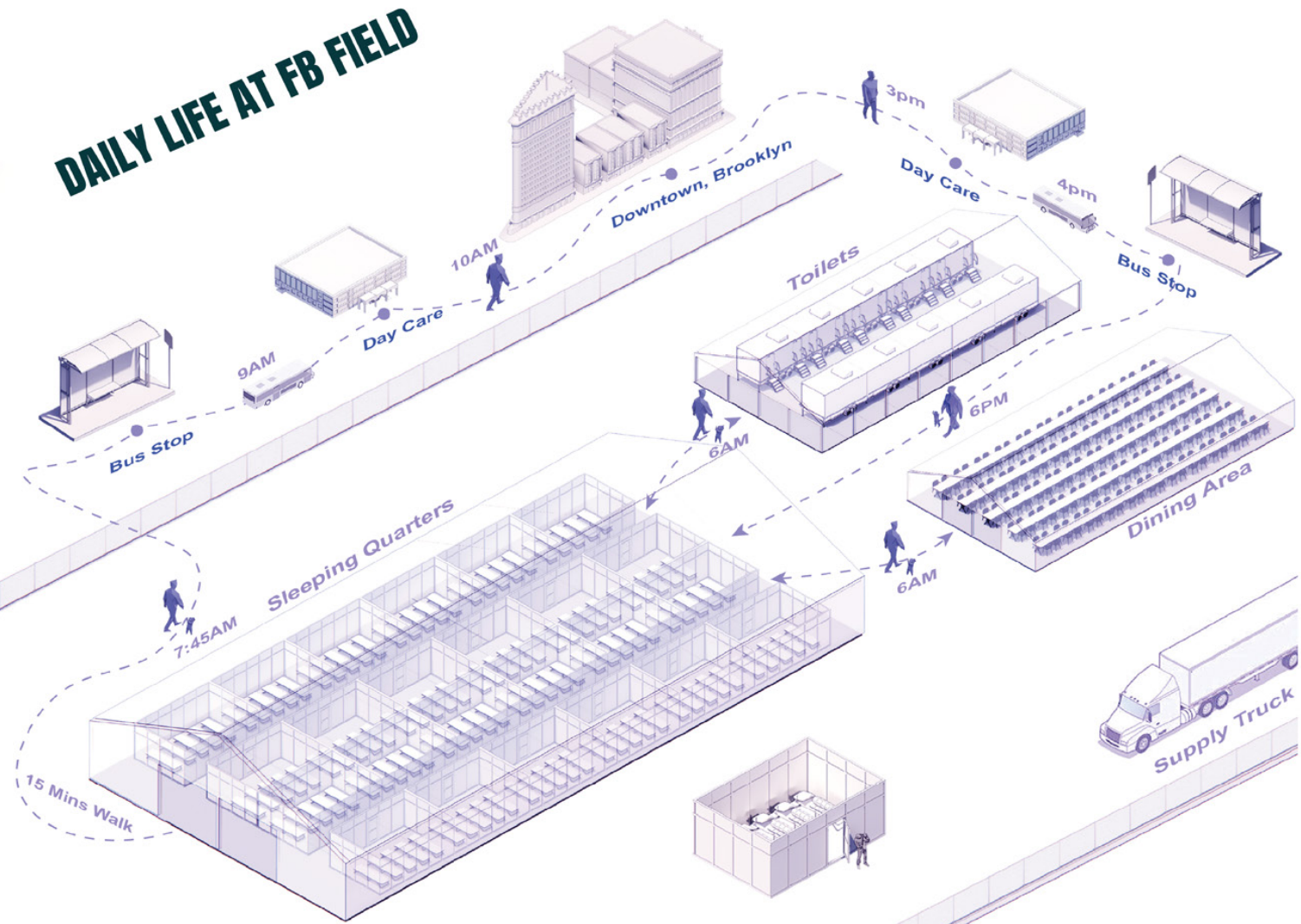
Bus Stop

STRUCTURE



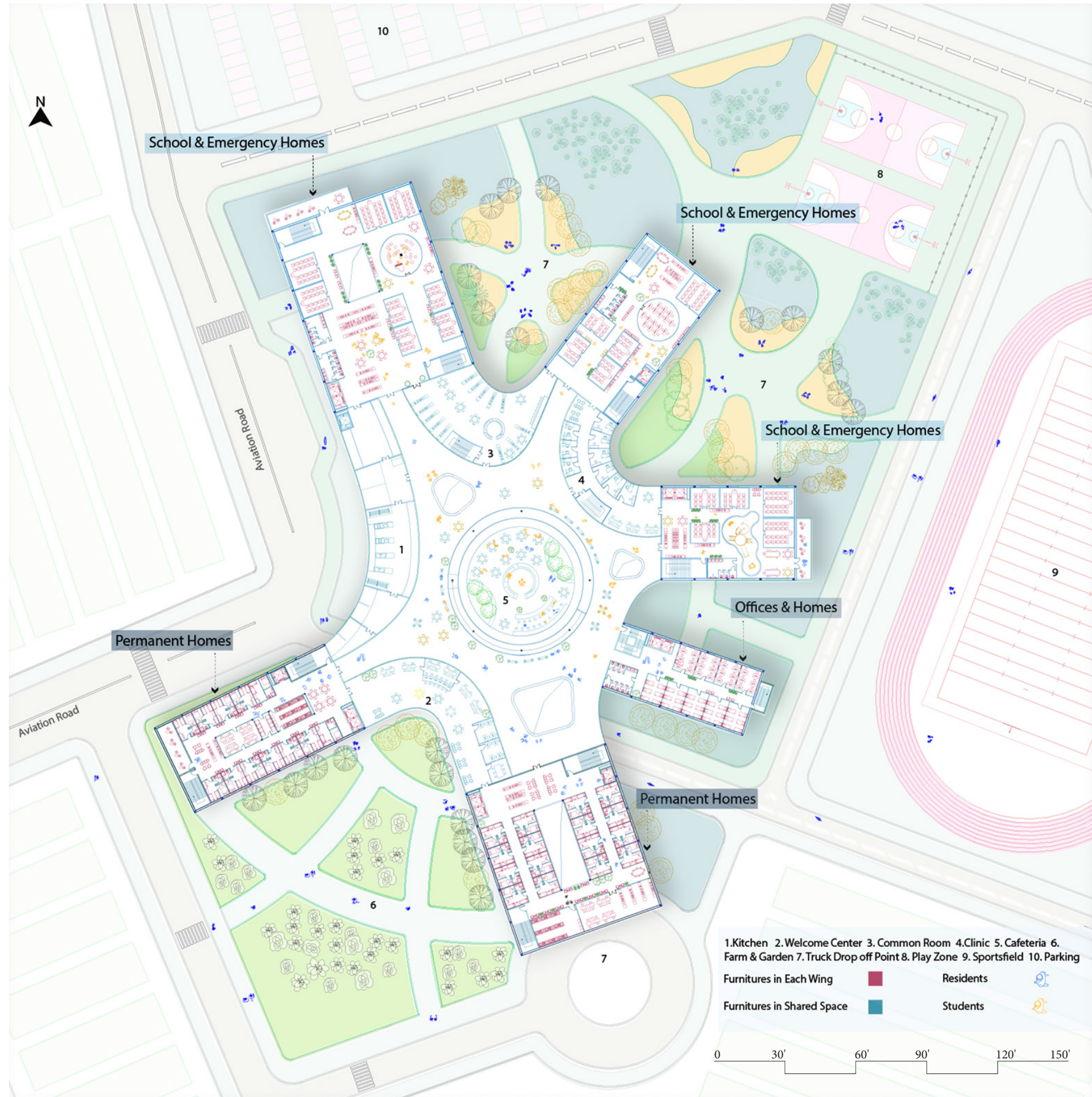
Shelters at FBF are vulnerable to severe weather, risking frequent evacuations and resident stress.

Shelters

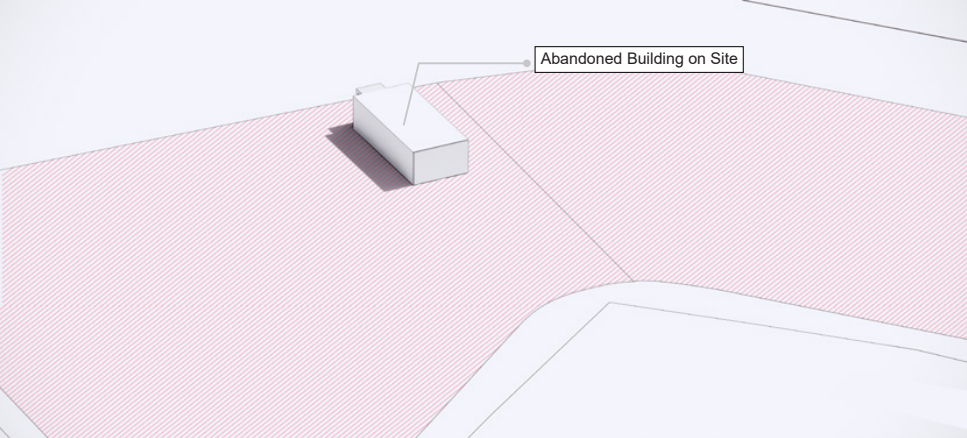


The diagram highlights the major challenges refugees face in temporary camps, particularly the long commutes required to send their children to school and travel to work.

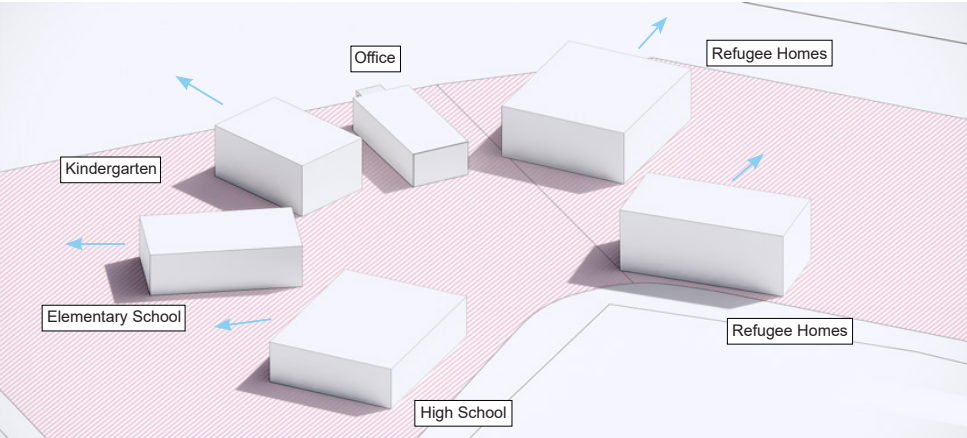
Site Plan



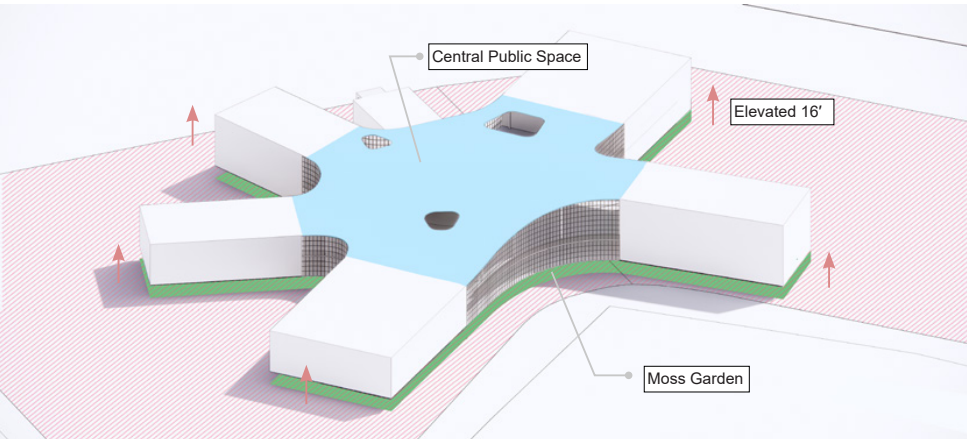
Concept Diagram



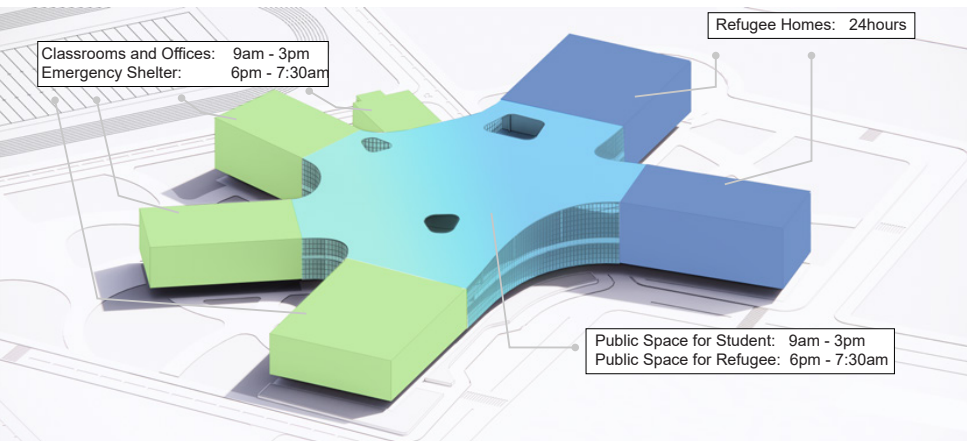
Integrating the Existing Structure:
The design incorporates the site's abandoned building as a key element. part of the project.



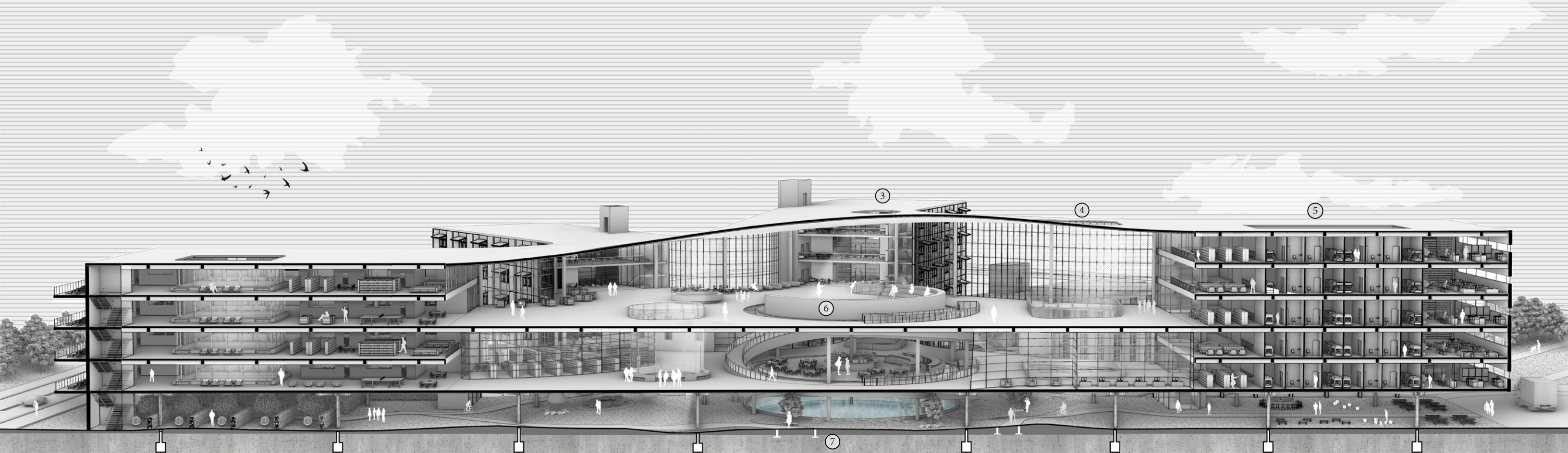
Expanding:
Five new volumes are added --- three for a K-12 charter school and two for 500 refugee families.



Elevating + Central Hub:
All volumes are linked by a central public space with a library, café, auditorium, and communal areas. The structure is elevated 16 feet to address flood risk.



Time-Based Strategy:
The landscape integrates school and housing with time-based use: public spaces serve students by day and refugees by night. Classrooms are adaptable, doubling as emergency shelters for sudden displacements.



1. High School Quarter 2. Elementary School Quarter 3. Kindergarten 4. Teacher's Office & Storage 5. Refugee Living Quarter 6. Central Public Space (including Auditorium, Café, Library, and Office) 7. Moss Garden

0 12' 24' 36' 48' 60'



School Facade

Refugee Quater Facade

Refugee Quater Facade

Adaptive Classroom



Left: A standard classroom with bookshelves, a whiteboard, and a TV for student use.

Right: Convertible into an emergency shelter, the classroom features fold-down wooden frames for beds and partitions to create two separate rooms for refugee families. Hallway frames can extend to provide additional sleeping spaces during extreme emergencies.



Upper-level common space rendering featuring the auditorium.



School hallway rendering featuring classrooms and the atrium.



Lower-level common space rendering featuring the café and library.



