

Temporal Archive



NICHOLAS RICHARDS
M.Arch
Portfolio

***Temporal Archive** is a collection of architectural explorations that navigate the **intersections of scale, time, and urban ecologies**. Rooted in the belief that architecture is both a subtle backdrop and an active **facilitator of lived experiences**, these projects engage with shifting ecologies, evolving urban conditions, and spatial memory's ephemeral yet lasting impact. This portfolio questions how design can shape more ethical, immersive, and resilient futures through adaptive reuse, performative landscapes, and dynamic social infrastructures.*

NICHOLAS RICHARDS

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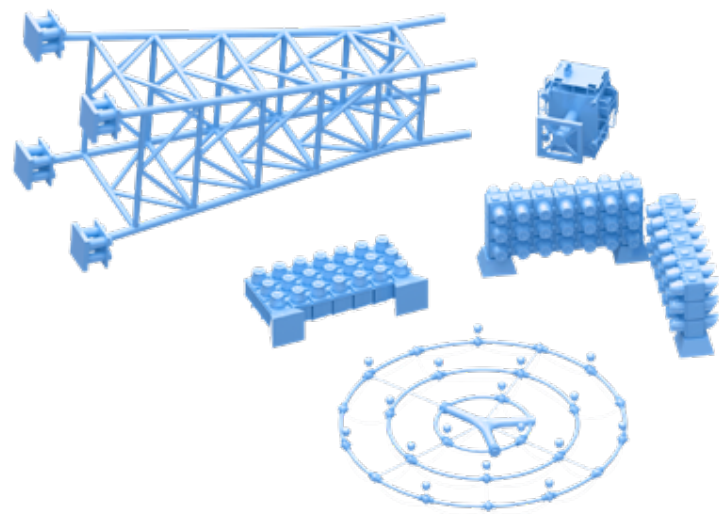
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Antithesis of Extraction

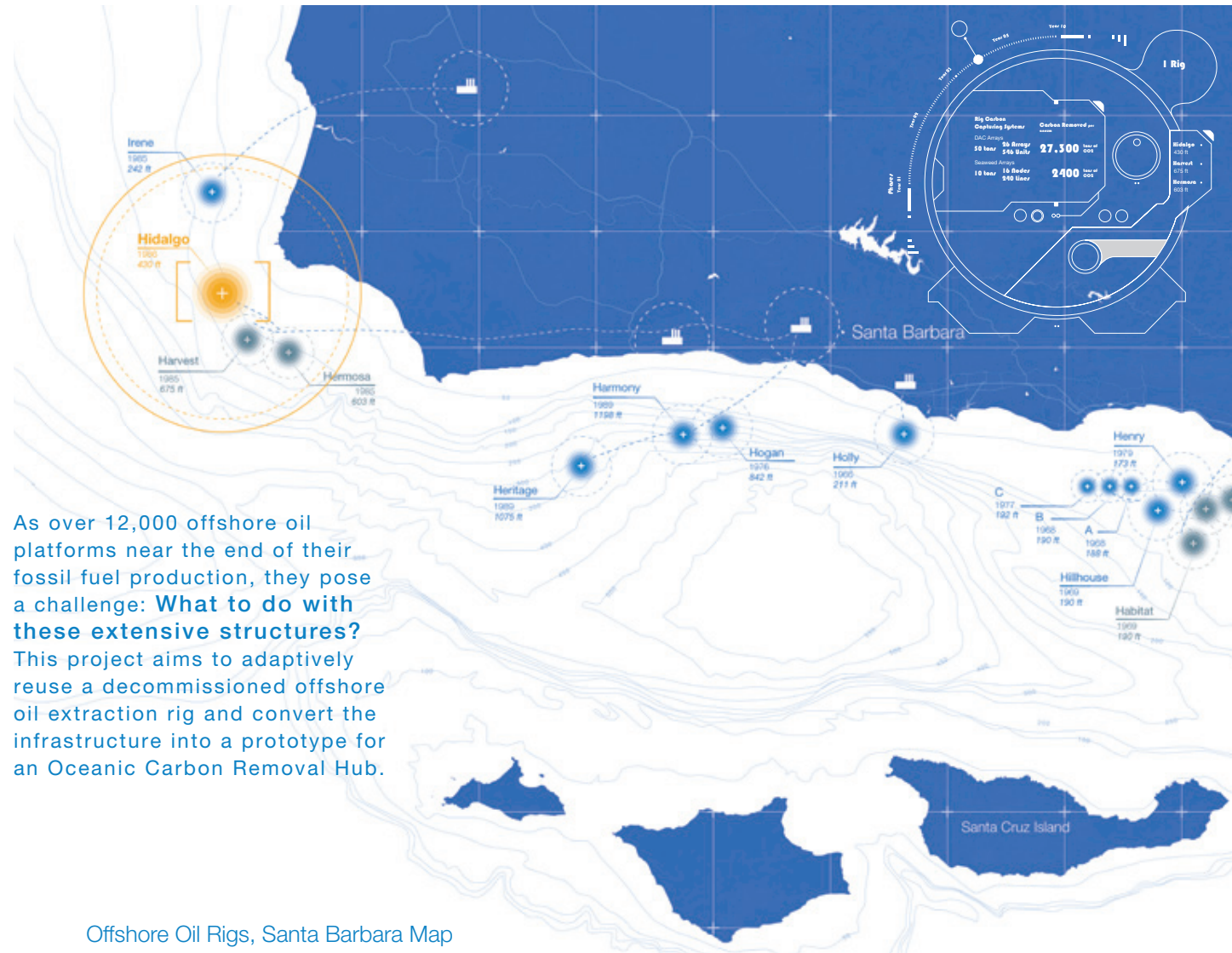
Oil Rigs as Carbon Repositories

Offshore Rigs in Santa Barbara, CA
Program: **Oceanic Carbon Hub & Research Center**
Instructor: **David Benjamin**
Year: **Fall 2024**
Duration: **14 Weeks**
Toolset: **Rhino, V-ray, Photoshop, Illustrator, Model-making**

This project aims to adaptively reuse a decommissioned offshore oil extraction rig and convert the infrastructure into a prototype for an Oceanic Carbon Removal Hub. It seeks to address the environmental risk posed by abandoned oil rigs, by transforming these decommissioned platforms into oceanic carbon removal research stations.

These stations would combat the carbon emissions they once contributed to by retrofitting the existing infrastructure for macroalgae cultivation and carbon sequestration. In doing so, it aims to turn environmental liabilities into assets for climate action.



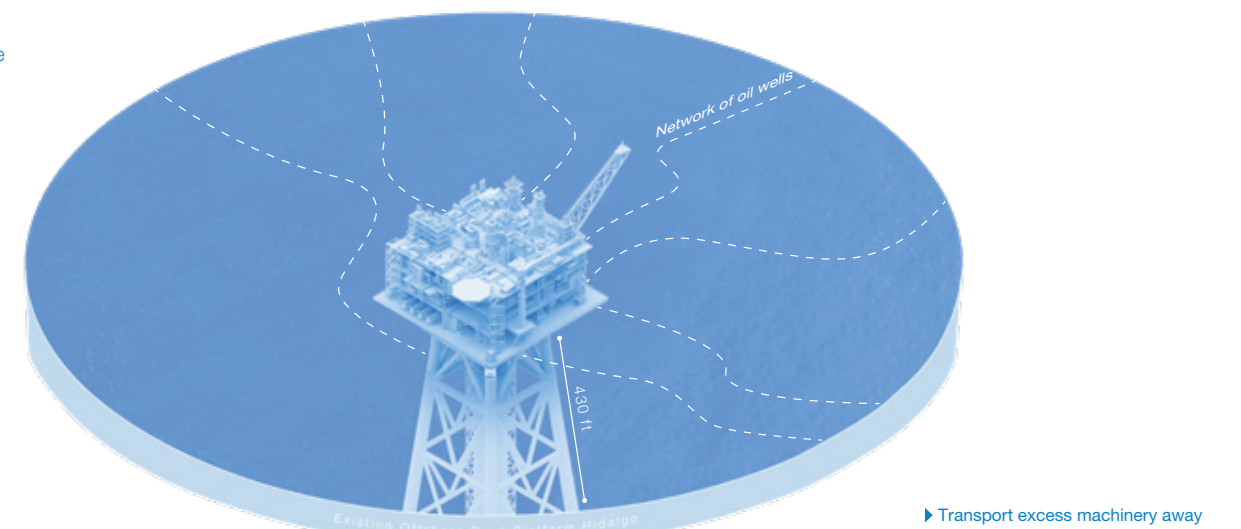


Offshore Oil Rigs, Santa Barbara Map

Offshore Oil Rigs, Worldwide Map

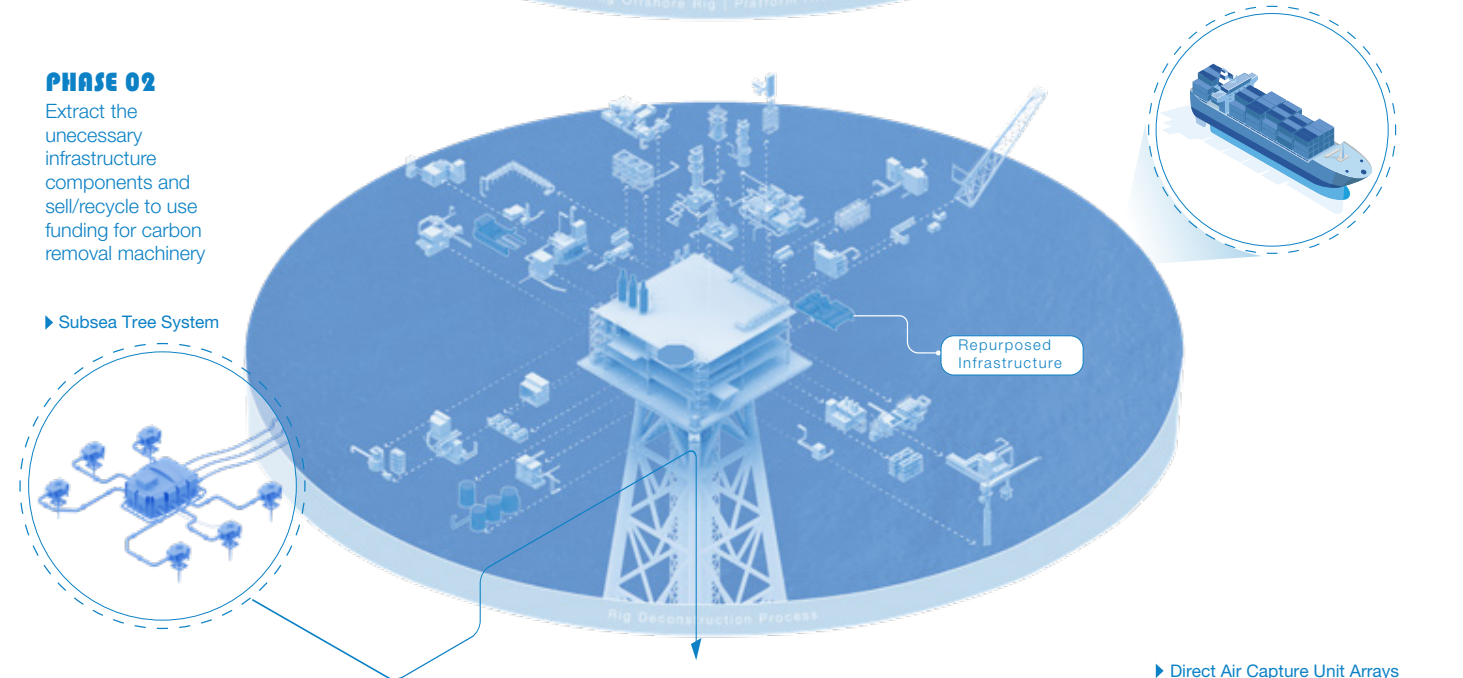
PHASE 0 I

Start with an offshore oil rig in a desired location and type of structure that has reached its end date



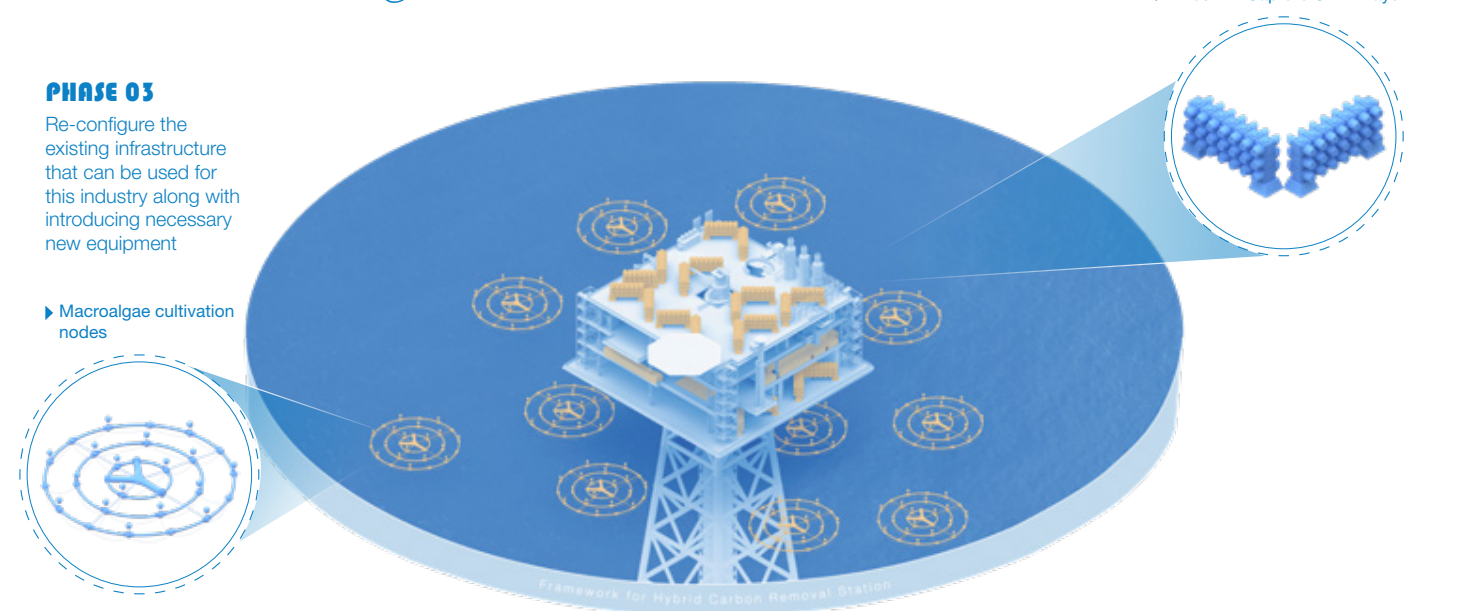
PHASE 02

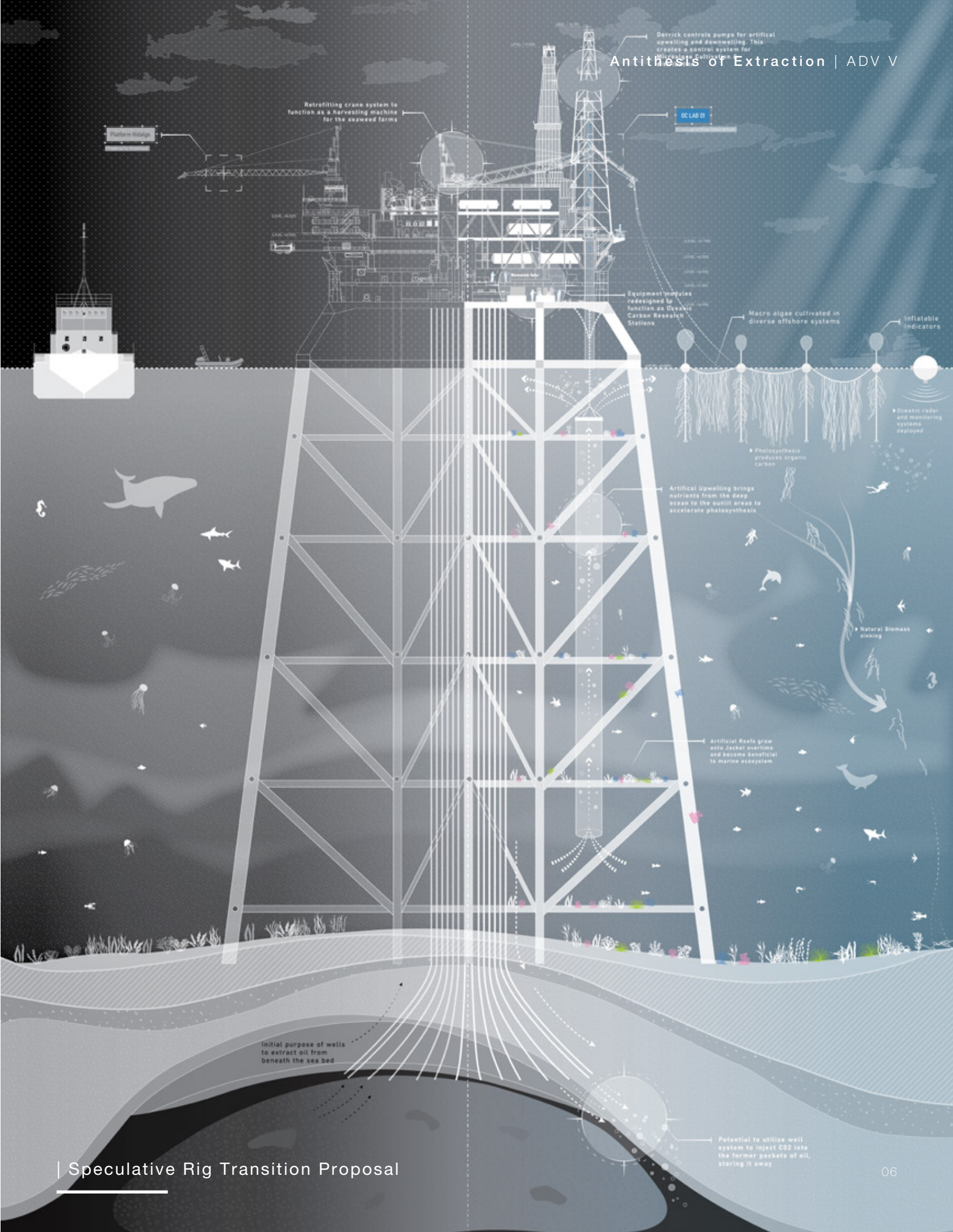
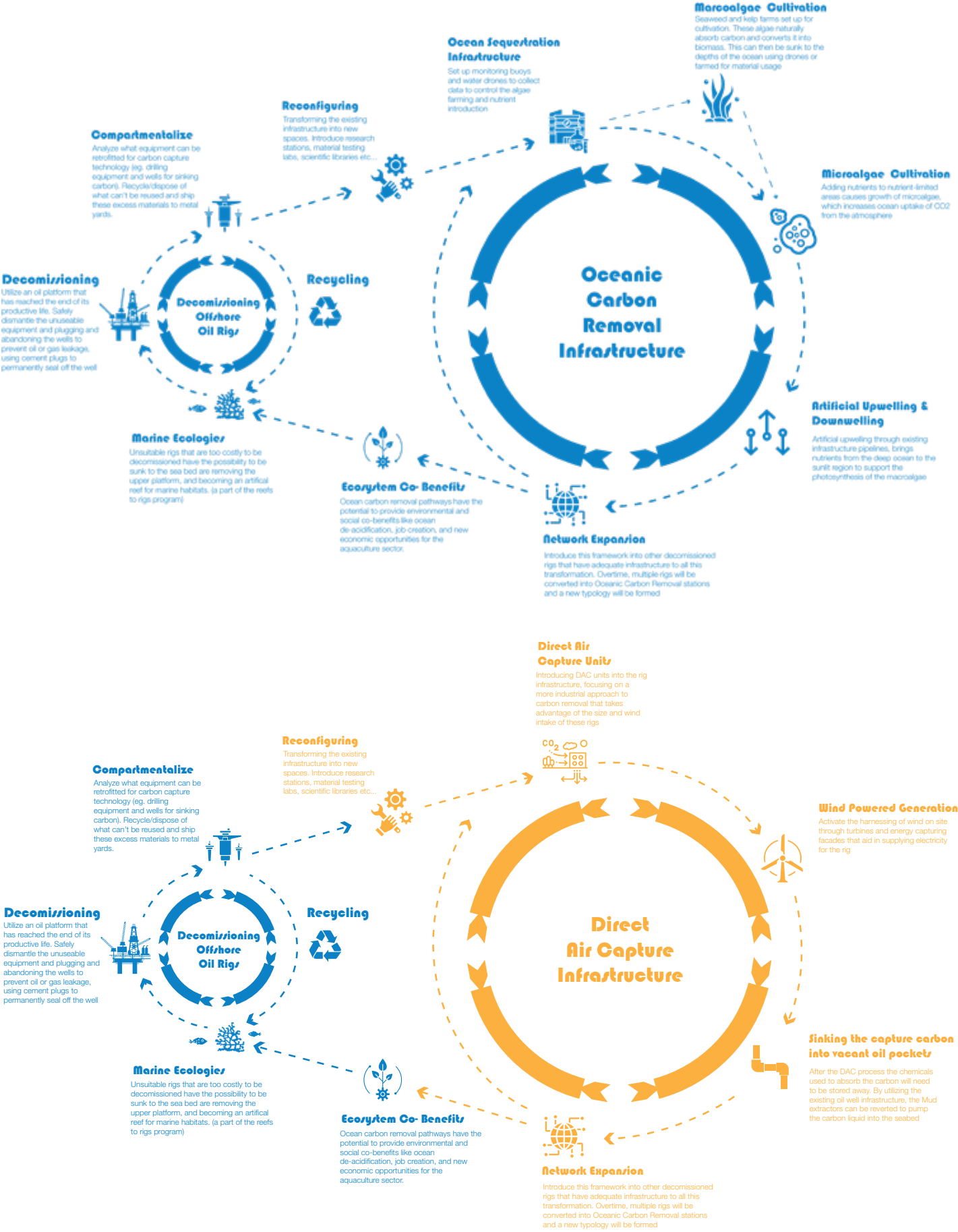
Extract the unnecessary infrastructure components and sell/recycle to use funding for carbon removal machinery

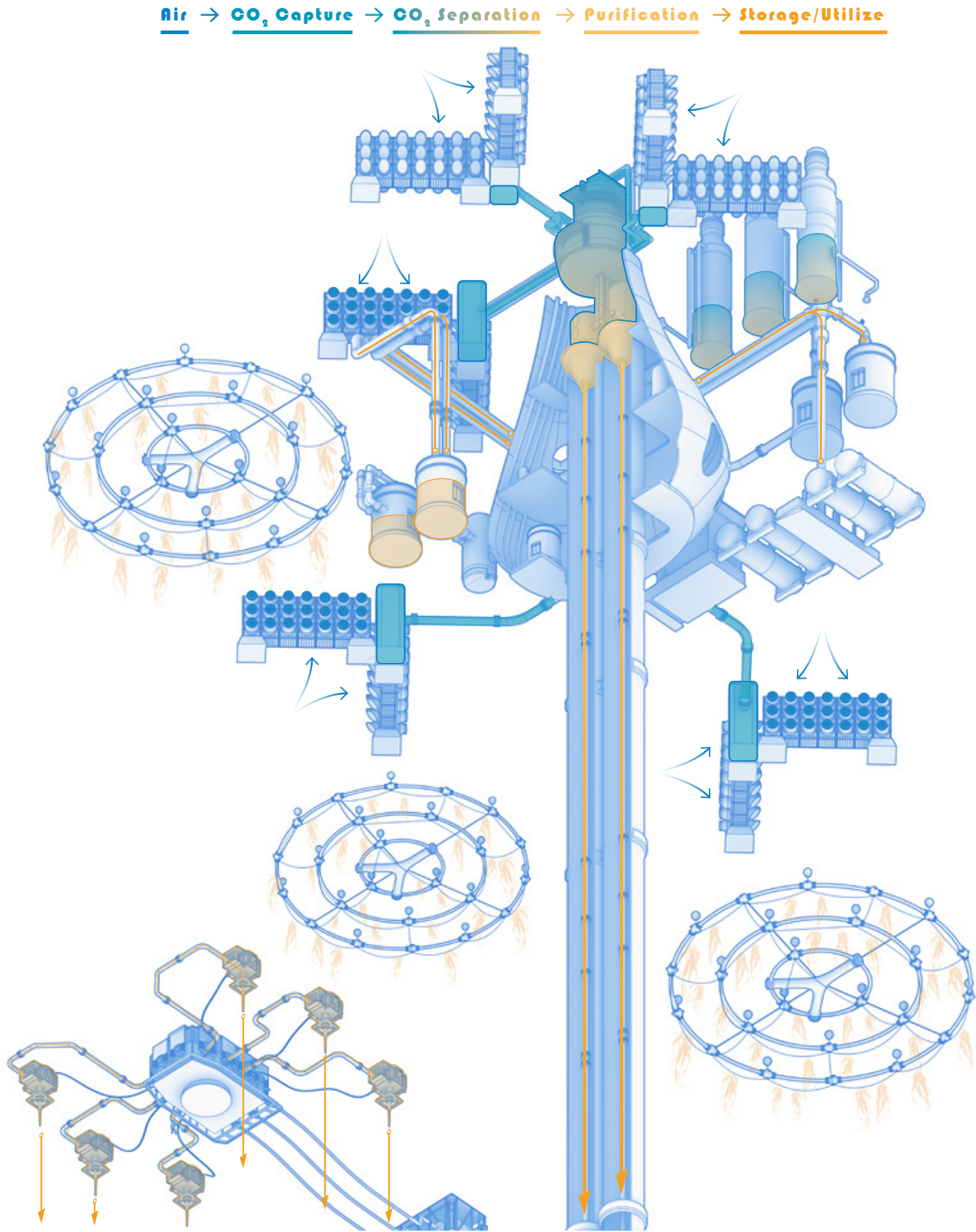


PHASE 03

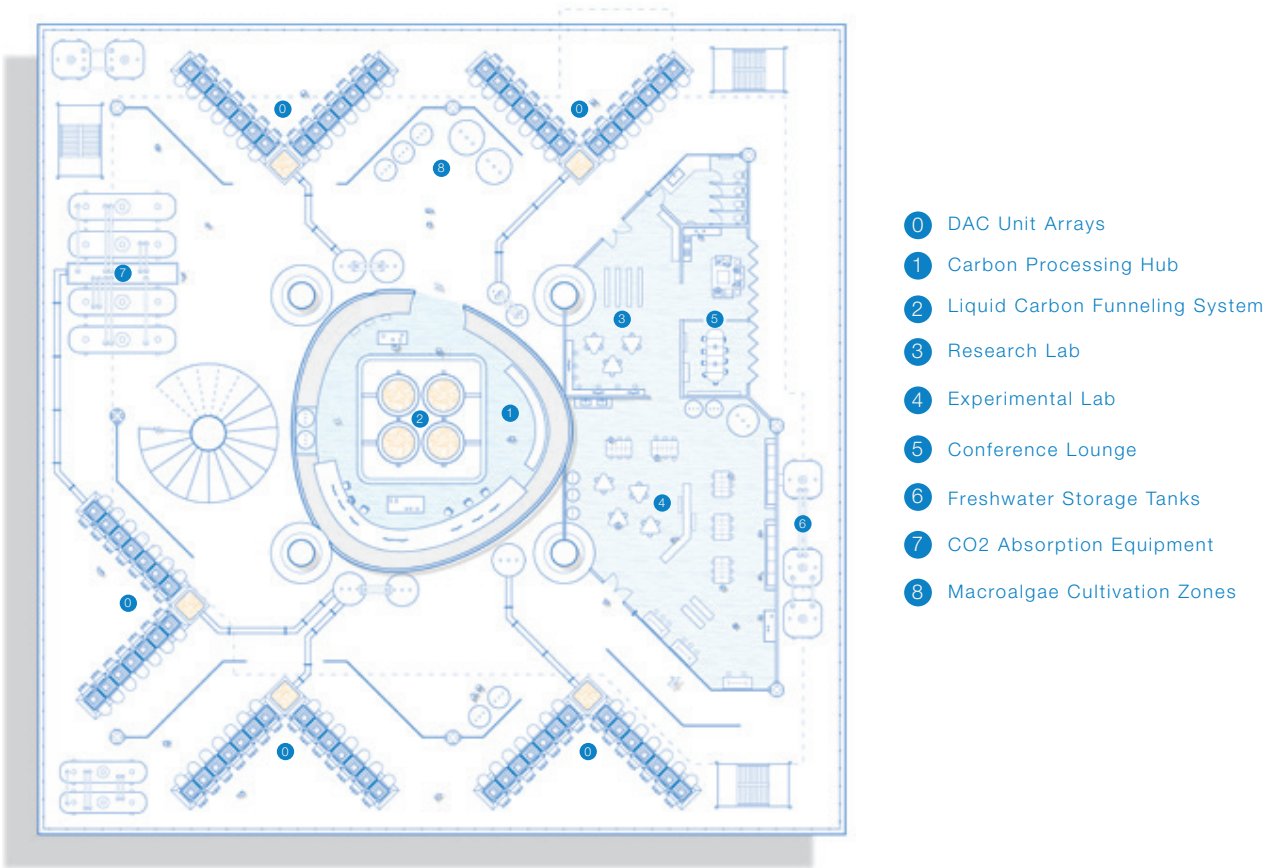
Re-configure the existing infrastructure that can be used for this industry along with introducing necessary new equipment



