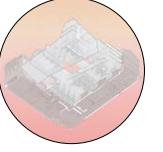
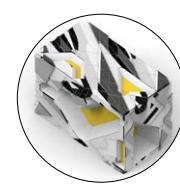
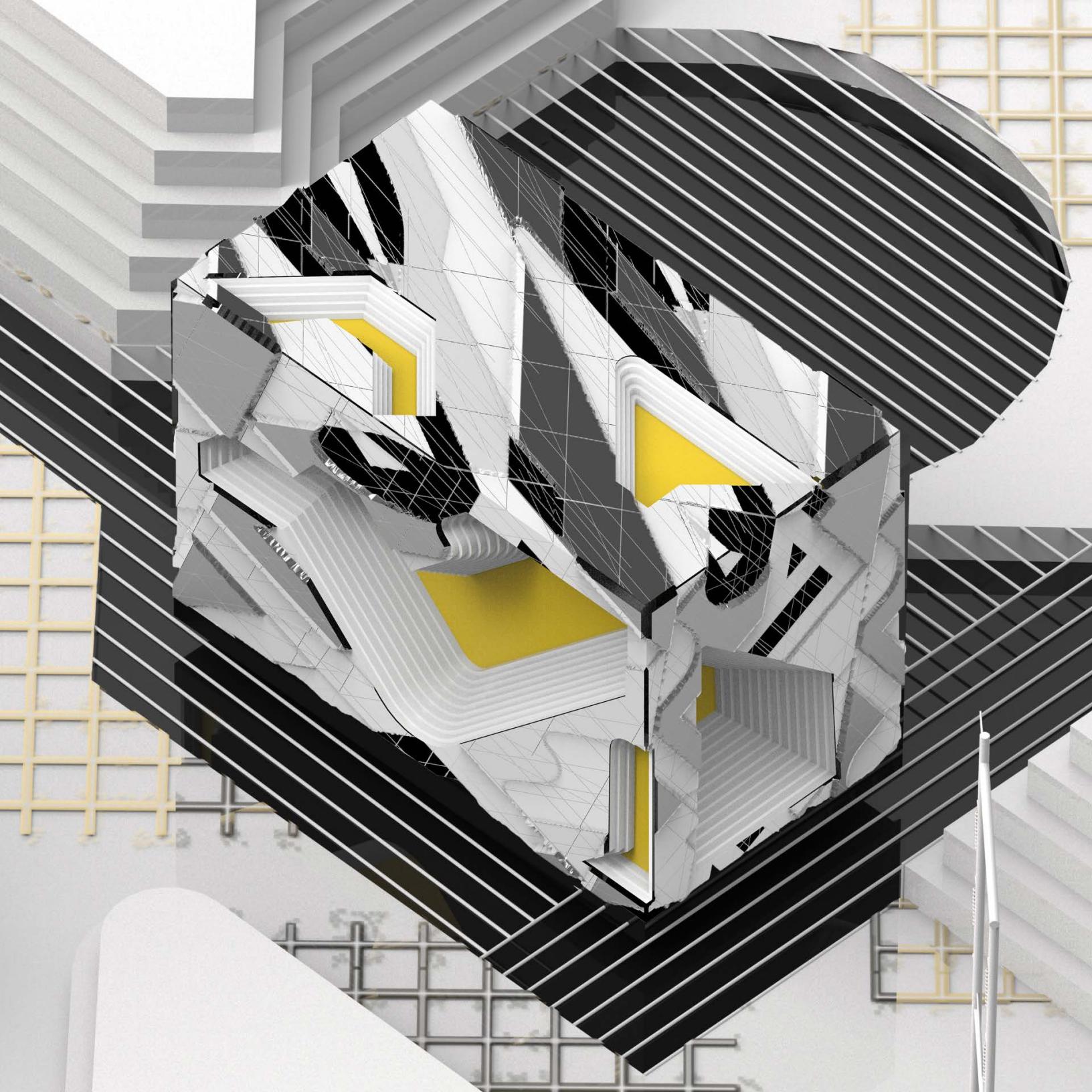


PORFOLIO

KEVIN HE

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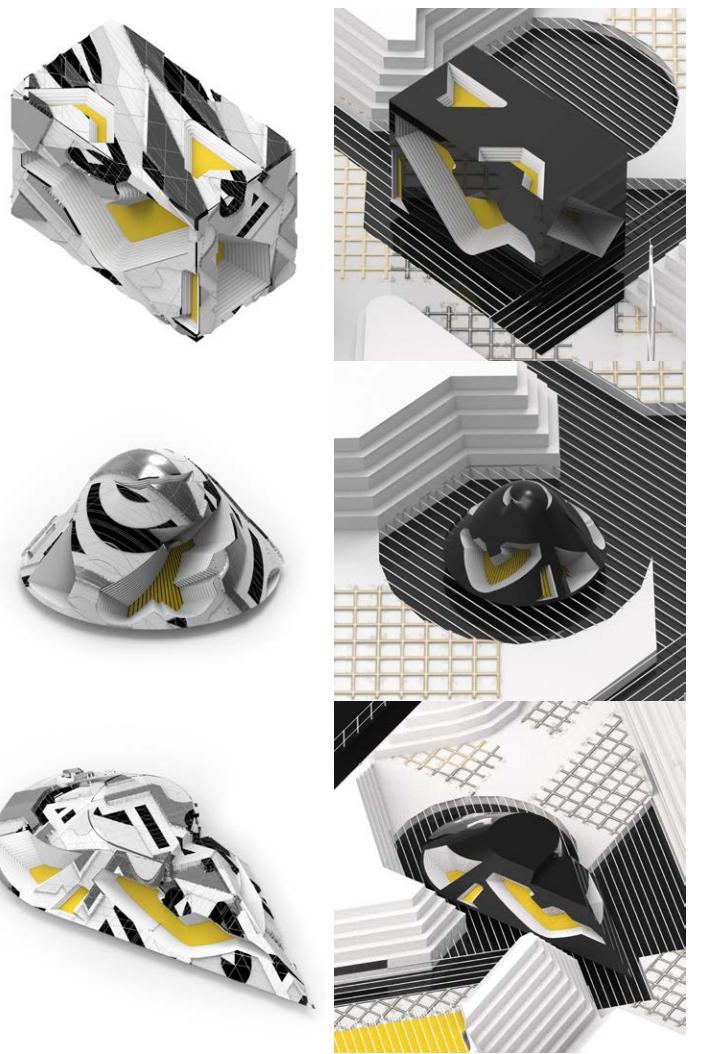
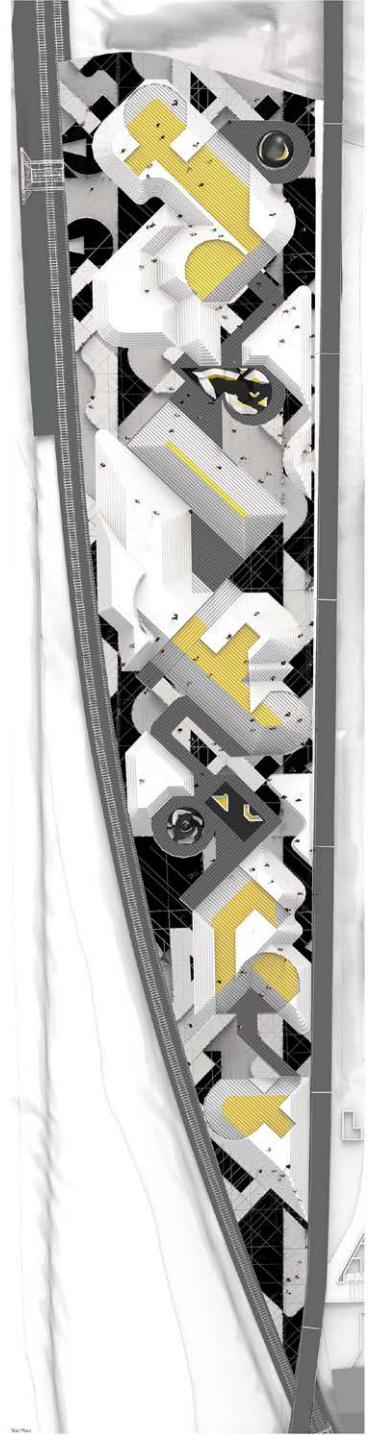
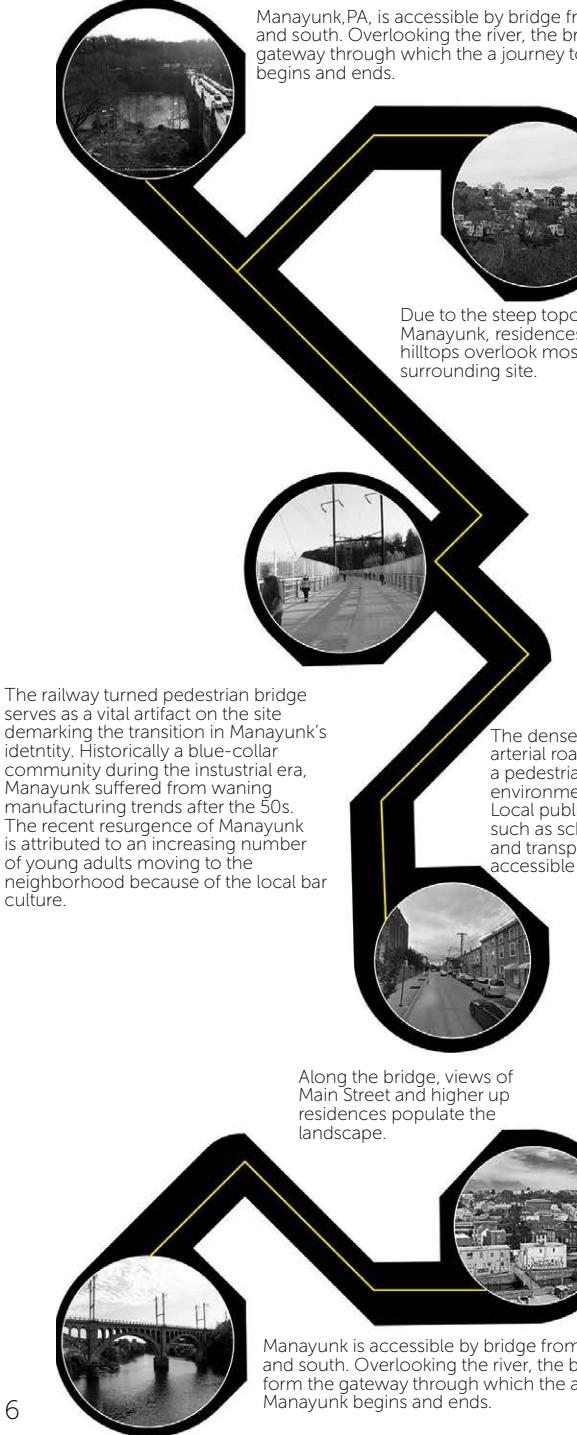
VIEWPORTALS

Spring Studio 2019

Instructor: Brian De Luna

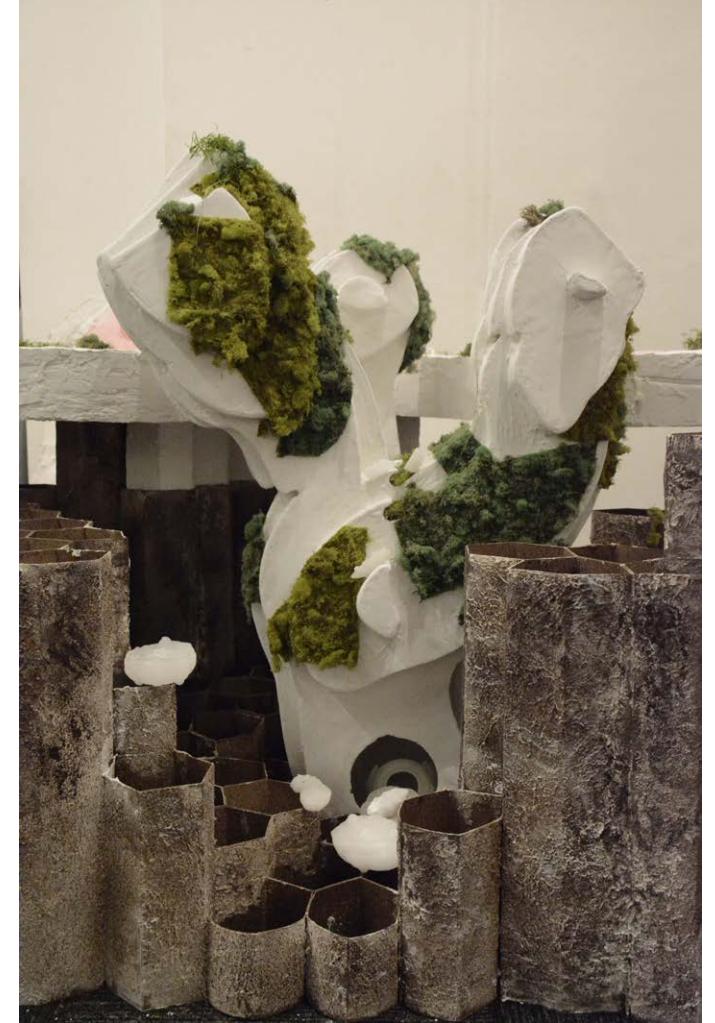
Skills: Rhino, Grasshopper, Zbrush, Keyshot, ArcMap

A city's history is encoded in its built infrastructure: roads, rail, and walkways. Through specific viewports, the memories of the region are revealed as visitors transverse the site.



Topographically diverse, the sightlines around Manayunk, PA, reveal different building typologies on all levels. However, the dynamic history and development of Manayunk has rendered the views fragmented.

The Viewportals situated on the site become theaters from which the surrounding site is observed. Accessible by all forms of transportation, the Viewportals encourage a communal experience to learn about the past and look towards the future of development.



