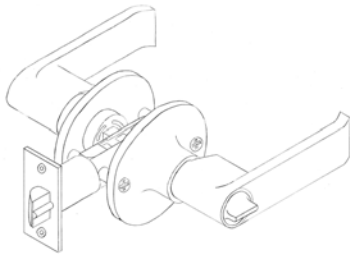




PORTFOLIO

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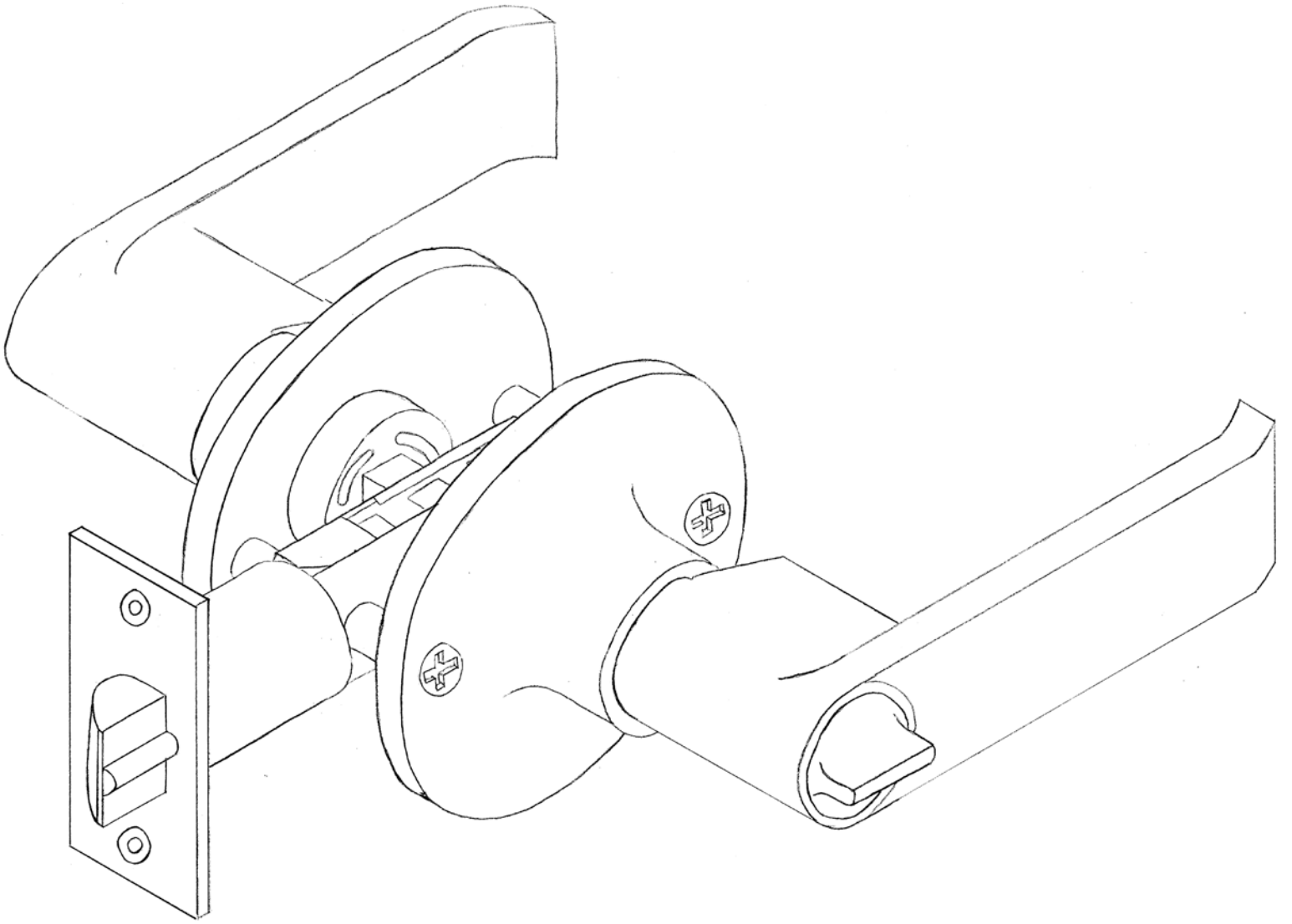
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Site Analysis
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Rhino
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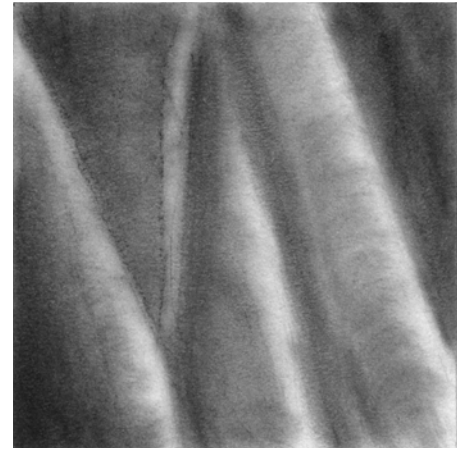
STUDIO I

Studio I focuses on observing and capturing light qualities as well as learning the basics of orthographic representation in technical drawings



CHARCOAL LIGHT STUDY

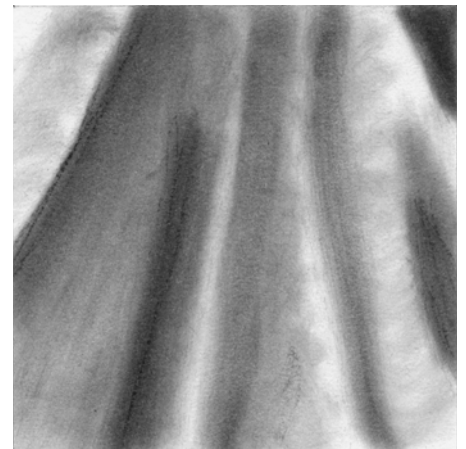
In order to get a basic understanding of architecture, one must first learn to observe. One of the main projects in studio I was focused around learning how to observe light and shadow as well as how to represent it in a drawing. The medium of choice for this project was charcoal as the desired drawing should not be made up of lines, but rather from different tones that blend to give one the experience of space. First, a tonal scale was generated using charcoal and graphite to see the superior nature and range of charcoal. To train my skills in observing and capturing this phenomenon of light a cloth hung up on a wall was used. The three studies on the right show different areas of that cloth which were considered for the final more detailed version. In the end study, three showed the most promise as it had the most play between the light and shadow beyond a simple ripple effect.



Light Study 1



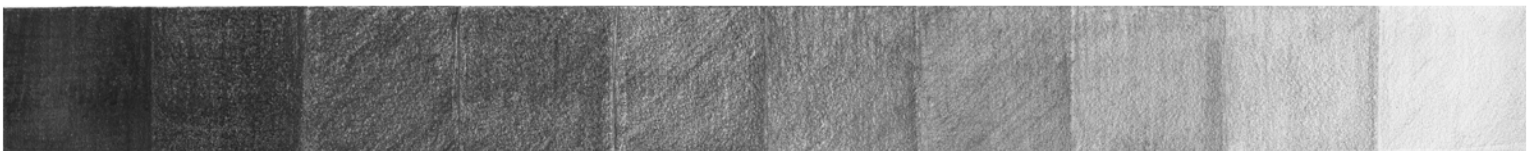
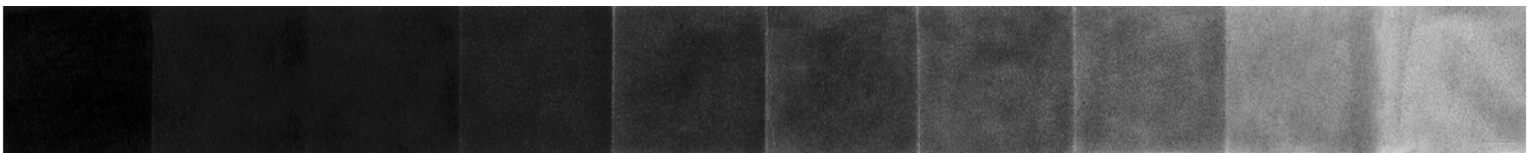
Charcoal Cloth Drawing



Light Study 2



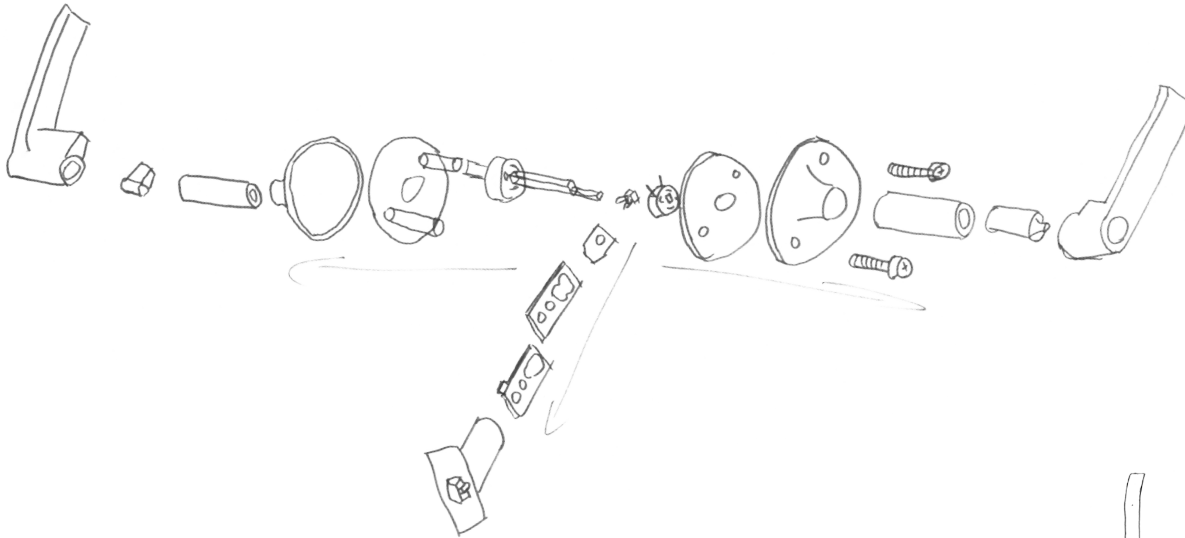
Light Study 3



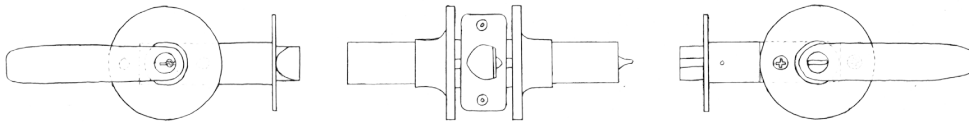
Charcoal and Lead Shading Scale

TECHICAL DRAFTING

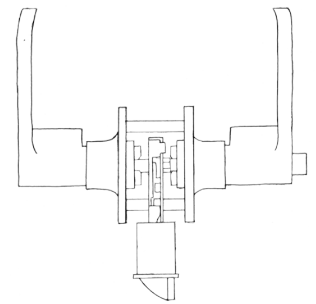
The second most important skill to master is the creation and understanding of technical drawings and unique perspectives used in architecture. To learn this skill and object was chosen and then disassembled into its components. From there orthographic drawings of the object were created alongside an isometric perspective. Learning to differentiate these views and how they are created was vital in the creation of these drawings and took some time to plan out. First, the orthographic drawings were created to get accurate measurements of all the parts of the object and then the isometric perspective was created based on those measurements. Finally to fully understand the object and show mastery of the perspectives a final exploded axon drawing was created showing all of the different parts that make up the object.



