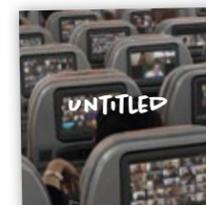
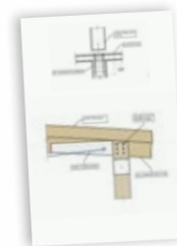




Supply

Supply



DEDICATION

to the women who made me

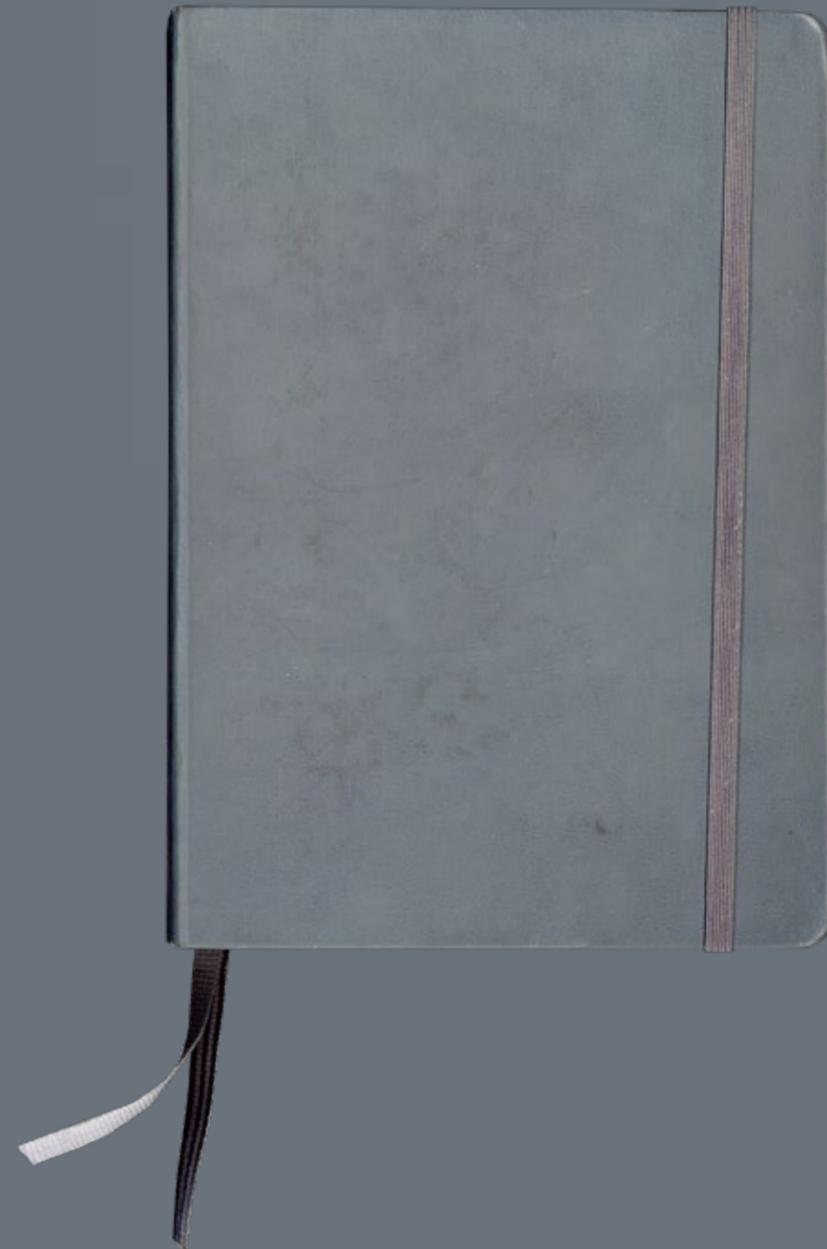
Chelo, Chabelyn, Bettina

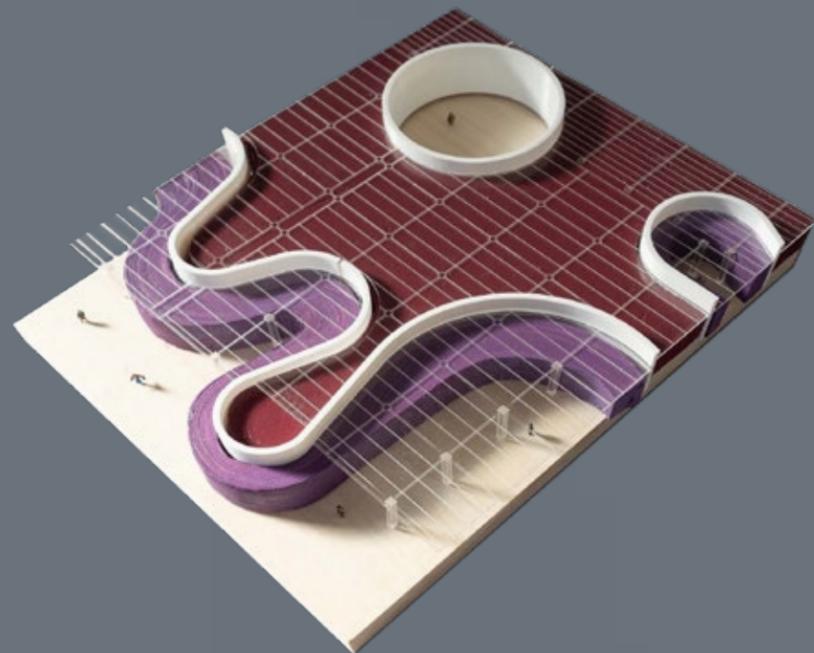
to my forever love

Taylor

and could not have been made without

Alice Fang
Alya Abourezk
Amina Blacksher
Aya Abdallah
Benjamin Cadena
Bisher Tabbac
Gene Han
Hannah Stollery
Hazel Villena
Ines Yupanqui
Ji Ku
Jordan Readyhough
Jose Araguez
Joshua Jordan
Joyce Zhou
Juan Sebastian Moreno
Juliet Brooks
Jun Ito
Kylie Walker
Laurie Hawkinson
Lena Pfeiffer
Lindsey Wikstrom
Luis Miguel Pizano-Andrade
Marty Rogers
Maru Perez Murray
Matthew Brubaker
Mickaella Pharaon
Mike and Deb Simmons
Michael Kamber
Oswaldo Delbrey Ortiz
Ryan Hansen
Sixuan Chen
Sonny Han
Wonne Ickx
Yonah Elorza





Houston Currents

Adaptive Re-use Art and Design Incubator with Alya James Abourezk

Spring 2022
Adv 5- Building on Buildings
Wonne Ickx
Houston, TX

Houston Currents proposes an art incubator at the historic Coca-Cola Bottling Plant in Houston, Texas. The project began with a forensic analysis of the site with a particular intrigue in its intersecting structural grids and detailing. This reading of the site took us to Houston at large where we found urban grids created by a system of overlapping and intersecting lines defined by vehicular traffic. In particular to Houston, however, bayous, slow-moving bodies of water, intersect the grids and serve as a natural force and bisect this copious system of lines.

This understanding of Houston's urban composition informed the intervention onto the site where the art incubator presents a new language in the form of a "ribbon." Defined by two walls, the ribbon channels through the existing structure and foundation and holds all necessary MEP systems to create a self-sustaining infrastructure. As the curved walls dodge and pass the existing structure, quality and exchange are created between the new and the existing where each enhances the other. Through the juxtaposition of the ribbon and the orthogonal grids it weaves through, a layered system of space emerges. A covered green-space wraps individual production spaces within the ribbon molded around a vast gallery in the re-shaped warehouse space.

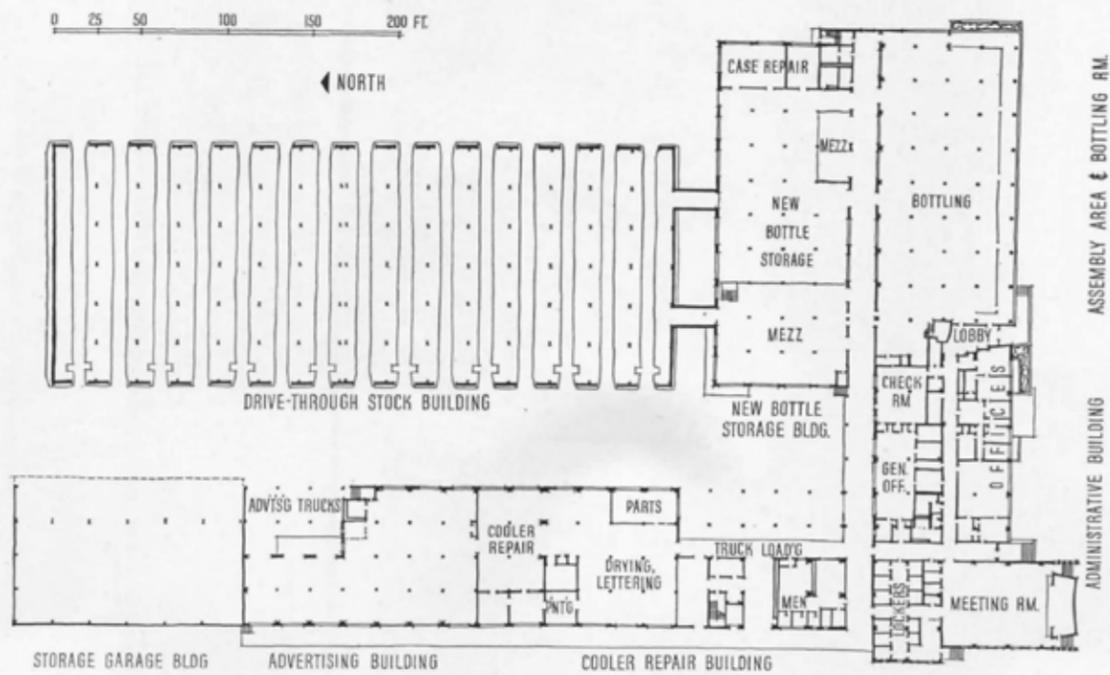
Throughout the design development of this project, we were constantly challenged between compositional and functional problem-solving. Through a lengthy iterative process, we reached a designed result that is exciting, yet rational and speaks to an economy of means. This proposal proves to us that even with a minimal gesture, we can introduce a variety of spatial conditions and qualities and capture an efficient adaptive re-use strategy.



View of principal lobby



Interior of auditorium

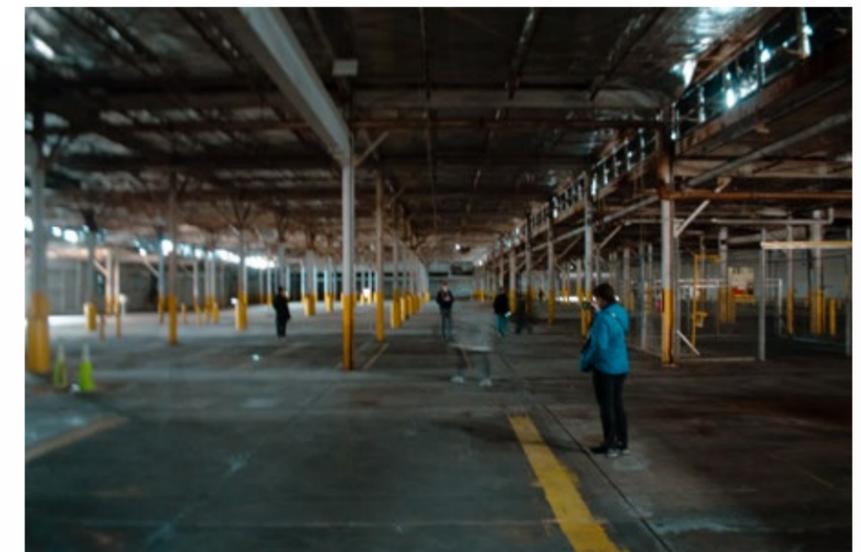
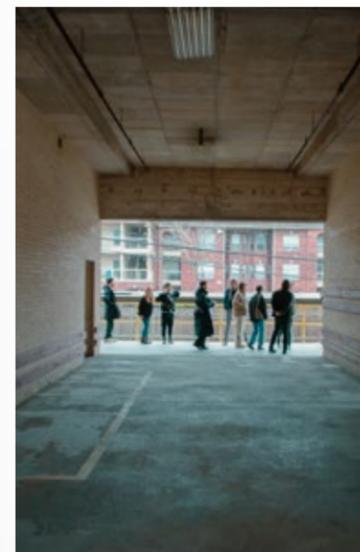
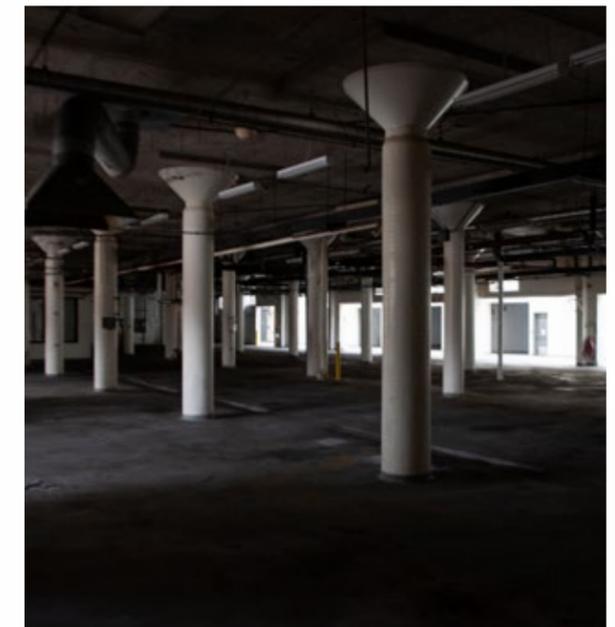
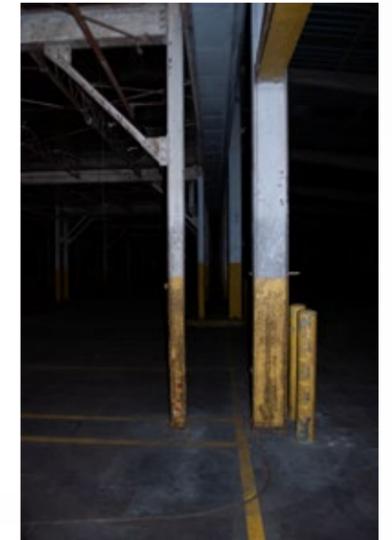


Principal group of buildings puts all functions except automotive maintenance in a U-shaped disposition on the basis of handling problems. Advertising display material and bottle coolers come in, or go out, either by rail or by truck; new bottles and cases usually arrive by rail, are transported within the plant by lift trucks. Bottle storage building is on conveyor route from bottling room to drive-through loading building, so that bottles may be easily added to or subtracted from the conveyor lines

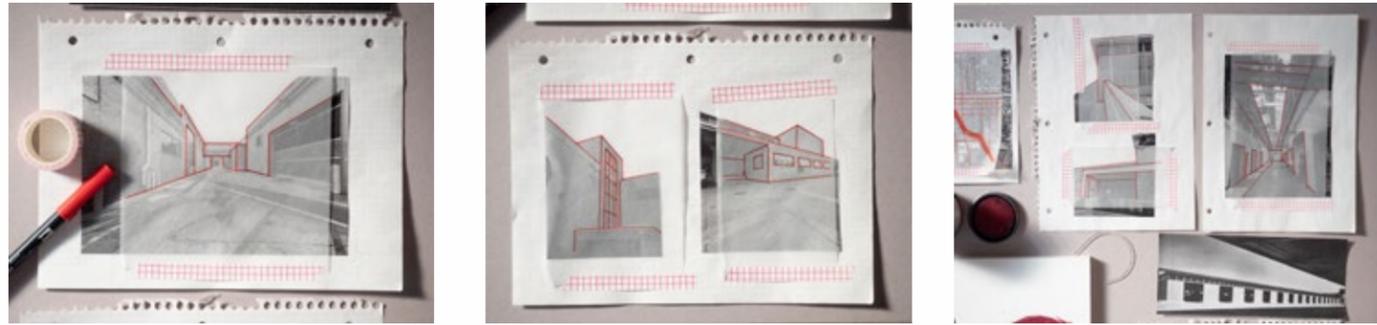
FEBRUARY 1951

E-58 123

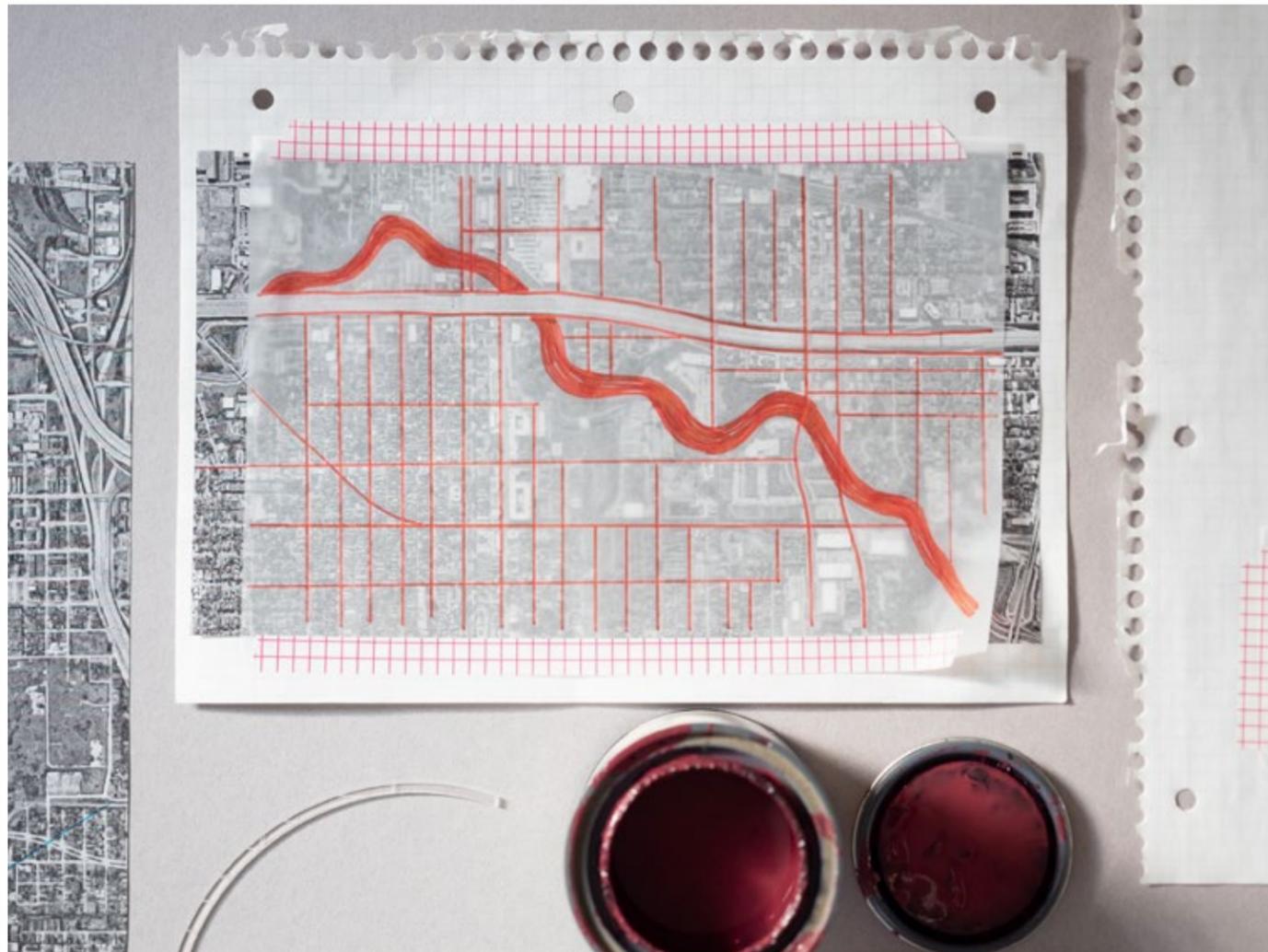
Historical Coca-Cola Bottling Plant and drive-thru building



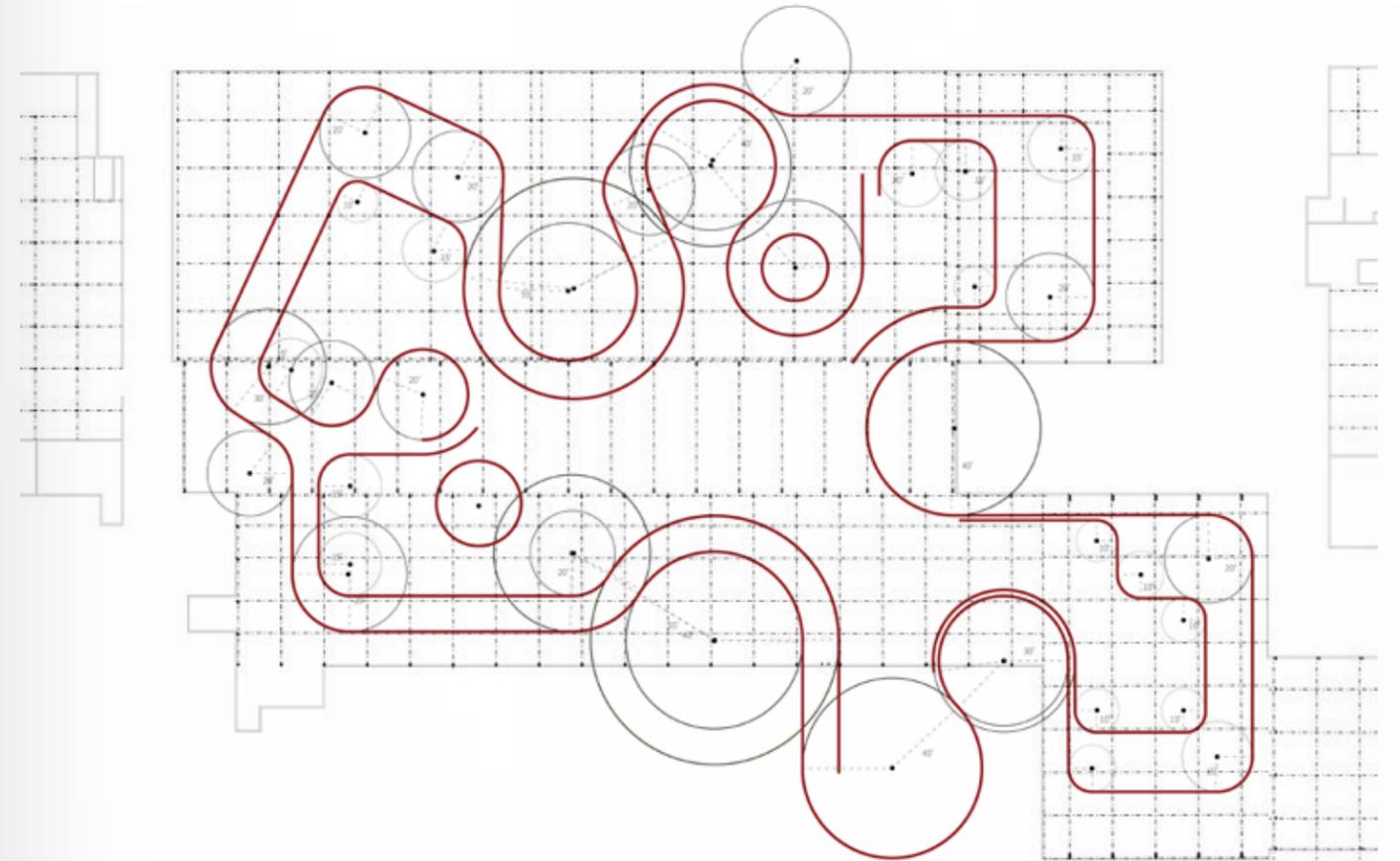
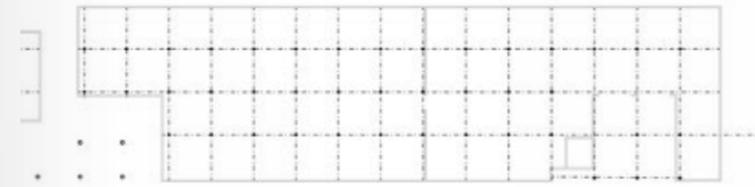
Existing Conditions



