ANDREW

YAROS

2014

ARCHITECTURE

2015

PORTFOLIO

2016

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Attribution for the Richard Serra sculpture image on page 90 (middle left):

Cycle (2010)

Weatherproof steel

© 2011 Richard Serra. Courtesy Gagosian Gallery. Photo by Lorenz Kienzle.

http://www.gagosian.com/exhibitions/richard-serra---september-04-2011/exhibition-images

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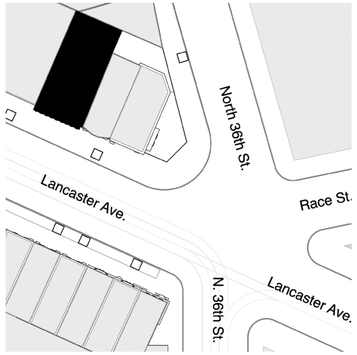
Project phases

1. SITE ANALYSIS & FRAMEWORK
2. SITE DOCUMENTATION
3. SCHEMATIC DESIGN
4. FINAL DESIGN

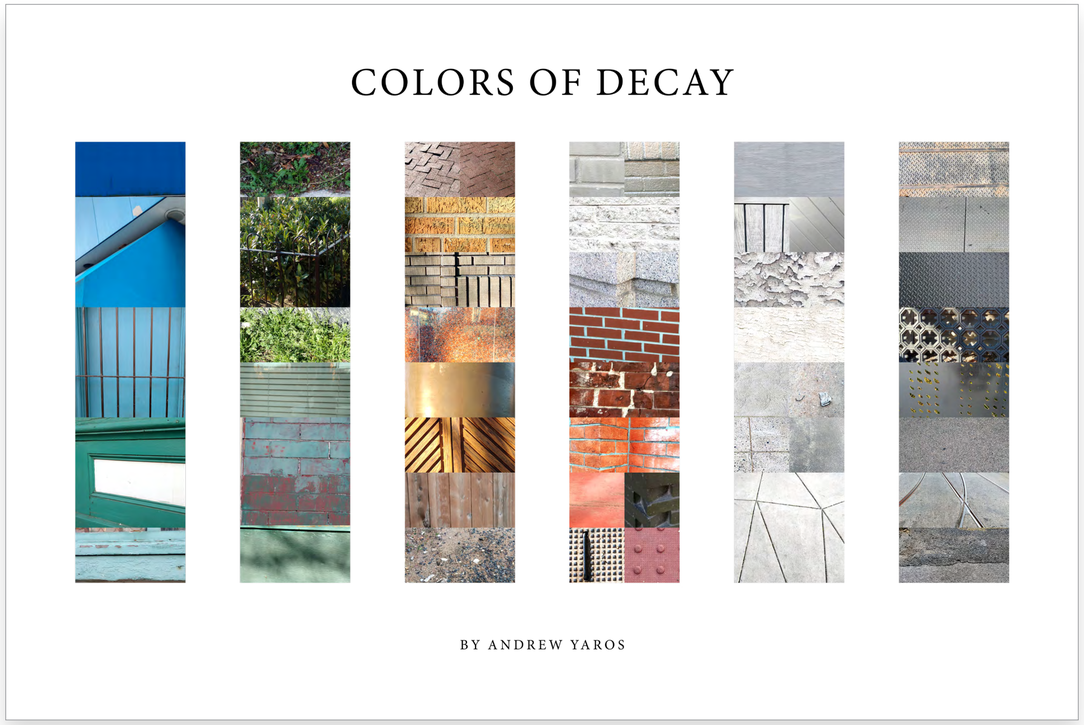
In my second year spring studio class, I designed a small museum to house artifacts found along Lancaster Avenue (near Powelton Village in Philadelphia), preserving the heritage and history of the area as it undergoes extensive redevelopment.

This project took place over the course of eleven weeks and four main assignments: the initial site analysis, the development of a narrative and framework, site documentation, and schematic design. The class ended with a final presentation.

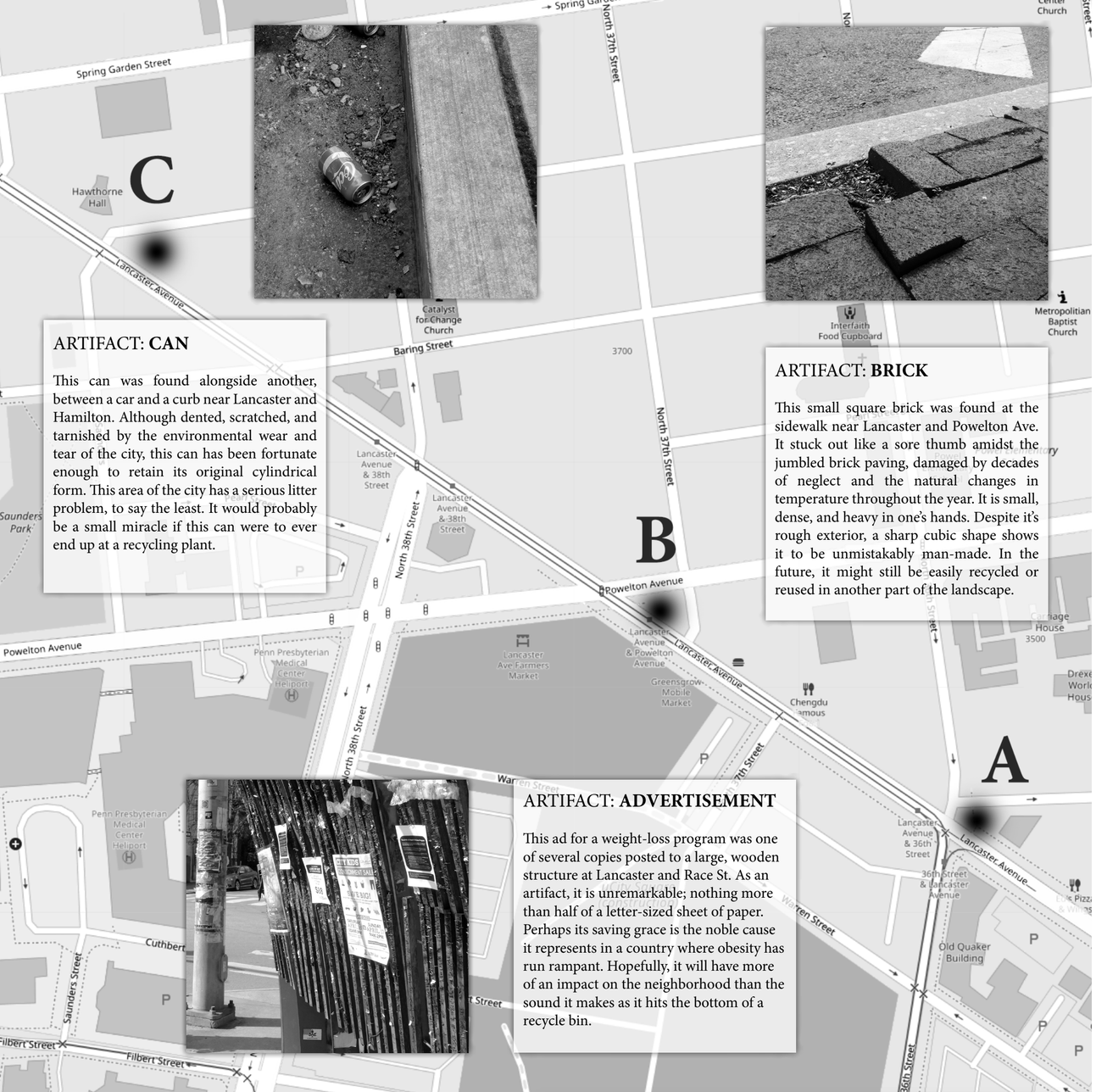


1A. SITE ANALYSIS

I started by taking a site survey to get a context of where I would be designing my building. This involved visiting and surveying Lancaster Avenue in the areas between 34th St. and 40th St. Afterwards, I created a small study to show the various materials and textures of the area, organized by color.



One of the themes of this project was urban decay: when a urban area falls into disrepair through poverty or neglect. Hence, the title of the study.



ARTIFACT: **CAN**

This can was found alongside another, between a car and a curb near Lancaster and Hamilton. Although dented, scratched, and tarnished by the environmental wear and tear of the city, this can has been fortunate enough to retain its original cylindrical form. This area of the city has a serious litter problem, to say the least. It would probably be a small miracle if this can were to ever end up at a recycling plant.

ARTIFACT: **BRICK**

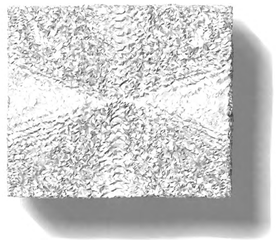
This small square brick was found at the sidewalk near Lancaster and Powelton Ave. It stuck out like a sore thumb amidst the jumbled brick paving, damaged by decades of neglect and the natural changes in temperature throughout the year. It is small, dense, and heavy in one's hands. Despite it's rough exterior, a sharp cubic shape shows it to be unmistakably man-made. In the future, it might still be easily recycled or reused in another part of the landscape.

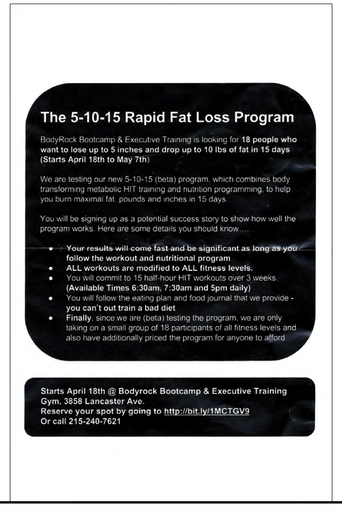
ARTIFACT: **ADVERTISEMENT**

This ad for a weight-loss program was one of several copies posted to a large, wooden structure at Lancaster and Race St. As an artifact, it is unremarkable; nothing more than half of a letter-sized sheet of paper. Perhaps its saving grace is the noble cause it represents in a country where obesity has run rampant. Hopefully, it will have more of an impact on the neighborhood than the sound it makes as it hits the bottom of a recycle bin.

1B. ARTIFACTS AND FRAMEWORK

The museum is to store and display "artifacts" related to urban life before the area was redeveloped. I was required to find several artifacts along Lancaster Avenue, document where I found them, and design a narrative as well as a physical framework to relate them together. The term artifact essentially refers to a discarded object— even a piece of garbage— that represents what life is like in the area. During my survey, I found three of note: an old handmade clay brick, an aluminum soda can, and a small poster— an advertisement for a weight-loss program.





The 5-10-15 Rapid Fat Loss Program

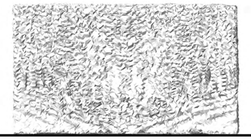
BodyRock Bootcamp & Executive Training is looking for **18 people who want to lose up to 5 inches and drop up to 10 lbs of fat in 15 days (Starts April 18th to May 7th)**

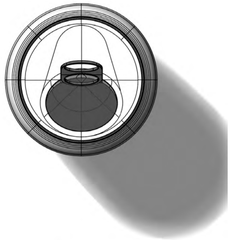
We are testing our new 5-10-15 (beta) program, which combines body transforming metabolic HIT training and nutrition programming, to help you burn maximal fat, pounds and inches in 15 days.

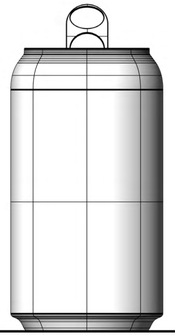
You will be signing up as a potential success story to show how well the program works. Here are some details you should know....

- **Your results will come fast and be significant as long as you follow the workout and nutritional program**
- **ALL workouts are modified to ALL fitness levels.**
- You will commit to 15 half-hour HIT workouts over 3 weeks **(Available Times 6:30am, 7:30am and 5pm daily)**
- You will follow the eating plan and food journal that we provide - **you can't out train a bad diet**
- **Finally**, since we are (beta) testing the program, we are only taking on a small group of 15 participants of all fitness levels and also have additionally priced the program for anyone to afford

Starts April 18th @ Bodyrock Bootcamp & Executive Training Gym, 3858 Lancaster Ave.
Reserve your spot by going to http://bit.ly/1MCTGV9
Or call 215-240-7621







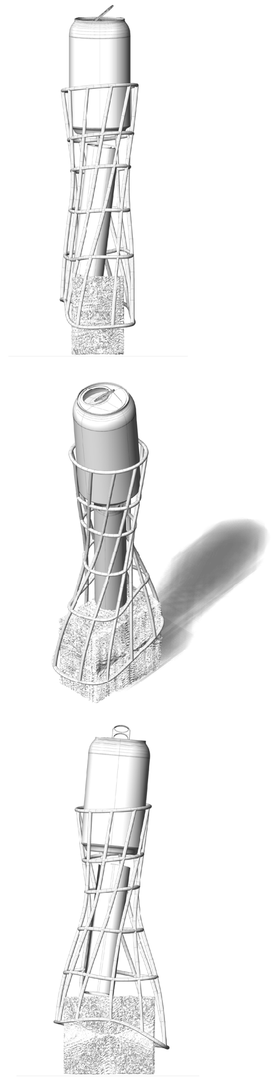
These objects were used to create a physical framework— essentially a concept model which utilizes the objects as well as other materials. My framework, as seen on the next page and as described by the narrative that follows, serves as a metaphor for the redevelopment of the city.

1C. NARRATIVE

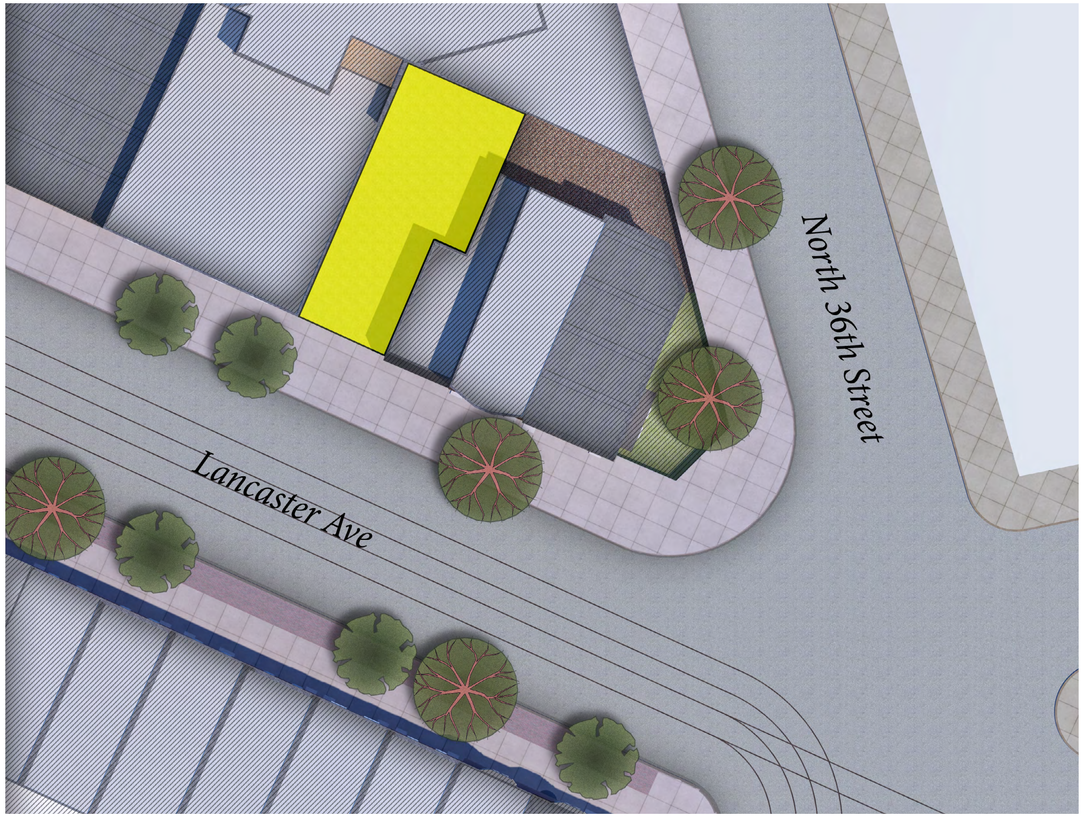
Placed at the bottom of the framework, the brick is a literal foundation representing the city's rich history and present condition. Most of the older buildings are made of them. As a handmade building material, bricks are a product of their time: coarse, uneven, and full of imperfection. Yet, they are a testament to the human labor that was used to build Philadelphia.

The soda can at the top of the framework represents modernity. Unlike the brick, it was created with a much more advanced manufacturing process: the aluminum had to be extracted from bauxite ore and purified. Cans are disposable and recyclable, and it is easier than ever to make more of them, demonstrating the efficiency and automation which benefits us today.

What is the solution to urban decay? Renovation and reform, as symbolized by the weight loss advertisement. It represents a path forward; an initiative to overcome the status quo both socially and financially. The ad, rolled up into a cylinder, is placed between the other two artifacts to bridge the gulf between present and future. A copper lattice bent into a twisted shape holds all the artifacts in the framework together.

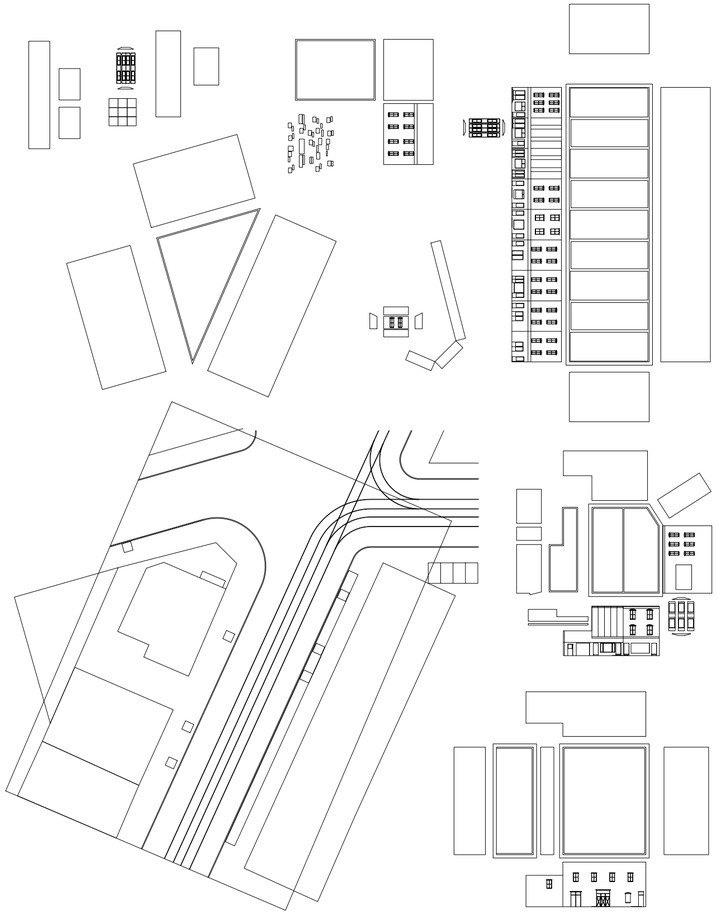


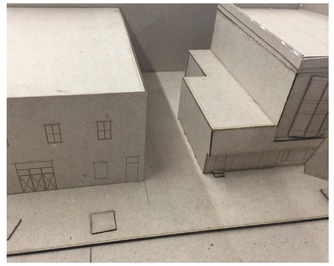
2. SITE DOCUMENTATION

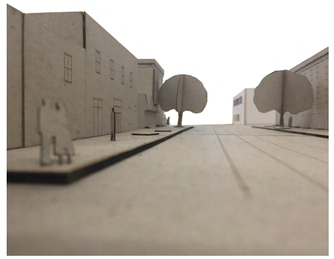


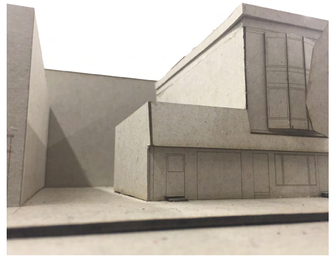
Our small class was split into two groups, each with a different site. My group was assigned an empty lot at 3607 Lancaster Avenue (highlighted in yellow). We were required to survey the site, create 2D documentation, and build a large 1/8th scale model. I ended up completing most of the documentation myself, and my 3D site model was the basis for our physical scale model. After we finished it, the group work ended and we each set out to create our own design to fit into the lot. Adjacent to 3607 is a single story building; on either side of the lot and the building are three story buildings (see the longitudinal section above). Because of the constraints of this space, members of my group were given the option to build on top of the adjacent one story building. In reality, that would be a logistical nightmare, but thankfully this is only a studio project so I don't have to worry about those kinds of limitations!

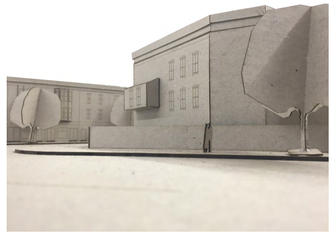
The model parts shown below were created directly from orthogonal views of my SketchUp model. The geometry was imported into AutoCAD and sent to a laser cutter. My group assembled the newly cut parts into a large 1/8th scale model.











3. SCHEMATIC DESIGN

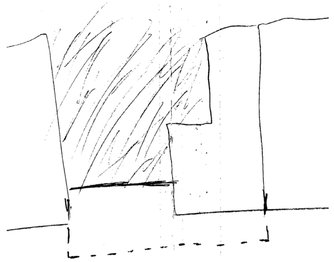
For the museum design I was required to include space to collect, research, prepare, and display artifacts recovered from Powelton village. Given the option to either incorporate or disregard the aesthetics of the site, I chose the latter, mostly because I'm not as fond of the older architecture in Philadelphia. I wanted to create a modern, captivating design unlike anything in the area. Given the spatial constraints of the site, I aimed to design a "box" instead of an unconventional shape, like some of the other designs in my portfolio. This lets me make the most of the space I have—there's a reason most buildings are box-shaped.

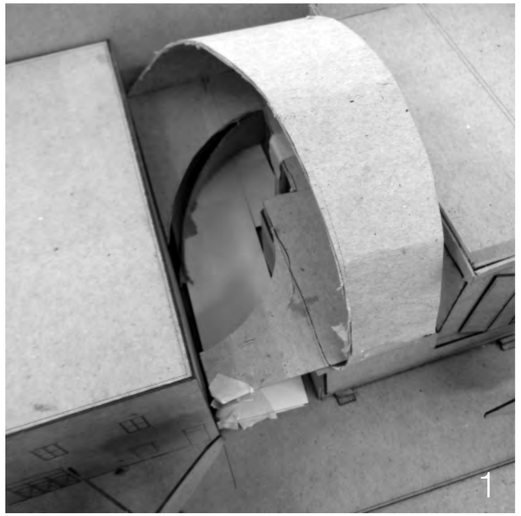
First, I created a "messy model," an in-class assignment where I had 15 minutes to build a small model as a warmup exercise. Later, to move forward with the design process, I considered the geometry of the area itself. Lancaster Avenue is a diagonal road which intersects Philadelphia's grid plan. In response to this, I decided to add diagonals into my designs. Study model A was fairly straightforward with increasingly recessed levels connected by a single (diagonal) staircase. In study model B, each floor is cut in half diagonally, resulting in several alternating balconies. I preferred B; its upper areas are harder to see from the lower ones, and the pathway through it is less obvious. These factors add a feeling of discovery to each visit, an important trait for a museum.

The exterior design was a bit tricky to figure out. I quickly realized a good approach was to split the front façade into two volumes. I accomplished this by recessing the entrance while extruding the upper area outwards, creating a small volume at ground level and a larger one at the upper floors, dominating the façade.

Schematic design photos (next page):

1. Messy model
2. Study model A
3. Study model B
4. Front façade
5. Final design exterior
6. Placement in site model
7. Placement in site model
8. Final design interior

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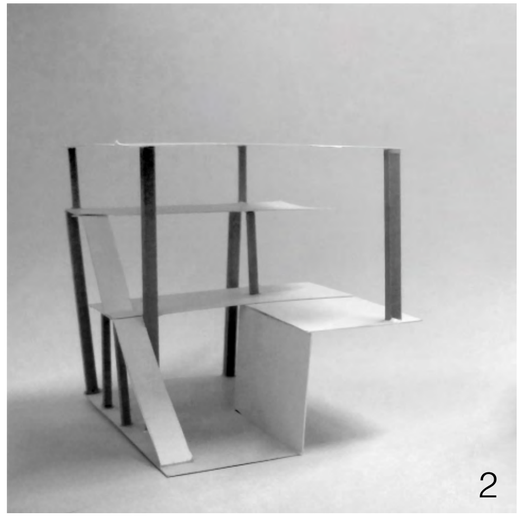
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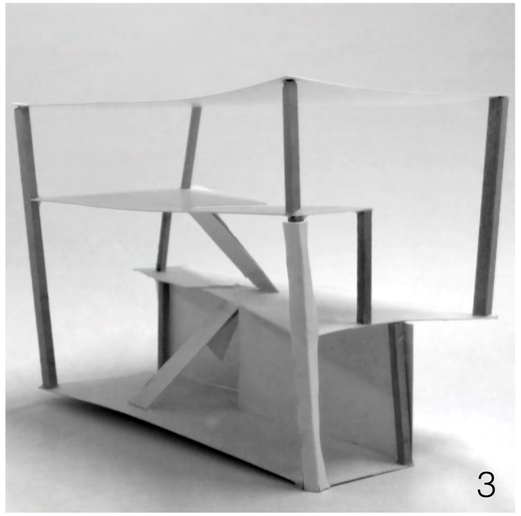
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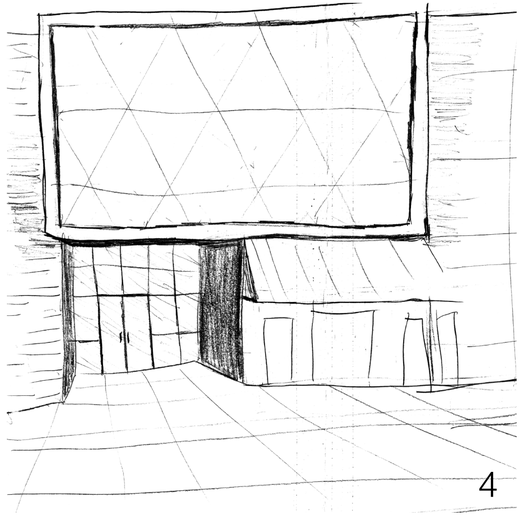
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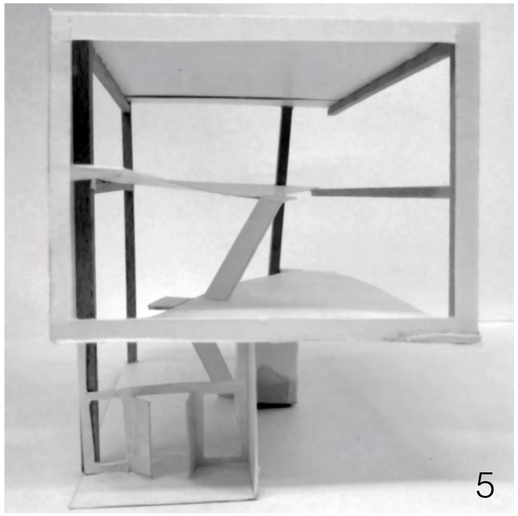
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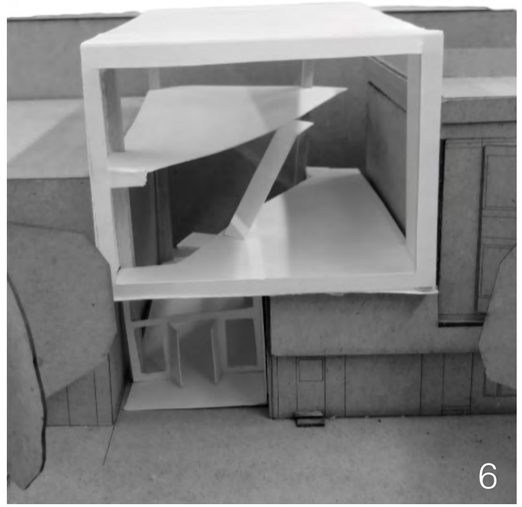
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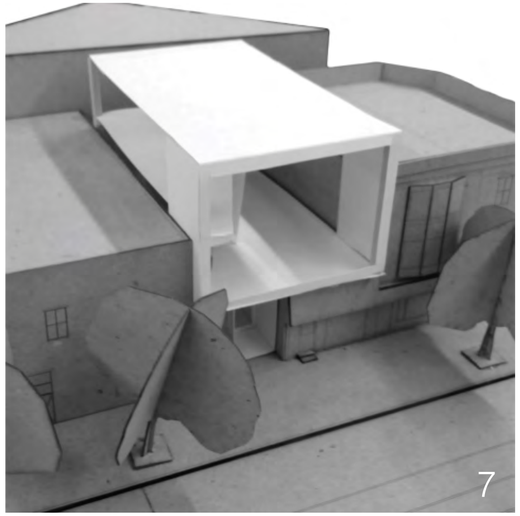
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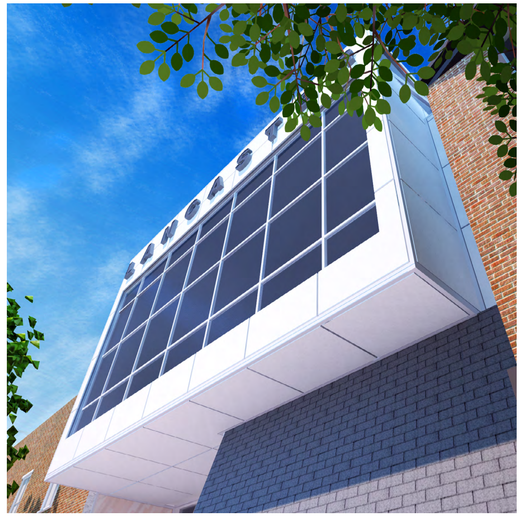
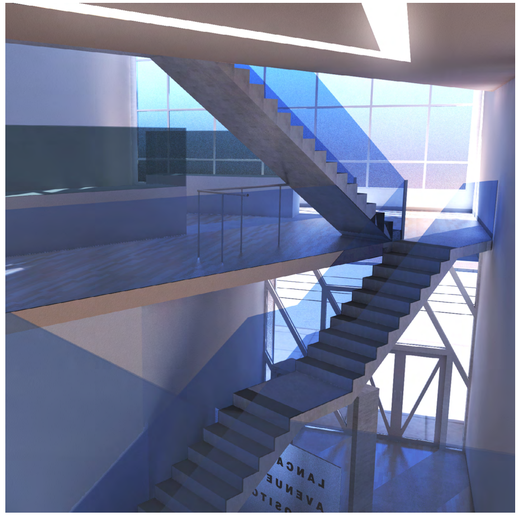
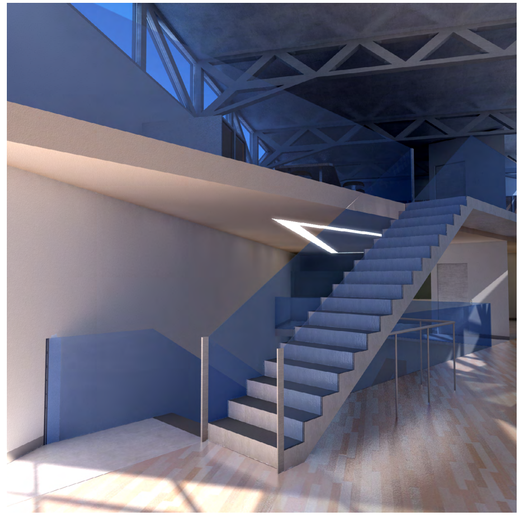
4. FINAL DESIGN



