



Intricacy

Sizhe Wang Portfolio
-my year at msaad, gsapp-
Columbia University
May 2024

FOREWORD

Upon graduation, a friend and I began reminiscing about our time at GSAPP. Our conversation drifted back to our applications, and I recalled that I had expressed a desire to pursue a pragmatically romantic architecture. My friend asked if I had found it here. I believe I did, or at least, I came closer to it.

In my final semester, I took Bernard Tschumi's class: The Poetics of Architecture. This class focused on two key ideas: the contextualization of concept and the conceptualization of context. Reflecting on contemporary architecture, I would argue that it doesn't lack original concepts or functional solutions to complicated contexts. However, many times, these original concepts lose their brilliance in contextualization, while functional solutions can lead to minimal and uninspiring architectural spaces. The ideal outcome, a pragmatic romance, ought to be a marvelous combination of the two — a precision within intricacy.

This portfolio summarizes my time at GSAPP. Within it, you'll find three major projects that represent my journey. Over these three semesters, I believe I have gradually defined my reading of

architecture. I pay meticulous attention to construction details, the embodiment of practicality, where these details systematically resolve numerous issues. They are well-designed and coherent, grounded in pragmatism. On the other hand, I also focus on spatial quality, as architecture fundamentally deals with spaces. These spaces are intriguing, complex, and rich in cultural expression, filled with romance.

I don't think I've already found this pragmatic romance, for architecture is a life-long journey, but I do think a precision within intricacy is a viable solution. The romance emerges within the intricate layers of design, where concepts are carefully developed and thoughtfully contextualized. The relationship between concept and context is precisely calibrated to achieve this balance.

Through my three attempts here at GSAPP, I have, or at least I hope I have, created examples that demonstrate my precision within these intricacies.

Sizhe Wang
May 2024

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An Urban Farm

Kensington, Brooklyn
Summer 2023
Fuminori Nousaku,
Mio Tsuneyama

This studio's approach to integrating urban planning with soil management is deeply rooted in the philosophy that soil is foundational to life on land. Emphasizing this, the project in Kensington, Brooklyn, takes a holistic view by focusing on food composting and production as key elements in preserving and enhancing soil quality.

At the heart of this complex system, food production involves raising chickens, growing crops, and managing compost with bins and specialized toilets, creating a sustainable cycle. Meanwhile, other vital activities such as micro-farming and infrastructure development also proceed seamlessly. Transitioning smoothly into the community aspects, this urban farm is designed not only to be a source of nourishment but also as a dynamic community space. It provides lunches for local schools, with the majority of the food grown directly on-site. During other times, it transforms into a community hub where volunteers cook and residents gather, with food also sourced locally to support surrounding businesses.

To maximize food production, the arrangement of crops is scientifically planned, ensuring each plant receives the optimal conditions for growth. Strategically, the building itself is situated to the side, in shaded areas, to minimize disruption to the crops. Furthermore, the entire structure is elevated, a thoughtful design choice that protects the underlying soil.

The Cycle of Food Production and Composting

Humans
The key to success in urban farming is knowledge and devotion. In permaculture, humans are not the center anymore, but reduced to one participator in the process.

Solar Panels
This panel can provide enough electricity for this farm, such as powering electric tools.
Chickens provide proteins for humans

Chicken Coop
They are very useful for urban farms. This Chicken coop can accommodate 20-25 chickens, producing 600-800 eggs yearly. Manure can be used for composting, bad vegetables can feed chickens in return.

January	February	March	April	May	June	July	August	September	October	November	December
39°F - 27°F	42°F - 29°F	50°F - 35°F	63°F - 46°F	73°F - 56°F	80°F - 64°F	86°F - 71°F	84°F - 69°F	78°F - 63°F	66°F - 53°F	54°F - 41°F	45°F - 35°F

Bee Box
Home to the bees, who are very good pollinators

Protozoa

Bacteria

Worms

Water Pump
This sends collected rain water to specific plants with controlled quantity.

Water Tank
This helps collect rain water, a very good supplement.

Shovel

*Grid is 5' by 5'

Composting Toilet
They help save water and produce compost at the same time. Excrements are stored in two parts, urine collector and compost tray. One average adult can produce 3 lb manure.

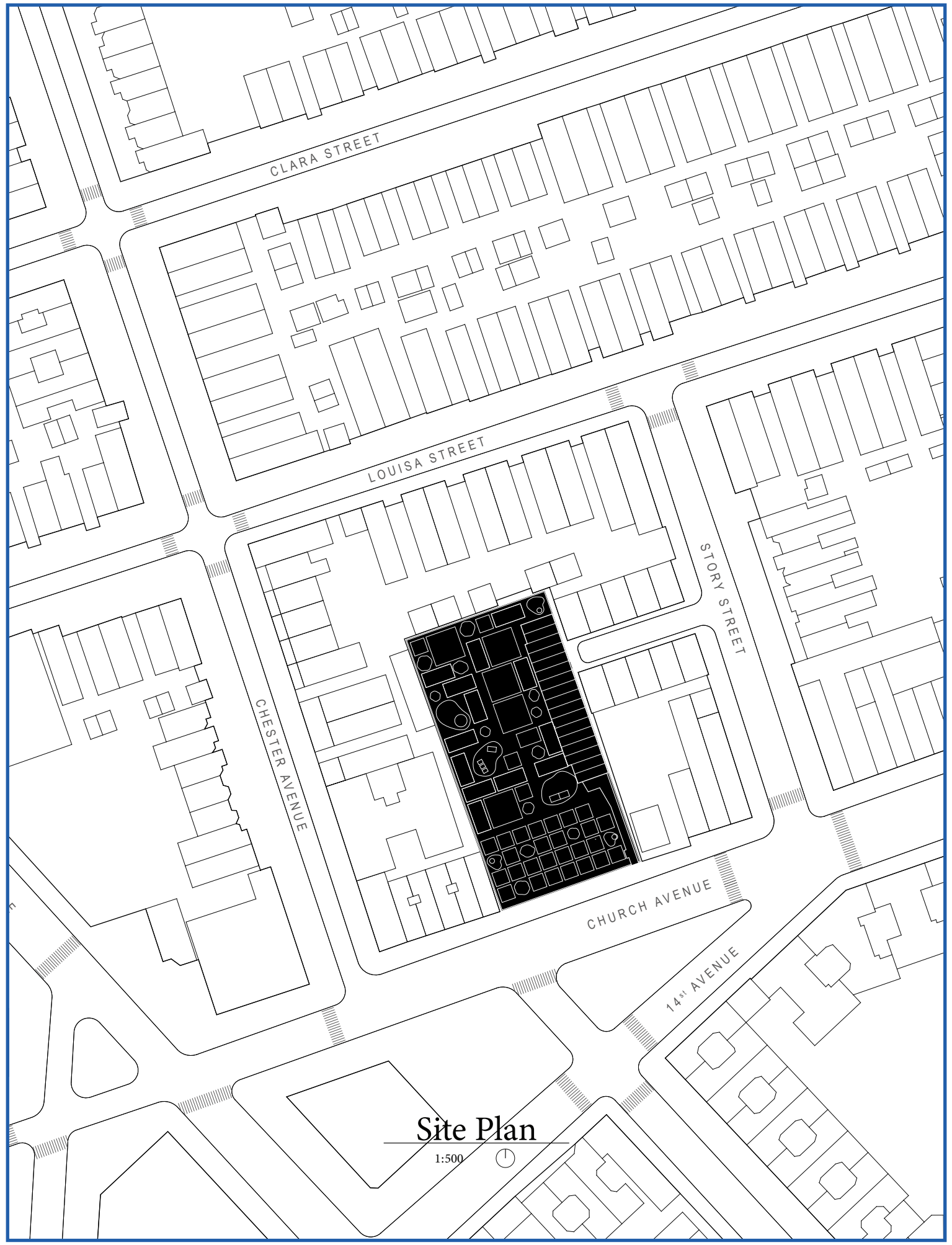
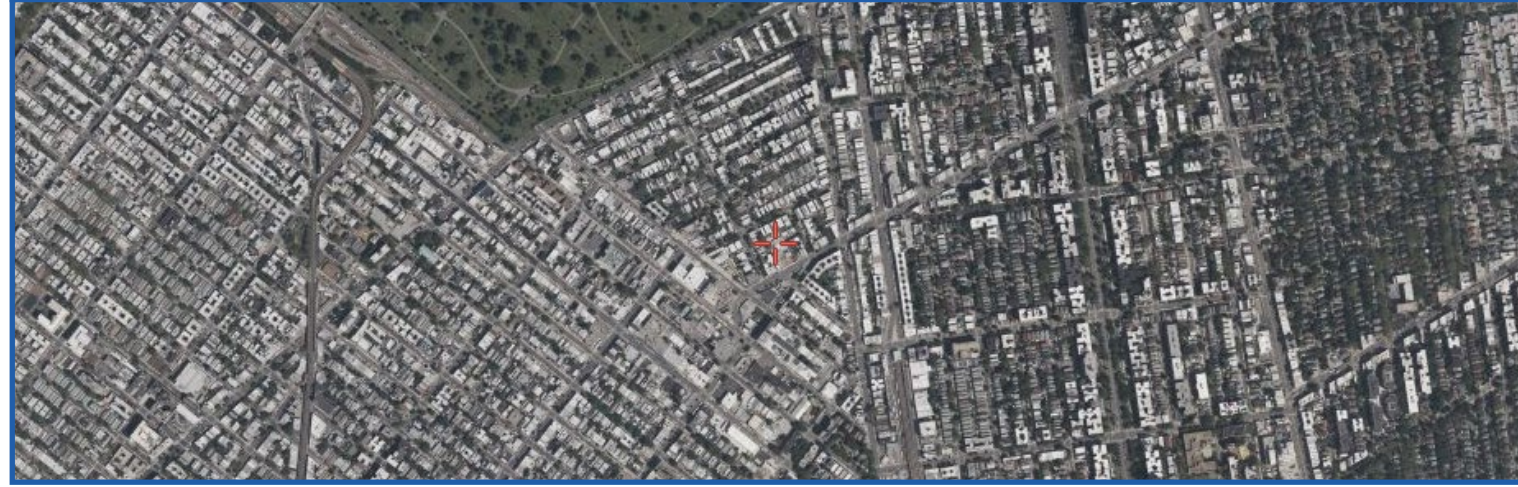
Compost Crank
Manure can be used for...

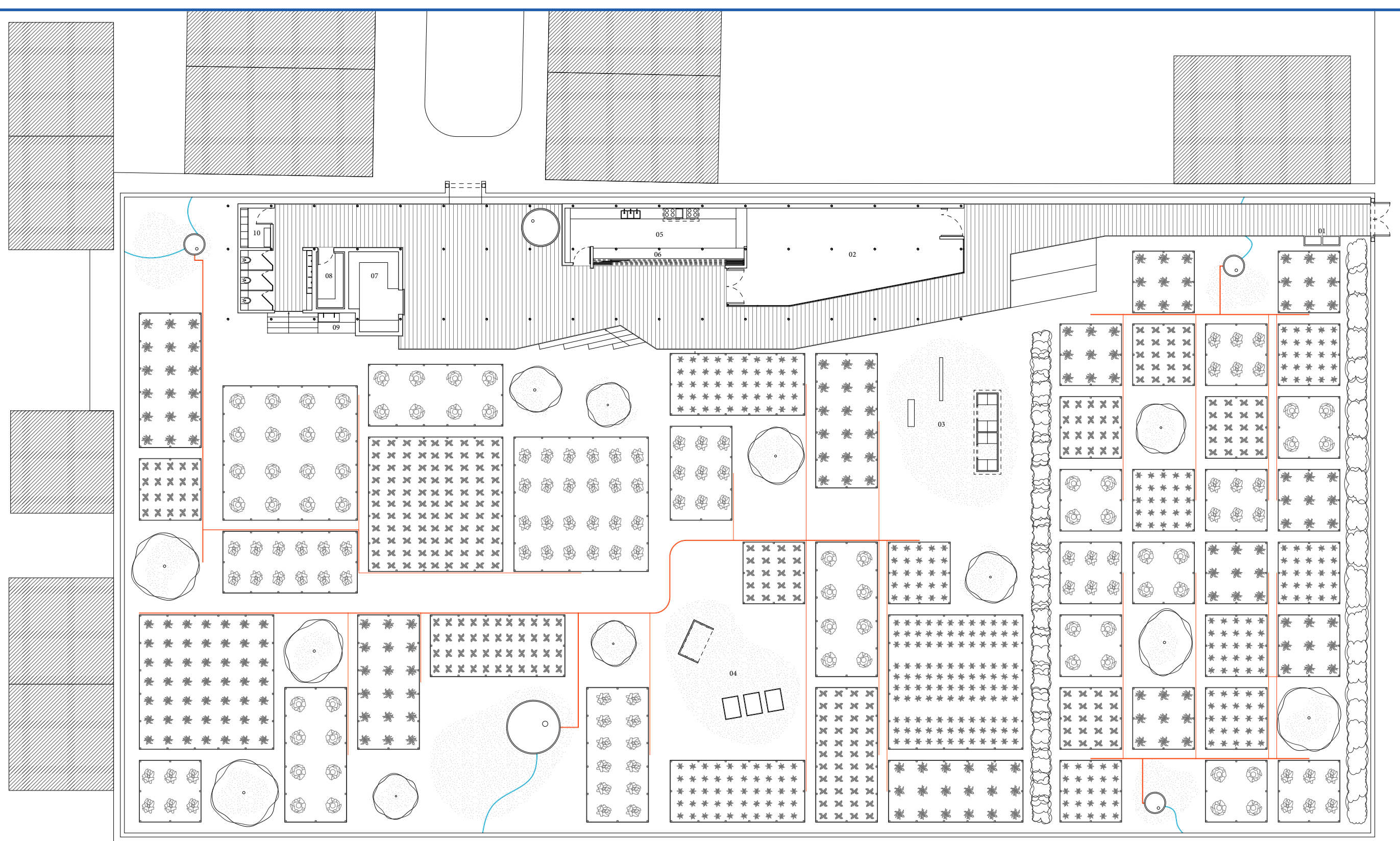
Compost Bins
These two bins are exposed to sun, air, and water, producing compost faster, ready in 3-6 months. Turn weekly. These two bins are enough for a farm of one acre.

Insects
Insects can help with eliminating pests and are very good pollinators. Their excrements also enrich the soil at the same time.

Chicken manures can be used for compost

This drawing is a joint effort with Danyel Decena Hueyopan and Fei Fan.





⌚ Plan

- | | | |
|----------------------|------------|-------------|
| 01 food scarp drop | 05 kitchen | 09 cleaning |
| 02 multipurpose room | 06 bar | 10 locker |
| 03 chicken coop | 07 pantry | |
| 04 composting bins | 08 freezer | |



1 Ventilation
 For the privacy of the residents east to the site, a wall is built. However, a higher window would give a better ventilation in the kitchen.

2 Stone Fence
 A stone fence surrounds the site as the boundary between pavement and soil, which covers the entire site.

3 Sliding Doors
 During lunch time or bad weathers, the bar is closed, so are the sliding doors. When weathers are nice, however, the sliding doors would enable the bar to serve the people who enjoy themselves on the deck.

4 Elevated Floor
 The entire built structure is elevated from ground with a clearance of 1.5', to best protect soil, small animals and allowing airflow.

5 Gutter
 Rain water is collected for the use to water the vegetable gardens. This zigzag shaped roof helps to collect the water.

6 Open Air
 Large area is saved for the deck. This semi-open air spaces are very good for communal events. It also helps in harvests seasons, where vegetables can be stored there temporarily.

7 Watering System
 A series of water tanks collect rain water from the roof. These tanks are connected with tubes that bring water to the vegetable patches. This system would maximize the efficiency.

8 Patches
 Vegetable patches are bounded by wooden boards by sides. This would help differentiate the vegetables and bad weeds - they do look alike.

9 Structure

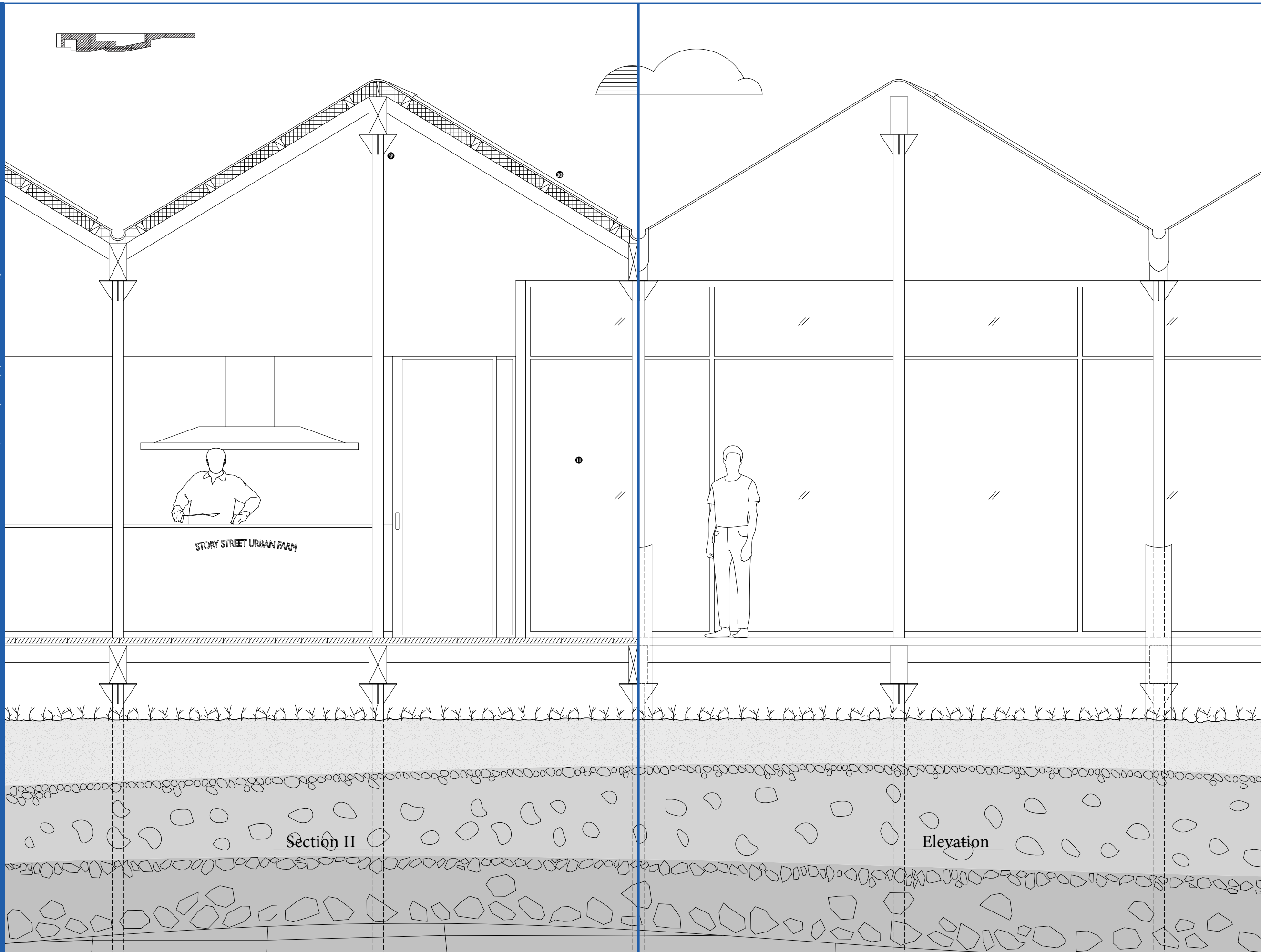
This building is supported by a network of tall and slender steel pipes (d=42mm/1.6"). A thin plate at the top holds the girders.

10 Solar Panels

The zigzag shaped roof allows the equipment of solar panels. They all face south to maximize the energy.

11 Transparency

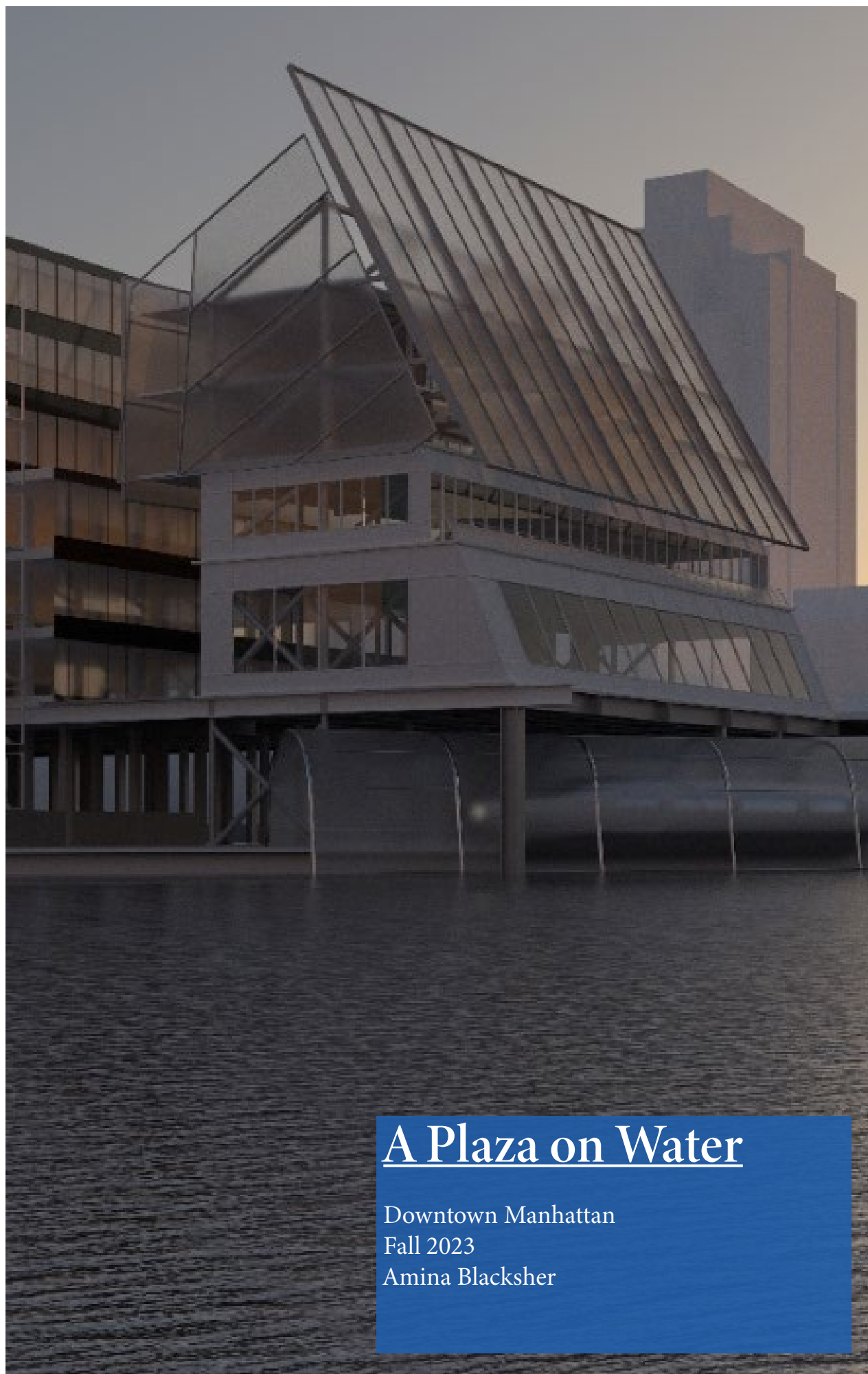
West façade is very transparent to allow visitors to best understand how urban farming works. At the same time shading provides by overhung roof



