Base Camp Sarasota

progress report | Preliminary Design Report

Prepared by: Florida House Institue for Sustainable Development

Kimley-Horn and Associates, Inc.

URBAN RESOURCE GROUP
A DIVISION OF KIMLEY-HORN AND ASSOCIATES, INC.

Florida House
INSTITUTE for
SUSTAINABLE
DEVELOPMENT

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1.0 Introduction

This preliminary design report for **Base Camp Sarasota** is simply one step of many needed to bringing a world class field station where nationally and internationally renown scientists can come to study the subtropical ecosystems of Southwest Florida a reality. Since little documented research of this climate type exists, a rich opportunity exists for obtaining grant funding and to develop such research programs. This initiative mixes both economic and ecological opportunities, also known as Natural Capitalism. Specifically, the field station is seen as a major stimulus for the Life and Environmental Sciences Cluster Group of the Economic Development Corporation of Sarasota County (EDC) and primary funding for this initial effort was provided by the EDC.

The goal of the preliminary design report is to develop design concepts and conceptual design. **Base Camp Sarasota** is part of a larger initiative known as the Fruitville @ i75 Center for Sustainable Communities being developed by Sarasota County Government, New College of Florida, and the University of Florida.

A chronology of the evolution of Base Camp Sarasota is provided below:

1. Project originally proposed by ex-state senator Robert Johnson and then-CEO Meg Lowman to Selby Gardens in 2002, proposing that Selby (with its land-based ecology mission) become the center for a Florida ecological center. Put on hold by Johnson and Lowman.

2. Project resurrected by Sarasota County and New College partnership in 2004, with additional partnership by University of Florida and other regional institutions.

3. Planning grant submitted by M. Lowman and funded by Triad Foundation in 2005 to convene a Science Advisory Committee to select site for a potential field station, as endorsed by Sarasota County; committee completed its process in September 2005.

4. Design workshop grant submitted by Life and Environmental Sciences Cluster of the Economic Development Corporation of Sarasota County (EDC), and funded by EDC to create a master site plan and schematic green design for buildings, facilities, and plans for future use.

In addition, Base Camp Sarasota has the following missions:

- To study subtropical ecosystems.
- To train tropical, subtropical and temperate biologists.
- To advise and service local environmental managers.
- To provide scientific, peer-reviewed records of southwest Florida ecosystems.
- To serve as a model for tropical ecosystems research and their related issues.

2.0 Site Selection

The vision for Base Camp Sarasota is to establish a research and education center offering state-of-the-art laboratory facilities and small conference and environmental education facilities amidst the natural habitat of southwest Florida. The site will feature cutting edge green design and demonstrate a low impact to the landscape.

Within Sarasota County, extensive discussion and site selection work by the Scientific Advisory Committee was conducted through out publicly owned lands within the Myakka river watershed. Five sites were ranked in early phases resulting in the selection of the Horse Ponds site on the Carlton Reserve. This site was selected for its accessibility, security, and habitat variety. The preferred site is located approximately on Figures 2.1, 2.2, and 2.3. Sarasota County will have final approval of site selection.