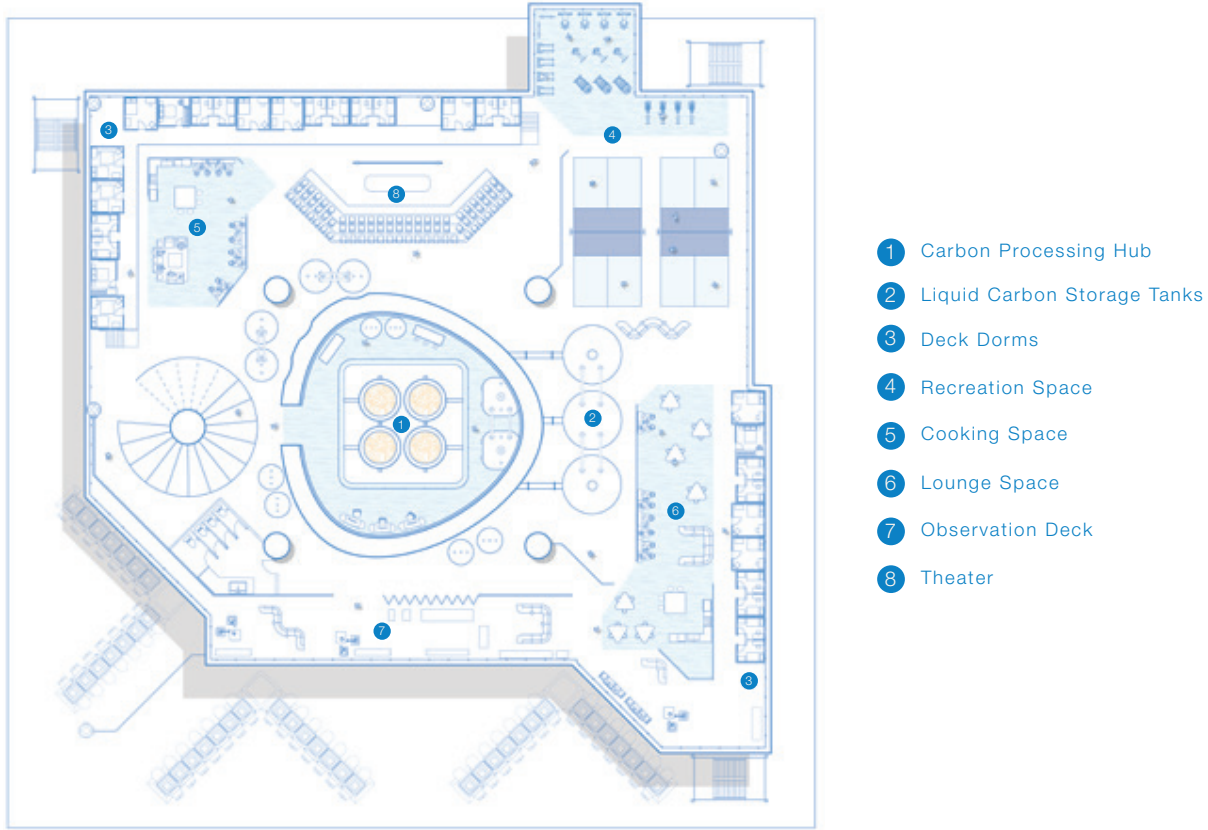




| Wormseye process of carbon removal

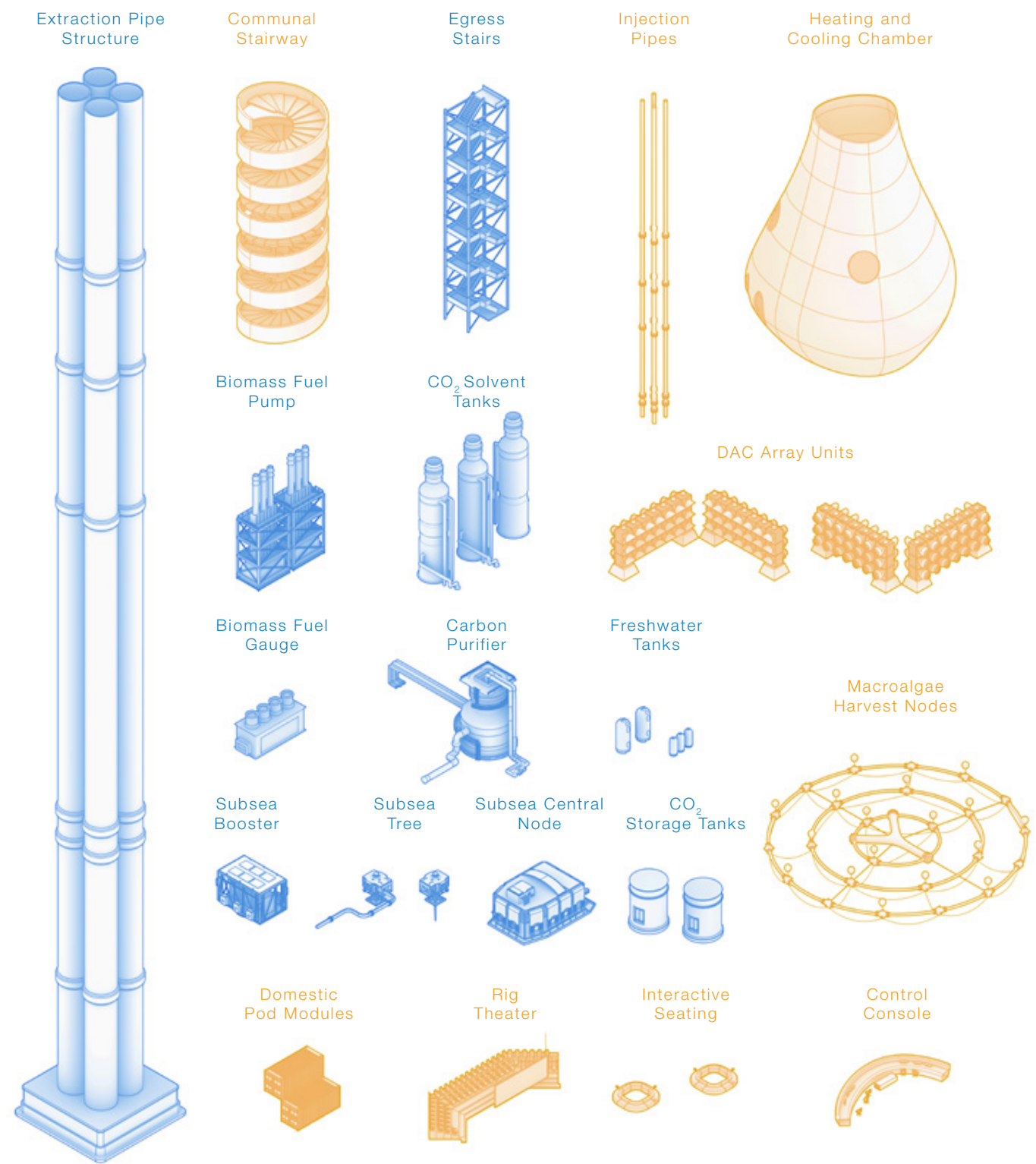


Deck 01 - Carbon Capture Space

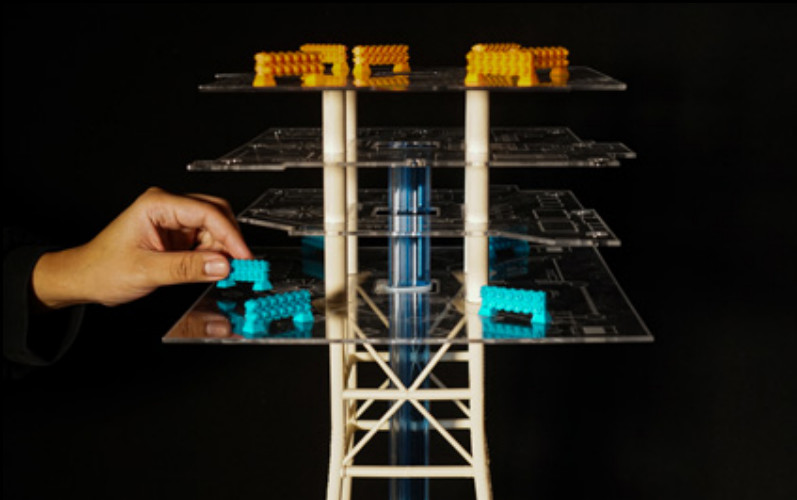


Deck 02 - Domestic Space

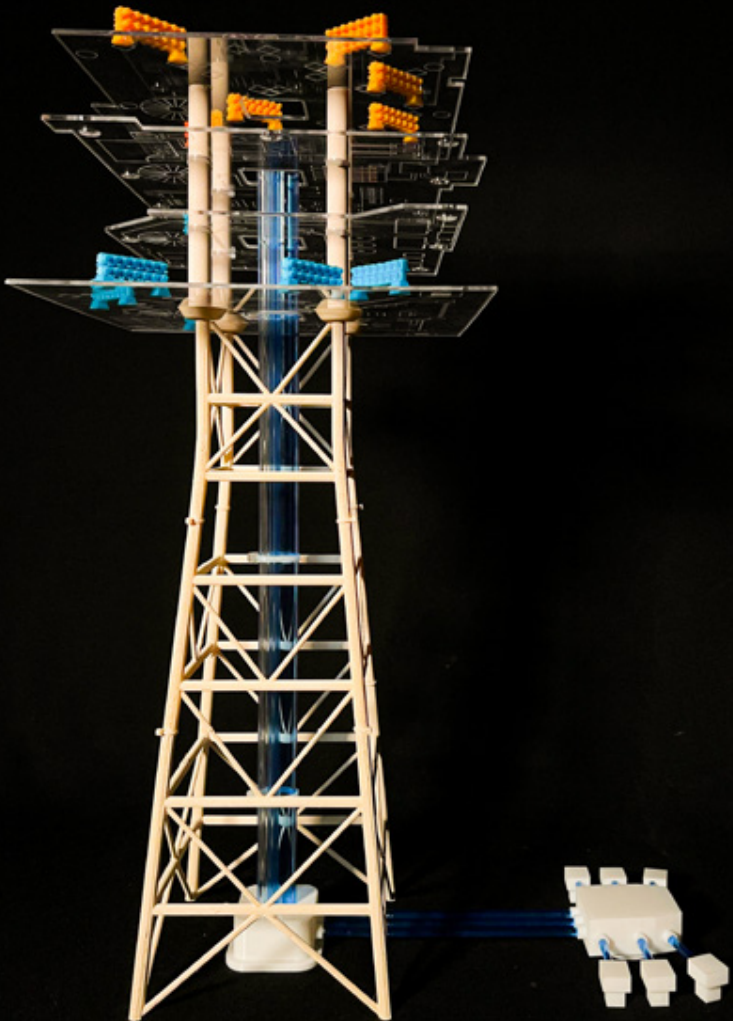
| Reconfigured Floor Plans



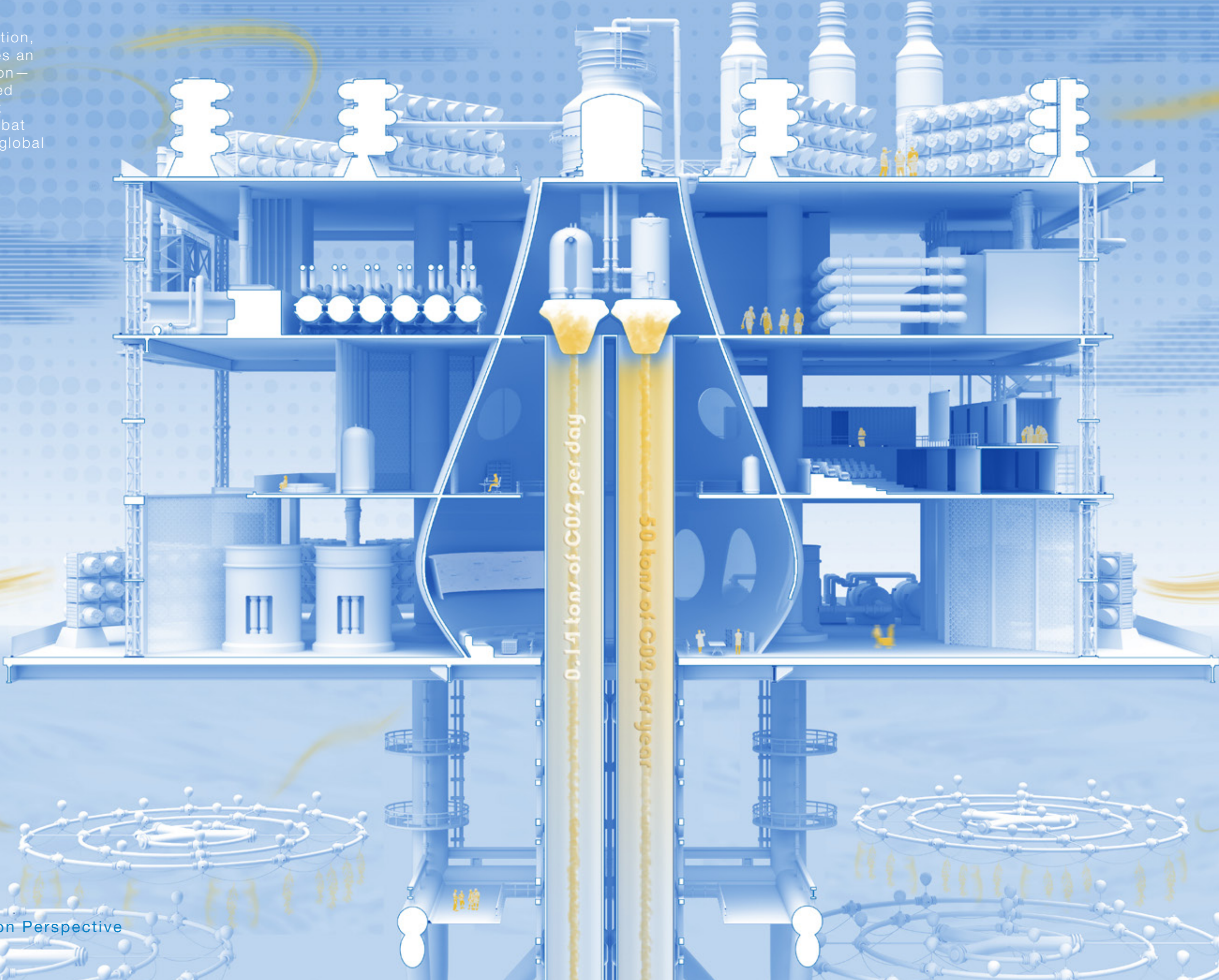
What infrastructure can be **reused** and what needs to be **introduced**



Mechanical and biological-based solutions such as direct air capture and macroalgae cultivation work in parallel to develop a hybrid approach. This framework redefines oil rigs as tools for ecological restoration, converting liabilities into assets for carbon sequestration and marine ecosystem rejuvenation.



Through this intervention, the project symbolizes an antithesis to extraction — sinking carbon created from fossil fuels back into the Earth to combat climate change on a global scale.



| Overall Rig Section Perspective





living³

Reinventing living through
volumetric design

West Harlem, New York

Program: Affordable Housing

Instructor: Gary Bates

Year: Fall 2023

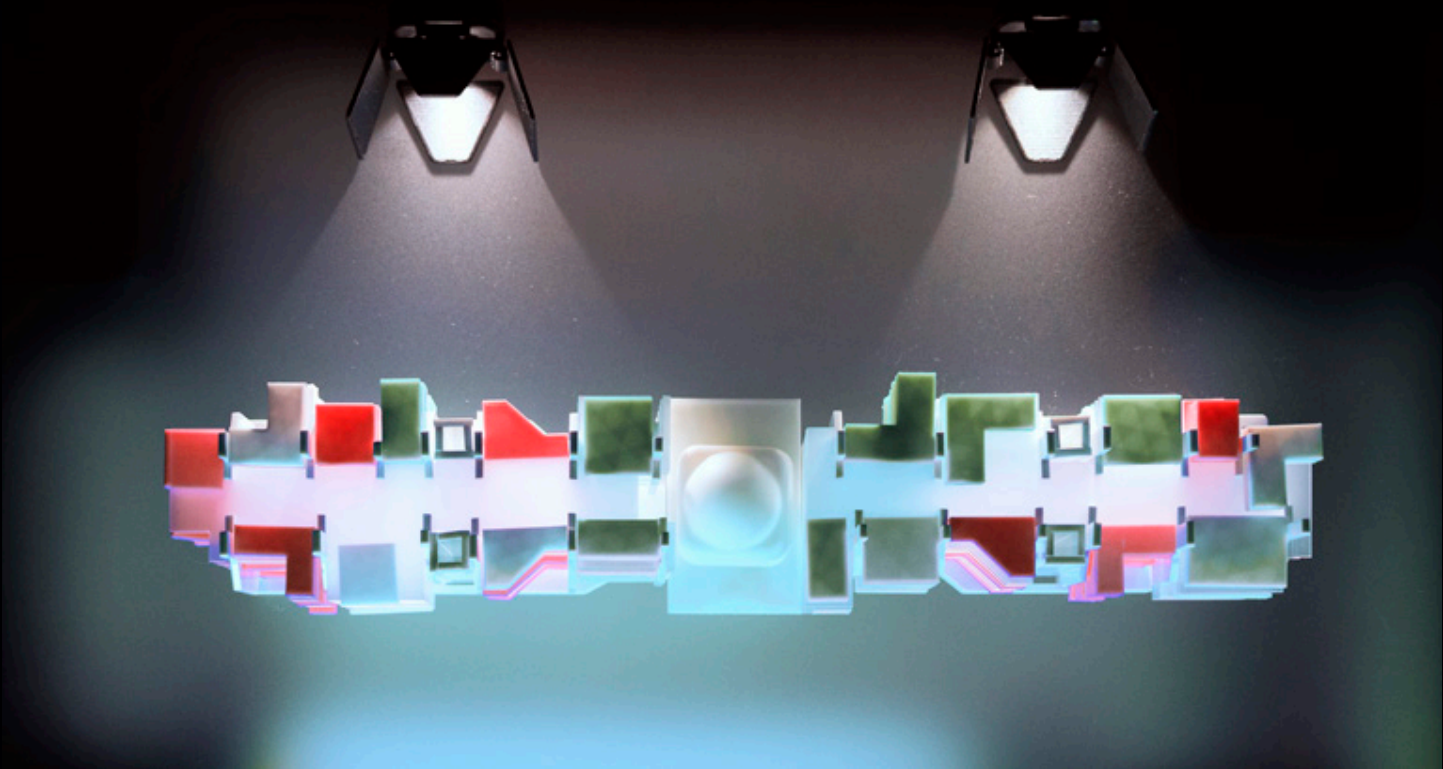
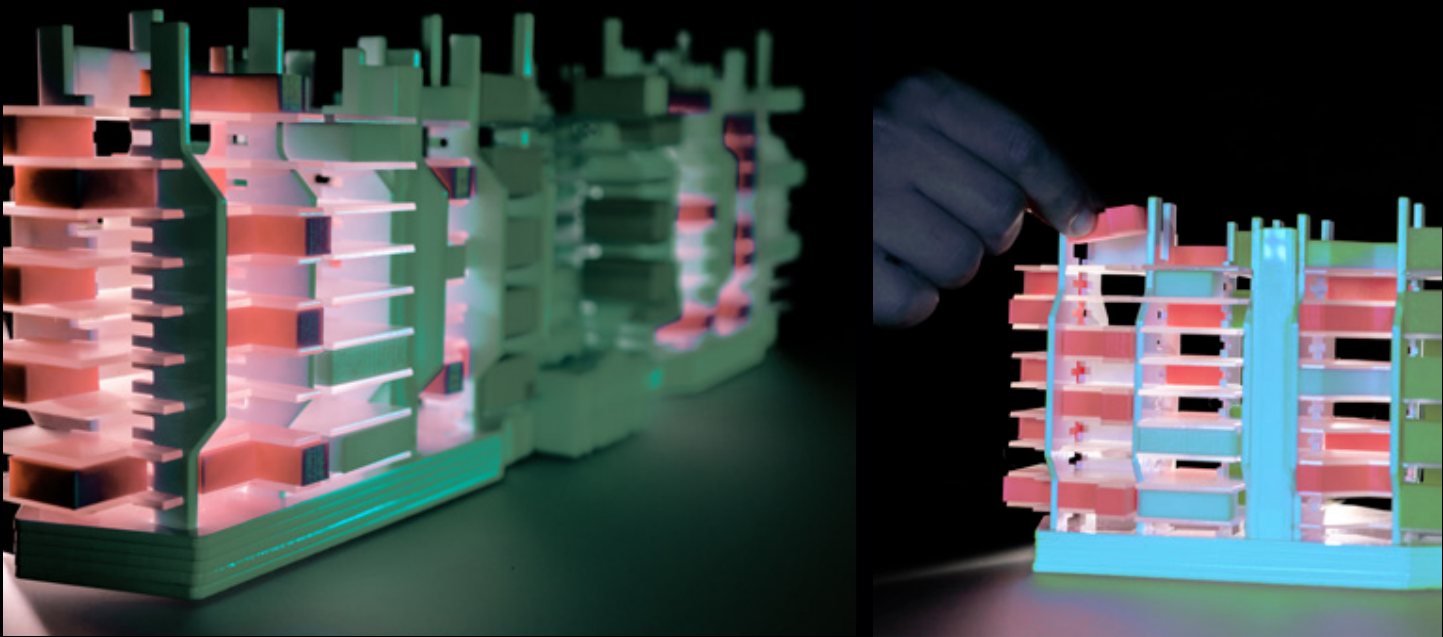
Toolset: Revit, Rhino, V-ray, Keyshot, Photoshop,
Illustrator, Model-making

Collaboration: Mauro Rodriguez

An ongoing challenge living in New York City is accesibility to space. Traditional affordable housing units capitalize on this scarcity and upcharge for units that are less than the bare minimum of humane conditions. This affordable housing project defies conventional norms by prioritizing three-dimensional spatial efficiency over traditional square footage. Located in the vibrant heart of Harlem, this development challenges the status quo of housing design by embracing innovative techniques that optimize volume and height. In an urban context where space is a premium, this project seeks to redefine the possibilities of affordable living, offering residents a unique experience of expansive interiors within compact footprints.



