

ALEXANDER CANCER
TREATMENT AND RESEARCH
CENTER

TRANSFORMATIONAL HEALING THROUGH ATMOSPHERIC ARCHITECTURE

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ALEXANDER CANCER TREATMENT AND RESEARCH CENTER:
TRANSFORMATIONAL HEALING THROUGH ATMOSPHERIC
ARCHITECTURE

A Design Thesis Submitted to the
Department of Architecture and Landscape Architecture
of North Dakota State University

By
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Master's of Architecture

North Dakota State University Libraries Addendum

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THESIS ABSTRACT

The aim of this thesis is to study the cognitive effects of architectural design specifically related to patient care in architecture. Much of architecture today is based upon efficiency, potential profit, and aesthetics which mutes the understanding of creating a meaningful and successful building.

I challenge the understanding of healthcare architecture today. With the use of research, both in the modern and historical context, a comprehensive design solution is established with the use of the natural environment and more emotionally focused spaces.

THESIS NARRATIVE

For my graduate thesis topic, I would like to focus on studying and designing a cancer treatment and research center. I would like to start this thesis narrative by explaining my backstory and passion for this topic. In 2010, my family and I moved from Woodbury, Minnesota to Forest Lake, Minnesota, about a 45-minute drive apart. After just a few weeks of living there, my father, Alex, was diagnosed with stage 4 parotid gland cancer. This totally flipped all of our lives upside down. At the time, I was only 10 years old and my sister was 11 years old.

This began the cycle of doctor's appointments, home visits, hospitals, and surgeries. My mother accompanied him to all his appointments and as a result, I would be with them as well. Each of my family members had to experience the architecture of the hospitals and treatment centers that we took him to.

My experience with the hospitals, clinics, and treatment centers was not the greatest. It was a time of a lot of confusion and wonder. Most of the places I visited felt cold and uninviting. Most of these facilities were located in busy cities and towns. Perez Gomez's writing, *Architecture and the Crisis of Modern Medicine* makes a great statement, "The immediate perception of the reality of quality of place is disregarded as a subjective interpretation of traditional urbanism. The evident shortcomings of such a view could not be more dramatic; our cities are becoming a vast world village where the external reality of man is at odds with man himself and whose reason for being is to express a mute universal process embodying the values of technology rather than to establish a meaningful framework for man's finite existence. The well-known failures of modern planning continue to be a source of embarrassment. And still the modern professional waits for a set of objective and universal standards, either formal, ideological,

or functional, that will determine his design and contribute to truly meaningful buildings." Later in the writing he states, "Subject to the values of technology, its interest is not in meaning, but in a conceptual or material efficiency dominating design and construction." These statements combined describe my personal experience. Due to the location, exterior, and interior of these buildings, it all felt so uneasy. The main purpose of these places was to get people in and out and then treat the next patient without really considering the experience that any family member has while they are there.

I believe this subject needs to be studied on more of a cognitive level. A connection and understanding needs to be further explored in the sensory experience for not only the patient but the people accompanying the patient as well. At the deepest level, the architecture of these facilities plays a very crucial role in the mental health of everyone who has to interact with the building and the settings around it. Juhani Pallasmaa's writing, *The Eyes of the Skin*, states, "Every touching experience of architecture is multi-sensory; qualities of space, matter, and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton, and muscle. Architecture strengthens the existential experience, one's sense of being in the world, and this is essentially a strengthened experience of self. Instead of a mere vision, or the five classical senses, architecture involves several realms of sensory experience which interact and fuse into each other." This is a statement that needs to be at the root of the design of cancer treatment and research centers to not only heal through medicine but architecture as well.

I believe healthcare architecture can have a positive impact no matter what the outcome is of their personal health. My father lost his battle to cancer in the summer of 2012. Looking back at the experience that I personally went through, I believe that a more meaningful architectural experience would give me a better and more positive memory of the situation, despite my loss. This is what

I hope to discover more as I explore this thesis topic, I am interested in creating a space that heals through architecture more than ever before.

I stated earlier that most of these clinics and hospitals are located in busy cities and towns. When a family is going through treating someone with cancer, it becomes something extra that everyone has to deal with in their daily lives and schedules. When the hospital or treatment center is right next to where you run errands, go to the gym, or do any daily activity like that, I believe it becomes a negative shadow over the rest of the things in your life. These things need to be separated in space to some extent to make a more positive experience within daily life and treatments.

Just as important as the location, is the exterior and interior of the buildings. In Dalibor Vesely's writing, *On the Relevance of Phenomenology*, he claims that "anybody can design a room, but the approach and the result will certainly be different if it is done by a sculptor, painter, dancer, or theater designer. The architect must see the room as a situational context, as a setting, something we are involved in." I believe this is very important to remember while designing. From my personal experience, in my time in the waiting rooms, I've spent many hours in these spaces, and everything from the architecture, lighting, and artwork affect how someone interacts with the space and what they take away from it. When my father was having surgery and I was in the waiting room, there was a picture on the wall of a father playing catch with his son. It was hard to have that staring at me as I was unsure of the future. It created a bad experience and memory in my mind.

When I found my passion for architecture in high school and thought about my past experiences, healthcare-related architecture became a driving factor for me to become an architect. I know that I can not only design at an aesthetic level but also design at a sensory level. Focusing on cancer treatment and research centers, I want to design architecture that heals.

PROJECT TYPOLOGY

Cancer Treatment Center- Provide places for surgery, radiation treatment, and chemo therapy.



Figure 1 | Linear Accelerator | Ryan Companies

Cancer Research- Provide a space to identify causes and develop strategies for prevention, diagnosis, treatment, and cure.



Figure 2 | Cancer Research | Feinstein Institutes

PROJECT TYPOLOGY

Lodging- Provide a place to stay for patients that do not live around the location of the hospital.



Figure 3 | Lodging Space | Culturemap Dallas

Therapy- Provide spaces for people with cancer to meet with others who have similar cancer experiences.



Figure 4 | Therapy Group | Utopia Wellness

CASE STUDY 1

Banner MD Anderson Cancer Center Gilbert, AZ, United States

Firm- HKS, Inc.

Typology- Medical facility focusing on cancer treatment

Built- 2014

- Project Features-
- 324,000 Sq. patient tower with 240 beds
 - 1,050 car parking garage
 - 14 operating rooms
 - 12 bed observation center
 - Pathology lab
 - Diagnostic imaging

Banner MD Anderson Cancer Center Gilbert, AZ, United States



Figure 6 | Cancer Center Entrance | HKS



Figure 7 | Cancer Center Lobby | HKS



Figure 8 | Cancer Center Radiation Room | HKS



Figure 5 | Cancer Center Exterior | HKS

Banner MD Anderson Cancer Center
Gilbert, AZ, United States

Statement From HKS Inc. -

The Challenge:

To create a regional medical center with comprehensive cancer treatment facilities within a healing environment.

The Design Solution:

Nestled between the Four Peaks, Sierra Estrella and Picketpost mountain ranges is the Banner MD Anderson Cancer Center. The design team built upon the idea of desert forms, textures, rocks and sun, focusing on the irregular forms of nature embedded in the architecture, generating free-flow spaces that are shielded from the sun and wind. To create a healing environment for patients and their families, HKS worked closely with MD Anderson’s doctors to emphasize collaborative medicine. Using evidence-informed design features such as natural lighting, local art, water features and views of nature, the team was able to create spaces that are proven to encourage healing.

The Design Impact:

The Banner expansion represented MD Anderson’s largest extension from its Texas base at the time. The programming for the facility streamlines infusion treatment for returning patients, making the process less stressful and allowing patients to focus on healing.



Figure 9 | Cancer Center Exterior 2 | HKS

Banner MD Anderson Cancer Center
Gilbert, AZ, United States

Conclusion-

My thesis is focusing on creating a healing environment for cancer patients and their families through the architecture. The whole focus on the design of the Banner MD Anderson Cancer Center was just that.

The site is inspired by the dry landscape of the surrounding area. Although my site will not be in a dry setting, I believe designing around the existing environment will be important.

The biggest takeaway from this case study is the use of natural lighting, local art, water features and views of nature. Focusing on how to perfect these within a design will be important for creating architecture that heals.



Figure 10 | Cancer Center Exterior 3 | HKS

CASE STUDY 2

Lakewood Cemetery Garden Mausoleum
 Minneapolis, MN, United States

Firm- HGA Architects and Engineers

Typology- Cemetery, Mausoleum

Built- 2012

Project Description- This Mausoleum provides options for cremation and crypt entombment. The contemplative spaces of the interior provide a series of spatial experiences. The experiences one encounters brings contemplation and remembrance.

Lakewood Cemetery Garden Mausoleum
 Minneapolis, MN, United States

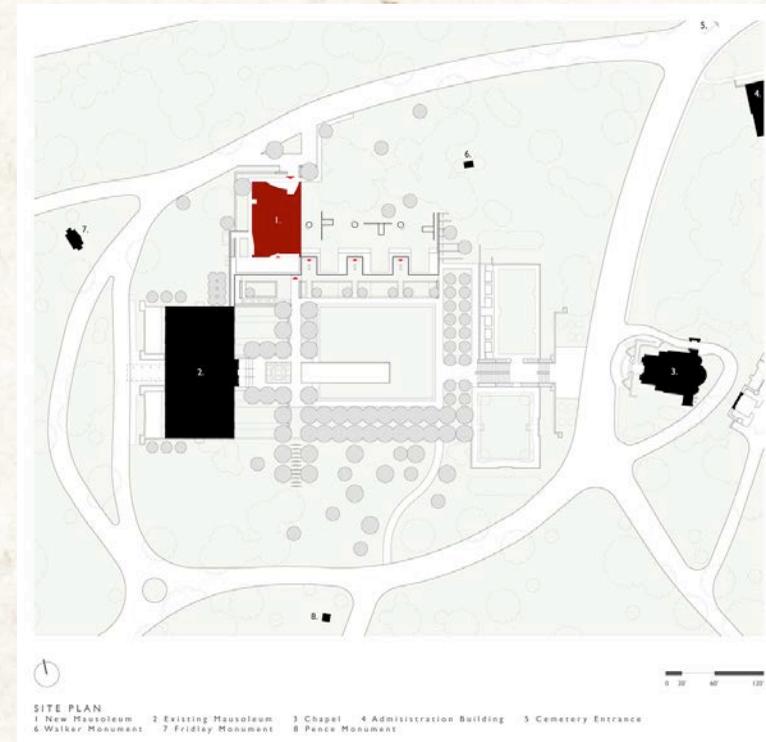


Figure 12 | Mausoleum Site Plan | HGA



Figure 11 | Mausoleum Exterior | HGA



Figure 13 | Mausoleum Entrance | HGA

CASE STUDY 2

Lakewood Cemetery Garden Mausoleum
Minneapolis, MN, United States

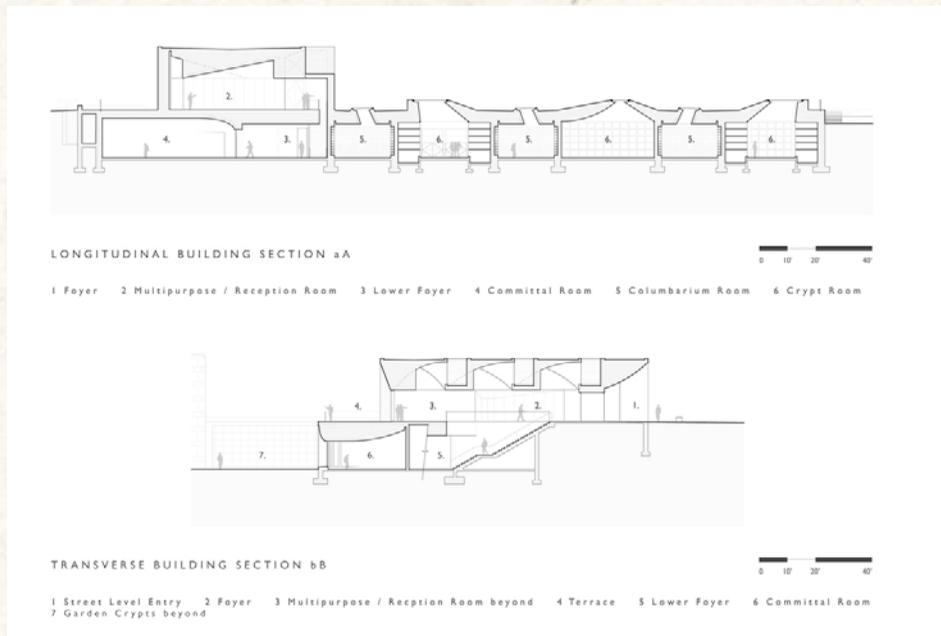


Figure 14 | Mausoleum Section Cut | HGA

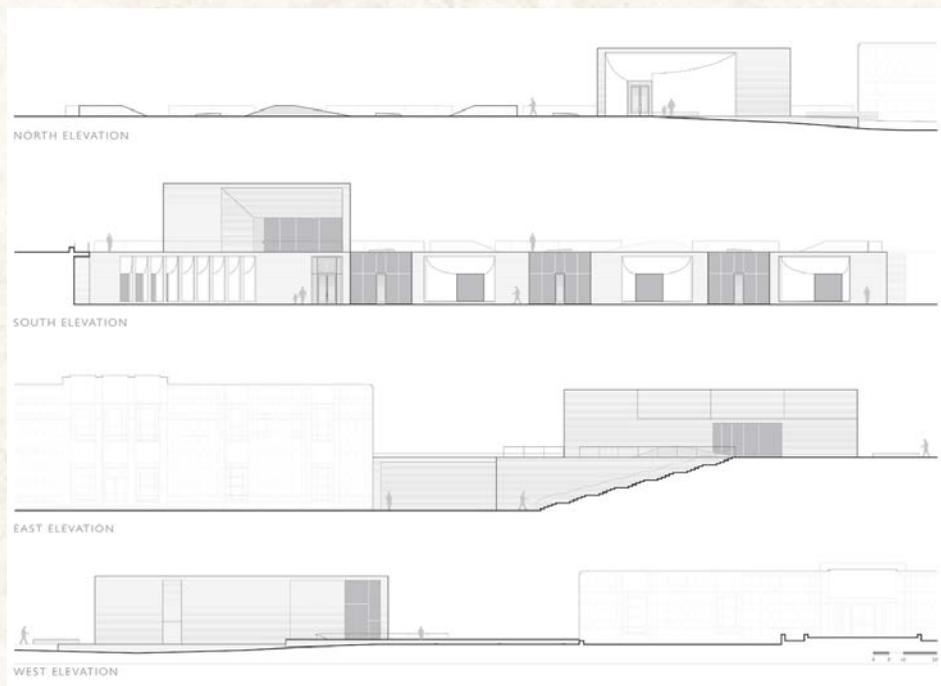


Figure 15 | Mausoleum Elevations | HGA

CASE STUDY 2

Lakewood Cemetery Garden Mausoleum
Minneapolis, MN, United States



Figure 16 | Mausoleum Exterior 2 | HGA

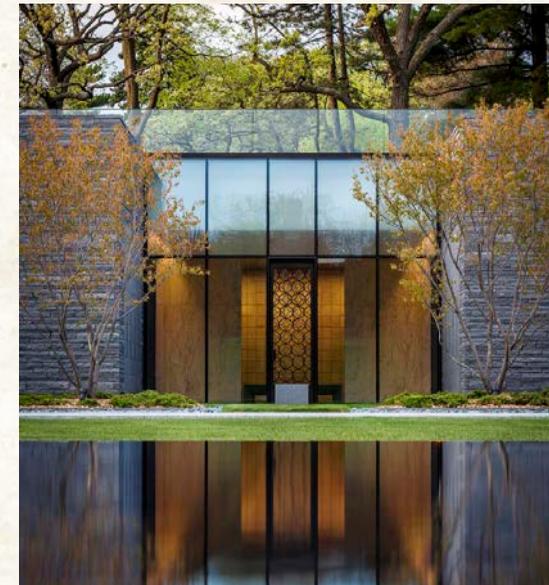


Figure 17 | Mausoleum Exterior 3 | HGA



Figure 18 | Mausoleum Interior Hallway | HGA

CASE STUDY 2

Lakewood Cemetery Garden Mausoleum
Minneapolis, MN, United States



Figure 19 | Mausoleum Interior Hallway 2 | HGA



Figure 20 | Mausoleum Interior Space | HGA



Figure 21 | Mausoleum Interior Space 2 | HGA

CASE STUDY 2

Lakewood Cemetery Garden Mausoleum
Minneapolis, MN, United States

Interior Moments- The contemplative spaces of the interior provide a series of spatial experiences. The experiences one encounters brings contemplation and remembrance.

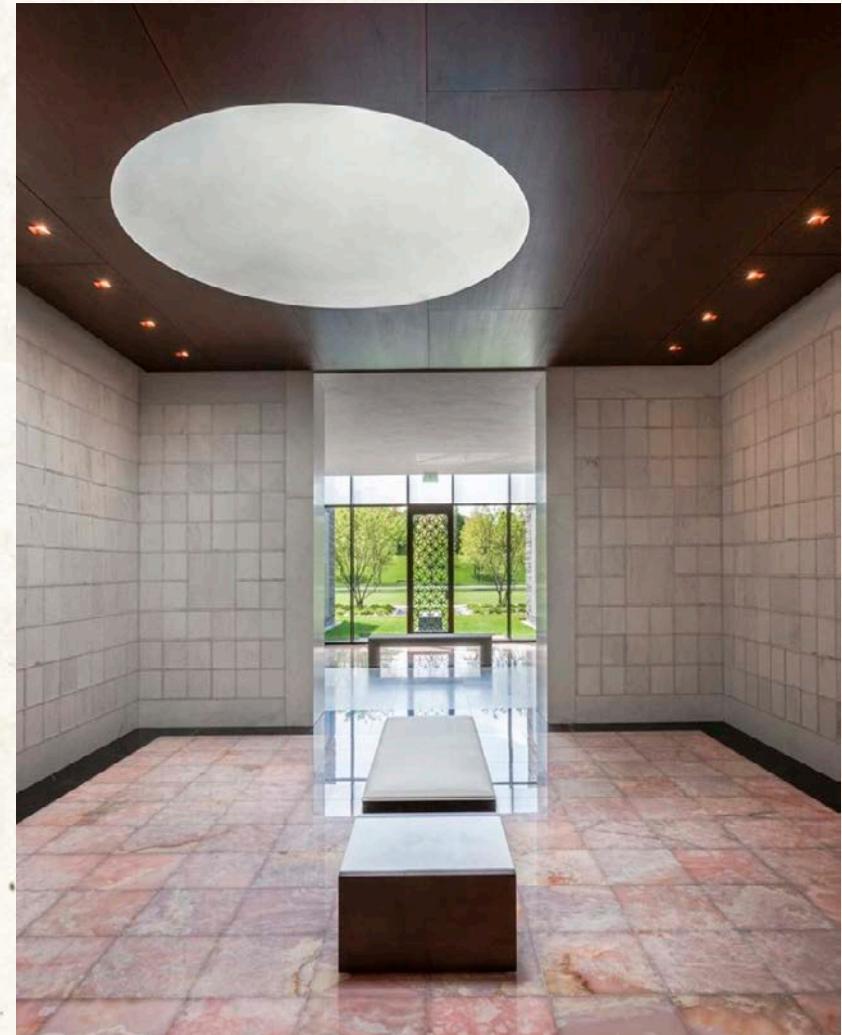


Figure 22 | Mausoleum Interior Space 3 | HGA

CASE STUDY 2

Lakewood Cemetery Garden Mausoleum Minneapolis, MN, United States



Figure 23 | Mausoleum Landscape | HGA

Importance of the Landscape- This Mausoleum landscape provides a connection with nature. Its seamless edges and crisp lines make ways for paths between them guiding one through the site. The beautiful landscape compliments the building.

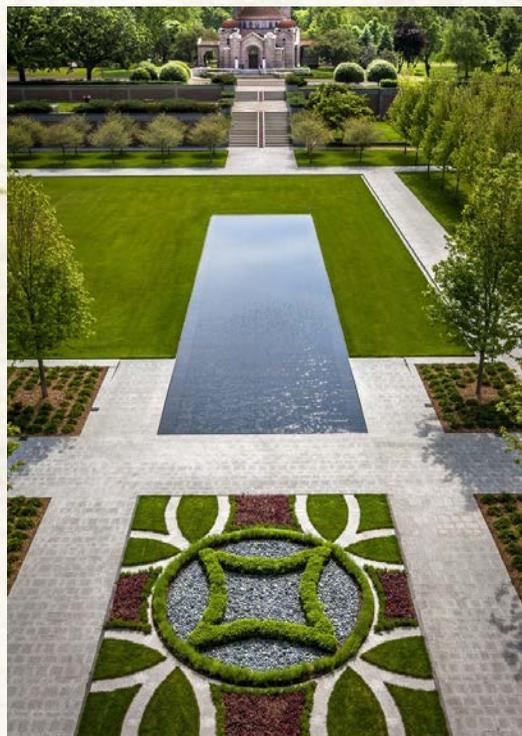


Figure 24 | Mausoleum Landscape 2 | HGA



Figure 25 | Mausoleum Landscape 3 | HGA

CASE STUDY 2

Lakewood Cemetery Garden Mausoleum Minneapolis, MN, United States

Conclusion-

I visited this Mausoleum a couple years ago. The way the building and landscape are set up in such a way that truly does create an experience for the occupant. The spaces within the building are carefully planned to bring out their intended meaning. The landscape around the building does a great job of that as well.

An important note about the landscape is that it looks nice during all seasons. Since my site will also be located in Minnesota, I am paying close attention to how the landscape adapts to the weather year round.



Figure 26 | Mausoleum Landscape 4 | HGA

CASE STUDY 3

The Therme Vals
Vals, Switzerland

Architect- Peter Zumthor

Typology- Hotel, Therapy, Spa

Built- 1996

Project Description- Therme Vals is a hotel and spa that opened in 1996 and creates a complete sensory experience. It is located in Vals, Switzerland, and was designed by Peter Zumthor. The building itself is built over the thermal spring in the Graubunden Canton in Switzerland. With the idea of creating a form of a cave or quarry-like structure, he worked with the natural surroundings and buried half of the structure within the hillside. Quarried Valser Quarzite slabs were used as the inspiration of design and were built layer upon layer to create the structure.

The Therme Vals
Vals, Switzerland



Figure 28 | Therme Vals Exterior 2 | Arch Daily

“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?” - Peter Zumthor



Figure 27 | Therme Vals Exterior | Arch Daily



Figure 29 | Therme Vals Exterior 3 | Arch Daily

The Therme Vals
Vals, Switzerland

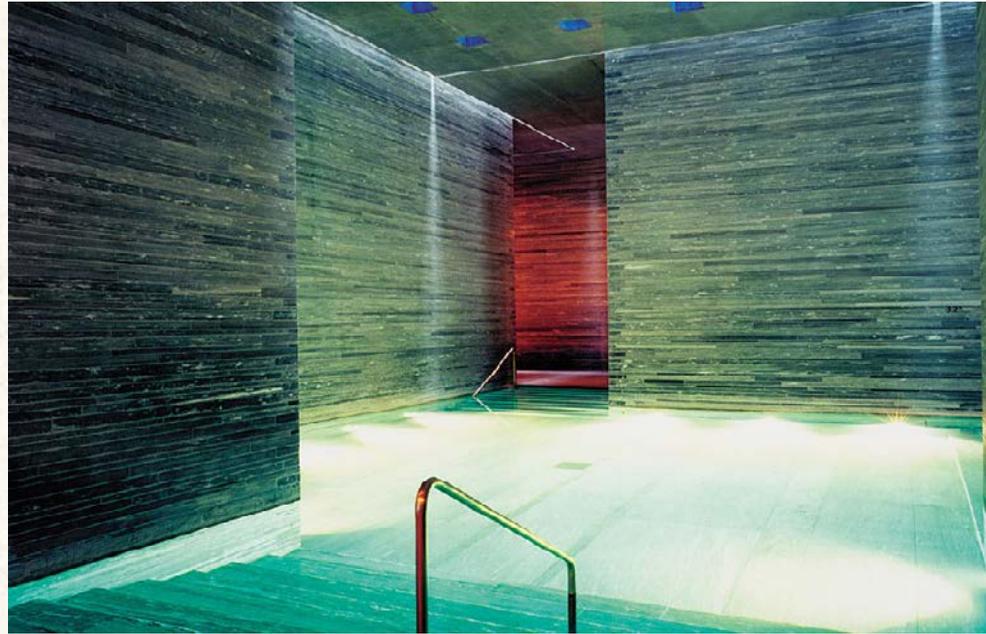


Figure 30 | Therme Vals Interior | Arch Daily

These spaces, along with the use of its materials through the brick and water, are meant to complement the human body in its existence and to rediscover the ancient benefits of bathing.

