A VERNACULAR APPROACH TO SUSTAINABLE DESIGN

by

LEIGH A. SWIFT

B.A., University of Colorado, 2000

A Report Submitted to the Lamar Dodd School of Art of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF FINE ARTS

ATHENS, GEORGIA

2008
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Approved:

[Signature]
Thom Houser, Major Professor

4/24/2008

Date
Artist Statement

I designed a research and educational facility for a cypress tupelo swamp and constructed wetland area. The buildings for this facility look toward southern, vernacular architecture of the 19th Century and combine this inspiration with new technology in order to create structures that are sustainable and original in design. I feel strongly that new structures must consider the natural environment as an element of the design to be featured and accentuated rather than eradicated. I strived to achieve balance with my site by blending the indoors with the out. I also attempted to enhance the users’ experience by giving them access to fresh air and natural light. Vernacular architecture inherently incorporated these traits into their design and I looked closely at their methods to find ways of making my own designs more sustainable and user friendly.

Since I was looking to the past in my design, I thought it was also appropriate for the printing process to combine old methods with new technologies. Van Dyke Brown is an early photographic printing process which closely parallels the process of cyanotype, the original blueprinting process. Digital prints of the site plan, floor plans, sections, and elevations serve as large-format negatives from which the images are produced. The light sensitive chemicals are brushed onto watercolor paper, covered with the digital negative, and then weighted with glass so the images can sit in the sun to develop.
Smaller Van Dyke Brown prints of my perspective drawings as well as digital photographs of the actual site are created in the same manner. These smaller images are hand rendered to further distinguish the handmade prints from their own cutting edge, digitally produced origins.

Instead of constructing models of the buildings, I created a series of stereographs to be viewed through stereoscopes. The use of this 19th Century technology not only produces the optical illusion of being on the site or in the facility, but also mimics the act of looking through a microscope— the very same action performed by the scientists and students who work and learn in the facility I have designed.

Figure 1.
Project Site- The Swamp’s Edge.
The Site

The choice of a swamp for my site may seem unusual, but it had several obvious benefits. First, it was a real site in Augusta, GA. This provided me with easy access to the site so that I could familiarize myself with the swamp in order to site my buildings properly. I could go out, walk the land with few interruptions, without feeling like I was trespassing, and acquire a good knowledge of the land’s natural features. The consideration of the natural environment in relation to the design of a structure is very important to me and I wanted the placement of the buildings to fully enhance the natural beauty of the swamp.

Familiarizing myself with the site also allowed me to consider the sun’s path so that I could design for solar light and, maybe even more importantly, for shade. But I also wanted to have adequate airflow and ventilation and of course- great views. It proved to be an interesting endeavor to design buildings for people who basically came to the site to be outside- not inside. I had to integrate the indoor and outdoor space so that the end users did not feel as though they were missing something during the time they were required to be inside or were perhaps visiting the site during less than desirable weather.

I also chose the site because it is managed by the Southeastern Natural Sciences Academy which is a real organization also located in Augusta, GA. The academy provides educational programs and public outreach events at the swamp and conducts research on natural resource
issues. They also help promote sustainable development practices in
order to balance the needs of the natural environment with economic
growth. I felt their mission was in line with my overall design philosophy
and I hoped my final design would be a visualization of their
environmental mission.

I thought the experience would be more rigorous if I were designing
to meet real client needs and project parameters. In the summer of 2007,
I was able to interview the education specialists and the researchers who
teach and work on the site, as well as the various areas of administration
that run the business end of the organization and help promote the site and
their mission. I was then able to begin my endeavor to design a facility to
meet each area's diverse yet equally important needs.

Organization

The buildings I designed are organized around six silos. The silos
serve as a focal point for visitors entering the site and are also the core
element for the radial organization of the buildings. From this center, two
elongated structures reach out to take advantage of the site's views as
well as more favorable wind and solar lighting conditions. The building
to the northwest (left) serves the visitor center and administration area
while the building to the south (right) serves the research and education
facilities.
Figure 2- The site plan showing silos at the core.

A large covered area wraps around three sides of the silos and connects the two buildings to one another. This area is loosely based on the idea of a traditional dogtrot. These structures were common in the South and typically had a roof and a floor, but were left open on the sides to provide the occupants with a pleasant outdoor room that often became the center of activity. This goal was the same as my own. The site serves many functions and I wanted a centralized area where people could gather in comfort and protection from the natural elements.

