



For every process there is material, and for every material there is a process. This portfolio explores materiality as something active—shaped by time, energy, and environmental forces. The projects gathered here are intentionally unfinished, leaving traces of change, decay, and transformation. Water melts and freezes, stone erodes, surfaces stain and weather. These shifts are not mistakes, but moments where architecture becomes alive.

Across drawings, experiments, and proposals, material behavior drives design. Architecture is treated as a responsive system—one that adapts, absorbs, and negotiates with its surroundings. Rather than aiming for permanence, this work embraces change, positioning architecture as an ongoing process shaped by matter, environment, and time.

By Alyssa Duran

Table of Contents

_01. Networks of Care - 04

_02. When Water Meets Sky - 12

_03. From Earth, For Earth - 20

_04. Transcalarities - 30

_05. Arguments - 32

_06. Architectural Photography- 34

_07. Interlaced Existence - 40

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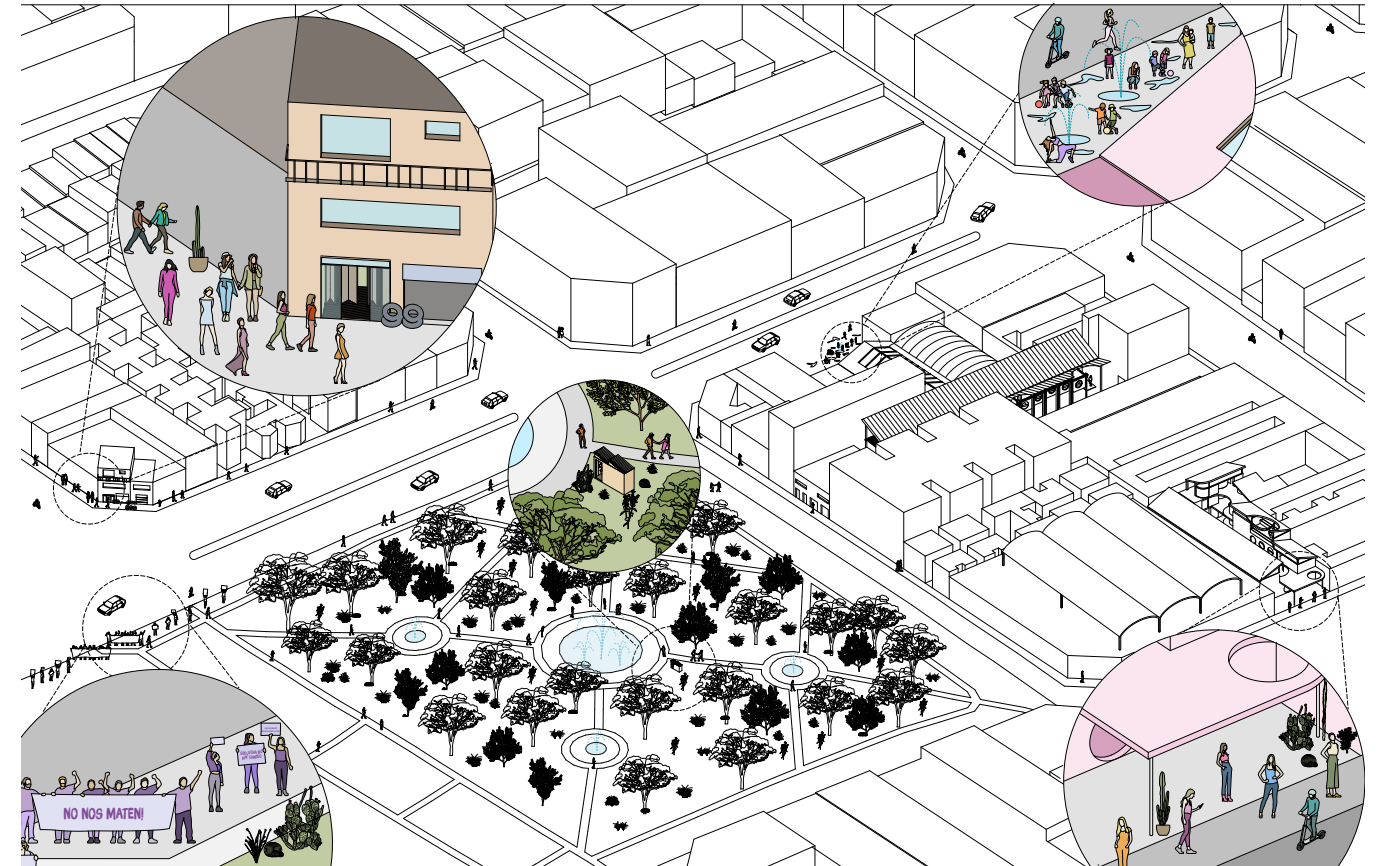
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01 Labor, Craft and People

