SUGAR ROOTS FARM | 2021
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COMMUNITY PARTNER: SUGAR ROOTS FARM

Connecting people of all ages to food systems and local ecologies is at the core of what Sugar Roots Farm does each day. With expanding programming and activities, the farm reached out to Small Center to design and build an outdoor teaching space to accommodate expanded educational events and alleviate flooding while reflecting its mission.
Our mission is to build food sovereignty and community resilience in the Gulf South with sustainable farming as the foundation. We aim to teach and practice intentional land stewardship to ensure that future generations will have the skills and resources to grow and eat nourishing, fresh foods.

Sugar Roots Farm
Located in Lower Algiers (about 8 miles downriver from the French Quarter), Sugar Roots Farm is a space where schoolchildren in the New Orleans area can interact with farm animals, learn about natural cycles, and understand where food comes from. The educational pavilion was sited near the entrance of the farm to transform 2500 sq. ft. of previously unusable land that flooded regularly into a defined welcome area for visitors and educational programs.
SUGAR ROOTS FARM’S GOALS

1. Provide a place for people to interact with nature and animals on Saturday’s open-to-the-public events.

2. Offer sliding scale, hands-on gardening & composting classes based on an agro-ecological approach, tools & resources.

3. Encourage community ‘waste’ recycling & soil building: working with Compost Now, Trader Joe’s, neighbors, and woodshops to divert landfill waste and turn it into healthy soil.

4. Provide a gathering space for continuing education or community strengthening events.

5. Instill values of ecological stewardship, the compassionate treatment of farm animals, waste reduction and recycling, and growing healthy and environmentally sound foods, through programming including sliding scale field trips, a farmer-for-the-day program, and an outdoor classroom series.

6. Improve access to healthy foods for marginalized communities in New Orleans by distributing produce bi-weekly in food shuttles.
SUGAR ROOTS FARM’S NEEDS

1. Kitchen/Classroom space to accommodate 10-15 people
2. Large counter space for demonstration classes
3. Large vegetable washing station + drying space
4. Rainwater collection
5. Flexible space with movable furniture
6. Visual connection between barn and the kitchen
7. Safe for kids
8. Durable materials that can keep bugs out of storage areas
9. Fits into the context of the farm
Like most of coastal Louisiana's bottomland hardwood forests and semi-swamps, the site suffers from water management issues. Student research included regional and site-specific flood mitigation techniques and site surveying to better understand water flow and possible solutions.
Small Center's work with Sugar Roots Farm began in the summer of 2021 after their proposal had been selected through an RFP process. The team visited the site before the semester started to meet with Sugar Roots Farm staff to better understand the farm's mission, the possible scope of the design + build project, and identify possible project sites.

Student engagement started in late August with a meeting at the farm to learn about the site, the challenges and opportunities it posed, and the everyday work that happens on the farm — including growing, land stewardship, and education programming for youth and adults.

Students worked through a series of assignments over the following weeks to begin generating conceptual ideas for the outdoor teaching and demonstration kitchen. These made space for conversations about scale, materiality, and form.

The studio team then went through rounds of narrowing ideas, going from 24 concepts, to 8 design schemes, to 2 final proposals that were presented to the Sugar Roots Farm team throughout the design process. Ultimately, elements from both proposals were woven together, permits were secured, and construction began in November. Students worked in groups to tackle specific portions of the build: the main structure, signage, boardwalk and rope screen, & retention pond.
November 2021

- 8 teams present schemes — ideas are narrowed down to 2 design directions that are shared at the farm's annual fundraiser for feedback

December 2021

- Permits submitted and approved
- Signage and rope screen installed
- Winter recess

January 2022

- 2 design directions are shared at the farm's annual fundraiser for feedback
- Studio final review takes place on site
- Roofing and final punch list details completed

January 2022

- Primary structure erected and planting of retention pond begins
- Final scheme is selected and site work begins
- Material mock-ups and explorations begin
- Concrete slab is poured and steel fabrication begins
- Walls, kitchen area, and boardwalk built
Despite COVID restrictions the design team was able to engage with visitors and volunteers on the farm, leading to a series of activities with school groups who visited the site over the course of the fall season. This engagement directly fed into the design process along with the continued feedback of Sugar Roots staff, shaping the final design.
Students learned making techniques and tools before deploying to the site.

Research and testing helped determine the best materials for the project.

