Open Air Museum

Stephen Lauer

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Analysis of Readings

Analysis of four readings done on two from Kenneth Frampton articles, Towards a Critical Regionalism & Rappel a l'Ordre, one from Robert Venturi, Complexity and Contradiction in Architecture, and one from Martin Heidegger, Building, Dwelling, Thinking. This started the thinking process of how structures are built and what makes a building a building.

Frampton - Towards a Critical Regionalism
Venturi - Complexity and Contradiction in Architecture

In both articles, Frampton and Venturi, discuss the idea that architecture is a concrete and grounded subject or that it is ambiguous and unknown. The idea that it is a very concrete and tangible subject is very agreeable and realistic because in the end a building or structure is built and becomes a physical object. This makes the concrete side very easy to argue for because it is an obvious outcome while the ambiguous and abstract side of the argument is more difficult to explain but is still very true. Venturi's article discusses the side of architecture that makes building designs be questioned by other people such as whether the architect intended this or that with the design. This makes people wonder what the intended design concept was, when it was created by the architect to be portrayed by the design causing architecture to become the unknown and not concrete side of the subject. Questions can be asked about every aspect of architecture from the design of a building's floor plan to the exterior/interior material choices that can change the feel of a space. All of these choices made by the architect can change how each person views a building and can create or answer these questions. Some designs can be very simplistic while others complex. This brings up another topic that both authors discuss that architecture throughout the ages has gone through different eras where some buildings are simple to other eras where buildings are very ornate and complex. Venturi brings up Mies van der Rohe's quote of "Less is More" by discussing that even simple and basic buildings can be very complex (Venturi, 1966). The "Less is More" idea makes sense because very simple concepts or buildings can spark very complex questions that can go on to create amazing structures or ideas. Also every idea starts out as a simple thought that must grow to become a finished product. In the case of architecture it becomes a building design that should cohesively work together while allowing for infrastructure. Other aspects also need to be considered for this little thought as it grows into a design such as, according to Frampton, season of the year, weather conditions, lighting (artificial versus natural), and the structure of the building. This proves that the simple beginning of a building as a box grows quickly into an extremely complex design problem that needs many hours of attention in order to understand how each of the elements in question will work together. Once the design process and drawings are all done then the process moves to the construction or tectonic phase of the process which opens a whole new bag of worms in the simplistic versus complex argument. Actually constructing a building means that the theoretical design ideas must be completely worked out or thrown away because it will become a concrete tangible object at this point. This means that all of the different aspects of a structure must planned to work cohesively so that when the tradesmen start to build the tangible object it will work for the final outcome. The process from conception of the simple idea to the final outcome of a complex working structure goes through many stages and plans. In the end both of these authors are completely correct in their ideas and concepts that architecture is both a simple yet complex subject and it is also an ambiguous yet concrete. Overall architecture can be very deep and difficult to some but seem very easy to understand and see for others to comprehend and enjoy for many years to come.

Sources

Venturi, Robert. Complexity and Contradiction in Architecture. 1966. http://designtheory.fiu.edu/readings/venturi_complexity_complete.pdf.

Frampton - Rappel a l'Ordre
Heidegger - Building, Dwelling, Thinking

Frampton's Rappel a l'Ordre and Heidegger's Building, Dwelling, Thinking discuss the tectonic side of architecture and how it plays a major role in the industry. Tectonics is the building or construction of anything whether it is a building or a simple art piece. The basis of tectonics is in our everyday life according to Heidegger's article because everything we interact with is constructed in one way or another. He discusses that all people must interact with the built environment in two main ways. First the "dwelling" or home which is where people live and go back to and as a place to relax and be comfortable. The second way is the building which also houses humans but is not the place that we continually go to for relaxation and comfort but instead to fulfill other purposes in our lives. This creates a fine line between which is which and makes the confusing paradigm of a dwelling is a building but yet a building may not be a dwelling. Semper's four elements go on to explain what makes a dwelling a dwelling instead of a building, a hearth, earthwork, framework & a roof, and an enclosing membrane. Now the average building has earthwork, framework & roof, and exterior cladding but not a hearth to create a spiritual connection to the dwelling. The idea of a spiritual connection to a home is very interesting because people are much more comfortable in their own homes and many would rather be there than at work in just an average building. A building does not always have to be a structure with walls and a roof though because it can also be anything that is in the built environment that links multiple spaces together in order for humans to better commute. Heidegger gives an example of a bridge and how we use bridges to get across water in order for us to better make use of the spaces around us. This is very true that without structures like bridges or roads we would have a much more difficult time doing things that make our world function in the manner it does today.

The Heidegger article was a very interesting read but raised a few questions. First why does Heidegger write as though he is a divine entity that sees all and is explaining a divine principle to mortals? He seems to be talking as a divine entity but also states that something "mortals" do is that they await the chance to be with their divine entities? Does he consider himself to be a divinity? I do agree with most of what he says but I feel that he is very condescending in his writing. It almost seems as though he is writing this article for a very select group of people who already understand his basic ideas and just want to learn more. Towards the end of the article Heidegger says "I am never here only, as this encapsulated body; rather, I am there, that is, I already pervade the space of the room, and only thus can I go through it" (Heidegger, 1977). This sentence is extremely confusing because he is discussing being able to go through a door into a room and transition between spaces and locales. This also reinforces my original question of does he believe he is some kind of divine entity because this seems as though he is considering that he is never here nor there and can go wherever he wants as long as that space exists. If the entire world is considered a space then would he not be able to go anywhere he wanted even as a person, cannot I go anywhere? I feel like this article is very deep and at first I thought I understood what he was saying but now after reading it a few times I am more confused and am questioning much more than I originally did.

Sources

Frampton, Kenneth. Rappel a l'ordre: the case for the tectonic. na, 1990.

Heidegger, Martin. Basic Writings: From Being and Time (1927) to The Task of Thinking (1964). New York: Harper & Row, 1977.

Building Collection Ideas

The first part of the project was to pick a variety of building types that would become the collection for an open air museum. I began to think of buildings that would make for a quirky museum, that would be a museum that I would want to go visit. I ended up picking five different building types that all had a variety of uses. My collection ideas consisted of treehouses, watch towers, bunkers, blockhouses, and tiny houses.

Treehouses

Treehouses are a building type that is unconventional and ranges in uses. Treehouses can not only be houses but are also restaurants and hotels. The image on the lower left is a treehouse hotel room in Costa Rica and the image is one treehouse hotel room that is apart of a larger collection of treehouses in Sweden.

Figure 1.1 - The hotel room inside this refurbished Boeing 727 has space enough for two bedrooms. The back half of the plane rests in the trees while the front half is perched on a 50 foot tall column. The interior was refurbished with hand carved furniture and the fuselage is finished with wood siding to create a warm cozy feeling.

Figure 1.2 - The mirrorcube shown below is a hotel designed by Tham & Videgard. The base of the structure is aluminum and is 4 meters by 4 meters by 4 meters. The exterior is covered in glass to make it seem as though it is camouflaged into the forest around it. This structure is two stories and according to the booking website it can house at least two adults and a child. This treehouse is apart of a series of treehouses that are used as hotel rooms in the same forested area.

Watch Towers

Each tower is designed specifically for the area that they are built in. Some are designed for the sole purpose to be observation towers while others serve an additional purpose. They pose interesting design questions in should these structures be used solely for observing the surroundings or should they serve alternate purposes.

Figure 1.3 - The overall shape of the tower is based on the double helix which creates a continuous shape rising out of the canopy. The winding stairs creates a journey for the visitors to experience as they climb to the top to look out over the trees and river. The second staircase takes the visitors back down which creates another adventure back down to the ground.

Figure 1.4 - The Arche Nebra was designed on top of a 3,600 year old solar disc. The discovery of the sky disc led to the design competition to build a structure and a tower to showcase the disc and the surrounding area.[1] Holzer Kobler designed the tower to sit exactly on top of the discovered disc and be functional. The tower leans at a 10° angle to the north and has a glass crevice the height of the tower in order to replicate the sky disc's original purpose.[1]

Tiny Houses Under 200 Square Feet

The tiny house movement is becoming very popular today. The tiny houses in this collection are all on the smaller side as each are under 200 square feet. This makes the livable space minimal and requires all items inside to be compact and possibly multi-functional. Some of these houses are also portable and can be taken anywhere a vehicle can go.

Figure 1.5 - This home was based off of a $25 shed plan that the owners took and turned the shed into a home for their family of four and their pet. This home was built entirely by the owners and cost them a total of $14,500. The building is still a work in progress but from the time they started working until they moved in it took them two weeks.

Figure 1.6 - The Don Vardo is a very tiny house with only 70 square feet of space to move around in. This house has a kitchen nook, a double bed, and radiant heated floors. The Don Vardo is designed and sold by Tumbleweed Tiny House Company in Oregon. The only problem is it does not have a shower or toilet for its residents.

Blockhouses

Blockhouses are essentially small forts that are meant to defend a specific area and protect the soldiers inside. This type of building was used all around the world by all groups of people to defend their land from their enemies. These structures of existed for hundreds of years and are not used nearly as much today as they were in the past.

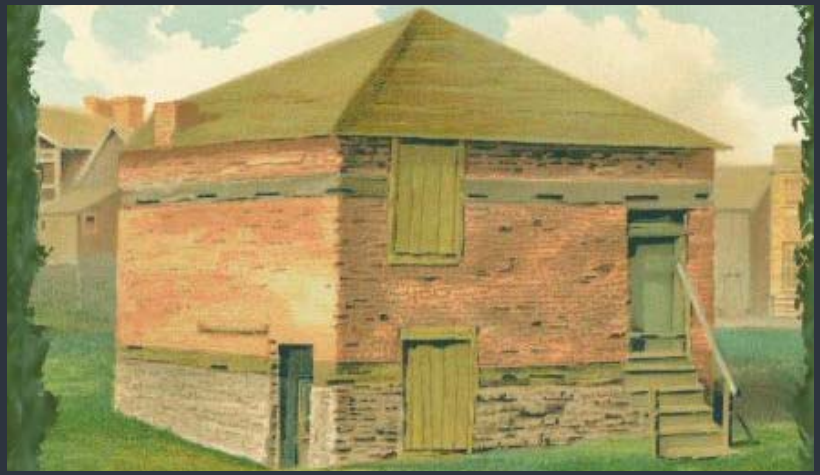


Figure 1.7 - The Fort Pitt Blockhouse was used by the British during the French and Indian War. This blockhouse has small openings that the British would place their guns in and shoot out which minimized the chances of the enemies hitting soldiers and provided increased protection. Most of the early blockhouses in the United States were used as trading outposts when not used during wars.

Figure 1.8 - The Hochbunker was designed and built during World War II. This blockhouse was designed to withstand bombings and air raids in order to keep the troops inside safe from the explosions. The Germans built this type of blockhouses because they were unable to build deep underground bunkers to hold large amounts of soldiers. These blockhouses were typically built out of concrete.

