HOW CAN DESIGN CONNECT PEOPLE WITH THEIR FOOD SYSTEMS?

Educating kids and connecting New Orleanians with their food systems is at the core of what this teaching farm does each day. As the farm's programming and activities grew, it reached out to our program to design and build an outdoor teaching space that allows for expanded educational events, reflects the farm's mission, and alleviates the sites' water challenges.

The resulting outdoor classroom balances the desire for a space that teaches about natural processes and encourages thoughtful actions on the land with a need for durability in the harsh coastal climate. The design-build process was a one semester endeavor whose research, engagement, design, and construction are outlined in this submission.

The studio's research underscores the sustainability goals of the farm by delving into water management methods, sustainable materials and ecologies, and effective ways design can be used as a tool for education.

location of build

CONTEXT

Located in Lower Algiers (about 8 miles downriver from New Orleans' French Quarter), the farm is a space where school children from the urban area can interact with farm animals, understand where food comes from, learn about natural cycles and the value of land stewardship. Like much of coastal Louisiana, it is a site faced with water management challenges and changing climatic conditions. The educational pavilion was sited near the entrance to transform 2,500 sq. ft. of previously unusable land that flooded regularly into a defined welcome area for visitors and educational programs.

recurring flooding issues on site

COMMUNITY WIDE AIMS

> Provide examples of the potentials and impact of good design

> Draw more people into the design process

> Raise awareness of what architects do

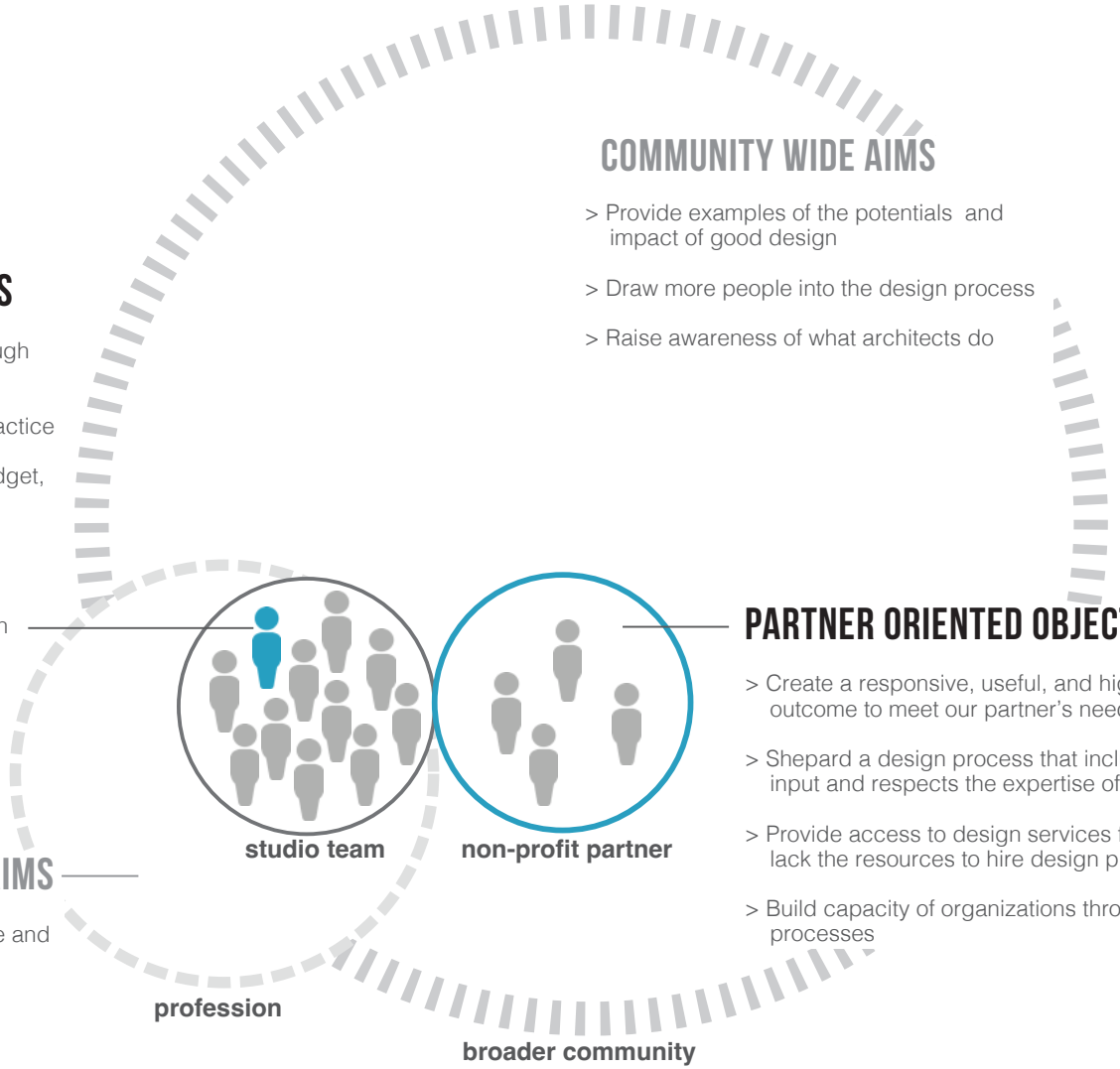
STUDENT LEARNING OBJECTIVES

> Inform their understanding of design through 1:1 scale making

> Provide an introduction to professional practice including: project planning, programming, working with a timeline, budget, client, and coordinating consultants

> Empower students by broadening their experience and skill set

> Cultivate collaboration and communication as part of the design process



PARTNER ORIENTED OBJECTIVES

> Create a responsive, useful, and high-quality built outcome to meet our partner's needs and project goals.

> Shepard a design process that includes stakeholder input and respects the expertise of all parties

> Provide access to design services for non-profits who lack the resources to hire design professionals

> Build capacity of organizations through engaged design processes

ARCHITECTURAL PROFESSION AIMS

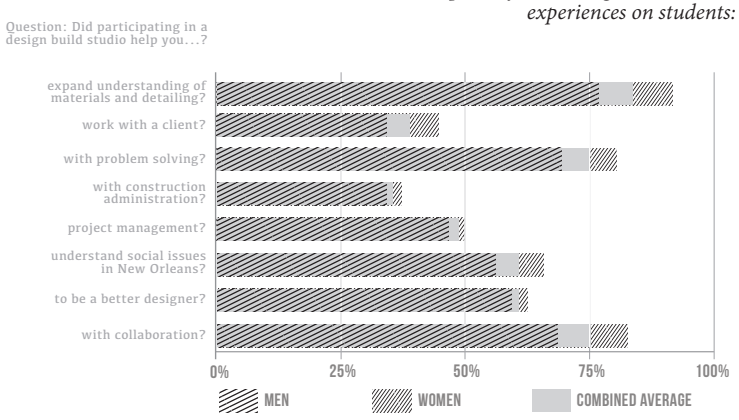
> Educate the next generation of responsive and ethical design professionals

> Offer professionals scale-able models of engagement in the design process

PEDAGOGY

Housed within an architecture school's community design center, this studio connects a team of architecture students with a local non-profit to program to work on a public-facing project over the course of one semester. Each year the students wrestle with issues of social equity and the 'wicked problems' of our city, in this case food access and sovereignty. Students learn to interact with a client and incorporate their feedback in an iterative process, coordinate with consultants (engineers, landscape architects, suppliers and specialty fabricators), prepare construction documents, develop a budget and timeline, and execute a project from initial idea to built form in 15 weeks. The semester is segmented into a 3 week research phase, a 5 week phase focused on design and permitting followed by a 7 week build phase.

some of our longitudinal research into the impacts of these design-build studio experiences on students:







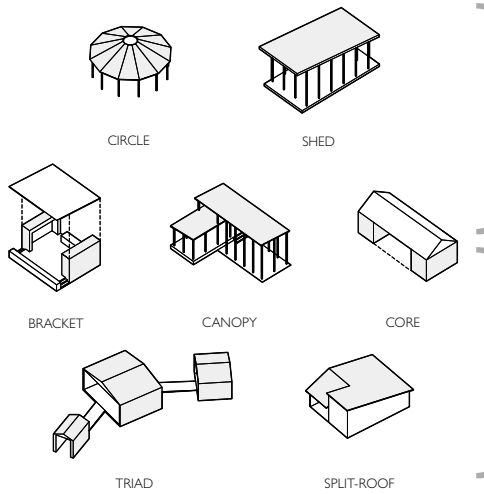

EDUCATION, SERVICE, AND AGILITY

On August 29th, just a few weeks into our semester, Hurricane Ida made landfall as a category 4 storm, causing significant damage at the farm. Our team shifted from design work to help clear out the site, rebuild animal habitats, and dig diversion ponds to reroute water. It was a pivotal learning moment for our students that reinforced the importance of flexibility and responsiveness necessary when working with community partners.