CORE 3: THE URBAN HOMESTEAD

Greenhouse Living: Blending Agriculture and Residency for Sustainable Urban Spaces

Function: Green Living (Housing + Indoor Farming)

Location: 454 W 128th St, New York

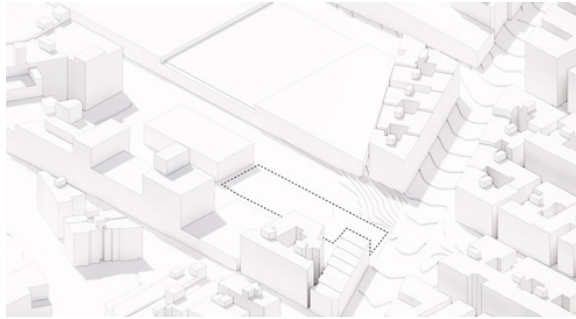
Date: Sept 2023 - Dec 2023

Course: GSAPP Core 3 Studio

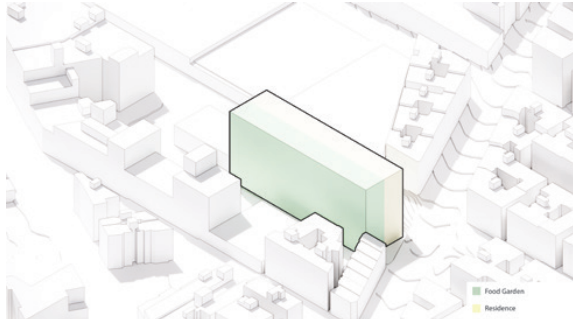
Instructor: Lily Wong

Group Member: Yiheng Zhao, Alex Faza

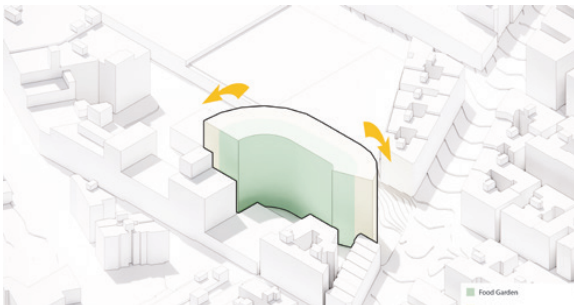
This project centered around integrating nature into residential housing. The designated site was situated in Harlem, with extensive research involving local garden organizations. Our project aimed to explore the incorporation of a fully functional farm production system into residential housing. Our goal is to focus on striking a balance between providing affordable housing and encouraging residents to actively engage with and benefit from caring for plants in their daily lives.



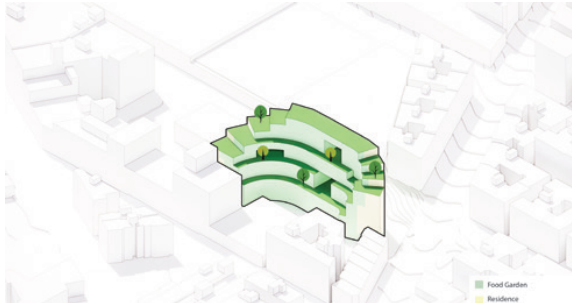
The Site



Prioritize the greenhouse to face south



Twisted the building to maximize south-facing surface for sunlight



Implemented setbacks to create outdoor terraces serving as both gardening and social space

Site Plan

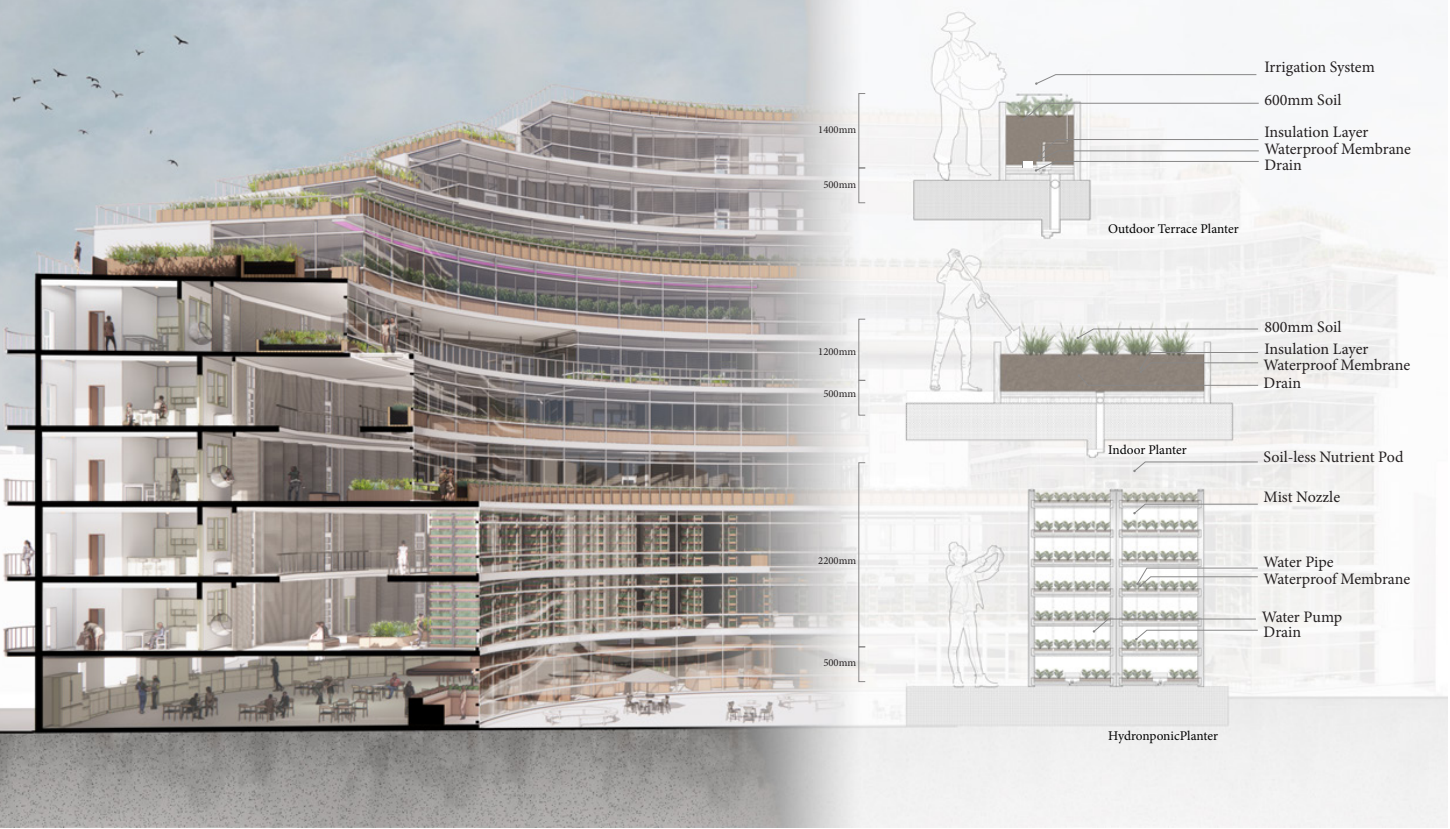
The site plan shows outdoor terraces of the buildings



Typical Floor Plan

The typical plan emphasizes interior spaces, with separate zones for planting and residential use. A buffer zone for each unit acts as a flexible interface between living areas and farming, allowing residents to open up to public walkways and gardens or close off for privacy, noise reduction, and light control from hydroponic systems



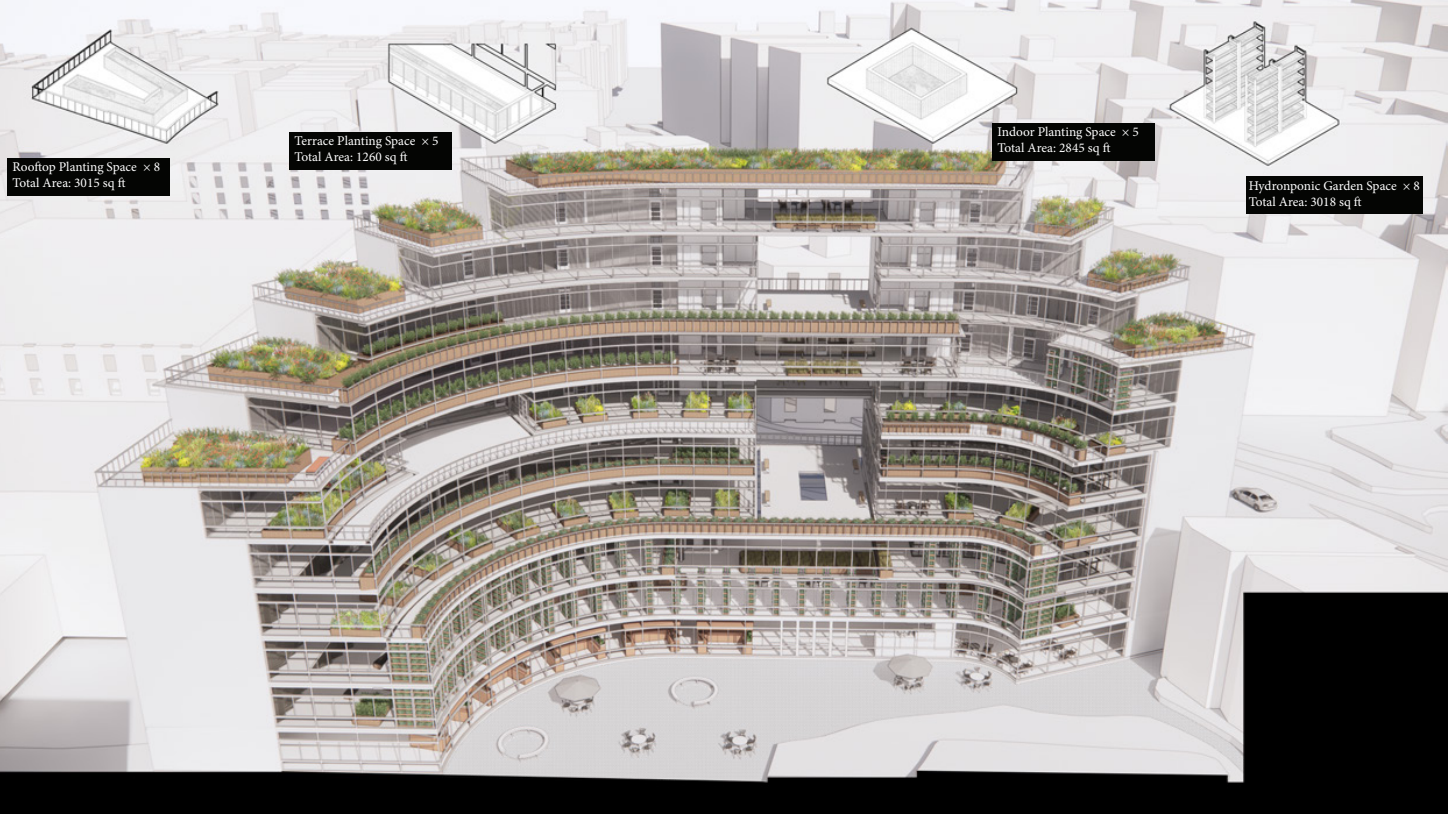


This section drawing illustrates the diverse layers within the building and the spatial relationships between various zones



Rendering of the building's exterior and outdoor terraces between various zones

Planting Zone – A 100-square-foot garden for each family



The planting diagram showcases various types of planting zones, both indoor and outdoor, ensuring that each family receives a minimum of 100 square feet of garden space, from which they may save \$500 per year on groceries.

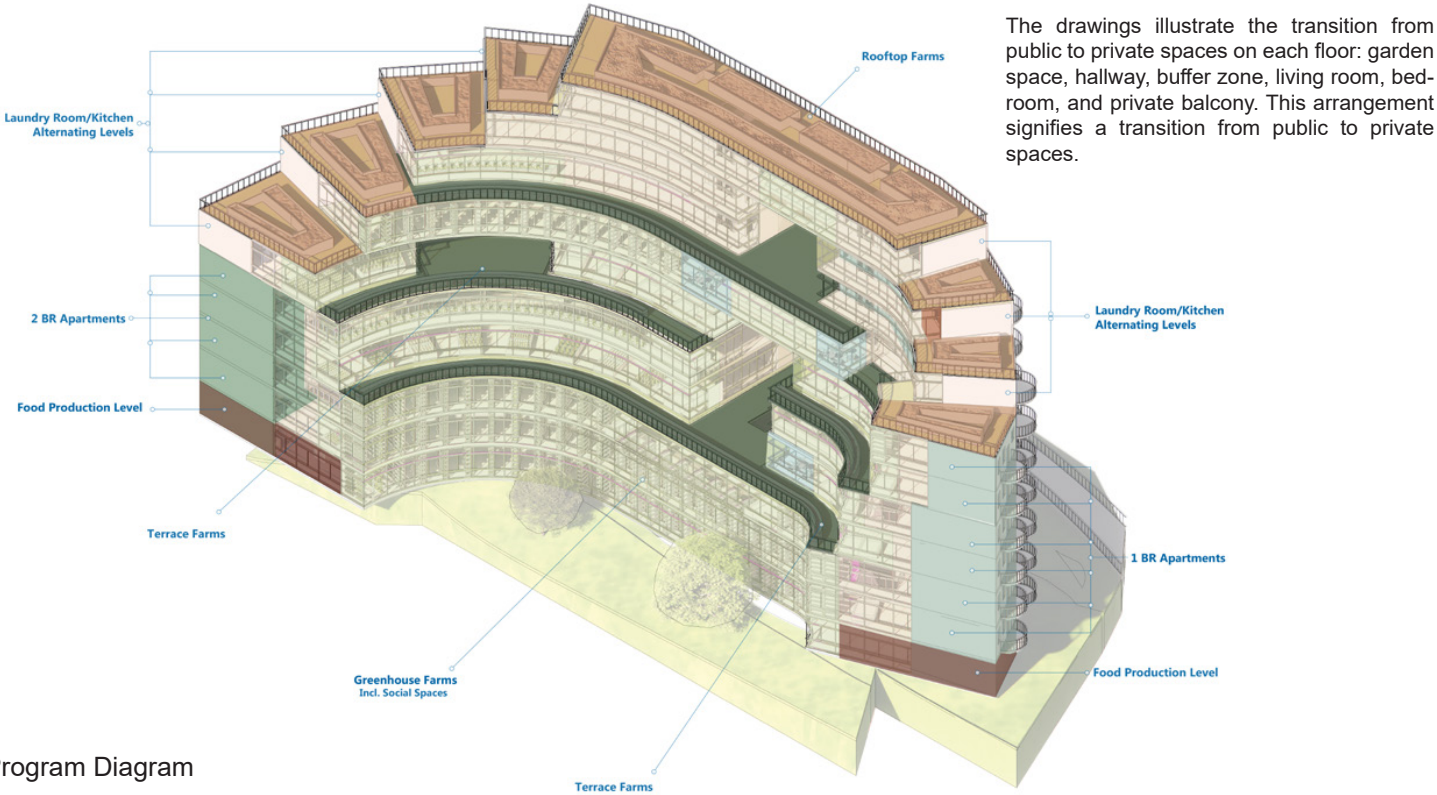


Rendering of the upper level showcasing a shared kitchen space and illustrating the interconnection between outdoor terraces, indoor farm areas, and individual units

Interior Perspective

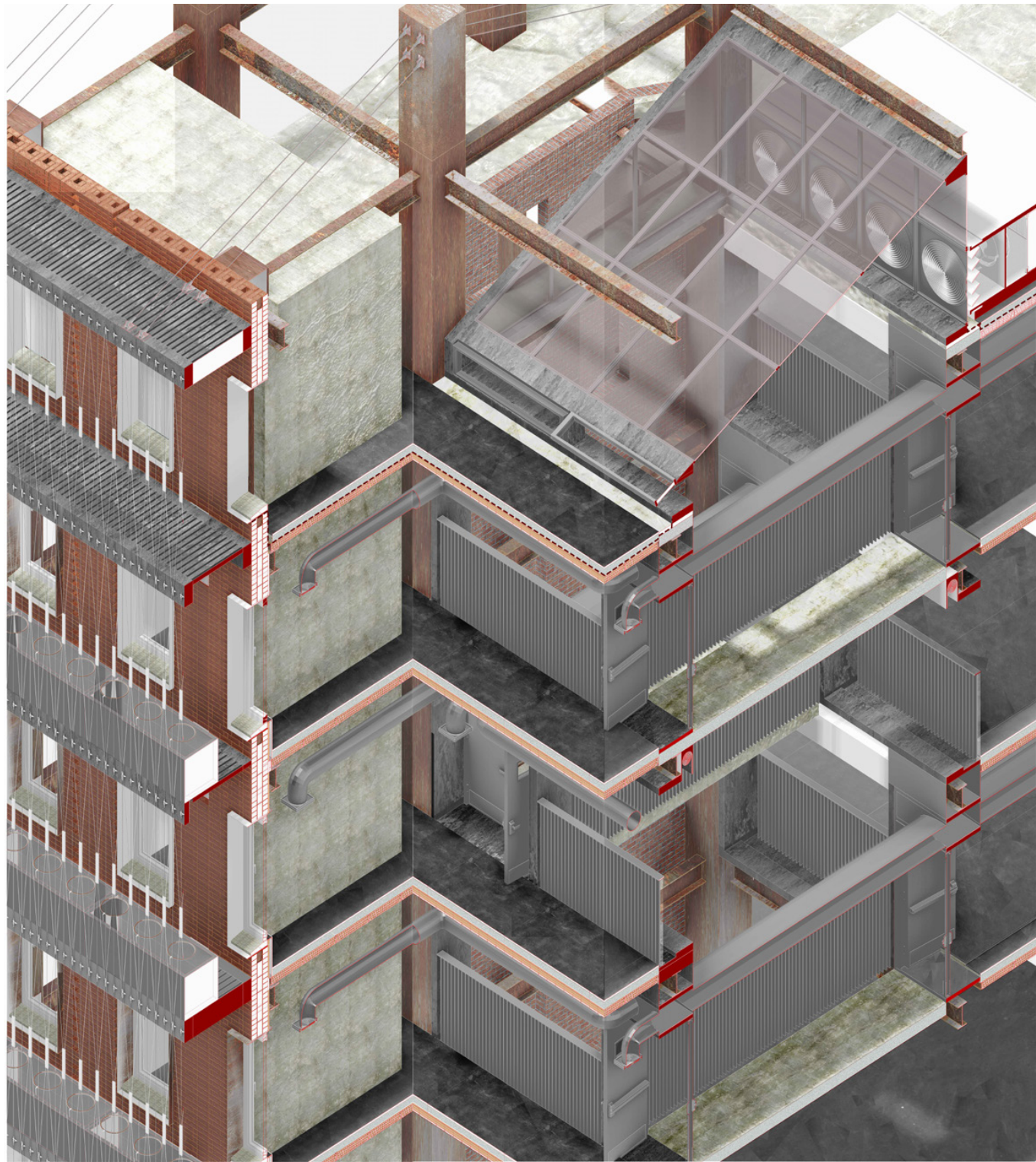


Rendering view from the living quarters of the unit, highlighting how residents can visually engage with the garden from within their home



Rendering of the lower level, featuring expansive farm spaces alongside individual units.