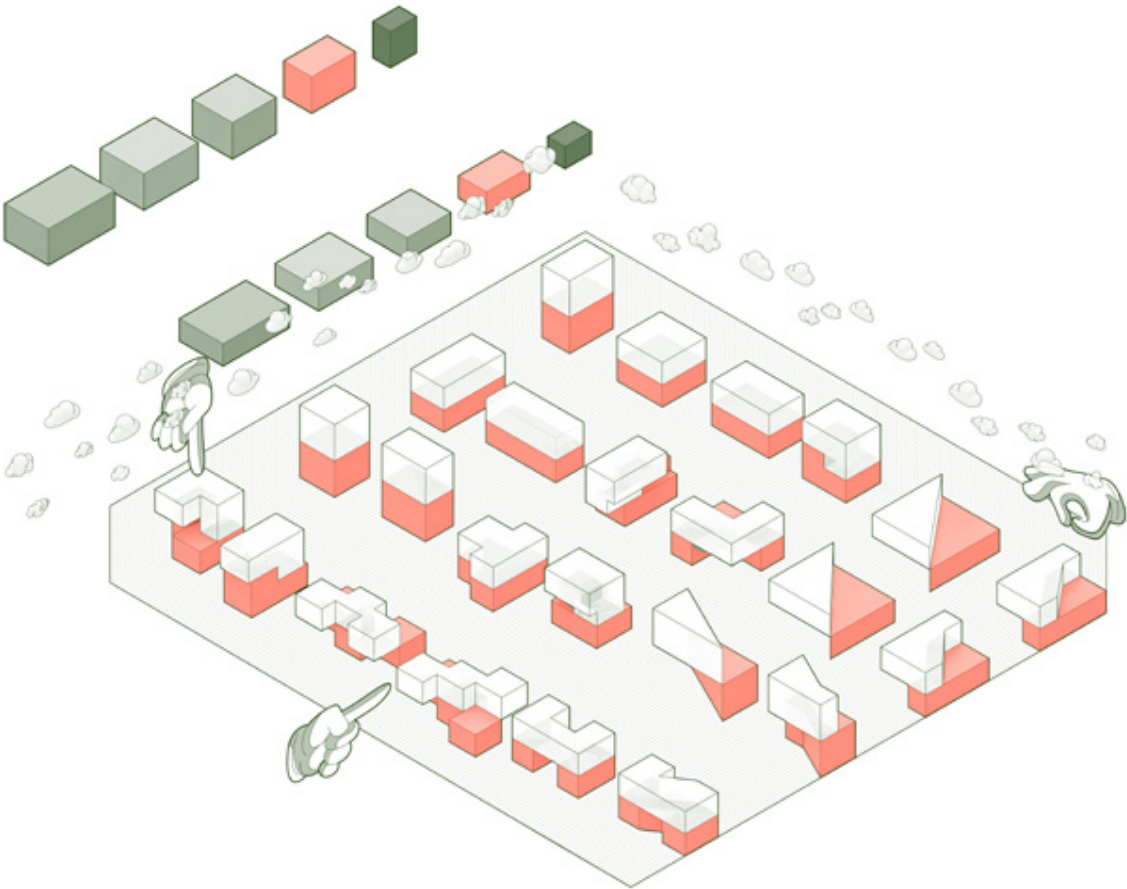
| Exterior view from street park



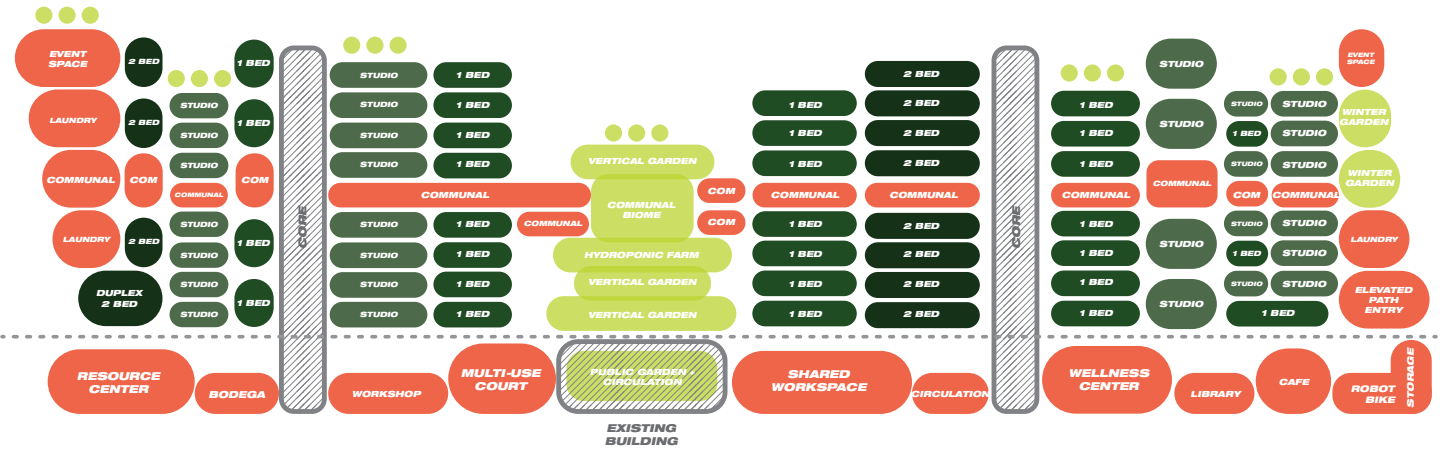
| Preliminary massing models

1':32" Scale

Early model iterations were used as form studies to develop the concept of volume as the main driver

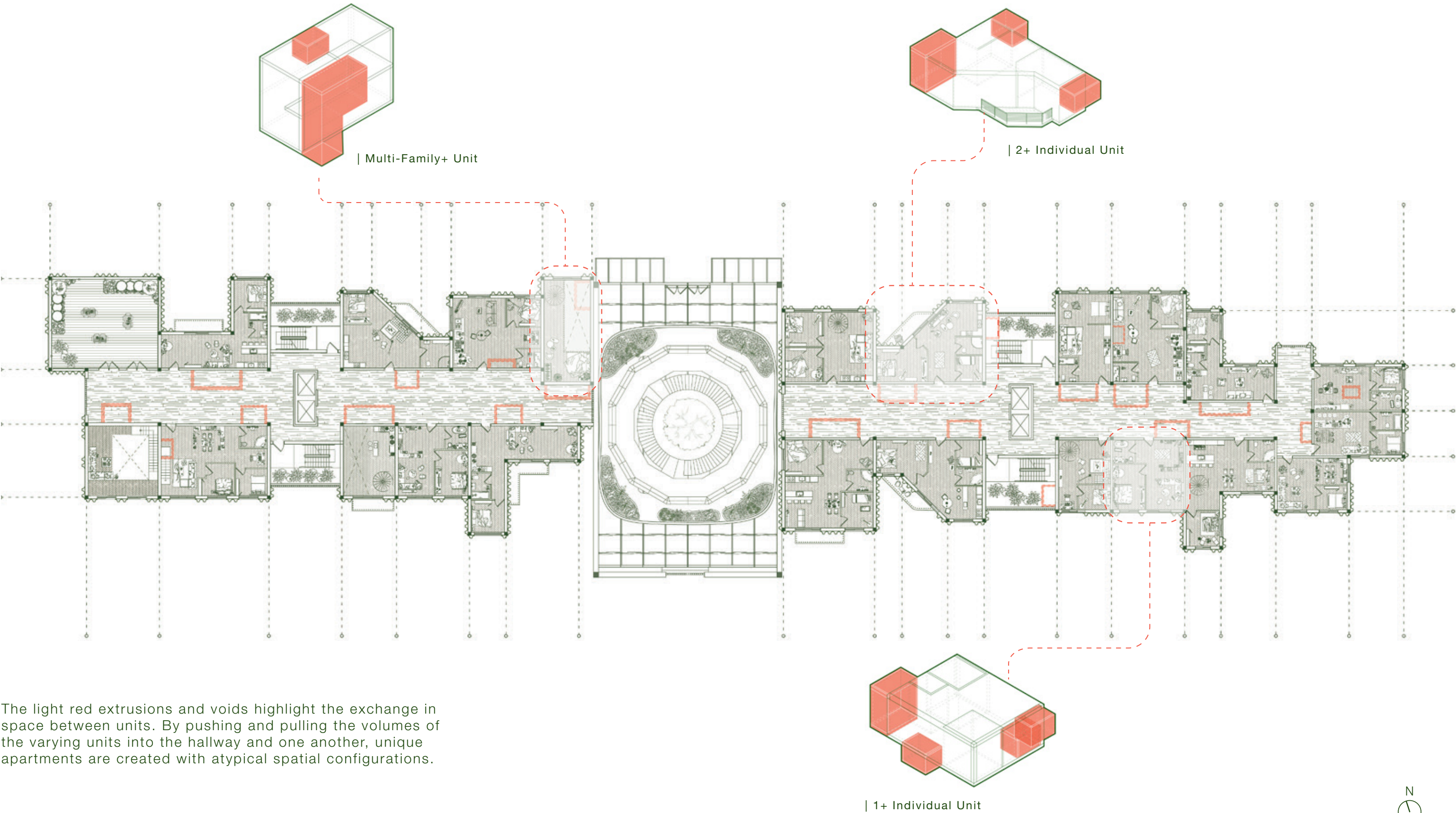


Apartment units host “extrusions & voids” that create additional pockets of space that would typically be unused. These function as both additive and negative space, creating a relationship between adjacent apartments.

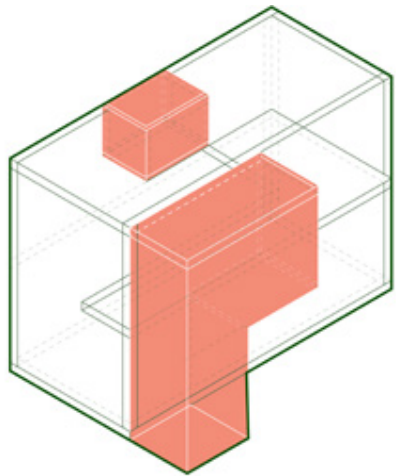


Program Massing Ideation

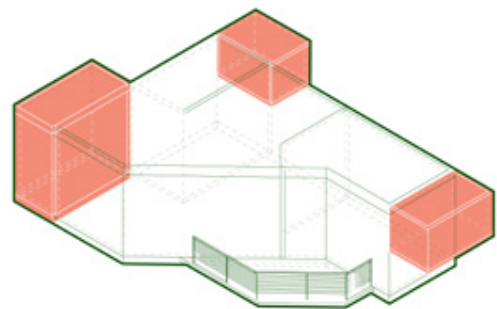
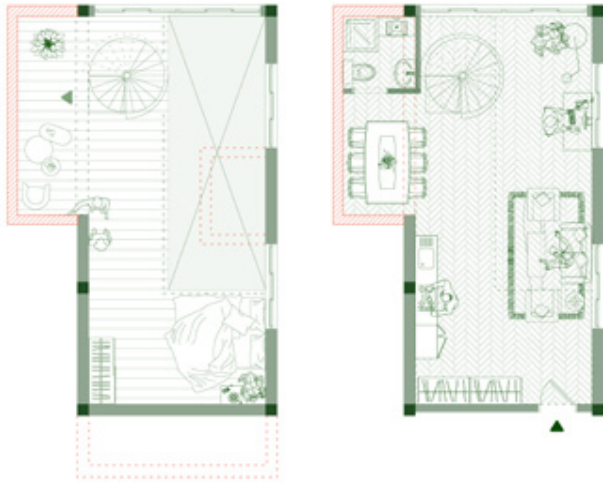
| Volume Studies



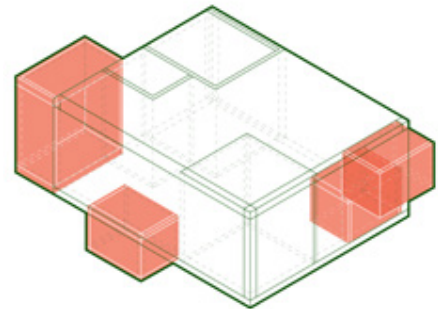
The light red extrusions and voids highlight the exchange in space between units. By pushing and pulling the volumes of the varying units into the hallway and one another, unique apartments are created with atypical spatial configurations.



| 9000 CUBIC FT UNIT
+ 800 CUBIC FT



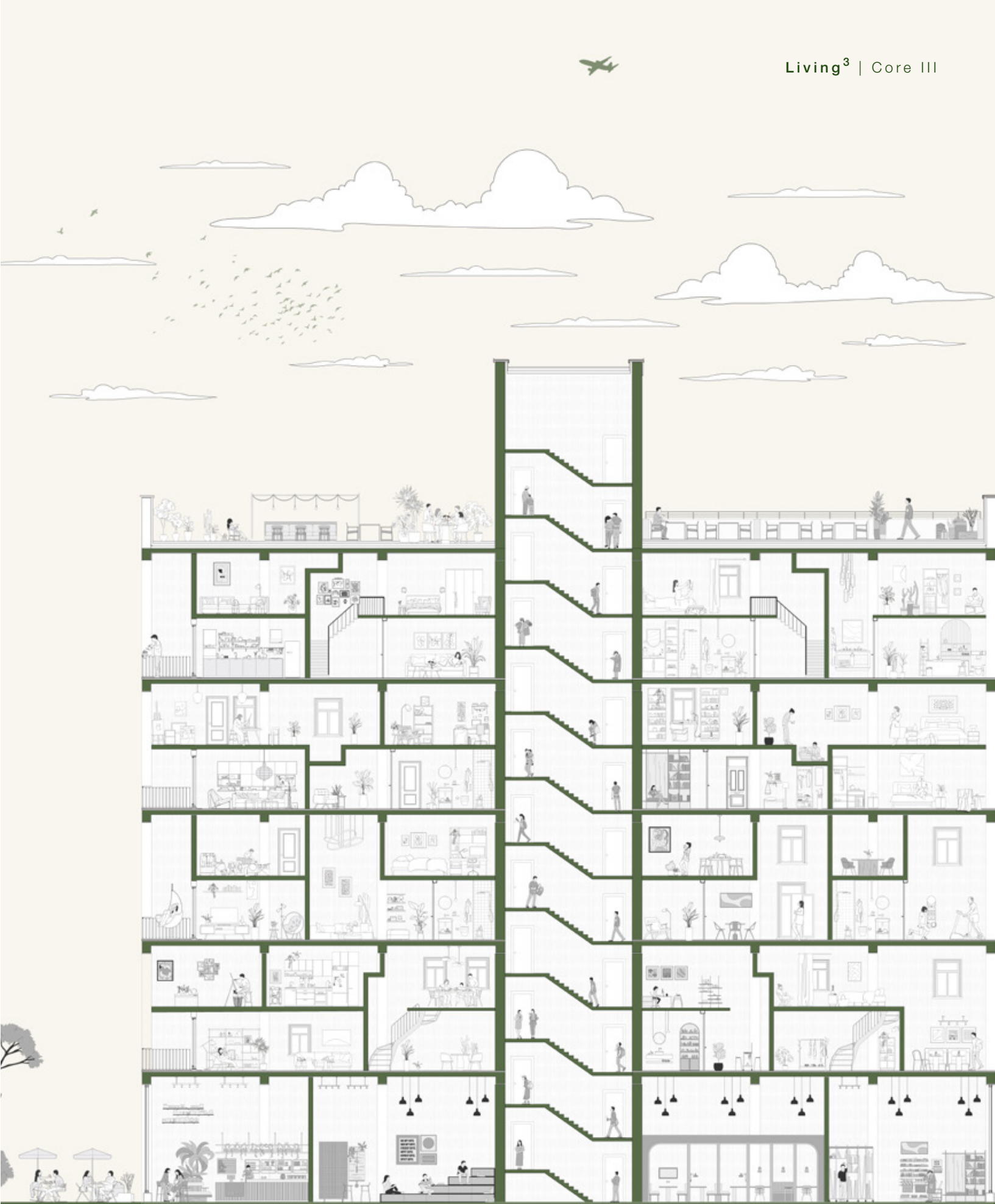
| 2500 CUBIC FT UNIT
+ 500 CUBIC FT

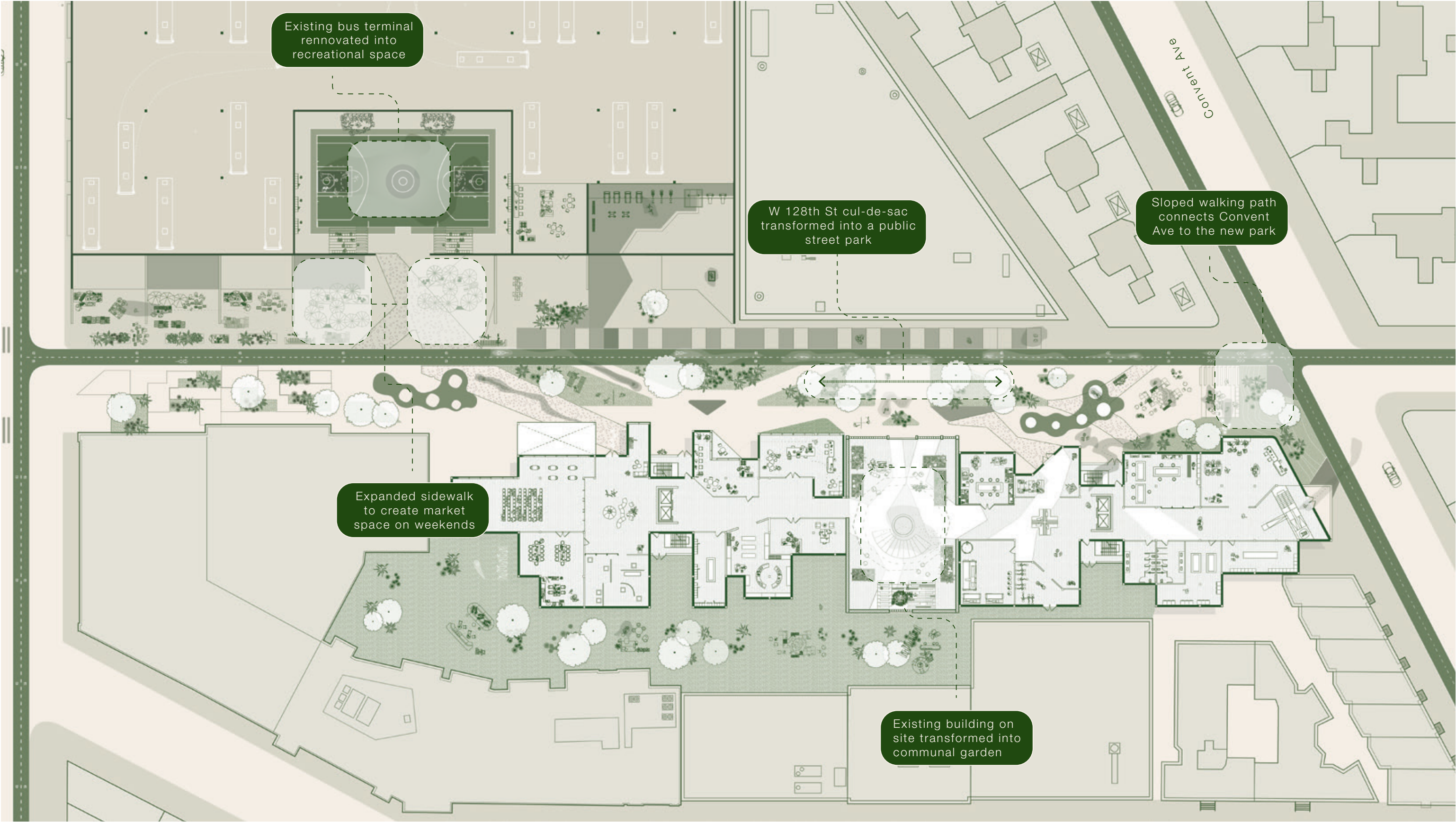


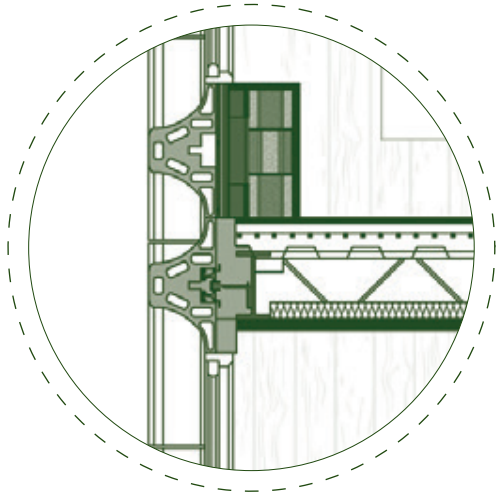
| 3000 CUBIC FT UNIT
+ 600 CUBIC FT



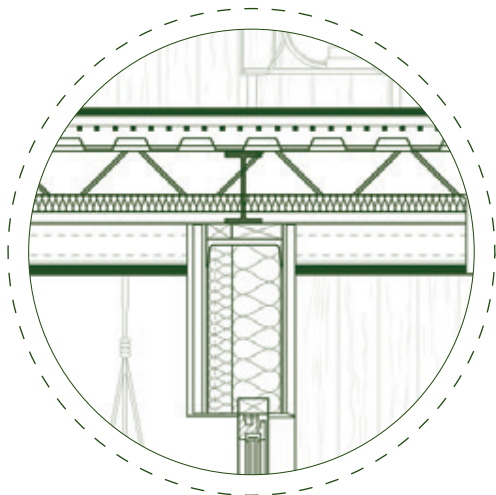
Apartment units host “extrusions & voids” that create additional pockets of space that would typically be unused. These function as both additive and negative space, creating a relationship between adjacent apartments.



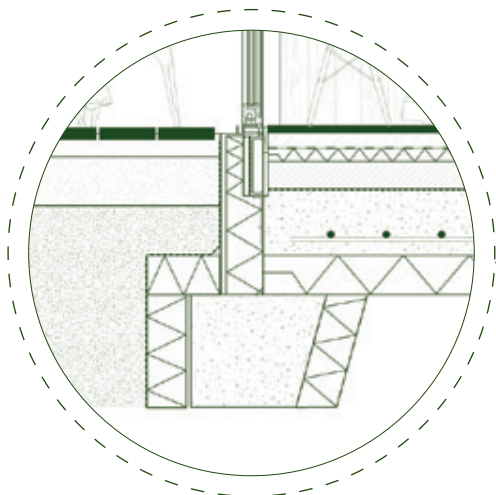




► Terracotta - CMU Backwall Detail



► Wall to Floor Detail



► Foundation Detail

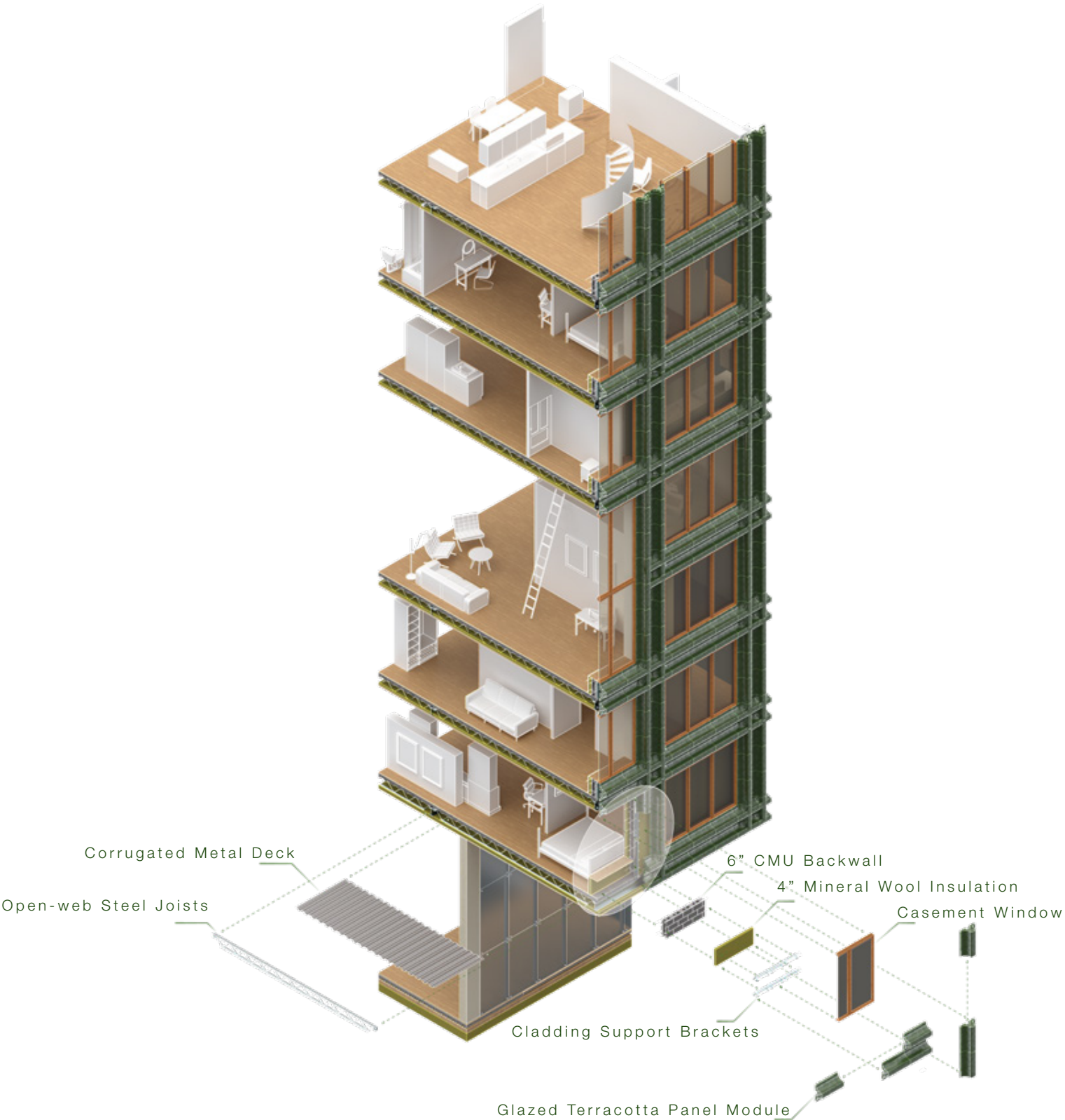
| Wall Section Detail



| Terracotta Facade

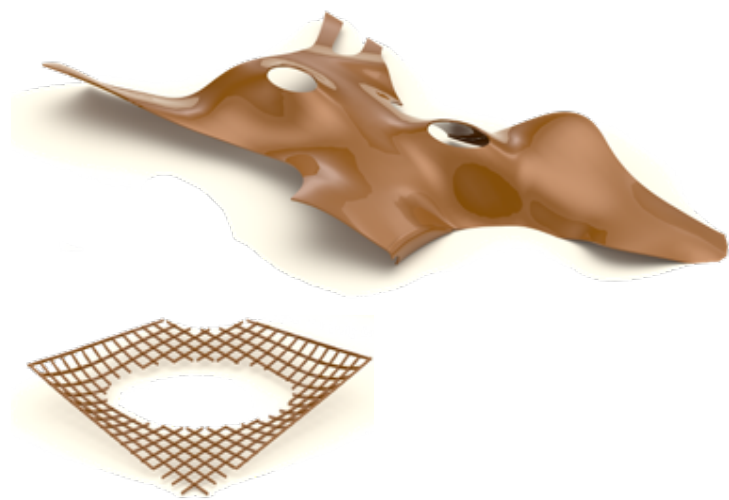


| Double-height Unit Interior



| Facade Detail Axon

The facade system consists of glazed terracotta rainscreen panels with a CMU backwall supported by the overall steel structural system.