Section II

Elevation



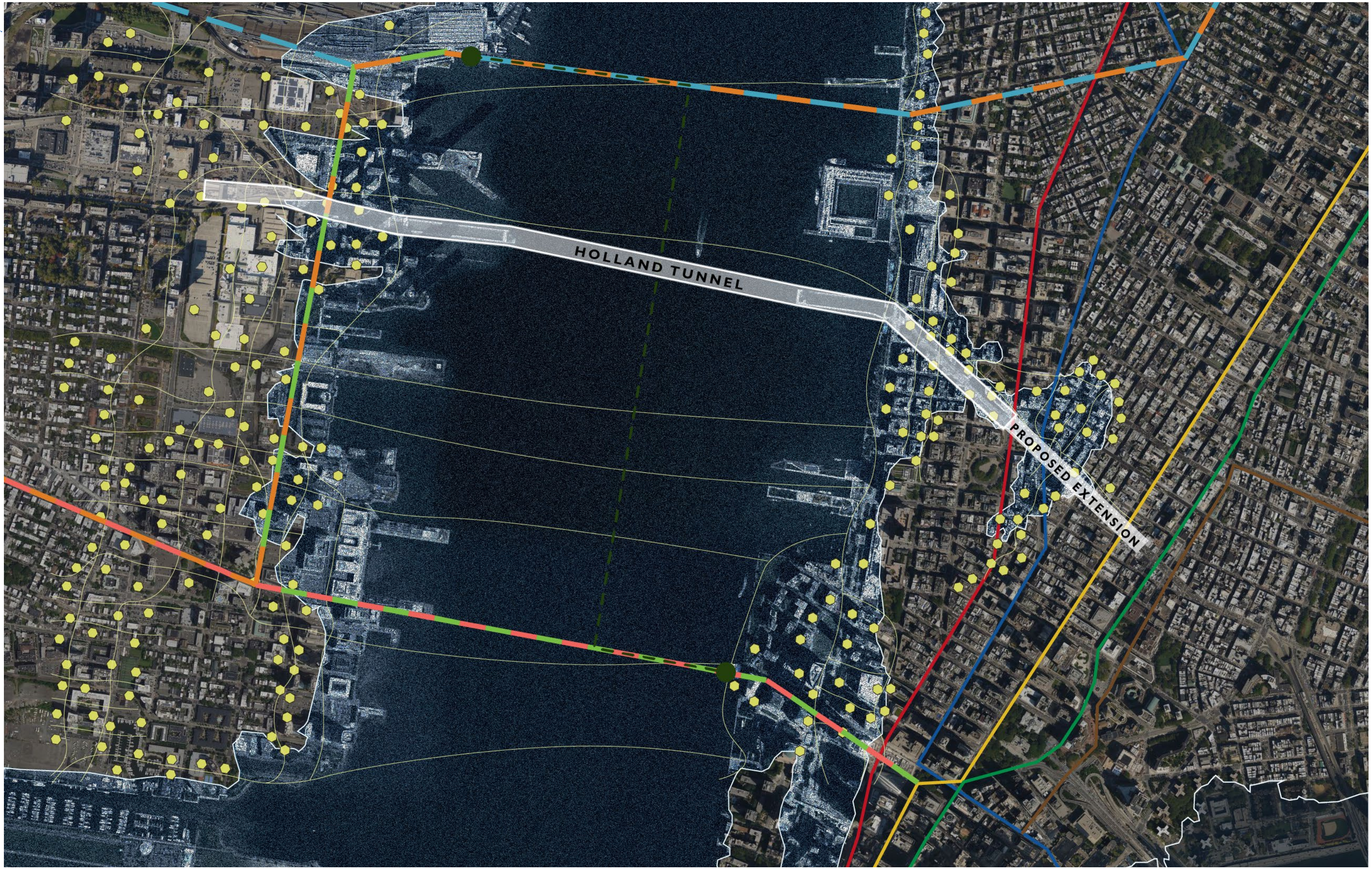


A Plaza on Water

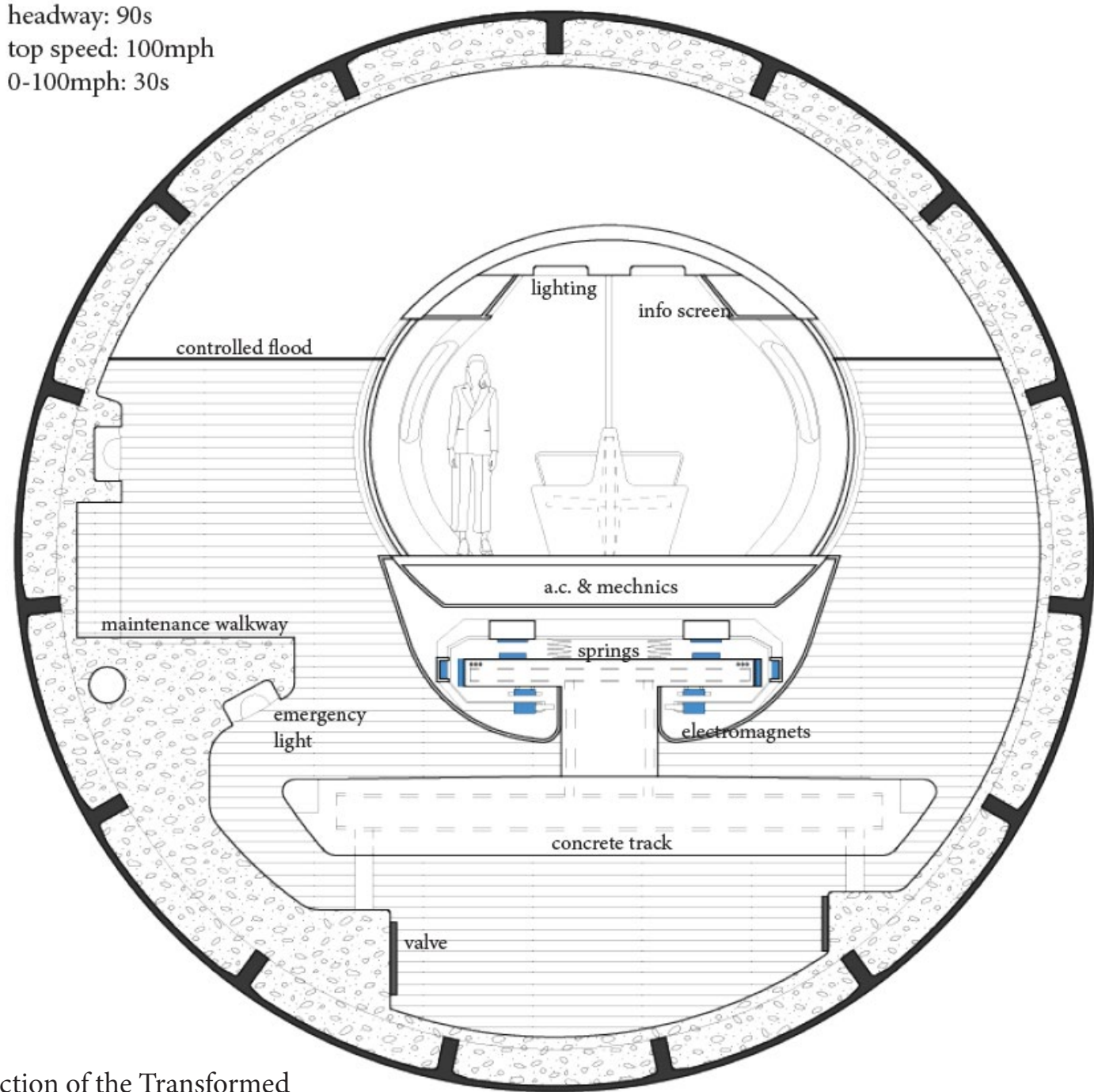
Downtown Manhattan
Fall 2023
Amina Blacksher

The looming threat of rising sea levels inevitably jeopardizes existing urban plazas and public spaces, which are only prepared for dry conditions. This project aims to investigate how to adopt a proactive stance by embracing imminent wet conditions. Concurrently, recognizing public transportation as a pivotal urban infrastructure, this is an endeavor to enhance its capacity by incorporating additional water transportation. The multifaceted approach aligns with the commitment to fortifying urban resilience. Employing a systemic design strategy, the goal is to interconnect transportation stations, public spaces, and Spring Studio/ Tribeca Film Festival programs within a cohesive network. This not only bolsters adaptability but also reinforces the sustainable evolution of urban environments in the face of dynamic challenges.

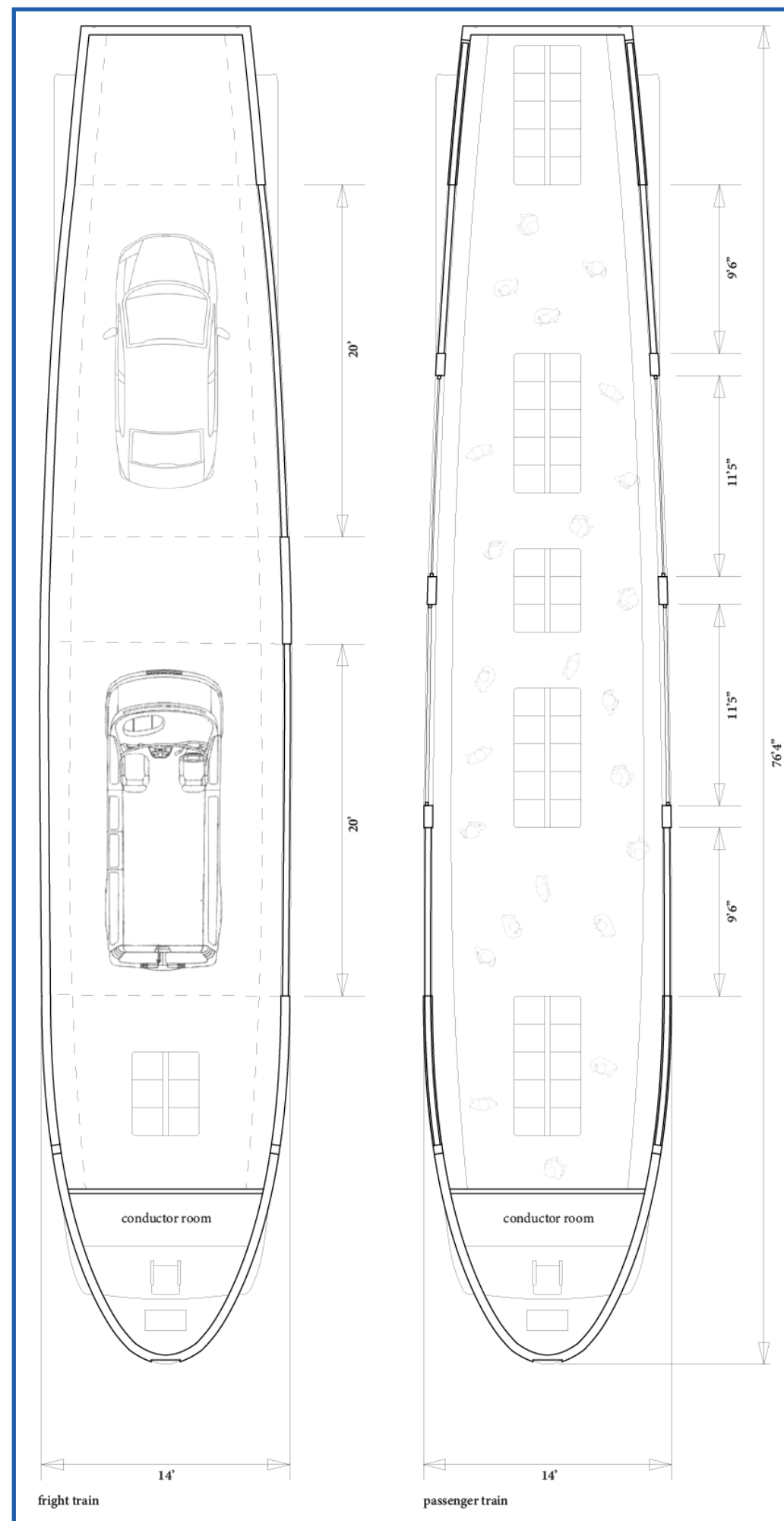
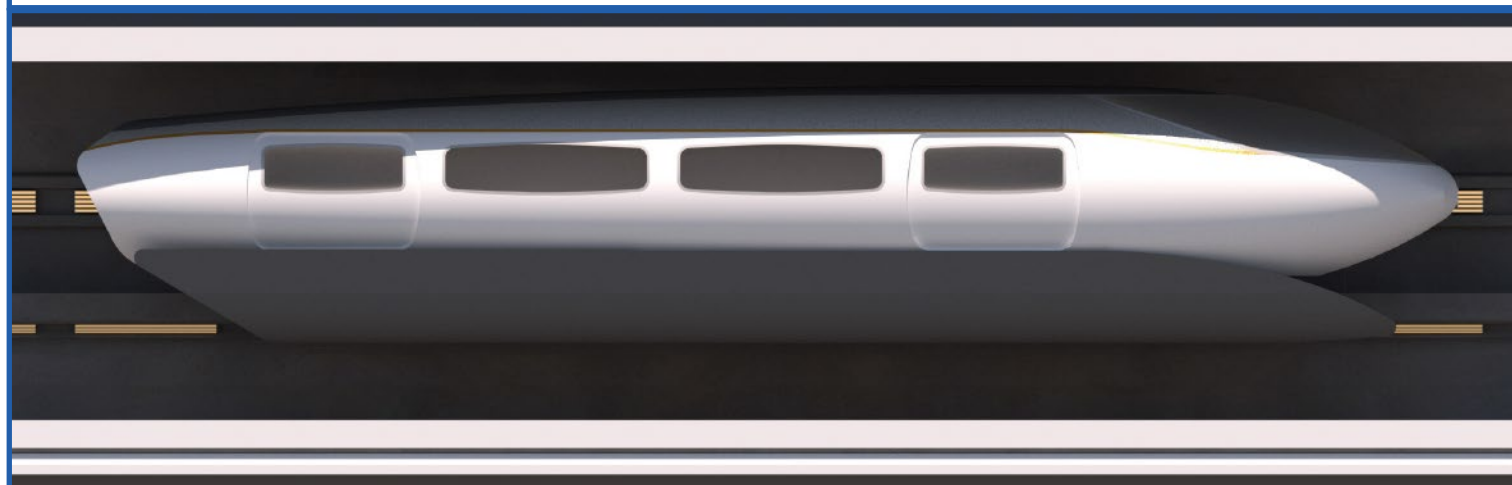
Following a projected 5-foot sea level rise by 2030, significant urban infrastructure along the Hudson River, including the Holland Tunnel, faces flooding, impacting New Jersey-New York traffic. To address this, I propose a mag-lev train system within the tunnel, capable of underwater operation for both passengers and freight. Additionally, extending the tunnel to Spring Studio, situated on higher ground, ensures its functionality and preserves its role as a hub for film and photography events amid rising waters.

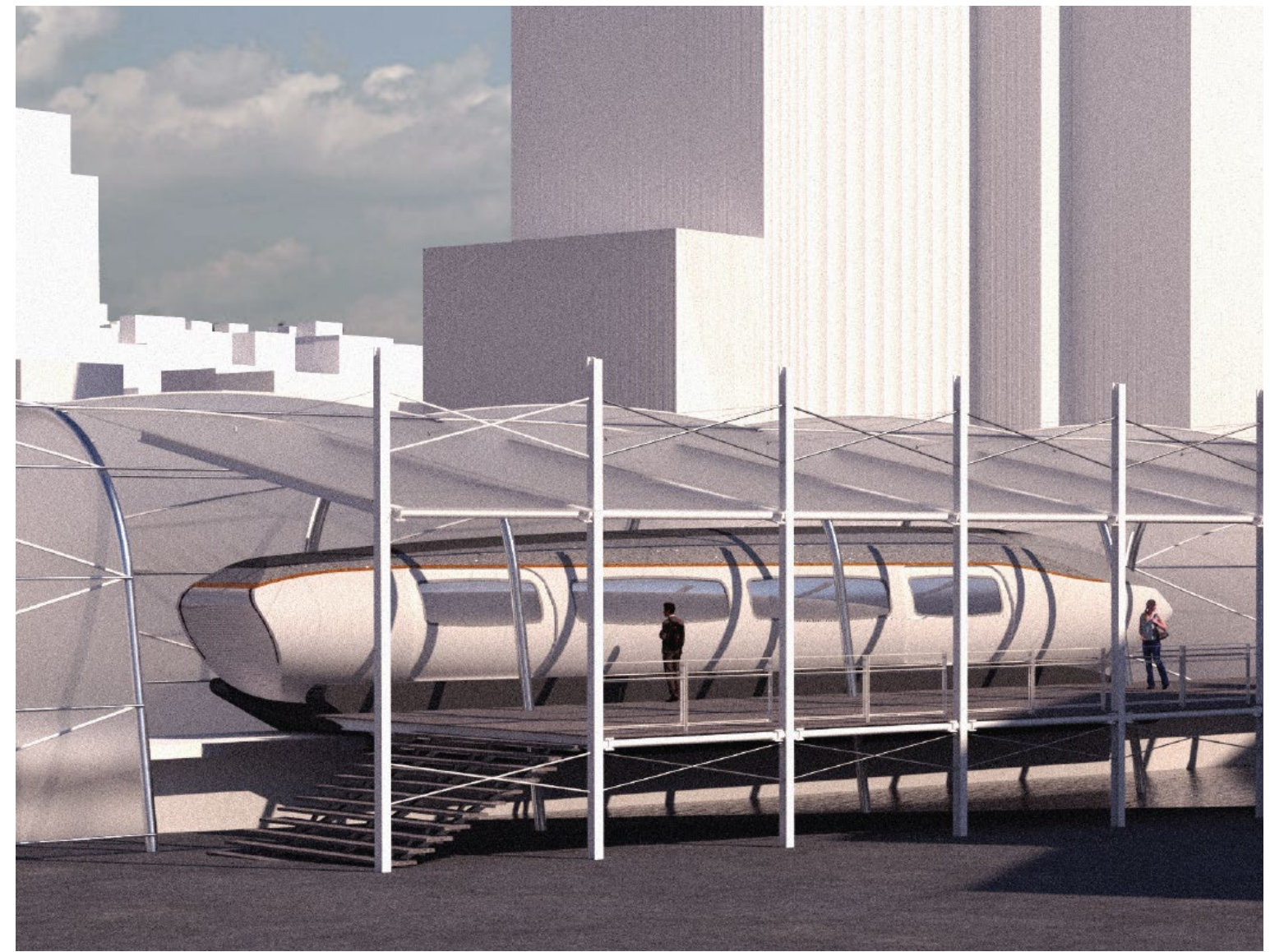
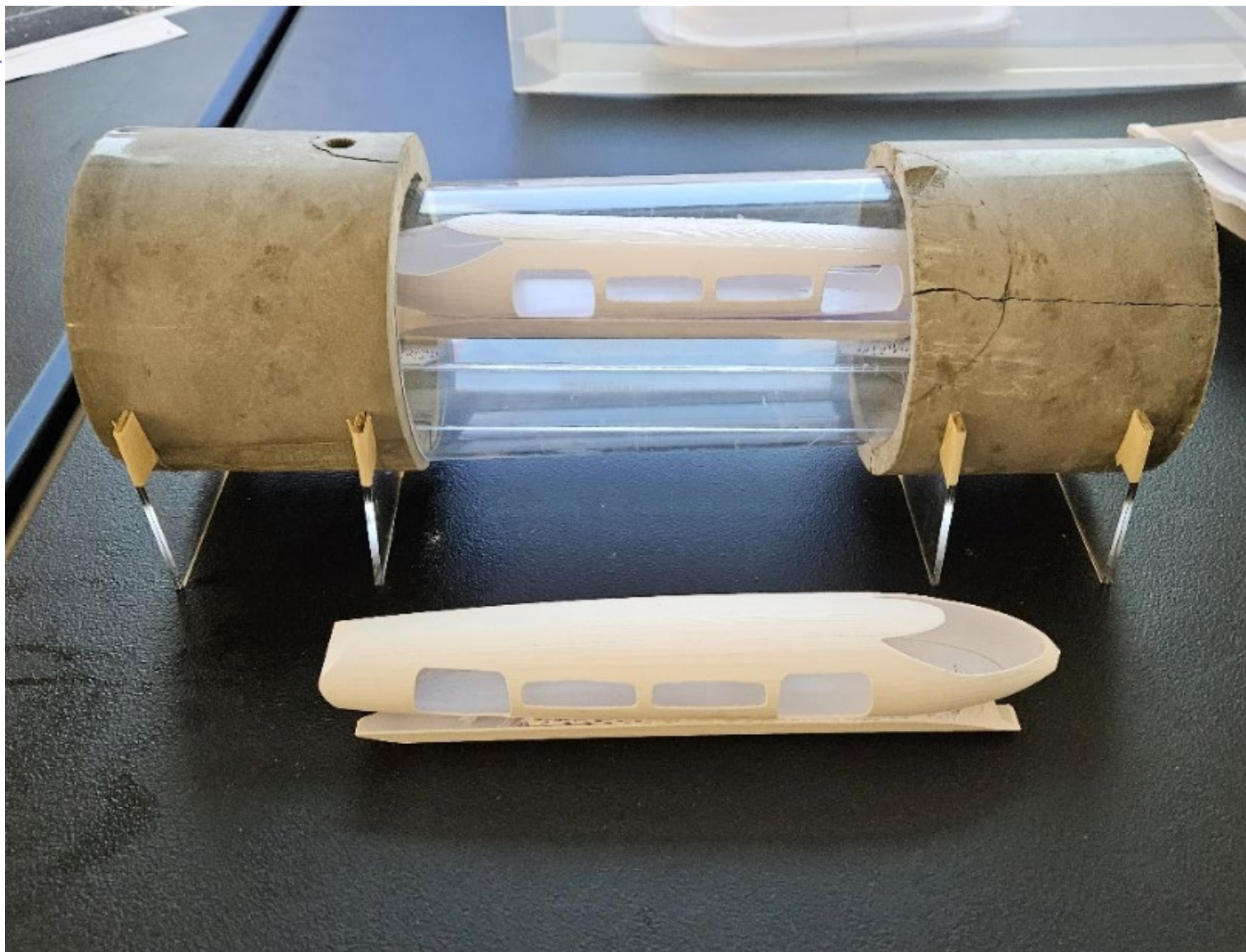


headway: 90s
top speed: 100mph
0-100mph: 30s

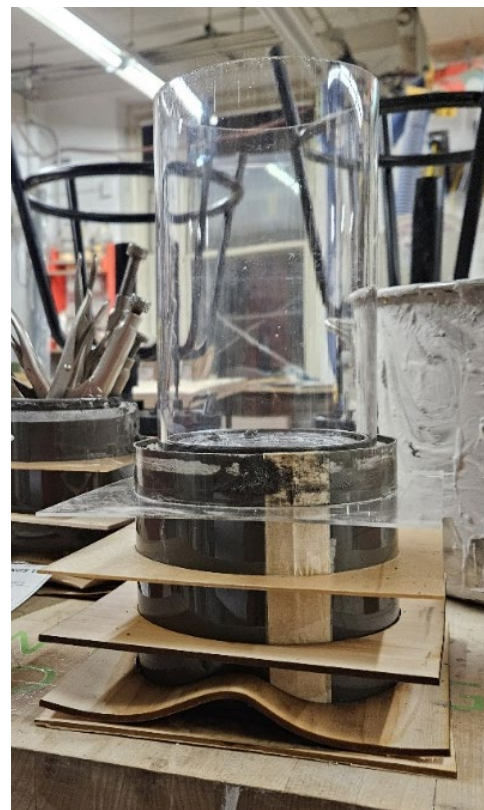


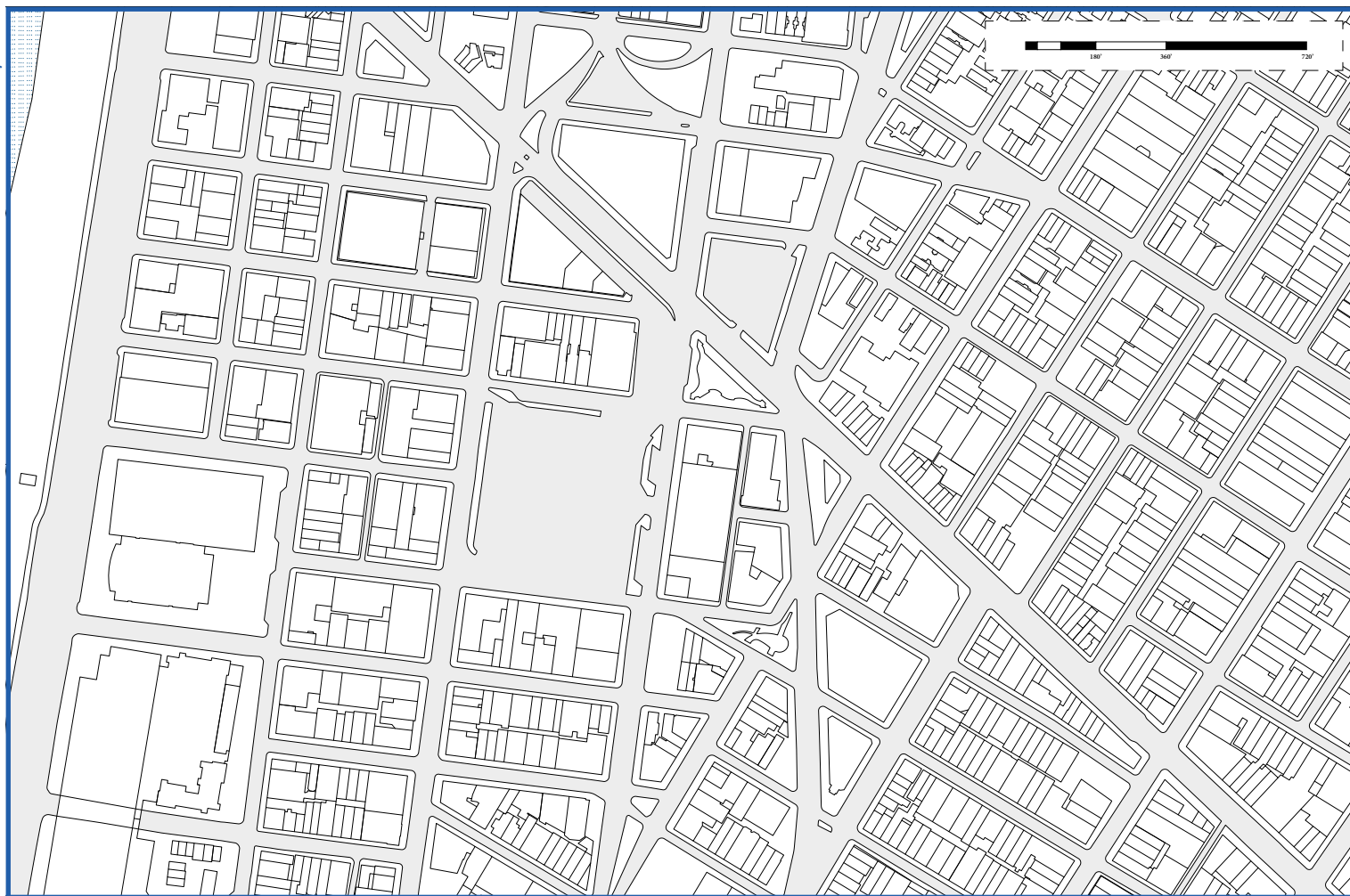
Section of the Transformed Holland Tunnel