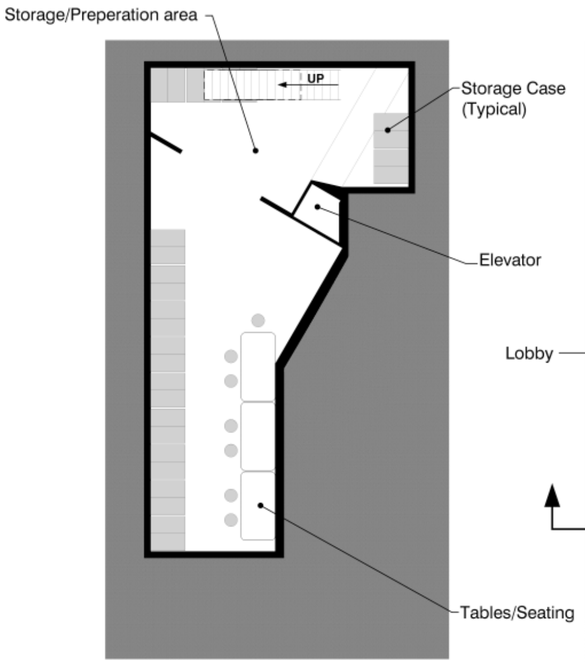




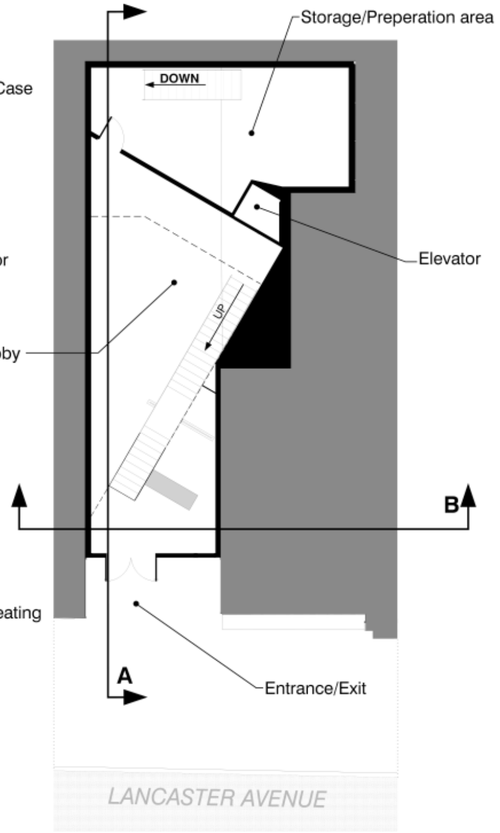
Basement: artifact storage and preparation

First floor: lobby, additional storage space

Basement Floor Plan



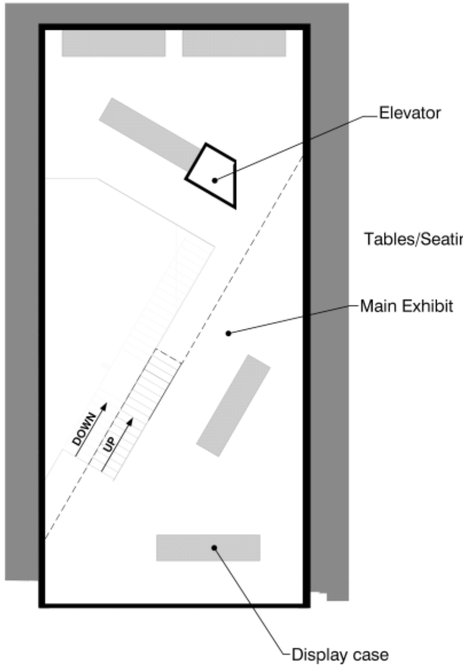
First Floor Plan



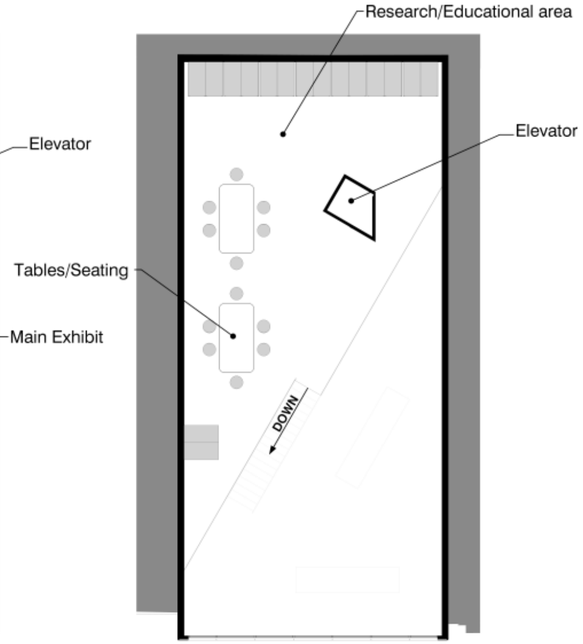
Second floor: main exhibit and display cases

Third floor: library and research area

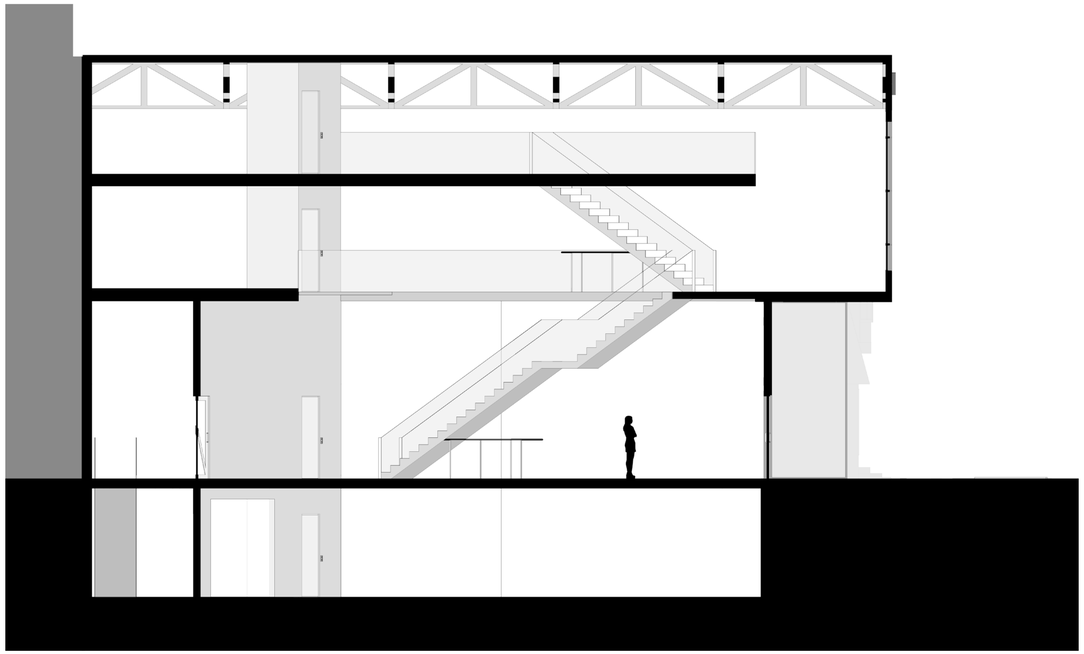
Second Floor Plan



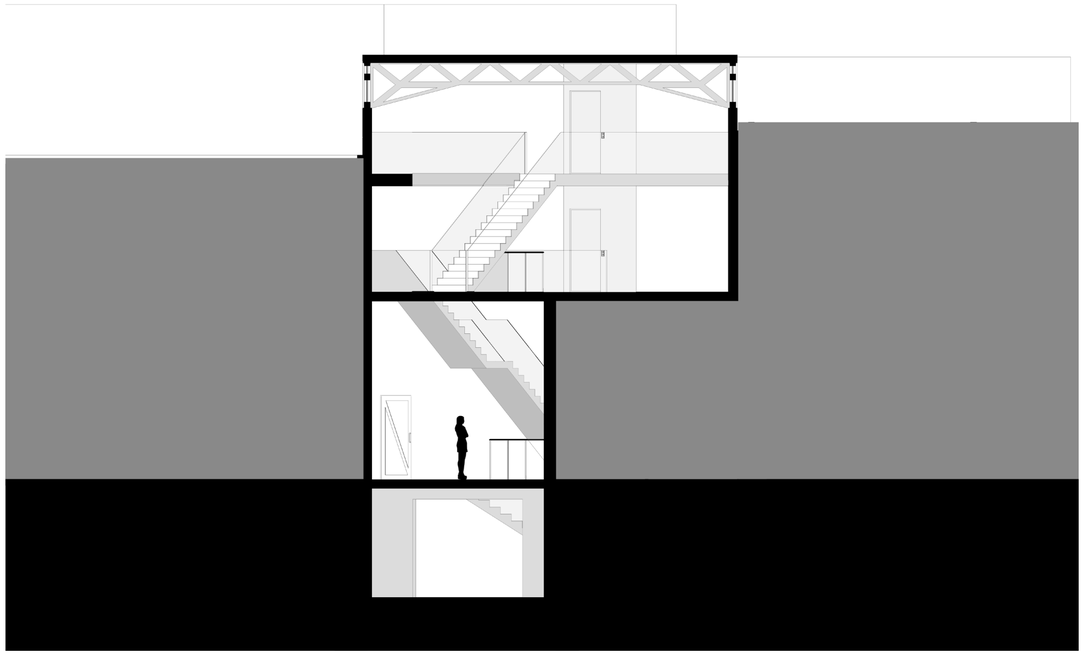
Third Floor Plan



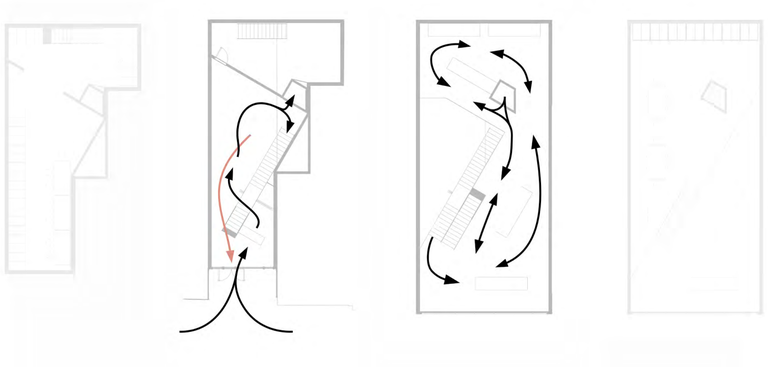
Section A



Section B

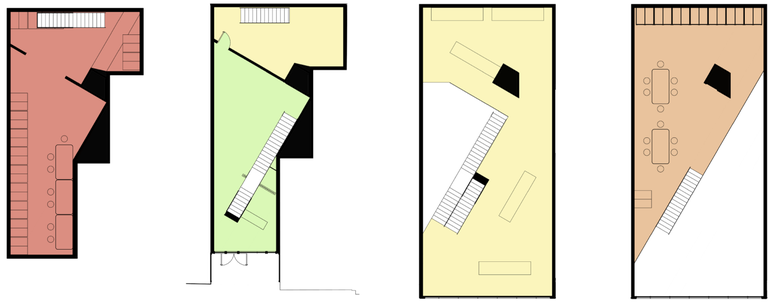


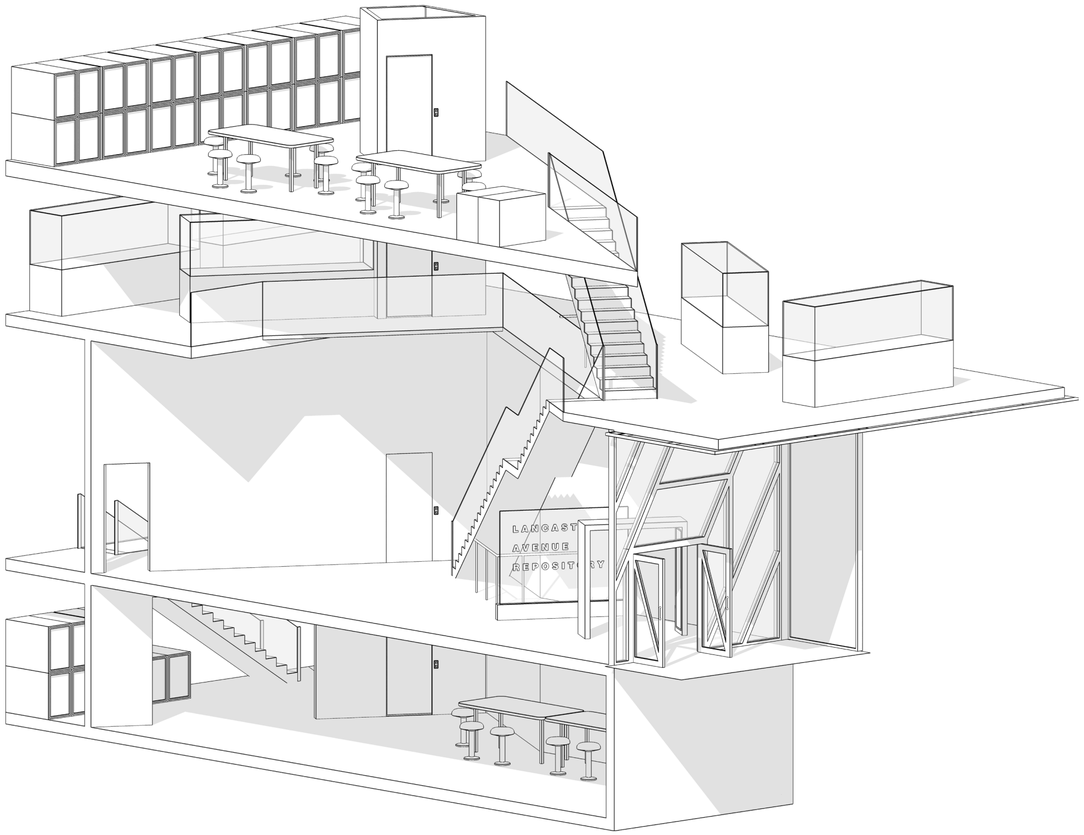
Circulation Diagram



Circulation on the first floor starts at the entrance. One walks through the lobby to the back right corner of the room. To reach the second floor, they may take either the stairs (which run along the diagonal cut of each floor) or the elevator. This choice determines where you enter on the second floor. With two different points of entry, and circulation which loops around the floor space, it is difficult to make a controlled linear exhibit that everyone will experience identically, which was my original intention. Instead, the exhibit design should embrace the opposite with an approachable non-linear design, providing each visitor a unique experience.

Public/Private Diagram

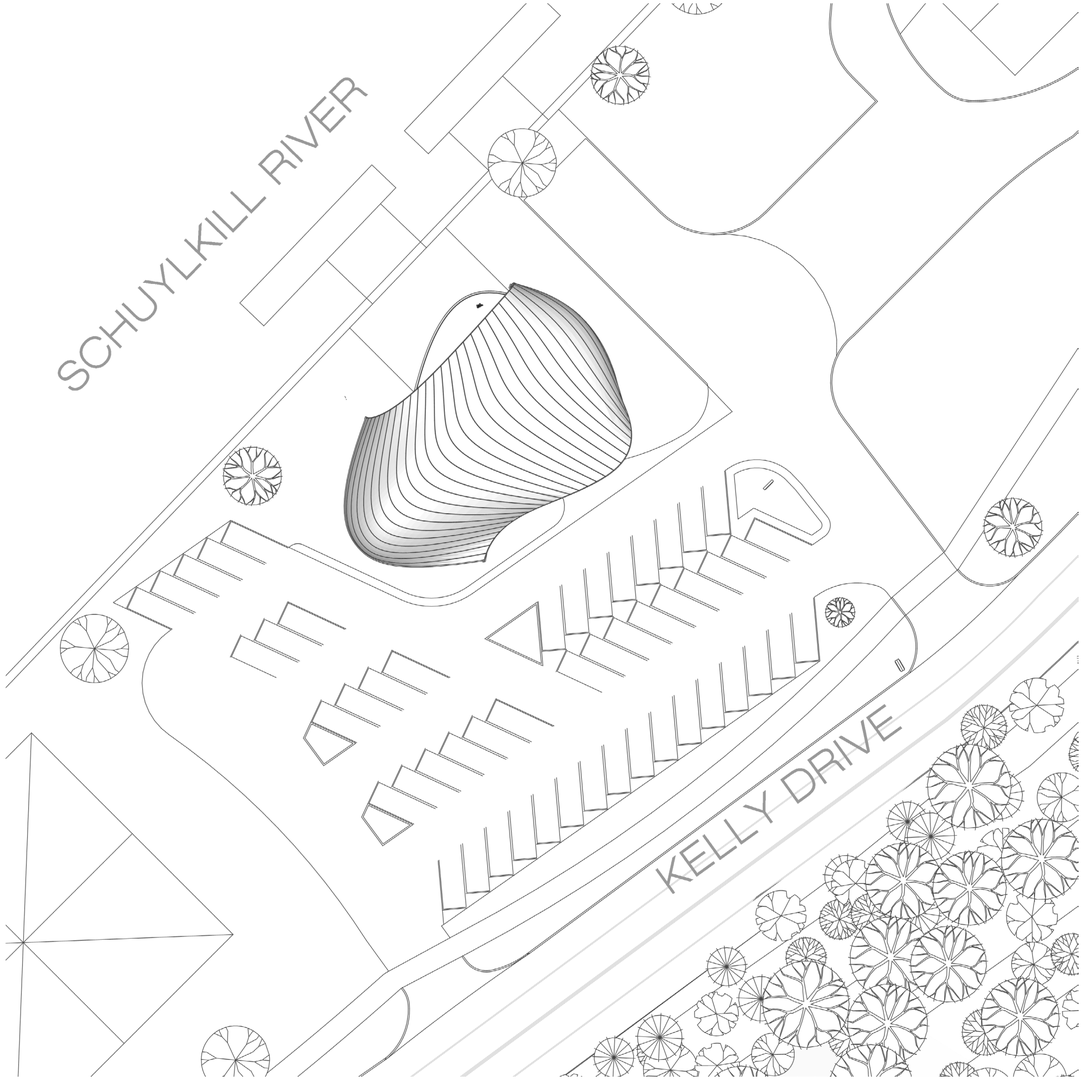




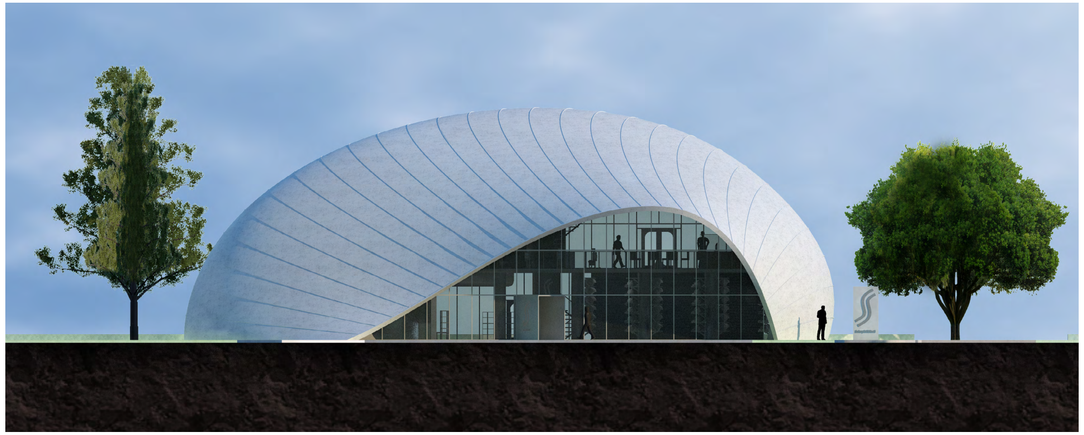
2

In this project for my second year winter studio class, I was tasked with creating a design for a boathouse along the Schuylkill River. It was designed for a new league of public and private schools to have their own space along the river, allowing them to compete in boat races and host social functions. The site is located at Kelly Drive between the St. Joseph's University and Temple University Boathouses. The program also calls for locker rooms, a weight training room, offices, a kitchen, and a trophy room to host events and showcase the league's awards and achievements.

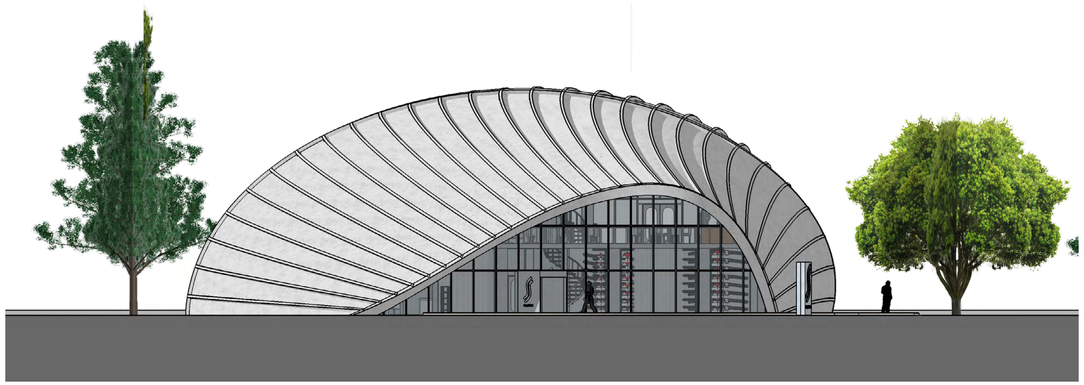
In the spirit of boat racing, I wanted the building to resemble a wave. This was best accomplished as an abstracted shape in the form of a ribbed concrete shell, which also happens to mimic the way most boats are constructed. Enveloping you as you enter through the front, its unique shape creates an unusual, memorable experience on the second and third levels.



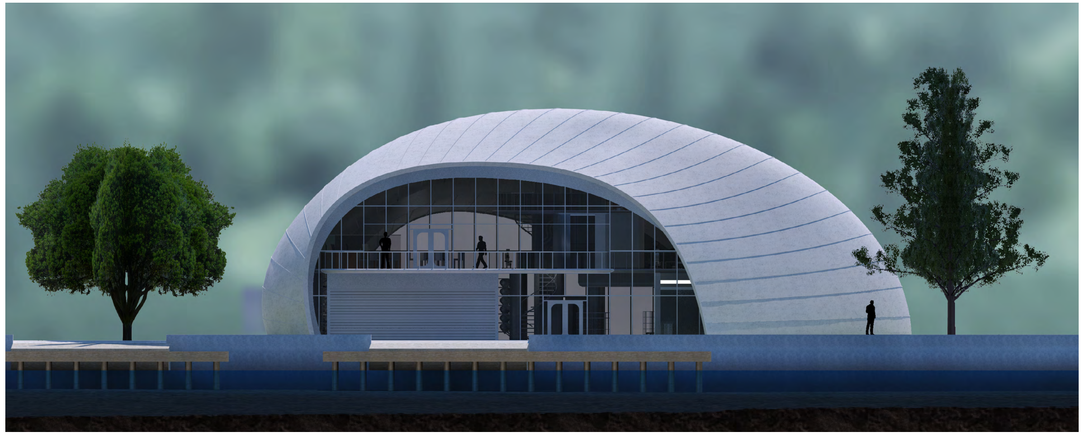
Kelly Drive elevation render:



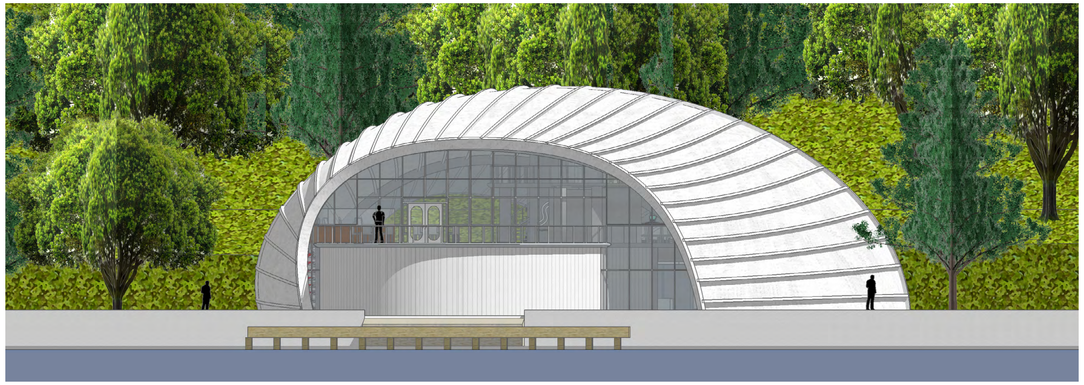
Kelly Drive elevation:



Schuylkill River elevation render:



Schuylkill River elevation:



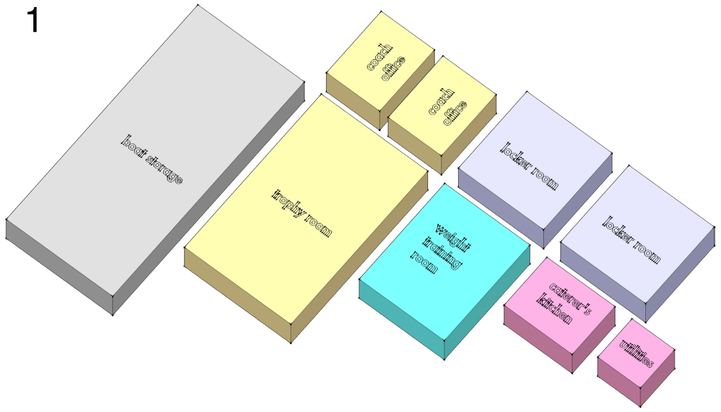
Process information:

1. Program diagram
2. Initial layout
3. Midterm layout (which was much too big)
4. Post-midterm program diagrams
5. Layout created from #4
6. Penultimate design

7-10. Near final model, created/rendered with Rhino3D

The model's large scale terrain was created in Rhino3D using contour lines from USGS survey data of the Philadelphia region. Most of the digital design work and layouts were created in SketchUp. The final design was created in Rhino3D. The model was imported into SketchUp, where textures, furniture, and scale figures were added. Final renders were ray-traced with Podium, a SketchUp rendering plug-in, and edited in Photoshop.

