M.ARCH / PORTFOLIO

PROCESS -ING

ZAPALAC ABBEY

As living organisms, when faced with challenge we ultimately must adapt: we must find a new path, alter our goals, reshape ourselves, find hope in the crevices of our grief, and move forward. We must focus on the vitality of regeneration.

Developing a living mindset toward the world translates directly into adopting a more supportive and nurturing role—one that is born through process, and one I strive to explore deeply so that I may discover that, oftentimes, the non-breathing parts of our world hold the most "life" that we've ever known.

[CONTENTS]

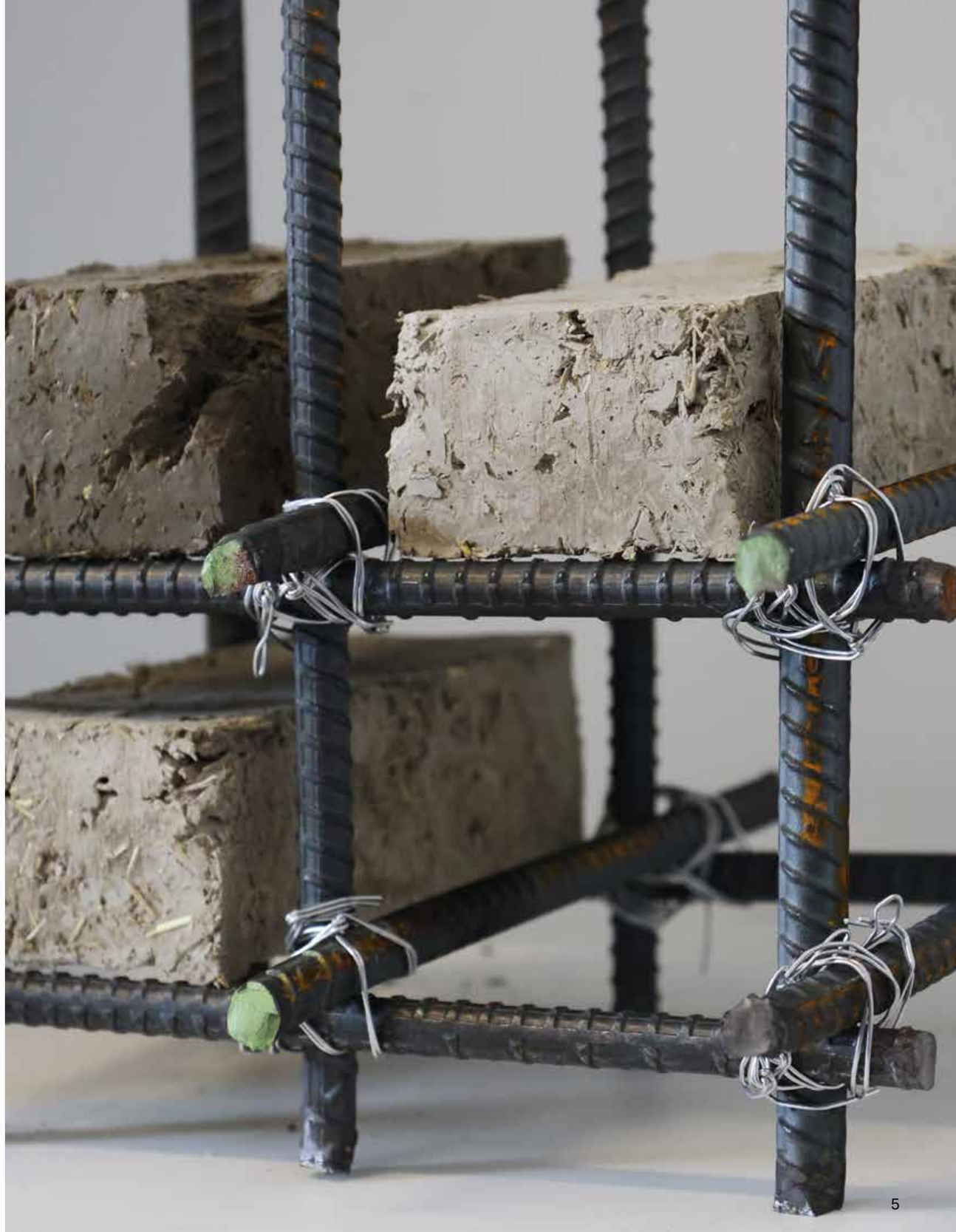
01

(IN)GRAIN

COLLECTIVES

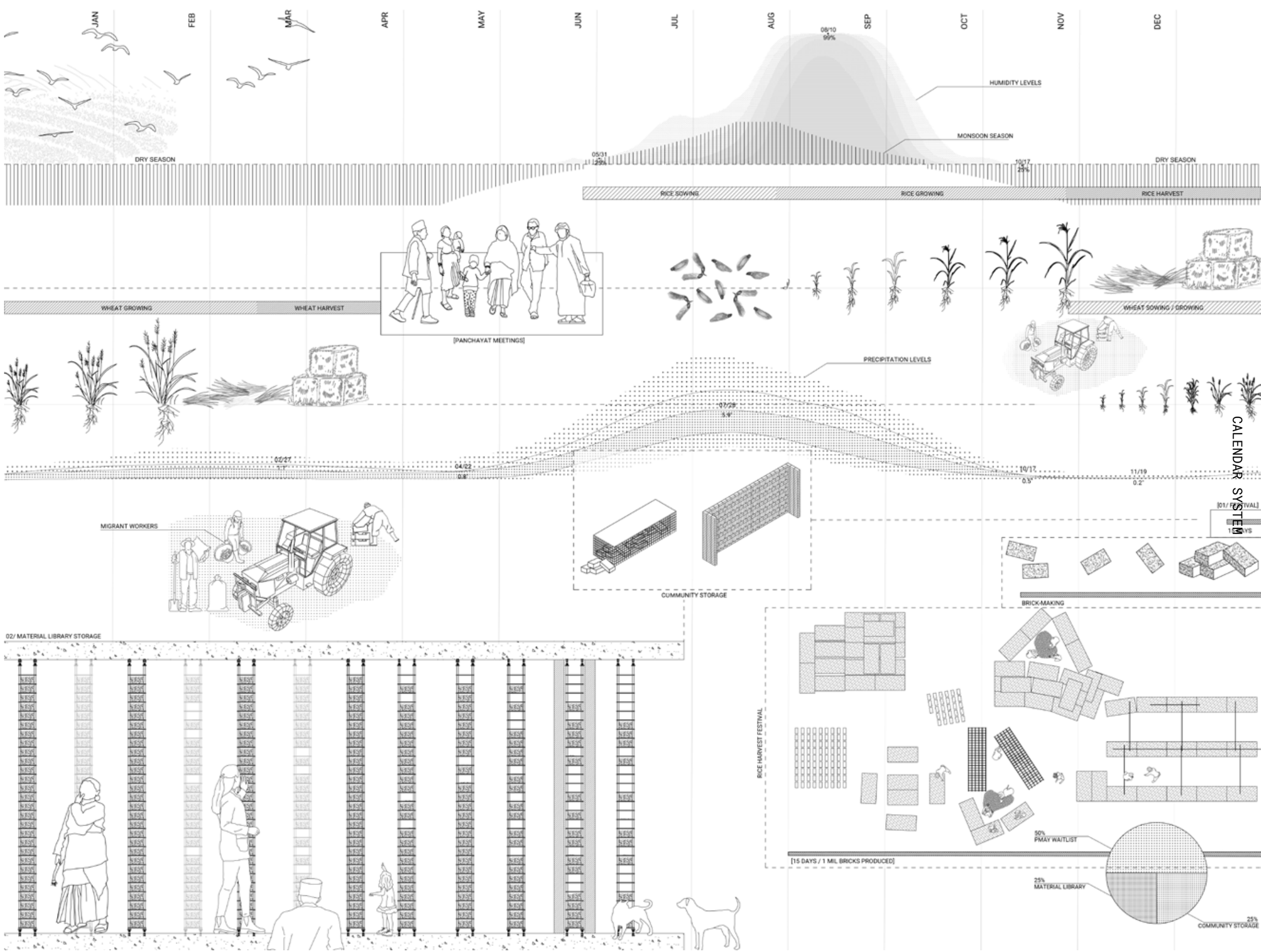
ADV VI / Spring 2025
Critic / David Benjamin
Partner / Adi Klein

This is a people-centered story grounded in existing landscapes: In Punjab, rice straw is burned after harvest, releasing carbon, depleting soil, and polluting the air. Instead, this project transforms straw into carbon-storing mud-bricks, capturing emissions and generating new revenue for farmers. During the 15-day harvest window, fields become a celebration of materials and labor–farmers, community members, and volunteers gather in collective brick-making. Bricks are then dried and stored in a Material Bank—a low-tech, flexible system with sliding volumes that support workshops, local meetings, and continual use. Brick choreography—changing over time, enabling continuous interaction between people and space—centers the community around the strength of a collective, turning the built environment into a soft open system that adapts with its landscape.



USER DIAGRAM

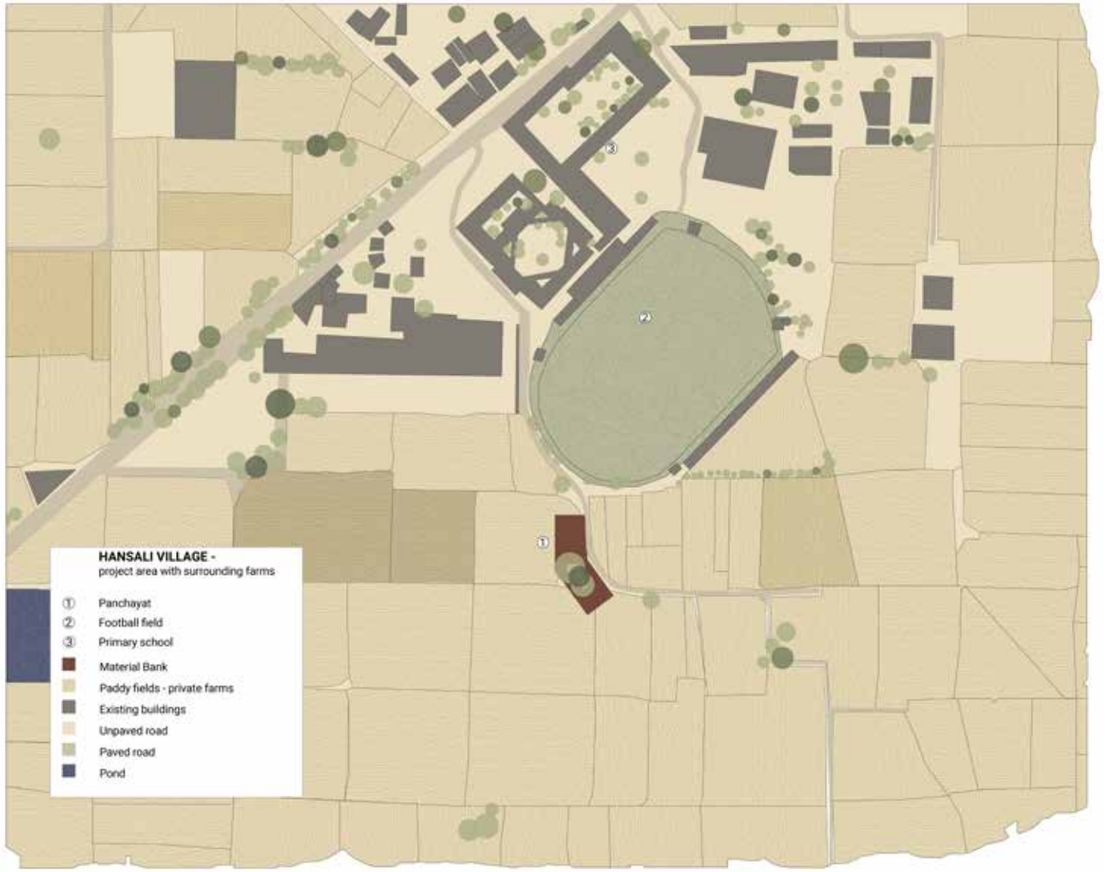
A shift from burning to producing activates local skills, transforming into straw mud-bricks. By producing these bricks, 62 million tons of carbon emissions can be avoided and captured in the material itself every year.



