

INFRASTRUCTURES

The definition of **infrastructure**:

“the basic physical and organizational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise.”

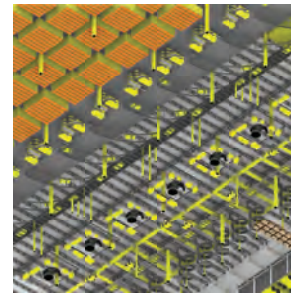
Throughout my education, I have always been interested in the idea and hidden realities of **“infrastructures”** and how this word can be expanded upon, not just in the physical sense, but in the **metaphysical**.

Infrastructures of **civic, commodity, community, resources, sanctuary, energy, ecosystems, conflicts**, and more.

My portfolio questions the notion of what it means to consider something an **infrastructure** and how we can **manifest** hidden and more important infrastructures within **existing frameworks**.



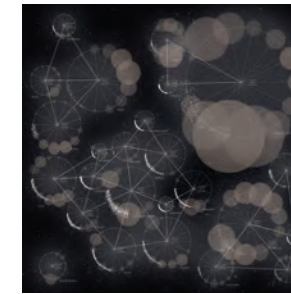
SUBWAY SYSTEMS



AMAZON TAKES OVER



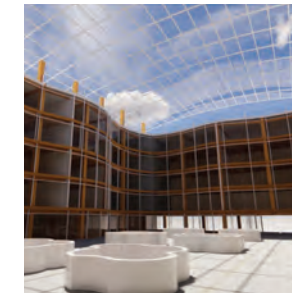
TRIPLE C SCHOOL



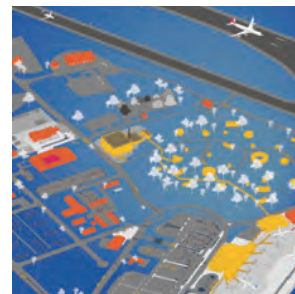
DATA CONSTELLATIONS



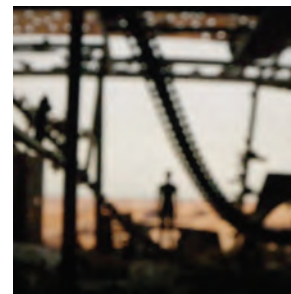
FOODSCAPES



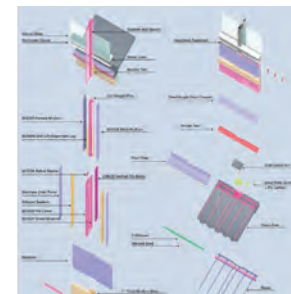
ENVELOPES + SYSTEMS



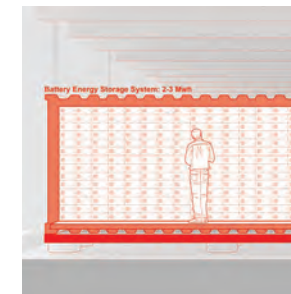
RADAR TO RADIO



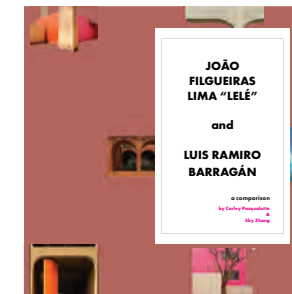
PERFIDY



CURTAIN WALL



POST-POST OFFICE



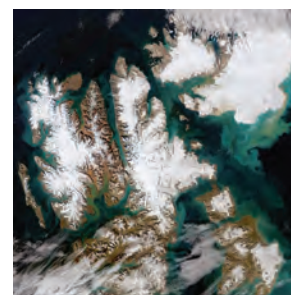
LUIS VS LELE



HEARTS + BUTTS



HACKING THE STEAM



PROJECTIVE MAPPING OF SVALBARD



THE HUG

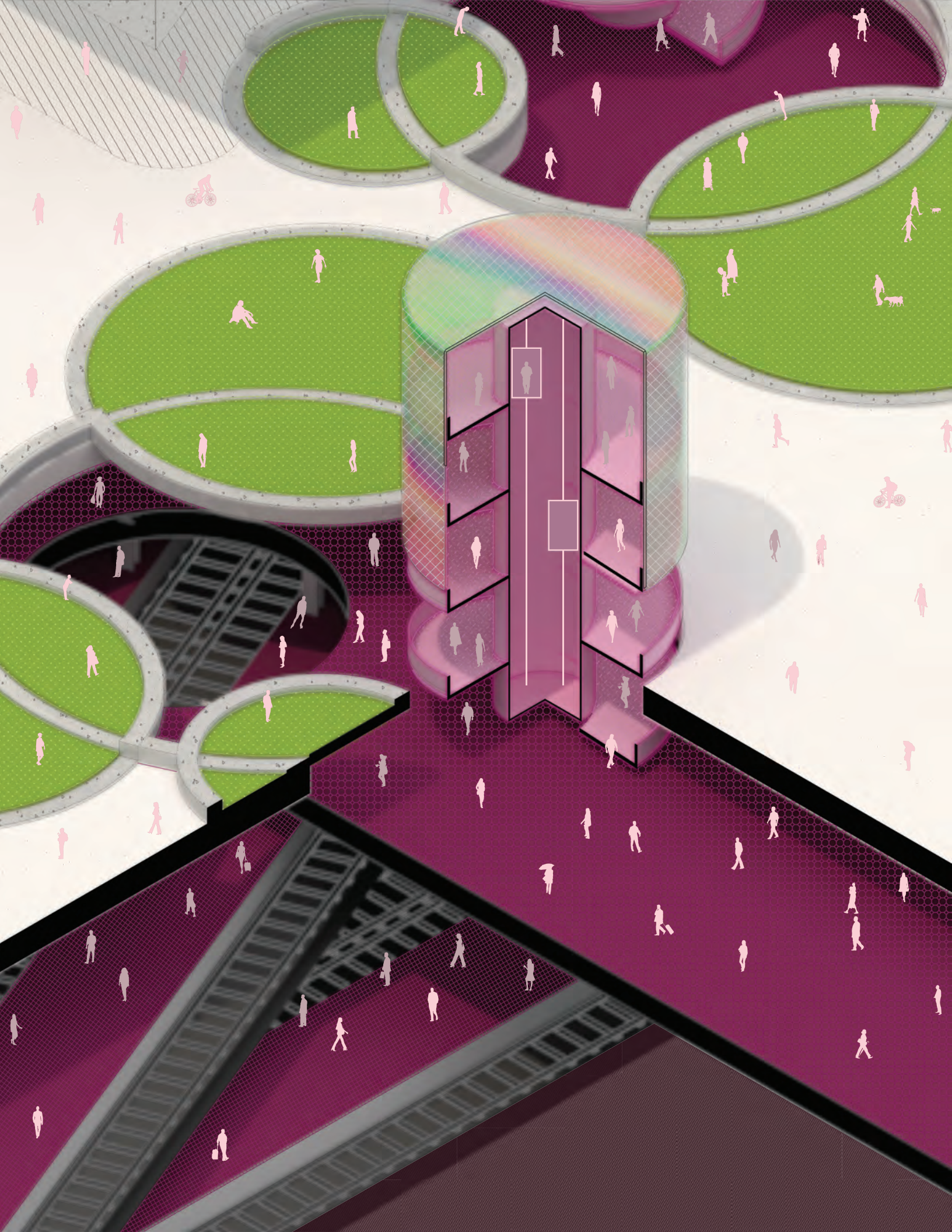


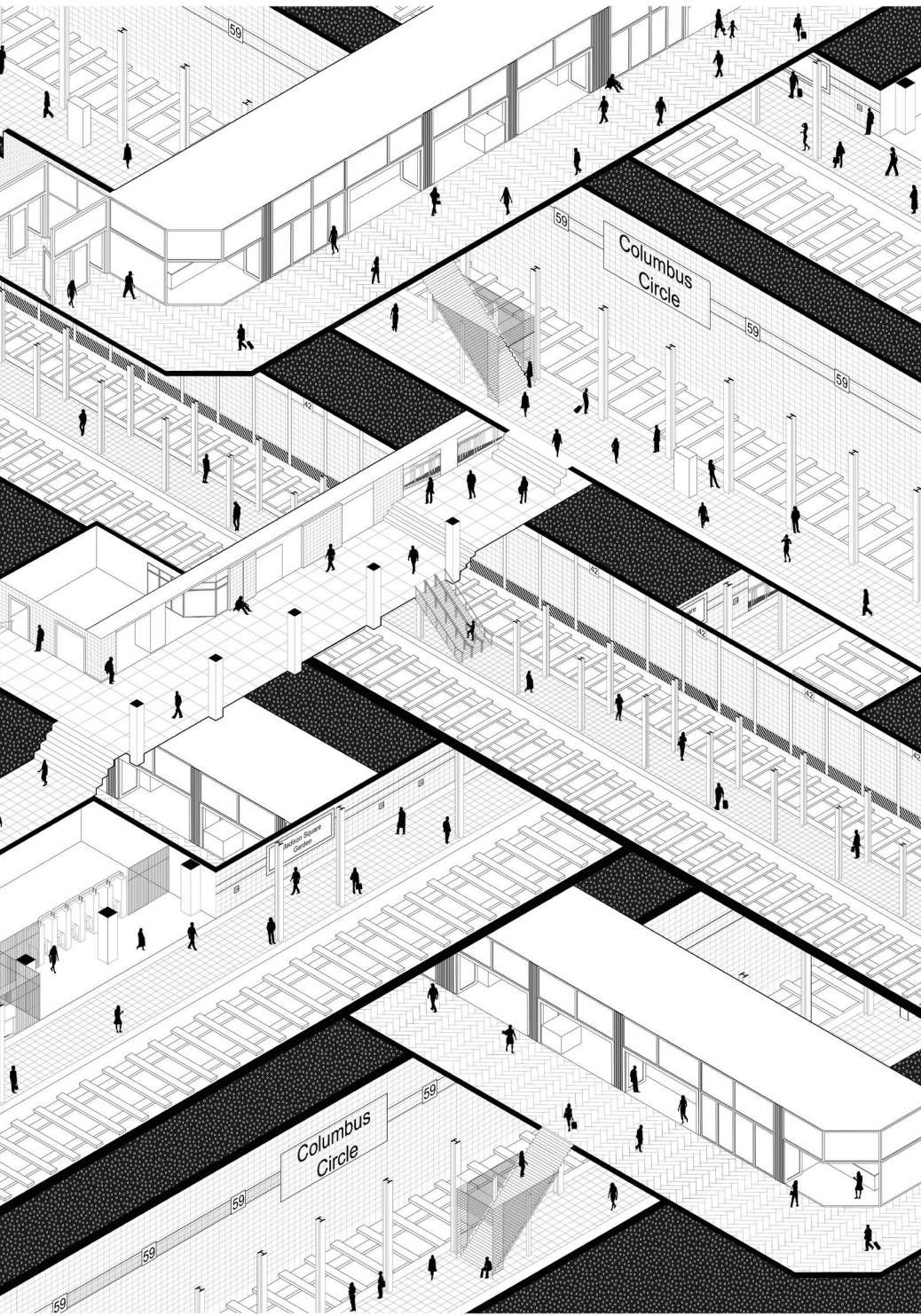
A "LITTLE" DREAM



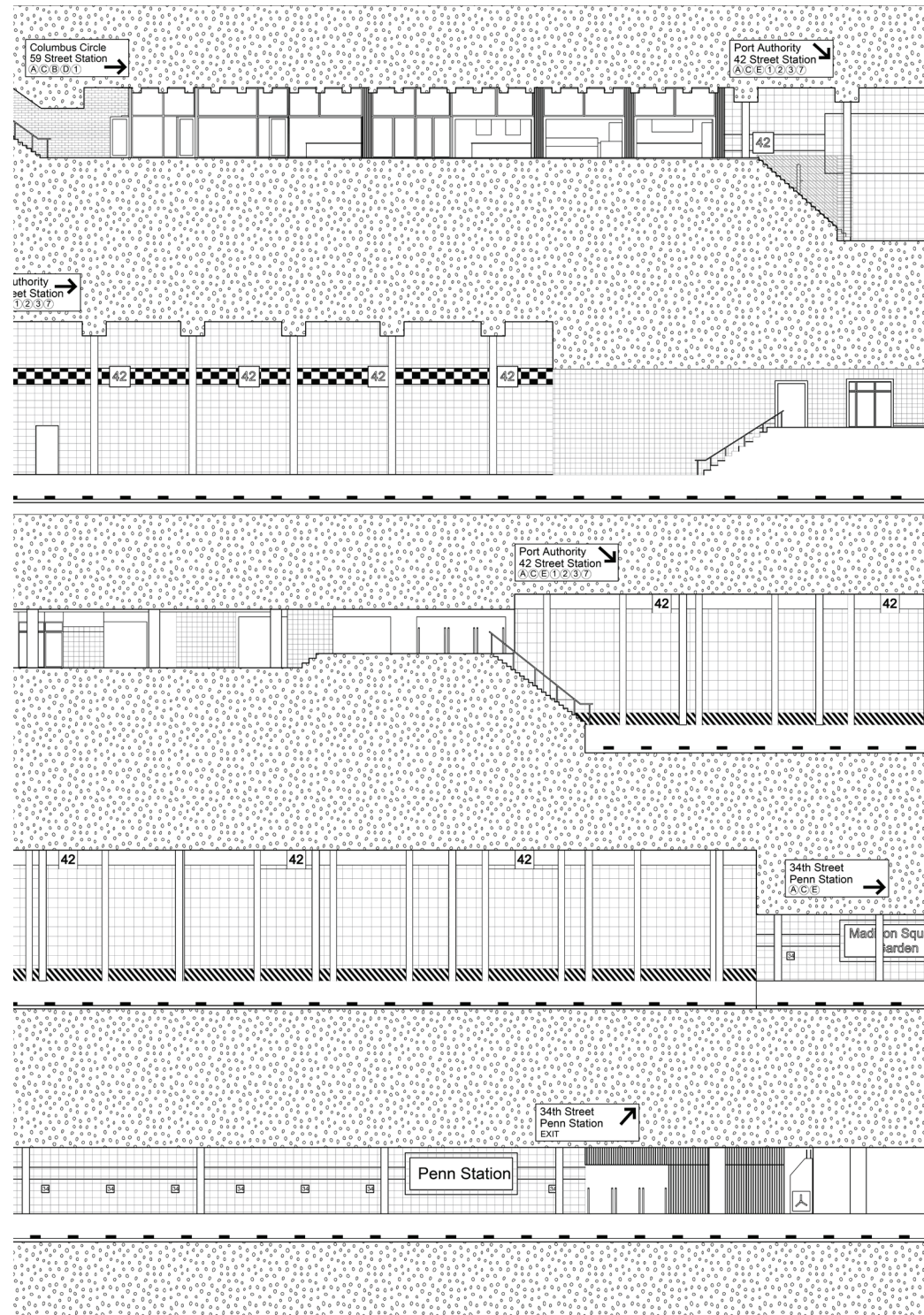
In the heart of Midtown Manhattan, this design proposal aims at bringing back health and wellness to the subway by integrating public goods services, such as libraries, local markets, and small health clinics for everyday users and allowing for better light and air quality to permeate each level.

SUBWAY SYSTEMS

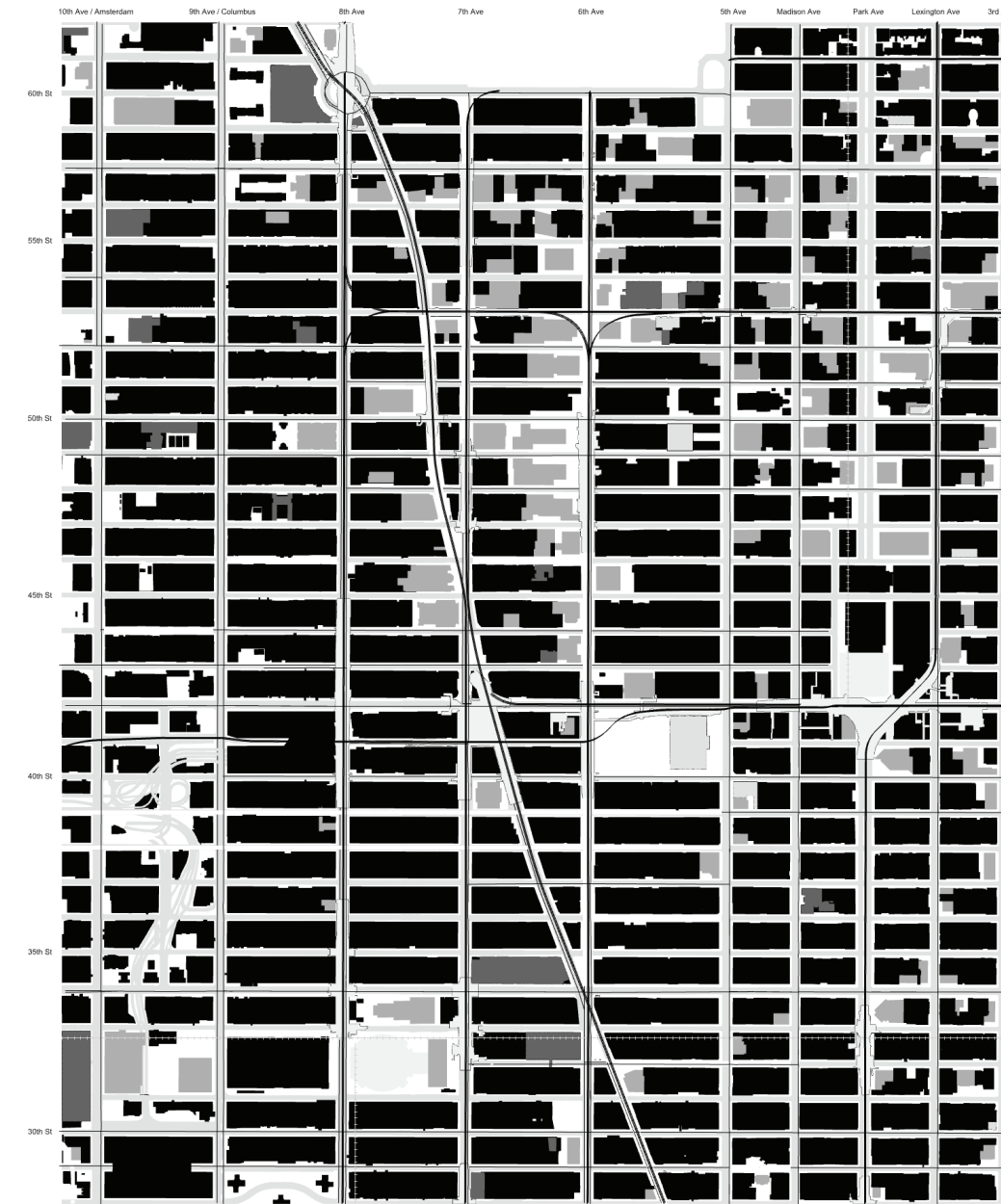




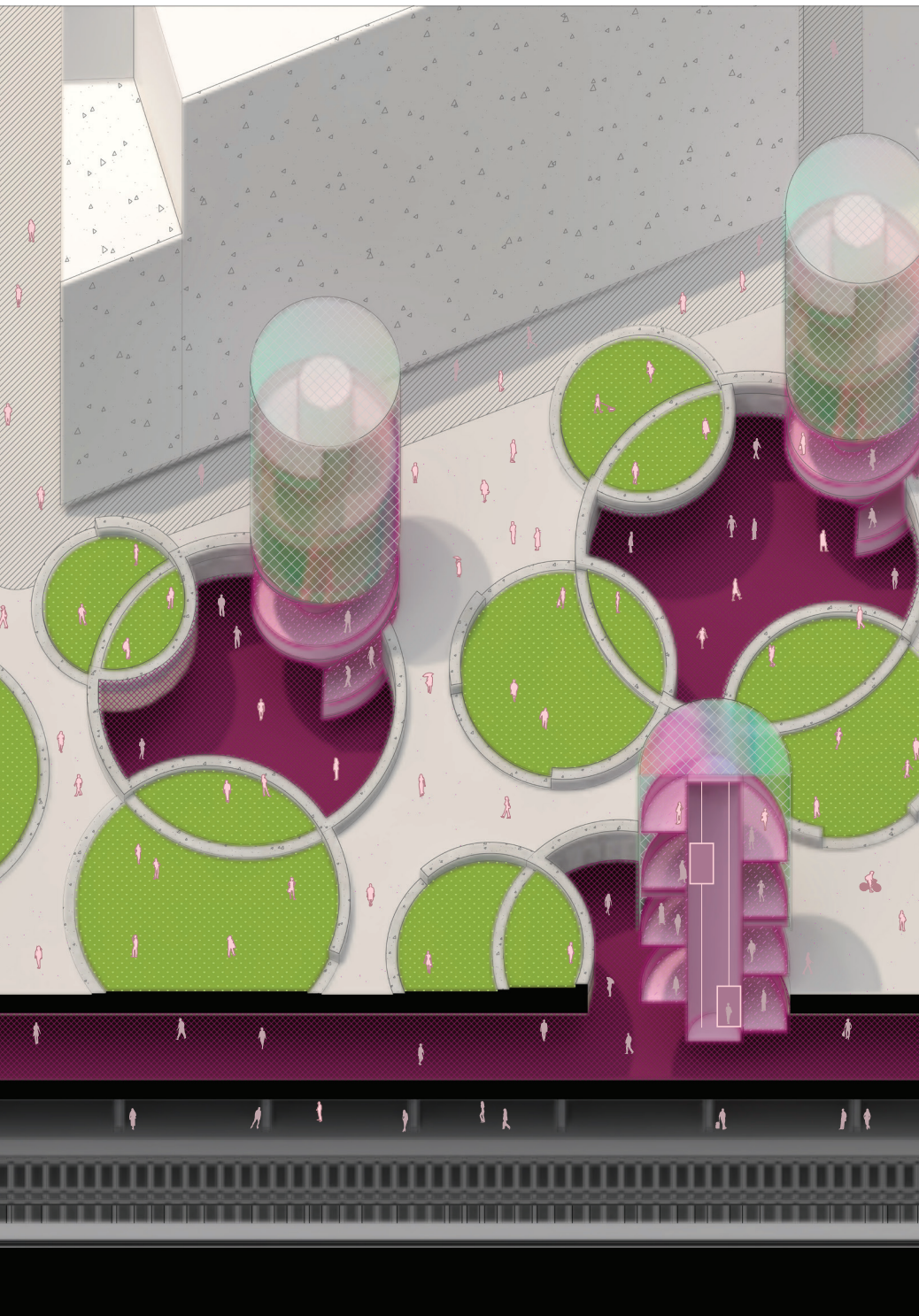
Axonometric Abstract Drawing
Analyzing Subway Systems



Section Abstract Drawing
Analyzing Subway Systems



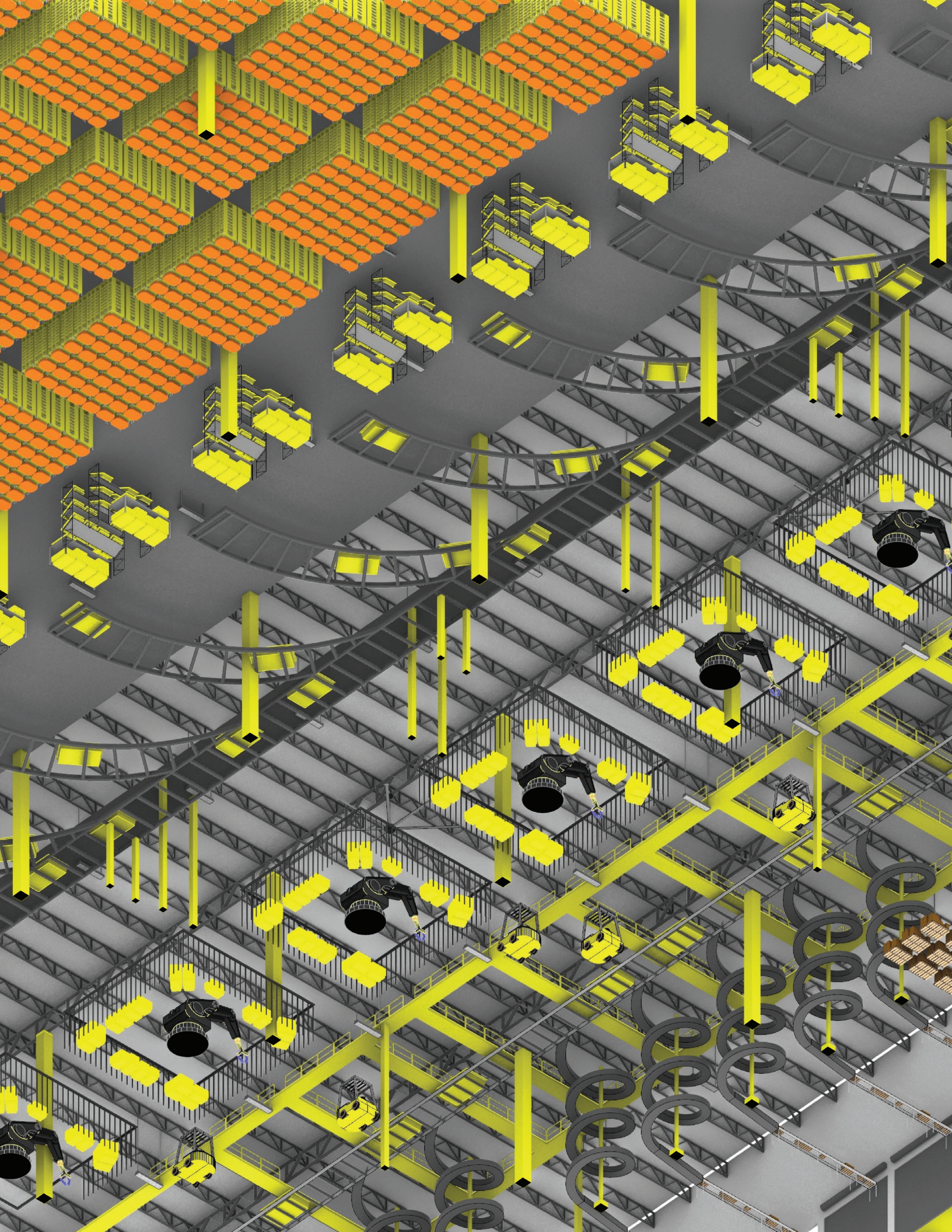
Urban Map: Midtown Manhattan
Public vs Private Space Density



Isometric Sectional Perspective



Interior Model Photo



AMAZON TAKES OVER

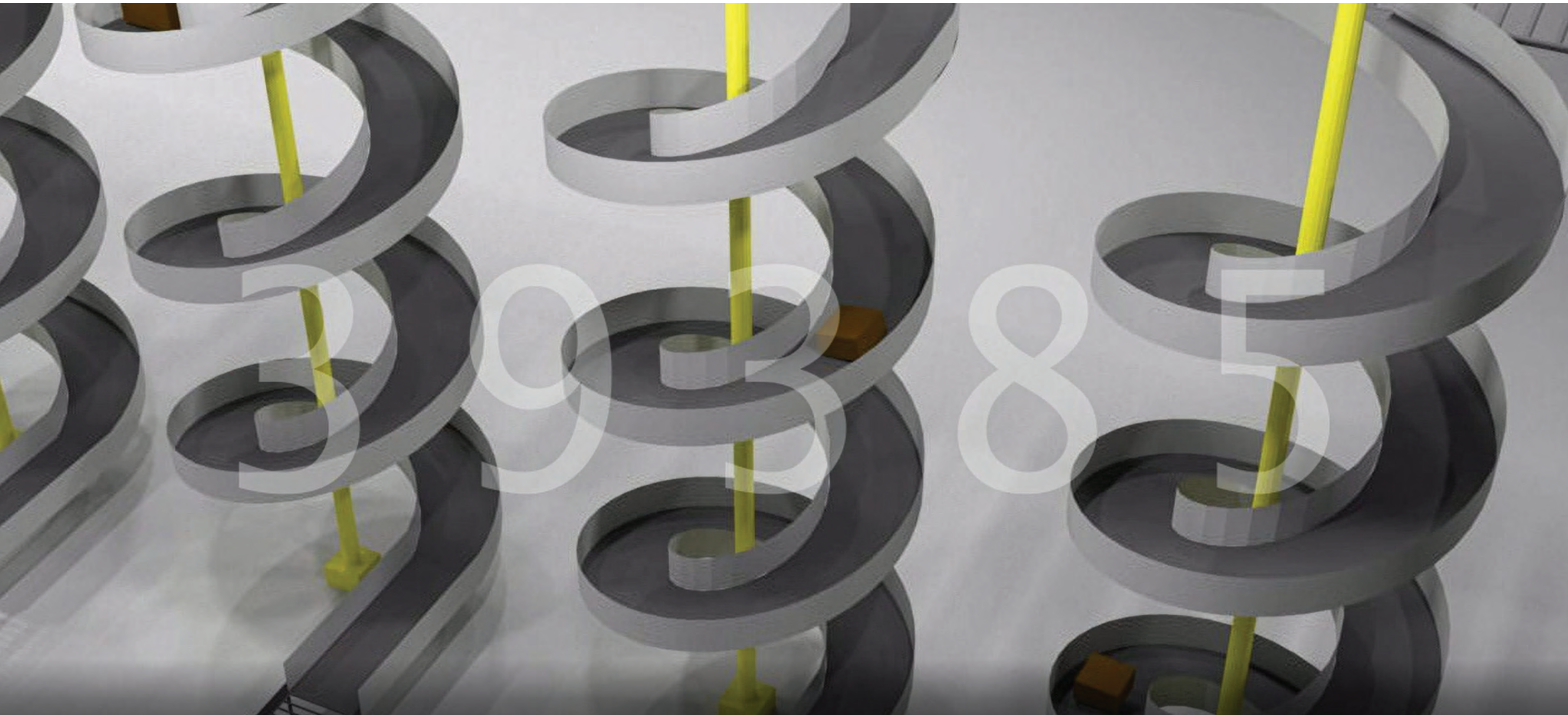


The Amazon Fulfillment Center in Staten Island filled the needs of many safely and efficiently during the rise of the pandemic. Amazon fulfills over 1.6 million packages a day all around the world. Due to these volume of high numbers, the systems behind the operations are thoughtfully designed and well managed to ensure speedy delivery to every happy customer. In this drawing and representation class, the project aims to analyze the inner mechanisms the process inside an Amazon Center, from the moment it gets purchased to when it is on its way for delivery.

Class Description

Architectural Drawing + Representation will investigate the current concepts, techniques, and working methods of computer aided 'drawings' in architecture. The focus of the course will be the construction of architectural representations. However, rather than just experimenting in technique, the course will encourage one to define how these new operative techniques are changing the role of drawing in architecture. To this end, we will study the operative relationship between 2d and 3d data, exploring the reaches of their analytic and representational potential. While the class is a foundational course in architectural computing, it will build on the student's advanced ability to question, shape, and interrogate space and time. In doing so, the goal will be to reassert the speculative nature of representation in the creation of conceptual, provocative, and data filled drawings.







TRIPLE C SCHOOL

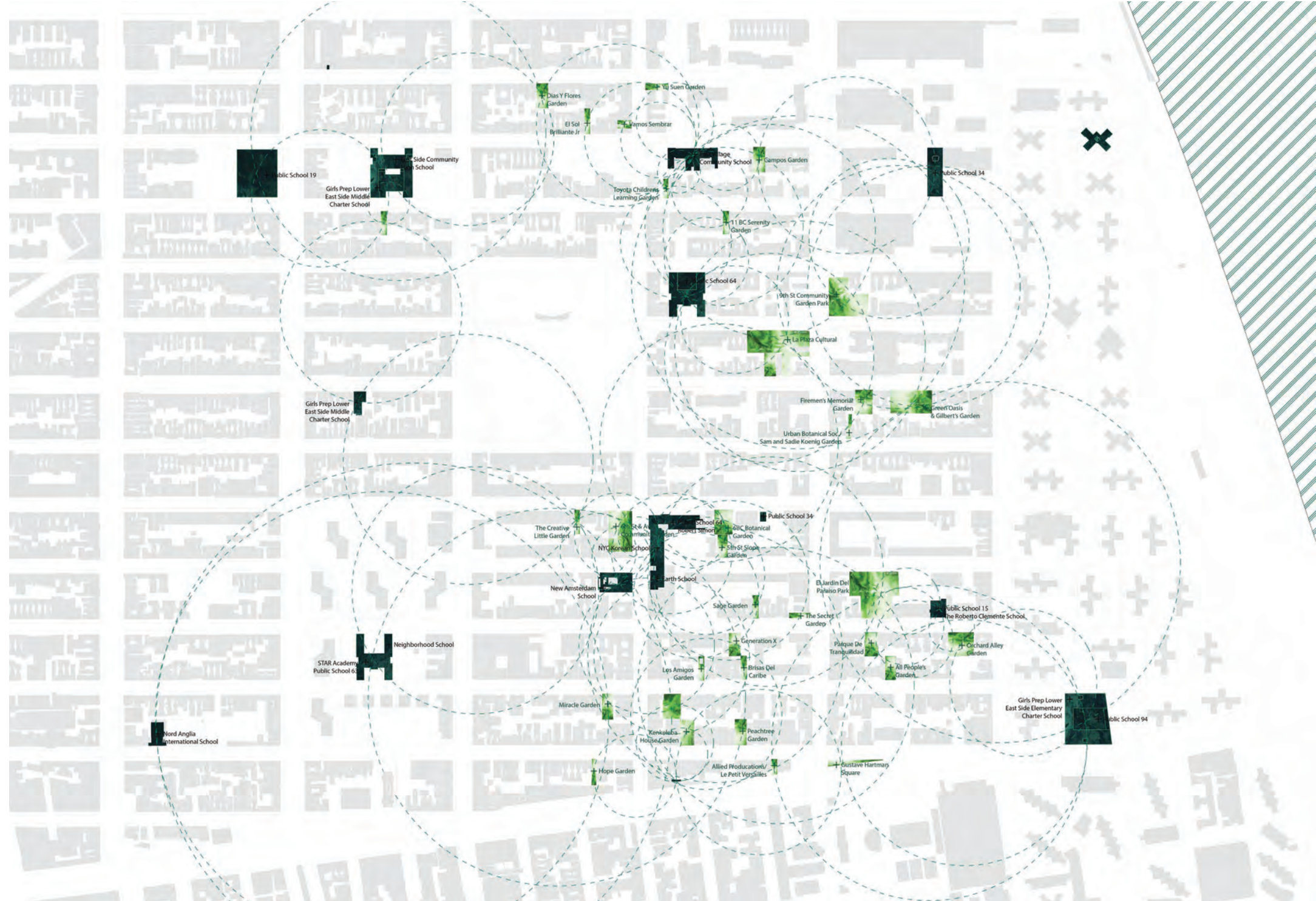


Classroom, Courtyard, Community reimagines the idea of community gardens—that established the revitalization of the East Village in the 1970s—as a new structure of how schools can foster education through community engagement. The school proposes to keep the existing outer corridors of old P.S. 64 and add two street front corridors to create a porous public courtyard building, making the school a central node for the neighborhood and encouraging engagement between the students and the community. The Triple C School is an advocate for allowing children to forge a sense of belonging within the education system by stripping the idea of the square classroom and creating both collective and private spaces for students to inhabit. The school aims to fuel the child's imagination through a series of curved partitions that invite students to learn, play, rest, retreat, collaborate, and engage with their academic surroundings while also teaching students about the historical importance of the East Village through active community engagement. Maintaining the history of old P.S. 64 was important to the project, so The Triple C School proposes to repurpose the historic demolished brick as a new porous brick façade that will connect the inner life of the school with the existing community.

