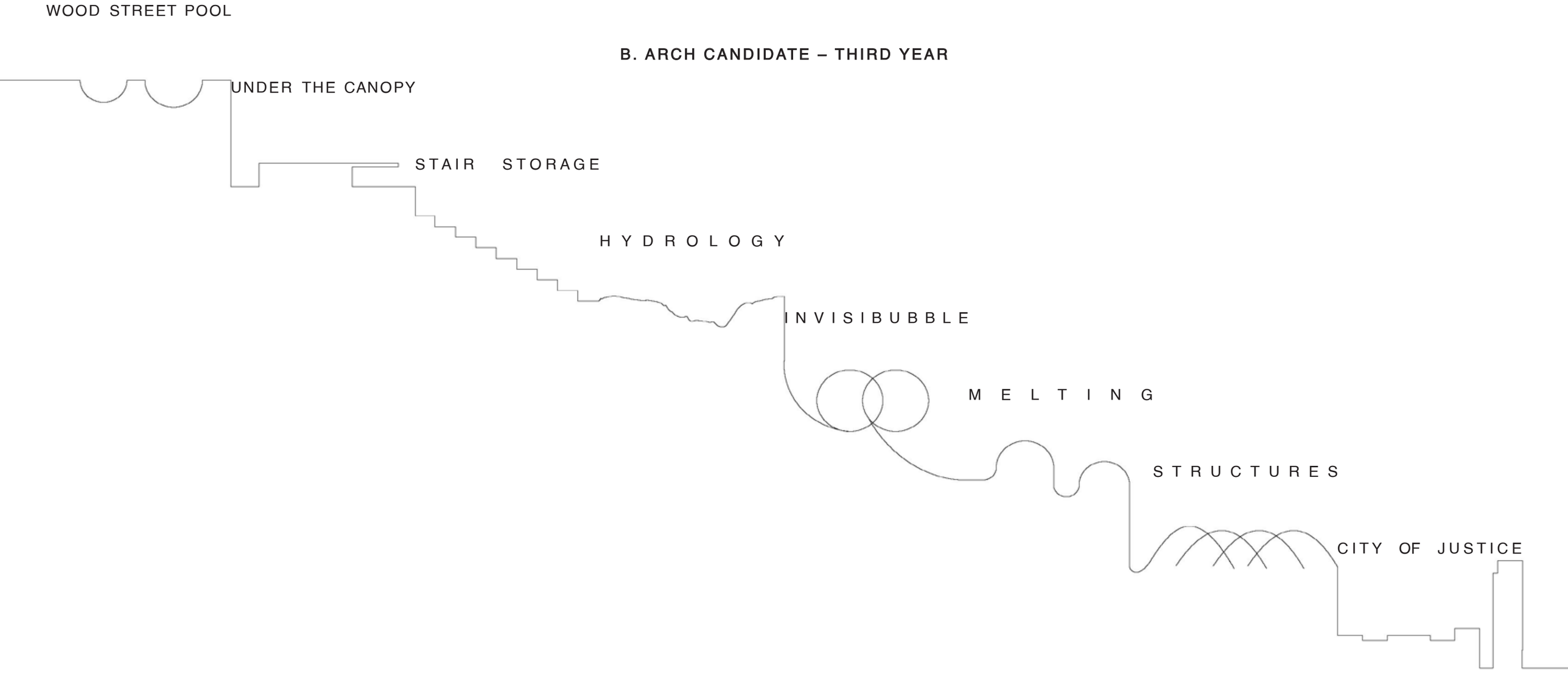
ALIZA FEFFER
PORTFOLIO

B. ARCH CANDIDATE – THIRD YEAR



WOOD STREET POOL

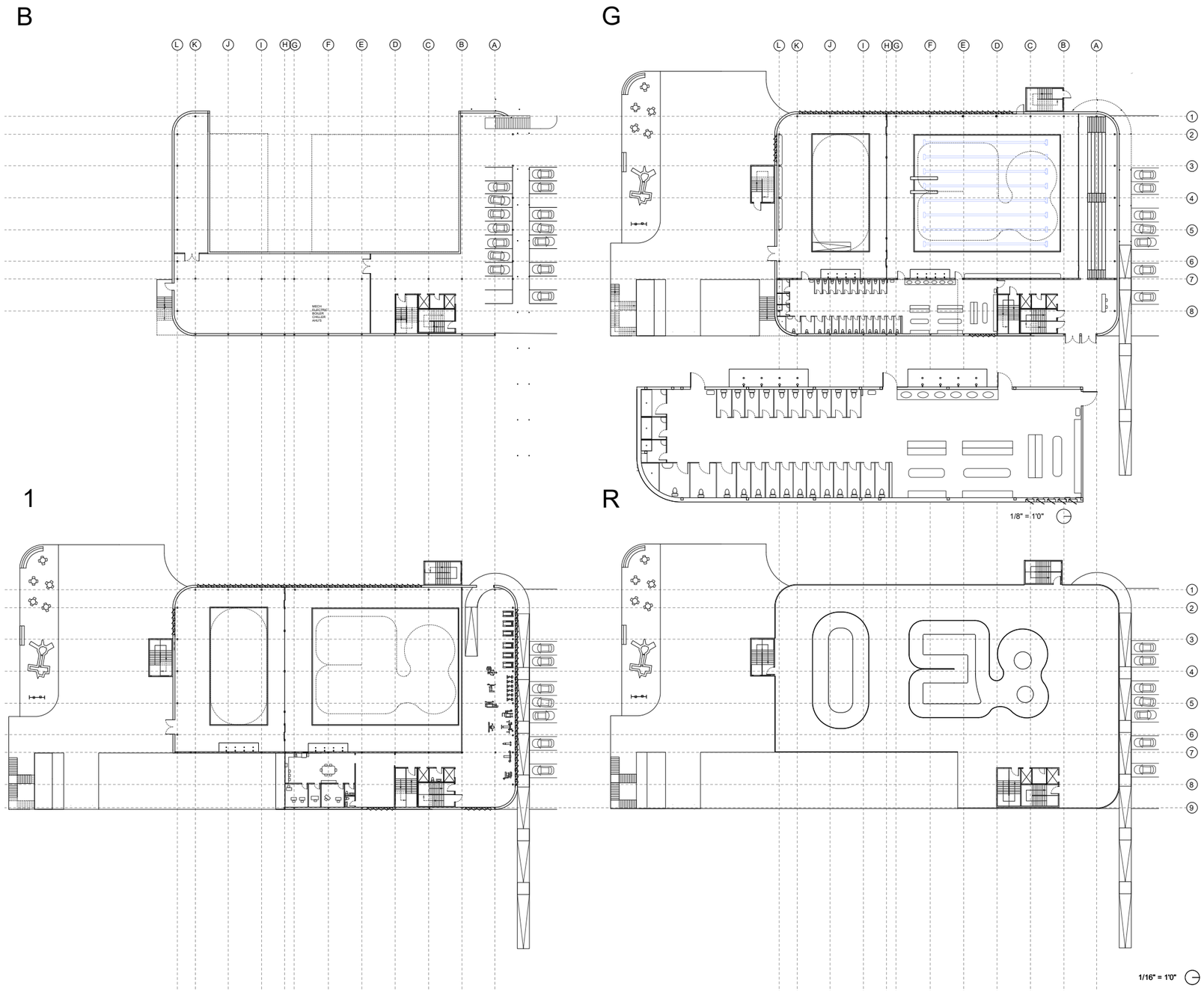
Cornell AAP // ARCH 3101 // Caroline O'Donnell
INTEGRATED DESIGN

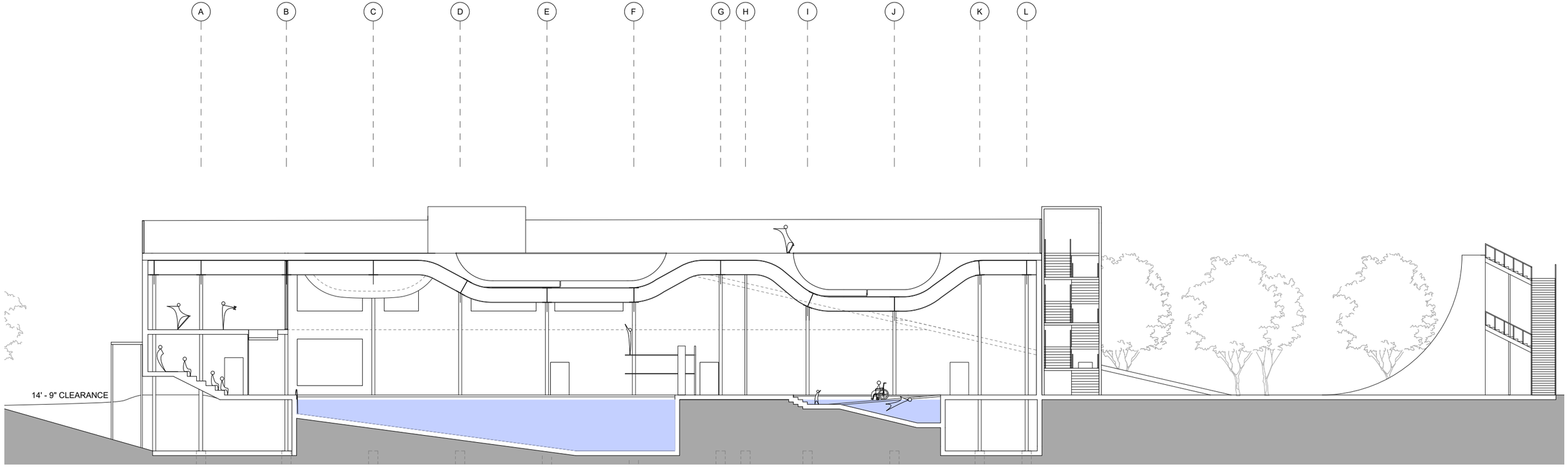
The Natatorium at the Ithaca Skatepark is designed as a place of connection, responding directly to the skaters, families, and neighbors who already use the site as a social anchor. The building merges skating, swimming, and landscape into a single, seasonally adaptable public realm.