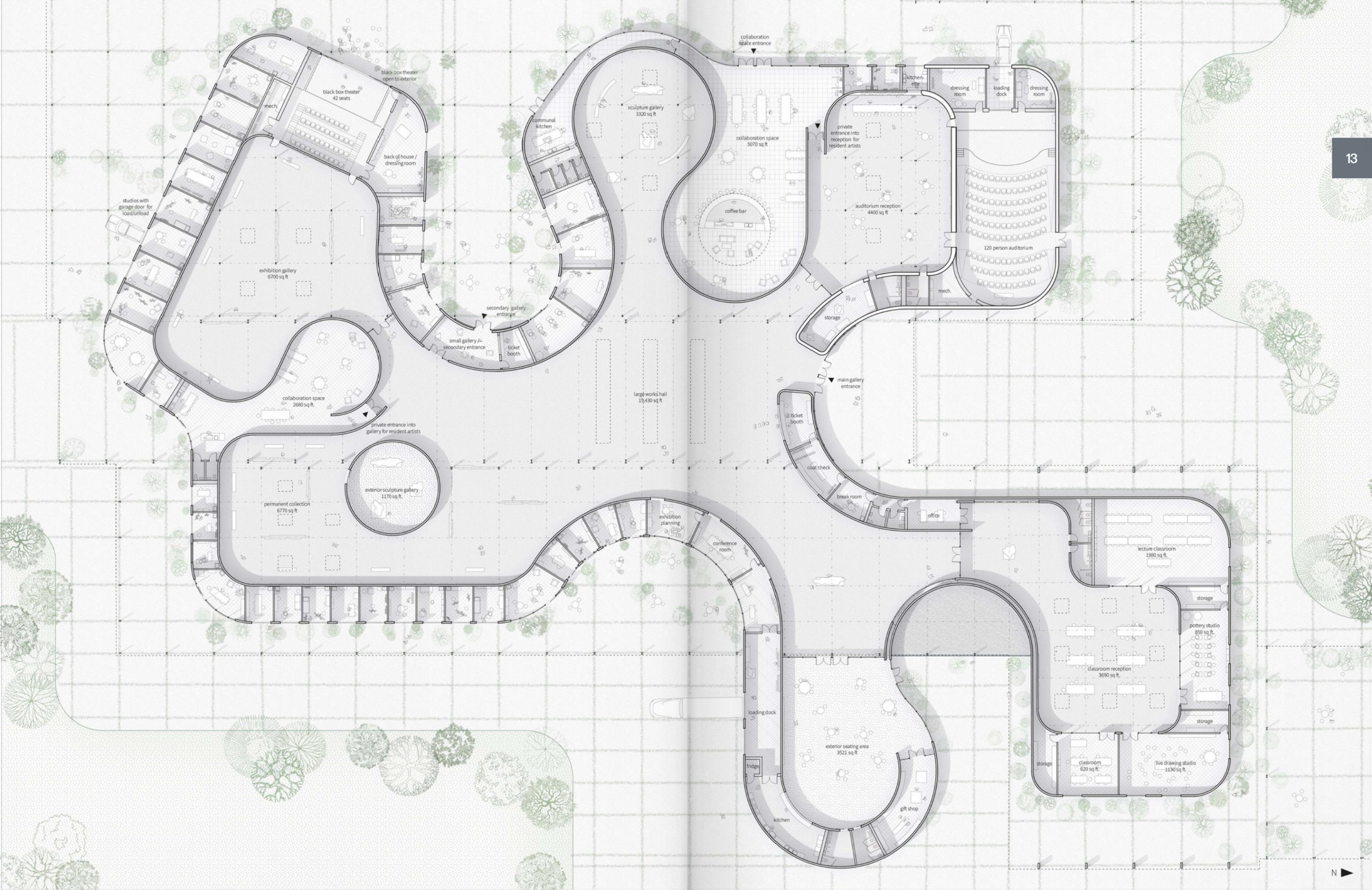
Existing site qualities and details

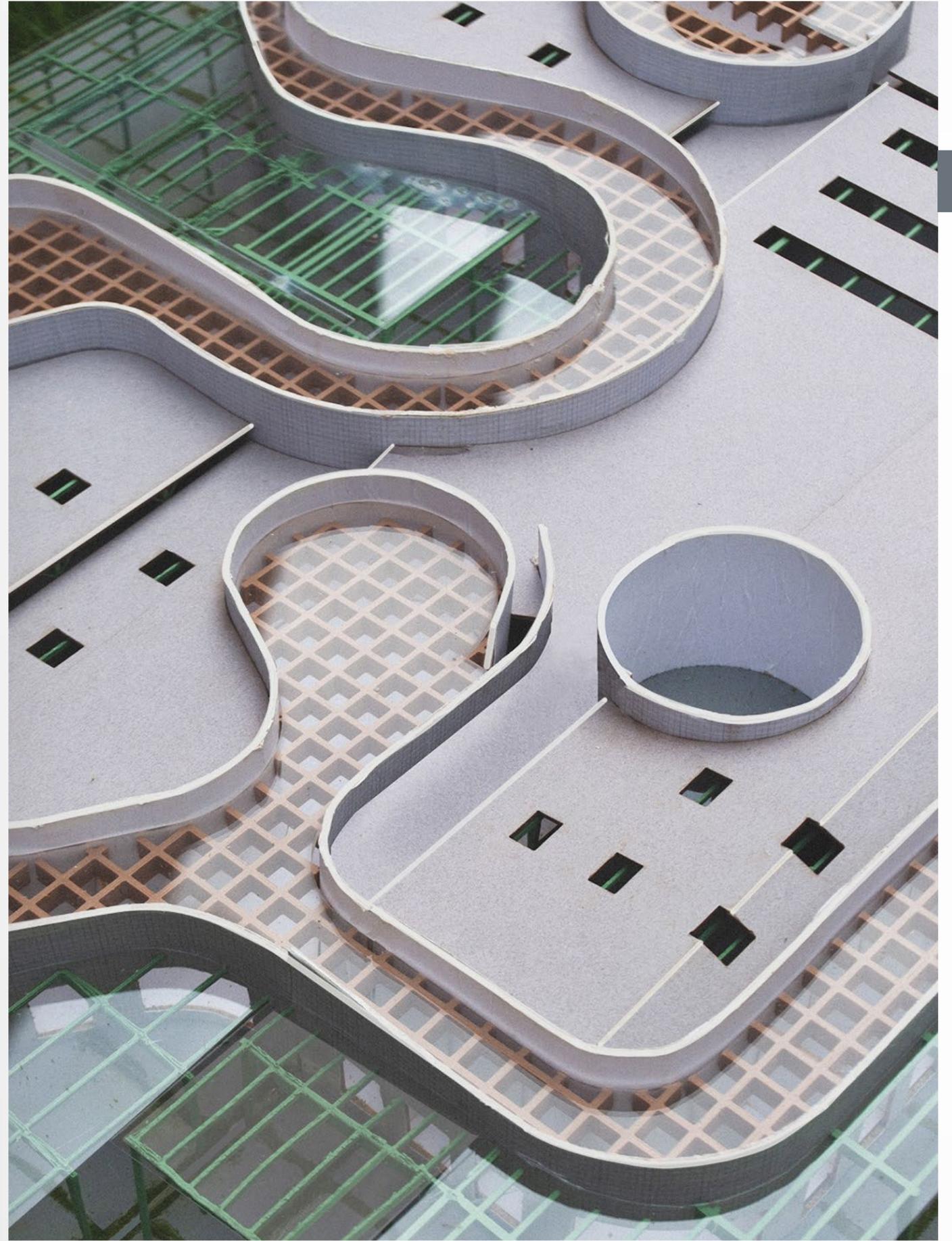


Houston urban typology: grids intersected by bayous



Adaptive re-use strategy: interaction of juxtaposing geometry







Covered Greenspace

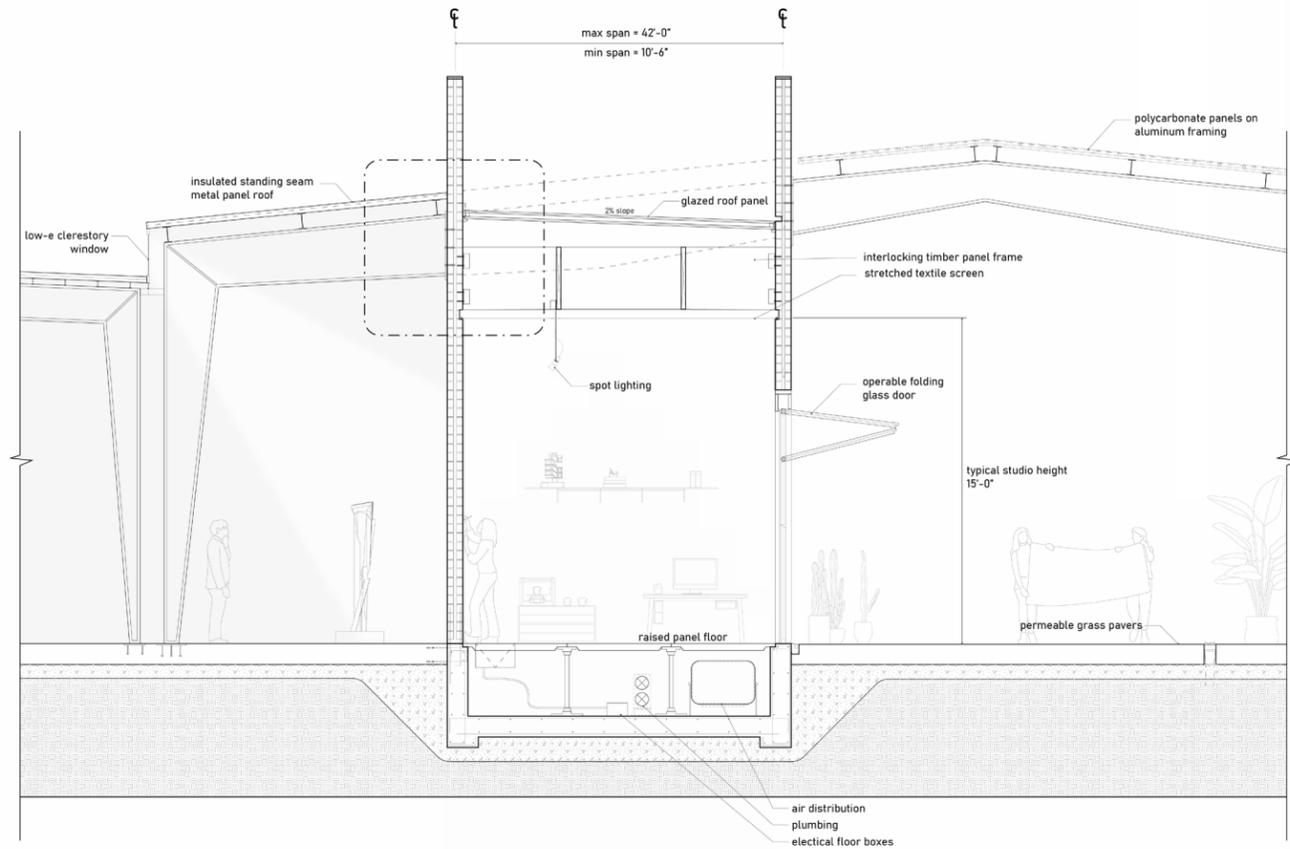


Studio

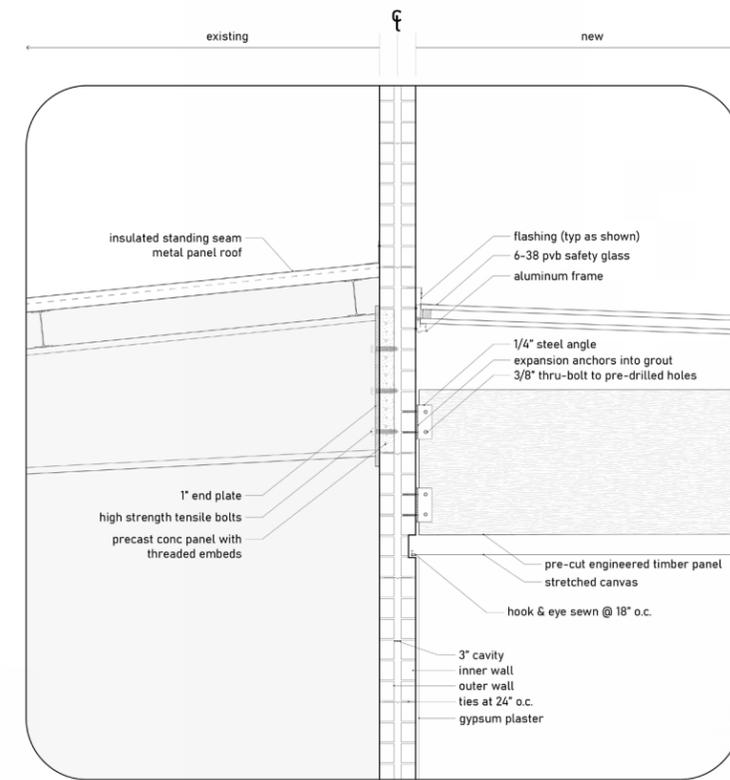


Gallery





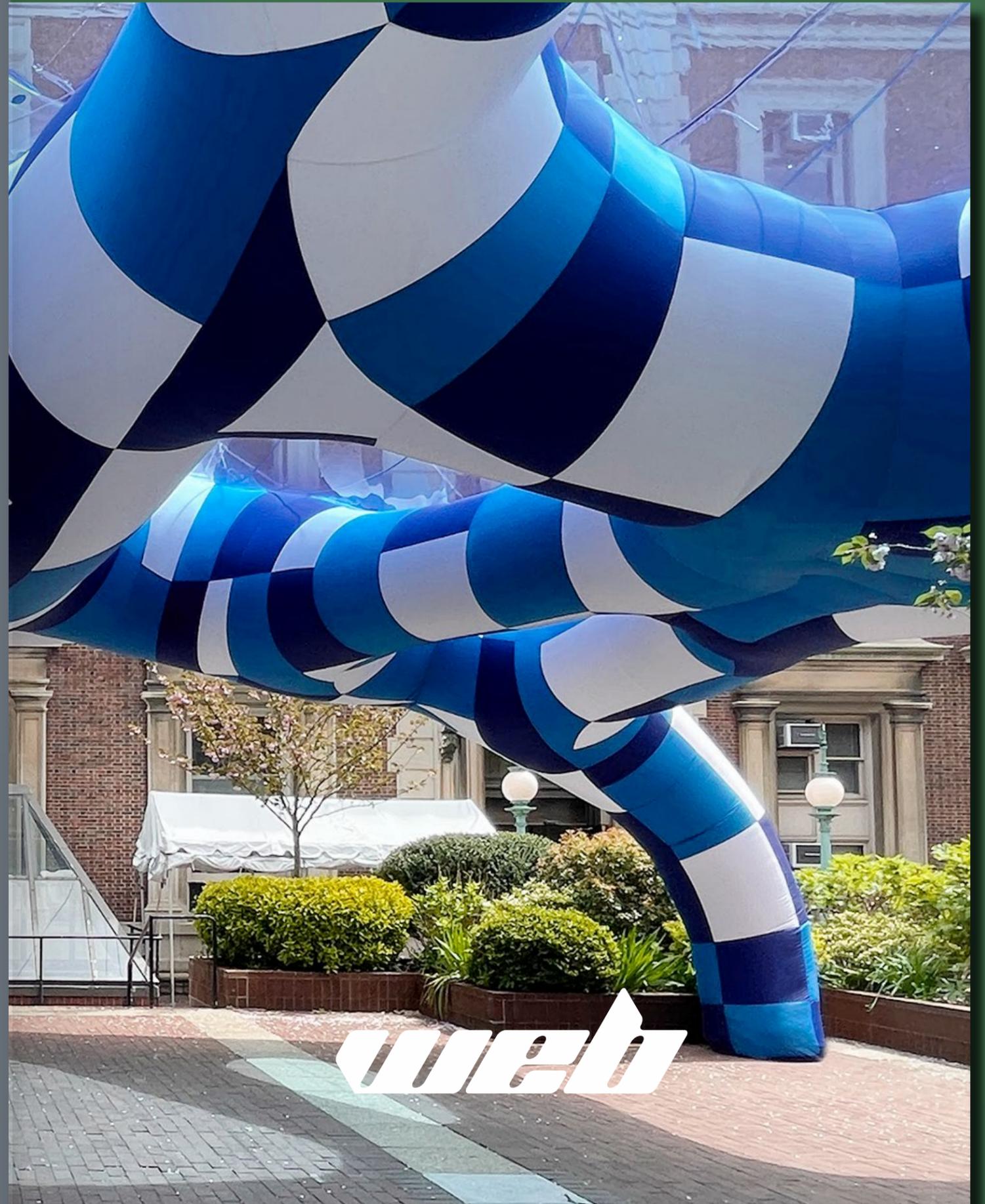
section
1/4" = 1'-0"



connection detail
1/2" = 1'-0"







The Web

Designed and constructed by students in the Spring 2022 seminar “The Outside Project” led by faculty Laurie Hawkinson and Galia Solomonoff, WEB is a temporary project consisting of an inflatable pavilion and a collection of custom furniture installed at Columbia University’s Avery Plaza. Massive yet buoyant, WEB touches the ground at just seven points and frames entrances into the courtyard evoking a feeling of organic intrigue and uneasy uncertainty, questioning the solidity of architecture. Walking through it, WEB feels more like an organism than a building as 1010 patches of white and blue hues undulate to invite visitors to experience a myriad of different perspectives and interpretations.

In addition to the inflatable, custom-built furniture aggregates for a variety of spatial occurrences under the pavilion. Made using a combination of CNC fabrication and handcraft, the pieces are born out of the same formal ambiguity as the inflatable. Made using $\frac{3}{4}$ ” birch ply and 2” pine dowels consistent with the rest of the collection, a highlight of the ensemble is a table that doubles as a rocking chair with the addition of interwoven fabric. The design embraces the interpretive momentum the entire installation encourages.

Team

Faculty and Staff

Galia Solomonoff, Laurie Hawkinson, Josh Jordan, Yonah Elorza, Mark Taylor, Zina Berrada.

Students

Abriannah Aiken, Ata Aksu, Priscilla Auyeung, Omar Badriek, Aahana Banker, Rourke Brakeville, Ece Cetin, Kurt Cheang, Lucas de Menezes Pereira, Anoushae Eirabie, Ryan Hansen, Bisheng Hong, Sunghyun Kim, Yining Lai, Vasco Li, Gustavo Lopez Mendoza, Andrew Manion, Eugene Massey, Zakios Meghrouni-Brown, Risa Mimura, Keneilwe Ramaphosa, Maria Ramirez, Hannah Stollery, Jordan Trager, Yusuf Urlu, Hazel Villena, Hyosil Yang

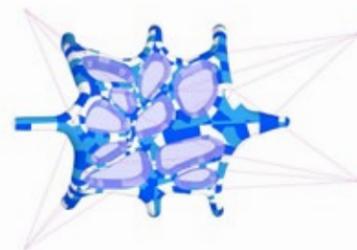
Consultants

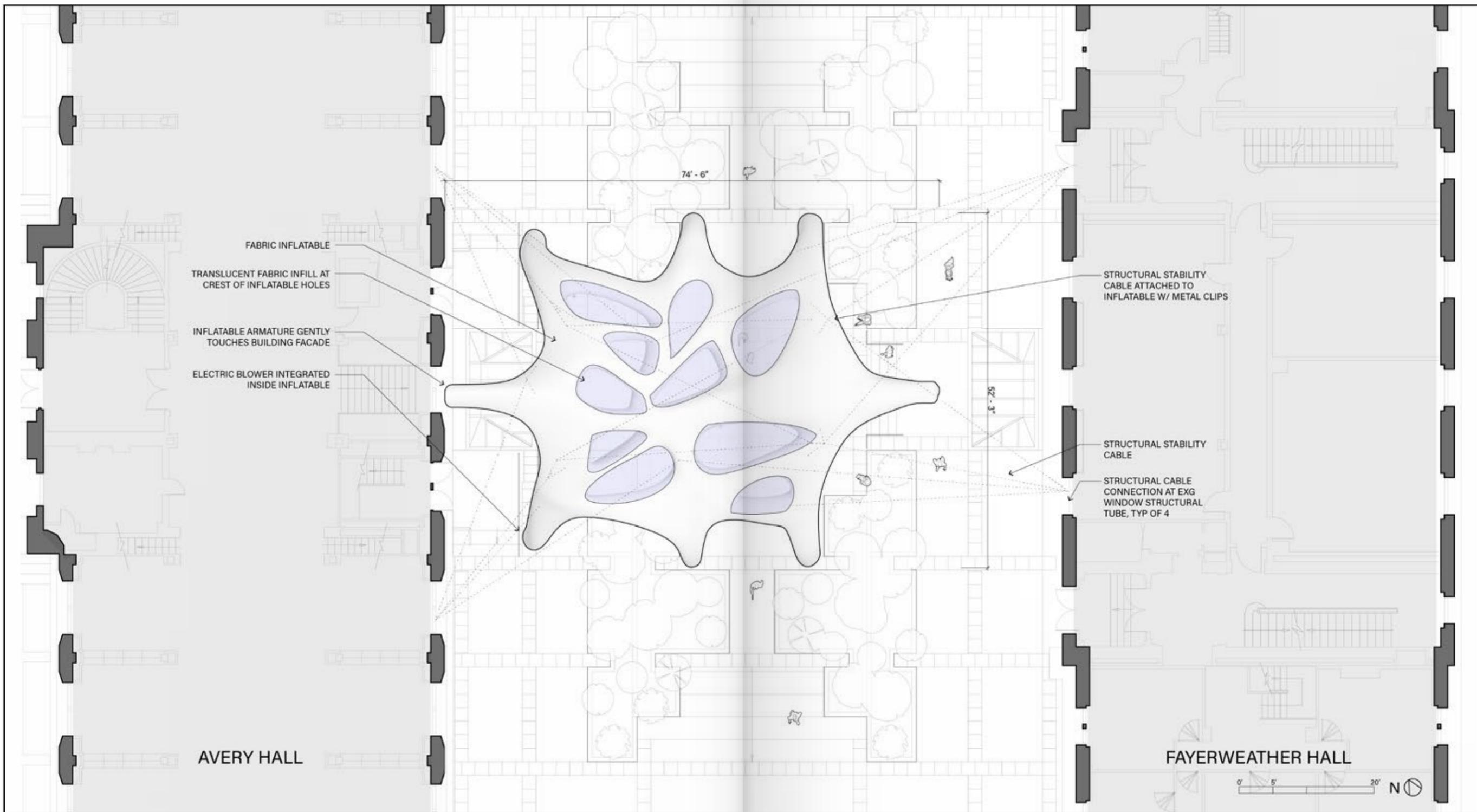
Hubert Chang (Silman)

Anne Shellum (Sidewalk Labs)

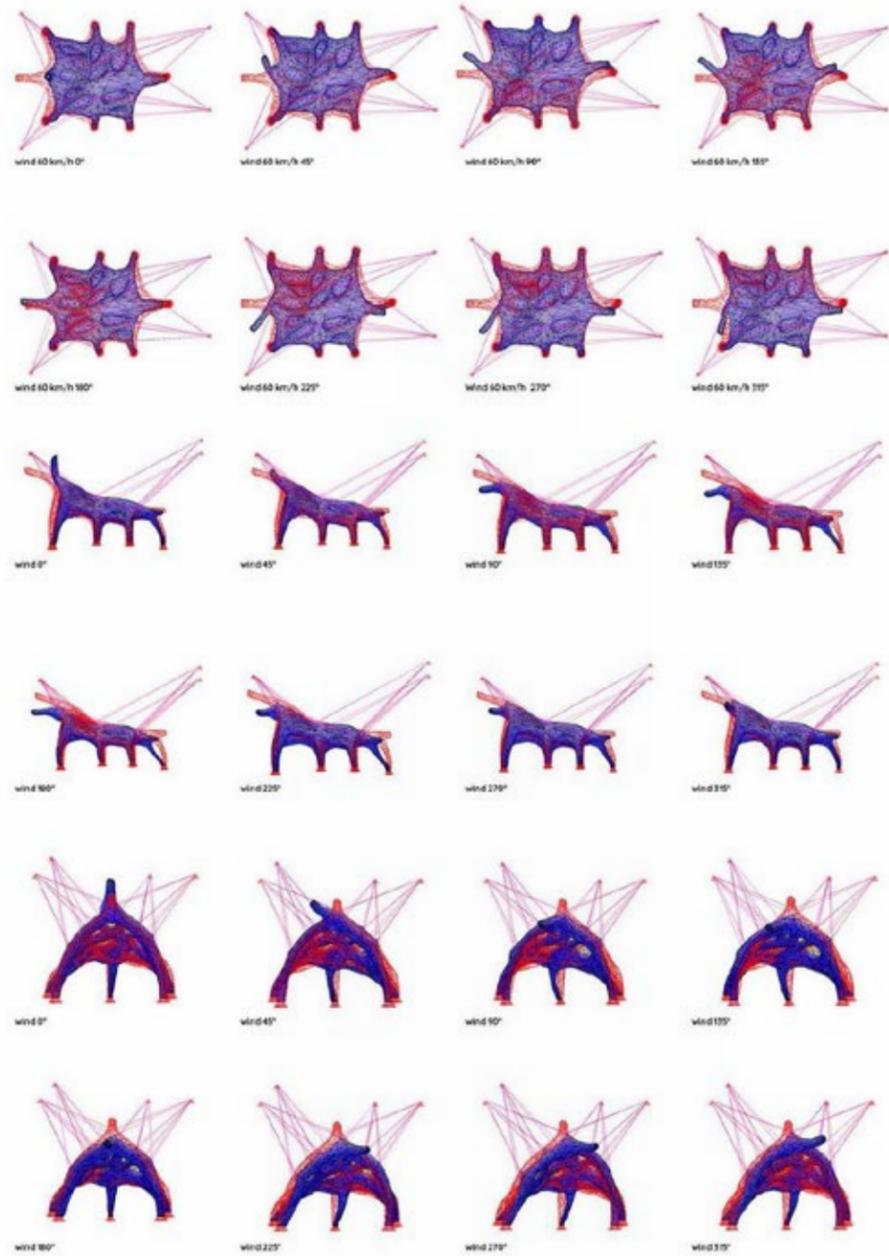
Natalia Serra (AreaCubica)

Quim Rabassa (AreaCubica)



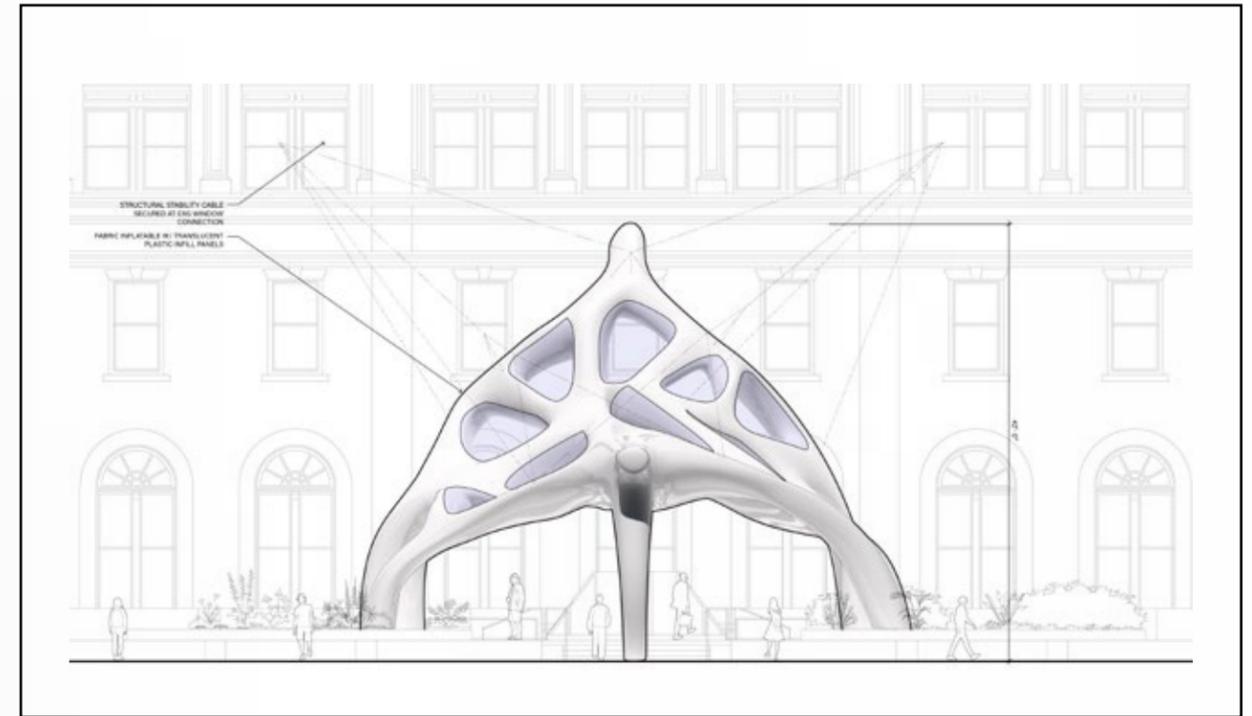
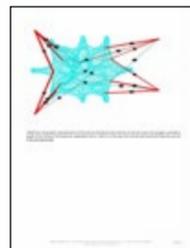
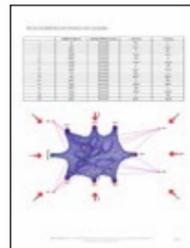
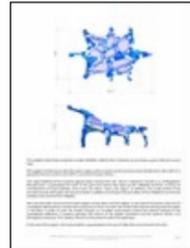


Deformation summary (80km/h)

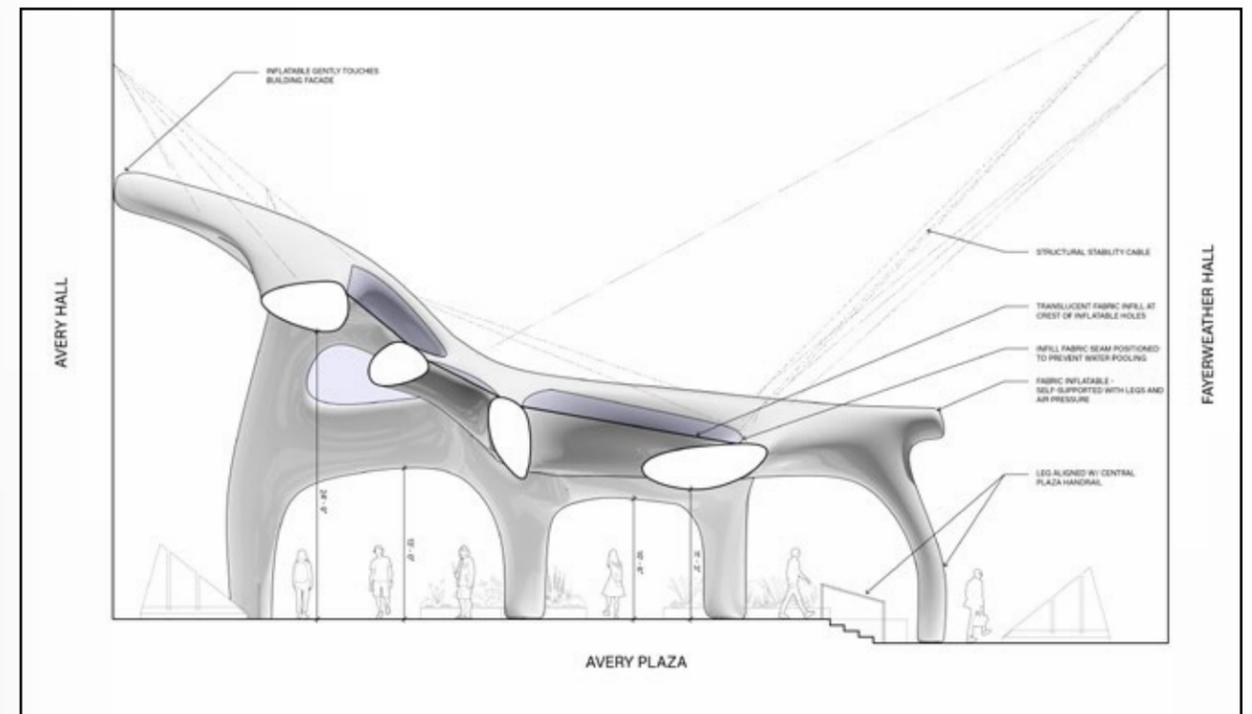


ÀREA CÚBICA, S.L. POL. INDUSTRIAL MAS LLORENC, C/INDUSTRIA PARCELA 2A 07.430 - SANTA COLOMA DE FARNERS
T:9011 329 84 23 09 - WWW.AREACUBICA.COM

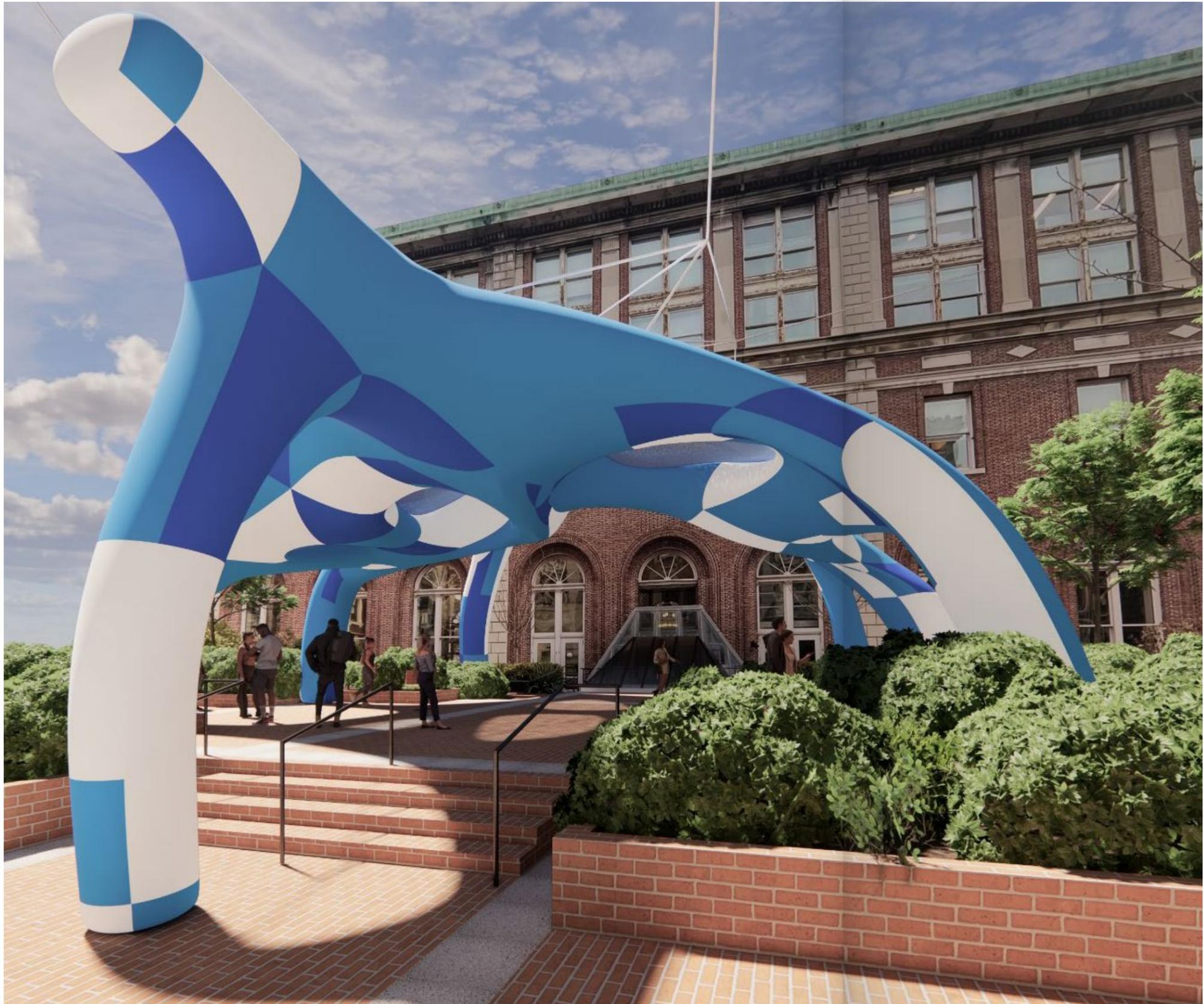
Wind study provided by Area Cubica



Inflatable elevation (facing Avery)

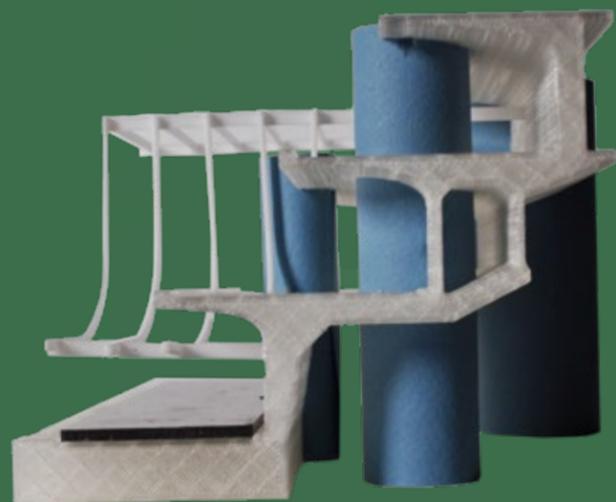


Inflatable section (facing Schermerhorn)



Re-configurable furniture (wip)





Re-Op Powerhouse

Infrastructural Adaptive Re-Use

Fall 2021

Adv 5 - Extreme Scales

Laurie Hawkinson

Brooklyn, NY

Capitalizing on the geographical position of the BOE with rising flood plains, The Re-Op Powerhouse is a pumped storage plant plugged directly into the existing BOE's triple cantilever section. The adapted infrastructure is designed with a reservoir system and energy-producing turbines that can deliver resilient energy solutions to New York City. Based on the average rainfall in Brooklyn Heights, this particular proposal could harness enough water and energy to power 900 homes annually.