Liz Christy - Bowery Houston Community Garden
1970



Liz Christy - Lower East Side Gardens
Green Guerrillas
Photo Credit: Donald Loggins, 1975

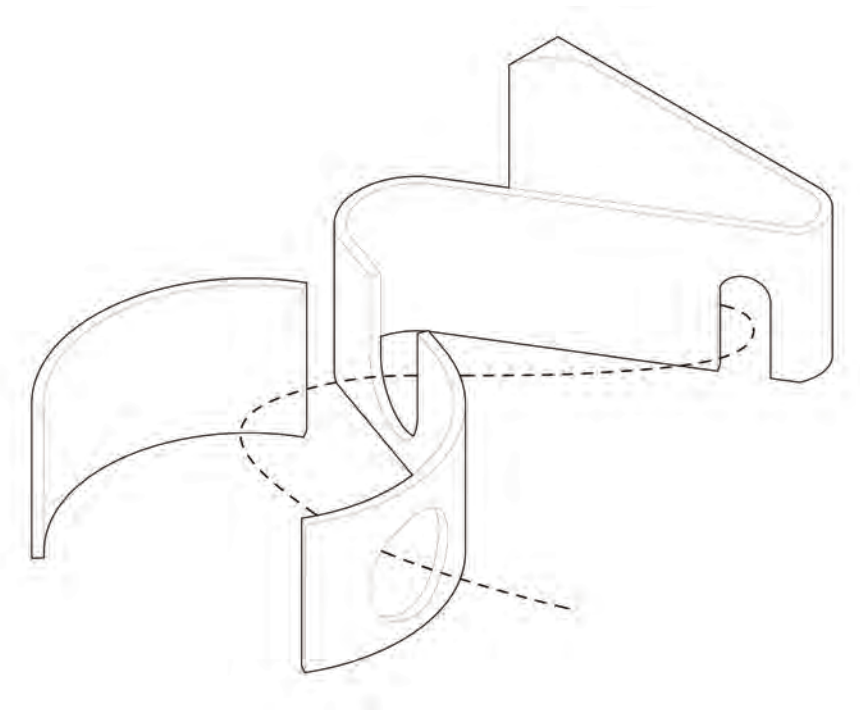


East Village Proximity Map
This map locates the proximity of existing public schools and local community gardens

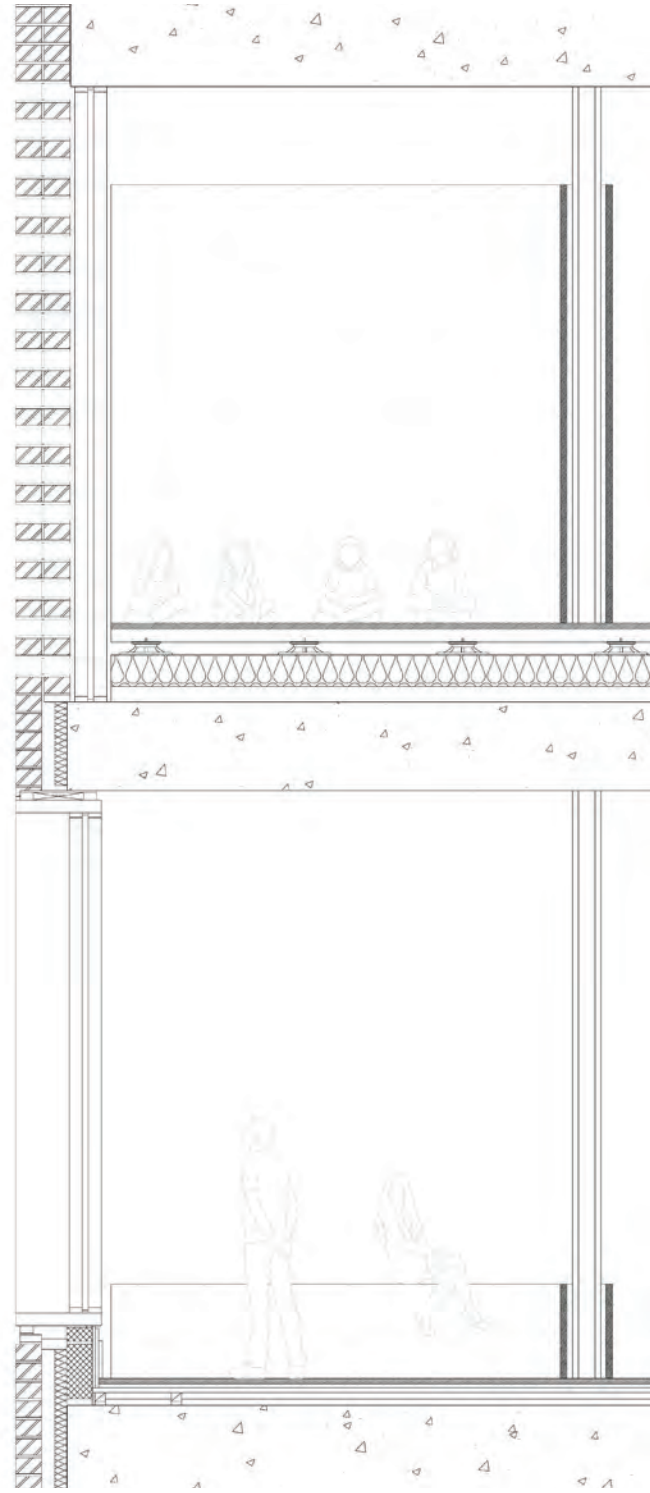


Partition Model
White Foam Board

Classroom Partition Axonometric
Circulation Diagram

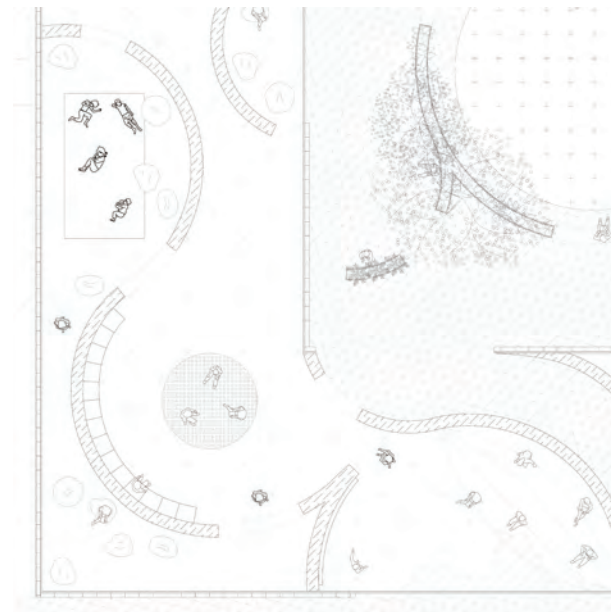
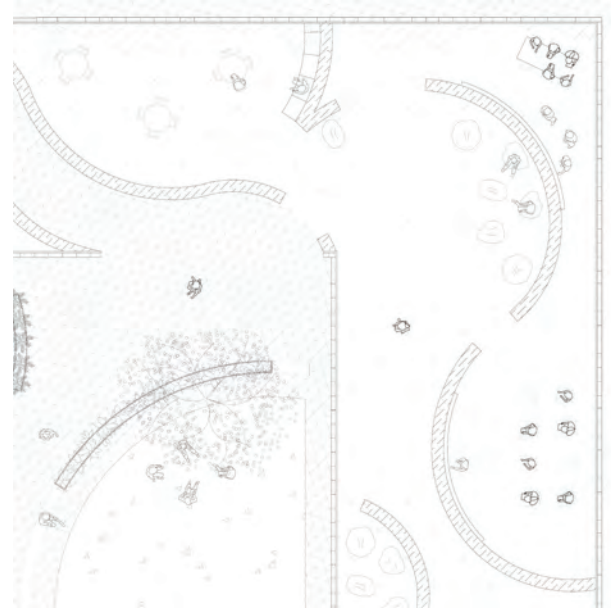


Interior Classroom Perspective

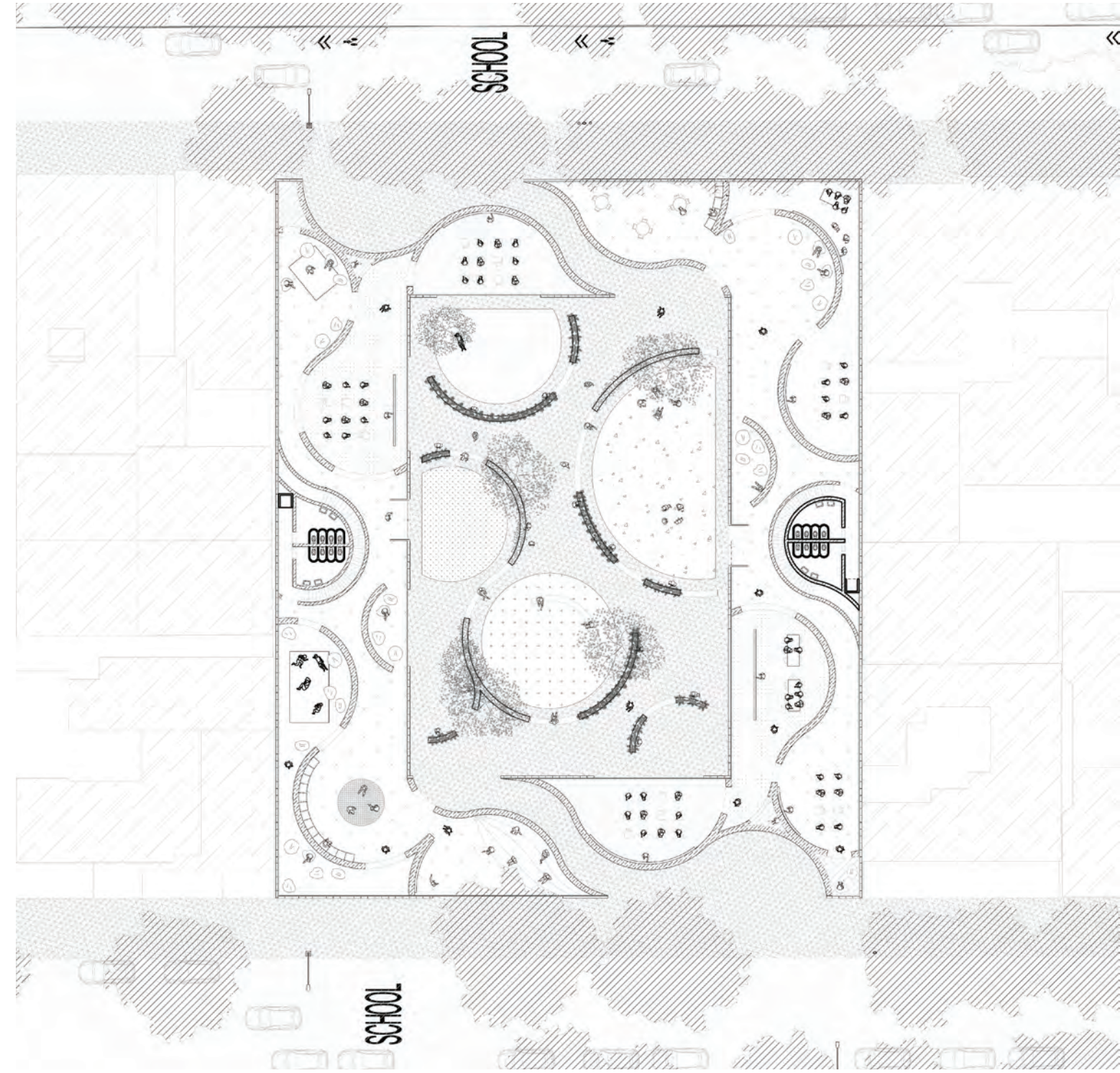


Sectional Facade Detail
Brick to Window

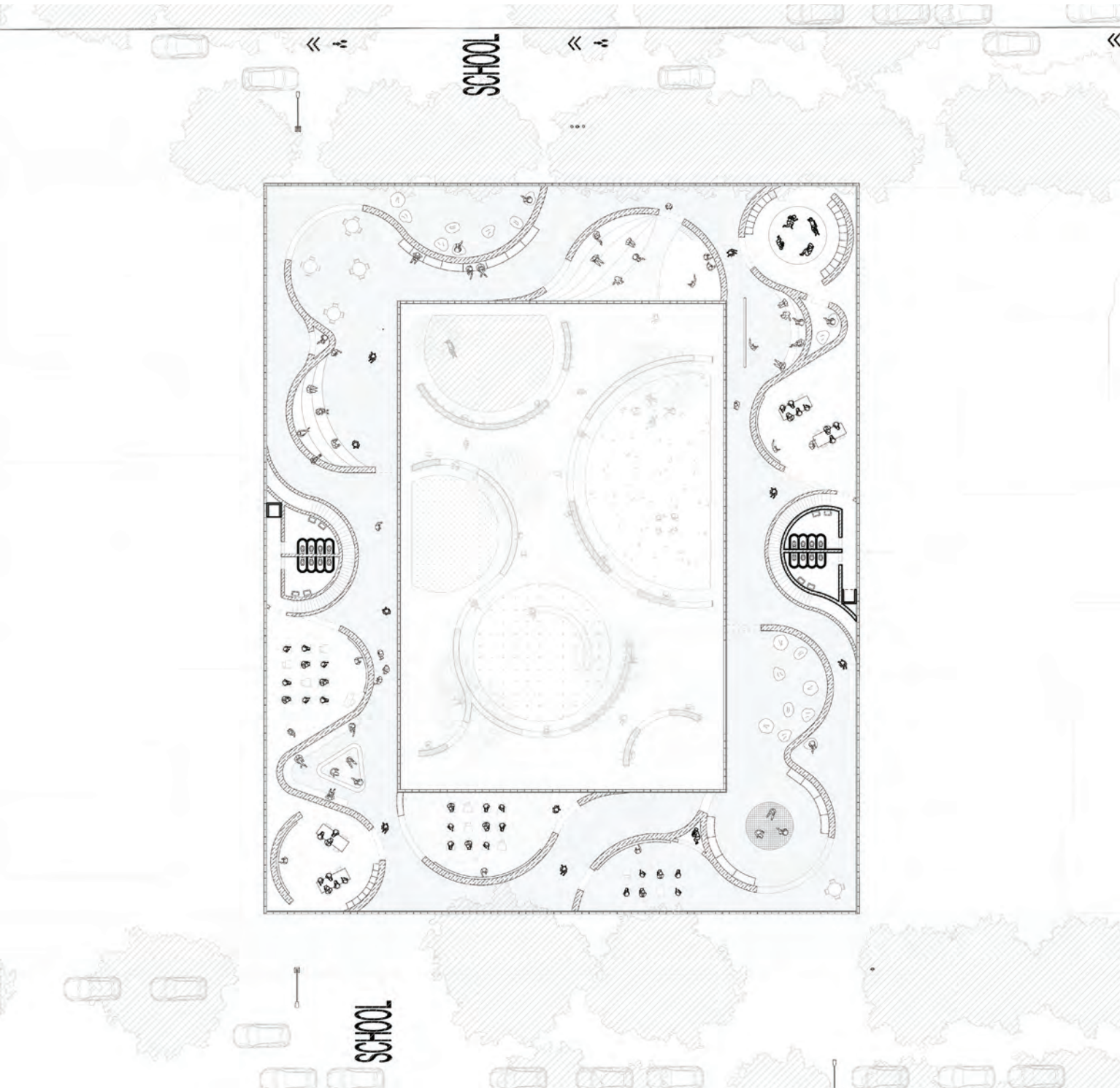
First Floor Plan
Close Up



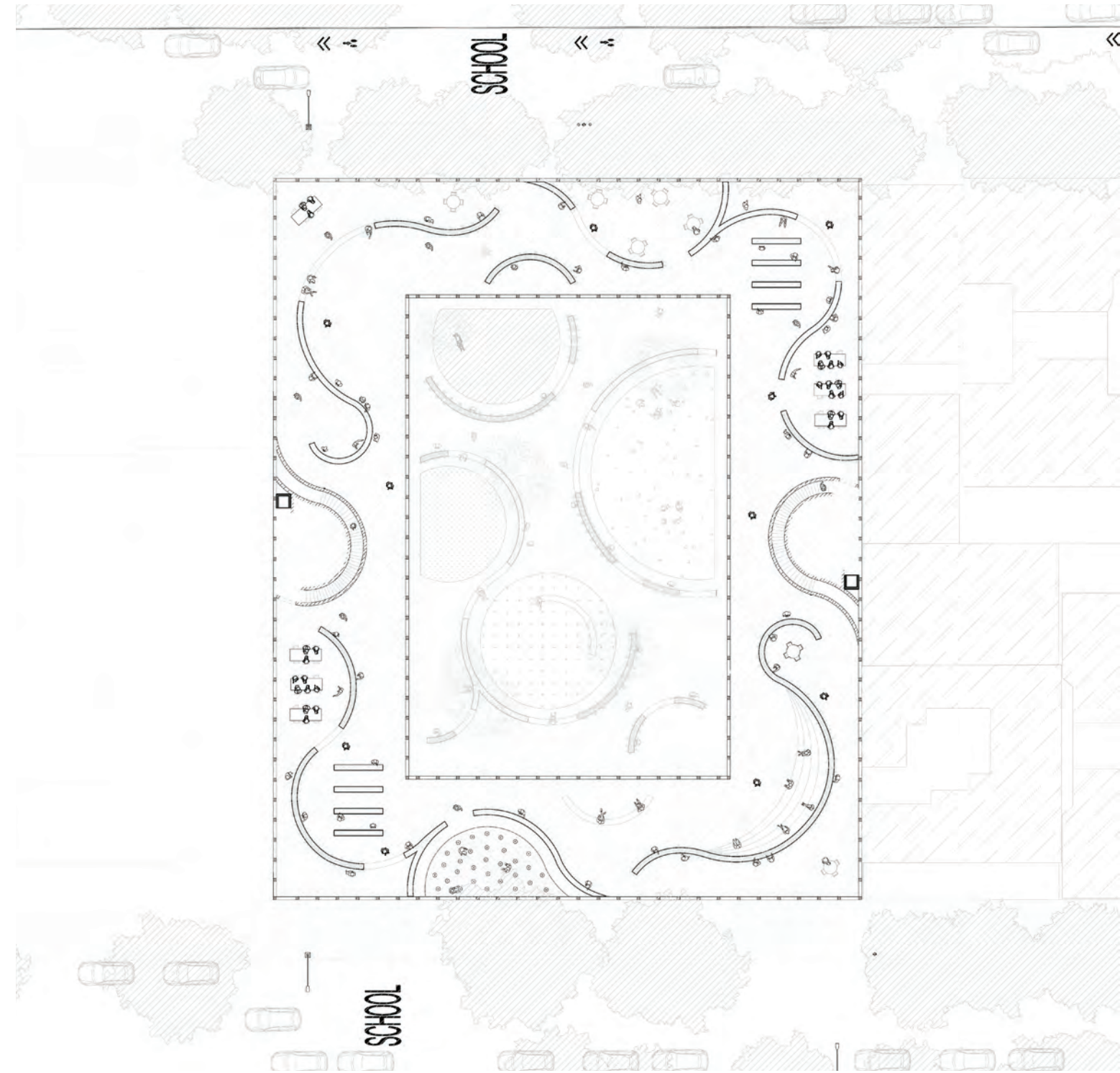
First Floor Plan
Close Up



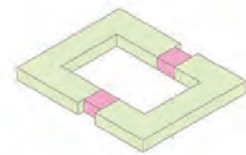
First Floor Plan



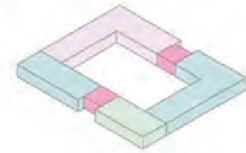
Third Floor Plan



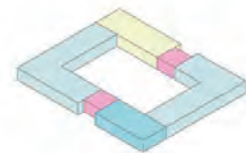
Fifth Floor Plan



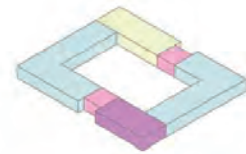
Fifth Floor
Community Garden
Circulation



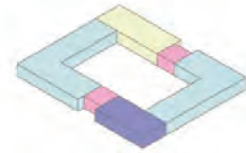
Fourth Floor
Classrooms
Library & Reading Rooms
Science Lab
Circulation



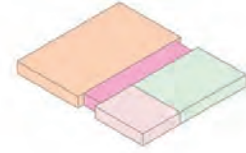
Third Floor
Classrooms
Gymnasium
Art Studio
Circulation



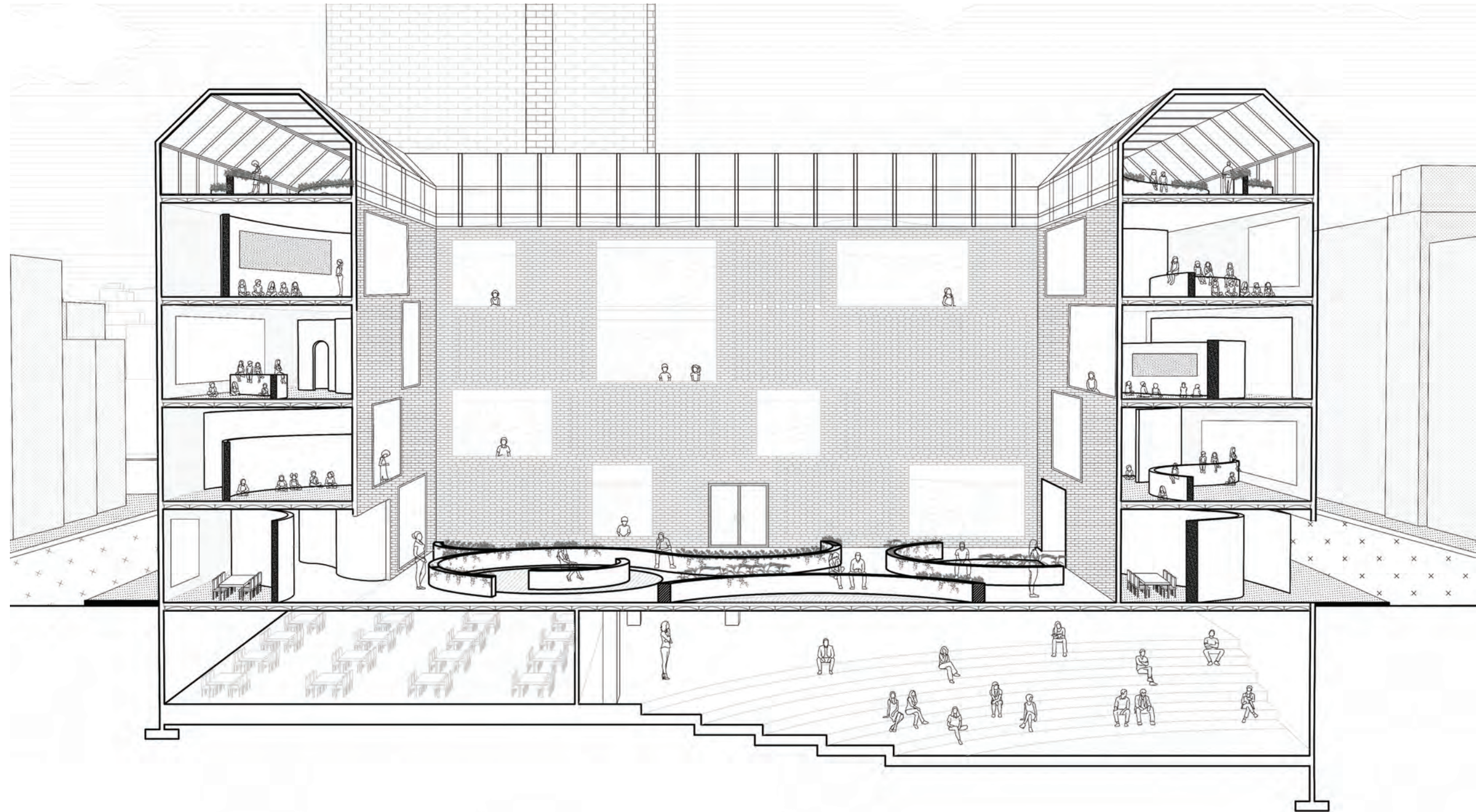
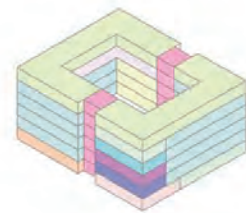
Second Floor
Classrooms
Gymnasium
Music Studio
Circulation



Ground Floor
Classrooms
Gymnasium
Woodshop
Circulation

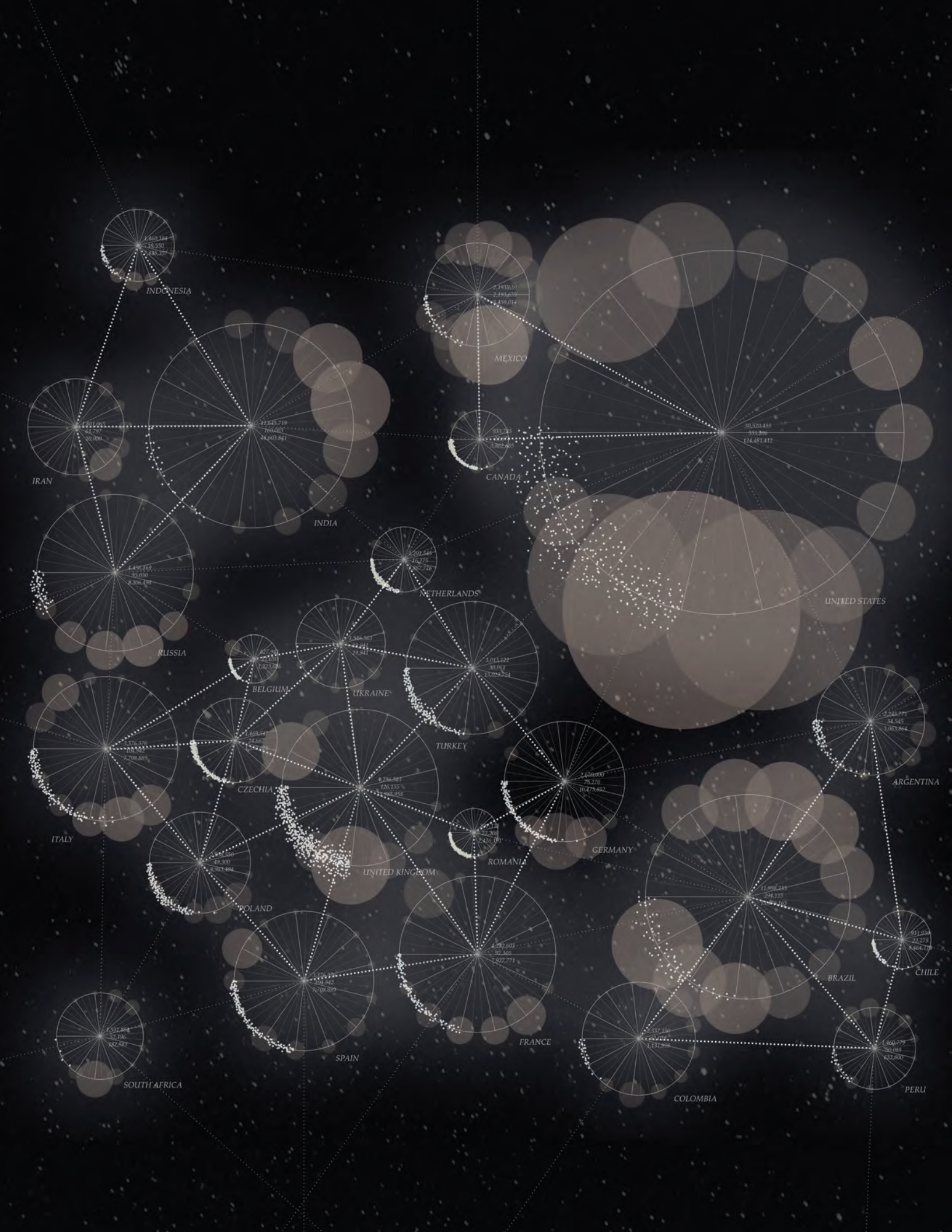


Basement
Auditorium
Student Dining Area
Kitchen Complex
Circulation

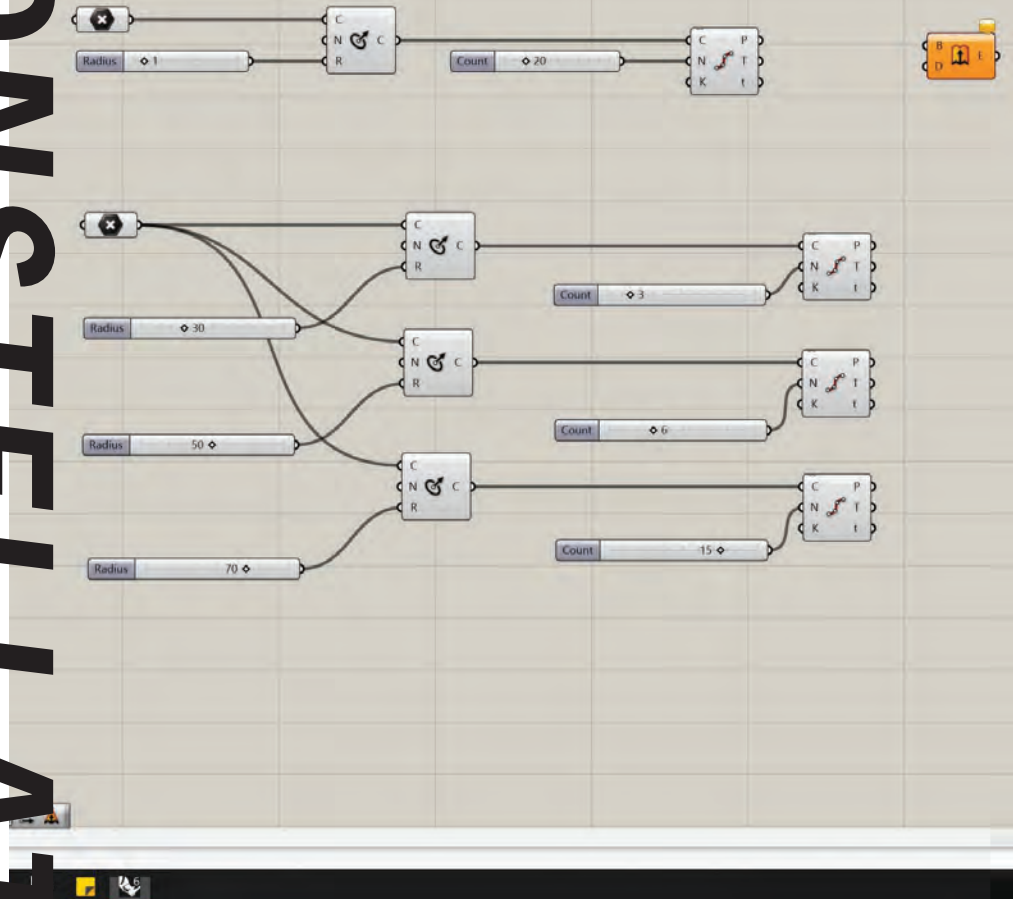


Exploded Program Axonometric

Sectional Perspective



COMS TEL LATIONS

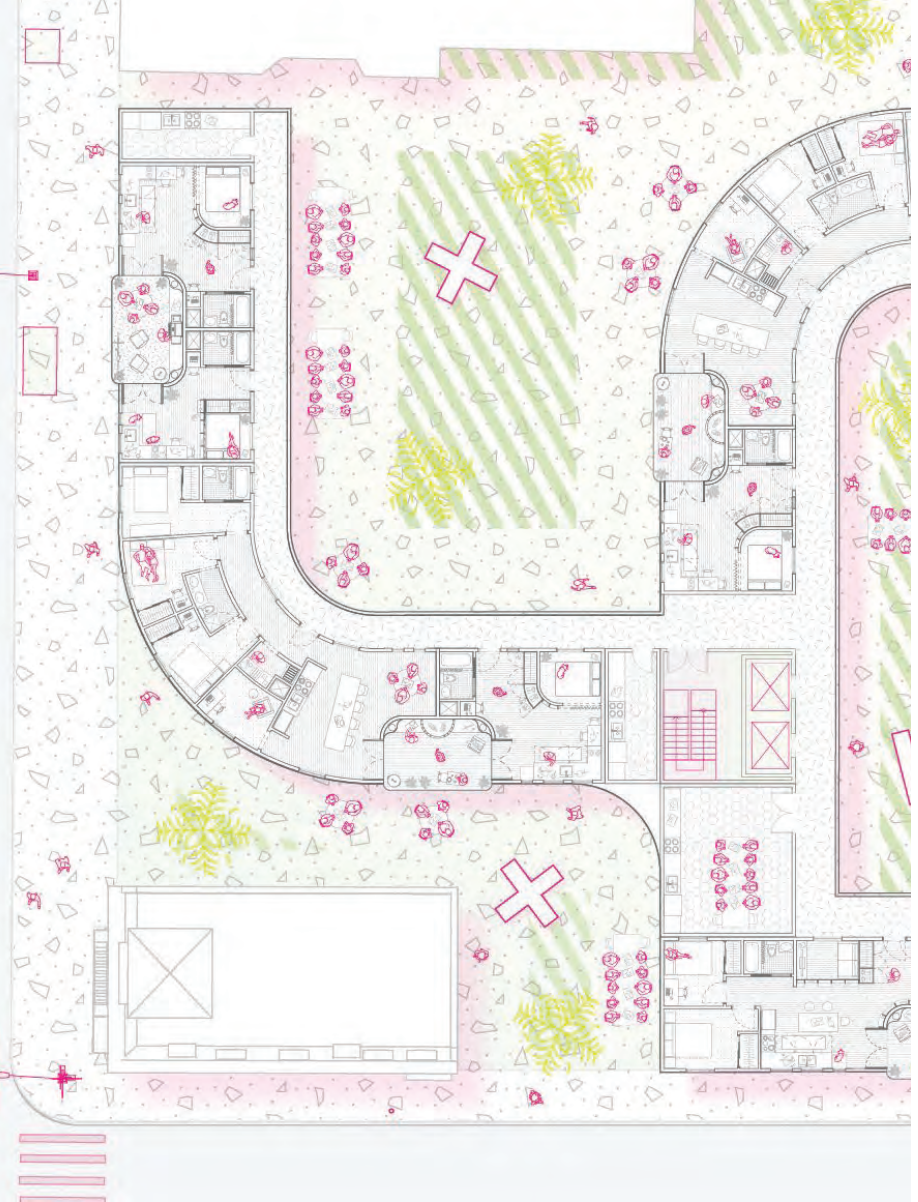


Overall the class focused on data visualization and how to efficiently and effectively convey data sets within architecture. The beginning of the semester began with a spatial analysis of our work set up during Covid-19. We then paired up in teams to find overlaps in our working spaces to create a data set of activities and objects in common. Lastly, we then paired into teams, each team coming up with their own manifesto of data visualization, to create our own idea of what it means to represent data visually.