1



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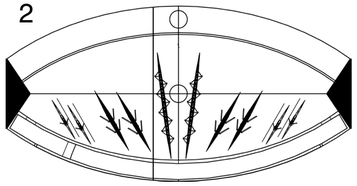

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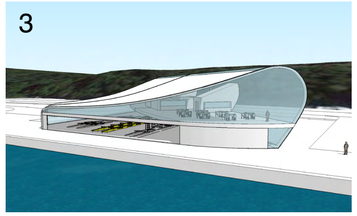

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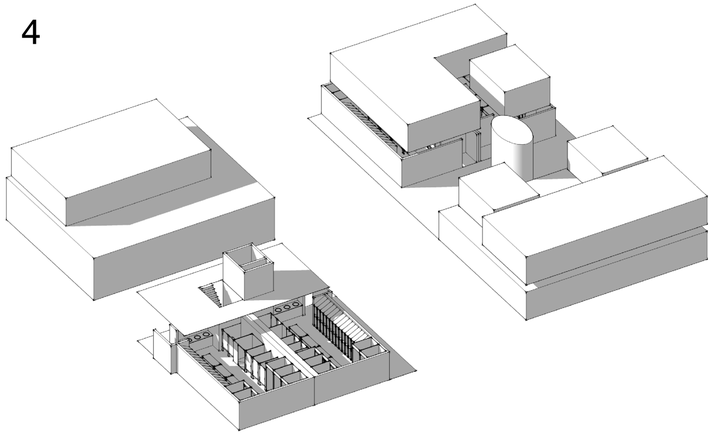

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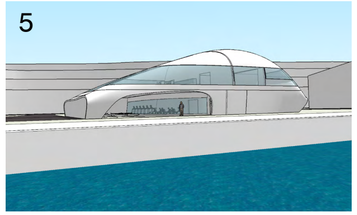

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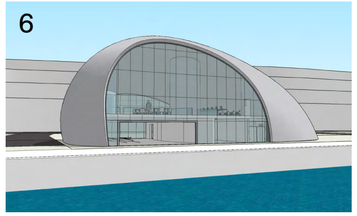

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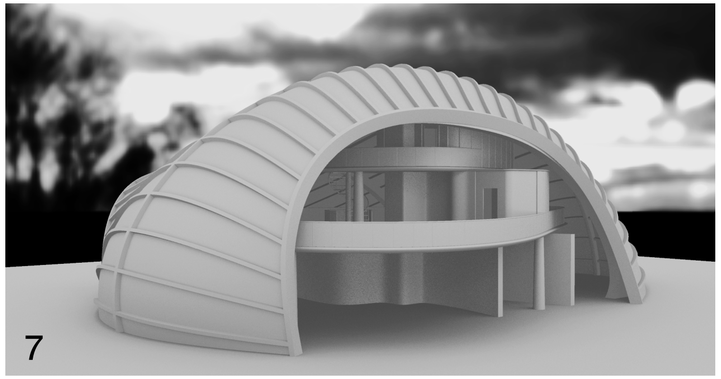

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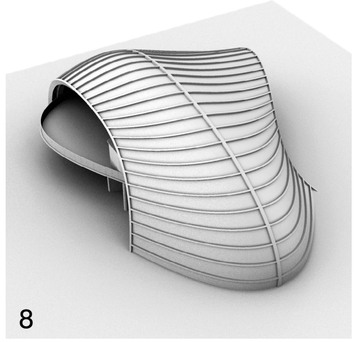

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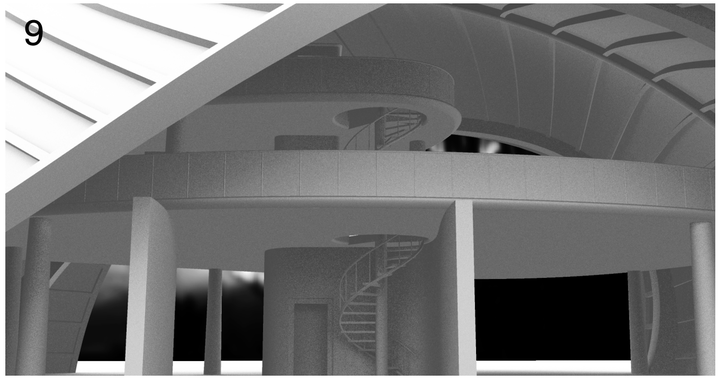

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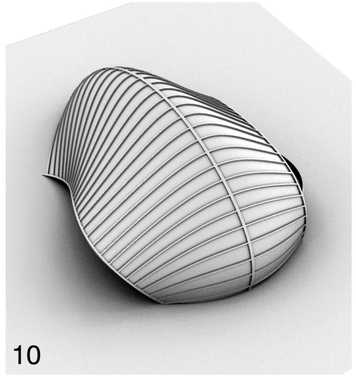
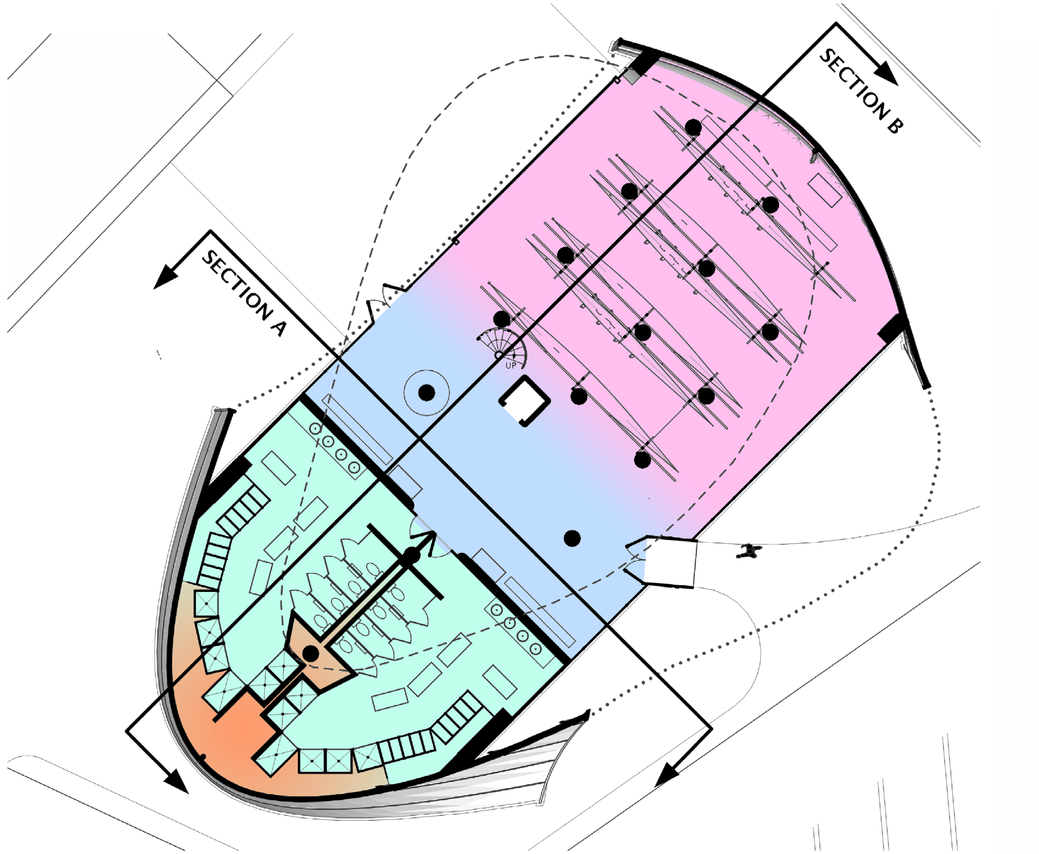
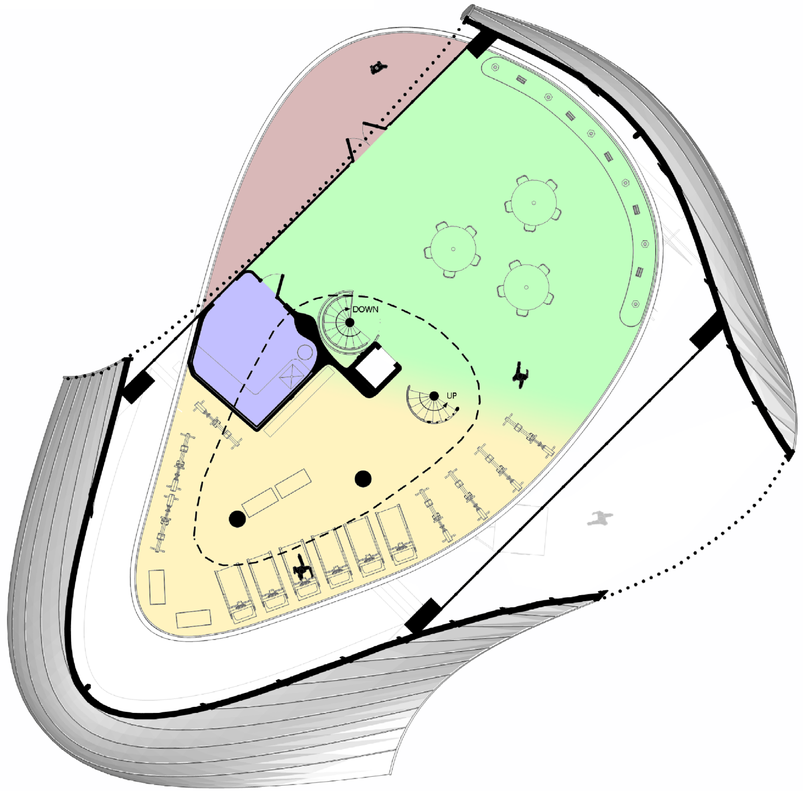


FLOOR 1



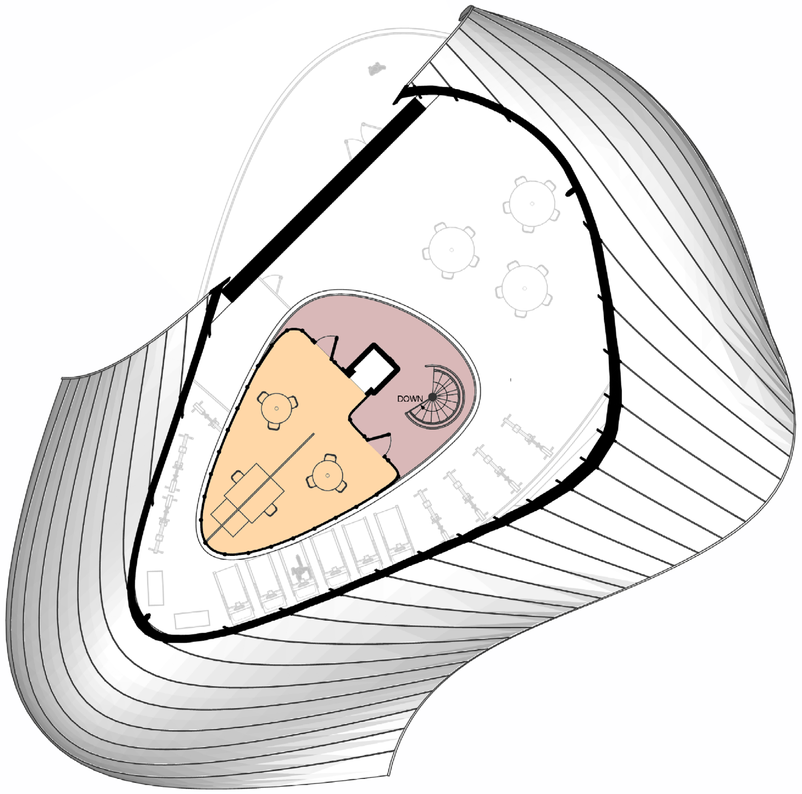
LEGEND: ---- FLOOR ABOVE ···· ROOF LINE ● UTILITY AREA ● LOCKER ROOMS ● LOBBY ● BOAT STORAGE

FLOOR 2



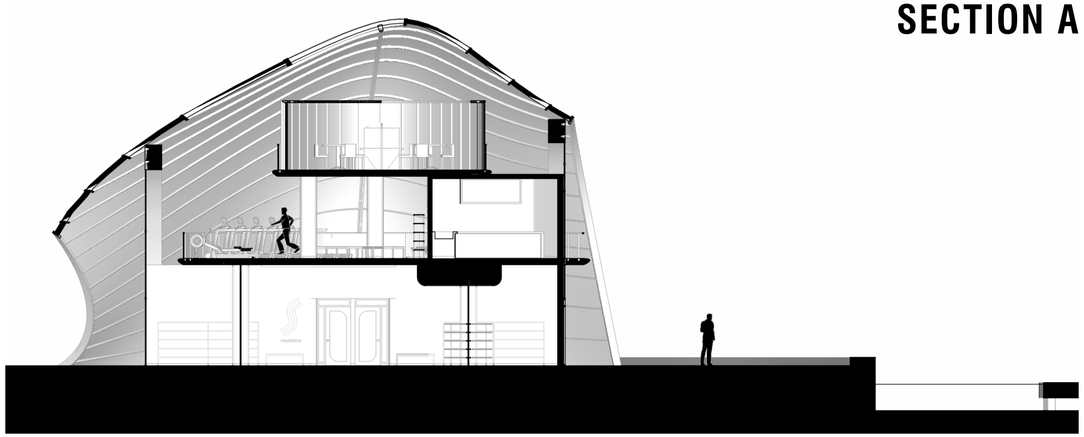
LEGEND: ---- FLOOR ABOVE ···· ROOF LINE ● BALCONIES ● TROPHY ROOM ● WEIGHT TRAINING ● CATERER'S KITCHEN

FLOOR 3



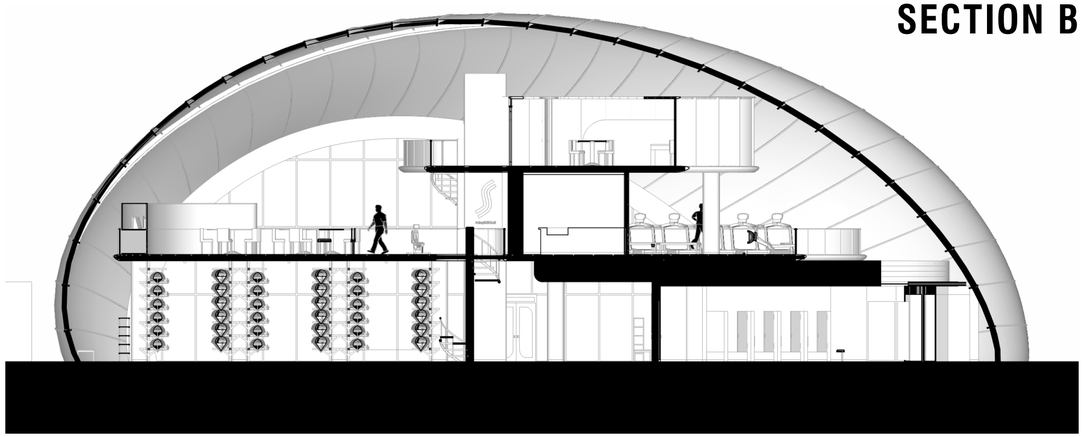
LEGEND: ---- FLOOR ABOVE ··· ROOF LINE BALCONIES COACH'S OFFICES

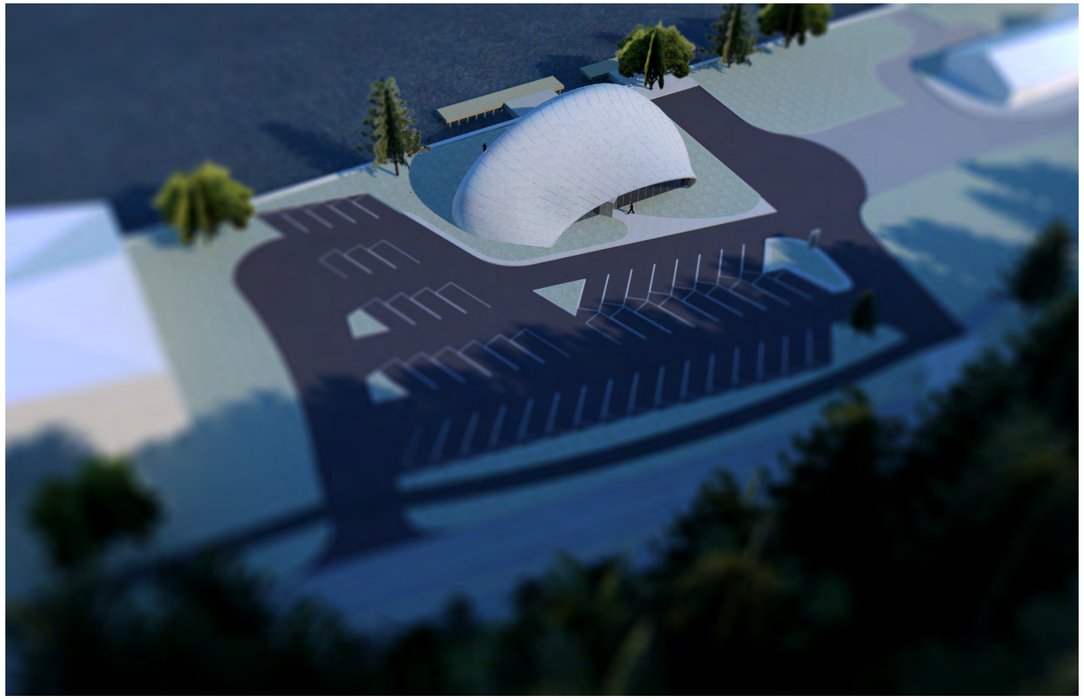
SECTION A

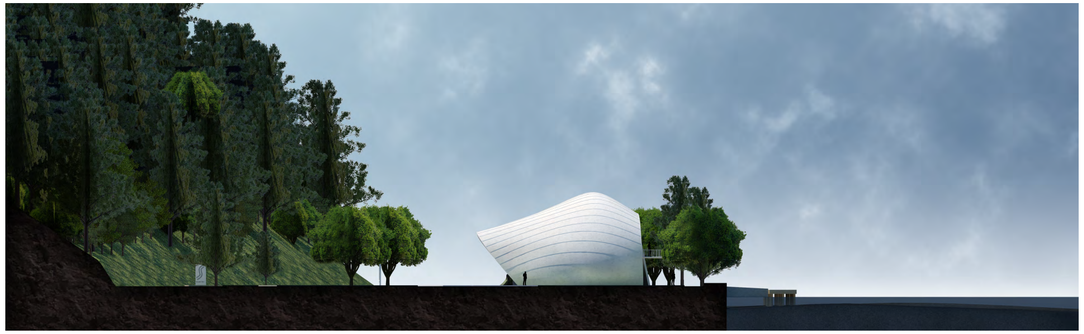


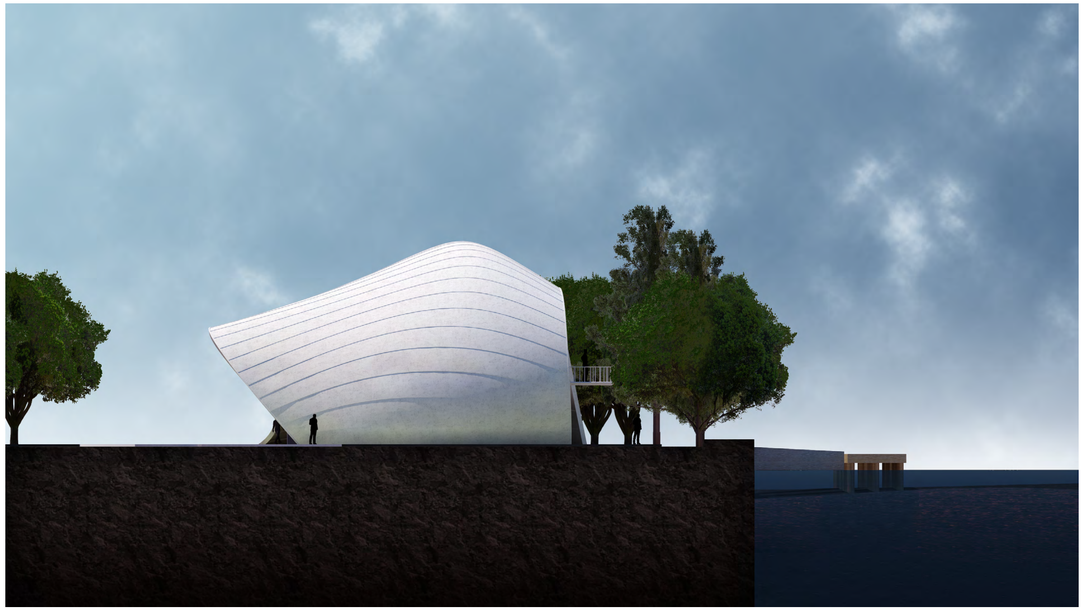
The interior of the building is a column and flat plate slab system separate from the exterior shell. The gap between the curtain walls and the second floor lets the trophy room appear larger and more expansive. As with most other boathouses, sculls (small oars for a single rower) are stacked on top of one another via racks. A garage door underneath the balcony provides room for the boats to be moved out of the house and onto the river.

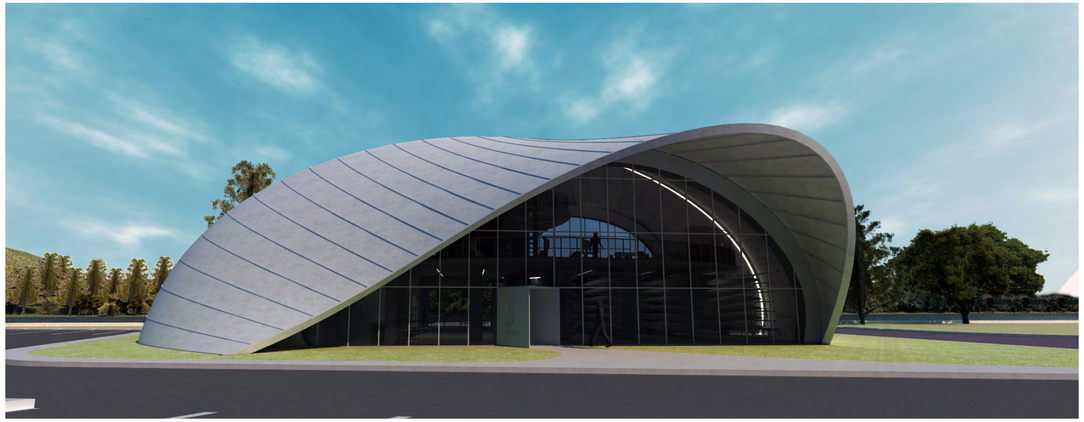
SECTION B





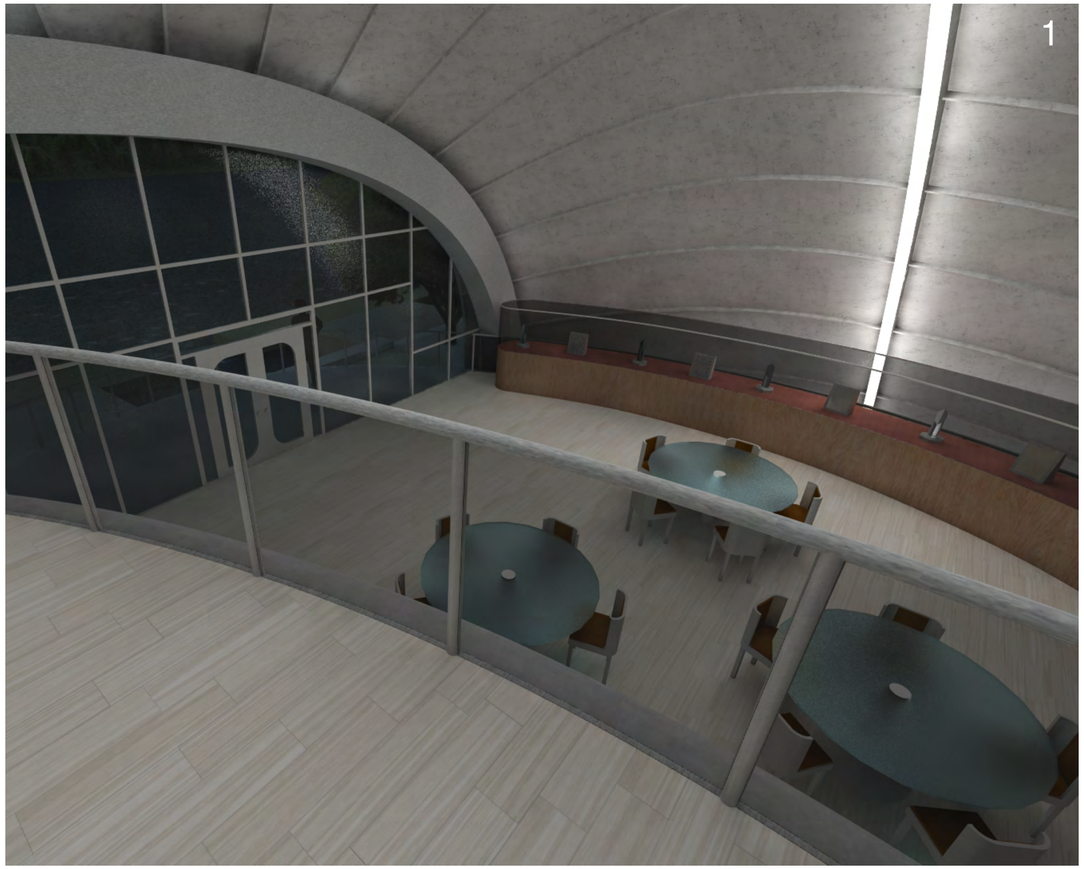


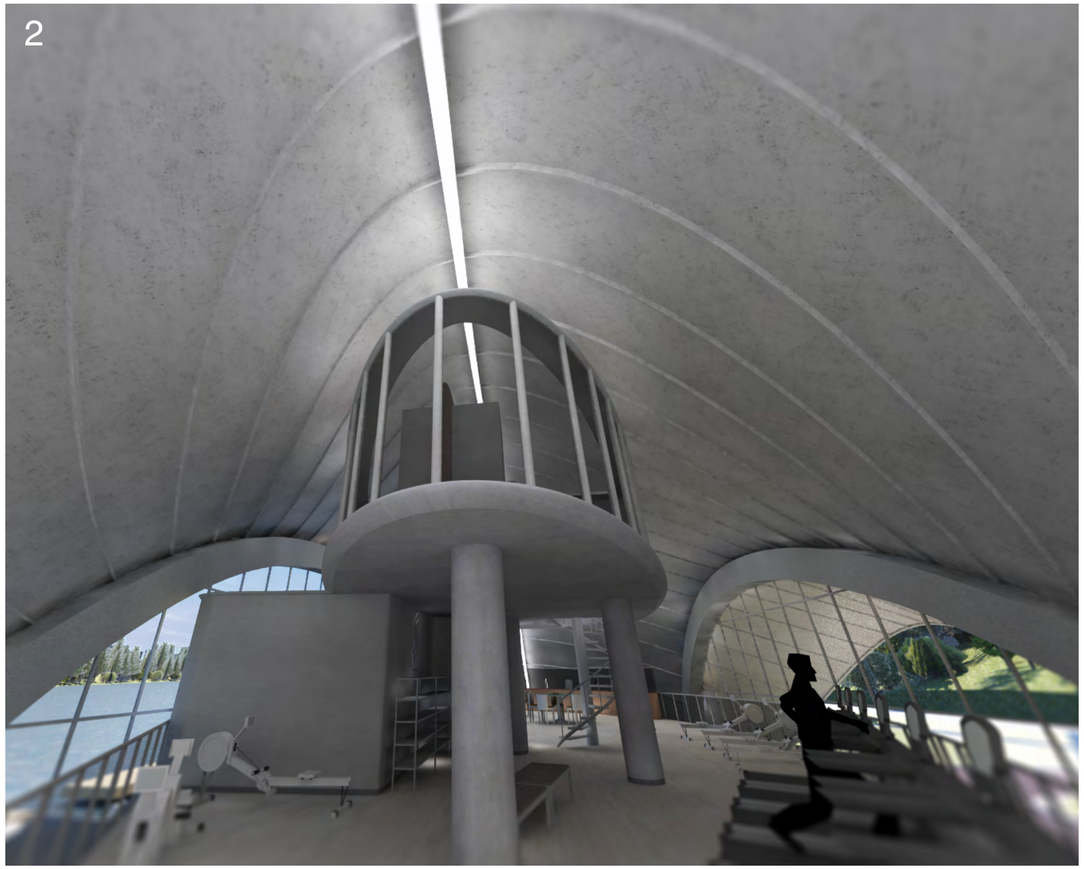




Interior renders, as seen on the next several pages:

1. Office balcony
2. Weight training area ceiling and office windows
3. Trophy room
4. Weight training area
5. Boat storage area
6. Coach's offices





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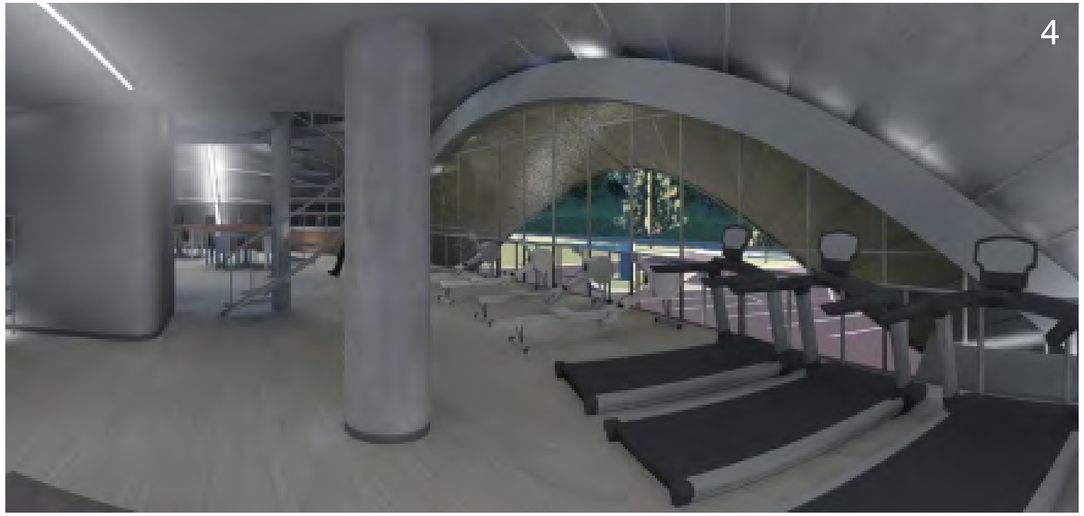
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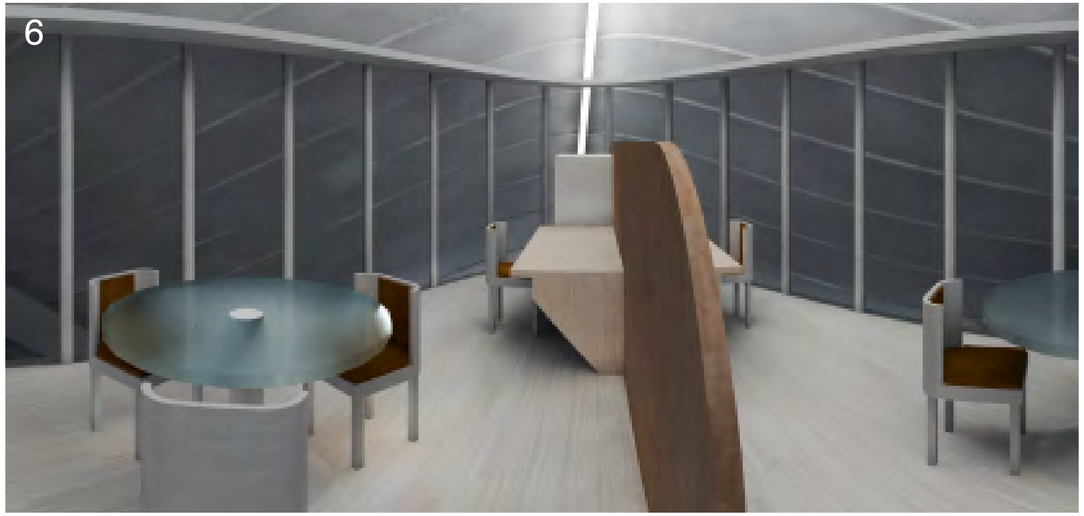