Watch Tower Collection

Watch towers are a unique set of structures because they serve few purposes. Throughout history they have been used for defense, observation, and sightseeing. These structures continue to serve the observation and sightseeing purposes while the need for them as a defense mechanism is not needed so much today.

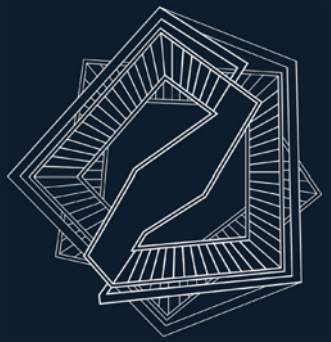
Observation Tower on the River Mur

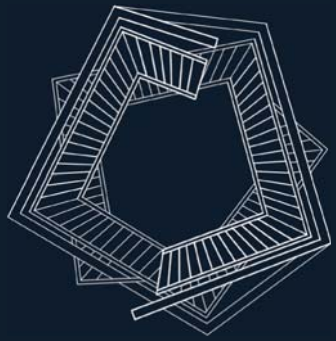
Location: Styria, Austria
Architect: Terrain: Loenhart & Mayr Architects and Landscape Architects
Height: 27 meters (88.58 feet)

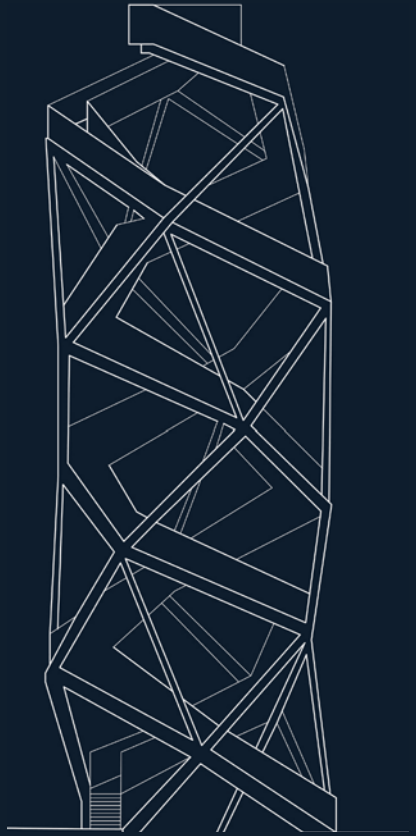
The overall shape of the tower is based on the double helix which creates a continuous shape rising out of the canopy. The winding stairs creates a journey for the visitors to experience as they climb to the top to look out over the trees and river. The second staircase takes the visitors back down which creates another adventure back down to the ground. By separating the up and down traffic is allows the visitors to experience the space multiple times, on the way up, at the top, and then once again on the way down. This circular staircase was not only based on the idea of the double helix but also on the precedent of the Graz Castle which was built around the beginning of the 14th century.[2]

Figure 2.1 - This image shows what looking up into the tower from the base looks like with the double helix stairs. The twisting stairs are held in place with large steel members that following the shape on the exterior of the stairs while the interior is held in place with smaller steel straps for lateral bracing.

Figure 2.2 - The exterior of the tower is something that could be considered to be a sculpture in how elegantly the tower climbs upwards. The darker steel members contrast the white stairs to show off each element of the tower.







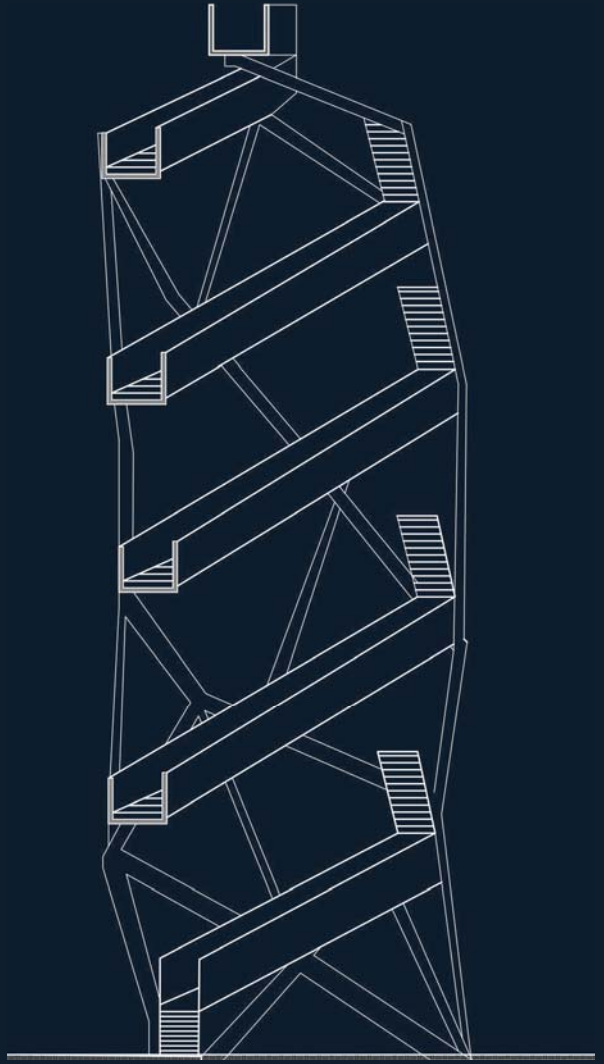


Figure 2.3 (Top Left) - A floor plan of the top of the tower which shows how the two stair towers connect at the peak.
Figure 2.4 (Bottom Left) - A floor plan cut roughly in the middle of the tower to show how the two stair towers interact with one another.
Figure 2.5 (Above Right) - Tower elevation.
Figure 2.6 (Far Right) - A section cut showing the alignment of each of the stairs in the middle of the tower.

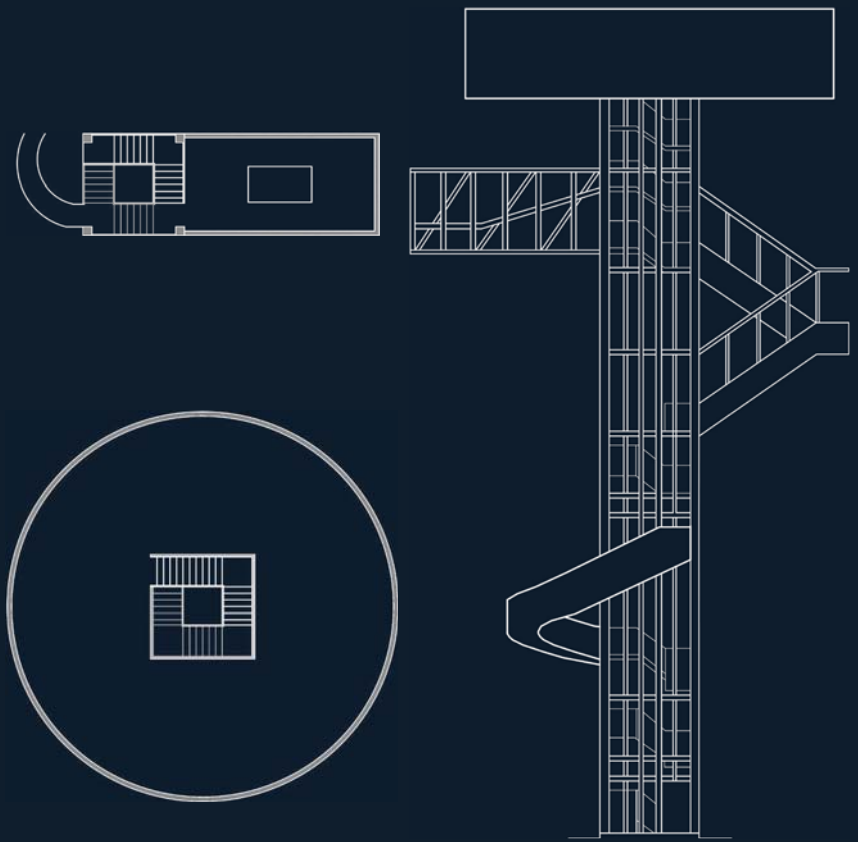
Bostoren Forest Tower

Location: Netherlands
Architect: SeARCH Architects
Height: 30 meters (98.43 feet)

SeARCH Architects designed this observation tower to be a journey from the forest floor up to the treetops. At the top there is a 17 meter (55.77 feet) diameter platform which has a miniature forest for visitors to walk around.[3] There is another, smaller observation area about half way up the tower which places visitors about half way up the trees and gives a great view looking into the trees. Before reaching the top, visitors have another observation point where the ceiling is a large mirror and reflects everything below the tower, giving the illusion that the forest is now above you also.

Figure 2.7 - The stair ramp protrudes out the side of the tower and wraps around and re-enters at the floor for the first lookout point along the journey upwards. This ramp really changes the shape of the tower because the ramp and the top disc are the only circular shapes in the whole tower. The rest of the tower is all based around squares and rectangles.

Figure 2.8 - The perspective shows all of the different lookouts on the tower from the lowest enclosed box lookout to the mirror ceiling lookout nearly at the top to the disc at the very top. Also it shows the arcing ramp on the side along with the protruding stairs near the top.



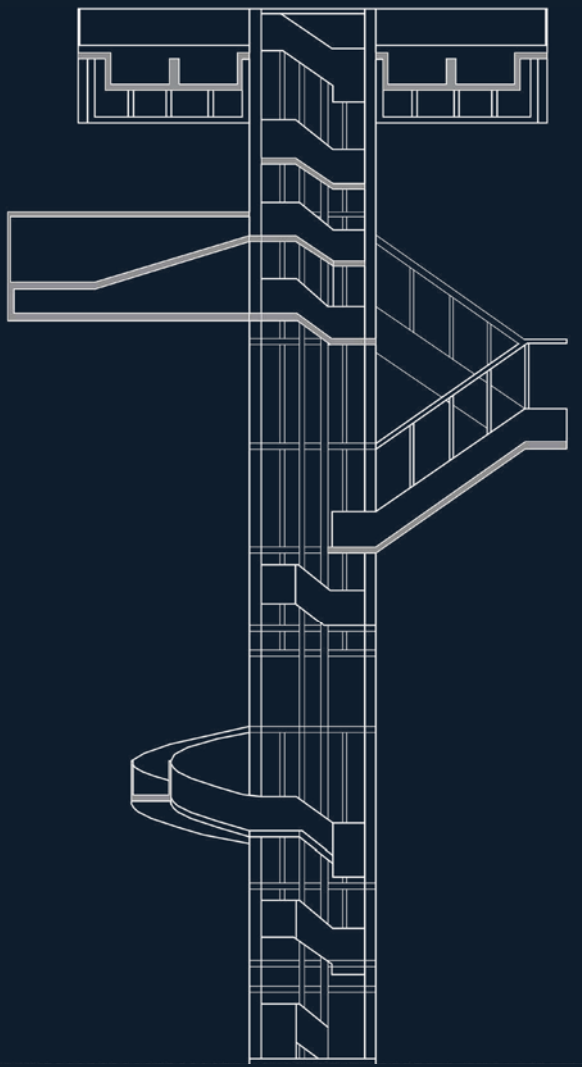


Figure 2.9 (Top Left) - A floor plan at the top of the ramp leading into one of the lookouts along the stairs.
Figure 2.10 (Bottom Left) - A floor plan of the top floor of the tower showing the size of the disc in comparison to the stairs.
Figure 2.11 (Above Right) - Elevation showing the ramp, stairs, and one of the lookouts.
Figure 2.12 (Far Right) - A section cut showing how the upper lookout and how the green roof system works on the top floor.