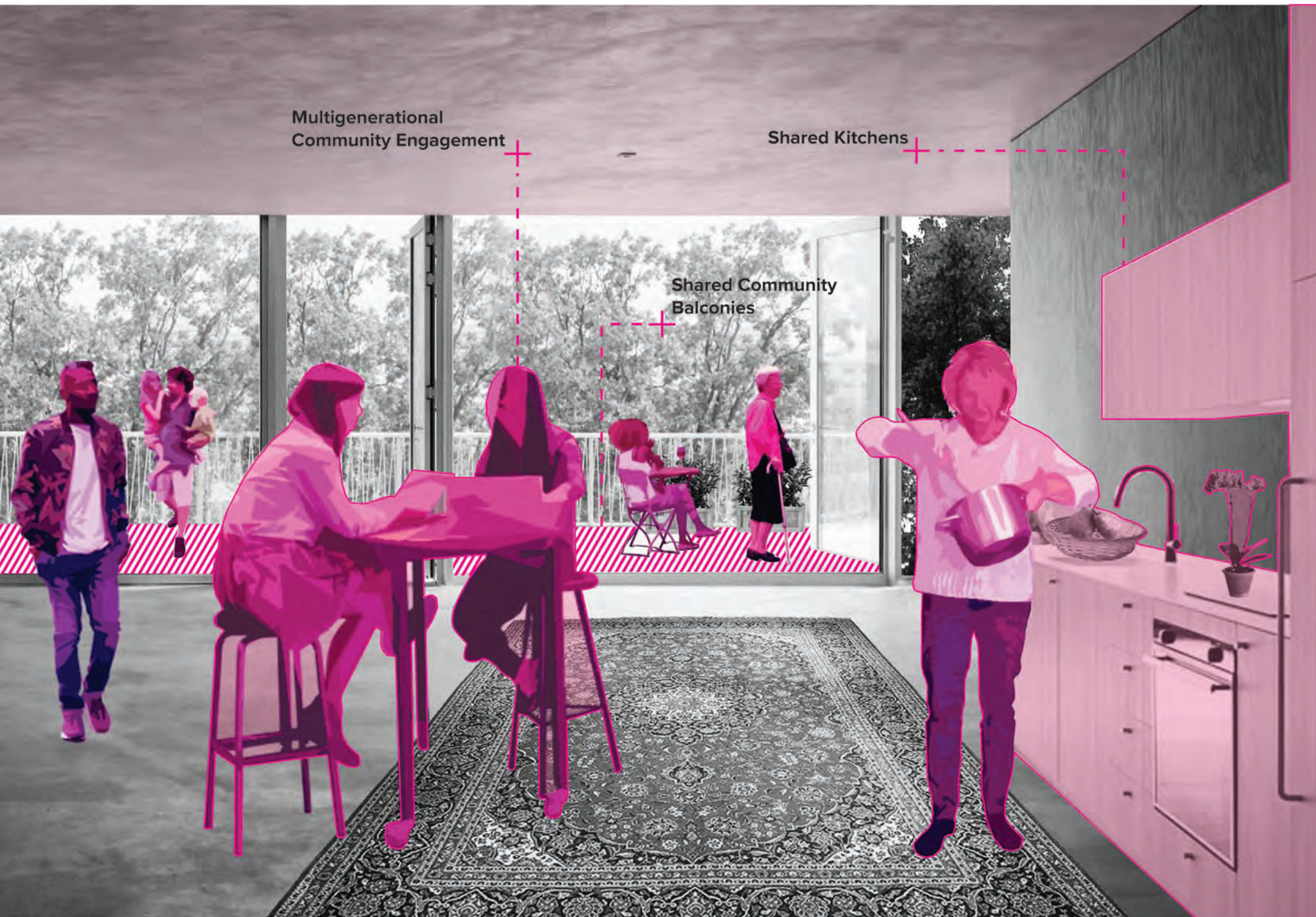
Class Description
The ultimate goal of ADR2 is to incubate our relationship with drawing, representation, and architecture by considering drawing as a collective practice of worldbuilding. You are invited to develop your own style, to collaborate with others, and to explore and invent drawing tools and representational processes that shape how we design together.



FOODSCAPES



An unfortunate issue for some residents in this community is Food Insecurity. We researched the relationship between household income and its effects on poor diet and nutrition. Because about 25% of residents in the South Bronx are living below the poverty line, they cannot always afford weekly groceries or daily meals and their diets and health suffer as a result. There are programs like SNAP and emergency food providers that help confront this issue but the idea to provide better housing with improved access to food became a guiding aspect in our project's design. We wanted to build off of inherent pathways in the neighborhood, especially connections that promote a sense of community and encourage togetherness. The overall focus of our project plans to target the food economy of the Bronx by creating a workforce and labor agency through the amenity of shared kitchens and food production to be used by the residents and local community members. We wanted to understand the activity of cooking between the units and shared balconies. In addition, we imagine an exhaust system throughout units that can utilize embodied heat energy to heat units during the winter, along with recycled water systems and composting facilities. We are hoping to use the lifecycle of food, planting, growing, harvesting, eating, sharing, and composting as a metaphor to multigenerational housing and the connection that food can bring to residents of the Bronx across all scales, while also supporting the local restaurant workforce and labor economy.



Median Household Income

\$ 28,038
South Bronx



\$ 55,191
New York City



Food Accessibility

Walking Distance to Fresh Fruits and Vegetables



Daily Consumption of Fruits and Vegetables

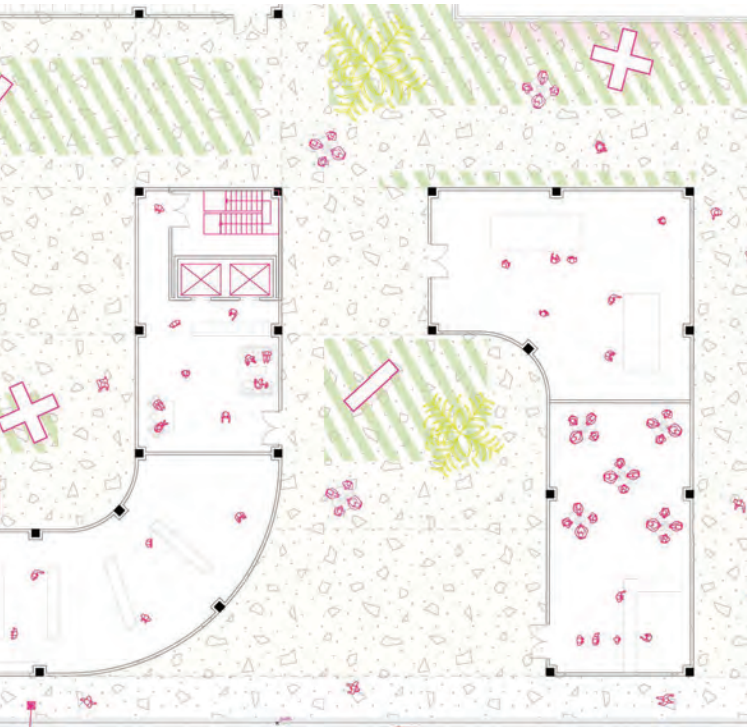
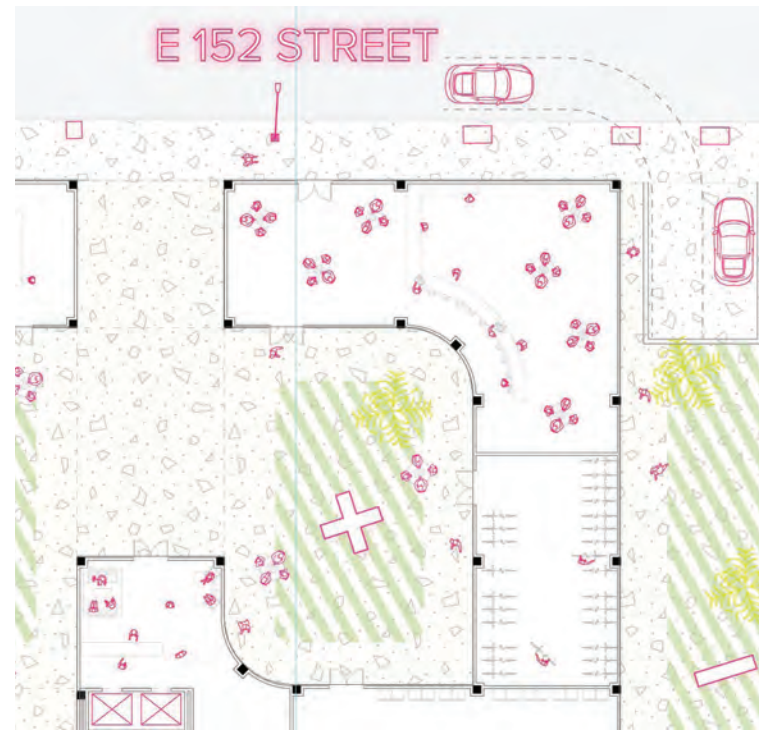


Only 4% of South Bronx is receiving the daily recommended amounts of fruits + vegetables servings

Ground Floor Plan
Close Up



Ground Floor Plan
Close Up



Ground Floor Plan
Close Up

Ground Floor Plan
Close Up



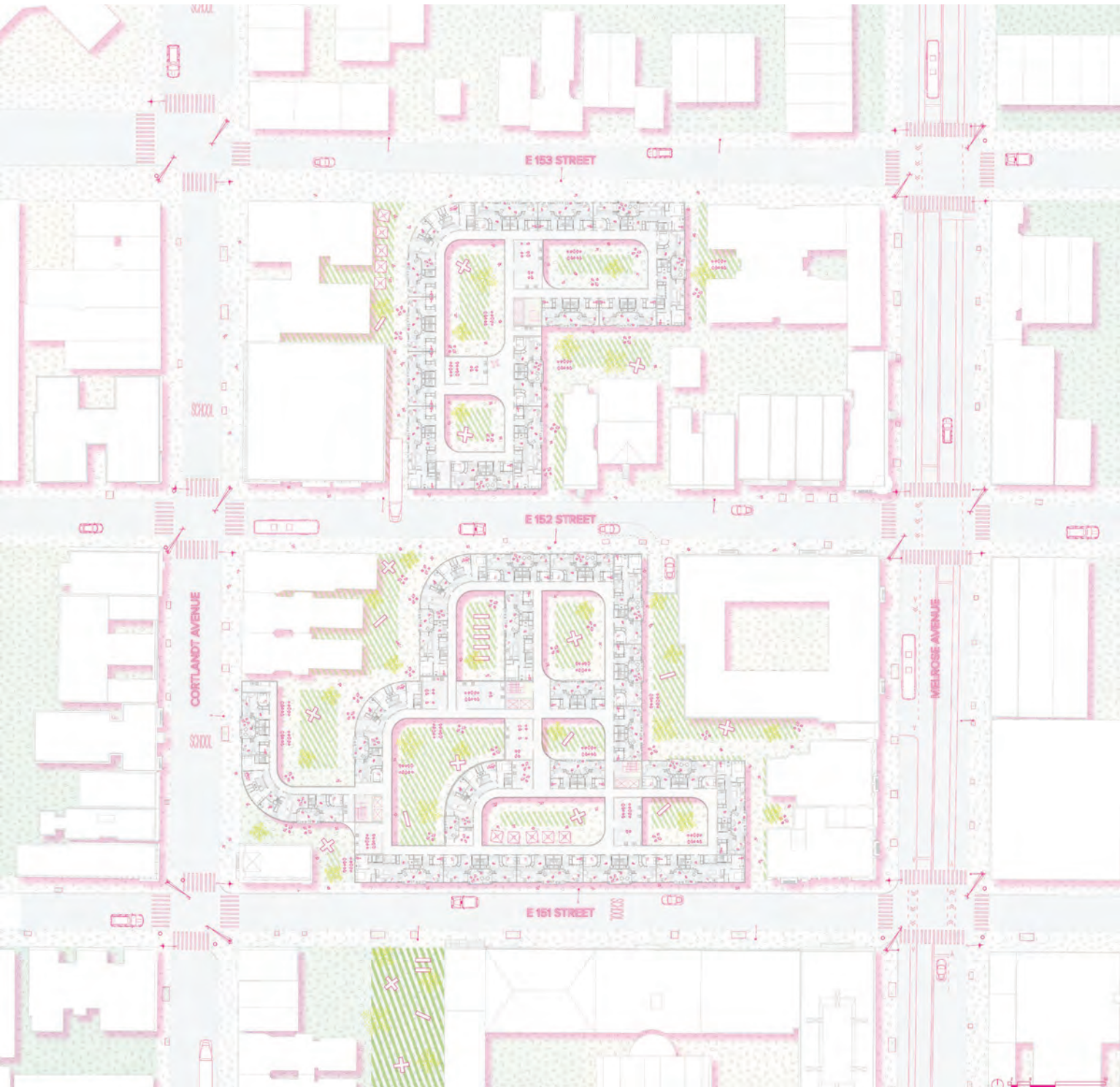
Ground Floor Plan



Building Section
N/S Direction



Cross Ventilation Diagram
Tilt Turn Window



Second Floor Plan

Second Floor Plan
Close Up



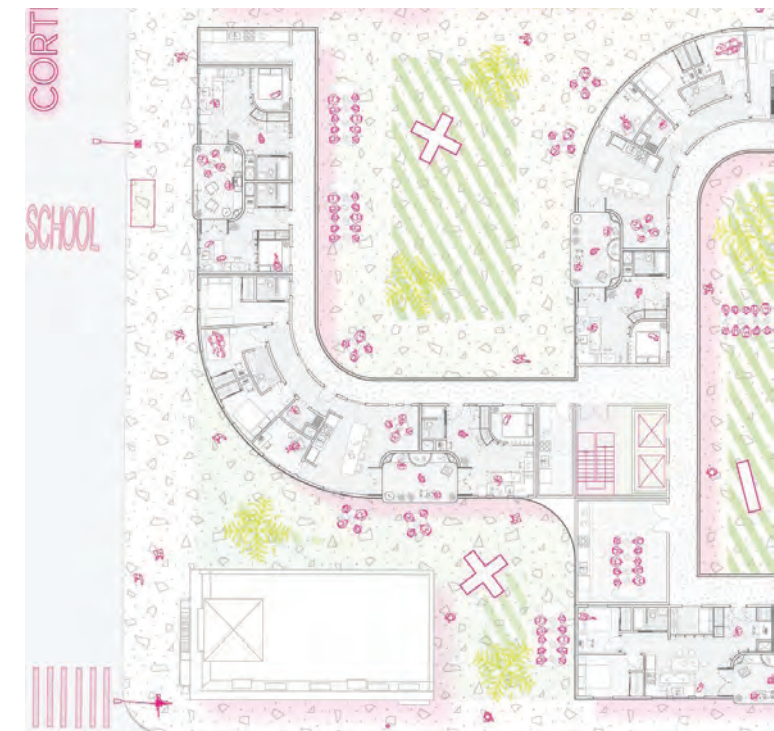
Second Floor Plan
Close Up

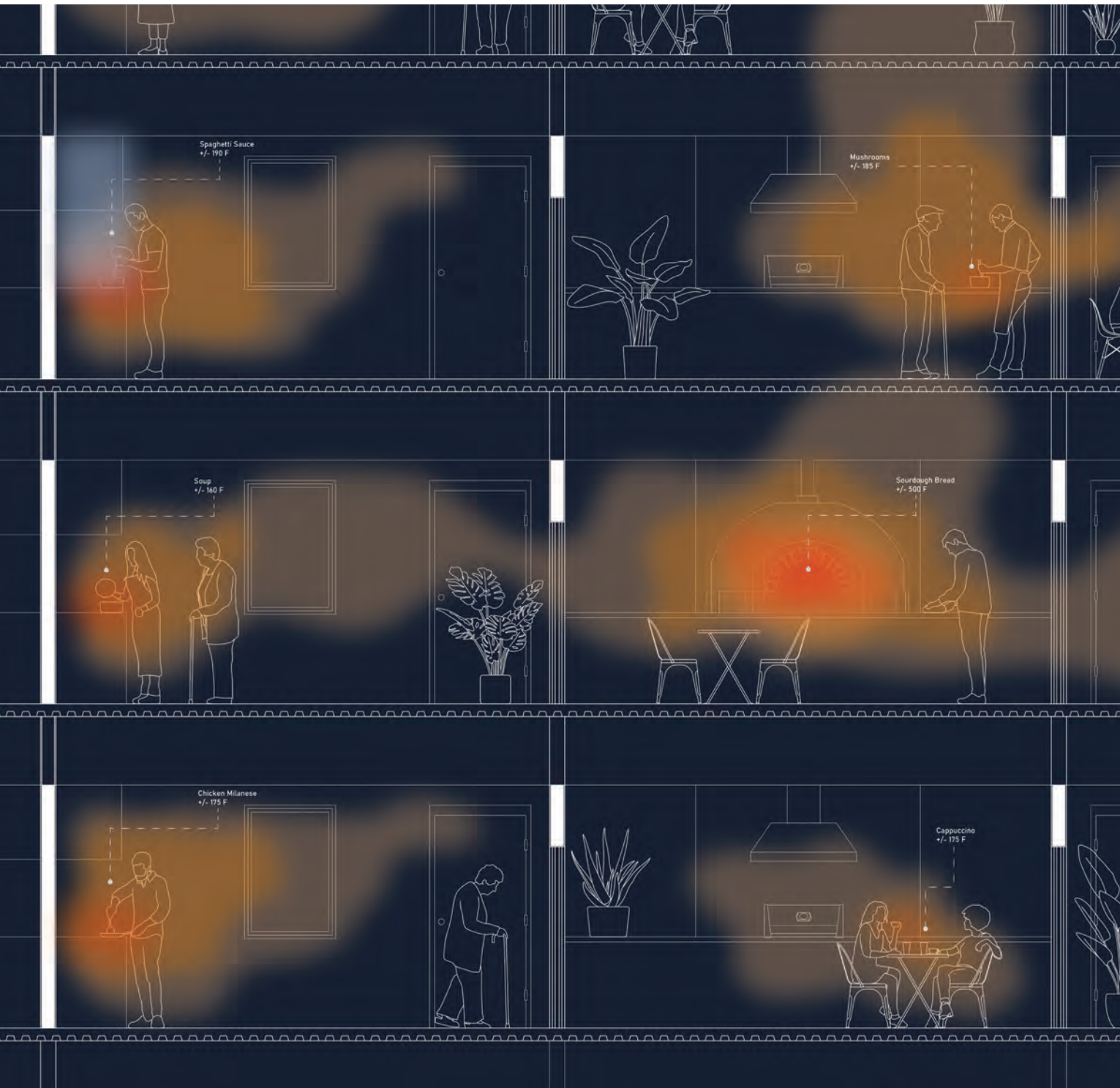


Second Floor Plan
Close Up



Second Floor Plan
Close Up



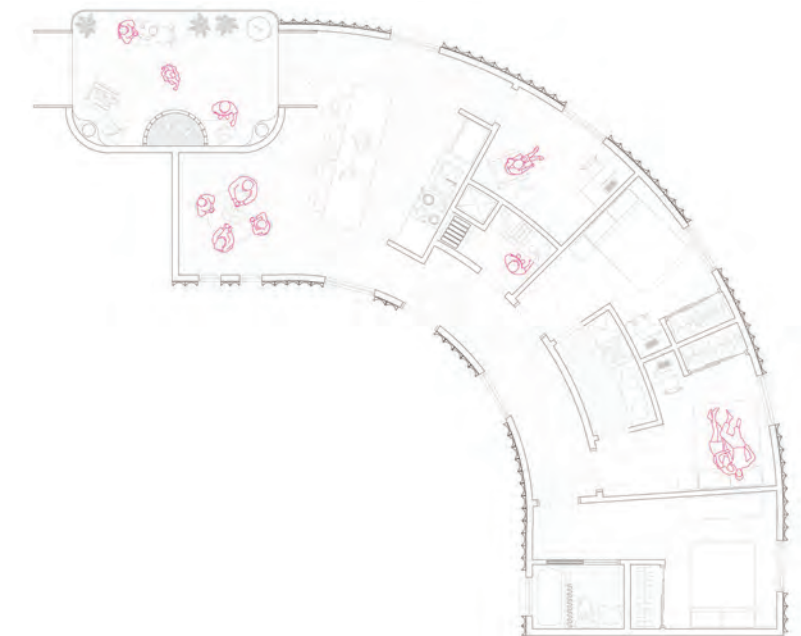
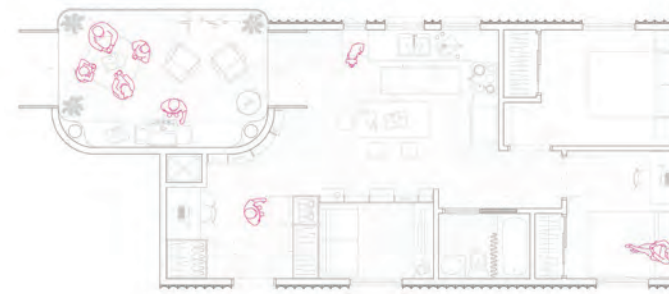


Temperature Section
Communal Cooking Diagram

Unit Floor Plan
Studio - 400 sq. ft.

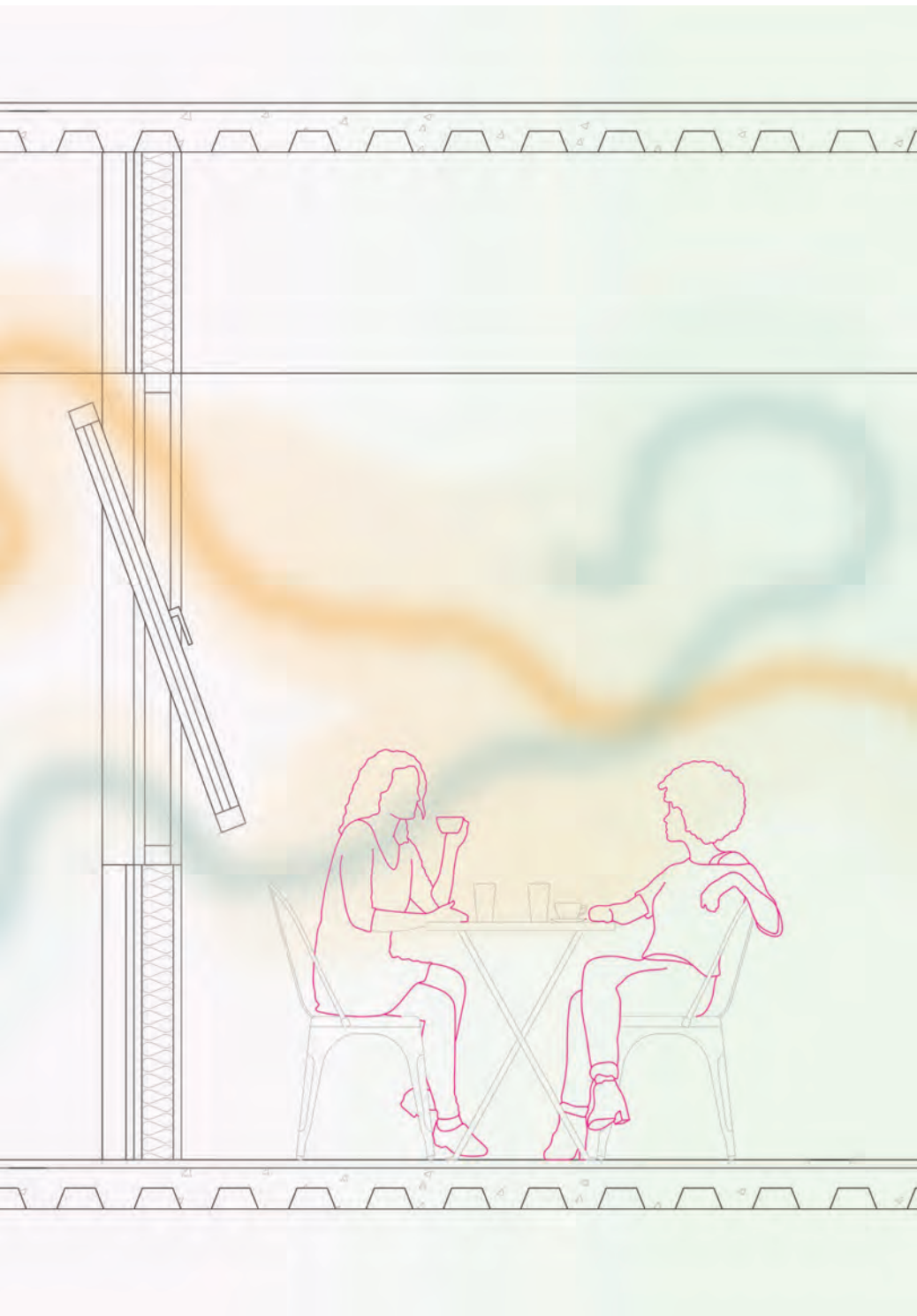


Unit Floor Plan
One Bedroom - 500 sq. ft.



Unit Floor Plan
Two Bedroom - 800 sq. ft.

Unit Floor Plan
Three Bedroom - 1,200 sq. ft.