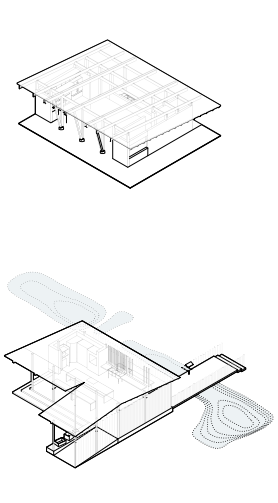
ENGAGEMENT

The design team engaged with visitors and volunteers on the farm, leading a series of activities with school groups who visited the site over the Fall semester. This engagement directly fed into the design process and the continued feedback of the staff shaped the final design.

early function diagram

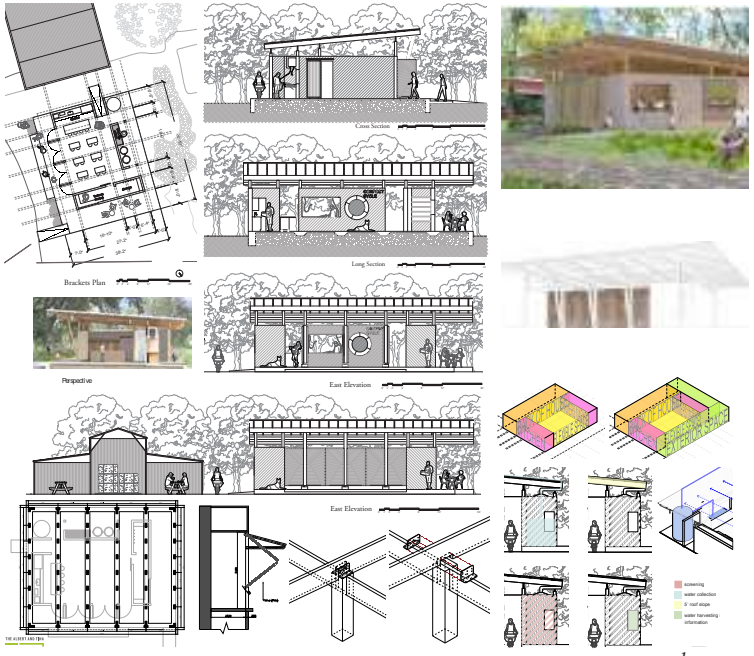


early formal investigations

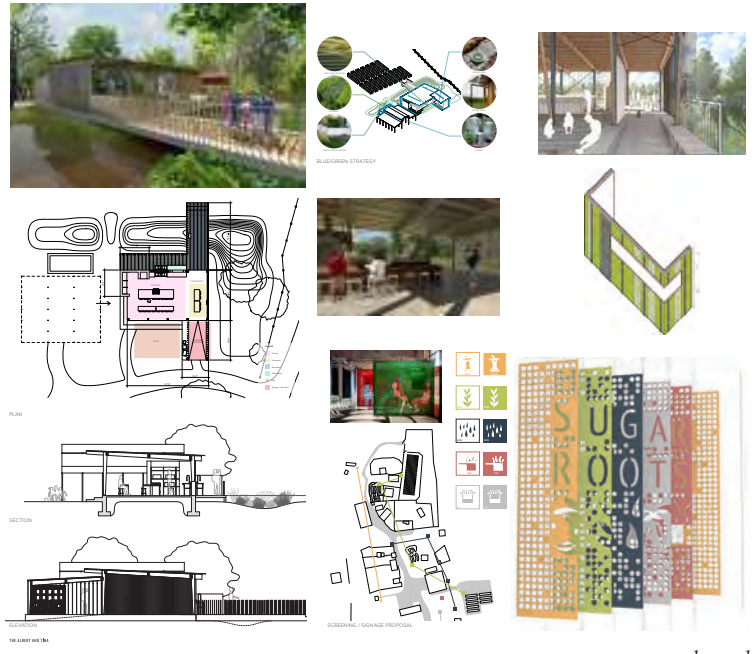


developed schemes

students presenting projects proposals on-site.