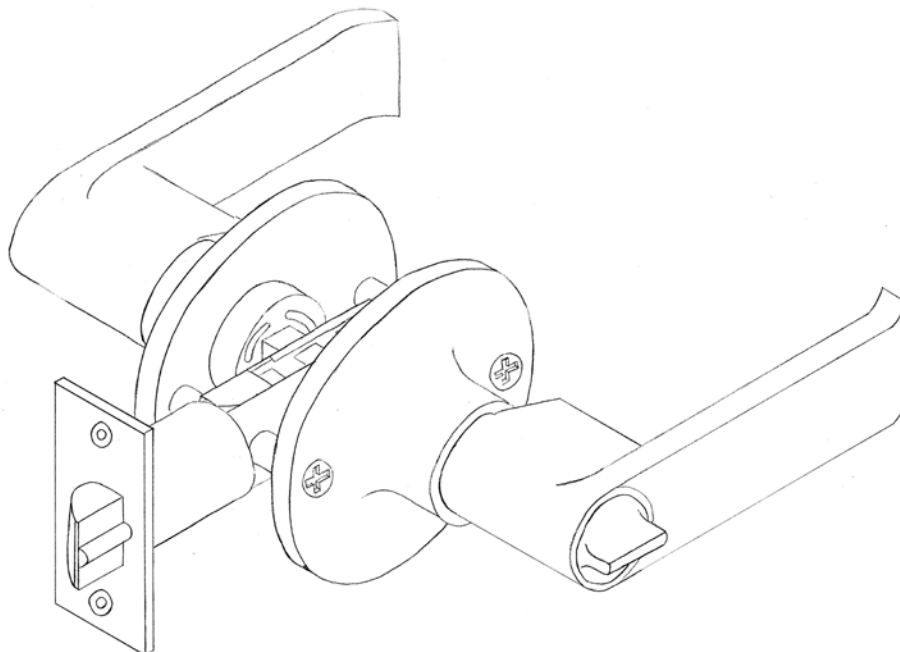
2 Minute Sketch



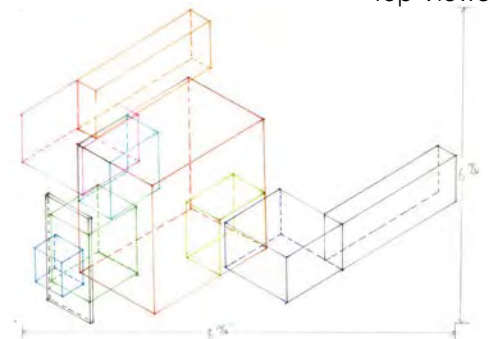
Side Views



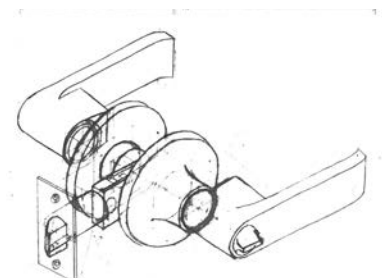
Top Views



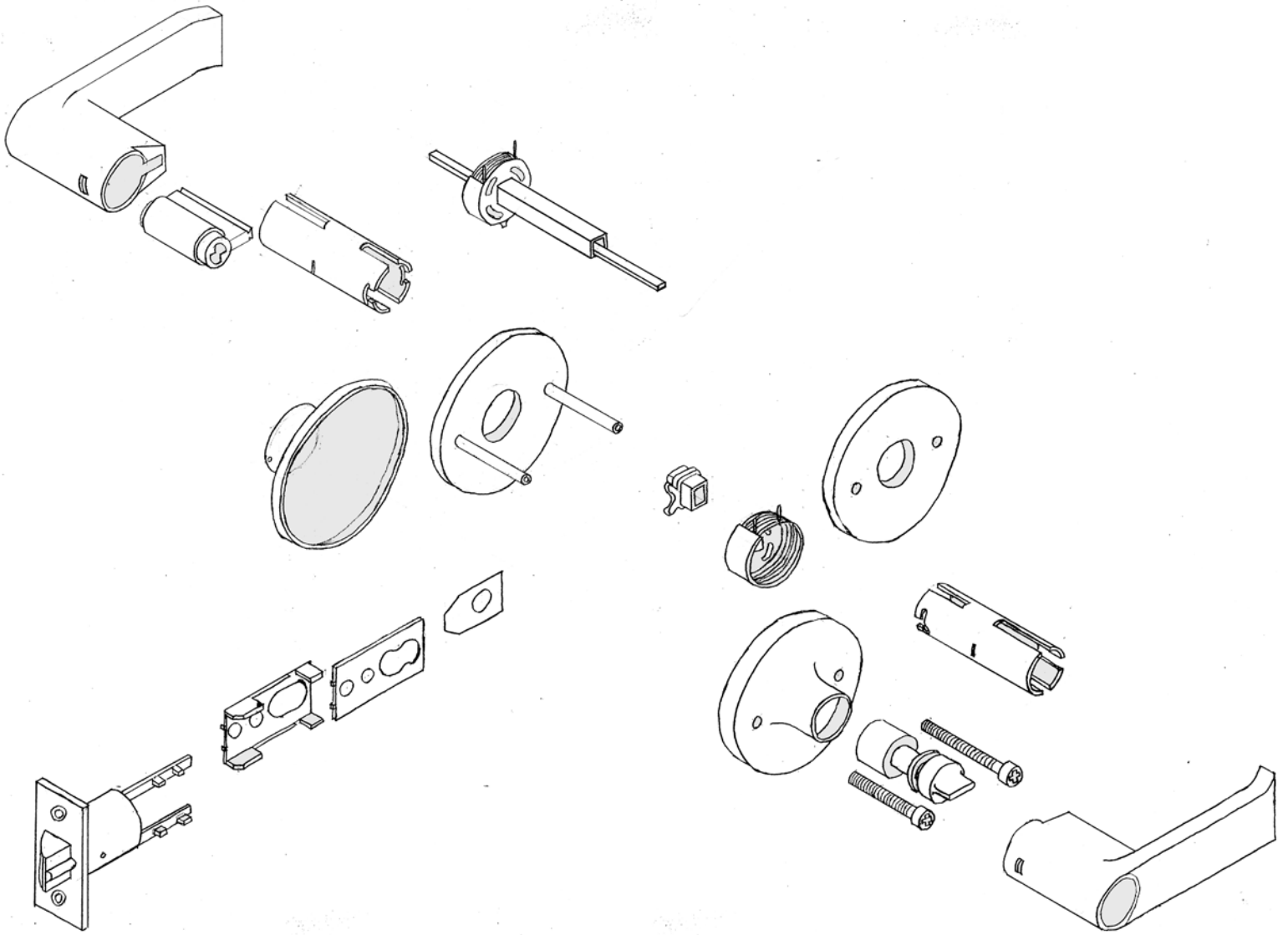
Paraline Drawing



Paraline Drawing Preparation

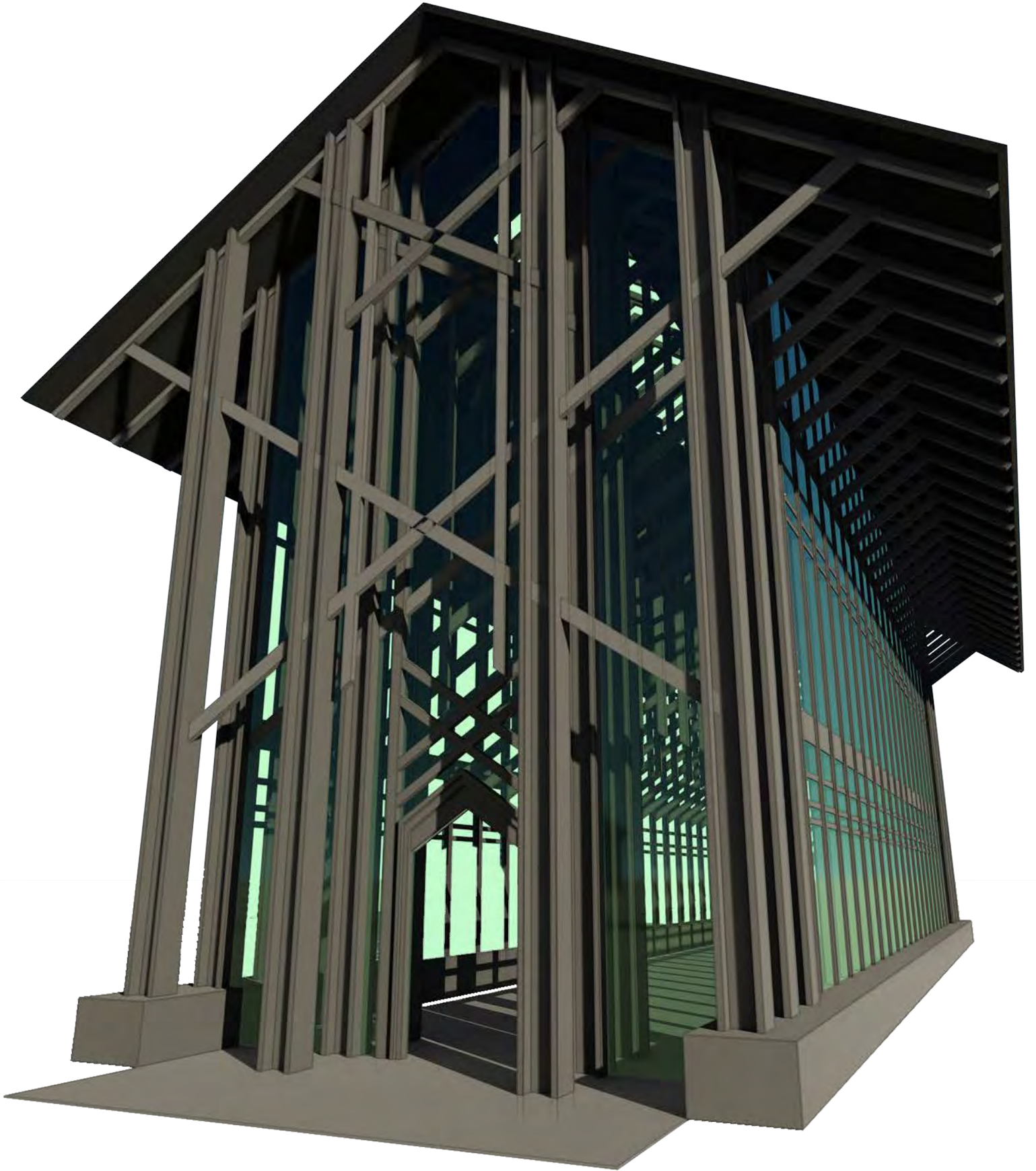


Trace-paper Test Drawing



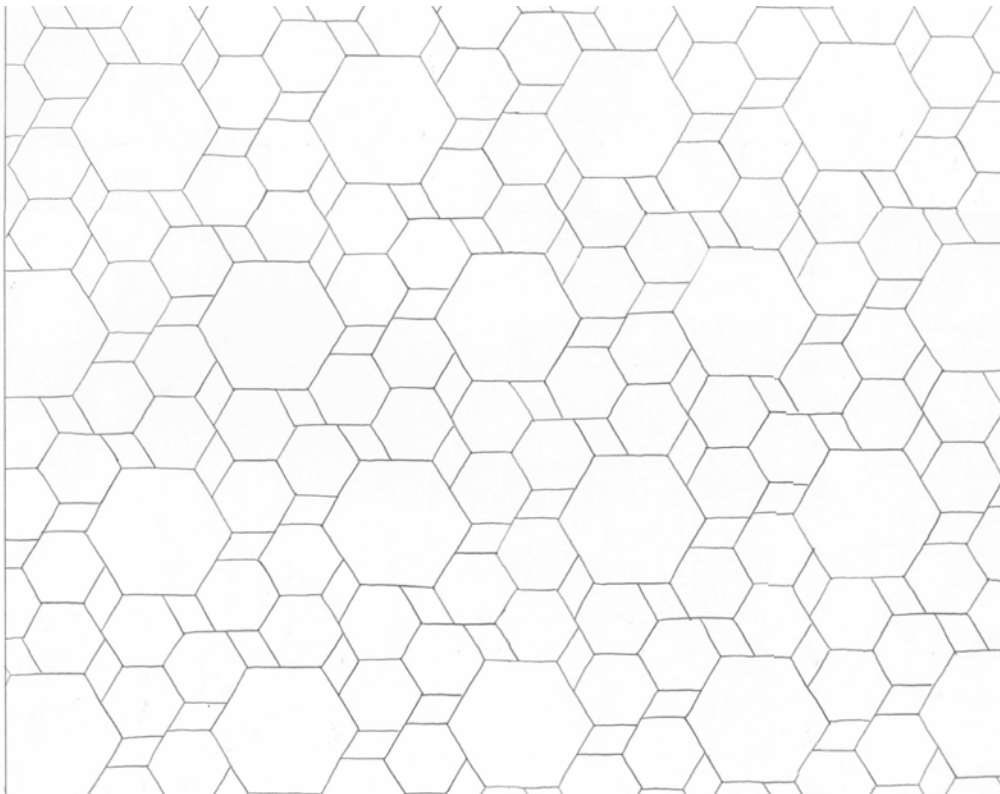
STUDIO II

Studio II focuses on developing and abstracting pattern from nature as well as improving hand drafting skills. To continue enhancing my drafting skills a precedent was chosen and then used to recreate plans, sections, and elevations incorporating the previously leader hand drafting skills.

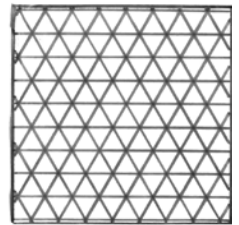
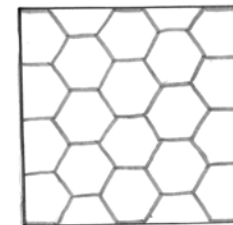
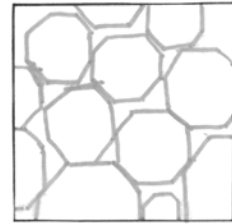
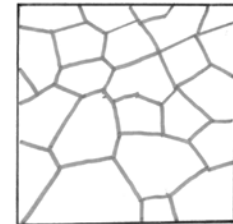
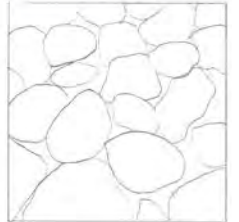
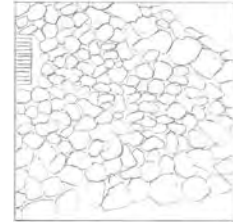


TEXTURE EXPLORATION

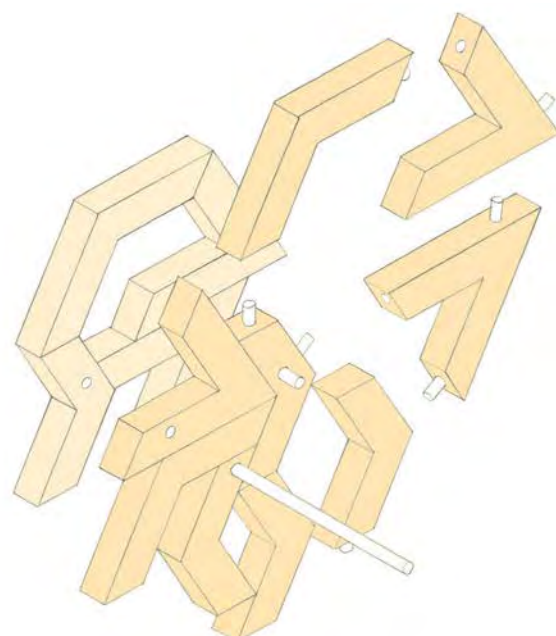
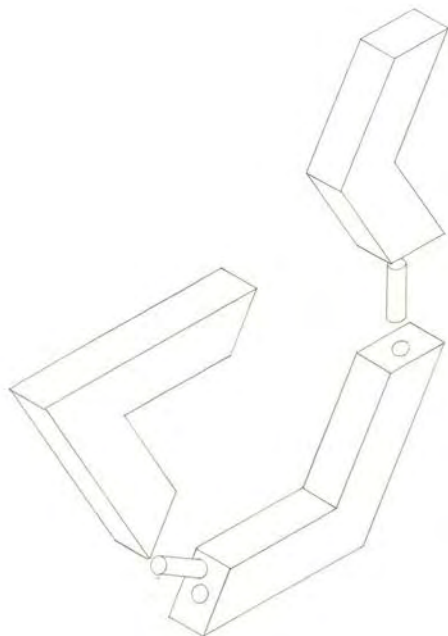
Pattern is all around us in nature and in everything man-made. Using this pattern as a design inspiration is a powerful tool for generating new and exciting design ideas. In this project, I sought out to find a pattern in nature and then analyze and abstract it to use in the creation of a sculpture. The pattern chosen was a field of rocks around a drain. After analyzing the pattern from a macro and micro perspective, I abstracted the pattern into something more reminiscent of a low poly pattern by tracing the shapes using straight lines. From the hexagonal pattern emerged leading to the creation of a hexagonal grid on which my sculpture would be based. Using the grid three main shapes were created and joined into five layers, which here then joined my dowels. To complete the exercise the previously learned tonal rendering skills were used to get an idea of what the space might look like if it was built.



