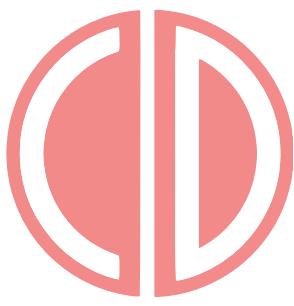


**COLLEEN DUONG**

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[colleenduong.com](http://colleenduong.com)



## Colleen Duong

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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 3.0/4.0

**President William McKinley High School**  
Honolulu HI  
Class of 2016

### LEDA Career Fellow

Providence, RI  
August 2017  
Attended workshops that developed hard and soft skills, leadership skills, professional network, and offered exposure to new opportunities.

### Leadership Enterprise for a Diverse America

Princeton, NJ  
Summer 2015  
A seven-week intensive program dedicated to developing academic and leadership potential of exceptional public high school students from socioeconomically disadvantaged backgrounds. Students take courses such as Aspects of Leadership, Writing Instruction, College Preparation, and Advantage Testing.

## SKILLS

### Software

Adobe Photoshop, Illustrator, InDesign, Premiere, After Effects; MS Office, Rhino 5, AutoCAD, Solidworks, RobotStudio, 130 WPM

### Fabrication

CNC Machining (Mill and Lathe), Woodwork, Laser cutting, Industrial Robot Arm

### Analog

Drafting, Model Making, Drawing

### Language

English, Conversational Vietnamese, Conversational Japanese

### Programming

P5JS, JavaScript, HTML, Basic Python

## EXPERIENCE

### LEDA Peer Mentoring Program

*Fall 2017 - Spring 2018*  
Mentor  
• Program that provides first-year LEDA scholars 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 2017 – Present*  
CMU Ambassador  
• Call alumni, parents and friends of the university to connect them through their school experiences.  
• Ask for donations to make CMU a better place for higher education.

## COURSES

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

## ACTIVITIES

### 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.

### The American Institute of American Architecture Students, Carnegie Mellon

*Pittsburgh, PA Fall 2017 – Present*  
Member

### Robotics Club, Carnegie Mellon

*Pittsburgh, PA Spring 2017 – Spring 2018*  
Member  
• Involved in several groups within the club; a part of the Robot Parody M.U.L.A.N group to make the tea scene from the movie using robots and Quadcopter.

### Robotics Team, Team Kika Mana #368

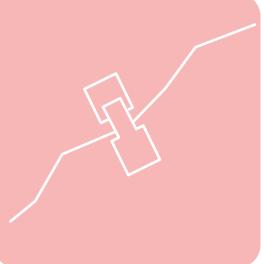
*Honolulu, HI Fall 2012 – Spring 2016*  
Captain (2014 – 2016), Coach (2015)  
• Prepared for meetings, scheduled team events, took membership attendance throughout the FIRST season, and wrote grant proposals.  
• Coached the team to Einstein Field at 2015 FIRST Robotics World Championship; this was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

## INTERESTS

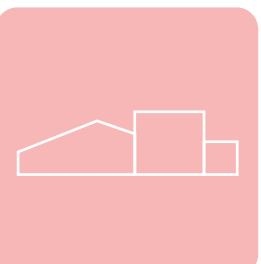
Robotics, Engineering, Graphic Design, Video Games, Coding, Animation

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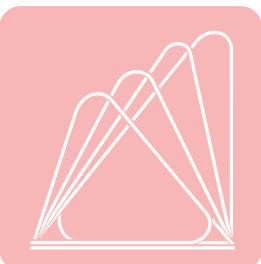
<sup>01</sup>**SACO LAKE BATH HOUSE**



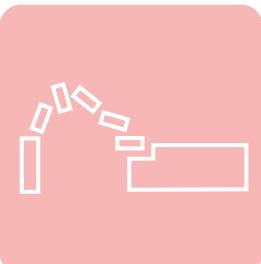
<sup>02</sup>**URBAN AGRICULTURE CENTER**



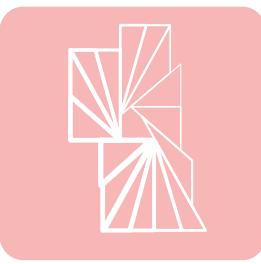
<sup>03</sup>**HOOP HOUSE**



<sup>04</sup>**MOTION MODEL**



<sup>05</sup>**PIERCE**



<sup>06</sup>**RECYCLE RUSH**



<sup>07</sup>**REBOUND RUMBLE**





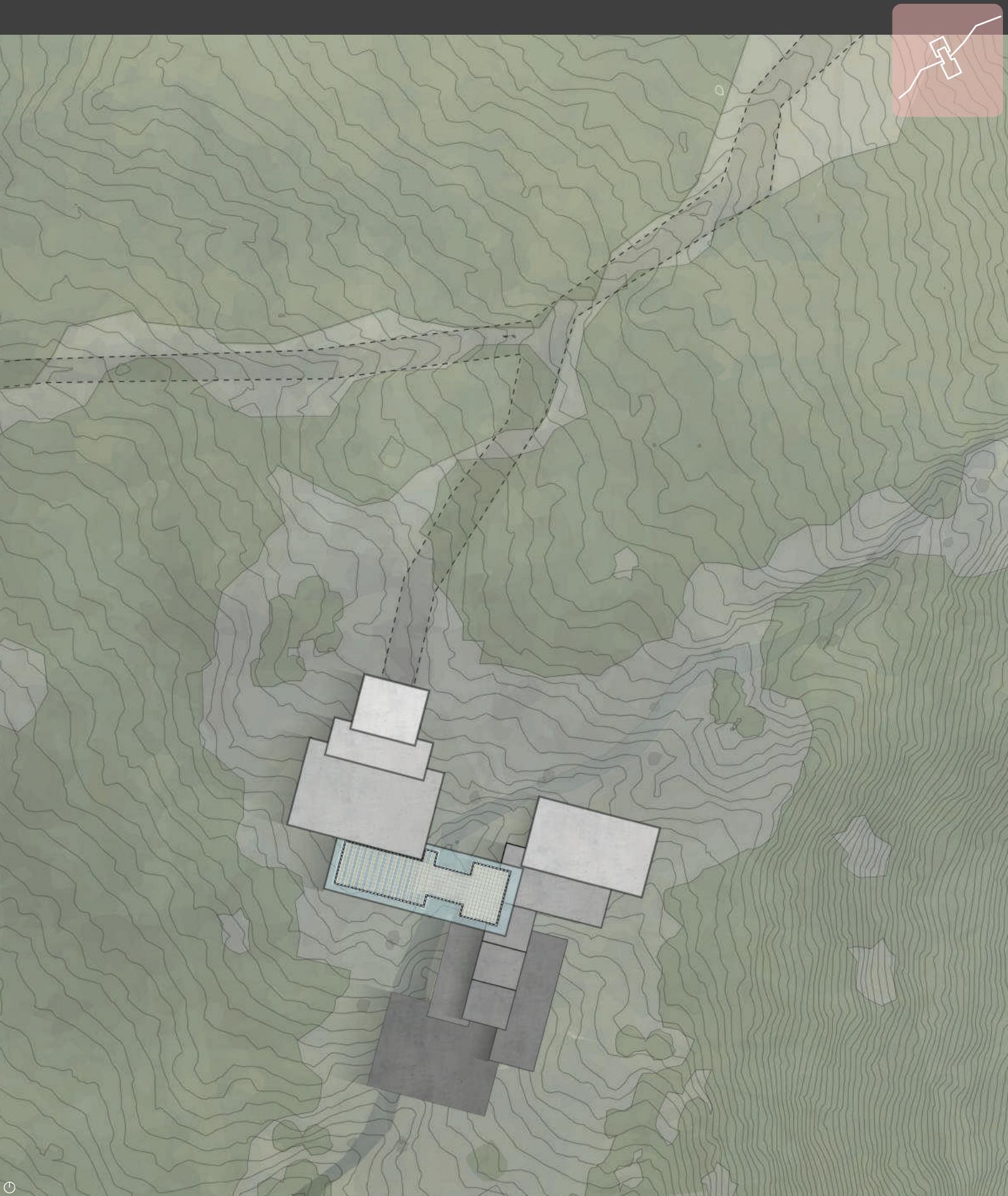
# SACO LAKE BATH HOUSE

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YEAR Spring 2018  
LOCATION Carroll, NH  
PROJECT Design Proposal

