COLLEEN DUONG

Bachelor of Architecture | 2021
Carnegie Mellon University

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CONTENTS

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1671 Kalakaua Ave apt #306
Honolulu, HI 96826

EDUCATION

Carnegie Mellon University Pittsburgh, PA
Bachelor of Architecture
Class of 2021
GPA 3.1/4.0

President William McKinley High School
Honolulu, HI
Class of 2016

LEDA Career Fellow
Providence, RI
August 2017

Leadership Enterprise for a Diverse America
Princeton, NJ
Summer 2015

SKILLS

Software
Adobe Photoshop, Illustrator, Indesign, Premiere, After Effects; MS Office, Rhinoceros 5/6, AutoCAD, Solidworks, RobotStudio, Beginner Maya, 130 WPM

Fabrication
CNC Machining (Mill and Lathe), Woodwork, Lasercutting, 3D Printing, Industrial Robot Arm

Analog
Drafting, Model Making, Drawing

Language
English, Conversational Vietnamese, Basic Japanese

Programming
P5JS, Javascript, HTML, Basic Python

COURSES

Architectural Studios, Analog and Digital Media, Fundamentals of Computational Design, Materials and Assembly, Computing for Creative Practices, Rapid Prototyping, Introduction to Architectural Robotics, Mobile Web Design

INTERESTS

Design, Fabrication, Robotics, Engineering, Graphic Design, Animation, Video Games, Coding

EXPERIENCE

LEDA Peer Mentoring Program *Fall 2017 - Spring 2018*
Mentor
• Program that provides first-year LEDA scholars with a network of peer support
• Develop 1:1 relationships with first-year scholars and provide them with a sense of connection and support

Carnegie Mellon University Telefund Pittsburgh, PA *April 2017 - October 2018*
CMU Ambassador
• Call alumni, parents, and friends of the university to connect with them through their school experiences.
• Ask for donations to make CMU a better place for higher education.

ACTIVITIES

Alpha Phi Omega Kappa Chapter, Carnegie Mellon Pittsburgh, PA
August 2018 - Present
Assistant FellVP, Design Team, Brother
• Volunteer fraternity involved with several projects: Rise Against Hunger, Pumpkin Fest, Carnegie Mellon Spring Carnival Food Booth, etc.
• Plan out activities for the pledges that encourages the feeling of community and makes them feel more welcomed and comfortable within the fraternity.
• Design posters, calendars, and t-shirts for events within the fraternity: Rush month, National Service Week, etc.

Habitat for Humanity, Carnegie Mellon Houston, TX *January 2018*
• Volunteer program to help with the hurricane relief program in Texas after recent events with Hurricane Harvey
• Includes helping with the Houston Food Bank, Northwest Harris County Habitats, and Galveston County Habitats

AIAS, Carnegie Mellon Pittsburgh, PA *August 2017 - Present*
Member

Robotics Club, Carnegie Mellon Pittsburgh, PA *Fall 2017 - Spring 2018*
Member
• Involved with several groups within the club
• Robot Parody M.UL.AN group: help create the tea scene from the movie using robots
• Quadcoptor: learned how to use Solidworks and Anaconda

Robotics Team, Team Kika Mana #368 Honolulu, HI *Fall 2012 - Spring 2016*
Captain (Fall 2014 - Spring 2016)
Coach (Spring 2015)
• Prepared for meetings, scheduled team events, took membership attendance throughout the FIRST season, and wrote grant proposals.
• Coached the team to Einstein Field at the 2015 FIRST Robotics World Championship; this was the first time a Hawaiian Robotics Team ever made it to the Einstein Field.

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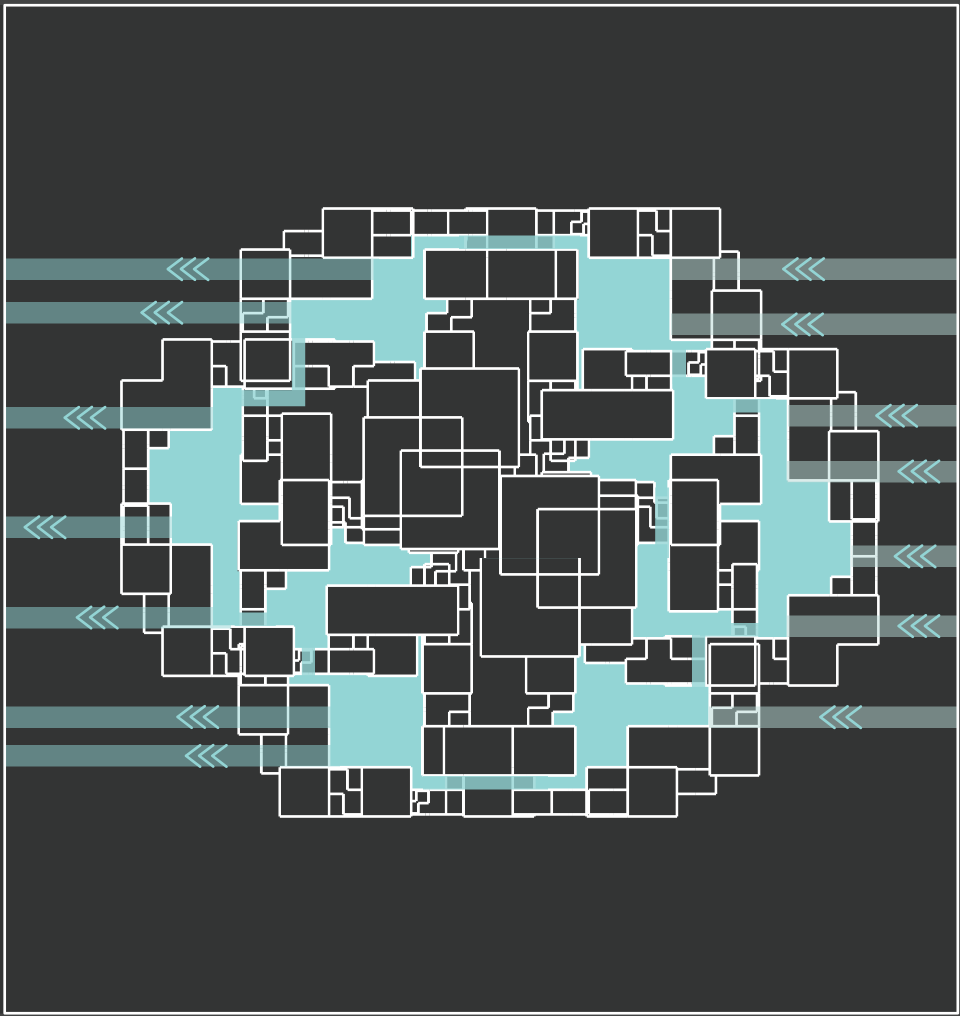
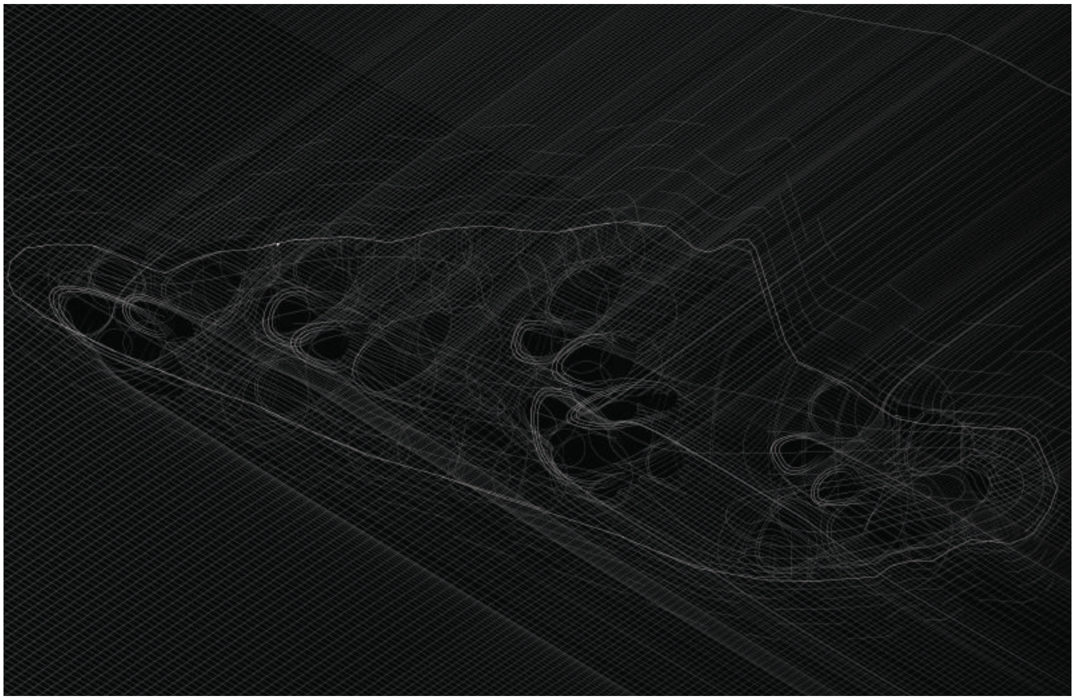
Six Mile Island
Eco-machine Co-Housing

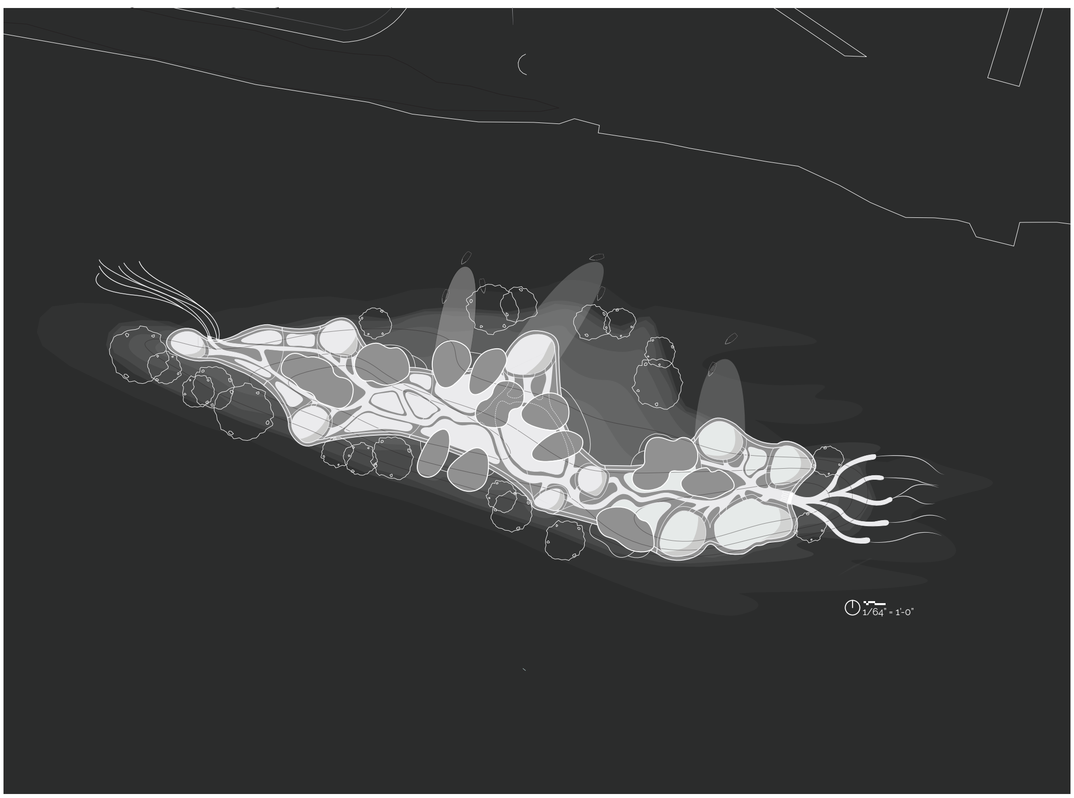


Six Mile Island, Sharpsburg, PA
Integration_Studios
Dana Cupkova & Matthew Huber
Fall 2018

Students developed urbanization strategies to create co-housing and eco-machine prototypes onto the site. The project began by allowing students to develop an understanding and focused knowledge of a specific system's behavior and logic to get a clear understanding of how it could be incorporated into the site and integrated into the lives of those living there. The goal of this design was to design a large biofiltration system that would take water from the Allegheny River, clean it, and return it back to the river. The biofiltration system aims to use streams, waterfalls, and greenwalls to treat the water.



