

Undergraduate Design Portfolio

Brian Espinosa
University of Florida



01

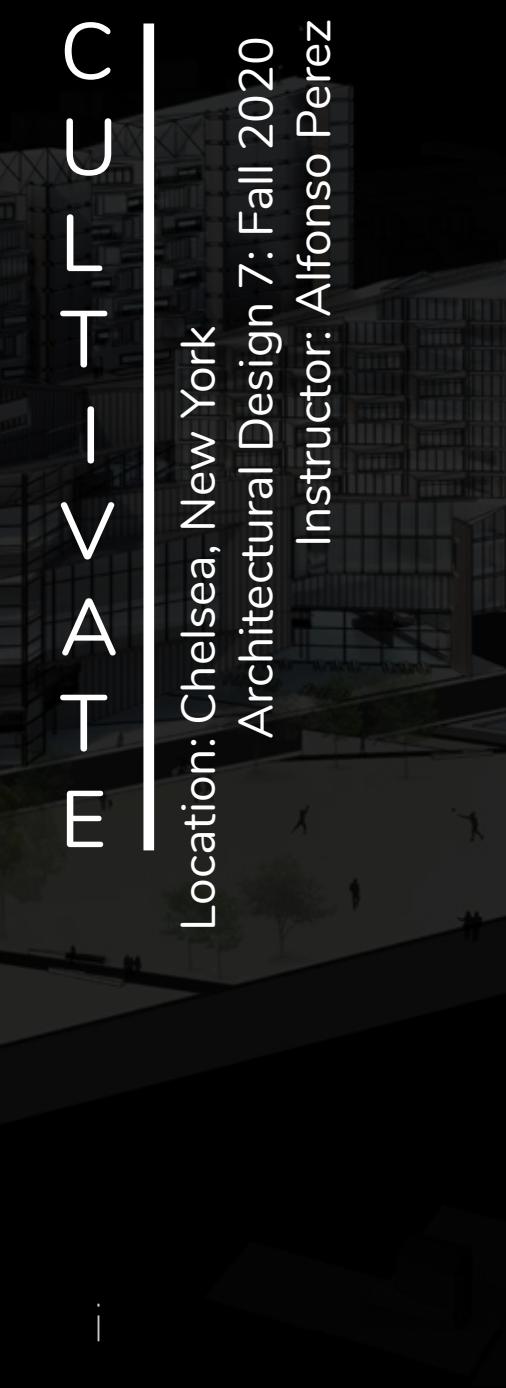
Pages 01 - 04

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Location: Chelsea, New York

Architectural Design 7: Fall 2020

Instructor: Alfonso Perez



02

Pages 05 - 06

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Location: Palm Point Park, Gainesville Florida

Architectural Design 5: Fall 2019

Instructor: John Maze



03

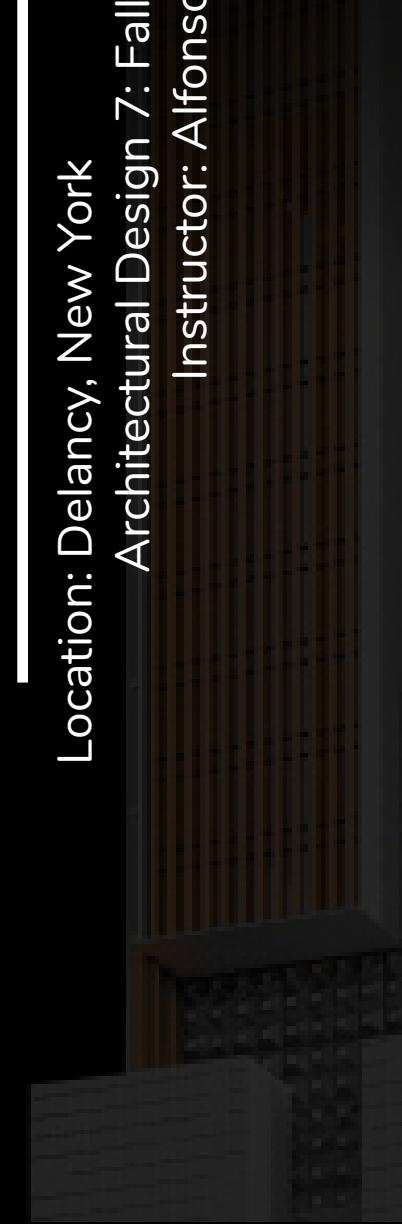
Pages 07 - 10

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Location: Delancy, New York

Architectural Design 7: Fall 2020

Instructor: Alfonso Perez



04

Pages 11 - 12

$\exists \Delta \top \cap \exists \circ \circ$

Location: Atsena Otie Key, Florida

Architectural Design 5: Fall 2019

Instructor: John Maze



05

Pages 13 - 14

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Location: In Studio, Gainesville Florida

Architectural Design 4: Spring 2019
Instructor: Mark McGlothlin

06

Pages 15 - 16

π Ζ π Ζ — π π π X π

Location: 212 SE 1st St., Gainesville Florida
Architectural Design 6: Spring 2020
Instructor: Michael Kuenstle

07

Pages 17 - 18

π Ζ π Ζ π < O Ζ

Location: In Studio, Gainesville Florida
Architectural Design 3: Fall 2018
Instructor: Martin Gunderson

08

Pages 19 - 20

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Location: In Studio, Gainesville Florida
Architectural Design: Summer 2019
Instructor: N/A

01

Cultivate

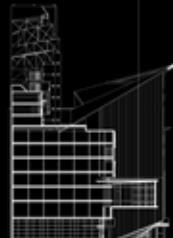
Techniques:
AutoCAD
Lumion
Photoshop
RayTrace
Rhino

ChelseaMap Diagram

Traditional farming will no longer be able to satisfy the growing populations and will need to be supplemented and eventually replaced. Vertical farming would be introduced into the site to **enrich** the new technology.

The experimental and artistic nature of the Chelsea neighborhood provide an ideal location for this new agricultural program that is **uniquely** qualified to be in dense cities but has yet to take on a significant role.

Exhibition Section

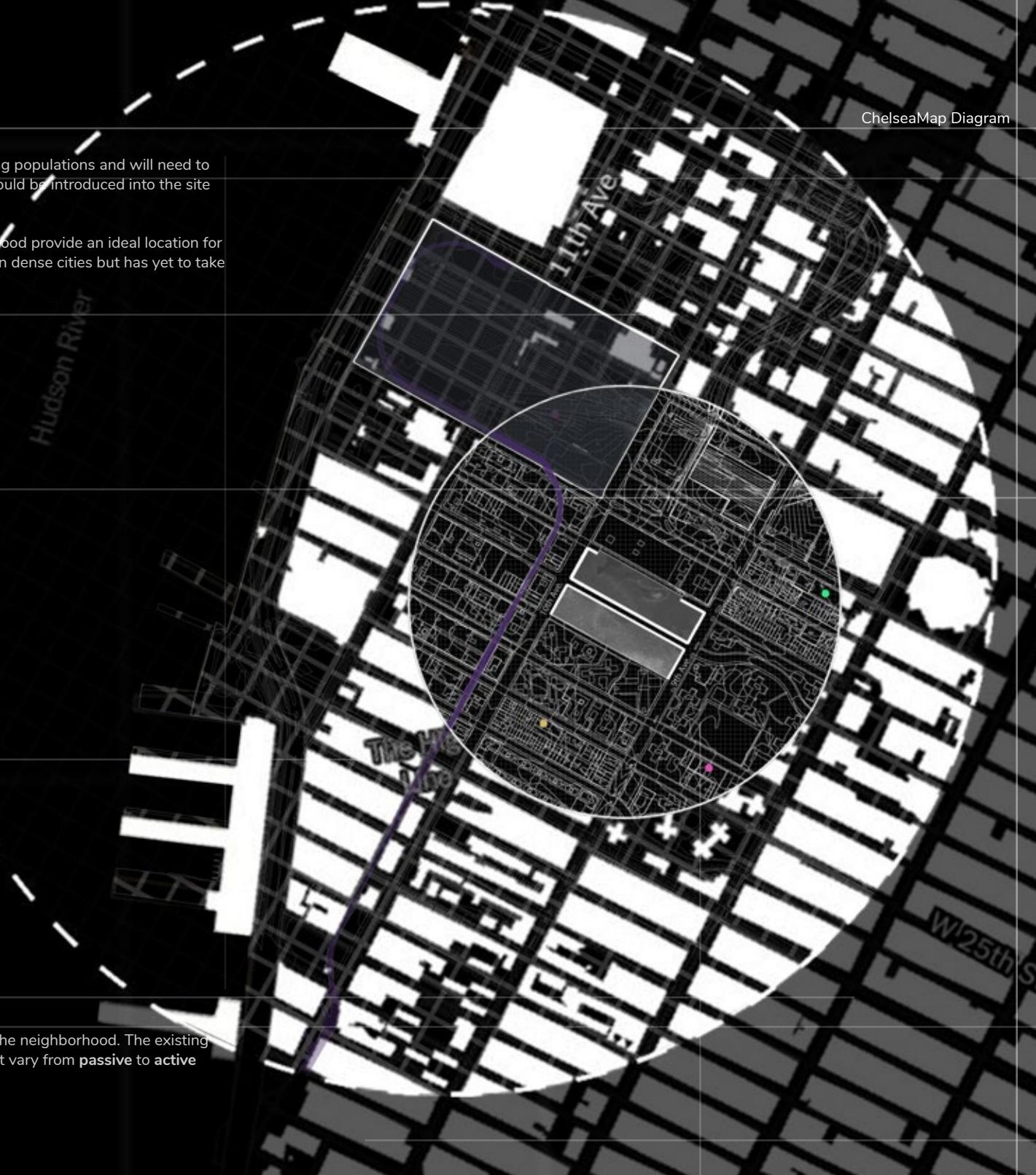


Library Section



Vertical Farm Section

Chelsea park is considered one of the busiest public spaces in the neighborhood. The existing park was designed for the community with many attractors that vary from **passive** to **active** recreation.