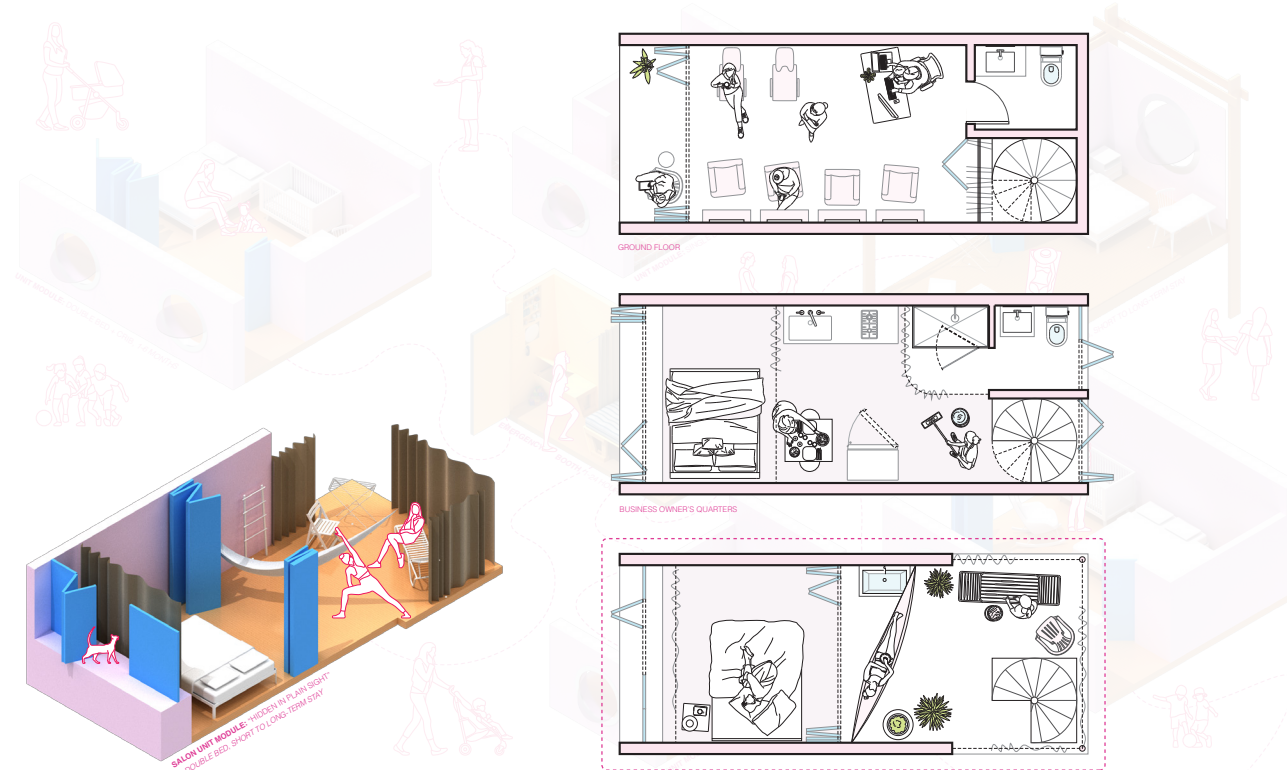
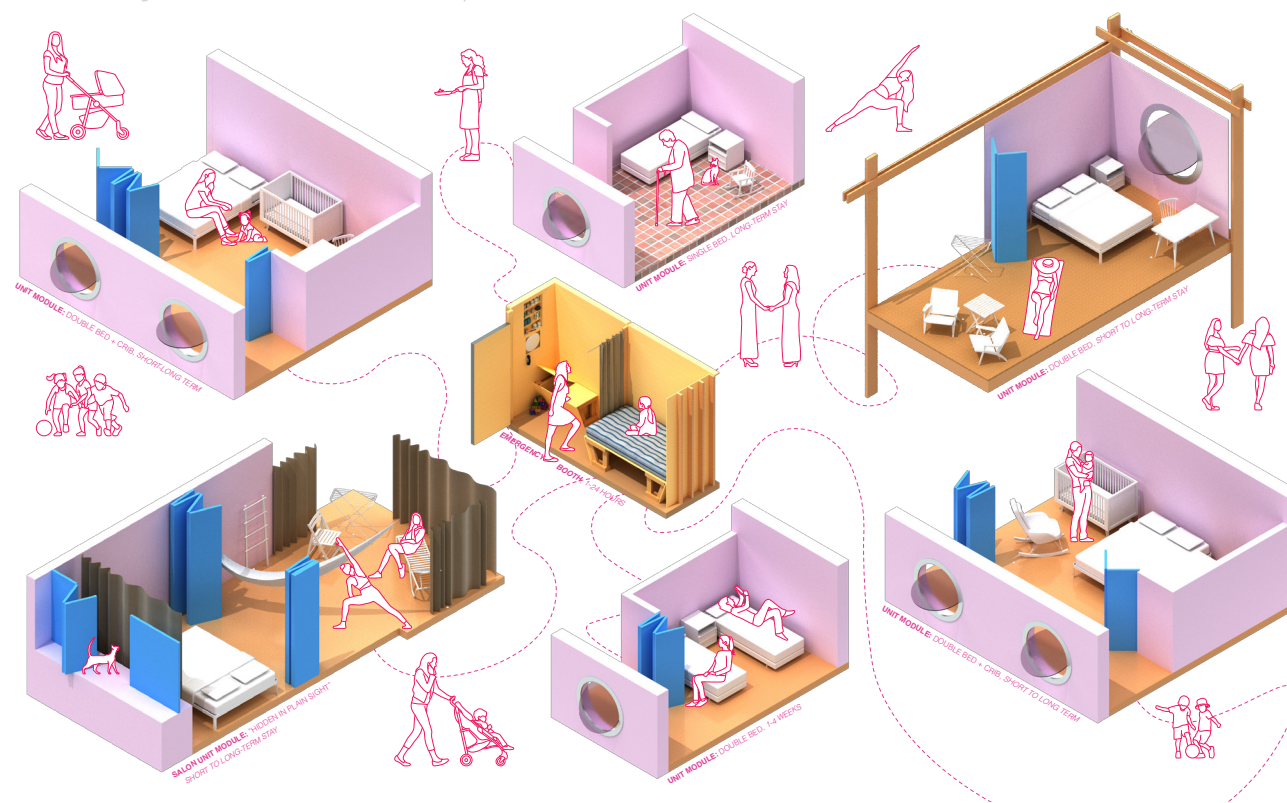






02

02 Ecological systems



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_02. Where water meets sky

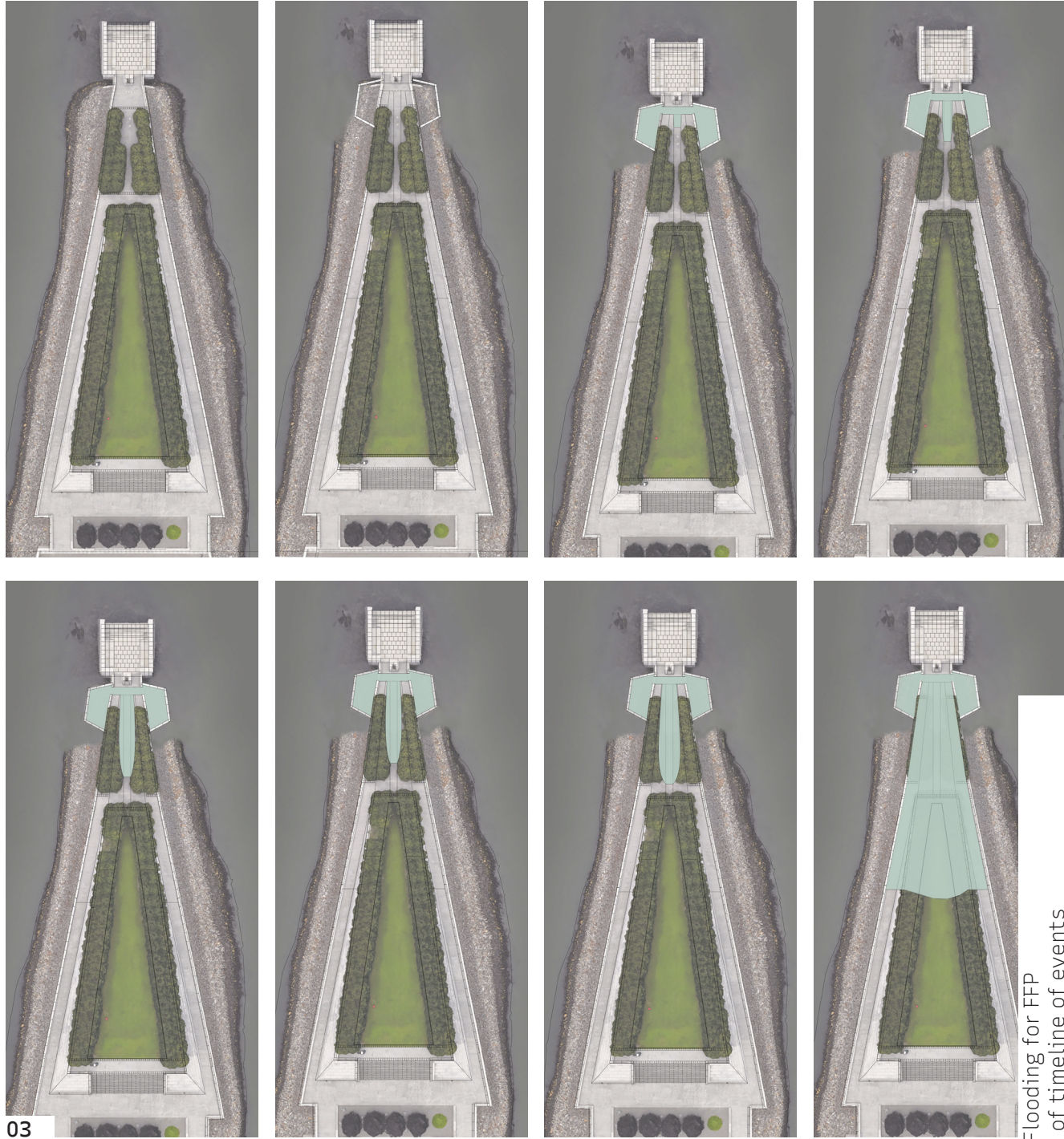
Mario Gooden
Fall 2025
Advanced Studio V

This research explores how architecture can engage tidal change rather than resist it. Situated at Louis Kahn's Four Freedoms Park on Roosevelt Island, the project examines the site as a dynamic threshold shaped by the East River's six-hour cycles of ebb and flood.