The design links the ground-level skatepark to a skateable roof above the pool through a reinforced concrete shell carved with bowls that mirror the geometry of the natatorium below. These forms create a visual and spatial dialogue between skating and swimming while extending the language of the skatepark across the building. A vertical ramp allows skaters to reach the roof through momentum alone, reinforcing a continuous flow between ground and structure.

Concrete is chosen for the skate roof due to its durability in Ithaca's freeze-thaw climate and its ability to withstand long-term public use. The roof bowls reference skateboarding's origins in drained swimming pools while also collecting rainwater, directing it to a retention pond that functions as stormwater infrastructure in summer and an ice rink in winter.

The structure uses custom-bent steel to span the pool halls without interior columns, allowing open, light-filled spaces below. Materials emphasize longevity and reuse, including recycled brick with limestone mortar, durable concrete skate surfaces, and rotating exterior shading elements with integrated photovoltaics. Overall, the natatorium is designed to be intuitive, accessible, and engaging, inviting people to move through it, skate over it, and swim beneath it as one connected experience.

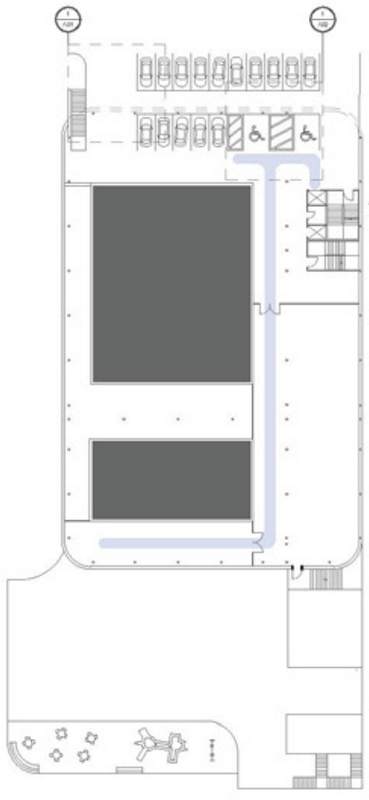



A
B
C
D
E
F
G
H
I
J
K
L
14' - 9" CLEARANCE

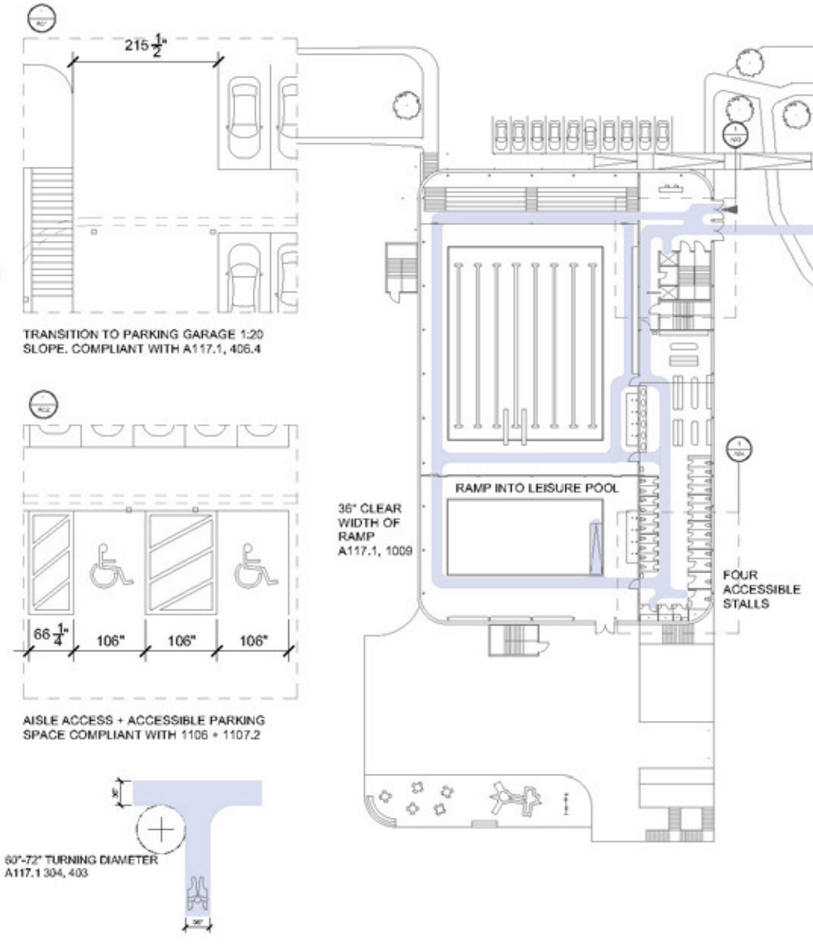

