

Watching Towers



Nicholas S Ouellette

Semester Summary

ARC 550 - Regional Graduate Studio

Summer 2014

Professor Chad Schwartz

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Towards a Critical Regionalism, Six Points for an Architecture of Resistance | Kenneth Frampton

After reading the excerpt from Kenneth Frampton a number of important topics have arose that relate to a number of different topics within the field of architecture. Although the first two parts of the reading I did not get much out of, the last few parts resonated more with me after reading it a few times over. Part three talks about the topic of regionalism within architecture and one of the main points that I found more relevant was during the quote by Hamilton Harwell Harris. He wrote that “We call such a manifestation “regional” only because it has not yet emerged elsewhere...a region may develop ideas.” (p. 24). I believe this a growing trend within architecture today and has been for many years now. We discussed in class how in Western society we design large glass facade buildings that may fit well into our natural landscapes and climates, however these same trends are sent and used in other regions of the world such as the Middle East where they should not be used in because of the vast differences in climate but we still implement then because it is the current thing to do and people just accept

it and move on before noticing the issues at hand. Another major factor that influences this is the monetary value it takes to create these structures. Many designers and clients today put less emphasis on the how the building will look or how it reacts to the environment as long as it costs a certain amount and that amount is as low as they can get it. Whether it looks pretty or it has the necessary environmental applications is put on the back burner so to speak.

This monetary issue I also believe is relevant later in the text within part five where he reflects on the issues of topography in architectural sites. Frampton poses the statement that “...modernization favors the optimum use of earth-moving equipment inasmuch as a totally flat datum is regarded as the most economic matrix upon which to predicate the rationalization of construction” (p. 28-29). Site work is another monetary issue that can completely change the layout of an architectural piece.

The academic paper I have found for reading two is by Hadas Shadar and in it he discusses the way in which Critical Regionalist Architecture cannot be separated from the support system theory developed in the 1950s and 1960s. It also discusses that a “structure that is truly suited to a ‘place’ should fit and be accepted into advanced future structural change” (p 227). Hadas also brings up a difference between what he saw as ‘vernacular’ and ‘evolutional’ architecture. He states that vernacular architecture would be defined as architecture developed by the native residents, even if it meant without the use of architects and that evolutional architecture would be described as changing architecture to facilitate the needs of human beings (p 228). This point I related back to the point made by Harris of reading 1 when he stated that “We call this manifestation ‘regional’ only because it has not yet emerged elsewhere...a region may develop ideas. It may accept ideas” (p 24). Hadas’ idea of vernacular architecture relates to what Harris spoke of being regional in one area before it has emerged somewhere else and then at that point it becomes evolutional architecture because that basic idea is built upon and made better for the needs of the people living there.

This article took a somewhat direct focus on a few of the issues that we discussed after the first reading today in class. The idea that through our regionalist architecture we lose the ideas behind the history of many major architectural areas of focus. The example I bring it back to is the glass skyscraper in the desert areas of the Middle East. Before this regionalist movement that brought these glass buildings to the Middle East that are not energy efficient and allow for much heat and

sunlight to enter buildings, there used to be buildings there built out of 1-foot thick mud walls with little spaces for windows and large areas for ventilation to keep the sun out and the space cool. Instead of taking those ideas and throwing them out and just replacing it with the cookie cutter glass skyscraper, Hadas proposes using those techniques and evolving the old styles of architecture and bridging them with the new forms of evolving architecture in different regions of the world.

The example Hadas places in his paper are from housing examples within Israel. In the section he discusses how the “planners intuitively designed the [housing] patterns to suit the place, inspired by vernacular construction and integrating their insights into modern technology and modernist planning” (p 231). Hadas discusses three different housing styles in Israel and relates them to how the forms of architecture have shifted over time and evolved into new ideas. The first project he discusses talks about another issue that was brought up in the first reading regarding the issue of topography though. He states that the “intelligent use of the hill’s slope facilitated entry into two-thirds of the units from the street” (p 233). A few lines after he states “Thus, each housing unit had two façades: along the first façade, the unit benefited from a small garden and a view of the upper street; along the second façade, the unit had a view of the lower street (p 233). In this first house review, we can see how the site played a direct role in the creation of the building and the surrounding landscape instead of just flattening all the land and placing a cookie cutter building on top of the space. Using the site to create as much of an influence upon the architecture as possible.

Rappel a L'Ordre, The Case for the Tectonic | Kenneth Frampton

After reading through this section by Kenneth Frampton called Rappel A L'Order, I will admit that I am still unsure of this idea of tectonics in relation to architecture. One of the main messages Frampton tries to portray to his readers is the importance of tectonics and the idea that there is an art and a poetry to construction that should be prevalent in designs and reflected by choosing the right materiality and structure for a project. This idea of construction reflecting upon the materiality and structure can be linked back to the ideas behind regionalism that was discussed in readings 1 and 2. Using the same building construction methods as well as the materials that are at hand in a certain region should have a large effect on the architecture that is being designed there.

If this is done correctly it can also directly link into another aspect of Frampton's argument for tectonics when it is related to scenography. Within the introduction it states that Frampton "maintains that building is first an act of construction, a tectonic and not a scenographic activity" (p 1). If you follow this previous notion of making the construction and integral part of the building and creating it using the ideas behind regionalism, (local materials and methods) the scenography should come naturally with the architecture itself. Thus fulfilling both the idea that the building is not only a 'thing' as Frampton puts it but also a 'sign' of the region and the architecture and culture of that region.

The reading I have selected for part 4 is from the Royal Danish Academy of Fine Arts and is called Tectonic Thinking in Architecture. Within this article, a number of professors from the fields of architecture, conservation, and design come together to discuss the growing need to rethink the concept of tectonics to better fit the needs of sustainable practices within architecture and to help respond to the environment and plan for the future. Their main question for this article is “Can tectonic thinking form a basis for new strategies for contemporary sustainable building practices?” (p 7). Similar to reading 3 by Kenneth Frampton, this article takes two points by Gottfried Semper and breaks them down into how his theories can be related to this problem. The first point in the article brought up states “he [Semper] defines the tectonic as a result of conscious artistic work,” and later it states for the second point “he [Semper] sees the tectonic aspects of architecture concerning the material properties and the design of constructions, whereas the functional dimensions of architecture are paid less attention” (p 7). After analyzing the readings on regionalism, this idea of sustainability can be solved in a number of ways that relate to the construction of

the building. One of these ways that I can relate would be using wood from the region that the building is being constructed. Through this you eliminate the need to transport the materials across countries thus eliminated the CO2 emissions which are the main concern for many sustainable practices today. Although a conclusion to this problem was not included in this particular essay because they are continuing to work on the issue at hand, they did suggest that “For tectonic analysis the following three levels are suggested: product level – focusing on assembly of various elements or building components, system level – focusing on integration of various systems, and building level – focusing on organization concepts for various building constructions” (p 18-19). One of the things I have started to realize more is that when looking into tectonics it’s important to remember to not just look at the construction as one single entity but to remember that that entity should be linked to all the levels suggested by this group of individuals and also to a wider context of elements not just within the building itself.