Figure 2.1 – Preferred Site Location

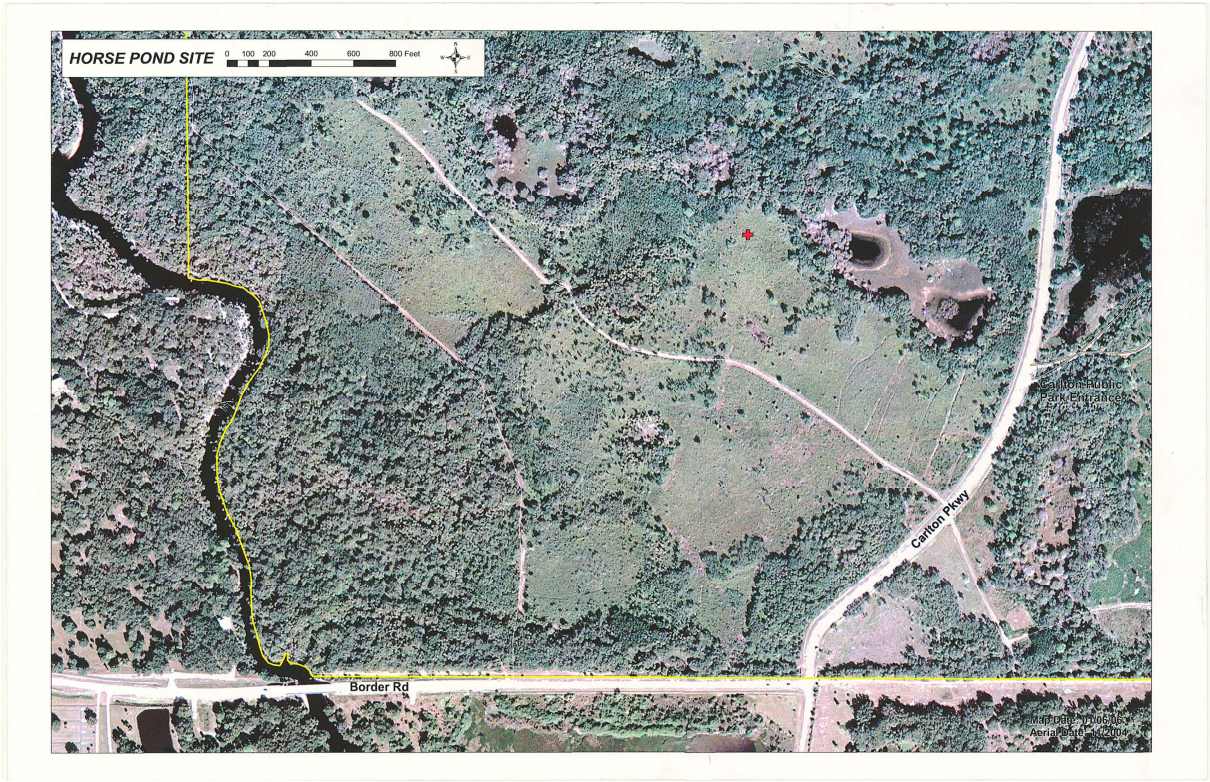

Figure 2.2 – Preferred Site Location

Figure 2.3 – Preferred Site Location

3.0 Design Concepts

On December 14, 2005, the Board of Directors of the Florida House Institute met to discuss design concepts and criteria to be considered at a subsequent design workshop. Present at this meeting were Steve Suau, John Lambie, Anne Merrill, Terry Osborn, Frank Folsom Smith, and Meg Lowman. The following represent a summary of elements discussed at the design concept meeting.

3.1 Uses

3.1.1 Residential

- Three independent units with bedroom, kitchen, porch to be used as family quarters or for long-term scientists

- Bunkhouse with 5 rooms at 4 persons each plus 2 toilet blocks and verandahs/porch

3.1.2 Research Facility

- **Lab** – to accommodate 8-10 persons working at once, at approximately 20 ft. x 30 ft. in size with 3 bays of bench space, including refrigerator, drying oven, microscope stations, leaf area meter, dirty work bench space, wet lab bench space, and paperwork bench space; outdoor mudroom covered screen area for outside work with sink and bench space.

- **Library/classroom** – 16 ft. x 32 ft. for each of two spaces, with perhaps a sliding separation wall. Library has natural history book collection, 3 carrels, 2 herbarium cabinets, table space and good natural light with desks or carrels or reading chairs at window bays.

- **Office space** – 3 offices, one slightly larger for station director of 10 feet by 12 feet and two offices for senior scientists at 8 ft. x 12 ft.

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3.1.3 Dining facility/meeting area

- A 30 ft. x 50 ft. space to service 60 diners, including a kitchen (1000 sq. ft. for dining room and 300 sq. ft. for kitchen) or host 120 chairs for meeting room. Also nearby is an 8 ft. x 12 ft. administrative office to service small conferences, catering and other multipurpose use of this facility.