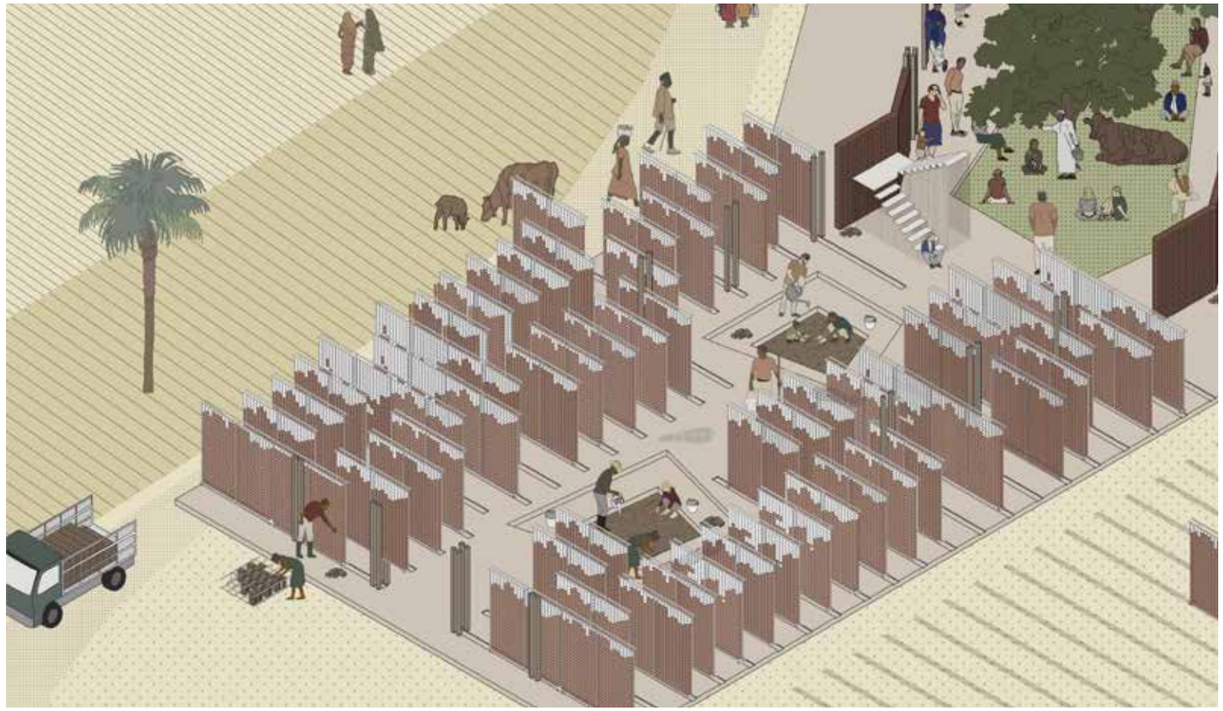
CALENDAR SYSTEM

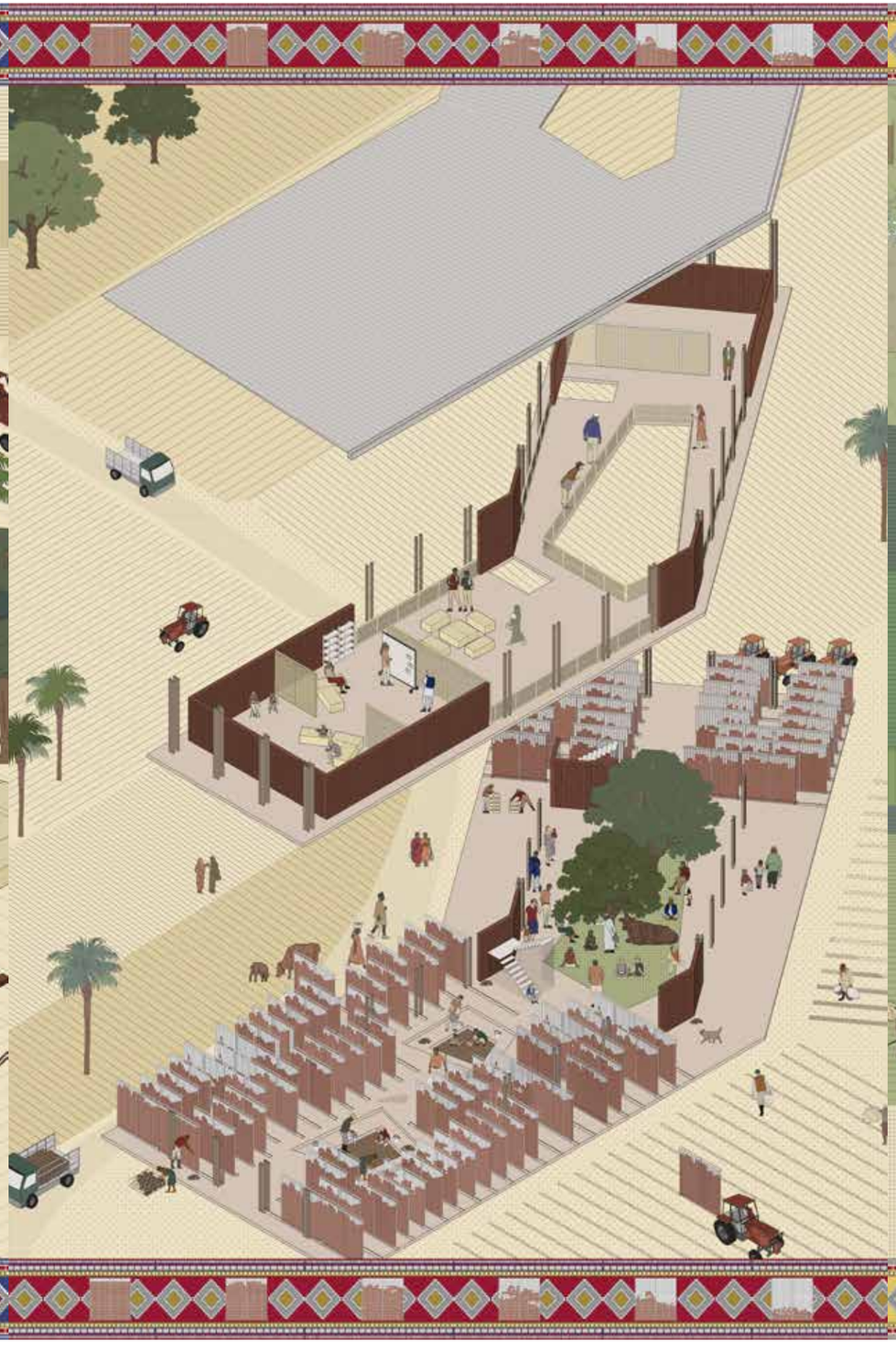
/Decentralizing the agricultural system
through rice straw reuse

SITE PLAN

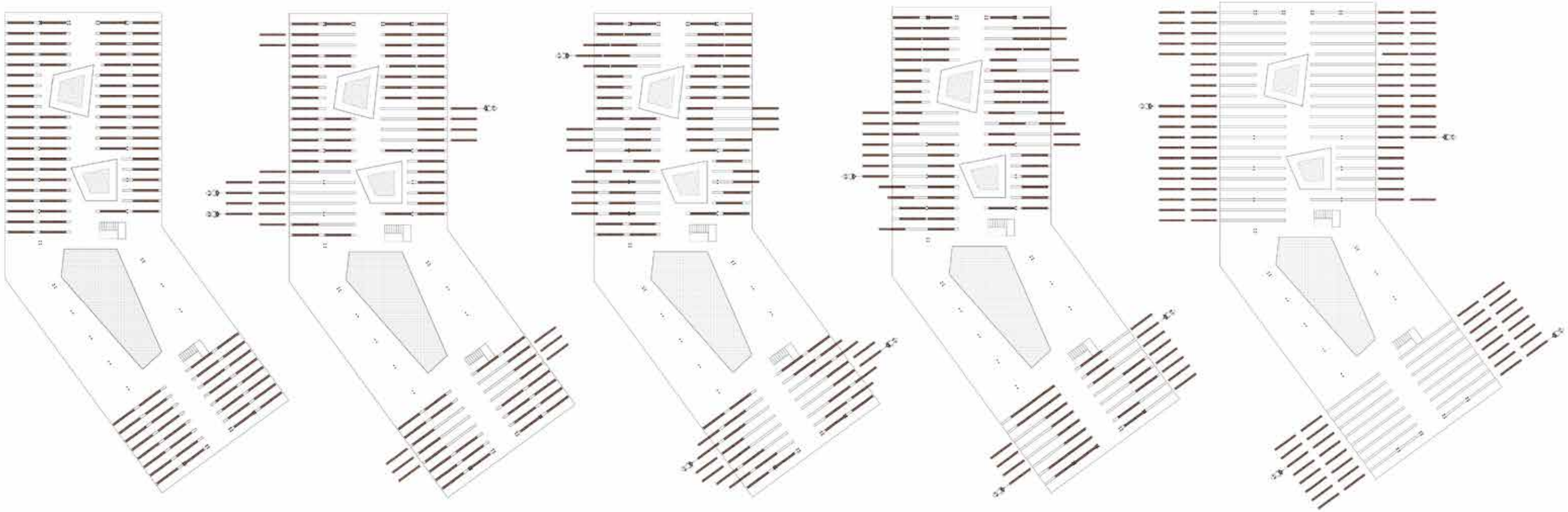


PANEL MOMENTS





GROUND FLOOR PLANS



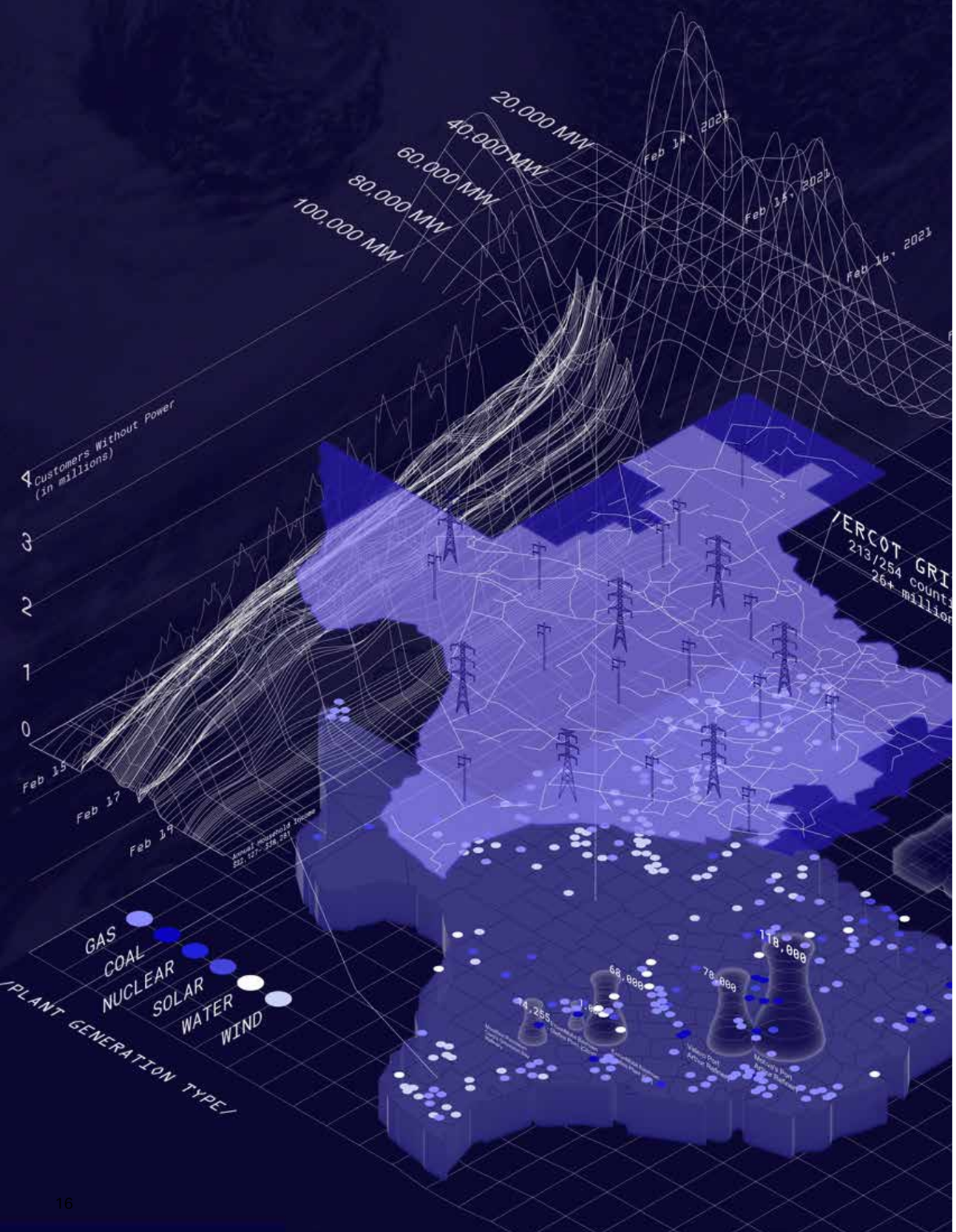
PHYSICAL MODEL

/Sliding drying rack “walls” for carbon storage

By reimagining the traditional idea of what a “wall” is and turning it 90 degrees, the line between exterior and interior space becomes blurred. Walls–sliding drying racks–store up to 250,000 bricks, which can be individually pulled out of the racks to supply needs as they arise, creating different layers of porosity.

FABRIC PANELS

INTERIOR WORKSHOP



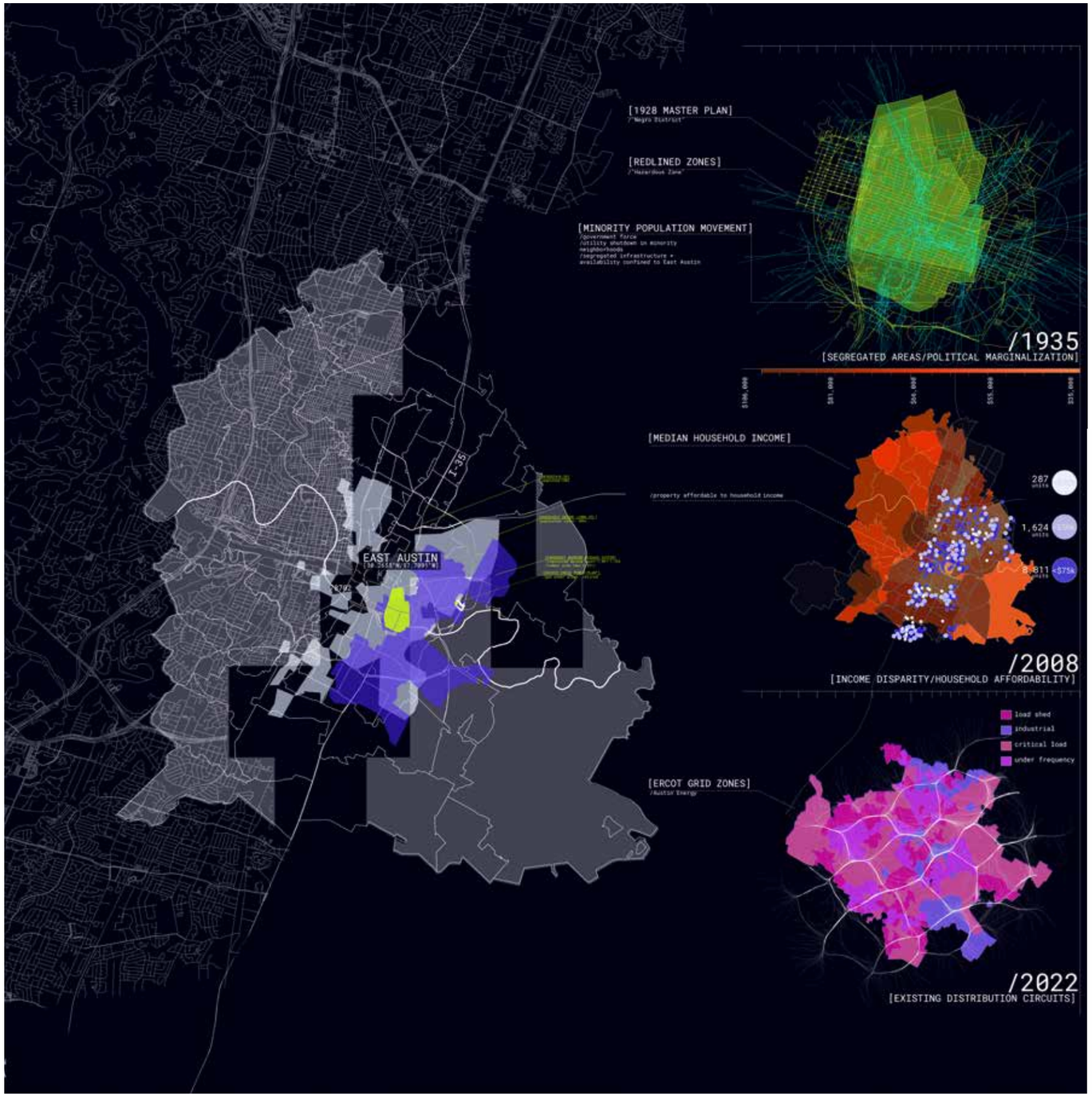
02

GROWING THE GRID

CORE II / Spring 2023
Critic / Rosana Elkhatib

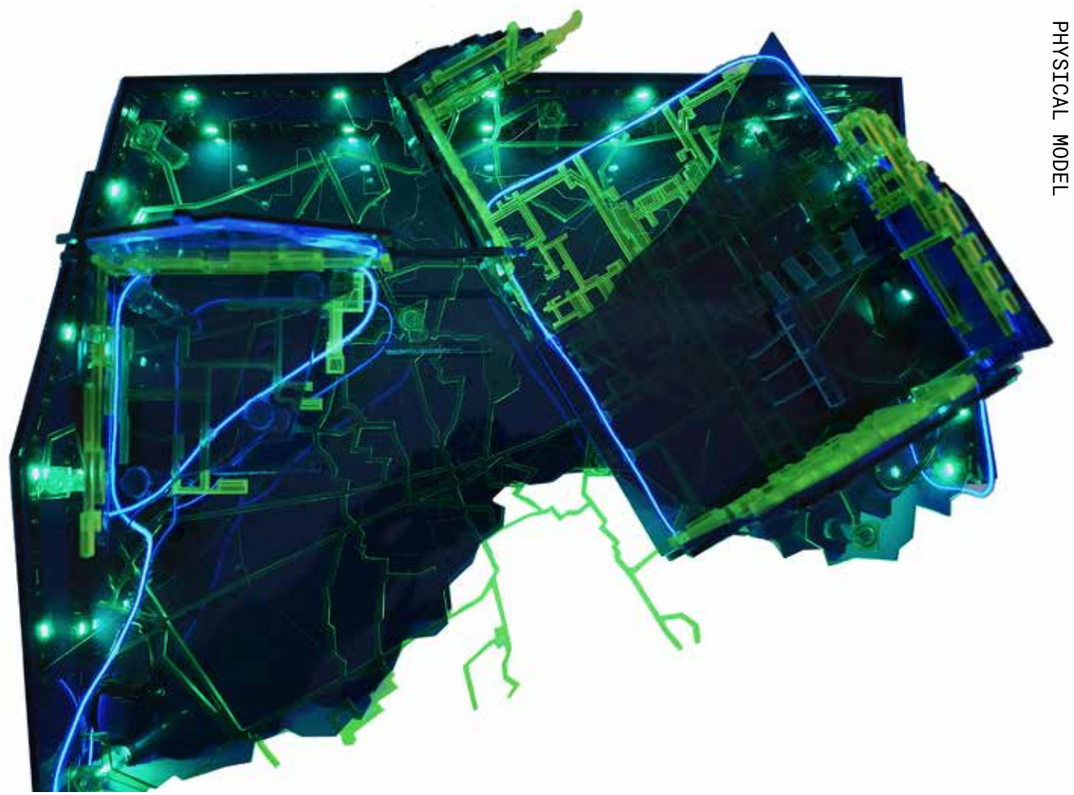
Continuous infrastructural failures of Texas' electrical grid disseminate environmental, political, and social damage through the state, leaving neighborhoods like East Austin in the dark for far longer than bordering areas. This new organic electrical grid for East Austin centers around the production of biofuels from local microalgae to offer a regenerative energy bank for residents.