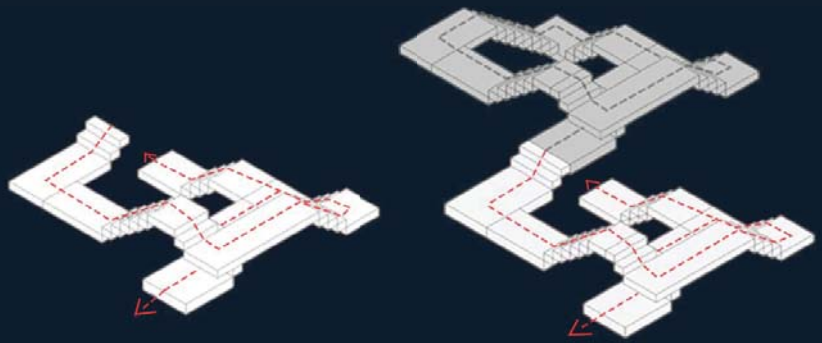
10 Cal Tower

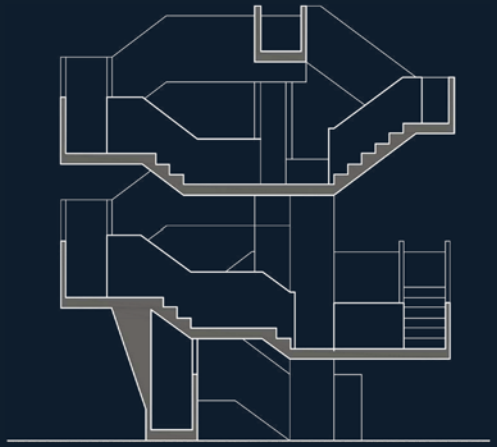
Location: Bang Saen Beach, Thailand
Architect: Supermachine Studio
Height: ~12.8 meters (~42 feet)

The 10 Cal Tower was designed as a part of a three piece project designed by three different firms for a public facility in Bang Saen. This tower was designed to be a playground for families to be able to play on but also as a tower to look out over the beach and ocean. Supermachine Studio wanted to create a place where both parents and kids could play together while making it something that both age groups would be able to enjoy. The name "10 Cal Tower" comes from the exercise side of the tower in that a person will burn 10 calories going from the bottom to the top of the tower.

Figure 2.13 - The tower has many different levels and many different routes to take to reach the top. The image above shows a few of these paths while also showing a little bit of the ocean beyond creating a great view for the visitors once they reach the top of the tower.

Figure 2.14 - The perspective above puts the size of the tower in scale and gives it a little bit of context. The tower is located right off of a parking lot right next to a beach. The color of the concrete makes the tower stand out in its surroundings making it draw people's attention and interaction.





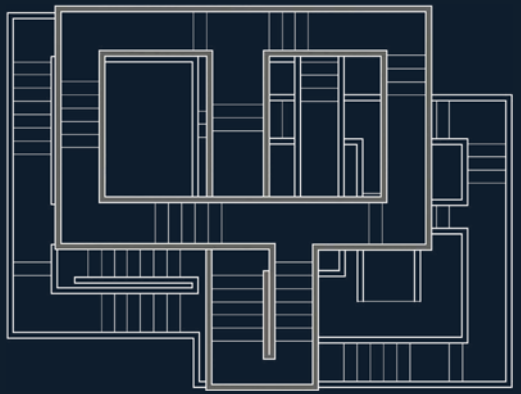


Figure 2.15 (Top Left) - A diagram explaining how to navigate through the tower's different levels.
Figure 2.16 (Bottom Left) - A section cut showing how the different levels line up vertically.
Figure 2.17 (Top Right) - Elevation showing how the tower gets skinnier the taller it gets.
Figure 2.18 (Bottom Right) - A floor plan showing the top most level and all the stairs that it takes to reach it.

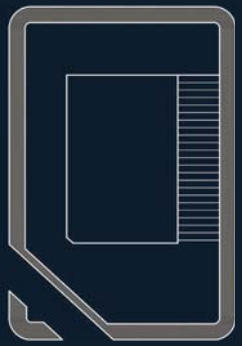
Arche Nebra

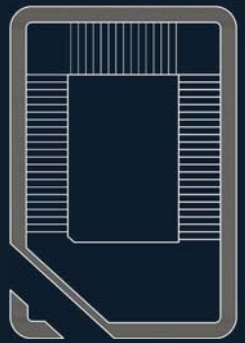
Location: Wangen, Germany
Architect: Holzer Kobler Architeckturen
Height: 30 meters (98.43 feet)

The Arche Nebra was designed on top of a 3,600 year old solar disc. The discovery of the sky disc led to the design competition to build a structure and a tower to showcase the disc and the surrounding area.[4] Holzer Kobler designed the tower to sit exactly on top of the discovered disc and be functional. The tower leans at a 10° angle to the north and has a crevice the height of the tower in order to replicate the sky disc's original purpose.[4] This crevice also directs the views attention through it and onto the Brocken mountains beyond the tower.

Figure 2.19 - An interior perspective showing the stairs as they wrap around the interior of the tower along with the windows that open into the crevice. By placing now railing on the inner portion of the stairs it creates a clean look all the way up and out of the tower.

Figure 2.20 - The tower is part of a larger design that also includes an exhibit/museum space lower on the hill side. This portion of the project has a large cantilever that point up the hill directly at the tower. It also seems that the tower's crevice creates a line back towards the museum.





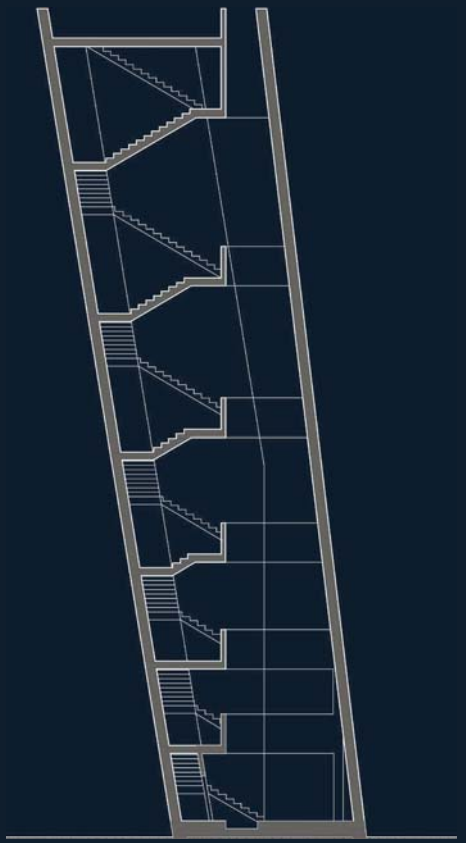


Figure 2.21 (Top Left) - The top floor plan showing how the landing and the crevice in the tower.
Figure 2.22 (Bottom Left) - A plan that cuts roughly through the middle of the tower to show how the stairs work throughout the tower.
Figure 2.23 (Above Right) - A section cut showing the alignment of each of the stairs in the middle of the tower.
Figure 2.24 (Far Right) - Elevation of the tower showing the crevice that creates a window to showcase the mountains beyond.

Lookout Tower

Location: Bruneck, Italy (Unbuilt but planned to be built soon)
Architect: Anton Pramstrahler & Alex Niederkofler
Height: 33 meters (108.27 feet)

The design of this tower was based of the surrounding trees. It is supposed to be a tree trunk with all its roots spreading out underneath itself. The tower is made out of straight wood beams that rotate and twist with the overall structure. The structure twists roughly one full turn as the tower goes up. In the middle is a wooden staircase, pictured at the right, that creates a feeling that you are circling around a central trunk and climb up to the top of the trees. By using wooden beams as cladding and creating slats into the interior space this allows air to free flow throughout the entire tower to create a natural feel as wind blows through the forest around it.

Figure 2.25 - The perspective shows how the it would feel to climb the stairs to the peak surrounded by the wooden slats. The slats allow light into the space to allow people to see without the need for artificial lighting which creates a more natural feel and blends into the surroundings better.

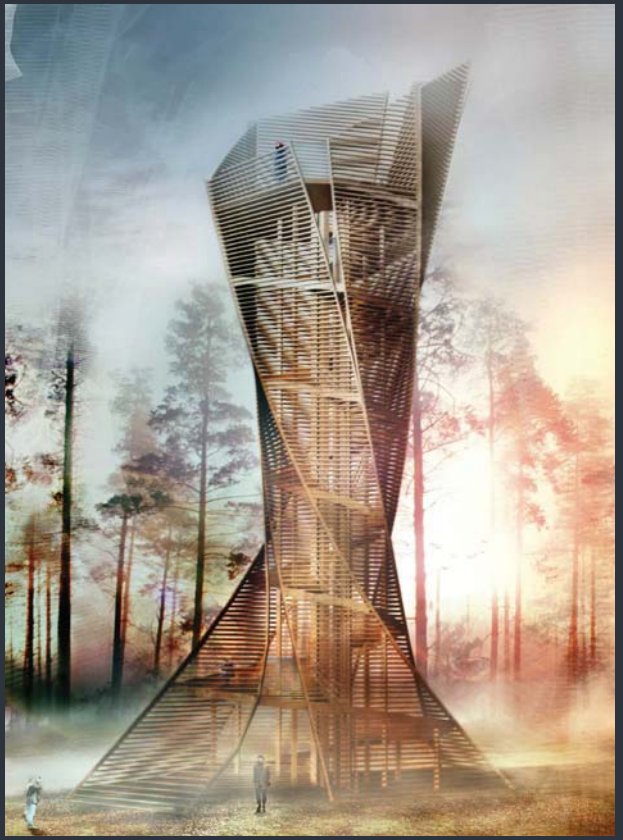
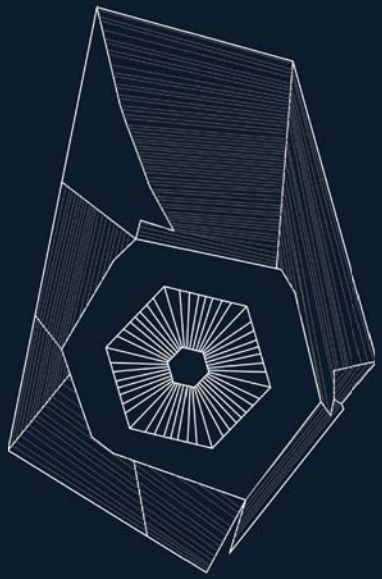


Figure 2.26 - The Lookout Tower is not built yet but the rendering above shows how the architect wants the tower to look. By using all wood to build the tower it will fit right into its surroundings when placed into a grove of trees.