Evolving Pattern

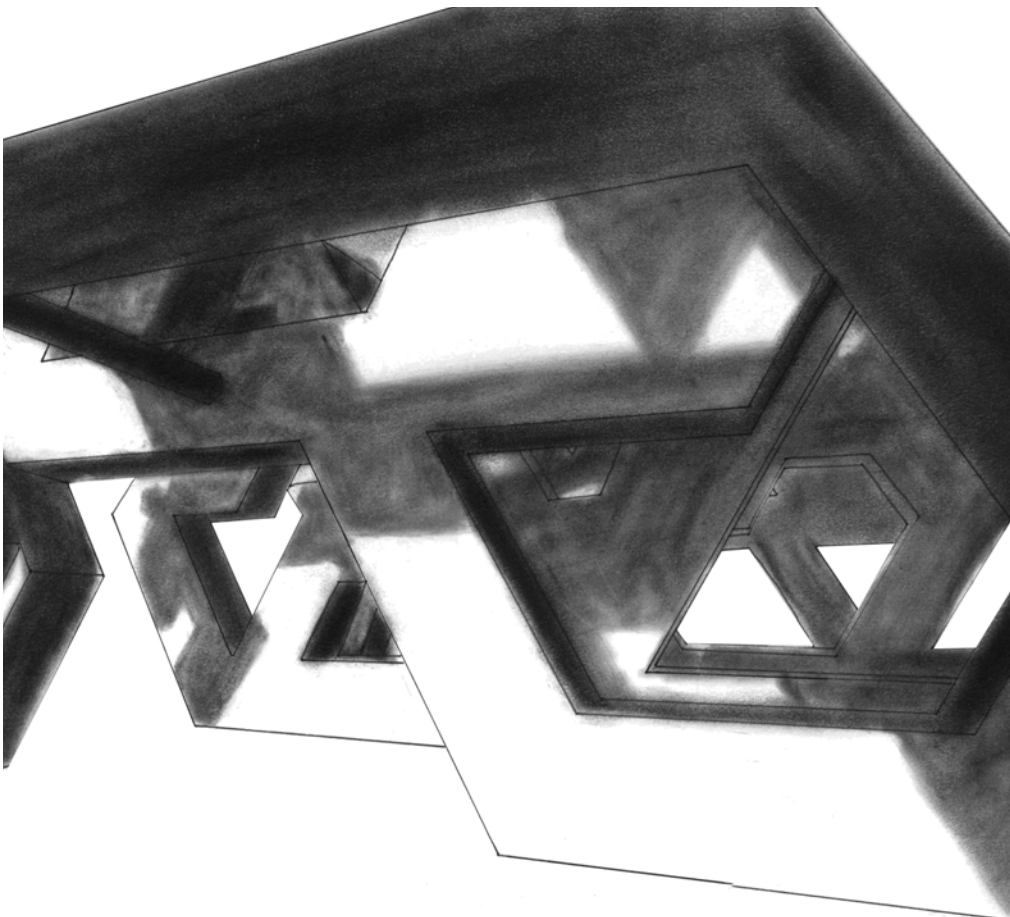


Pattern Development





Axon Drawing

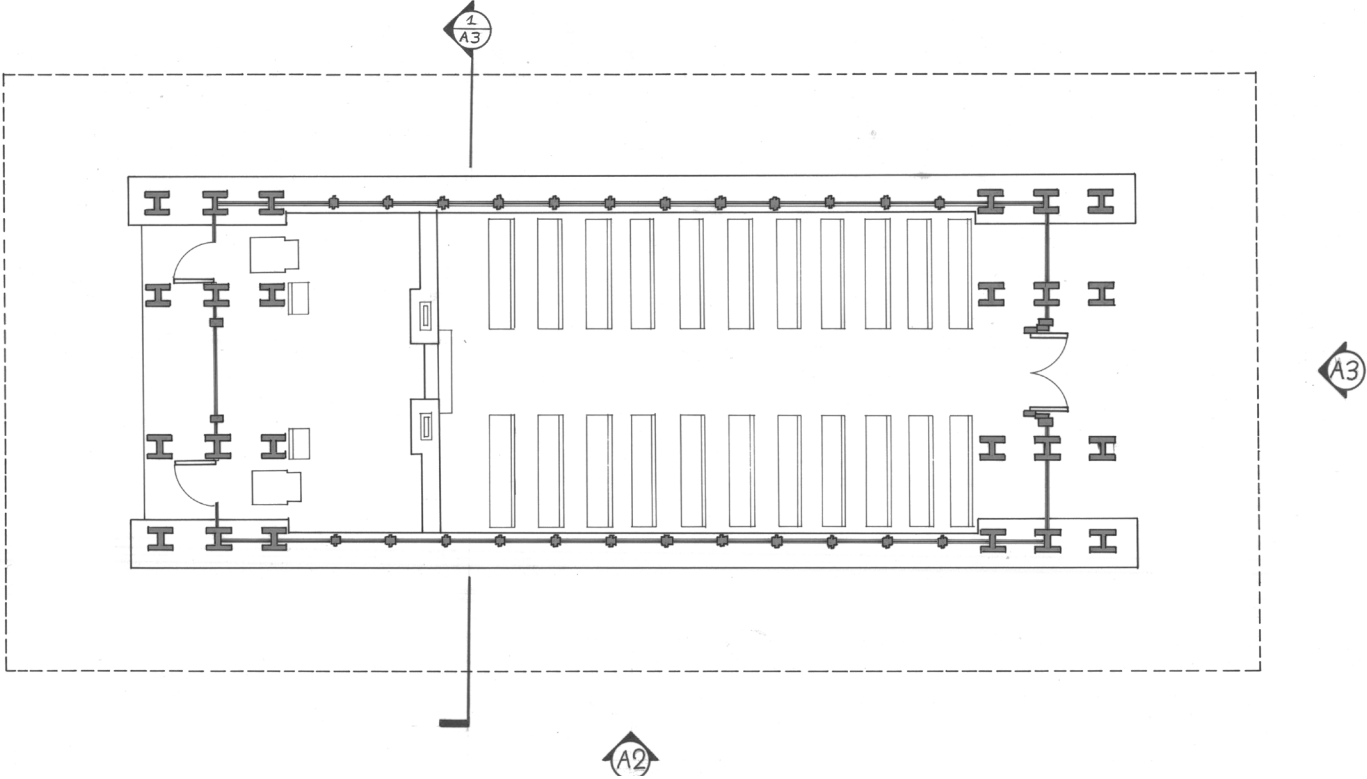


Phenomenological observation

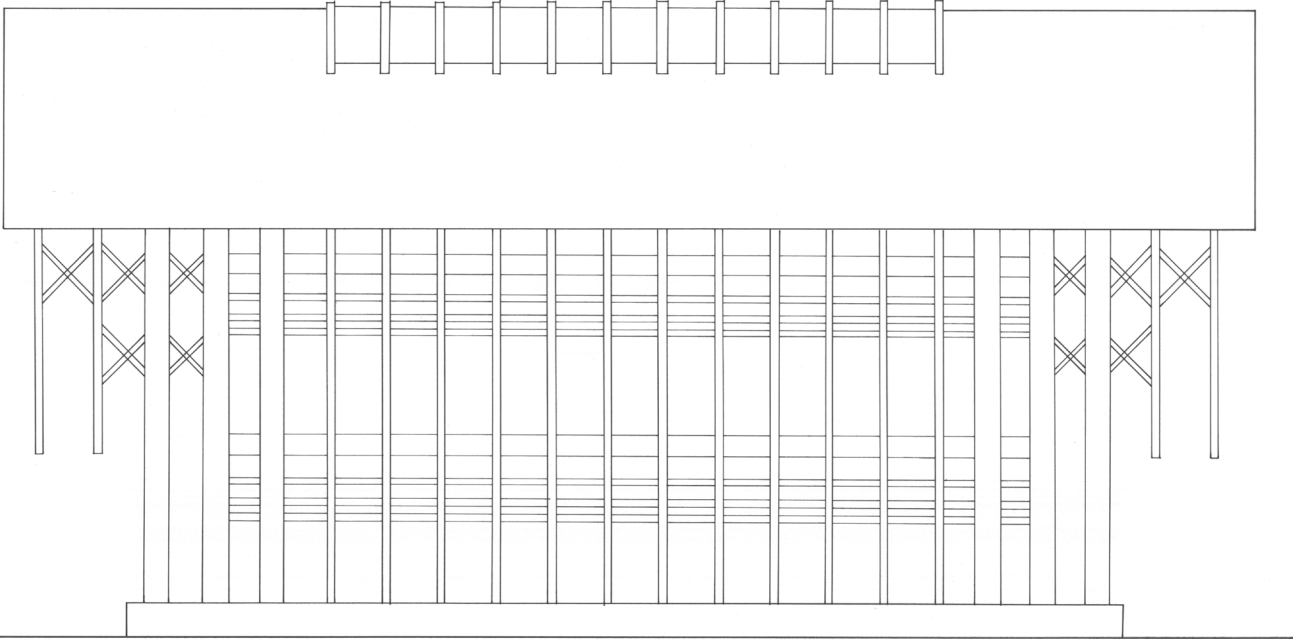


THORN CROWN CHURCH

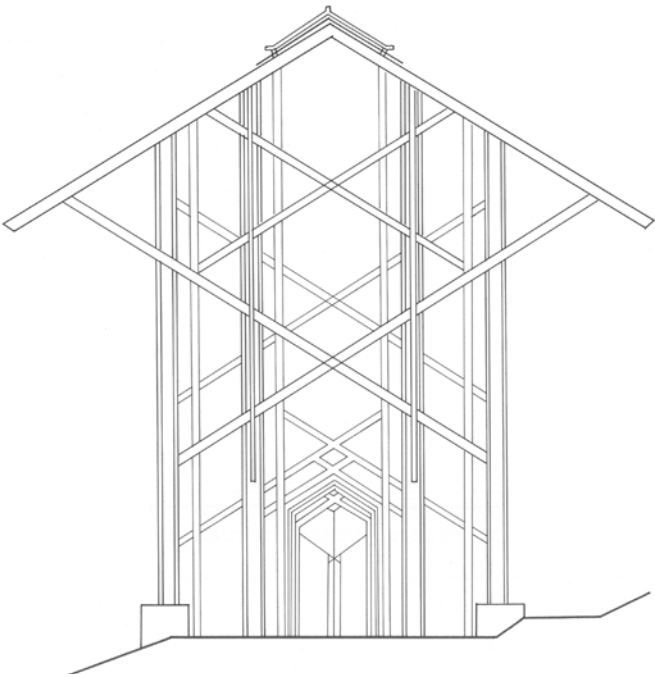
Hand drafting has taken a back seat to digital drafting, but learning how to draft by hand first forces you to put more thought into the drawing and help in understanding the importance of a well-drafted drawing. In order to practice my drafting skills a president was chosen to have its plans then, sections and elevations recreated. To create these drawing first, a light pencil was used to outline all the different parts of the building to their right dimensions. Then several different pens of varying line weights were used to create a sense of hierarchy in the importance of the pieces in the drawing as well as the differences between cut, hidden and lines observed at different distances from the cut line. To conclude the project an exploded axon drawing was created studying the different components of the building.