With a geometry that destabilizes the standards of what infrastructure can be, Re-Op combines both old and new structures to serve its purpose. As functional architecture, both public and private users enter a flowing system that intertwines circulation with connecting pipes working towards renewable energy storage. New rising and falling structures emerge through this heavy water system and create new spaces which rest upon and within the superstructure of the BOE.

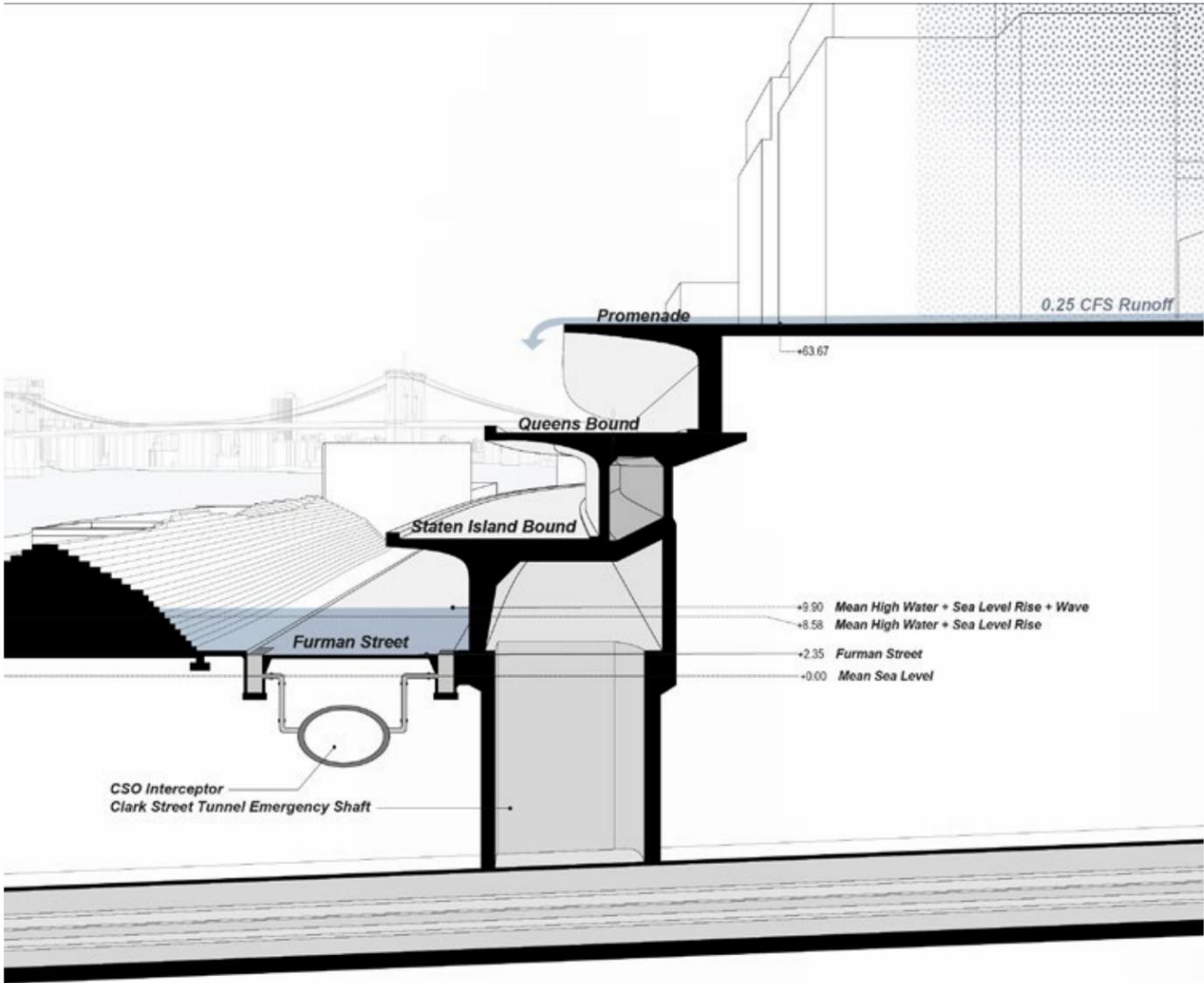
As an environmentally positioned solution, this proposal does not aim to combat climate change but rather takes into consideration where we stand to provide a feasible and adaptable design opportunity for the impending conditions of climate change.

Hurricane Ida killed at least 43 people in New York, New Jersey, Pennsylvania and Connecticut and left more than 150,000 homes without power.

Economic losses in New York City were estimated to be roughly \$19 billion following Superstorm Sandy.

FLOODS and STORMS account for 71% of the disasters that have occurred since 1990.

RESILIENCY
 “the property of a material to absorb energy when it is deformed elastically and then, upon unloading, to have this energy recovered”
 (MATERIAL SCIENCE)



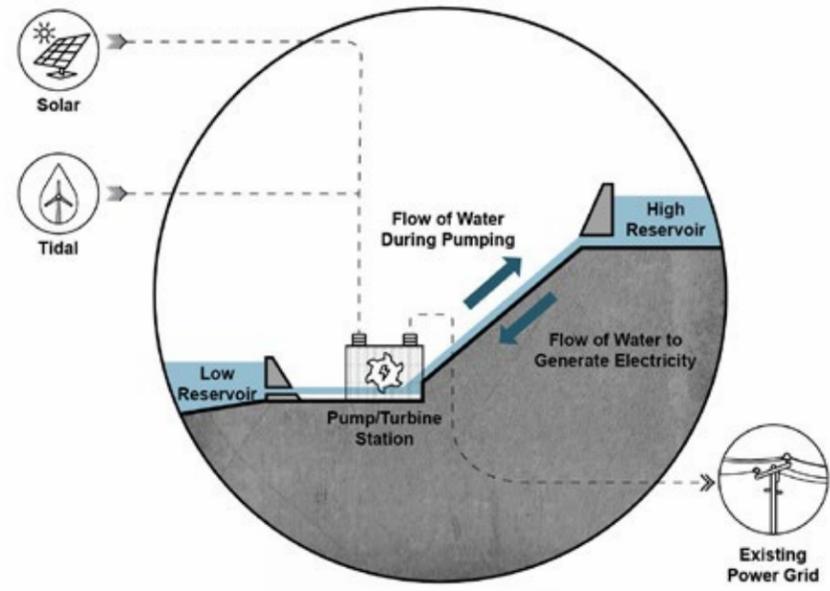
BQE section with projected 2100 flood levels



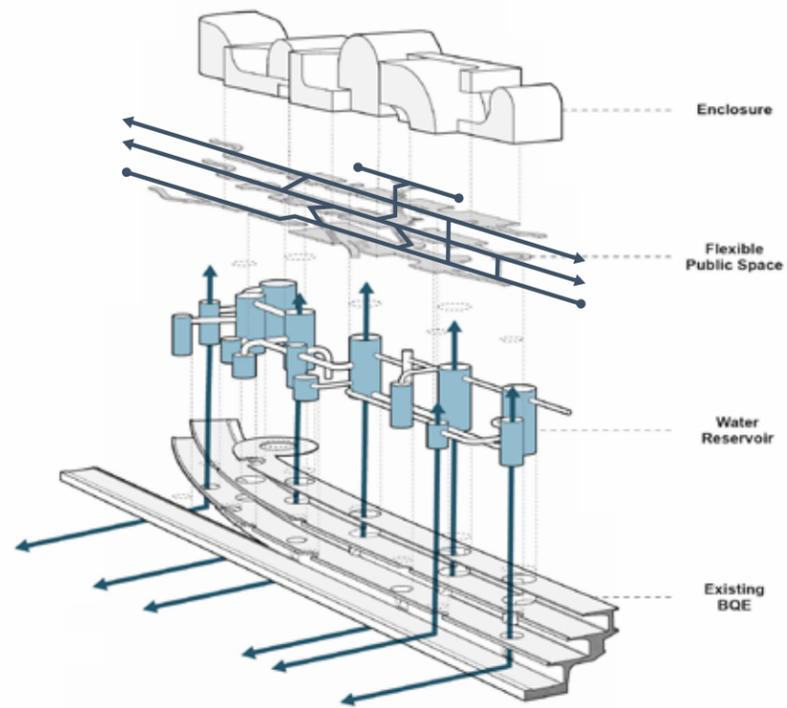
Brooklyn Queens Expressway (BQE) triple cantilever section



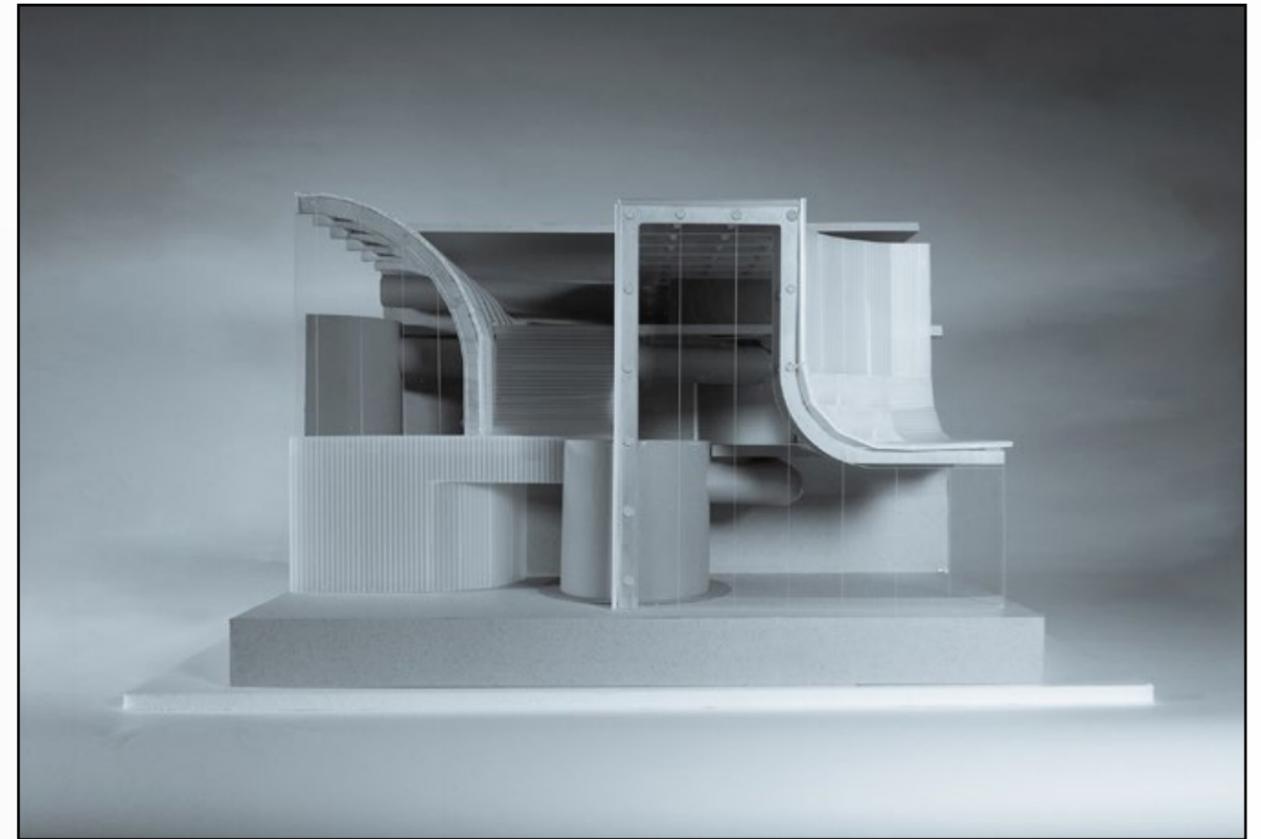
Adopted Infrastructure - BQE as flood barrier



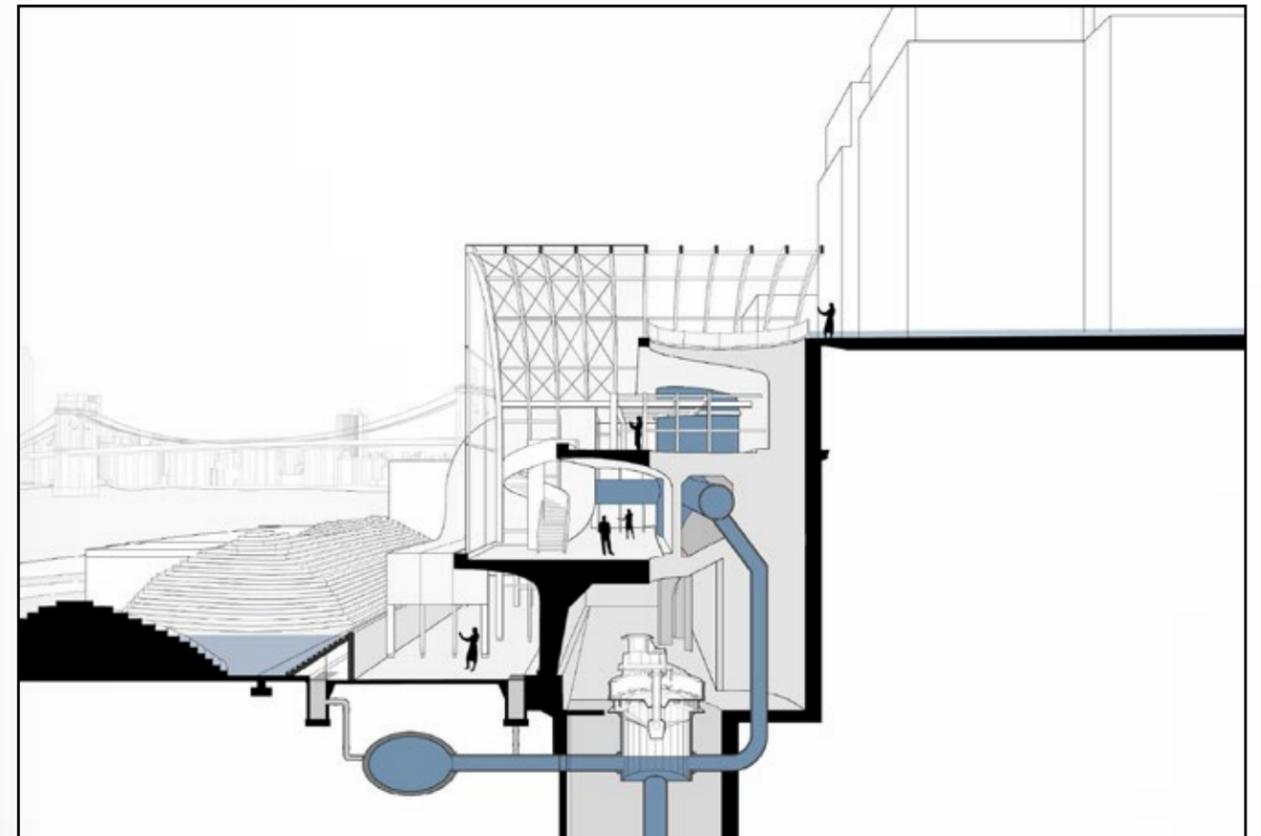
Pumped Storage as Resilient Infrastructure



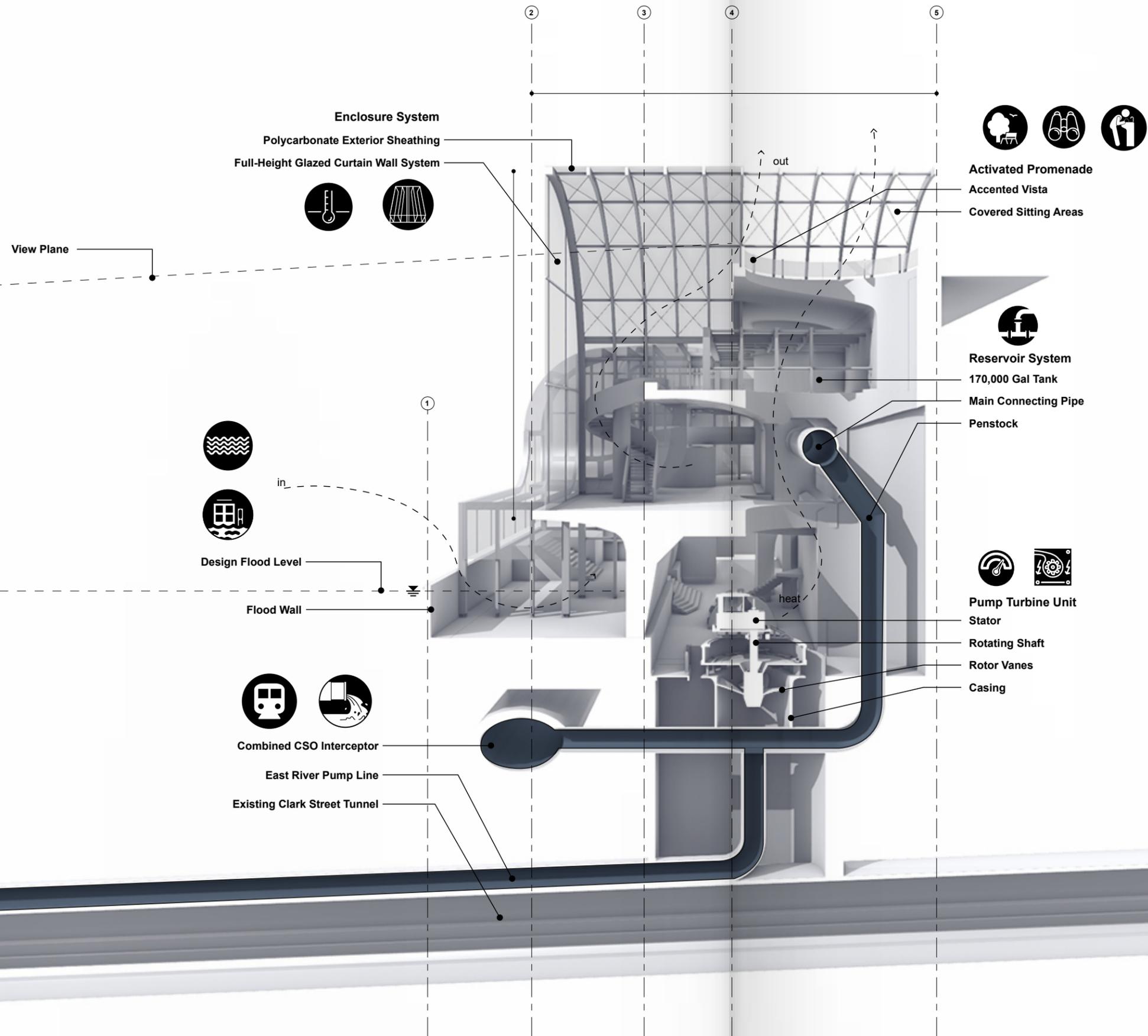
System integration with BQE

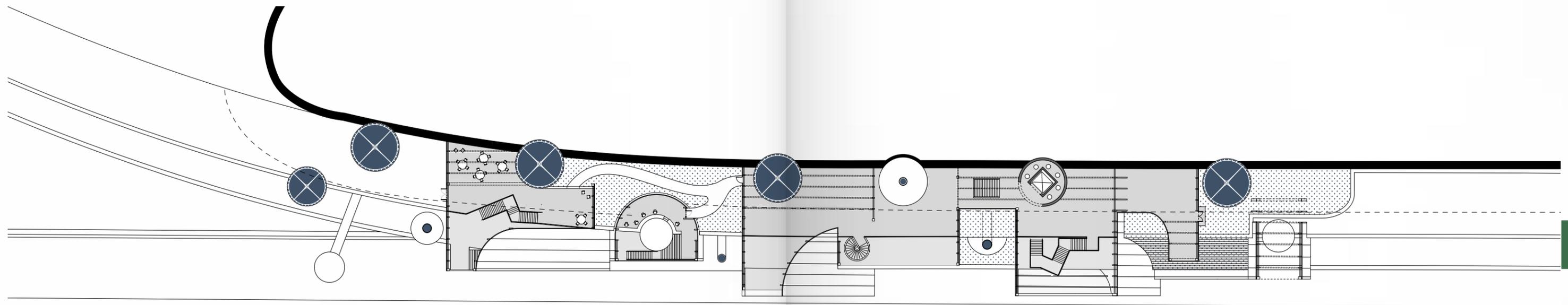


New formal language to existing infrastructure

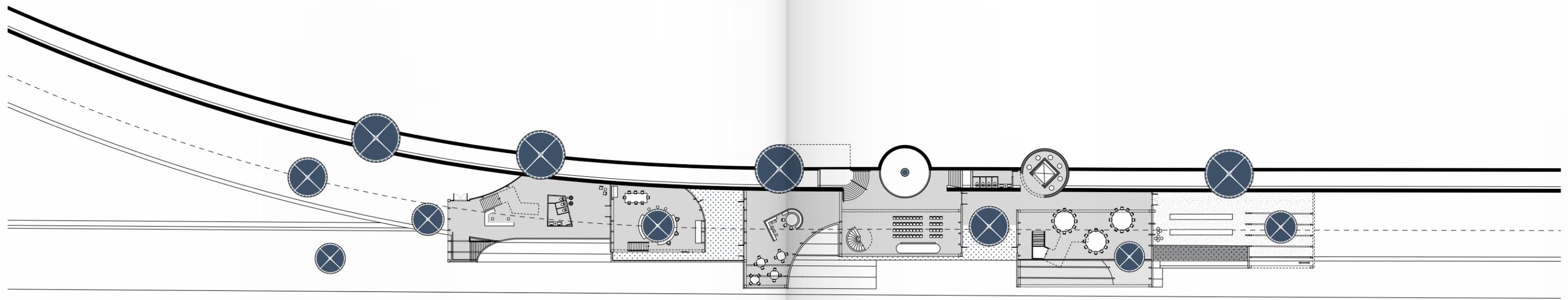


Adapted Infrastructure: Water and Energy

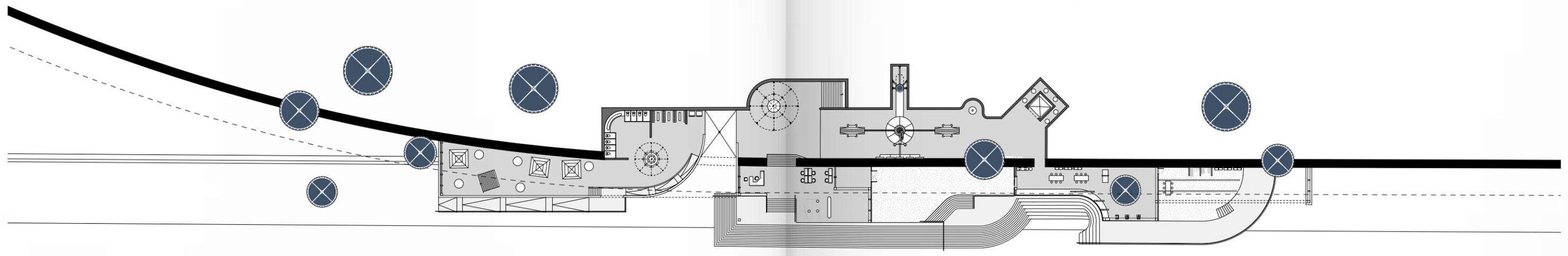




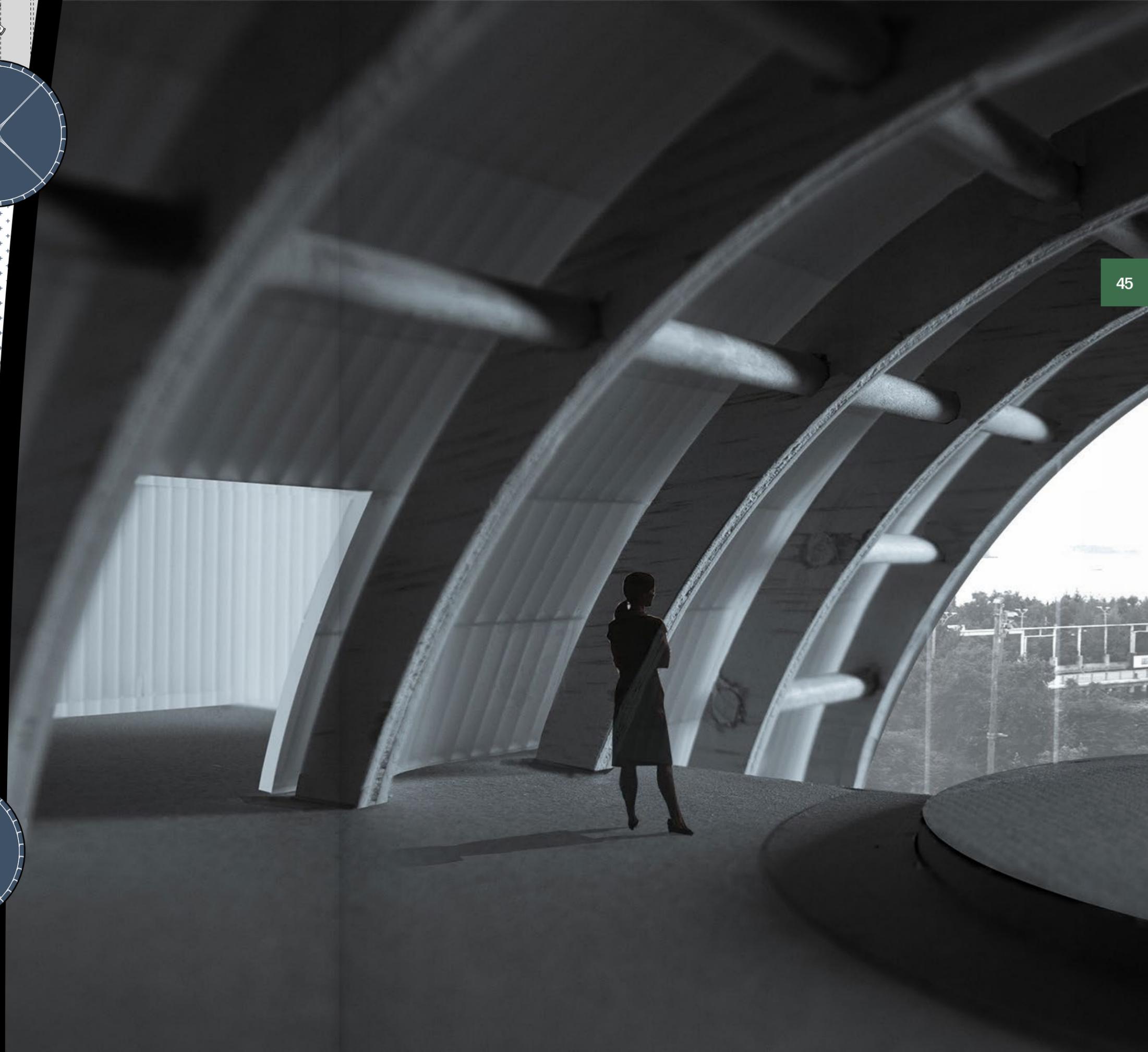
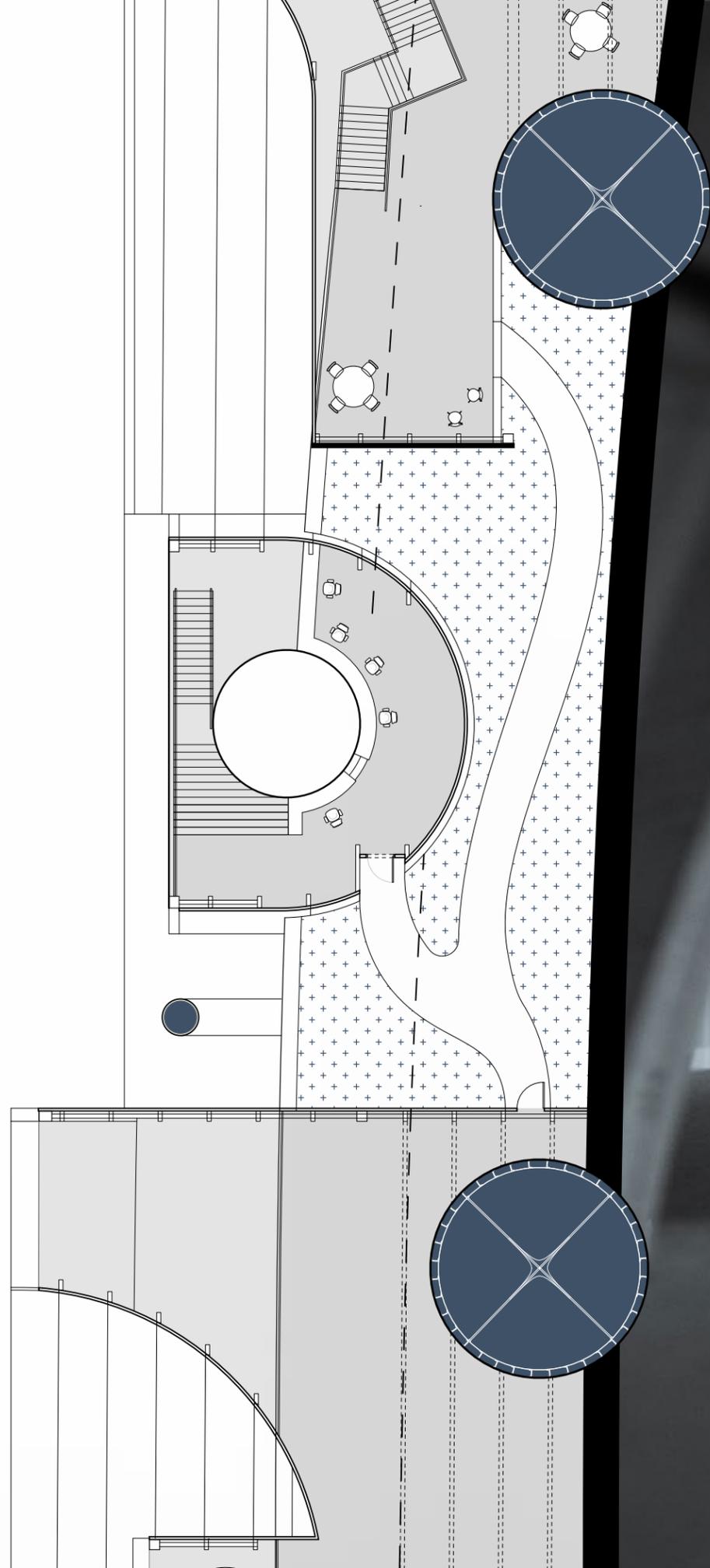
Level 3 - Formerly Queens Bound BQE