WOOD STREET POOL

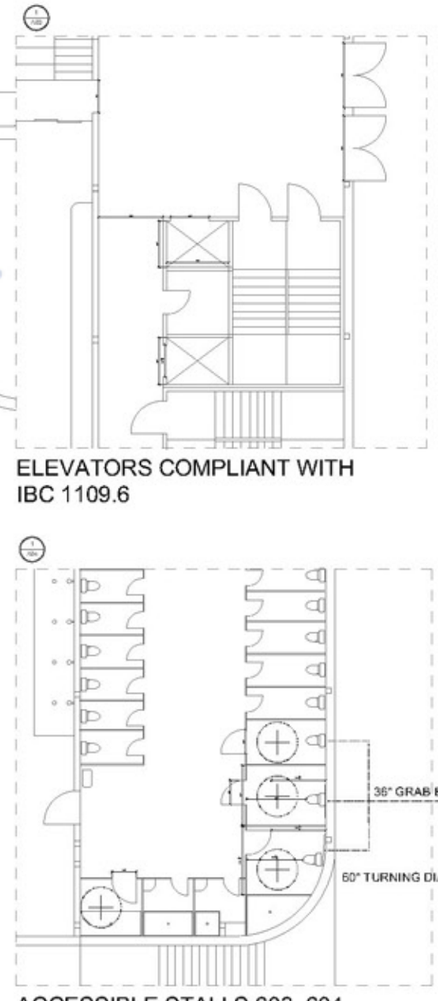
ACCESSIBLE DESIGN

B

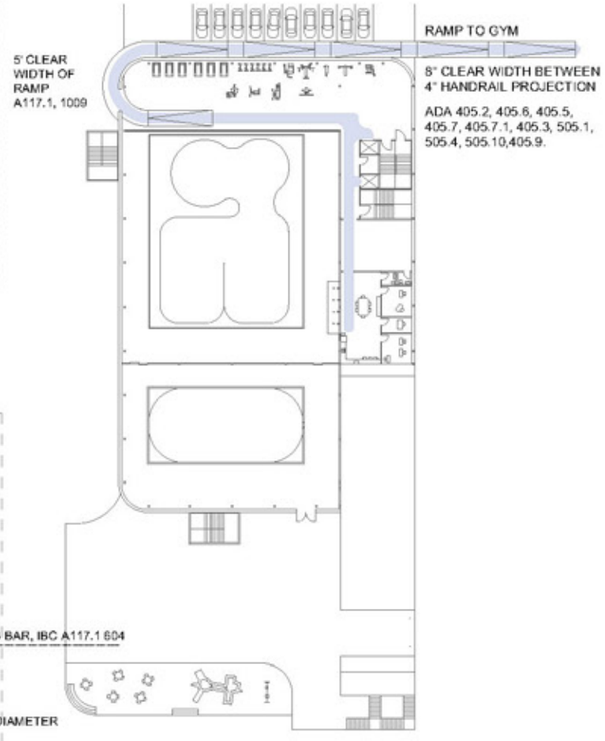


G

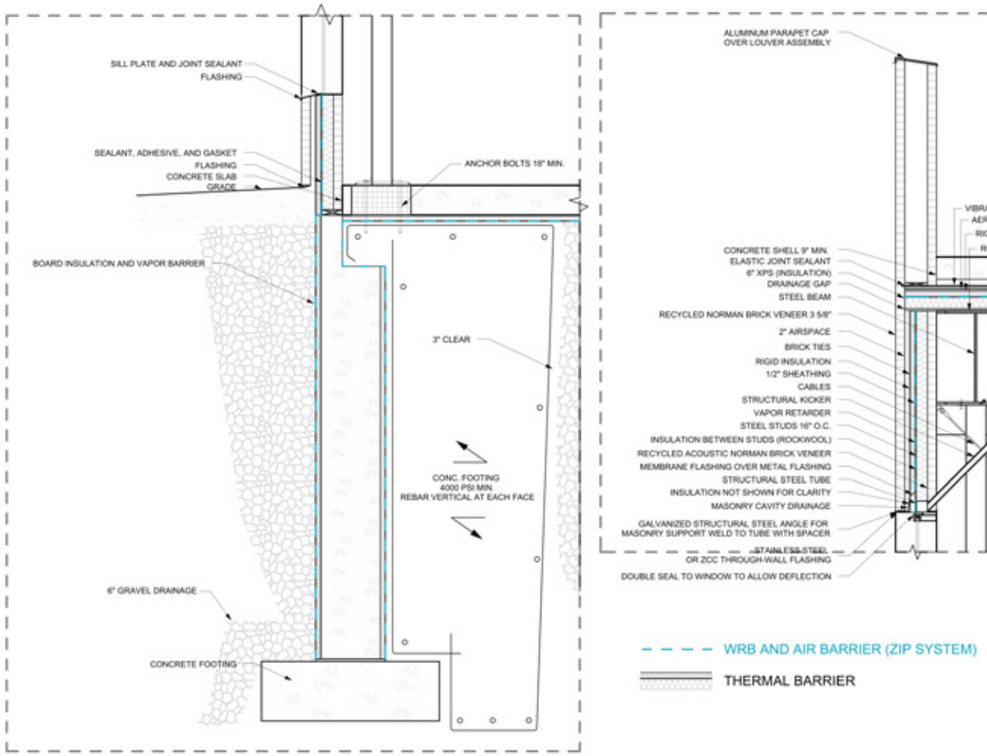


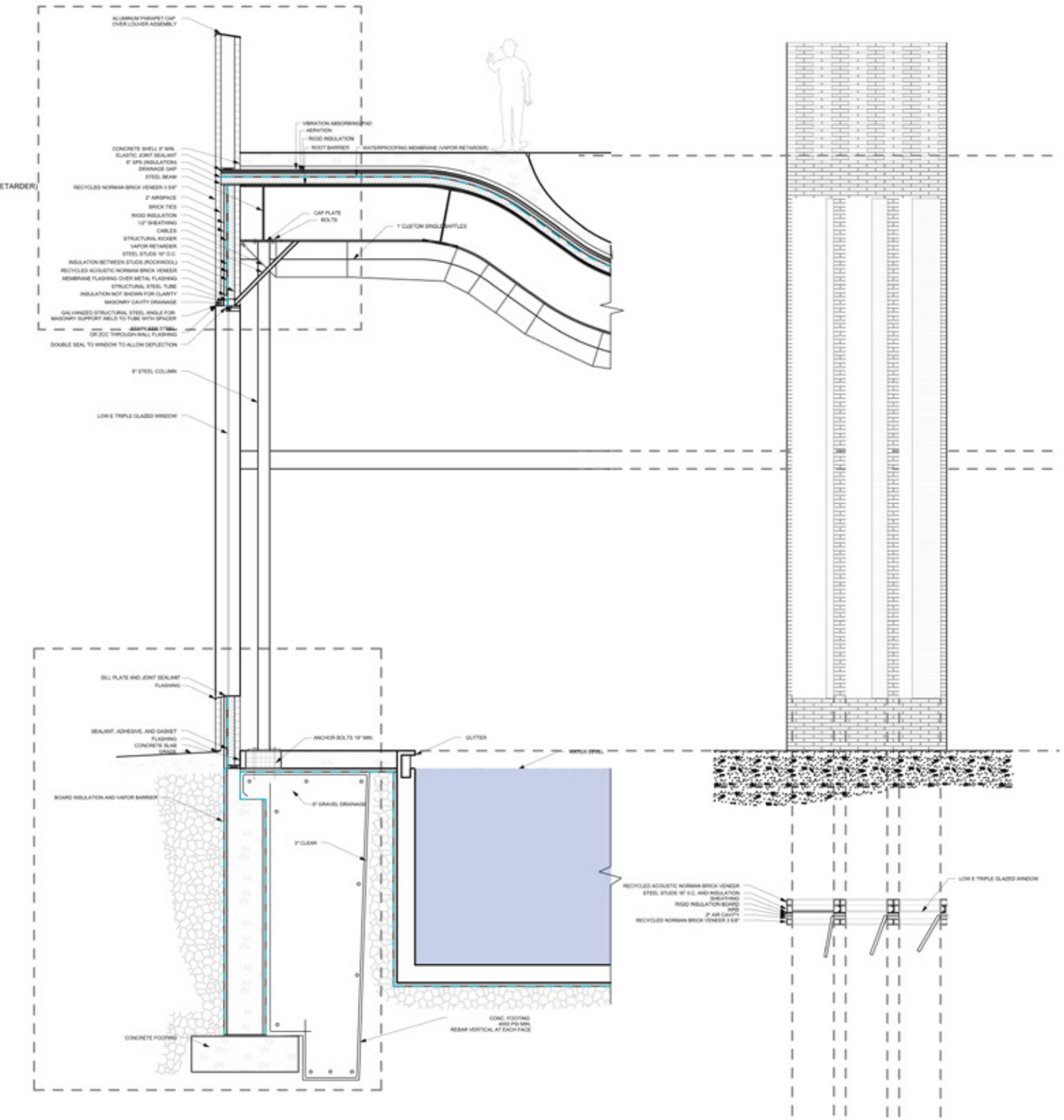


1



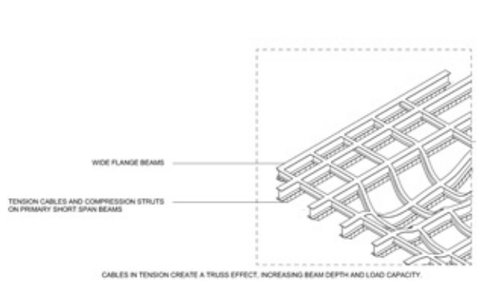
BUILDING ENVELOPE WALL SECTION DETAIL DRAWING
AND R-VALUE CHART

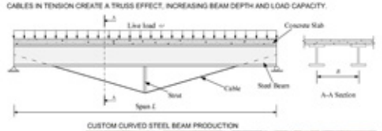




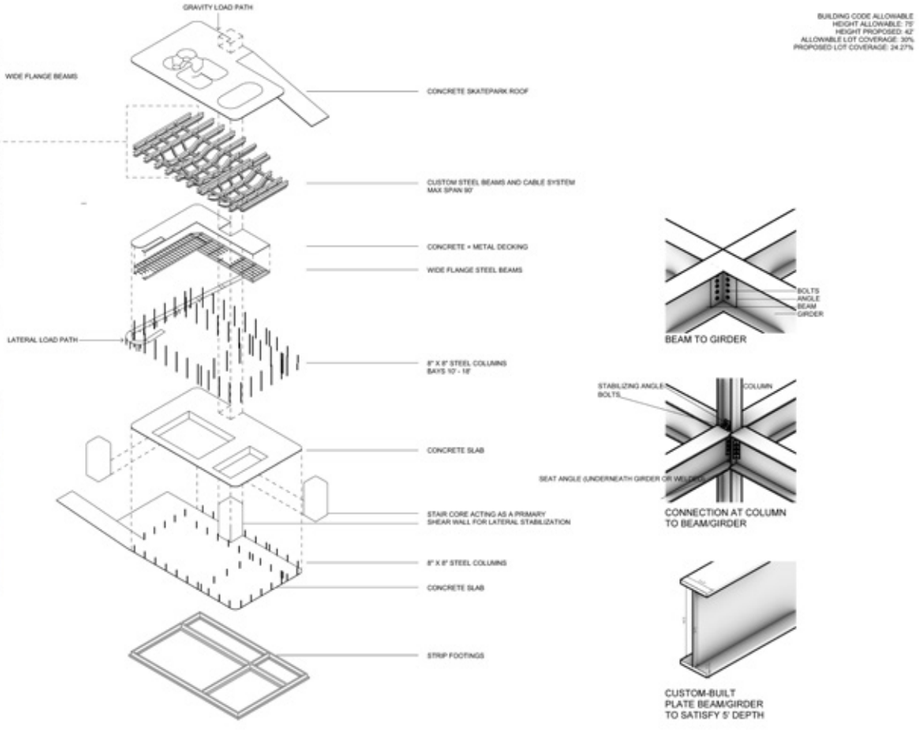
CODE COMPARISON -
- IECC 2021 (C402.1.3 CLIMATE ZONE 5A)

LAYER	IECC 2021 MIN. R-VAL	PROJECT R-VAL	ASSEMBLY	CODE REF
ROOF:ATTIC AND OTHER	R-49	R-49.23	4” veg layer, WP/root barrier, 5.5” polyiso, 1.92” polyiso, 6” concrete deck, interior air film	TABLE C402.1.3
WALL:ABOVE GRADE (METAL FRAMED)	R-R-13 + R-10ci	R-29	Ext air film, brick veneer, 2” air space, 2” polyiso, ½” sheathing, R-13 stud batt, vapor retarder, int brick, ½” gyp, int air film	TABLE C402.1.3
WALL: BELOW GRADE	R-10c	R-12.3	Soil layer, 2” rigid insulation, 8” concrete wall, interior air film	TABLE C402.1.3
FLOORS: MASS	R-16.7ci	R-23.4	18” concrete, 3.576” rigid insulation, WP membrane, soil interface	TABLE C402.1.3
SLAB-ON-GRADE (HEATED)	R-15 for 36″ below + R-5 full slab	R-23.4	18” concrete, 3.576” rigid insulation, WP membrane, soil interface	TABLE C402.1.3





CUSTOM CURVED STEEL BEAM PRODUCTION

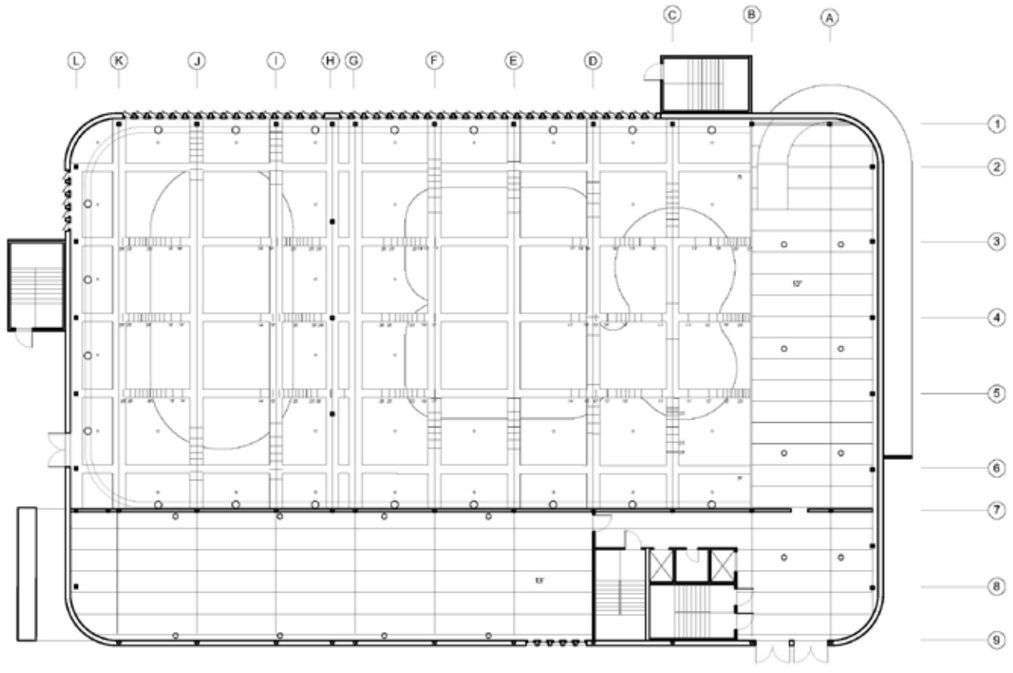


BUILDING CODE ALLOWABLE
HEIGHT ALLOWABLE: 75'
HEIGHT PROPOSED: 42'
ALLOWABLE LOT COVERAGE: 30%
PROPOSED LOT COVERAGE: 24.27%

