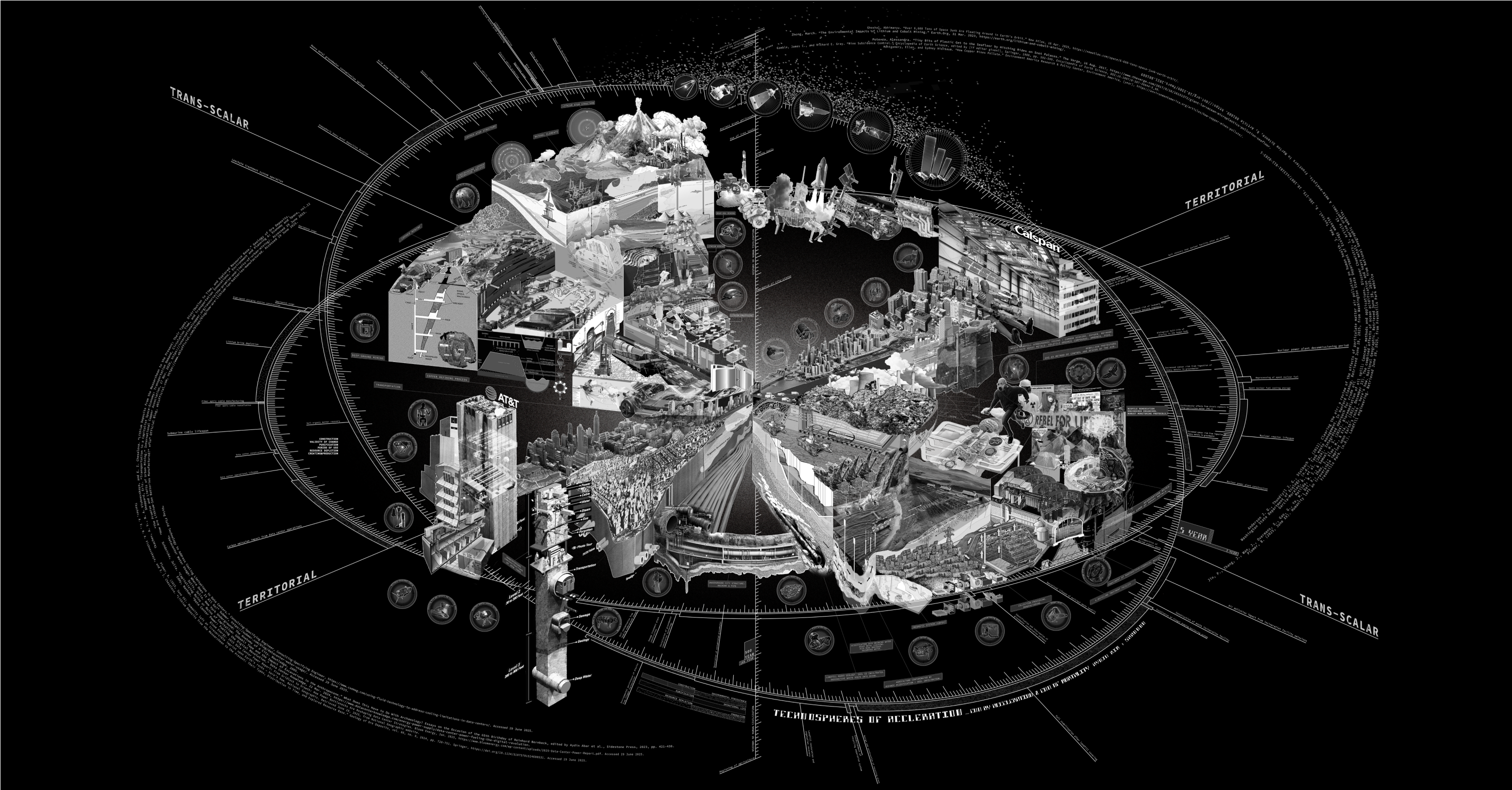


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Technospheres of Acceleration

_ cosmogram revealing the infrastructures of acceleration that breed new ecological monsters

TEAM MEMBER OF 2 MEMBERS
ROLE: RESEARCH, 3D MODELING, DESIGN, VISUALIZATION



Year: 2025
Location: New York, USA
Type: Cosmogram | Research and Representation
Program: Domestic Ecologies and Infrastructure
Instructor: Uriel Fogue
Category: Academic project

This cosmogram visualizes the infrastructures of acceleration, moving from underground data centers and crash laboratories to the mining landscapes that provide raw materials and finally to satellites orbiting Earth. The drawing reveals the hidden urban underworld of infrastructures we depend on but rarely see, tracing materials backwards through global supply chains of mining, processing, and manufacturing, ultimately rooting them in deep geological time where copper and lithium form over billions of years. This cosmogram asks what the material realities of the digital age are, confronting “the cloud” not as an abstract metaphor but as a system deeply entangled with soil, bodies, and planetary history, where new ecological monsters emerge and the end of worlds is already unfolding.

Prospect for Monsters

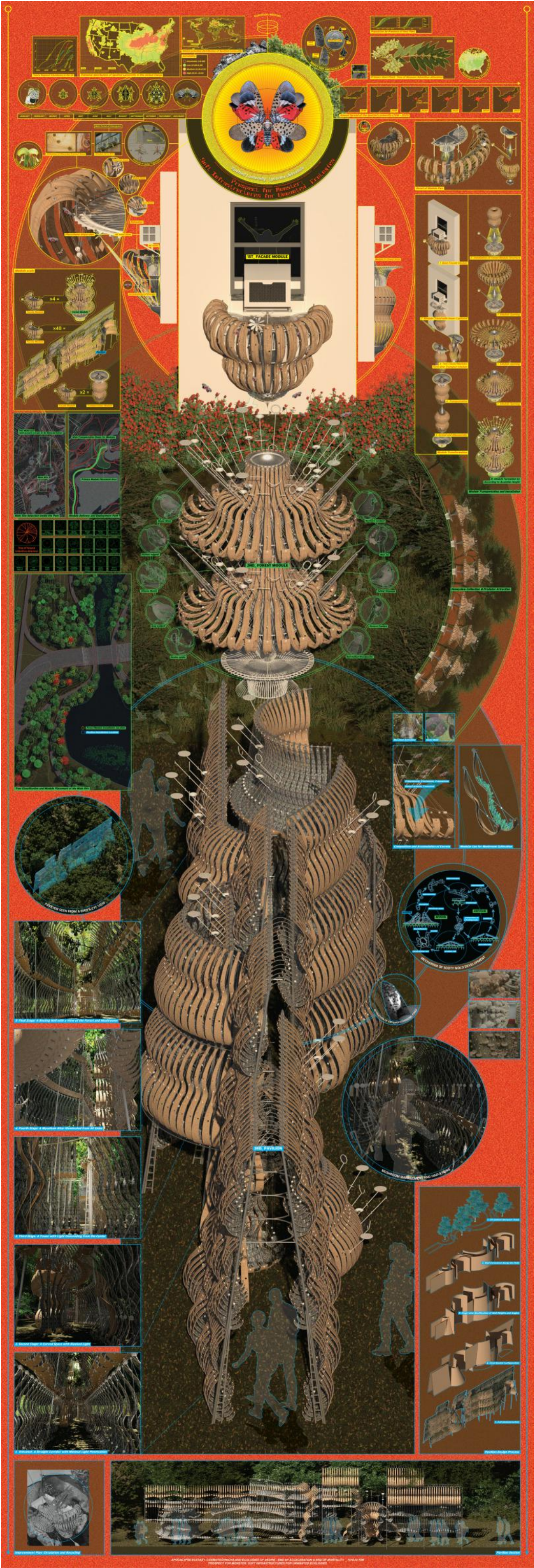
_ soft Infrastructures for Unwanted Ecologies

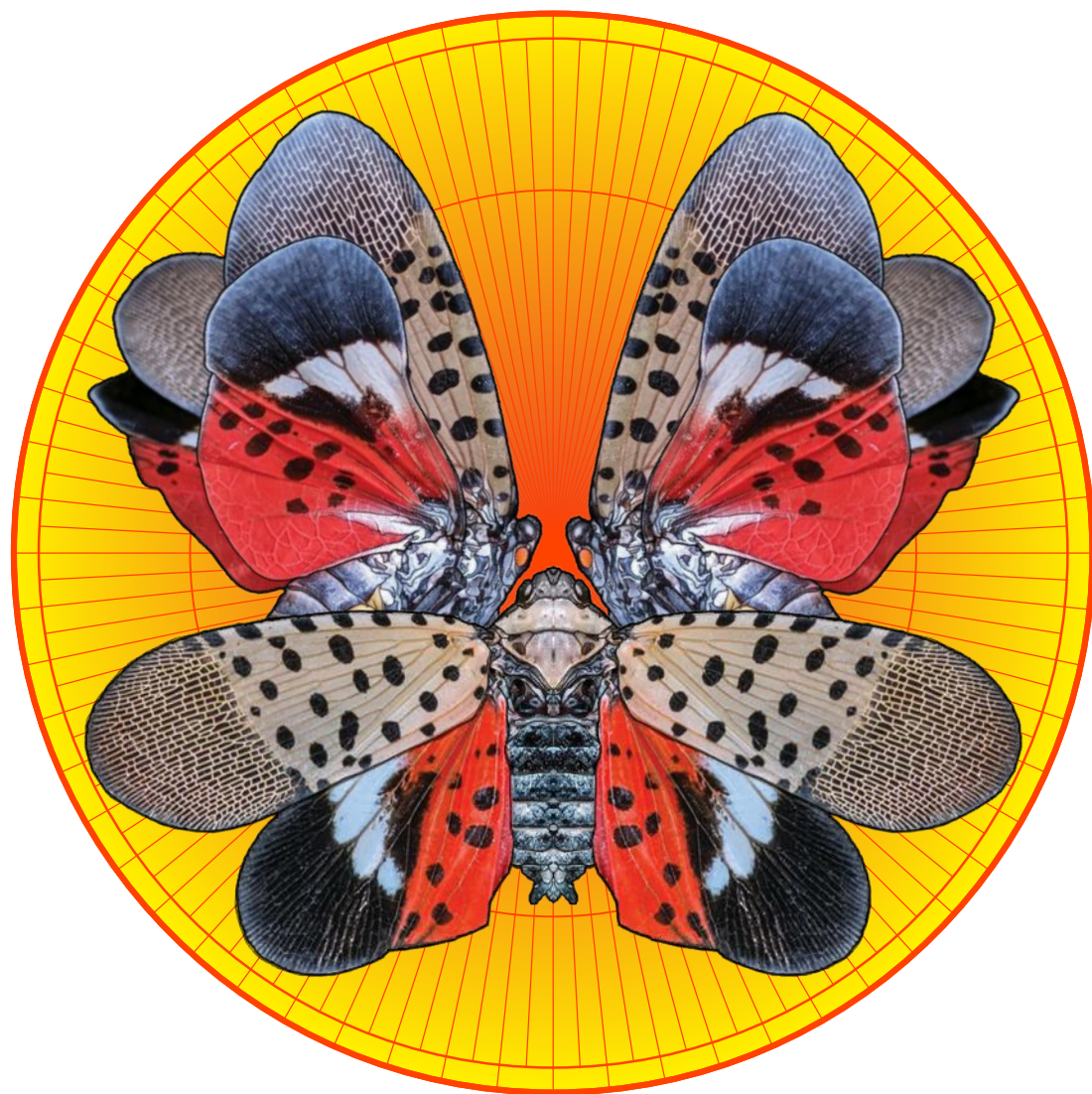
Year: 2025
Location: Prospect Park, New York, USA
Type: Urban Ecological Facility | Pavilion
Program: Multispecies Coexistence Infrastructure
Instructor: Uriel Fogue
Category: Academic project

INDIVIDUAL PROJECT

An architectural framework for coexistence with the spotted lanternfly treats the invasive insect as an ecological monster produced by urban systems. It shifts the response from eradication to nonviolent, non domesticating engagement in Prospect Park, Brooklyn. A seasonal modular system attracts lanternflies on nearby facades. It collects honeydew and moisture. It relocates to an Ailanthus grove, where larger assemblies reduce ground level impacts and increase predator exposure. The modules then biodegrade into compost. They return as small pavilions for edible mushroom cultivation along the forest path.