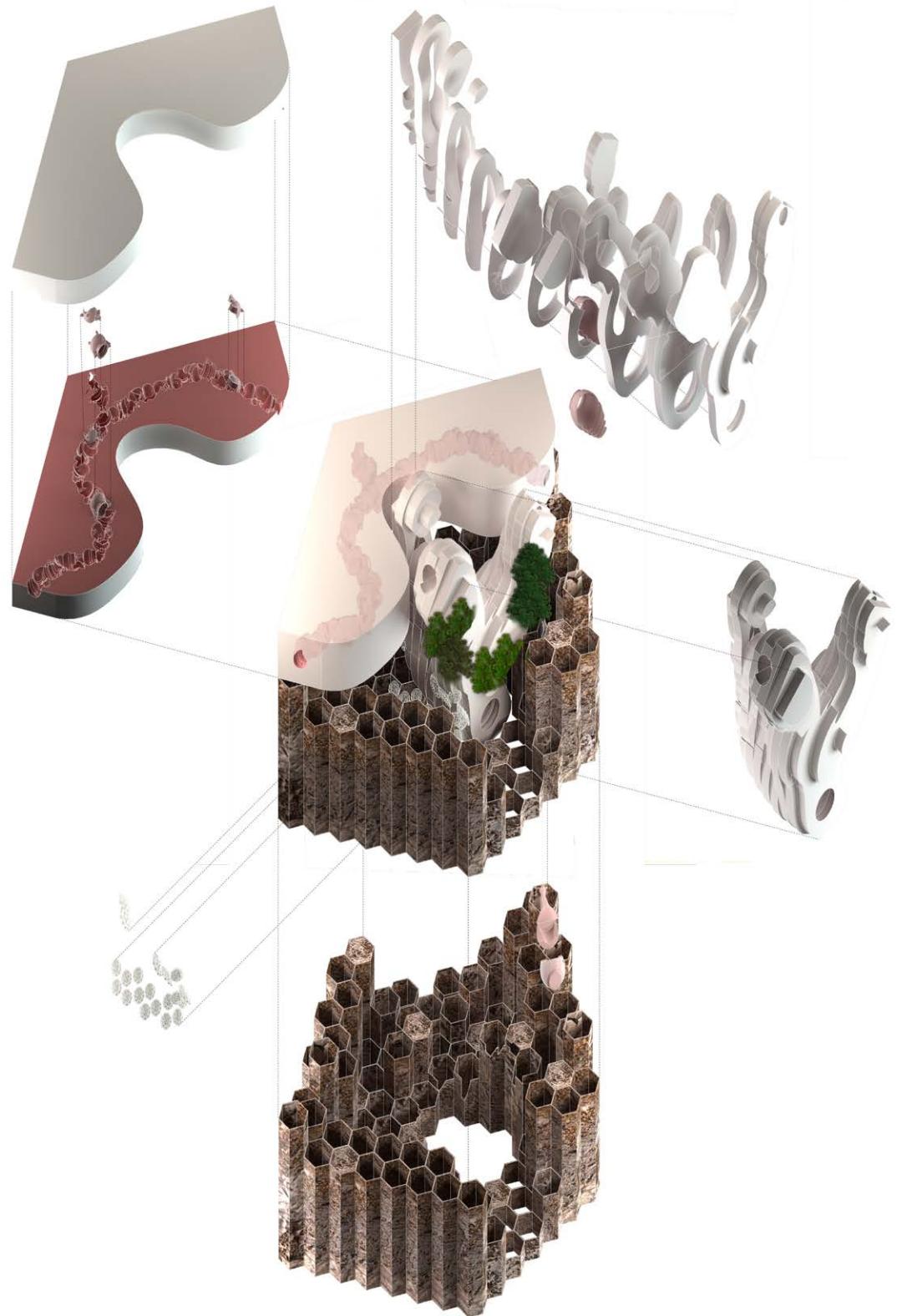
ECO-ORGANISM

Fall Studio 2018 Group Installation
Instructor: Brandt Knapp

Team: Kevin He, Ruichen Xu, Maria Fuentes, Katherine Vavilov

Skills: Vacuum Form, CNC, 3D Print

Derived from organisms of different ecologies, Eco-Organism houses artifacts that have been repurposed to serve as new habitats.



10



Space is a perceptive vacancy where things should go. Each vessel was created with the purpose to be filled. From the funeral jars to cooking pots to perfume containers, the vessels' original functions were lost as its identity transitioned from that of a manufactured tool to an artifact.

Comparing the vessel from its conception to present day, the geometric form of the vessel is the only continuity. In line with its original function, the vessel's form is repurposed for habitation by a new organism. From the vessels, the location and time period provide a setting in which new ecologies can be created. Based on the organism, the geometry and fabrication process for each piece of the cairotile is sculpted by the form or organizational characteristic of the organism.

Through various studies into the curvature and surface of each vessel, boolean operations were performed to fuse solids and voids. The curves and surfaces were used to create new habitats for the indigenous organisms. The resulting collaged cairo tile model is a fusion of different ecologies that are cross-pollinated and connected by fabrication and form.

The resulting installation was showcased in the Penn Museum as part of an ongoing exhibit on form studies of the original artifacts. Open to the touch for visitors, the Eco-Organism brings a collage of new habitats into the traditional museum environment.

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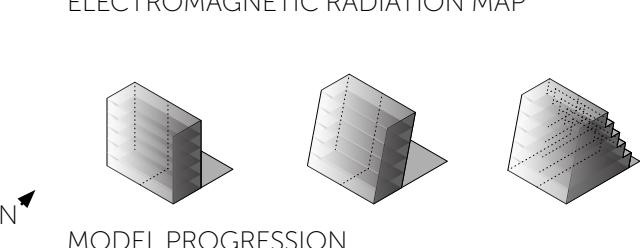
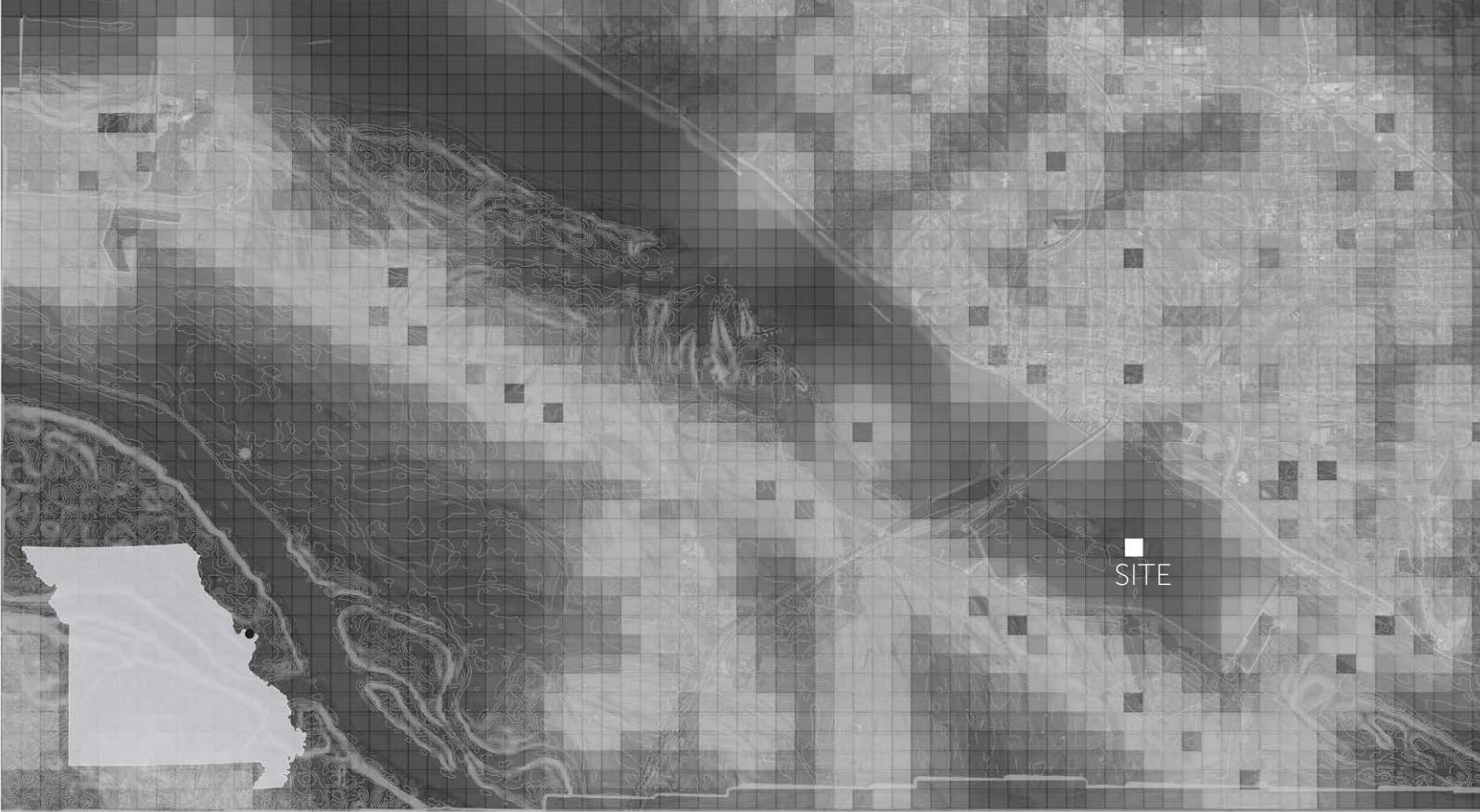
THERMAL DATA SPA

Spring Studio 2017

Instructor: Chandler Ahrens

Skills: Rhino/Grasshopper, ArcMap, DIVA

The data center is a recent form of infrastructure that is essential to the modern utility network but often hidden from the public sphere. This project attempts to utilize the byproduct of data centers, heat, to create a mixed use spa/ data center facility for the public.

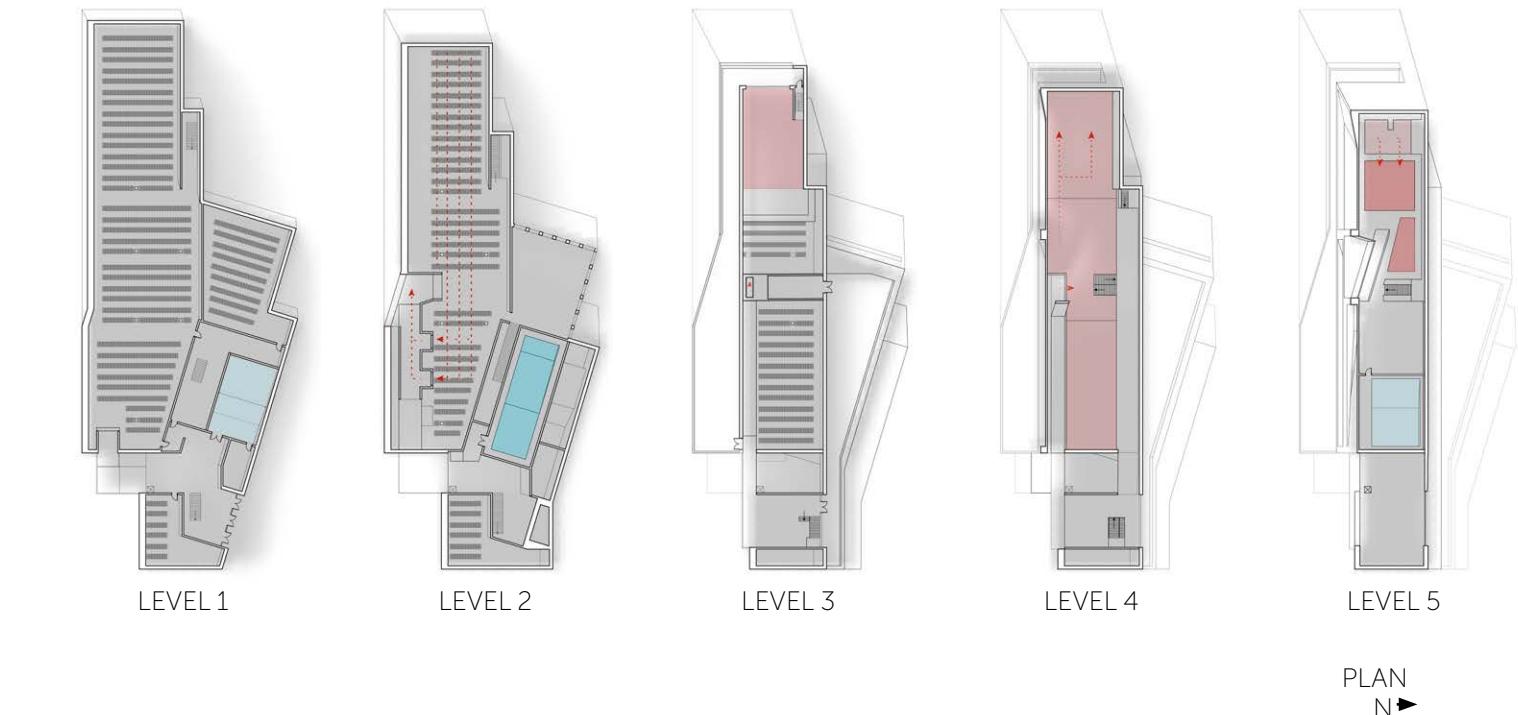


14

West Alton, MO, is a low occupancy area with more infrastructure than population. The main footprint created by the area's infrastructure (cell towers, power plants, and power lines) in the form of the electromagnetic radiation was plotted in context with the project location. Data centers require immense amounts of electricity necessitating its

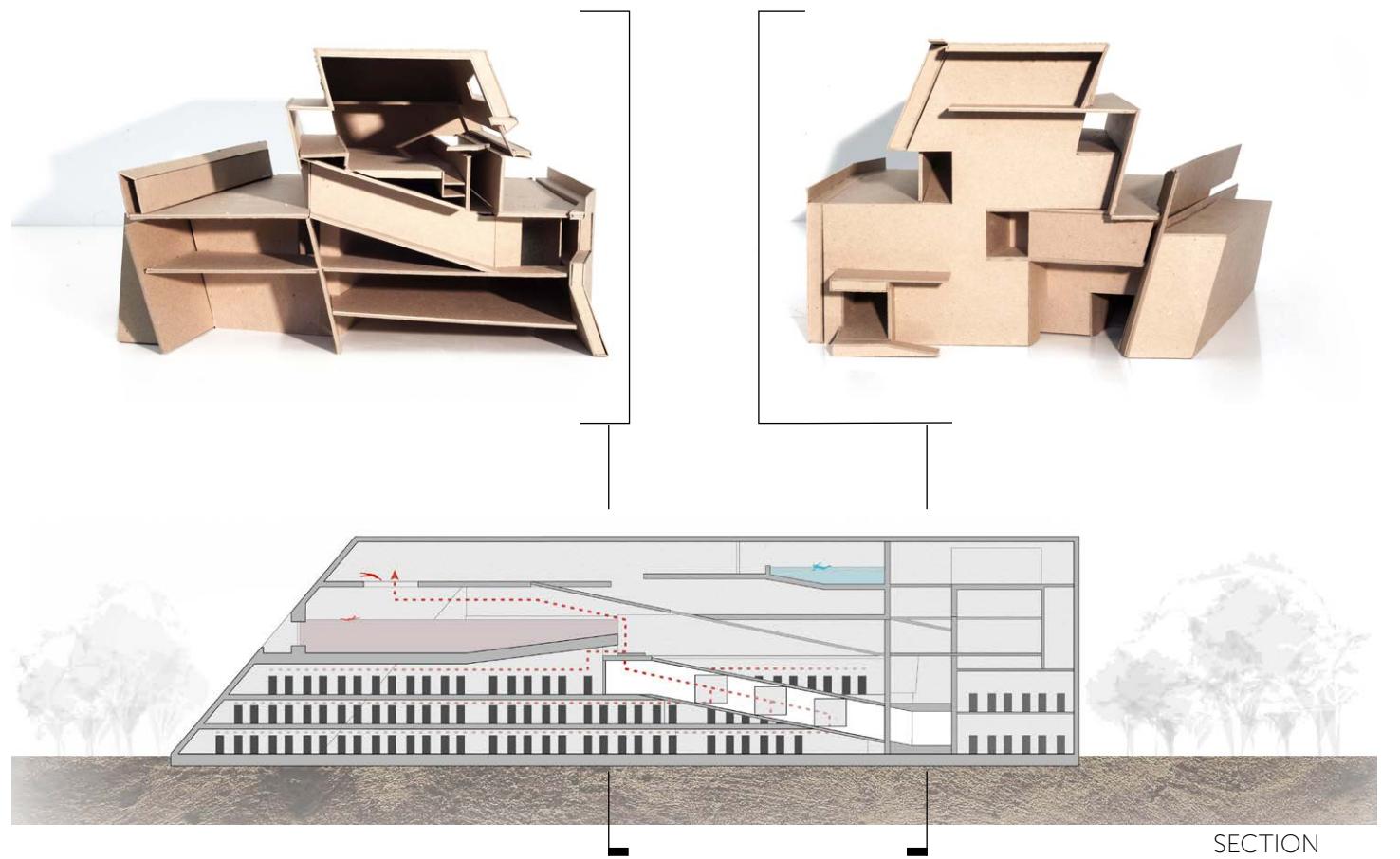
The structure was sloped to lean towards the north direction to maximize solar gain on the southern facade, reducing the amount of heating necessary to maintain warm temperatures for the upper level spas.