The curved form of the covered area helped to assure some portion of the dogtrot (as I will refer to the central, covered area from here on) would remain shaded as the sun moved throughout the course of the day. In the summer, the dogtrot is first protected from the sun by the shade of the trees in the swamp, followed by the mass of the Education and
Research building that is located to its south. The large concrete silos then serve to protect the dogtrot by providing a more substantial barrier from the sun than the roof of the dogtrot could offer during the long and hot sun of the site's afternoon, western exposure.

Figure 3. The Original Silos

The fact that the silos are concrete also helped to create more desirable thermal qualities for the dogtrot. The concrete forms retain much of the coolness from the evening hours during the warm day and aid in giving the space a sense of coolness. The opposite happens in the evening as the heat accumulated during the late afternoon sun then slowly releases itself, giving the space a gently warmed core.

Although the site is based on a radial form with the silos at the core, a third structure does not extend itself from this central element. Not only would a third building cause the covered area to lose its charm as a traditional dogtrot, it would also disrupt the overall effect desired by
the implementation of the site’s radial organization. Instead of an actual presence, a third form is left purposefully absent in the hope that its presence will still be subconsciously felt. This allows it to suggest the remaining, built structures are part of a larger plan that is reaching out to the site and simultaneously pointing people to the most important feature of the site— the swamp.

This embrace and emphasis is strengthened through the wide expanse of steps located on the east side of the dogtrot. They allude to the third form and help to connect the dogtrot to the swamp. People can stay in the comfort and protection of the covered area while maintaining the feeling that they are a part of the swamp and are still fully capable of experiencing the very reason they came to the site in the first place.

Figure 4. Perspective view from the swamp.

The steps not only serve as an impromptu spot for visitors to relax and view the swamp, they also form a readymade outdoor amphitheater.
This is important as the site often hosts public lectures on everything from dragonflies to creating your own backyard habitat. The education specialists also needed an outdoor area that was within close proximity to the building for addressing their students before or after a trip into the swamp.

The notion that the buildings embraced the actual history of the site was also of great importance to me. The silos were the perfect feature for the core element as they were original to the site and speak to the site’s previous life as a farm. First owned by Jacob Phinizy in the 1800’s, the land eventually served as a farm for Gracewood State Hospital. Patients would work the farm raising various crops as well as chickens, cows, and hogs. This provided most of the food for the hospital and gave the mentally disabled patients a sense of worth and accomplishment. The silos were the only remaining structures on the site and the actual hospital facilities were never located on the property.

**Visitor Center and Administration**

Located to the northwest (left) of the dogtrot, the Visitor and Administration building provides the facility with a more traditional space to conduct business and greet guests. This structure is one story and is raised off the ground as one might expect a building to be when located in a swamp or coastal area that is conducive to flooding. The raised floor was a typical vernacular feature in the Southern Tidewater Cottages built
in the Carolinas and Georgia and the Creole or Plantation Houses built along the Gulf Coast and Mississippi River. I wanted the visitors to feel as though the building could be older than it actually was and could possibly even be original to the site. The raised aspect of the building helped to meet this goal but also allowed the passage of air below the building to help keep it cool and dry.

Besides the raised floor, the building also features a broken pitch roof and wrap around porch. Both of these elements speak to vernacular features common for the area and, once again, possibly even expected by someone visiting a swamp. The porch in particular has a long history of protecting occupants from the elements. The porches are 12 feet deep and protect the structure's interior rooms from the direct light and heat of the
sun. They also allow people to stay in the shelter of the building while remaining outside.

From the front porch, people can enter the administration's lobby. The importance of this entrance is noted by the dormer window located directly above the double doors. It provides a focal point and attunes visitors to the hierarchy of the space since many of the offices and conference areas also feature French doors. All of the doors, both exterior and interior, feature working transom windows above them which allow air to still pass through the space even if the door is closed. This is especially important in indoor spaces.

Visitors to the swamp will pass the building as they enter the site from Lock and Dam Road. They also pass the silos and dogtrot. This allows them to orient themselves to the layout of the building before parking and deciding which way they need to go to get to their desired destination (see Figure 2). As they approach the building, they should first come to the entrance of the Visitor's Center and realize this is where they want to be and should be before they ever reach the administration's main entrance. Only a person knowing they have a meeting or appointment with someone in administration would probably choose to go further down to the next set of doors.