BEAM TO GIRDER

CONNECTION AT COLUMN
TO BEAM/GIRDER

CUSTOM-BUILT
PLATE BEAM/GIRDER
TO SATISFY 5' DEPTH



LEGEND

- 20, 25" round ducts
- 14" round ducts
- Light Fixtures
- Curved beam height

UNDER THE CANOPY

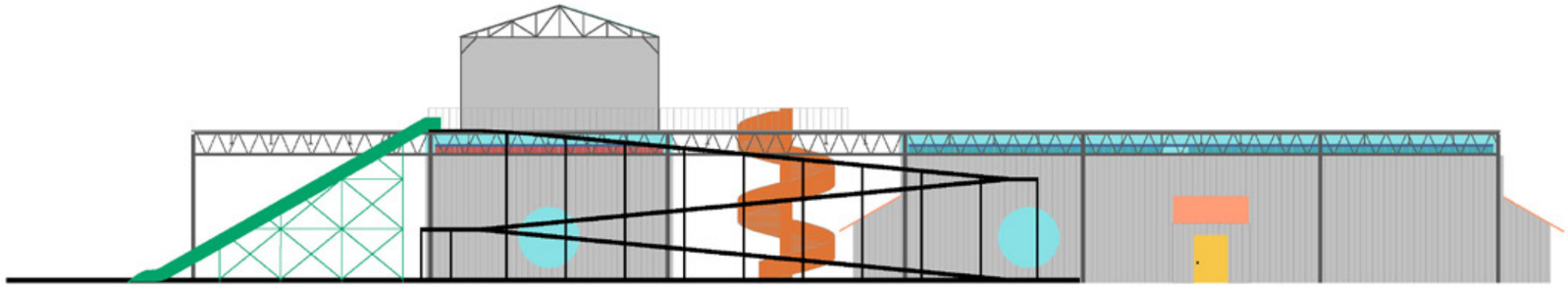
Cornell AAP // ARCH 2102 // Ekin Erar
GROUNDWORK

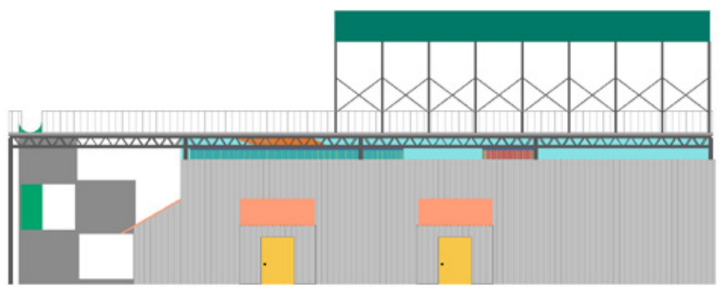
Phase Zero begins the site's transformation immediately. Located on fertile farmland in Enfield, New York, the project introduces fruit trees and a working garden of vegetables, herbs, and native crops to support the Enfield Pantry and provide hands-on education in food systems and ecology. The agricultural strategy establishes long-term growth while activating the site from the outset.

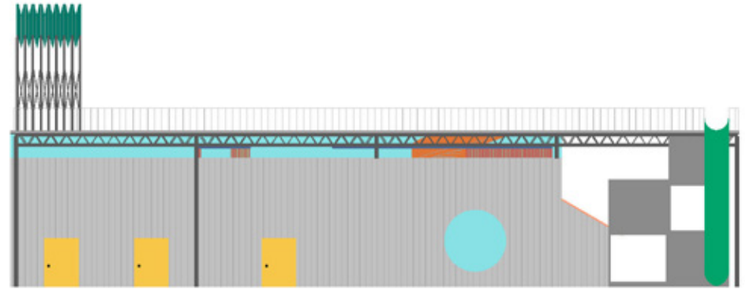
Phase One introduces a cost-effective community structure using a prefabricated steel frame and open interior spans. The building houses pantry operations, storage, a loading dock, and a teaching kitchen that opens directly to the farm. Flexible classroom and gathering spaces maintain visual and physical connections to the orchard.

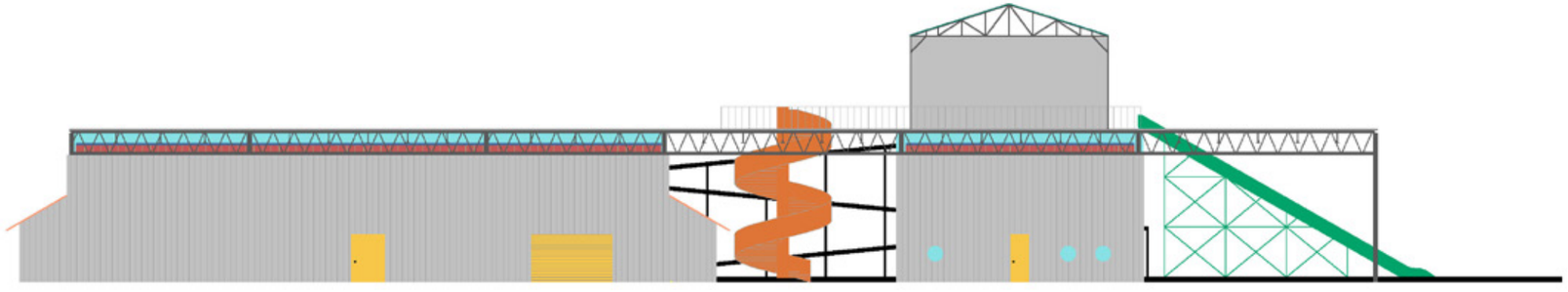
Phase Two extends architecture into the landscape through a raised boardwalk that leads to a rooftop event terrace overlooking the site. The path offers views across the orchard and supports community gatherings, screenings, and seasonal programming, blending circulation with experience.

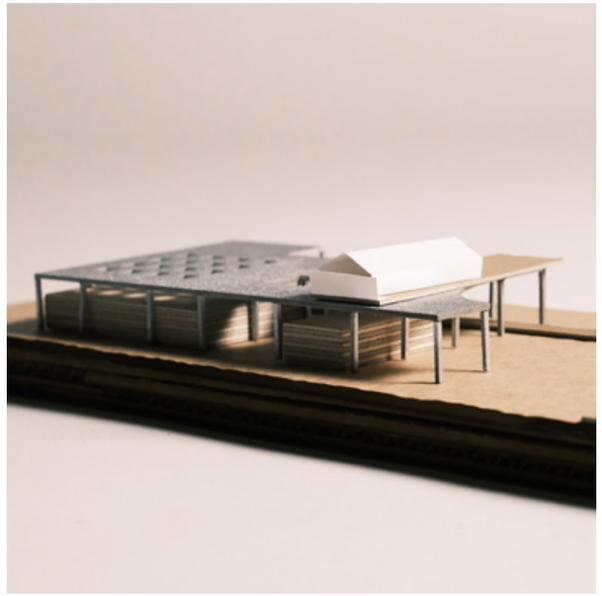
Imagined and designed with Felix Liu.