6

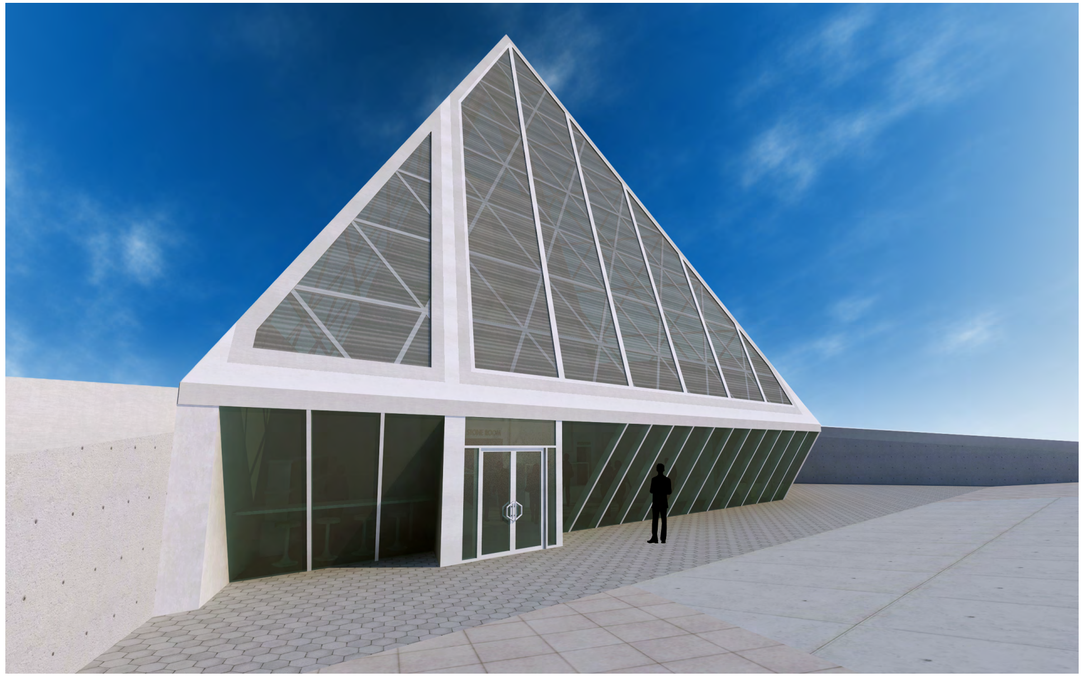
3

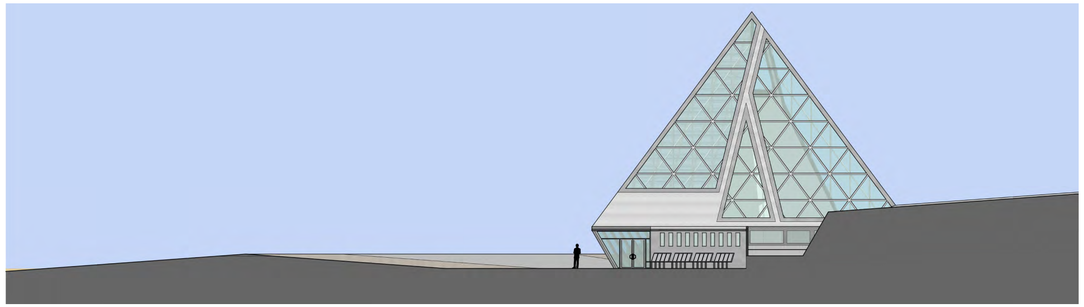
During my second-year fall studio class, I was tasked with designing an interpretative center for three ancient stones discovered in the arid region around Tucumcari, New Mexico. The stones originate from an ancient Native American tribe called the Wefa, where they were used in religious rituals.

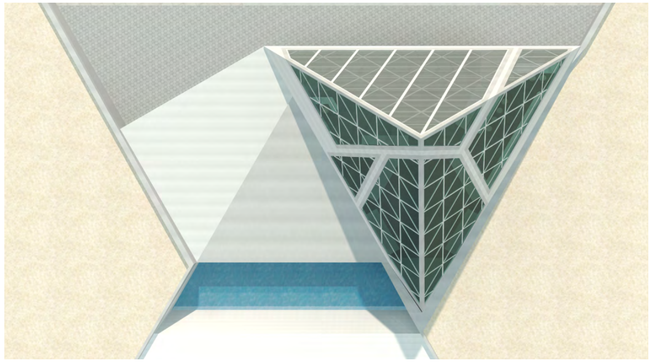
I was required to include an exhibit on the culture of the Wefa people (the interpretative area) and a display room for showcasing the stones.

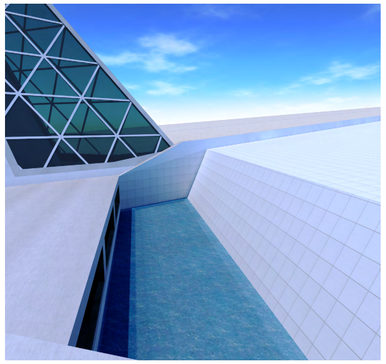
Each stone represents one of the four classical elements. The earth, fire, and water stones were discovered together arranged in an equilateral triangle. Unfortunately, the air stone was missing and has yet to be found. The question of how the air stone, if found, could be arranged among its companions is what led me to the design you see here.

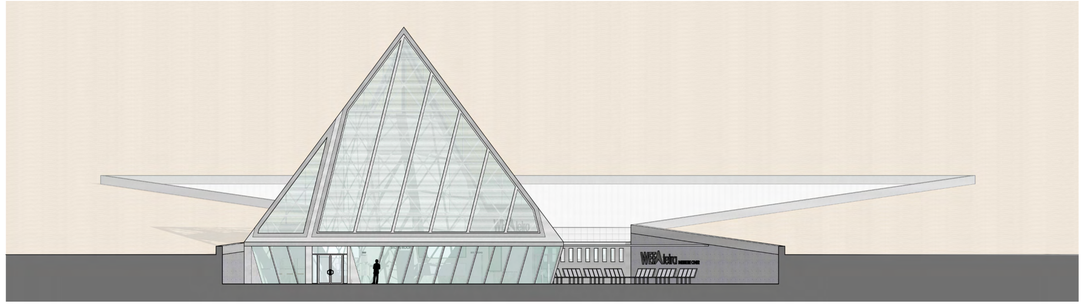
The triangular building plan was inspired by the arrangement of the stones. Air, the most voluminous of the elements, can be represented both literally and symbolically by placing the fourth stone above the other three, resulting in a tetrahedral shape (appropriately, it's a three-dimensional analogue of the triangle). Since the program only requires one floor, we are left with a huge, lofty space for visitors to enjoy.

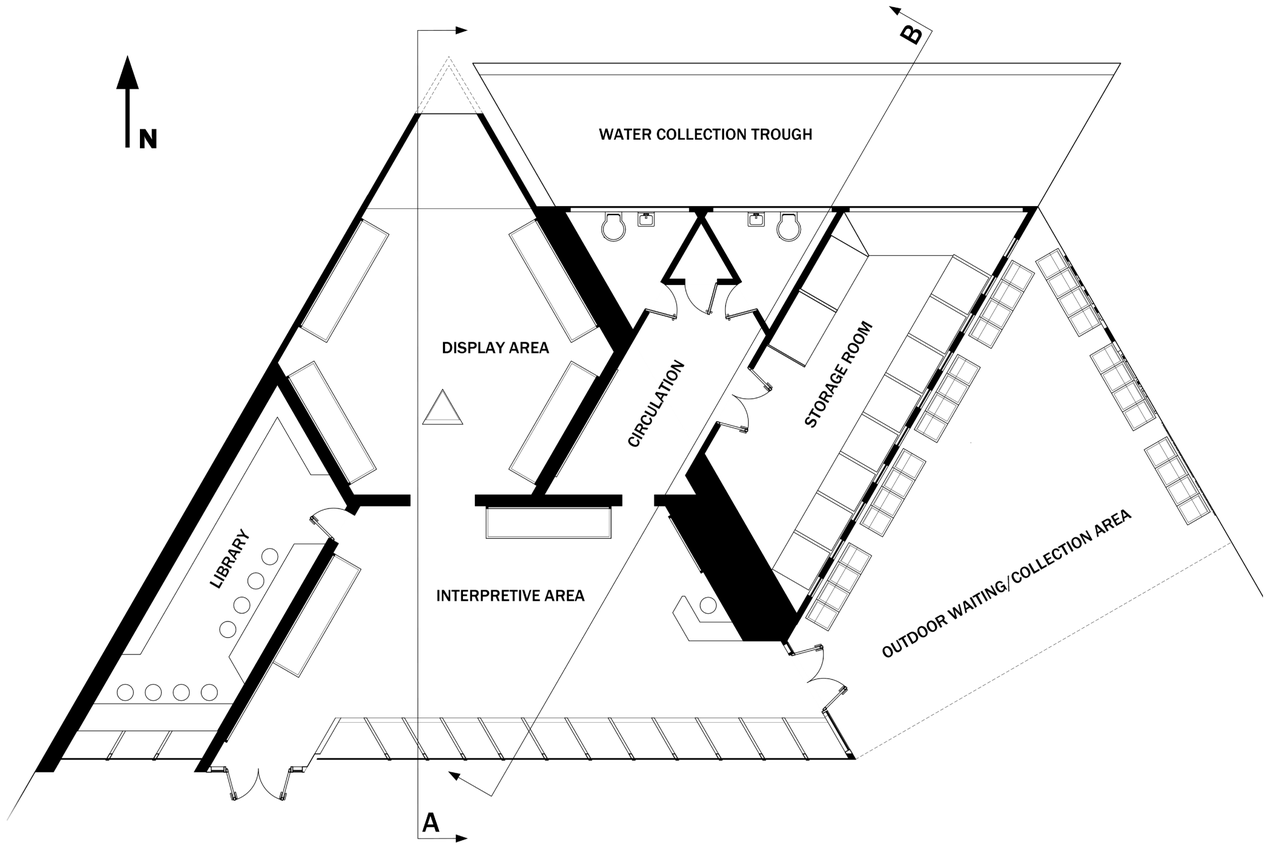




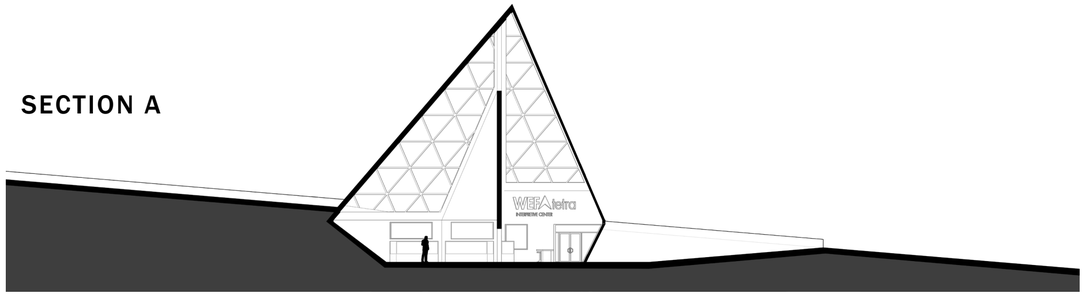




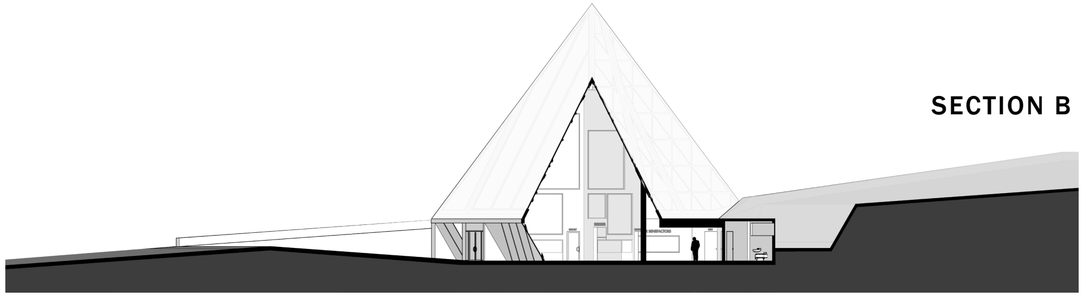




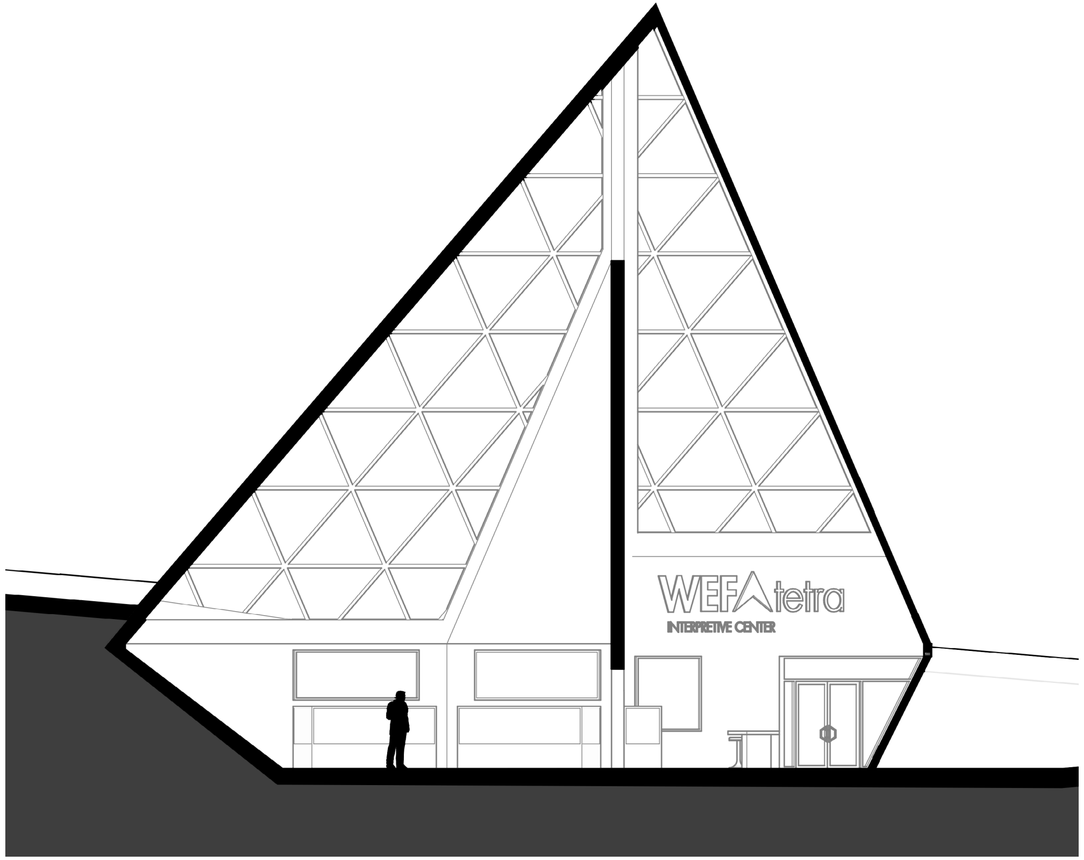
I placed the library, display and interpretive areas together into the main tetrahedral structure. Other program elements were placed to an ancillary area on the side. Special permission must be granted for researchers or guests to enter the library area.



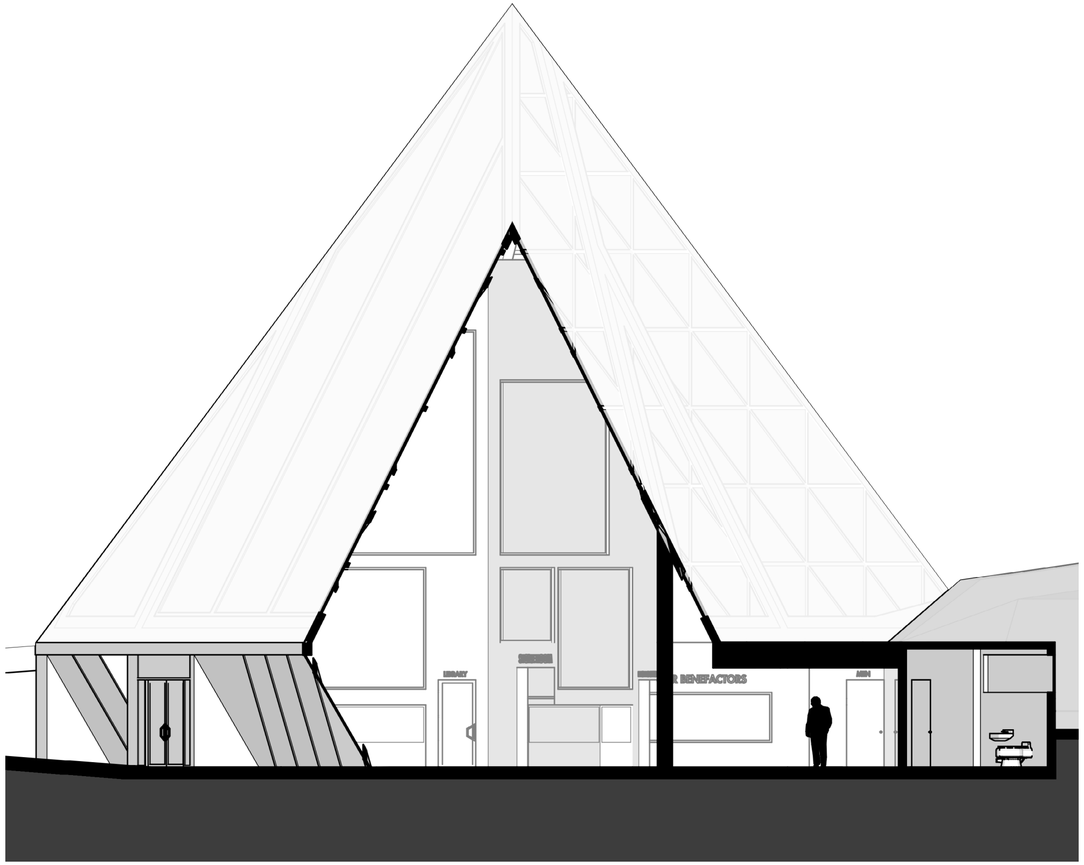
The storage room is off limits to the public and houses artifacts from the dig site. The site has a water collection system for the few times it actually rains in the region. The ground condition has a 1:20 slope, so water which lands in the collection area is funneled directly into a trough. There it is stored and filtered; it can then be used for the restroom sinks or for drinking. (The restroom's self-composting toilets do not require water.)