AIR FLOW WARM POOL COOL POOL



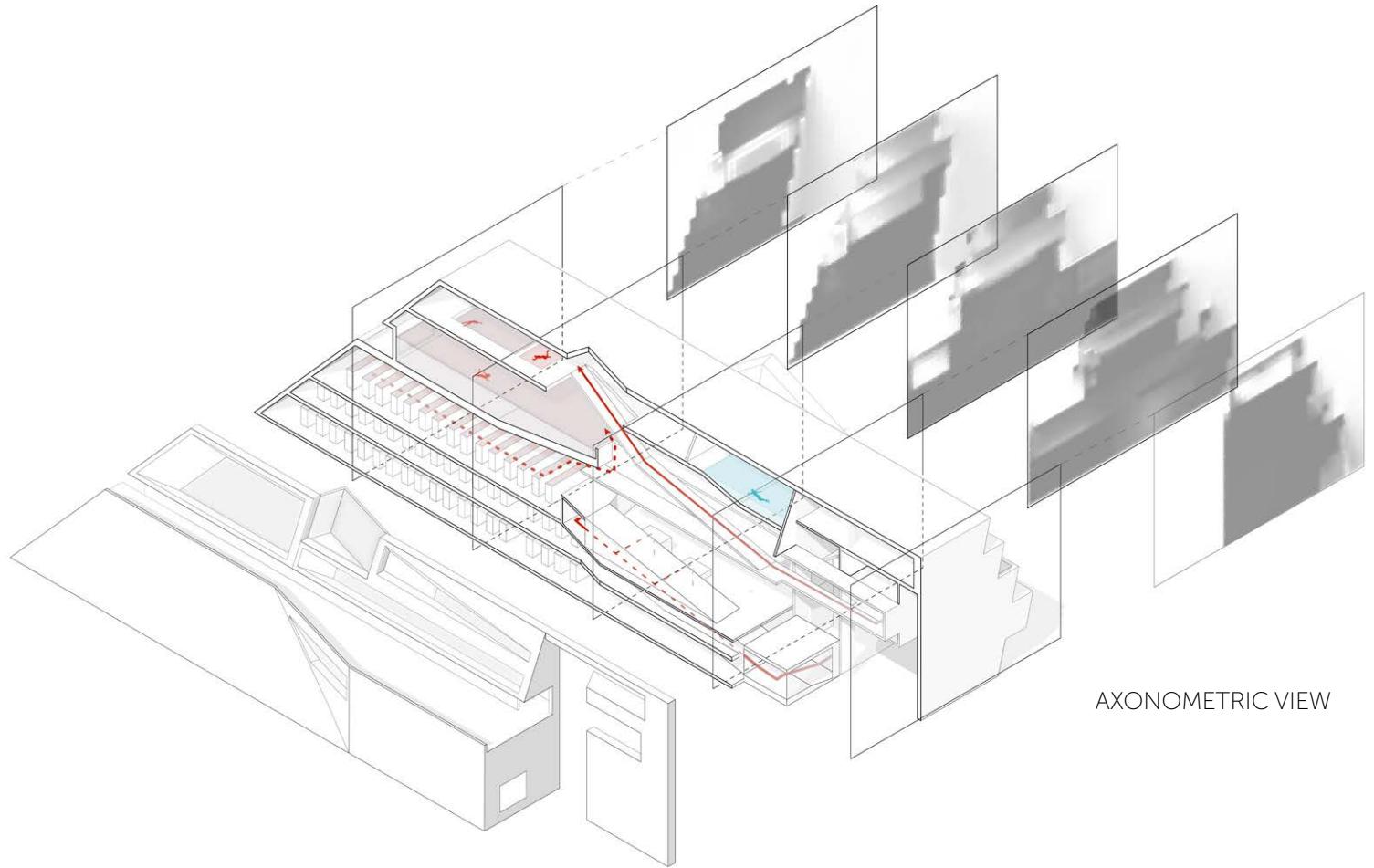
The prototype for the data center/spa utilizes an open floor plan in volumes that would benefit from air exchange. Warmer air rises upwards from the data servers in the lower levels into the warm spa area.

15



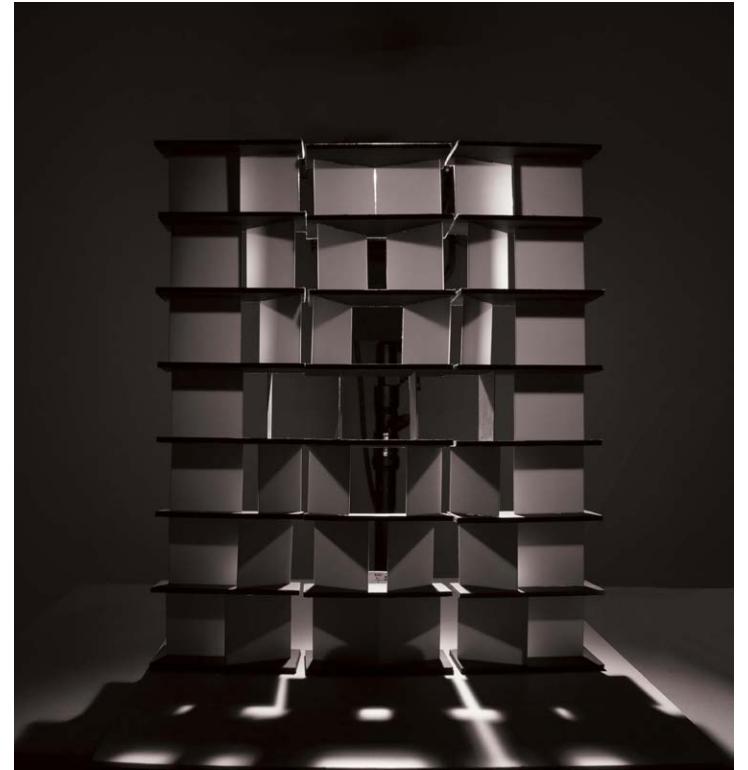
SECTION

The corridors and ramps of the building function as circulatory paths for both humans and air.



DIVA solar radiation simulation shows the heat gain mainly in the upper levels containing hot pools and saunas while the structural mass shields the lower levels containing cool pools and an ice bar.

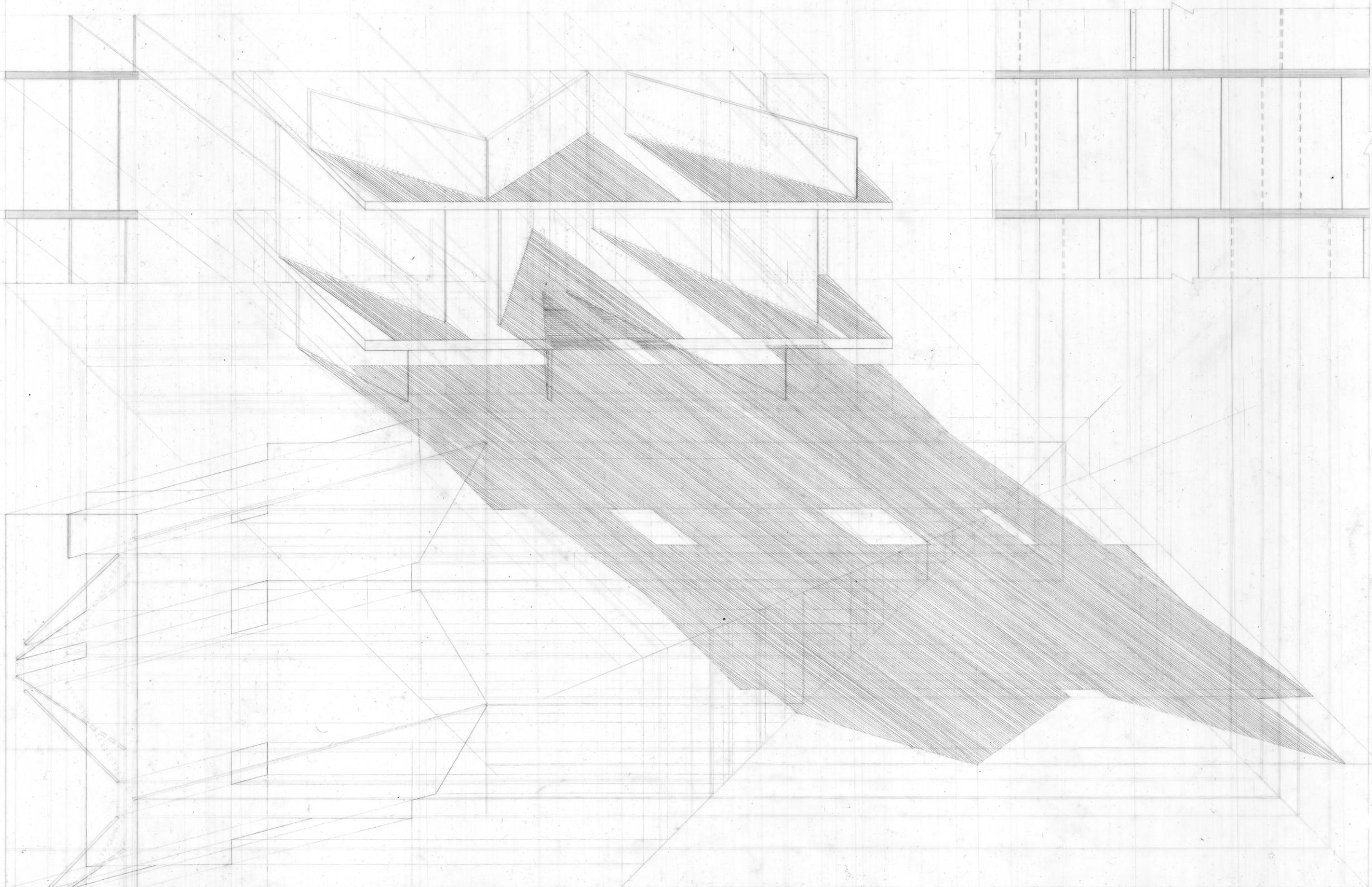
The exterior concrete walls mitigate solar heat gain through the lower levels while large fenestration maximizes heat gain on upper floors.



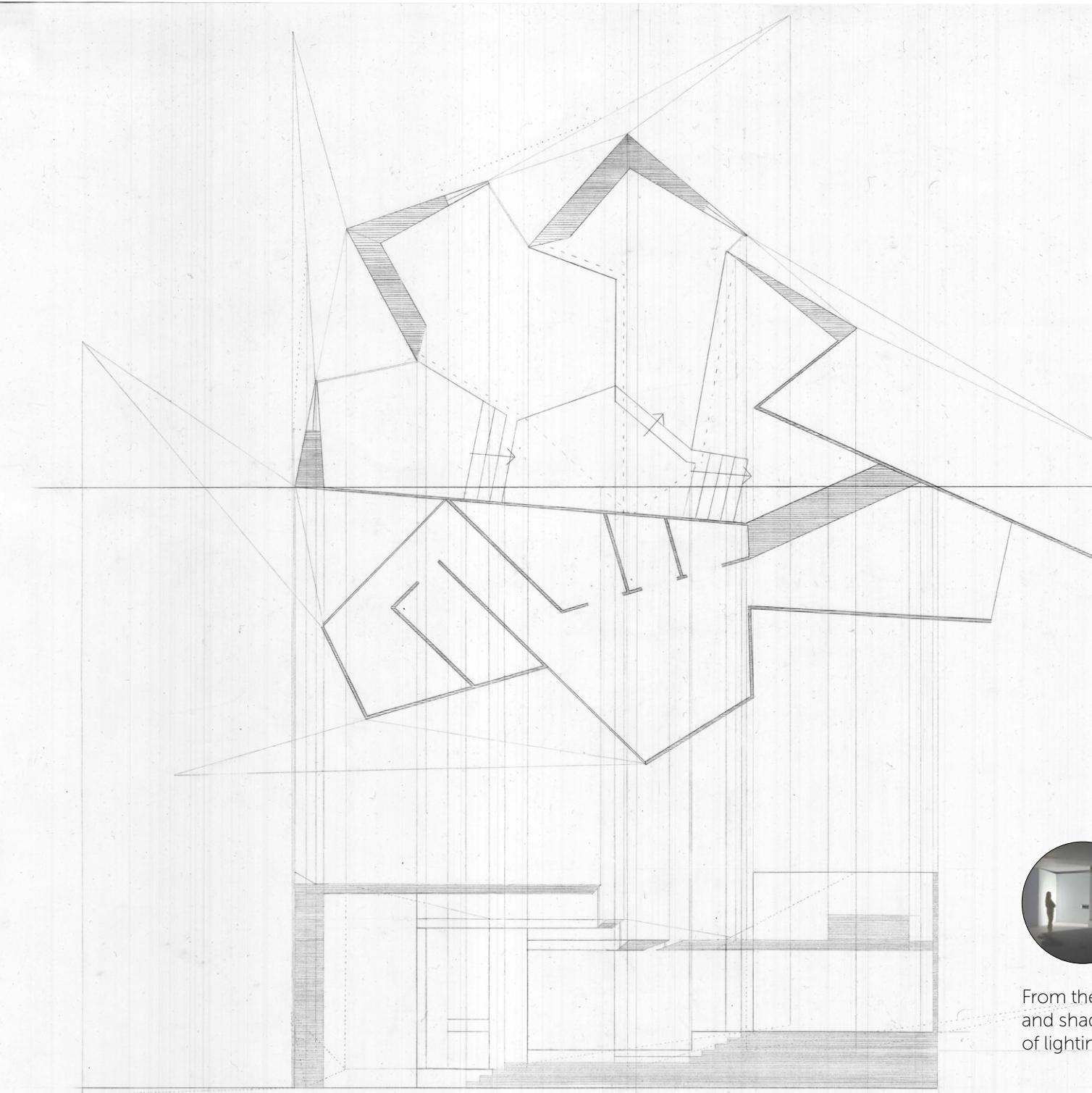
LIGHT CHAPEL DEVICE

Fall Studio 2015
Instructor: Nathaniel Elberfeld
Skills: Hand drawing, Lasercutting

The most striking characteristic of light is the array of intensities it can produce. The light device captures all the diverse effects using a series of panels set to radially shifted angles. The result is a spectrum of ambient to direct light.