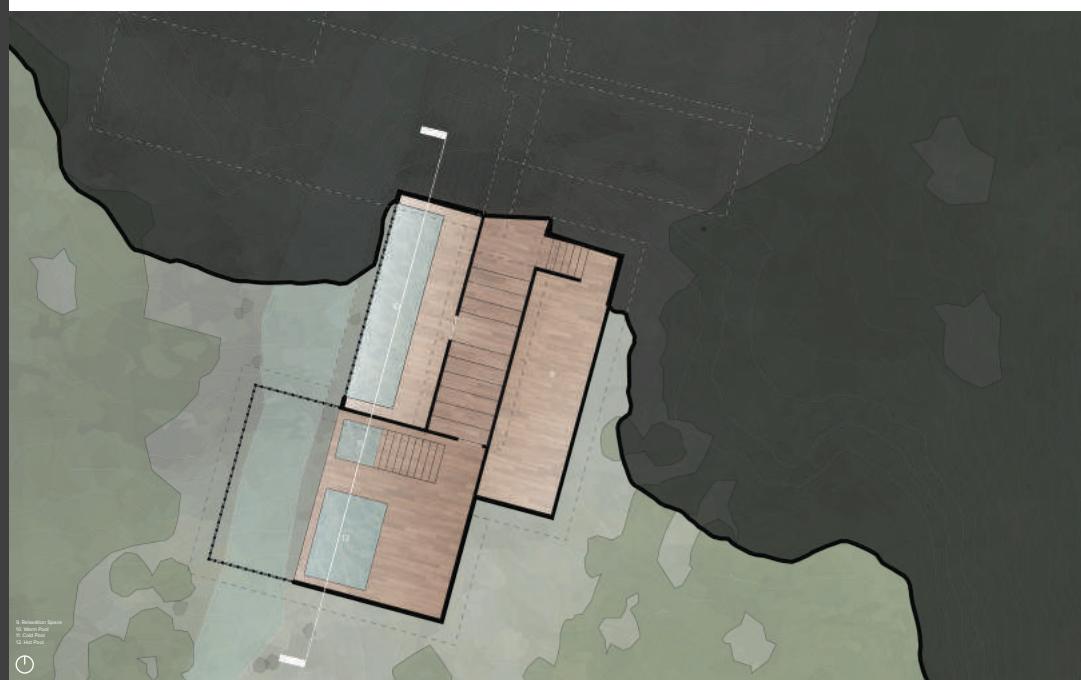
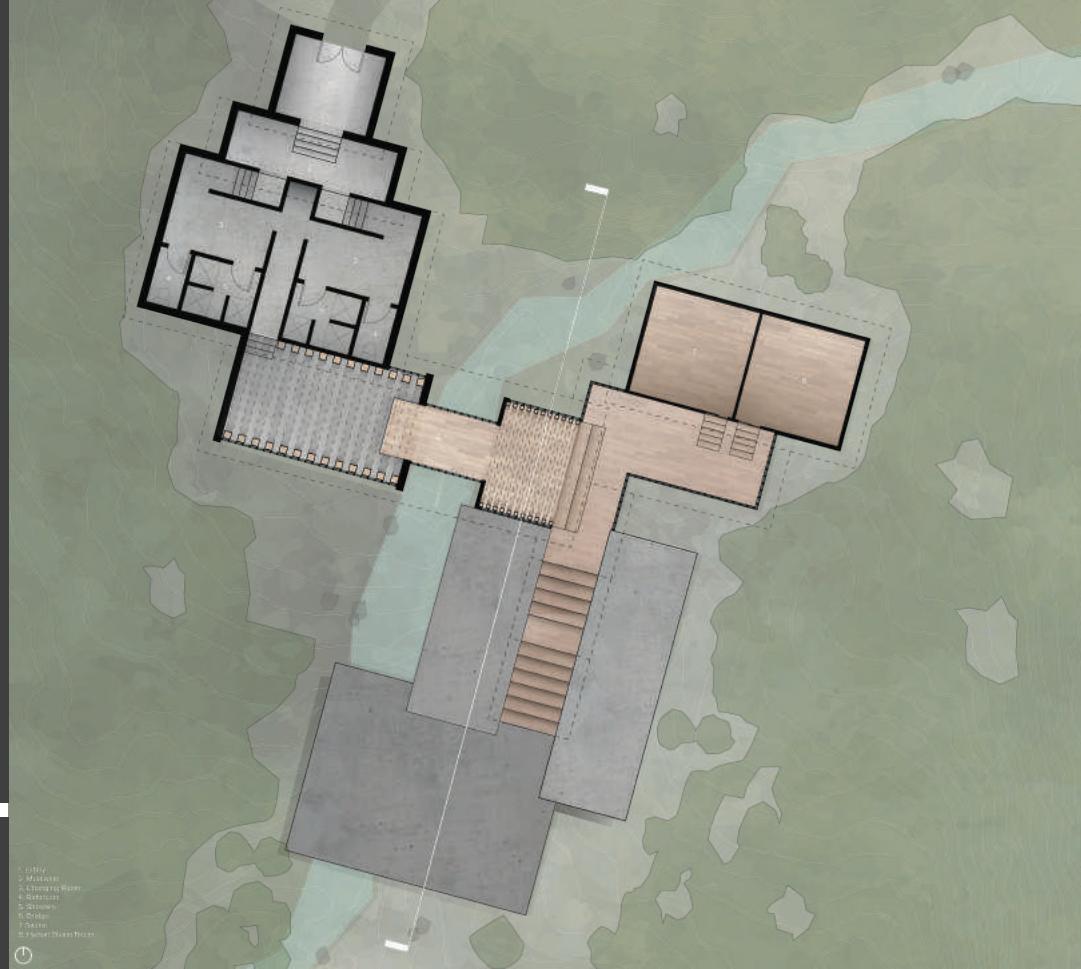


Design proposal for a bath house located next to Saco Lake in New Hampshire. The bathhouse had to incorporate the ideas of "lightness" and "heaviness", as well as incorporate the use of wood and concrete as a building material. The site was surrounded by four boundary conditions: the road (Crawford Notch 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.

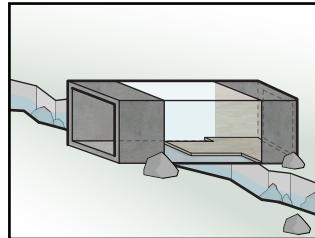


Located next to the stream, this design emphasizes on the idea of bridging over the stream to create an entirely new experience that differs from before the stream. The bath house, before the stream, is made entirely out of concrete in the interior and is symmetrical. The program consists of the lobby, mudroom, changing room, and showers/bathrooms. The material and symmetrical design creates a heavier feeling in comparison to the building after the stream. After the stream, the entire building's interior becomes wood to create a lighter feeling, which is emphasized by the wooden bridge that literally sits on top of the concrete floor before the stream.

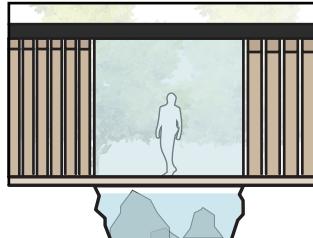
The main focus of this design was to emphasize the idea of four different experiences after crossing the bridge to create multiple levels of involvement in relation to the stream for the visitors. The first level, the bridge, allows the visitor to see the stream to the right and left of them. The second 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 separate 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 bath are situated in a space that has the stream running through the room, allowing them to hear the stream water flowing down the site.