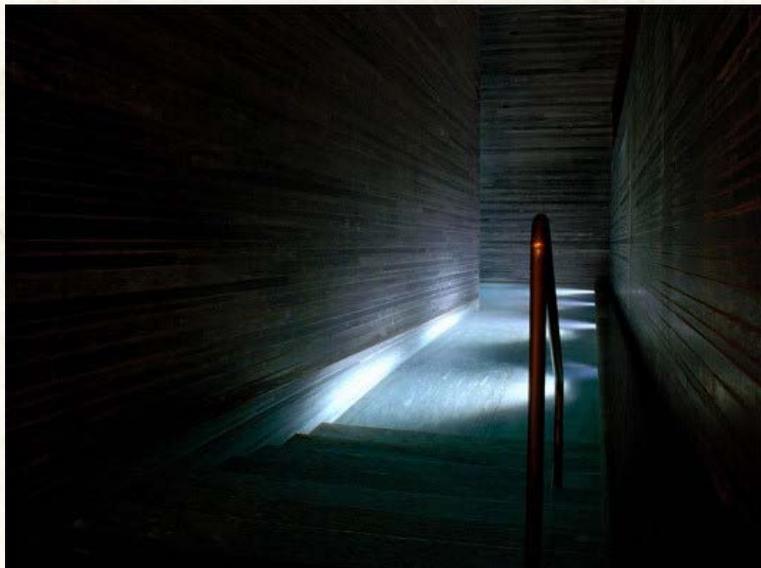


Figure 31 | Therme Vals Interior 2 | Arch Daily

The Therme Vals
Vals, Switzerland



Figure 32 | Therme Vals Interior 3 | Arch Daily

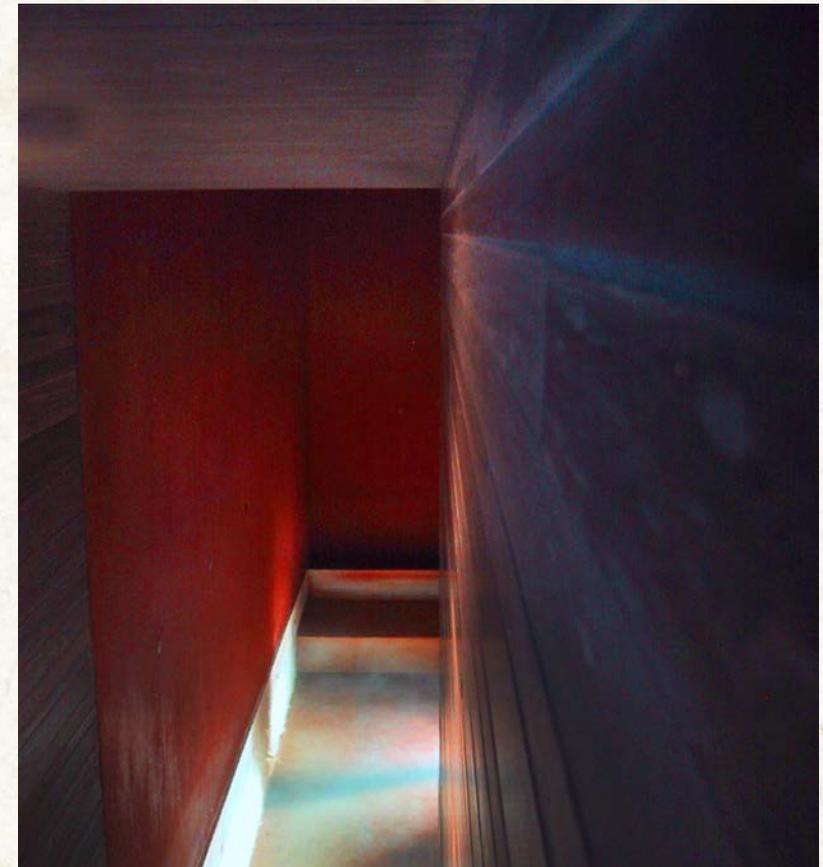


Figure 33 | Therme Vals Interior 3 | Arch Daily

The Therme Vals
Vals, Switzerland



Figure 34 | Therme Vals Outdoor Pool | Arch Daily

The Therme Vals
Vals, Switzerland

Conclusion-

Zumthor really emphasizes the relationship between the water, brick, and how the use of light and shade around them can make for a highly sensuous and restorative experience. “I work a little bit like a sculptor. When I start, my first idea for a building is with the material. I believe architecture is about that. It’s not about paper, it’s not about forms. It’s about space and material.” – Peter Zumthor. Zumthor also successfully controls perspective throughout the spaces that guide certain views and feelings.



Figure 35 | Therme Vals Interior 4 | Arch Daily

MAJOR PROJECT ELEMENTS

- Surgery rooms
- Radiation rooms
- Chemo therapy rooms
- Patient exam rooms
- Labs and spaces for cancer research
- Rooms for group therapy
- Spa
- Meditation Space
- Spiritual Space
- Lodging
- Recovery rooms
- Staff offices
- Cafeteria
- Main lobby
- Waiting areas

USER/CLIENT DESCRIPTION

- The main user of this type of building will be patients, and their families, that are dealing with cancer. Other users of this building will include doctors, healthcare professionals, and researchers.



Figure 36 | Patient and Family | Cancergov



Figure 37 | Cancer Research | Feinstein Institutes

THE SITE REGION AND CITY

As stated earlier in my narrative, I want to separate this facility from the busyness of downtown areas. With this in mind, I want to locate my site in a place that is still accessible to a large population of people. Since I grew up around the Twin Cities of Minnesota, I believe I can best find a location that suits this project around that location. The map below shows the area I will begin to research more and find a site that is perfect for this project and the outcomes I am trying to achieve. The purple highlighted area is the area of interest for my thesis location.



Figure 38 | Minnesota Map

THE SITE SITE LOCATION

The site my for thesis project will be located in Waconia, Minnesota. From Minneapolis, MN, Waconia is approximately 40 minutes Southwest. Concentrating my site around a large population of people while finding an area without a lot of structures and traffic around it was the key to finding a successful site. I want this type of site to be a research and study about the effects that a nature centered environment around a cancer treatment center has on the patients and their families.



Figure 39 | Site Location | Snazzy Map

PROJECT EMPHASIS

Some major points of focus within this project will be:

1. A healthy environment: To create a successfully designed healthcare building, the building itself needs to prioritize natural light, air quality, cleanliness, and use materials that look and feel clean. This will maximize the user's comfortability within the spaces.
2. Daylight design: With the use of daylight, a more comfortable experience can be created within the space. It will also have on electricity and the overall greenness of the building.
3. Empathy: I would like to find a way to create empathy through architecture. Patients and their families will all experience different things while in the building. Patients will go into remission and others will not have as good of outcomes. Whatever a family is going through, I want to create a positive experience within architecture.
4. Accessibility: I would like to focus on this to give the patient and their families as easy of a visit as possible. From the exterior of the building to the interior, the way that people move and find their way around will be very important. Each family member, including the patient, still have their own life and other responsibilities. I want to have their experience be as relaxing as possible despite what the family is going through.
5. Research: If possible, I would like to create an area for research within the building. I would love to be able to contribute a design that not only helps cure patients but also advance the research of cancer.
6. Patient care: At the heart of this project, patient care will be number one. The question is how to achieve this through the architectural design of the building?

GOALS OF THE THESIS PROJECT

Physical Goals:

- I would like to design and finish a thesis project that I will be proud to carry with me for the rest of my career.
- I would like to understand healthcare architecture on a deeper level and build knowledge to be able to work at a firm with healthcare after graduation.
- I would like to build connections with people through my research that could later lead to future opportunities or jobs.

Theoretical Goals:

- I want to develop a design that truly heals people through architectural experiences.
- Base my research on more philosophical ideas to create truly meaningful architecture that could really help patients and their families to the fullest level.

Social Goals:

- I would like to build connections with people through my research that could later lead to future opportunities or jobs.

A PLAN FOR PROCEEDING

Definitions of Research Direction

- Theoretical Approach - Using philosophical resources, I am researching how healthcare and its architecture is related to the body as a whole and its role within nature. I hope to use these findings to understand how architecture can play a role in the healing of patients and their families.
- Project Typology - Case studies will be a great resource for researching what works at a sensory level. The sensory experience that patients and their families have will be important to design for.
- Site Analysis - When a specific location is decided, the overall site design will be important in the role of healing. This is how nature will be brought into this project and will be utilized as a great source for benefiting patient health.

A PLAN FOR PROCEEDING

Design Methodology

- I will use the knowledge gained from the theory readings to know what to research to achieve a design that can affect the patient at a much deeper level in a positive way.
- Case studies will be used to note what existing buildings have done to achieve healing through architecture. I will learn what was successful about each buildings and utilize it as inspiration for my own designs.
- Nature takes a big part of human health. My site will be designed to make use of its land in an efficient way. Understanding the site before designing will have a huge impact in the final designs.

A PLAN FOR PROCEEDING

Documenting the Design Process

Design Documentation:

- Computer drafting and modeling
- Sketchbook for sketching and notes
- Physical models for design inspiration

Software in use:

- AutoDesk Programs
- Adobe Programs

Social Goals:

- I would like to build connections with people through my research that could later lead to future opportunities or jobs.

A PLAN FOR PROCEEDING

Schedule for the Project

- Draft of Thesis Proposal- Due September 14
- Thesis Proposal- Due October 14
- Thesis Research- Due December 16. Final edited copy due March 11th
- Design- Mid term reviews are March 7-11. The final design exhibit is due April 22
- Thesis Exhibit- April 26-28 on the 5th floor of Ren
- Thesis Reviews- May 2-5
- Thesis Book- Due by May 13

Personal Schedule for the Project

- November 15-19- Be at least 50% done with thesis research
- November 29- December 3: Be at least 75% done with thesis research

THESIS RESEARCH

Research

Thesis Theoretical Premise

This thesis explores the role of the environment on the treatment and potential healing of those afflicted with cancer – a disease that will affect the individual lives and families of an estimated 1.9 million people in the United States in 2022. Although recent studies in neuro and cognitive science show how the inner and outer worlds are interdependent and co-emergent, architecture, especially in the realm of healthcare, has become focused on functionality, efficiency, and aesthetics due to the rise and development of Positivism which separates mind and body, subjective and objective realms. While such developments inevitably benefit the medical treatment of cancer patients, this thesis questions the emotional and cognitive benefits of spaces that cannot be reduced to rational formulas and control. In other words, we examine how the language of healthcare architecture might create a more attuned atmosphere that can aid in the treatment and healing of a patient through environments that consider the emotional and cognitive aspects of the whole human being.

Since the mid 16th century, Aristotle’s work on the concept of metaphysics was widely accepted and called to study the fundamental nature as a thing in itself, beyond what is palpable. It is the most ancient branch of philosophy dealing with the concepts of being, knowing, substance, cause, identity, time, and space. In the 19th century, the rise of positive science gained popularity and began to leave metaphysics behind.

The impact:

The human economy is now reliant on science as a primary productive factor. The Enigma of Health by Hans-Georg Gadamer states, “No longer is it (meaning nature) limited to the premodern implications of *techne*, namely, to filling out the possibilities of further development left open by nature (Aristotle). It has moved upward to the level of an artificial counterpart to reality.” Changes to the environment more or less used to be due to natural causes. Today, the natural cycle of the world is dominated by irreversible developments on a large scale due to the technical exploitation of natural resources. This has caused science to “become a new kind of factor in human life, and this is its application to the life of society itself (Gadamer 8).” Ultimately, Science today is in conflict with our human consciousness of value. Throughout the rest of Gadamer’s writing in the Enigma of Health, He relates these concepts to the healthcare profession and suggests what needs to be done to reverse the dominance of the science-driven world within medicine.



Figure 40 | “Representation of consciousness” | Robert Fludd

In earlier times, before our world of mass society and age of institutions, patient and doctor relationships were much stronger. There were no white coats or anxious waiting rooms, instead, families had family doctors that played an important role throughout each of their lives. Obviously, that is not a practical method in today’s society. Gadamer suggests a possible way to blend the old and the modern together, “what we need to do is to learn to build a bridge over the existing divide between the theoretician who knows the general rule and the person involved in practice who wishes to deal with the unique situation of this patient who is in need of care (Gadamer 94).” Today’s medical science provides doctors with the general laws, principles, and causal mechanisms, doctors then still need to find the right solution for the particular medical data.

In a way, the “divide” is brought about by the language that modern science has formed. Gadamer focused on the use of the word ‘case’ and how it is used in the industry of medicine relating to a patient. He states, “it can be argued that anyone who thinks of themselves simply as a ‘case’ cannot receive proper treatment and that doctors cannot help anyone over a serious difficulty or even a minor affliction when they do no more than simply exercise the routine skills of their particular discipline (Gadamer 101).” Simply put, due to the modern implications of science with its fast test results and treatment methods, it neglects the important role nature has on the human mood, healing, and ultimate equilibrium. Gadamer believes above all else, it is important to observe and listen to the patient.

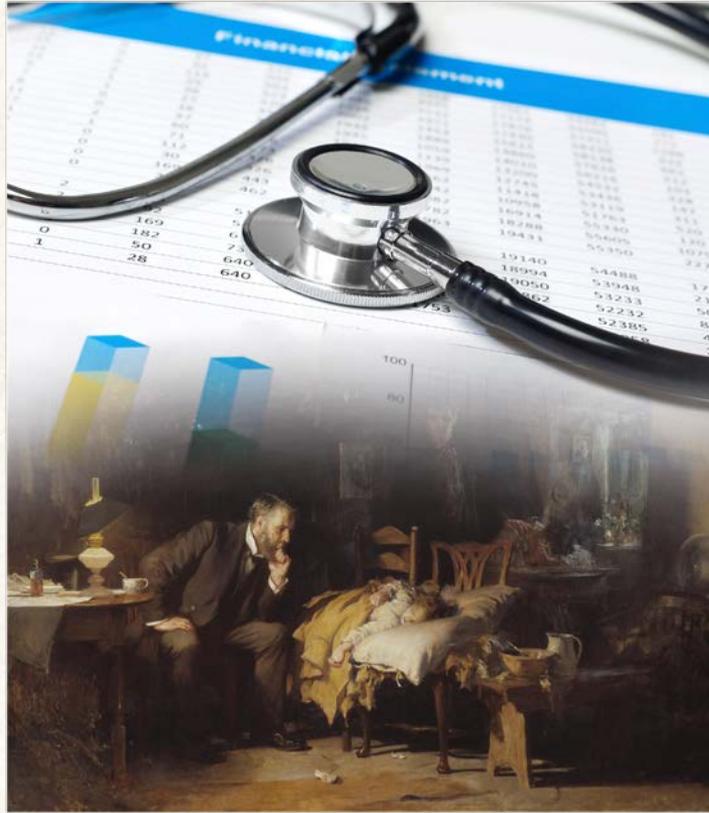


Figure 41 | The Doctor | Luke Fildes

The language modern science has brought about meticulously collects data taken over time which allows for the mathematical knowledge of how illness can be influenced. But with this knowledge, a treatment still remains which Gadamer believes can only successfully come from a doctor's skilled hand. The German word *Behandlung* means 'treating' people and 'handling' them with care. "Within it, one literally hears the word 'hand', the skilled and practiced hand that can recognize problems simply through feeling and touching the affected parts of the patient's body. 'Treatment' in this sense is something which goes far beyond mere progress in modern techniques (Gadamer 99)." He stresses the profound realization that a doctor has when they treat a patient as a patient and not a 'case'. A doctor is called upon to help over the long term, not just in a particular moment which allows for the genuine success in leading a patient back into his or her own lifeworld. When a former patient is no longer disturbed by their pain, they are able to experience the riches of the world and self-fulfillment. Hans-Georg Gadamer sums up these ideas perfectly by saying that "this is something which in the long run will prove decisive if we are going to cope with the changed living conditions of our technologized world and if we are to learn to revive once again those forces which can help us to discover and preserve what is 'appropriate', appropriate for oneself and appropriate for each one of us, namely that internal condition of equilibrium (Gadamer 101)." Architecturally speaking: How can language through the design of healthcare

architecture compliment and guide a patient back to his or her own life-world? How can the architecture of healthcare buildings be designed in a way that encourages the doctor/patient relationship?



Figure 42 | Behandlung

The development of the understanding of cognition is a very important aspect of recognizing the impact that architecture has on one's full range of awareness, from perspective to reflection.

Towards the end of the 17th century, the Cartesian understanding of cognition was written in architectural theory by Claude Perrault, who was a famous architect, medical doctor, biologist, and theoretician. In *Mood and Meaning in Architecture* by Alberto Pérez-Gomez, He states that Perrault "believed that architecture communicates its meaning to a disembodied soul (today often still identified with a brain, understood as the exclusive seat of consciousness), thoroughly bypassing the body, with its complex feelings and emotions (Pérez-Gomez 220)."

The end of the 18th century brought about what was called the Galilean revolution along with the rise of romantic philosophy. These thoughts and writings questioned the dualism of Cartesian philosophy proclaiming that the outer and inner realms of human experience should be co-emerged. Romantic philosophers bring in the concept of self which first feels and then thinks. Pérez-Gomez summarizes these ideas by stating, "This embodied, non-dualistic understanding of reality includes our emotions and feelings; its primary seat of awareness is Gemüt, and its most significant experience is Stimmung; attunement, understood as a search for loss of integrity, health, wholeness, and holiness (Pérez-Gomez 221)." Today, this concept is cast as "atmosphere" or "mood" which is now understood as the great consequence of architecture and laid the root for the revolution of cognitive science.

Cognitivism came into being in the 1950s which made sense of scientific meaning, but also banished consciousness from the science of mind. To solve this problem, connectionism was established "to offer a more dynamic understanding of the relationships between cognitive processes and the environment, creating models of such processes that took the form of artificial neural networks run as virtual systems on the digital computer (Pérez-Gomez 222)." This concept still made for artificial inputs and outputs that did not involve any sensory and motor coupling with the environment. The last approach to cognitive design was developed in the 1990s and was called "embodied dynamism."

Embodied dynamism relies on analytic philosophy and computer brain models which allow for the recognition of the affiliation between cognitive and the real world. Pérez-Gomez explains the concept of cognition in this view as "the mind and the world are simply not separate of each other; the mind is an embodied dynamic system in the world, rather than merely a neural network in the head

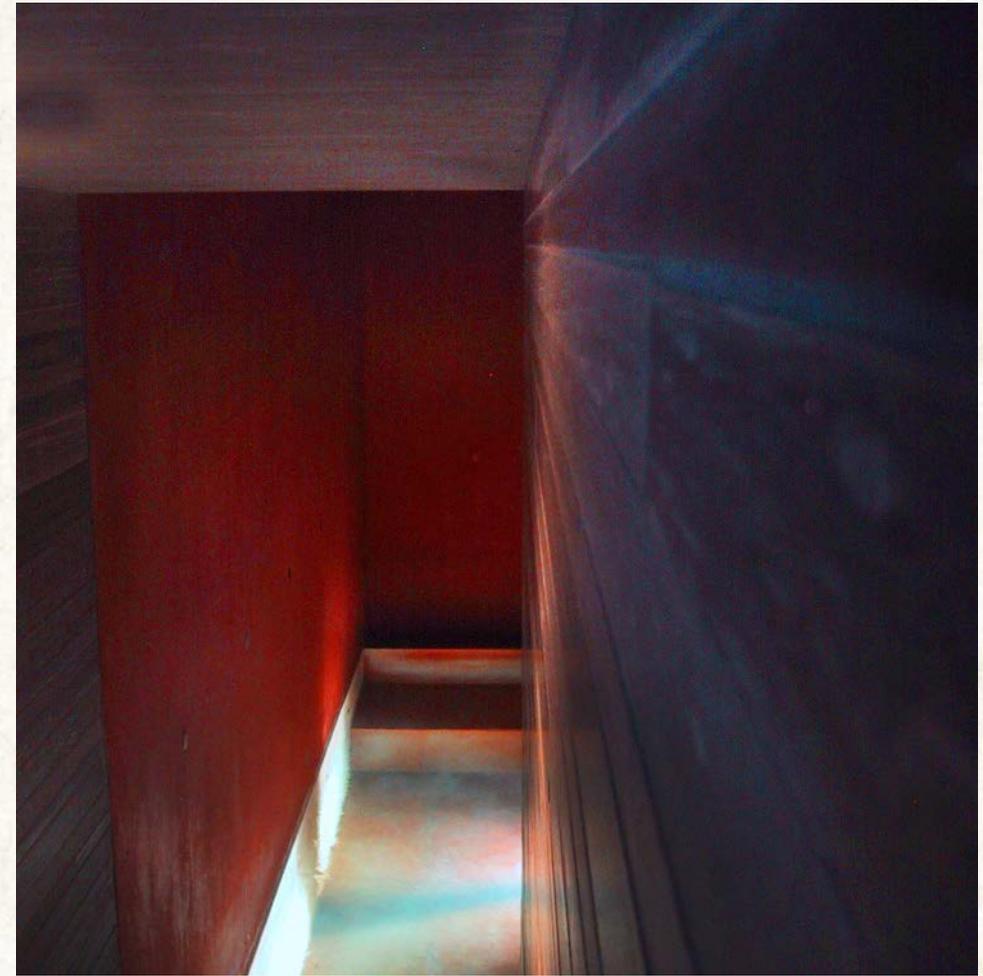


Figure 43 | Therme Vals Pool | Arch Daily

(Pérez-Gomez 223)." Experience with this approach is no longer secondary, instead, it is primary to the understanding of the mind. Emotions are feelings are now the essential foundation of cognition, supporting human survival and enabling the spirit's greater creation, always seeking homeostatic equilibrium.

The consequences of the understanding of embodied dynamism are substantial to the perception of architecture. With the view that perception is something we do and not just something that happens to us, it proves that our motor skills and intellect are constitutional to cognition. Relating to architecture, "The external world- i.e., the city and architecture- truly matters, and we do not relate to it as if it were a text in need of interpretation or "information" conveyed to a brain: interpretation comes after we have the world in hand, and in this way, architecture affects us along the full range of awareness, from perspective to reflective (Pérez-Gomez 224)." This gives architecture the unique ability to reveal the space of human existence as a space of desire through its experiences of sense and purpose.

Understanding our consciousness through cognitive science highlights how much the built environment matters. It is argued that we find ourselves in the presence of others in places of embodied experience. These spaces need to host the proper mood and atmosphere to deeper develop our spiritual well-being. In Pérez-Gomez's words, "architecture has to speak back to us without becoming merely invisible, acting like a numbing drug or like the perfect fit dreamt by functionalism, and today by architects who design increasing more "intelligent"- i.e., comfortable and efficient- buildings (Pérez-Gomez 224)." Architecture needs to shy away from a functionality standpoint and focus more on promoting the use of our imagination to create and understand specific moods within a space. Pérez-Gomez notes that "it is easy to observe that human actions can change the mood in a room: it can be transformed through a charismatic speaker, lighting effects, artificial acoustics, etc. On the other hand, architects are capable of incorporating in their designed spaces a more lasting mood, one that we may associate with the room itself: solemn, strange, quiet, cheerful, reverential, oppressive, etc (Pérez-Gomez 227)." Our participation, along with the setting of a room, creates architectural "meaning." This supports architectural design that is more catered to the romantic concept of Stimmung which was talked about previously. For a more attuned space and to achieve harmony in design, architecture needs to characterize the moods and atmospheres of a room and need not to be concerned with the objectivity of mathematics.

Pérez-Gomez quotes Heidegger in his statement: "Moods are precisely a fundamental manner of being with one another... and precisely those attunements to which we pay no heed at all... are the most powerful (Pérez-Gomez 224)." When one is attuned to an event, they become a participant and feel more complete, making their lives matter. Architects need to try to design spaces that are open to a fitting range of moods that can reveal human life as purposeful through its actions. Matthew Ratcliffe wrote, *Why Mood Matters*, which is a text that interprets and critiques Heidegger's treatment of "mood" in *Being and time*. The big concept of this reading is the claim that mood constitutes how we find ourselves in this world. From this essay, I want to point out a particular topic discussing mood and time. Changes in mood can significantly modify how time is experienced. Ratcliffe uses depression to expand the ideas of this claim. He talks about how people with depression claim that their experience of time has altered, where time seemed to slow down or even stop. When the world around you seems insignificant, the world feels like it offers nothing and one's sense of future is uncertain. This limits the temporal experience which ultimately affects how time can be experienced. "When you are depressed, the past and future are absorbed entirely by the present moment, as in the world of a three-year-old. You cannot remember a time when you



Figure 44 | Hospital Hallway | WestCoastPaint

felt better, at least not clearly; and you certainly cannot imagine a future time when you will feel better. Being upset, even profoundly upset, is a temporal experience, while depression is atemporal (Ratcliffe 174).” The past, present, and future are absent in significance. This points out how important mood is to our experience through life.

Understanding the Artefact:

Plato

It is argued today that architecture can not overcome modernity, thus leaving behind its fundamental roots of meaning within the architectural construct. These fundamental roots can be traced back to the Greek understanding of space. Plato had a tremendous part in these origins with his work of the Timaeus. In the Timaeus, “Plato’s formulation of a geometrical universe became the source of inspiration for cosmological pictures in the Western world (Alberto Perez Gomez 6).” He explained that reality is not simply a duality of being and becoming. He insisted on the introduction of a third term called the Chora. He describes it as the receptacle and, as it were, the nurse of all becoming and change. It is the “stuff” of the world that establishes both humans and nature. Plato proclaims that the four elements of fire, earth, water, and air actually indicate differences of quality not of substance. With everything in the world constantly changing, including the unstable elements, we should speak of them as “quantities” instead of “things.” To explain this further, Alberto Perez Gomez writes about an example that Plato used, “a goldsmith who crafts many different geometrical shapes out of gold, continuously remolding each shape into another. The most appropriate name for the craftsman work is “gold” rather than “triangles”, “squares”, or the like (Alberto Perez Gomez 7).” “Chora is both cosmic place and abstract space, and it is also the substance of the human crafts. In architecture, it would undermine the common distinction between contained space and material container. Most importantly, it would point to an invisible ground that exists beyond the linguistic identity of being and becoming, while also making language and culture possible in the first place (Alberto Perez Gomez 9).”

Theatre of Dionysus

The ancient Greece ritual, the dithyramb, was a spring ritual that was dedicated to Dionysus and became the historical precedent of Western art and architecture. The ritual was a circular dance that symbolized the bringing back of life. Roman texts suggest that the combining of poetry, music, and dance in their architectural frame, had a cathartic effect for the people involved. “Katharsis meant a purification or a reconciliation between the darkness of personal identity and the light of the divine dike, as expressed in the tragedy (Alberto Perez Gomez 12).”

Classical Roman Theatre- Vitruvius

The Greek theater sought to bring transformative effects through the realm of art. The introduction of the amphitheater “became a place for seeing, where distant contemplation of the epiphany would have the same cathartic effect on the observer as was accomplished previously through active, embodied participation in the ritual. This distance is, of course, akin to the theoretical distance introduced by the philosophers, which enabled a participation in the wholeness of the universe through rational understanding, as a disclosure of discursive logos. (Alberto Perez Gomez 13).” Vitruvius Writes, “when plays are given, the spectators, with their wives and children, sit through them spellbound, and their bodies, motionless from enjoyment, have their pores open, into which blowing winds find their way (Alberto Perez Gomez 13).” The ascending rows of the theatre were perfected by the architects. The plan of the theatre is built in accordance with the image of the sky, bringing in knowledge of harmony and the zodiac. This experience is said to be “a disturbing moment in the in-between of ignorance and knowledge, of time and timelessness, of imperfection and perfection, of hope and fulfillment and ultimately of life and death (Alberto Perez Gomez 14).”