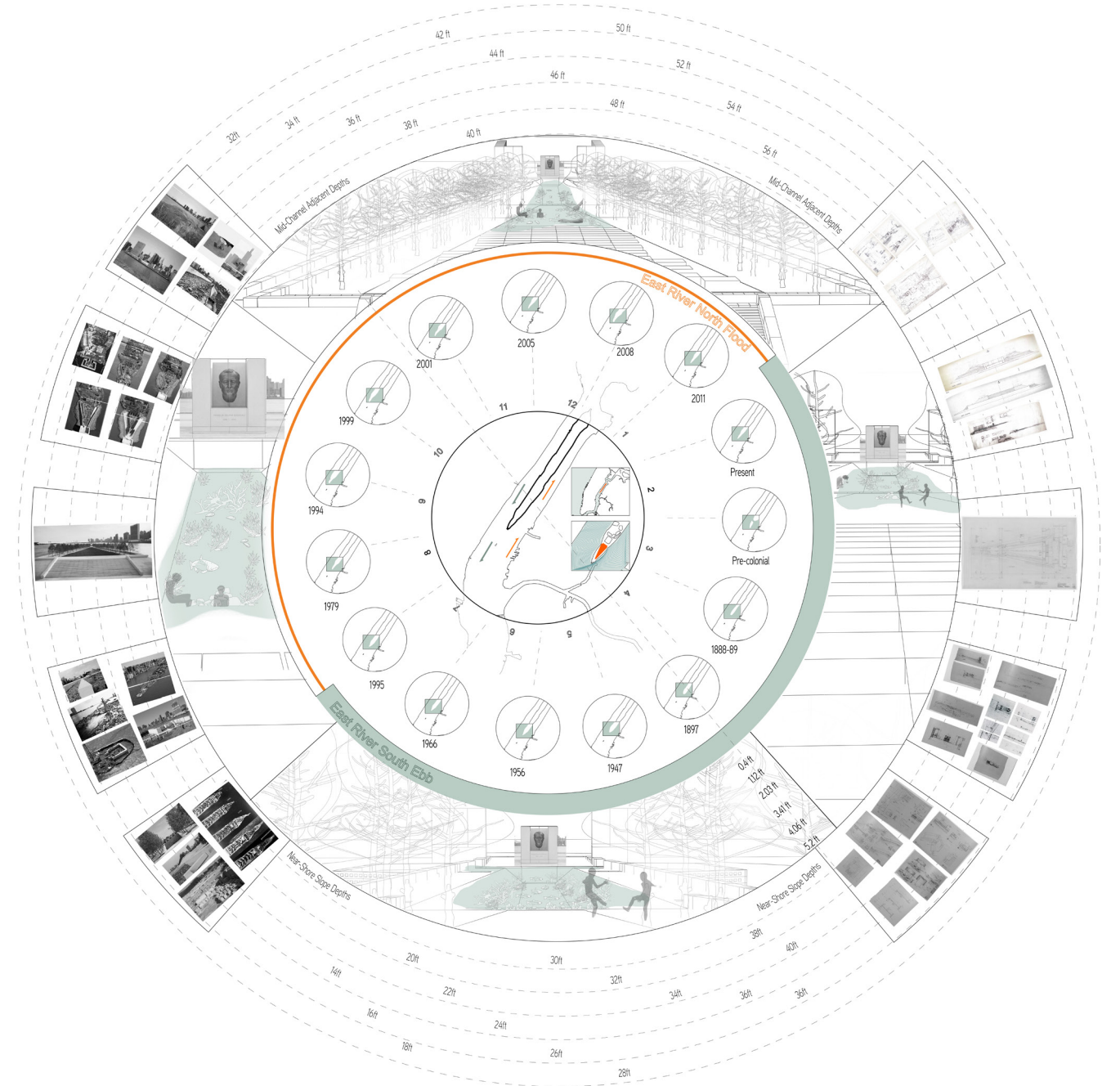
Rather than treating water as a threat to be contained, the project understands tidal movement as a spatial and atmospheric condition—where land, river, and sky continuously exchange roles through reflection, saturation, and retreat. This cyclical behavior challenges the monument's static expression of permanence, reframing freedom as something temporal, fragile, and continually renegotiated.

Through drawings, material experiments, and site interventions, the project proposes architectural elements that act as negotiators instead of barriers, allowing water to enter and withdraw while supporting new tidal ecologies. By dissolving rigid boundaries, Where Water Meets the Sky positions architecture as a living participant within environmental cycles, measuring time through change and embracing transformation as a fundamental architectural condition.