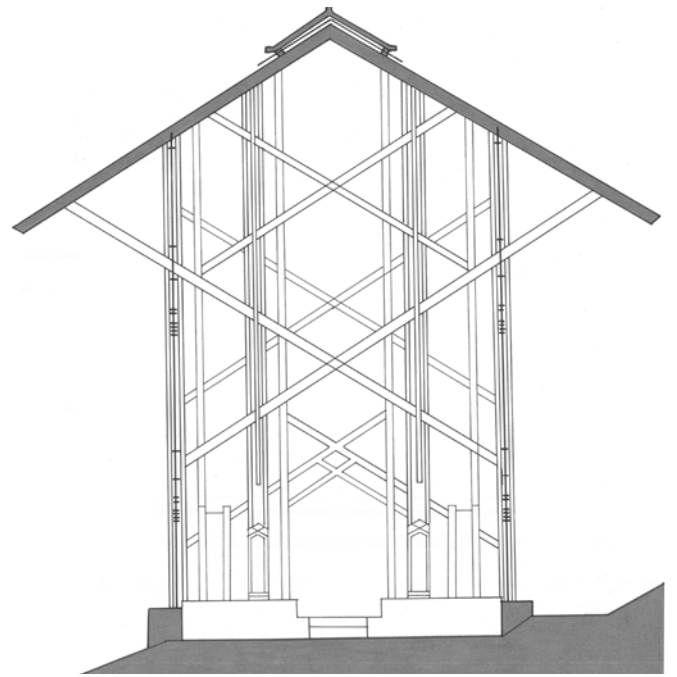
Floor Plan



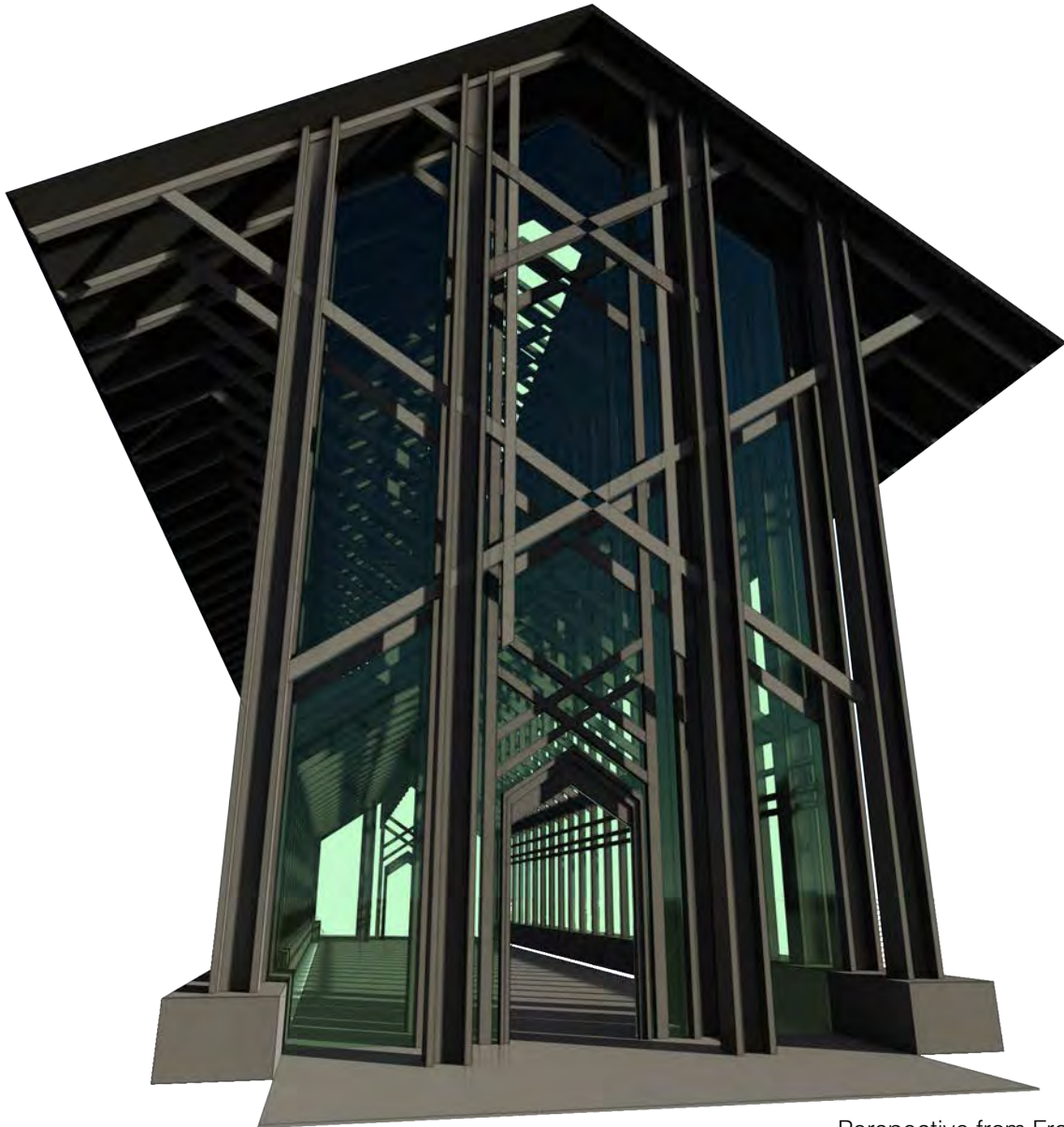
A2 Elevation



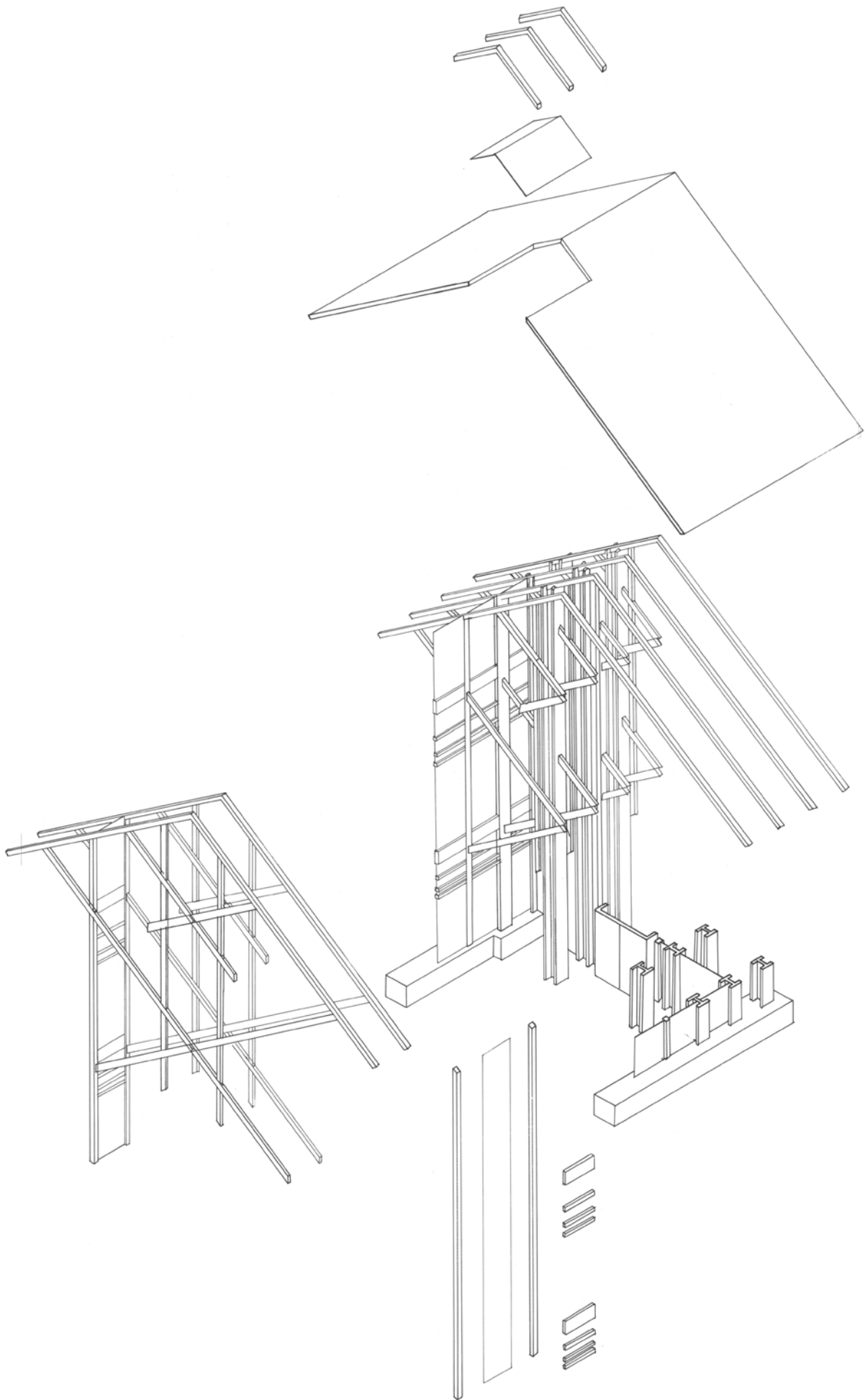
A3 Elevation



Section 1

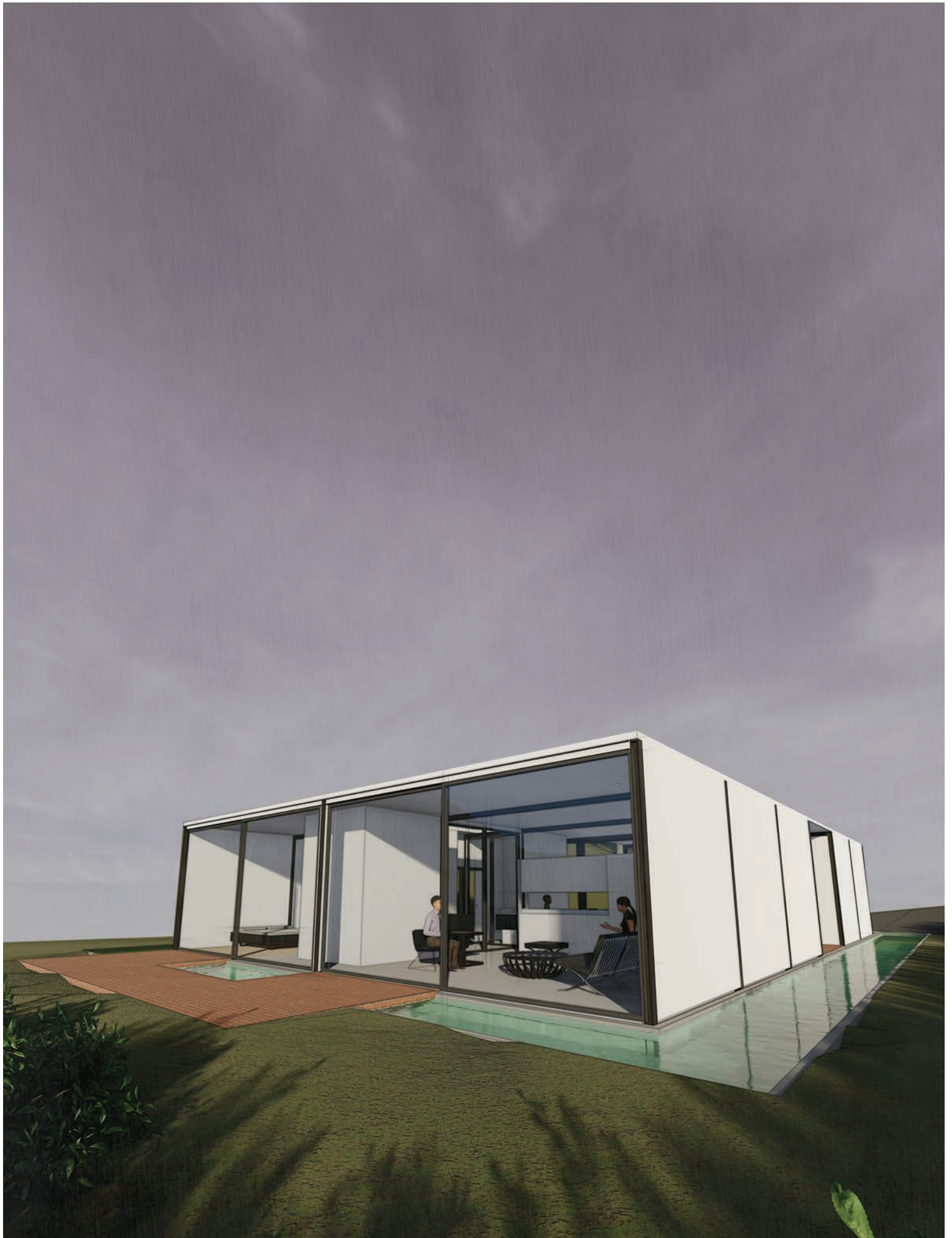


Perspective from Front



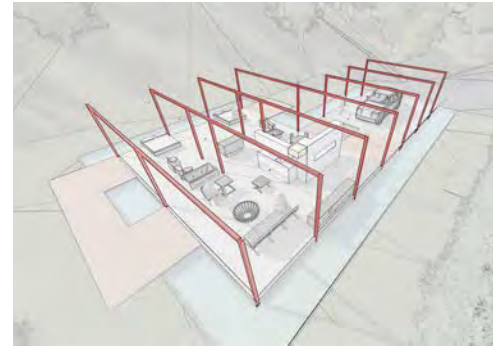
DESIGN COMMUNICATIONS II

Dcom II focuses on digitally recreating a case study using Revit and various rendering techniques.



CASE STUDY HOUSE #21

Today most architecture drawings are created digitally, so learning the software to create such drawings is vital. In both Dcom classes the focus was on using either Rhino or Revit to generate the 3D space of a case study and then use Illustrator and Photoshop to create floor plans, sections, and elevations. In order to more fully get an idea of what the building looks like, especially for people that have a hard time imagining spaces from 2D drawings, rendering are a vital tool for architects. In this course, multiple rendering techniques were used, including Revit render, Maxwell, Photoshop, and Lumion. Incorporating skills learned when hand drafting is vital when moving to a more digital style, especially having a sense of line hierarchy.



Main Structure

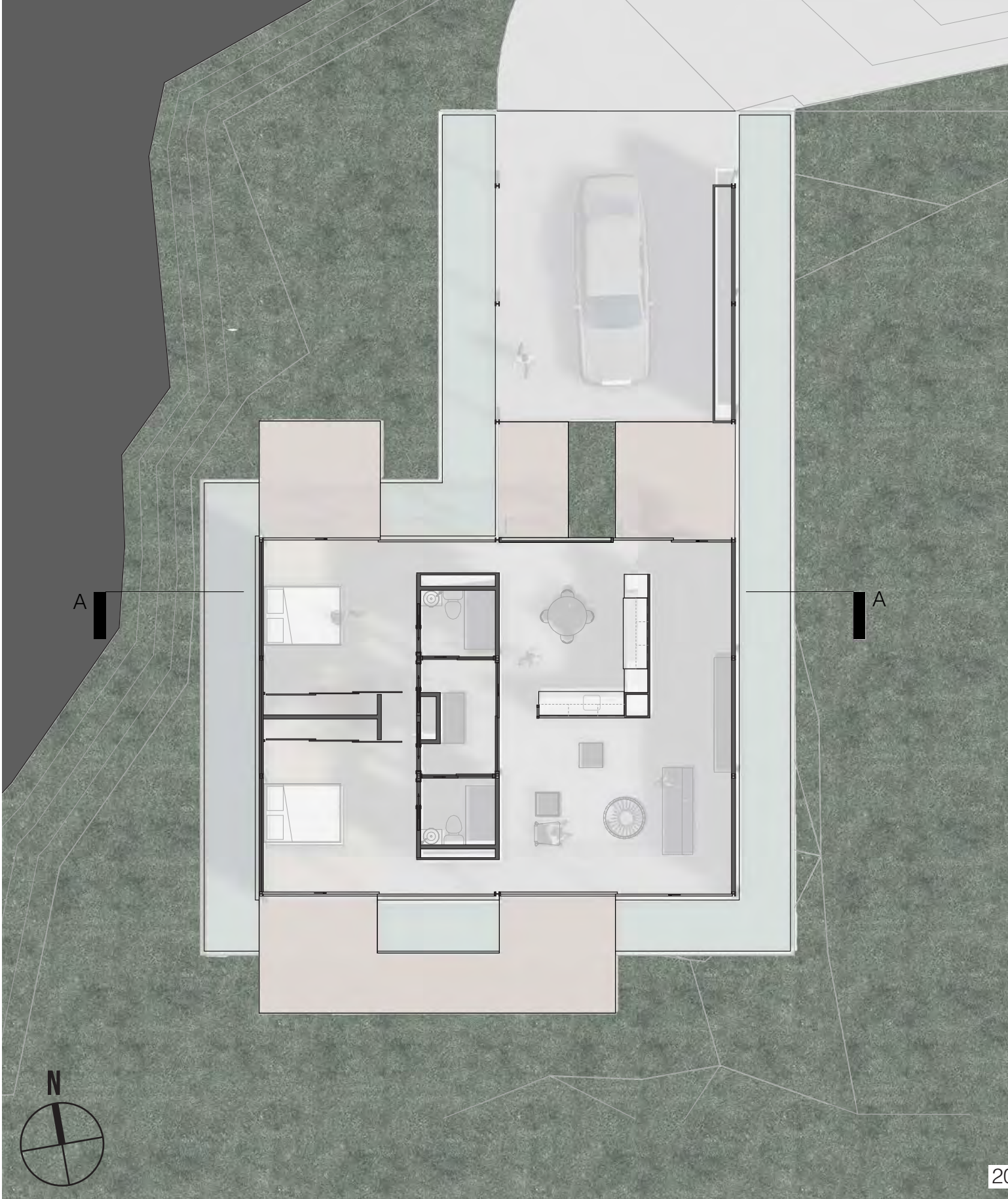


South Side of House

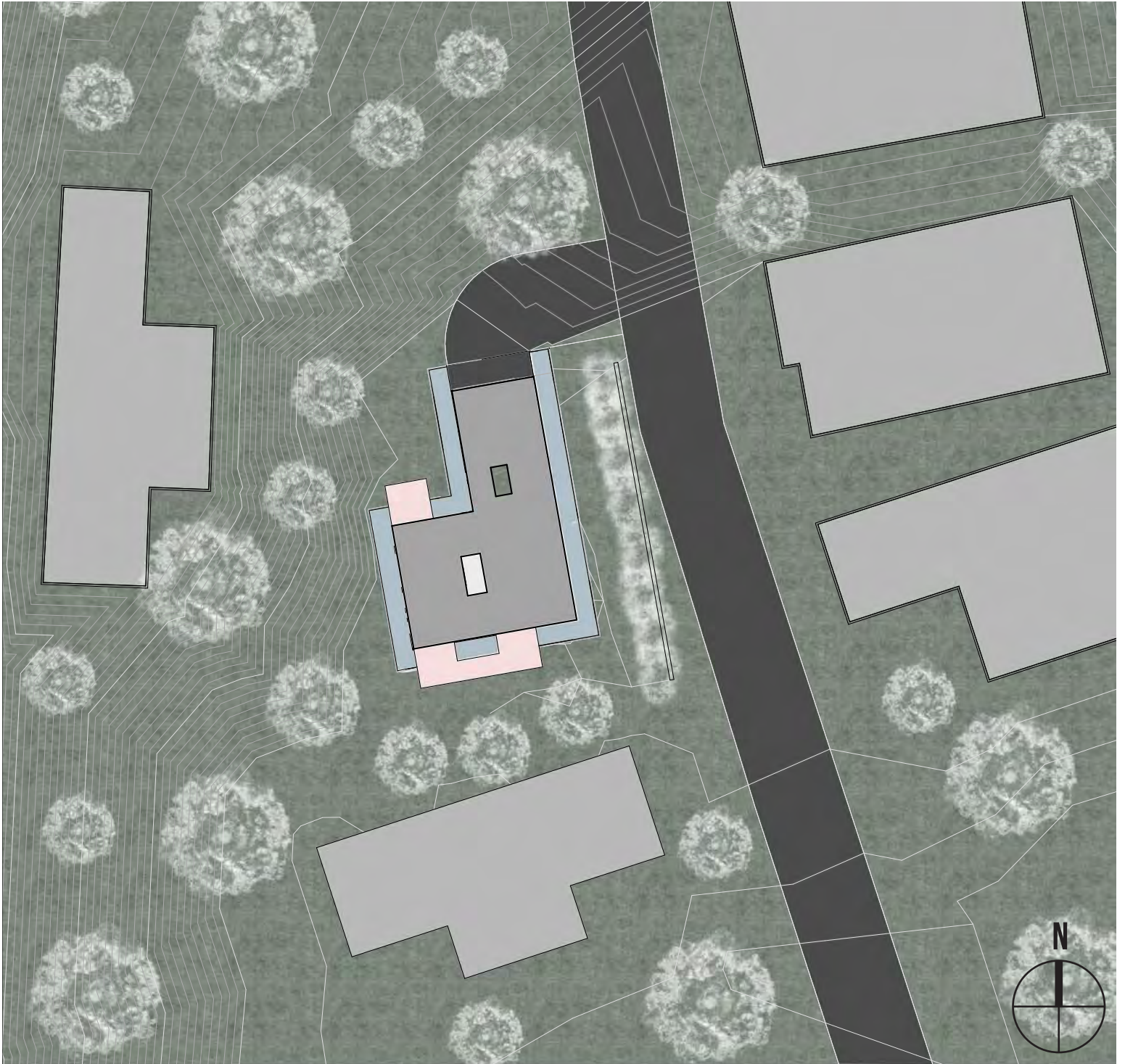


Section AA Render

FLOOR PLAN



SITE PLAN



SOLAR STUDY



6 am



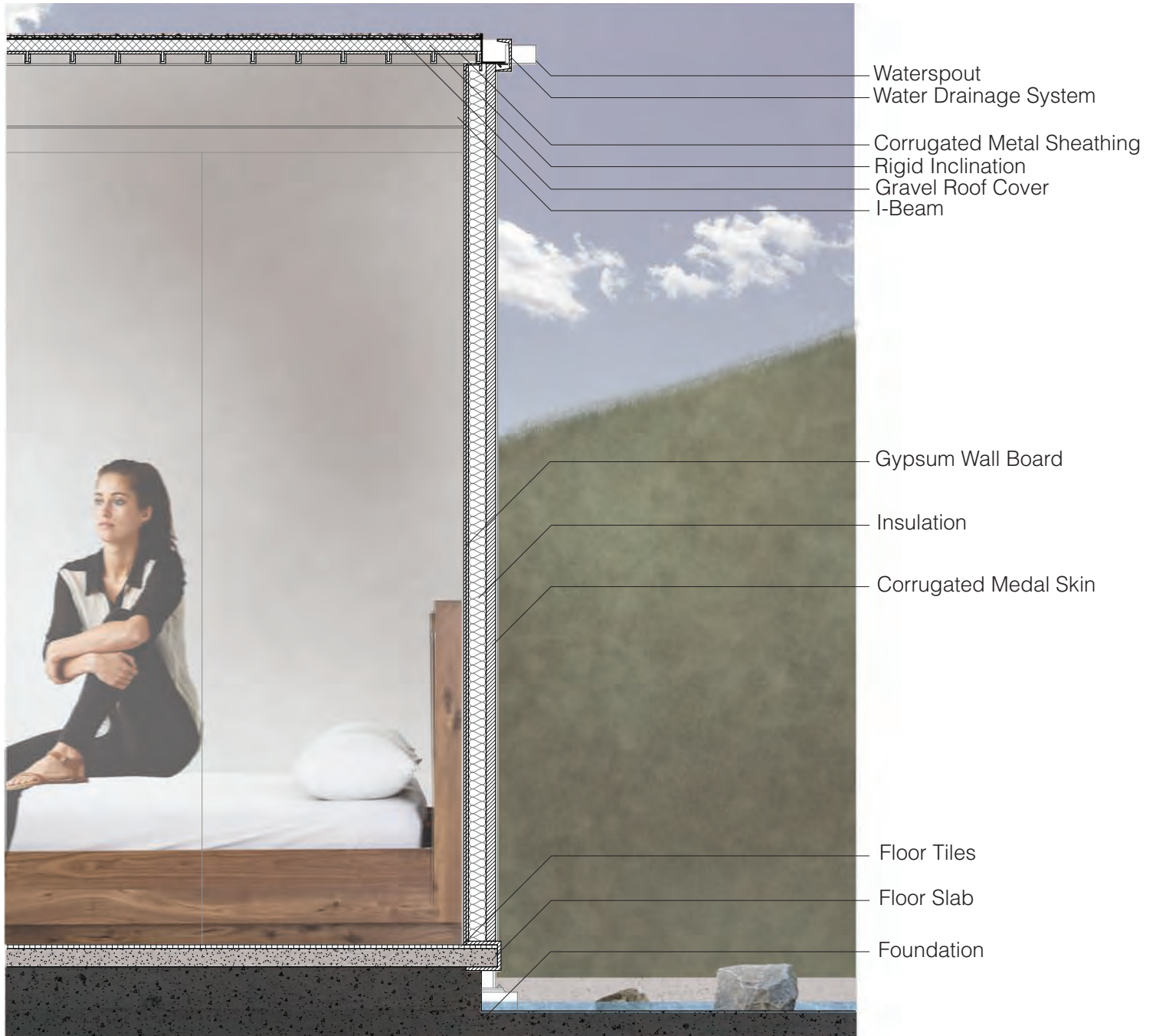
8 am



10 am

DETAIL SECTION RENDER

The detail section rendering aims to give some insight on how the wall is constructed. Revit was used to create the base drawing and was then enhanced in Illustrator and Photoshop. This drawing is ideal for showing individual details about a specific section of one's building.