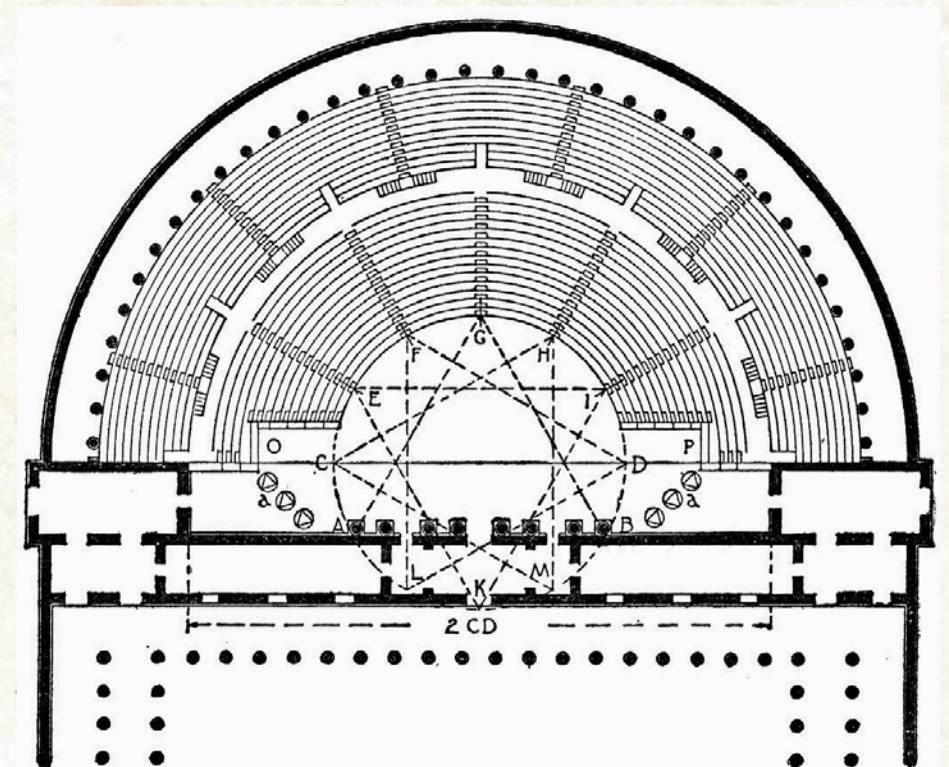


Figure 45 | Classical Roman Theatre | De Architectura

Epidaurus Theatre

The great theatre of Epidaurus in the sanctuary of Asclepius the healer was deemed to have powerful healing effects. The effects come from the narrative by the poet which is the language of metaphor that maintains a high tension gap between the two terms of metaphorical speech, thus exposing the audience to the nearness of distance. In this atmosphere, the receptacle, or chora, takes shape, within the architectural space. It unveils the truth embodied by art and the space between the word and the experience which creates a space for contemplation and space for participation, ultimately a space of participation. The invisible significance of architecture becomes clear in the narrative form woven together by language.

The whole context of this theater is labyrinthine. “The famous theatre in the sanctuary played a most important role in the process of restoring psychosomatic stability of the “patients,” who could also undergo a dream cure in the abaton. This allowed architecture to occupy the liminal position in-between darkness and light, revealing the true place of human existence (Alberto Perez Gomez 33).”



Figure 46 | Epidaurus Theatre | Jensplace

It is shown in this sense how powerful narrative is within architecture. To lean away from the current functionalism and aestheticism-focused design, the architects must write the script for these dramas. Only through this architectural narrative will it be possible to create work that is a metaphoric projection grounded on recollection and bring true meaning to the architecture.

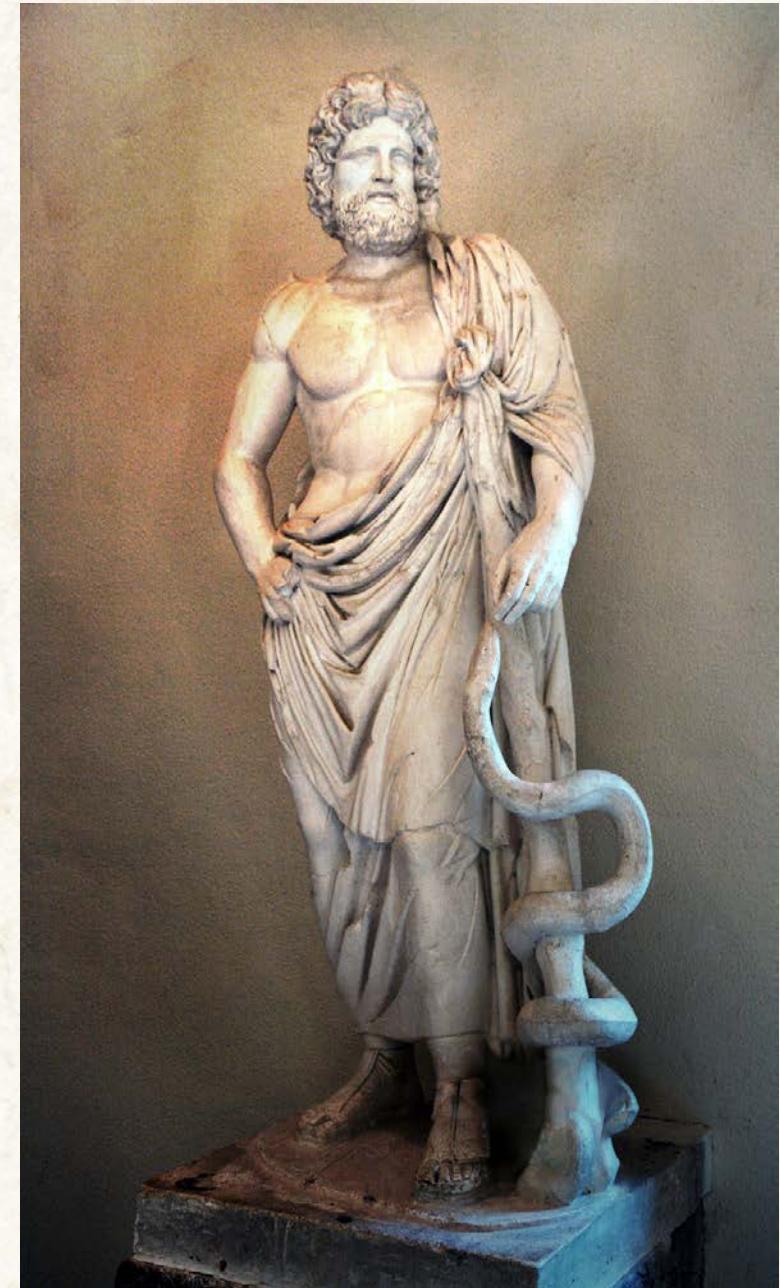


Figure 47 | Statue of Asclepius | Michael F. Mehnert

Le Corbusier

The ideas of Ancient Greeks' understanding of architecture and its transformative effects are evident in the work of architects throughout the past. One of the most notable ones is Le Corbusier.

Le Corbusier, was a swiss French architect, designer, painter, and writer. Through his architectural works, one can see Le Corbusier's expression of organizational ideas, and his philosophy which gives an insight into his view of the entirety of existence. In *Le Corbusier in Detail*, by Flora Samuel, the text dives into the logic behind Le Corbusier's raw, but magnificent features. In Corbusier's words, "In nature, the smallest cell determines the validity, the health of the whole (Samuel 1)." Through his drawings and close observations, he was able to access the lessons of nature. This insight brought the realization that each architectural detail should contribute to the meaning of the whole.

His architecture was built around a philosophy of Orphism. "Linked to the figures of Dionysus and apollo- is himself of course known for having charmed the gods with the beauty of his music. Put crudely, Orphism was the belief, derived from the ideas of Pythagoras and Plato that the cosmos was held together by numbers and that geometry and proportion could be used to achieve harmony with nature- a process assisted by the balance of masculine and feminine (Samuel 3)." Samuel also claims that Corbusier's "interest in the Orphism gives rise to a series of key themes that are prevalent in his words, his painting, and his architecture. They are: asceticism and unity, the evocation of the body; light, dark and other opposites such as sun and water, geometry; the route of initiation and ritual (Samuel 4)

"The initiatory journey, based on the story of Orpheus, from darkness to lightness thus became, for Apollinaire, a metaphor for the poet's own quest for inner wholeness, an idea that evidence suggests Le Corbusier shared (Samuel 74)." This idea of light and dark guided Le Corbusier's sign for the 24 hour day which tracks the sun above and below the horizon. This concept was brought into the design of the Basilica at La Sainte Baume where the galleries would have light penetrate them at their ends to guide visitors through the upper and lower realms of the 24-hour sign, providing a journey for the occupants on the route through darkness into light.

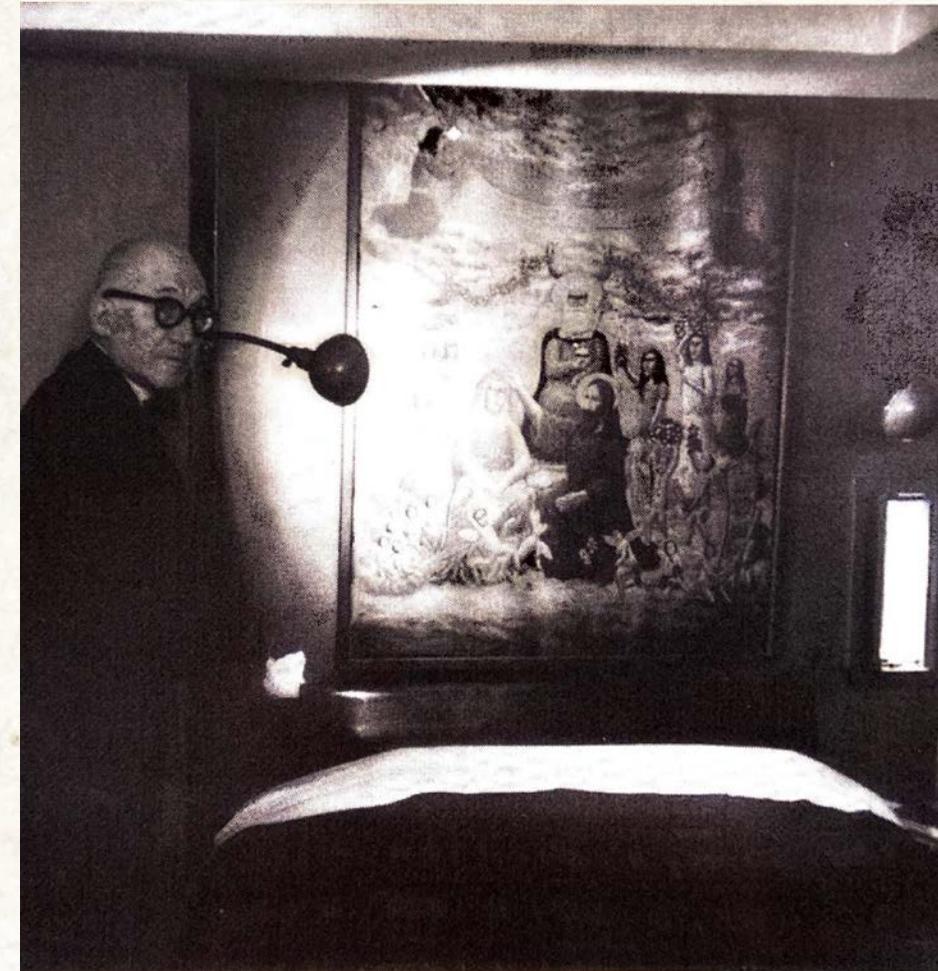


Figure 48 | Le Corbusier Portrait

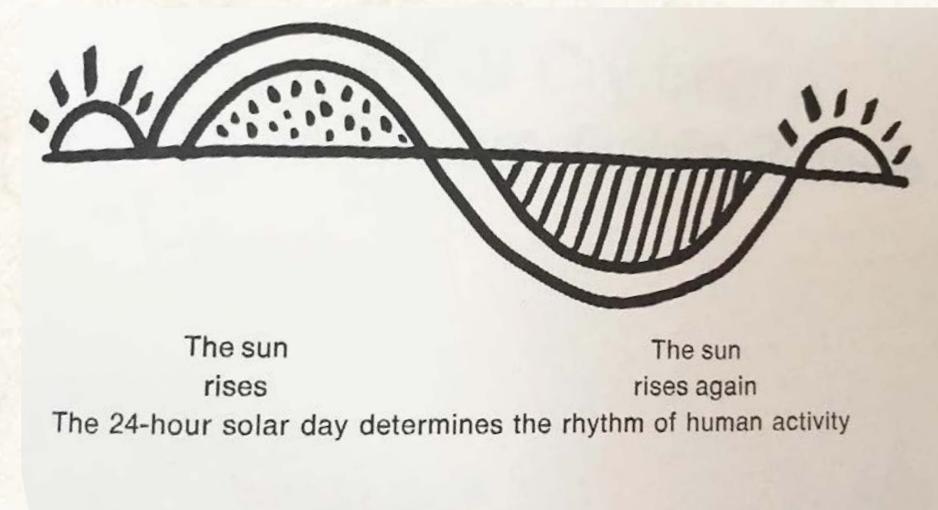


Figure 49 | Sign of the 24-Hour Day

Heros Journey

Focusing on the ideas and philosophies of transformation and catharsis effects, a comparative mythology, the Heros Journey, became an interesting topic of research.

Also called the monomyth, this narratology is a template of stories that involve a hero who goes on an adventure, is victorious in a decisive crisis, and comes home changed and transformed. In the book *The Hero with a Thousand Faces* by Joseph Cambell, he uses the monomyth to deconstruct religions. He describes the narrative as, "A hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man." In the writings, he describes the 17 stages of the monomyth which are divided into three acts: Departure, Initiation, and return.

In a short summary, the departure is where the hero lives in the normal world and is called to go on an adventure. Though hesitant, a mentor figure helps him decide to follow this call. The initiation describes the hero's quest to an unknown or "special world" in which he faces tasks or trials, some by his lonesome, others with helpers. The central crisis of the adventure comes about when the hero reaches the innermost cave and overcomes the main obstacle and gains a reward. The return section describes the return to the ordinary world with the treasure he has gained and is able to use it to assist his fellow man. Throughout this journey, the hero was transformed and gains wisdom and spiritual power over both worlds.



Figure 50 | Hero's Journey

Michele Angelo Petrone

A promising young artist, with work in solo and group, shows across the UK, Petrone's professional life was to take an unexpected direction when he became ill. At that time he wrote: "Nothing had prepared me for what I was about to go through in the next 9 years. It was more difficult and painful than I had ever imagined. But part of that pain and difficulty came out of fear and ignorance. My fear and the fear of everybody around me." It was while lying in isolation after high-dose chemotherapy that Petrone began to paint—ostensibly to decorate the walls of his room, but in reality to work through the complex emotions that engulfed him. This body of work came to represent his journey through illness and recovery. His paintings, workshops, and speeches played a vital role in educating health professionals on the importance of complementary therapies and holistic care. Today complementary therapies are widely used as an integral part of patients' treatment nationwide. Michele's approach was valued because he had experienced at first hand the way in which cancer affects everyone - patients, family and friends, and healthcare professionals. As we have become more hi-tech in our treatments we have sometimes forgotten how to be high-touch with our care as well. Merely facing the knowledge of having a life-threatening disease, let alone dealing with the physical effects and assaults of treatment, stretches most people to their limits. "Michele enabled people to break out from the limitation of language and express those feelings through a different medium. How much easier for some to paint whatever came from the heart...Thanks to his vision, creativity, and understanding of the process, countless individuals found meaning, peace, and resolution through their paintings, as well as having lots of fun. He reached out and touched us all and life will never be quite the same again."



Figure 51 | Michele Angelo Petrone | The Lancet

Artefact

Michele Angelo Patrone became the face of inspiration for my artefact. His work and poetry, along with fictional and nonfiction stories, moods, and ancient tales and beliefs, create a layered metaphor that will help guide the architectural design of my cancer treatment and research center. I wanted to highlight nine spaces within the building using a fictional narrative of a man that is experiencing cancer. These spaces include the parking lot/or main entrance, the exam room, Chemo treatment space, outdoor space, meditation space, therapy space, spa, multi-faith prayer room, and lodging. Through research, stories, and personal experiences, I have described what he might feel going through the different spaces of the treatment center.

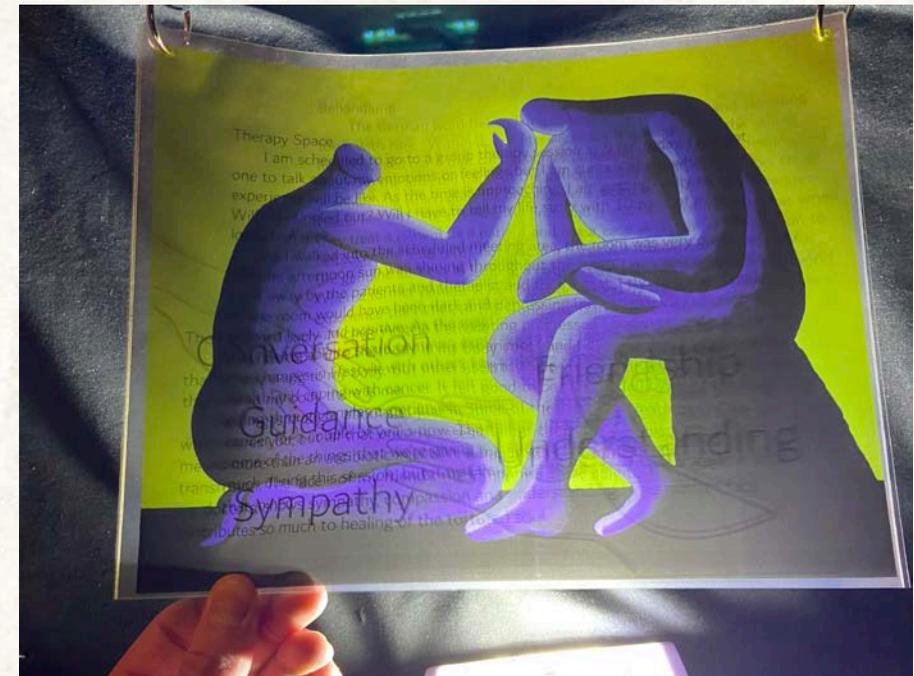
By overlapping his artwork with research, stories, and inspiration, I created a theoretical floor plan that is filled with depth, metaphor, and meaning. This helped me understand the moods and atmospheres needed within certain spaces to design the most efficient healing environment for the patient and their family.



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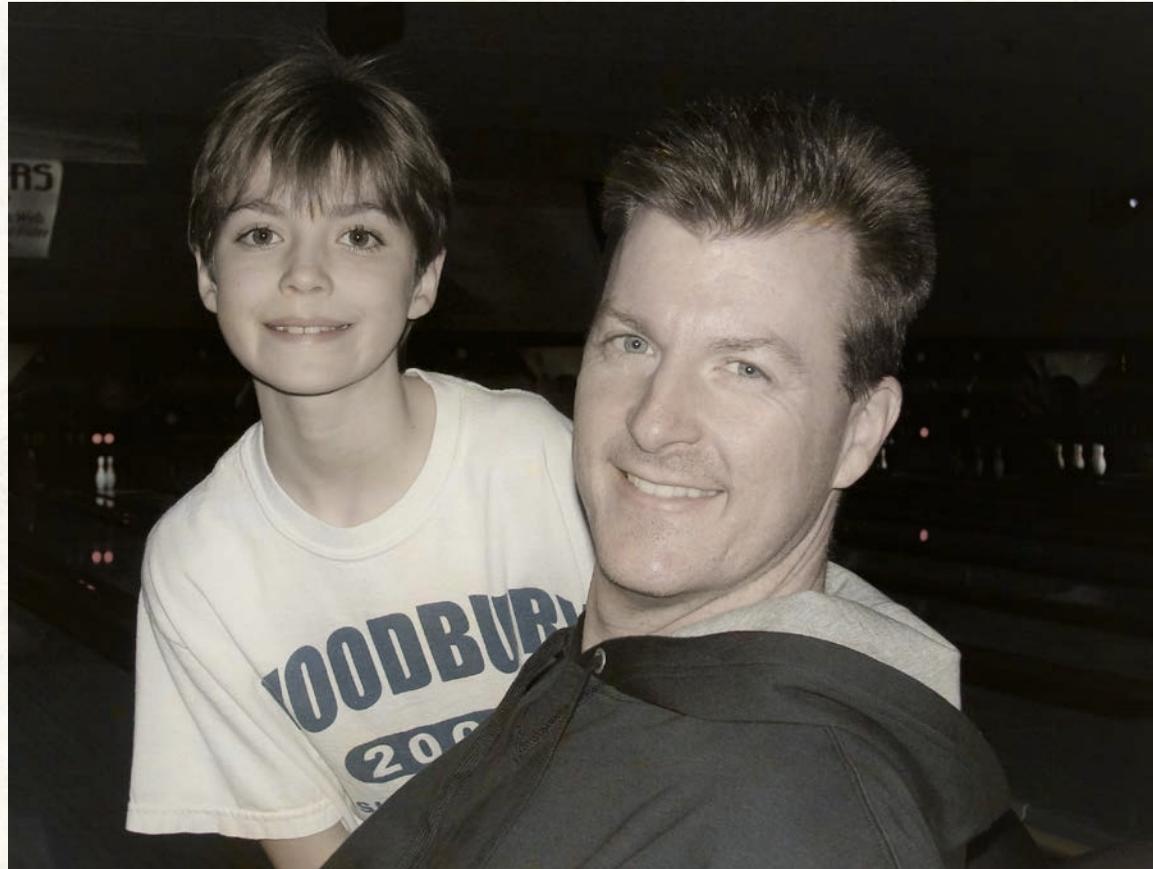
When laid flat to the ground, the theoretical floor plan becomes clear and the relation to the 24-hour day and the Hero's Journey start to emerge.



Representing the therapy space, these overlapped pages include artwork, philosophical research, stories, and inspiration words.



Representing the spiritual space, these overlapped pages include artwork, philosophical research, stories, and inspiration words.



In 2010, My father Alex was diagnosed with stage four parotid gland cancer. I was only 10 years old when the cycle of doctor's appointments, home visits, hospital stays, and surgeries began. These healthcare buildings were placed in busy towns where they were surrounded by asphalt parking lots and other buildings as close as the city would allow. Two years later in July of 2012, cancer took my father's life. Looking back at the journey my family went through, the healthcare facilities we experienced were extremely functional, only catering to delivering the necessary treatment and neglecting the mental and physical challenges of dealing with cancer. The science-driven world of medicine and architecture needs to be balanced with an appropriately attuned atmosphere in order to create a space of healing.

This thesis proposal design creates an environment that reduces levels of pain and stress. The design focuses on the use of views, natural light, and sound, and is separated from busy cities, reducing the surrounding infrastructure and noise. Studies show that a more nature-focused environment can boost the immune system in ways that assist one's own body and the treatments administered to them in the overall process of healing.

Drawing influence from both recent and ancient studies that show the co-dependence between inner and outer worlds, including the participation opened up in the cathartic experience of the theatre, the Hero's journey, and various clues from Le Corbusier's artistic and architectural practice, we look to deeply resonate experiences that reconnect us to the cycles of our bodies and the larger world. Using these ideas as inspiration for the design of architectural spaces, this cancer center creates a unique journey that focuses on the patient's experience by creating a sense of place on the site. The goal is to establish a holistic approach to healing that cultivates a gateway to emotional and physical equilibrium necessary for the feeling of hope. Incorporating lodging, spiritual space, Meditation space, a sensory spa, Therapy space, and wellness space, helps to create that unique journey.

Historical Context Minneapolis

The village of Minneapolis, Minnesota, was officially established in 1867. Early economic growth was due to a lumber and flour-milling center that was based around the falls. These wheat and lumber business carried its growth through the 19th and mid 20th century. The population reached 521,718 people in 1950. Since then the population declines until about 1990 and now the population has stabilized.