Cross Ventilation Diagram
Horizontal Pivot Window



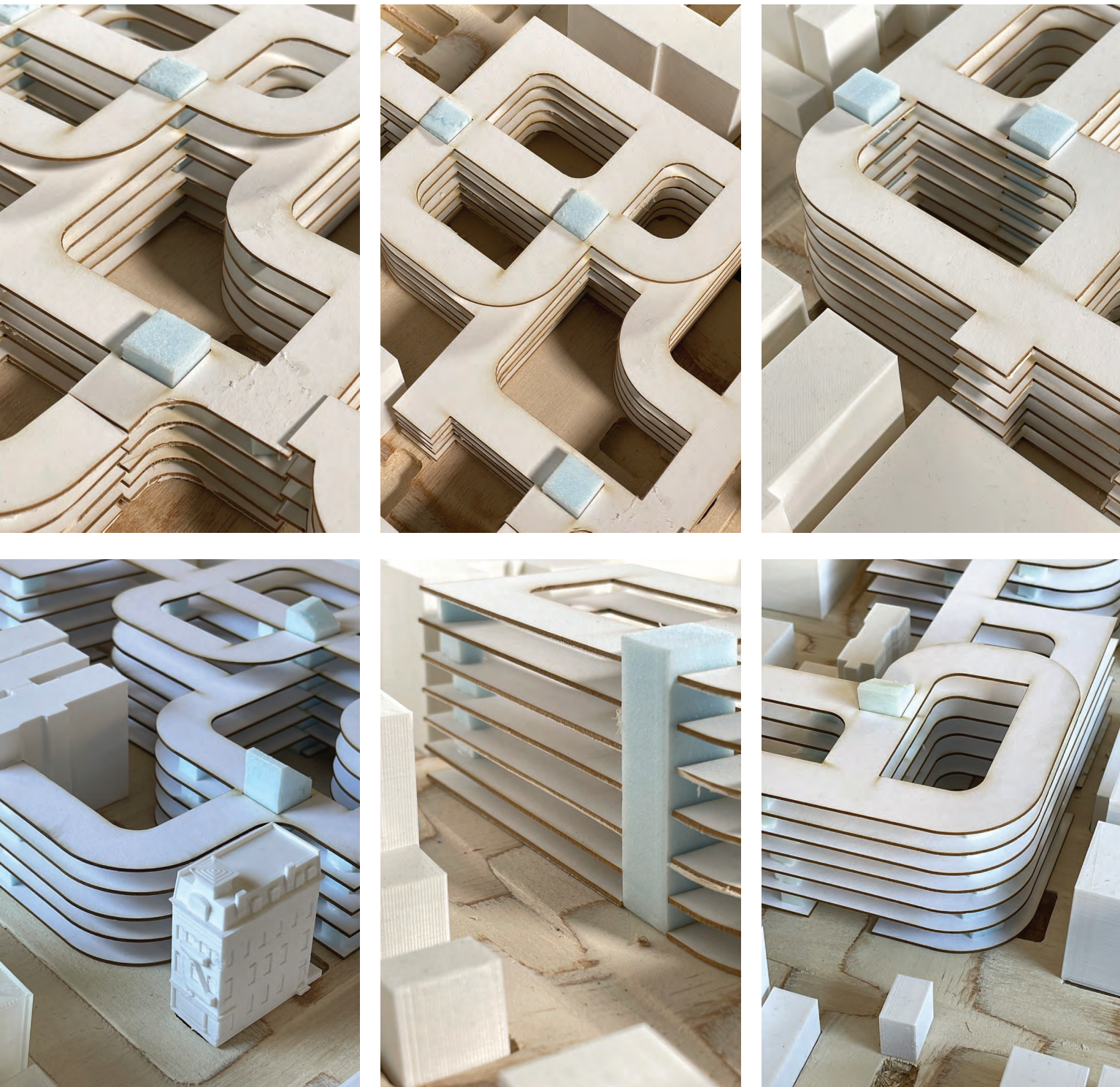
Courtyard Collage
South Bronx Community



Winter Rooftop Collage



Shared Balcony Cooking Collage



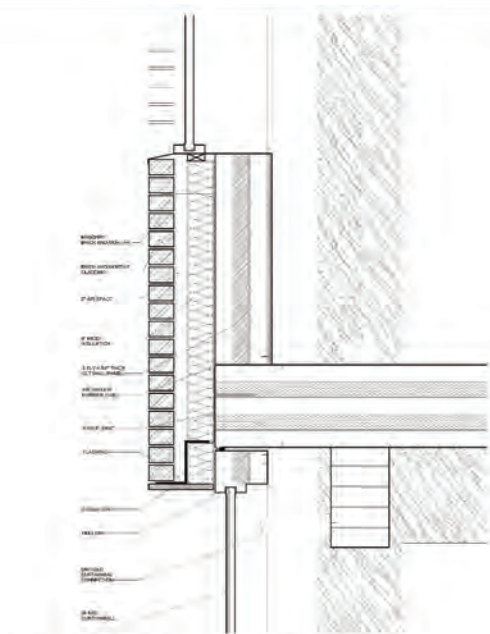
Model Photos
1/16th Inch



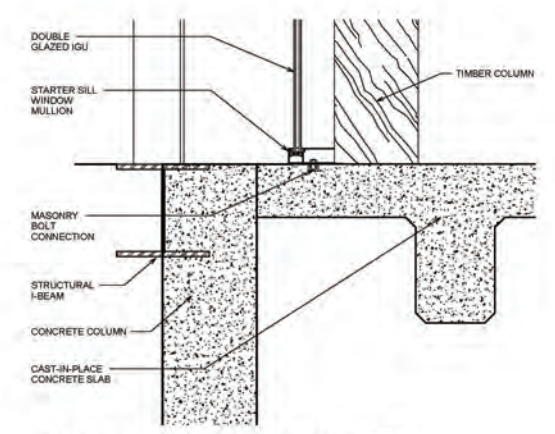
Site Model
1/16th Inch



ENVVELOPE+SYSTEMS

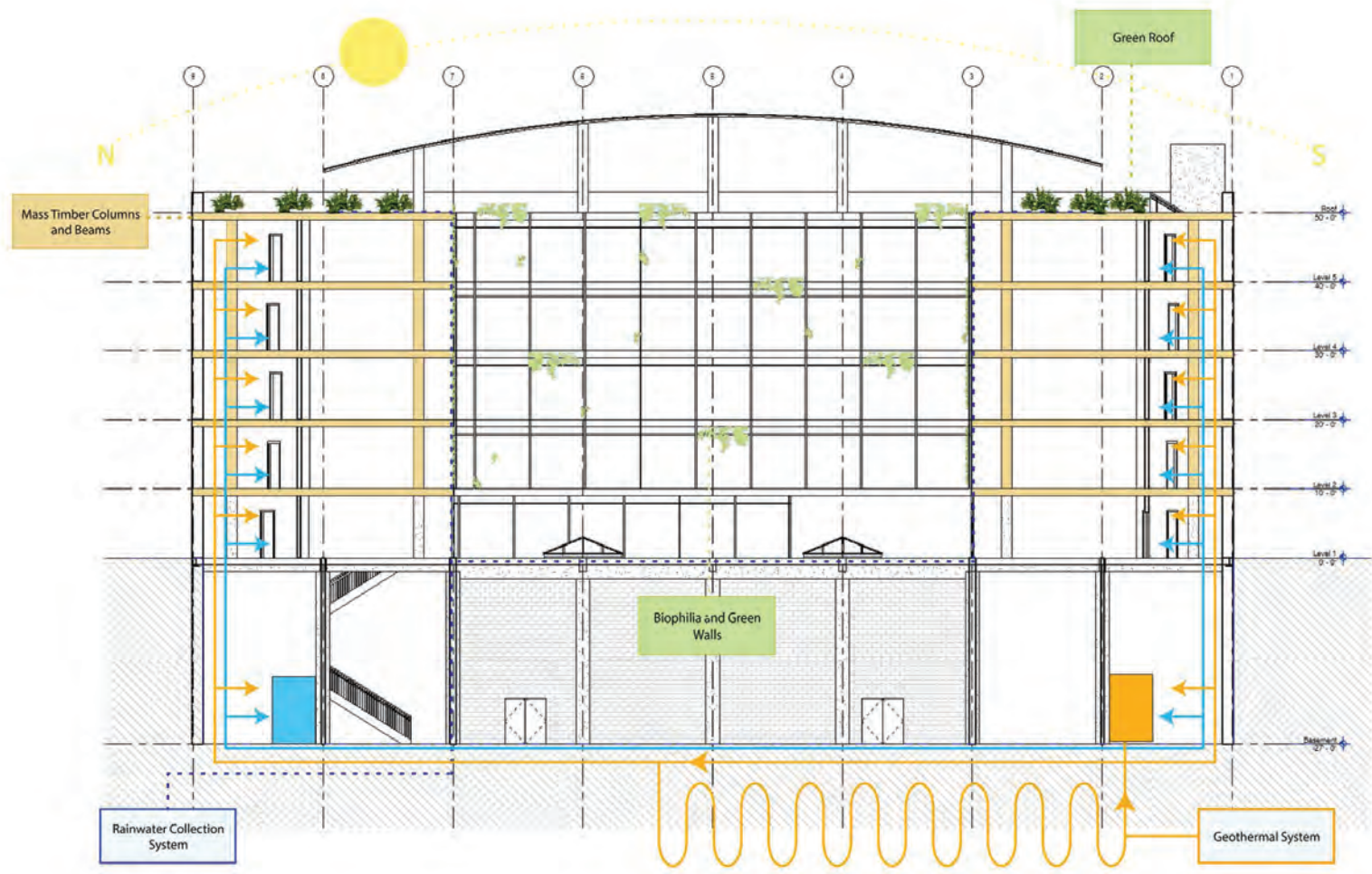


3 TYPICAL CURTAIN WALL DETAIL - SECTION HEAD
SCALE: 1/8"=1'-0"



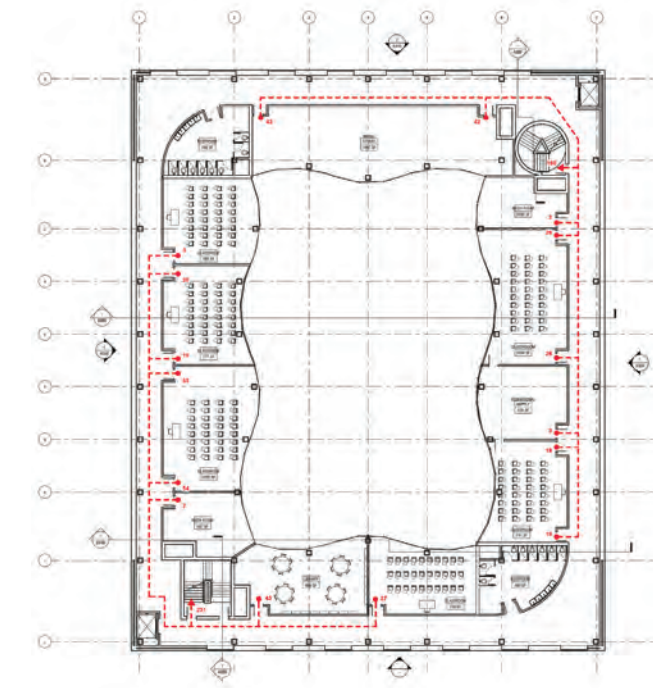
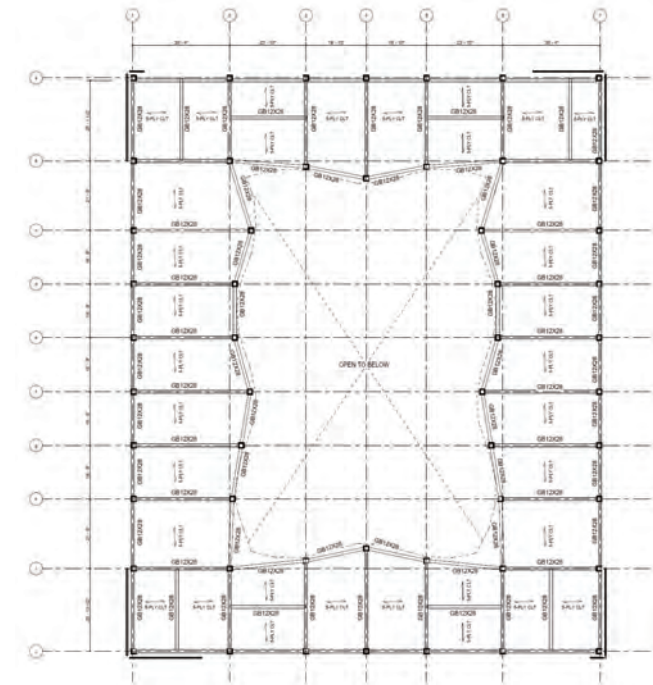
2 TYPICAL CURTAIN WALL DETAIL - SECTION SILL
SCALE: 1/8"=1'-0"

The site of the project is situated in the East Village of New York City. The project's topic focused on the East Village's historical presence of community gardens as a place for agency and connection, especially their relationship to education within the community. The main idea of the project is to use the classroom as a space for internal reflection about growing food and community engagement of food as a tool for education. In order to emphasize this point we wanted incorporated a few key aspects to highlight these topics: The building is a courtyard building that faces the central community garden. Classrooms facing the interior courtyard to establish connection between learning and community gardens. Curved glass facade sits at the ground floor as visual means of access to see through the courtyard and the invite the community in. Arched roof creates an open wintergarden to make the courtyard a covered area for playing and learning all year round. At the street, the school opens up with a brick facade that cuts short at the ground level to reveal a storefront curtain wall that is segmented at repeating angles and give off a curving language that is then reflected in the whole building's interior where the interior courtyard is enclosed by curving glass walls and roof. The masonry window wall and segmented unitized curtain wall create two different levels of opacity and were placed in areas of the building that invite activity through transparency or encourage privacy through solid forms.



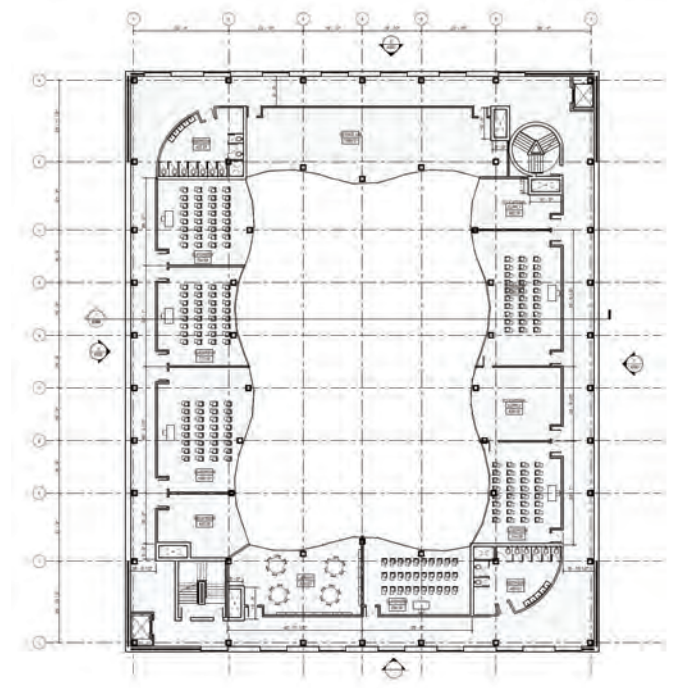
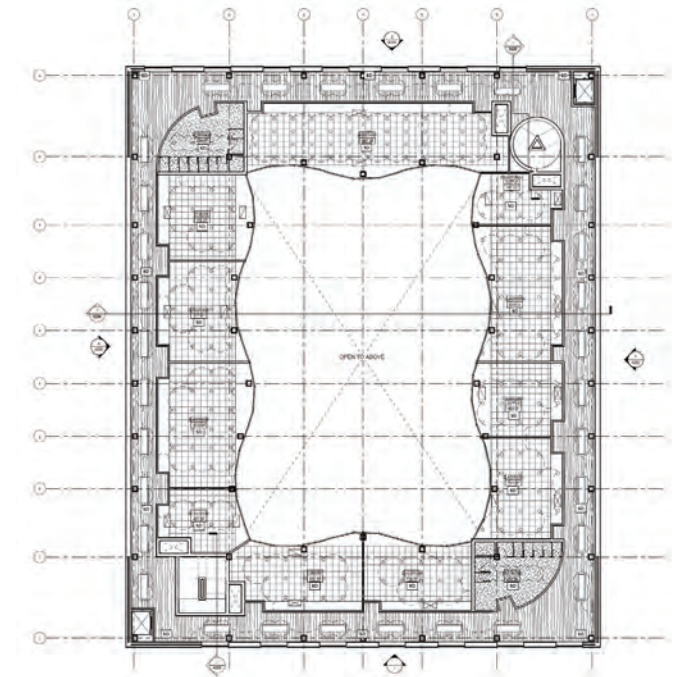
Sustainability Section

Structural Framing Plan
Third Floor

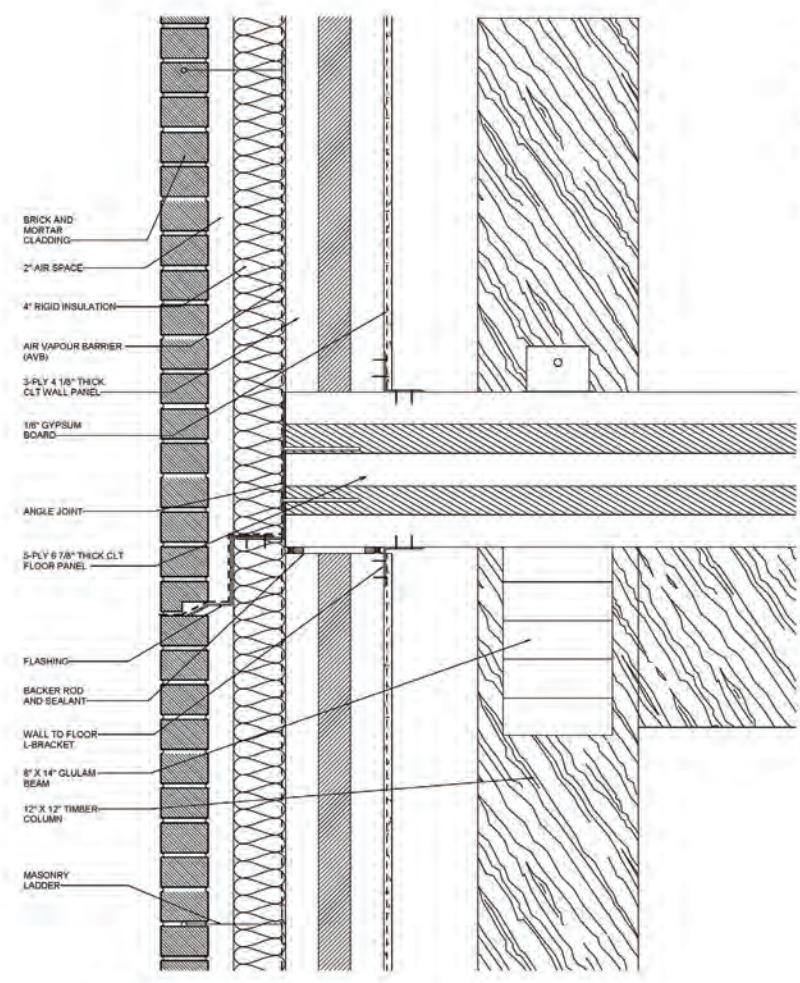


Egress Plan
Third Floor

Reflected Ceiling Plan
Third Floor

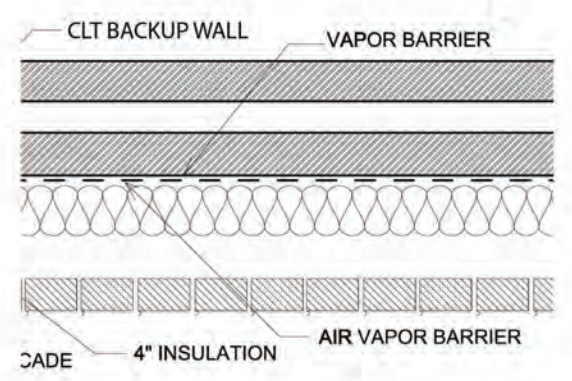
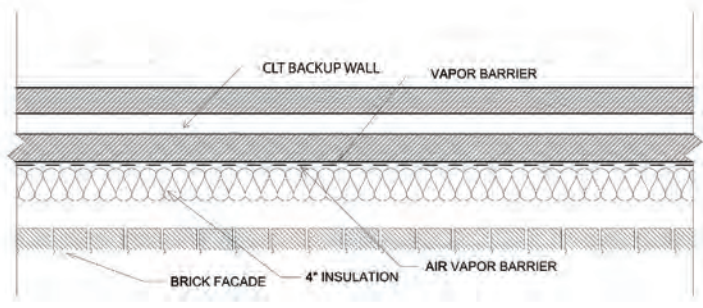


Finish Plan
Third Floor

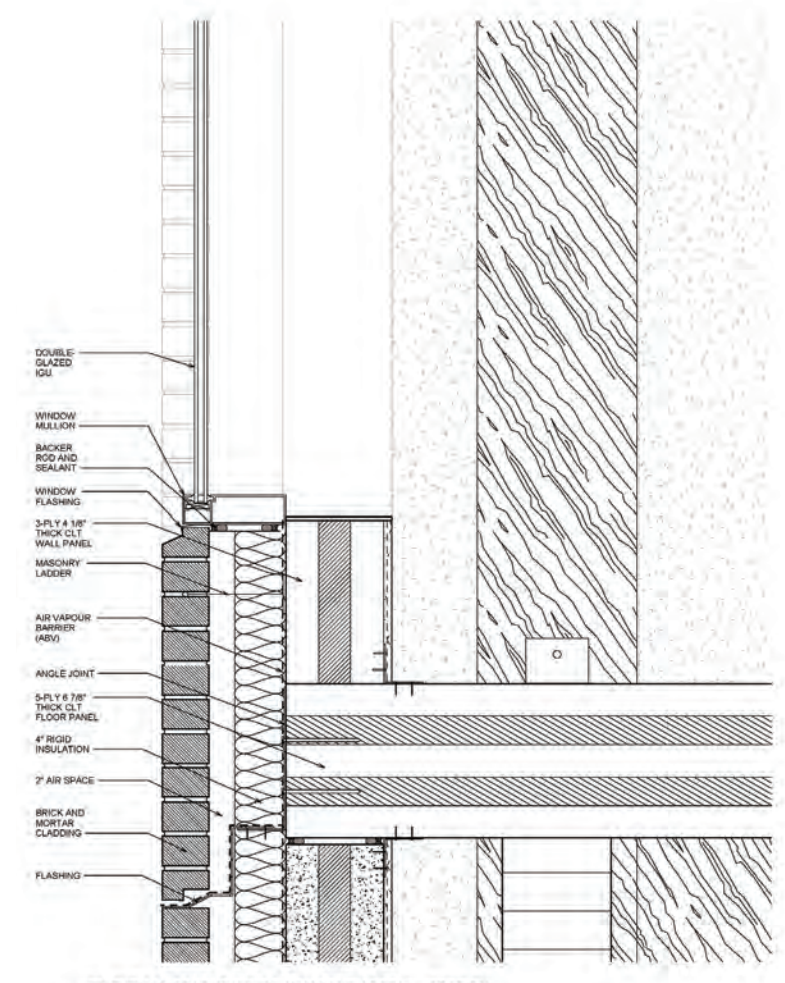


2 TYPICAL SOLID MASONRY DETAIL - SECTION
SCALE: 3/4" = 1'-0"

Facade Construction Detail
Brick to Brick

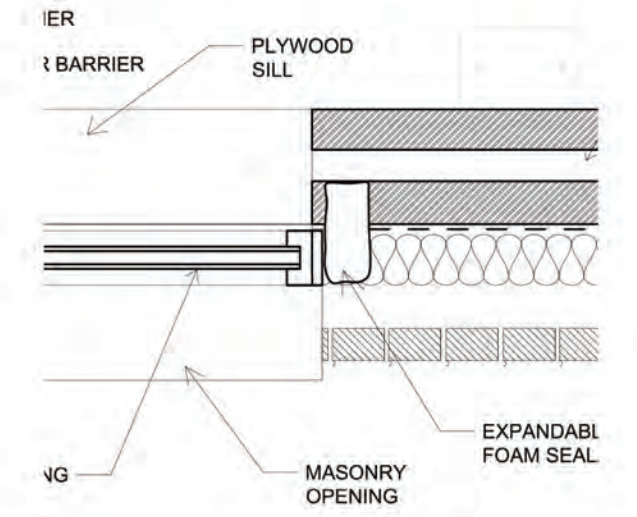
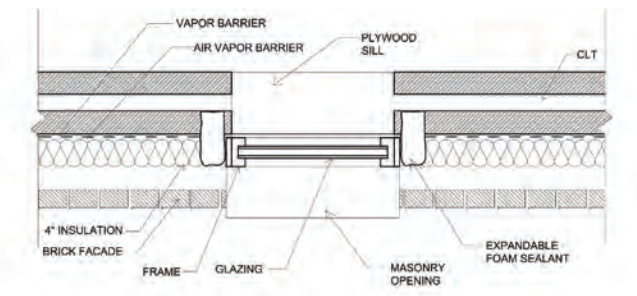


1 TYPICAL SOLID MASONRY DETAIL - PLAN
SCALE: 3/4" = 1'-0"



2 TYPICAL OPAQUE WINDOW MASONRY DETAIL - SECTION
SCALE: 3/4" = 1'-0"

Facade Construction Detail
Brick to Window



1 TYPICAL OPAQUE WINDOW MASONRY DETAIL - PLAN
SCALE: 3/4" = 1'-0"



RADAR TO RADIO



Airports started as military bases in Hudson Valley, due to its proximity to New York City and were seen as a prime location to implement this type of need from Cold war nuclear fear, the radius from Manhattan in case of bombing, and how Hudson Valley became a sanctuary during this time. Besides the airport and flights, in the air of Hudson Valley hides another type of sanctuary space that's invisible/intangible - the radio waves. With the first ever ham radio broadcasting from Union College in Albany 100 years ago, those airwaves served as a sanctuary of the minority voice. The two parallel research on airwaves and airports lead us to our site at New York Stewart International Airport, which is located in the sanctuary city of Newburgh. It was called SAGE as an abbreviation of Semi-Automatic-Ground-Environment, or, the first and ultimate line of defense from a Soviet nuclear attack, a bulwark from an act of war that seemed inevitable in the 1950s. The SAGE directed and organized the North American Aerospace Defense Command's (NORAD) response to a potential Soviet air strike by coordinating radio waves collected from numerous radar sites into a single, comprehensible image. The SAGE Building will be reclaimed as a new form of media incubator that welcomes the agency and promotion of small businesses, local journalism, language justice, and grassroots organizations. In between, the terminal of the airport and the SAGE building is connected by a jet bridge.



Stormville Flea Market 1
The Stormville Flea Market is located in the historic Hudson Valley railway settlement of Stormville, New York. It is the largest flea market in the Hudson Valley and is held every second and fourth Saturdays of the month. The market covers over 100 acres and is one of the largest flea markets in the United States. It features a wide variety of goods, including clothing, furniture, and antiques. The market is held in a beautiful setting with views of the Hudson River and the surrounding hills. It is a popular destination for both locals and tourists. The market is held from 10:00 AM to 5:00 PM. The market is held in a beautiful setting with views of the Hudson River and the surrounding hills. It is a popular destination for both locals and tourists. The market is held from 10:00 AM to 5:00 PM.



Boneyards 5
An aerial photograph of a large industrial facility, possibly a boneyard or airport terminal. The facility is composed of many large, rectangular structures arranged in a grid-like pattern. The structures are made of metal and are surrounded by a fence. The facility is located in a rural area with some trees and fields in the background. The facility is a large-scale industrial operation, possibly related to the aviation industry. The facility is a large-scale industrial operation, possibly related to the aviation industry.



Overlook Mountain Super Tower 1
The Overlook Mountain Super Tower is a large-scale industrial project located in the Hudson Valley. The tower is a massive structure that is being built on a hillside. The tower is made of metal and is surrounded by a fence. The tower is a large-scale industrial project, possibly related to the aviation industry. The tower is a large-scale industrial project, possibly related to the aviation industry.

Hudson Valley "Sanctuary" Research
This research focuses on resources and sanctuary spaces in Hudson Valley related to airports and radio.



Immigration into Hudson Valley 2
A large crowd of people gathered at an airport terminal. The people are standing in lines, waiting for their flights. The terminal is a large, modern building with a glass facade. The people are of various ages and ethnicities. The terminal is a busy place, with many people coming and going. The terminal is a busy place, with many people coming and going.



Airport City 6
Interior view of an airport terminal with people walking. The terminal is a large, modern building with a glass facade. The people are walking through the terminal, some carrying luggage. The terminal is a busy place, with many people coming and going. The terminal is a busy place, with many people coming and going.



Youth Media Sanctuary 4
A group of people sitting around a table, possibly in a media sanctuary. The people are engaged in a discussion or activity. The sanctuary is a small, modern building with a glass facade. The people are of various ages and ethnicities. The sanctuary is a busy place, with many people coming and going. The sanctuary is a busy place, with many people coming and going.

Youth Media Sanctuary 5
A group of people sitting around a table, possibly in a media sanctuary. The people are engaged in a discussion or activity. The sanctuary is a small, modern building with a glass facade. The people are of various ages and ethnicities. The sanctuary is a busy place, with many people coming and going. The sanctuary is a busy place, with many people coming and going.



Airports for Sale 3
Aerial view of an airport runway and taxiway. The runway is a long, straight strip of asphalt. The taxiway is a smaller strip of asphalt that branches off from the runway. The airport is a large-scale industrial project, possibly related to the aviation industry. The airport is a large-scale industrial project, possibly related to the aviation industry.



No More Deadzone 3
A group of people standing in front of a building, possibly a deadzone. The people are holding signs and are engaged in a protest or demonstration. The building is a large, modern building with a glass facade. The people are of various ages and ethnicities. The building is a busy place, with many people coming and going. The building is a busy place, with many people coming and going.



Youth Media Sanctuary 5
A group of people sitting around a table, possibly in a media sanctuary. The people are engaged in a discussion or activity. The sanctuary is a small, modern building with a glass facade. The people are of various ages and ethnicities. The sanctuary is a busy place, with many people coming and going. The sanctuary is a busy place, with many people coming and going.

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Bees Take Flight 4
A person in a white protective suit handling bees, with an airport diagram in the background. The person is wearing a full-body protective suit, including a hood and gloves. The person is holding a wooden frame with bees on it. The background is a yellow and black airport diagram. The person is a beekeeper, and the bees are being handled in a safe and controlled manner. The person is a beekeeper, and the bees are being handled in a safe and controlled manner.



The Field Prophet 2
A group of people standing in a field, possibly a field prophet. The people are standing in a line, and they are holding signs. The field is a large, open field with a grassy surface. The people are of various ages and ethnicities. The field is a busy place, with many people coming and going. The field is a busy place, with many people coming and going.



Wavefarm 6
A collage of images related to a wavefarm, including a boat and a wave. The collage includes images of a boat, a wave, and other related elements. The wavefarm is a large-scale industrial project, possibly related to the aviation industry. The wavefarm is a large-scale industrial project, possibly related to the aviation industry.

Wavefarm 6
A collage of images related to a wavefarm, including a boat and a wave. The collage includes images of a boat, a wave, and other related elements. The wavefarm is a large-scale industrial project, possibly related to the aviation industry. The wavefarm is a large-scale industrial project, possibly related to the aviation industry.

Airport Research Collage



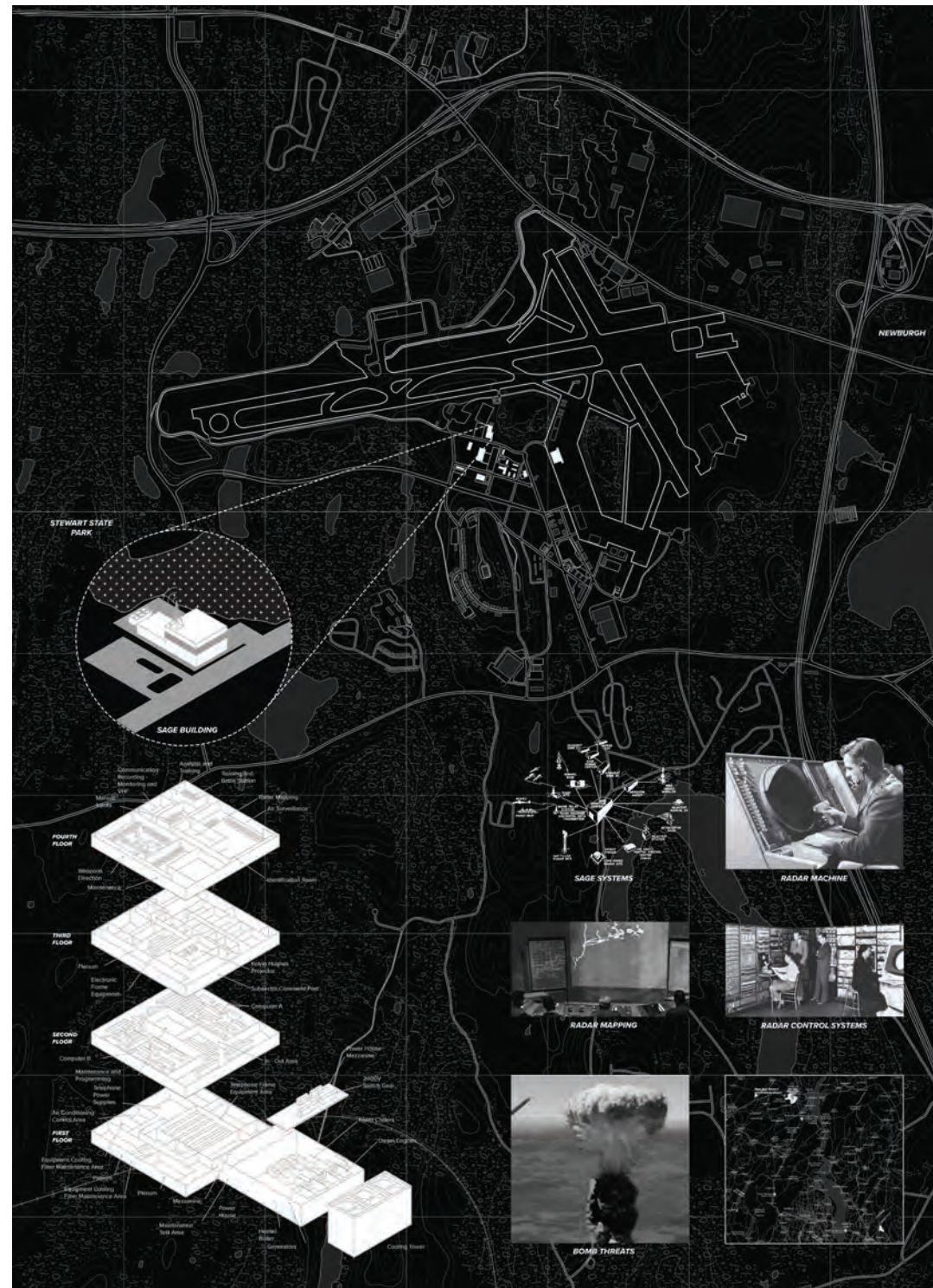
Radio Research Collage



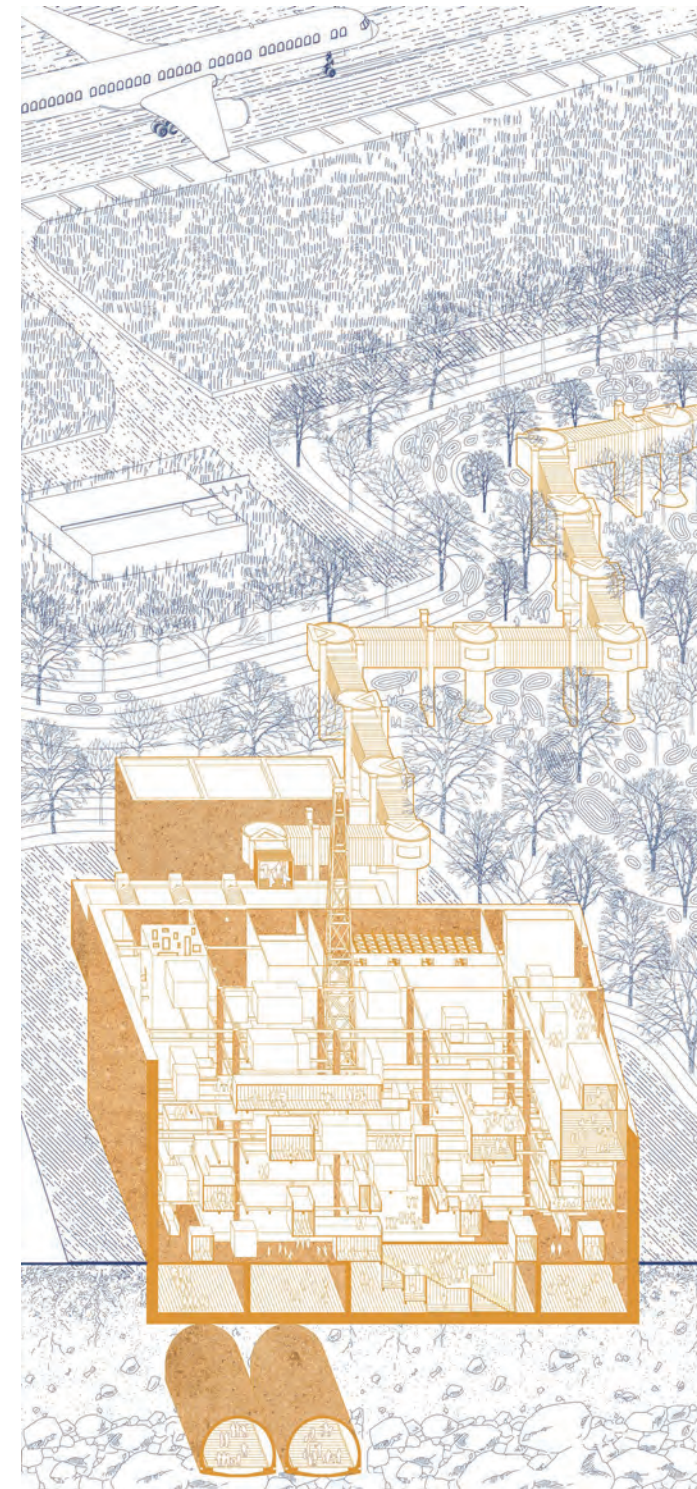
Analysis Research Drawing
Airports in Hudson Valley



Analysis Research Drawing
Radio History and Resources in
Hudson Valley

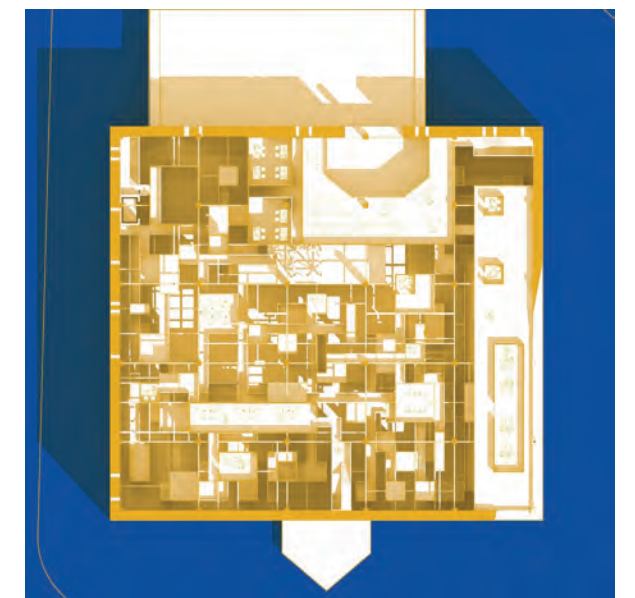
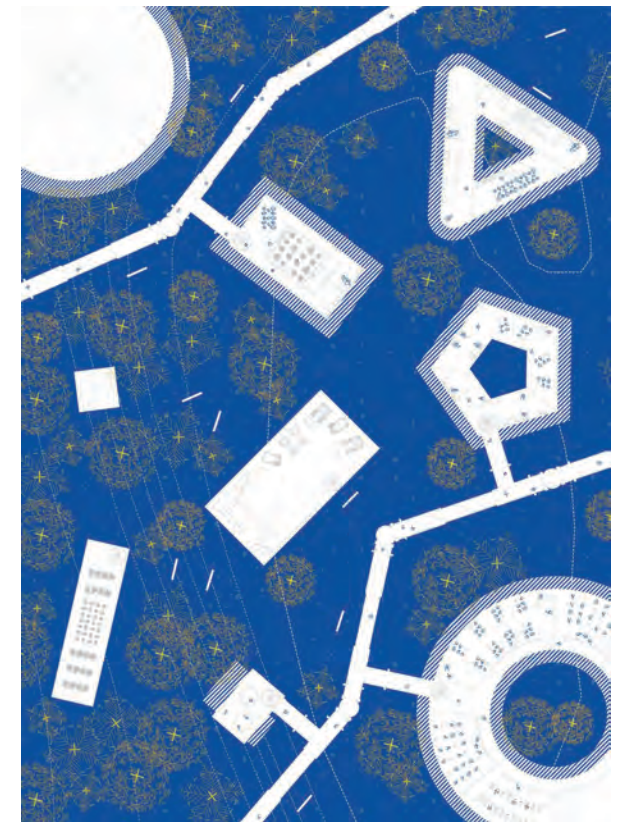