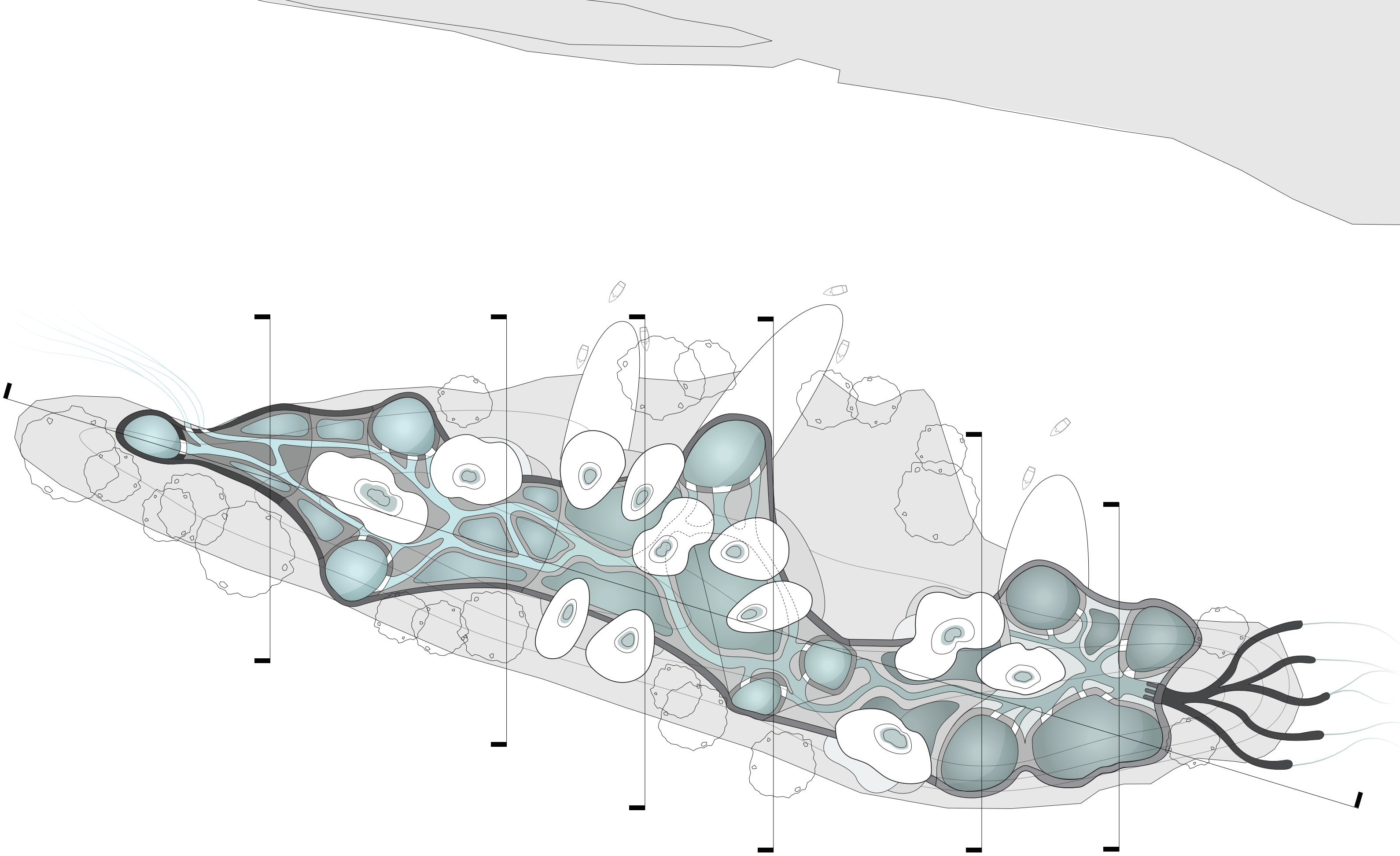
Island
Wind
Analysis



Island
Erosion
Over Time

ISLAND OVER TIME

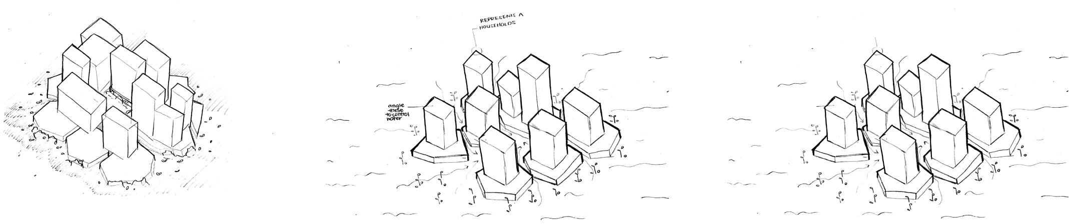
Over time the island will start to grow smaller and smaller (with the rising sea levels and erosion), but the architecture aims to still stay standing even as the island begins to fade away into the river.



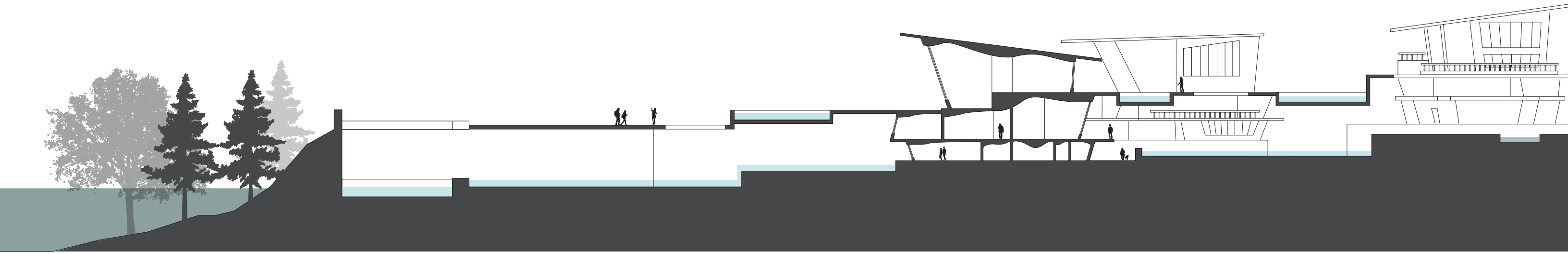
1/64" = 1'-0"

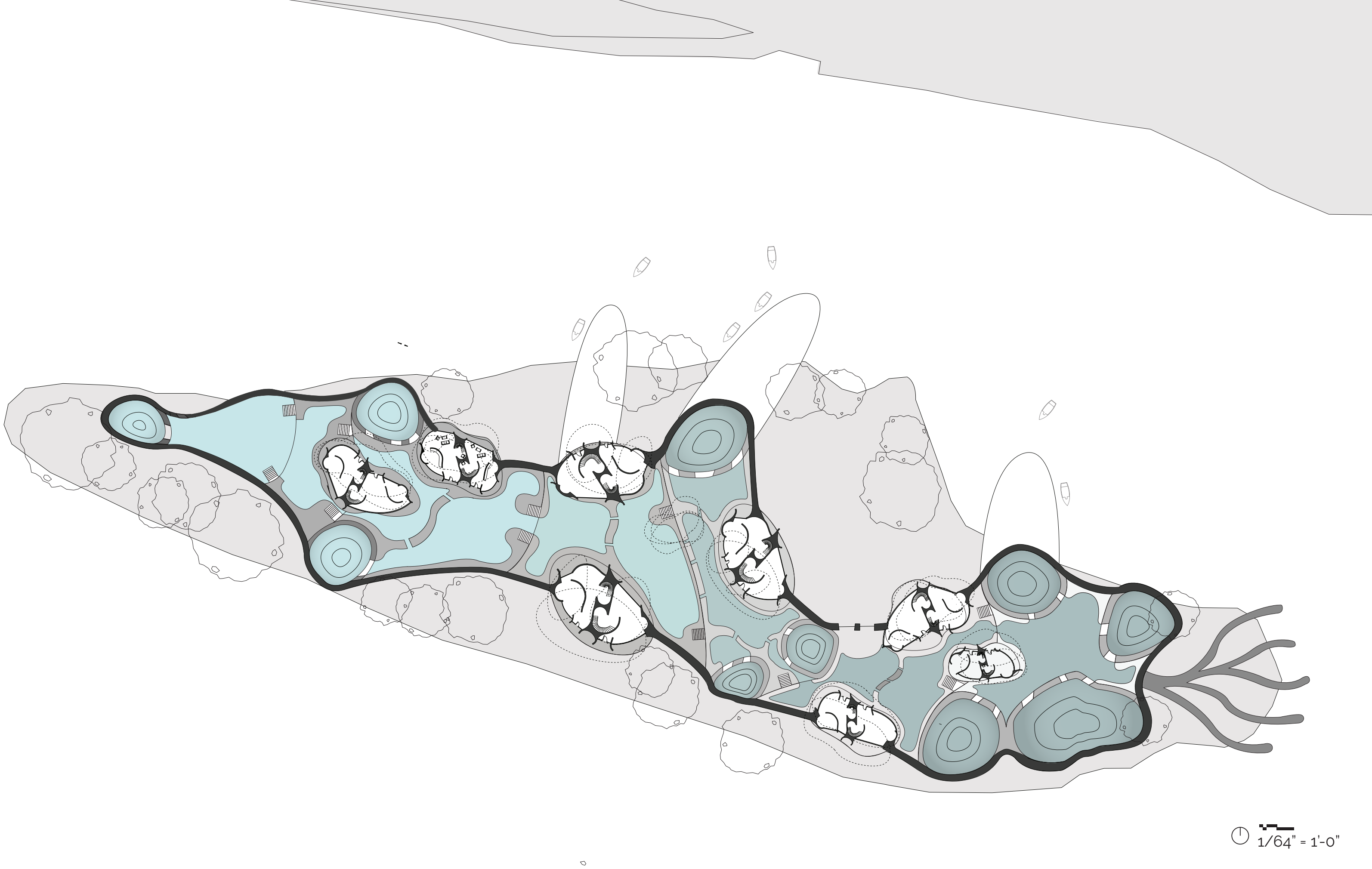
SITE PLAN
TOP LEVEL

Series of streams and openings that help guide the water through the structure and allow water to fall through the top and into the bottom layer of the system. The pump at the beginning tries to mimic the appearance of water into the system.



Right image displays a series of initial sketches that conveyed the idea of using streams to dictate paths and circulation of water and residents.

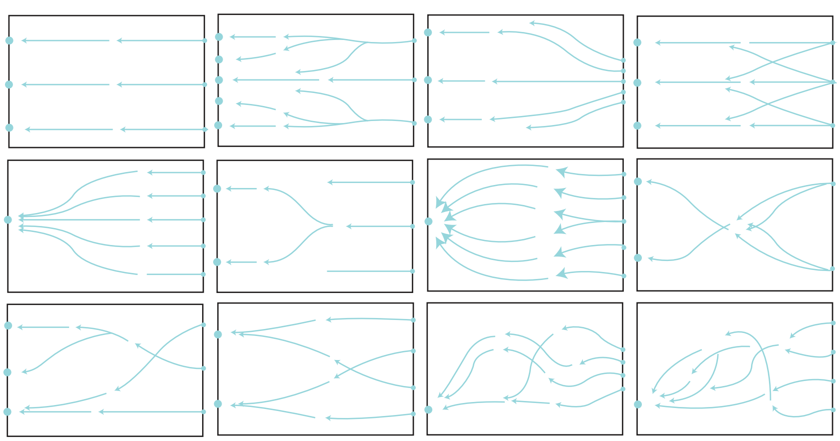


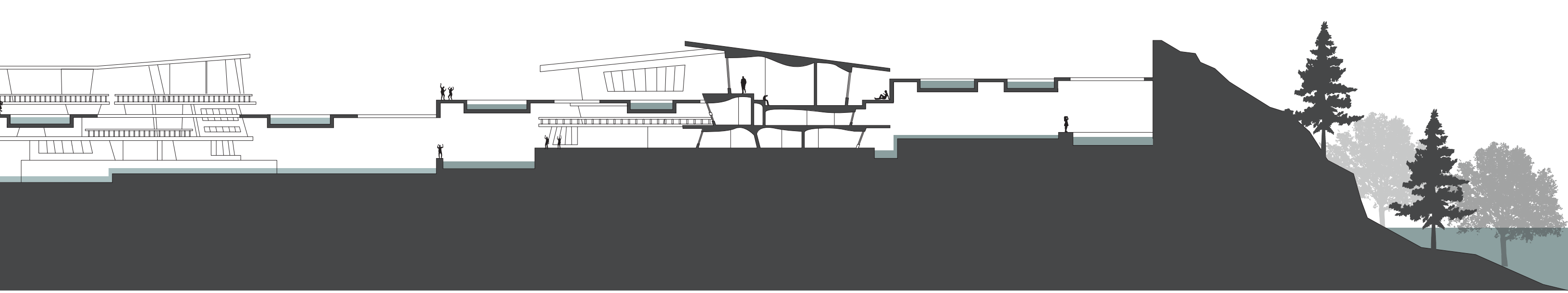


SITE PLAN
BOTTOM LEVEL

The bottom level of the system consists of a series of large pools that are surrounded by walkways to allow for residences to get into their homes.