Old San Juan Watchtowers



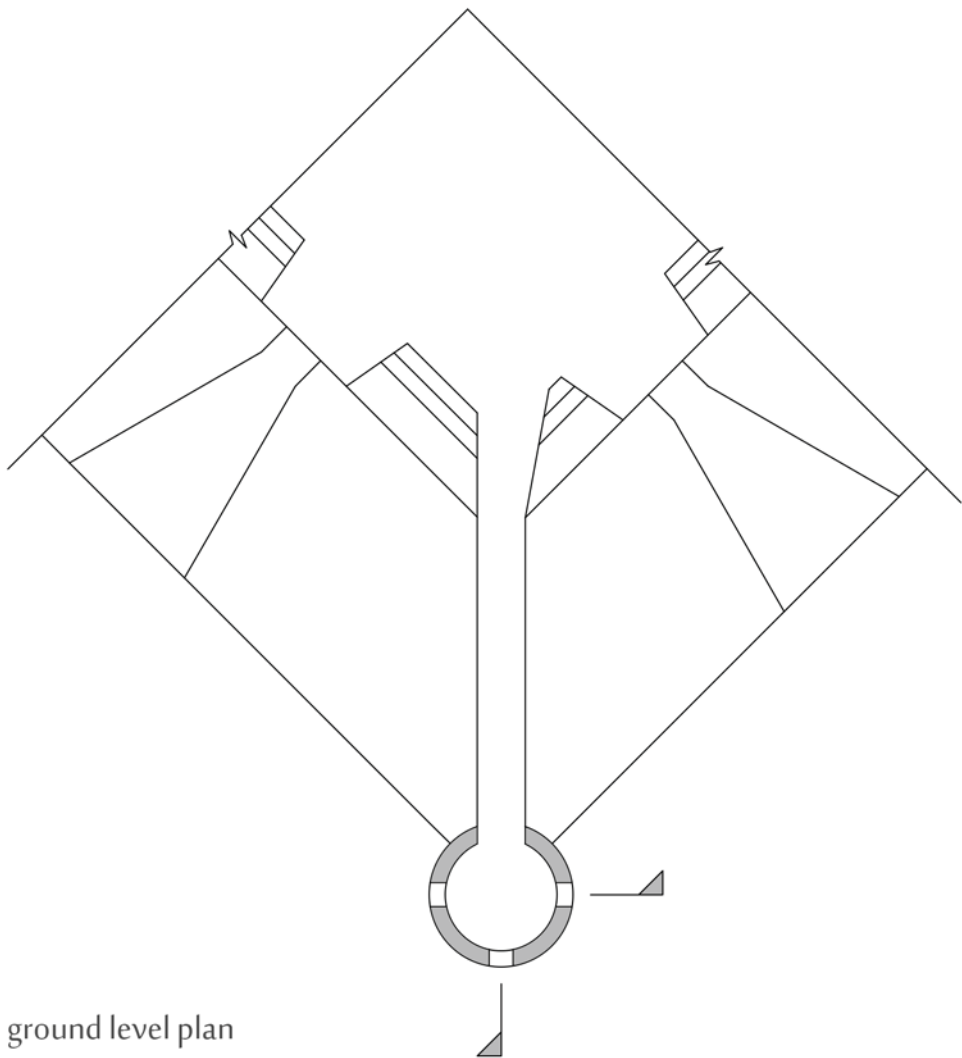
Location: Old San Juan, Puerto Rico

Notes:

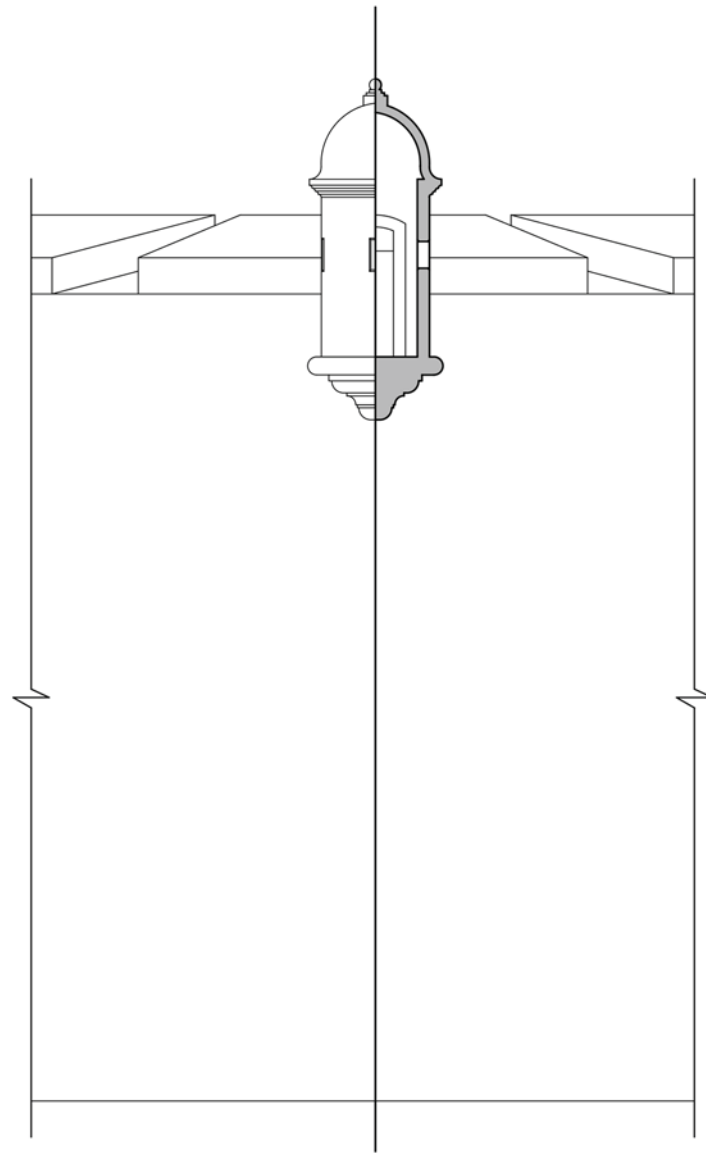
- Watchtowers located along the city walls that surround the island
- Many fortifications also line the city walls including the Fort San Felipe del Morro and El Palacio de Santa Catalina

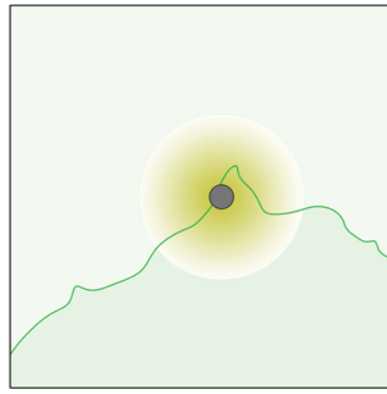
Materials: Natural Stone and Brick from surrounding environment

<http://images.boomsbeat.com/data/images/full/48465/18-jpg.jpg>



ground level plan





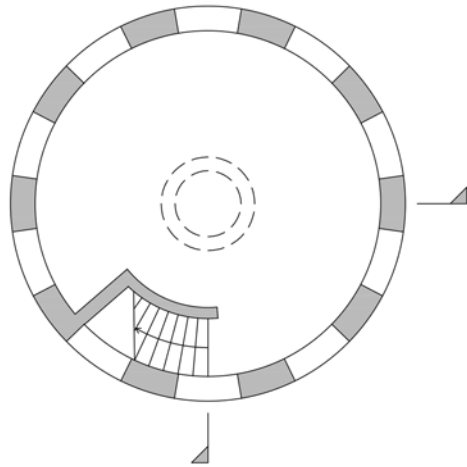
Location: Grand Canyon National Park, Arizona

Notes:

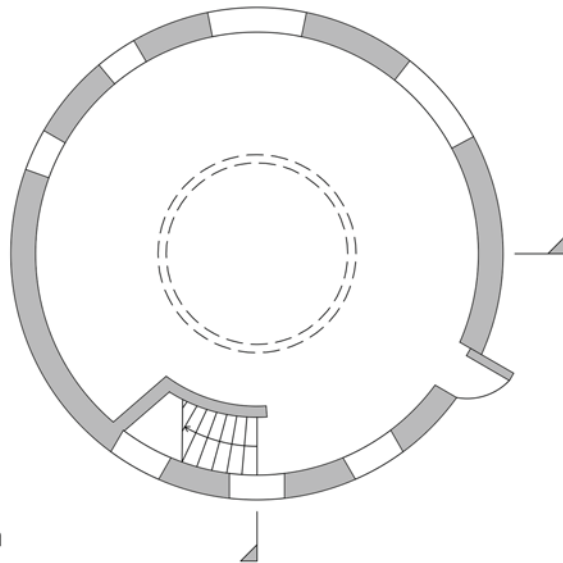
- Constructed in 1932, tower stands at 70 ft tall and 30 ft at the base
- Designed to blend into the surrounds as much as possible and become part of the natural environment

