

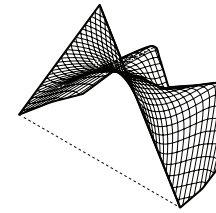
**QIYING
RUAN
/ANDREA**

Selected Works | 2019 - 2024
Syracuse University | Bachelor of Architecture

CONTENT



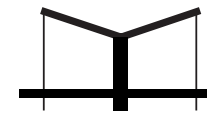
[p1 - p8]
IN/STABILITY



[p1 - p8]
TENSILE LINKAGE



[p1 - p8]
URBAN LIGHTBULB



[p1 - p8]
GIDA+



[p1 - p8]
MUD & JUSTICE



[p1 - p8]
AND MORE..



IN / STABILITY

Typhoon Research & Education Center

Academic **ARC409 | SP 2023**
 Location **Wenling, China**
 Professor **Fei Wang**
 Collaborator **Alexandra Grypinich**

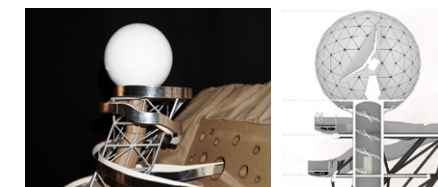
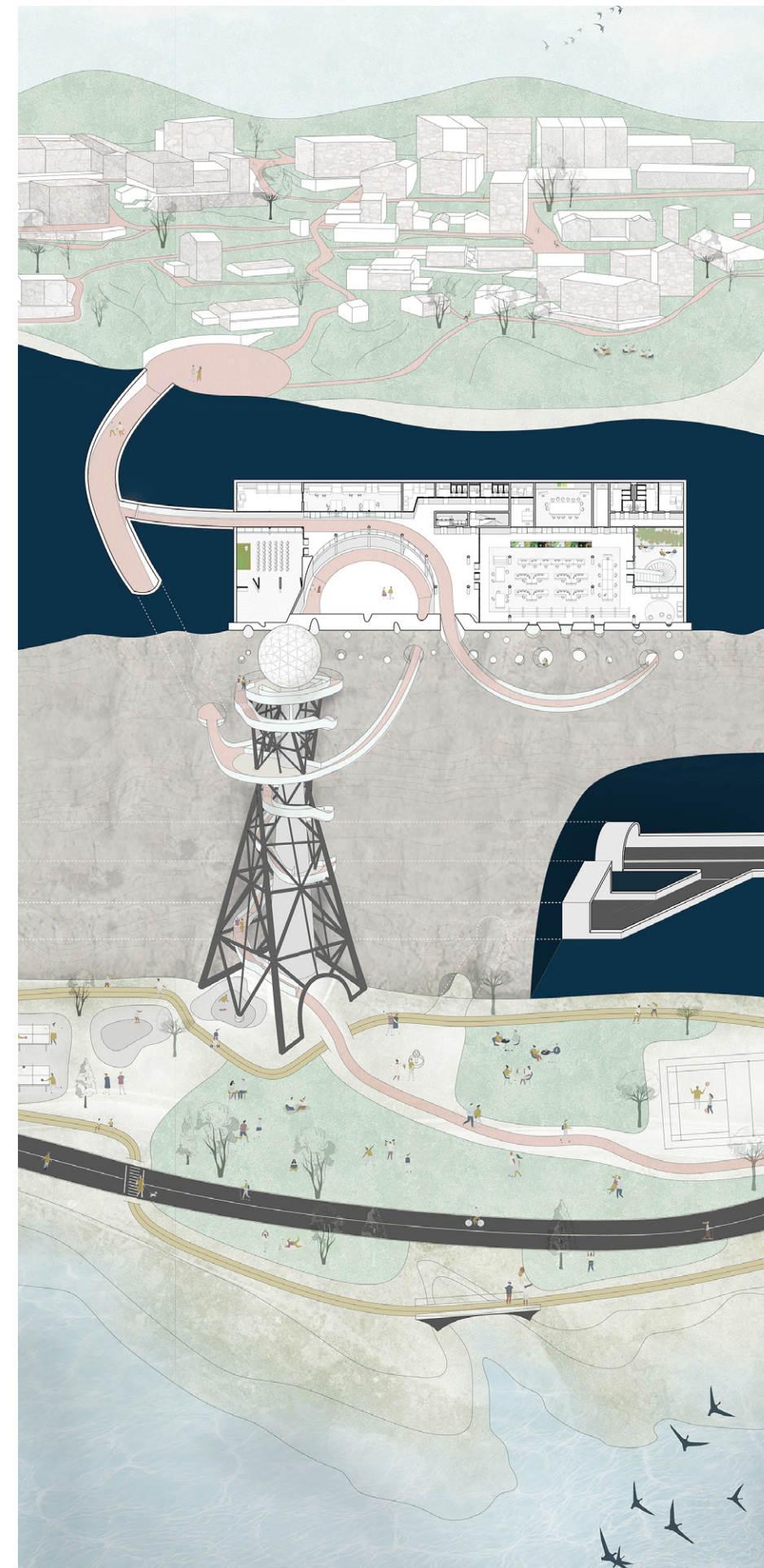
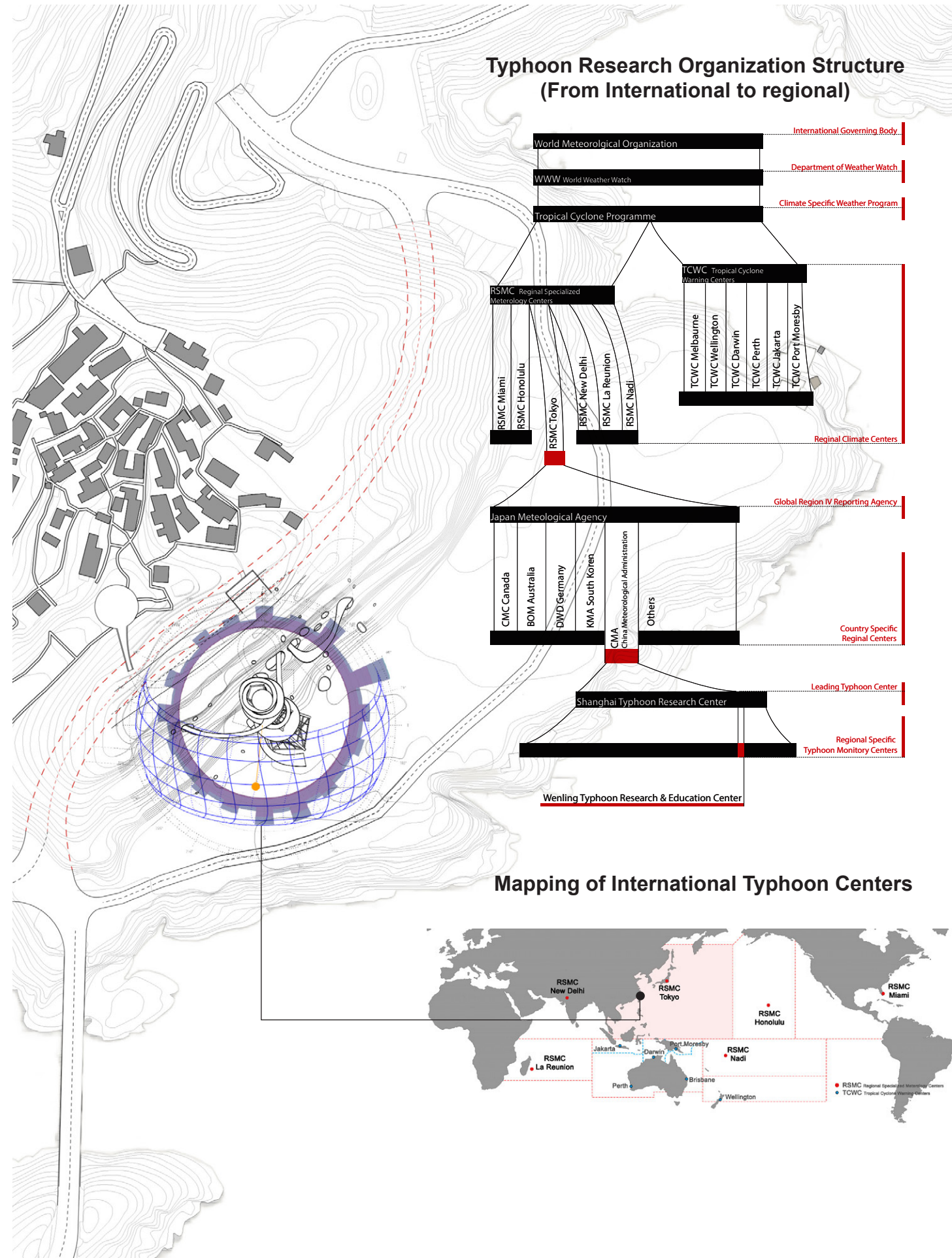
Awarded Integrated Design Studio Prize | Systems Innovation and Integration
The 21st Asian Design Award in Excellence | Ecological, Healthy & Sustainable



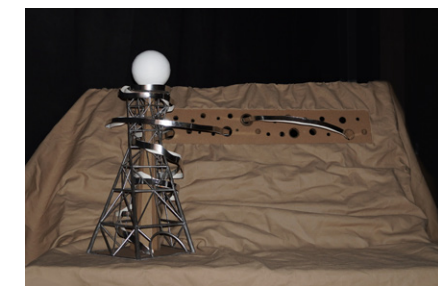
Rendered view from the ocean

IN / STABILITY is a resolute manifesto addressing the pervasive fear and uncertainty induced by natural disasters along the eastern coast of Wenling, China. It serves as a safe haven for people to experience, interact with, and research typhoons. The design concept draws inspiration

from the steep cliff site, connecting the village on the mountaintop to the previously wasted waterfront land, transforming it into an activity site. Celebrating the circular shape of a radome, the design prominently features curves and circles as its primary design language.



Radome | photography and rendered detail



Elevation View | physical model

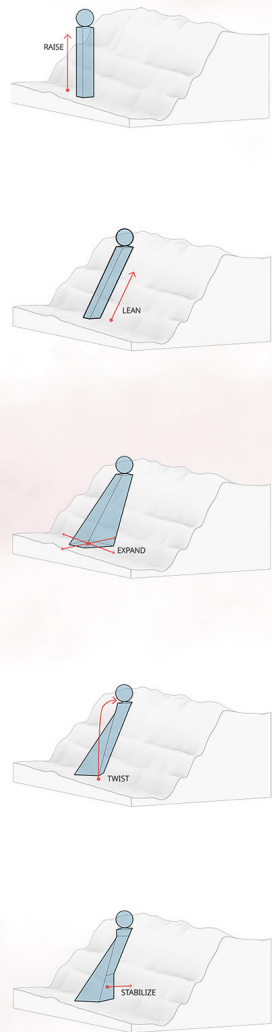
Left Page
Comprehensive Site Plan with sun and wind analysis

Right Page
Design Narrative Drawing

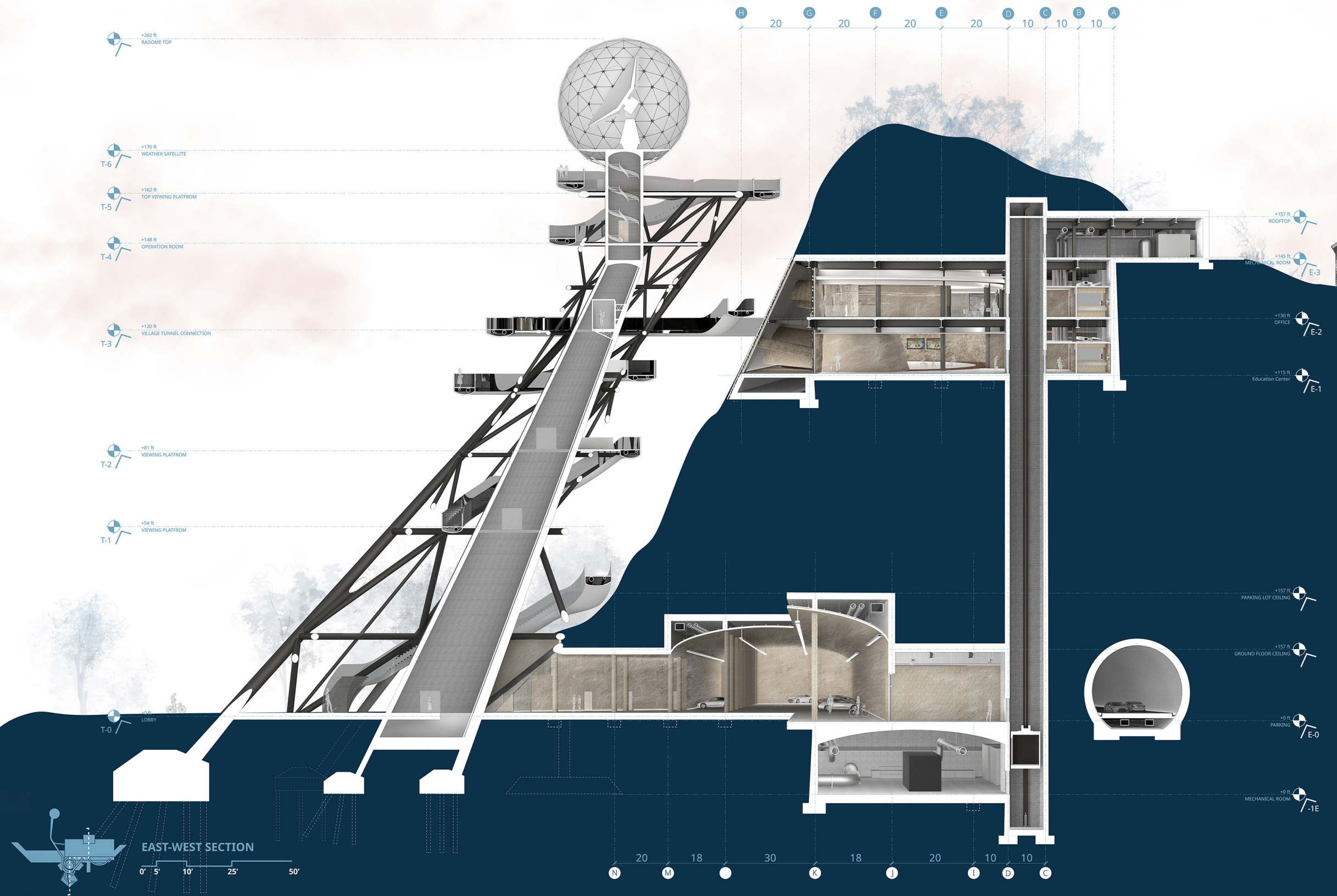
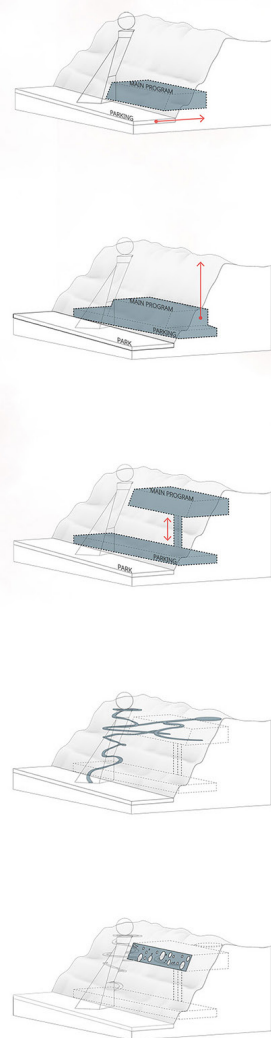