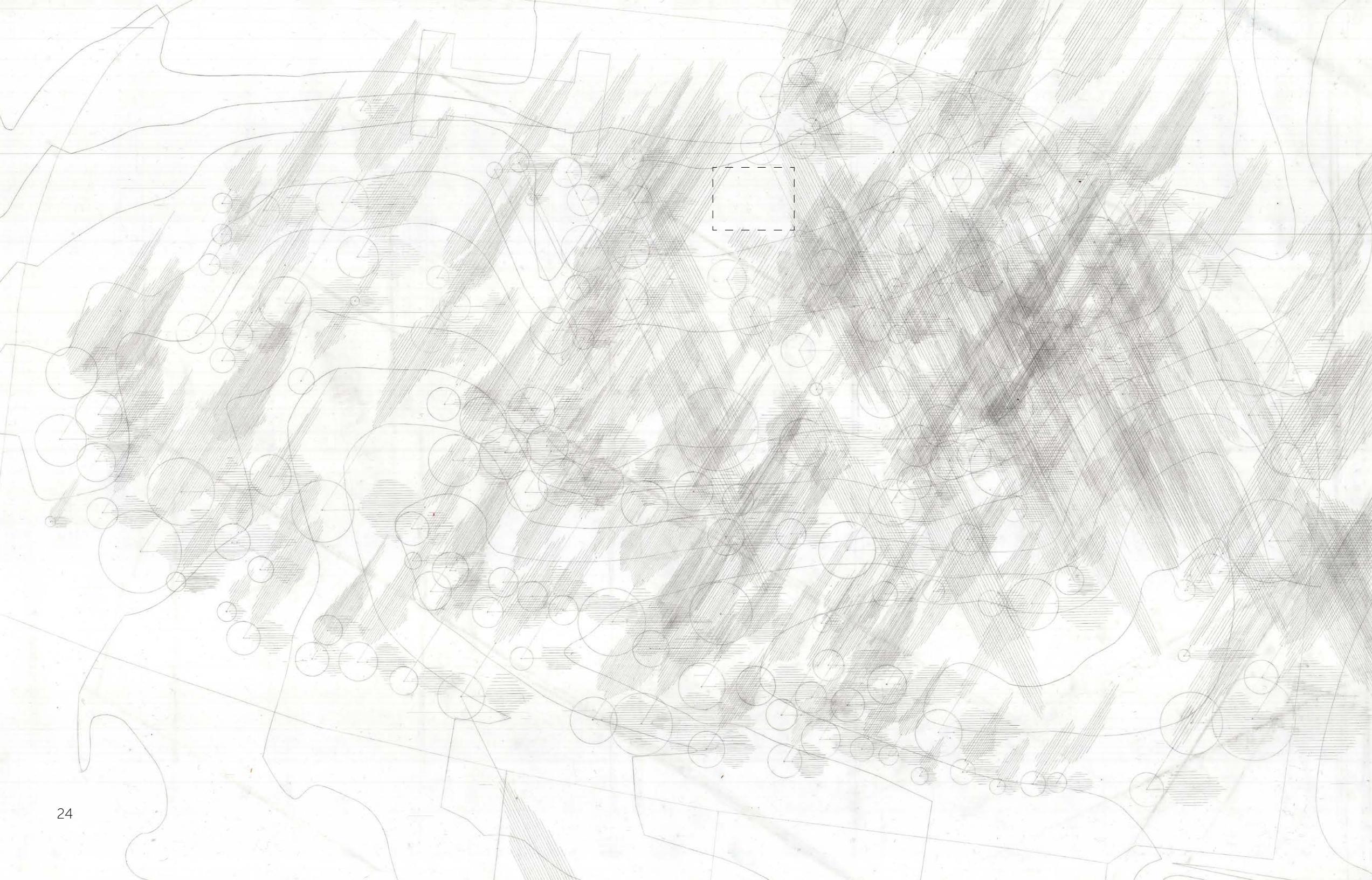
The graphite drawing on mylar illustrates the shadows created by directional light. The specific shadow that is captured highlights that shadows are the main experience of the model, and not the structure.



LIGHT CHAPEL

Fall Studio 2015
Instructor: Nathaniel Elberfeld
Skills: Hand drawing, Lasercutting

From the previous exploration into the properties of light and shadow, an urban chapel was created to utilize an array of lighting conditions to create a spiritual space.

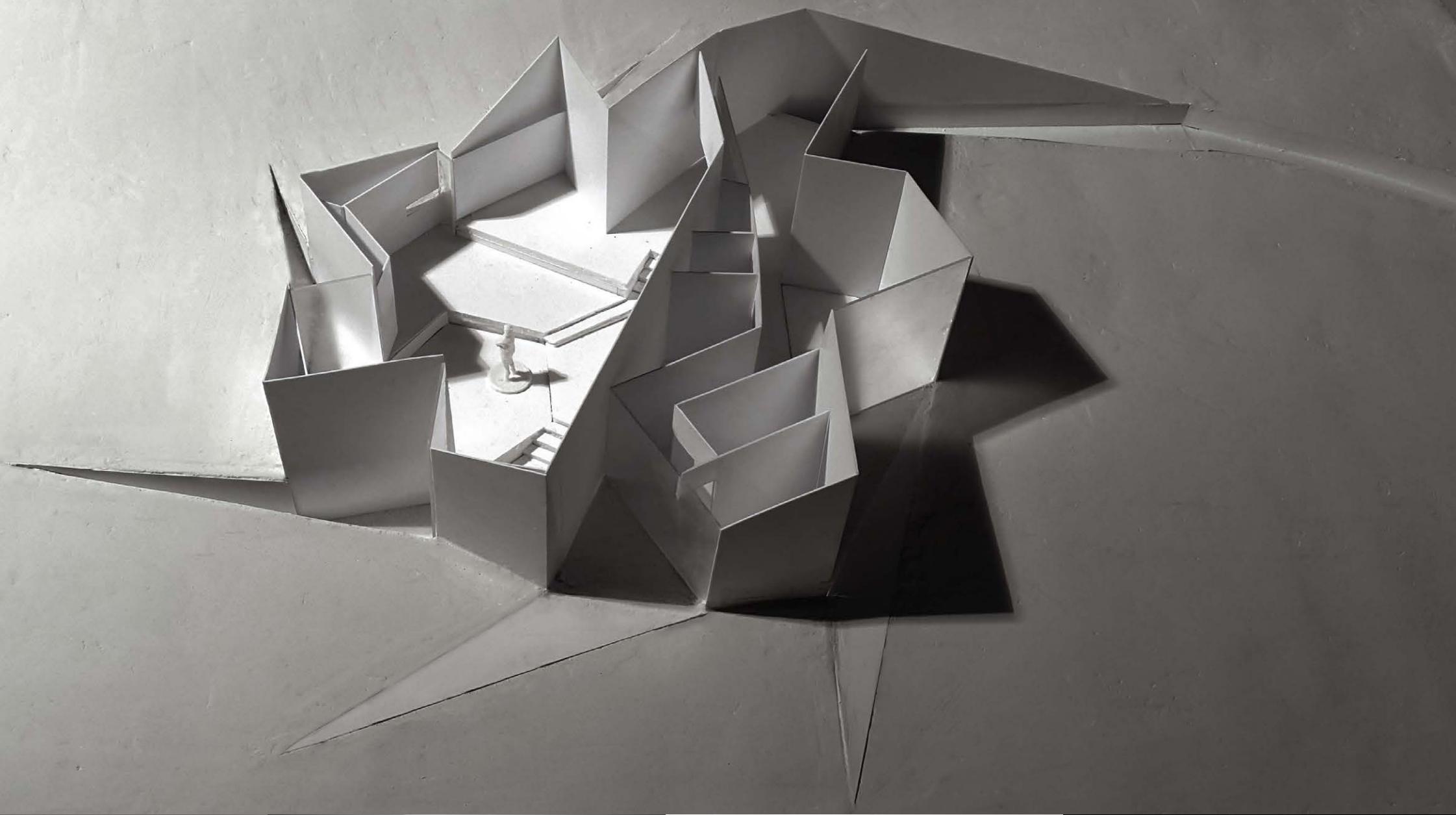


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The site of Concordia Seminary Park possesses a natural landscape and scenery in the urban St. Louis.

The site drawing on mylar uses the topography and solar angles to map tree shadows that reveal areas of light contrast. The chosen site has the greatest contrast in lighting conditions throughout the day.

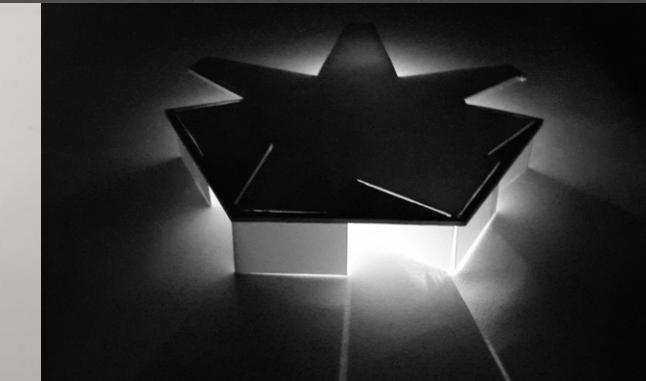
25



The light chapel uses both changing floor elevations and wall angles to provide the most diverse lighting conditions on the site. The main atrium provides a meeting space along the steps for the passersby or long-term visitor.

Within the interior environment, the lighting conditions dictate the private and public space. Dynamic lighting filled lively spaces while softer light bathed areas of refuge.

A series of prototype models using an array of angled walls reveal a variety of light conditions during the night and day.