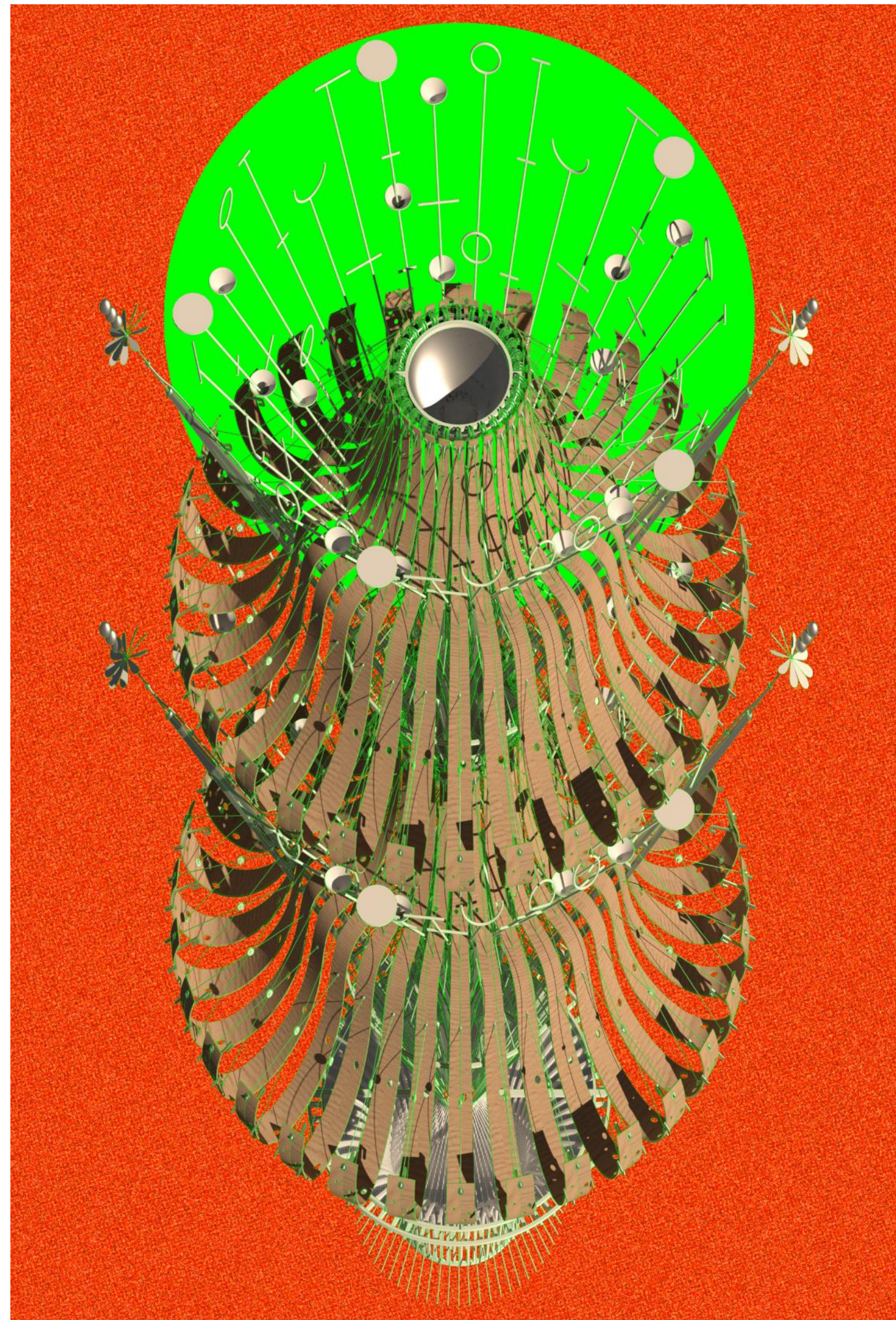
The proposal does not claim a solution to invasive species. Instead, it asks how we should respond to organisms our urban systems inadvertently produce. Here the spotted lanternfly becomes a mirror of the city’s failures, and an opening for ecological ethics. Architecture acts as a spatial declaration of coexistence.

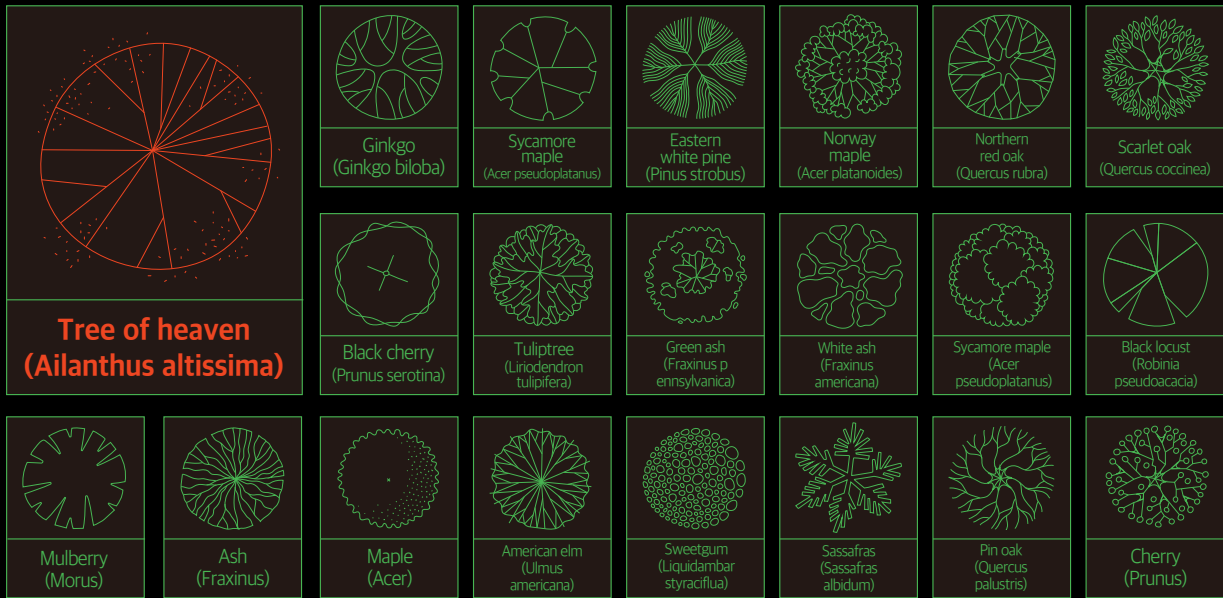
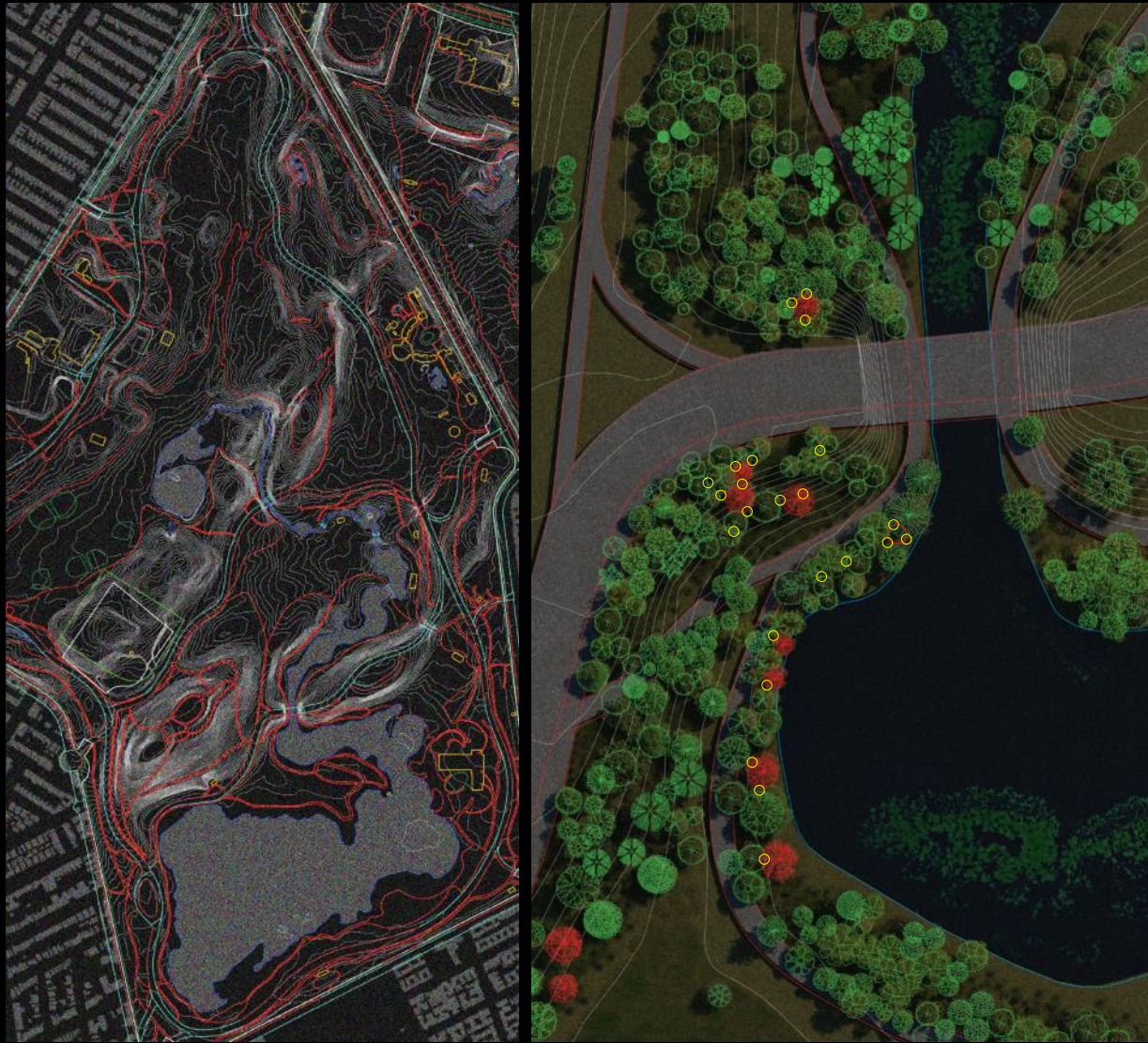