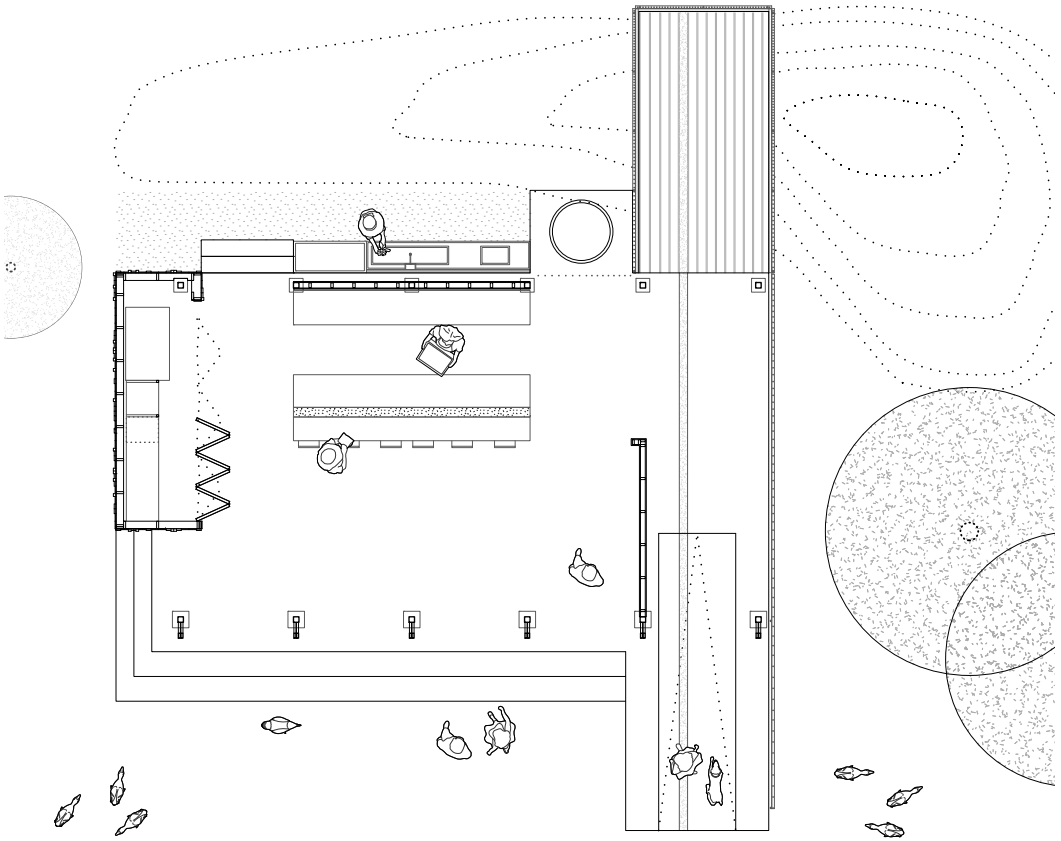
scheme a

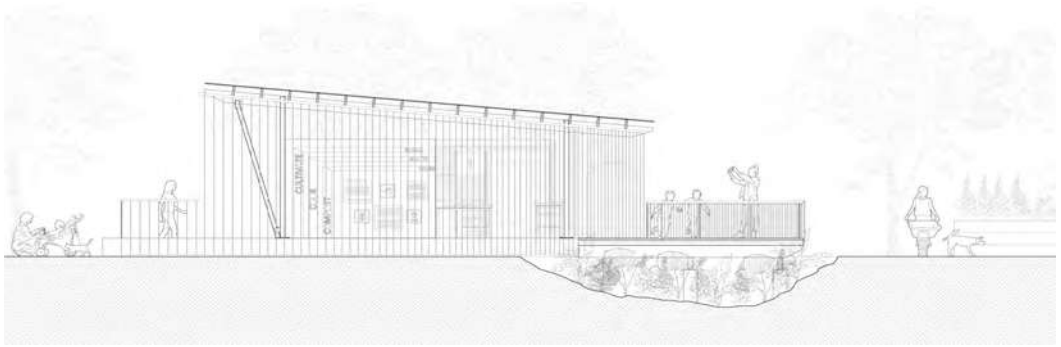


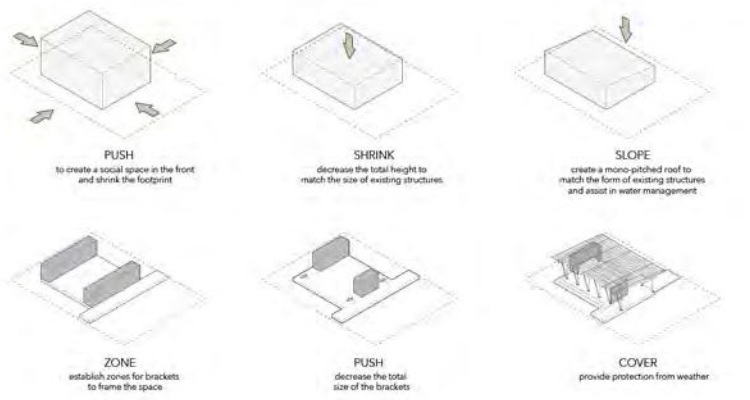
scheme b

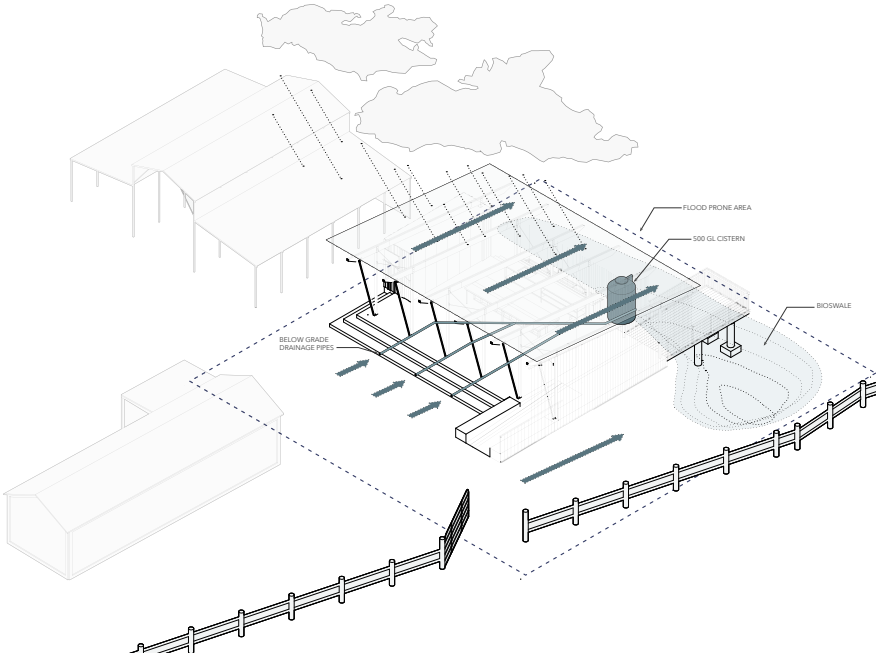
DESIGN PROCESS

The design process began with a series of individual design explorations that highlighted overlapping interests and themes. Over the course of several weeks students were consolidated into teams to further develop ideas including material life-cycles, comprehensive water management, expressive structural systems, and passive site and solar strategies. As teams expanded, students began to research additional themes including how the project design and signage could incorporate the pedagogy of the farm. Students presented the proposals to hundreds of visitors at the farm's Fall Fest and the farm's staff to learn to articulate design ideas to a non-design audience. Throughout this process, there are continued lessons on incorporating the feedback of stakeholders and collaborative decision making.



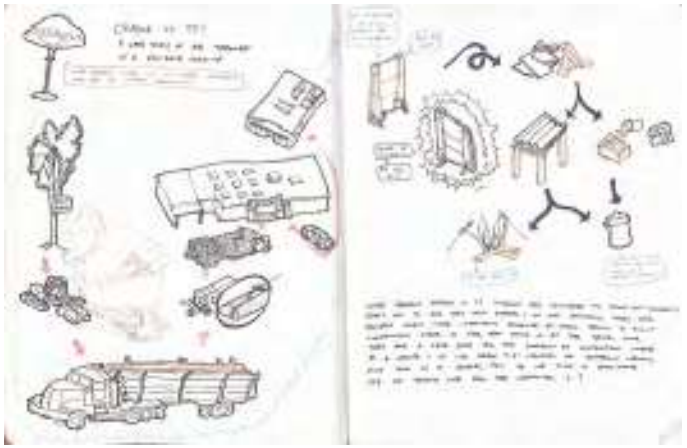


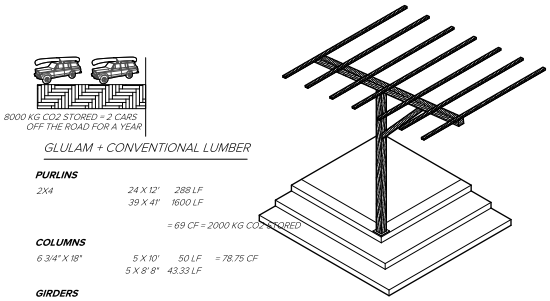


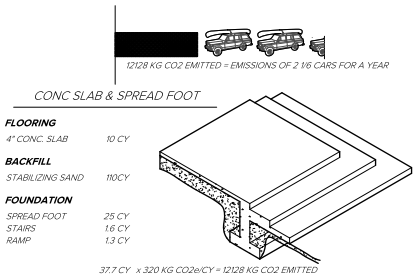


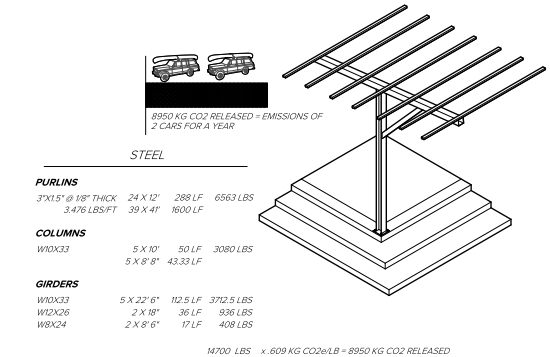
DESIGN AND DOCUMENTATION

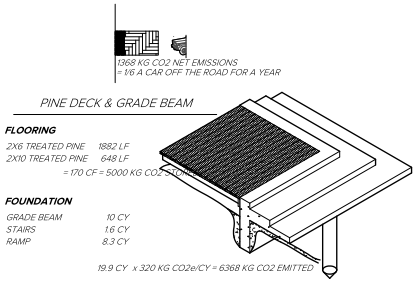
The project includes a raised slab with integrated drainage that anchors a large steel and wooden roof structure. The roof provides a large-shaded area for classes and directs water to a cistern and a bioswale to alleviate the localized flooding. The structure includes cistern fed wash stations for the farm's produce and large counters for teaching canning and cooking classes. The space is bracketed by a storage area for kitchen equipment and supplies and an educational wall with fixed signage and a chalkboard for class activities. Students produced a set of drawings for permit and within a few weeks were approved by the City of New Orleans to build.