Imitating microalgae's photosynthetic process, the grid interacts with the ground plane to amplify neighborhood tensions with culprits of gentrification. The grid grows out of the ground–through photobioreactor algae tubes–at four points of past infrastructural damage, creating spaces of light and sound to shift visibility and volume back to the East.

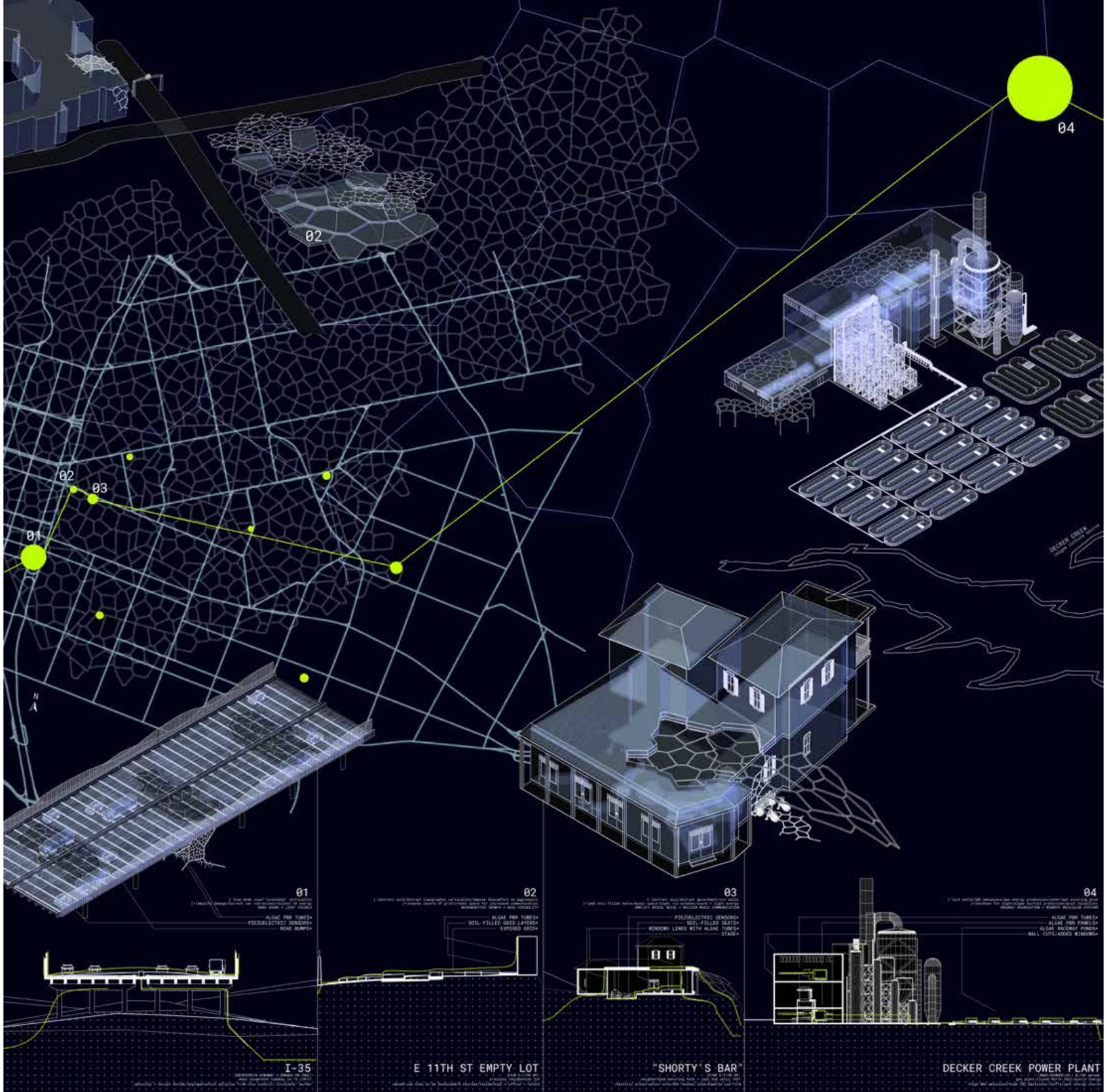


/Visualizing the marginalization of power outages

and drawing new paths of grid efficiency

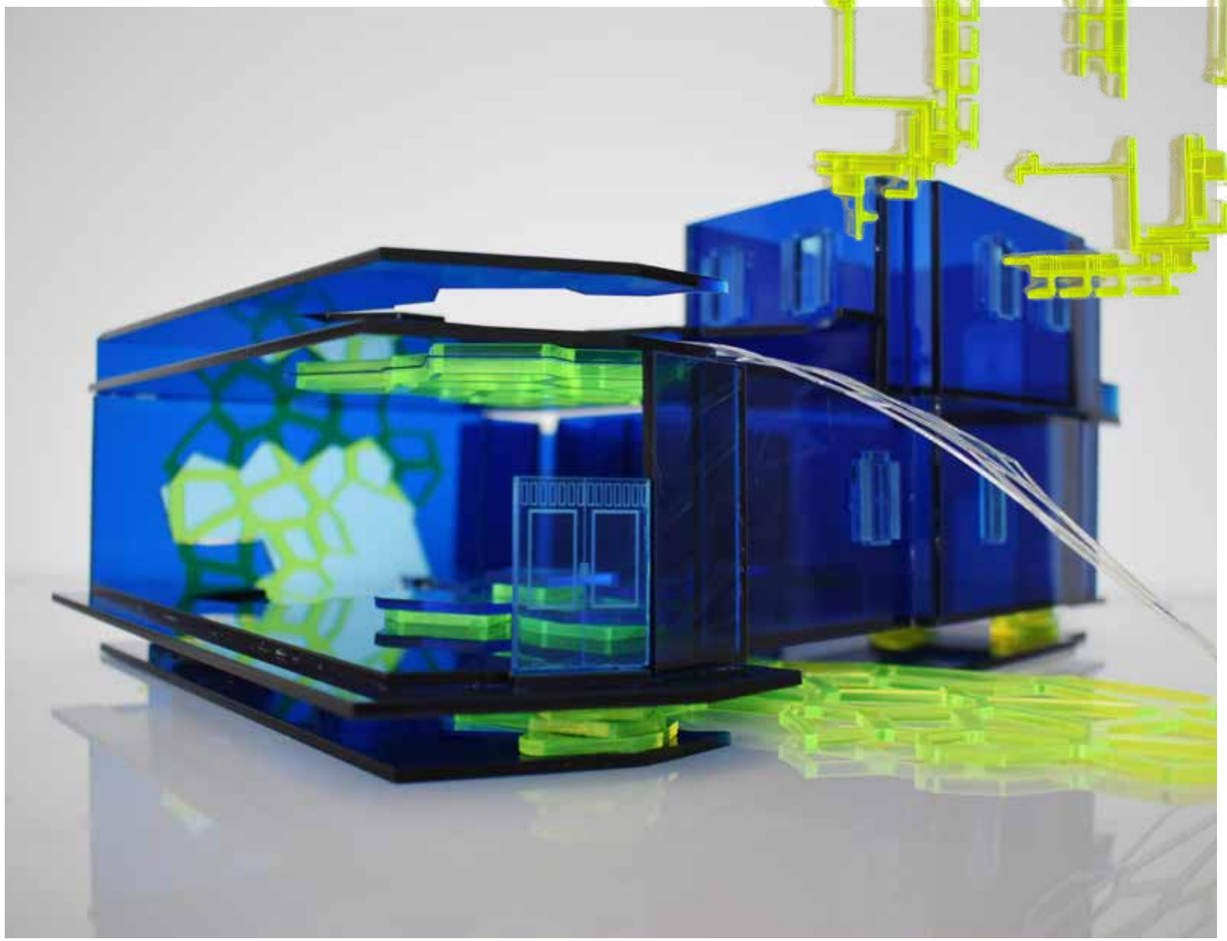


SITE PLAN



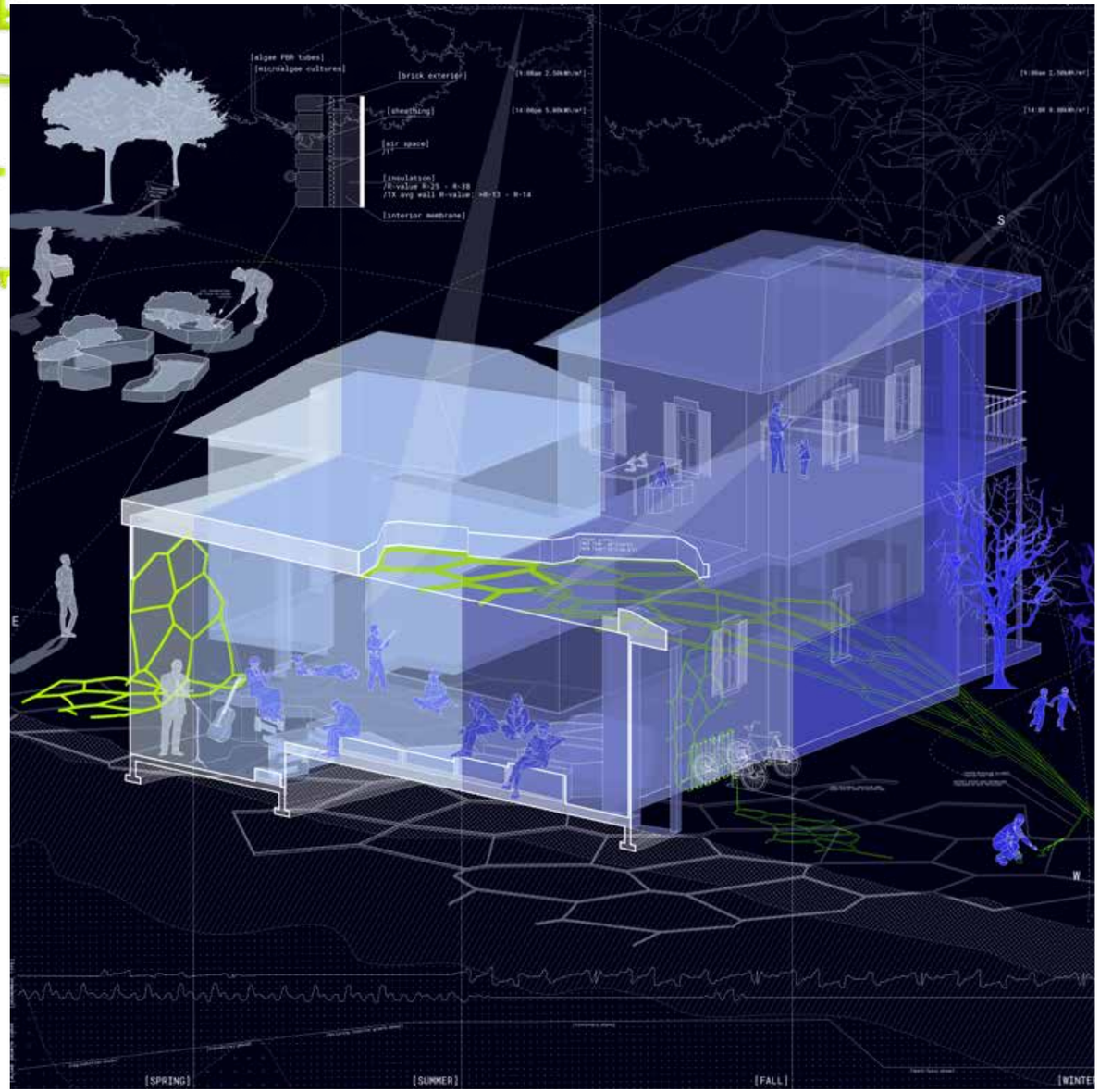
SITE PLAN

PHYSICAL MODEL

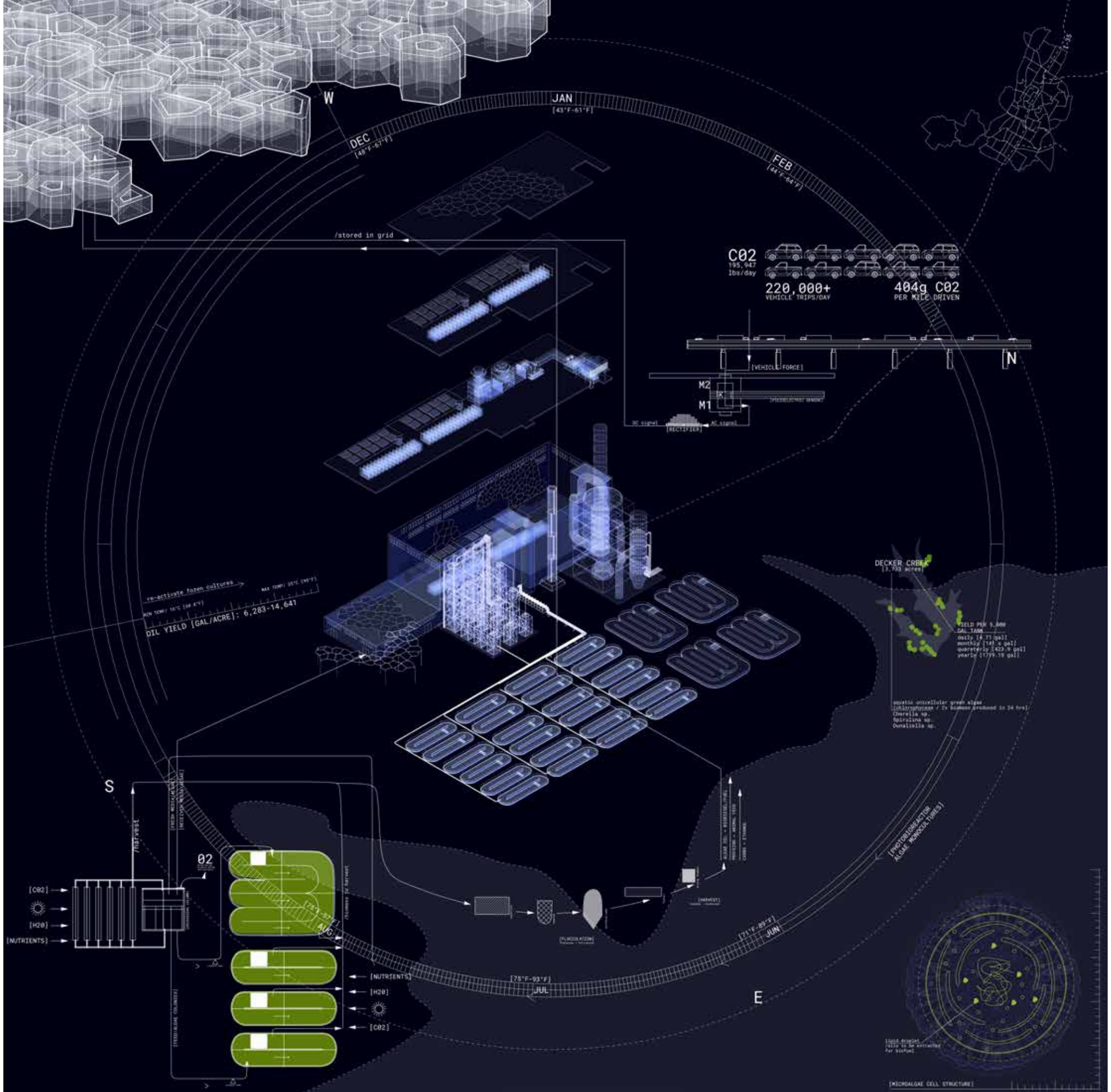


/Amplifying urban damage

SEASONAL ANALYSIS



through microalgae biofuel production


W
JAN
[43°F-61°F]
DEC
[48°F-67°F]
FEB
[44°F-64°F]
/stored in grid
C02
193,647
lbs/day
220,000+
VEHICLE TRIPS/DAY
404g C02
PER MILE DRIVEN
[VEHICLE FORCE]
N
M2
M1
DECKER CREEK
[3,733 acres]
re-activate foren cultures
DIL YIELD [GAL/ACRE]: 6,283-14,641
S
/harvest
02
[C02]
[H20]
[NUTRIENTS]
[75°F-93°F]
JUL
E
[MICROALGAE CELL STRUCTURE]