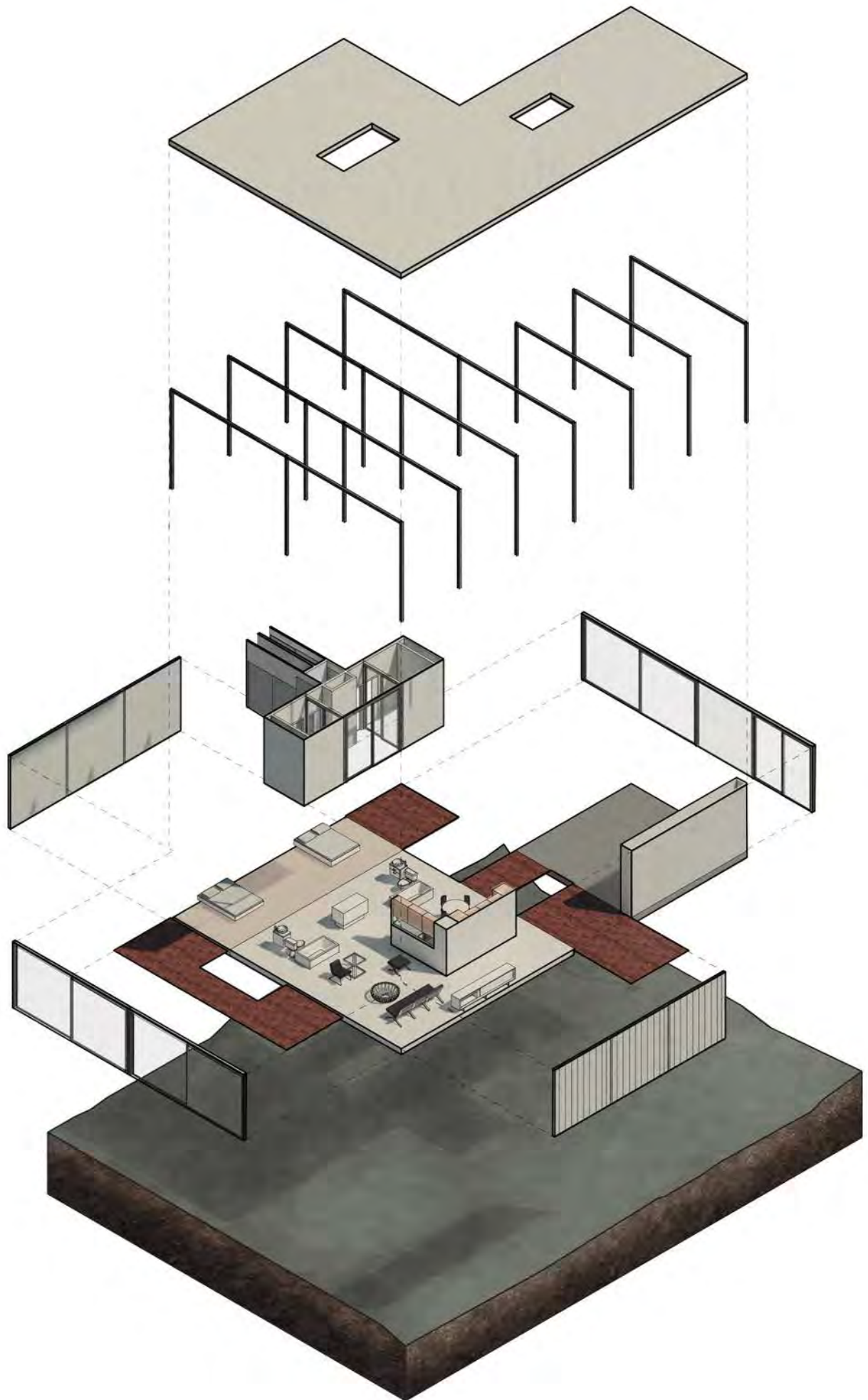
2 pm



4 pm

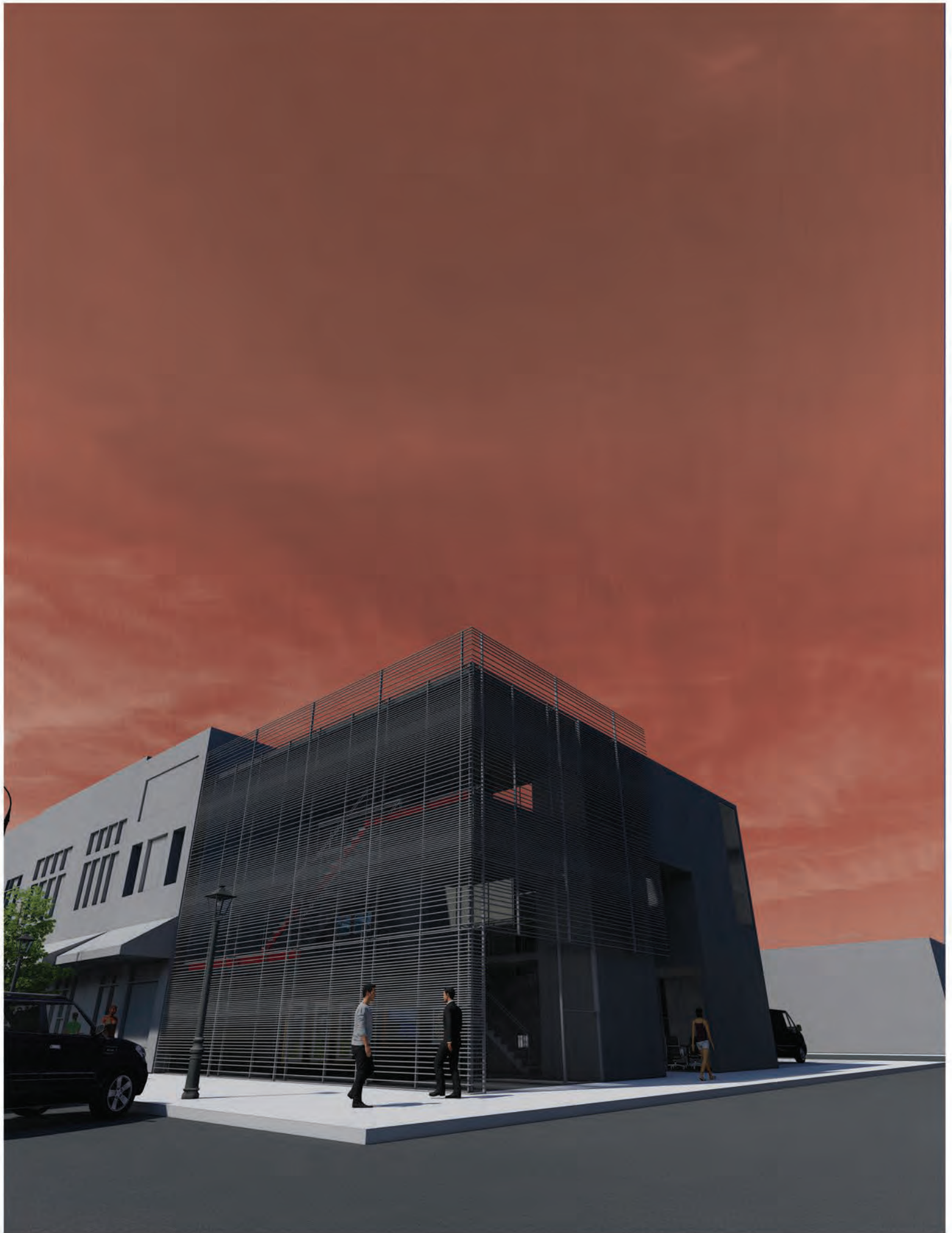


6 pm



STUDIO III

Studio III focused on creating ideas through analysis of the site and a series of models. The studio aims to capture most of the design process in the creation of a gallery and studio space for an artist in Marietta.

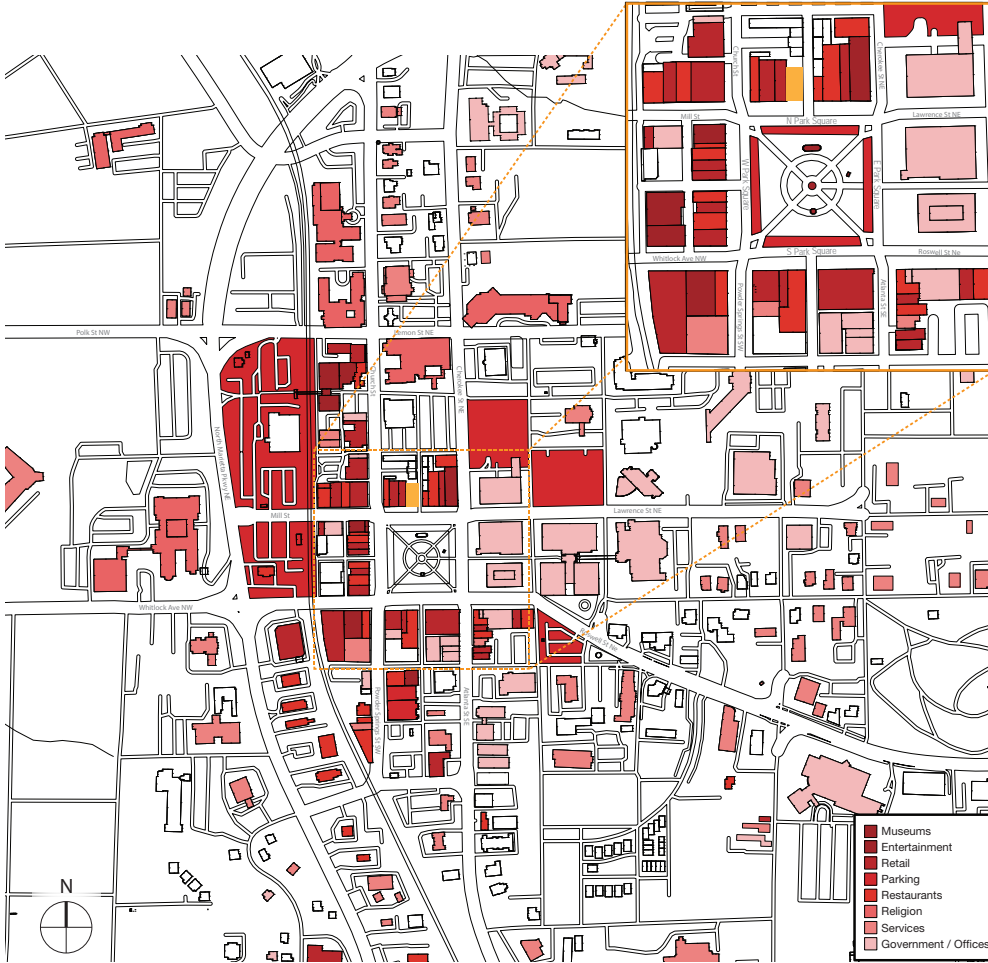


THE GALLERY

Located in the heart of Marietta, this building is designed to encourage public engagement with art as well as providing a workspace for the artist. This building is meant to be a gallery and studio space for one architect or a small firm to display and their work and to have access to a full studio as well. The separation of the public gallery from the more private studio space so that one does not disturb the other was a primary influence in the design process. The small courtyard acts as a buffer between these two spaces, while the two walkways provide the central circulation. The façade blocks the view into the structure from eye level, while also encouraging exploration to find out what is inside.



Courtyard



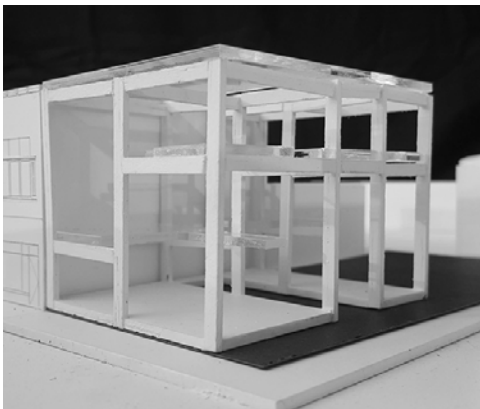
Site Plan



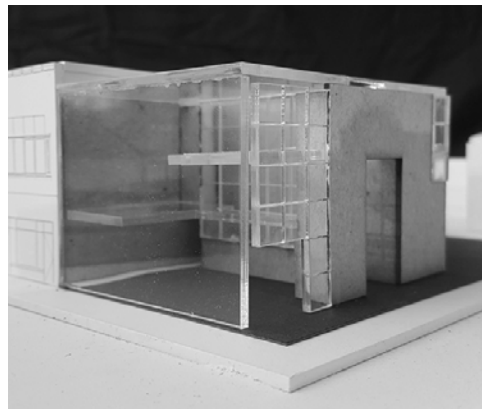
Access



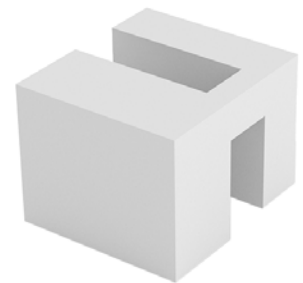
Public vs. Private



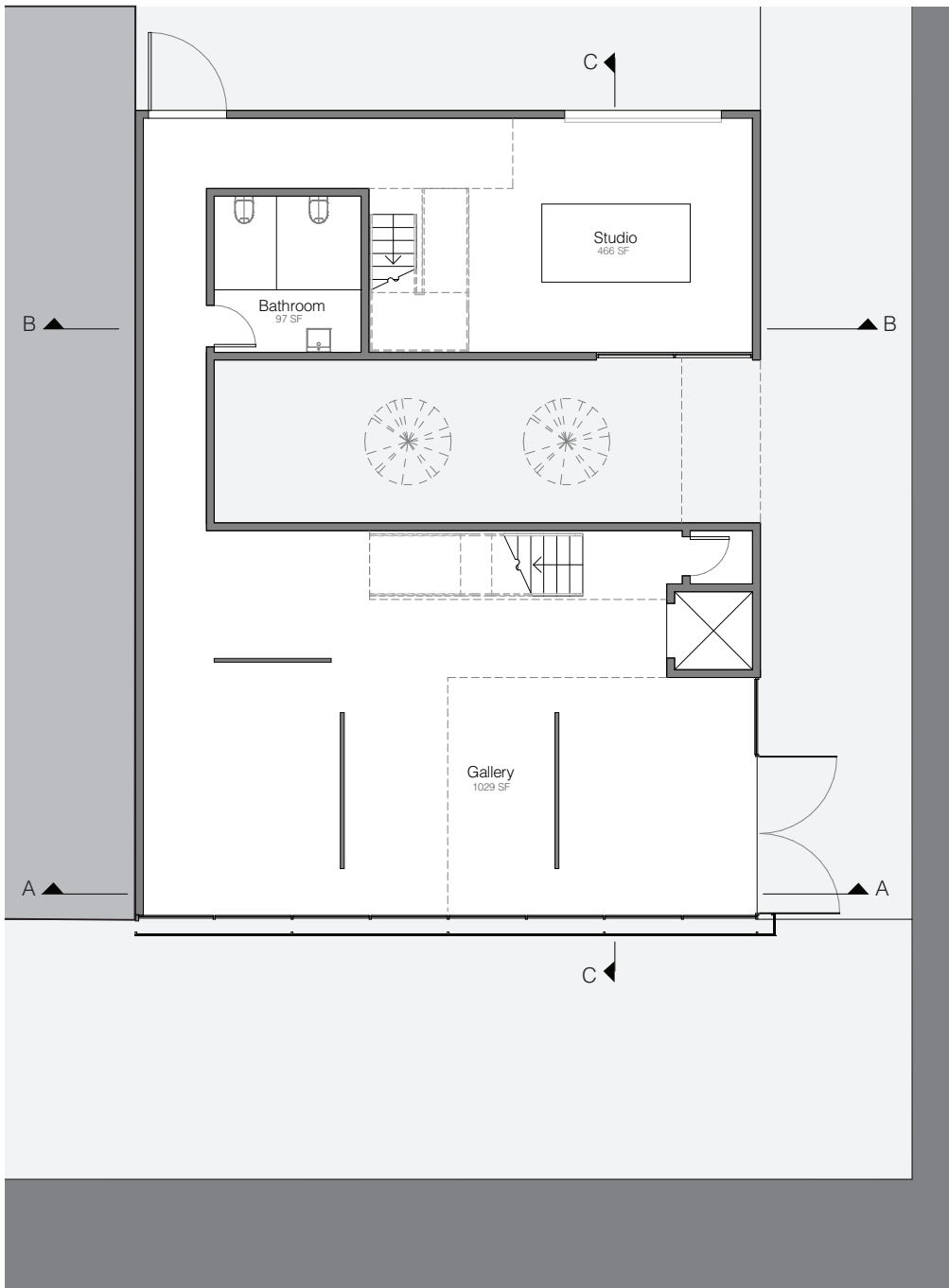
Proportions



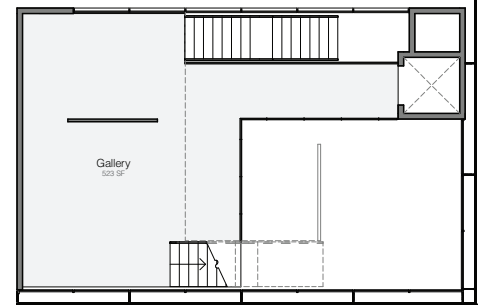
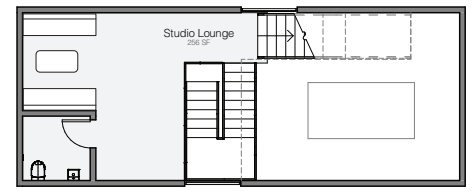
Proportions



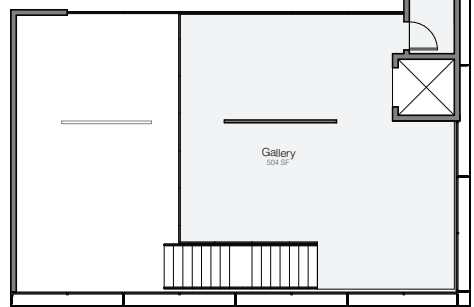
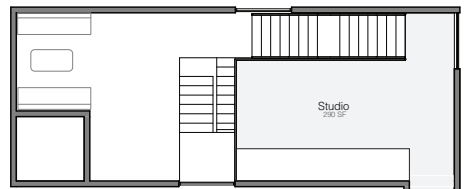
Proportions