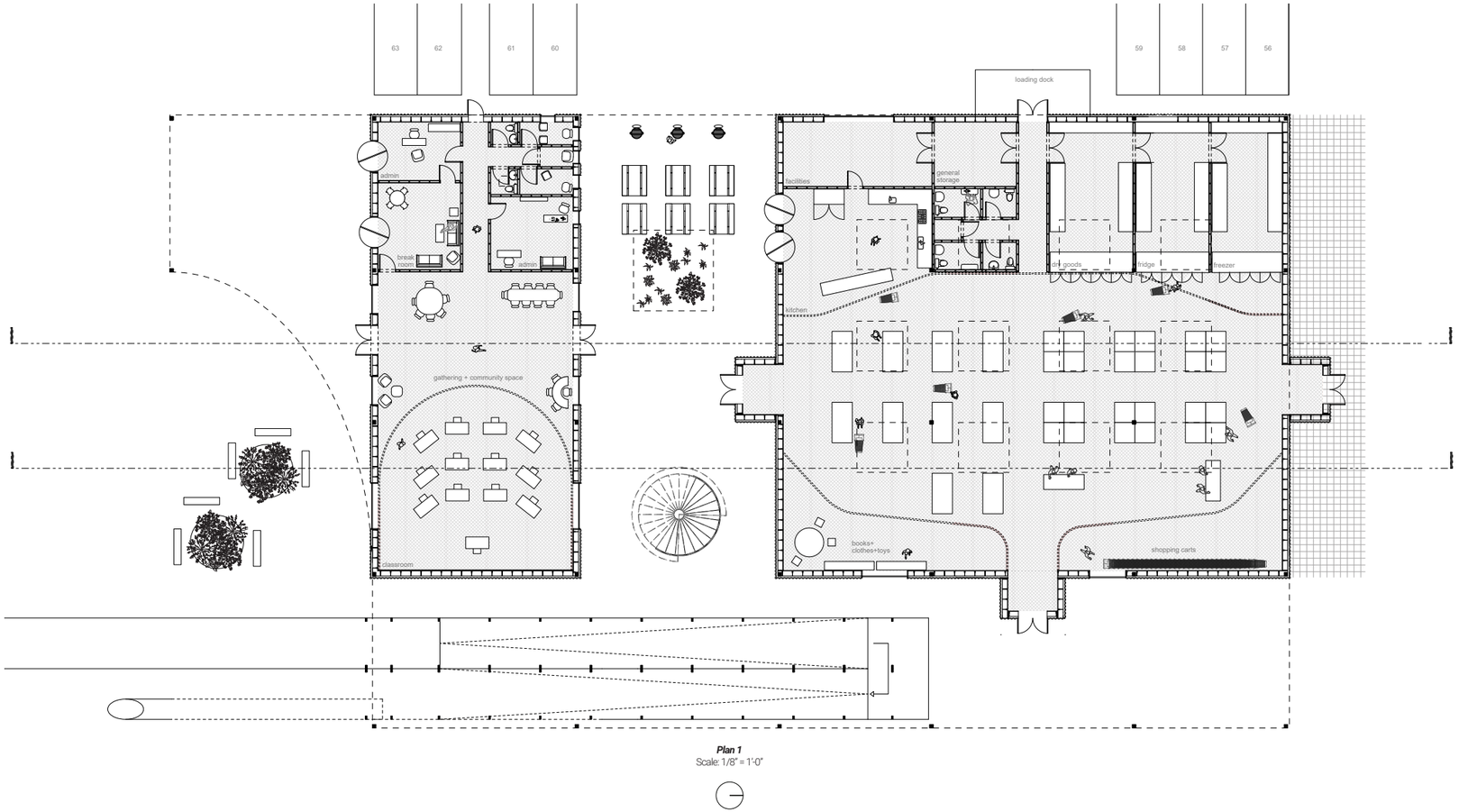






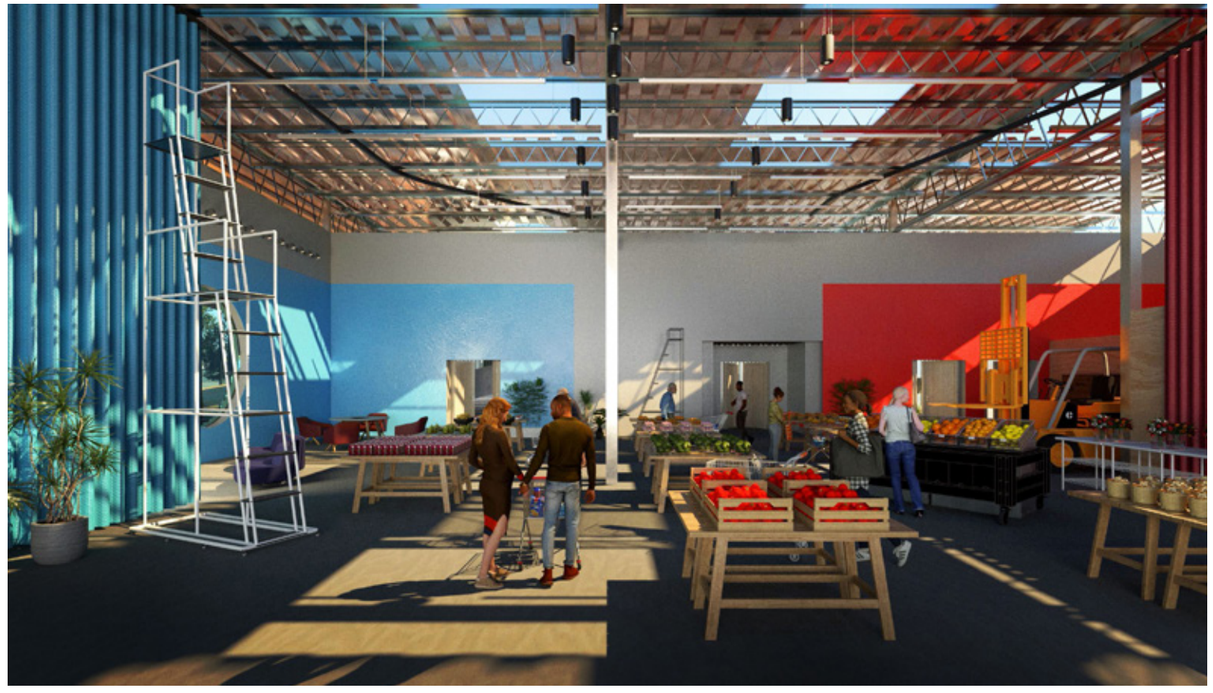






Plan 1
Scale: 1/8" = 1'-0"

7:00 am



11:00 am

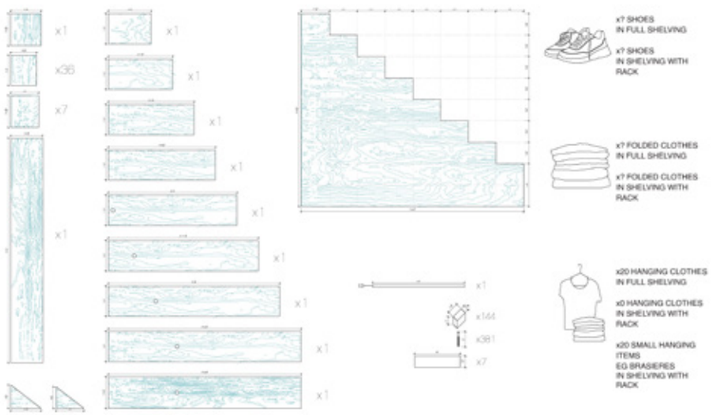
3:00 pm

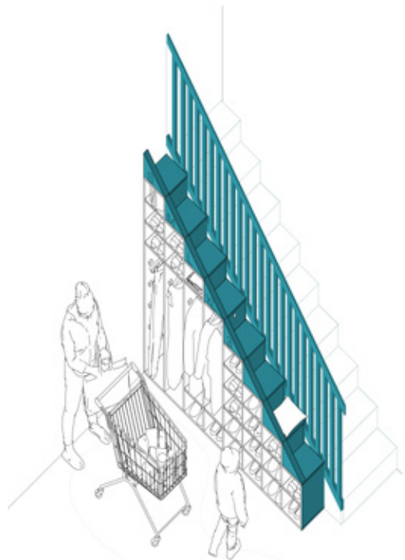
7:00 pm

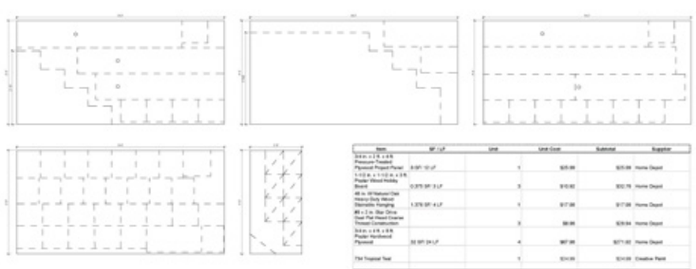
STAIR STORAGE REVAMP

Cornell AAP // ARCH 2101 // Ekin Erar
GROUNDWORK

The Enfield Food Pantry needs a solution to maximize storage and space, particularly in the corner by the stairs, which currently holds clothing. Due to a lack of organization, an abundance of clothes becomes dirty and mixed up. This stair storage revamp not only solves these issues but also integrates seamlessly with the existing architecture, fitting against the stairs and painted to match. It is modern, innovative, and respects the pantry's current design while significantly improving both the system and aesthetics of the clothing corner. This transformation enhances functionality while maintaining the pantry's integrity and efficiency. Model is 1/8"=1'.







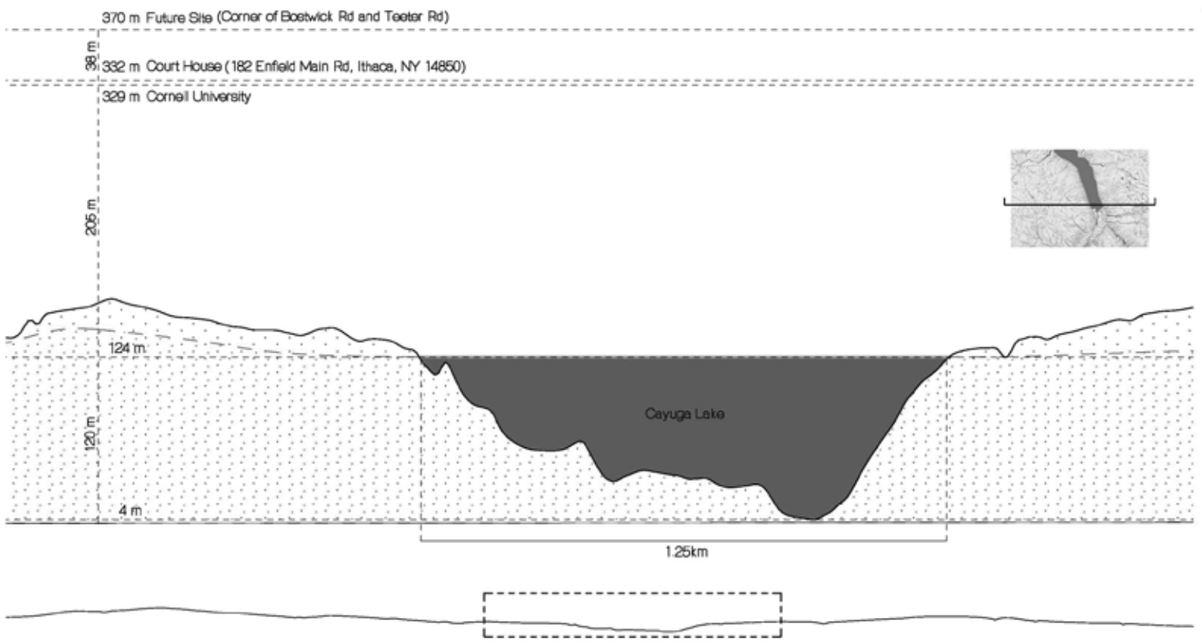
Item	SF / LF	Unit	Unit Cost	Subtotal	Supplier
3/4 in. x 2 ft. x 4 ft. Plywood Project Panel	8 SF/ 12 LF	1	$25.99	$25.99	Home Depot
1-1/2 in. x 1-1/2 in. x 3 ft. Poplar Wood Hobby Board	0.375 SF/ 3 LF	3	$10.92	$32.76	Home Depot
48 in. W Natural Oak Heavy Duty Metal Clothing Hanging Rod	1.375 SF/ 4 LF	1	$17.99	$17.99	Home Depot
48 in. x 3 in. Star Drive Oval Flat Head Coarse Thread Wood Screw		3	$8.99	$26.94	Home Depot
3/4 in. x 4 ft. x 8 ft. Prefin Hardwood Plywood	32 SF/ 24 LF	4	$67.99	$271.92	Home Depot
7/4 Tropical Teal		1	$24.99	$24.99	Creative Paint
TOTAL COST				$403.59	

