APPEAL LETTERS

TSUNG-PEI
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COLUMBIA GSAPP PORTFOLIO
2022-2025

For Steven, Yi-Mei and Victoria,
and all the friends and families that made this possible.

PREFACE

The first time I thought about becoming an architect was when I was 16. I joined a program at my high school that raised funds for community schools in Cambodia. We visited the schools in the summer of 2015, and I vividly recall the overwhelming sensory experience of the streets of Phnom Penh. Bustling motorcycle traffic, vast construction sites, and a dense population suggested a thriving and robust community. But when these conditions were met with inadequate infrastructure, pollution and danger turned the streets into a hostile environment — especially for children.

It was in this setting that I first recognized the power of architecture. The schools we visited, regardless of their scale, served as sanctuaries for the children. They provided shelter from the outside world — a place where children could feel safe, grow, and learn. This was especially vital in communities with limited access to educational resources. The act of place-making had a very real and visible impact on people's lives. It was at that moment, I believe, that I was drawn to a profession I knew could bring positive change.

In 2022, I moved to New York to join GSAPP — a special place where I met some of the most inspiring professors and colleagues I've had the fortune to learn from. Together, we studied some of the most pressing issues facing our society and deeply investigated architecture's role within them. We explored architecture's relationship to form, materials, technologies, histories, economics, politics, and beyond. Naturally, the search for answers to these questions came with struggle and doubt. We were constantly rethinking the definition of architecture, testing its capacities, and striving to make meaningful change.

Over the past three years, I have taken six design studios — each one exploring the boundaries of a particular aspect of architecture and pushing it just a little further.

APPEAL LETTERS

If you were in my studio, you might've known that my projects were often quite unpolished at final reviews. I remember at 8 a.m. on the morning of the CORE 3 final, my team had no drawings and only one-third of the physical model — it was a truly devastating moment. The end of the semester is always a painful time, in the sense that you have to wrap up all the research and exploration so quickly. A lot of important information gets lost, and some puzzles remain unfinished.

Even then, the journey of each studio was always fruitful — I only wish they had lasted longer. But like everything else, my time as a Master of Architecture student at GSAPP has come to an end. It was an amazing time, filled with great friends and unparalleled teachers.

I am writing these appeal letters for two reasons. First, I feel that my studio projects never quite had the chance to be fully communicated during the semesters. Second, I believe architecture can and should play a much greater role in addressing urgent and critical issues.

The six cases presented here stem from my research and design work across all my studios: ADV6 with Laurie Hawkinson and Hubert Chang, ADV5 with David Benjamin, ADV4 with Robert Marino, CORE 3 with Eric Bunge, CORE 2 with Mark Wasiuta, and CORE 1 with Patti Anahory. I would like to invite everyone to rethink what architecture can do.

I hope you enjoy the projects.

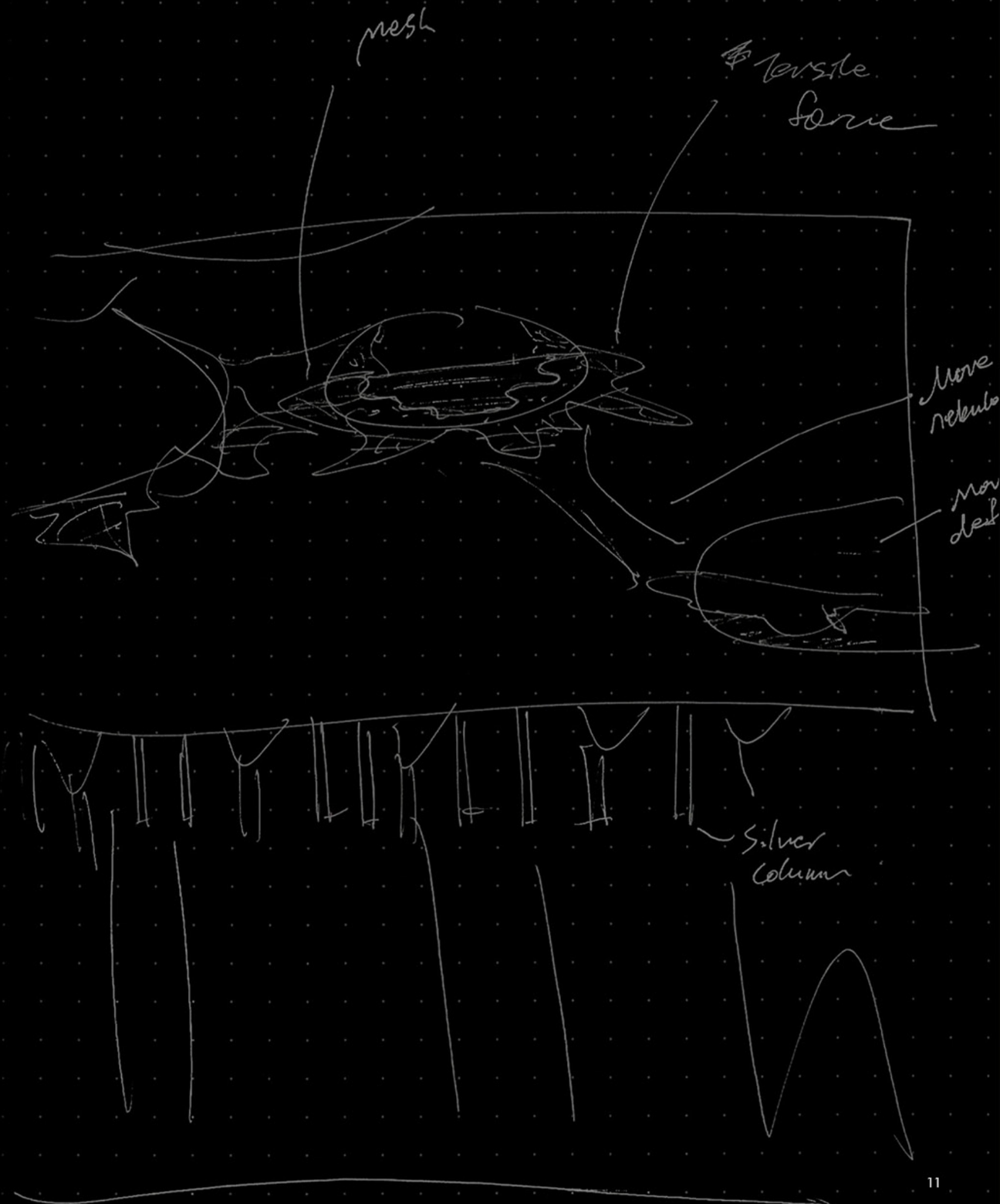
CASE

1. ARCHITECTURE

Architecture is a paradoxical existence of power and powerlessness. On one hand, the significant effort, material, labor, and space required for any building make it a clear representation of privilege. On the other hand, its value often lies in its ability to accommodate whatever events and activities take place inside—rather than in the architecture itself. This seems fair, considering we are, after all, human beings, and the essence of our civilization and culture revolves around our interactions with others, not the accumulation of materials that will eventually perish.

Furthermore, the relationship between architecture and activity is nebulous and ambiguous. The form and layout of a space do not necessarily impose complete control over what happens within. In many cases, buildings are reused for entirely different purposes and enjoyed as "incidental" architecture. If that's the case, then what is the true role of architecture—and, by extension, the role of the architect?

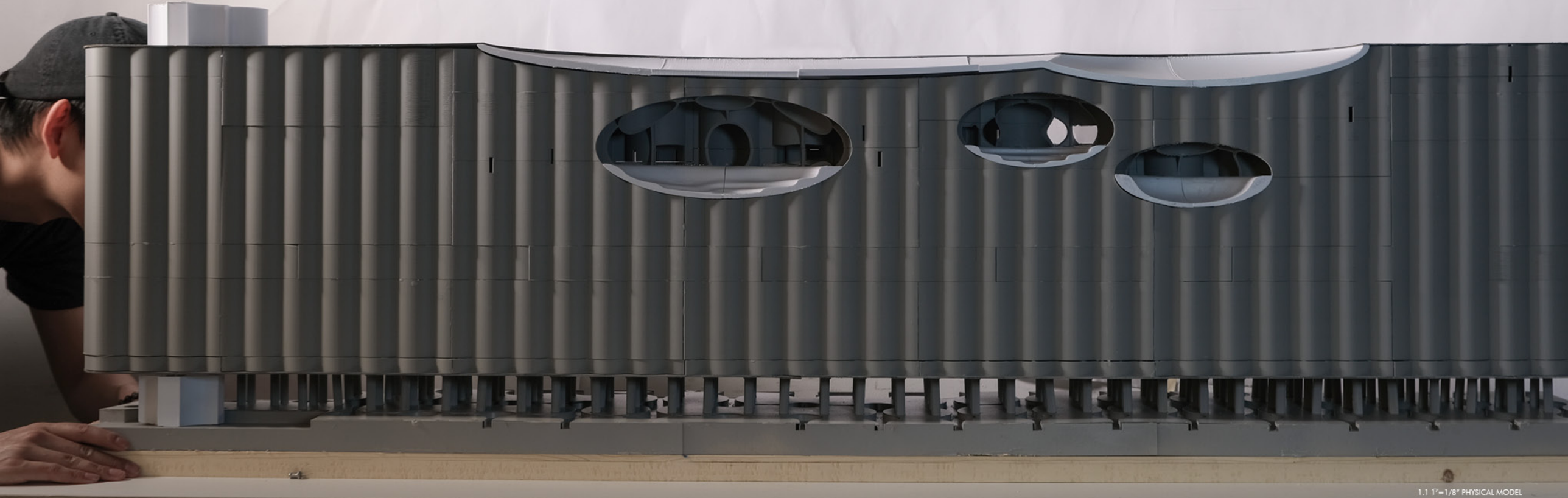
To answer this, we need to explore architecture's inherent potential. What if, beyond providing an enjoyable space, architecture is capable of achieving far more than we assume?



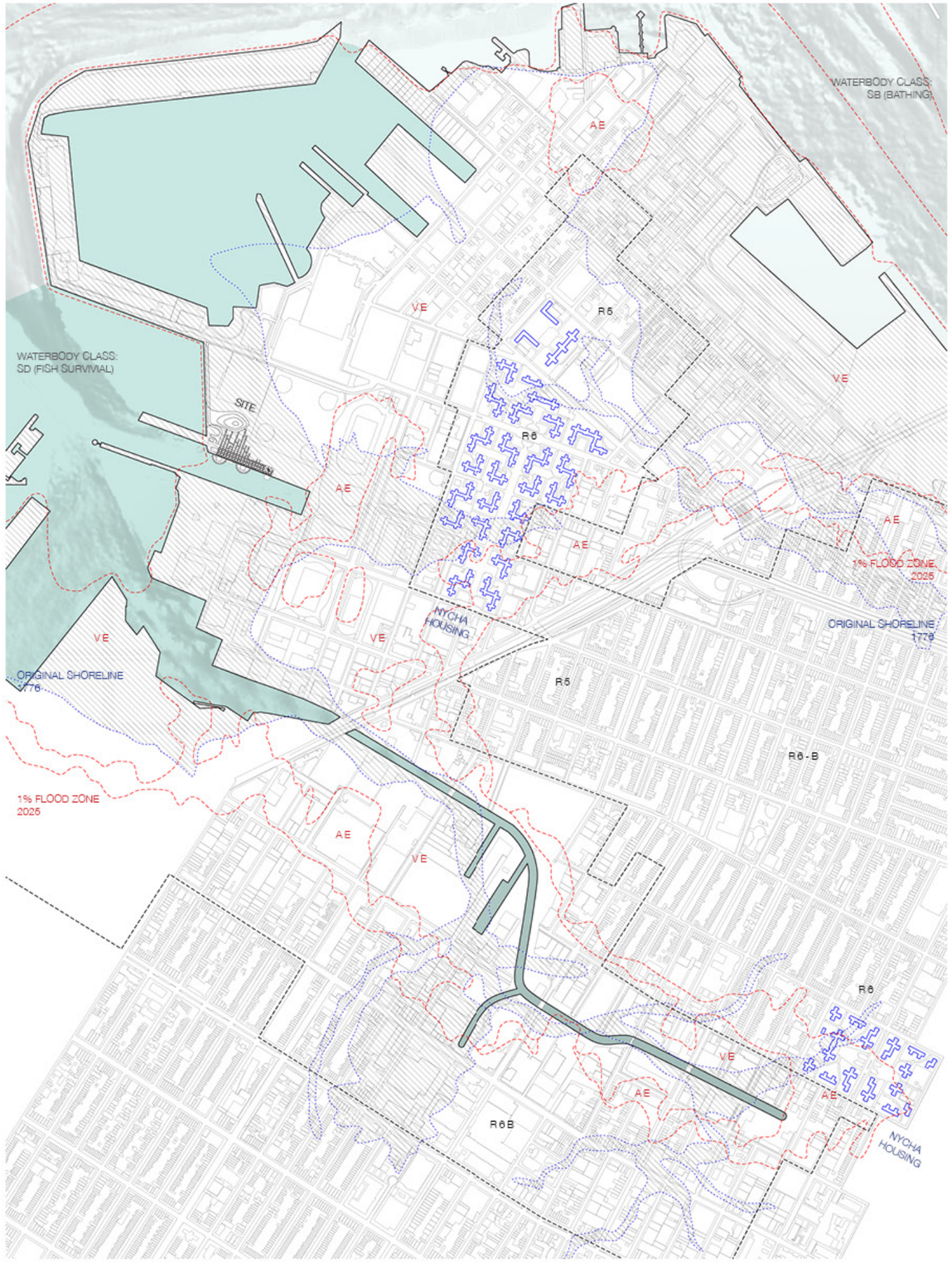
DETOX

STUDIO / ADV VI
CRITIC / LAURIE HAWKINSON + HUBERT CHANG
TEAM / INDIVIDUAL

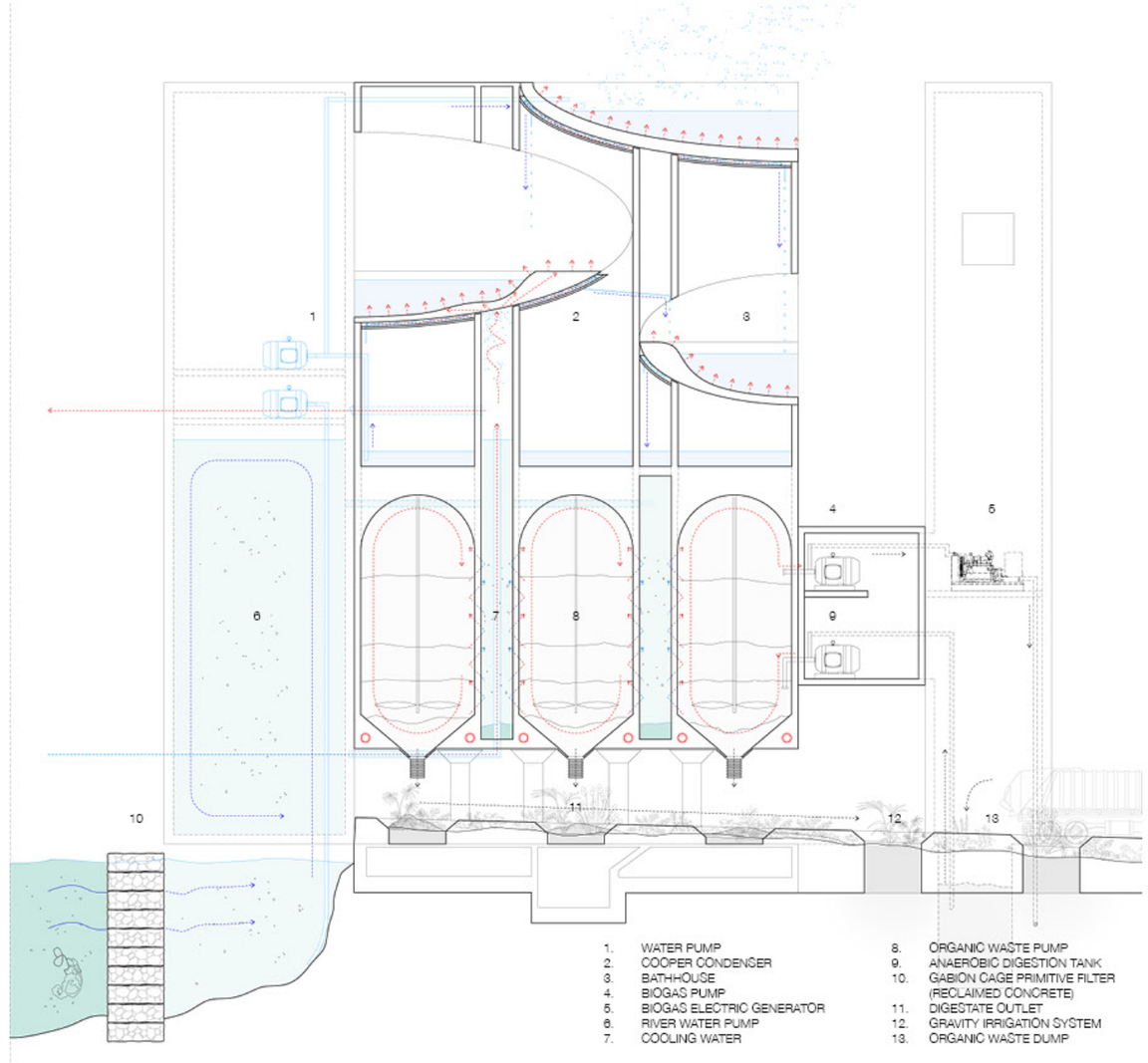
This project proposes the adaptive reuse of the Red Hook Grain Terminal into a combined program of organic waste management, water treatment, and a public bathhouse. It challenges the inherent capacity of architecture by creating a passive water-cleaning system through the strategic adjacency of these mixed programs. This system is made possible by the sheer scale of the existing structure—one of architecture's defining qualities: the unparalleled intensity of material and spatial occupation. The passive system works to repair the contaminated waterfront, a legacy of Brooklyn's industrial history, while providing Red Hook residents an opportunity to reestablish their relationship with the water.



1.1 1'=1/8" PHYSICAL MODEL



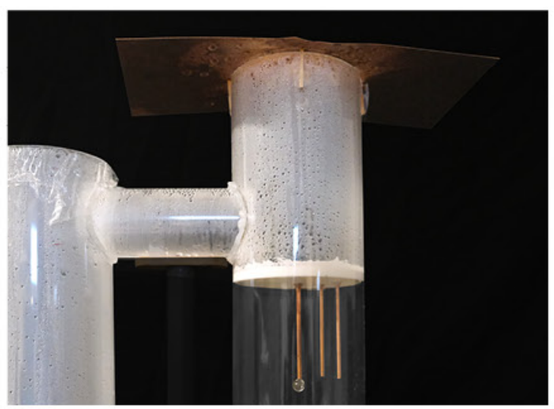
1.2 SITE ANALYSIS MAP, UNDERSTANDING THE RELATIONSHIP BETWEEN FLOOD ZONES, RESIDENTIAL ZONING AND BROOKLYN'S ORIGINAL SHORELINE



DISTILLATION

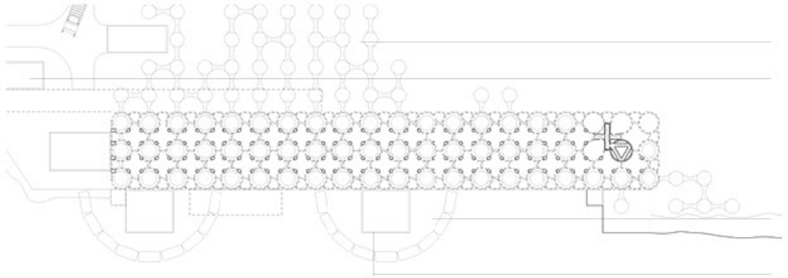
Distillation, through evaporation and condensation, is a proven method of purifying water, mirroring the natural water cycle. As water evaporates, it leaves contaminants behind, and when it condenses, it becomes clean. However, artificially inducing this process requires significant heat, making it economically unfeasible due to high costs, even amidst water scarcity.

This project offers a solution by using waste heat from a waste management facility to purify water. The condenser, which extracts heat from water vapor, is reimagined as a publicly accessible bathhouse, blending infrastructure with community space.



1.3 SYSTEM SECTION / 1.4 PROOF OF CONCEPT MODEL, TESTING COPPER'S MATERIAL PROPERTY IN INDUCING CONDENSATION

GROUND LEVEL PLAN



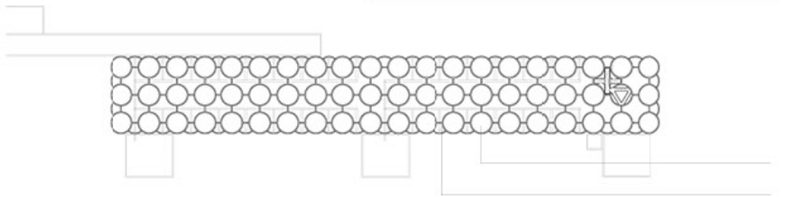
GRAVITY IRRIGATION SYSTEM

ORGANIC WASTE PUMP

GABION CAGE PRIMITIVE FILTER

WATER PUMP + TANK

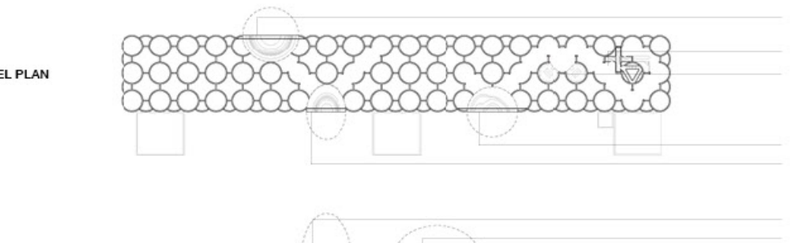
WASTE SYSTEM PLAN



COOLING WATER

ANAEROBIC DIGESTION TANK

BATHHOUSE ENTRY LEVEL PLAN



BATH 3

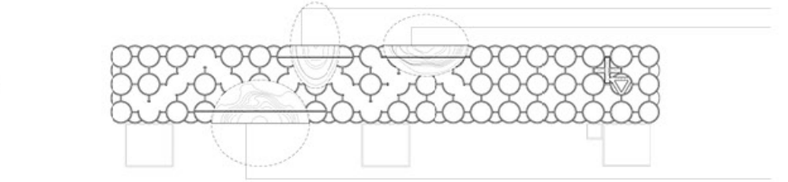
TICKETING OFFICE

CHANGE ROOM

BATH 1

BATH 2

BATHHOUSE LEVEL PLAN

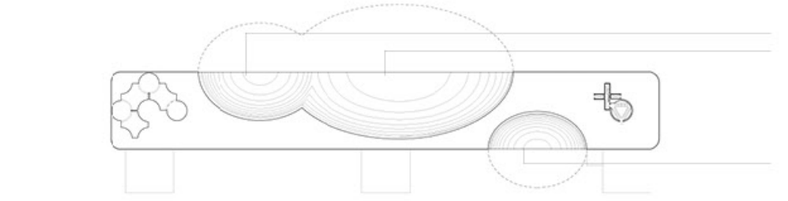


BATH 6

BATH 5

BATH 4

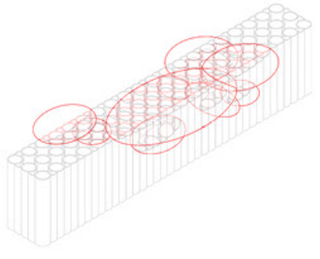
ROOFTOP PLAN



BATH 7

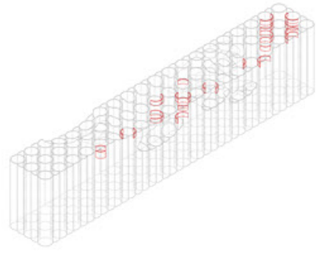
BATH 8

BATH 9



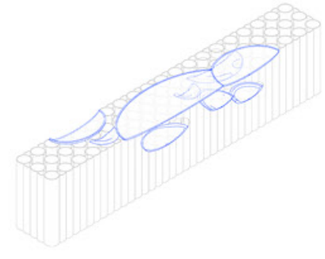
1. EXCAVATE SPACE

Carve out large volumes within the 18' diameter silos to serve as primary functional areas. Use elliptical geometries to maintain the structural integrity of the existing structure.



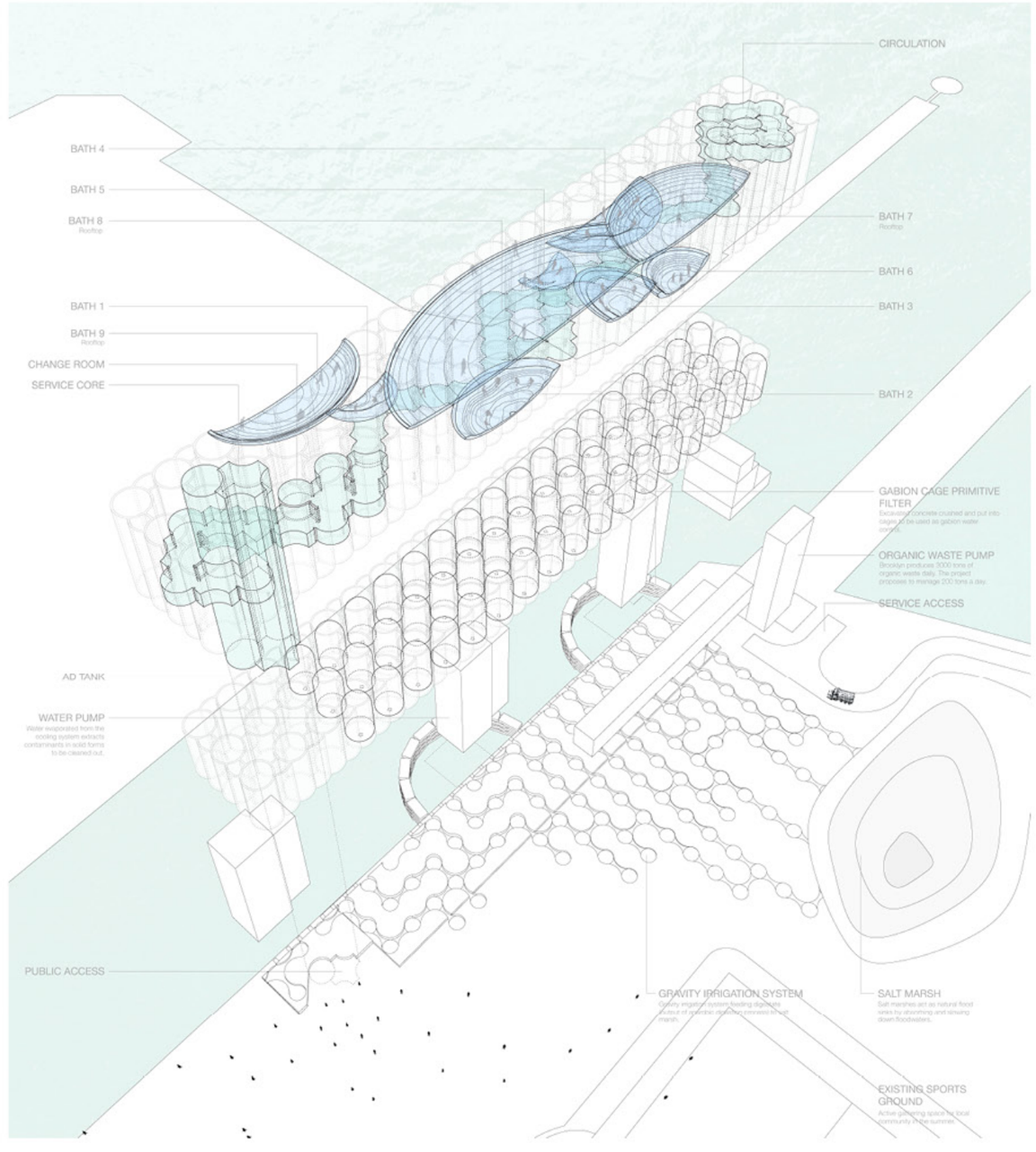
2. EXCAVATE CIRCULATION

Excavate circulation paths diagonally, following the silo grid, to avoid cutting through structural webs and to connect the functional spaces.