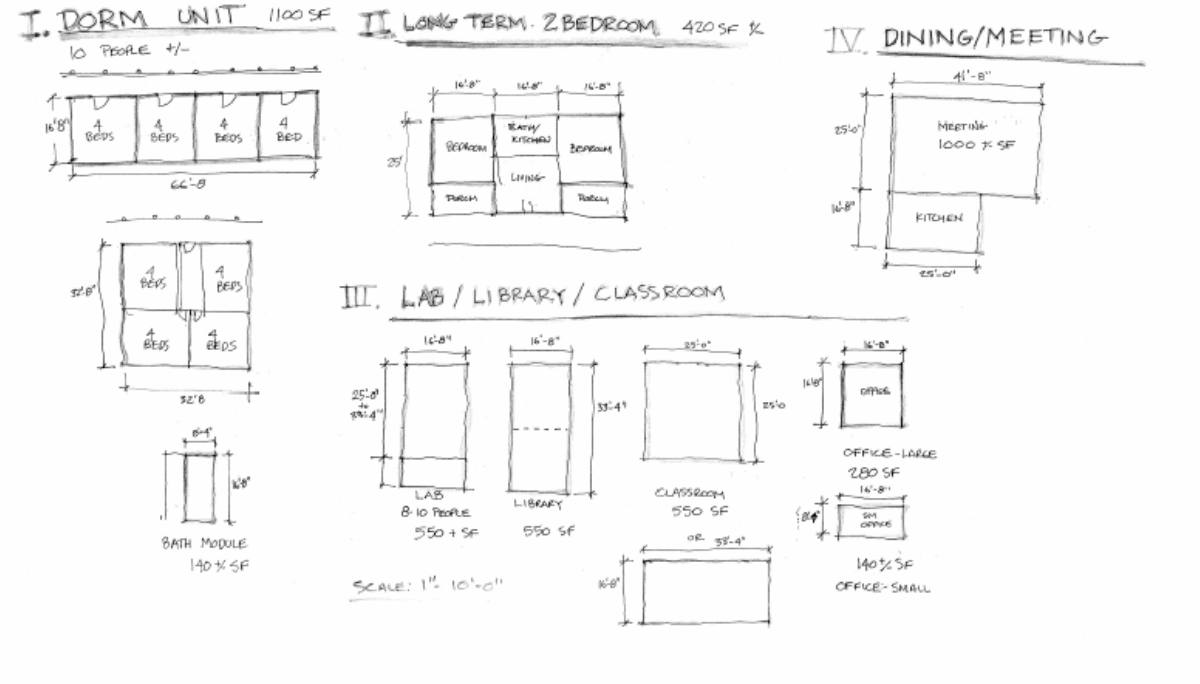

Figure 3.1.1 – Preliminary Building Square Footage

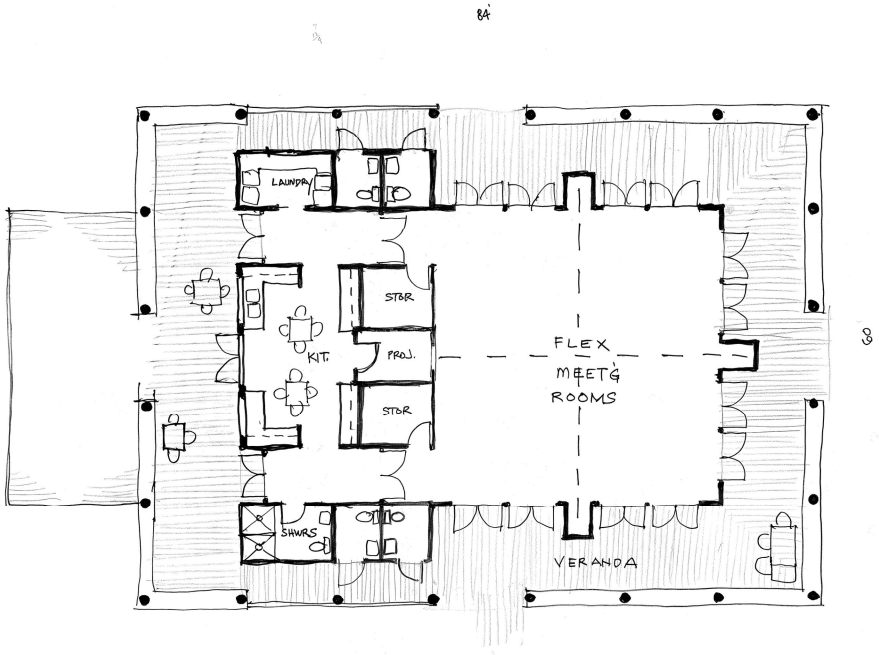

Figure 3.1.2 – Conceptual Dining/Meeting Area

3.1.4 Parking and access/vehicles

- Shell/grass parking out of sight.
- Offsite additional parking to link with existing Carlton parking.
- Back driveway to access kitchen and administrative out of sight from ecosystem activities.
- Solar-charging golf carts and/or electric ATV vehicles to transport. handicapped, VIPs, and perhaps occasional scientist use.

3.2 Site Planning Considerations

- Research separate from conference/dining activities.
- Outdoor recreation and aesthetic area.
- Design brings outdoors inside all rooms and building spaces.
- Possible rooftop gardens?
- Cisterns to augment water supply.
- Waste water recycling.
- Energy – stand alone.
- Zero waste.
- Interpretive design of all elements for public education.
- Boardwalks to conserve soil and ground ecosystems and to direct users in specific spaces.
- Canopy walks to foster environmental appreciation.
- Above-ground buildings to integrate with flooding of natural ecosystems (tree houses?).
- Infrastructure needs – water (well), sewer (septic), electric, internet access (wireless)

3.3 Hypothetical Construction Phasing

3.3.1 - Phase 1

- Classroom and lab unit; dorm unit to sleep 15-20 (five rooms of 4 bunks each and/or four rooms of 4 bunks plus one faculty room with two bunks) with office space; one housing unit with kitchen space to accommodate faculty or station manager, and include office space.

3.3.2 - Phase 2

- Kitchen/dining unit that can be utilized as lecture hall; two additional units for scientists of long-term stays (with bedroom, office, kitchen, and porch).

3.3.3 - Phase 3

- Greenhouse, parking, boardwalks, additional library/small conference auditorium.

4.0 Conceptual Design Workshop

On January 6, 2006, a workshop was convened at the Keating Center (New College Foundation). Brief introductions and assignments in the board room followed by immediate division into two working groups— each with architects, biologist, citizens, county staff and leaders of environmental fields to define a diversity for each design group. The following individuals participated in the team capacities noted below:

- Design team: Pliny Fisk, Terry Osborn, Frank Smith, Jerry Sparkman, Michael Carlson.
- Critique team: Steve Suau, Meg Lowman, Elzie McCord, Jodi Johns
- Facilitator: John Lambie.
- General stakeholders: Michelle Harvey, John Cranor, Kathy Baylis, Diane Andrews, students and others from community as identified.
- Graphics and rendering and logistics: Jeanne Zeigler from Folsom Group, Kimley-Horn and Associates, Inc.