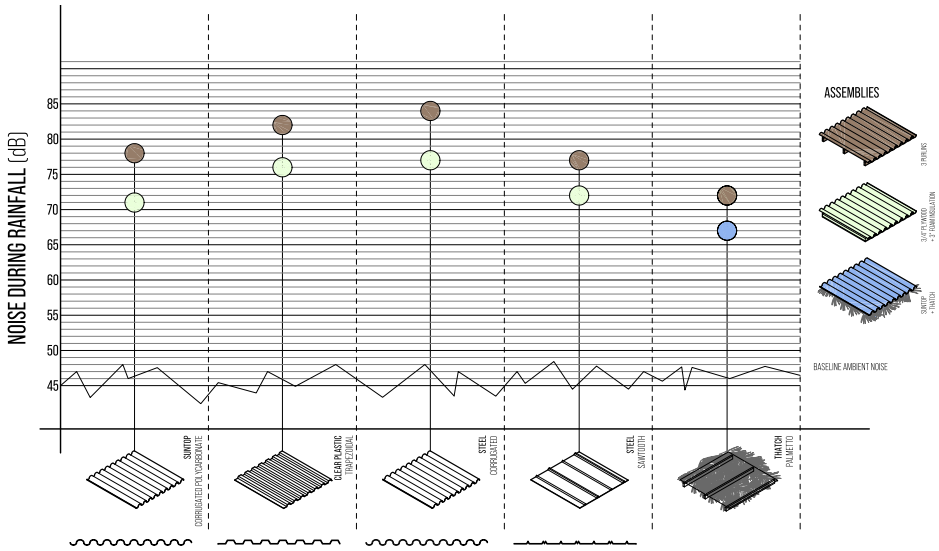








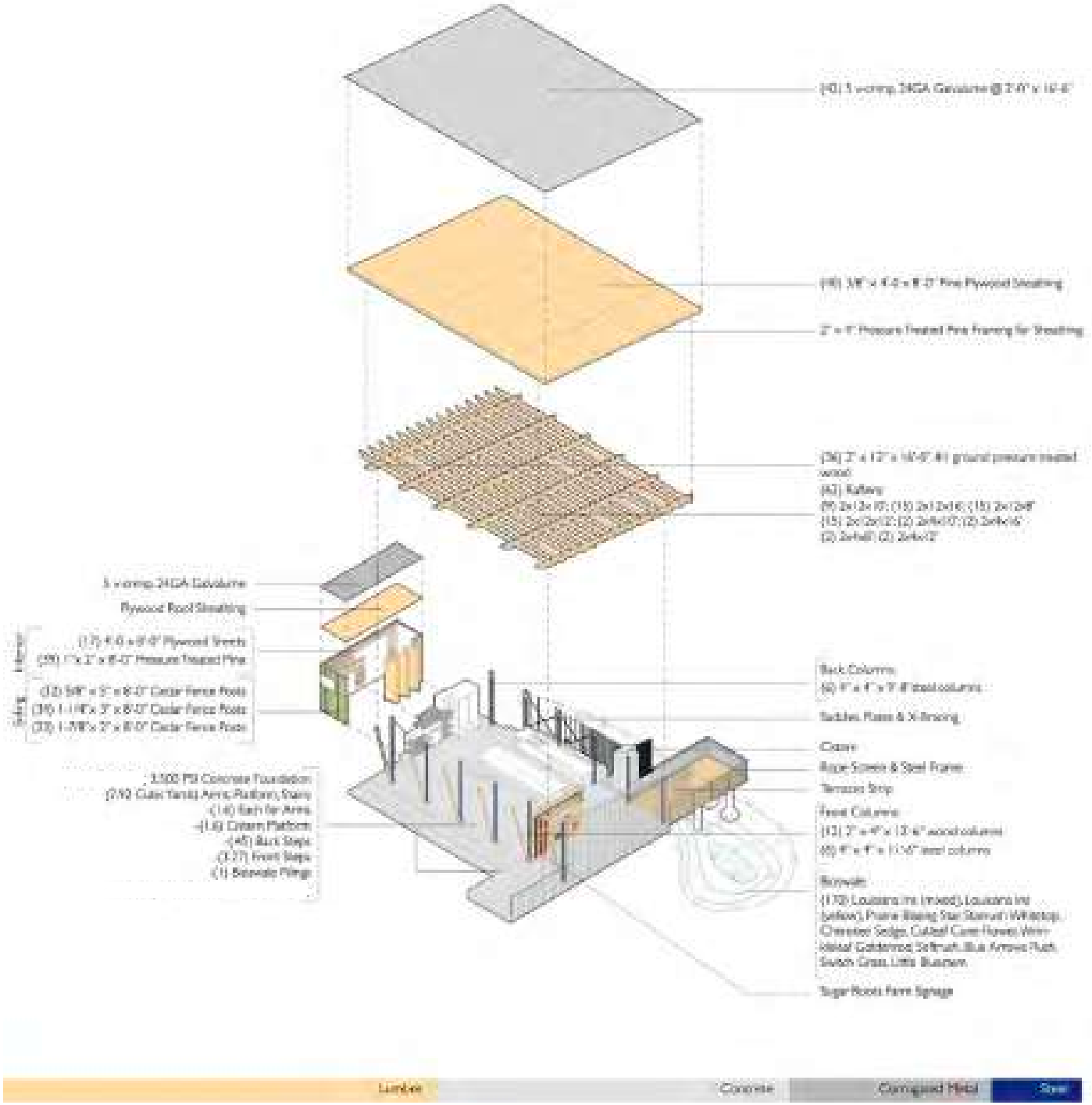


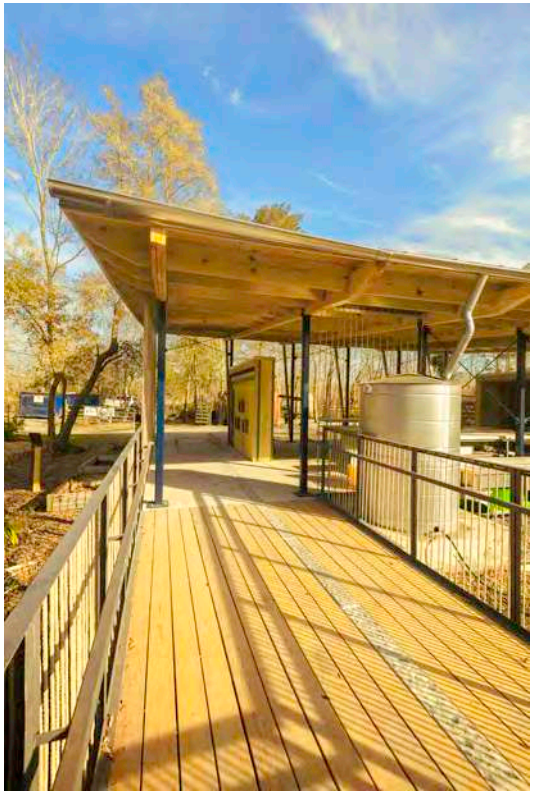


diagrams, mockups, and studies as students work to understand the carbon, acoustic, and tactile implications of their choices