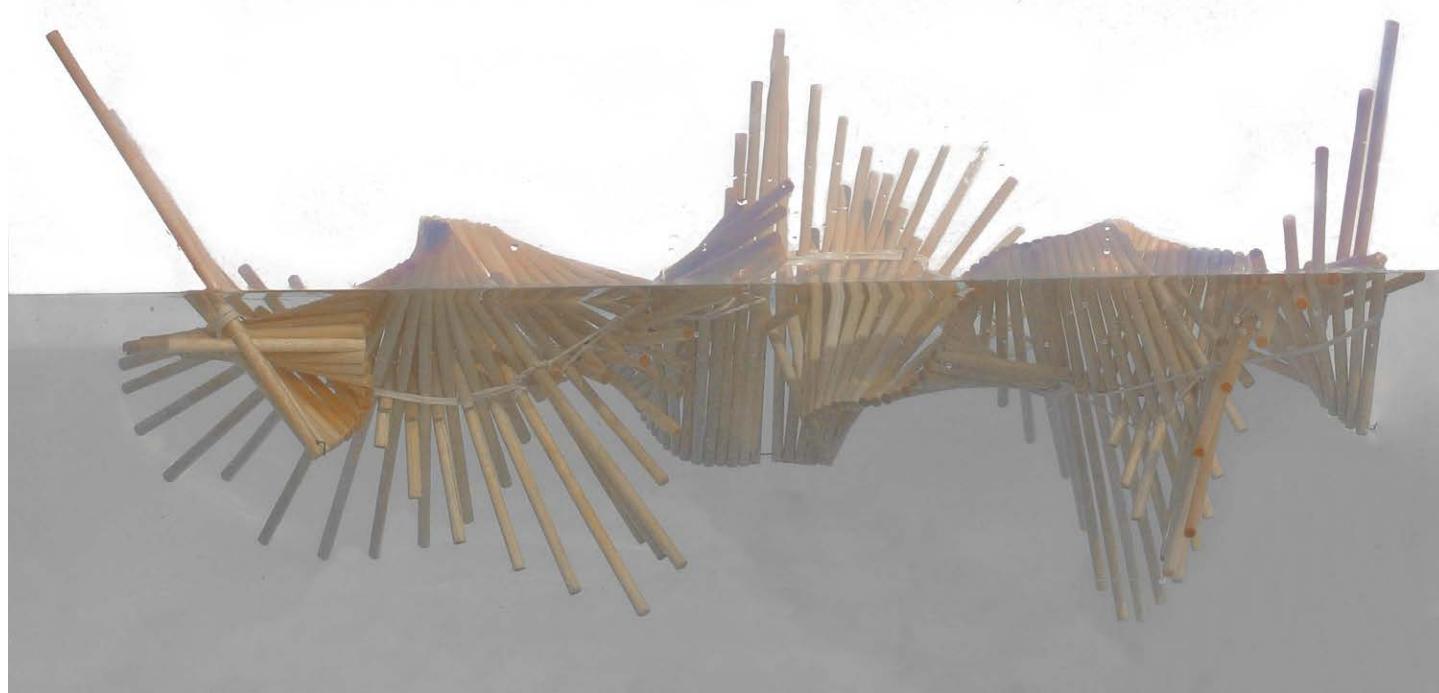




FLOOD CENTER: DEVICE

Fall Studio 2016
Instructor: Jason Ward
Skills: Rhino/Grasshopper, Illustrator

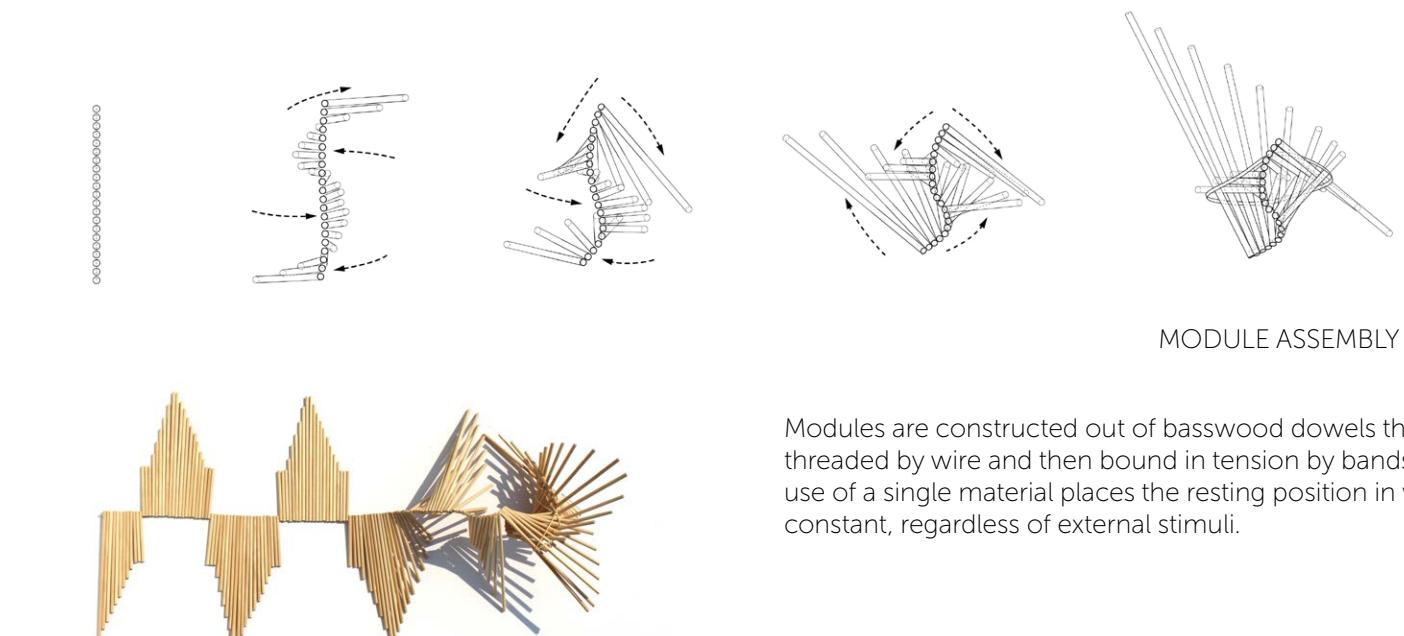
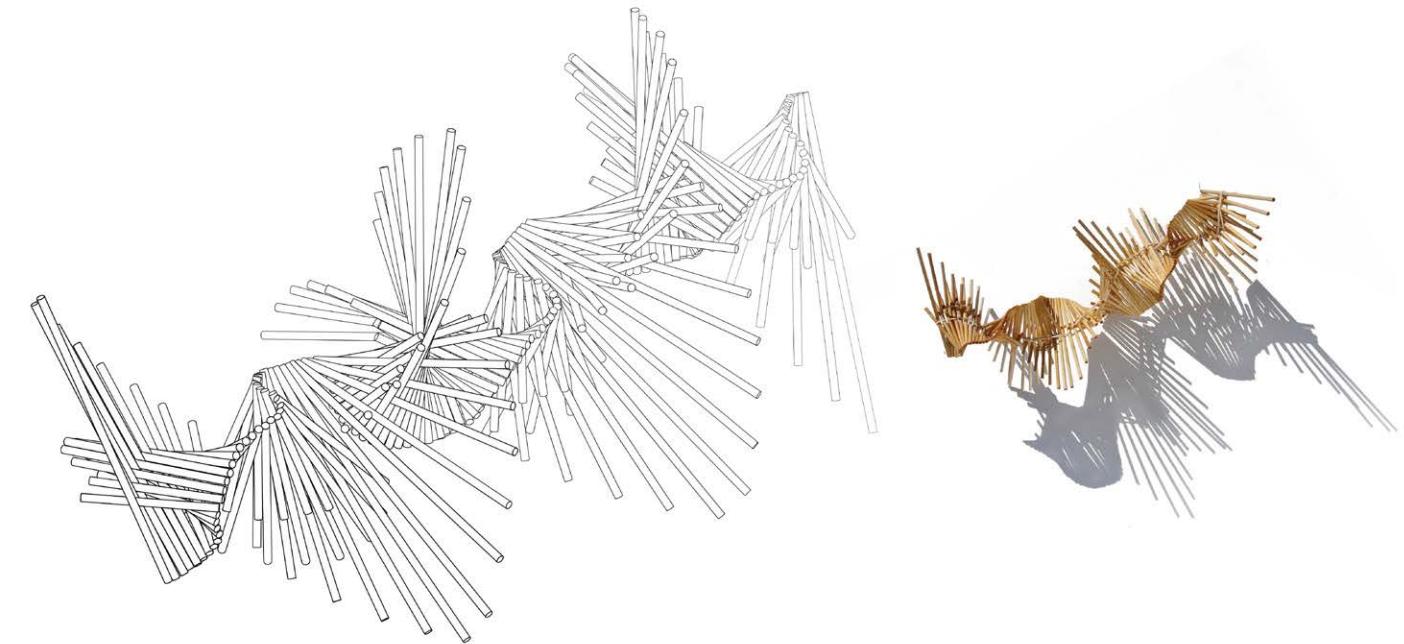
Hydrological infrastructure manifests in many forms to engage with water.. Wood serves as a buoyant material that allows for the form of a model to dictate specific movements while floating in water.



FLOATING POSITION



30



MODULE ASSEMBLY

Modules are constructed out of basswood dowels that are threaded by wire and then bound in tension by bands. The use of a single material places the resting position in water constant, regardless of external stimuli.

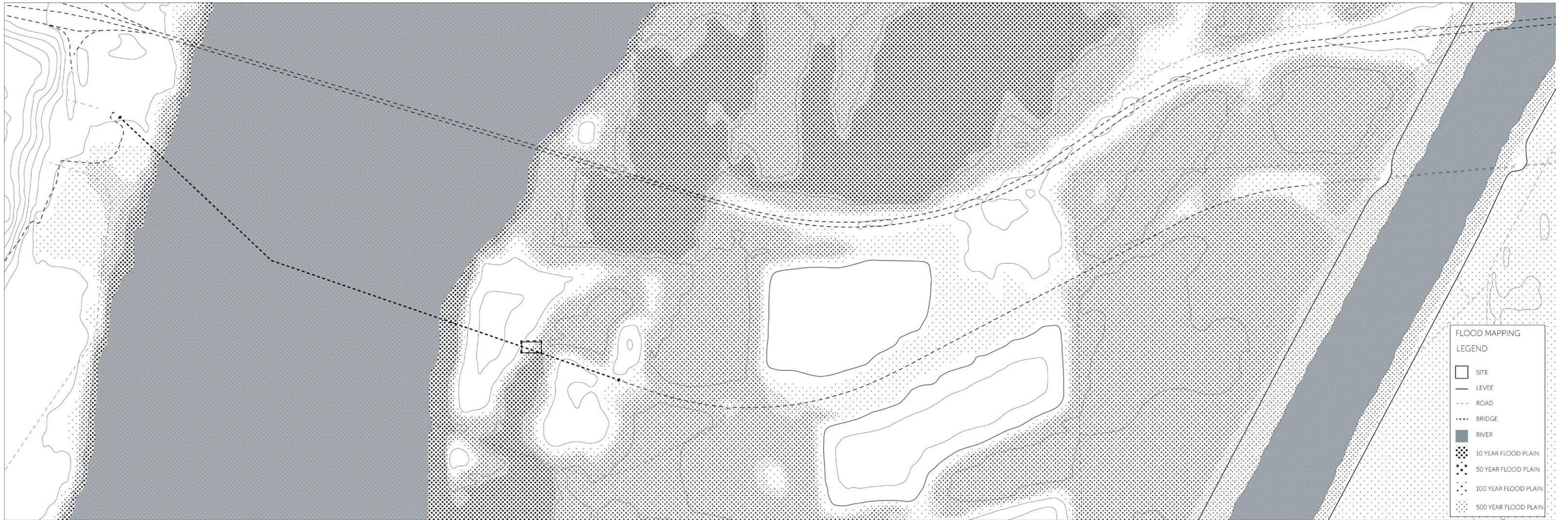
31



FLOOD CENTER

Fall Studio 2016
Instructor: Jason Ward
Skills: Rhino/Grasshopper, ArcMap GIS

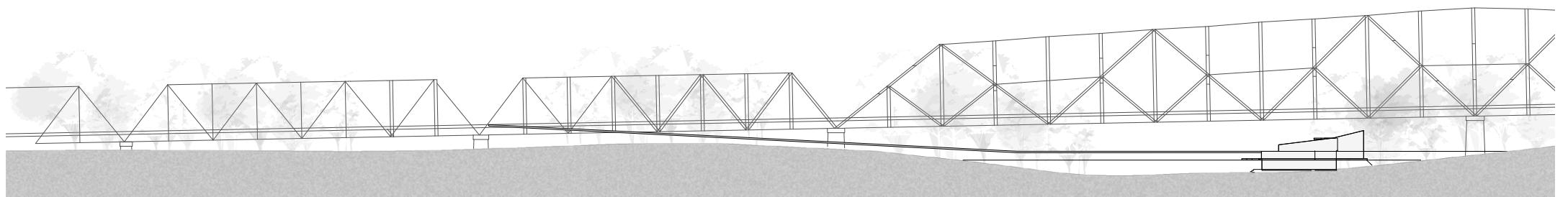
Flooding is most powerfully experienced at the level of the flood plain. Branching off from the Chain of Rocks Bridge, the flooding research lab occupies the 500 and 100 year old flood plains.

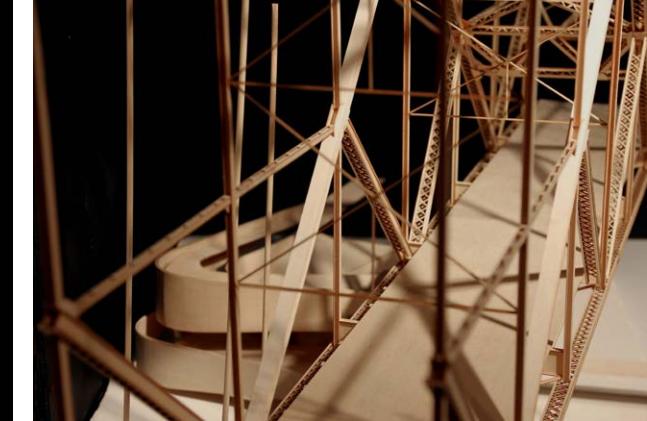
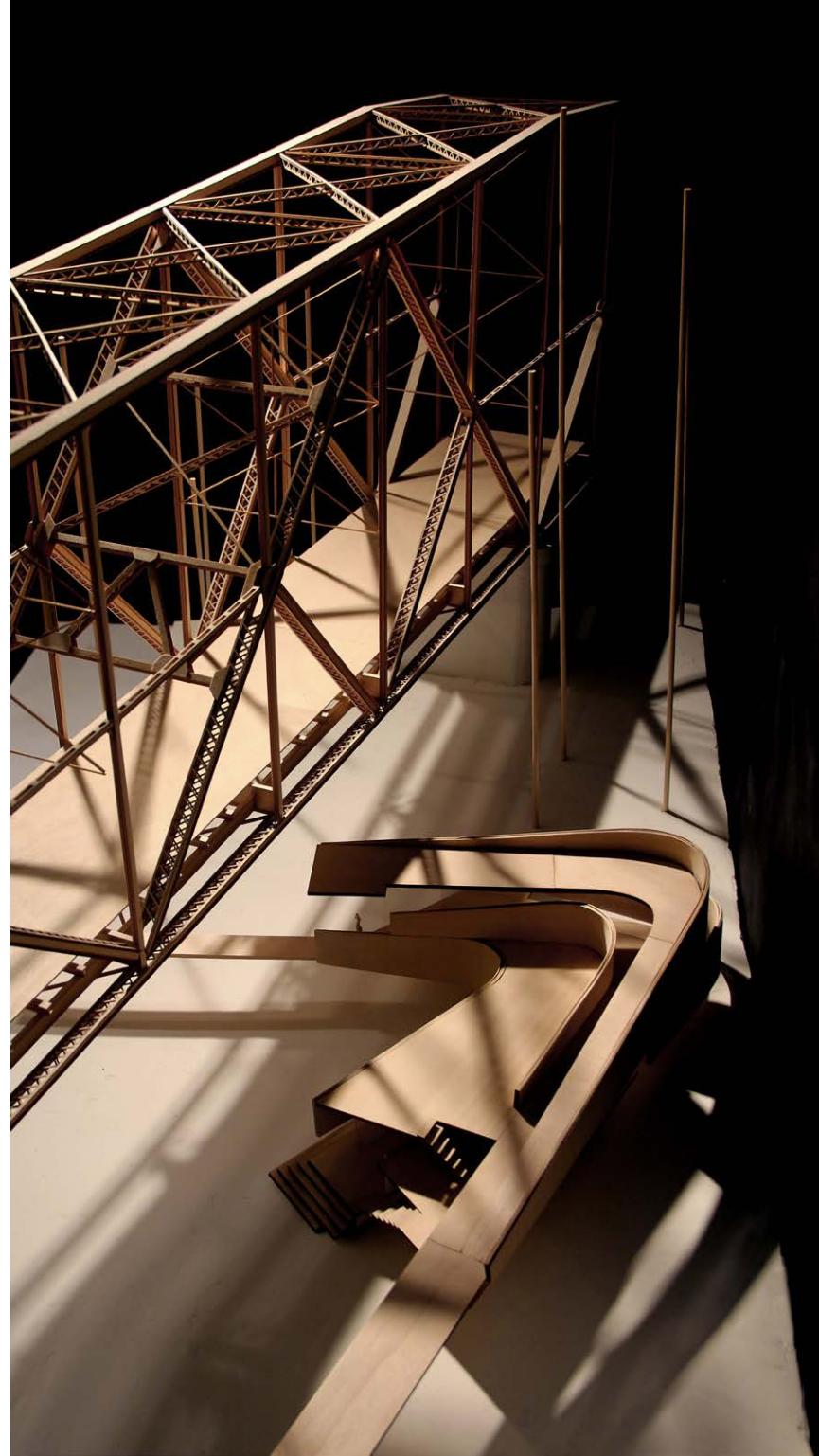


Located north of St. Louis, the Historic Chain of Rocks Bridge spans across the Mississippi River to bridge Missouri and Illinois. Underneath the bridge exist flood plains that flood every 10 year to 500 years.

Using a dot density map and string to track different flooding elevations, a site was chosen at the steepest change in topography near the bridge. At this location, flooding is most frequent and varied.

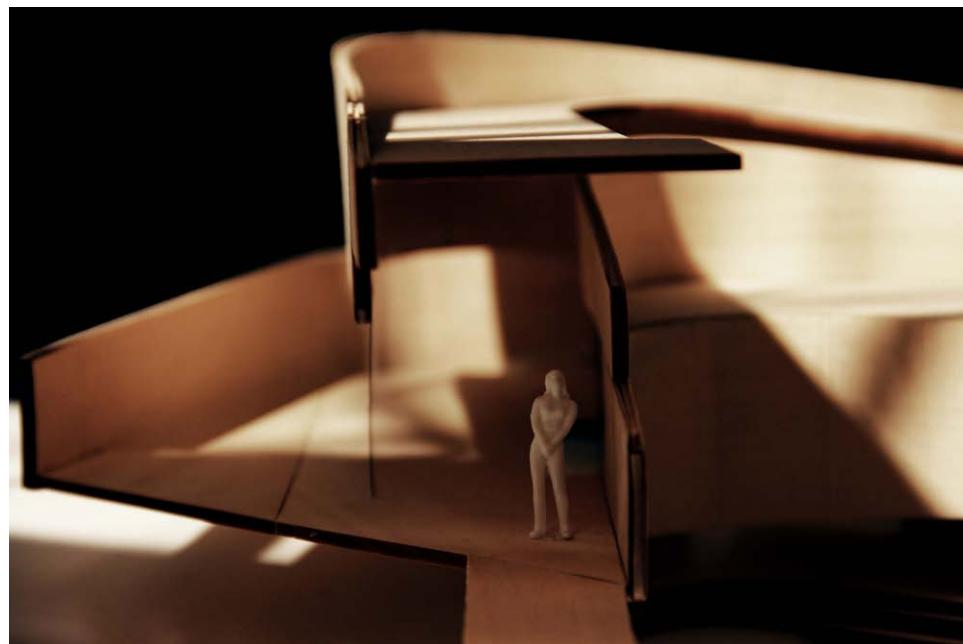
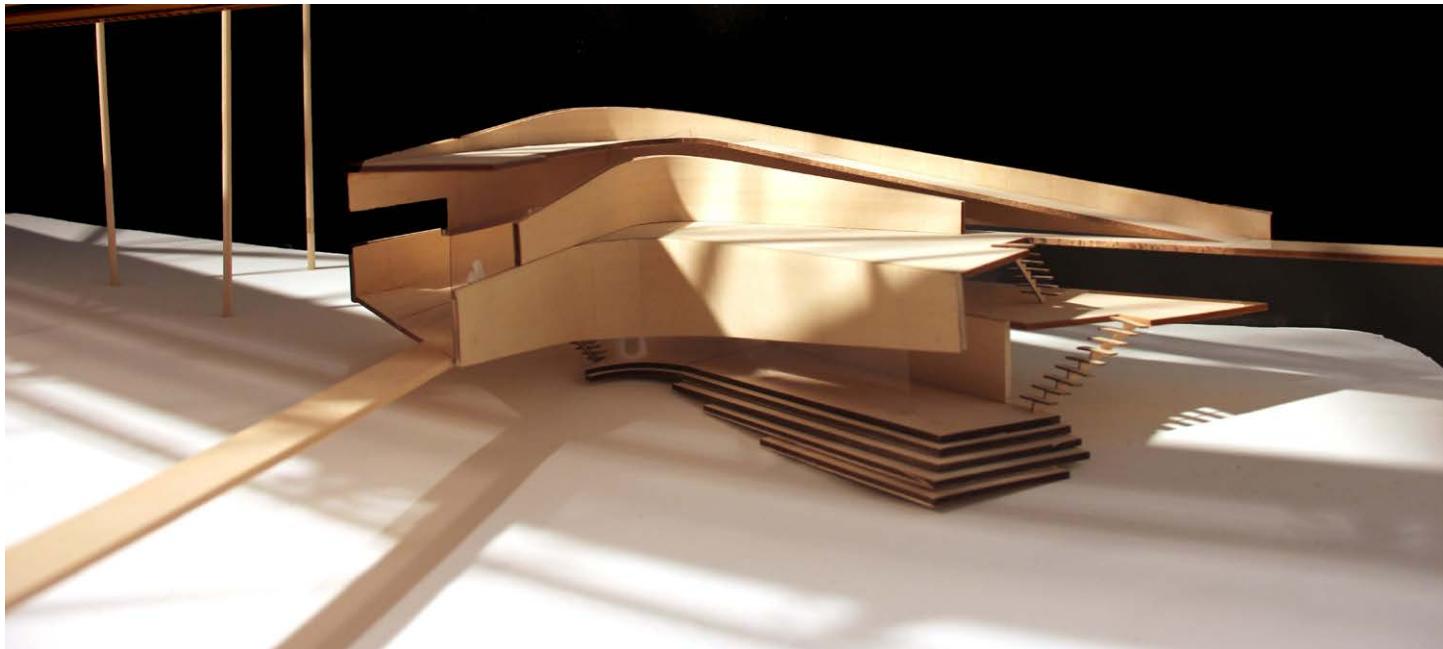
To access the site at the level of the 100 year and 500 year flood plain, a ramp spanning from the bridge was constructed.