Rendering: Platform of Holland Express

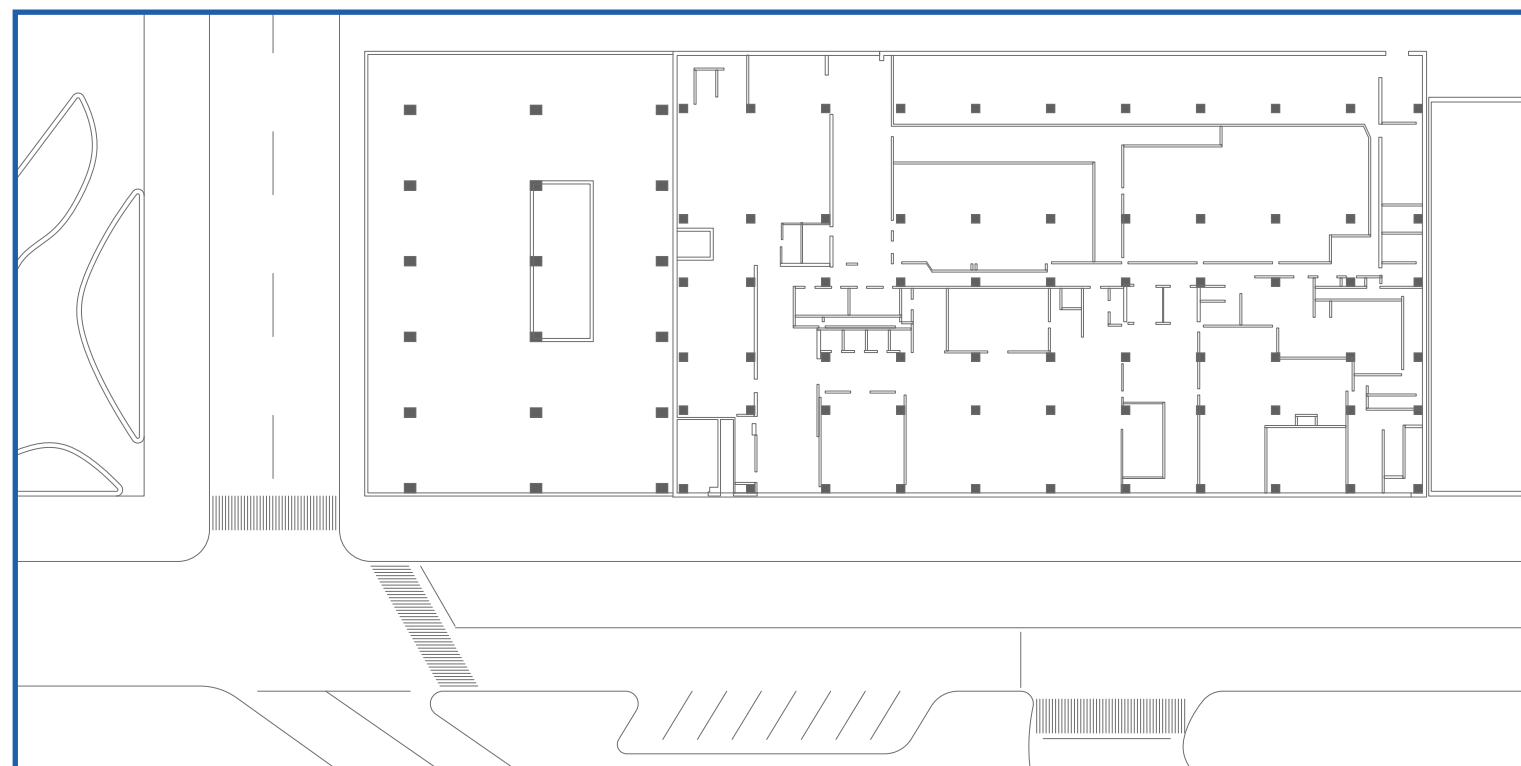


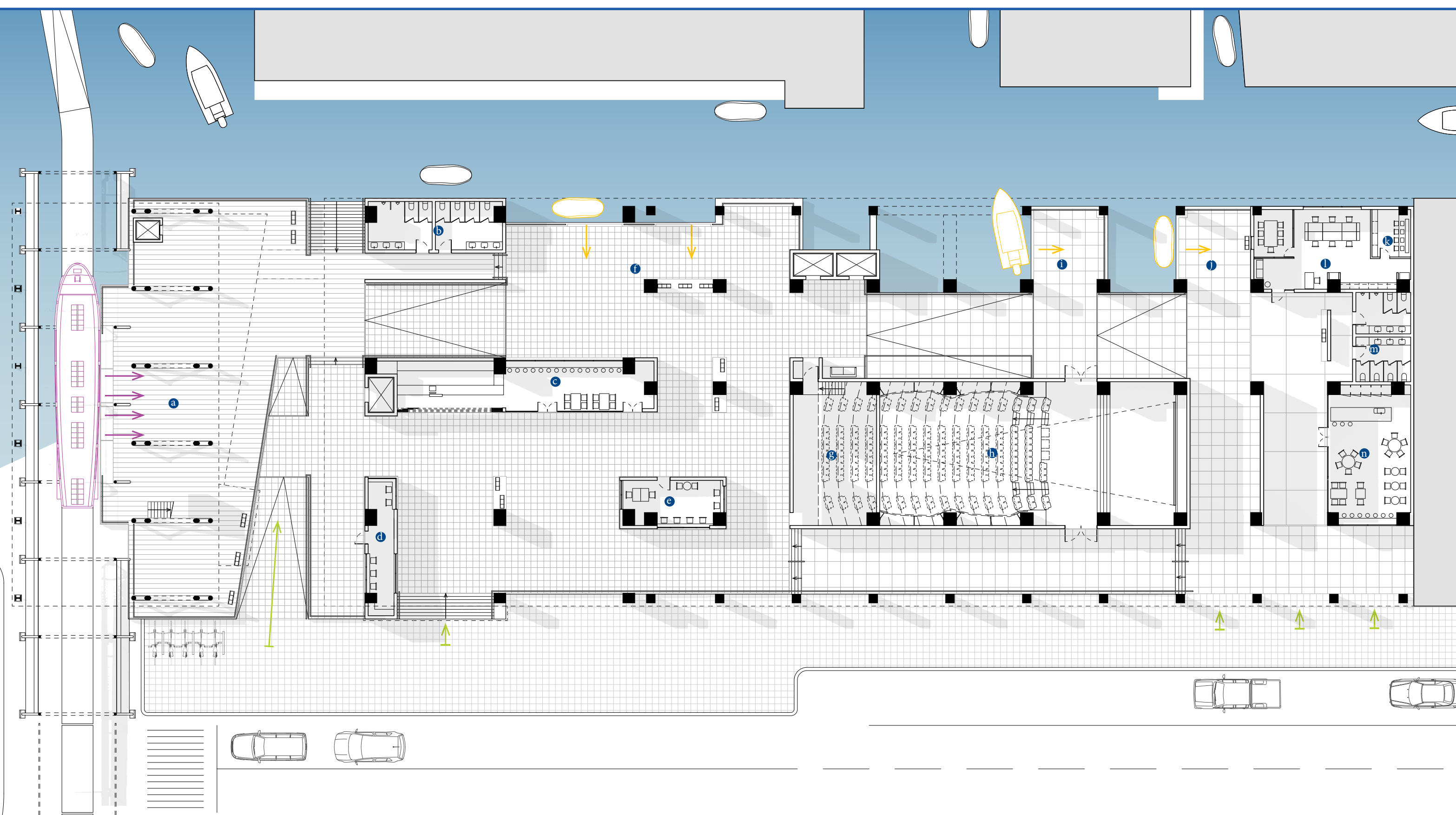


(Above) Satellite Map of Site

(Left) Sea Level Change over the Next 25Years

(Under) Original Plan of Site

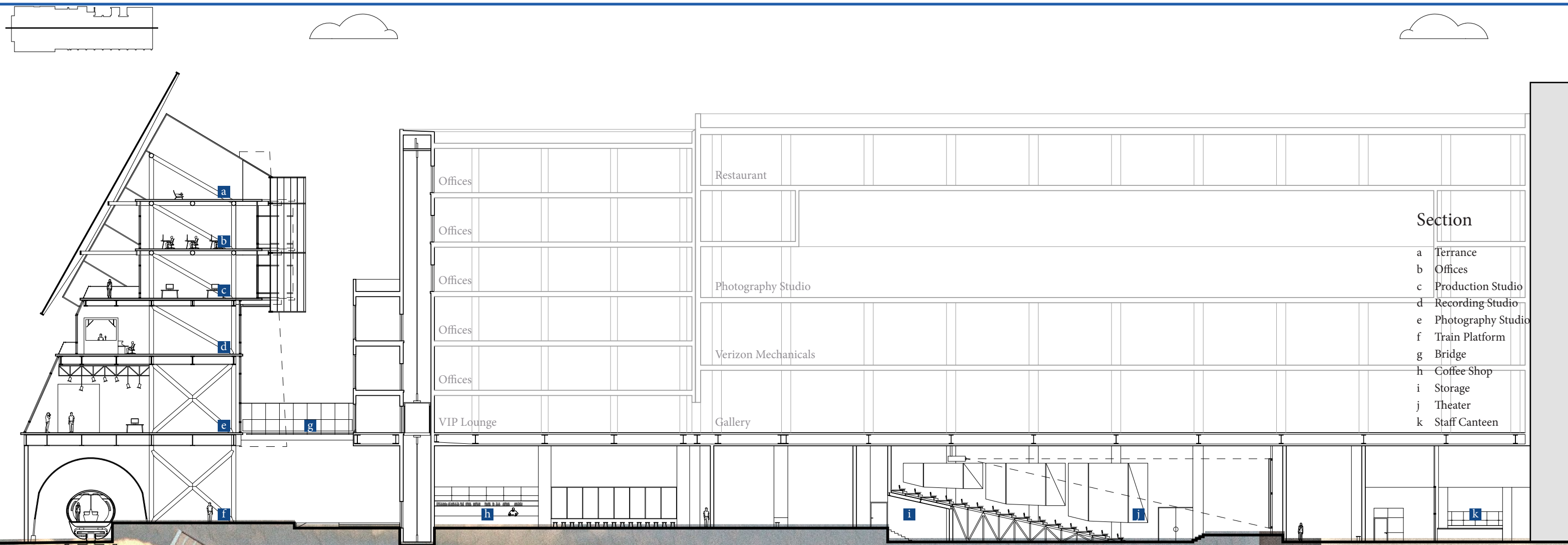




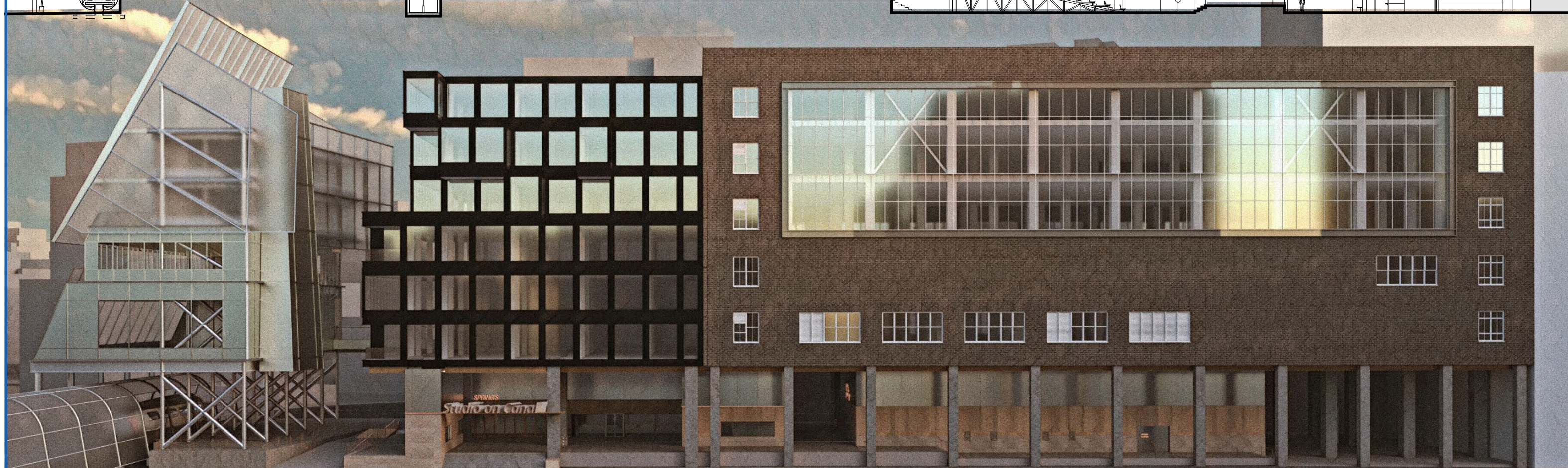
Block Plan

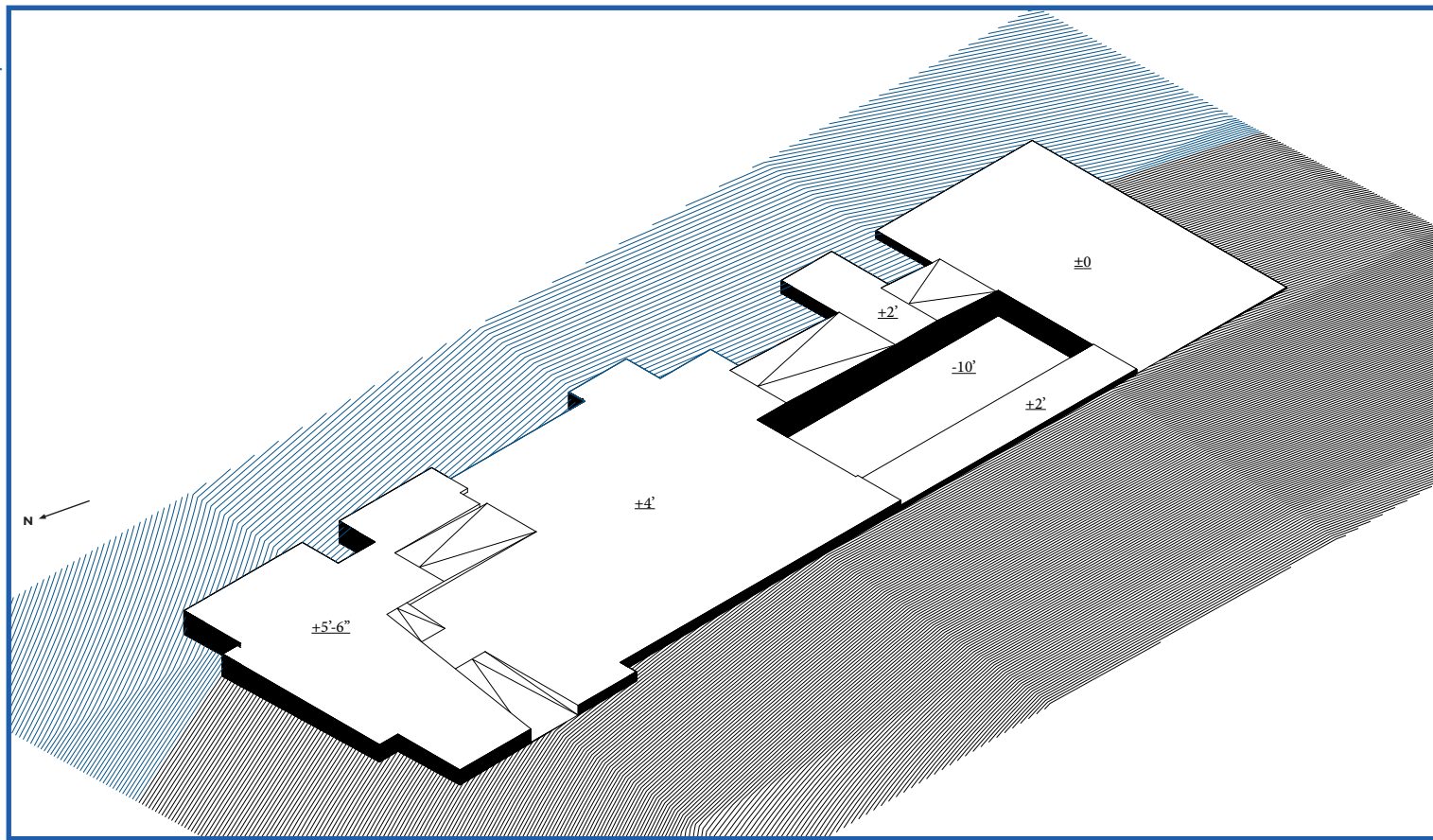
- by train
 - by water
 - by dry land
- | | | |
|------------------|------------------|------------------|
| a Train Platform | f Passenger Dock | k Control Room |
| b Restroom | g Storage | l Office |
| c Coffee Shop | h Theater | m Staff Restroom |
| d Information | i Freight Dock | n Staff Canteen |
| e Box Office | j VIP Dock | |





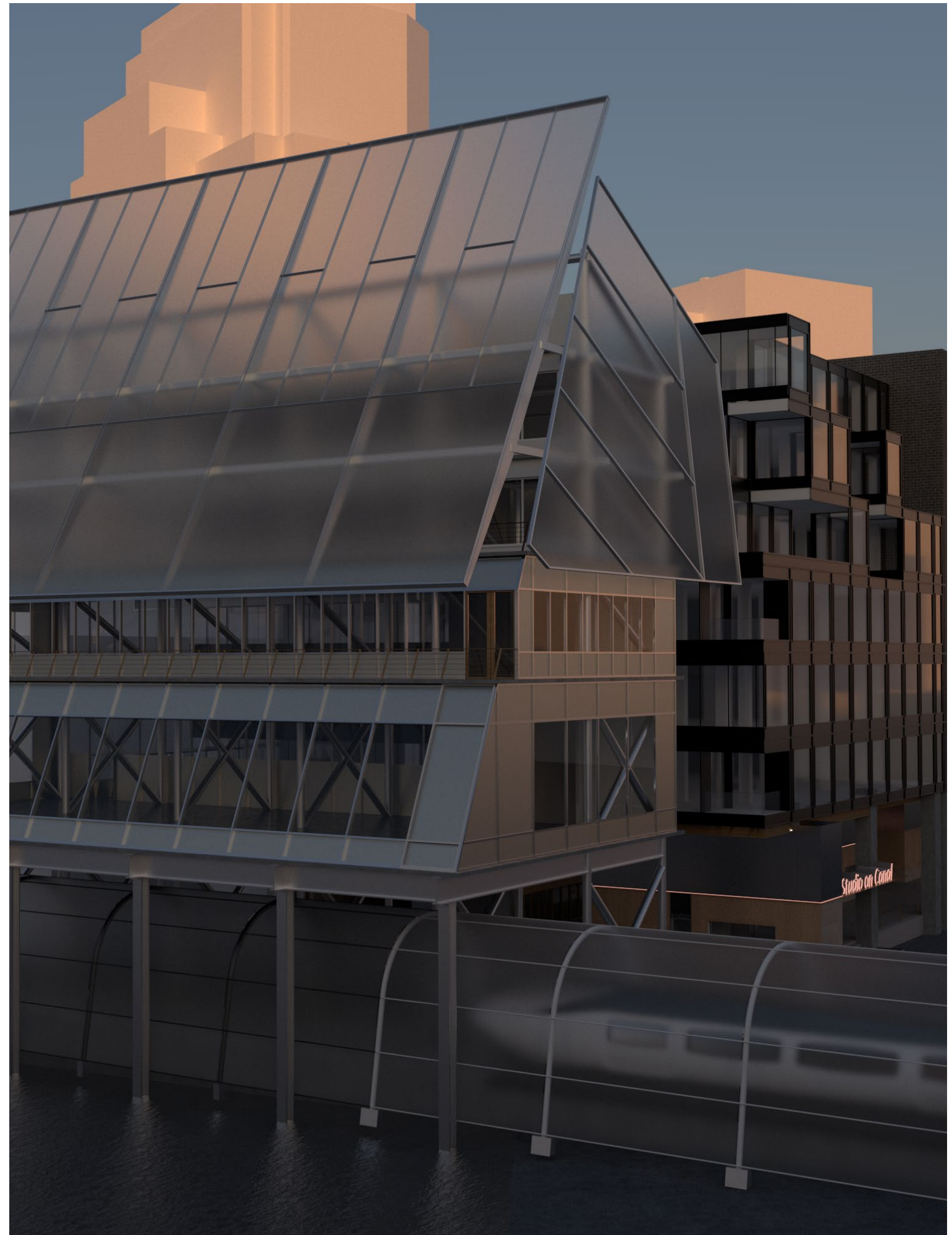
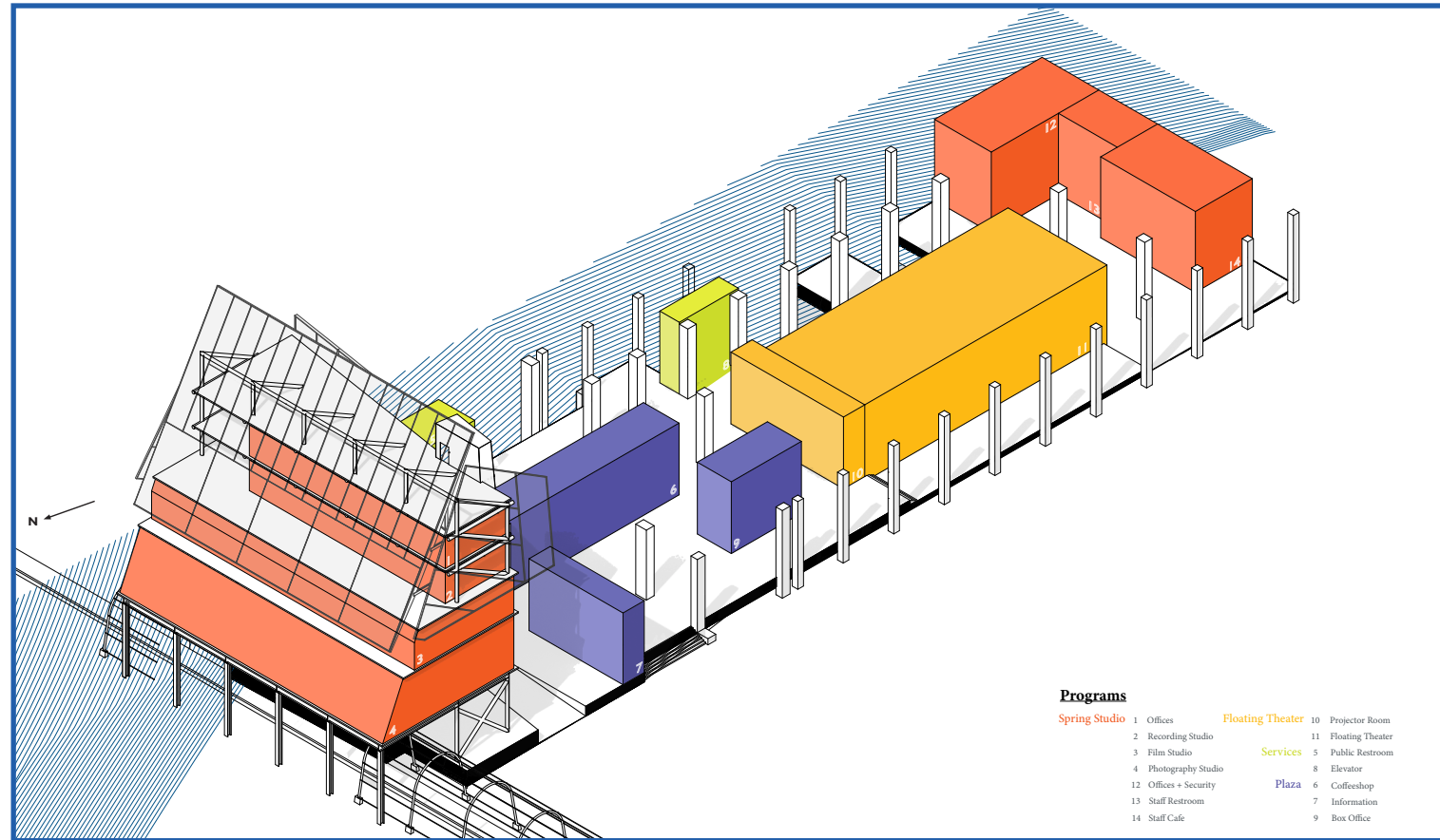
- Section**
- a Terrace
 - b Offices
 - c Production Studio
 - d Recording Studio
 - e Photography Studio
 - f Train Platform
 - g Bridge
 - h Coffee Shop
 - i Storage
 - j Theater
 - k Staff Canteen