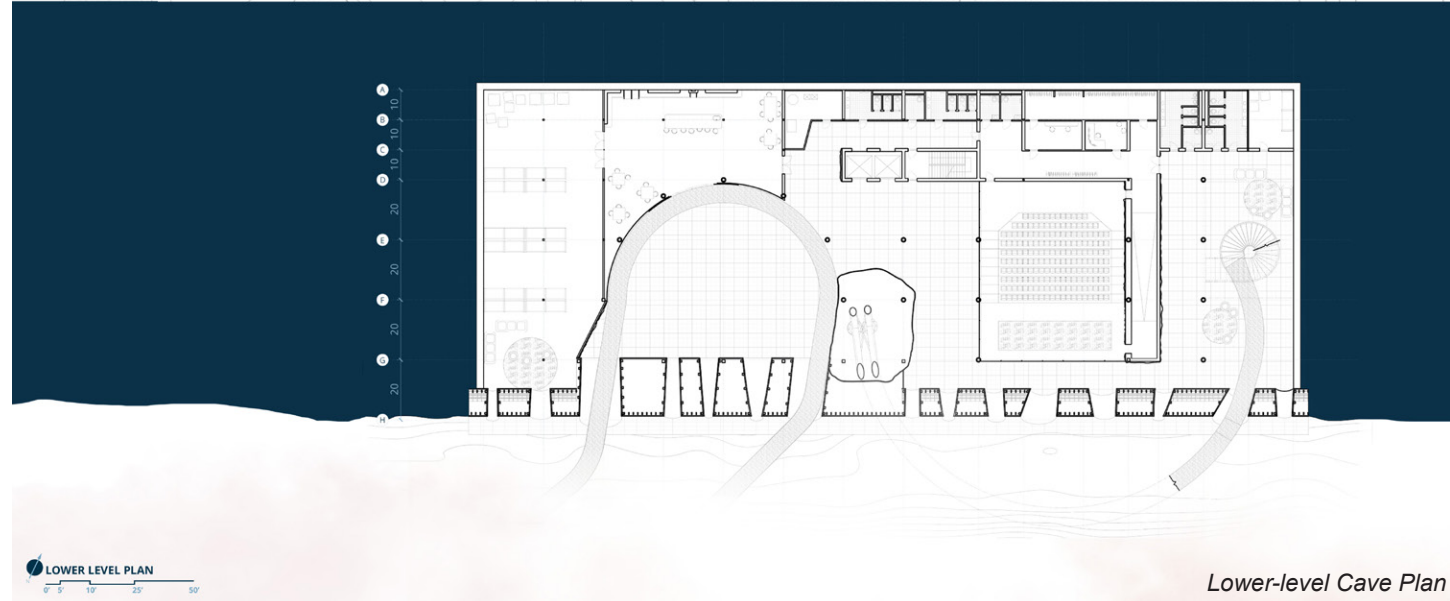
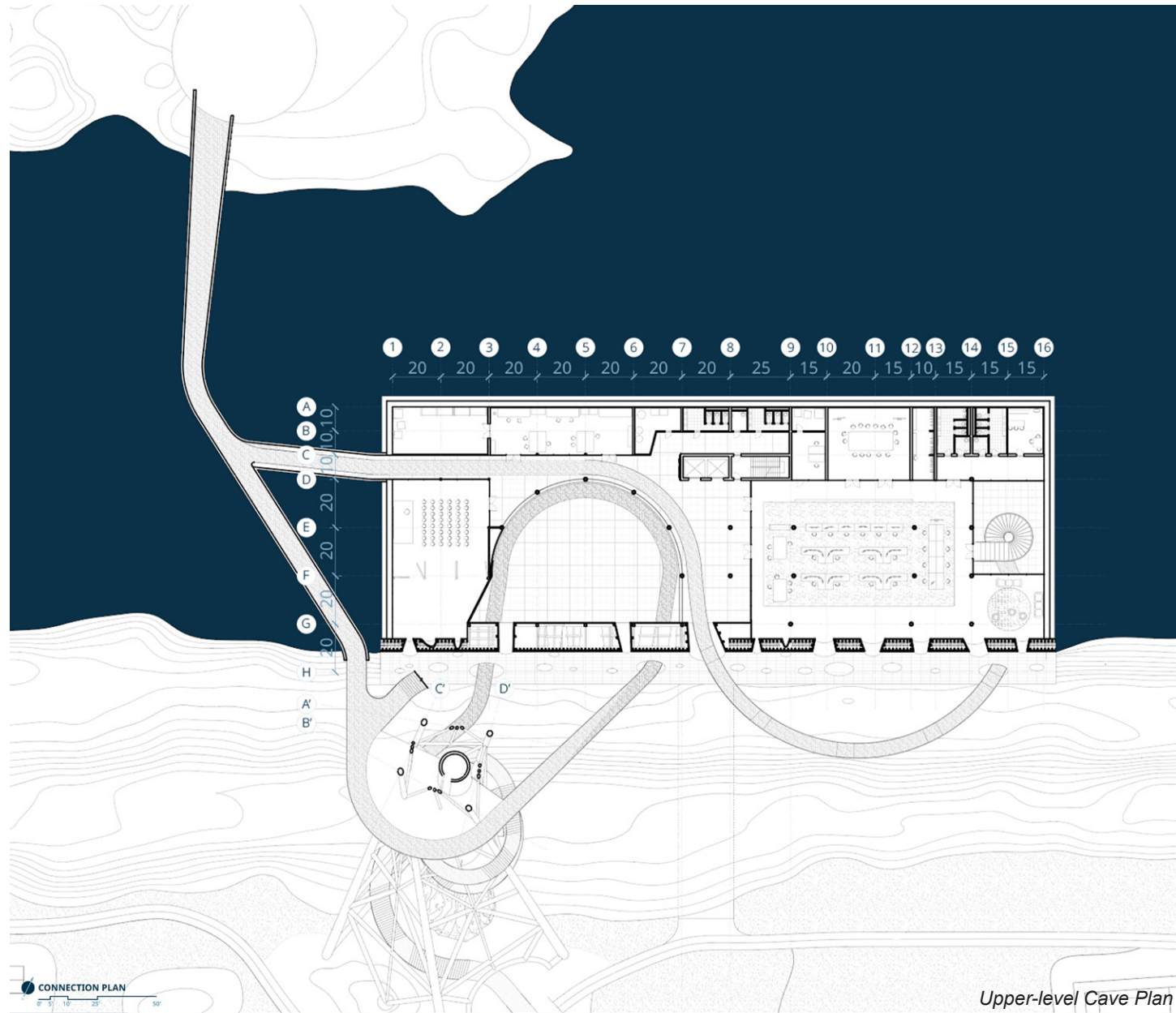
Online Photography | Local residents look at massive waves caused by approaching Typhoon Vongfong

TOWER FORM ITERATION



FORMAL STRATEGY DEVELOPMENT





Tower Skeleton Structure

- Vertical Support
- Horizontal Bracing
- Cross Bracing
- Caisson Foundation
- Spread Footing

Tower Elements

- Radome
- Concrete Core
- Stairs & Ramps

Cave Structure

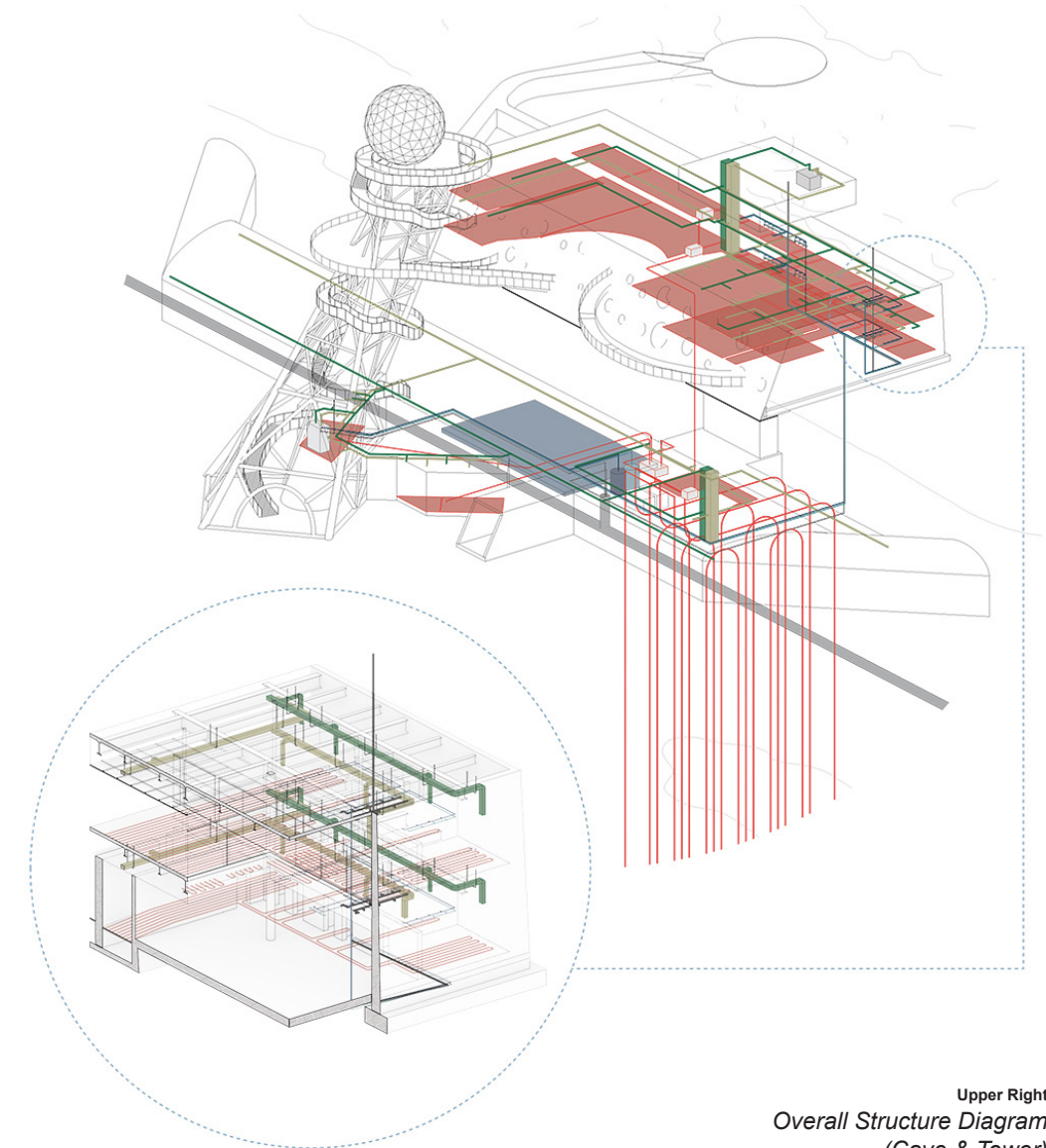
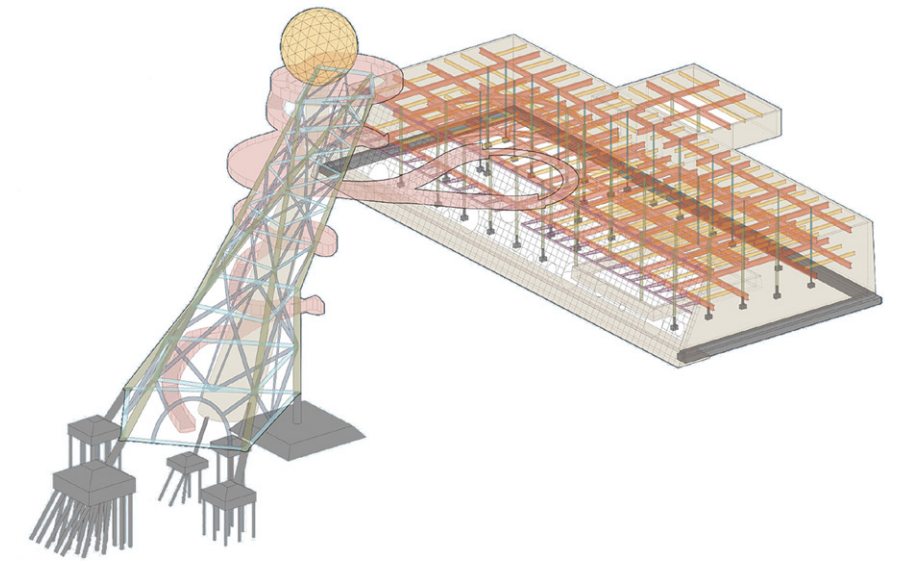
- Primary Beams
- Secondary Beams
- Cantilever Beams
- Primary Columns
- Secondary Columns
- Retaining Walls
- Foundation

HVAC

- Radiant Floor Pipes
- Supply Ventilation Ducts
- Return Ventilation Ducts

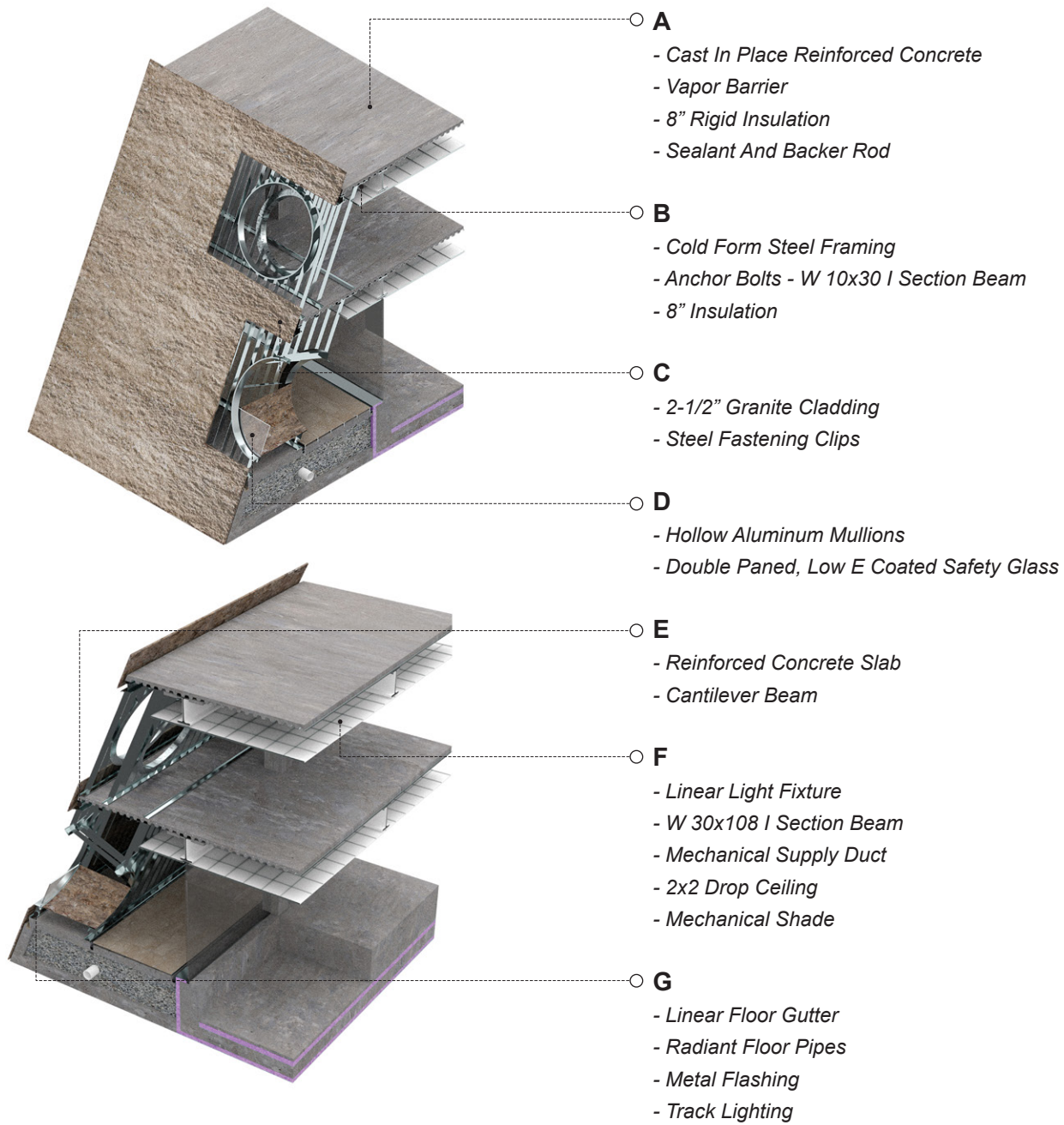
WATER SYSTEM

- Hot Water
- Cold Water
- Waste Water



Upper Right
Overall Structure Diagram
(Cave & Tower)

Bottom Right
Overall Building System Diagram
& Zoomed-In Chunk

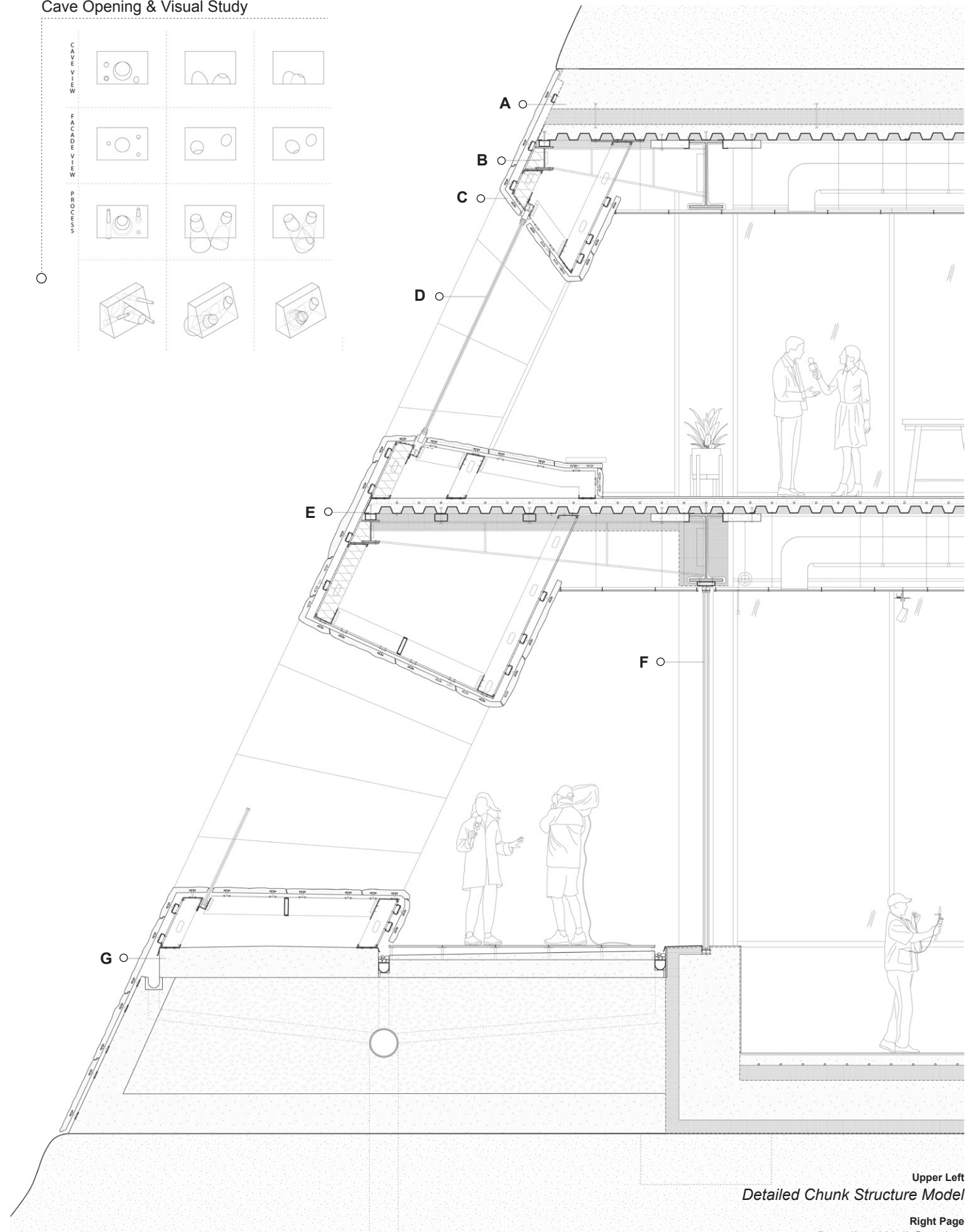
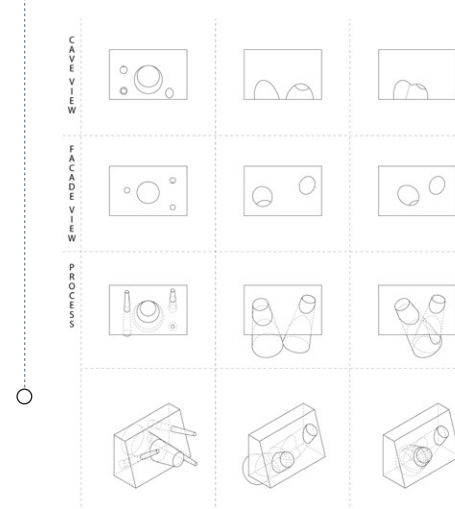