Cultural Mosaics

Rethinking thresholds

Osaka Japan + Kingston, Jamaica

Program: Sonic Experience + Urban Threshold

Instructors: Eleni Petaloti and Leonidas Trampoukis

Year: Spring 2025

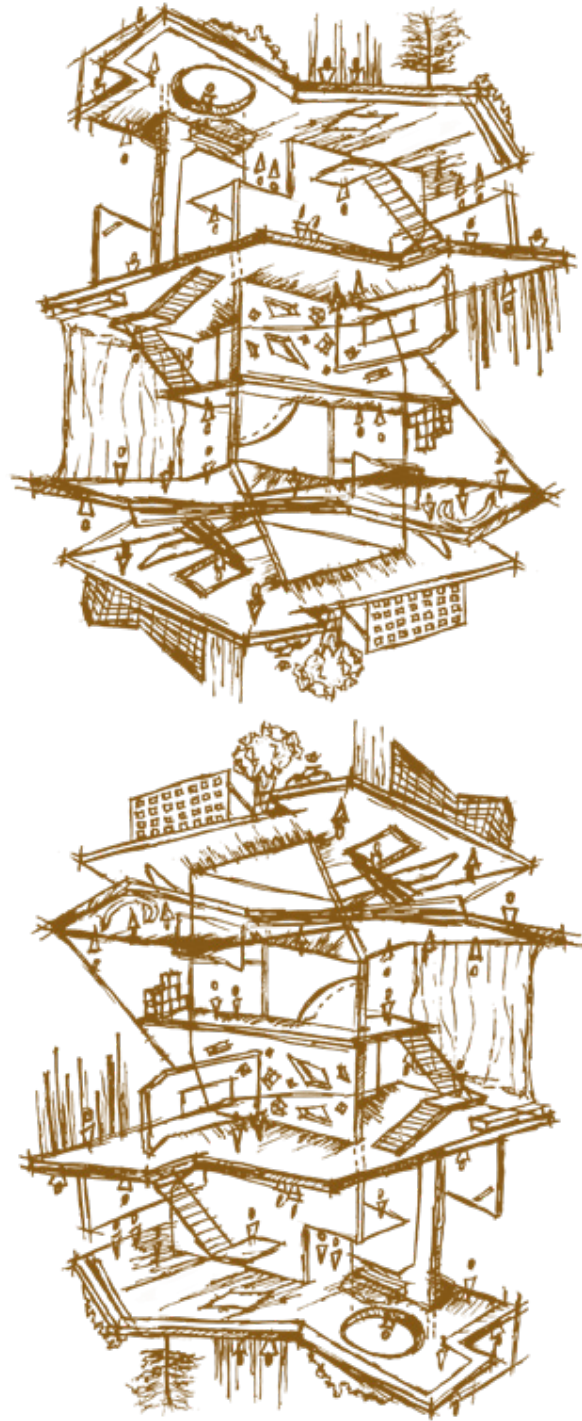
Duration: 5 Weeks (Semi Public)+ 5 Weeks (Public)

Toolset: Rhino, V-ray, Photoshop, Illustrator, Sketching

Cultural Mosaics is an exploration of challenging thresholds as traditional demarcations of space. These proposals each develop on ideas of thresholds and these in-between spaces curate human interaction and atmospheric experiences at different scales.

This manifesto explores the function of thresholds as a vital boundary and transitional space between the external environment and internal architecture.





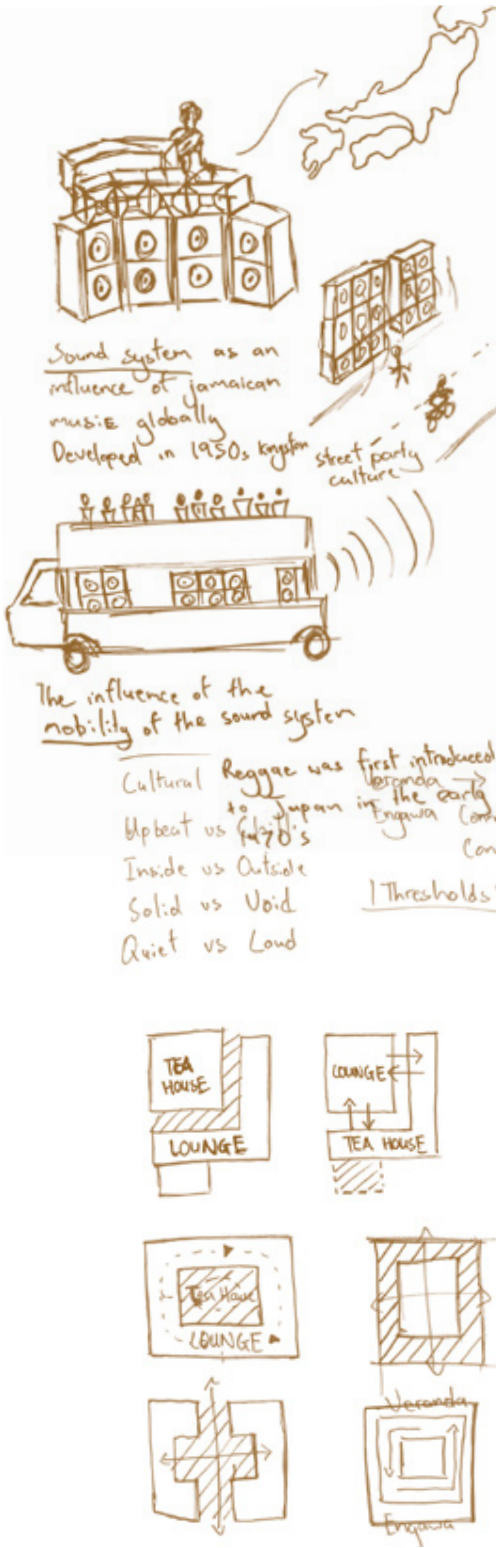
The “home” introduces the narrative of **thresholds** through representing how domestic spaces can function based on transitional moments. Overlapping and blending create an illusory experience, thus dissolving the norms of typical space and dimensionality.



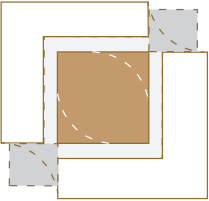
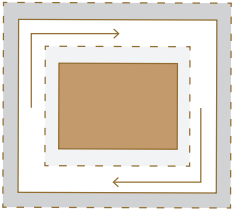
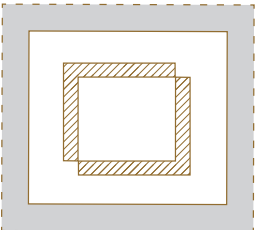
| Cultural Mosaic Collage

Expressed as an abstraction of the experience within one's "home", this proposal helped develop the influence of blended spaces and the exaggeration of thresholds.

Semi-Public Mosaic



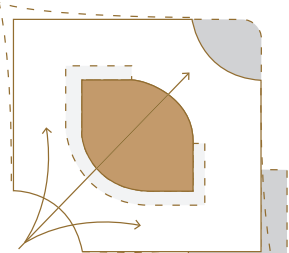
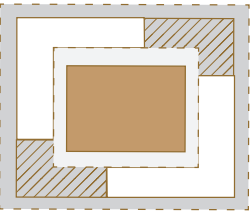
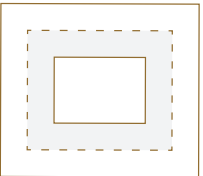
The primary design language of the semi public space is based around these elements of thresholds.



Veranda

Create a central courtyard

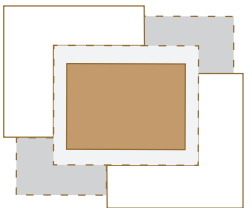
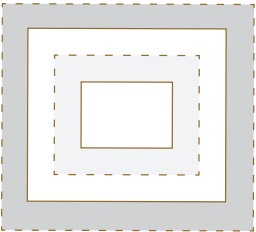
Blend outside with inside



Engawa

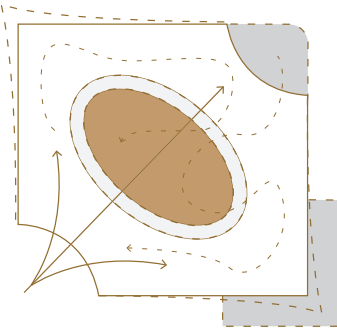
Cut building voids

wabi-sabi



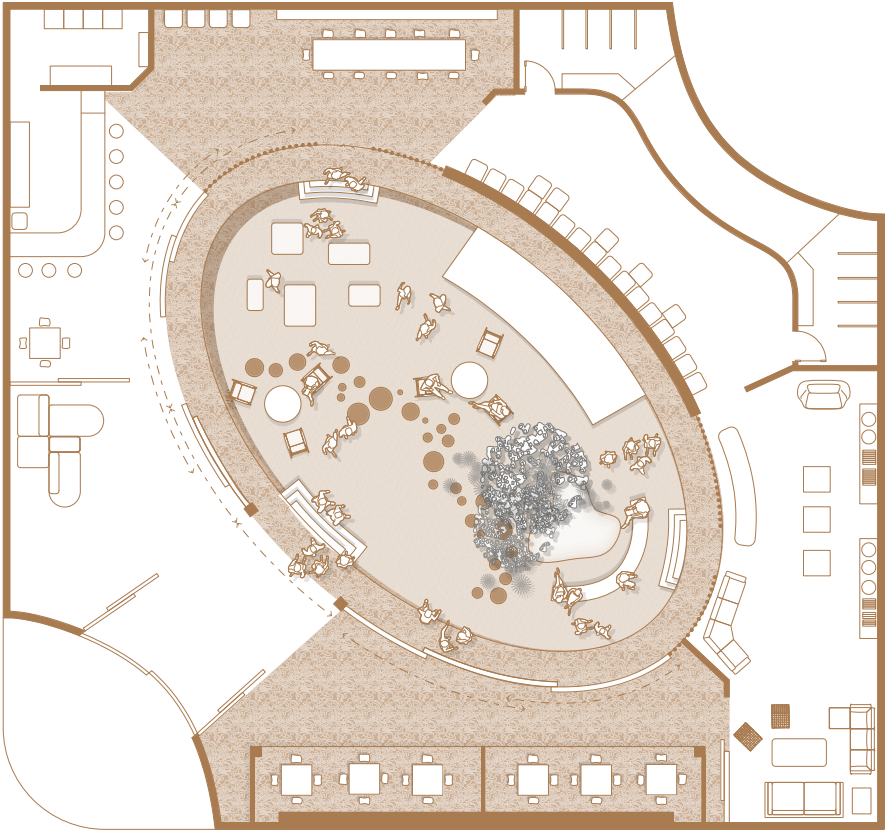
A space within a space within a space within a space

Blend veranda with engawa



| Spatial Explorations

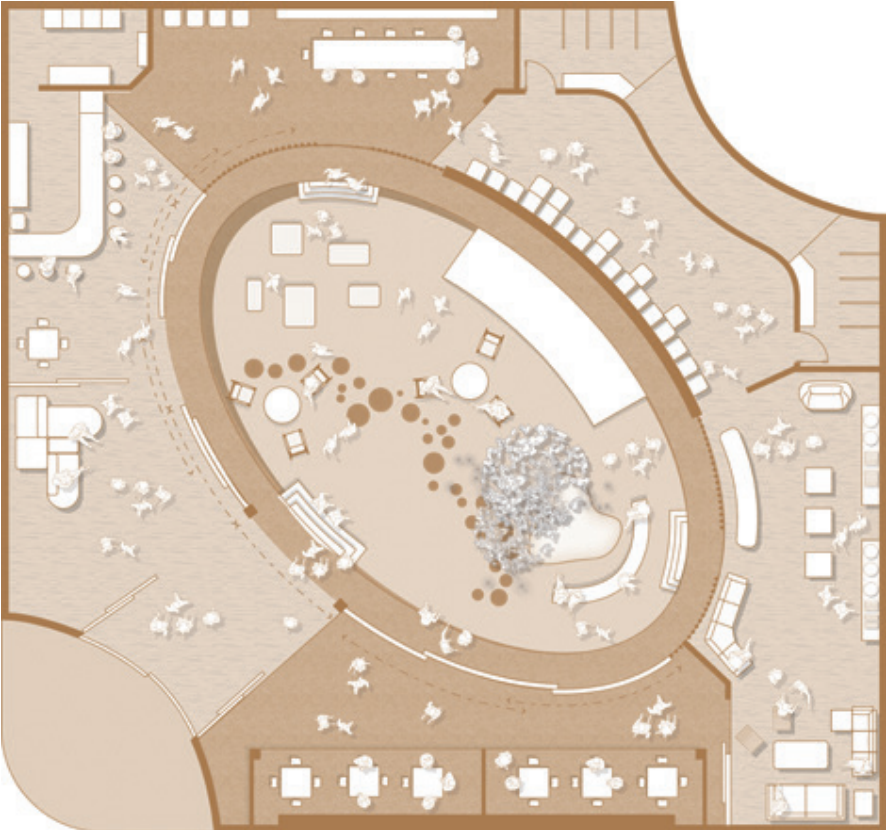
This project investigates how architecture can embody cultural fusion through spatial adaptability, using the contrast between Japanese tea culture and Jamaican sound system culture as a lens to design a hybrid space. By integrating fluid spatial transitions, handcrafted materiality, and interactive design elements, the project challenges conventional distinctions between stillness and movement.



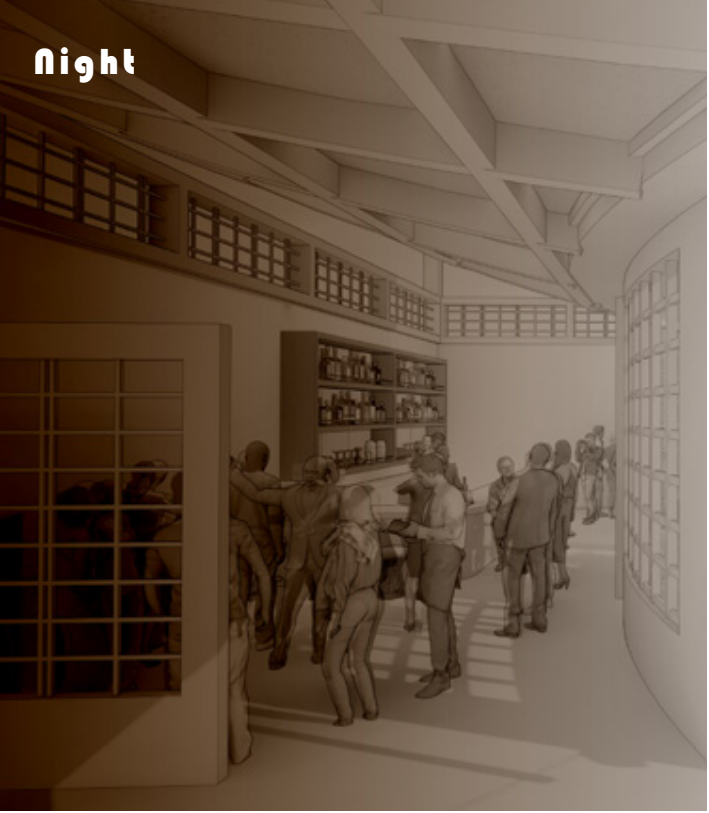
| Daytime Tea House

Ital Tea House
(Jamaican Ital Cafe x Japanese Contemporary Tea House)
Functions from 8:00am - 3:00pm
Combines the roots

The program functions based on the time of day, sharing ideas from both cultures but having drastically different daytime and nighttime functions.

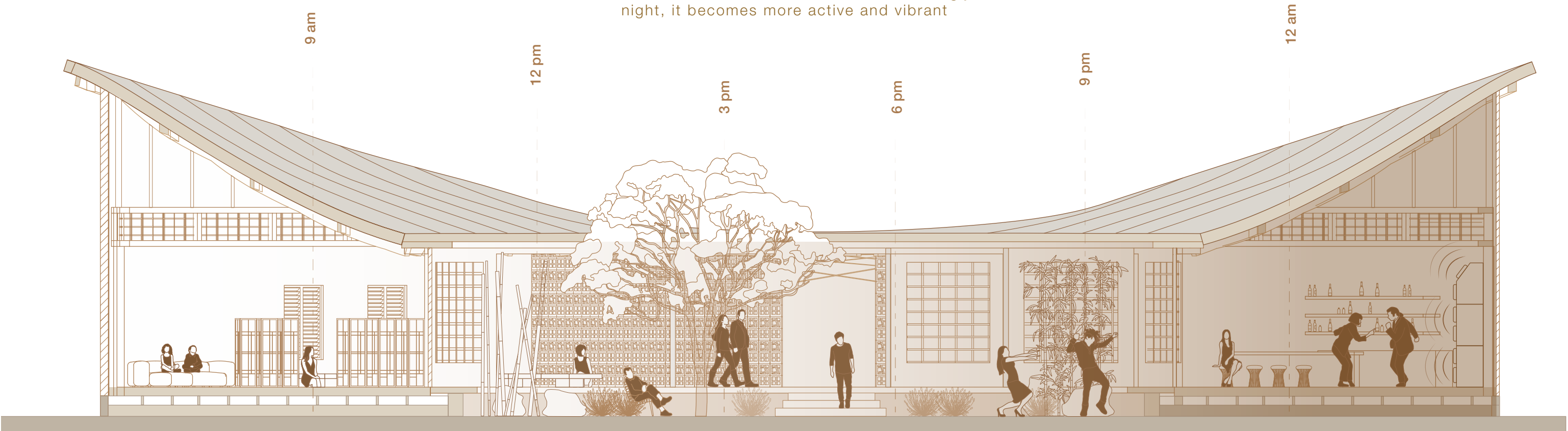


| Nighttime Reggae Lounge



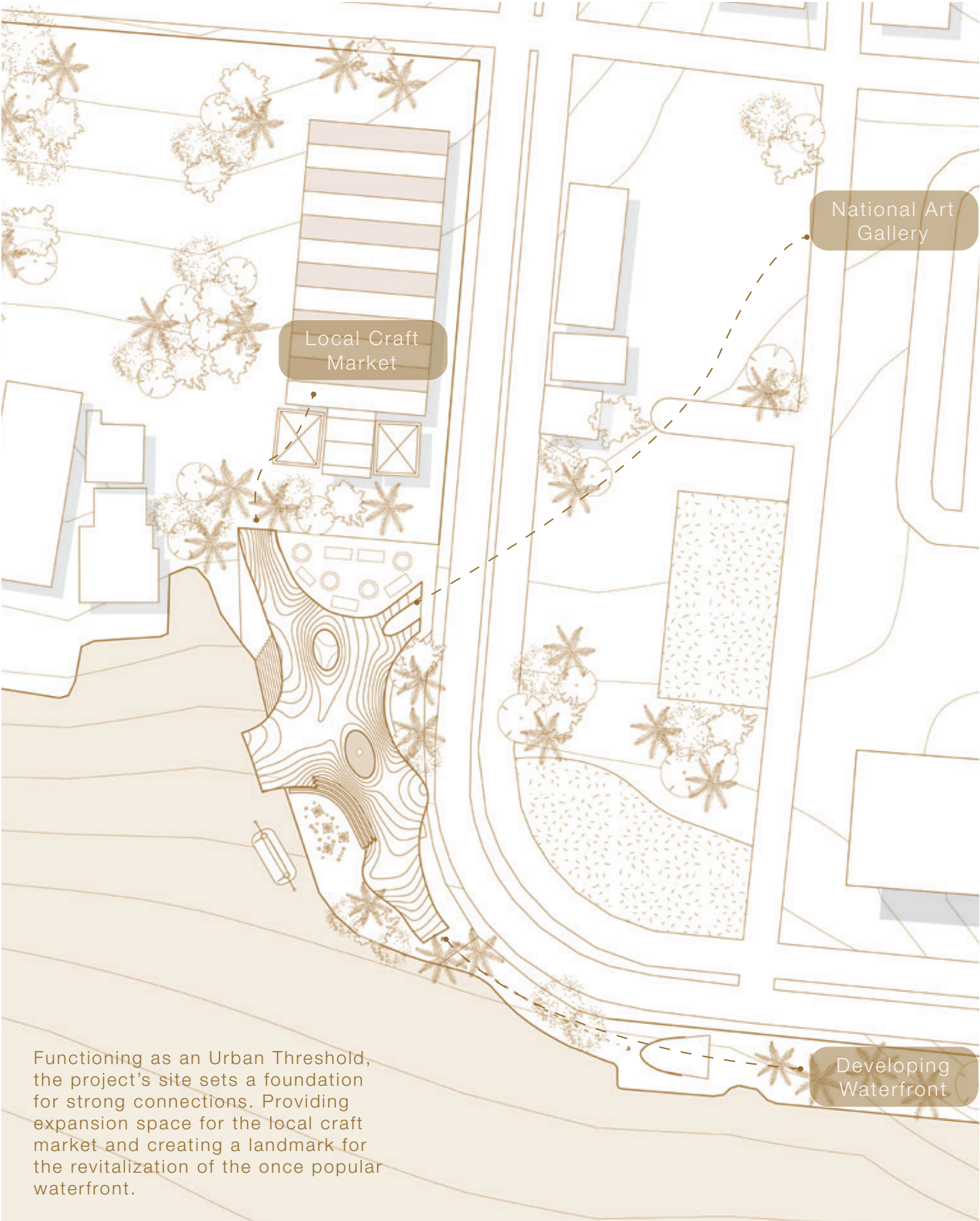
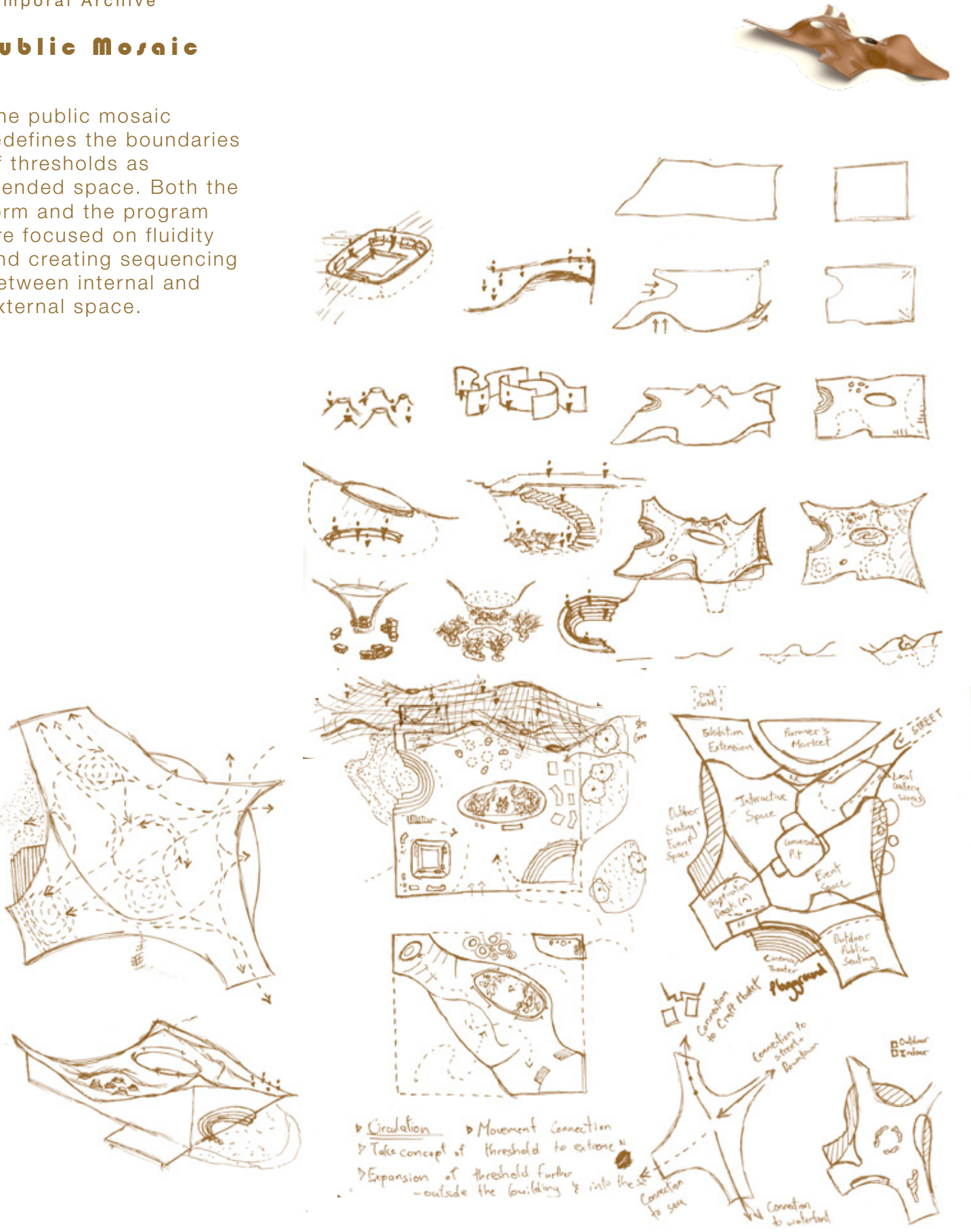


The floor experience during the day expresses itself as calmer and creates moments of rest. Contrastingly, in night, it becomes more active and vibrant