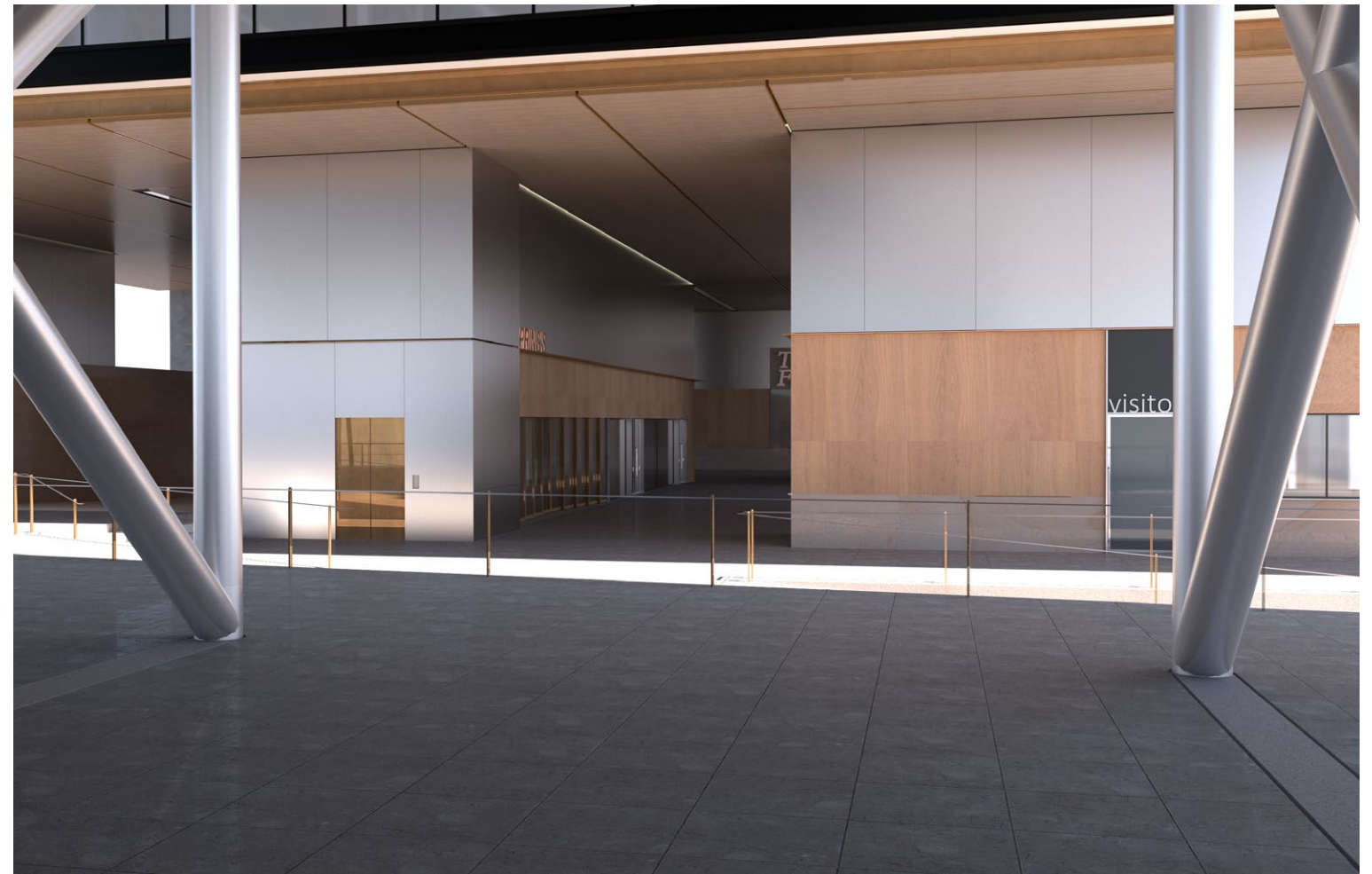


(Above) Ground Elevation Change

(Under) Program Distribution







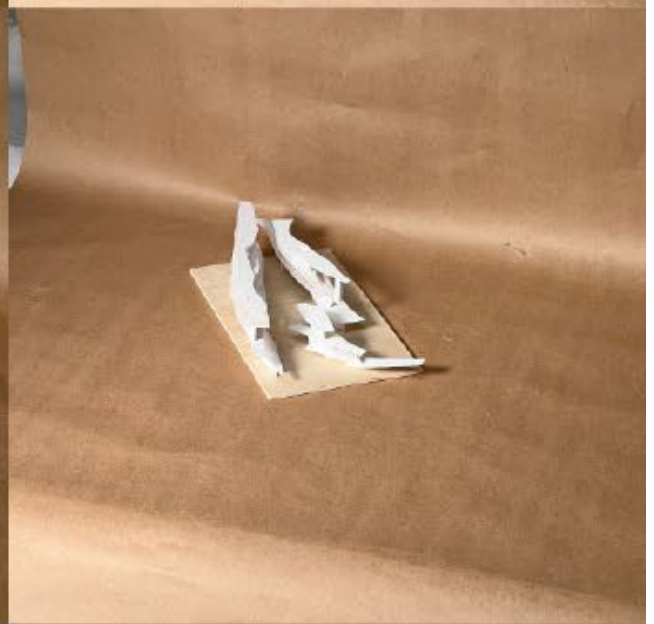
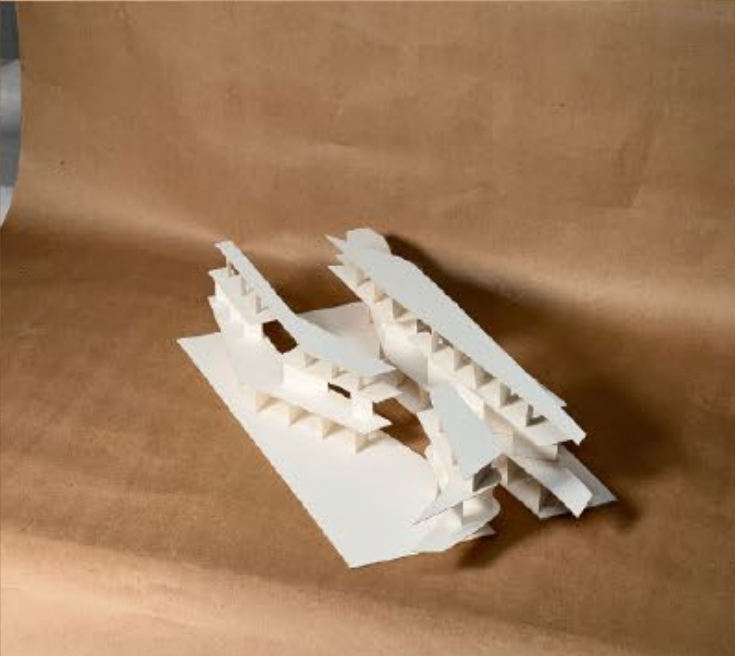
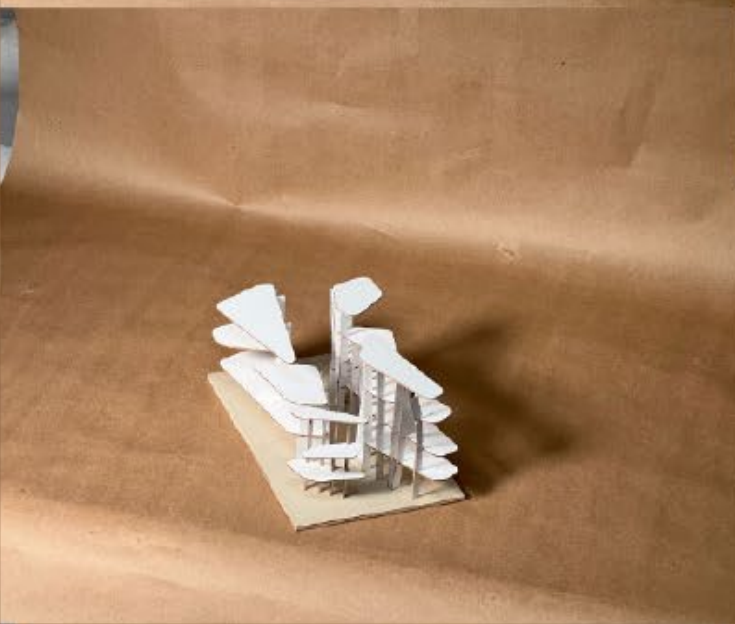
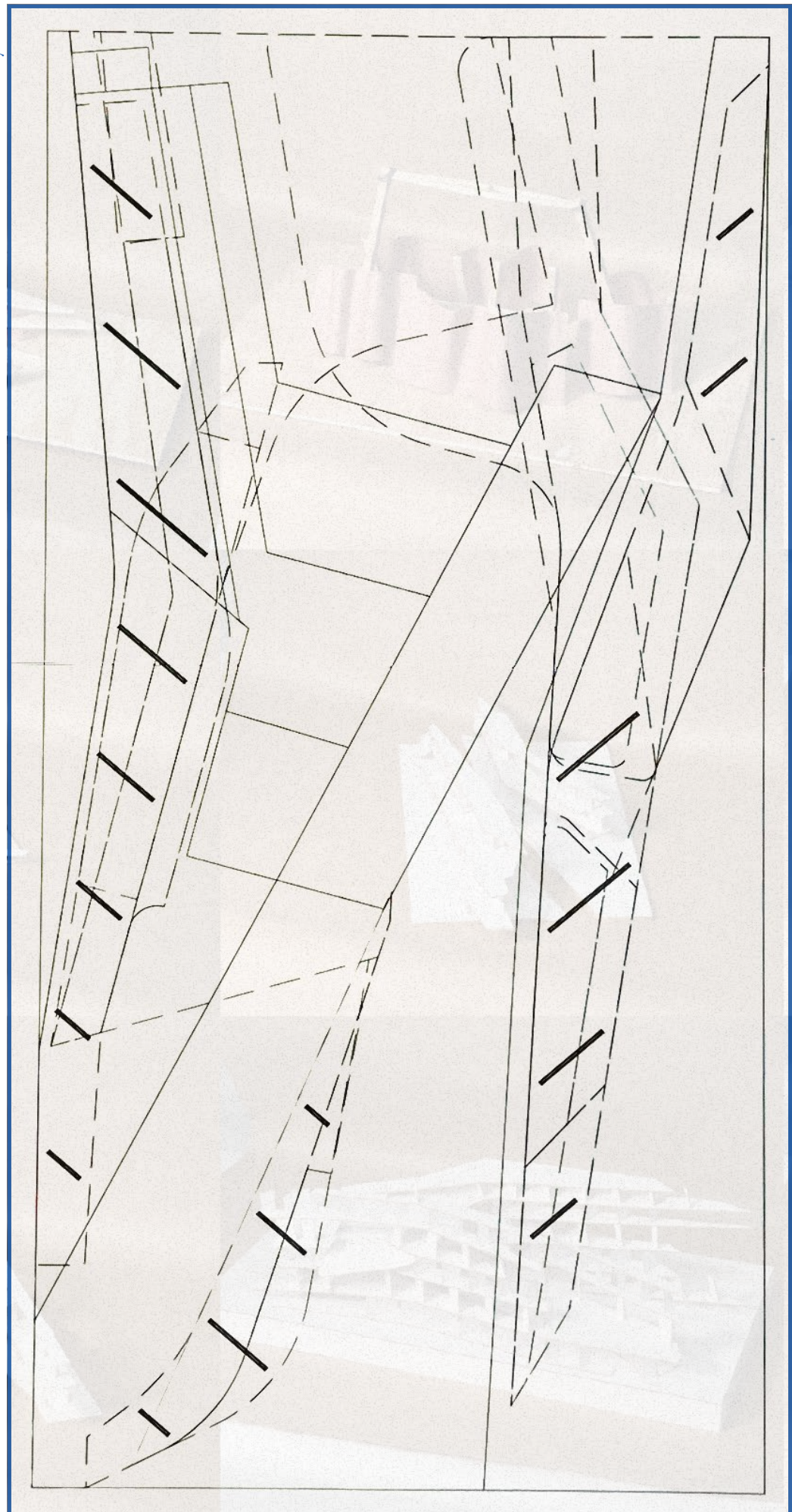
A Theater in Desert

Granada, Spain
Spring 2024
Steven Holl, Dimitra Tsachrelia
with Abdullah Maddan

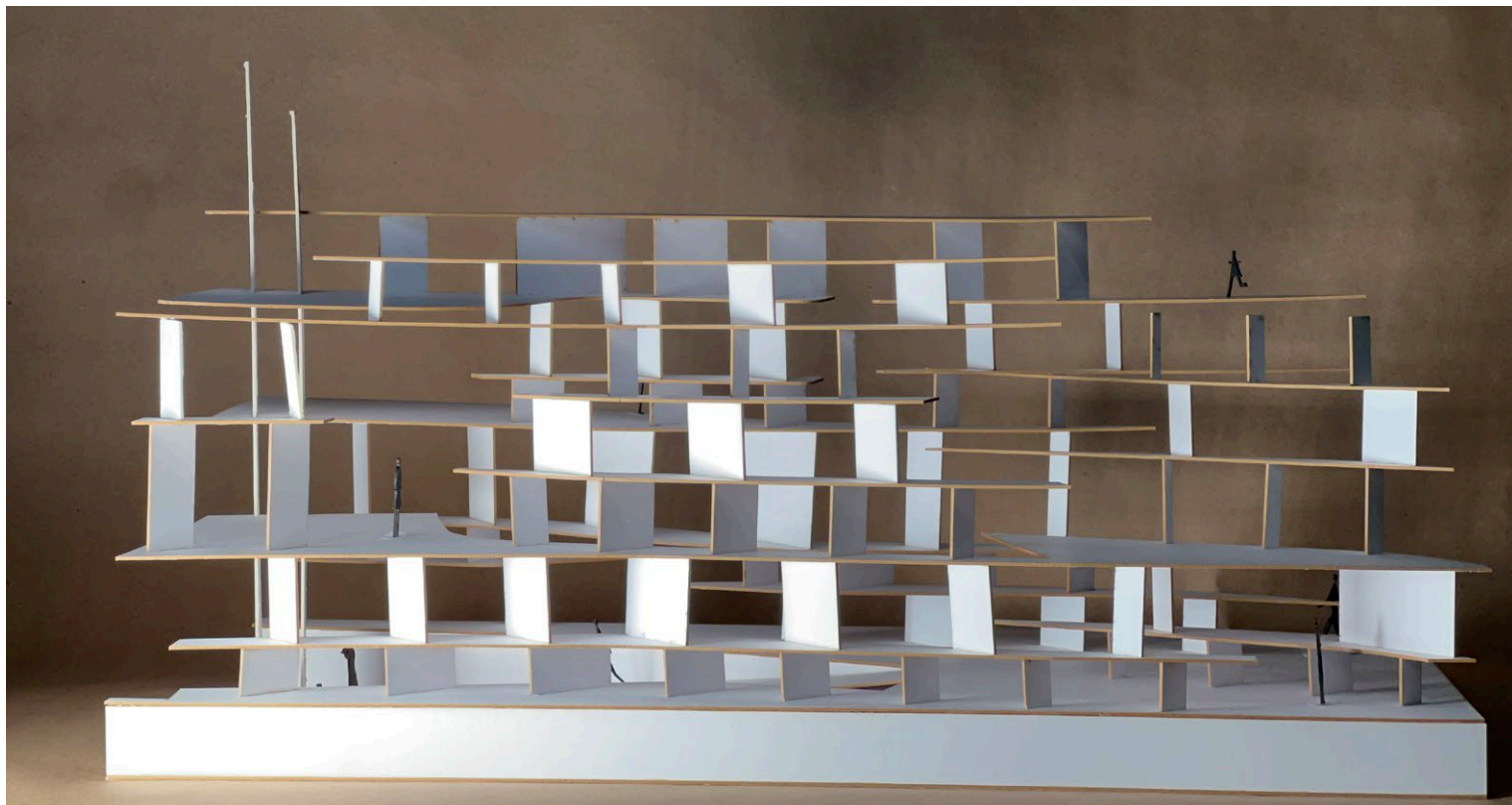
In this project, named “Palindromos,” inspiration is drawn from John Luther Adams’ “Become Desert,” a composition characterized by slow, gradual movement that renders it inherently monolithic and resistant to deconstruction. However, within this seamless whole, three distinct themes emerge, offering the potential for translation into a nuanced architectural experience. The musical score unfolds with ethereal tones from high instruments, reminiscent of a desert sunset, gradually descending into deeper tones resonating with bass and double bass, symbolizing the profound stillness of the night before rising anew to announce a new day.

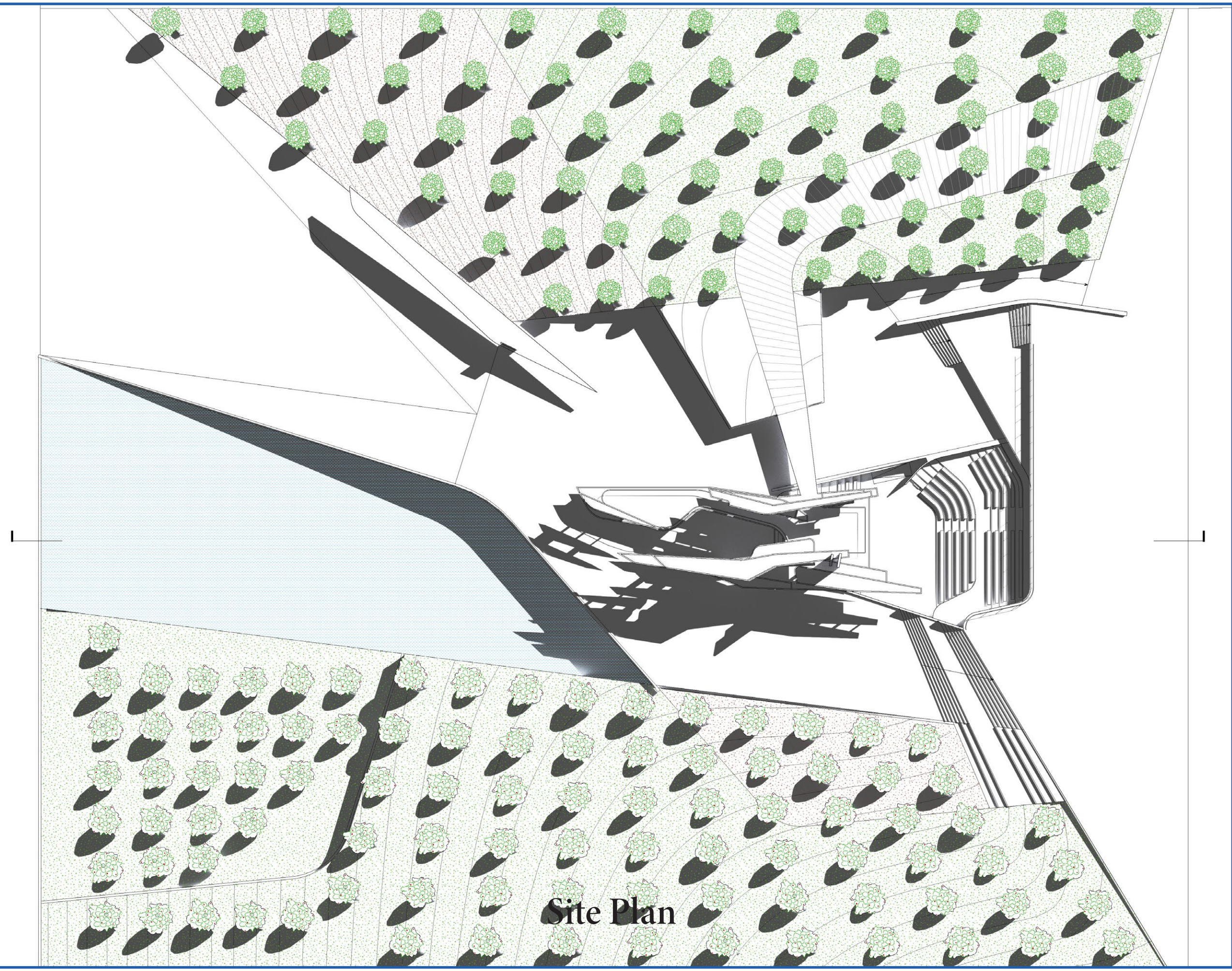
Mirroring the topographical features of deserts, the architectural structure serves as an emulation of a canyon, shaped over millennia by the relentless forces of nature. Through meticulous experiments with space and light, vertical louvers are strategically positioned along dynamic corridors and levels, creating a symphony of interplay between form and function. This deliberate manipulation of elements mirrors the nuanced tonalities present in Adams’ composition, contributing to a spatial experience that is both unique and immersive.

Occupants are invited to traverse a landscape that unfolds akin to a musical journey, where each passage and level functions as an element in the architectural score. “Palindromos” originates from ancient Greek, and the structure aims to echo the cyclical nature of time, encapsulating the transformative beauty of the desert – from the sunlit peaks to the shadowy depths and back again in a palindromic fashion. The interdisciplinary fusion of music and architecture elevates the project beyond a mere structure, crafting a harmonious synthesis that seamlessly weaves together artistic inspiration and the natural world, offering a profound and enriching experience for those who engage with it.

