



Regeneration Through Connection: Danielle Hoff
An Exploration of Unifying the Built and Natural Environments Through the Human Condition

Regeneration Through Connection:

An Exploration of Unifying the Built and Natural Environments Through the Human Condition

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By

Danielle Hoff

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Thesis Committee Chair

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Abstract

Citing the world's current rate of natural resource use, there will be little left of the world that is natural within a generation. The current cycle of environmental degradation is so extreme that the natural environment can no longer keep up with the built environment's demand. This thesis explores the way in which designers shape and create the built environment in an attempt to find an alternate solution. The way in which designers address the built environment must change. This thesis explores a solution where the built environment actually regenerates the human condition. If this kind of built environment is created, then the current human degradation can be stopped and even reversed. This would create a built and natural environment that is not only sustainable but also regenerated. This is a world where the built and natural environment are no longer separate or competing but instead are at peace with one another, coexisting and interdependent; blending into one whole environment.

Problem Statement

Can the built environment be regenerative?

Statement of Intent₃

Statement of Intent

Project Typology

A holistic wellness center typology will be employed to explore the theoretical premise. The healing users will receive at this facility will focus on regenerating and healing a person who is distressed emotionally, physically, and/or spiritually.

Claim

The built environment can be designed and function in a way which regenerates the human condition.

Actor: Architect, urban designer, landscape architect.

Action: Regeneration.

Object acted upon: The human condition.

Manner of Action: Humans being the connecting force between the natural and built environment.

Premises

Architects, urban designers, and landscape architects design the form and function of the built environment.

Regeneration is defined as being the revitalization and healing of the human condition, including human physical and emotional well-being, relationships to other humans, as well as the environment in which they live.

The human condition is directly related to the way in which the built environment is designed and functions.

Through connecting the built and natural environment, humans grow closer to one another, as well as their surroundings, resulting in a single and wholly interconnected environment.

Statement of Intent

Theoretical Premise/Unifying Idea

The built environment can be designed and function in a way so that it regenerates the mind, body, and spirit of people, therefore, establishing a connected and interdependent relationship between what is natural, what is built, and those that live within, elevating all to a new symbiotic and whole level.

Project Justification

The current path of natural resource use is as follows: harvest, wear out, and throw away. This progression is deteriorating the natural environment, as well as all its human and non-human inhabitants. There is no hope that the natural environment can keep up with this kind of extreme demand. If this continues, the world will come to a point where there is nothing left to be harvested. The natural environment is already so depleted and misused by the built environment that drastic and massive measures must be taken now to reverse the negative effects that are already plaguing the environment and its inhabitants. This progressive deterioration must stop and be reversed, so people now and in the future have access to fresh air, clean water, and open space.

Proposal⁷

Narrative

Thoreau stated in his novel, Walden, "I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived" (Thoreau, 101). Since the dawn of civilization, people have gotten lost in the worlds they built around themselves. To find themselves again, they leave their built environment to go into the natural environment. Once there, their connection with the natural world allows them to find new life inside of themselves, to find spiritual awakening, to deliberate on who they are as individuals, as well as many other reasons known only to each individual. Upon their epiphany they return to their built environment with a new sense of purpose and direction related to why they were lost but then only to lose themselves again and feel the need to return back to nature to repeat the process.

Human connection to the natural environment is evident in every aspect of the modern world, from the house plants people keep in their living rooms, to the glass that brings the magnificent vista of the natural world around them into the home, to the high definition television programs that explore the sublime wonder of the natural environment through film, and to the highly manicured and fertilized parks in the middle of an industrialized city. Humans have a passion for and need these connections to the natural environment to, as Thoreau said, "live deliberately" and to remind them of what life is to live.

Because the natural environment is a crucial part of every human's life, why is it then that humans are determined to create a built environment that separates themselves from everything that is truly natural, in exchange for the comfort of a pest-free home with toxins leaching out of the freshly painted green walls, with a wonderful tropical house plant sitting in a bucket in the corner? One could say that humans are creating a second nature that is controlled and within their comfort limits so that the natural comes into the built environment on the terms of the human. This controlling and romanticism of nature is why humans

have separated themselves from the natural world. Humans see themselves as not being a part of nature but rather removed from it in a separate category. This begs the question then: if humans are not natural, what exactly are they? They are certainly not manufactured and not (as of yet) created through artificial means, so what are they? Unnatural?

This logic is unfounded and faulty. Humans are natural and are a part of the natural world. The built environment they create around themselves to shield them from the less-pleasant part of nature is an instinctual mechanism all living things are born with, which is to seek and create shelter. However, this instinct has gone into over drive, and humans are now creating just for the sake of creating. This over-indulgence is sucking the life out of the natural world, because the cycle is now unbalanced.

This imbalance creates a unique opportunity for those who are charged in our society with creating shelter. If those who design shelter for humans change the way they view the relationship and connection that humans have with the built environment and the natural environment, then a new method of building can be employed. If designers think about these three elements (humans, the built environment, and the natural environment) as all equally important, then the connection between each will increase, as will the awareness of how one affects the others. By integrating these three elements as equals into the design process, there could never be a built environment that degrades the natural environment. If the designer takes the lead and shows other humans that there can be a world where one does not need to retreat into the woods to find themselves but rather that can happen every day in their life, then the connection between humans, the natural, and the built environment will be renewed and regenerated. Once this connection is regenerated, then the way in which humans view nature in relation to themselves will alter, which will change the way humans define what kind of shelter they need.

This cycle of realization is paramount to create a world that is no longer depleting the natural resources faster than they can regenerate. A world that has clean air and water, and one where the lines between the natural and built environments is blurred because, really, they are one in the same.

User/Client Description

Owner

The facility will be privately owned by the doctors and therapists, who work there in partnership with Sanford Health and the YMCA. It is crucial that the doctors and therapists own the facility because they will take great pride and care in their work. A partnership with organizations is also advantageous because Sanford and the YMCA will prescribe their patients and clients to become members and residents of this facility, as well as provide resources to help the facility to be on cutting edge of holistic healthcare and wellness technology.

Members & Residents

The members and residents are the users of this facility, and they are adults who are in need of physical, emotional, or spiritual healing and regeneration. The users may be regular members that come to the facility in an outpatient manner similar to a fitness club or typical doctor's appointment. The users may also be temporary residents of the facility, where they will live in a manner similar to an inpatient health or treatment center. These users are in a much greater need of a health intervention physically, emotionally, and spiritually.

Doctors & Therapists

The doctors, therapists, and trainers who work at the facility are each specialized in a specific area of holistic medicine related to emotional, physical, and spiritual healing to enable a complete and rounded healing program for the patients. This group of individuals has a humanitarian mind set and are extremely dedicated and committed to providing the best care possible to the users of the facility.

The facility will house the following professionals: an osteopathic doctor, an addiction counselor, two spiritual advisors, two fitness trainers, a massage therapist, an acupuncturist, a chiropractor, a psychiatrist, a nutritionist, and a life coach. Together these different disciplines will create a complete and whole healing environment so that the users of the facility will have everything they need all in the same place, using the same philosophy and with the same goals for each user.

Support Staff

The everyday function of a complex facility like this would not be possible without the proper support staff in place. Reception and administrative staff are crucial for the management and procedures of this facility. In addition, there will be two chefs on staff to provide exquisite meals to the users of the facility, as well as the staff. Finally, there will be six nurses, as a part of the staff, to assist the doctors with all the needs of the members and residents.

Number

The center will consist of one building that contains all portions of the program. However, the living quarters of the residents could potentially be separated from the main structure, to allow for more privacy and self-reflection, if the research and design process calls for it. The facility shall accommodate up to ten residents, members by appointment, and, in a similar manner to a fitness facility, 12 wellness professionals, three administrative staff people, two chefs, and six nurses.

Peak Usage

The peak usage of this facility will be during regular business hours and into the early evening. The facility would expect to be at full capacity shortly after a natural disaster, war time, or other horrific accidents. Generally, the facility can expect to be

at moderate capacity during all other times. In terms of the day-to-day usage, it will be intense, due to the residential nature of the facility. It will operate 24 hours per day, seven days a week, and will require staff to be present at all times. However, the daytime hours will be the busiest time of the day, with the most activity occurring.

Parking

There will be a parking space provided for each employee and 35 spaces for residents and members, as well as several visitor spaces for family members.

Physical Restrictions

There are no physical restrictions particular to this facility, however it will be designed to typical universal design and ADA standards.

Medical/Mental Health Issues

The residents and members who will be using and living at this facility may be in extreme emotional or spiritual distress at the time of their arrival, and their care will most certainly be paramount in the design of this facility.

Major Project Elements

The goal of this project is to allow the architecture to stimulate the emotional, physical, and spiritual healing of people who are in a period of emotional, physical, or spiritual distress or maintenance, while simultaneously healing and regenerating the natural environment by connecting the users and the architecture to the natural environment as a part of their wellness regeneration.

Outdoor Spaces

Part of the regeneration of the human condition and the natural environment is for a connection to occur between the two. The outdoor spaces provided as a part of this facility are paramount to the healing and regeneration of the residents. These spaces should be created and maintained naturally by the staff as well as the users, and be as accessible to the users as any of the interior spaces of the facility year round if possible.

Entry

Upon entering the facility, the residents should feel a sense of peace and ease so that their healing process begins instantly. In addition, the entry condition provides a unique opportunity to connect the natural environment, built environment, and people simultaneously. Therefore, the entry must be treated very specifically and with intent in order to make the connection between the three elements clear to all who enter.

Living Spaces

A private space will be provided for each resident to live in during their stay at the facility. These spaces shall consist of a sleeping area, a living area, a small eating/cooking area, and a bathroom.

Self-Reflection Spaces

As a part of the healing process, the users will need time to themselves in a space that is secluded and separated from the rest of the facility. Therefore spaces of seclusion will be provided for the residents to self-reflect, meditate, and heal.

Treatment Spaces

There shall be a treatment room provided for each different discipline of healing hosted in the facility. There shall be a typical medical exam room, three psychiatric treatment rooms, a massage room, a chapel, an acupuncture room, a space for fitness machines, a large open room for meditation, yoga, and other group healing. In addition, there shall be a private office associated with each treatment room for the healing professional's own particular use.

Therapy Spaces

Direct discussion and meditation between the users and the healing professionals is paramount to the successful regeneration of the users. Private rooms designed for optimal healing and providing a sense of peace will be provided to allow this discourse to occur in the most efficient and beneficial way.

Recreation Spaces

Recreation provides a way for people to relieve stress, as well as connect with other people; therefore, recreation spaces will be provided to aid the residents and users in their regeneration. Spaces, such as a painting or messy studio and a library will be provided for the users of the facility.

Administration

Offices and administrative areas will be necessary to provide an organized and effective working environment for the doctors, therapists, and administrators to complete their jobs as best they can. In addition, the facility will provide meeting rooms and breakout spaces specifically for those who work here

Site Information: Macro

Region

The site is located in the Upper Midwest of the United States, in the downtown area of Fargo, North Dakota. This region is known for very short, but considerably warm summers, followed by long and very cold winters. The region is fairly sparsely populated comparatively speaking, and has few major metropolitan areas.

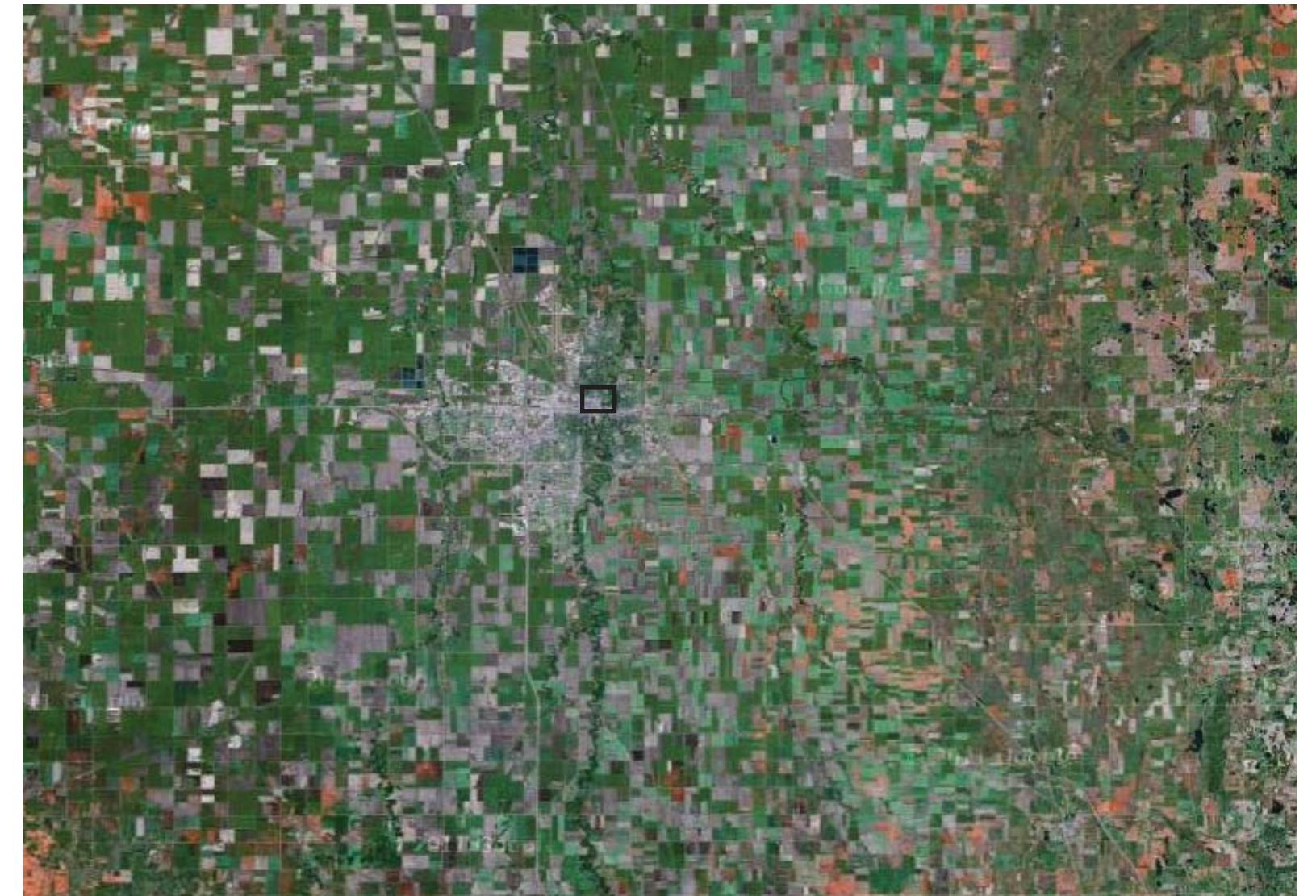


Figure 1

Site Information: Micro City

The site is located in the downtown area of Fargo, North Dakota. The downtown area is considered to be dense for the city and is in the middle of a vibrant and re-emerging downtown community. Fargo is considered to be a metropolitan area of the region and is the entertainment, food, and industrial hub for the surrounding area.



16 Figure 2

Site Information: Micro Site

The site is located on the site where Mid-America Steel currently is in business in the downtown area of Fargo. Northern Pacific Avenue and Main Avenue run on the north and south side of the site, and the Red River borders the site to the east. The west side

of the site flows into the fabric of Fargo's downtown. Through the middle of the site, there are a set of highly used railroad tracks. This site is currently being used as a steel fabrication center, and it is considered to be an industrial use. According to Fargo's Downtown Framework Plan, this use is not desirable, and Mid-America Steel is being encouraged to leave the downtown area. The site is in extreme distress, because it has been used in an industrial manner since the beginning of the 1900s.



Figure 3

Project Emphasis

Understanding how the built environment, people, and the natural environment can all exist at their best capacity within the same universe is critical in this thesis. There must be a way for people to build and create their shelters in a way that is beneficial, rather than detrimental to the natural environment. In this way, the built environment can regenerate the natural environment.

Another critical facet of this thesis is to understand how the built and natural environment can regenerate and heal a person's emotional, physical, and emotional state. People live within both the natural and built environment, and both affect a person's life in every way. By examining this connection and the reaction people have with their surroundings, it will enable this thesis to discover how the connections between these three elements (people, the built environment, and the natural environment) can come together, and all rise to a higher and regenerated level. Therefore, creating a world that is wholly connected, where a building is not the enemy of a tree, and an ant is not a pest to people, but all are needed and respected.

Plan for Proceeding

Research Direction Defined

Research will be conducted in areas including: the theoretical premise; residential treatment centers; psychology as it relates to architecture; sustainability and regenerative architecture and site planning; the historical context; analysis of the site and the surrounding area, and programming.

Plan for Design Methodology

The research for this thesis will be conducted using the mixed method quantitative/qualitative approach, as well as graphic and digital analysis. In addition, the research for this thesis will follow a concurrent transformative strategy, guided by the theoretical premise. Quantitative data will be gathered from archival and demographic research, as well as measurements taken directly from the site. Qualitative data will be gathered through direct observations, archival search, and direct interviews.

Plan for Documenting the Design Process

Documentation will be compiled digitally through the collection of notes and scans of drawings. The documentation will be preserved by making backups as research milestones have been achieved and then once weekly during the design process. This research will be made available to others through the North Dakota State University Institutional Repository. This thesis will be presented through a verbal and digital presentation at the conclusion of the timeline. Data collection will be conducted and reviewed weekly or at the conclusion of major project milestones, whichever is more fitting for the circumstance.

Spring Semester Work Plan



January - Concept Development & Schematic Design
February - Design Development
March - Mid Term Review Package & Revisions
April & May - Presentation Drawings & Model

Previous Studio Experience

Fall 2008

Heather Fischer - Trollwood Teahouse
Meghan Duda - Minneapolis Rowing Club

Spring 2009

Mike Christianson - Dance Studio, & Material Exploration

Fall 2009

Paul Gleye - NDSU Center for Excellence, & FM Music Center

Spring 2010

Cindy Urness - Ideal Studio, Aquatics Center, Enchanted Highway Stop, & Multi-Modal Transit Center

Fall 2010

David Crutchfield - Sustainable High Rise, & KKE Vision Award Competition

Spring 2011

Malini Srivastava - Eco-Experience Design/Build (Design Semester)

Fall 2011

Mark Barnhouse - Water Treatment Experiment Station

Work Plan

Program²³

Theoretical Premise
Research Results

Theoretical Premise

The built environment can be designed and function in a way so that it regenerates the mind, body, and spirit of people and the natural environment; therefore, establishing a connected and interdependent relationship between what is natural, what is built, and those that live within, elevating all to a new symbiotic and whole level.

Research

To buy, use, replace, and waste. This is way of the American individual. The people of the United States make up five percent of the world's population, but consume 30% of the world's resources, and produce 30% of the world's waste (Schor, 1992). All the while the average happiness of the United States is decreasing (Census Bureau, 2010). What can be happening in a place where the people have more and more stuff, and yet less and less happy? To make matters worse, the world is using 1.5 Earths to sustain itself currently, or in other words, what the world's population consumes in a year, the Earth takes 1.5 years to replenish ("Global Footprint Network," 2011). In 2030 The United Nations estimates that if the population and the rate of consumption continues to rise, as it has historically, the world's population will require two Earths to support them ("Global Footprint Network," 2011). From there, the increase is exponential, increasing to a point where the Earth would become a barren wasteland.

A coconspirator alongside the extreme consumerism and resource use of the world's population is the radical energy use. More than 90 percent of energy comes from a source that is nonrenewable (International Energy Agency, 2010). In other words, these resources will run out. With the United States importing, refining, and using more petro-products than any other country in the world, the U.S. is at the forefront of the problem (International Energy Agency, 2010). With the rate of energy use exponentially rising and the Earth's inability to keep up with the

pace, the world is heading down a very dangerous road and has shown very little hope of slowing down. There will come a time when the resources will run out, and there will be no more to use. So, right now the world is at a crossroads, where people can either choose to change now and possibly avoid catastrophe and chaos or be forced to change later amid chaos once the catastrophe has already occurred.

This thesis seeks to provide an architectural solution that can be a part of how the world can change now. The theoretical premise proposes that by creating an environment where people are connected to the built environment and the natural environment through their mind, body, and soul, it can stimulate a paradigm shift in people's attitudes towards the world. Instead of building on the Earth, they are building with the Earth; instead of creating waste, they are borrowing and then giving back; and instead of being separate from nature, they are a part of it. If architecture can foster this kind of thinking and life style, setting an example for all who enter, people will leave enlightened and renewed. They will bring these thoughts and values into their own lives and recreate them. Connecting the person to themselves through their environment would mean that a piece of architecture could awaken a person from their consumer-driven-zombie-trance and remind them of what life is.

To understand the theoretical premise more fully it is imperative to seek knowledge in several diverse areas that all contribute to how a person perceives and understands their environment, as well as what that environment should be. To follow will be a discourse pertaining to these ideas, beginning with a discussion on regenerative architecture, subsequently followed by discussions pertaining to architecture, sociology, and holistic medicine. To conclude this research, a summary will complete the discourse to synthesize the information and ideas presented.

Regenerative Architecture

A new model of thinking in terms of sustainability is emerging among architects, landscape architects, and urban designers; one coined as being "regenerative design." The architecture firm Perkins + Will define it as being a design method where:

"each act of construction and operation of buildings and communities has a positive effect on the systems it affects. Its aim is to positively influence human and natural systems by bringing them into integration" (Busby, Richter, & Driedger).

At its core, regenerative design seeks to create a net-positive design (Dunbar, Hodgkin, Plaut, and Wackerman, 2012). In addition, regenerative design also aims to create a symbiosis between all the elements within a project whose end goal of effectiveness, not efficiency (Akihan, 2011). This differs greatly from sustainable design in which the primary goal is efficiency, meaning energy efficiency, product efficiency, and the like. Regenerative design instead seeks to be effective. An example of this is how the auto industry keeps trying to produce cars that are more and more efficient, when the question really is not how to create an efficient car, but rather if "cars are an effective mode of transportation in the first place" (Akihan, 2011). William McDonough asks of himself and all architects; "how do we love all children of all species for all time?" The answer is by designing buildings that foster the human and natural environments so that both are connected to each other, and both are improved.

This model of thinking has several goals that differ from the current system. First, change the way society views the things we use and build so that instead of the typical extraction-production-consumption-waste cycle, it becomes a closed loop, where there is no waste. In fact, the concept of waste should be nonexistent. Humans are the only species on the planet who create true waste, which is leaving a material that can become nothing else besides what it is. For instance, the material plastic will never be anything other than plastic. The way it is currently

manufactured, it can only be down-cycled once, and then it becomes waste. Instead, regenerative design seeks to "replace linear processes with cyclical ones and allow for continuous replacement, renewal and rebirth" (Dunbar, Hodgkin, Plaut, and Wackerman, 2012). The world needs to come to terms with the fact that people are interconnected with and reliant on nature (Dunbar, Hodgkin, Plaut, and Wackerman, 2012). Once this occurs, then people will begin to treat it as such. One would never choose to soak their winter coat in cold water before putting it on to go outside in the middle of winter. Similarly, people should not be treating the Earth with such disdain and expect it to maintain its ability to provide for the world's population.

"Solutions must grow from and reflect the biological and cultural systems of a particular place, especially if the goal is to promote the health of these systems" (Dunbar, Hodgkin, Plaut, and Wackerman, 2012). By integrating the natural and human processes, design can become more than sustainable and more than a building on a site; it is able to actually become a part of the environment and ecosystem. This kind of building environment places responsibility on everyone involved: the architects, the contractors, and the users. Because of this, for regenerative design to be successful, there must be a paradigm shift in attitudes and values in the form of a "social and cultural transformation that recognizes [human] interconnectedness with nature" (Dunbar, Hodgkin, Plaut, and Wackerman, 2012).

Many firms across the world have begun to experiment with how architecture can be regenerative. William McDonough has led the way with not only his designs but also his product measuring system, "Cradle to Cradle." The system measures a building on its total lifecycle, investment of energy, and resources. It looks at every product that enters into the project, finds where it was extracted, and looks at what happens to that material once it is thrown away. This system casts a light on the processes that many consumers are not aware of and places a new importance on the decisions designers make when

choosing products. The poster child project of McDonough's firm and regenerative design is the Center for Environmental Studies, at Oberlin College in Ohio. This building meets his Cradle to Cradle system, and is net-positive in terms of energy use, selling 4.23 kBTU/sqft per year back to the grid. This facility is a living machine, changing and morphing as the environment does, even processing its own waste on site in a constructed wetlands. As primarily a research facility, this building is the research and education tool by being an ecosystem on its own. Entirely powered by solar energy, the building also contains many sensors to monitor the building so that it gives feedback and allows the users to optimize the management of the building. In every aspect, because this building exists, the world is a better place. (Akihan, 2011)

Another firm that is making great strides towards creating regenerative architecture is Perkins+Will Canada. The Living with the Lakes Centre for Applied Research in Environmental Restoration and Sustainability "focuses on improving the environmental context through the construction and occupancy of a building" (Dunbar, Hodgkin, Plaut, and Wackerman, 2012). Ecologically damaging mining occurred in the area for several years, leaving many of the lakes and ecosystems in the area toxic and damaged. The function of the facility, as a research center, allowed the firm to create the building as a living lab, with a wet lab space, as well as a space dedicated to the sustainability of watersheds. In addition, the building was designed to have an extremely minimal ecological footprint, and the materials used within the building and site design actually help to neutralize the acid by-product of the mining that once occurred there. The firm also worked with a climatologist to address the extreme climatic conditions in the area and was able to include countless energy and water conservation principals into their design, such as super-insulated walls, and a green roof to help manage storm water runoff. This facility embodies everything that is sustainable and more. Like the Center for Environmental Studies, this facility makes the world better by being built. They actually regenerate the

environment and ecosystem they are a part of. (Dunbar, Hodgins, Plaut, and Wackerman, 2012)

Without exception, it is clear that sustainability is not enough to really sustain the world. The Earth is already at a point where it is so degraded the world would be lucky to break even if every building were regenerative right now. Societies all over the world must change the way they view buildings and the environment. Regenerative design works, and enables not only a healthier environment but also healthier people. With buildings as the teaching tool, and nature as its inspiration, people will connect with the nature through the building, and a paradigm shift will occur.

Architecture and Sociology

Architecture and sociology are incredibly interconnected. Much of the research related to this topic discusses how important it is for sociologists to consider the built environment, and similarly, how important it is for architects to consider the research of sociologists. Architecture is a result of human interaction with the natural world, and is a social modifier; in essence, "architecture has the capacity to connect to the self" (Bugni & Smith, 129). This is vital for an architect to understand and embody in their role in creating the built environment. Many architects strive for this kind of effect on people, and it is this quality that usually makes a piece of architecture truly great and timeless. The connection between people and the built world is unquestionable, and to ignore the research and studies that sociologists have done related to the built environment and our surroundings should be criminal. Architecture is a social creation.

So much of the built environment is a result of a need for programs of social spaces; it is the essence of our society. Specifically speaking about the symbiotic interaction theory, the "designed physical environment is not merely a backdrop for our

behavior" (Bugni & Smith, 124), but rather a result of a highly interconnected play between what humans create and what humans need. This concept of connection to the built environment aligns it with a wonderful, and rather unusual, idea that the built environment is not, in fact, our enemy, but rather an extension of us. This has far reaching implications in terms of architecture and design, and the way in which architects chose to approach a design problem. If architects think of what they are designing as a social instrument that can shape, mold, and contour our culture, then there is a power and responsibility that extends beyond the typical health, safety, and welfare of people.

From a sociologist's point of view

buildings, indeed, the entire built environment, are essentially social and cultural products. Buildings result from social needs and accommodate a variety of functions-economic, social, political, religious and cultural. Their size, appearance, location and form are governed not simply by physical factors (climate, materials or topography) but by a society's ideas, its forms of economic and social organization, its distribution of resources and authority, its activities and the beliefs and values which prevail at any one period of time. (King, 1980)

As society changes and morphs over time so does the architecture. Old buildings are demolished or remodeled, and new ones are created. In this way it is easy to understand how different architectural styles evolve over time. Humans are in a constant state of criticizing the existing and attempting to make the new better. The built environment becomes the instrument through which our society expresses itself, in a similar manner to art or music. In essence, the built environment becomes a social instrument.

An example of how architecture can serve as a social instrument is how a building can inspire environmental awareness to its inhabitants and visitors. One study found that "environmental concern grows out of engagement with the environmental

movement" (Dietz, Guagnano, & Stern, p. 466). The most basic and simple way an architect can do this is to design the building as an environmental steward and teaching tool. In addition to this, employing new technologies, such as building dashboards enables a building to speak to its inhabitants and visitors unlike anything else. This kind of engagement with environmental awareness is just like the concept that was discussed above and could inspire the building's users to become environmentalists. If people are aware of how their actions are directly affecting energy use, water use, etc., then they are more likely to take greater care in the future. In essence the building creates a new mind set for the inhabitants and visitors. In addition to technologies, like building dashboards, the "green" building ratings, such as LEED, Passive House, and the Living Building Challenge, also serve as a form of engagement with the environmental movement, but to a lesser extent. In these examples, it is critical that the building serves as a teaching tool so that the inhabitants and visitors are forced to engage themselves with their surroundings and understand how the building embodies the rating.

Generally speaking, most people are aware of the current environmental crisis and choose to either contribute positively or negatively to it. A study performed by Thomas Dietz, Paul C. Stern, and Gregory Guagnano that was published in the Journal Environment and Behavior found that environmental beliefs are clearly defined based on a person's general beliefs and values, wherever they may stand on the spectrum (1998). An interesting facet of this study is the conclusions drawn about the relation between religion and environmentalism. Religion and environmentalism are in fact linked. The way in which a person perceives the two is very important. The well-educated, politically liberal, woman, those affiliated with the liberal protestant denomination, those not affiliated with any religion, and postmaterialists support the statement that nature itself is sacred. While the uneducated, men, whites, conservatives, and those strongly affiliated with a religion advocate the statement that nature is sacred because it was made by God. However, Catholics,

moderate Protestants, postmaterialists, and those with no religious affiliation reject this view. This indicates that "there may be meaningful links between religion and environmentalism that are not tied to denomination or religiosity" (Dietz, Guagnano, & Stern, 465). Additionally the study concluded that people who are politically liberal tend to be more concerned and take action positively for environmentalism (Dietz, Guagnano, & Stern, p. 465). These findings especially support the conclusion that a person's beliefs and values are tied very closely to their view of environmentalism due to the nature of how religious doctrine and political views affect a person's belief and value system.

Architecturally speaking, it is important to acknowledge how many differing belief and value systems the people who inhabit a building will have. This is especially important if the program of a building is intended for many people with diverse backgrounds. An architect must be able to address each of the expected population type's needs to ensure everyone's comfort, so the architect does not unintentionally discriminate against a certain population.

Holistic Medicine

"Healing traditions are as age-old and diverse as humanity itself" (Pesek, Helton, & Nair, 2006). From the very beginning, healers were the wise and judicious people in a community and in many cases were the leaders in all matters spiritually, physically, and emotionally. A healer's job was to take care of the whole person, whether that meant spiritual guidance or wrapping a wounded knee. This is holistic medicine. Someone who heals a person, by seeing their mind, body, and spirit as connected together as a tree's roots are to the soil in the Earth, is a holistic healer.

Each culture around the world developed their own way of addressing the healing of their people, and many of these traditions are still used today. More and more modern people are beginning to see the value in the old ways and are using alternative

medicine as a way to complete the care they are missing from conventional medicine. Holistic medicine differs from conventional medicine in the manner in which the practitioner addresses an ailment. A conventional practitioner will treat a disease or symptoms, while a holistic practitioner will treat the person. They see the life of the individual and are able to find the cause of the problem, which may be unrelated to the disease itself, something that a conventional practitioner would have never seen.

A study conducted by Stanford Center for Research in Disease Prevention in 1998 found that over 38 percent of Americans use holistic medicine as a part of their medical regime, and of this percentage, one in four of these people attend a holistic health center weekly. This study also found the reason why Americans use holistic medicine is typically because it coincides "with their own values, beliefs, and philosophical orientations toward health and life" (Stanford Center for Research in Disease Prevention, 1998). In addition to this reason, the study also found that many people choose holistic medicine because traditional medicine has not helped or has made their condition worse. Some of the prominent holistic medicine practices that are widely used today, include: massage therapy, acupuncture, osteopathy, naturopathy, and chiropractic. Each one has its own set of values and ideas, yet all of them work towards the same common goal, to create and monitor a healthy and complete person.

Massage therapy is a method of touch healing where practitioners manipulate muscles and other soft tissues to improve health and wellbeing (University of Maryland Medical Center [UMMC], 2011). "Varieties of massage range from gentle stroking and kneading of muscles and other soft tissues to deeper manual techniques" (UMMC, 2011). Cultures from all over the world have used similar techniques to promote the general well-being of their people. It has been practiced for centuries, the earliest record of massage as a healing practice was in Chinese medical literature 4,000 years ago.

With the onset of the industrial revolution, and the evolution of conventional medicine, massage therapy was denoted as old world and lost much of its reputation as a true healing practice. In more recent years, however, massage therapy's reputation as a healing practice has rebounded. People are beginning to see and understand the benefits associated with massage therapy.

Patients understand massage's intrinsic ability to relieve stress and create a deep and lasting state of relaxation. In addition, massage therapy has been clinically shown to be

an accepted part of many physical rehabilitation programs, [...] [and] has also proven beneficial for many chronic conditions, including low back pain, arthritis, bursitis, fatigue, high blood pressure, diabetes, immunity suppression, infertility, smoking cessation, depression, and more. (Associated bodywork & Massage Professionals, 2011)

To obtain this kind of healing, practitioners utilize three distinct techniques of healing: massage, bodywork, and somatic. Specifically, massage is "the application of soft-tissue manipulation techniques to the body, generally intended to reduce stress and fatigue while improving circulation" (Associated Bodywork & Massage Professionals, 2011). Massage is the most-well known kind of therapy associated with massage therapy. Body work is a technique which consists of "various forms of touch therapies that may use manipulation, movement, and/or repatterning to affect structural changes to the body" (Associated Bodywork & Massage Professionals, 2011). The field of chiropractics can stem off of this area, which makes partnering between chiropractic and massage therapy a positive healing experience. Somatic means "of the body." This technique heals a person by approaching a person's body and mind as one and focuses not just on the physical effects a person is feeling but also monitors their mind. For instance, the somatic technique will heal a person's back pain through massage and bodywork, but then also finds the root of the cause; perhaps it is a high stress level, or emotional distress and then also helps the patient through

that hardship. (Associated Bodywork & Massage Professionals, 2011)

Chiropractic is a method of healing that dates back to 1895, when D.D. Palmer discovered the power of adjusting the alignment of the spine. He was trying to communicate with a man who was deaf, when the man told him that he had normal hearing all his life, and one day while in a hunched over sitting position, his back popped, and upon standing he could no longer hear. Palmer hypothesized that these two occurrences had to be connected. He ran his fingers down the man's back, and found that one of his vertebrae was out of alignment. Palmer convinced the man to allow him to try to realign the vertebrae, and soon after doing so, the man could hear again as he had before. Though this result astounded him, the medical community of the time did not accept his practice and openly criticized it. It took many years for the natural healing effects of chiropractic to become an accepted practice. Today, it is the most mainstream method of alternative medicine that is part of a holistic healthcare regime. (The World Chiropractic Alliance, 2011)

Practitioners heal their patients through this "drug-free method of correcting vertebral subluxations in order to remove nerve interference (...)" (The World Chiropractic Alliance, 2011). "A spinal bone, which has lost its normal placement or alignment is said to be 'subluxated.'" (The World Chiropractic Alliance, 2011). The effects of this "dis-ease" interfere with the messages sent through the nerves in the spinal cord and therefore, inhibit normal function of the body. "The sole purpose of chiropractic is to locate and correct [these] subluxations" (The World Chiropractic Alliance, 2011).

Chiropractic care accounts for healing that no general practitioner can accomplish. Ailments, such as back pain, neck pain, headaches, colic in babies, and general acute and chronic pain are healed by chiropractors, while a general practitioner will prescribe a medication to mask the pain. Chiropractic is the leading

complementary medicine practice used by people in the United States, and many general practitioners prescribe chiropractic care to the patients when drugs are not helping. (American Chiropractic Association, 2011)

Acupuncture is a form of traditional Chinese medicine, which dates back to 200 BC, when the first book was published, *Nei Ching Su Wen* (American Acupuncture Association, 2011). Based on the Taoist philosophy that the body is comprised of channels of energy, acupuncture seeks to clear blockages within this flow to maintain the balance within the body (White & Ernst, 2004). "When such a proper balance of forces exists, the body has achieved a healthy circulation of the life force qi" (Fishman, 2011). The qi is the flow of energy through the different meridians, or energy channels through the body. When the qi is blocked, or off balance, it is said that is when an illness occurs (Fishman, 2011).

As one of the most complex forms of holistic medicine, acupuncture can be most basically described as:

"the insertion of very fine needles (sometimes in combination with electrical stimulus or with heat produced by burning specific herbs, called Moxibustion) into the skin at specific acupuncture points in order to influence the functioning of the body" (Fishman, 2011).

The ancient tradition has identified 365 points on the body where the meridians can be accessed by a small needle close to the skin. Each point on the body is associated with a different energetic function and induces different kinds of healing. (Fishman, 2011). Acupuncture is used to heal several ailments such as chronic and acute pain, cancer side effects, depression, stroke, pelvic pain, arthritis, and infertility among many other conditions (Davis, 2010).

There have been several scientific studies conducted to find out how this ancient form of medicine can create such staggering results. The studies found that "an acupuncture needle can subtly adjust the body's tissues, nerves, and hormones" (Davis,

2010). In addition, it is clear that acupuncture has a major effect on the nervous system of the body, and "like a fork in a plate of spaghetti, the needle grabs up tiny bits of connective tissue and nerve bundles between muscles" (Davis, 2011). The astounding effects of acupuncture are still not completely scientifically understood however, for people who use it, and practice it, it is not about the science behind it, it is about the healing that is achieved from it. Their bodies are healthier and they enjoy fuller and more prosperous lives because of it. The balance in the bodies is felt through mind, body, and soul.

