

**UNDERGRADUATE**

**PORTFOLIO**

**Beverly Qin**

# INDEX

## Airflow Alchemy

RETIREMENT FACILITY

300 Beach 62nd St, Arverne, NY 11201

## Inside-out

COMMUNITY CENTER / EMERGENCY

300 Beach 62nd St, Arverne, NY 11201

## Weaving Spaces of Exchange

MICROHOUSING RESIDENTIAL

56 Gold St, Brooklyn, NY 11201

## Abib

REIMAGINE 3D PRINTER

Prototype

## Resolved Overlapping Platonics

YOGA STUDIO

Prototype Site: 24” x 24” Square



01

# Airflow Alchemy

## COAST MOUNTAINS OF WESTERN CANADA

COAST MOUNTAINS OF WESTERN CANADA

A built environment, or a collection of buildings can be understood as a sequence of manmade microclimate. Wind is a moving mass of air. Buildings are obstacles that deflect or impede wind, transforming its energy into pressure forces. Optimized structures such as airplanes are built according to deflection principles that lower wind resistance and minimize energy. The angle/curve of a surface becomes an instrument to increase or decrease wind pressure allowing to reduce wind vortices and structural mass.

This project aims to create a more energy-efficient and sustainable building by manipulating the orientation and placement of the volumes. The building's ability to absorb or reflect heat, and the ventilation and sun exposure are designed to optimize the building's performance. The project proposes to minimize the use of machines to cool down or heat up the building, creating a new lifestyle for the occupants who lived in New York City which heavily relies on machines.

### SOFTWARE

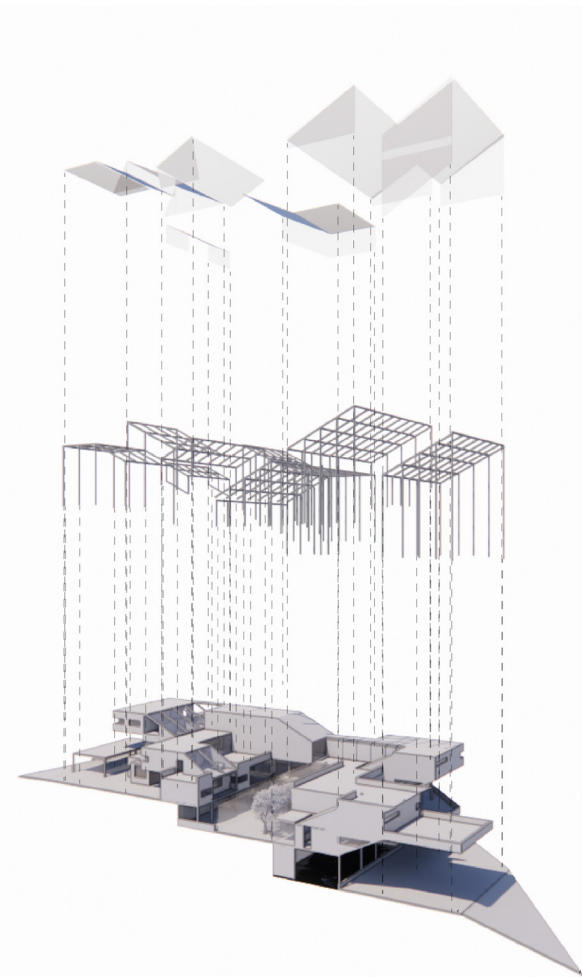
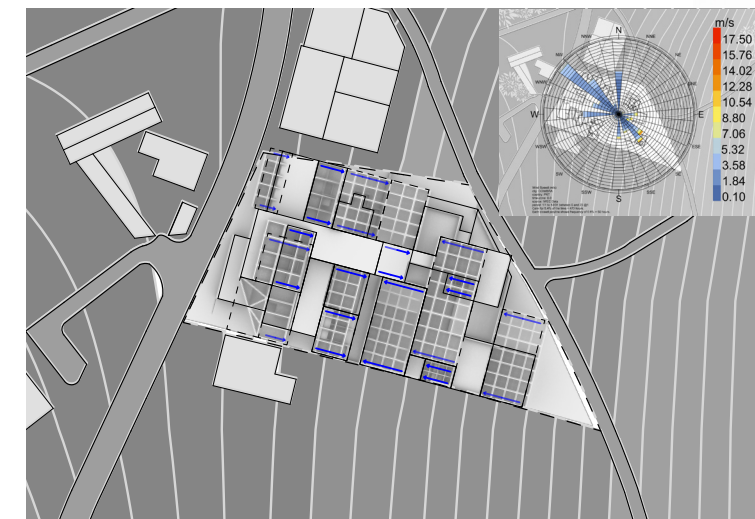
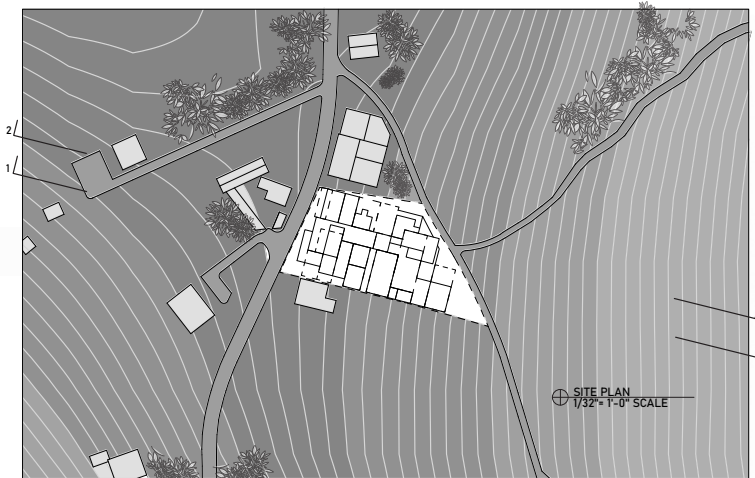
Rhino 3D Modeling, Illustrator,  
Twinmotion, Enscape, Vray.



### Interior Renderings

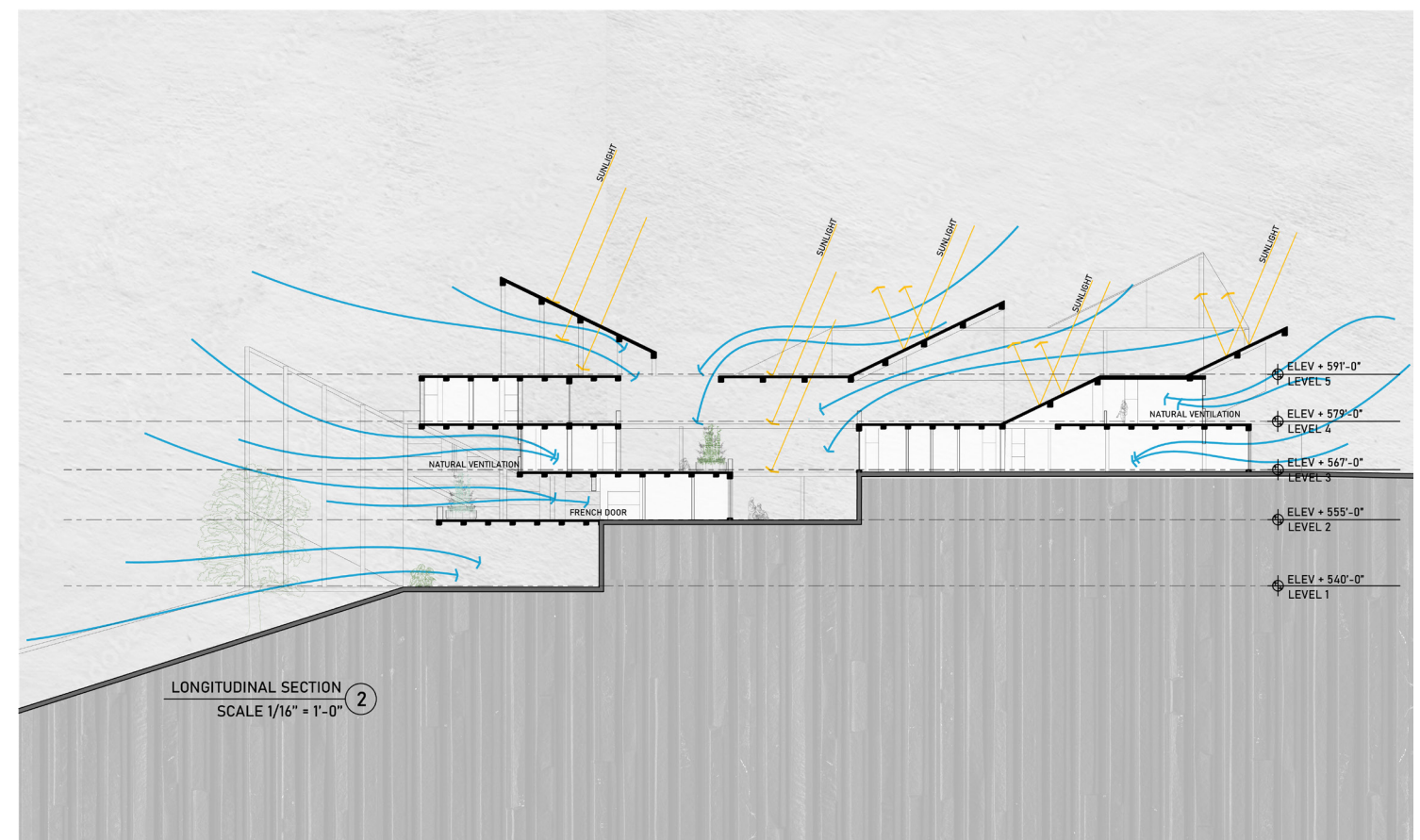
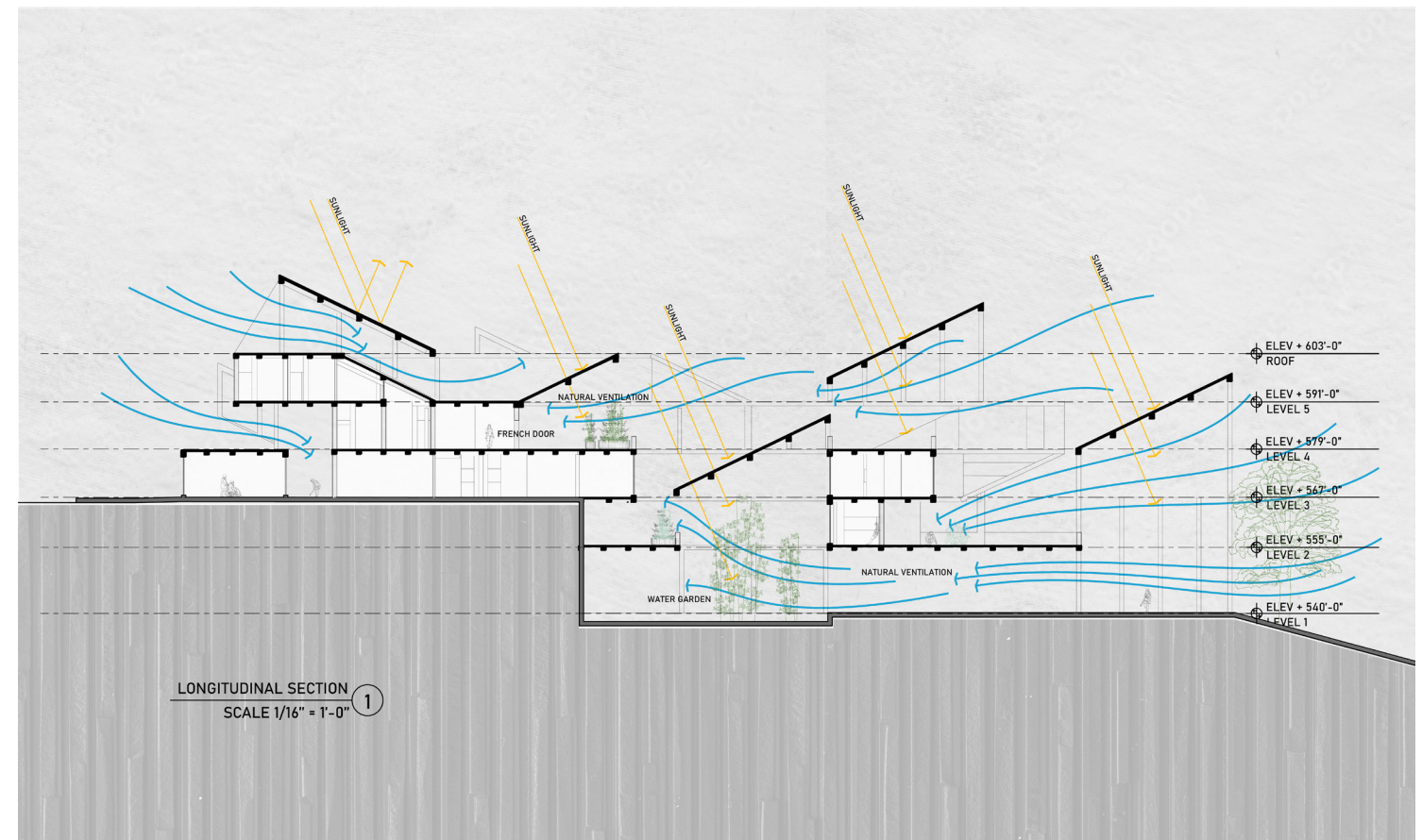
With the belief that gastronomy can activate community spaces, integration of a large greenhouse on the hill is connected to the kitchen and community spaces. The second image displays the water body on the lowest level on the hill, the wind brings the evaporating water up, cooling down the entire building.