Program Diagram



TECH 3 & 4: CLUB MOGADOR - HOUSE CLUB REMIX

Function: Adaptive Reuse (Resi + Nightclub)

Location: 101 St Marks Pl

Date: Jan 2024 - May 2024

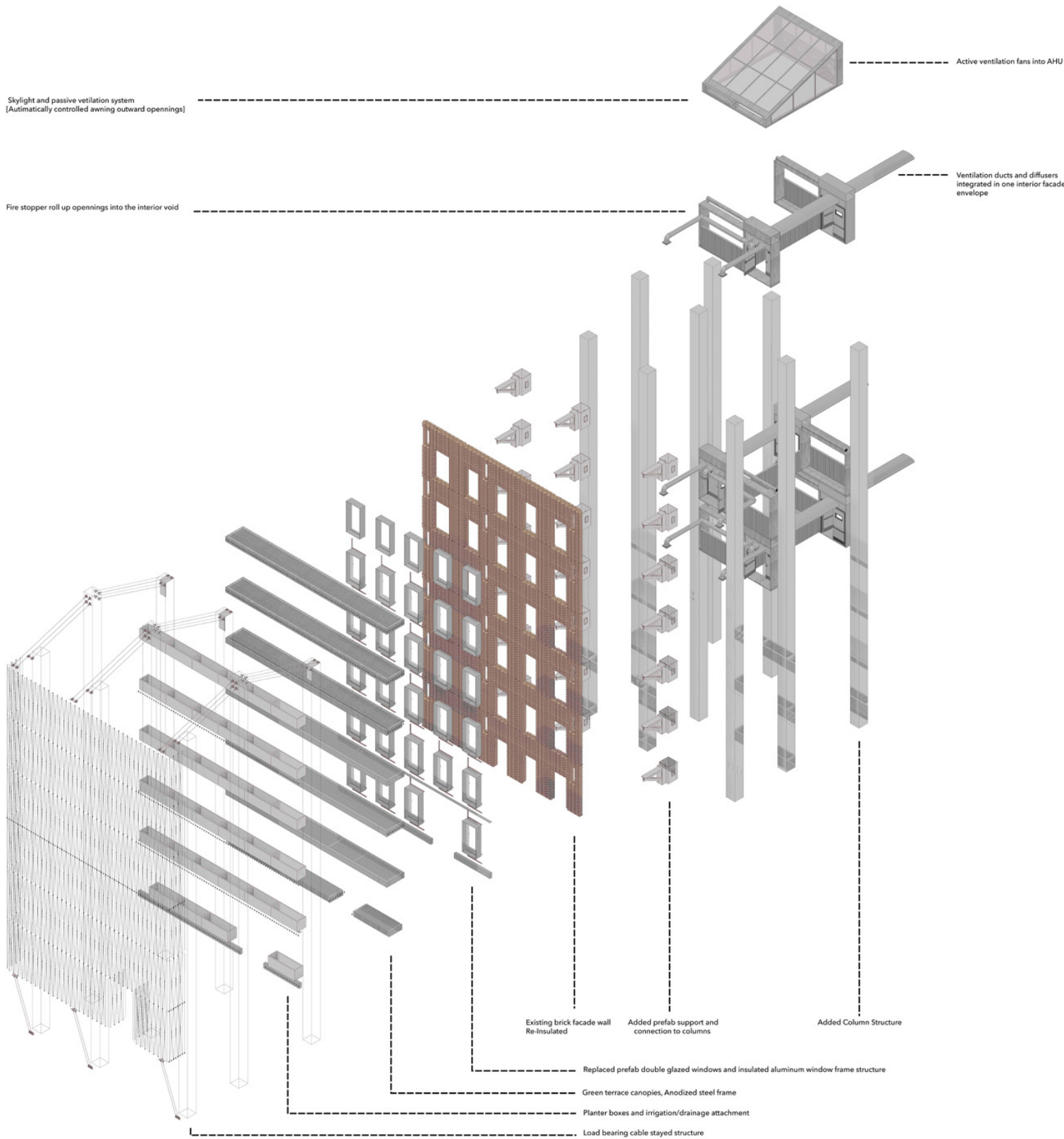
Course: Tech IV Integrated Building Systems

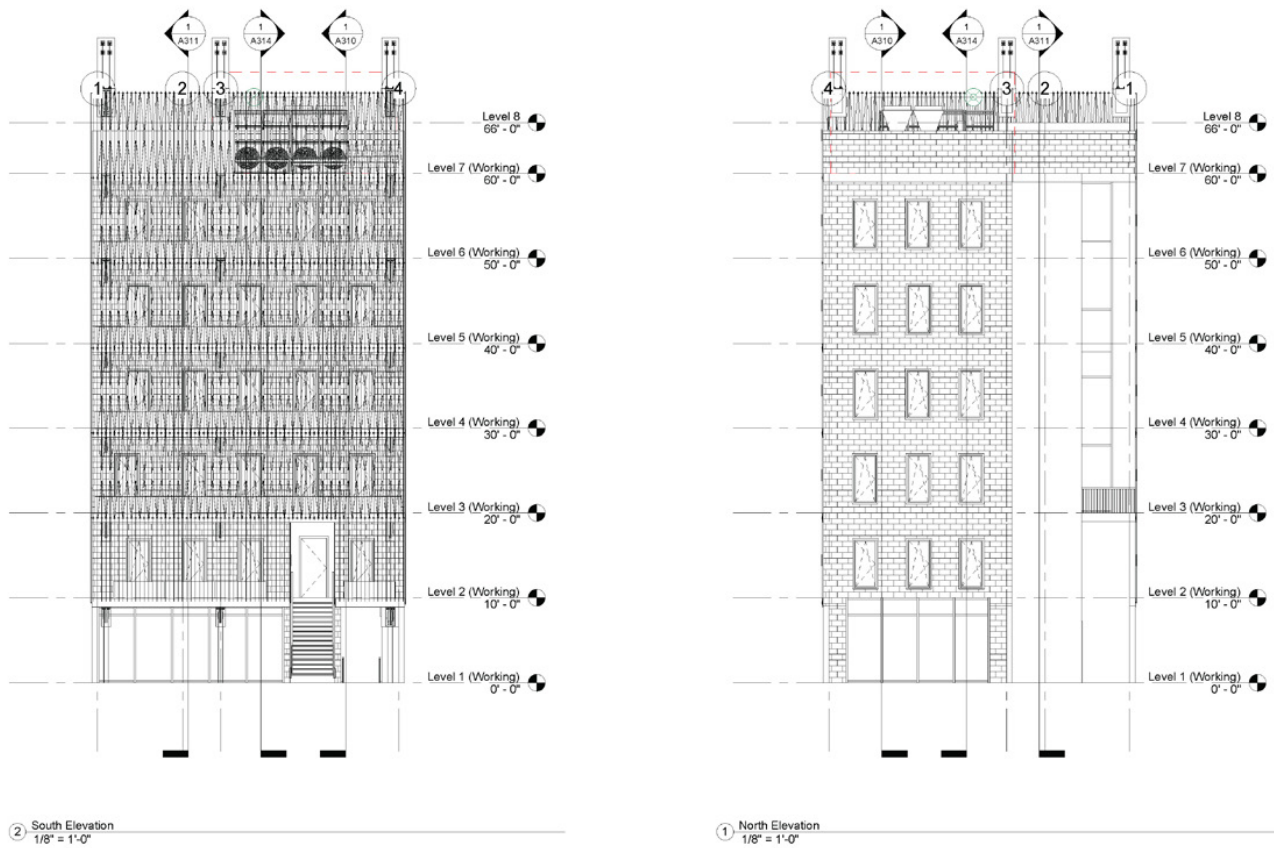
Instructor: Berardo Matalucci

Group Member: Yiheng Zhao, Benjamin Vassar, Carter Horton, Dana Mor, Mohammad Zowqi, Xinyan he

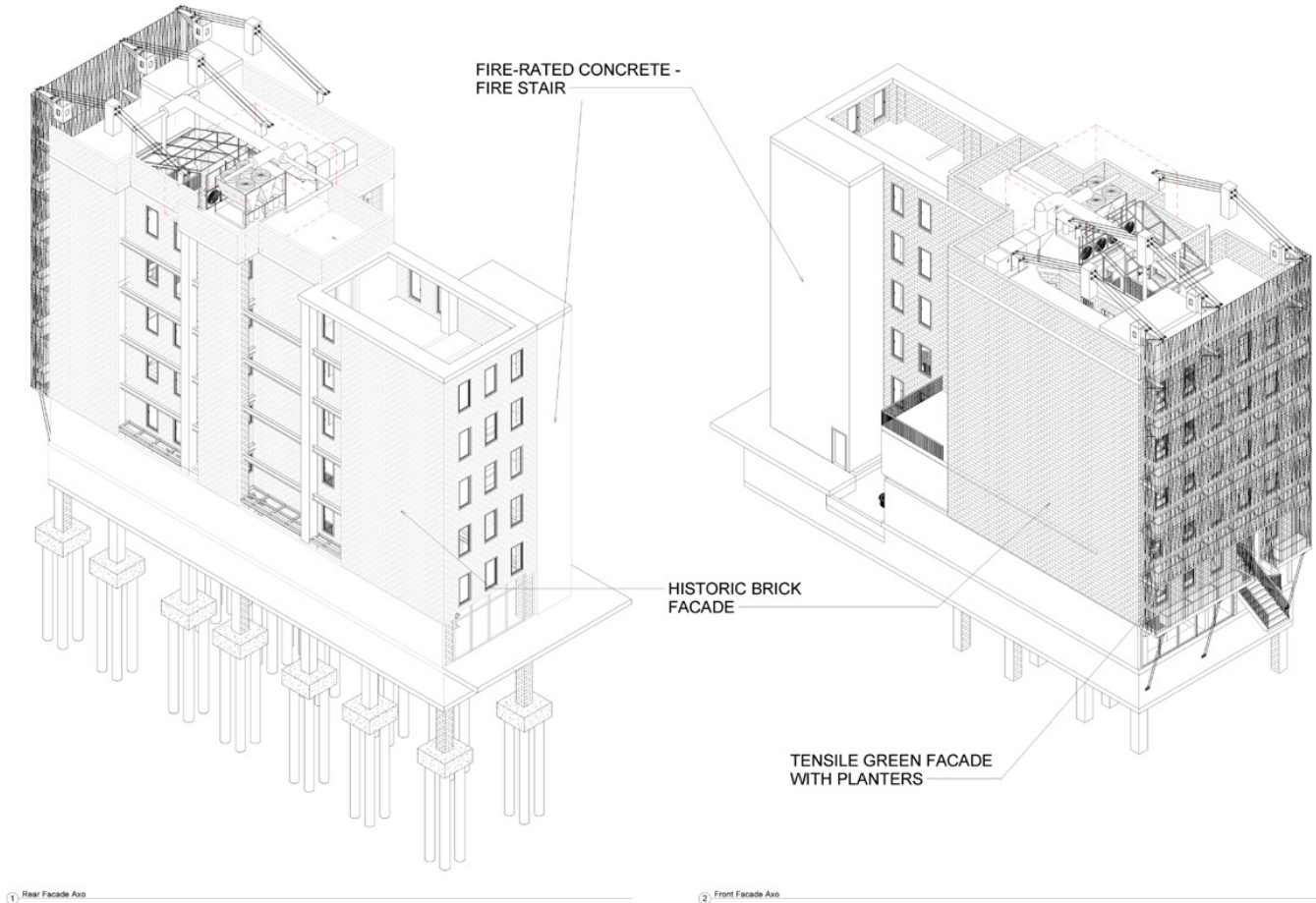
Club Mogador reimagines nightlife by converting Café Mogador into a six-floor nightclub with a central atrium for improved circulation and interaction. Emphasizing sustainability, the design uses passive cooling, the stack effect for natural ventilation, and a tensile green façade with gray water reuse. Fully code-compliant, it transforms the space into an eco-conscious nightlife hub.