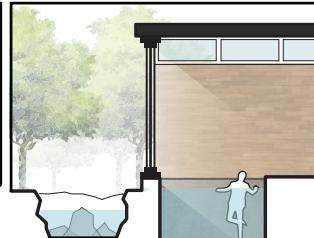
#### MATERIALITY SHIFT



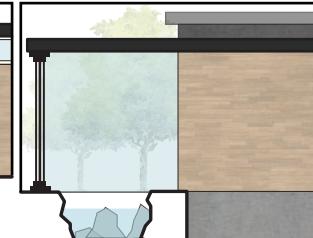
#### STAGE 1 See the stream



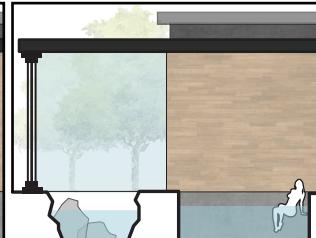
#### STAGE 2 See and Feel the stream

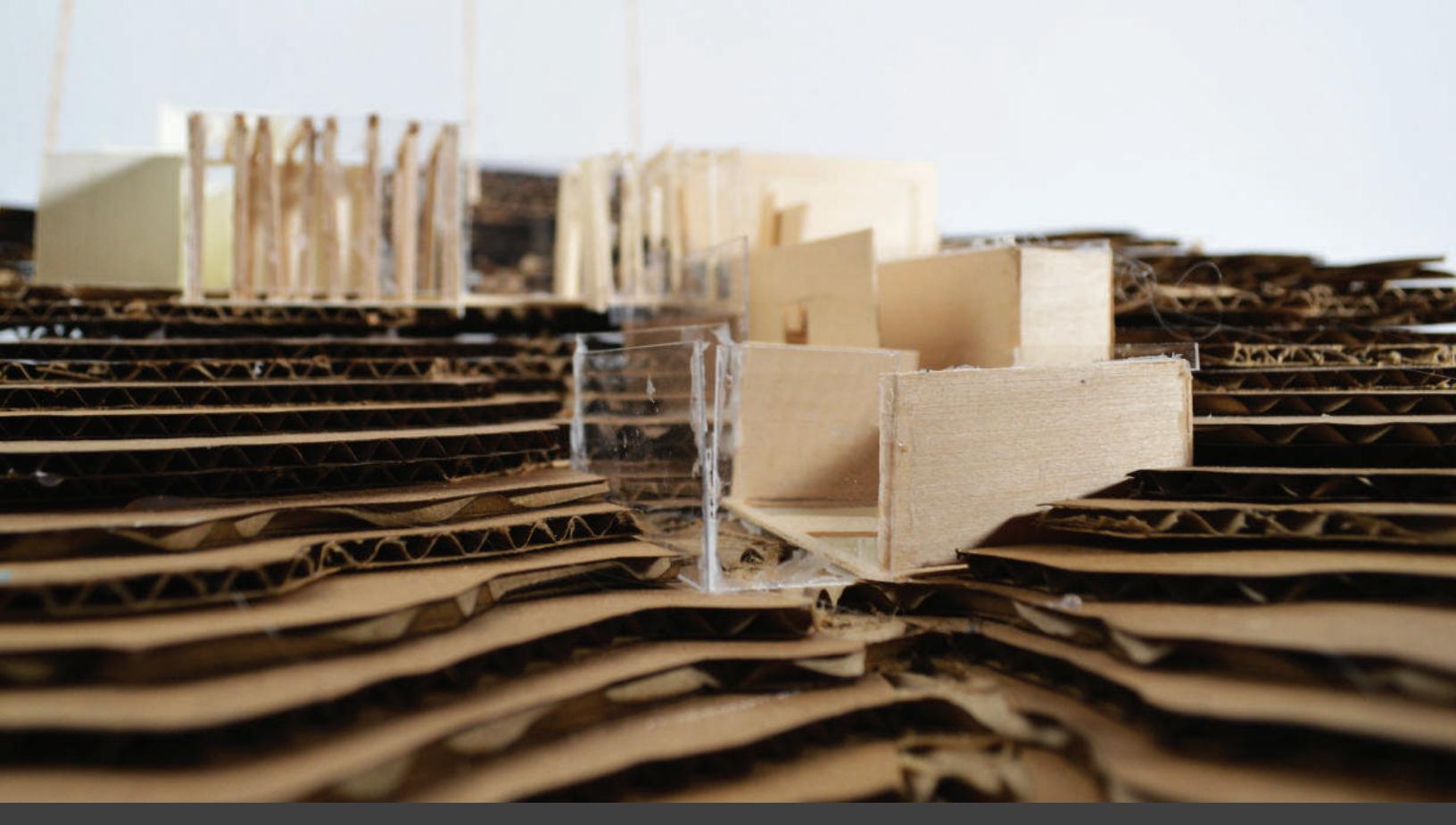


#### STAGE 3 Hear the stream

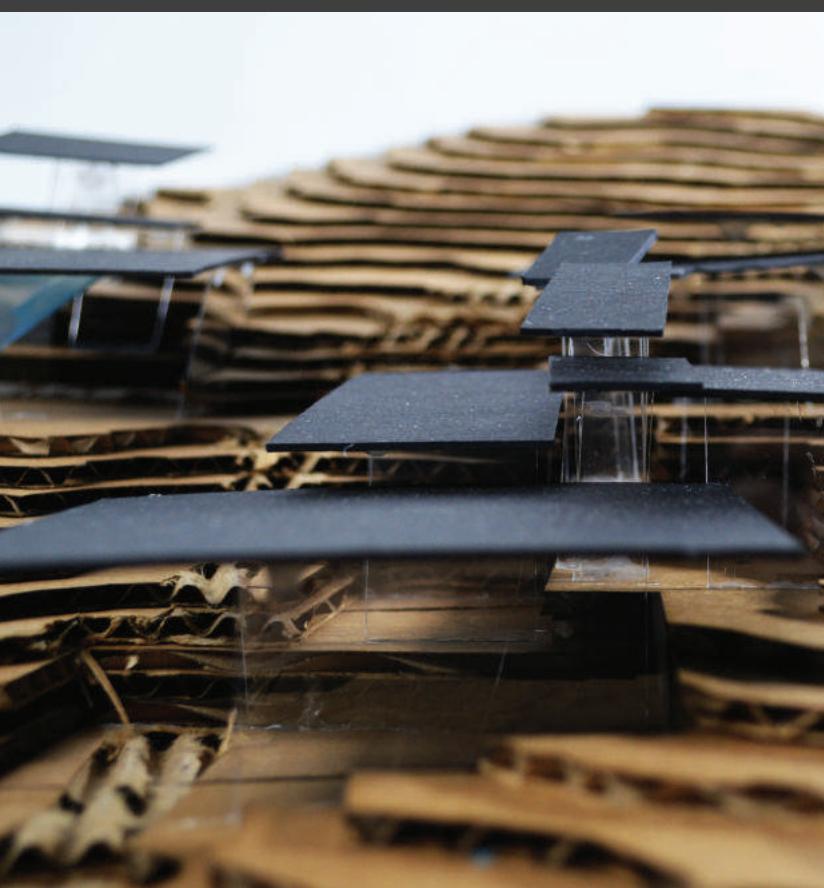


#### STAGE 4 See, Hear, and Feel the stream





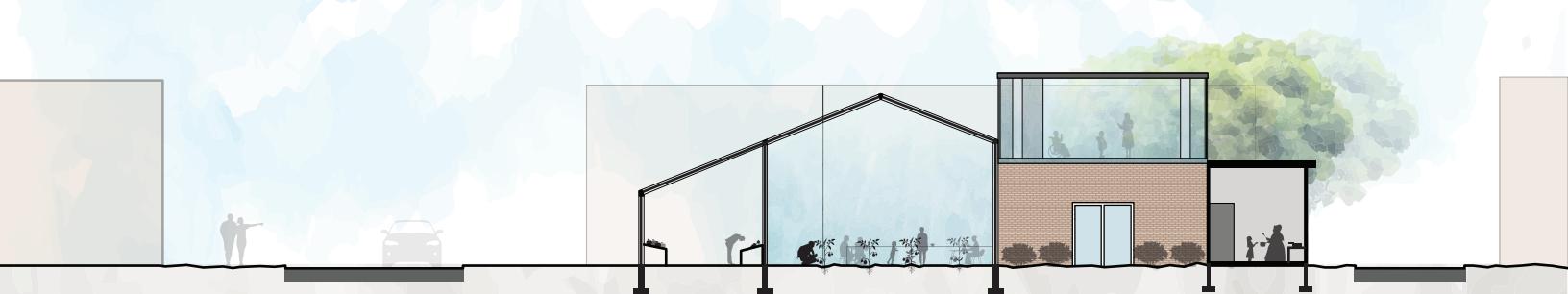
The design interacts with the site's landscape by having differing parts of the building sit at contrasting elevations. This creates a "stepping down" motion that is emphasized with the roofs. It also creates the image of boulder-like objects "falling down" the landscape from afar. This "stepping down" and "falling down" visual can be seen by the hiker when they are coming back down from the hiking trail. The entrance is also located in an area for the hiker to find more easily from their way back down the trail to encourage them to visit and relax after a long day of hiking.





## URBAN AGRICULTURE CENTER SANKOFA

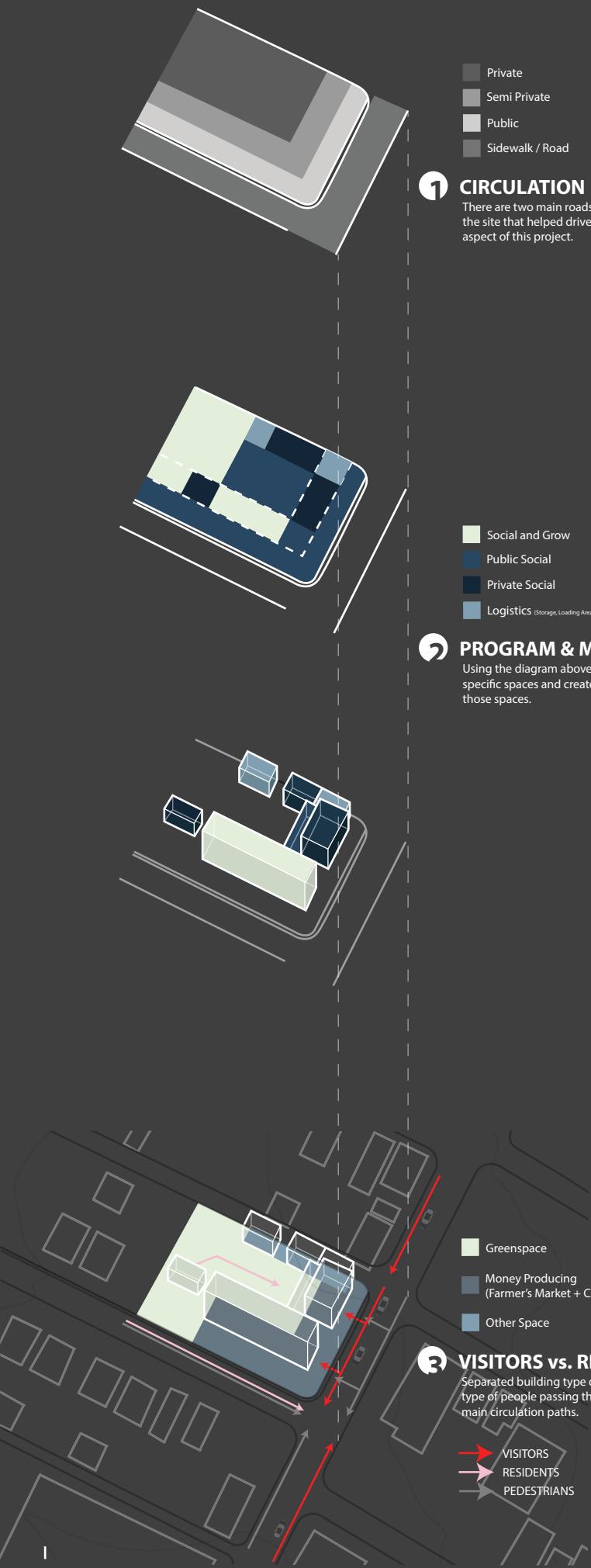
YEAR Fall 2017  
LOCATION Sankofa Community Gardens in Homewood, PA  
PROJECT Design Proposal



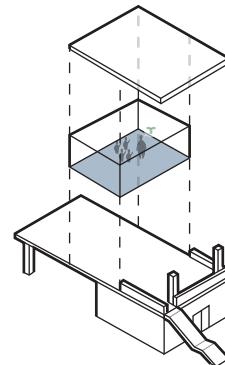
Each student developed a building proposal for a new center for Urban Agriculture in Pittsburgh. The site was specifically Sankofa Community Garden located in Homewood. The center will serve as a hub supporting urban gardening and farming activity in Pittsburgh. The center will also become an outreach center allowing for education and community engagement from the citizens of Homewood.



Sankofa Community Garden is located at 7539 Susquehanna Street in the Homewood community. The term Sankofa is defined as a lifestyle and trying to bring forth the best that we, the people, can offer to the community. The site originally had one, two-story building on the site.



The driving idea for this project focused on circulation around the site and also on the different levels and areas of education in the program.



## EDUCATION

### LEVEL 1: CLASSROOM

Elevated classroom to allow for students to look at the entire site from above for learning reference.

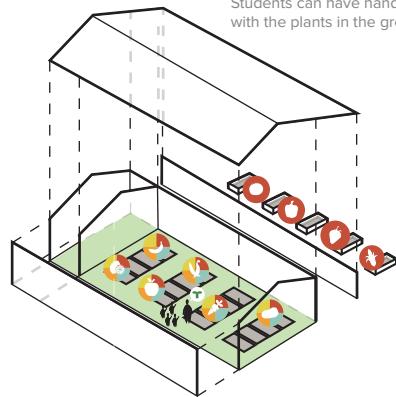
### LEVEL 2: COURTYARD

Small courtyard growing space with seating areas. An intersection point to go from the classroom to the greenhouse or outdoor growing space.



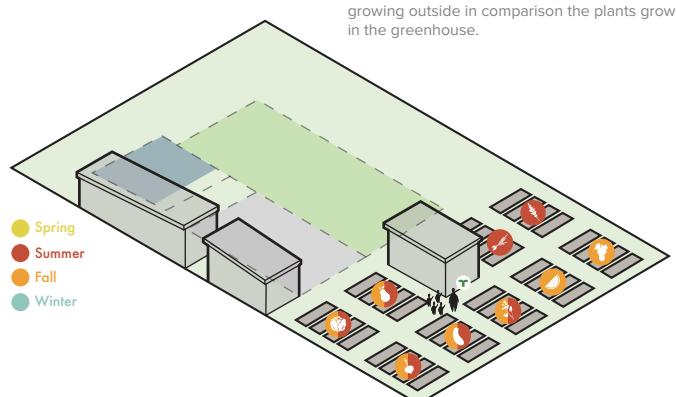
### LEVEL 3: GREENHOUSE

Students can have hands-on learning experience with the plants in the greenhouse.



### LEVEL 4: TRADITIONAL GARDENING

Students can have hands-on learning experience with the plants in the outdoor growing space and can learn about the different types of plants growing outside in comparison the plants growing in the greenhouse.





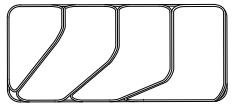
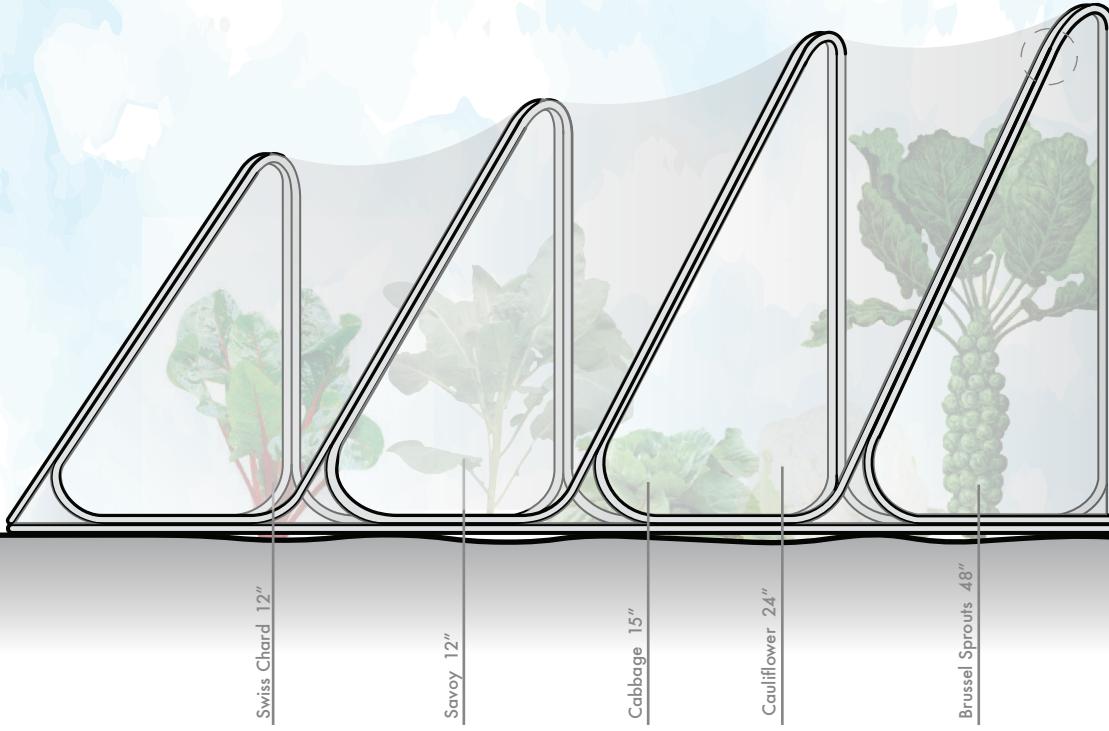
The original building on site was made of bricks. This design preserves a sense of the history of the old building by using the existing material, brick, as well as a new material, glass. There is a gradual change in the material from bottom to top (bottom is brick, top is glass). This is emphasized through the large windows in the rooms on the first floor.