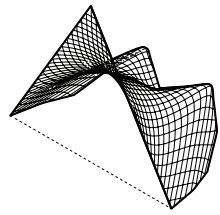
Rendered View | Pathway looking towards the center lobby



Rendered View | hallway next to the double-skin facade

Cave Opening & Visual Study





TENSILE LINKAGE

Research on Tensile Mechanism Applications

Academic Professor Collaborators **Directed Research | SP 2024**
Daekwon Park
Megha Uddin, Nanditha Rayudu

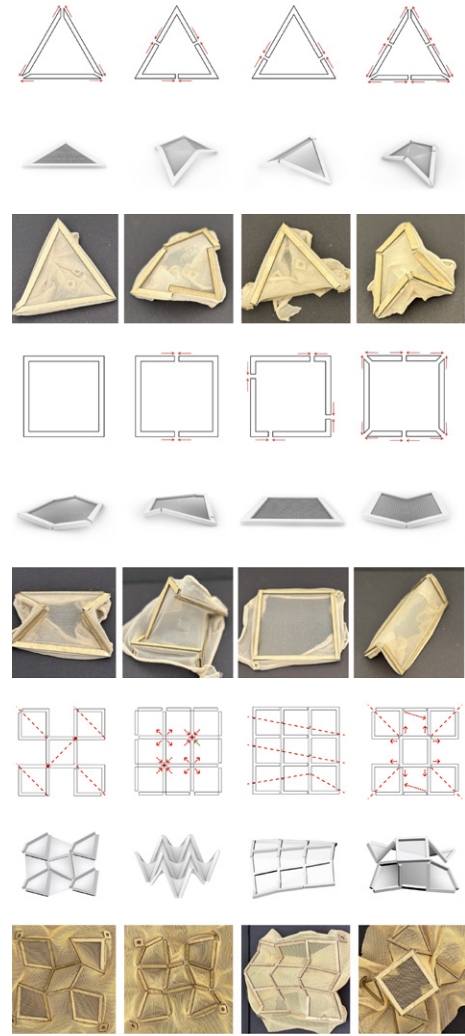


Rendered view of the envisioned application

Our research, "Tensile Linkage," explores utilizing tensile forces to induce controlled deformation in geometries. The initial phase involved transforming simple geometries by gluing laser-cut chipboard pieces onto stretched fabric to observe deformation patterns. This approach proved less effective when scaled

up, leading us to develop a series of hinges, termed tensile linkages, to compensate for the lost elasticity of fabric and achieve the desired effects. Through trial and error, we developed an expandable and incremental prototype based on the found deformation principle, resulting in a lightweight and collapsible structure.

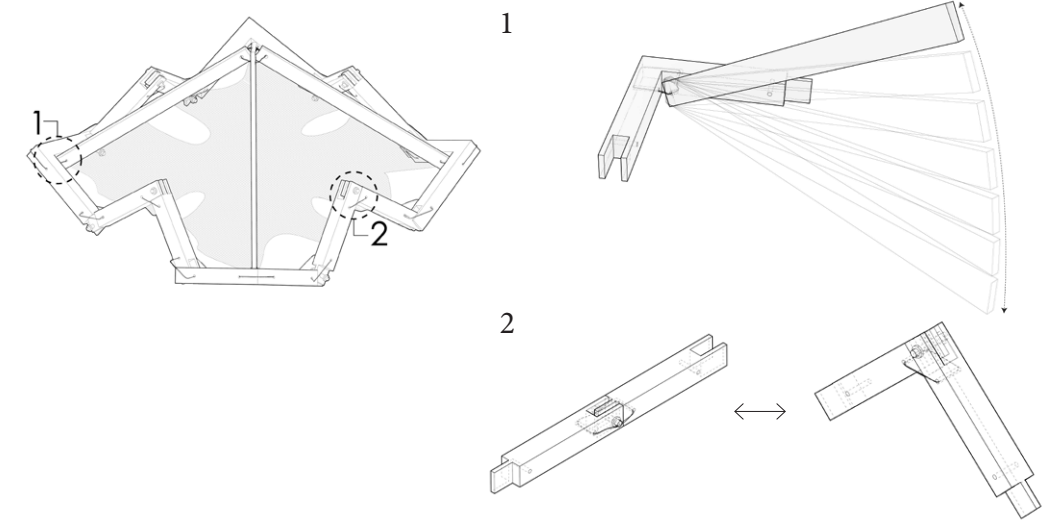
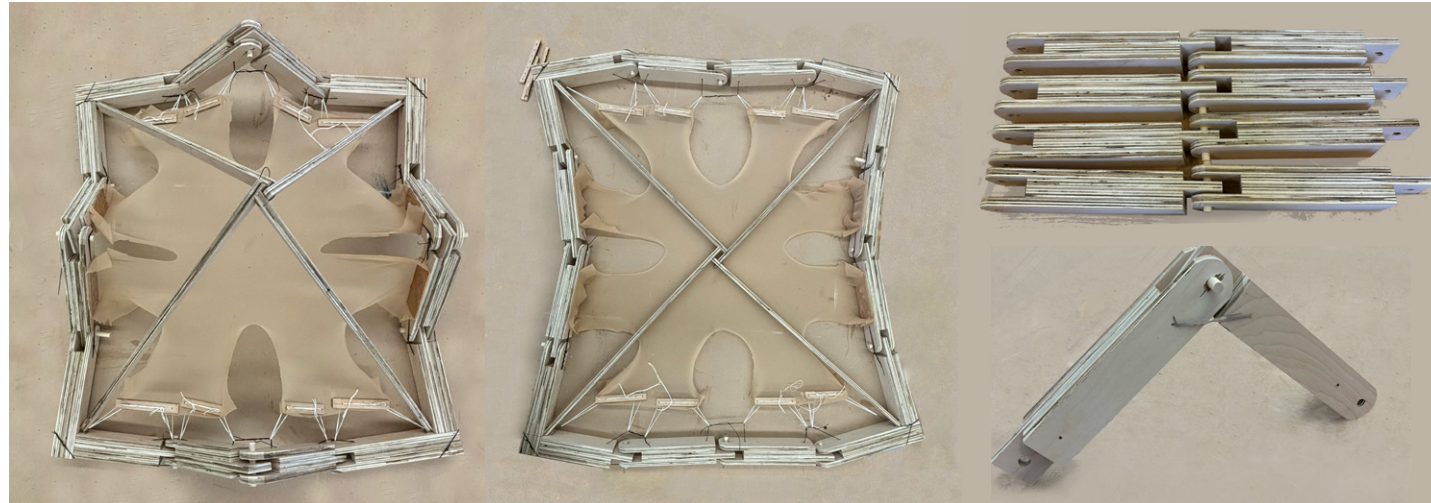
I Form Finding



II Upscaling Experiments & Introduction of Tensile Linkages

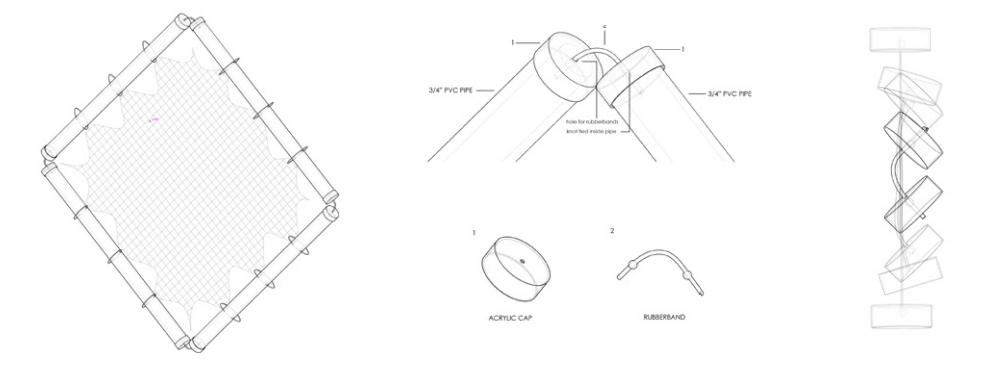
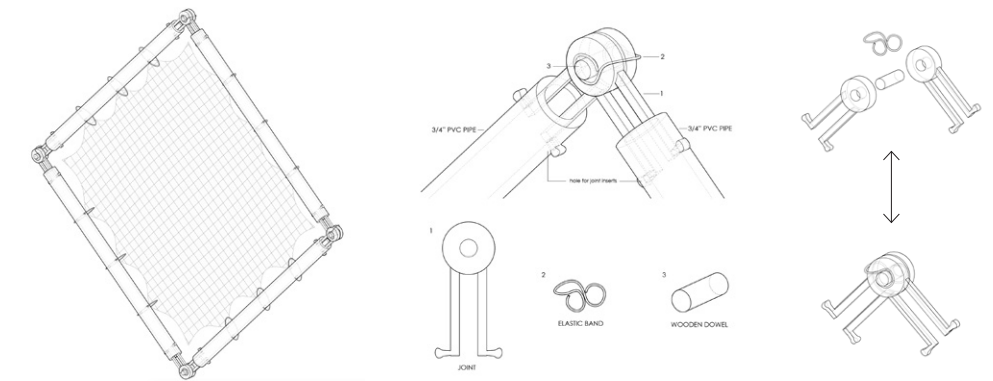
In our first attempt to scale up, we created a 4ft by 4ft wooden frame model, which successfully performed the pop-up effect a few times. However, the heavy

framework compromised the fabric's elasticity. This experiment prompted us to search for other materials that are both lightweight and durable for the framework.



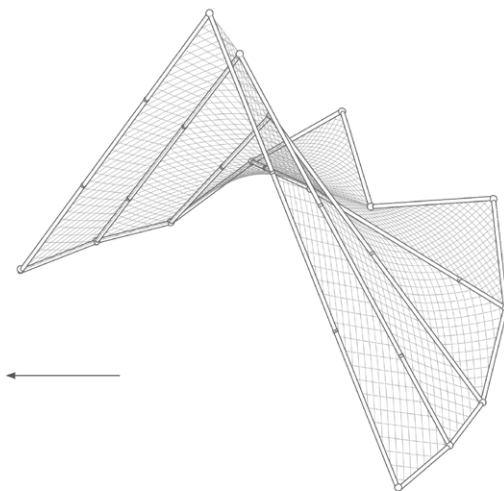
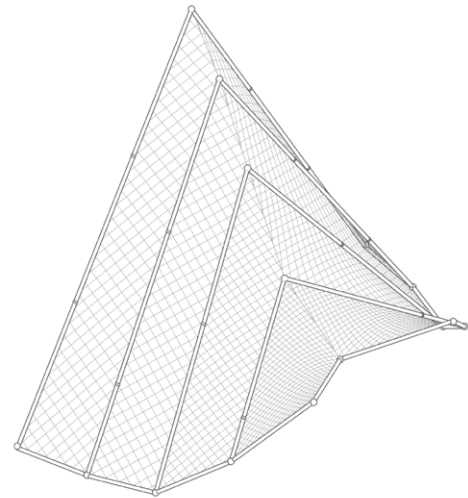
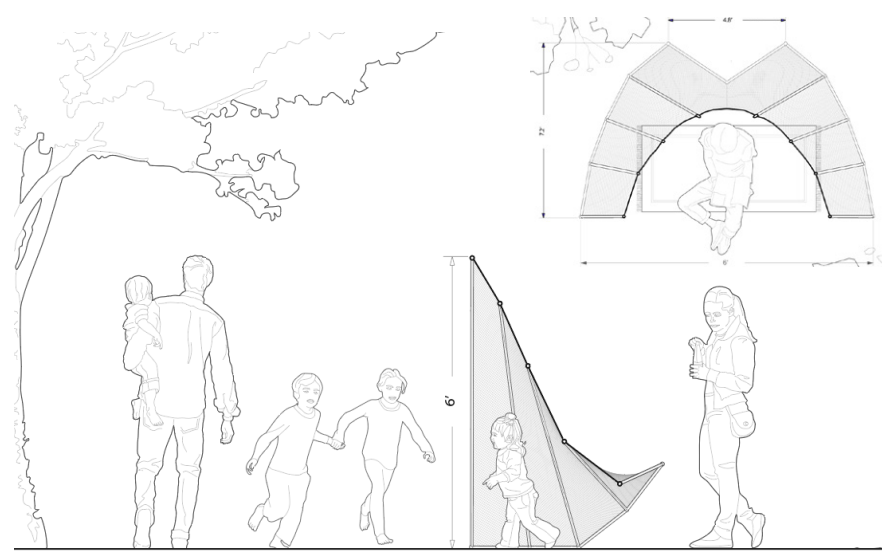
Learning from the wooden model, we turned to PVC pipes. By incorporating elastic bands along

with the stretchability of fabric, we achieved the desired effects with our subsequent prototypes.



III Application of Tensile Linkages

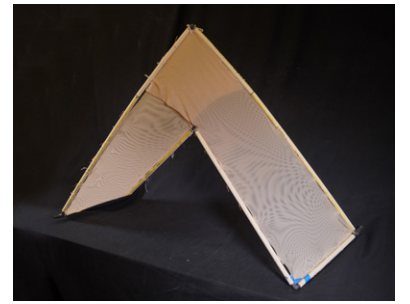
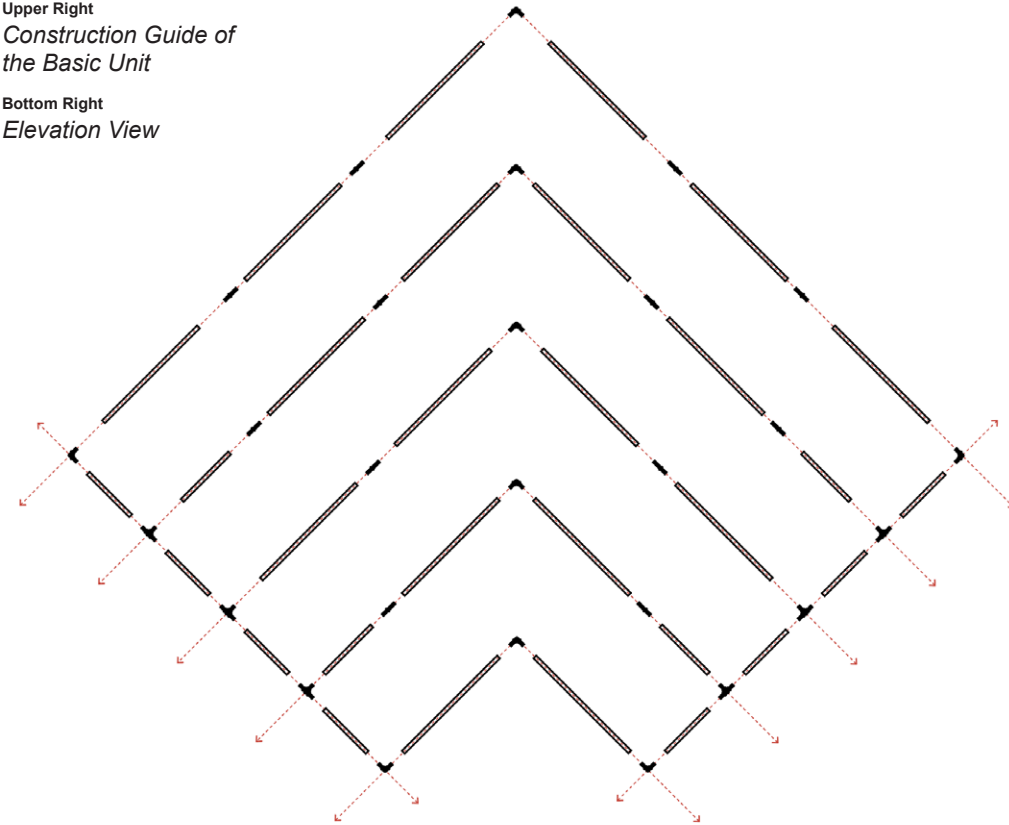
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Left Page
Documentation Drawing
of the Basic Unit