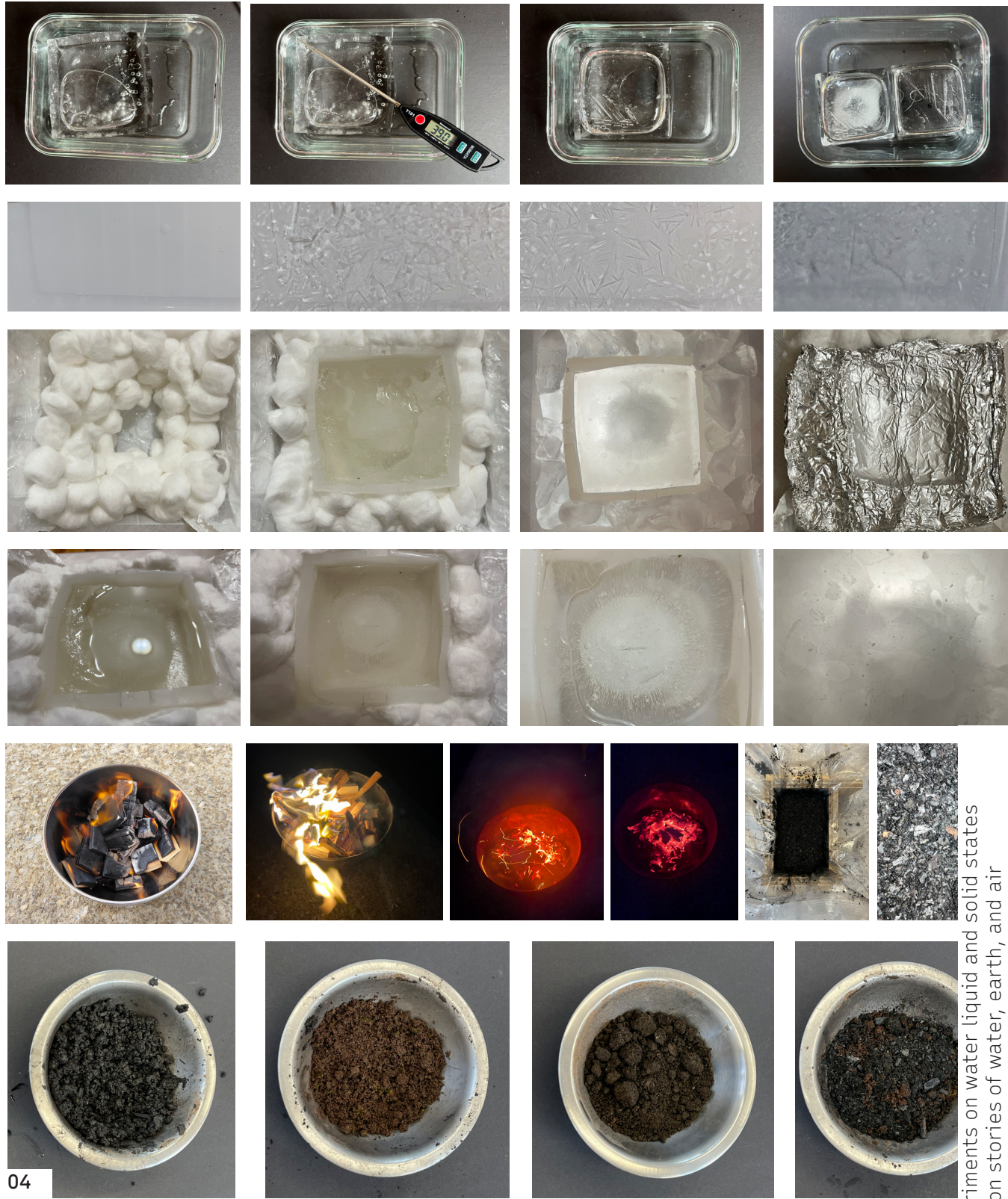




03 Process of Flooding for FFP
09 Cosmogram of timeline of events



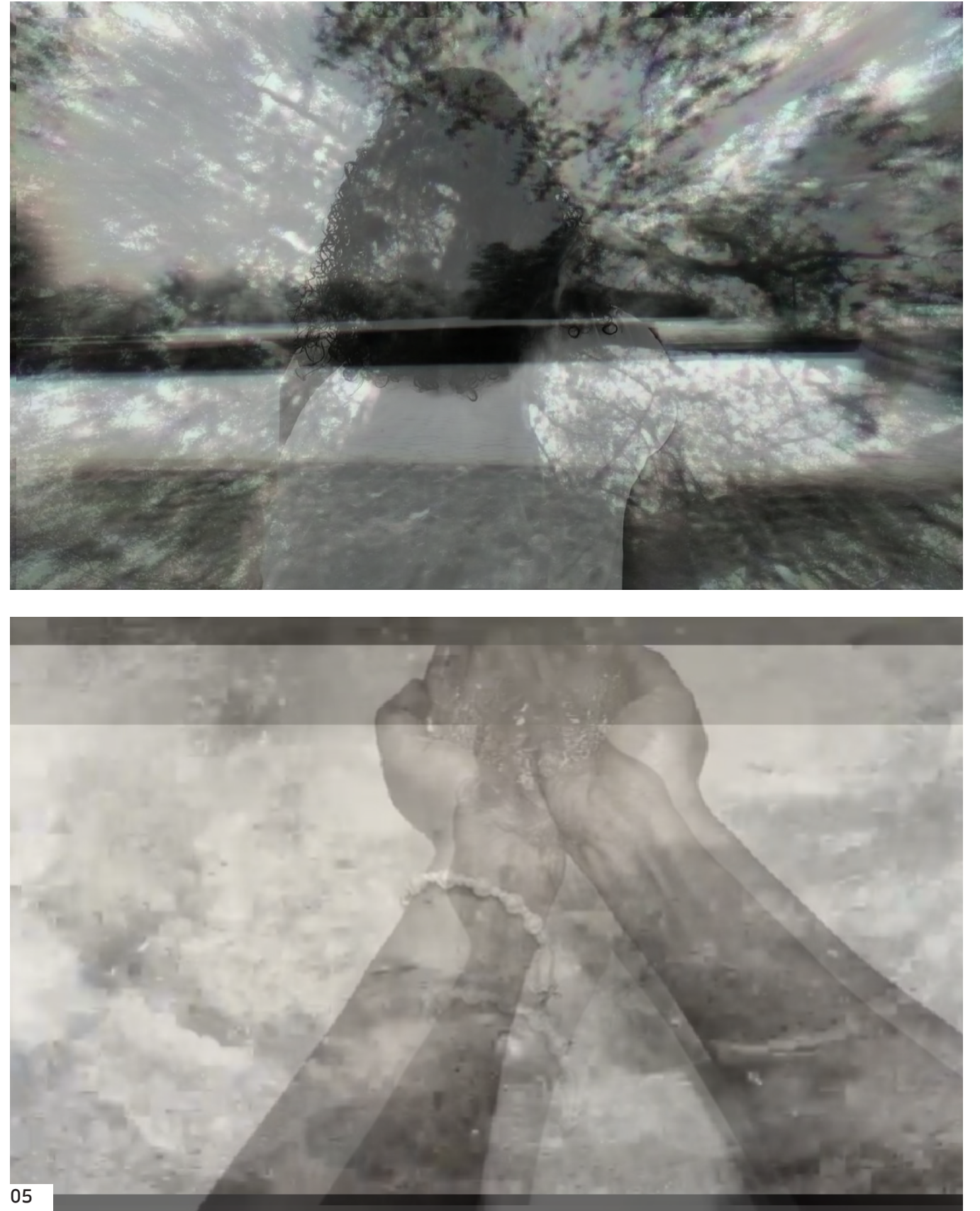
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04 Experiments on water liquid and solid states
05 Film on stories of water, earth, and air