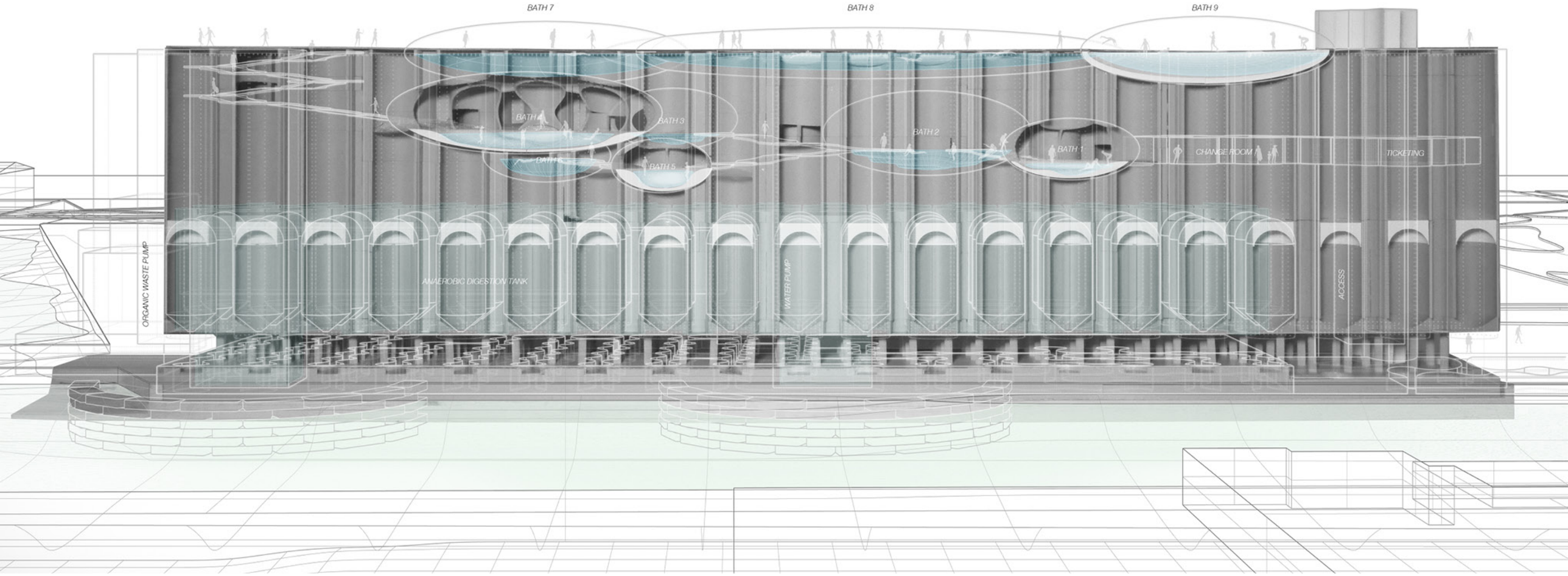
3. PRECAST CONCRETE PLATFORMS

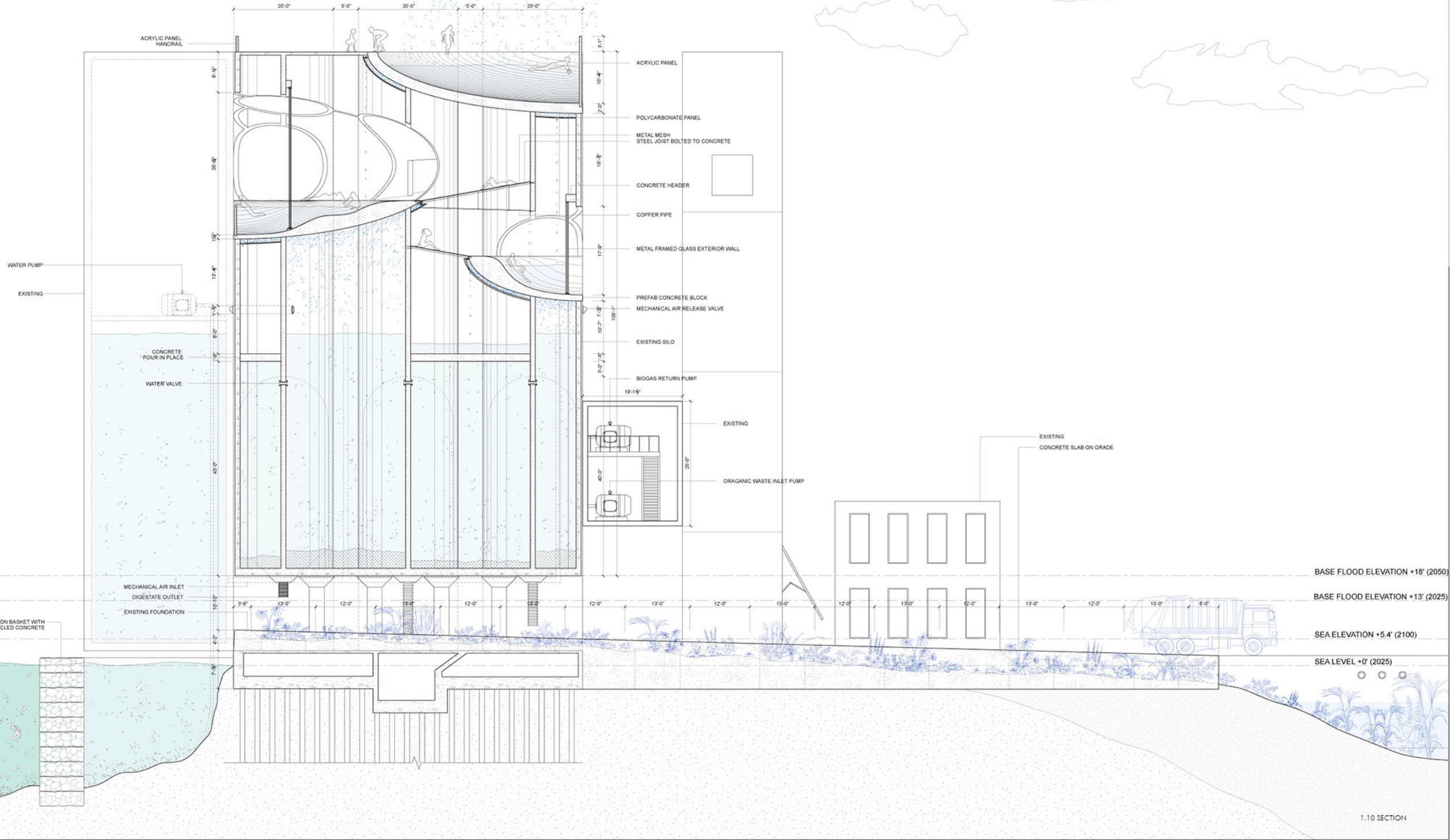
Utilize the site's waterfront access to install precast concrete platforms by crane from the exterior, creating stable points of entry and use.

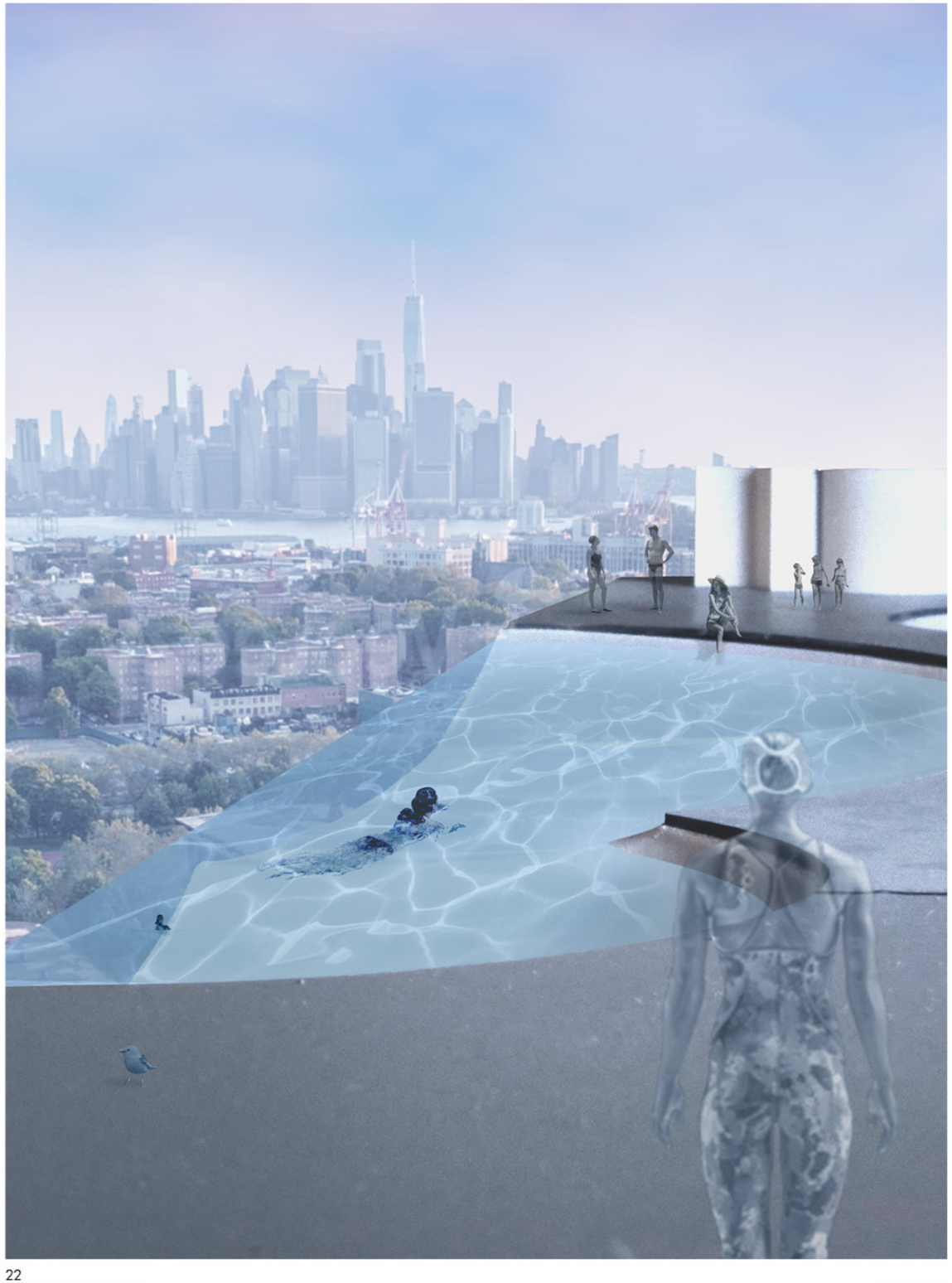


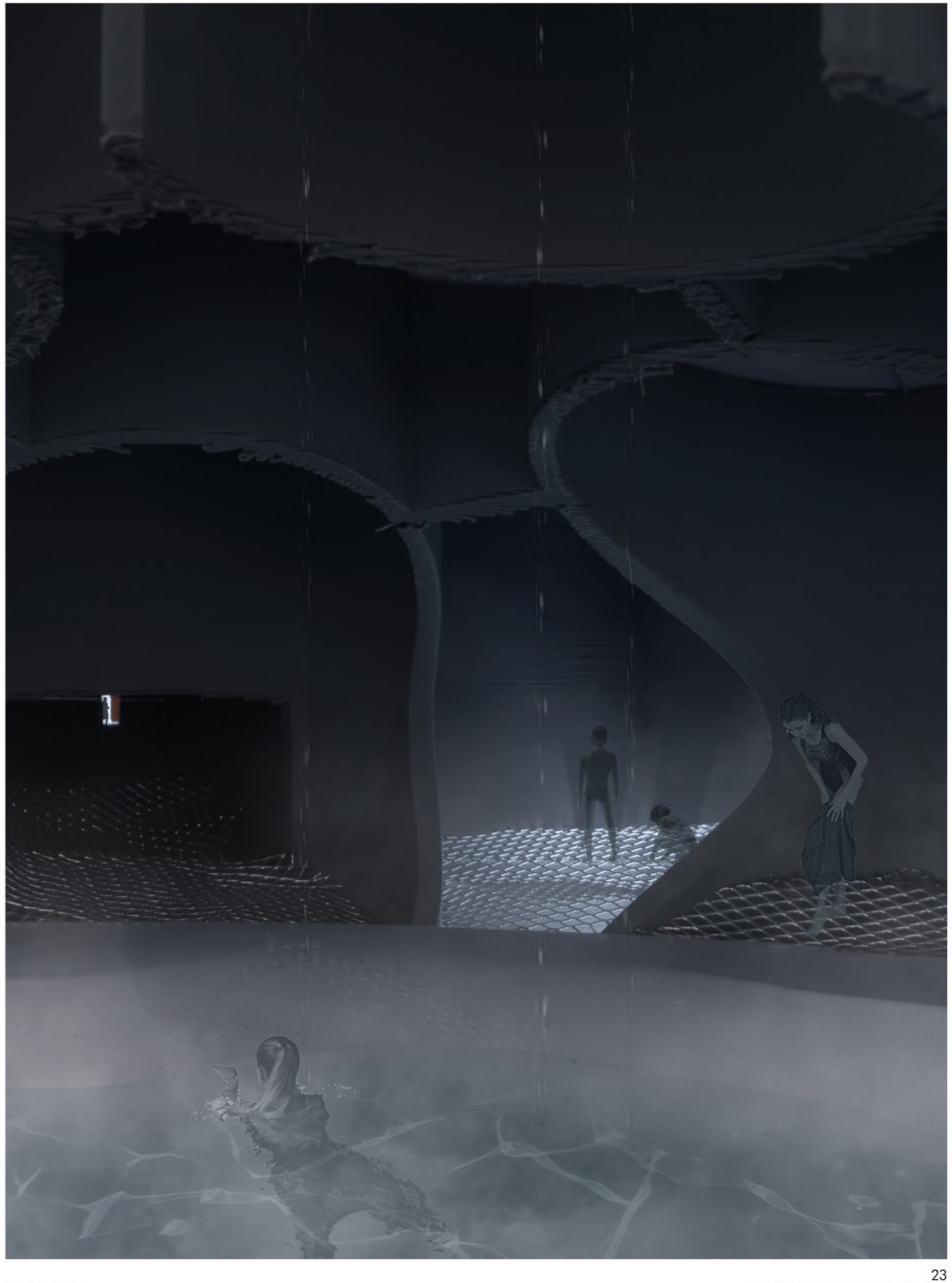
POSITIVE

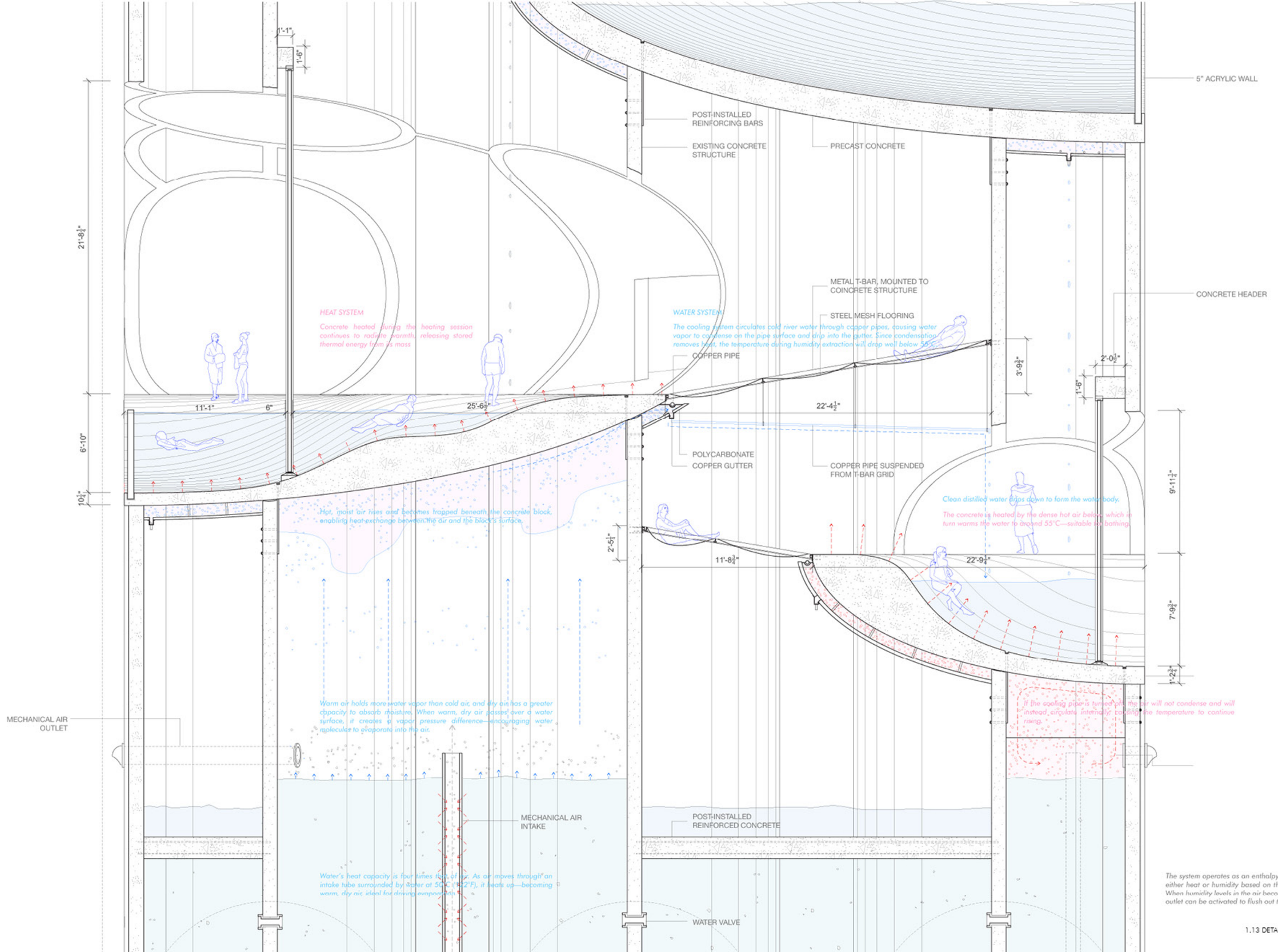
NEGATIVE


BATH 7
BATH 8
BATH 9
BATH 4
BATH 3
BATH 6
BATH 5
BATH 2
BATH 1
CHANGE ROOM
TICKETING
ORGANIC WASTE PUMP
ANAEROBIC DIGESTION TANK
WATER PUMP
ACCESS


20'-0"
5'-0"
20'-0"
5'-0"
20'-0"
ACRYLIC PANEL HANDRAIL
ACRYLIC PANEL
POLYCARBONATE PANEL
METAL MESH
STEEL JOIST BOLTED TO CONCRETE
CONCRETE HEADER
COPPER PIPE
METAL FRAMED GLASS EXTERIOR WALL
PREFAB CONCRETE BLOCK
MECHANICAL AIR RELEASE VALVE
EXISTING SILO
BIOGAS RETURN PUMP
EXISTING
ORAGANIC WASTE INLET PUMP
WATER PUMP
EXISTING
CONCRETE POUR IN PLACE
WATER VALVE
MECHANICAL AIR INLET
DIGESTATE OUTLET
EXISTING FOUNDATION
GABION BASKET WITH RECYCLED CONCRETE
EXISTING
CONCRETE SLAB ON GRADE
BASE FLOOD ELEVATION +18' (2050)
BASE FLOOD ELEVATION +13' (2025)
SEA ELEVATION +5.4' (2100)
SEA LEVEL +0' (2025)
3'-1"
10'-4"
2'-0"
18'-8"
17'-9"
11'-2"
10'-7"
3'-0"
19'-1½"
25'-0"
40'-0"
43'-0"
20'-9"
13'-4"
4'-2"
7'-6"
3'-6"
13'-0"
12'-0"
6'-0"
1.10 SECTION

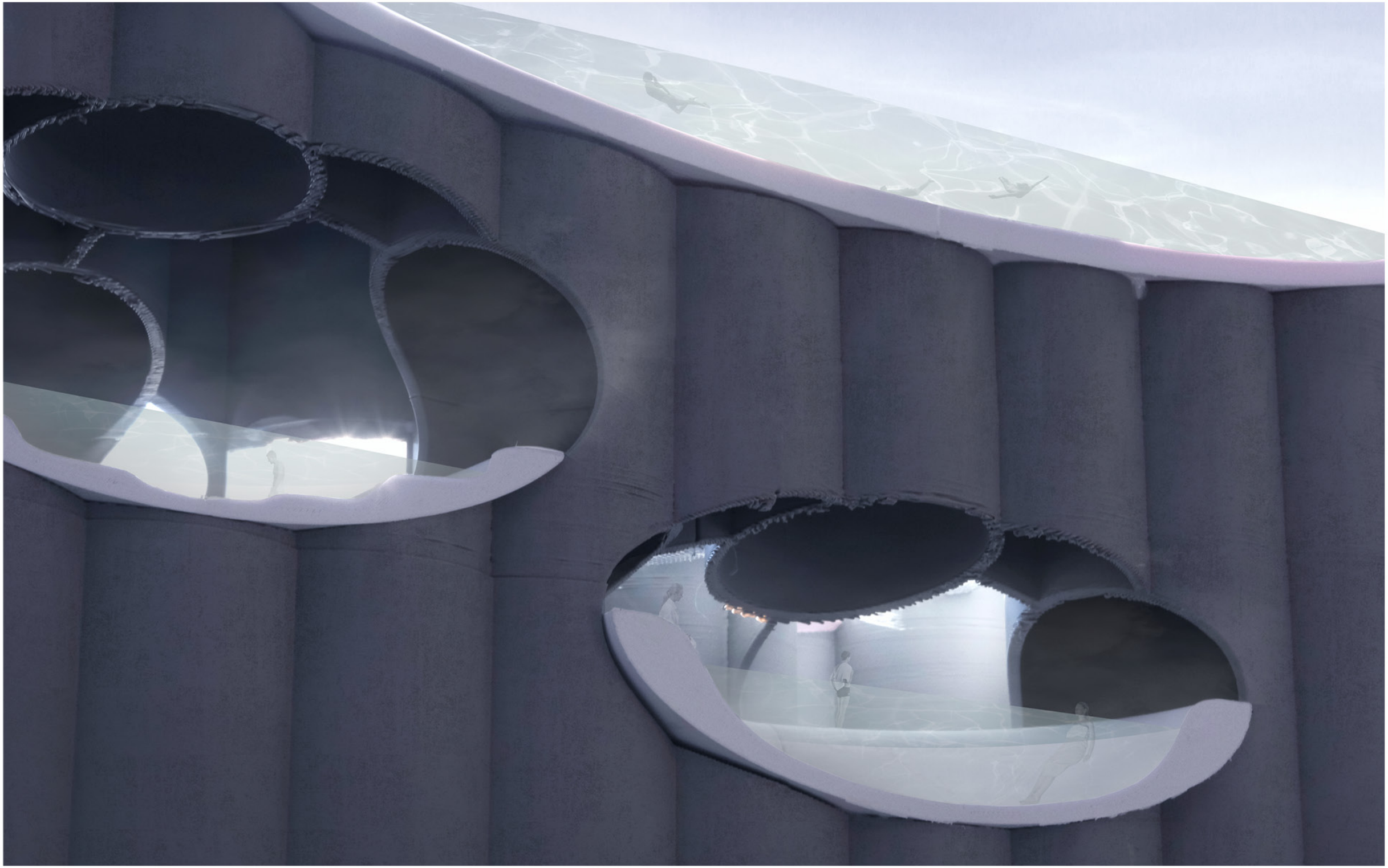






The system operates as an enthalpy system, extracting either heat or humidity based on the cooling settings. When humidity levels in the air become too high, an air outlet can be activated to flush out the moist air.

1.13 DETAIL SECTION



ADV VI STUDIO

1.15 BATHHOUSE EXTERIOR PERSPECTIVE

2. WASTE

The Paris Agreement sets a clear target: limit global temperature rise to 1.5°C by 2050 to avoid catastrophic ecological collapse. Yet by 2025, we're already at 1.33°C—rapidly consuming our carbon budget and endangering the future of our civilization.

In this context, architecture becomes a major liability. As an energy- and material-intensive practice, the built environment—including construction and demolition—accounts for roughly 40% of annual global emissions. With continued development in the Global South, these numbers are likely to hold steady or even increase.

While the circular economy offers a promising framework, it can only take us to net-zero emissions. But we now need buildings that go further—carbon-negative. The only viable path is to stop extracting new materials and work with what already exists—particularly waste.

What if architecture could serve as a connector between waste streams from different industries? What if buildings became massive material banks—repositories of reused resources? In other words, what if we could build from waste?

LIVING-WALL

STUDIO / ADV V
CRITIC / DAVID BENJAMIN
TEAM / INDIVIDUAL

Living-Wall is a proposal to transform agricultural waste into a responsive building material—one that adapts to climate conditions by adjusting its properties. The project begins with a difficult premise: that our path to limiting global warming to 1.5°C is hindered not by intent, but by the inertia of industry transformation. By looking beyond architecture—particularly at rising food demand and land-use conflicts—the project identifies structural barriers to sustainable progress.

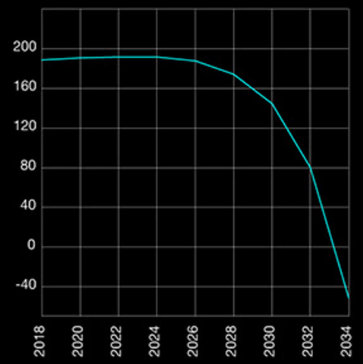
To address this, it proposes cross-industry integration: extracting natural fibers from corn waste and aggregates from farm animal bones to create a new composite material with a "living" quality. This material can regulate its porosity—allowing airflow—by adjusting humidity through capillary action.

Beyond its technical function, the composite intervenes in the agricultural carbon cycle. By locking waste into long-term structural use, it prevents it from re-entering the atmosphere as carbon emissions. In effect, farming becomes a mechanism for carbon sequestration via photosynthesis, converting biomass into stored carbon. This repositions architecture as an active carbon sink and opens a path for industrial systems to contribute directly to climate goals.

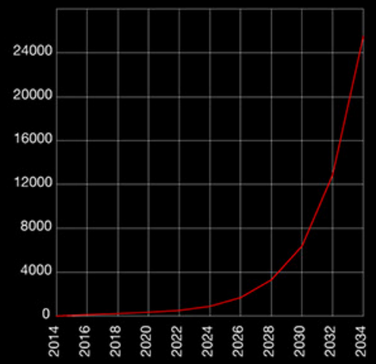
In the current context, for the building industry to meaningfully reduce its carbon emissions and contribute to climate goals, it must move away from carbon-intensive materials like concrete and begin adopting more sustainable alternatives such as timber. Wood and other organic materials are effective at storing carbon because they absorb CO_2 during growth and continue to store it throughout their lifespan—until they eventually decay.

However, this raises an important question: do we actually have enough of these materials to meet demand? Access to timber is nowhere near as easy or cheap as concrete, which can be purchased for just a few cents per kilogram. Timber, by contrast, requires the cultivation of forests—a process that is both time-consuming and space-intensive. In fact, to sustainably support the projected increase in timber demand, the total forested area in the United States would need to more than double in the coming years.