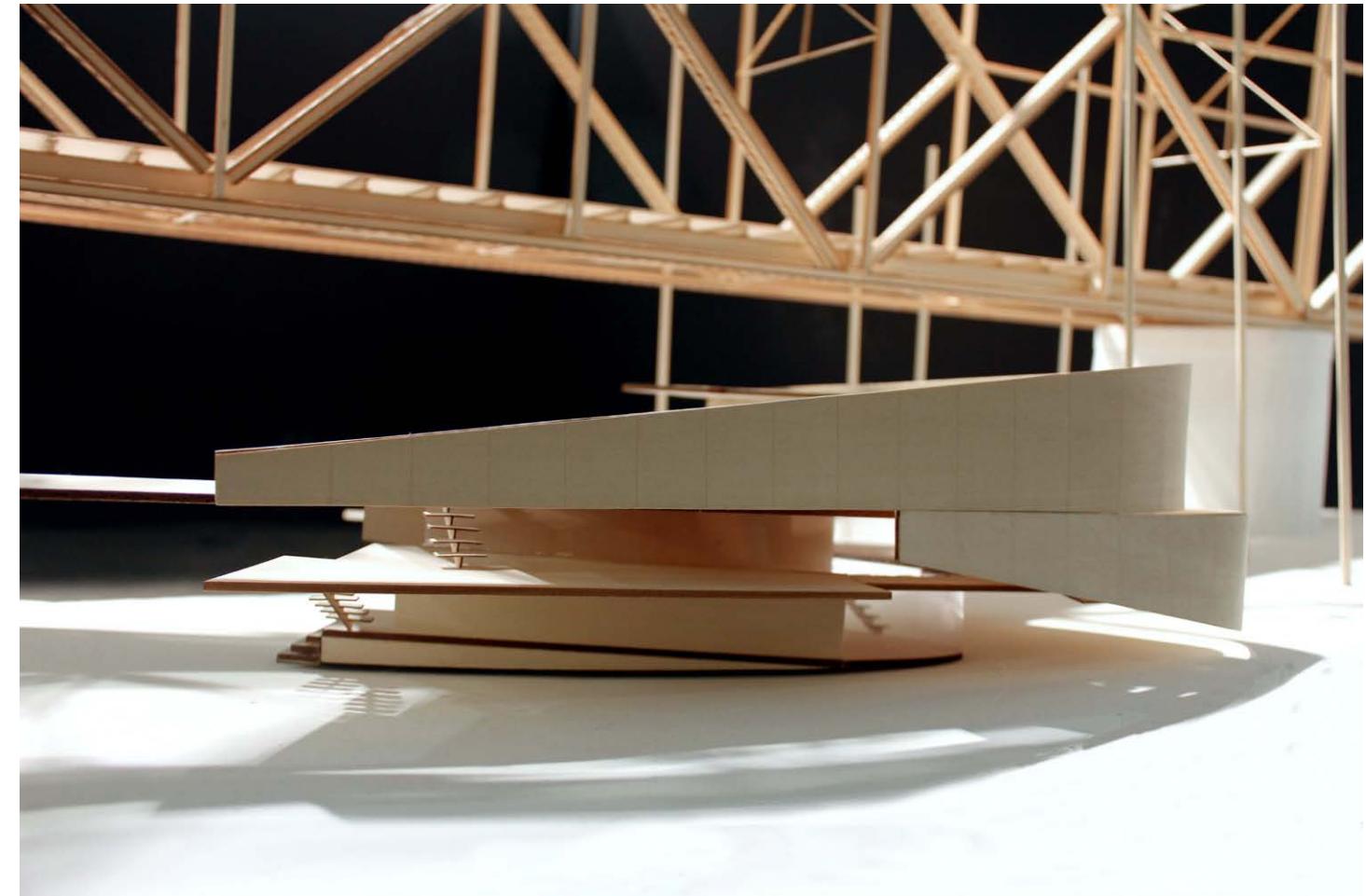


1:4 MODEL



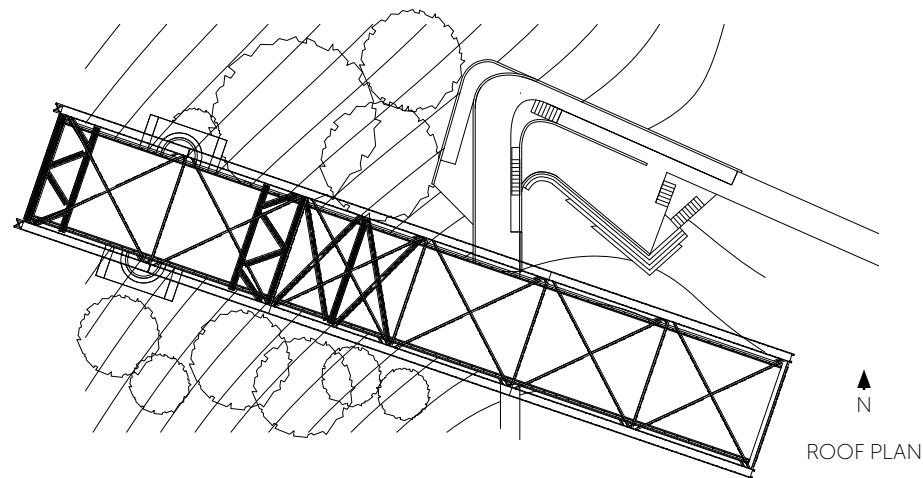


SOUTH ELEVATION

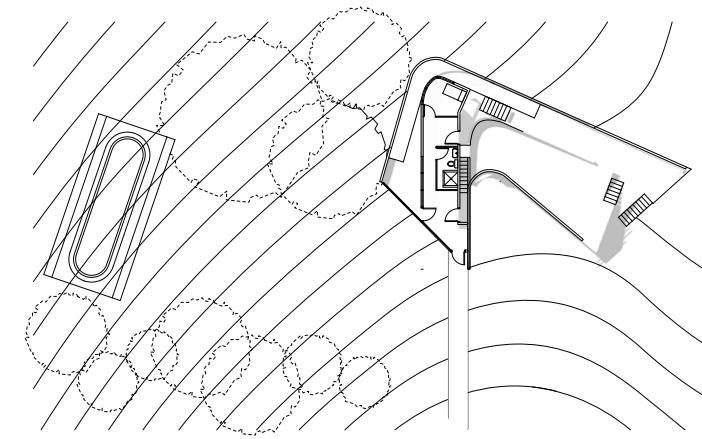


NORTH ELEVATION

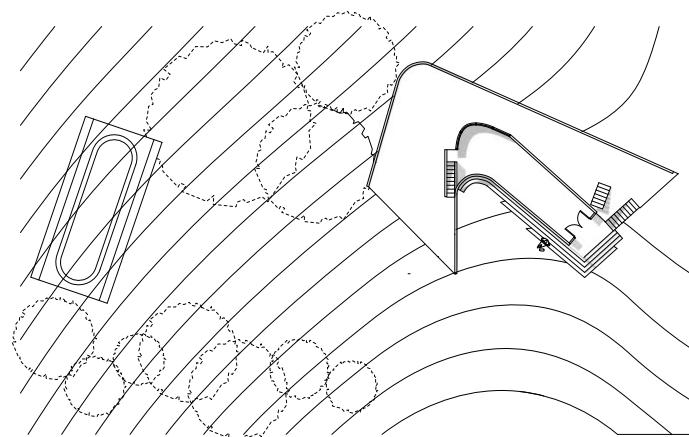
The sloping concrete walls frame the observers' views below the horizon, focusing on the 100 year and 500 year flood plain elevation. The bridge also functions as a framing tool from the top-level observation deck while also providing solar shade.