Site Analysis Drawing
 Newburgh Airport in Hudson Valley and
 The historic SAGE Building



Axonometric
 The SAGE Building

Floor Plan
 Sanctuary Spaces



Floor Plan
 The SAGE Building

Sanctuary Collage
Approaching the Living Space



Sanctuary Collage
Approaching The SAGE Building



Sanctuary Collage
Living Space



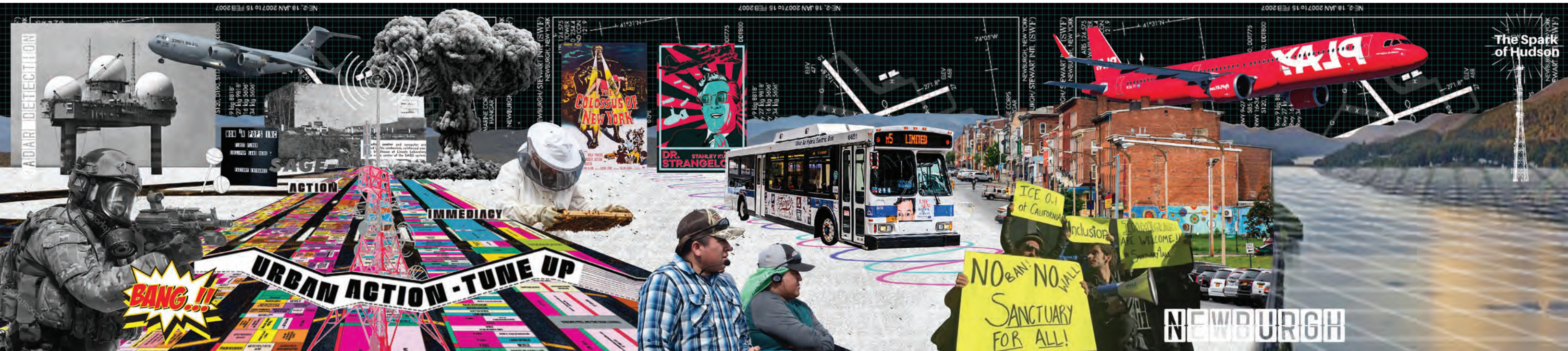
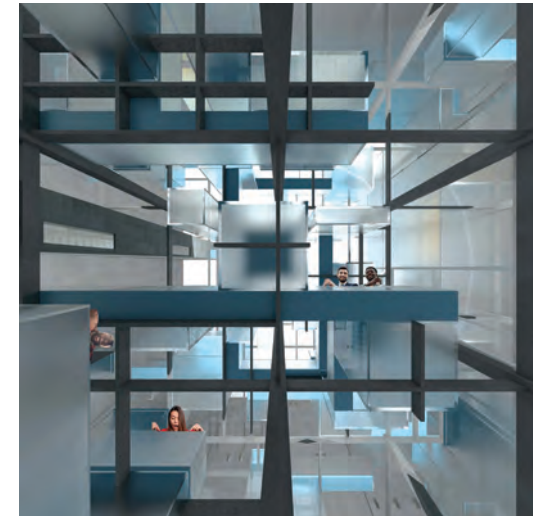
Sanctuary Collage
Approaching the Newburgh Airport



Sanctuary Collage
Radio Show in The SAGE Building



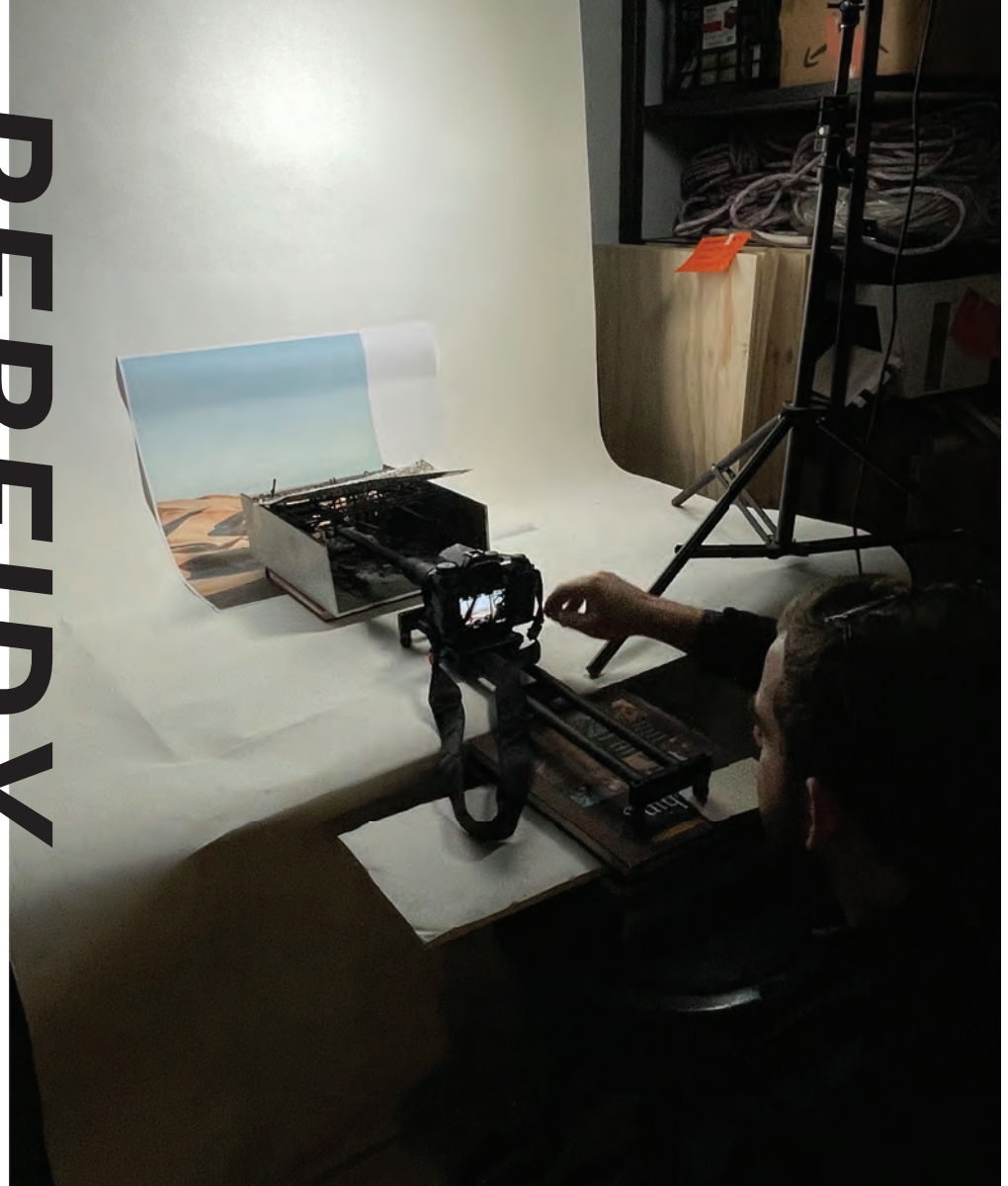
Sanctuary Collage
Community in The SAGE Building



Design Intervention Collage



PERFIDY



Ecological change has made wood scarce, petroproducts unviable, and a revolution in cheap energy has made concrete and cementitious products extremely in-demand across the globe. As a result, SAND has become the earth's most precious resource. For specific chemical reasons, only sand that naturally occurs in deserts, beaches, and otherwise naturally geologically. Daily life for citizens of the earth revolves around the collection, storage, and trade of sand—where having sand is seen as status and wealth. Others resist and work for a sand-free environment.

Class Description

In this course we engage the skills, ideas, and technologies shared between the practices of production design (for film) and architecture. Consider three topics around which this overlap occurs: the methodological, the conceptual, and the technical.

We will accomplish this by starting with a story, building models, and filming them. Small groups of students will be given premises for fictional future scenarios, and they will develop and articulate the worlds in which these stories occur by making working, detailed, scenographic scale models. These models will be then filmed in a series of scenes developed in consultation with your peers and instructor. The ultimate deliverable for the course is a short test film (or series of clips) of these highly developed models.



1 HULA



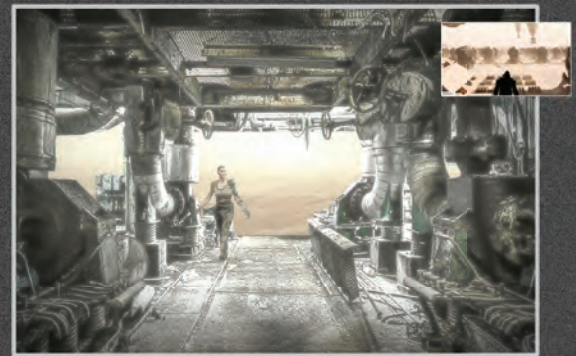
2 INFRIGEMENT



3 EXTRACTION



4 A NEW HOME



5 INHERITANCE



6 MIRAGE



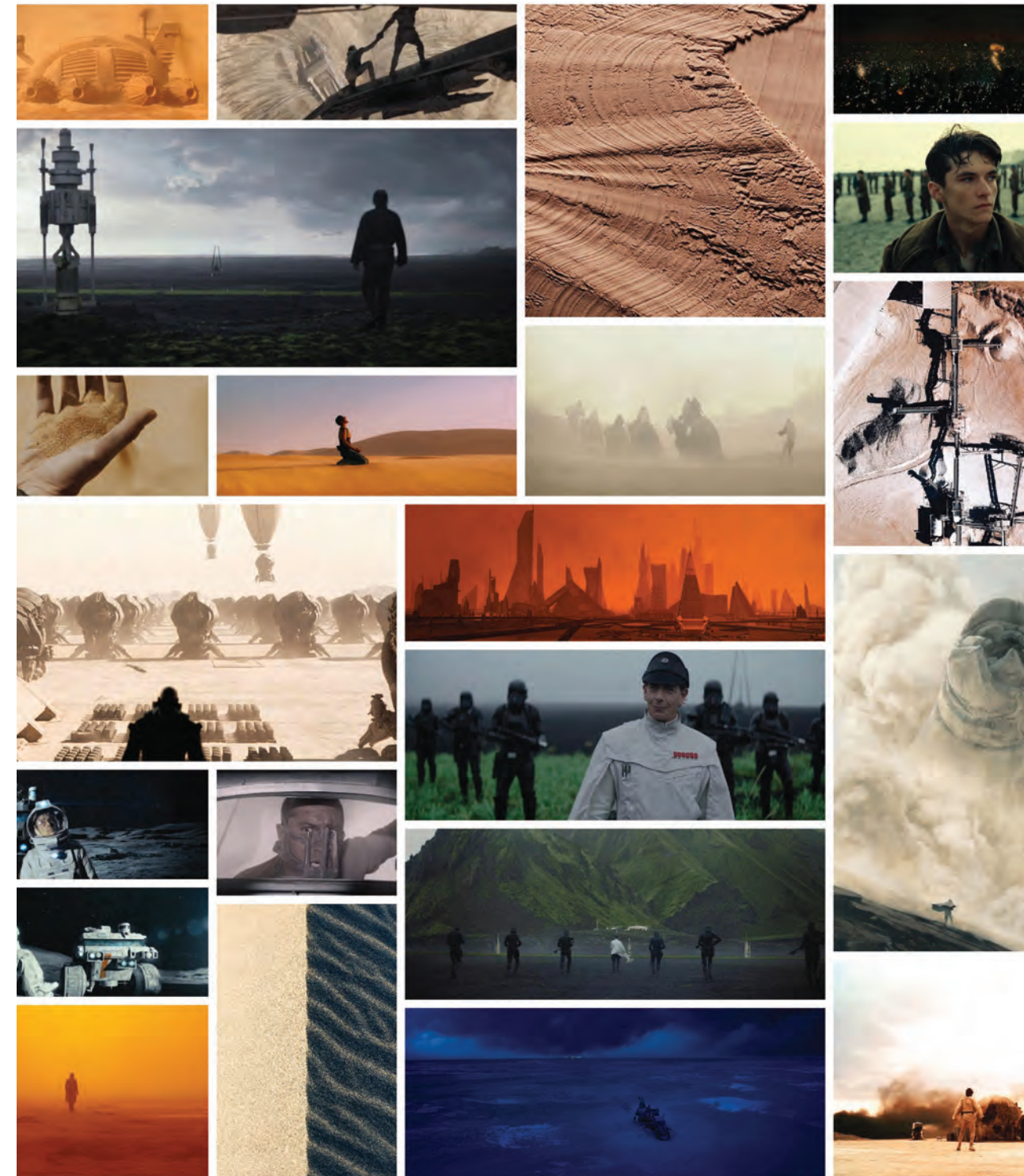
7 THE LETDOWN



8 A LOST HOPE



9 DISCOVERY



Mood Board
Inspiration from Dune, Bladerunner 2049, Madmax: Fury Road, etc.

Concept Art Render
First Scene



Concept Art Render
Second Scene



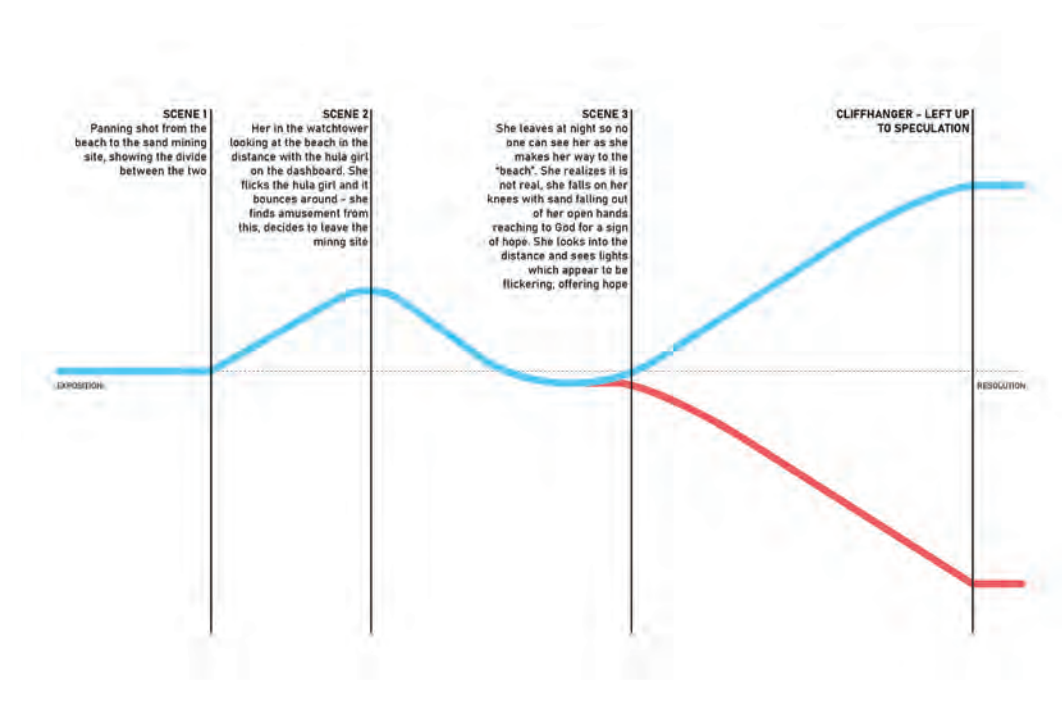
Concept Art Render
Final Scene



Concept Art Render
First Scene



Concept Art Render
Second Scene



Story Timeline



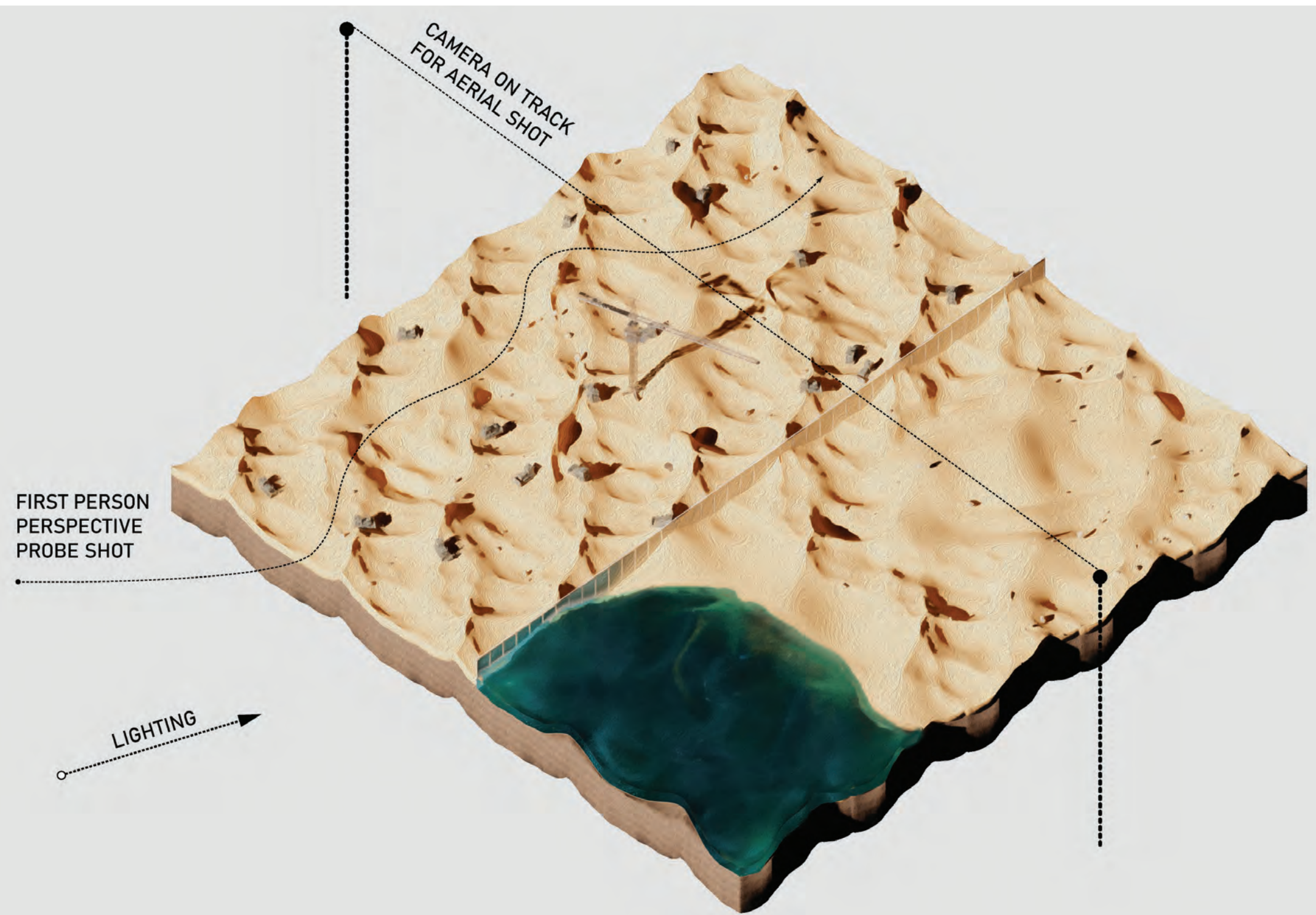
Sandmining Site Model



Interior Tower Model



Sand Dune Model



First Person Shot Diagram

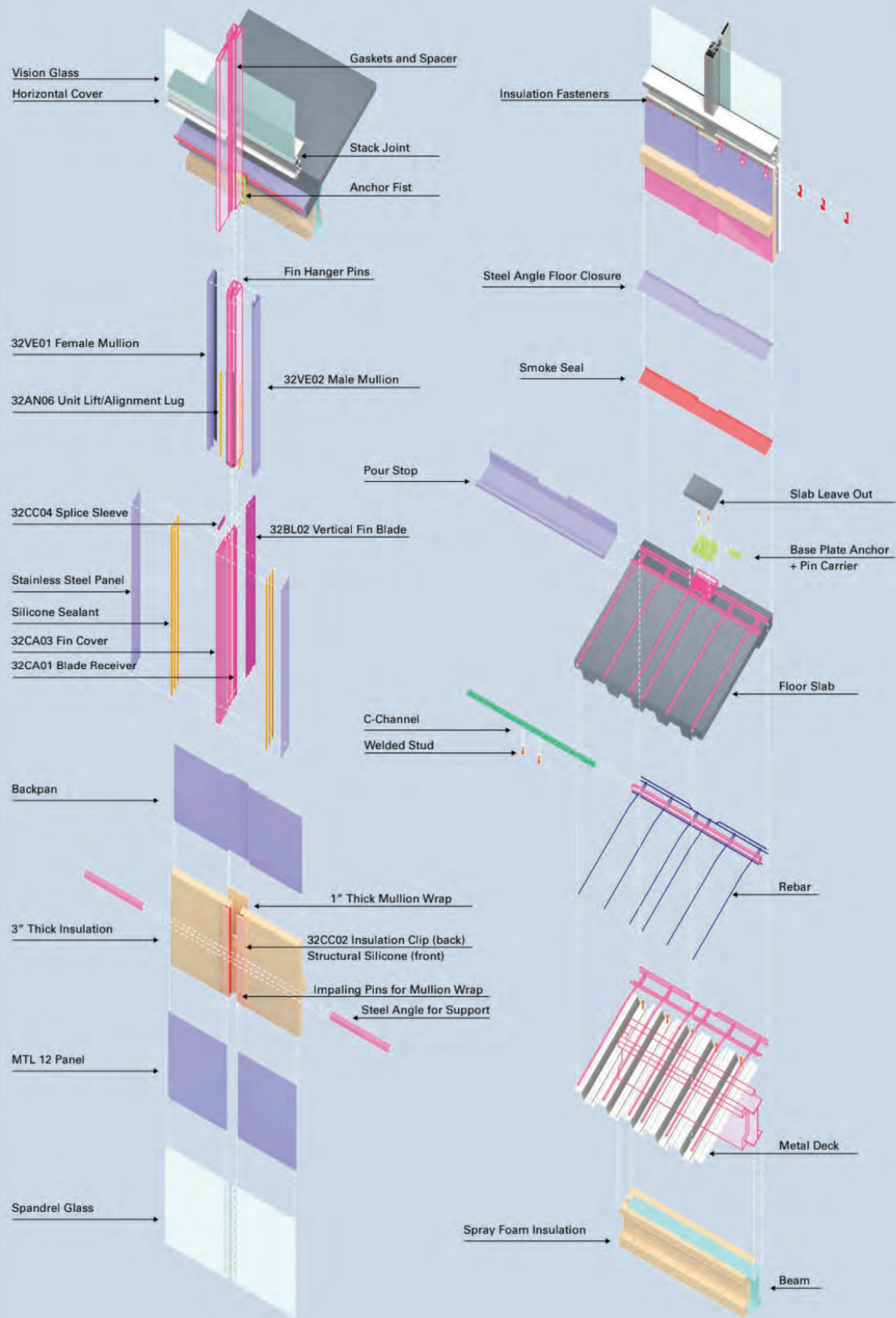


Behind the Scenes
Filming First Scene

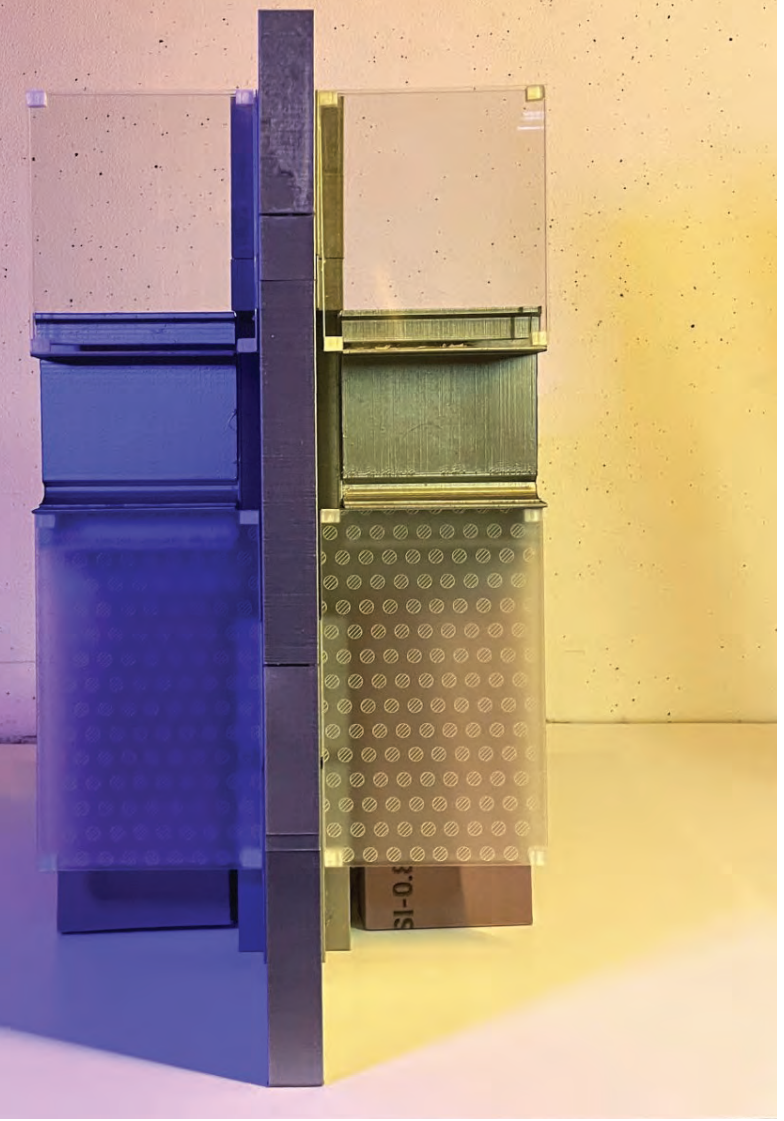


▶ 3:28 / 4:07 CC HD

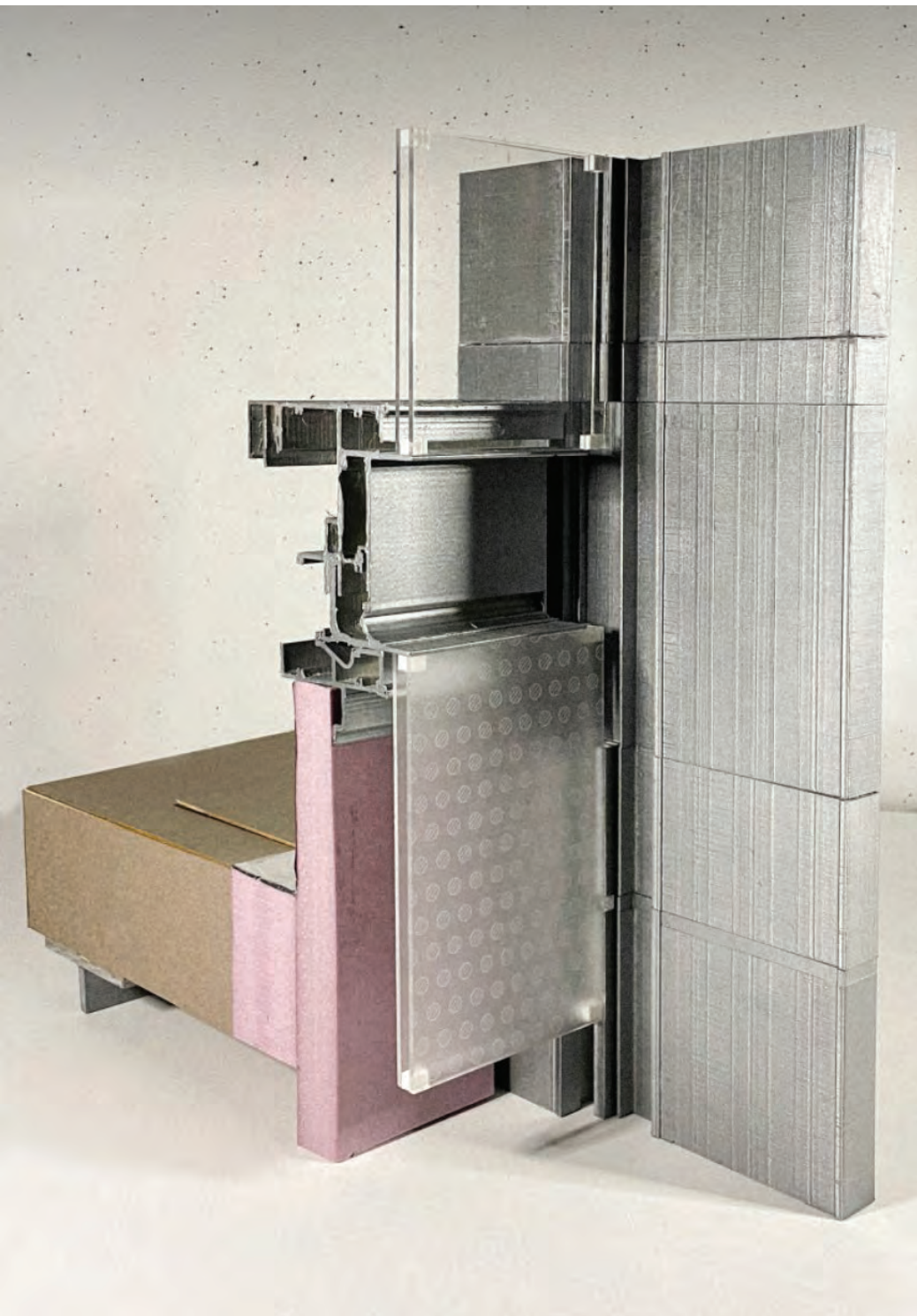
Perfidy
Video Shot



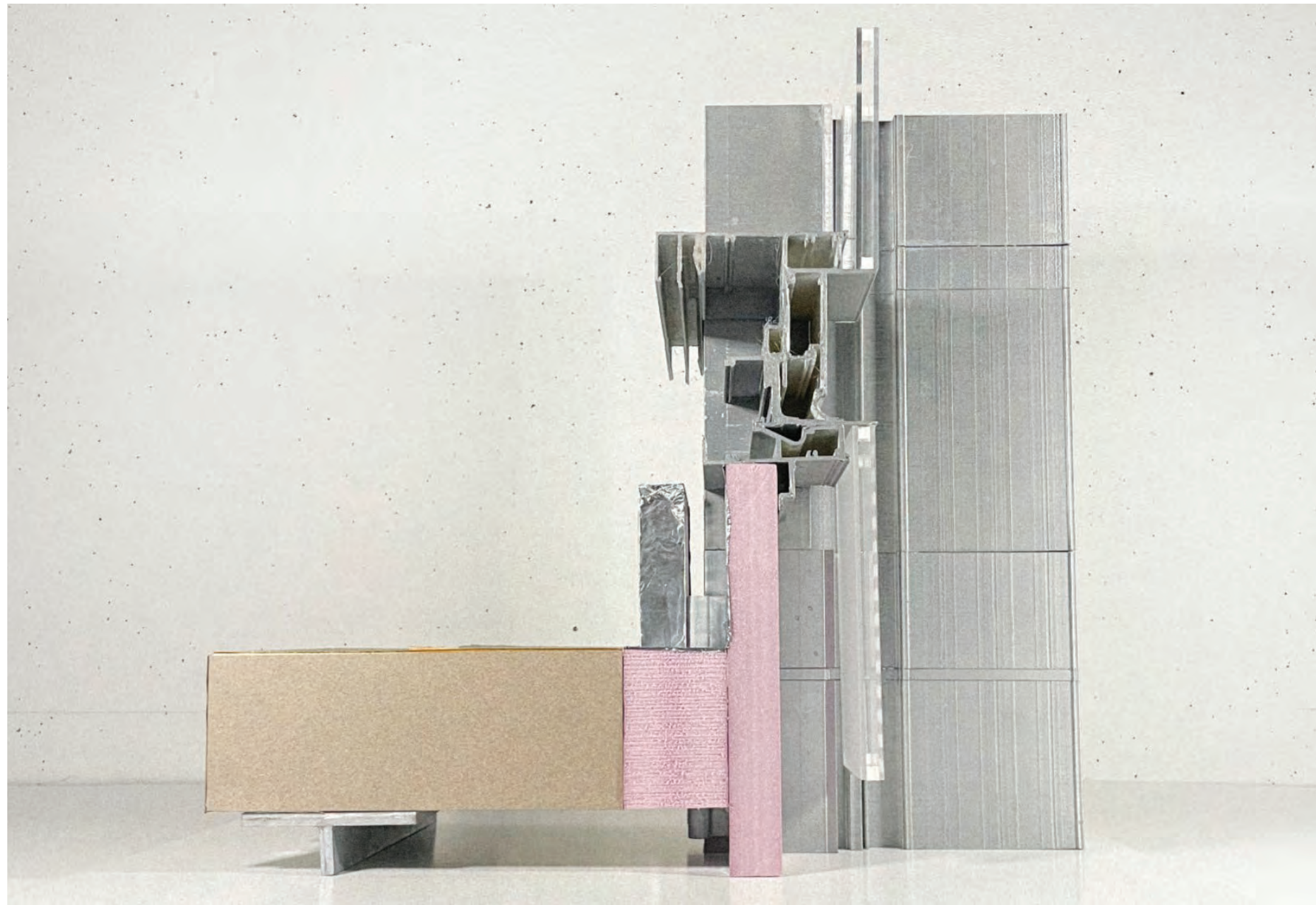
CURTAIN WALL



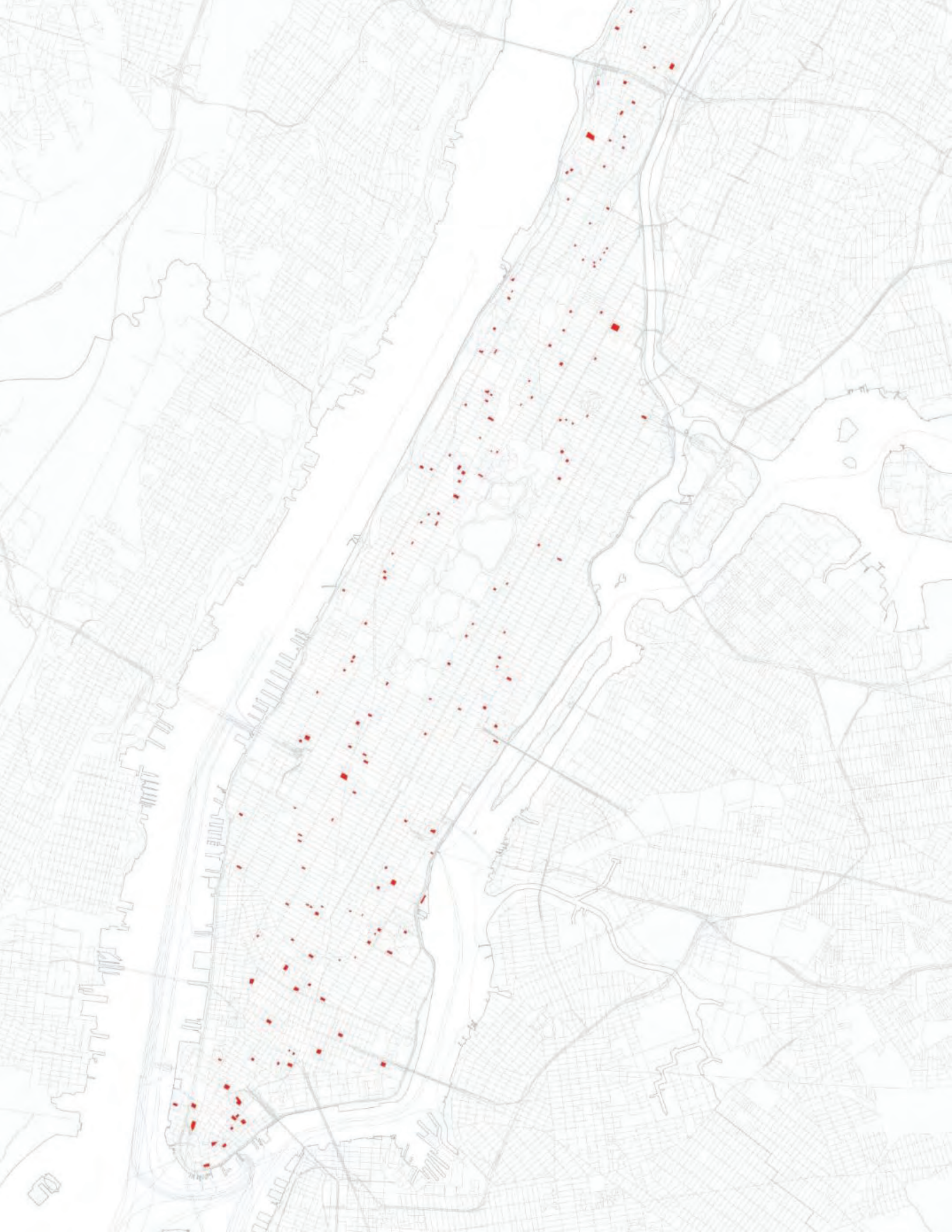
Our goal for our drawing was to unpack the way pieces come together to form the four way intersection. We chose to explode the two views shown here in order to reveal all the small details of the fasteners and connections. Objects are represented in color to establish a link between materials and the relationship between the objects. Some are called out as well to emphasize how they fit into the large scheme. By drawing the curtain wall in this way, we were able to understand how the pieces stack. Starting on the left column, this front view captures the details of the mullions and fin. If we zoom in, we can see that the male and female mullions come together to form the connection and are joined together by anti-buckling clips. The components of the mullions are shop assembled. Pieces of the vertical mullions are attached to each other through a unit lift/alignment lug that is bolted through. The stack joint meets the vertical around 2' off the floor. The fin is shop assembled as well. A fin cover is attached to the blade receiver and covered with a stainless steel panel. Silicone sealant is placed in between the fin cover and the panel. This is all attached to the vertical fin blade with fin hanger pins, and the connected to the vertical mullion in field with anti-lift pins. Starting with the slab, the metal deck is bolted to the beam and the rebar and pour stop are prepared for the concrete pour. The floor slab is then poured, leaving a C Channel, which is fabricated off site, for the anchor, and once dried is installed. The pin carrier attaches to the hook anchor and fits into the anchor fist which then receives the vertical mullion and is bolted three times on each side. Before firesafing, the extent of the slab leave out is filled in and the smoke seal and steel angle floor enclosure are installed on top to prep for the finished flooring.