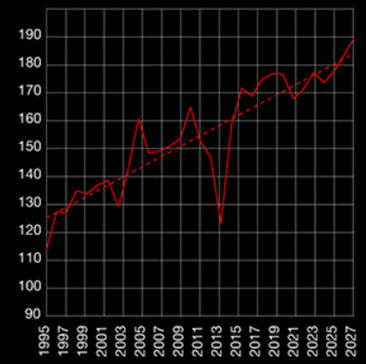
Unfortunately, the environment is not on our side. Climate change is making forest maintenance increasingly difficult, with extreme weather events and wildfires capable of destroying decades of growth and conservation efforts. At the same time, shifting climate patterns are reducing the amount of arable land. As the global population grows, so does the demand for food, which in turn requires more farmland. But we are simultaneously losing the very land needed to grow that food due to climate-related degradation.



CARBON IMPACT OF MASS TIMBER CONSTRUCTION PER YEAR (MILLION TON)



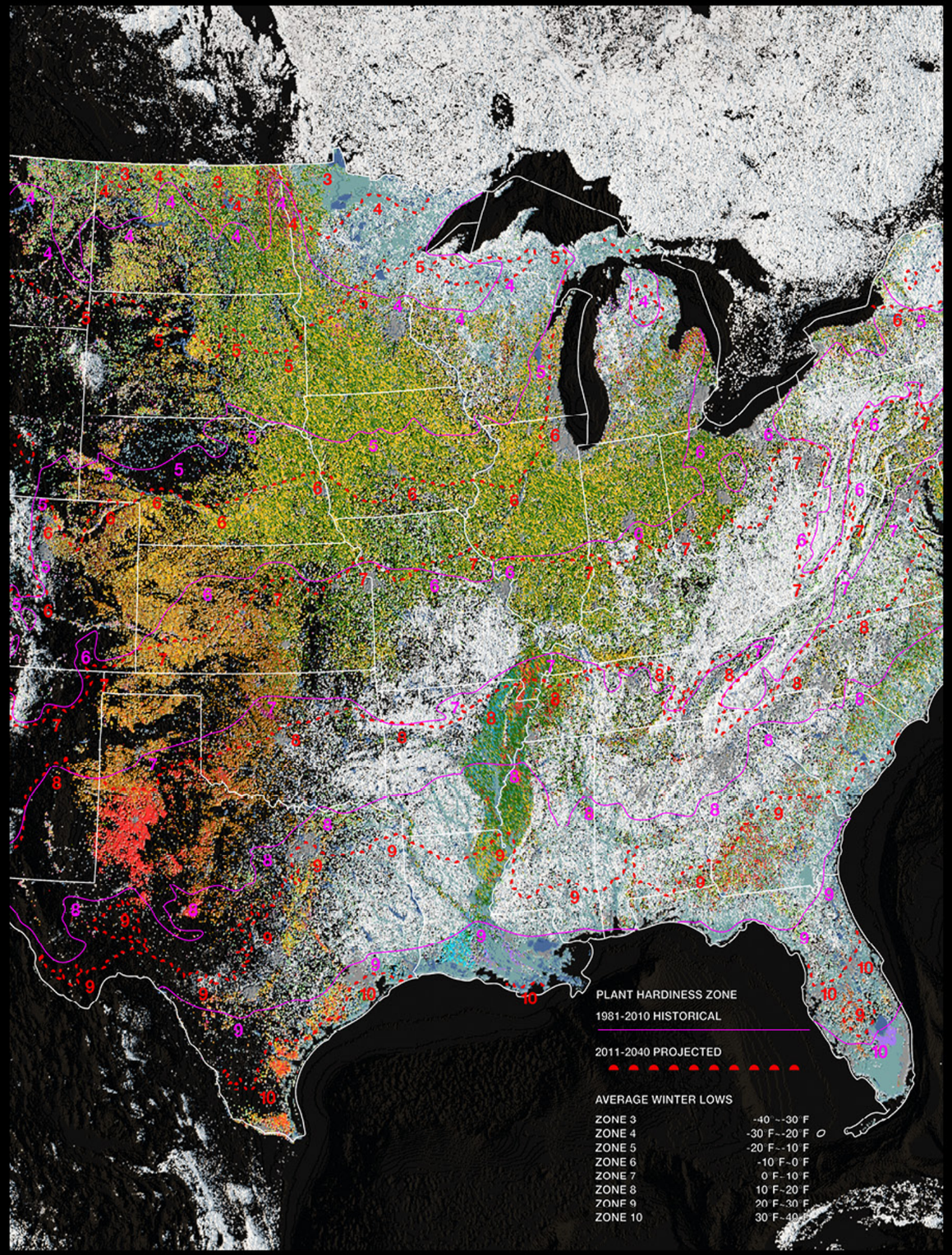
MASS TIMBER CONSTRUCTION PER YEAR



U.S. CORN YIELD PER YEAR

Based on this reality, the project proceeds from the following key assumptions:

1. The building industry will continue its shift toward carbon neutrality, increasing demand for bio-based materials and, consequently, land to produce them.
2. The agricultural sector will face a significant loss of arable land as a result of global warming.
3. As a result, these two essential industries—construction and agriculture—will be locked in growing competition over limited land-use.



OUTPUT

MEAT

KERNEL

LIVESTOCK

CORN

PROCESSING
0.1-1 t CO^2 per animal

BONE WASTE
≥2.6-105 t CO^2 per farm per year

GROWTH & DEVELOPMENT
1-12 t CO^2 per year (depending on species)

MANURE
0.2-2 t CO^2 per year

FEED

COB
0.2-0.5 t CO^2 per ton

FEEDING & NUTRITION
0.2-1.2 t CO^2 per year

FERTILIZER

STOVER
0.2-0.5 t CO^2 per ton

BUILDING MATERIAL

BUILDING MATERIAL

PLANTING
0.2-0.55 t CO^2 per acre

BREEDING
0.3-2 t CO^2 per year

VEGETATIVE GROWTH
13.2-16.5 t CO^2 per acre

LAND PREPARATION
0.33-0.65 t CO^2 per acre

INPUT

AGRICULTURE

ATMOSPHERIC CARBON

ARCHITECTURE

NATURAL FIBER

TRIM

Trim any excess ends and let your weaving dry.

KNOT

Finish by knotting each fringe to the one next to it, making sure to tie knots at both ends.

CONNECT

When a strip runs out, overlap a new one by a few inches and keep weaving, alternating each row's pattern.

COMPACT

Press down on the corn husk rows to tighten the weave.

WEAVE

Starting from the right, weave a strip of corn husk through the cotton warp on the cardboard loom, going over and under in an alternating pattern. At the end of the row, turn the corner with the same strip and begin the next row, weaving in the opposite pattern. Keep alternating over and under as you go.

SOAK

Soak the corn husks in water for about one minute, making sure to move them around so each one becomes fully wet and pliable.

3D BIOPRINTING

PRINTING

3D printing a complex structure using bone extract-based bioink.

BIOINK

Using an extrusion-based 3D bioprinter to fabricate bone scaffolds.

POWDER

Grind the bone into a fine powder for further processing.

PREMIX

Prepare a premix solution by combining glycerol, PEG, and water thoroughly.

INK PREPARATION

Mix the extracted bone powder with the premix solution to create the bioink.

DIP (CITRIC ACID)

Citric acid is used to break down the collagen matrix, helping to release the inorganic particles.

SUN DRY

Dry in air.

DIP (H_2O_2)

Dip in hydrogen peroxide to eliminate any remaining tissue.

BOIL

Boil the bone waste at 90°C

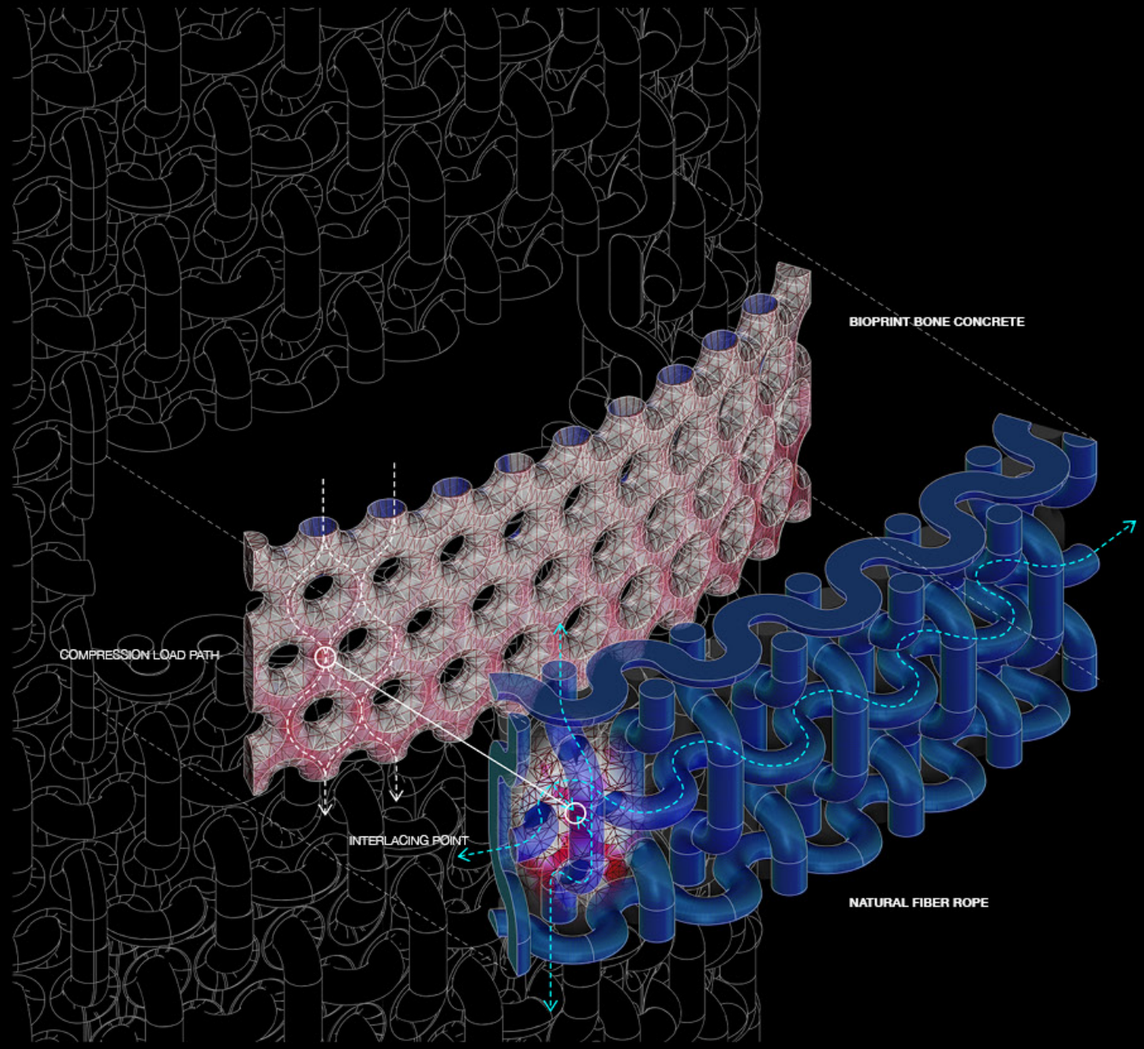
CLEAN

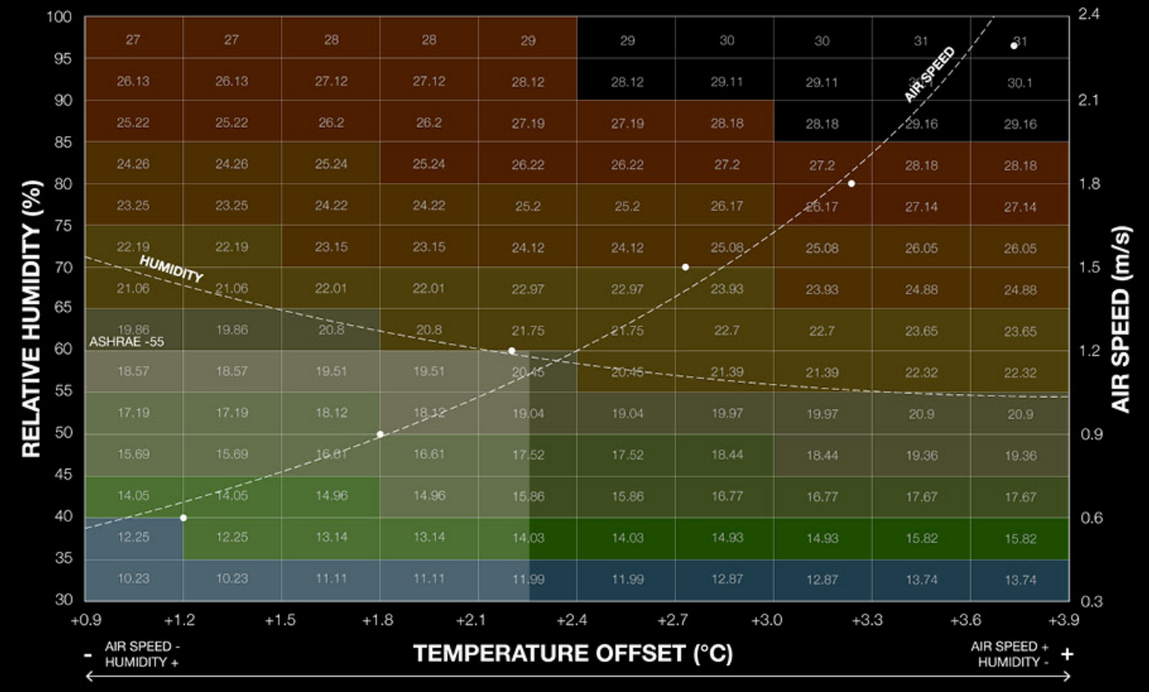
Clean bone waste by removing flesh and debris, soaking in soapy water, and scrubbing gently. Rinse, dry completely, and smooth any rough edges.

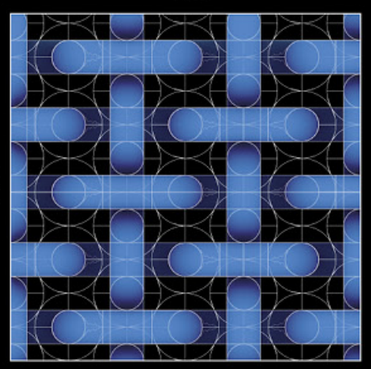
SPLIT

Carefully tear each corn husk lengthwise into three or four even strips

2.4 REWIRING PRODUCTION PROCESS TO REUSE AGRICULTURAL WASTE AS BUILDING MATERIAL



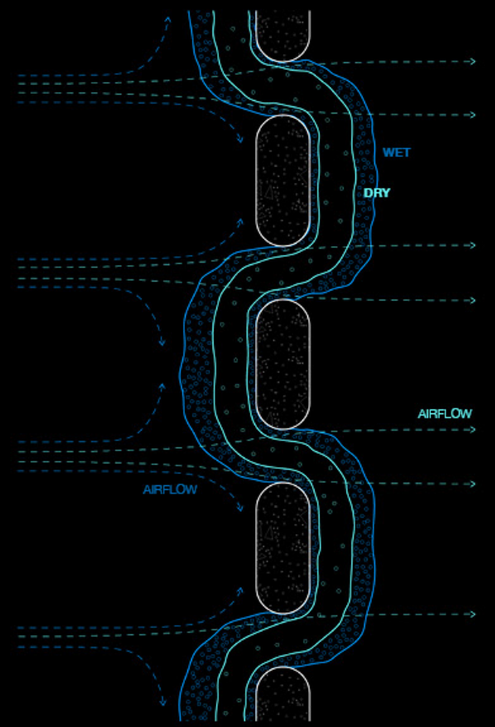




Bioprint Bone Concrete:
Chicken Bone= 150 g carbon per kg
Aggregate Content in 3D print Concrete= 50%
Carbon Content = Carbon in cement- carbon in bone
= 115 g - 75g
= 40 g carbon per kg

Natural Fiber Rope:
Carbon Content= -500 g carbon per kg

Composite:
Concrete Weight= 2400 kg per m3
Natural Fiber Weight= 1400 kg per m3
Carbon Content = Carbon in BBC - Carbon in NFP
= **-20,220 g cabon in 1 m2 area**



CARBON NEGATIVE MATERIAL

The project introduces a composite material made of Bio-print bone concrete and natural fiber rope. Bio-print is a 3D printing technology primarily used in the medical field, exploring a variety of materials for implant development, with bone being one of the most affordable and promising options. Recent advancements have demonstrated that bone can be effectively used as an aggregate in the 3D printing process. Additionally, research from Princeton's Material Institute suggests that concrete can enhance its weight-to-strength performance when its geometry mimics the structure of bone. This offers strong evidence supporting the future potential of additive manufacturing and aggregate treatment techniques.

On the other hand, natural fiber rope has long been a traditional practice in Central America, where people weave dried stover into various tools like baskets. This project aims to scale this practice industrially, producing natural fiber ropes with excellent tensile strength.

By combining these two materials, each with its respective structural properties—compression strength from the concrete and tensile strength from the rope—the project proposes a new material that is not only strong but also dynamic in its breathability.

DRY

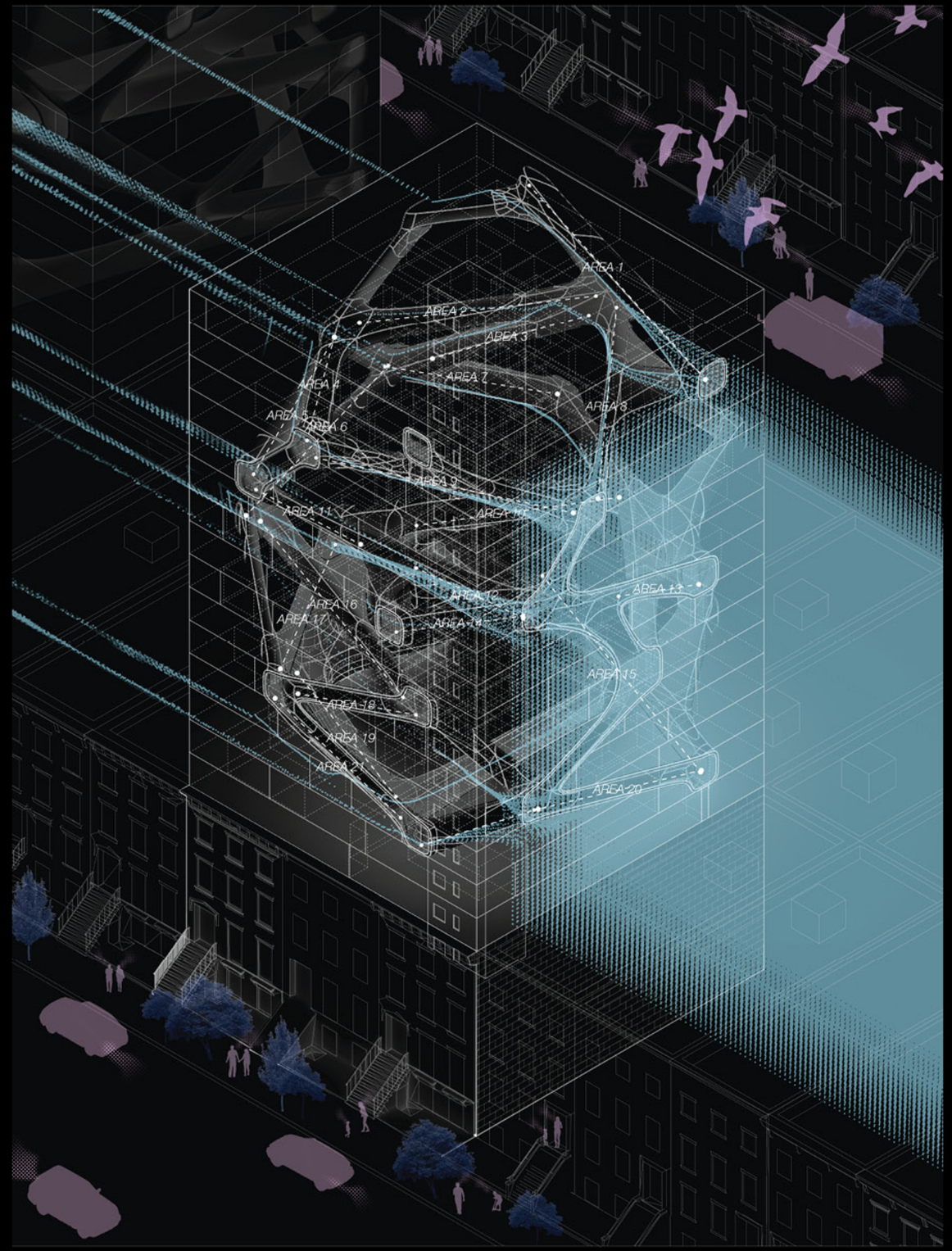
WET

BREATHING BUILDING

To encourage a shift in material practices, the composite showcases a unique ability to adapt to climate conditions—an advantage not found in conventional building materials. By harnessing the natural properties of fiber, the design introduces a material capable of regulating the dynamic relationship between airspeed and humidity—two factors that are typically inversely related when it comes to maintaining environmental comfort..

BUILDING AS CARBON SINK

The project also envisions using this innovative composite to replace the most material-intensive component of a building: its primary structure. By developing a parametric form that combines structural efficiency with optimized airflow, the design transforms the building—and potentially the city—into a massive carbon sink. It becomes a destination for agricultural waste, where the carbon embedded in these materials is permanently sequestered.



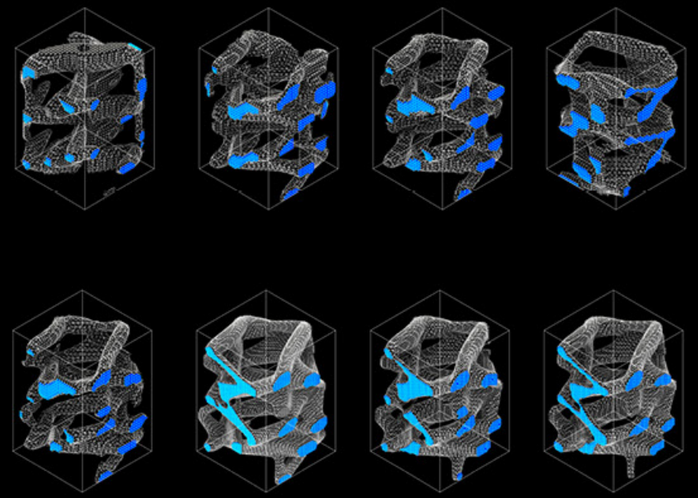
10000x
-27,849,000 kg carbon per NYC block

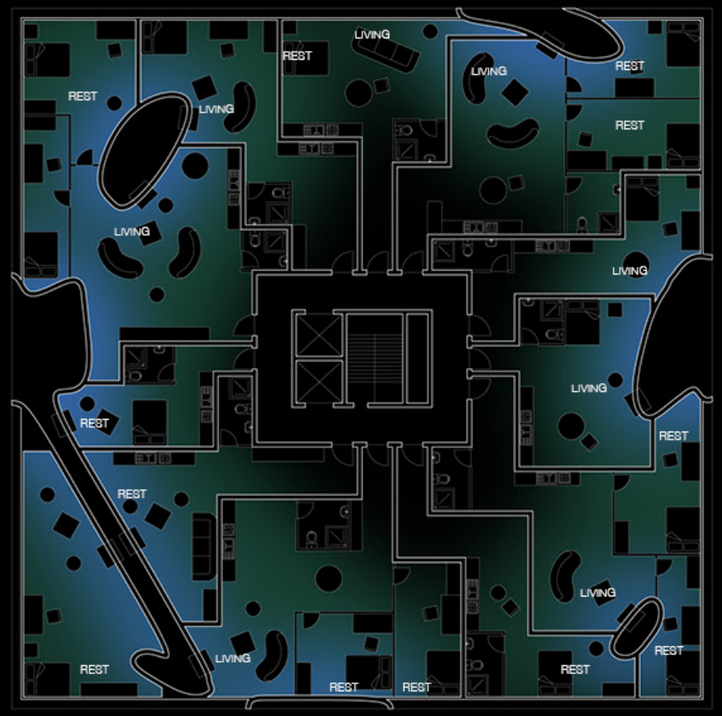
1000x
-928,300 kg carbon per building

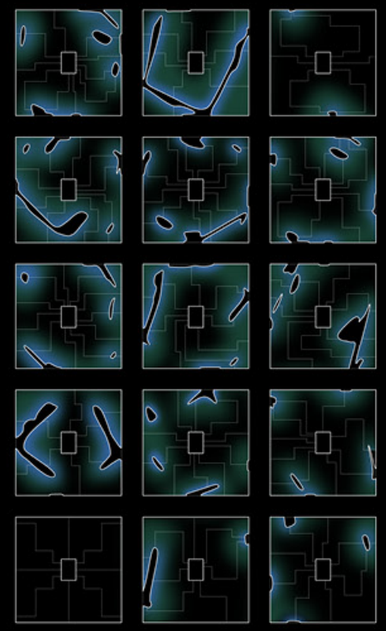
100x
-20 kg carbon per m2 area

1x

2.15 BUILDING AS CARBON SINK/ CARBON SEQUESTRATION RATE AT DIFFRENT SCALES

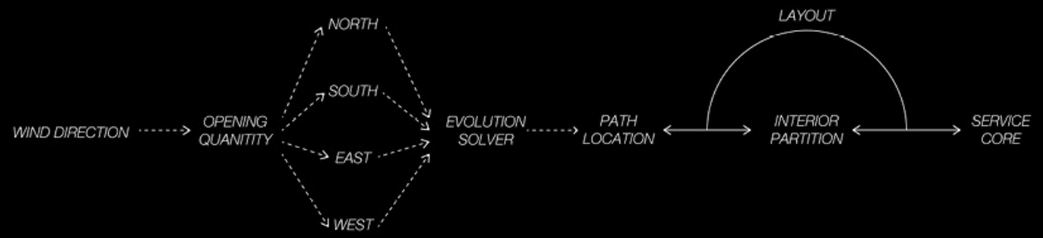


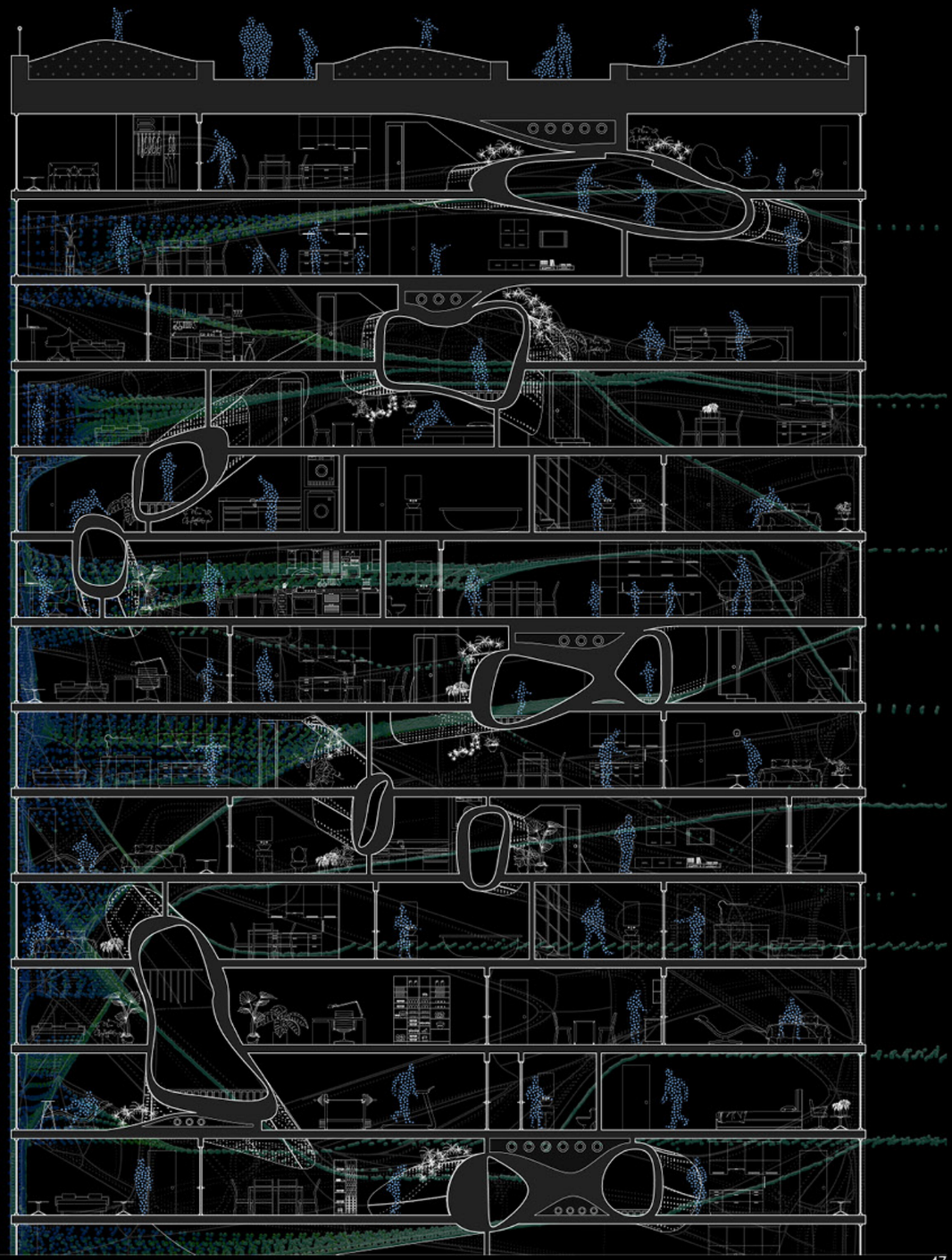




SCALE THROUGH ADAPTABILITY

To address the urgent need for decarbonization, this typology is designed to be scalable and responsive to diverse urban conditions. Scalability is achieved by generalizing the design, allowing it to adapt seamlessly across varying contexts. At the core of this approach is a parametric set of guiding principles that define the system's spatial logic: all sides of the building should incorporate porous walls; porous spaces should be stacked at overlapping corners; and these spaces must remain continuously connected to ensure spatial fluidity. By embedding these principles into the design, the typology becomes highly adaptable—capable of growing and evolving throughout the city.