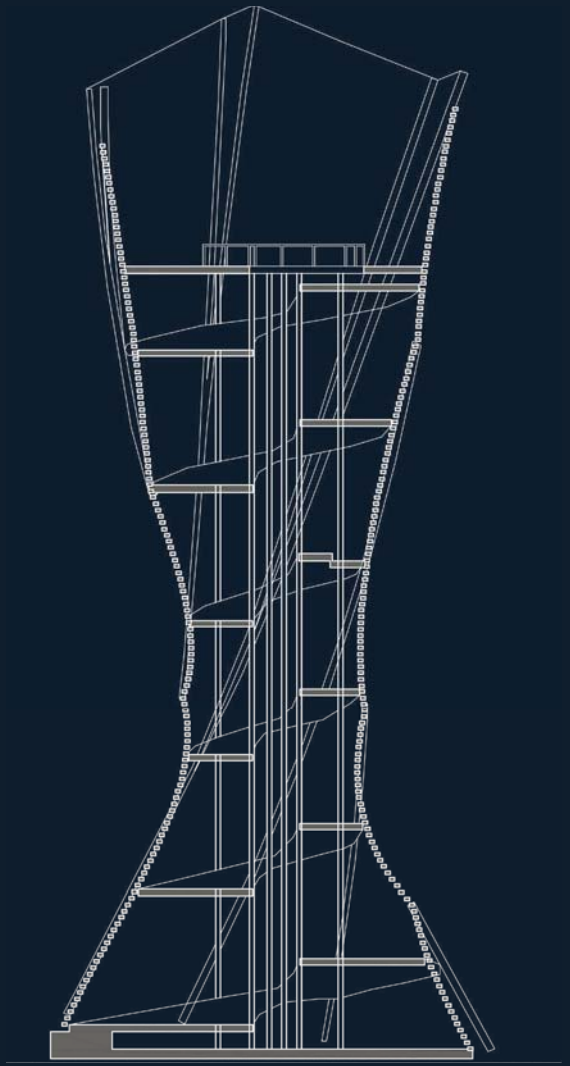


Figure 2.27 (Top Left) - The plan of the tower is at the entrance level and has a large set of stairs that twist around the middle columns.
Figure 2.27 (Top Right) - An elevation showing how the tower twists nearly one full rotation to the peak.
Figure 2.28 (Far Right) - A section cut showing how the stairs wrap the interior columns and follow the overall shape of the shell.

Art Exhibit 1

The first exhibition piece created for this project was a series of five 18”x72” boards with each tower having a picture on the exterior of the piece. The interior of the piece has diagrams and technical drawings of each of the towers to show how each tower works and is put together. The pieces was meant to emulate the feeling of the towers. On the outside the piece is nearly eight feet tall making out have to look up to see the top. The interior space was intended to make you feel like you are inside a tower because their is minimal space on the inside and it is still eight feet tall making you have to look up to see the top again. The gaps between the boards were created so that people on the outside can see portions of the inside without giving away everything that is inside. Overall the piece is hung from a circle on the beams above and the top of the boards are at eight feet while the bottom is two feet from the ground.

Figure 2.29

Figure 2.30

Figure 2.31

Figure 2.32

Figure 2.33

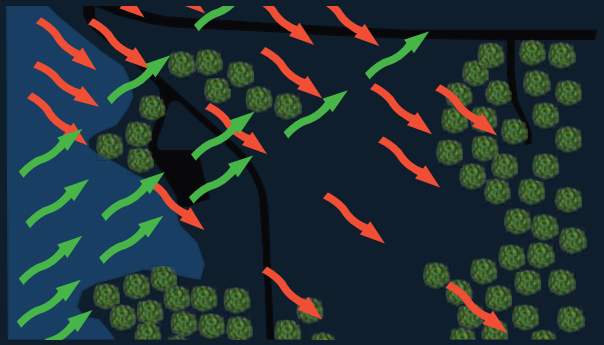
Figure 2.34

Site Analysis

The site for the open air museum is located on Little Grassy Lake in Makanda, Illinois at 37.642414, -89.131382. The site has many hills and has roughly a 40 foot elevation change from the lowest to highest point. Also the site has direct access to the lake via boat dock.

Wind Direction Diagram

The diagram (Figure 3.1) to the right shows how wind penetrates and affects the site. The main directions of wind through the site are out of the south, southwest, and northwest. The southern winds will all be blocked by the forested area and prevent most of the wind from reaching the site. The southwestern winds will be able to penetrate the site around the location of the existing parking lot but will be blocked in spots throughout the site. The northwestern winds will only be stopped by a few trees that are near the entrance to the site otherwise these winds will penetrate and flow all the way through the site without any blocks.



Vehicular Views

Figure 3.2 is a diagram that shows how vehicles traveling by the site will be able to see into the site and how much they will be able to see. The vehicles on the road will have the best views into the site and they can see nearly the entire site from their cars. The boat traffic can see nearly all of the site except for the entrance. The main view I used throughout my design is the view from the existing entrance which cuts the site right in half and allows for the longest view of the site from one location.

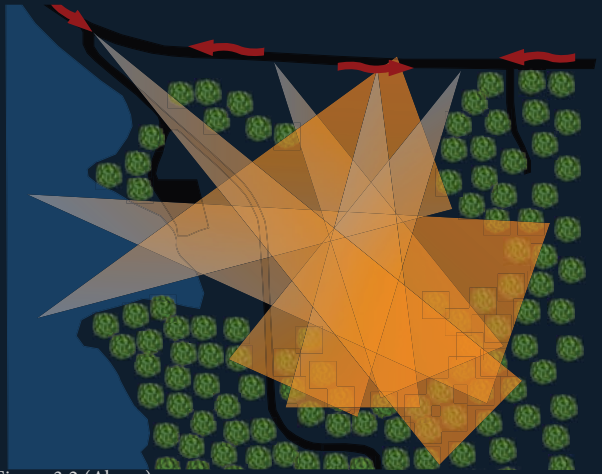


Figure 3.2 (Above)

Site Section

The section below (Figure 3.3) is cut along the view that cuts the site in half diagonally. The section shows how much the site changes in elevation and how the buildings are situated on site. The towers are aligned based off of the crevice in Arche Nebra and follow the view stated earlier. By aligning the towers along this axis is allows for the crevice to become the window to the site and frame the towers on either side.

Figure 3.3 (Below)

Site Study

The images (Figure 3.4) below are all different views on the site that are all views that used to push my design forward. The middle image is the entire site with the contours mapped out to show how the site changes in elevation. The upper left image is take from the hill near the entrance and would be close to what would be seen near the beginning of the journey. The lower left image is of the lake and peninsula which I placed the 10 Cal Tower first in the order so that it would have the closest view of the lake because in Thailand it is placed right on the beach. The top right side is of the cove of trees which would be near the end of the site and journey and would be the location for the final tower. The lower right image is taken from the cove of trees looking back towards the entrance to the site and would be what a person would see once they completed the museum.

Figure 3.4

Design Research

Research that was done that pushed my design forward and pushed it to be what it is. The research ranged from specific information on pieces in the collection to the idea of tectonics.

“Less is More”[5]

“Less is More”[5] is a quote from Robert Venturi that conveys the idea that simplicity is stronger and more meaningful. Below is the second floor plan of my building, in the first plan it shows the existing plan and how walls do not line up and create multiple corners and bumps. In the second plan it shows what I am planning on doing to line up walls to create less corners and bumps and make the plan overall simpler but yet still very functional. The blue lines are how the walls should or do line up while the red are the walls that need to be fixed to adjust the walls to fit. This idea also pushes forward the idea of linearity because it takes the concept of the linear pathway and incorporates it into the building. The site plan also uses the “Less is More”[5] idea by creating a very simple linear pass that allows for visitors to walk along and experience the buildings in a very unique way. This path forces people to experience the architecture in three ways, walking southeast until the end, climbing each tower and looking out at the surroundings, and walking northwest. Also by creating this simplistic path way it creates a simplistic line of view that pulls visitors line of sight down the narrow pathway and allows them to only see portions of the following building.

Figure 4.1

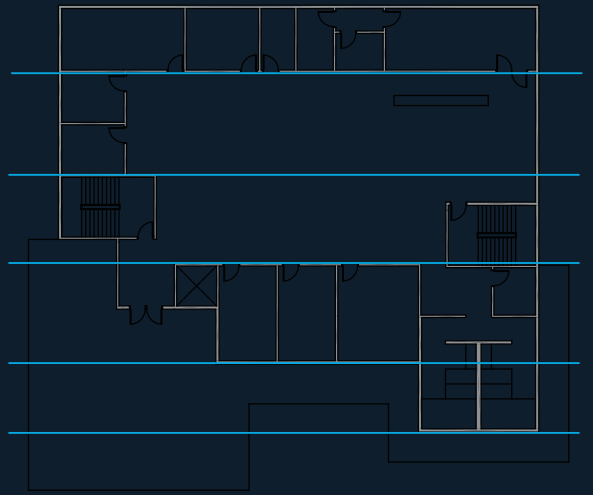


Figure 4.2

Linearity & the “Window”

Linearity is used prominently throughout my design, between the overall site design and the layout of the floor plans. First the site plan is all based off of the “window” of the Arche Nebra tower that in its actual location frames the mountains in the background, which is shown in figure two. The linear path was designed off of the crevice by making it horizontal across the site instead of vertical. Each of the towers was then placed along this line of sight created by the window but offset enough so that each is visible anywhere along the path. The entry building was also designed off of this idea of linearity. First the building is placed into the ground along the pathway with two 120’ ramps to descend into the entry building and then ascend to make the journey through the building collection. The plan of the building took the pathway and rotated it 90°. Next I took the lines and offset them to create spaces that are perpendicular to the path. By doing this it allows for views from the second floor down the pathway.