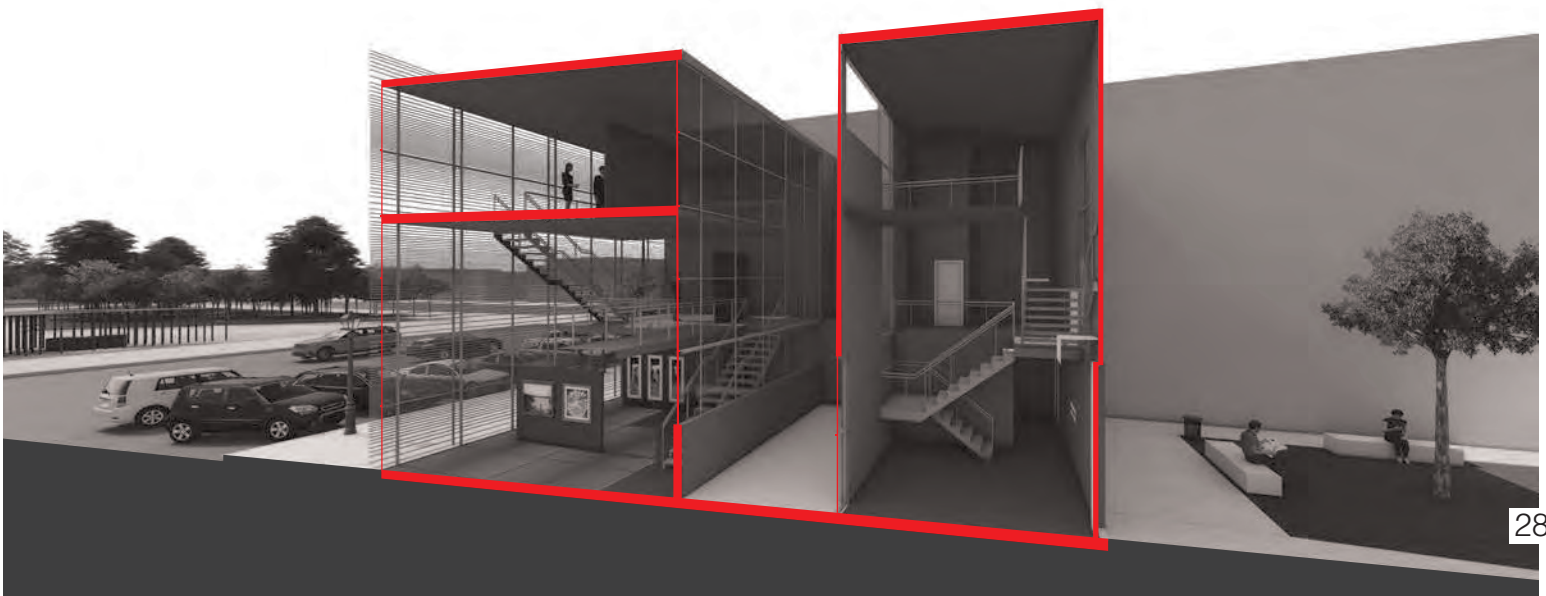
First Floor



Second Floor

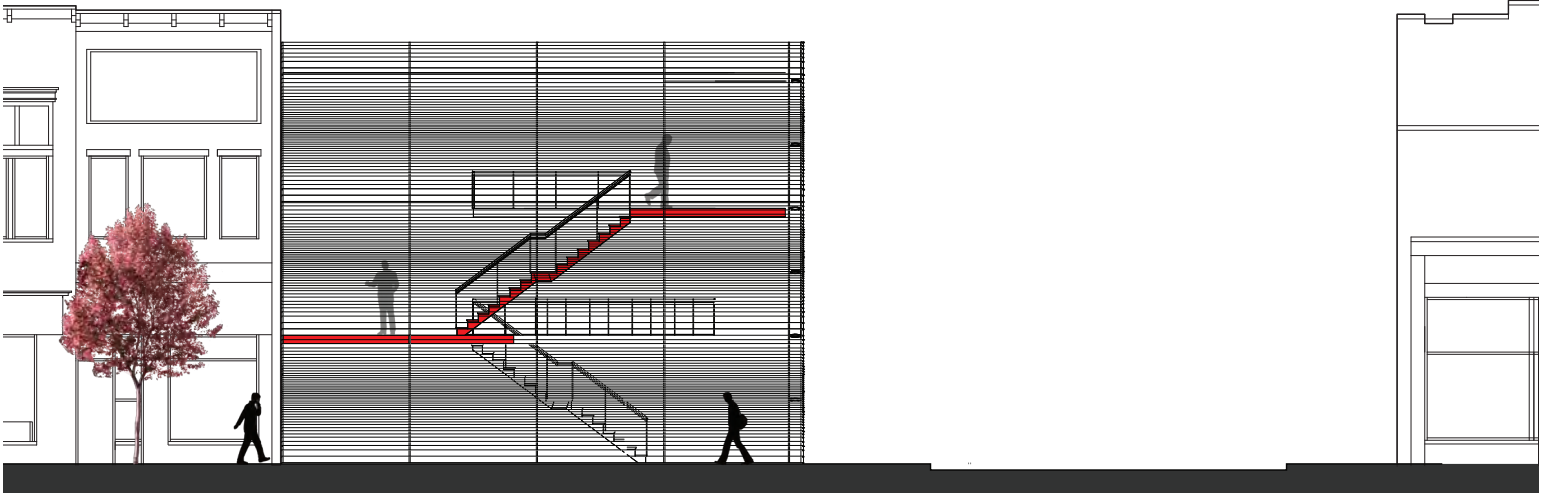


Third Floor





Gallery Entrance



South Elevation



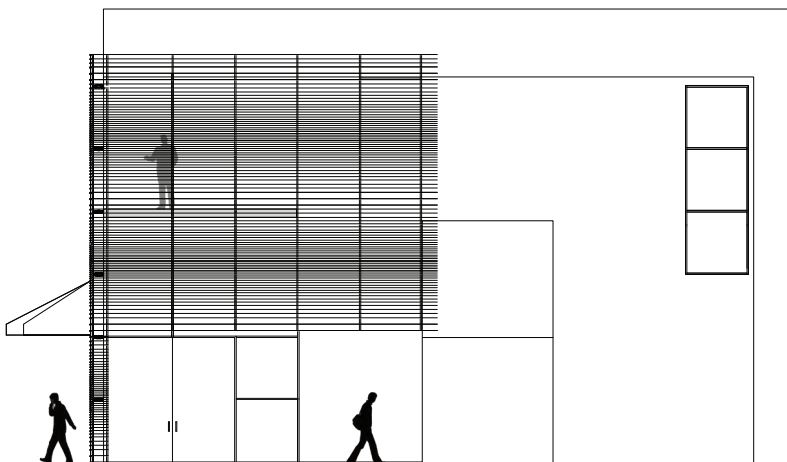
Back of Studio



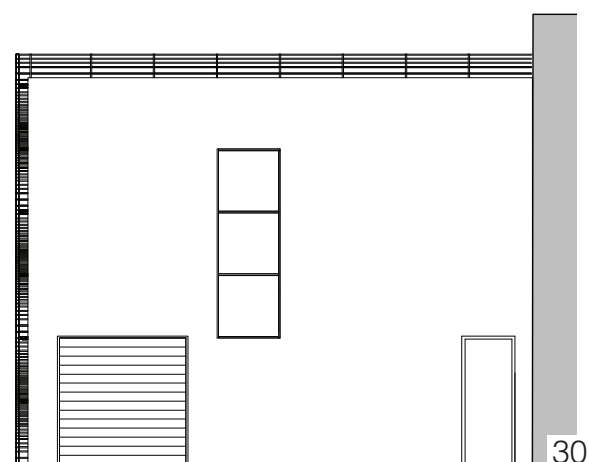
Second Floor Gallery



Second Floor Studio



East Elevation



North Elevation



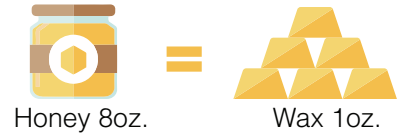
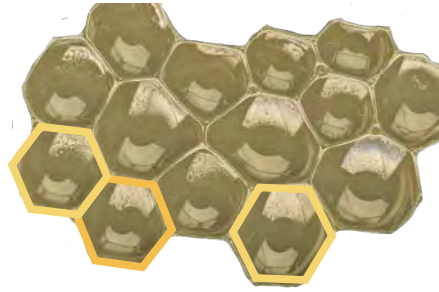
STUDIO IV

Studio IV focuses on building the skills learned in studio III with more emphasis put on the analysis of the site as well as introducing the program into the design process.

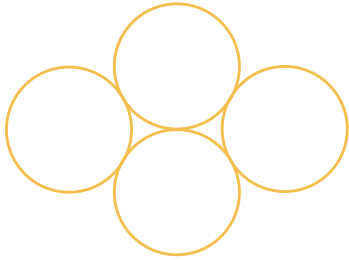


6:3:9 PARAMETRICS

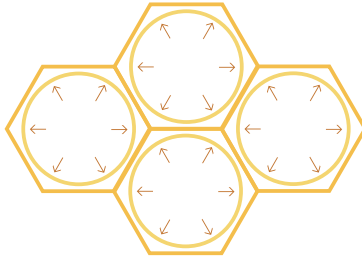
Biologists have recently discovered that it is most likely that bees initially build circular cells when constructing a honeycomb. Then due to heat, the wax gets soft, and surface tension slowly pulls the cells into more structurally sound hexagons. This phenomenon can also be observed in equal sized bubbles on a surface, which will always get pulled into a hexagon shape.



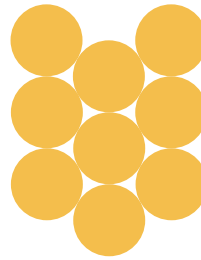
When constructing their honeycomb bees are trying to get the most volume to store honey and larva, with the least amount of wax. Mathematically the shape that fulfills these requirements the best is the circle. However, when tiling surface circles can only cover a maximum of 90% of the surface area.



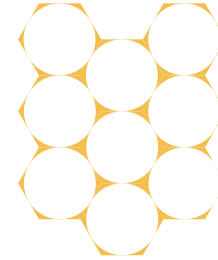
Cells right after construction



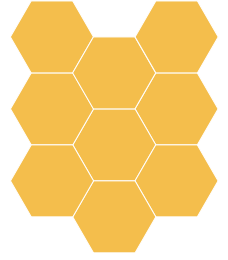
Surface tension pulling circles into hexagons



Only 90% of area covered

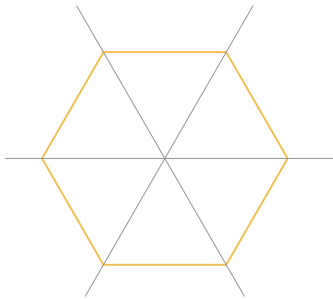


Wasted space between cells

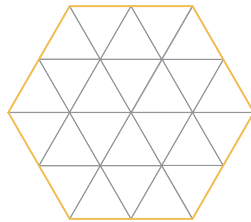


Most efficient tiling for area

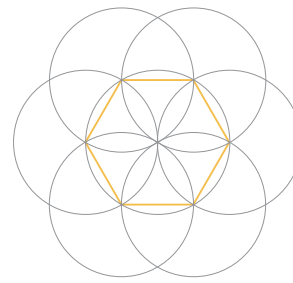
THE HEXAGON GEOMETRY



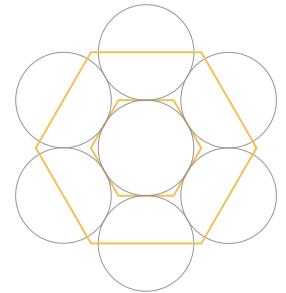
Segmentation into 6 Equilateral Triangles



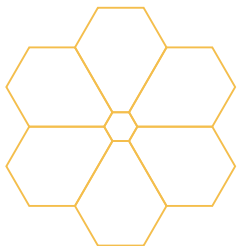
Further Segmentation Equilateral Triangle Grid



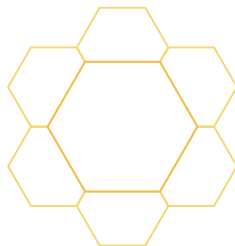
Hexagon-Circle Relationship



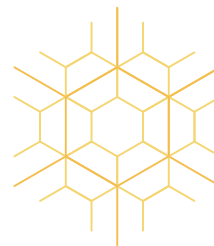
Hexagon-Circle Relationship 2



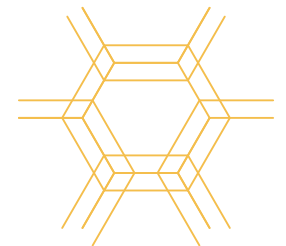
Distorted Hexagon Grid 1



Distorted Hexagon Grid 2

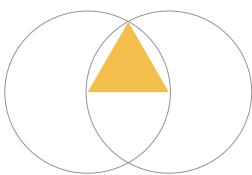


Overlaid Hexagon Grids

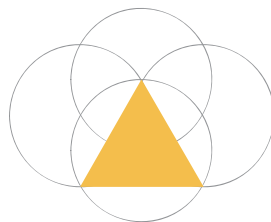


Overlapping Double Thick Hexagon Grid

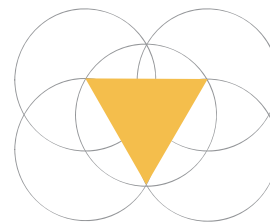
PROPERTIES OF EQUILATERAL TRIANGLE



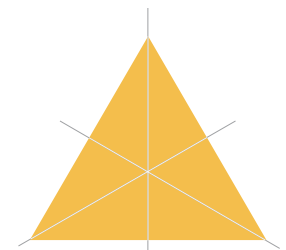
Two circle construction



Four circle compass construction

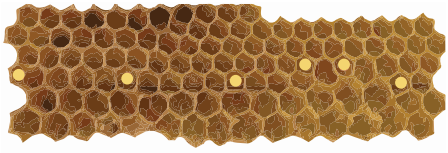


Five circle compass construction

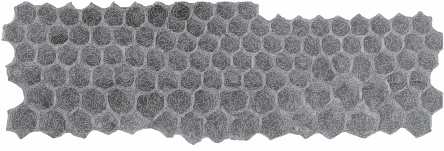


Trisection through bisection

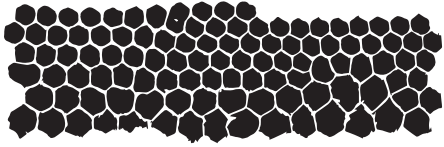
VISUAL ANALYSIS



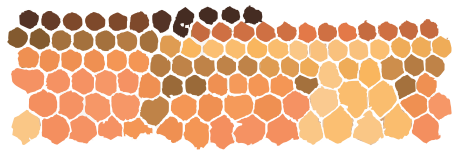
Honeycombs have two different sizes for cells, the worker and drone cells. Where the worker cells transition to the drone cells the change in size causes five-cornered cells to form.



To aid in the visual analysis, the image is converted into grayscale. Then the image is reduced to black and white, and the cells that are cut by the image frame are removed.



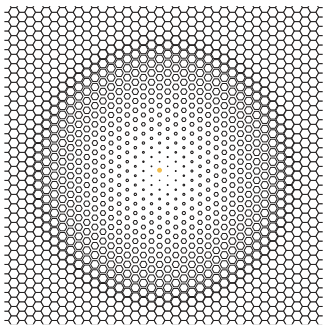
The picture is then analyzed using a method for the segmentation of images based on thresholding which is applied to vascular extrudes like the honeycomb.



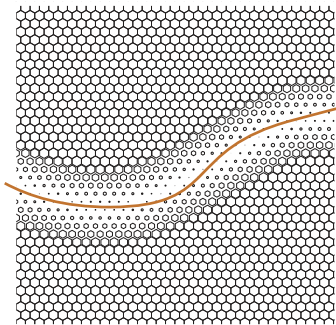
The black pixels are grouped into super-pixels, and each super-pixel is given its label or shade of yellow. The color shades are assigned according to the number of pixels in each super-pixel.

2D PARAMETRIC EXPLORATION

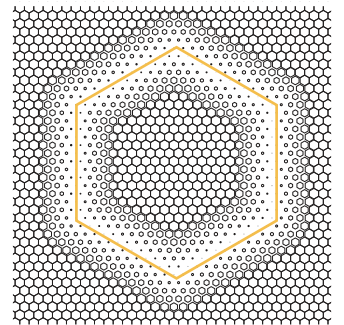
To begin our parametric exploration, we first we explored point, curve and shape attractors and how they would affect the regular hexagon grid. To get a better appreciation for the effect, we also explored how their attractors' effect might show in a perspective view.