Materials: Natural stone with a structural steel frame

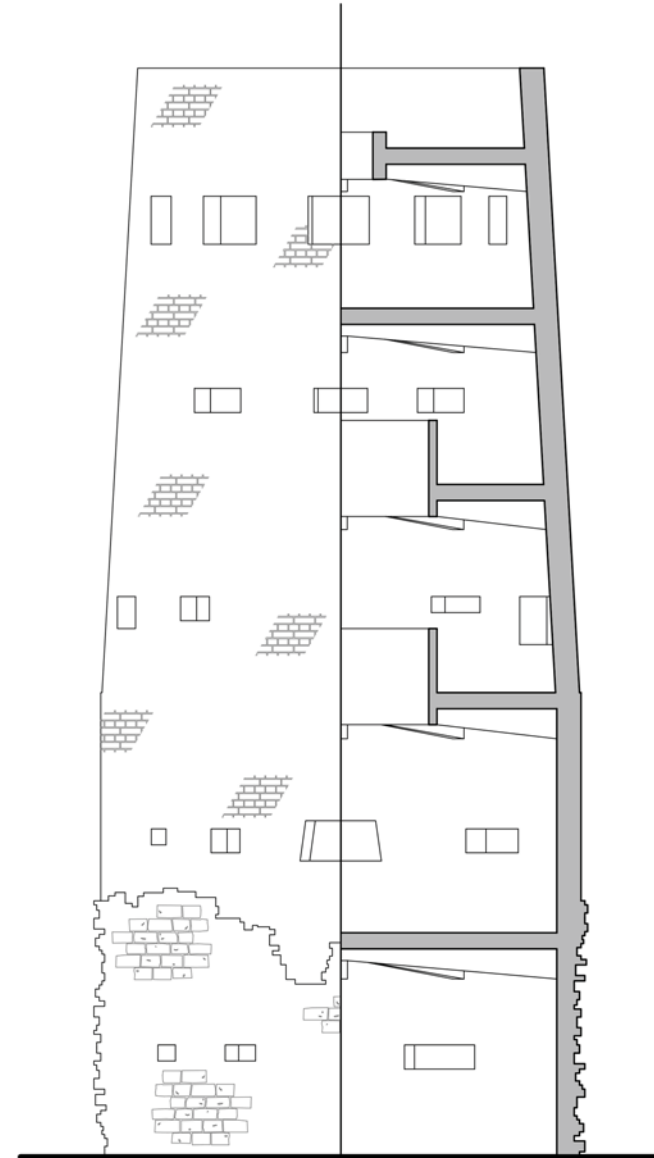
<http://adamschallau.com/2012/02/watchtower-spirits-grand-canyon/>



lookout plan



ground level plan





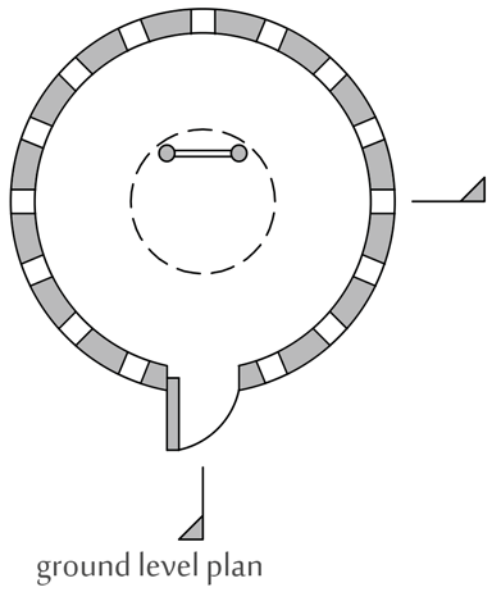
Location: Rehoboth beach, Delaware & New Jersey

Notes:

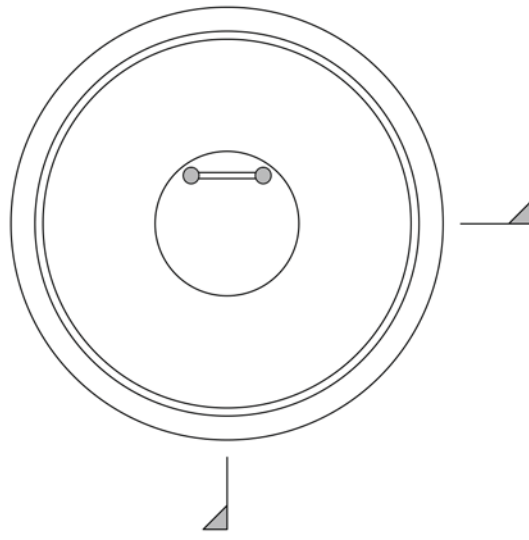
- 11 towers located along Rehoboth beach in Delaware and New Jersey
- Tower range from 50 to 65 ft and have multiple lookout locations throughout the tower for views into the Atlantic Ocean

Materials: Cast in place concrete

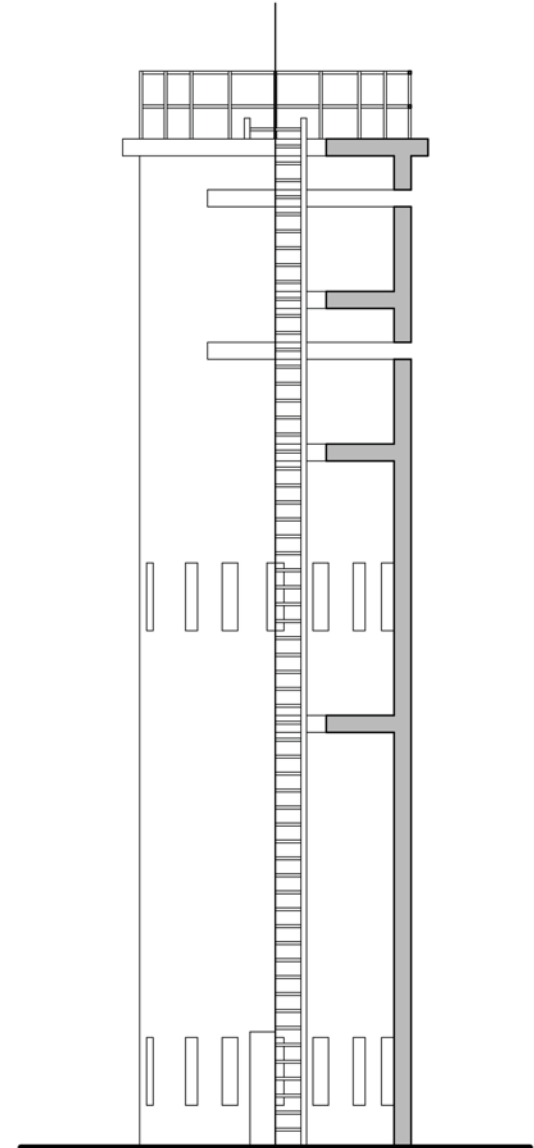
<http://shorebread.com/2013/01/24/the-watch-towers-that-line-the-de-coast-signs-of-world-war-ii/>

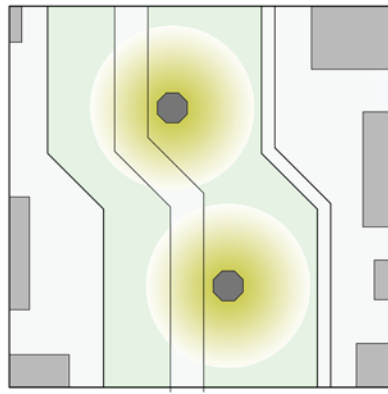


ground level plan



lookout plan





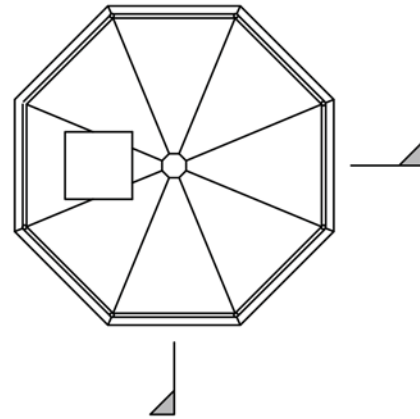
Location: Berlin, Germany

Notes:

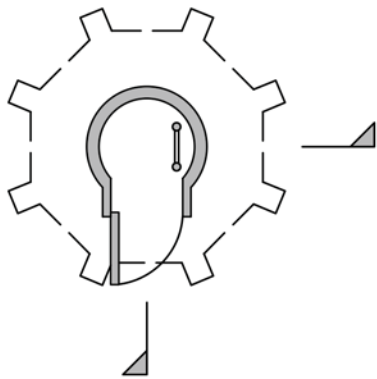
- Only surviving watchtower of 200 that lined the Berlin Wall
- Originally stood between Brandenburg Gate and Leipziger Platz from 1996-2001 before being moved to its current location