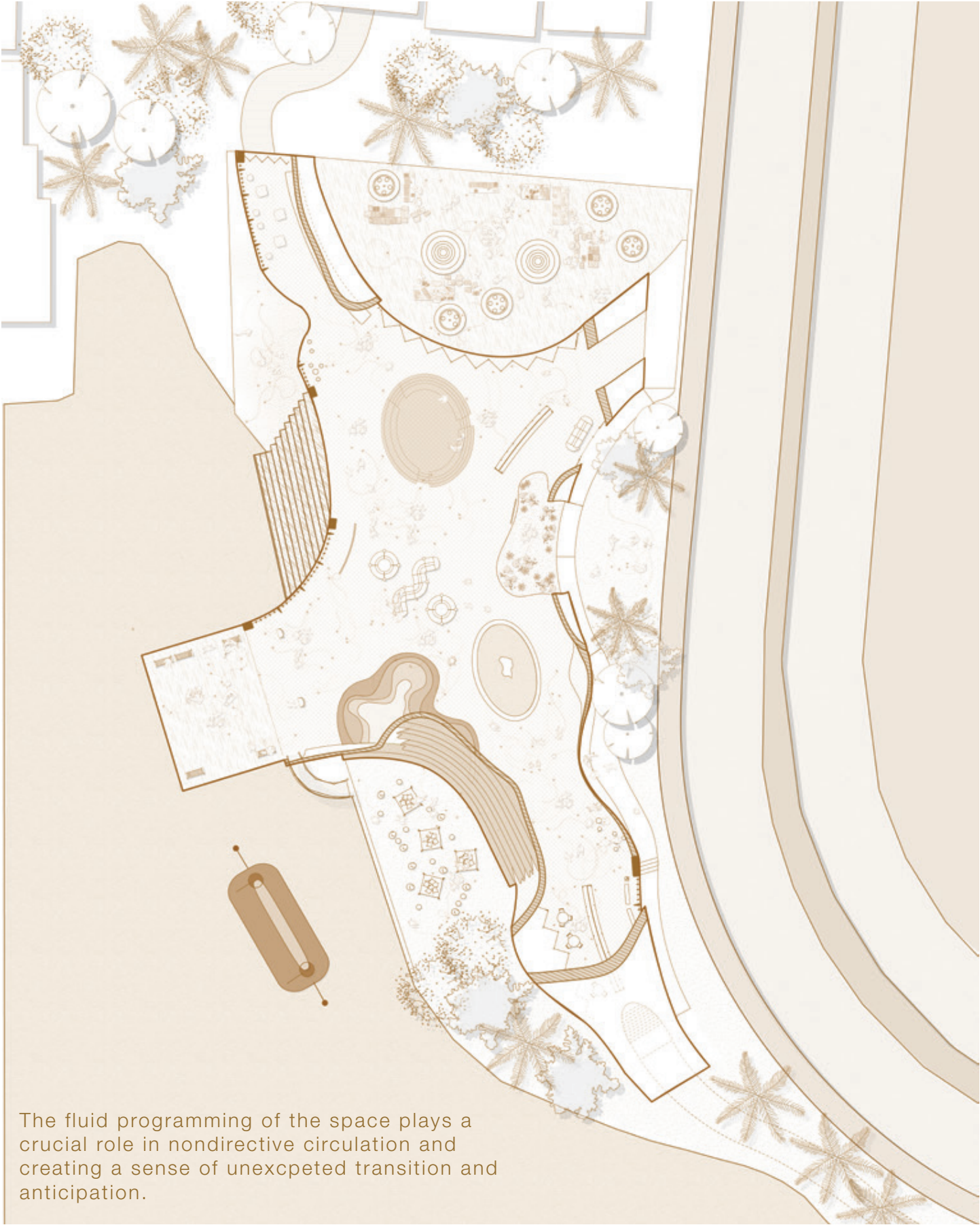


Public Mosaic

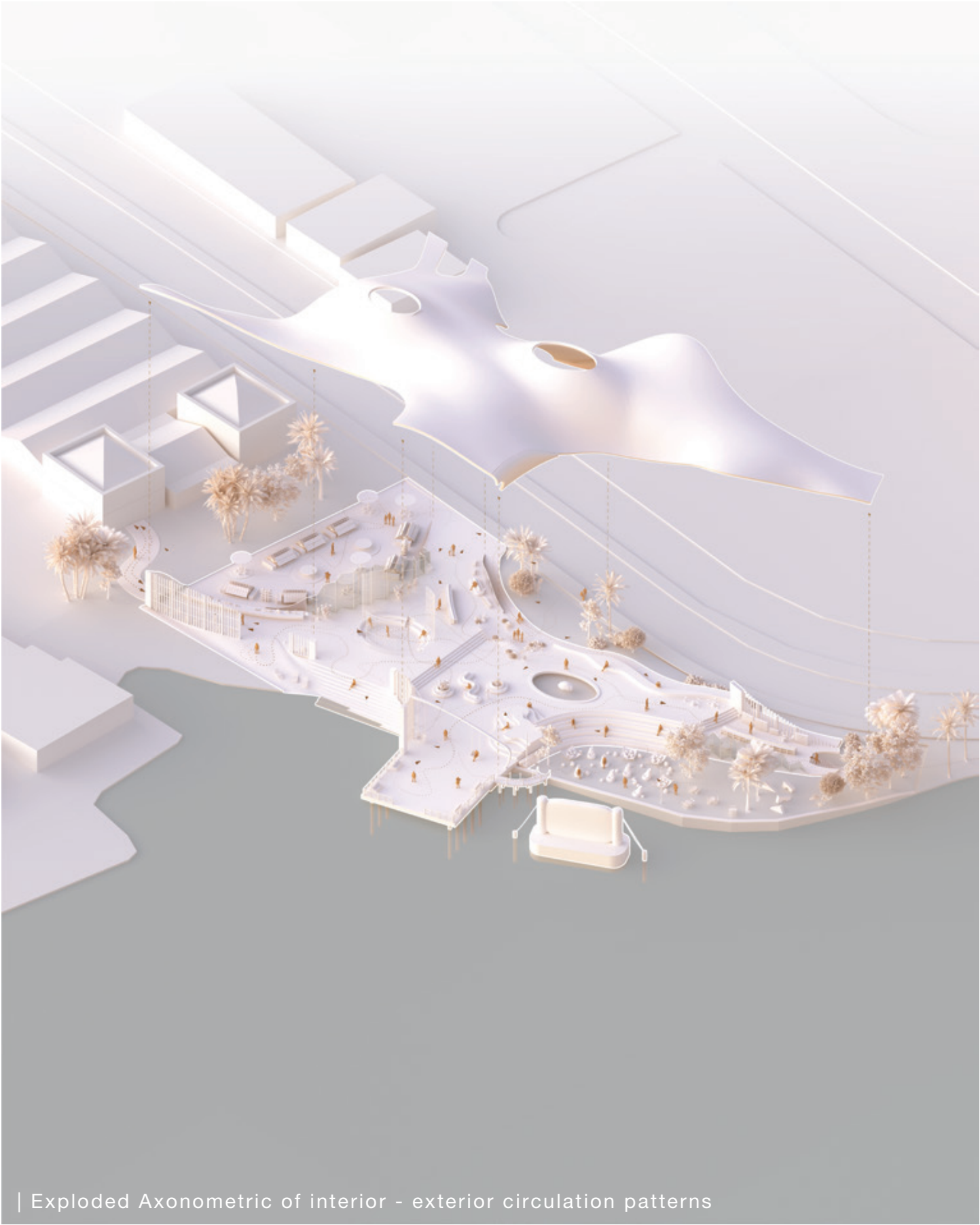
The public mosaic redefines the boundaries of thresholds as blended space. Both the form and the program are focused on fluidity and creating sequencing between internal and external space.



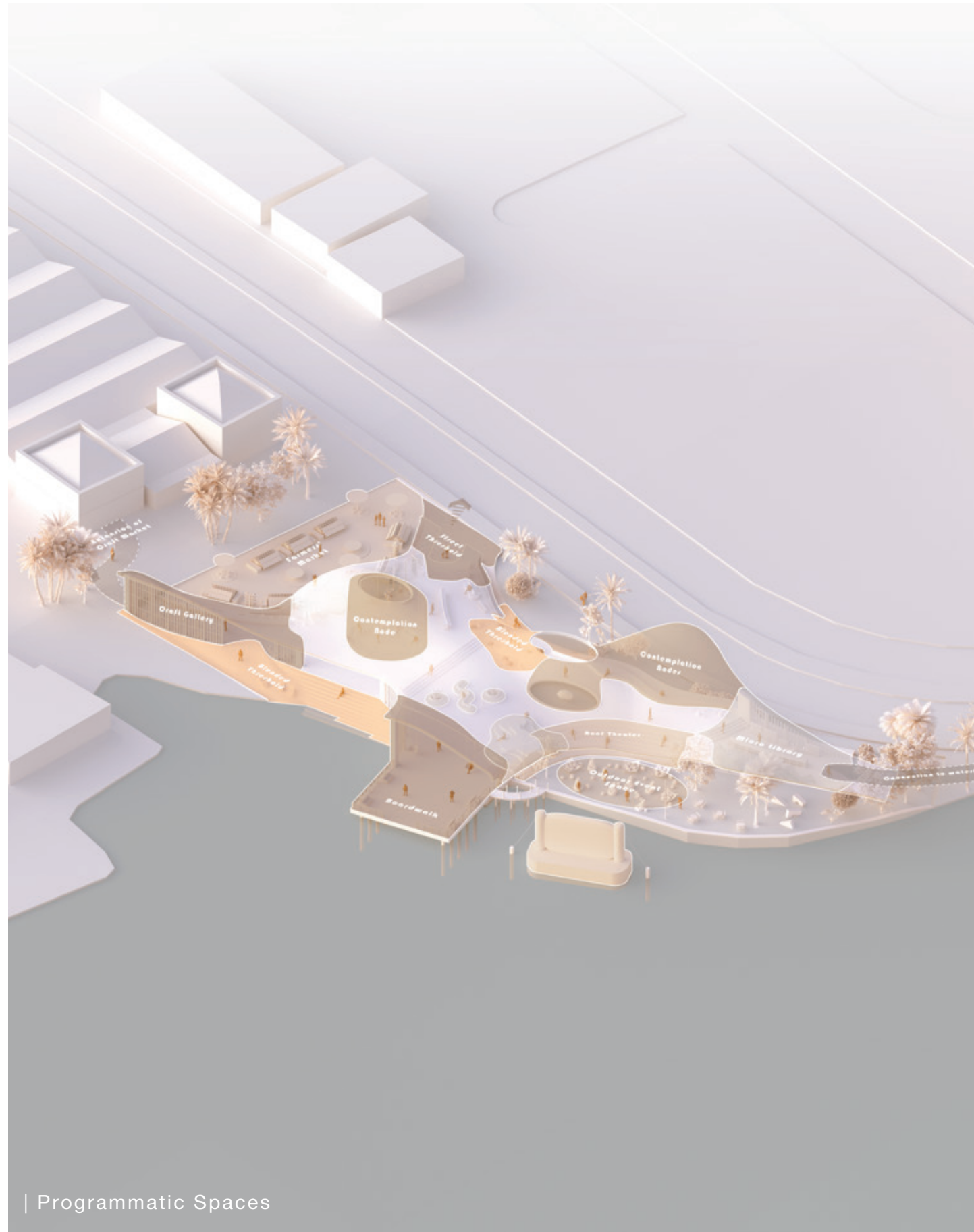
Functioning as an Urban Threshold, the project's site sets a foundation for strong connections. Providing expansion space for the local craft market and creating a landmark for the revitalization of the once popular waterfront.



The fluid programming of the space plays a crucial role in nondirective circulation and creating a sense of unexpected transition and anticipation.

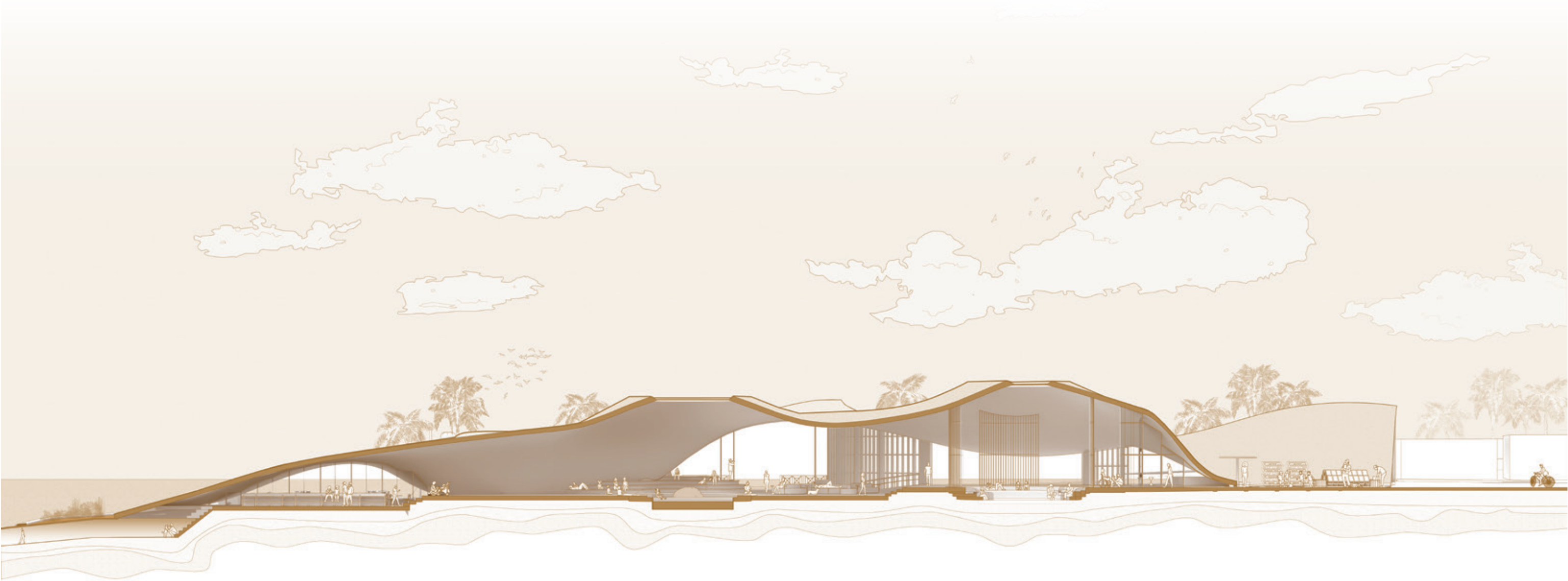


| Exploded Axonometric of interior - exterior circulation patterns



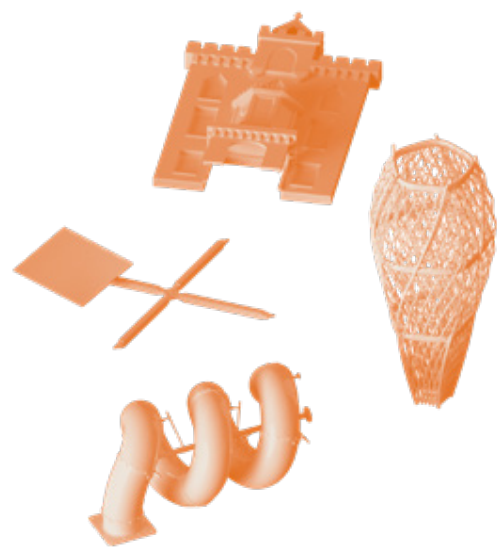
This public mosaic explores the function of thresholds as a vital boundary and transitional space between the external environment and internal architecture.

| Experience walking through the curated space



By challenging the conventional elements that create rigid boundaries, the goal of this project is to capture the essence of the human scale and how it operates in moments of rest, transition and movement.





Infinity Ruins

Framework for reinventing
abandoned edifices

Roosevelt Island, New York

Program: **Adaptive Reuse - Recreational Space**

Instructor: **Benjamin Cadena**

Semester: **Spring 2023**

Duration: **12 Weeks**

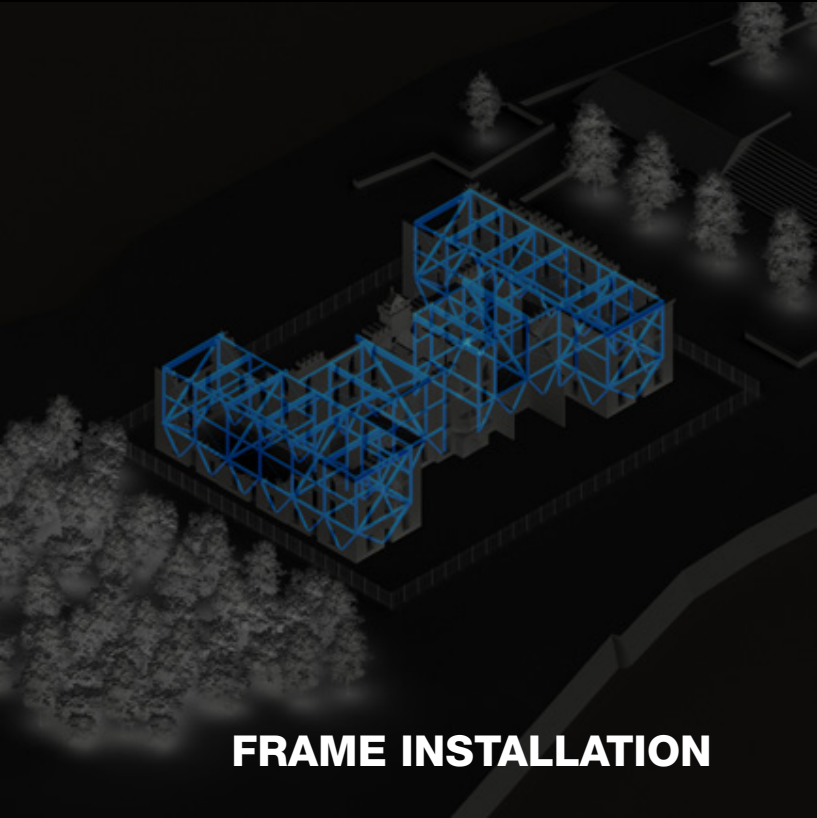
Toolset: **Rhino, V-ray, Photoshop, Illustrator, Model-making**

Developed over a series of iterations, this proposal for the ruins is composed of sequential structural interventions that stabilize the existing walls to reinvent programming space. The aim is to consistently reinvent the role of the ruin as an infinite infrastructure that can accommodate and support necessary projects. This specific focus identifies the site of the former Smallpox Hospital on Roosevelt Island.

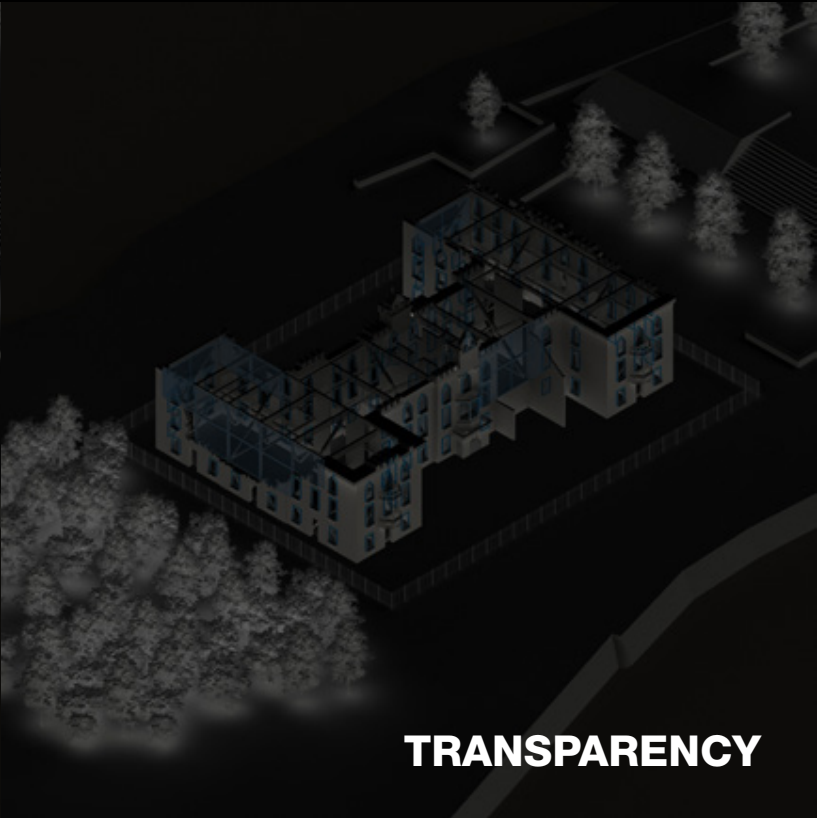




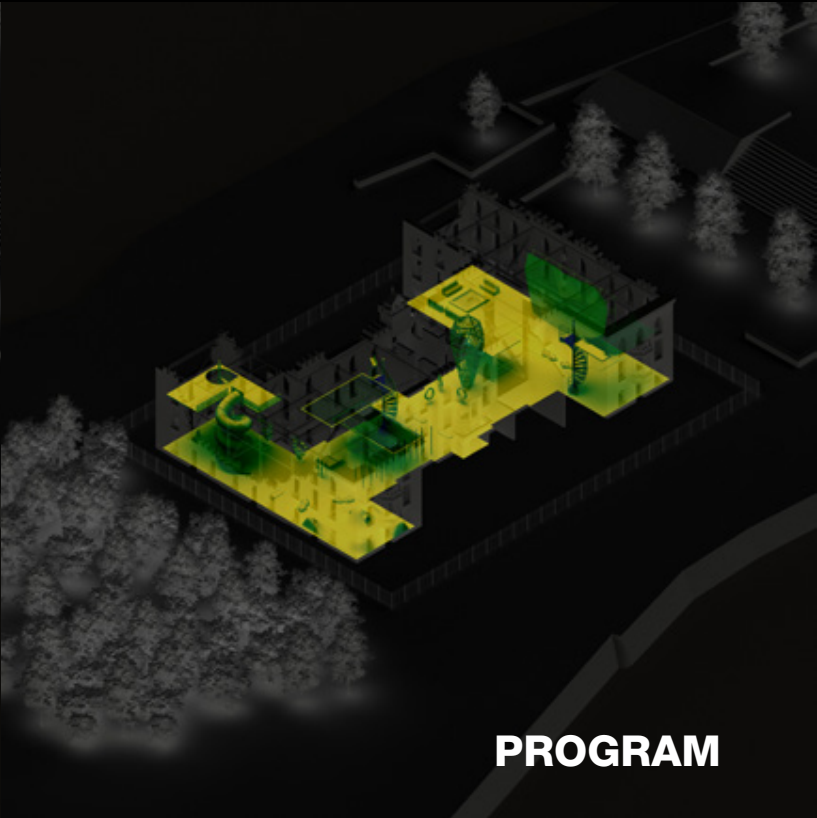
EXISTING



FRAME INSTALLATION



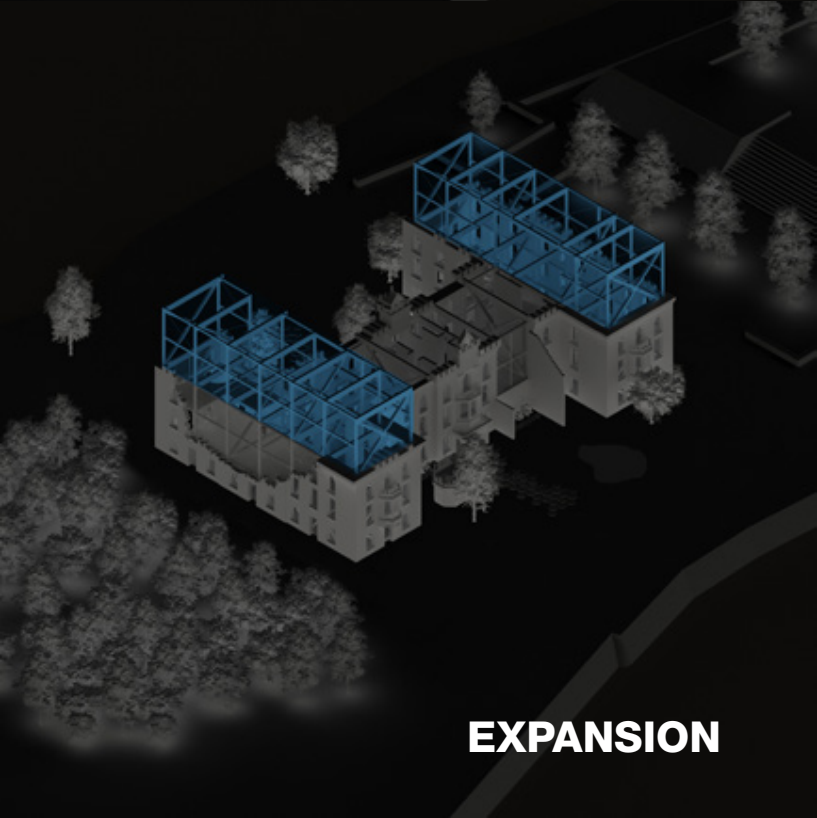
TRANSPARENCY



PROGRAM



REJUVENATION



EXPANSION



ENCLOSURE

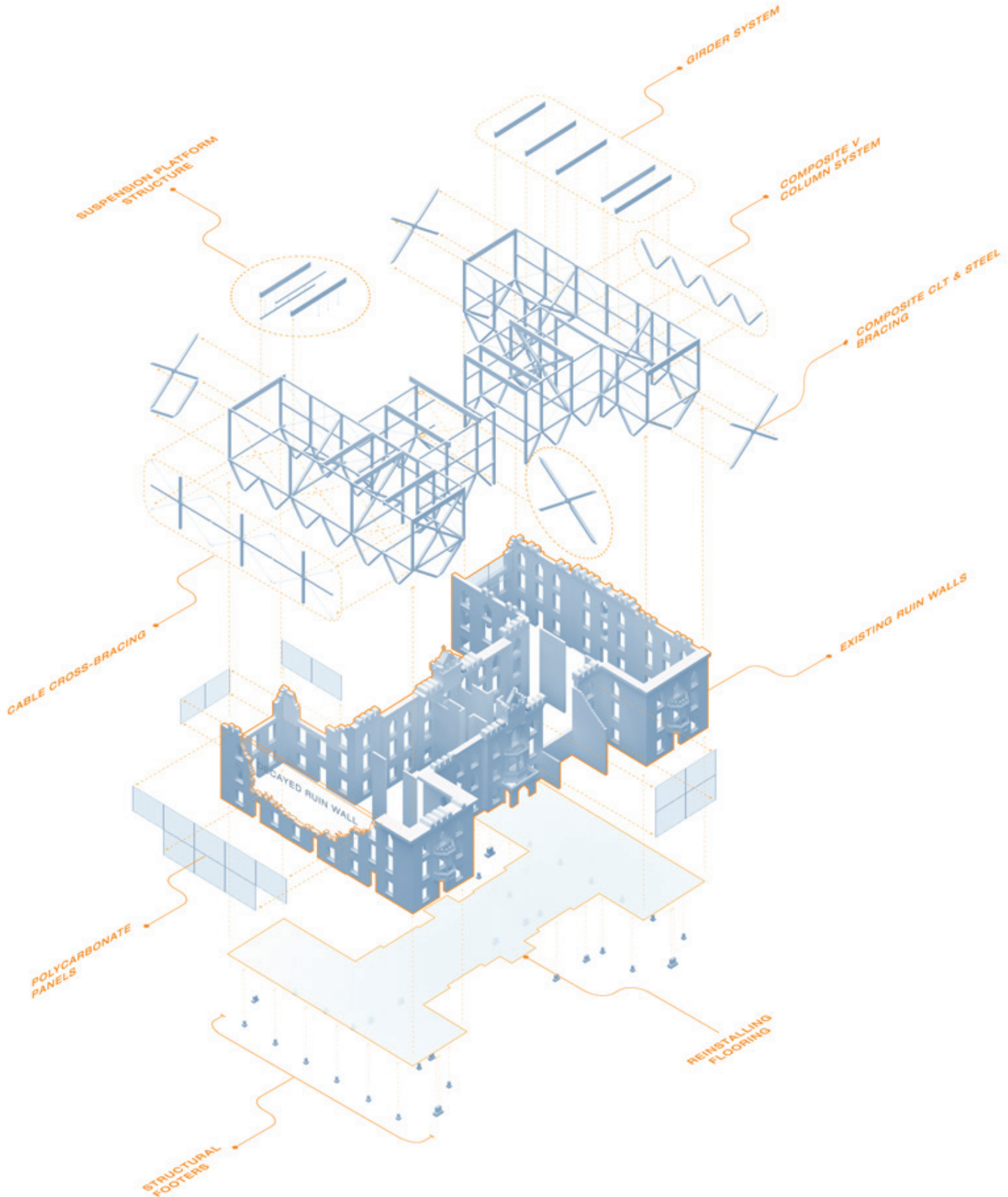


CYCLE.