## Climate Analysis

Pitched roof guides the wind flow situated on the hill into the retirement home, creating a comfortable and healthy indoor environment while reducing the building's energy consumption.







## Plans and Rendering

This event tasked participants with designing a retirement home on a sloping site in central Portugal to house 60 residents and ten support staff. Featuring a two story entrance at street level, aligned with the scale of the existing neighborhood, behind which a tiered development is embedded within the hillside and topped with olive trees. The project is planned about a central open courtyard surrounded by residential units and, at its ground floor, directly connected to common amenity spaces.



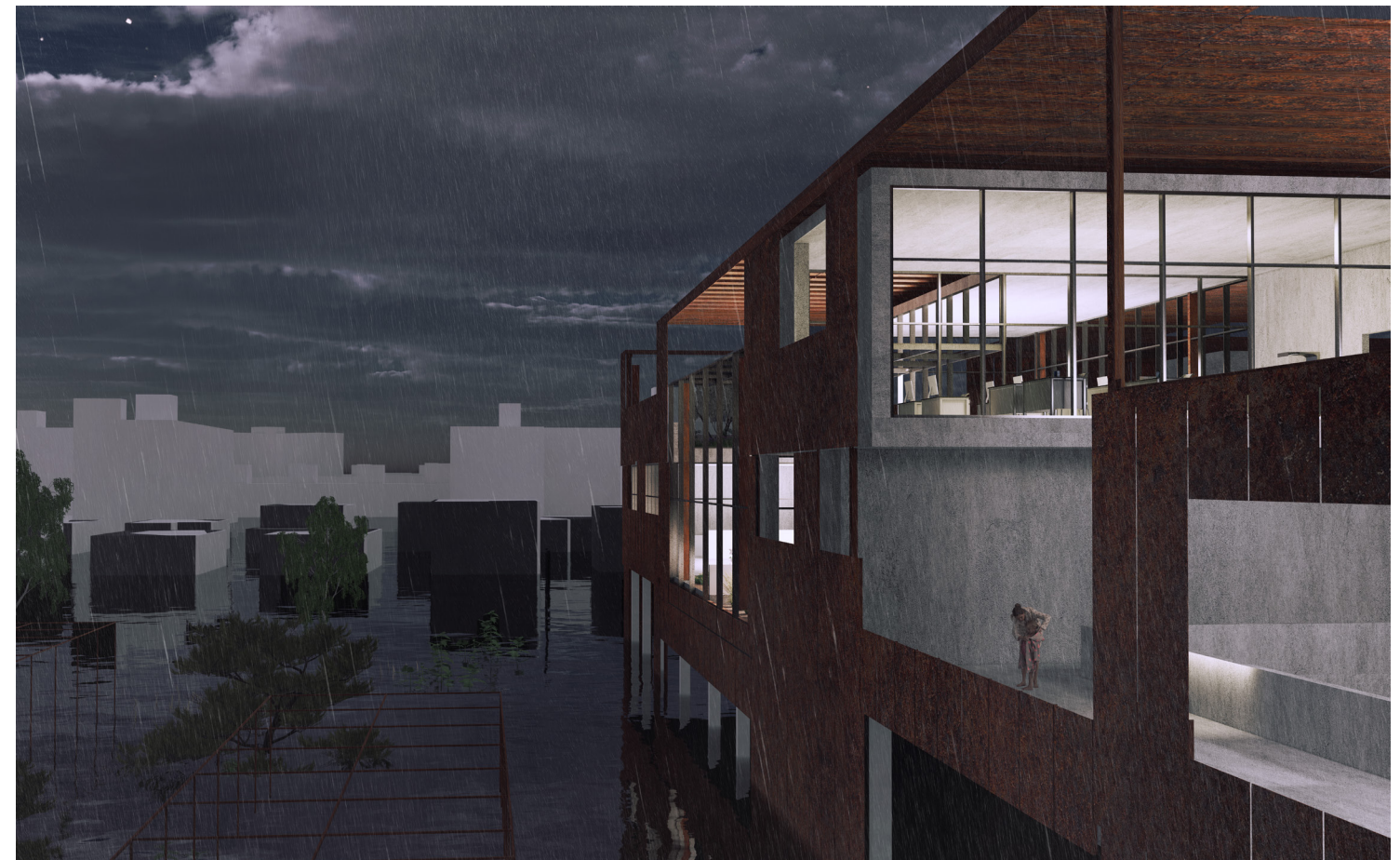
## INSIDE-OUT

COMMUNITY CENTER / EMERGENCY  
SHELTER IN ROCKAWAY PENINSULA  
300 Beach 62nd St, Arverne,  
NY 11201

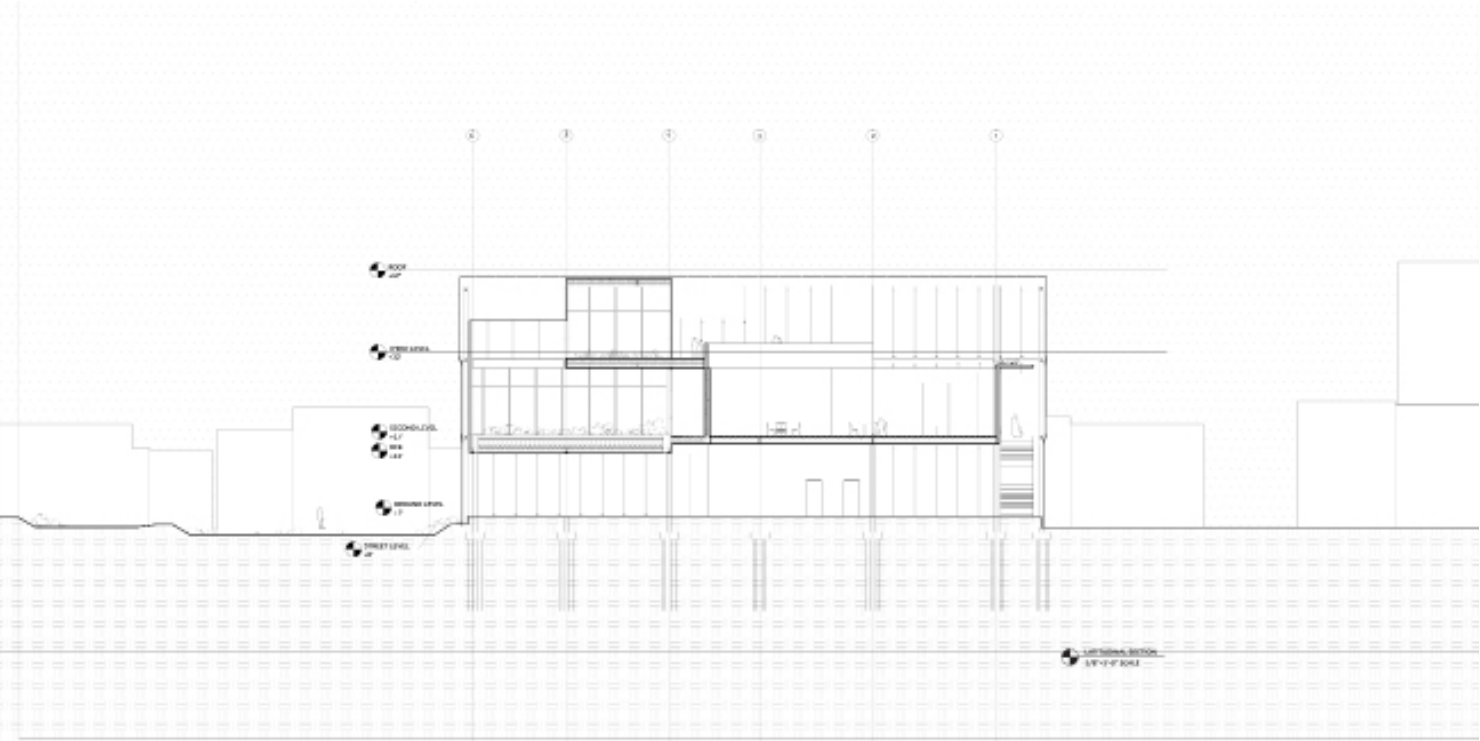
Situated in the Rockaway peninsula, the land is exceptionally vulnerable to sea-level rise due to its geographic location and its flat elevation. The project consists of a community center that also functions as an emergency shelter in the event of extreme weather conditions. In this project, two volumes are created. One inner box shielded by a corten steel shell. The corten shell not only act as a device to control the thermal performance of the site, but it's also a metaphor of a protective shield for the inner safe space during time of storms and flooding.

Following the Bloomberg administration's PlaNYC 2030 to substantially decrease the energy consumption of New York City's buildings and reduce the reliance on fossil fuels, the design of the community center implementz innovative sustainable design strategies including ncreased thermal performance and the generation of on-site renewable energy.