Upper Right
Construction Guide of
the Basic Unit

Bottom Right
Elevation View



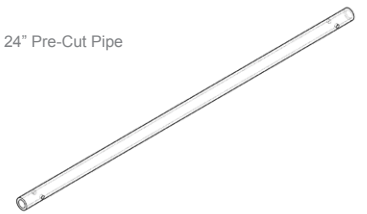
Photography | 3ft by 3ft Study Model

1/2" x 12" Pre-Cut Pipe



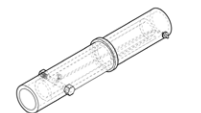
X 12

1/2" x 24" Pre-Cut Pipe



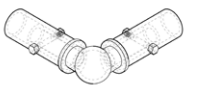
X 18

Linear Joint



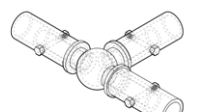
X 12

Corner Joint



X 9

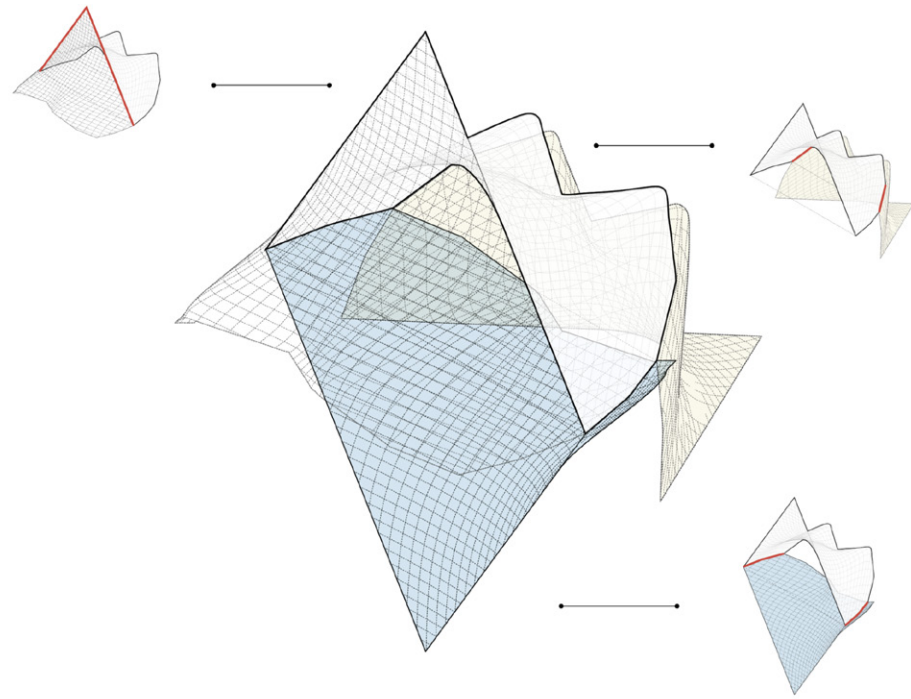
T-Shape Joint



X 6

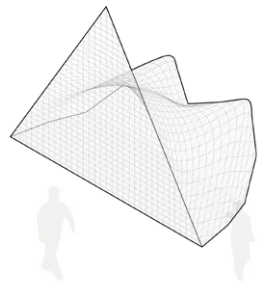
Upper Left
Attachment Diagram for the
modular tent

Bottom
Examples of Forms & Shapes

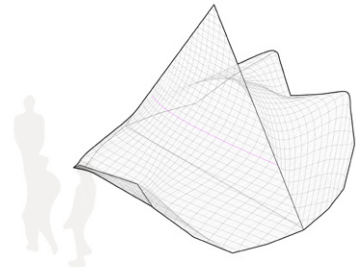


Rendered view of the envisioned application

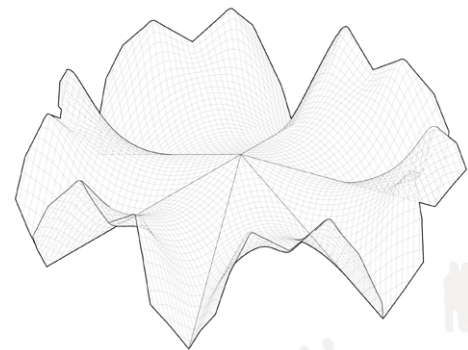
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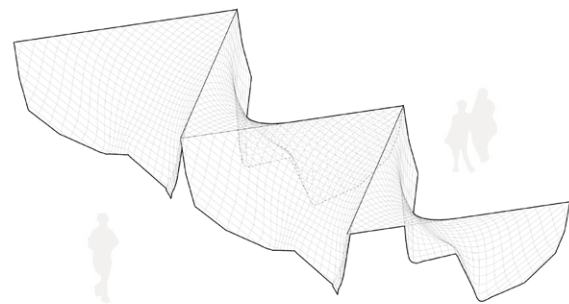
2 UNITS



6 UNITS



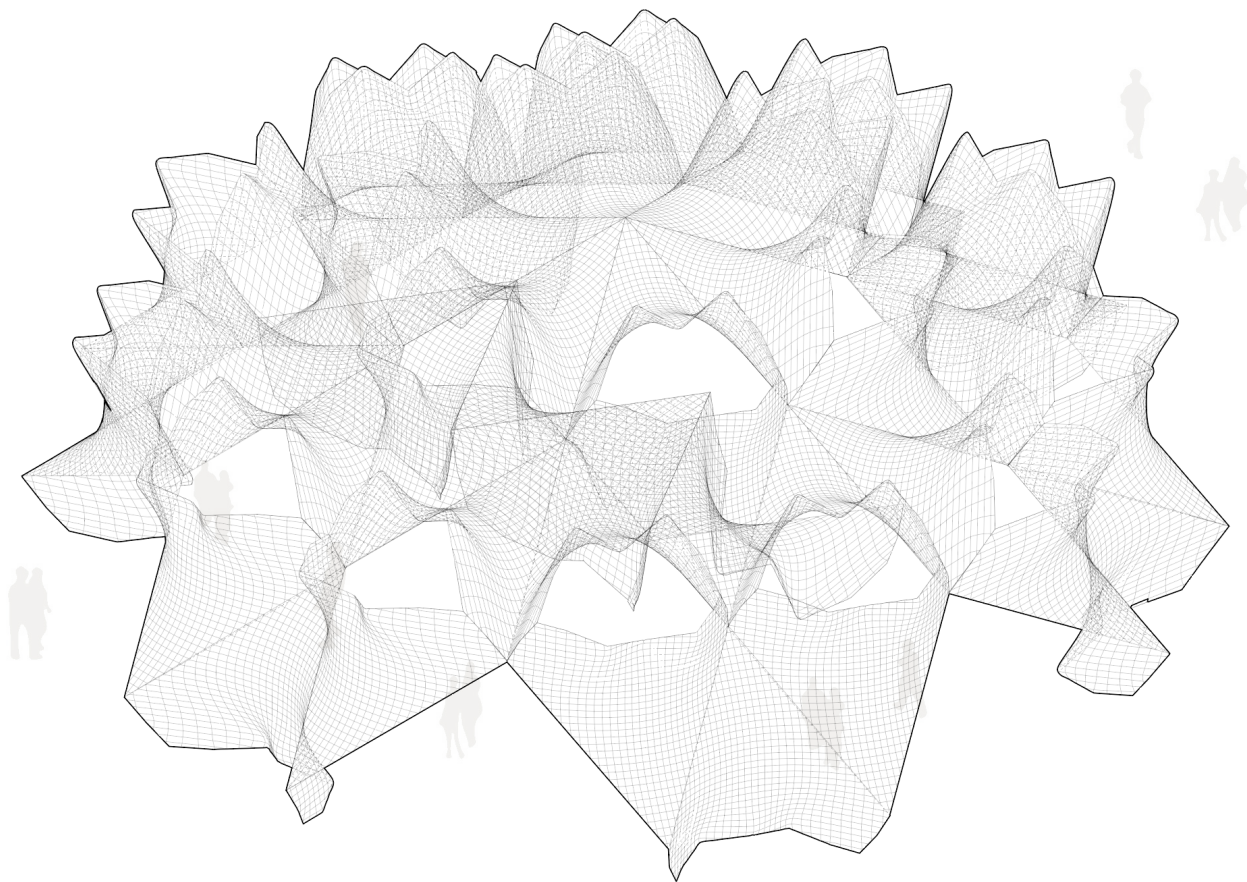
4 UNITS

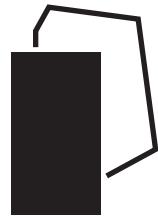


9 UNITS



42 UNITS

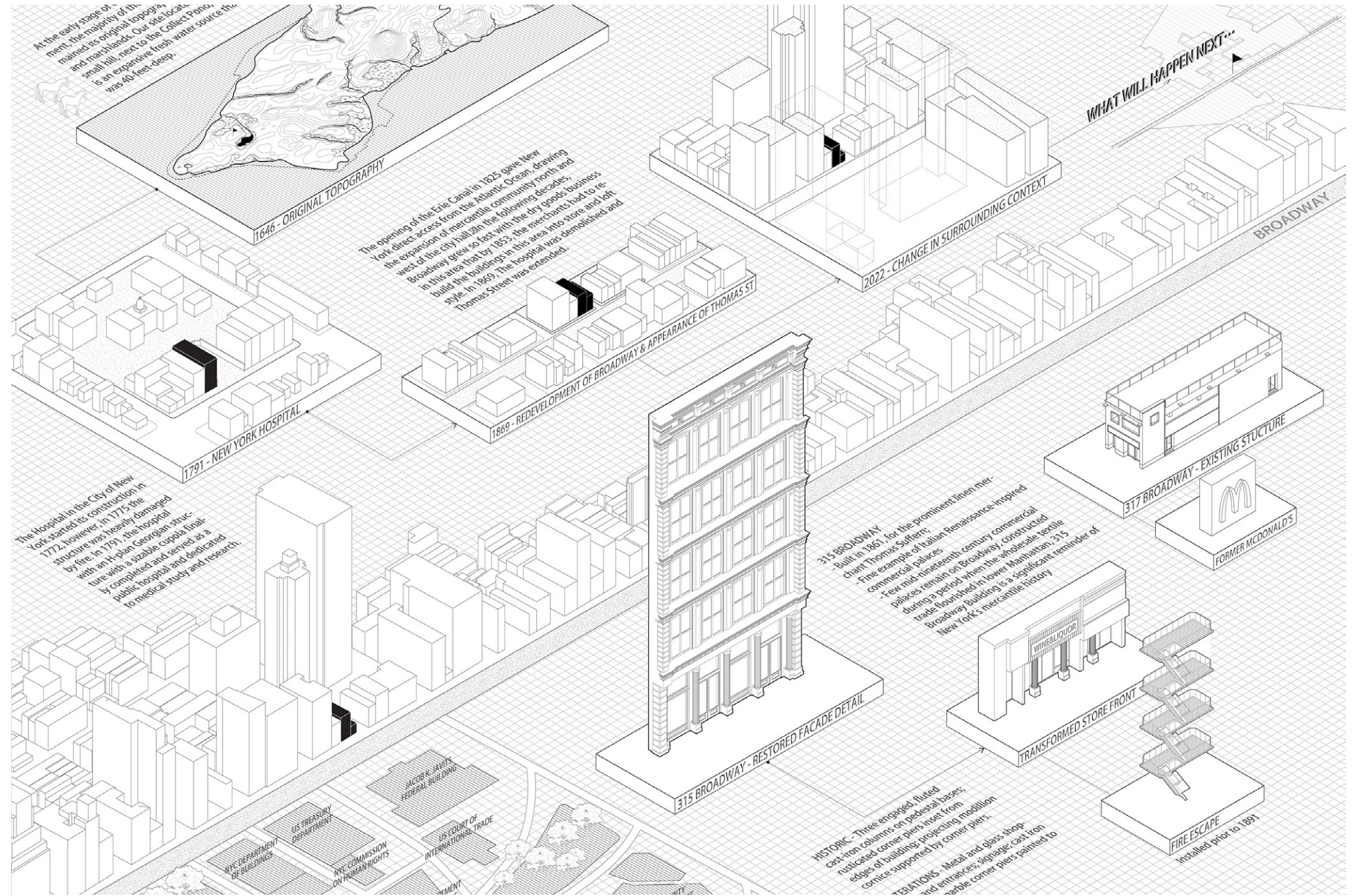




URBAN LIGHTBULB

New Landmark Preservation Commissioner (LPC) Center

Academic Location Professor Collaborator
ARC407 | FA 2022
New York City
Rami Abou-Khalil
Zhuofan (Kris) Song



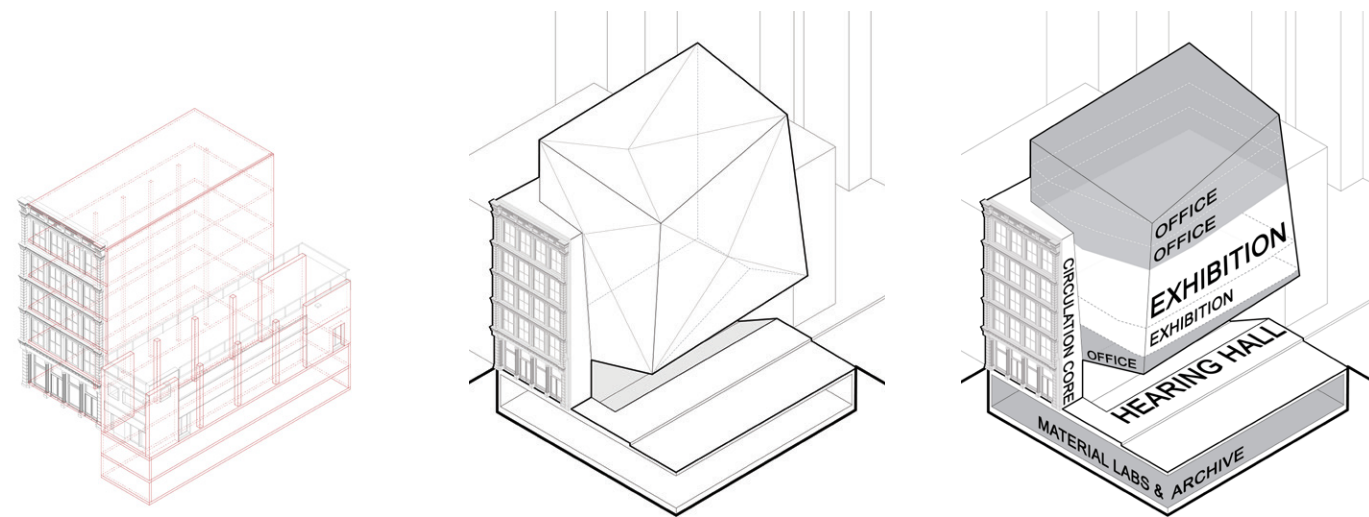
Research on the History of Broadway Street in New York City

The new LPC Center is designed to serve as both a home for the Landmark Commissioners in New York City and a model of preservation through revitalization, while also opening up the space to the public. Located at 315 Broadway Street, in the heart of historical districts, the project adheres to two key strategies: prioritizing accessibility and transparency to create an inclusive

and inviting environment, and maintaining a low profile to respect the scale of surrounding buildings. Featuring an interlocking design language, the new structure appears almost as a floating object lightly attached to the landmark building. The transparency of materials allows light to permeate the building, illuminating the street and providing a sense of security and warmth.