4.1 Agenda

Sunday January 8th
10:00 a.m. Site visit – meet in parking lot of Carlton Reserve
5:30 p.m. Design team meeting/dinner
7:30 p.m. Pliny Fisk – public lecture at New College

Monday January 9th
8:00 a.m. Design team meeting
10:00 a.m. Design team set up charrette at Keating Center, New College
10:30 a.m. Design process begins
12:30 -1:30 p.m. Lunch with a pinup and critique ongoing
1:30 - 5:30 p.m. Design process continues
5:30 - 6:30 p.m. Pinup and critique and wine and cheese discussion
7:30 p.m. Design team dinner

4.2 Attendees

Rick Storsberg (Sarasota County Parks & Recreation), Tim Snyder (Osborn Sharp Associates, Architect), Raymond Kaiser (Private Environmental Consultant), Debbie Blenco (Sarasota County Parks & Recreation), Terry Osborn (Osborn Sharp Associates), Steve Suau (Kimley-Horn, Engineer; FL House Institute), Anne Merrill (FL House Institute and EDC, Planning & Development Consultant), John Lambie (FL House Foundation), Jono Miller (New College, Co-Director Environmental Studies), Meg Lowman (New College Professor of Biology & Environmental Studies; Director of Environmental Initiatives), Pliny Fisk (Green Design Architect), Elzie McCord (New College Assistant Professor of Biology), Frank Folsom Smith (The Folsom Group), Michael Carlson (Carlson

Studio Architecture), Diane Andrews, (EDC, Business Development Manager), Sandra Gilchrist (New College, Division Chair/Natural Sciences).

4.3 Site Design

4.3.1 Design Elements

- Loop walkway linking elements of the field station and facilitating research "outside the door.
- Education center for the public across the road to inspire students and share the excitement of the research ongoing at the station.
- Portal on the east side of road to organize human activities offsite from the station.
- Tree house structures with elevated board walks.
- Family and adult housing far to the west of the lakes for solitude.
- Possible two labs, one close to the central facility and one to the west in isolation.
- Central dining/verandah facility in the middle of the two lakes that serves the field station with multiple uses for small conferences, County workshops, special environmental education days, and Biomimicry workshops.

The following sketches that included draft suggestion of possible tree house elements, elevated walkway placement, and overall site plans (extended and clustered).