SOFTWARE  
Rhino 3D Modeling, Illustrator, Photo-  
shop, Enscape, Vray.



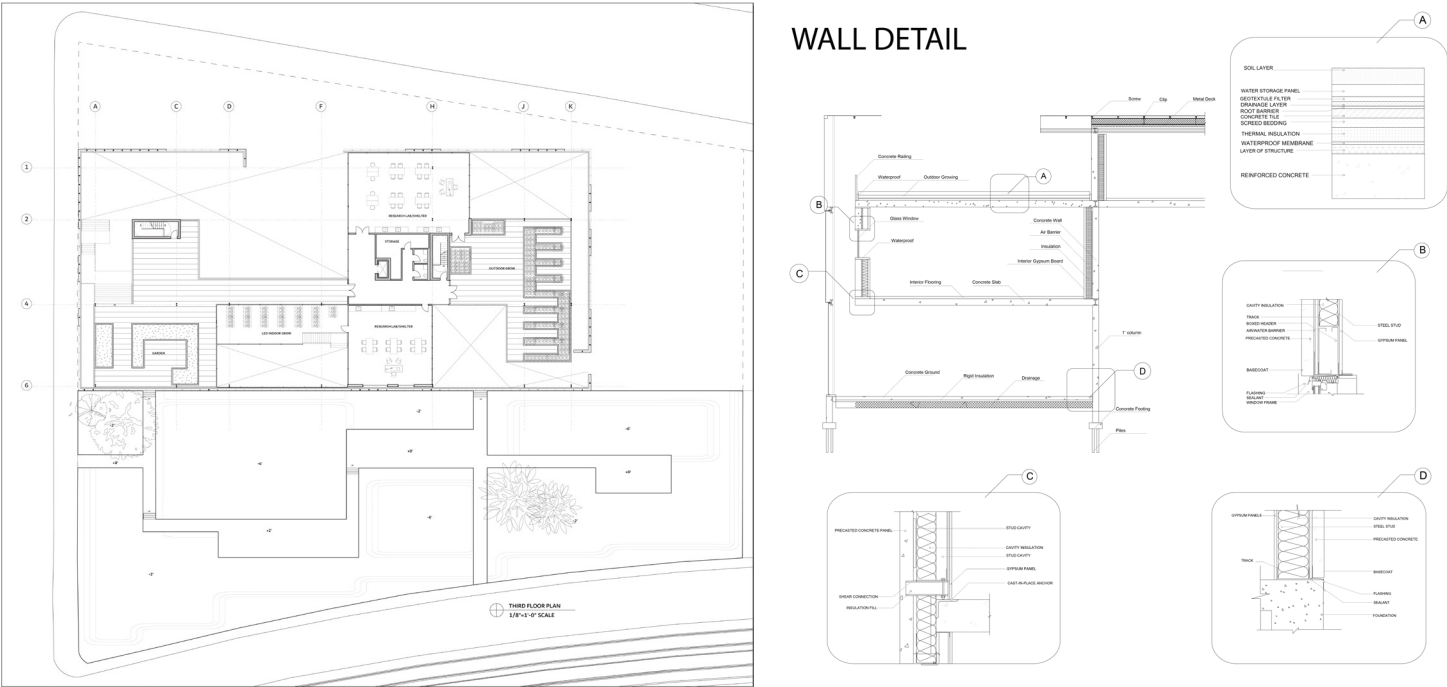
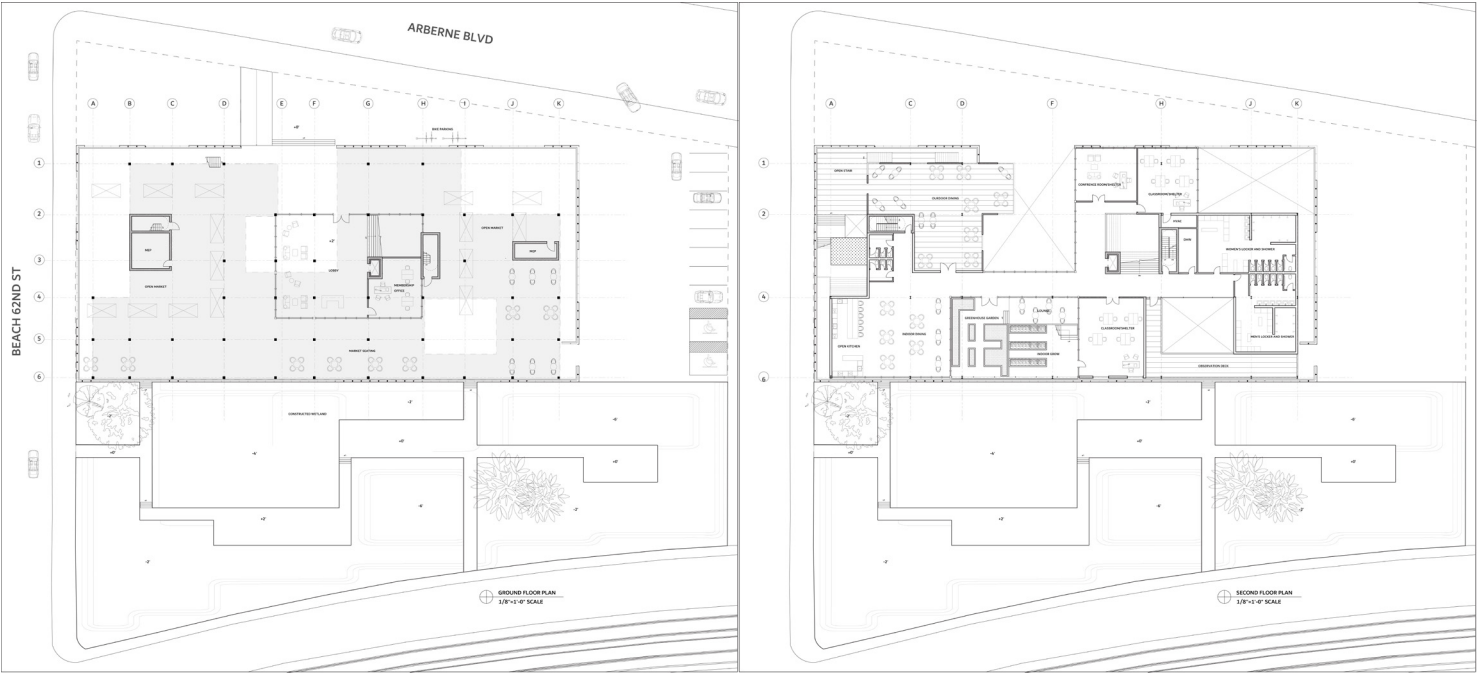




The section chunk model captures the three layers of space: inner concrete safe safe, in-between space, and the outer protective shell.



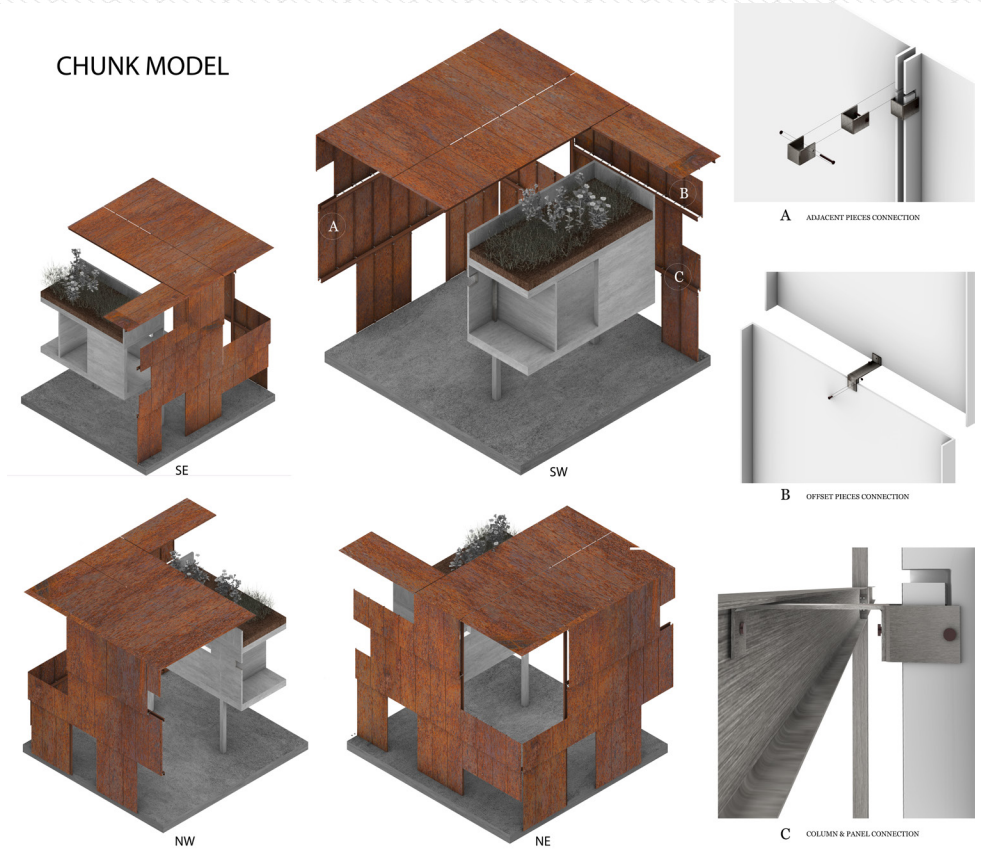
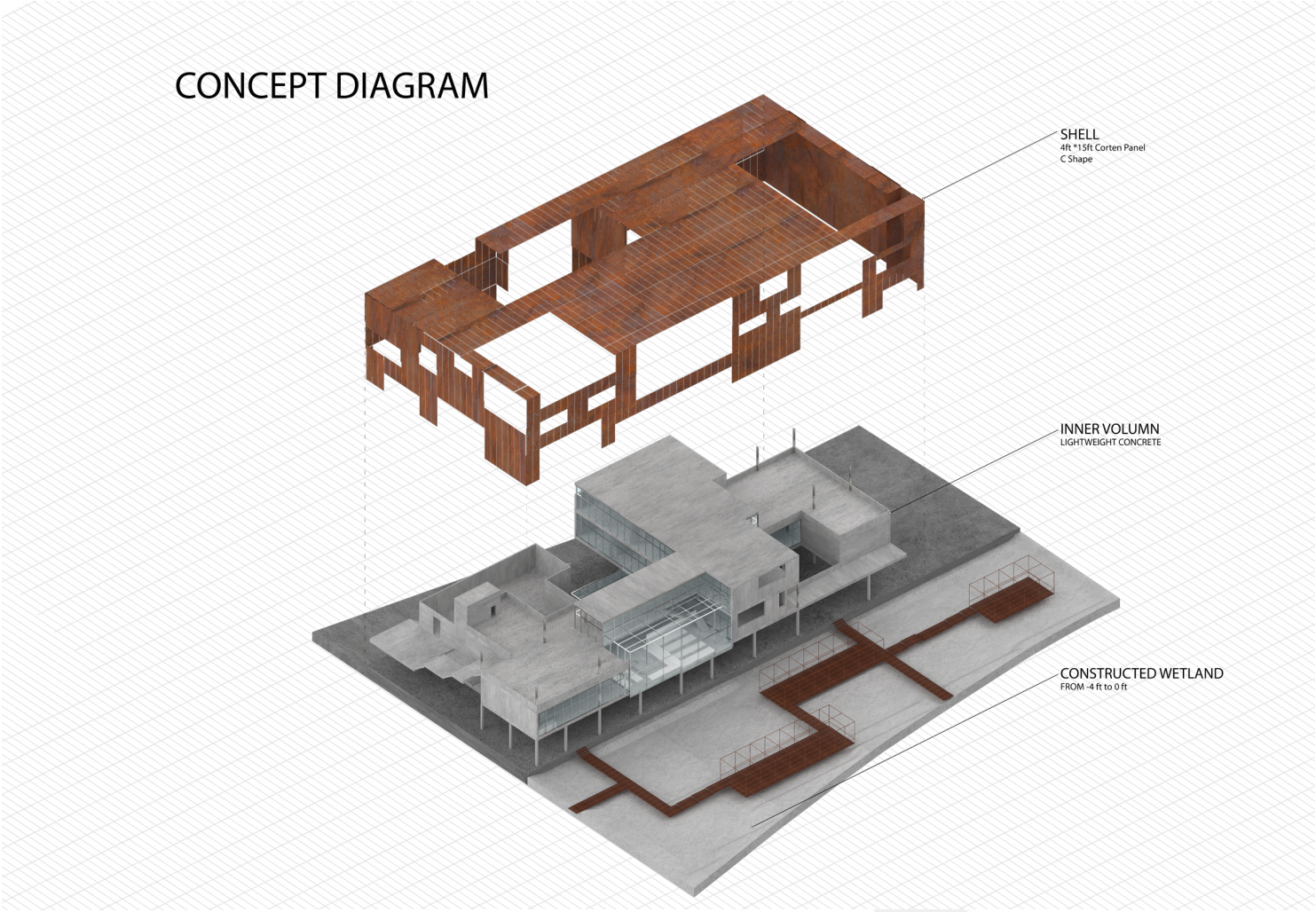
North Elevation