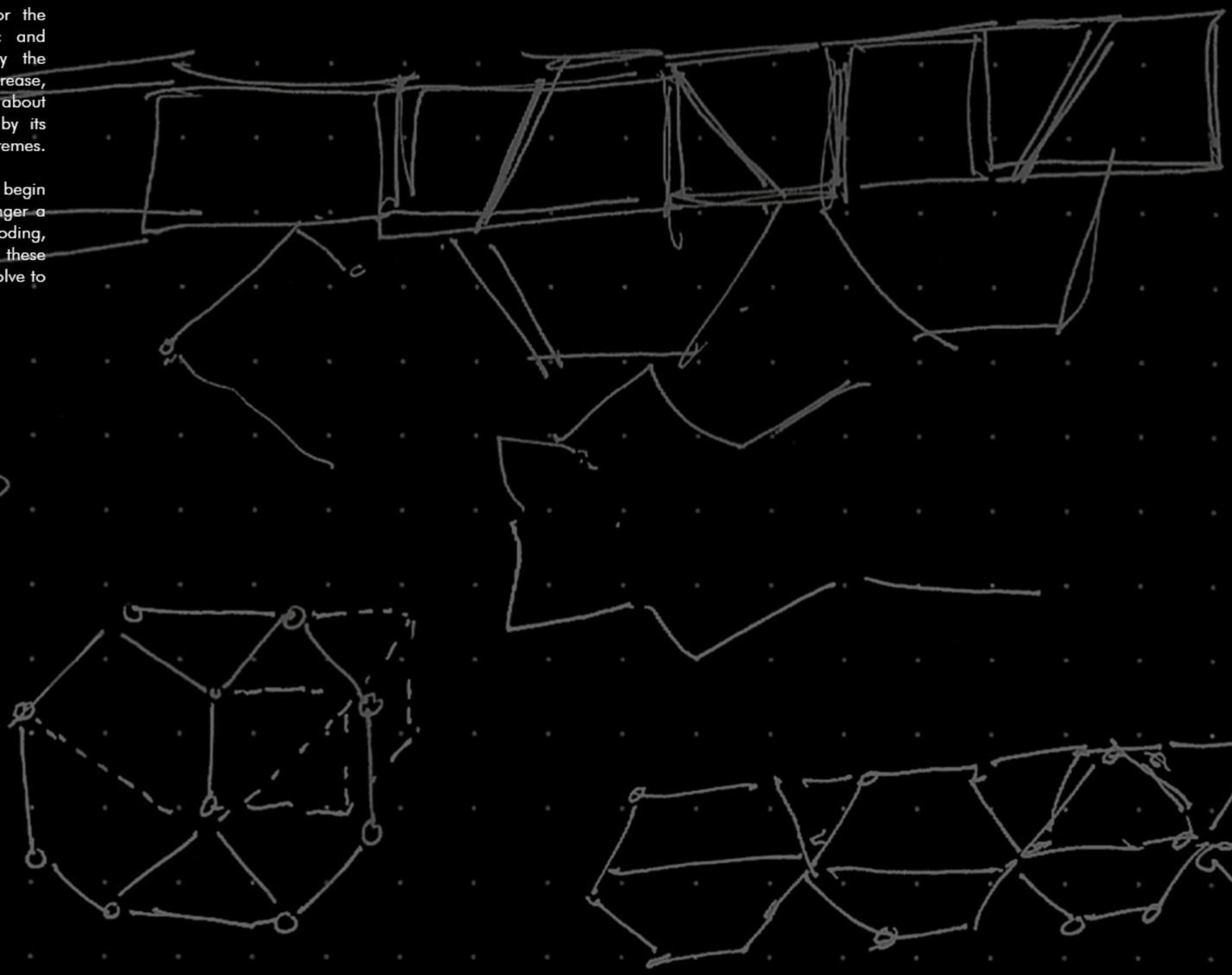


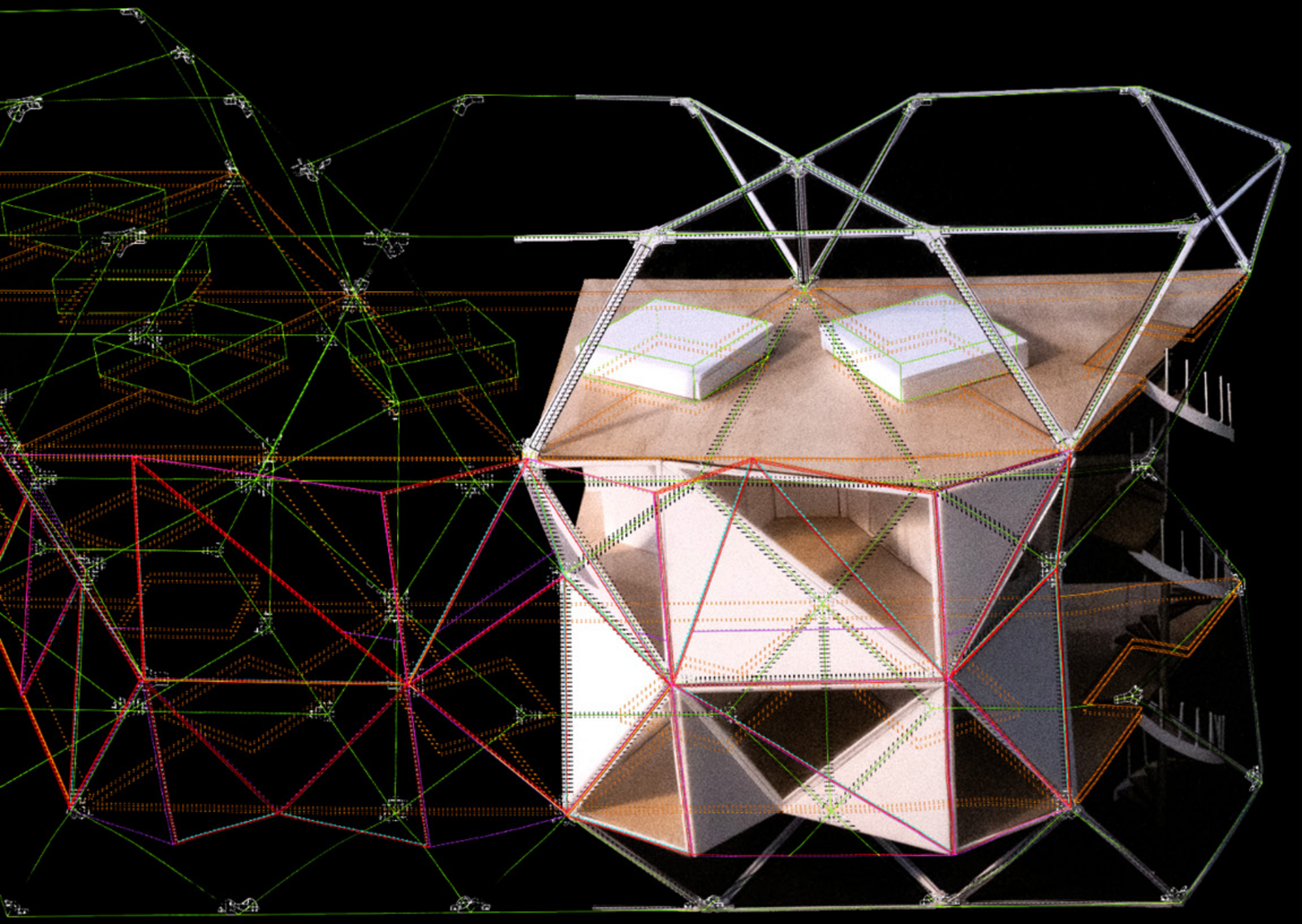


3. SEA-LEVEL

The concept of sea-level rising presents a host of challenges for the built environment—chief among them, the increasingly dynamic and unpredictable nature of our natural surroundings, intensified by the ongoing climate crisis. With each degree of global temperature increase, sea levels respond with alarming speed and force, bringing about more volatile and frequent extreme weather events. Architecture, by its nature, has always been a discipline of designing for such extremes.

But what happens when the pace and intensity of climate change begin to undermine the very ground our buildings stand on? This is no longer a theoretical concern. In many coastal regions, shorelines are rapidly eroding, and infrastructure faces seasonal threats of submersion. In light of these realities, how should architecture respond? More importantly, can it evolve to become as fluid and adaptive as the environment it inhabits?





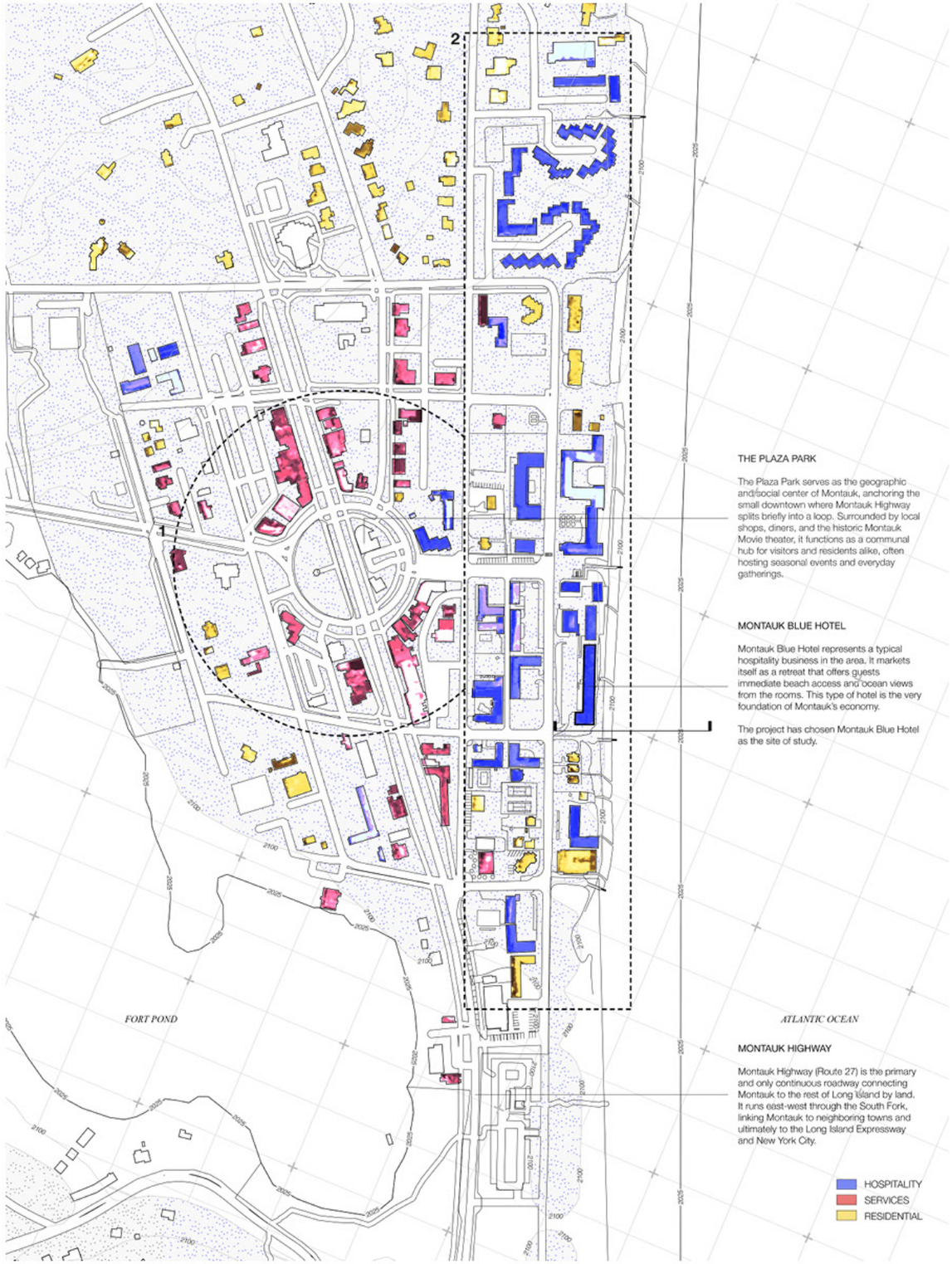
ADAPT

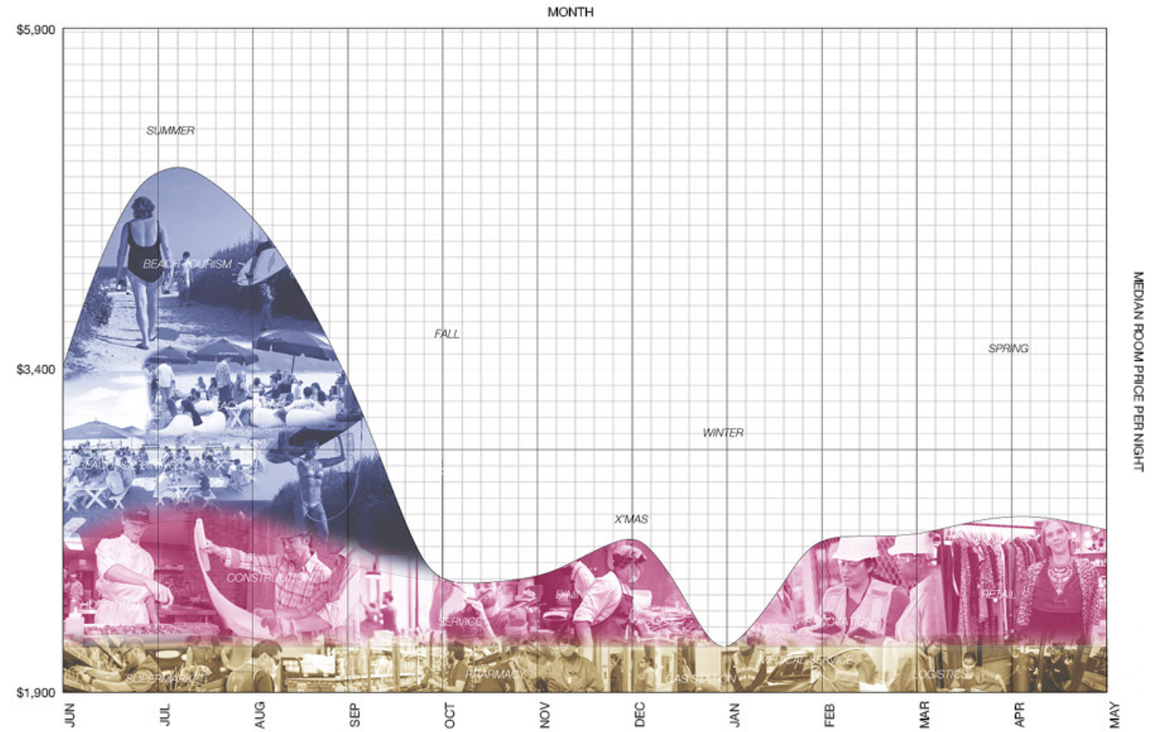
STUDIO / ADV IV
CRITIC / ROBERT MARINO
TEAM / INDIVIDUAL

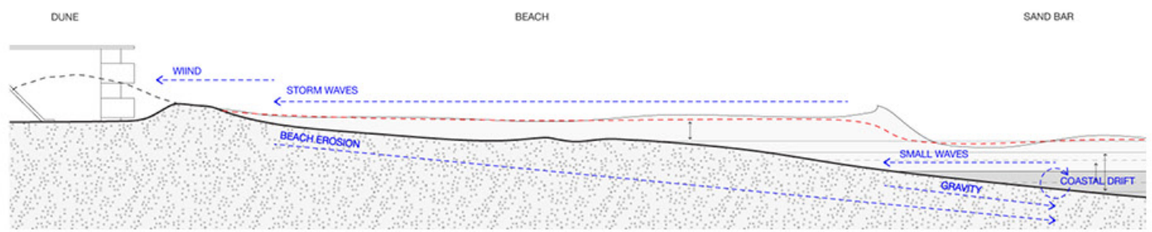
Adapt is a project that explores the structural limits of architecture through a case study in Montauk—a beach town located at the northern tip of Long Island. The project investigates the potential of hybrid construction methods, emphasizing both the assembly and disassembly of buildings as integral to their design.

Focusing on one of Montauk's many motels, which depend heavily on seasonal beach tourism, the project responds to a dual crisis: economic decline and climate change. As rising sea levels encroach inland, they erode the beaches and undermine the structural foundations of these buildings, threatening their viability.

In response, Adapt proposes a relocatable building system composed of modular, prefabricated components. The design includes self-contained units that house essential mechanical systems—such as toilets and sinks—consolidating MEP infrastructure into compact, transportable modules. Interior partitions, façades, and floor panels are designed for flexible panelized construction. These elements are supported by a modular structural framework assembled on-site. When relocation becomes necessary, the building can be fully disassembled; the structural frame is designed to be rotated and repositioned, enabling the entire structure to be reassembled on a new site.







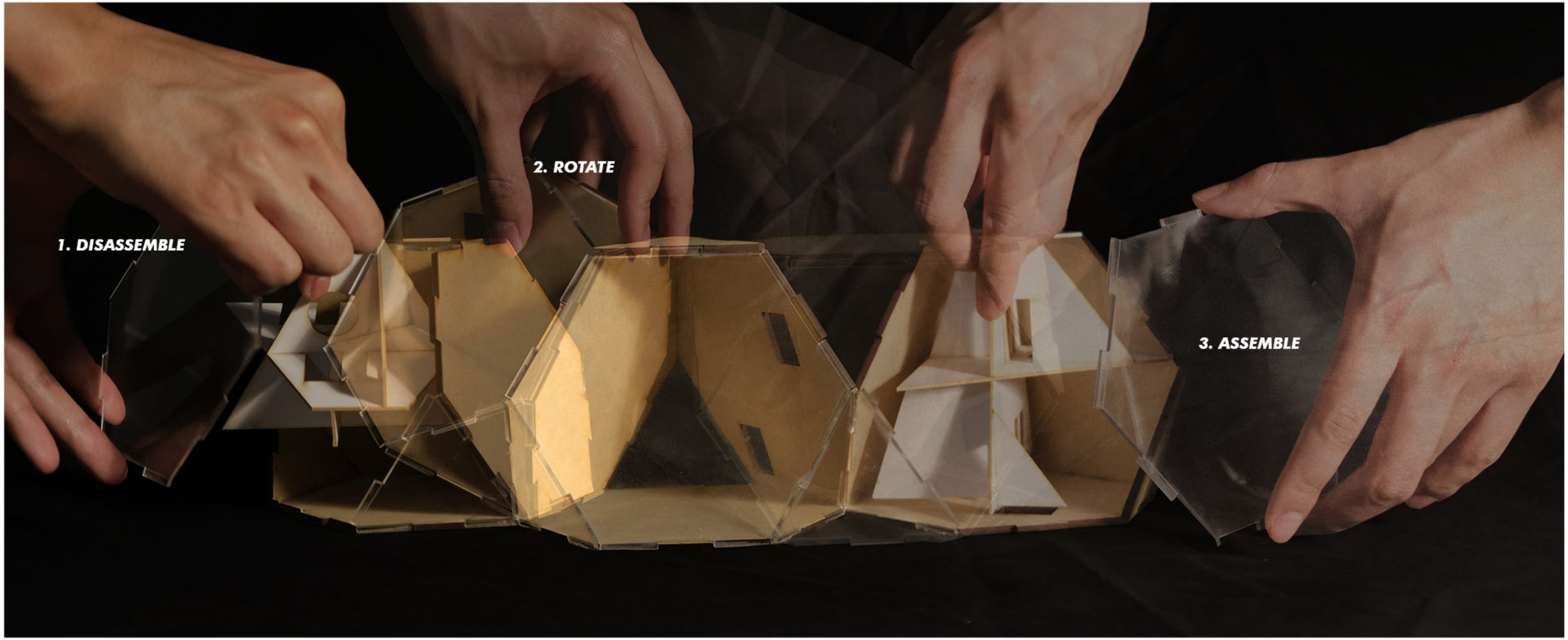
BEACH-TOWN ECONOMY

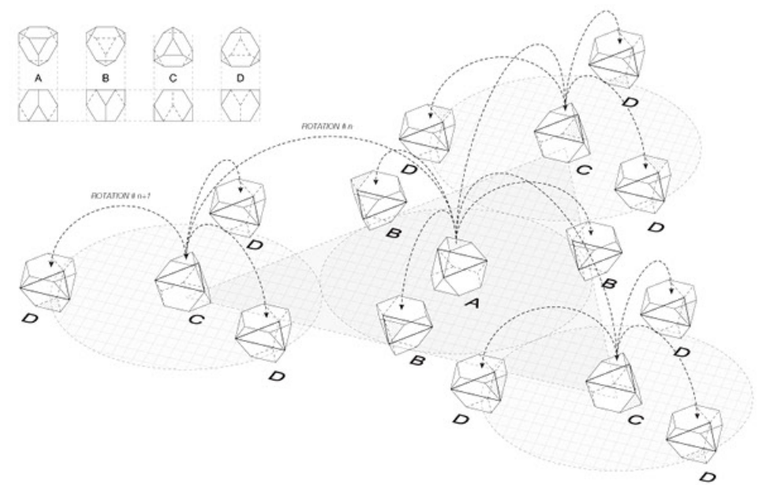
A local resident once remarked that Montauk is a town of "the wealthy and their servants"—a reflection of the town's sharply divided socioeconomic landscape. As a beach town, Montauk operates on a highly specific economic model: tourism is its primary, and overwhelmingly centralized, source of income. The few summer months must generate enough revenue to sustain many residents for the entire year. This seasonal dependency shapes the spatial logic of the town, where priority is given to the hospitality industry, particularly motels that line the shore and face Montauk's most valuable asset—the beach. These motels serve as anchors for tourist activity; guests stay there and circulate through local shops and services, collectively supporting the town's fragile economy. In this context, the loss of beach access is not simply a natural or environmental issue—it becomes a question of economic survival.

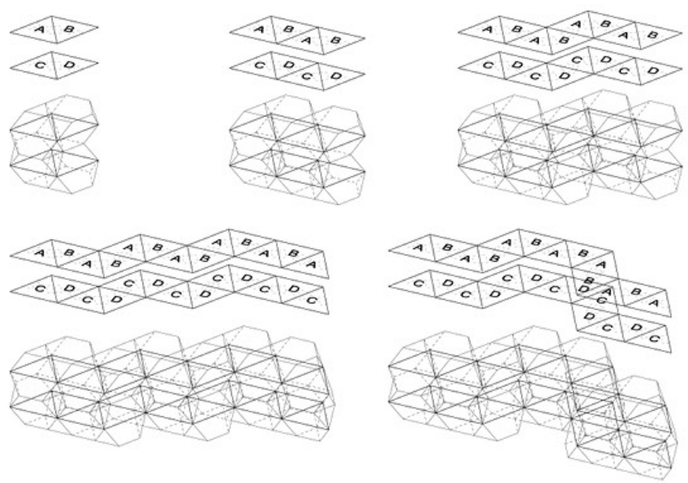
MOVING BEACH

Theoretically, the beach has always been in motion. As part of a highly dynamic coastal system, sand is constantly shifted by small waves that deposit it onto the shore, only for it to be pulled back by gravity. This movement isn't just back and forth; it also occurs laterally, influenced by changing tidal directions.

Traditionally, this natural rhythm allowed the shoreline to adjust and migrate. However, with rising sea levels, the coastal boundary is steadily moving inland—while the motels, as fixed structures, remain immobile. These buildings effectively anchor the position of the dunes, leaving no room for the beach to retreat or evolve. This tension between natural mobility and architectural rigidity has led to a troubling consequence: the beach in Montauk is shrinking—and this loss is becoming permanent.