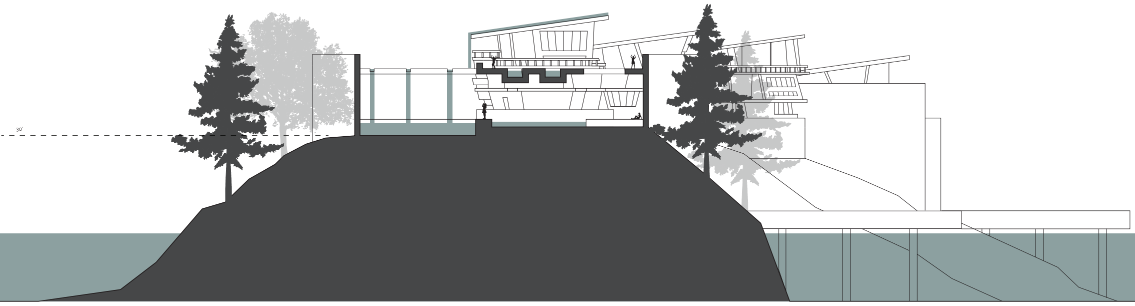
Right image displays a series of diagrammatic studies to understand how water flow patterns can be affected by physical objects, like buildings, and help dictate overall form.

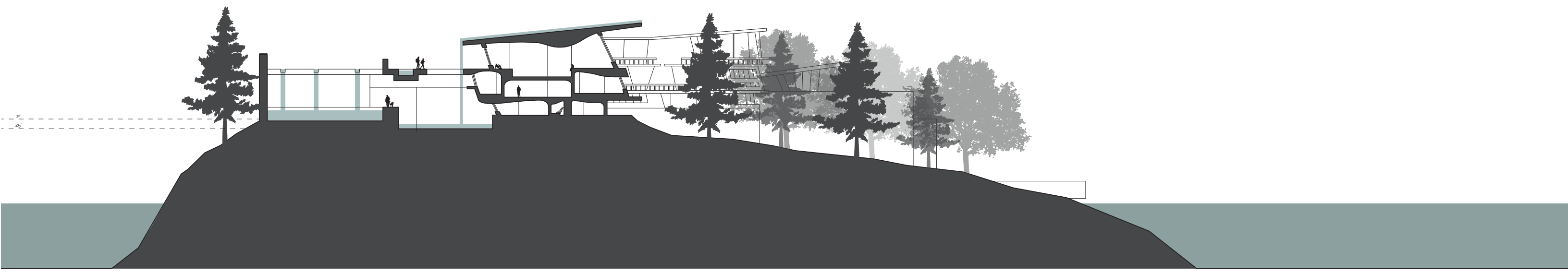


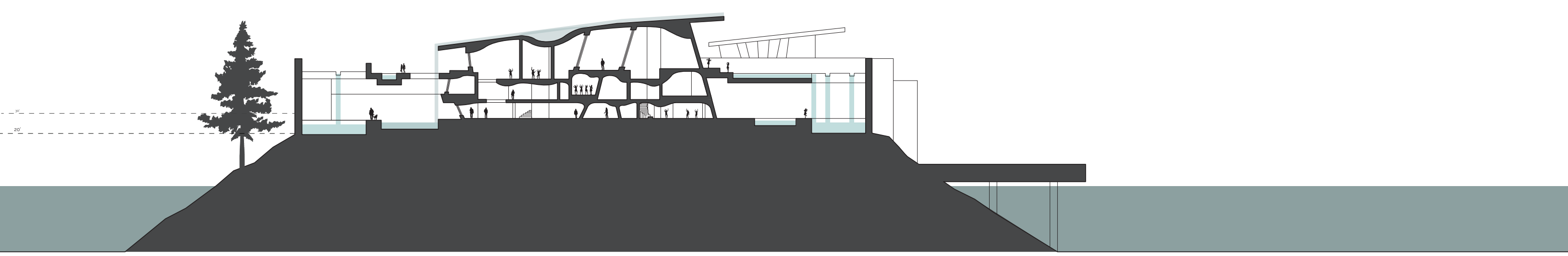


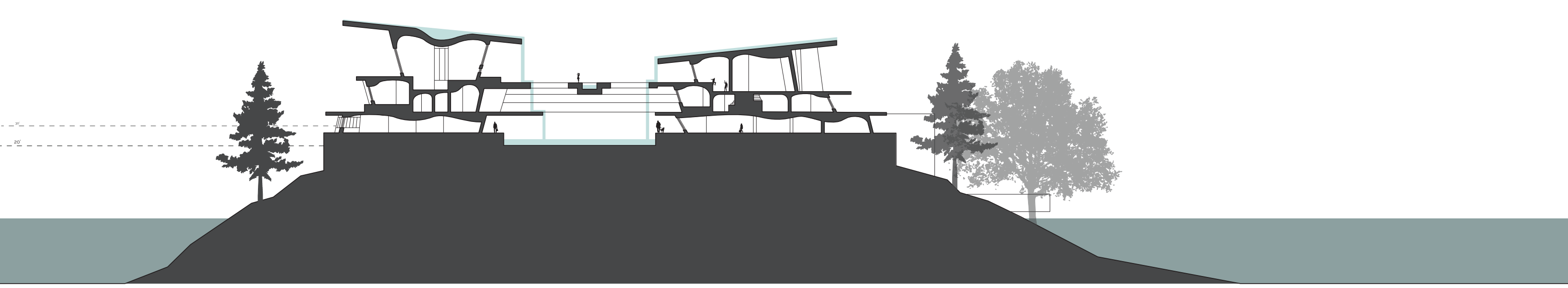
SECTION SERIES

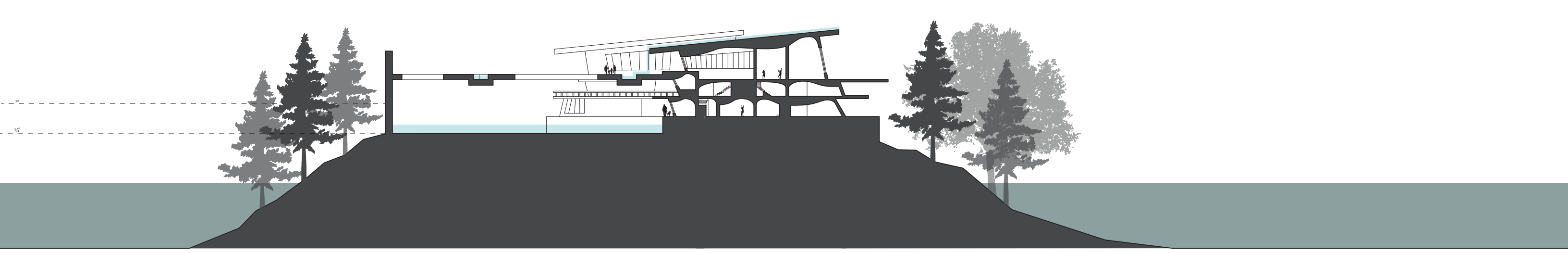
The series of sections help show the main concept of the design, which are the different elevations and steps that occur throughout the system to help clean the water. This occurs both in the system and also through the housing units in section.