Plans and Wall Section

Elevated 13 feet off the ground, the emergency programs are located inside the the concrete volume. The community center has the capacity to transform into an emergency shelter.

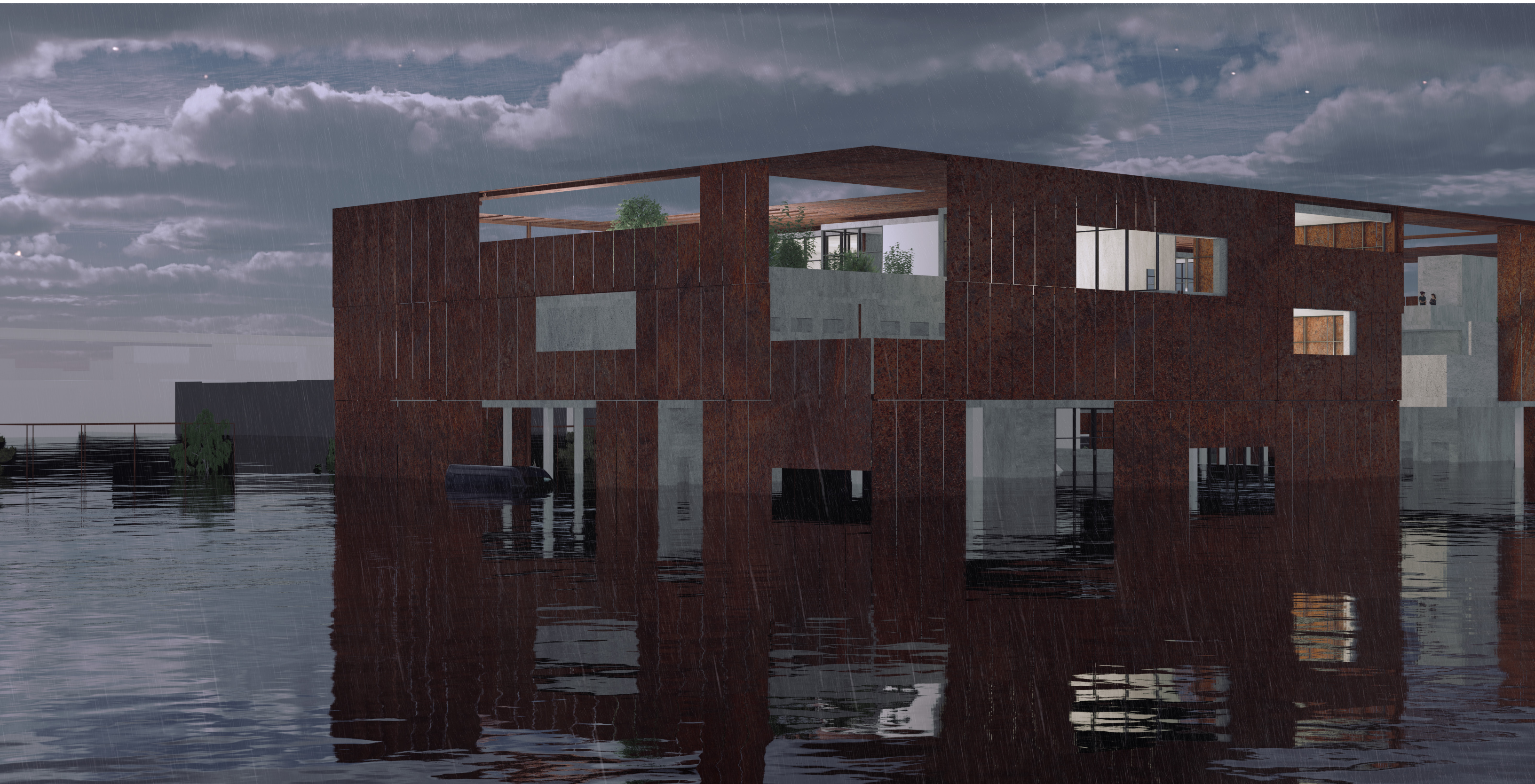




Renderings

Inbetween spaces birthed from the cortan metal shell and concrete inner volumes.







# WEAVING WORK LIVE

56 GOLD ST, BROOKLYN, NY 11201

Microhousing Residential  
Tower

Located in Vinegar Hill, Brooklyn, the site is situated in a historical neighborhood on the East river front between Dumbo and the Brooklyn Navy Yard. With the goal to promote social interactions between the communities living in the building. Our intended client is a group of young professionals who are interested in handcrafting.

Our concept for this project focuses on transparency and voids. We chose to use glass as the main construction material for this building for its qualities of visual transparency and reflectivity. All facade materials are made out of glass with the difference in transparency and color, the solid massing is expressed in white opaque glass, and the rest are clear transparent glasses. These glass panels sit on top of the extended floor plates as exterior garden railings, creating layers of glass walls and emphasizing the prominence of the floor slabs.

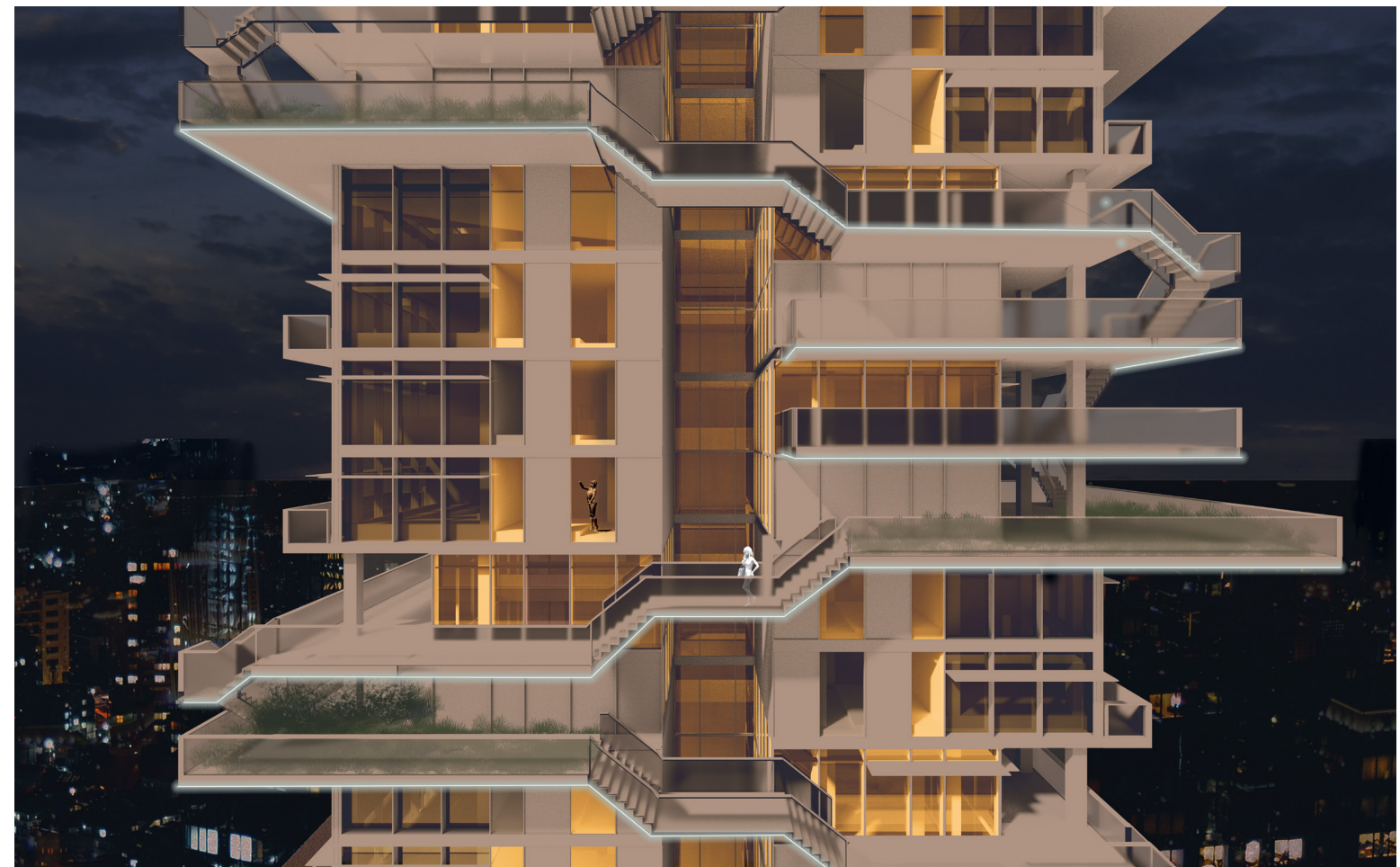
Exterior gardens are located on the south facade, with parts invading to the west and east facades. These green exterior gardens aim to mitigate smog and produce oxygen, in hopes to improve the air quality of the site. They are all connected with a continuous stair weaving across the three facades of the building. In addition, the void on the south facade separates the two programs(shared hall space and four individual units), while creating an additional vertical green wall across the building.