Exploded Isometric Facade System

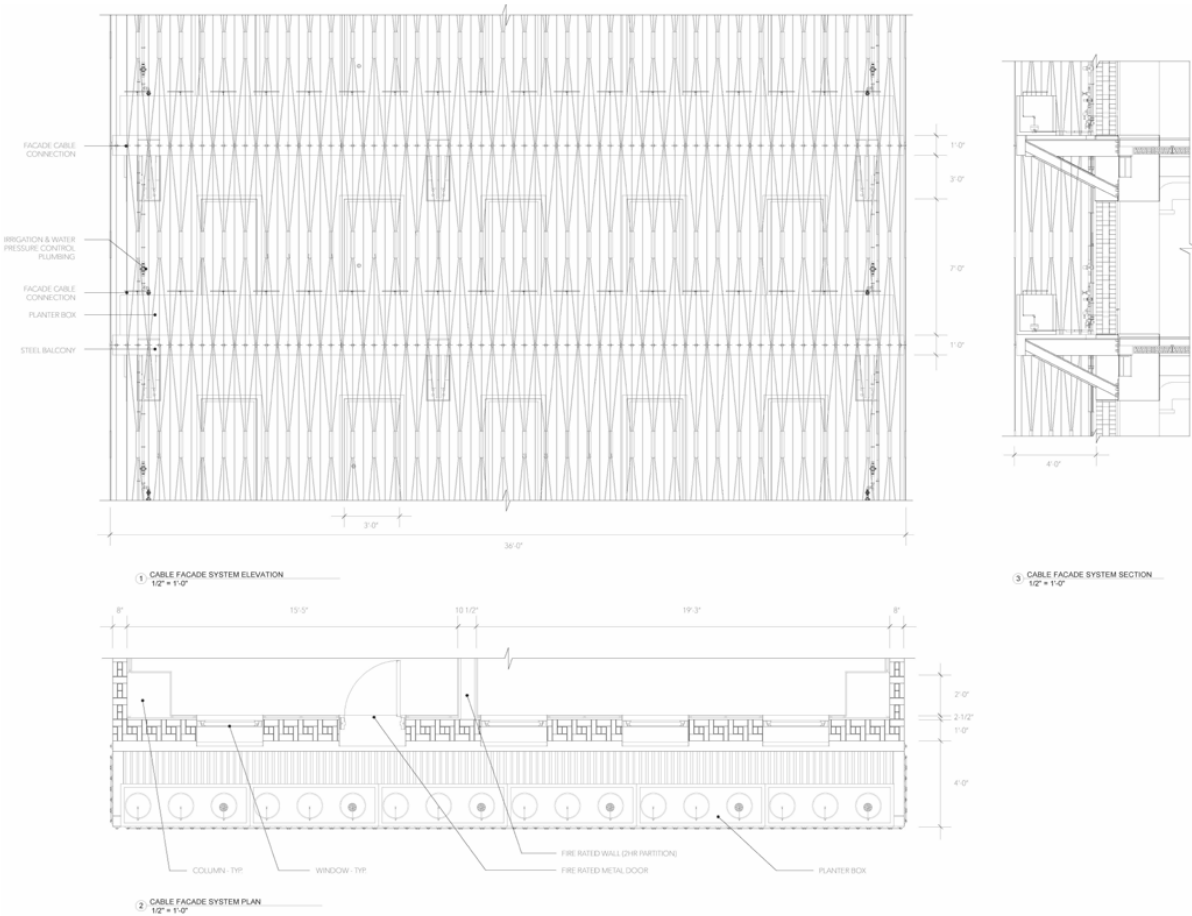




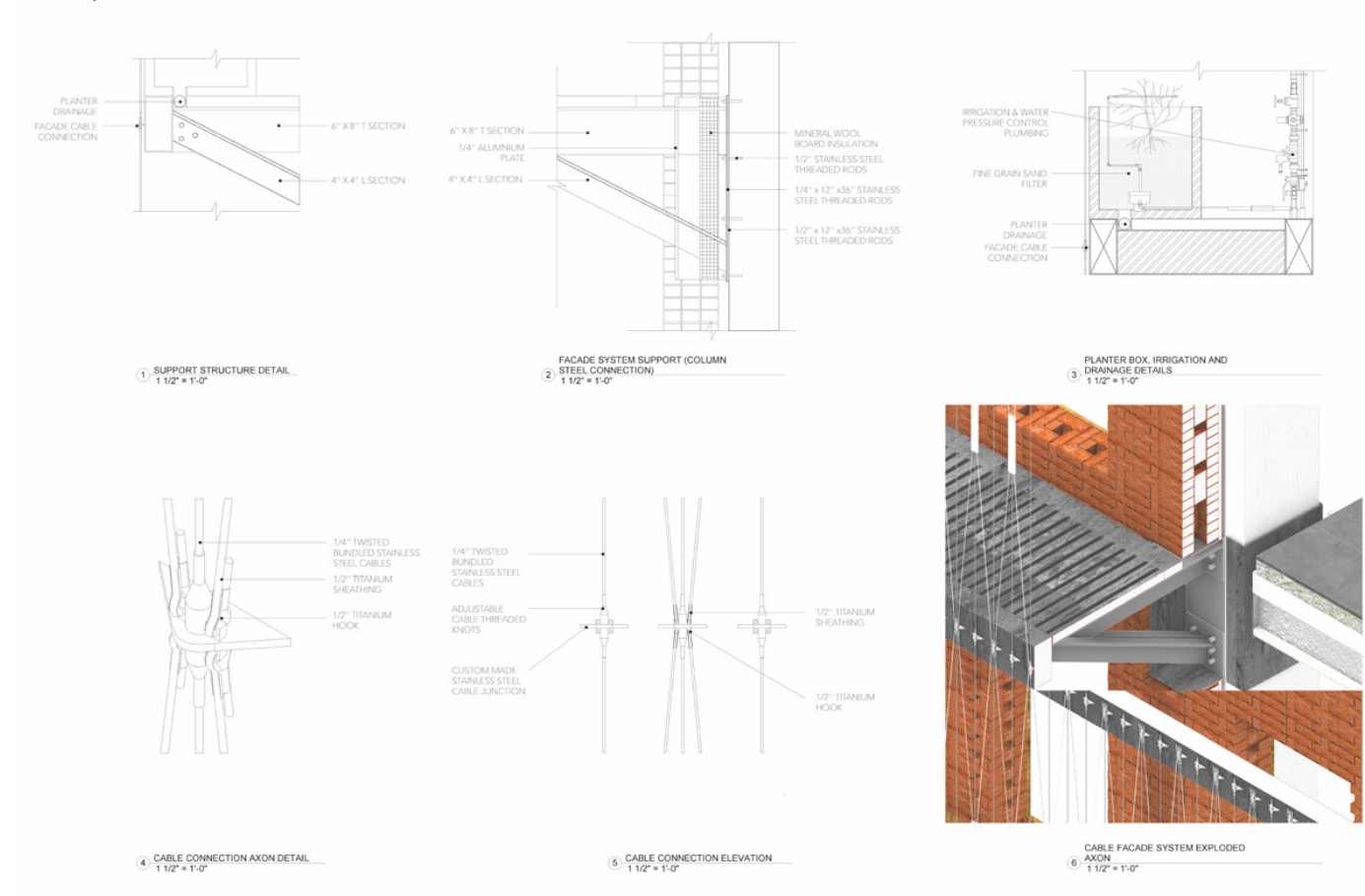
Building Isometric



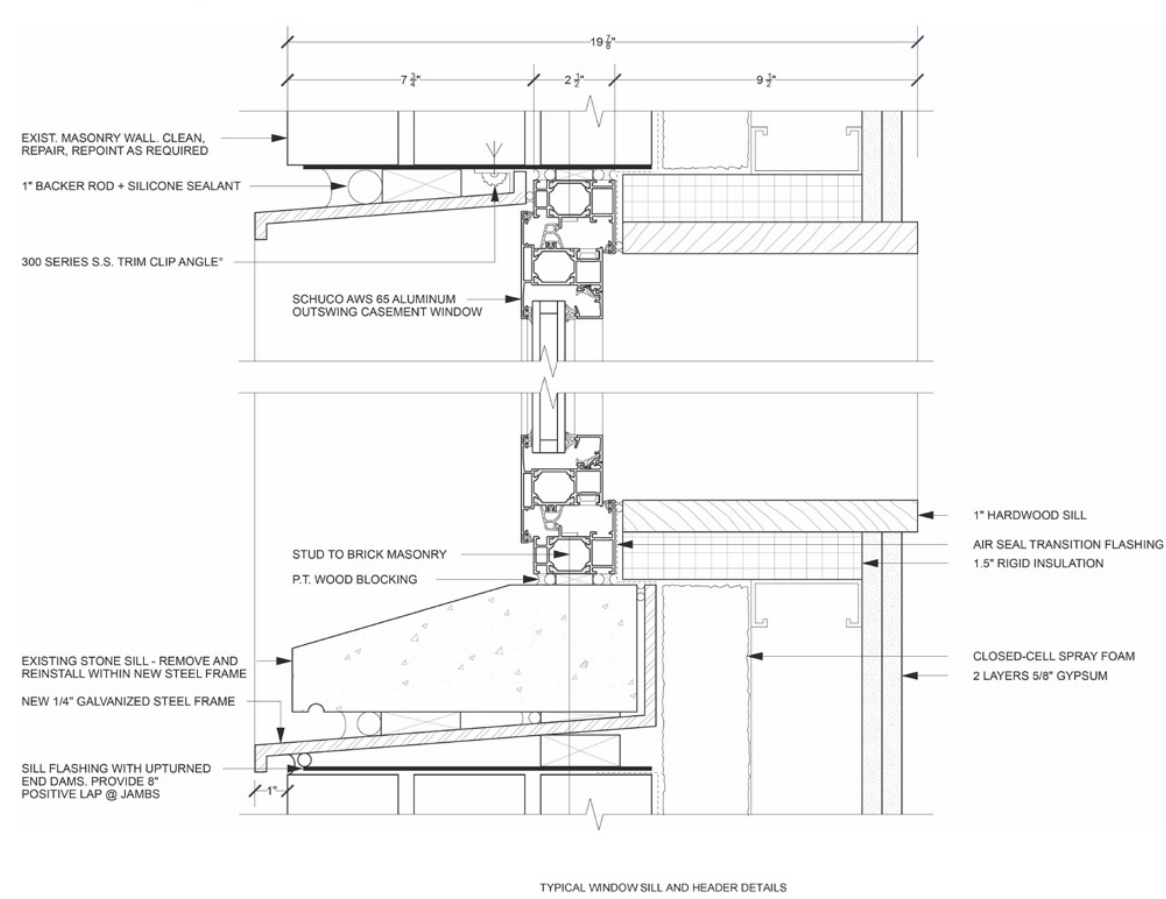
Facade System I



Facade System II



Typical Window Sill and Header Details



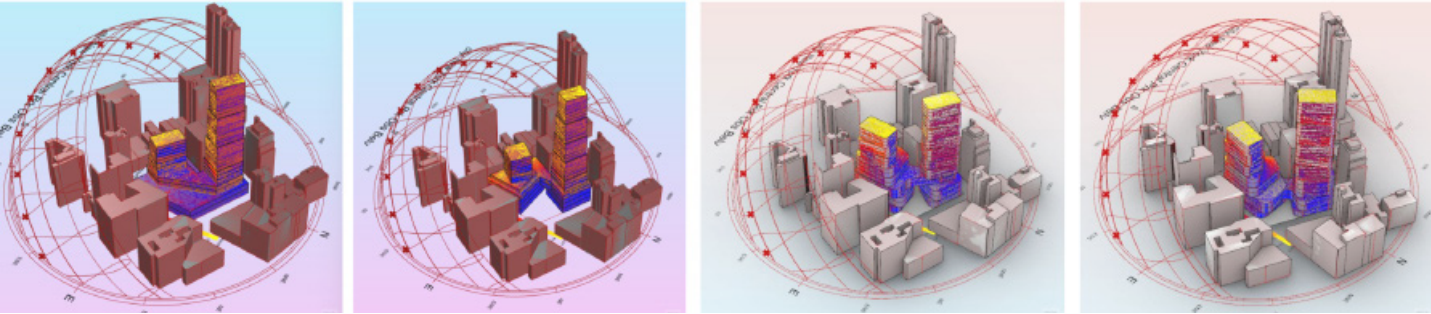


RETHINKING BIM: ELEVATE NOMAD - DESIGNING FOR VERTICAL EQUALITY

Function: Mixed-Use (Residential, Office, Retail)
Location: 120 W 30th St
Date: Jan 2024 - May 2024
Course: Re-Thinking BIM
Instructor: Joseph Brennan
Group Member: Yiheng Zhao, Zitao Yang, Aliza Mehnaz, Yilin Wang

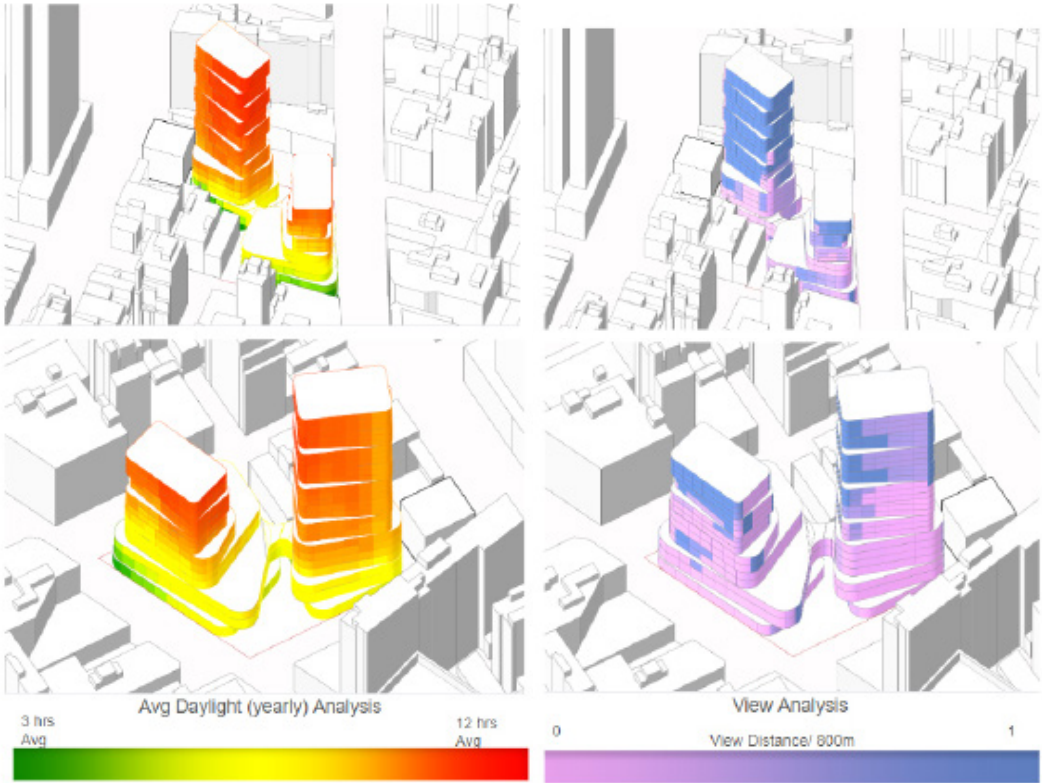
The studio brief for this course challenges us to design a high-rise building in downtown Manhattan that integrates retail, office, and residential spaces. This project employs multiple analytical techniques to optimize views and maximize natural sunlight, ultimately enhancing comfort for occupants. The choice of façade aligns with our goal of creating an affordable yet high-quality design that also resonates with the character of the nearby historic district.

Massing Iteration Based on Sunlight Analysis



Incorporating two towers on the site.
 Twisting the tower to create a ground-level plaza.
 Introducing rounded corners to the form and rotating the tower to maximize daylight in the living spaces.
 Further optimizing sunlight exposure in the living spaces by twisting each individual floor.

Avg Daylight (yearly) Analysis & View Analysis



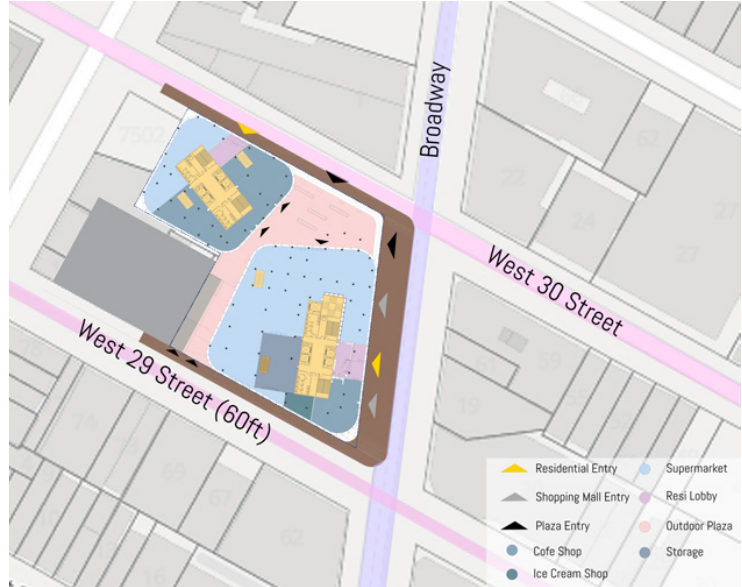
Program	Designated floor/s	Size
Retail space	1st-2nd	53,695 SF+
Office	3rd-8th	831,23 SF+
Condo	9th-28th	174,064 SF+

Left: Daylight analysis shows the building achieves optimal daylight exposure, with units receiving ~12 hours of sunlight annually.
 Right: View distance analysis reveals most units will enjoy enhanced views.