Rendered Street View | Looking from the Broadway Street

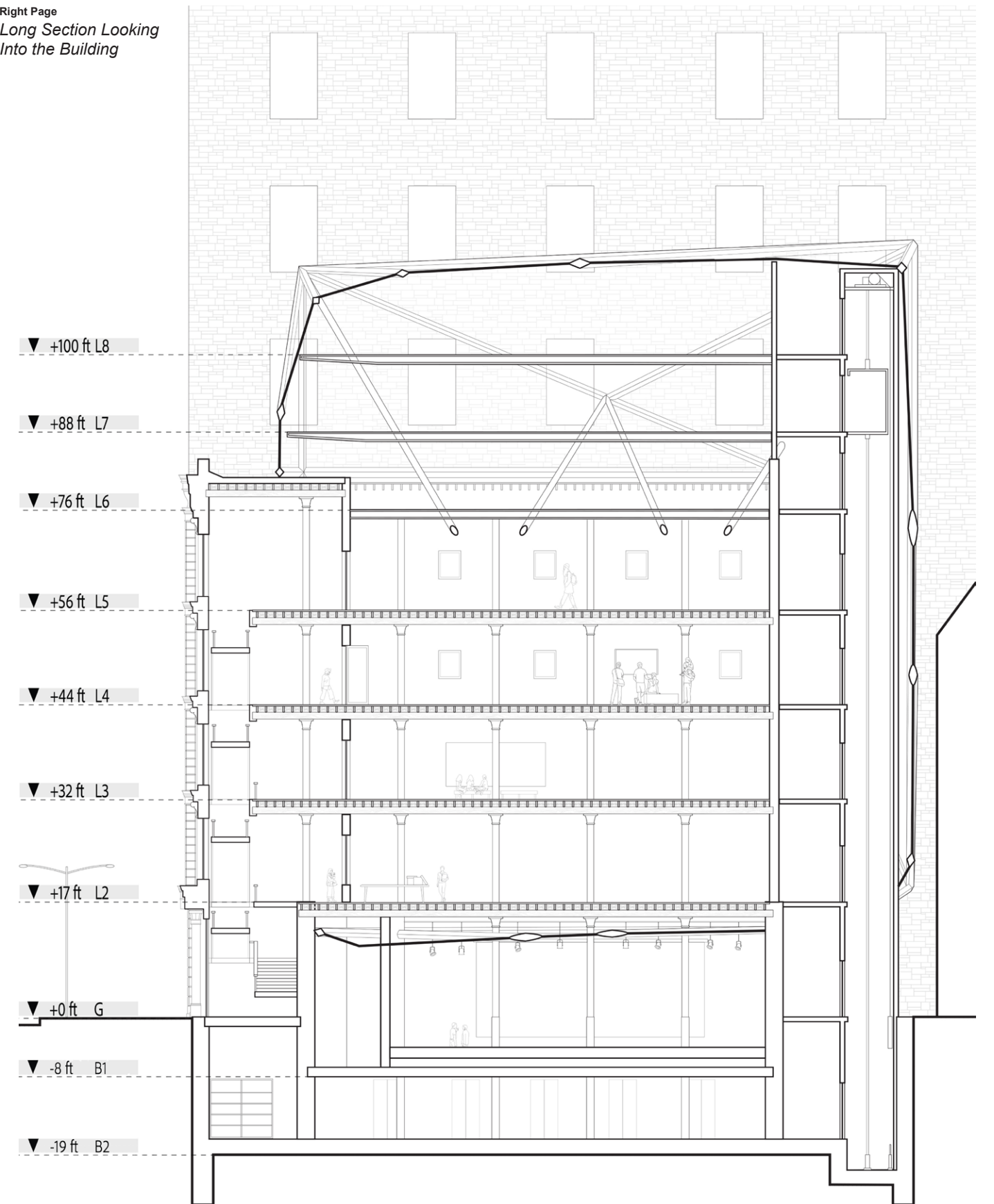


Existing Structure

Interlocking Design Strategy

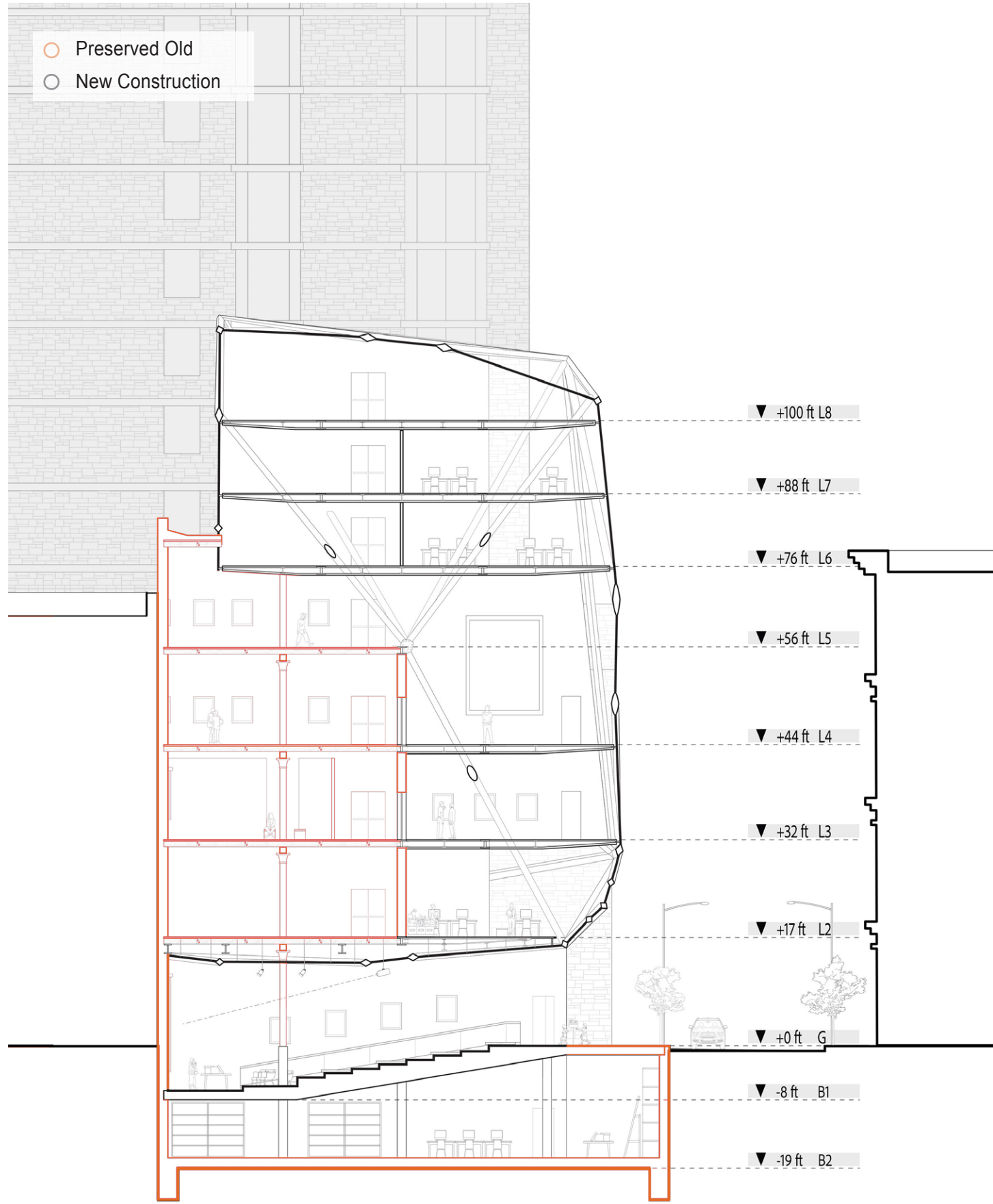
Program Distribution Diagram

Right Page
Long Section Looking
Into the Building



0 5 15'

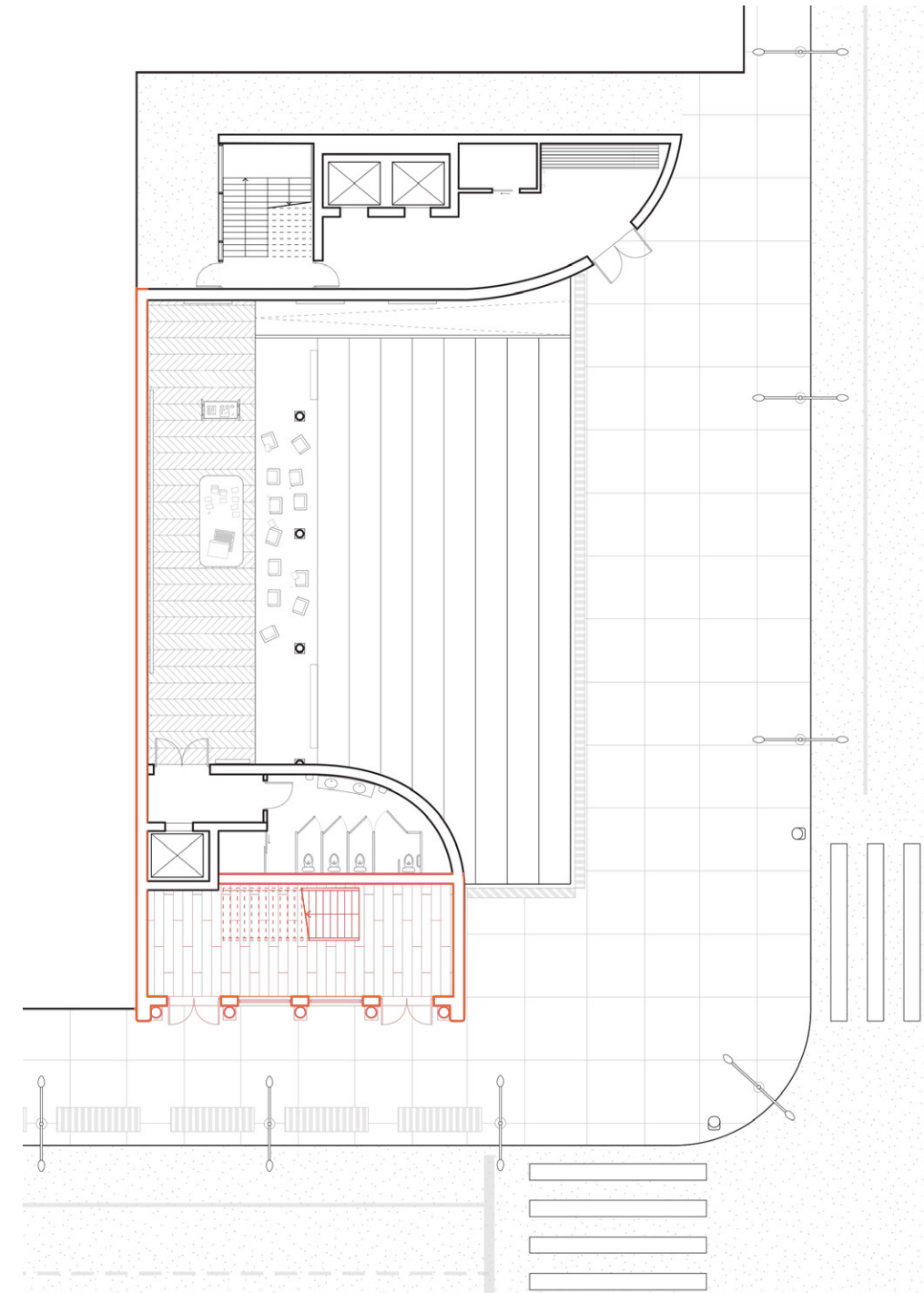
- Preserved Old
- New Construction



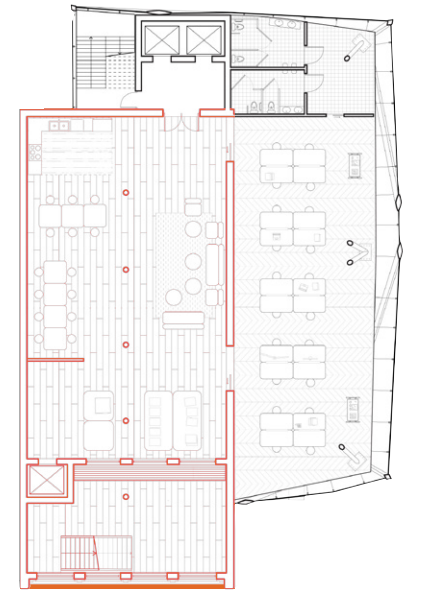
0 5 15'

Left Page
Transverse Section

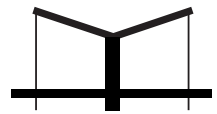
Bottom Right Page
Ground Floor Plan for
Entrance & Hearing Hall



0 5 15'



Typical Floor Plan for Office



GIDA+

Construct Home After Crisis for Nigerian Refugees

Location **Nigeria**
Organization **Young Architects Competitions (YAC)**
Collaborator **Ruqaiyah Bandukwala, Allison Howard, Qi (Lucy) Liu**

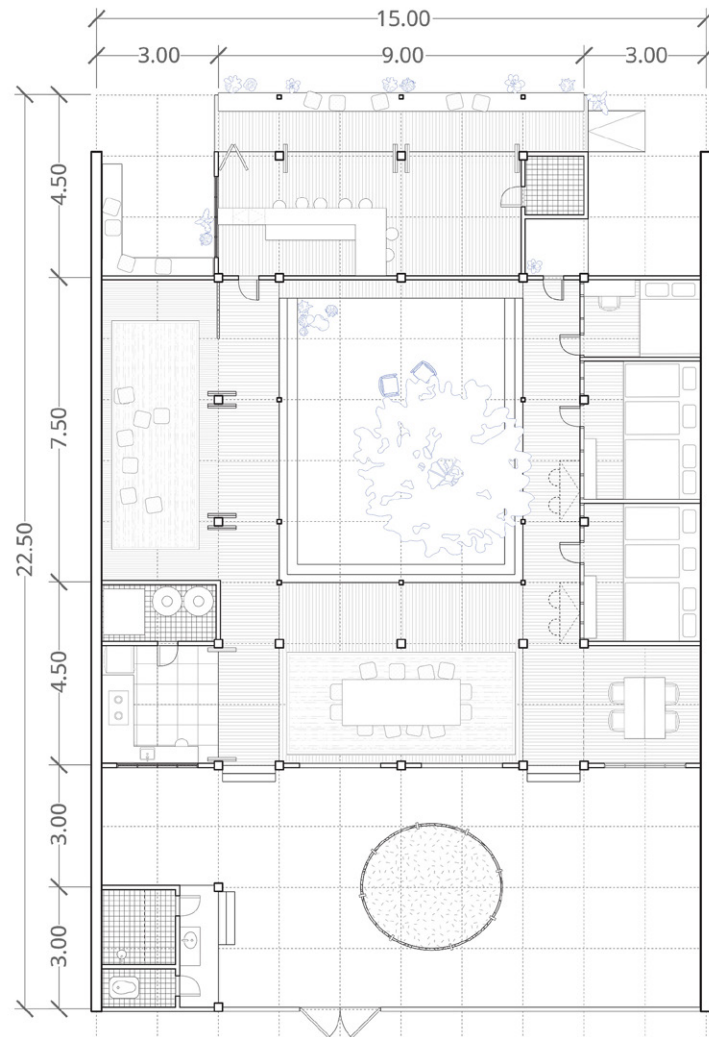
Awarded Finalist Prize | Young Architects Competitions (YAC)



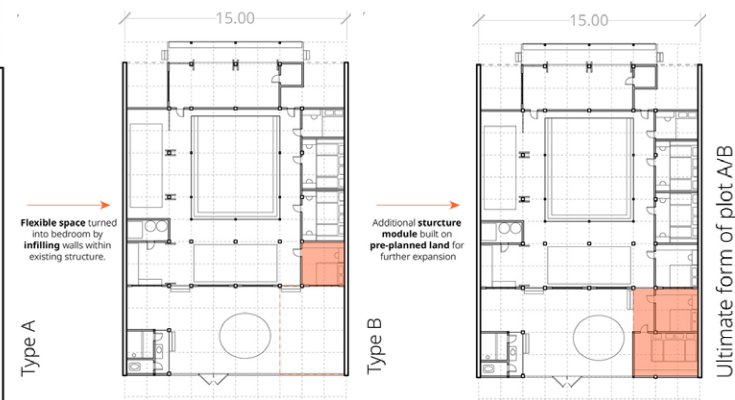
Research on the History of Broadway Street in New York City

The word 'gida' in Nigerian means home. We named the project GIDA+ to signify our hope of providing more than just the basic needs of a living space, but to create an actual home for those adversely affected by the humanitarian crisis in Nigeria. The proposal aims to balance individual and communal life through carefully

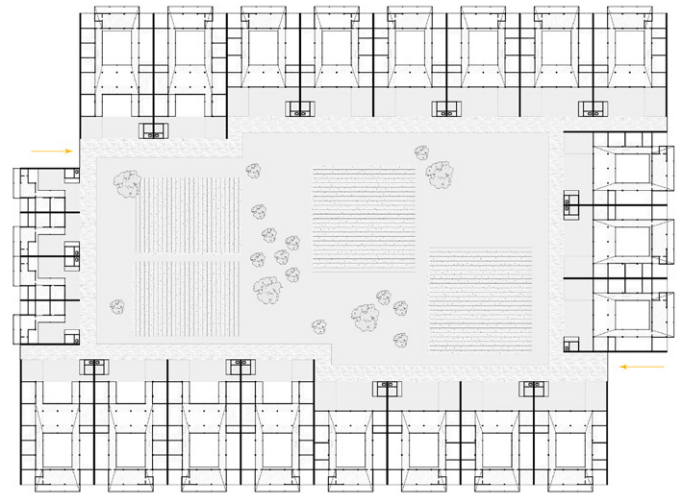
designed thresholds. Central to the project's community planning is the expertise of local residents in agriculture and farming. The strategy of incorporating shared butterfly roofs between families not only enhances structural efficiency but also collects water for domestic use and agriculture.