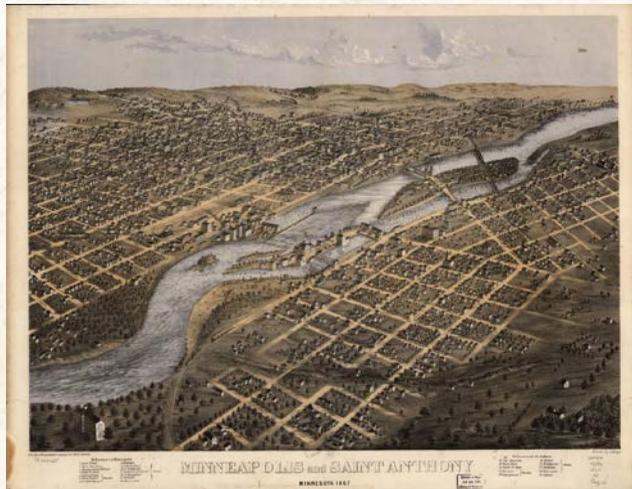


Figure 52 | 1867 Minneapolis Aerial

Today, the city is home to many commercial, transportation, distribution, health care, financial, and industrial businesses. It also has many educational colleges that cater to many different careers. Today its population is 429,012 people



Figure 53 | Recent Minneapolis Aerial

Historical Context Waconia

My site is located in Waconia, Minnesota. Which is located 30 miles southwest of Minneapolis. Starting in the early 1850's, Euro-American settlers moved in. Between 1860 and 1950, many businesses were established, including mills, flouring mills, a brewery, and an ice harvesting industry. By 1880, Waconia was large enough to be considered a village. Railroad access soon came about which brought in more residents and visitors into the area. The village finally became a city in 1921

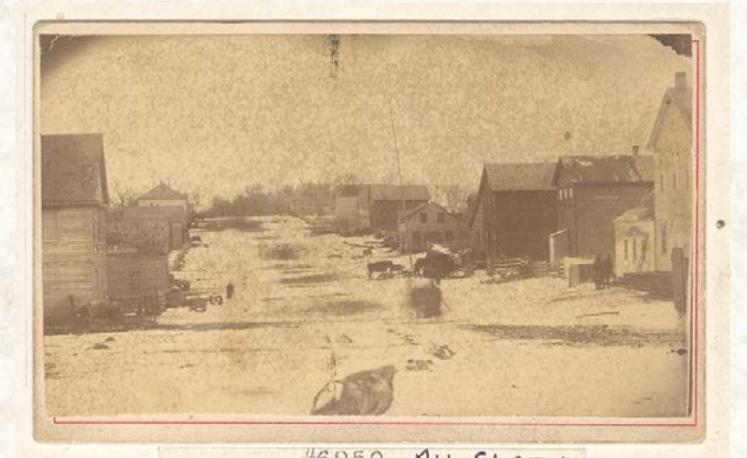


Figure 54 | Old Waconia Street Photo

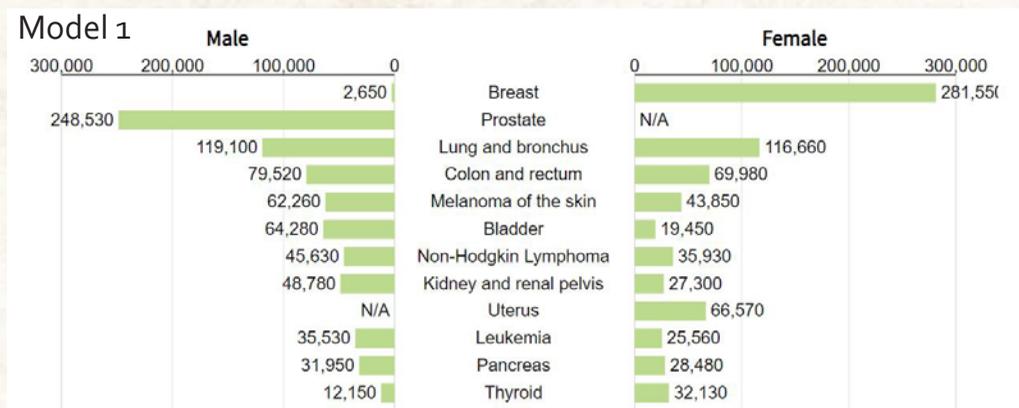
Waconia is continuing to grow in the 21st century with a population today of 12,131 people. Waconia maintains many businesses and tourist attractions. Among them are the Carver County Historical Society, Ridgeview Hospital, Independent School District #110, Safari Island Community Center, an industrial park, Island View Golf Club, three wineries, and the Historic Andrew Peterson Farmstead.



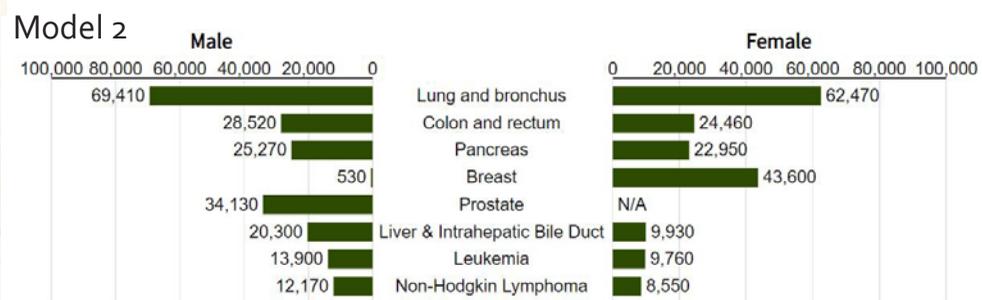
Figure 55 | Recent Waconia Aerial

Social Context Cancer Statistics

According to seer.cancer.gov, around 1.9 million people will be diagnosed with cancer in the United States in 2021. Of these 1.9 million people, it is estimated that 608,570 cancer patients will lose their lives. Model 1 shows the most common cancer sites for men and women in 2021. Breast cancer is the leading diagnosis among females while prostate cancer is the leading diagnosis among males. Model 2 shows the mortality numbers in 2021 for the leading eight cancer sites. In 2019, cancer caused 21% of all deaths in the United States and was the leading cause of death of those that are under 65 years old. This makes it the second most leading cause of death within the United States behind heart disease.



Source: Cancer Facts & Figures 2021, American Cancer Society (ACS), Atlanta, Georgia, 2021.



Source: Cancer Facts & Figures 2021, American Cancer Society (ACS), Atlanta, Georgia, 2021.



Figure 56 | Cancer Diagnosis | ACS

Social Context Cancer related Emotional, Mental, and Mood changes

According to the American Cancer Society, about 1 in 4 people with cancer develop major or clinical depression. With the change of lifestyle that cancer brings, it is easy for patients to dwell on the uncertain. Many people have goals, dreams, and plans for the future that they will have to hold off to be able to focus on being treated. This shift in mood can be shown in many ways:

- Ongoing sad, hopeless, or “empty” mood almost every day for most of the day
- Loss of interest or pleasure in activities that were once enjoyed
- Major weight loss (when not dieting) or weight gain
- Sleep changes (can’t sleep, early waking, or oversleeping)
- Extreme tiredness or less energy almost every day
- Other people notice that you’re restless or “slowed down” almost every day
- Feelings of guilt, worthlessness, and helplessness
- Trouble focusing, remembering, or making decisions
- Frequent thoughts of death or suicide, or attempts at suicide
- Wide mood swings from depression to periods of agitation and high energy

Distress can also be a common among people with cancer. This can affect the way a patient thinks, feels, or acts as it is hard to cope with cancer and the treatments and side effects that come with it. Patients with distress may be feeling sad, fearful, angry, helpless, hopeless, etc. Distress can be very manageable but in some cases it can become more serious. Signs of a more serious case include:

- Feeling overwhelmed to the point of panic
- Feeling so sad that you think you can’t go through treatment
- Feeling unable to cope with pain, tiredness, and nausea
- Poor concentration, “fuzzy thinking,” and sudden memory problems
- Feeling hopeless – wondering if there’s any point in going on
- Thinking about cancer and/or death all the time
- Questioning faith and beliefs that once gave you comfort
- Feeling worthless, useless, and like a burden to others

Social Context

Cancer related Emotional, Mental, and Mood changes

Anxiety in cancer patients is also common. Anxiety among patients can include feeling of being uncomfortable, worried, or scared about their diagnosis. These feelings can also be experienced by family members and friends. Signs of Anxiety in this context include:

- Anxious facial expressions
- Uncontrolled worry
- Trouble solving problems and focusing thoughts
- Muscle tension (the person may also look tense or tight)
- Trembling or shaking
- Restlessness, may feel keyed up or on edge
- Dry mouth
- Irritability or angry outbursts (grouchy or short-tempered)

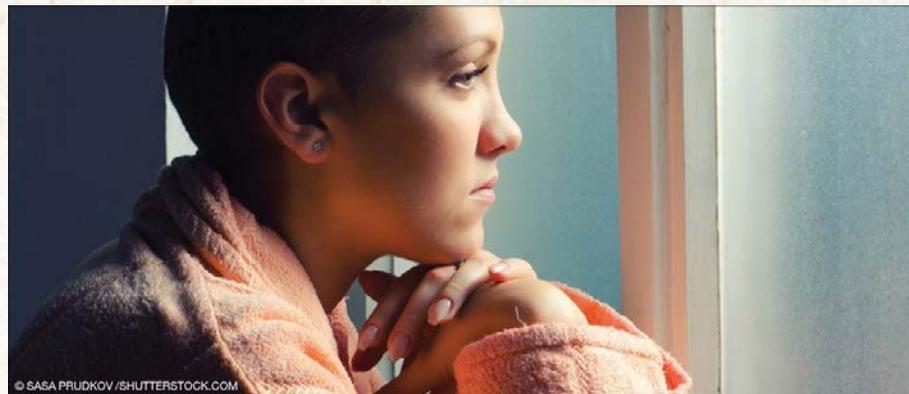


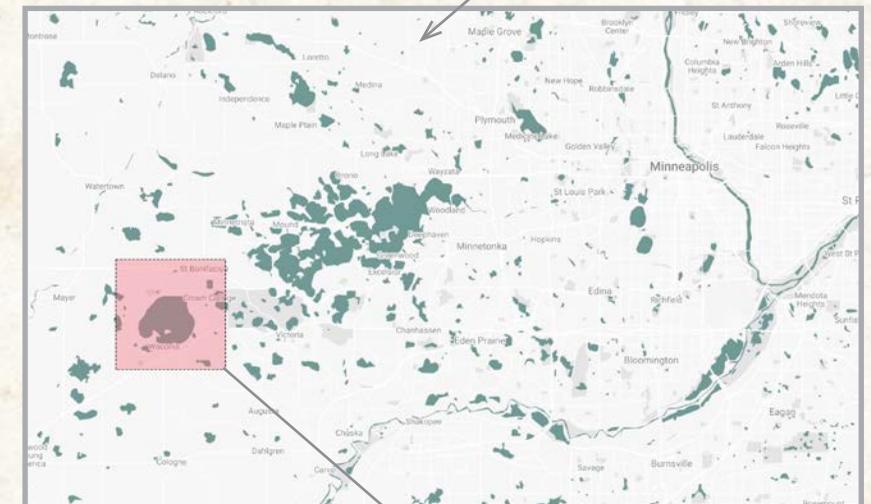
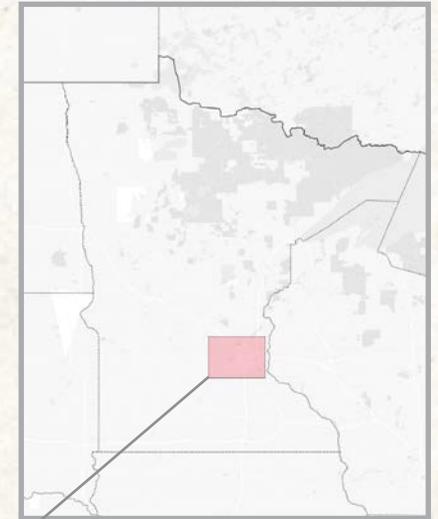
Figure 57 | Cancer Related Stress

Thesis Considerations

Cancer is part of the nature cycle of the world. It is a disease that is always bringing new challenges and the advancements in technology allow us to research and study cancer and find new ways to fight it. Cancer can take a toll on the human body not just in a physical sense, but a mental sense as well. With this in mind, my proposed thesis project aims to focus more on catering to the mental impact of cancer patients and their families than current cancer treatment facilities do in the current economy. The goal is to create healing environment for everyone that experiences the building.

Site Waconia, Minnesota

The site my for thesis project will be located in Waconia, Minnesota. From Minneapolis, MN, Waconia is approximately 40 minutes Southwest. Concentrating my site around a large population of people while finding an area without a lot of structures and traffic around it was the key to finding a successful site. I want this type of site to be a research and study about the effects that a nature centered environment around a cancer treatment center has on the patients and their families.



The site is on the North edge of lake Waconia. Although there are still plenty of houses located on the lake, there is far less houses compared to many other lakes around the twin cities. Specifically on the North side of the lake, there is a very small population of houses.

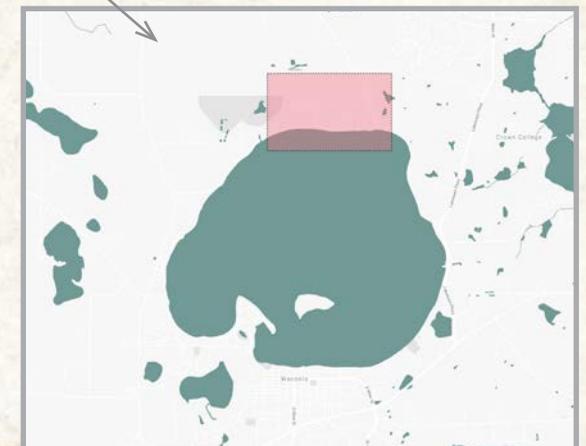


Figure 58 | Site Location | Snazzy Maps

Physical Context Waconia, Minnesota

PUD Overlay Districts



Zoning Districts

- B-1 Highway Business District
- B-2 General Business District
- B-3 Central Business District
- B-4 Health Care Business District
- I-1 Industrial Park District
- I-2 General Industrial District
- AG Agricultural
- R-1 Single Family Residential
- R-2 Single Family Residential
- R-3 Medium Density Residential
- R-4 Mixed Residential
- R-5 High Density Residential
- C Conservation District
- F-1 Fairgrounds District
- P Public District
- PUD Planned Unit Development

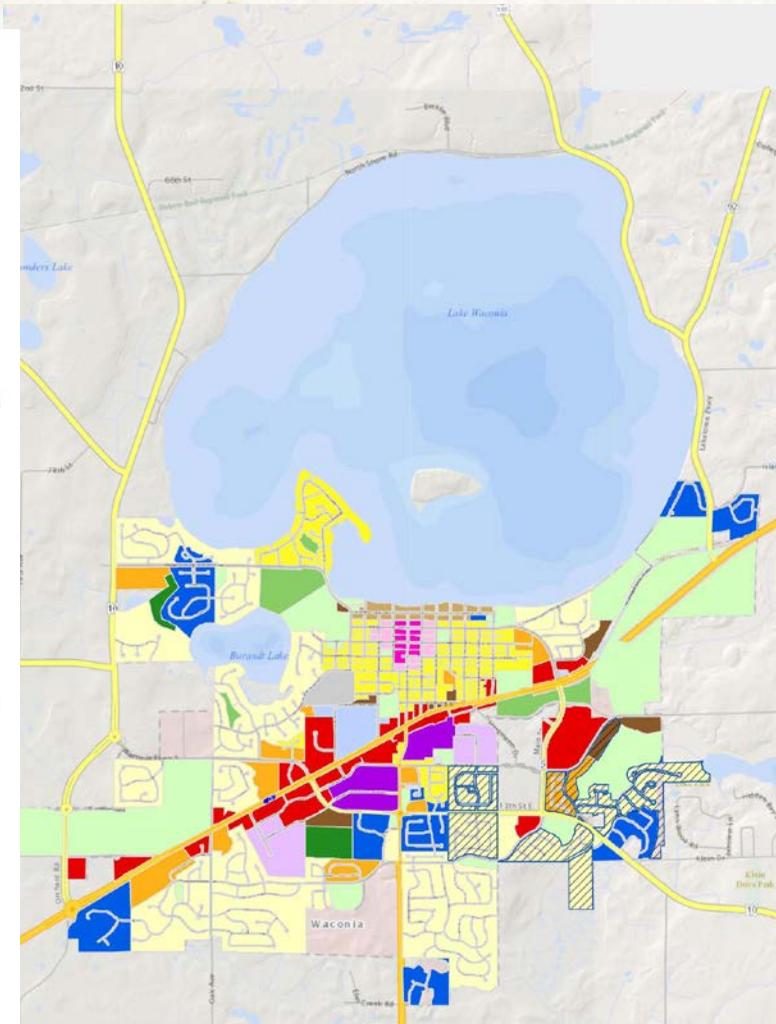
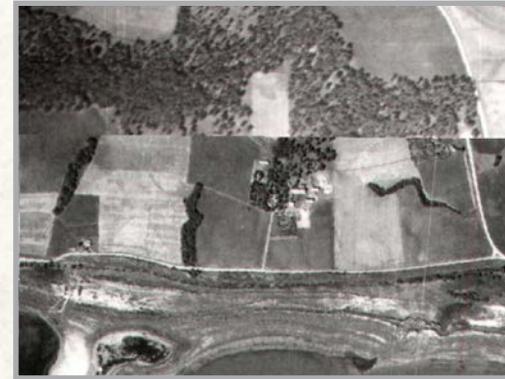


Figure 59 | Zoning | Carver County

Historical Context Waconia, Minnesota

1937



1979



2000



2011



2016



2020



Figure 60 | Historical Site Images | Carver County

Topography Waconia, Minnesota

Carver County

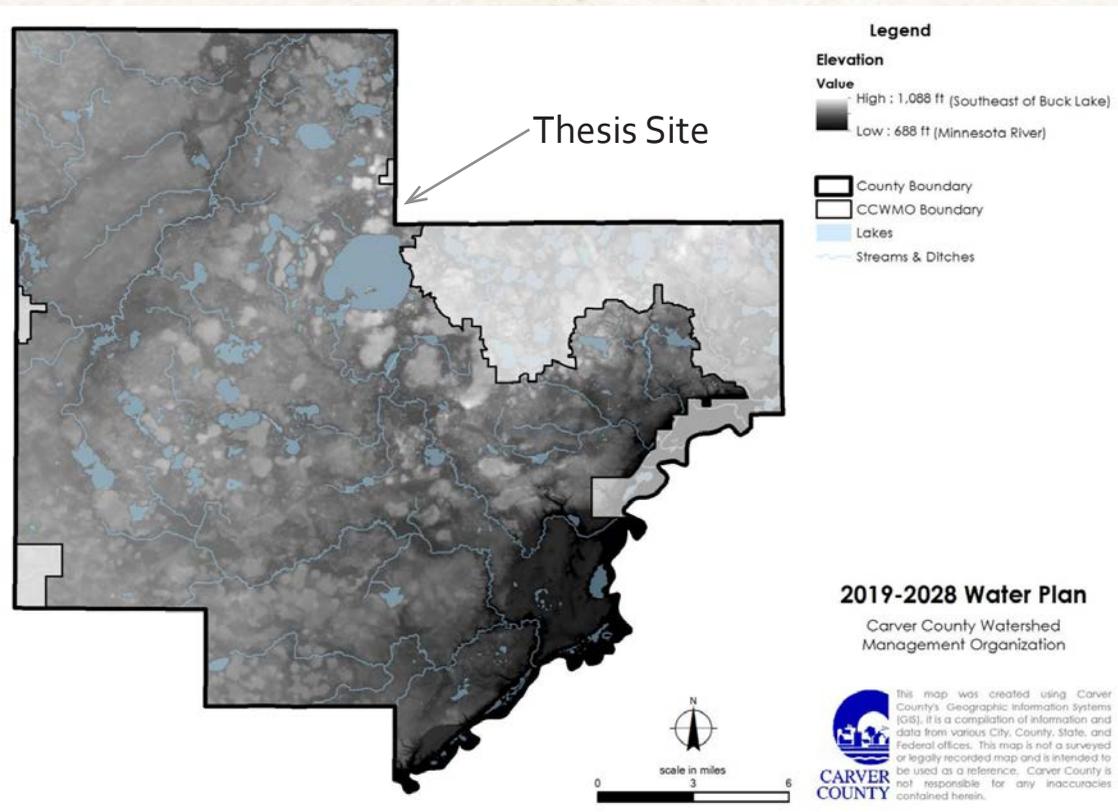


Figure 61 | Waconia Topography | Carver County

The current shape of the watershed's land surface formed during the period of the last glacial age, the Wisconsin, about 13,000 years ago. Prior to glaciation, the landscape and topography in Carver County were mostly determined by the contour of the bedrock. Pre-glacial topography consisted of highland areas cut by deep river and stream valleys. When glaciation occurred, the valleys filled in with various types of glacial material. As the glaciers melted, main river valleys followed the approximate course of many of the pre-glacial river valleys. For example, the Minnesota River Valley in Carver County follows the approximate course of a large pre-glacial valley.

Topography Waconia, Minnesota



Figure 62 | Waconia Topography 2 | Carver County



Figure 63 | Waconia Site Elevation | Google Street View

Each line on the image above is equal to 10 feet of elevation change from its nearest line. My site will be located on the slope that descends towards the water. One important thing to note is the topography along the water. The photo under the topography map shows the steep change in elevation right near the water. Currently there is a path and a dirt rode that run along the edge of the lake. This might be a challenging site condition as I will need to incorporate paths or stairs to get to the water front. This change in elevation does create very nice views over the lake, which I would like to prioritize in my design.

Site Analysis Waconia, Minnesota

The site analysis below shows the sun path, winds, drainage, best views, and the highest point. Locating the building around the highest elevation point will allow for easy drainage around the site and also create the best views from the building to the lake and surrounding nature. The best views of the lake will be on the South side of the building. Within my designs, I will need to pay close attention to ways I can maximize the views while also minimizing the thermal heat gain in the building.