FINGER LAKES HYDROLOGY

Cornell AAP // ARCH 2102
GROUNDWORK

The Finger Lakes region drains north toward Lake Ontario through an interconnected network of lakes, streams, and rivers. Seneca and Cayuga Lakes feed into the Seneca and Oswego River systems, while smaller western Finger Lakes drain into the Genesee River. In Tompkins County, water movement is shaped by topography, with gravity directing flow from higher elevations into Cayuga Lake. Enfield Creek plays a critical role in this system, supporting surrounding wetlands that help manage flooding during heavy rainfall and snowmelt.

Groundwater studies indicate relatively shallow water tables near the project site, ranging from approximately 50 to 100 feet below grade, with an existing domestic water connection located roughly 50 feet below the site, suggesting potential for on-site well use. Our project explores these hydrologic relationships through diagrams, models, and multiple representational media, using design as a tool to understand and respond to regional water systems.



INVISIBUBBLE

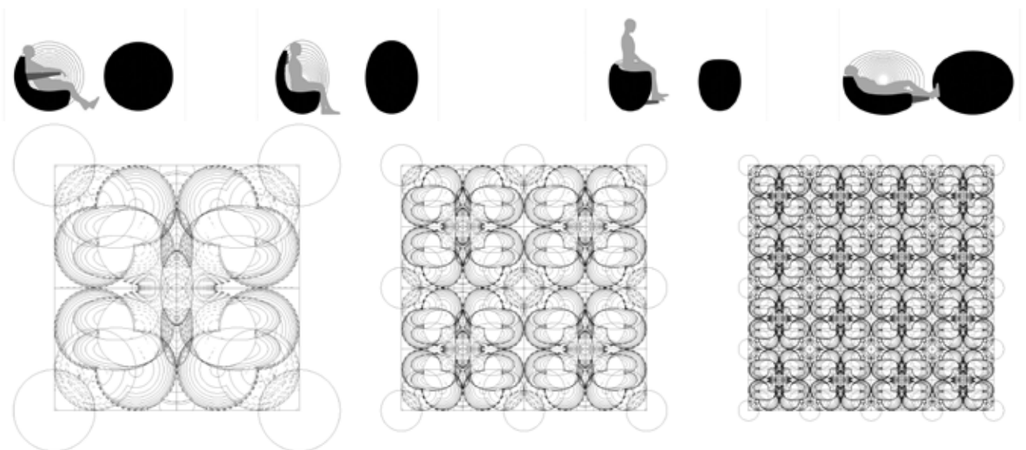
Cornell AAP // ARCH 2101 // Andrea Simitch
ARCHITECTURAL INTERFACES

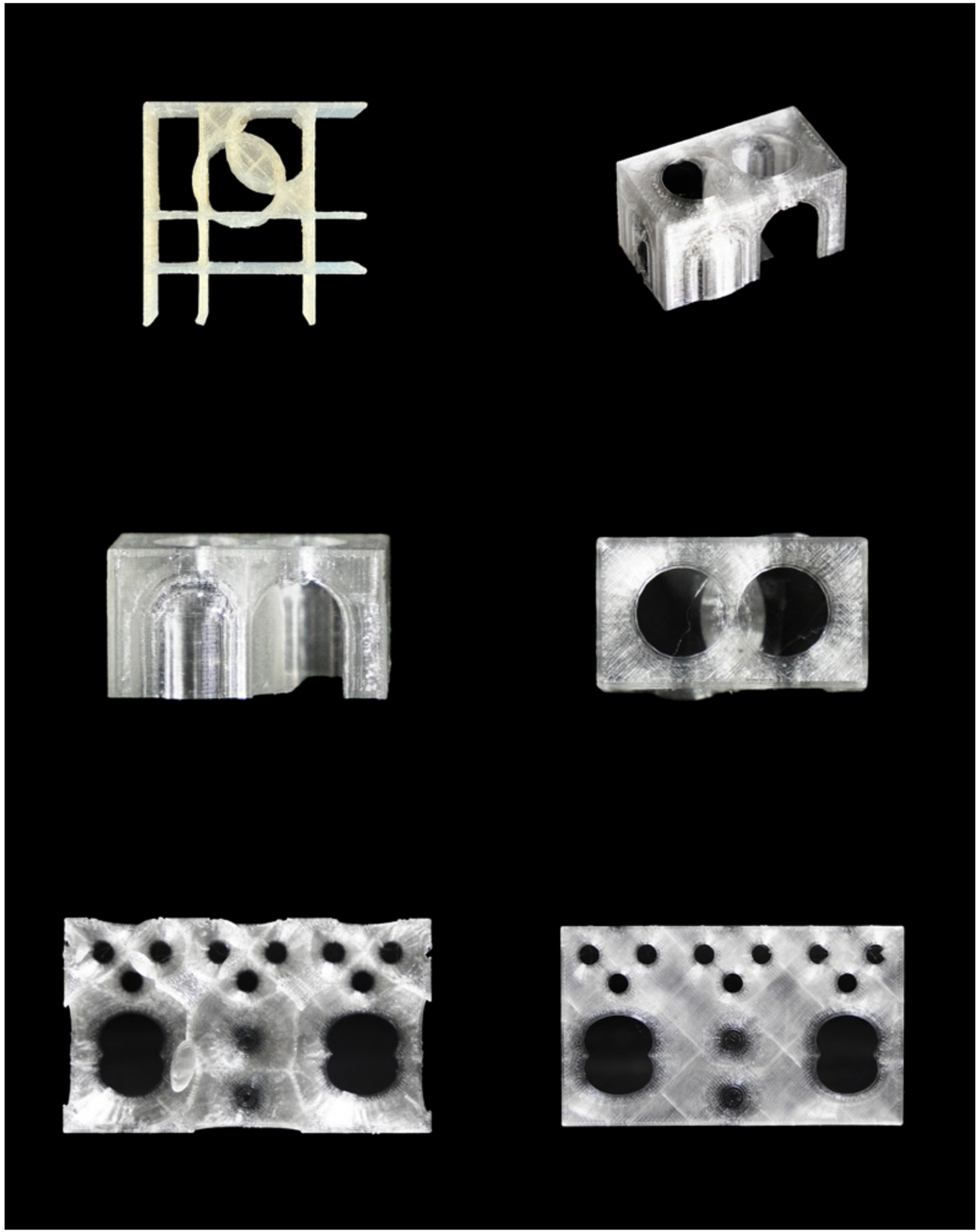
INVISIBUBBLE reimagines architecture as an active participant in ecological restoration along Puerto Rico's coastline. Designed to support the regeneration of endangered coral reefs, the structure operates as both a research facility and a living system that adapts to land, sea, and time. New reefs are cultivated on site, creating space where marine life can recover and scientific research can advance.