## HOOP HOUSE

### JUST 'DUIT

YEAR Fall 2017  
LOCATION Phipps Conservatory and Botanical Gardens  
PROJECT Built and Installed at Conservatory  
GROUP MEMBERS Edward Fischer, Ryu Kondrup, Ale Meza  
Isabella Ouyang, Anthony Ra

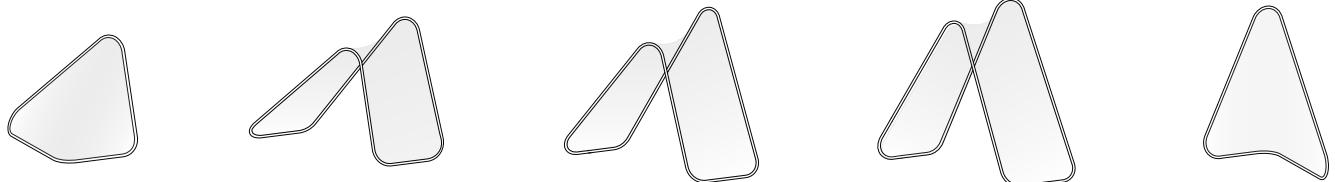
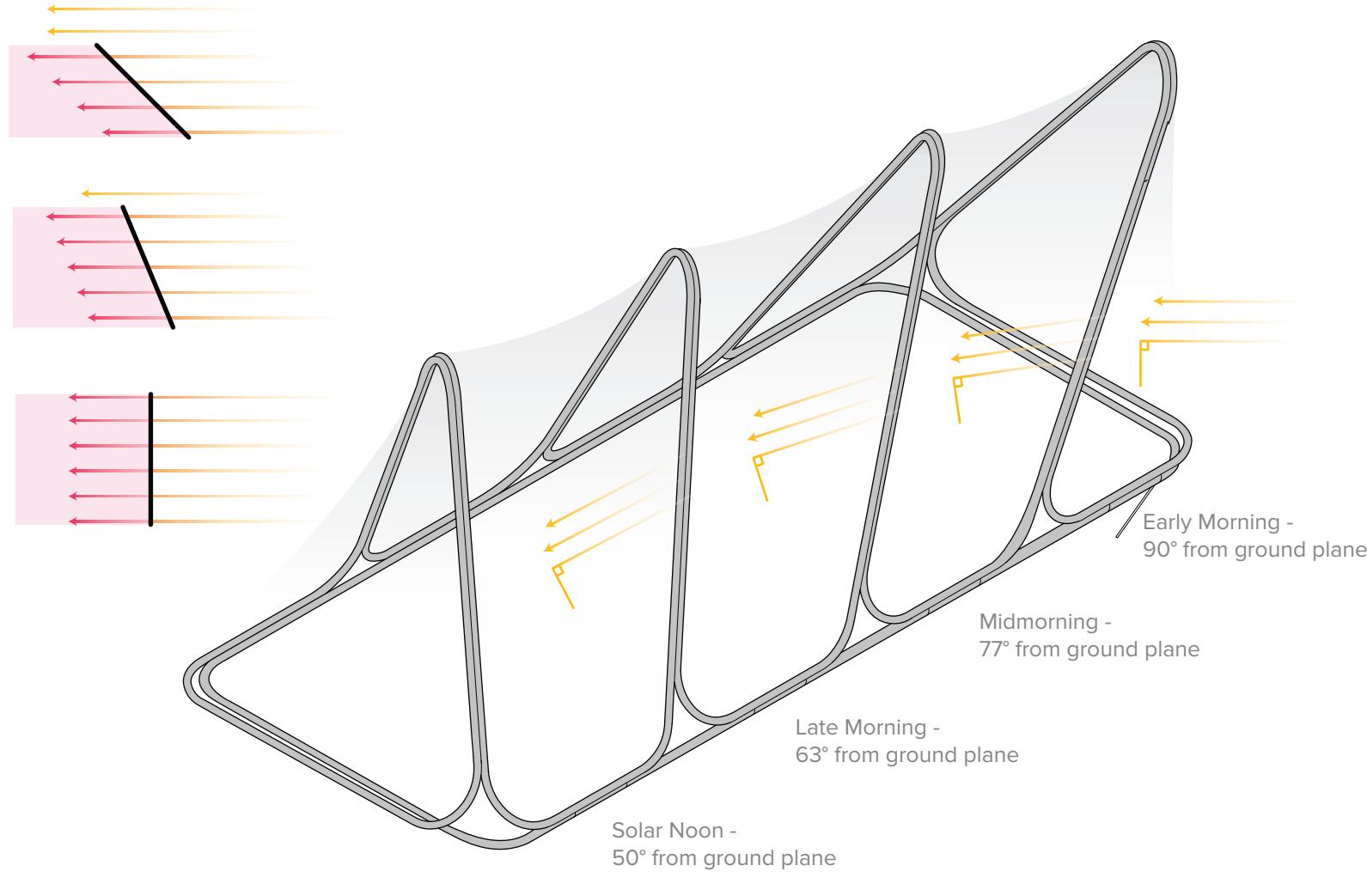


N

Each group designed a hoop house for the Edible Garden at Phipps Conservatory after being assigned a specific planting arrangement. My group's planting arrangement 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 the 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?

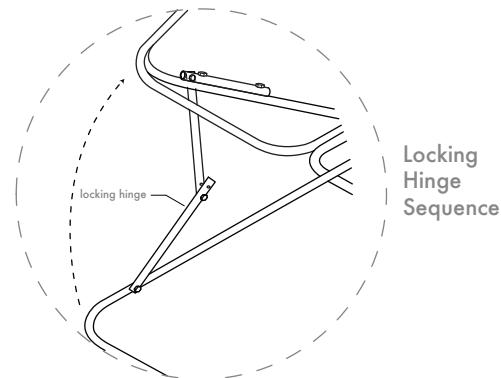


Maximizing Sunlight Collection through Hoop House Surface

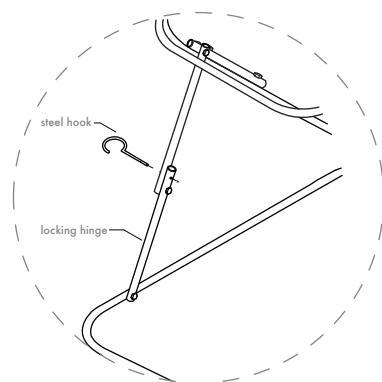


My group decided to focus on creating a hoop house that would react to the sunlight by absorbing as much sunlight as it could. To accomplish this, we designed a form that consisted of four panels with differing angles that were based on the sun positions at different times of the day. By producing an 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 had a wide range of plants.

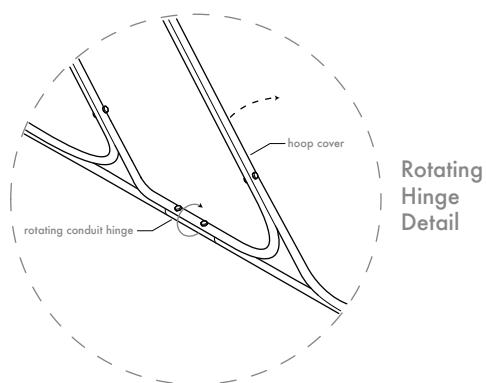
The opening mechanism simply lifts upward and uses a rotating hinge and two pins to keep it open. This design allowed for an easy and convenient method for opening the hoop house when tending to the plants and keeping it closed to prevent cold air from coming in. The hoop house was constructed using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



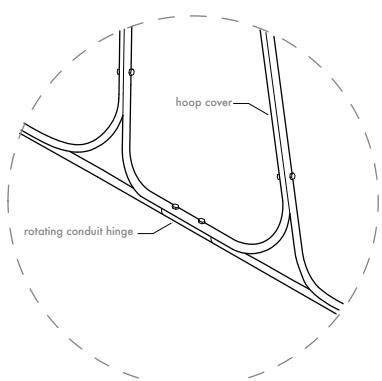
Pin In Hinge Detail



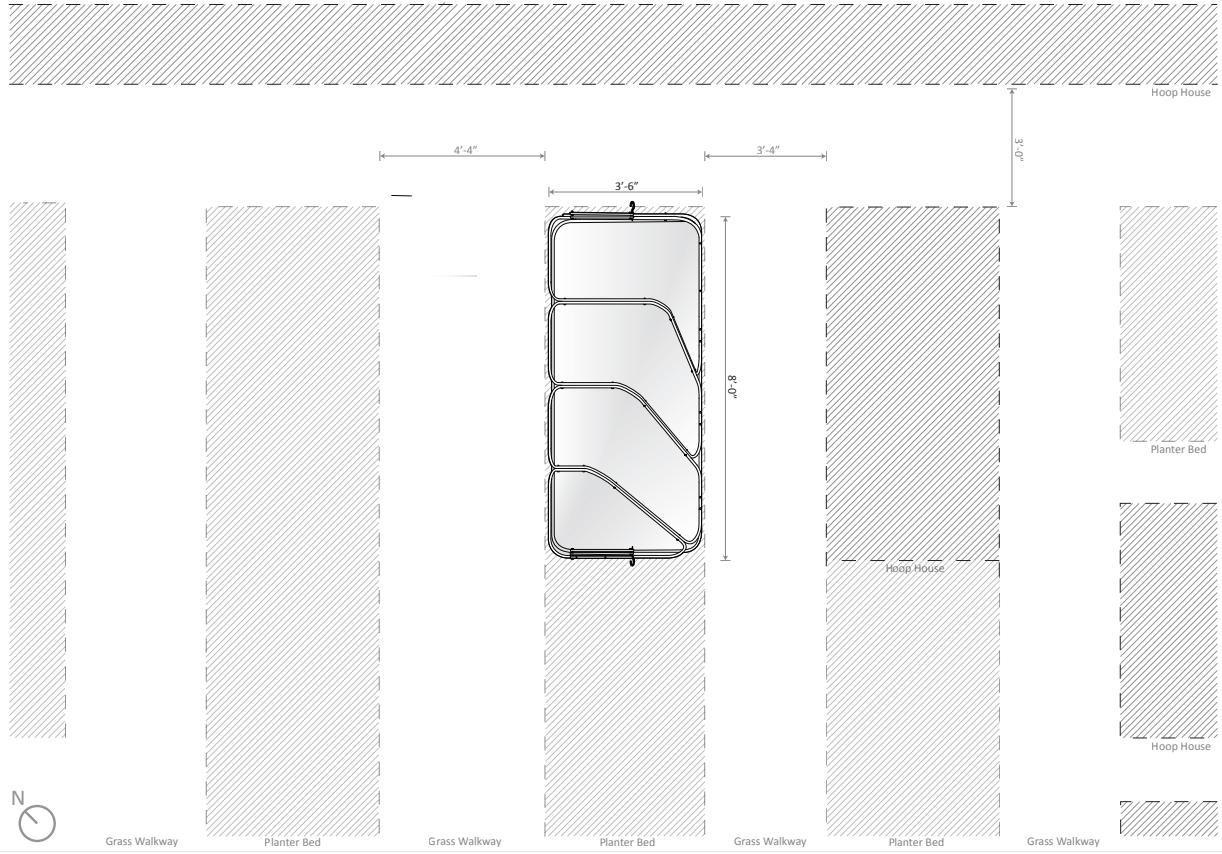
Open Front View



Front View



Side Elevation



Just 'Duit  
Colleen Duong  
Edward Fischer  
Ryu Kondrup  
Aie Meza  
Isabella Ouyang  
Anthony Ra