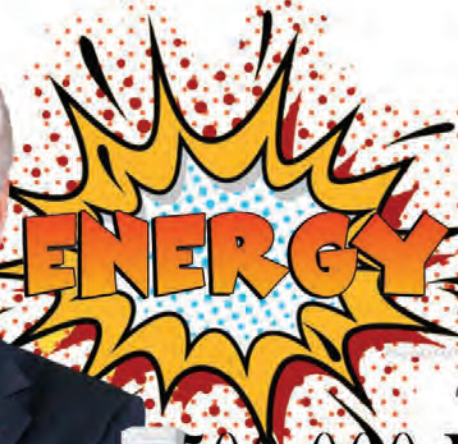
Commercial Curtain Wall Assembly



Commercial Curtain Wall Assembly



POST-POST OFFICE



"This is the first-ever national investment in EV charging infrastructure in the United States and is a critical element to address the climate crisis and support domestic manufacturing jobs."

"This Bipartisan Infrastructure Law I signed two months ago unites us around things we all depend on."

"Everyone agrees the postal fleet needs to be replaced. Foster says electric vehicles would cut air pollution, especially in places already suffering from bad air quality. Charging stations at postal facilities could also provide a network for public use and help the Postal Service with additional revenue."

\$7.5 Billion

500,000 EV CHARGERS

Data Types



217,000

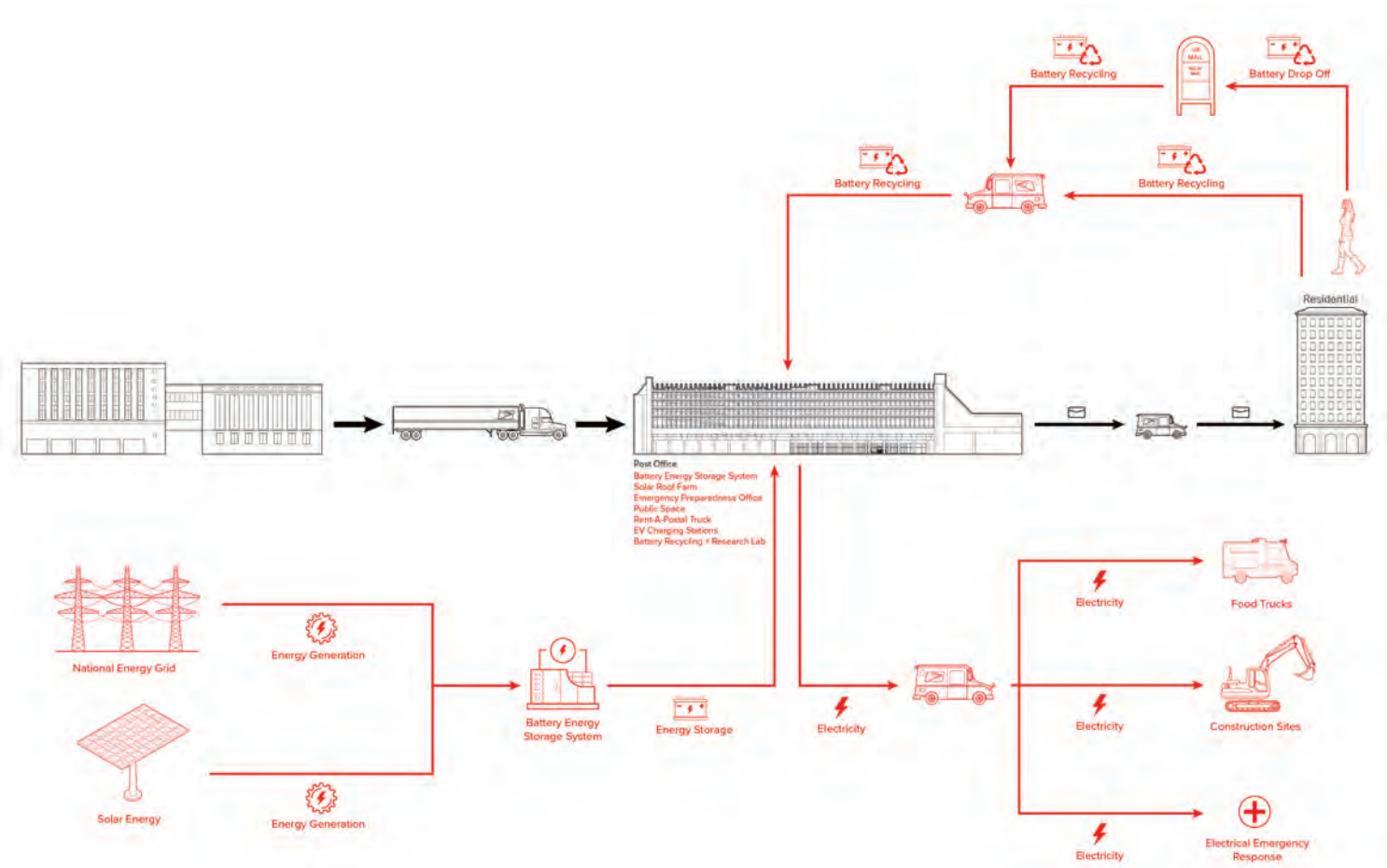
"This hulking white postal truck is among more than 140,000 on the road that get an average of 8.2 miles to the gallon."

Since its inauguration in 1775, the United States Postal Service has seen an immense evolution in the mail delivery service. However, recently we have seen a massive push in a large-scale shift toward the use of electric and renewable resources. The Bipartisan Infrastructure Law recently passed by President Biden plans to invest \$7.5 Billion to build a national network of energy and the USPS has committed to make 40% of its new trucks electric by late 2023. However, the progression of electrification means a larger production of lithium ion batteries which brings up issues regarding long-term sustainability and mass production of the battery. Energy storage is becoming a necessity for cities, however, space for these systems is becoming scarce. In times of emergency, how can the USPS leverage its upcoming infrastructure of electric vehicles to become a key role in this system? Can the USPS become a space for energy storage and emergency preparedness planning to enact during times of energy emergency? Relay boxes will serve as a battery recycling drop off box that USPS drivers can pick up during their routes. The new USPS Electric Vehicle can be rented by locals when vehicles are not in use and can be repurposed as generators to power small food trucks, construction sites, and more. In an emergency situation, the USPS Electric Vehicles can act as a roaming generator around the city, deploying energy at the ready. In order to support these newly implemented services, the building must become a working machine to support the mission and incoming infrastructure of the USPS, generating and storing energy for its day to day activities. However, in situations of emergency, the building's stored energy can act as a microgrid to deploy readily available energy, planning for unplanned times of emergency response.



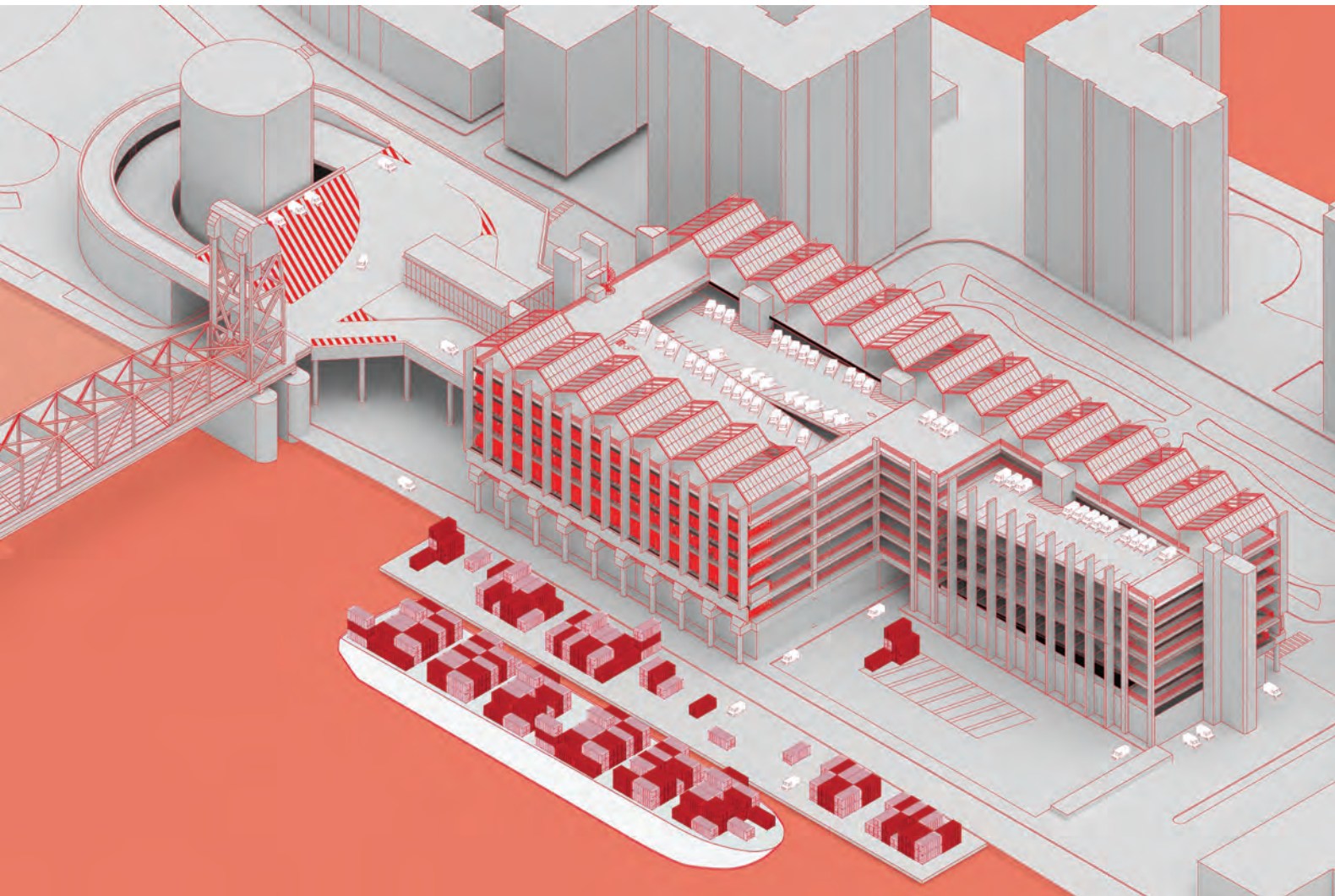
Context Site Plan
Roosevelt Island, NY

Scales of USPS Intervention
Mailbox / Car / Building

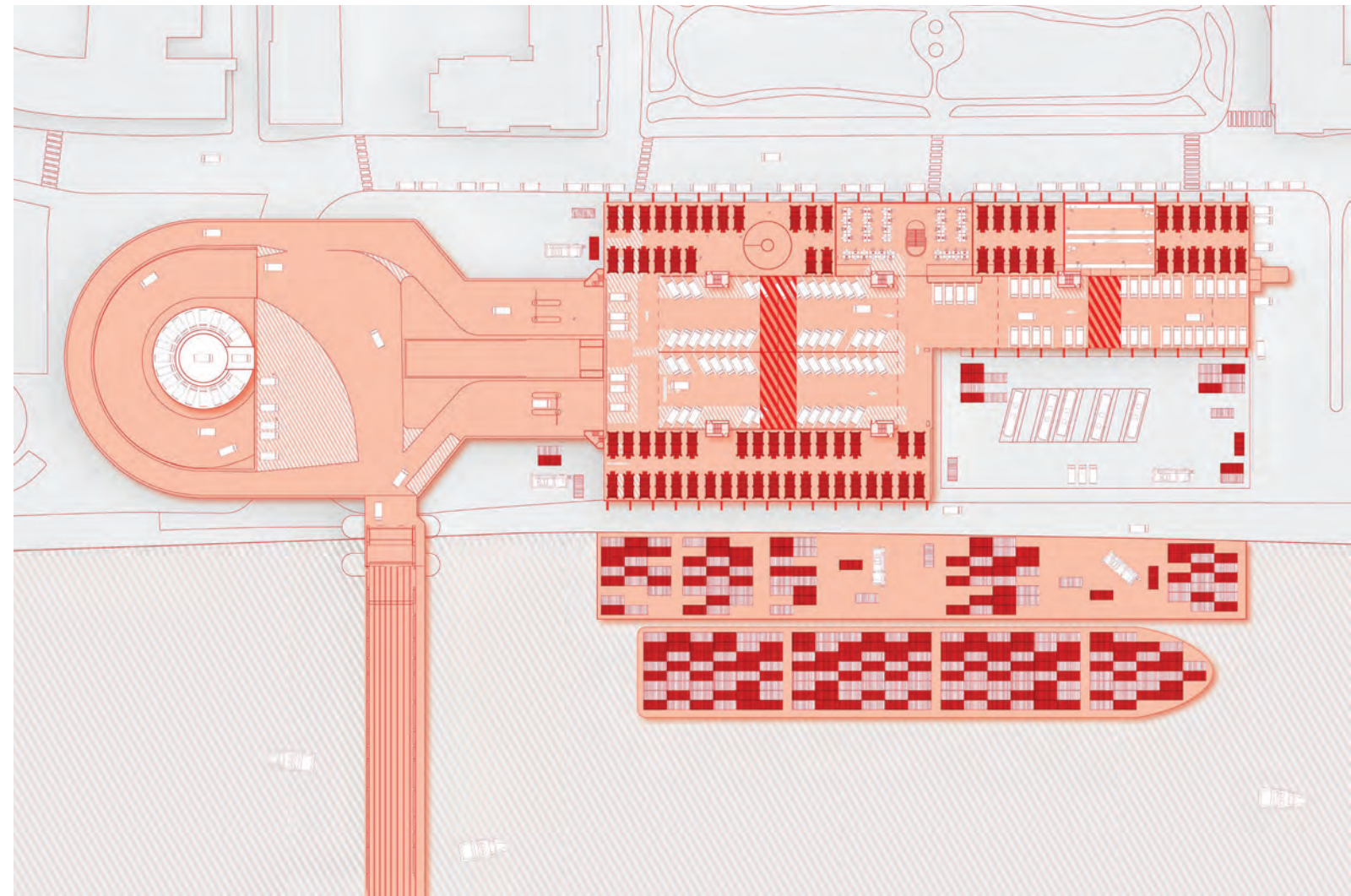


Infrastructural System Diagram
Electrification + Emergency Response

Building Axonometric
Motorgate Parking Garage



Third Floor Plan
Motorgate Parking Garage



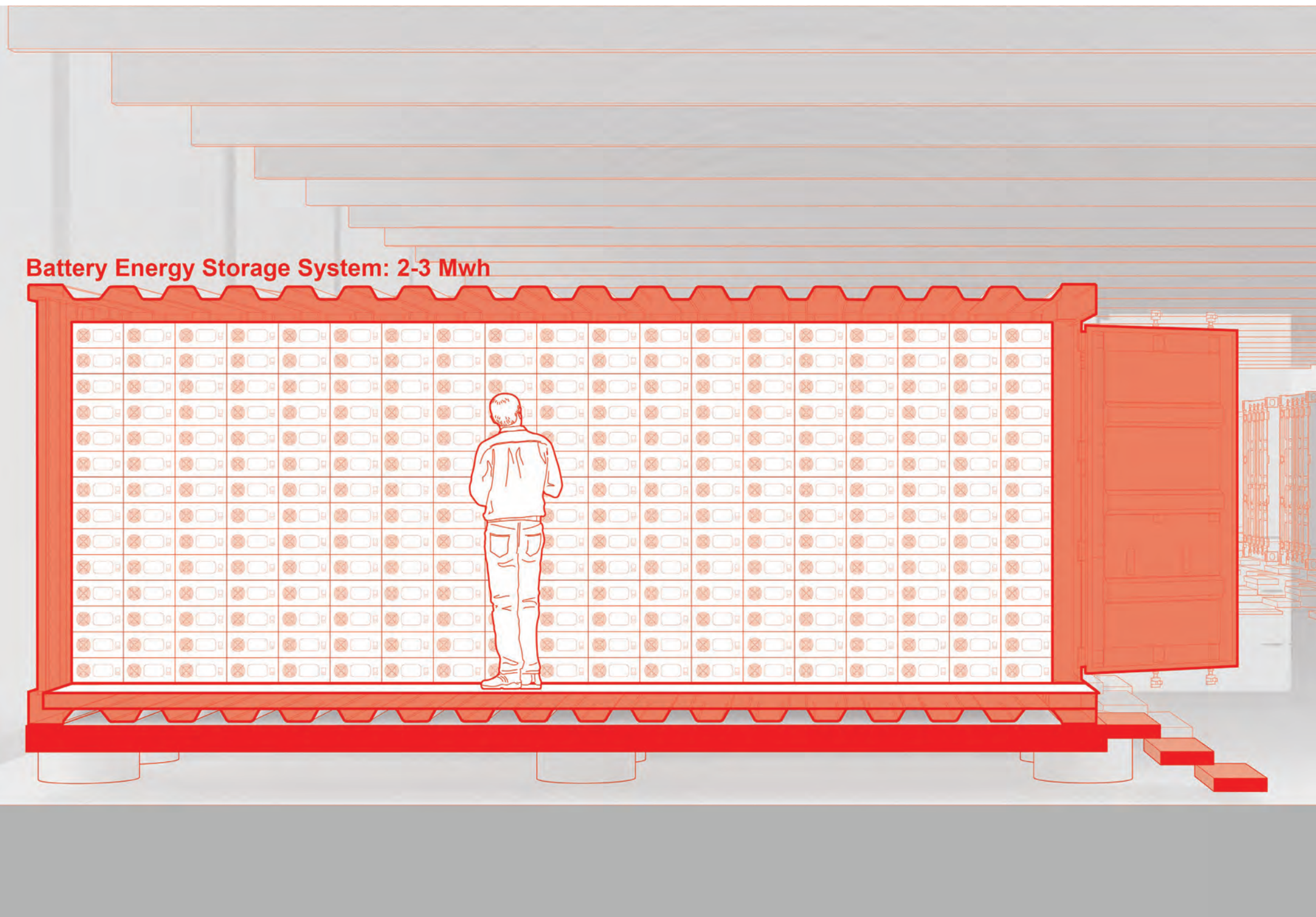
Programmatic Section
West Wing
Day to Day



Programmatic Section
Central Core
Day to Day



Programmatic Section
Central Core
Emergency Response



Battery Energy Storage System: 2-3 Mwh

Battery Energy Storage System (BESS) Section
Motorgate Parking Garage



Solar Panel
400 watts

Photovoltaic Curtain Wall
10 Kwh

Solar Fin
24 Kwh

Building Material Axonometric
Motorgate Parking Garage
Photovoltaic Glass + Fins / Solar Panels

**JOÃO
FILGUEIRAS
LIMA "LELÉ"**

and

**LUIS RAMIRO
BARRAGÁN**

a comparison

by **Carley Pasqualotto**
&
Sky Zhang

LUIS VS LELÉ

We are interested in examining the ways in which locality of material and construction methods influenced the development and expression of modernist housing in Latin America between the 1940's and 1980's. The scope of our focus will include: the interplay between architectural ambition and the limitations imposed on them by material particularities of the region and technological constraints; ways in which local materials informed style and form; and the evolution of construction and material use through time. The focus of our investigation will be on the work of two architects: Mexican architect Luis Barragán and Brazilian architect João Filgueiras Lima (Lelé).

This book is thematically organized. Different sections will approach the architectural comparison through different lenses.



CASA BARRAGÁN

Casa Dos Arcos: Nivaldo Borges Residence Brasília, DF, 1975

In 1975, Lelé was commissioned to design a residence for Nivaldo Borges. During the commissioning of the project, Nivaldo Borges expressed to Lelé that he desired his home to be quite large, a place where he could gather his family on the weekends. Additionally, Borges asked Lelé to design the home to accommodate certain eccentricities, such as a space to contemplate his passion for cars and cinema, a mechanical workshop, and a theater room that could seat up to 50 people, where all programs would face the central reflecting pool.

Nivaldo Borges's home, known as Casa Dos Arcos, resides on a beautiful, vast landscape in an exclusive residential neighborhood in the city of Brasília. The home is spread out on a smooth topography, enticing one to approach its arched demeanor. However, the absence of a gated boundary confuses the user on how they should enter the home. Lelé intentionally wanted the arrival of the home to feel unknown, allowing the user to be invited to a complete promenade and provoke confusion. Upon entering the home, you are approached by a grand yet discrete lobby with nearly eight-meter-tall ceilings where the space is reinforced by its solidarity. Paying close attention to this, we can begin to understand the result of Lelé's intention which is to focus the core values of the family on the central living space of the resident.

Casa Barragán

Cueramaro, Mexico, 1948

This is personal residence designed and built by Barragán in 1948 at 14 Calle Francisco Ramirez in Mexico City. Originally designed for client Mrs. Luz Escandon, Barragán ended up moving in himself, and there he lived and worked until his death.

In terms of the plan, here Barragán avoided the prescribed order of a rational layout. His plans emerge from a sequence of rooms that are neither linked to an axis nor fit comfortably into a grid, but rather can be better described as a sequence of carefully staged scenes, orchestrated with sensuous responses and associations. (quiet revolution 214) For example, walls subdivide the interior space in such a way as to obscure the view of other surrounding rooms while inside any given space, delivering an effect of discovery, and being lost within the rooms. The organization may be interpreted as a rebuttal to the idea of the Modernist free plan, instead prioritizing the spatial autonomy of each room.



CASA DOS ARCOS

Image of Booklet



JOÃO
FILGUEIRAS
LIMA "LELÉ"

and

LUIS RAMIRO
BARRAGÁN

a comparison
by Carley Pasqualotto
&
Sky Zhang

Cover of Booklet

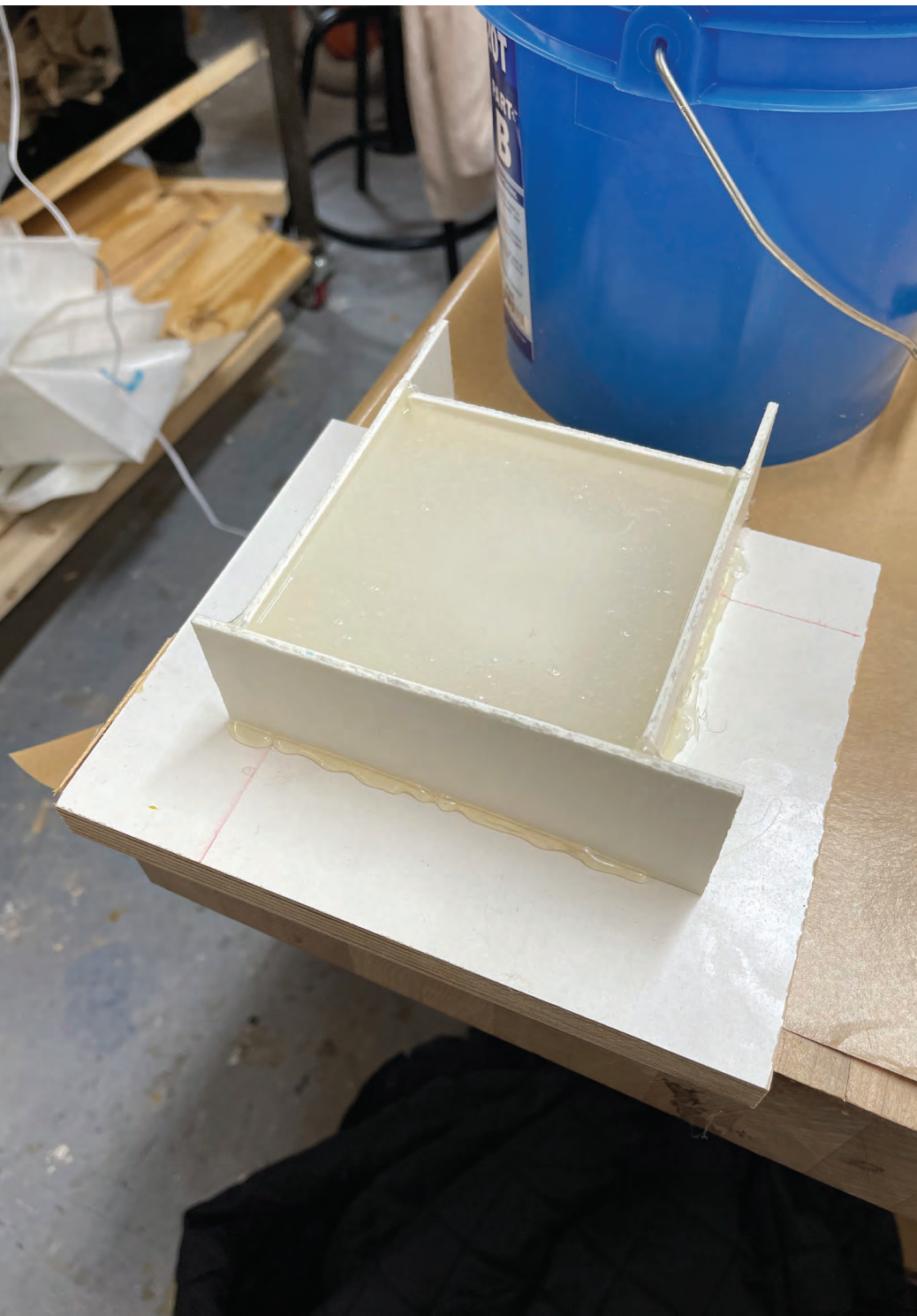


This project dissects the tessellation of a rigid form, the square, to create many organic tiles which can be combined into a nonrepeatable pattern. The tessellation is derived from the overlaps of circles, which create heart-shape forms and dictate what becomes void versus what becomes solid.

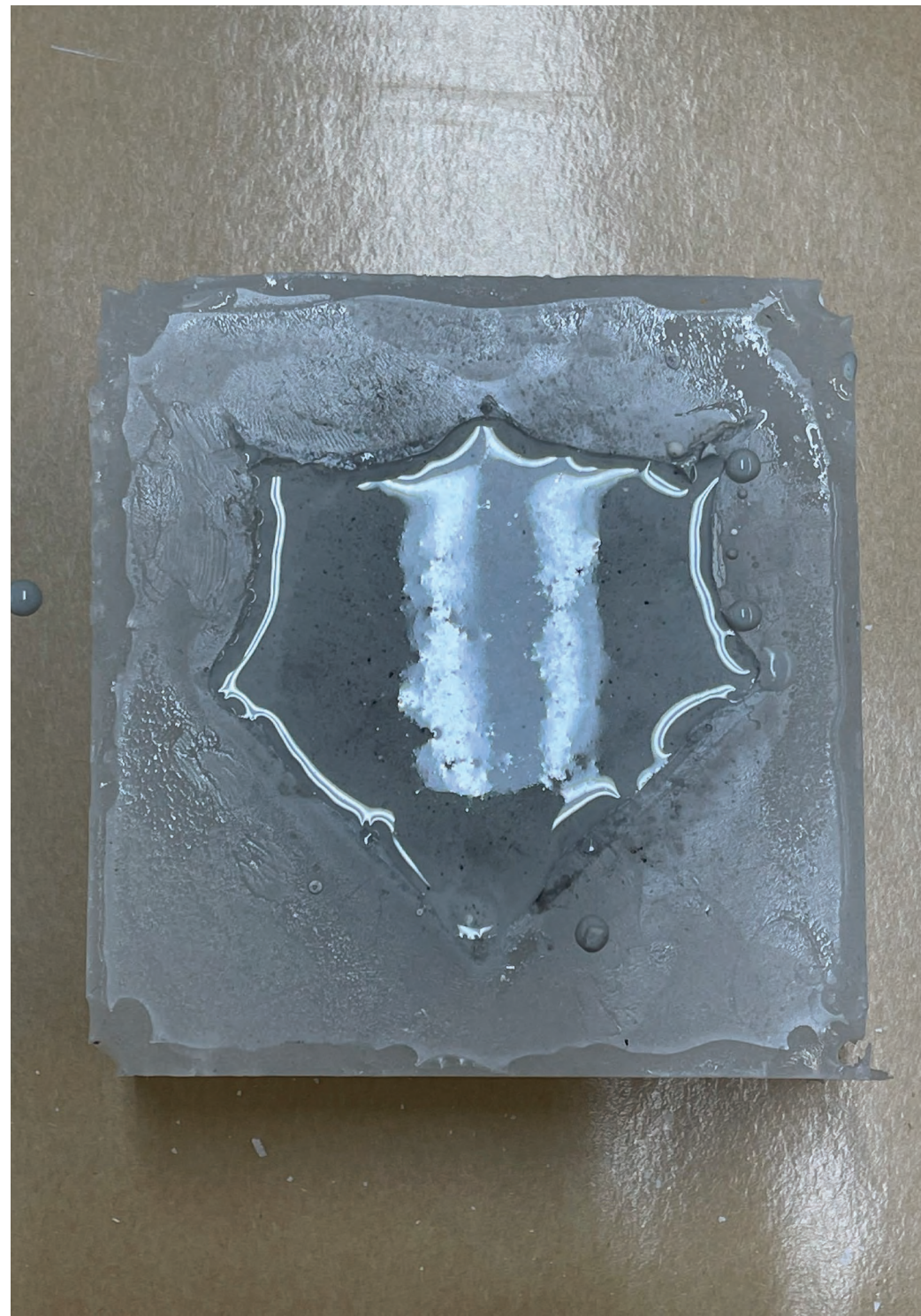
This specific process of tile-making is strategic, taking into account additions and subtractions of the form. Subtraction elements are placed in the mold before pouring to act as a filler for the liquid. Once the rockite is poured and cured, the tile is released and the implanted element is broken off to reveal its final form. Tiles are then combined together to create an endless nonconforming organic pattern, transitioning seamlessly between solids and voids.