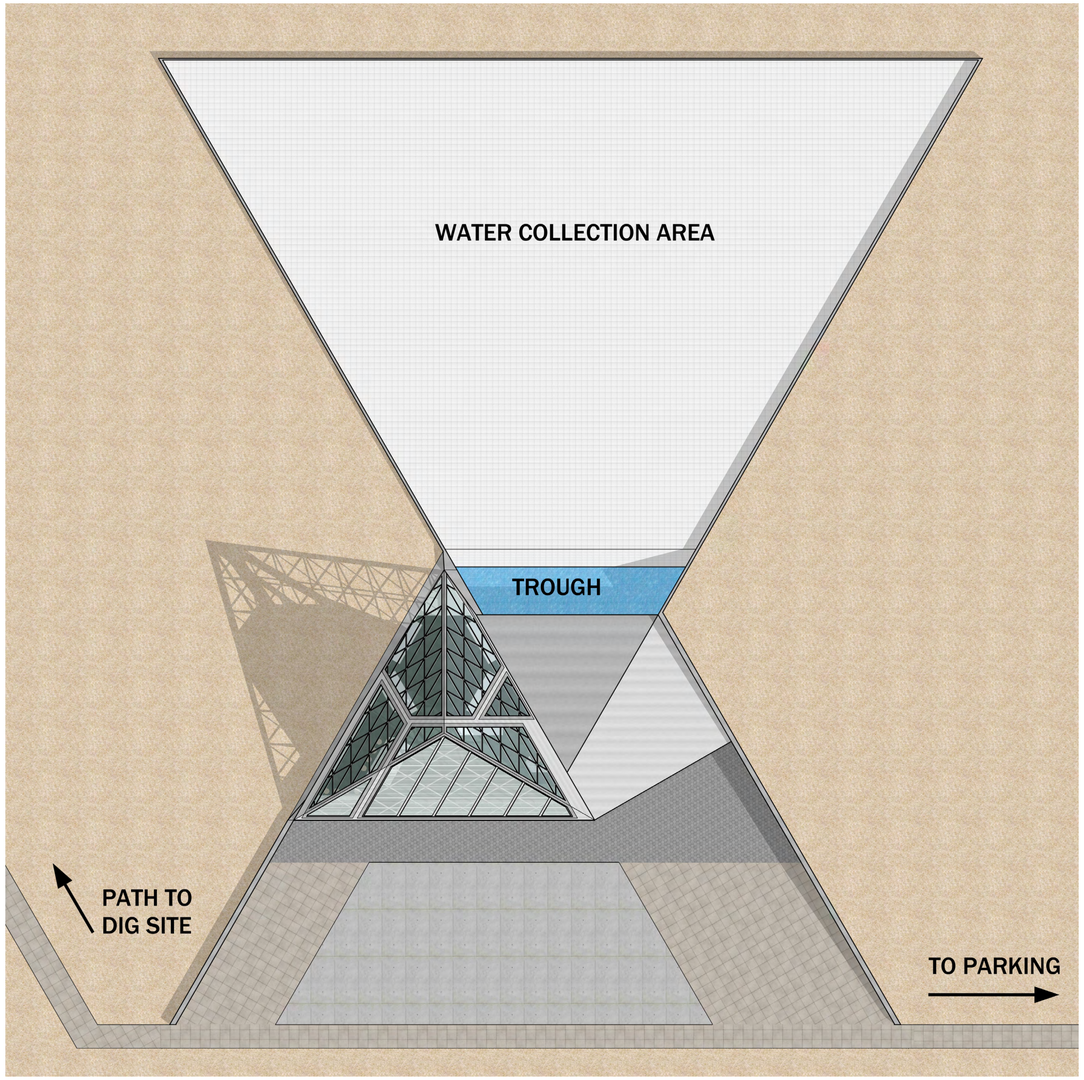


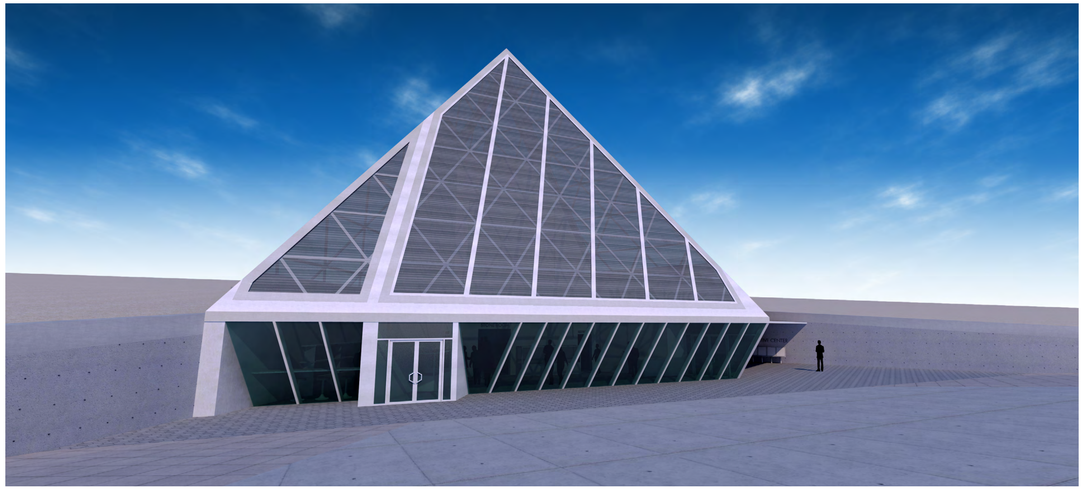
SECTION A

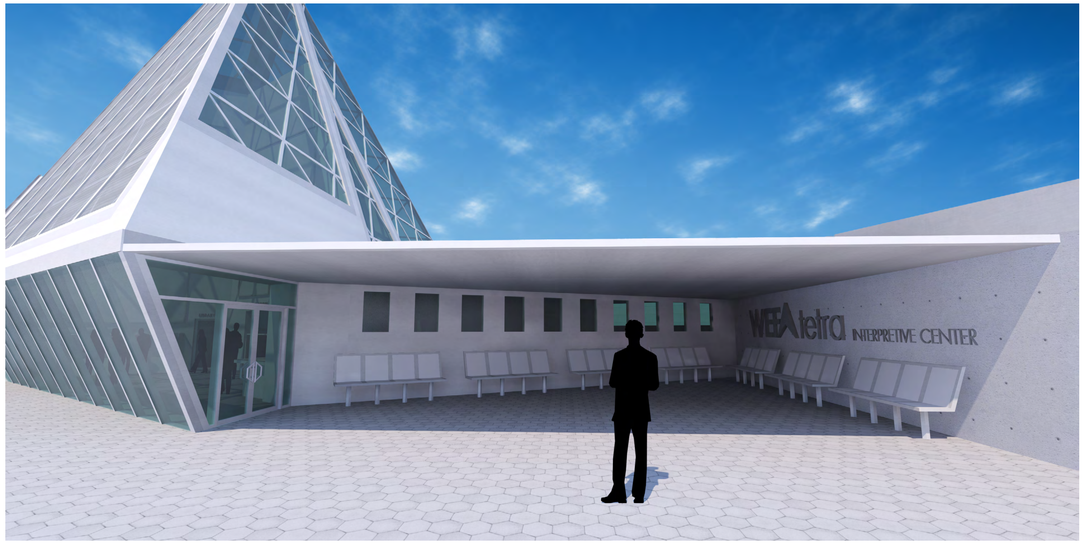


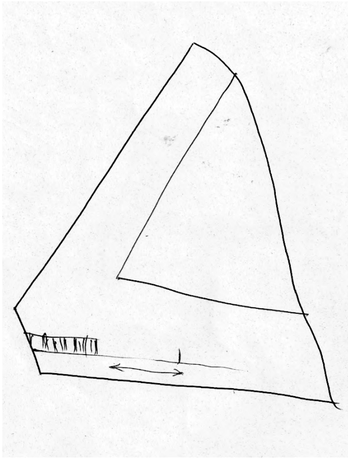
SECTION B

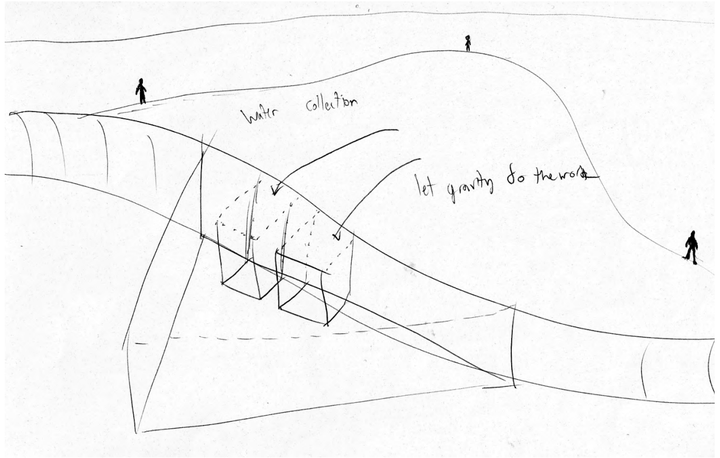


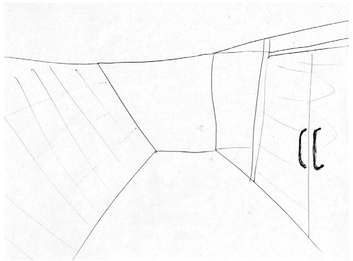

WATER COLLECTION AREA
TROUGH
PATH TO
DIG SITE
TO PARKING

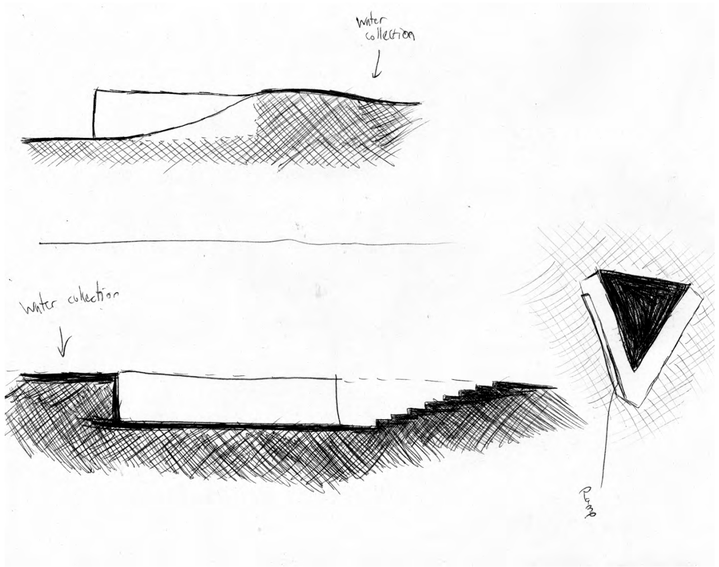


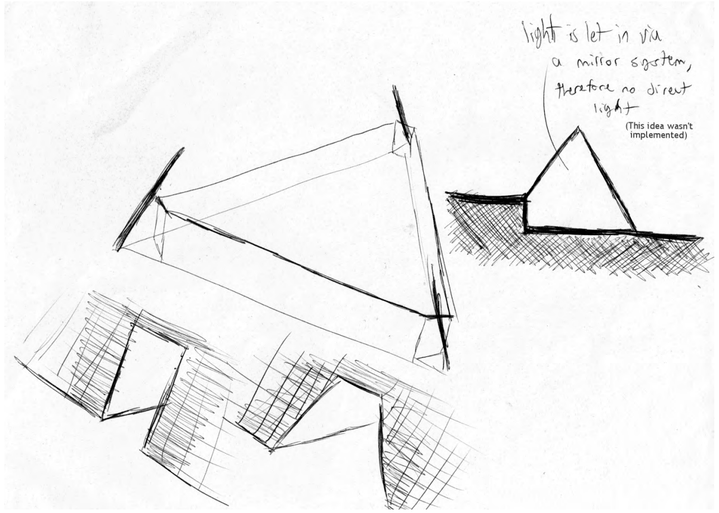

WEBtetra INTERPRETIVE CENTER

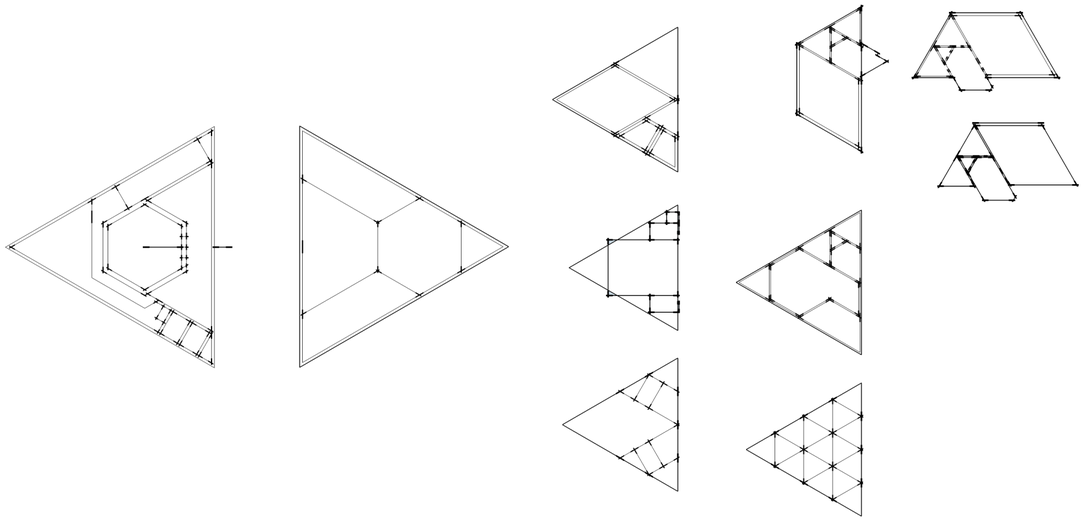


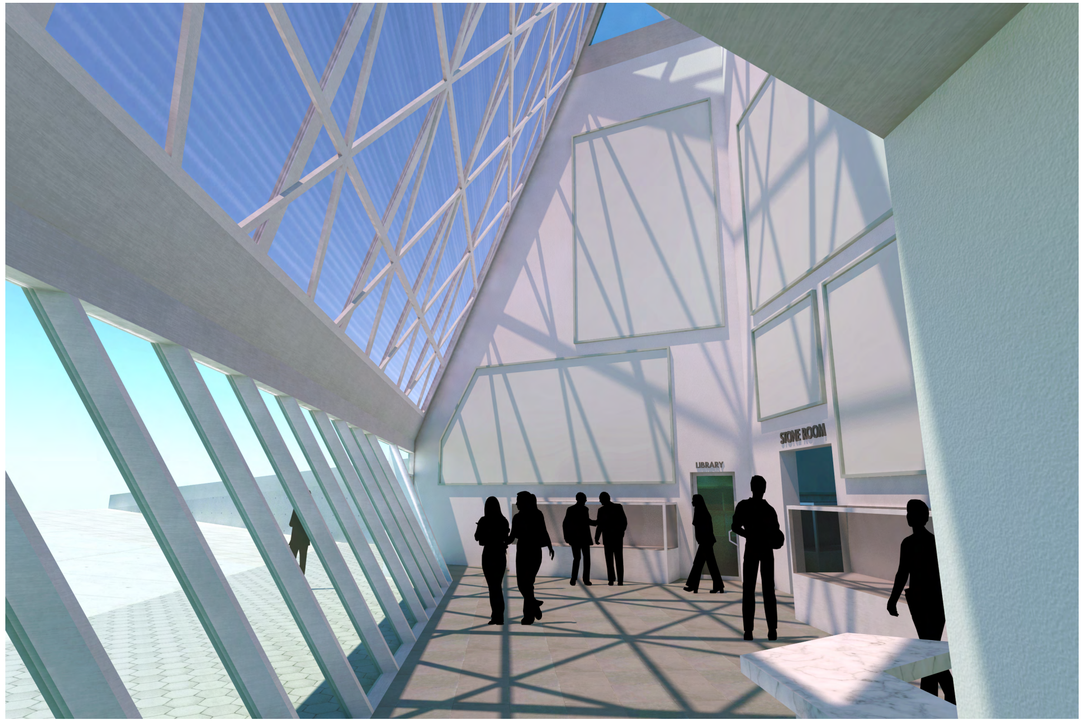

water collection
let gravity do the work




water collection
water collection
Pump


light is let in via a mirror system, therefore no direct light
(This idea wasn't implemented)



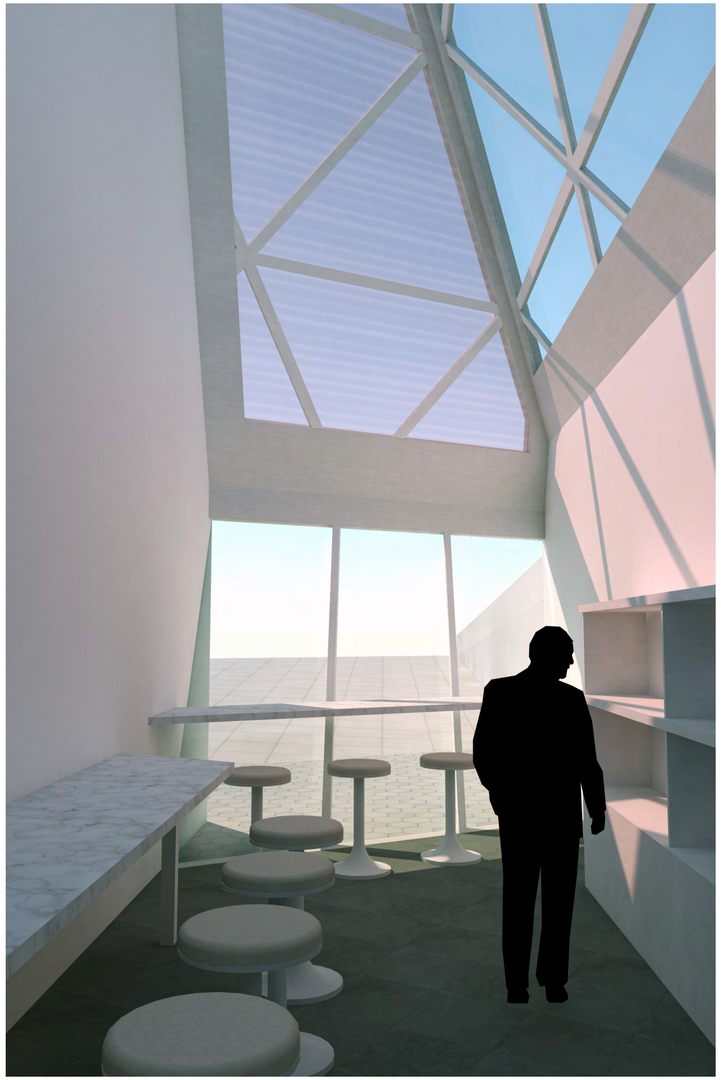


As you walk into the museum, the first thing you see is the large, lofty space of the interpretative area. This is consistent with the theme of spaciousness and air. The exhibit is all over the walls; areas higher up will show very large images and text, while display cases below will contain various smaller artifacts excavated from the region. The South facing side of the museum (left page) receives the most light. Its wall is constructed from a metal frame and translucent corrugated plastic to block excess light and heat.

This project had several design constraints. A requirement for the design was to utilize the natural environment: the site is in a remote desert area and the building lacks electricity. The stones themselves have mythical properties; they supposedly emit bright patterns of light when hit by moonlight during full moons or the equinoxes. However, if the water stone is hit with direct light, it will lose the ability to do this. Since I wanted the stones to be displayed together, similar to how they were found, I strategically positioned their display case in a shaded area.

Left page: The interpretive area, as described above | Bottom: Stone display room

Right: The library, with shelving space and stools. This is a semi-restricted area where researchers and guests can learn more about the Wefa culture from a collection of books and research.



Above: Donor recognition wall (no museum is complete without one) and entrance to restrooms.

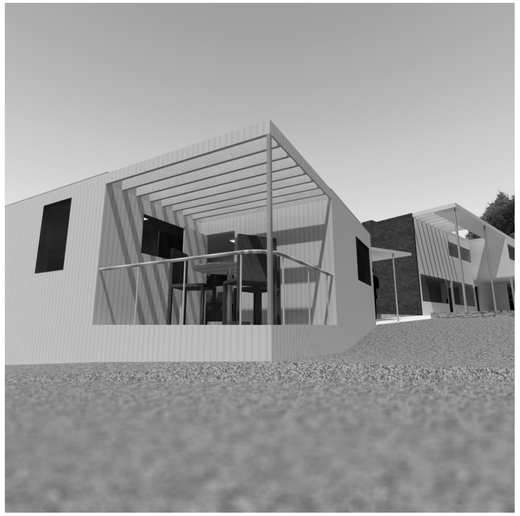
Lastly, if you haven't already guessed, the Wefa tribe never existed. "Wefa" stands for water, earth, fire, and air.

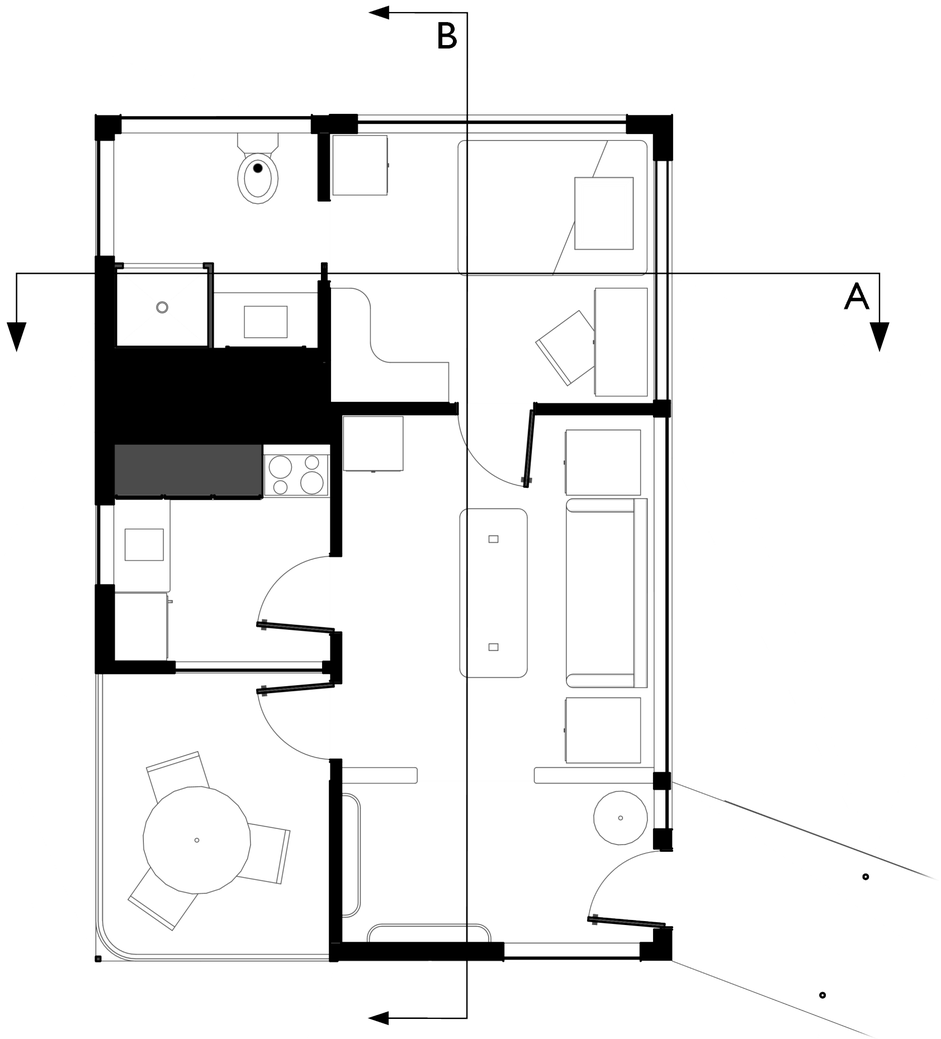
4

GUEST HOUSE FOR THE **GROPIUS** RESIDENCE

In this project for my second year fall studio class, I created a guest house for the Gropius Residence in Lincoln, Massachusetts. Walter Gropius was the founder of the Bauhaus School in Germany. His work led to the development of the now-ubiquitous international style, defining the skylines of cities across the globe.

At the time of its construction in 1937 - 1938, this house was unlike anything else in the region. Interestingly, despite the stark contrast between the residence's modern design and the traditional architecture of the area, Gropius adopted regional materials and building techniques (e.g., a painted wood façade) in his home.

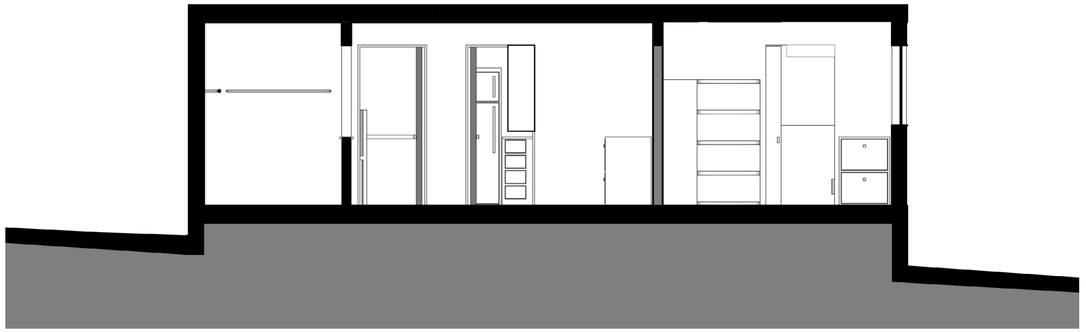


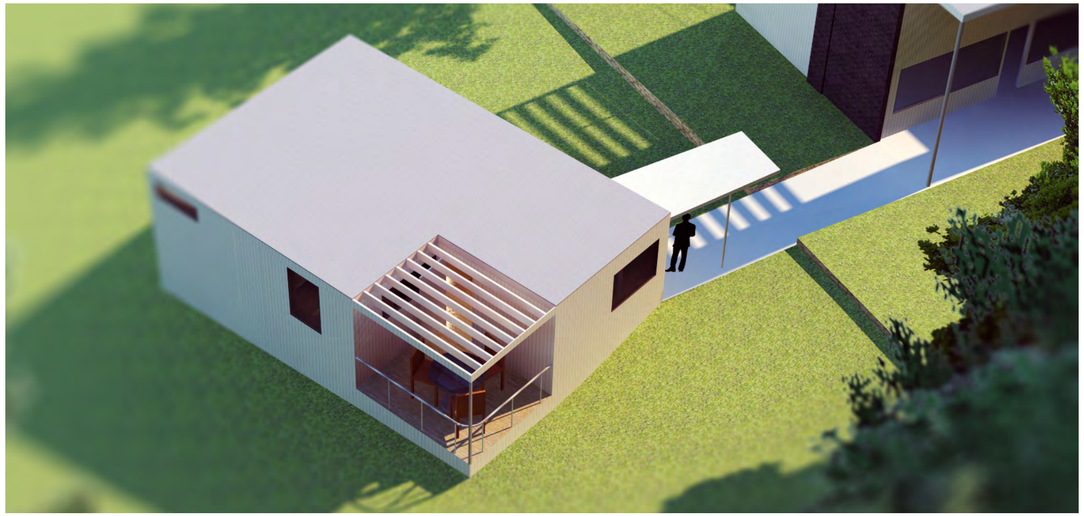


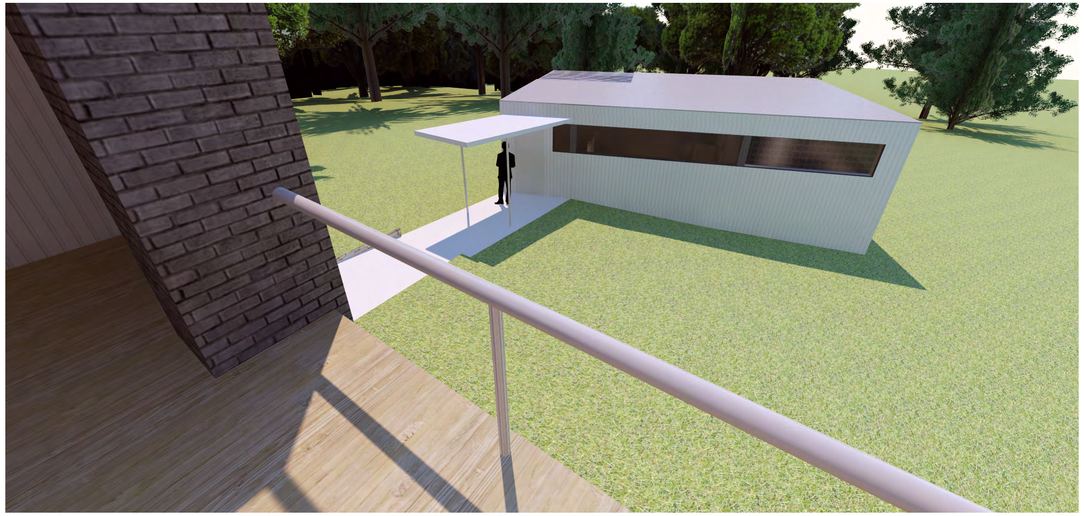
SECTION A

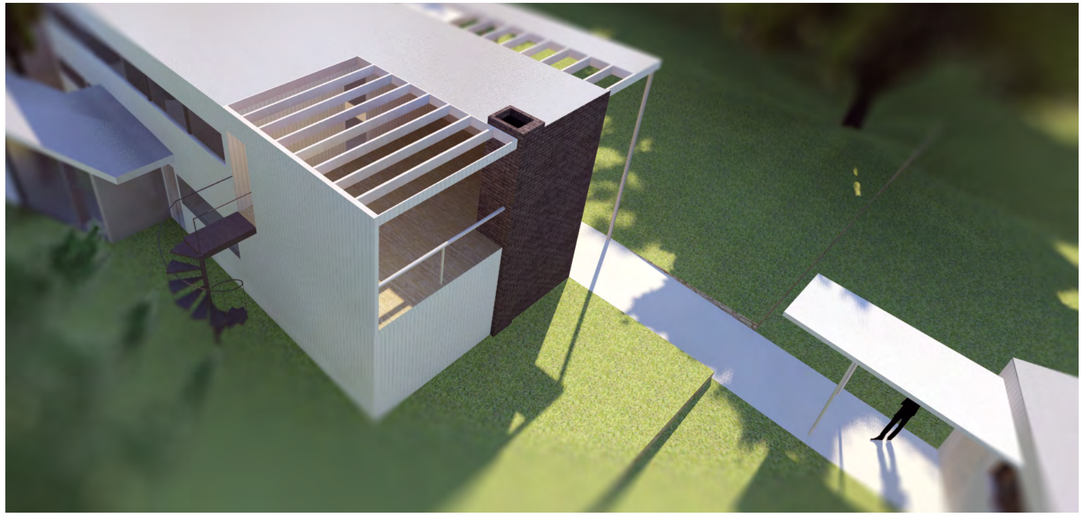
The guest house, like the original Gropius residence, is designed to be practical and efficient. It has an open floor plan without dedicated space for circulation. Some of the features borrowed from the original design include a sloped canopy over the approach, long horizontal windows on the front façade, and a back porch similar to the upper level sun porch in the residence.

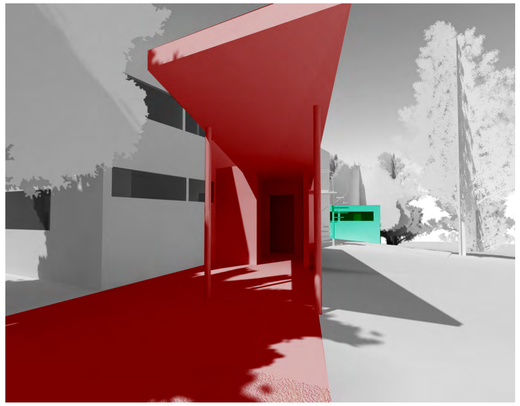
SECTION B

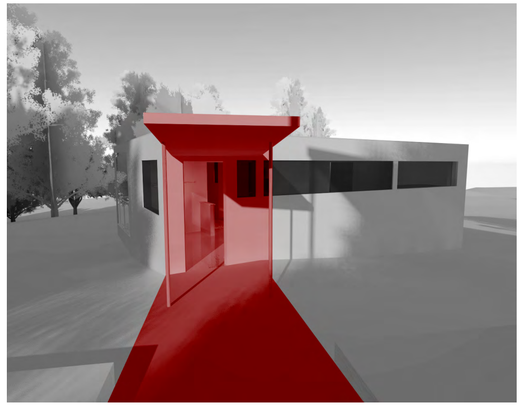










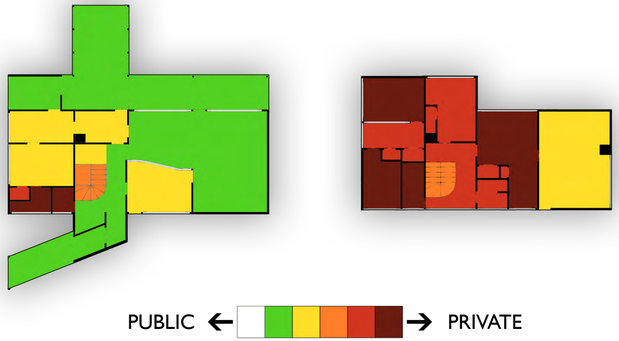


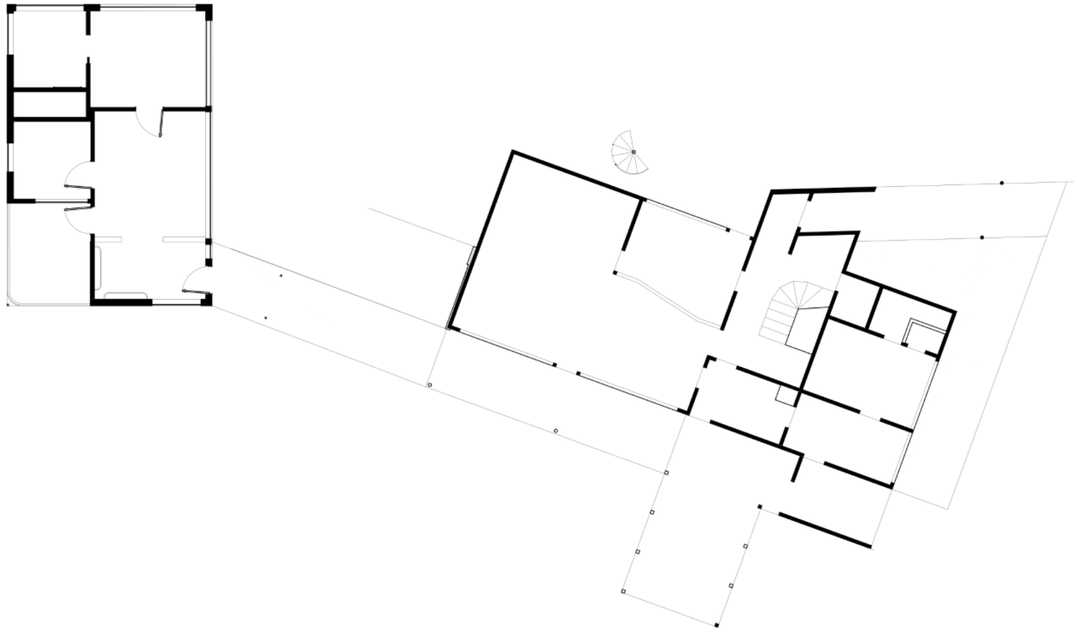
The guest house, a private space for trusted visitors, maintains a prominent presence in the landscape but is strategically positioned to be inaccessible to outsiders. The façade of the guest house is perpendicular to the walkway leading from the driveway to the main residence. As one approaches the front door they can see a glimpse of the guest house peeking out from behind. However, to actually reach it, one must exit the residence's back door and walk along a backyard pathway.