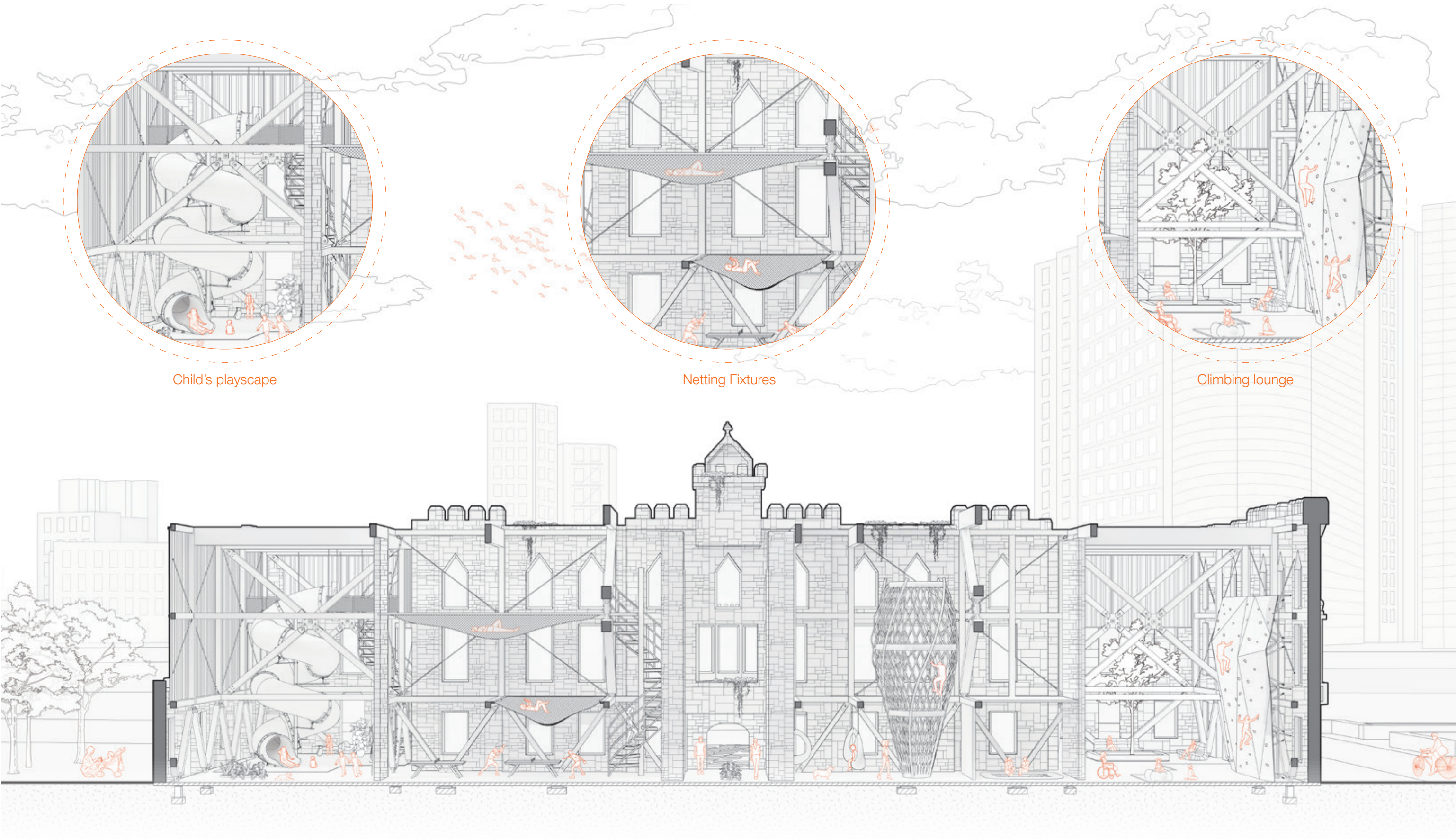
The primary stage of this intervention introduces a composite CLT (Cross-Laminated Timber) and steel joint system that stabilizes the existing walls of the building shell. Temporary platforms and interior structures utilize the superstructure as support through tension cable connections. This phase reimagines the ruin as a playscape, creating a public domain for recreational activities to serve all demographics.



| Playscape netting experience



| Exploded Axonometric CLT Framing System



Child's playscape

Netting Fixtures

Climbing lounge



| Ferry perspective along East River



The overall aim is to consistently reinvent the role of the ruin as a supporting character to societal evolution by foregoing the consistent abandonment of underutilized buildings. This project sets a precedent for adaptively re-using more existing structures, through the creation of a framework that continuously extends the lifespan of edifices.



| Final Infrastructure Contrast Model 1:16



Beyond the Cap

Edge Terraforming

Jamaica Bay, New York

Program: **Ecosystem Restoration**

Instructor: **Feifei Zhou**

Year: **Spring 2024**

Duration: **12 Weeks**

Toolset: **Rhino, V-ray, Photoshop, Illustrator**

This project proposes a new ecological edge condition along the coastline of the park that remediates and stabilizes the fragility of this site. Through a multifaceted approach, addressing not only the physical division between the landfill and water but also the underlying ecological processes that sustain a healthy environment.

The primary layer of the coastal redesign uses soil terracing to divide this zone into layers for phytoremediation. Aquatic estuary-based plants (Sparganium), salt-tolerant species, and flood-resistant trees make up the new ecological coastline.



| Perspective from Canoe in Jamaica Bay

Research Model in collaboration with: Lucas Gonzalez

Abstract Landfill Model



► Impermeable Plastic Cap

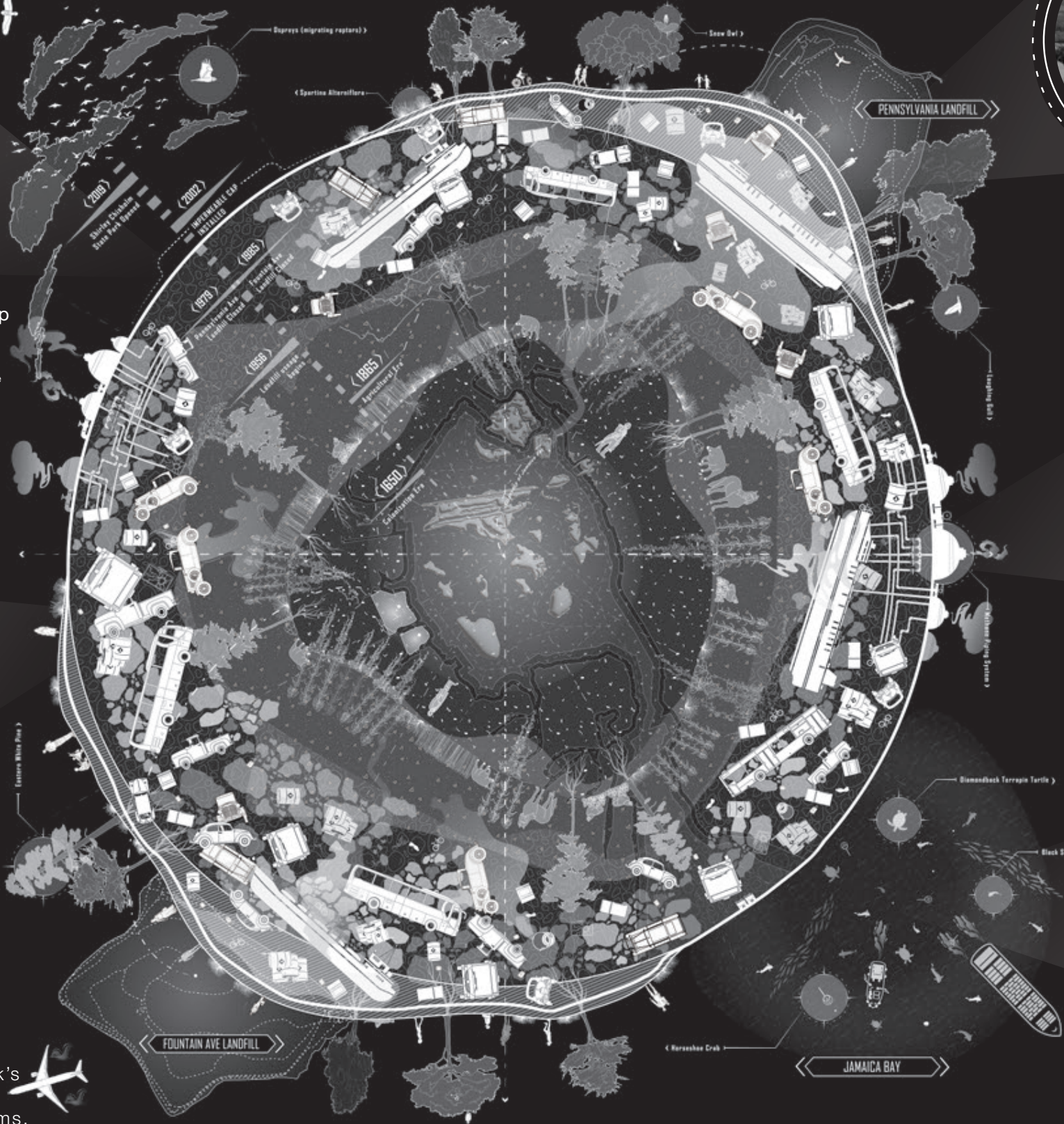
In 2002 an impermeable geomembrane cap was used to seal the landfill and lock in the toxins. Layers of aggregate and soil were added to develop the beautiful park seen today, however, the question still remains as to how the edge condition will stand the test of time.



► Mega tons of toxic waste

In its final year of operation (1985), the Fountain + Pennsylvania landfills received 7440 metric tons of trash per day. This waste has existed for 40+ years and although it has been sealed in by layers of geofoam and soil, how will it affect the surround conditions through leeching & erosion.

Situated within the picturesque expanse of Jamaica Bay, Shirley Chisholm State Park carries with it a storied past marked by fragility and resilience. Once a landfill, the park’s history tells a tale of environmental challenges and the enduring human quest to restore balance to our ecosystems. A critical aspect of this design narrative is rooted in the historical evolution and remediation efforts of Shirley Chisholm State Park.



► Hidden nature of the park

The park’s undisputed redevelopment opened in 2019 introducing new ecology to a site that was once an environmental nuisance. Everyday locals now get to enjoy the cascading landscapes, unbeknownst to the toxins that lurk beneath them.



► Methane Extraction

To avoid dangerously high levels of methane carbon monoxide and other hazardous gasses from building up beneath the park, landfill gas wellheads were implemented throughout the parkscape to direct greenhouse gasses upwards into the atmosphere. Are there alternative solutions to the use of this methane gas?



► Marine Life Threat

The newly developed park has focused on the remediation of the soil and the sealing of the landfill toxins. As water is the biggest threat to a landfill, is the marine life of Jamaica Bay threatened by possible leeching or erosion of the landscape edge



THE SITE

Located in the Shirley Chisholm State Park, a 407 Acre site on the shores of Jamaica Bay. This once functioned as NY’s largest landfill



EDGE CONDITION

This project addresses future-proofing the landfill that lies underneath and prevents possible leeching/ environmental impact



ON-SITE FABRICATION

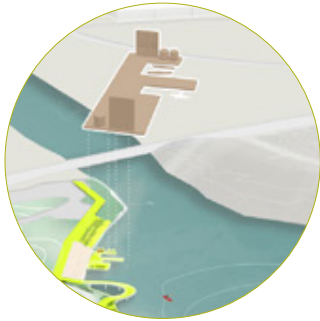
To create the multi-faceted new edge terracing, organic modules needed to be produced on site through 3D printing. These modules can then be placed immediately in place as the site is terraformed.



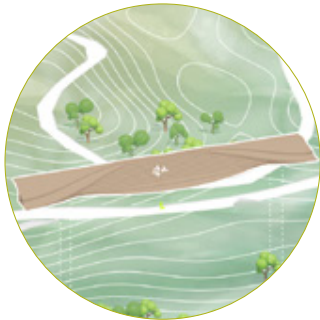


► 3D Coral Printing Fabrication Lab

To create the multi-faceted new edge terracing, organic modules needed to be produced on site through 3D printing. These modules can then be placed immediately in place as the site is terraformed.



► Canoe and Boat Shed



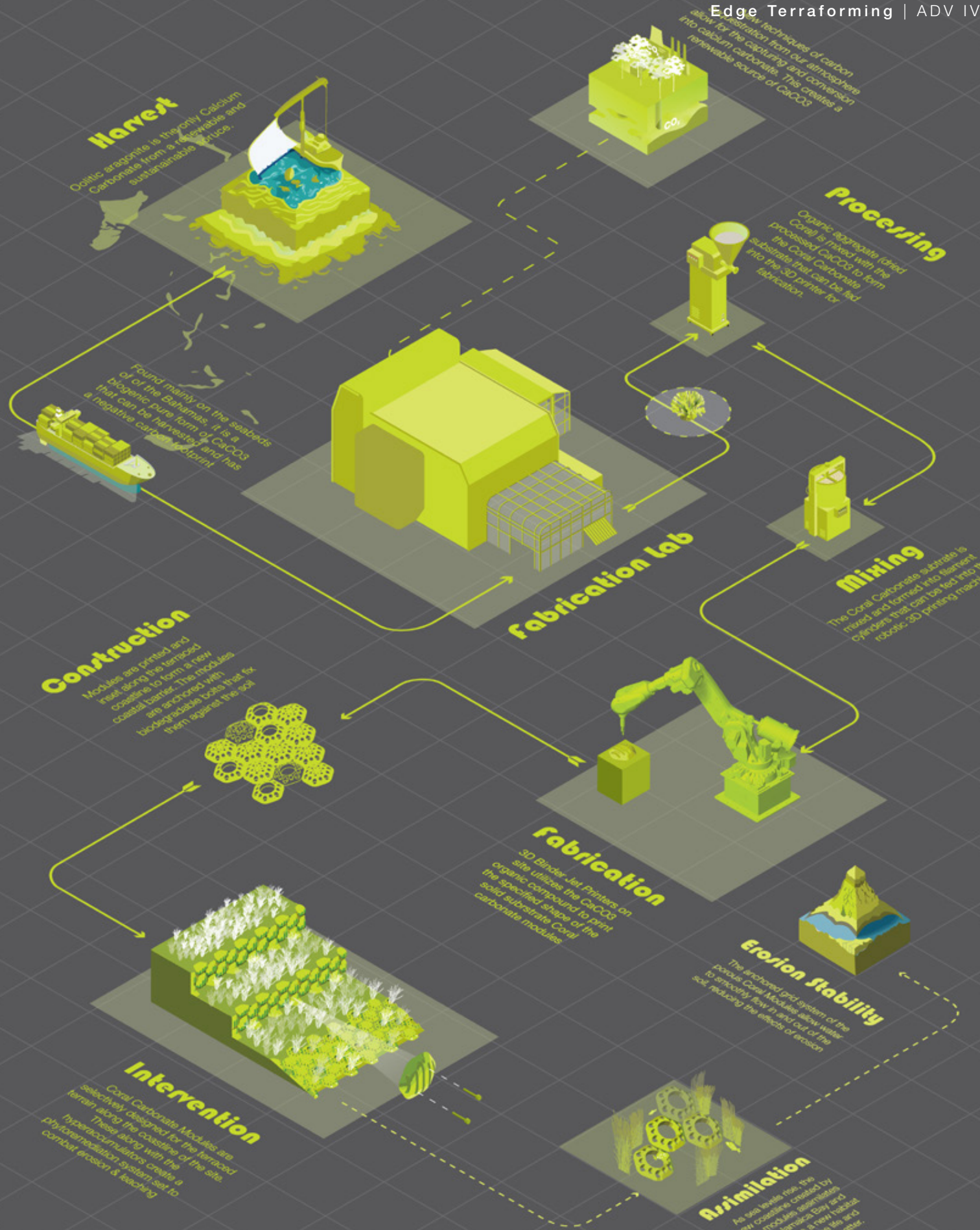
► Seating Terracing



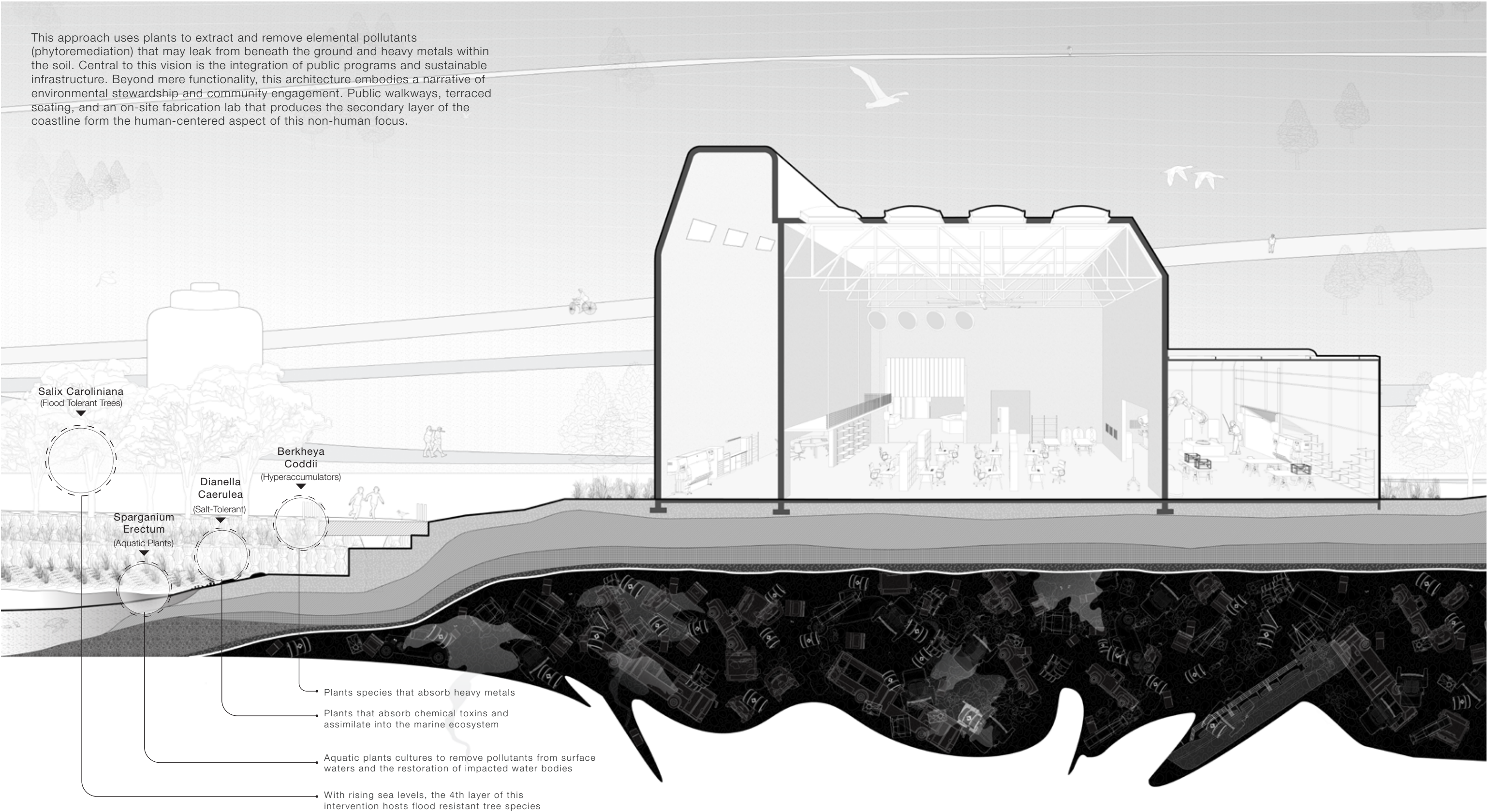
► Fishing Terracing

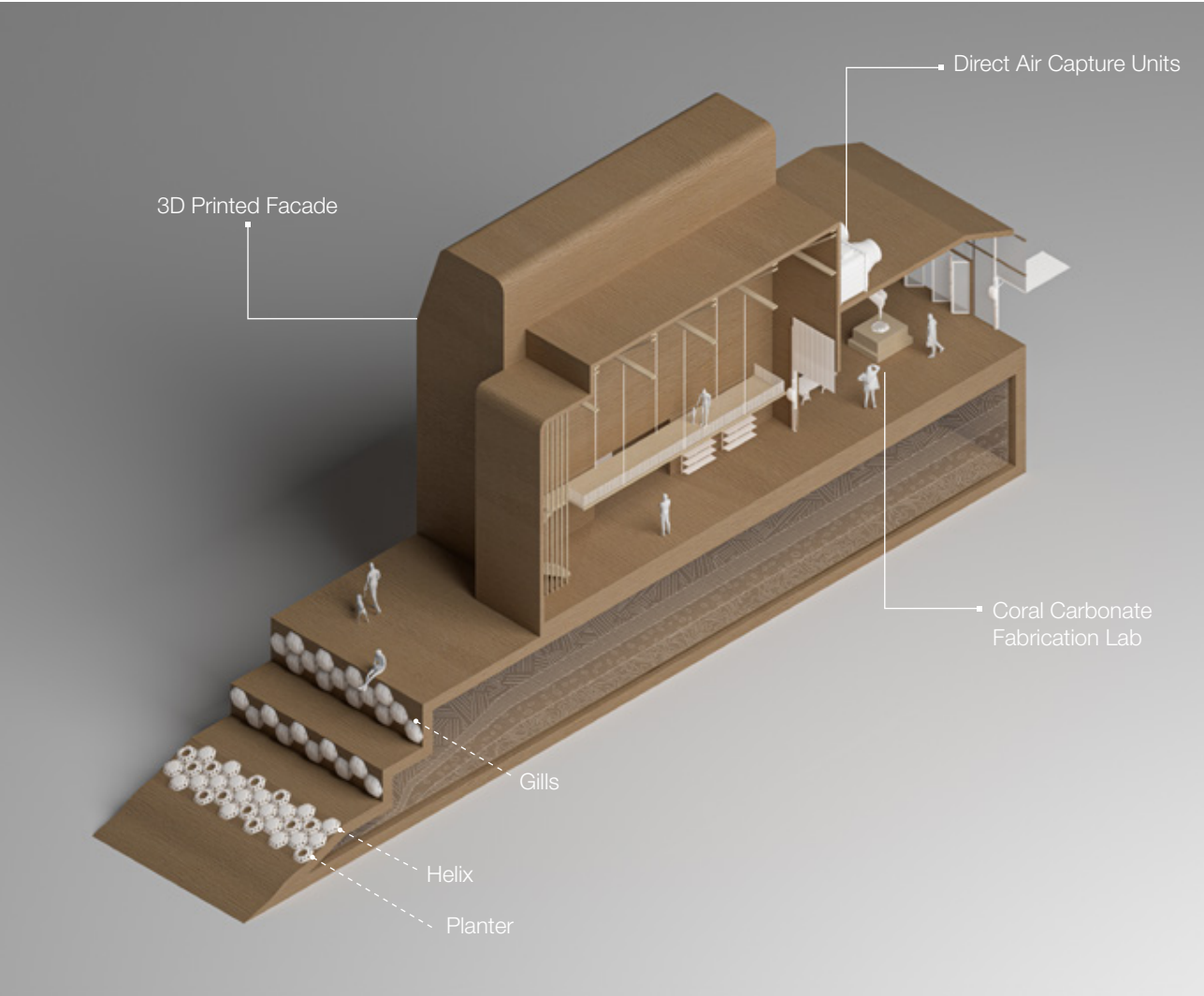


| Site Masterplan Axonometric Diagram



| Coral Carbonate Module Processing Cycle

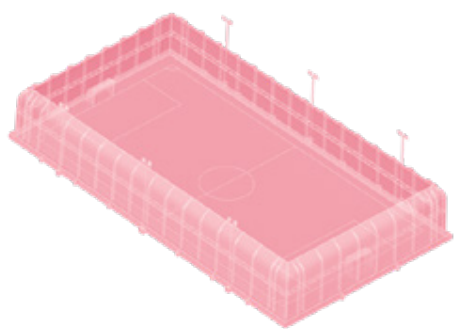




| Maquette Section Model Render 1:32"



| Interior of fabrication lab



MOD. football

Recreational interventions on underutilized space

Lower Manhattan, New York

Program: Recreation

Instructor: Lindsey Wikstrom

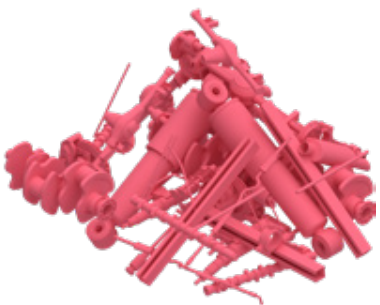
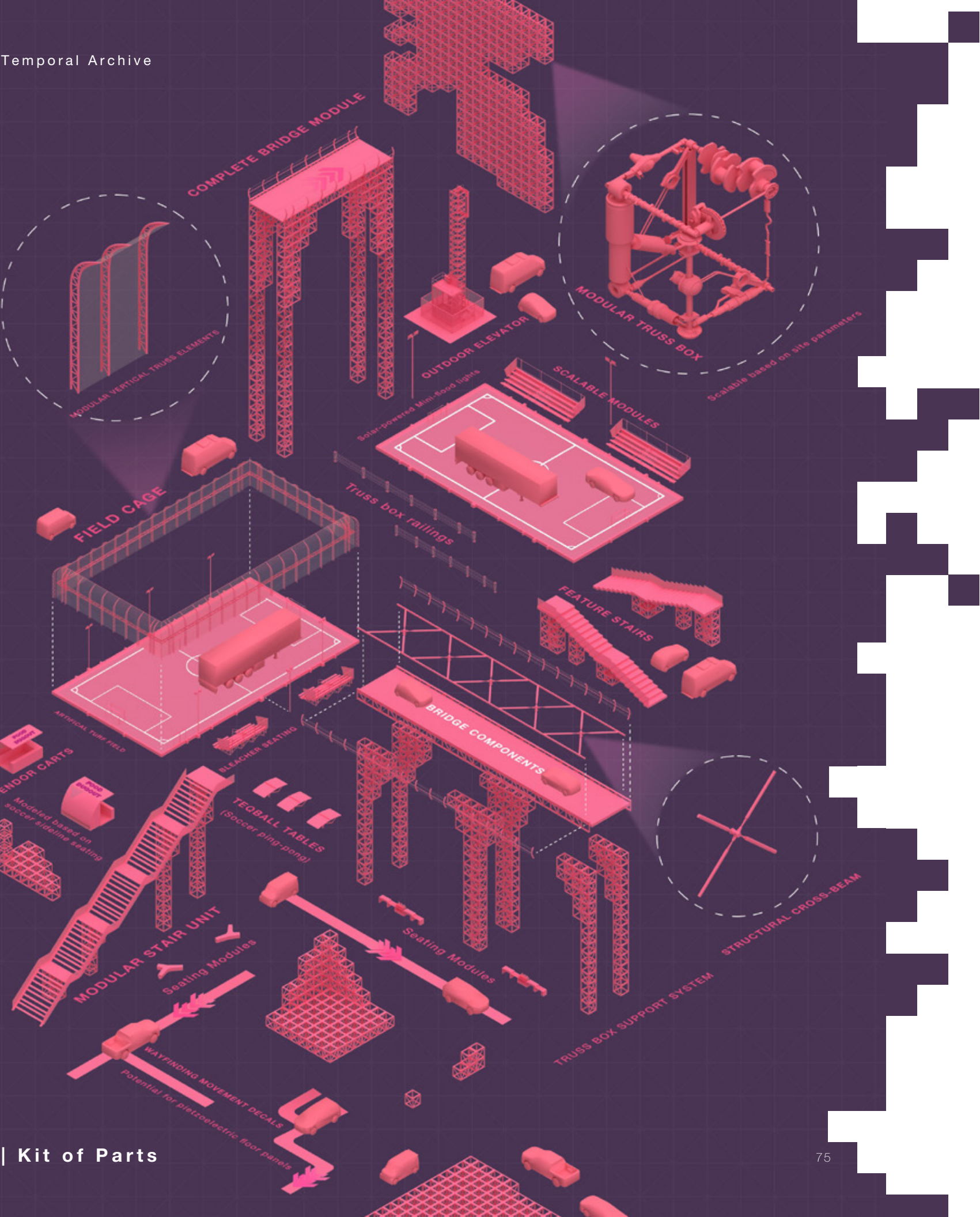
Semester: Fall 2022

Duration: 14 Weeks

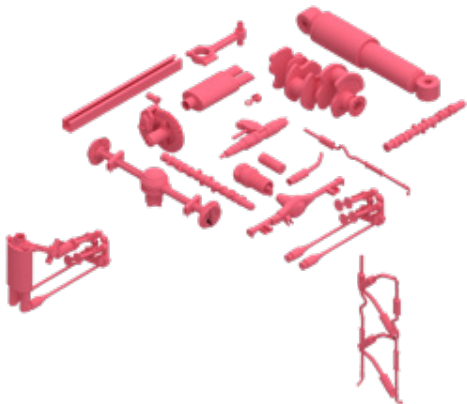
Toolset: Rhino, V-ray, Photoshop, Illustrator

Sport is an activator of communal bonding, not only at the youth level but for older generations that gather to watch. This idea of gathering in place to play creates a platform for people of any background to share a common ground. Football, soccer, futbol, and futsal are some of the many names given to the world's game. The flow of movement of players in a soccer match can be compared to the activity of people in a city. Moments of congestion, open space and direction create visual maps of motion that create a flow system in a city or a game in a stadium.