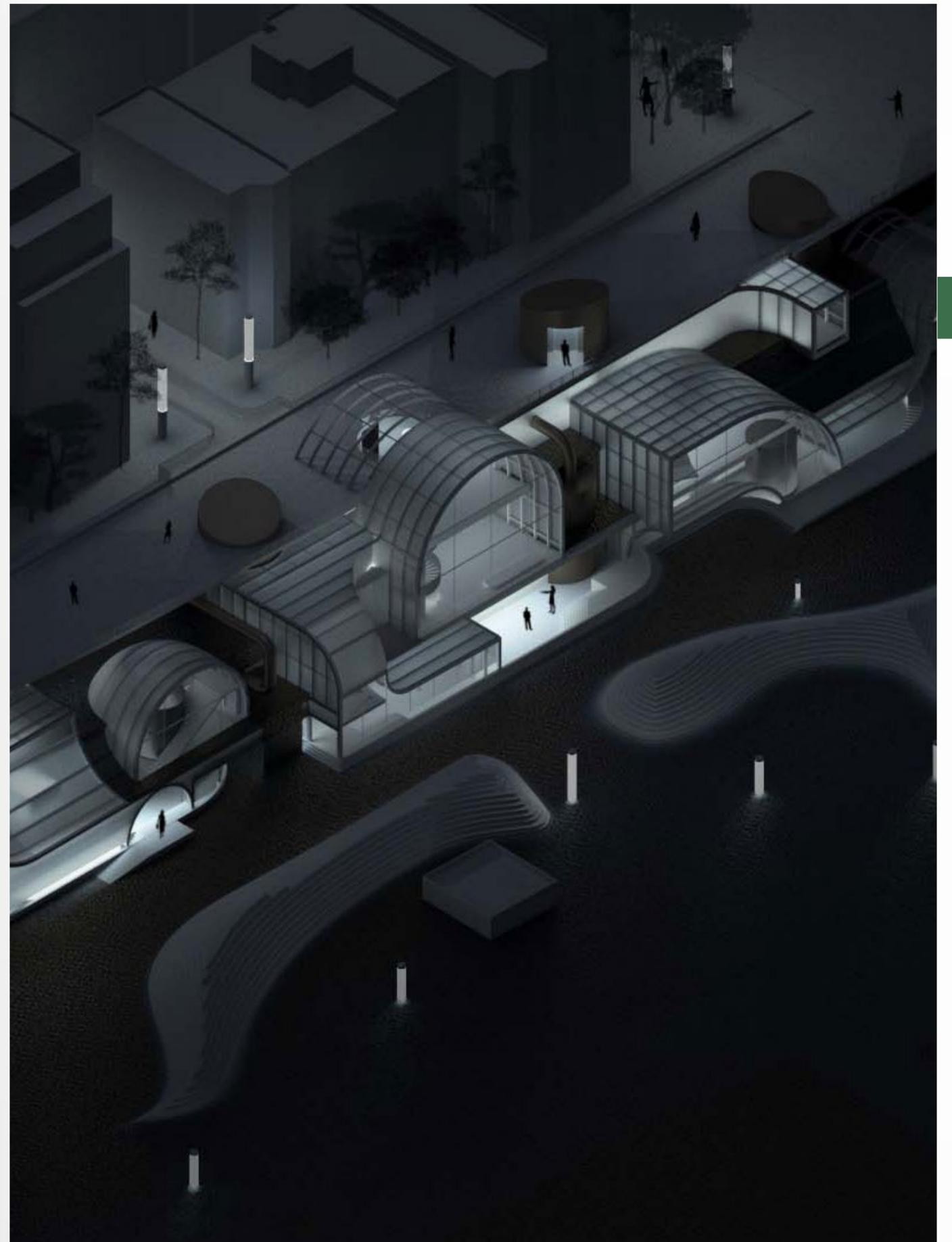


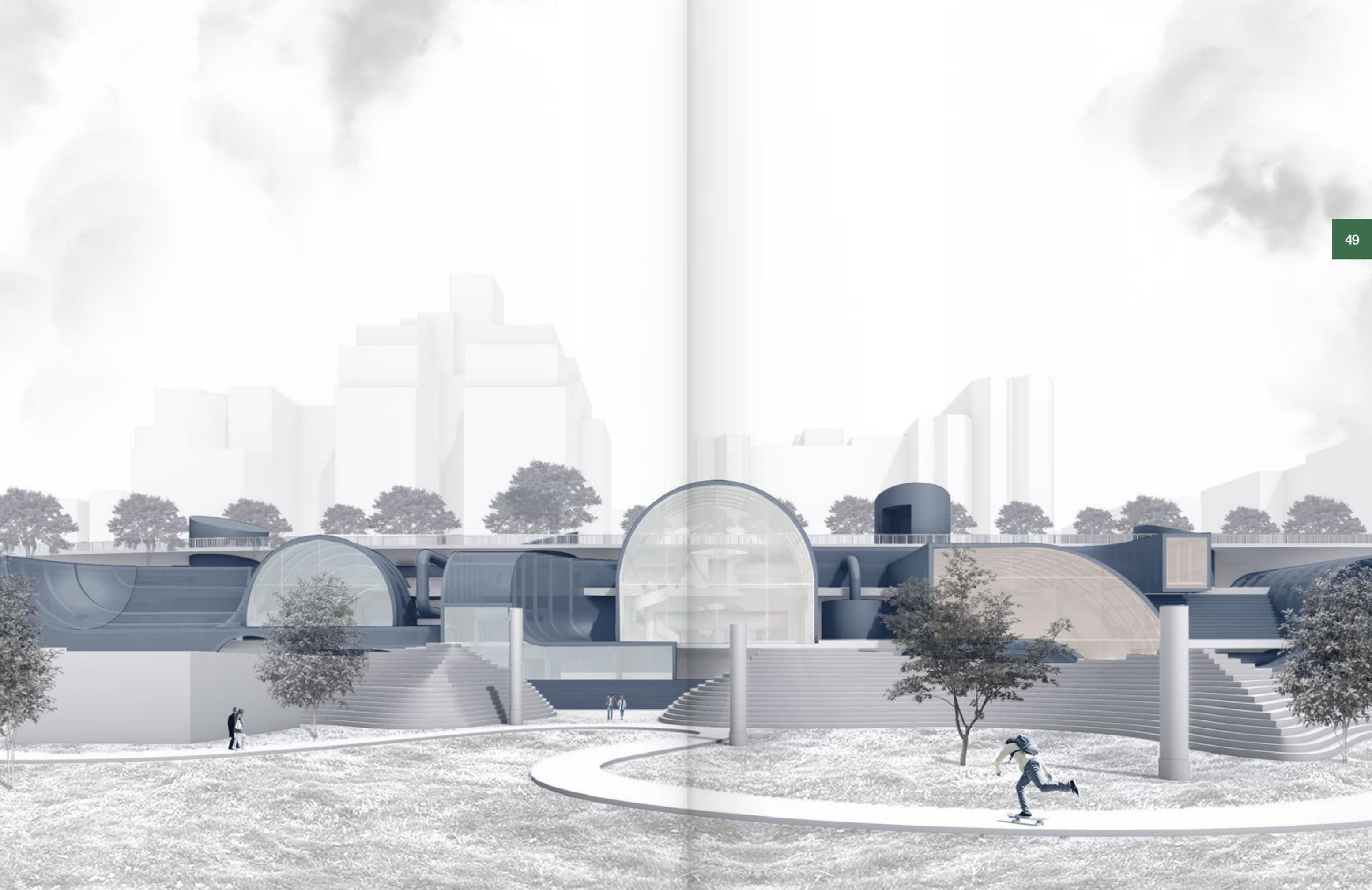
Level 2 - Formerly Staten Island Bound BQE

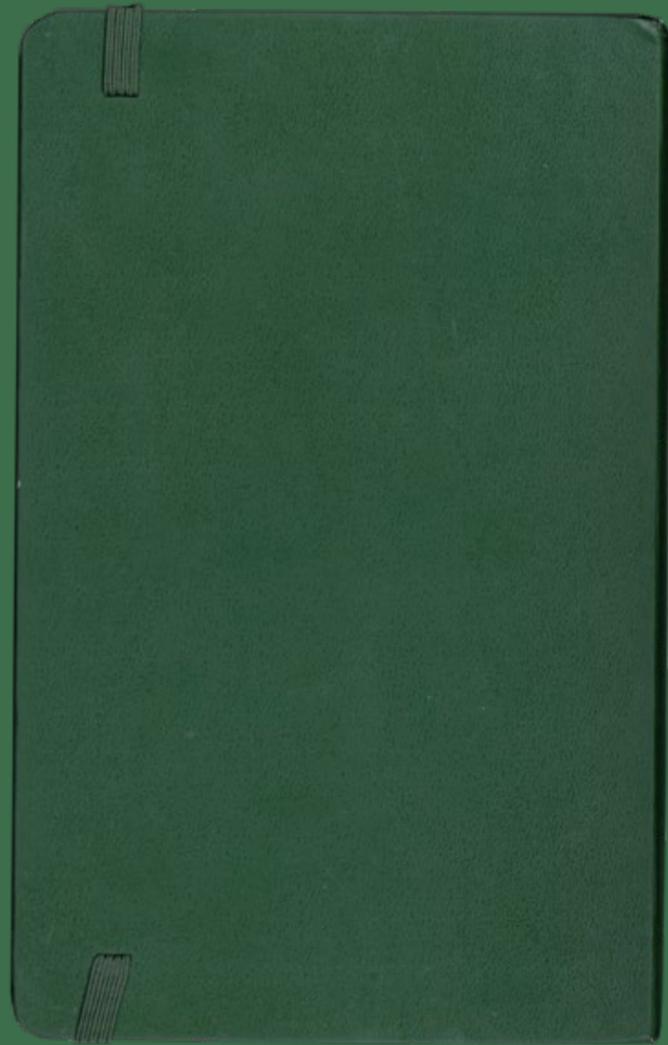


Level 1 - Formerly Furman Street

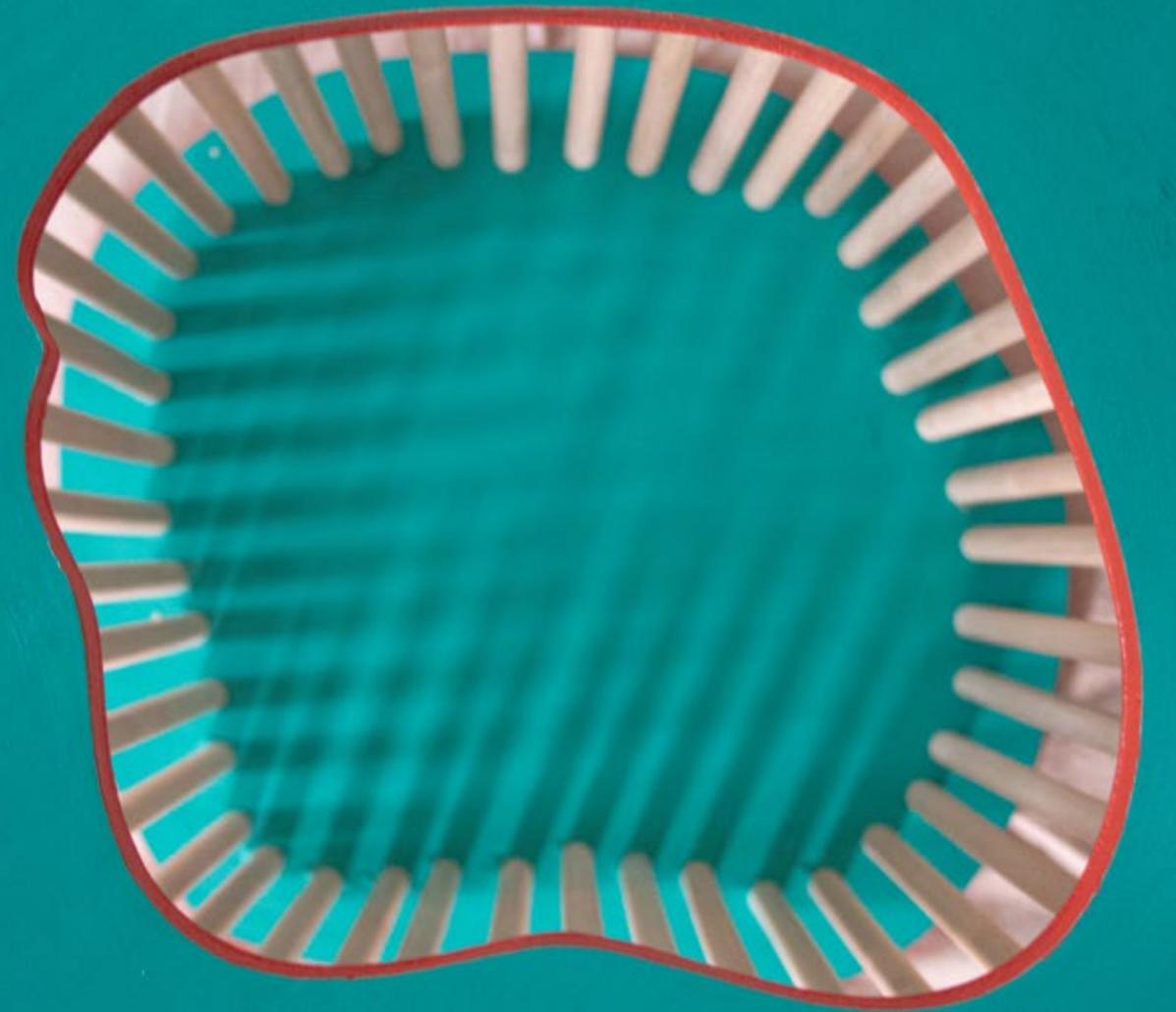








CANVAS



Summer 2021



Rugrats Shelf



Squiggle Shelf



Mondrian Record Shelf



Cocktail Table

Canvas started in 2019 when we began collaborating on side projects while attending GSAPP. It started with a collage. A collage led to design competitions which sparked an idea for furniture making and creative consultation, all building up to the diverse essence that is Canvas today. Since then, we have focused on building a practice similar to a collage: pulling from many inspirations and references to create exciting intersections in our work, no matter the scale, function, or process.

Gene Han & Gustavo Lopez Mendoza



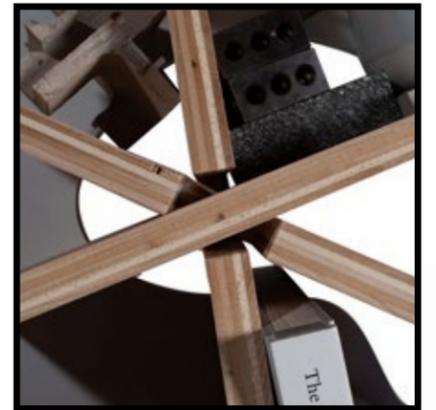
material

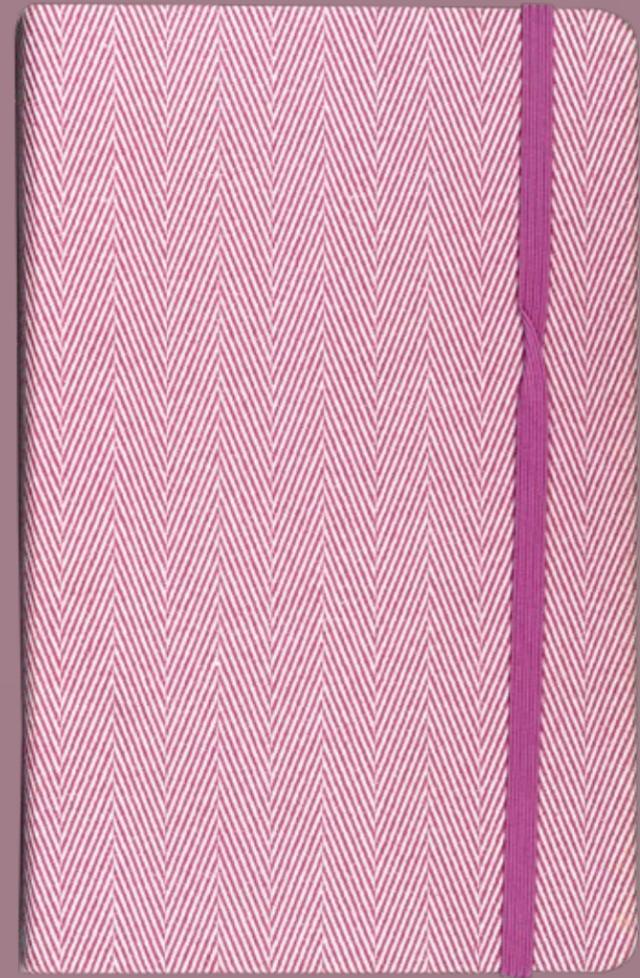


Layered Fabrication
Sketch with Mickaëlla
Pharaon

1:1

Zachary Mulitauaoepele







Testing Grounds

Rural Incubator for Mass Timber Construction

Spring 2021

Adv 4 - Fringe Timber

Lindsey Wikstrom

Catskill, NY

This project is centered around creating a typology that supports structural experimentation with mass timber. As part CLT factory and part structural testing facility, Testing Grounds idealizes the construction site - placing manufacturing and design spaces beneath elevated construction plinths for large-scale prototyping. Immersed in a rural experience away from the city, here, people learn and experience wood construction through a daily continuous mode of creation, exploration, and learning.

In a novel application, Testing Grounds is physically supported by an experimental material itself. Soft matter in the form of timber off-cuts is the main structural support material employed. Compacted on top of a long-span CLT roof that encloses the manufacturing facility on the ground floor, this flexible structural system relies on the phenomenon of “jamming” to perform as dynamically suited for the testing loads occurring on the plinths above.

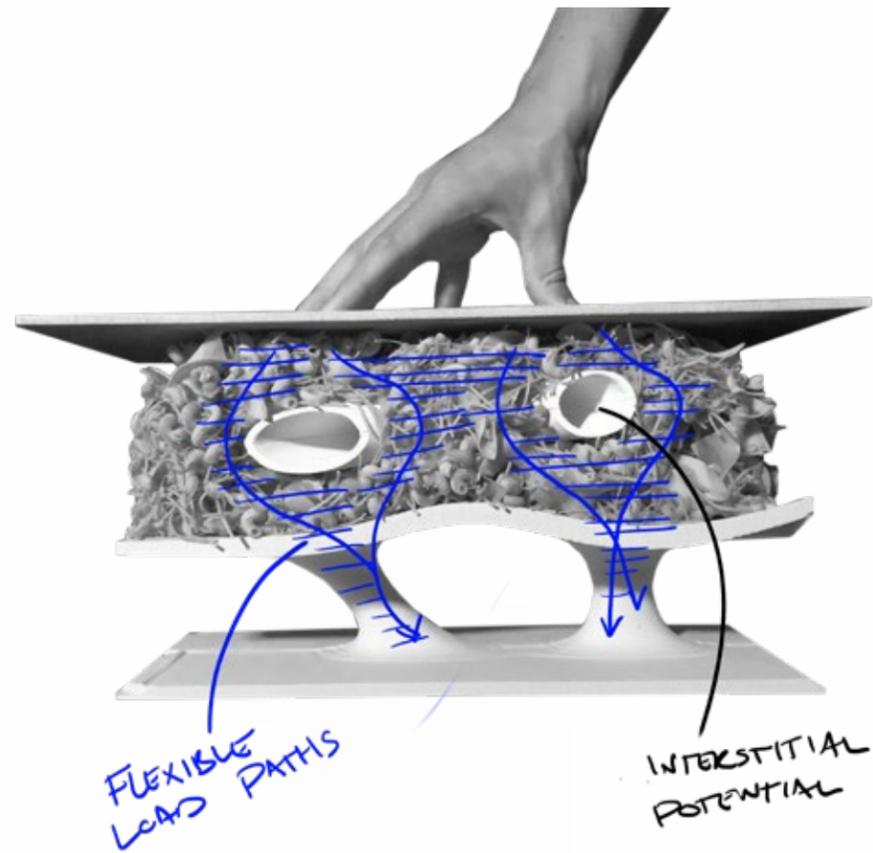
As a true testing center, the structures that are realized here can serve as an example to push the regulations of mass timber construction and strive to uncover the full potential of this material. Over time, as the technology and implementation of the material advances, the knowledge of this center will tell the story of two growing American industries: forestry and mass timber.



Developing ritual: learning by making





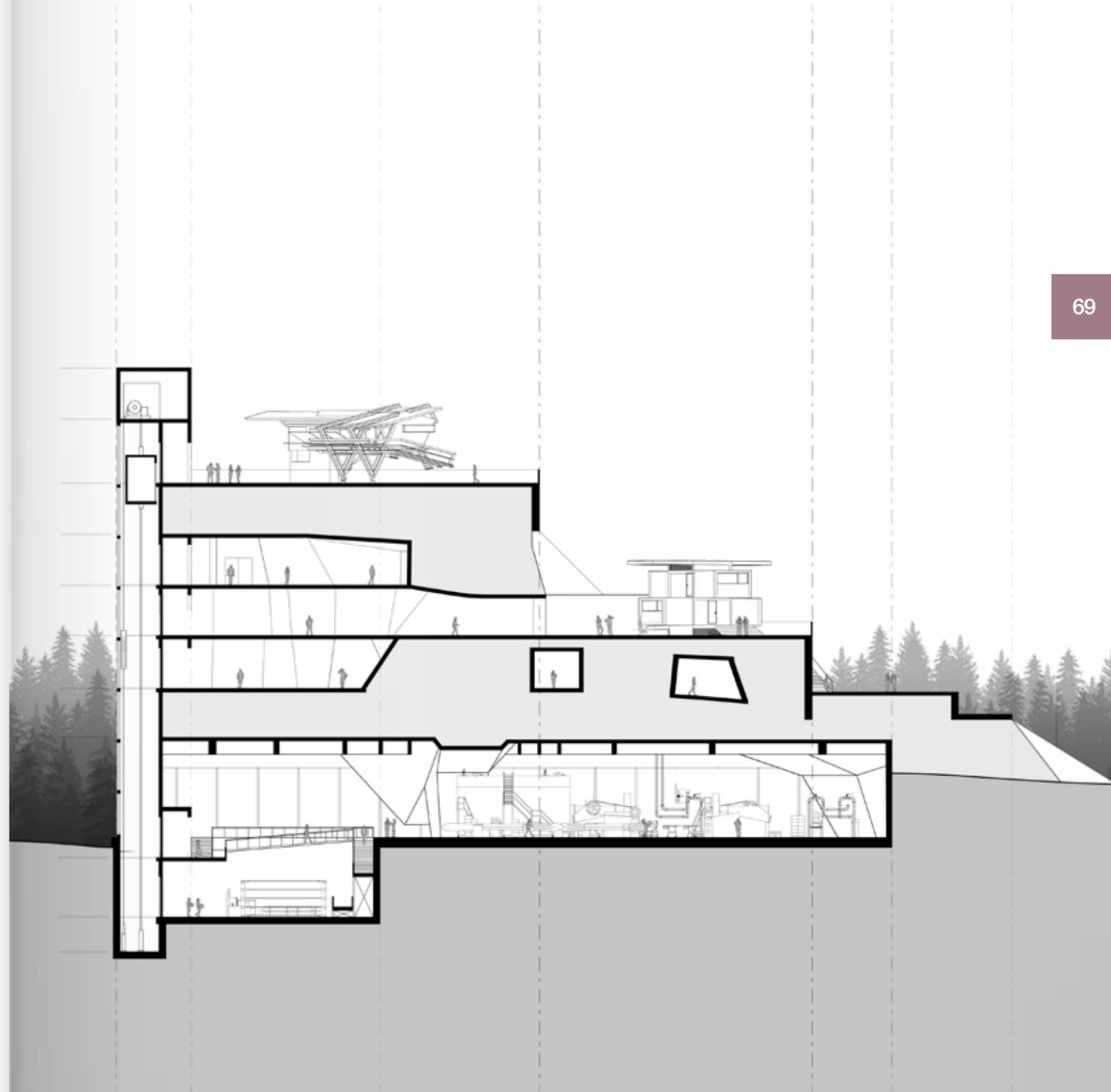


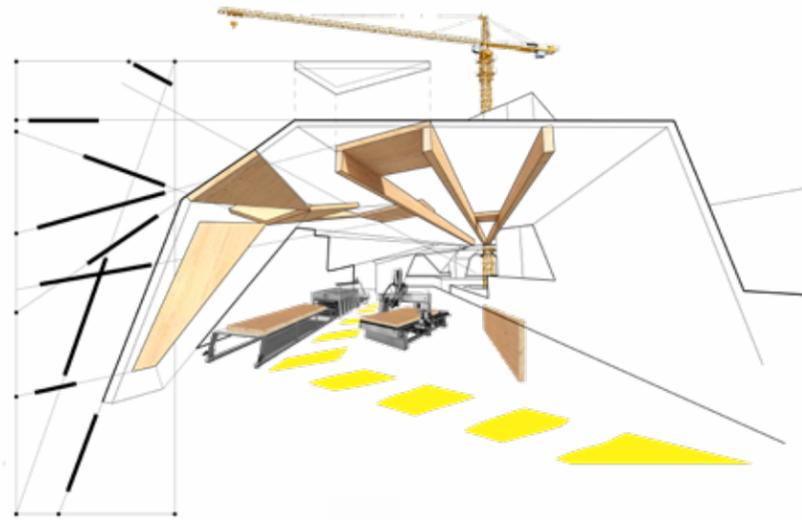
Structural Prototype

Due to the structural phenomenon of jamming, soft matter leads to a unique amorphous layering system which has the ability to switch reversibly between solid-like rigidity and fluid-like plasticity. This makes it possible to envision a structure that can change its stiffness and direct load paths more like a flow, adapting to unpredictably chaotic conditions above. In other words, Soft matter disperses pressure, allowing internal shifts to absorb movement without affecting the integrity of the whole.