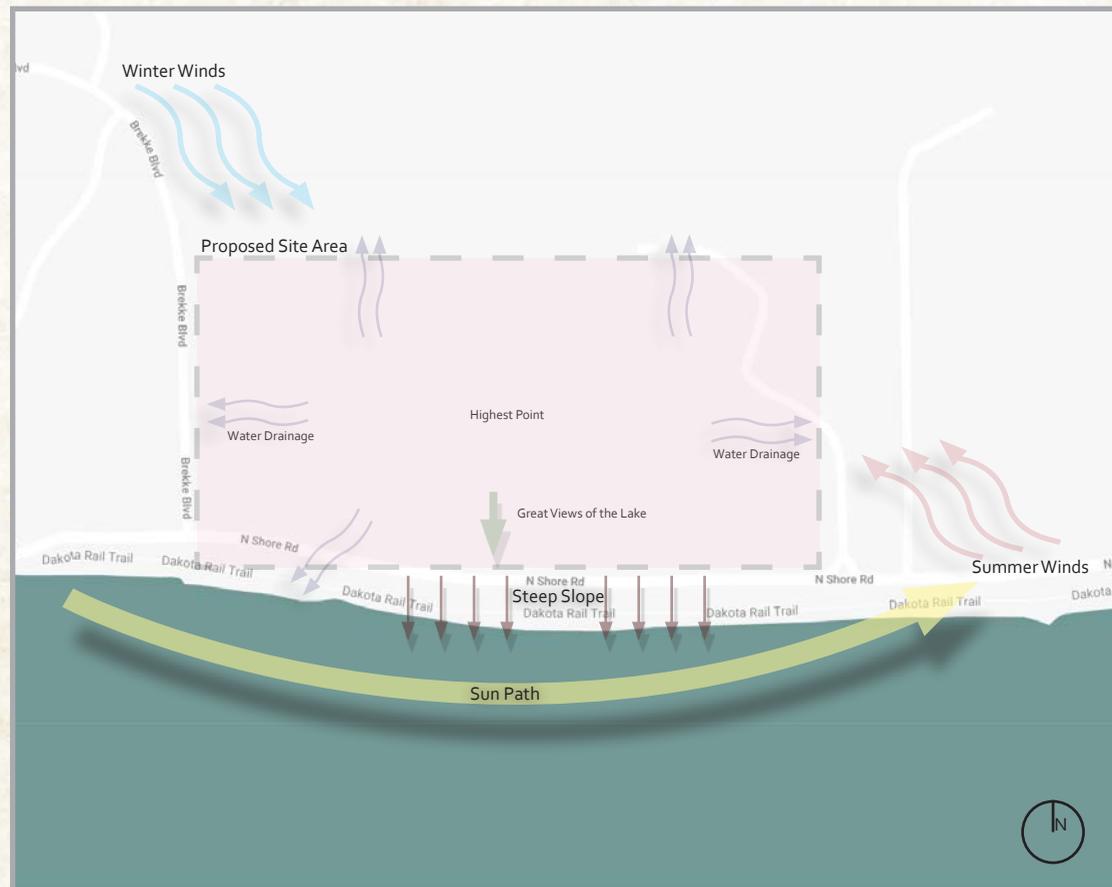


Figure 64 | Waconia Site Analysis

Site Pictures Waconia, Minnesota



Figure 65 | Waconia Site Pictures

Site Pictures
Waconia, Minnesota



Figure 66 | Waconia Site Pictures

Site Pictures
Waconia, Minnesota



Figure 67 | Waconia Site Pictures



Prevailing Winds Waconia, Minnesota

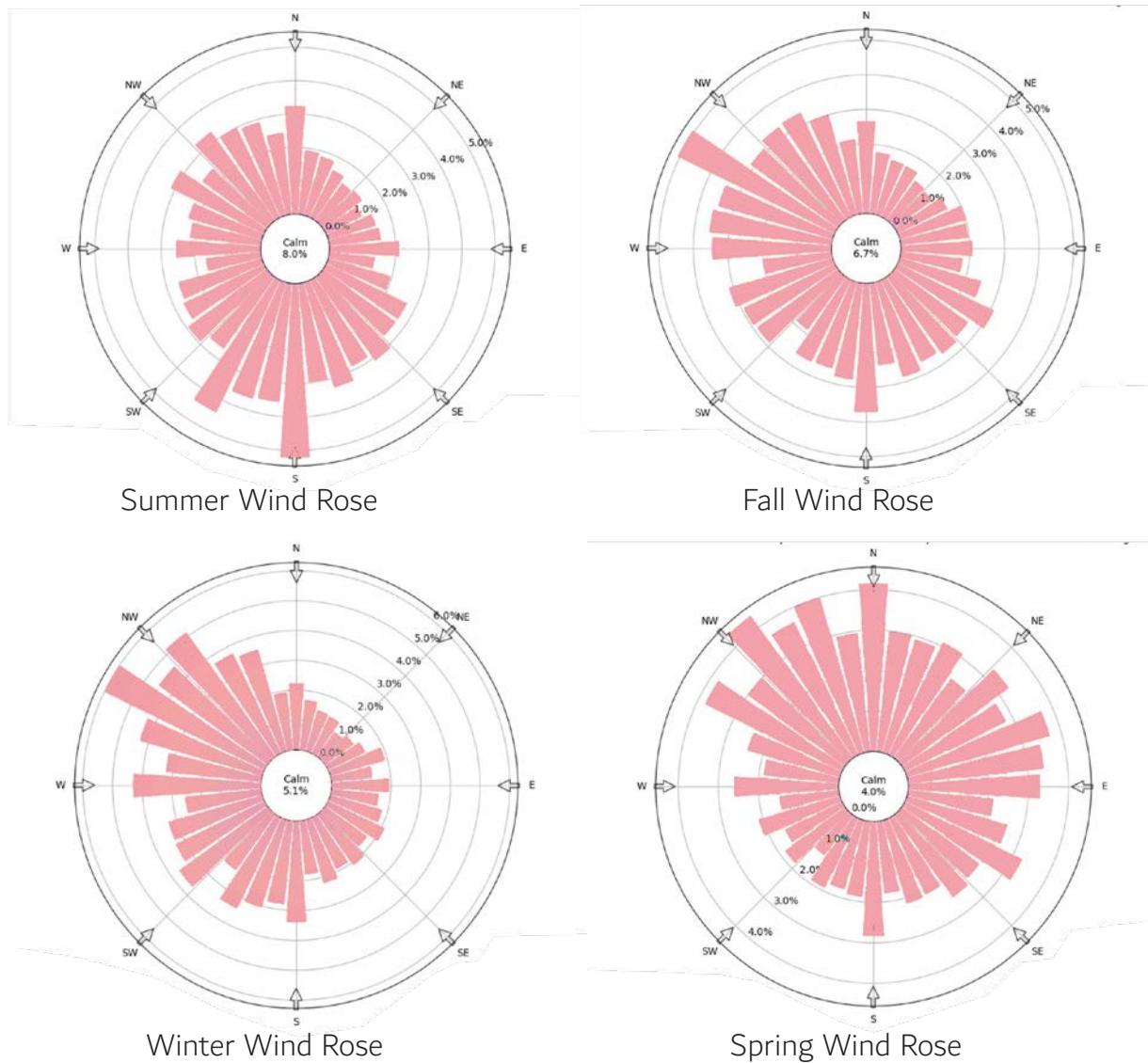


Figure 68 | Waconia Wind Rose

Bedrock Geology Waconia, Minnesota

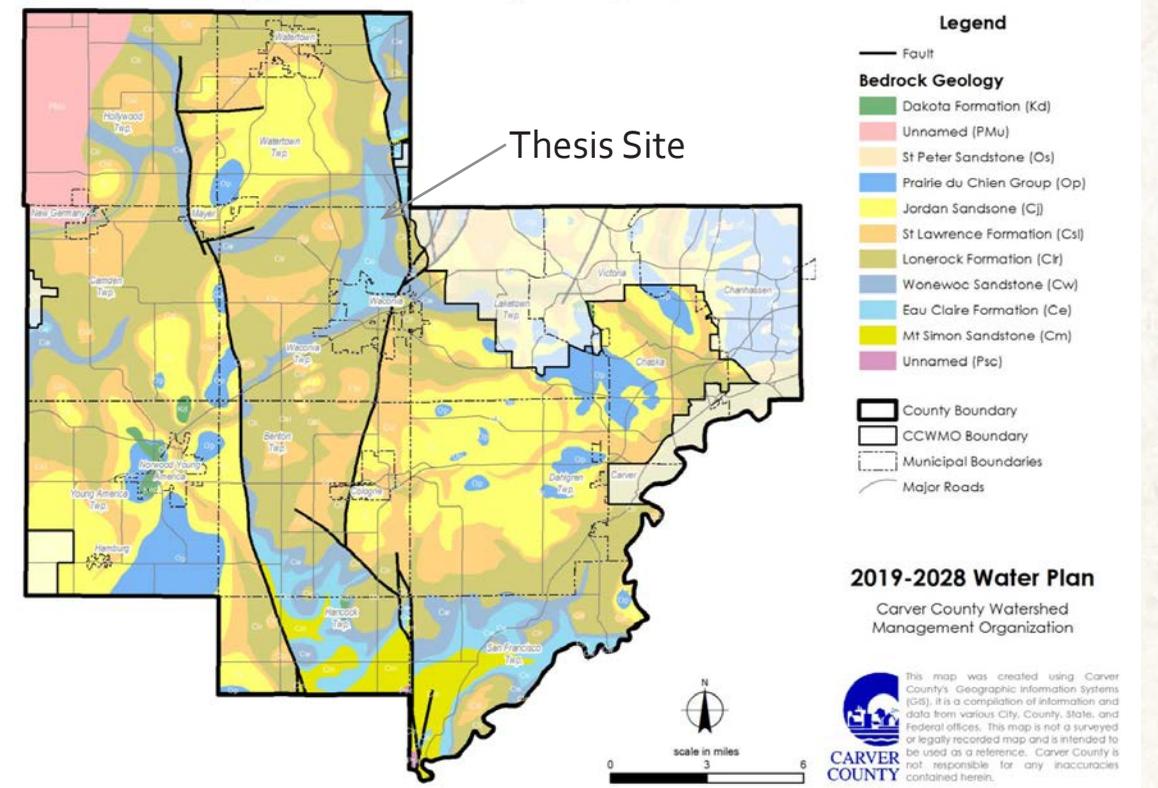


Figure 68 | Waconia Geology | Carver County

Bedrock structure refers to the angle of bedrock layers, faults, fractures, and erosional features and can play a large role in how groundwater moves through bedrock layers. In Carver County, faulting and broad folding has locally disrupted the layers of sedimentary Paleozoic rocks. A horst (a large, uplifted crustal block that is bounded by faults along its long sides) crosses through the center of the county. East of the horst structure, the Paleozoic formations dip gently to the east. West of the horst, the layers dip gently toward the southeast.

Surficial Geology Waconia, Minnesota

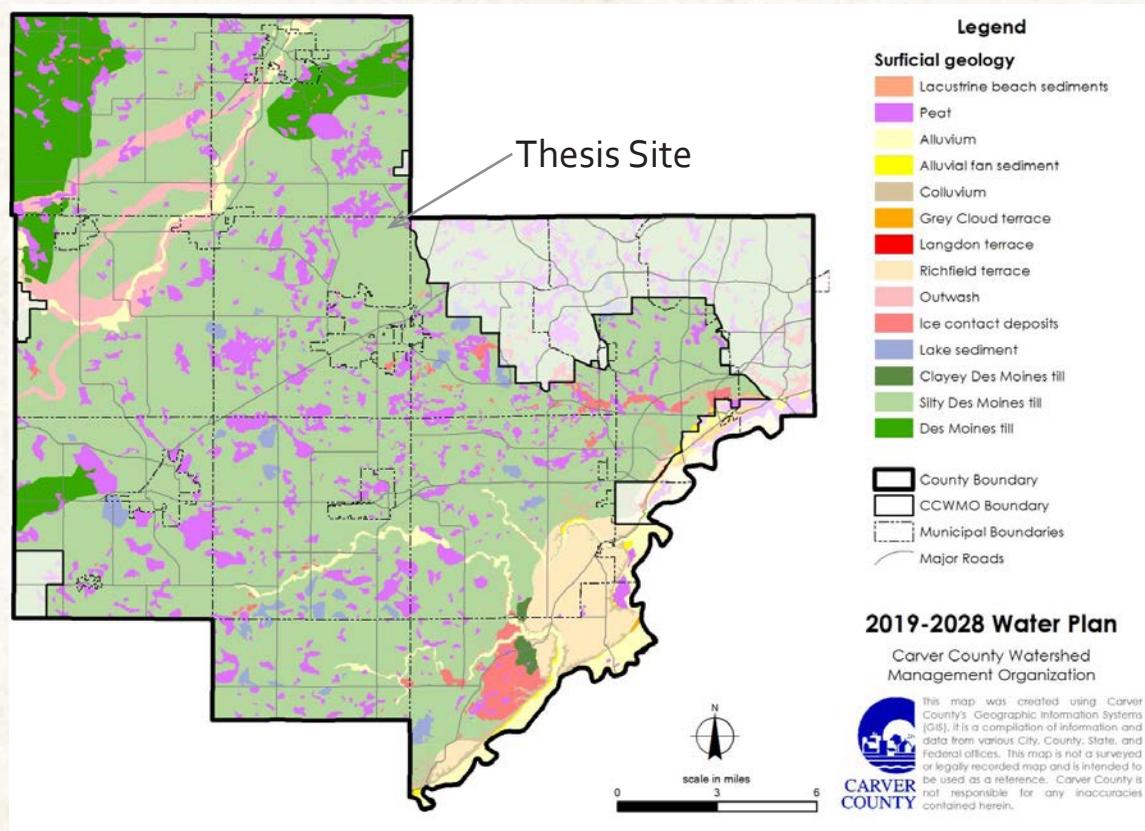


Figure 69 | Waconia Geology 2 | Carver County

Most of the sediment in the county is glacial in origin and was deposited by an ice lobe called the Des Moines lobe that came from the northwest during the Wisconsin glacial period. The Des Moines lobe carried sediment from southwestern Manitoba and from North Dakota. These glacial deposits include varying amounts of distinctive, gray, siliceous shale fragments

Performance Criteria Performance Measurements

Psychological Impact:

I will need to be able to gauge the effectiveness of my design in how it affects the patient's overall experience. The modern age of medical design is based on aesthetics and efficiency and it is neglecting the importance of designing around the patient. The goal of the modern medical building is to get a patient in and out as fast as possible. Today, the patient is treated as a "case" instead of a "patient." Specifically, with cancer research and treatment centers, I believe that the architecture can have a huge impact on the physiological health of the patient. Cancer can affect a person's life immensely. Their whole life and daily routine need to be switched around to make room for regular doctor appointments, treatments, and surgeries. Careful planning of the architectural experience that a patient and their family have while visiting the building can have a positive effect on them and help with their overall mental health.

It is difficult to put this into "units" but I would like to focus on the materials, scales, spatial layout, and landscape, to see how this affects one's psychology. To measure this, the best method will be to use feedback from my peers and professors at North Dakota State University, as well as reach out to co-workers and others that are in the architectural profession.

The analysis of this will be through the use of renderings that will portray the spaces and the moods they wish to create. I will create a survey for the people giving the feedback to measure their reactions.

To judge the success, I will use the reactions from the survey and compare them to the overall goals I was trying to achieve. If they closely align, its design will be successful.

Performance Criteria Performance Measurements

Space Allocation:

The space involved with the design of the cancer research and treatment center will be important. I would like this building to be able to treat many patients at once and also have plenty of space to conduct research to advance the knowledge of cancer. The main spaces will include waiting rooms, doctor offices, patient rooms, treatment areas, surgery rooms, and treatment rooms. To measure the space needed, I will use the demographics around the site and also in the broader context of the state. I will use government websites to find this information.

To analyze the space allocation, I will research other cancer treatment facilities and compare their space to the demographic around them. This will allow for the comparison of the spaces and will help gauge how appropriate the spaces I create will be. This will help with the overall performance judgment. If the spaces of my cancer research and treatment center and the demographic around it match other facilities it will prove there is enough space for the programs.

Code Compliance:

Code compliance will be an important aspect of the cancer research and treatment center. There will be all types of patients that will be treated here and it needs to be ADA accessible in all areas.

To measure code compliance, I will use the most recent ADA guidelines to make sure I am meeting all of the codes. Using lots of graphics, I will be able to analyze this by showing exact dimensions and design in specific areas to prove compliance with code.

To judge if this code compliance will be reached, I will have my studio professor and other peers look through my work and have ADA codes available for them to review as well.

Space Allocation Treatment and Research Center Allocation Table

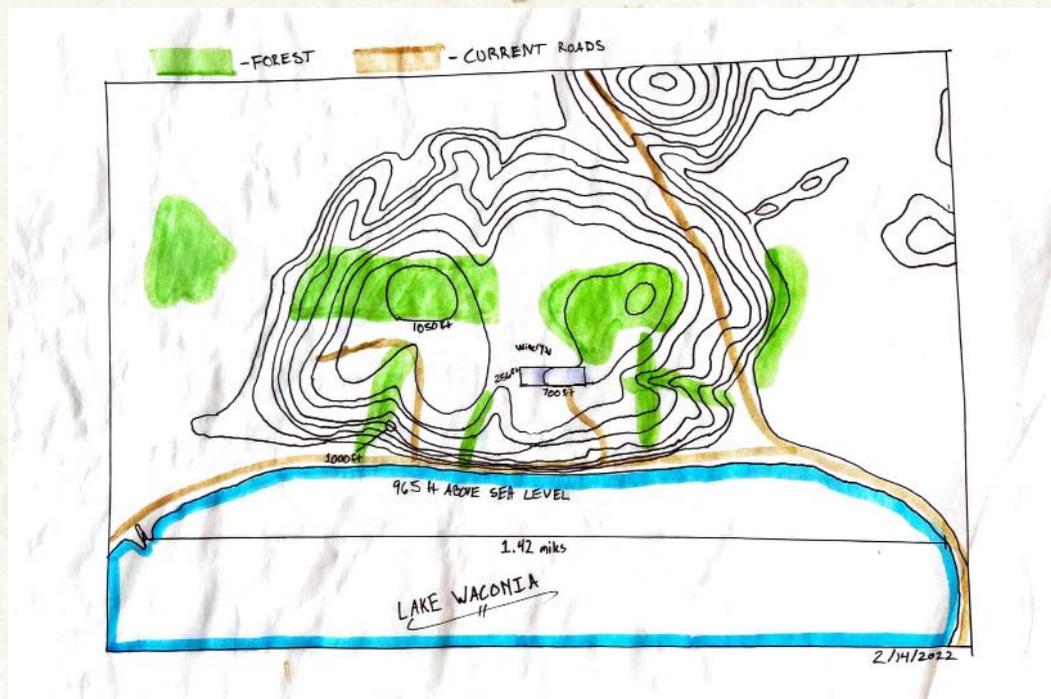
Spaces	SqFt Typical.	/	Large
Public Area			
Reception	70 SqFt		130 SqFt
Cafe	100 SqFt		150 SqFt
Financial services	70 SqFt		100 SqFt
Admitting/ Discharging	70 SqFt		
Lobby with Seating	250 SqFt		400 SqFt
Pharmacy	100 SqFt		125 SqFt
Restrooms	100 SqFt		150 SqFt
Clinical Area			
Exam Rooms	120 SqFt		160 SqFt
Consultation Rooms	120 SqFt		160SqFt
Changing Rooms	50 SqFt		100SqFt
Resource Library	50 SqFt		100 SqFt
Wellness Area	100 SqFt		200 SqFt
Infusion Bays	100 SqFt		150 SqFt
Surgery Rooms	150 SqFt		200 SqFt
Radiation Rooms	150 SqFt		200SqFt
Recovery Rooms	120 SqFt		160 SqFt
Doctor's Offices	120 SqFt		160 SqFt
Research			
Lab Space	500 SqFt		700 SqFt
Cleaning Area	100 SqFt		
Lab Offices	100 SqFt		140 SqFt

Space Allocation Treatment and Research Center Allocation Table

Spaces	SqFt Typical.	/	Large
Mental Recovery Spaces			
Meditation Space	100 SqFt		130 SqFt
Religious Space	100 SqFt		150 SqFt
Spa Area	150 SqFt		200 SqFt
Individual Therapy Space	80 SqFt		100 SqFt
Group Therapy Space	200 SqFt		270 SqFt
Lodging Space	200 SqFt		300 SqFt
Outdoor Space	Space will vary with site conditions		
Support Space			
Waste	100 SqFt		130 SqFt
Data Room	65 SqFt		
Storage Area	150 SqFt		
Equipment Area	60 SqFt		
Mechanical Room	60 SqFt		
Staff Offices	100 SqFt		150 SqFt
Staff Lounge	170 SqFt		200 SqFt
Custodial Room	80 SqFt		

DESIGN SOLUTION

Process Documentation



To understand the site and its context better, I drew the site and its topography. This led to a better understanding of where I would like to build on the site.

Process Documentation

POPE ARCHITECTS

Booms

- Consultation - 10'x12' (10) 1,200
- Exam - 9'x12' (10) 1,080
- Staff Work Core - 22'x41' (1) 952
- Storage - 6'5" x 8' (1) 52

Entrance

- Vestibule - 15' x 15' (1) 225
- waiting - 33' x 33' (1) 1,444
- check in - 24' x 12' (1) 288
- work room - 9' x 9' (1) 81
- Mens Rest - 6'8" x 3' (1) 53
- Womens BR - 6'3" x 3' (1) 53
- Unisex BR - 6'3" x 3' (1) 53
- Reception w/ waiting - 8' x 20' (1) 160
- Extra seating - 10' x 25' (1) 250

RADIATION

- Linear elec vault - 34' x 45' (1) 1,755
- control Room - 15'10" x 9'3" (1) 153
- Lin elec equipment - 11' x 5' (1) 28
- 2 dress rooms - 14' x 14' (1) 196
- Subsuite - 12'3" x 12'3" (1) 146
- toilet - 6'3" x 8' (1) 53
- holding - 11'6" x 6'7" (1) 76
- Road waiting room with Desk - 15'1" x 9' (1) 126

OTHER AREA

- Linear elec sim - 17'10" x 25' (1) 414
- simulator control - 25' x 17'10" (1) 154
- offices - 10'11" x 11'10" (7) 834
- toilet - 6'8" x 3' (1) 53
- Exam - 7'6" x 11'5" (4) 345
- Consult - 9'4" x 11'5" (3) 327
- Meds - 4'10" x 9'4" (1) 90
- clean/eq - 10'5" x 8'5" (1) 144
- sim storage - 4'6" x 13'3" (1) 64
- DOSI MCH POPE ARCHITECTS, INC. (1) 154

Infection

- Nurse Area - 40' x 14' (1) 560
- Infection - 11' x 10' (1) 110
- toilet - 6'8" x 3' (2) (1) 151
- nutrition - 11'8" x 9'8" (1) 115
- clean meds - 23' x 11'6" (1) 264
- express infusion - 14'5" x 20'6" (1) 300
- community infusion - 22' x 15' (1) 330

OFF OF ENTRANCE

- vitals - 6' x 10' (2) 60
- Scale Room - 13' x 10' (2) 420
- Seed waiting - 10'10" x 11'3" (1) 103
- toilet - 6'8" x 3' (2) 53
- supervisor core - 12' x 11'11" (2) 149
- multi purpose room - 14' x 26' (1) 364
- Lab waiting - 6'4" x 14'4" (1) 98
- Lab (rooms) - 15'6" x 14'6" (1) 224

Pharmacy AREA

- Receiving - 8'3" x 9'3" (1) 76
- Pharm work - 14' x 16' (1) 224
- Exam Compnd - 12'7" x 12'7" (1) 158
- chemo compnd - 10'3" x 15'1" (1) 150
- ante Room - 14' x 10' (1) 140
- Supervisor core - 17' x 12' (2) 264
- offices - 10' x 10' (2) 100
- Staff held - 6'3" x 3' (1) 53
- PTS Room? - 3' x 5' (1) 40

Other

- Mechanical - 30' x 30' (1) 900
- electrical - 10' x 26' (1) 260
- staff conference - 25' x 18' (1) 450
- Break room - 32' x 15' (1) 480
- storage - 10'10" x 13'6" (1) 148
- toilets - 6'3" x 3' (4) 212
- elevator - 7'7" x 5'7" (2-3) 84
- stairs - 10' x 12' (2-3) 440

10,554

136,665 136,669,107

www.popearch.com

≈ 45% circulation = 2,399

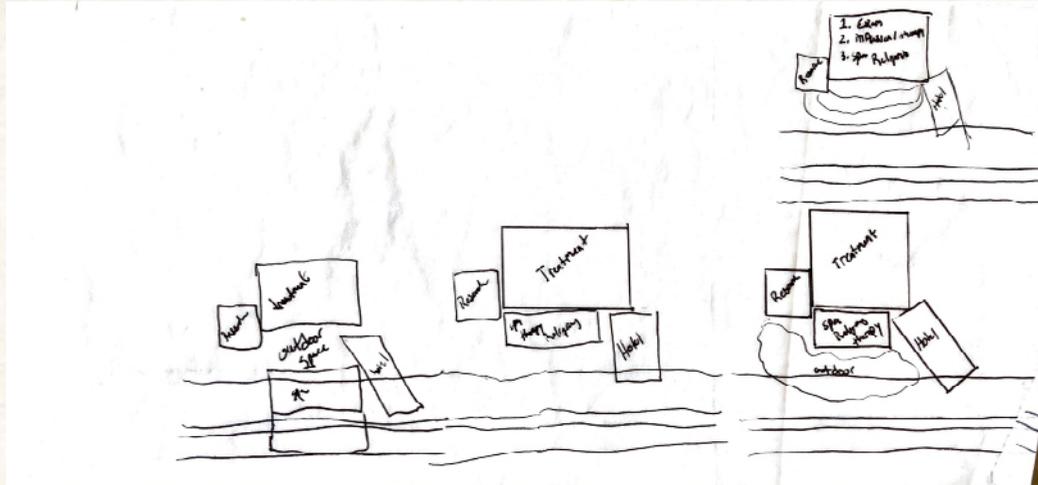
127,069 = 104

1295 BANDANA BOULEVARD N, SUITE 200
ST. PAUL, MN 55108-2735
(651) 642-9200 | FAX (651) 642-1101

radiation
done
science
mch

Diving into understanding the layout of current cancer treatment centers I found a clinic that was around the size I wanted to design. I wrote out all the spaces and dimensions for them. This was important for understanding the space one needs when going to a treatment center.

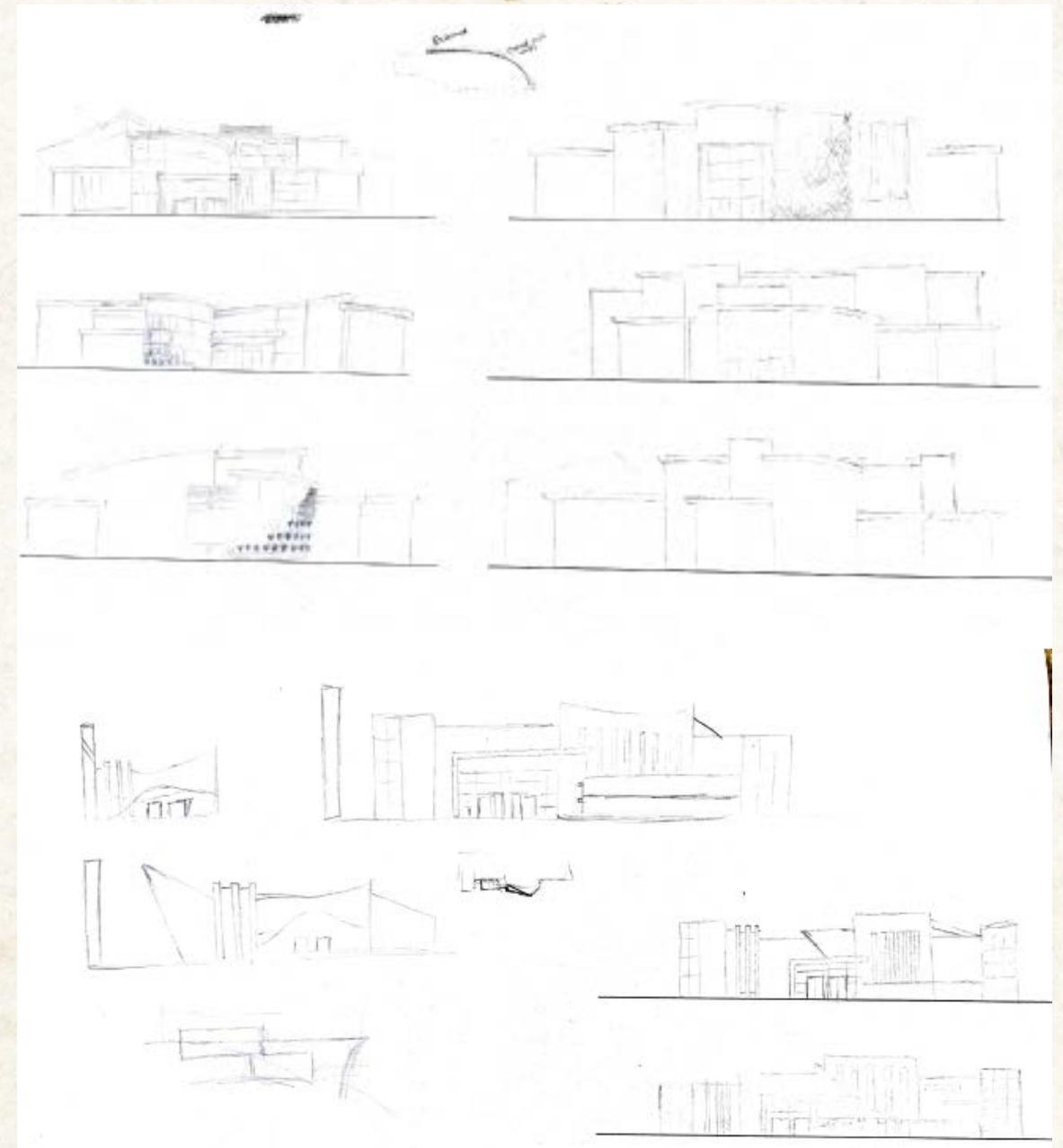
Process Documentation



The first sketches started with spatial and bubble diagrams. The top image shows the slope and shorelines with the lines on the bottom of the drawings. This let me play with placing building on and off the slope going down to the water.