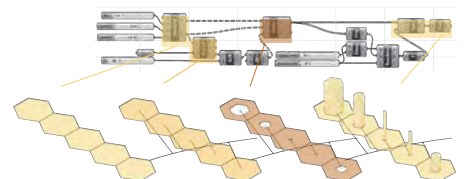
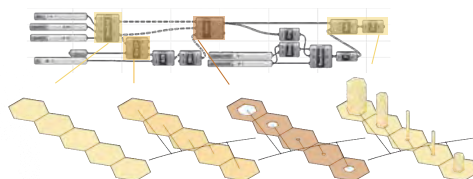
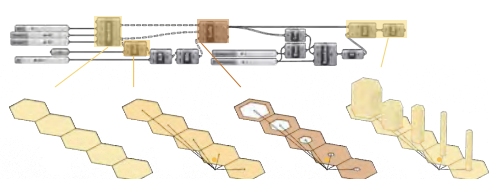
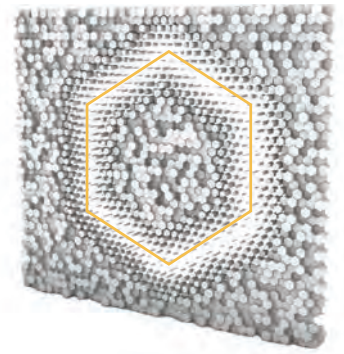
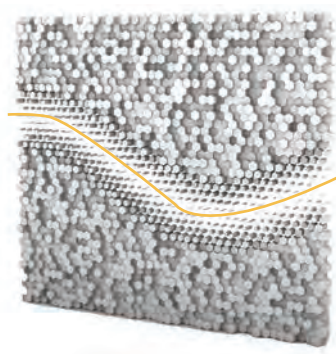
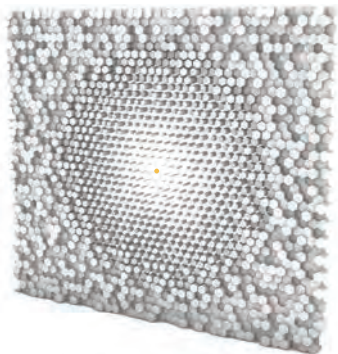
Basic Hexagon Grid Point as Attractor



Basic Hexagon Grid Curve as Attractor

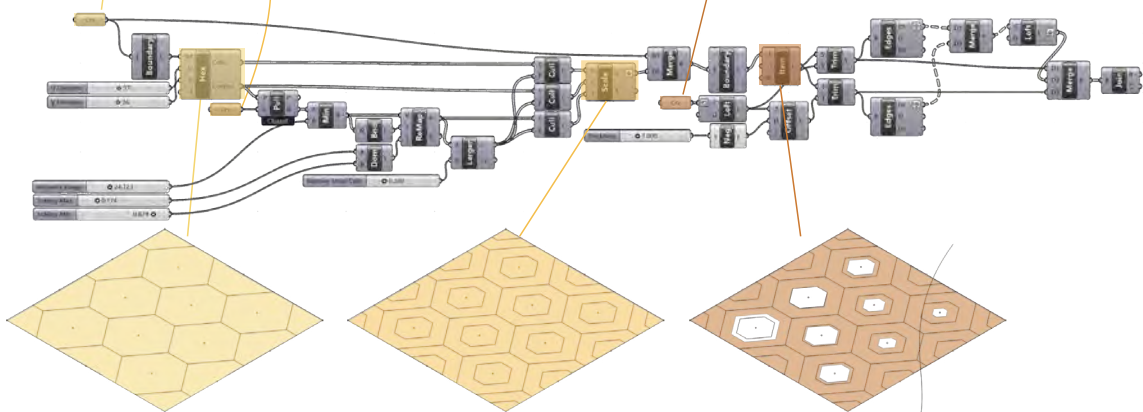
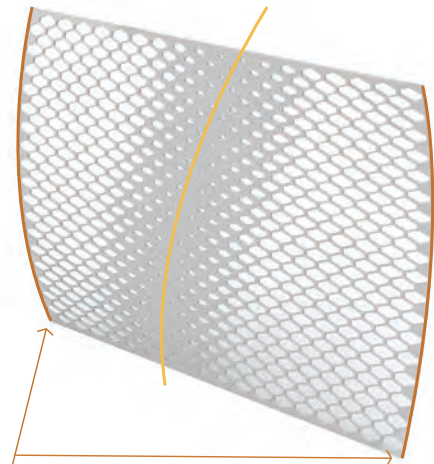
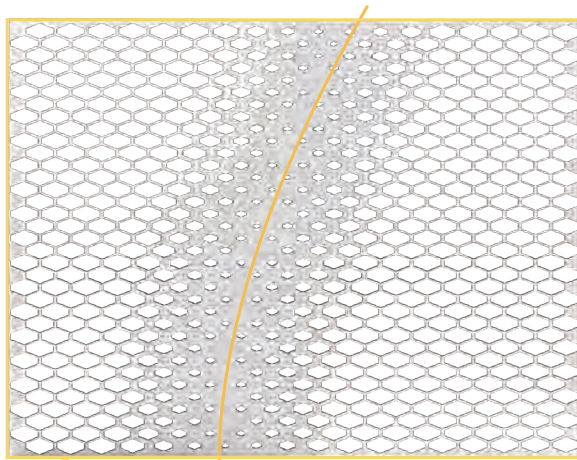
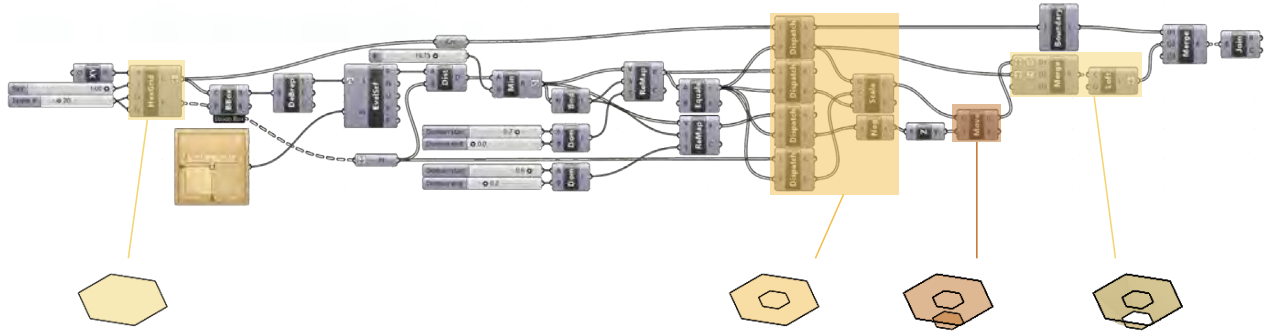
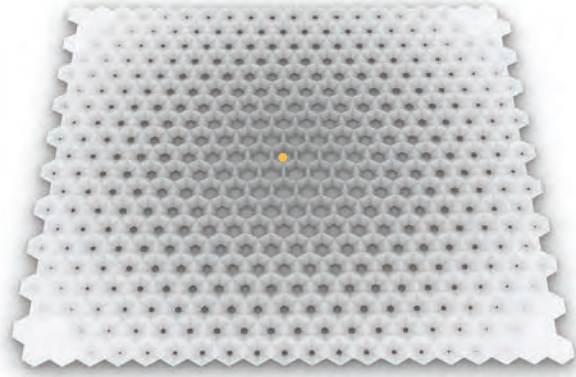
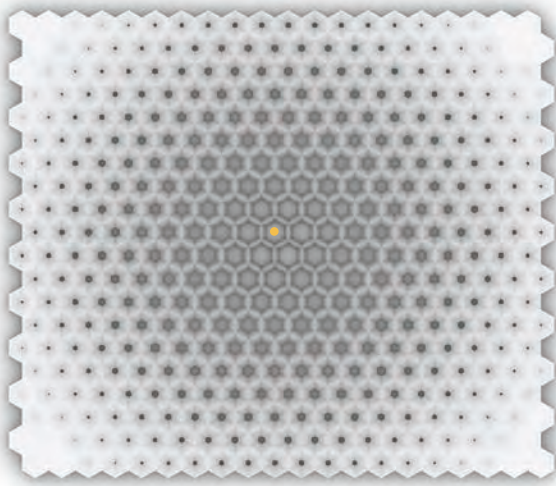


Basic Hexagon Grid Hexagon as Attractor



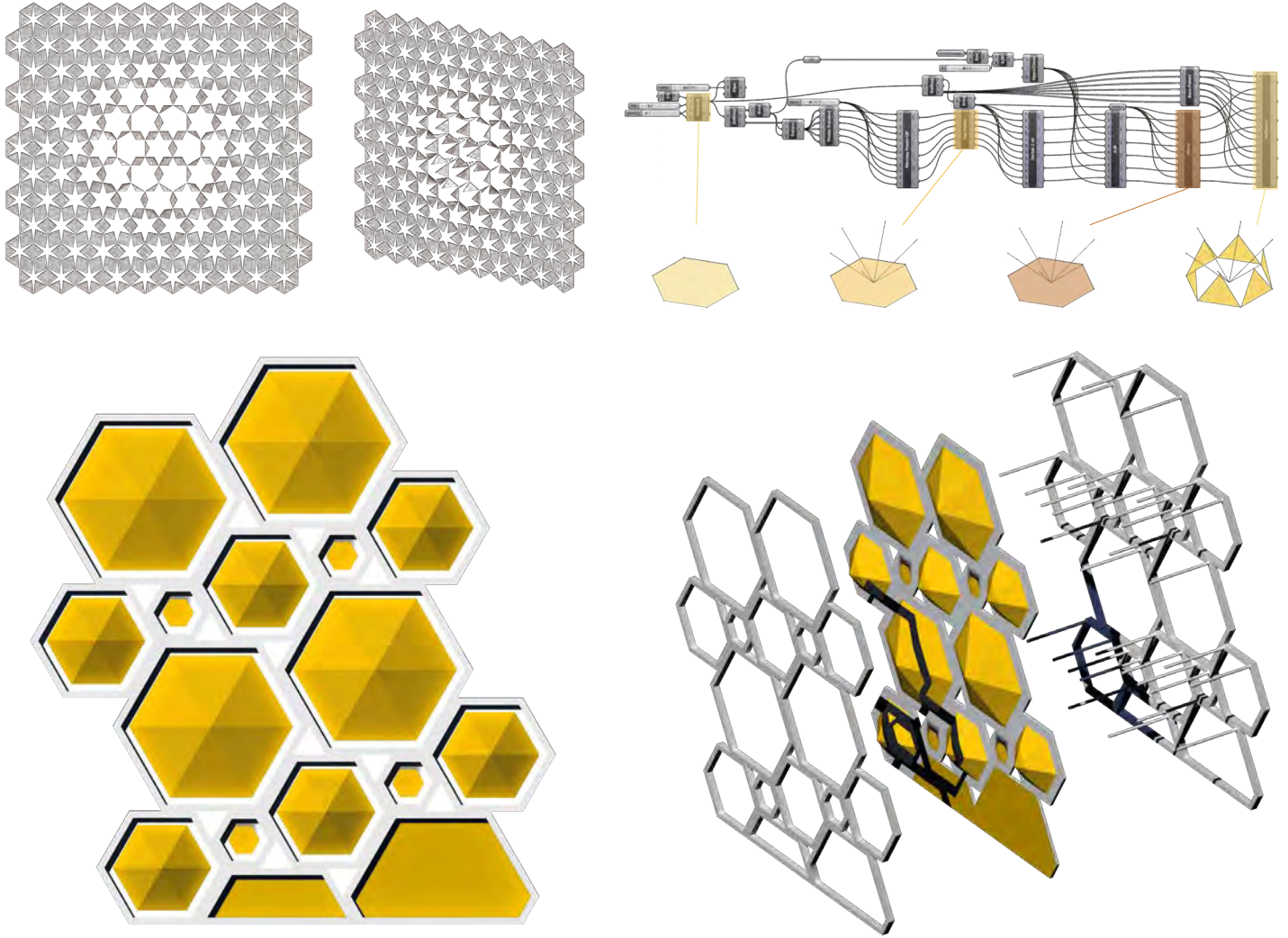
3D HEXAGON GRID PARAMETRIC EXPLORATION

To further explore the possibilities of parametric design within the honeycomb pattern we then presided to explore it in a more three-dimensional form, especially exploring the possibility of an oculus.

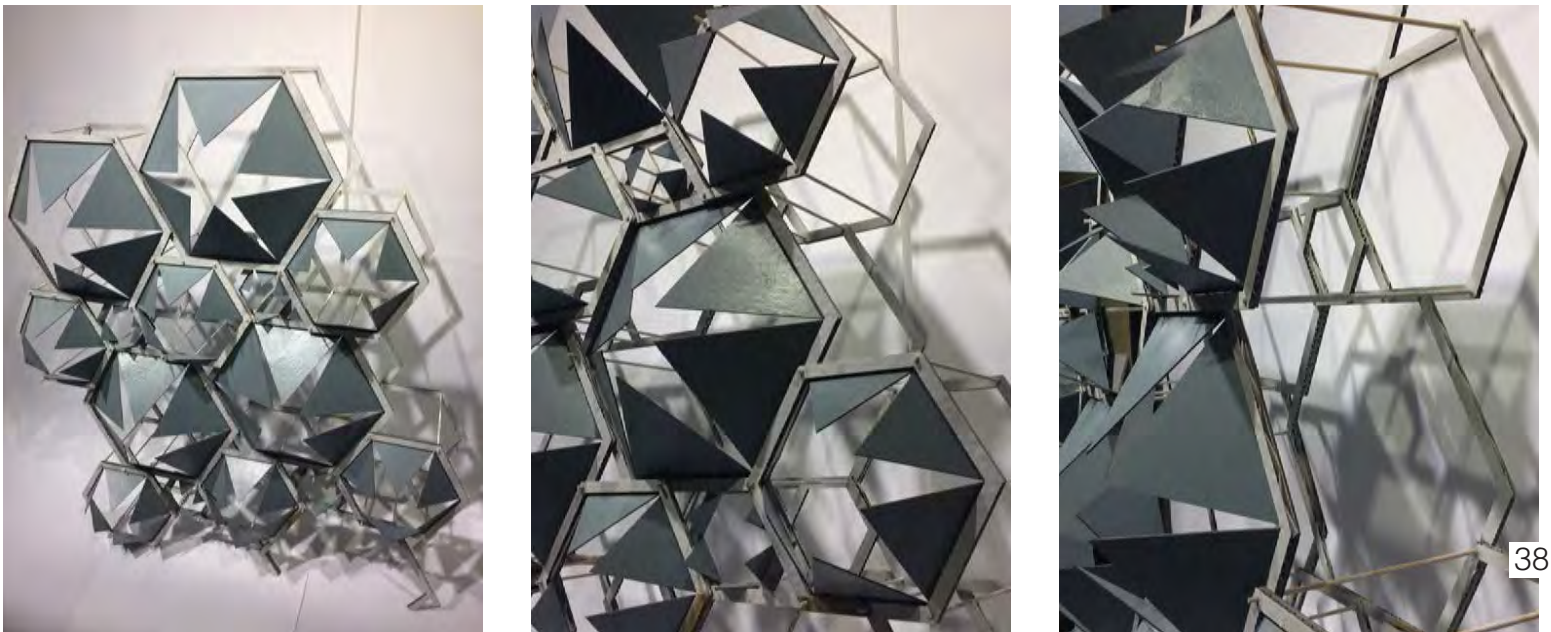


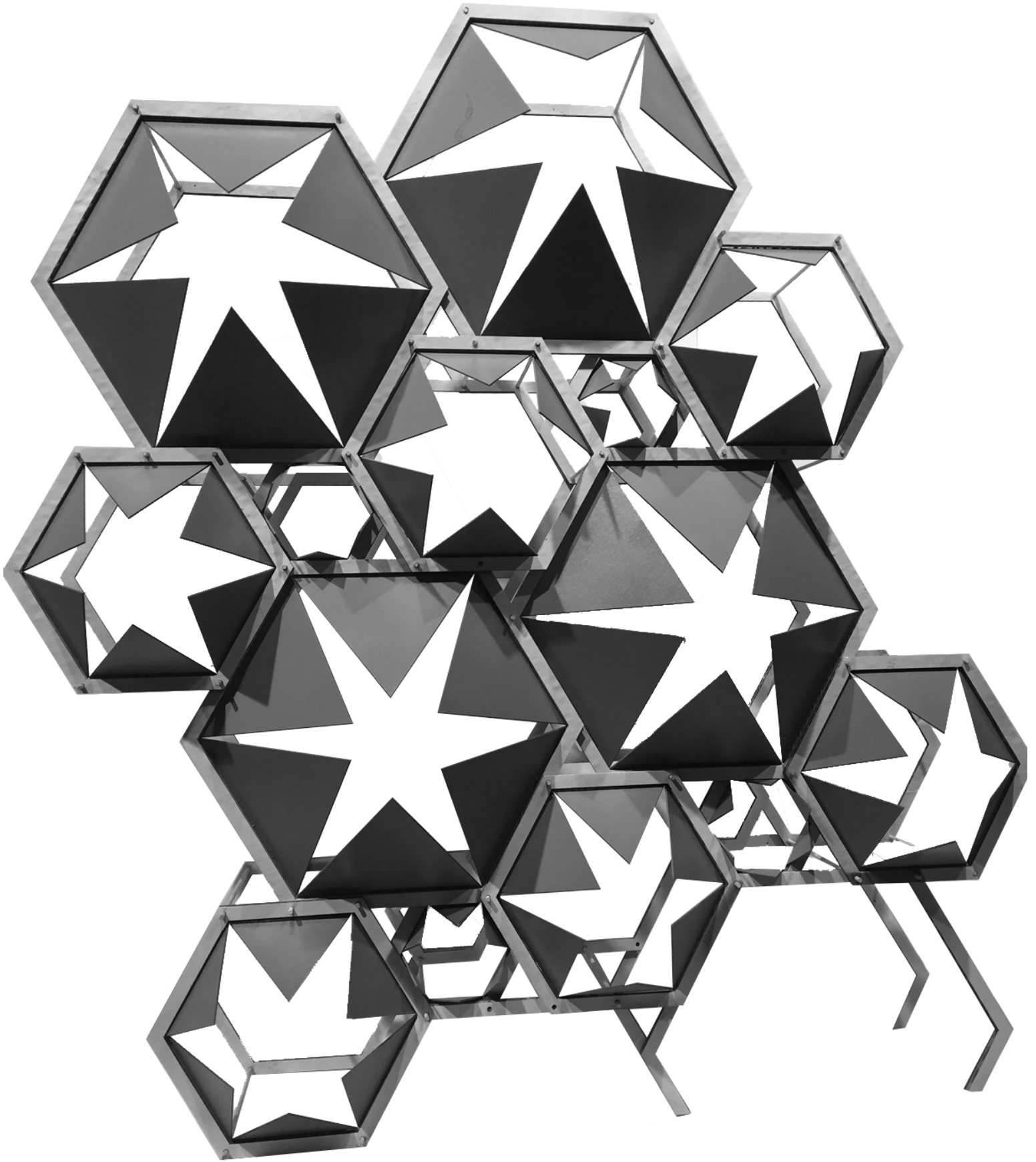
FINAL PATTERN

The façade system that we ended up with is a combination of a regular hexagon pattern and the opening oculus pattern explored above.