## SOFTWARE

Rhino 3D Modeling, Adobe Illustrator, Adobe Photoshop, Keyshot, Twinmotion, Adobe Indesign



Facade Day Render

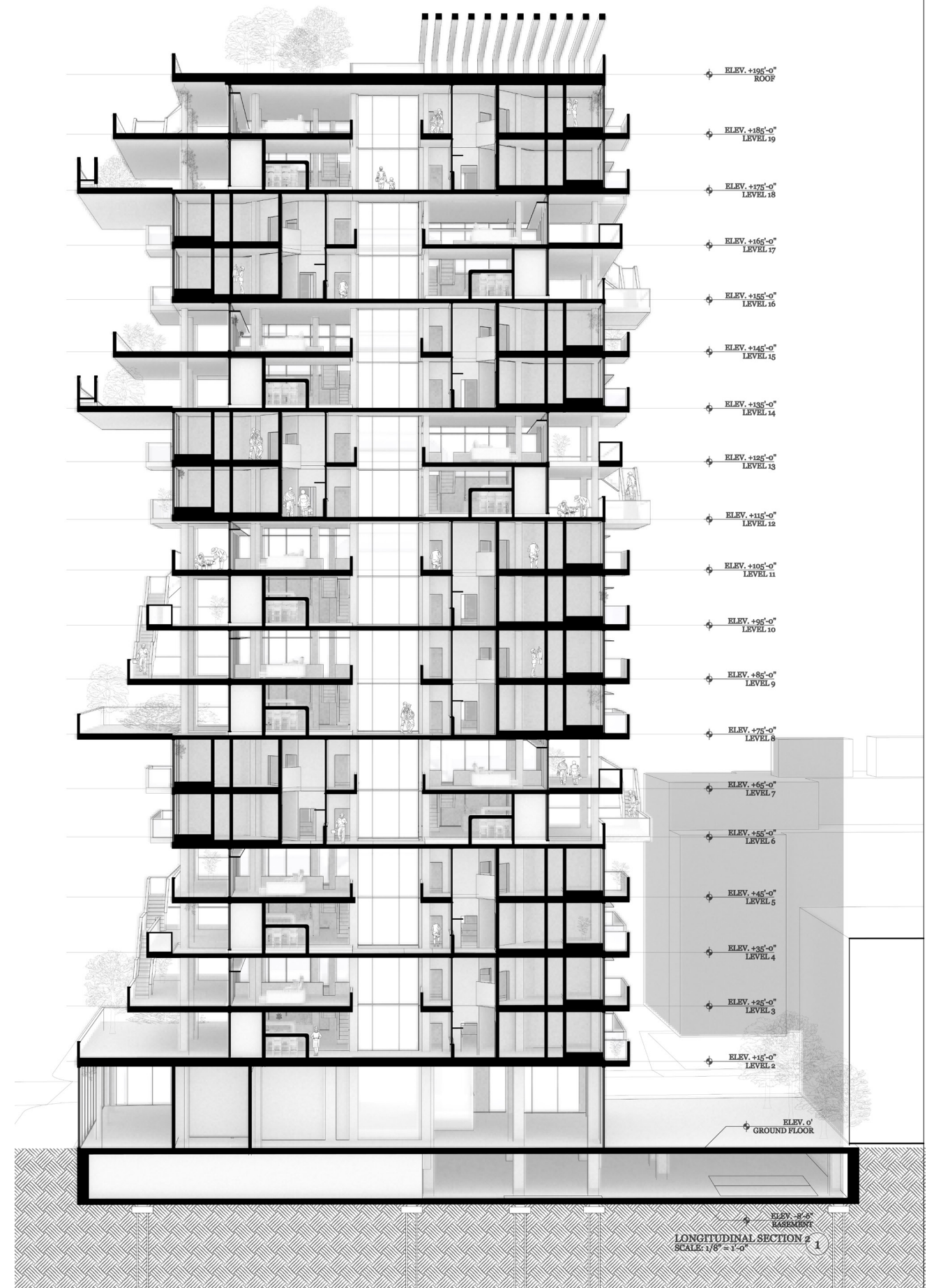




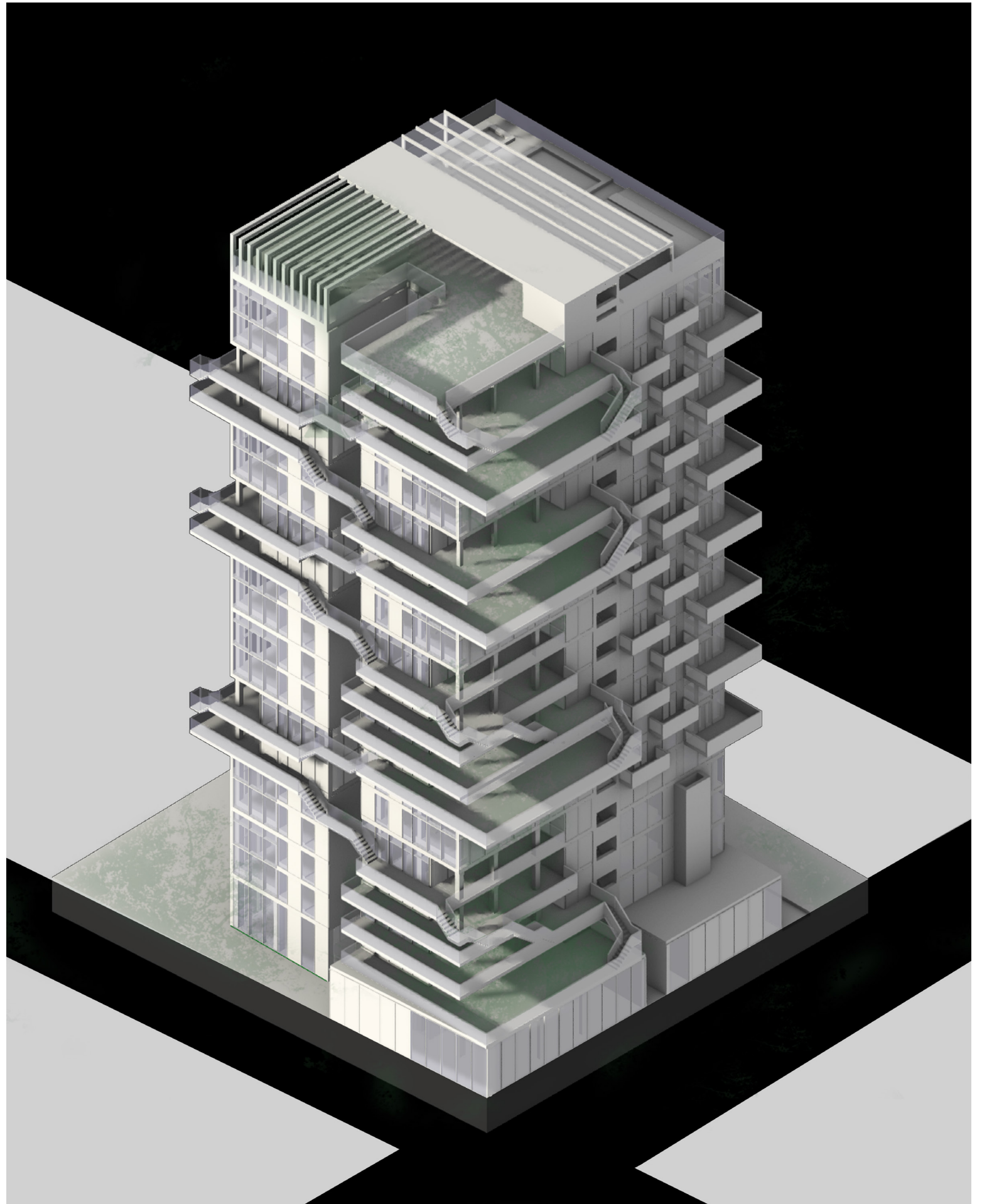
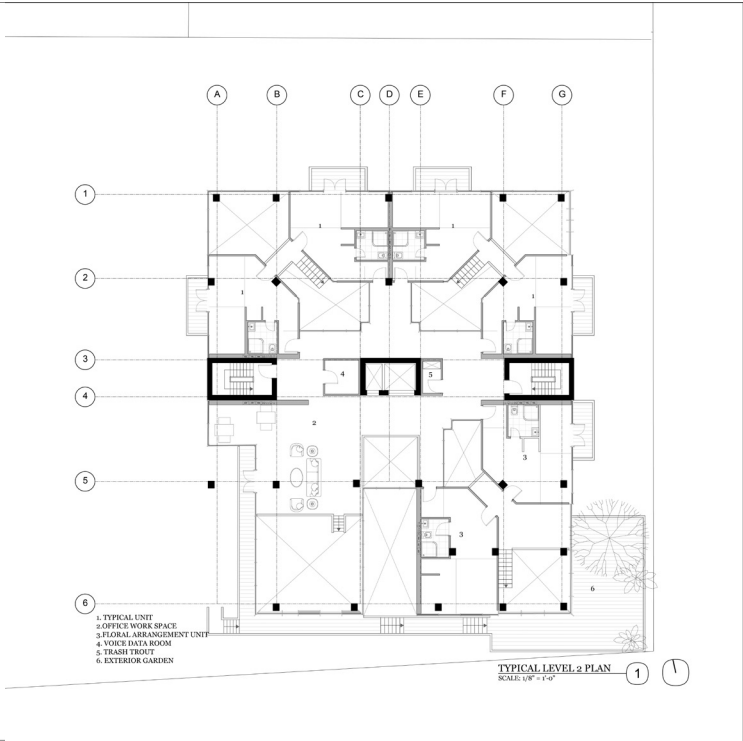
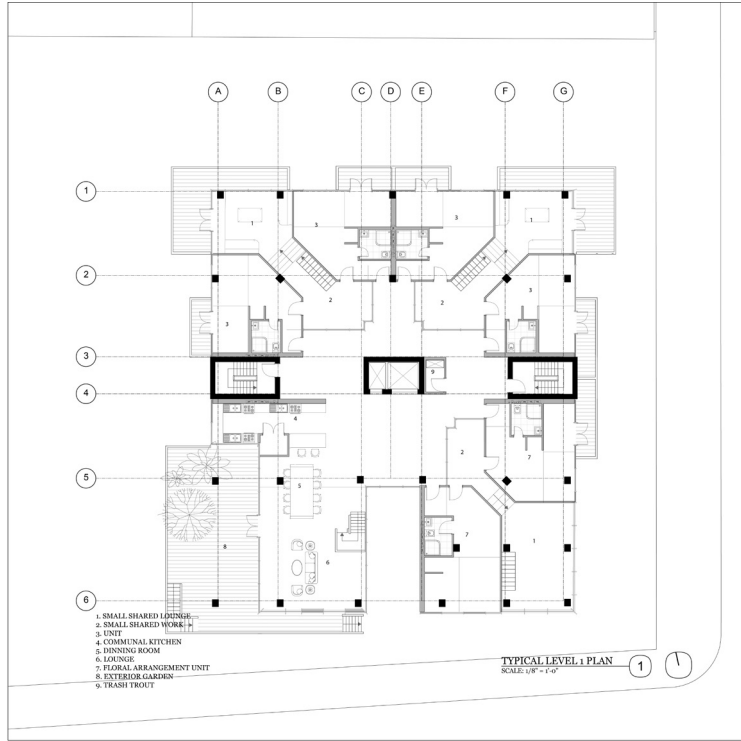
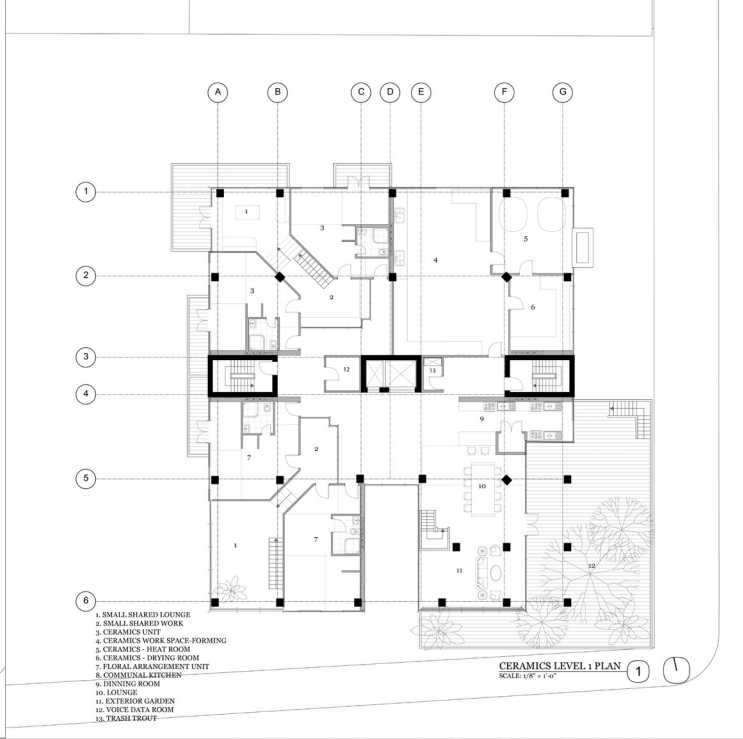
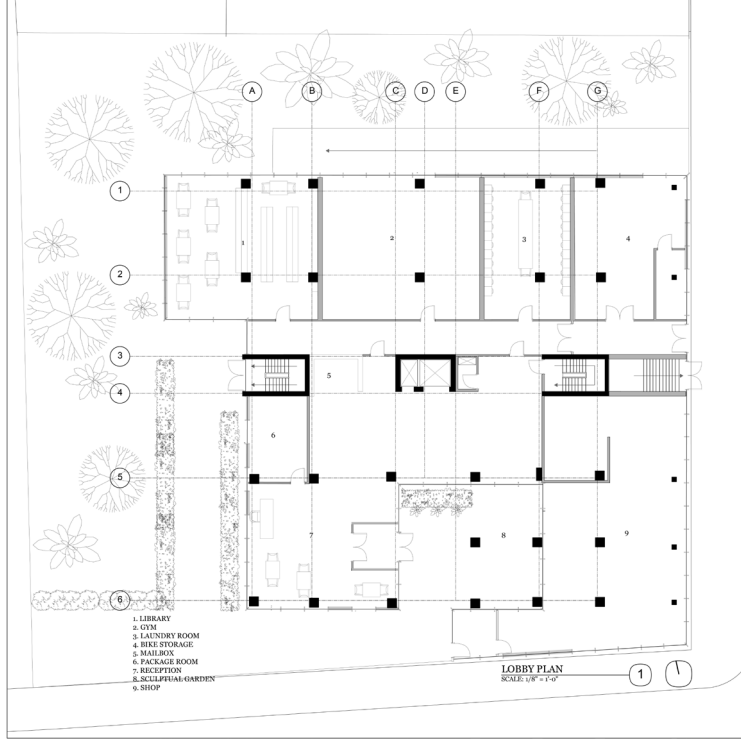