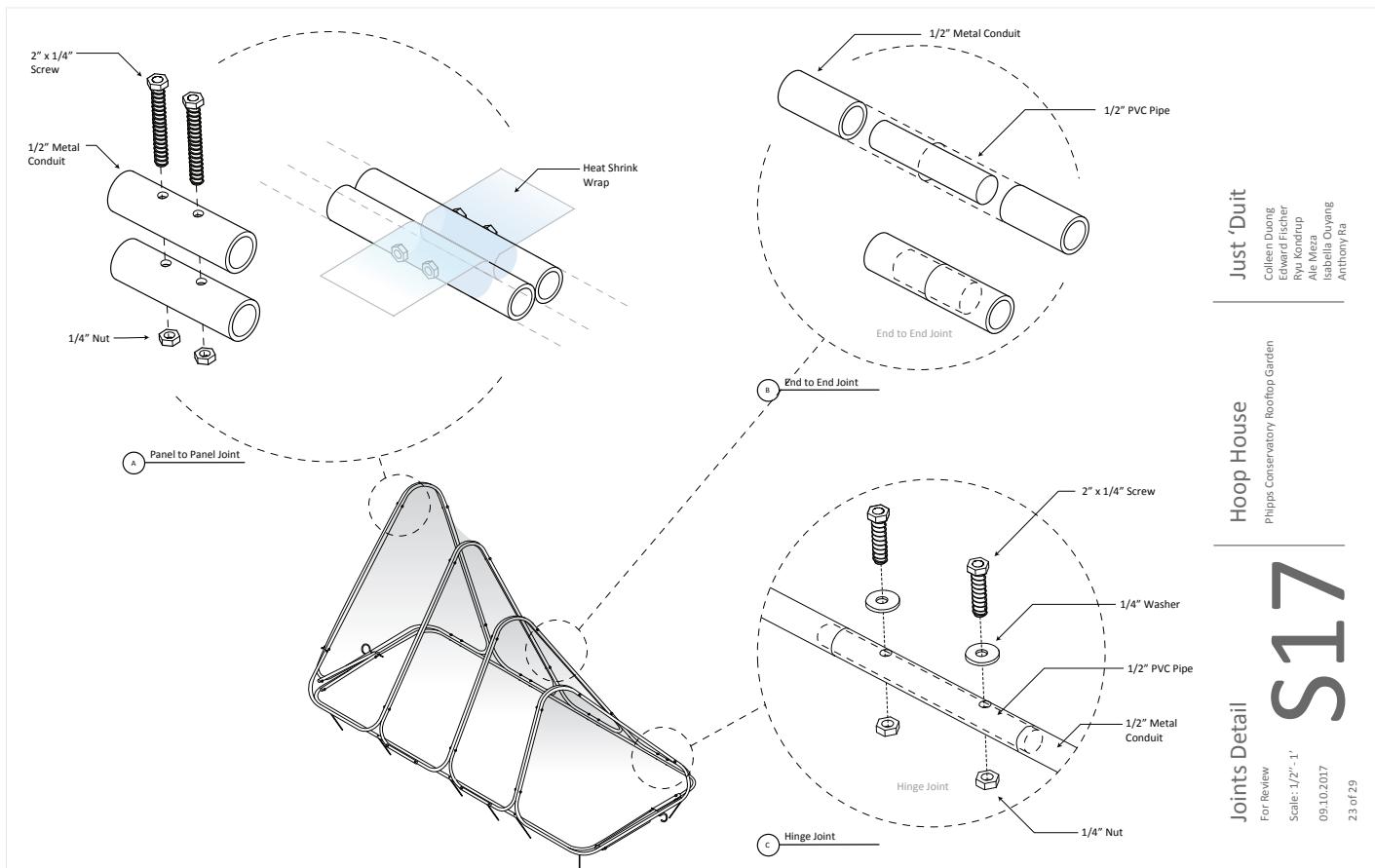
Hoop House  
Phipps Conservatory Rooftop Garden

# S1

Plan  
For Review  
Scale: 1/2'-1'

09.10.2017  
2 of 29

Two of the construction drawing pages that were included in this project. The top drawing shows the hoop house situated on its planting bed. The bottom drawing shows the details of the connections between the conduit pieces and the shrink wrap film wrapping method.



Just 'Duit  
Colleen Duong  
Edward Fischer  
Ryu Kondrup  
Aie Meza  
Isabella Ouyang  
Anthony Ra

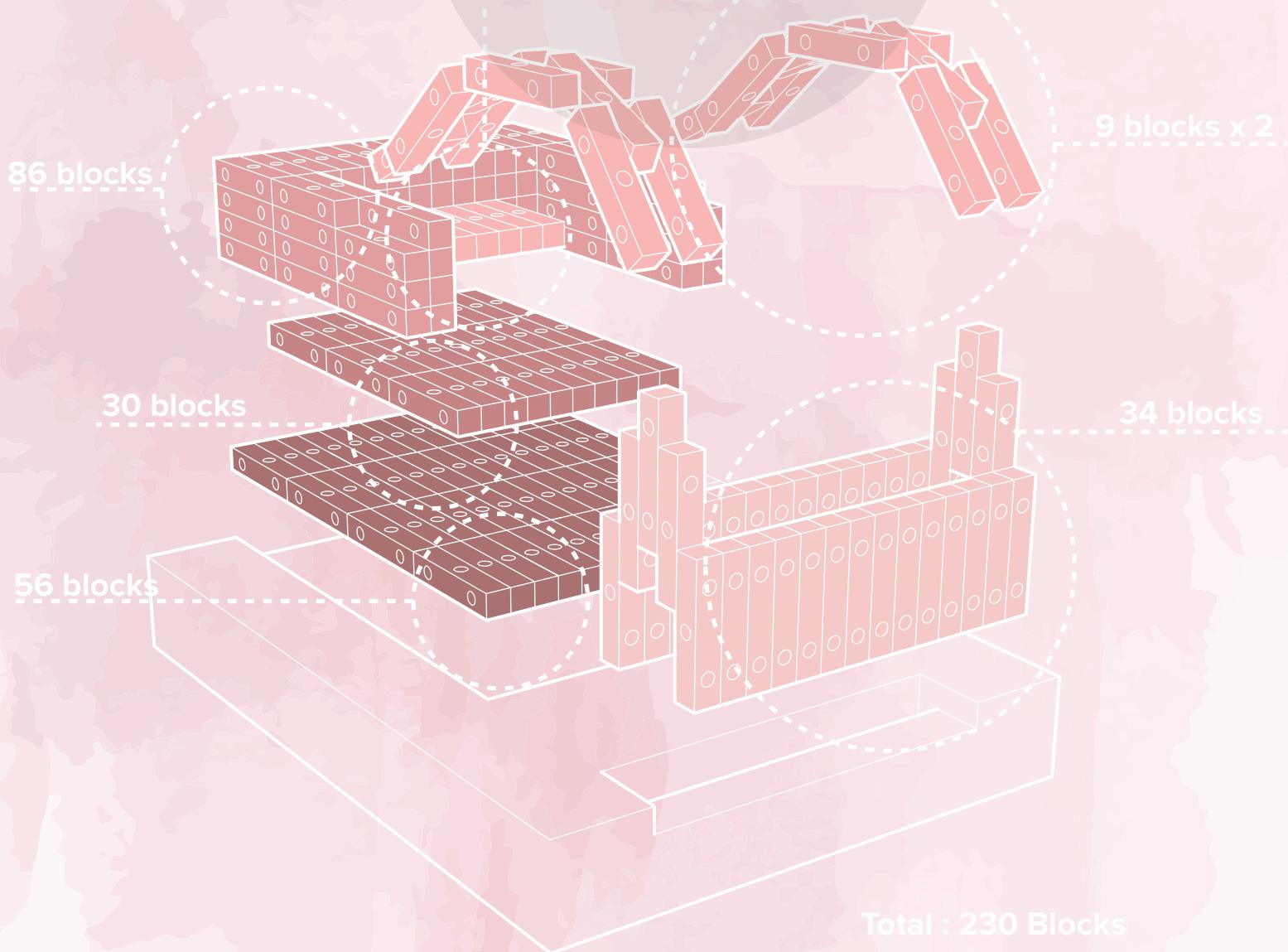
Hoop House  
Phipps Conservatory Rooftop Garden