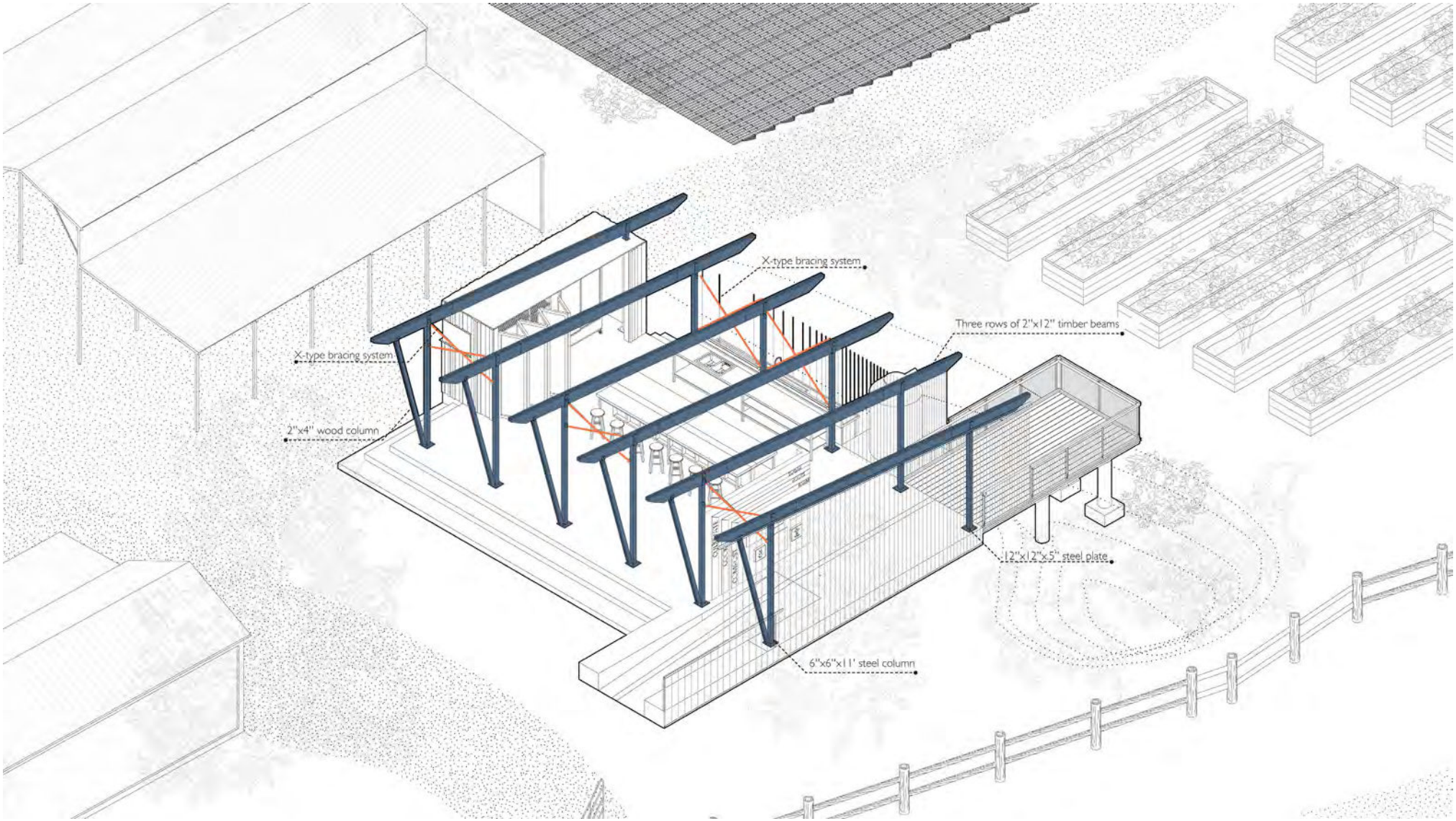
MOCK-UPS AND MATERIAL EXPLORATIONS

Students conducted numerous material experiments over the course of the build — from sound studies of roofing materials with different underlays, to recycled glass and stone aggregates to create playful patterns in concrete details. Additionally, they researched the life cycle and energy costs of various materials and detail decisions. These explorations seeded a culture of minimizing waste and material re-use.





FINAL MATERIAL

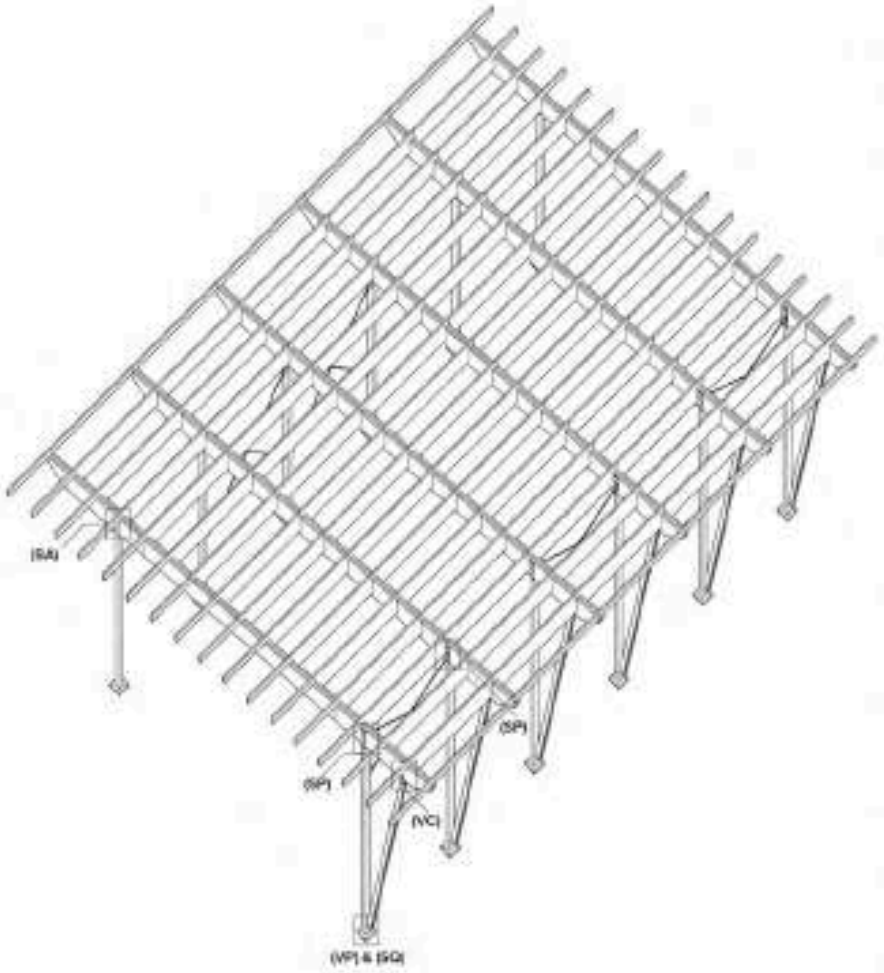


STRUCTURAL SYSTEMS + DETAILS

With the guidance of a local engineer, students developed a structural system made up of 6x6 steel columns anchored with structural bolt connections, timber beams made of layered 2x12s, and x-type bracing welded to the columns at key points for lateral stability. Formwork from the foundation was cleaned up and re-used in the large beams and joists of the structure.