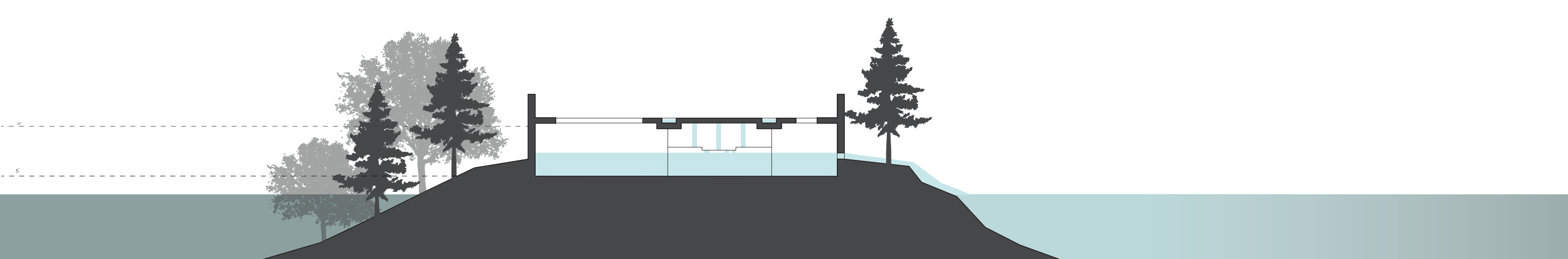






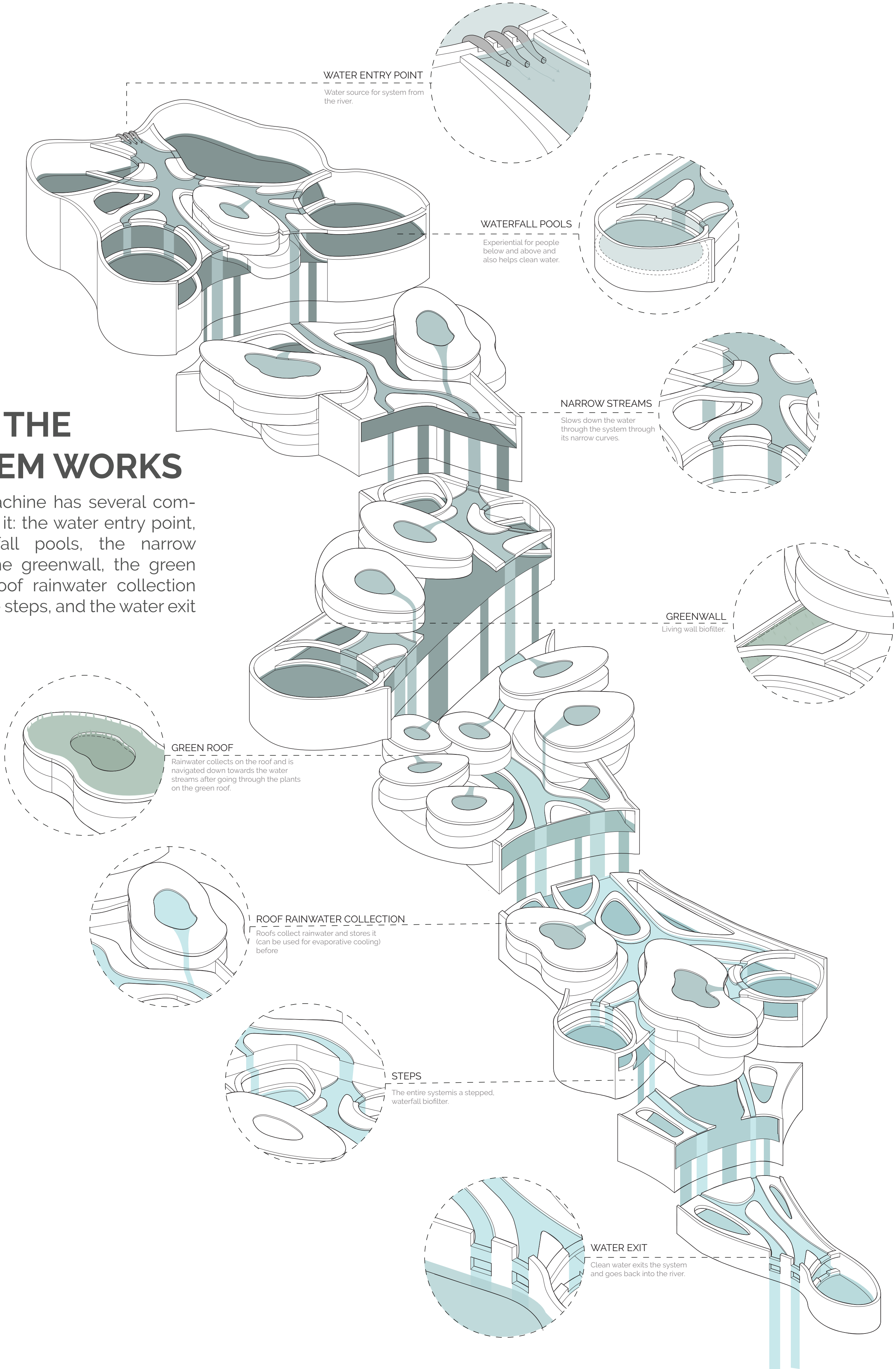






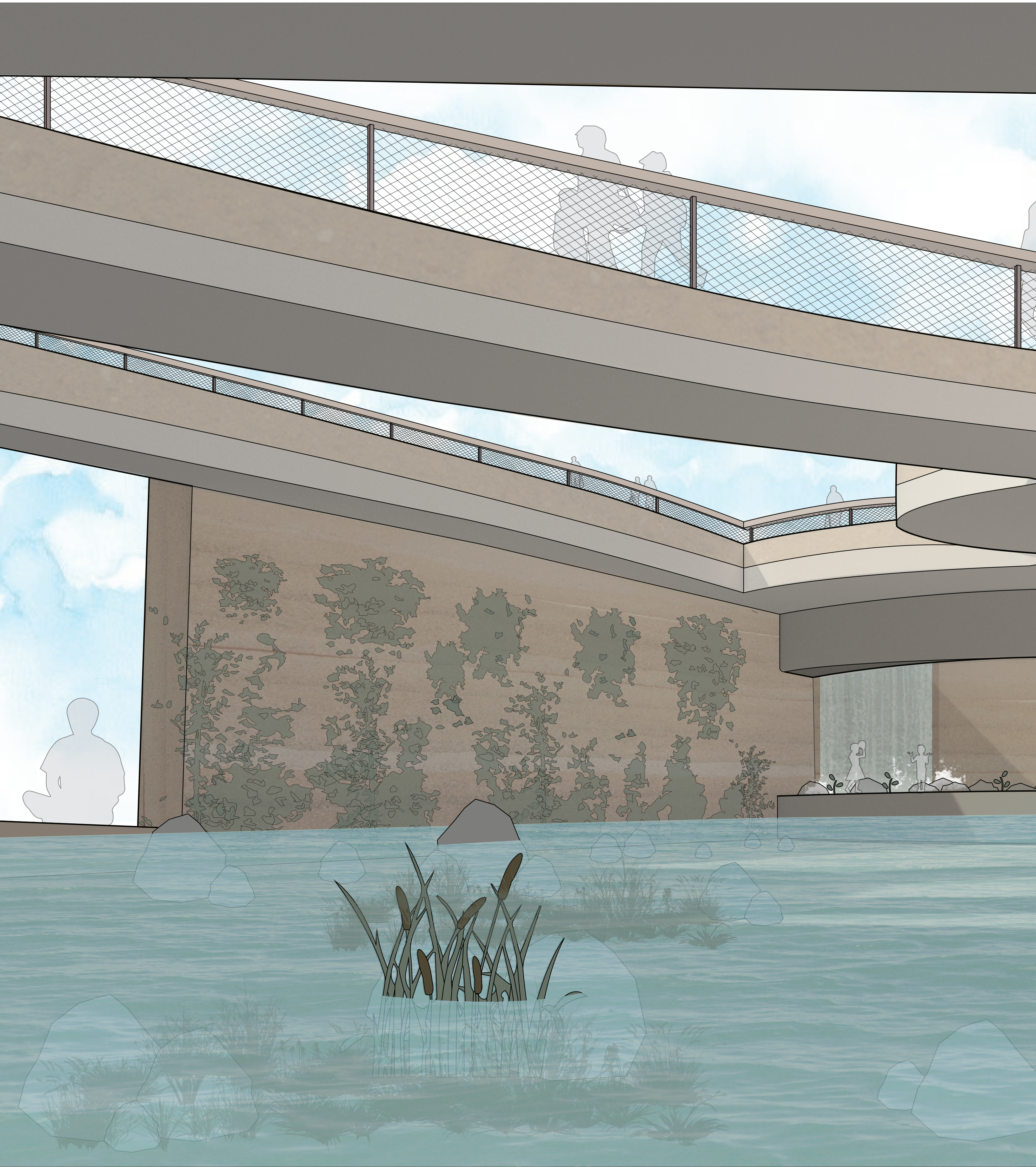
HOW THE SYSTEM WORKS

The ecomachine has several components to it: the water entry point, the waterfall pools, the narrow streams, the greenwall, the green roof, the roof rainwater collection system, the steps, and the water exit point.

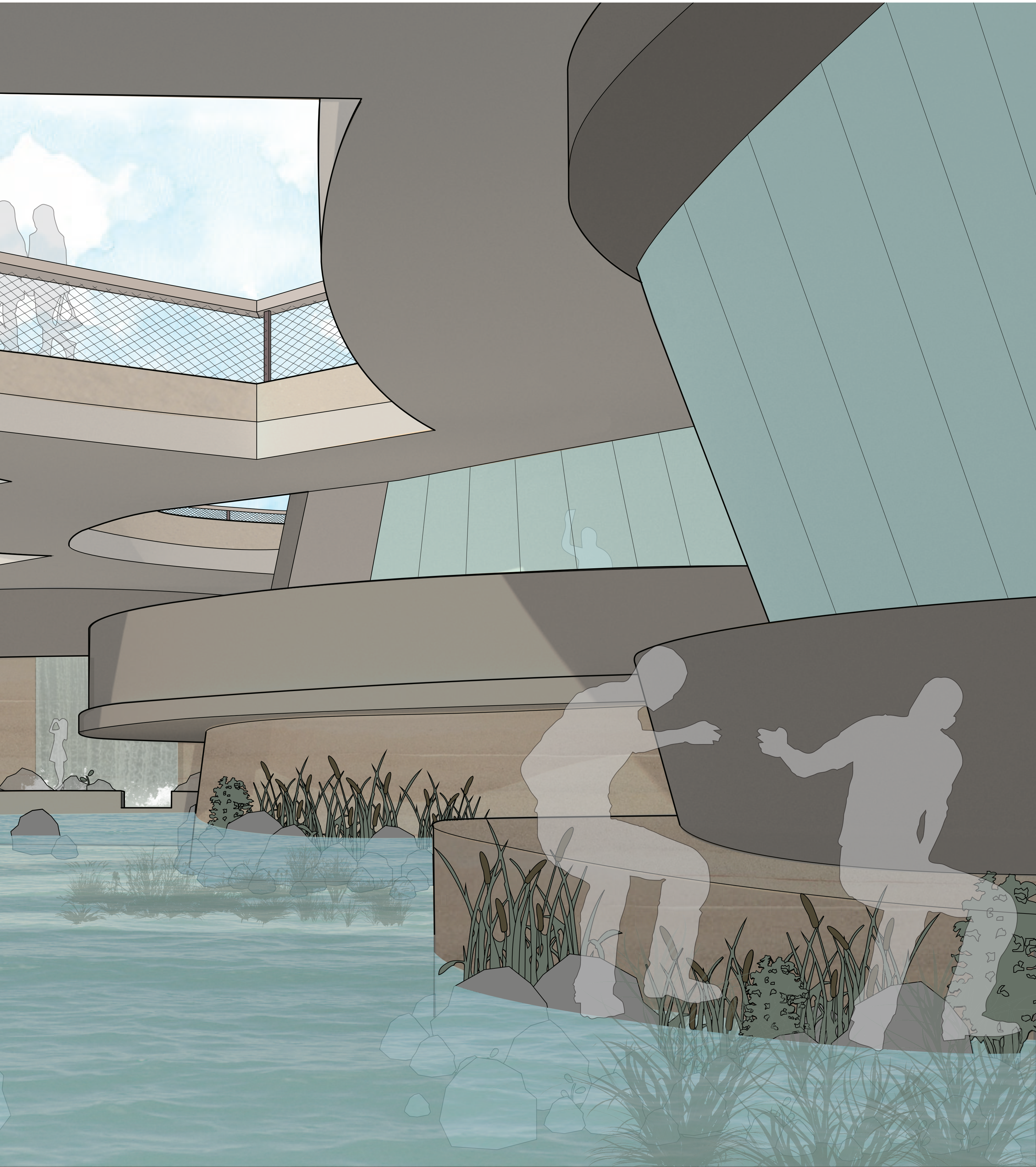


MATERIALITY AND EXPERIENCE

The materiality of the architecture is mainly concrete because the goal of this structure is to make sure it doesn't erode or dissolve with the constant contact with water. However, there is also rammed earth walls and floors that is used in the structure (not the housing units) that would potentially wear away over time, but wouldn't wear away too quickly. This opens the architecture to multiple possibilities of what it could change into or become in the future. The rammed earth material is also used at the top level where residents walk to potentially wear away the streams up there and



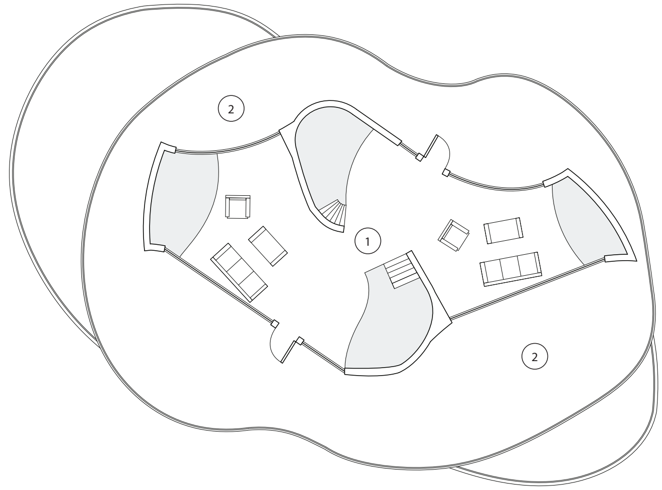
create new water openings that would allow more water to trickle down into the bottom of the system in the future. Another potential material that couldn't be shown in this perspective view is sand, which enhances the idea of architecture changing over time; this material would be used in pools or streams to create a certain textured feel for people experiencing the clean water physically.



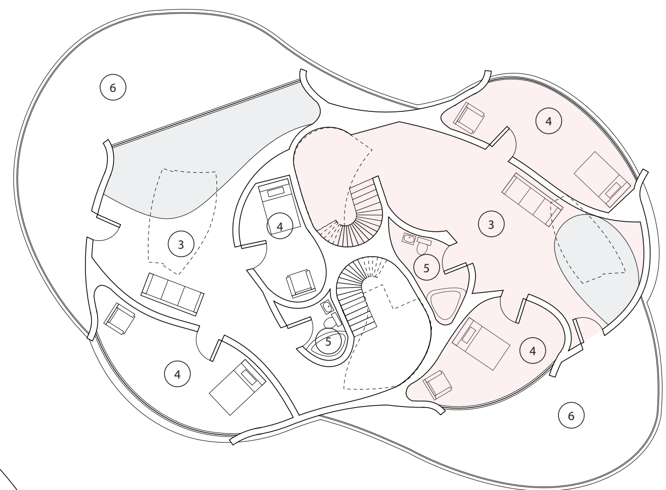
CO-HOUSING PLANS

Each building holds multiple housing units depending on the shape of it. The core of the building consists of stairs that help inform that orientation of each floor; each floor is rotated a specific way (the first floor is rotated to follow waterflow, the second floor is rotated to try and get as much sunlight as possible, and the third floor is shaped by the wind).