# S17

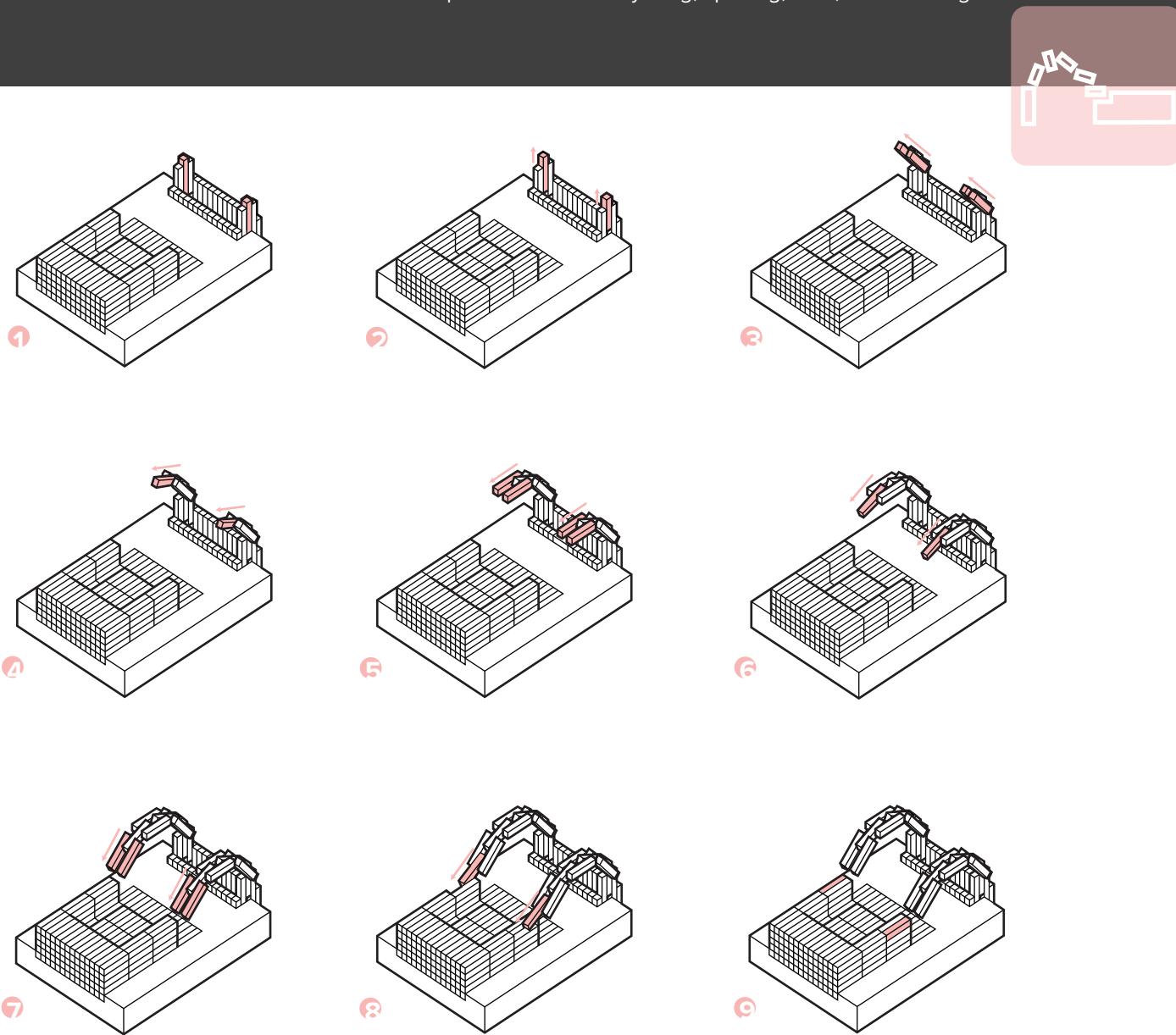
Joints Detail  
For Review  
Scale: 1/2'-1'  
09.10.2017  
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## MOTION MODEL FROSTER

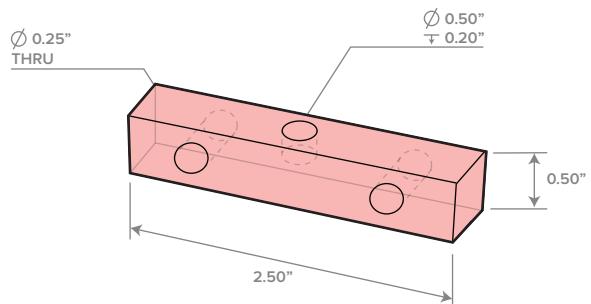
YEAR Spring 2017  
PROJECT Design and Constructed  
PARTNER Cameron Drayton

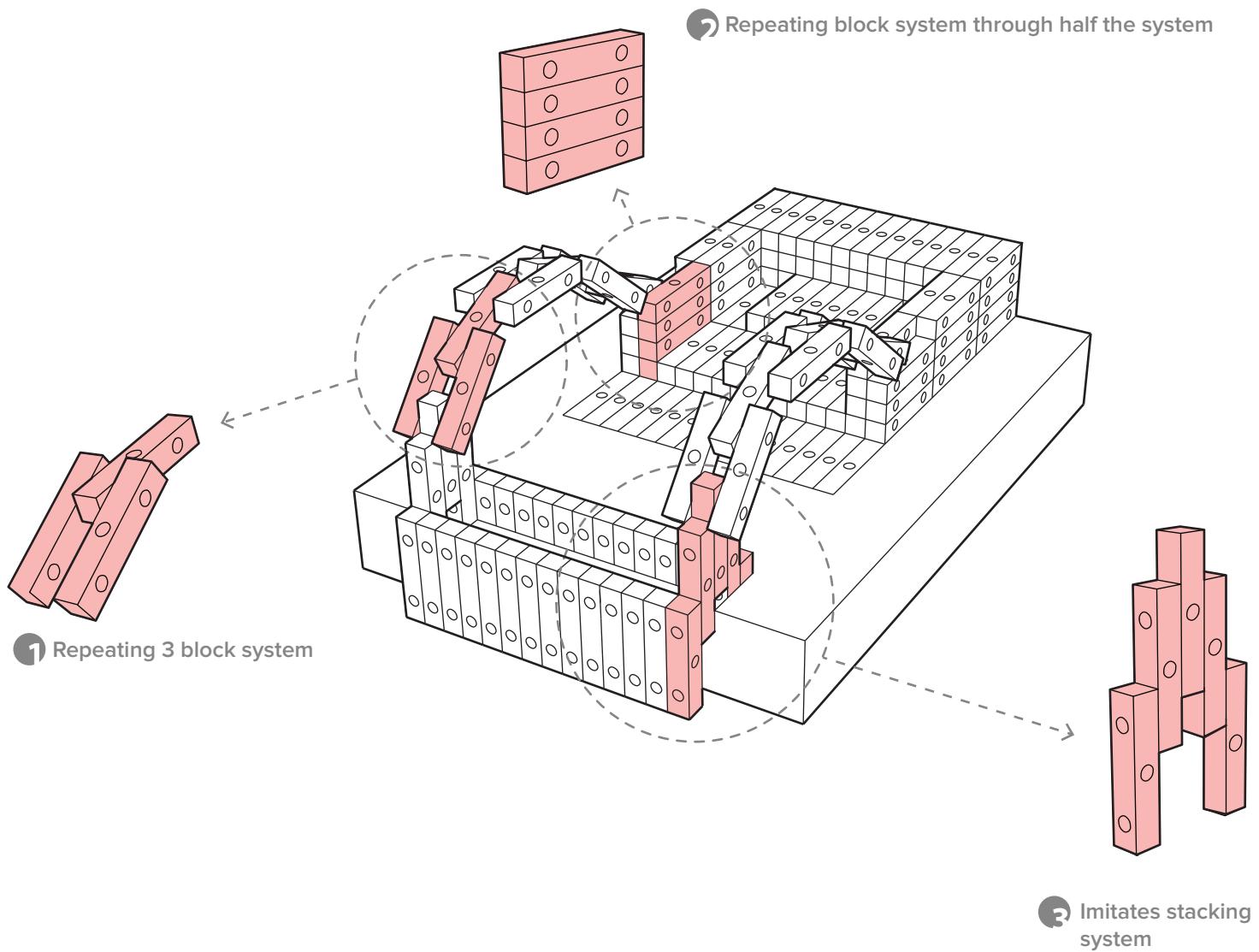


Each student was given a different kitchen tool. I was given a froster. After studying the shape of the tool and studying how it moves, students were paired up to try and create a motion model that represented both of their kitchen tools. My partner's tool was a potato cutter. The concept of our model was to make the entire structure using a simpler module, which was a 2 1/2" by 1/2" rectangular piece with three holes: a 1/2" hole drilled 1/5" deep through the center of one face and two 1/4" holes drilled all the way through and located 1/3 of the way in from both ends of one face. The structure was made up of 230 pieces of this module. The verbs that this model represented were: layering, splitting, time, and bending.



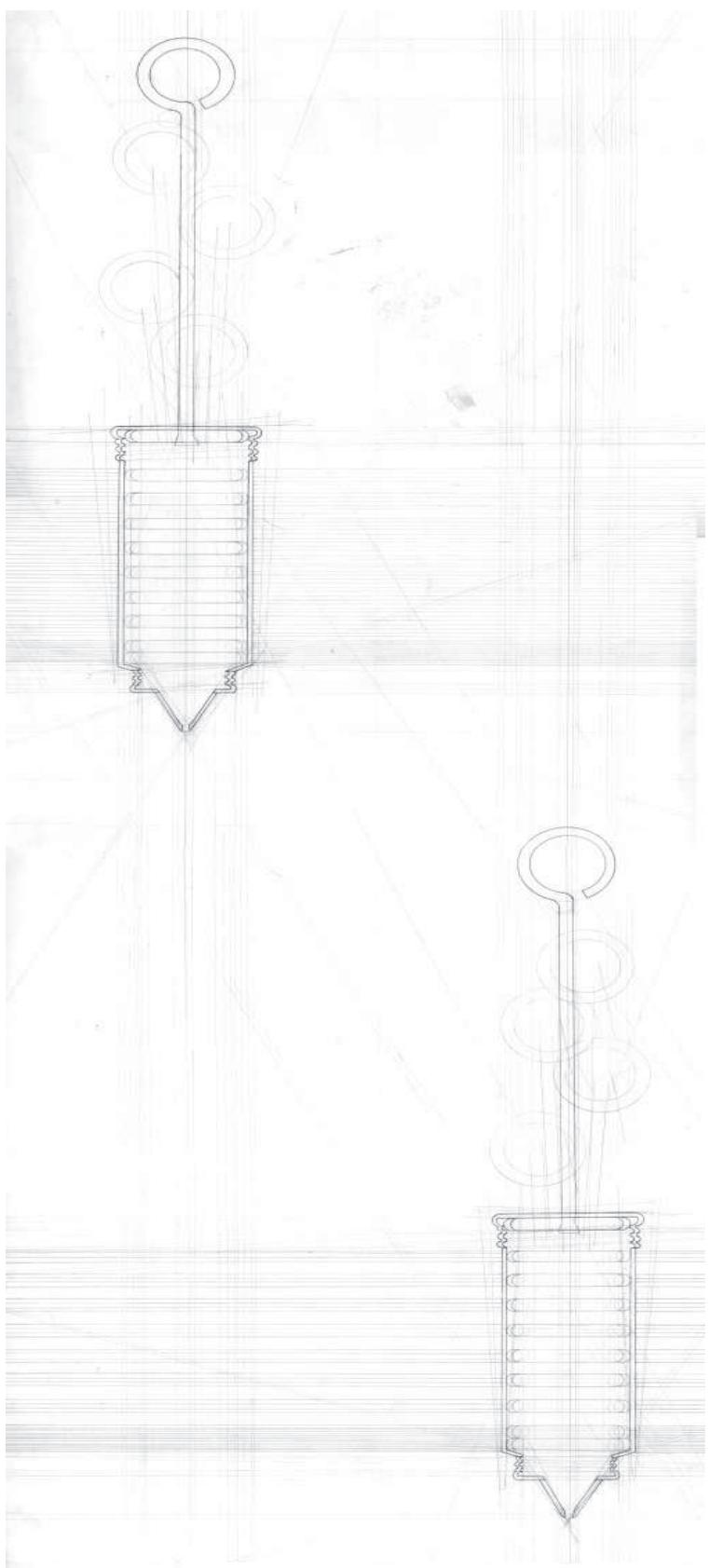
There are two sides to the model that represent the two different kitchen tools. The thinner side represents the froster, which is a tool that shakes and is much less stationary than a potato cutter. The two sides are then connected by a bridge. The bridge was created to help emphasize the contrast between the two sides, showing the motion of a piece moving from the one side to the other in a continuous motion. Then, it shows the act of placing the "final piece" on the potato cutter side of the model where there is an empty space.