17



05



06 Alien Conceptual Drawings
07 Rethinking Ridge beam detail for a gutter detail

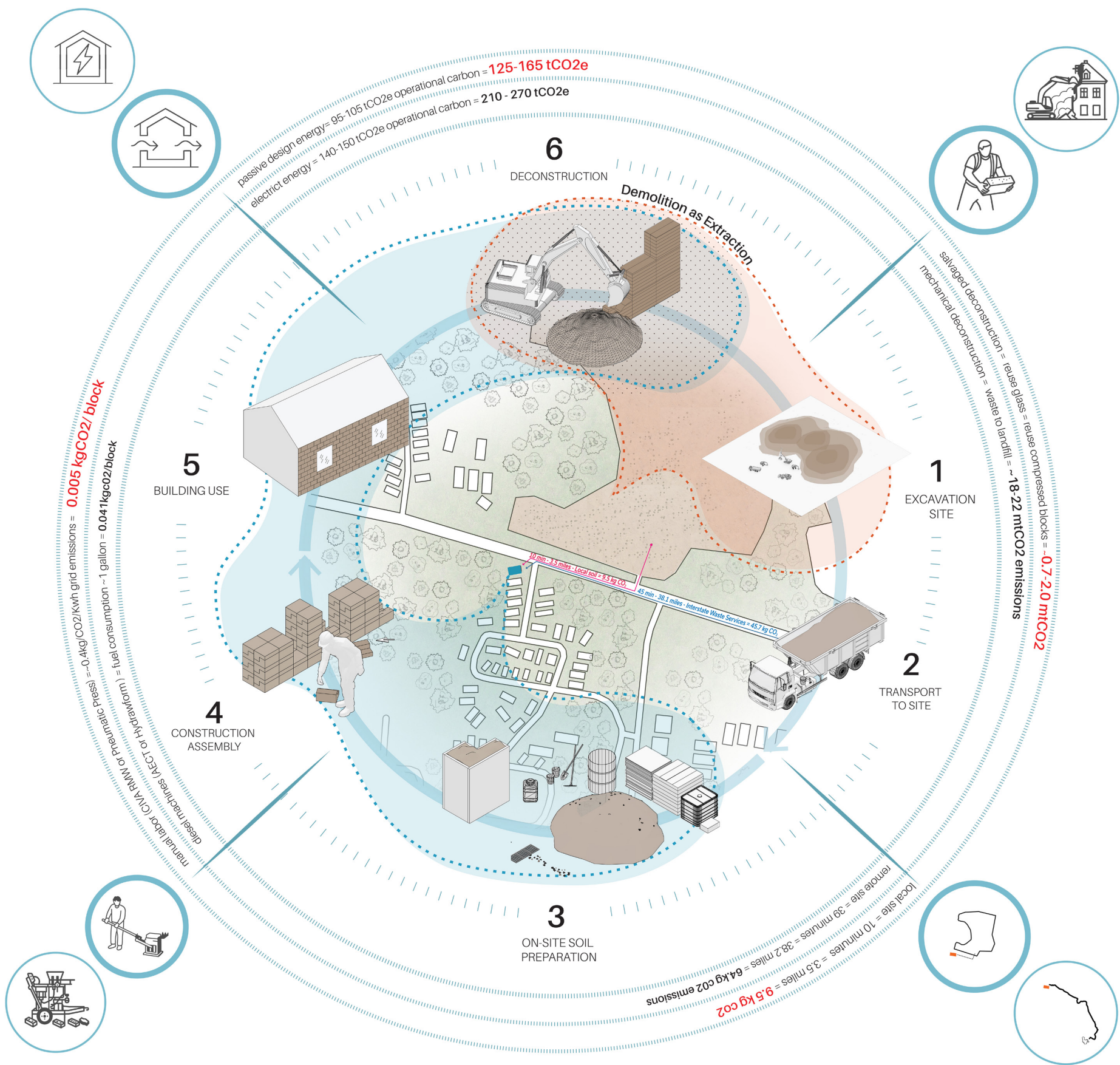


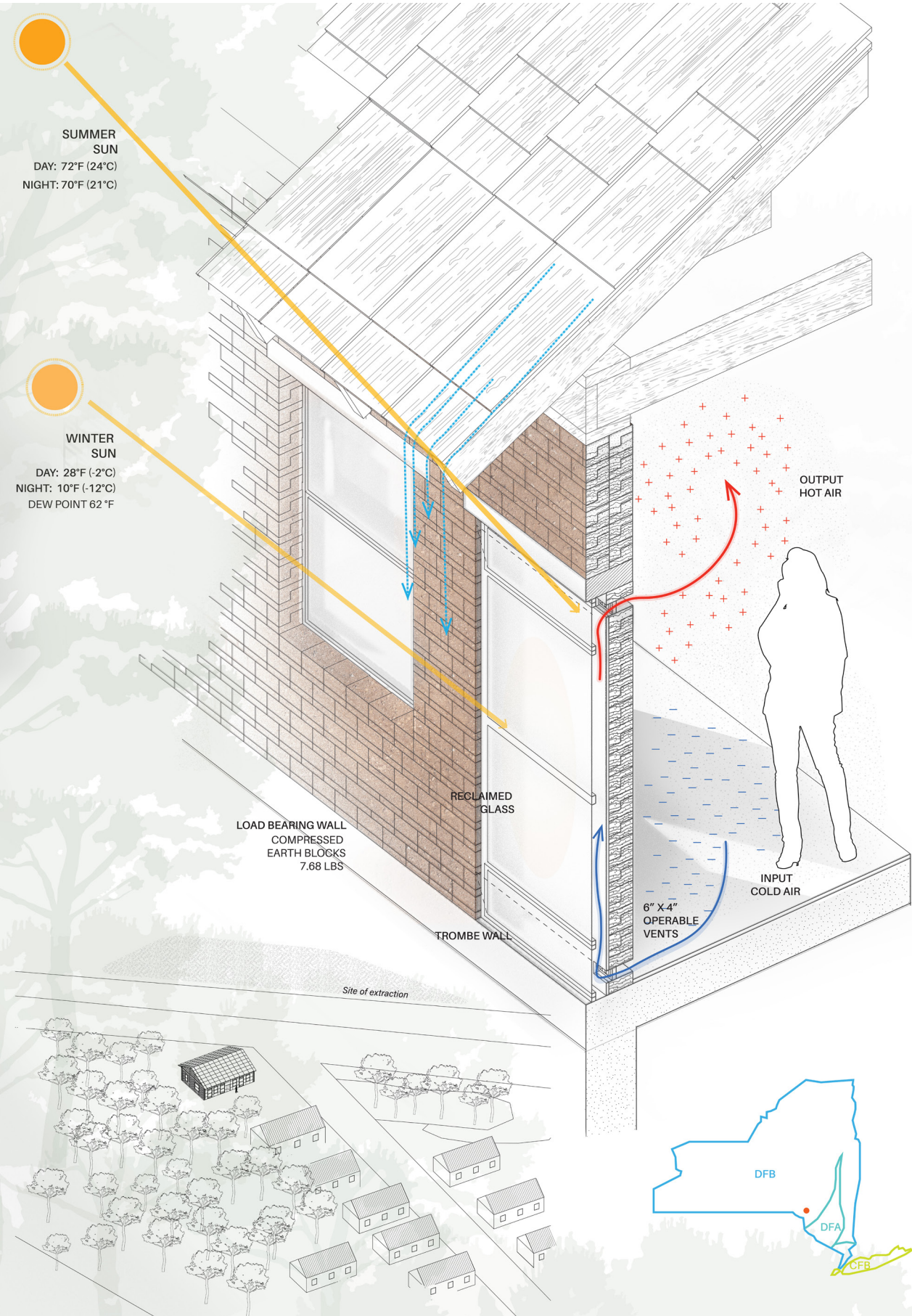
_03. From earth for earth

Nzinga Mboup + Nicolas Rodent
Summer 2025
Advanced Studio

This research investigates architectural strategies to mitigate carbon emissions at the end-of-life stage of buildings by rethinking conventional demolition practices through the frameworks of material circularity and passive design. Centered on the application of a Trombe wall system for a one-story residence in upstate New York, the study examines how earthen construction can both reduce operational energy demands and reconfigure end-of-life scenarios.

The inquiry asks: what occurs when a building composed of earthen materials reaches obsolescence, and how might its components be designed for disassembly, reuse, or reintegration into the soil? By addressing these questions, the project proposes an alternative model for low-carbon building lifecycles that aligns ecological performance with design practice.