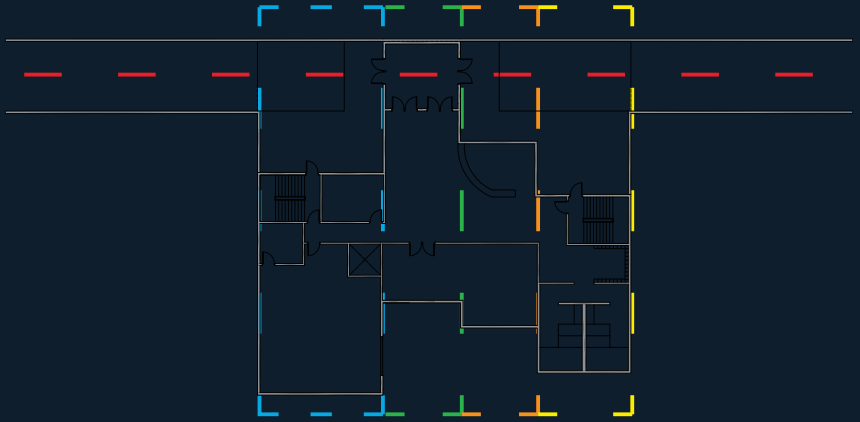


Figure 4.3

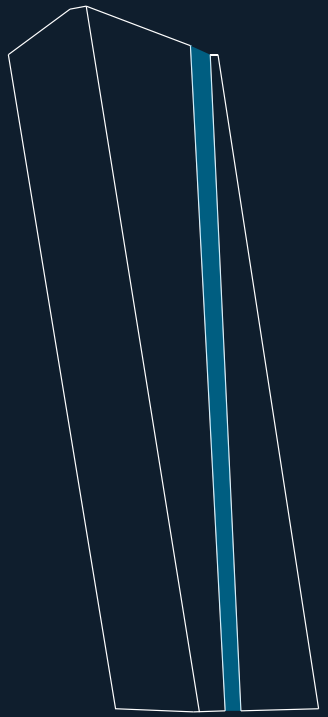


Figure 4.4

Topographical Changes & Height Study

The use of this idea in the design is very prevalent because of the large surface areas of concrete (stereotomic) compared to the glazing (tectonic) around the building. The tower that the entire site design is based off of is almost built out of concrete and gives off a very heavy/strong feeling. The concrete exterior gives the building a very heavy feeling. Also by placing the building into the ground it emphasizes the feeling of heaviness. By contrasting the concrete with glass it allows for light to enter into the building and gives visitors views out onto the site.

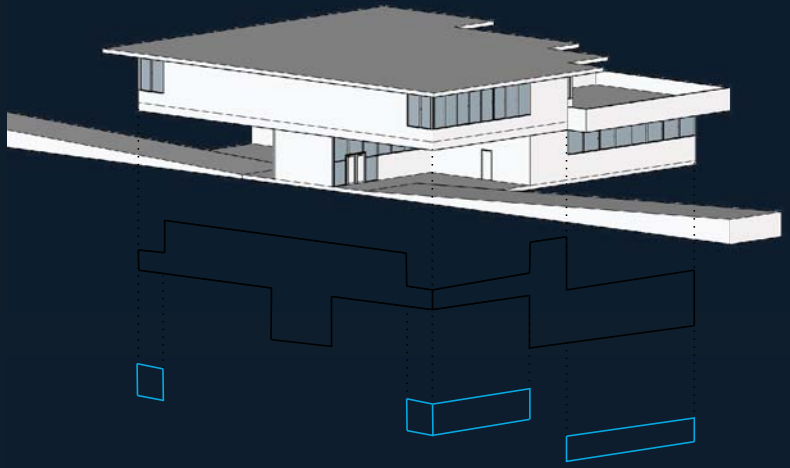


Figure 4.5

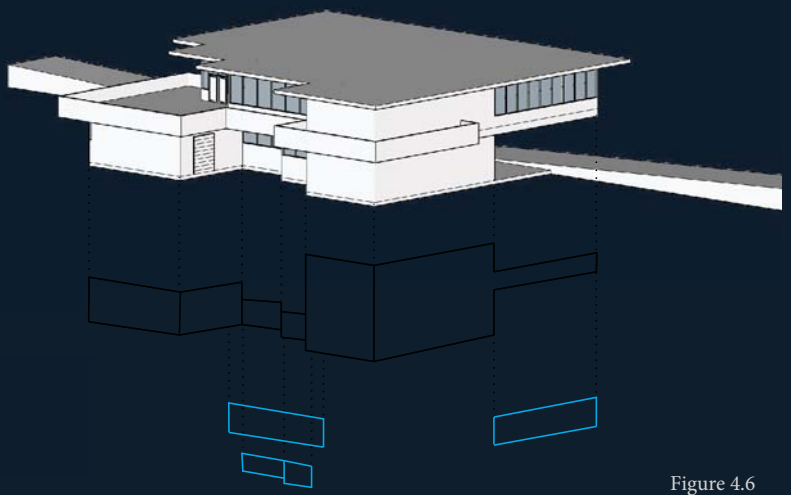


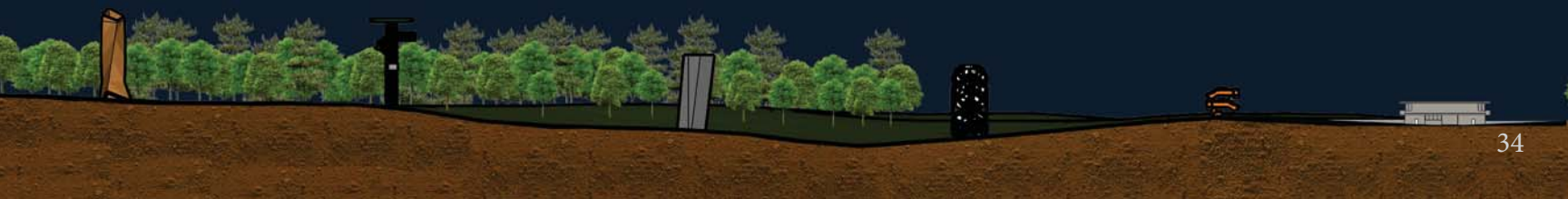
Figure 4.6

Topographical Changes & Height Study

Towers are tall structures that allow for great views of the surrounding areas. The initial purpose of towers was to be defensive utilities of villages and now they have become an observation tool. By having towers built taller than the surroundings allows for visitors to see more of the environment. In my design I took the shortest structure, the entry building, and placed it first in the journey. Also since the entry building is sunken into the ground it makes it seem even shorter than it actually is which in turn makes the tower collection seem much taller as a person traverses the site. As the visitors progress through the collection the towers get taller and the views get better as you continue the adventure. The final tower shows all of the site in its entirety not only because it is the tallest tower but it is also on the highest point on the site. Below is a silhouette study in order to understand the height relationships between the five towers in the building collection. By playing to both the height of the tower and the height of the topography it allows for the best viewing angles to see all the site and the surrounding forests. After doing research on topographical manipulation I found that it is better to have height changes on the topography instead of a flat site. Not only does topographical changes in height increase views but also gives more usable land and helps deal with water and the water table.[1] The section below shows the topographical changes on the Little Grassy Lake site which allows for the increasing height changes to better the views of the surroundings.

Figure 4.7 (Above)

Figure 4.8 (Below)



Watch Tower Museum

My proposed Watch Tower Open Air Museum design to be built on Little Grassy Lake site. The collection creates a unique relationship between the vertical and horizontal movements. This relationship is created by the height of the towers contrasting the horizontal movement along the pathway connecting the them.

Concept Abstract

Watch towers have been used for centuries for a variety of purposes. The idea of building a tower to serve as an observation post began in Germany in the late 18th century.[6] This tower originated as a watch tower for defense for the local town. However, as war and fighting began to decline, it started to be used by the locals to take in the great views of the surrounding area. As years passed, towers were used for purposes other than defense. Watch towers have been used for sightseeing and observation along with many other uses. In order to accomplish these tasks the towers have to be taller than their surroundings, resulting in tall linear structures. The idea of verticallity is the concept behind all watch towers around the world.

The concept of linearity translates into all facets of architecture because every component of a structure deals with lines. Walls, sidewalks, corridors, etc. create lines that enforce the axial designs. Since linearity is in nearly every design, it would be extremely difficult to design buildings without using the idea of linearity. In terms of tower architecture and linearity, the verticallity of towers reinforces the idea of linearity while the use of different materials can also create different lines that enhance the idea. Not only is the notion of lines in the building, but also in how people interact with the structure. In towers, people are forced to interact with the building by climbing up and down the tower to get the full experience, reinforcing this idea. The climbing of the towers and the journey down the pathway leads to the idea of navigating through the collection and site. Visitors navigate not only in the vertical axis but also in the horizontal axis, which is also seen in how people interact with structures. Site plans have this idea by creating ways for people to traverse the site and reach the building or go from building to building. Not only is the design of a building linear, but the life cycle of buildings can also be considered a linear regression because they are built, used, and destroyed.[7]

The goal for this project is to create an entry building in rural Southern Illinois that is able to respond to this idea of linearity. The building will need to be able to serve many different functions while serving as the entrance building for a museum. Designing this museum around the idea of linearity lends itself to an axial concept.

Program Analysis

Watch Tower Open Air Museum

The Watch Tower Museum will have multiple spaces that will need to house different functions. The first portion is the public space that allows the visitors to see and interact with the museum. The next portion are the private or administrative spaces that will be off limits to the public but are necessary for the museum to function behind the scenes. The final grouping of spaces are the grounds. The grounds will keep the museum in tip-top shape and will require the correct spaces to do so while staying behind the scenes.

Public Spaces

The public portion of the entry building to the museum will house a small gallery for displaying art exhibits or will explain the open air museum. Along with the gallery will be gallery storage and a preparation space for the curators to put together exhibits before placing them in the actual gallery. This portion will also house a gift shop and cafe to bring in extra revenue for the museum. A major feature of this portion will also be the lookout tower that will allow visitors to climb and view the entire museum before venturing out to see the individual buildings.

Administrative Spaces

The administrative portion of the building will house the offices for the administrative staff. There will need to be multiple sizes for the different staff members and the size of the office will vary upon the staff members need. The conference room will be used to hold meetings for business purposes and staff meetings. It will need to be large enough to hold roughly 20-30 people. This portion will also house a break room for all museum employees to be able to relax during their breaks. Also this space will need to house an area for general office equipment (copier, fax machine, etc).

Grounds Spaces

The grounds building will be detached from the main entrance to the museum but will serve a vital role in the functioning of the museum. This department will need a large garage for storing tractors and equipment along with a space for tools. The workers will also need a space to fix and repair any equipment or pieces around the museum. This building will also house the loading dock and dock storage area so that large trucks will not be interrupting the flow of visitors around the main entry building.