Jamming responds to dynamic loading

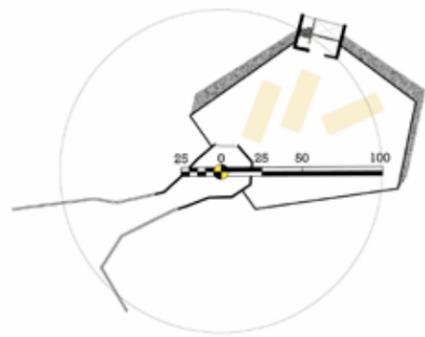




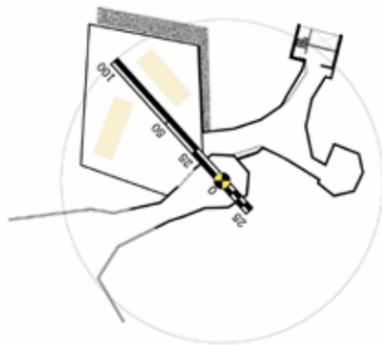
CLT factory at ground level



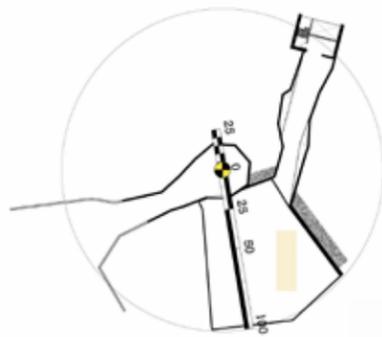
Archival halls within the soft matter



Plinth 3



Plinth 2

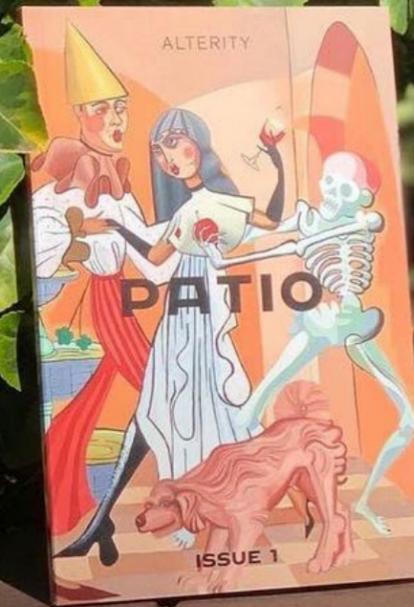


Plinth 1

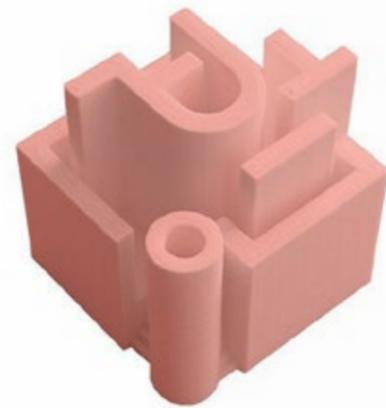




PATIO



Student Publication by Latin GSAPP



PATIO
Issue 1
Alterity
2021

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Luis Miguel Pizano-Andrade
Maru Perez Murray
Osvaldo Delbrey Ortiz

Faculty Advisor
Luis E. Carranza

Sponsorship
Institute of Latin American Studies at CU
Columbia GSAPP

Honorable Mention
Douglas Haskel Award for Student Journals

PATIO is an independent, student-run editorial platform focused on critical issues of the Latin American community and built environment. The digital/analog platform selects a topic, which provides the thematic construction for multidisciplinary creative and analytical contributions both in written and graphic form. The first issue is focused on Alterity, or the acknowledgment of the existence of oneself through the capacity to recognize the other as such a singular, subjective person.

[instagram.com/columbiapatio](https://www.instagram.com/columbiapatio)
patiopublication.cargo.site

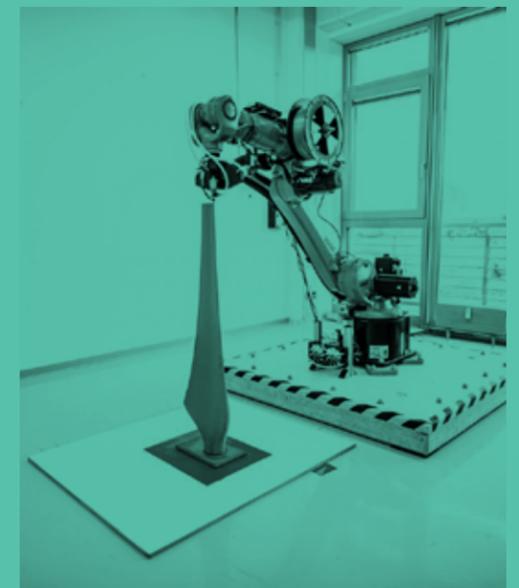
Polymasa

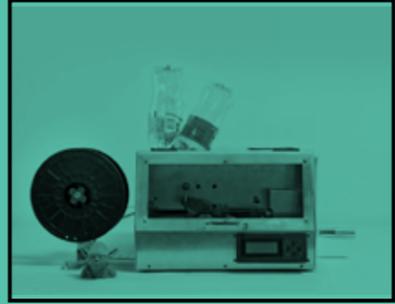
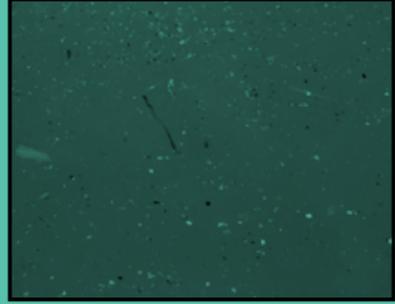
Upcycling ocean microplastics for biocomposite 3D printing

Gustavo Lopez Mendoza, Juliet Brooks and Ji Ku

Columbia University School of Engineering and Applied Science
2021 Design Challenge
Awarded First Place and Best Overall

Polymasa is a biocomposite material composed of marine plastic waste and natural materials such as wood, sand, and clay. In hybridizing these materials, the harmful, indestructible plastics found in our oceans can be transformed through digital technologies such as 3D printing and be reborn as light, effective building materials. The hybrid mix we aim to produce approaches the need for infrastructure – generating new spatial articulations through an ecologically meaningful process.





Building on the Block

**Urban Ecological
Affordable Housing
with Alya James Abourezk**

Fall 2020
Core III - The Home Unbound
Benjamin Cadena
Bronx, NY



The culture and architecture of the South Bronx are fueled by its tumultuous history and shaped by the individual efforts of its community members. The tradition of good work on the block has led the neighborhood's progress and crafted a culture of pride and resilience.

Building on the Block puts forward a scheme that is efficient, adaptable, and centered on the self-sustaining model of the community garden. The project utilizes sustainable materials, introduces an innovative structural system, and employs next-generation green technology. By choosing to build with renewable, biogenic materials and incorporating systems for on-site energy, water, and air management, we aimed to limit the energy and resources required to create a sustainable living scenario in the Bronx.

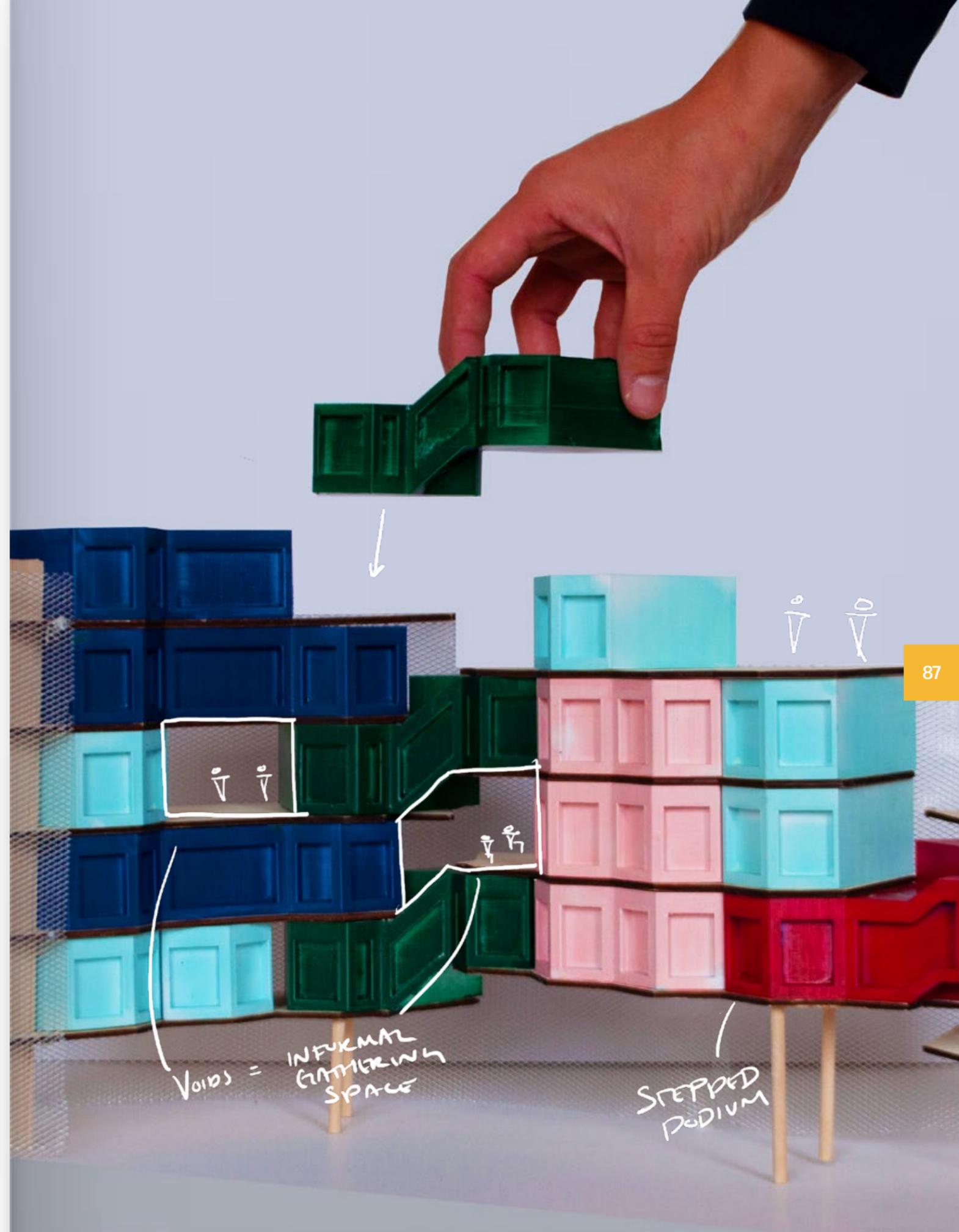
The proposal is arranged to create a series of yards, each with unique qualities to support various activities within the block. Within the structure, the resulting aggregation of units creates exterior voids located alongside the circulation path to encourage informal gathering and small semi-private gardens.

Building on the Block is for the community advocates of Melrose who seek the betterment of their surroundings - a community of all ages who are willing to become active participants in their own built environment. Through this facility, residents have the means to take on ownership of the Block and, through its furtherance, participate in an experience of inheritance, restoration, and development.



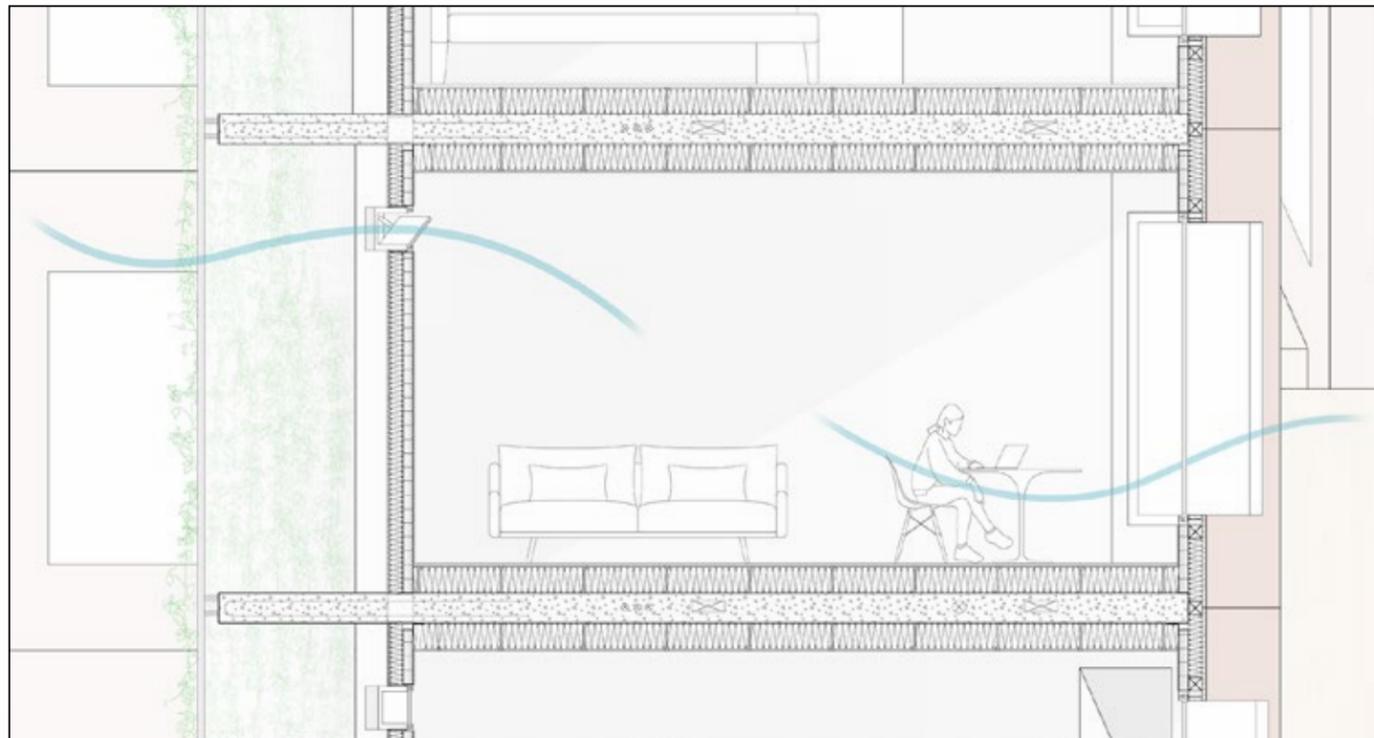


Units

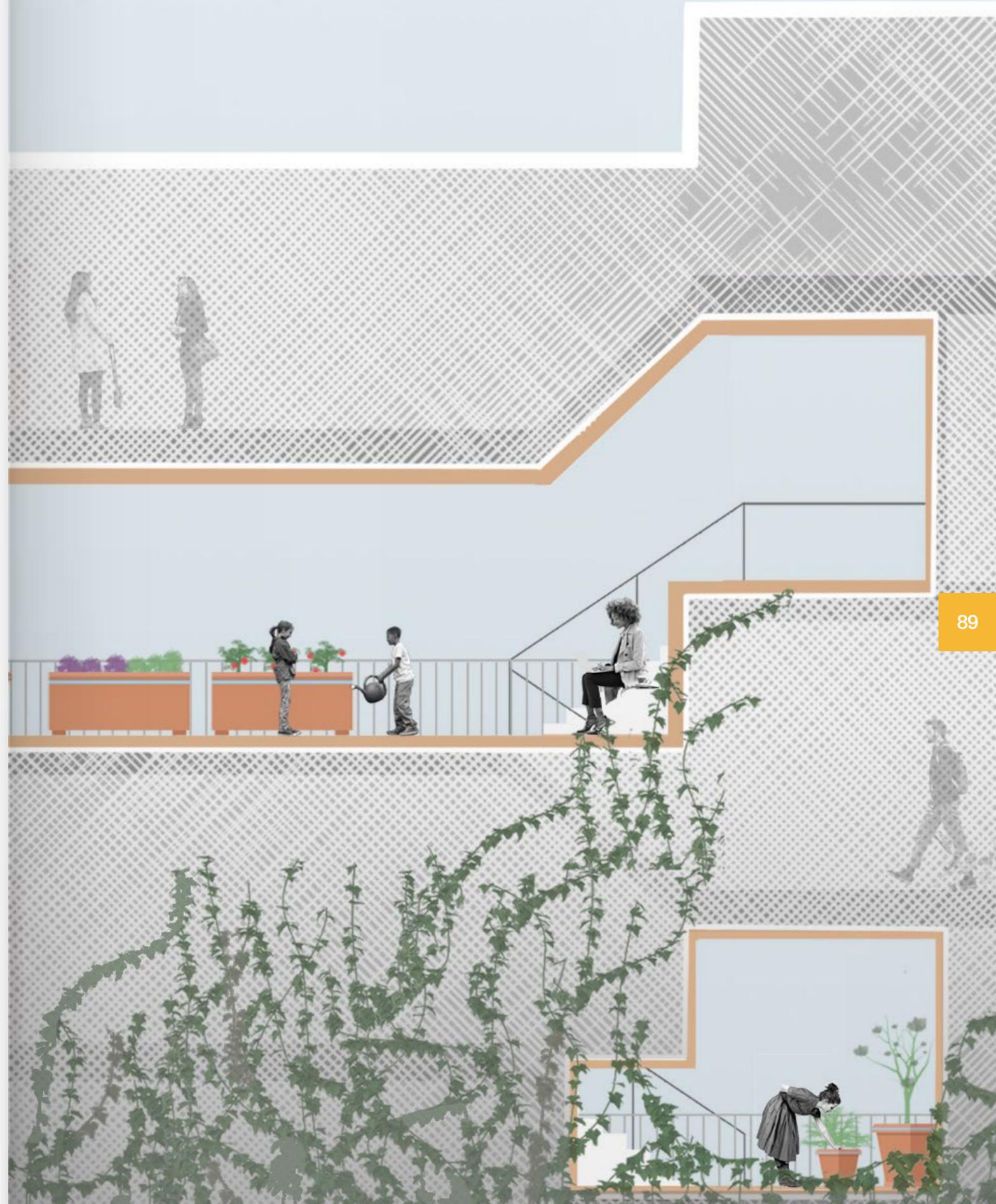




Bay windows direct views in multiple directions while enhancing daylighting

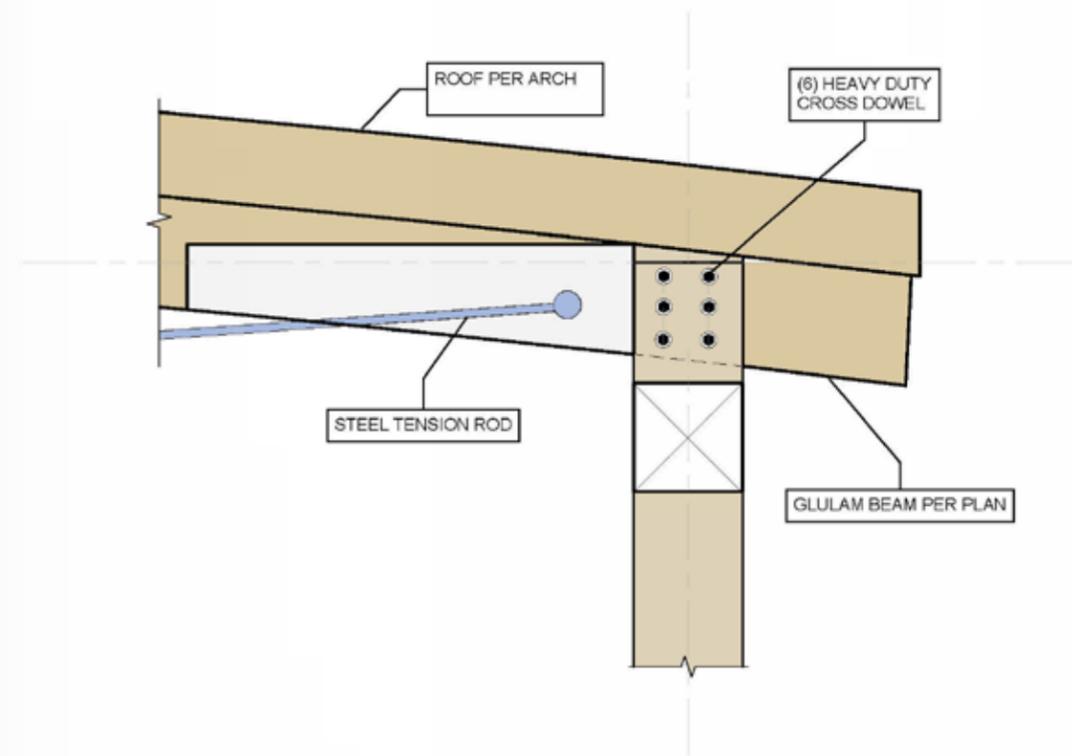


Single-loaded corridors and operable windows allow for cross-ventilation at units