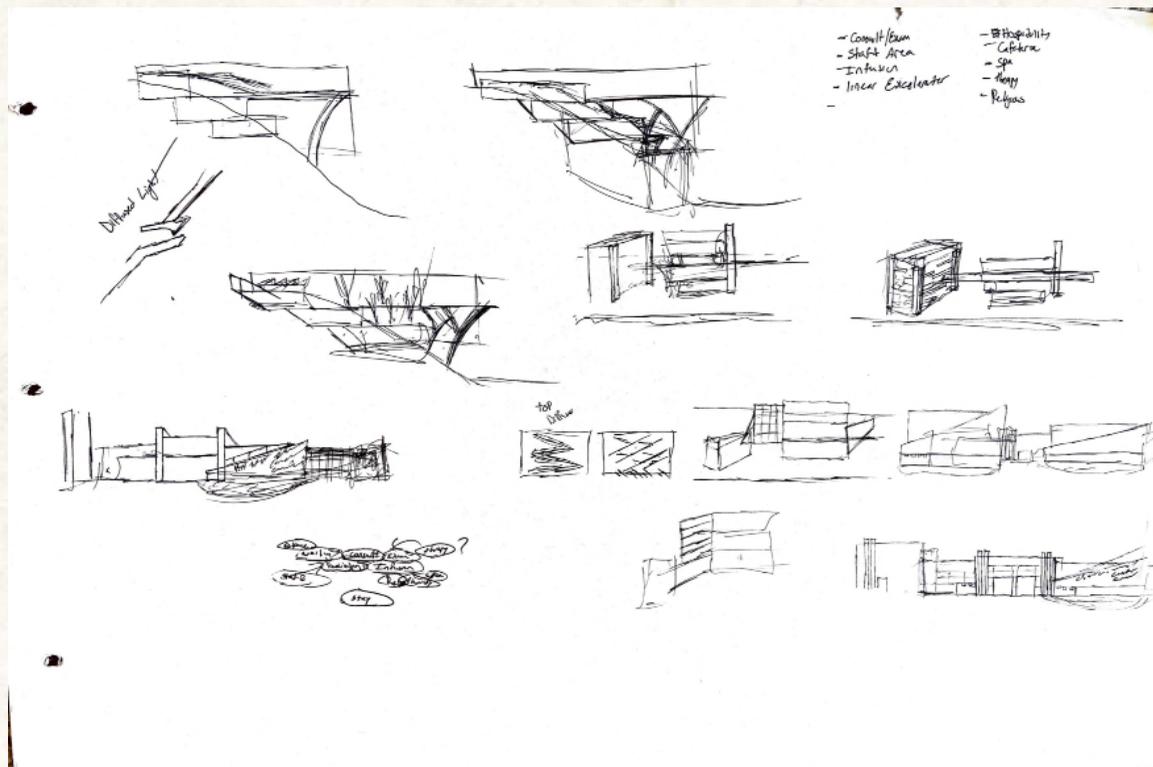


Process Documentation

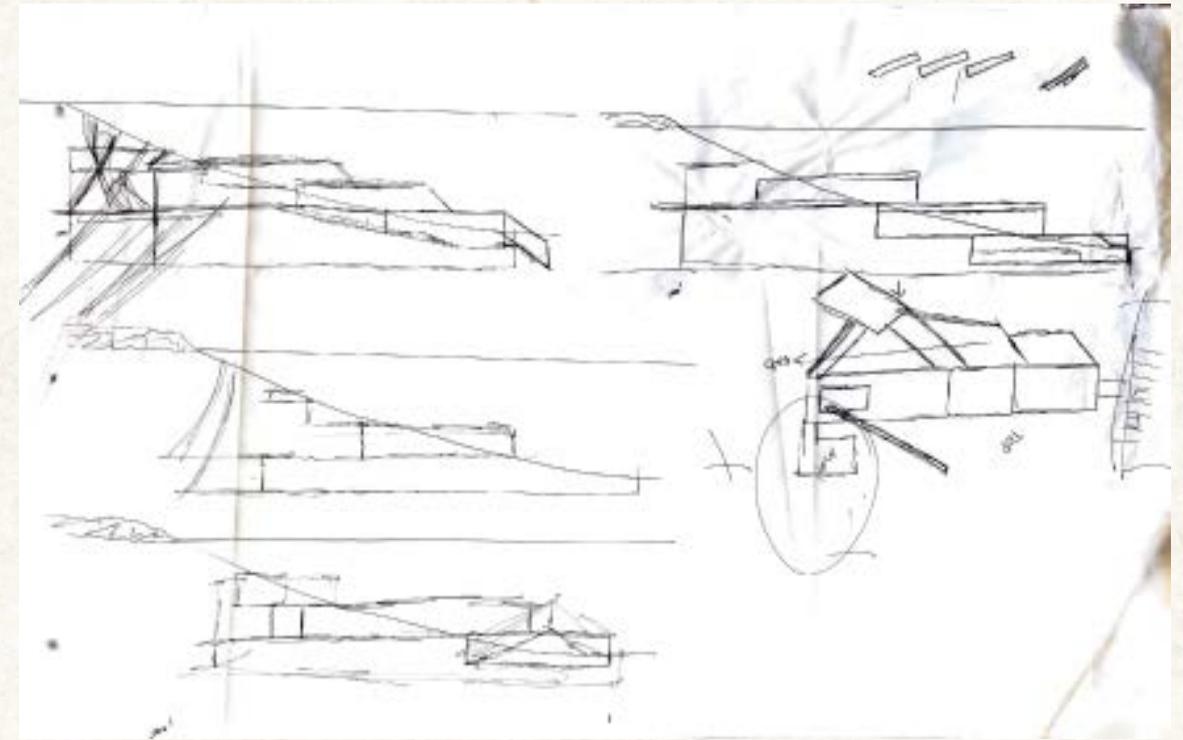


The first elevation designs were made for the north side of the site and did not use the steep slope within its design. With these drawings, I realized that I was falling into more of a typical design of a healthcare building.

Process Documentation

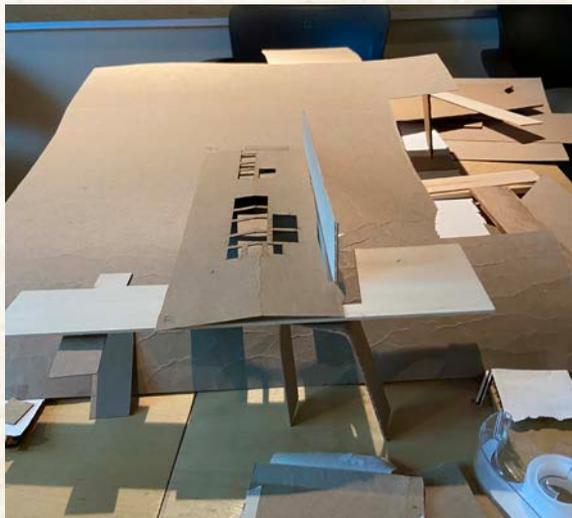


Process Documentation



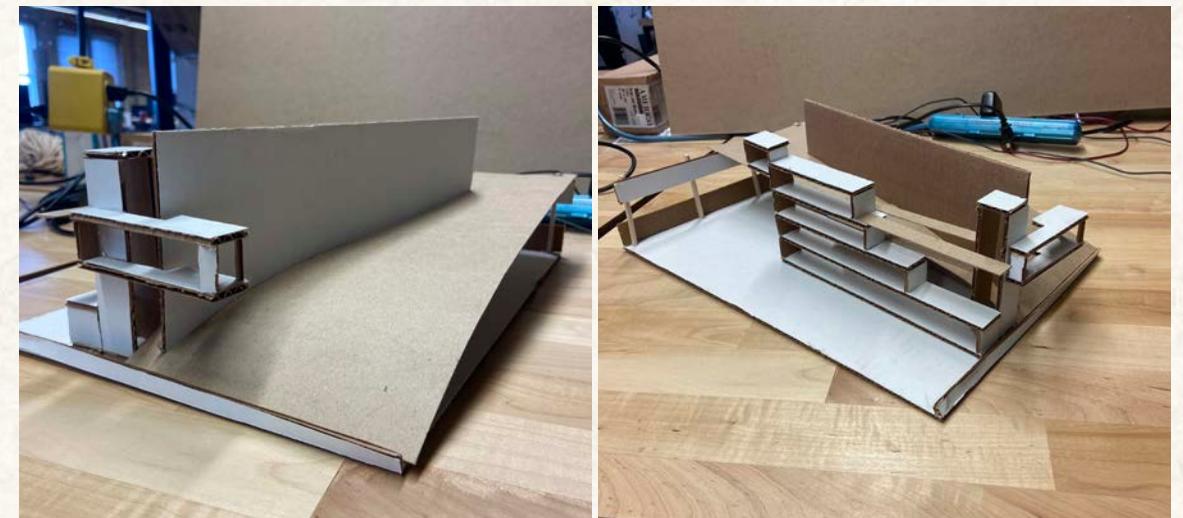
The sketches above show the thought process in trying incorporate the steep slope near the water within the design of the building. Designing on the slope became an interesting challenge and made the building different from the normal structures found within its typology.

Process Documentation



This is the first rip and tear model that I worked on with my professor Stephen Wischer. This design used the steep slope and had elements that were suspended near the waters edge.

Process Documentation



As I finished up the early phases of the structure and form of the building, I developed a section cut to see how the different levels interact as the building reaches towards the water. Another element modeled in this space is the concrete wall that separates the meditation space from the rest of the building, creating a special moment that allows for a special connection between the patient, their thoughts, and the views of nature and water. I was not sure how the mediation space and large wall would work but this model made its success more clear.

ALEXANDER CANCER TREATMENT AND RESEARCH CENTER

TRANSFORMATIONAL HEALING THROUGH
ATMOSPHERIC ARCHITECTURE

This thesis explores the role of the environment on the treatment and potential healing of those afflicted with cancer – a disease that will affect the individual lives and families of an estimated 1.9 million people in the United States in 2022. Although recent studies in neuro and cognitive science show how the inner and outer worlds are interdependent and co-emergent, architecture, especially in the realm of healthcare, has become focused on functionality, efficiency, and aesthetics due to the rise and development of Positivism which separates mind and body, subjective and objective realms. While such developments inevitably benefit the medical treatment of cancer patients, this thesis questions the emotional and cognitive benefits of spaces that cannot be reduced to rational formulas and control. There is a prevalent disconnect between the architecture, patient, and doctor that affects the patient's mood and their ability to achieve equilibrium within themselves. Research, along with architectural designs, aims to examine how the language of healthcare architecture might create a more attuned atmosphere that can aid in the treatment and healing of a patient through environments that consider the emotional and cognitive aspects of the whole human being.



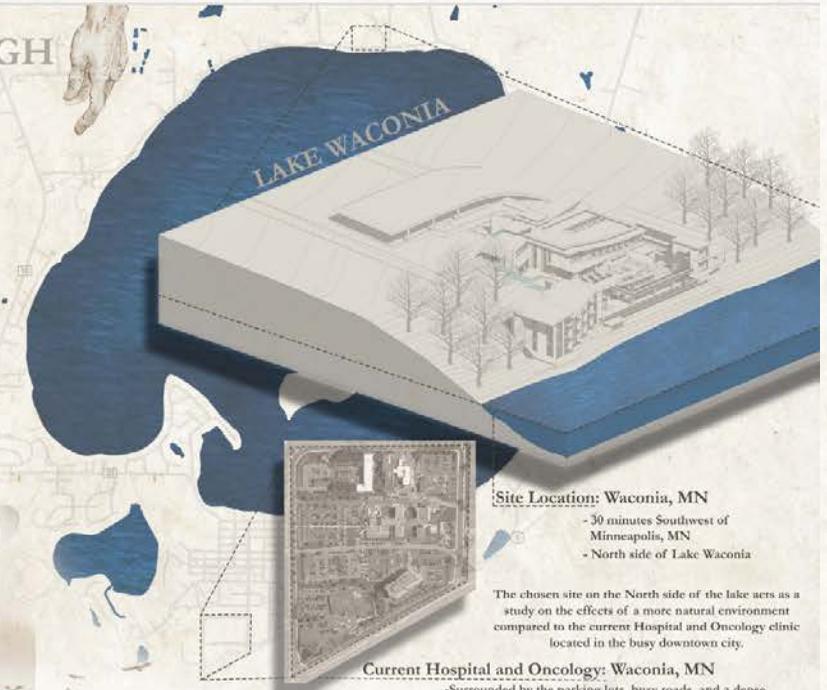
In 2010, My father Alex was diagnosed with stage four parotid gland cancer. I was only 10 years old when the cycle of doctor's appointments, home visits, hospital stays, and surgeries began. These healthcare buildings were placed in busy towns where they were surrounded by asphalt parking lots and other buildings as close as the city would allow. Two years later in July of 2012, cancer took my father's life. Looking back at the journey my family went through, the healthcare facilities we experienced were extremely functional, only caring to delivering the necessary treatment and neglecting the mental and physical challenges of dealing with cancer.



This thesis proposal design creates an environment that reduces levels of pain and stress. The design focuses on the use of views, natural light, and sound, and is separated from busy cities, reducing the surrounding infrastructure and noise. Studies show that a more nature-focused environment can boost the immune system in ways that assist one's own body and the treatments administered to them in the overall process of healing.

Drawing influence from both recent and ancient studies that show the co-dependence between inner and outer worlds, including the participation opened up in the cathartic experience of the theatre, the Hero's journey, and various clues from Le Corbusier's artistic and architectural practice, we look to deeply resonate experiences that reconnect us to the cycles of our bodies and the larger world. Using these ideas as inspiration for the design of architectural spaces, this cancer center creates a unique journey that focuses on the patient's experience by creating a sense of place on the site. The goal is to establish a holistic approach to healing that cultivates a gateway to emotional and physical equilibrium necessary for the feeling of hope.

Incorporating spaces that create a unique journey

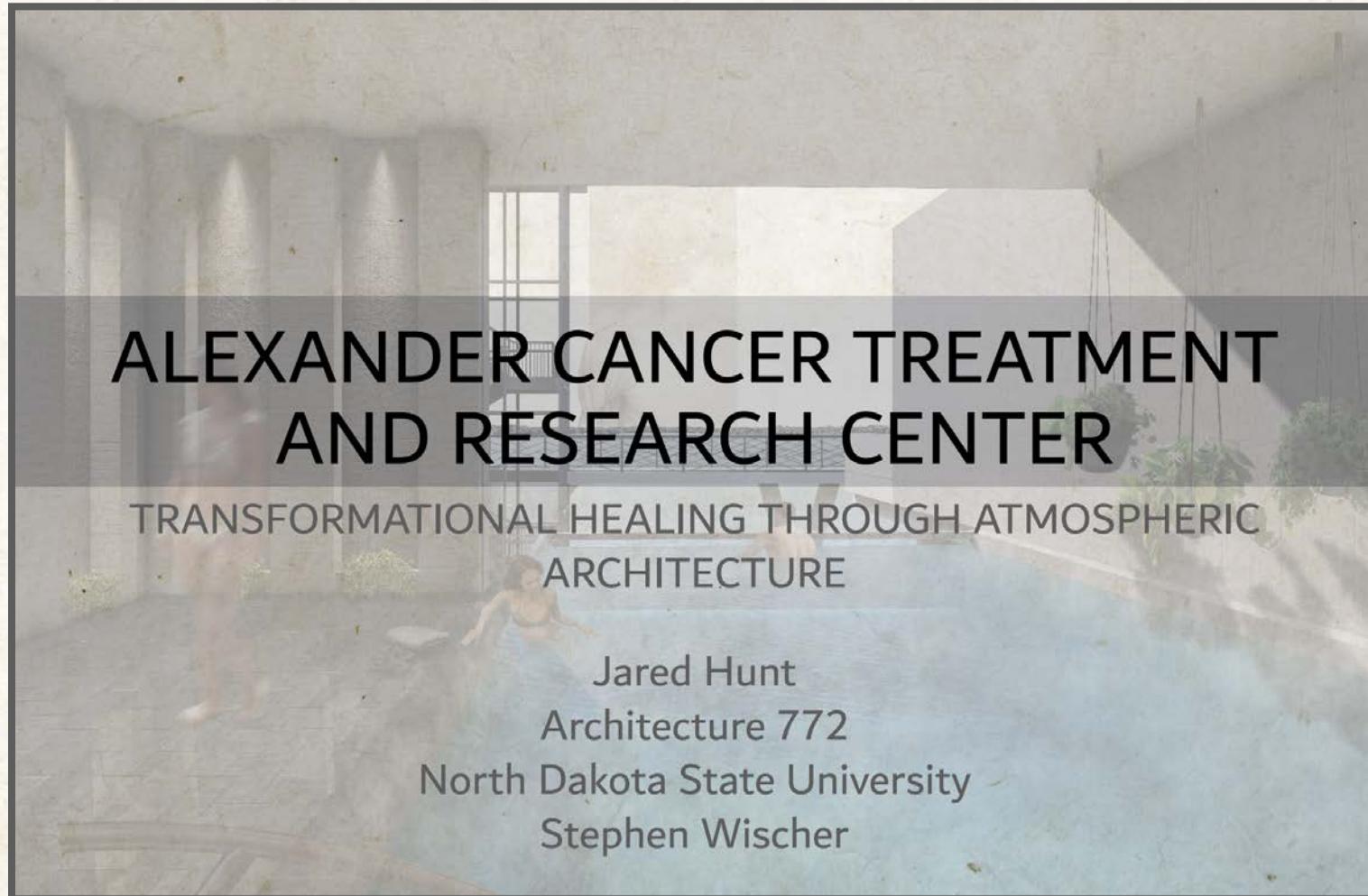


Site Location: Waconia, MN
- 30 minutes Southwest of Minneapolis, MN
- North side of Lake Waconia

The chosen site on the North side of the lake acts as a study on the effects of a more natural environment compared to the current Hospital and Oncology clinic located in the busy downtown city.

Current Hospital and Oncology: Waconia, MN
- Surrounded by the parking lots, busy roads, and a dense downtown.





Jared Hunt

Graduate Student in architecture at North Dakota State University

Alexander Cancer Treatment and Research Center.

Transformational Healing Through Atmospheric Architecture.

ALEXANDER CANCER TREATMENT AND RESEARCH CENTER

TRANSFORMATIONAL HEALING THROUGH ATMOSPHERIC
ARCHITECTURE

Jared Hunt

Architecture 772

North Dakota State University

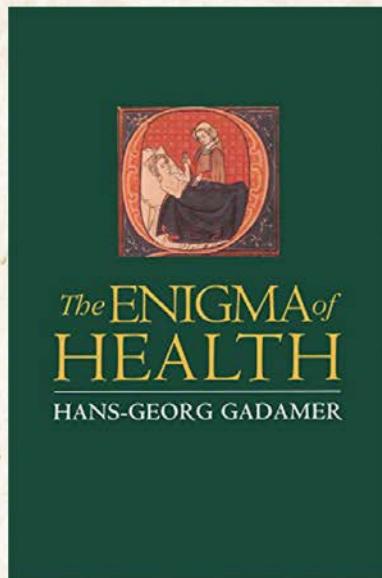
Stephen Wischer

Presentation Slides

This thesis explores the role of the environment on the treatment and potential healing of those afflicted with cancer – a disease that will affect the individual lives and families of an estimated 1.9 million people in the United States in 2022. Although recent studies in neuro and cognitive science show how the inner and outer worlds are interdependent and co-emergent, architecture, especially in the realm of healthcare, has become focused on functionality, efficiency, and aesthetics due to the rise and development of Positivism which separates mind and body, subjective and objective realms. While such developments inevitably benefit the medical treatment of cancer patients, this thesis questions the emotional and cognitive benefits of spaces that cannot be reduced to rational formulas and control. In other words, we examine how the language of healthcare architecture might create a more attuned atmosphere that can aid in the treatment and healing of a patient through environments that consider the emotional and cognitive aspects of the whole human being.

The rise of positive science in the 19 century made the human economy reliant on science as a primary productive factor. Hans-Georg Gadamer was a German philosopher who explores the transformations in human understanding wrought by the scientific worldview in his work, *The Enigma of Health*.

Presentation Slides



Hans- Georg Gadamer
German Philosopher

This thesis explores the role of the environment on the treatment and potential healing of those afflicted with cancer – a disease that will affect the individual lives and families of an estimated 1.9 million people in the United States in 2022. Although recent studies in neuro and cognitive science show how the inner and outer worlds are interdependent and co-emergent, architecture, especially in the realm of healthcare, has become focused on functionality, efficiency, and aesthetics due to the rise and development of Positivism which separates mind and body, subjective and objective realms. While such developments inevitably benefit the medical treatment of cancer patients, this thesis questions the emotional and cognitive benefits of spaces that cannot be reduced to rational formulas and control. In other words, we examine how the language of healthcare architecture might create a more attuned atmosphere that can aid in the treatment and healing of a patient through environments that consider the emotional and cognitive aspects of the whole human being.

Presentation Slides



"Representation of consciousness." Robert Fludd, *Utriusque cosmi maioris scilicet et minoris [...]*, 1619t

“No longer is it (meaning nature) limited to the premodern implications of techne, namely, to filling out the possibilities of further development left open by nature (Aristotle). It has moved upward to the level of an artificial counterpart to reality.” The technical exploitation of natural resources has caused science to “become a new kind of factor in human life, and this is its application to the life of society itself (Gadamer 8).”

Gadamer states “No longer is it (meaning nature) limited to the premodern implications of techne, namely, to filling out the possibilities of further development left open by nature (Aristotle). It has moved upward to the level of an artificial counterpart to reality.” The technical exploitation of natural resources has caused science to “become a new kind of factor in human life, and this is its application to the life of society itself (Gadamer 8).” Ultimately, Science today is in conflict with our human consciousness of value.

Presentation Slides

Gadamer suggest a possible way to blend the old and the modern together, “what we need to do is to learn to build a bridge over the existing divide between the theoretician who knows the general rule and the person involved in practice who wishes to deal with the unique situation of this patient who is in need of care.”



<http://www.drmmollynd.com/>
Fildes, Luke. The Doctor. London, 1981.

This conflict with science also affects the healthcare realm. Due to the modern implications of science with its fast test results and treatment methods, it neglects the important role nature has on the human mood, healing, and ultimate equilibrium. Gadamer suggests a possible way to blend the old and the modern together, “what we need to do is to learn to build a bridge over the existing divide between the theoretician who knows the general rule and the person involved in practice who wishes to deal with the unique situation of this patient who is in need of care (Gadamer 94).” Today’s medical science provides doctors with the general laws, principles, and causal mechanisms, doctors then still need to find the right solution for the particular medical data.

Presentation Slides

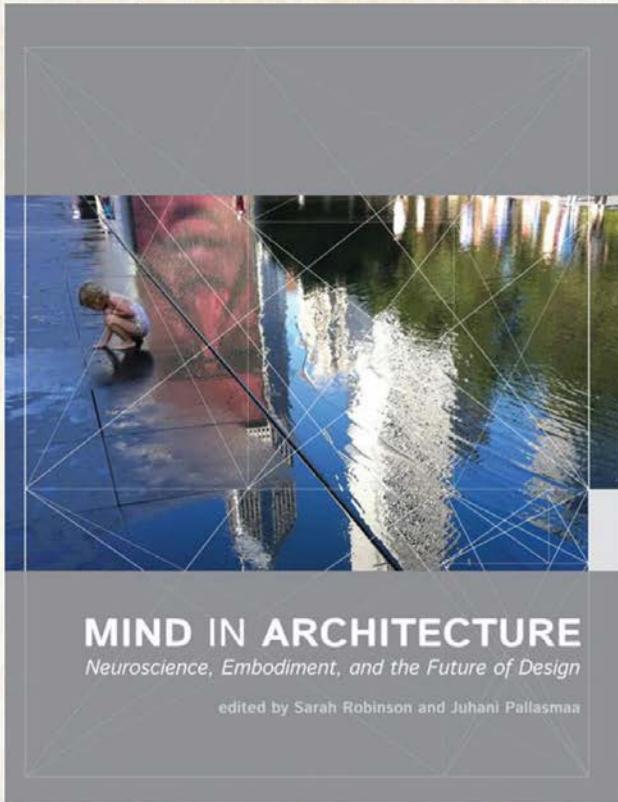
The German word *behandlung* means 'treating' people and 'handling' them with care. "Within it one literally hears the word 'hand', the skilled and practiced hand that can recognise problems simply through feeling and touching the affected parts of the patient's body. 'Treatment' in this sense is something which goes far beyond mere progress in modern techniques."



<https://emoaha.com/blogs/health/cancer-care-overview>

The German word *Behandlung* means 'treating' people and 'handling' them with care. "Within it, one literally hears the word 'hand', the skilled and practiced hand that can recognize problems simply through feeling and touching the affected parts of the patient's body. 'Treatment' in this sense is something which goes far beyond mere progress in modern techniques (Gadamer 99)." He stresses the profound realization that a doctor has when they treat a patient as a patient and not a 'case'. A doctor is called upon to help over the long term, not just in a particular moment which allows for genuine success in leading a patient back into his or her own lifeworld. When a former patient is no longer disturbed by their pain, they are able to experience the riches of the world and self-fulfillment.

Presentation Slides



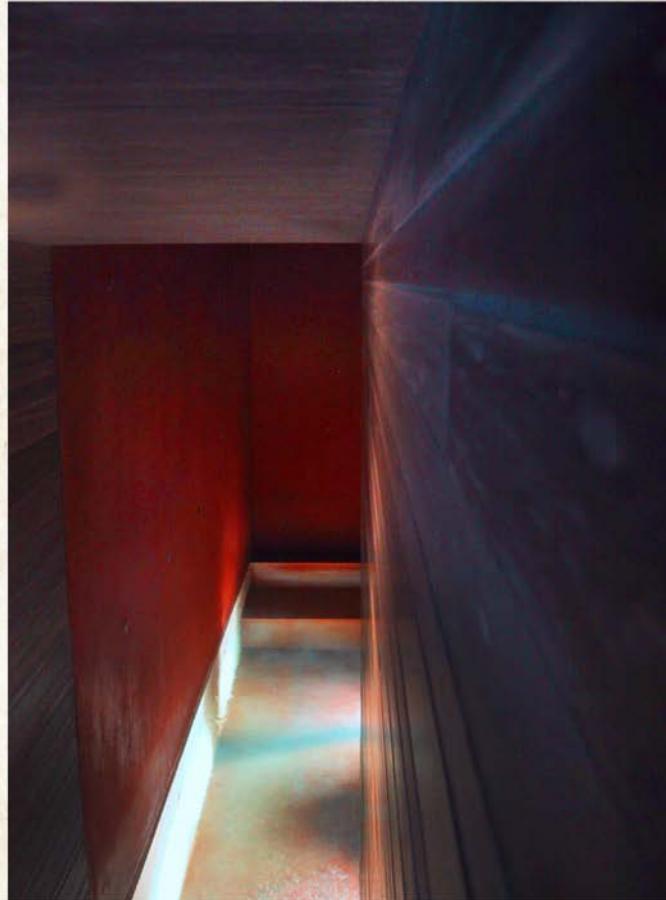
Alberto Pérez-Gómez
Architectural Historian

Alberto Perez- Gomez is an architectural historian. The book, Mind in architecture, edited by Sarah Robinson and Juhani Pallasmaa, includes the writing of Perez Gomez, Mood and meaning in architecture, which talks about the advancement of cognition.