MODEL PICTURES

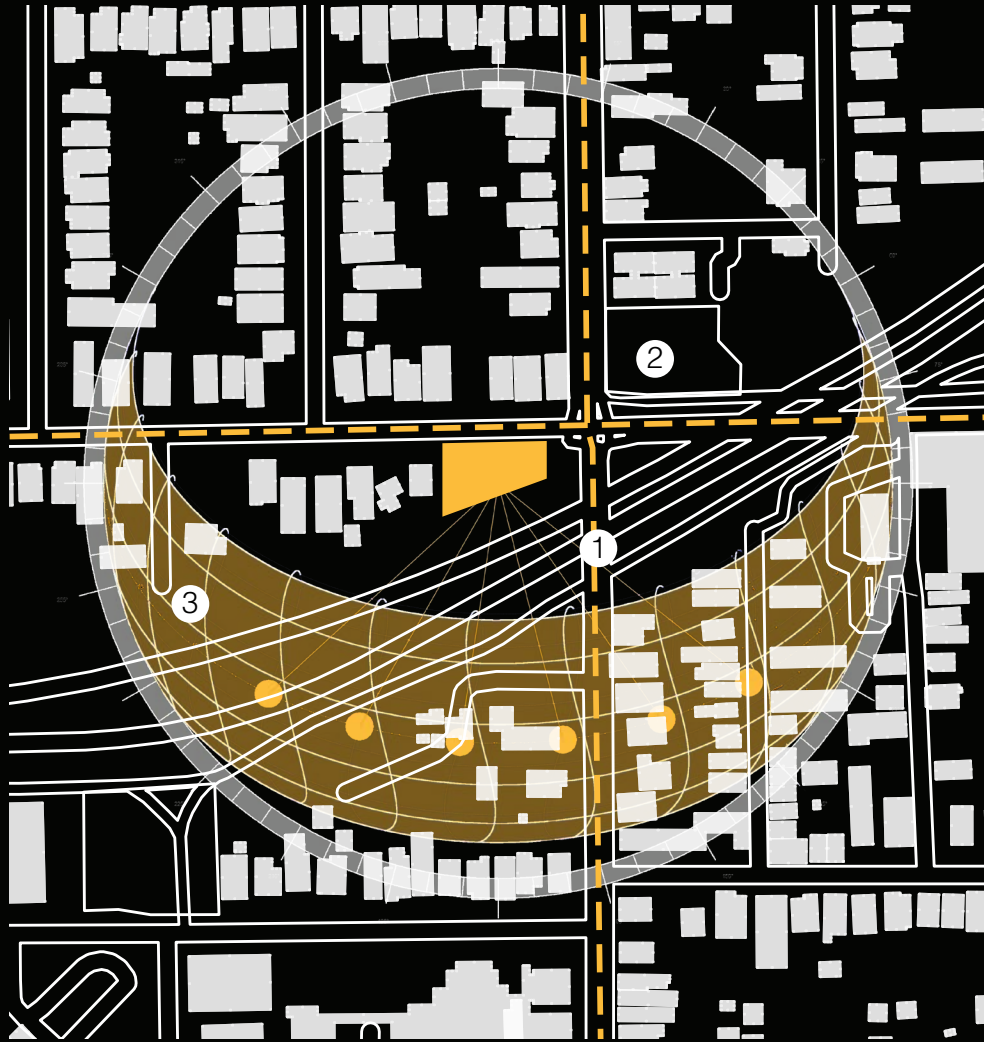




THE SLICE

Location: 571 Highland Ave NE Atlanta, GA 30312, USA

The Slice is a single-family home in the Old Fourth Ward district in Atlanta, Georgia. The neighborhood is best known as the location of the Martin Luther King, Jr. historic site and its street art. The design for this home was inspired by the cross circulation in Peter Eisenman's House X as well as the different views on sites in the area. Since the site is located on a bustling street, the goal was to provide some privacy for the family within the busy setting of Atlanta.



Site Plan

THE CLIENT

My Client is a young, middle-class, married couple looking for a house to raise their family in. The husband works in the sales department of a large company, while the wife is a stay-at-home-mom and explores her hobbies of wood and clay working. When possible, the husband would like to work from home, so he requires a home office that would allow him to do so. The wife is an artist focusing mainly on wood and clay sculptures so that she will require a studio space. My Client also requires an open concept kitchen/living/dining area for entertainment.



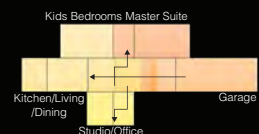
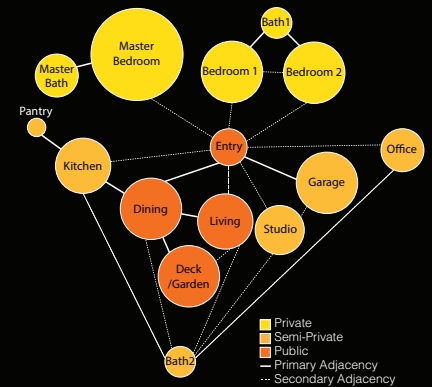
Randolph St Bridge



54 Columns

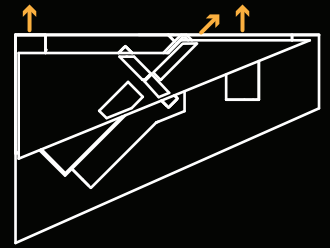


Freedom Barkway Dog Park

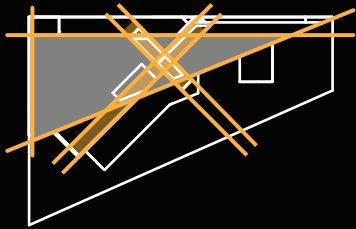


CONCEPT DEVELOPMENT

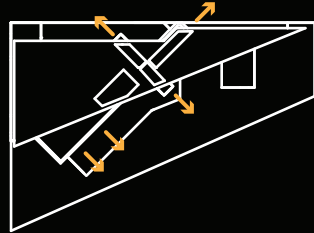
The concept is developed around three main factors, circulation, views, and the site boundary. To create a unique shape that fits the site, the site boundaries were offset towards the center to create a wedge shape that would become the basis for the form of the building as seen in Diagram (2). From the site, several places of interest can be observed, such as the street art on Randolph St Bridge and the 54 Columns sculpture (3). The lines of site to these two places create two axes that cut through the building and also create the basis for the circulation as seen in diagrams (2).



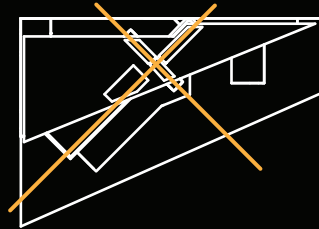
Access (1)



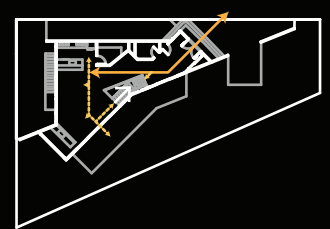
Base Geometry (2)



Views (3)



Axis (4)

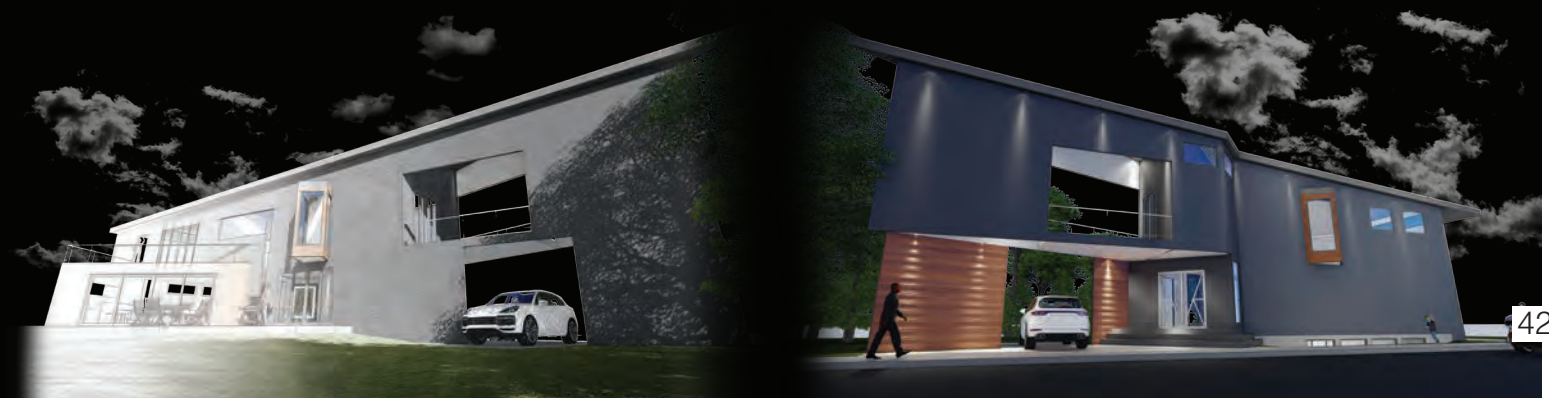


Circulation (5)

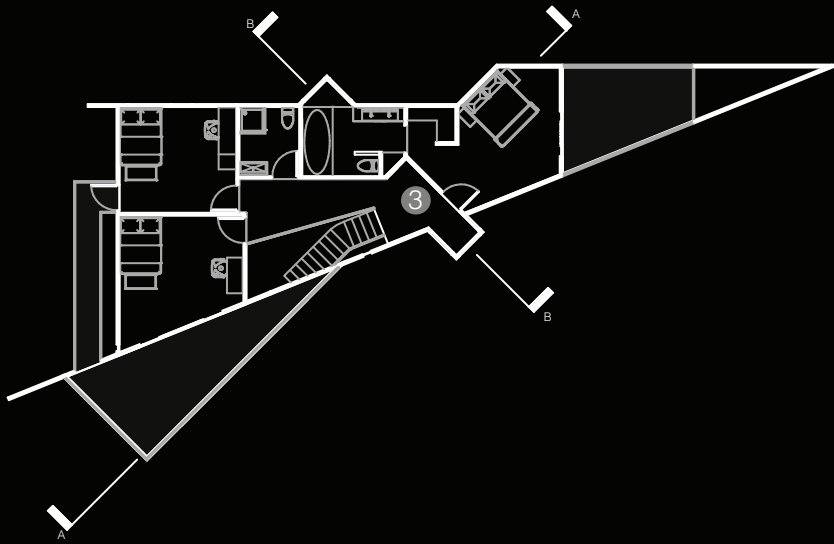


Section AA

Section BB

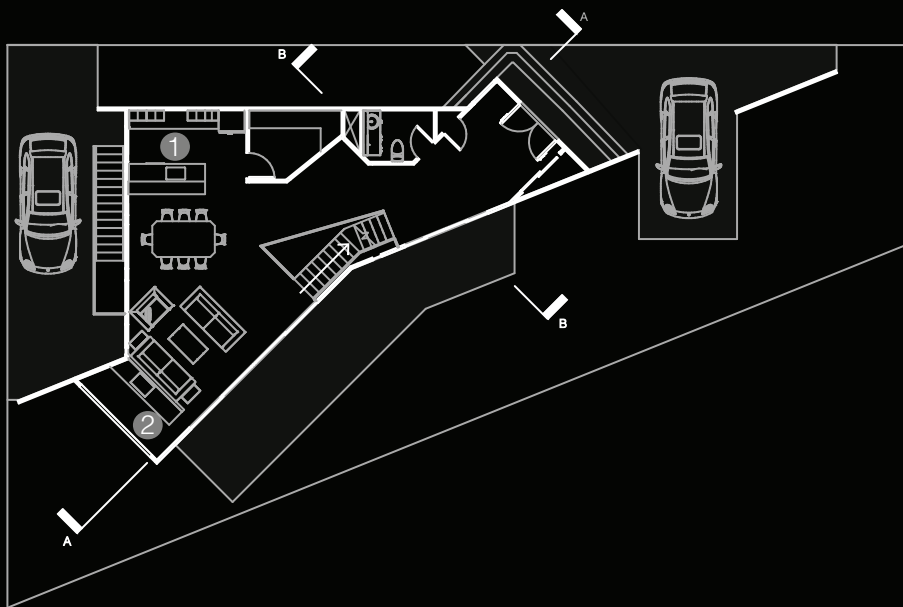


ORTHOGRAPHIC DRAWINGS



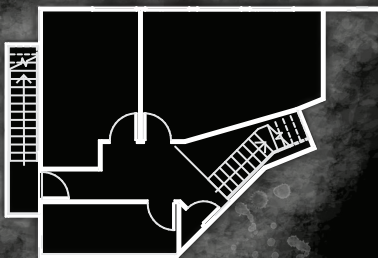
SECOND FLOOR

The Second Floor is the private retreat for each person, housing the Master Suite and Kids bedrooms.



FIRST FLOOR

The First Floor is designed for entertaining guest as well as creating a space for the family to spend time together in the open Kitchen, Dining Living Plan.



BASEMENT FLOOR

The Basement houses an office for the husband as well as a studio space for the wife to pursue her hobby of sculpting and woodworking.

RENDERINGS



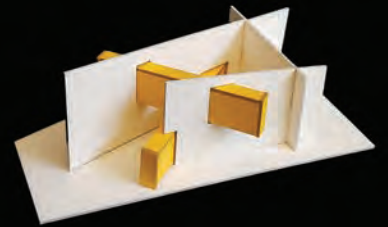
1 Living Room



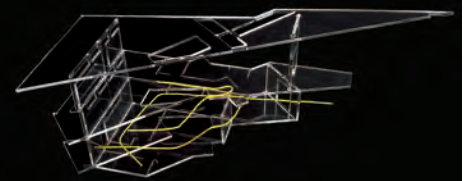
3 Top Hallway



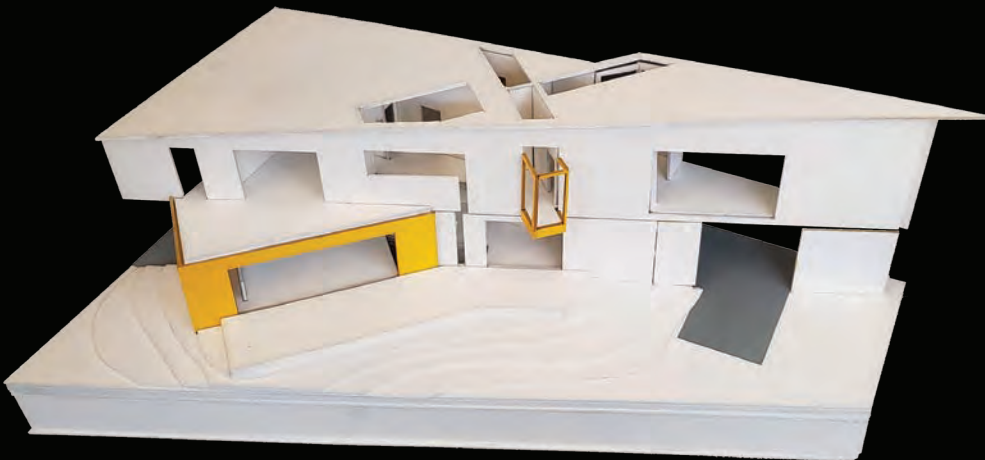
2 Kitchen



Concept Model



Circulation Model



Final Model



Articulation Model