HEARTS + BUTTS

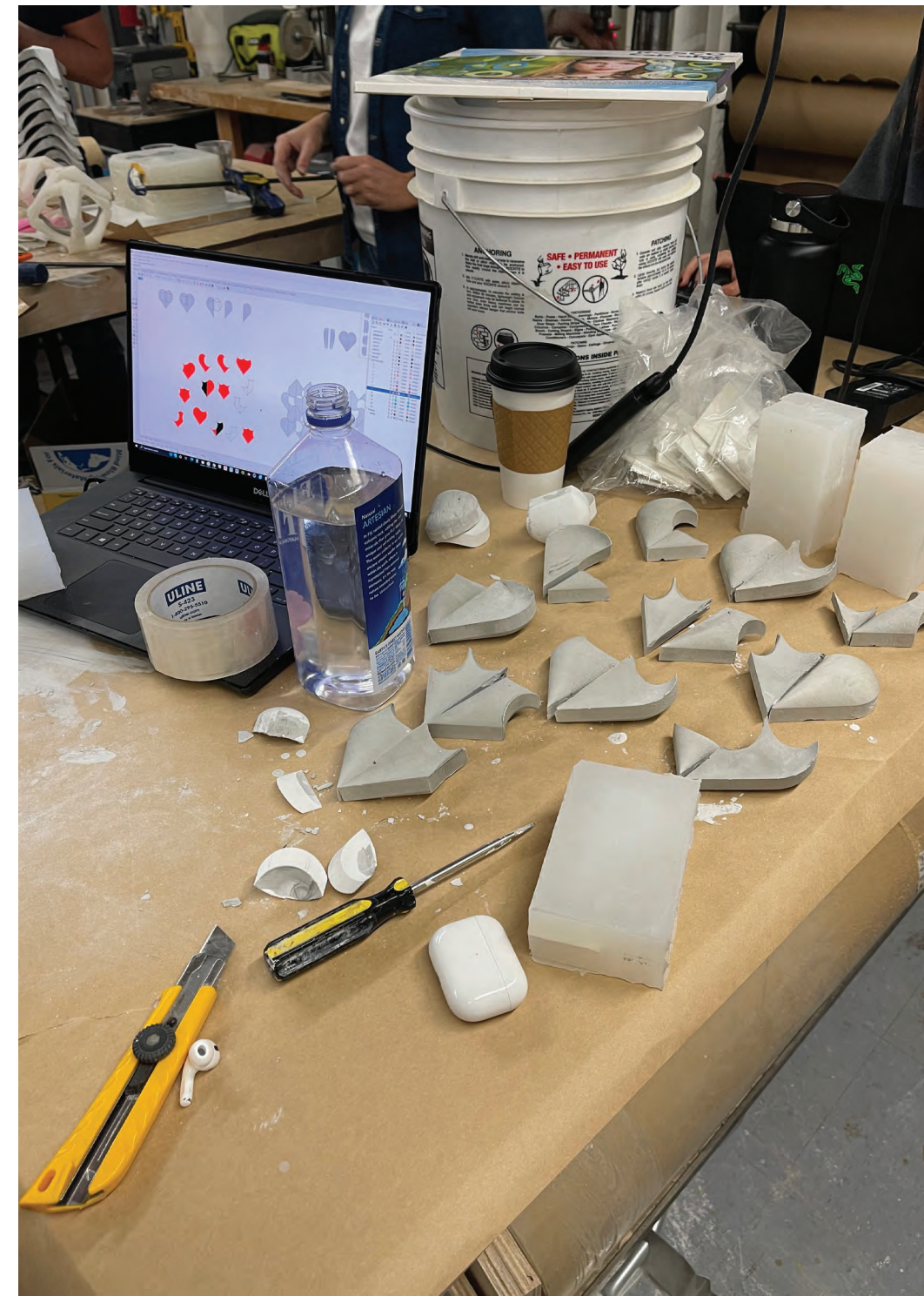




Mold Making Process
Silicone / Hot Glue / Foam Board / Mold Release Spray



Tile Pouring
Silicone Mold + Rockite



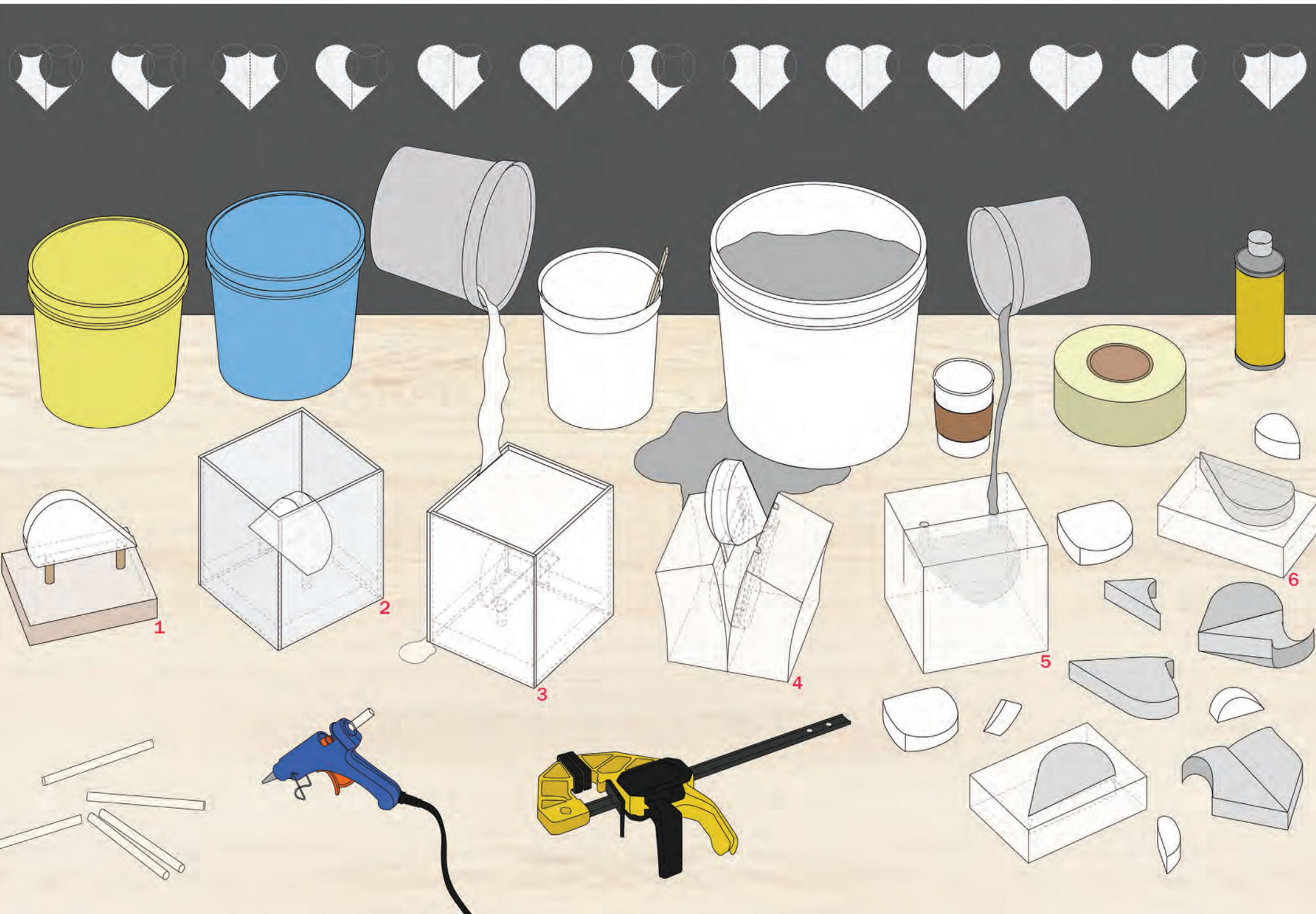
Tile Making Process



Tile Compilation
12 tiles



Tile + Mold Photo



Mold + Tile Process Drawing



Tile + Mold Photo

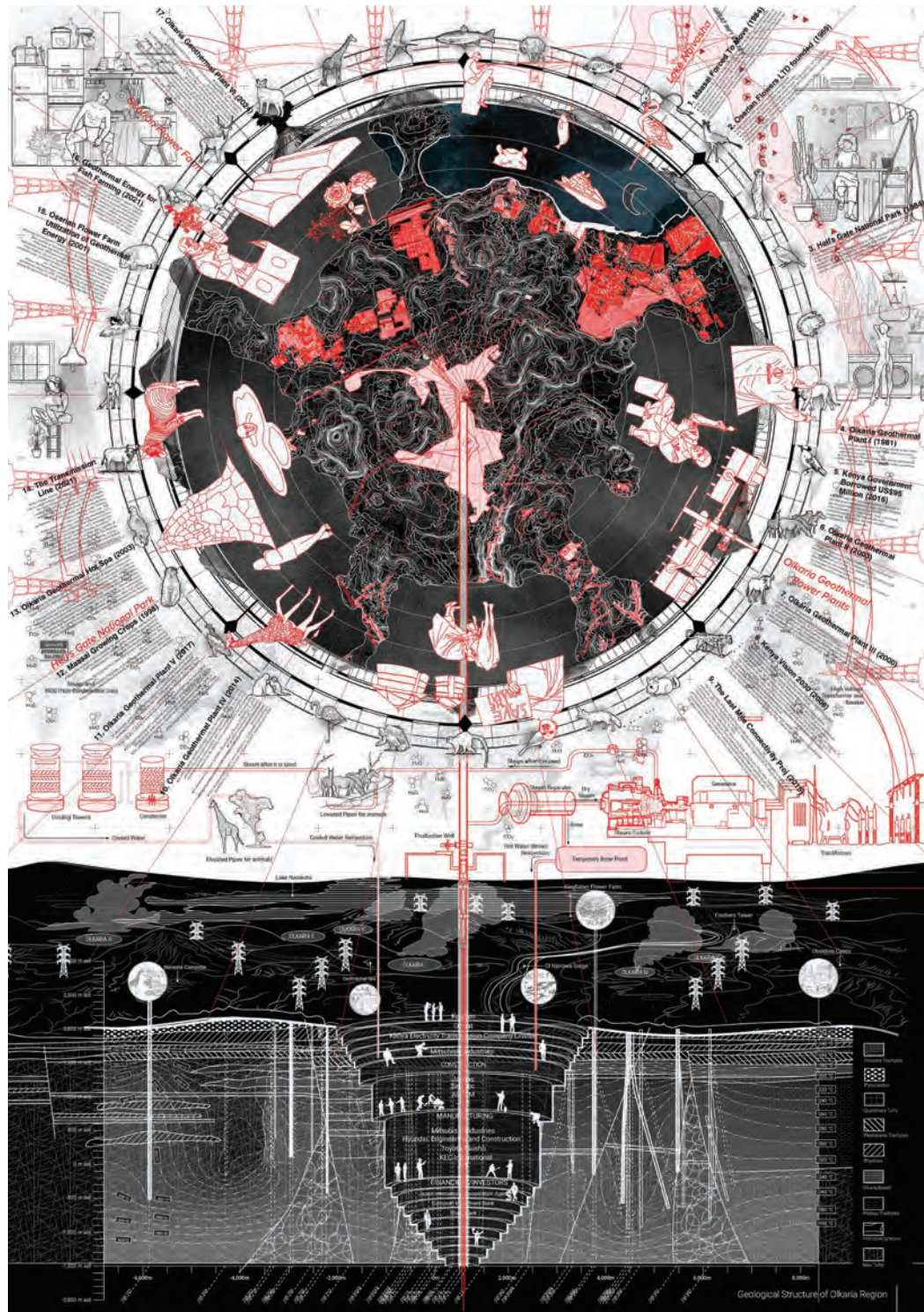


HACKING THE STEAM

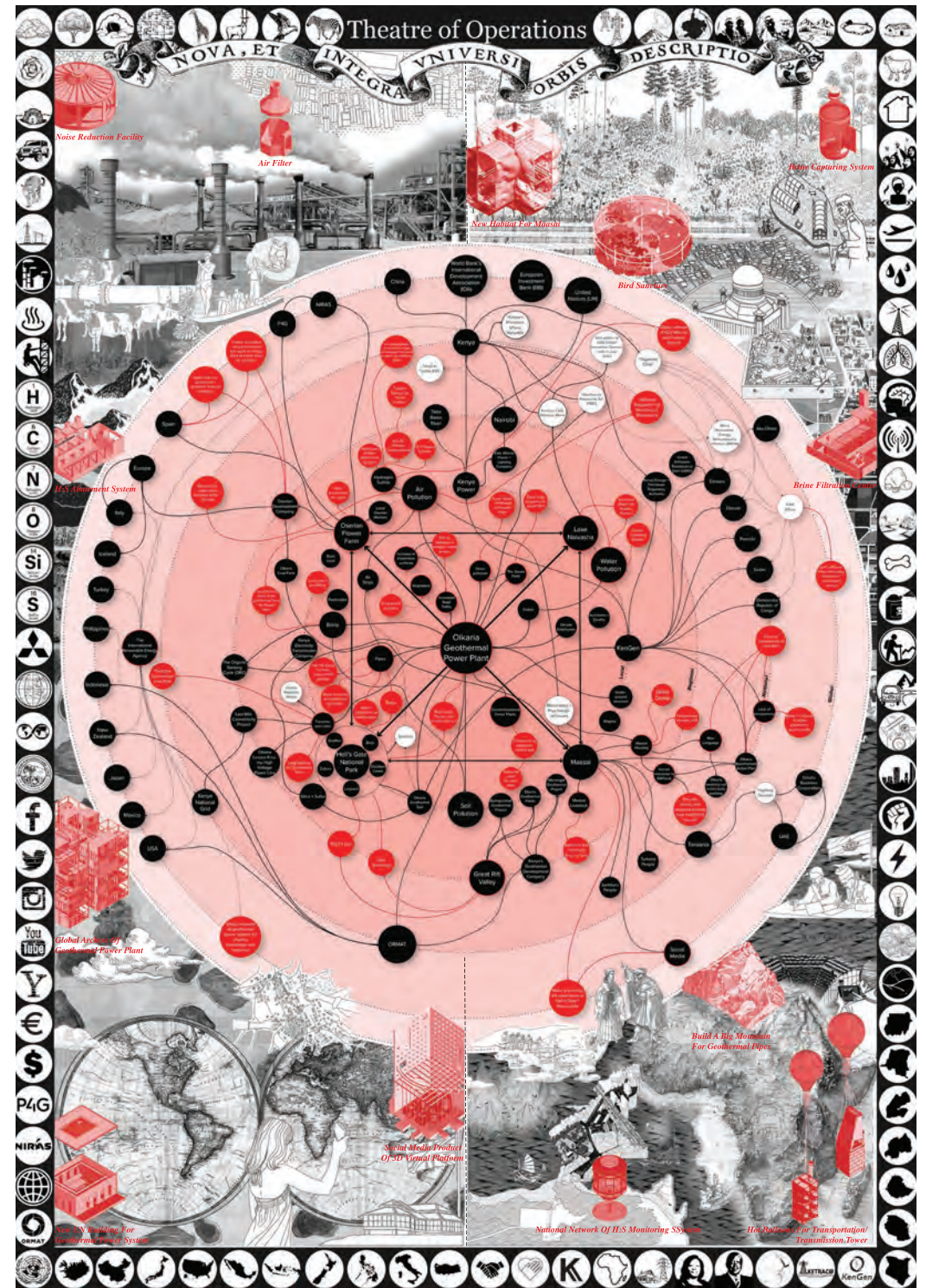


The project focuses on the controversy of the Geothermal Power Plants in Olkaria, Kenya and a design that hacks the geothermal energy to give back to the community and promote environmental justice. The geothermal steam is the major agent of the Olkaria development. Noise, air pollution and habitat fragmentation are decreasing or completely wiping out a number of important animal species at the park, including migratory birds and vultures that are extremely sensitive to noise and vibration. To target the challenges, our intervention takes in two different parts: one at the wellhead, and then the other four along the pipe. The permanent wellhead silencer and water filter will mitigate the noise created by the wellheads and will filter | condense steam to potable water. Individual train carts can provide a space of safe cohabitation for the agents affected by the development. To combat habitat fragmentation and promote environmental justice, our design is strategically devised to live and move upon the existing and future expansions of the geothermal pipes, harnessing the energy that will be used to benefit the local ecosystems of Hell's Gate National Park.

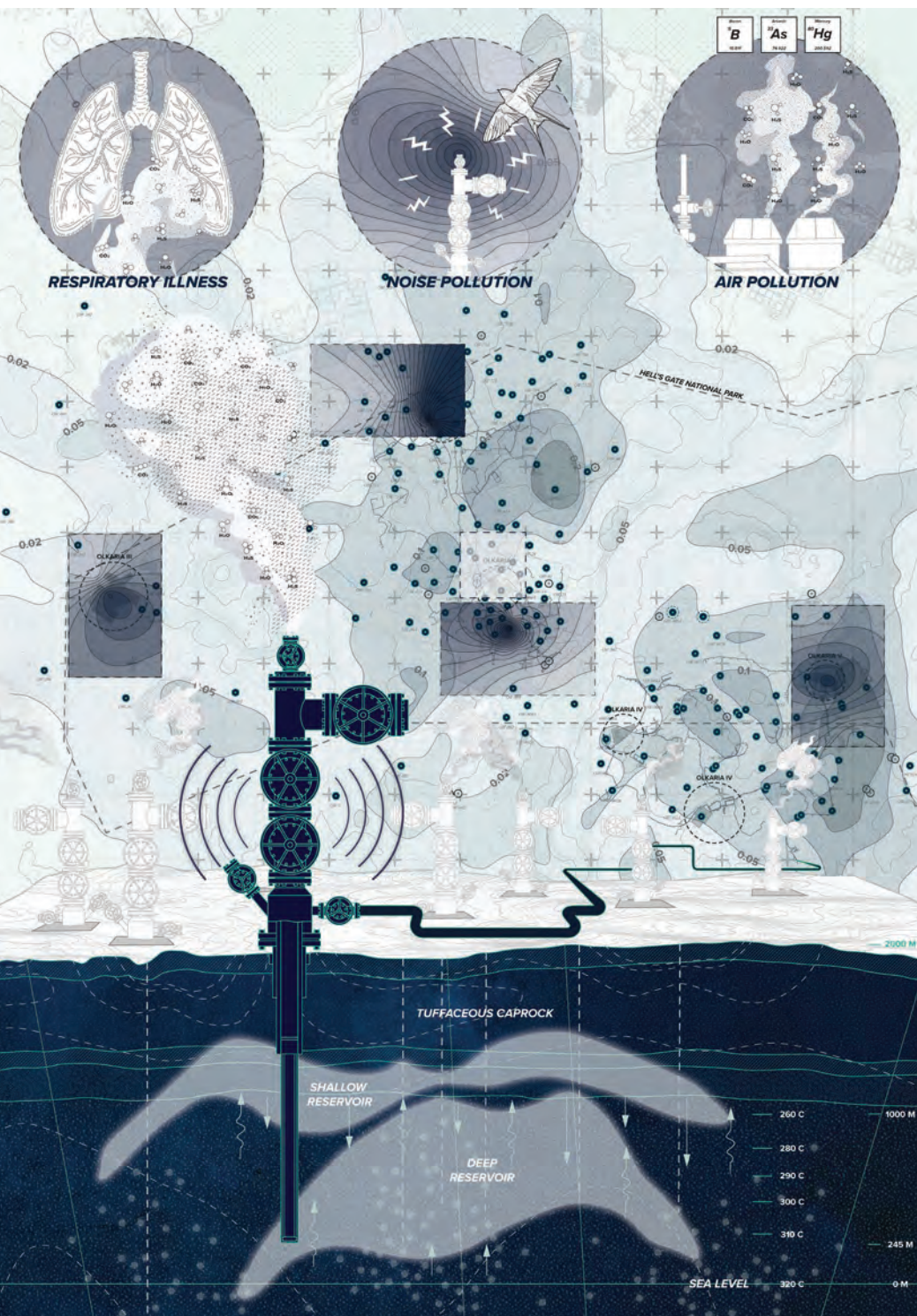
- #Geothermal Steam | Energy | Waste
- #Hacking
- #Habitat Fragmentation
- #Environmental Justice
- #Extraction
- #Reinjection
- #Exploitation
- #Pollution



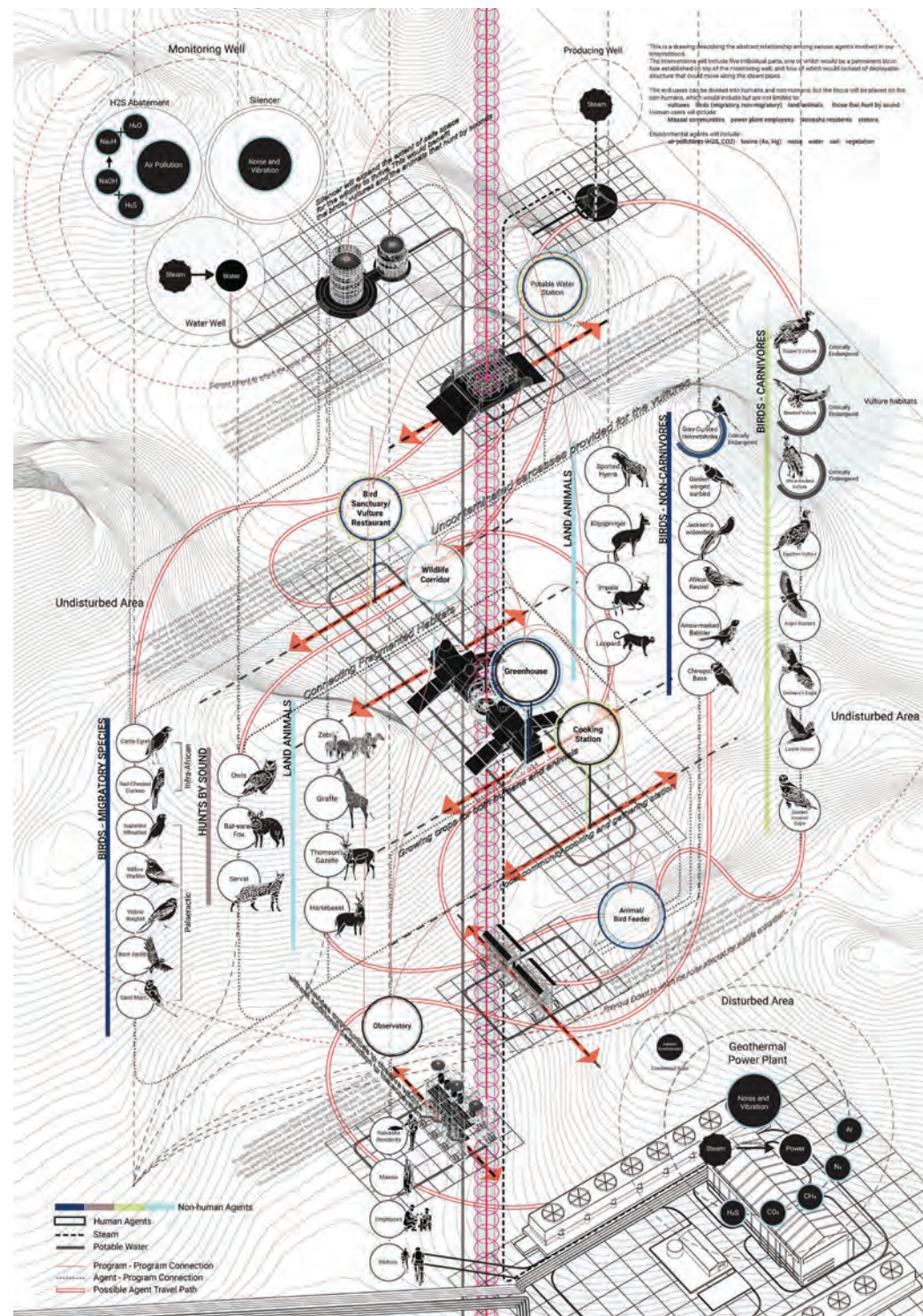
Cosmogram
 Research Analysis Drawing
 of Geothermal Energy in
 Olkaria, Kenya



Theatre of Operations
 Brainstorming of potential
 interventions for Geothermal
 Energy in Olkaria, Kenya



Time + Location Drawing

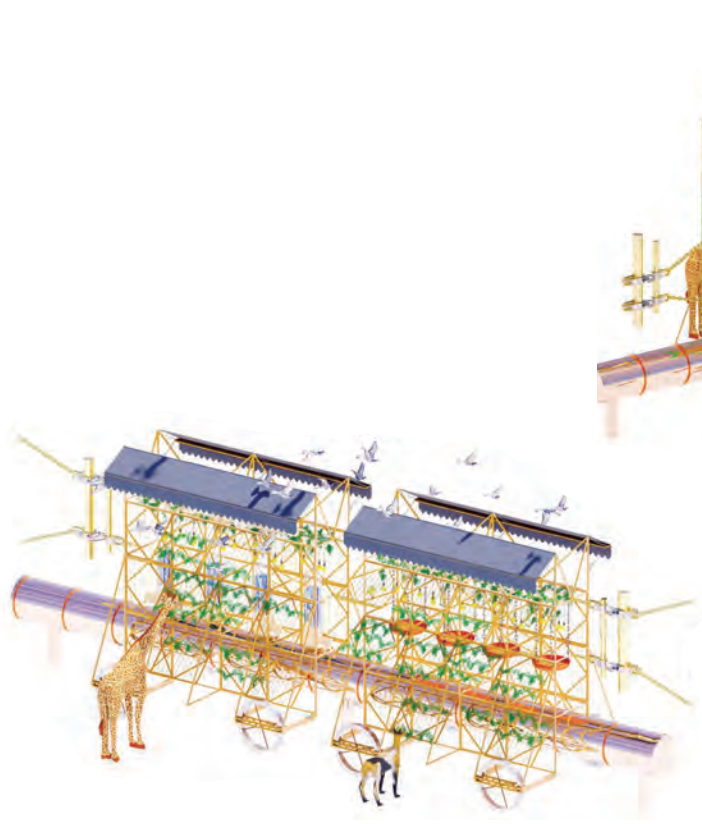


Action Diagram

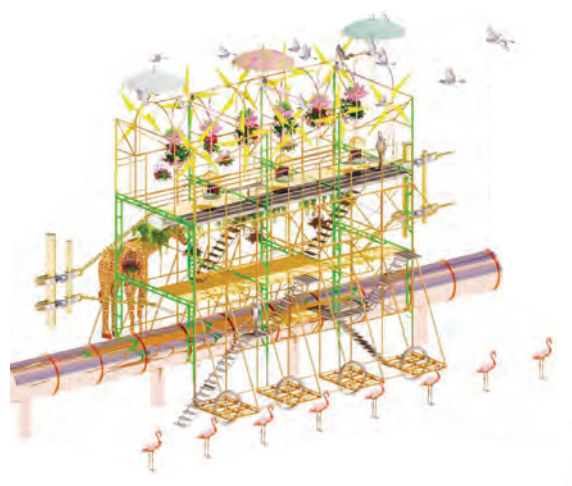


Intermediate Site Drawing

Wellness Cart
Axonometric



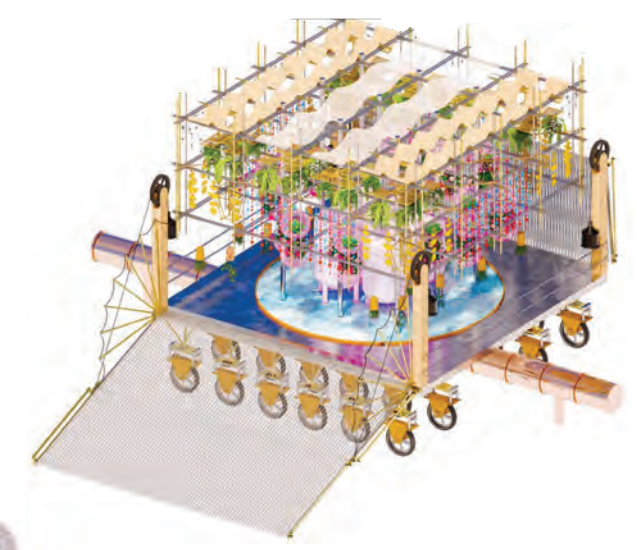
Observation Cart
Axonometric



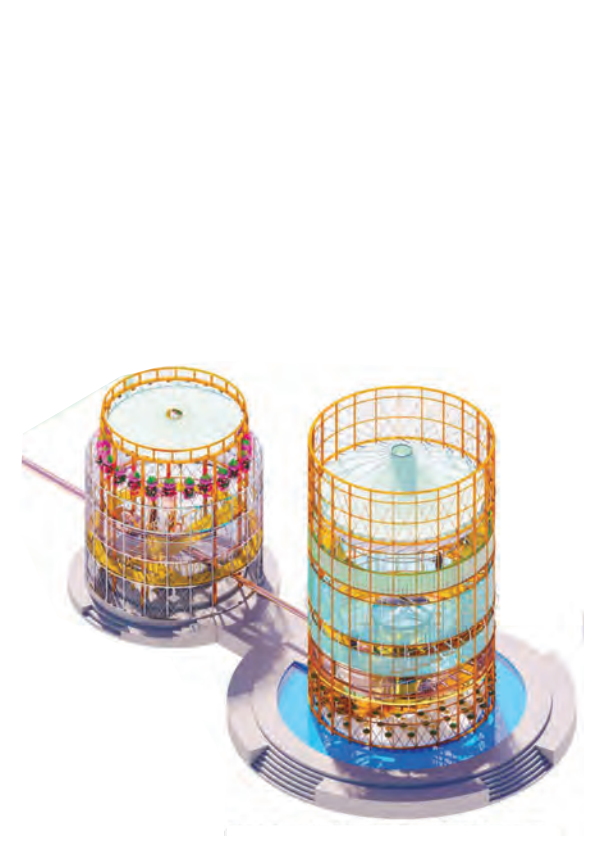
Greenhouse / Cooking / Bird Sanctuary Cart
Axonometric



Water Station Cart
Axonometric



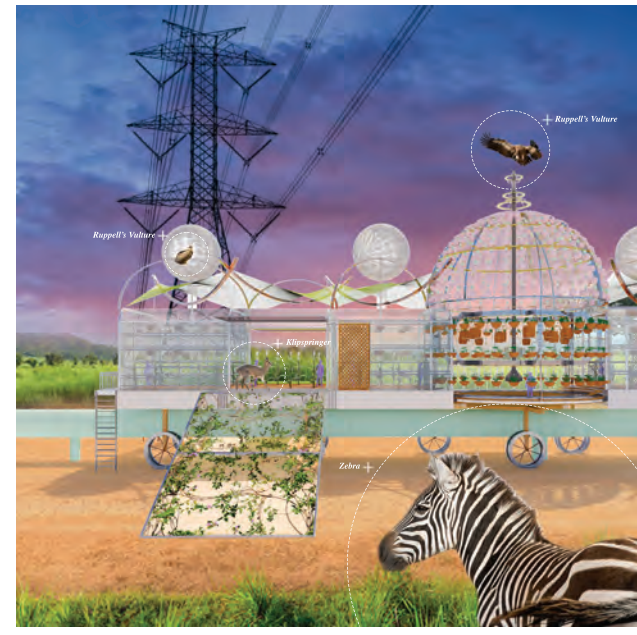
Wellhead Tower
Axonometric



Wellness Cart



Observation Cart



Greenhouse / Cooking / Bird Sanctuary Cart



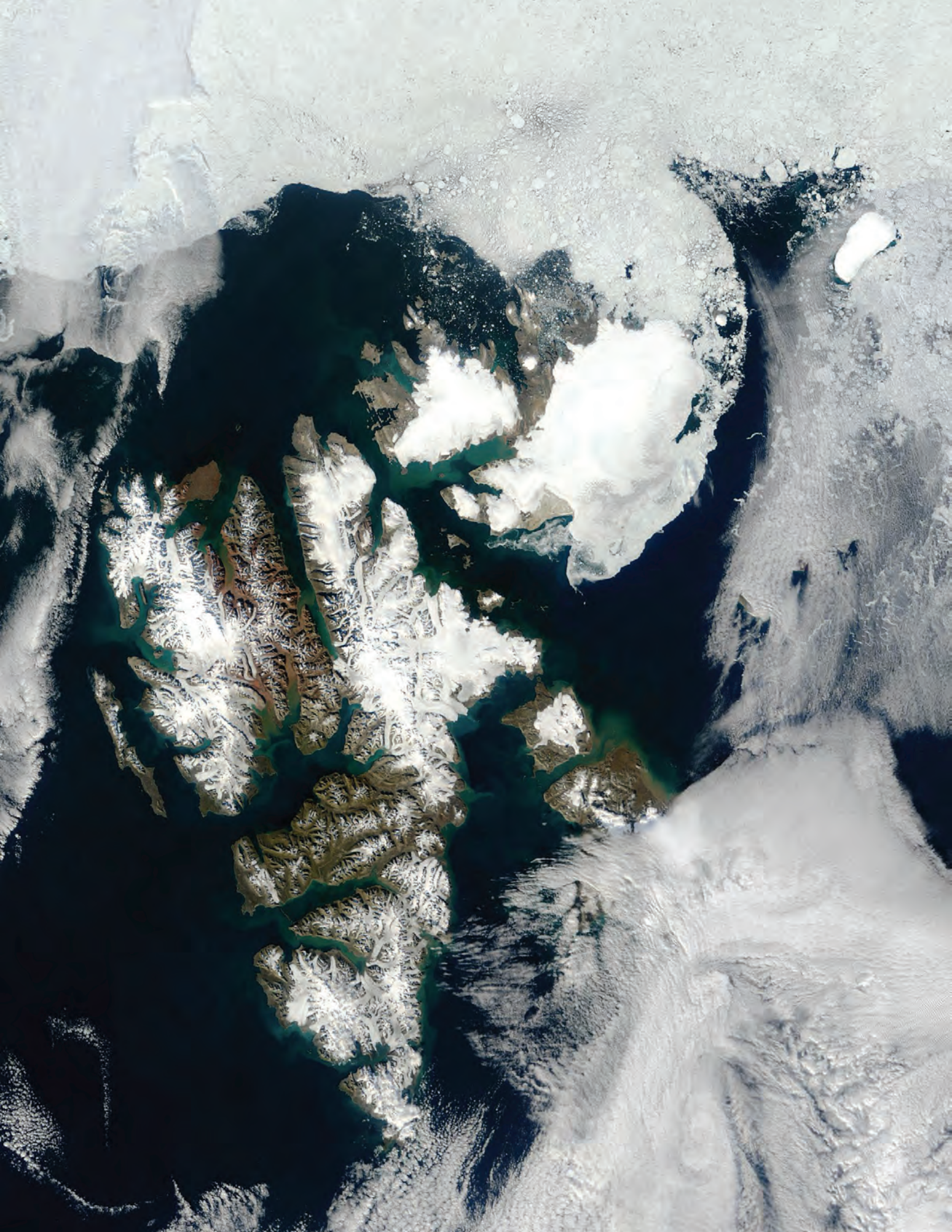
Water Station Cart



Wellhead Tower



Narrative Section Drawing
 Section of geothermal energy in Olkaria
 and ecosystems residing within



SVALBARD



Svalbard is a Norwegian archipelago in the Arctic Ocean, situated between the northern coast of Norway and the North Pole. It is the most northern inhabited place on the planet, with the largest settlement being in Longyearbyen, located in Spitsbergen, and is home to around 1,800 people. In the Arctic, there is a war over resources. As the ice melts more and more, many countries surrounding the Arctic want to stake a claim in Svalbard and utilize its resources for their own purposes. Many people see this as a looming disaster, but for the Arctic Nations, this change means an opportunity; access to a brand-new ocean. The Svalbard Treaty, signed on February 9, 1920, established Svalbard as a free economic and demilitarized zone. The treaty says that any country who has signed the treaty “shall have equal liberty of access and entry for any reason or object whatever to the waters, fjords and ports of the territories”, otherwise saying that any country contracted in this treaty can have its people on Svalbard and can exploit the land for commercial or economic purposes. The land legally belongs to Norway, however, forty-five countries have signed this treaty, allowing these countries to have an economic claim to this land, whether that be “maritime, industrial, mining, or commercial enterprises”. One exception to this rule is that no nation, including Norway, may have military assets on Svalbard.