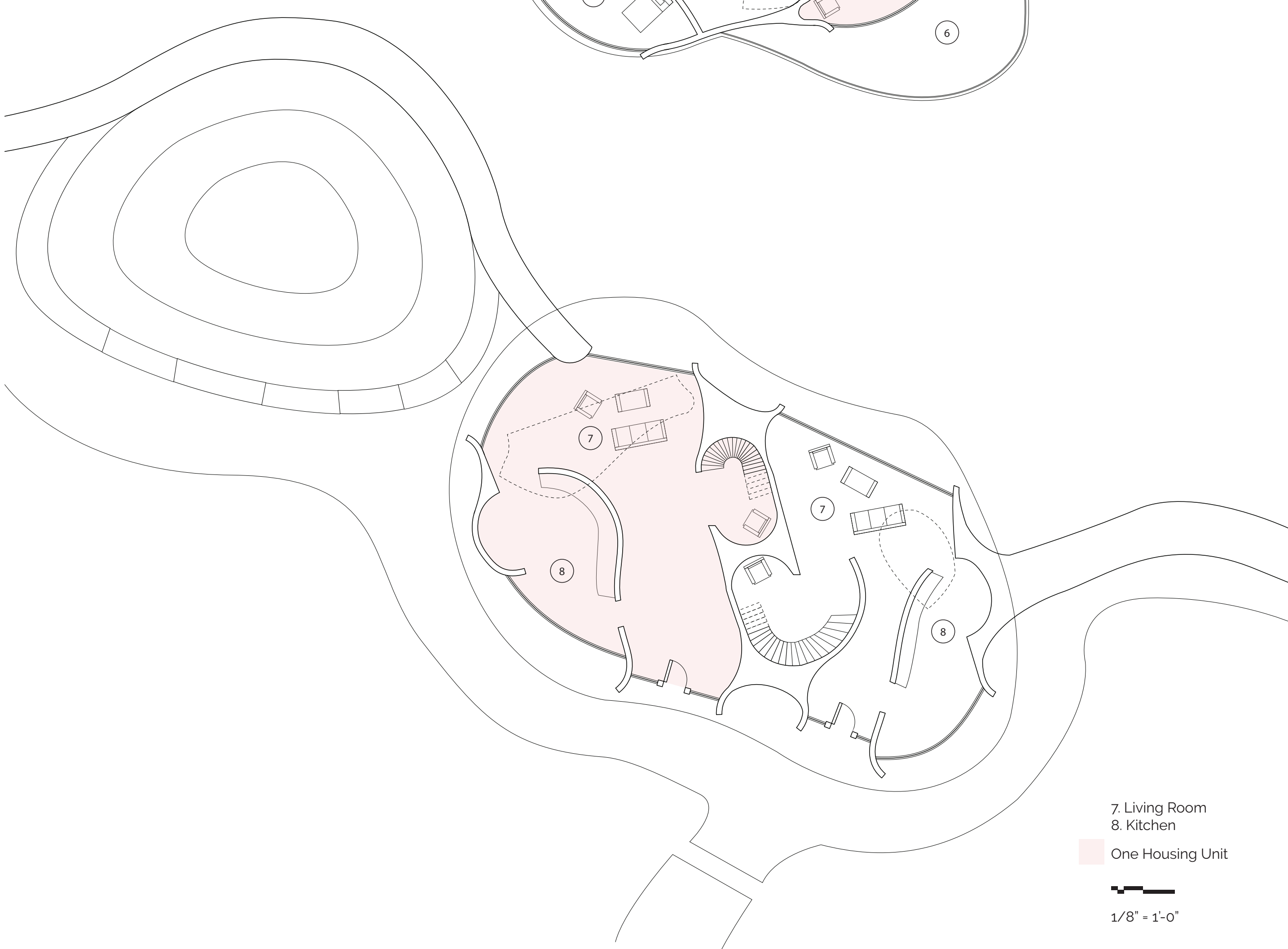
The walls of the unit help inform the circulation flow that someone would walk while going through the house.



1. Shared interior roof (library, relaxing space, etc.)
2. Shared exterior roof



3. Living Space
4. Bedroom
5. Bathroom
6. Balcony



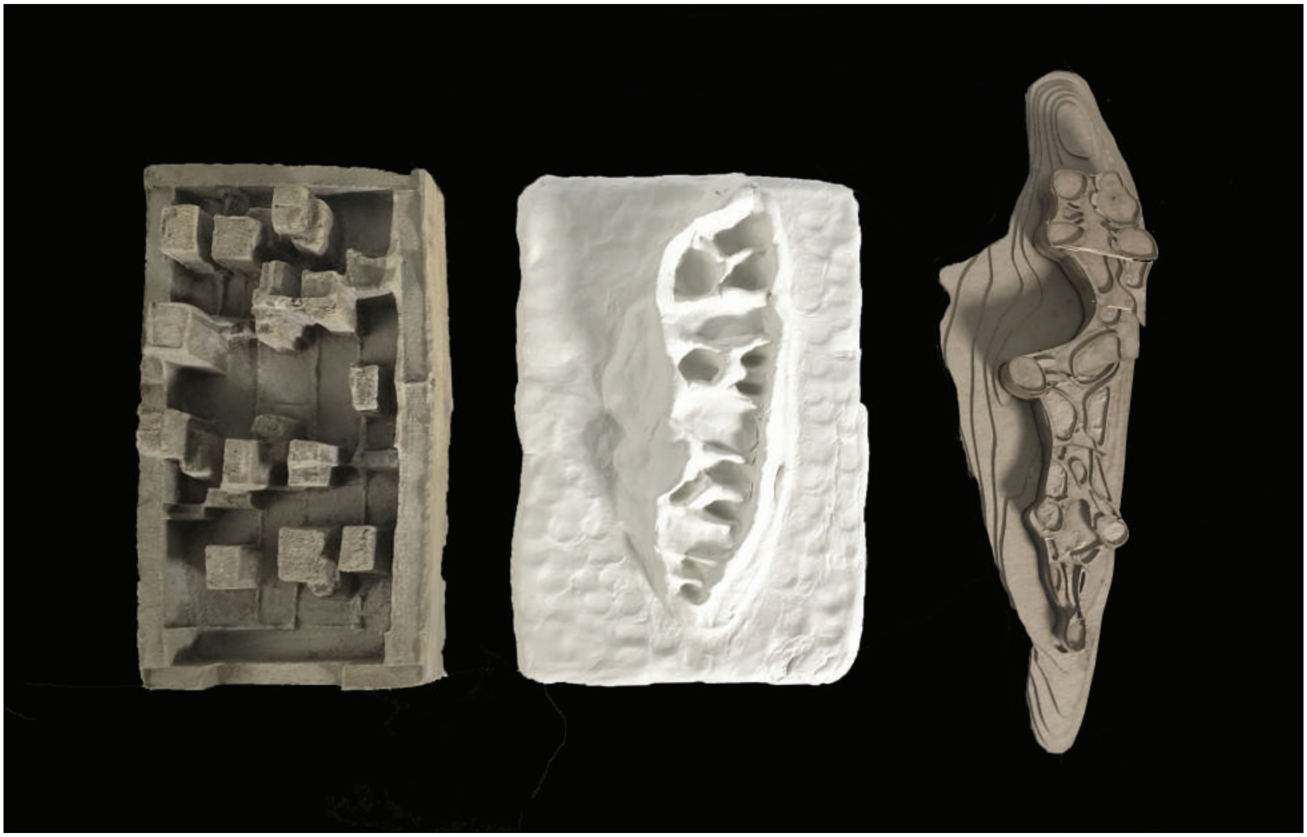
7. Living Room
8. Kitchen

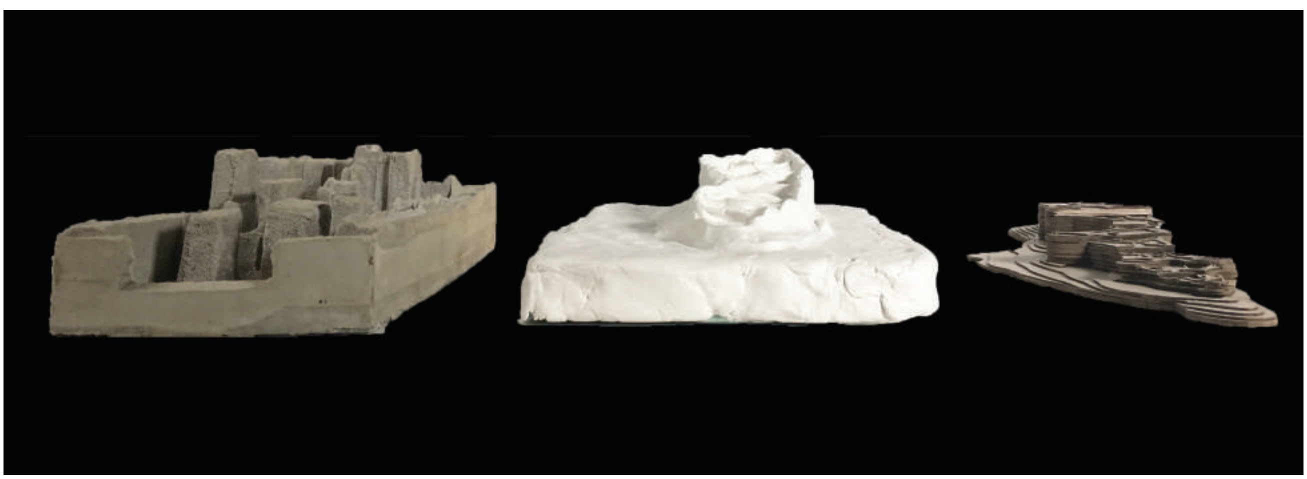
One Housing Unit

1/8" = 1'-0"

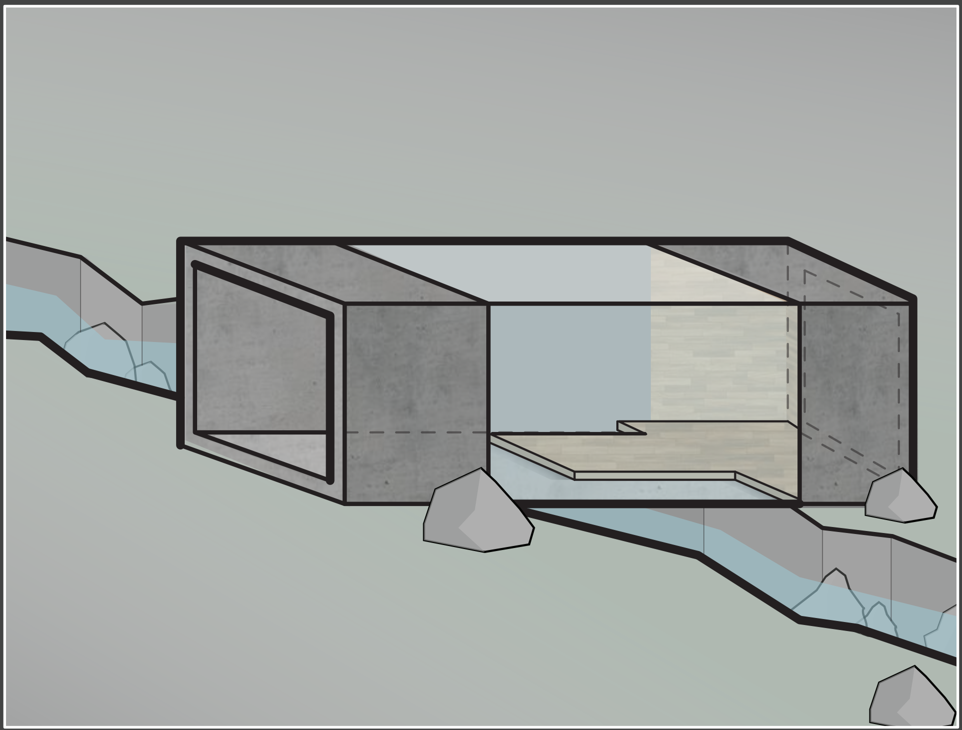
MODELS

Several study models, the two on the left in the top image, tried to understand the main form of the structure and how it would work in section. The bottom left model focused on parametric studies that looked at how spaces could overlap and inter-wine with one another to create certain spaces. the bottom middle model was a study of how the facade of the housing units could look like and how windows could wrap around a shape.