Materials: Cast in place concrete

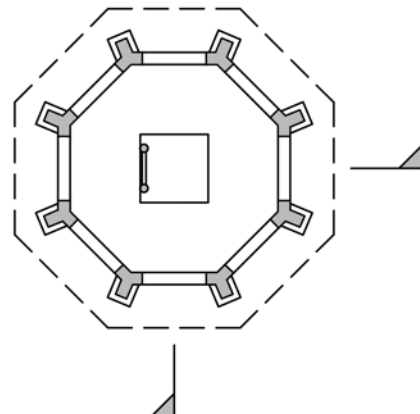
http://www.dailysoft.com/berlinwall/history/facts_03.htm



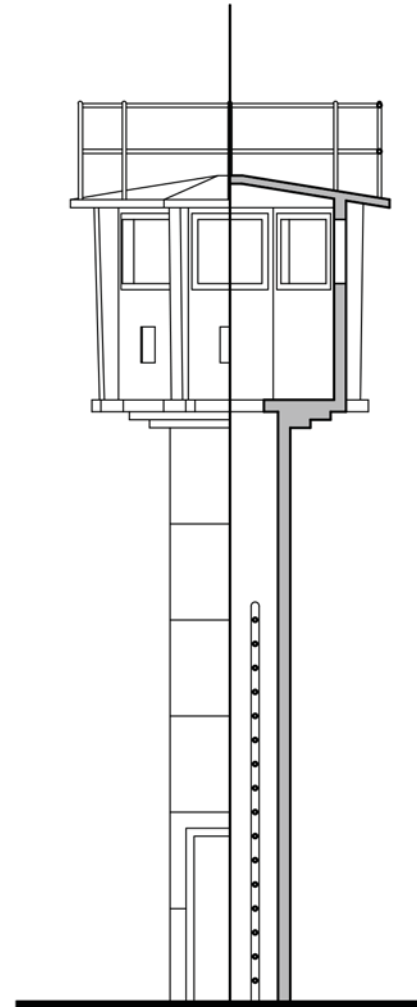
roof plan



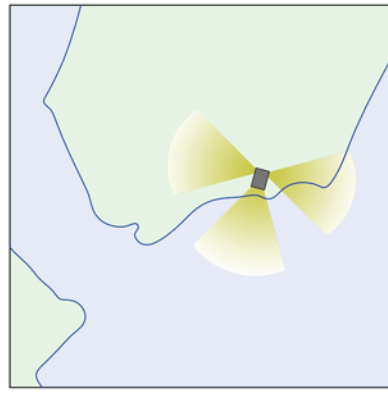
ground level plan



lookout plan



Sejord Sea Serpent Tower



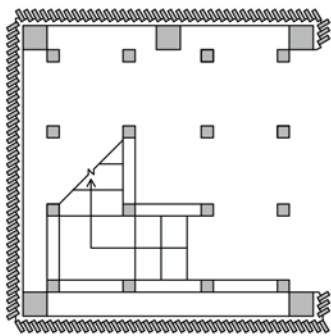
Location: Seljord Lake, Norway

Notes:

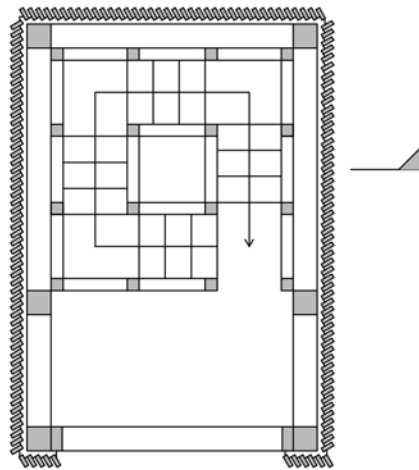
- Designed and built because of local myth of sea creature in the lake
- Tower stand 60 feet tall and has three viewing locations within the tower to view the lake as well as surrounding environment

Materials: Wood from surrounding environment

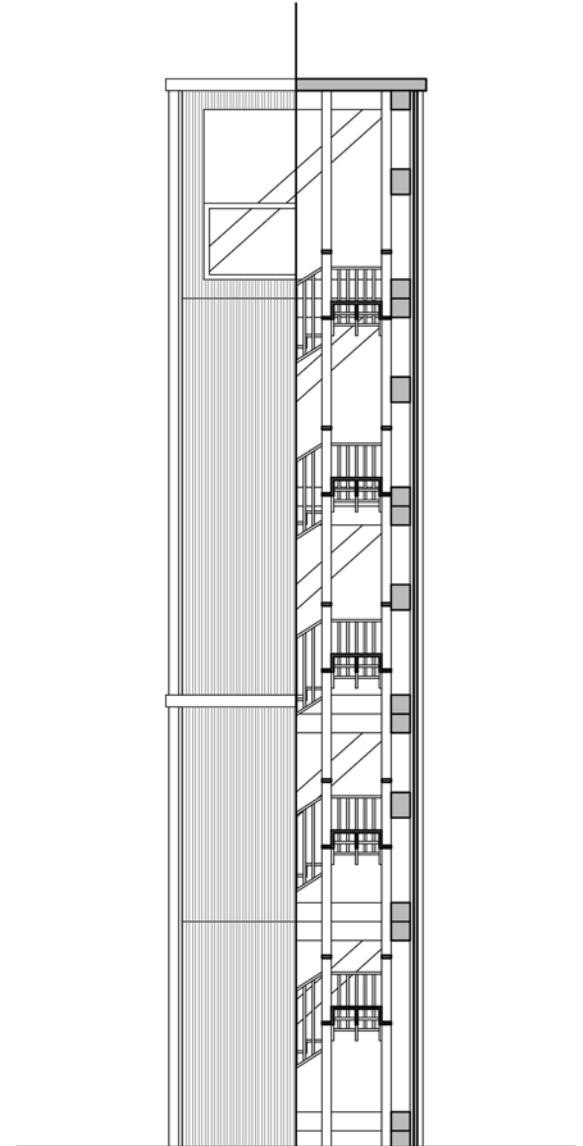
<http://www.adventure-journal.com/2014/05/weekend-cabin-monster-watching-tower-seljord-norway/>