Naturopathy is "a system of medicine based on the healing power of nature" (University of Maryland Medical Center, 2011). It is the culmination of the practices described above to create a completely holistic medical care system. Naturopathic Doctors, or ND's, remove the obstacles inhibiting a person's natural ability of the body to heal itself ("Heartland Naturopathic Clinic", 2011). With philosophical origins dating back to Hippocrates in ancient Greece, naturopathic care has been healing people for centuries. Officially established in the early 1900s by Dr. Benedict Lust, who came to the United States from Germany with the idealistic view that medicine and healthcare could address a whole person, their mind, body, and soul, and become a partner with the patient, rather than the indoctrinator, as was typically the case in conventional medicine. His teachings and practices become intensely popular because people were back lashing from the new theories of conventional healthcare that were emerging during the industrial revolution. As science grew, this practice began to die off; however, in recent years, naturopathy has had a sudden and astounding resurgence, due to many people's doubts of conventional medicine.

Today, naturopathy is a licensed and monitored practice and is widely accepted in the medical community as a part of a conventional medical healthcare regime. These practitioners use a variety of techniques to heal a person including, nutrition, herbal medicine, homeopathy, acupuncture, patient education, and life

style changes (University of Maryland Medical Center, 2011). The naturopathic doctor understands his/her patients more fully than a general practitioner and is able to provide a kind of care that affects the patient's life on a holistic level through treating the mind, body, and soul.

Osteopathy was established in 1875 by Dr. Andrew Still who theorized that "optimal health is possible only when all of the tissues and cells of the body function together in harmonious motion" (The Osteopathic Cranial Academy, 2011). Similar to chiropractic and massage therapy, Dr. Still sought to restore health to people by using his hands to manipulate the body in order to regain the body's harmony. The philosophical underpinnings of this approach to health are similar to acupuncture in the way it places meaning and understanding of a balance within in the body. Instead of an energy flow as in acupuncture, osteopathy understands the balance to consist of the body's motion. An osteopathic physician can feel where there are disturbances to this motion, and manipulate it to restore the balance. There are four main ideas that drive the practice of osteopathy. First, structure and function are interrelated. Second, the body is a single dynamic unit of function. Third, the body possesses self-regulatory and self-healing mechanisms. Fourth, rational treatment is based on the application of these principles (The Osteopathic Cranial Academy, 2011). A practitioner has a sound knowledge in anatomy and physiology and is able to connect symptoms a patient describes farther than just to the disease, but to the cause and then correct it (The Osteopathic Cranial Academy, 2011).

According to a survey conducted by the General Osteopathic Council, there are over 30,000 people who see an osteopathic physician each working day, and of those 30,000 people, 54 percent of them are new patients. In addition, the study also concluded that 95 percent of the new patients decide to make an osteopathic physician their primary care doctor. Osteopathic doctors can be found within the conventional medical system and can do all the same procedures and duties that a conventional MD

can. Osteopathic doctors even endure the same amount of training and testing as a conventional MD. The difference between the two is the manner in which they approach patient care. The osteopathic doctor assesses the whole person, not just the symptoms of patients. Similar to naturopathy, osteopathic medicine is considered to be a holistic healthcare regime that focuses on the patient's mind, body and soul as one.

All of the healing practices discussed above combine together to create a holistic medicine practice that give patients a complete healthcare regime. Separately, all of these practices can help fill the gaps in conventional healthcare; however, they still will not create a holistic wellness care for the patient. With all of the practices combined together, they can create a higher level of healing and total wellness than the conventional medical doctor can provide. This is not to say that conventional medicine should be replaced by this holistic approach. Most surely, there are many illnesses and injuries that require the technology and knowledge of conventional medicine. However, what this is saying is that the current conventional system of medical treatment is missing vital parts of wellness. Conventional medicine very rarely looks at a person as more than a symptom or disease; they assess it, assign a treatment, and move on. They are missing the complete mind, body, and soul approach to wellness. Holistic medicine is just that, a system that proposes that a medical practitioner understands his/her patient more fully, in a system which understands and treats the whole person, their mind, body, and spirit.

Theoretical Premise Research Summary

It is an undeniable truth that the world is in a ecological crisis because people over consume, over use, and over waste while sitting in their sterile homes becoming more and more unhappy with their lives. This was established in the preceding research, among many other facets relating to the theoretical premise of this thesis. To synthesize all of the information presented, the following will be some brief discussions of how architecture relates to the human mind, body, soul, and to nature. These are the four principal components of the theoretical premise that culminate into architecture that is regenerative to both people and nature.

Architecture & Mind

Architecture has the profound ability to shape and guide a person's view of the world. In essence, it is the picture frame around the Earth (the picture). This powerful ability is often untouched in architecture, due to the inability of the architect or the client to see past their own bubbles. Architecture can be a part of huge changes in a mindset or in other words creating a paradigm shift. Paradigm shifts occur only when people are engaged in their surroundings and on the focus of the shift. Architecture has the ability to be a tool that aids in the process of the shift. When a building becomes the teacher, users innately learn. In typical buildings, people learn that sterile, closed, manufactured structures are good and normal, and "energyStar" is the culmination of being "green." As architects, the value that is held most dear is to protect the health, safety, and welfare of all people. Architects certainly are not doing that at this point in time. Buildings must become teachers of sustainability and conservation at the very least, and optimally become teachers of making a positive impact, giving back to the Earth, and being a part of the environment, not on it.

Architecture & Body

In its most basic form, architecture is the envelope that shelters and protects people. Usually designed in increments that relate to the human body, architecture can also bring great comfort and joy into people's lives. It makes up the hospitals and fitness centers that keep people healthy, and yet it is also someone's property, stuffed with everything they own, usually with VOC's leaching out of the walls. Architecture also has the ability to become an extension of the environment, as was described in the Center for Environmental Studies, and the Living with the Lakes Centre for Applied Research in Environmental Restoration and Sustainability. Even more, architecture has the ability to become an extension of one's self. As discussed in the research pertaining to holistic medicine and sociology, the surroundings people create are an image of themselves, places that directly relate to who they are, and what they feel.

Architecture & Spirit

Each place a person visits, is felt in a way that cannot be scientifically explained or described. It is the reason people like some buildings and not others. It is the reason we call some places beautiful, and other ugly. One of the most staggering abilities architecture has is its ability to ignite the human spirit. As discussed in the research relating to sociology, architecture can create feelings within people, gather people together, and separate them out. In holistic medicine, a key part of treatment is the practitioner's relation to the patient's spirit. In a place where spirit is ignited and fostered, this kind of healthcare would occur on its own. There is no doubt that there are some buildings that lift people up, brighten their day, and stimulate their lives. The activity that occurs within the architecture undoubtedly has much to do with it as well; however, if the architecture did not meet same level spirit as the activity, then the activity would degrade as well. Spirit of the place and of a person's soul is tied together intimately.

Architecture & Nature

The relationship between architecture and nature is undeniably entangled. In this modern time, architecture is separate from nature; it is built on nature or instead of nature. This method of thinking and building is faulty. Architecture is a part of nature. It must connect with it in the most basic and important ways. It must be integrated within nature to the point that one is not sure where nature ends and the building begins. In this way, there is no beginning and no ending, and nature and architecture exist simultaneously as one. There is no competing or fighting; they both just are. When people inhabit the space they experience one whole environment, where concepts of the natural environment and the built environment do not exist. In this place, people connect to their environment on the most basic level, and there is no overriding need for anything other than just what exists in their environment.

Architecture to Regenerate

When architecture of the mind, body, soul, and environment culminate together, they create a new level of unity and symbiosis. It is a place that is holistic by nature, where everything that exists in the environment promotes and enlivens life of people, and of nature. This architecture is no longer what has historically been called architecture, but rather a form of creating an environment. This goes beyond sustainability and becomes something far greater, a place where everything is connected, and an overriding wellness and health of the place is created. By improving all aspects of the place, regenerative architecture has the ability to touch everyone and everything physically, emotionally, and spiritually.

Case Studies

Architecture & Mind Case Study 1

Maggie's Centre Gartnavel

Maggie's Centres are places for people who are affected by cancer to go to for psychological and emotional support. There are 15 centers in and around the United Kingdom, and each serves the same mission, that is to:

"empower people to live with, through, and beyond cancer by bringing together professional help, communities of support, and building design to create exceptional centres for cancer care" ("Maggie's Centre", 2010).

This Maggie's Centre, designed by OMA and Rem Koolhaas, is in Glasgow, Scotland on the grounds of the Gartnavel General Hospital ("Maggie's Centre", 2010). It finished construction and opened its doors in September of 2011. The center quietly sits at the top of a hill overlooking the Gartnavel Hospital among a natural and peaceful environment. The center is within a very short drive to the Beatson Oncology Centre, a major cancer research and treatment hospital in the area. Maggie's Centres are nonprofit organizations that receive their funding through several grants and donations. This center was funded by the MoonWalk Edinburgh charity, which raises money and awareness for breast cancer (Etherington, 2011).

A distinguishing characteristic of all Maggie's Centres is their ability to blend seamlessly into their environments. Connecting patients and their care givers to nature is an important goal for all Maggie's Centres (Etherington, 2011). This one specifically does so in an interesting manner. The building is a series of interlocking rectangles in a circle, forming a landscaped outdoor courtyard in the center. In addition, this centre is a one level building, and seems to hardly peek over the long grasses surrounding it. The natural wood finishes on the interior of the building lead the visitors from space to space and



give the interior a wonderful warmth and earthiness. The transition of the interior from the exterior blends together in the manner in which the glass meets the floor without a mullion. The ground plane is not interrupted, and so the floor bleeds out to the ground, and the sheet of glass separating the two becomes invisible.

Another distinguishing characteristic is how the materials within the space reflect and transmit light and shadow. There are almost no solid walls within the structure, and to differentiate between views and light, the designers choose a frosted glass in some places. The frosted glass allows a wonderful diffused light into the space, as well as showing a unique silhouette-like shadow of the vegetation just beyond the glass.

The center is quite small, at 534 square meters, or about 1,750 square feet ("Archinnovation," 2011). As a single level, as mentioned before, all of the spaces are organized around a central courtyard, and circulation occurs through all spaces. The center houses a fairly simple program, including two small and two medium counseling rooms, a large group room, a kitchen and dining area, a library, and a shared space for six offices. Each element of the program accesses and relates to the interior courtyard, as well as the exterior.

Like many of the other cases studied here, this one aims to be a part of the environment, to blend in, and to be a place that creates a sense of ease and calm upon entering. Unlike many of the other cases, this project is very small and intimate. The program of the space does not require a large and complicated program, but intimate and well-designed spaces to provide an emotionally serene environment. The sole purpose of this facility is to provide emotional support.

This facility responds to its site very carefully and exactly. As described before, a sincere effort to blend and fit in with the environment and nature is an important part of all Maggie's Centres.

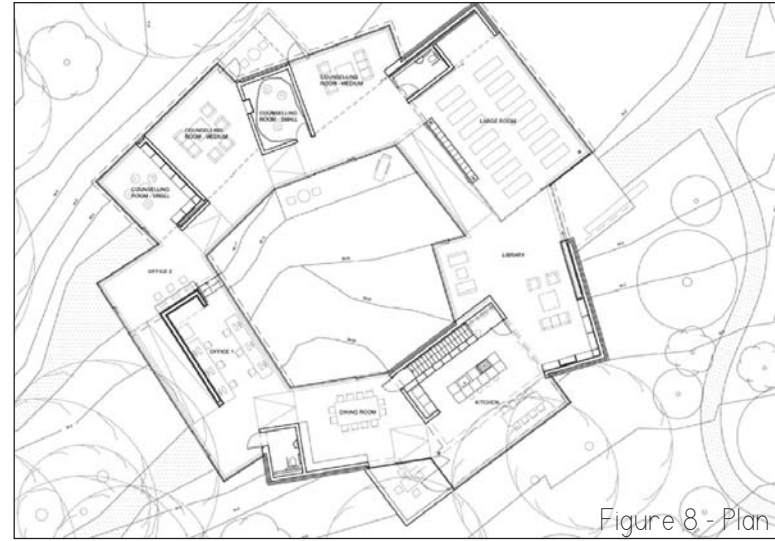


Figure 8 - Plan



Figure 9 - Elevation

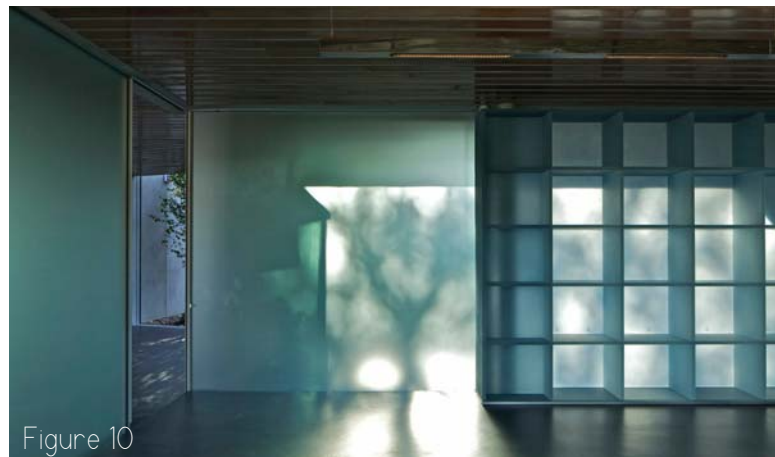


Figure 10

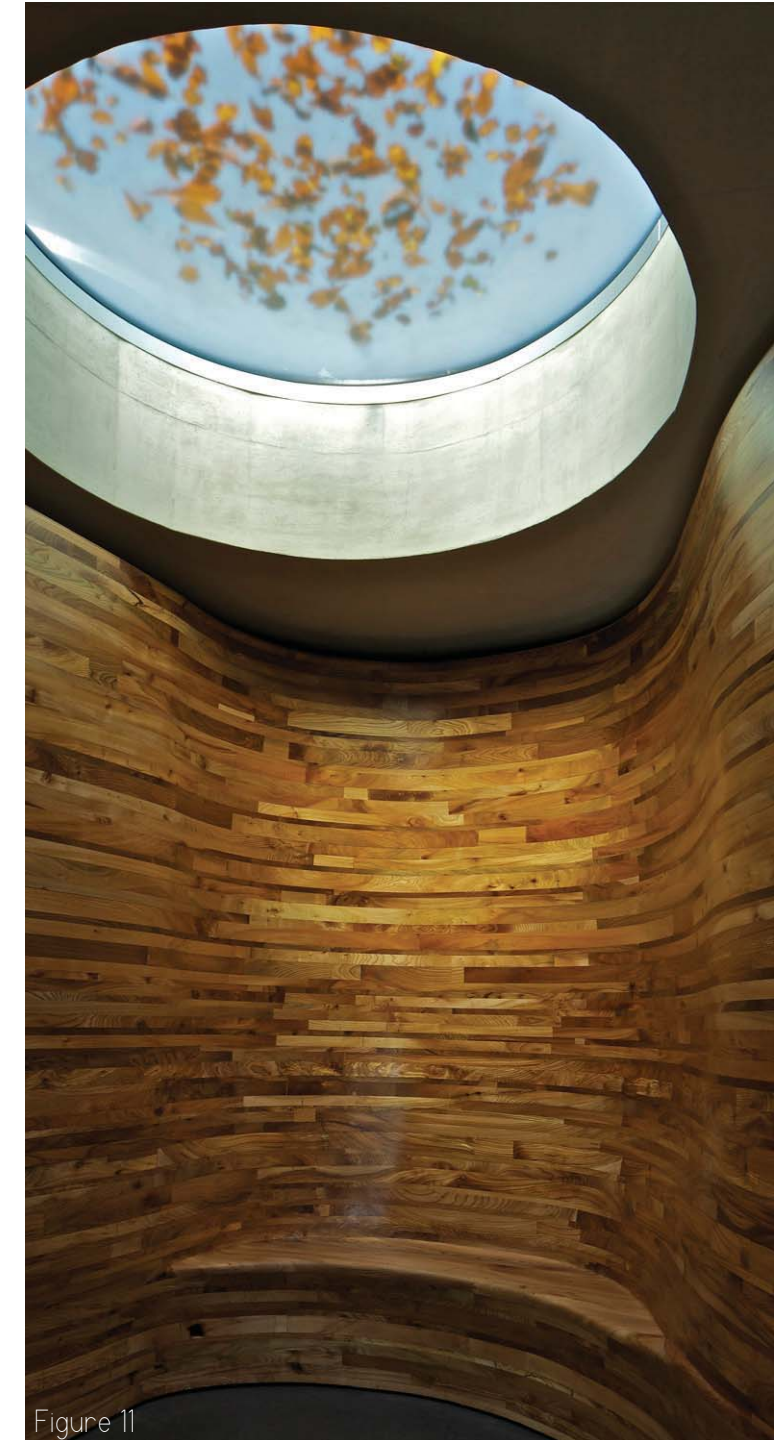


Figure 11

This facility also specifically fits in with the environment by the way it treats the ground plane, the materials used within, and the interlocking rectangles which form the plan, as were all previously discussed.

This facility responds to the site socially in the way it organized the plan around a central courtyard. This element is crucially important to the way in which the people inside the facility interact with each other and the natural environment. This connection to nature is a vitally important part of the healing that occurs in this place.

Culturally, the facility responds to the site by its choice of site. Maggie's Center decided to build in this spot because the Beatson Oncology center moved to a new location. When this occurred, Maggie's Centre decided that they needed to create a new place for support near the new oncology centre, as so it sits.

Maggie's Centres create a place for people to go when they do not know where to go or what to think. They help support people when they are facing some of the scariest situations of their lives. This Maggie Centre, like all, strives to create a wonderfully calm and inspiring environment to heal and support these people. This place is at one with the environment, its surroundings, as well as with the people who use the space. It is natural and easy, just the way buildings are supposed to be.

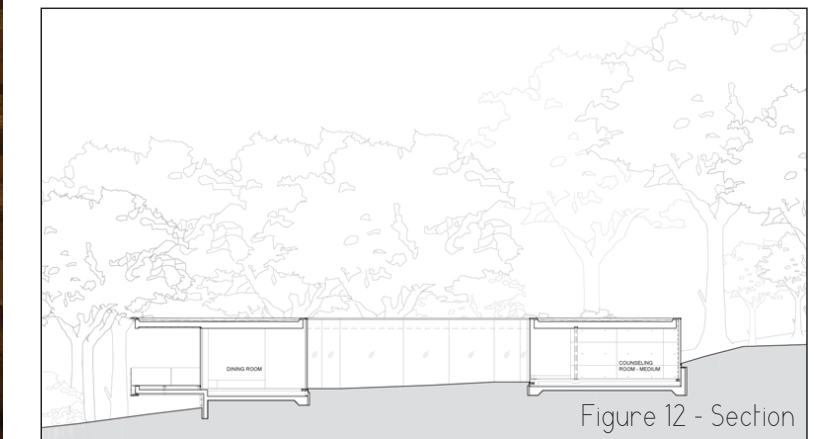


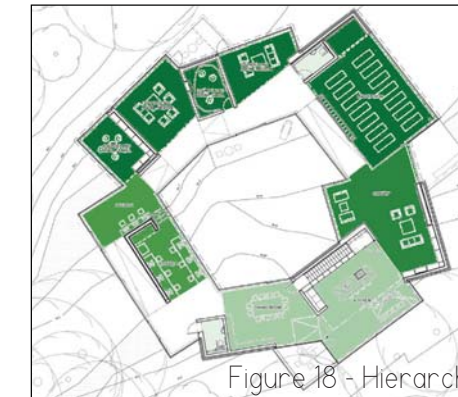
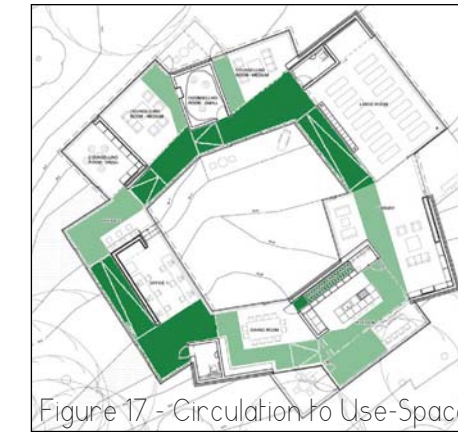
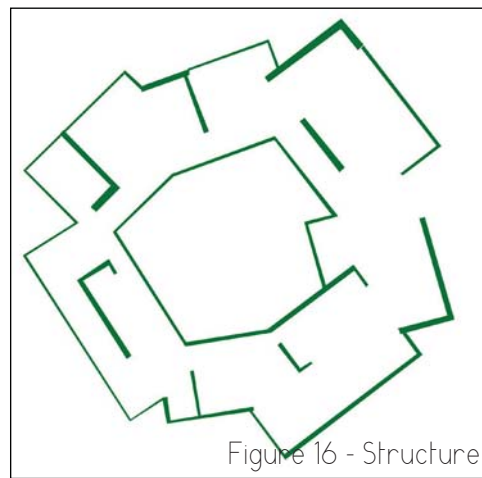
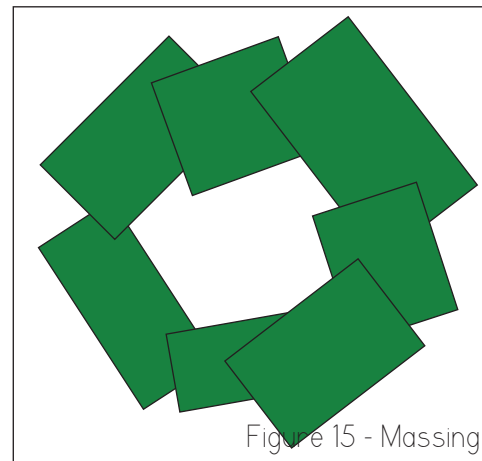
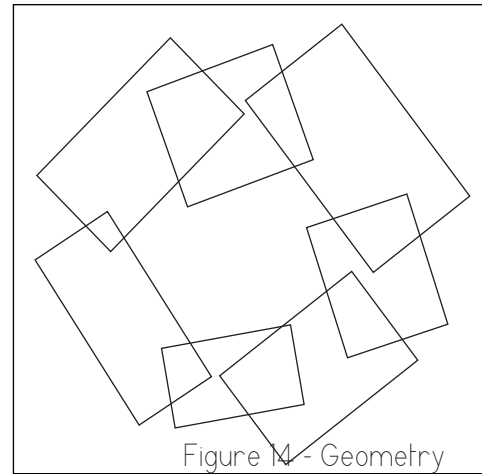
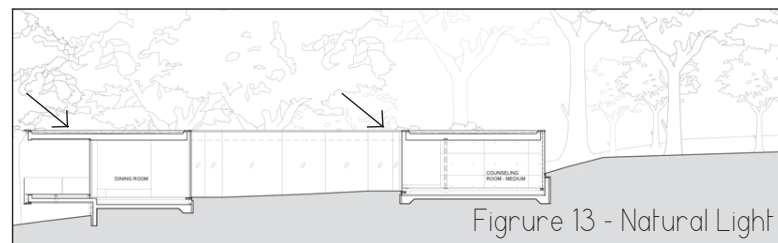
Figure 12 - Section

Analysis

This facility shows how to utilize the site and nature for healing, while designing the building to inherently become a part of the site and a part of the environment that already exists. The details of the building allow this feeling to be extraordinarily clear; so much so that it is felt within the space. It is not something that an architect needs to tell the user, but it is completely designed into the building so that there is no question as to the importance of the connection to nature within this place.

This case study also shows how a simple program and simple idea can be executed with such precision and grace that the architecture can actually reach a person on an emotional level. In Maggie's Centre's mission statement, they speak of the importance of building design and healing. There are few groups or companies who truly believe and embody this idea, and those that do find how much our surroundings really do affect our quality of life. This Maggie's Centre eternalized this idea, and they created emotional support centers that have the ability to aid in the healing process.

The most important lesson from this case study, however, is how less is more. So simplistic and pure in design, this facility honestly speaks to the users. The intrinsic beauty of this facility is felt through the simplicity of the plan, material pallet, program, and site. At such a small scale, and with such few distractions, the users of this place are able to externalize their feelings and open up to heal emotionally.



Conclusion

This case study contributes significantly to the understanding of the theoretical premise of this thesis. This case partners the building and the site together in an effort to regenerate and heal the human mind. Because this is only one of the four methods of regeneration this thesis seeks to explore, there are many lessons in this case study that will aid in the discovery of how architecture can regenerate.

By creating spaces that are free and flow into each other, the facility is able to mimic the natural environment. Through this case study, it is evident that spaces of varying scale contribute greatly to the healing environment. It is also clear that there are multiple ways in which a person can receive emotional and psychological support and healing. Spaces of seclusion and privacy are necessary, but large group spaces are also essential.

This case study also indicates a remarkable way of connecting the interior of the building to the exterior environment. Even the conceptual underpinnings of the plan embody this idea. The spatial organization asks a person to come inside and be at peace. It creates a dual connection to nature once within the facility, one is externalized, and the other is internalized (the courtyard). In this way, the users of the facility are in the between the natural and built environments. They are forced to look at themselves in an unselfish manner, because the center of focus is not the building or person, but the environment and nature.

In conclusion, this case study has allowed a detailed study into what the basic needs of emotional healing environment are, and how the natural environment, as well as the architecture, can play an equal part in the emotional regeneration as the healing professional.

Architecture & Mind

Quick Study 1

National September 11th Memorial and Museum

When the twin towers fell on September 11, 2001 in New York City, the United States and the world stood still and watched in horror. After the years of cleaning up the wreckage and emotional healing, a memorial is finally complete to commemorate the lives lost on that day.

When the county was finally able to synthesize the events that took place on that day, there was an overwhelming need within people for a memorial to be built. The World Trade Center Memorial Foundation was created, and together with the Port Authority of New York and New Jersey, a design competition was created to receive proposals for the rebuilding of the World Trade Center. Handel Architects won the competition for the memorial, and Snohetta won for the museum. As the construction was completed on the memorial, the county looked on with a sense of solemn appreciation for the memorial that now is where the two towers once stood.

On September 11, 2011, the memorial's dedication ceremony took place as hundreds of people gathered around the memorialized pits where the towers once stood as President Barak Obama dedicated the memorial. Now, instead of two towers reaching high into the New York skyline, there are two towers of light coming from the foot print of each tower where water rushes over the dark stone that lines the pit that was left behind. The water falls down the walls of the memorial into a dark pool which serves as a reminder of what fell there before. Along the edges of the foot prints are all the names of the people who lost their lives that day, serving as a true memorial to those people who are no longer with us.



Figure 20



Figure 21



Figure 22



Figure 23

Between the two memorials, a museum is planned to open in September of 2012. This museum is planned to contain the story of that day and eternalize the events that happened so that no one will ever forget. The museum extends 100,000 square feet under the surface of the street level plaza as a reminder to people that they are on ground zero ("Lower Manhattan Construction Command Center," 2011). The museum's program is simple and straight forward, though rather large. It is expected to house hundreds of people at a time. There is a large amount of lobby/open space, an auditorium, a 9/11 families room, a ticketing office, and restrooms. As a part of the museum, visitors will be able to view the huge slurry wall that still remains which held the Hudson River back during the attacks ("Lower Manhattan Construction Command Center," 2011).

This case study is similar to Maggie's Centre in that the end goal of the project is for people to leave with a healed and regenerated mind. It is dissimilar to all of the other case studies in that its sole purpose is not an activity or a function, but rather remembering and honoring what once was. Culturally, socially, and politically this is a unique case study in this way because it casts light on how a society that values something this much will do whatever it can in order to sustain and honor a memory. The importance of memorials is unquestionable, and they allow our society to heal and remember in way that is positive and passive, rather than negative and violent. This case study is most surely the most politically, socially, and culturally charged project studied as a part of this thesis. The stigma attached to the terrible horror that happened to the United States, and more specifically to New York City, is remembered by all and is therefore criticized and honored by all.

Unlike any of the other case studies, this project attempts to heal an entire country. The importance of this place runs deep with many people, that a simple flaw or mistake would be disastrous to any architect or landscape architect who worked on the project. The risk involved with this project is extremely high for those that were involved.

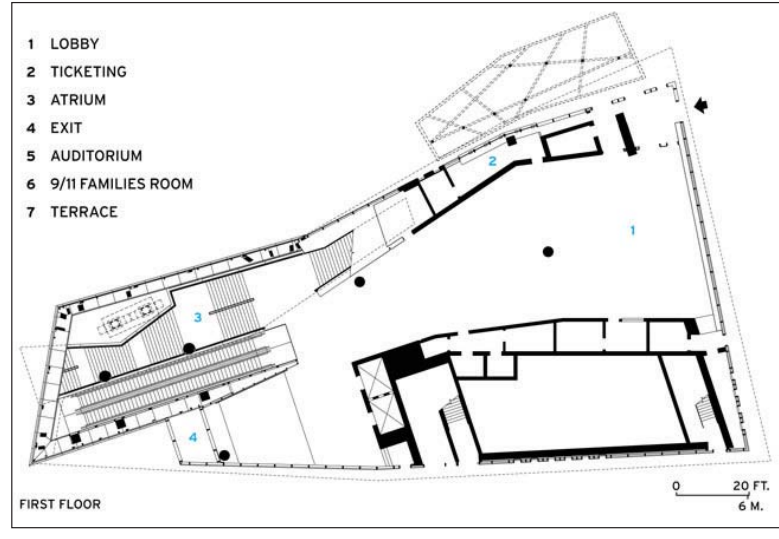
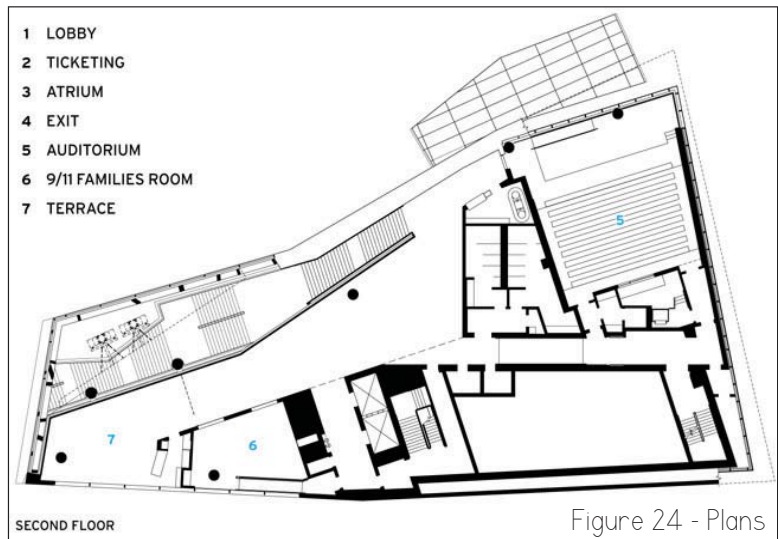


Figure 24 - Plans



Figure 25



Figure 26



Figure 27

Conclusion

This case study contributes a very important piece in understanding the theoretical premise. By understanding how the memorial is designed to help heal an entire county, it will help in understanding how to heal a plethora of individuals. There are some key aspects to the design of the memorial which contribute to this, including the public accessibility to the memorial. If people were not able to visit the place, then it would be worthless. Also, the level of impact this has on people drastically increases the amount they care about it, and how much money and effort they are willing to provide towards the end result. This is extremely important to understand, because it is a well known fact that if no one supports your plans, they will never come to fruition, however, this case in particular, shows how grand plans can get once you have the support of millions of people. If many people are passionate about a project or a goal, then it will happen.

In terms of the design, the symbolism used in the memorial is a crucially important lesson. Symbols and metaphors are not always the best sources of inspiration to use in architecture; however, in this case, the strength of the memorial lies entirely in the metaphor. This metaphor is so strong it moves people beyond compare. The ability of the built environment to affect people so intensely is an extremely powerful thing. This is the essence of architecture that every designer should strive for, and this thesis most certainly will as well.

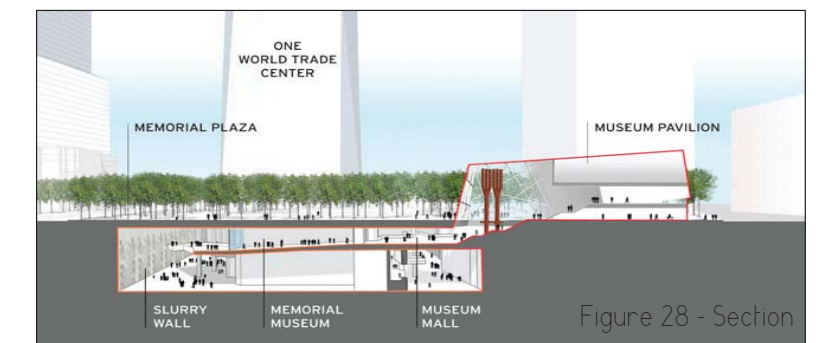


Figure 28 - Section

Architecture & Body

Case Study 2

Therme Vals

The Therme Vals is an upscale spa located in Grabunden, Switzerland. That consists of a series of interior and exterior pools for the nourishment and cleansing of the body. Connected to Hotel Therme Vals, this facility is part of a resort-like complex. Designed by Peter Zumthor. The Vals are an exquisitely designed series of passageways and light wells for guests and patrons to have a complete and overwhelming sensory experience.

One of the most distinguishing features of the baths is the quality and control of light in the different spaces. Each space has its own definition of light quality, and as a guest moves through the facility, they go on a journey. The seemingly mystical quality of this place is unquestionable. With a simple material palette of locally quarried valser quartzite and glass, the facility uses light and water as a means to immerse the guest in the experience. The stone the building is made of has a remarkable beauty and simplicity whose long and narrow pieces push guests along their way. Zumthor designed the building as a mostly predetermined path for the guest so that the architecture takes them where they want to go without signs or verbal direction. This is a driving force behind the purpose of the facility according to Zumthor. As one discovers the building, he or she also discovers himself or herself.

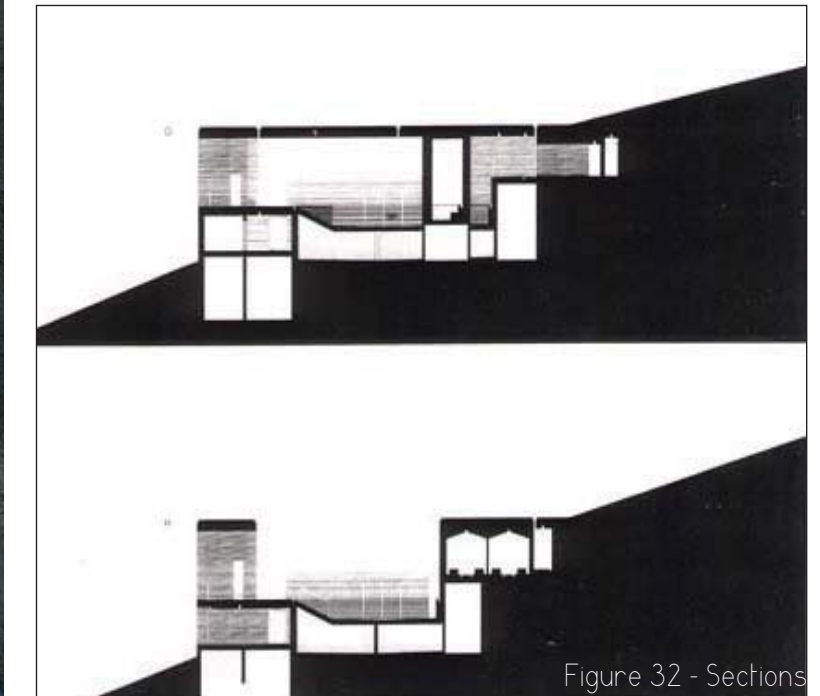
The Vals consists of several baths in varying sizes throughout and on top of the building with associated sun bathing spaces. The Vals also has several massage rooms for use by appointment. The building has two stories, as well as roof and ground level terraces with more baths. Each space has its own purpose and definition for revitalization so that when a guest leaves the Vals, they are completely replenished and relaxed. This case study is unique in that it is the only project that ventures into the realm of spa and beauty treatments. Though a



somewhat superfluous notion, giving time for one's self is vitally important to living a happy and full life. This is the only case study that seeks to look at a kind of regeneration that does not require a person to be broken, hurt, or damaged before they enter. The case study is most similar to the Rehabilitation Centre Groot Klimmendaal in that the regeneration occurring relates mostly to the body. Also, the main goal of all the studies are the same, in that they all seek to have the user leave a happier, healthier person.

This case responds to the site environmentally by utilizing local and readily available materials as the primary construction method. In addition, the Vals' site is on a naturally occurring thermal spring, so there is very little energy needed to heat the water that is used in the baths for the guests. According to Peter Zumthor:

"Mountain, stone, water - building in the stone, building with the stone, into the mountain, building out of the mountain, being inside the mountain - how can the



implications and the sensuality of the association of these words be interpreted, architecturally?" (O'Grady, 2009)

The manner in which a guest interprets how the building is made and is within the earth was an important part of the design. The building is built into the side of the mountain, with thick green grass over the top so that it seems to spring out of the mountain, as if it were there for ages.

Socially speaking, the Vals place a high importance on social interaction as well as moments of solitude. Historically, baths are places for informal social gatherings to take place, and that was the goal of this project as well. The spaces Zumthor designed are all large enough to at least fit two people. The lighting within the spaces is not only designed to give the guests a sensual experience but to also make the guests feel comfortable with other people in the same vicinity (O'Grady, 2009).

Zumthor wanted to maintain the cultural significance of the meaning and purpose of the baths. The historical significance of baths to the culture of Switzerland goes back to ancient times. The tradition of the baths was something that Zumthor wanted to uphold, so that the Vals make an addition to that tradition, as opposed to negating from it.