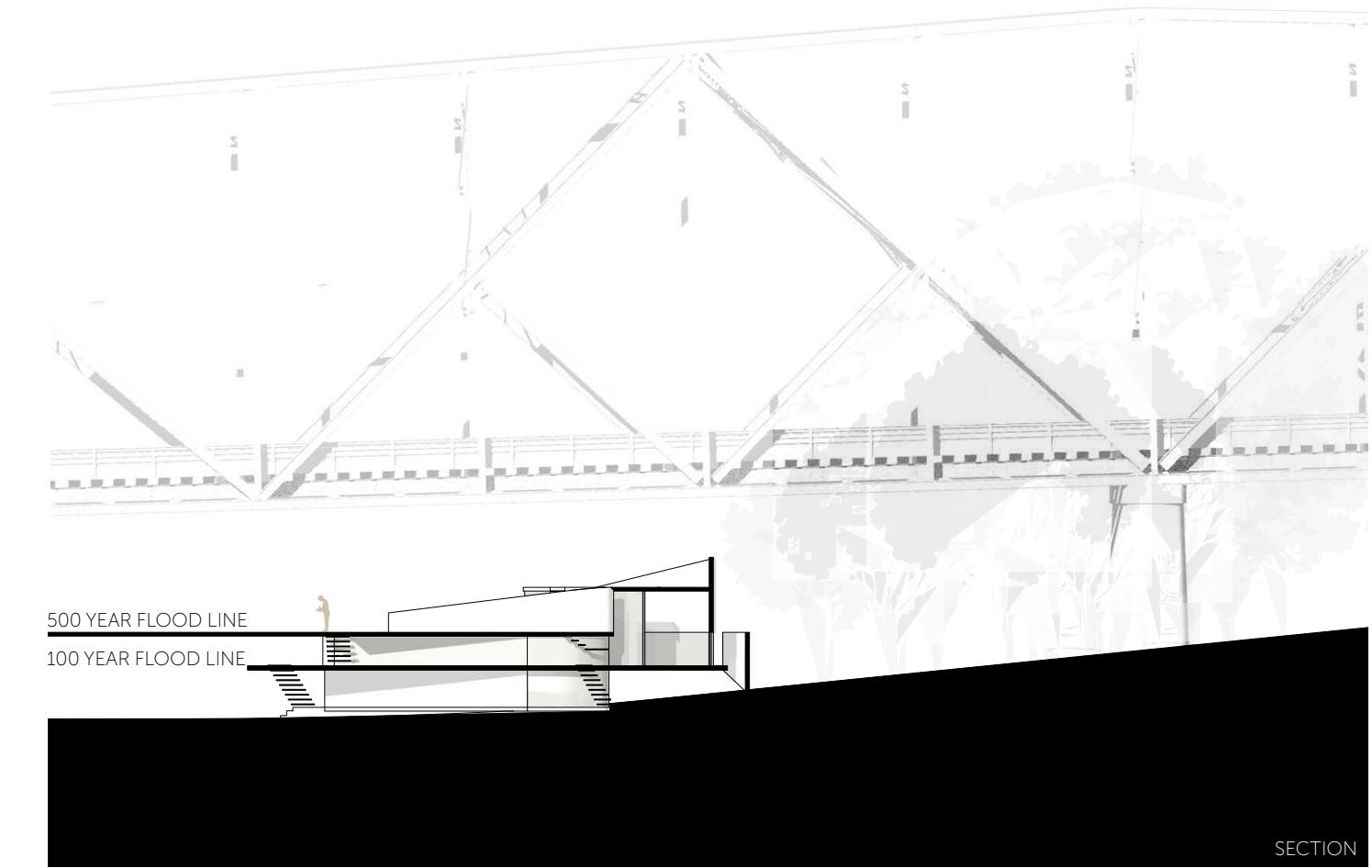
ROOF PLAN



500 YEAR FLOOD LEVEL PLAN



100 YEAR FLOOD LEVEL PLAN



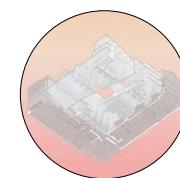
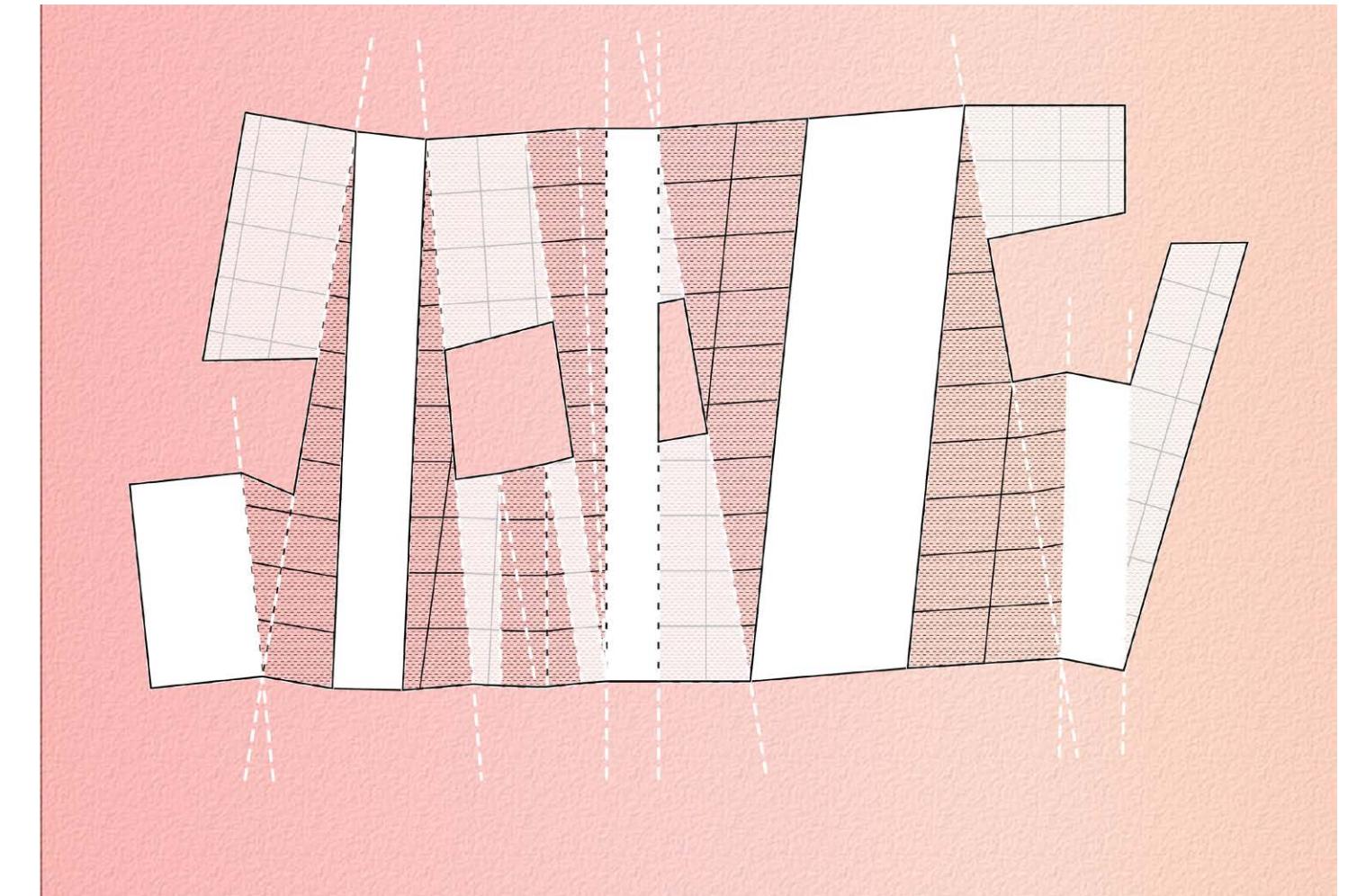
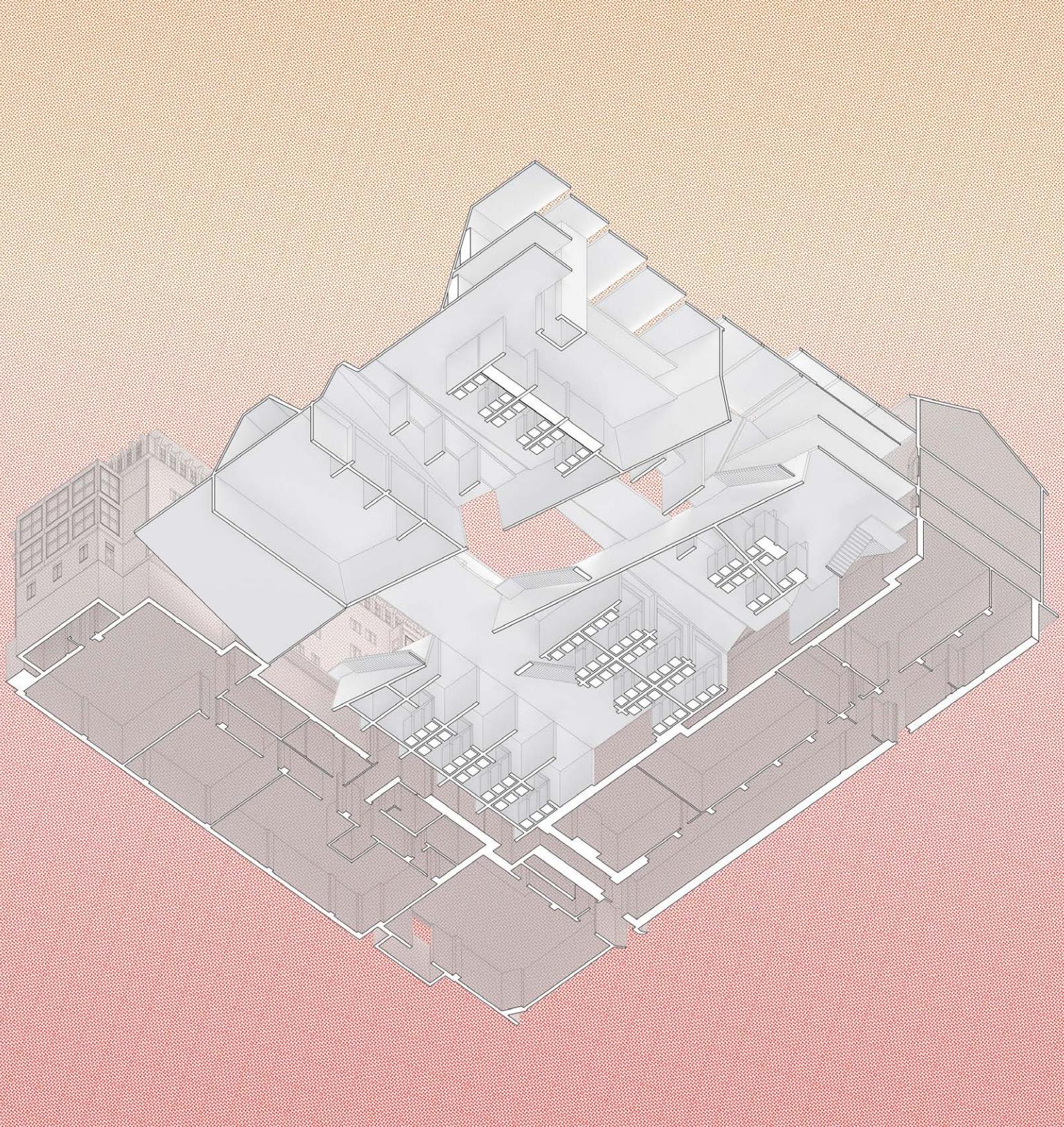
SECTION

At the base of the center is an outdoor pavilion space where the public can congregate on steps to encounter the flood plains.

From the dwelling, a walkway extends to the south along the 100 year flood plain elevation to provide researchers with an uninterrupted experience of the site.



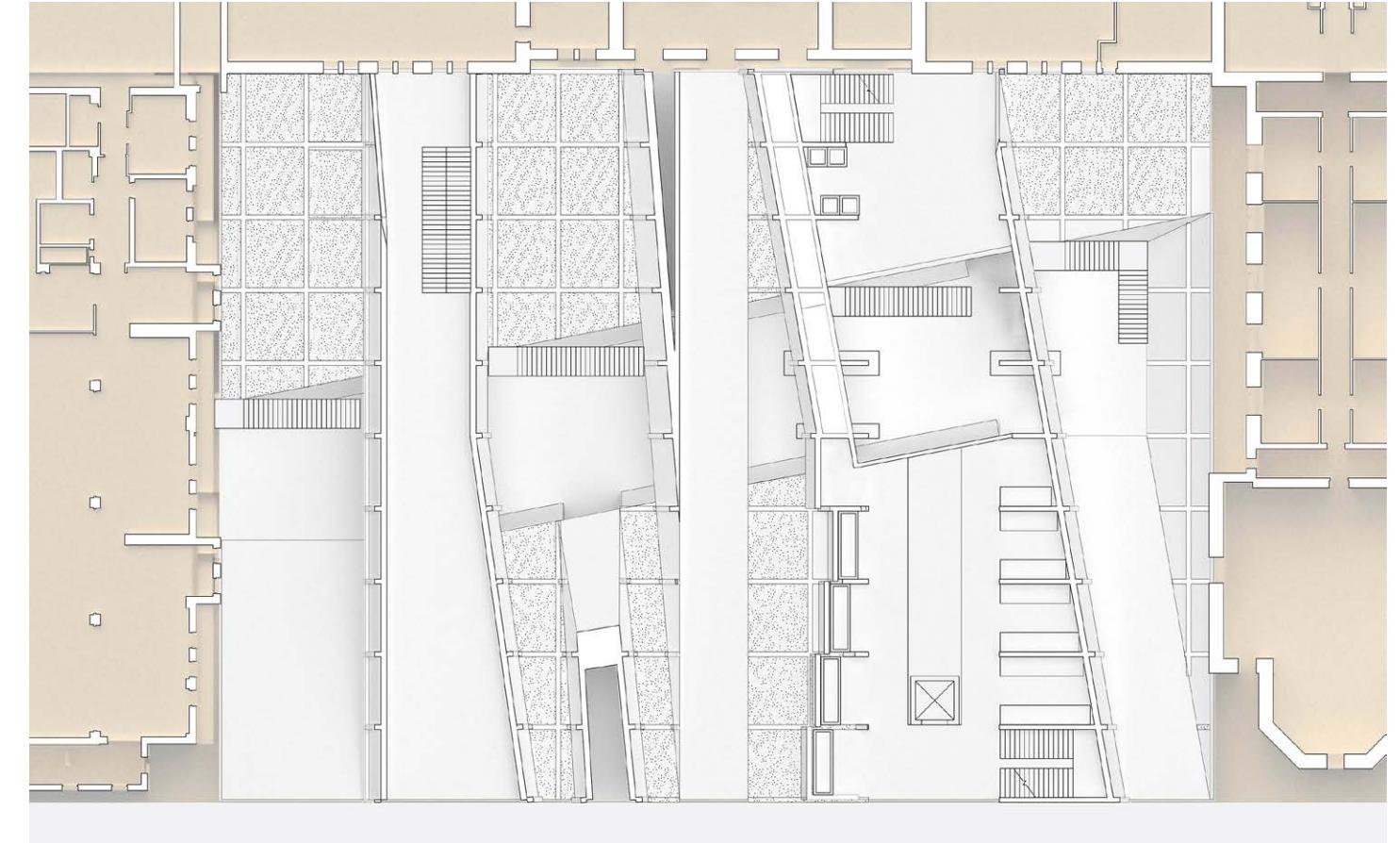
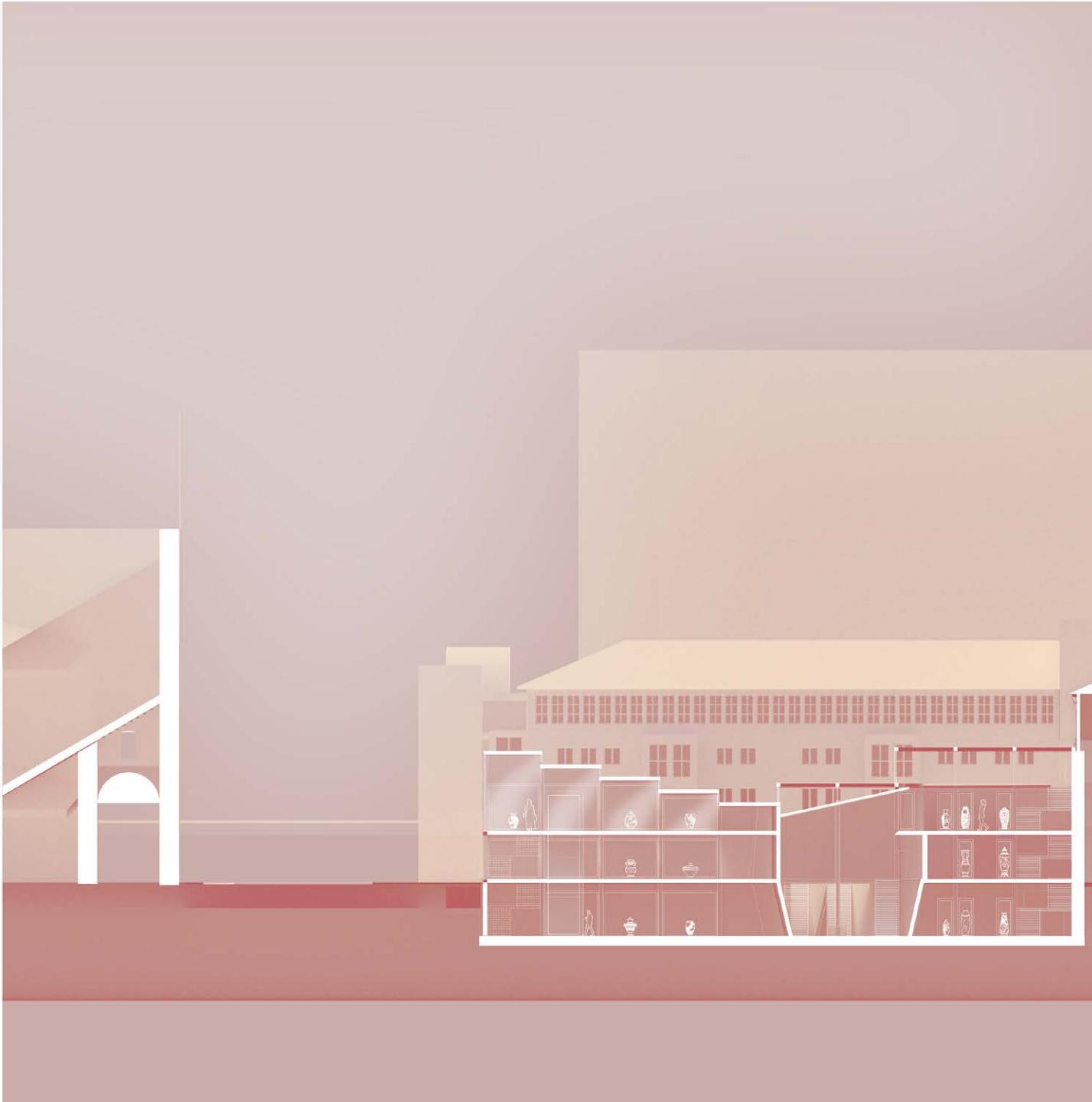
STUDY