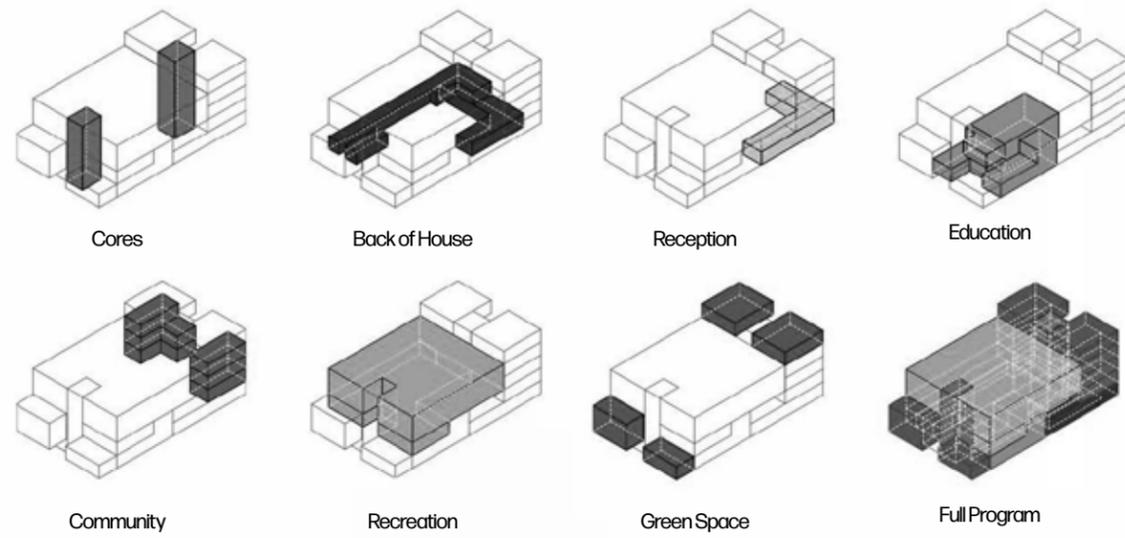




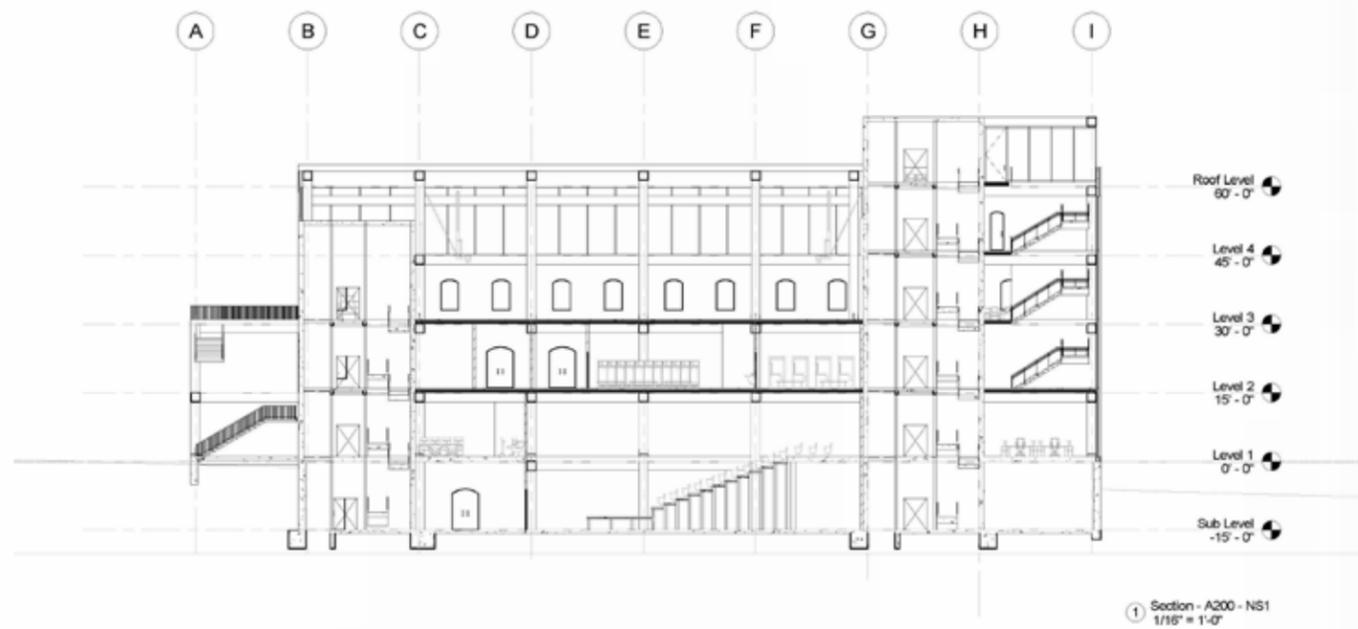


Melrose Community Ctr

**Integrated Technology -
Mass Timber
Grid Structure**
AT4 - Fall 2020
Building Systems Integration
Sarrah Khan



Programmatic Arrangement



Section



Architect
Stephan Potts
Stephan Potts Architects

Structural Consultant
Aaron Campbell
Dattner Architects

Mechanical Consultant
Bernardo Malucchi
SHoP Architects

Enclosure Consultant
Teel Riggs
Heintges & Associates

Designers
Novak Djogo
Gene Han
Gustavo Lopez Mendosa
Daniel Vanderhorst

NO.	DATE	REVISION
01	--- OCT 2019	SD SUBMISSION
02	--- OCT 2019	DD SUBMISSION
03	--- NOV 2019	CD SUBMISSION

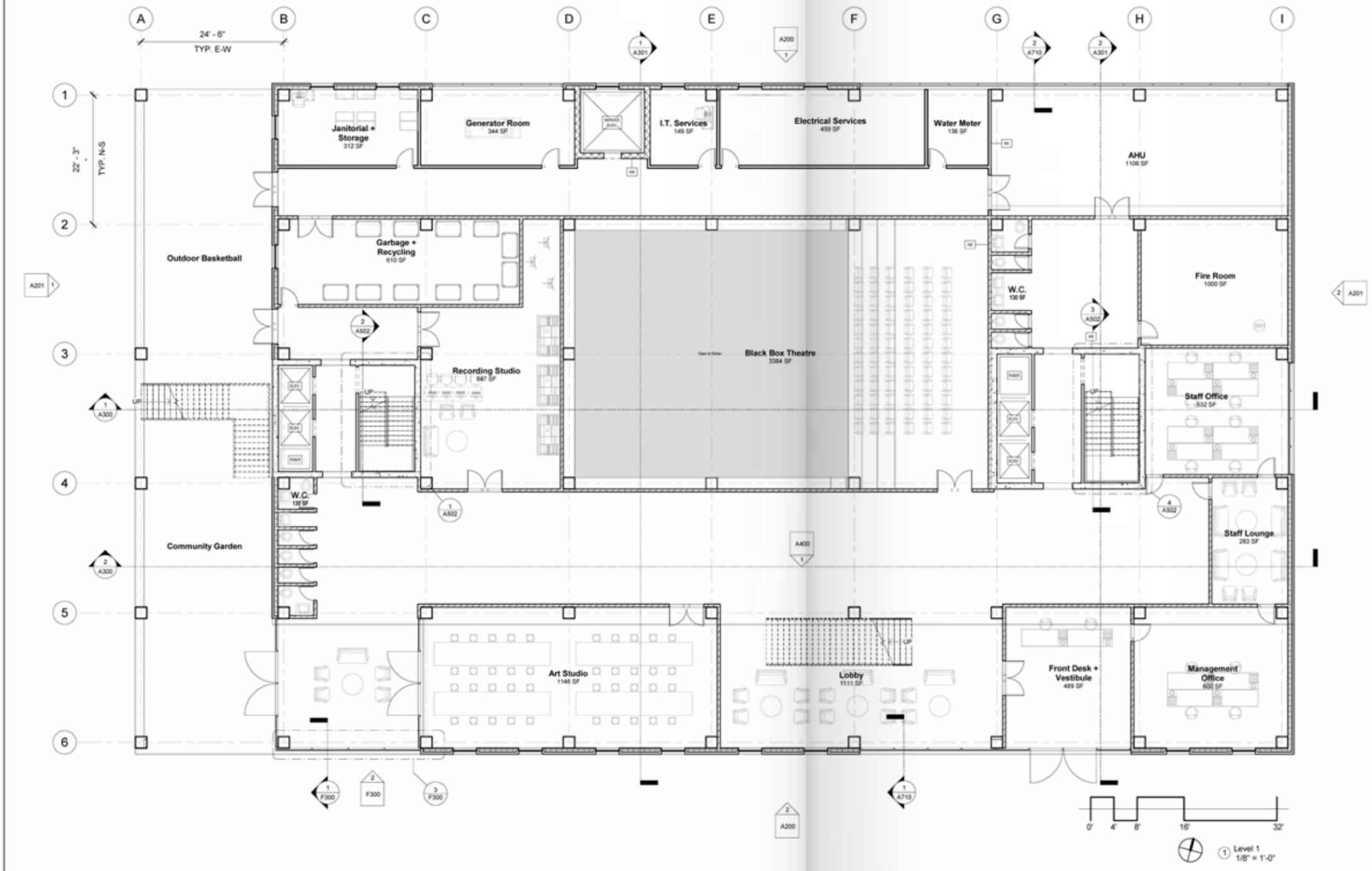
**Melrose
Community
Center**

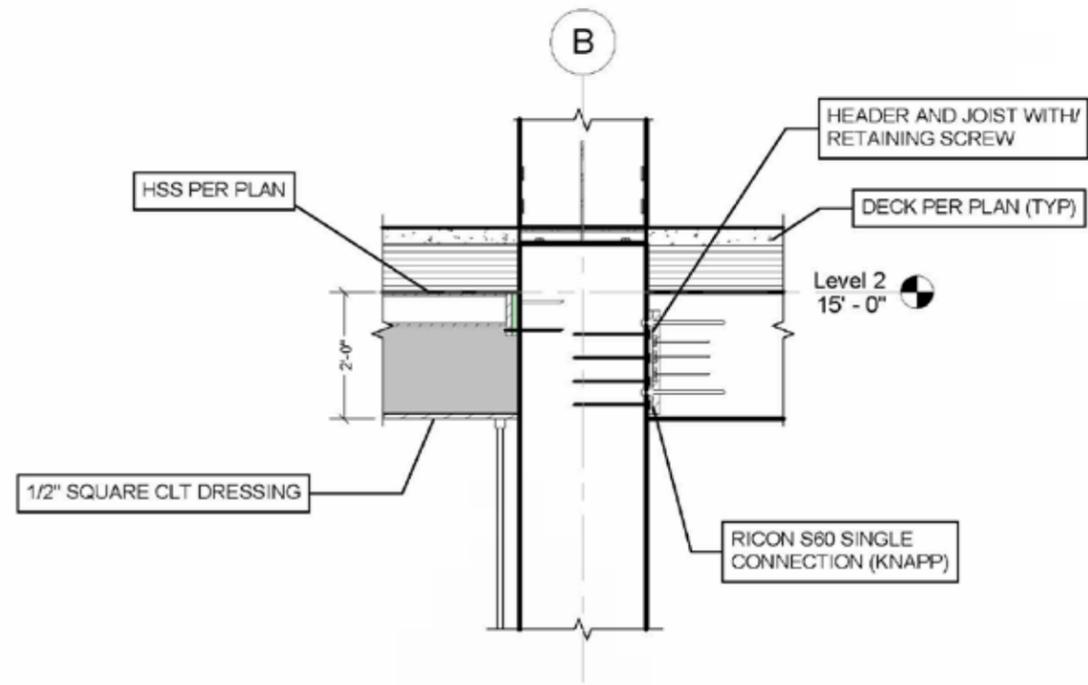
Level 1 Plan

Project number **01**
Date **12/01/20**
Scale **Author**

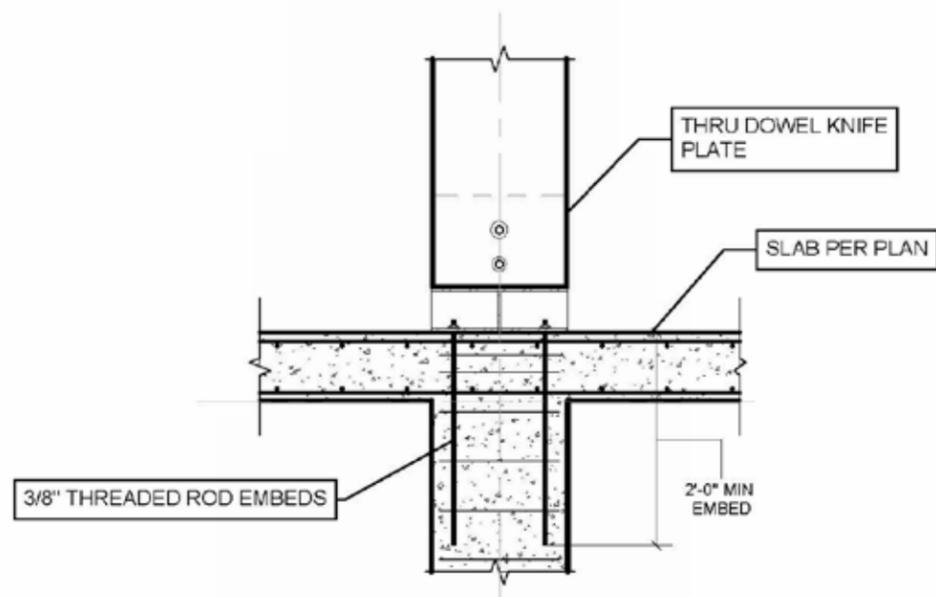
A101

12/01/2020 9:59:41 AM

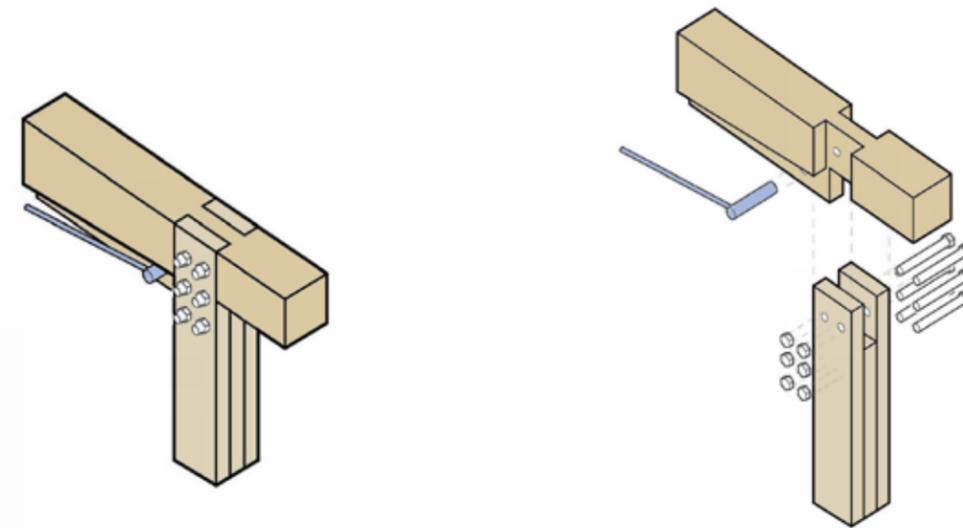




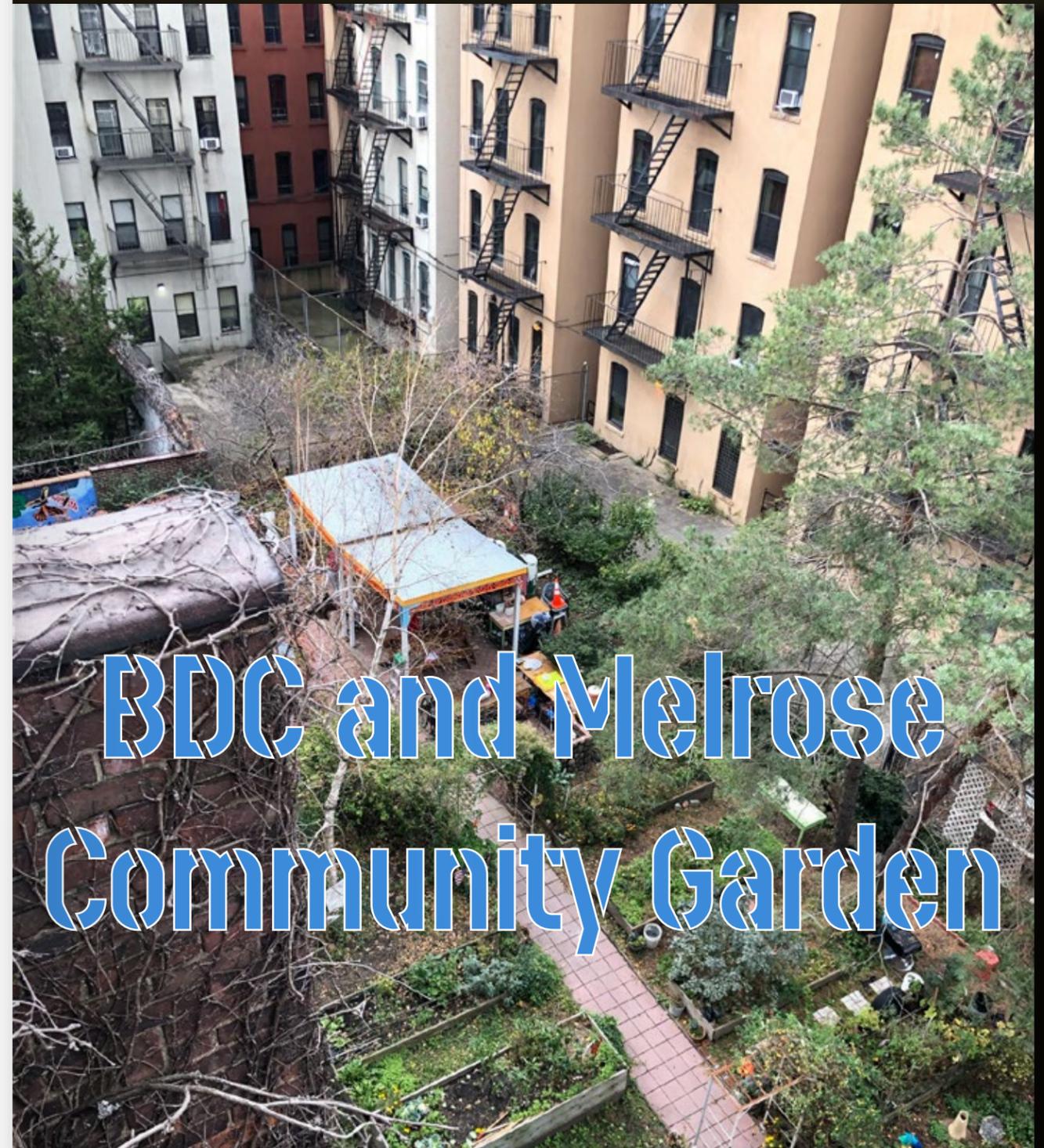
Section - Dressed Beam at Exterior Wall
 Bridge
 7
 1/2" = 1'-0"



Section - Knife Plate at Timber Column
 Base
 11
 1/2" = 1'-0"



Long span glulam with steel tie rod at gym

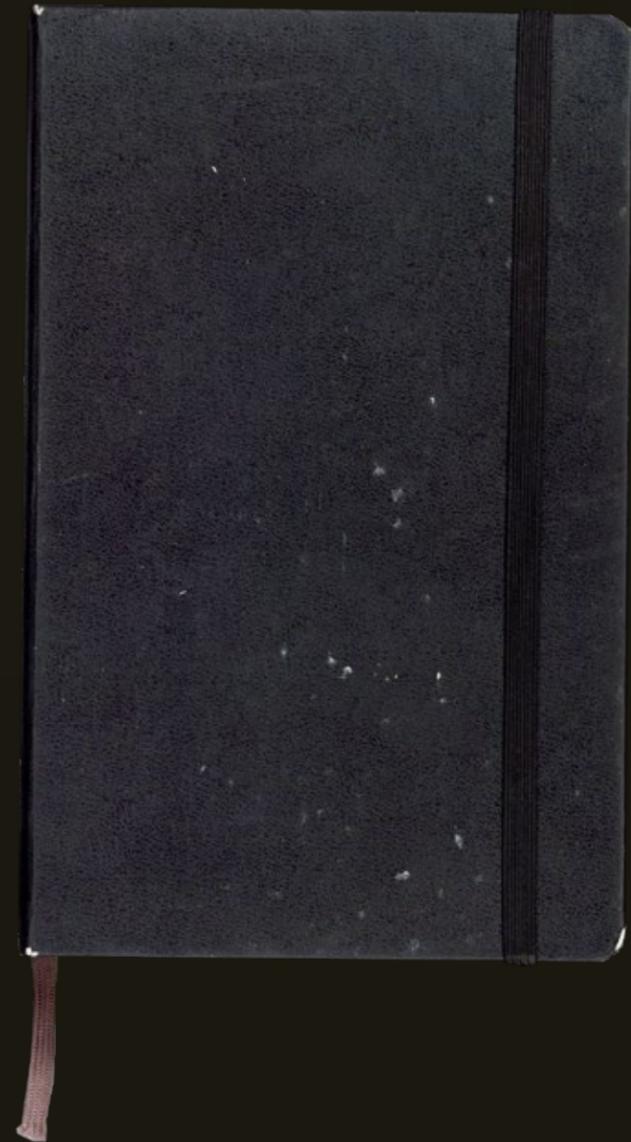


BDC and Melrose Community Garden





MELROSE COMMUNITY GARDEN
BDC x GSAPP



P.S. 64

Intraformal

Concept Driven Adaptive Re-Use

Spring 2020 Core II

Conceptual Architecture

José Aragüez

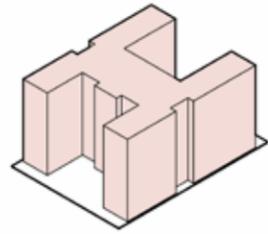
New York, NY



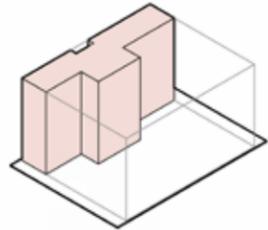
As a trial for exploring an architectural concept based on creating space through a pre-determined and intersecting spatial grid, Intraformal imagines the adaptive re-use of the famously abandoned P.S. 64 Robert Simon school in Alphabet City. Through activating the site, the existing and new structures encounter each other in an exciting and ambitious combination of materials, style, and formal qualities.

The concept realized here is driven by a pattern that is bound and projected onto a fictitious cube encompassing the building site. From there, the projected spatial grid resulting from the hexagonal pattern becomes the stencil from which new space is constructed. The operation which follows is an extrusion of an intervened pattern belonging to each vacant face of the site. Meeting at the center, the horizontal extrusions create an intersection at the center point of the site which belongs to a bi-axial spatial grid - hinting at its two-dimensional origin, while becoming singularly dynamic in space.

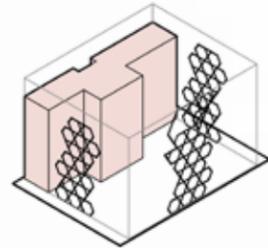
To strive for conceptual purity, new ways of circulation and room arrangement were implemented. In this process, the benefitting qualities of the original pattern began to present themselves and serve as triggers for rethinking typical school programming. Of the resulting qualities, scale and "slantedness" would prove to be the most influential. The advantage of these qualities brought about inventive solutions which would rely on the project's fractal-like qualities and enable the use of performative surfaces within a school setting.



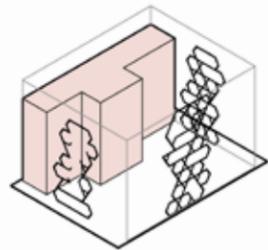
Existing



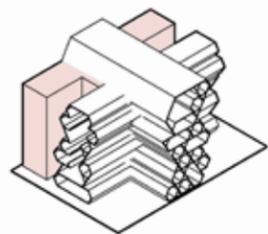
Conserve



Pattern Projected

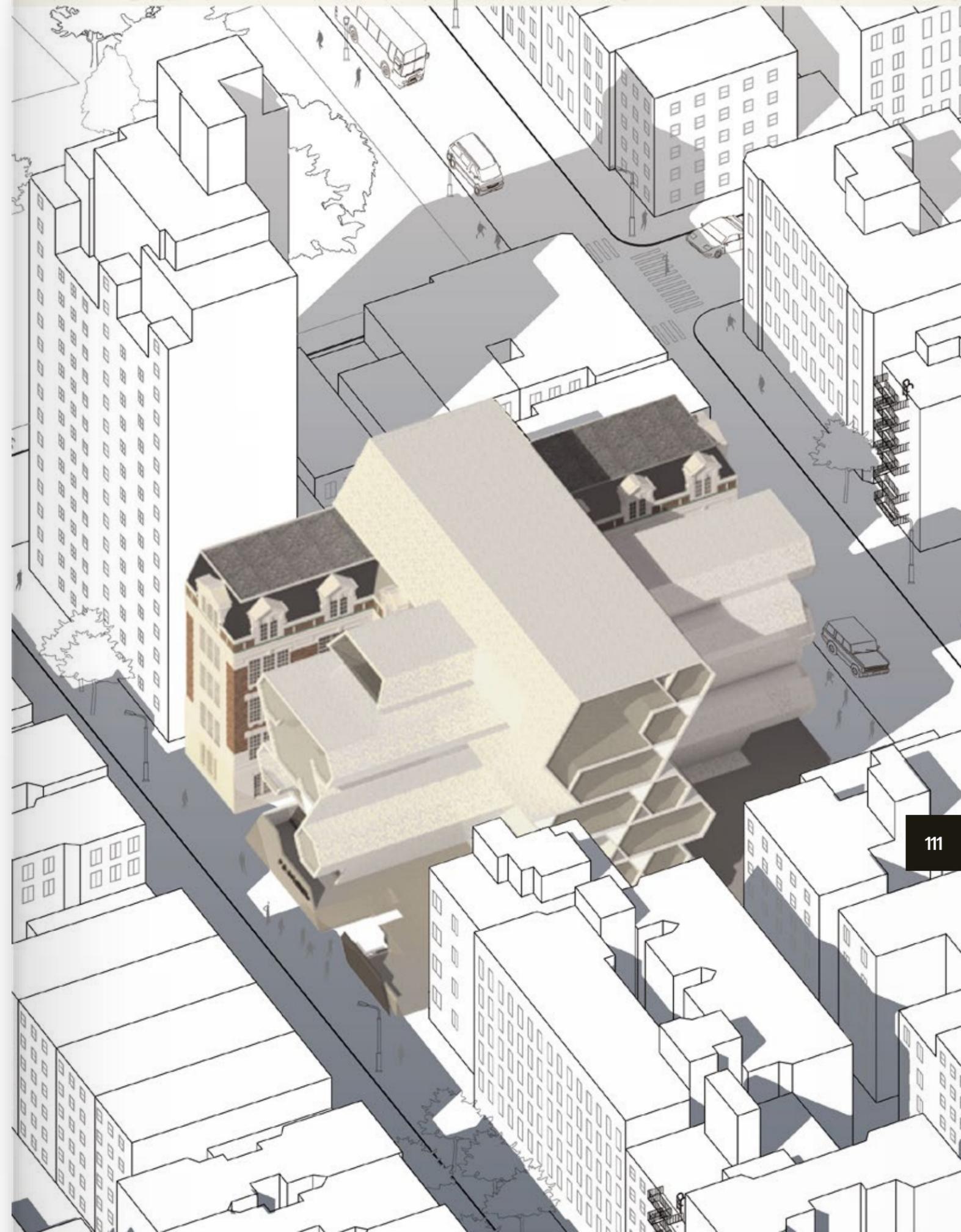


Pattern Intervened



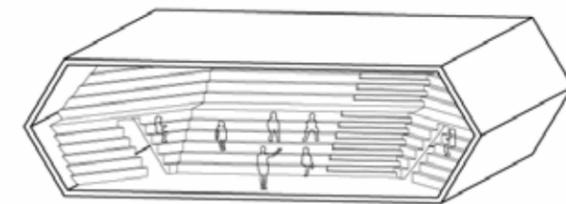
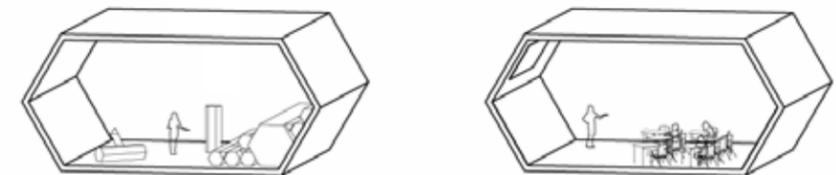
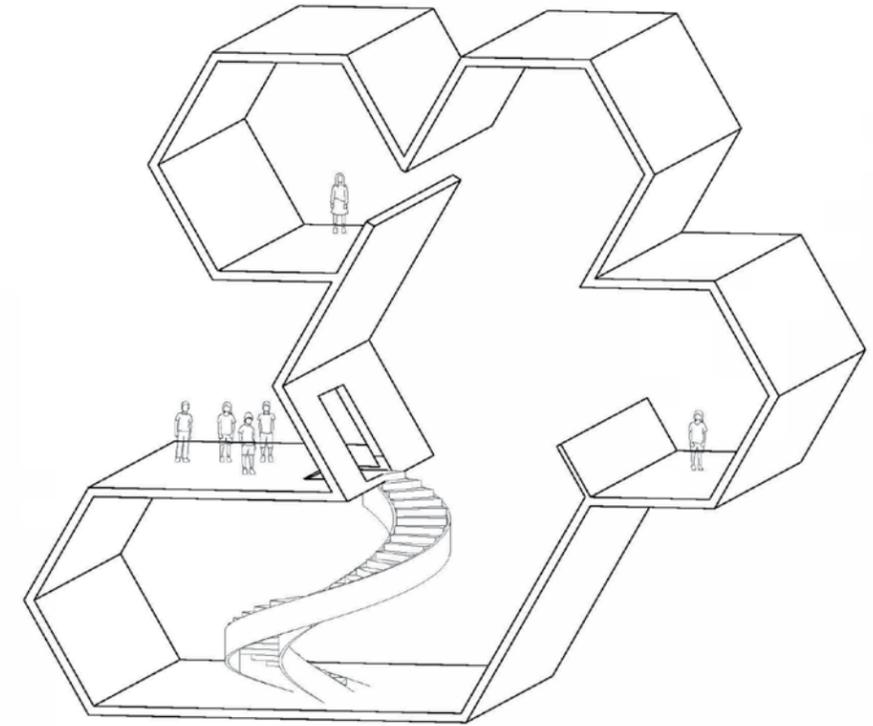
Extrude & Intersect

Concept: Space making through horizontal extrusions and resulting intersection

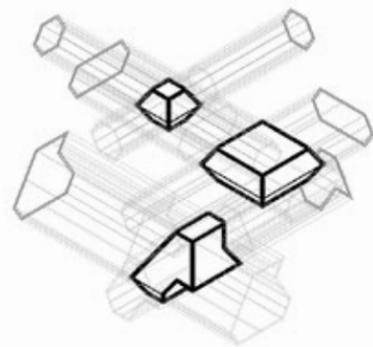
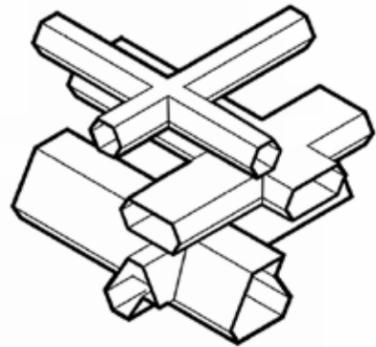
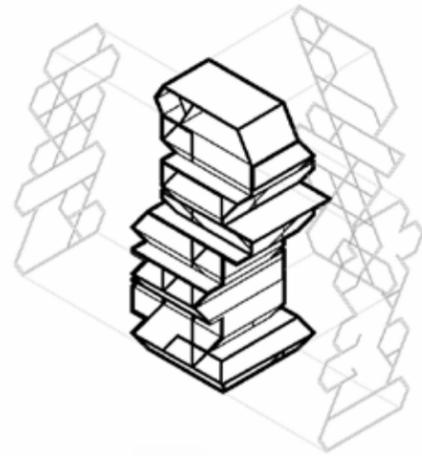




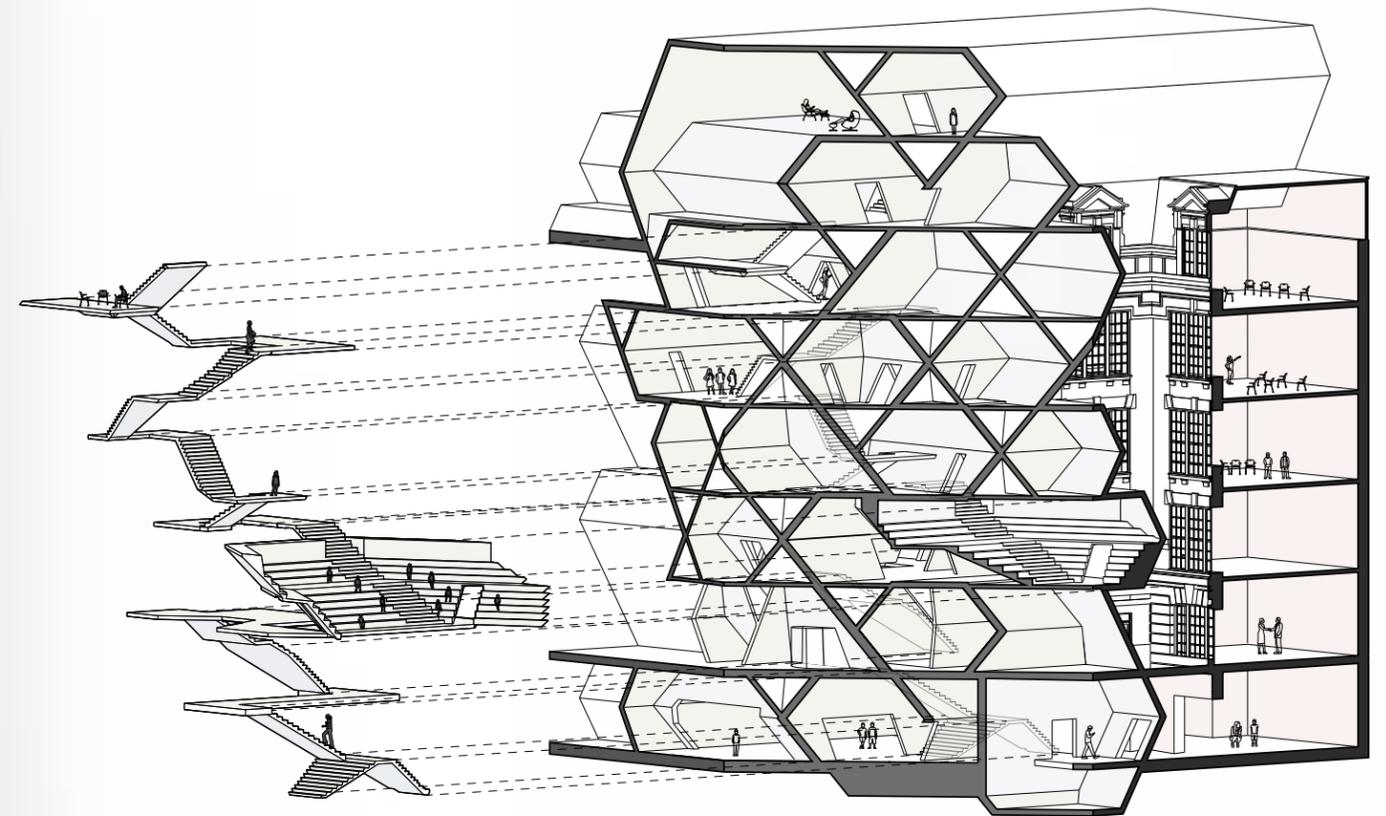
Spatial Prototypes



Spatial infrastructure by horizontal extrusions



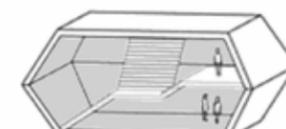
Resulting spatial infrastructure at the intersection



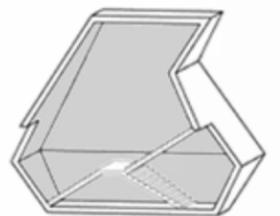
Door



Split Stair



Mezzanine



Atrium

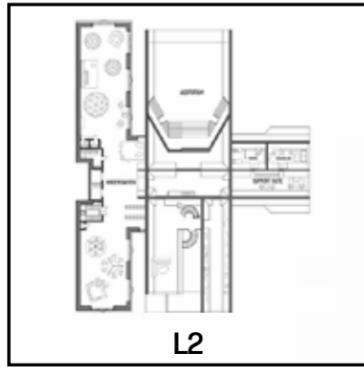
Spatial infrastructure to programmatic opportunities