The intense and sensual experience that occurs at this facility makes this project highly conceptual in nature. The dramatic and often vibrant use of light within the building exudes feeling into those who experience the place. The path that Zumthor created for guests to follow is one of a meandering pace that can relate to the central goal of the Vals, and that is to slow down and enjoy the moments. Zumthor creates so many different experiences within the same building; it truly is as if Zumthor is taking the guest on a journey.

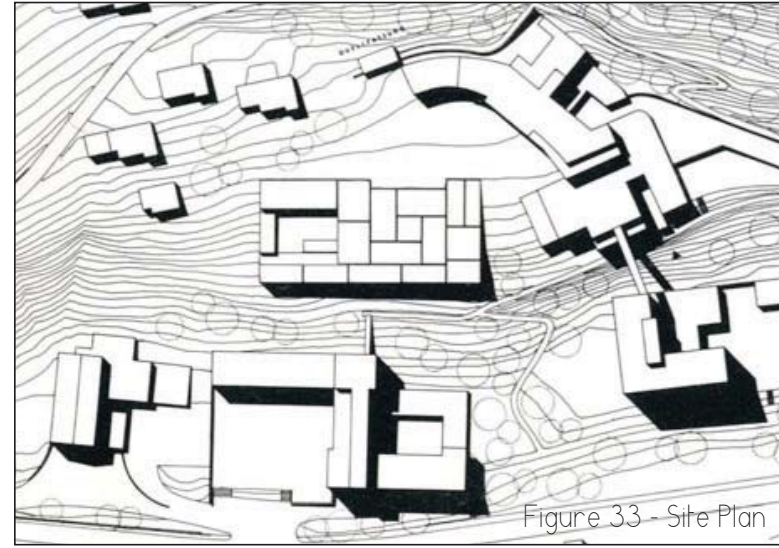


Figure 33 - Site Plan

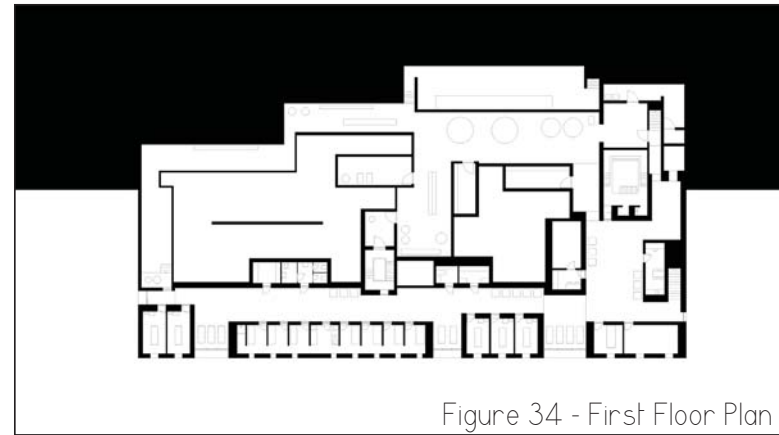


Figure 34 - First Floor Plan

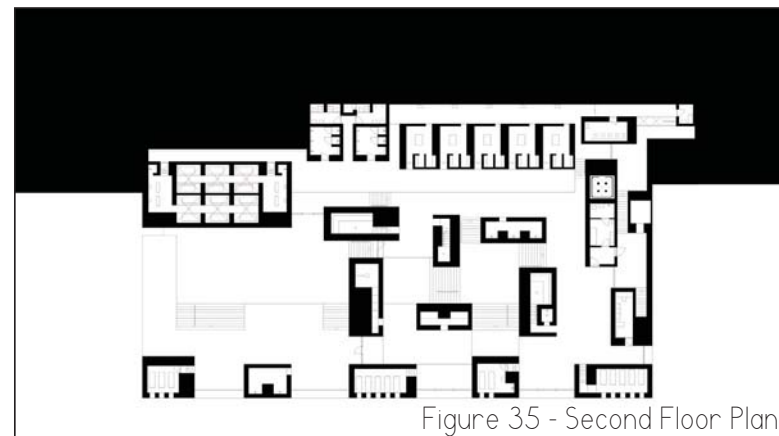


Figure 35 - Second Floor Plan



Figure 36

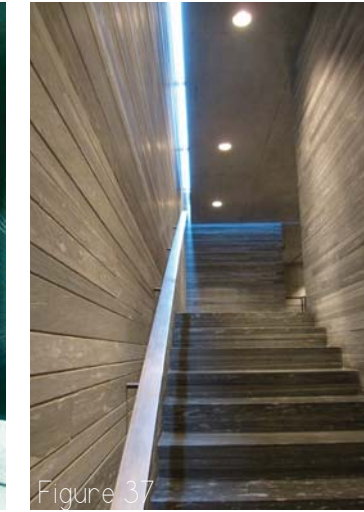


Figure 37



Figure 38



Figure 39

Analysis

This case study is a wonderful example of how to build a minimally environmentally impactful facility made of local materials, and based on a cultural tradition, yet done so in way that is unique. When new architecture can uphold the traditions of the past, and be designed in such a profound way, the building becomes timeless and transcends the styles and trends of the day. In essence instead of creating a building, he created a memory.

This case shows how much light and water can impact the experience of a space. Zumthor creates separate environments just by controlling and manipulating how the light enters the building. Then, as the light hits the water the experience changes yet again. The precision, control, and attention to detail Zumthor shows in this project are exquisite.

Speaking to wellness specifically, this case shows how a spa need not cater to the typical efficiency ratings that would normally go along with a building, because the journey to the destination is just as important as the destination. By making all parts of the program work as healing environments, there really is 100 percent efficiency.

Conclusion

The Therme Vals contributes to the understanding of the theoretical premise in several important ways. First, is the importance of the way in which water and light is used for health benefits. This case study is an excellent model to understand how much light can be manipulated, and then also how it can react to and interact with water. Secondly, this case study contributes to understanding the theoretical premise by extending the definition of a healing environment. To rest, relax, and revitalize one's self is a preventative measure to help promote a generally healthy person to remain healthy. This case study is yet another

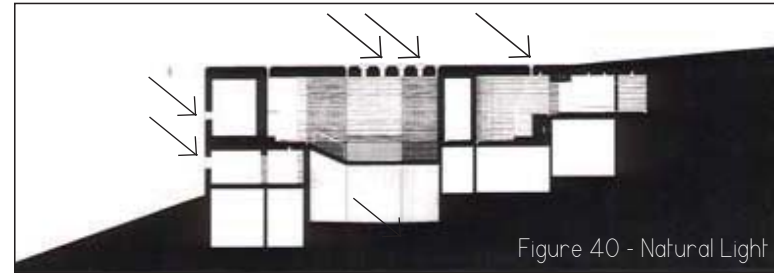


Figure 40 - Natural Light



Figure 41 - Massing

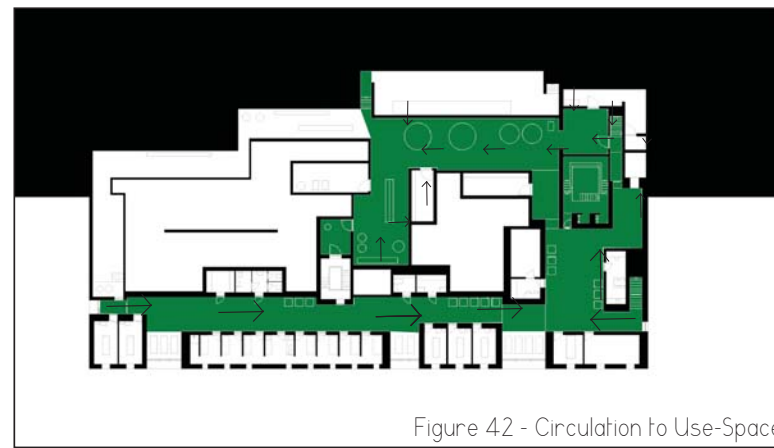


Figure 42 - Circulation to Use-Space

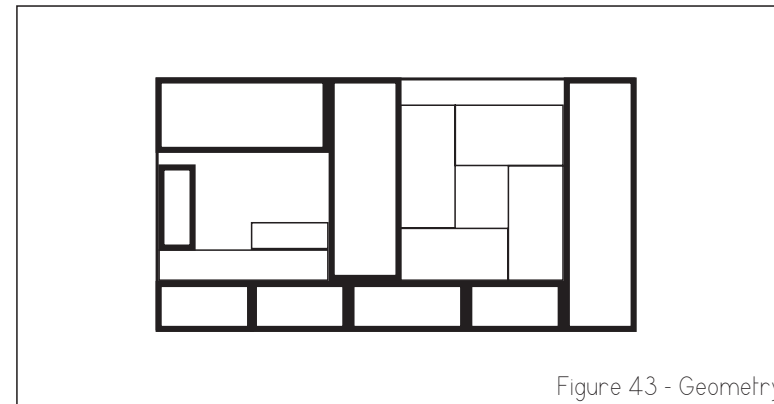


Figure 43 - Geometry

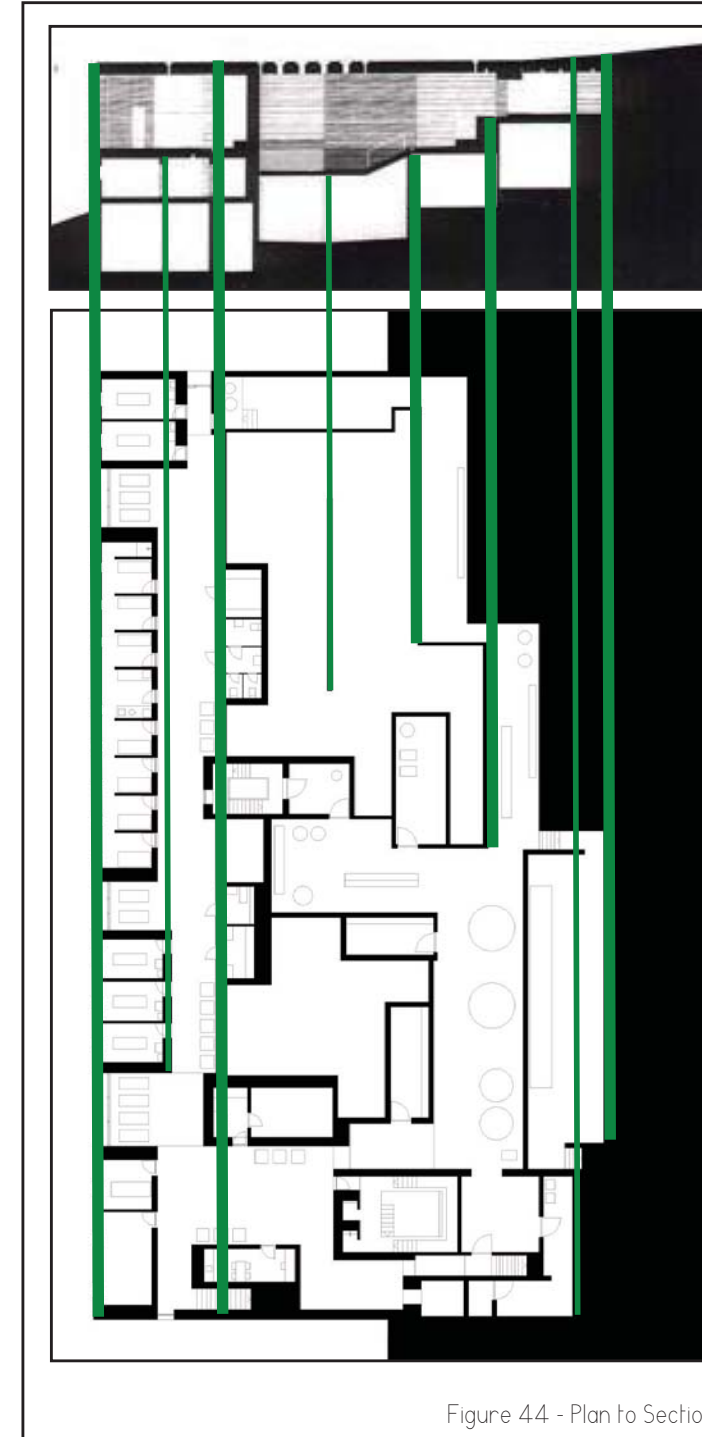


Figure 44 - Plan to Section

example showing how architecture can be regenerative. This case study particularly relates to the body; however its effects also seem to expand into regenerating the mind and spirit as well. However, this place is not designed to mend already broken or damaged minds, bodies, or spirits, which could mean the healing experienced at this place is restricted to those who are already healthy. Maintaining a good level of wellness is crucial to all of humanity, however, this thesis seeks to not only explore that but to also regenerate those people who are not at a good level of wellness. In this way, the case study seems to be somewhat superficial. Regardless, the lessons learned pertaining to material, light, water, circulation use, as a part of healing, is all invaluable in the quest to find a solution to the theoretical premise of this thesis.

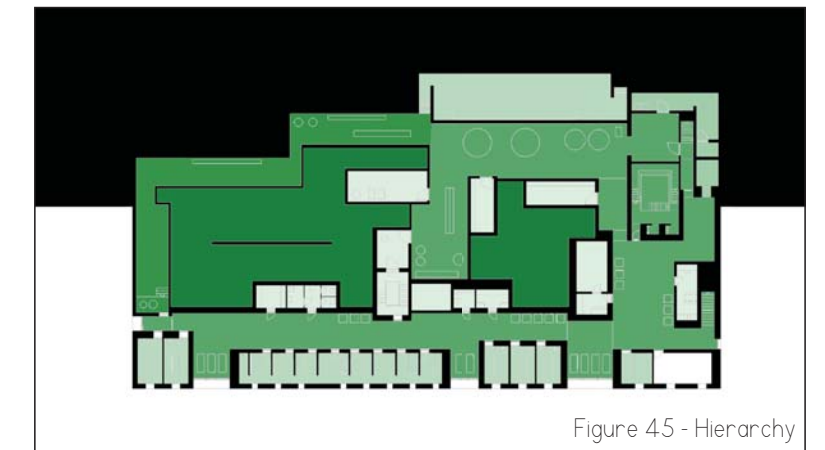


Figure 45 - Hierarchy

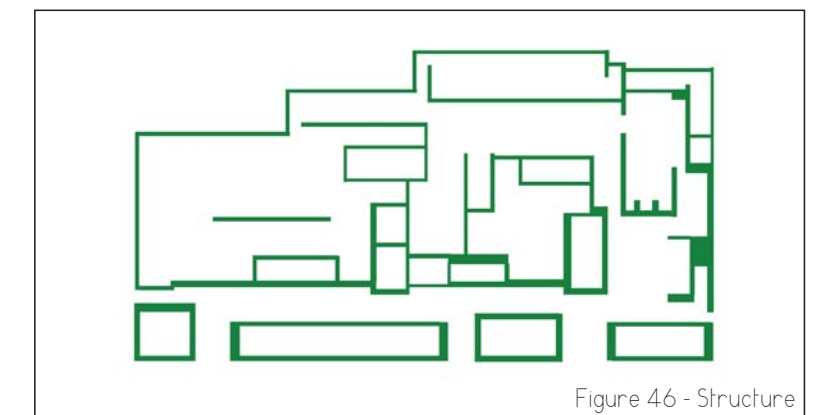


Figure 46 - Structure

Architecture & Body

Case Study 3

Rehabilitation Centre Groot Klimmendaal

Nestled among the trees in a thick forest just outside of Arnhem in the Netherlands, this rehabilitation center seeks to create a place for patients and the community to share. The architect, Koen Van Velsen, seeks to change the way rehabilitation healthcare is provided to the patients. In this nearly 45,900 square foot building, users can meander through circulation spaces that are filled with light and warmth (Gregory, 2011). A shallow wooden stair runs through the entire length of the building, creating a definite way finder with each space. In addition to this main mode of circulation, there are several secondary halls that expand off the stair. The building seems to invite the users to participate in exercise just by moving throughout the building (Gregory, 2011).

The first floor of the facility is double-normal height and has full glass walls looking out into the surrounding forest. The users' connection to nature is constant throughout each space. Despite the building's institutional-like scale, it still seems to fit into the context with grace and eloquence. Built on top of a small hill, the end of the building juts out and cantilevers off the side of the hill slightly, with a saw-tooth like grin. These spaces are used for informal meetings and lounge space. This unique spot in the building seems to be the place where people gather most often (Miner, 2011).

The ground level floor has a plaza-like organization, where there are a variety of different uses occurring though with strong circulation meandering around all. With a theatre, fitness center, sports facility, swimming pool, and restaurant, this floor of the building is used by not only the patients and their family members but also by the community. One of Van Velsen's ideas about rehabilitation healthcare is that a patient should not



Figure 47

Figure 48

Figure 49

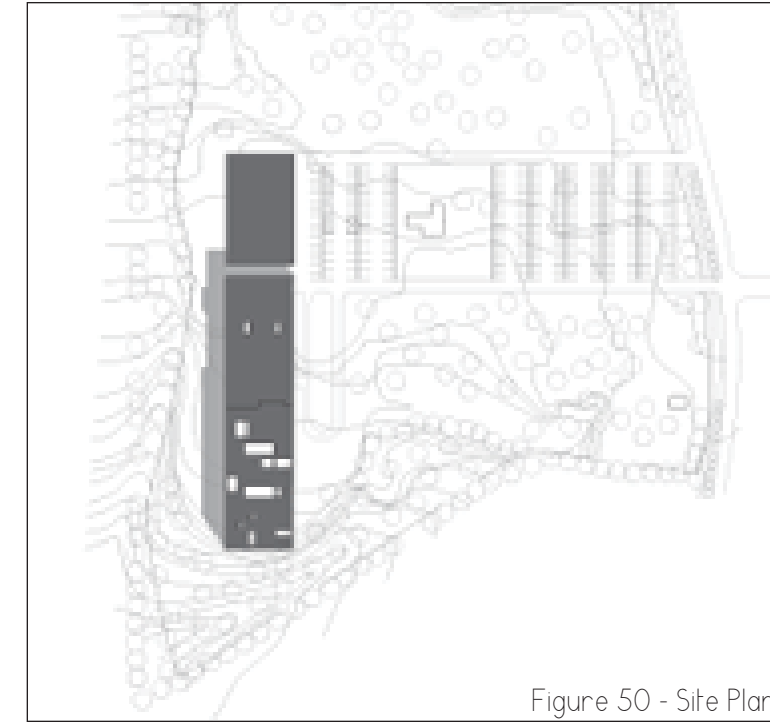


Figure 50 - Site Plan

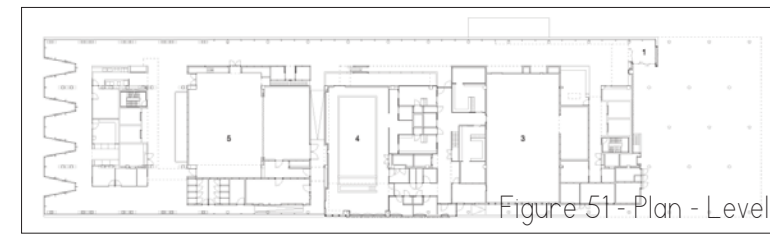


Figure 51 - Plan - Level 1

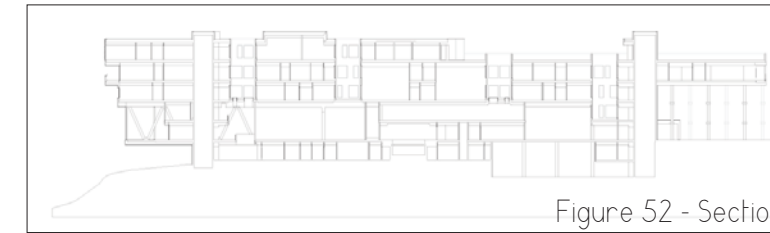


Figure 52 - Section



Figure 53 - Elevation

be cooped up in a room, sequestered with all of the other rehabilitation patients but instead should begin the process of re-assimilating to their everyday life, interacting with community and family members as much as possible.

On the second floor of the facility are the residential and clinical areas for the patients of the facility. On the top of the facility is a completely separate Ronald McDonald house for the family members of patients staying there to be near them. This facility has its own entrance and is considered to not be a part of the actual rehabilitation center. On the lower level of the facility are the offices of the physicians and therapists who treat the patients. All the while, the ground level floor seems to be the place where most of the activity takes place; it is the area where all the people within the building meet and the healing takes place.

This case is similar to the Therme Vals in that they both pertain to healing of the human body. However, this rehabilitation centre focuses more on people who are damaged and need medical treatment to resume their lives. An important characteristic that is present in this case, that is not found in any of the others, is the architect's idea about how rehabilitation healthcare is not



Figure 54

about secluding one's self in order to heal, but instead to be a part of a community to heal. The architect uses the circulation spaces to embody this idea, similar to how Peter Zumthor uses circulation in the Therme Vals to encourage discovery.

Also, this case study is similar to Maggie's Centre in terms of the method of healing. They both find great importance in the connection to nature in the healing process. In both facilities, people can experience nature from wherever they are within the space. However, these two studies also differ in the way they address their function. As they both seek to fit into their environment, Maggie's Centre placed a greater importance on making the least amount of impact on the existing site and sought to remain as natural and streamlined as possible in order to maintain the natural state of the surroundings.

This case study is unique to all the others in that it aims to rehabilitate physical injuries or handicaps. It is important to look to this study to understand how a physical rehabilitation center functions, and what it entails. This case study is the only one which contains a fitness center, sports area, and a swimming pool. This is important to note because the presence of these programmatic elements shows the importance of them in physical rehabilitation, as well as to get the surrounding community to use the facility.

The case responds to the site environmentally by revitalizing the forest it is in. This rehabilitation center is part of a phased plan to replace and rejuvenate the Groot Klimmendaal rehabilitation park. The existing features of this park are sprawled across the forest in one or two story buildings. The architect plans to consolidate as much of them as possible into three larger buildings, so that the overall foot print is much less. In this way, the architect also seeks to create a community center out of this project by revitalizing the entire forest so that it may be used and enjoyed by all members of the community.



Figure 55



Figure 56



Figure 57

The case responds to the site socially in the way the program was developed. The first floor houses all of the social spaces, which create a welcoming and easy access as it parallels with ground level. The case responds to the site culturally in the way it is mixed-use and community and family oriented. The architect realized how important it is for rehabilitation patients to be a part of a familiar community and culture in order to reintegrate into their lives after an extreme injury. The architect created opportunities within the facility for everything to happen, even giving family members a place to stay while their loved one is a patient. This case study has some strong conceptual underpinnings, including the importance of the central stair that connects

all of the levels. This stair acts as a guide and way finding core to the building and is the familiar place of the building. It connects all the people within together and reminds them of the different activities happening all around them. This is crucial in rehabilitation because the patients are experiencing the world in a new, unfamiliar, and rather scary way, so having the familiar always near, as a reminder that they are not alone is paramount. Additionally, the connection to nature is vitally important to the concept of this building, in that being able to connect to nature is an important part of the architect's view and definition of healing and rehabilitation.



Figure 58 - Massing

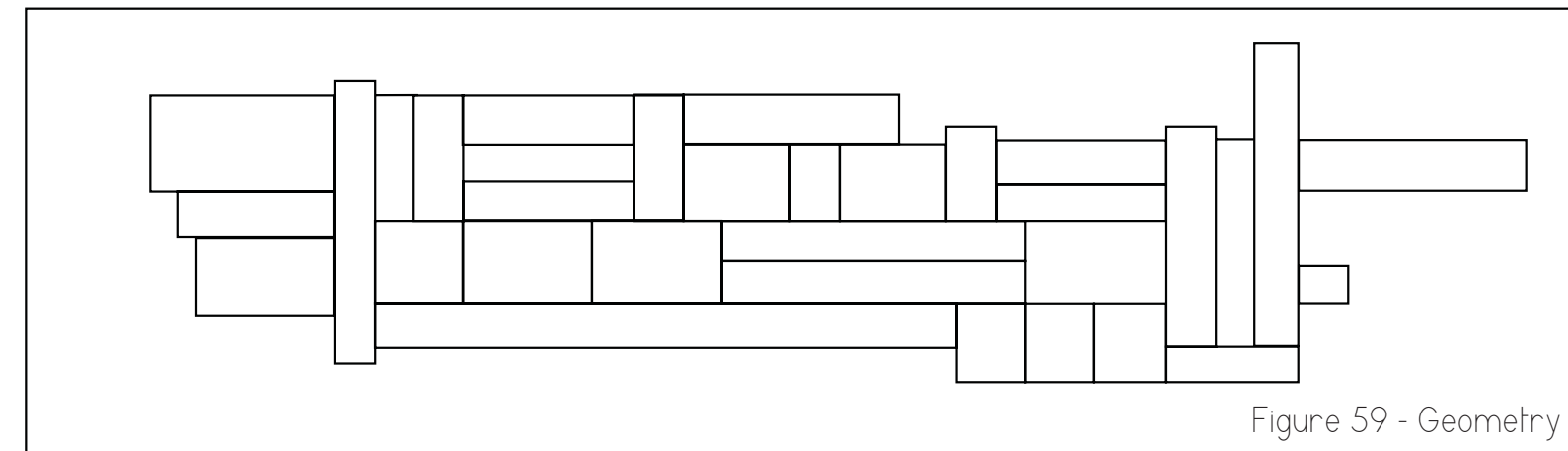


Figure 59 - Geometry

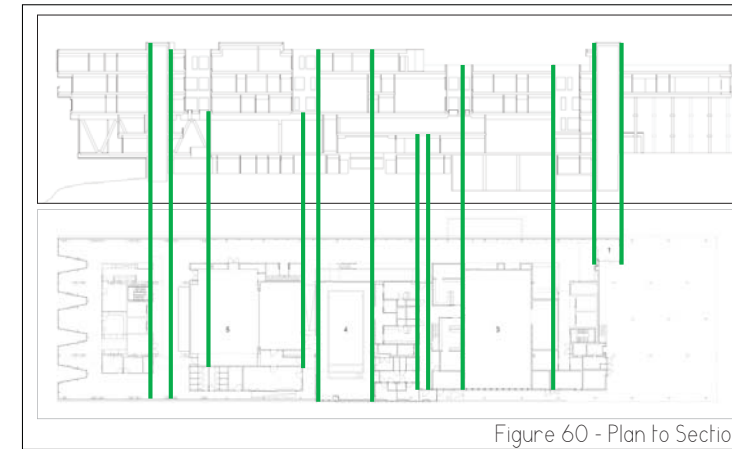


Figure 60 - Plan to Section

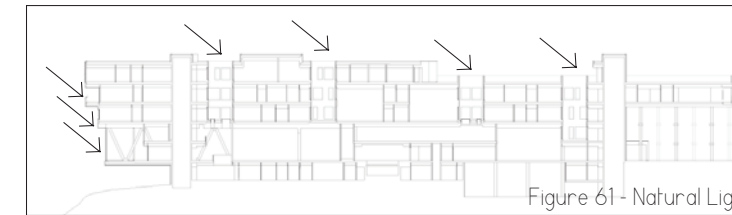
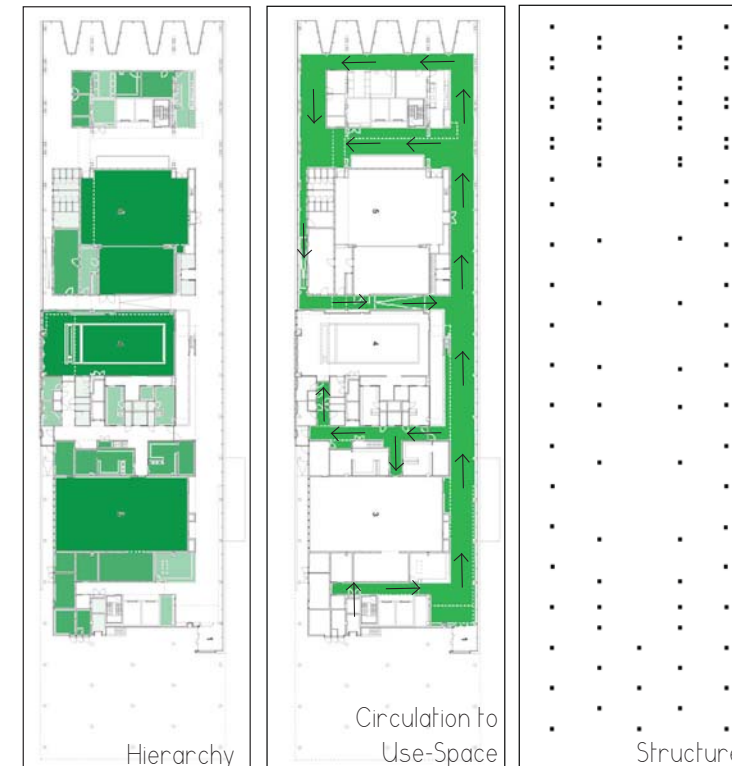


Figure 61 - Natural Light



Figures 62 - 64

Analysis

This case shows how the public and the patients can share a facility, and both can interact with each other to obtain a level of healing and wellness unlike anywhere else. By separating the uses by floor and arranging the ground level as the social floor like a plaza, it allows the patients to get the interaction with the community in a normal setting, yet the clinical spaces are still provided above and below, in case they need it. This case does a fantastic job with the programming and space use in this way.

Additionally, this case shows how a large building can still fit into its context if it is done carefully and consciously. Without a doubt, this building is of a large scale, and yet, it still fits into its setting naturally. The scale of the forest surrounding it frames the building naturally. This is important to learn from because it can be difficult for a large program to sit on its site and still respect its surroundings.

Conclusion

This case study contributes a great deal to the theoretical premise, in that it gives a greater understanding of how architecture can regenerate people physically. The organization of spaces, and the uses included within this facility all contribute greatly to the rehabilitation process that occurs here. In addition, this case study also casts light onto the important issue of family members of the patients, and sometimes they need just as much attention as the patient. The ground level acting as the social anchor of the healing process is absolutely vital to learn from, for if people are not enjoying themselves then the healing will take much longer. By synthesizing what is learned from this case study, it can be determined that for a rehabilitation place of any kind to truly work, the patients must be involved in a great deal of social interaction, and it is optimal to provide such places for the patients, and the community to come together and have fun while working towards wellness.

Architecture & Spirit

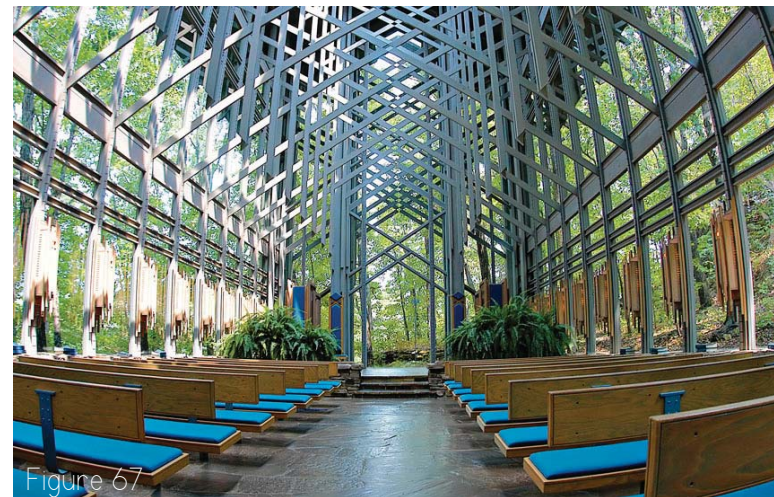
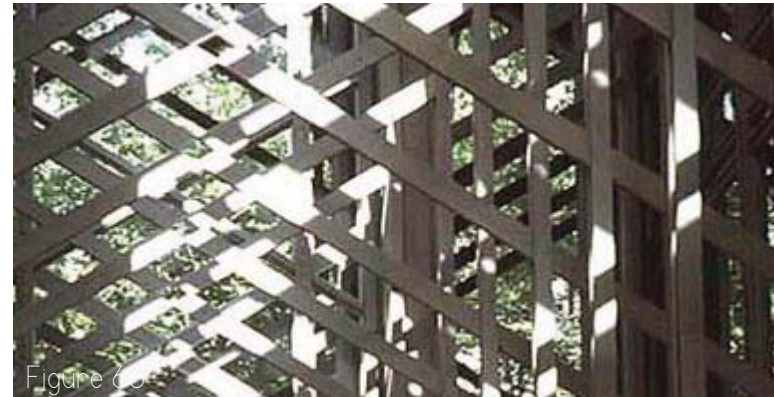
Case Study 4

Thorncrown Chapel

Just outside of Eureka Springs, Arkansas, this small chapel sits elegantly and delicately among the thick forest of the Ozarks. Designed by Fay Jones for his wife, this chapel celebrates all that is beautiful in this world. With nature all around, seeing in this chapel is the essence of love. The light-frame wood cross structure which repeats itself every two feet through the length of the chapel astounds and silences all who view it. The combination of the beautifully simple and light structure with the 360 degree views out into the forest creates a magnificent experience unlike any other.

The light bounces through the space landing on the light wood frame structure and then sliding off and blending into the glass as if it were alive. Every minute of the day the light is changing and moving within the space, almost as if it were changing the space as well. With one programmatic element, this wonderful chapel seats only 100 people, and yet it reaches high toward the tree tops and sky, placing an enormous emphasis on nature and the heavens above. The rhythmic quality of the structure paired with the clean and untouched expanse of the forest creates a majestic and inspiring experience that uplifts the soul. ("Thorncrown Chapel," 2008)

Built in 1980, the chapel has won numerous awards, including the AIA Design of the Year Award in 1981, The AIA Design of the Decade Award for the 1980s, and is number four on the AIA's list of the top buildings of the 20th century ("Thorncrown Chapel," 2008). Without a doubt, this chapel's breath taking beauty and grace will inspire all who enter, connecting them to nature and to God. Blending seamlessly into its environment, from afar the Thorncrown Chapel can be mistaken for a grove of trees within the forest, and it is not until one enters the chapel that a visitor



can begin to appreciate the attention to detail. From the custom designed lanterns lining the walls, to the steel joints that hold the wood trusses together, this chapel's exquisite beauty is undeniable.

The Thorncrown Chapel is similar to all of the other case studies in the primary goal to uplift and heal a person. However, the kind of healing that occurs in this place is spiritual in nature. This sets this case study apart from the previous case studies because it is something that is not easily measured. The architecture here creates an opportunity for people to feel close to God and nature. It does so through emphasizing the verticality, and allowing light to come through sky light at the peak of the roof. This case study is absolutely unique in its exceedingly simple program. There is only one room that makes up this building, and one real use occurs in this place. Yet, it has won more awards and has more recognition than any of the other case studies.

The chapel responds to the site with great respect and manner. The goal of the architect was to impact the site as little as possible. He even devised a method for getting all of the materials up the hill and onto the site by using only the walking path. Each piece of the building was small enough for two men carry ("Thorncrown Chapel," 2008). One reason the chapel is so successful is because the site is so pristine, and the architect knew that if it were damaged, then the chapel would lose some of its ability to spiritually move people. In addition, the chapel uses all local materials found within the same forest within the building. The wood trusses were created using the trees that were removed from the site, and the stone was taken from a quarry very nearby. Fay Jones created a sustainable building before sustainable architecture was the norm. The vision and goal of the chapel required it. The honesty and truth of the chapel was paramount in the design and construction, because the owner and architect wanted to create a place where the beauty was real. (Chapa, 2007)

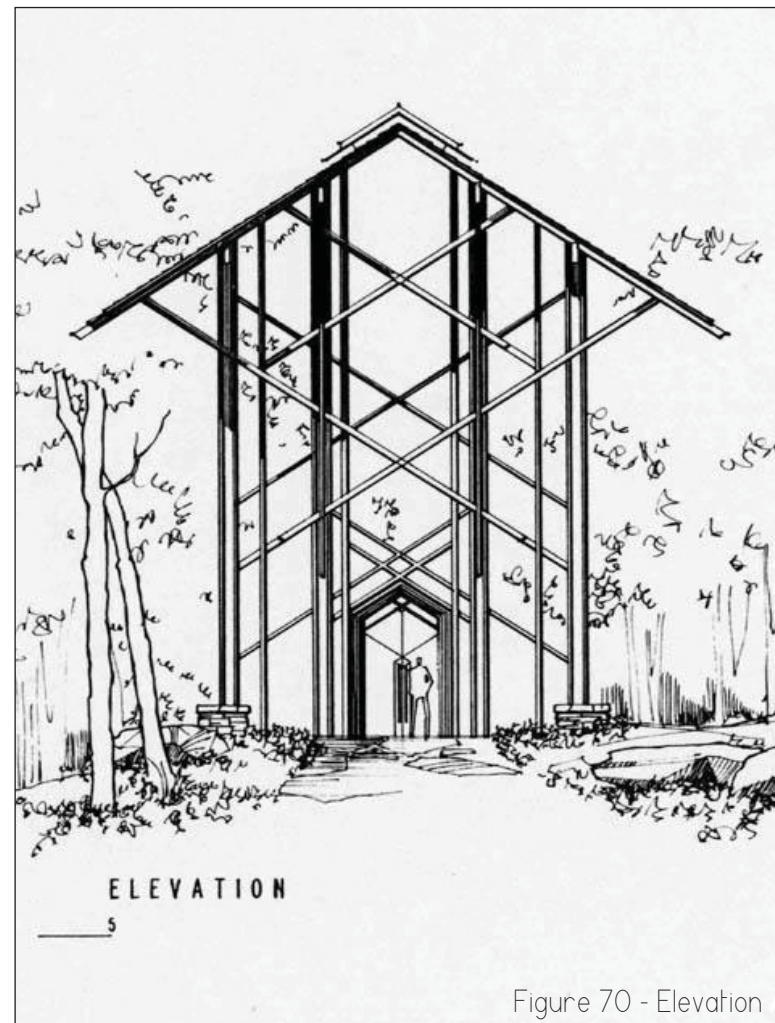
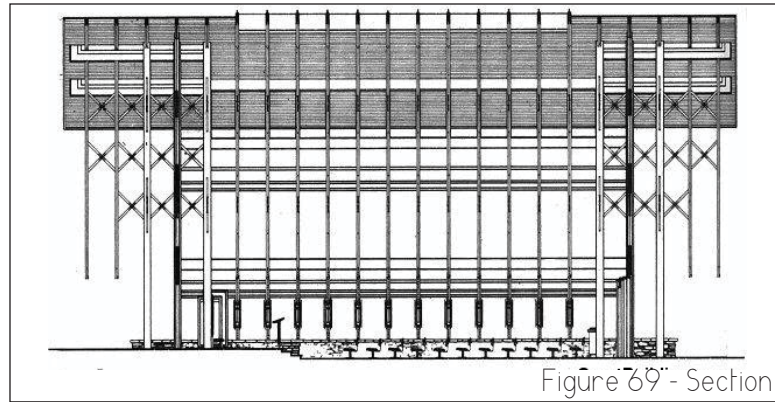


Figure 73

Socially and culturally, the chapel responds to the site by ignoring the natural tendencies of the times, in that the approach and journey that a person must take to arrive at the chapel is just as important as being within the chapel. The architect does not allow parking or cars to come anywhere near the chapel. This is quite the social and cultural strangeness; however, the ideas and feelings exuded in this place are strengthened even more because of this. The chapel is not meant to be a normal place, or an average place; therefore, people visiting must not do the normal or average habits.