one of the meetings with the structural engineer

Making Jig & Checklist



CHECKLIST

Please initial when completed

COLUMNS

Steel Column 1F x6

Steel Column 2F x6

ROOF

Beam 1 (B1) x24

Beam 2 (B2) x2

Beam 3 (B3) x2

Purlin 1 (P1) x15

Purlin 2 (P2) x30

Purlin 3 (P3) x15

Purlin 4 (P4) x15

Purlin 1 (PP1) x2

Purlin 2 (PP2) x4

Purlin 3 (PP3) x2

Purlin 4 (PP4) x2

CONNECTIONS

V-Column Knife Plate (VP) x6

Column Base Plate (SQ) x12

Column Saddle+Knife Plate (SP-1) x3

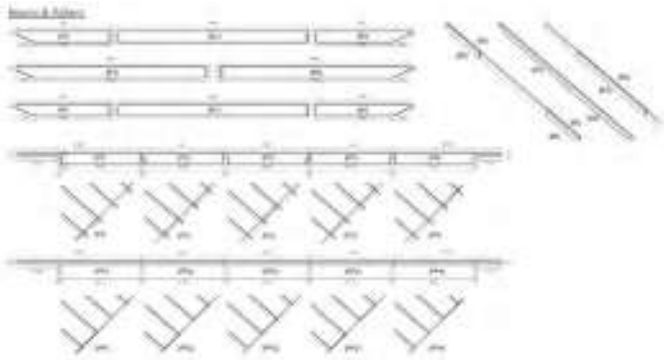
Column Saddle+Knife Plate (SP-2) x3

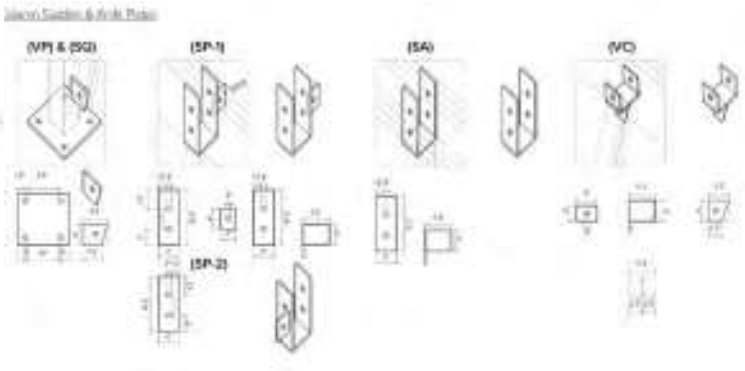
Column Saddle (SA) x6

V-Column - Beam Connection (VC) x6

JIGS + FABRICATION MANUAL

A series of jigs and detailed fabrication manual made the pre-fabrication process run smoothly. Students developed a workflow and marked off pieces on the checklist that hung in the shop. The development of this fabrication process and methods of communicating were student led, and a vital way of communicating in a rapid build.