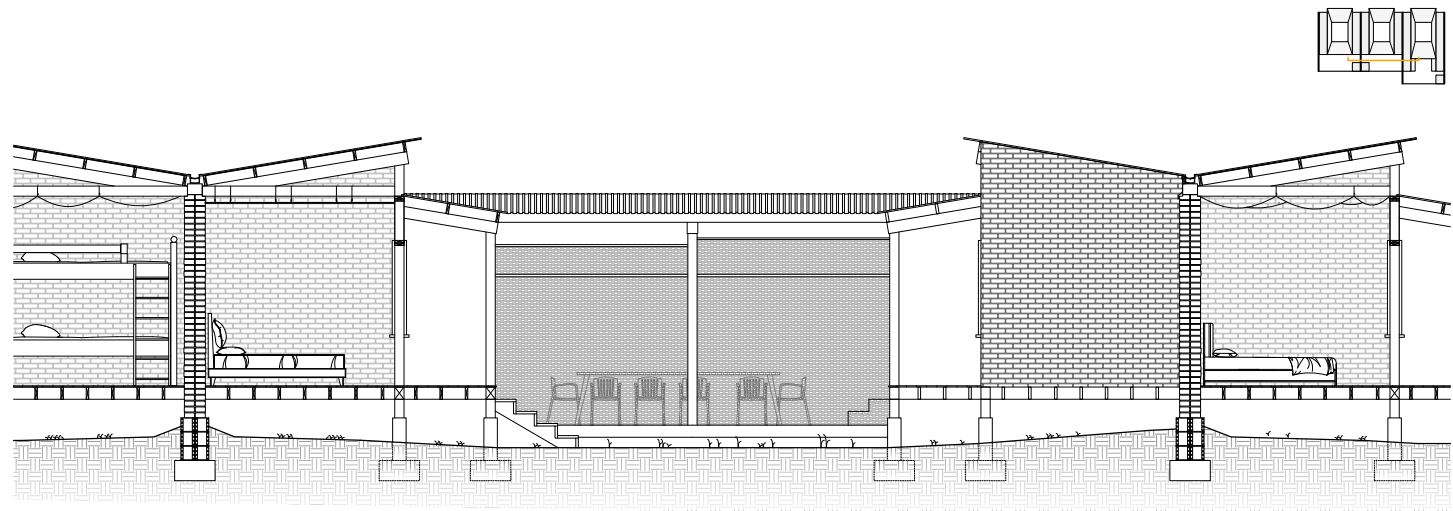
House Unit Plan



Ultimate form of plot A/B



Houses Cluster Plan

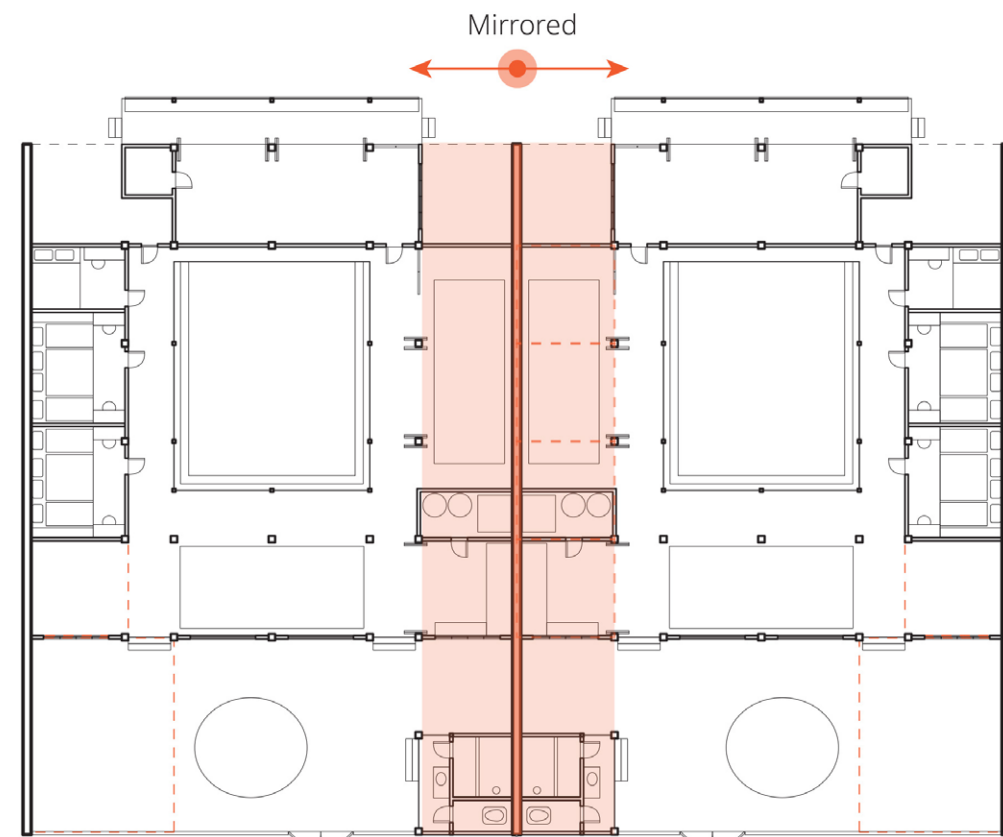


Transverse Section



Upper Right
Rendered View of the
Family Courtyard

Bottom Right
Design Strategy Diagram



Units share
structure wall to
increase
building efficiency



MUD & JUSTICE

Rethinking the Process of Peacemaking

Academic Location Professor
ARC307 | FA 2022
Syracuse, NY
Yutaka Sho

Individual Work

Preliminary Study of Material

Racial Discrimination in Local History
Major Events in Syracuse History Caused Harms to Community

Flour-Mud Test Brick

Material Texture Study

Material Strength Study

Soil : Flour = 1 : 4

Soil : Flour = 1 : 1

Model Top View

Study Model of the piling effect - 1'-3/8"

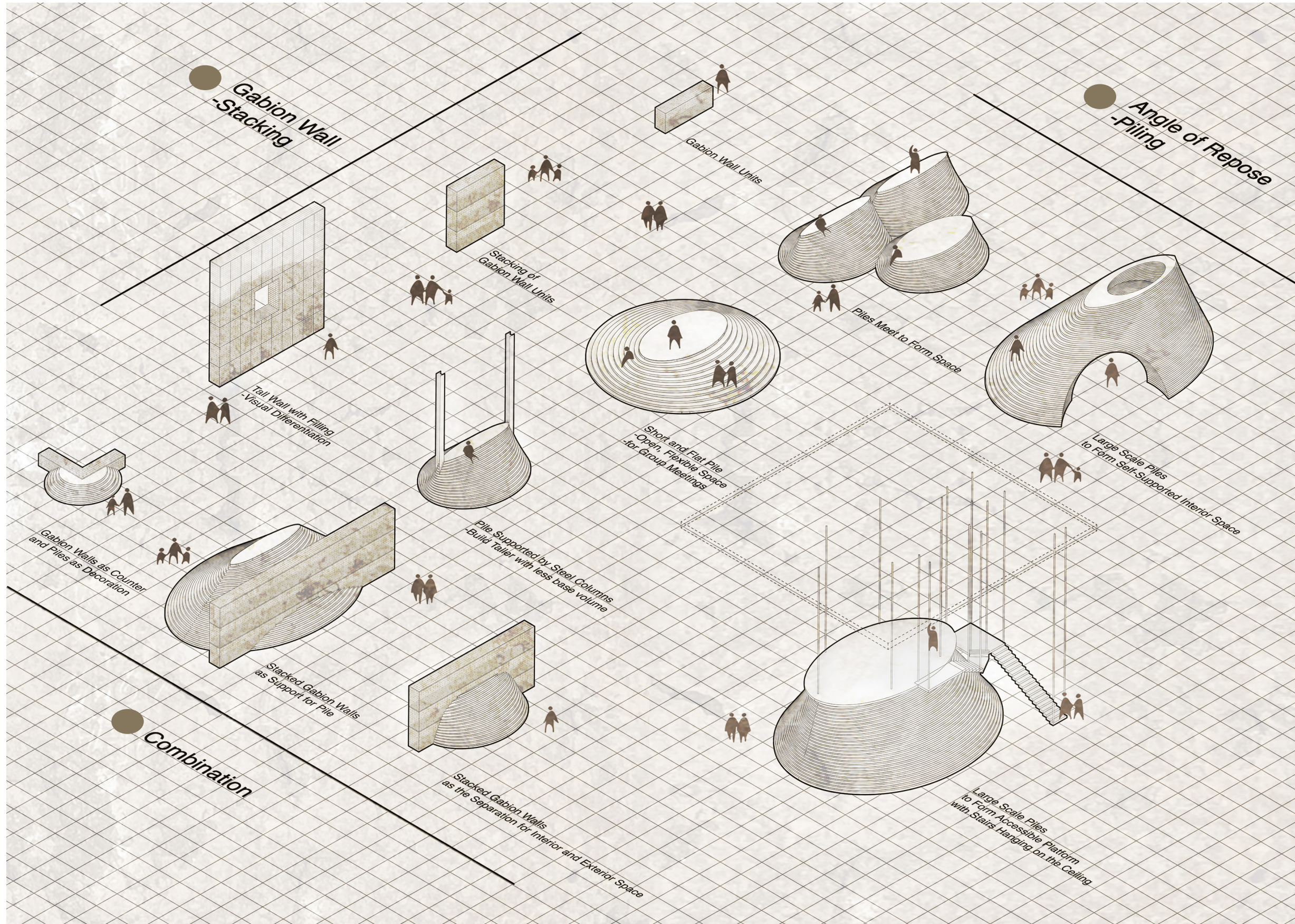
Air Bubbles in the cut surface
Break in Consistent Texture

Retrogradation (starch)

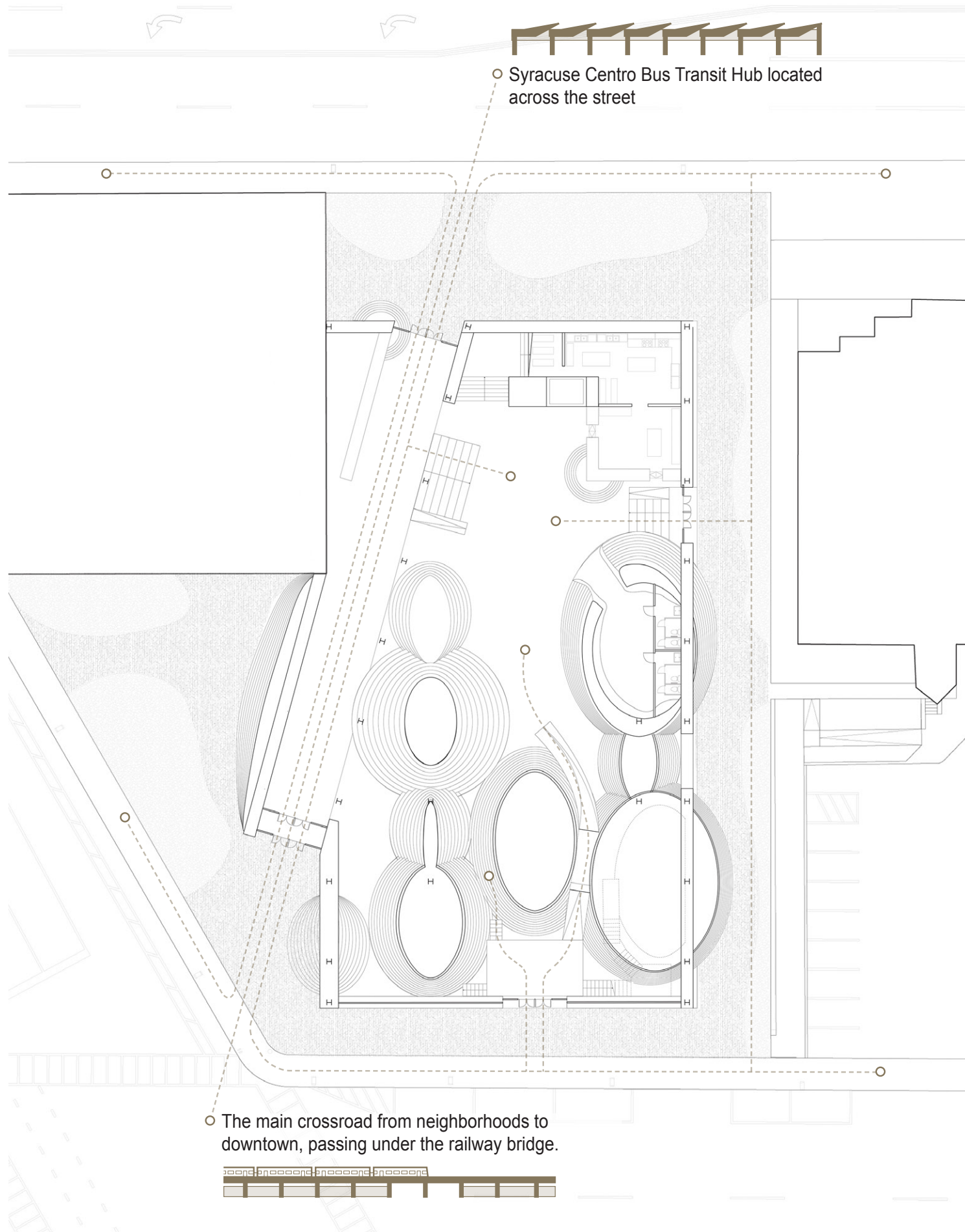
Research on Mud and Flour Material & Materiality

This project is based on an initial study of the materiality of mud and flour, proposing an innovative construction model that actively involves local residents. The mixture of mud and flour retains the durability of soil while

introducing the flexibility and ease of manipulation found in dough. By encouraging community members to work together, the project fosters mutual communication and understanding, contributing to the process of peacemaking.

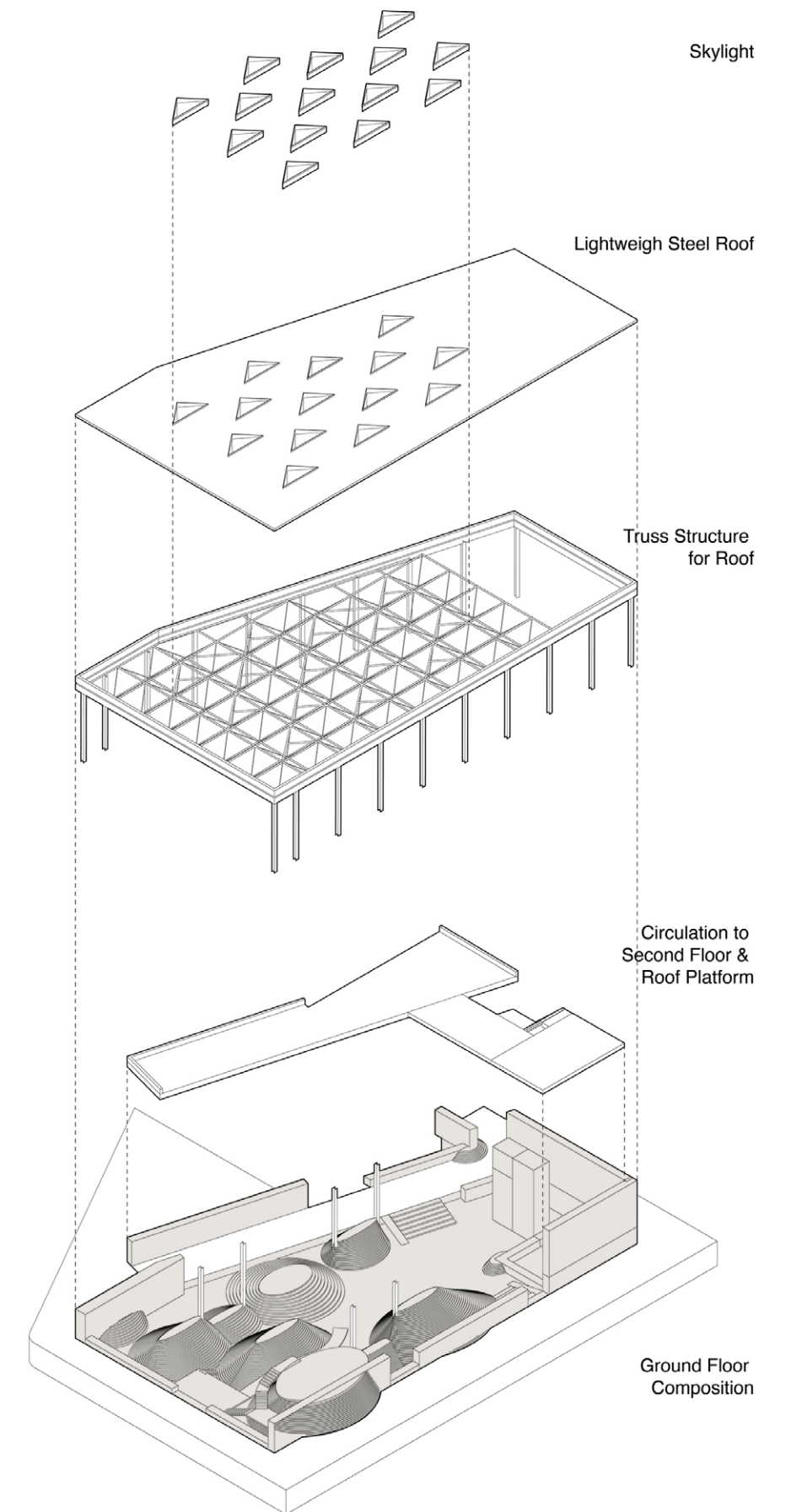


Exploration On Possible Methods & Forms To Use This Specific Material

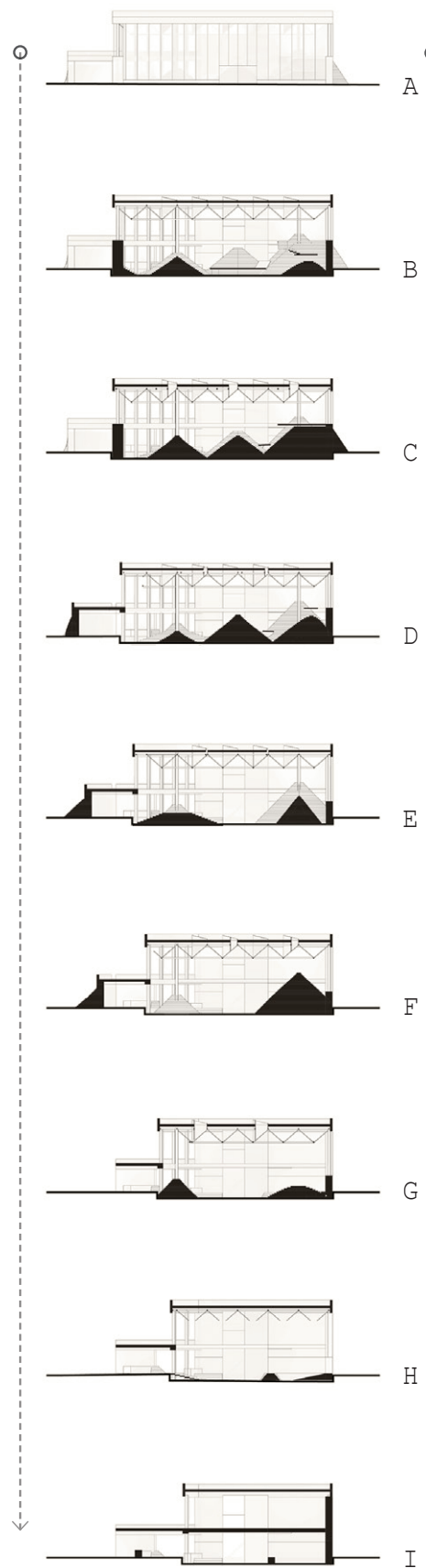


Structured & Unstructured Collaboration

The project proposes laying the foundation and columns for local communities to collaboratively create the ground-scape using the mud dough. Once the mud structures have dried, a roof will be added, completing the construction.