Ecological Monster: Spotted Lanternfly in Prospect park

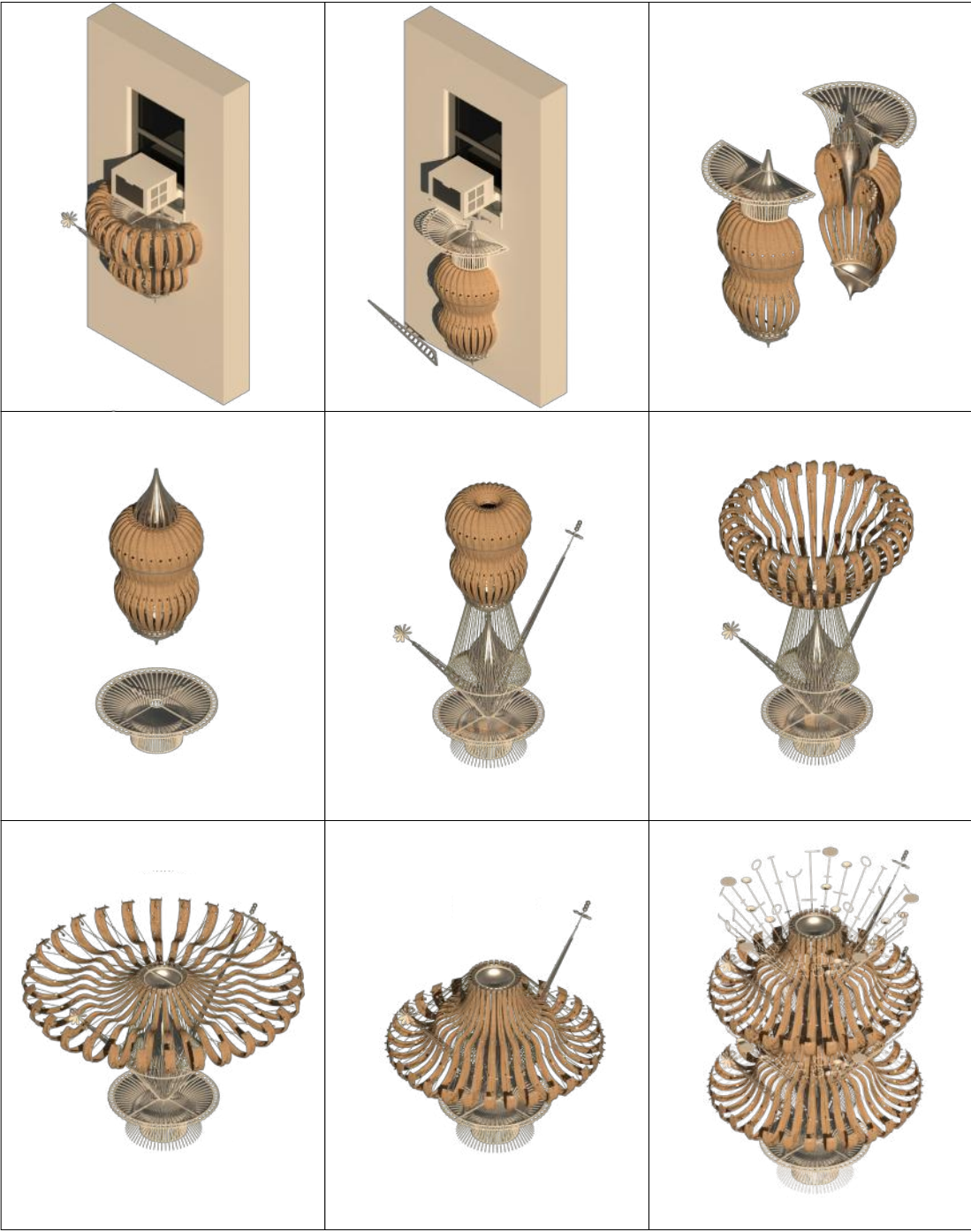
The spotted lanternfly is an ecological monster that the city produces through trade, fragmented habitats, and opportunistic host landscapes. Its life cycle is sustained by urban edges, where infrastructure and planting choices create corridors for spread. I treat the insect as a symptom and a mirror, not an enemy to erase. The project shifts the response from eradication to nonviolent coexistence that makes the city's responsibility visible. Architecture becomes the medium that stages this ethical turn, holding the lanternfly in view while redirecting its impacts.





Prospect Park Habitat Mapping and Pavilion Siting

In Prospect Park, I mapped *Ailanthus* stands and nearby tree communities to identify where spotted lanternflies reliably feed, gather, and move along the boundary between paths and woodland. I overlaid these habitat hotspots with circulation patterns, shade and light conditions, and proximity to nearby facades that seasonally introduce new lanternflies. I placed pavilion sites at the margins of the *Ailanthus* grove where lanternfly presence is consistent but human disturbance is lower, allowing access for observation and upkeep without intensifying impacts on the forest interior.



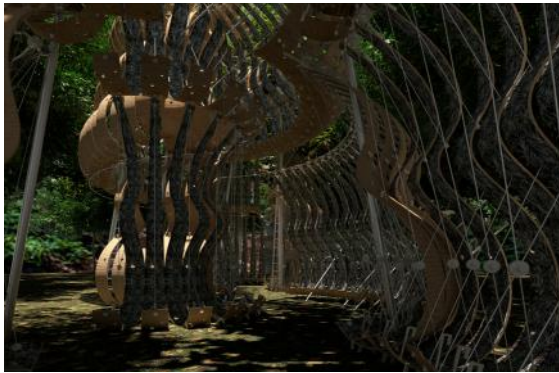
Facade-to-Park Relocation Cycle

A small pavilion attached to a building facade, aligned with the air conditioner, serves as a seasonal collector that attracts spotted lanternflies and gathers honeydew and moisture. At the end of the season, I detach the unit and reconfigure it into a different structural form designed for installation in Prospect Park. The reassembled structure is placed within or near an *Ailanthus* grove, where it concentrates lanternfly activity away from ground level and increases exposure to predators. Over time, its biodegradable components break down into compost, supporting the next cycle of planting and maintenance.



Temporary Material Cycle and Interior Experience

The pavilion is a materially temporary system made from biodegradable substrates and reversible joinery, so it can be disassembled, relocated, and safely returned to soil. In its final phase, the remaining frame becomes a small mycelium pavilion along the forest path, where inoculated substrates colonize the structure and produce edible mushrooms. Inside, the experience is driven by smell, humidity, and small temperature shifts, with light filtering through seams to reveal the living texture of the mycelium. Low benches and a close viewing distance slow the body down and invite careful attention to growth and decay. Rather than a finished object, the space lets visitors inhabit a short architectural life that grows, softens, and decomposes in real time.