Presentation Slides

“This embodied, non-dualistic understanding of reality includes our emotions and feelings; its primary seat of awareness is Gemüt, and its most significant experience is Stimmung: attunement, understood as a search for loss of integrity, health, wholeness and holiness.”

“The external world- i.e., the city and architecture- truly matters, and we do not relate to it as if it were a text in need of interpretation or “information” conveyed to a brain: interpretation comes after we have the world in hand, and in this way architecture affects us along the full range of awareness, from perspective to reflective.”



<https://www.archdaily.com/13358/the-therme-vals/500f245628ba0d0cc7001d3e-the-therme-vals-image>

The Cartesian understanding of cognition has been developing since the 17th century. In the 18th century, Romantic philosophy established the idea that the outer and inner realms of human experience should be co-emerged. Pérez-Gomez summarises these ideas by stating, “This embodied, non-dualistic understanding of reality includes our emotions and feelings; its primary seat of awareness is Gemüt, and its most significant experience is Stimmung: attunement, understood as a search for loss of integrity, health, wholeness, and holiness (Pérez-Gomez 221).” Today, this concept is cast as “atmosphere” or “mood” which is now understood as the great consequence of architecture and laid the root for the revolution of cognitive science.

The most recent approach to its understanding was introduced in the 1990s and was called embodied dynamism. The consequences of the understanding of embodied dynamism are substantial to the perception of architecture. With the view that perception is something we do and not just something that happens to us, it proves that our motor skills and intellect are constitutional to cognition. Relating to architecture, “The external world- i.e., the city and architecture- truly matters, and we do not relate to it as if it were a text in need of interpretation or “information” conveyed to a brain: interpretation comes after we have the world in hand, and in this way, architecture affects us along with the full range of awareness, from perspective to reflective (Pérez-Gomez 224).” This gives architecture the unique ability to reveal the space of human existence as a space of desire through its experiences of sense and purpose.

Presentation Slides



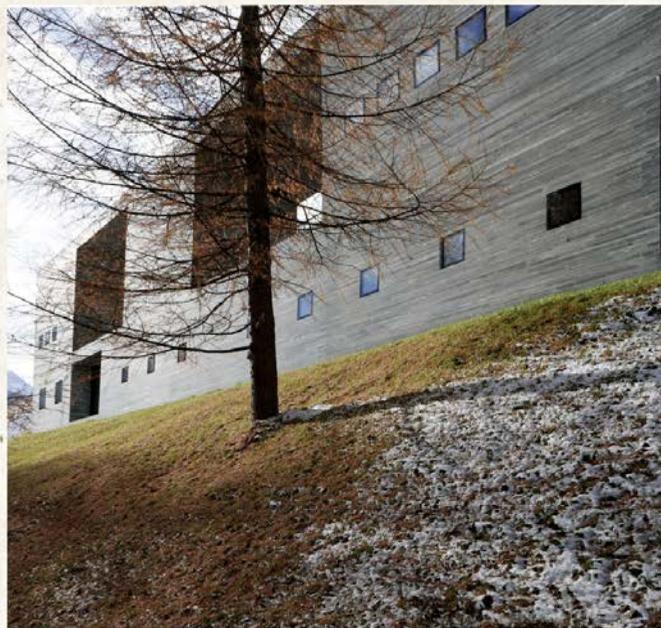
<https://www.westcoastpaint.com/commercial-interior-painting-renton-wa>

“it is easy to observe that human actions can change the mood in a room: it can be transformed through a charismatic speaker, lighting effects, artificial acoustics, etc. On the other hand, architects are capable of incorporating in their designed spaces a more lasting mood, one that we may associate with the room itself: solemn, strange, quiet, cheerful, reverential, oppressive, etc.”

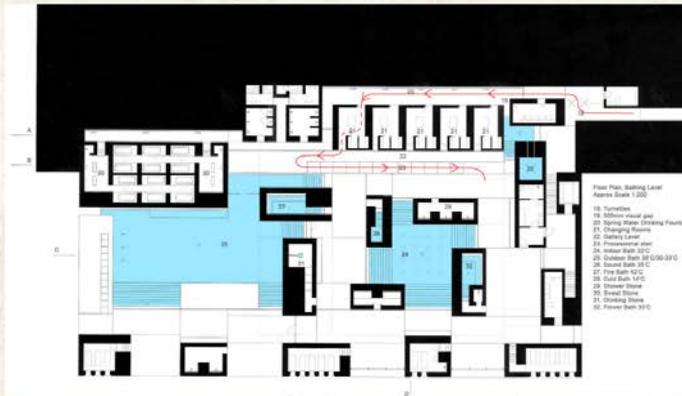
Understanding our consciousness through cognitive science highlights how much the built environment matters. Architecture needs to shy away from a functionality standpoint and focus more on promoting the use of our imagination to create and understand specific moods within a space. Pérez-Gomez notes that “it is easy to observe that human actions can change the mood in a room: it can be transformed through a charismatic speaker, lighting effects, artificial acoustics, etc. On the other hand, architects are capable of incorporating in their designed spaces a more lasting mood, one that we may associate with the room itself: solemn, strange, quiet, cheerful, reverential, oppressive, etc (Pérez-Gomez 227).” Our participation, along with the setting of a room, creates architectural “meaning.”

Presentation Slides

THERME VALS- PETER ZUMTHOR



<https://www.westcoastpaint.com/commercial-interior-painting-renton-wa>



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In 1996, Therme Vals, a hotel, and spa, opened in Vals, Switzerland. Designed by Peter Zumthor, this building sits in the mountain valley and becomes one with the natural surroundings. The grounded concrete and natural gneiss stone from the local quarry along with the meticulous design of artificial and natural light and water, create a highly sensuous environment.

Presentation Slides

THERMA VALS- PETER ZUMTHOR



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These spaces, along with the use of its materials through brick and water, are meant to complement the human body in its existence and to rediscover the ancient benefits of bathing. According to national geographic, The oldest known bath was discovered in the Indus Valley in Pakistan which dates back to 2500 B.C. Archeologists believe that bathing and cleanliness were associated with godliness in ancient civilization.

Presentation Slides

EPIDAUROS THEATRE

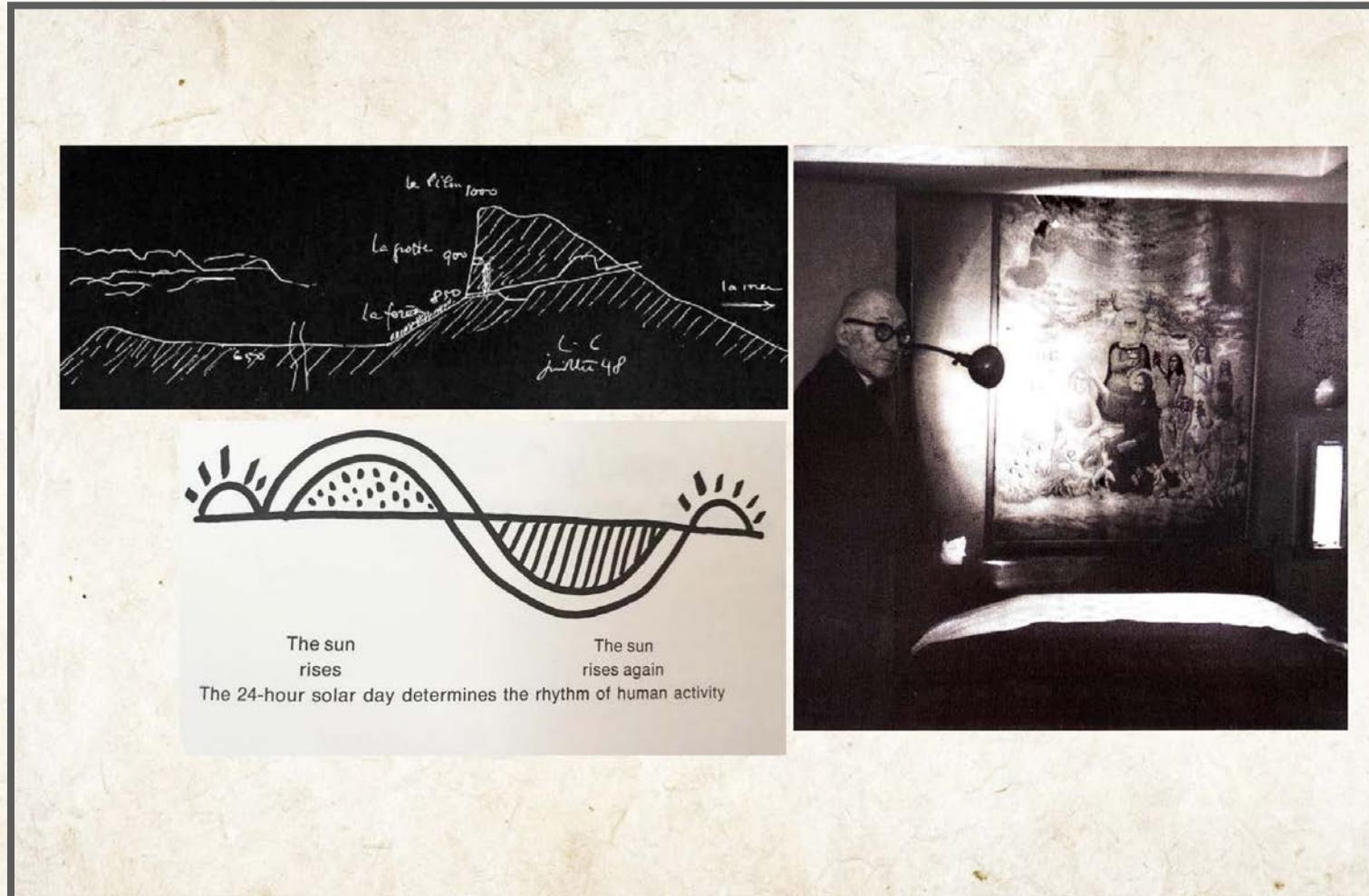


Mehnert, Michael F. Statue of Asclepius, Exhibited in the Museum of Epidauros Theatre. 2008. https://commons.wikimedia.org/wiki/File:Asklepios_-_Statue_Epidauros_Museum_2008-09-11.jpg
<https://www.greeka.com/peloponnese/epidauros/>

The great theatre of Epidauros in the sanctuary of Asclepius the healer was deemed to have powerful healing effects. The effects come from the narrative by the poet which is the language of metaphor that maintains a high tension gap between the two terms of metaphorical speech, thus exposing the audience to the nearness of distance. In this atmosphere, the receptacle, takes shape, within the architectural space. It unveils the truth embodied by art and the space between the word and the experience which creates a space for contemplation and space for participation. The invisible significance of architecture becomes clear in the narrative form woven together by language.

The whole context of this theater is labyrinthine. “The famous theatre in the sanctuary played a most important role in the process of restoring psychosomatic stability of the “patients,” who could also undergo a dream cure in the abaton. This allowed architecture to occupy the liminal position in-between darkness and light, revealing the true place of human existence (Alberto Perez Gomez 33).”

Presentation Slides



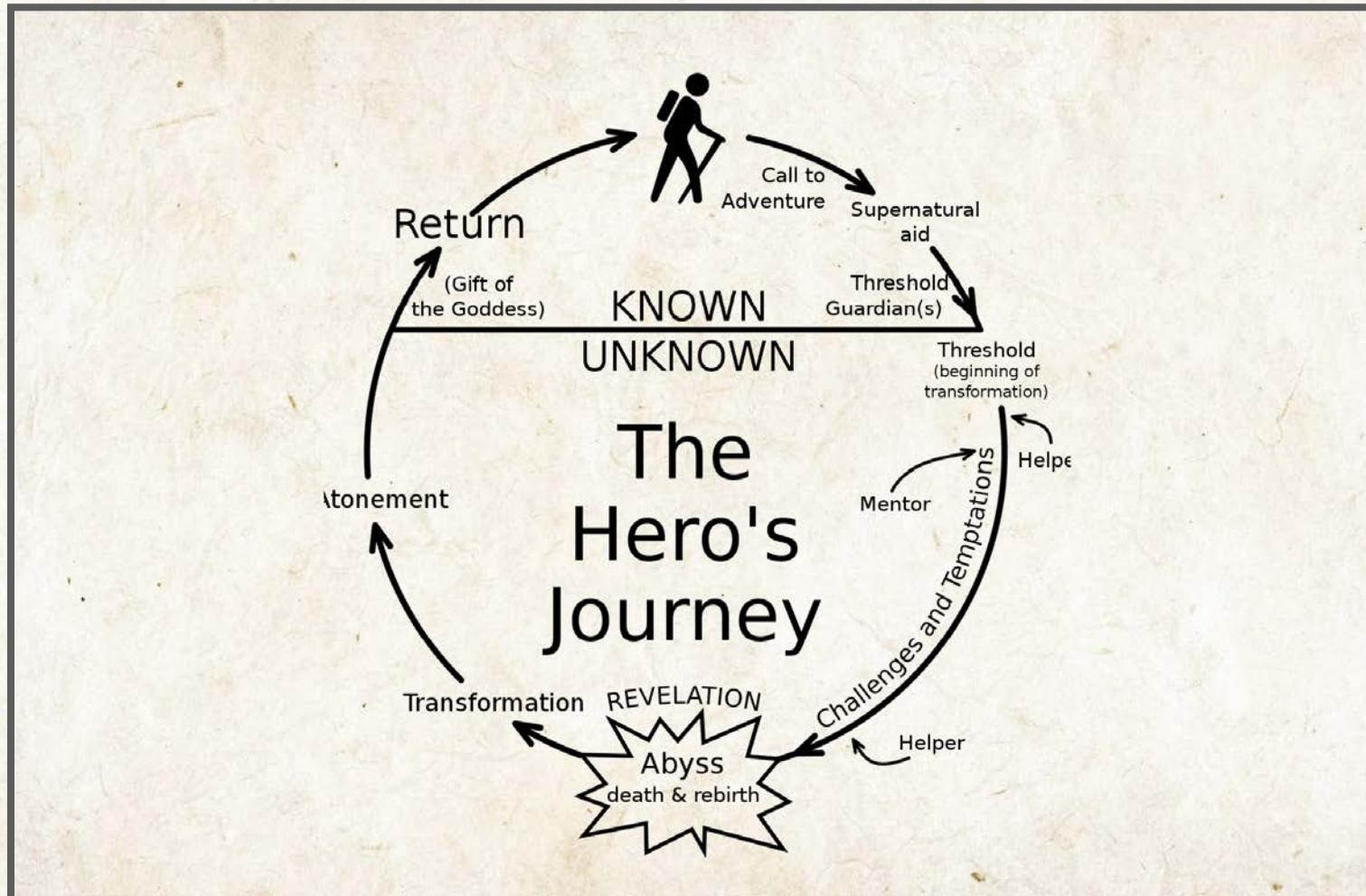
The ideas of Ancient Greeks' understanding of architecture and its transformative effects are evident in the work of architects throughout the past. One of the most notable ones is Le Corbusier.

Le Corbusier, was a swiss French architect, designer, painter, and writer. Through his architectural works, one can see Le Corbusier's expression of organizational ideas, and his philosophy which gives an insight into his view of the entirety of existence. In *Le Corbusier in Detail*, by Flora Samuel, the text dives into the logic behind Le Corbusier's raw, but magnificent features. In Corbusier's words, "In nature, the smallest cell determines the validity, the health of the whole (Samuel 1)." Through his drawings and close observations, he was able to access the lessons of nature. This insight brought the realization that each architectural detail should contribute to the meaning of the whole.

His architecture was built around a philosophy of Orphism. Samuel claims that Corbusier's "interest in the Orphism gives rise to a series of key themes that are prevalent in his words, his painting, and his architecture. They are: asceticism and unity, the evocation of the body; light, dark and other opposites such as sun and water, geometry; the route of initiation and ritual (Samuel 4)

"The initiatory journey, based on the story of Orpheus, from darkness to lightness thus became, for Apollinaire, a metaphor for the poet's own quest for inner wholeness, an idea that evidence suggests Le Corbusier shared (Samuel 74)." This idea of light and dark guided Le Corbusier's sign for the 24 hour day which tracks the sun above and below the horizon. This concept was brought into the design of the Basilica at La Sainte Baume where the galleries would have light penetrate them at their ends to guide visitors through the upper and lower realms of the 24-hour sign, providing a journey for the occupants on the route through darkness into light.

Presentation Slides

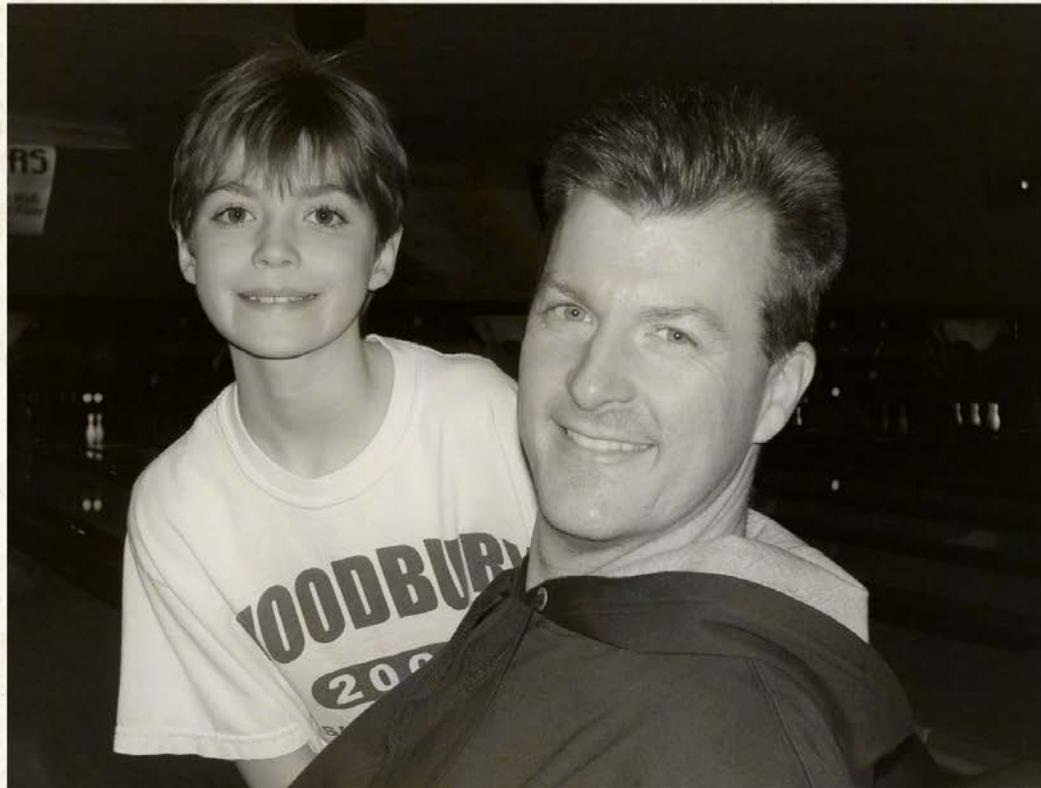


Focusing on the ideas and philosophies of transformation and catharsis effects, a comparative mythology, the Heros Journey, became an interesting topic of research.

Also called the monomyth, this narratology is a template of stories that involve a hero who goes on an adventure, is victorious in a decisive crisis, and comes home changed and transformed.

In a short summary, the departure is where the hero lives in the normal world and is called to go on an adventure. Though hesitant, a mentor figure helps him decide to follow this call. The initiation describes the hero's quest to an unknown or "special world" in which he faces tasks or trials, some by his lonesome, others with helpers. The central crisis of the adventure comes about when the hero reaches the innermost cave and overcomes the main obstacle and gains a reward. The return section describes the return to the ordinary world with the treasure he has gained and is able to use it to assist his fellow man. Throughout this journey, the hero was transformed and gains wisdom and spiritual power over both worlds. I believe this relates to one who is faced with cancer. A person does not ask for cancer but once diagnosed they needs to start the cycle of healing and are called to action.

Presentation Slides



In 2010, My father Alex was diagnosed with stage four parotid gland cancer. I was only 10 years old when the cycle of doctor's appointments, home visits, hospital stays, and surgeries began. These healthcare buildings were placed in busy towns where they were surrounded by asphalt parking lots and other buildings as close as the city would allow. Two years later in July of 2012, cancer took my father's life. Looking back at the journey my family went through, the healthcare facilities we experienced were extremely functional, only catering to delivering the necessary treatment and neglecting the mental and physical challenges of dealing with cancer. The science-driven world of medicine and architecture needs to be balanced with an appropriately attuned atmosphere in order to create a space of healing.

Presentation Slides

Views **Natural Light** **Natural Sounds** **Less Surrounding Buildings** **Less Noise**

This thesis proposal design creates an environment that reduces levels of pain and stress. The design focuses on the use of views, natural light, and sound, and is separated from busy cities, reducing the surrounding infrastructure and noise.

The goal is to establish a holistic approach to healing that cultivates a gateway to emotional and physical equilibrium necessary for the feeling of hope.

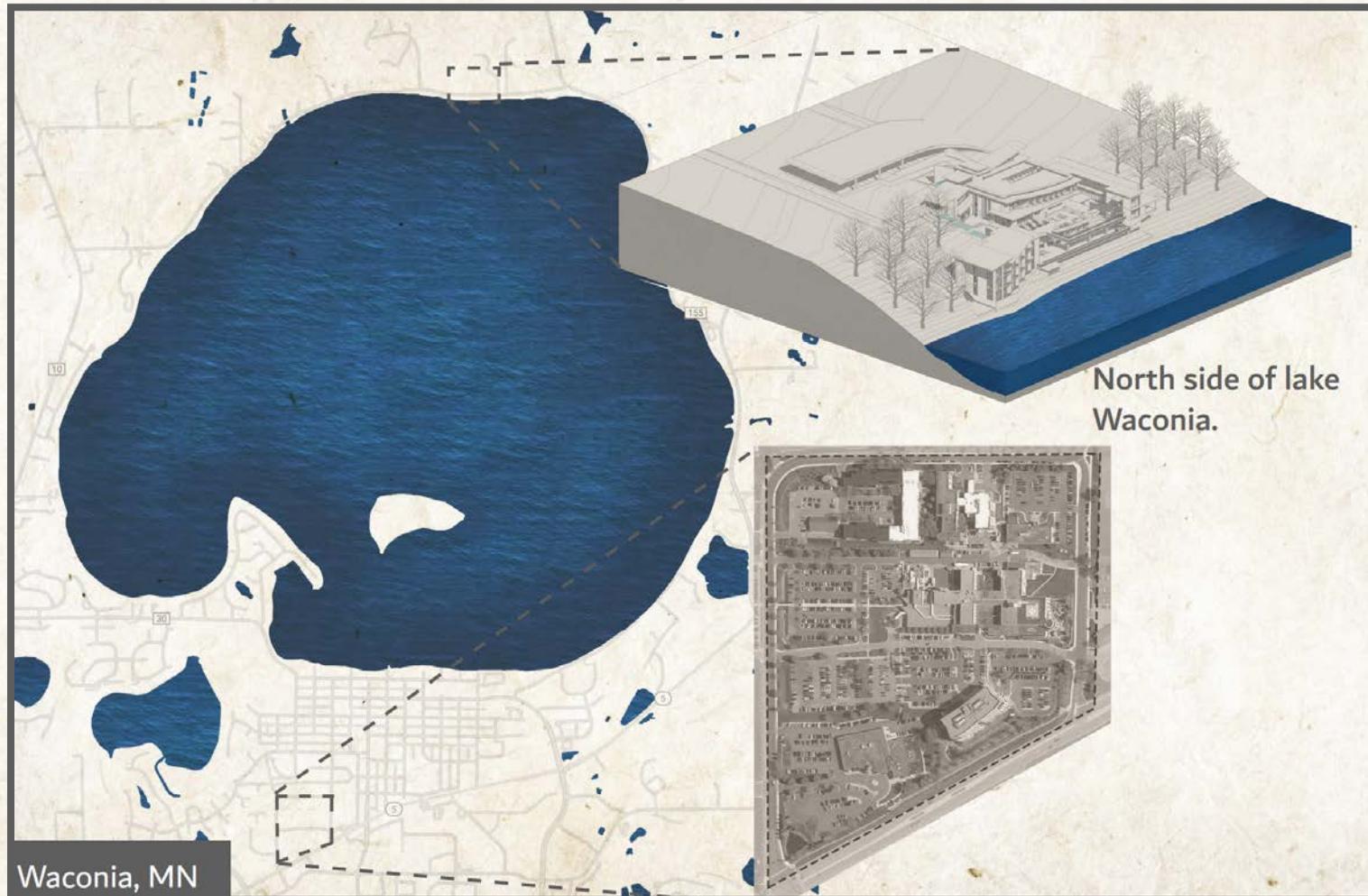
Incorporating spaces that create a unique journey:

Lodging **Spiritual** **Meditation** **Sensory Spa** **Therapy** **Wellness**

This thesis proposal design creates an environment that reduces levels of pain and stress. The design focuses on the use of views, natural light, and sound, and is separated from busy cities, reducing the surrounding infrastructure and noise. Studies show that a more nature-focused environment can boost the immune system in ways that assist one's own body and the treatments administered to them in the overall process of healing.

Drawing influence from both recent and ancient studies that show the co-dependence between inner and outer worlds, including the participation opened up in the cathartic experience of the theatre, the Hero's journey, and various clues from Le Corbusier's artistic and architectural practice, we look to deeply resonate experiences that reconnect us to the cycles of our bodies and the larger world. Using these ideas as inspiration for the design of architectural spaces, this cancer center creates a unique journey that focuses on the patient's experience by creating a sense of place on the site. The goal is to establish a holistic approach to healing that cultivates a gateway to emotional and physical equilibrium necessary for the feeling of hope. Incorporating lodging, spiritual space, Meditation space, a sensory spa, Therapy space, and wellness space, helps to create that unique journey.