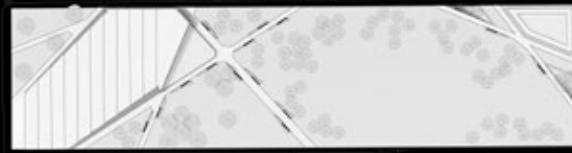




Agriculture is the most fundamental invention in human history. However, 70% of freshwater contamination is a direct resultant of traditional agriculture.

Nearly 3-quarters of usable fresh water goes to agriculture. Despite the high-water use, traditional crop yield is under .75 pounds per square foot.

Environmental Effects of Traditional Agriculture



Key:

1. Environmental Science Library
2. Indoor Gymnasium
3. Institute Exhibit

First Floor Plan with Context

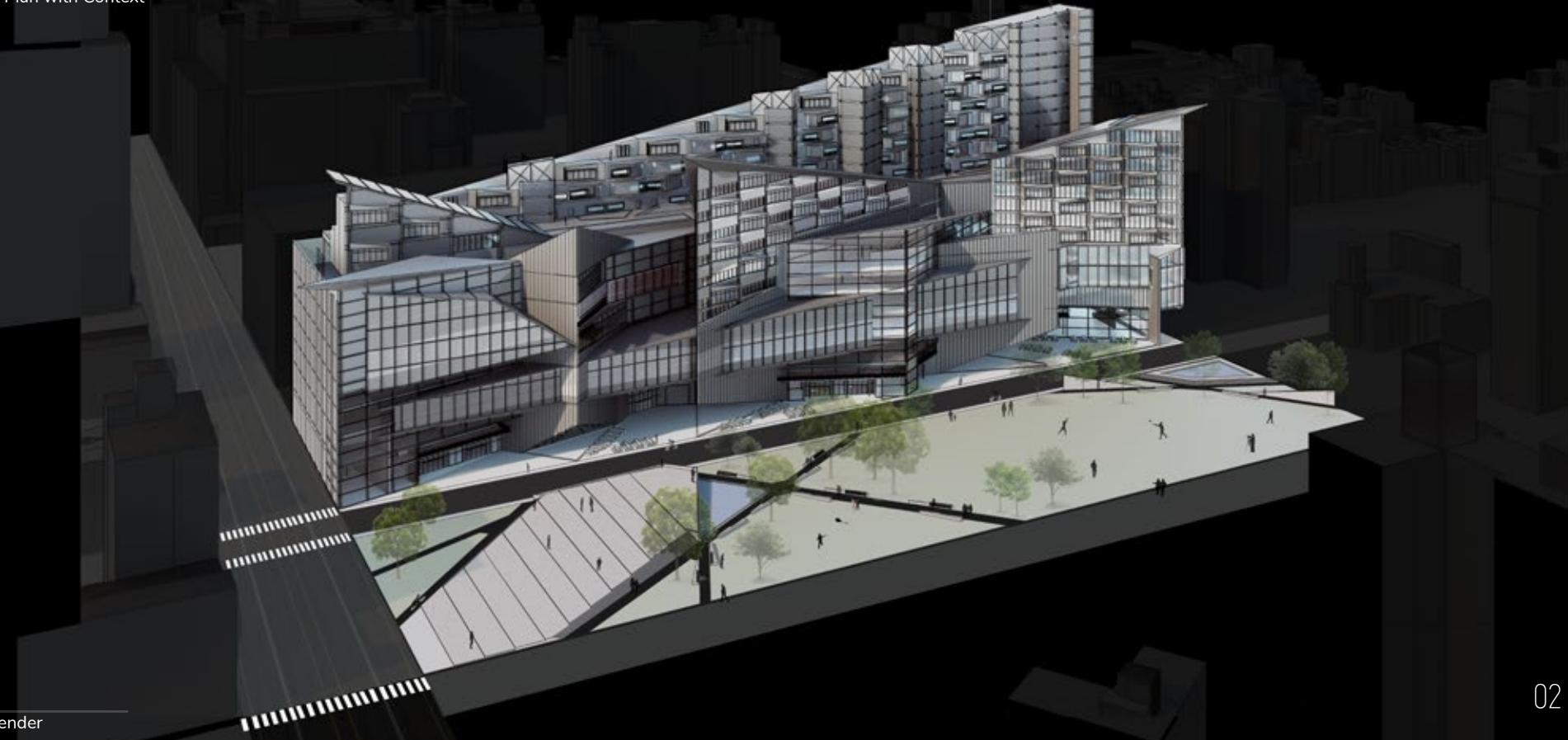


As dense living becomes an undeniable reality, field farming will become less and less relevant as cities expand into rural areas. Traditional farming will no longer be able to satisfy the growing populations.

Project Cultivate introduces **controlled environment farming** to the Chelsea neighborhood. The high-density nature of this type of agriculture uses 95% less water than field agriculture and allows for the water to be recycled

Interior Library Perspective

The form is inspired by an **abstracted form** of the standard New York City block. The architecture of the modularity of brownstones was pulled pushed by creating edges into the jagged structures on the 28th street Façade. In a city where relaxed public outdoor space is highly coveted, this form allows for smaller pockets of relaxed space in a public setting.



Exterior Render



Exterior Apartment Perspective

The apartments in Project Cultivate were designed to house two types of groups: **private** and **communal**.



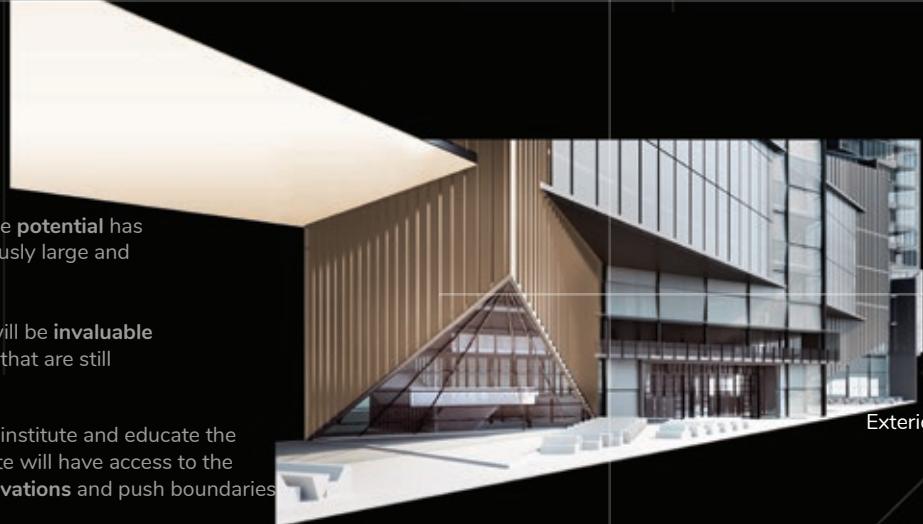
The private group consists of the residential portion of the building and would cater towards the young professional population while the communal group would house the students.

The vertical farms offer a unique design that can grow plants in **high densities** with relatively low floor space use, an ideal program for food production in a city like New York. Since vertical farming is sustained solely on artificial lighting, it is an **ideal program** for these problematic spaces.

Controlled environment farming is a newer method in the agricultural industry, and the **potential** has yet to be fully realized, especially in the city of New York where the blocks are notoriously large and therefore contain substantial core spaces.

For a farming facility of this size, the addition of a body of students and researchers will be **invaluable** in the pursuit of further advancing the awareness and production of types of farming that are still relatively new.

The library will specialize in environmental sciences to benefit the institute and educate the community on how to live **sustainably**. The students at the institute will have access to the farming facility to study, test, research, and develop technical **innovations** and push boundaries of biotech in controlled environments.



Exterior Render



Section Elevation

Project Cultivate is centered around **plant production** and **research**, but more importantly, it aims to cultivate the community and encourage **growth** in its community through **education**, access to better food choices, and awareness that in locations like New York City, there are always more ways to live sustainably.



Q2 Invigorate

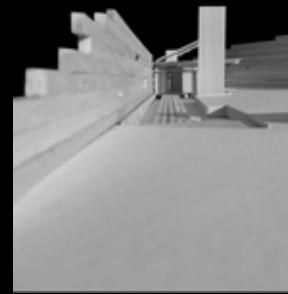


Techniques:

- Hand Drawing
- Layering
- Physical Model Building
- Photography
- Photoshop

Lighting Study Photo

The Florida landscape is unique with its flooded, flat landscape. The design intent of the Florida Landscape project is to create a structure that could **manipulate** and **accentuate** the perks of the flooded landscape. The project houses a bath house that would accommodate individual and group baths. The main inspiration of the project was Japanese traditional bath houses. The research on Japanese bath houses introduced rituals and chores that the individuals would perform prior to bathing.



Entrance Model Photo



Exterior Entrance Perspective

The material palette would contain rammed earth and concrete to assist with the hot climate of Florida. The project **manipulates** the water and sunlight to create a **harmonious** experience to the individual. The plan was to create an **invigorating** and **celebrated** space that continues beyond the confines of solid land and spans across the water.

The inhabitant would walk above the water and be able to touch the rammed earth upon entering the bath house. Entering the space, a genkan step invites the individual to remove their outside footwear which creates a moment of **pause** before entering the main space.



Diagrammatic Map Plans

The form of the bath house resulted by finding the winter solstice line and creating an **axis** the project would revolve around.



Main Space Interior Perspective

The rammed earth wall was designed to be placed across the water to create a **seamless** connection between defined and undefined ground. The inspiration came across a fisherman and the limit of his ability to move beyond the defined ground before him. By understanding the limitations, the architecture can stitch the define line between ground and water.