Conceptually, this case has many ideas that strengthen the architect's and owner's goal of spiritual healing. The verticality of the structure brings the mind and soul up towards the heavens representing the goal of the space, and that is for those within to be

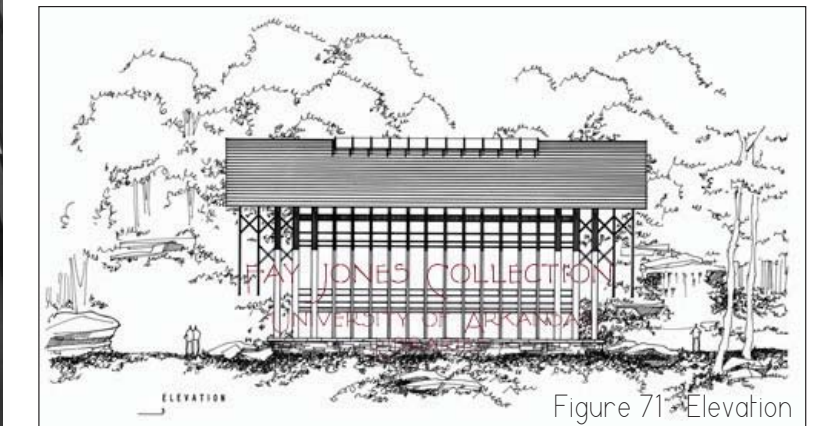


Figure 71 - Elevation

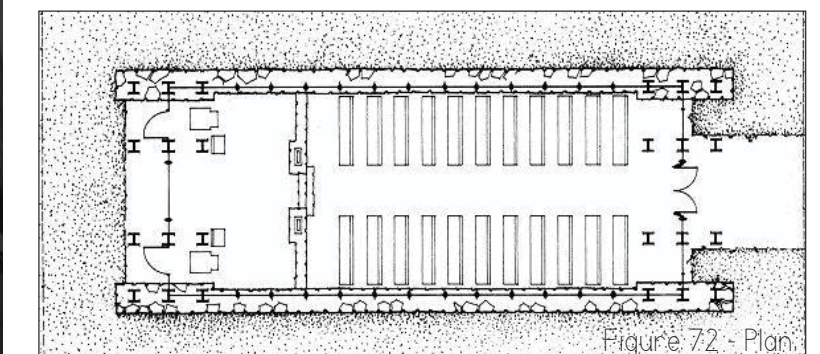


Figure 72 - Plan

closer to God. Also, the transparent nature of the building ties the visitors to nature, which then brings them closer to God as well. Also, the delicate nature of the structure mimics the delicate nature of the soul, which is reinforced by the trees surrounding the chapel, as if God is all around holding the people up, and reinforcing their souls.

Analysis

This case study shows how architecture can heal and regenerate human spirit. The meaning and use of the space is vitally important, however, there is something this chapel has that sets it apart from anything else. The combination of the repeating structure and the natural environment being such a part of this place creates an unworldly experience. Or rather, this experience IS worldly, and the norm we are used to is the unworldly. Either way, the partnership between nature and the building is vital in the spiritual healing power of this place.

In addition, this case also shows how important the approach and transition from the exterior to the interior is. As a pupil of Frank Lloyd Wright, Fay Jones understood Wright's value of approach and entry, and used that in a way to aid in the spiritual experience of this place. From walking through the forest, to hardly seeing the chapel as you approach it, to entering the chapel, the process of moving through the different preparatory phases of entry becomes an important part of preparing the person for the spiritual awakening they will receive once inside the chapel.

Conclusion

This case study makes a significant contribution to the understanding of the theoretical premise. Understanding the importance of beauty and entry in the spiritual healing process is paramount to this thesis. The human spirit is a huge part of regenerating a person, and so to understand how this chapel seeks, and succeeds, in doing that is absolutely critical. Also,

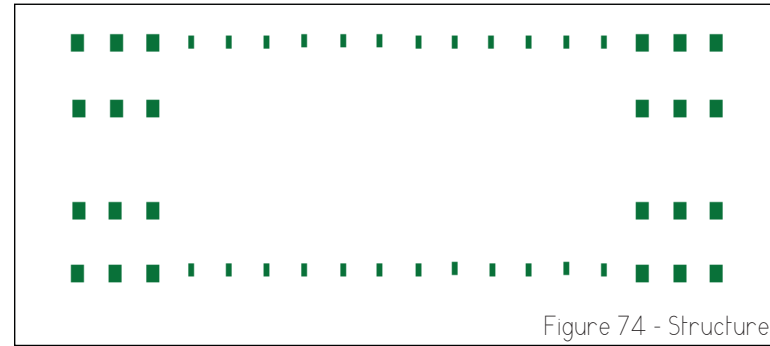


Figure 74 - Structure

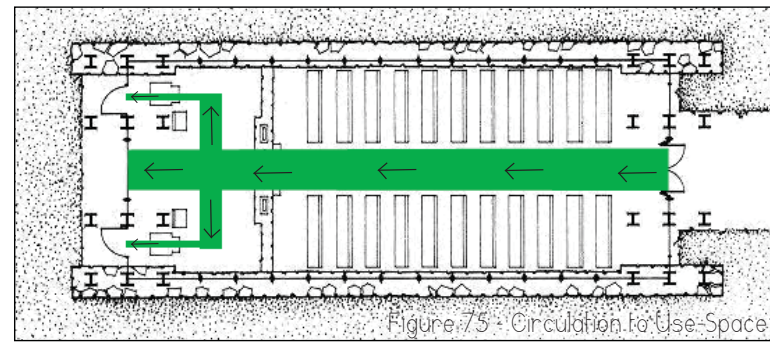


Figure 75 - Circulation to Use Space

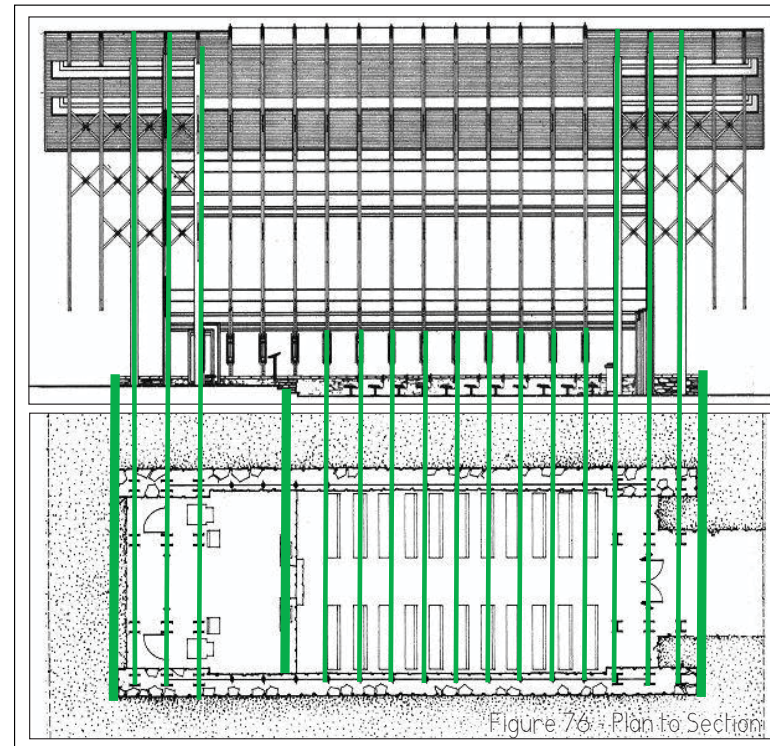


Figure 76 - Plan to Section

this case study identifies the impact that nature can have on the way a person experiences a building. Would this chapel be just as successful if it were in the middle of a city? Probably not, instead of feeling connected and introspective among the forest, it would feel like a cage for everyone to stare at. Nature, in this case study, is like the walls of this chapel, surrounding the place and keeping it safe.

This chapel most certainly regenerates a person. Similar to the Therme Vals, just by being within the space, a person is uplifted spiritually, and the power and beauty of the place cannot be communicated in words. The immeasurable ability for a place to affect a part of a person that really cannot be explained is the healing of their spirit. Although there are few ways to quantify it, all that need be known is the appreciation and care people have for this place. Since opening in 1980, over four million people have come to this place to experience it for themselves. It must be working because people keep coming, and the chapel keeps winning awards.

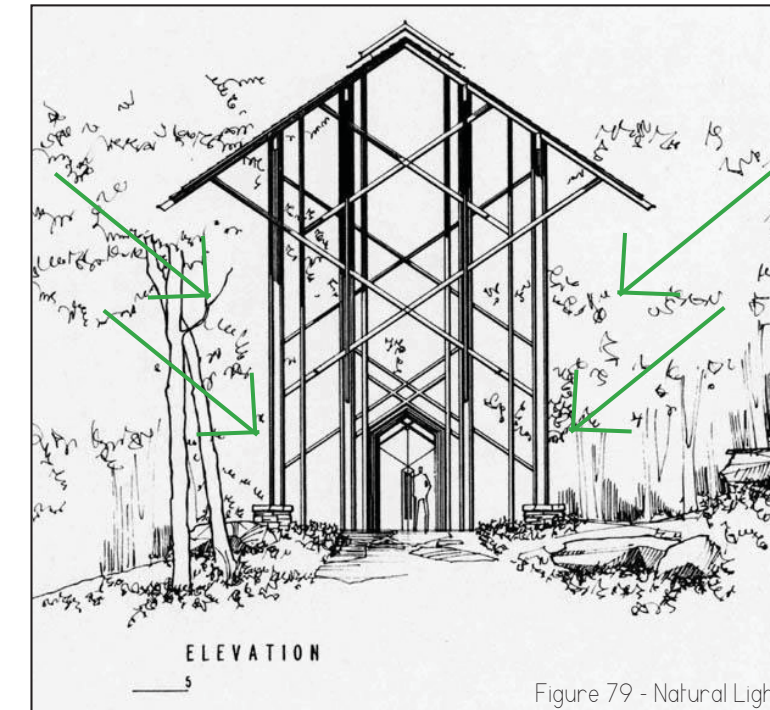


Figure 79 - Natural Light

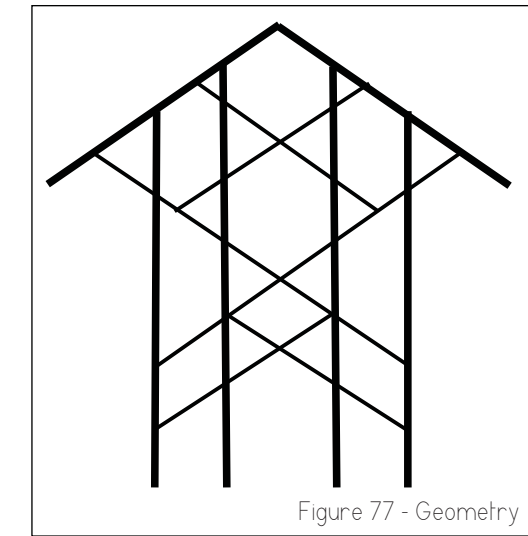


Figure 77 - Geometry

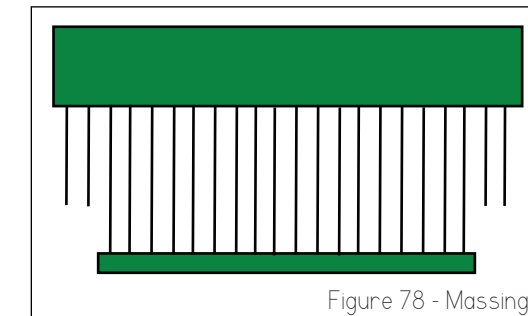


Figure 78 - Massing



Figure 80 - Hierarchy

Typological Research Summary

The case studies were compiled and chosen to explore the different facets of healing and regeneration that occurs within architecture. Maggie's Centre and the National September 11th Memorial and Museum are both cases that pertain to how architecture can heal and regenerate the human mind. The Therme Vals and the Rehabilitation Centre Groot Klimmendaal are cases that illustrate how architecture can regenerate the body. The Thornycrown Chapel is a case study that embodies how architecture can regenerate the soul. Each case was paramount to study because this thesis seeks to create a place that combines all of these types of healing into one facility. Understanding the different parts that play into the whole is vitally important in understanding the thesis as a whole.

The theoretical premise was reinforced and supported by the typological research. In all the cases, the architecture was a paramount piece to the healing process. However, it became clear through the research that the architecture and the people work together to generate the healing. The two cannot be separated because it is the interaction between them that often results in the desired healing qualities of a place.

Upon analysis of the case studies as a set, there are several items that seem to trace through all the cases. The integration and relation the building has with the site is a very important aspect of the designs that create a healing environment. The connection to nature from within the building must be dominant throughout healing environments. Across each set of cases, mind, body, soul, and the importance of connecting to nature rise above all else. In addition, each case study had very simple and uncomplicated geometries that seem to contribute a great deal to the environments as a whole. The uncomplicated nature of each case allowed the healing to take place in a pure and uninterrupted manner. The architecture aided in the process of

healing in each case. When looking at the case studies as a series, there are several common characteristics that are shared by all. As mentioned before, the commonality of nature as a critical point of interest in the healing environments studied is vitally important to the process of healing. In addition, each case study creates a similar kind of social environment, where the users of the building have a variety of places to share life, ranging from a small private space to large group spaces. In each case study, these spaces are flexible, fluid, and can change with the people within. Another common characteristic is the manner in which all the case studies treat the circulation space. In essence, each case utilizes the circulation as a continuation of the healing process; it becomes a part of the program. As the Rehabilitation Centre Groot Klimmendaal, the circulation space is the core of the space and the means of moving around to promote physical health. In Maggie's Centre, the circulation runs through the main programmatic spaces to incite group togetherness.

There were also some uncommon characteristics between the cases. Each case study aimed to heal the user in a different way. Maggie's Centre aimed to heal emotional stress, the National September 11th Memorial and museum sought to give closure to a country grief stricken with tragedy, the Therme Vals sought to revitalize the body through relaxation, the Rehabilitation Centre Groot Klimmendaal aimed to heal a person after an injury or handicap, and the Thornycrown Chapel strived to regenerate a person spiritually. This affected the theoretical premise by illustrating the many ways that architecture can regenerate. It provides support for this thesis's goal to create a place where architecture harbors an abundance of healing and regenerating of different kinds.

The underlying conceptual ideas of each case study affect the theoretical premise by providing support for the end goal. All of the case studies put nature and people at the center of the design and were the driving force in all decisions made. Finally, the way each case study approached circulation within the

buildings indicates how the connections between all of the spaces and the manner in which you arrive at each space is also of vital importance.

Another aspect of the case study research was to examine how similar types respond to different site conditions. It is clear that when a healing place is constructed in an urban environment, such as the National September 11th Memorial and Museum, there is very little nature to connect to. So, in order to maintain that connection, nature is created and built up around or within the space. The sites in a forest, such as the Rehabilitation Centre Groot Klimmendaal and the Thorncrown Chapel, seem to be more transparent, with much more glass and less concern about privacy. The nature all around seems to act like a blanket wrapping around the buildings and protecting them.

Designing with the cultural and social norms of the place is fundamentally important in architecture. This can be understood by looking at the way the National September 11th Memorial and Museum was designed and publicized. The tragedy at the root of this memorial shook the United States's citizens to the core, and so when the memorial was built, it was notably important to include the entire country in the dedication ceremony, and make it a public place open to everyone. To contrast this, the Therme Vals was designed to be an addition to an ancient tradition. Peter Zumthor needed to maintain a sense of respect for the social and cultural custom that has already been defined for hundreds of years.

The importance of functional relationships within each case varies depending on the use of the each facility. In the Therme Vals, the circulation is so much a part of the program that the function of each place mattered very little. On the other side of this, the Thorncrown Chapel was very specific and precise in the functional relationships. Chapels, in general, are much more precisely designed for function than most other buildings, but this one in particular it is especially prominent because the building is so small,

and the facade is so transparent, it is vital that each part of the program be precise and exact.

The spatial relationships between the case studies vary considerably. There seems to be no specific approach to spatial layouts that rises above the rest for this type. Some interesting details to note pertaining to spatial relationships is that each case, other than the Thorncrown Chapel, a significant value is placed on a place to sit and eat with the other users of the facility.

As a whole, this series of case studies allowed a detailed look at how healing the mind, body, and soul occurs within the built environment. A reigning conclusion that can be drawn from this series of study is the importance of people connecting with their surroundings. This includes connecting to nature through the built environment, to people through nature, and to the built environment through people. These connections drove the design of each case study in an effort to touch the lives of the users with hopes to regenerate their mind, body, and soul.

Historical Context

Historical Context of the Thesis

History of Holistic Medicine

Holistic healthcare is a method of healing that focuses on the whole person rather than specific symptoms, body parts, or illnesses ("Natural Healers," 2011). The term "holistic" can encompass a multitude of disciplines within the field, each being uniquely dissimilar to the next, yet all hold their roots in the same idea. Some of the fields that are considered to be holistic medicine include osteopathy, naturopathy, Traditional Chinese Medicine, Ayurveda, and a multitude of other disciplines. The roots of this kind of medicine are found in the same place as allopathic medicine, or conventional medicine, since the existence of man.

Beginning in the Stone Age, man has used herbs and other naturally occurring substances to treat people who were ailing. All over the world, different cultures called them by different names, but there was always a person within a community that was the healer. Though without understanding the cause and effect relationship within the body, these people were thought to be mystically or spiritually connected to the deities of the culture. In essence, these people were those who were charged with caring and leading the community in matters spiritually and physically ("History World," 2011).

In China, there is documented evidence of a medical practice emerging over 4000 years ago. Traditional Chinese Medicine bases its practice on a Taoist philosophy of finding the balance in the body. They did not treat a disease or a symptom but rather the mind, body, and spirit of the person (Phillia, 2010). Many of these practices are still in use today, including acupuncture, and the philosophy behind modern holistic medicine. There is similar evidence that a form of medicine was practiced in India shortly after called Ayurveda. This was developed by Sushruta in the sixth century BC, and is still practiced to this day. This healing was based on the idea that the body is its own small universe,



Figure 81



Figure 82



Figure 83

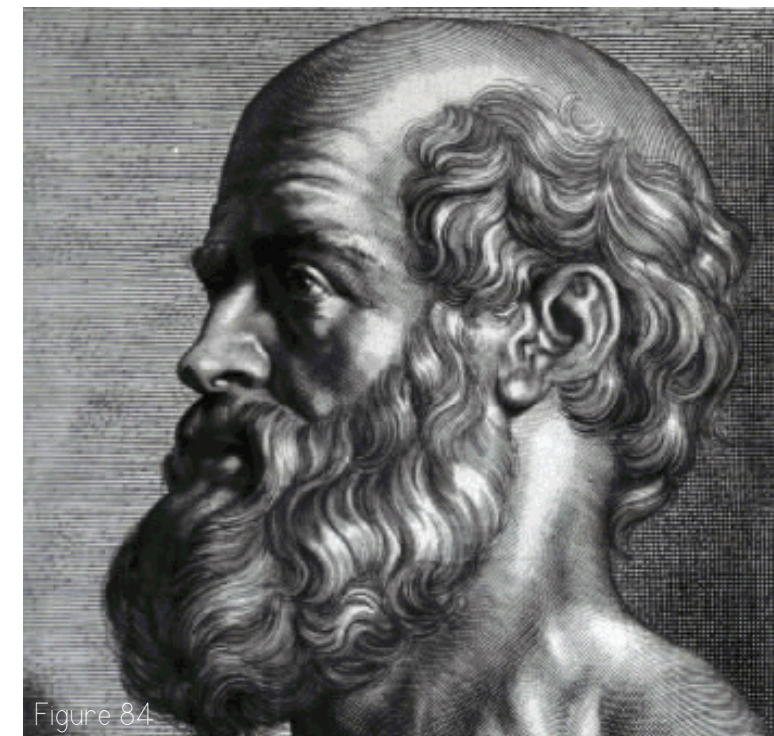


Figure 84

and knowledge of the parts of this universe could be used to guide people to a state of balance and moderation ("Natural Healers," 2011).

Sometime later, in fourth century BC Greece, Hippocrates began giving his contributions to modern medicine. Later, he will be known to all as the "father of medicine" due to his attention to symptoms of the disease, as opposed to his contemporaries who only sought to create a healthy person. Hippocrates's most significant contribution to the practice of medicine was his theory that people are made up of four elements, just as inanimate objects, and each element has a known contribution to the body. He theorized that if a person has a specific symptom that directly relates to one to the four elements being out of balance. He sought to correct this imbalance to heal the person. ("History World," 2011)

In the third century BC, acupuncture became a well-developed method for treating disease in China. Based on the text Nei Ching, or Book of Medicine, this treatment was based on the idea that the health of the human body is dependent on the flow of energy through it. When a person was ill, it was thought that there were blockages of this energy flow, and with a shallow needle prick, it can release the blockage or pressure. The text identifies over 300 points on the body where this energy can be accessed by a shallow needle to clear the energy flow and restore a person to their healthy state. The practice of acupuncture has not changed much since this time period, and remains a prominent medical practice in China, and a popular one in other parts of the world including the United States and Europe. ("History World," 2011)

In the second century AD, a Greek doctor named Galen performed a series of experiments and dissections and began to uncover what lies beneath human skin. Many of his theories were in fact incorrect, but due to the lack of understanding in human anatomy, his theories were well received and accepted

for over 1400 years. Then in the 14th century, a bright medical student named Vesalius challenged Galen's theories, and was correct. Vesalius then published a seven volume series on human anatomy, and thus began the ride towards modern medicine. ("History World," 2011)

Holistic healthcare is based on many of the ancient ideas about how treating the disease or the symptoms does not solve the root of the problem. Instead, holistic health care providers seek to treat the person, mind, body and spirit. During the 1970s, people began to question the modern medical practices due to the harsh and often times unsuccessful procedures doctors were putting their patients through. At this time, there was a resurgence of alternative medicine, and some doctors began to practice a different kind of medicine that looks at the person as a whole, instead of the sum of the parts. A medical tradition that fit very nicely into this idea was Osteopathy. Having been created 100 years prior but never had too many followers; Osteopathy was the practice of medicine that followed this exact doctrine.

In 1874, a doctor named Andrew Taylor Still created the concept of "wellness" and looked back to the ancient practices of eastern medicine to derive a new form of western medicine that sought to treat an illness within the context of the whole body (American Association of Colleagues of Osteopathic Medicine [AACOM], 2011). Today, doctors trained in osteopathic medicine have the same requirements as typical Allopathic doctors. They must be licensed, can give prescriptions, and treat everyone from babies to the elderly. The difference is the way in which they approach the treatment of their patients.

The wonder and beauty of holistic medicine is the way the doctors and those involved with their treatment know all aspects of their life. They connect to their patients at a closer level, and are able to understand their lives in a fundamental way allowing them to treat a person completely. As technology has improved in this modern age, the ideas behind this medicine remain the same, rooted in the ancient traditions from many cultures around the world.

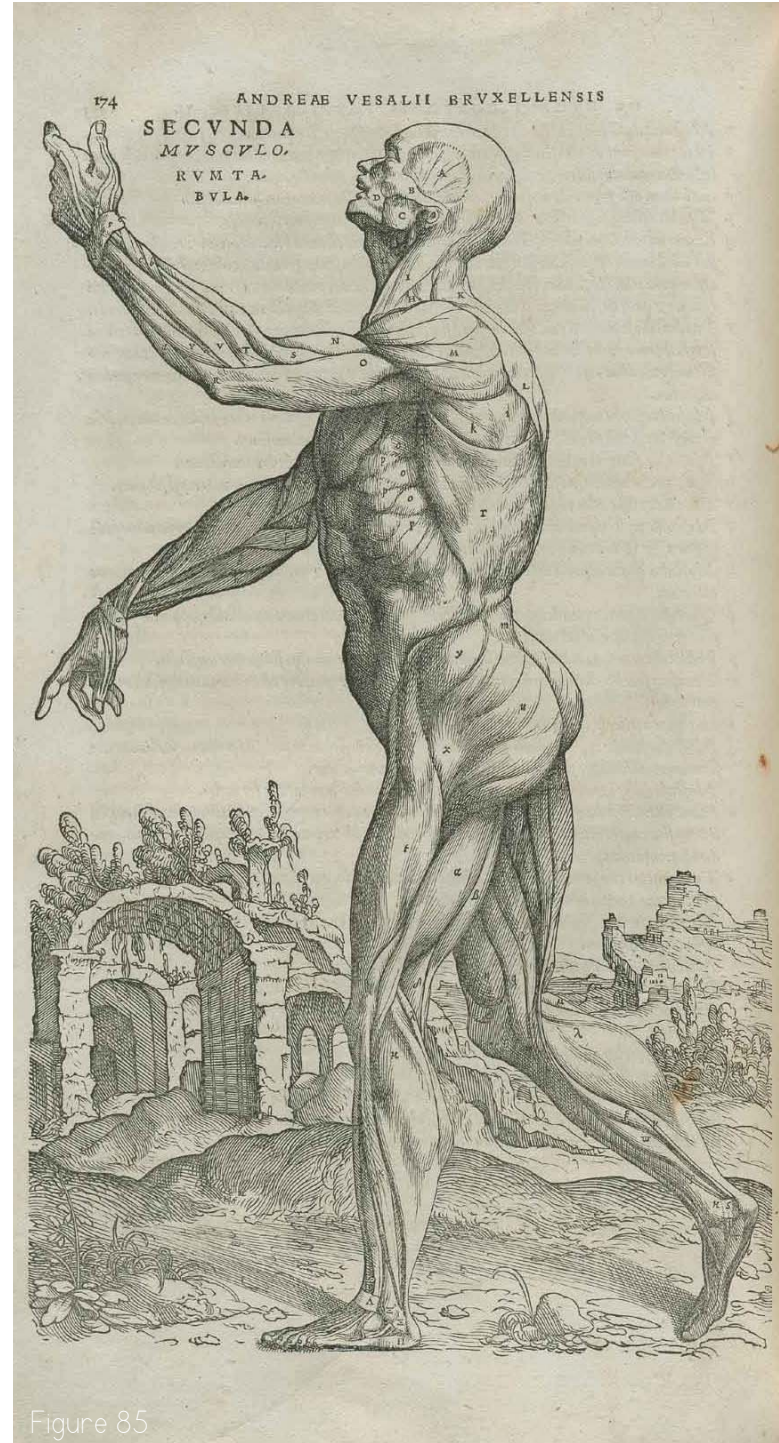


Figure 85



Figure 86



Figure 87



Figure 88

History of Downtown Fargo

"In 1864 President Abraham Lincoln signed an act of congress creating the Northern Pacific Railroad Company," and the push began to continue the railroad from its current stopping point in Minneapolis, westward to the Pacific Ocean (Caron, 2004). By 1870, the company had organized its efforts and began to send out surveyors to find a site for the rail road to cross the Red River of the North. Land speculators in the Midwest knew that where the railroad would cross the Red River, would be the site of the next largest city west of Minneapolis, St. Paul, and were pressuring the surveyors for their decision of the site. The search for the perfect site for the crossing went on in great secrecy in order to move through the process of acquiring the land with the fewest hurdles. To throw the surveyors off, they had two teams in place surveying land, one 15 miles north of Fargo at what is now the town of Georgetown, and the other team where Moorhead would soon be. (Caron, 2004)

Upon announcing the crossing would be at the spot in Moorhead after the railroad had secretly acquired the land, the speculators rushed down to the site and began acquiring the land around the railroad property as fast as they could. Once construction began on the railroad, the area around the construction began to gather a small population of people consisting mostly of the railroad executives, workers, and speculators. In 1871 the community of "Fargo in the Timber" was platted and became the first settlement of Fargo. Soon after that a second community was created a few hundred feet away called "Fargo on the Prairie." On October 6, 1871 a post office was built and named Centralia between the two communities, and the settlements officially became a town. Sometime later, the post office changed its name from Centralia to Fargo after pressure from the railroad. William G. Fargo was a director and financial backer of the Northern Pacific Railroad Company, and a partner in the Wells-Fargo Express Company. (Caron, 2004). The town of Fargo was created around the crossing of the Northern Pacific Railroad over the Red River.

By 1885 Fargo had grown into a thriving town with a population of 2,833 people. Businesses began to pop up in the area surrounding the original townsite, and land speculators kept investing in the land around the small community. Despite the growing town, the land just to the west was still owned and occupied by the Native Americans. There was some dissent and hardship associated with creating a treaty with the Native Americans, but eventually they conceded and allowed the town of Fargo to keep growing. (Caron, 2004)

Fargo was officially incorporated on October 5, 1875, and George Egbert was chosen as mayor, and six eldermen were elected. Shortly after that, the knowledge of the value of the soils in this area was discovered. The main business in Fargo became working the land and growing and selling crops. The population exploded between 1880 and 1910, due to the rich soils and easy land. In 1915 over 79 percent of the people who came to settle in Fargo were immigrants or children of immigrants, most of which were of Norwegian, Scandinavian, or Germanic origin. (Caron, 2004)

On June 7, 1893, one of the worst fires that Fargo has ever experienced occurred. It began on Front Street (later renamed Main Avenue), and spread from wood building to wood building across most of Fargo. Over 6000 residents lost their homes and businesses, and 31 blocks were reduced to rubble ("City of Fargo," 2011). This changed Fargo's face forever. After the fire, city leaders adopted building codes that scarcely allowed any building materials other than brick to construct new buildings. (Caron, 2004)

Just a few short years later, in the spring of 1897, came a flood of epic proportions, whose record height would not be beat for 100 years. This flood devastated Fargo's newly rebuilt downtown. Because many of the buildings were now built out of brick, most survived the flood. This flood began the City's search for a solution to keeping the flooding under control, a task that City leaders are still dealing with to this day. (Caron, 2004)

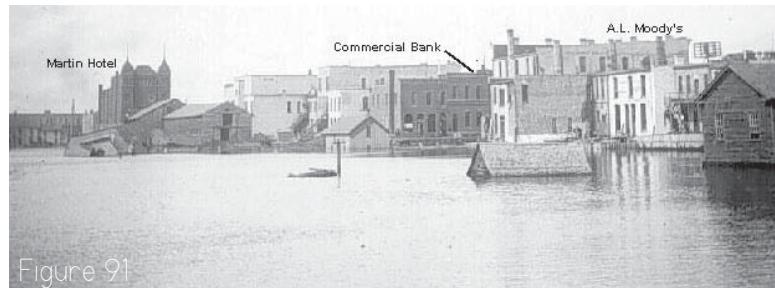
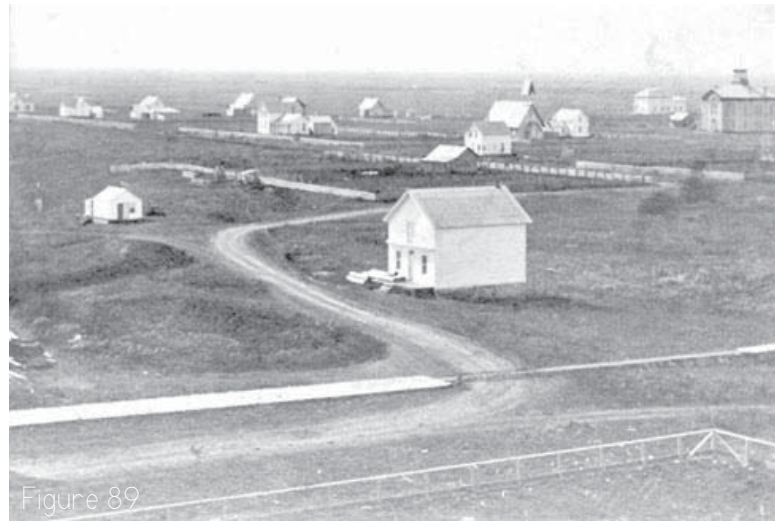


Figure 91

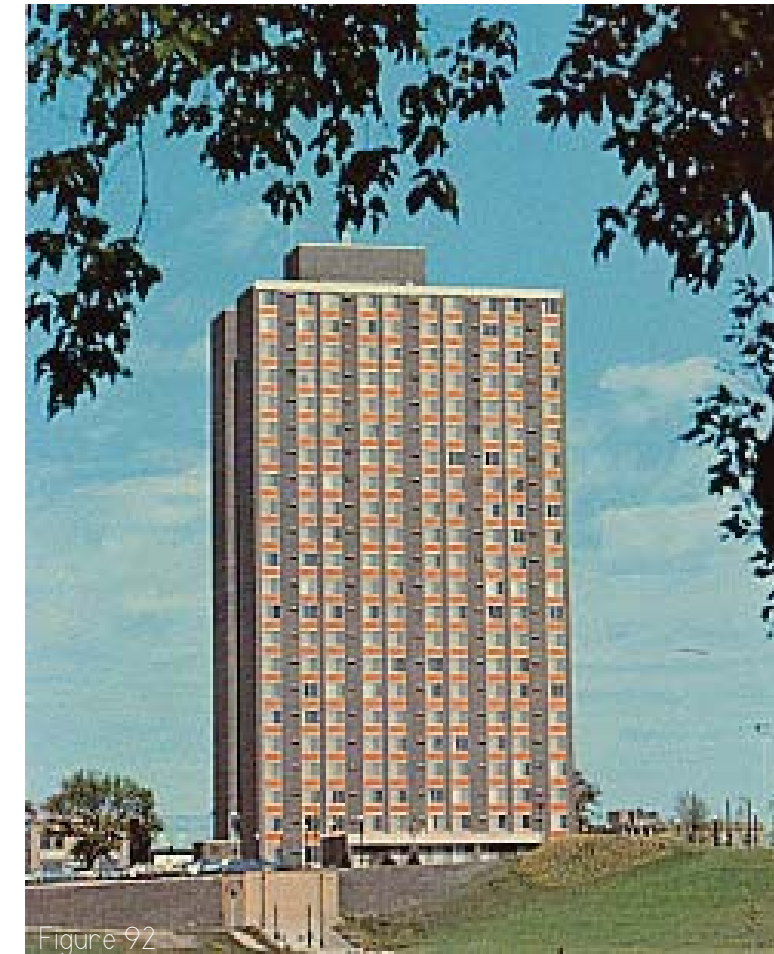


Figure 93

After 1910, the population growth slowed down dramatically, increasing only 11% in 80 years. However, Fargo kept growing and expanding its borders. In the 1960s, Fargo adopted a new principal, urban renewal. The first of these projects was the federally funded Civic Center. The project proposed to demolish 30 acres of blighted and deteriorating buildings and construct an event center, a new city hall, and a park. In addition to these federally funded projects there were several other private urban renewal projects that occurred, including the Northwestern Bell Telephone Company building and the Metropolitan Savings and Loans building. These projects devastated the tightly knit downtown that once existed and traded it for a series of segmented portions, with pockets of the original downtown remaining.

Some years later, the North Dakota Legislature enacted the Renaissance Zone Act in 1999 in an effort to revitalize the deteriorating downtown of Fargo. This began with the federally funded Broadway Streetscape project in 2002. This project proposed to completely redo the Broadway streetscape to help begin the revitalization project. This marked the beginning of the City Leader's goal for Fargo's downtown to be the center of the city again. Since then, the downtown area of Fargo has exploded, and new projects and renovations are happening all over the core of downtown.

Broadway has now become the center of Fargo again, housing countless specialty and boutique shops, restaurants, and many growing businesses. Most recently, the City Commission adopted a proposal to transition the main cross roads through the downtown, NP Avenue and 1st Avenue, from one way into two way streets. The revitalization continues in the downtown area, and with the transition of these corridors into two way roads, the downtown core will begin to branch out east and west as well.