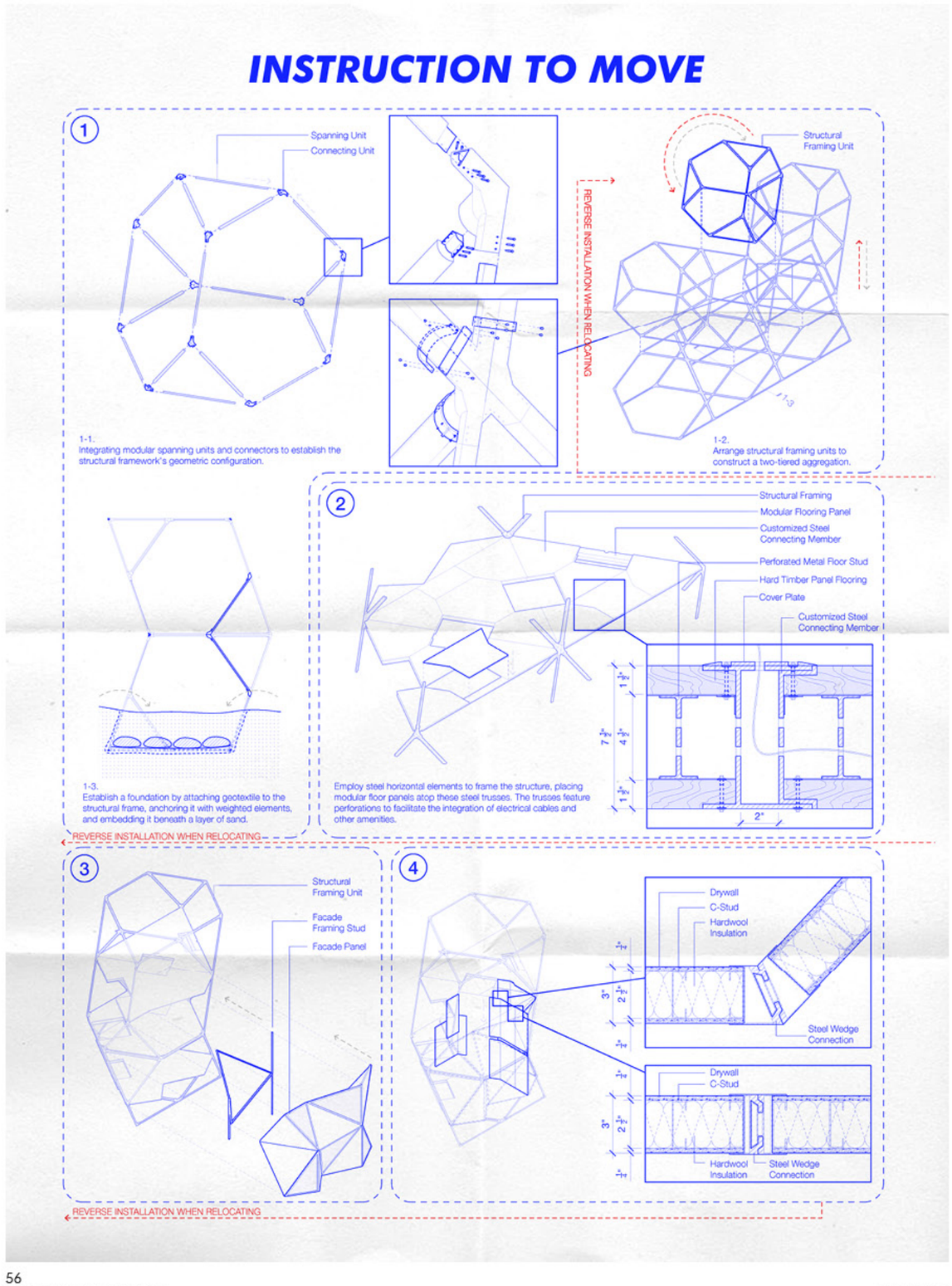


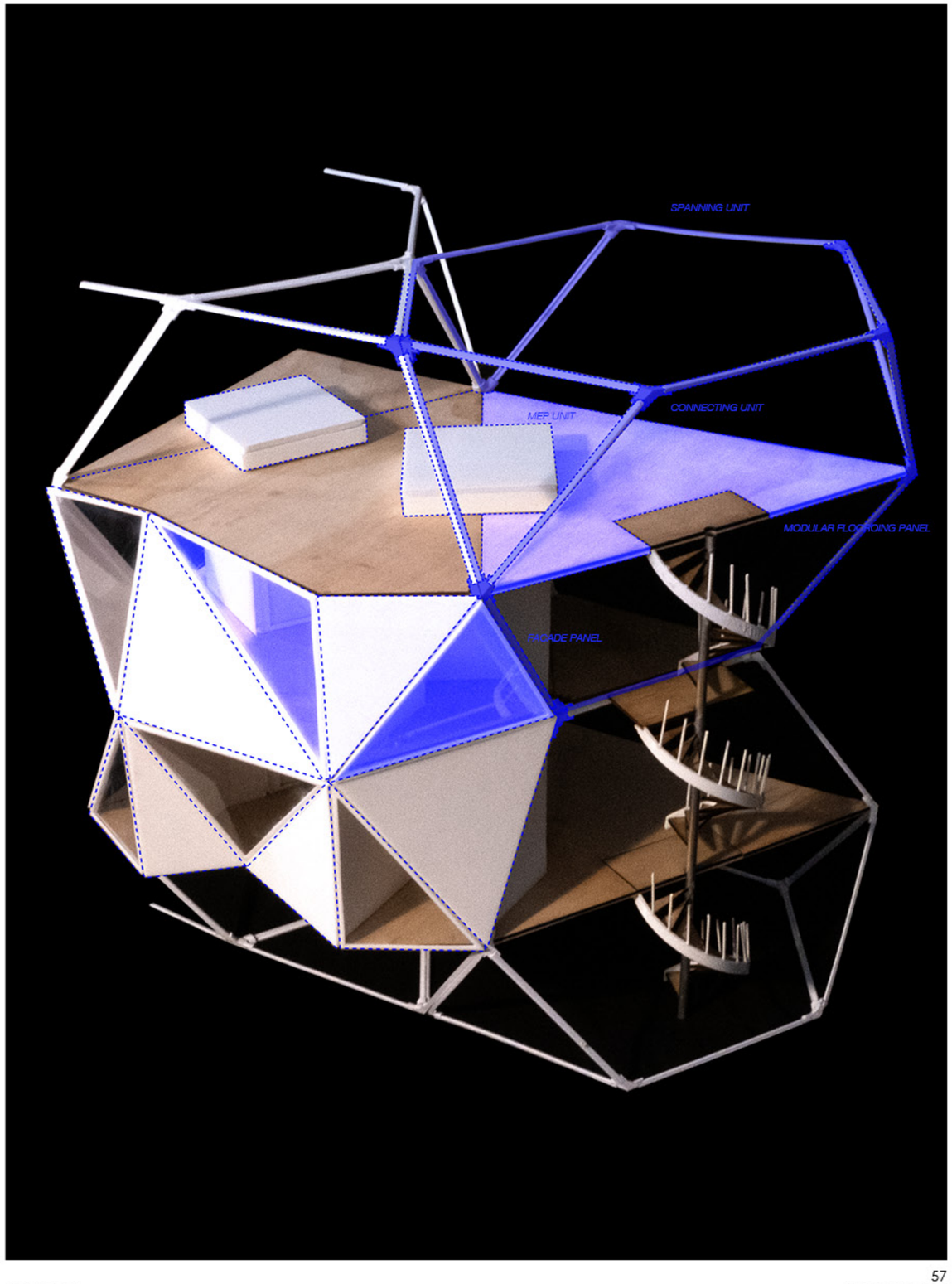


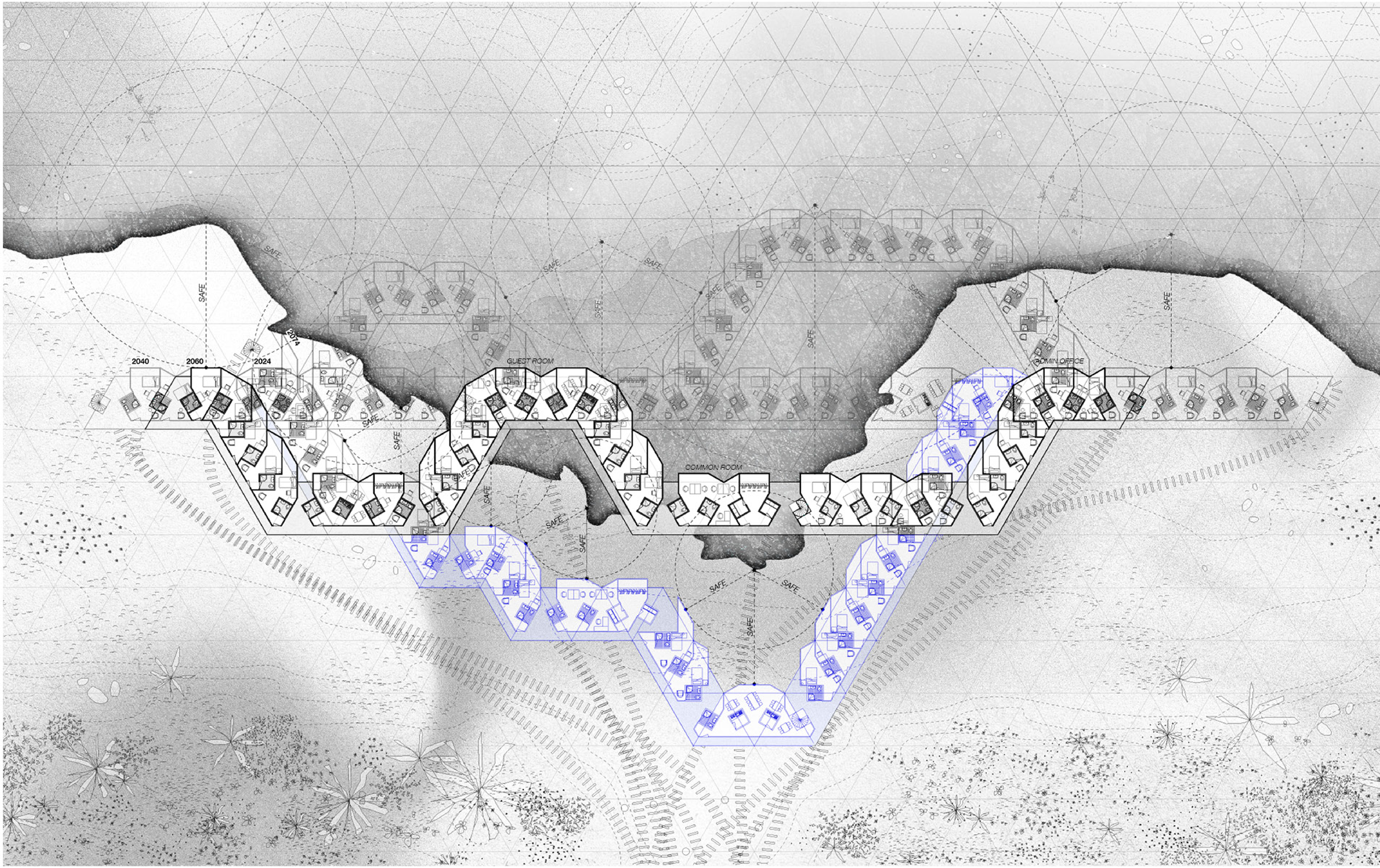
ROTATION + AGGREGATION

The project responds to the shifting shoreline by proposing a structure capable of movement through both rotation and aggregation. At the core of the system is a truncated tetrahedron, a geometric form composed of four hexagons and four triangles. This shape allows for rotation along three axes, resulting in four distinct orientations. These orientations can be strategically aggregated to form a seamless, adaptable geometry—one that offers the flexibility needed to dynamically respond to changing environmental conditions.

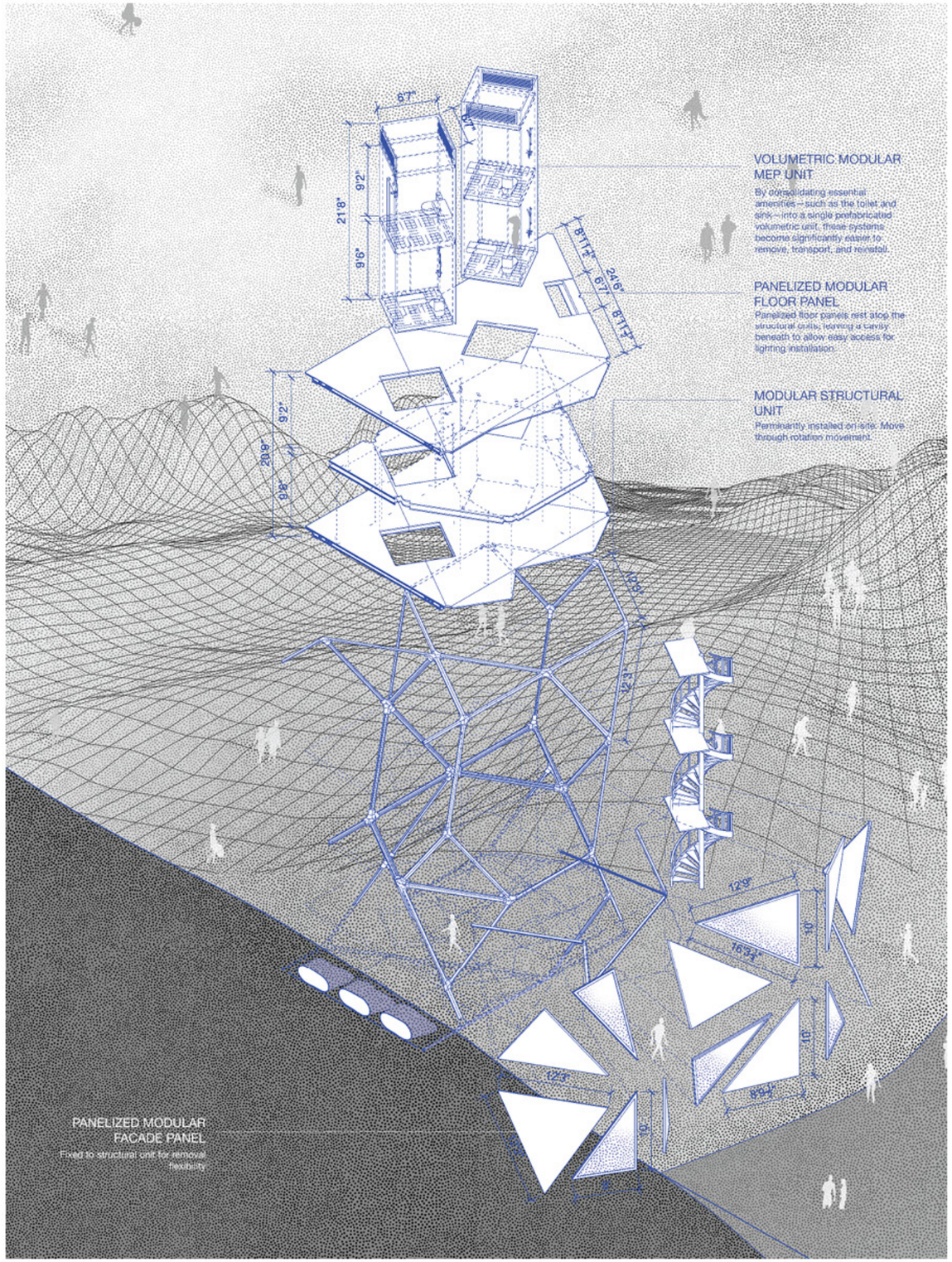
INSTRUCTION TO MOVE






2040
2060
2024
2074
GUEST ROOM
ADMIN OFFICE
COMMON ROOM
SAFE

3.11 EXTERIOR PERSPECTIVE


8'1"
9'2"
21'8"
9'6"
8'11"2"
24'6"
6'7"
8'11"2"
9'2"
20'9"
9'2"
12'3"
12'9"
10'
16'3"
10'
12'3"
6'9"2"
10'
VOLUMETRIC MODULAR MEP UNIT
By consolidating essential amenities—such as the toilet and sink—into a single prefabricated volumetric unit, these systems become significantly easier to remove, transport, and reinstall.
PANELIZED MODULAR FLOOR PANEL
Panelized floor panels rest atop the structural units, leaving a cavity beneath to allow easy access for lighting installation.
MODULAR STRUCTURAL UNIT
Permanently installed on-site. Move through rotation movement.
PANELIZED MODULAR FACADE PANEL
Fixed to structural unit for removal flexibility

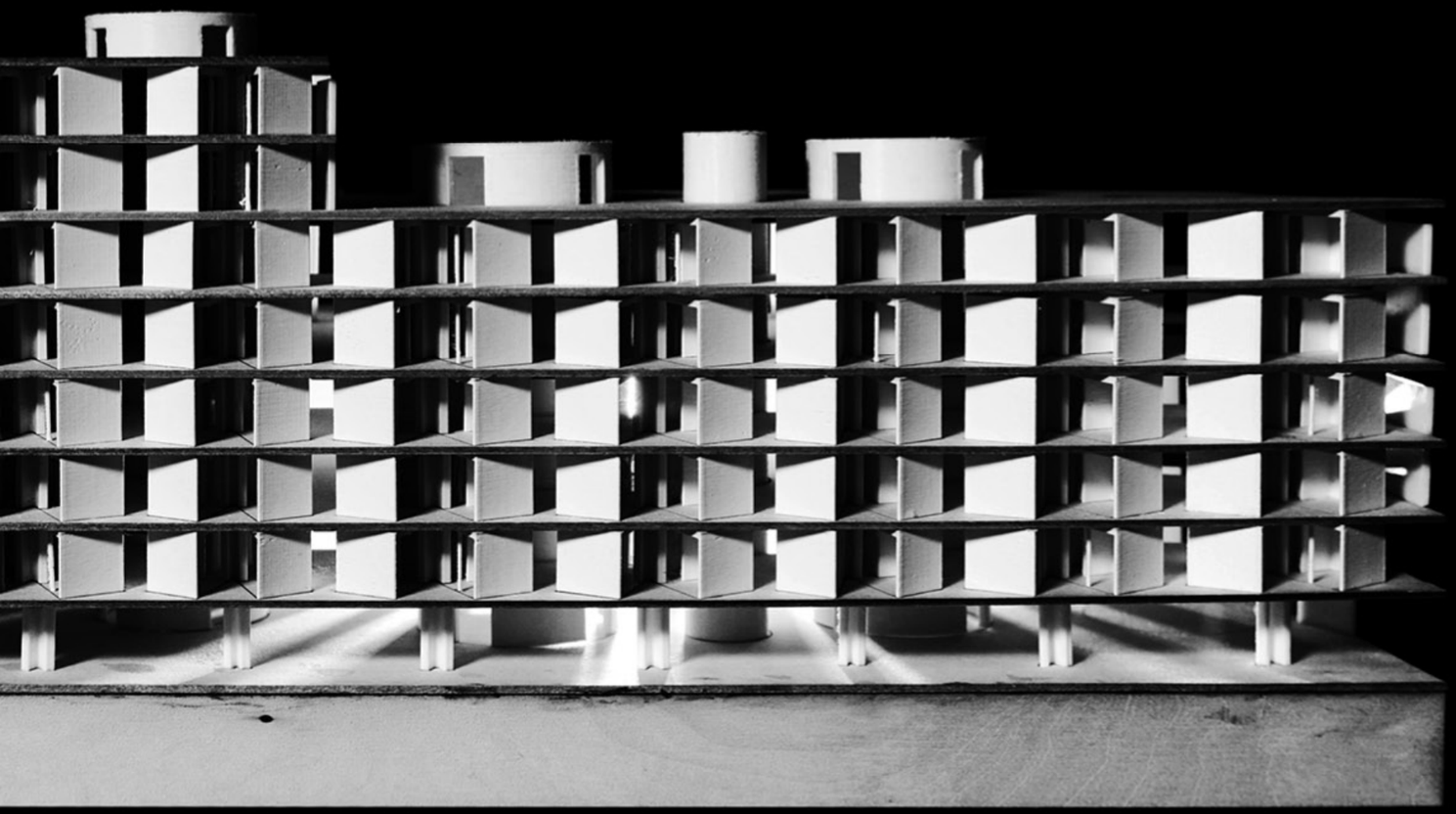

TOYOTA

4. COMMUNITY

The relationship between architects and the communities they design for is both unique and complex. As architects, our design decisions are shaped by personal experiences and subjective values, yet the outcomes are intended for a broader public—often one we may not fully know or understand. This tension becomes especially pronounced in housing design, where the stakes are high, as we are shaping the spaces people call home. Every community has its own patterns of living, shaped by culture, history, and daily reality—patterns that require careful study and understanding.

This raises an important question: how can we, as design professionals, avoid projecting our own assumptions about what constitutes "good" living onto the communities we work in? In such contexts, a deep and nuanced understanding of the social fabric becomes essential.

Rather than approaching projects solely as master planners, architects might take on an expanded role—one that involves observing, analyzing, and uncovering the social dynamics and values embedded in everyday life. In doing so, we can begin to act not just as designers, but as excavators of communal meaning?



VERTICAL HARLEM

STUDIO / CORE III
CRITIC / ERIC BUNGE
TEAM / ANDREW LIN + WESLEY SONG

'Vertical Harlem' confronts the inherently subjective nature of architectural practice by centering humanitarian values and community engagement. Guided by thorough and sustained research into the history, culture, and socio-political landscape of Harlem, the project sought to understand the values of the community and the evolving relationship between residents and governing systems. Rather than relying on personal assumptions or aesthetic preferences, we grounded our design in factual, site-specific insights—allowing the architecture to emerge as an authentic response to its context.

This approach represents a meaningful shift, demonstrating how research can serve not just as background information, but as the driving force of a design process. The intent was to extend the boundaries of architecture by giving physical form to Harlem's deep-rooted culture of community, delivering a housing proposal that speaks truthfully to the area's social realities. Through this methodology—rooted in observation and analysis—we were able to move beyond subjective bias and embrace a role for the architect as an interpreter and excavator of collective values.

ZONING AS A TOOL

In most cases, the local government has the authority to decide the zoning regulation. It is an extremely powerful tool for the government as it affects a piece of land's prospect, potential usage and how the market views it. If we understand the city as a giant building, zoning is the tool that is used to decide the program mix of this mega existence. However, reality is often more nuanced and the change in zoning can suggest more than a mere shift in quantity, but also in the quwwality of these spaces.

In the 20th century, Harlem had a robust manufacturing industry that supported the livelihood of the community. However, as the economy changes, New York City's manufacturing gradually moved out of the city and the manufacturing complex at Harlem entered a stage of decline.

Entering the 21st century, the city government came up with many rezoning plans that increase residential density, height and usage. Gradually retiring the manufacturing function of the area. The latest rezone in 2022 transformed the last manufacturing zone into a R7-2/M1-5 mixed-used zone.

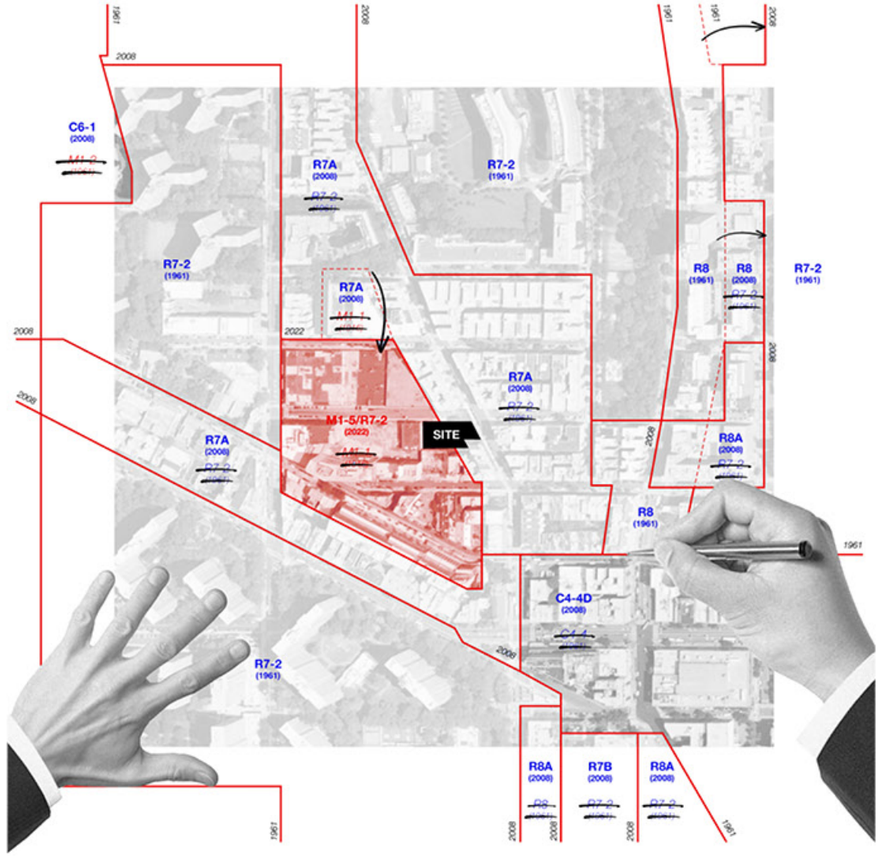
However, the private developers had a different reading on these rezoning plans. Since 2008, new constructions began to emerge in the R7A zones that completely reinvented the residential character of the neighbourhood. These new developments are targeting a wealthier group of residents, aiming to attract migration from other parts of the city- indicating a potential beginning of gentrification.

HARLEM'S RESILIANCE- CULTURE OF COMMUNITY

However, the people of Harlem has shown surprising resilience and character in the face of environmental changes. On our site visit, we saw chairs and tables that were placed between buildings, occupying the leftover spaces. The houseplants and furniture provided by the residents extends the concept of domestic lives into semi-public territories, voluntarily and actively transforming the residual corners of the city into gathering spaces that were not provided as a default in the new developments.

As we follow through this interesting thread, we realized that this is not a single incident, but a longstanding culture of the community. At the beginning of 20th century, Harlem was a sanctuary for African Americans across the east coast. The redlining policy made it one of the only few areas where African Americans are able to rent a house and get a job. And even then, the living and working conditions were heavily reduced compared to other parts of the cities. The small, overcrowded units were not a suitable place for gatherings. So instead of staying indoor and private, people turned to outdoor and public spaces.

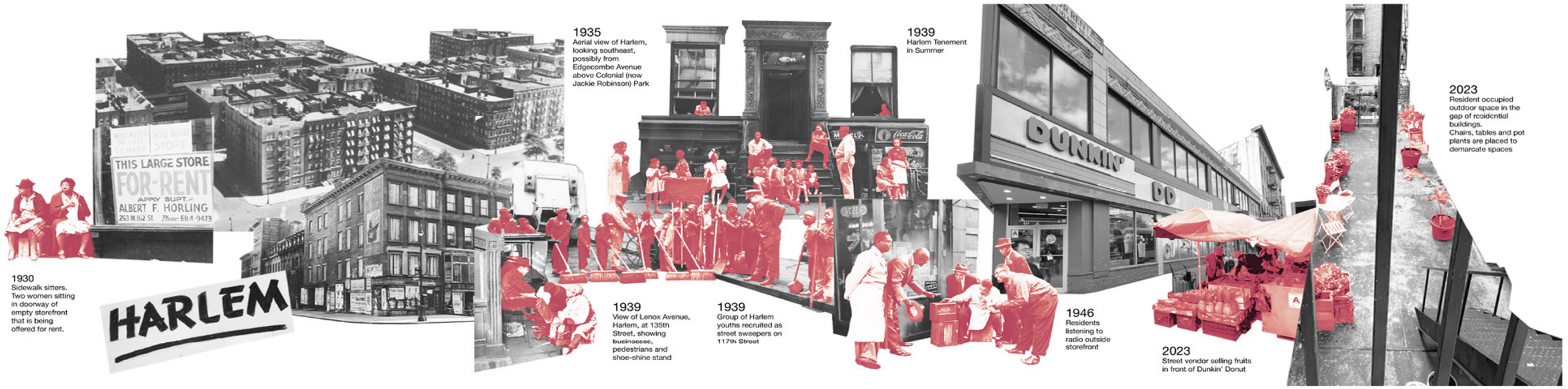
Harlem nurtured an active form of street-life where people socialize, converse and engage on the streets around their workplaces and homes. The streets that were designed for pure traffic purpose was given a different meaning- it is now an extension of living activities, a social space for families, neighbours and more. One could say that this is a naturally emerged strategy of adaptation by the locals that aimed at expanding their living area, and overtime, became a culture distinct to the community. It creates an interesting ground to explore the relationship between villé and cité, physical space as determined by zoning and the spirit of living characterized by the community.