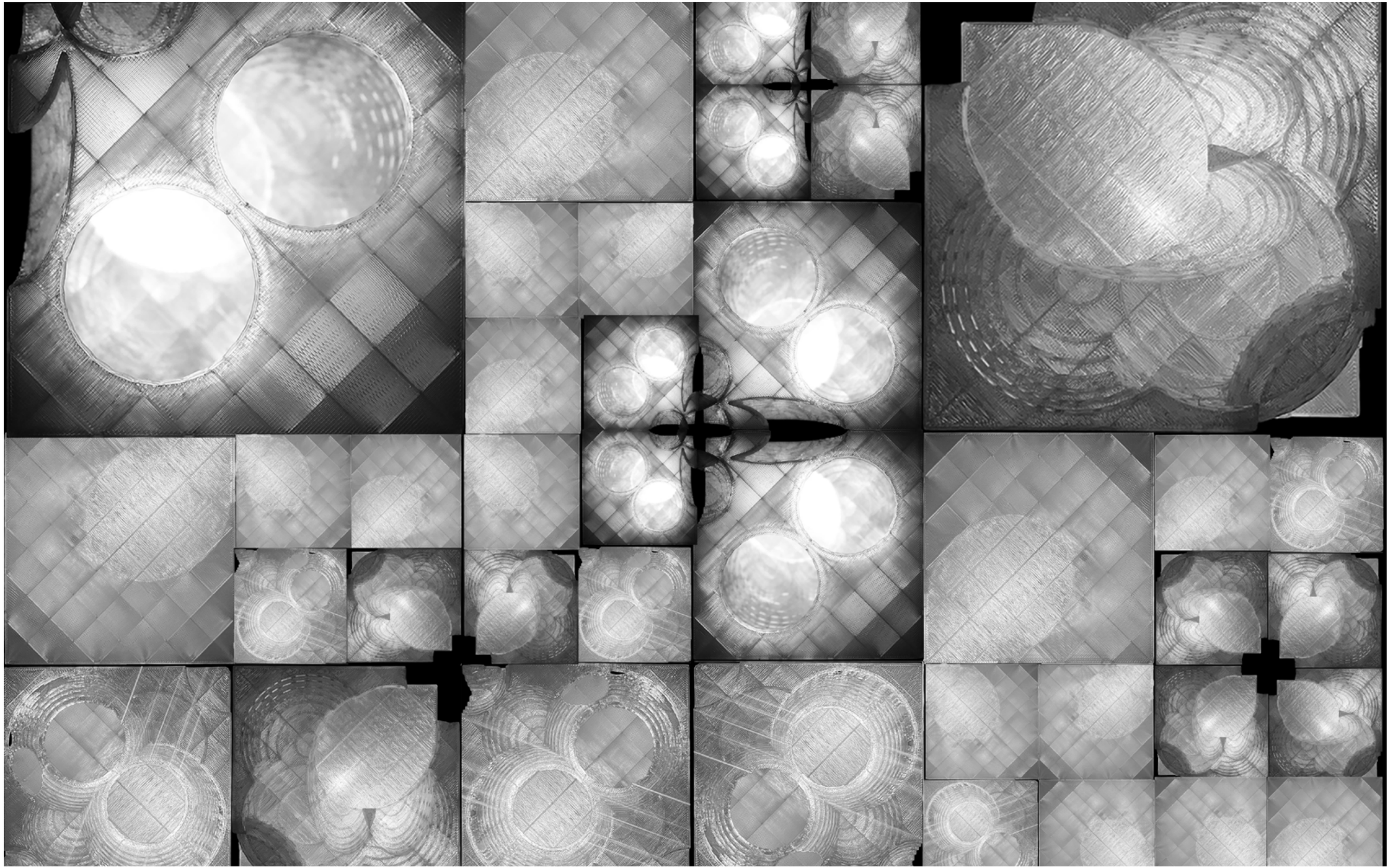
The building rises lightly above the water, its translucent form dissolving into the horizon. A protective coastal wall anchors the project, shielding fragile reef systems from rising tides and remaining long after the rest of the structure is reclaimed by the ocean. This long-term perspective positions architecture as a temporary steward rather than a permanent imposition.

Research and living spaces are organized as surface-level pods, balancing openness with environmental control. Labs alternate between naturally ventilated spaces and enclosed, climate-controlled environments, allowing research to respond flexibly to changing conditions. Carved tidal pools and sandstone basins create calm habitats for coral growth, while 3D-printed bioactive substrates support reef adaptation to rising sea levels.

At night, solar-powered lighting transforms the observatory dome into a soft beacon, echoing the ocean's bioluminescence. More than a building, the project proposes a sustainable model of coexistence—one that prioritizes restoration, resilience, and the future of fragile marine ecosystems.







MELTING

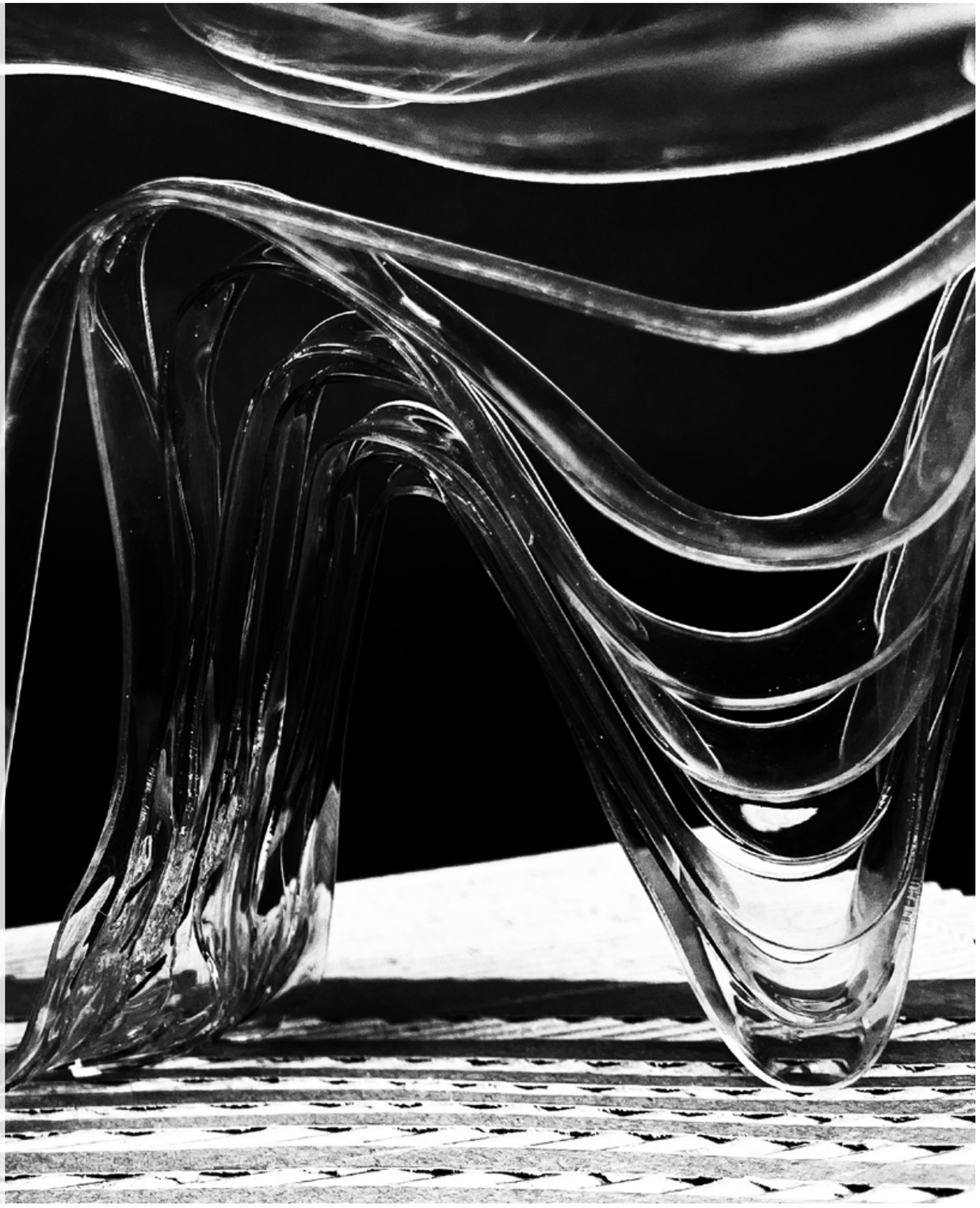
Cornell AAP // ARCH 1101 // Imani Day
TRACES OF EXTRACTION

This project investigates the transformation of sand into glass through material extraction, melting, and reforming, using drawing, modeling, and fabrication as tools of inquiry. Silica sand, combined with sodium carbonate and limestone, is melted at extreme temperatures to form amorphous glass. The production of window glass requires absolute flatness, achieved through the float glass process in which molten glass is poured over molten tin and thinned through controlled conveyor speeds.

The work visualizes this transformation through linework and line weights that trace sand extraction, melting, and flattening, revealing glass's shift from granular matter to transparent surface. The project also critiques the unsustainable nature of sand extraction, which contributes to ecological damage and the erosion of beaches and islands.

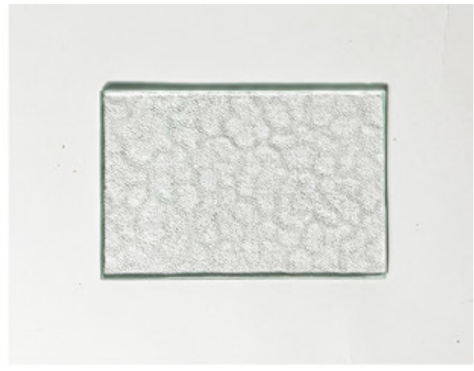
Through 3D explorations, the focus shifts to melting as a formal and conceptual driver. Paper and glass models investigate cutting, bending, dripping, and interlocking without adhesives, using gravity to express the fluidity of glass's amorphous state. Recycled window glass was slumped at controlled temperatures, demonstrating that thicker glass resists deformation while thinner glass produces tighter radii and more dramatic slumping.

These material principles informed a series of cube studies and culminated in a folly situated on a sand dune site. The folly adopts a double-processed form, emerging from repeated melting and slumping, with gravity shaping layered glass elements into stairs and inhabitable space. Circular cuts echo melting patterns, while the structure disrupts and reshapes the natural ripples of the surrounding sand, connecting material process, form, and site.