Saco Lake
Bath House

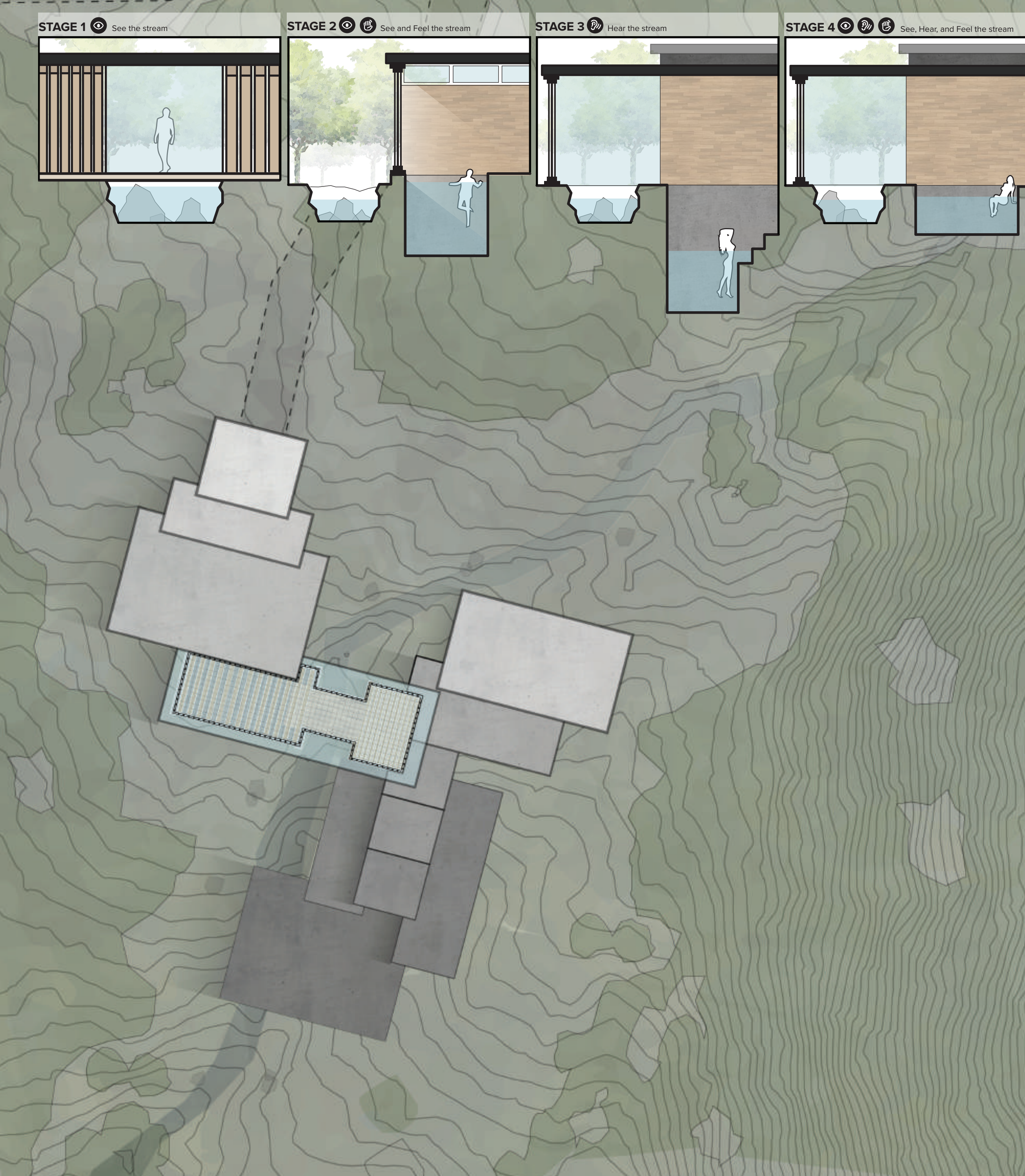


Saco Lake, Carrol, NH
Elaboration_Studios
Jeremy Ficca & Jeff King
Spring 2018

Design proposal for a bath house that incorporates the ideas of “lightness” and “heaviness” through the use of wood and concrete as a building material. The stream was used to emphasize a feeling of crossing over to experience architecture that is entirely different. This is created through a bridge, allowing users to cross the stream and experience the bath house.

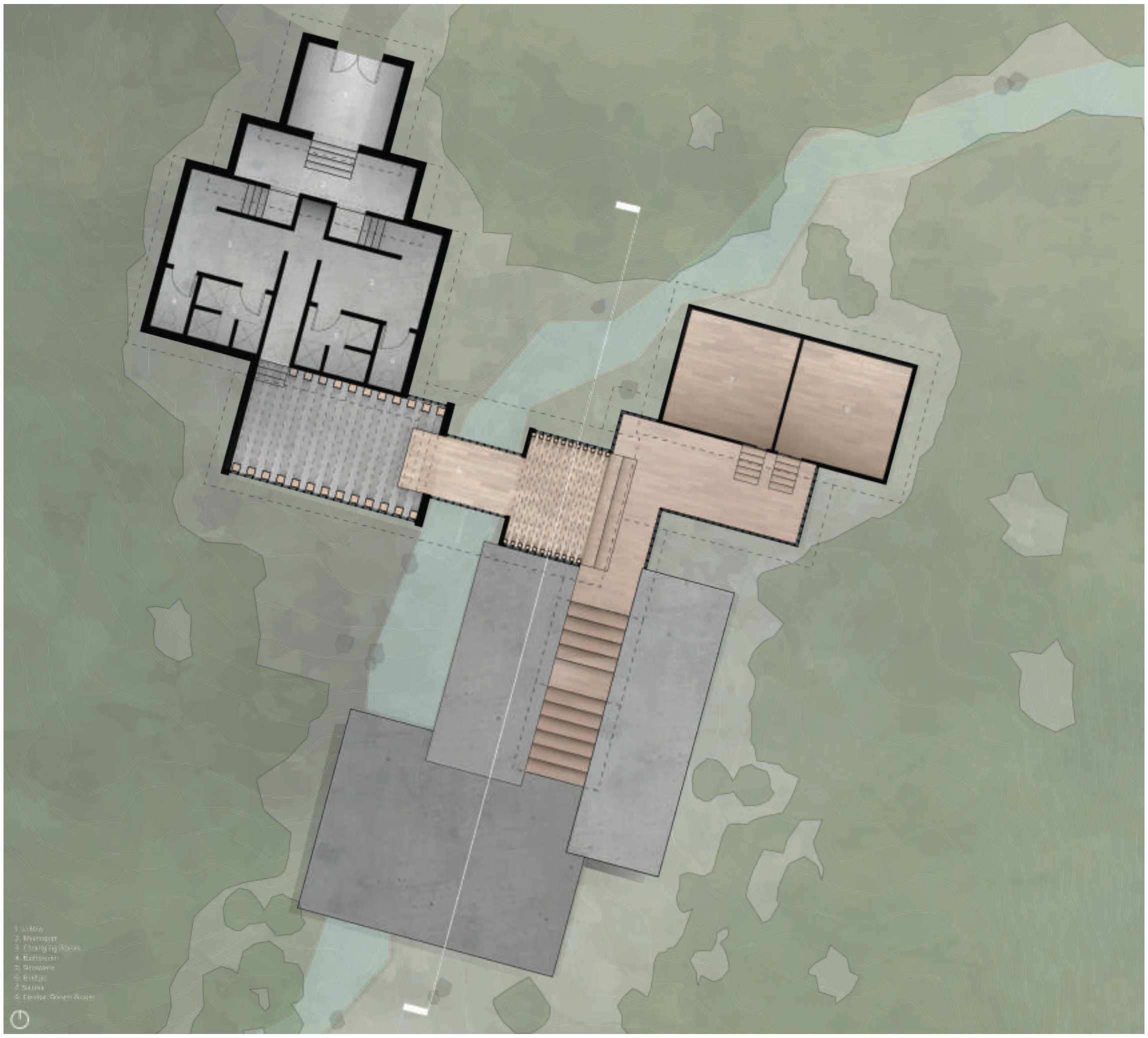
FALLING STEPS

The site is surrounded by four boundaries conditions: the road (Crawford Notch Road), the hiking trail (Crawford Path), a stream, and Saco Lake. The elevation also drastically changes throughout the landscape from Saco River to Crawford Path. The main focus of this design was to emphasize the idea of four different experiences after crossing the bridge to create multiple levels of involvement with the stream for the visitors. The first level, the bridge, allows the visitor to see the stream to the right and left of them. The second level, the warm bath, allows the visitor to see the stream and feel as though they are in the stream by having only a glass wall separating them from the stream. The third level, the cold bath, allows the visitor to hear the stream. The last level, the hot bath, allows the visitor to hear the stream, see the stream, and feel as though they are in the stream. The cold and hot baths are situated in a space that has the stream running through the room. This allows them to hear the stream water flowing down the site.



SITE PLAN TOP LEVEL

The bath house before the stream is made entirely out of concrete in the interior and is symmetrical to emphasize a heavy design feeling. The program consists of the lobby, mudroom, changing room, the showers, and the bathrooms. The building after the stream is made entirely out of wood to create a lighter feeling. This is emphasized by the wooden bridge that sits on top of the concrete floor before the stream. This side of the building consists of the different termperatured baths.



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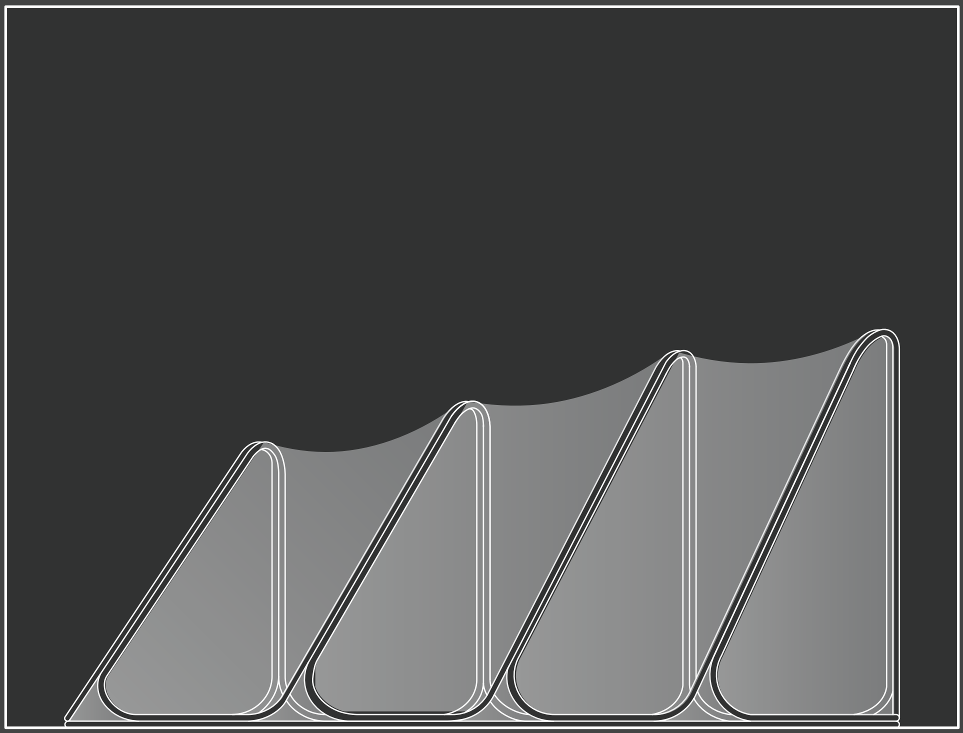
Hoop House
Just 'Duit