Mycoentropy

_ mycelium based temporary art space in Fort Tilden

Year: 2025

Location: Fort Tilden, USA

Type: Architectural Design

Program: Art galleries and cultural spaces

Instructor: Mark Tsurumaki

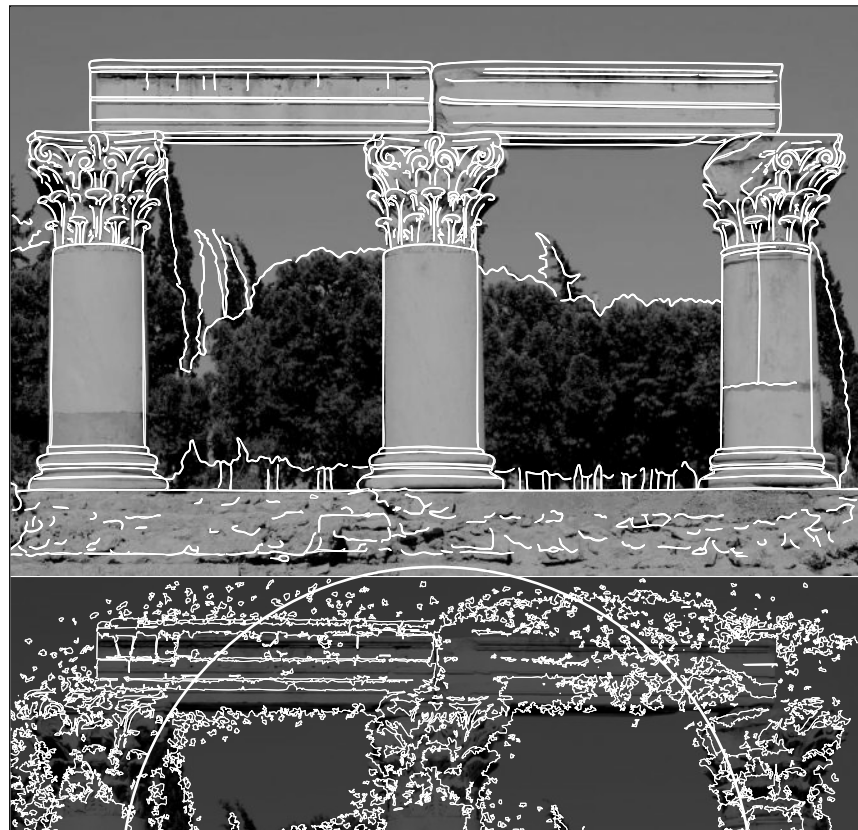
Category: Academic project

TEAM MEMBER OF 2 MEMBERS

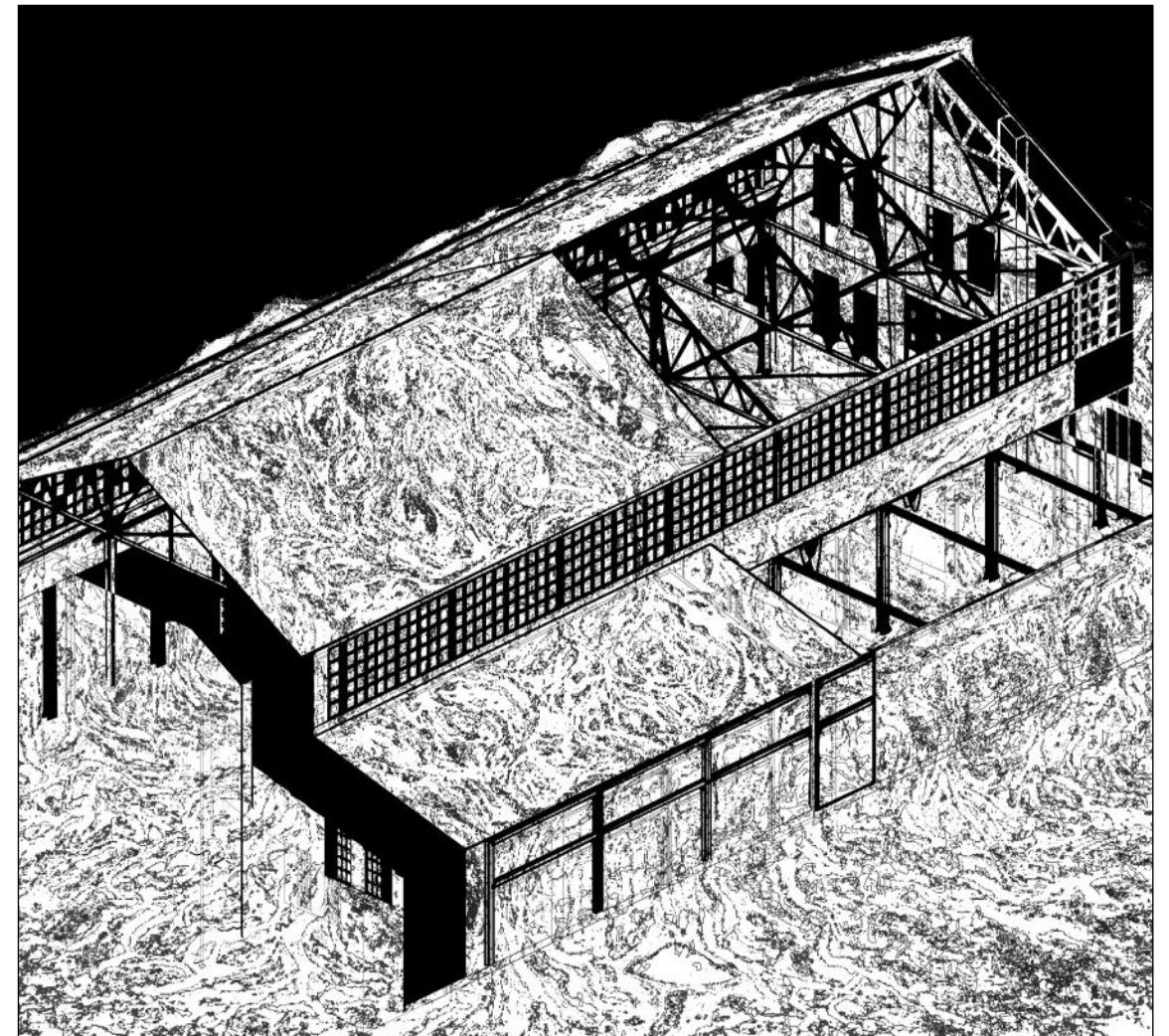
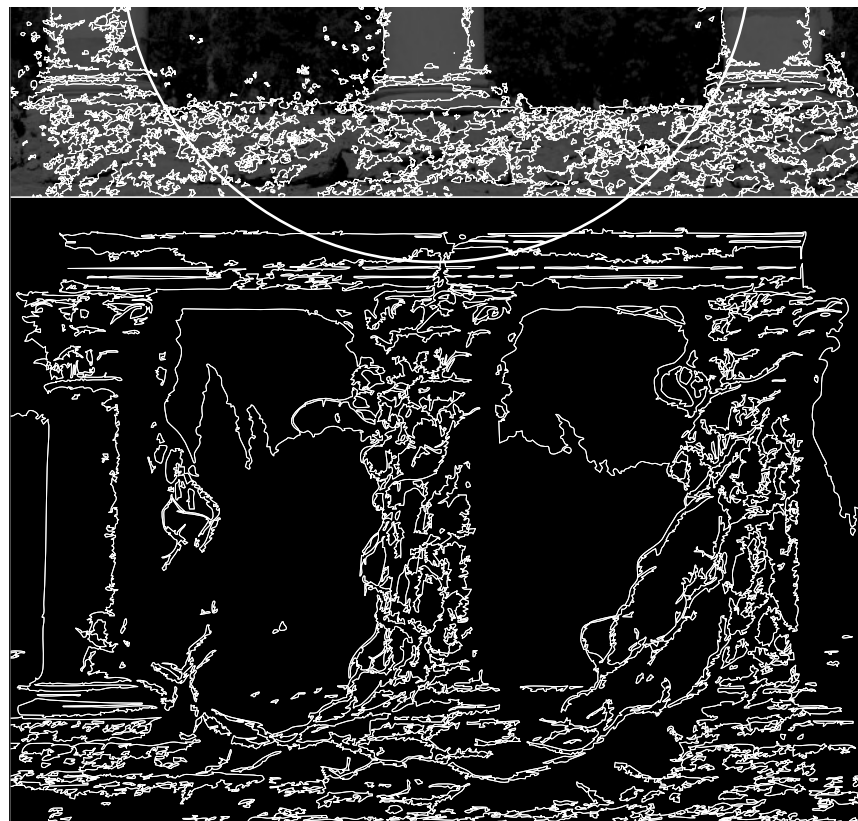
ROLE: RESEARCH, 3D MODELING, DESIGN, RENDERING, DIAGRAM

This project challenges architecture's reliance on permanence by exploring impermanence as a structural and ecological strategy. Mycoentropy frames growth, transformation, and decomposition as integral phases of architectural life. The design reinterprets the warehouse by retaining its steel frame and extending it with a wooden structure. A tensile network of steel cables wrapped in rope made from local plants establishes a new structural system. As mycelium colonizes this rope substrate, it reinforces the cable assemblies, transforming them into living columns. They expand and adapt to spatial needs, carving out niches, paths, and cavities that define areas for exhibition, performance, and gathering. Over time, the same organism that generates structure initiates its breakdown, aligning the building's lifespan with ecological cycles.





ARCHITECTURE = ETERNAL?



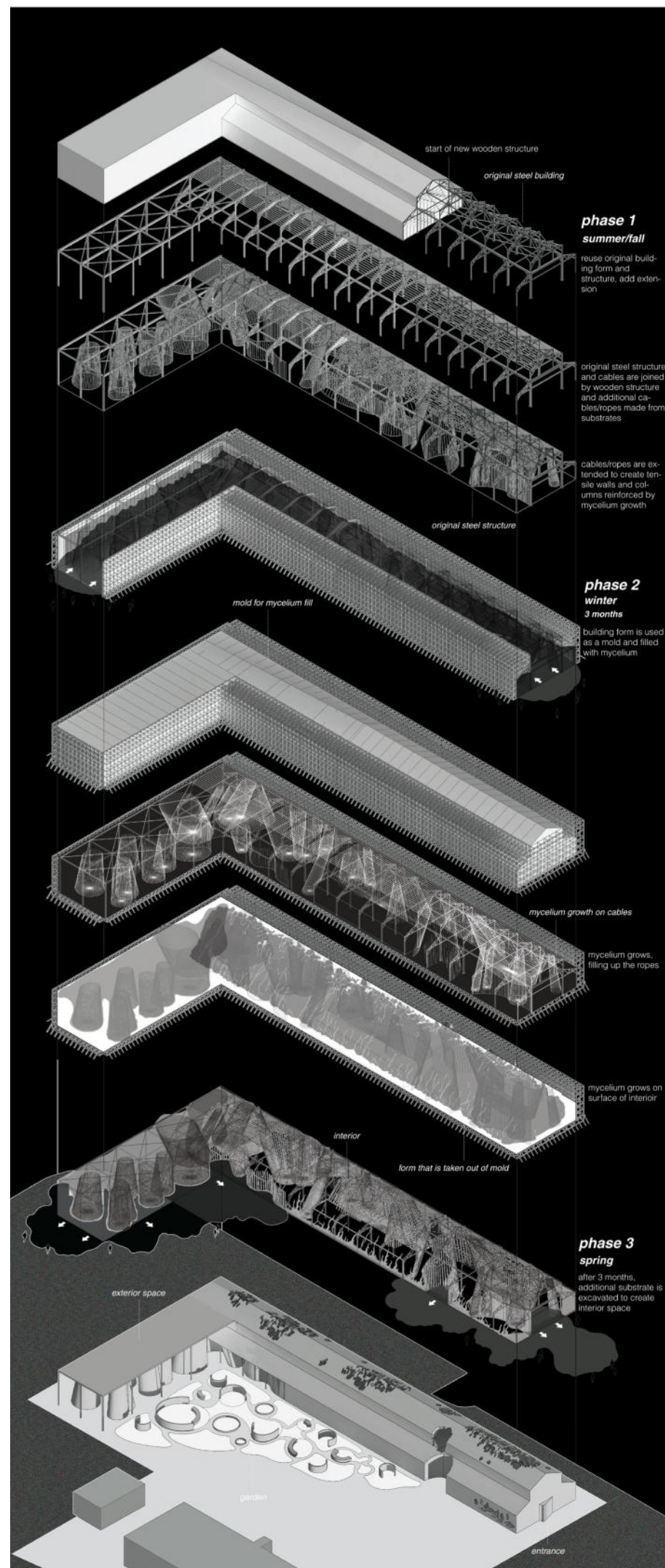
Temporal Questions of Architecture

Architecture has long been connected to permanence and stability.

Many buildings are designed to last for hundreds of years, and this long life is often seen as a sign of value and success.

Because of this idea, architecture has focused on strong materials, fixed forms, and resistance against time and nature.

But today, in a time of climate crisis and environmental change, this idea of eternal architecture raises new questions about waste, resource use, and the relationship between buildings and natural cycles.



Lifecycle: Mycelium Structure

The project begins by keeping the old steel structure and adding a new wooden frame and cable system.