R7A


Zoning Boundary


M1-5/R7-2



1930
Sidewalk sitters. Two women sitting in doorway of empty storefront that is being offered for rent.

1935
Aerial view of Harlem, looking southeast, possibly from Edgecombe Avenue above Colonial (now Jackie Robinson) Park

1939
View of Lenox Avenue, Harlem, at 135th Street, showing businesses, pedestrians and shoe-shine stand

1939
Group of Harlem youths recruited as street sweepers on 117th Street

1939
Harlem Tenement in Summer

1946
Residents listening to radio outside storefront

2023
Street vendor selling fruits in front of Dunkin' Donut

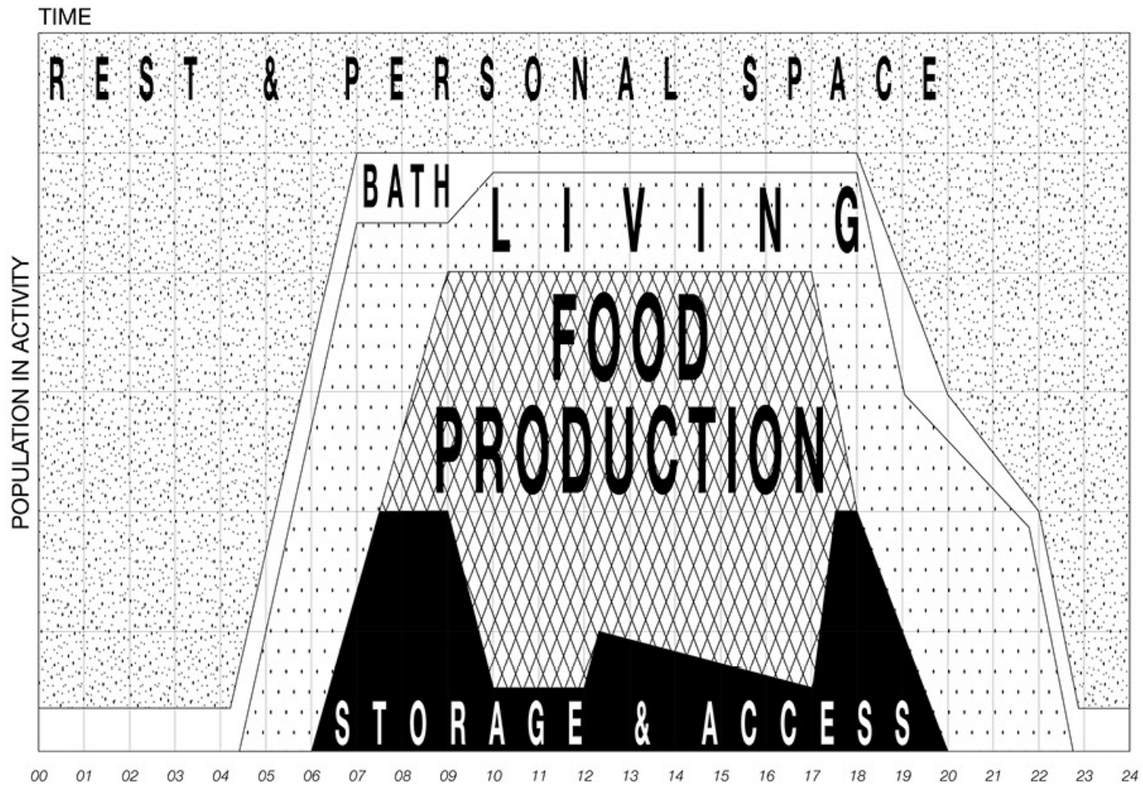
2023
Resident occupied outdoor space in the gap of rcoidcntial buildings. Chairs, tables and pot plants are placed to demarcate spaces

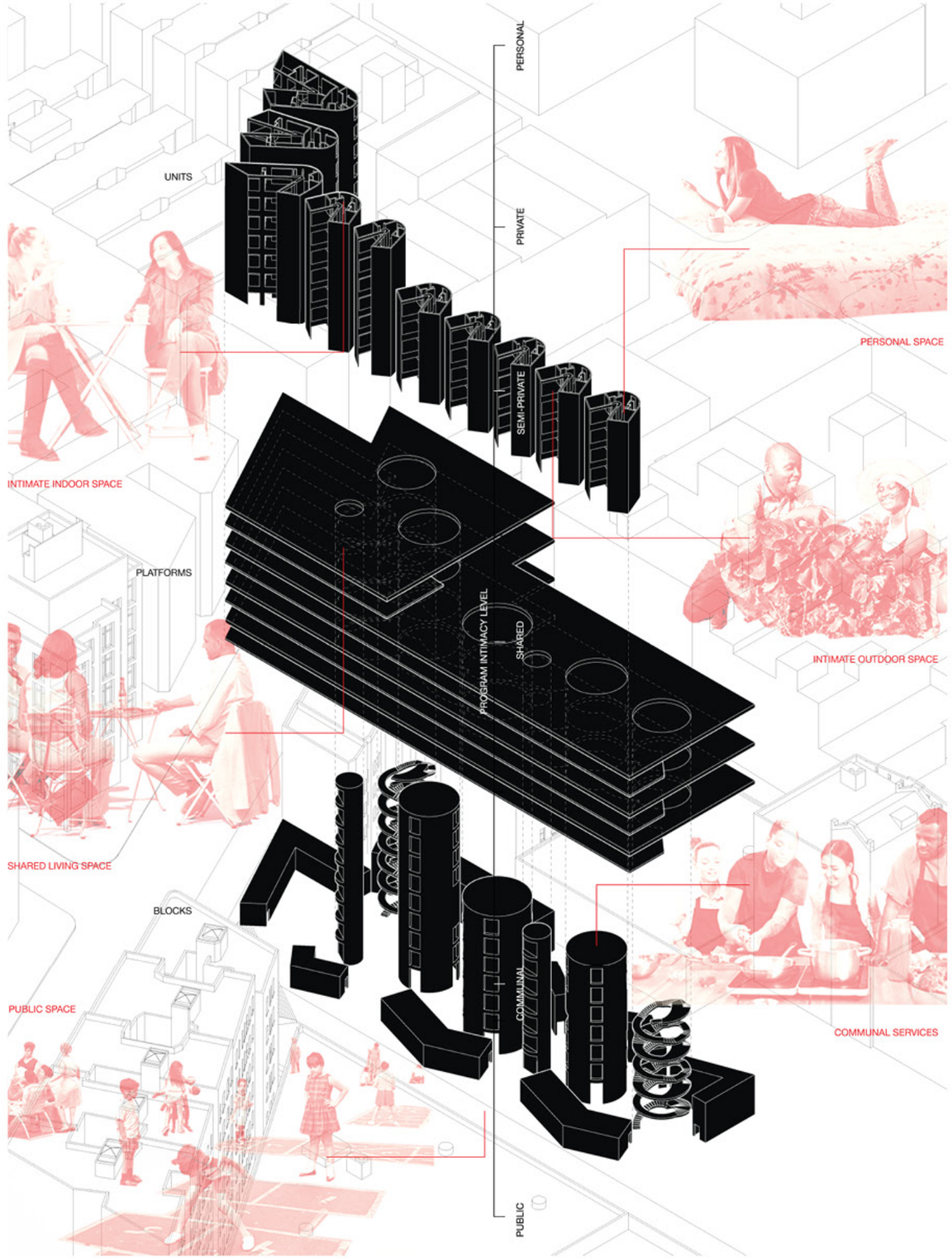
ACTIVITIES & INTIMACY

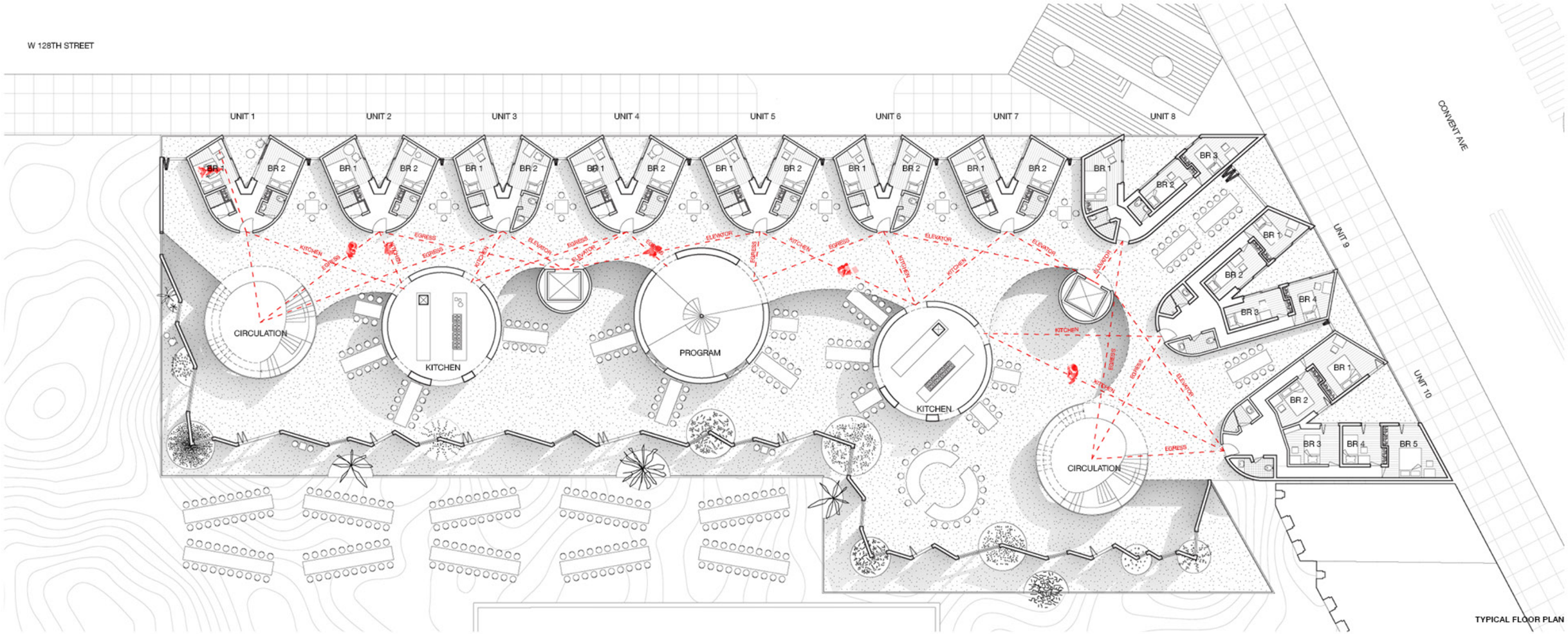
Our project seeks to celebrate the rich and vibrant culture of Harlem by integrating it directly into the everyday life of housing. At the heart of the design are vertical columns of shared kitchens, which not only serve as communal gathering points but also harness the thermal energy generated through cooking to help heat the building. These kitchen cores intersect open platforms that span across levels, each punctuated by rectangular openings that establish visual and spatial connections to the outdoors.

On these platforms, residents are invited to shape their own communal spaces around cooking and circulation, fostering organic social interactions. Upon entering their individual units, residents pass through a small shared foyer containing a bathroom and storage area, before branching off into private bedrooms. Each bedroom connects to a shared balcony, promoting both privacy and subtle social overlap. This spatial organization establishes a deliberate hierarchy of intimacy—where different zones accommodate varying scales of social interaction, from the fully public to the deeply personal.

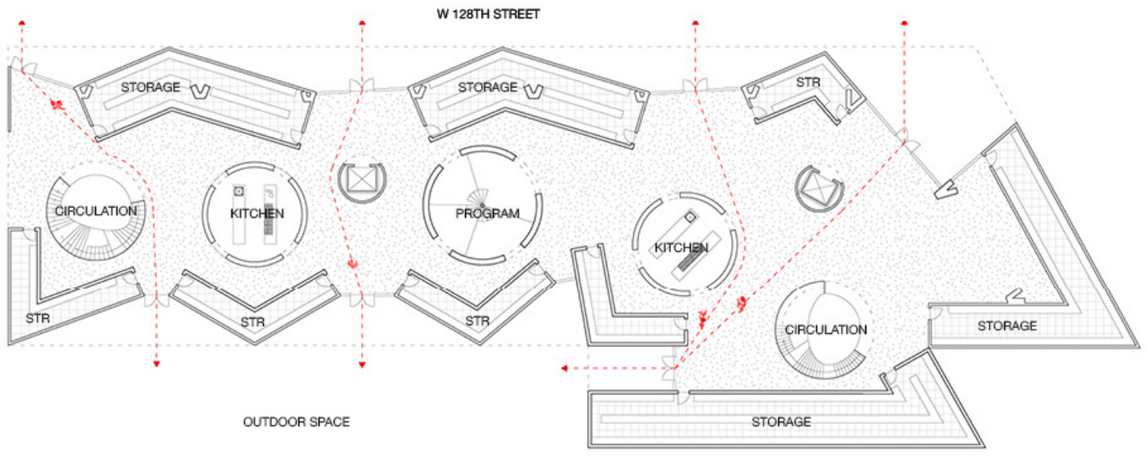
This concept extends beyond the building itself and into the neighborhood. During the daytime, when many residents are away for work, the shared kitchens and ground-floor storage areas open up to the broader community, inviting non-residents to engage in cooking and communal activity. In doing so, the project reimagines the architect's role—not merely as a form-giver, but as a cultural steward, delivering tangible expressions of Harlem's identity amidst the pressures of regulatory constraints and economic change.







TYPICAL FLOOR PLAN



GROUND FLOOR PLAN

DESIRE PATH AS SOFT BOUNDARY

Rather than relying on rigid physical boundaries to define space, the project employs behavioral patterns as a means to create more nuanced zones of accessibility. One such strategy is the use of desire paths—informal trails formed by repeated human or animal movement, often representing the most direct or intuitive route between two points.
These paths, shaped over time through natural use, reveal patterns of circulation and intensity of traffic through the width and depth of surface erosion.

When a desire path becomes well-trodden, it naturally discourages the placement of furniture or other obstacles, subtly establishing zones of use and non-use. In this way, the project embraces organic movement as a spatial organizer, allowing everyday behavior to define the edges of activity.

3.8 SECTIONAL AXONOMETRIC

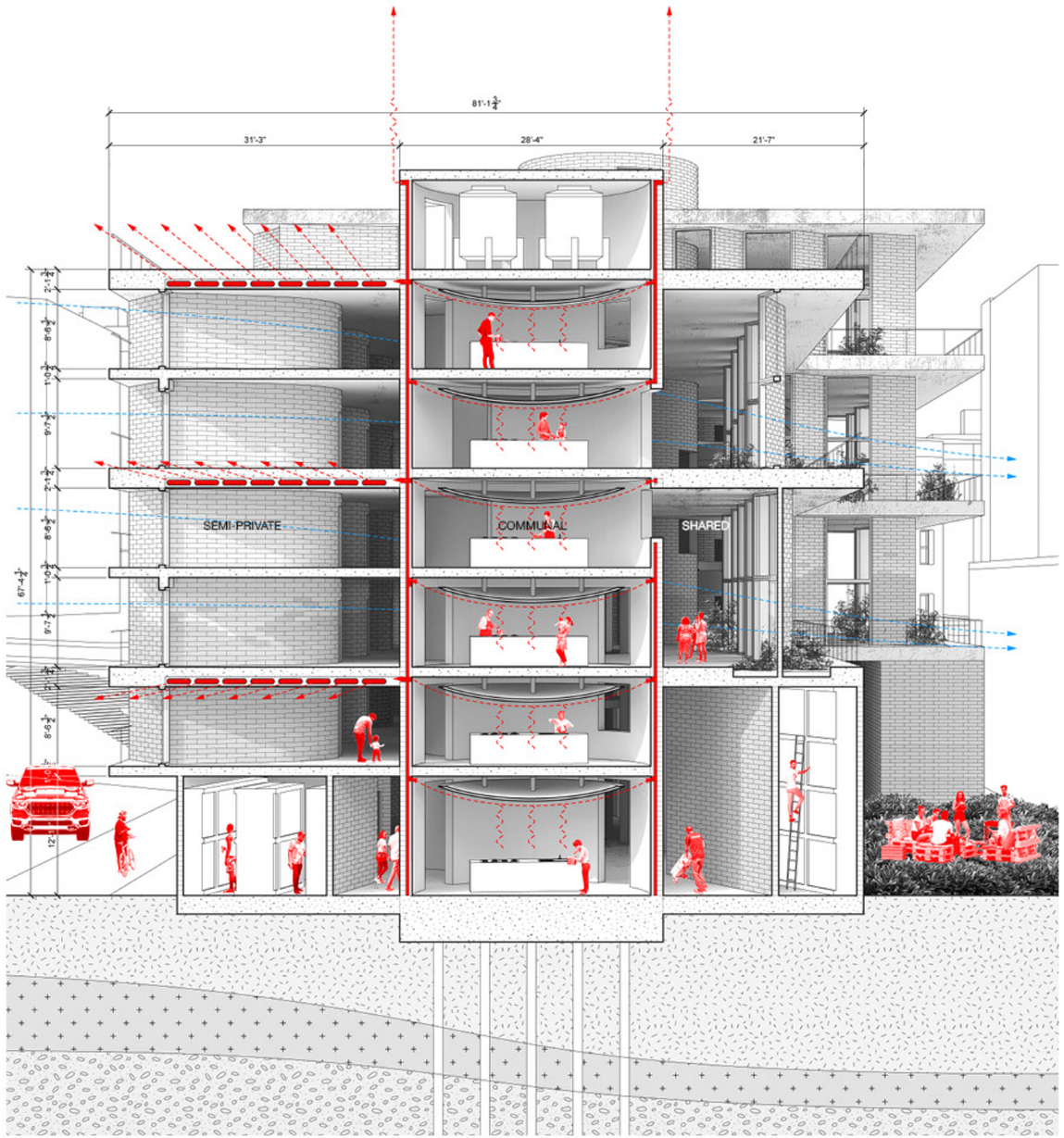
3.9 FACADE PERSPECTIVE

HEAT RECOVERY

The project proposes using heat generated from communal activities, such as cooking, as a supplemental energy source during winter. In neighborhoods like Harlem, where energy costs can be a significant burden, this approach helps reduce reliance on traditional heating systems. The communal spaces are designed for frequent use by both residents and community members, maximizing heat recovery. During warmer months, large operable glass doors on either side of the building enable cross-ventilation, turning the winter garden into a comfortable, semi-outdoor gathering space.

BRICK RECYCLE

An abandoned industrial building currently occupies the site, and the project reimagines its materials as part of a sustainable construction strategy. Rather than demolishing and discarding the existing structure, the design proposes salvaging its bricks for reuse in the new building. These reclaimed bricks will form the vertical tower elements, which are then tied together by horizontal concrete slabs. This approach not only preserves material character and reduces waste but also offers a cost-effective solution by minimizing the need for new resources.

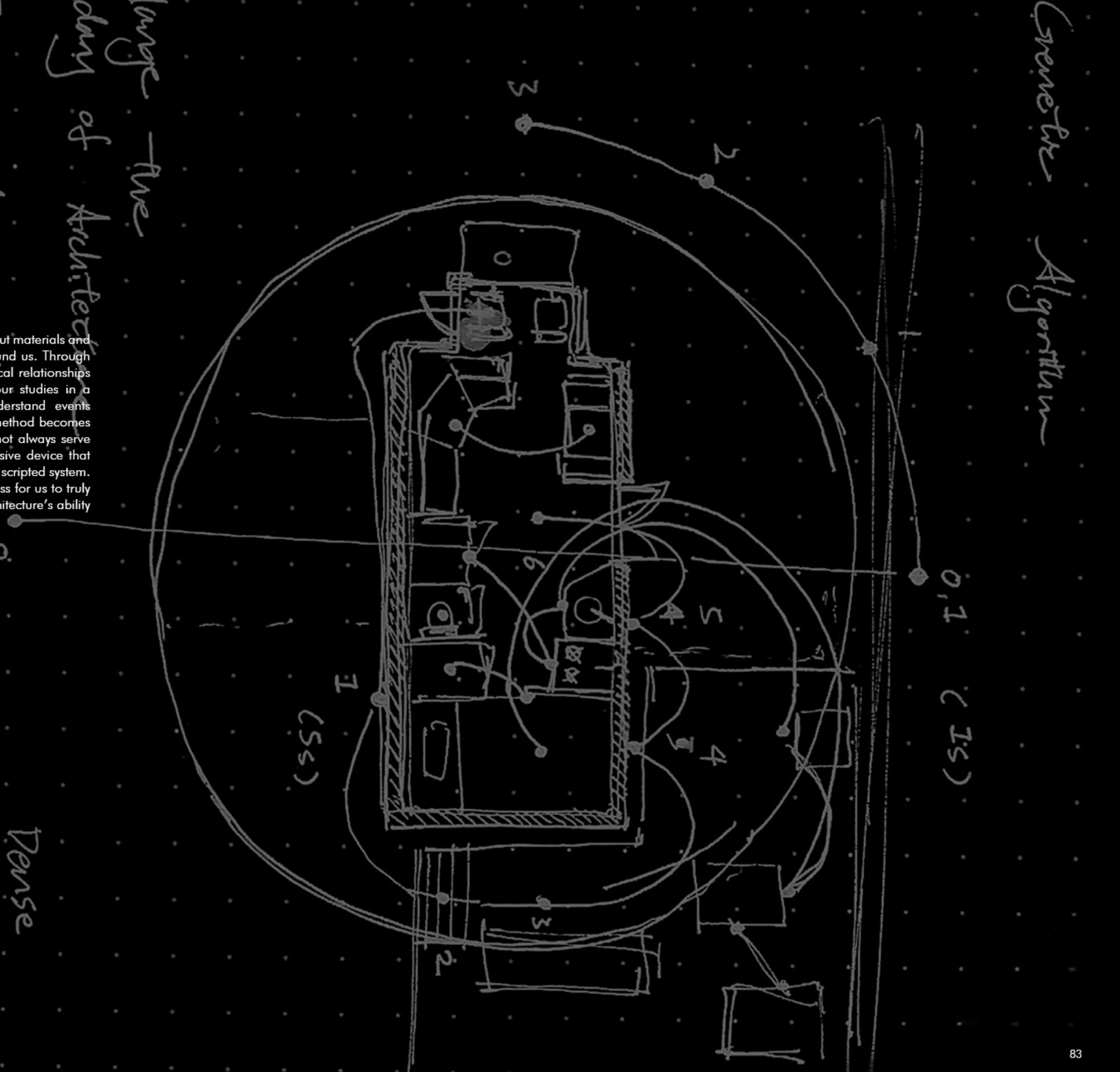


3.10 CROSS SECTIONAL PERSPECTIVE

3.11 INTERIOR PERSPECTIVE

5. HUMAN RIGHTS

One thing I learned at GSAPP is that architecture is not just about materials and construction; it is also a way of understanding the world around us. Through architecture, we are able to dissect spatial, social, and political relationships by decoding the structure, thus interpreting and scripting our studies in a constructive way. Spatial documentation allows us to understand events systematically, through space, motion, and temporality. This method becomes a way to scrutinize the capacity of architecture, which does not always serve a good purpose. Sometimes, architecture can be an oppressive device that controls people by compromising their human rights through a scripted system. This way of thinking and documentation offers a point of access for us to truly understand these spatial systems, allowing us to scrutinize architecture's ability to threaten human rights.



LABOR-LIFE SUPPORT

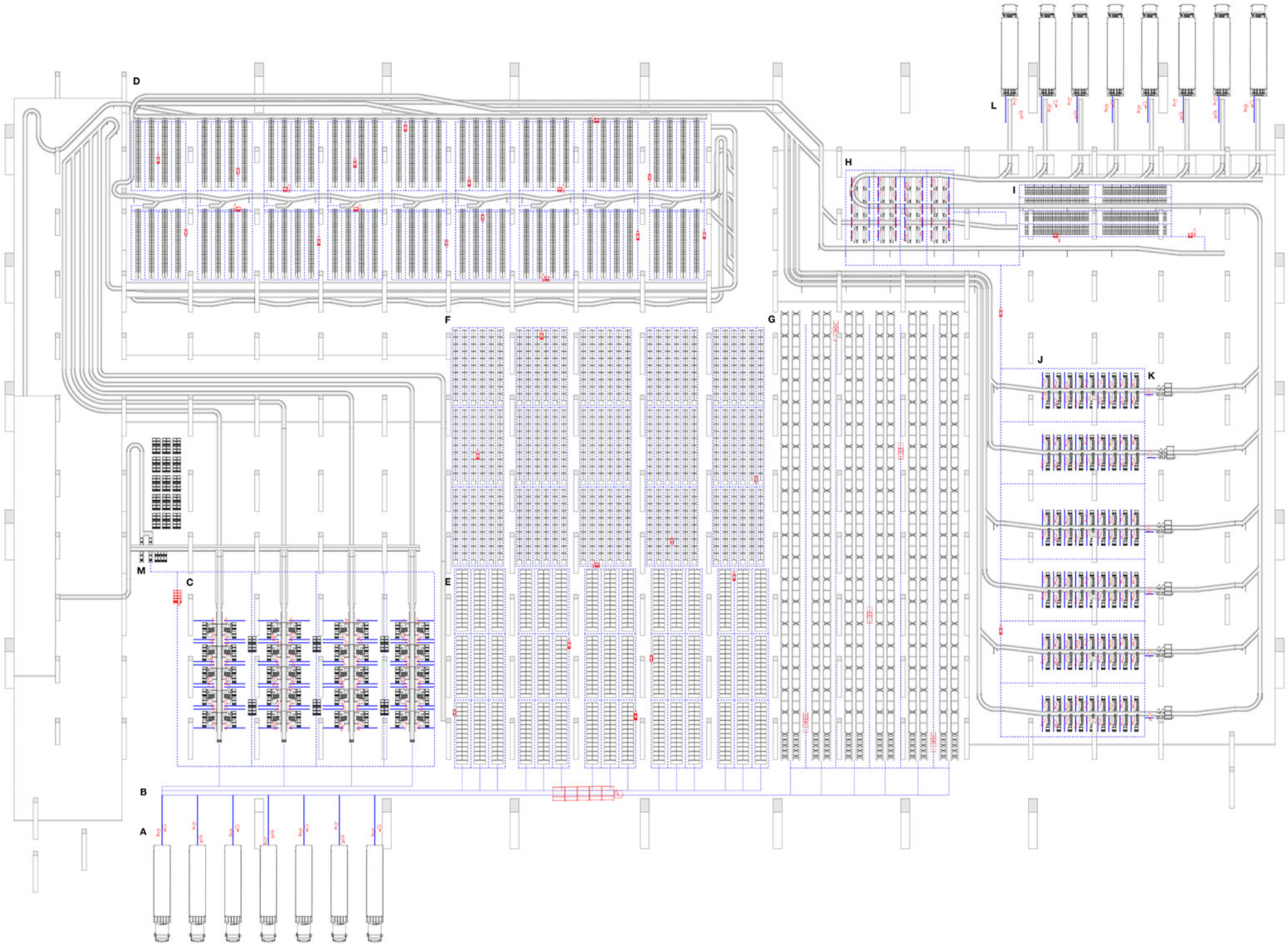
STUDIO / CORE II
CRITIC / MARK WASIUTA
TEAM / INDIVIDUAL

The labor-life support system aims to document the damage system used by Amazon in the fulfillment center PHX-6 as a means of choreographing the workers' motions through different durations. This forensic project analyzes the Amazon system using fragmented information from the amateur sources, attempting to understand it through the lens of spatial and temporal constructs. It then designs an extension to the existing damage system, called the labor-life support system, which integrates into the Amazon fulfillment center PHX-6, extending and excavating the concept of behavioral choreography through the control of duration and interfaces.

The intervention interacts with the Amazon logistics system by installing domestic facilities on the building's façade, assigning them different chronological and programmatic implications. These facilities compartmentalize and embody the necessary components of a laborer's domestic life, experimenting with techniques to mediate fluctuations in the labor force through a series of interconnected interfaces. The molecular design also replicates and mutates through durational control, manifesting dynamic architectural forms through the addition and reduction of programs influenced by durations.