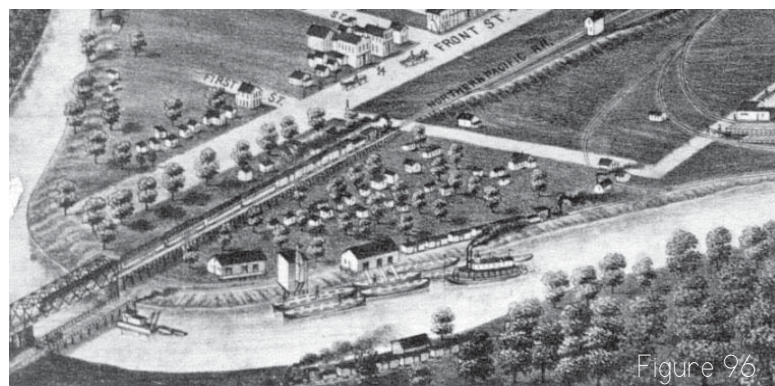
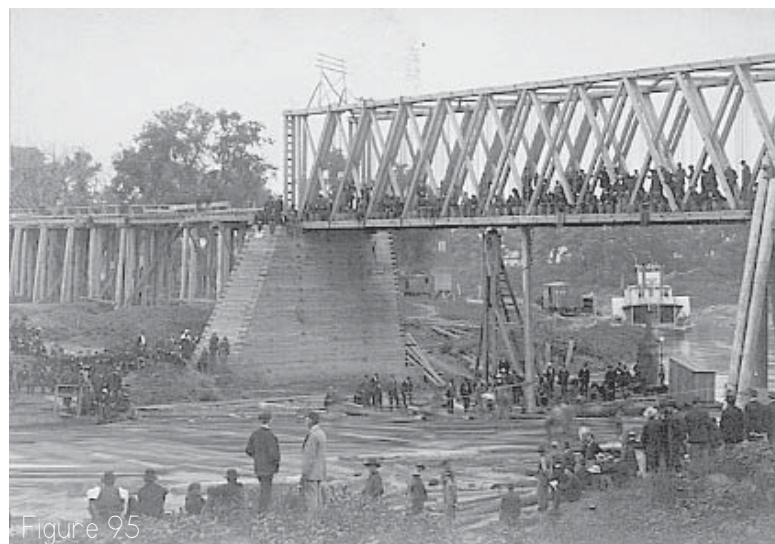
History of the Site

The site for this thesis project is the site where Fargo began. The crossing of the Northern Pacific Railroad runs right through the middle of the site. Just to the north of the railroad tracks is the site of the first settlement in Fargo, "Fargo in the Timber." On the banks of the river by the site just north of the bridge was the site of the first business district in Fargo. On the west side of the site was the location of the original post office that established Fargo as a town. Needless to say, the historical importance of this site is immeasurably high. (Riverfront Development Master Plan, 2007)

When the Northern Pacific Railroad first came to Fargo, they immediately began building the bridge that would cross the river. Construction began in 1870 and was finished by 1871. The bridge was constructed of heavy log timbers, most of which remain today. Later the bridge was rebuilt in 1893, 1897, and again in 1927. The large round stone column the bridge now sits on was built in the 1897 version after the flood to make a more permanent footing for the bridge, and to allow the bridge to rotate to allow steamboats to pass by with ease. (Caron, 2004)

On either side of the railroad tracks, much of the first development in Fargo occurred. To the north of the tracks housed a field of tents in "Fargo in the Timber." Here many of the railroad construction workers and entrepreneurs took up residence in the early 1870s. Just south of the tracks, Front Street, later renamed Main Avenue, began to develop as the more permanent business corridor of the growing town.

As time went on, the settlers who were living in "Fargo in the Timber" had their rights to that property taken away when the treaty with the Native Americans was made. This land was then help privately and became the Fargo Foundry in 1905. Kalmen and Parsons started this business to manufacture and repair farm equipment for the many farmers in the area. As the years



passed, the company dabbled in some other enterprises, finally settled on being a steel fabrication company in 1973 and changed their name to Mid America Steel. The company now has three locations, the first being at this site, the second one in West Fargo, and the third in Bismarck, ND. (Caron, 2004)

In 2007, the City of Fargo went through an update process of all of their plans. Included in this process were the Downtown Framework Plan and the Riverfront Development Master Plan. According to the Downtown Framework Plan, the Mid American Steel site and the Northern Pacific Railroad tracks were both identified as areas with development needs. According to the plan, "The Mid-America Steel site is a prime location for river-oriented housing and public green space." The plan also points out the likelihood of environmental contamination due to the nature of the use at the site. Some of the goals the plan establishes, include strengthening linkages to the riverfront, reclaiming the industrial Brownfield, and utilizing sustainable building and site strategies to "mitigate rail noise and impact to the river" (Downtown Framework Plan). The action step the plan recommends is for the City and the steel company to work together in an effort to relocate and modernize the company within the next seven to ten years (from 2007).

The Downtown Framework plan also recognized that the Railroad tracks that run through the downtown are also an area that needs redevelopment. According to the plan, "eliminating the use of the Prosper Subdivision track southeast of the Fargo rail yard and through the Downtown as described in the 2004 Fargo-Moorhead Rail Consolidation Feasibility Study will provide significant benefits to both [Fargo and Moorhead]" (Downtown Framework Plan, 2007). Some of the benefits it deduces, include a safer and quieter downtown area, increased developable land, and a possible greenway linkage from Moorhead to Fargo and up to NDSU. Despite the obvious physical feasibility of this project, the plan points out the financial restraints for this project. The railroad companies would have to provide a great deal of money

for this conversion to occur and that is a prohibitive element of the project. However, with federal funds and support from the city, it was noted that this project may result in a favorable decision from the rail companies.

The Riverfront Development Master Plan also identified the Mid American Steel site as a place that needs redevelopment. This plan states that

“much of this area lies outside of the flood plain and affords grand views and opportunities for future development of recreational facilities, corporate headquarters, or residential structures” (Riverfront Development Master Plan).

The plan goes on to mention the historical significance of this site, and that its value as an industrial site will decrease as development in the surrounding area increases.

Today, the Mid America Steel site remains a cut off piece of the downtown, contributing nothing positive to the fabric of Fargo’s downtown besides silence. With such a tremendous historical significance to the City of Fargo, the prime location by the river, the high elevation, and the ability to foster new connections between Fargo and Moorhead, this site has tremendous possibility to become a wonderful addition to Fargo’s downtown experience.

History of Regenerative Architecture

Since the dawn of civilization, humans have created sustainable architecture, which is architecture that responds to its given site, using locally found materials in a design that responds to the climactic, social, and political forces in its given area. It was not until the industrial age at the end of the 1800s that this trend began to change. When industrialization happened, people began to see they could have and receive materials from anywhere, build bigger, and better than ever before. This culminated in the 1950s when architects designed buildings that created a completely controlled environment. With sealed envelopes, air



Figure 100



Figure 101



Figure 102

conditioning, and permanent artificial lights, these architects were proud of the manufactured and artificial environments that they created. From that point, people wanted more, bigger, and exotic things from all over the world, and they got it.

At the same time in the 1950s, a small countermovement began which questioned and challenged the direction of the status quo and began to design buildings that were “passive solar”, “low-energy”, and “green.” In 1964, Rachel Carson published her book, *Silent Spring*, which discussed the immense and horrific future the world has ahead of them if the then current pollution and consumption rate continued. Her book was highly controversial, but began to wake people up. Then in 1987, the report of the Bruntland Commission, “Our Common Future” was published, which warned the United States and the world of the environmental crisis looming over their heads now and in the near future. This report was the first to point out the connection between sustainability and architecture. This report forever changed the way in which architects viewed their profession and life’s work.

As time went on, the world’s consumption and pollution rate continued to rise, and environmental consciousness became a serious issue that people were talking about. Architects then began to redefine their profession, and added to their ethical standards the importance of environmental stewardship. In 2000, programs like LEED began to raise public awareness of environmental concerns within buildings, by creating a rating system that measures a building’s environmental performance (USGBC, 2011).

Now, there are “green” products on every shelf in the big box stores, all companies are “green,” and people are having a difficult time deciphering what is actually a sustainable product, and what is not. And still, the world’s pollution and consumption rate is sky rocketing. A visionary architect, William McDonough recognized this and made it his life’s goal to change the tide. In 1991 he was commissioned to write The Hannover Principals: Design

for Sustainability, which is now commonplace in every respectable architecture firm all over the world. He also created the system “Cradle to Cradle”, a way of mapping and understanding the complete life cycle of everything in a person’s life. His views and understanding of sustainable design is changing the way not only architects view environmental stewardship and consumption but the world. (William McDonough, 2006)

Today, architects and designers are pushing the limits of sustainability farther and farther, and some are even creating a new kind of architecture, architecture that is not just sustainable, zero-energy, or carbon neutral, but architecture that can physically regenerate its surroundings. It is a process of creating that “move[s] beyond the linear throughput model of inputs-consumption-waste that characterizes all of our current development” (akihan, 2011).

With the governmental bodies beginning to force a change, and private interests understanding the importance of the environmental stewardship, the barriers that architects and designers face to provide this kind of architecture are dwindling away. The change is slow, but the results are astounding and will continue to break the existing barriers in the years to come. The future is bright for regenerative design, because soon, sustainable design will not be an option but the only choice.



Figure 103

Goals for Thesis

Goals for the Thesis Project

When people make goals, it is so in the midst of the process they remember the reason for, what sometimes seem to be, the madness. In the midst of such a paramount project as this, having set goals is critical to the success of it. Especially in the context of the study, architectural, goals pertaining to the different environments in which the project exists will help to give the project momentum and keep motivation high throughout. To follow will be a discussion on the goals I have that pertain to the three environments in which this project exists, the academic, professional, and personal.

Academic Goals

As a student in the architecture program at NDSU for the past four and a half years, I have gone from a complete novice who did not know what an architectural scale was to a student who is in the midst of her design thesis. The tools that this program has given me up to this point have all prepared me for this moment in my academic career at NDSU. My first goal is to use all of the tools that I have learned to design the best project that I am capable of. Secondly, it is my goal to design a project that reflects and is in support of the theoretical premise and research I have conducted. The thought and effort put into the research of this book has led me to a place where I am exceedingly passionate and excited about the project. I want to keep learning and create a thesis that is a test of the ideas and theories that are proposed within this book.

Professional Goals

I have a strong opinion that the academic side of architecture should not be influenced by the profession to a strong degree. Architecture in the academic setting is for testing my theories and to set my creative mind free. However, it is important to

use this project as my last opportunity to define what architecture is to me before I head out into the work force. I think that it is vitally important for a person to be sound in their own beliefs and values in architecture before becoming an intern to someone else, where I will have to take on whatever their values and beliefs are to some degree. Additionally, it is my goal to gain confidence in my abilities as a designer and critical thinker so that when I enter the profession I am able to speak up and be heard when the time is right. Finally, it is my goal to end this project with something that I can take with me to interviews that I can speak passionately about, which is relevant to the architecture field and will help to communicate my ideas and philosophy to future employers.

Personal Goals

More than any of the other goals, my personal goals are perhaps the most important to me, as they are the ones that I will carry with me forever. My first goal is to finish in a timely, strong manner. My time management is imperative in this so that as I am nearing the end, my stress level remains as low as possible, and I am able to enjoy the process. Also, it is vitally important to me that I finish strong. Sometimes near the end of a project it is easy to say, "I can do without that," or "That is good enough." It is one of my goals that I do not do that. Secondly, it is my goal to remain passionate about my purpose and ideas through the entire length of the project. My passion is what drives me and keeps me motivated through the sleepless nights and frustrating problems. It is imperative to me that I keep this at the forefront of my mind, and that I am able to have fun and enjoy the ride.

Site Analysis

Narrative

Often, when designing, architects get so caught up in the design of the building that they disregard the context and place where the building is sited. Truly great architecture happens when a building is designed with the environment rather than on the environment. In reality, the site of the building is half of the project. Because of this, the way in which an architect addresses the site is absolutely imperative and should be as connected to the design of the building as the mechanical and structural systems.

When a building is designed, it is the responsibility of the architect to ensure that what gets built meets all moral and ethical obligations. This includes the design's ability to be as passive to the site as possible. Environmentally responsible design is especially imperative in the current ecological crisis we are in. To design in this way, an architect must begin the design process with the site, understanding it, embodying it, and feeling it. To follow is a narrative explaining my visit to the site of this thesis project, and my process of understanding, embodying, and feeling it.

I was challenged by the NDSU architecture alumni Kristi Hanson to see things that I would normally overlook as a way to find joy and beauty in the places that I see every day. I took this challenge seriously and began to notice wonderful details that exist right under my nose in the places that I see every day. I was

astounded by how much of our surroundings we completely ignore in an effort to get to our destination faster. I began to enjoy the ride and found joy in the small beauties that I began to see all around me.

When I began to think about where the site should be for this project, I was puzzled, and my initial thoughts were that it should be a site that is secluded and rural. Jumping to that conclusion, I never thought about the way in which I came to that conclusion. Once I did, I realized that there was no real purpose or meaning behind that decision, I decided I needed to change my tactics. When I was driving on my normal route from home to my husband's work to have lunch with him, I passed over the NP Avenue Bridge that crosses the Red River and connects Fargo to Moorhead, and through the trees that lined the road, I saw a furnished and bleak industrial yard. In that moment it dawned on me that it is interesting how there is an industrial use occurring in the downtown, right along the river. Then, an epiphany occurred, and all the reasons as to why this should be the site for my project aligned.

The current industrial use on the site is not desired in the downtown according to the City of Fargo "Downtown Framework Plan." Mid America Steel is ravaging the site, and cares very little about its condition and relation to other uses in the downtown, which aligns perfectly with the subject of my thesis. In hopes to regenerate the environment, I should most certainly choose a

site which needs regenerating. Also, this site has the highest elevation in the downtown area, so the annual flooding that usually panics the rest of the downtown and Fargo is virtually a non-issue. Finally, as a resident of the area for more than eight years, my connection to this place is deep, and what happens here matters to me.

Once this epiphany occurred, I was excited to begin my analysis of the site because it is a place that I drive past several times a week and have never really noticed. I was excited to discover the wonders of a place that has been right in front of me all along.

On the day of my site visit, I gathered my camera, tripod, and sketch book and began my rather short drive to downtown. It was a Sunday, so there were very few people on the roads, and once I got near the site it was virtually deserted. I parked my car in a 90-minute parking zone in front of the office of Mid America Steel and began my observations and analysis.

Approaching the site from NP Avenue was a difficult task. The buildings front the road with no design or thought. The sidewalks were cracked and disintegrating, and any view into the site was blocked by chain link fences that have green and white vinyl weaved through them. Following the fence along the property line towards the river, I came across the thick line of trees that separates the site from NP Avenue. These trees are old and twisted, with shallow trunks that split almost immediately after

they come out of the ground. The branches were low and I had to duck to remain on my path along the fence. I finally found a spot where I could see over the fence, where there were no buildings in the way, and I got my first true glimpse of the site; a place that I have never really seen before, yet has been there all along.

Piles of rusting metal rebar and angle iron were strewn somewhat orderly across the site. The dirtiness and unforgiving bleakness of the yard that lay beyond that tree line was unmistakable. The entire site was gravel and disintegrating pavement. It seemed as if the whole site was in a state of disrepair. Venturing a bit further down the fence line I was able to look back west toward the way I came, but into the site and observed the cheaply repaired buildings that line 2nd Avenue. Constructed of concrete masonry units and corrugated metal, most of the structures on the site were dismal at best. There is no sense of pride taken here, and I felt sad that such a wonderful location was being treated with such disdain.

As I moved farther along the fence it came to its end just as the topography began to slide more swiftly down to the river, the trees got much denser, and NP Avenue transitioned from being a road into being a bridge. At this spot I slipped around the fence and hobbled over the piles of metal to the middle of the yard where I was able to experience the site from within for the first time. Being slightly paranoid for trespassing on private property, I made this part of my site visit brief. In the middle of the site



Figure 104

along the railroad tracks was an enormous bright green bridge crane. It seems that it is the only part of the property that was well-maintained.

It was interesting to note that when I was in the middle of the site, the noise from the busy streets sandwiching the site was much more muted than I had anticipated. It seems I had found a site that was secluded after all. Tucked between the two busy roads and the river, this place is a hidden treasure in Fargo that Mid America Steel is abusing.

After I got the photos I needed and a moment to take the sights in, I quickly stumbled back over the piles of metal back into the safety of the public right-of-way along NP Avenue. From here I was not sure how I could move around the site to see the rest of it. I knew there was a walking path down by the river, so I set out to find this path, in hopes that it would lead me around the site. Just north of NP Avenue, I found a spot where I could access this path.

The sidewalk on the north side of NP Avenue forked just before the bridge; one path went straight across the bridge, and the other ventured down towards the river and under the bridge. I began the walk toward the river, and crossed under the bridge. Once there I was able to experience the site yet again. From the lush landscape of the river, the site looked even more bleak and misused.

I walked along the path and ventured my way back up to the site several times observing the piles of metal from different directions, and finding more and more unique opportunities this site seems to have. The constant presence of the railroad tracks was made clear to me when a train whizzed by while I was under the bridge. The wooden posts supporting the tracks and train above trembled and the ground shook as I stood there in a sort of awe at the power of the train. I was deeply humbled by the ability of the train to stop me on my way and just feel the vibrations of the power moving through me.

After passing under the Main Avenue Bridge, I was no longer observing my site, so I made my way back the way I came towards NP Avenue. The afternoon was dimming into evening and the shade under and near the bridges was a bit unnerving. I thought to myself that if something terrible happened to me, no one would hear me even if I screamed. I quickened my pace, and made my way out of the river valley and up onto NP Avenue again.

At this point in the visit I had seen most of the site, except the far west side which houses most of the large built features. These were very inaccessible because of all the fencing along the north property line and 2nd Avenue, which dips down into the ground to go under the railroad tracks. I walked past the site west towards the center of downtown and found a road that had drains and manholes on it, indicating to me that it was a public street. This



Figure 109

street went south along 2nd Avenue, and led directly to the railroad tracks and the built portion of the site. As I got closer to the railroad tracks, the site began to open itself up to me, and I was able to see into the yard again. This side of the site was slightly better maintained, yet still very aged and worn. There were several pull-off tracks from the main rail road tracks. They were filled with dust and dirt; and it does not appear as if they are used all that often. A second bridge crane came into view, and it was just as well maintained as the other. The piles of metal in this area were more disorganized than on the east side of the site, with the addition of broken pallets and other debris laying around.

I began to make my way back to my car, and to process everything that I had seen on my visit. I am very excited about my choice of site because of the challenges that it will present and the nature of these challenges. They are aligned exactly with the topic of my thesis. It is sad that the site is so mistreated and degraded. It is also very exciting to propose a project that will enliven this part of the downtown. I am confident that the challenges that are a part of this site will not inhibit a design to regenerate it into an oasis in an urban environment, where people can come and regenerate themselves as well.



Figure 105



Figure 106



Figure 107



Figure 108



Figure 110

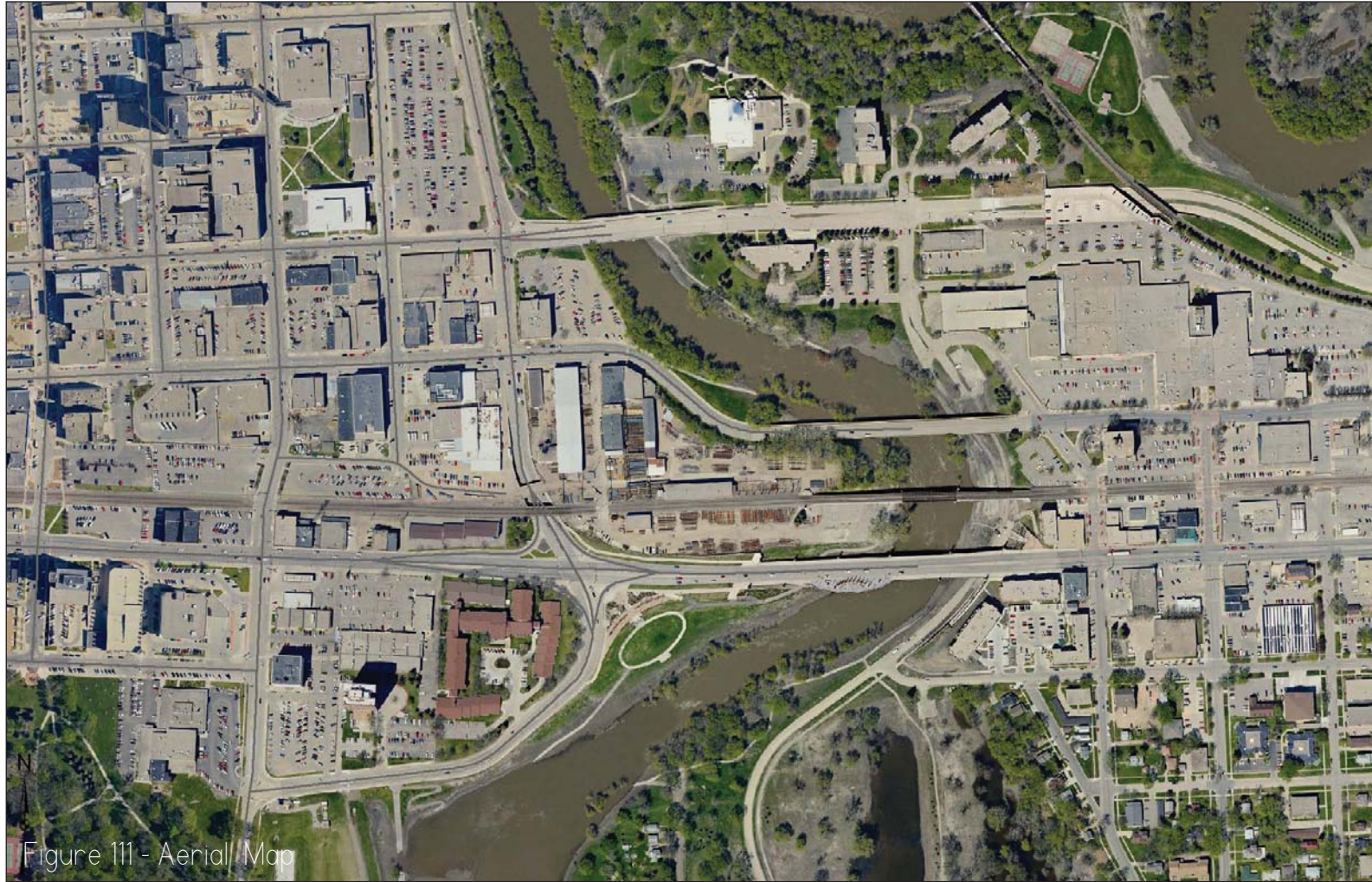


Figure 111 - Aerial Map



Figure 112



Figure 113 - Base Map



Figure 114

Qualitative Analysis

Views

Sited in the center of the downtown along the Red River, the site has several different important views to note. The river slides around the north, east, and south sides of the site. The most prominent and important view of the river lies directly to the east, where the site slopes down less dramatically, allowing a person to easily see the river from the higher portions of the site. Directly along the south (figure 116) and north (figure 115) sides of the site lay NP and Main Avenue. These streets, which transition into bridges, inhibit the direct view of the river. To the north and the east there are also views of large, mature trees. These trees separate the site from NP Avenue and shield the site from the noisy cars passing by. To the south, there is a view of the Main Avenue Bridge. Peeking over the railing of the bridge there is a view of the veteran's memorial. To the west there are more urban views looking into downtown Fargo. Because this site is located in a somewhat untouched area of the downtown in terms of the



Figure 115



Figure 116

renaissance revitalization, the hip urban feel has not quite gotten this far yet.

In plan, there is an extremely rigid existing grid in this area due to the fabric of the downtown. Even so, since the Red River flows organically through the center of the downtown, there is an interesting interruption to this grid. The site falls in a location where this interaction collides and creates an interesting dichotomy between the grid of the urban environment and the organic quality of the river.

Also in plan, there are a plethora of textures found within the site. There is the hardness of the concrete and other impervious ground treatments, the swift flowing water, the roughly unfinished gravel, the grasses and weeds, among others (see figures 117 through 123).

In addition to textures found in plan, there are also some strong geometric relationships found on the site. The linear east to west connection between NP Avenue, the railroad tracks, and Main Avenue are unmistakable and may prove to be an extremely prominent force on the site. Additionally, the relationship between NP



Figure 117



Figure 118



Figure 119



Figure 120



Figure 121



Figure 122



Figure 123

Avenue and the river is quite obvious. NP Avenue bends with the river, disrupting the grid of the urban environment and narrowing the site as it moves eastward. The relationship between the banks of the river is evident as well. Each is a mirror image of the other, yet both are treated differently.

Shade and shadow have interesting characteristics on the site, due to the unique condition of having three bridges begin on the site. There is a general shade under and near the bridges, close the river. There are safety lights under the Main Avenue Bridge but none under the other two. Other than this shade, there is little other true consistent shade on the site. There are strong shadows cast on the site by the trees along the north site line as the sun rises. Once the sun is higher in the sky, the site is filled with sunshine. Because the site is immediately surrounded by streets on three sides and the river on the fourth side, there are no built features inhibiting the site's solar access. (See figures 195 through 203).

Built Features

As a part of the downtown, there are several built features on, and surrounding the site. Some of the significant built features directly abutting the site, include an apartment complex directly to the southwest, the historic Case Plaza directly to the north, a gas station and convenience store to the northwest, manufacturing buildings to the west, and the river and walking path to the east.

In addition to built features around the site, there are several buildings on the site itself. These structures are all manufacturing or industrial buildings that are in poor condition (figure 112 and 114). There are two very large bridge cranes on the site as well. One extends along the rail road tracks through the middle of the site, and the other extends south along the west side of the site.

Along the north and south lines of the site, NP and Main Avenue transition into bridges to cross the river. In addition, through the center of the site the rail road tracks also transition into a bridge to cross the river. These bridges are vitally important to the site, as they will likely never move and are such vital arteries for each of their purposes.

Light Quality

The light quality is excellent on the site. The southern exposure is completely uninhibited and floods most of the site for most of the day. The color, temperature, and intensity of the light depend greatly on the time of day and year. In the winter months, the light is in the blue family, cooler, and has a low intensity with a washed out sky, while in the summer months the light is white, warm, and intense with a bright blue sky. The weather also has a significant affect on the quality of the light. Despite the season when it is overcast, the light is cool and dim, while when the sun is shining, the color is warm and bright.

Vegetation

There is a great deal of vegetation on, and surrounding the site despite its urban nature. This is due to the river being so near. It is vital that the trees surrounding the site stay alive and healthy. The trees are mostly deciduous, with the exception of five trees in the center of the site which are coniferous (figure 126). Green leaves fill the horizon line in the warm months, along the north side of the site. Along the walking path by the river, there are natural grasses flourishing. This is most likely to due to annual flooding that occurs at that elevation. Much of the vegetation on the banks of the river is thick and prosperous. This vegetation must be protected for the health of the river and the bank. (See figure 126).



Figure 125

Water

The River flows along the north, east, and west sides of the site. To say that the river is a driving force on the site would be an understatement. The water is murky and dark looking, due to the high clay and silt content of the soils in the area. Despite the river's murkiness, it is serene and quiet, most of the time. The site is located on a peninsula, so the river flows around the site from the south towards the north. (See figure 126).

The Red River floods annually and is a significant concern to all who live and work in the Fargo area. A portion of this site will flood every year. However, the rest of this site has one of the highest elevations in Fargo, and is always protected from any

significant flooding (see figure 126). The rising and falling of the water levels will mirror the amount of precipitation the area gets, as well as the timing of the thaw-freeze cycle. In the heat of the summer the river could look as small as a babbling brook, but in the spring when the snow melts, the river can turn into a massive roaring beast.

Wind

The landforms affect the flow of the wind (see figure 190). The wind will flow along the river in the spring and summer, trapped in the valley. In the winter the wind will flow along the streets, trapped between the buildings.



Figure 126 - Vegetation and Water

Section

The most defining characteristic of the site in section is the valley of the river. It cuts into the otherwise mostly flat ground to create an interesting diversion from the norm in this area. The river is shallow and narrow, so the banks of the river are also fairly shallow. This enables the site to utilize the areas of the site closer to the river in a meaningful and impactful way.

The urban context of the site is fairly dense, when comparing it to the rest of the Fargo area, however, it is still relatively low-lying. The surrounding buildings are no more than four to five

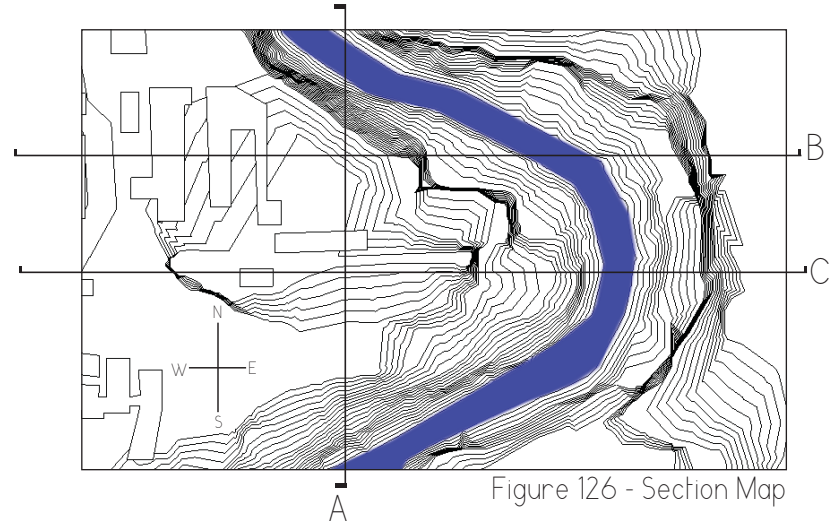


Figure 126 - Section Map



Figure 127 - Section A



Figure 128 - Section B

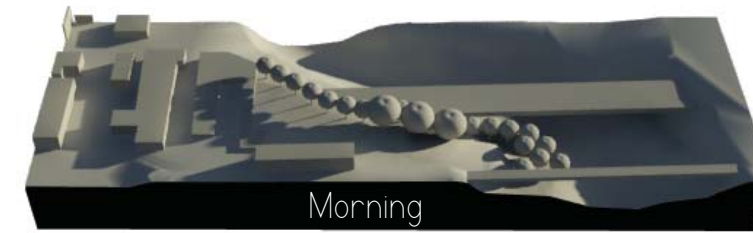


Figure 129 - Section C

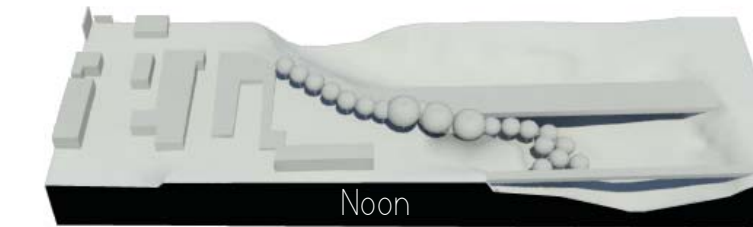
stories at the most. It is evident in figures 128 and 129 that the context of the site sits on mostly flat land, and then fairly gradually slopes down to the river bed. Figure 127 shows a similar picture. However, in this section the two roads that sandwich the site can be clearly seen as they transition in to bridges.

The shade and shadow characteristics in section are quite similar to those in plan (figures 195 through 203). However, it can be more clearly seen how the line of trees along the north side of the site cast a strong shadow in the morning, while leaving the rest of the site

in perfect sunshine for the rest of the day. It is more clearly seen how the area below and around the bridges are in shade constantly. In addition, in section it can be observed that in the evening, the area along the river is shaded very intensely. From this and the previous observation it can be concluded that this is a severe safety issue that must be addressed as the design progresses. Special attention must be paid to how public safety is handled under and near all three bridges.



Morning

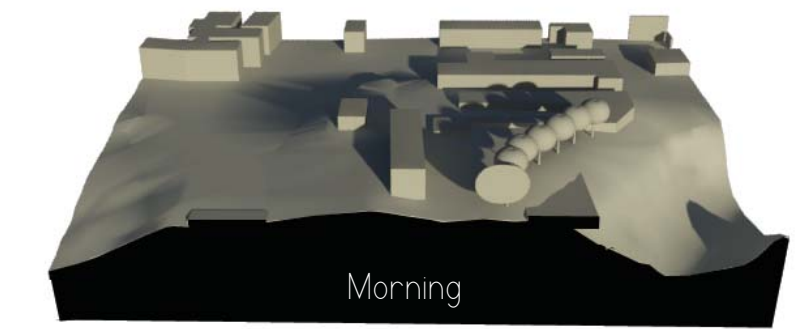


Noon

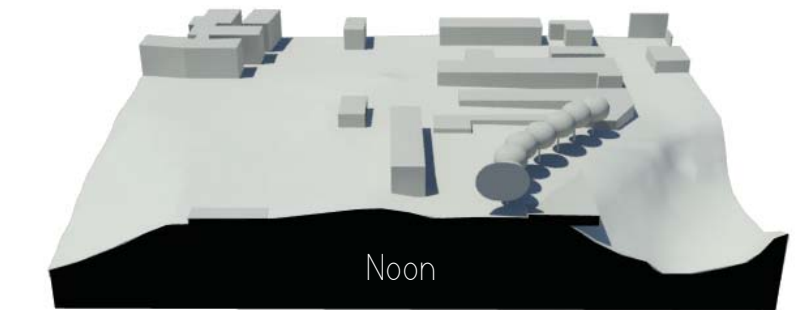


Night

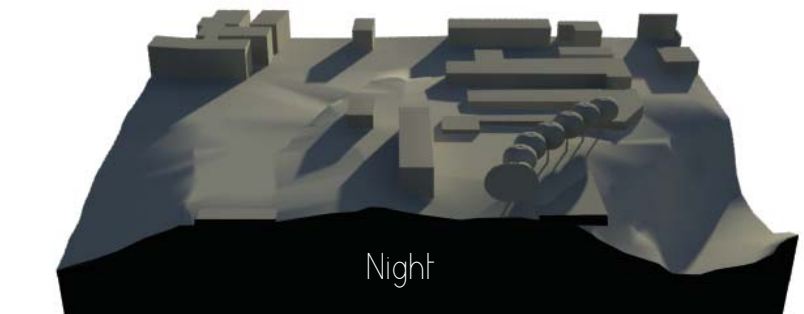
Longitudinal Section
Figure 130



Morning



Noon



Night

Transverse Section
Figure 131

Human Characteristics

There are signs of human intervention throughout the entire site. It can be assumed that there is no part of this site that has not been touched by humans. The site is currently being used as a steel warehouse/work place. Piles of all different kinds of steel are stacked on every inch of space that is not needed for a drive aisle. On the street side of the site, the buildings front the side walk with an extreme and abrupt transition between the public and private. The blank walls extend along the entire block. Where there are no walls there are solid fences inhibiting any view in. This makes the streetscape unpleasant and cold. The current use seems to require this type of relationship to the public however, because it is an industrial use, and members of the public, who do not belong there, certainly should not be there due to safety concerns.

Along the walking paths by the river there are many signs of human intervention as well. Some of these include clothes scattered on the ground under the NP Avenue bridge, which appears to be a make shift sleeping space for a homeless person. There are also ruts in the dirt by the bank of the river, as if a machine was there not too long ago moving the dirt around in preparation for something. There is litter scattered all along the bank of the river and up through the walking path. Humans are involved in every aspect of this site, and mostly in a negative manner, detracting from the pleasantness of the site.



Figure 132



Figure 133



Figure 134



Figure 135



Figure 136



Figure 137



Figure 138



Figure 139



Figure 140

Distress

This site is in a state of high distress. The current use of the site has led to the destruction of this place. The land is in a dire state. The built features of the site are degrading without repair, and there is little care paid to the grounds of the site. Demolition has taken place in years past, and remains of what once was still lurk around the site. Graffiti marks the concrete pillars of the bridges that sit on the site, with a dismal effort to remove the paint. The ground consists entirely of paved surface or gravel except where the walking path winds around the site. Mud and silt from the flood still mark the pavement showing the height of the water. Despite the poor condition of the site, it seems the use of the site is not hindered in the least bit due to its condition. However, if the use were to change to anything other than industrial, a major rejuvenation would be necessary.

The natural portions of the site are the complete opposite of the built portions. The trees and ground cover are in great health, and the bank of the river is amazingly healthy. There are no signs of erosion or slumping along the river despite the site's precarious position on a peninsula.



Figure 141

Quantitative Characteristics

Soils

The soils on the site are clayey lacustrine deposits. The mean average air temperature on this exact site is 37 to 45 degrees. On average there are 110 to 135 days that are frost-free throughout the year. The soil engineering classification is as follows:

- 0 to 7 inches: Silty clay
- 7 to 29 inches: Silty clay
- 29 to 35 inches: Silty clay
- 35 to 47 inches: Silty clay loam
- 47 to 60 inches: Silty clay

Water Table

The depth to water table is about 18 to 42 inches, depending on the season. The entire site has a high water capacity of about 9.1 inches. On the east half of the site, the land is poorly drained due to a high frequency of flooding. On the remainder of the site, ponding is never an issue, nor is flooding. The mean annual precipitation on this site is 19 to 24 inches.

Utilities

All utilities are provided to this site including sanitary sewer, storm water sewer, gas, and electric. Please see figures 143 and 144 for the locations of the sewer lines.