03

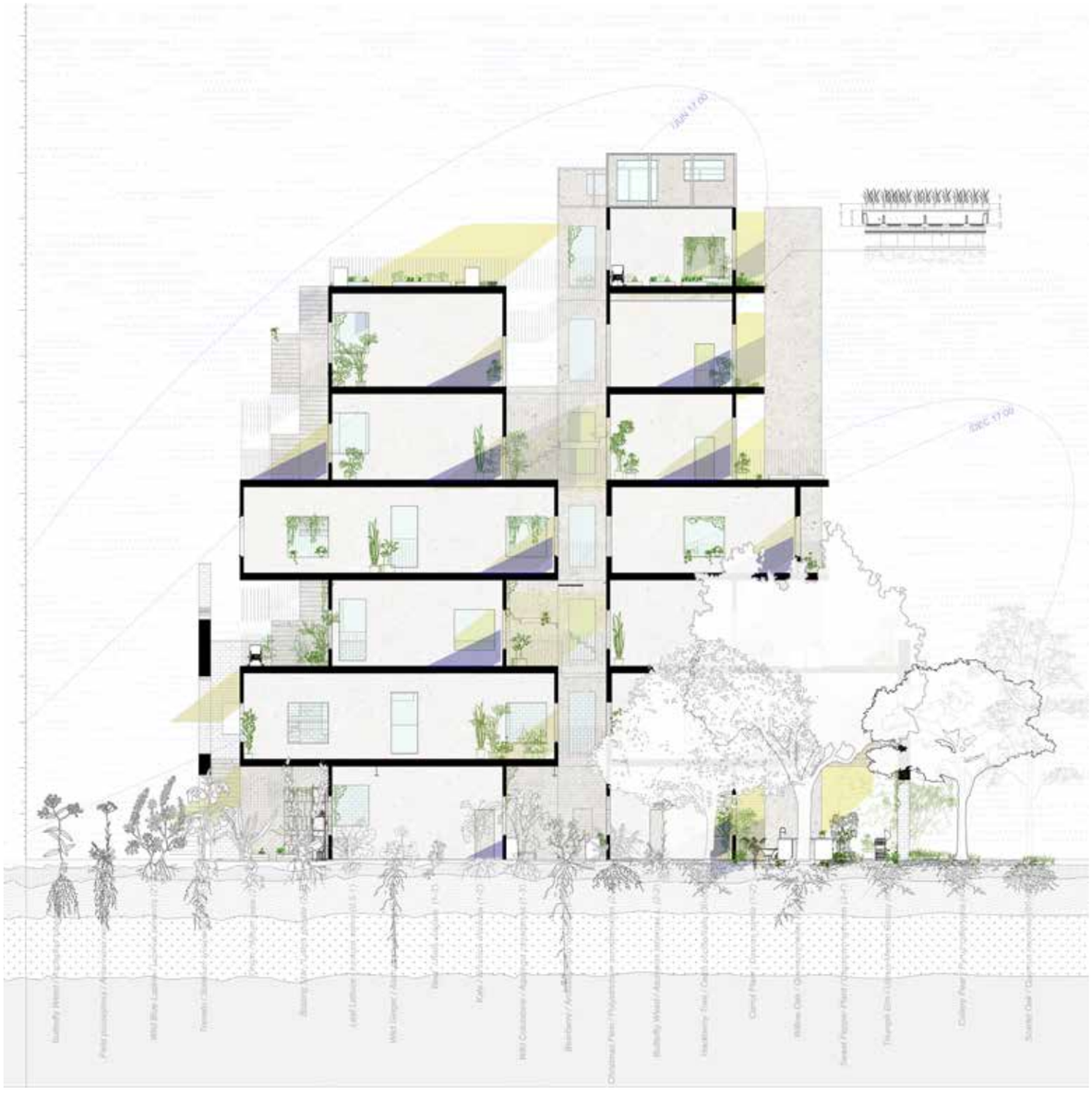
ROOTED

IN-BETWEEN

CORE III / Fall 2023
Critic / Hilary Sample
Partner / Sarah The

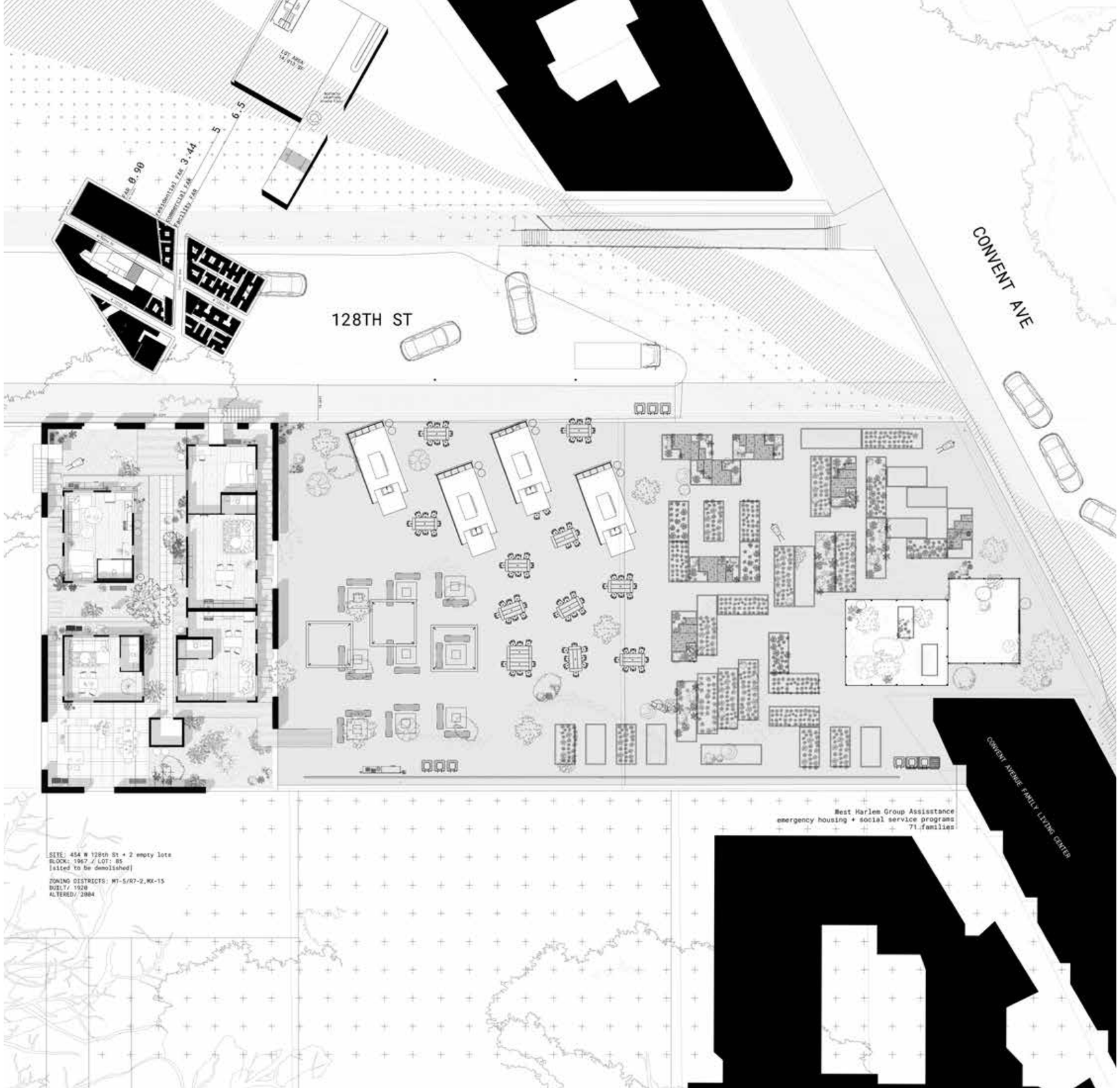
Through the integration of kitchens and gardens, “Rooted In-Between” shifts the idea of maintenance from “work” to “social space” and “play.” Preservation of the existing building shell coupled with modular units–some with private kitchens and some without–reveal the “in-between,” outdoor spaces which become the focus of the project. Stairways, corners, and balconies host shared kitchens, gardens, and social gathering spaces that foster human interaction. A porous approach to form prioritizes natural light exposure, weaving root systems vertically through the “in-between” and cultivating social overgrowth that challenges societal pressures and preconceptions of housing.

SEASONAL ANALYSIS



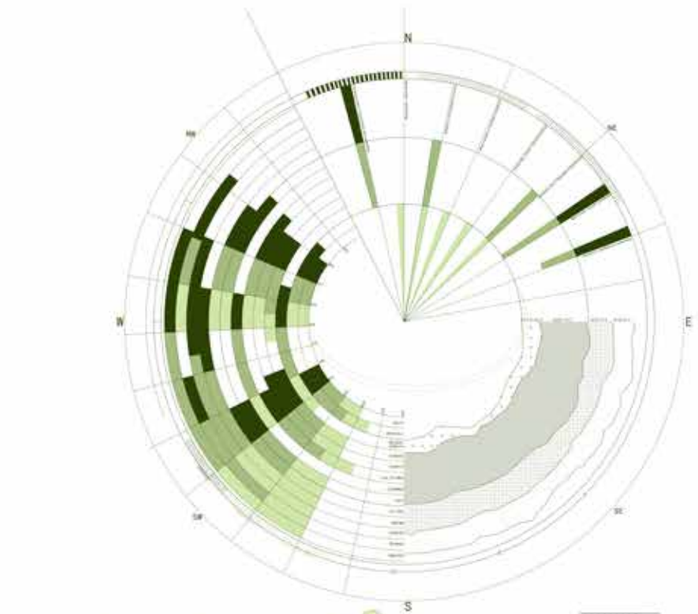
WEST ELEVATION

SITE PLAN



SITE PLAN

GROUND FLOOR PLAN



SHADING STUDY

PHYSICAL MODEL

/ Weaving kitchens + gardens through the “in-between” to cultivate social overgrowth

INTERIOR PERSPECTIVE

and challenge societal pressures of New York City housing

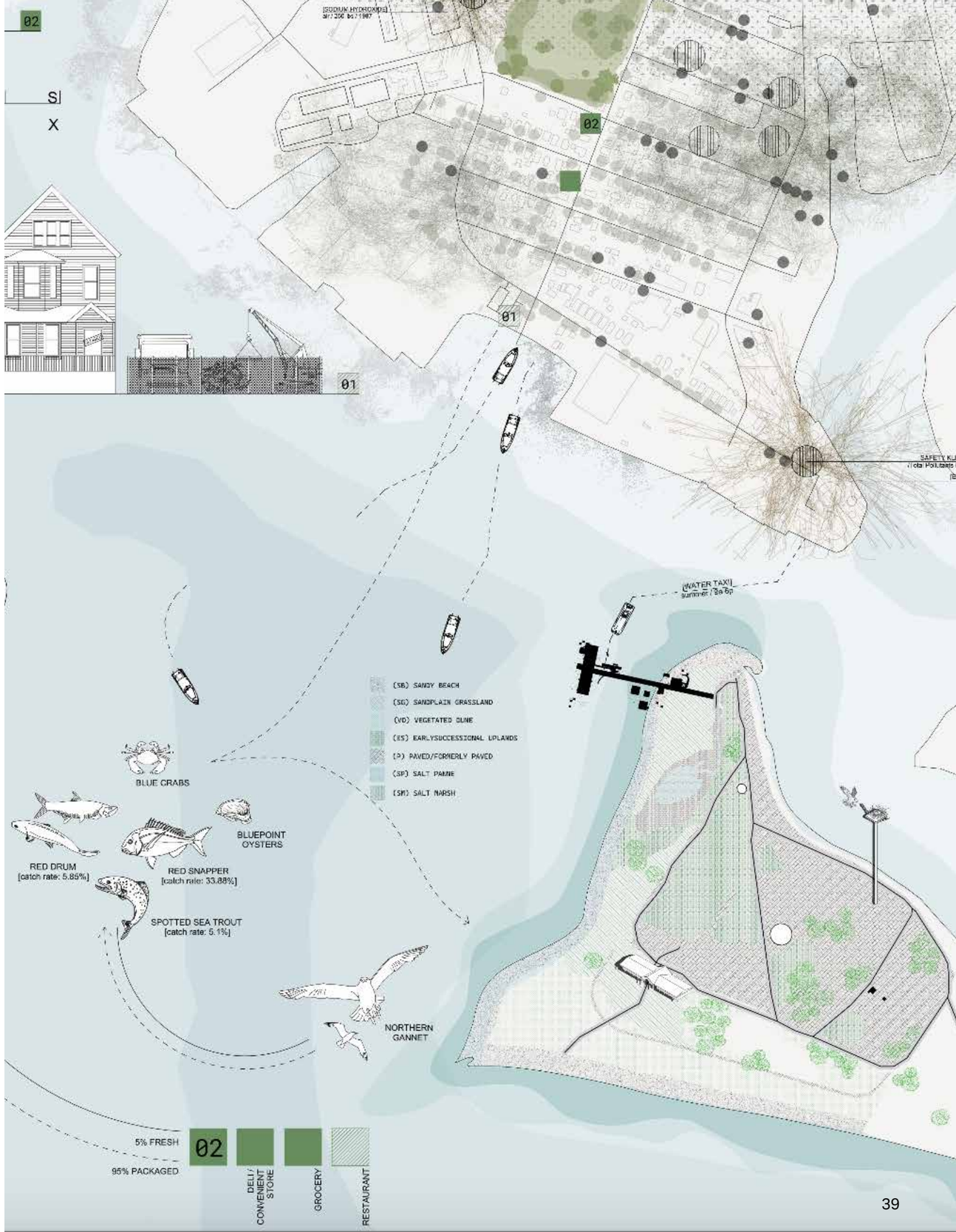
04

LIVING INFRASTRUCTURES

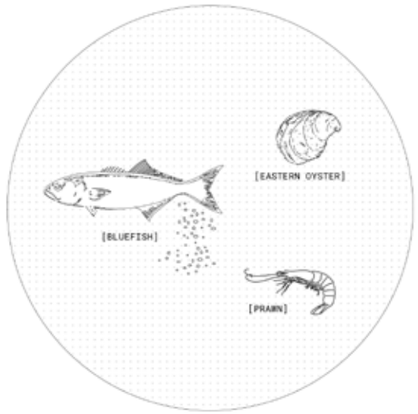
ADV IV / Spring 2024
Critic / Rachely Rotem
Partner / Sarah The

Understanding that uncertainty plays an inevitable role in the relationship between humans and non-humans, “Living Infrastructures” experiments with how uncertainties can cultivate new growth between Pleasure Beach and Bridgeport’s East End. Focusing on the first point of contact, the dock, stimulates awareness of human and non-human relationships, offering a journey of education for visitors before they step foot on the beach.