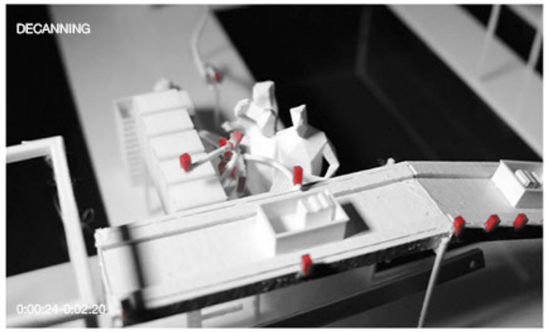
5.1 DAMAGE SYSTEM MODEL REGISTERING TEMPORALITY THROUGH TIME STAMP

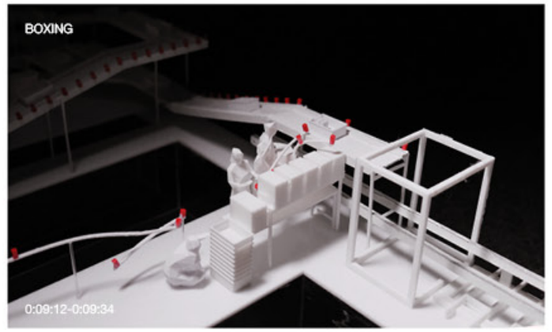
A. UNLOADING
B. SORTING
C. DECANNING
D. STOWING / PICKING (Small Sortable)
E. STOWING/ PICKING (Large Sortable)
F. STOWING/ PICKING (Medium Sortable)
G. STOWING/ PICKING (Large Unsortable)
H. GIFT-WRAPPING
I. RE-PICKING
J. BOXING
K. SEALING
L. LOADING
M. REBINNING

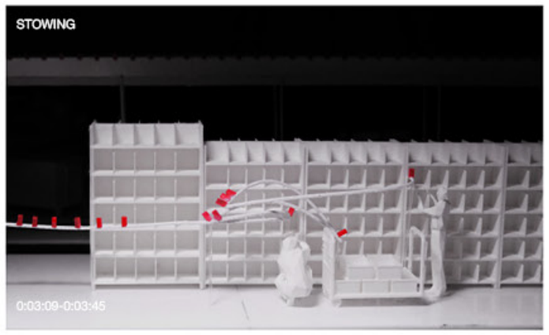


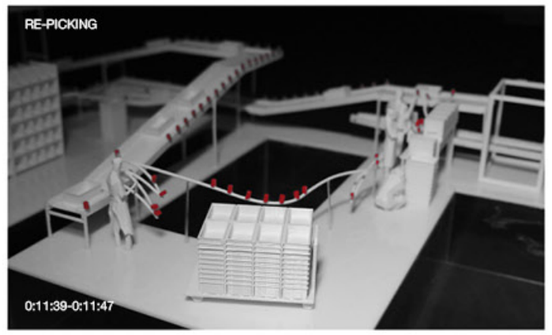
DAMAGE

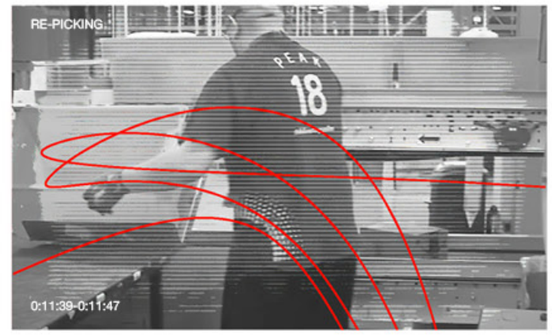
The damage system of the Amazon fulfillment center is characterized as follows: the worker is assigned to different sections of the logistics chain, responsible for various tasks, and correspondingly, a set of repeated movements. Workers are given a time incentive to process a certain quantity of packages within a specific time frame. For example, a picker is expected to collect up to 240 packages per hour. The time restriction is carefully calculated to reflect the maximum possible number of packages a single worker can process. Under these conditions, the worker is forced to take the most efficient route from point A to point B, with no freedom to choose an alternative path. This series of motions constitutes the Amazon labor control system—damaging to human rights.

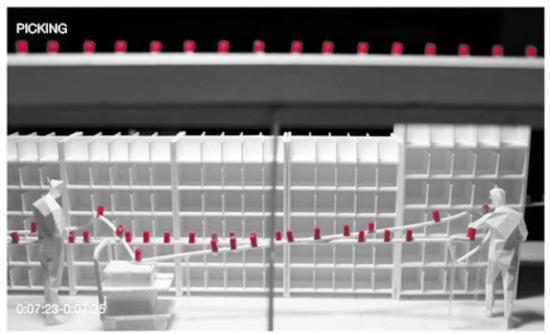


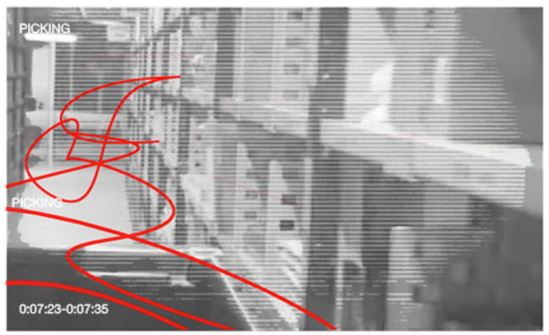


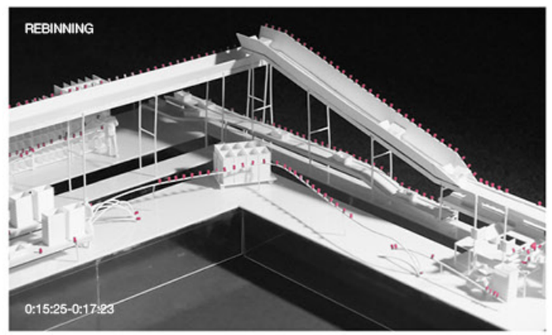






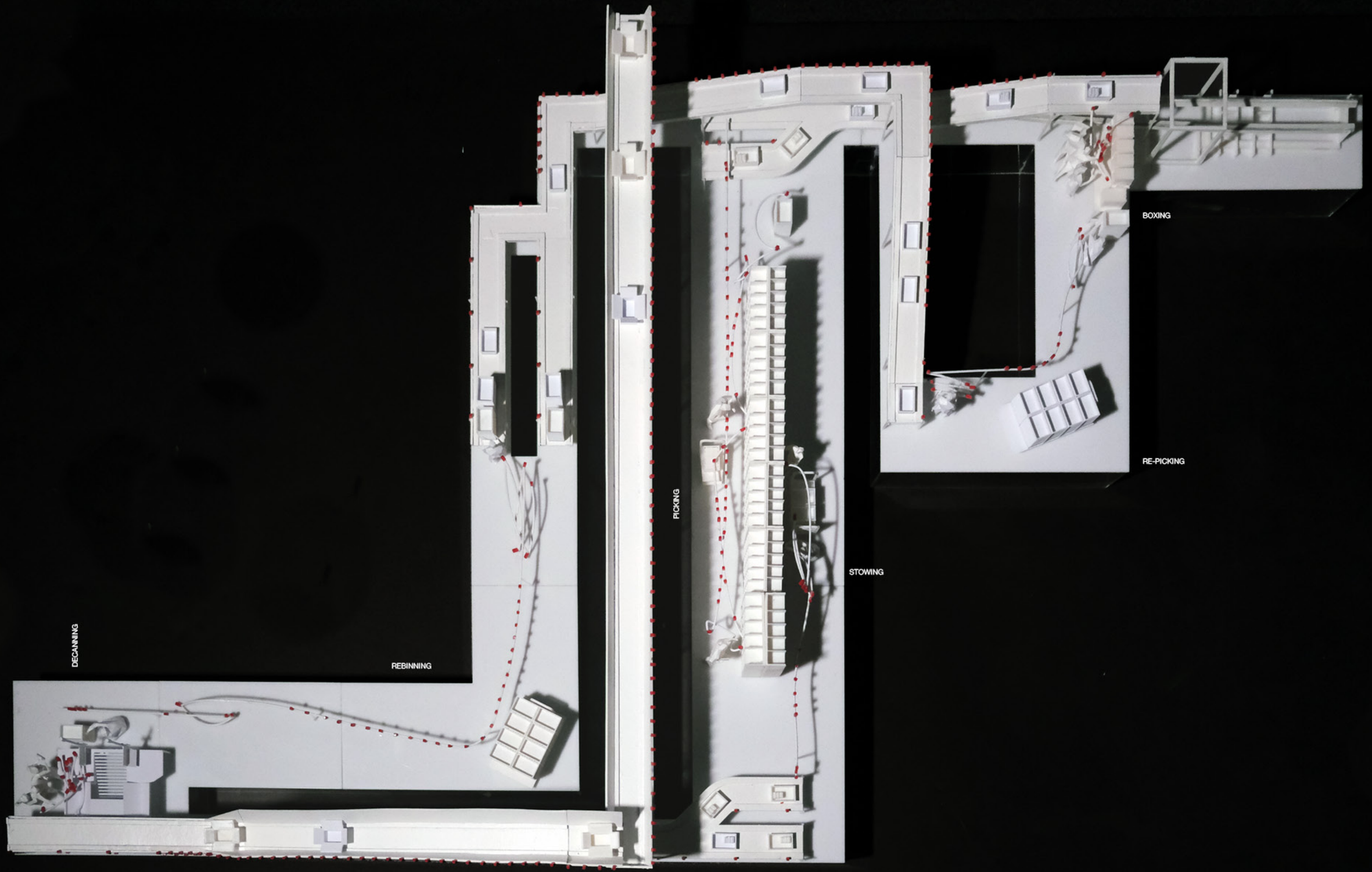






INTERFACE

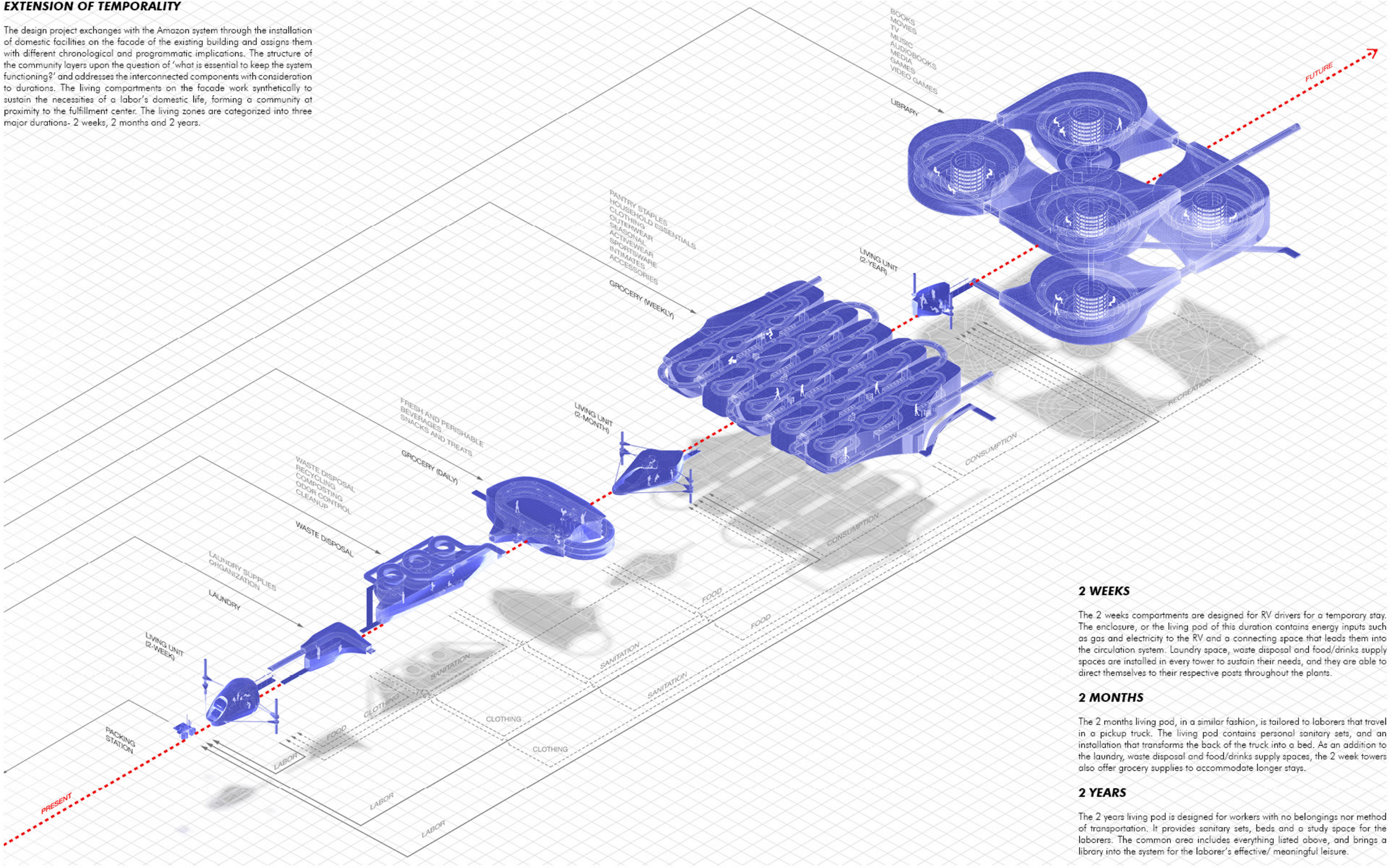
The Amazon logistic system is synthetically sustained upon the interactions between labors and these interfaces, as well as the mechanical conveyor belts that connect these components spatially. The intervention aims to excavate this language and understand the necessary resource in keeping this plant active- the input of labor power into the logistic system.



5.4 DAMAGE SYSTEM MODEL

EXTENSION OF TEMPORALITY

The design project exchanges with the Amazon system through the installation of domestic facilities on the facade of the existing building and assigns them with different chronological and programmatic implications. The structure of the community layers upon the question of 'what is essential to keep the system functioning?' and addresses the interconnected components with consideration to durations. The living compartments on the facade work synthetically to sustain the necessities of a labor's domestic life, forming a community at proximity to the fulfillment center. The living zones are categorized into three major durations- 2 weeks, 2 months and 2 years.



2 WEEKS

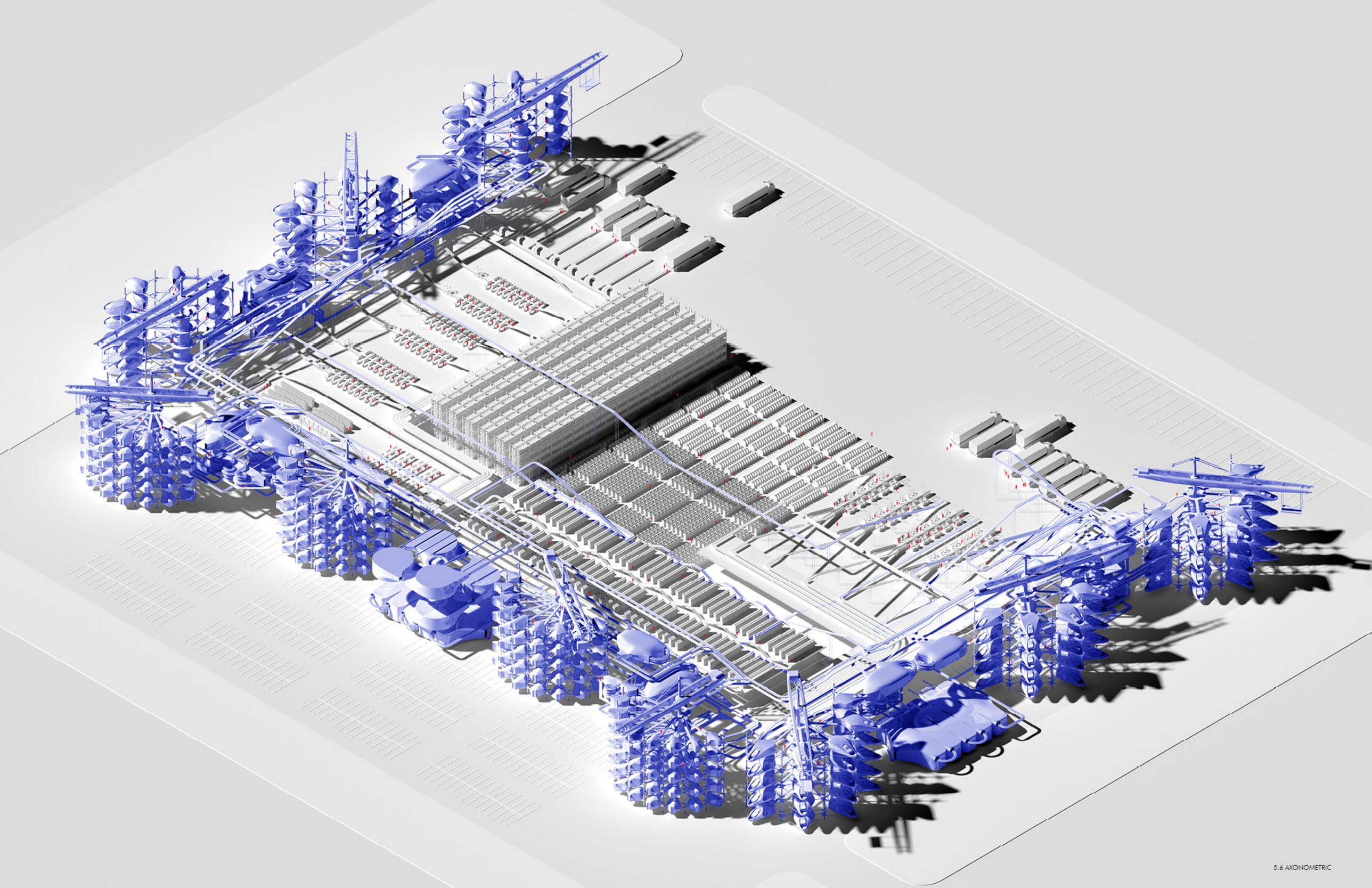
The 2 weeks compartments are designed for RV drivers for a temporary stay. The enclosure, or the living pod of this duration contains energy inputs such as gas and electricity to the RV and a connecting space that leads them into the circulation system. Laundry space, waste disposal and food/drinks supply spaces are installed in every tower to sustain their needs, and they are able to direct themselves to their respective posts throughout the plants.

2 MONTHS

The 2 months living pod, in a similar fashion, is tailored to laborers that travel in a pickup truck. The living pod contains personal sanitary sets, and an installation that transforms the back of the truck into a bed. As an addition to the laundry, waste disposal and food/drinks supply spaces, the 2 week towers also offer grocery supplies to accommodate longer stays.

2 YEARS

The 2 years living pod is designed for workers with no belongings nor method of transportation. It provides sanitary sets, beds and a study space for the laborers. The common area includes everything listed above, and brings a library into the system for the laborer's effective/ meaningful leisure.



5.6 AXONOMETRIC

6. NEW YORK CITY

My first lesson at GSAPP was about the sale of Manhattan—a well-known story that claims Dutch settlers purchased the island from the Lenape people for 24 dollars' worth of beads. Our study led us to a different conclusion: the sale of Manhattan is, in fact, a myth. Not because the deal failed or the price was inaccurate, but because the very notion of land ownership—and the concept of trading that ownership—is a European idea. The Lenape people didn't have a concept of land ownership; to them, the land was a shared resource for everyone.

The retrospective absurdity of this story offered an important lesson: our understanding of space—how it is defined, valued, and perceived—is essentially an artificial construct. The reason New York City is divided into blocks is quite straightforward: it's easier to sell land in rectangles.

This semester, I investigated how this paradigm shift can help us reinterpret space and reconsider our ideas about New York City.

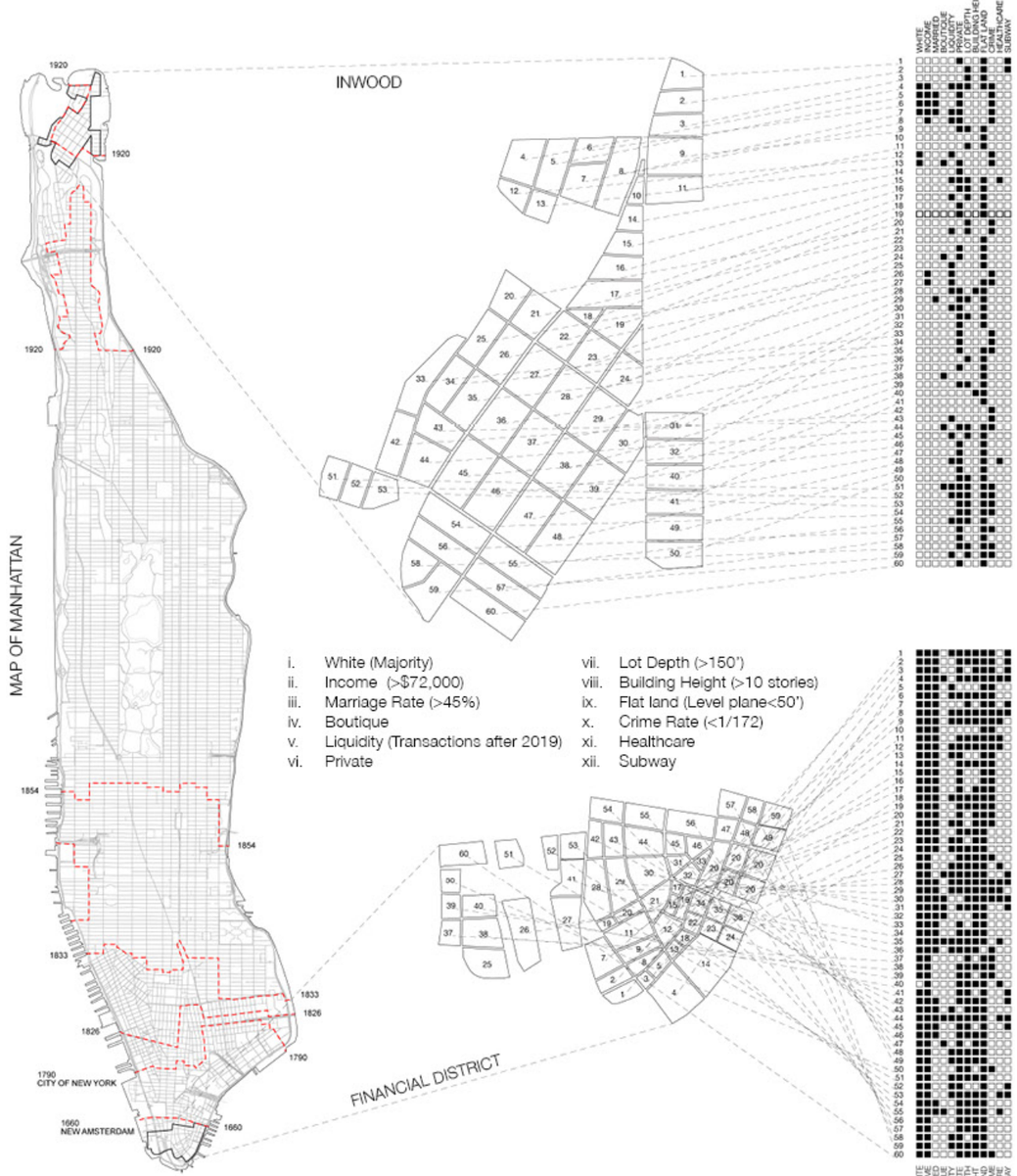
NEGOTIATING INWOOD

STUDIO / CORE I
CRITIC / PATTI ANAHORY
TEAM / INDIVIDUAL

The Binary System is a set of lenses that compares the north and south tip of Manhattan, the least and most valuable 60 blocks, through the 12 factors that were considered as the main contributors to land values in 1970s urban planning studies. The System has enabled us to pinpoint lots that are considered unworthy in the conventional definition, hence an opportunity to realize the paradox within this system.

Block 22 in Inwood (I-22), which is W 207th St, is deemed unworthy by the Binary System due to its scarcity in lot sizes, building heights and income, but in reality, it serves as a vibrant community center and main street in Inwood. The store owners and the street vendors are constantly conflicting over the usage of the sidewalk, introducing hostile installations such as traffic cones to occupy the space.

The project proposes to employ readily available scaffolding system as a tool to negotiate the usage of space at different times of the day. By exploring the relationship between scaffolding system, body and movement, the proposal conceives a set of outcomes that prioritizes the needs of different users. The users of the street are invited to participate in their own place-making practice, creating spaces that is suitable for their temporal occupation of the public space.



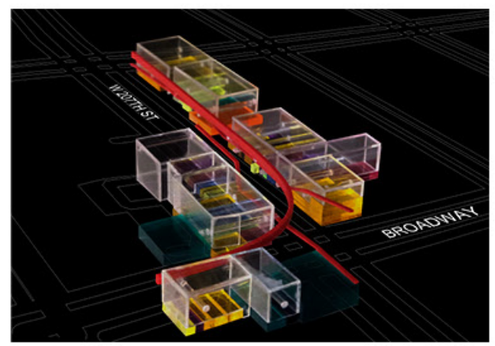
i. White (Majority)
ii. Income (>$72,000)
iii. Marriage Rate (>45%)
iv. Boutique
v. Liquidity (Transactions after 2019)
vi. Private
vii. Lot Depth (>150')
viii. Building Height (>10 stories)
ix. Flat land (Level plane<50')
x. Crime Rate (<1/172)
xi. Healthcare
xii. Subway

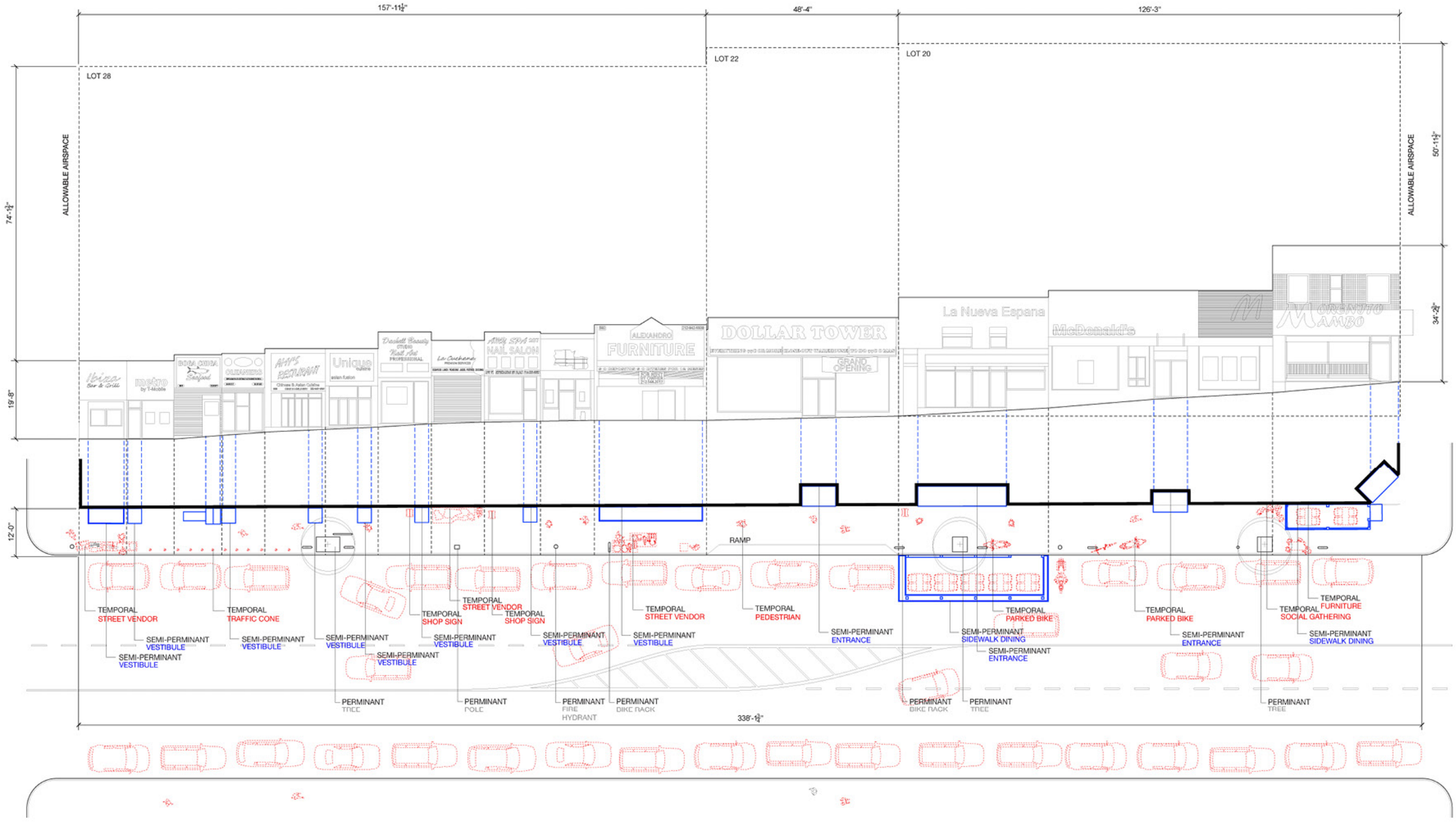
BINARY VALUE SYSTEM

The binary value system is based on a 1903 urban planning publication titled Principles of City Land Values. The book outlines factors that determine the 'value' of land, such as lot size and neighborhood demographics. However, these criteria are inherently biased and subjective. For example, lots with greater depth or located on flatter terrain are deemed more desirable because they can accommodate shops and other commercial functions prized in a Western, commerce-driven society.