1. cut steel to length

2. prefabricate column saddles

3. prefabricate v-column saddles

4. weld base plates and saddles to columns

5. erect and secure columns

6. fabricate layered beams

7. raise and install beams

8. secure beams with structural bolts

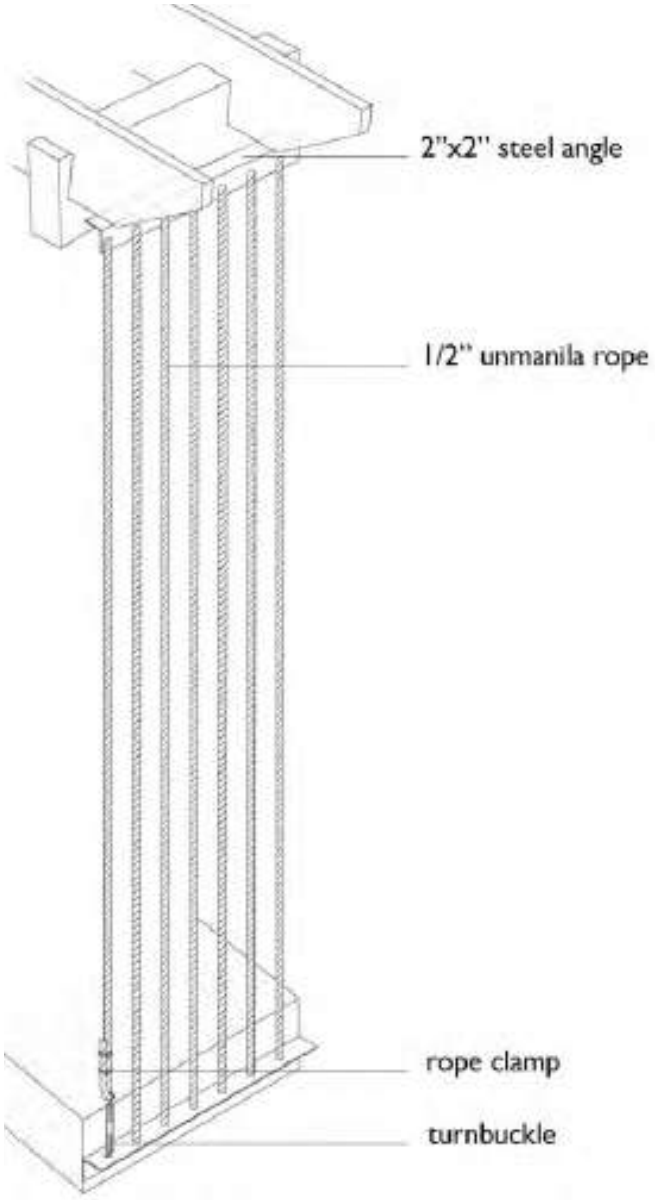
9. install rafters

10. reinforce rafters with hurricane ties

11. install plywood sheathing

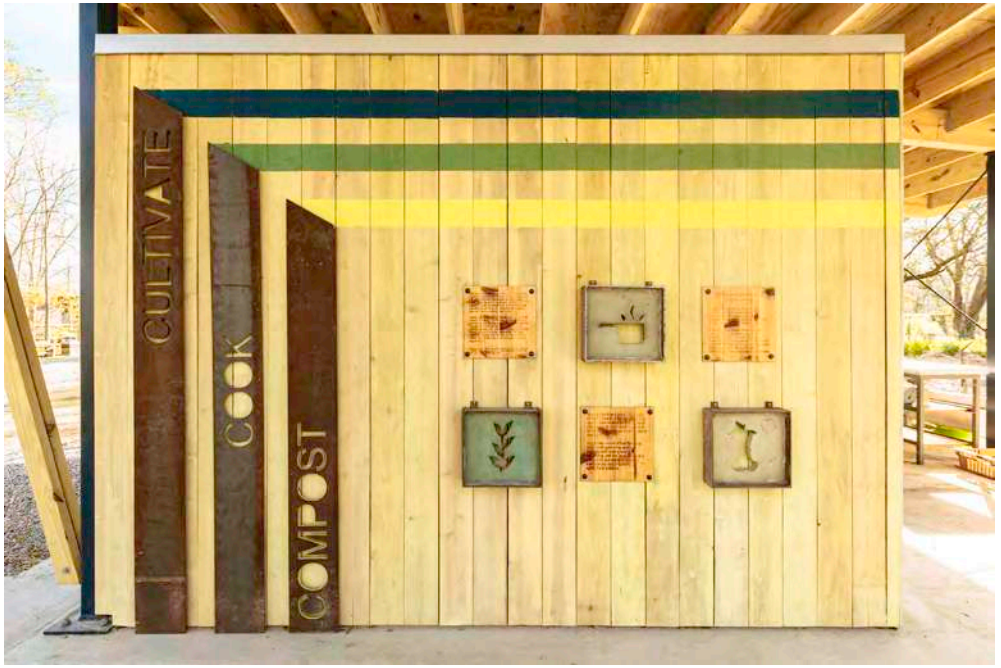
12. install v-columns

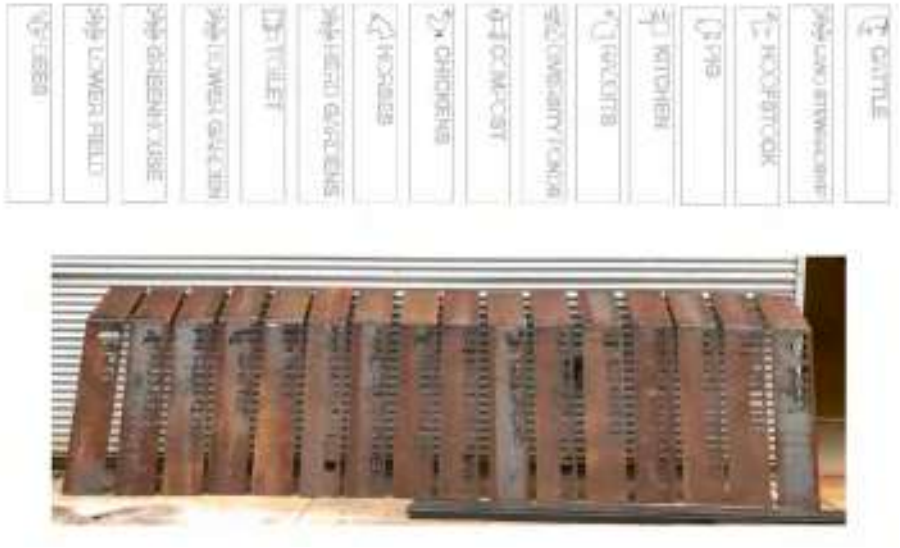
STRUCTURAL SYSTEM FABRICATION + INSTALL

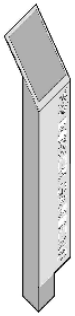


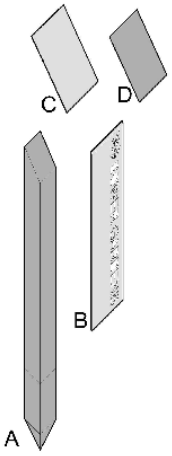
SCREEN SYSTEM

A screen made of ropes acts as a climbing trellis for vines and serves as infill for the dock's handrails.



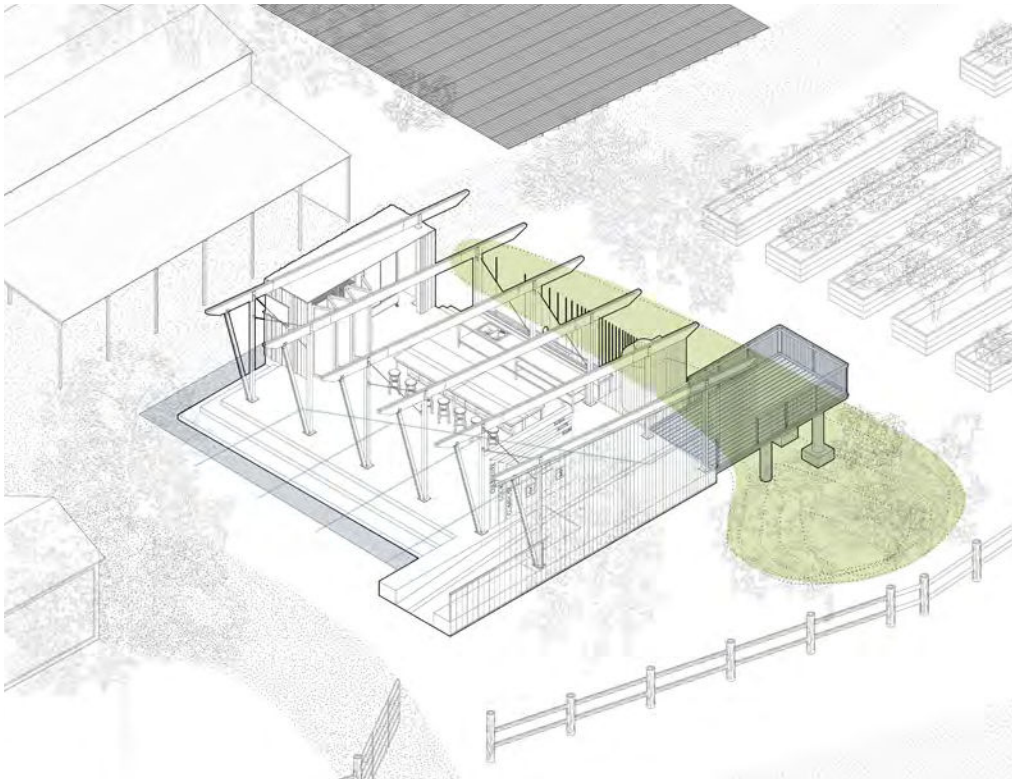


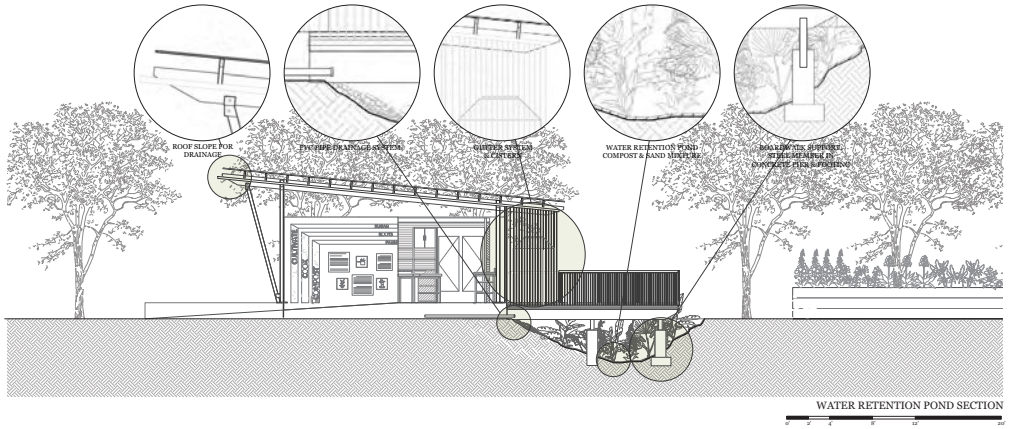




SIGNAGE + WAYFINDING

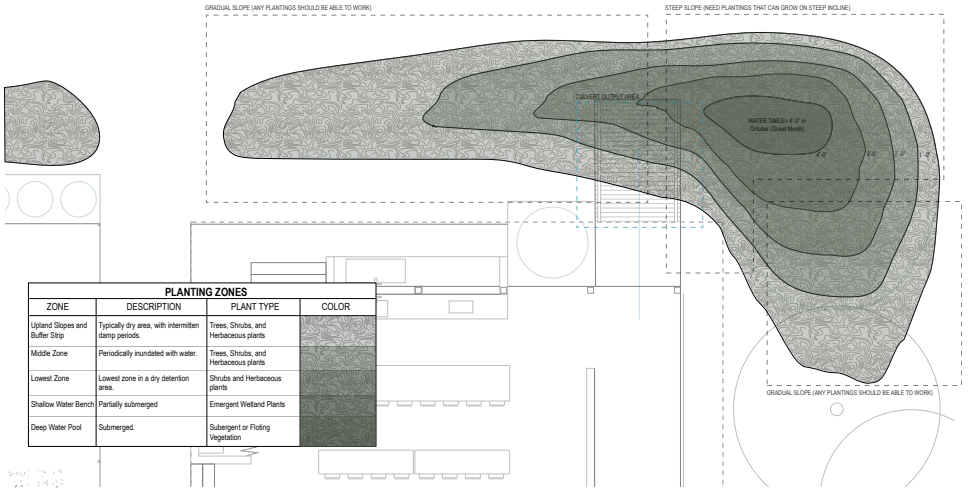
A system of new symbols, educational signage, and branding elements provide adequate signage for visitors to guide themselves throughout the site and learn about the various animals, vegetation, growing strategies, and the mission and values of the farm. The CORTEN steel was salvaged from scraps of a previous studio's project offcuts.