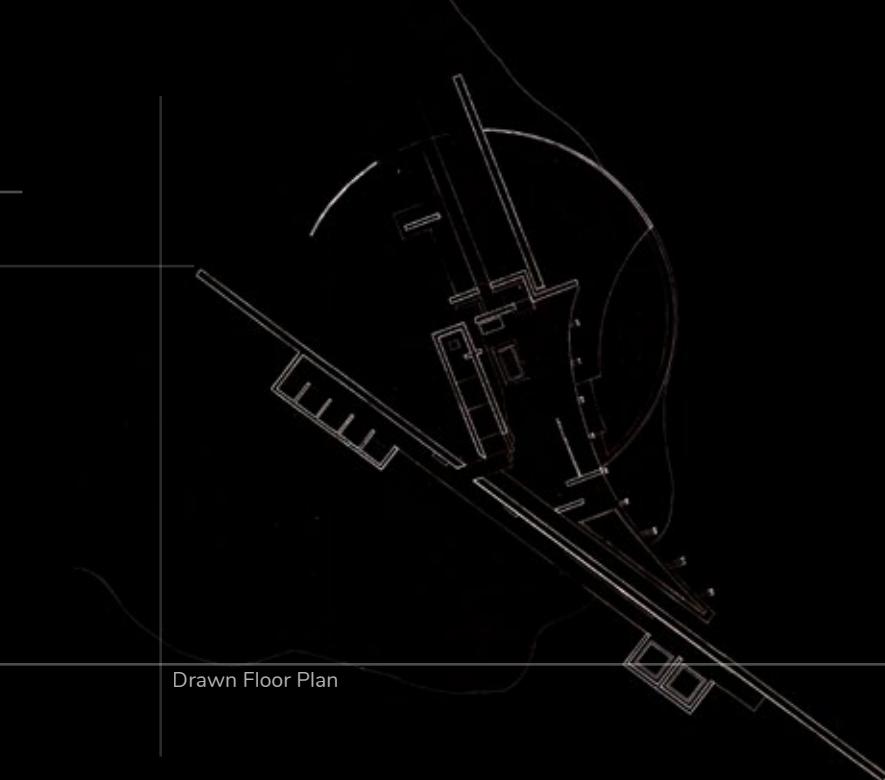


Site Diagram



Interior Model Photo

Drawn Floor Plan



The **reflection** space that is tucked between the wall and furnace creates a dark space that emits small **slivers of light** to penetrate the space and create moments of **reflection** across the ground.

The rammed earth wall **splits** the main space into two spaces: **private** and **public**. On the public side, the space contains the group bath and light **reflection** space. The water is heated by a wood burn furnace. The water is then dispersed onto the bath locations initially upon entering the baths.

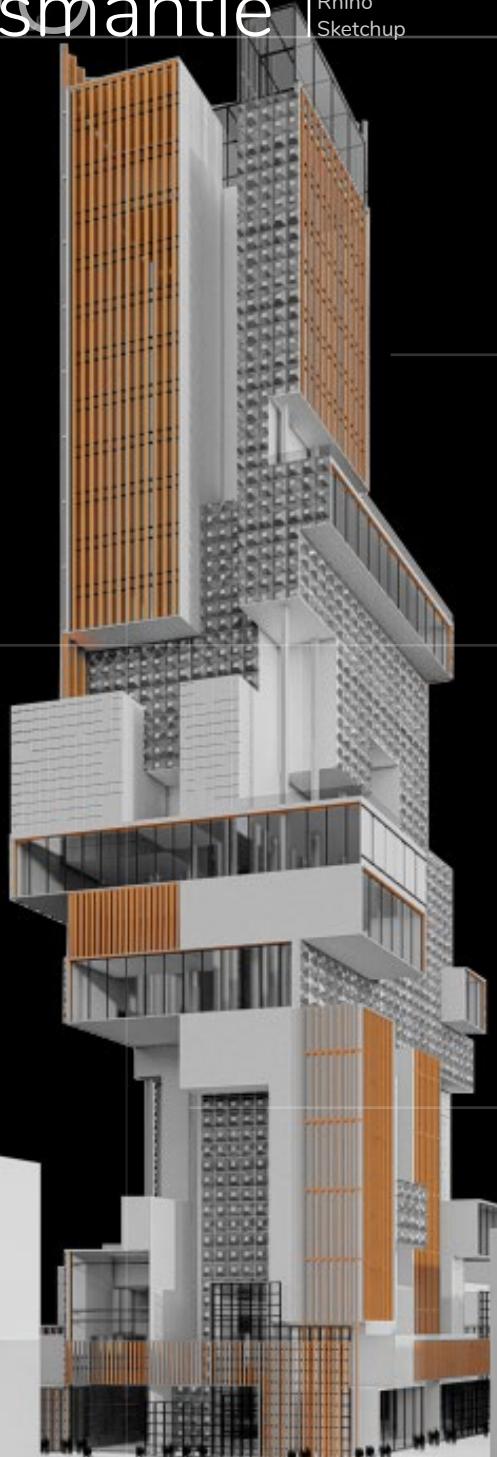


Model Photo

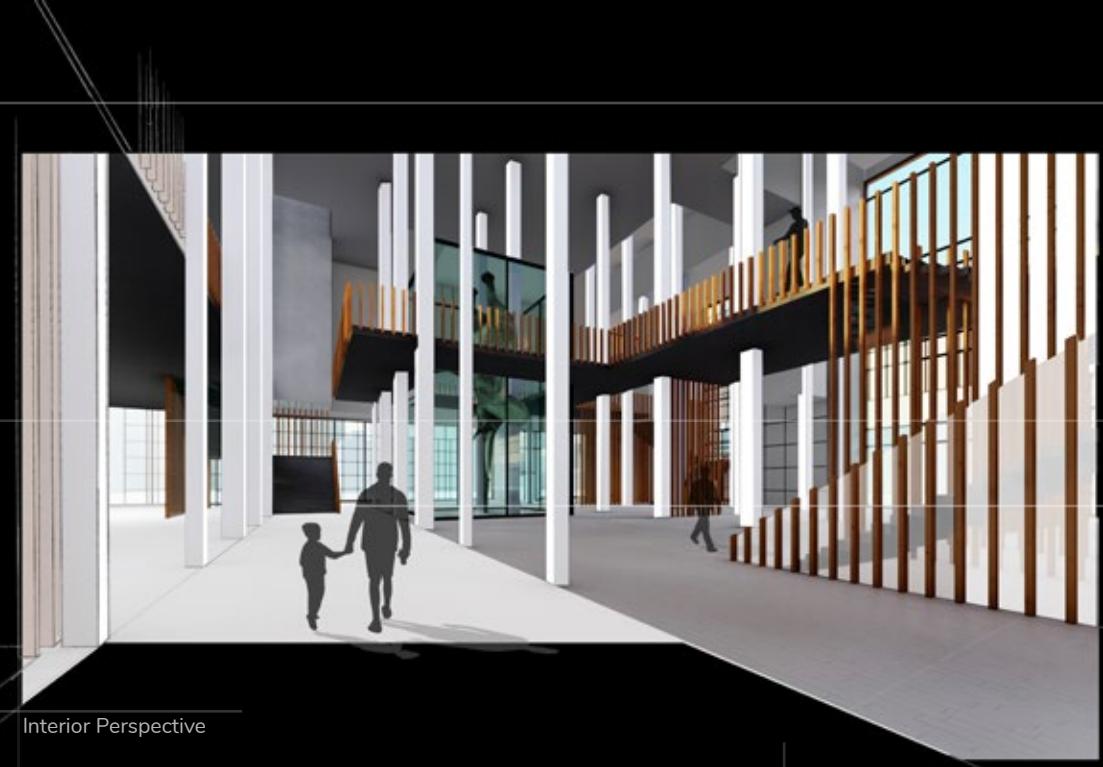
03

Dismantle

Techniques:
AutoCAD
Lumion
Photoshop
Rhino
Sketchup



Exterior Render



Interior Perspective

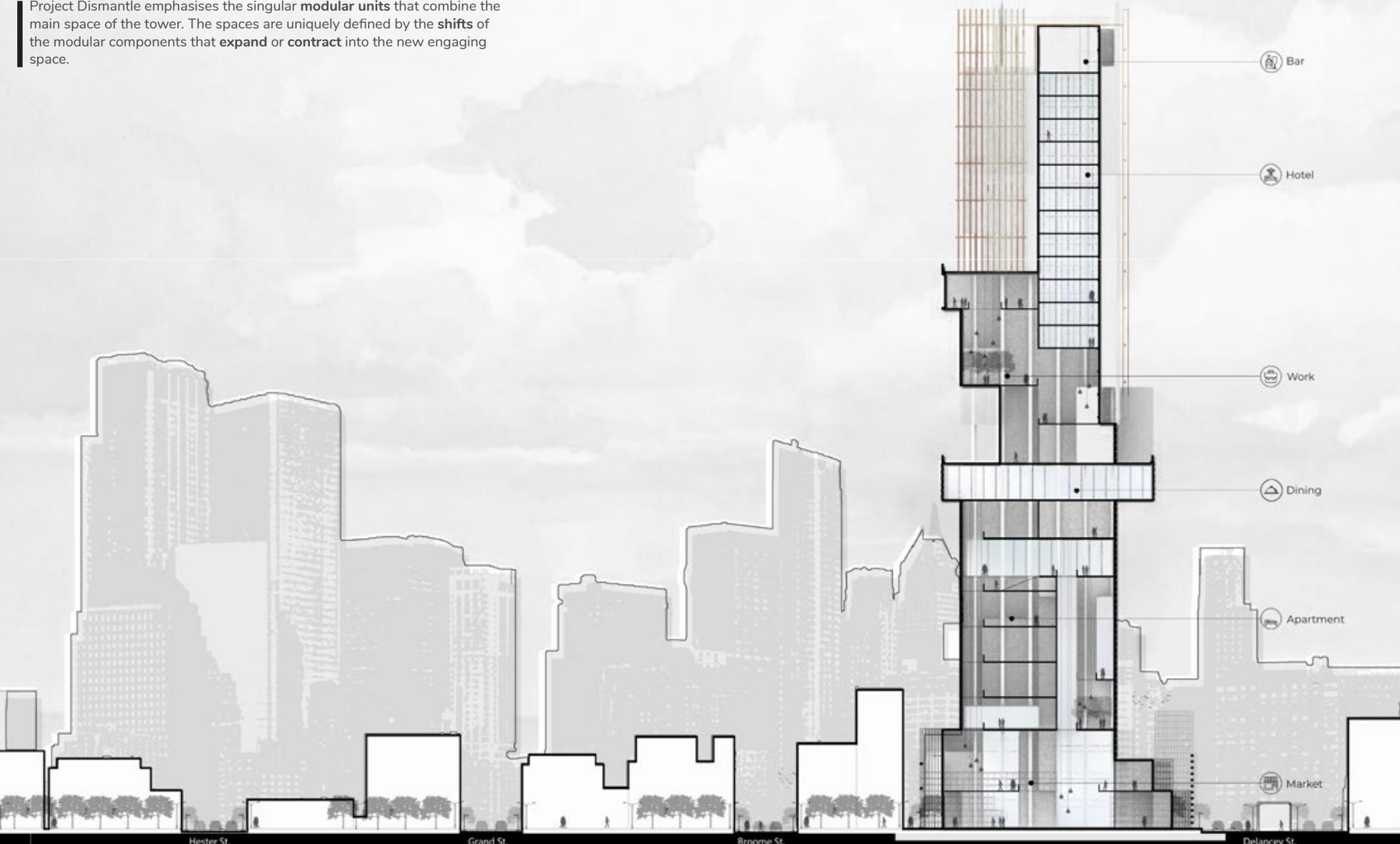
Project Dismantle houses a variety of amenities such as shops, lounges, bars, and restaurants. The objective of Project Dismantle is to create a space that **unifies** what is considered many different cultures and **blend** into **one Identity**.