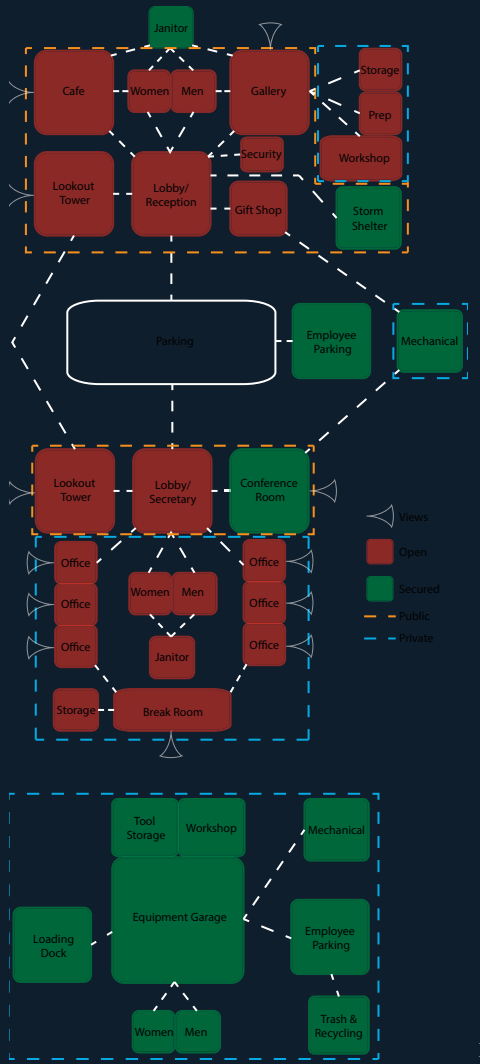


Figure 5.1

Public Spaces

Space	Quantity	S.F.
Gallery	1	1500
Space for exhibits explaining tower design strategies		
Gallery Storage	1	100
Area to store gallery furniture and other gallery supplies		
Gallery Preparation Space	1	200
Area to prepare new exhibits for the gallery		
Workshop	1	500
Space to fix gallery furniture or exhibits with closet for tools		
Vestibule	1	300
Airlock		
Lobby	1	1300
Reception/info desk to greet visitors, seating area		
Toilets[1]	4	250
3 fixtures & 2 lavatories per toilet room, 1 drinking fountain		
Security	1	100
Office to oversee site & collection security		
Safety Center	1	100
First Aid center for visitors and employees		
Gift Shop	1	700
Store for museum memorabilia & collectibles		
Lockers	1	85
Secure coat check/lockers for visitor's belongings		
Food Service	1	3000
Small cafe & kitchen with seating area for guests, vending area		
Janitorial	2	100
Shelving for maintenance supplies & mop sink		
Storage	1	250
General storage		
Total for Public Spaces		9,335
Overall Total for Public Spaces	**+30%**	**12,136**

Administrative Spaces

Space	Quantity	S.F.
Curator Office	1	210
Larger office for museum curator		
Administrative Assistants	2	125
Offices with desks and filing cabinets to allow for productivity		
Head of Maintenance	1	200
Office for maintenance personnel in main building		
Business Executive	1	210
Office for marketing & financial officers		
Conference Room	1	310
Space for 20-30 people for various meetings		
Break Room	1	300
Kitchenette, tables, chairs, couches, copier, etc.		
Storage	1	50
General storage		
Total for Administrative Spaces		1,530
Overall Total for Administrative Spaces	**+30%**	**1,989**

Grounds

Space	Quantity	S.F.
Equipment Storage	1	3000
Garage for tractors and equipment		
Tool Storage	1	500
Space for tools and materials		
Workshop	1	1000
Space for fixing and building items for the museum		
Mechanical Space	2	2000
Mechanical equipment for all buildings		
Loading Dock	1	2000
1 bay dock with storage, exterior & interior spaces		
Recycling & Trash	1	470
Dumpsters & recycling bins		
Toilets	2	60
1 fixture & 1 lavatory per toilet room, 1 drinking fountain		
Storage	1	1000
General storage for materials		
Break Room	1	750
Kitchenette, tables, chairs, couches, copier, etc.		
Parking Lot[2]	1	
80 parking spaces & 3 bus parking spaces		20,000
Total for Grounds Spaces		10,840
Overall Total for Grounds Spaces	**+30%**	**14,092**

Overall Total Square Footage

28,217

[1]Based on the IBC Plumbing Code Section 403.1 based on an occupancy of 300 people. Fixture count table is found under the previously stated section and on http://publicecodes.cyberregs.com/icod/ipc/2012/icod_ipc_2012_4_par008.html
[2]Based on Jackson County Code for parking lot space requirements of 1 space for every 5 occupants. Eighty spaces allows for 300 visitors plus 20 employees.
[3]All spaces must be ADA compliant.

Proposed Site Plan

The linear concept for the site design is based around the Arche Nebra tower. I took the idea of the "window" and placed the tower in the middle of the design so that no matter which side the visitor is on they can still get the idea of looking through the crevice to view the towers behind. The pathway to reach each of the towers is also on the axis created by the crevice along with the entry building. The maintenance building is placed off in the forested area in order to deter people from wanting to go their while also allowing for the grounds crew to do their jobs behind the scenes. I also re-routed the road through the site to allow for no traffic to drive through the site but instead around the site. The re-routed road is also how the site will receive shipments as the receiving area is in the maintenance building to also prevent large trucks from interfering with the museum functions.

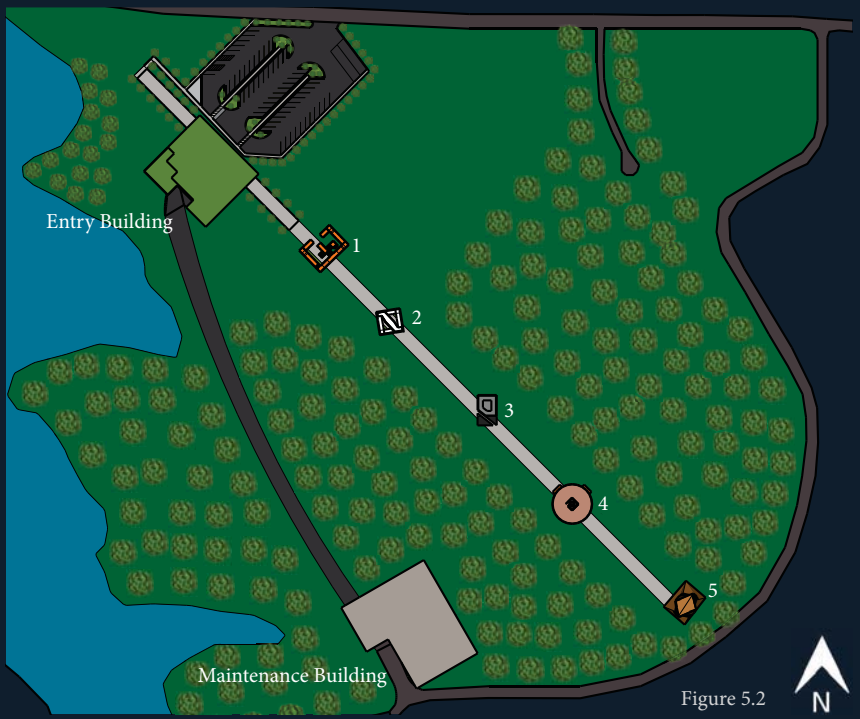


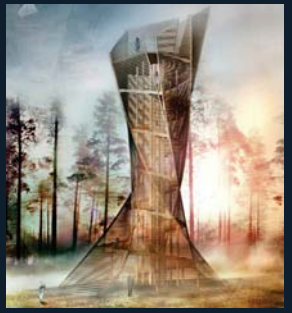
Figure 5.2

1 - Figure 5.3

2 - Figure 5.4

3 - Figure 5.5

4 - Figure 5.6



5 - Figure 5.7

Entry Building - First Floor Plan

The first floor of the entry building is the first place visitors will visit upon arrival. The building is six feet below grade and requires ramps down to the entrance. The two ramps are 120 feet long at a 1:20 slope. The vestibule has glass around both entrance doors allowing for the visitor to see through and get a small glimpse of the collection to come. The visitor can either enter the building and go to the gift shop, gallery, or cafe or they can continue on up the other ramp to begin their journey through the collection. The shape of the building came from taking the line which creates the pathway and rotating it perpendicular to the path and created spaces off of those axises.

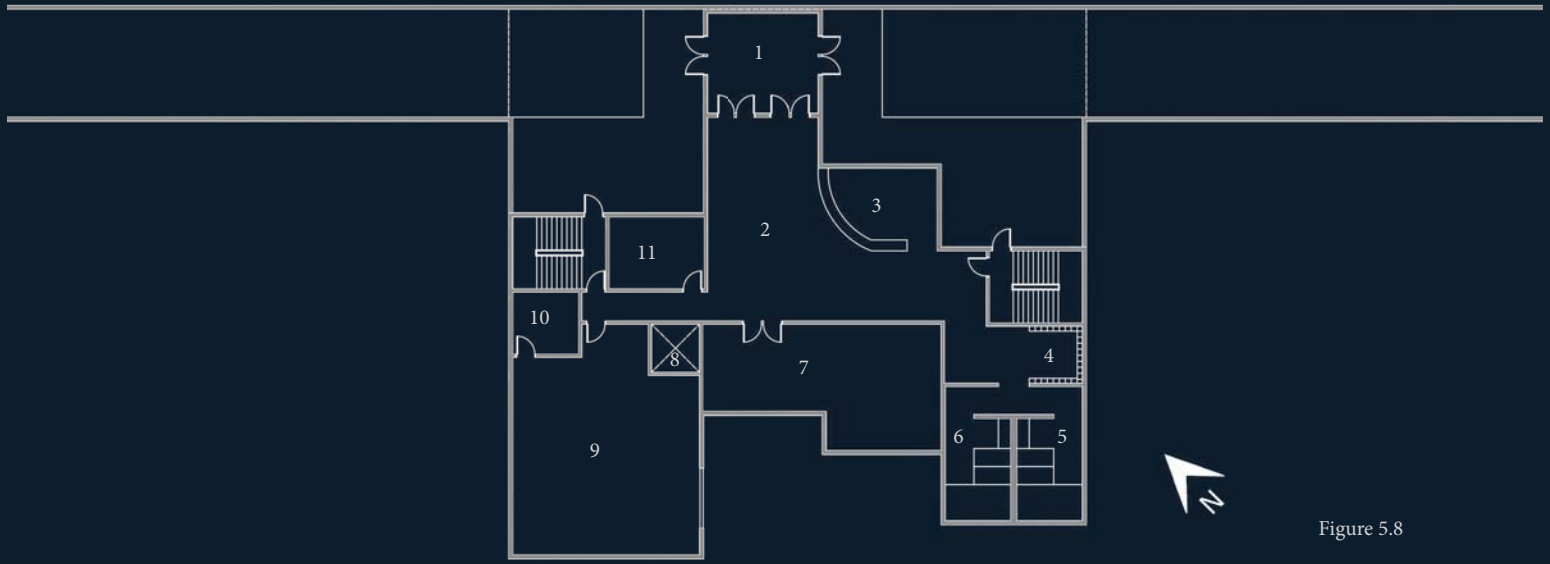


Figure 5.8

1) Vestibule
2) Lobby
3) Info/Reception Desk
4) Lockers/Waiting Area
5) Womens
6) Mens
7) Gift Shop
8) Elevator
9) Mechanical/Storage
10) Maintenance Office
11) Security/First Aid
12) Break Room
13) Gallery Prep
14) Gallery Storage
15) Freezer
16) Dry Storage
17) Kitchen
18) Cafe Seating
19) Janitorial
20) Womens

Entry Building - Second Floor Plan

The second floor of the entry building houses almost all the administrative functions along with the gallery and cafe spaces. The administrative spaces are all blocked off from the public to keep the spaces separate. Off of the break room is a green roof space which allows for the museum staff to access and give them some fresh air while at work. The gallery and cafe spaces each are capped with glazing to allow for people to see down the collection from anywhere in the spaces.