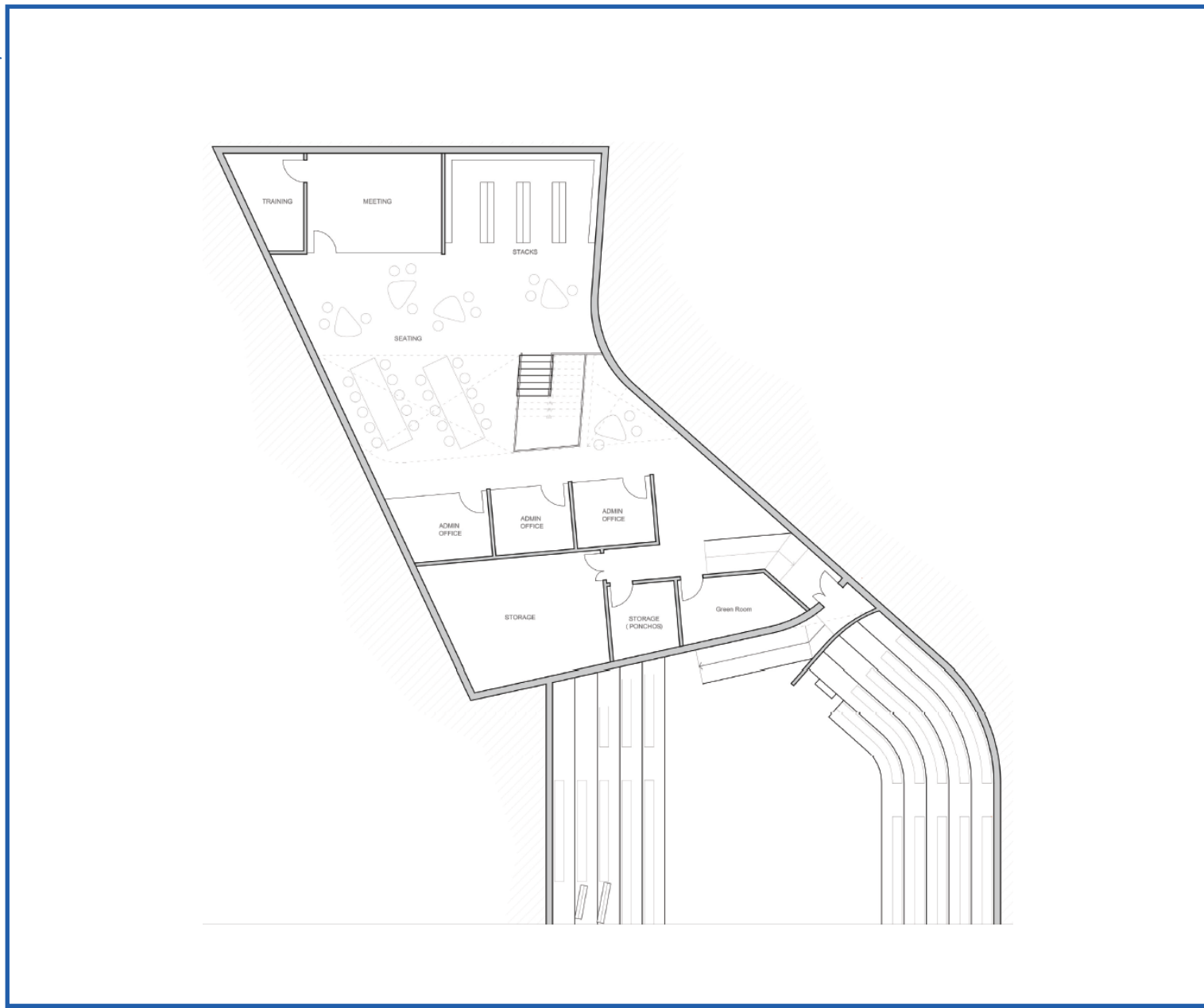




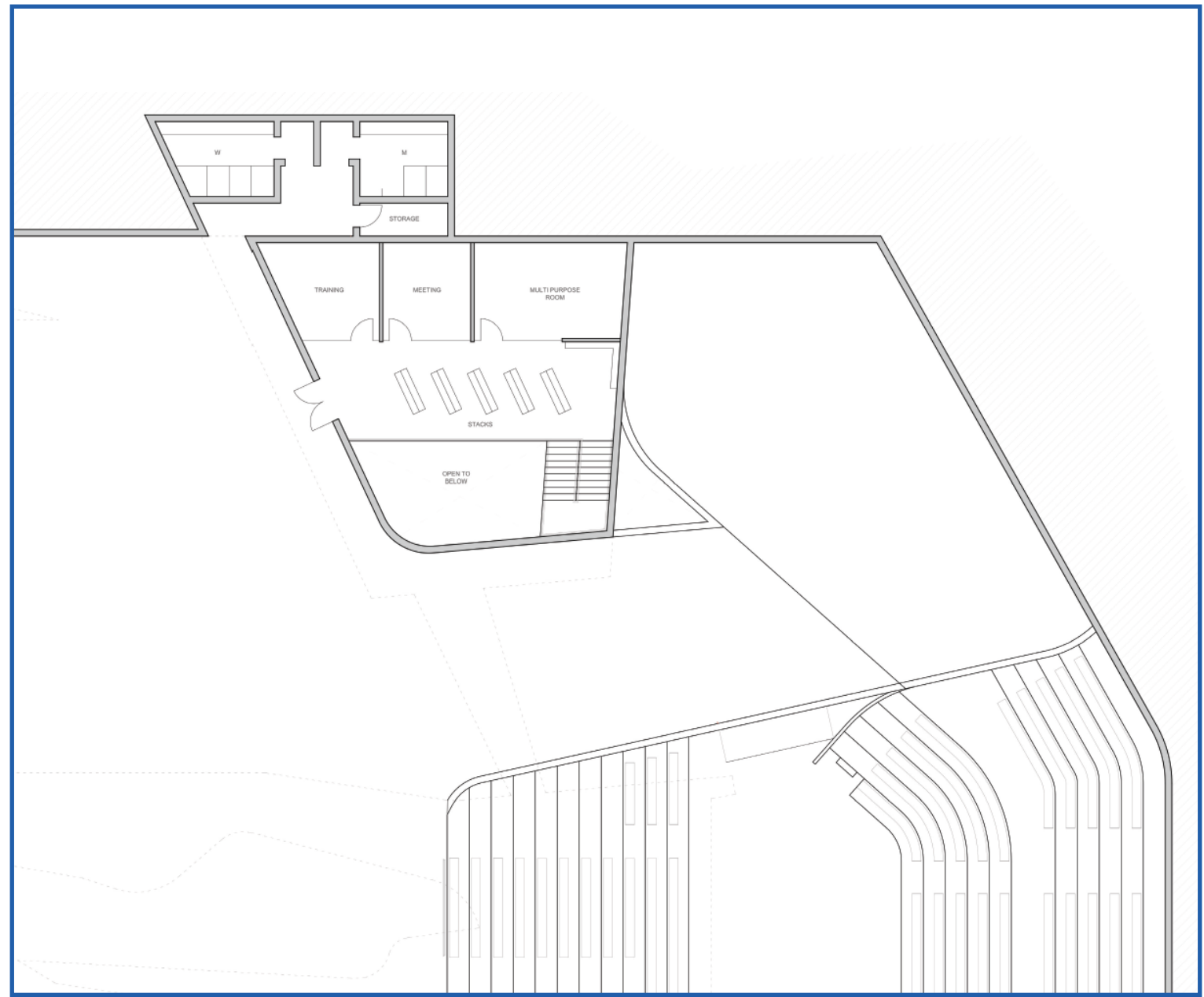




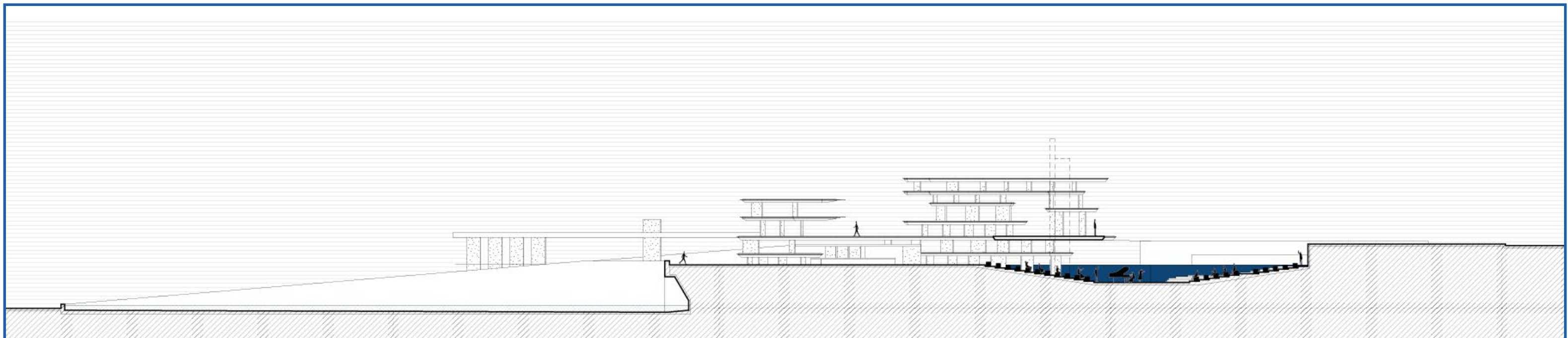
Site Plan

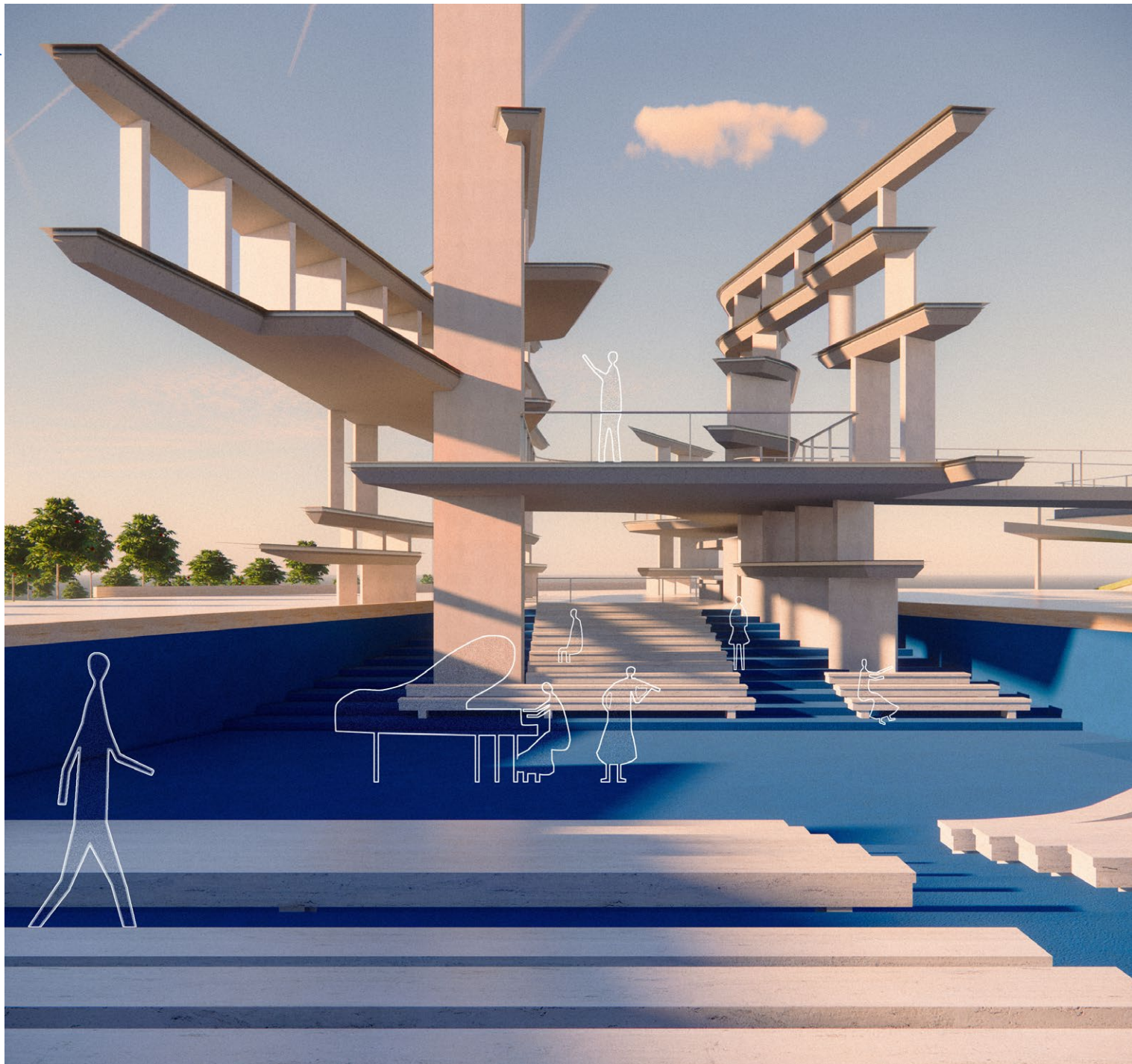


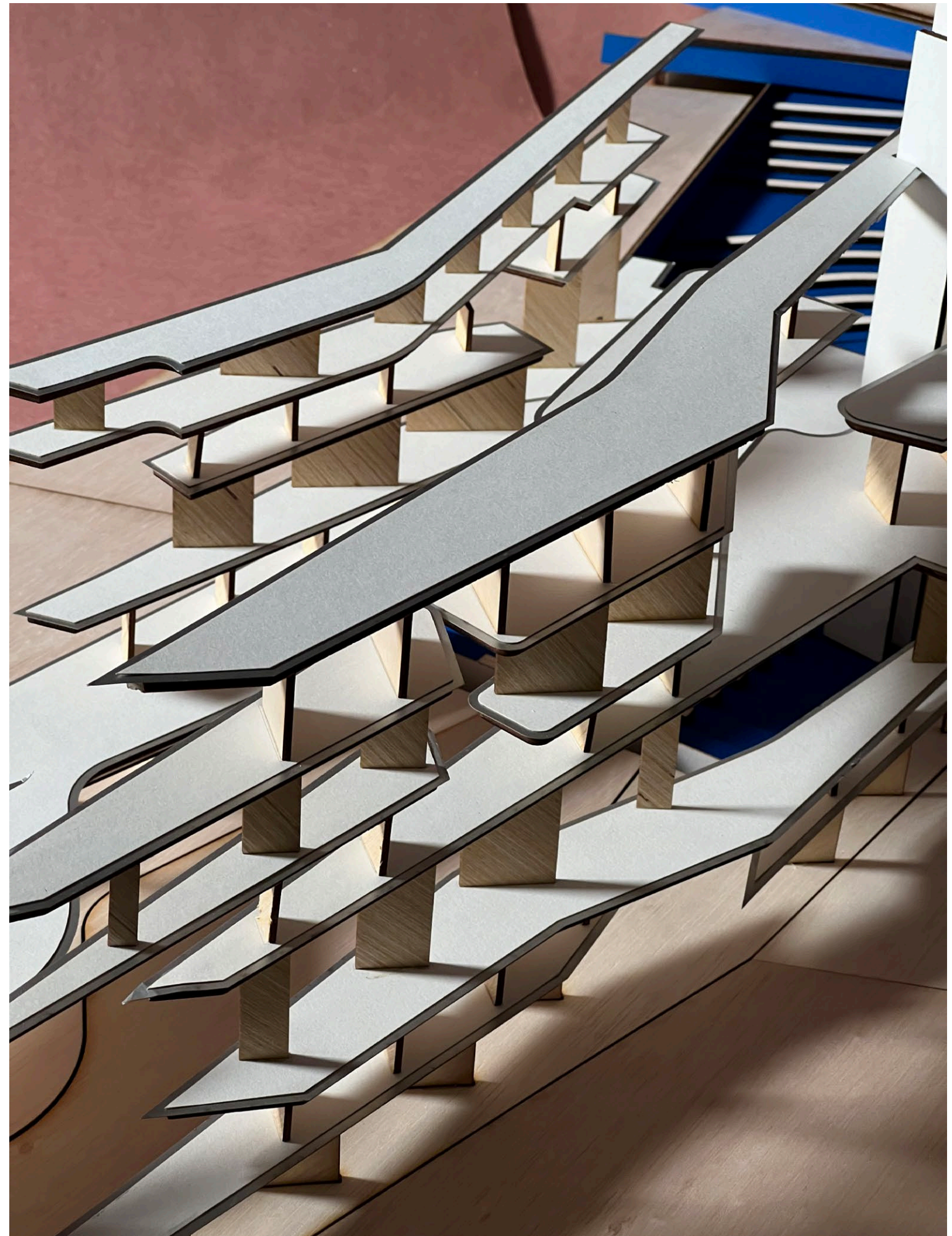
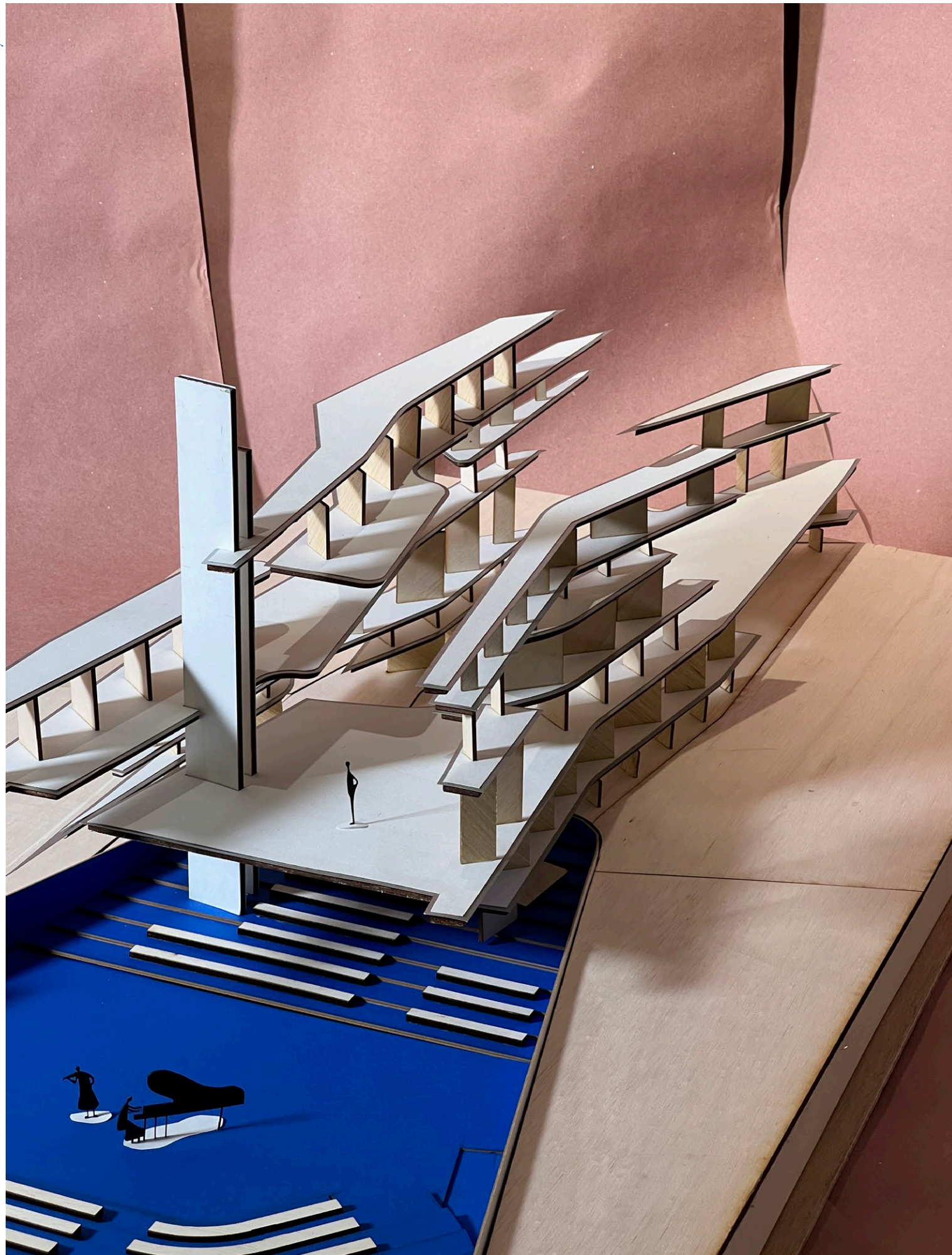
Ground Level Plan

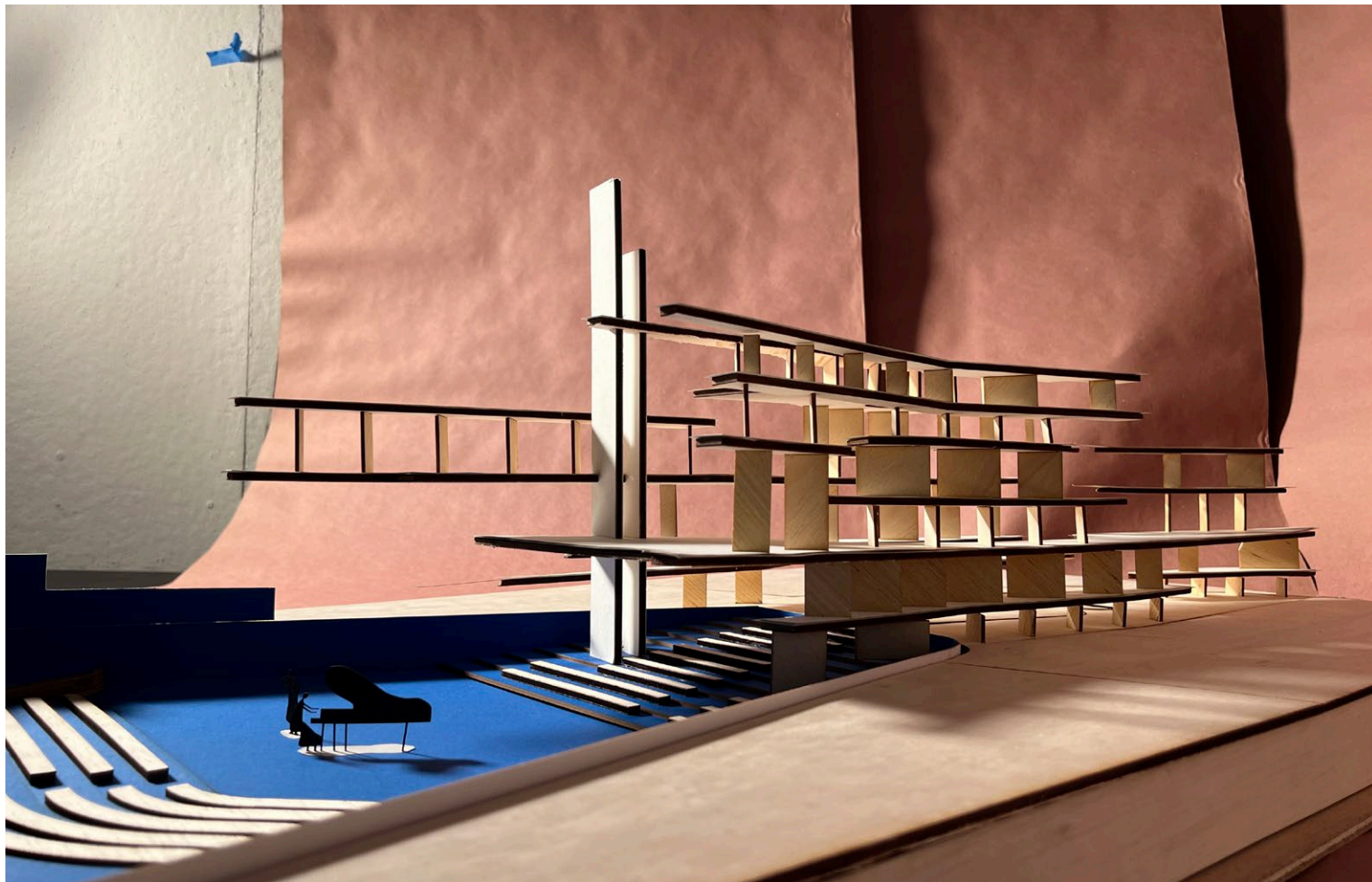
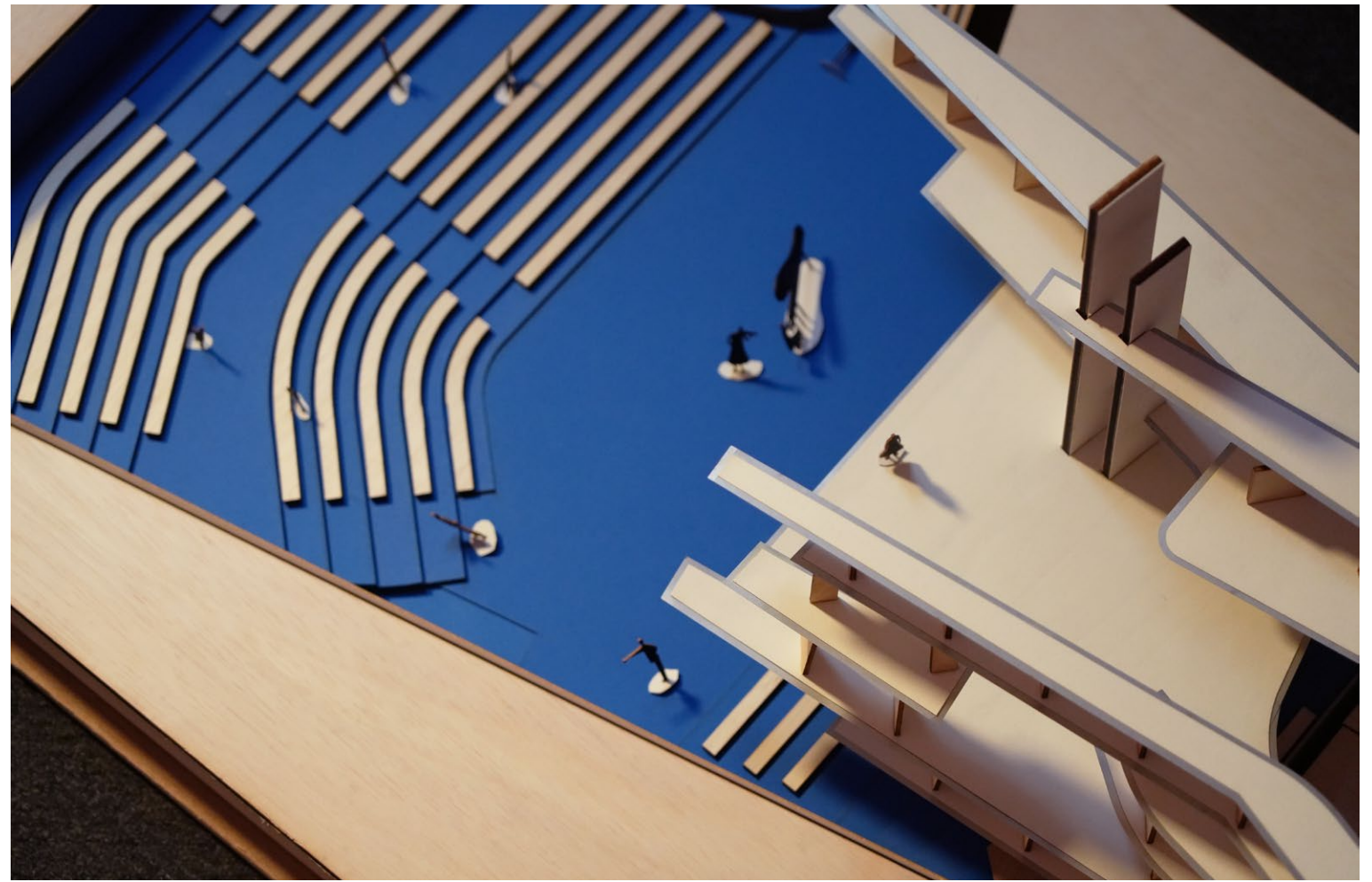
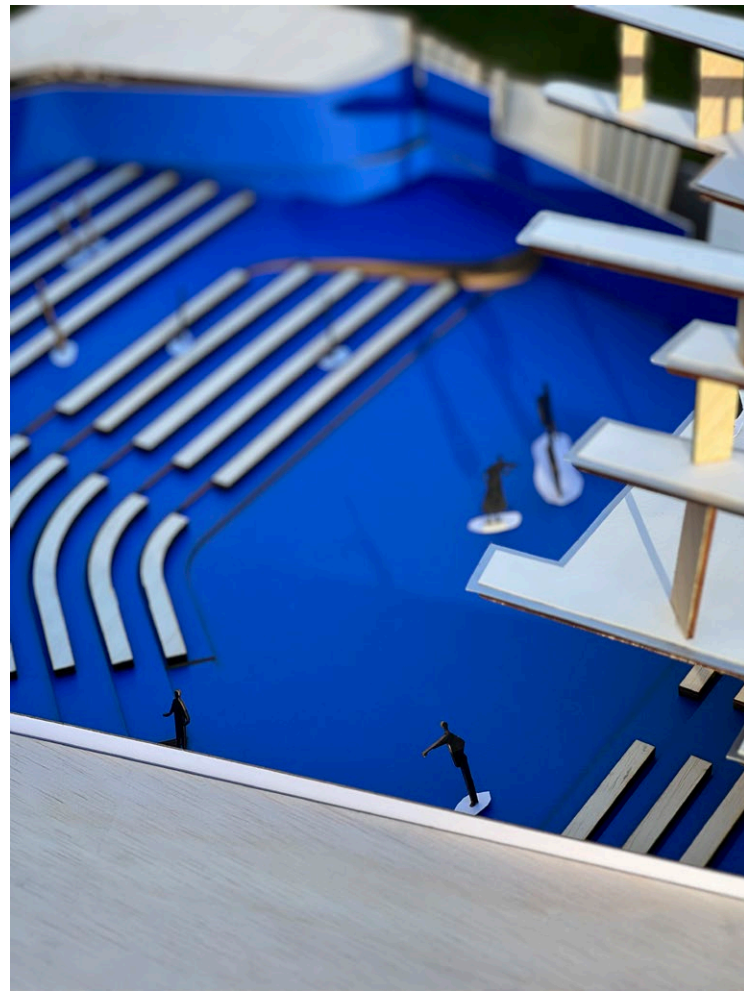
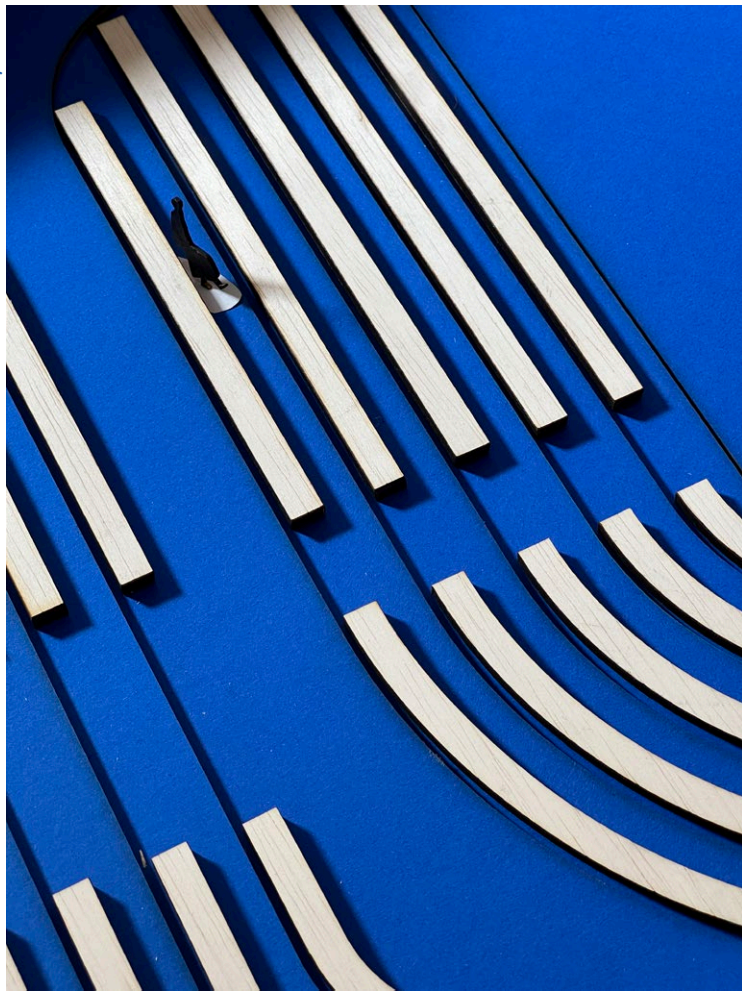