The Visitor's Center is accessible from its central location off of the dogtrot. This area consists of one large room with tables along the windows on the side facing the swamp, an exhibit area on the side facing
Figure 6. Interior of the Visitor’s Center with adjoining ‘Flex’ room.

the road and parking areas and a large service desk in the center where a

docent can provide further information as well as various publications

regarding the swamp. It is simply meant to give patrons a place to rest,
cool off, or warm up from their outdoor adventures, and to acquire

information.

A large ‘flex’ room is located off the visitor’s center. This can be

used for private meetings or gatherings, or opened up to the Visitor’s

Center to help accommodate larger than normal groups of people for

sizeable events such as the annual Earth Day Celebration or the Swamp

Stomp 5K Run. A small kitchen area is connected to the ‘flex’ room

which allows it to become a serving area for food during an event or
extended workspace for the kitchen. It can even be used as a break area for the staff and volunteers.

**Education and Research**

Directly across the dogtrot from the Visitor’s Center is the entrance to the education and research building. Occupants enter into a small lobby featuring a water fountain and built-in bench seating. A considerable restroom area is located in this space and at the same level to relieve overcrowding in the Visitor Center’s restrooms during particularly large events. A staircase leads down to the student classrooms and research laboratories or up to the student laboratories and deck. The stairs help to provide both a real and suggested division between these more private, special access areas located at the top and bottom of the stairs and the more public space of the lobby.

The lobby area can also serve people visiting the swamp very early or late in the day for special guided walks in which the only people at the site are the visitors and one volunteer. The volunteer office is upstairs in the same lobby area of the building. Doors close off the lower and upper levels from the hallways containing the laboratories and classrooms thus providing a contained unit housing everything the volunteer and the visitor might need (Figure 7).
At the opposite end of the building from the dogtrot is a bus entrance. From the front of the building and given the direction from
which all visitors enter the site, most people will not be aware of these doors. They not only affords an additional means of egress for the entire building, but also gives middle school and high school students visiting the site a more private entrance away from the more public core. I felt it was important to have some separation from these young adults and the general visitors to the site. This separation not only aids in keeping large groups together but also allays most general safety concerns.

Unlike the more traditional feel of first building, this structure is more contemporary. The façade has traditional elements but the other

![Figure 8. Education and Research façade from north building's porch.](image)

three sides completely break from this scheme. The two ends of the buildings are almost completely glass. The rear of the building is also largely comprised of glass and features a large upper deck. This deck is partially covered under the roof while the rest of the deck and the base
level of the building extend beyond. This was done to alleviate the large scale of the building as one approaches it from the swamp. Instead of encountering one large mass, the building's stepped back upper level helps to soften and deemphasize its vertical height.

Figure 9. Perspective view from the swamp showing stepped back design and glass side of the education and research facilities.

The Presentation

Just as the structures are organized around a central core, so too is the presentation of this work in the 2008 MFA Show. The site plan showing the silos and surrounding landscape serves as the large, central layout. This allowed me to break down the overall structure into separate layouts while still allowing the viewer to understand that the layout to the left features the building to the left of the silos, and the layout to the right features the building to the right of the silos. Smaller images of interior perspective views or photographs of the site are laid out in the same manner in the hope that the viewer still easily understands the interior
space is located within the building layout located to the same side of the centralized site plan.

Figure 10. Gallery proposal.

Stereoscopes are mounted to pedestals I designed and feature a stereograph that corresponds to the larger layout on the wall beyond. I wanted the viewer to see the three-dimensional image through the stereoscope, then look up to see the corresponding layout and hopefully take a greater interest in the information that layout provides.
Figure 11. Stereograph with the corresponding Van Dyke print of the site plan.
Figure 12. Rendered show proposal with view of the cubbyhole used to hold a loose stereoscope and stereographs for handicap accessibility.
Figure 13 and 14. Presentation of work for the 2008 MFA Show.
Figure 15. Close up of a stereoscope with stereograph of a classroom.
Figure 16. View into built-in cubby for loose stereoscope and stereographs.

Figure 17. Stereograph of the President’s Office.
Bibliography