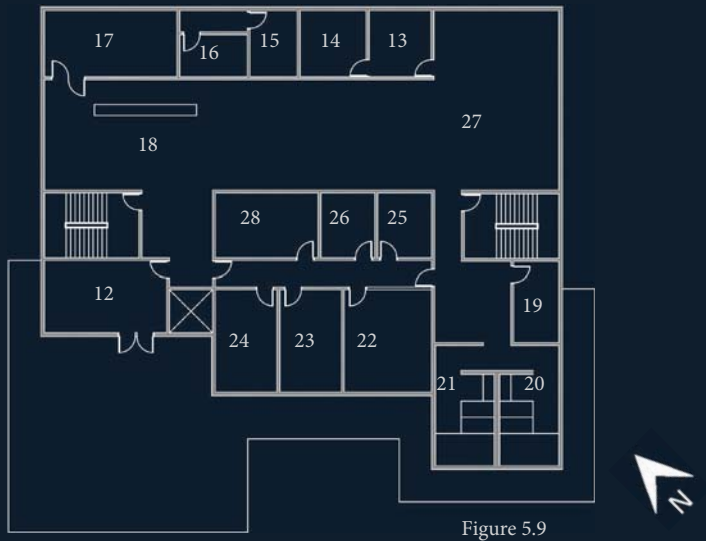


Figure 5.9

21) Mens
22) Conference Room
23) Business Exec. Office
24) Curator Office
25) Administrative Assistant
26) Administrative Assistant
27) Gallery
28) Storage
29) Equipment Storage
30) Tool Storage

Maintenance Building Floor Plan

The maintenance building has all of the functions that go on behind the scenes. The loading dock and storage are located here which requires the staff to move the supplies from here to the main building along the access road shown on the site plan. This building is located away from the rest of the museum to allow for more work to go on without interfering with the museum functions.

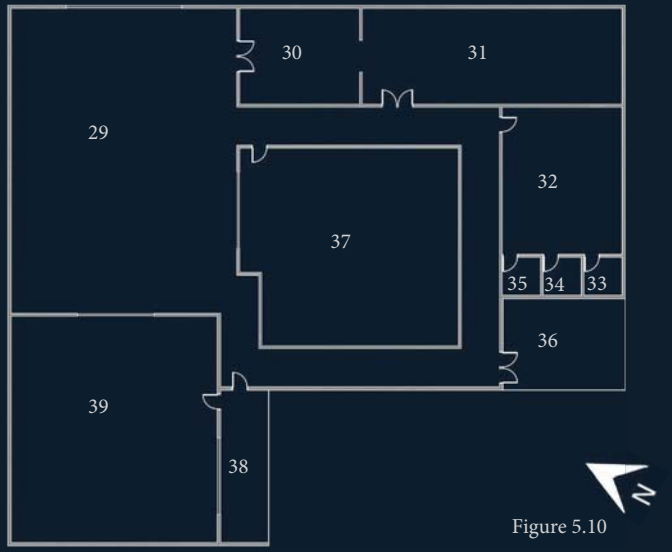
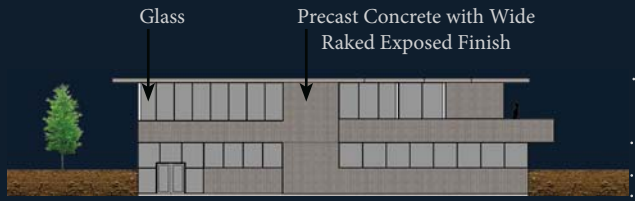


Figure 5.10

31) Workshop
32) Maintenance Break Room
33) Womens
34) Mens
35) Janitorial
36) Trash/Recycling
37) Mechanical/Storage
38) Loading Dock
39) Dock Storage

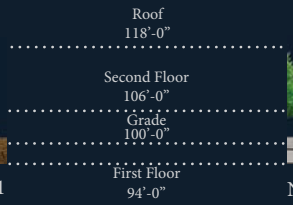
Entry Building Elevations & Site Section

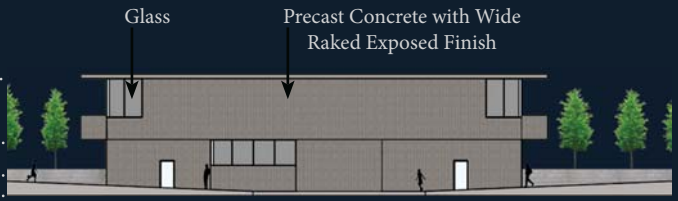
The entry building elevations below show how the building relates to the ground level. The northeast elevation shows most of the 120 foot long ramps and how the walk down will feel in relation to the trees and plants along the ramps. The building materials are precast concrete panels with an exposed aggregate finish to make it look as though it is apart of the earth and is contrasted by the glass that is light and transparent. By using contrasting materials it shows how much the materials change the feeling by using the heaviness of concrete to counter the lightness of glass. The site section at the bottom of the page shows how the elevation changes and how it plays into the design strategy. By playing off the topography, I was able to place the towers in order of their heights so that as the topography changed the following the building is taller than the previous. This allows each tower to be seen no matter where the visitor is along the pathway. The section also shows how the entry building is built into the ground and how the ramp comes up right at the entrance to the first tower on the path.



Northwest Elevation

Figure 5.11

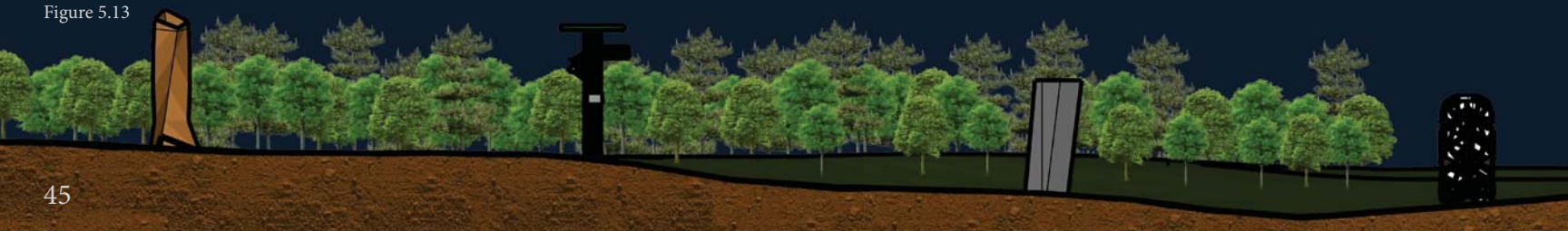




Northeast Elevation

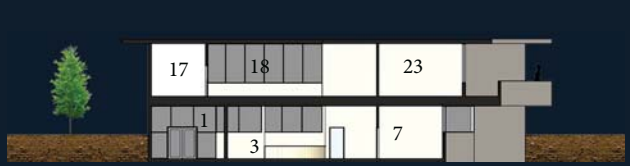
Figure 5.12

Figure 5.13



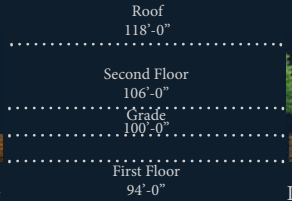
Entry Building Sections

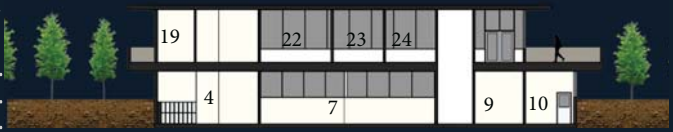
The sections show how each of the spaces interact with each other. The first section shows the ground plane in comparison to the windows on the first floor. The windows begin right at the ground level so that it looks like the upper floor is being held up by the glass instead of the concrete. The second floor cantilevers over the ramps in the entire length of the building except for where the vestibule connects the two ramps together. All of the trees planted near the building will be shorter trees that will not impede the viewing lines of the glass from the gallery or cafe so that the visitors can begin to get the feeling of the axial design from inside the building.



Transverse Section

Figure 5.14





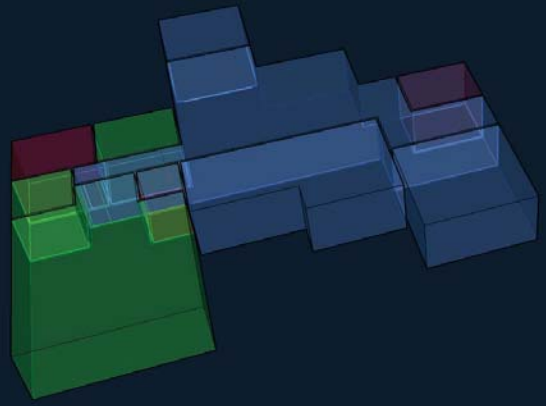
Longitudinal Section

Figure 5.15

Site Render Figure 5.16

Space Study & Circulation Diagram

The space study directly below shows the relationships between the different spaces on both floors of the entry building. On the first floor it is majority public spaces with the lobby, gift shop, and toilet rooms. On the second floor is a mixed grouping of spaces with the administrative and public spaces mixed together. Both of these floors must be connected with methods of circulation to allow both visitors and employees to access both floors. The diagram on the bottom of the page is a circulation study to see the relationship between horizontal and vertical circulation. In studying this I found that the horizontal movement is doubled the amount of vertical movement. This means that people spend a majority of time on the pathway instead of climbing the towers. This means that the path way must a place where people must be comfortable and make them want to continue on in the journey. Also people have to make this journey twice, once down and once back, so the journey should be something different in each direction to keep people intrigued by the collection and its surroundings.