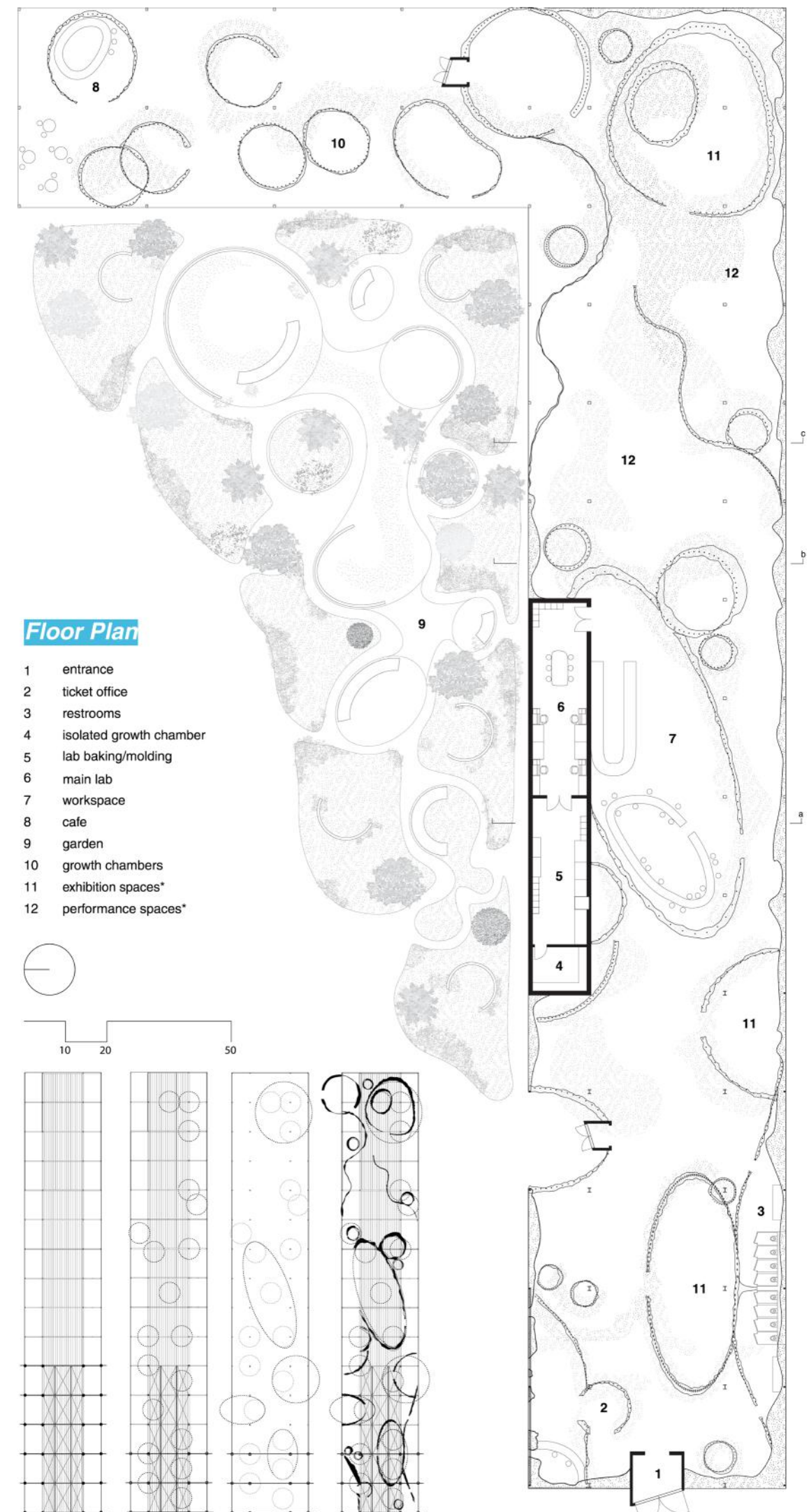
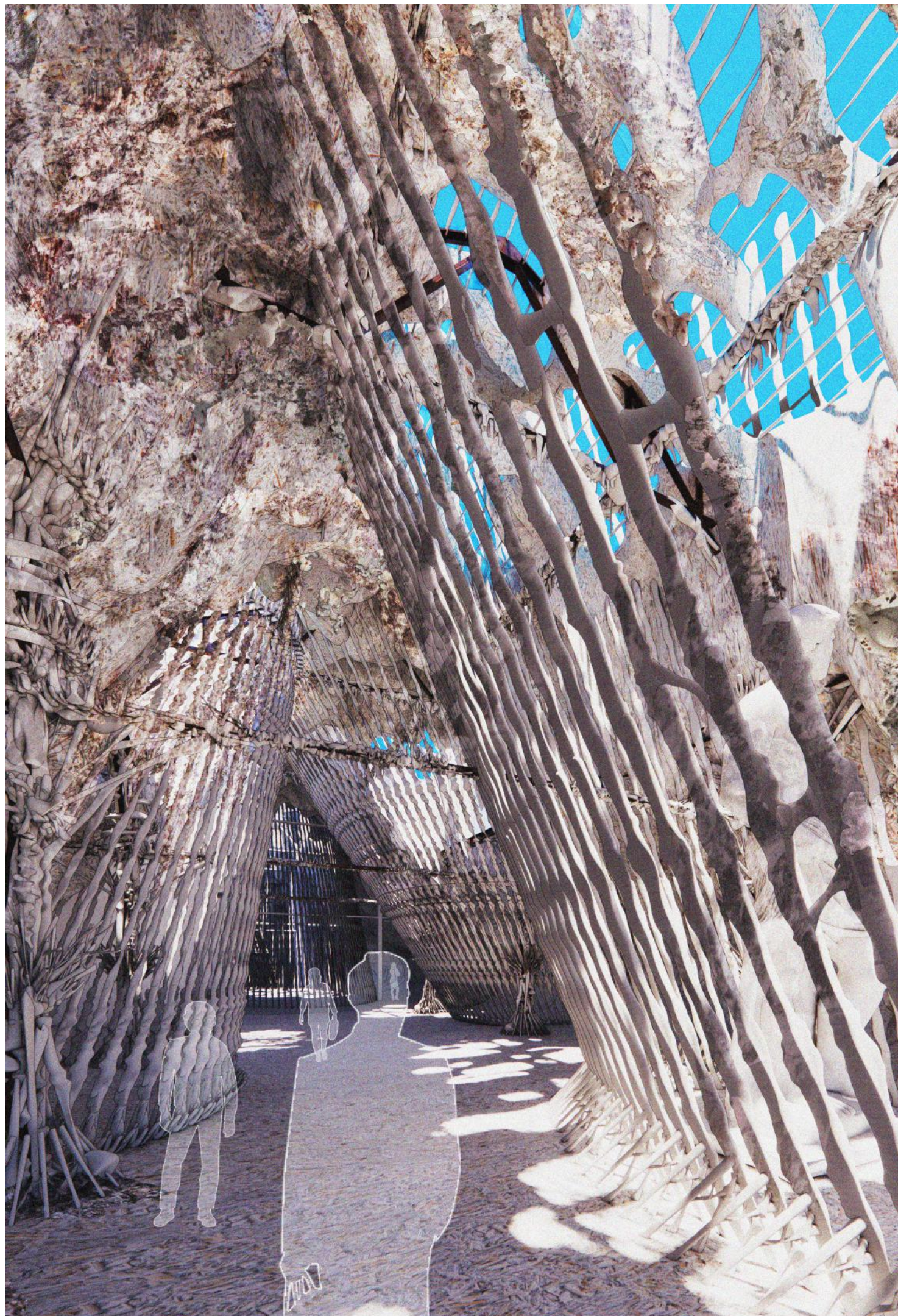
Ropes made from natural materials wrap around the cables, and mycelium grows through the entire building over several months.

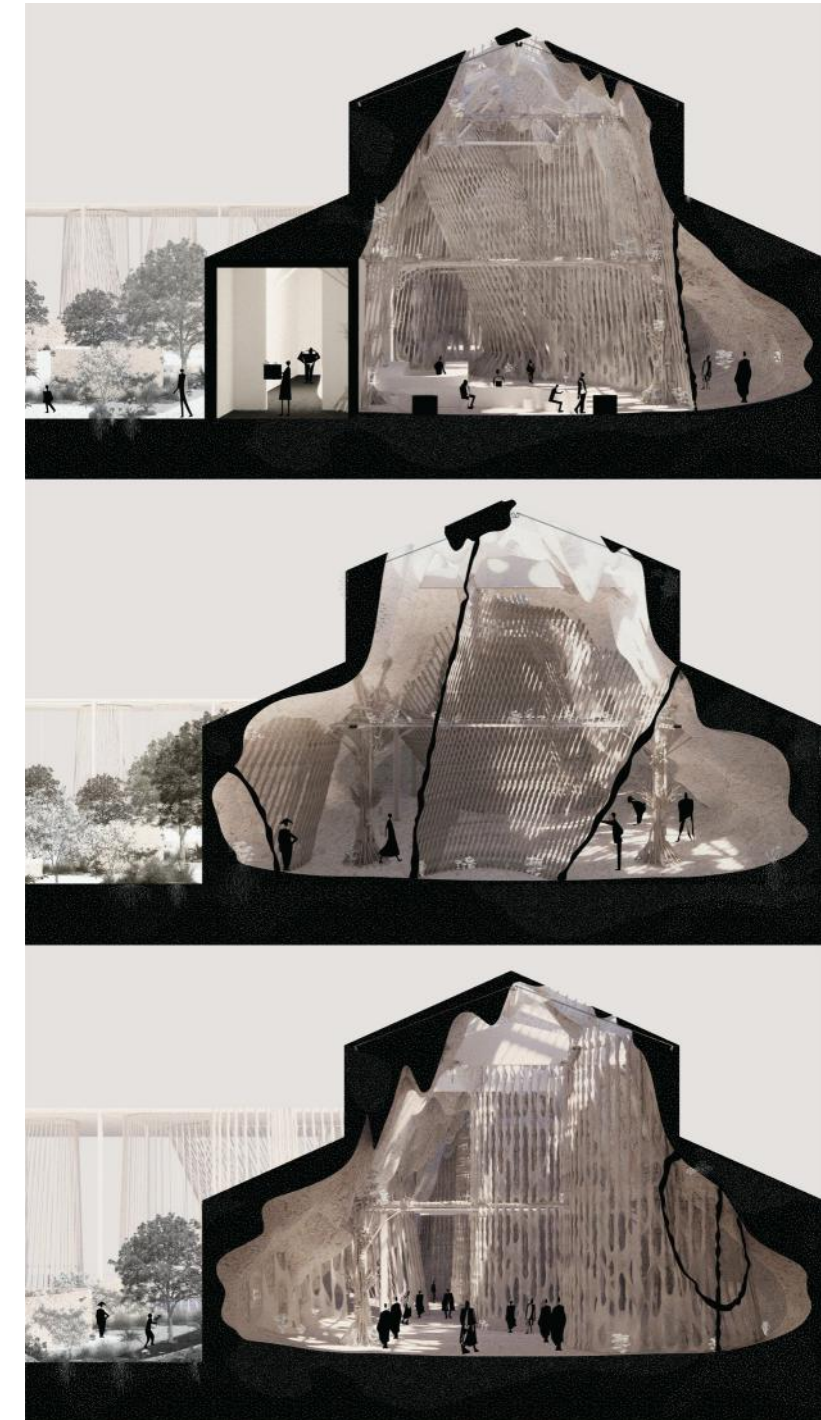
As the mycelium expands, it forms walls and thick structural elements that create exhibition spaces, workshops, and performance areas.

Over time, the mycelium stops growing and begins to decay, causing some walls and cables to disappear and connect different spaces together.

In the final stage, the structure slowly breaks down, and the entire building returns to the earth as part of a natural ecological cycle.







Sustainability and Section

The project uses biodegradable materials and natural growth processes to reduce waste and energy use during construction and demolition. The section shows how air, moisture, heat, and mycelium move through the building and continuously change the interior environment over time. Openings in the roof and walls bring light and ventilation deep into the spaces while also supporting the growth of mycelium and plants. Rather than separating architecture from nature, the project allows the building, climate, and ecological systems to work together as one changing structure.