Project Dismantle offers the ability to house apartment units that **encourages** the local community to engage with the visiting community. Project Dismantle is taking what is many individuals with **different objectives** and creates one **unified system** that makes up New York.



Street Perspective

Project Dismantle emphasises the singular **modular units** that combine the main space of the tower. The spaces are uniquely defined by the **shifts** of the modular components that **expand** or **contract** into the new engaging space.





Initial Mass Model

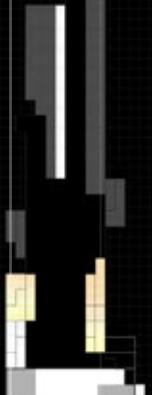


Main Interior Perspective

Diagram Section

Due to the **pushing** and **pulling** of masses on the physical form, there is no concise straight line that holds the form of the city on the first floor. New York is known for holding the edge of the city blocks.

To maintain the city block edge, the tower contains an external **gate** that **holds** the cities edge while also creating special **pockets of space** that allows for people to gather before entering the project.

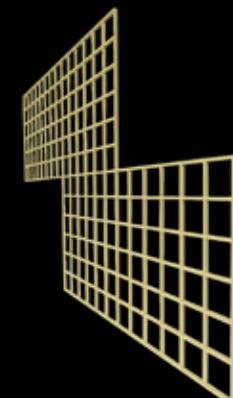


09

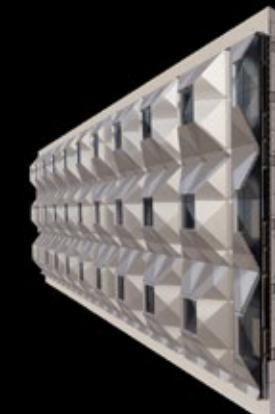
Diagram Section



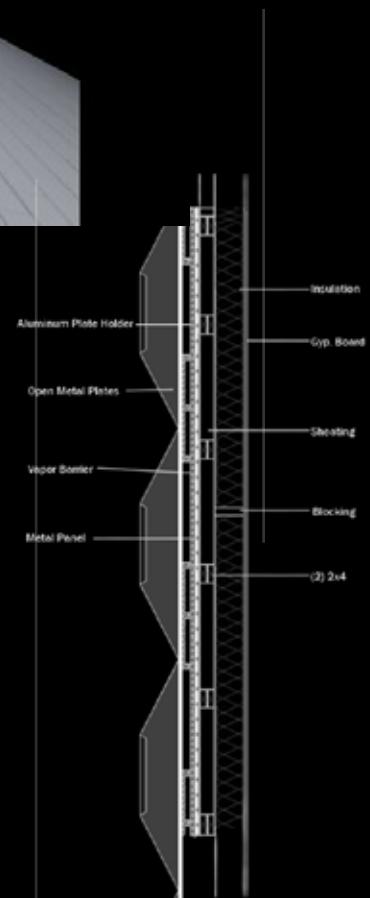
Facade Gate Study



Grid Gate Study



Facade Section Perspective



Facade and Wall Section

The intent of Project Dismantle is to create a physical understanding of **breaking** preconceived notions of New York Buildings. The modular design of the building is slowly **taken apart** and **pulled** to show the manipulation of the external factors of the city. The building represents the saying “I am one”, the accumulation of the masses into one form while speaking, “I am many” based on the singular forms that uniquely define its shape from the mass.



Q/V Conceal

Techniques:

- AutoCAD
- Photoshop
- Photography
- Physical Model Building
- RayTrace
- Rhino



Section

Project Conceal is located in Atsena Otie Key, a small island off of Cedar Key, FL. The island previously contained a city before being devastated by a hurricane in 1896. The community eventually moved out until the 1950's before being bought by the Suwannee River Water Management District and converted into a wildlife sanctuary.



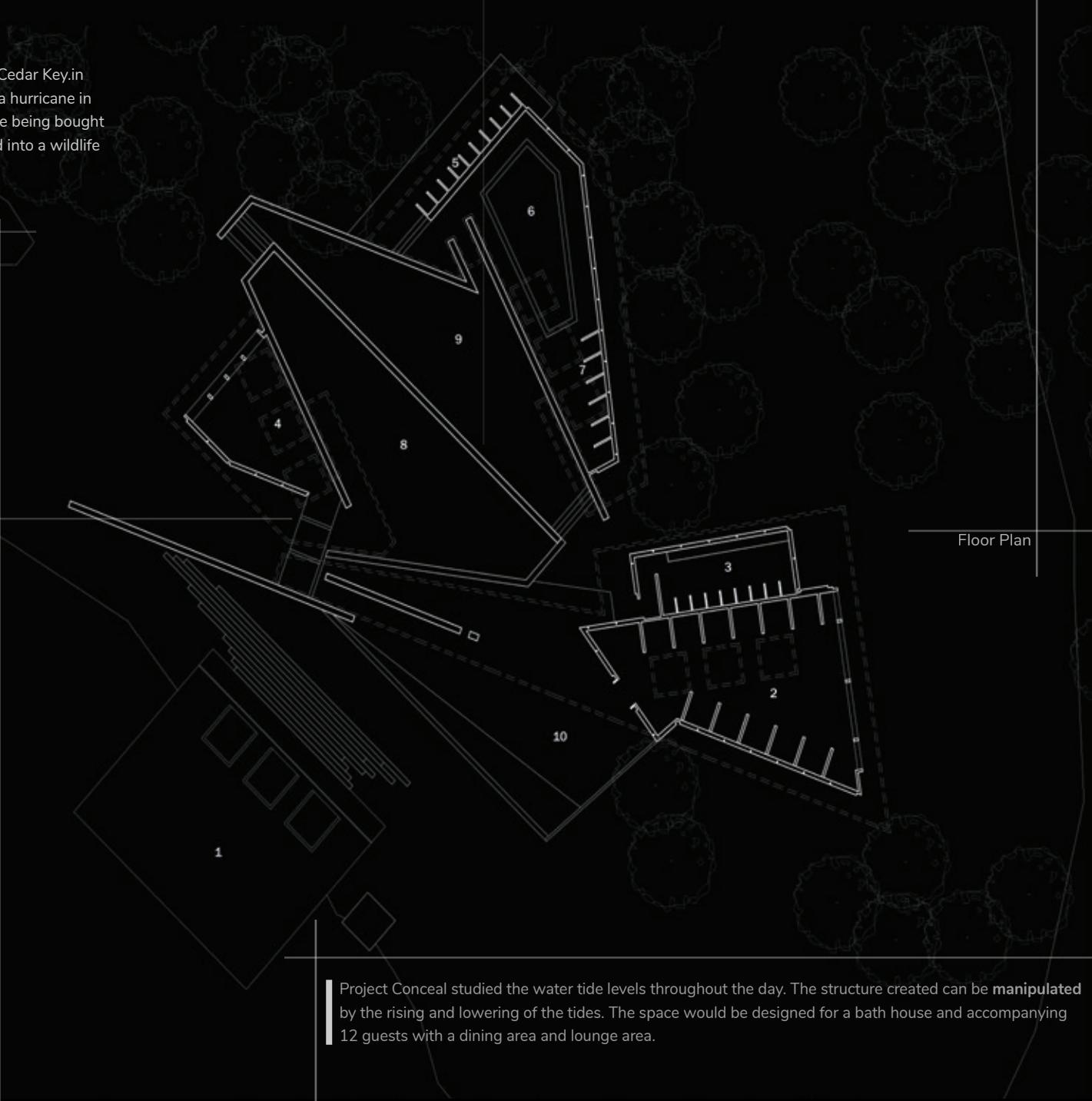
Exterior Perspective



Exterior Perspective

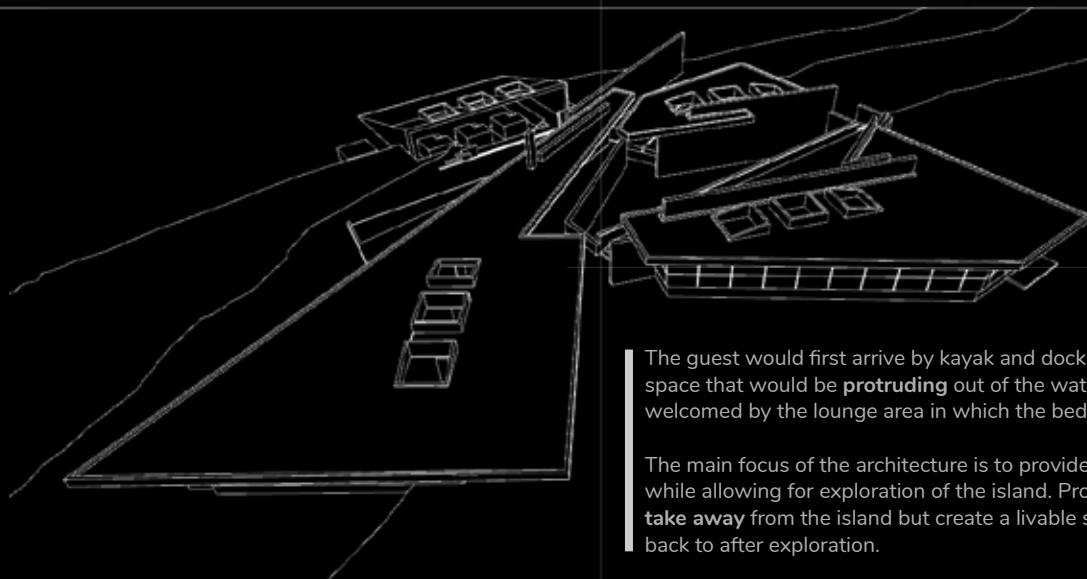
Key:

- 1. - Arrival / Meditation Space
- 2. - Sleeping Space / Lounge Space
- 3. - Bathroom
- 4. - Eating Space / Kitchen
- 5. - Showers
- 6. - Group Bath Space
- 7. - Changing Space
- 8. - Retention Pond
- 9. - Outside Courtyard Area / Gathering Space
- 10. - Patio Space



Project Conceal studied the water tide levels throughout the day. The structure created can be manipulated by the rising and lowering of the tides. The space would be designed for a bath house and accompanying 12 guests with a dining area and lounge area.

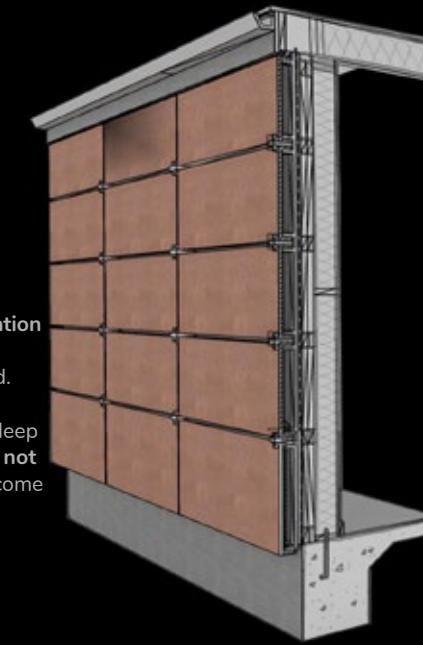
Section



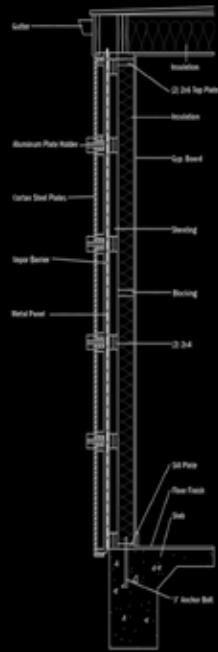
Exterior Line Perspective

The guest would first arrive by kayak and dock the kayak above the **meditation** space that would be **protruding** out of the water. The guest would then be welcomed by the lounge area in which the beds and bathrooms are located.

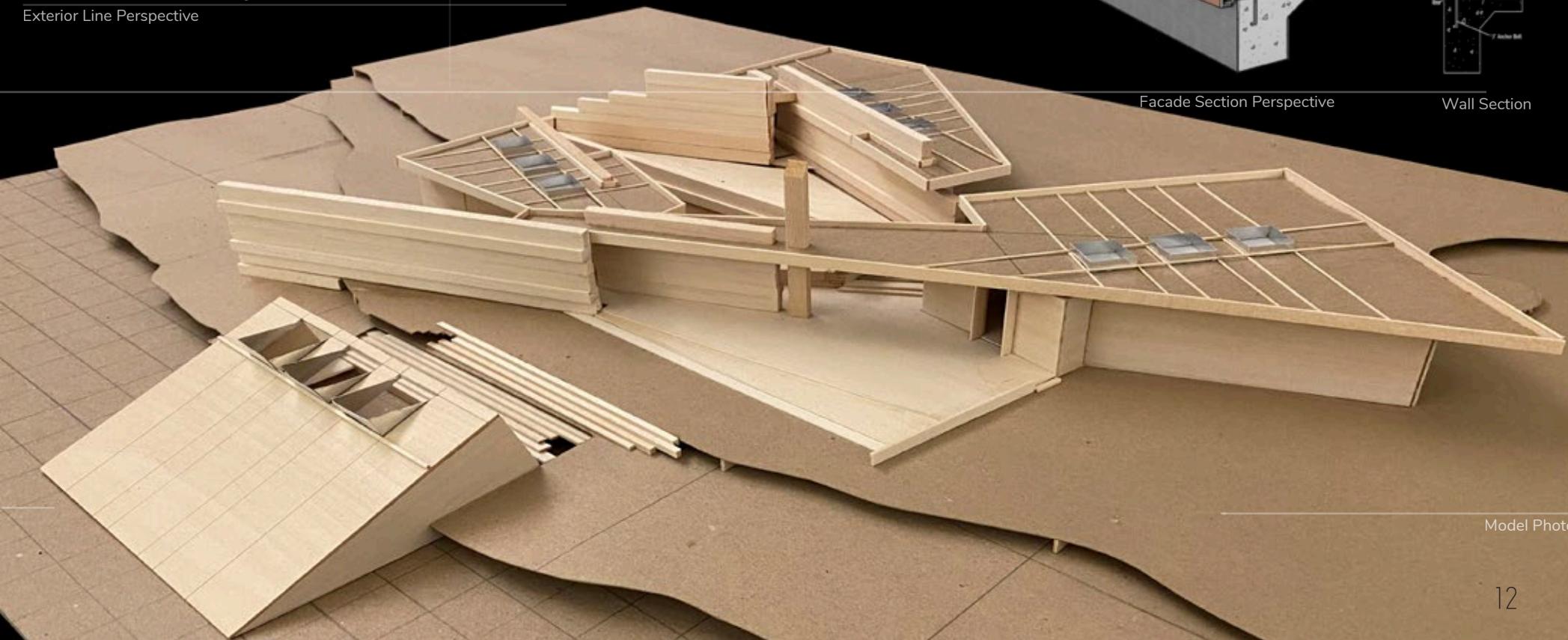
The main focus of the architecture is to provide a place to eat, bathe, and sleep while allowing for exploration of the island. Project Conceal main goal is to **not take away** from the island but create a livable space in which a guest can come back to after exploration.



Facade Section Perspective



Wall Section



Model Photo

Techniques:

- Hand Drawing
- Photoshop
- Photography
- Physical Model Building
- RayTrace
- Rhino

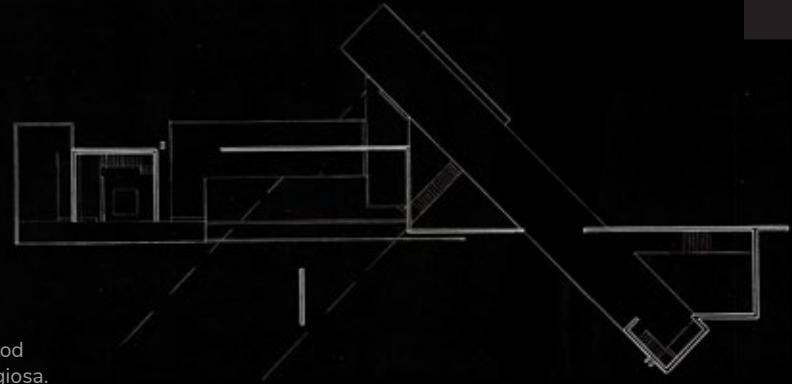


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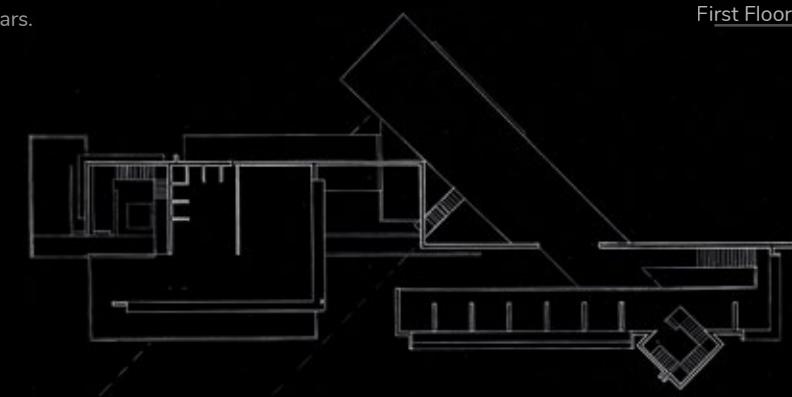
The function of the Project Enlightenment is to explore **open space** and focus on how the site can **engage the architecture**. Project Enlightenment contains a bell tower, water well, and individual sleeping pods. The proposal was to create a space that would house monks and their ritualistic meditation.

The **meditation space** is designed after the Buddhist ritual of malas. Malas are a traditional tool used to count the number of times a mantra is recited, breaths while meditating, counting prostrations, or the repetitions of a buddha's name.

The architecture **mirrors** the prayer beads by creating a material pallet around the wood that these beads can be made from. These woods are typically the wood of *Ficus religiosa*. The beads themselves are called the moon and stars which helped guide project Desolate by creating an **open environment** that focuses on the **rise and fall** of the moon and stars.