High Thermal Mass → stores heat during the day, releases at night

Low R-value

Humidity Regulation
40–60% RH / Improves indoor comfort

Compressed Earth Block

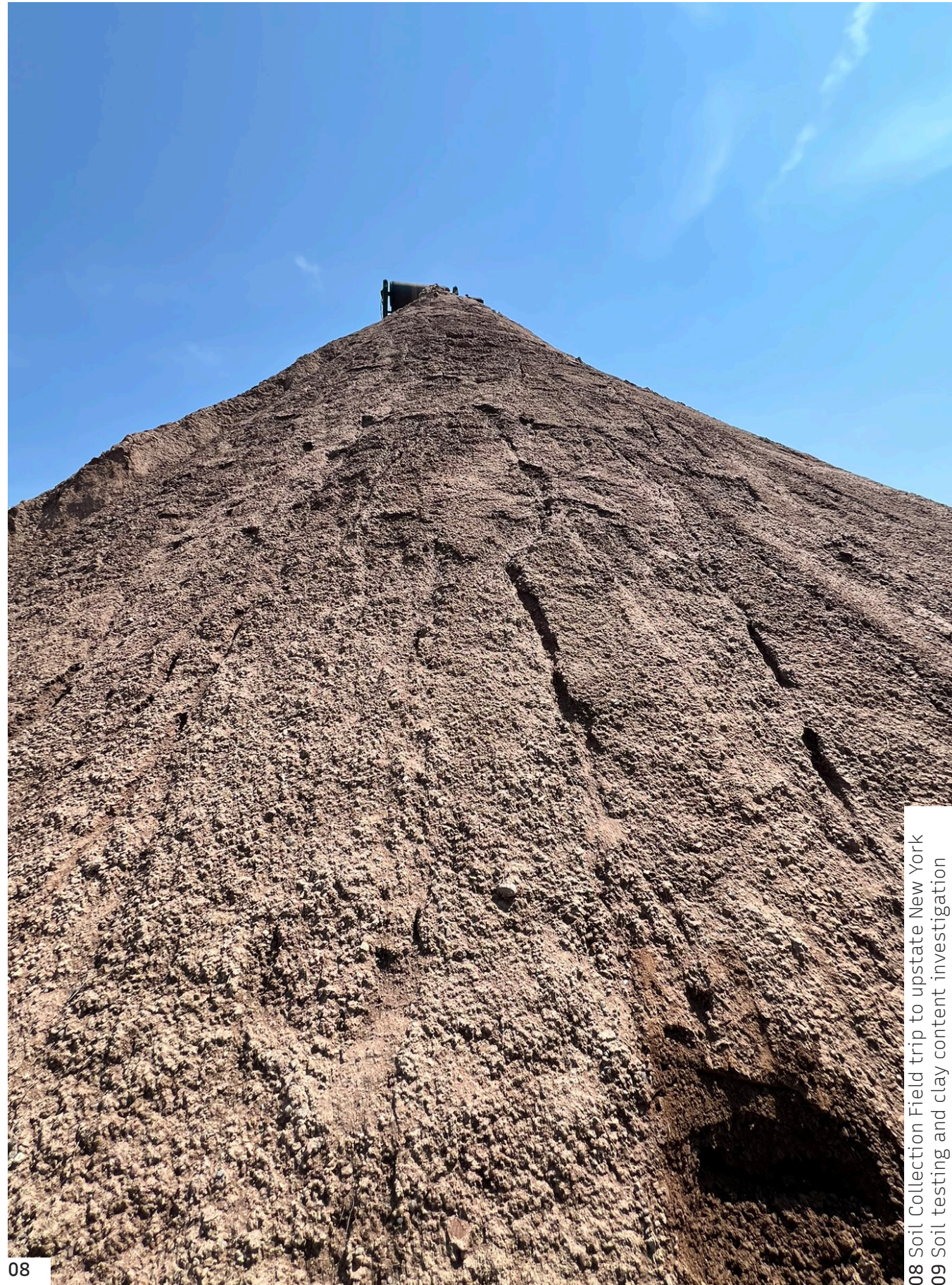
7.68lbs

VS

Concrete Bag

50 lb bag: ~0.375 cubic feet

Local Material Use Up to 100% and can use site soil



08

Alyssa Duran

08 Soil Collection Field trip to upstate New York
09 Soil testing and clay content investigation



09

Columbia GSAPP

_04. Framing Nature: How the Built Environment Co-constructs the Legibility of the Natural World

Lucia Galaretto
Summer 2025
Transscalarities

The relationship between the built environment and the natural world – including as plants, animals and microorganisms – is being redefined by our human experiences and interpretations of the built world. The Line, a hypothetical linear city proposed by Prince Mohammed bin Salman for Saudi Arabia, imagines a future where nature is entirely engineered and enclosed, framed within a technologically regulated megastructure that challenges conventional urban and ecological boundaries. Attempts to construct an artificial environment that could sustain tropical plants in an otherwise inhospitable climate can be traced back to the 19th-century Palm House at Kew Gardens, designed by Richard Turner, which represents an earlier attempt to manipulate climate through scientific experimentation to have tropical plants in the United Kingdom. On the other hand, Patrick Blanc's vertical garden for Herzog & de Meuron's Caixa Forum Madrid presents a contemporary model of ecological integration that transforms a hardscape urban plaza into a living performative façade in which nature is selected as both infrastructure and spectacle in the public realm.

Together, these case studies demonstrate how the built world plays a central role in rendering the natural world to make it legible to its human participants by giving it form, presence, and character. It is through the acts of building and shaping spaces that nature becomes legible and meaningful to humans. By analyzing how each case study shows the ways in which the built environment makes nature visible to its users and participants, I want to express in this paper notions of how the built environment can offer spaces, settings, and layouts that allow natural ecosystems to thrive within the built world.

Buildings as host for nature

The built world can act as a host for nature, allowing it to become legible and coexist within human-made contexts. This coexistence reveals that nature can be made visible from every angle – either on surfaces or integrated within the built form. The Line employs a strategic way of placing nature on top of it and within the adjacent internal surroundings of the 170-kilometer mirrored form, allowing trees and bushes to reign and absorb as much light as possible on the top of the megastructure. Through its encapsulated mirrored surface, the stick-like form creates room for nature to be a part of the context setting. In this project, nature is not only part of the inner boundary of the building, but it also acts as part of the setting on which the project sits—the desert—which possesses a natural presence in the project, allowing The Line to be surrounded by water, sand, and desert-like vegetation that is inherent to the site (Figure 1).

Caixa Forum's vertical wall in Madrid empowers a building to accommodate nature within the city context. The massive vertical green wall allows users to see plants attached to a surface that invites curiosity through touch and sense. This wall hosts nature, making it visible and accessible to tourists, or residents visiting the Caixa Forum. At the Palm House in Kew Gardens, the separation of steel pilasters, glass enclosures, and pathways allows nature to be part of the spaces between the building's structural supports. In this case, the pathways of human interaction with nature are found along the concrete corridor and in the leftover spaces that the building creates intentionally for nature to be within the building interior space (Figure 1).

While all three case studies show different ways of visibility of nature through the building setting, either on the top of the building, vertically or horizontally, each one expresses a common understanding of how buildings create room and choreographic movements to provide presence of nature within them.



Figure 1: (Clockwise) Vertical Garden exterior view, Palm House interior view, The Line aerial

Buildings as mediators for nature

Buildings and infrastructure can intervene and filter the relationships between nature and humans through shaping environmental conditions such as light, views, and temperature. In the Palm House at Kew's Garden the use of scientific engineered glass allows the building to regulate light and plant health. Physicist Robert Hunt played a central role in this process, serving as scientific consultant to evaluate the environmental challenges of housing tropical plants in a temperate climate. His research in the Palm House led to the creation of green tinted glass using copper oxide, which filtered out harmful infrared radiation while allowing beneficial sun rays to pass through the Palm House glass.

Hunt's collaboration with glass manufacturers and his integration of experimental data into the development of the glass helped to mediate nature within the building skeleton. In the Palm House glazing section (Figure 2), the glass served as a physiological factor for the health of tropical plants and human health.

This controlled spectral filtering created lighting conditions that support healthy development of plants growth across various stages. As Hunts describes “that the conditions required for the healthy growth of plants could be best achieved using a glass of the correct tint... otherwise it will obstruct the passage of those rays which produce the ‘scorching’ desired to be avoided.”² This section shows that to make plants live for longer periods of time, maximize sunlight and avoid opaque light filtering in the Palm House it was necessary to adjust the iron ribs making it slender, minimizing their cross sections and use large sheets of glass to boost transparency of the building envelope.

Caixa Forum Madrid, Herzog & de Meuron’s architectural intervention includes a freestanding vertical garden composed of felt tubes panels that help to sustain plant life in the wall without the need for a conventional irrigation system. This wall is a carefully engineered system that allows 15,000 species of plants including moss, ferns, and bushes to survive without soil, using hydroponics and a structured support grid, demonstrating how architectural design can construct ecological systems in dense urban contexts. In this sense, the use of felt tubes integrated in the building’s wall surface mediates nature through its adaptability to allow plants to survive in the city and still be visible within the wall’s boundaries (Figure 2).

In the Line, interior views suggest that highly engineered spaces enable non-native plants to survive in a desert climate. This is made possible with foreign soil non-native to the territory of Saudi Arabia’s desert and various technologies that allow plant life to thrive in new cities containers like The Line. These innovations create optimal atmospheric conditions that help to maintain plants survival (Figure 2). In this project, it is evident through the images that nature and sunlight are key components in buildings and infrastructural systems. The image reveals that nature cannot be overlooked in any way; it needs to be included, even in the smallest spaces and made visible to its inhabitants

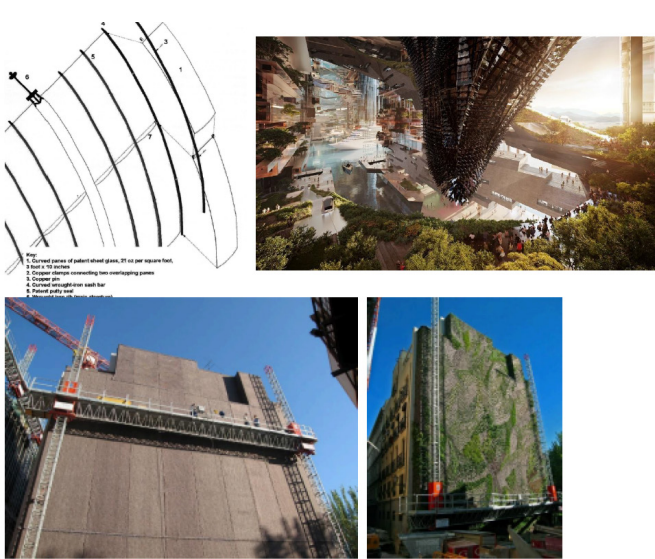


Figure 2: (Clockwise) Axonometric drawing of the Palm House glazing system showing curvature and material construction, adapted from Hunt’s scientific study. The Line interior view proposal. Bottom Left - Caixa Forum Vertical Garden, installation of felt and irrigation, Sept. 2006. Bottom Right - Caixa Forum – Installation, Oct 2006.