Intertwining hydroponic gardens and education spaces mediates three user groups–birds, people, and fish–within a “vertical forest,” stimulating interaction among three clustered structures. Hydroponic gardens woven throughout the clusters tie species into a vertical ecosystem that supplements East End’s food desert and pushes the hydroponic systems to become the infrastructure.

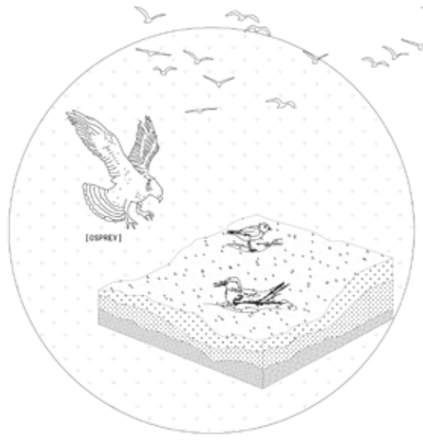


USER GROUPS



/USER 01

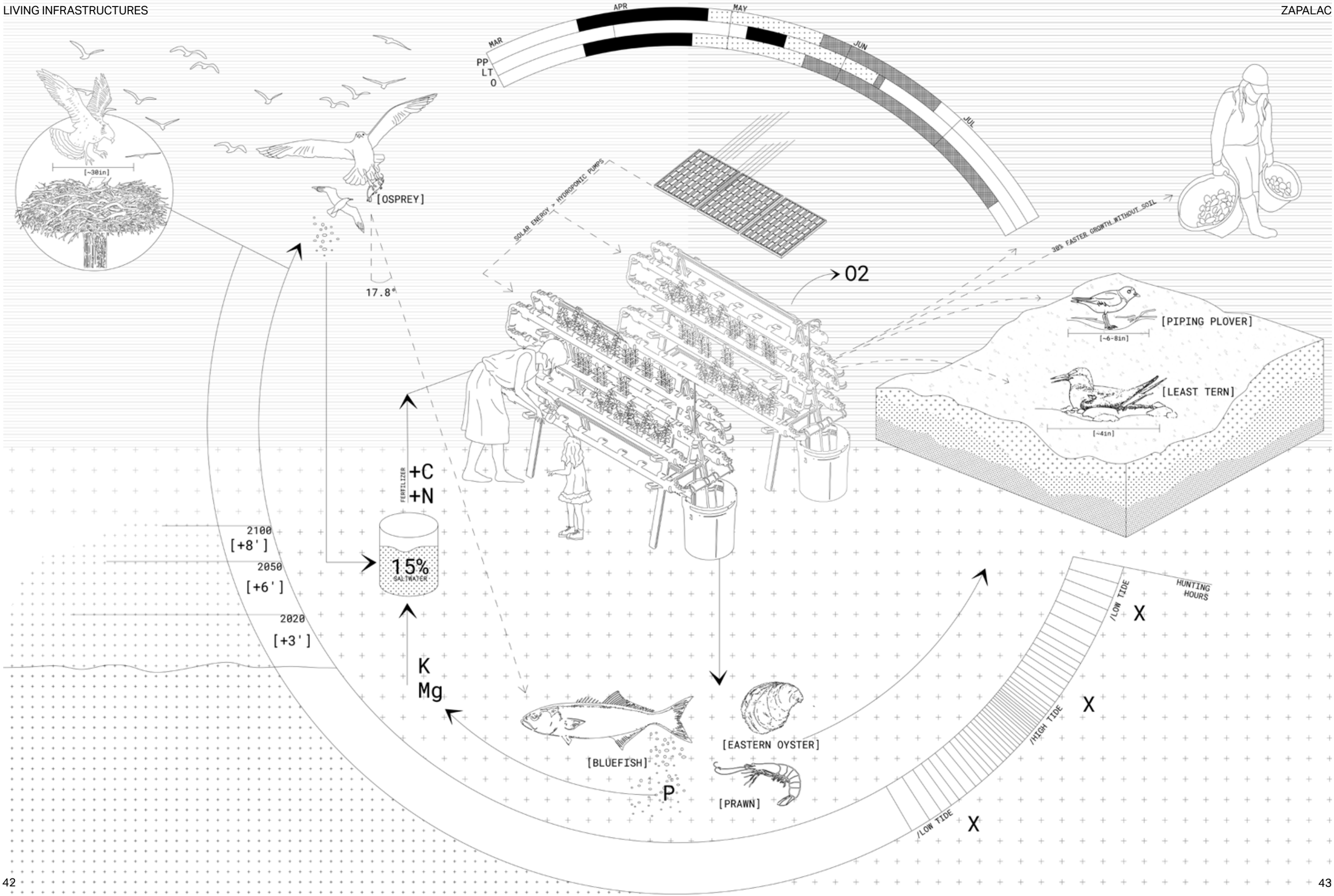
/USER 02



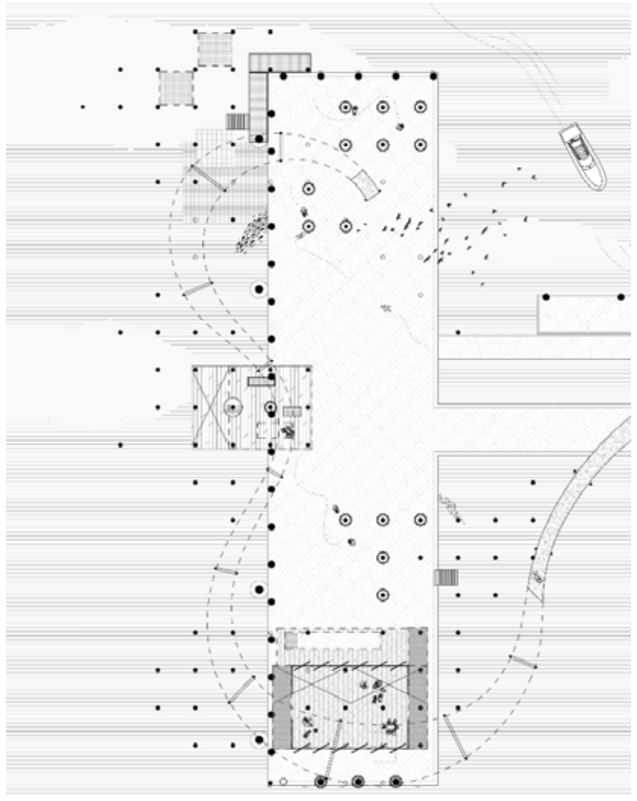
/USER 03

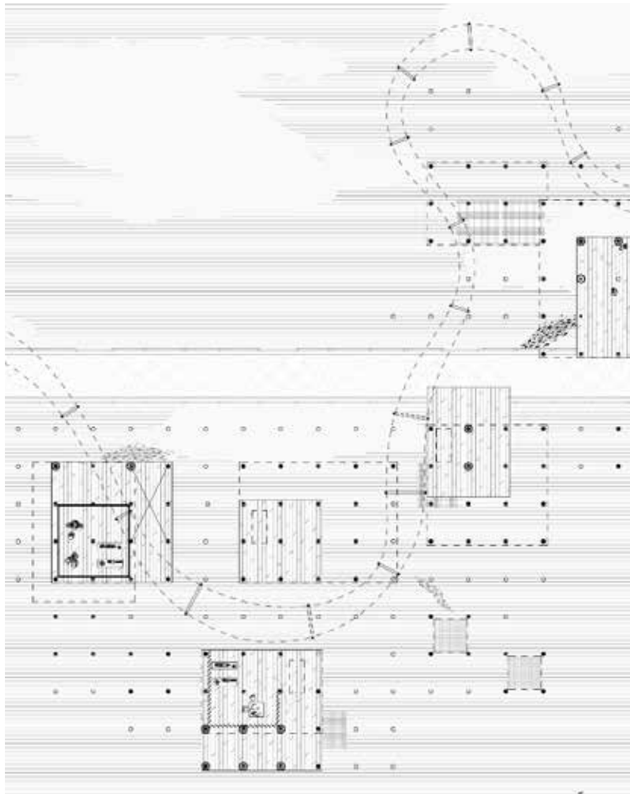
PROGRAM DIAGRAM

SPECIES DIAGRAM

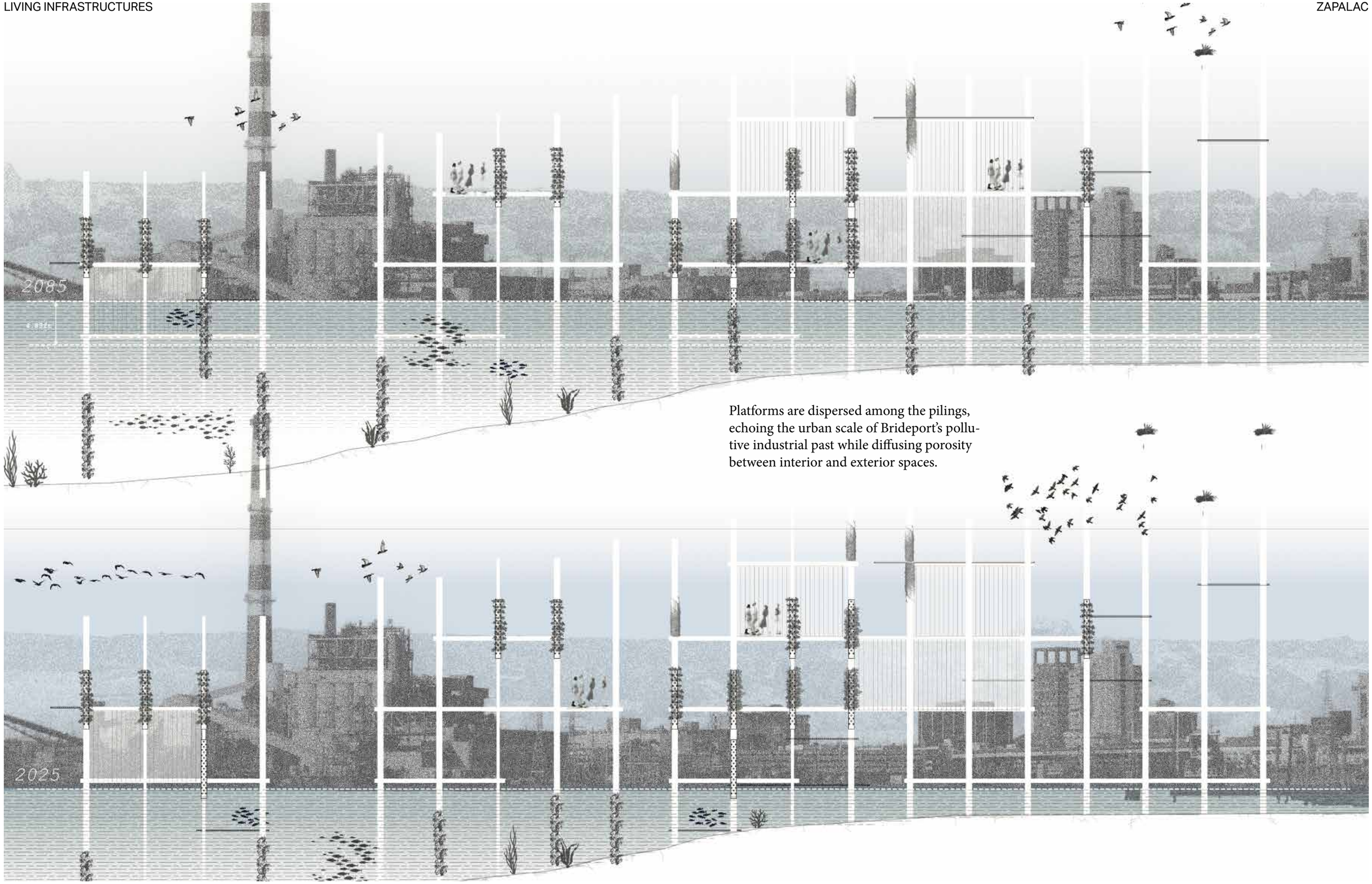


By extending the existing infrastructural grid of pilings, our design utilizes two systems of lines and dots to foster vertical density.