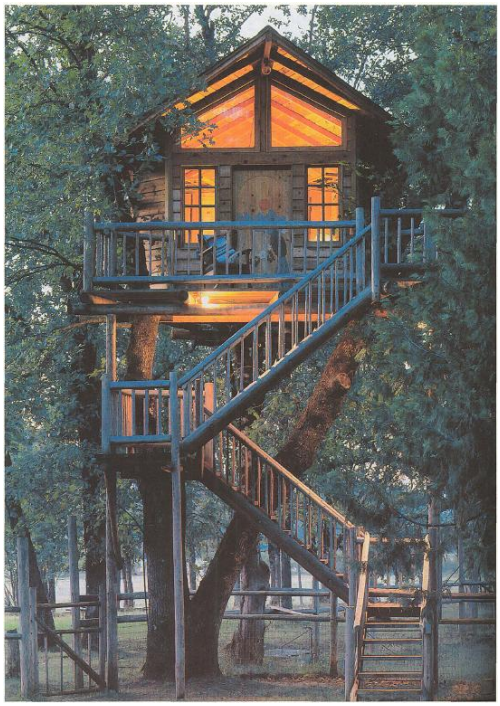

Figure 4.1 – Tree House

Figure 4.2 Elevated Walkway

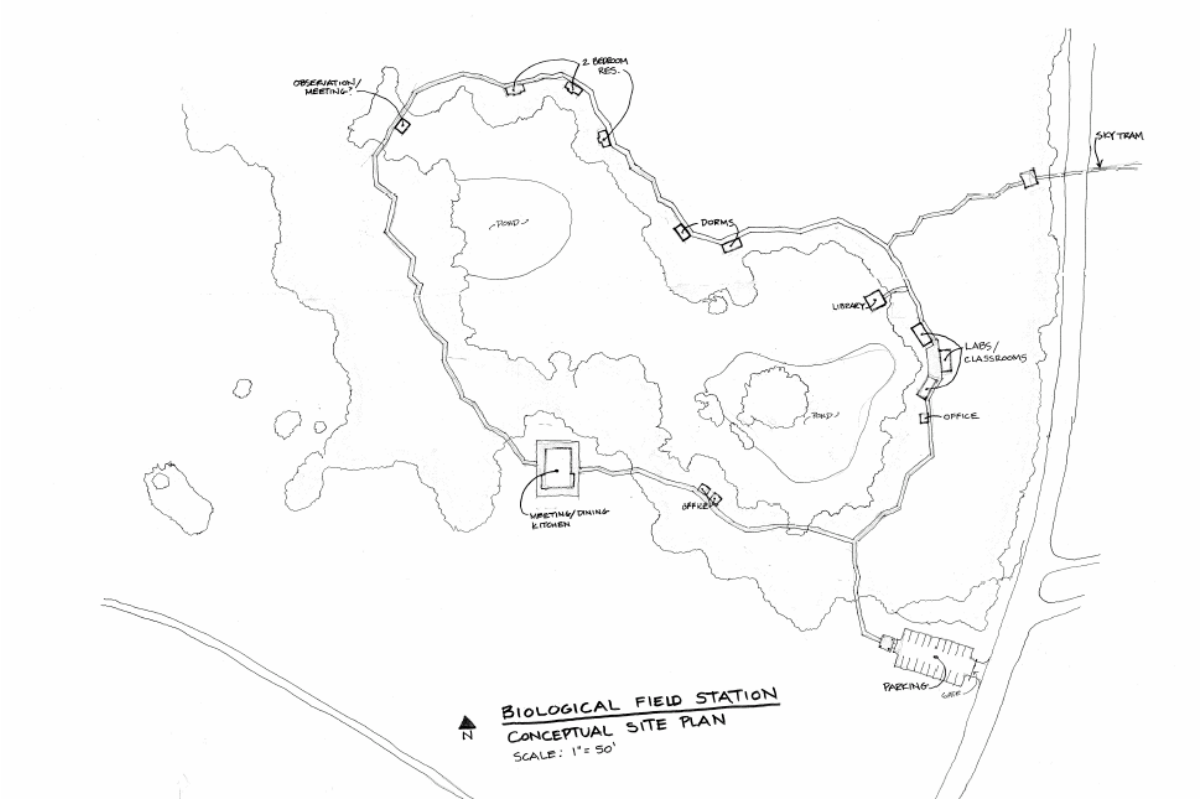

Figure 4.3 – Conceptual Site Layout 1

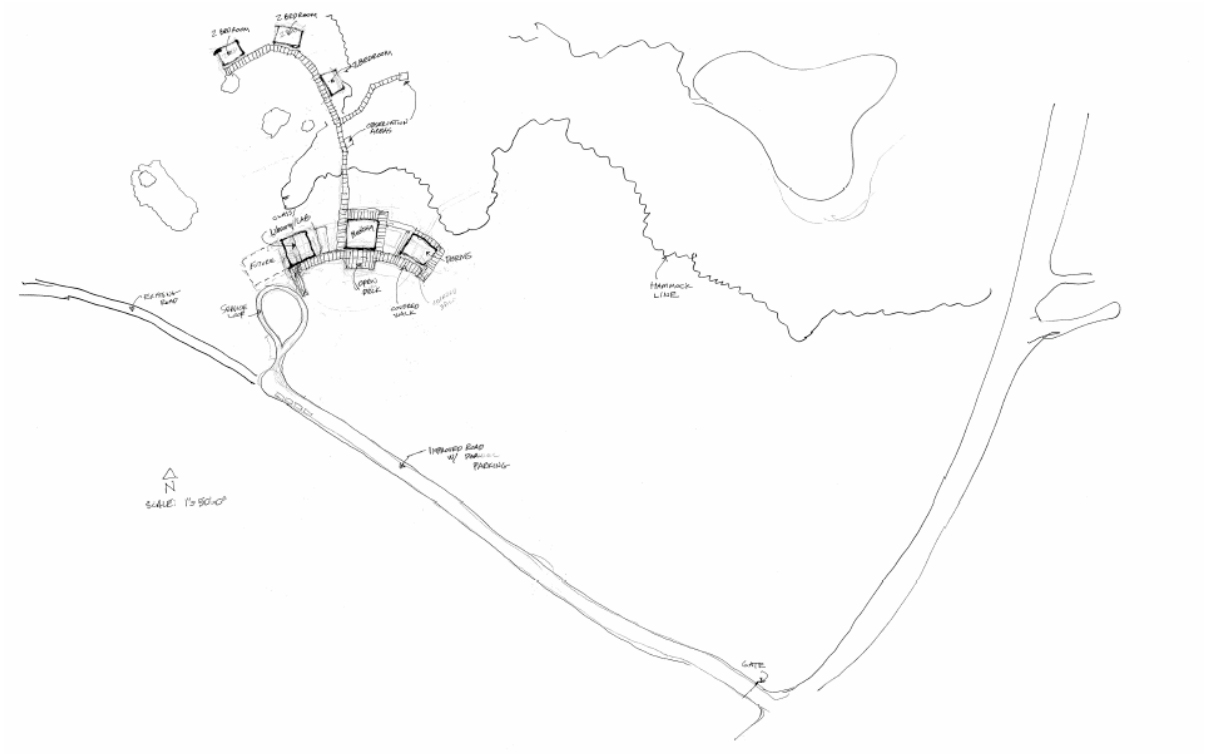

Figure 4.4 – Conceptual Site Layout 2

4.4 Building Design

The process of design is to think up front, to plan the basis to achieve the goals, and then spend the last moments in the drawings and final design. Plinty Fisk recommended using a cell or grid system as the basis of design evaluation.

4.4.1 Design Principles

- Exemplify a higher standard of green building and suitable construction techniques for a unique site. To blend nature and research facility with minimal footprint and site perturbation.
- Address site issues first, then building issues.
- Reduction of impacts on site – energy, materials, footprint, services in and out, etc.
- Interpretation and education should become incorporated into design – use natural light, native materials, creating signage about the environmental footprint.
- Buildings are serving specific users, which are scientists.

4.4.2 Design Considerations

- Water – In the wet season the water table within 12 inches of, or above the surface. In the dry season it could be 4 to 5 feet below the surface.
- Cradle to cradle – production and use of resources.
- Interpretation – educational value of buildings and site improvements
- Life cycle – consider all the operations of users
- Integrated transportation – how to come and go
- Regionalism – food, water, materials, power, (economic issues that will affect the ecosystem of the field station)
- Low impact foundation systems
- Create a curved building with central facilities such as laundry, verandah, with maximum views, library on second story with a surrounding view to enhance community and communication.
- Utilize dorms like tree houses along a boardwalk/walkway structure to allow for solitude but also opportunities for clustering.