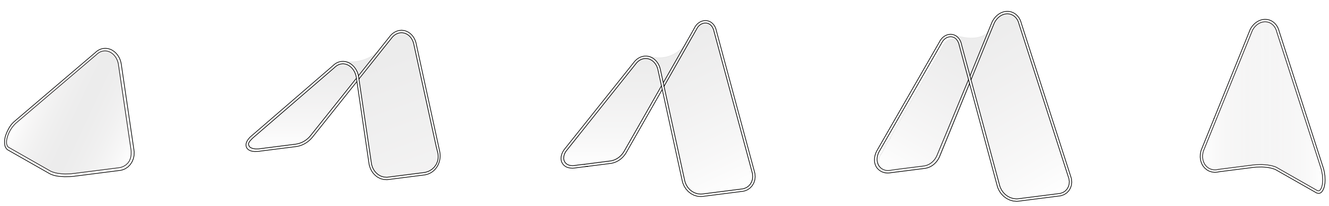


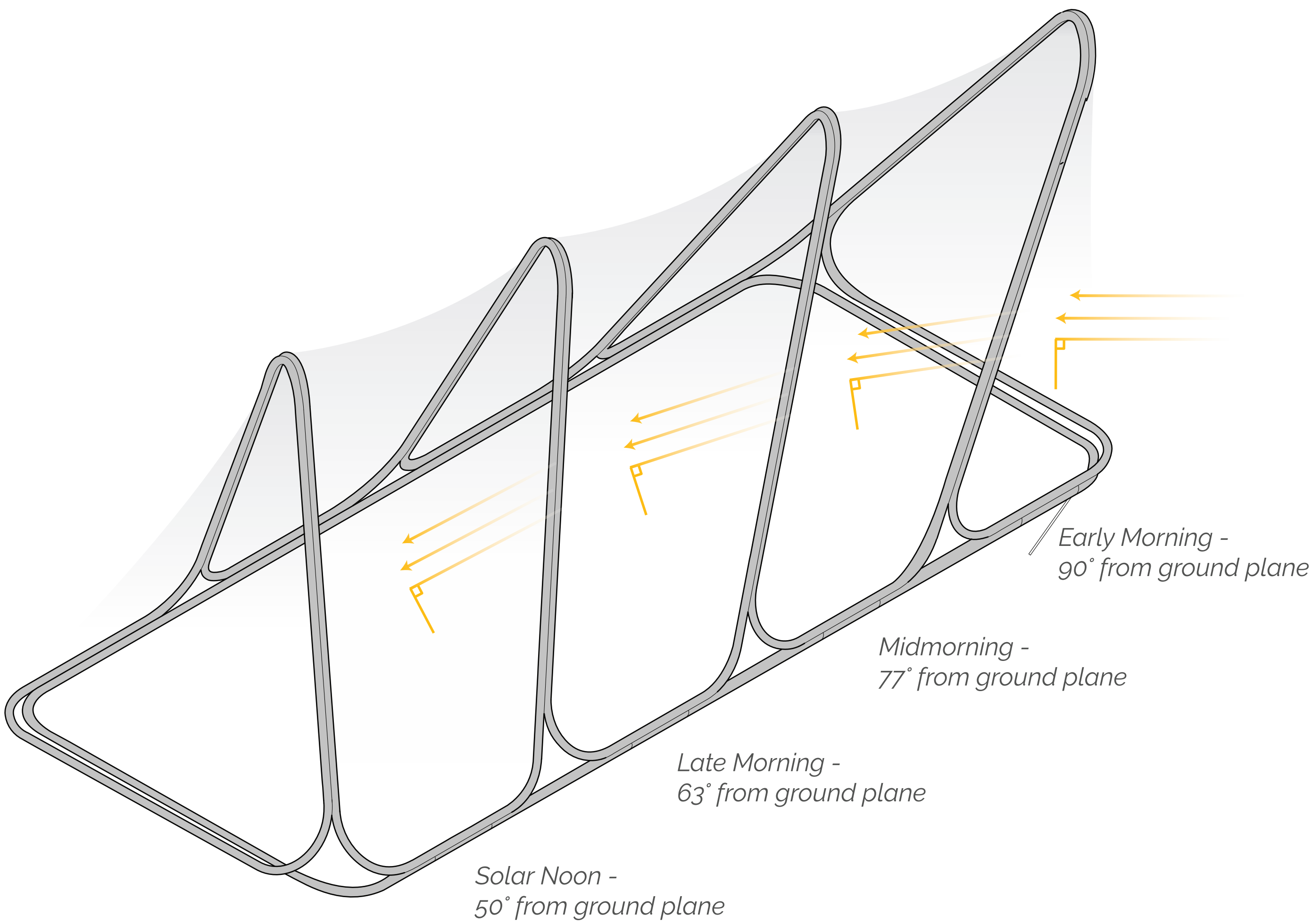
Phipps Conservatory and Botanical Gardens, Pittsburgh, PA
Elaboration_Studios
Josh Bard & Brian Peters
In collaboration with Edward Fischer, Ryu Kondrup, Ale Meza,
Isabella Ouyang, Anthony Ra
Fall 2017

A hoop house is a type of a type of greenhouse that is built using a hooping or bending system, in this case we used conduit and heat-shrink plastic. The planting arrangement that this hoop house was designed for was a 16' long planting plot that was partially blocked from the sun by a towering building. Key components that had to be kept in mind were: Will the hoop house allow for plants to be easily maintained and watered? Can the hoop house be assembled and disassembled seasonally? will the plants be protected from frost and get enough sunlight?

ANGLED PANELS

This design focused on creating a hoop house that reacts to the sunlight by absorbing as much sunlight as it could. To accomplish this, we designed a form that consisted of five panels with differing angles that were based on the sun position at different times of the day. By producing an angle perpendicular to the sun's angle, the hoop house would be able to maximize the sunlight collection through its surface and contain the heat inside. The dynamic, gradually increasing size of the hoop house from front to back was designed to house different types of plants since the botanical garden at Phipps Conservatory has a wide range of plants.

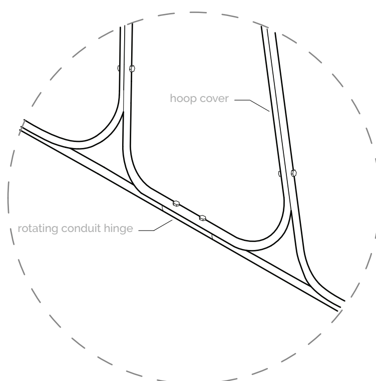


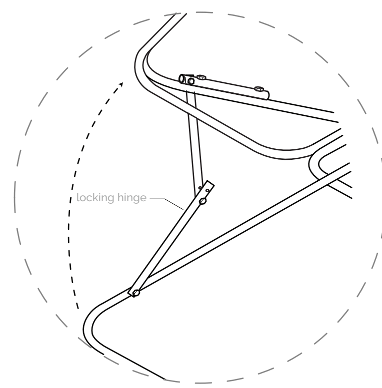


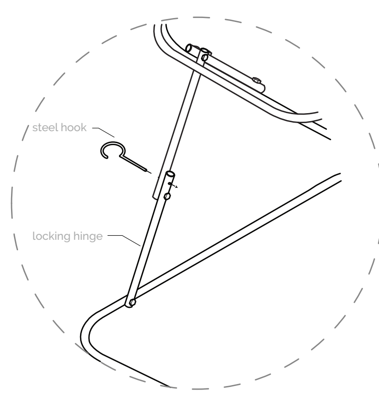
SITE PLAN
TOP LEVEL

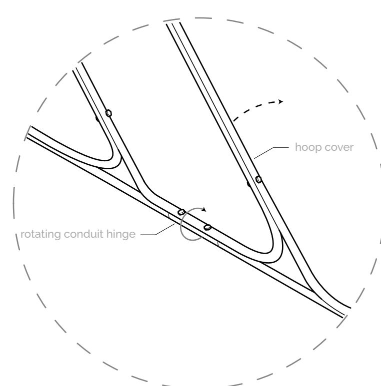
The opening mechanism simply lifts upward and uses a rotating hinge and two pins to keep it open. The design allowed for an easy and convenient method for opening the hoop house when tending to the plants and keeping it closed to prevent cold air from coming in. The hoop house was constructed using different lengthed conduit pieces and greenhouse shrink wrap film.

The images below show the joint detailed that were used in this hoop house system. The top right detail shows the locking hinge sequence and the bottom right photo shows the rotating hinge.

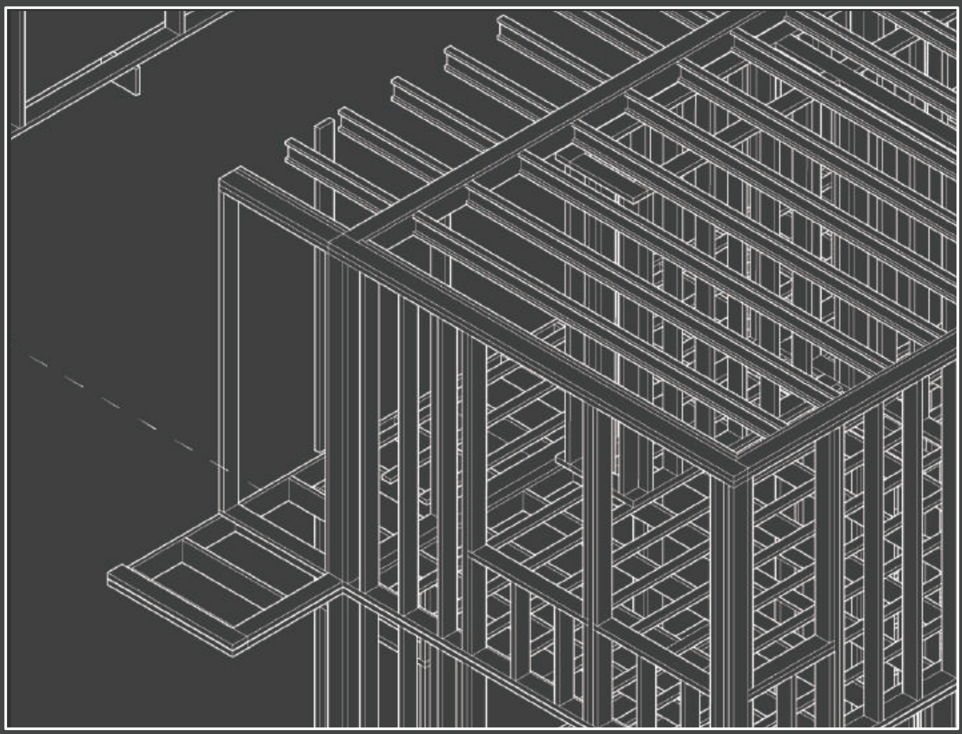






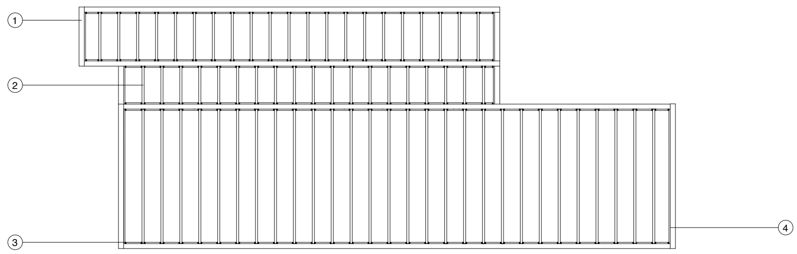


Materials and Assembly
Wood Frame Construction



Lightbox by Bohlin Cywinski Jackson Architects
wood frame analysis
Materials and Assembly Course
Gerard Damiani
Spring 2018

Students gained an understanding about the basics of wood framing (Type V-B construction); floor, roof and wall framing, and corner framing techniques as well as the layering methods required for a rain screen enclosure. The assignment provided construction photos for students to study to try and figure out how the wooden frame was assembled.



ROOF FRAMING PLAN
SCALE 3/16" = 1'-0"

CONSTRUCTION MATERIAL KEY:

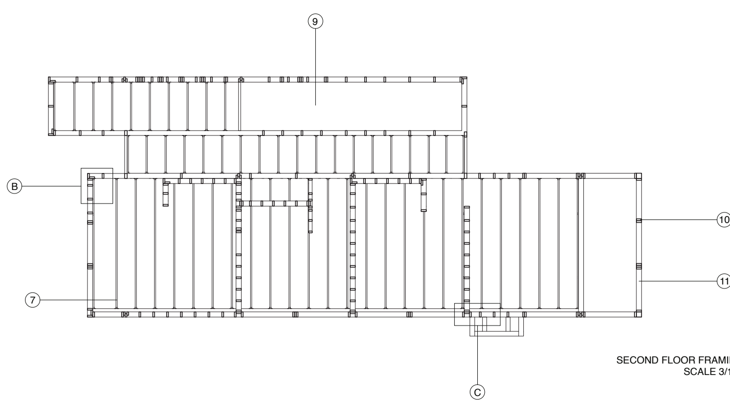
1. 2 x 6 TIMBER FRAME
2. 9 1/4" TIMBER I-JOIST
3. CUSTOM JOIST HANGER
4. 2 x 10 BAND JOIST

WOOD FRAMING

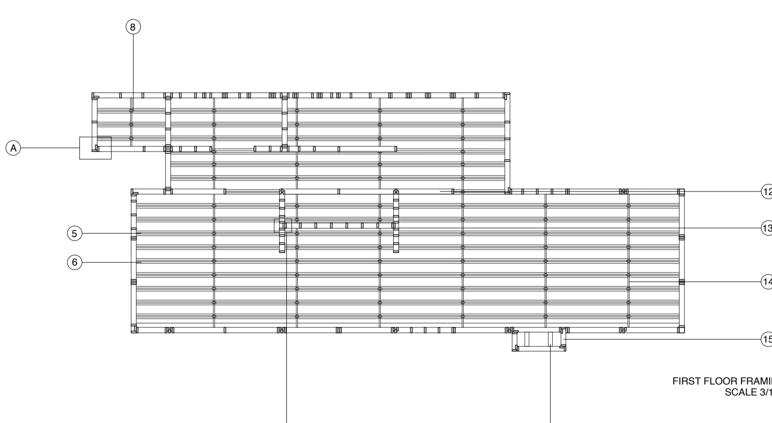
ASSIGNMENT 3
PAGE: 1 OF 4

48-215 MATERIALS & ASSEMBLY
SPRING 2018
INSTRUCTOR: DAMIANI

COLLEEN DUONG



SECOND FLOOR FRAMING PLAN
SCALE 3/16" = 1'-0"