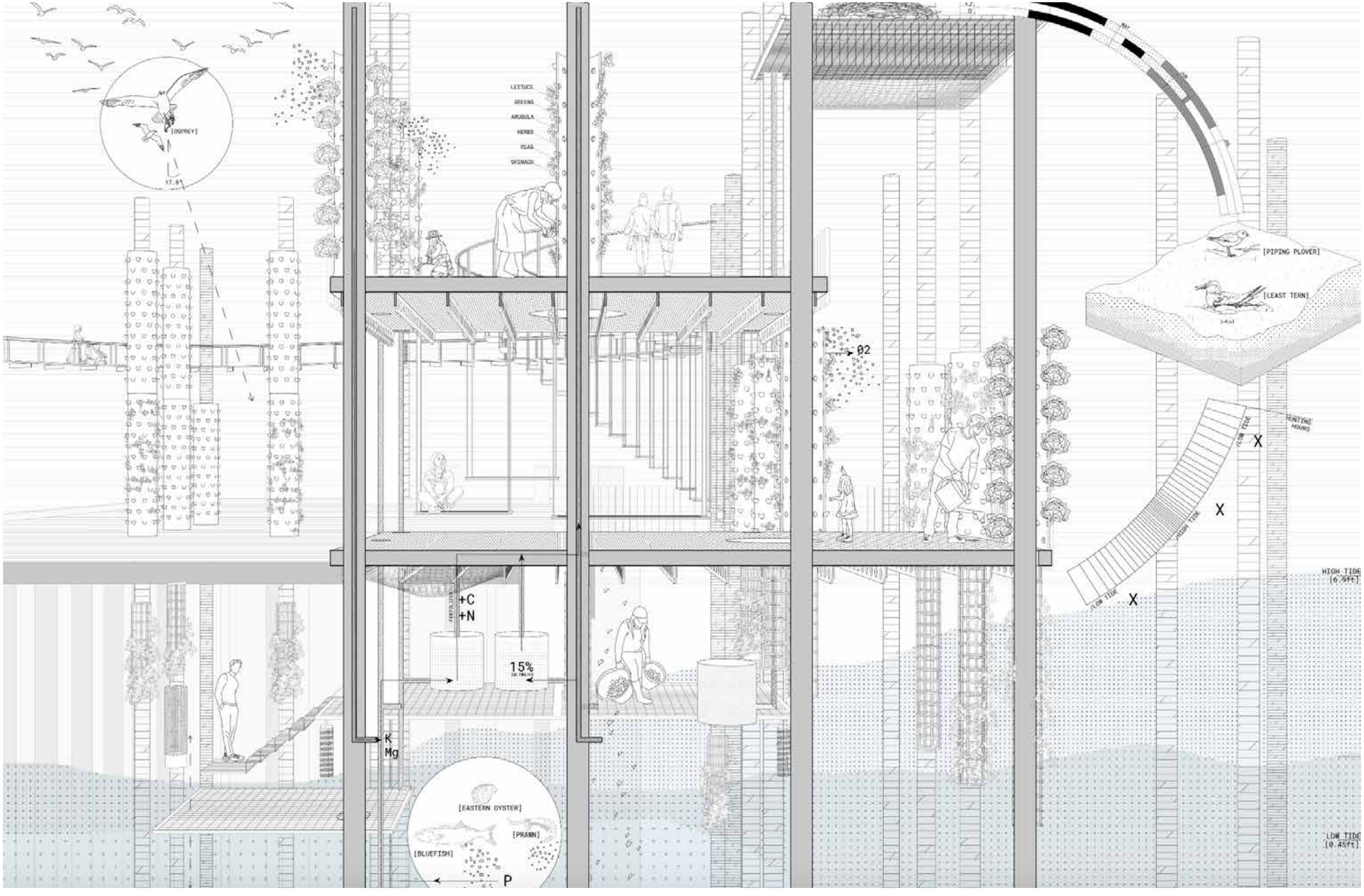


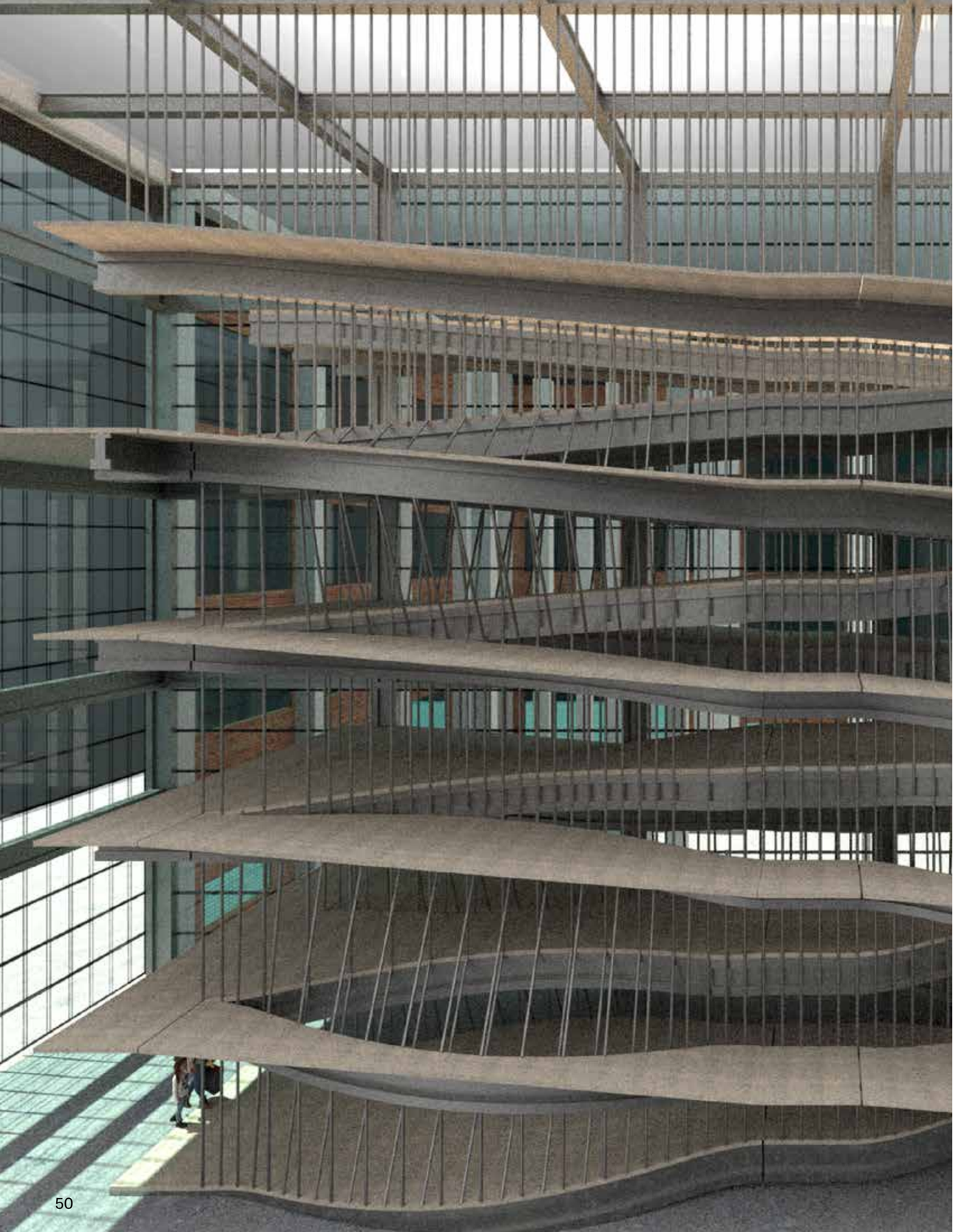
FLOOD DIAGRAM



Platforms are dispersed among the pilings, echoing the urban scale of Brideport's pollutive industrial past while diffusing porosity between interior and exterior spaces.

FLOOD DIAGRAM


[OSPREY]
17.8ft
LETTUCE
GREENS
ARUGULA
HERBS
PEAS
SPINACH
02
[PIPING PLOVER]
[LEAST TERN]
HIGH TIDE
LOW TIDE
X
+C
+N
15%
K
Mg
[EASTERN OYSTER]
[PRAWN]
[BLUEFISH]
P
HIGH TIDE
(6.9ft)
LOW TIDE
(0.45ft)



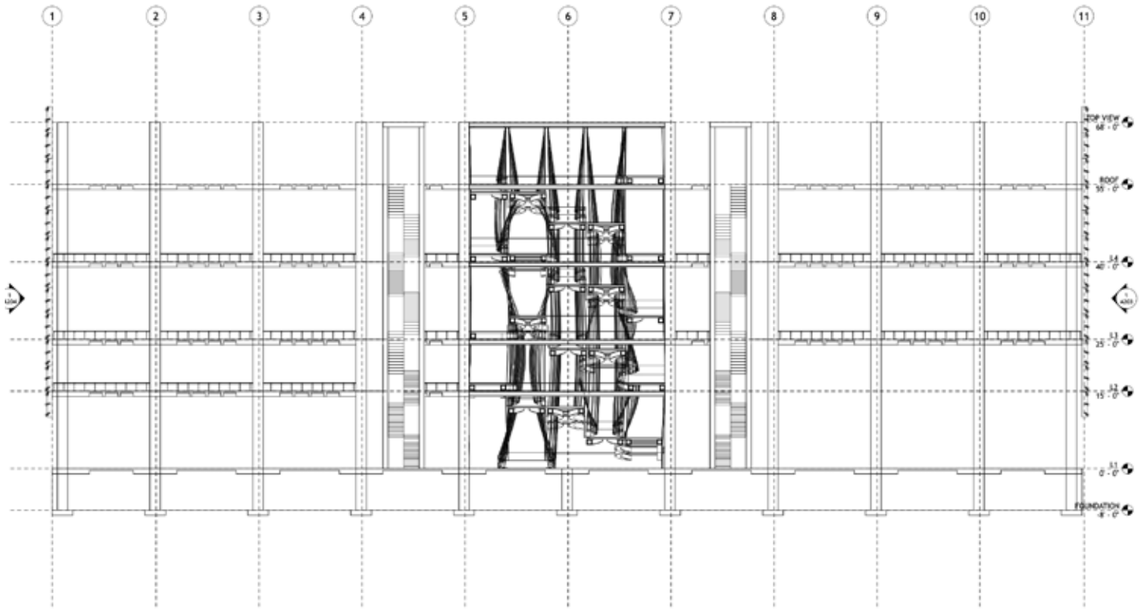
05

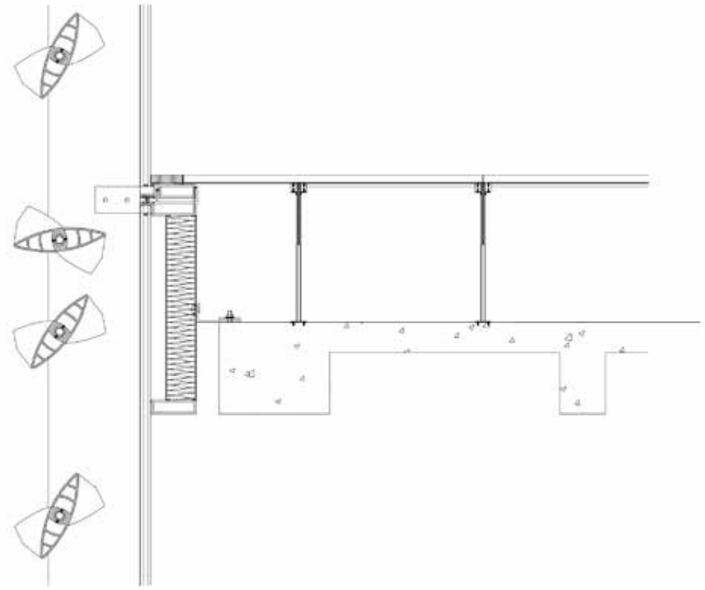
ArchiTECH

TECH IV / Fall 2023
Critic / Berardo Matalucci
Partners / Amora McConnell, Sarah The, Camille McGriff, Bailey Allen, Thea Bertin-Levecq

This adaptive reuse project transforms a former Manhattan manufacturing building into a vibrant LGBTQIA+ clinic and call center, prioritizing inclusivity, sustainability, and efficient circulation. Retaining the original floor plates and structural columns, the design integrates new building systems that support high-performance energy use and clear navigational flow. A custom terracotta panel façade, developed through sun and shading studies, mitigates solar gain and addresses the environmental impact of its location on the West Side Highway. This reimagined facility supports community health and advocacy while breathing new life into existing urban infrastructure through thoughtful, sustainable design strategies.

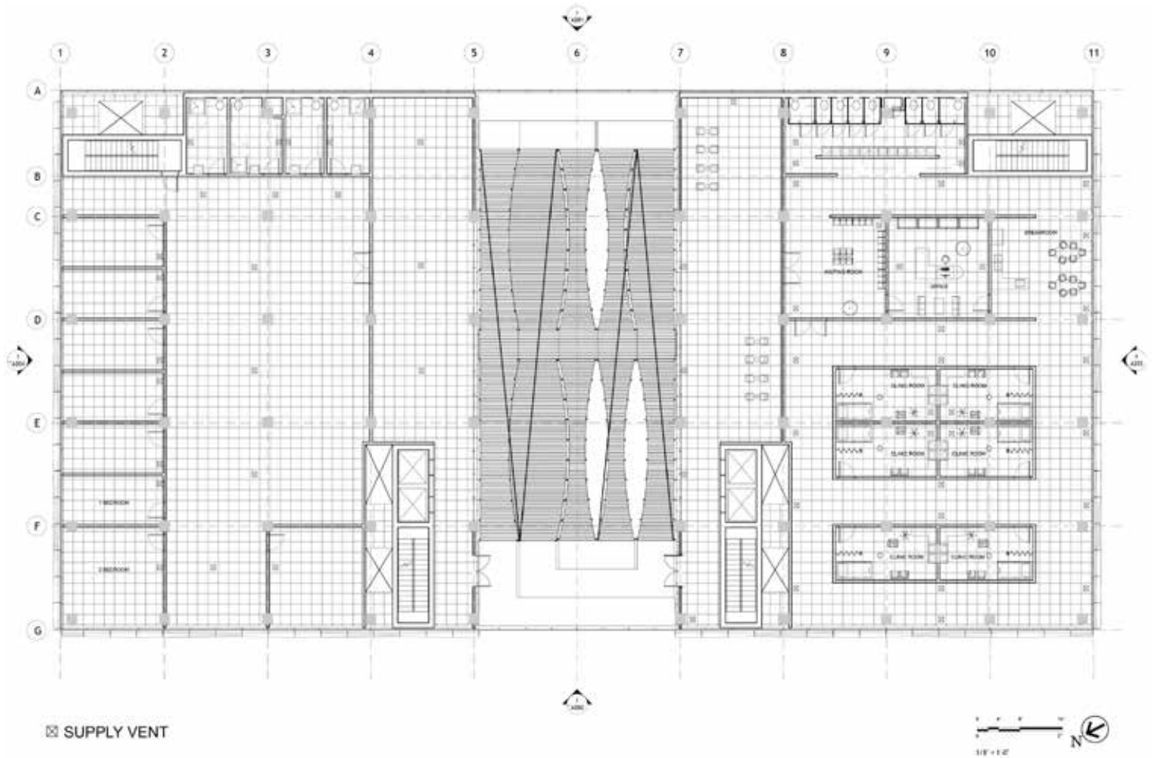
BUILDING SECTION

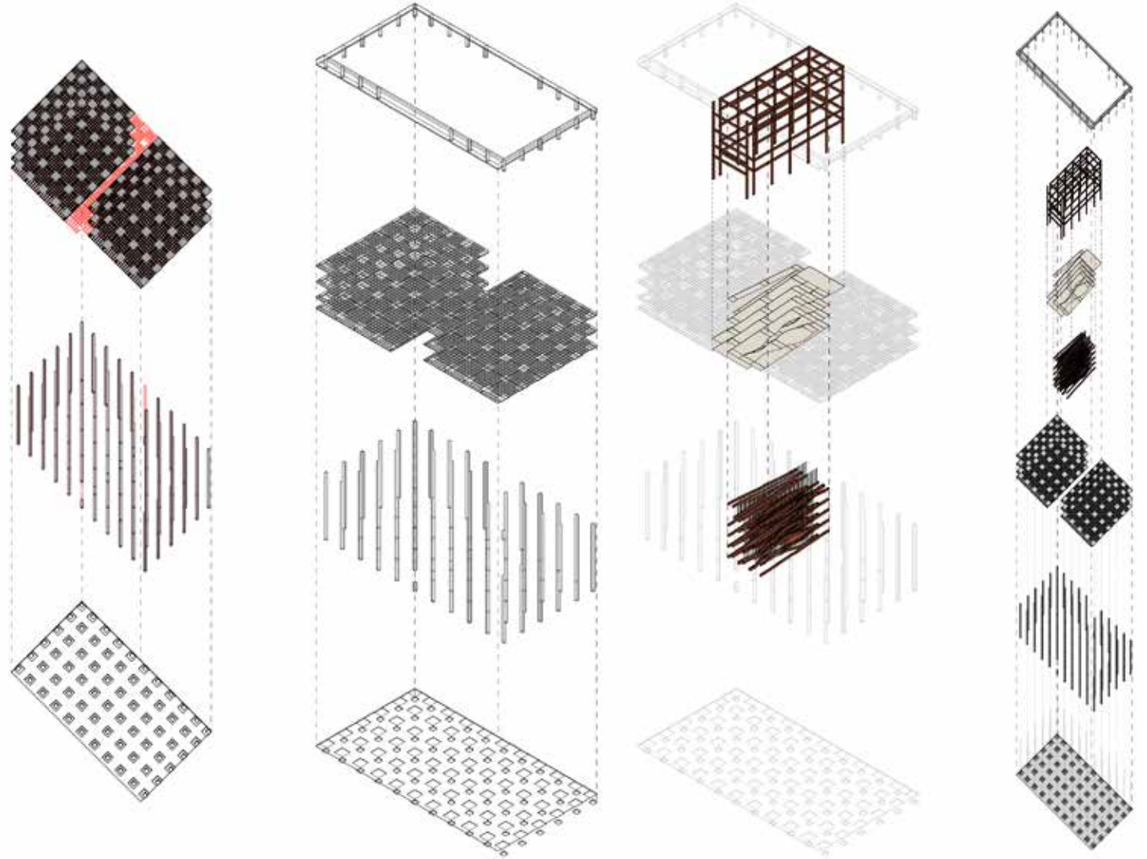




FACADE DETAIL

THIRD FLOOR PLAN





STRUCTURAL DIAGRAM

06

THE MUSSEL AT THE END OF THE WORLD

ADV V / Fall 2024
Critic / Michael Wang
Partner / Anaïs Halftermeyer

Although designated a Superfund site in 2010 and restricted as a site of contamination, the Gowanus Canal is a unique habitat for extremophile species. Ribbed Mussels and Pseudomonas putida thrive in this extreme environment, contributing to the canal's "collaborative survival" by metabolizing toxic contaminants. Our project embraces the canal's current state—half-dredged with a mix of old and new—and introduces infrastructure to enhance extremophile habitats.