4.4.3 Design Elements

- Screened porches
- Verandahs that are covered for shade and for mosquitoes
- Views of ecosystems
- Bringing outside inside
- Exit and entrance for food, waste, etc.
- Central areas (kitchen) to encourage sense of community
- Augment energy with electric sunflowers (solar plates that look like flowers and follow the sun)

- Consider interior room names based upon scientific themes (i.e. Chuck Darwin suite, Richard Leakey room, Einstein laboratory, Marie Curie library) or funding contributors

Scale and life cycle are key elements of design. It is important to determine what we will use from the site for our life cycle. Sun, air, soil, vegetation, ecosystems, wind protection, and other natural elements exist at the site. The challenge is for the footprint to maintain the existing life cycles. To the extent possible, the facility should be organized in life cycle concepts that range from getting food to digesting food. From all this, the elements of scale emerge – sizes of building space, perspective of library versus lab versus bathroom.

4.4.4 Potential Building Units

Portal – this would be a site on the public site at Carlton where the scientists interface with the public. The portal sites on the public side along with public trails and the visitor center. On the left (west) side of the road is exclusively the scientist and research area. The portal is the energy source, wind power, transport center, collection and distribution of food and equipment into solar buggies to take across the road. Those using the site either go to the Visitor Center and take a canopy walk to the site or they hike along a trail that is also used by small, environmental vehicles that transport gear to the field station.

Visitor Center – located northeast of the wetland (P-2) on the visitor side of the Carlton road. A boardwalk extends out from the visitor center along the north end of P-2 with views and a special platform for birders, crosses the road with a canopy bridge, and then enters the hammock on the other side, with an eventual platform for ranger talks and opportunities for interpretation of scientific research. With a swipe card, scientists can proceed through a gate and continue on the walkway through the research canopy region, eventually coming down at the field station site.

Visible energy – Light shelves, PV shade systems (tracking, tracking hybrid, translucent), windmills, glass tube hot water. Show the technology so that visitors can see it for educational purposes.

The lab and classroom space is a wide open area, with decks, and a “Fat Wall©” in the middle that can be moved away to form one space or left intact to form two spaces. Structure is nuzzled in the canopy of the oaks. Bunk rooms have four individuals, designed to allow some privacy. There is a granny cabin of sorts that provides shelf space.

Buildings are off the ground, open-corridor, possibly tree house structures in some cases, of many various types.

Fat walls© include bathrooms, kitchenettes, lab spaces, closets, small office units, etc,

Units of structure – include Fat Walls© at the ends, affixed by simple long screws.

4.4.5 Building Systems

World renowned architect, Pliny Fisk who participated in the Design Workshop has developed building systems that minimize habitat disturbance (his building support systems do not degrade the soil or use great amounts of cement, etc.). He has also developed several foundations systems that can replace typical energy intensive cement foundations. Such systems include Fast Foot© and Stingray/Mantaray©. GroHome© is one of his concepts, which allows units to be put together to create structures of different sizes with different amenities and opportunities for expansion. Figures 4.5 through 4.11 illustrate these building systems.