First Floor Plan

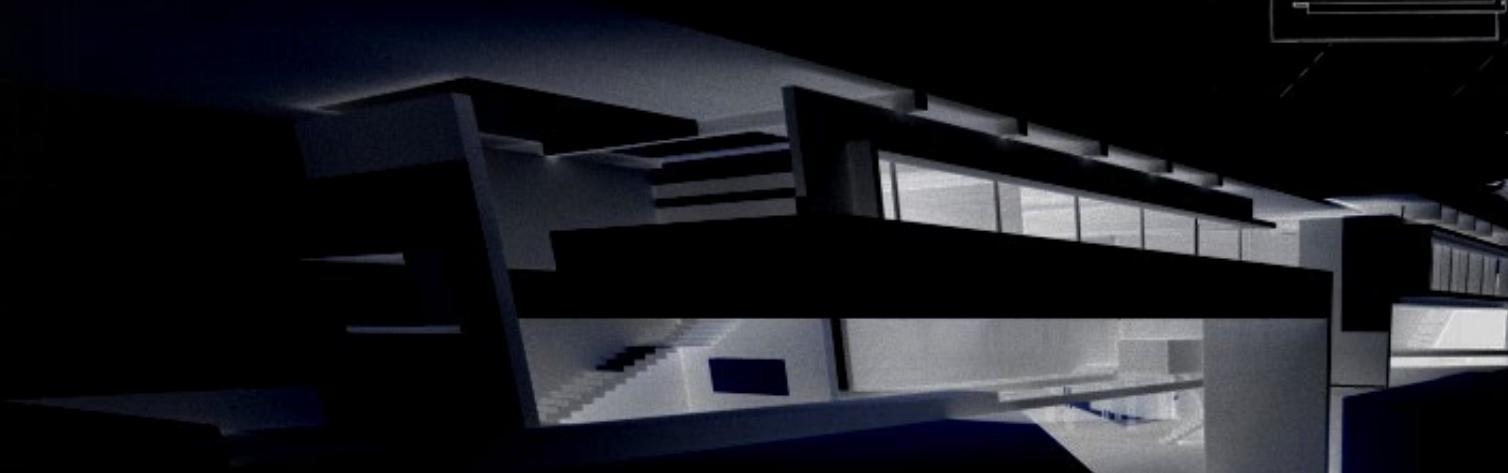


Second Floor Plan

The **entrance** of the space is dug **underneath** the architecture to signify the depths or starting point of the journey to correlate with **purifying** or **enlightenment**. The inhabitant starts at the lowest point and gradually **moves up** in the architecture in which each level becomes more holy and utilized for prayers.

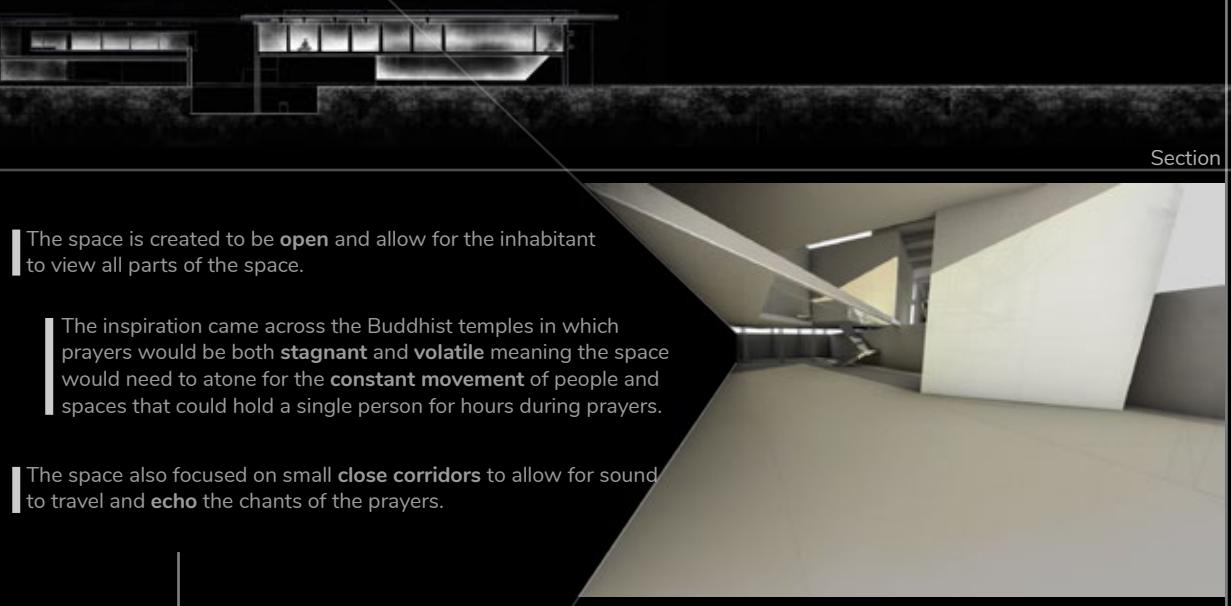
The plan of Project Enlightenment is to split the individual sleeping pods from the **prayer rooms**.

The individual sleeping pods are located on the east side of the building while the prayer rooms are located on the opposing west side.





Interior Perspective

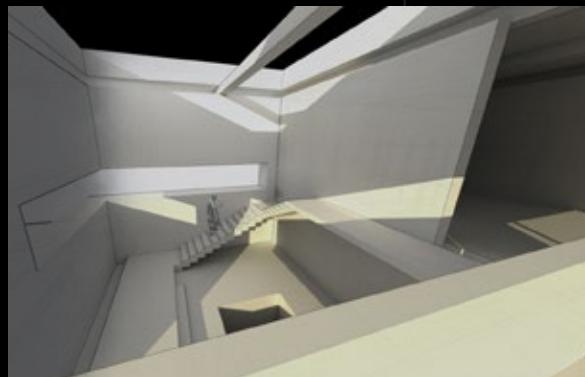


The space is created to be **open** and allow for the inhabitant to view all parts of the space.

The inspiration came across the Buddhist temples in which prayers would be both **stagnant** and **volatile** meaning the space would need to atone for the **constant movement** of people and spaces that could hold a single person for hours during prayers.

The space also focused on small **close corridors** to allow for sound to travel and **echo** the chants of the prayers.

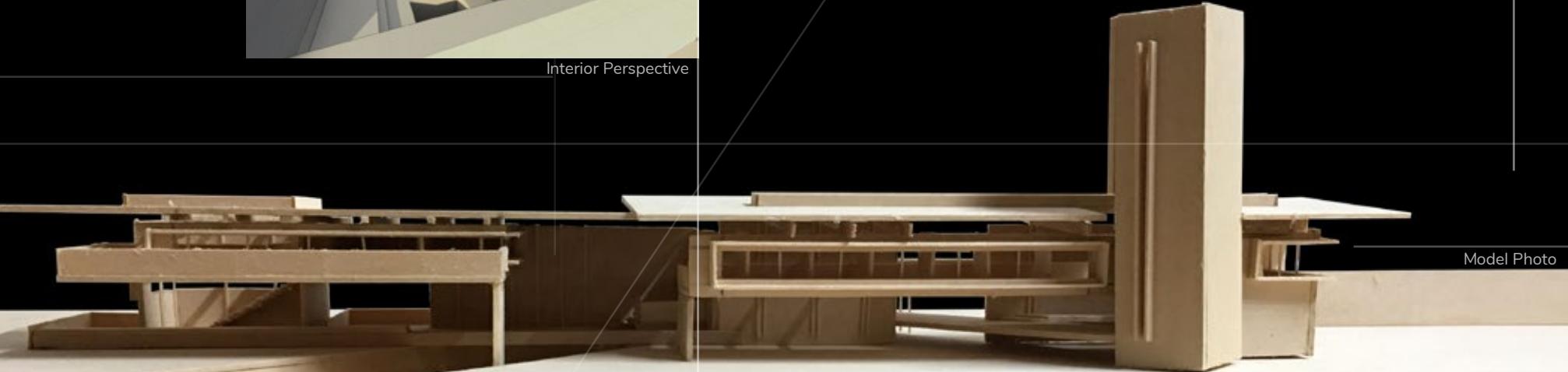
Entrance Perspective



Interior Perspective

Since the **bell tower** is utilized to track time, the bell tower would be positioned on the east side with the individual pod spaces. The **bell tower** is angled to **face the moons path** and position to signify the **importance** of the moons position relative to the site.

By splitting the two spaces, the inhabitant would have to walk from the east side to west side by walking outside on an **overhead bridge** that connects the two spaces from the back of the architecture to create a **journey**.



Model Photo

06

Experiment

Techniques:
DiaLux
Lumion
Revit

The Experimental project explored new program fundamentals such as Revit and Dialux. The Experimental project is a site in Gainesville Florida which explores the ideal architecture in a confined corner block.