Upper left: Main house approach (red) with guest house visible (teal)

Upper right: Guest house approach (red) from the residence backyard

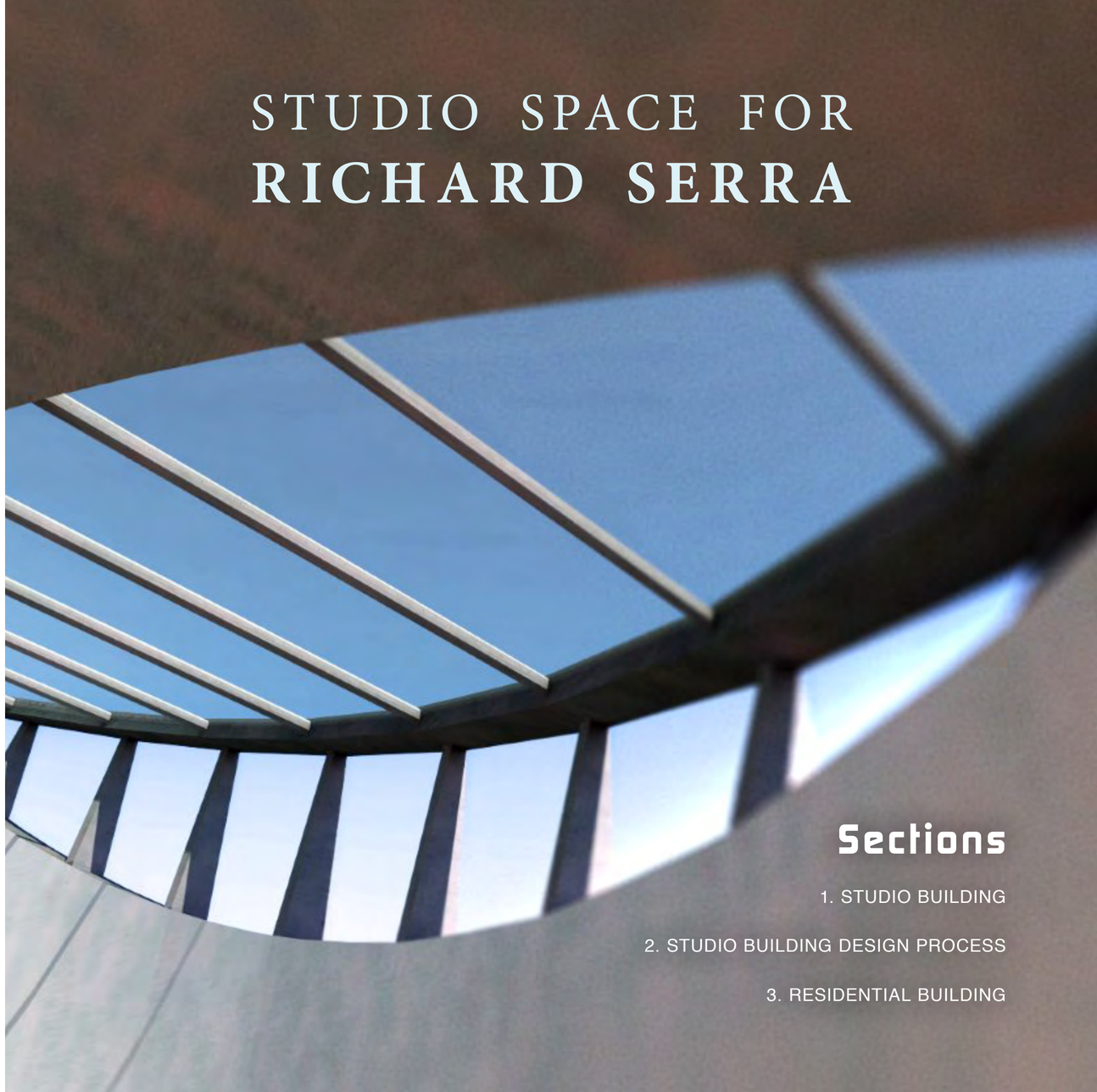
Lower left: Public-private diagram of original residence





5

STUDIO SPACE FOR RICHARD SERRA



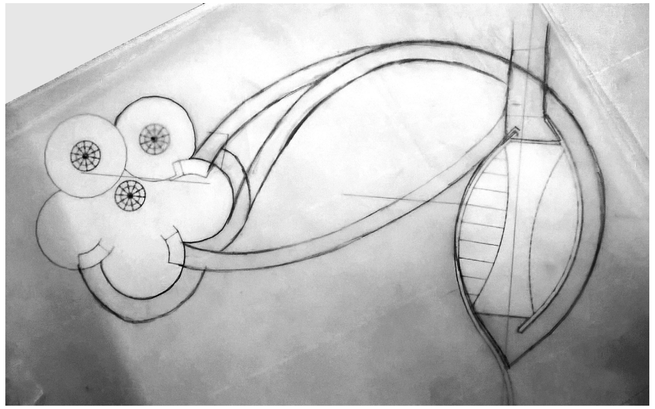
Sections

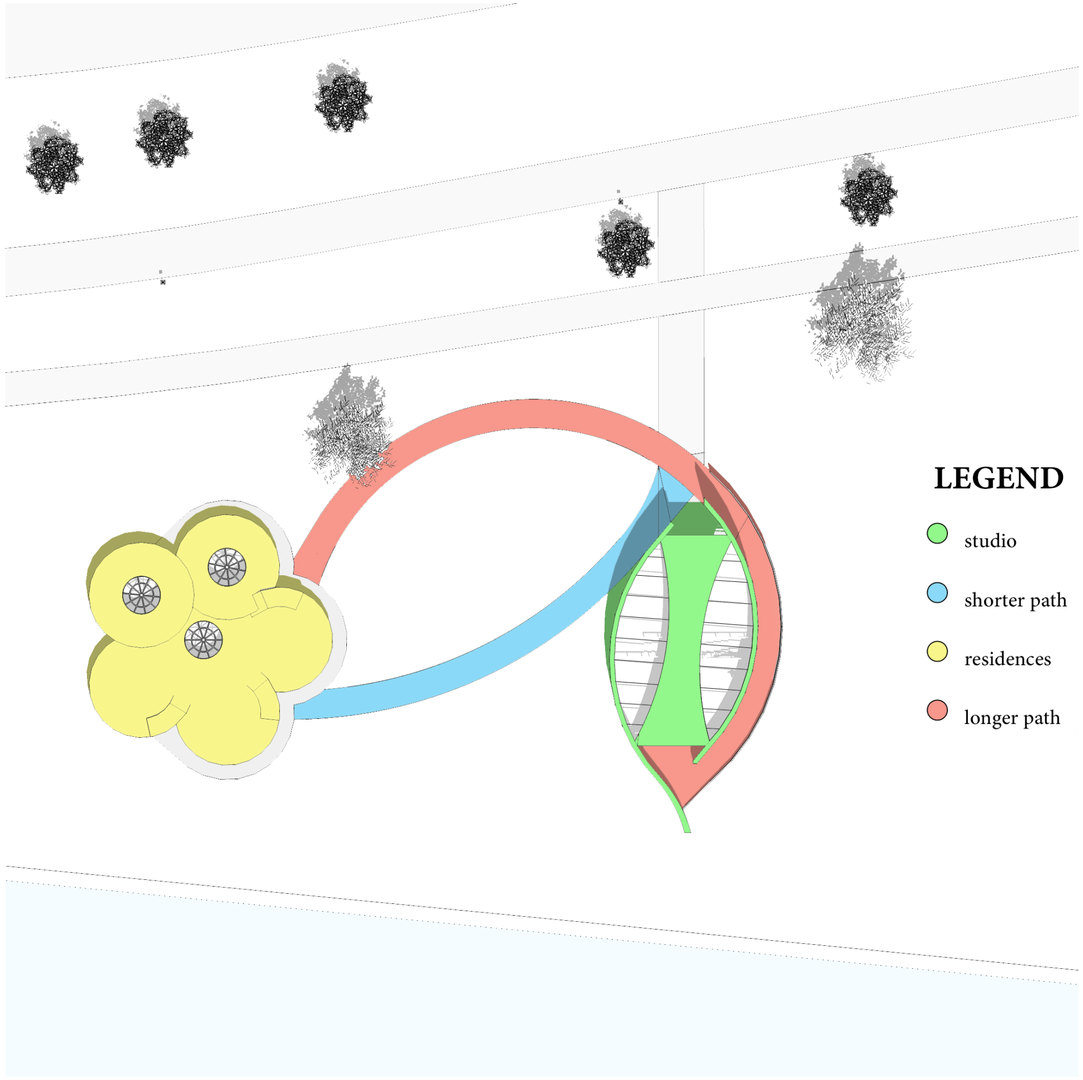
1. STUDIO BUILDING

2. STUDIO BUILDING DESIGN PROCESS

3. RESIDENTIAL BUILDING

In my spring first-year studio class, I was given a two part assignment: to create a studio for an artist, and an adjacent residential building for five disciples. I chose Richard Serra, best known for his curved steel sculptures of immense scale. The location of the site is Fairmount Park in Philadelphia, PA, between the Schuylkill River and the biking trails alongside Kelly Drive. You may notice the site plan resembles a leaf (the studio) and a flower (the residences), connected by a stem (pathways). This was entirely unintentional; I only realized it after finishing the project!

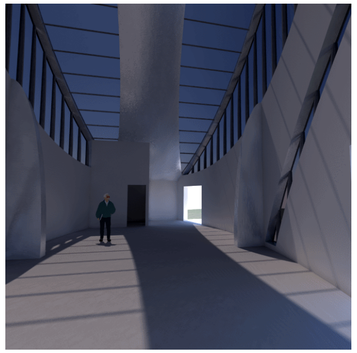


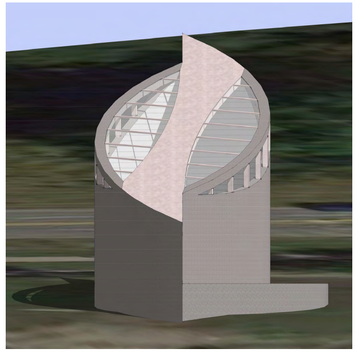


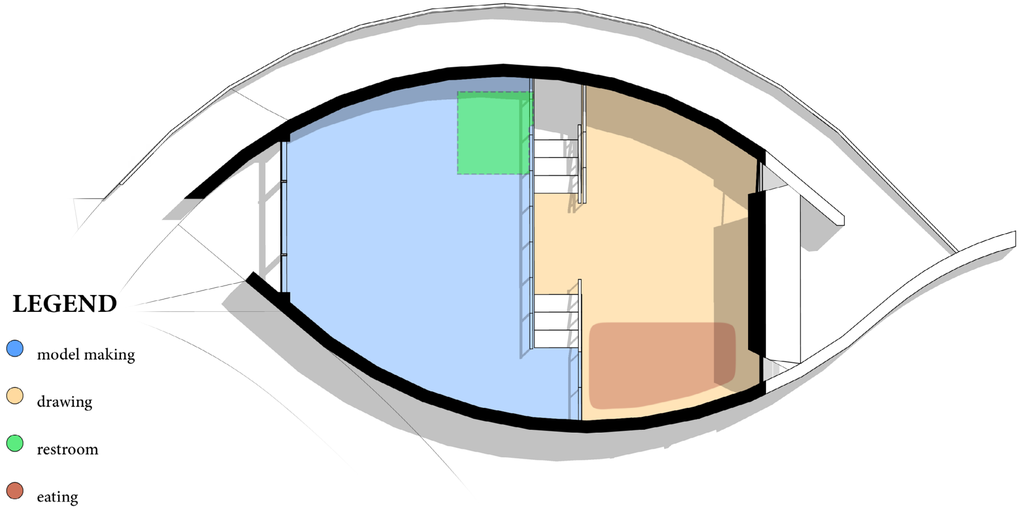
I. STUDIO BUILDING

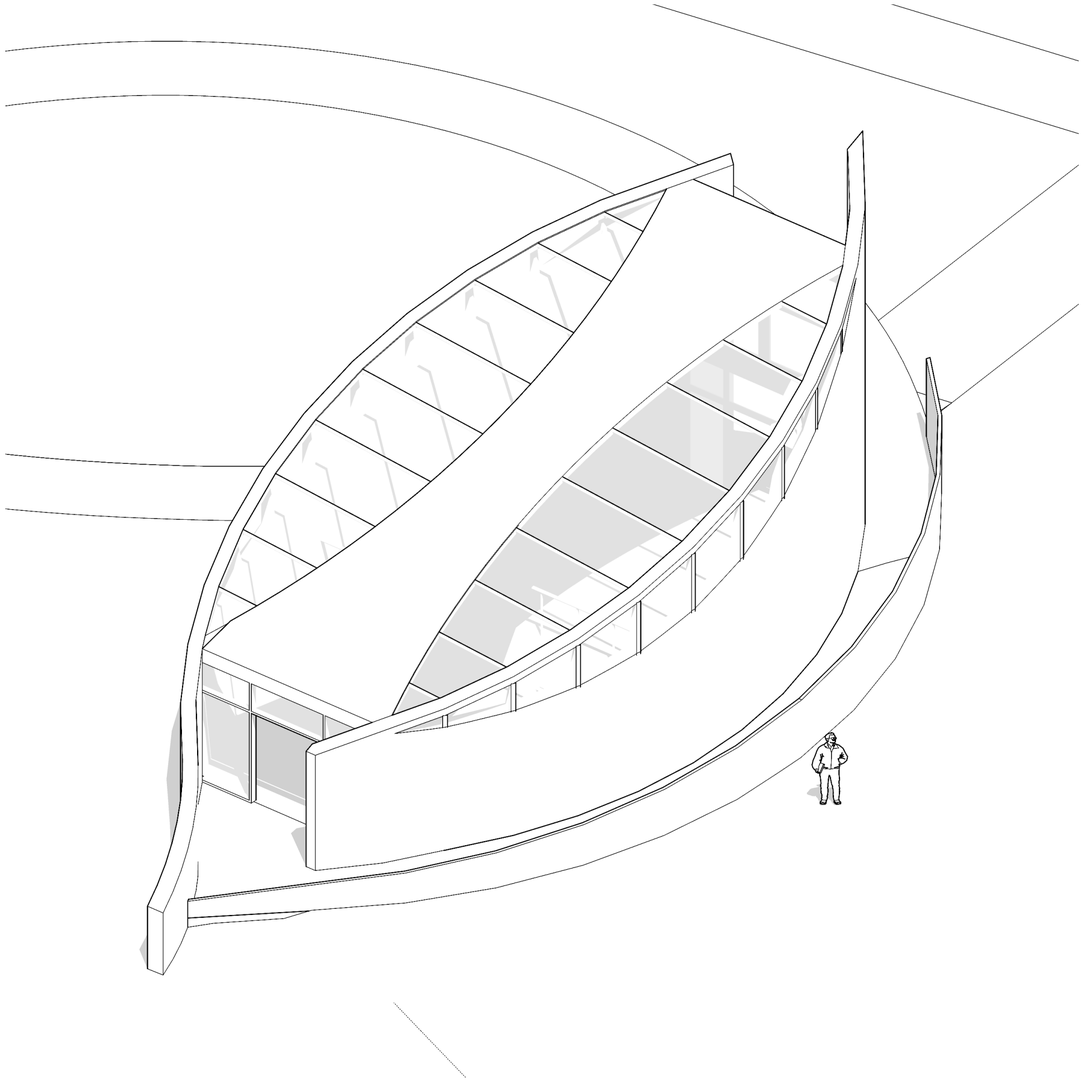
To actually construct his room-sized steel sculptures, Richard Serra requires a large warehouse or naval yard. However, Serra designs them using smaller scale lead models. He also does lots of unpublicized drawing and sketching; these works are usually unrelated to his sculptures. My goal was to create a studio to accommodate these smaller-scale activities. The site is in an isolated location, so I included a restroom and an eating area, with space for a refrigerator and a table or bar.

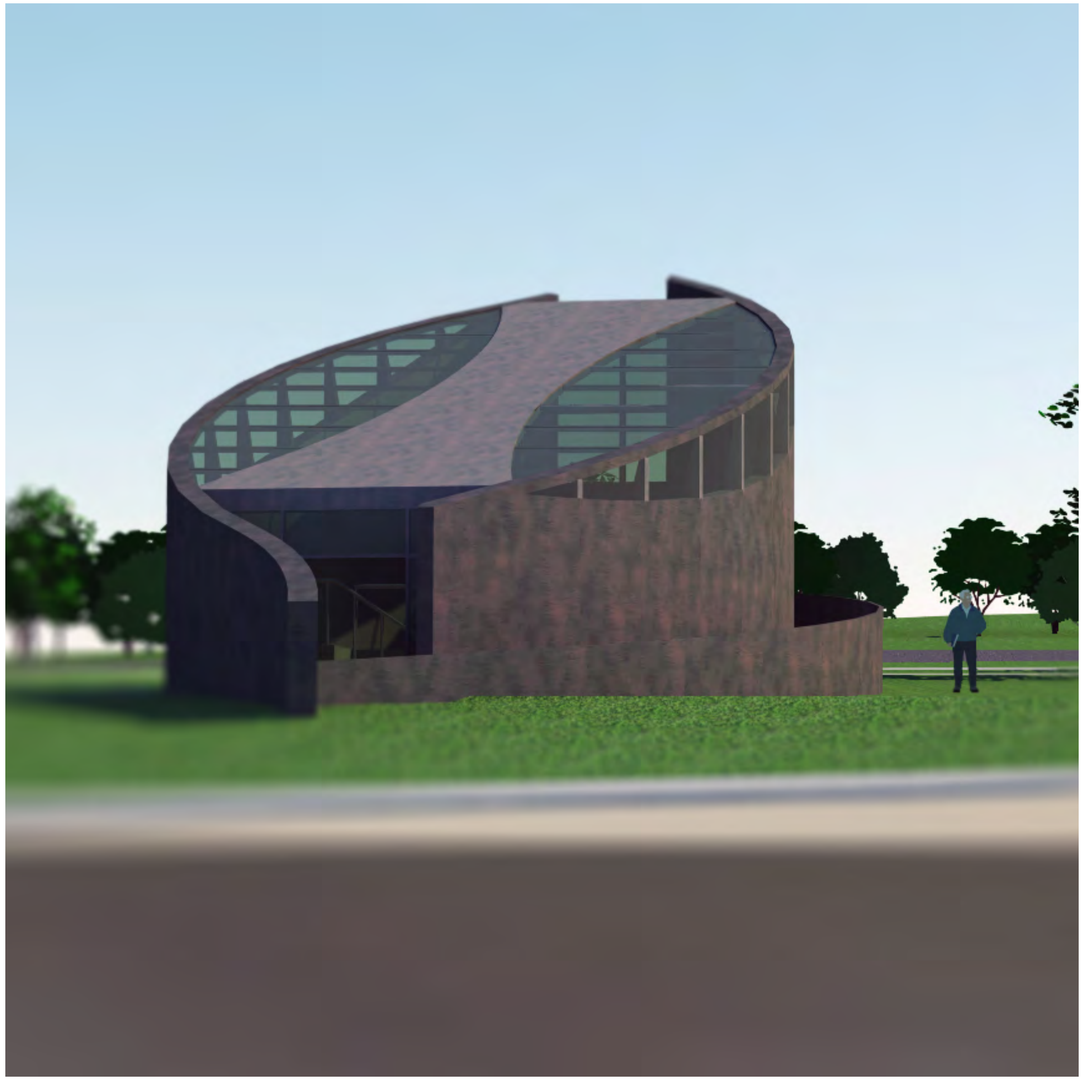
One can approach the building from the Schuylkill River trail and enter through the front, or walk around the building to the river-facing rear entrance. The building is split into two levels, connected (and divided) by a staircase. The upper and lower levels are for model-making and drawing, respectively. The restroom is at the bottom of the steps, directly under the upper level.

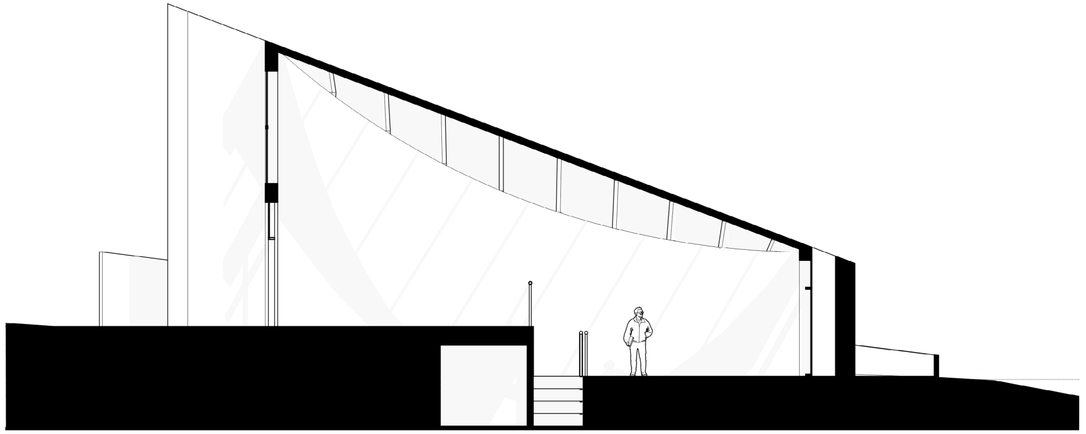


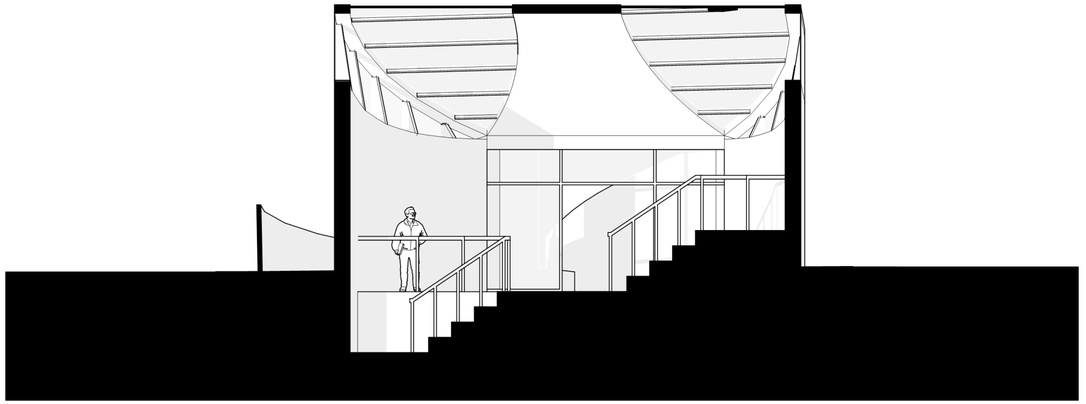


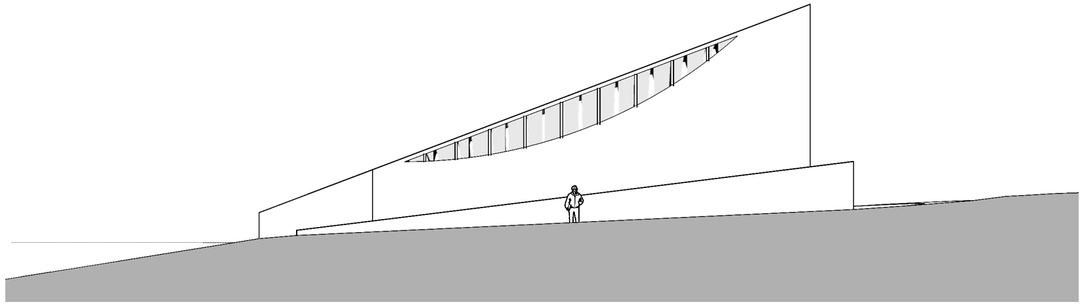


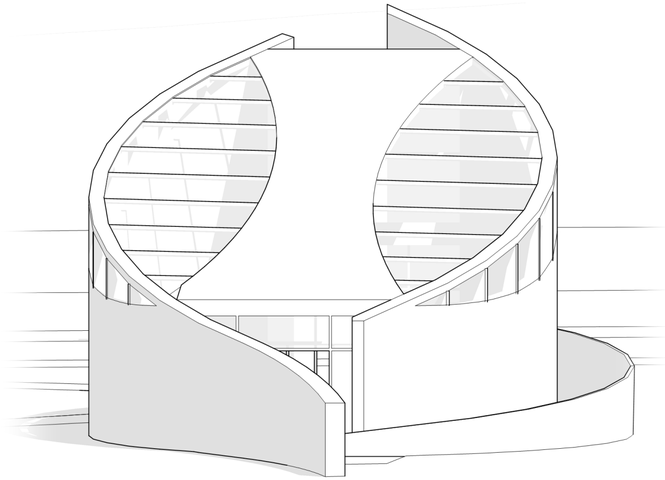


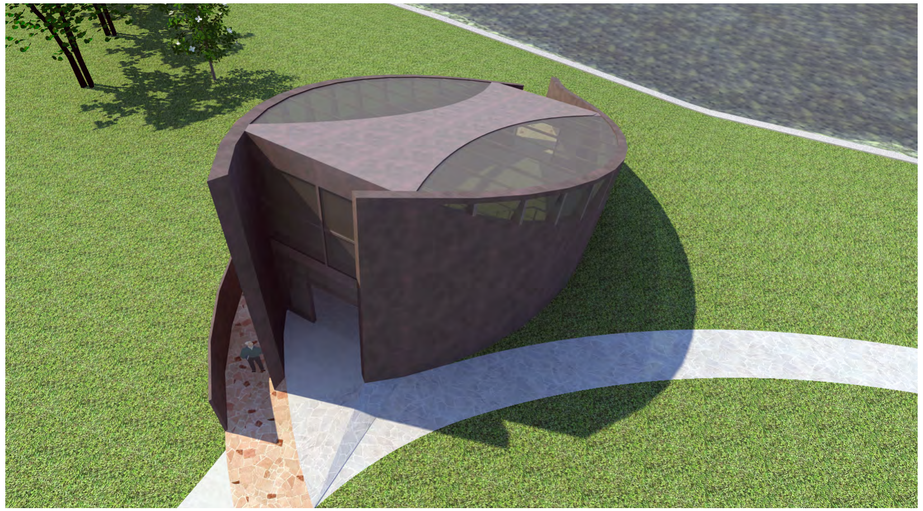


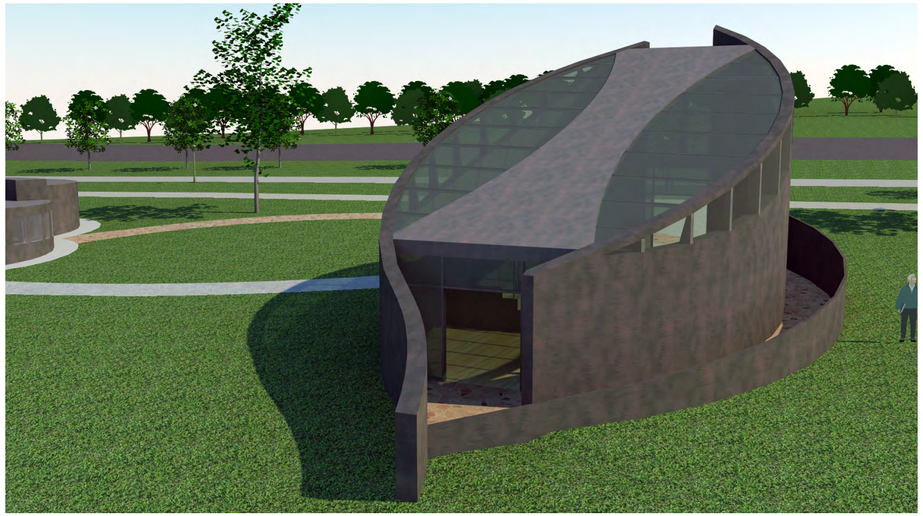


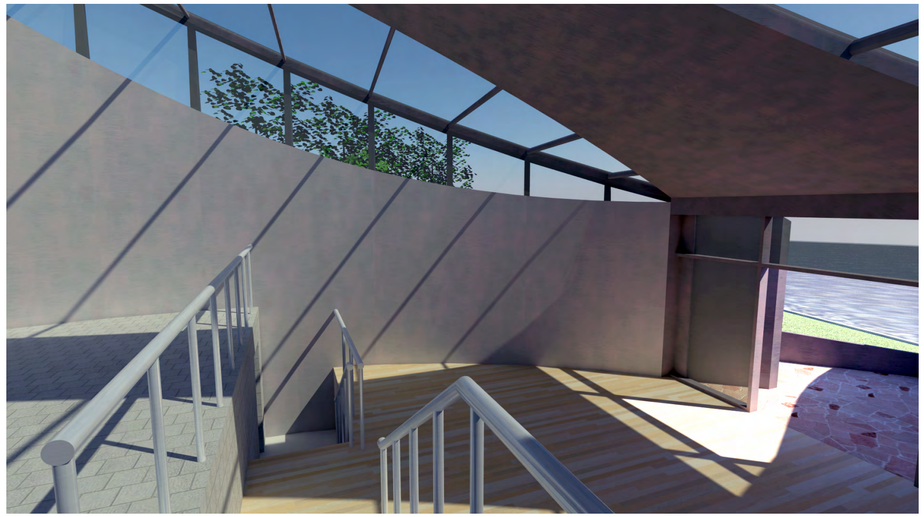


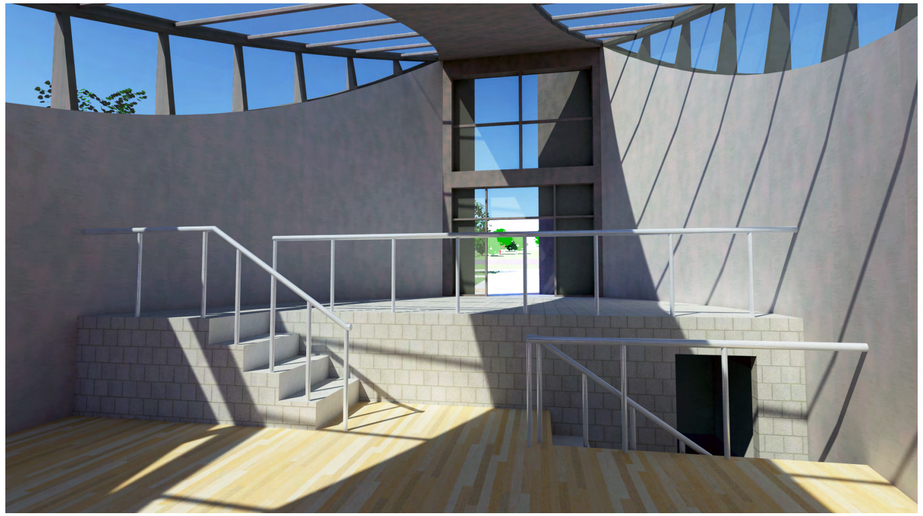


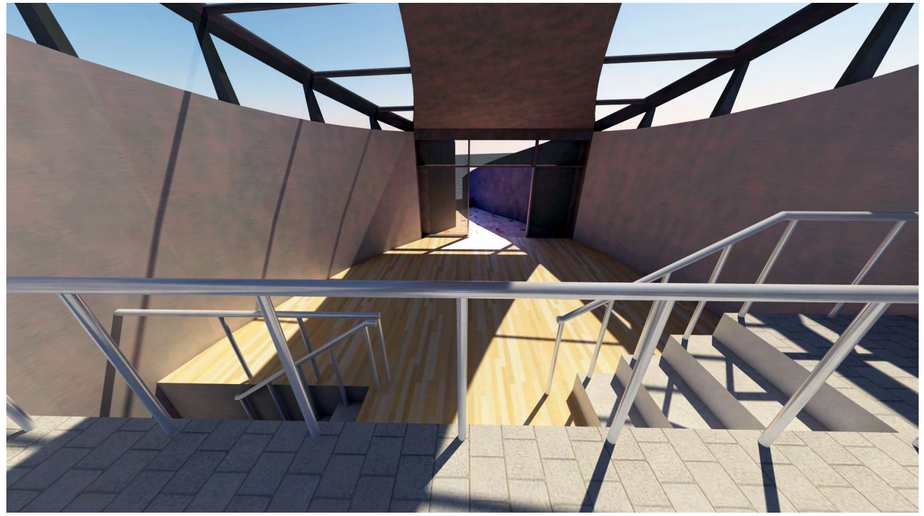












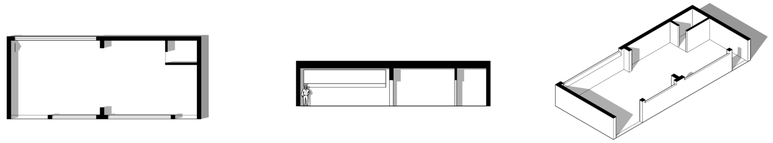
2. STUDIO BUILDING DESIGN PROCESS

The following is the process I used to design the studio over the course of 10 weeks:

1ST ITERATION

I started with the most utilitarian design possible. On the left of the plan is an area for Serra to build models, and on the right is space for drawing. The small room at the far right is a restroom.

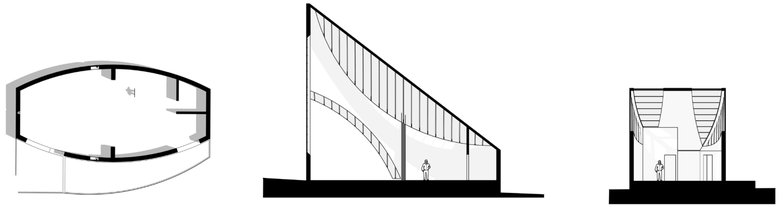
1



2ND ITERATION

Sculpting requires more room than drawing, so to differentiate the spaces I raised the ceiling upwards at that end of the building. I also began adding curves to the model to mimic some of the aesthetics of Serra's work. One motif here is a curved hourglass ")(" shape between the windows on the walls, as well as on the roof.