Vehicular Traffic

There is heavy vehicle traffic around the site. NP Avenue, Main Avenue, and 2nd Street are all major thoroughfares in the Fargo area. They all have a constant flow of traffic along them. NP

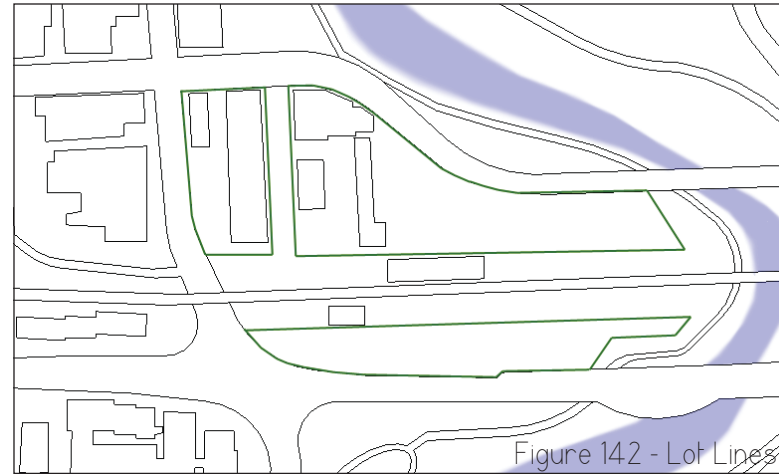


Figure 142 - Lot Lines



Figure 143 - Storm Sewer



Figure 144 - Sanitary Sewer

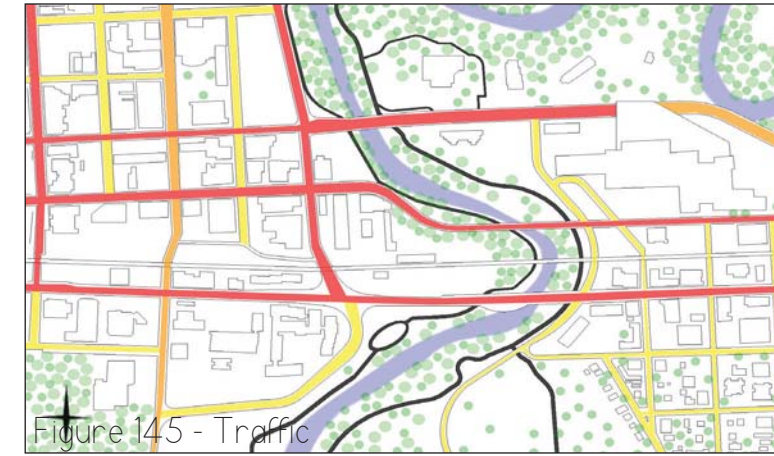


Figure 145 - Traffic



Figure 146



Figure 147

Avenue is a one way road; whereas, Main Avenue and 2nd Street are both two-way roads. In addition to heavy vehicle traffic along those roads, there is also a railroad through the middle of the site. This is a highly used railroad as well, with over 50 trains passing through every day. There are two sets of main tracks that are the through tracks. There are also several pull-off tracks on the site, because the current use is industrial, these pull-off tracks are currently used for loading and unloading on the railroad. (See figure 145)

Pedestrian Traffic

There is very little pedestrian traffic along the public right of way on the streets in this area of the downtown. There is not a lot of desirable development in this area, so pedestrians do not have a reason to come this way. With NP Avenue, Main Avenue, and 2nd Street being such busy streets in this spot, it is also fairly difficult for pedestrians to feel safe walking along the streets in this area.

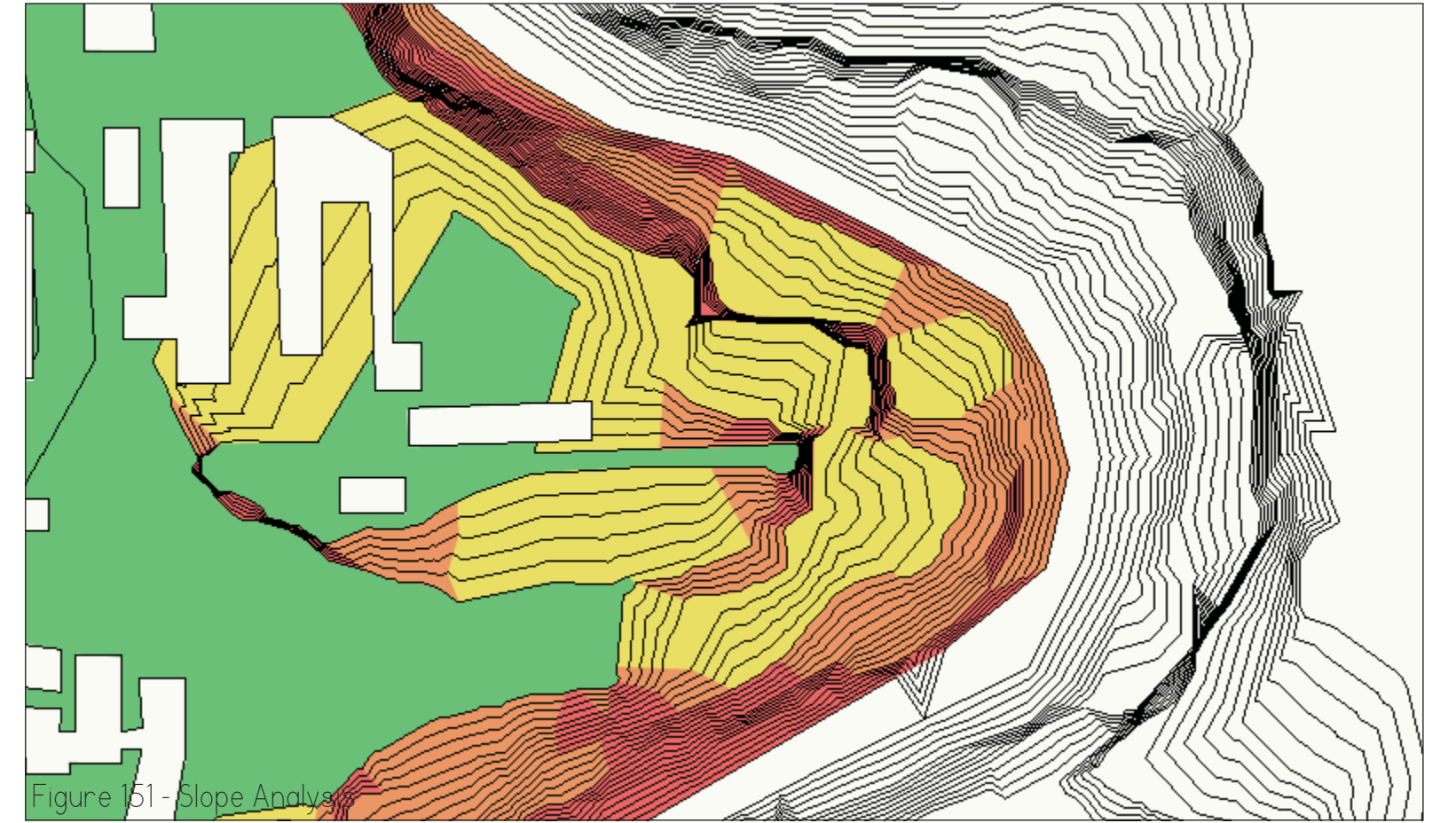
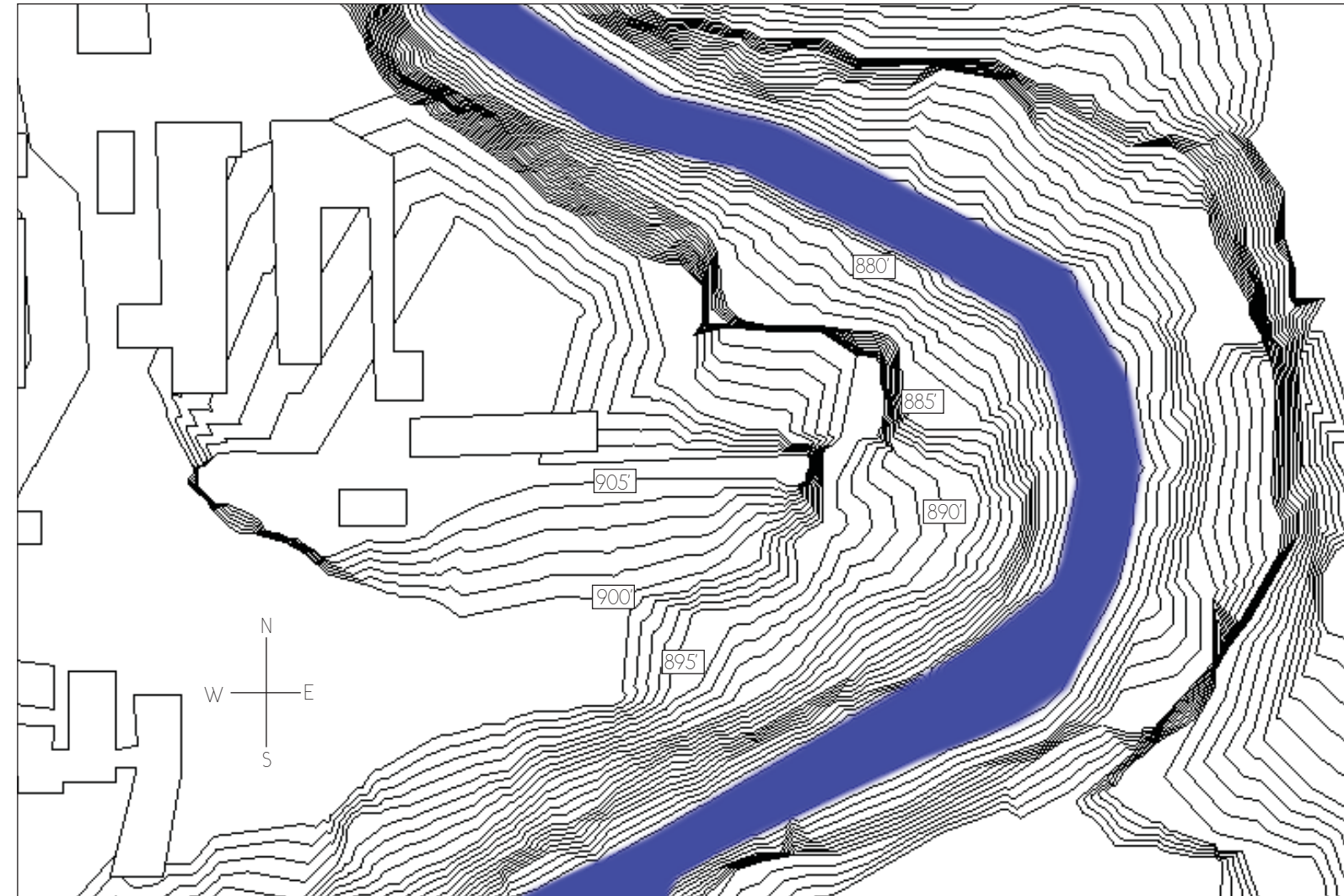
Along the river there is a slightly more used walking path. This seems to be mostly used by homeless people who are traveling across the river. The path is poorly kept and dimly lit under the bridges, making it unsafe and undesirable. (See figure 147)



Figure 148

Topographic Survey

Please see figure 150, below, indicating the contour lines, elevations, and compass directions. On the following page please see figure 151, showing the slope analysis of the site. The colors indicate the ease of activity in that area, from green being flat, to red being a very steep incline.



Visual Form

There are few forms that can be seen from the site due to the low lying nature of the Fargo downtown. The few forms that are clearly evident are the three bridges on the site. Looking further beyond the site, the Bank of America tower, the Fargo High Rise, and the Hjemkomst Center are the only forms that emerge from the top of the trees and other surrounding context, land, cover, atmosphere, and activity.

Plant Cover

Plant cover on the site is limited to the areas close to the river. The plant cover that does exist is in very good health, indicating that the soils and weather conditions are favorable to a growing environment. Please see figure 126 showing the location of the plant cover on the site.

Site Character

The character of the site is that of an urban environment with a natural force meandering through. The current use of the site is extremely rough on the grounds, leaving it degraded and depleted. It is bleak and harsh, with few distinguishing characteristics when only looking at the site in its current state. The area directly along the river, by the walking path, gives the site great hope, by showing that even in times of desolation there can be beauty and growth.

Flood

A significant condition that cannot be ignored in this area is the flooding that occurs along the Red River. Figure 156 indicates the primary floodway (red), the 500-year flood plain (orange), and the 100-year flood plain (yellow). This particular site is very unique to the Fargo area, as it is the highest elevation in the downtown and is the closest to the river. Most of the site is well protected from any major flooding that may occur.



Figure 155



Figure 156 - FEMA Flood Plains



Figure 157



Figure 158

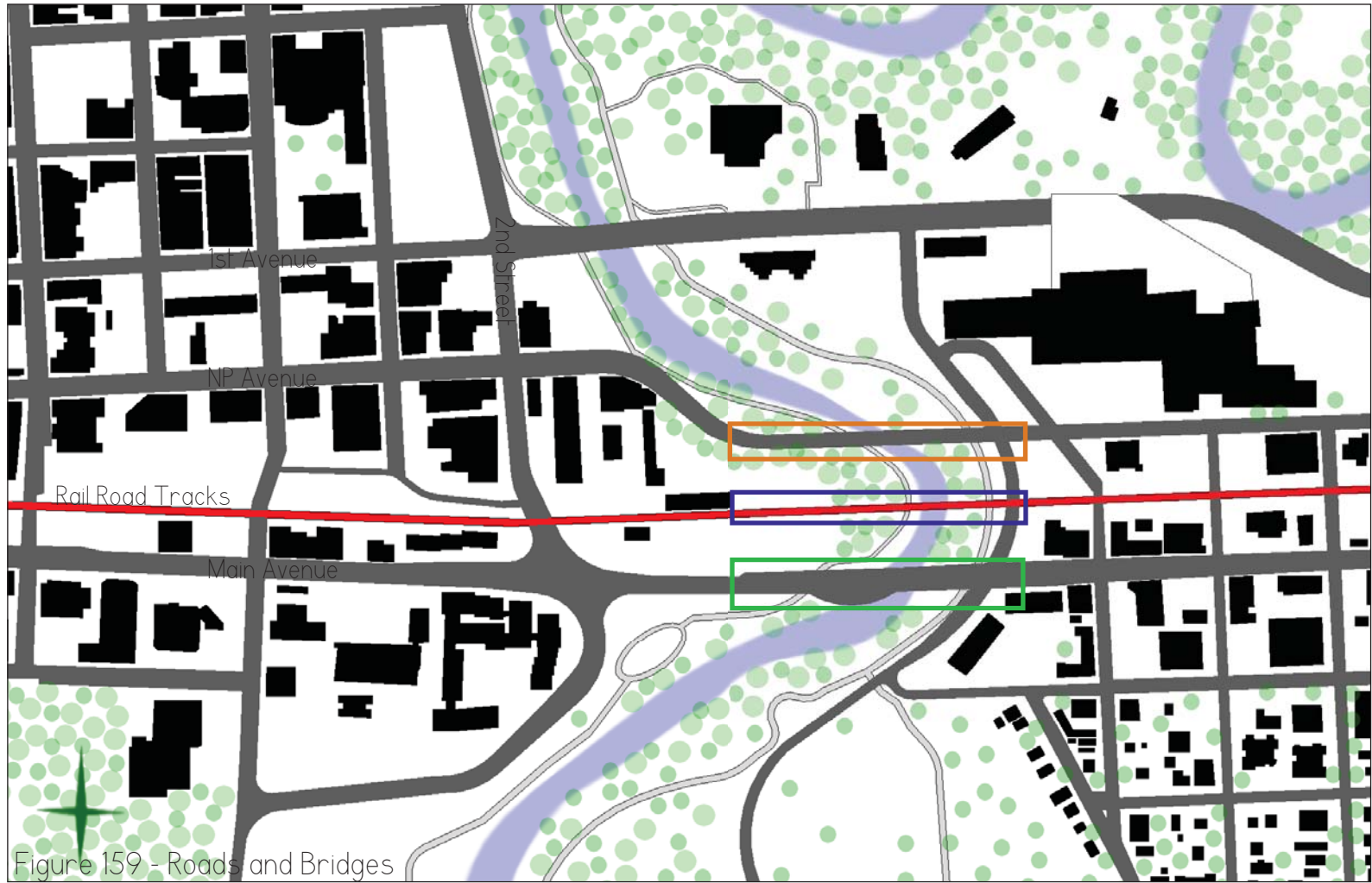




Figure 166



Figure 168



Figure 167



Figure 169



Figure 170



Figure 171 - Buildings



Figure 172





Figure 180
Site Reconnaissance



Figure 181

West ←



Figure 182

North
↑
↓
South

→ East

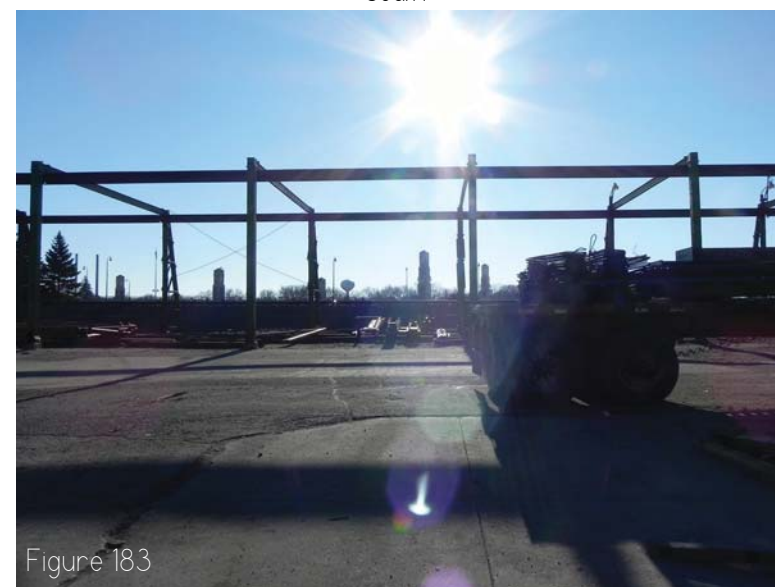


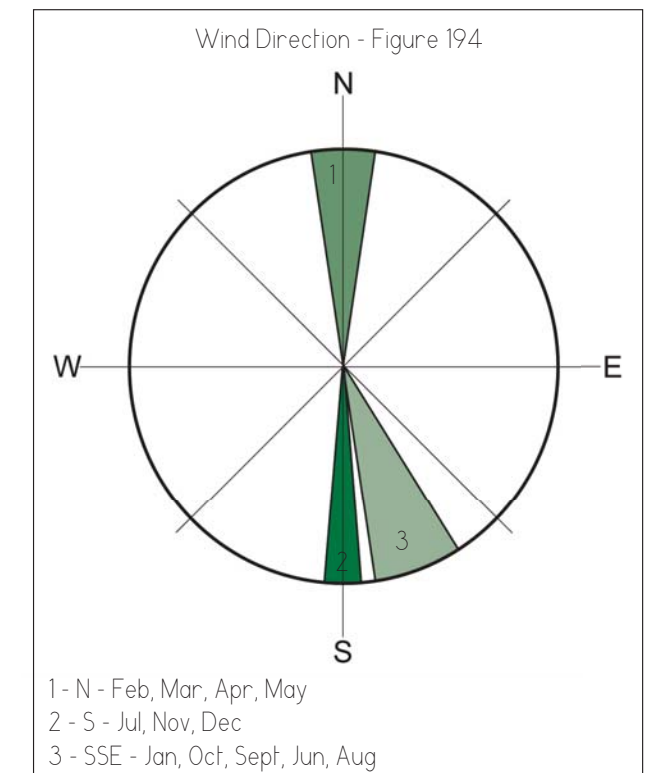
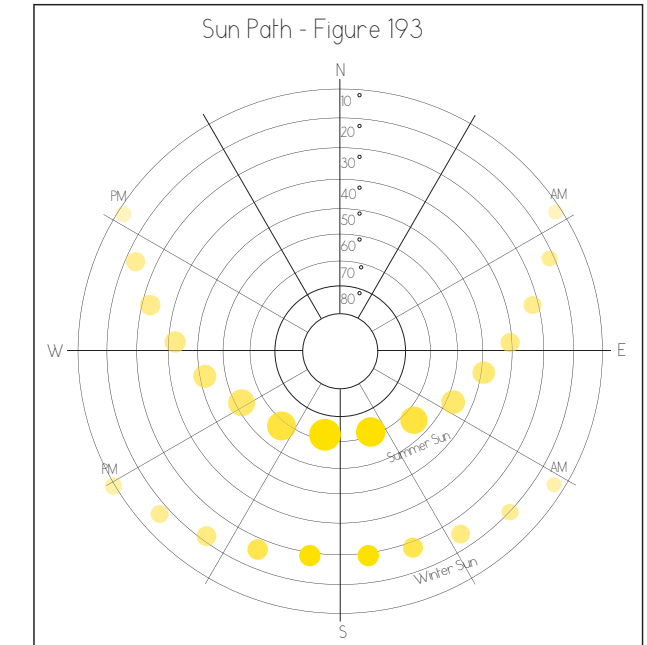
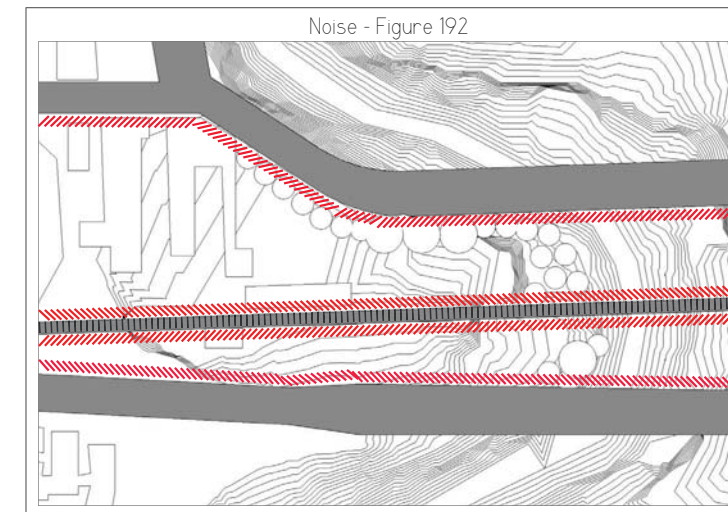
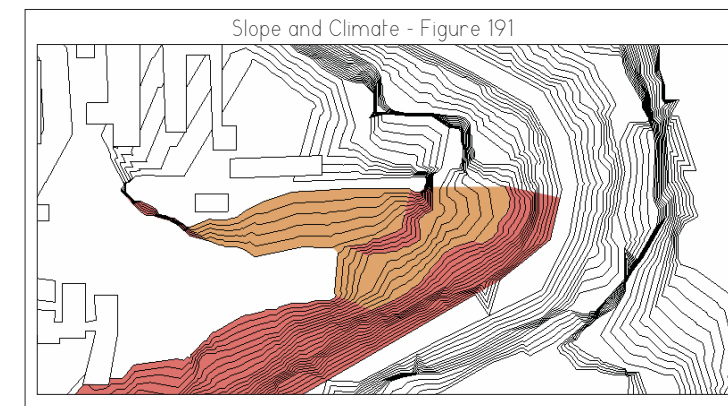
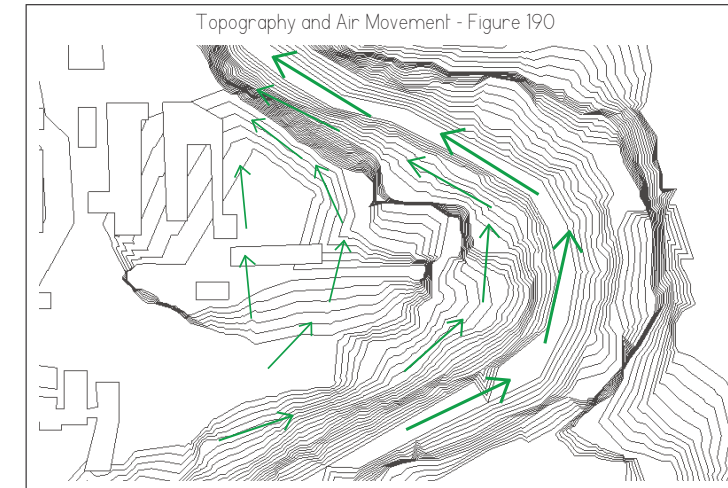
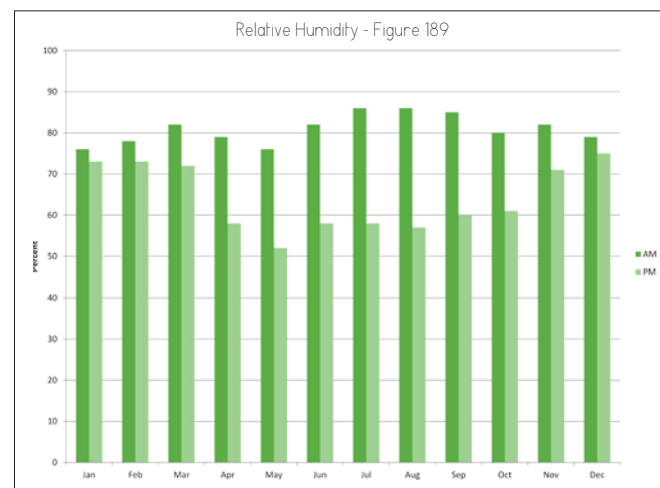
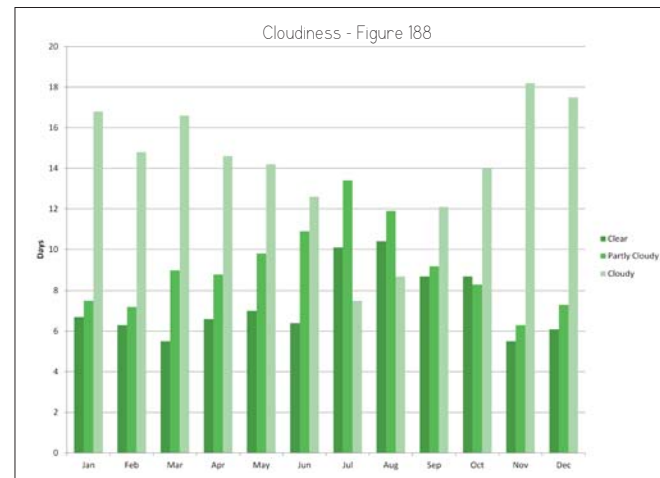
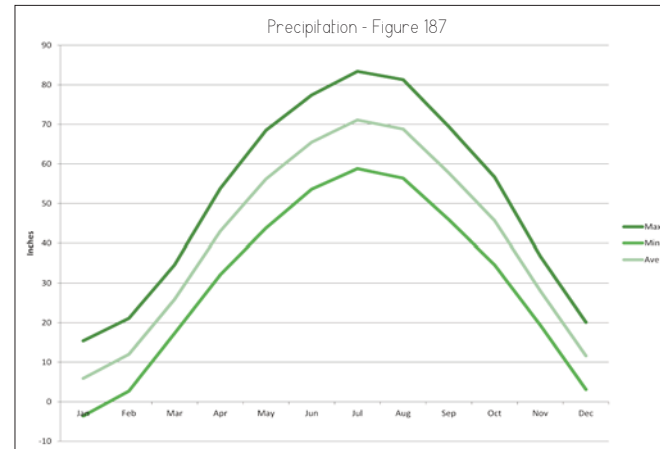
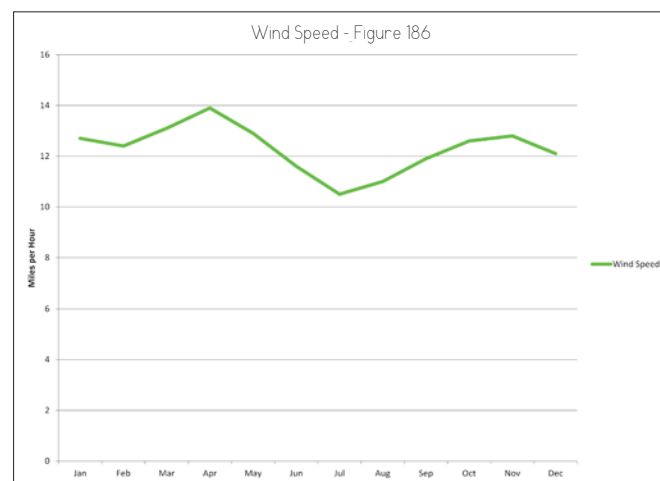
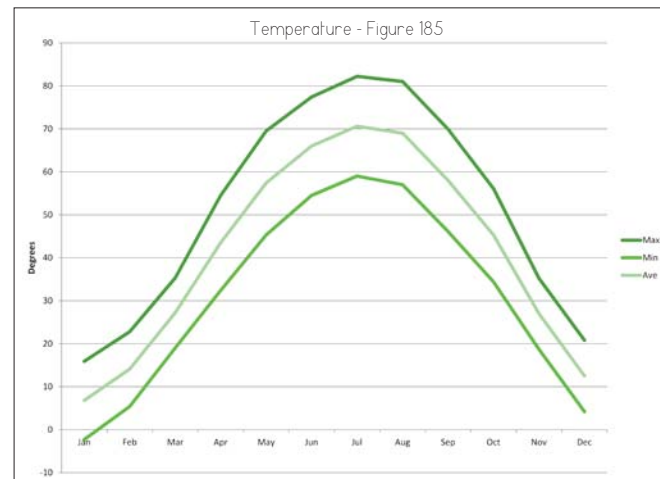
Figure 183



Figure 184

Climate Data

The following charts and diagrams were tabulated based on the climate information for Fargo, North Dakota from the National Weather Service. Each diagram indicated an important metric to understand and keep in mind while designing for that specific climate region.



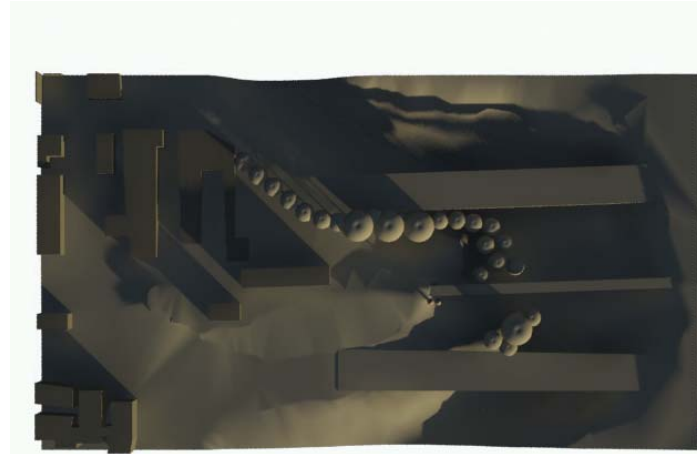


Figure 195 - Winter Solstice - Sunrise

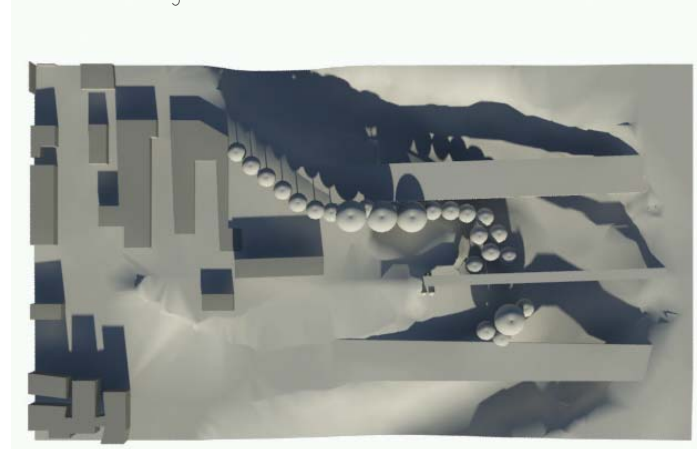


Figure 196 - Winter Solstice - Noon



Figure 197 - Winter Solstice - Sunset

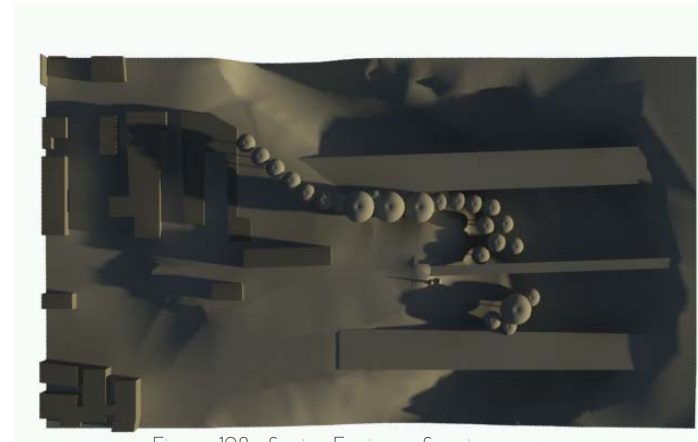


Figure 198 - Spring Equinox - Sunrise

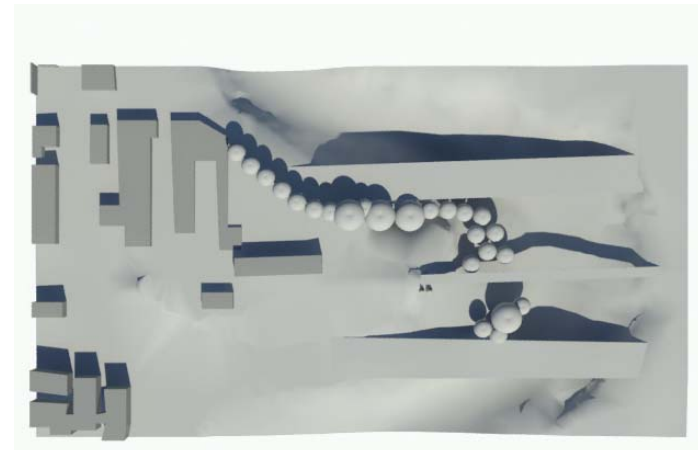


Figure 199 - Spring Equinox - Noon

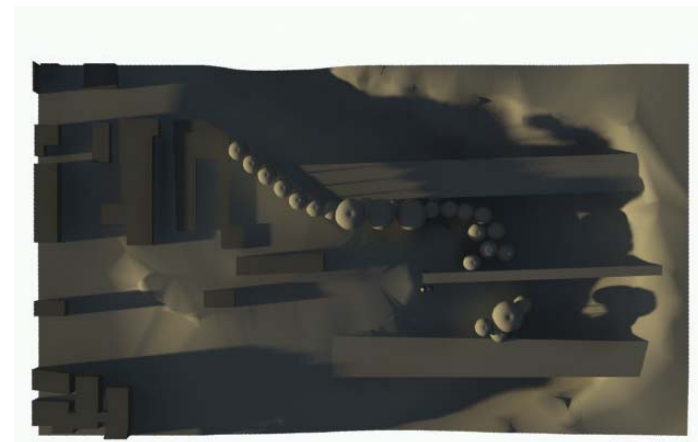


Figure 200 - Spring Equinox - Sunset



Figure 201 - Summer Solstice - Sunrise

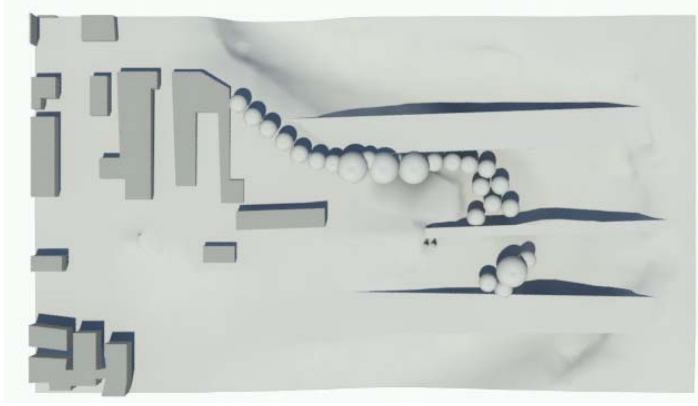


Figure 202 - Summer Solstice - Noon



Figure 203 - Summer Solstice - Sunset

Programmatic Requirements

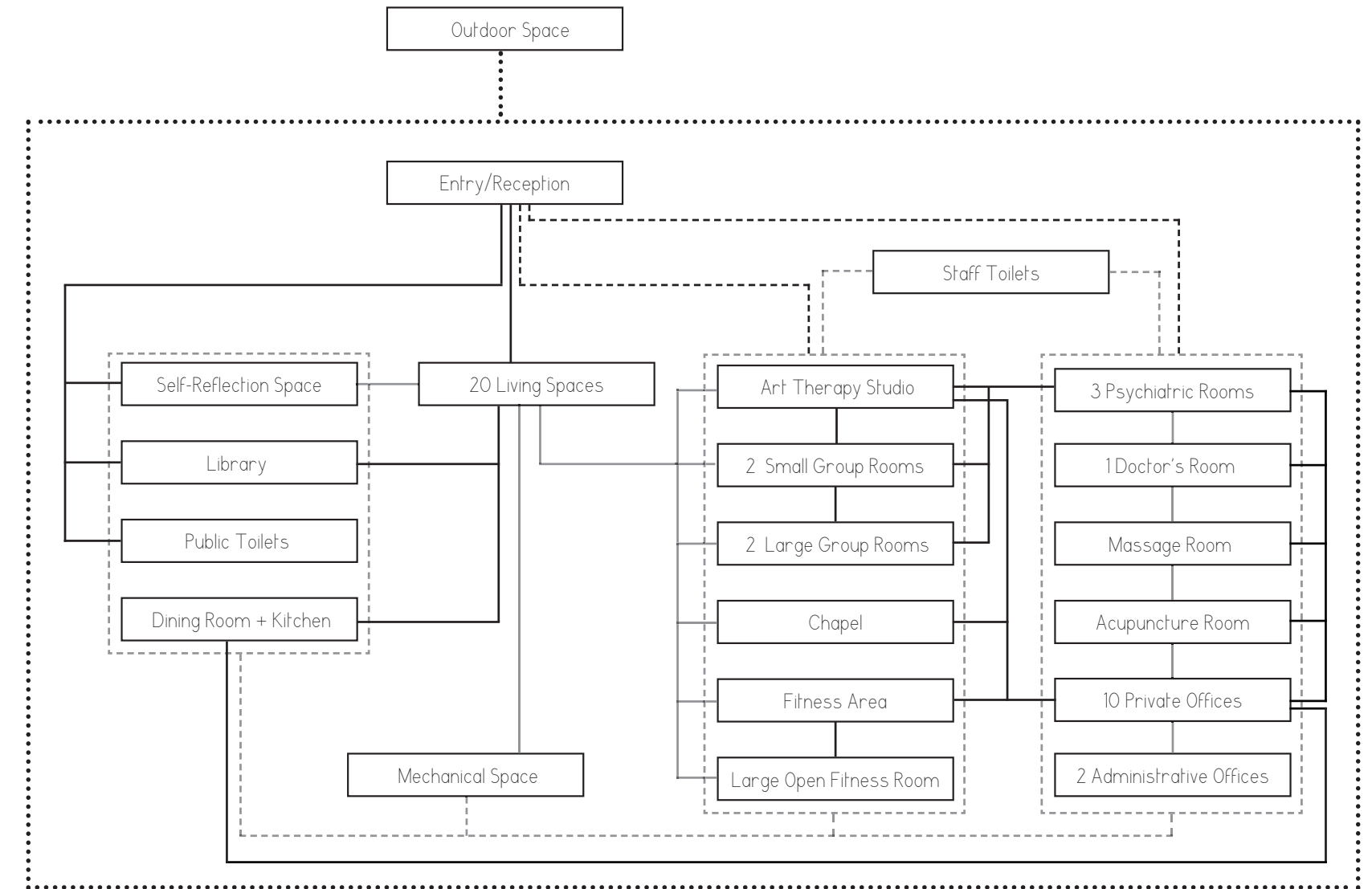
Programmatic Requirements

Entry/Reception 1 @ 400 sf.....	400 sf
Outdoor Space as needed	
Living Spaces 10 @ 300 sf each.....	3000 sf
Self-Reflection Spaces 5 @ 20 sf each.....	100 sf
Psychiatric Evaluation Rooms 3 @ 100 sf each.....	300 sf
Doctor's Exam Room 1 @ 100 sf.....	100 sf
Massage Room 1 @ 100sf.....	100 sf
Chapel 1 @ 600sf.....	600 sf
Acupuncture Room 1 @ 100 sf.....	100 sf
Fitness Area 1 @ 1000 sf.....	1000 sf
Lockers 2 @ 200 sf.....	400 sf