Seed Bomb: Coconut Raft

_ A Biodegradable Floating Habitat

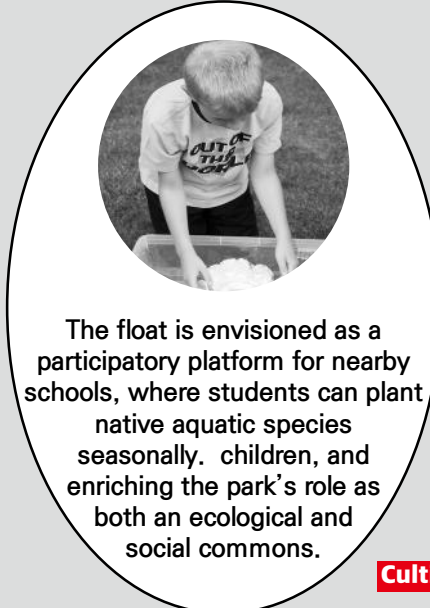
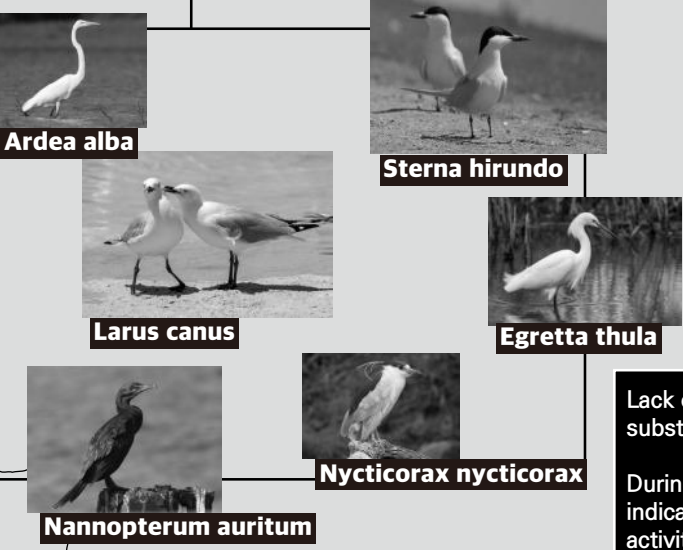
Year: 2025
Location: Bushwick Inlet, Brooklyn, USA
Type: Floating Structure Design
Program: Ecological Floating Structure
Instructor: Emily Bauer
Category: Academic project

TEAM MEMBER OF 2 MEMBERS
ROLE: RESEARCH, 3D MODELING, DESIGN, RENDERING, DIAGRAM

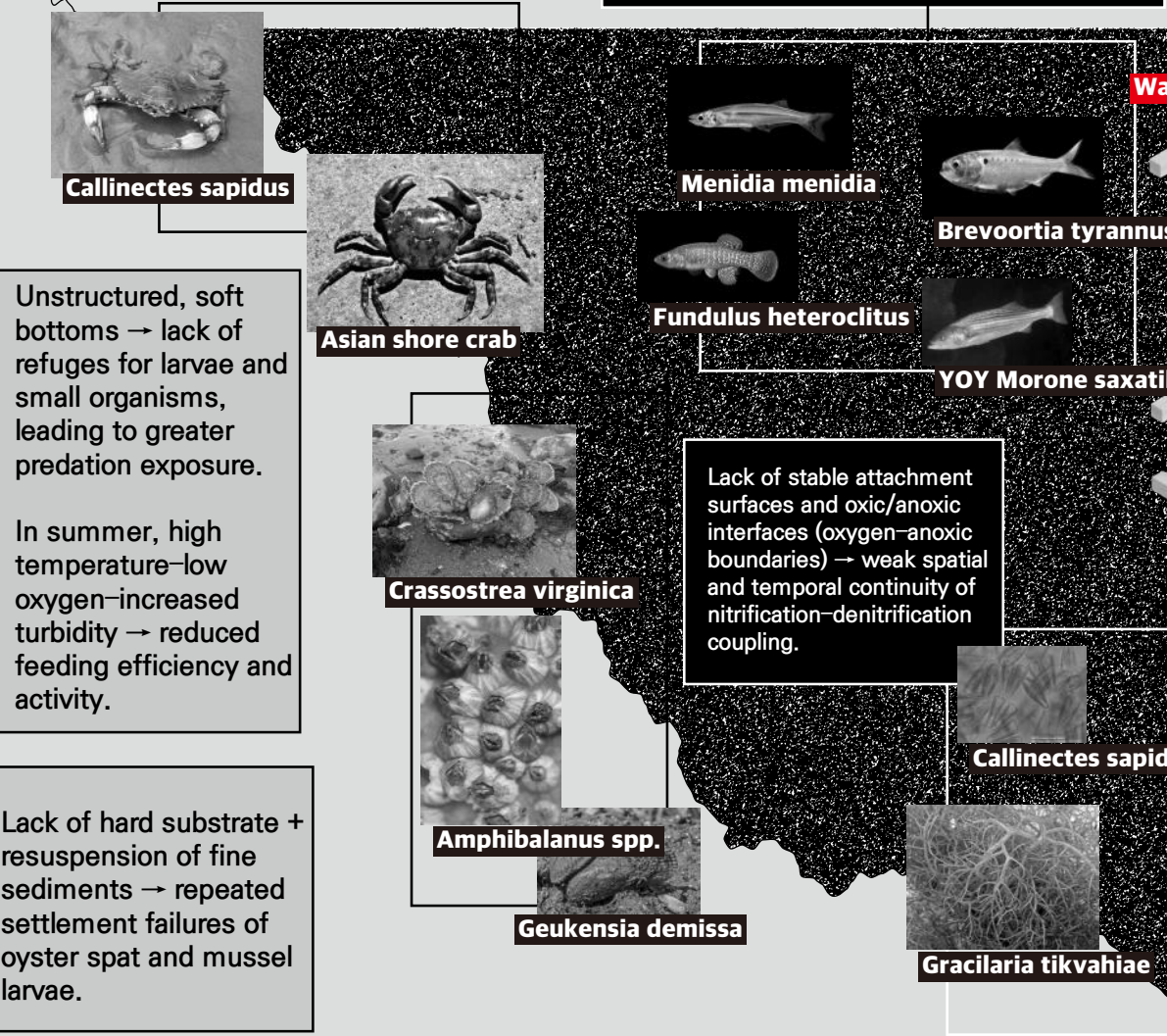
At Bushwick Inlet, the float creates a temporary ecological habitat within a polluted brackish environment where freshwater and seawater meet. Made from biodegradable materials such as coconut husks, oyster shells, and fiber mesh, the structure supports aquatic plants, fish, birds, and microbial life while gradually improving water quality and biodiversity. Plant roots filter contaminants, stabilize the floating system, and create shelter for small aquatic organisms. Above the water, wooden perches support birds and contribute nutrients back into the system through natural cycles. As the materials slowly biodegrade, the float loses buoyancy and eventually sinks, continuing to function underwater as habitat, food, and hard substrate for marine life. The project treats time and decomposition as essential design elements, demonstrating how architecture can participate in ecological restoration through processes of growth, transformation, and return.

V DIAGRAM

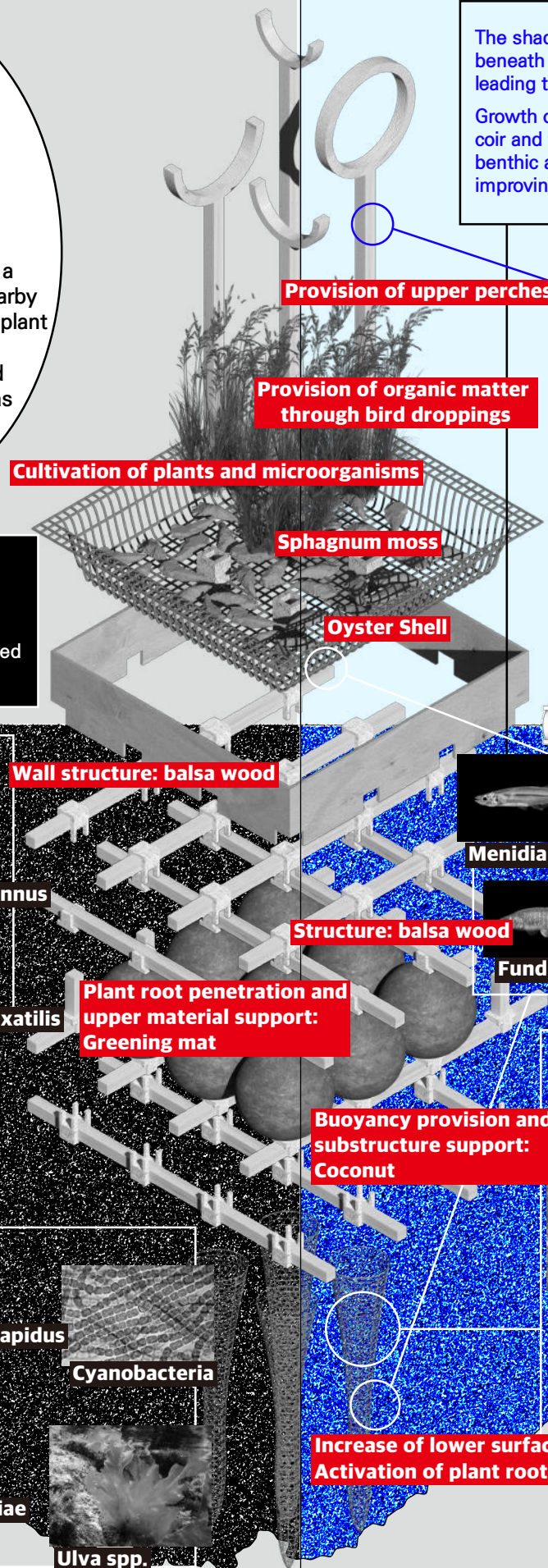
BEFORE: INSTALLING THE FLOATING STUCTURE
Lack of stable perches/resting spots inside the inlet → limits opportunities for long-term stay and ambush predation.
Increase in turbidity/impacts of benthic pollution and low oxygen → reduced access for juveniles and benthic prey; after rainfall, fish tend to avoid CSO (combined sewer overflow) sections.