Material testing and scaled mock-ups allowed students to test various elements of the design before they were built on site.
On August 29th, just a few weeks into the project, Hurricane Ida made landfall as a category 4 storm, causing significant damage at Sugar Roots. The Small Center team paused 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 students that reinforced the importance of flexibility and responsiveness necessary when working on small community-based projects.
Our process began with a series of individual design explorations that highlighted overlapping interests and themes across our team of 24 students. From there, students consolidated into teams to further develop ideas of threshold, materiality, natural cycles, core + canopy, water management, and expressive structures. Groups continued to consolidate until we reached two final ideas to present to partners and their constituents.
CONCEPTUAL DIAGRAMS
Continued engagement with Sugar Roots leadership, staff, and users throughout the design process and material investigations helped inform the final design proposals.
ITERATIONS

SHED

BRACKET

CANOPY

CORE

CIRCLE

TRIAD

SPLIT-ROOF
The iterative design process began with conceptual diagrams, was developed through material testing and built mock-ups, and culminated in two final proposals for consideration by Sugar Roots and its constituents.
Brackets Plan

1'-0"
0'-8"
5'-0"
5'-8"
6'-7"
5'-0"

Brackets Plan

2"
2"

6'-6"
4'-0"
18'-0"
6'-4"
46'-10"
4'

DIAGRAM
WATER STORAGE

WATER STORAGE

12'-0"
12'-1'
Cross Section 2' 0' 4' 8'

LONG SECTION

2' 1'

12'-8'
1'

East Elevation

Sugar Roots is a teaching farm located on Lower Algiers. They educate K-12 students on ecological stewardship, the basics of where their food comes from, and how to make healthy eating decisions using place-based, experiential, hands on curriculum. The land they farm provides the New Orleans community with tools and resources to grow fruits, vegetables, plant medicine, eggs, milk, honey, and meat in a sustainable, compassionate, and ethical way. Their goals of demonstrating the ability to farm in harmony with the earth using locally informed, low-waste, full-circle farming practices inform their advocacy for localized economic systems to ensure healthier communities.

Sugar Roots Farm Collaborators
Nick Jenisch, Ann Yachim Feringa, Nick George, Ella Jacobs, Sam Lindley, Connor Little, Mandii Malhotra, Valentina Mancera, Johnathan Michka, Brooke Bullock, Valeria Emmett, Annika, Kendall Vista out to the gardens beyond.

Meanwhile, the path between the barn and the pavilion leads to an earthen path that also crosses to the garden. Along the backside of the kitchen (sharing a plumbing boardwalk that takes visitors across a bioswale to the Bower garden and along a series of screens that create both signage and infographics for Sugar Roots. The boardwalk also serves as a protective buffer along the edge of the Bower Crosstown site and combines elements from both proposals.

Final Design Proposals

Casual discussions during Sugar Roots' Fall Festival, which drew hundreds of visitors. These moments help students hone
The final design contained elements of each of the last two proposals including farm-wide signage, a lagoon to retain stormwater, and a significant new structure to meet the farm's expanded needs. The new indoor/outdoor area provides gathering space, areas for processing fresh produce, a teaching kitchen, and more.
The team considered the necessary adjacencies of various programmatic elements and arranged the plan around a central gathering area and teaching kitchen. Shifts were made to enclose and "bracket" the indoor/outdoor area to help define space while still allowing connection and views to adjacent buildings and an observation deck above the new lagoon.
MASSING
- BRACKET
- PUSH to create a social space in the front and shrink the footprint
decrease the total height to match the size of existing structures
- create a mono-pitched roof to match the form of existing structures and assist in water management
- create a circulation space and provide a lookout space for the bioswale

SLOPE
create a mono-pitched roof to match the form of existing structures and assist in water management

ELONGATE
create a circulation space and provide a lookout space for the bioswale

ASSIGN
kitchen / appliance storage (left)
education wall (right)

COVER
provide protection from weather
The design team explored a range of natural and sustainable materials suited to an organic farm, creating patterns and textures to distinguish the structure, indicate intended use, provide shade, and otherwise enhance the experience of its users.
33" concrete top
2' 0" 3' grade beam
1' 6" 3' 0" wire mesh
rebar cage
#5 reinforcement bars
concrete rocks
(prevent rebar movement)
drainage pipe
plastic vapor barrier
ties

Foundation plan diagram

A
B

Non-structural concrete
concrete
sand

Foundation plan diagram - reinforcing bars + cages

Foundation plan diagram - continuous footer vs grade beams

Foundation plan diagram - original
34 Construction

- 6''x6''x11' steel column
- 2''x4'' wood column
- X-type bracing system
- Three rows of 2''x12'' timber beams

The Final Structure Diagram
INITIAL SELECTION OF STRUCTURE TYPE

Inclined Beam
Advantages: Simple structure, less material, easy to install.
Disadvantages: Structure lacks scale and detail.

Horizontally Raised Beam
Advantages: Increased inclination of the roof, provides intricate detail.
Disadvantages: Uses more material.

V Column
Advantages: V-shaped columns allow the roof to extend forward, giving shade to the steps. The structure is elegant and does not waste material.
Material exploration continued to inform on-site decisions. Students cast exposed aggregate concrete panels, explored water-jet cutting of corten steel panels, investigated the feasibility of prefabricating custom masonry and other elements beyond the project’s primary structural elements.
Design and construction by Small Center and students and faculty of the Tulane School of Architecture in collaboration with Sugar Roots Farm

COLLABORATORS

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