UN-EARTHED ARCHIVE

Spring Studio 2017
Instructor: Brandt Knapp
Skills: Rhino, Vray

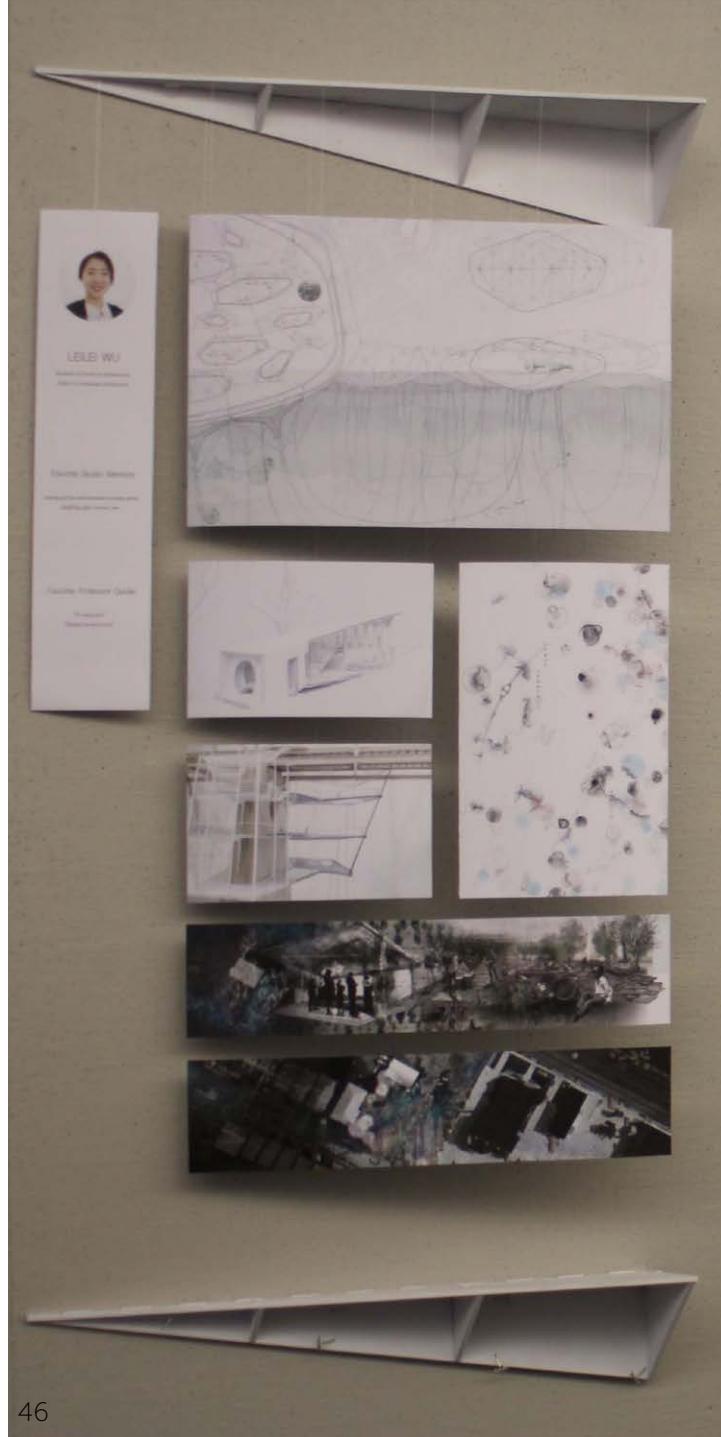
In an age where artifacts are moved continents away from their origin and placed in a glass display, returning to the earth plane is the most appropriate. Folding out of the ground, Un-Earthed Archive brings artifacts and visitors into a common plane.



In the field of archeology, it is often the artifact that can transcend time to tell a story of culture and history. However, there are actually two separate types of human interventions that are uncovered during an archeological excavation: artifacts and features. Features are the unremovable objects from a site, namely interventions with the ground. By only retaining the artifacts, we are in fact losing much of the context from which artifacts are excavated from.

Stemming from the ground, embedded structure rises and dips to create accessible paths and gallery space. Artifacts are placed throughout a structural grid, layered underground, harkening to their original resting place. The cuts through the ground are angled akin to those found in excavation sites; not as dig interventions, but as features. The new ground is not an imitation of an excavation, it is a return to relationship of artifacts and features. With the era of rapid development, we forget earth used to be not only the plane for foundation to sink into, but also the form and structure for the earliest human interventions. The final result is a "new earth" that is similar but not exactly like the real earth: an "un-earth".

Ground is the vernacular across the world. In every setting, ground is the common language and base from which to work from. While this particular ground does not tell the whole truth and story, it brings an awareness to the story that exists in all grounds, uncovered or hidden.



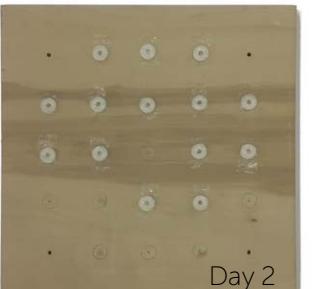
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SUSP(END)

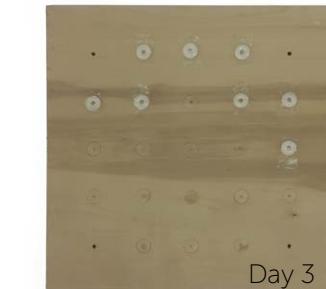
Year End Show Showcase 2017
Role: Co-curator and Designer
Skills: Lasercutting

Fabricated out of plywood and string, the installation honors the work of graduating seniors as they reach the end of their undergraduate education. Their body of work is suspended in form and in time for all to appreciate.

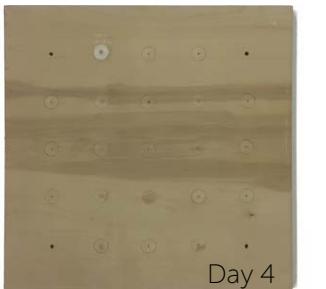


Day 1

Day 2



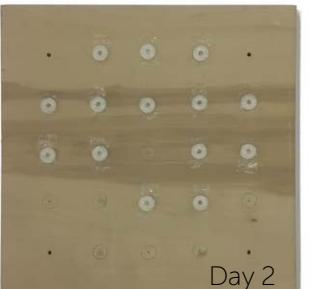
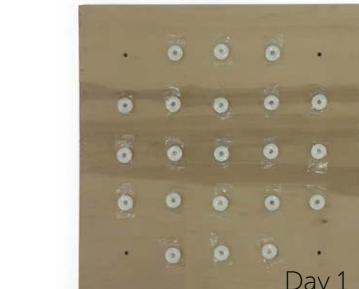
Day 3



Day 4

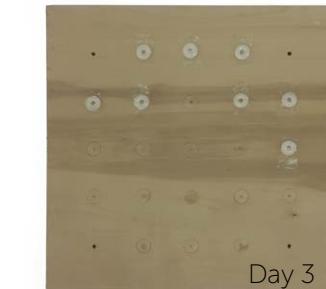
REFRESH(M)INT

Fall Elective 2017
Instructor: Rod Barnett
Skills: Wood shop

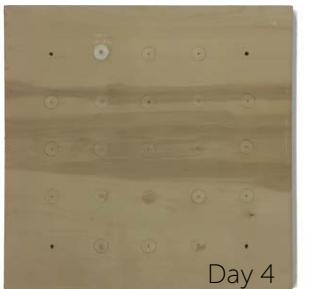


Day 1

Day 2



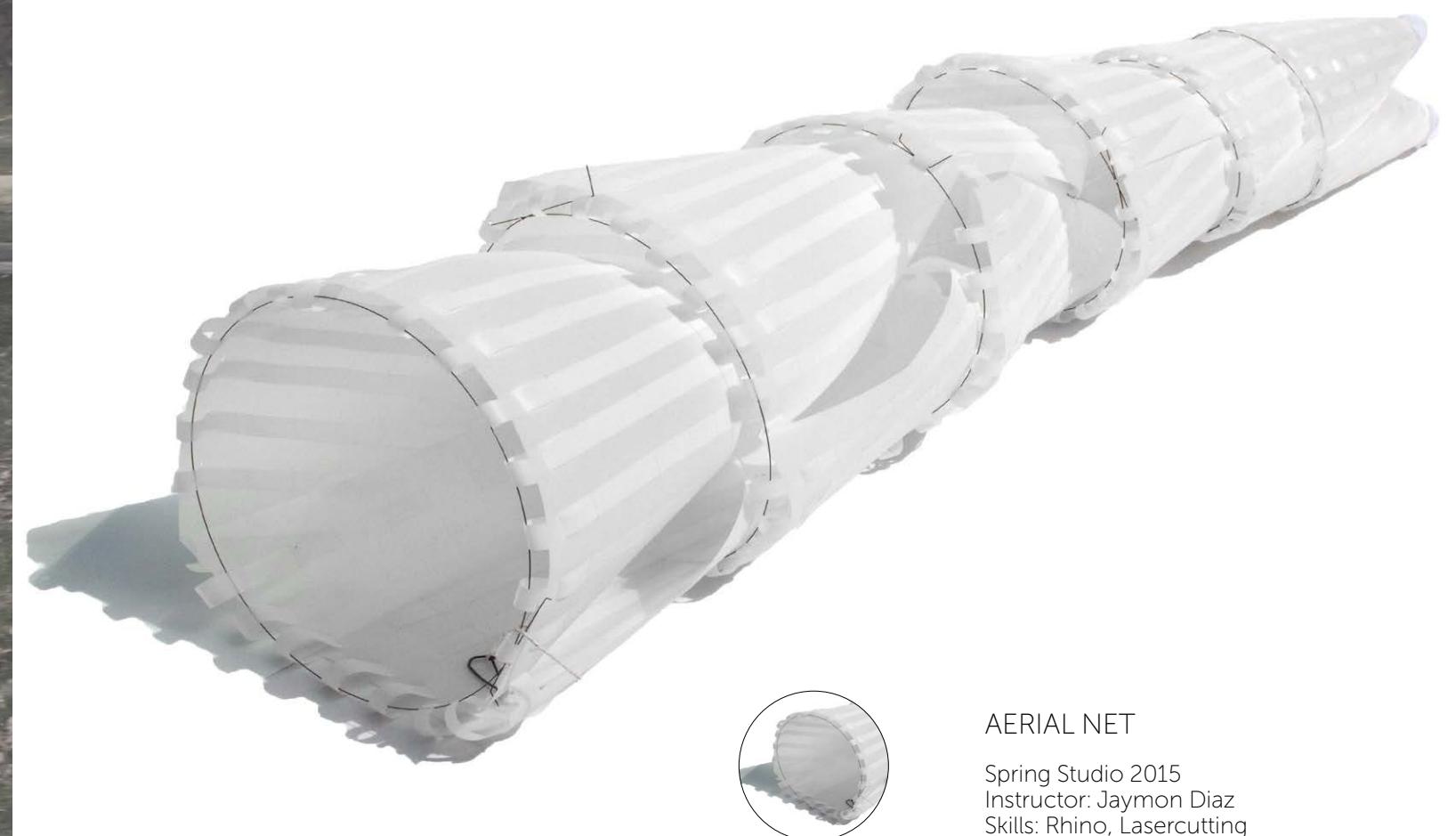
Day 3



Day 4

Utilizing the conditions of a restroom, the hanging installation challenges the spatial expectation that one should not consume where one expels. Mints were provided as refreshments throughout the day and were slowly consumed by passerbys.

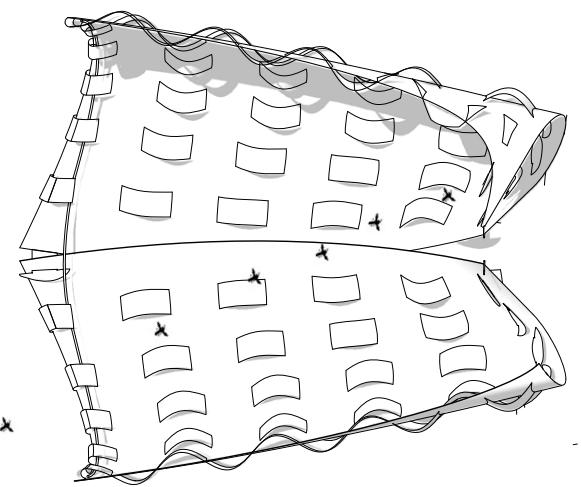
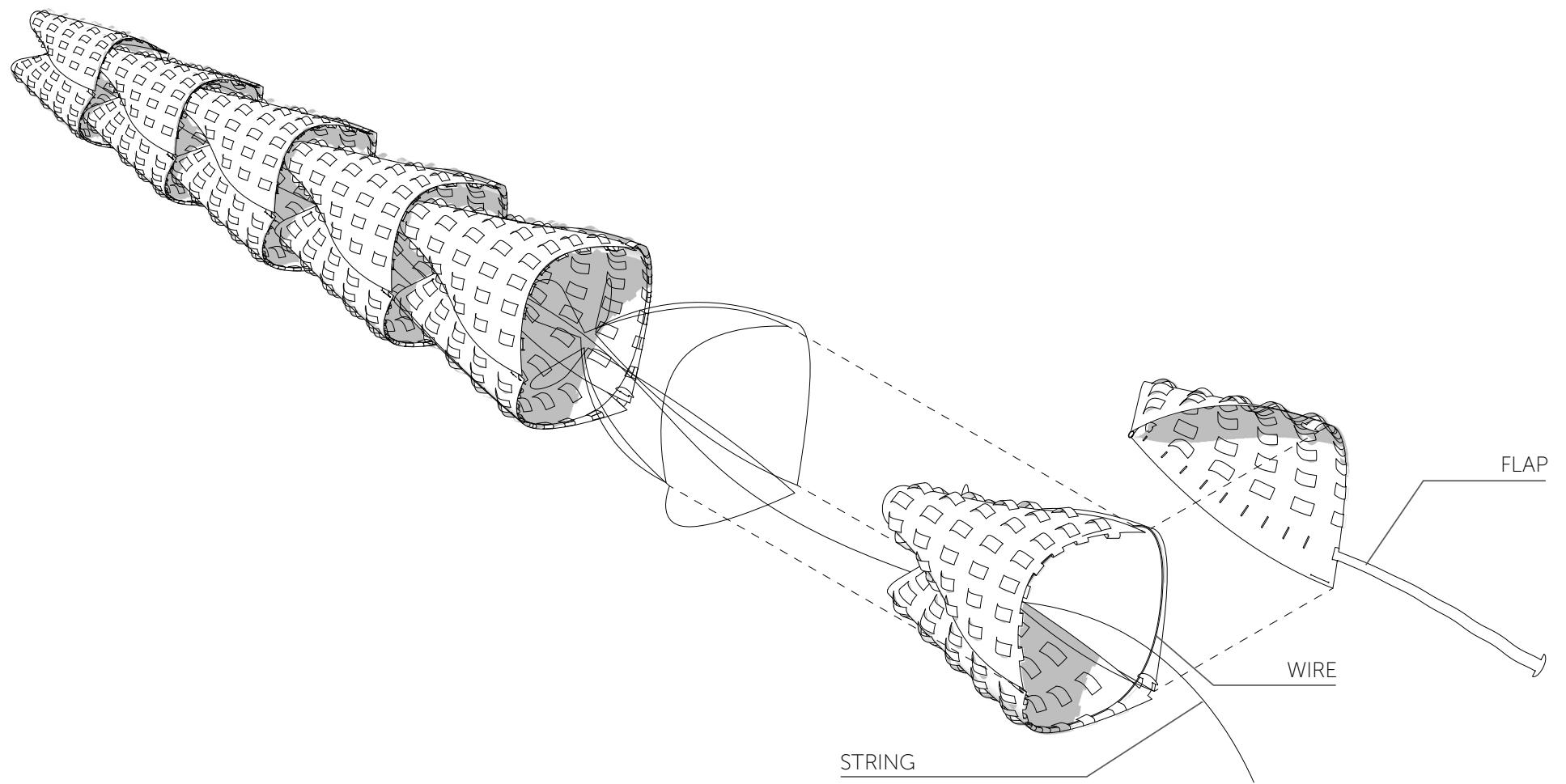
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AERIAL NET

Spring Studio 2015
Instructor: Jaymon Diaz
Skills: Rhino, Lasercutting

Constructed from mylar and wire, the aerial net catches insects while in flight in its aerodynamically shaped, ribbed shells.



The spiraling flight path places the net at oscillating positions that are unexpected to both the user and surrounding insects. By the time insects are aware of the net's presence, it is already too late to escape.