B



L1



L2



L3



L4



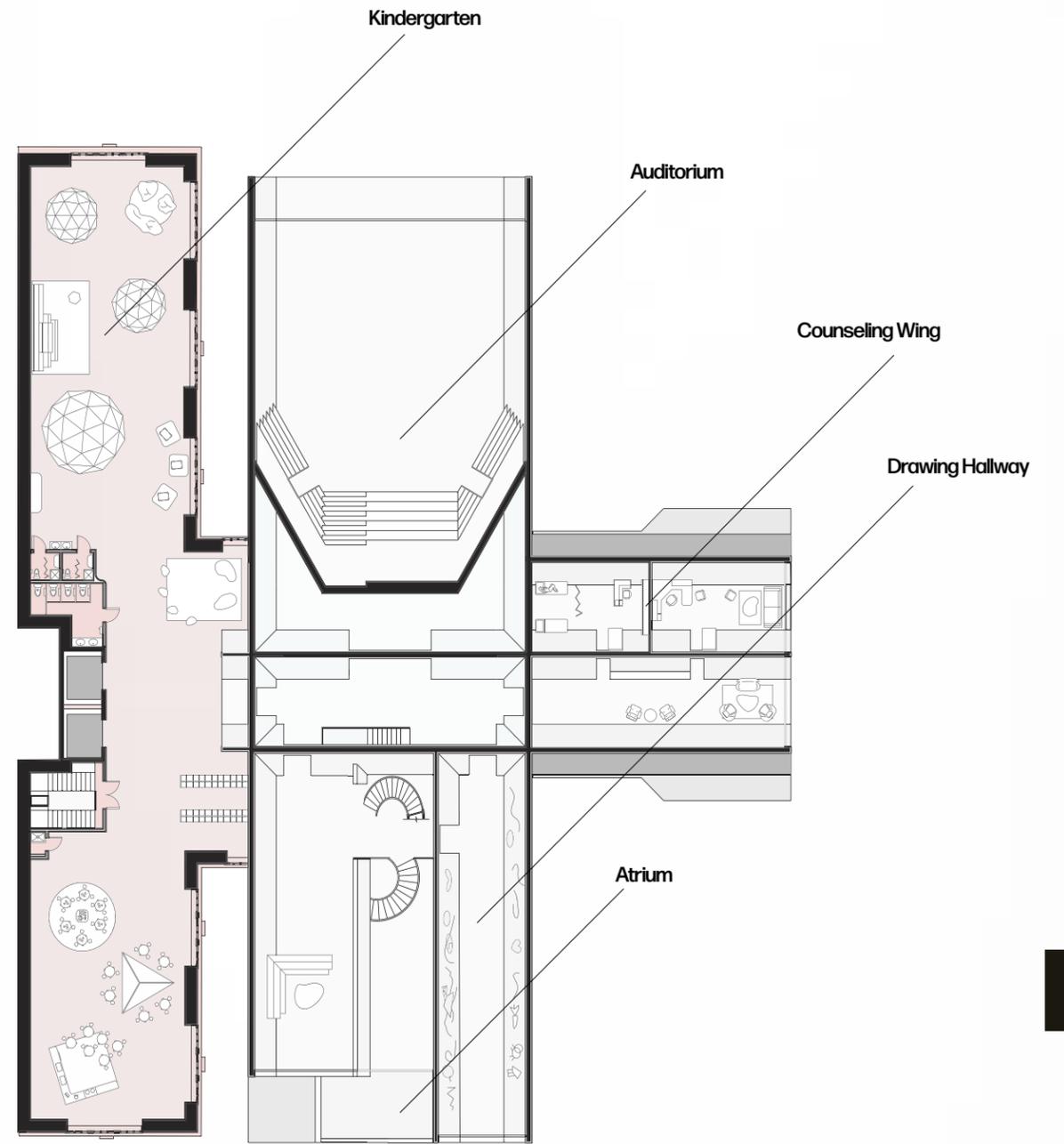
L6



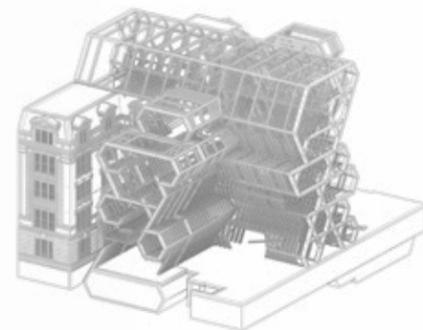
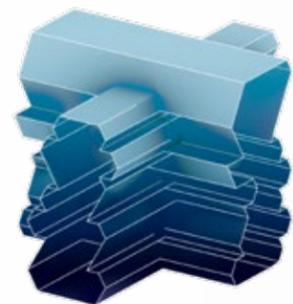
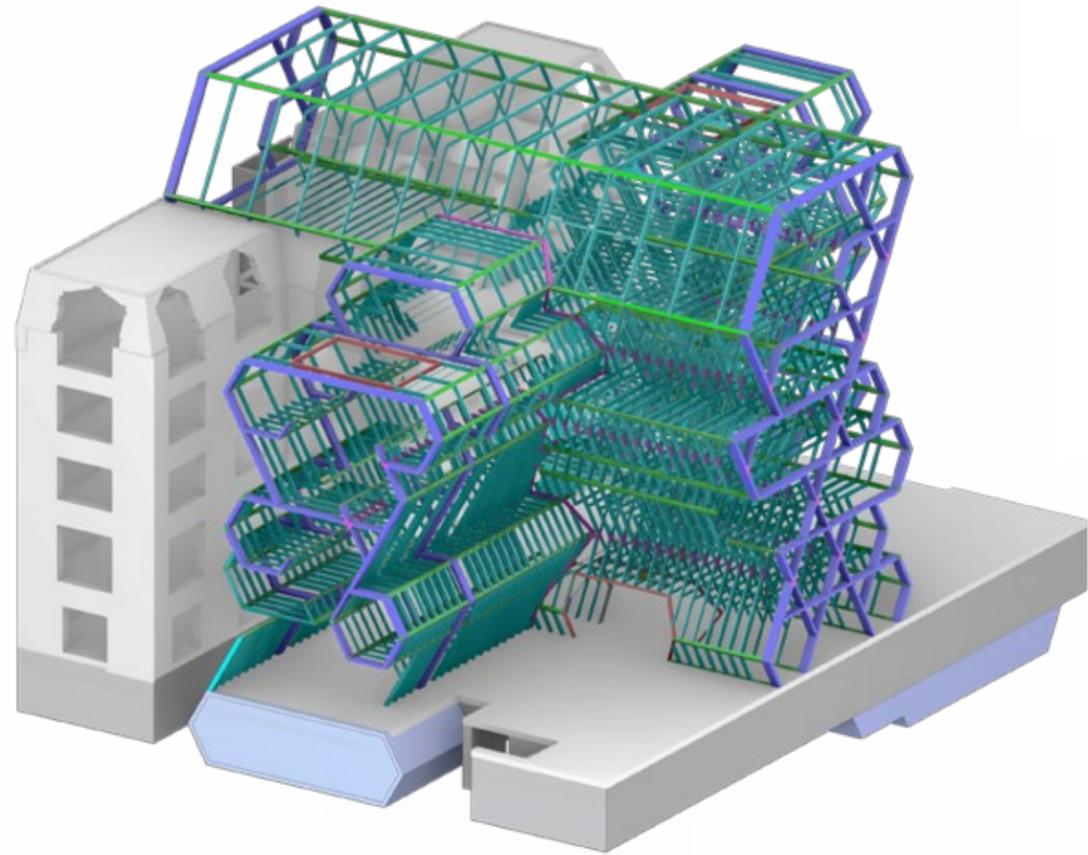
L6



L6.5



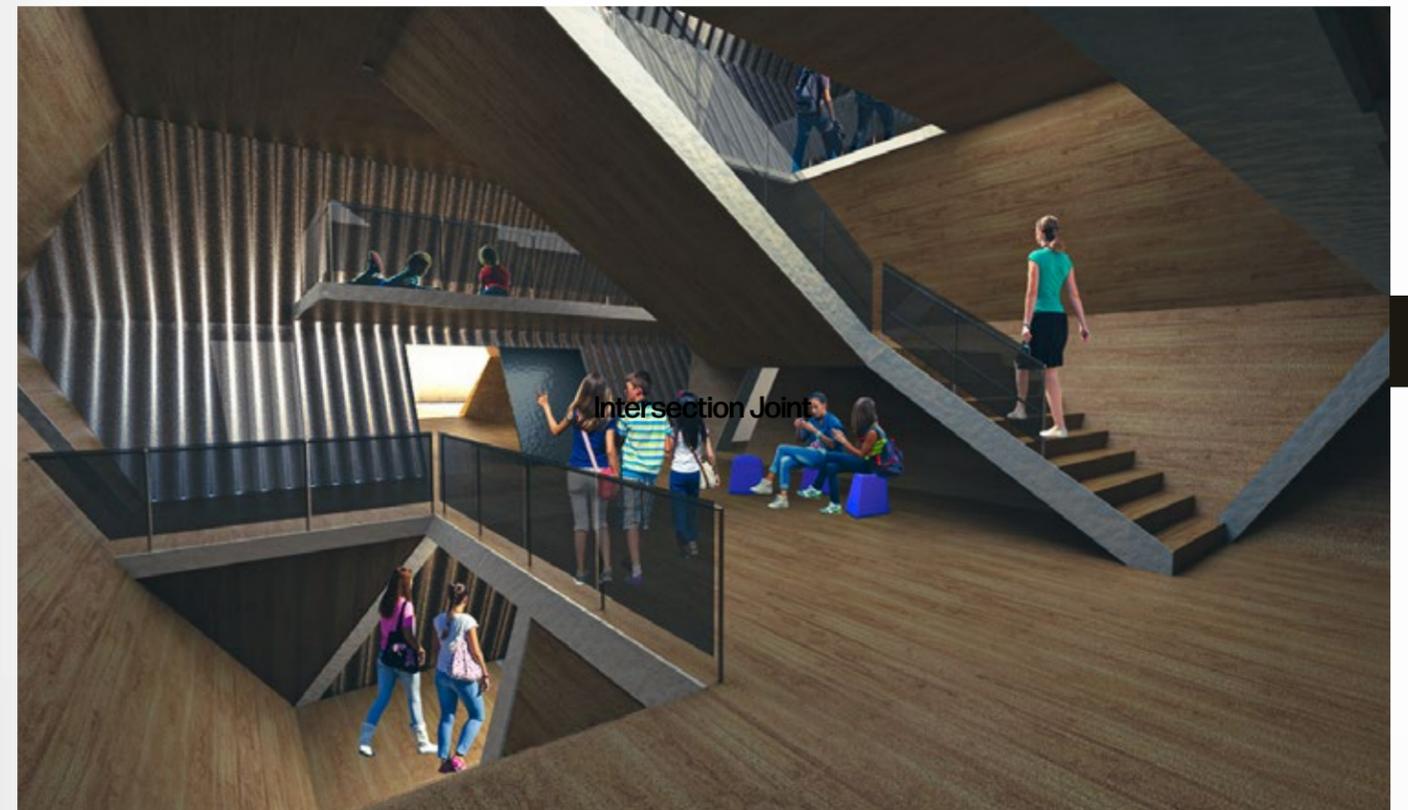
⌚ Level 2



Vertical gradated structural typology

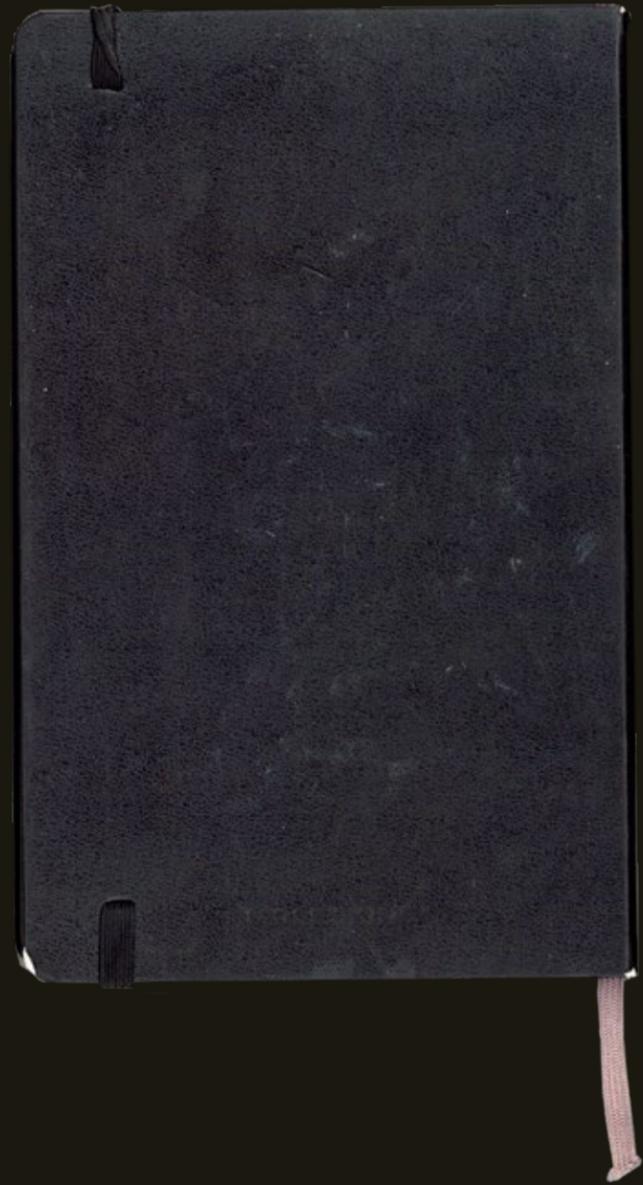


Detail at intersection - CFS framing



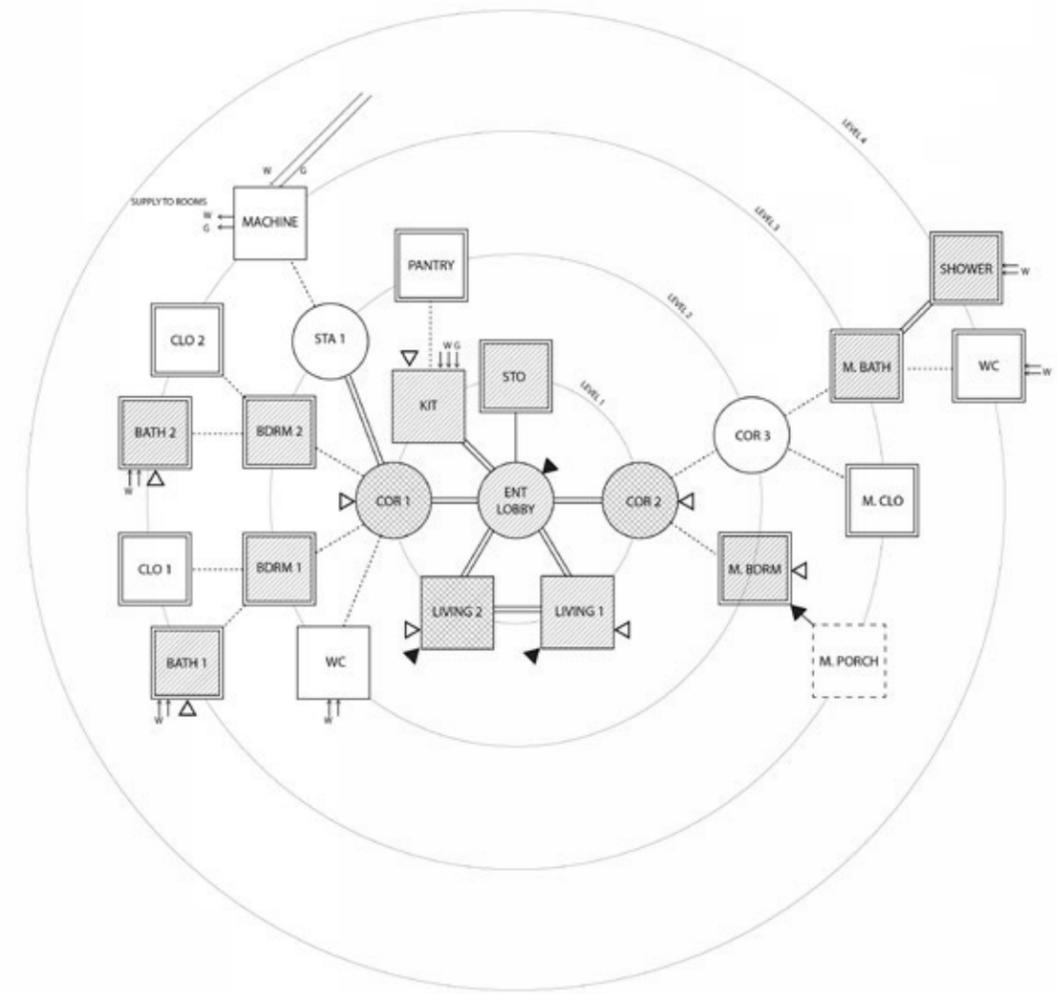
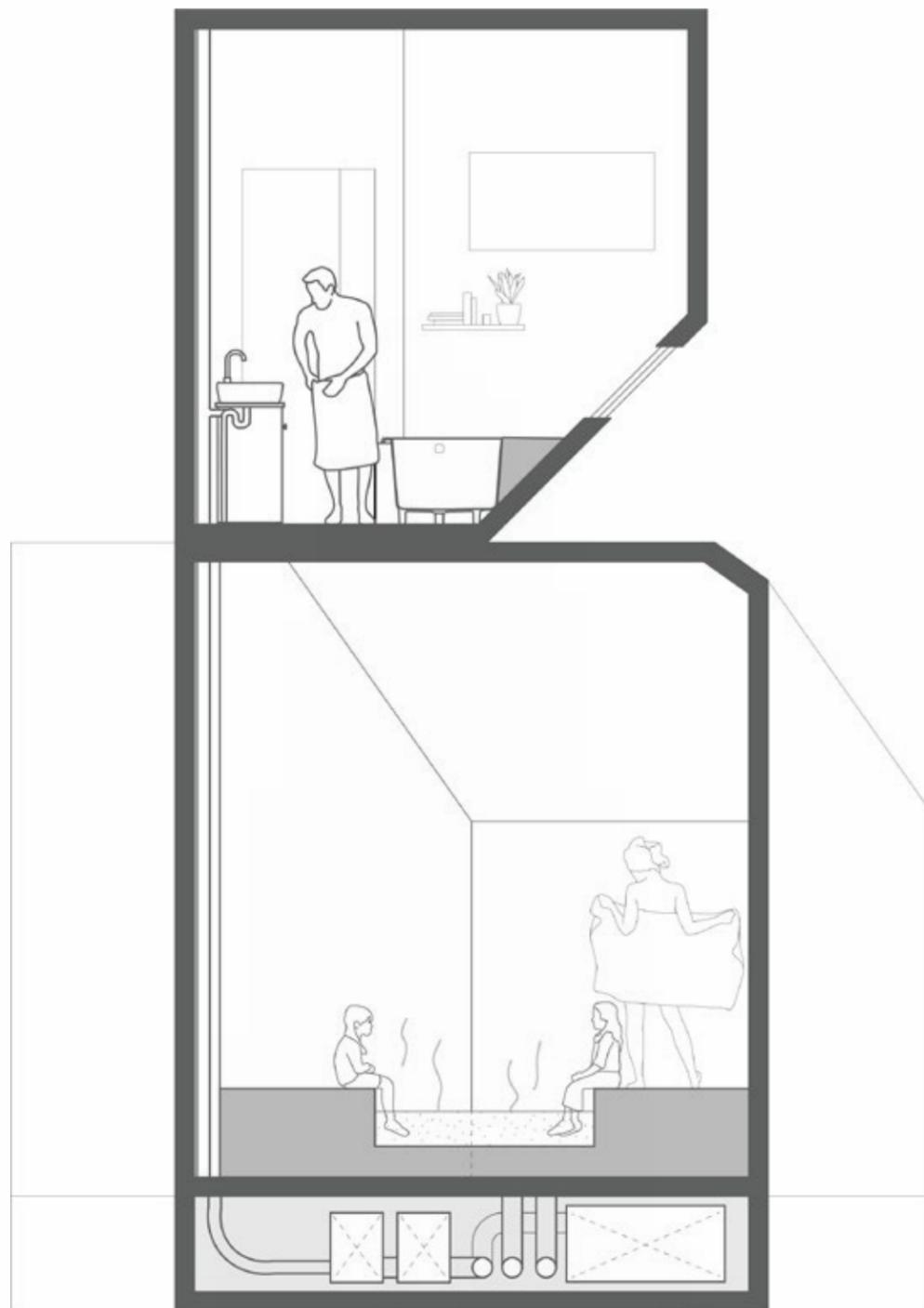
Circulation at intersection core





Two Chains

Collaboration with Jun Ito & Joyce Zhou
Spring 2020 | Modular Anatomy | Andreas Tjeldflaat



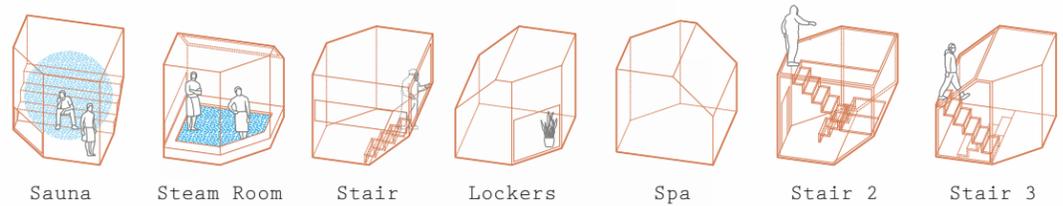
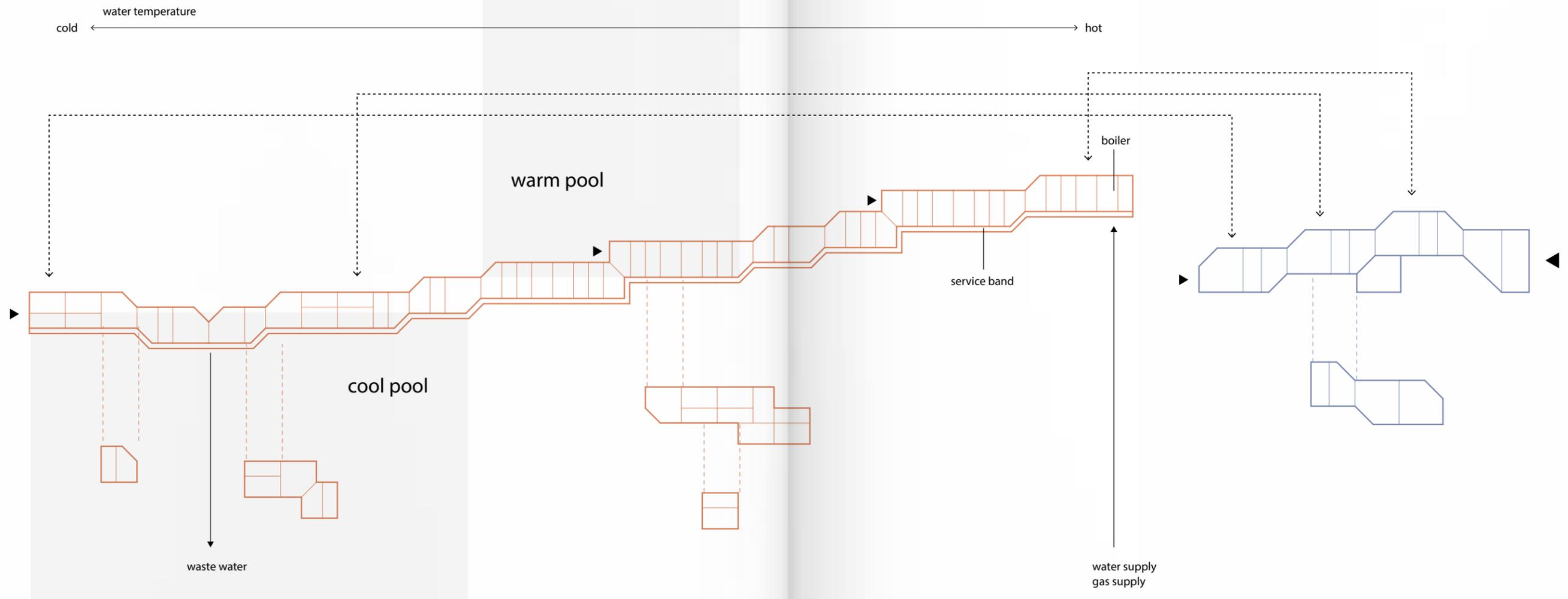
Dual-Program Modular Integration

This project creates a new way of organizing space by adapting the orientation and configuration of a modular system in response to its program. In doing so, the system shown here utilizes a repeating unit module in assembling a chain system that breaks free from the orthogonal grid and responds directly to its form. By rotating and positioning this single module in response to various programmatic needs, new ways of experiencing the module are presented to the user.

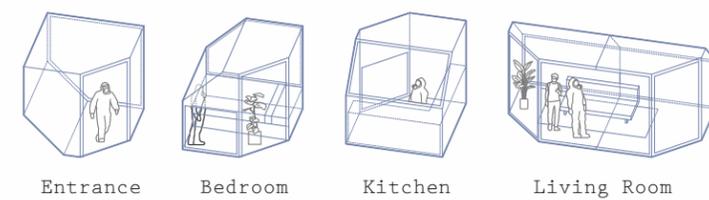
Within the aggregation, the space consists of a bathhouse and a single-family home. These two programs take the form of individual chains, each including spaces that respond to differing levels of privacy, access to light, and water/plumbing features. Shared units, where the separate chain systems meet, allow for services to breach both systems, where the two-program integrated system is shown to work as a whole.