Figure 4.5 - Building System based upon Cells

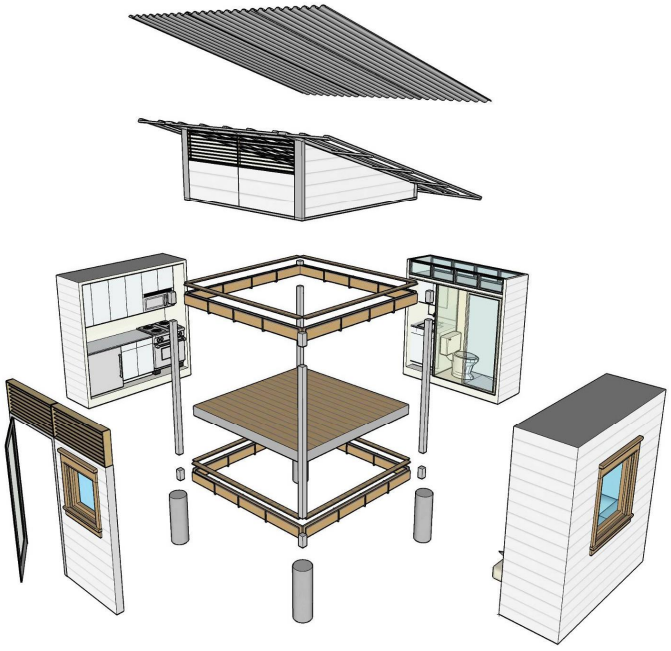

Figure 4.6 – Building System Example

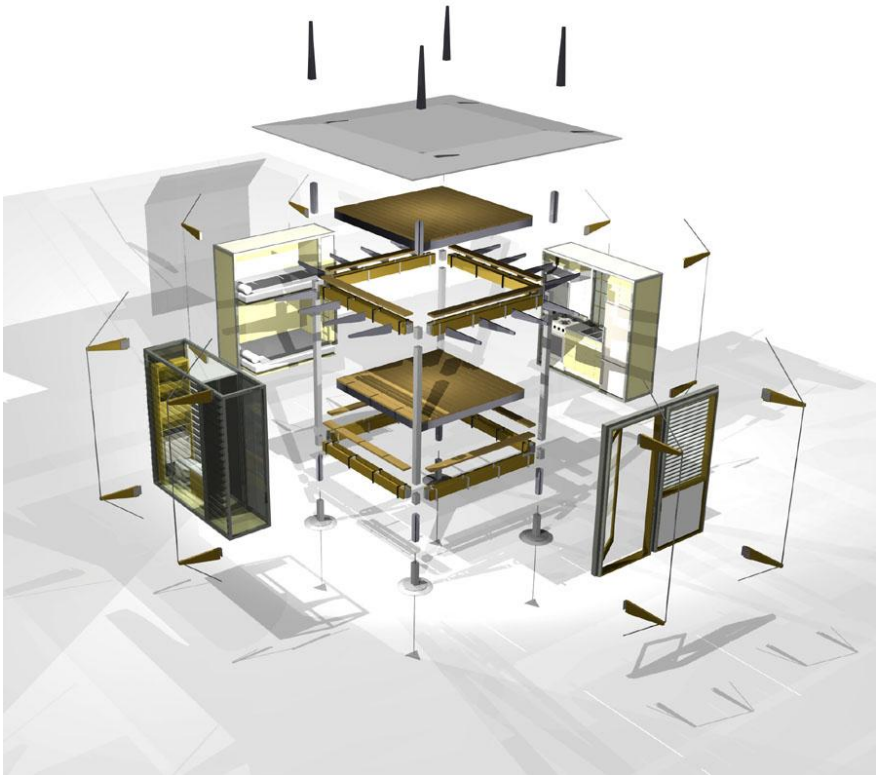

Figure 4.7 – Building System Example

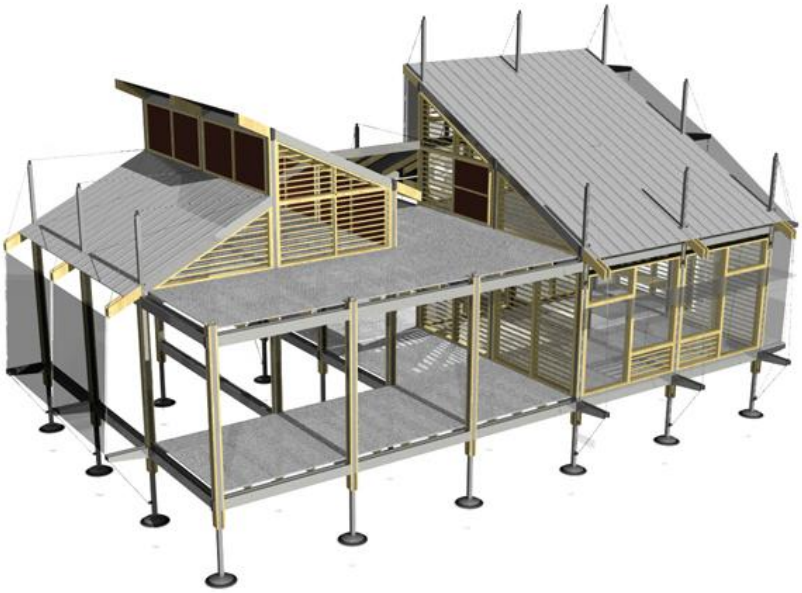

Figure 4.8 - Building System Example

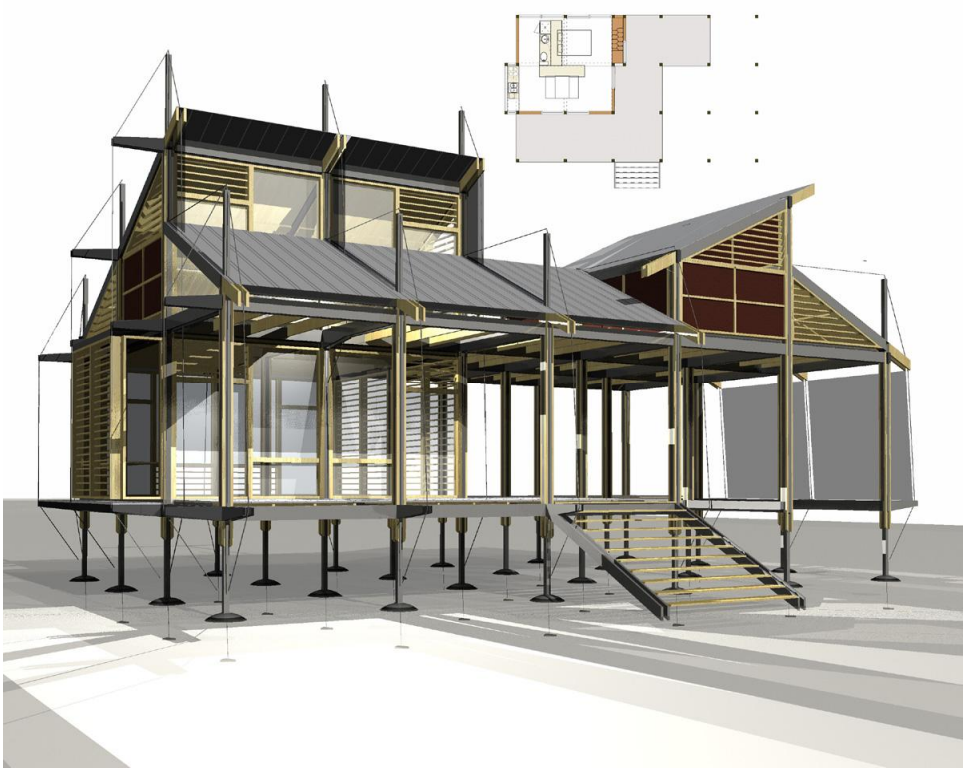

Figure 4.9 - Building System Example

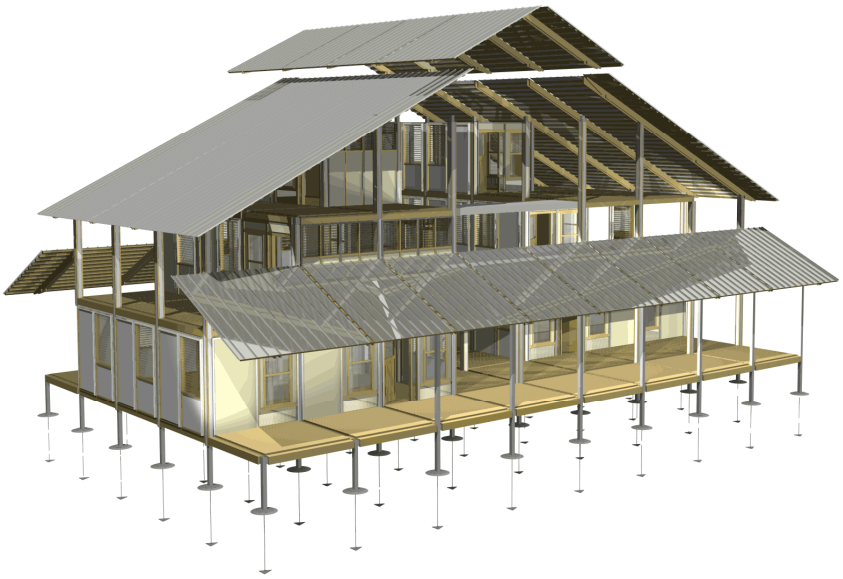