Underground Level Plan

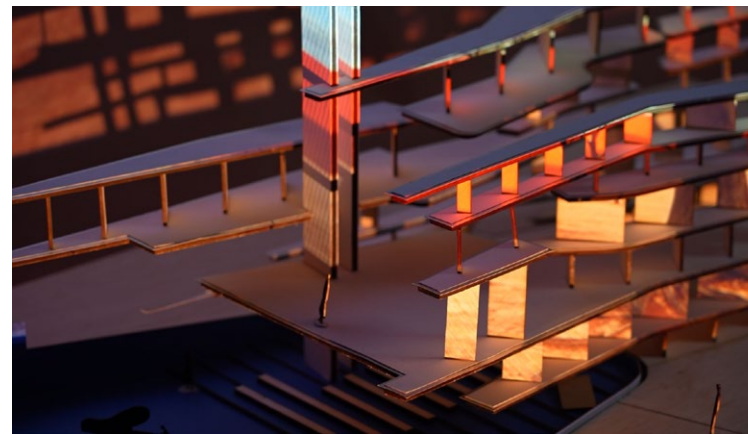
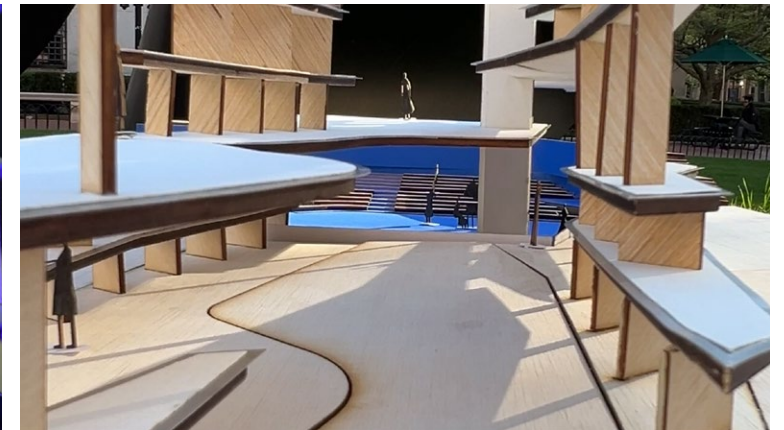








Screenshots from Video



Argument

Essay on Junya Ishigami's lecture
Summer 2023
Javairia Shahid



Junya Ishigami: Architecture Lasts Longer than Its Function

In our contemporary world, distinct from the era of modernism, the architectural landscape has evolved. The catchphrases of the past like “Less is more,” “the Living Machine,” and “Ornament is a crime” have given way to a celebration of design freedom. This extends beyond mere liberation from formal principles to a liberation from the very concept of form. When form loses its primacy, the traditional dichotomy of function versus form becomes obsolete. This dissolution finds resonance in Junya Ishigami’s assertion that architecture outlasts its function.

Background: Form vs Function

Starting from the end of 19th century, the interplay between form and function has long been a defining discourse, shaping the course of design philosophies and aesthetic sensibilities. Pioneering architects like Louis Sullivan first said the famous 3-word: “Form follows function,” the pivotal tenet of modernism. This ideology sought to create harmonious spaces where the functional purpose of a structure dictated its aesthetic form. Later, Le Corbusier and Mies Van der Rohe further carried the concept to its peak. Other 3-words they state such as “less is more” or “a living machine” ushered in an era of clean lines and an emphasis on efficiency.

However, the latter half of the 20th century witnessed a shift in this paradigm. Post-modernism challenged the strict dogmas of modernism, advocating for a fusion of diversity and a more natural approach to design. Robert Venturi’s catchphrase “less is a bore” embodied this departure from rigid principles. Debates arose over the relevance of modernism, leading Charles Jenkins to declare “modernism is dead.” This declaration coincided with architectural theorists questioning the dichotomy of form versus function and exploring more nuanced relationships between the two.

The 21st century has witnessed technological advanc-

es enabling architects like Frank O. Gehry and Zaha Hadid to push formal boundaries. Today, functions and forms are not adversaries; architectural experimentation is embraced, reflecting society’s penchant for diverse formal expressions.

Water Garden and the Underground Restaurant

Junya Ishigami exemplifies an architect renowned for immersive spatial experiences. His designs draw inspiration from nature, yielding a captivating amalgamation of the natural and architectural. Water Garden, a mesmerizing fusion of nature and architectural ingenuity. Situated in the verdant landscape of Japan, this ethereal creation redefines conventional garden paradigms. By relocating 318 trees, these once trees are now transformed into captivating living sculptures, frozen in time through human interventions. This entire endeavor is motivated by the desire to restore a sense of balance to nature from an artificial perspective.

The garden showcases an intricate interplay between water and land, with a series of interconnected ponds, channels, and vegetation. Each element flows seamlessly, blurring the distinction between the constructed and the organic. Junya Ishigami’s vision, realized through meticulous craftsmanship, presents a contemplative space where visitors can immerse themselves in the tranquil beauty of the surroundings.

Paths wind through the landscape, guiding observers through an ever-evolving sets of light, shadow, and reflections. The Water Garden stands as a testament to Ishigami’s ability to conjure environments that resonate with both serenity and architectural intrigue, inviting individuals to experience the delicate dance between the constructed and the natural world. In doing so, Ishigami blurred the boundary of nature and artificial, the seemingly most natural elements are the result of human industrialization.

In another recent work, the Underground Restaurant, however, Ishigami approached the blurred boundary in another way. He created a unique mud-covered building in Ube, Japan, featuring a house and restaurant. The most notable feature of this design is the giant structure shaped by pouring concrete into excavated ground, resulting in spacious interiors with arched openings and concrete columns resembling stalagmites. Ishigami's method involves pouring concrete into dug holes, revealing a distinct textured shape when the surrounding soil is removed.

In Ishigami's original blueprint, the mud was slated to be cleansed from the concrete post excavation. Yet, captivated by the earth-adorned façade, he chose to retain it as a surface veneer. Employing a Japanese technique, the mud was solidified to avert erosion. The building's essence lies in its organic form and material composition, imparting a sense of enduring weight and antiquity to the residence and eatery. Ishigami's team meticulously crafted the structure's contours through three-dimensional modeling for precise piling. Inside, glazed panels segregate the northern restaurant and southern domestic zones, while three courtyards interpose.

In the construction process of this project, the mud as well as the concrete can not be controlled, thus rendering this project a product of nature.

Architecture Outlasts Functions

Ishigami's projects reflect his unique perspective on the form-function interplay. One project lacks a clear function, while the other embodies it; one appears natural but results from human intervention, while the other seems human-made yet arises from natural forces. These juxtaposed projects illustrate Ishigami's view that the division between function and form is not fixed. In a lecture at Woods Auditorium, GSAPP, he argued that this perspective is rooted in his belief that architecture today lasts longer than its functions.

This statement is so rich in its post-modern connota-

tions. It highlights the fluid nature of functions within architecture, mirroring the dynamic changes in societies. Architects are tasked with responding to these shifts, crafting designs in sync with evolving societal patterns. Notably, contemporary building materials have attained a level of longevity that surpasses the pace of societal fluctuations, leading to a heightened demand for architectural spaces capable of enduring beyond immediate trends. This complex interplay of factors underscores the contemporary yearning for architectural environments that strike a delicate equilibrium between stability and adaptability, satisfying the dual desire for enduring structures that can gracefully accommodate the evolving needs of a rapidly changing world. In response, Junya Ishigami masterfully orchestrates intricate spatial experiences, maximizing the allure of architecture. Form becomes a byproduct of these experiences, reflecting architecture's profound endurance beyond functions.



This artificial garden seems very natural.



Underground restaurant under construction.

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3. Lizzie Crook | 19 September 2022. Junya Ishigami hides mud-covered house and restaurant below ground level in Japan. Dezeen. <https://www.dezeen.com/2022/09/19/junya-ishigami-mud-covered-house-restaurant-japan/>

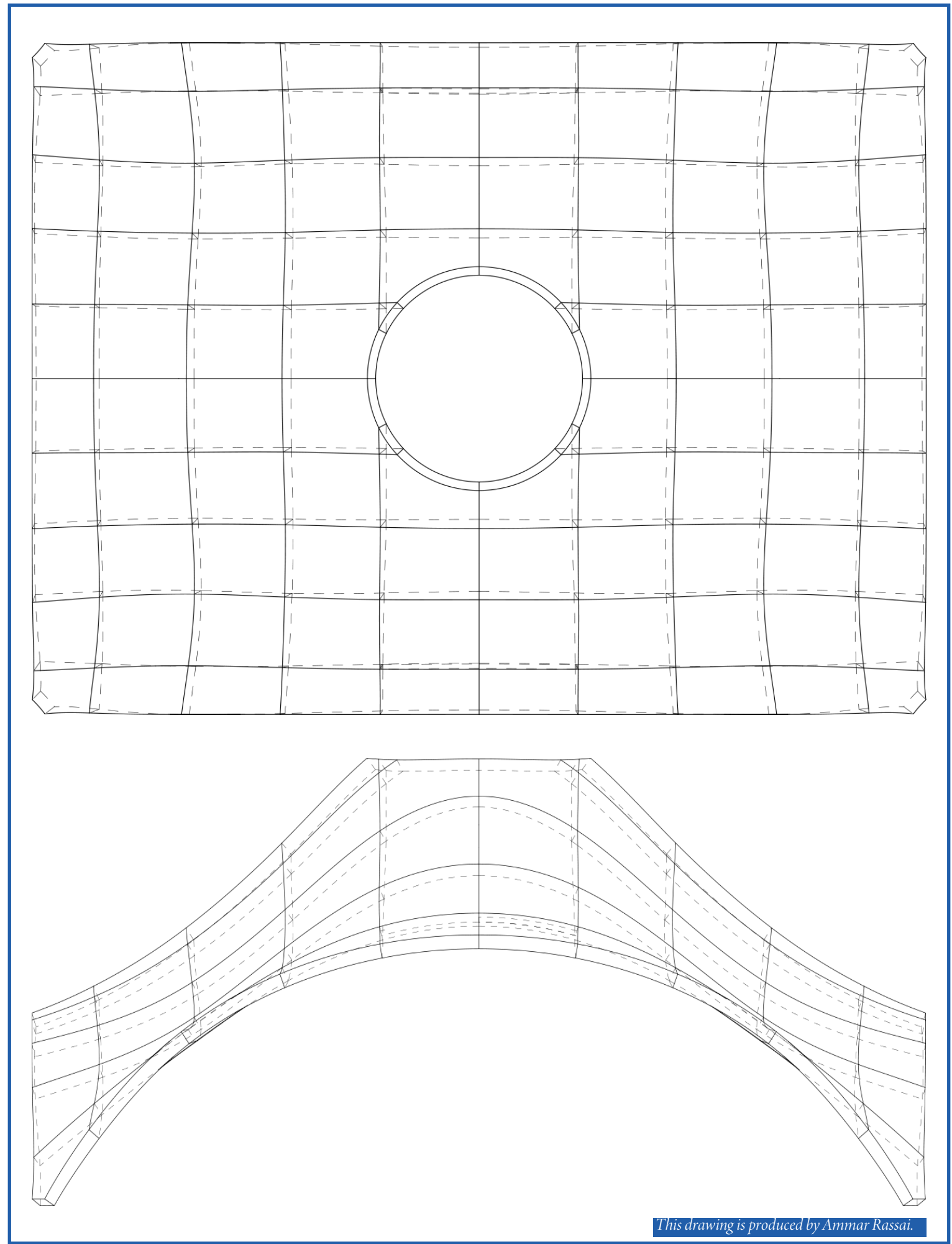
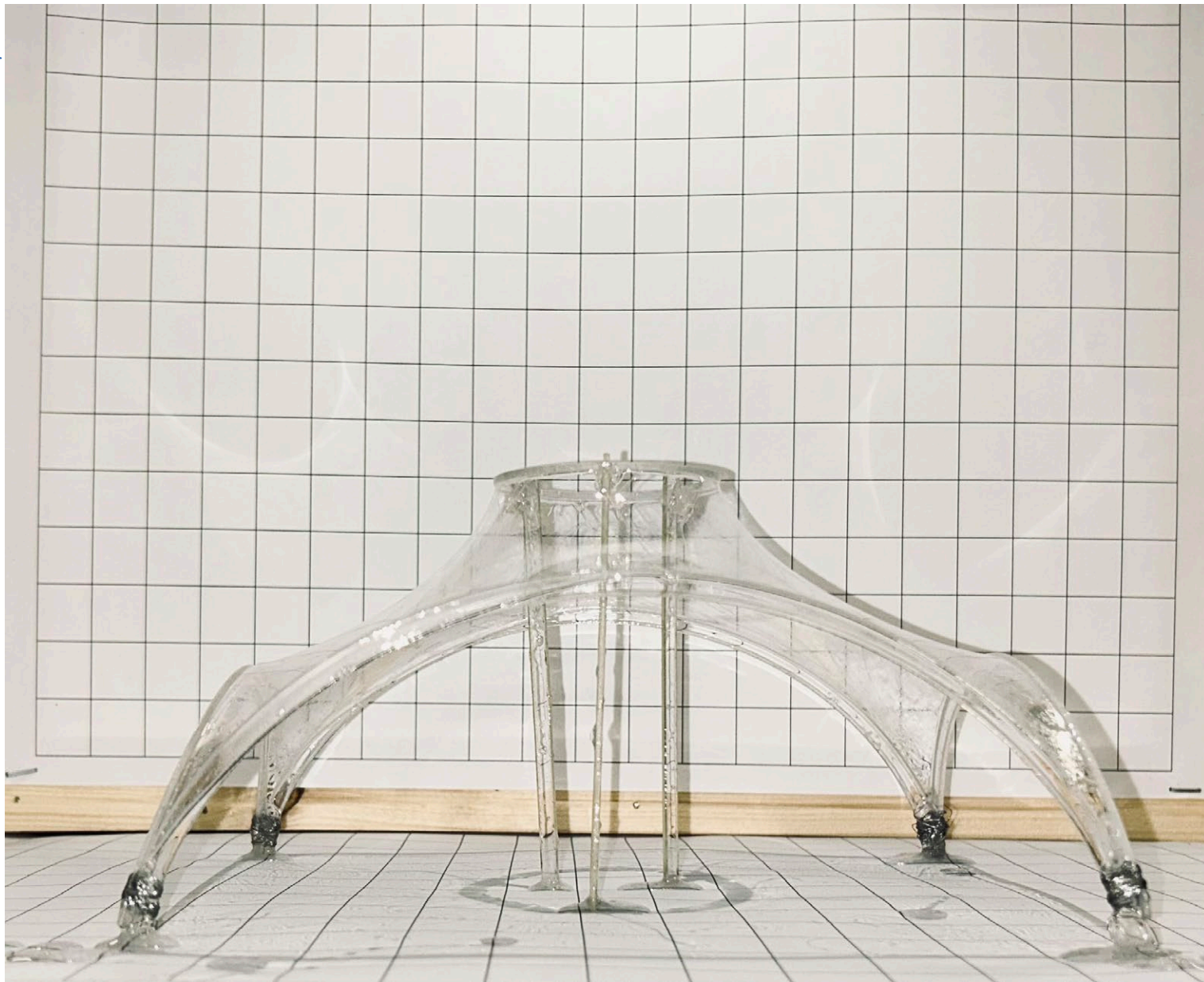


Bubble Buttress

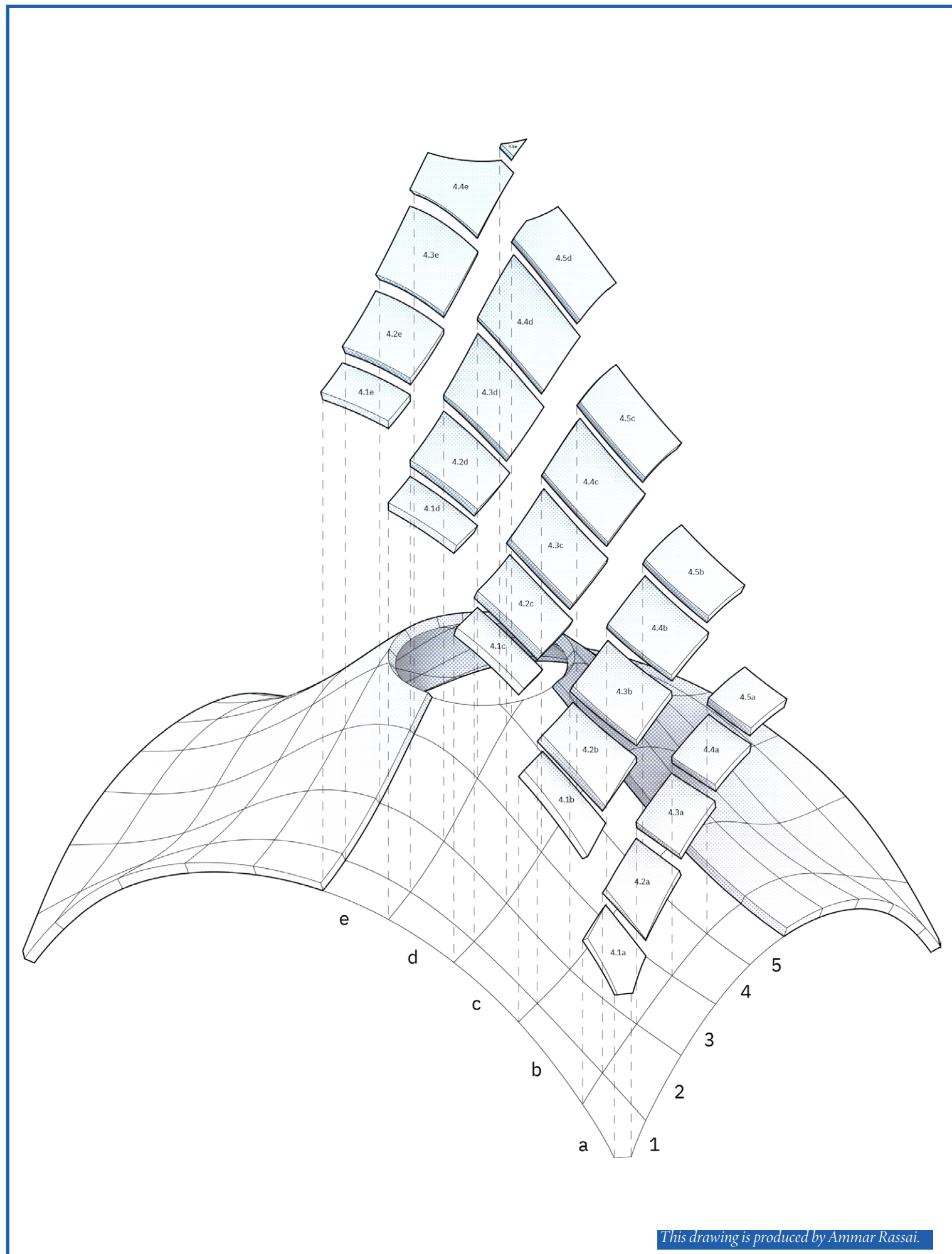
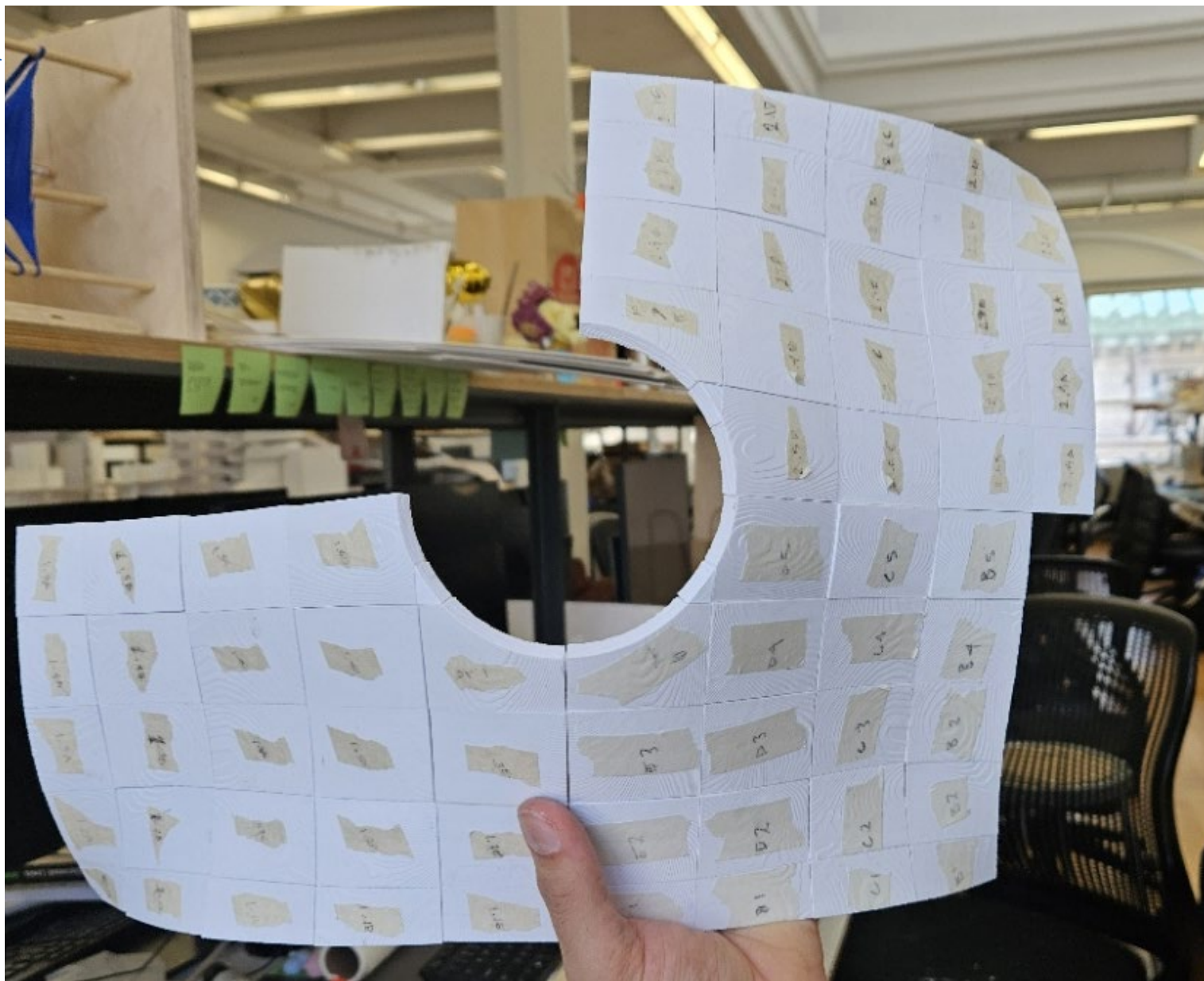
Tencile/Compression Surfaces in Architecture
Fall 2023