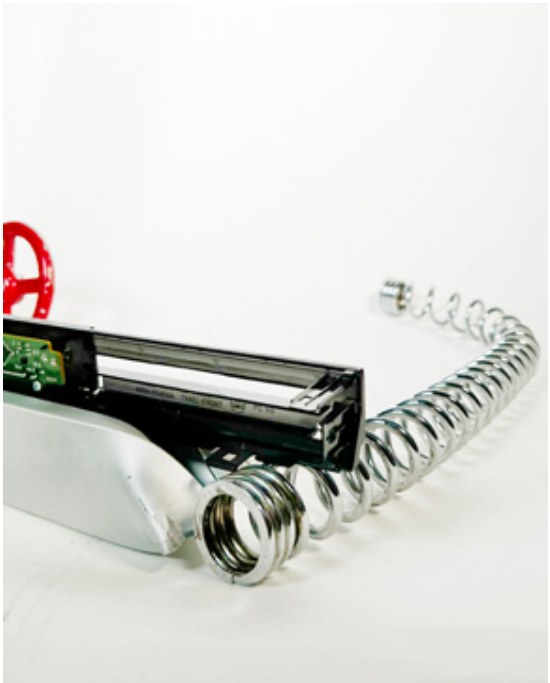
Collection of car parts
Junkyard scraps are gathered and sorted based on sizes and functionality



Orgnaization of pieces
Soccer/Football field amenities are designed based on the elements gathered from the scraps



Modular Truss Box
Scaleable structural system used to generate scaffolding and support based on site parameters

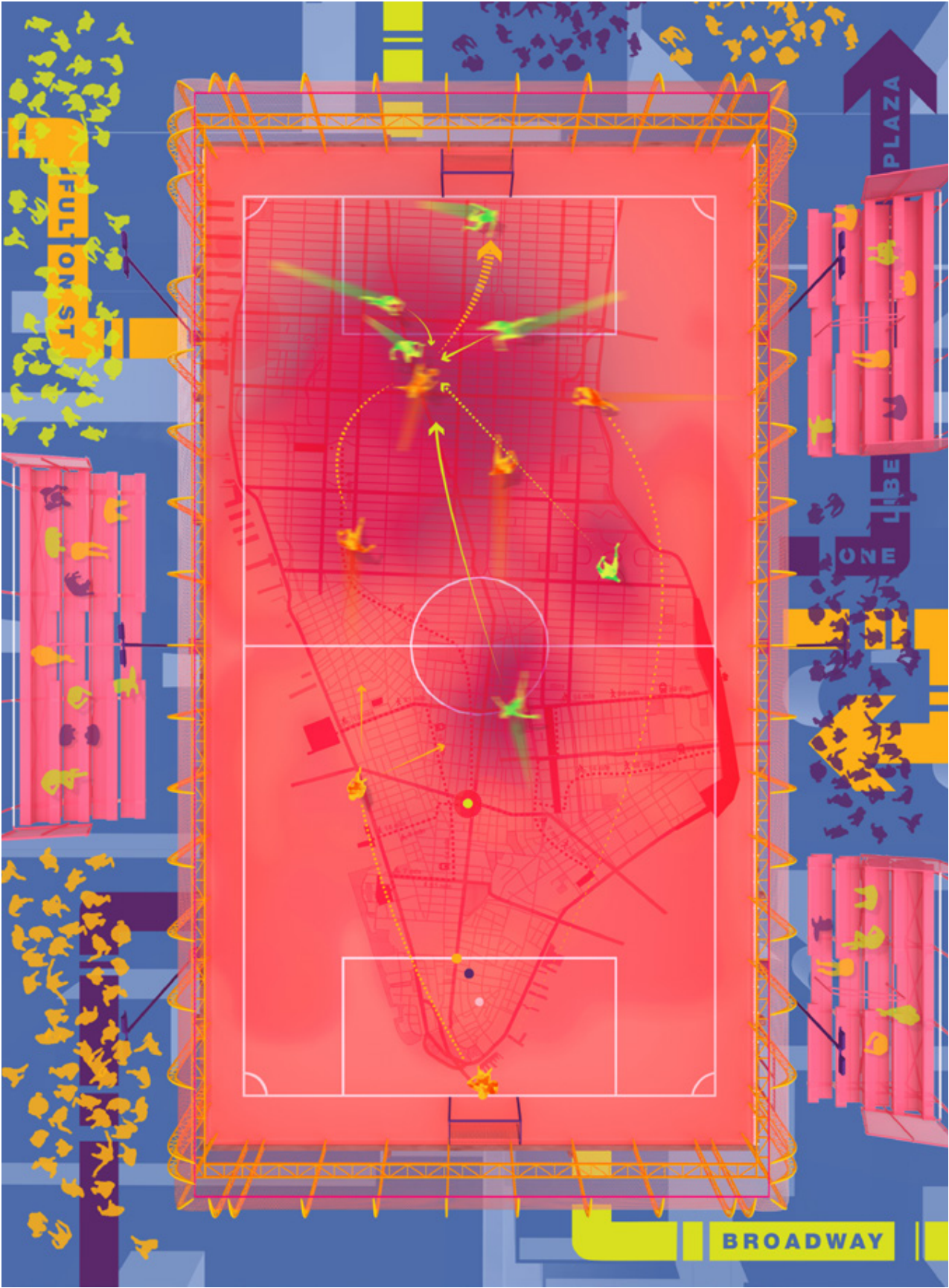


1:1 Fabrication Prototype of goal post



Made from junkyard components

For every 10,000 end-of-use cars are recycled, 4000 tons of steel is reclaimed. This upcycling process creates a kit of parts that can be scaled and adjusted depending on the need of the site.



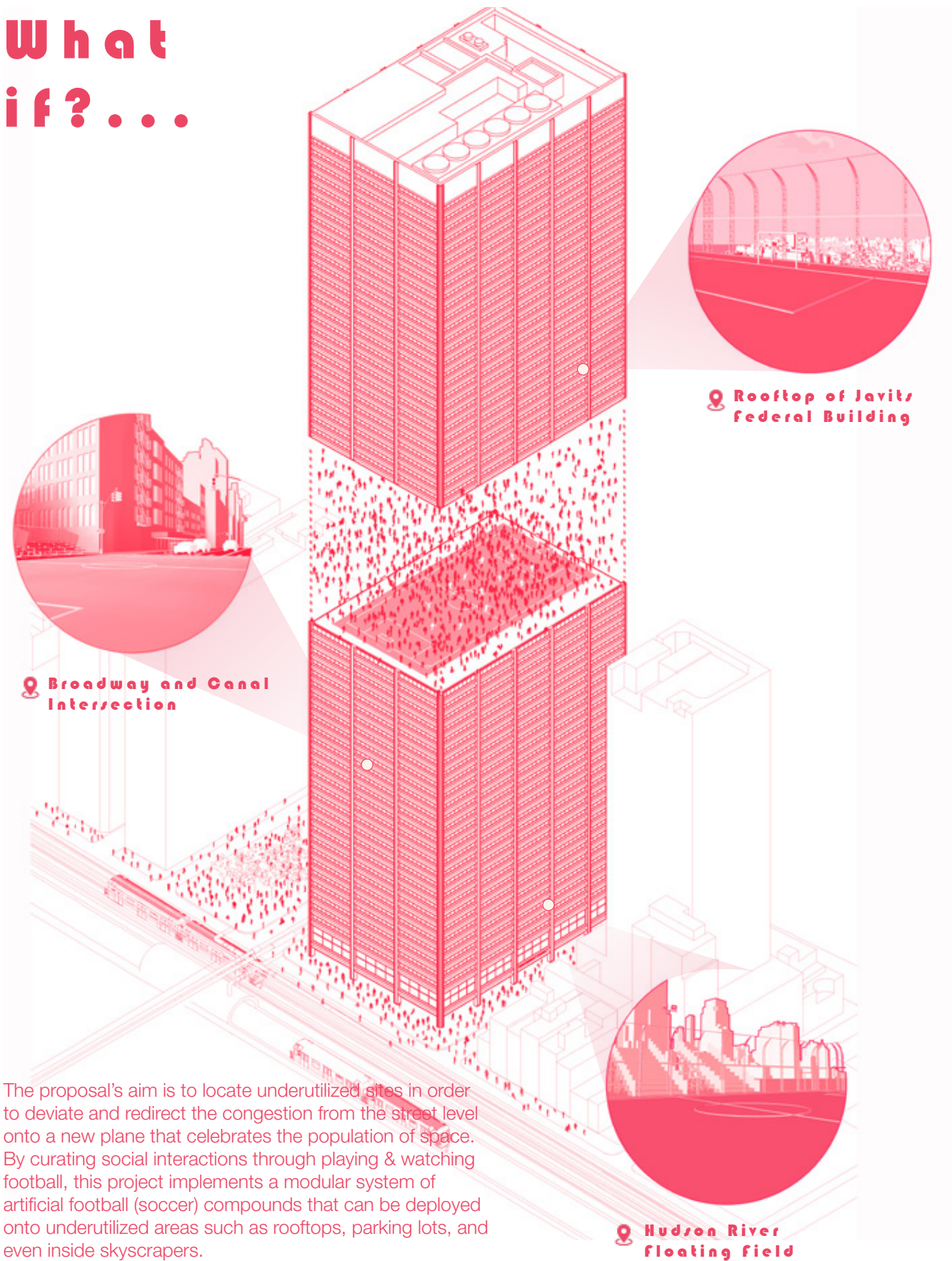
| Movement Parallels

Capitalizing on New York City's global heritage of sports, this project disrupts and repurposes the pedestrian congestion in Manhattan by relocating the crowd. An urban analysis of Lower Manhattan, emphasizes the influence of steel on the streetscape. Visualizing the city's roots as a timeline of steel, I realized how increased accessibility to the vertical planes, established by steel construction, could enhance public space



| Day to Nighttime Experience

What if?...



The proposal's aim is to locate underutilized sites in order to deviate and redirect the congestion from the street level onto a new plane that celebrates the population of space. By curating social interactions through playing & watching football, this project implements a modular system of artificial football (soccer) compounds that can be deployed onto underutilized areas such as rooftops, parking lots, and even inside skyscrapers.

| Mahattan Field Network Expansion Proposal



| Expansion scenarios

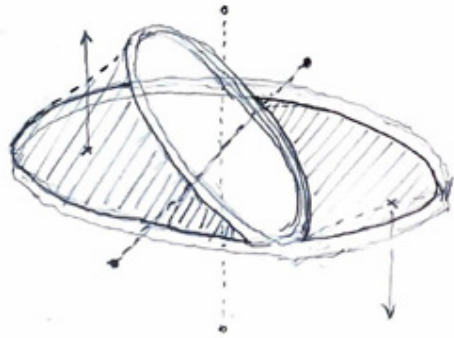
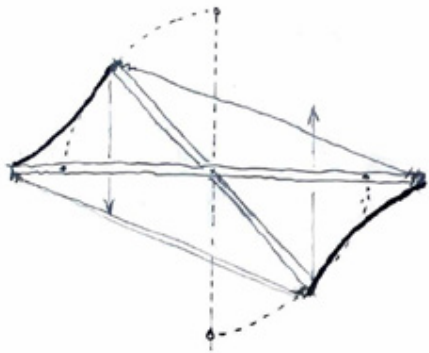
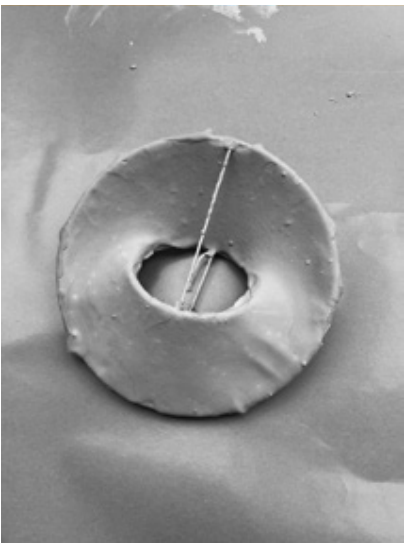
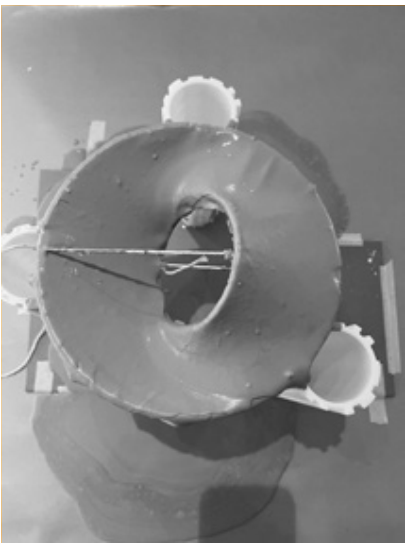
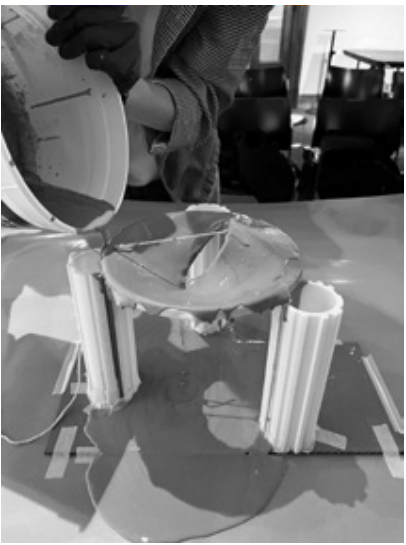
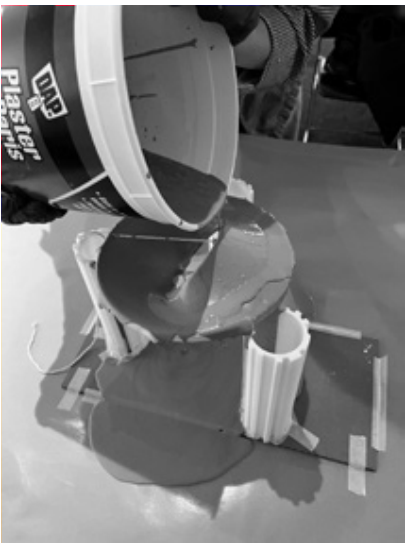
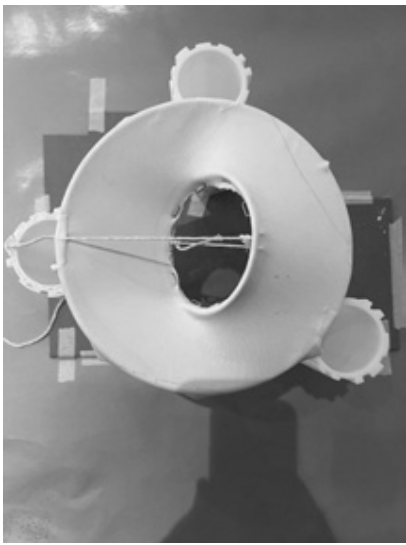
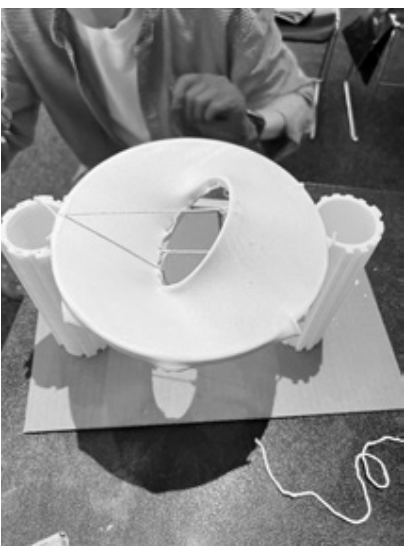
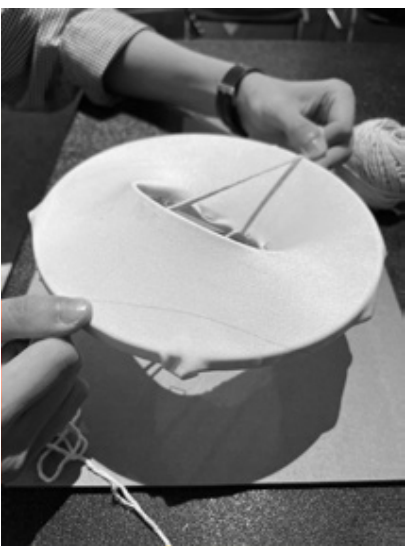
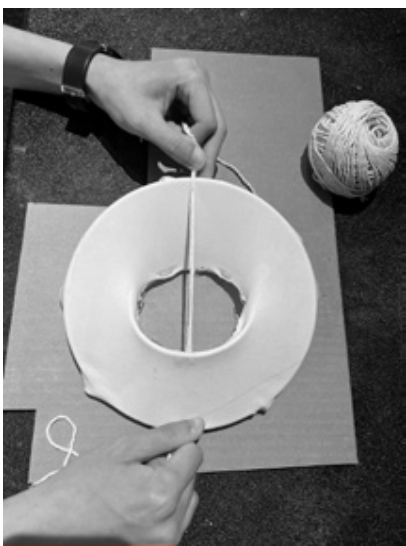
Orbital Shell Geometries

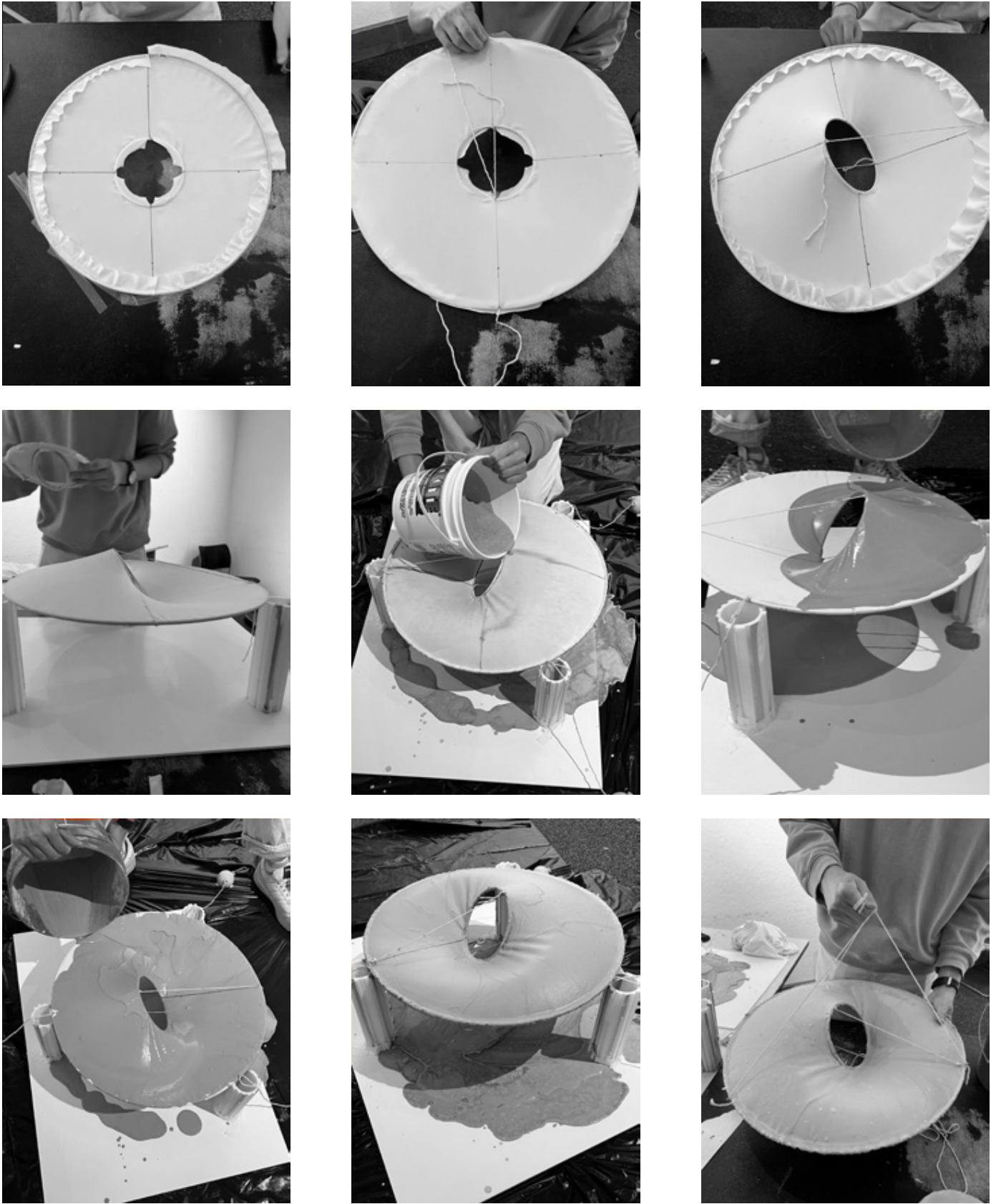
Tensile Structures

Instructor: **Robert Marino**
Semester: **Fall 2024**
Toolset: **Tensile fabric, Rockite, Metal Rings, Rope**
Collaboration: **Xinyan He**

This project explores shell structures through orbiting ring geometry. Our discoveries came through testing bubble structures that formed between rings as initial tensile studies. Through prototyping and testing, the final shell construction captures the tension created from bending simple geoemtries within one another.







| Process of Work

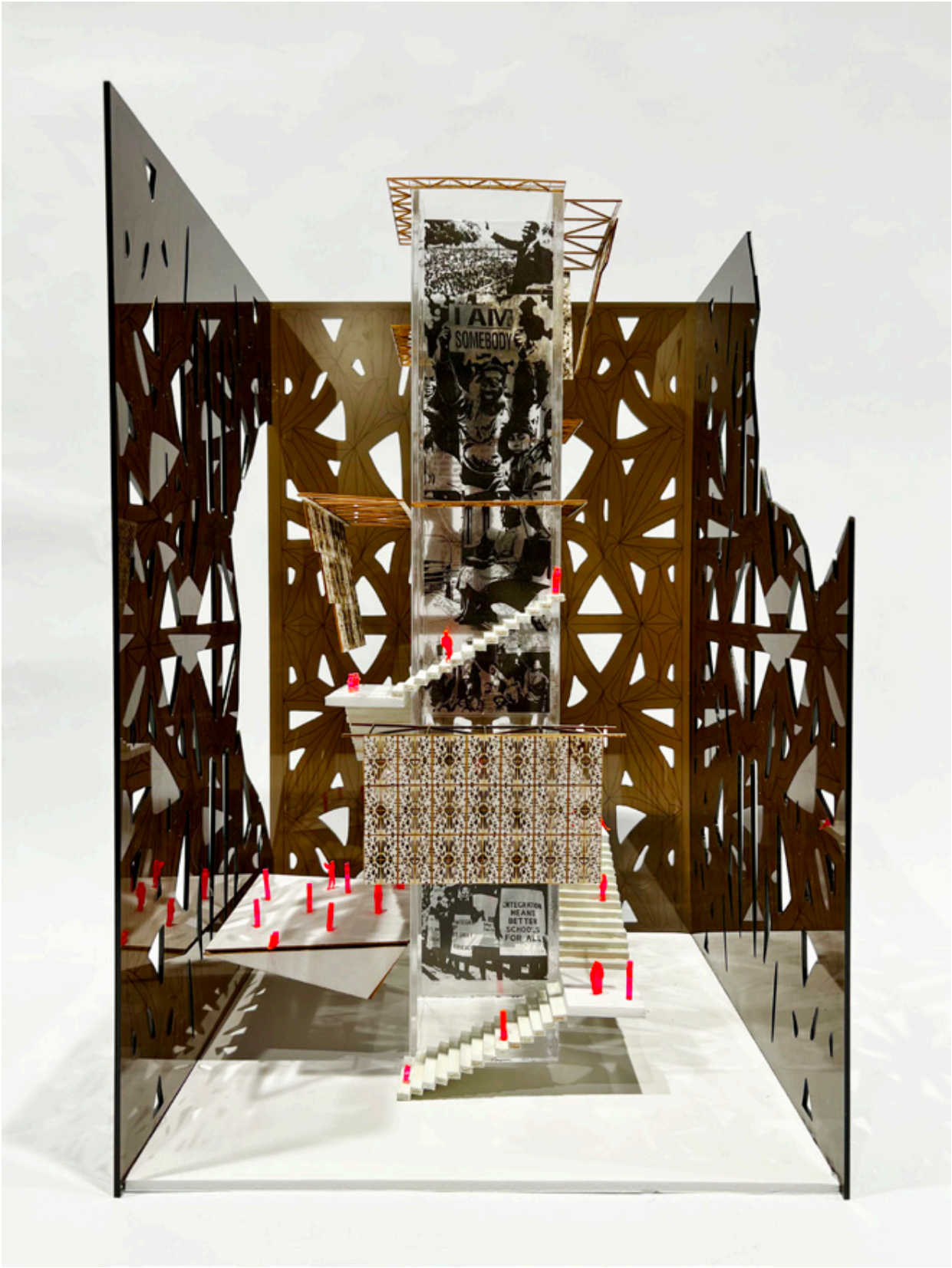


| Final Output

Historical fragment
Architectural Drawing + Representation

Instructor: **Josh Uhl**
Semester: **Fall 2022**
Toolset: **Acrylic, Wood Scraps, Laser Cut**
Illustration Board, Mylar Prints

The concept behind this physical model of the National Museum of African American History & Culture visualizes transparency on the radical black history of America. Through deconstructing the elements of the NMAAHC with a focus on the facade as the main panels of the model, a breakdown of the structure is visualized in fragments along the central column. This center void portrays imagery of historical moments for African-Americans, dictating slavery, Segregation, Freedom, and changing society. These moments will be etched onto the walls, with a light shining through to create an immersive effect of light and shadow. A stairway ascends upwards, mimicking the vertical timeline of the actual museum but in an abstracted manner.