Gallery Diagram

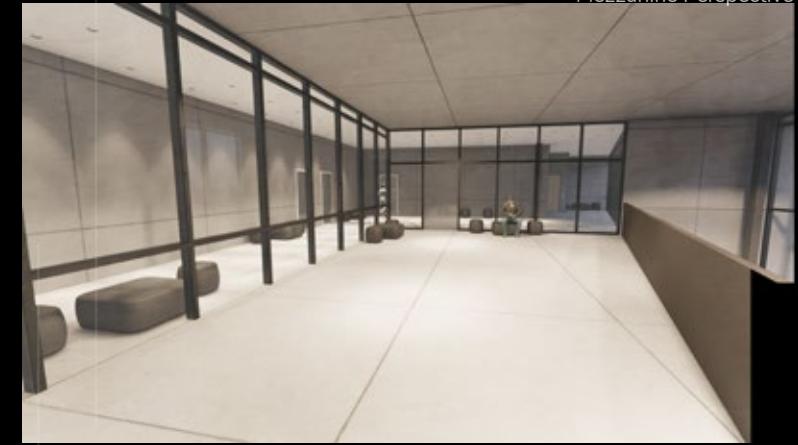
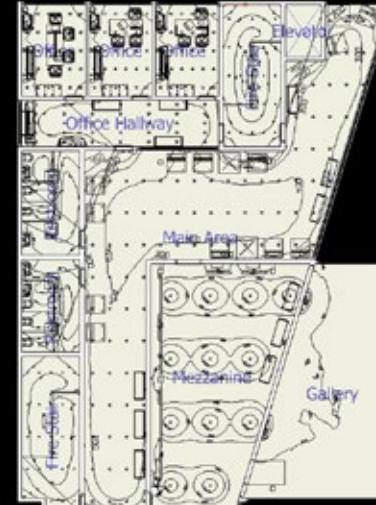


Mezzanine Diagram

First Floor Lighting Simulation



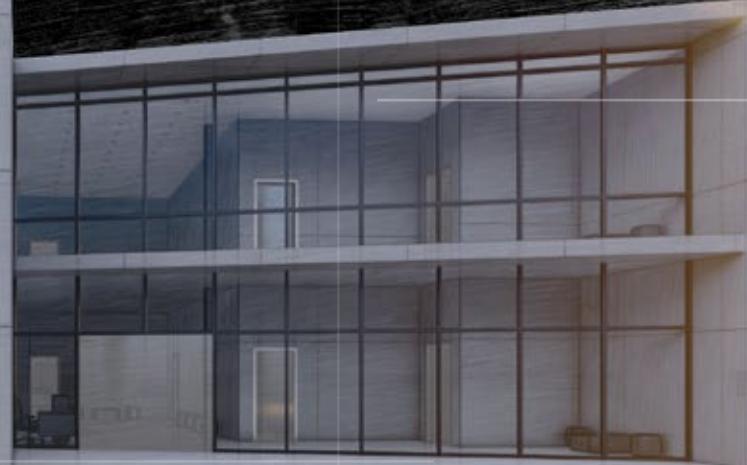
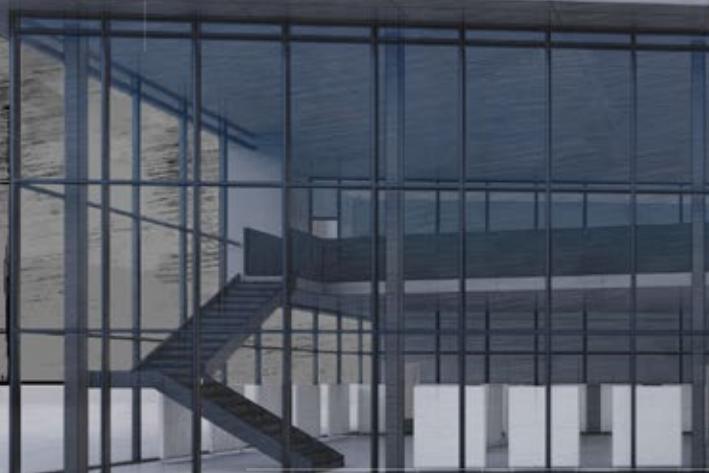
Second Floor Lighting Simulation



Mezzanine Perspective

Dialux is a lighting program that runs **lighting simulations** in spaces that would output the light index and the efficiency of lighting in the space.

The Experimental project ran multiple simulations with LED and Fluorescent lamp options. The best lighting scenarios was LED with a greater **efficiency rating** and low consumption cost.



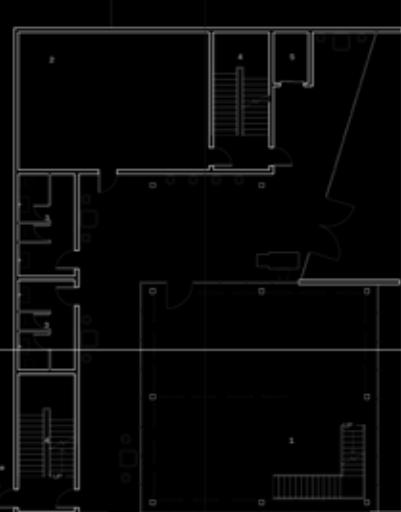
Exterior Render



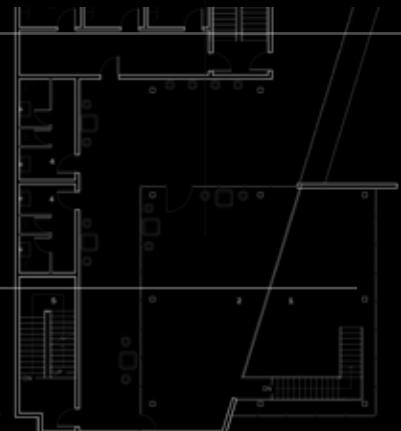
Section

Section

Section



First Floor Plan with Context



Second Floor Plan



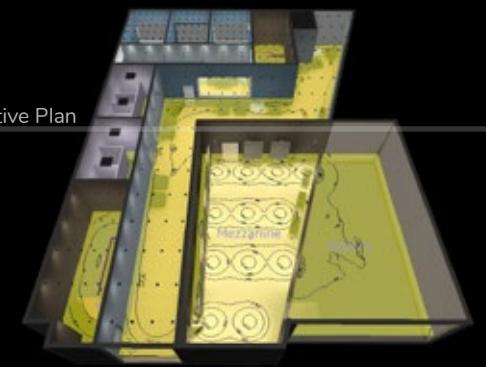
Art Gallery Perspective



Fire Stair Diagram



First Floor Perspective Plan



Second Floor Perspective Plan



The Experimental project dimensions are 60' by 80' and requires two fire stairs and accessible elevator. The project houses an **art exhibit** because the site is situated on an art district. The project would also contain a café and offices located on the second floor.

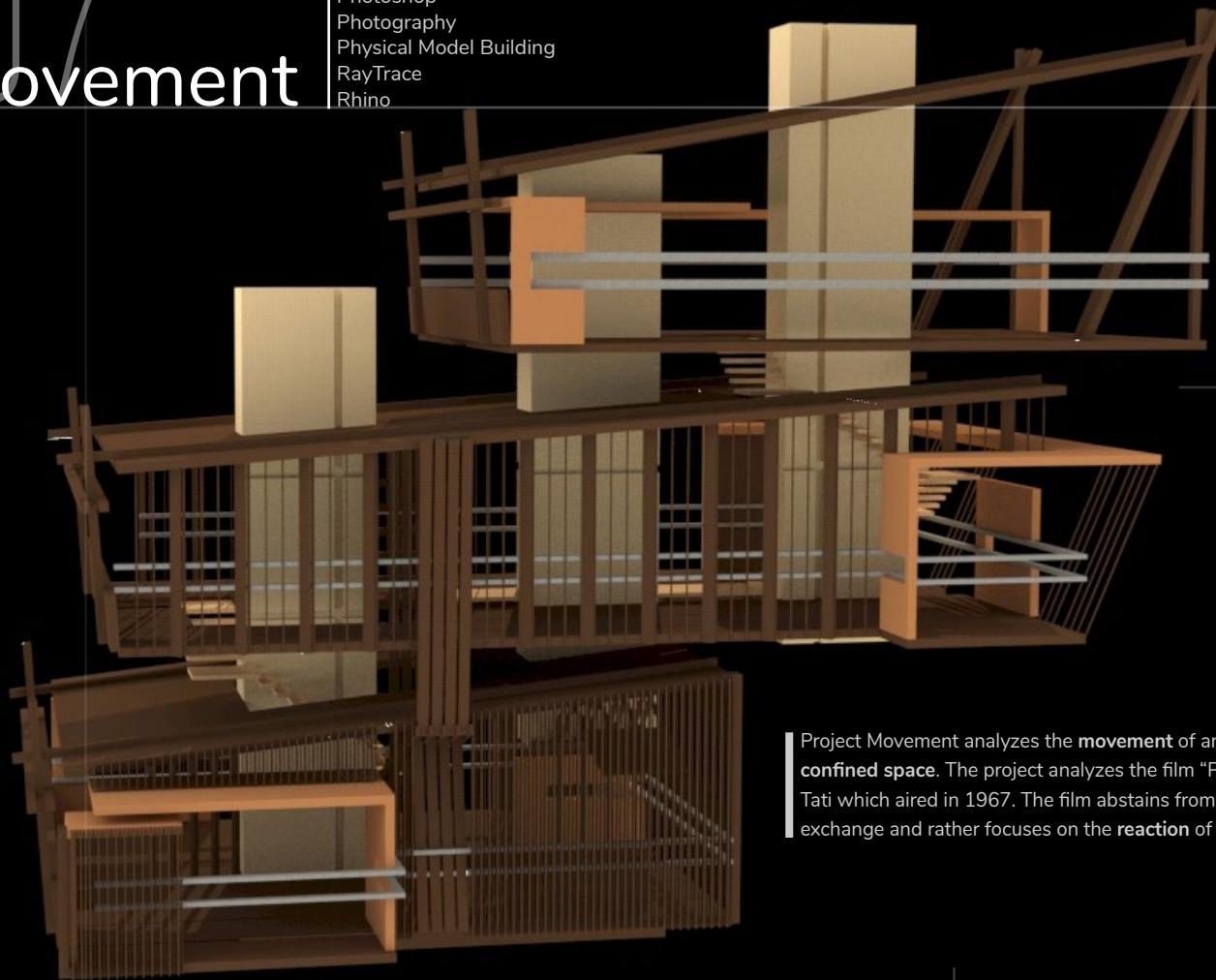
The mezzanine located in the art gallery contains **open space** for sculptures or free-standing artwork. The Art Gallery located on the first floor would consist of artwork with individual boards to house the paintings. The initiative is to garner attention from the pedestrian foot traffic by containing **large curtain windows** to bring in natural lighting and bring attention to the artwork.