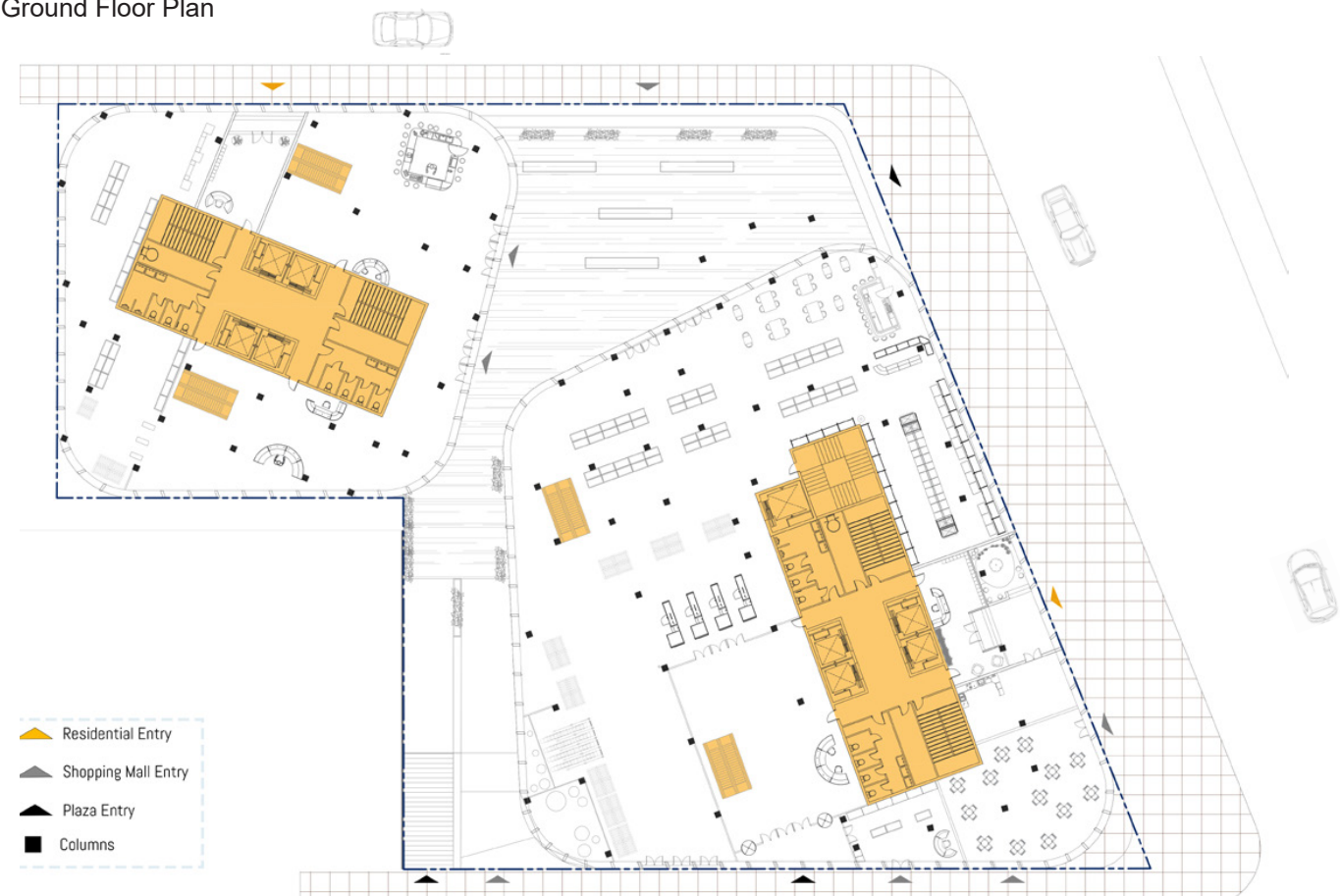
The Site



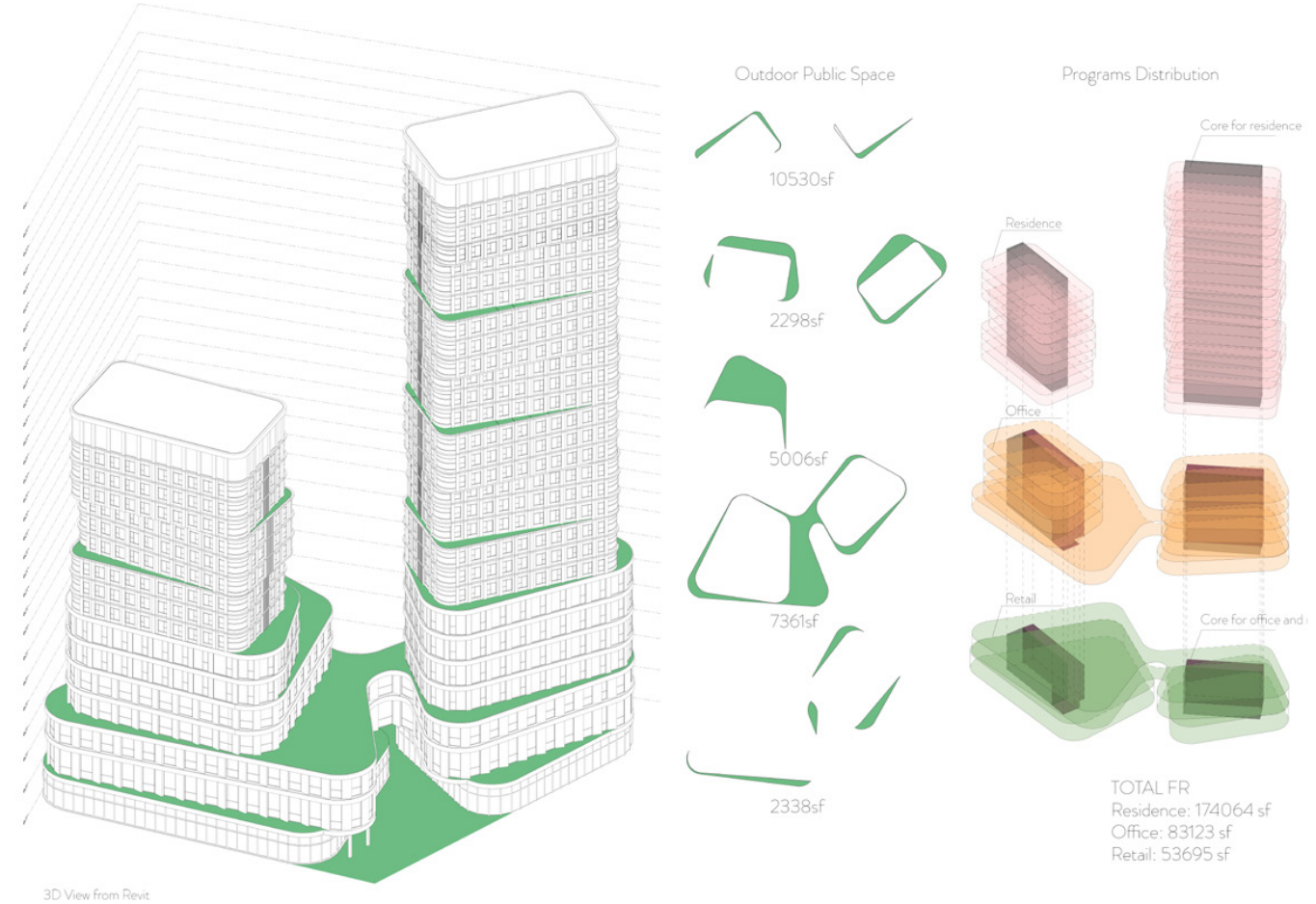
Ground Floor Plan



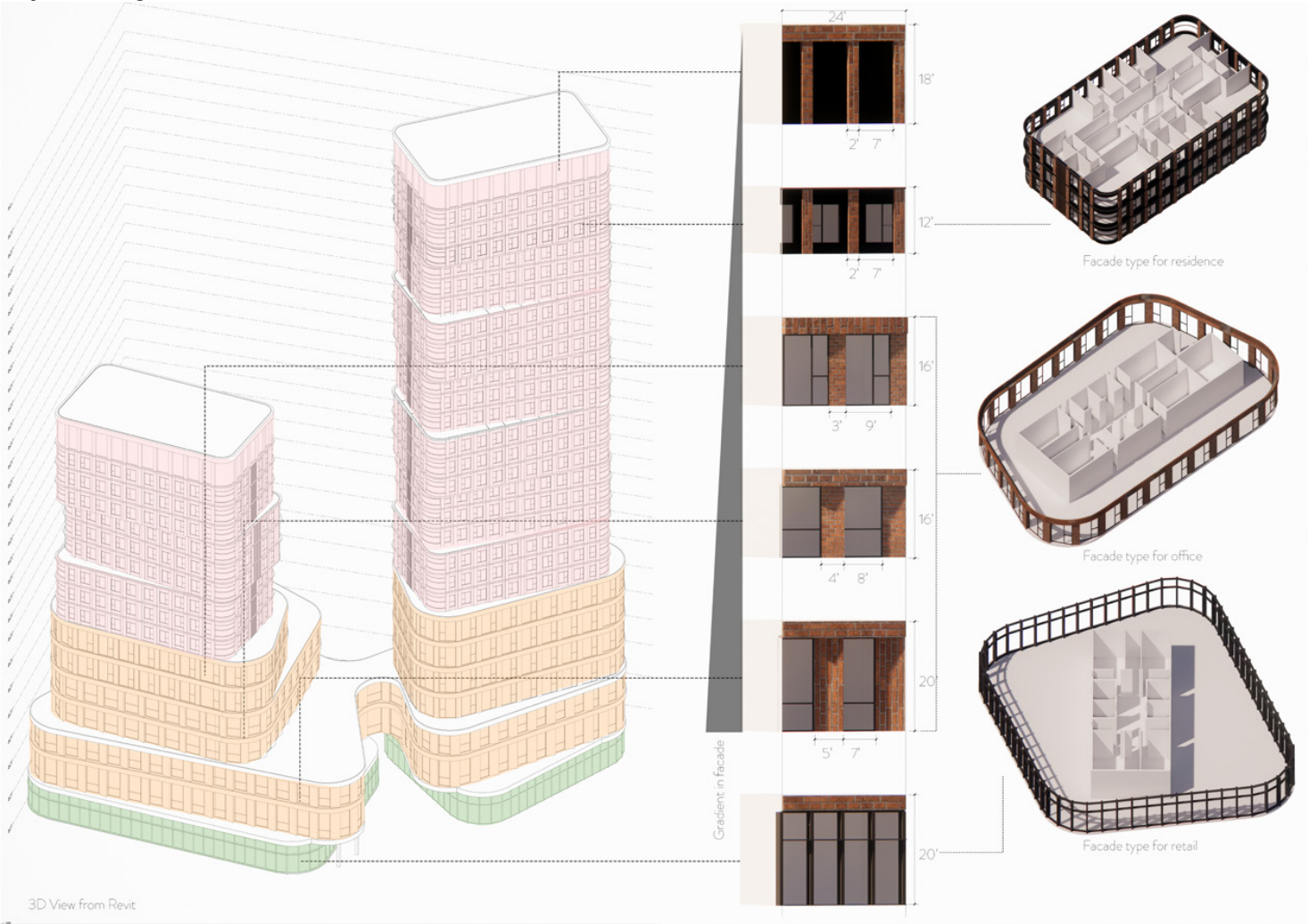
Ground Floor Plan



Massing, Public Space and Programs



Façade Design



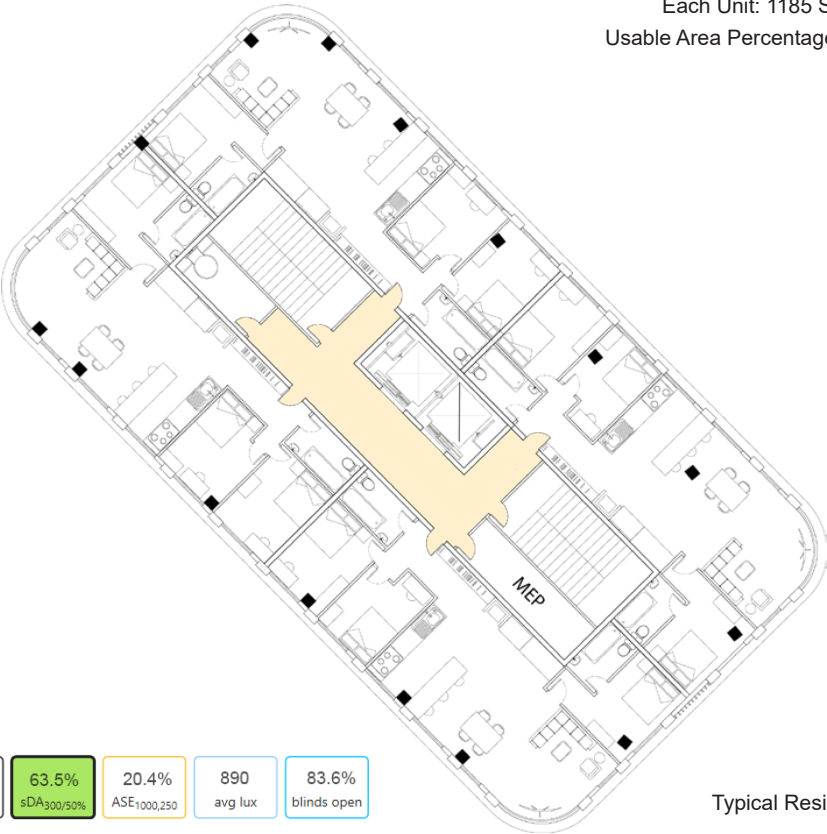
Upper- Floor Quality View Analysis



The simulation indicates 93.4% of upper-floor spaces will have access to high-quality city views.

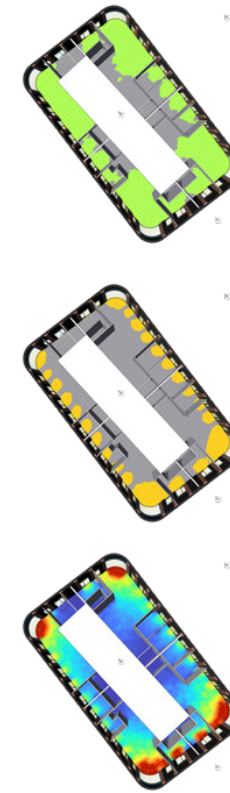


2* credit	63.5% sDA _{300/50%}	20.4% ASE _{1000,250}	890 avg lux	83.6% blinds open
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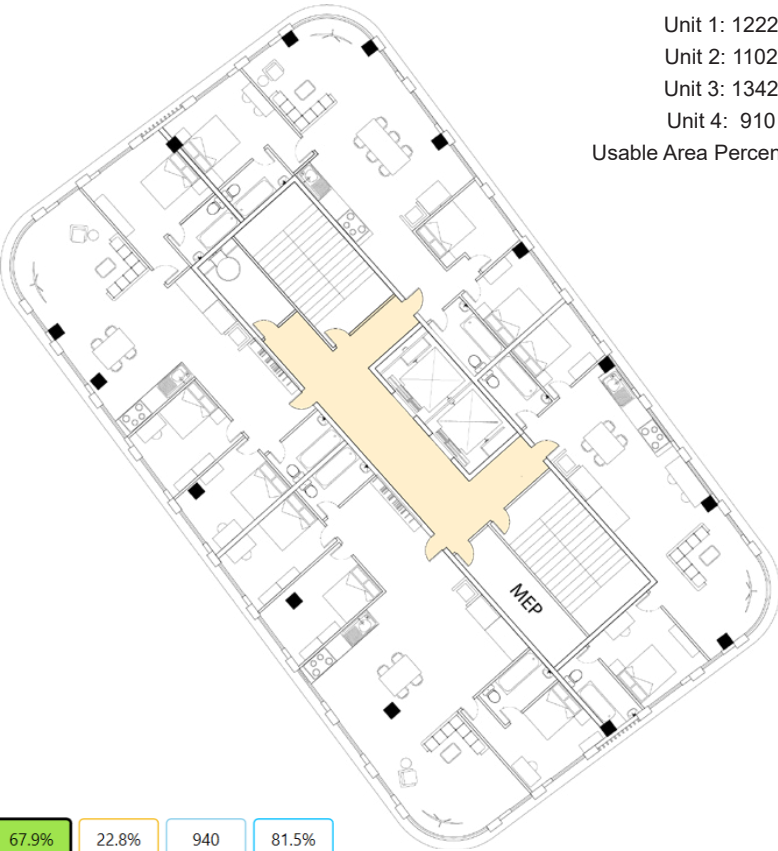


Each Unit: 1185 Sq Ft
Usable Area Percentage : 77.35%

Typical Residential Plan 1



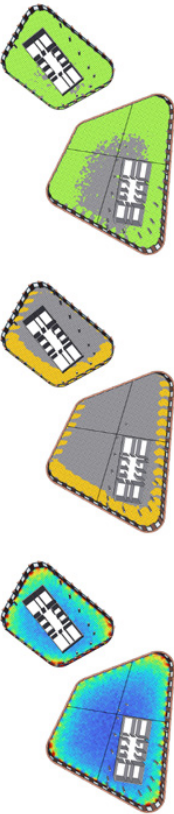
2* credit	67.9% sDA _{300/50%}	22.8% ASE _{1000,250}	940 avg lux	81.5% blinds open
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Unit 1: 1222 Sq Ft
Unit 2: 1102 Sq Ft
Unit 3: 1342 Sq Ft
Unit 4: 910 Sq Ft
Usable Area Percentage: 77.35%

Typical Residential Plan 2

3* credits	77.4% sDA _{300/50%}	29.6% ASE _{1000,250}	1121 avg lux	73.3% blinds open
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3rd Floor Office Plan with Connecting Bridge



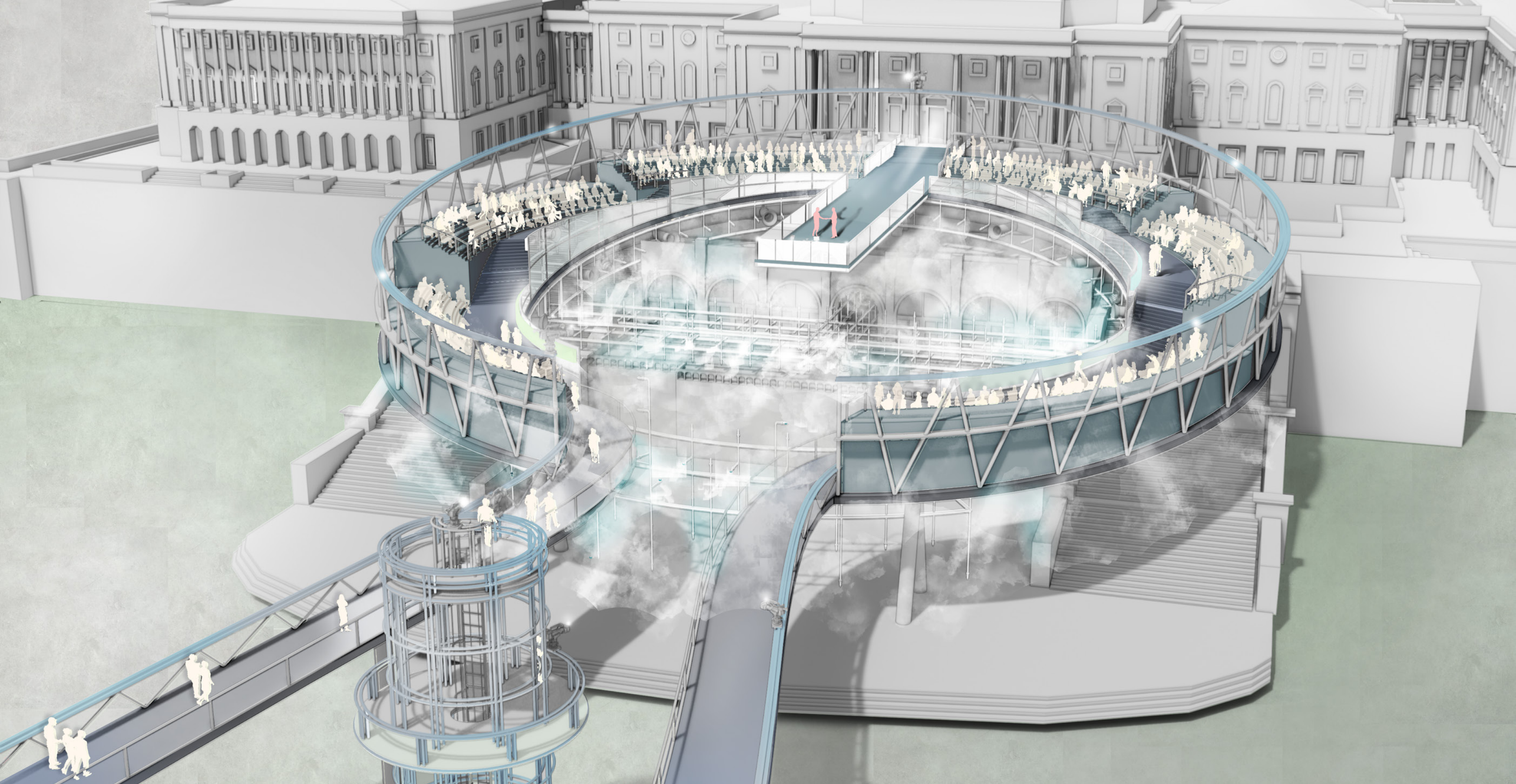
Typical Office Plan

3* credits	98.4% sDA _{300/50%}	53.0% ASE _{1000,250}	1530 avg lux	75.0% blinds open
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Office 1: 5723 Sqft
Office 2: 5323 Sqft
Office 3: 6019 Sqft
Usable Area Percentage: 61.70%

Office Area: 9919 Sqft
Usable Area Percentage: 76.28%



CORE 2: AFTER JAN 6 - A NEW INAUGURATION CEREMONY

Reclaiming the Platform: Ceremony, Memory, and the Architecture of Transition

Function: Political Ritual Design

Location: East Capitol St NE & First St NE, Washington, D.C. 20004

Date: Jan 2023 - May 2023

Course: GSAPP Core 2 Studio

Instructor: Mark Wasiuta

Group Member: Yiheng Zhao

This project reimagines the presidential inauguration platform in response to the January 6 Capitol attack. It emphasizes the symbolic restoration of peaceful power transfer through a redesigned spatial procession, strategic camera choreography, and the theatrical use of smoke as a memorial gesture. By transforming both the physical site and the televised experience, the proposal confronts political trauma while reaffirming democratic continuity.