Therefore, buildings can mediate our understanding of legibility by how nature is accessed through human interaction and technology. The implementation of new technologies in this context sets in dialogue that buildings bring prime conditions for nature to thrive; without these technologies, nature would never become visible to our eyes.

Buildings as frames for nature

Buildings can curate nature, making it a visual device that influences the form, appearance and appeal to the public eye. The use of convex shape-like structural systems in the Palm House choreographs the development of plants growth through the structure of the building itself. In this case the building design allows vertical layering of species and maximizes sunlight exposure, making plant survival visibly structured.

The vertical organization of this cross section accommodates plants with varying light, humidity and temperature levels from sun-based species placed on the top and at the bottom shade-based species (Figure 3). The curvature of the roof enhances light and airflow to sustain plant zones and microclimates. The section frames the building form legible to the public’s attention by adding spaces and platforms for visitors to navigate these spaces in which plants are.

Herzog de Meuron vertical garden acts as a visual marker that aestheticizes ecological complexity. It is engineered but appears wild, in contrast to the Palm House, it is an open exhibition of plants in which invites users to interpret nature as something alive, performative and part of public life. The green color of the plants contrasts with the rigid edges of the masonry blocks of Caixa Forum bringing a sense of freshness and softness to the public plaza (Figure 3). The vertical wall becomes an exciting element to look at due to its various shades of green colors, wildness and variety of plants growing in the wall.

The verticality and placement of the garden in this setting makes it unavoidable to see for the public, making it a public spectacle for gathering and interaction. The juxtaposition between the living green and the opaque, sculptural form of the adjacent corten steel roofed building highlights a dialogue between natural systems and the city environment. When a visitor walks through the open plaza, the vertical garden becomes a visible manifestation of ecological design, framing the street to make the wall stand out from the surrounding context while remaining visible to the passersby.

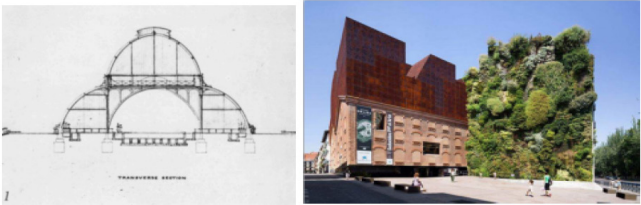
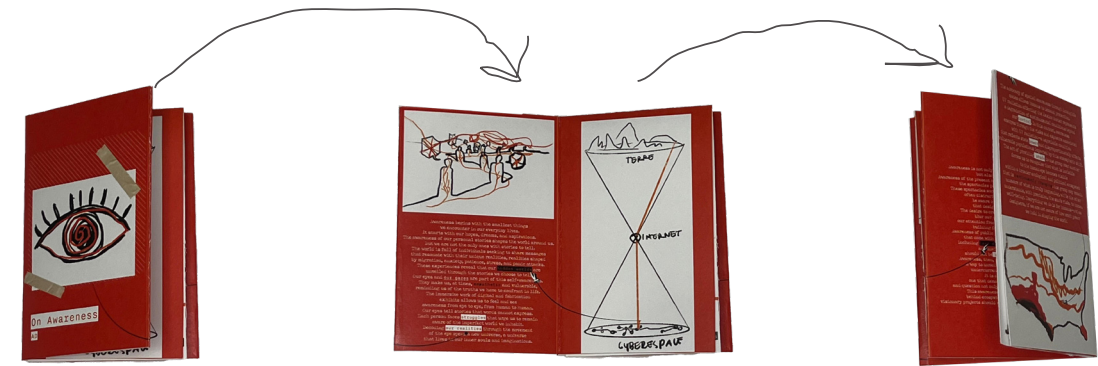


Figure 3: Right - Cross-section showing stepped lay-out and roof curvature of the Palm House. Left - Vertical Garden at Caixa Forum Madrid. This wall system supports over 15,000 plants and serves as a visible curated expression of nature embedded in urban infrastructure.

Finally, this paper argues how the built environment plays an active and critical role in shaping our understanding of the natural world by giving nature visibility through thoughtful architectural design. The Palm House at Kew demonstrates how scientific experiments on glass were used to achieve optimal conditions for tropical plant life. Caixa Forum Madrid uses a vertical wall to integrate nature into an urban context, making it visible and tangible to its users. The Line presents nature as a curated experience within the building form and the contextual landscape setting in which the project is proposed to be located. The built environment serves as an intermediary tool that influences how humans perceive, engage with, and live alongside ecological systems – either by proving space to foster closeness with the natural world or harmonizing with it to make nature legible to humans.

_05. On Awareness

Shane Reiner-Roth
Summer 2025
Arguments



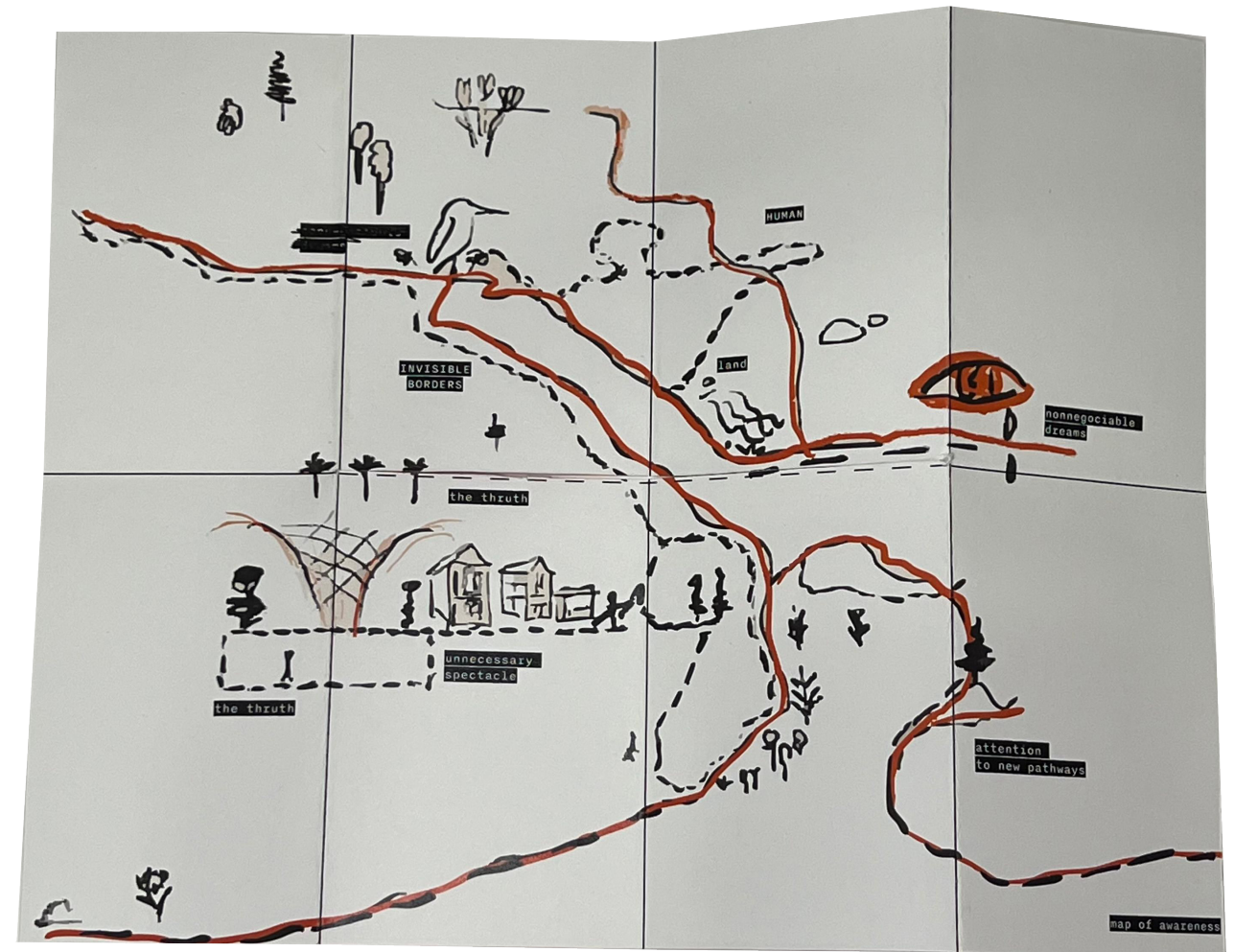
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10 Zine on Lectures: Michael Young, Behnaz Farahi, Jingru
Cyan Cheng and Chen Zhan, Ersela Kripa + Stephen Mueller