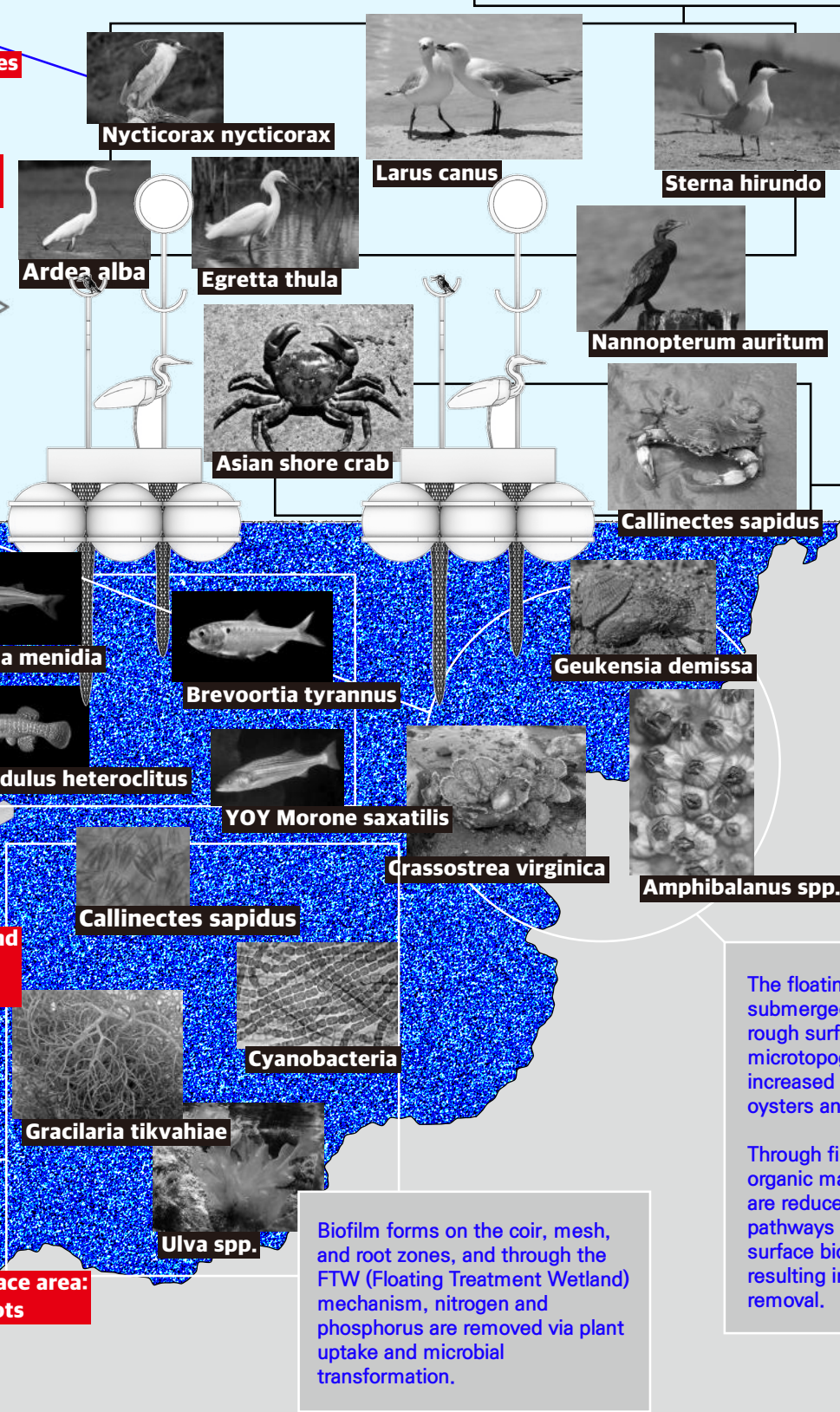
Lack of hard substrate and refuges + silt/clay substrate → higher failure in predator avoidance.
During CSO pulses, turbidity and bacterial indicators rise while DO drops → leading to reduced activity, feeding, and growth.



Unstructured, soft bottoms → lack of refuges for larvae and small organisms, leading to greater predation exposure.
In summer, high temperature-low oxygen-increased turbidity → reduced feeding efficiency and activity.
Lack of hard substrate + resuspension of fine sediments → repeated settlement failures of oyster spat and mussel larvae.



The shade, micro-currents, and crevices beneath the floating structure provide refuges, leading to increased survival rates.
Growth of biofilm and sessile organisms on the coir and frame surfaces increases the supply of benthic and planktonic food sources, thereby improving conditions for juvenile fish growth.



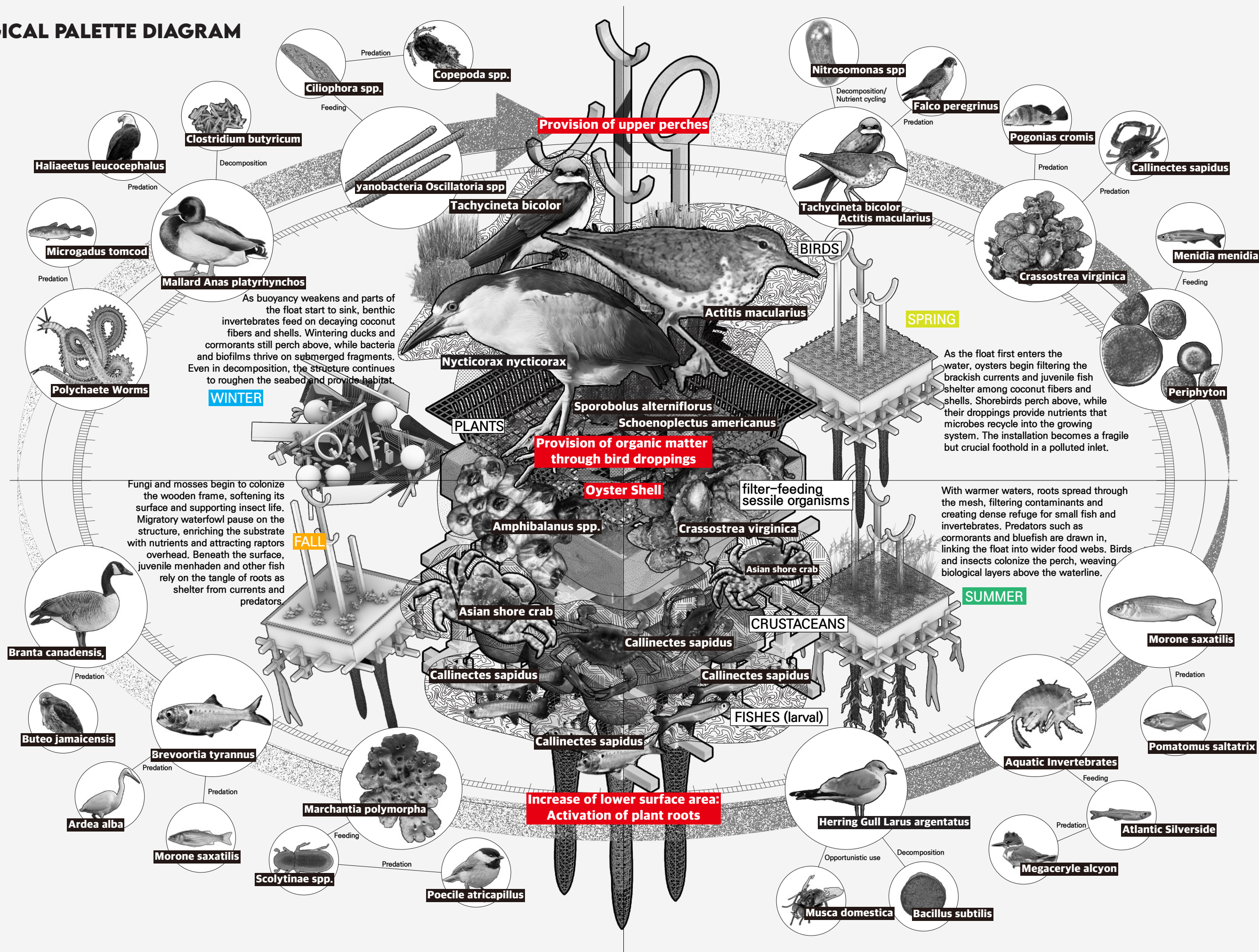
AFTER: INSTALLING THE FLOATING STUCTURE
Provision of floating upper perches → increases resting and roosting time + establishes hunting standby bases.
Higher density of juvenile fish and crabs in shaded areas and crevices below → improves predation success rate (including cormorant diving predation).

The gaps, shade, and retention zones beneath the structure serve as refuges for juvenile crabs and small organisms, improving their density and survival.

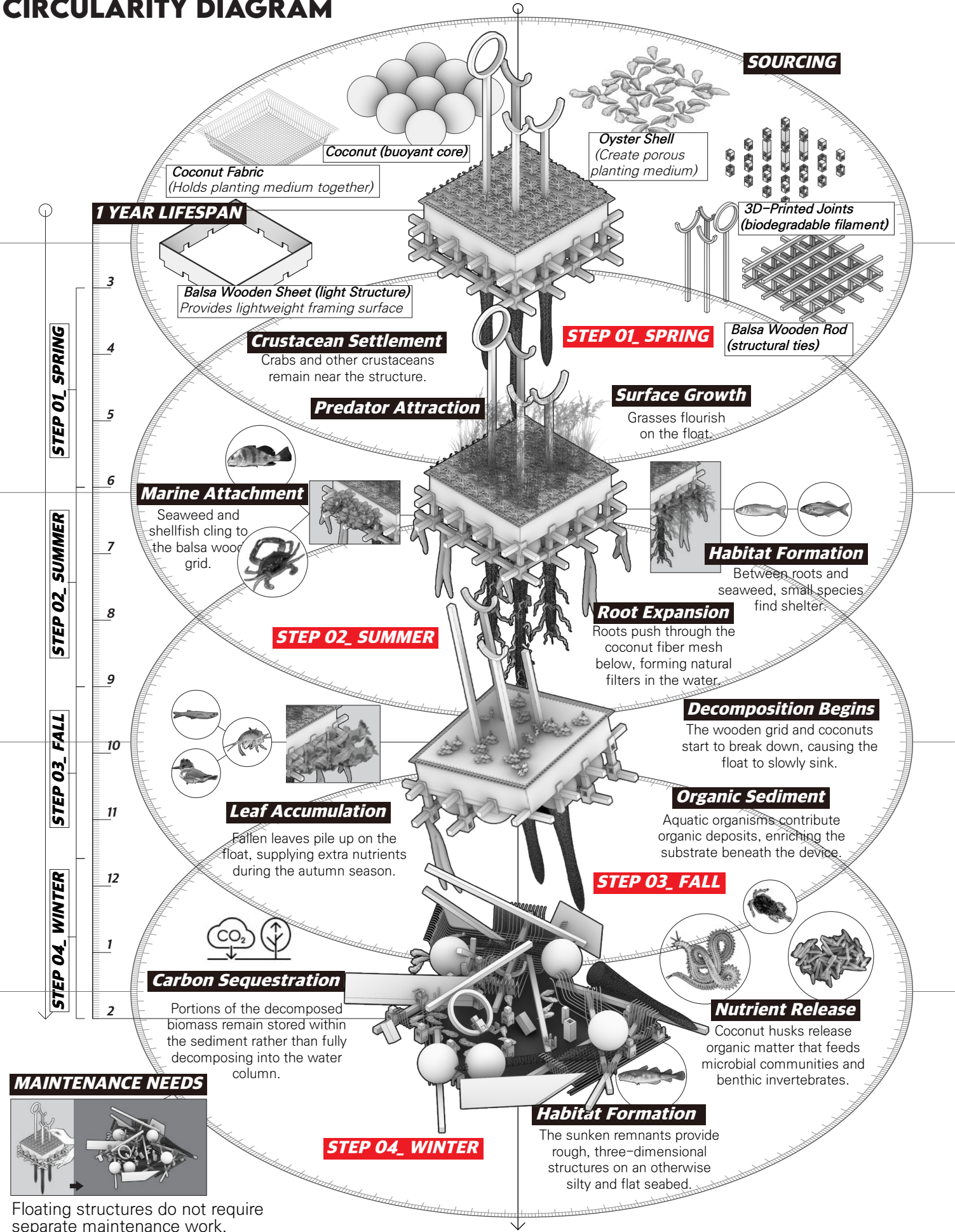
The floating underside and submerged elements provide rough surfaces and microtopography, leading to increased settlement rates of oysters and mussels.
Through filter feeding, particulate organic matter and chlorophyll-a are reduced, while denitrification pathways in oyster shells and surface biofilms are enhanced, resulting in permanent nitrogen removal.