## Unit Types and Section

Our concept for this project focuses on transparency and voids. We chose to use glass as the main construction material for this building for its qualities of visual transparency and reflectivity. All facade materials are made out of glass with the difference in transparency and color, the solid massing is expressed in white opaque glass, and the rest are clear transparent glasses. These glass panels sit on top of the extended floor plates as exterior garden railings, creating layers of glass walls and emphasizing the prominence of the floor slabs.

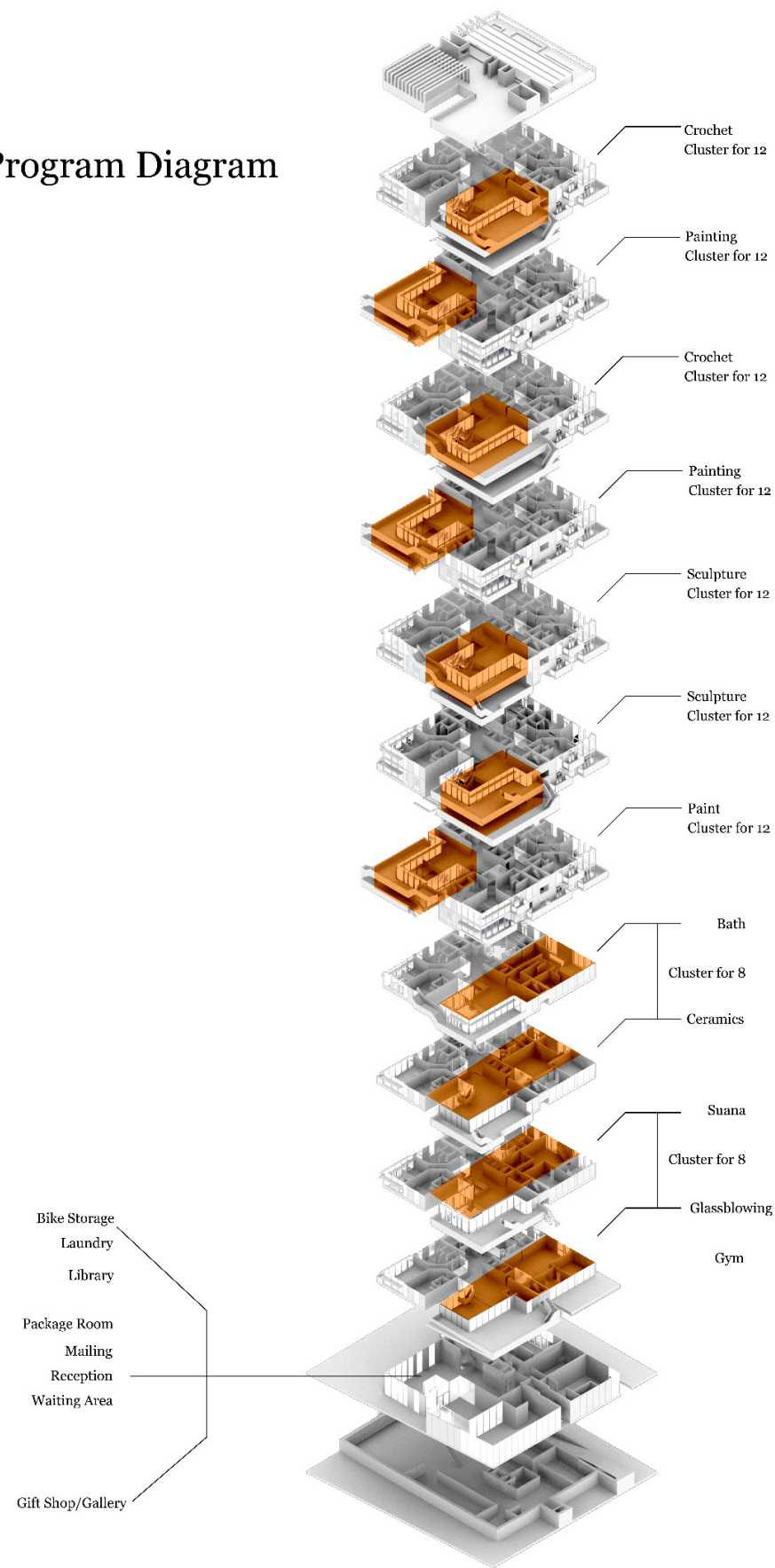








Program Diagram



Section Model



ABIB

PROTOTYPE

Sustainable 3D Printer Branding and Modeling under Amazon

Abib as an extension of the brand amazon. The word abib matches the company’s social and environmental commitments to extend the useful life of existing products. The brand aimed at a few new values to the brand revolving around virtual communication, sustainability, process transparency and recycling.

The Abib Reprocess - A to A series is an eco-friendly material wastes shredder device that allows you to recycle your wastes at home. As a part of the A2A Series, this home device allows you to scan the product using a miniature camera on the smart display or your phone with bluetooth, and provide information regarding the product’s material. After scanning the products, the device will offer options on how to recycle or reuse that material. If the material is suited for the device, the device can generate a new product, such as a cup or a box using the waste; if the material isn’t suitable, then it’ll be extracted into the “Amazon Return” tray through a filter screen.

SOFTWARE  
Rhino 3D Modeling, Vray, Adobe Illustrator, Adobe Photoshop, Adobe Indesign