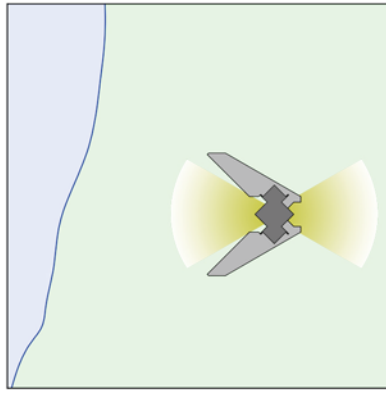


ground level plan



lookout plan





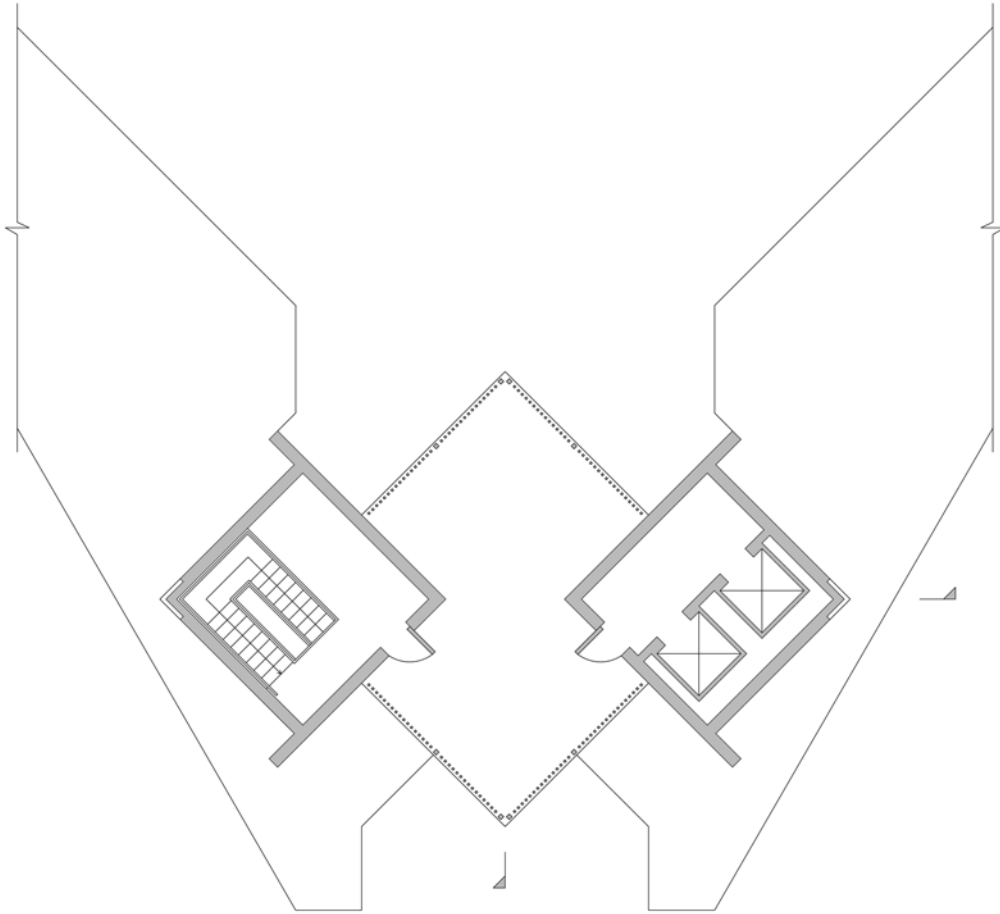
Location: Harford, Illinois

Notes:

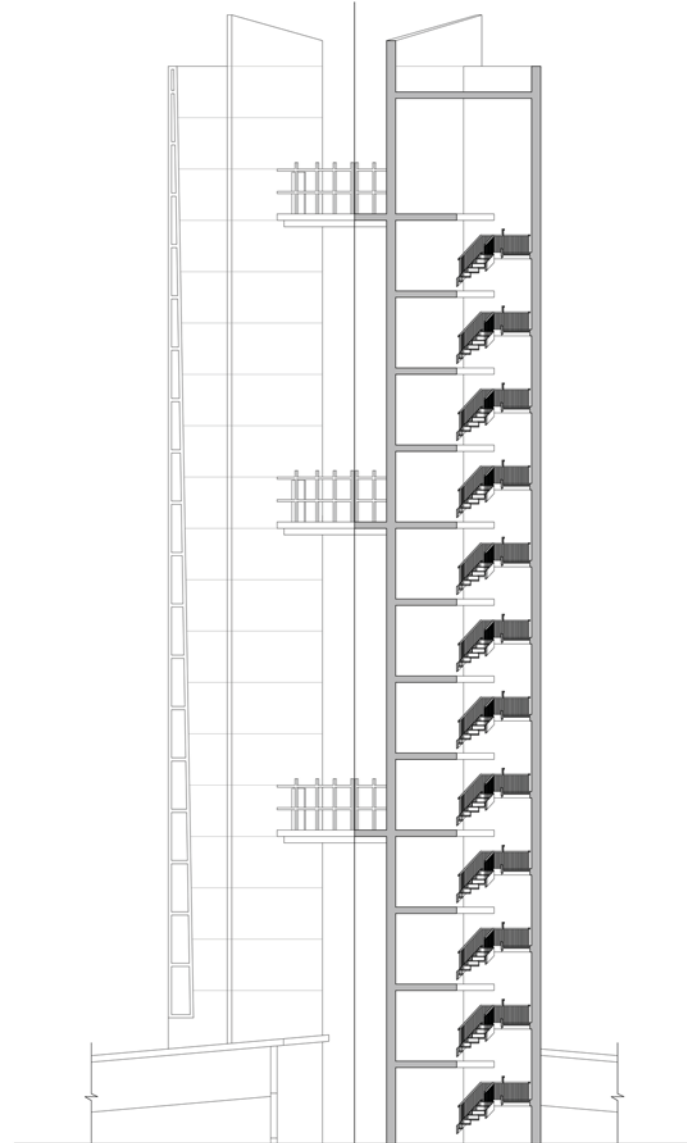
- Tower stands at over 180 feet tall with three viewing platforms
- Located at confluence of both Missouri and Mississippi rivers where Lewis and Clark began their journey to the west

Materials: Pre-cast concrete

<http://media.connectingstlouis.com/500/lewis-and-clark-confluence-tower-10.jpg>



lookout plan



Introduction and Overview

Located within the confines of the Wayne Fitzgerald State Park, a new open air museum for the state of Illinois will greatly increase traffic not only for that area, but also provide benefits for the surrounding areas as well. These include things such as bringing more people to the local area which will in turn create my opportunities for businesses to sell their product to a more constant and wider audience. It will also help to educate people on the history of watchtowers and their significance during the time periods that they were in use.

Architectural Program Descriptions

1.0 Entry / Exhibition Hall

Lobby

This will serve as the first open area that an individual would walk into as they enter the building and also serve as a meeting space within the building. It will be located directly off the parking lot as well as the bus drop off area. This space will house the information desk that individuals will be able to ask for directions as well as get maps and tickets for the special exhibition halls located within the building itself. This space will be have a direct relationship with the rest of the building as well as serve as the connection to each of the other exhibition halls.

Static Exhibition Hall

Located adjacent to the main lobby on the exterior of the building entrance, this exhibition hall would include two wall panels relating to an overall history of watchtowers and their significance through time as a background for the museum before an individual visits the rest of the site.

Dynamic Exhibition Hall

Located also adjacent to the main lobby, this second smaller exhibition hall would serve as a flexible exhibition space that could house many different exhibits throughout the year. The exhibition would be open to whoever enters the main lobby of the building and would free of charge for guests to visit and experience.

Café

This space would serve as a small eating center located within the building. It would have a direct relationship to the lobby space as well as the kitchen. It would also have space for a small group of tables and chairs for people to sit down and enjoy their food while they eat.

Men's / Women's Toilet Rooms

Men's restrooms will include three toilet fixtures, while the women's would include six toilet fixtures with one in regard to the ADA standards for toilet stall space. There will also be two sink fixtures in each room as well as room for paper towel and soap dispensers and paper waste management. A janitorial space will house a mop sink and storage for cleaning supplies for day to day functions.

2.0 Administrative Services

General Office(s)

Office space for the administrative members who work at the museum such as the fabricators, curators, management, etc. These would be located in a separate wing off of the lobby space but would not have an open access point for the general public.

Curator's Office

This office will be located off of the main open office space and will serve as the main office for the curator of the museum. This office will also have direct access to the conference by a separate door located in the office.

Break Room

This space would serve as a small break location for the administrative members of the museum. It would be located directly adjacent to the office spaces and would have space for a small table and chairs as well as vending machines and a small kitchenette.

Conference Room

Located adjacent to the general offices, this space would be used for holding meetings with clients as well as meetings for the museum personnel. This space would have room for an 8-10 person table and chairs as well as components such as projector screens for presentations, dry erase boards, and a map of the museum site.

General Storage

Also located adjacent to the office spaces and conference room, the storage room would serve as the main location for storing items used in daily functions of the museum. These would be items such as file cabinets, bookcases, and other storage capable objects. There would also be space for copy and fax machines if need be.

Security Office

This space would serve as the main security hub for the museum. This would be the office within the building that would house the security camera monitors for the entire museum as well as a main station for security personnel.

3.0 Support Services

Kitchen

This space would be located directly adjacent to both the back of the building as well as the café located on the interior of the entry building. The space will hold appliances such as refrigerators, stove tops, ovens, and freezers. It will also hold plumbing fixtures such as sinks and plenty of countertop space. There will also need to be waste management appliances such as trash compactors or trash bins that can be emptied and taken out to the outside trash container after services are complete for any given day.

Fabrication Shop

Located near the back of the facility and away from the exhibition space and lobby, this space would house the tools necessary to create fabrications and displays if necessary for the exhibitions being held at the museum at any given time if they are not provided. This space would also have to have a direct relationship with the loading dock as it would serve as the transition space between the exhibitions and the transportation to get them to the museum.

Fabrication Shop Storage

Located directly adjacent to the fabrication shop, this space would serve as a placeholder for future exhibition pieces as well as a storage space for the materials used to create the bases and stands for the various pieces of work that are displayed in the exhibition halls.

Mechanical Room

Located away from the rest of main spaces of the building as well as close to the loading dock and back entrance of the building. This space will include equipment for air handling, water management, elevator machinery, and other basic equipment for the building as a whole. There will also be electrical panels and telephone panels and fuse boxes along the walls.