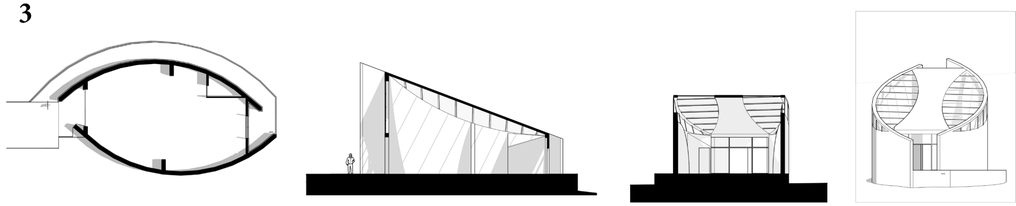
2



3RD ITERATION

As seen in the plan view, the positions of the walls were shifted, resulting in enclosed areas near the entrances. Thus, one is enveloped by the building as they walk into it, as is the case with many of Serra's sculptures.

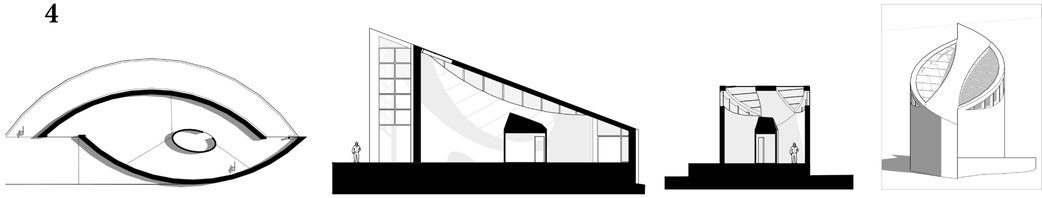
3



4TH ITERATION

I decided to exaggerate the shift of the walls as far as possible. To divide the space further, I moved the restroom into the middle. Although this created an interesting interior space, it eliminated the exterior enclosures; this was one of the main reasons I abandoned this iteration of the design.

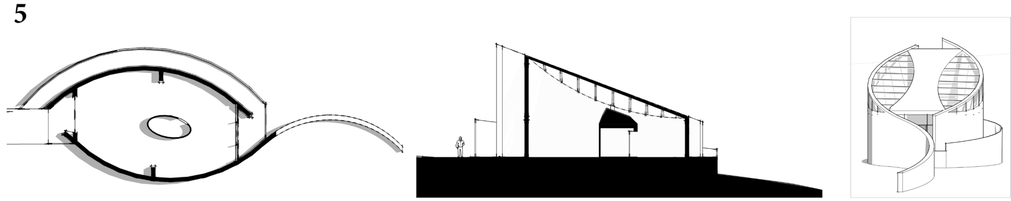
4



5TH ITERATION

Based on feedback from my midterm critique, I made several additions to the third iteration. First, I added a wall alongside the curved pathway leading to the back entrance. I also extended one of the main walls out into the landscape; this was meant to be a whimsical gesture. I kept the restroom from the fourth iteration.

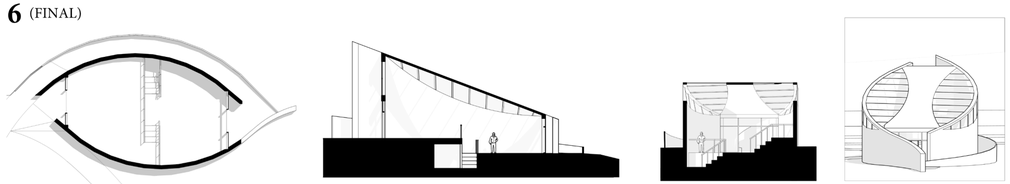
5



6TH ITERATION

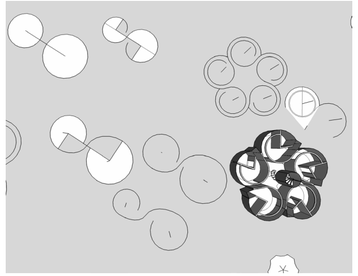
In the final design, the building has been split into two levels to take advantage of the sloped ground condition. It is now a staircase, not the restroom, which divides the studio into two distinct spaces. Additional studio space is reclaimed by moving the restroom underground. The exterior pathway is now a ramp to keep the building accessible.

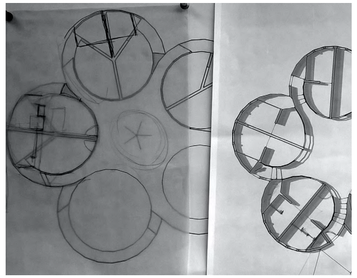
6 (FINAL)



3. RESIDENTIAL BUILDING

The second part of my assignment called for a residential building to allow five aspiring disciples to live near the studio. I was required to include bedrooms, restrooms, a kitchen, and common living space, and the building needed to be under 1600 square feet. Instead of starting with function and adding form, as I did with the studio, for this building I went in the opposite direction, basing the design on an actual Richard Serra sculpture (Cycle, 2010).



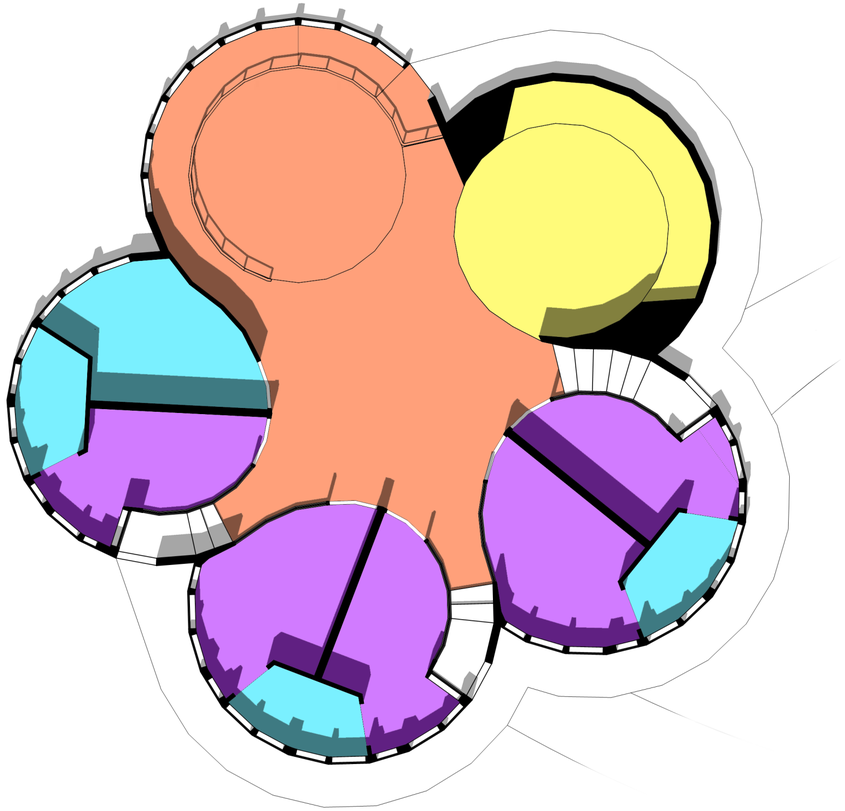


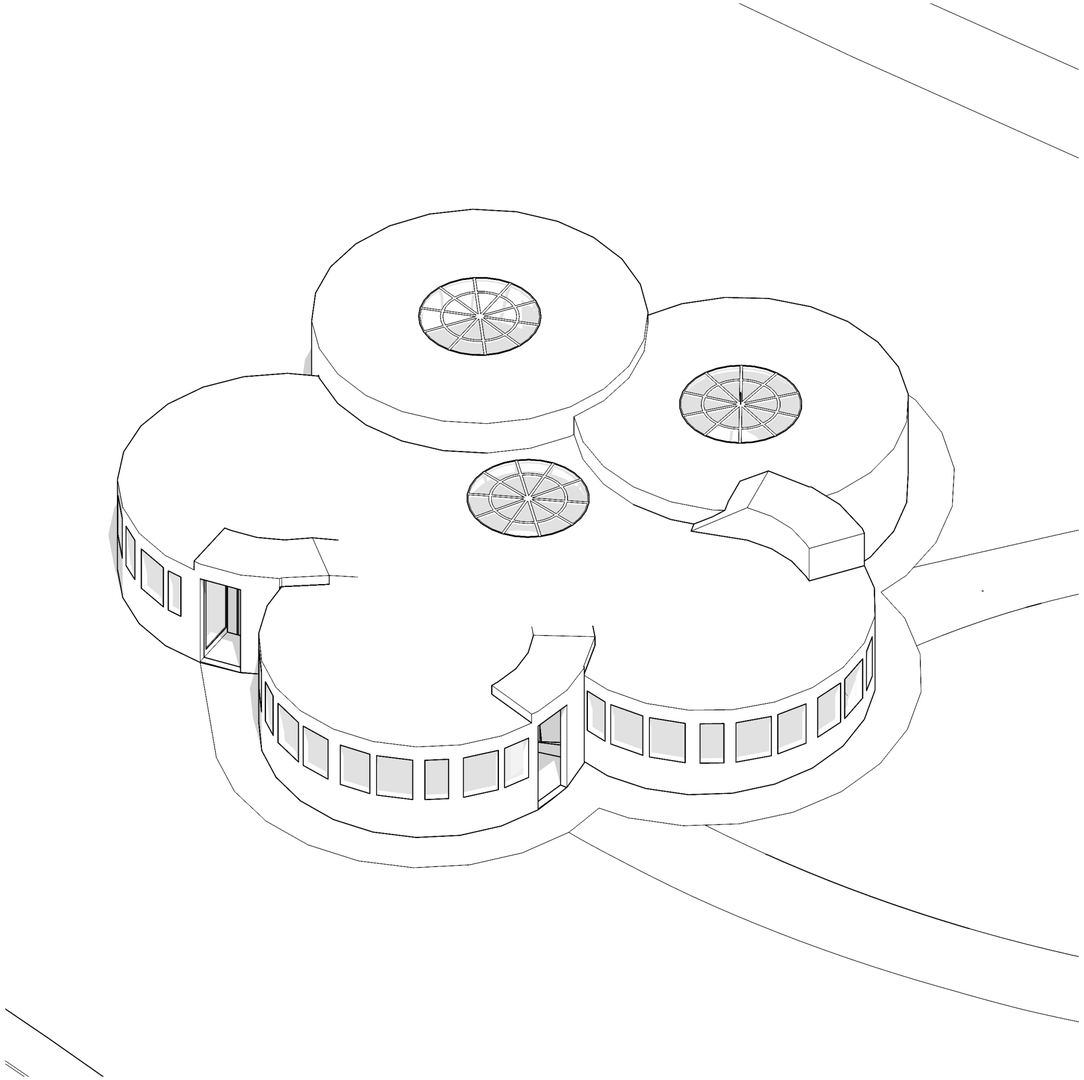
Cycle is made from three S curves. My original intention was to create a pentagonal version of the design with five bedrooms surrounding a central area. The central area wasn't large enough to fit all the other requirements, so I ended up dividing three of the outer circular spaces in half. Carving up the bedroom spaces this way isn't ideal and leaves a few awkward corners, but it allowed everything to fit nicely into the space.

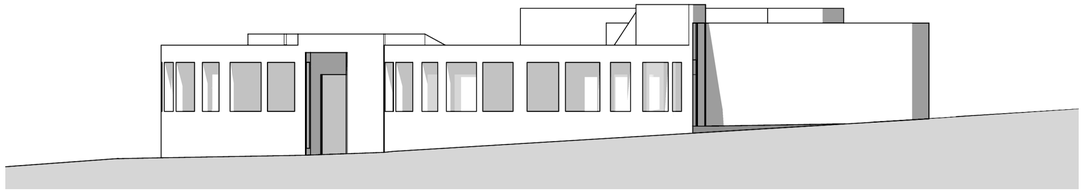
The smaller personal restrooms only fit a toilet and a sink, so I made space for a larger restroom area where a bathtub or shower could be placed. The design is half-submerged into the sloped ground; one of the exits has a longer staircase to accommodate this.

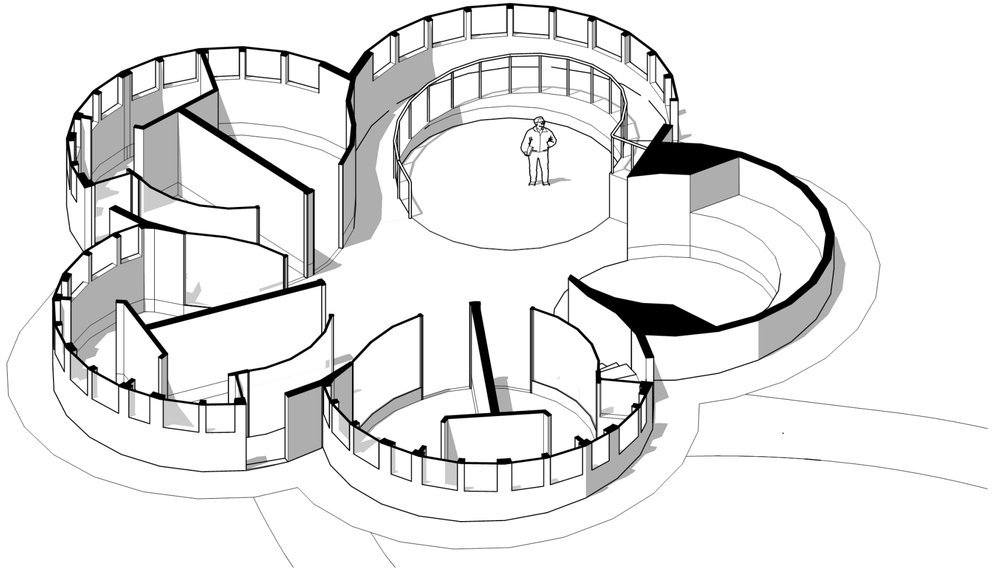
LEGEND

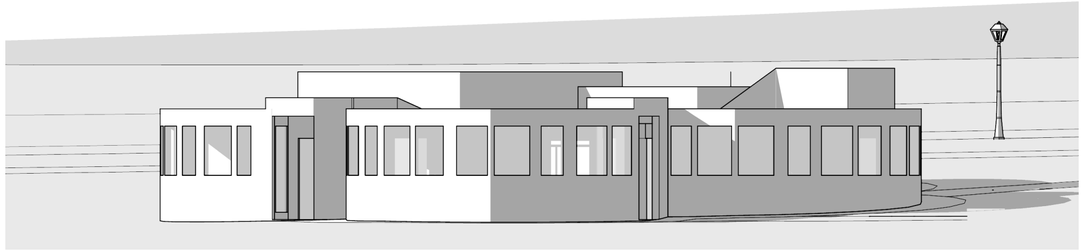
- bedrooms
- restrooms
- kitchen
- living areas

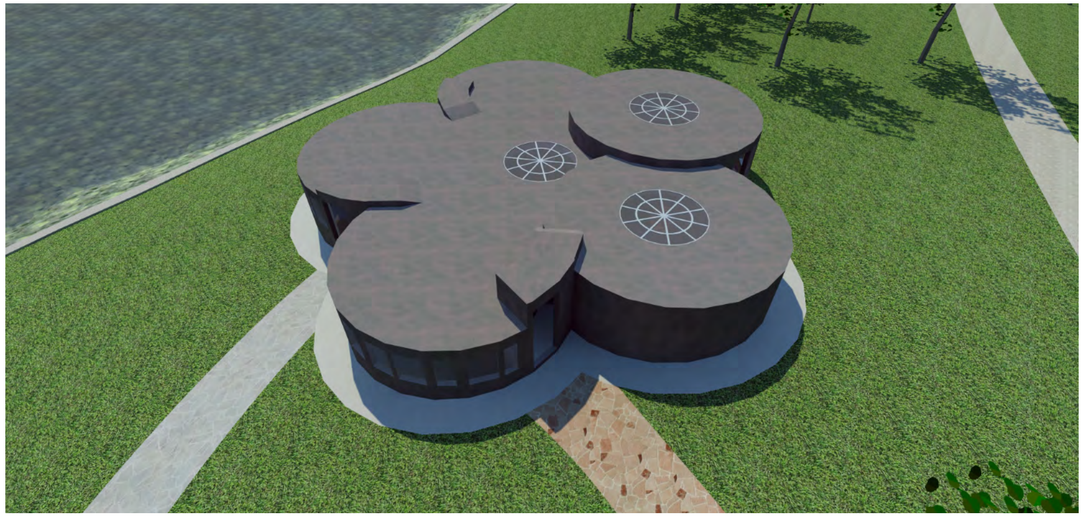


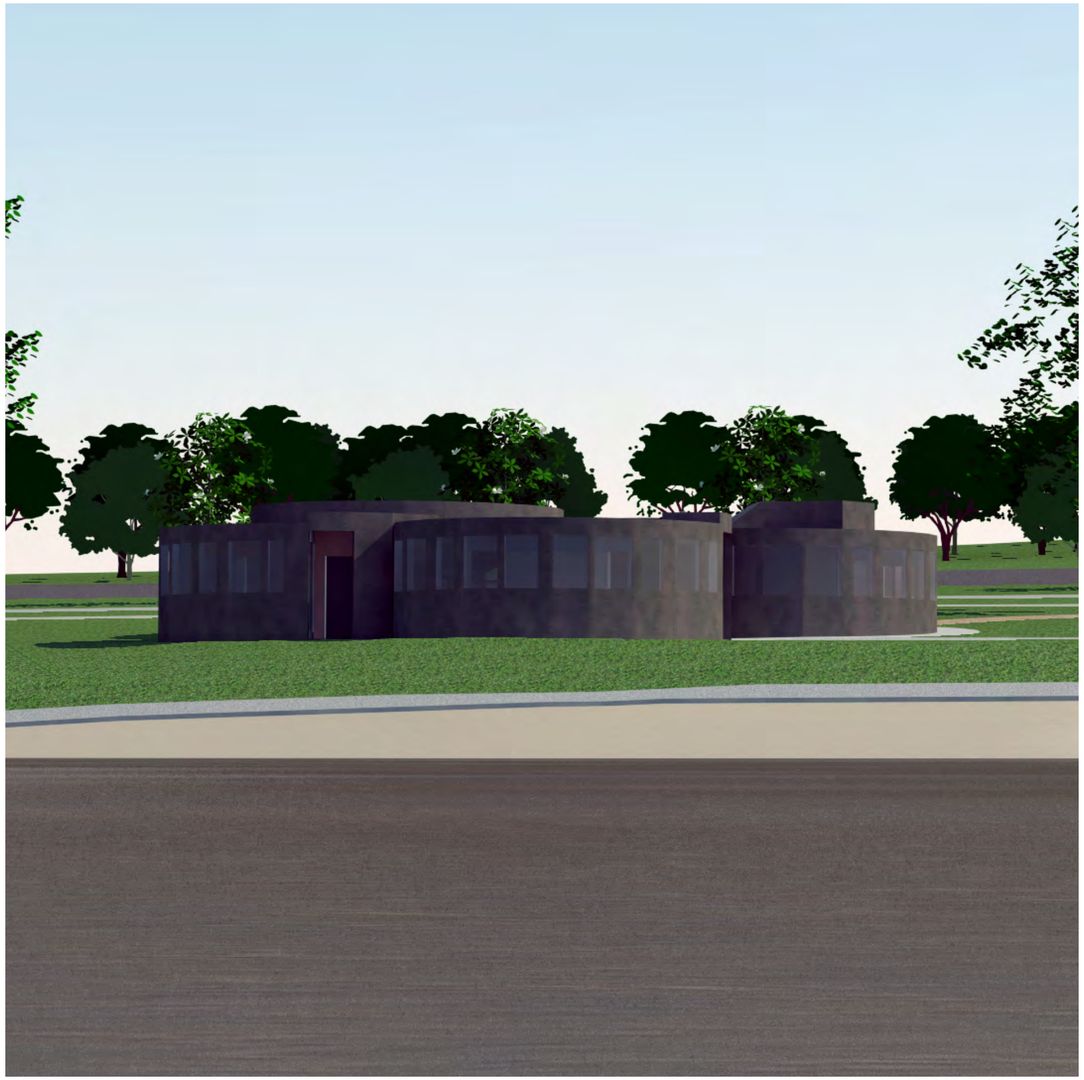


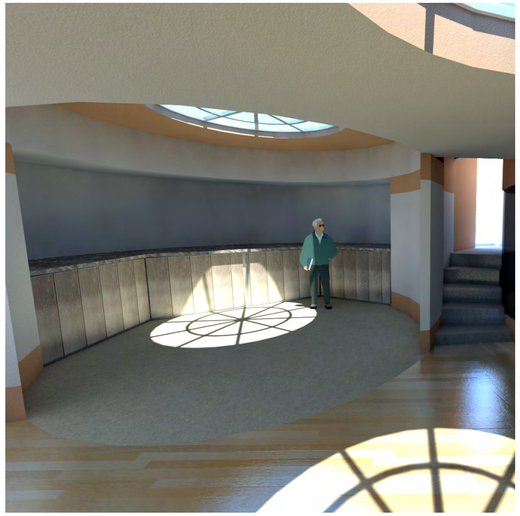






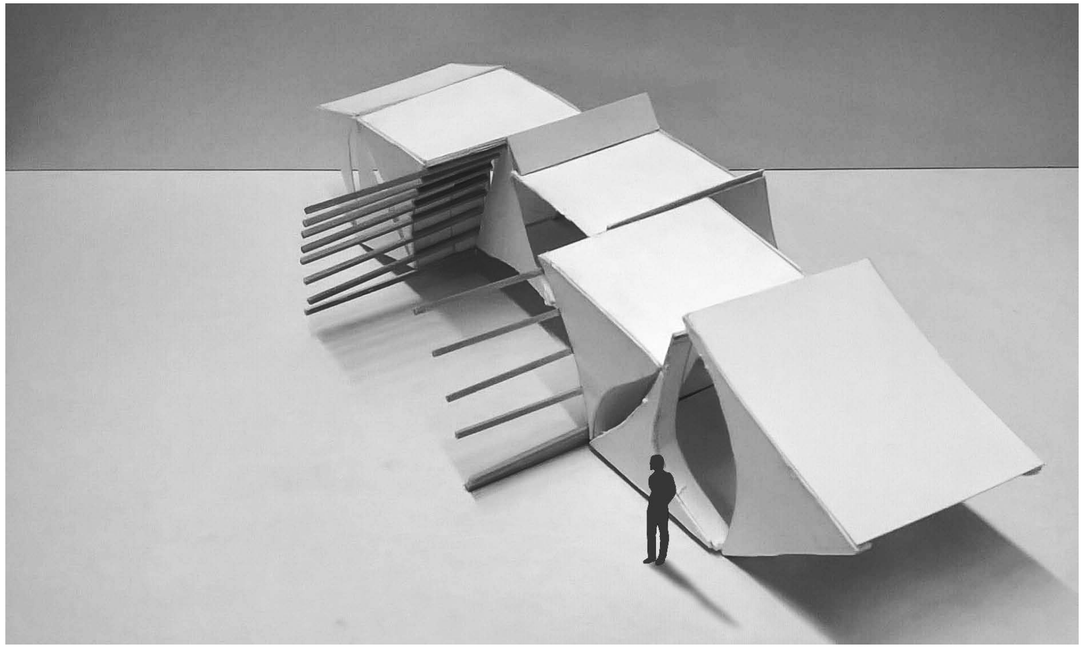




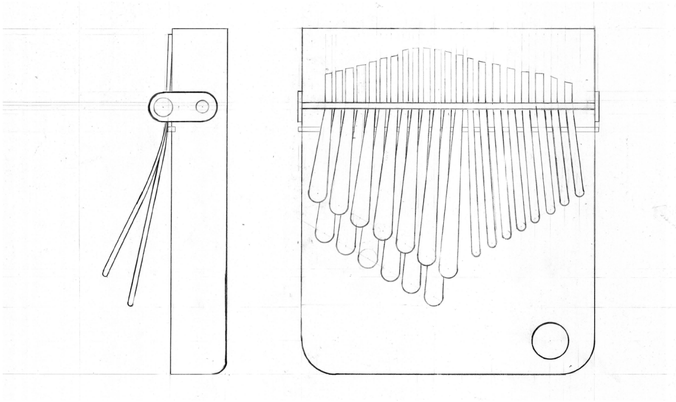


6

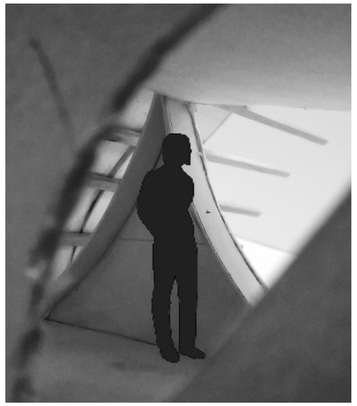
KALIMBA PAVILION

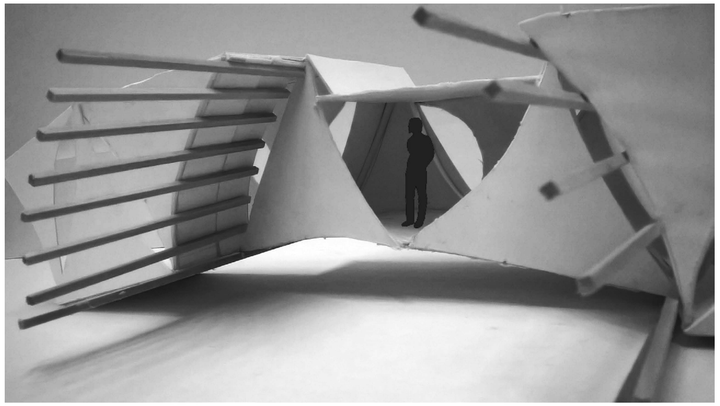


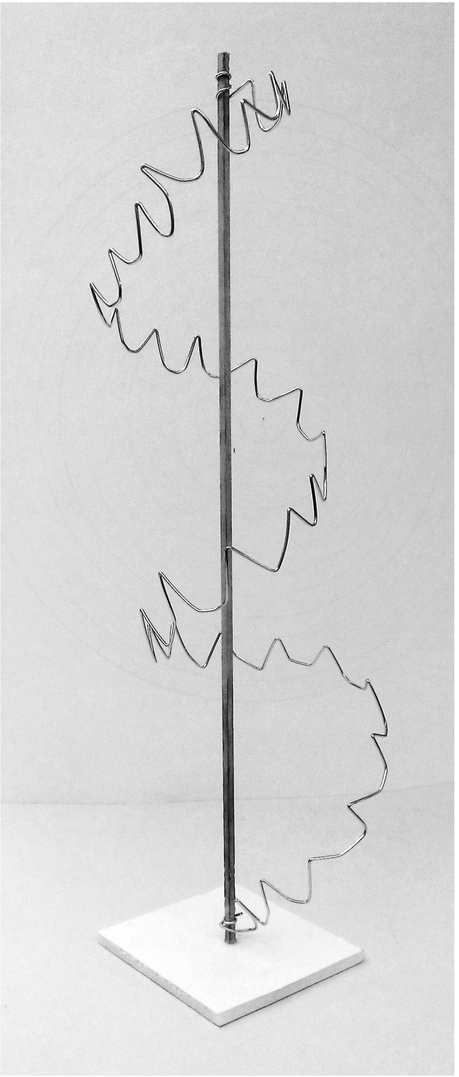
For my first-year winter studio class, I researched an obscure instrument and used its sound as a starting point to design a pavilion with space for a soloist to play it. I was assigned the Kalimba, an African thumb piano.