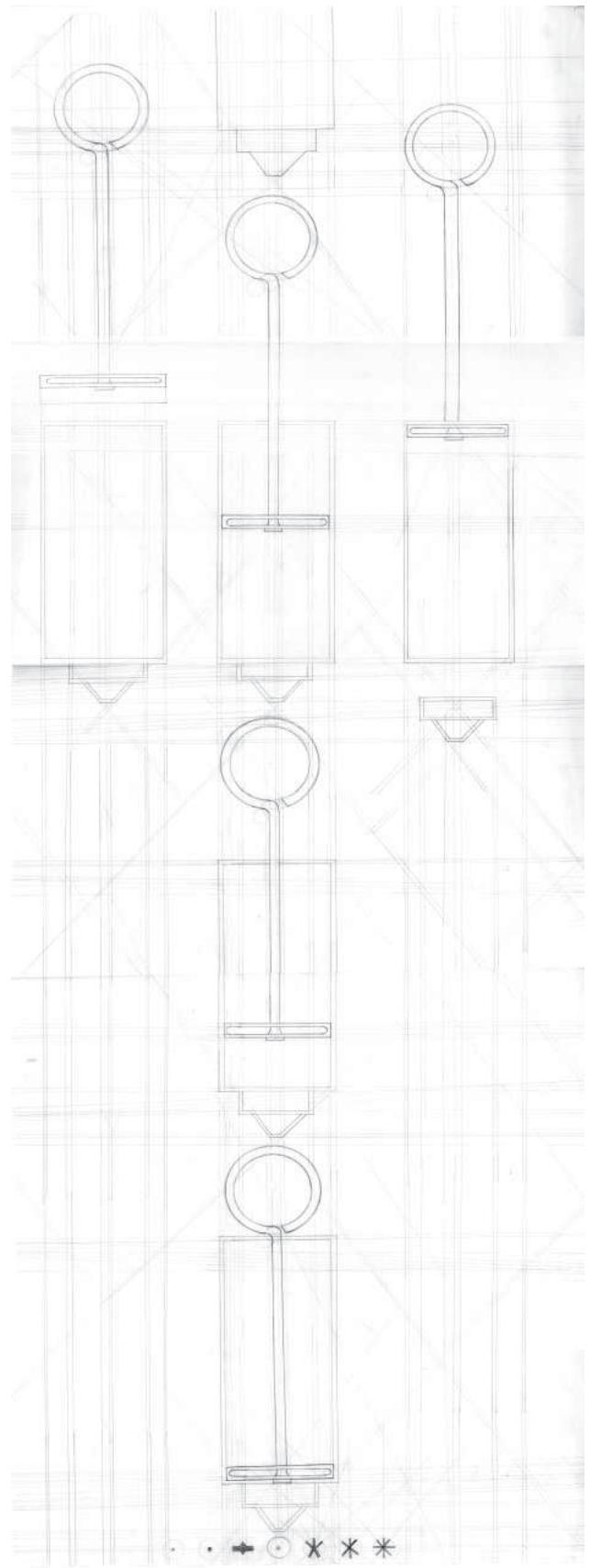


This structure is created using three different systems. Each system is made of several pieces of the simpler rectangular module. Each of these systems are used in the three different parts of this model: the froster side, the potato cutter side, and the bridge.

Initial studies of the froster tool on vellum paper to understand how the froster acts and moves as an object.



Froster Motion Drawing



Froster Object Drawing

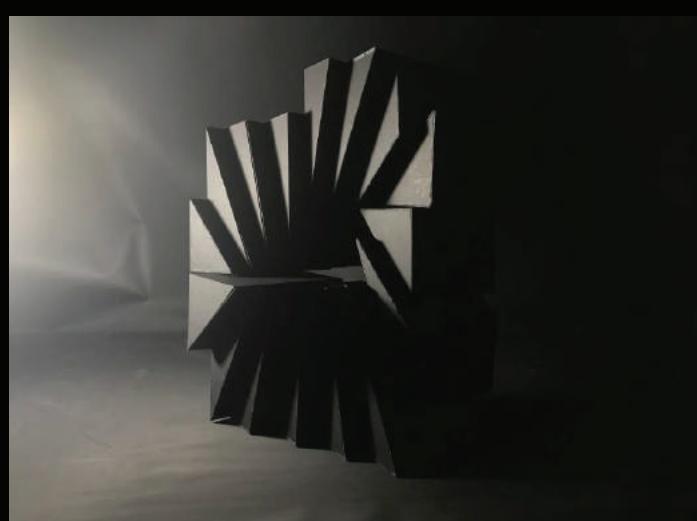
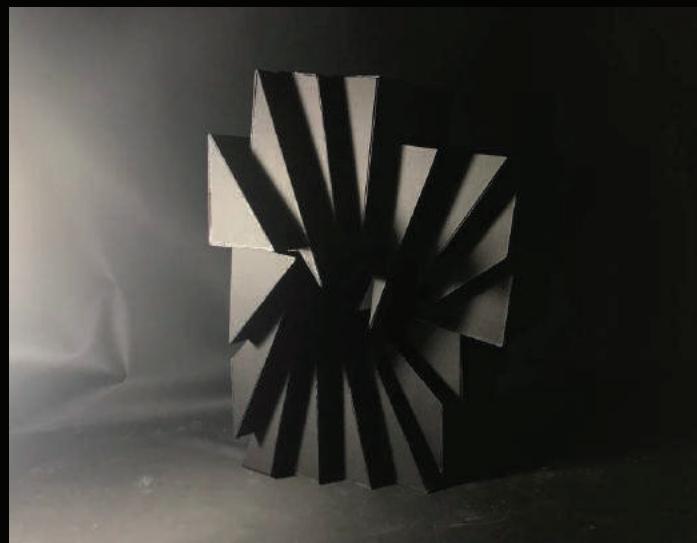
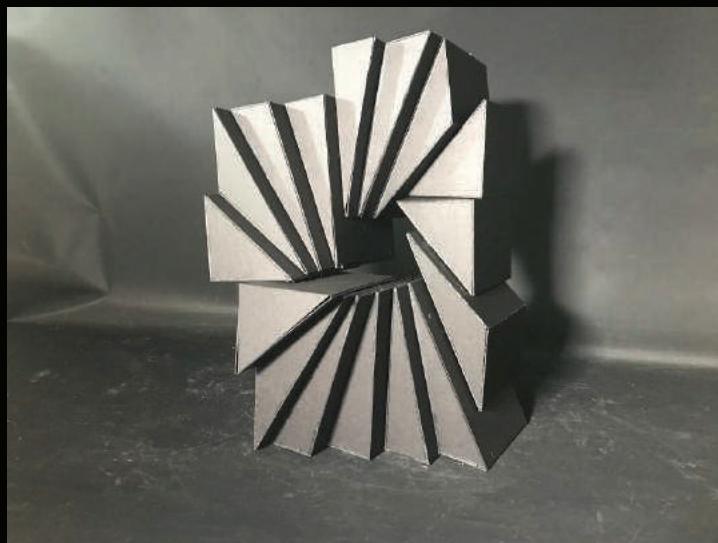
## MAKING COMPUTATIONALLY PIERCE

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YEAR Spring 2018  
PROJECT Design and Constructed  
PARTNERS Fallon Creech & Vincent Derienzo

This was a 2-week project exploring the production of form and design through the definition and application of rules. It describes a rule-based system for designing and using shape grammars. Shape grammars define the structure of a design space by establishing a vocabulary of elements and a series of rules that can be applied open-endedly.

This project takes into account the methodical grammar of slice, slide, and pull. In cutting the block into cross-sectional pieces and creating an oscillating motion from that cut method, the modules are then pulled outwards in slight quadrant formations. The object maintains a strong sense of space through the void in the center and the way that the form extrudes outwards displays the obedience to the grammar in a systematic reaction. The consistency of the cuts in breaking the block adds to the programmatic reassignment of the form. Our process involved oscillation through translating from the beginning, but how this final model differs from previous prototypes is in the way that the pull motion redefines the space and the form when considered in plan and elevation. In pulling forms out, the recollection of modules creates a new grouping method that re-formats the shape of the blocks and re-orients the form assessment. In the initial move of breaking the volume of the block with consistent, cross-sectional cuts, the pulling motion breaks the created volume yet again and orients the form in a new light.



## Rules

### 1. Slice

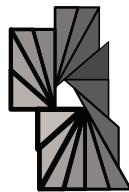
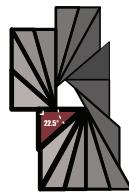
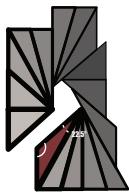
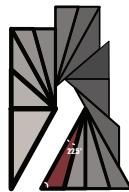
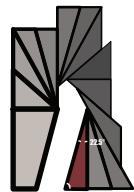
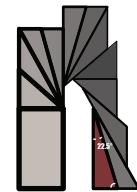
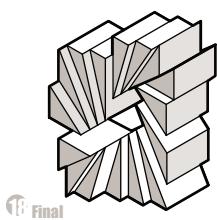
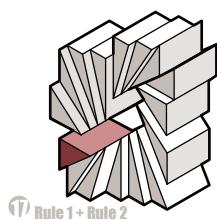
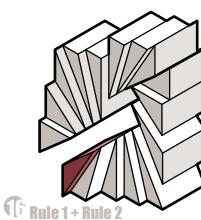
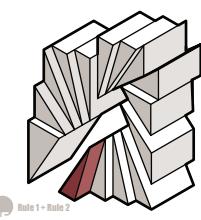
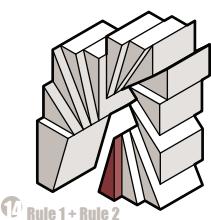
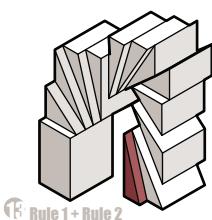
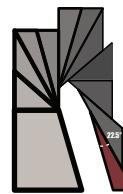
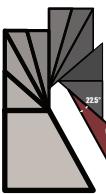
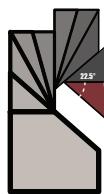
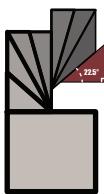
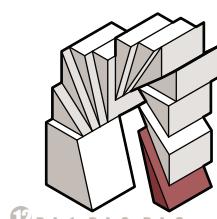
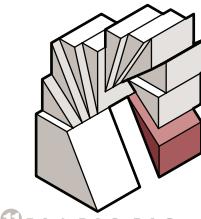
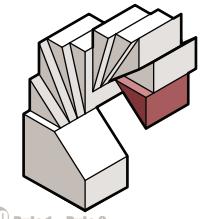
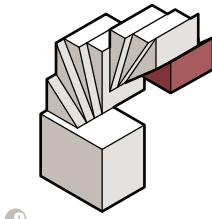
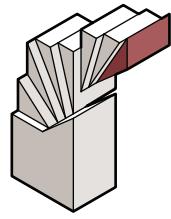
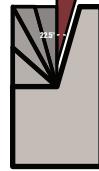
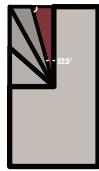
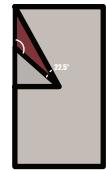
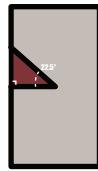
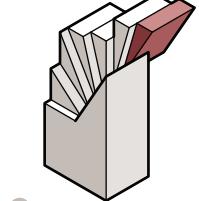
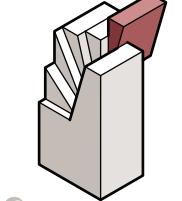
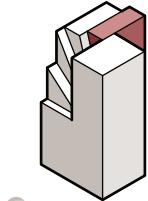
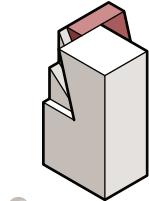
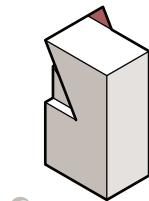
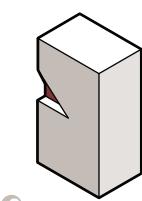
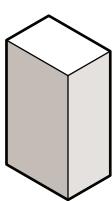
Cut out a triangle from a 22.5 degree angle from the center of the rectangular block.