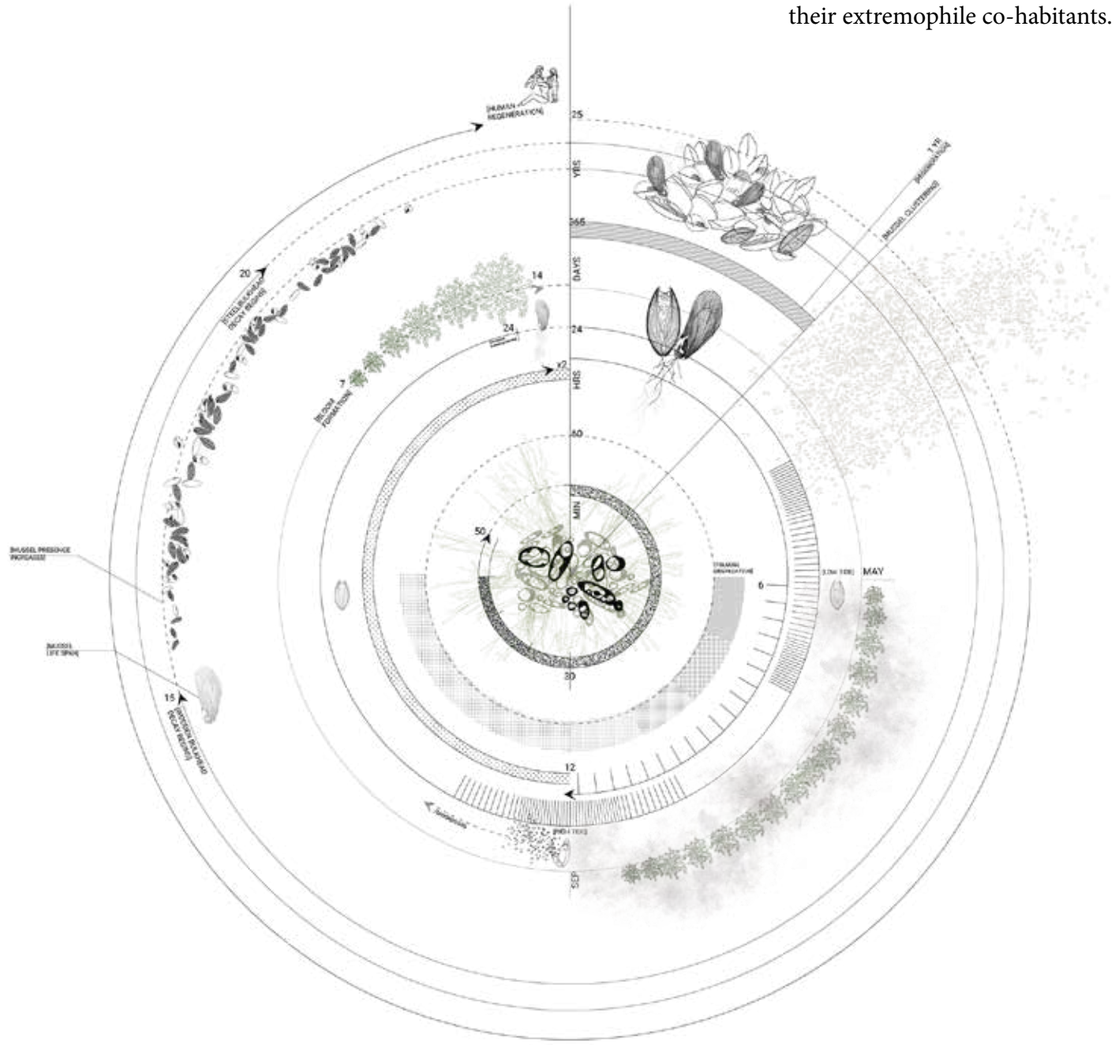
Dock systems cluster near CSO outfalls, ghost stream outlets, and broken edges, circulating oxygen and water to support biochemical reactions by mussels and microbes. Eco-concrete modules, microbial mats, and trans-species columns accelerate metabolization while slowing the human "sanitization" of contamination, fostering productive cohabitation between humans and non-humans in New York City.

Canoes and modular dock design facilitate future seeding, transporting microbial mats to other parts of the canal.

Mimicking the behavior of mussels and microbes, our design grows into a living network.

As ribbed mussel and microbe communities grow, our docks expand alongside them, engaging existing infrastructures like the Gowanus Dredgers.

Canoe docking and public access points reconnect residents with the waterfront and their extremophile co-habitants.