Figure 4.10 - Building System Example

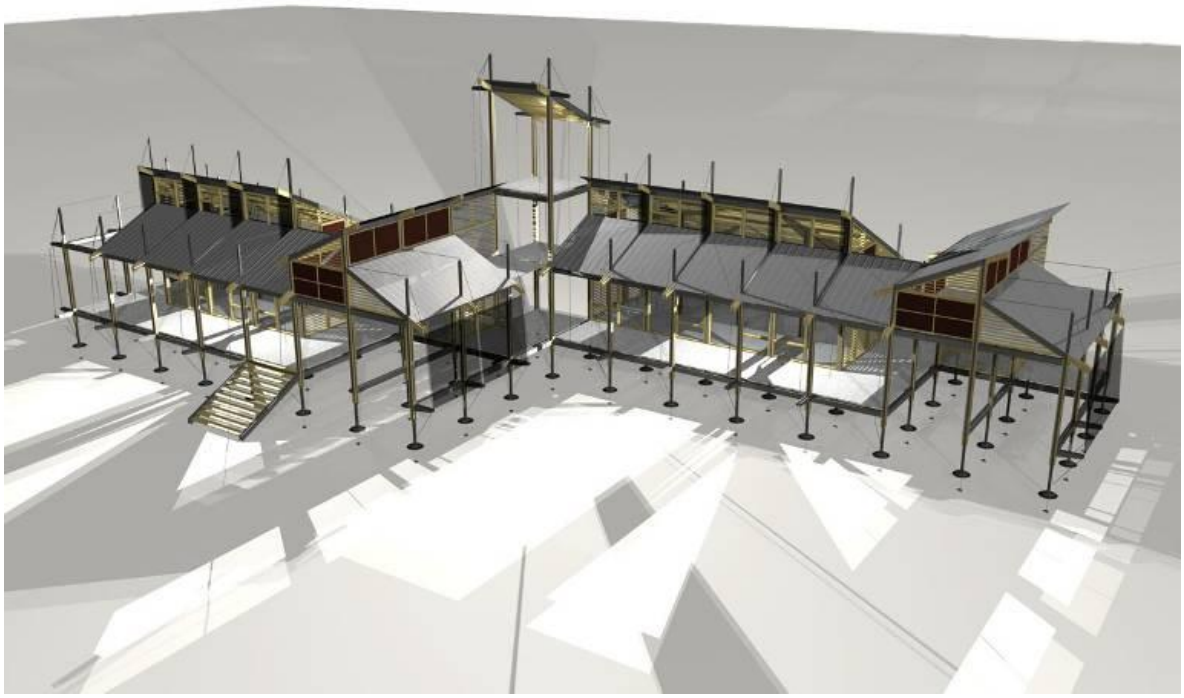

Figure 4.11 - Building System Example

5.0 Recommended Next Steps

- Finalize site selection with Sarasota County Government
- Map out funding strategies plan and timeline integrated into the Fruitville @ i75 Center for Sustainable Communities
- Engage Pliny Fisk to complete development design