Camera Tower



Scaffolding and Inauguration Platform



West Front Mid Tunnel



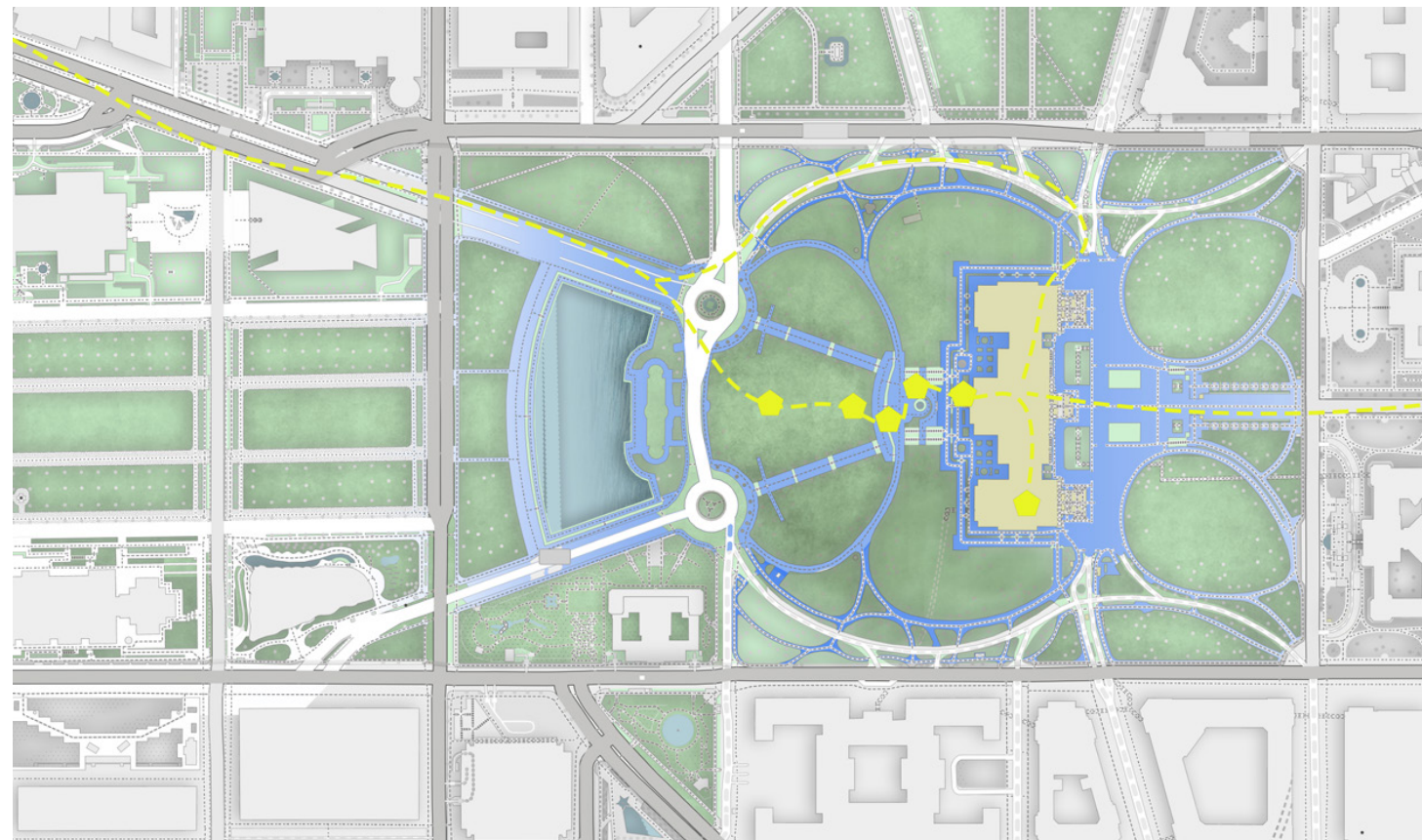
Temporary Fencing and Barricades



Senate Wing Window

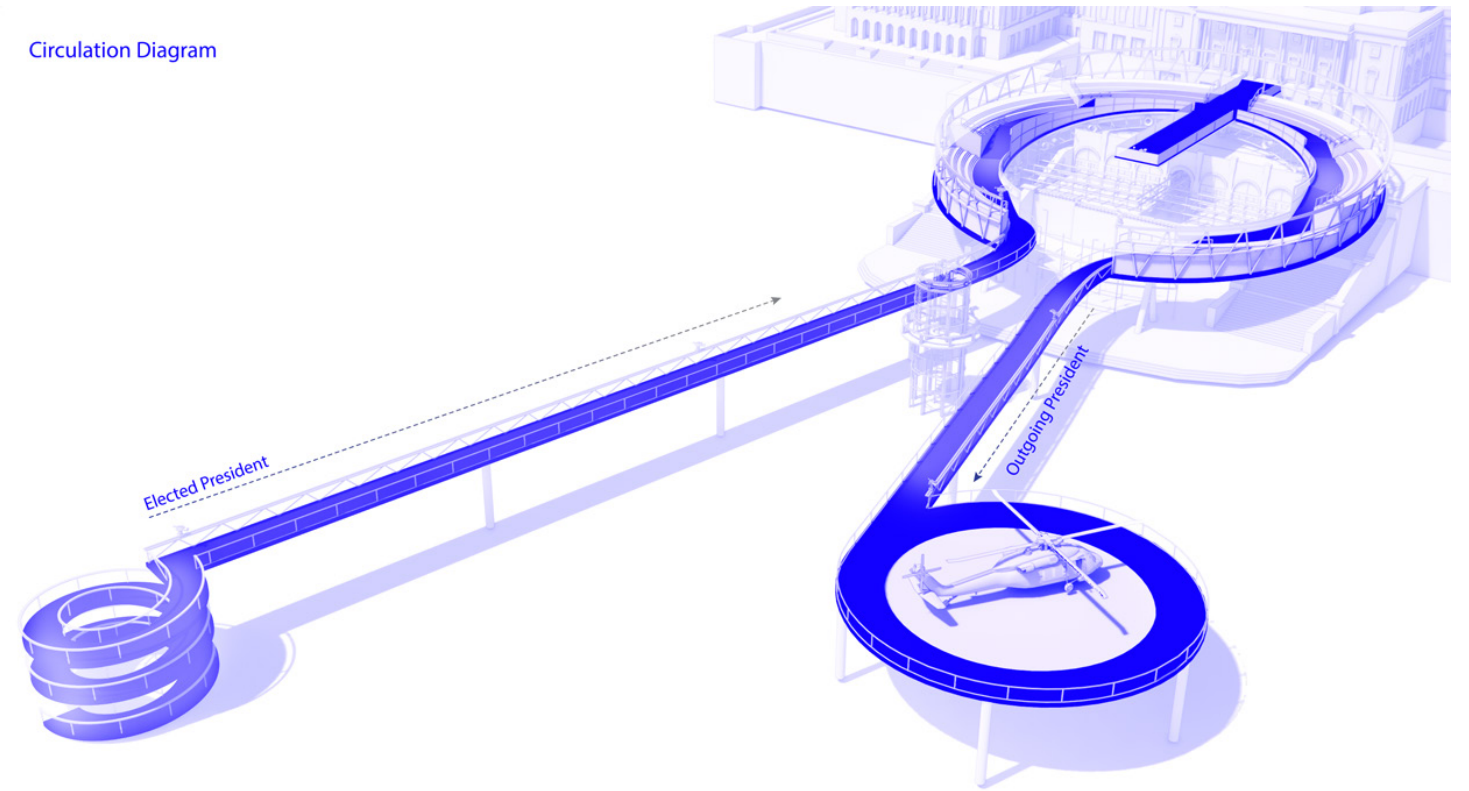


Speaker's Lobby - The Death of Ashli Babbitt



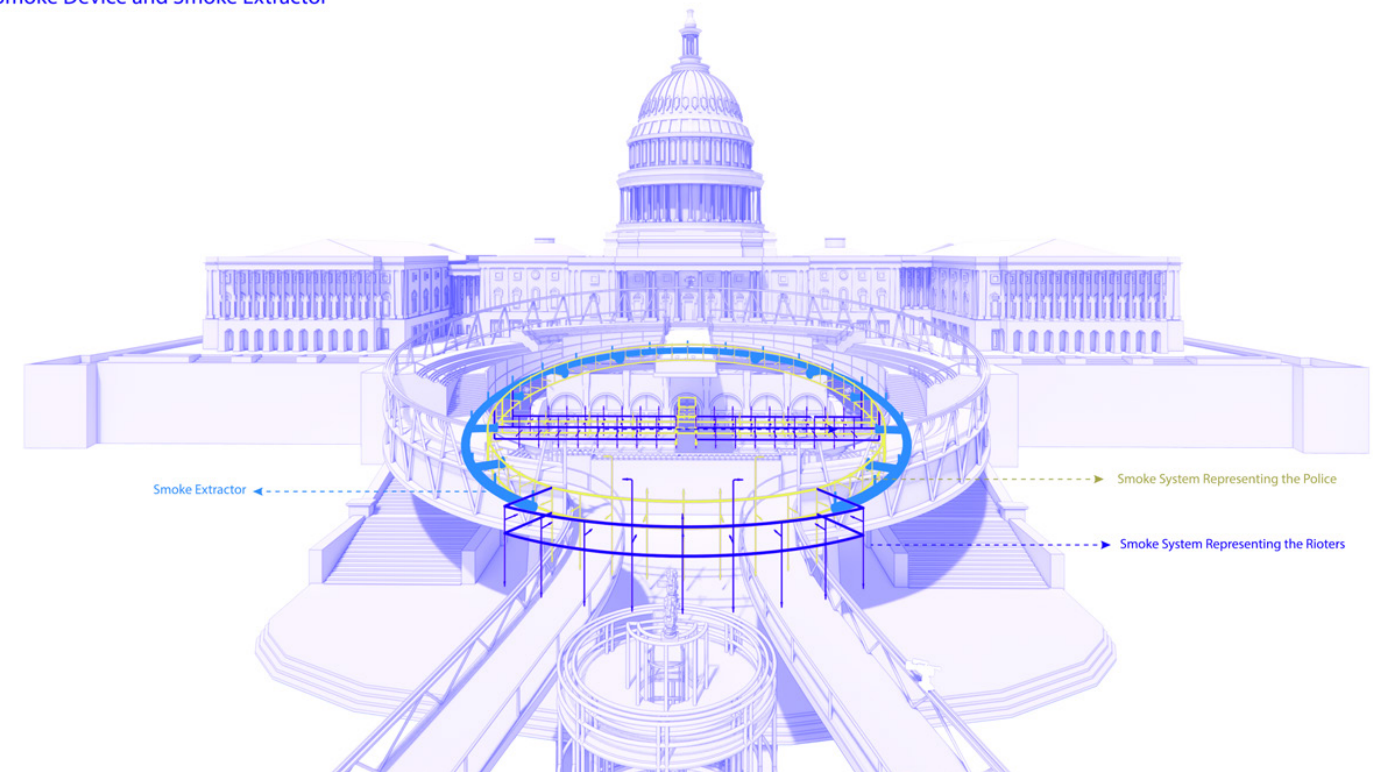
Site Plan Indicating Key Breach Points

Circulation Diagram

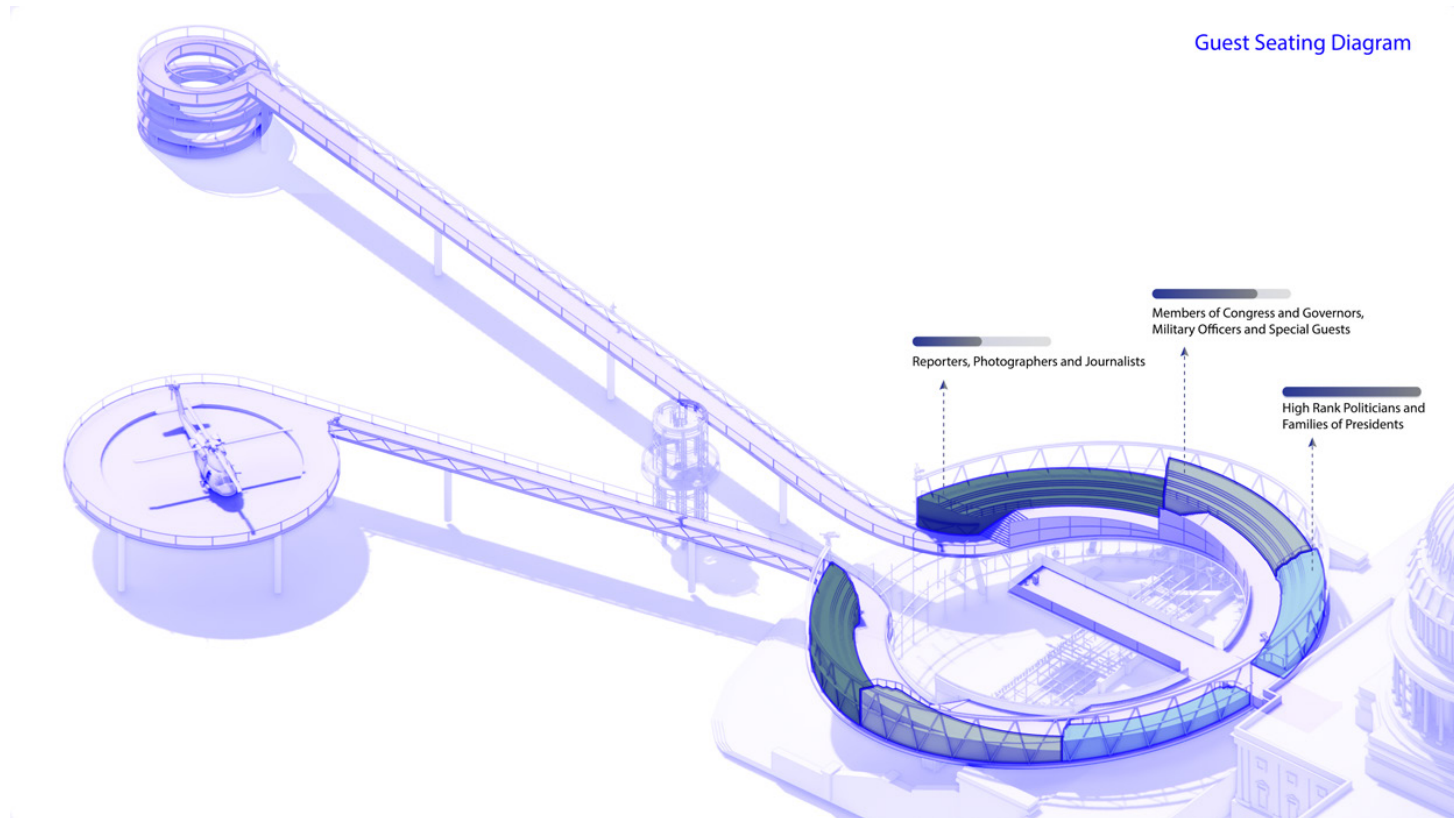


The circulation diagram illustrates the restructured ceremonial paths of the outgoing and incoming presidents. The newly elected president ascends from Pennsylvania Avenue along a public-facing route, while the outgoing president exits directly from the Capitol building. Their paths intersect at the central presidential platform, symbolizing a peaceful transfer of power before diverging again—culminating in the former president's helicopter departure.

Smoke Device and Smoke Extractor

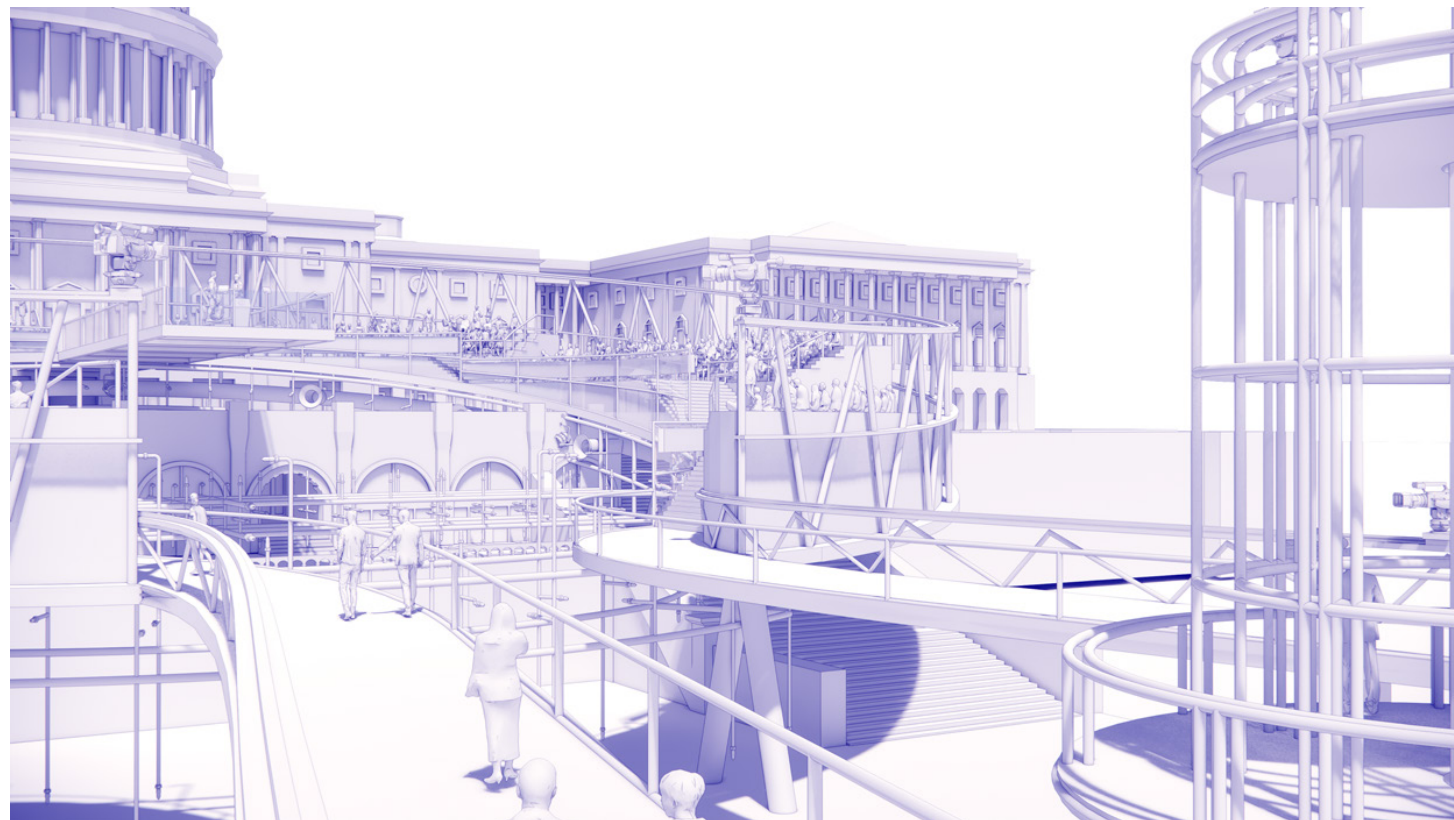


The smoke devices are positioned according to the original locations where tear gas was exchanged between rioters and police on January 6. Blue and yellow smoke symbolize opposing forces—rioters and law enforcement—evoking the visual chaos of that day. A custom-designed smoke extractor system allows precise control over the density and dispersal of the smoke during the ceremony.