Large Open Fitness Room 1 @ 300 sf.....	300 sf
Private Offices 10 @ 100 sf.....	1000 sf
Administrative Offices 2 @ 100 sf.....	200 sf
Small Group Rooms 2 @ 100 sf.....	200 sf
Large Group Rooms 2 @ 200 sf.....	400 sf
Art Therapy Studio 1 @ 500 sf.....	500 sf
Library 1 @ 500 sf.....	500 sf
Public Toilets 4 @ 100 sf.....	400 sf
Staff Toilets 2 @ 100 sf.....	200 sf
Mechanical Space 2 @ 75 sf.....	150 sf
Dining Room & Kitchen 1 @ 1000 sf.....	1000 sf
Circulation 10% of rooms total sf.....	1500 sf
Total Square Footage.....	12450 sf

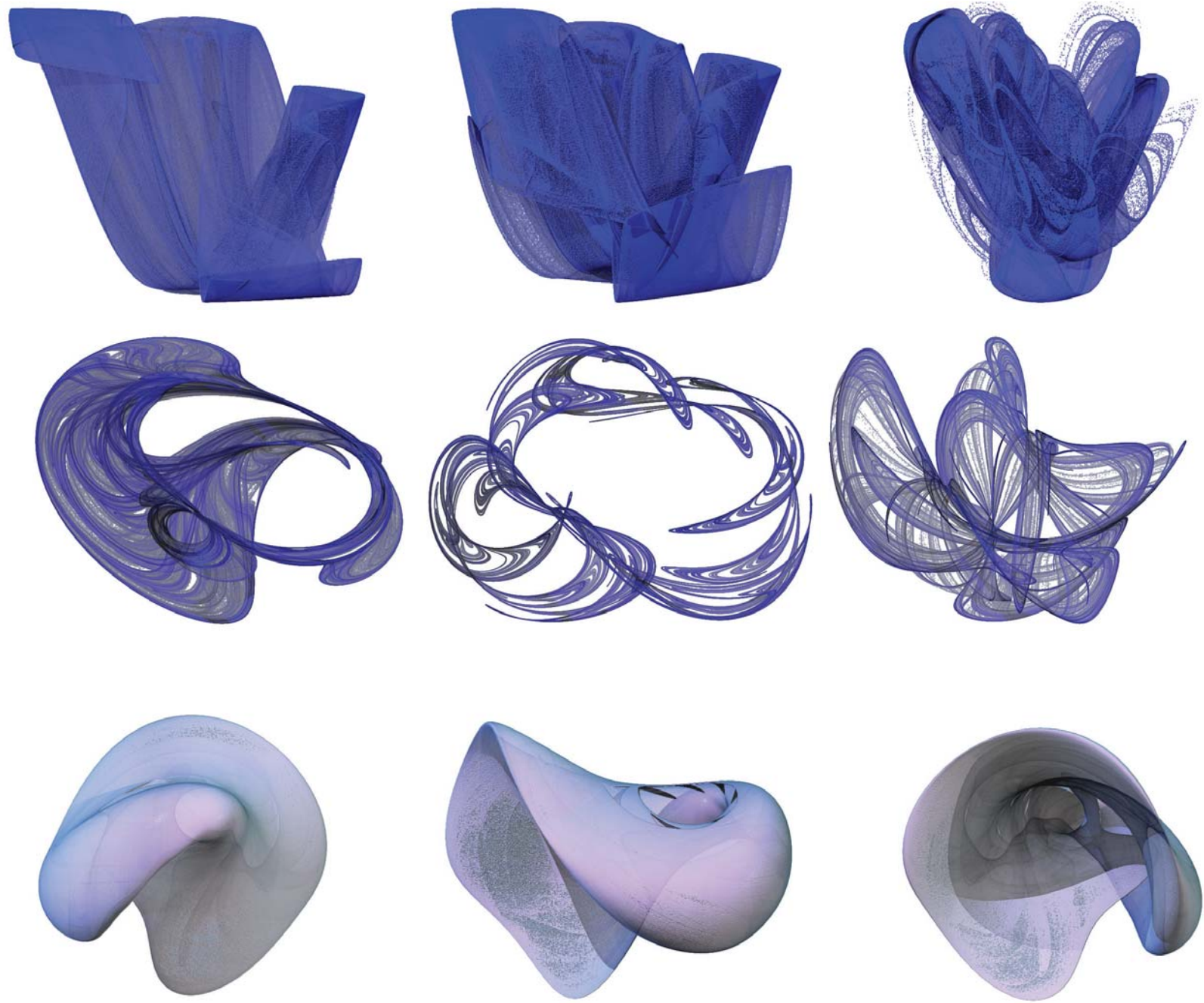
	Entry/Reception	Outdoor Space	20 Living Spaces	Self-Reflection Space	3 Psychiatric Rooms	1 Doctor's Room	Massage Room	Chapel	Acupuncture Room	Fitness Area	Large Open Fitness Room	10 Private Offices	2 Administrative Offices	2 Small Group Rooms	2 Large Group Rooms	Art Therapy Studio	Library	Public Toilets	Staff Toilets	Mechanical Space	Dinning Room & Kitchen	
Entry/Reception	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Outdoor Space	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20 Living Spaces	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Self-Reflection Space	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3 Psychiatric Rooms	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1 Doctor's Room	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Massage Room	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chapel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acupuncture Room	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fitness Area	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Large Open Fitness Room	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10 Private Offices	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2 Administrative Offices	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2 Small Group Rooms	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2 Large Group Rooms	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Art Therapy Studio	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Library	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Public Toilets	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Staff Toilets	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical Space	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dinning Room & Kitchen	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- Primary Connection
- Secondary Connection
- Unnecessary Connection

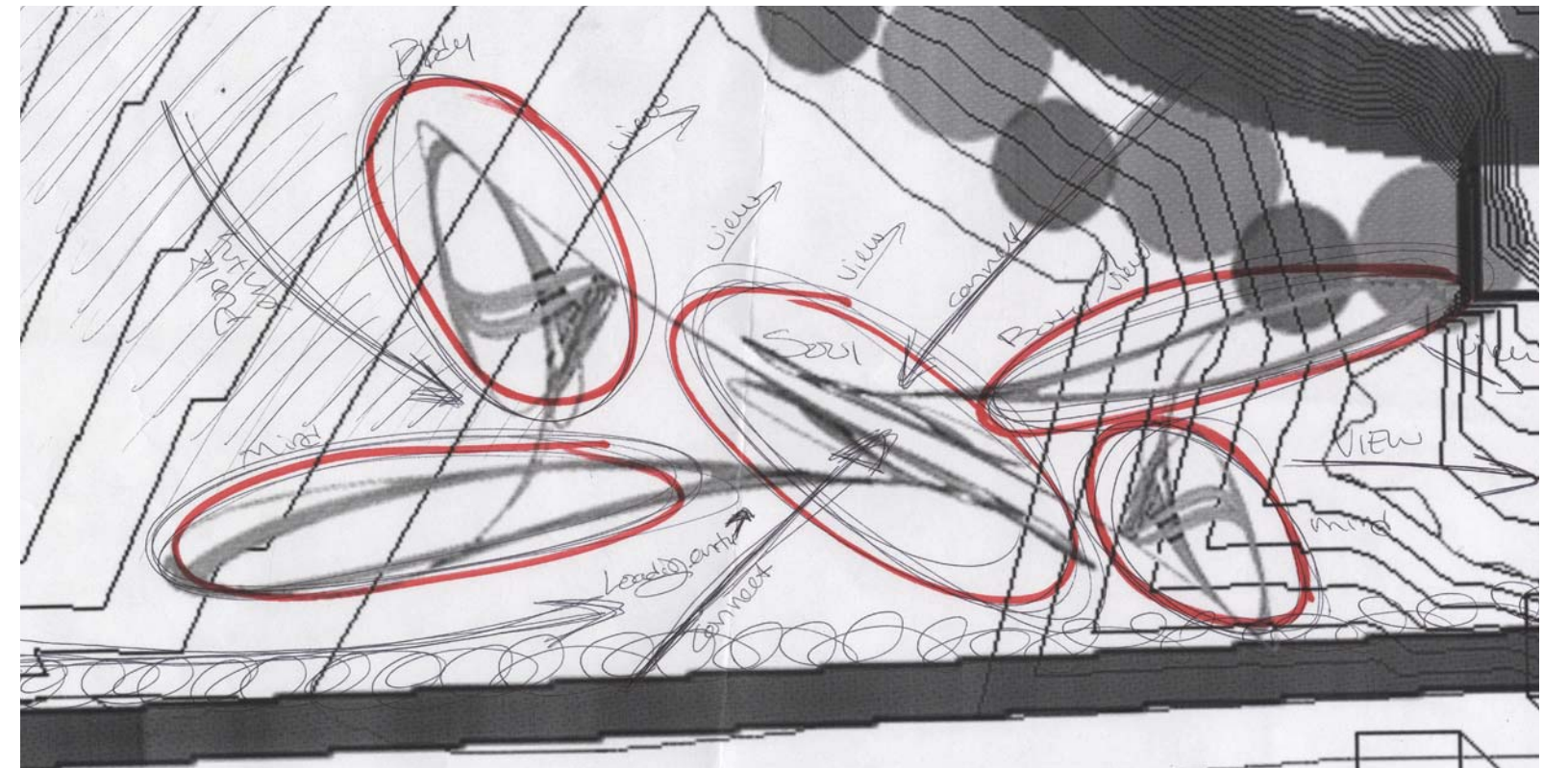
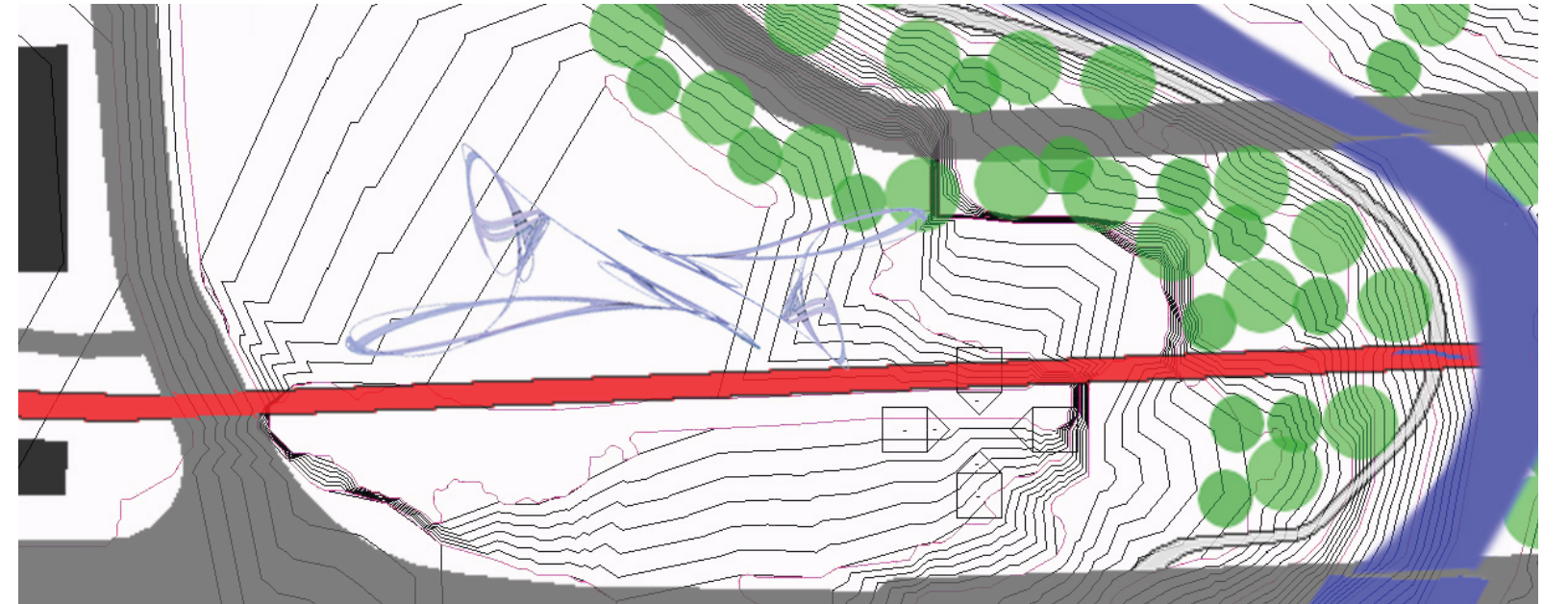
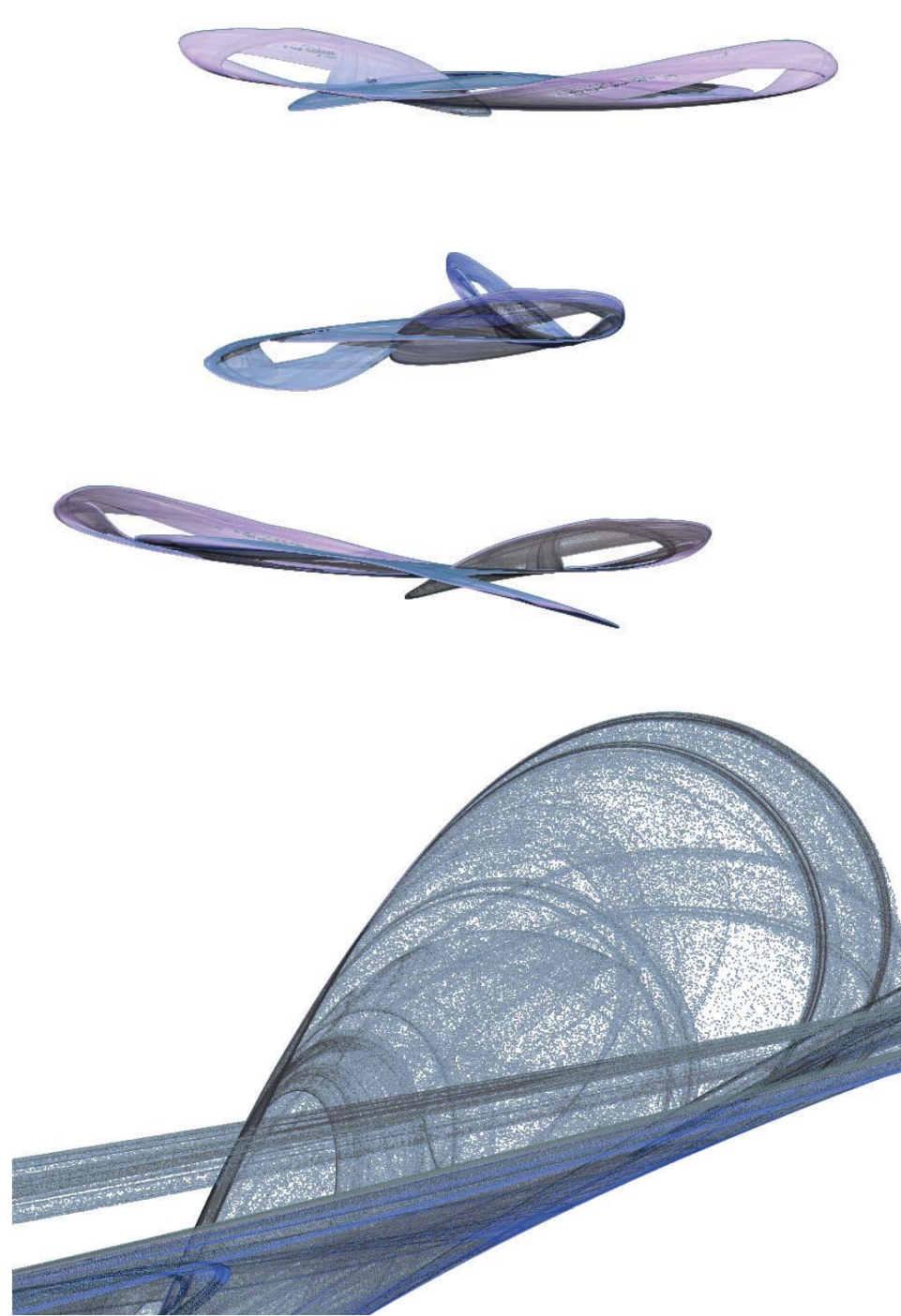
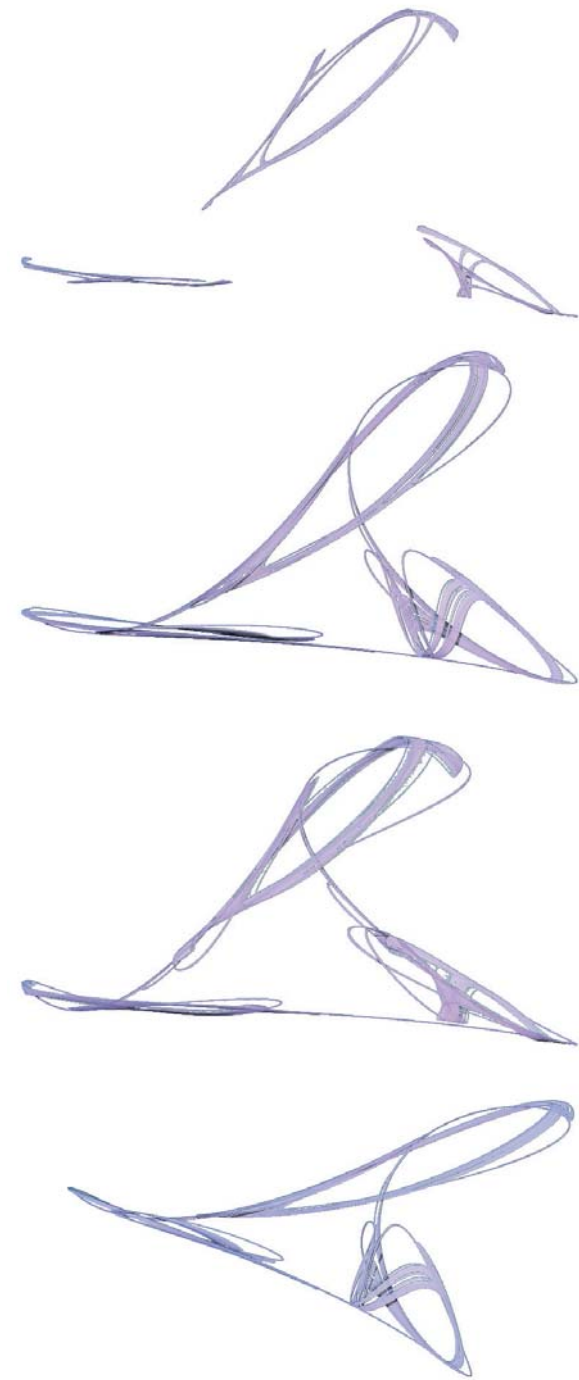


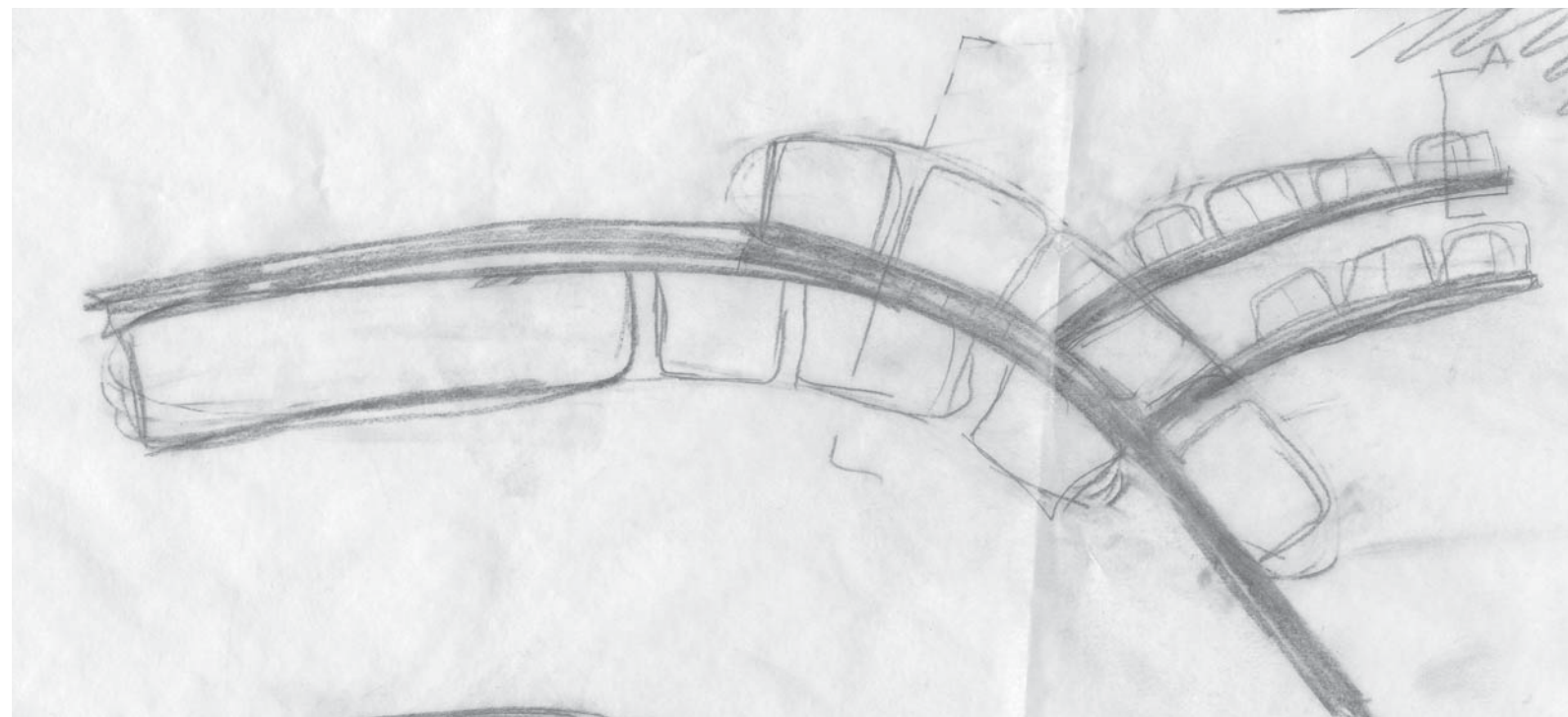
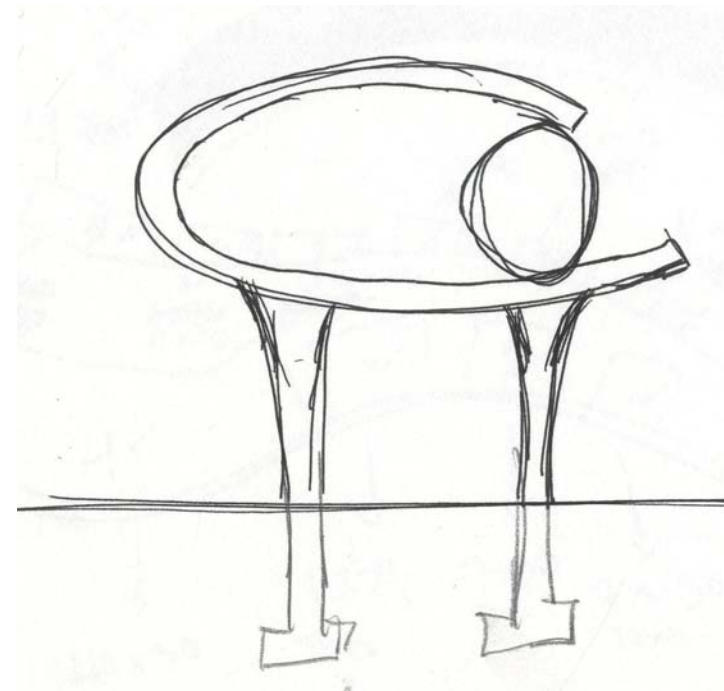
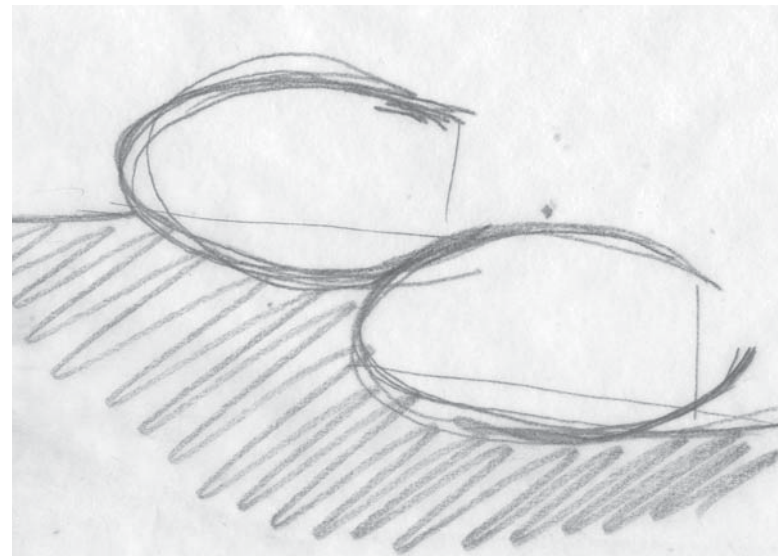
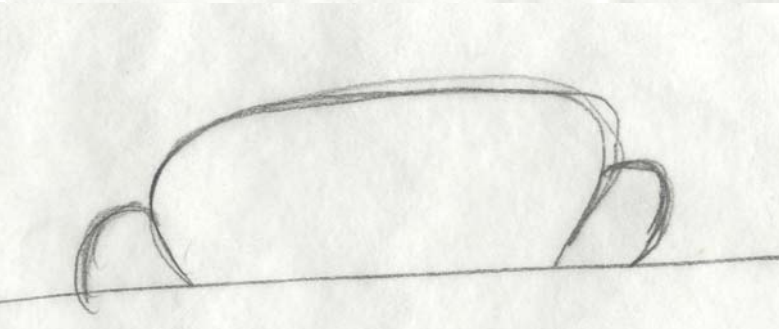
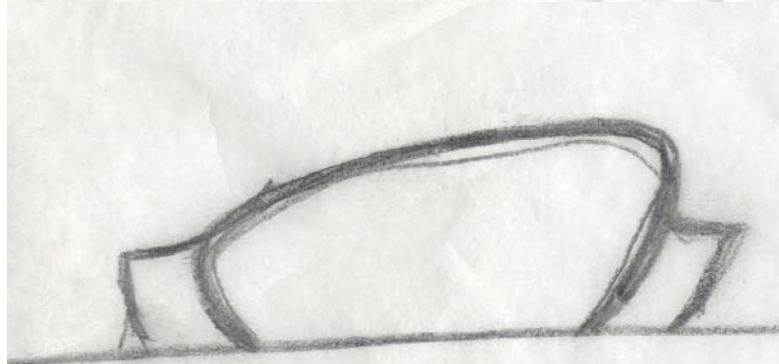
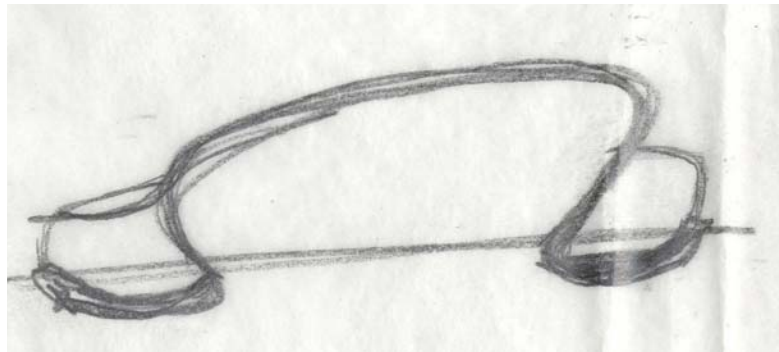
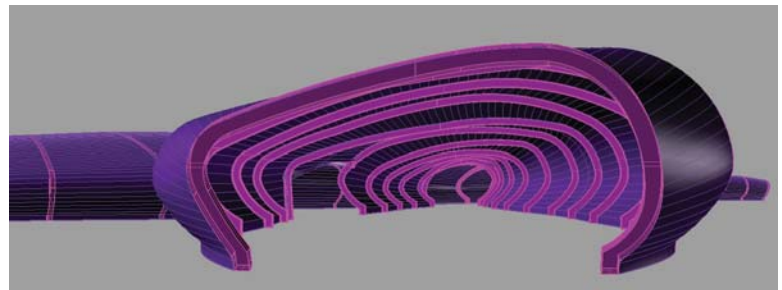
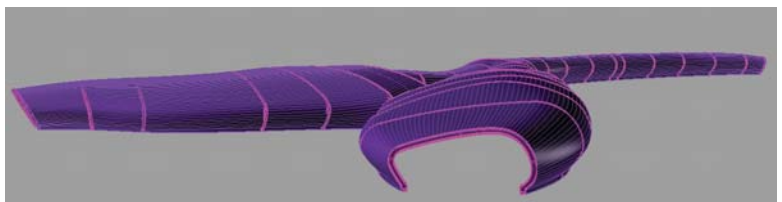
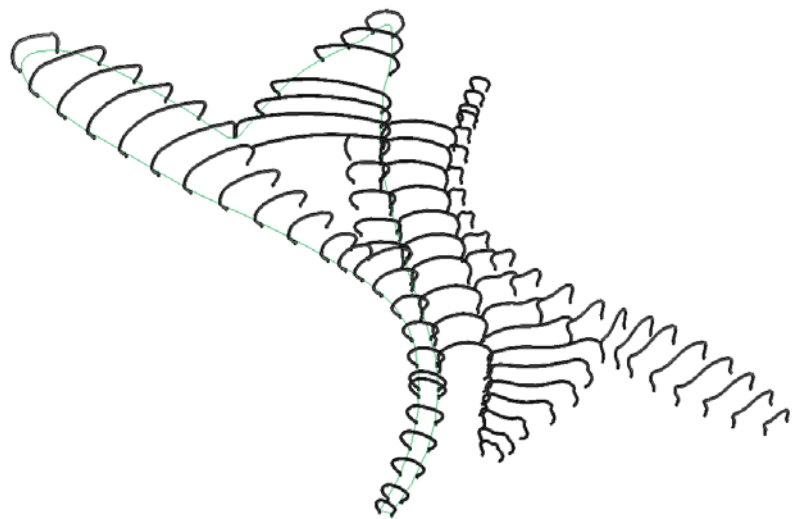
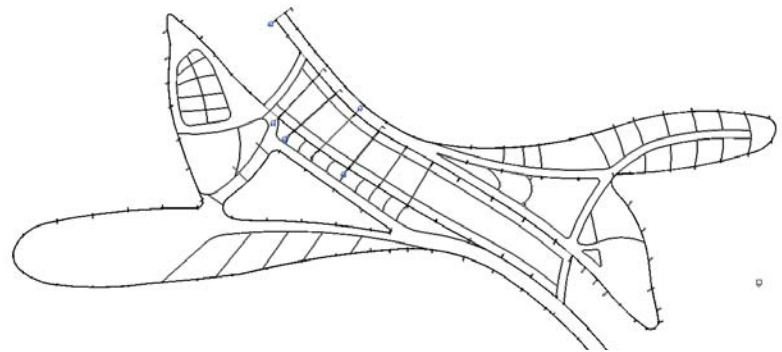
Design Solution

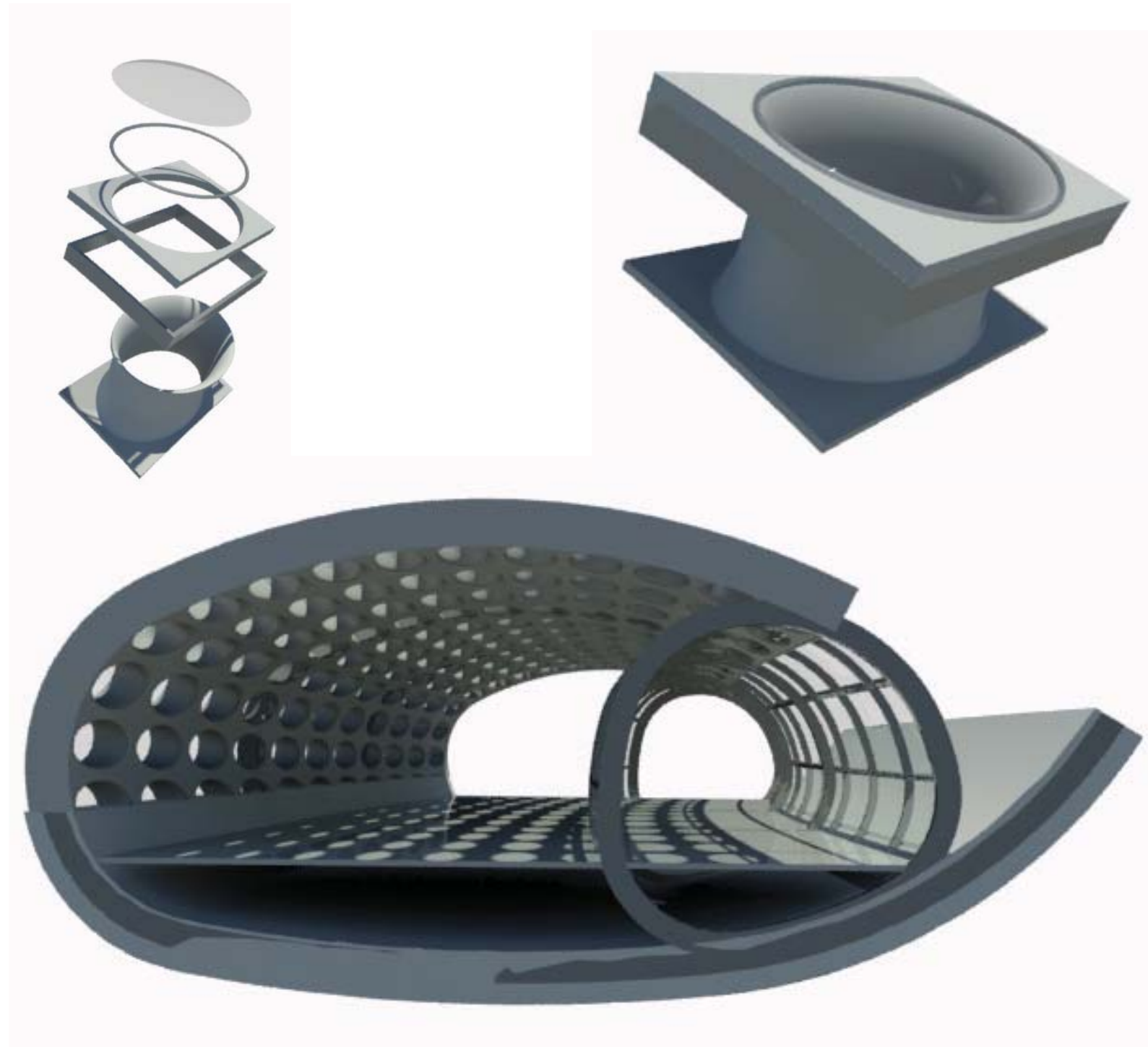
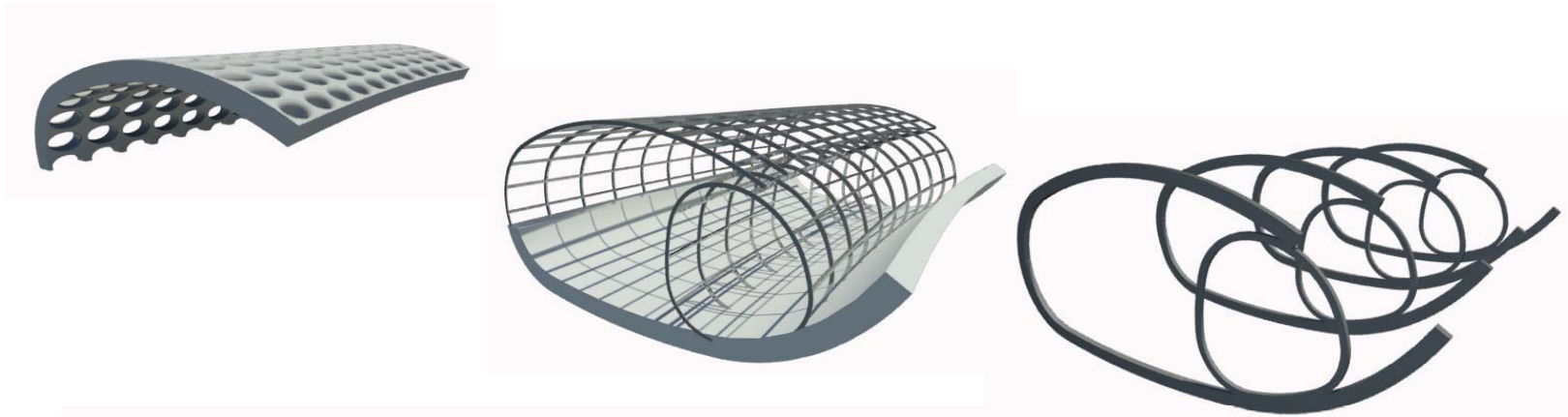