Biofilm forms on the coir, mesh, and root zones, and through the FTW (Floating Treatment Wetland) mechanism, nitrogen and phosphorus are removed via plant uptake and microbial transformation.

ECOLOGICAL PALETTE DIAGRAM



CIRCULARITY DIAGRAM



The physical model visualizes the floating habitat's material logic and structural layering. Each biodegradable element-wood, coconut, and fiber-embodies a stage in the ecological cycle shown in the diagram, from buoyancy to decomposition.



SCALABILITY DIAGRAM

The floating device is conceived as a modular wooden grid system that can be expanded or reconfigured to meet ecological and community needs. Each grid unit operates independently yet connects seamlessly with others, allowing continuous growth and adaptation to environmental change.





COCONUT RAFT: A BIODEGRADABLE FLOATING HABITAT

Andrew Yang & Hyojun Kim



The Mountain

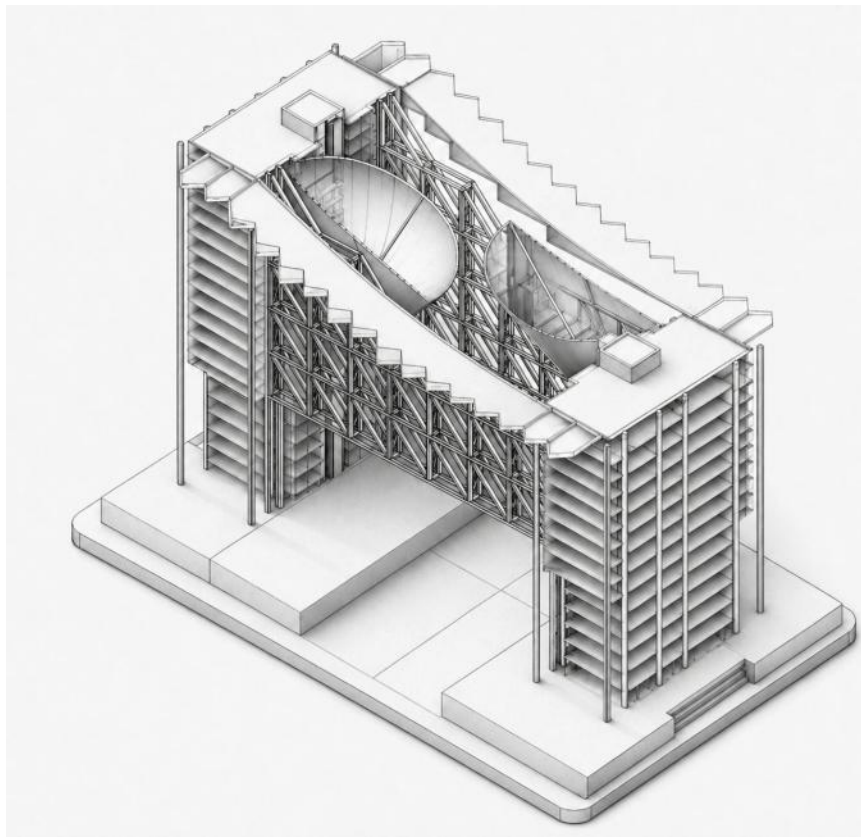
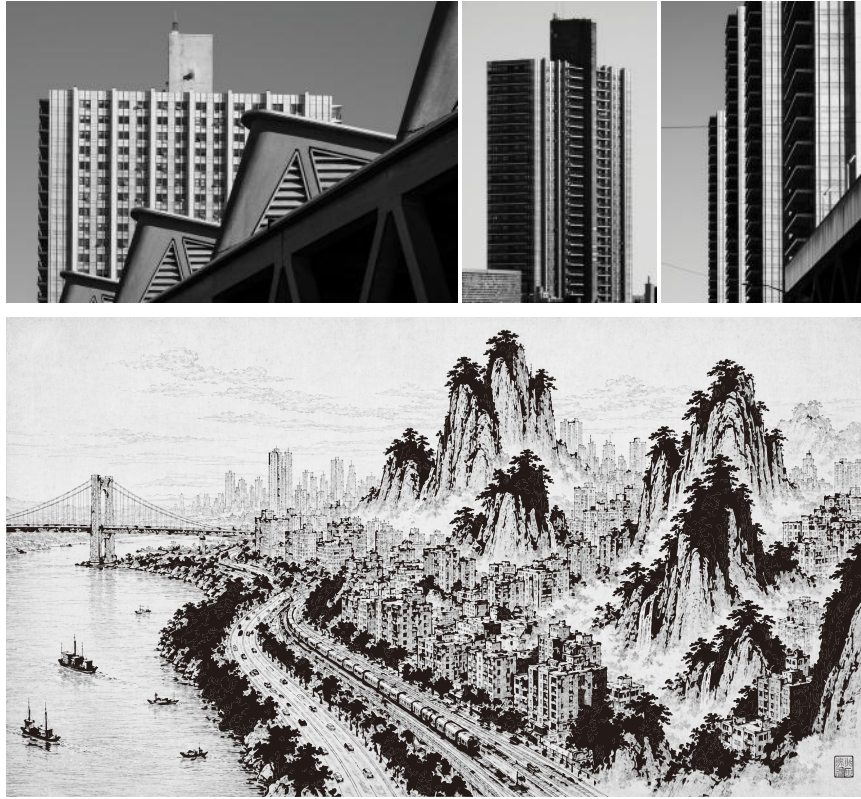
INDIVIDUAL PROJECT

_ youth residential facilities leveraging the upper space of the Han River Bridge

Year: 2026
Location: Washington Heights, New York, USA.
Type: Architecture Design
Program: Master Plan and Mixed Use Housing Complex
Instructor: Galia Solomonoff
Category: Academic project

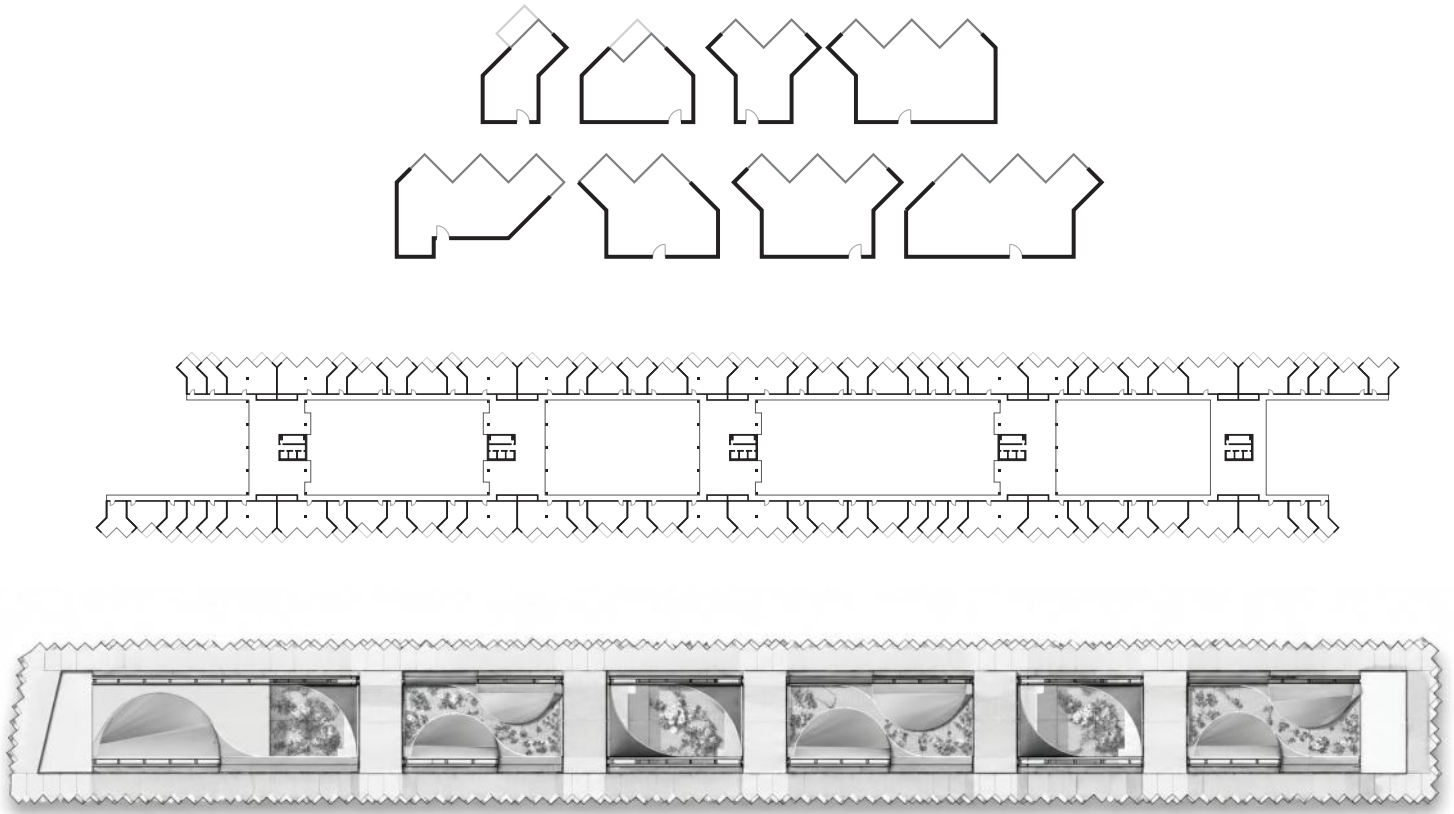
This project proposes a vertical “mountain” that combines housing, public space, and green systems into one connected structure. Polluted air from the highway below is collected and filtered using rainwater, where harmful gases dissolve before the air is released above the residential level. The filtered water then flows into gardens and planted areas, helping plant growth and creating a larger ecological system. Through this relationship between air, water, plants, and people, the project creates a healthier environment and new community spaces for Washington Heights.





Rainwater Infrastructure and Atmospheric Filtration System

The project is located at the Bridge Apartments in Washington Heights, above the Trans Manhattan Expressway. A large amount of polluted air rises from the highway below because of vehicle exhaust and heat. To respond to this condition, bowl shaped rainwater storage systems are placed between the apartment buildings. These systems collect rainwater and use it to filter polluted air by dissolving harmful gases in water. The filtered water is then directed to gardens and planted areas to support plant growth and improve the environment.



Structural Framework and Spatial Organization

The master plan reorganizes the existing apartment complex into a connected vertical landscape with housing, public space, and green systems. The overall mass is adjusted to reduce shadows on the lower park level and improve sunlight conditions for both the site and surrounding buildings. New housing modules are attached around the existing concrete structure, while large steel trusses spanning three floors support hanging public facilities and circulation spaces between the towers. These suspended spaces contain shared programs such as community areas, rental offices, gardens, and public paths that connect different levels of the project. The lower levels form a continuous public park that links the north and south sides of the site and connects to surrounding green corridors. Through this structural system, the project transforms the existing apartment into an integrated environmental and community infrastructure.