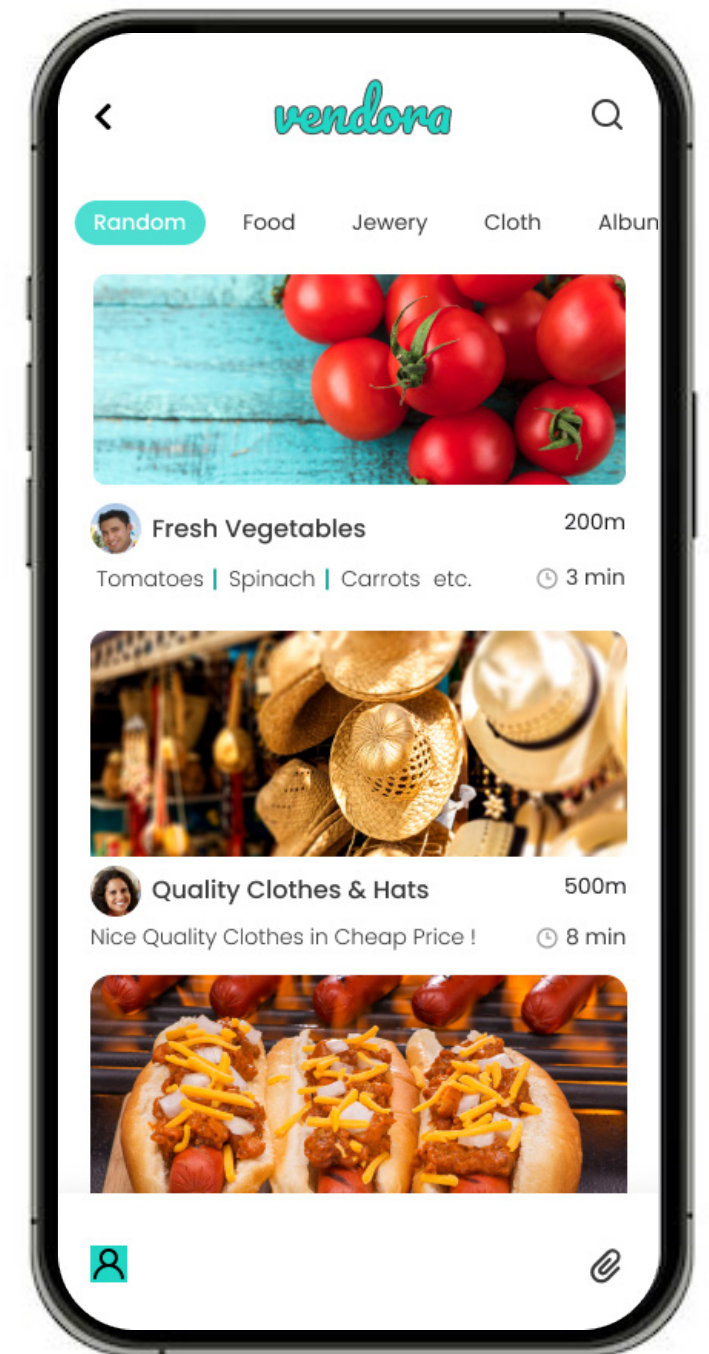
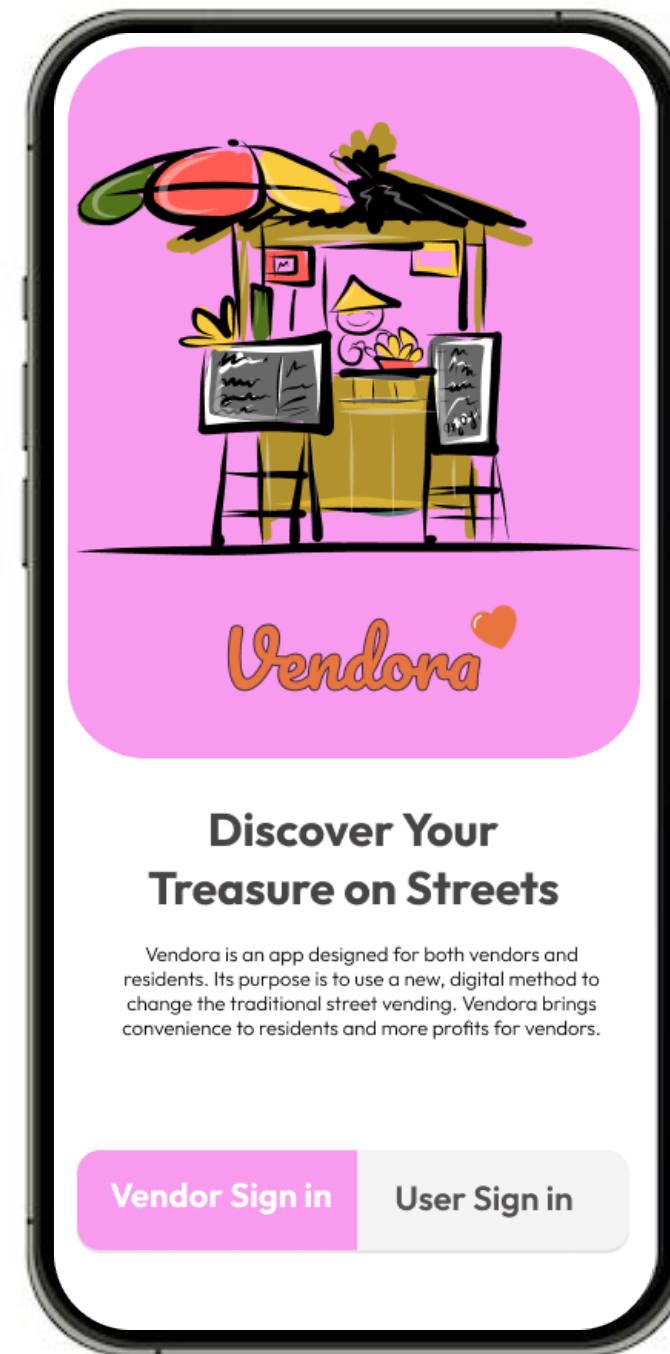


The guest seating diagram reorganizes the audience to enhance both visibility and symbolic hierarchy. Journalists and media are positioned facing the presidential platform, ensuring full coverage. Elected officials, governors, and senators are seated behind the platform, allowing them to be visible on camera alongside the ceremony.

Camera Rail and Entrance



The camera rail system is designed to follow the ceremonial choreography, capturing key moments such as the presidents' approach, handshake, and departure. Rails are installed along the path, atop the structure, and around the circular camera tower, allowing for dynamic, uninterrupted movement and immersive broadcast coverage.



CORE 1: VENDORA - THE DYNAMIC MARKET

Tracing Movement, Mapping Opportunity: A Platform for the Invisible Economy

Function: Mobile Market Infrastructure (Digital Platform + Urban Navigation)

Location: New York City

Date: Sept 2022 - Dec 2022

Course: Core 1 Studio

Instructor: Patricia Anahory

Group Member: Yiheng Zhao

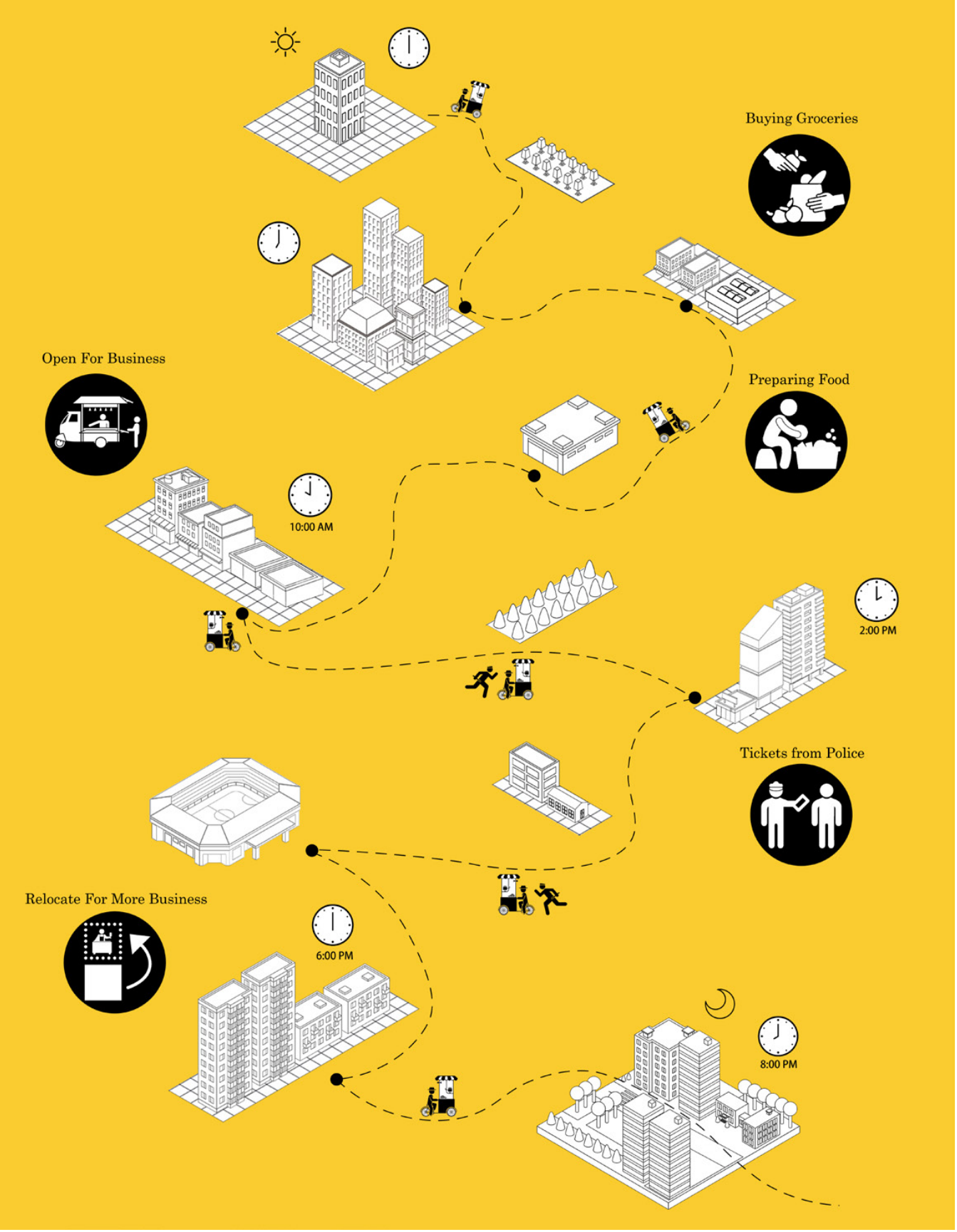
Vendora is a digital platform that transforms scattered street vending in Inwood into a coordinated, mobile marketplace. By crowdsourcing real-time data on public gatherings, police presence, and urban regulations, the app empowers vendors to navigate the city strategically, increasing visibility, safety, and economic opportunity for informal workers.



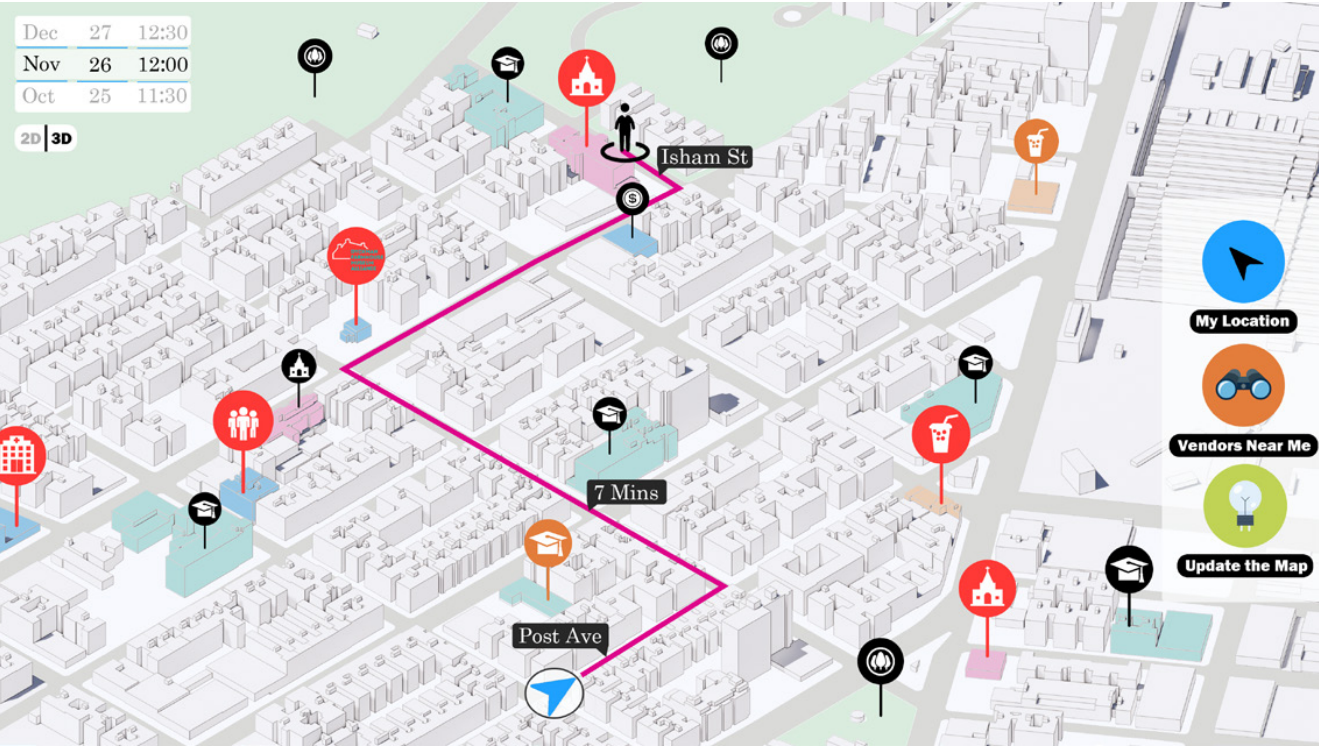
Site Plan of Inwood, NYC



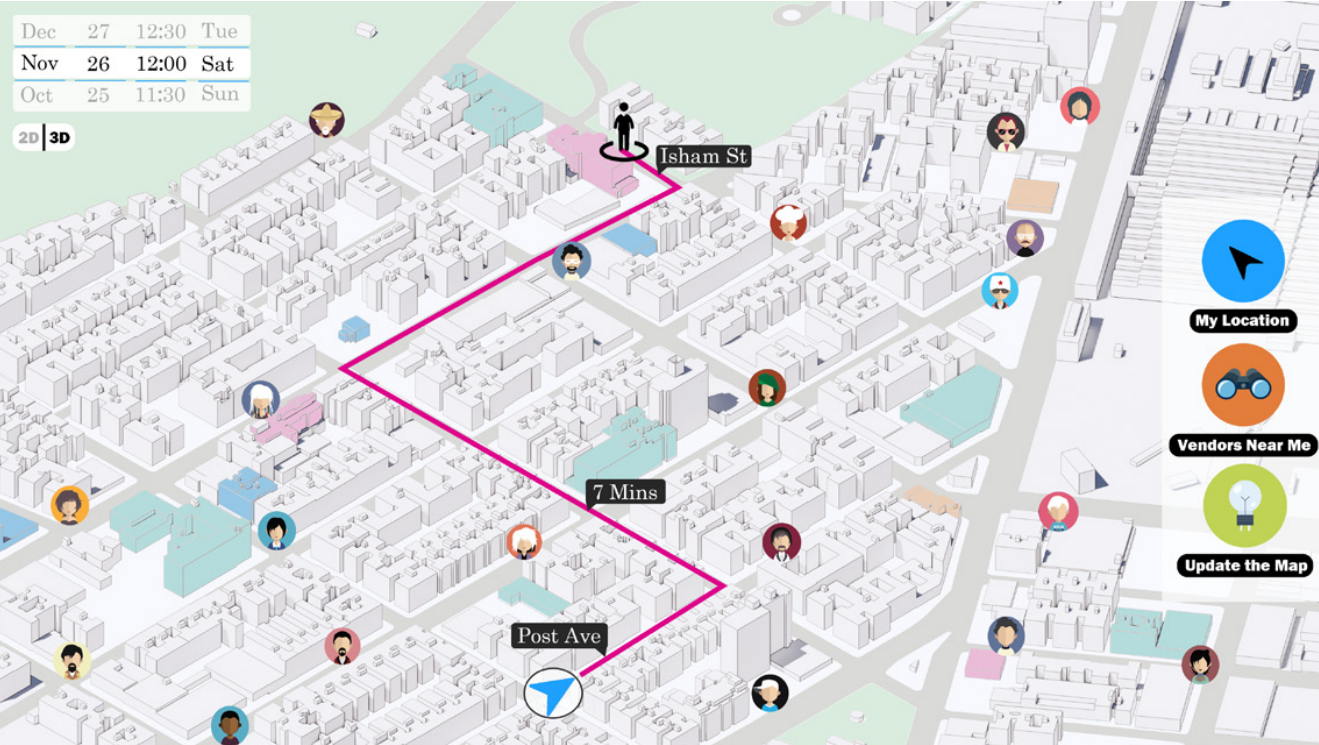
These four street diagrams highlight potential vendor spots in Inwood by analyzing sidewalk widths, public activity, and commercial presence along different streets.