Public - Private - Circulation

Figure 5.17 (Above)

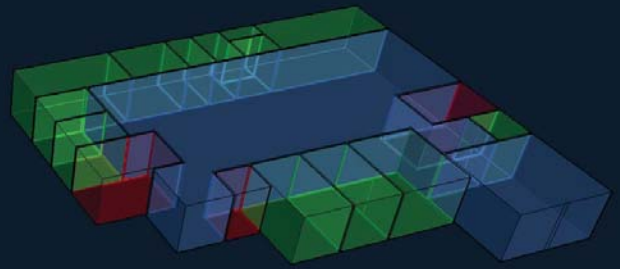
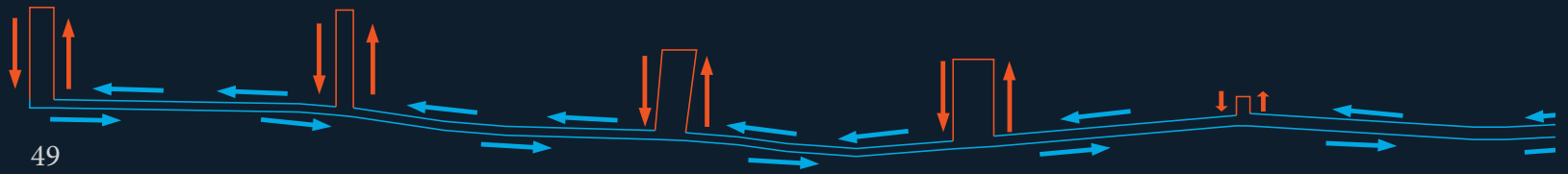


Figure 5.18 (Below)



Energy Modeling

The diagrams directly below show the difference in the heat gain and cooling gain from placing the building on grade compared to below grade. Figure 5.19 shows how the building if placed on grade gains more heat because there would be more surfaces exposed to the sun. In figure 5.20 the building is placed six feet below grade which allows less sun to hit the exterior walls and allows for the earth to help naturally cool the first floor. The diagrams to the right show the amount of sun light and heat gain being allowed in or blocked by the lengths of the overhangs. In the Figure 5.21 the overhang is one foot and it allows a lot of solar gain during the summer months. Figure 5.22 has an overhang of six feet and it allows almost no sun into the windows during the summer months but still allows lots of sun in during the winter months. The longer overhangs will allow for less cooling needed during the summer and less heat needed to keep the building warm during the winter.

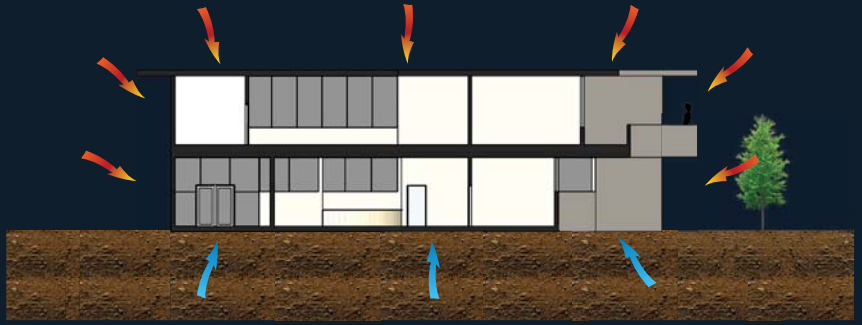


Figure 5.19

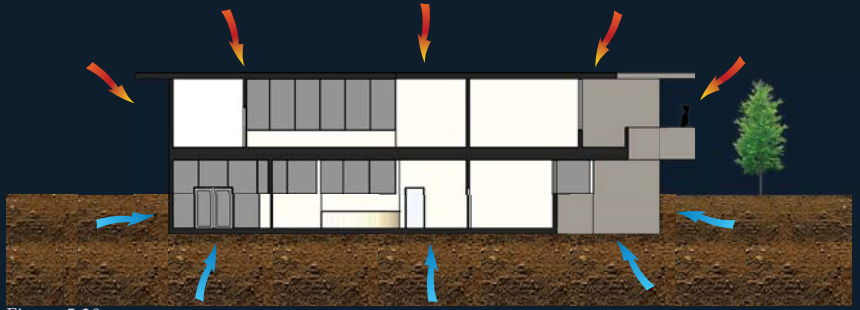


Figure 5.20

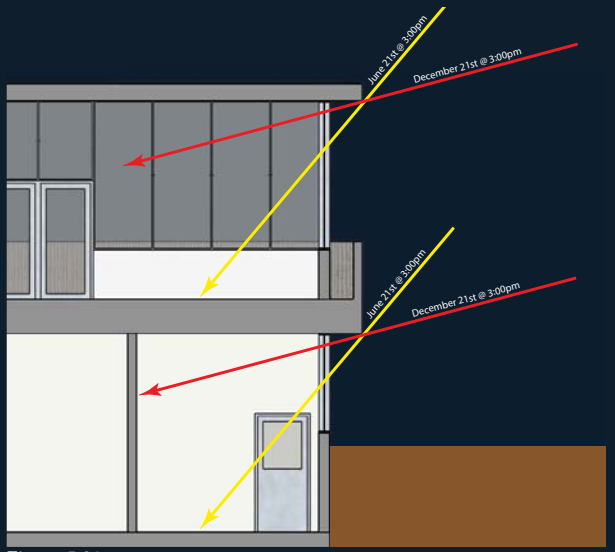


Figure 5.21

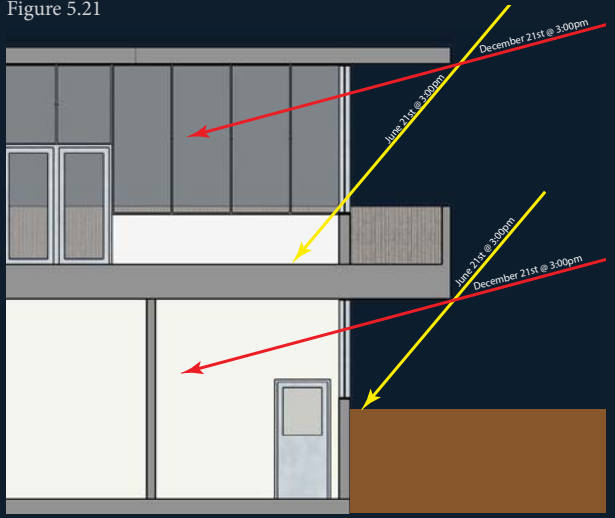


Figure 5.22

Journey Through the Ramp and Entry Building

The series of renderings below show the journey from the top of the entrance ramp down to the vestibule and then back up to the first tower in the collection. The first rendering is taken from the top of the ramp and shows how a visitor would feel and what they would see as they begin the journey. The second image shows the space underneath the first cantilever that creates a space for people to hang out in the shade and out of the weather. Image three is taken right after a person exits the vestibule and is beginning the journey towards the collection. The final image shows the first tower and how the rest of the towers all align along the pathway and only reveal parts and pieces of each tower.

Figure 5.23

Figure 5.24

Figure 5.25

Figure 5.26

Lobby

The lobby of the entry building is the first space that people experience upon entering. In the lobby is the information desk at which people can get information about the museum, donate to the museum, or find out what else is available in the entry building. The gift shop is straight in front of the visitor when they enter the lobby since the gift shop has windows lining the exterior wall it allows light in to pull visitors to the shop. The walls in the lobby can also be used to display art pieces that either do not fit in the upper gallery or in the towers.

Figure 5.27

Gallery Cafe

The cafe and gallery share the same space on the second floor. This space has tables and chairs for visitors to sit, eat, and visit with others but also has space for art pieces to be hung on the walls or be placed on the floor in the end of the gallery. Each end of the space has large windows to bring in light for the gallery but more importantly let the visitor see out towards the collection and begin to experience the collection from inside the entry building. The windows also allow the visitor to begin to see the linearity of buildings and how they are arranged on the pathway.

Figure 5.28

Art Exhibit 2

The second art exhibition piece is a collectioin of smaller boards that together tell the story of the semester project. Each board ranges in size and tells different information. The design of the piece is to be a tower that you walk inside of and experience the narrative. The stepping of the boards as the tower climbs is to be the steps that are inside each tower that take you up the the top to experience the views surrounding it. At the top of my tower were the final renderings for the open air museum.

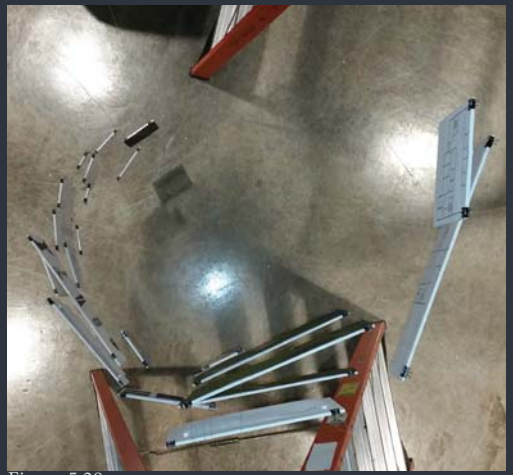


Figure 5.29

Figure 5.30

Figure 5.31

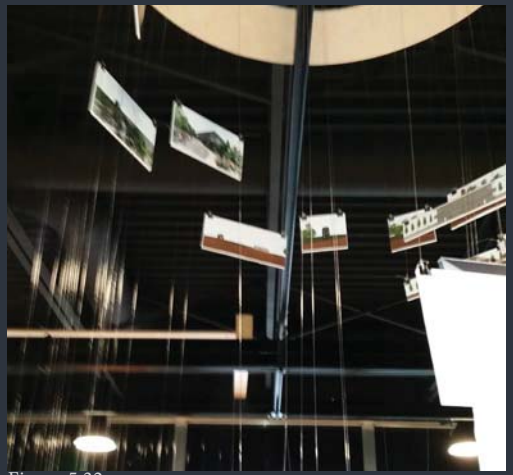


Figure 5.32

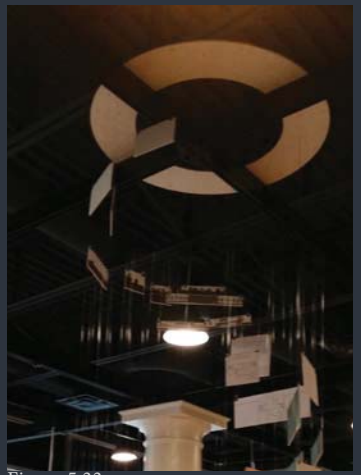


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Figure 2.20 - “Arche Nebra - Aussichtsturm Auf Dem Mittelberg,Photo-Germany Worldmapz.com.” Arche Nebra - Aussichtsturm Auf Dem Mittelberg,Photo-Germany Worldmapz.com. Accessed July 3, 2015. http://de.worldmapz.com/photo/161714_en.htm

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