Paella Train

Great Reuse

Program: **Mobile Kitchen**
Instructor: **Mireia Luzarraga**
Semester: **Spring 2025**
Toolset: **Reusable Materials**
Project Team: **Ambika Chaudhry, Yaqoub Hasan,
Norman Keyes, Flora Ng, Nicholas Richards**

A train of stations that work together to function as a mobile kitchen, or to be deployed individually to grow food, prep food, store tools and cook!

The concept for the cooking cart was developed as a blend of what was available and what are the essential components of a kitchen. Our initial overall concept as a group was to design a “paella train” consisting of 3 carts, as such the cooking cart would serve the primary function of creating the paella. We identified the essential components of a kitchen as cooking, preparing and storage zones. From there we started gathering materials from the model shop, our homes and even the dumpsters. Our goal was to gather as much material as possible then brainstorm what was most suitable for our idea.





Paella pan,
spatula,
Cooking utensils,
Gas

Tables, counter,
Seating, sink, water
system, different types
of waste bins,
Storage, sink

Hydroponics (garden)
Water recycling system

COOKING EQUIPMENT
(SANITARY)



STATION
(THE GREAT REUSE)



FOOD
(INGREDIENTS)



COOKING EQUIPMENT
(SANITARY)



STATION
(THE GREAT REUSE)



FOOD
(INGREDIENTS)

WASHING STATION

GROWING STATION

COOKING STATION



Washing



Cooking



Growing





W O R M

Interactive Inflatable

Columbia Unviersity, New York

Program: **Event Space**

Year: **Outside in Project Spring 2023**

Instructors: **Laurie Hawkinson + Galia Solomonoff**

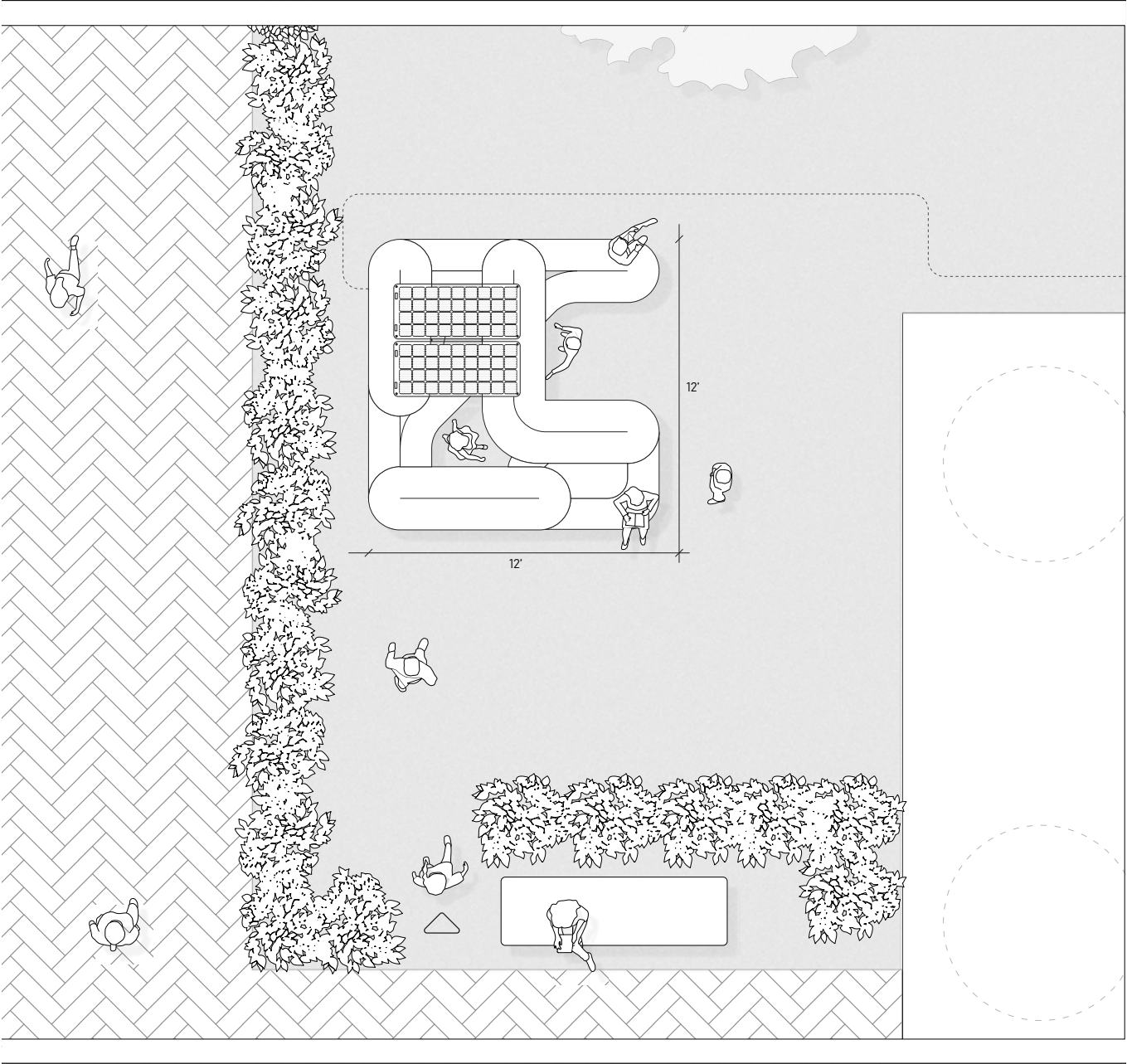
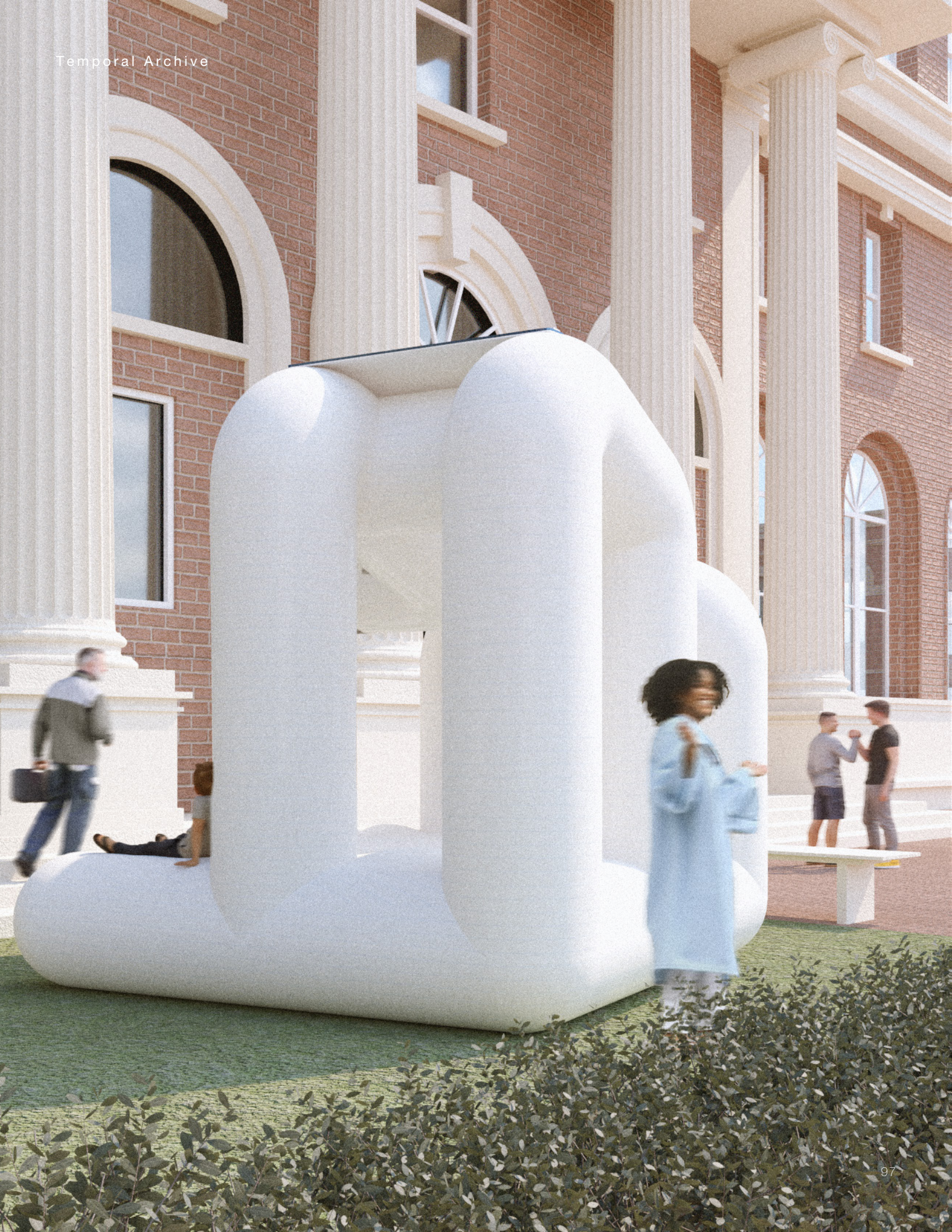
Duration: **12 Weeks**

Toolset: **Rhino, V-ray, Photoshop, Illustrator, Inflatable Structure**

Project team: **Nicholas Richards, Samuel Bager, Brennan Heyward, Vishal Benjamin, Kelly He, Daniel Li, Marina Guimaraes, & Zina Berrada**

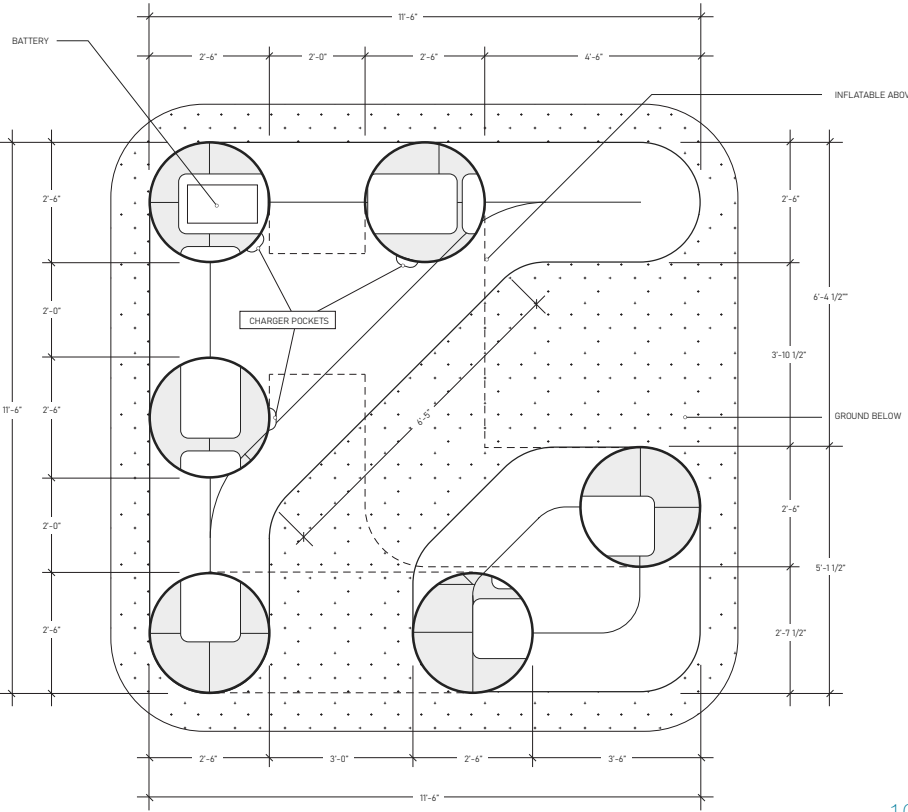
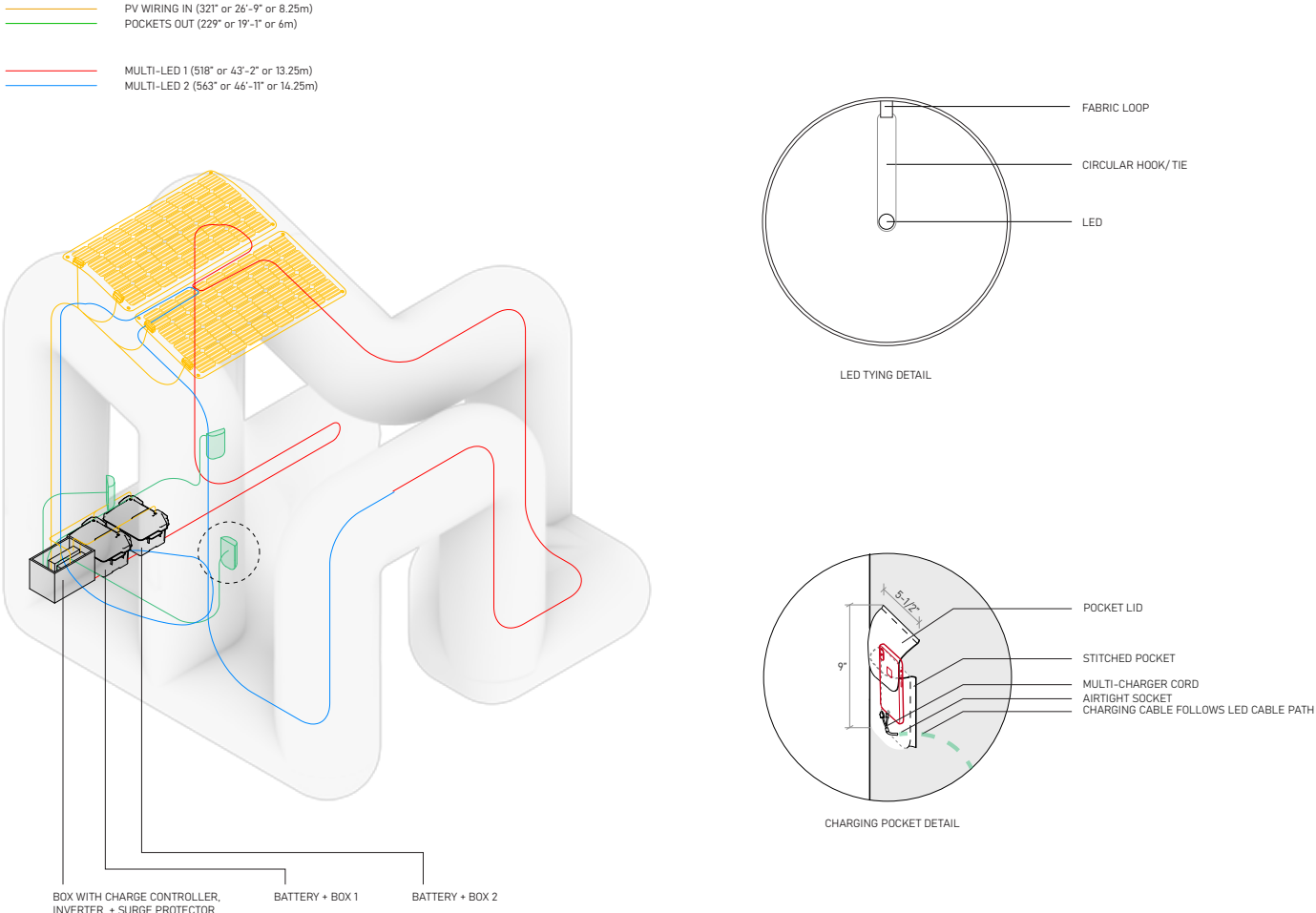
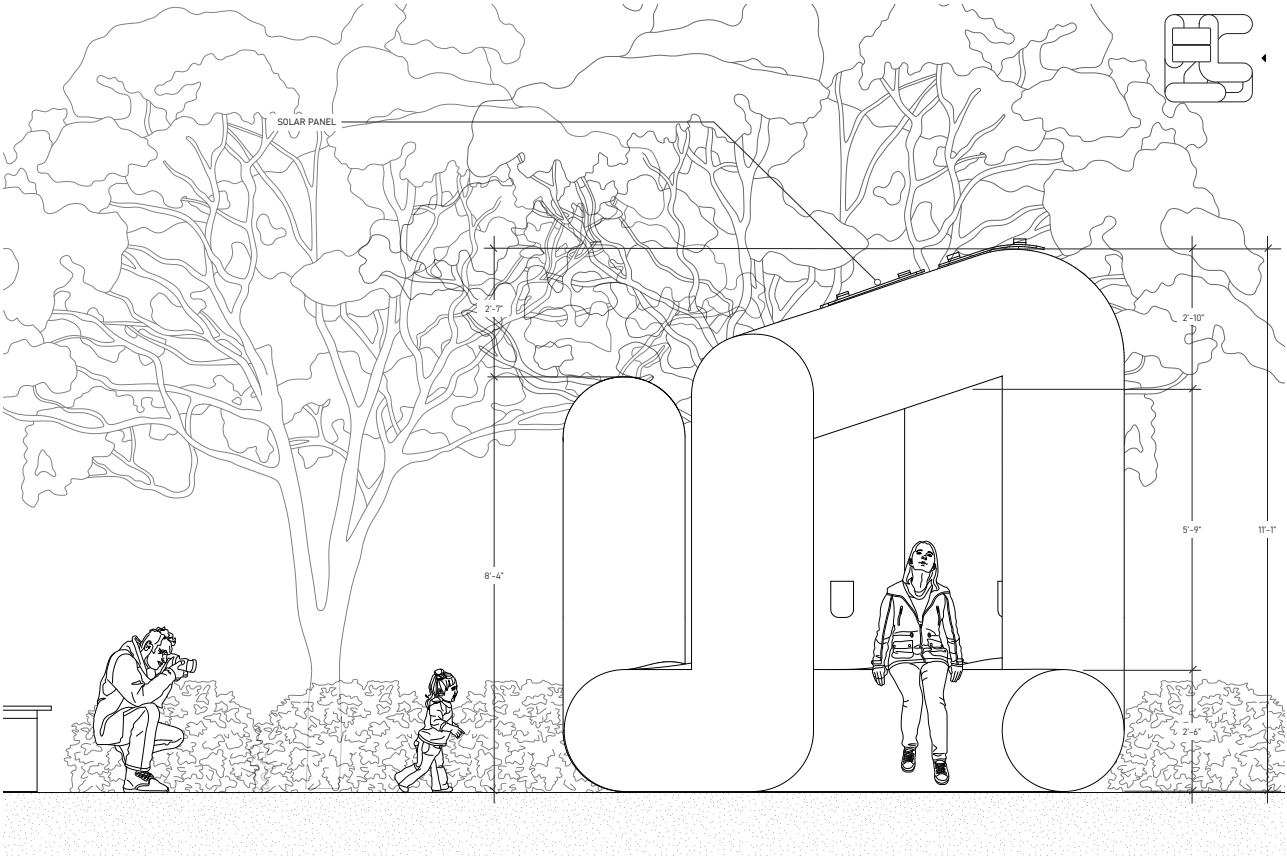
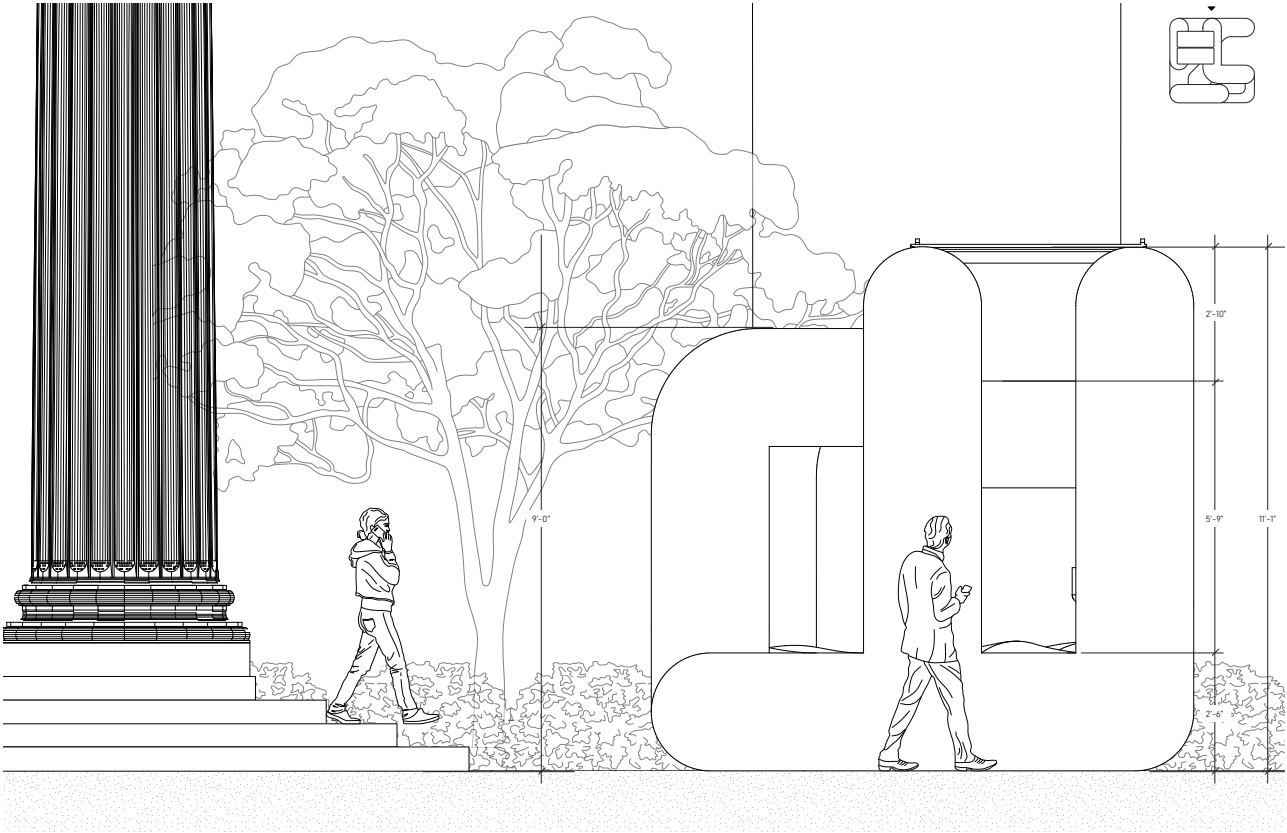
This inflatable installation, titled GSAPP x WORM, was created by students in the “Outside-In Project” seminar during the Spring 2023 semester. It invites various forms of interaction, allowing visitors to walk through, play on, jump on, sit on, and lie on the pavilion. The design utilizes a continuous line to simplify assembly, reduce material costs, and shorten the construction period. To maximize sunlight exposure and enhance the performance of two photovoltaic panels, WORM features pitched upper arms.





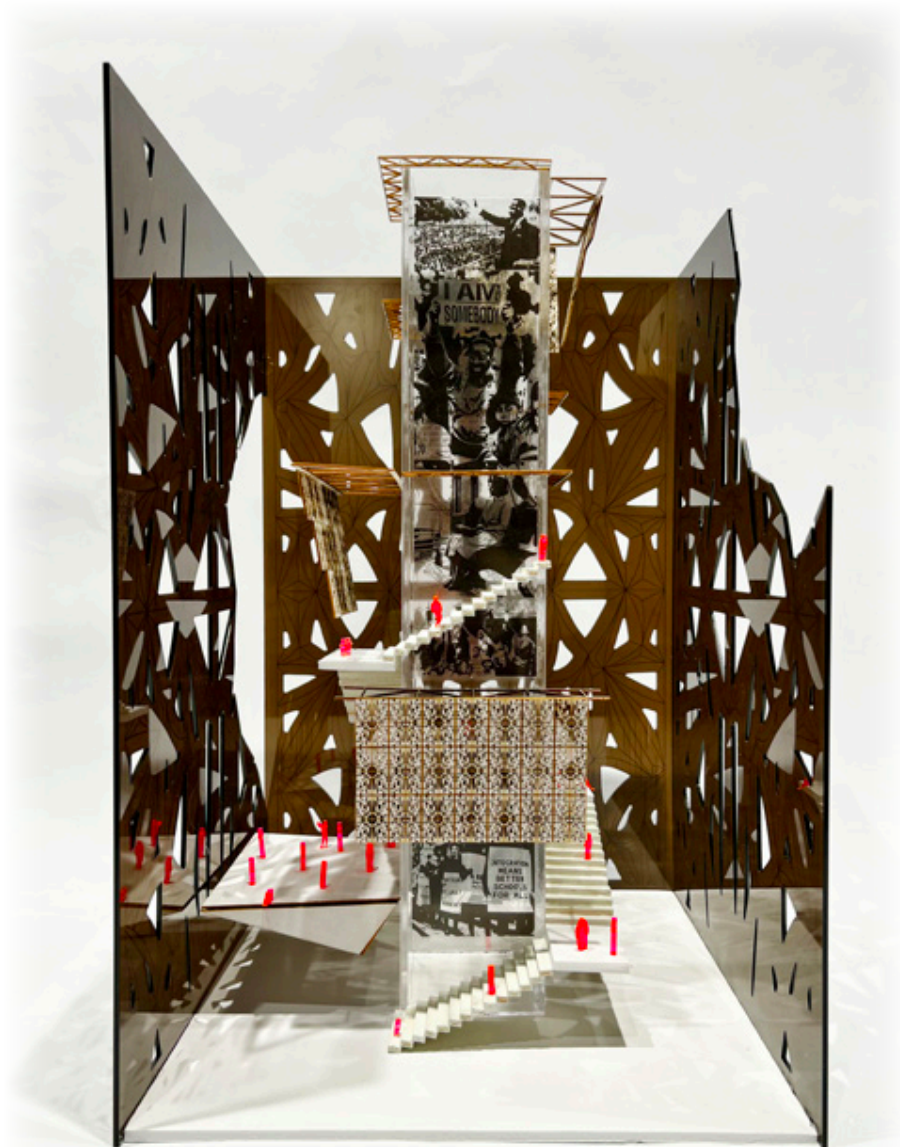
| WORM Site Plan

Front lawns of Avery Library, Columbia University









To me, life is about creating moments, and architecture serves as the silent yet powerful facilitator of these experiences. As a designer, I strive to craft spaces that resonate on a personal level, places that can hold both intimate moments and grand memories. My goal is to design environments that foster deeper connections, both among individuals and with the world around them. In this way, architecture transcends its physical form to become an active participant in the lives of those it touches.