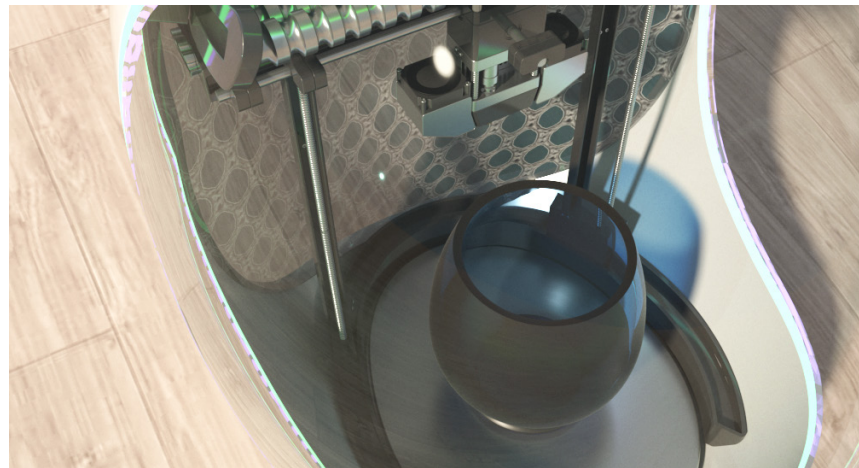
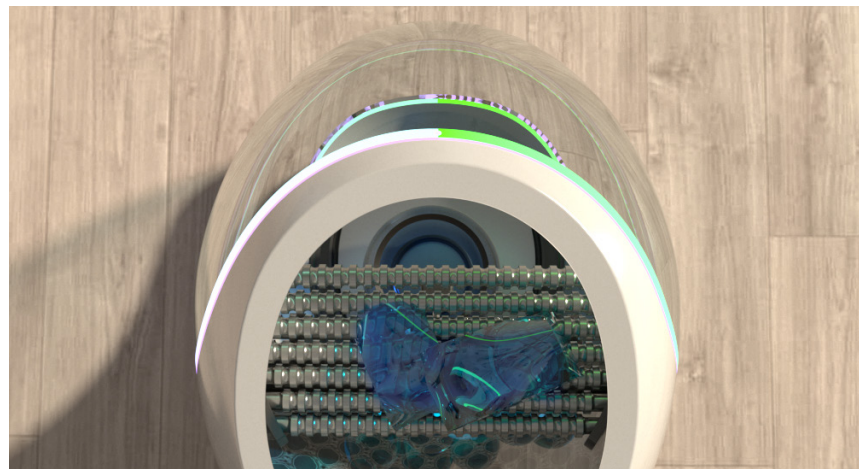
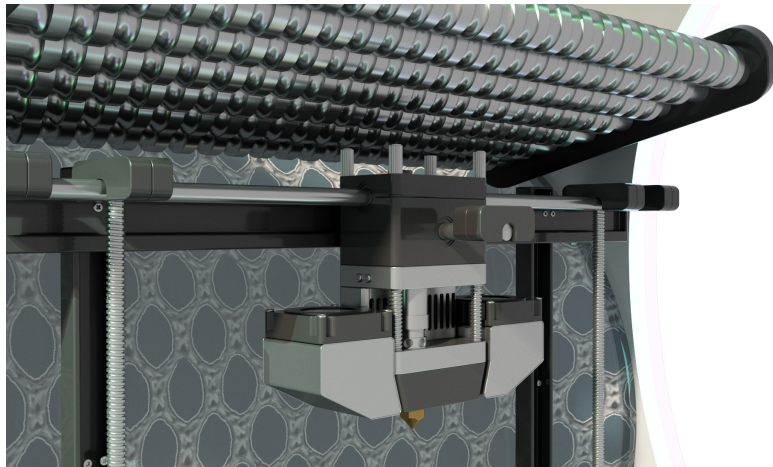
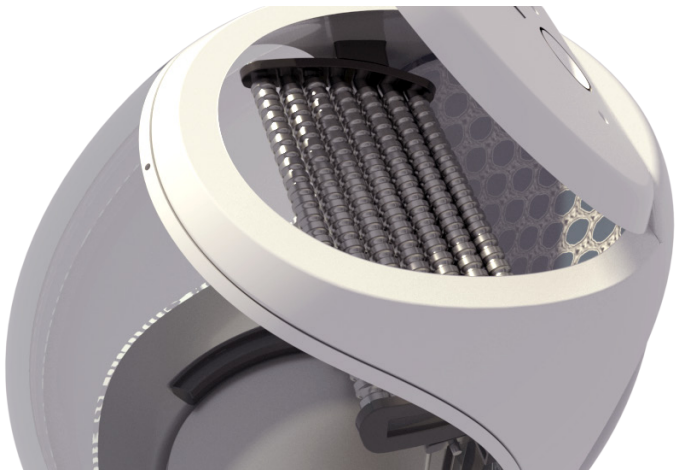
# Abib

**Motto: A To A**  
A to A  
The first A refers to the A quality products Amazon put out, and the second A represents the rebirth of our recycled products we received back to our warehouse.

**Mission Statement**  
Celebrating and embracing the relationship between man and nature, we are here to help you discover ways satisfy your demands the most sustainable way! We make it easy for you and your family to save the environment with our service to collect product and packaging wastes created by products purchased from Amazon. With Amazon prime or subscription to new service, we are able to deliver, collect, and recycle products the most sustainable way.

**Value Positions**  
Carrying Amazon's values of passion for invention, commitment to operational excellence, and long term thinking, we developed a new program that recycles product and packaging wastes while promoting products that were made to be remade. We carefully redesigned the delivery boxes to be 100% recyclable that fit our strict sustainability standards, and evaluated our transportation methods to prevent creating additional wastes while recycling.





### Definition

The first month of the year in the Jewish calendar, verbal root abab to be fresh, green; to blossom. The word matches our company's social and environmental commitments, we thrive to lengthen the useful life of your products, and expand our services to recycle them.

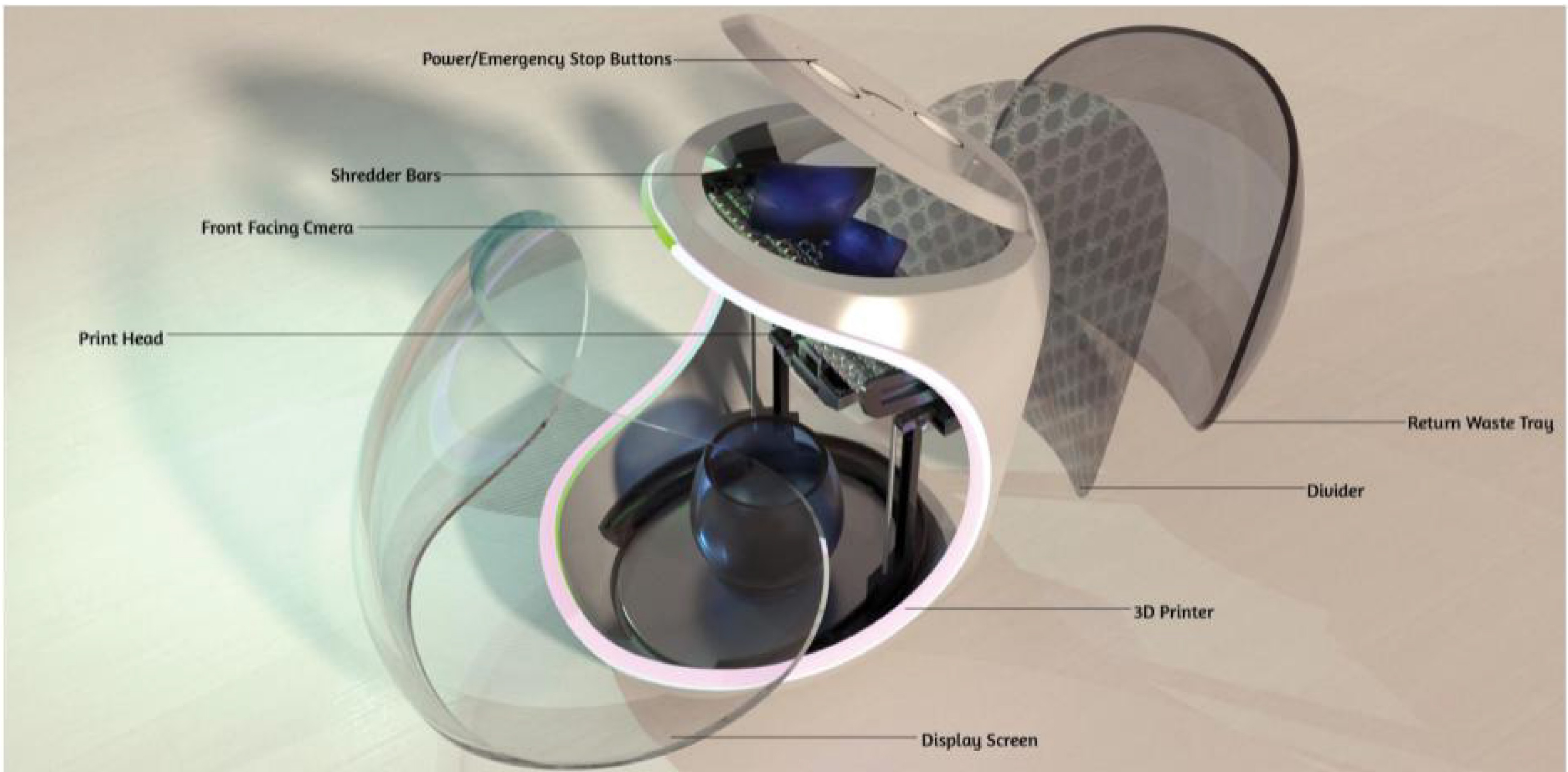


### New Values

Epic 1: virtual communication, sustainability, process transparency, recycling  
 Epic 2: Invention, production, zero wastes, solution  
 Epic 3: demand, computerized simulation, service, recreation







Power/Emergency Stop Buttons

Shredder Bars

Front Facing Cmera

Print Head

Return Waste Tray

Divlder

3D Printer

Display Screen



# Resolved Overlapping Platonics

PROTOTYPE SITE: 24" X 24" SQUARE

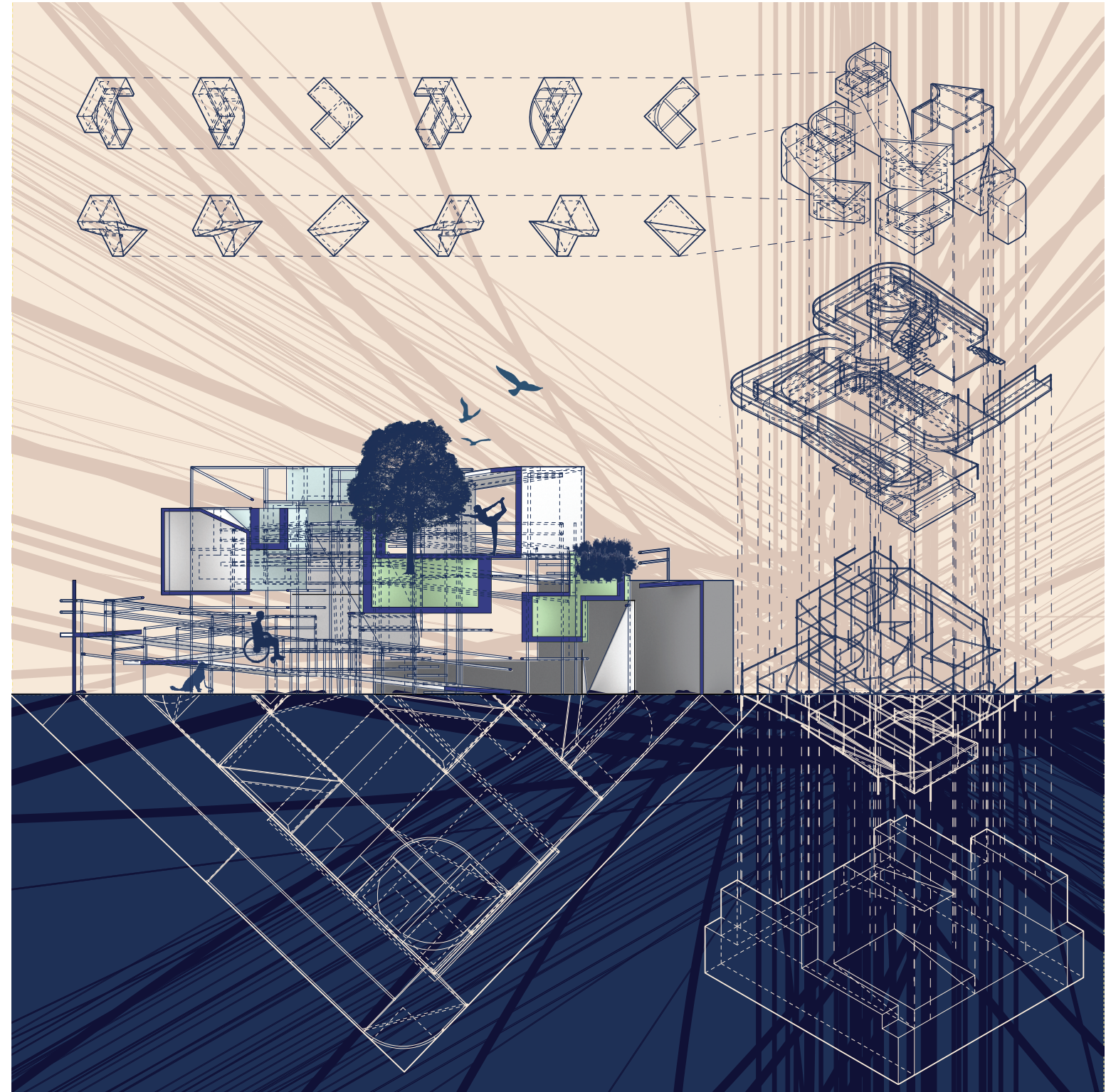
Yoga Studio

This project is a continuation of the concept of Continued Discontinuity within the forms' curves and straight edges and structures. It starts to explore the possibilities of combining cruvy and straight forms by offsetting and stacking platonic modules. Designed by elevation, the yoga studio displays different geometric elements in elevations and plans. Using the three most frequently used shapes, square, circle and triangle, each elevation showcases a different shape. The plan shows curves, side elevations show triangular geometries, and the front elevation reveals the rectangular geometries. The puzzled shaped vessels interlock in elevations.