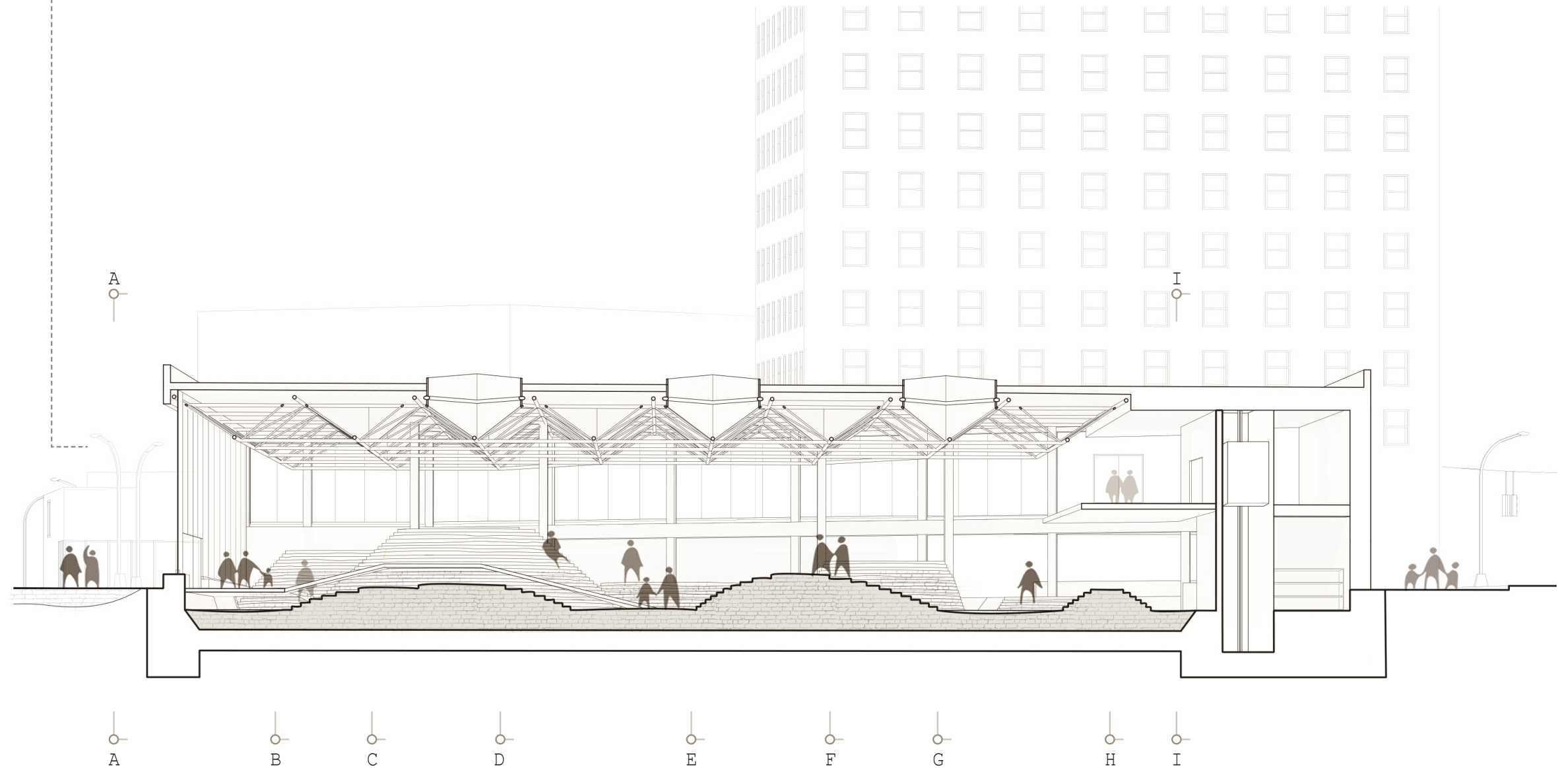
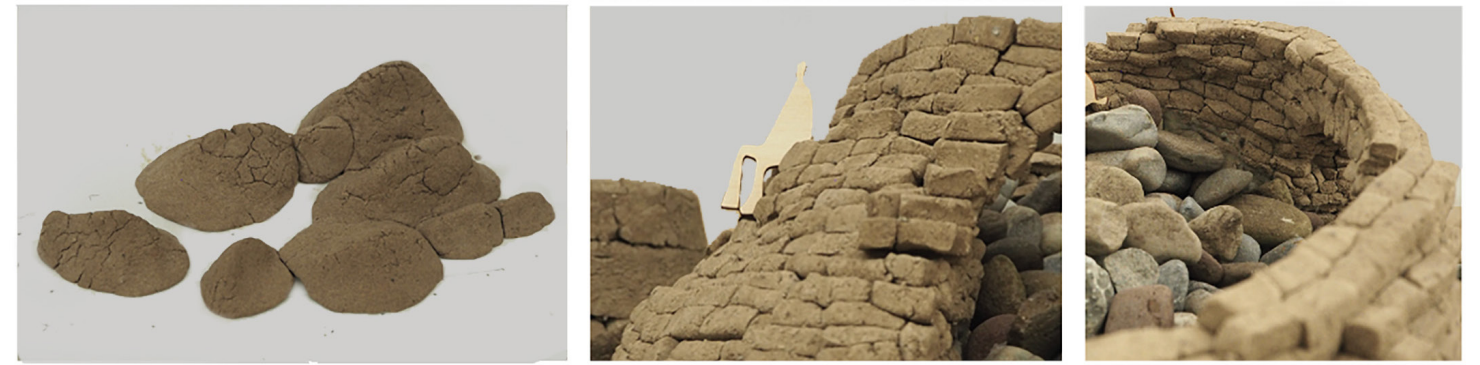


Exploded Axonometric Drawing | Structure & Design Logistics



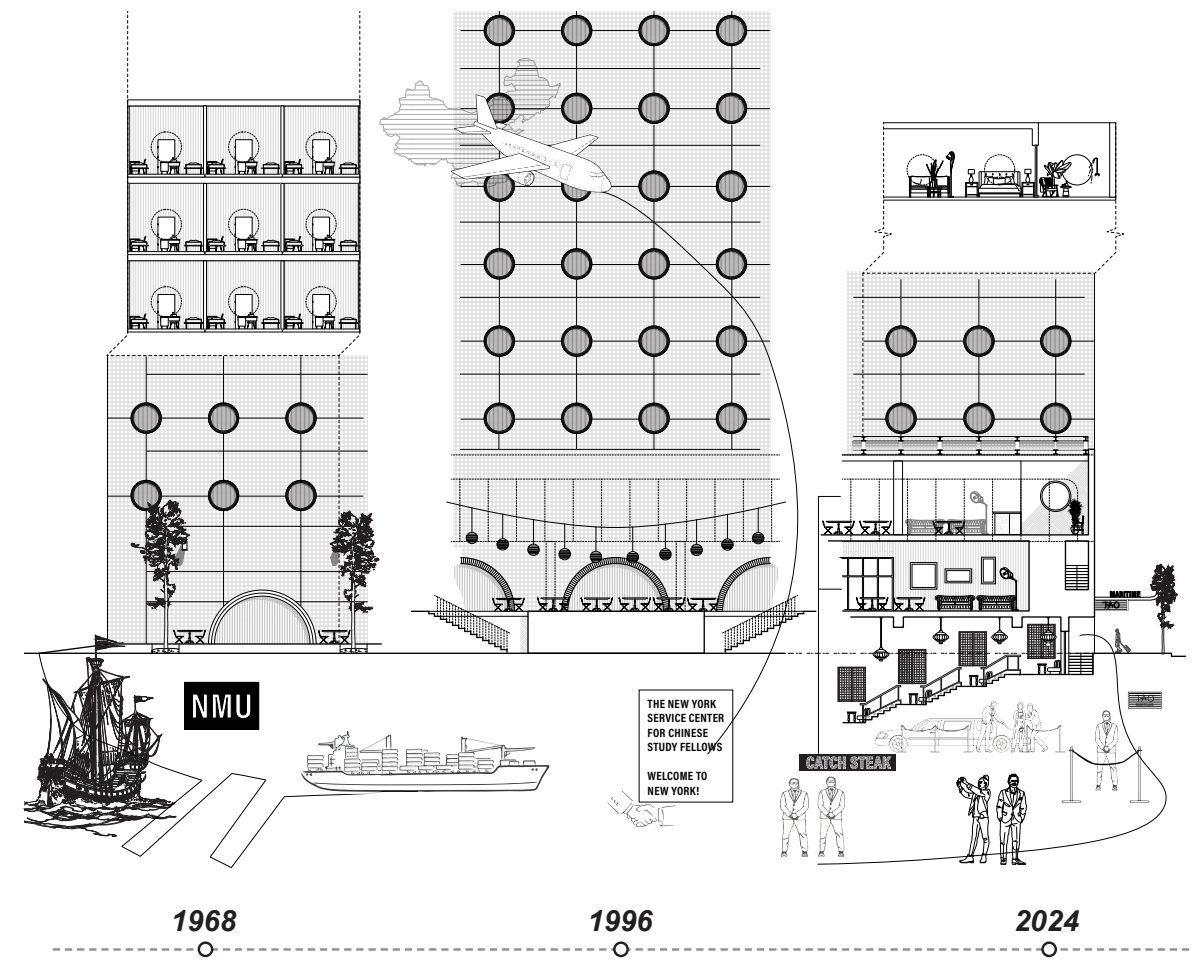
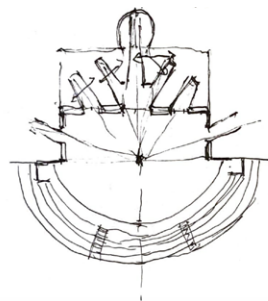
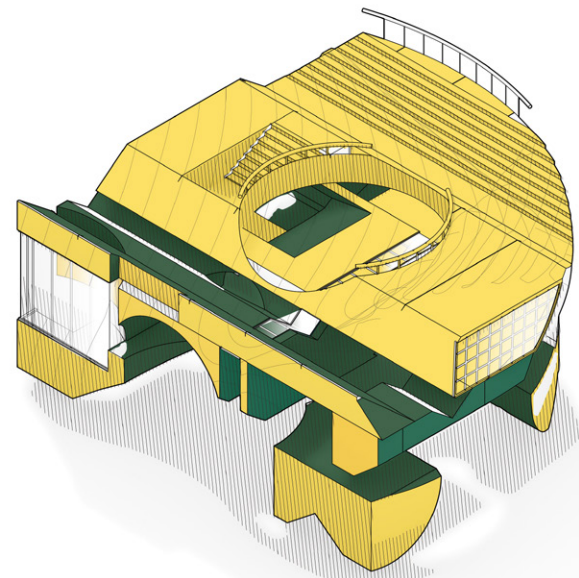
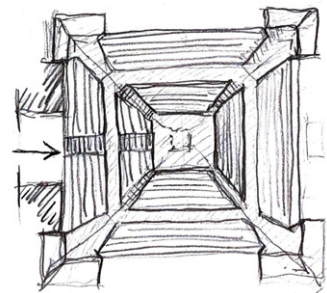
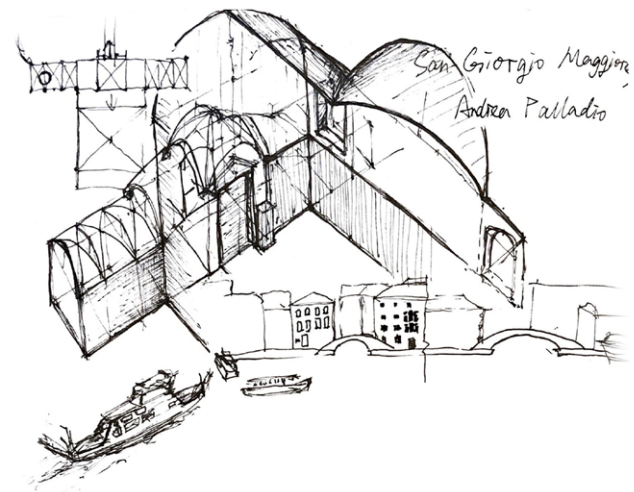
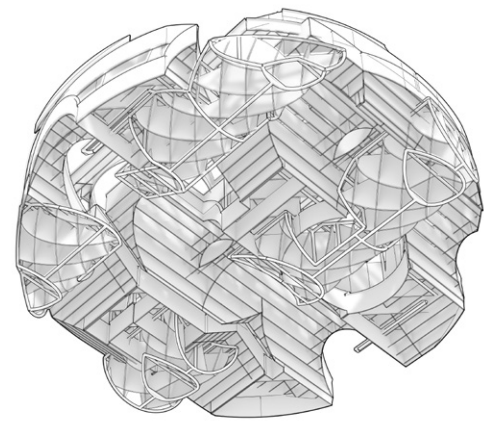
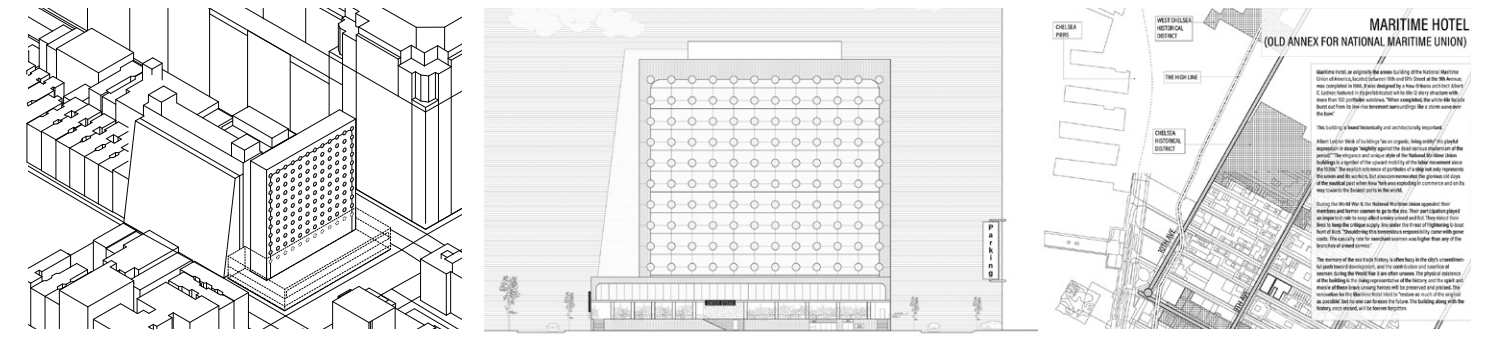
Section Cut Series

Through a series of section cuts, the dynamic of the artificial ground scape is revealed.



Left Bar
 Series Section Drawings
 Center
 Section Perspective
 Upper Right Bar
 Photographs of Study Models

AND MORE..