Men's / Women's Toilet Rooms

Both the men's and women's restrooms will include one toilet fixture in regard to the ADA standards for toilet space. There will also be one sink fixture in each room as well as room for paper towel and soap dispensers and paper waste management.

4.0 Site Services**Exhibition Pavilions**

These exhibition pavilions will be located directly adjacent to the watchtowers throughout the site. There will be one at each tower and the pavilions will house wall panels as well as benches for individuals to use while they walk to each tower.

Parking Lot

There would be a new parking lot created to serve the main entrance to the museum. There would be plenty of parking for individuals that come to visit the museum as well as parking for buses and vehicles that are pulling trailers and spots that are ADA accessible that are located closer to the building entrance. Attached to the parking lot would also be a bus drop off that would allow for a closer location for individuals to be dropped off in front of the entrance to the building.

Loading Dock

Located at the back of the building, this loading dock would serve as the drop off spot for the incoming trucks that would transport the new exhibition items for the museum. This dock would also serve to drop off materials that the fabricators may need to construct displays or stands for new materials as well as trucks that bring food to the kitchen space. Located in this area would also be the trash services for the building.

****General Notes for Program Statement****

All values and codes are from the 2009 International Building Code

Occupancy Load based on 'Assembly A-3' for exhibition halls and museums

Zoning regulations for parking are based on Carbondale Illinois zoning code

1.0 Entry / Exhibition Hall

Lobby	1220 sq ft
Cafe Eating Area	400 sq ft
Dynamic Exhibition Hall	670 sq ft
Static Exhibition Hall	625 sq ft
Visitor's Toilet Rooms	300 sq ft
<hr/>	
Total Square Footage	3125 sq ft

2.0 Administrative Services

Open Office Spaces	645 sq ft
Curator's Office	165 sq ft
Conference Room	300 sq ft
Break Room	100 sq ft
General Office Storage	100 sq ft
Security Office	100 sq ft
<hr/>	
Total Square Footage	1410 sq ft

3.0 Support Services

Fabrication Shop	600 sq ft
Fabrication Storage	360 sq ft
Cafe Kitchen	360 sq ft
Mechanical Room	400 sq ft
Faculty Toilet Rooms	120 sq ft
<hr/>	
Total Square Footage	1840 sq ft

4.0 Site Services

Tower Exhibit Pavilions	6 @ 1138 sq ft
Parking Lot	30 General 8 Bus / RV



Total Building Square Footage	6375 sq ft
Building Grossing Factor	30 %
Total Building Square Footage with Grossing Factor	8287 sq ft
Total Site Square Footage with Tower Pavilions	13203 sq ft

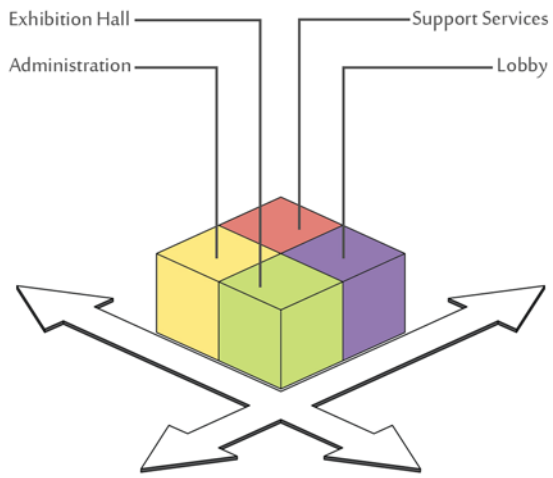
Since their creation, watchtowers have held many different functions over the years. They come from military backgrounds, residential applications, service needs, as well as security uses and they are also used all over the world. While these functions vary greatly depending on what they are used for, in its simplistic form, a watchtower is used for one main purpose: to gain a better vantage point from a higher elevation than the surrounding environment.

Within museum exhibition design as well as architecture, vantage points create strong links between different elements in space. They can serve as an anchoring mechanism that connects two separate areas and bridges them together along a central axis, or they can create new experiences by uncovering something that was once previously hidden. The large canopy of tree cover surrounding the museum site path creates a strong barrier that blocks out the view of important elements for individuals to see, however the addition of watchtowers along this path creates a new experience and allows for previously hidden elements to become more detectable. While these towers provide new vistas and opportunities for sight, they also act as anchoring points to link and pull an individual through the space. The tower at the other end grabs an individual's attention because atop the canopy of trees, it is the only thing that is now visible from this height.

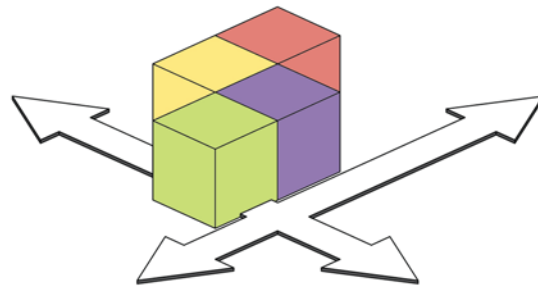
While the view from atop of the towers is opened up to the sky and other towers, the view on the ground level shifts

focus entirely. Rather than being open, these vantage points are engulfed in the surrounding landscape of tree cover. The anchoring points are still prevalent but now shift from the towers themselves to the exhibition pavilions located adjacent to each tower and the welcome center on the site. Whereas the exhibition halls are completely open to the natural environment maintaining this connection, the welcome center has a strong barrier to it. To help break this barrier and allow for both views and a link to the natural environment, the walls of the welcome center lobby are constructed completely of glass. Taking from the concepts of both Philip Johnson's Glass house and Mies Van Der Rohe's Farnsworth house, the glass façade emphasizes the connection between the exterior environment and the interior of the building creating a feeling of being outside and secluded in nature even though an individual is encompassed by a tectonic structure.

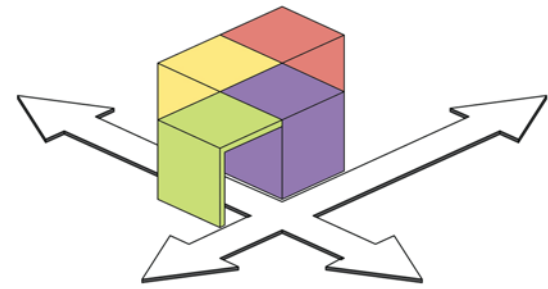
A museum, in its most basic form, is a structure or space that exhibits a collection of items that people can learn from and experience. This museum of watchtowers creates both a learning and an interactive experience for individuals. People can climb the towers to gain new vantage points high above the ground while at the same time learn about watchtowers and how they have changed over the course of time for their specific needs.



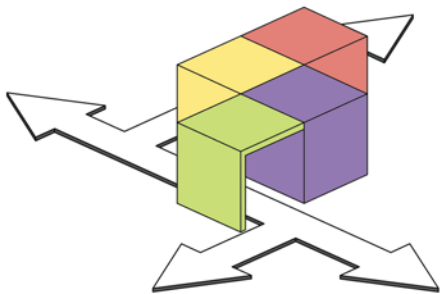
1 - Initial building design



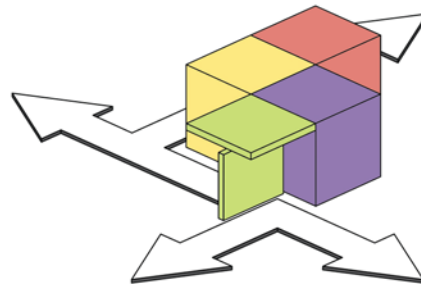
2 - Intersected building with one axis



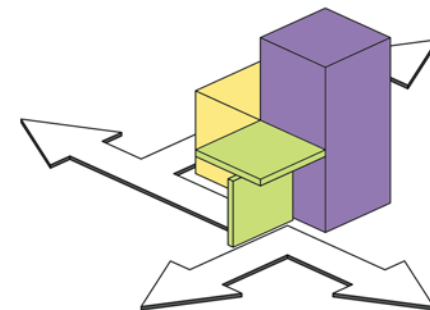
3 - Opened to allow access through



4 - Shifted one axis behind the building



5 - Separated path of both major axes



6 - Extruded entry to allow for view into canopy



prelim energy model test run (july 16) (2)
 prelim energy model Analysis (1)
 Analyzed at 7/30/2014 7:43:24 PM