07

Movement

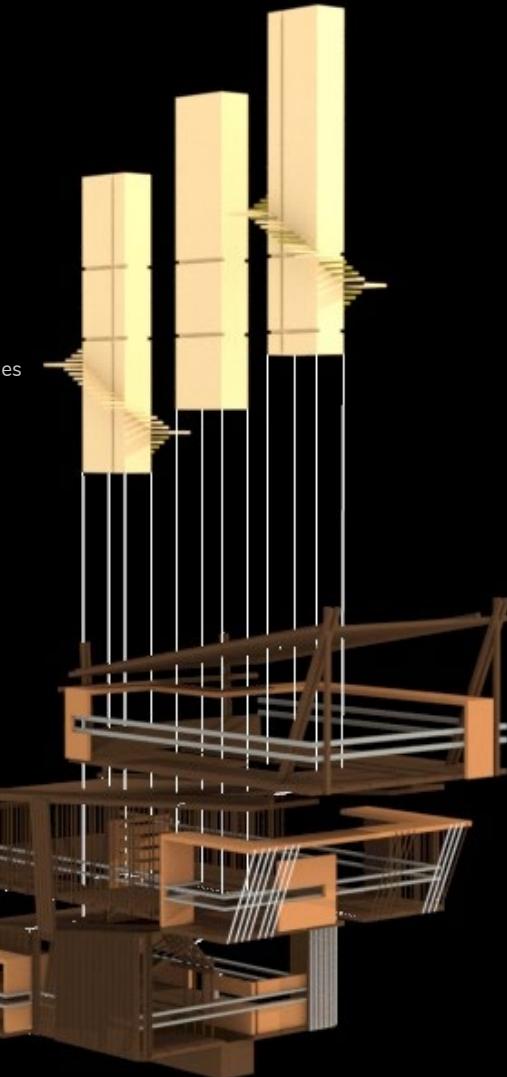
| Techniques:

- Photoshop
- Photography
- Physical Model Building
- RayTrace
- Rhino

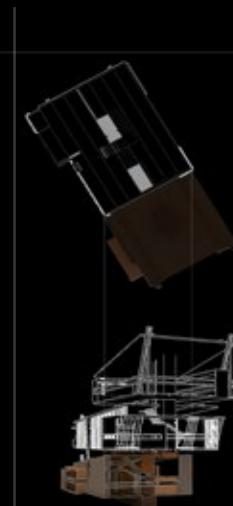


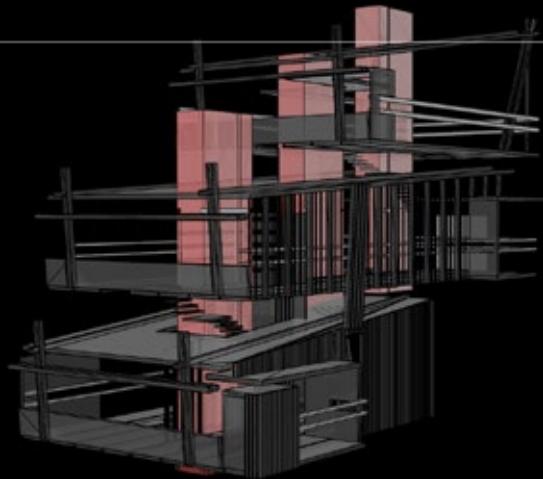
By understanding the **movement** and **circulation** within a built environment, gesture is key to architecture. Project Movement explores movement **through**, and **around** a central wall.

Project Movement analyzes the **movement** of an individual in a **confined space**. The project analyzes the film "Play Time" by Jacques Tati which aired in 1967. The film abstains from the idea of verbal exchange and rather focuses on the **reaction** of their environment.



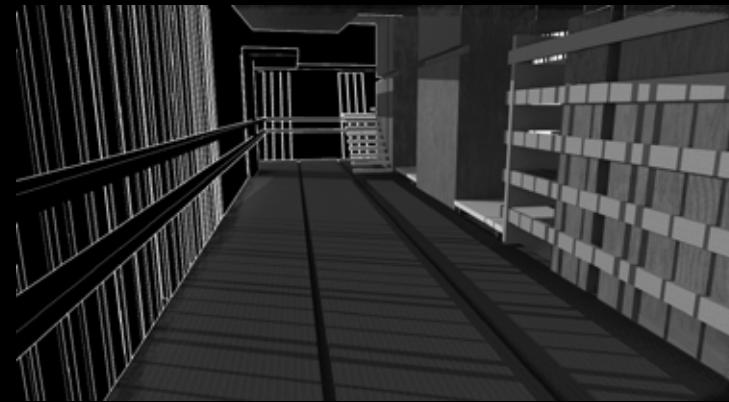
Model Render





Perspective Wall Diagram

The wall connects spaces through various thresholds. The wall was disassembled and split into **three**, identical components. The wall segments are aligned in a row and increased **intermittently**. The wall becomes an **abstract wall** that is not physically bounded together by materials but instead correlates an idea of **space occupying** in between the segments as a **barrier**.

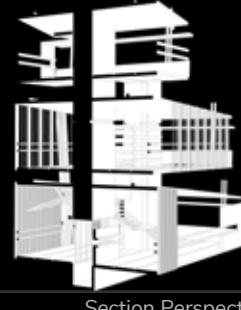


Interior Perspective

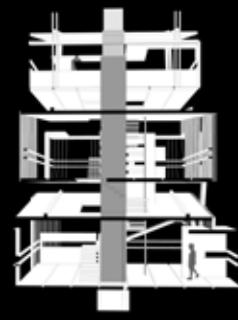


Interior Model Photo

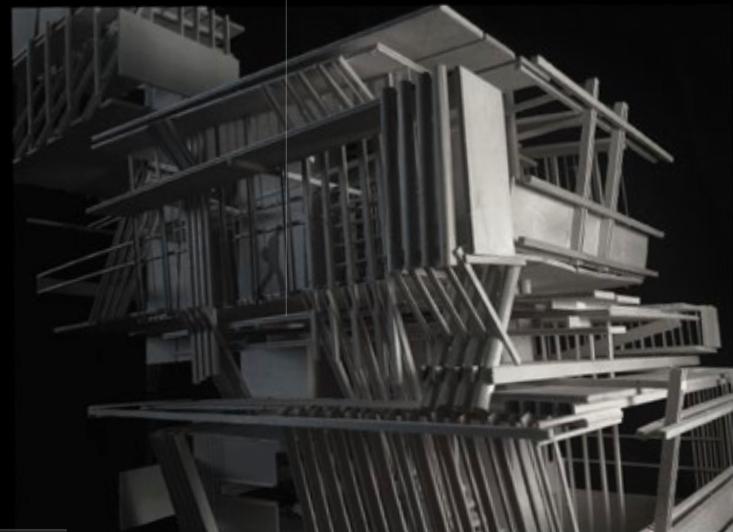
By presenting this idea, the space that is between the segments of wall would be **uninhabitable** and **inaccessible** from one side of the space to the other. By displaying the idea of nothingness in the space that is unable to be accessed, it creates a wall that is not physically there.



Section Perspective



Section Perspective



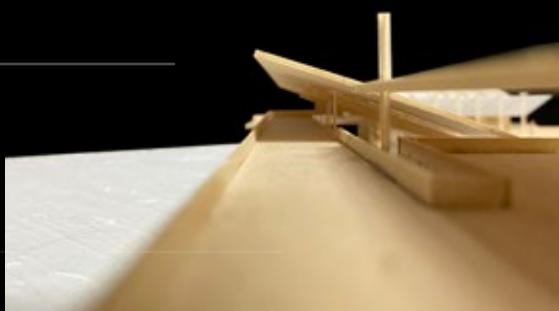
Model Photo

Project Create is a self-assigned project. The goal of the project was to create **spatial differences**.

Upon entering the space, the angled, sloped overheads bring a **narrower attention** to the center of the space where **recreation** outside could be utilized.

By sloping the overheads, the space would be **compressed** on the first floor while the second floor loft space shares the same overhead plane. The sloped overhead creates a **scale difference** in the space and size of the overhead.





Interior Model Photo

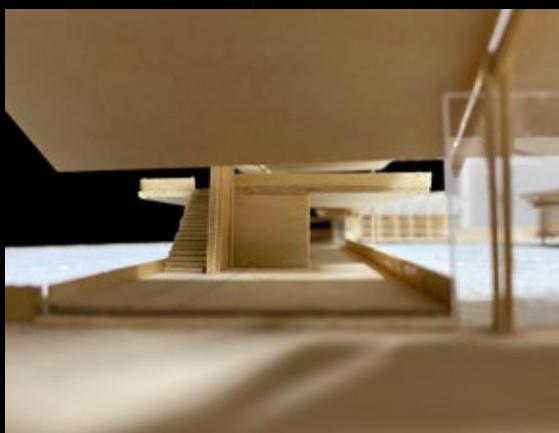
The close-up pictures explore the scale by utilizing stairs and railings. The close-up pictures also explores how the sloping overhead is creating a second overhead to the second-floor plane. The slits in the roofs allows for **exposed structure** and **natural lighting**.

The inspiration was a project that would require **complex design** while also **minimizing** the **physical appearance**. The difference in design between the main structure and train station is to show the formal difference in the two projects and therefore bring attention to the different **building phases**.

The function of the design is to create a train station that would occupy the people boarding the train and create a **space for gathering**.

The smaller isolated space is for the people who are arriving and leaving by train while the main space is to create a movement that **rotates** around the station. By adding a second level, the space **frames** many different views of the landscape while also focusing **internally** on the train station.

The initial design was created by **changing** the **depths** of the spaces and ground plane to create a **harmonious** relationship between the movement of the space. The overhead condition also utilizes **pattern** techniques that **echoes** across the architecture.



Interior Model Photo



Model Photo



Model Photo

“A Poppy Blooms” by Katsushika Hokusai

I write, erase, rewrite

Erase again, and then

A poppy blooms.



Brian Angel Espinosa

(561) 310 - 6510

Brian.Angel.Espinosa@gmail.com

briespinosa.github.io