1968
First designed by Albert C. Ledner, a New Orleans architect for National Maritime Union of America

1996
Sold to the New York Service Center for Chinese Study Fellows

2024
Sold again. Operated as Maritime Hotel since 2003. The new high-end restaurants and nightclub open.

Left Page
Sketching & Modeling Exercise

Right Page
Study of Maritime Hotel
363 W 16th St, New York, NY 10011

PREPARING THE EAST HARLEM NEIGHBORHOOD FOR FUTURE CHALLENGES

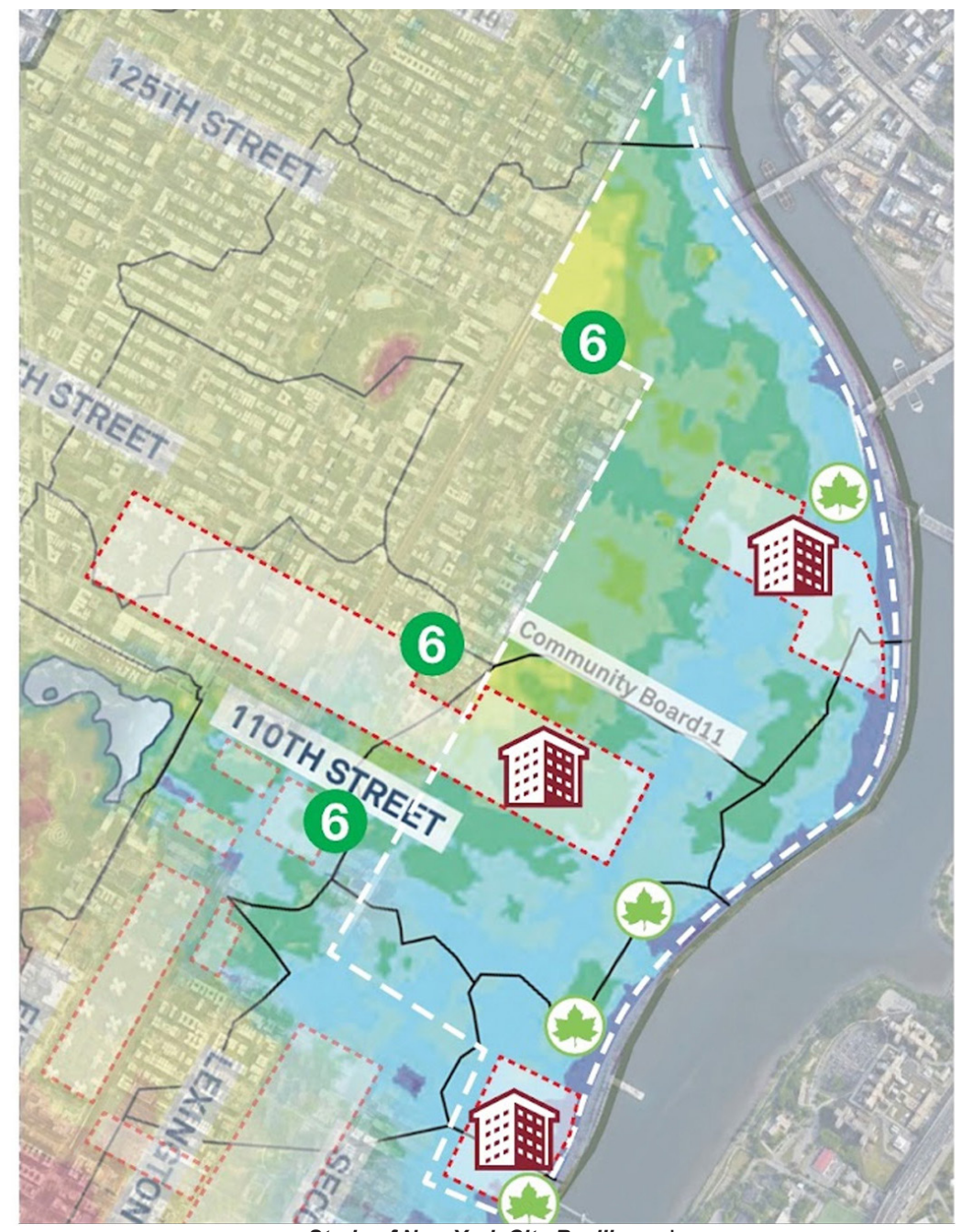
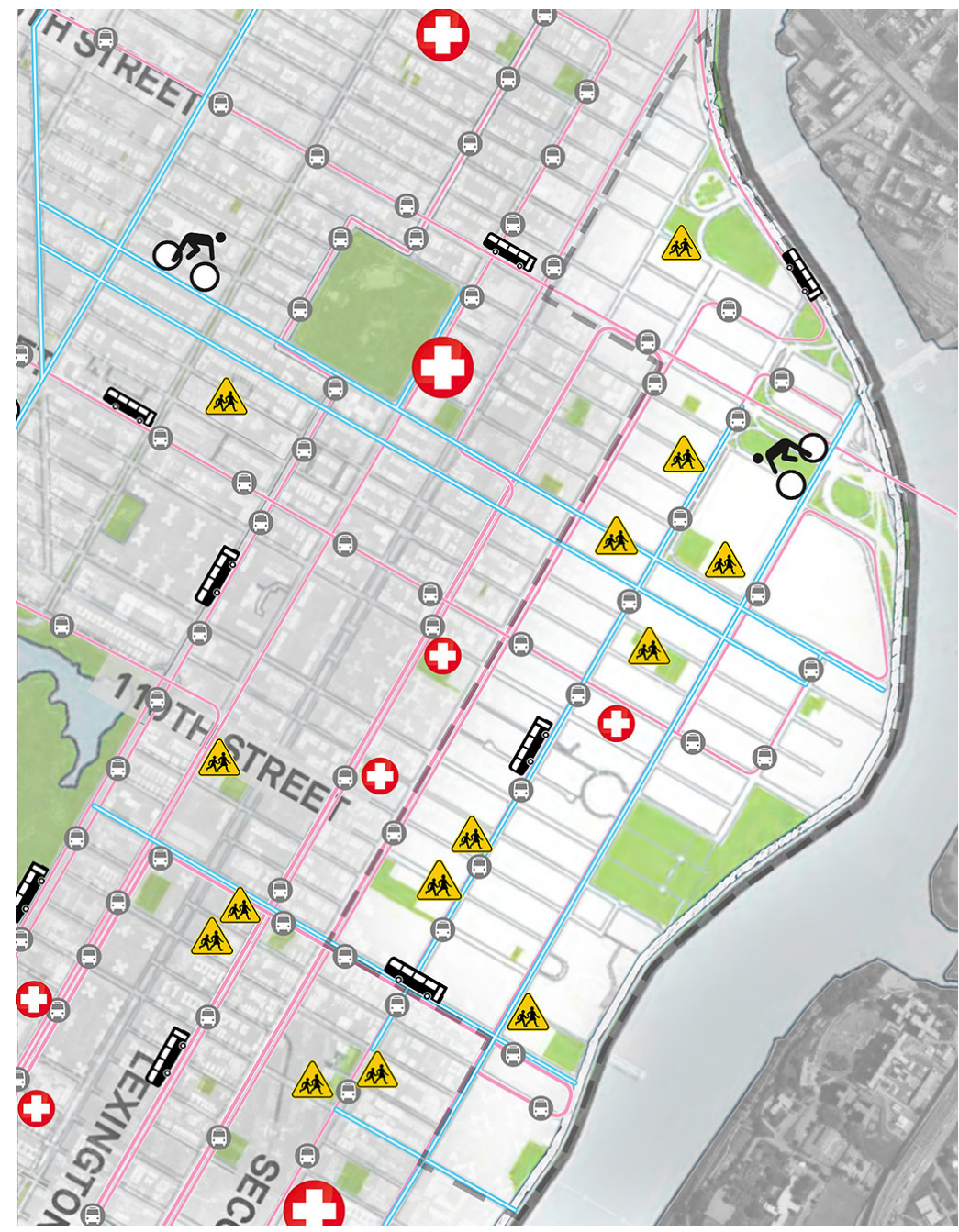
PREPARING THE EAST HARLEM NEIGHBORHOOD FOR FUTURE CHALLENGES

Qiyang Ruan, Clara Faure-Dauphin
December 6, 2022

HOUSING & RESILIENCE IN NYC A CLOSER LOOK →

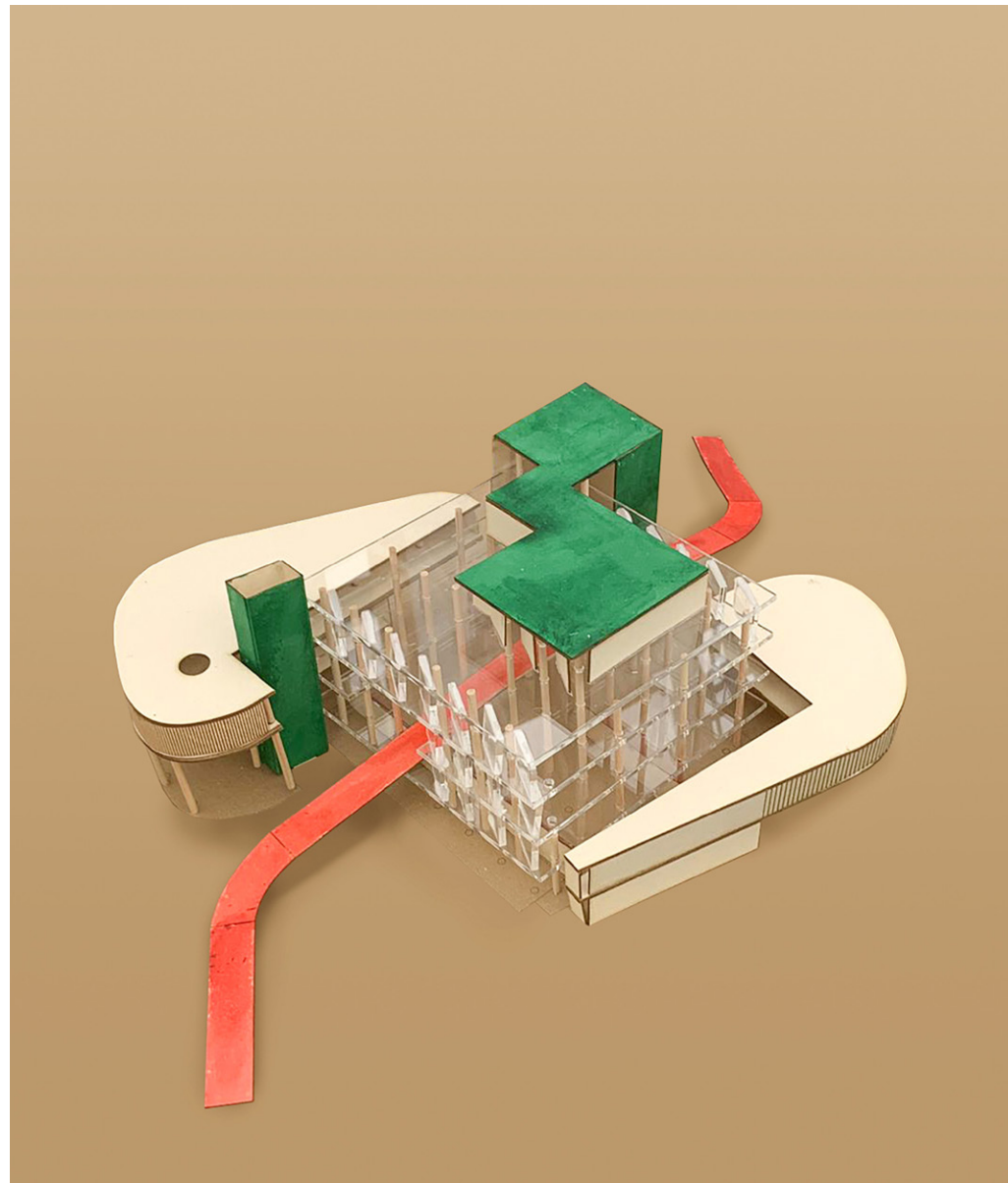
WHAT IF the East Harlem community transforms its existing infrastructure to protect the neighborhood from floods, heat, and pollution while creating social spaces?

Scan for Complete Archive
Resiliency & Housing | Challenges Identification | Opportunities & Prototype Development

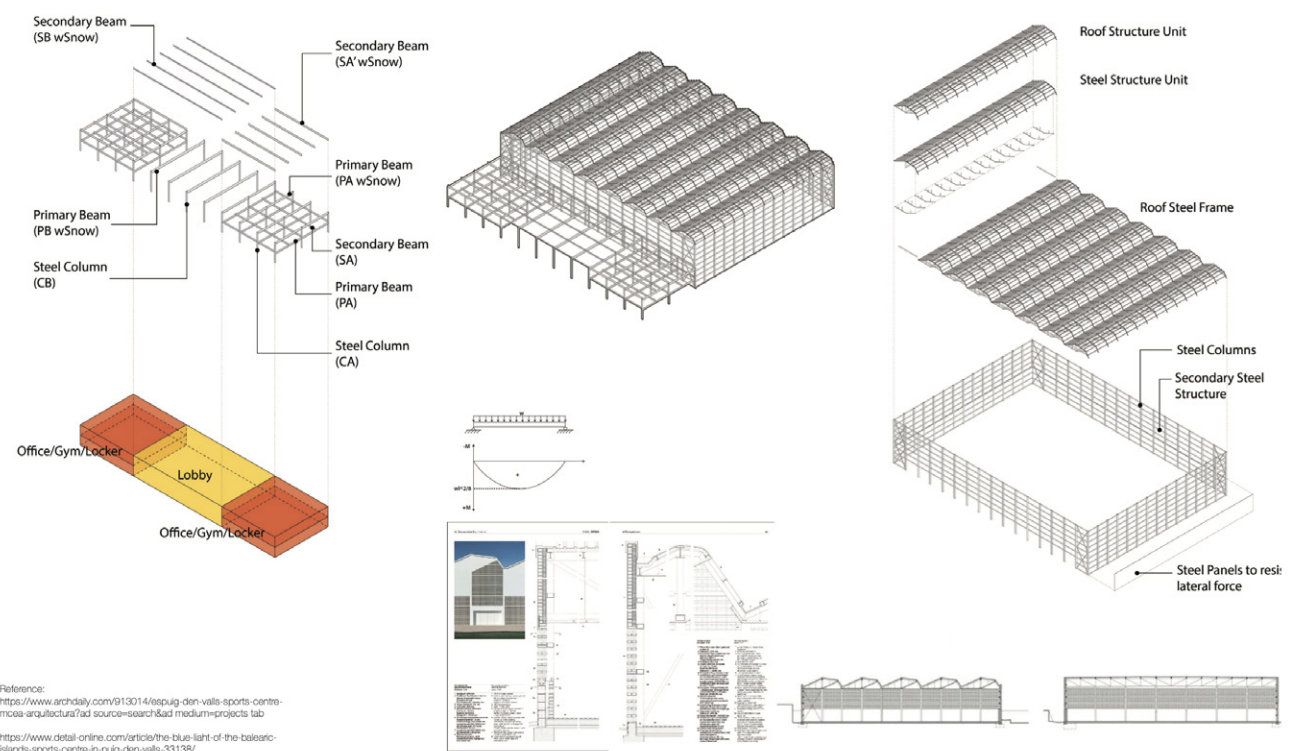
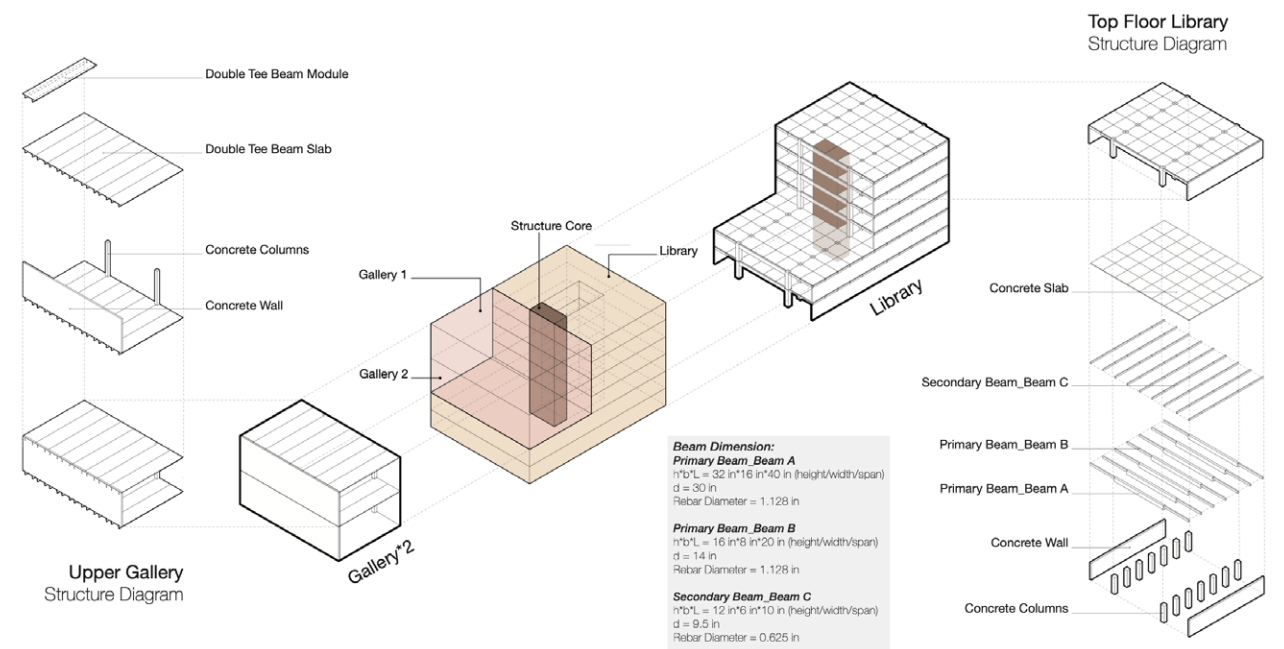


- Hospital/Health Facilities
- Schools
- Bike Lanes
- Bus Routes
- 6
- NEW YORK CITY HOUSING AUTHORITY
- NYC Parks

Study of New York City Resiliency | Flood & Public Housing, East Harlem Map



Study Model of Carpenter Center | 24 Quincy St, Cambridge, MA 02138



Upper Left
Design Exercise | Concrete

Bottom Left
Design Exercise | Steel

Collaborated with Zixuan Hu

Magazine Club Interviews

Perry Kulper

October 16, 2021
Dean's Office
Slocum Hall

Magazine Club
Noah Fritsch
Max Fernandez
Romi Moller
Andrea Qiying Ruan
Michael Speaks
Hector Shengxuan Yu

ISSUE 1 FALL 2021



Magazine Club We all enjoyed seeing the many projects and hearing you describe your design process in the lecture last night. You are conducting a workshop with our students this weekend and again in two weeks. You obviously cannot teach someone to draw like Perry Kulper; you cannot teach them to draw the kinds of things we saw last night. So, what are you teaching when you teach?

Perry Kulper First, I try to encourage students to think relationally and critically about analogous worlds that they might already know or refer to. . . this allows them to enlarge their skill set and at the same time refer to things they're already interested in. I talk with them a lot about relational structuring. For example, how do you structure things in such a way that you can establish the communicative potential that you're after? The Villa Savoye is a house designed by Le Corbusier and he discusses it in relation to the five points of architecture, his manifesto. But when you drive a car into and through the house, ending up on the roof garden, the discussion immediately becomes one about technology. The house is partially about the relationship between man and technology, technology and technology, technology and nature; about their relational structure; about the house, its program, etc. With the students, I discuss ways to spatially, representationally and verbally structure things and their relations in such a way that they have the potential to encounter and use them.

MC You started the workshop today. How did you begin?

PK We started by building a context for the workshop, tickling the ethics of representation, and reconstructing a very brief history of representational developments as related to perspective and the picture plane; and by lightly introducing various design methods. Then, we explored how to work with appropriation—a design approach and form of authoring that would allow them to work quickly. By appropriating things, students already have gas in the tank, they have things to work with. They have references and perhaps have discovered interests by working with things that are already rich with associations. Starting this way also displaces questions of authorship, and this allows them to avoid starting on a blank sheet of paper—without all the questions about “what do I do first?” It helps them to start with a set of references to an outside and immediately locates them in a place of generative authorship. The intention is to help them build a story. . . together we just try to build up a story where the ground, the sky, and modeling and rendering techniques reveal a world that refers to worlds within worlds—with multiple ways in, and multiple ways out.

2 ISSUE 1

3 KULPER

Magazine Club Interview with Perry Kulper

As one of the initial members of the Magazine Club, we conduct interviews with architects and industry professionals to learn about the field of architecture and many cross-discipline industries.



Analog Photograph Documenting the Interview

LinkedIn

qruan02@syr.edu
(315) 210-9867