Energy Analysis Result



Building Performance Factors

Location:	Benton, IL
Weather Station:	53158
Outdoor Temperature:	Max: 82°F/Min: -10°F
Floor Area:	6,412 sf
Exterior Wall Area:	2,808 sf
Average Lighting Power:	1.10 W / R²
People:	199 people
Exterior Window Ratio:	1.34
Electrical Cost:	\$0.08 / kWh
Fuel Cost:	\$0.79 / Therm

Energy Use Intensity

Electricity EUI:	14 kWh / sf / yr
Fuel EUI:	109 kBtu / sf / yr
Total EUI:	158 kBtu / sf / yr

Life Cycle Energy Use/Cost

Life Cycle Electricity Use:	2,726,556 kWh
Life Cycle Fuel Use:	210,443 Therms
Life Cycle Energy Cost:	\$176,325

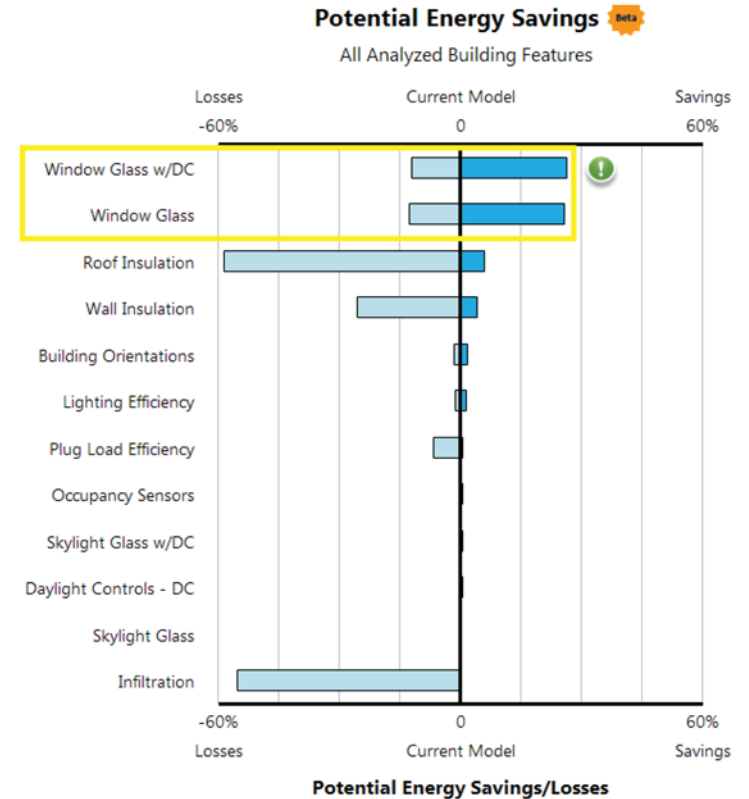
*30-year life and 6.1% discount rate for costs

Renewable Energy Potential

Roof Mounted PV System (Low efficiency):	34,730 kWh / yr
Roof Mounted PV System (Medium efficiency):	69,459 kWh / yr
Roof Mounted PV System (High efficiency):	104,189 kWh / yr
Single 15' Wind Turbine Potential:	2,969 kWh / yr

*PV efficiencies are assumed to be 5%, 10% and 15% for low, medium and high efficiency systems

Potential Energy Savings



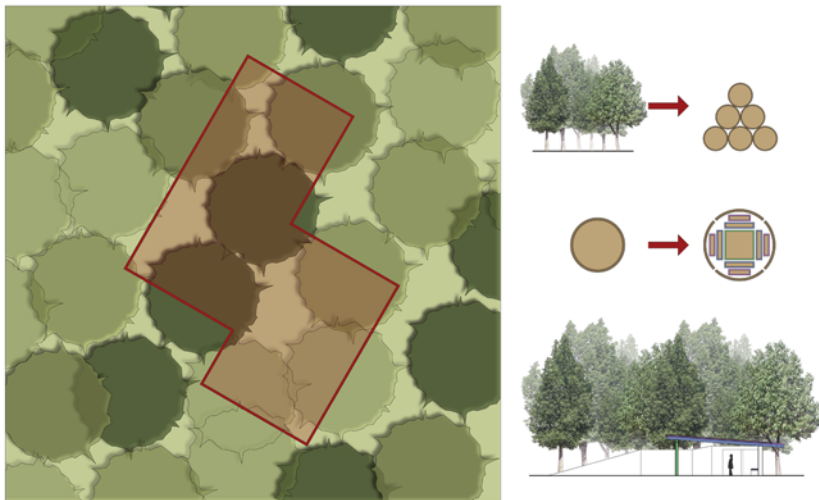
Through the data collected within the energy modeling software the biggest improvements for the design of the welcome center would be through the installation of better glass use for the large windows located within the lobby space. This can include more panes within the windows themselves, or through different types of materials in the glass itself. Also, through previous energy modeling tests, it was found that the welcome center itself should be situated at the current 30 degree angle to allow for the most benefit from natural daylighting instead of the previous orientation.

Tree Canopy Acting As Ground Level



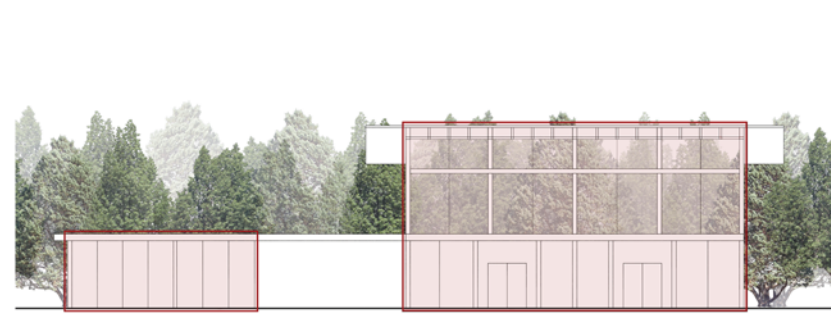
There are two major viewpoints within this museum, the first is created under the canopy of trees on the ground level, while the second viewpoint is within the towers themselves. The canopy of trees creates a new 'ground' level when looking out from each tower to another one in the distance.

Sustainable Site Development



To aid with the heavy use of cutting down trees for the tower sites, welcome center and pathways, the new exhibition pavilions located at each tower will use those same trees to be constructed with. Thus minimizing the effect on the environment within the museum site.

Emphasis On Vertical Members



The glass walls located on the welcome center help to emphasize the notion of being completely enveloped within the trees on the site. The tall vertical mullions mimic the trunks of trees on the site while the glass helps to embrace the feeling of being surrounded by trees even when you are indoors by always having a view outside.

Connecting Nature Within Both Interior and Exterior

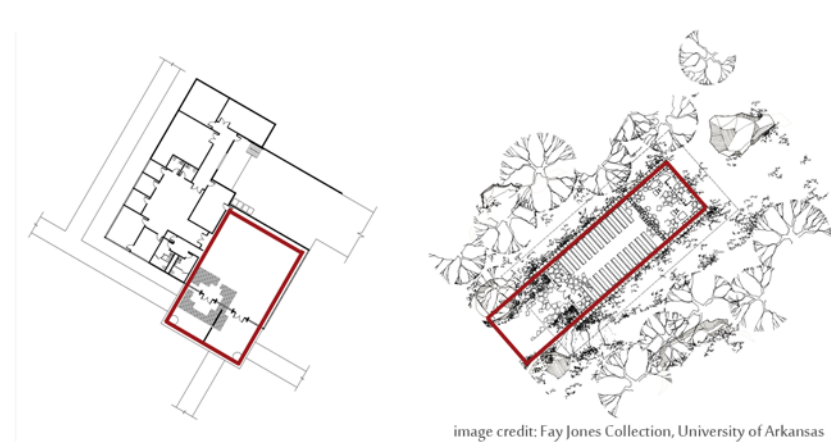
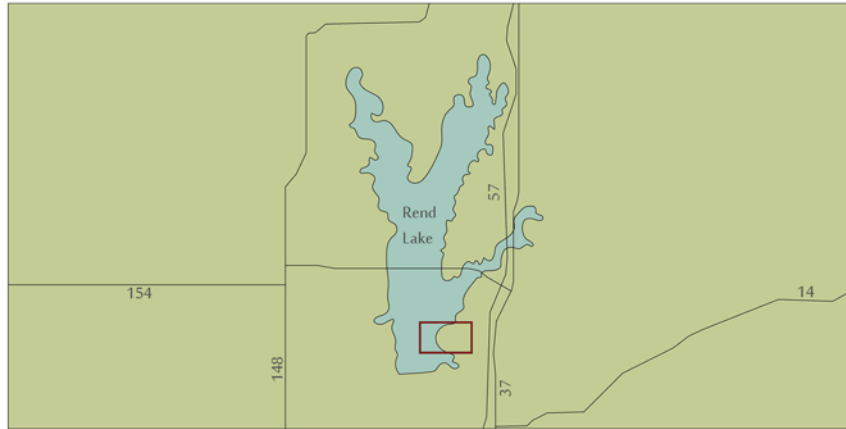