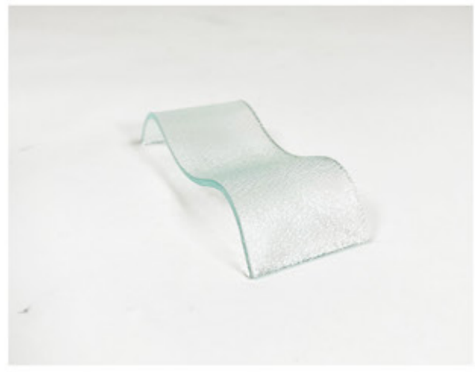






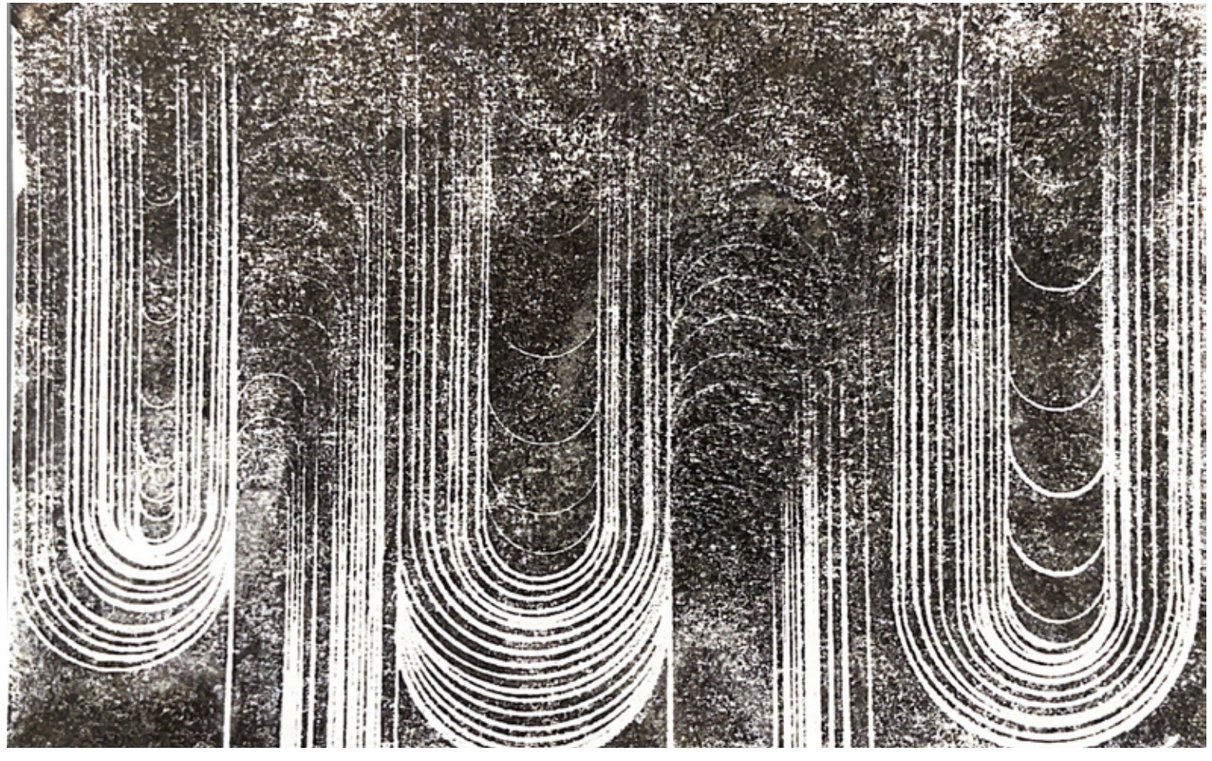


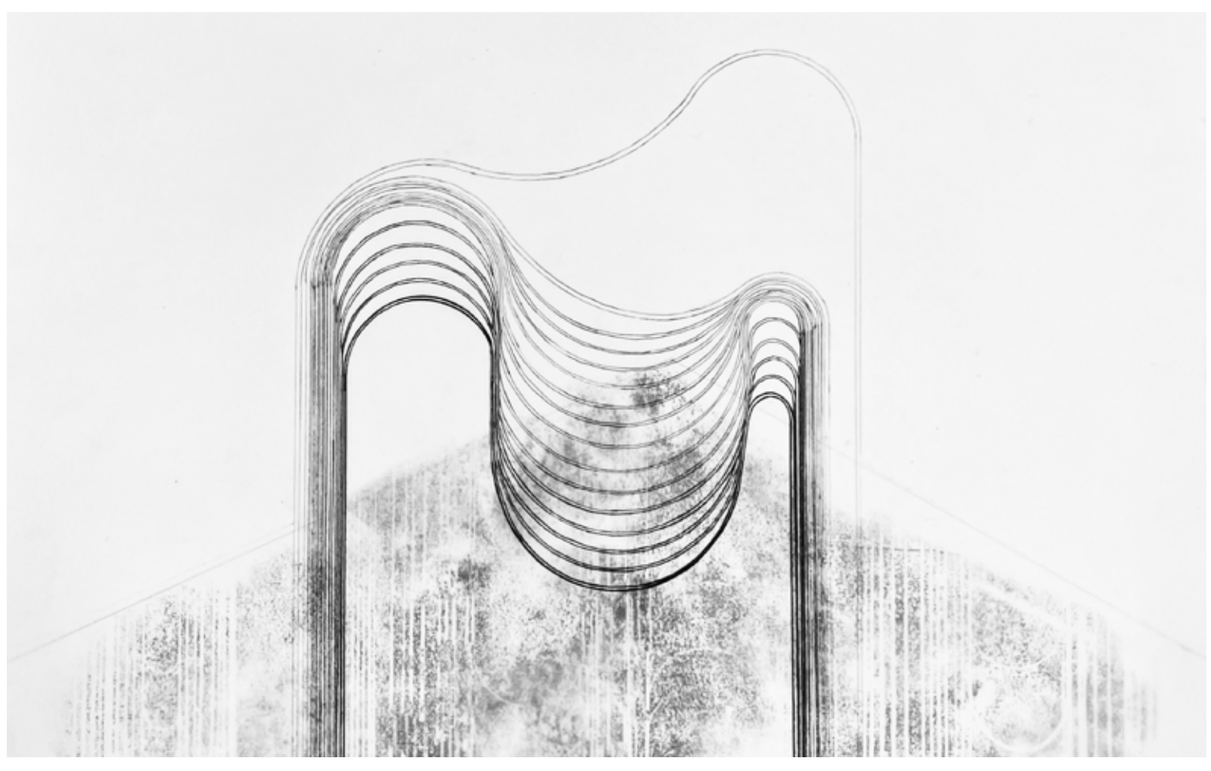


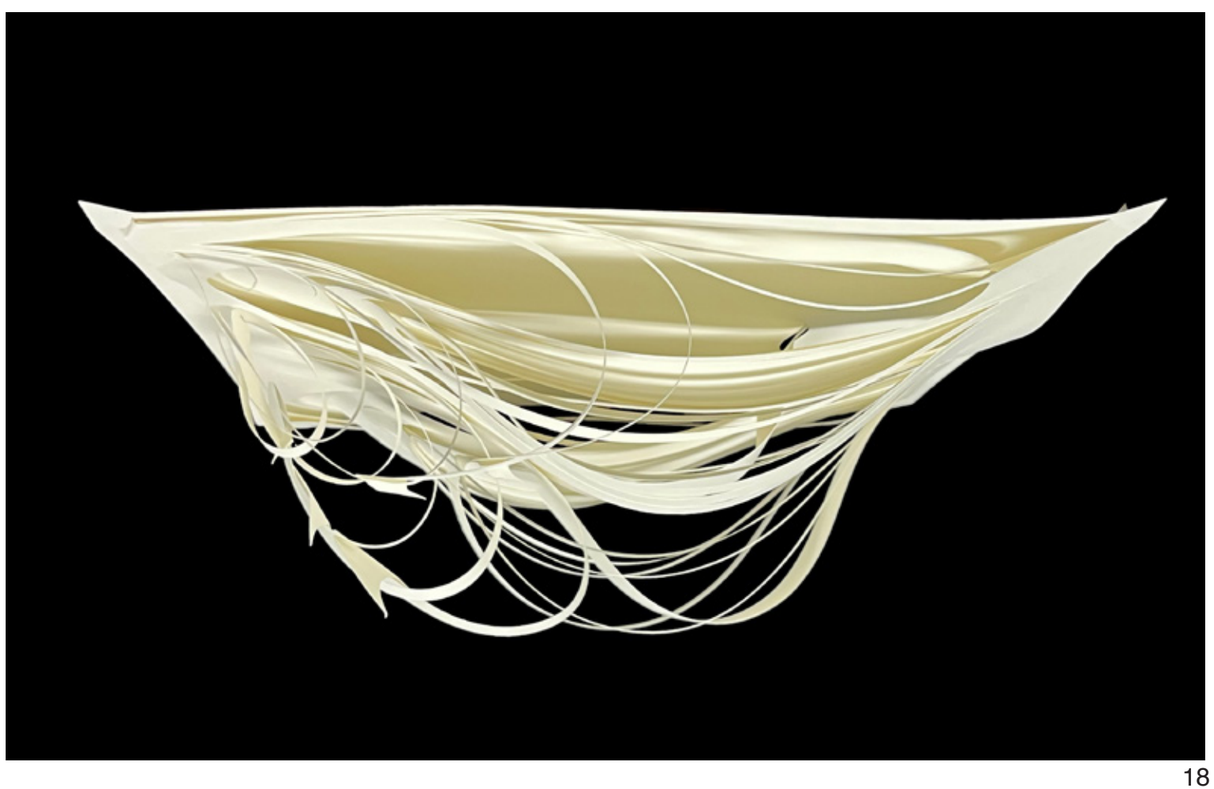













STRUCTURES II

Cornell AAP // ARCH 2613 // Mark R. Cruvellier
THE ARCH AT GREEN SCHOOL
BALI, INDONESIA

A Structural Replica model at 1:20 scale.
Constructed with Ivy Lei and Riya Verma.

CITY OF JUSTICE JERUSALEM

StudioPez // 2024 // Tel Aviv, Israel

A 1:200 scale model of the future Jeusalem Courthouse and Attourney General Tower completed for StudioPez during my 2024 Summer Internship.

After reviewing existing architectural drawings and our own material studies with the design team, a fellow intern and I tested model-making methods and developed the model through plans, sections, and 3D renderings. We sourced materials and used laser cutting and 3D printing to fabricate components before assembling the final model, complete with movable and detailed parts.

Interns: Aliza Feffer & David Morsel

Principal Architects: Pedro Peña & Daniel Zarhy

Architects and Designers: Yahel Balisiano, Marcos Brugarolas, Yuval Even, Esther Herman, Guy Kerem, Amit Rivlin, Tal Yaniv, Yarden Moalem, Yael Nataf, Danielle Nagila and Eedo Zigelboim.