Rober Marino
with Abdullah Maddan and Ammar Rassai

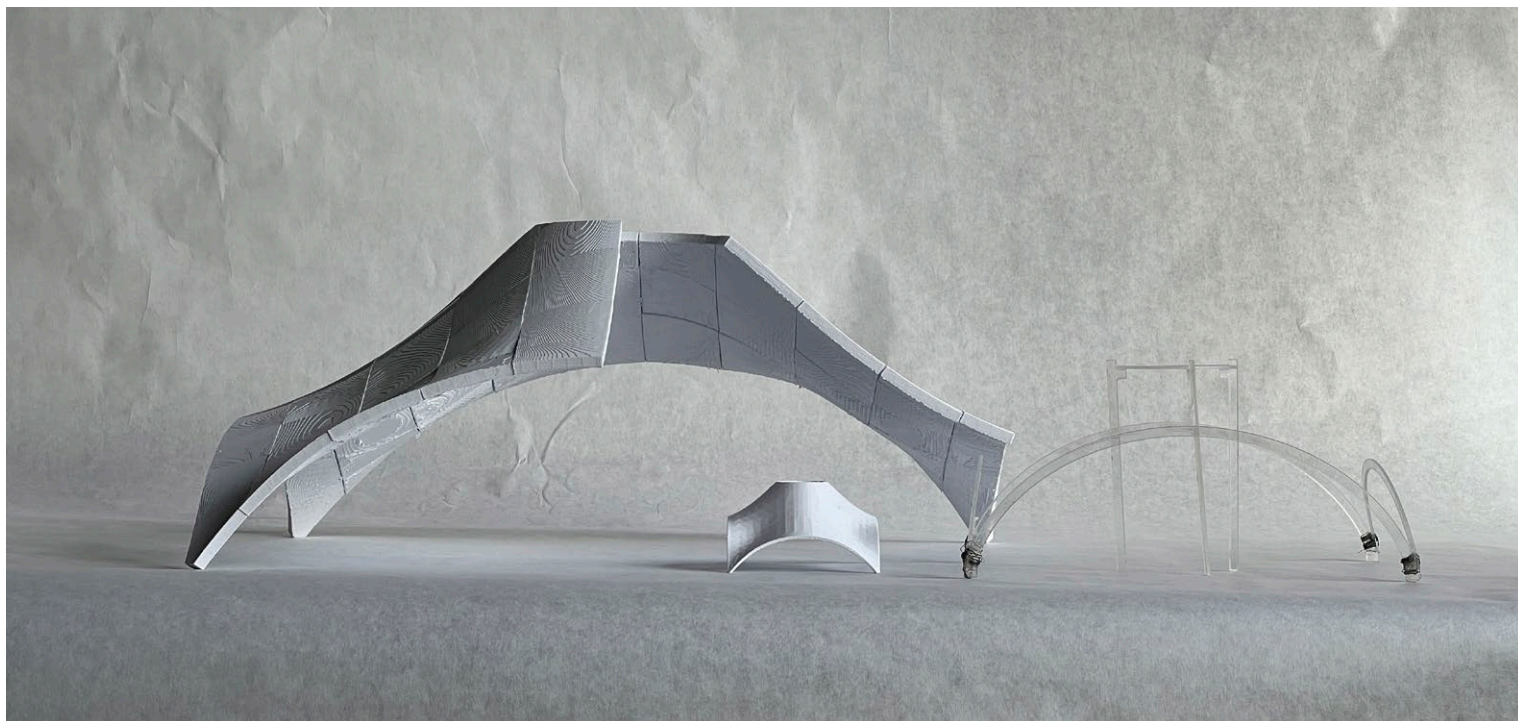
In this professional elective, students are asked to create a boundary condition for elastic material to **shape-find** (rather than the usual **form design**). We utilized soap bubble to create a tensile surface. With the aid of grid behind the bubble, we transformed the bubble into a 3D model before we converting that into a compression surface using 100-piece panelized 3D-print bricks.



This drawing is produced by Ammar Rassai.



This drawing is produced by Ammar Rassai.



The Contemporary

On Ideological and Ecological Envelopes
Spring 2024

Bernard Tschumi and Emma Sumrow
With Thomas Gomez Ospina



On Parc Bordeaux and the “Third Space”

Parc Bordeaux exemplifies conceptualizing context. Lacaton & Vassal identified a critical existing context to respond to, including a specific climate, a social housing typology, and physical restoration in this renovation project. They conceptualized the context through the design of a novel balcony space that creates a third condition as an inhabited envelope. This inhabited envelope addresses the lack of space and shortage of natural light with very minimal funding. The poetics of this project thus emerge from the spatial quality of this new inhabited envelope condition. The success of this “third space”, achieved through Lacaton & Vassal’s inventive methods on a limited budget, demonstrates a powerful way of conceptualizing the context. This paper identifies three conceptual variations of a “third space” condition that conceptualizes context: 1) *The Inhabited Envelope*; 2) *The Circulation as Envelope*; 3) *The Streetscape Envelope*. For each of these three “third space” conditions, three additional buildings will be explored in relation to Lacaton & Vassal’s Parc Bordeaux: The Miami Garage Museum by WORKac, Centre Pompidou by Richard Rogers and Renzo Piano, and the Cartier Foundation by Jean Nouvel.

Similar to Parc Bordeaux, the inhabited envelope as a third space condition is exemplified in WORKac’s Miami Museum Garage. Here, the architects transformed the façade of a rather banal garage by adding a series of public spaces, despite it being only four feet. This addition not only breaks through the traditional verticality of parking lots but also fosters a multitude of social interactions. The façade incorporates diverse programs such as galleries, a climbing wall, a garden, and a DJ Platform. This design, characterized by its vibrant colors and material choices, brings out the playfulness of the concept. Thus, this third space effectively conceptualizes the context, further demonstrating how even limited additions can significantly alter and enrich the architectural narrative.

Centre Pompidou by Richard Rogers and Renzo

Piano explores the concept of the third space in contextualizing context through circulation. They envisioned the museum as a transparent structure, both physically and metaphorically, revealing its mechanical systems to the public, particularly when viewed from the adjoining sloped plaza, allowing the architecture to expose itself to citizens. The building’s vertical circulation elements, like escalators and elevators, are strategically placed on the periphery, visible to the public eye. This acts as a technological manifestation on the envelope in relation to Colin Davies’ ideas on “High Tech Architecture”. This external layer of circulation, along with the plaza, acting as the third space in the project, extends the concept of transparency and public engagement, making the building an open book that invites interaction and exploration, therefore conceptualizing its urban fabric.

Jean Nouvel’s approach in the Cartier Foundation for Contemporary Arts offers a different perspective. Here, the third space conceptualizes context not by transforming it but by seamlessly blending with it. Nouvel respects Paris’ beloved street landscape by erecting a glass wall that aligns with the height of surrounding buildings, ensuring a harmonious integration with the urban fabric. This transparency of the wall also aligns perfectly with the main structure, reflecting the design’s overarching concept of clarity and openness. The space between this wall and the main building consequently serves a dual purpose: it embodies the design concept while preserving the architectural integrity of the Parisian streetscape.

In conclusion, these projects demonstrate the significance of the third space in conceptualizing context in various ways: as an inhabited envelope, as part of the circulation system, or by harmoniously blending with the existing context.



Parc Bordeaux adaptive reuses facade extension on the exterior



WORKac's Miami Garage Museum adaptive reuse



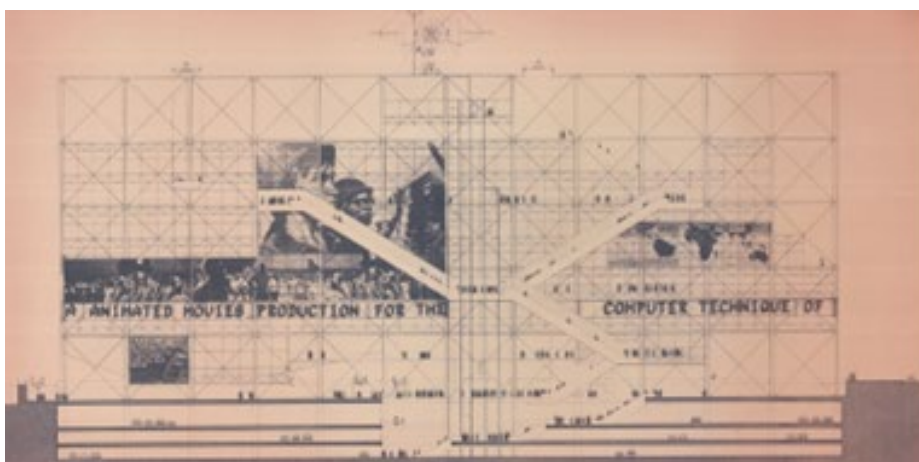
Comparing the "third space" as an inhabited envelope condition in the Miami Garage Museum (left) and Parc Bordeaux (right)



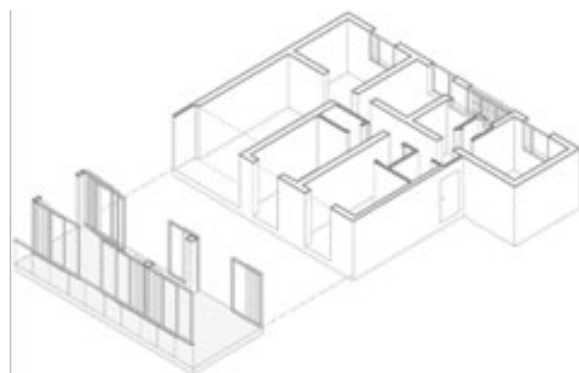
Centre Pompidou expresses the circulation as the envelope

References

1. Banham, Reyner, *The Architecture of Well-Tempered Environment*, Londres, The Architectural Press, et Chicago, The University of Chicago Press, 1968.
2. Davies, Colin. "Introduction." *High-Tech Architecture* (New York: Rizzoli, 1988).
3. Foster, Hal. "Crystal Palace" and "Light Modernity," in *The Art-Architecture Complex*. London: Verso, 2011.
4. Zaero-Polo, Alejandro. "The Politics of the Envelope," *Log #13/14* (Fall 2008): 97-132.

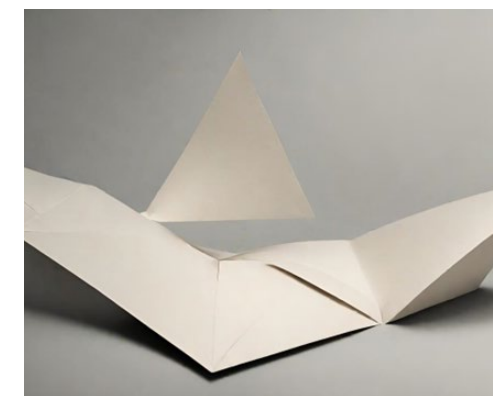
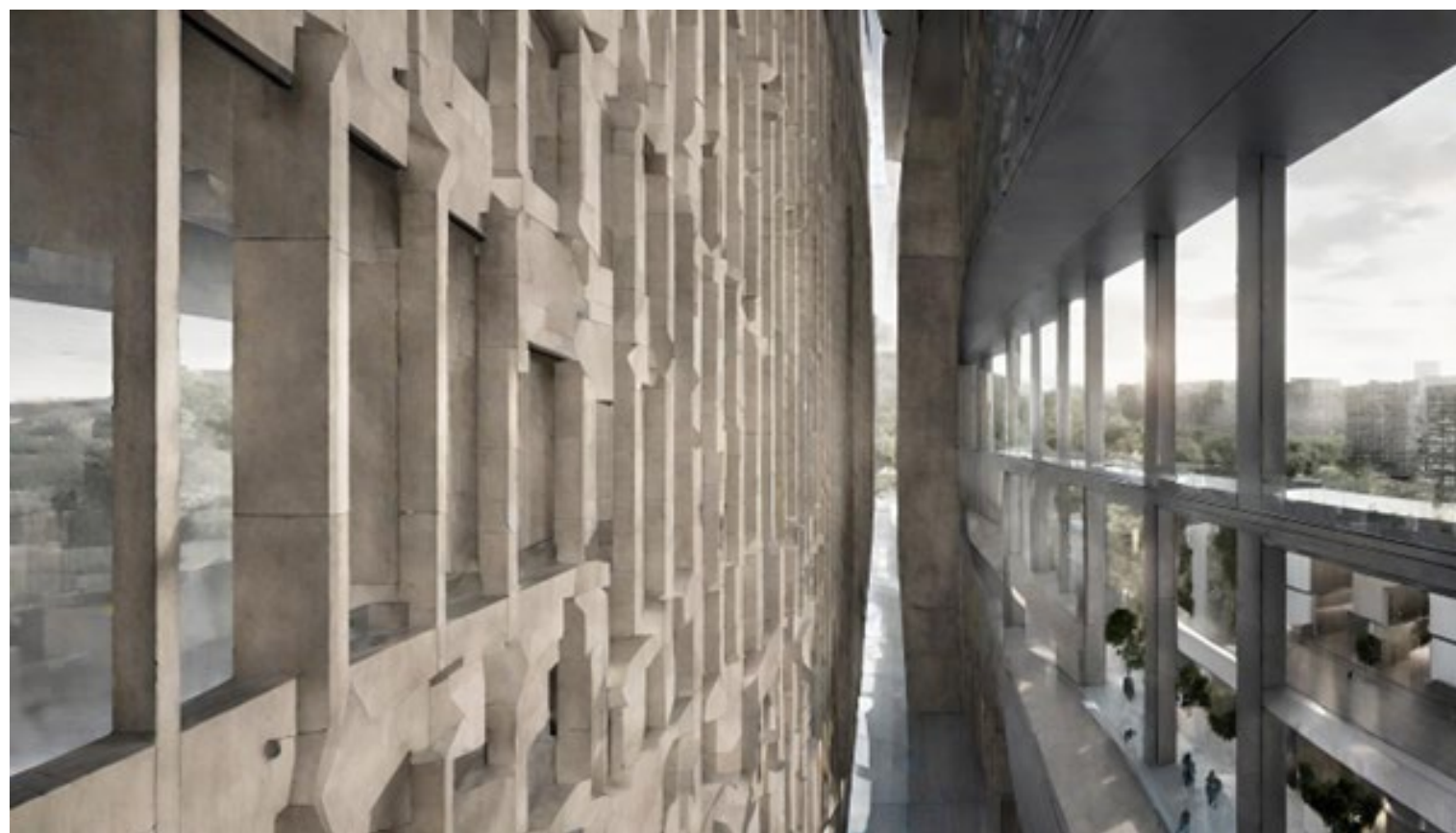


Centre Pompidou uses the Envelope as a space to express circulation. Parc Bordeaux uses the envelope as space to express domestic activity.



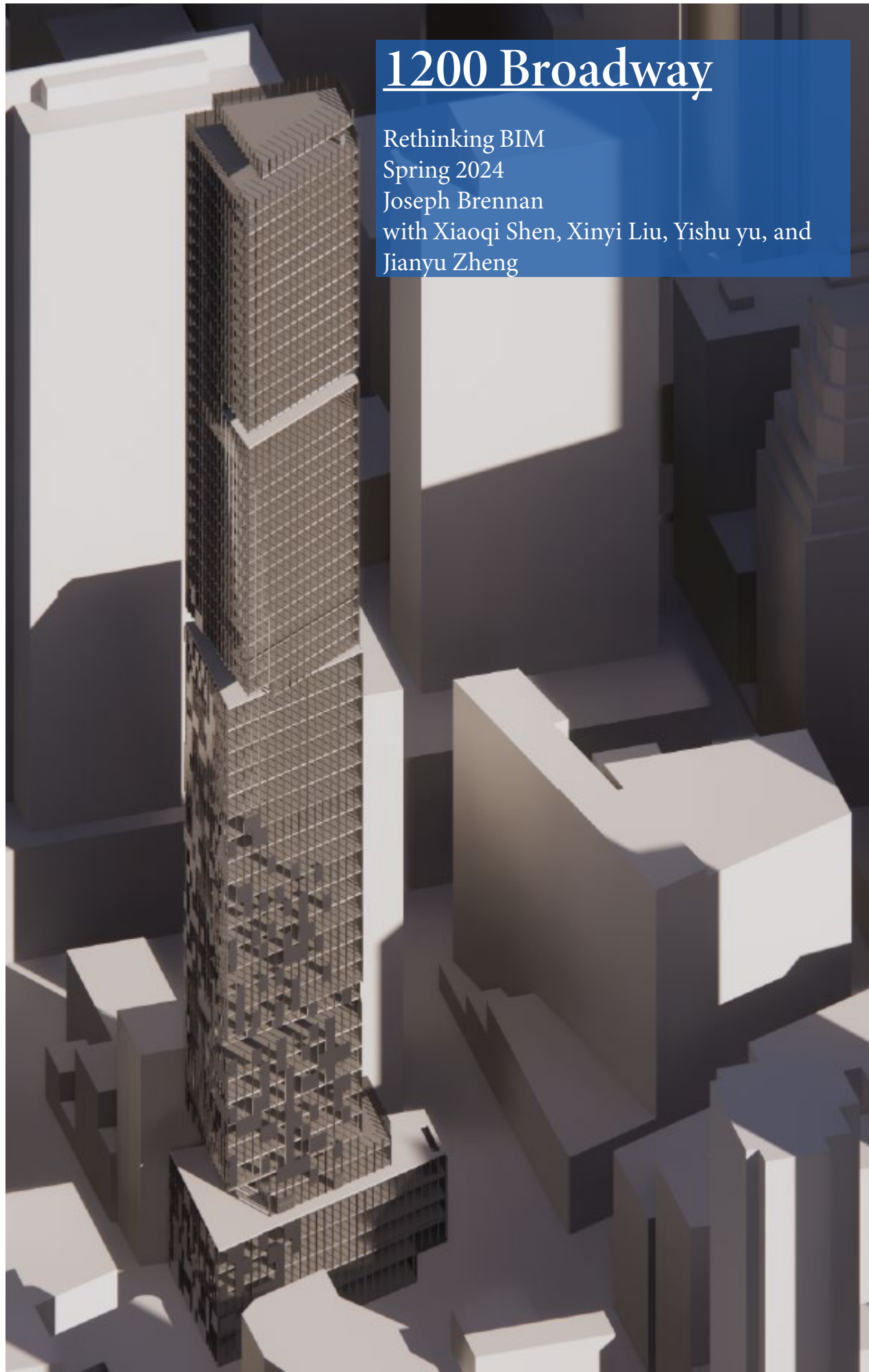
25-word Illustrated Statement for AI generation

"A secondary exterior facade of a building that feels like a third space to be inhabited by the public and blurring the boundary between inside and outside."