BATH-chain

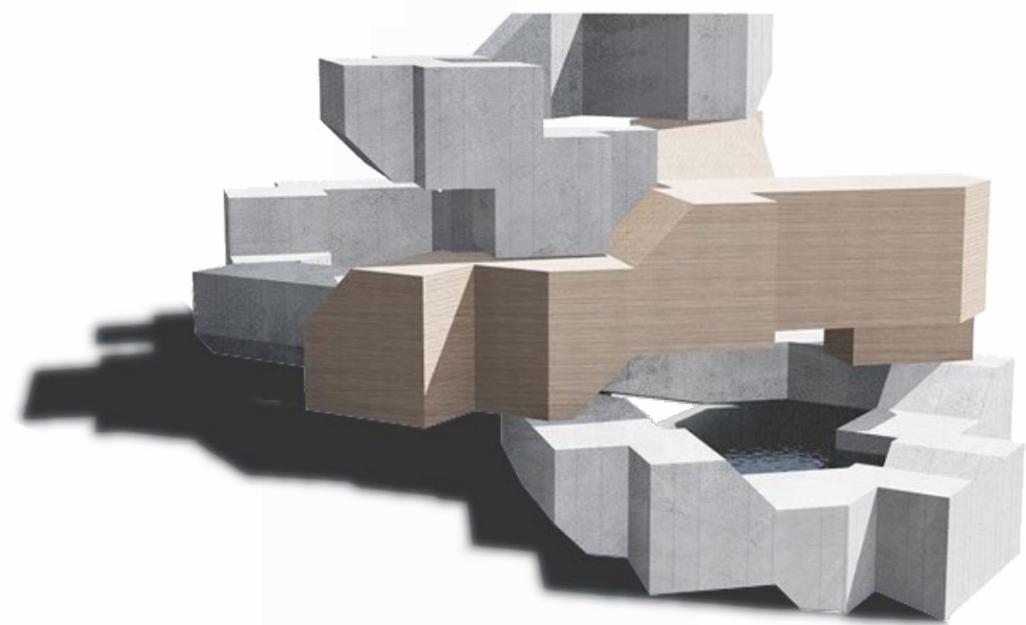
HOUSE-chain



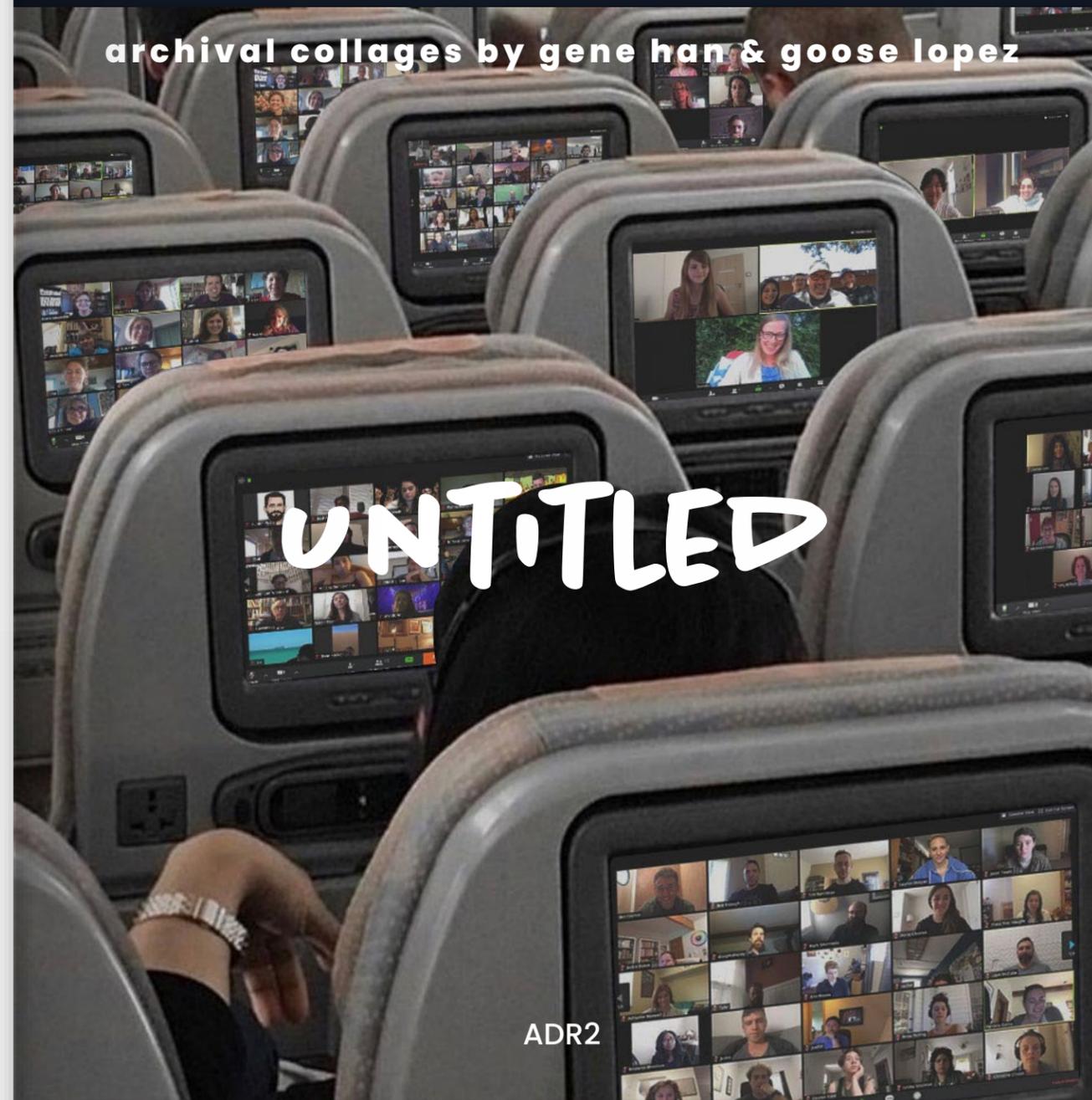
Bath Modules



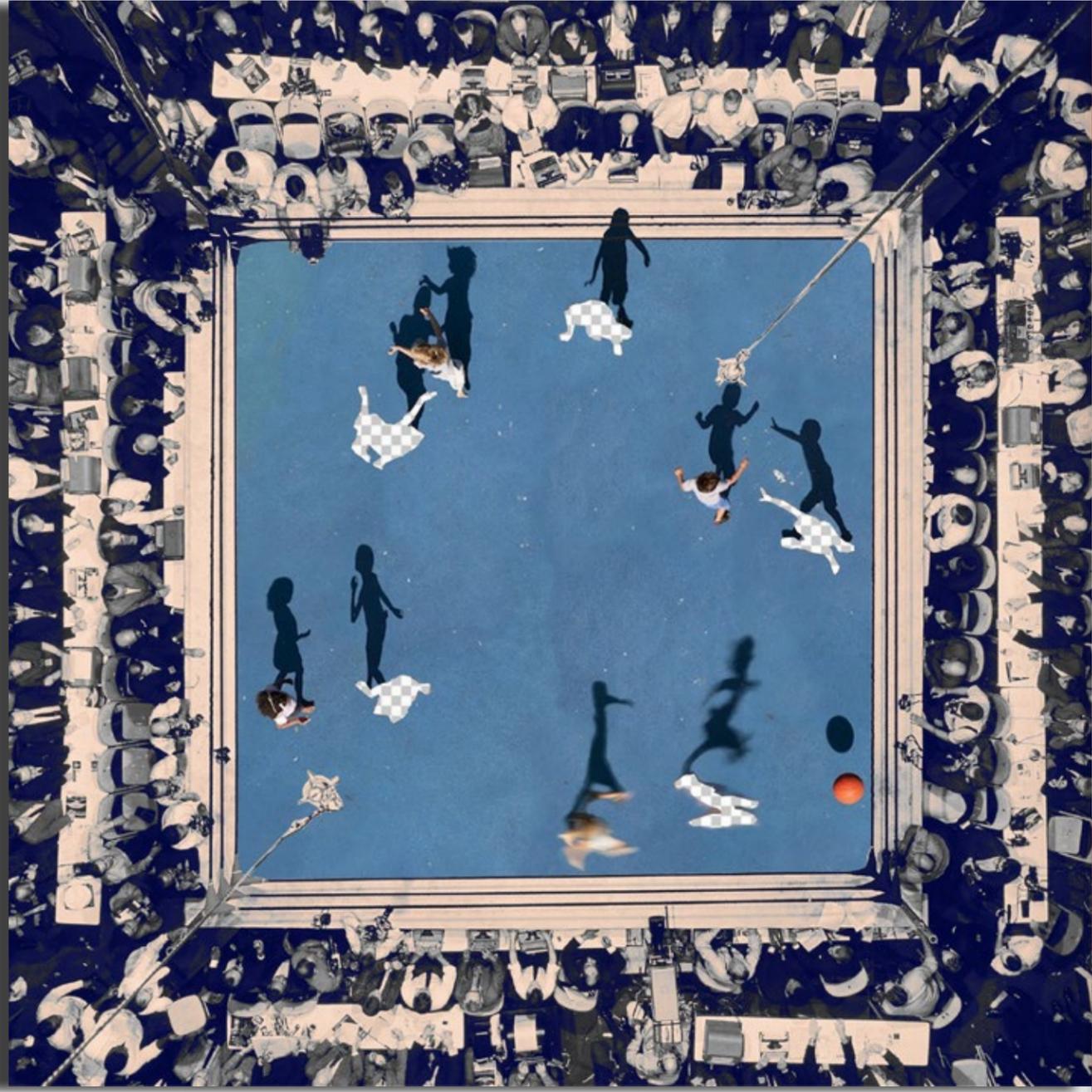
House Modules



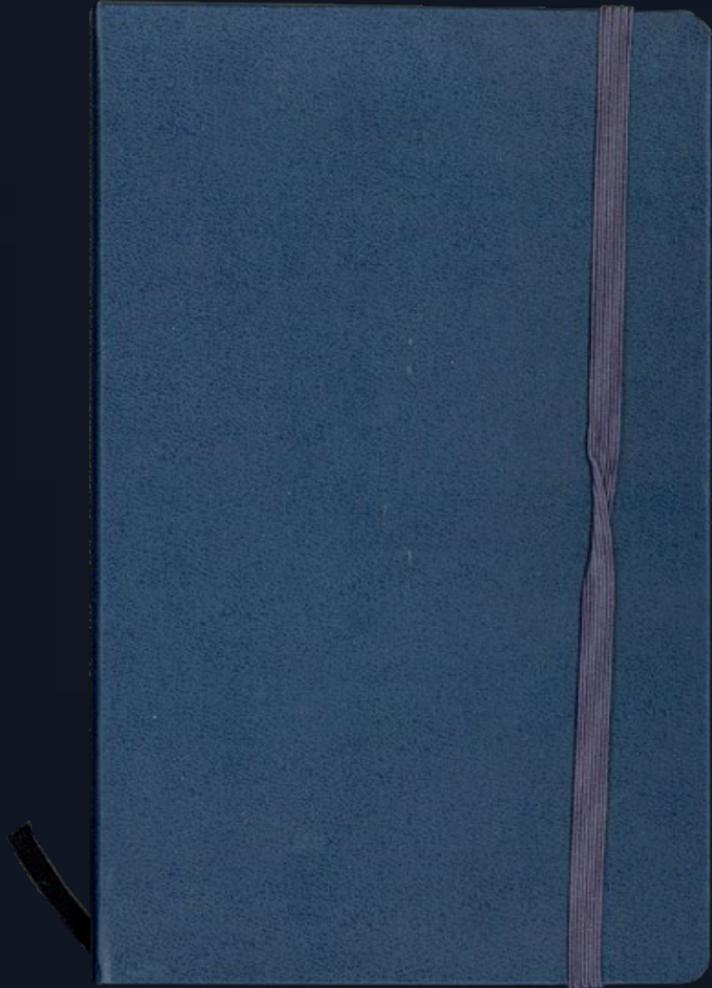
archival collages by gene han & goose lopez

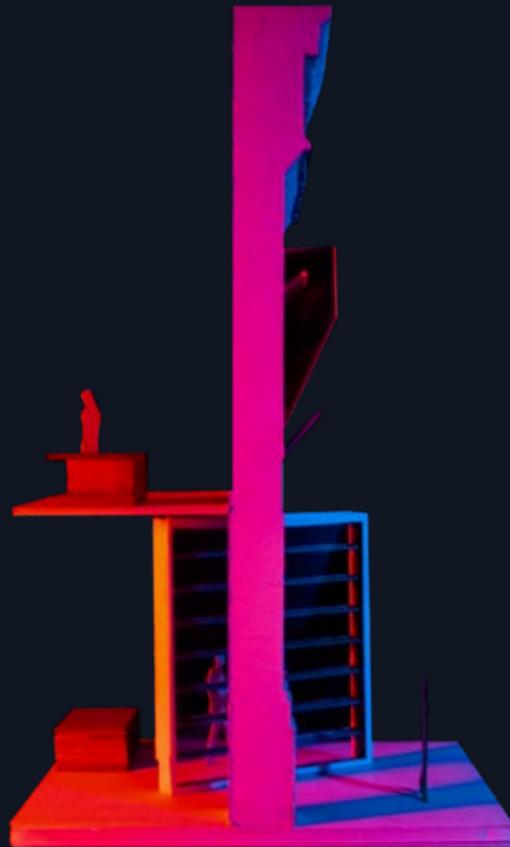


ADR2









Strand Facade

Sidewalk Scaled Bookstore Intervention

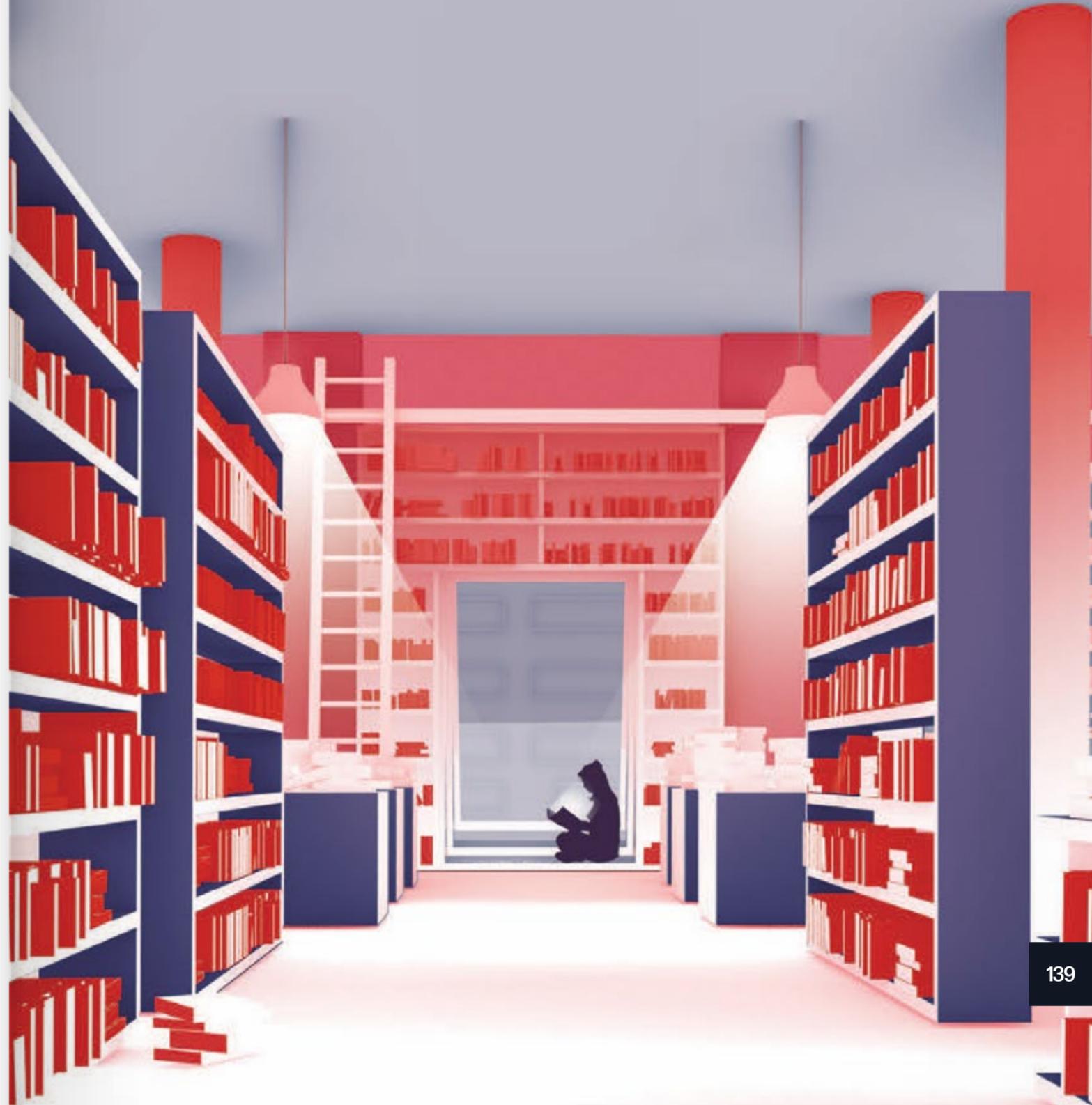
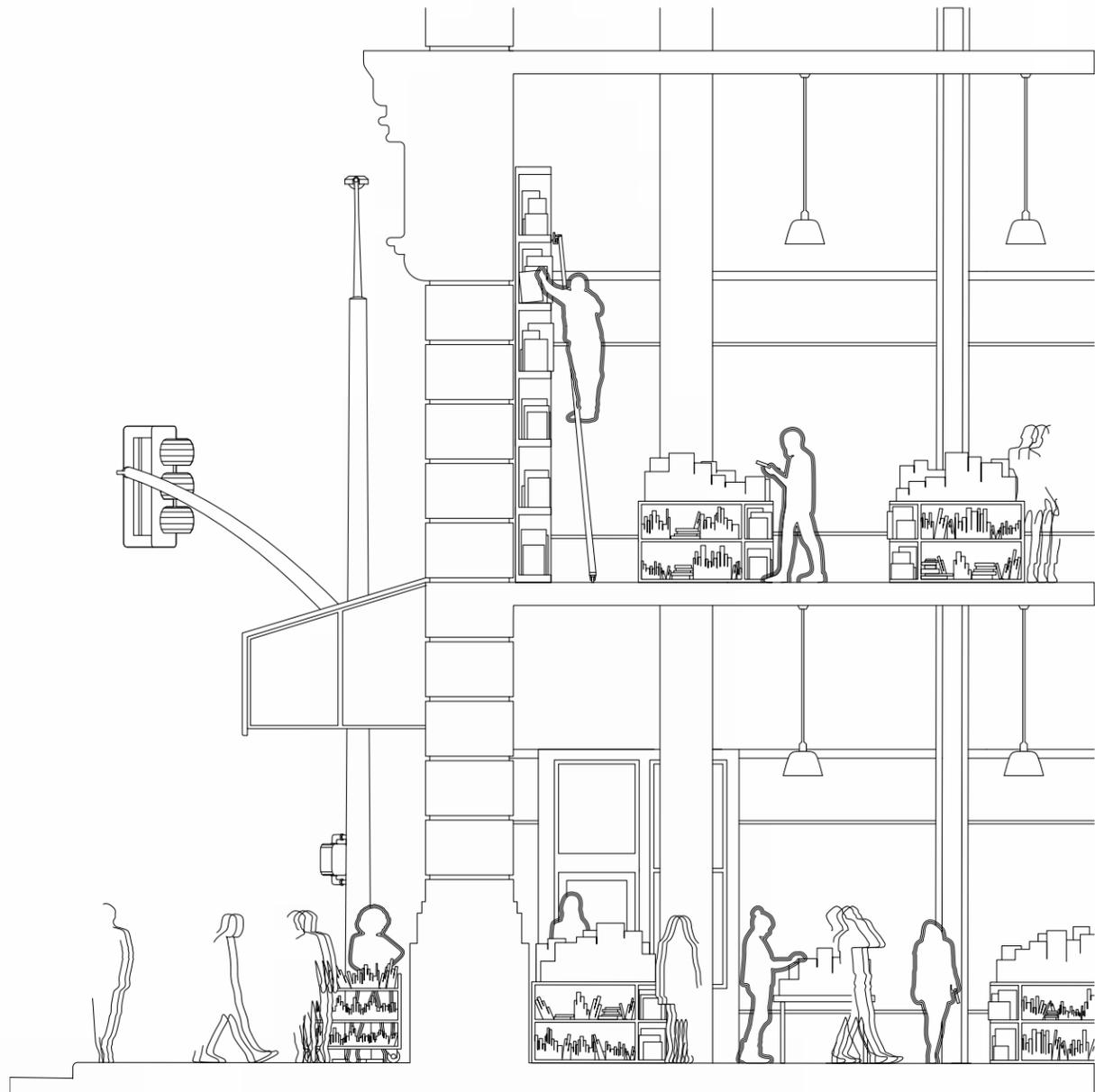
Fall 2019

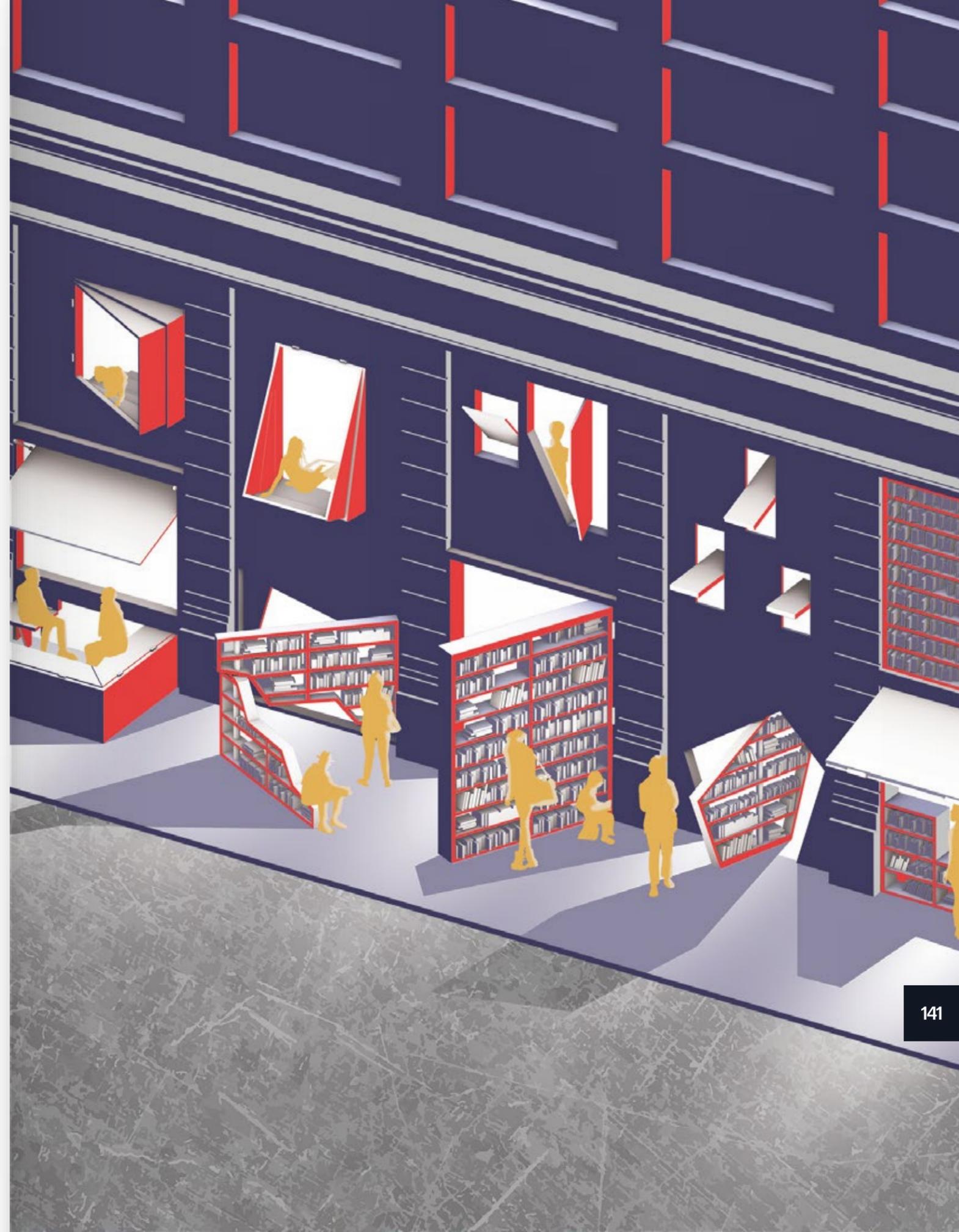
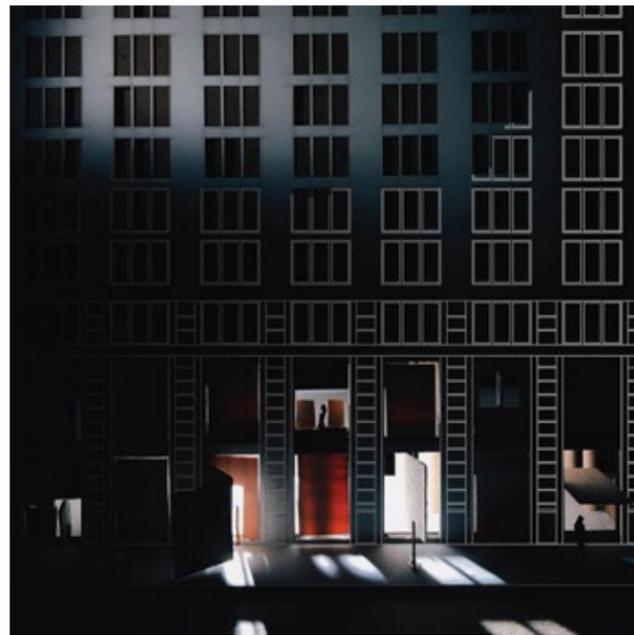
Core I - Broadway Stories

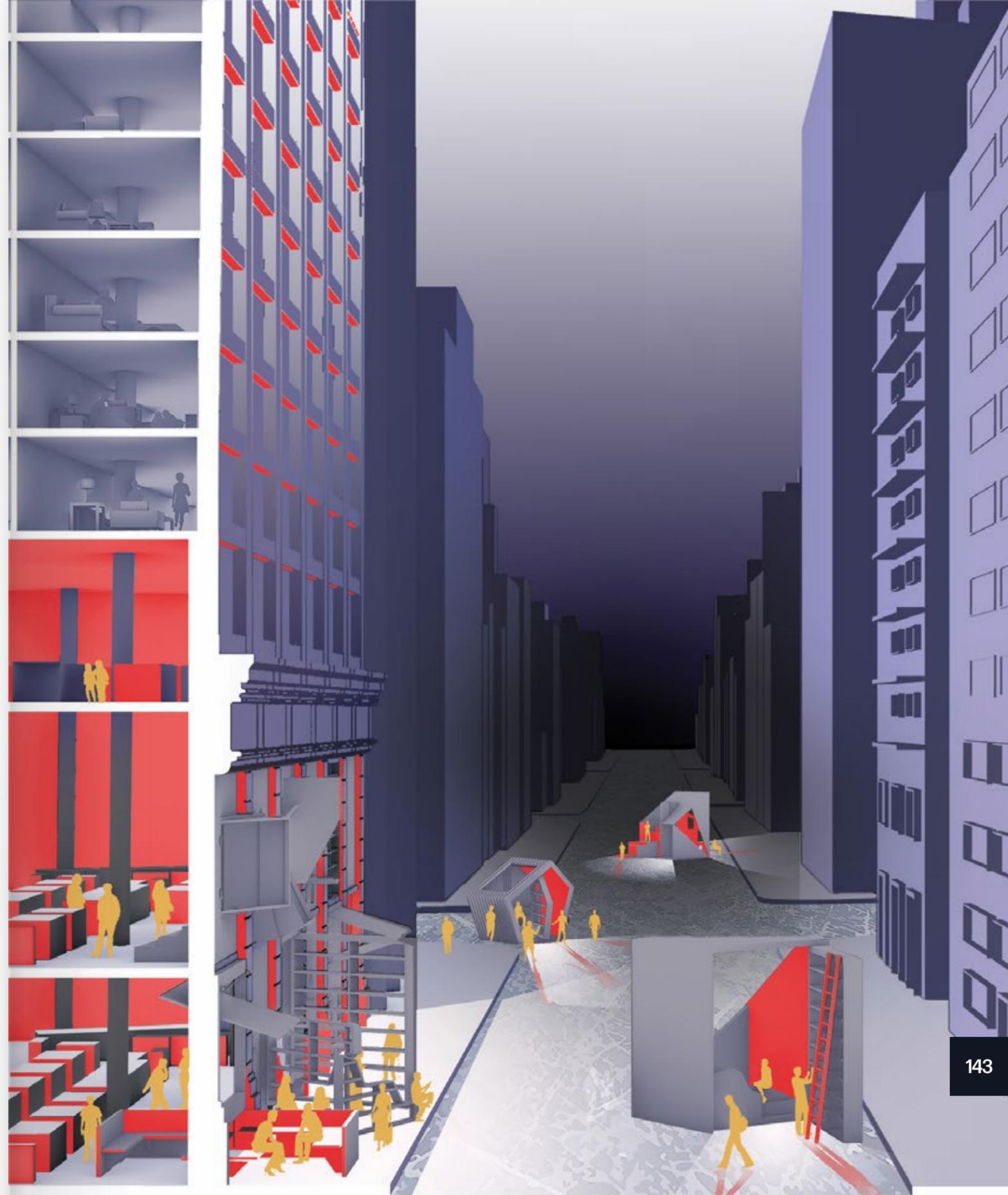
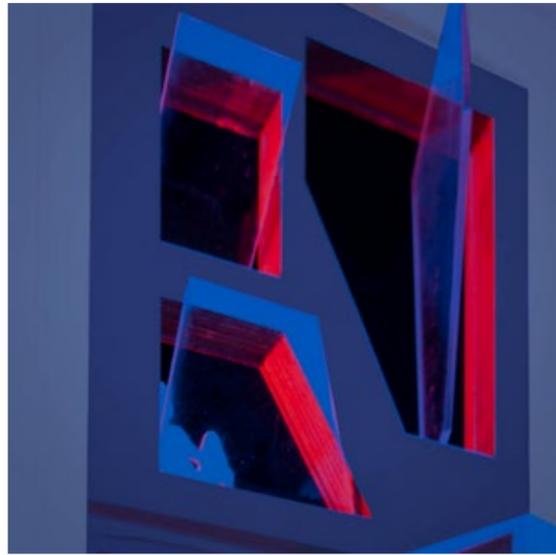
Amina Blacksher

New York, NY

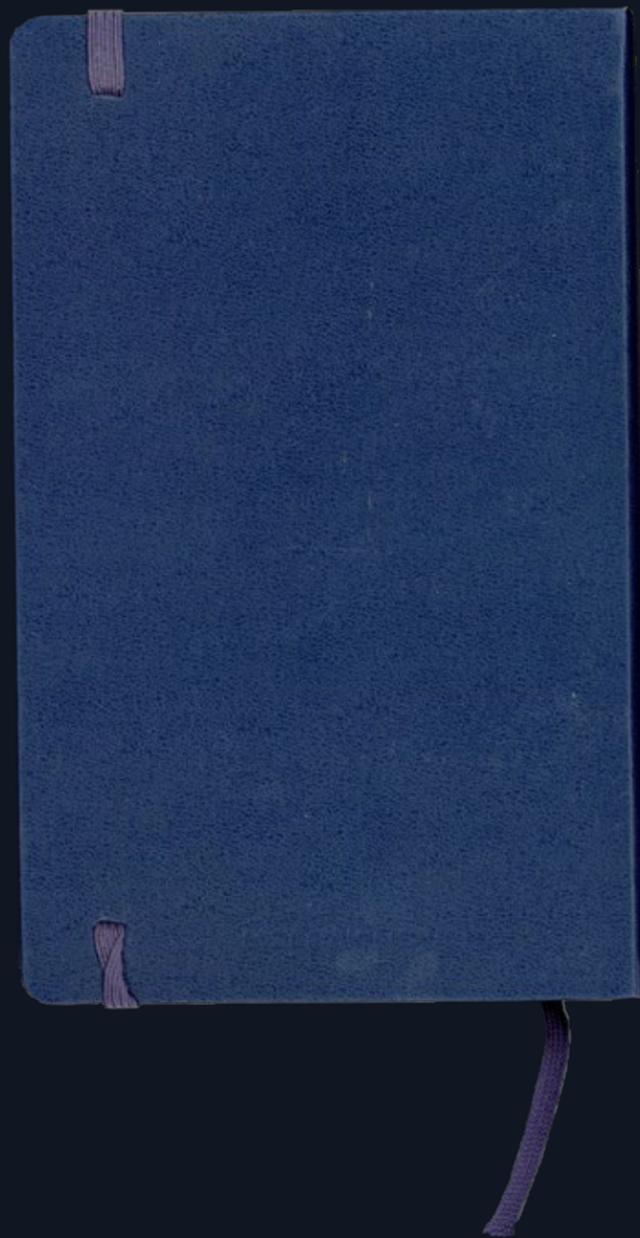
This project investigates the historic Strand bookstore and how the various experiences within can bridge scales and constitute a standalone space of their own. The intervention depicted here takes the form of multifunctional, ephemeral spaces along the existing facade and then, taking a step further, imagines these spaces as autonomous kiosks capturing the interior experience and unfolding it onto the city. The imposing aspects of these spaces confront our technologically driven time with the constancy and richness of the bookstore experience.











Gustavo Lopez Mendoza
Columbia GSAPP Graduate Portfolio
2019-2022



Houston Currents – Adaptive Re-use Art and Design Incubator

The Web – Inflatable Pavilion in Avery Plaza

Re-Op Powerhouse – Infrastructural Adaptive Re-Use

Canvas – Selected works from Summer 2021

Material Wall – Layered Fabrication Sketch with Mickaëlla Pharaon

Testing Grounds – Rural Incubator for Mass Timber Construction

Patio – Editorial publication by LatinGSAPP

Polymasa – Upcycling microplastics for biocomposite 3D printing

Building on the Block – Urban Ecological Affordable Housing

Melrose Community Center – Integrated Technology and Mass Timber

BDC & Melrose Community Garden – Student led volunteering

P.S. 64 Intraformal – Concept Driven Adaptive Re-Use

Two Chains – Dual-Program Modular Integration

Untitled Collages – Archival Compositions

Strand Facade – Sidewalk Scaled Bookstore Intervention

Supply