FINDING THE PARADOX

This study exposes the subjectivity embedded in our understanding of value. The binary system analyzes the northern and southern tips of Manhattan—areas historically viewed as opposite in desirability—and seeks to uncover the paradox within that value judgment





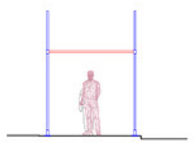
WEST 207TH STREET

West 207th Street reveals a striking paradox. Although it is not officially zoned as the town center and is lined with so-called 'undesirable lots'—small, shallow, and uneven—it has organically become a vibrant, unofficial main street for the Dominican immigrant community. Precisely because of its lack of conventional value, the street fosters a rich mix of uses, serving as a hub for social gatherings, street vendors, and various everyday activities

SCARCITY OF SPACE

Ground-level activity on this street is significantly denser than in neighboring areas, reflecting the emergence of a vibrant community. However, the limited street space leads to tensions, particularly between small shop owners and other users. Some shop owners place traffic cones to claim the area in front of their stores. At the same time, street vendors play a crucial role in keeping the street active by occupying otherwise unused spaces—often filling in the gaps where storefronts remain unengaged.

ABOVE HEAD



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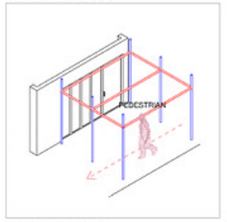

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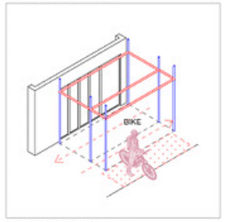

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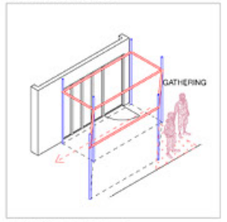

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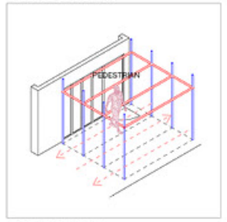

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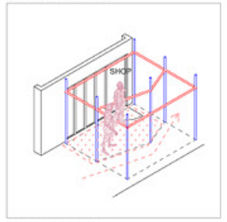

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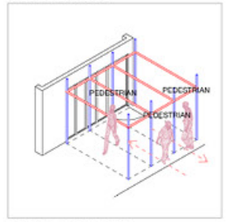

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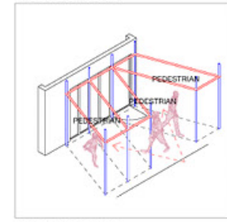
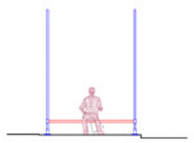


WEIGT HEIGHT



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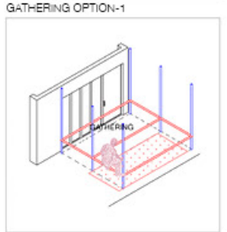

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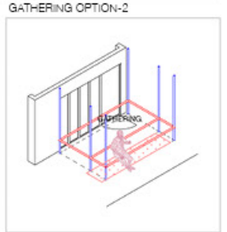

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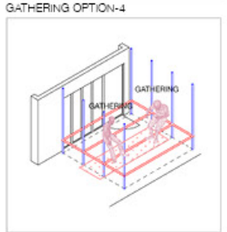
GATHERING OPTION-4

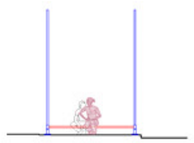


GATHERING OPTION-5

GATHERING OPTION-6

GATHERING OPTION-7

KNEE HEIGHT



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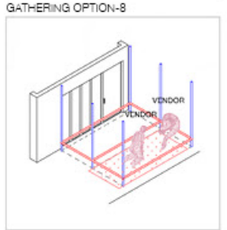

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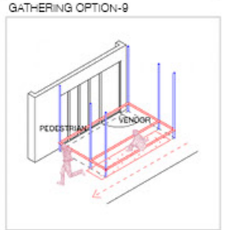

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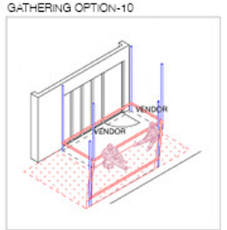


GATHERING OPTION-11

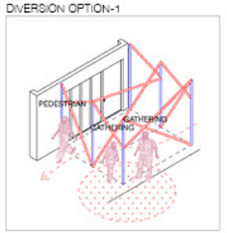
GATHERING OPTION-12

GATHERING OPTION-13

GATHERING OPTION-13

RAISED

DIVERSION OPTION-1



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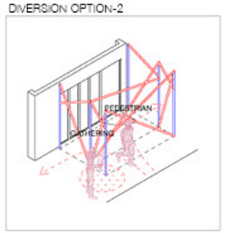

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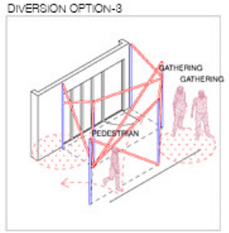

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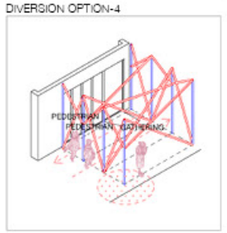

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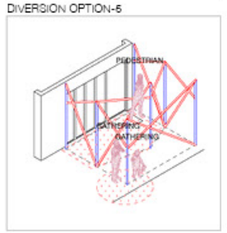

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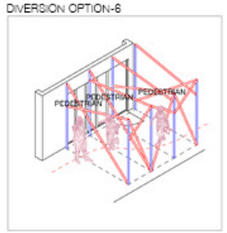

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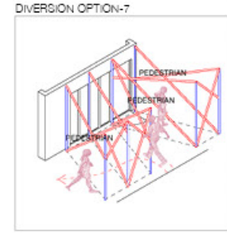
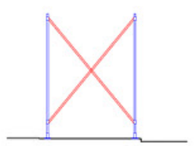


CROSS



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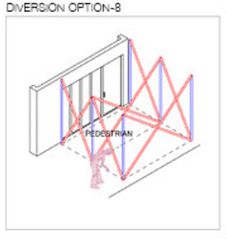

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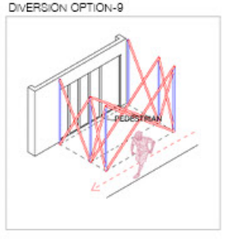

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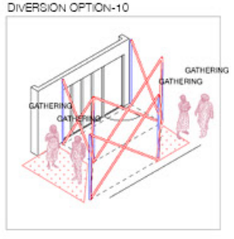

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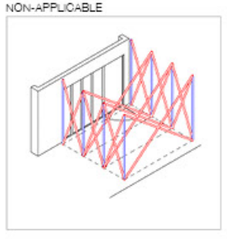

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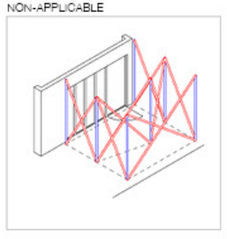

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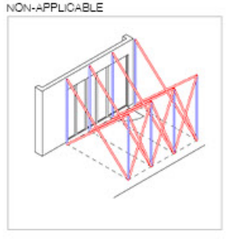

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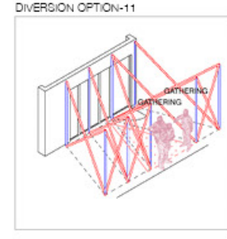


TYPICAL

SHRINK

OFFSET

DIVIDE

DISTORT

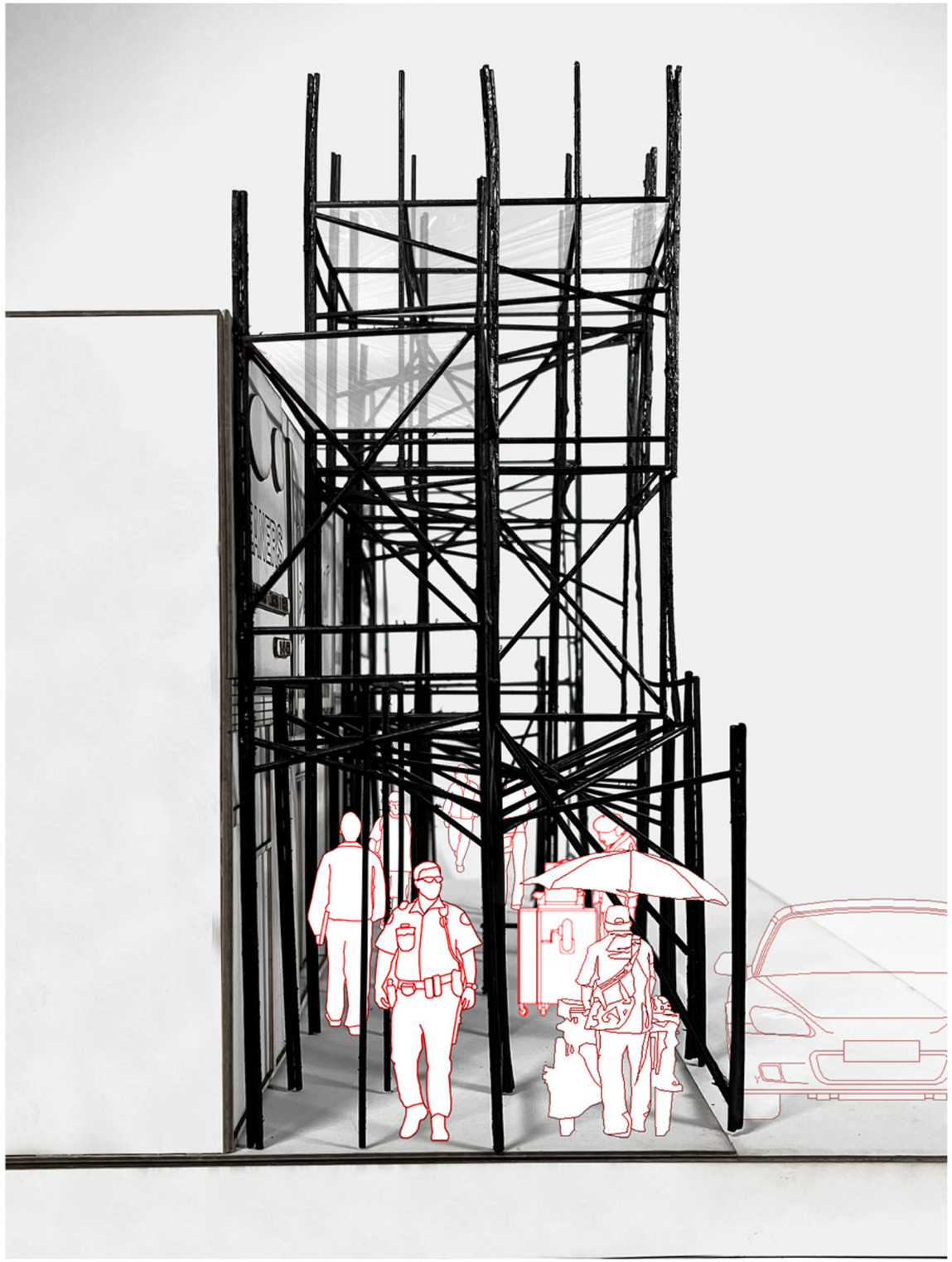
ROTATE

SPLIT

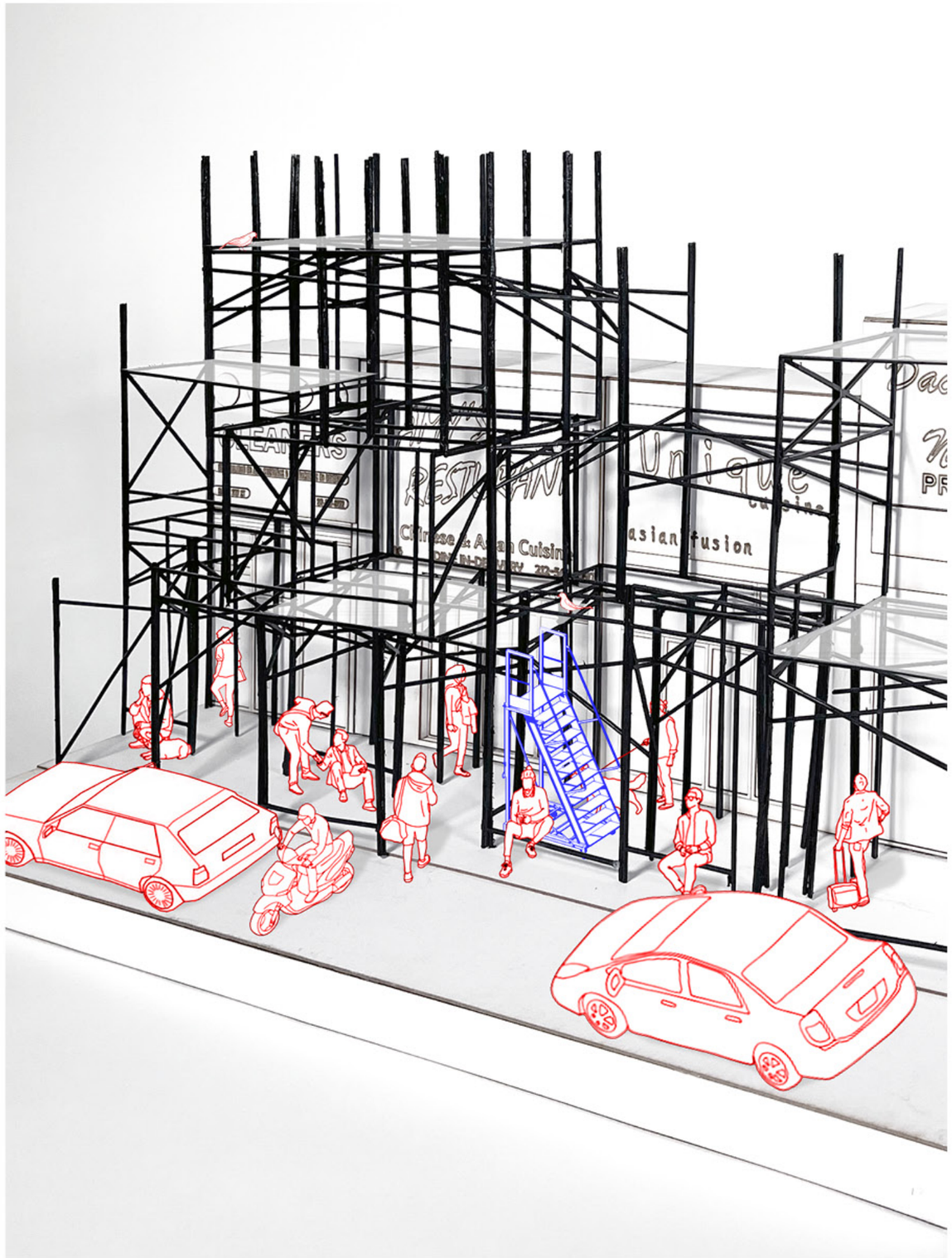
SCAFFOLDING AS A TOOL OF NEGOTIATION

The project proposes using readily available scaffolding systems as a tool to mediate spatial relationships on the street. By analyzing their structural and assembly logic, the project develops 33 distinct configurations—each designed to support a different mode of occupation and interaction. Vertical units serve as semi-permanent elements that can be periodically reconfigured, subtly shaping circulation and connectivity. Horizontal units, in contrast, are more temporary and can be adjusted as needed.

This intervention creates adaptable, temporary territories within public space, allowing users to claim and exchange space fluidly throughout the day. Each iteration of the structure becomes a form of negotiation—between different users, needs, and times—while preserving the street's flexible and dynamic character.



6.6 STREET MODEL PERSPECTIVE



6.7 STREET MODEL PERSPECTIVE

PROCESS

SITE VISIT TO INWOOD

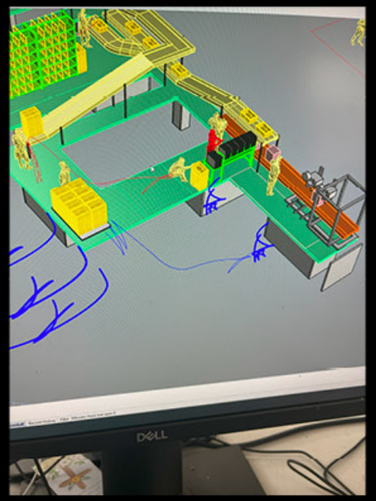
MIDREVIEW PRESENTATION

STUDIO GROUP PHOTO AFTER FINAL REVIEW

STUDIO T-SHIRT

FINAL REVIEW SETUP

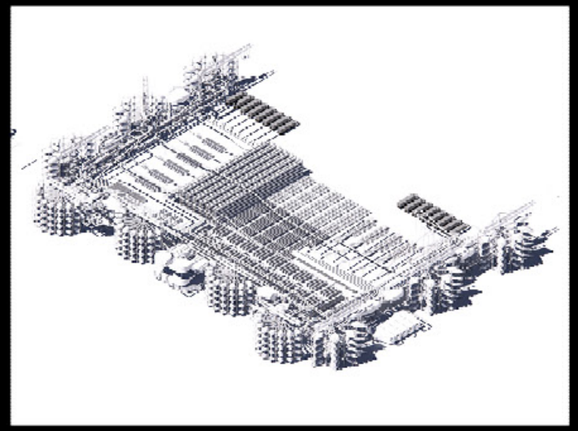
MODEL PREPERATION



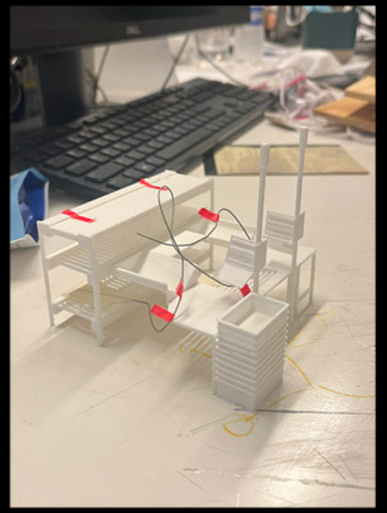
MIDREVIEW

MODEL IN PROGRESS

FINAL REVIEW

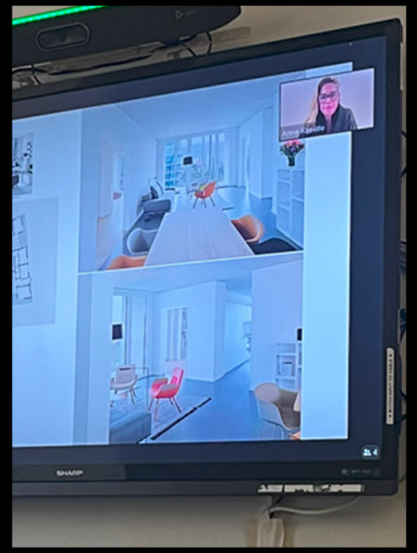


THESIS DRAWING DRAFT

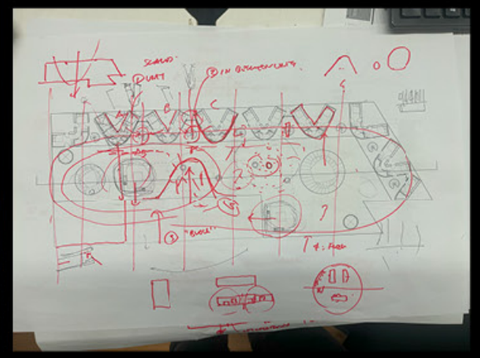


TIME STAMP TEST

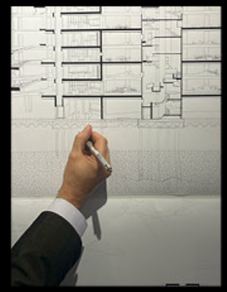
ZOOM SESSION WITH ANNA FROM DUPLEX ARCHITEKTEN



FINAL PRESENTATION

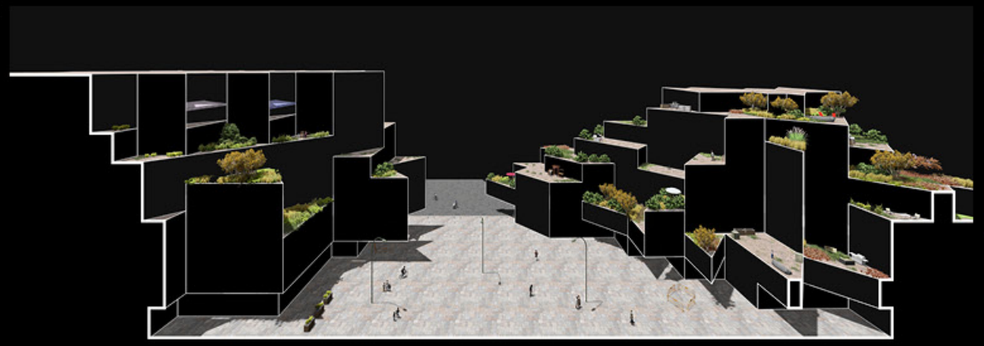


DESK CRIT WITH ERIC



THE UNFINISHED FINAL MODEL

PRECEDENT RESEARCH

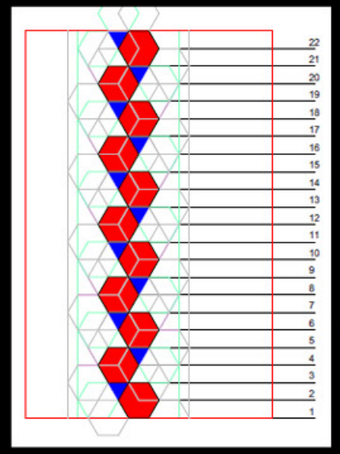


INITIAL STUDY MODEL

BOB'S PRIVATE RESIDENCE

DANA AND LEE'S ROCK COMPETITION

EXPOSED FOUNDATION AT MONTAUK

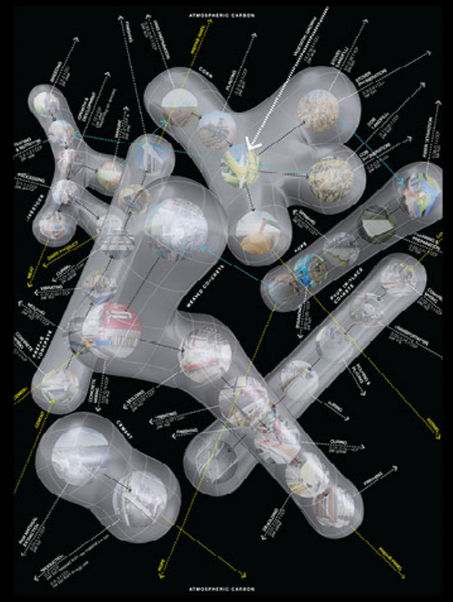


ROTATION MOVEMENT STUDY

FINAL MODEL IN PROGRESS

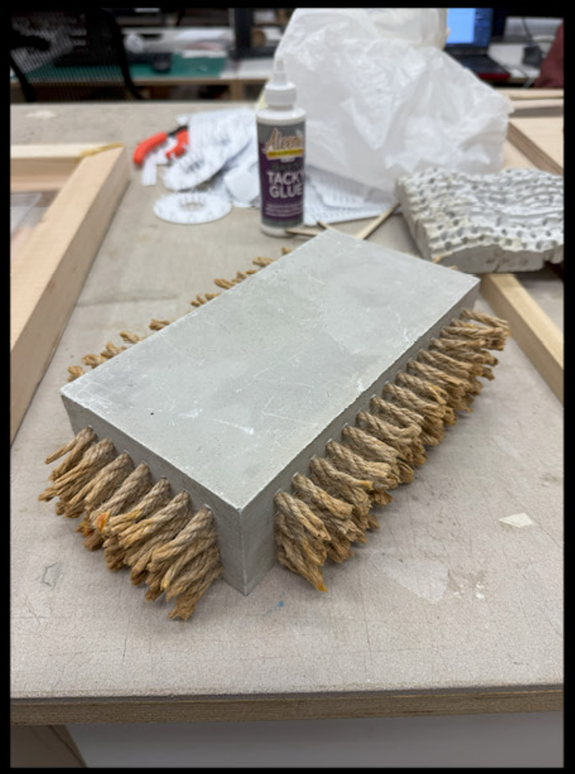
STUDIO GROUP PHOTO

WEAVING TECHNIQUE EXPERIMENT



PRODUCTION SYSTEM DIAGRAM AT MIDTERM

MATERIAL MODEL ITERATION

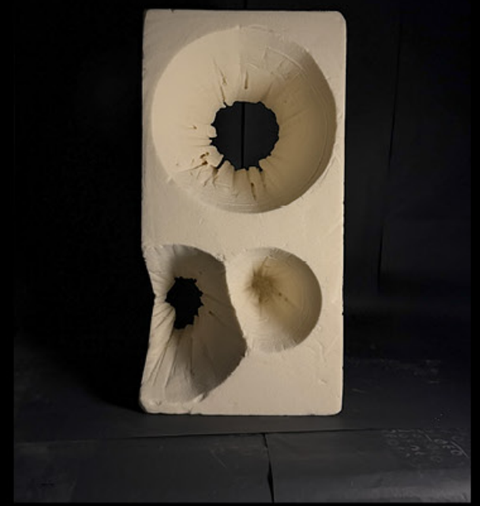


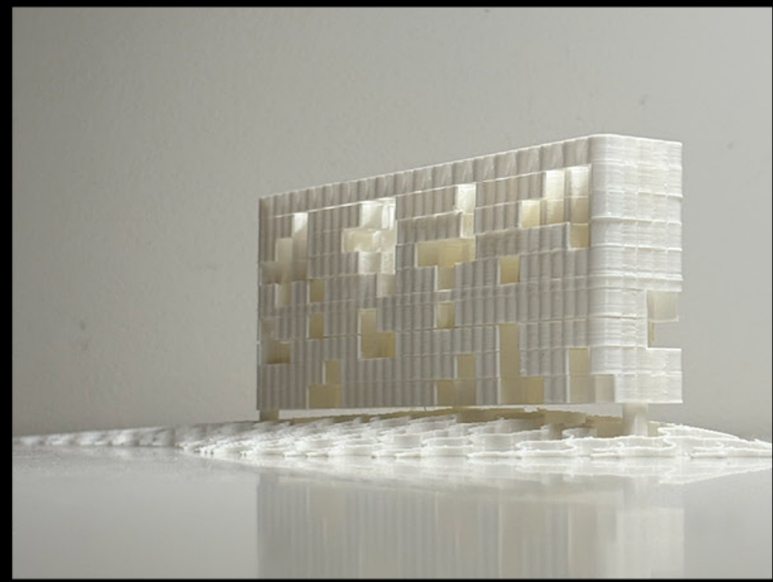
MATERIAL STUDY MODEL

AIR FLOW MODEL EXPERIMENT

KINNE TRIP TO VENICE

CUTTING EXCERCISE





MIDTERM MODEL

FINAL REVIEW

ITERATION OF PROOF OF CONCEPT MODEL

CHUNK MODEL FOR SPATIAL STUDY

PROOF OF CONCEPT MODEL IN PROGRESS

CREDIT

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THANK YOU FOR READING