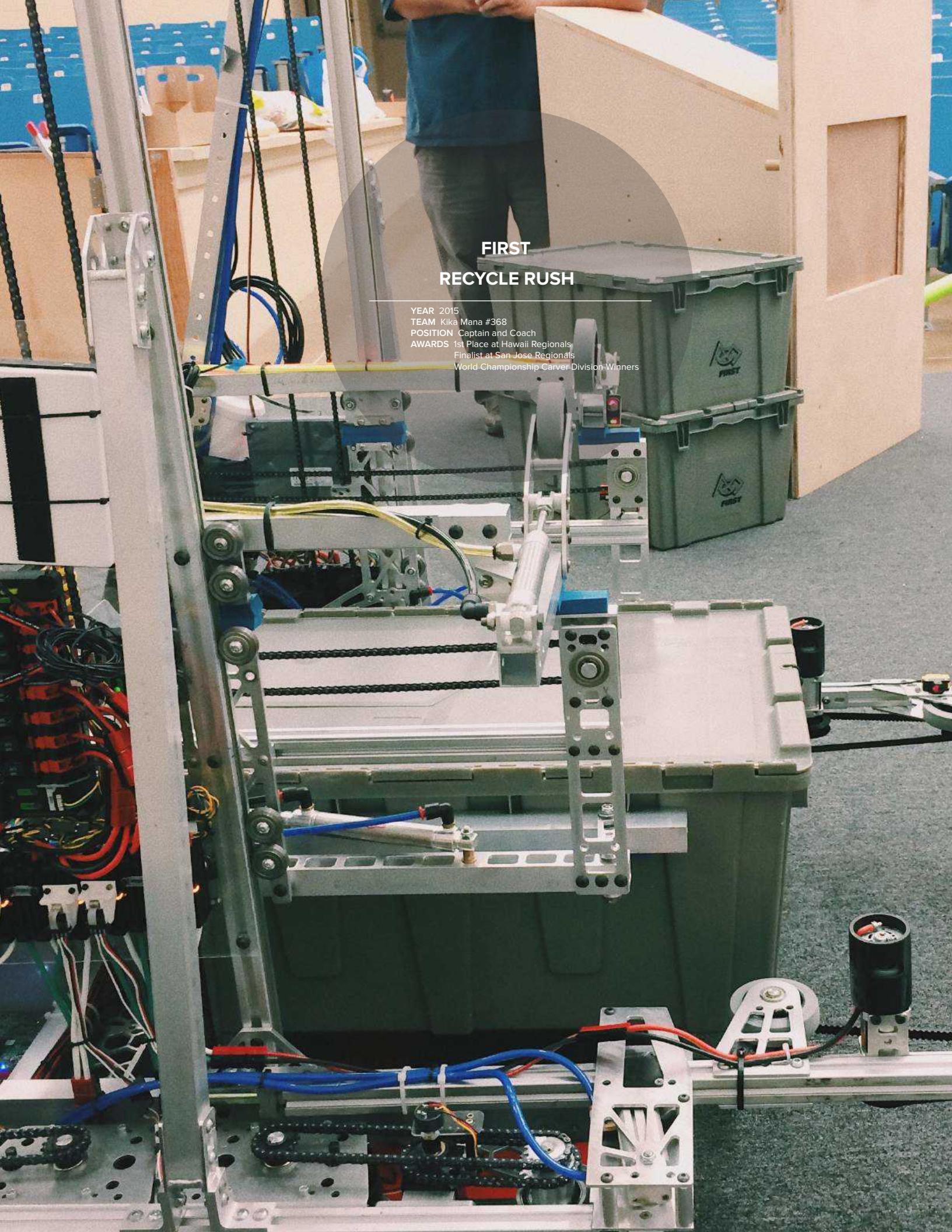
### 2. Slide

Slide the triangular piece forward or backward by 1 inch.

### 3. Pull

Pull triangular piece away from the center of the original rectangular prism.



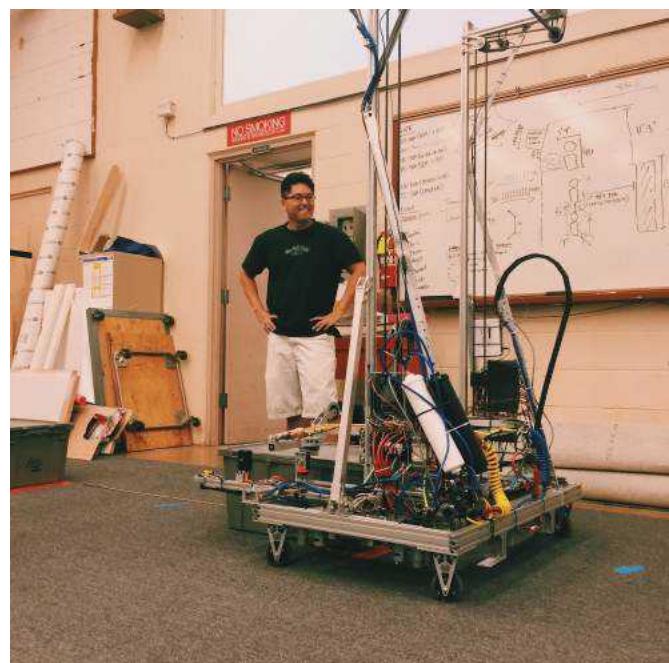
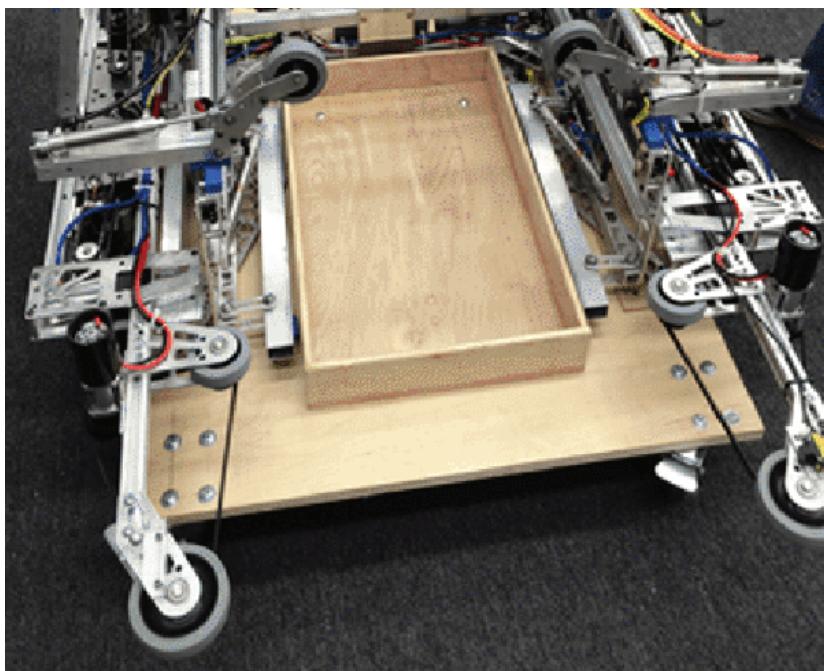
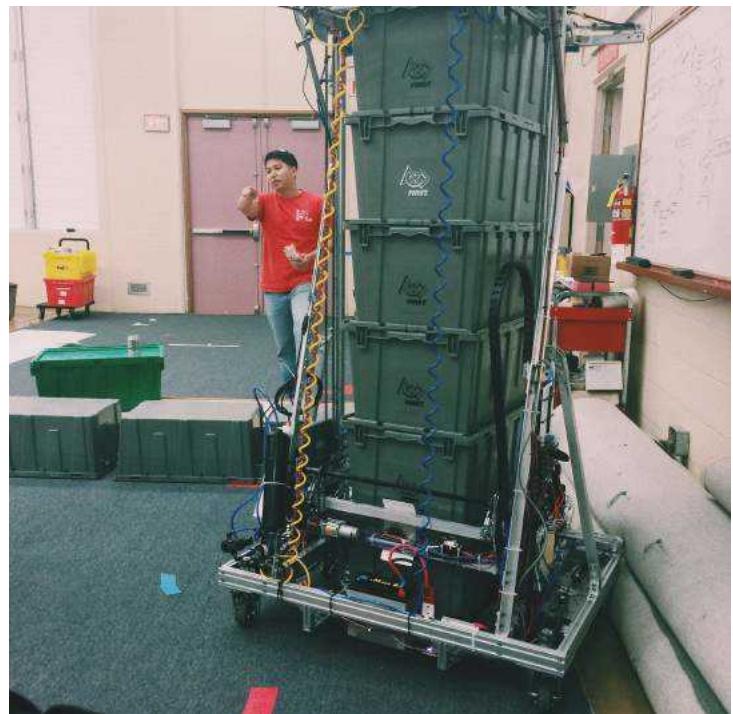


## FIRST RECYCLE RUSH

YEAR 2015  
TEAM Kika Mana #368  
POSITION Captain and Coach  
AWARDS 1st Place at Hawaii Regionals  
Finalist at San Jose Regionals  
World Championship Carver Division Winners

**Objective:** Picking up and stacking totes on scoring platforms, putting pool noodles ("litter") inside the recycling containers, and putting the containers at the top of the scoring stacks of totes.

**Robot:** 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 item upward, allowing for space for the next item to be intake. An additional aspect added to the elevator system are two wheels on each side of the elevator that are used to help hold the recycling bin in place and prevent it from falling off the high stack of totes. This robot also has two can grabbing hook mechanisms to allow for the robot to grab the recycling bins that are placed in the center of the field.



NO SMOKING

NO SMOKING  
SMOKING IS PROHIBITED BY LAW

## FIRST AERIAL ASSIST

YEAR 2014  
TEAM Kika Mana #368  
AWARDS 1st Place at Hawaii Regionals  
Innovation in Control Award



**Objective:** Scoring 2'-diameter exercise balls into scoring areas located at far ends of the field. Additional points can be scored by passing the ball amongst the alliance robots in-between zones and by throwing the ball over the truss.

**Robot:** This robot has a swerve drive to allow for easy maneuvering across the field and to avoid incoming opponent robots.

The robot also has wings that can open and close to easily catch the ball (open) and to make sure the ball does not fall out (closed). The intake of the robot is designed to propel downward (to pickup the ball) and to propel upward (to keep within the size requirements of the robot). The intake is also designed to allow the ball to be picked up easily from multi-directions (left, right, straight-front)