WATER RETENTION POND PLANTINGS

PLANTING ZONE BREAKDOWN



PLANTING ZONES

ZONE	DESCRIPTION	PLANT TYPE	COLOR
Upland Slopes and Buffer Strip	Typically dry area, with intermitten damp periods.	Trees, Shrubs, and Herbaceous plants	
Middle Zone	Periodically inundated with water.	Trees, Shrubs, and Herbaceous plants	
Lowest Zone	Lowest zone in a dry detention area.	Shrubs and Herbaceous plants	
Shallow Water Bench	Partially submerged	Emergent Wetland Plants	
Deep Water Pool	Submerged.	Subergent or Floting Vegetation	

WATER RETENTION POND PLANTINGS

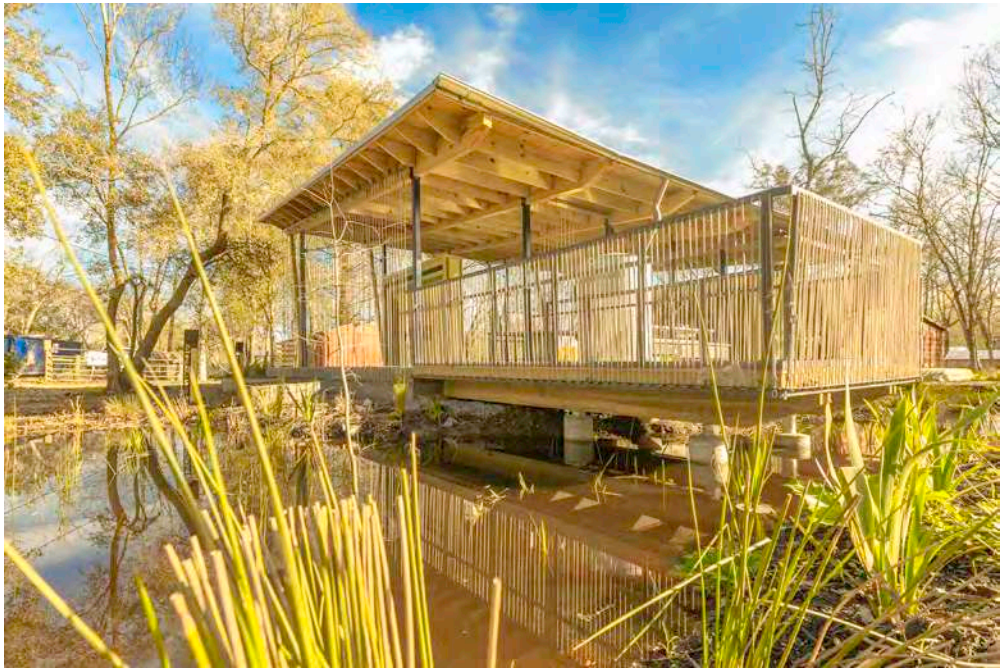
PLANTING BREAKDOWN BY ZONE

PLANTS FOR SITE

ZONE	PLANT	DRAWING	SIZE	SOIL TYPE	SUN REQUIREMENT	SEASON OF INTEREST	ECOLOGICAL BENEFIT/ PRODUCTIVE USE	PLANT SPACING	SOURCE
Upland Slopes and Buffer Strip	Little Bluestem *(Schizachyrium scoparium)*		2-3' Tall 1.5-2' Wide	Clay, Loam	Full/ Partial Sun	n/a	Attracts birds and butterflies	36" apart	Louisiana Growers
	Blue Arrows Rush *(Juncus inflexus)*		2-3' Tall 1.5-2' Wide	Clay, Loam	Full/ Partial Sun	n/a	Bioretention function	36" apart	Louisiana Growers
	Wrinkleleaf *(Solidago rugosa)*		2-5' Tall 1-3' Wide	Clay, Loam	Full Sun	Late Summer/ Fall	Attracts birds and butterflies	36" apart	Louisiana Growers
Middle Zone	Starrush Whitetop *(Rhynchospora colorata)*		1-2' Tall 2-3' Wide	Clay, Loam	Full/ Partial Sun	Late Spring/ Summer/ Fall	Attracts butterflies	24-36"	Louisiana Growers
	Prairie Blazing Star *(Liatris pycnostachya)*		2-4' Tall 1-2' Wide	Clay, Loam	Full Sun	Late Summer	Attracts birds and butterflies	6"- 1' apart	Louisiana Growers
	Bald Cypress *(Taxodium distichum)*		50-70' Tall 20-30' Wide	Clay, Loam	Full Sun	n/a	SC cut down a tree, we would be replenishing the site with a new tree	n/a	Louisiana Growers
Lowest Zone	Cherokee Sedge *(Cares cherokeensis)*		1- Tall 1-1.5' Wide	Clay, Loam, Sand	Sun, Part Shade	Late Spring	Pest resistant, grasses provide cover for small critters and nesting materials for birds, supports various larvae	1-3' apart	Louisiana Growers
	Louisiana Iris		2' - 3' Tall 1-2' Wide	Clay, Loam (up to 6" of standing water)	Full Sun, tolerates shade well	Late Spring - Mid Summer	Stabilizes soil, reduces erosion, pest resistant	24" apart	Louisiana Growers
Shallow Water Bench	Cutleaf Coneflower *(Rudbeckia laciniata)*		3-4' Tall 1-2' Wide	Clay, Loam	Sun, Part-Sun, Shade	Mid Summer- Fall	Attracts butterflies, birds, and bees	18-24" apart	Louisiana Growers
	Soft Rush *(Juncus effusus)*		2 - 4' Tall 2-4' Tall	Clay, Loam	Full Sun	Late Spring	Strong roots- can grow in the steepest areas of the retention pond, sediment stabilization, wastewater treatement applications	24-36" apart	Louisiana Growers
	Golden Canna *(Canna flaccida)*		2-4' Tall 1-2' Wide	Clay, Loam, Sand	Full Sun	Late Spring- Fall	Attracts birds and butterflies	18-24" apart	Common Ground (Donated)
Deep Water Pool									

WATER MANAGEMENT

Students consulted with several landscape and water management experts to design a retention pond planted with hundreds of native plants. The pond's depth reaches the natural water table so that a thriving ecosystem can exist year-round. A drainage system diverts water from the front of the project into the pond underneath the slab and rainwater from the roof is collected in a 500-gallon tank that is used to wash produce.



WATER RETENTION POND


OPEN
FARM
DAYS


CRAWFISH
BOIL

THANK YOU!

PROJECT INFORMATION:

Project Title: Teaching Pavilion for Food Justice and Water Management
Month/Year Completed: January 2022
Role of Nominee: Lead instructor, Architect of Record

Collaborators & Funding Sources Expenses:
This project cost $42,000 to build. Funding for project materials came from a combination of sources: The farm contributed $12,000 for materials, a crowdsourced campaign raised $14,000 for the project, and the school of architecture and it's associated community design center (name redacted) contributed $16,000.
1 contractor donated 2 days of digging and a backhoe to the bioswale.
2 engineers, one landscape architect, and a community herbalist contributed their expertise and were each paid a small honorarium.
A local metal CNC mill cut signs and column bases and was paid for their service.
The universitiy's center for engaged learning and teaching gave a small grant to cover snacks for engagement activities.
Additionally, many students and project stakeholders gave their feedback and input on the project in various ways. There was no monetary contribution for their engagement during class sessions or at weekend fairs and festivals but they were compensated in snacks.

Student Compensation: 24 students participated in the project which consisted of a 6-credit studio and a 3 credit fabrication elective course. Their scope included design, fabrication of components, and construction of the final structure (foundation, structure, roofing, finishes, trim, and signage). Two faculty members worked on the project, one as project and outreach manager, the other as studio lead and architect of record. Both were compensated through their pay as faculty