Process

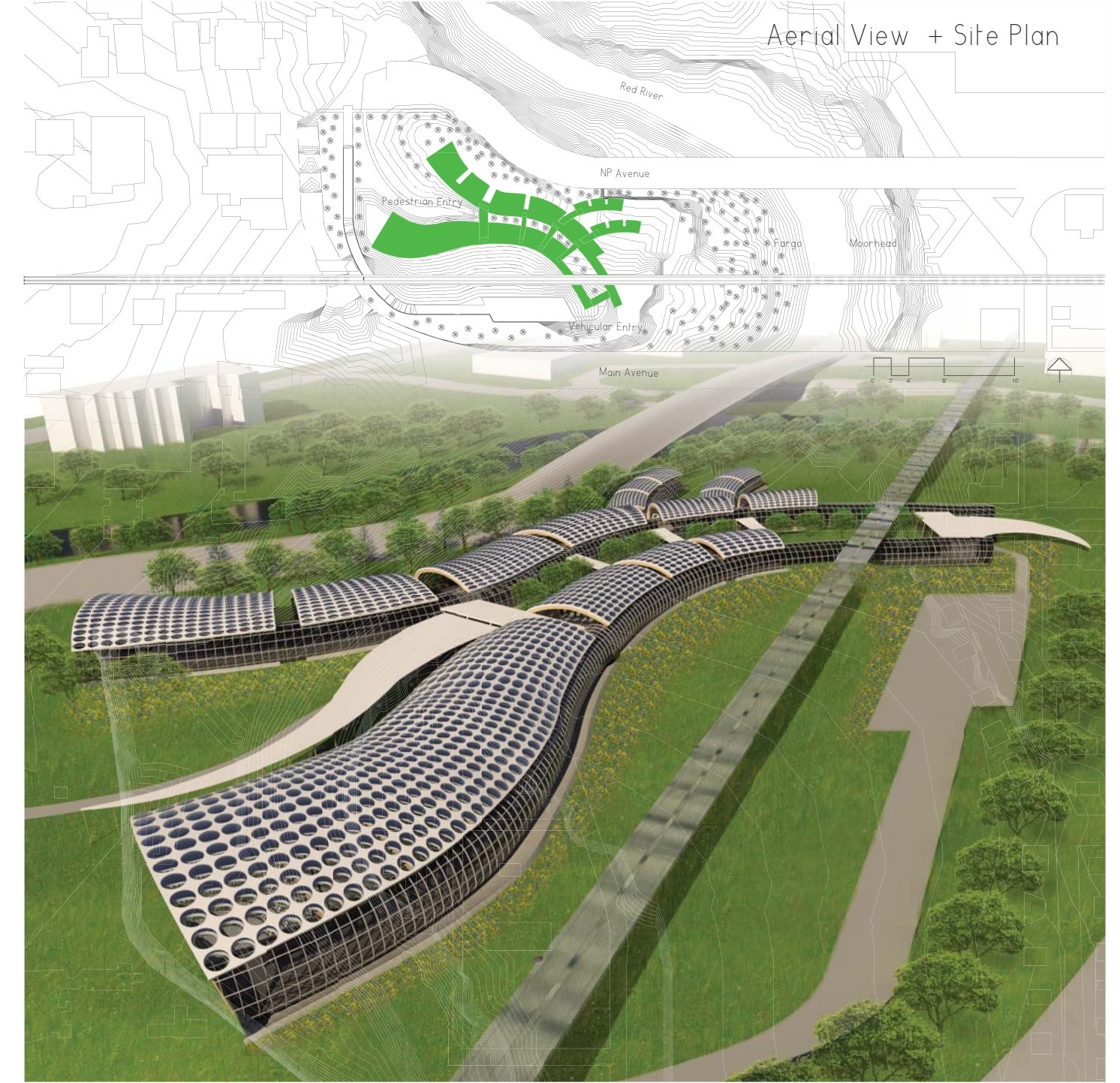




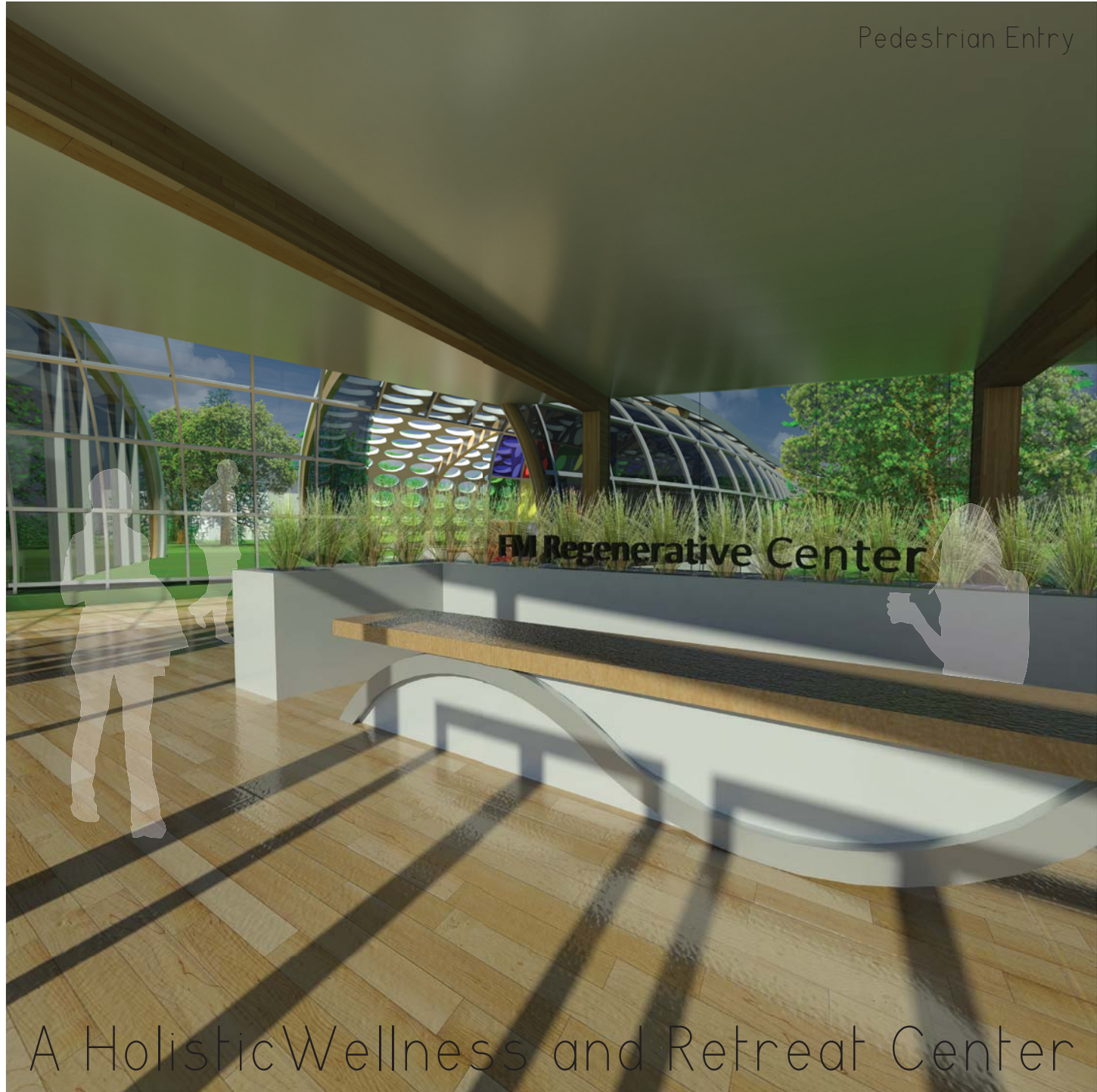


Final Design





Pedestrian Entry



A Holistic Wellness and Retreat Center

NOW → 2060

The technology for the shell of the building is still in its infancy. It will not be available to use as a building material for another 50 years. Therefore, this thesis sought to address the theoretical premise at a time that is 50 years in the future. There were a series of assumptions that took place during the design process that became a set of principals that represent the way of life in 2060 as theoretically presumed by researchers today.



Artificial Light → Natural Light

Natural light will be the only way to light spaces during the day. The frames of the windows will house small artificial lights that are activated only by low-light situations.



Freight Line → Light Rail

The freight rail road line that runs through the site will be re-routed by 2060, and will be replaced by a light rail system to transverse the Fargo Moorhead West Fargo metro area.



Individual Sustainable Power → Sustainable Power Grid

Fuel to produce energy will be scarce, and so renewable energy will no longer be a luxury. Because of this, instead of individual buildings having and maintaining their own renewable energy sources, the entire power grid will be renewable.



Vehicle Dominated Transportation → Pedestrian, Bike, and Rail Dominated Transportation

Gas for vehicles will become extraordinarily expensive and out of reach for the middle and lower class population. Therefore, the easiest and most efficient mode of transportation will be on foot, bike, or by rail.



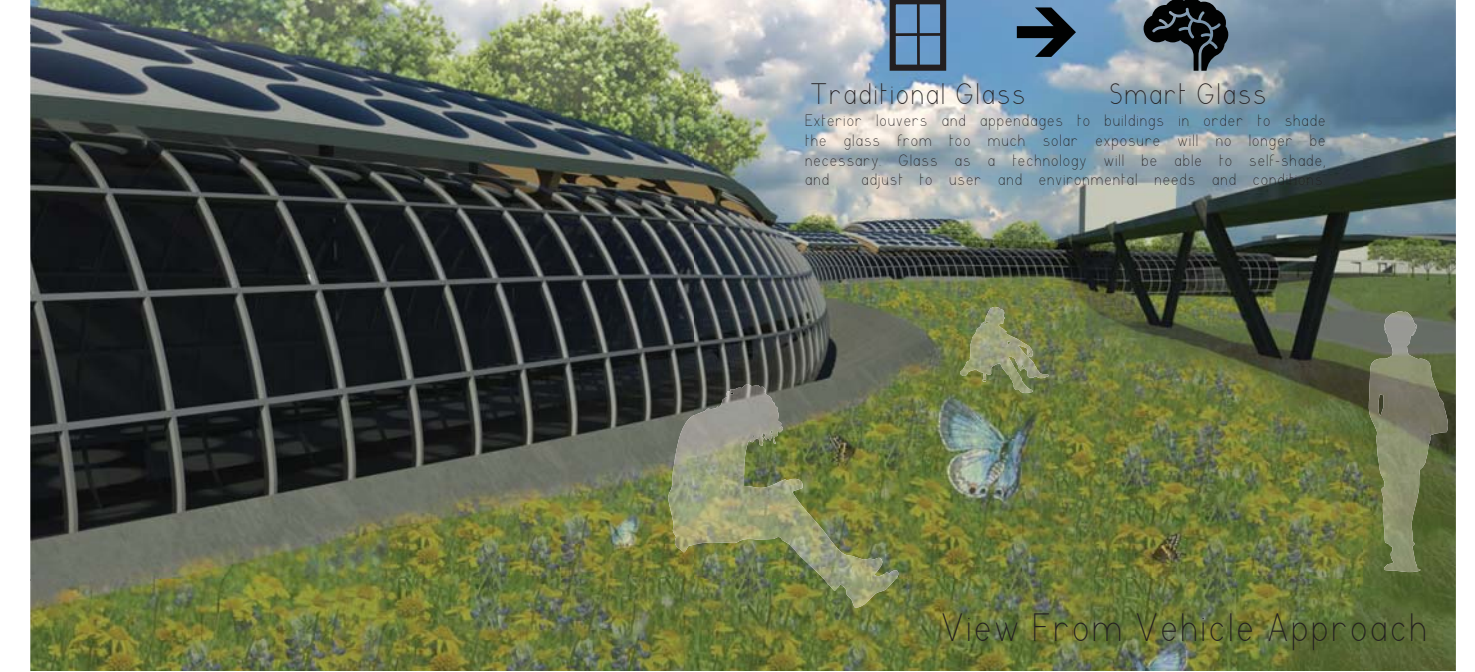
Traditional Building Techniques → Cellular Building Techniques

The method of building has remained fairly unchanged since the beginning of the 20th century, while the technology we use to create materials and applications have become ever more advanced. By 2060, the building techniques will have caught up with the materials and applications, and the manner in which buildings are built will be fundamentally changed.

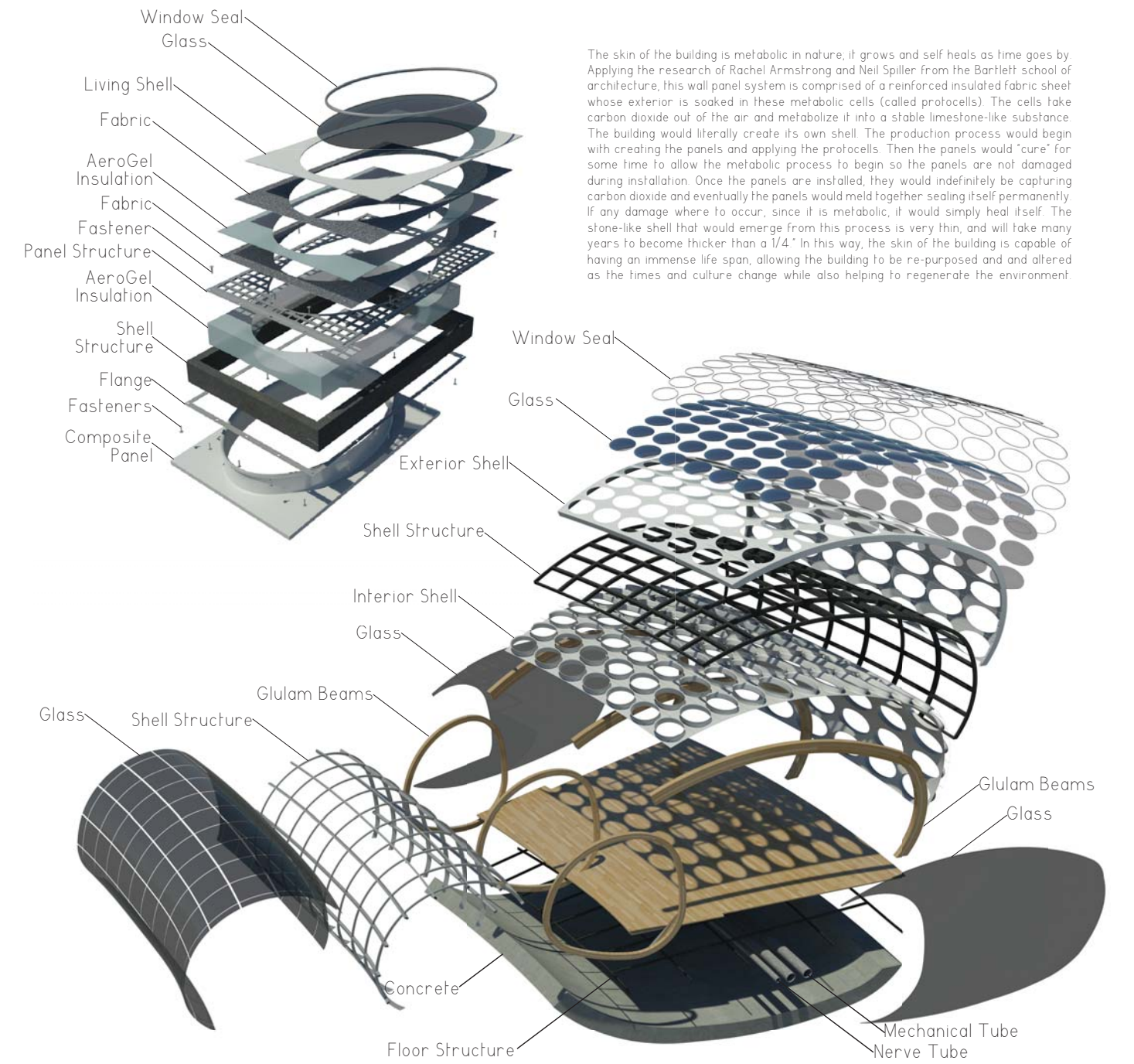


Traditional Glass → Smart Glass

Exterior louvers and appendages to buildings in order to shade the glass from too much solar exposure will no longer be necessary. Glass as a technology will be able to self-shade, and adjust to user and environmental needs and conditions.

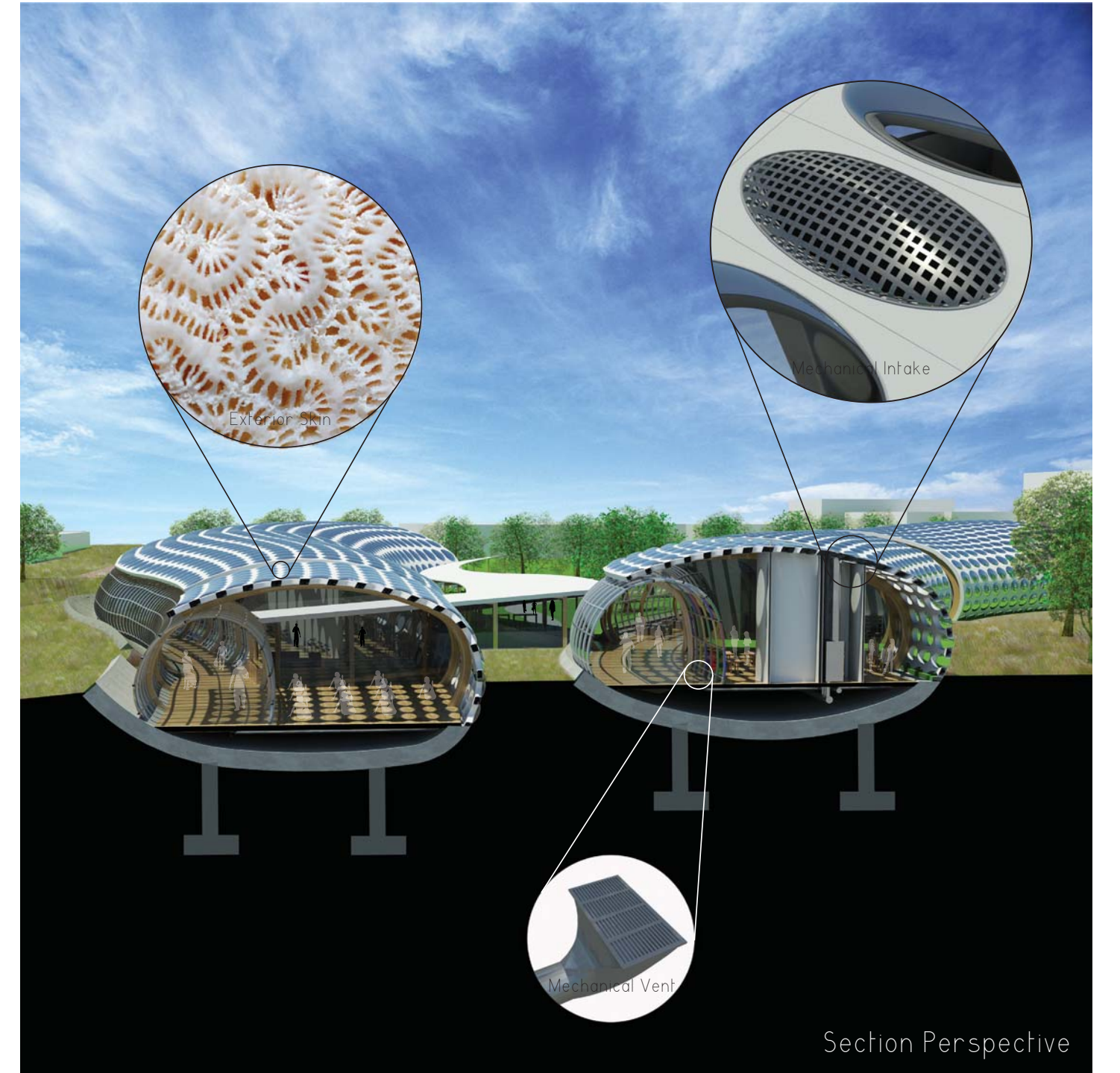
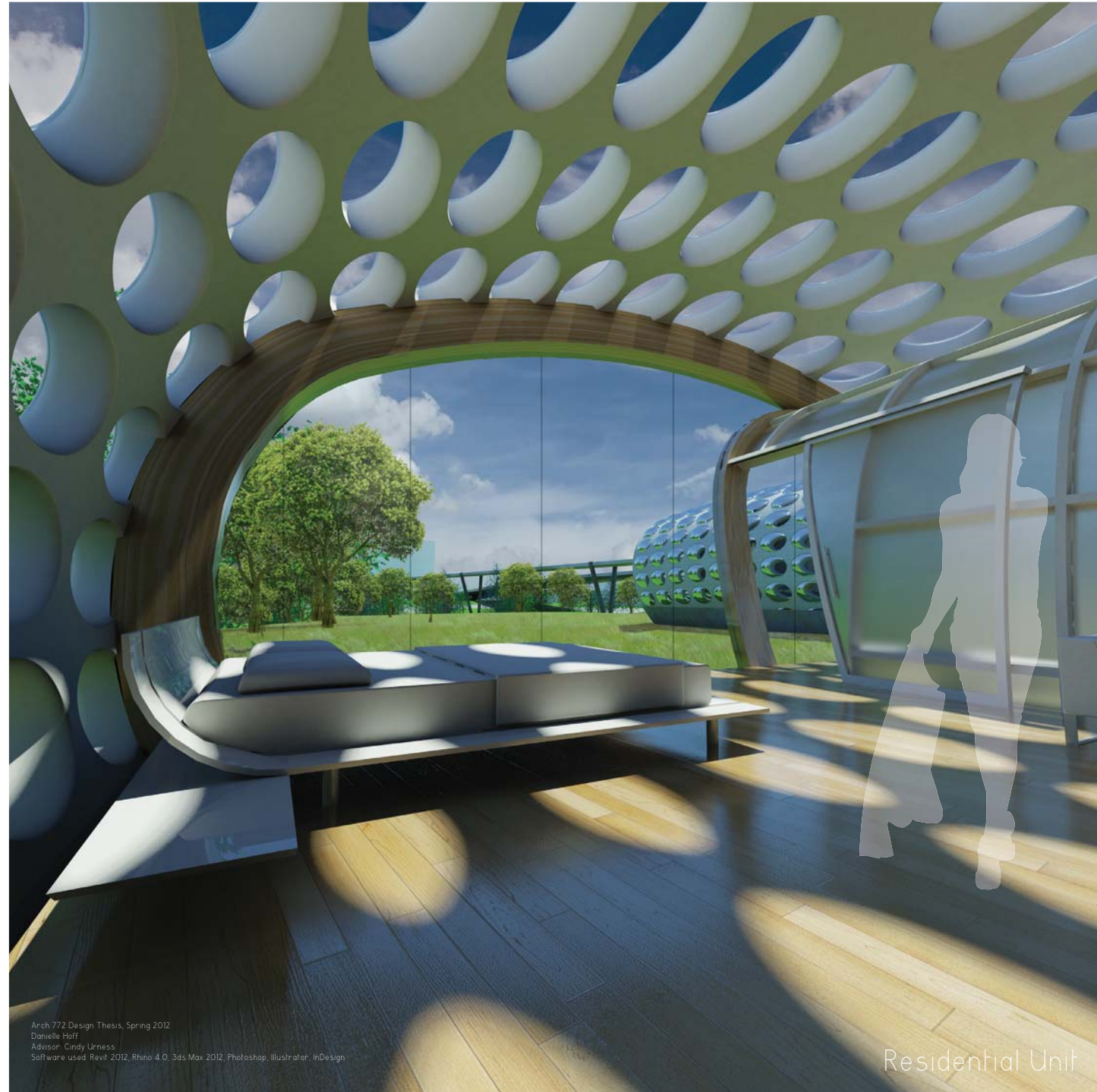


View From Vehicle Approach



The skin of the building is metabolic in nature, it grows and self heals as time goes by. Applying the research of Rachel Armstrong and Neil Spiller from the Bartlett school of architecture, this wall panel system is comprised of a reinforced insulated fabric sheet whose exterior is soaked in these metabolic cells (called protocells). The cells take carbon dioxide out of the air and metabolize it into a stable limestone-like substance. The building would literally create its own shell. The production process would begin with creating the panels and applying the protocells. Then the panels would "cure" for some time to allow the metabolic process to begin so the panels are not damaged during installation. Once the panels are installed, they would indefinitely be capturing carbon dioxide and eventually the panels would meld together sealing itself permanently. If any damage were to occur, since it is metabolic, it would simply heal itself. The stone-like shell that would emerge from this process is very thin, and will take many years to become thicker than a 1/4". In this way, the skin of the building is capable of having an immense life span, allowing the building to be re-purposed and altered as the times and culture change while also helping to regenerate the environment.

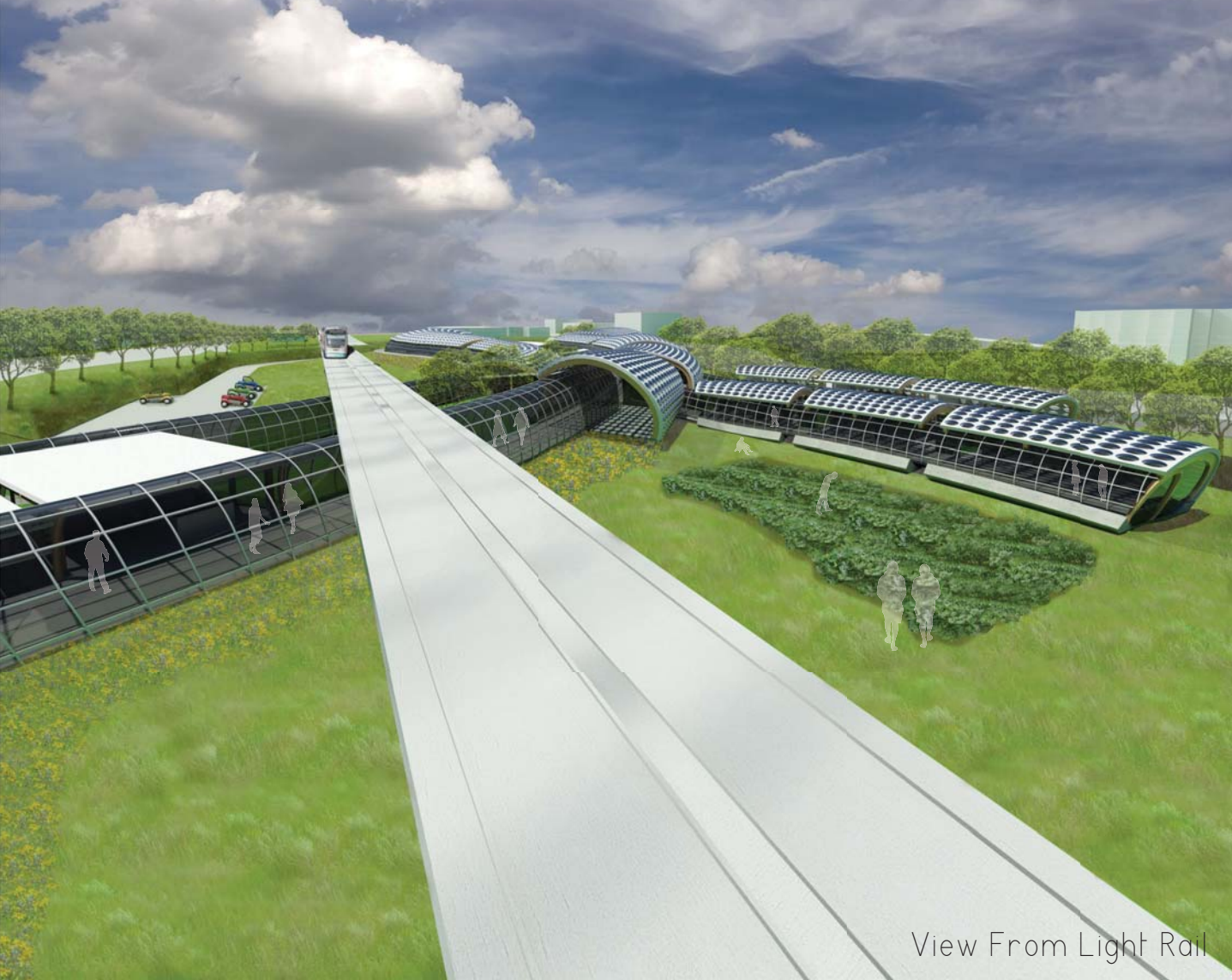
Exploded Building + Panel
149



Q: Can architecture be regenerative?

Theoretical Premise: The built environment can be designed and function in a way so that it regenerates the mind, body and spirit of people, therefore establishing a connected and interdependent relationship between what is natural, what is built, and those that live within, elevating all to a new symbiotic, and whole level.

Solution: When architecture of the mind, body, soul, and environment culminate together, they create a new level of unity and symbiosis. It is a place that is holistic by nature, where everything that exists in the environment promotes and enlivens life, life of the people, and of nature. This architecture really is no longer what has historically been called architecture, but rather a form of creating an environment. This goes beyond sustainability, and becomes something far greater, a place where everything is connected, and an overriding wellness and health of the place is created. By improving all aspects of the place, regenerative architecture has the ability to touch everyone and everything physically, emotionally, and spiritually.



View From Light Rail

References

Reference List

- akihan. (2011). Regenerative architecture | beyond sustainability - design to actively heal the environment. Retrieved from <http://akihan.hubpages.com/hub/Regenerative-Architecture>
- American Acupuncture. (2011). History of acupuncture. Retrieved from <http://www.americanacupuncture.com/history.htm>
- American Association of Colleges of Osteopathic Medicine. (2011). The history of osteopathic medicine . Retrieved from <http://www.aacom.org/about/osteomed/Pages/History.aspx>
- American Chiropractic Association. (2011). Chiropractic research. Retrieved from http://www.acatoday.org/level3_css.cfm?T1ID=13&T2ID=61&T3ID=150
- archinnovations. (2010, November 17). Construction begins on maggie's centre gartnavel designed by oma. Retrieved from <http://www.archinnovations.com/news/new-projects/construction-begins-on-maggie-centre-gartnavel-designed-by-oma/>
- Associated Bodywork and Massage Professionals. (2011). Learn. Retrieved from <http://www.massagetherapy.com/learnmore/index.php>
- Astin, J. (1998). Why patients use alternative medicine: results of a national study. *JAMA*, 154(53), 279. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/9605899>
- Busby, P., Richter, M., & Driedger, M. (2011). Towards a New Relationship with Nature: Research and Regenerative Design in Architecture. *Architectural Design*, 81(6), 92-99.
- Bramston, P., Pretty, G., & Zammit, C. (2010). Assessing environmental stewardship motivation. *Environment and Behavior*, (43), 776-788. Retrieved from <http://eab.sagepub.com/content/43/6/776>
- Caron, J. (2004). A pictorial history of fargo. Retrieved from <http://www.fargo-history.com/index.htm>
- Carson, R. (1962). *Silent Spring*. In First Mariner Books edition. (2002). New York, NY: Houghton Mifflin Company.
- City of Fargo. The City of Fargo, Planning and Development. (2007). The downtown framework plan.
- City of Fargo. The City of Fargo, Planning and Development. (2007). The City of Fargo Riverfront Development Masterplan.
- Chapa, J. (2007, June 28). Eureka springs' open-air thornycrown chapel is a paragon of environmental design. Retrieved from <http://inhabitat.com/thornycrown-chapel-a-paragon-of-ecological-architecture/>
- Day, C. (2002). *Spirit and place*. Woburn, MA: Architectural Press.
- Dietz, T., Stern, P. C., & Guagnano, G. A. (1998). Social structural and social psychological bases of environmental concern. *Environment and Behavior*, (30), 450-471. Retrieved from <http://eab.sagepub.com/content/30/4/450>
- Ernst, E. & White, A. (2004). A brief history of acupuncture. *Rheumatology*, 43(5), 662-663. Retrieved from <http://rheumatology.oxfordjournals.org/content/43/5/662.full>
- Etherington, R. (2011, October 5). Maggie's gartnavel by oma. Retrieved from <http://www.dezeen.com/2011/10/05/maggies-gartnavel-by-oma/>
- Fishman, J. (2010). The history of acupuncture. Retrieved from <http://www.acupuncture.com/education/theory/historyacu.htm>
- Fry, T. (2009). *Design futuring: sustainability, ethics and new practice*. New York, NY: Berg
- General Osteopathic Council. (2011). Surveys and statistics. Retrieved from <http://www.osteopathy.org.uk/resources/surveys-statistics/>
- Global Footprint Network. (2011). Data and results. Retrieved from http://www.footprintnetwork.org/en/index.php/GFN/page/ecological_footprint_atlas_2008/
- Greory, R. (2011, May 27). Rehabilitation centre groot by architectenbureau koen van velsen, klimmendaal, arnhem, the netherlands. Retrieved from <http://www.architectural-review.com/buildings/rehabilitation-centre-groot-by-architectenbureau-koen-van-velsen-klimmendaal-arnhem-the-netherlands/8615224.article>
- Hawkes, D. (2011). In brief: a history of sustainable architecture. Retrieved from <http://www.architecture.com/SustainabilityHub/Designstrategies/Introduction/1-0-5-Inbriefahistoryofsustainablearchitecture.aspx>
- Heartland Naturopathic Clinic. (2011). History of naturopathic medicine. Retrieved from <http://www.heartlandnaturopathic.com/history.htm>
- History World. (2011). History of medicine. Retrieved from <http://www.historyworld.net/default.asp?gtrack=mtop1>
- International Energy Agency. (2010). Key world energy statistics. Retrieved from http://www.iea.org/textbase/nppdf/free/2010/key_stats_2010.pdf

Leonard, A. (Director) (2009). The story of stuff [Web]. Retrieved from <http://www.storyofstuff.org/movies-all/story-of-stuff/>

Lower Manhattan Construction and Command Center. (2011). A look at rebuilding progress since september 2007 . Retrieved from http://www.lowermanhattan.info/news/a_look_at_rebuilding_51105.aspx

Lyle, J. T. (1994). Regenerative design for sustainable development. New York, NY: John Wiley & Sons, Inc.

Maggies Centre. (2011). Maggies cancer caring centres. Retrieved from <http://www.maggiescentres.org/utility/privacypolicy.html>

McDonough, W. (2011). Cradle to cradle. Retrieved from <http://www.mcdonough.com/full.htm>

Minner, K. (2011, April 8). Rehabilitation centre groot klimmendaal / koen van velsen. Retrieved from <http://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen/>
Natural Healers. (2011). History of holistic health. Retrieved from <http://www.naturalhealers.com/qa/holistic-health-history.html>

O'Grady, E. (2009, February 11). The therme vals/peter zumthor. Retrieved from <http://www.archdaily.com/13358/the-therme-vals/>

Osteopathic Cranial Academy. (2011). Research. Retrieved from <http://www.cranialacademy.org/research.html>

Pillia, M. (2011). History of alternative medicine. Retrieved from <http://www.buzzle.com/articles/history-of-alternative-medicine.html>

Pesek, T, Helton, L, Nair, M. (June, 2006). Healing Across Cultures: Learning from Traditions,

EcoHealth, 3(2):114-118. The original publication is available at www.springerlink.com.

Plaut, J. M. (2012). Regenerative design: the LENSES Framework for buildings and communities. Building Research & Information:

The International Journal Of Research, Development And Demonstration, 40(1), 112-122.

Schor, J. (1992). The overworked american: The unexpected decline of leisure.

Smith, R. W., & Bugni, B. (2006). Symbolic interaction theory and architecture. Symbolic Interaction, 29(2), 123-155. Retrieved from <http://www.jstor.org/stable/10.1525/si.2006.29.2.123>

Thoreau, H. D. (1997). Walden. New York, NY: Oxford University Press.

Thornecrown Chapel. (2008). Our story. Retrieved from <http://www.thornecrown.com/history.htm>

United States Department of Agriculture. (2011). Web soil survey. Retrieved from <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

University of Maryland Medical Center. (2011). Massage. Retrieved from <http://www.umm.edu/altmed/articles/massage-000354.htm>

U.S. Census Bureau. (2010). 2010 census. Retrieved from <http://2010.census.gov/2010census/>

U.S. Green Building Council. (2011). What is leed. Retrieved from <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>

WebMD. (2005). Scientists seek clues for acupuncture's success. Retrieved from <http://www.webmd.com/pain-management/features/acupuncture-pain-killer?page=3>

World Chiropractic Alliance. (2011). Consumer education. Retrieved from <http://www.worldchiropracticalliance.org/consumer/>

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<http://www.archnow.com/2010/04/an-classics-the-therme-vals-by-peter-zumthor/the-therme-vals-by-peter-zumthor-15/>

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<http://www.bnr-art.com/terpning/blessing-from-medicine-man.htm>

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<http://peacejoynamaste.wordpress.com/>

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<http://www.webmd.com/pain-management/ss/slideshow-acupuncture-overview>

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<http://trainingupkailyn.blogspot.com/2010/12/wise-words-wednesday-hippocrates.html>

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http://www.nlm.nih.gov/exhibition/historicalanatomies/vesalius_home.html

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Danielle Hoff

Hometown
Voorhees, New Jersey

Permanent Address
5218 River Drive North
Fargo, ND 58102

c. 701.388.0422
DaniHoff88@gmail.com

"The future belongs to the those who
believe in the beauty of their dreams"
-Eleanor Roosevelt



Personal Identification