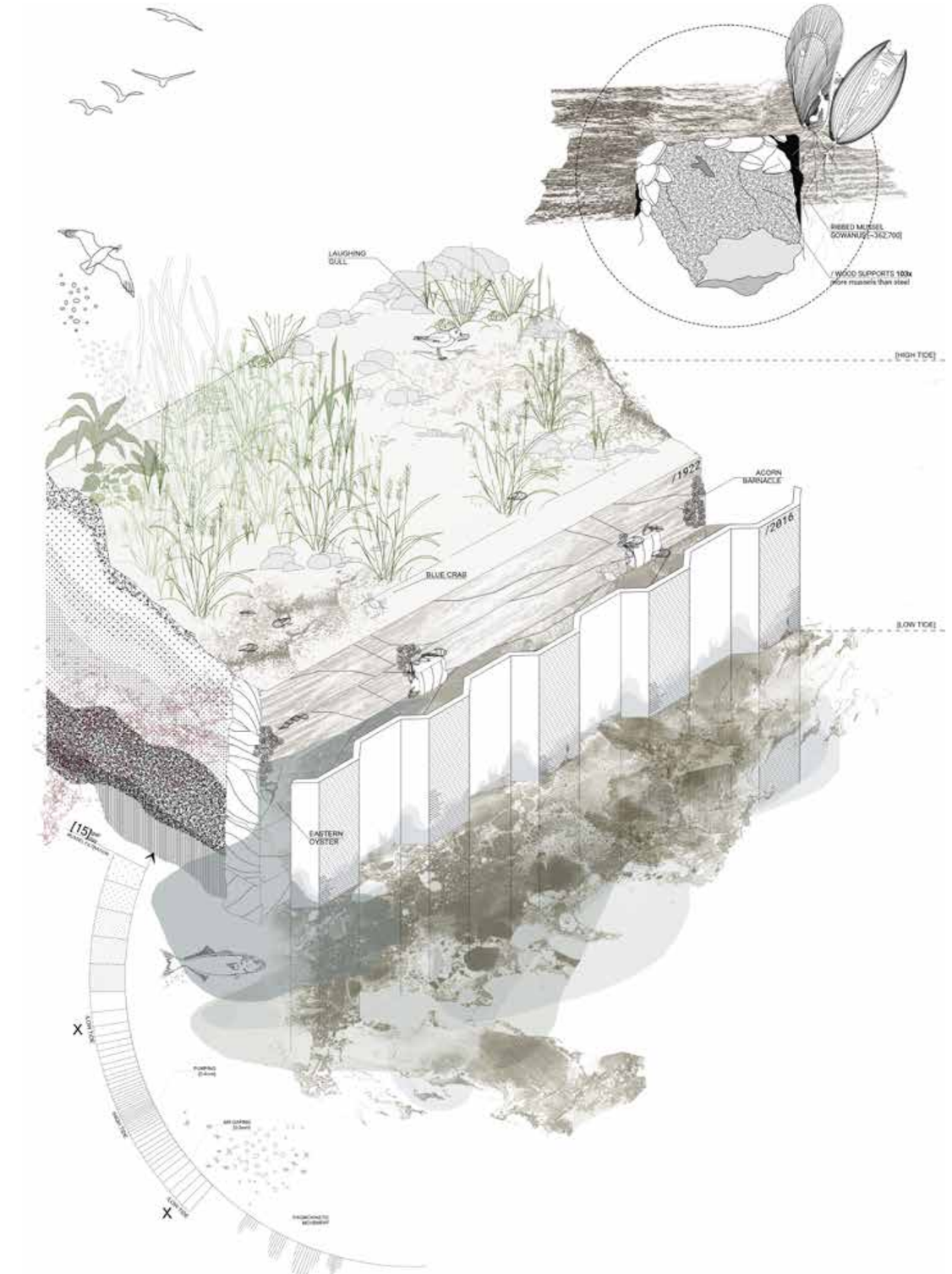


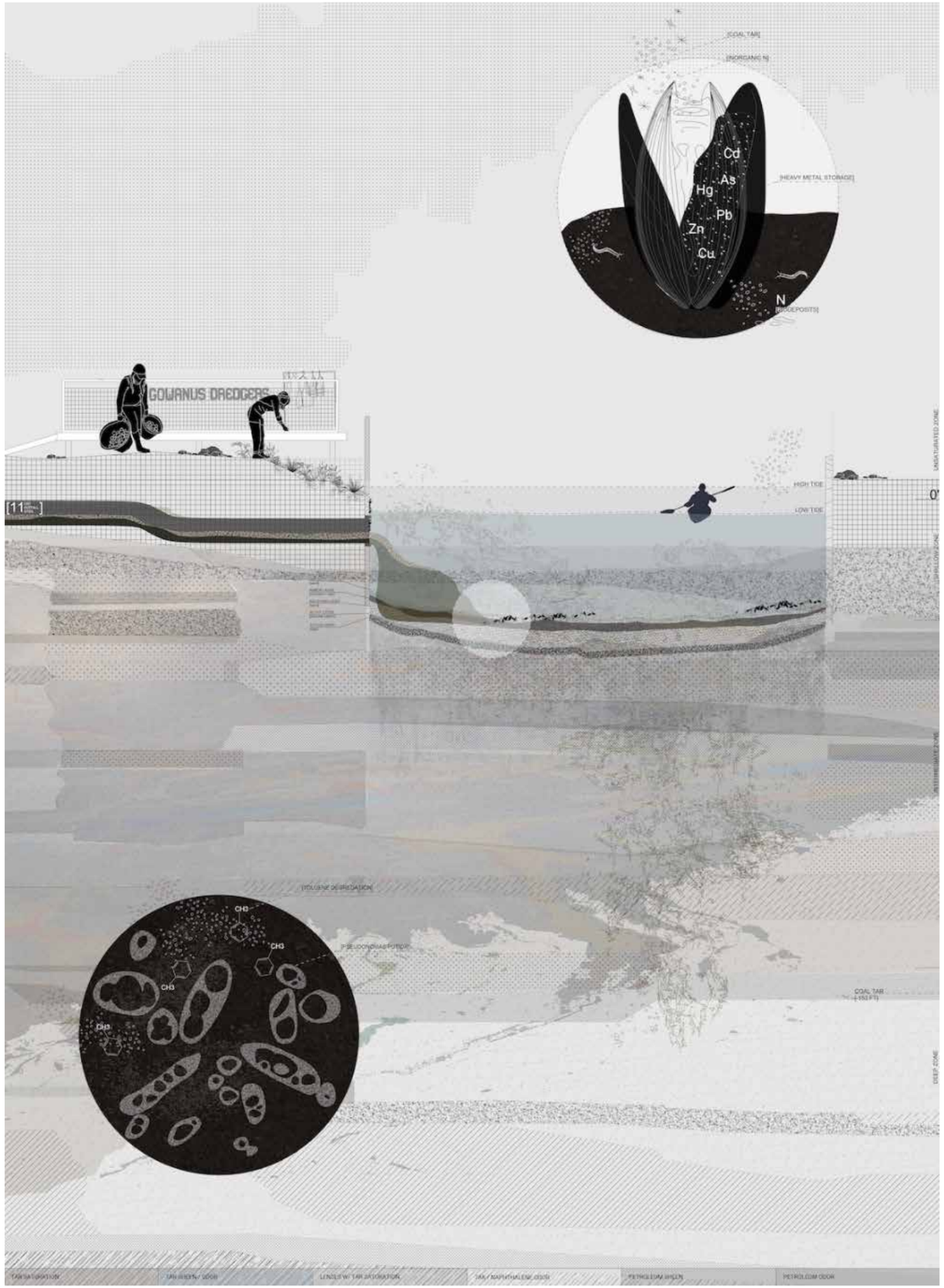
TIMESCALES DIAGRAM

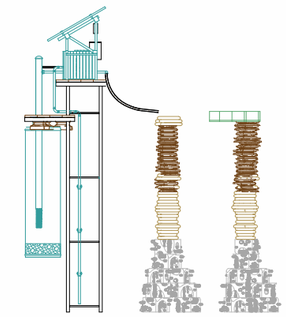
PLAN

EXISTING ECOLOGY ECOSYSTEM

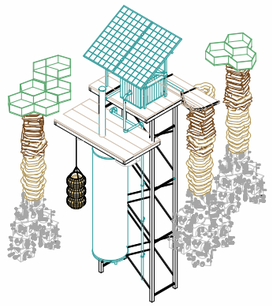
SOIL STUDY

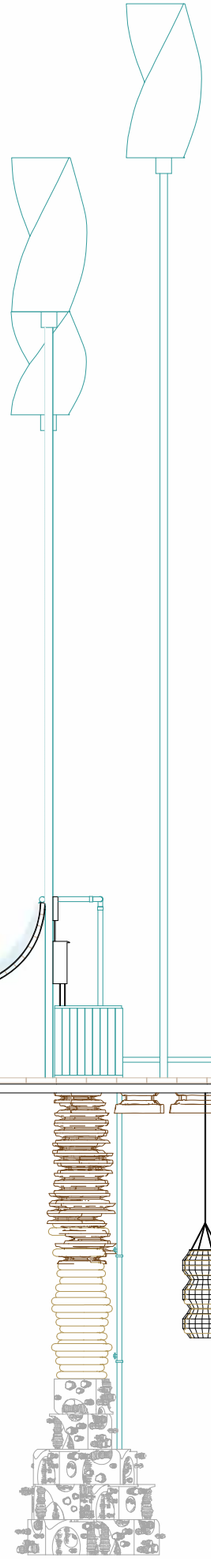


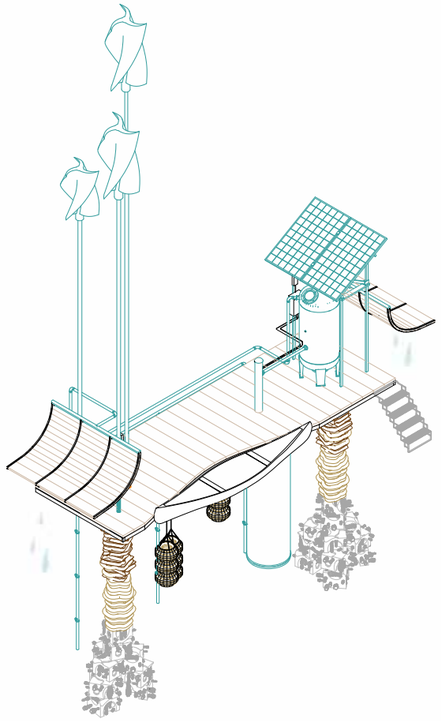




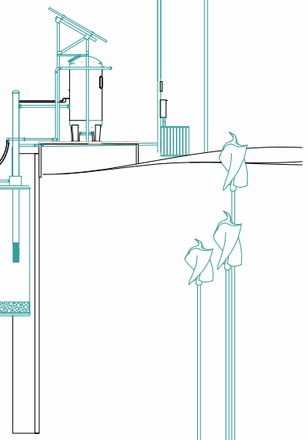
non-human

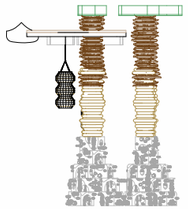




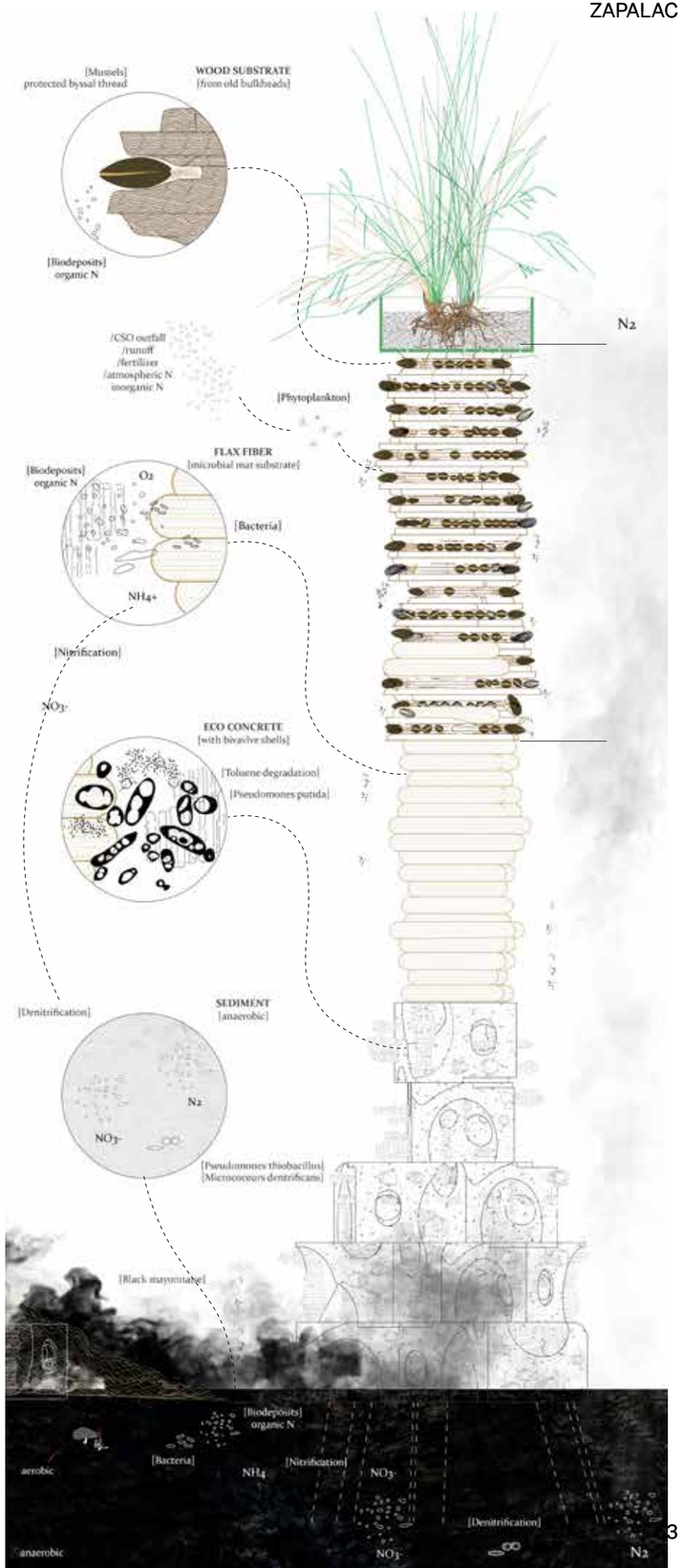


human friendly





human friendly



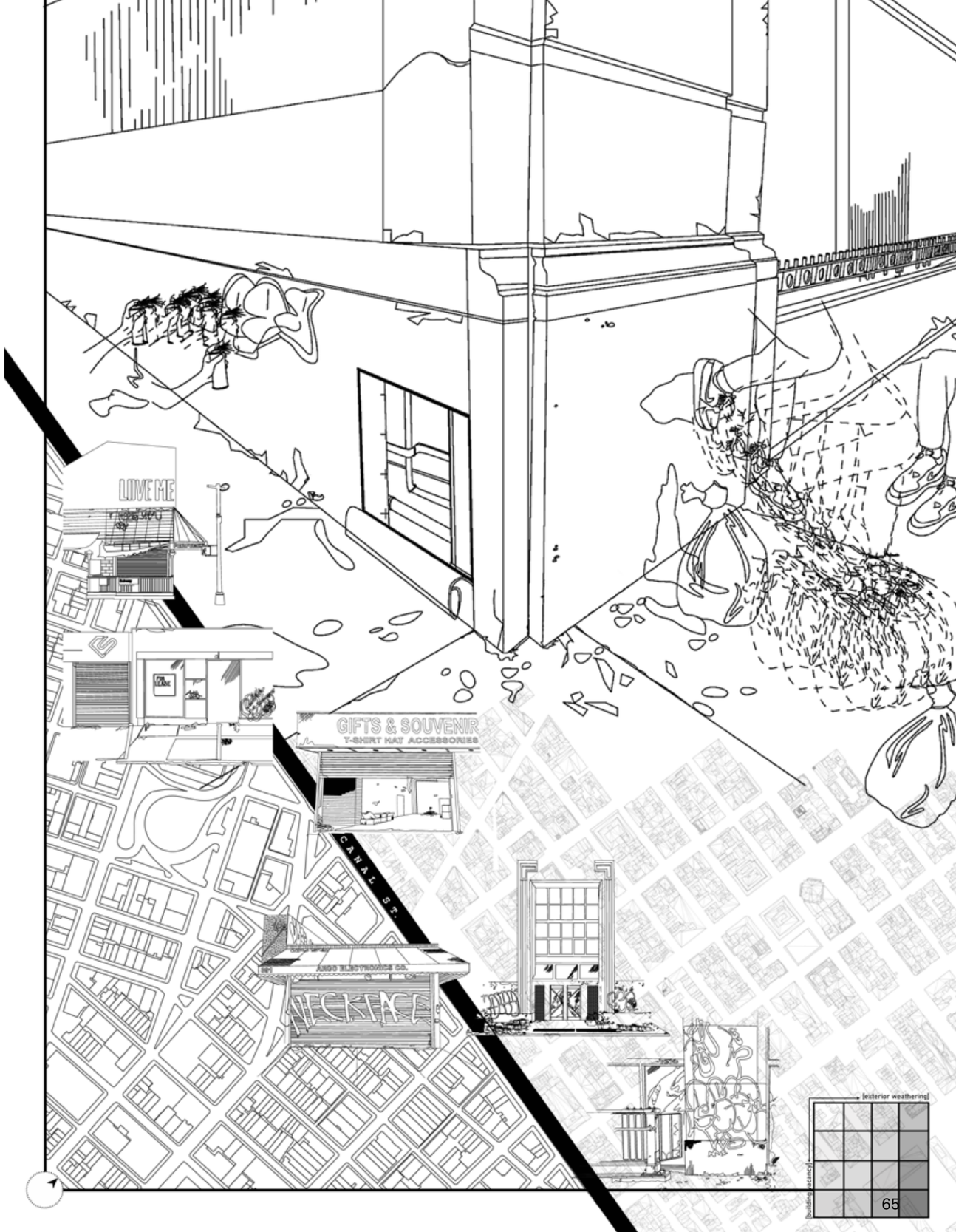
07

SOIL BANK

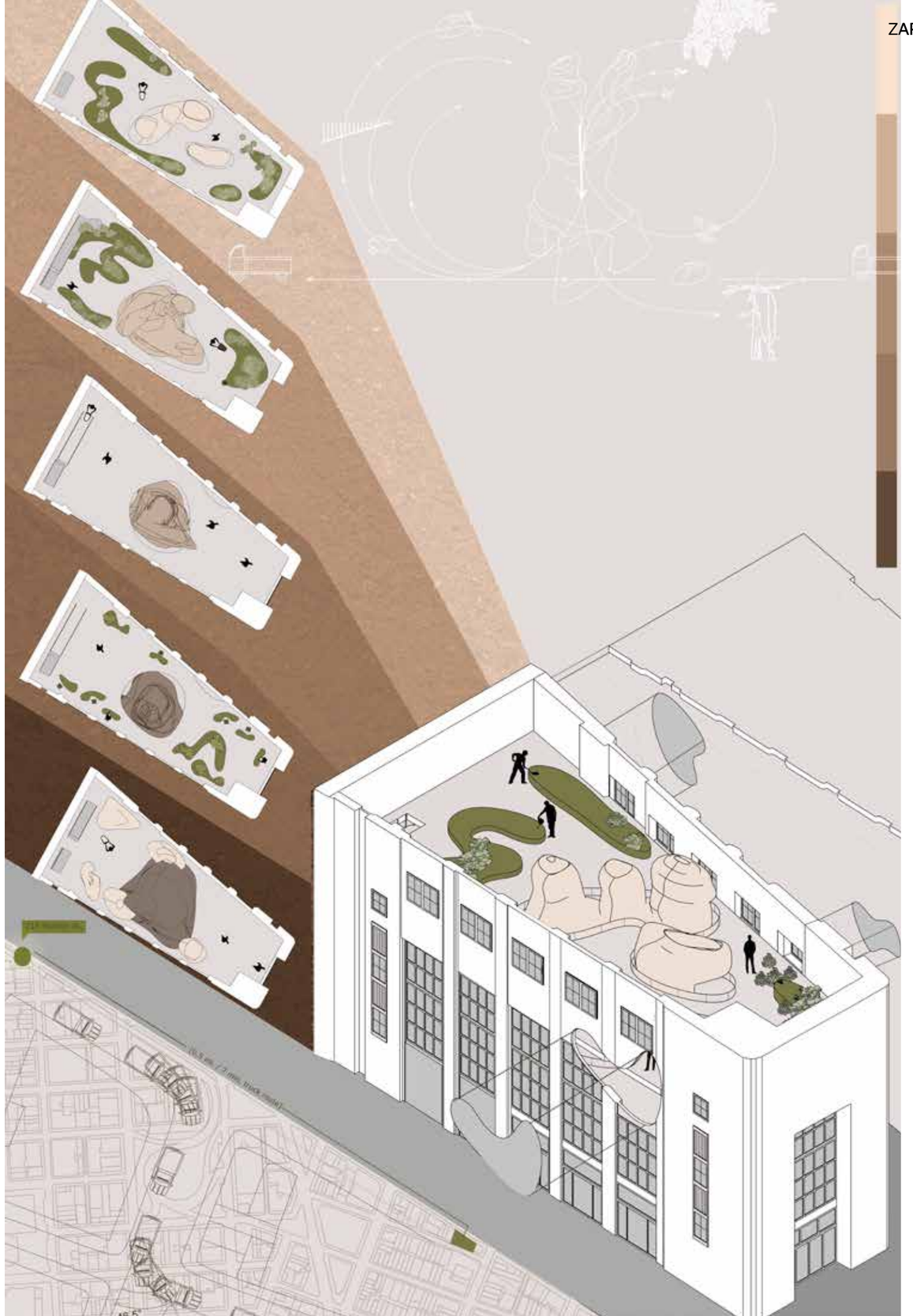
CORE I / Fall 2022
Critics / Lindsey Wikstrom, Thomas De Monchaux

Invisible systems–microbiome systems and material transport systems–are present at the intersection of Canal and Broadway. A vacant bank building present at this intersection has the potential to plug into a multitude of networks, stimulating new growth. By exposing the living systems of this vacant bank building, my project works to reframe the meaning of the word “bank,” expanding it to an idea of a “soil bank.”

This soil bank–a sort of soil body–grows to take over the layers of the building, materializing intangible systems and rewiring the relationship between humans and the environment in efforts of stemming a new, symbiotic connection through the bioremediation of a soil bank.

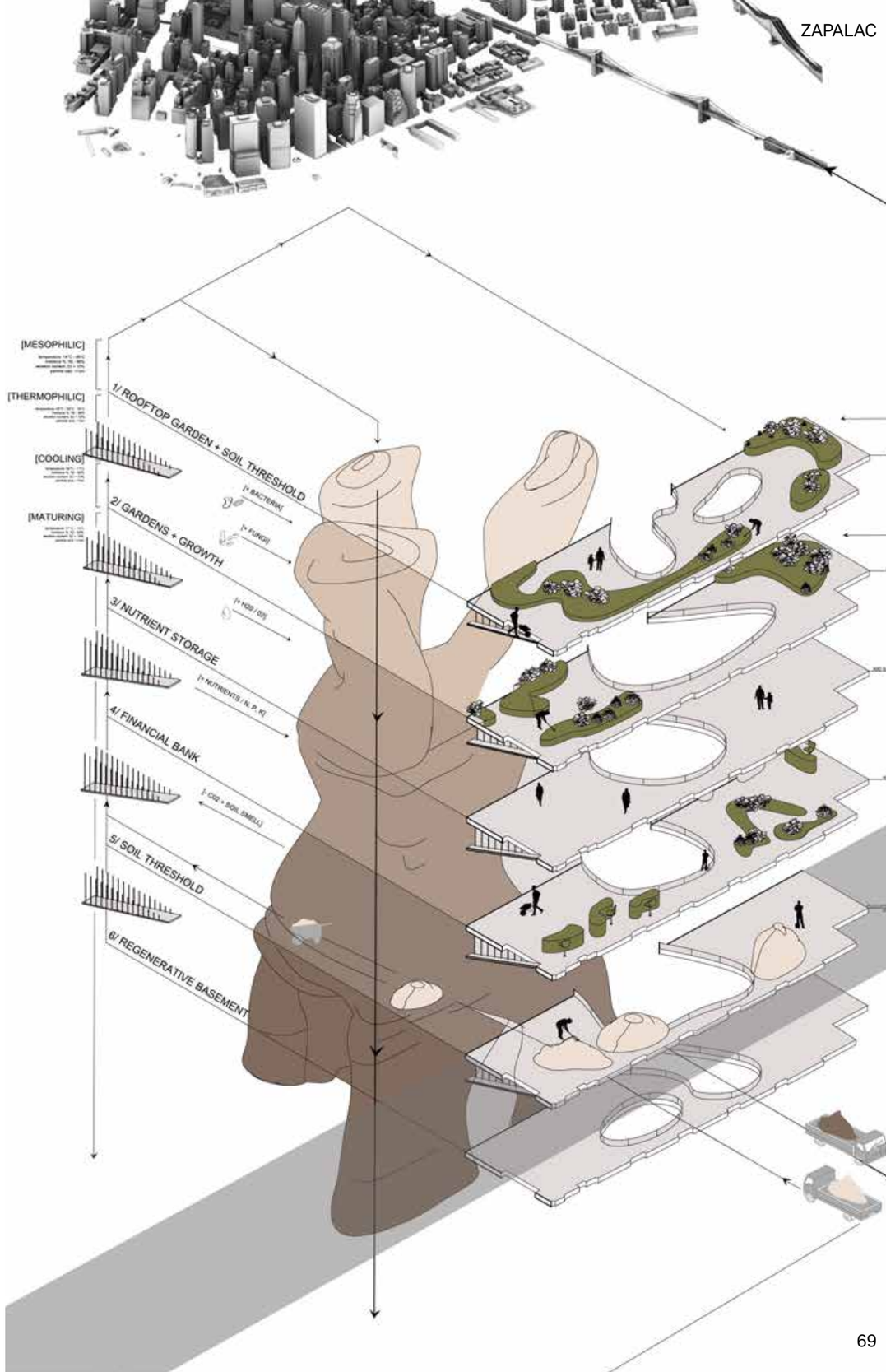


BANK SECTION



SOIL SYSTEM

/ Supporting symbiosis within the urban microbiome



WasteWorks / Spring 2025
Critic / Amelyn Ng
Partner / Sarah The
Biodegradeable Tiles for a Circular Building

08

PROCESS-ING

Fall 2022-Spring 2025
Material Exploration / Model-Making

Material exploration and regenerative building systems are central to my research and design approach. I've fallen in love with the iterative process—testing, failing, reworking—and found clarity and creativity through living in the messiness of making. Each project became a laboratory for pushing boundaries, understanding how materials perform, and imagining architecture as an active participant in ecological systems.

CORE I / Fall 2022
Critics / Lindsey Wikstrom, Thomas De Monchaux
Coco Fiber Material Exploration

ADV VI / Spring 2025
Critic / David Benjamin
Rice Husk Bricks, Experimentation with Bio-Binders

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