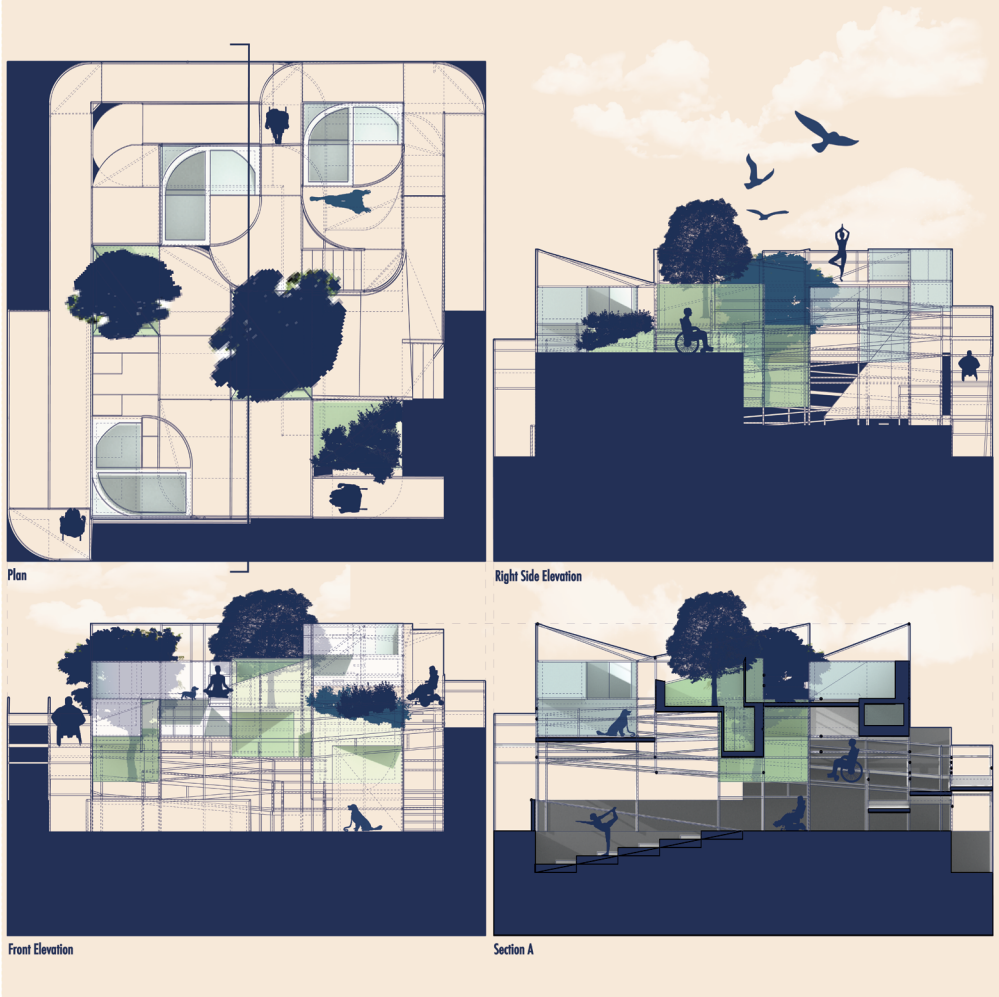
Sun paths study how the site reacts to sun and shadows at 11:00AM in March, June, September, and December. In summer, occupants can practice yoga under the shaded roof or on the first level to avoid harsh direct sunlight. Water level at 1'-0, 3'-0, 6'-0 and 9'-0. The functions of some platforms and spaces change as the water level alters. As water level rises, some entrances are blocked off. When it reaches 9 feet, the water slightly covers the platforms on the second level, people can experience the feeling of "walking on water" and enjoy the view from above.

## SOFTWARE

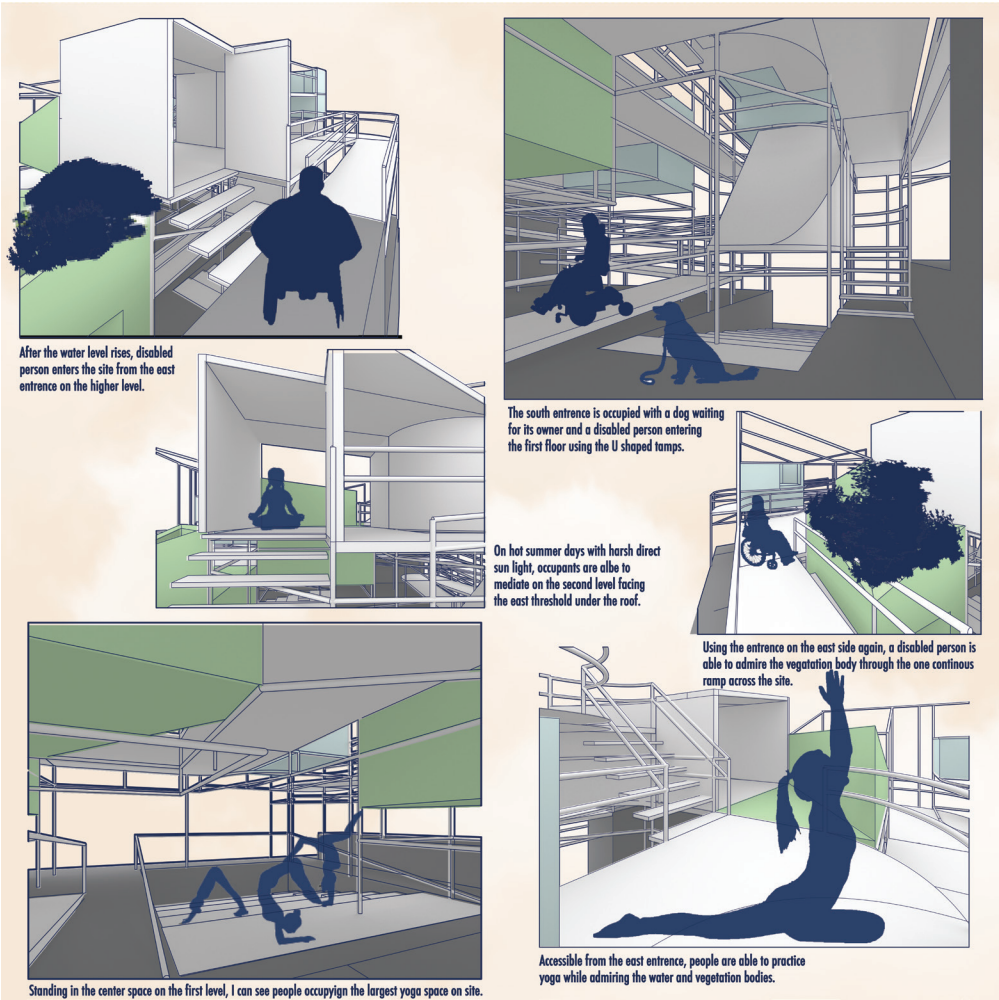
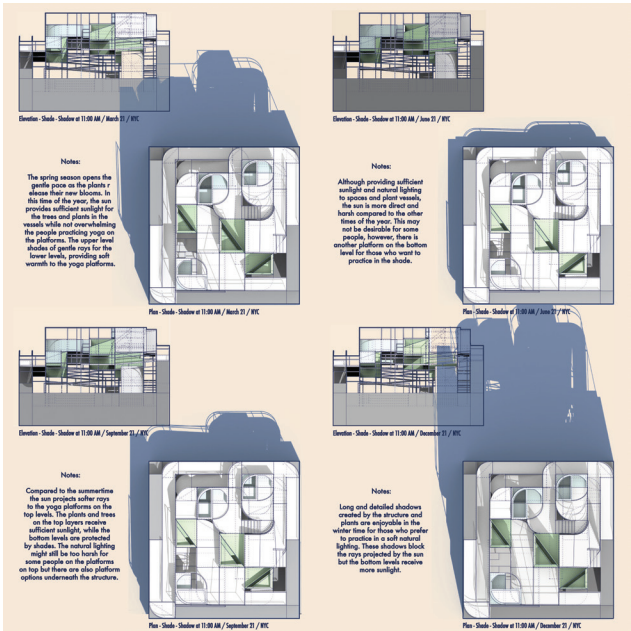
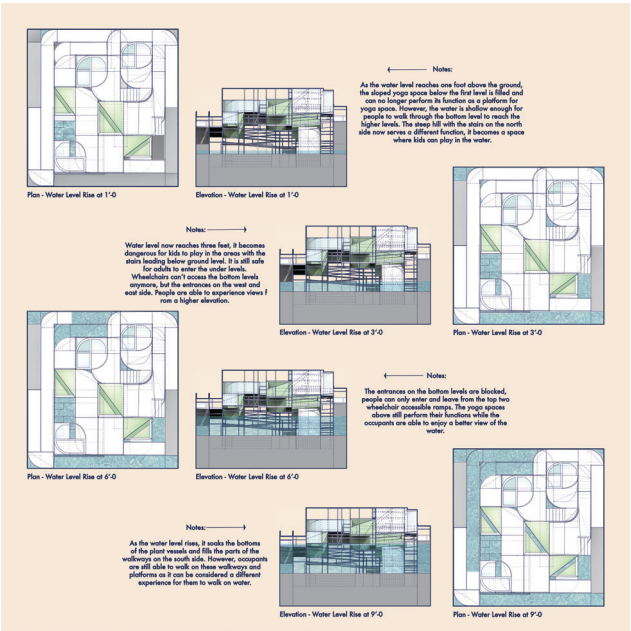
Rhino 3D Modeling, Adobe Illustrator, Adobe Photoshop, Twinmotion, Adobe Indesign







# Solar and Water Studies





## MISCELLANEOUS

### PROTOTYPE

#### HAND DRAWINGS AND PHYSICAL

A series of documentations of architectural hand drawings and physical models of material studies of plaster and basswood sticks.

### MATERIALS

Pencil, charcoal, plaster, and basswood sticks.