image credit: Fay Jones Collection, University of Arkansas

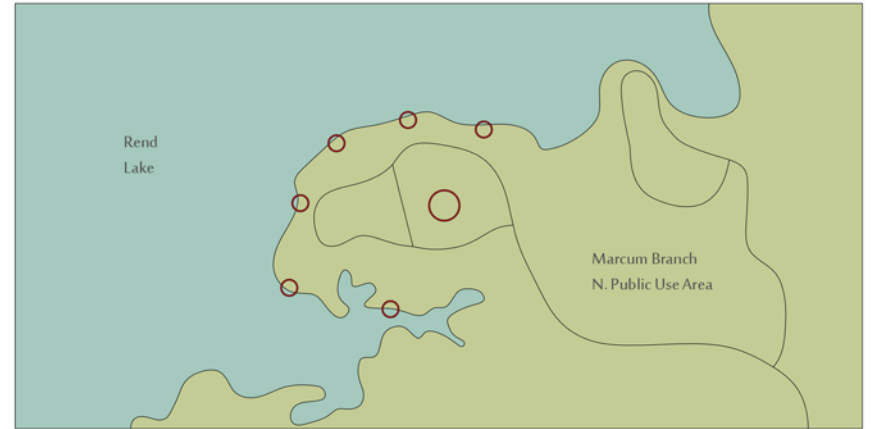
To further push the notion of bridging nature between the exterior and interior, the floor of the welcome center will be a continuous system as you enter the building. The wood flooring on the exterior where the exhibition hall is located will be carried into the main entrance of the welcome center similar to the way Fay Jones designed the flooring system of Thorncrown Chapel.

1 - Rend Lake Illinois Overall Site



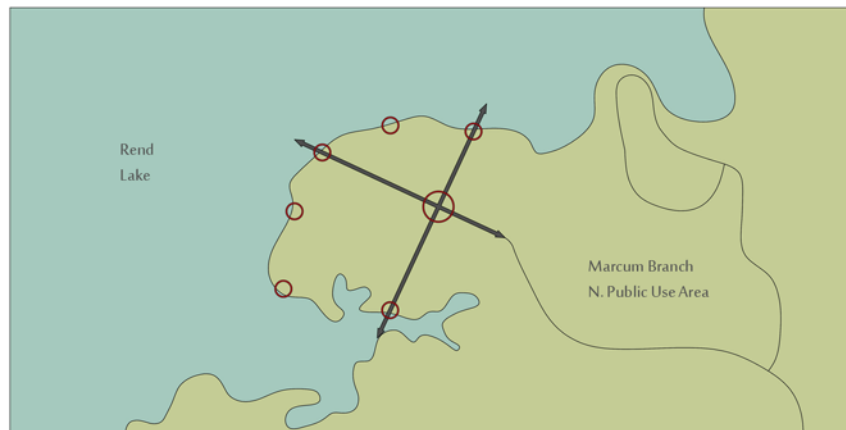
The existing site located on Rend Lake is filled with campgrounds as well as other public use spaces. The museum site is located at the south end of the lake away from the campgrounds on an unused peninsula to minimize the effect on the existing area.

2 - Museum site location with individual tower locations



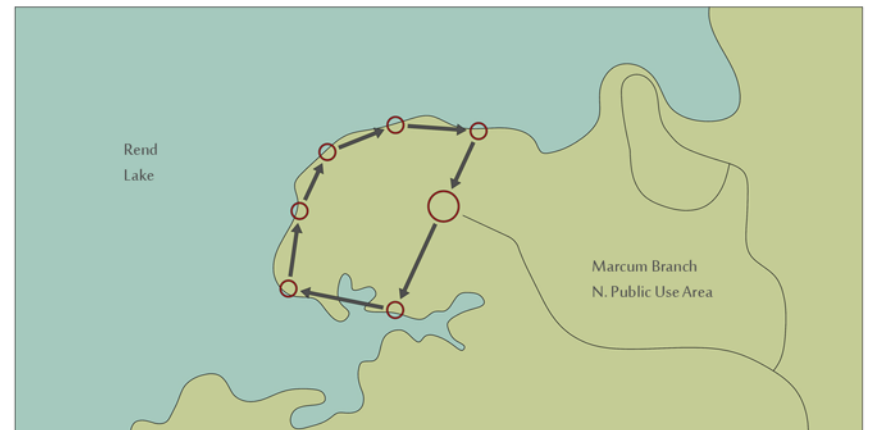
Within the new site, the towers were placed on all three sides of the peninsula so that each tower can maximize the view out to the lake as well as to the other towers on the site. The welcome center was placed in the middle of the peninsula and towers to create a main 'hub' for the museum.

3 - Two major axes through site connecting towers and entry building



Two major axes through the site were created with the welcome center at the intersection. The towers located at the ends of these axes create anchoring points for the site and give a sense of location and bearing when traveling through the site.

4 - Path for visitors to take when walking through the site



The path through the site goes along the waterfront as the towers act as main hubs for relaxation as well as an information station. The towers are placed in chronological order so that the route also develops a timeline for how watchtowers have evolved over time.

These towers are located along the coast and raised above the floodline so that in the case of flooding on the lake, the museum would still be open to the public and it would help to prevent damage to the towers.

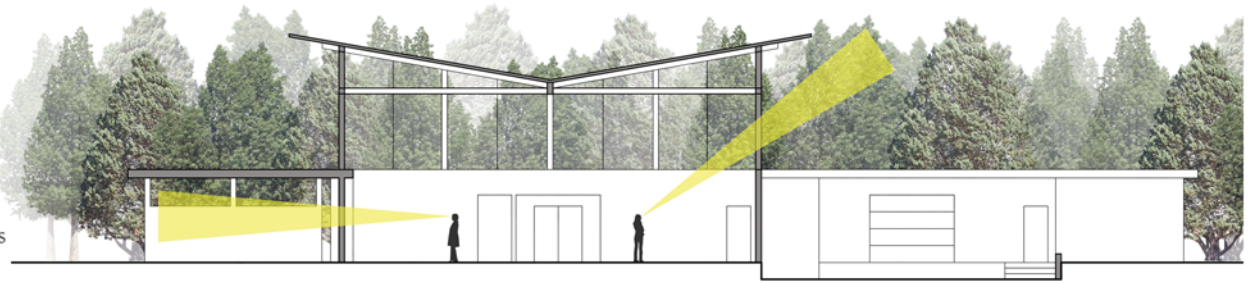
At each tower there is a small exhibition pavilion that serves as both a relaxation spot throughout the site, but also as the main informational hub for each tower.

The welcome center acts as the main central hub for the museum. Both the start and end of the route around the site lead to this building.



Program Key

- | | |
|-----------------------------|---------------------------|
| 1 - Lobby | 7 - Break Room |
| 1 - Cafe Eating Area | 8 - General Storage |
| 1 - Dynamic Exhibition Hall | 9 - Security Office |
| 2 - Static Exhibition Hall | 10 - Cafe Kitchen |
| 3 - Visitor Toilet Rooms | 11 - Fabrication Shop |
| 4 - Open Office Space | 12 - Fabrication Storage |
| 5 - Curator's Office | 13 - Mechanical Room |
| 6 - Conference Room | 14 - Faculty Toilet Rooms |



Each tower exhibit space consists of a small open pavilion that contains two panels explaining the history and significance of the adjacent tower. The pavilions also serve as a resting space with two benches for people to sit and relax at. The path to each pavilion leads directly to the panels on the wall and then from there the path directs your site directly to the tower for a person to walk to.

1 - Benches

2 - Informational Panels

3 - Adjacent Tower