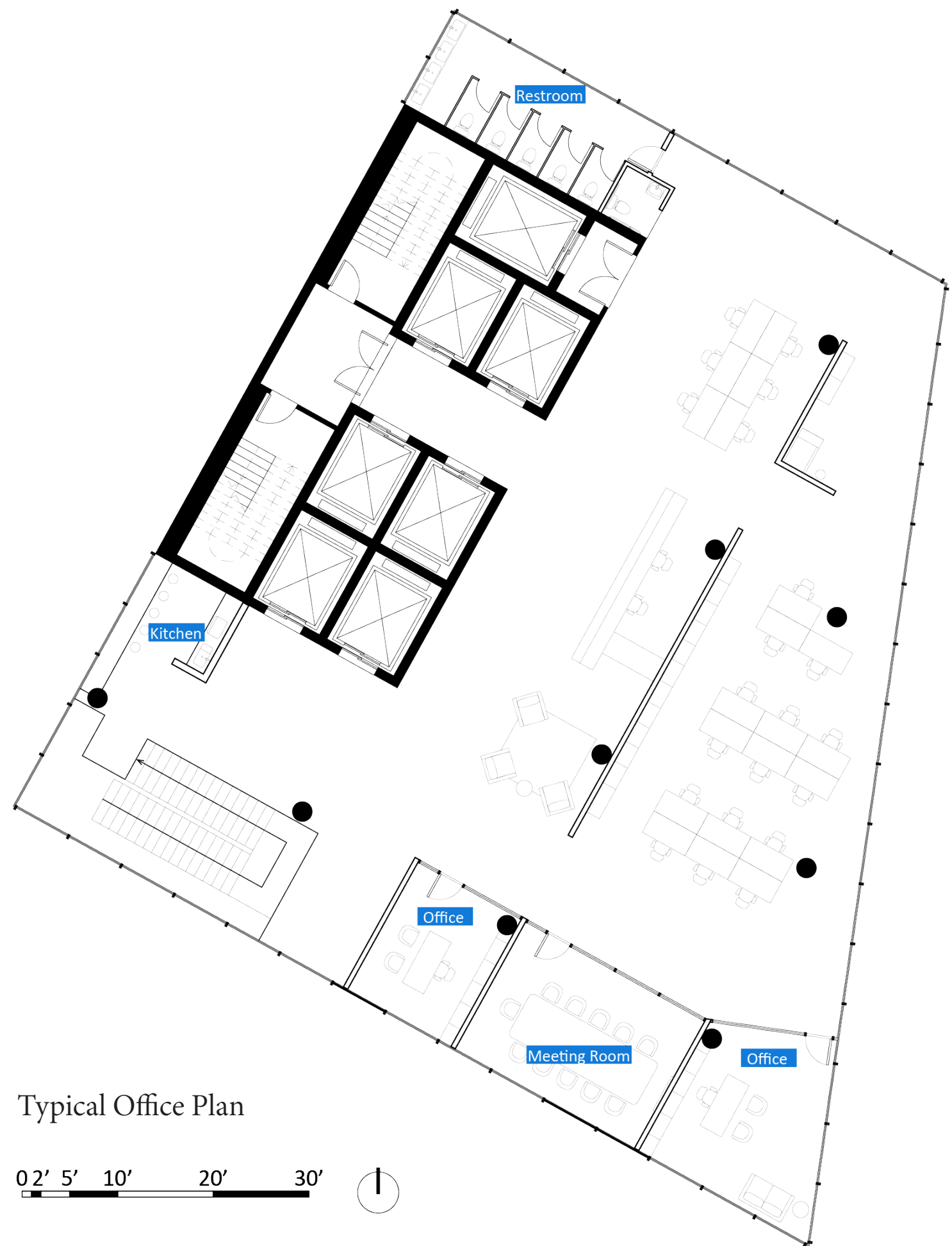
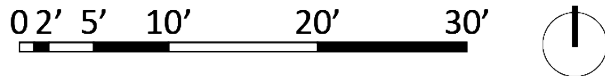
1200 Broadway

Rethinking BIM
Spring 2024
Joseph Brennan
with Xiaoqi Shen, Xinyi Liu, Yishu yu, and
Jianyu Zheng

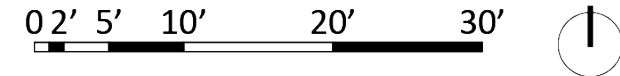


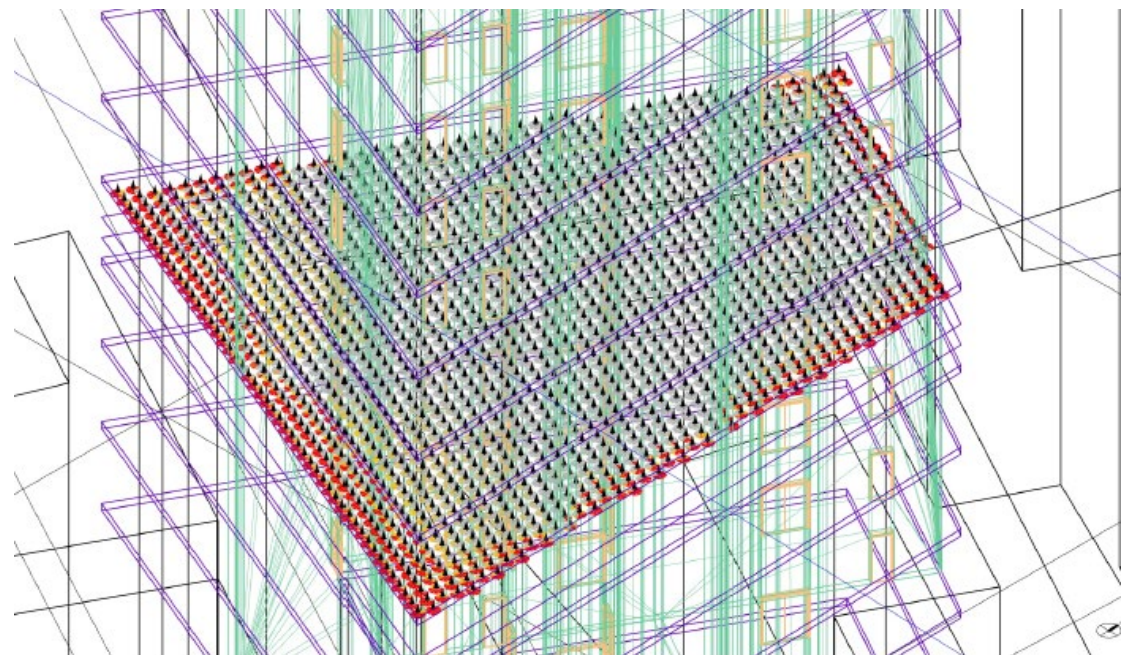


Typical Hotel Plan



Typical Office Plan



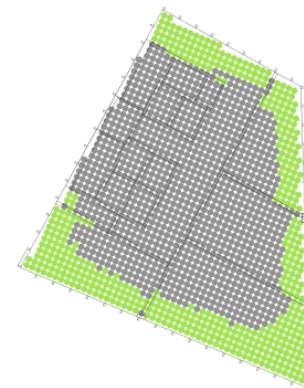


Hotel Program Daylight Analysis

Floor 30-62

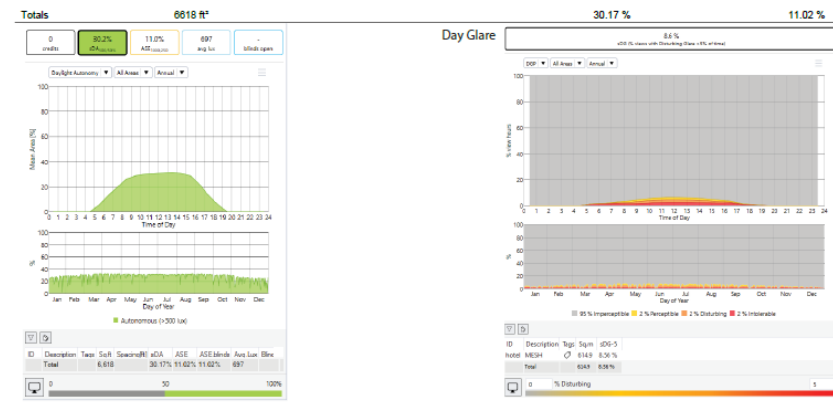


* No dynamic shading has been modeled, and ASE > 10% in one or more spaces. The design addresses glare as follows:

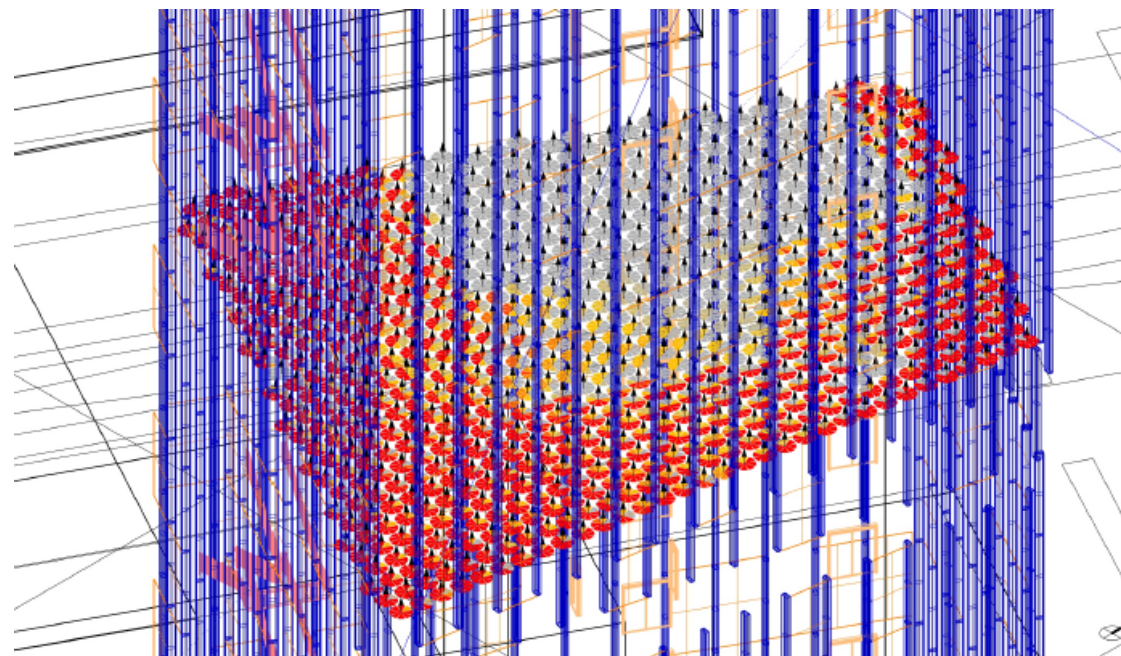


Daylight 6 - LEED v4.0 Daylight Option 1 - 1

Space ID & Description	Area	Spacing	Shading	Auto	Exempt	sDA	ASE
hotel MESH	6618 ft²	2.0 ft	N	N	N	30.17%	11.02%



Daylight 6 - LEED v4.0 Daylight Option 1 - 2



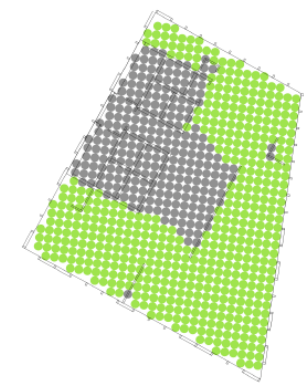
Office Program Daylight Analysis

Floor 8-29



* Spaces with ASE > 20% not counted toward total. (sDA before deductions = 66.8%)

No dynamic shading has been modeled because:

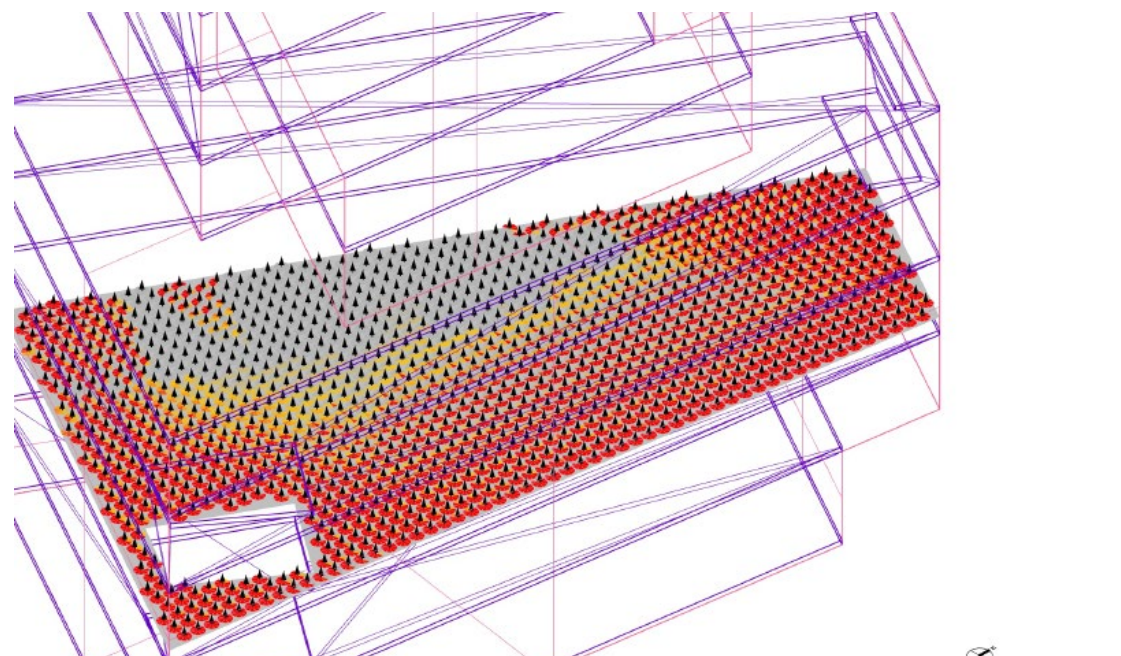


Daylight 4 - LEED v4.0 Daylight Option 1 - 1

Space ID & Description	Area	Spacing	Shading	Auto	Exempt	sDA	ASE
office MESH	6979 ft²	3.0 ft	N	N	N	66.76%	43.22%



Daylight 4 - LEED v4.0 Daylight Option 1 - 2



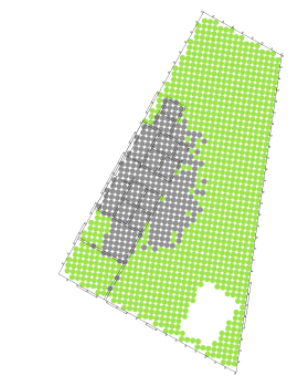
Retail Program Daylight Analysis

Daylight 5



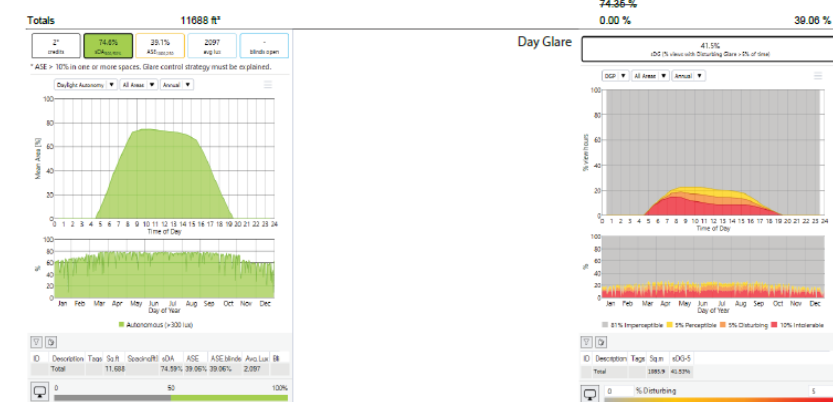
* Spaces with ASE > 20% not counted toward total. (sDA before deductions = 74.4%)

No dynamic shading has been modeled because:

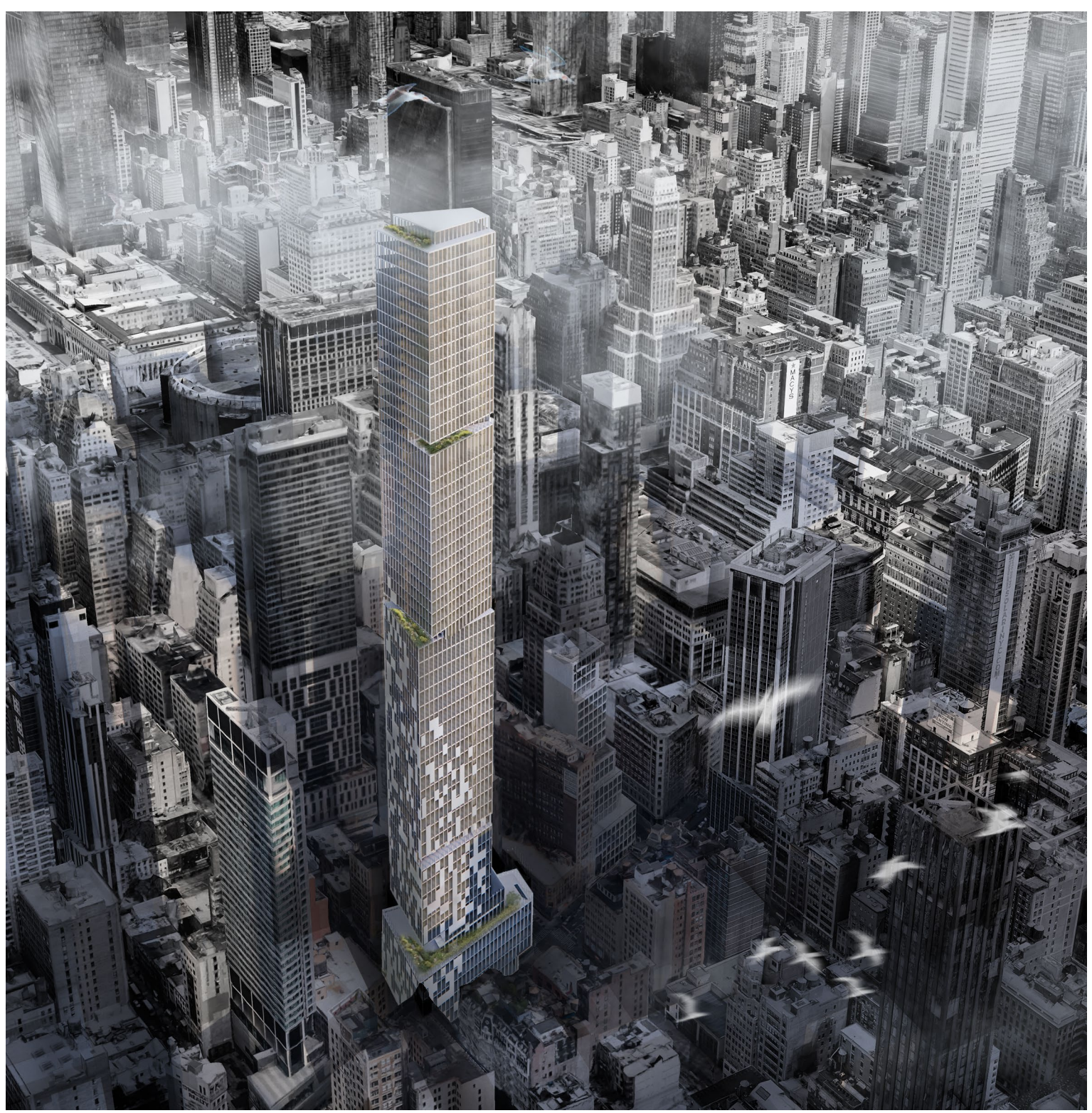
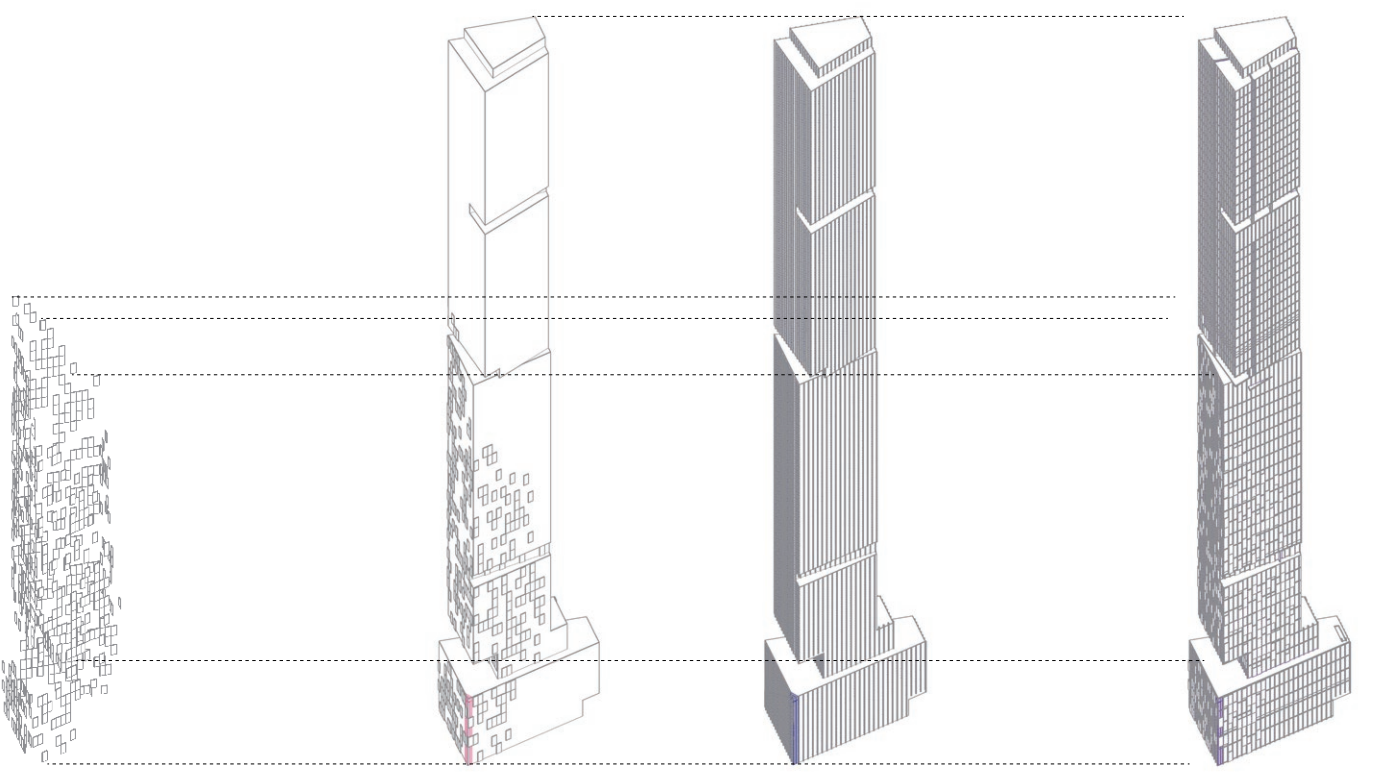
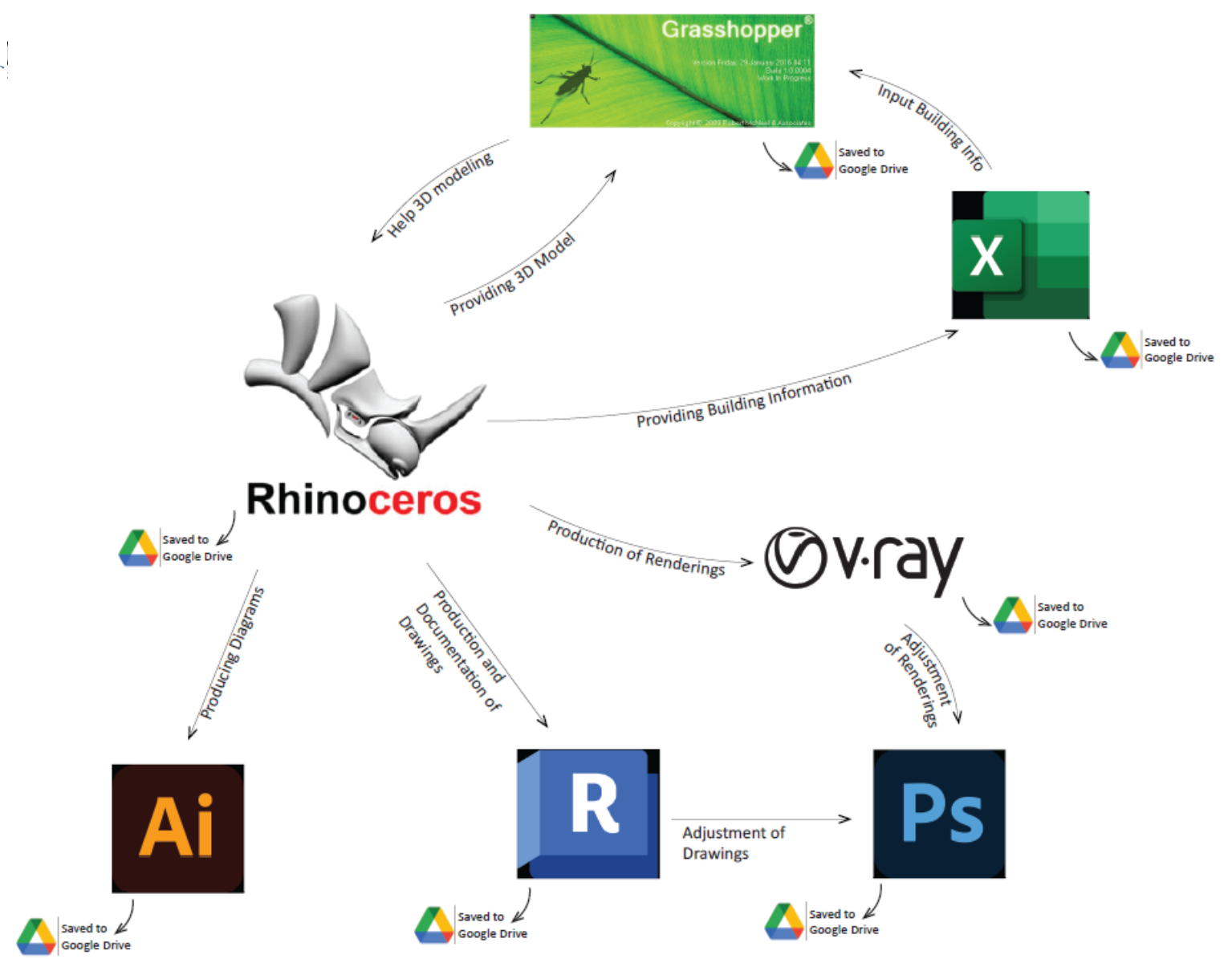


Daylight 5 - LEED v4.0 Daylight Option 1 - 1

Space ID & Description	Area	Spacing	Shading	Auto	Exempt	sDA	ASE
9	11688 ft²	3.0 ft	N	N	N	74.36%	39.06%



Daylight 5 - LEED v4.0 Daylight Option 1 - 2



Intricacy

Sizhe Wang Portfolio

My Year at Ms advanced architectural design program,
Graduate School of Architecture, Planning and Perservation

Columbia University

May 2024