The project maps three main factors in Svalbard related to time and producing a projective overlay that interrogates how these factors interact in the future, through the lens of a climactic timescale: climate change, industries and resources, and oddities and border anomalies.

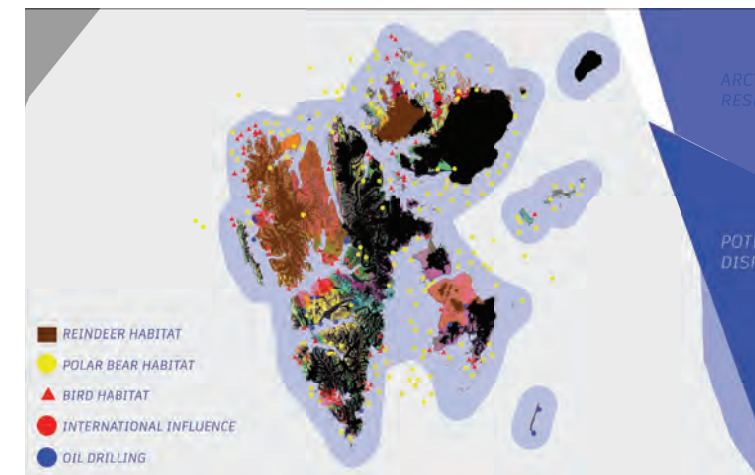
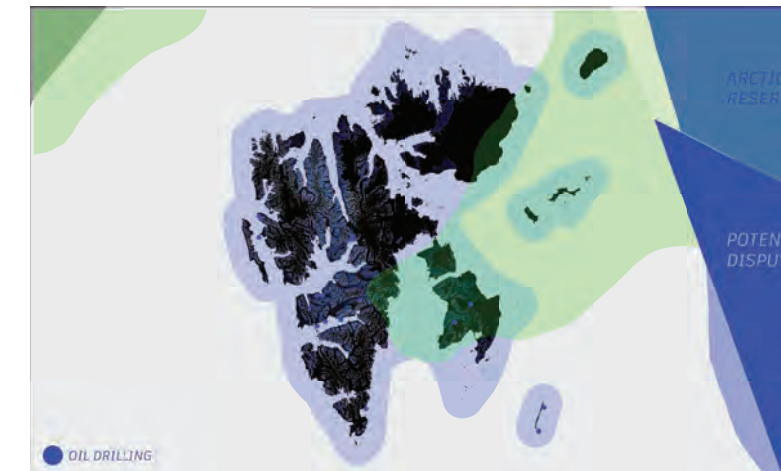
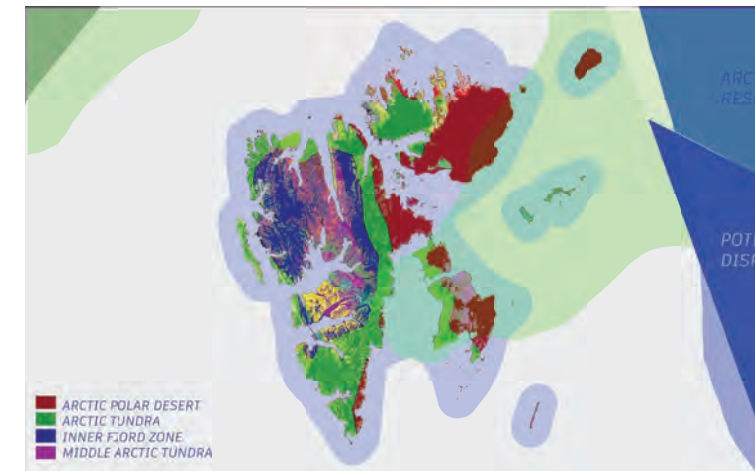


Theater of Operations
 This collage shows the relationship Russia has in Svalbard through a touristic city, Barentsburg

Mapping of Svalbard and Potential Country Disputes



Mapping of International Influences



Mapping of Climatic Regions

Mapping of Geology, Ecosystems + Resources

Mapping of Oil Drilling Resources

Mapping of International Borders + Oil Drilling Resources



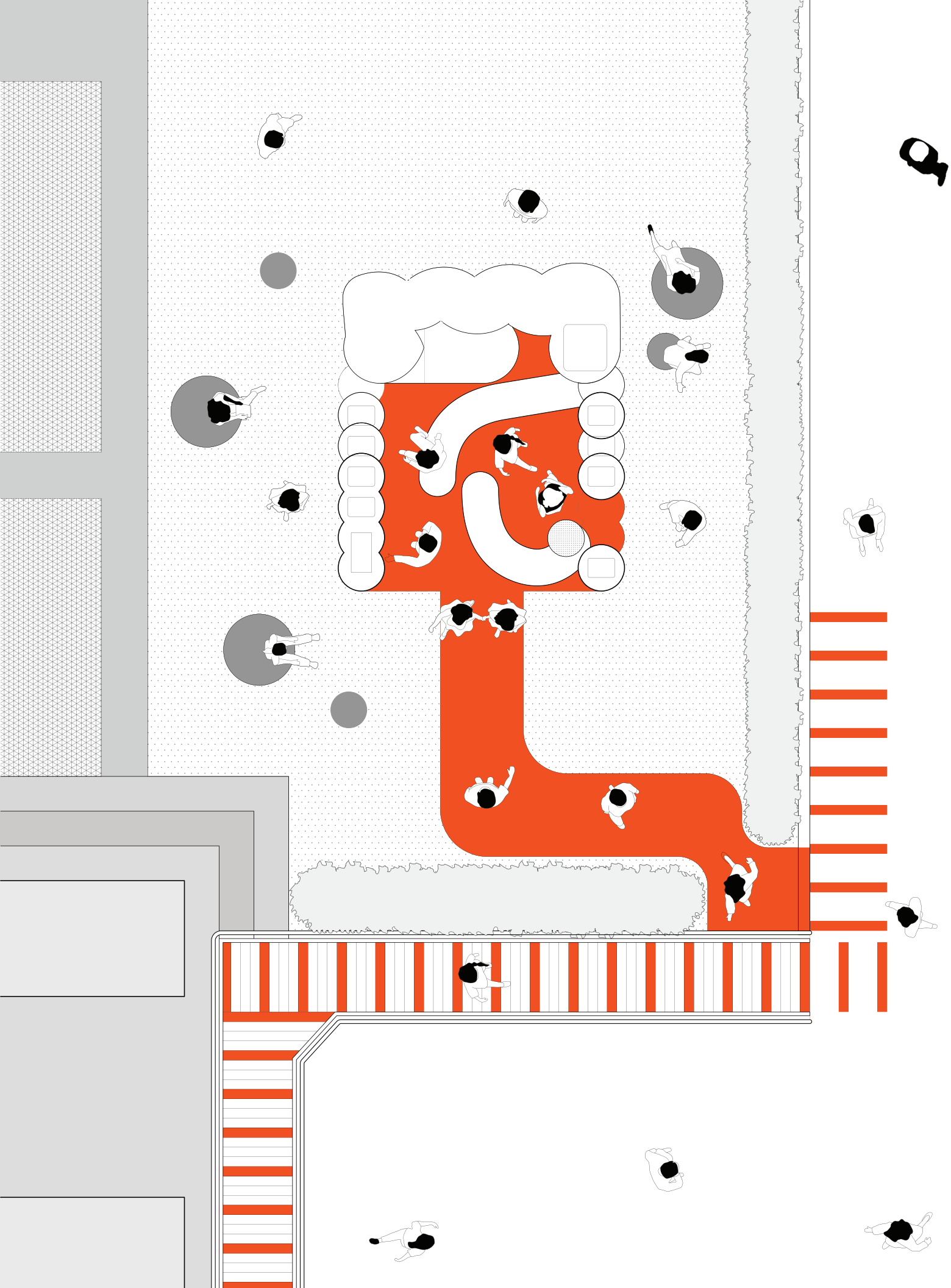
THE HUG PAVILION

Located on the South Lawn of Avery Hall, The HUG is an inflatable, lightweight pavilion that welcomes all members of the Columbia community to rest and recharge, literally. Our pavilion thrives off three photovoltaic panels connected to internal and external systems that allow the pavilion to become a hub of energy. Internally, The HUG is strategically designed to hold up to 1,300 lbs of sand for weight countering, a large PV battery which stores energy from the solar panels and runs the LED light strips and device charging stations. Externally, The HUG acts as a space of reprieve, allowing users to control their environment and unwind from the chaos of school.

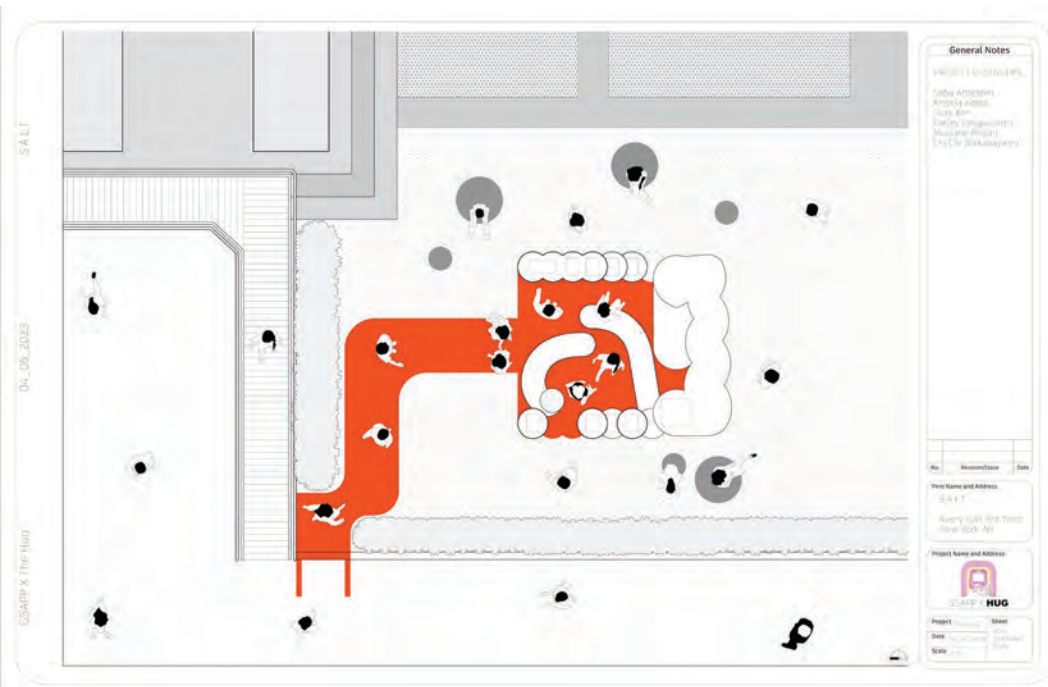
In addition to the functional elements of The HUG, our pavilion also centers around comfort. Worm-like legs meet the ground to become “huggable” pieces for the students, faculty, and families. These legs are filled with recycled foam and donated clothing which will be taken to a local shelter to continue our positivity within our community.

The HUG pavilion has been extremely well received by the Columbia community and will participate as a gathering space for the graduate class of 2023. Thank you to all of those who have made this pavilion a success. We cannot thank you enough!

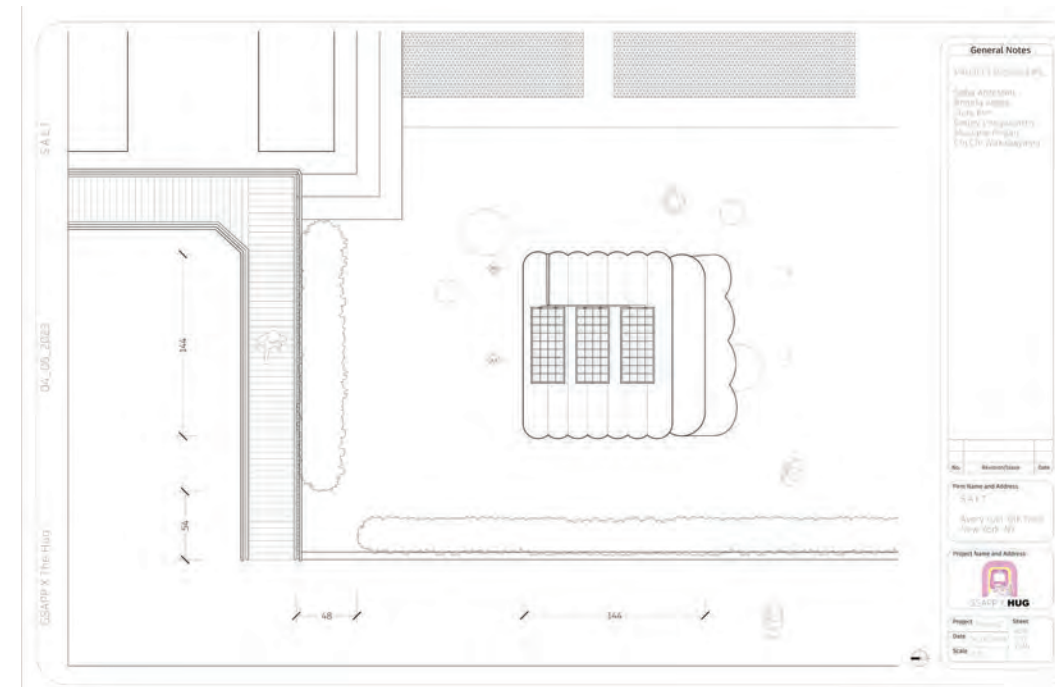
Instagram: @gsappxhug



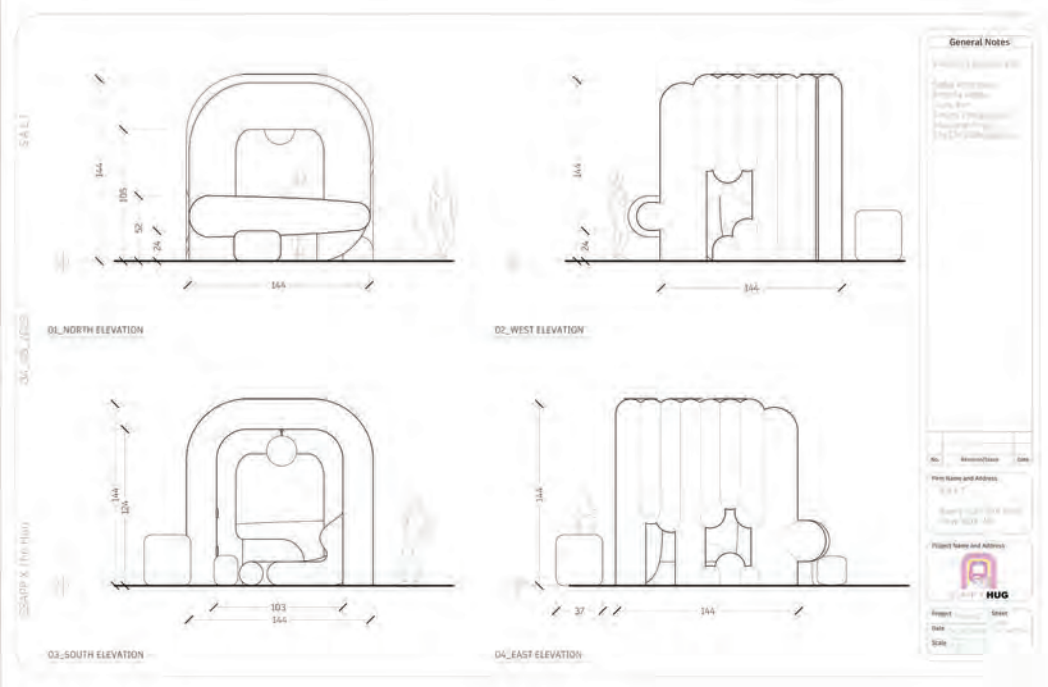
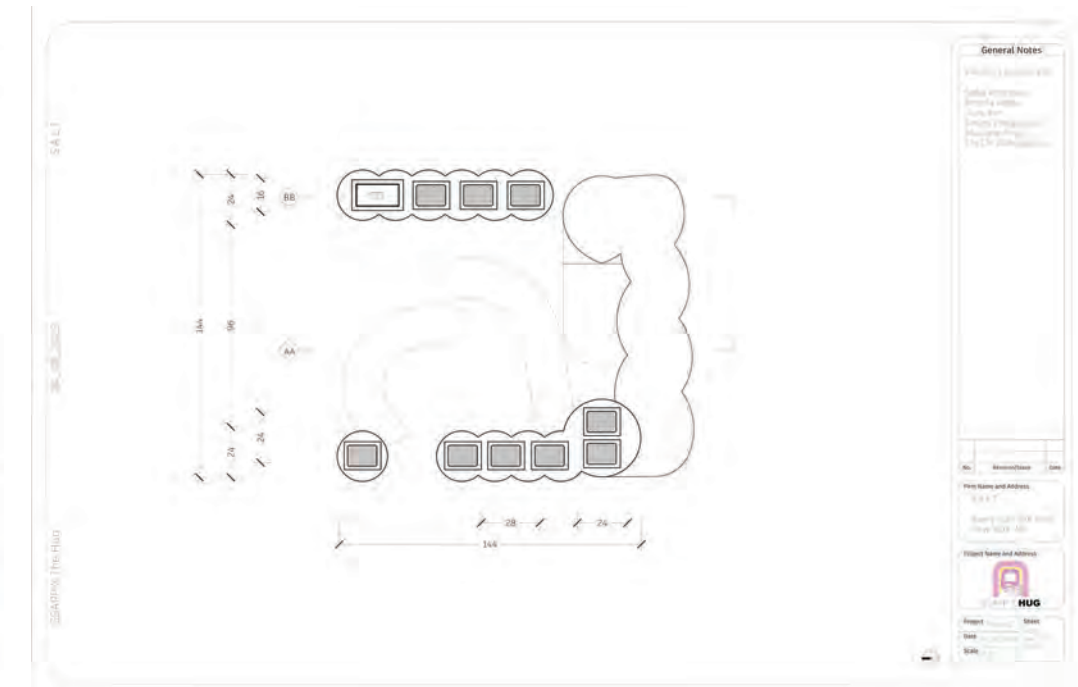
Activated Ground Plan



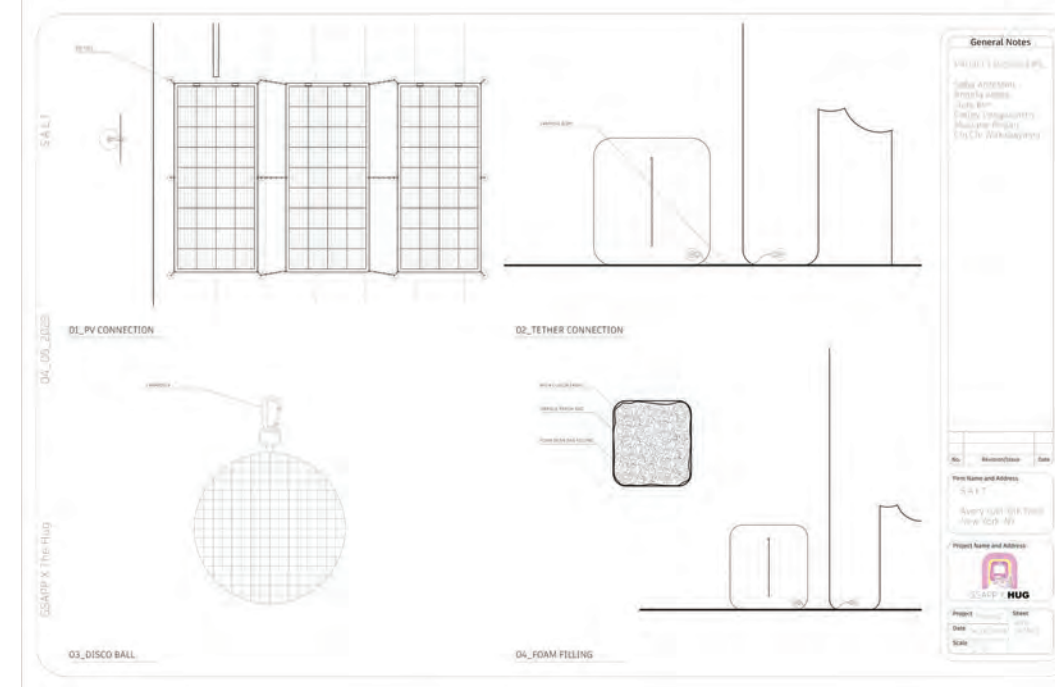
Roof Plan



Plan



Elevations

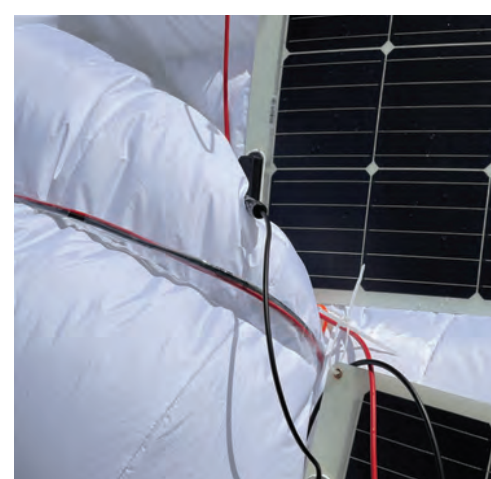


Detail Connections
PV Panels, Disconnected Seating, Disco Ball, Foam Filling

CONSTRUCTION SCHEDULE



Construction Schedule



Laying out Tarp
Inserting + Connecting Lights
Clamping Wire

Unloading Sand Bags
LED Light Detail
Connecting PV Battery

Unloading The HUG
Inflating The HUG
PV Connection Detail

Laying out The HUG
Filling The HUG with foam
Phone Charging Detail

Blower Detail + Connection
Foam Disassembling
Laying Down Runway

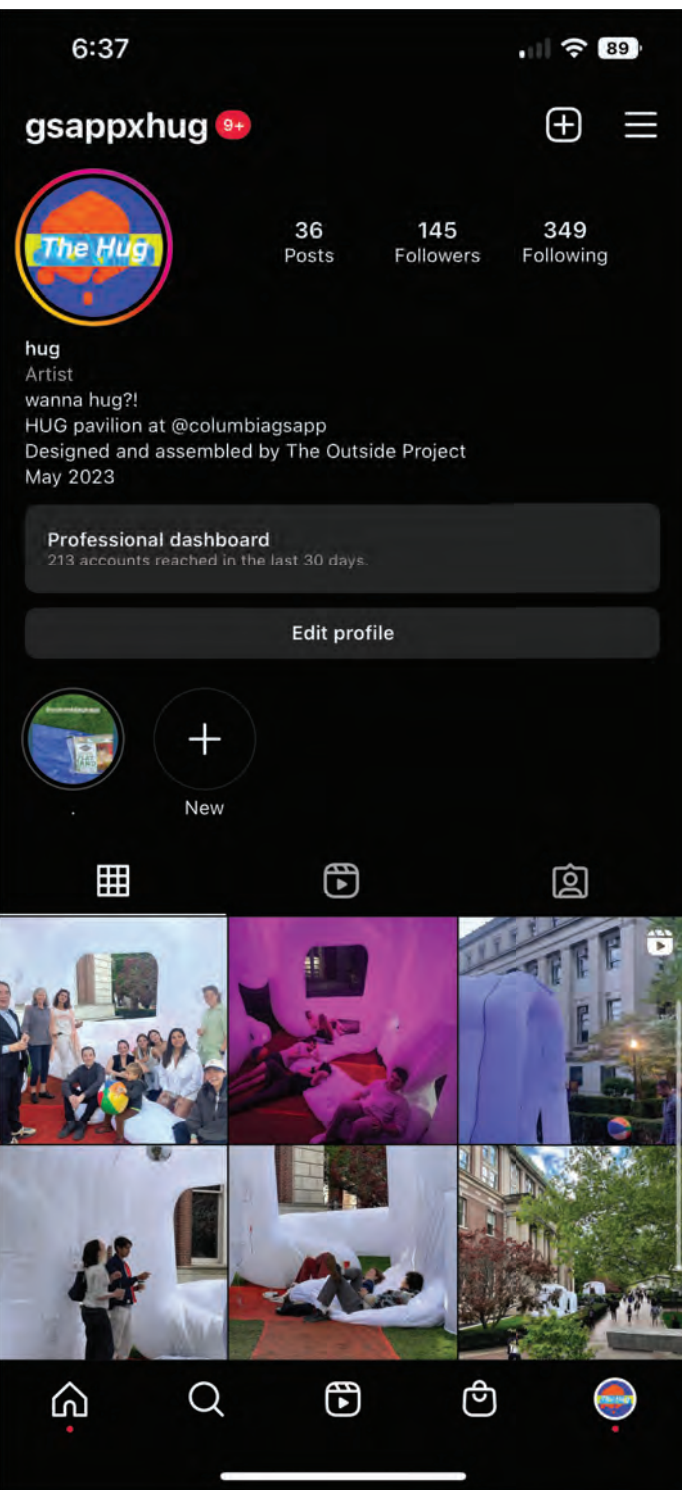
LED Light Detail
Electrical Wire Detail
Disco Ball Detail



The HUG
Photo Credit : Carley Pasqualotto



The HUG
Photo Credit : Carley Pasqualotto



The HUG
Instagram: @gsappxhug



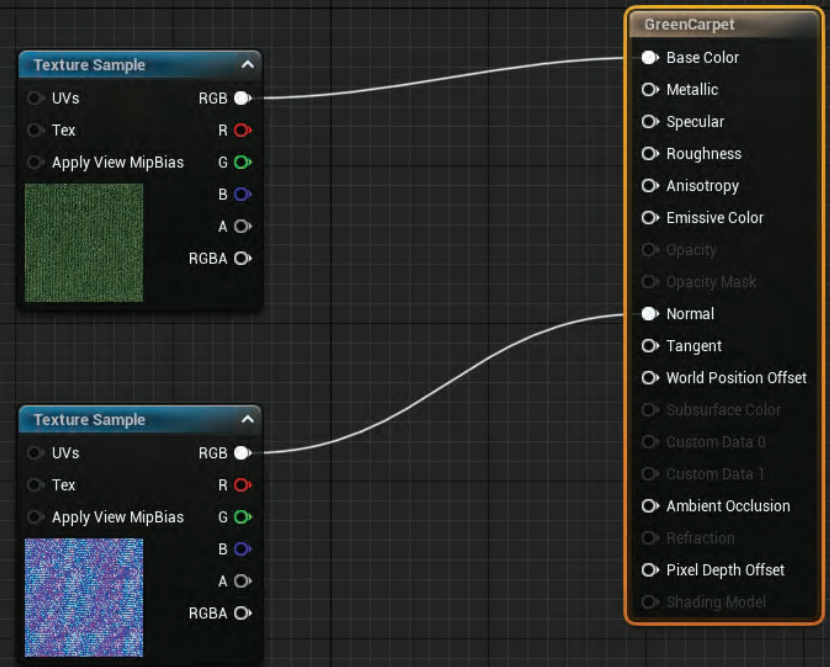
The HUG
Photo Credit : Angela Alissa Keele



The HUG
Photo Credit : Carley Pasqualotto



A LITTLE DREAM



Animation Synopsis:

“A person is bored at work and in their everyday mundane life. On an ordinary day at the office, they fall asleep and embark on a vivid dream, a reflection of their search for excitement in life.”

The main focus of the class was to question what could be possible in architecture if there were no limits, using the power of video game renderers as a lens to focus this on. The project questions the reality of architecture and experiment with the fantasy of new spaces through film sets and cinematography. Certain references were key to our animation, such as Severance on Apple TV+ and Loki on Disney +, where we found inspiration for our film | experience to collide two opposite worlds to tell a story.

The entire animation was completed through the Unreal Engine 5. We 3D modeled the entirety of the space, set up our scene in Unreal Engine, and created animations through the use of blueprint and construction event scripts within the software.



1-The office

- Set: Office space. Simple, Dull, familiar.
- Mechanics: Changing screens on overlap; changing lighting colors.
- Feeling: Starts to wonder if that is reality.

2-The Corridor

- Set: Hallway. Sterile, mundane, liminal
- Mechanics: Glitching effect, changing lighting colors.
- Feeling: Starts to feel trapped in this maze and there is no way out.

3-The Space corridor

- Set: Space-like corridor, futuristic.
- Mechanics: Moving walls on overlap; Moving lights up and down on a loop.
- Feeling: Realizes they are in another dimension/ confusion

4-Out of space

- Set: galactic, unfamiliar, space.
- Mechanics: Niagara particles; Morphing material on sphere.
- Feeling: Fear and curiosity. What it is behind the sphere?

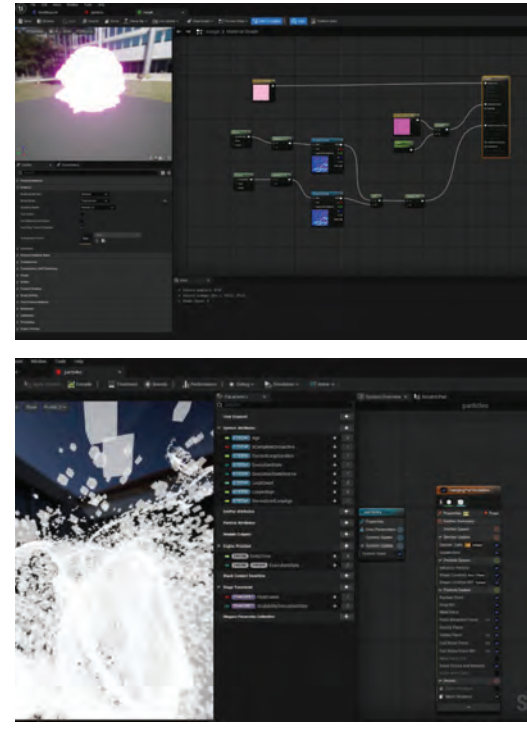
5-Back to reality

- Set: Office space.
- Feeling: wake up scared.

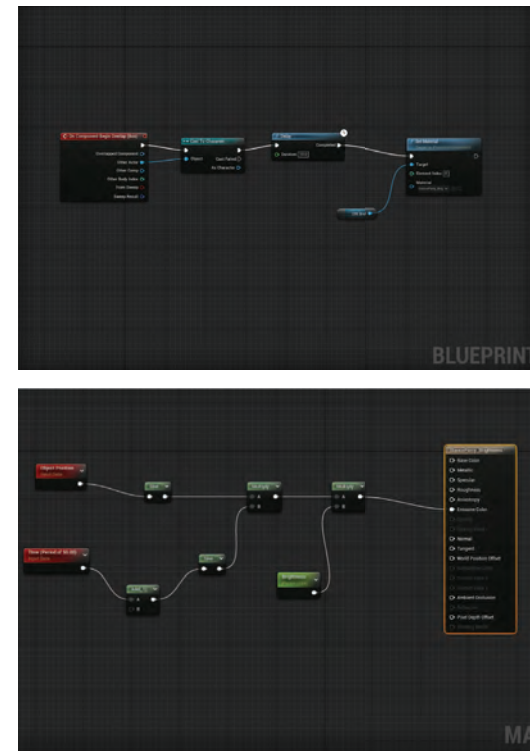
Film Renders
Office Scene



Blueprint Scripts
Material - Glowing
Niagra Particle Interaction



Film Renders
Hallway Scene



Film Renders
Hallway Scene

Blueprint Scripts
Material - Light Delay
Material - Light Color

Film Renders
Galaxy Scene



Character
Character
Character
Character
Character

1:41 / 4:29

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Final Video
Youtube