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_06. Documenting a Structure

Michael J. Vahrenwald
Fall 2025
Architectural Photography

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11 The Whitney Museum

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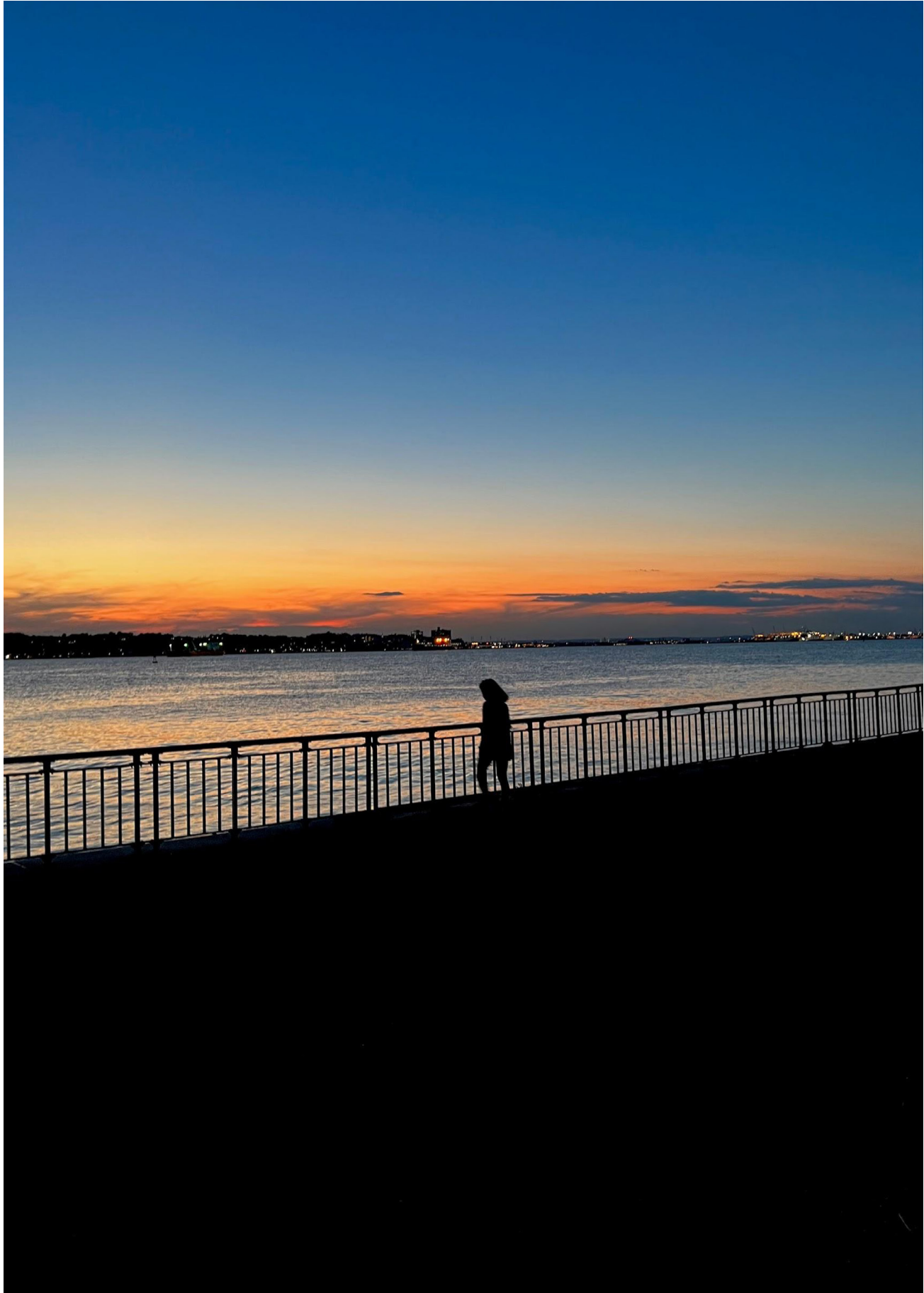
12 Views on Fort Halminton Obelisk
13 Views on Verrazano Narrows

Alyssa Duran

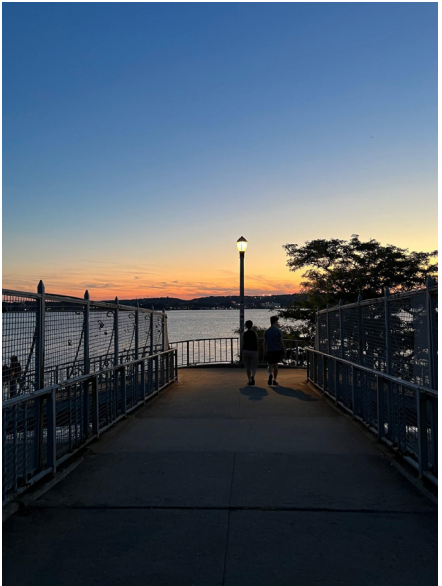
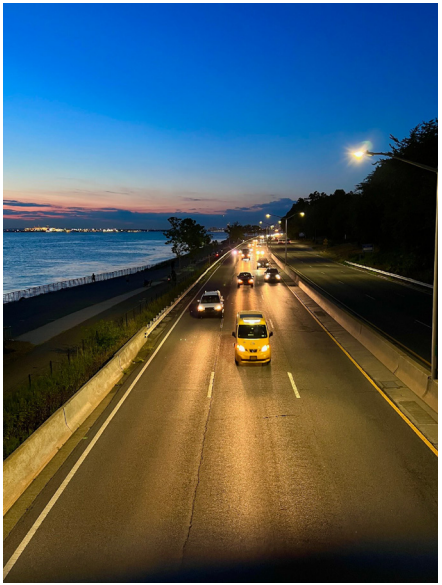
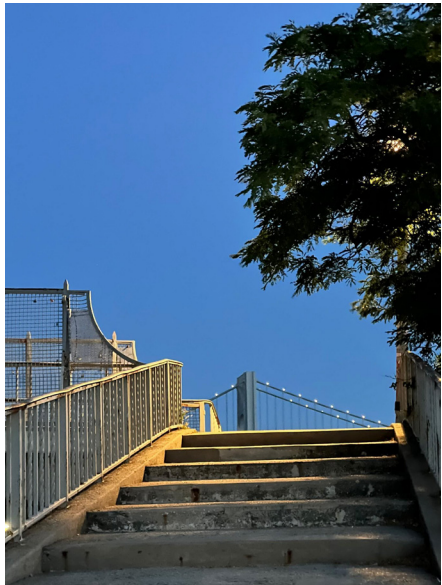


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City Tech



14 Views on Verrazano Narrows



_07. From Memory to Scent

Karla Rothstein
Fall 2025
Design Seminar

40



15 Memorial Cards with Scents (Ginger, Vanilla, Oatmeal, Garlic)



15



41