Right: Drawing of a kalimba
Above & next page: final model



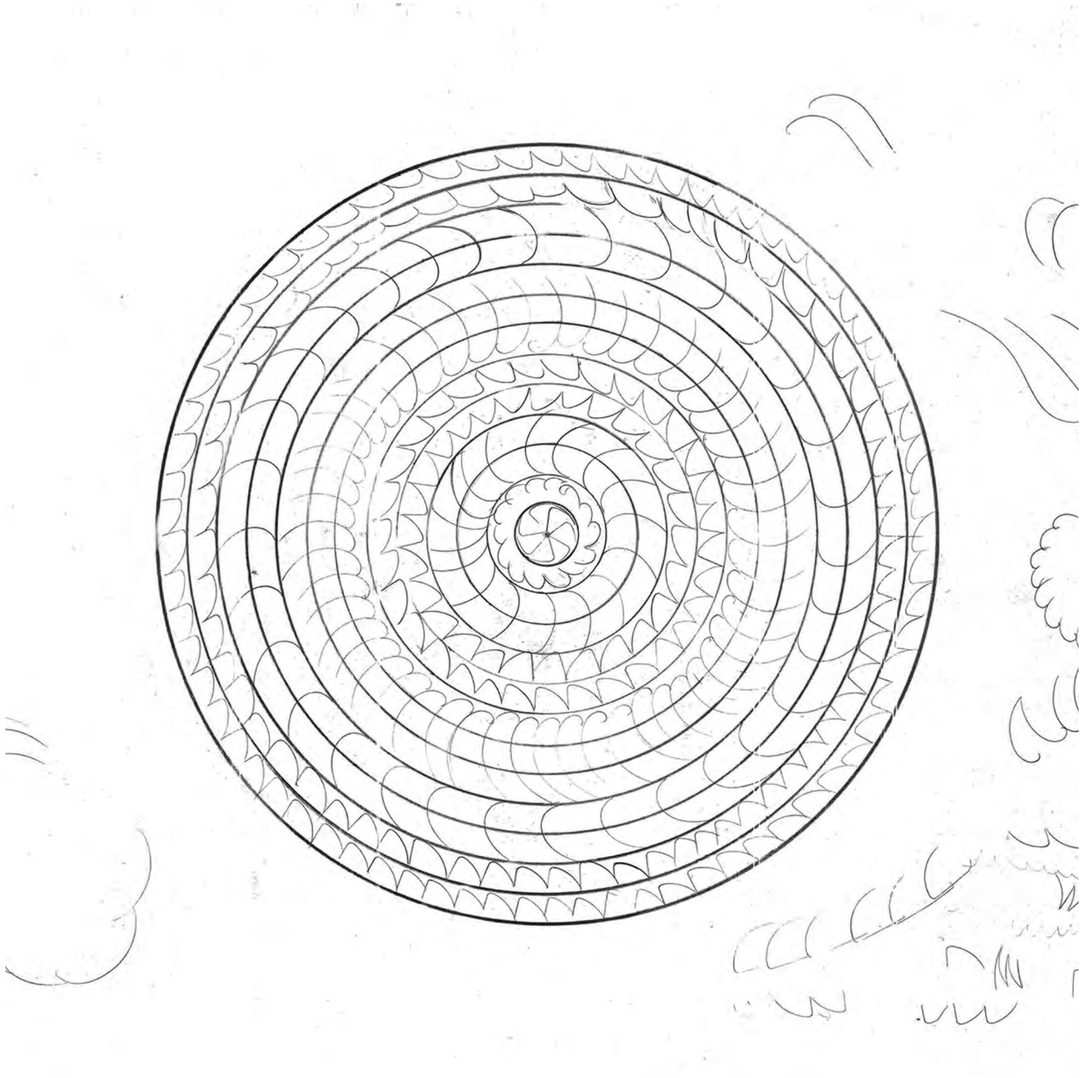




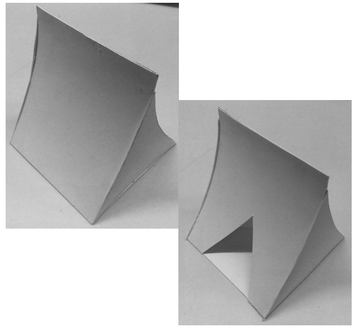
To describe the sound the Kalimba makes, I created a concept model and a drawing. The many distinct bends on the wire in the model are like notes in a melody plucked on the instrument. The helix shape symbolizes the repetitiveness of the rhythms in the song.

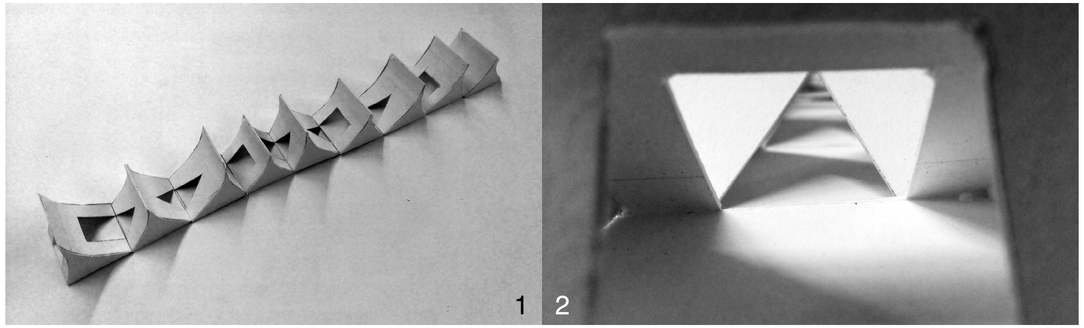
This page: Helix sound model

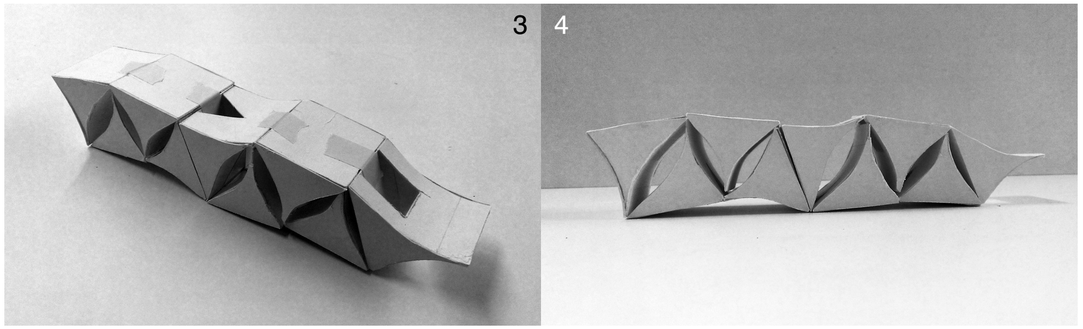
Next page: Sound drawing



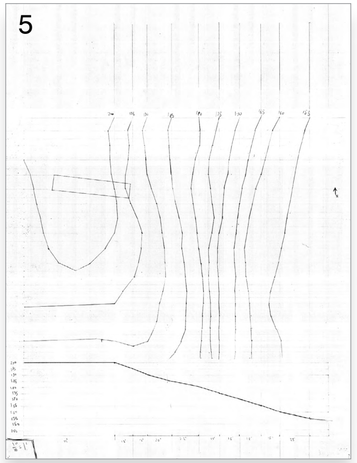
The next step was to translate this idea into physical “modules” which “contain” the sound, each fitting into a 6” x 6” x 6” space. I took the shape of the bends of the model’s wire and extruded it into a prism. As with the wire, the way the sides of the modules bend upwards is reminiscent of the “plucking” sound of the Kalimba. To begin designing the pavilion, I created nine 2” x 2” x 2” versions of the modules and experimented with different aggregations of them. One idea I had was to lay them all in a row, where one would walk through them as if “walking through a song.”

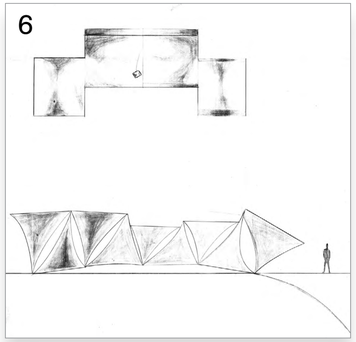


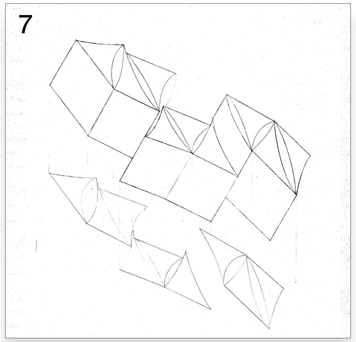


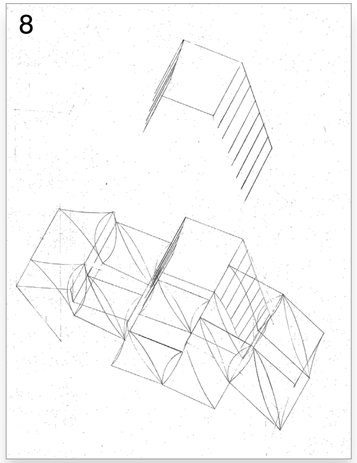


Eventually, I decided to use a more compact arrangement. The design continued to evolve over the next several weeks. I shifted certain modules laterally to create three distinct spaces inside the pavilion: an entryway, a space to play the instrument, and an observation area. The latter is needed because the site is located at the top of a hill at Fairmount Park in Philadelphia, PA. Basswood was used in the model to frame an exterior space where an audience can sit down and listen to the soloist play.





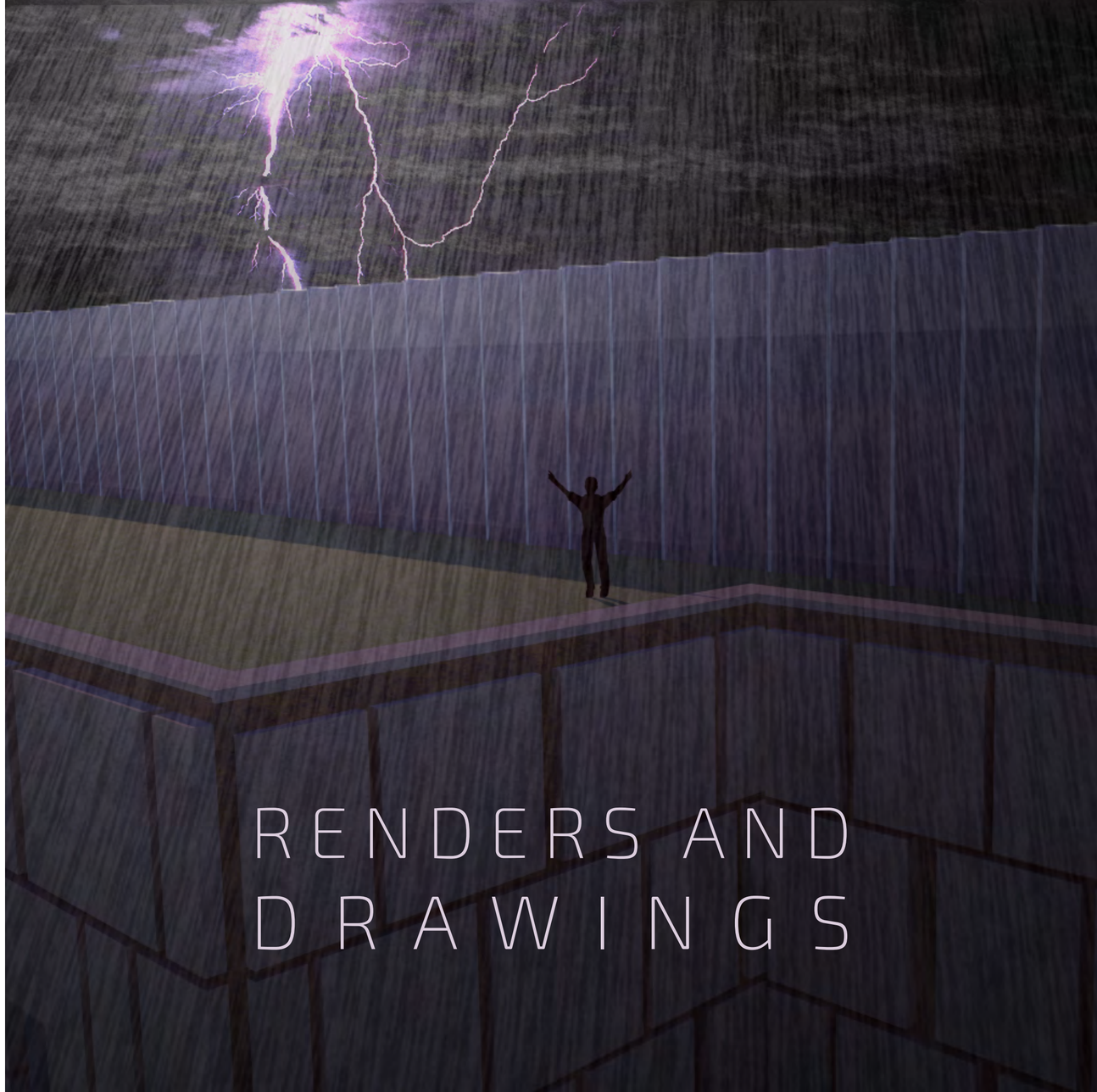




(Previous page)
Upper right: 6” x 6” x 6” modules
1, 2: Initial aggregation
3, 4: Compact aggregation

(This page)
5: Site plan drawing with contour lines
6: Pavilion plan and elevation drawings
7, 8: Exploded axonometric drawings

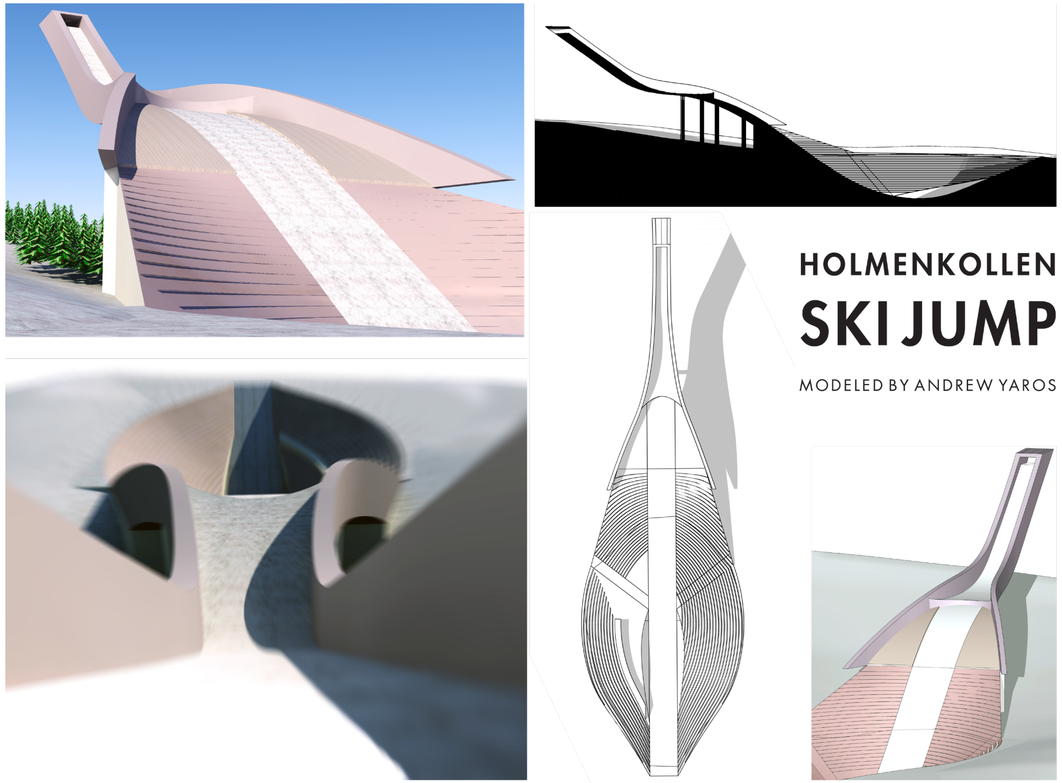
7



RENDERS AND DRAWINGS

The Barnes Museum

This was the final project for my third architectural representation class. The entire model was created in SketchUp. I used Podium to produce the renders and added clouds, rain, and more using Photoshop.

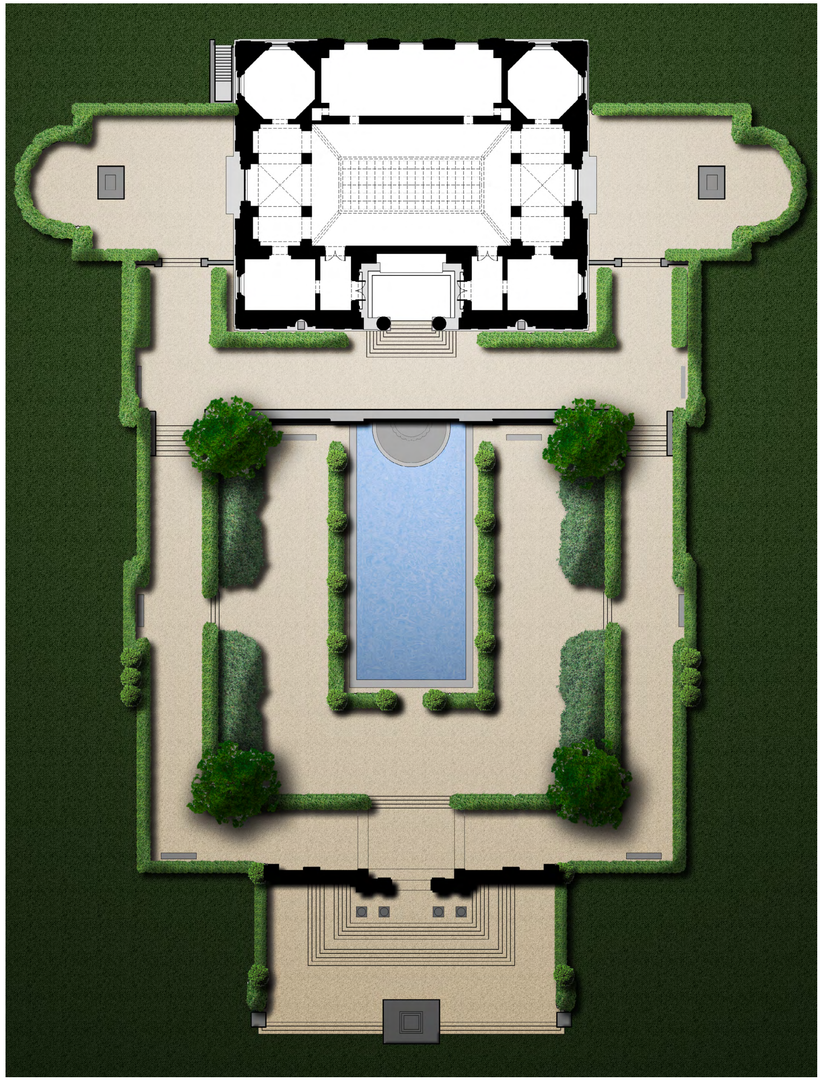


Holmenkollen Ski Jump

Final presentation for my fourth architectural representation class. After creating the main model using Rhino, I imported it into SketchUp to add a few trees and generate some Podium renders.

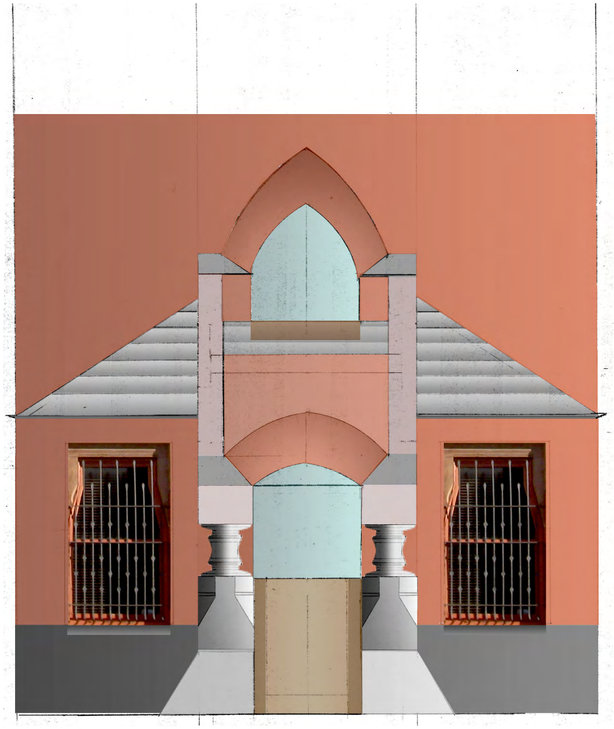
Rodin Museum Site Plan

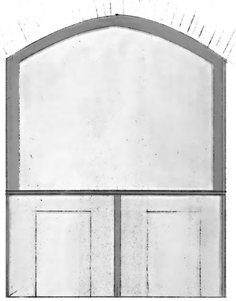
I redrafted an existing site plan into AutoCAD. After exporting linework to Photoshop I added textures and scenery.

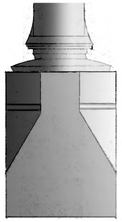


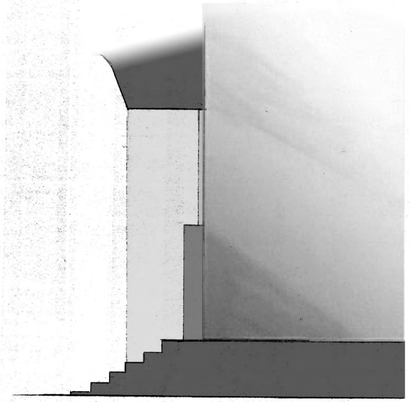
Rodin Museum Elevation

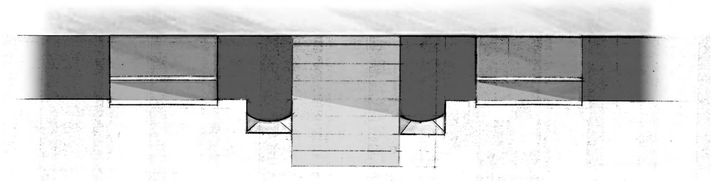
I redrafted an existing elevation into AutoCAD. After exporting the linework to Photoshop I added textures, scale figures, scenery, and a sky.





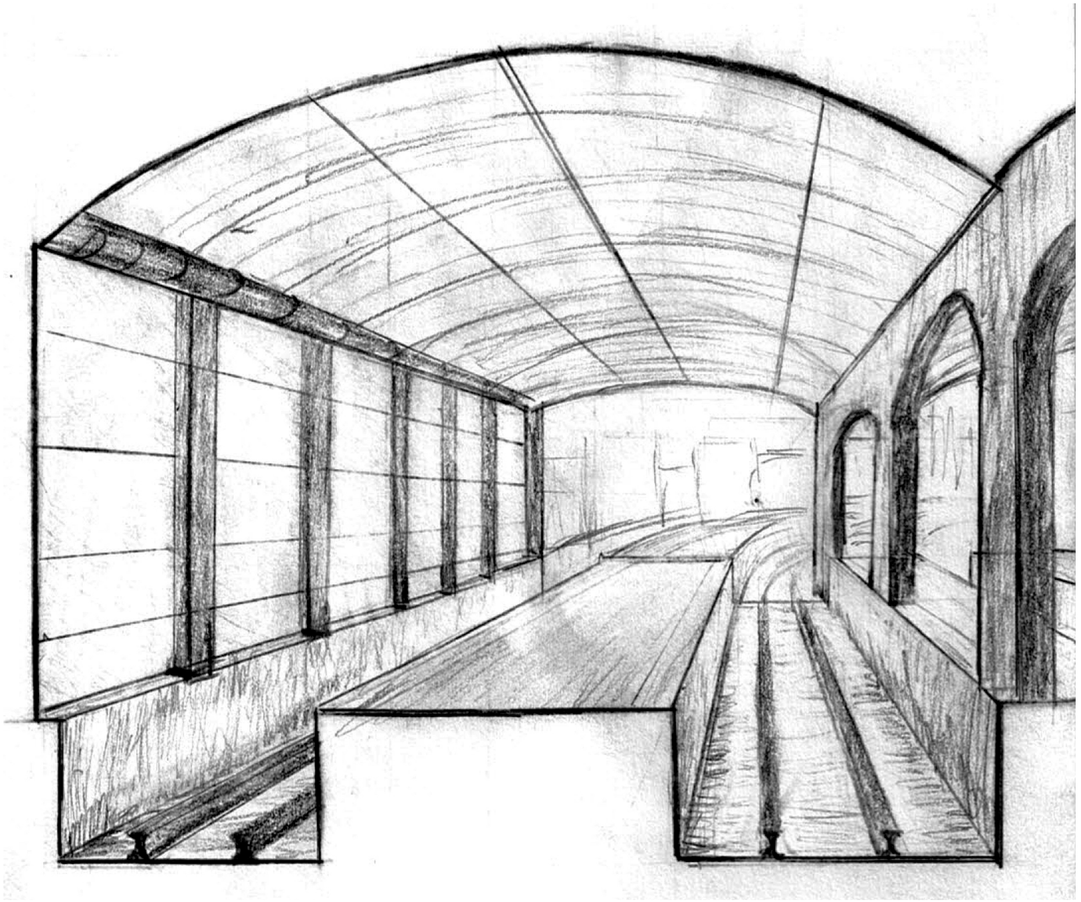






Paul Peck Alumni Building

In this assignment, we studied the transition between the exterior and interior of the Paul Peck Alumni Building at Drexel. Photoshop was used to shade the scanned drawing.

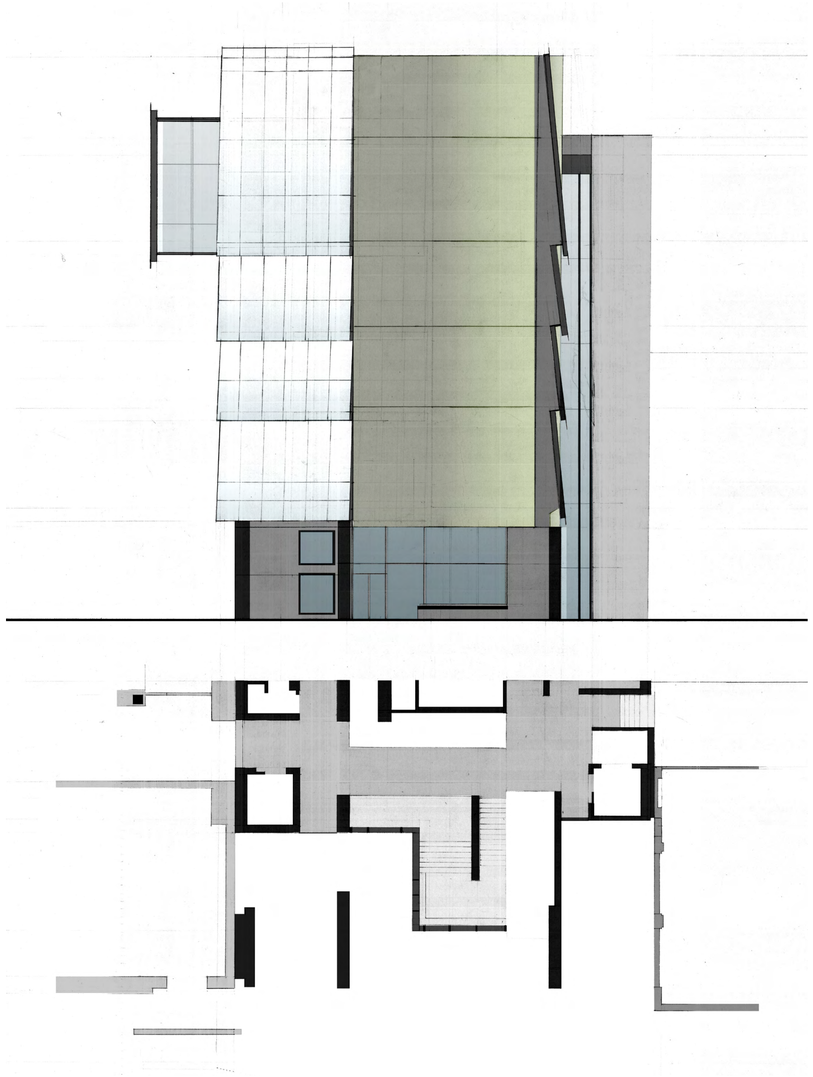


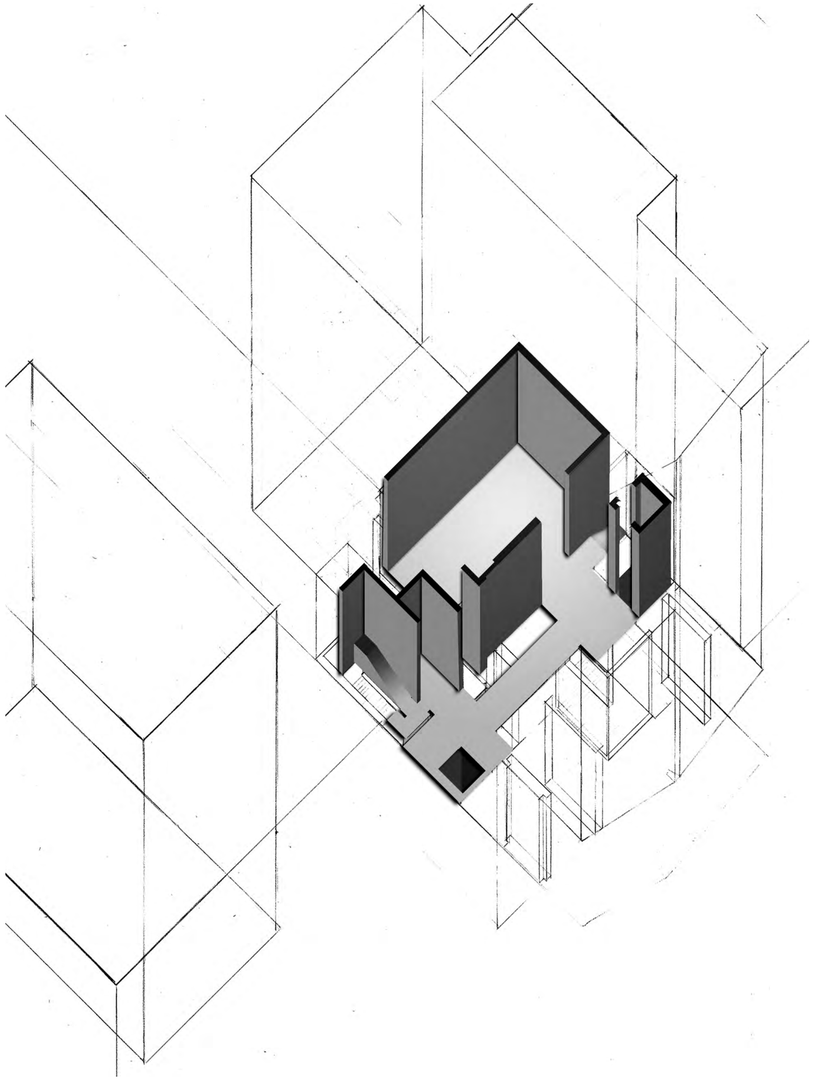
30th St. Sketch

I drew this sketch for an assignment; it is loosely based on platforms at Amtrak's 30th St. Station in Philadelphia.

Skirkanich Hall Plan and Elevation

For this assignment, I re-drafted an elevation and floor plan of Skirkanich Hall, located on The University of Pennsylvania's campus. Photoshop was used to shade the scanned drawing.





Skirkanich Hall Axonometric Drawing

The second part of the assignment on the previous page. I used my floor plan and elevation of Skirkanich Hall to create an axonometric drawing. After scanning it in, Photoshop was used to add shading.

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ARCHITECTURE PORTFOLIO

2014 · 2015 · 2016