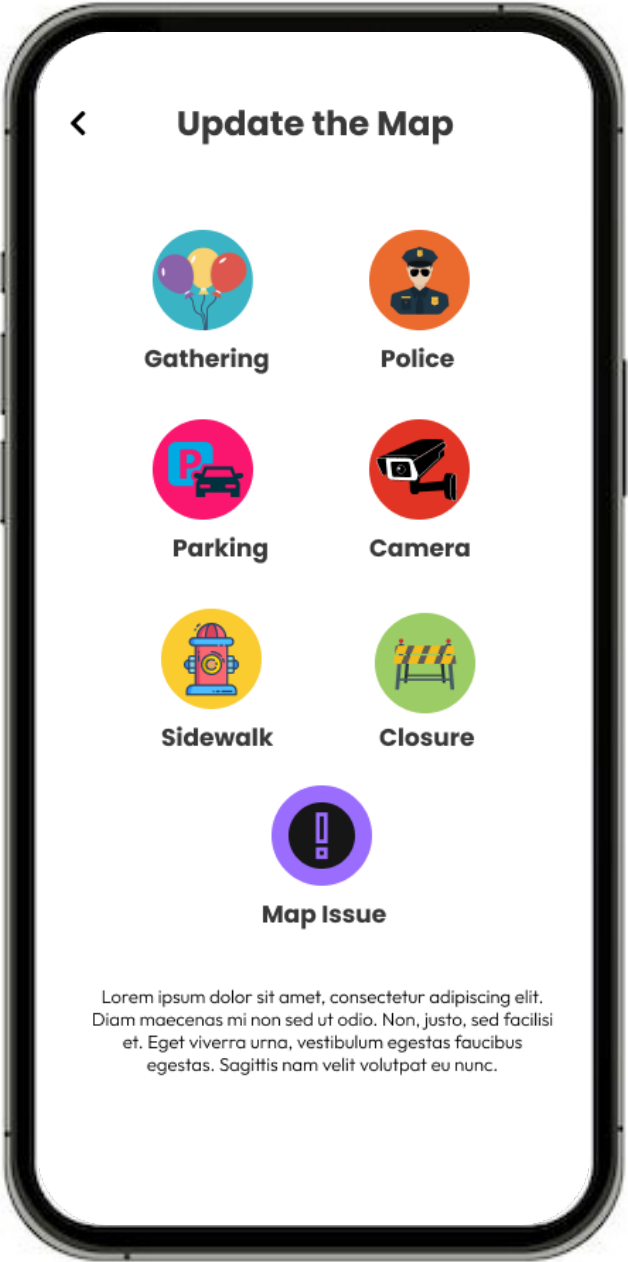
This diagram illustrates how street vendors, especially unlicensed ones, constantly roam between locations in search of business, often fleeing from police and operating unpredictably due to the lack of structured vending



The interactive map highlights event locations at public buildings—such as churches, schools, parks, and museums—guiding residents to local activities and vendors to business opportunities. Red icons show live events, orange indicate upcoming ones, and black mark future gatherings.

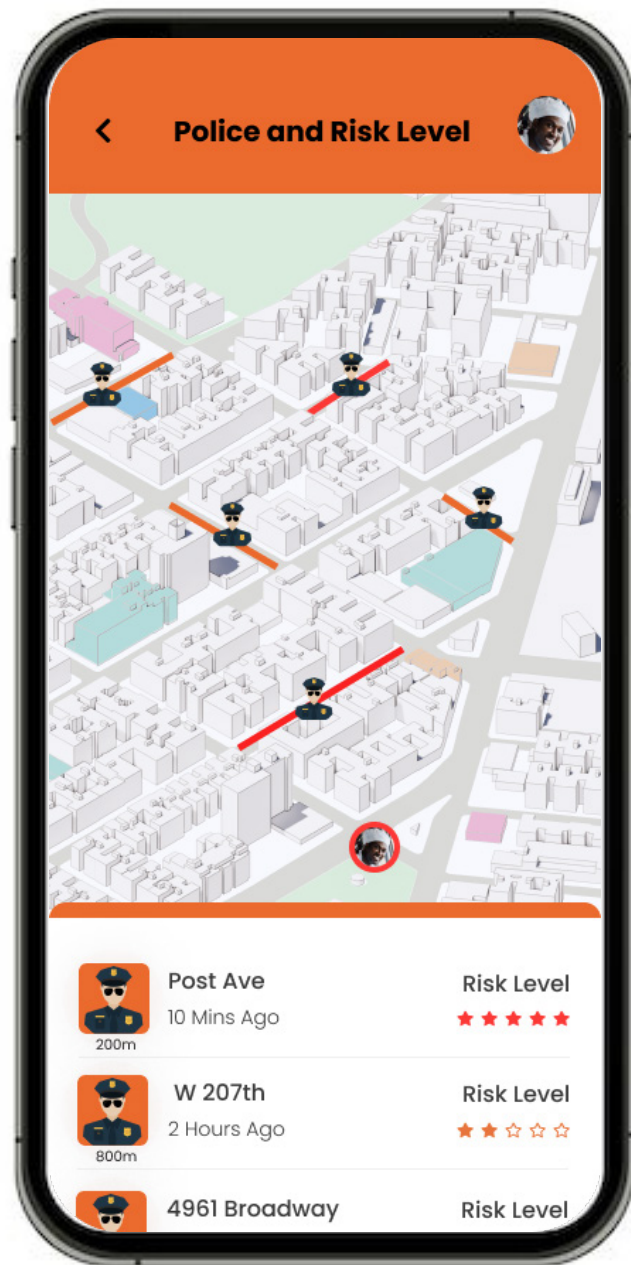


As a customer, you can view vendor locations in the area and explore their profiles to see what products they're offering.

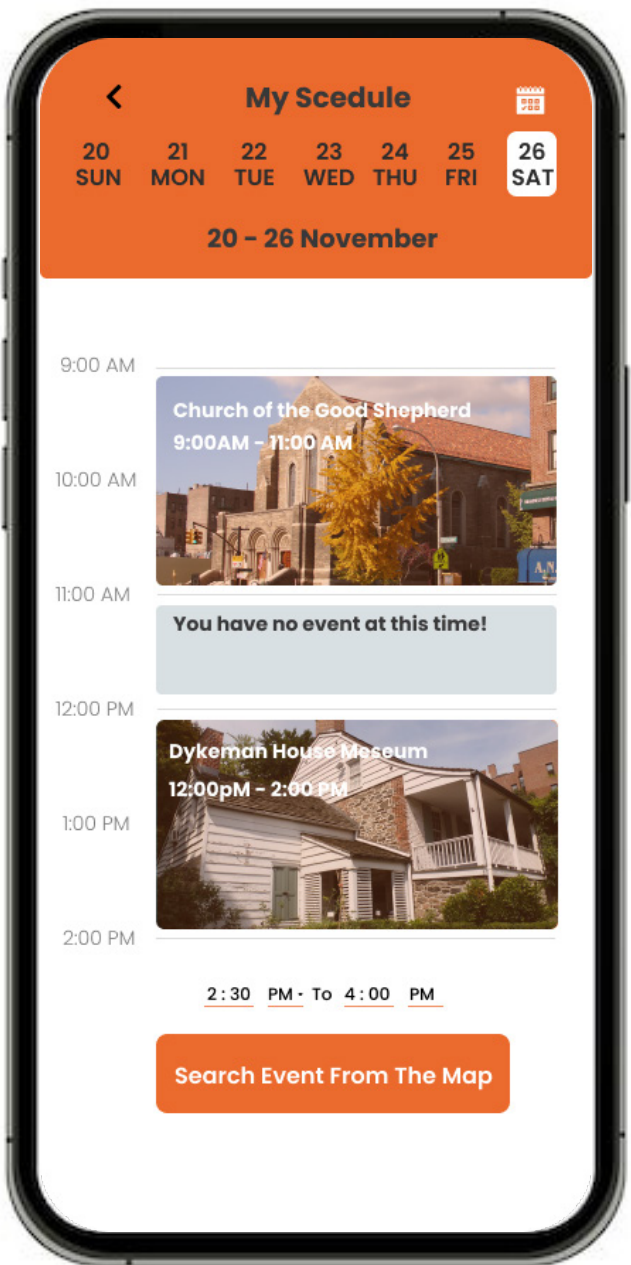


The “Update the Map” feature allows users to add real-time information about unexpected gatherings—like a spontaneous party at Inwood Hill Park—so vendors can respond quickly to new business opportunities and residents can attract vendors to their location.

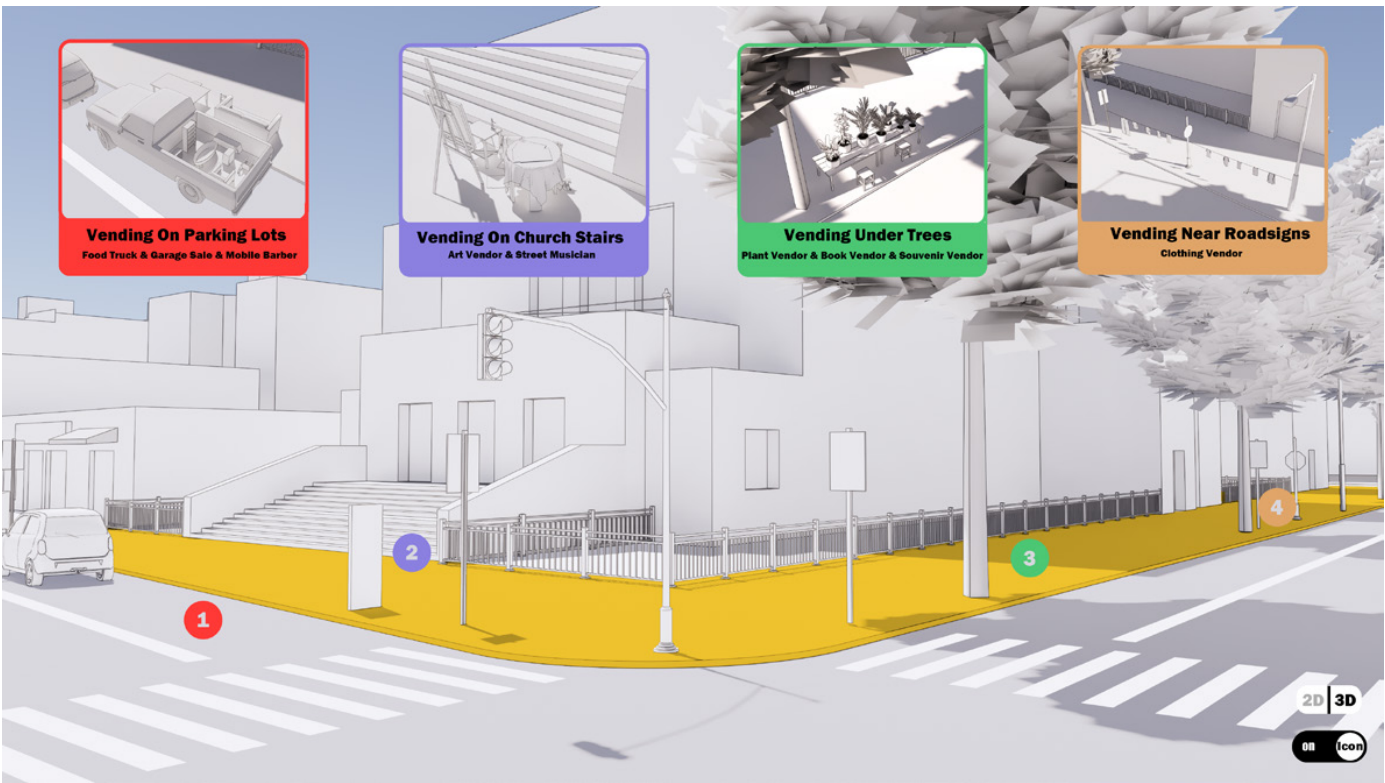




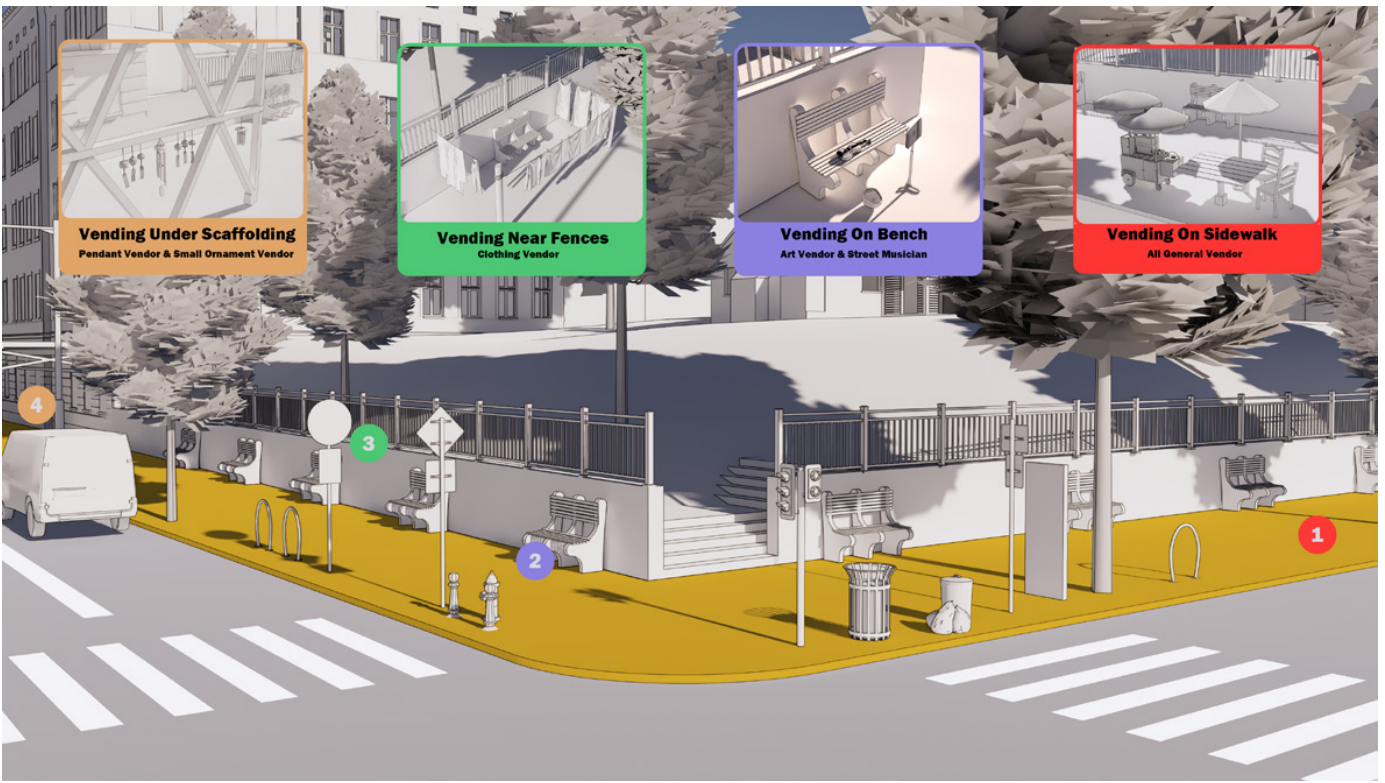
Vendors can use the map to track recent police sightings, helping them avoid high-risk areas and reduce the chance of receiving fines or being forced to relocate.



The schedule feature helps both vendors and residents plan their day by organizing visits around event times and locations, allowing vendors to move strategically instead of relocating blindly.



The SmartSpot feature suggests ideal spots for each vendor type—for example, at the church site, food trucks use cheap parking, musicians perform on steps, fragile goods stay under trees, and clothing hangs on signs—helping vendors reduce competition and increase visibility.



At the Dyckman House Museum site, the feature recommends general vendors use the open sidewalk, musicians perform on public benches, clothing vendors hang items on the fence, and jewelry or small-item vendors use the space under the scaffolding.