FIRST FLOOR FRAMING PLAN
SCALE 3/16" = 1'-0"

CONSTRUCTION MATERIAL KEY:

5. TIMBER FRAME, 2 x 4
6. BOTTOM PLATE TIMBER, 2 x 6
7. TIMBER RAFTERS, 2 x 8
8. JOIST HANGERS
9. STAIR OPENING
10. EXTERIOR WALL STUDS, 2 x 6 MEMBERS @ 16" O.C.
11. EXTERIOR WALL SOLE PLATE, 2 x 6
12. INTERIOR WALL SOLE PLATE, 2 x 6
13. INTERIOR WALL STUDS, 2 x 6 MEMBERS @ 16" O.C.
14. BRIDGING WITH BRACING BLOCKS
15. TIMBER CHIMNEY FRAME, 2 x 4
16. BOTTOM PLATE TIMBER CHIMNEY FRAME, 2 x 6

CORNER DETAILS:
(PLEASE SEE PAGE 4 FOR DRAWINGS

A. EXTERIOR CORNER DETAIL 1
B. EXTERIOR CORNER DETAIL 2
C. INTERIOR CORNER DETAIL
D. INTERIOR TO EXTERIOR CORNER DETAIL

WOOD FRAMING

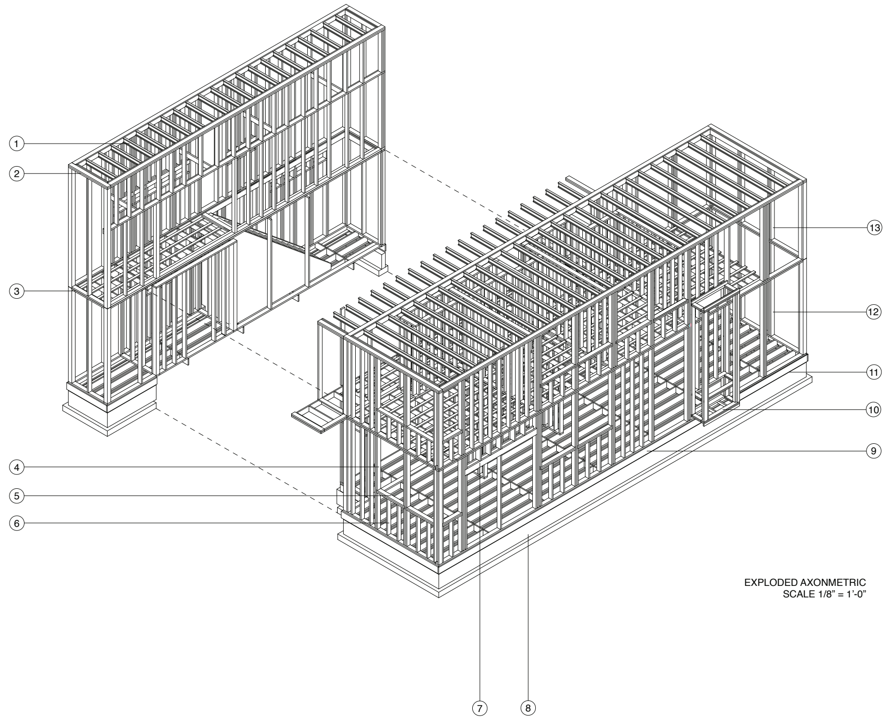
ASSIGNMENT 3
PAGE: 2 OF 4

48-215 MATERIALS & ASSEMBLY
SPRING 2018
INSTRUCTOR: DAMIANI

COLLEEN DUONG

CONSTRUCTION MATERIAL KEY:

1. 9 1/4" TIMBER I-JOIST
2. SECOND FLOOR DOUBLE TOP PLATE
3. FIRST FLOOR DOUBLE TOP PLATE
4. TRIMMER STUDS, 2 x 6
5. SILL, 2 x 6
6. WALL STUDS, 2 x 6
7. DOOR HEADER, 2 x 6
8. 6" THICK REINFORCED CONCRETE CONTINUOUS FOUNDATION
9. FIRST FLOOR RIMBOARD, 2 x 10
10. CHIMNEY BOTTOM PLATE TIMBER, 2 x 8
11. EXTERIOR WALL STUDS, 2 x 4
12. FIRST FLOOR WALL FRAMING, 2 x 6 MEMBERS @ 16" O.C.
13. SECOND FLOOR WALL FRAMING, 2 x 6 MEMBERS @ 16" O.C.



EXPLODED AXONMETRIC
SCALE 1/8" = 1'-0"

WOOD FRAMING

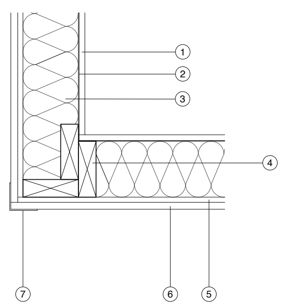
ASSIGNMENT 3
PAGE: 3 OF 4

48-215 MATERIALS & ASSEMBLY
SPRING 2018
INSTRUCTOR: DAMIANI

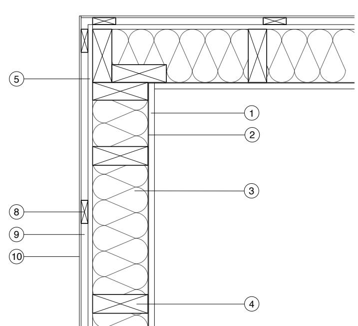
COLLEEN DUONG

CONSTRUCTION MATERIAL KEY:

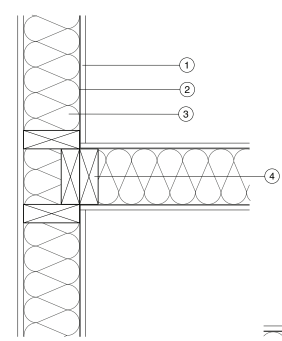
1. 5/8" GYPSUM BOARD
2. VAPOR BARRIER
3. BATT INSULATION
4. FRAMING, 2 x 6 @ 16" O.C.
5. 1/2" PLYWOOD SHEATHING
6. WOOD PANELING
7. 3" x 3" x 1/8" ALUMINUM ANGLE
8. 3/4" WOOD BATTEN @ 16" O.C.
9. AIR SPACE
10. 3/16" CONCRETE PANELS



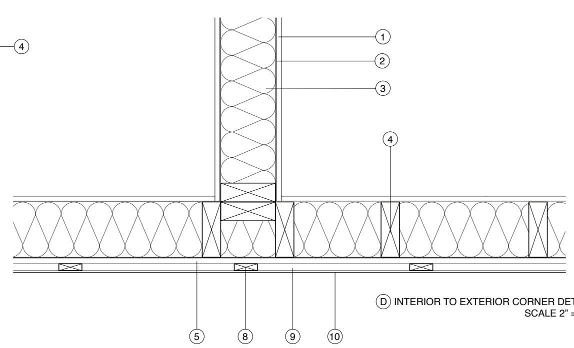
(A) EXTERIOR CORNER DETAIL 1
SCALE 2" = 1'-0"



(B) EXTERIOR CORNER DETAIL 2
SCALE 2" = 1'-0"



(C) INTERIOR CORNER DETAIL
SCALE 2" = 1'-0"



(D) INTERIOR TO EXTERIOR CORNER DETAIL 1
SCALE 2" = 1'-0"

WOOD FRAMING

ASSIGNMENT 3
PAGE: 4 OF 4

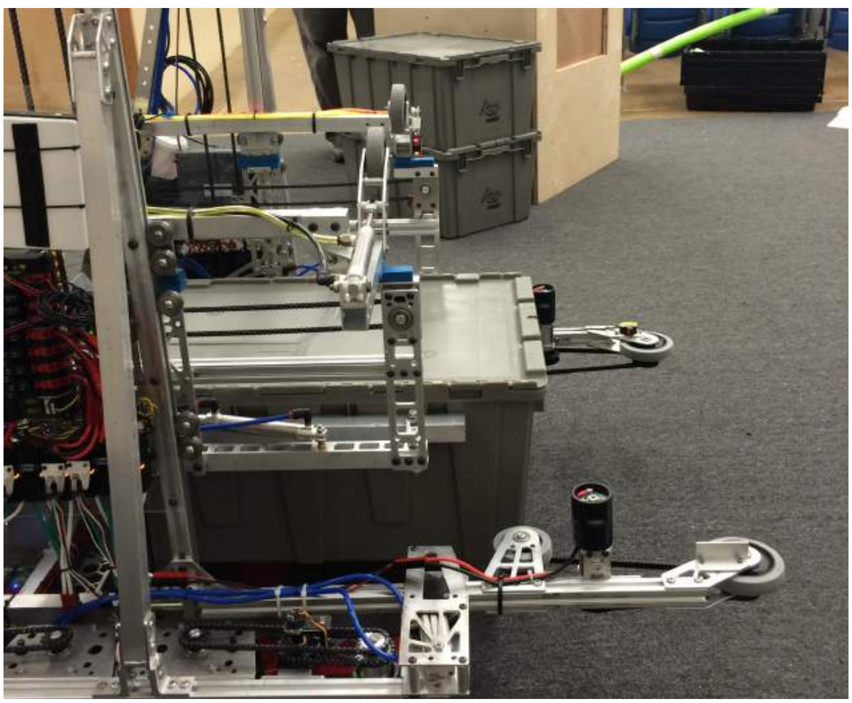
48-215 MATERIALS & ASSEMBLY
SPRING 2018
INSTRUCTOR: DAMIANI

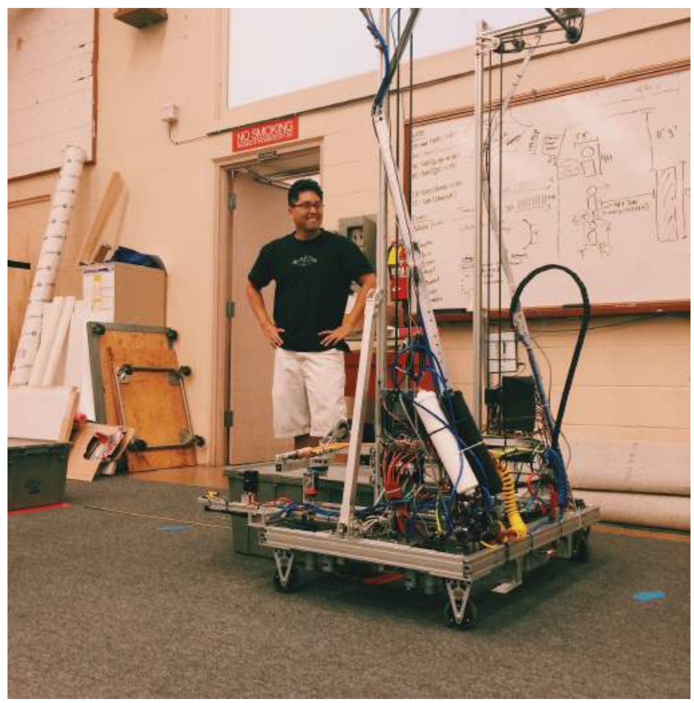
COLLEEN DUONG

FIRST Robotics
Recycle Rush

Team Kika Mana #368
<u>Positions:</u> *Captain and Coach*
<u>Awards:</u> *1st Place at Hawaii Regionals*
Finalist at San Jose Regionals
World Championship Carver Division Winners
Spring 2015

Recycle Rush was the 2015 FIRST Robotics Competition. The objective of the game was to design a robot that could pick up and stack totes on scoring platforms and putting the recycling containers on top of the scoring stack of totes. Along with these objectives, robots had a 15-second period where robots must act on their own according to instructions from programming. There were two scoring options for teams to program for: picking up the three yellow totes and scoring them or grabbing the recycling bins in the middle of the field to maximize scoring.





RECYCLE RUSH

The robot was designed to be able to intake both recycling bins and totes to the maximum height (6 totes + 1 recycling bin). The robot has an elevator system that moves the intook item upward allowing for space for the next item to be intook. The drive was a four-wheel swerve drive to allow for more controlled movement through the game field.

The game rules restricted the robot from going over a certain size, which was a height that was shorter than the height of the maximum stack of items that could be scored. To prevent the recycling bin at the top of the tote stack from falling over, the elevator system had two wheels on both sides of it to hold the recycling bin in place.

Thank you

Please feel free to contact me if you have any questions.
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