Presentation Slides



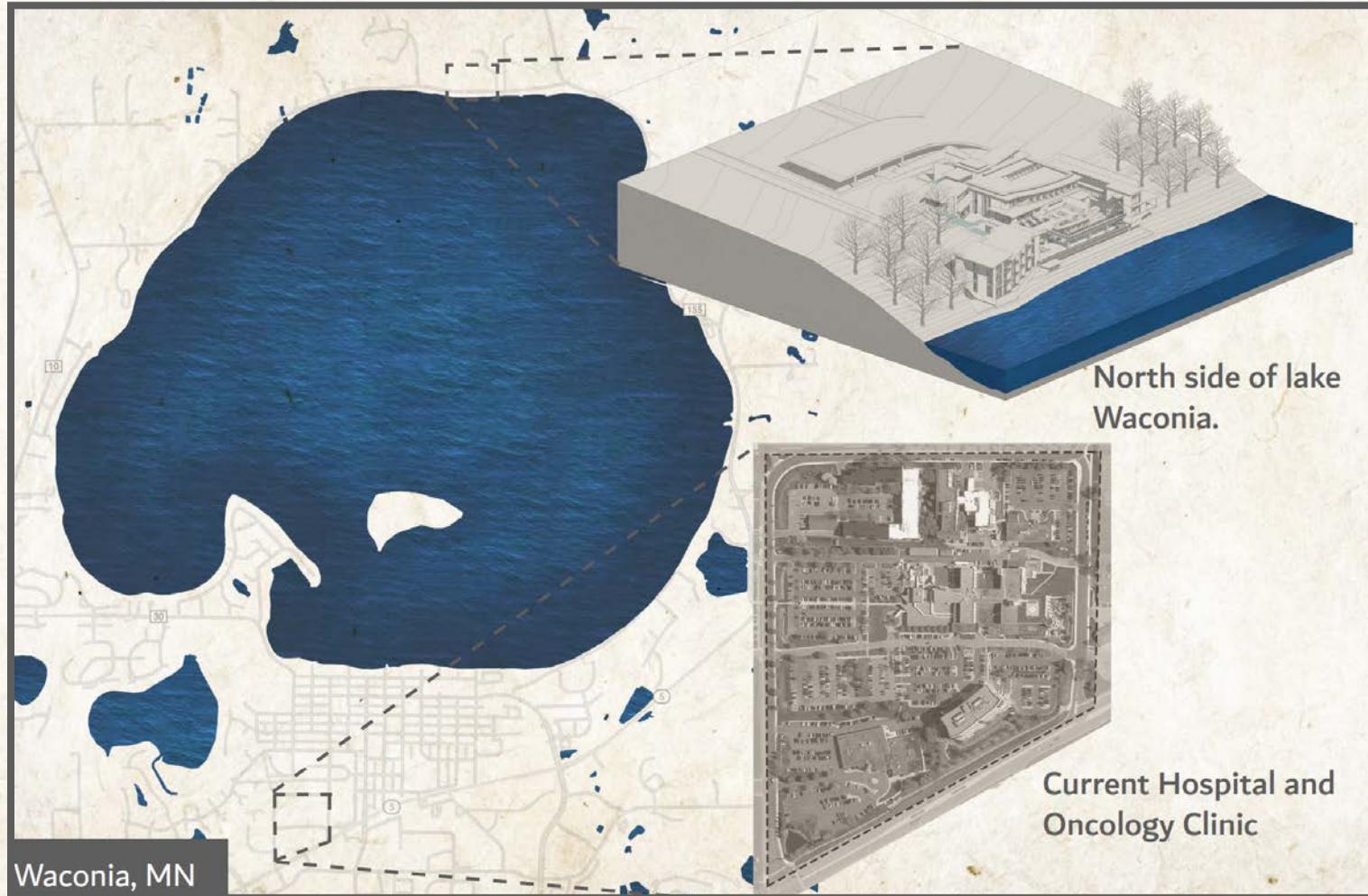
The site for this Cancer center is located in Waconia, Minnesota which is about 30 minutes Southwest of Minneapolis, Minnesota. Specifically, I chose to place this building within the landscape on the North Side of lake Waconia where the surroundings nearby are made up of the natural landscape, not occupied by many buildings or infrastructure. The bottom map shows the location of the current hospital and oncology clinic. It is surrounded by parking lots, busy roads, and a dense downtown.

Presentation Slides



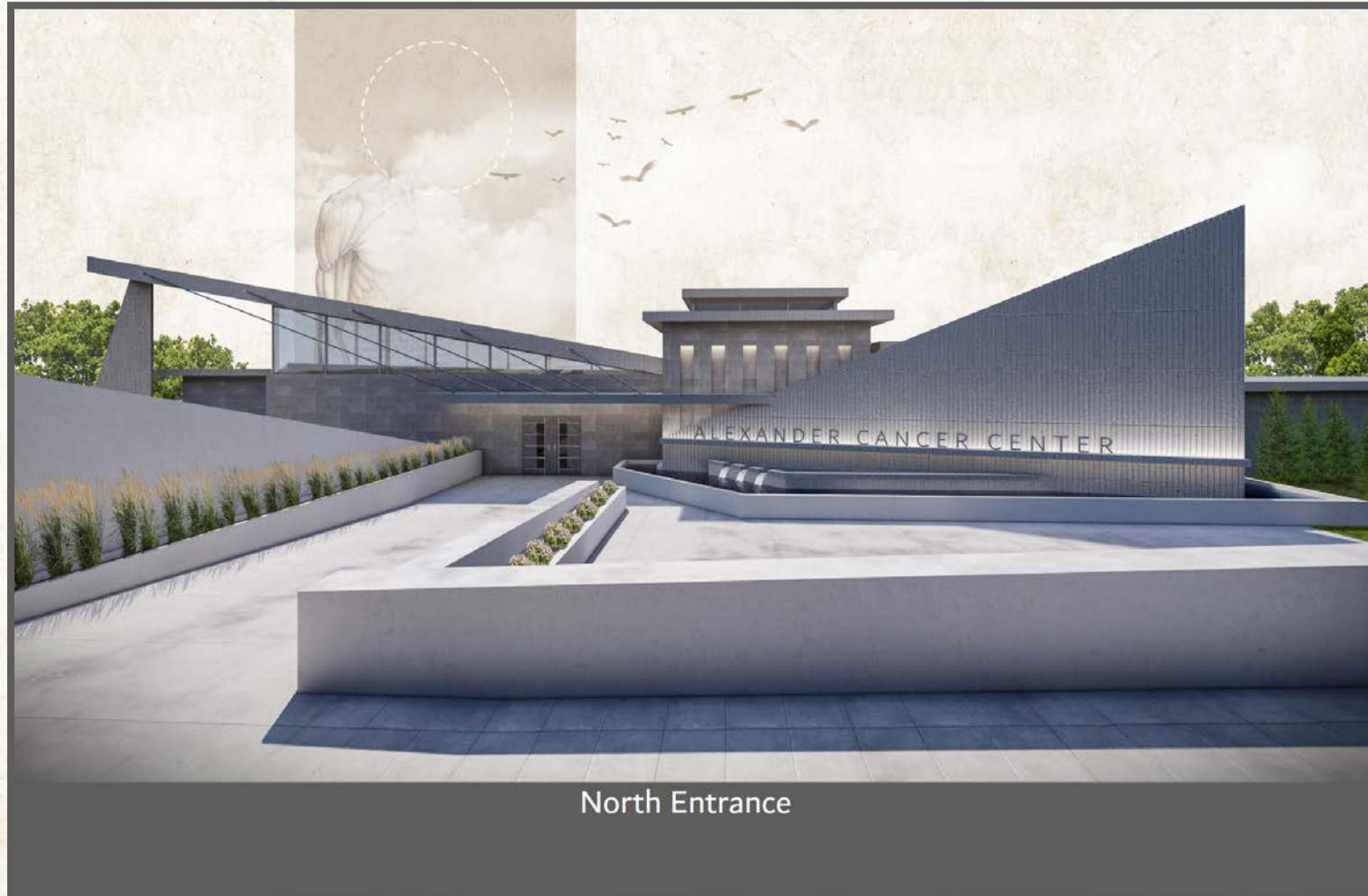
These are pictures of the current hospital. I was able to drive around the entire facility with less than 30 feet between my vehicle and the building. There was minimal, if not any space for natural components for patients to look at or spend time in. Only a busy street separated this medical building from other businesses. The hospital and oncology clinic included plenty of windows but your view is the local dairy queen, subway, and where you just picked up Advil from Walgreens before your appointment.

Presentation Slides



This thesis is meant to challenge the current conditions of the existing oncology clinic located in downtown Waconia. It acts as a study on the effects that a more natural environment, along with emotionally focused spaces, has on patients battling cancer.

Presentation Slides



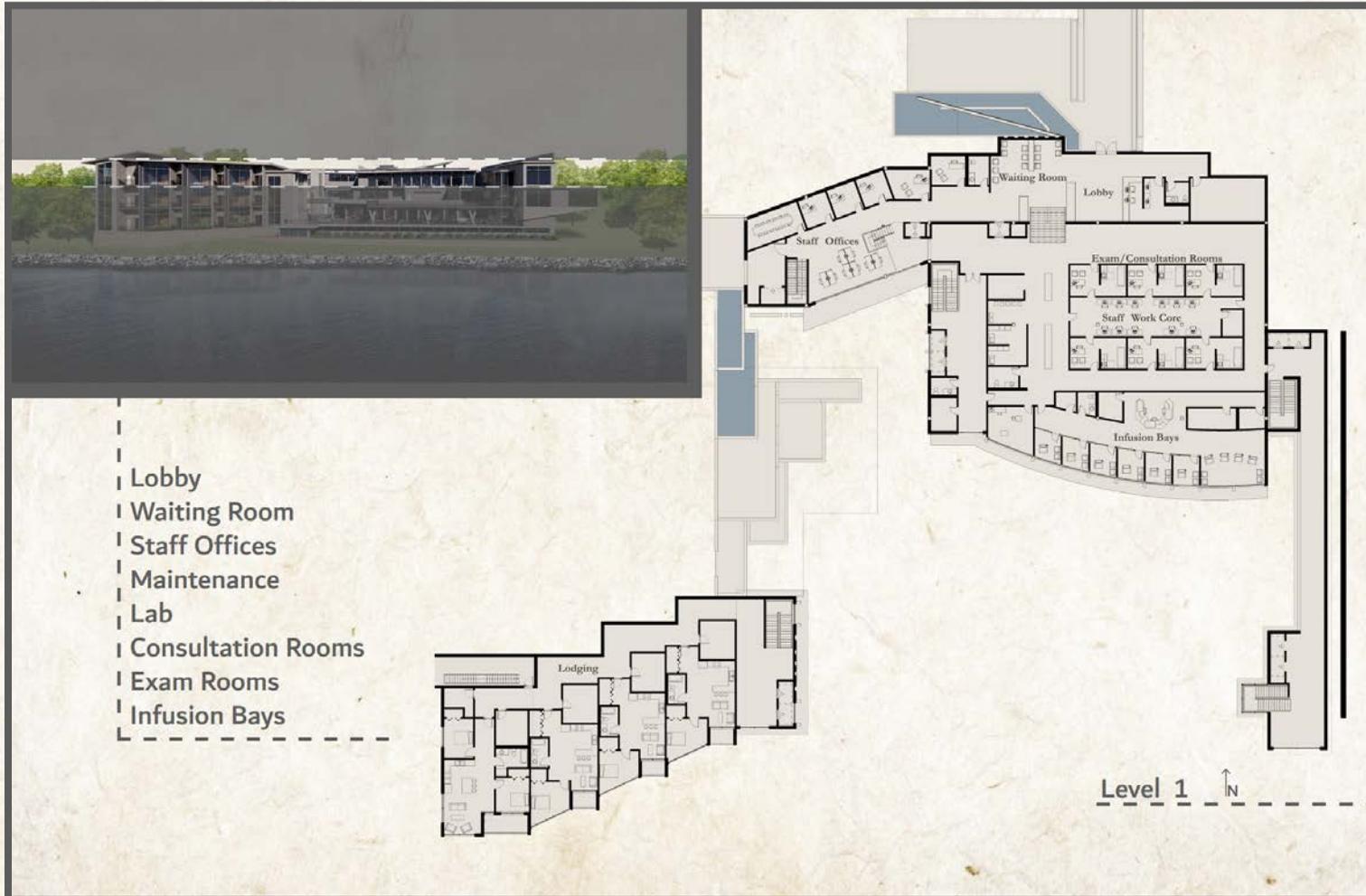
This Cancer center is designed for patients to have the option to come to their appointments and then leave to continue with their daily life, work and family, or be able to stay for however long to focus on the physical and mental aspects of dealing with cancer. The building's entrance is on the Northside of the site. This 58,000-square-foot Cancer center descends towards the lake creating a very approachable building as one arrives. The angled walls and roofs, along with the paved path guide you into the front entrance. Using the concepts of darkness and light from my research, I paid close attention to how the light enters the building and the views that one would have. The lobby and waiting area bring in natural light without views with the placement of glass higher up on the facade. This creates a space that lets the patient embody the building and start their journey, separating themselves from the vehicle they drove in.

Presentation Slides



The design uses a concrete flat plate structural system but also uses concrete as its primary material within the facade and interior of the building. Concrete creates a simple, elegant look that light can beautifully rest upon. I wanted to shy away from modern colors that busy cities use to draw people into their businesses, limiting distractions and allowing the patient to focus on the spaces that occupy the building instead of the materiality itself. The render on the top of the screen is the lakeside view from the south of the cancer center. The section cut shows the building in relation to the landscape and water. The immediate spaces relating to the care and treatment of a patient from a medical standpoint are located on the top levels and as the building descends towards the lake through its slope, it opens up to spaces more emotionally focused. The following floor plans show the spacial layout.

Presentation Slides

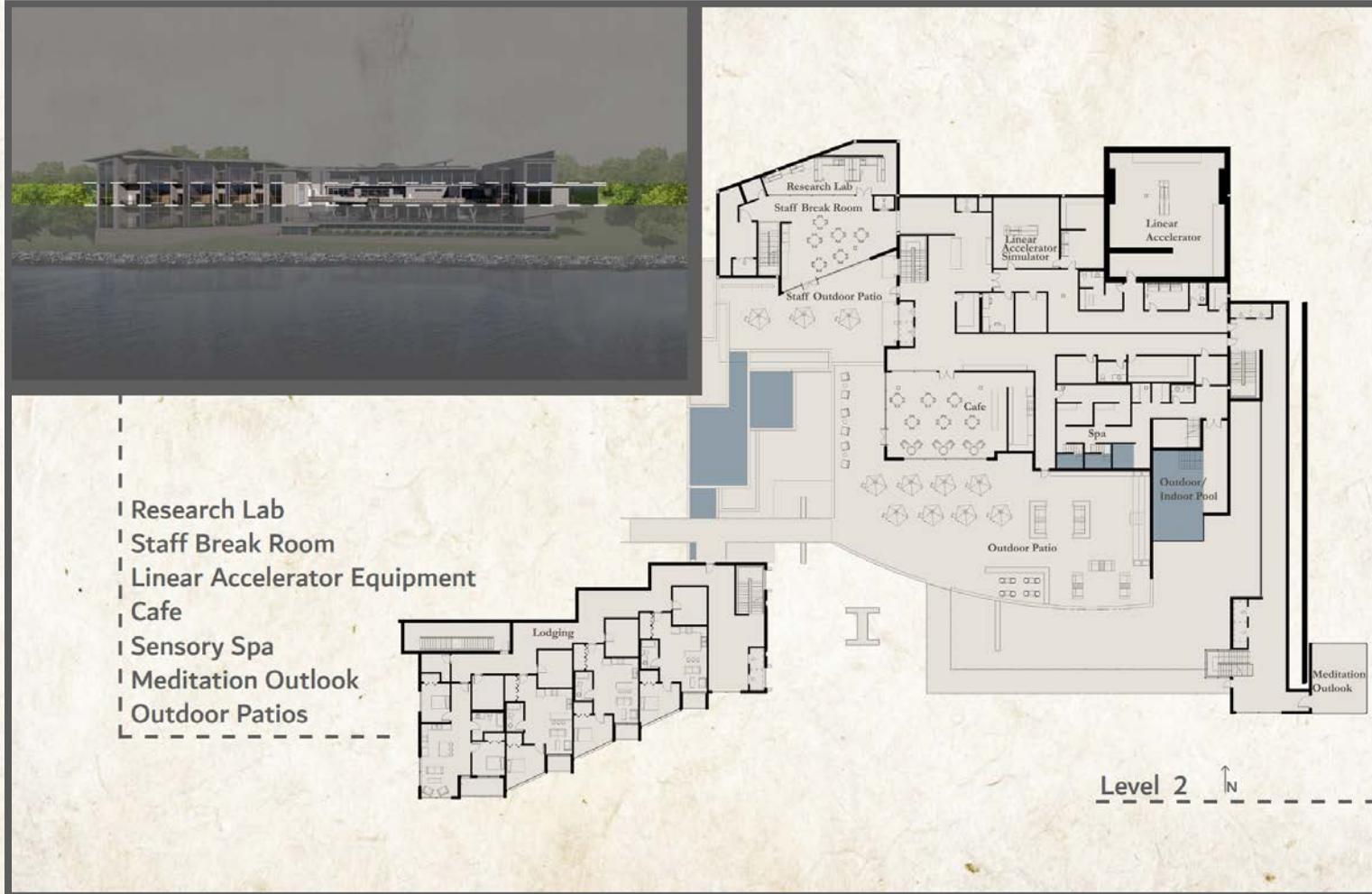


These spaces will be used the most by patients coming in for just an appointment and patients that are staying for a longer period of time.

This plan shows a water feature at the entrance and also a falling water feature located on the west side of the site, doubling as a retaining wall framing the outdoor spaces.

The Southwest area of the first level shows the top floor of the lodging. Each floor has 3 apartments that have one bedroom and 1 apartment with 2 bedrooms allowing for family members to stay as well. There are 3 levels and 12 apartments total.

Presentation Slides



Second Floor

Presentation Slides



Third Floor



Presentation Slides



Fourth Floor

Presentation Slides



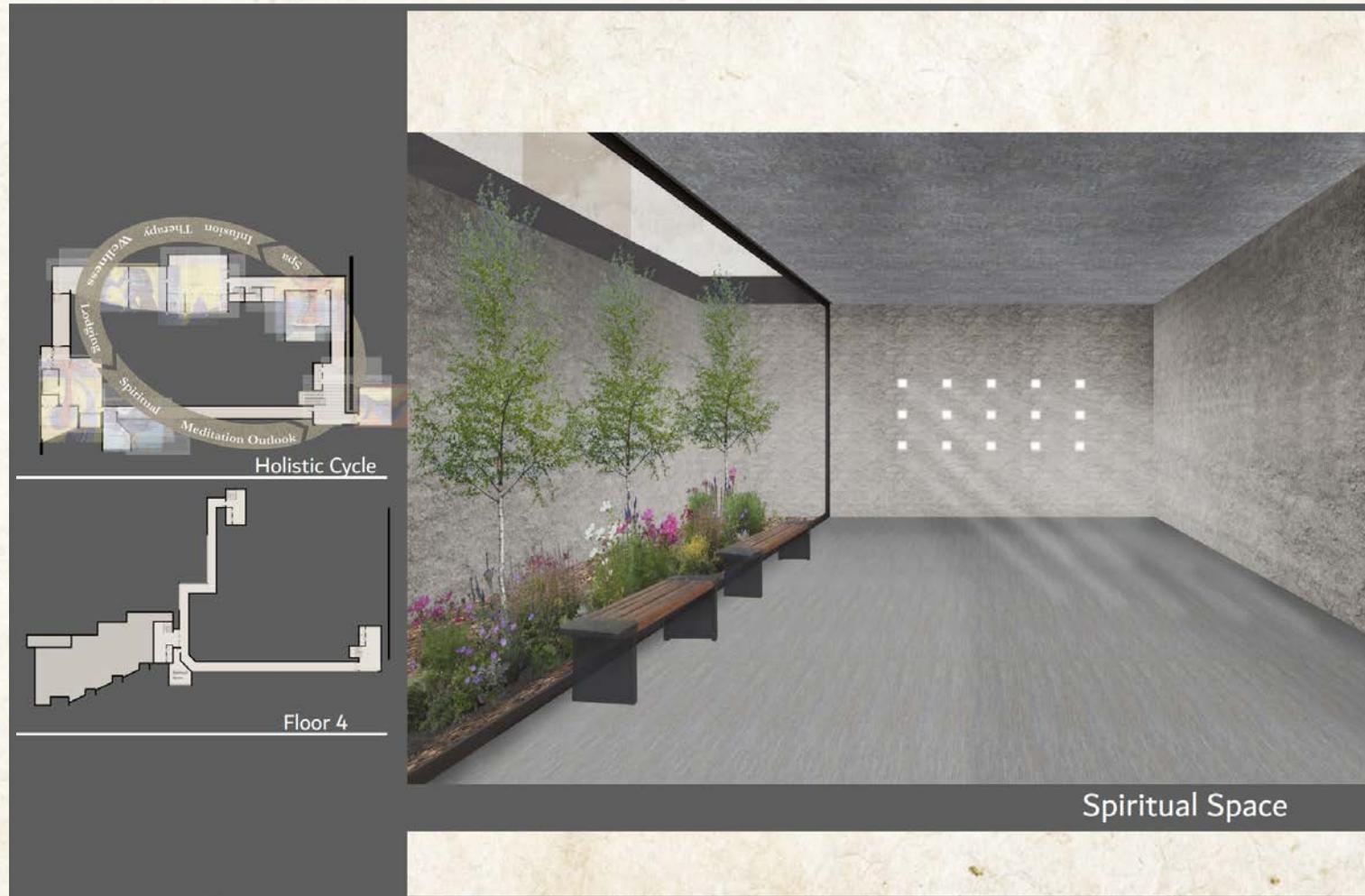
I would like to describe some of the experiences that are shown within this cycle that a patient might take throughout their day. Each individual will develop a routine that is best for their personal process of healing.

Presentation Slides



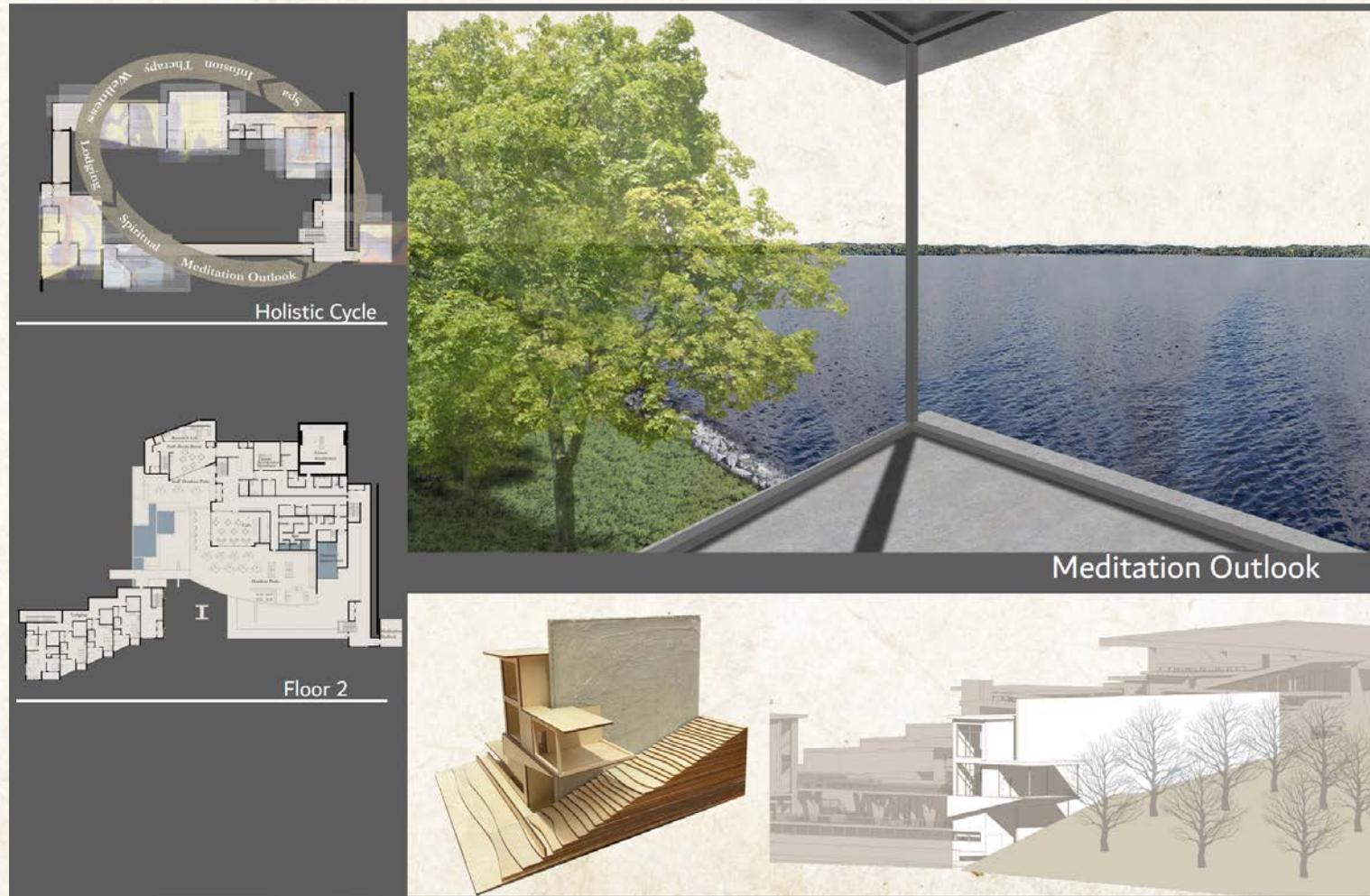
The early morning sunrise floods the patient's southeastern facing room. After a well-rested night, the peaceful views of the calm lake accompany their morning routine of getting ready for the day and enjoying a cup of coffee on the balcony. the patient does not look forward to receiving a round of chemotherapy later but waking up in a stress-free environment allows them to focus on the present. As the morning grows, they head down to the spiritual space to do their daily devotional and prayer.

Presentation Slides



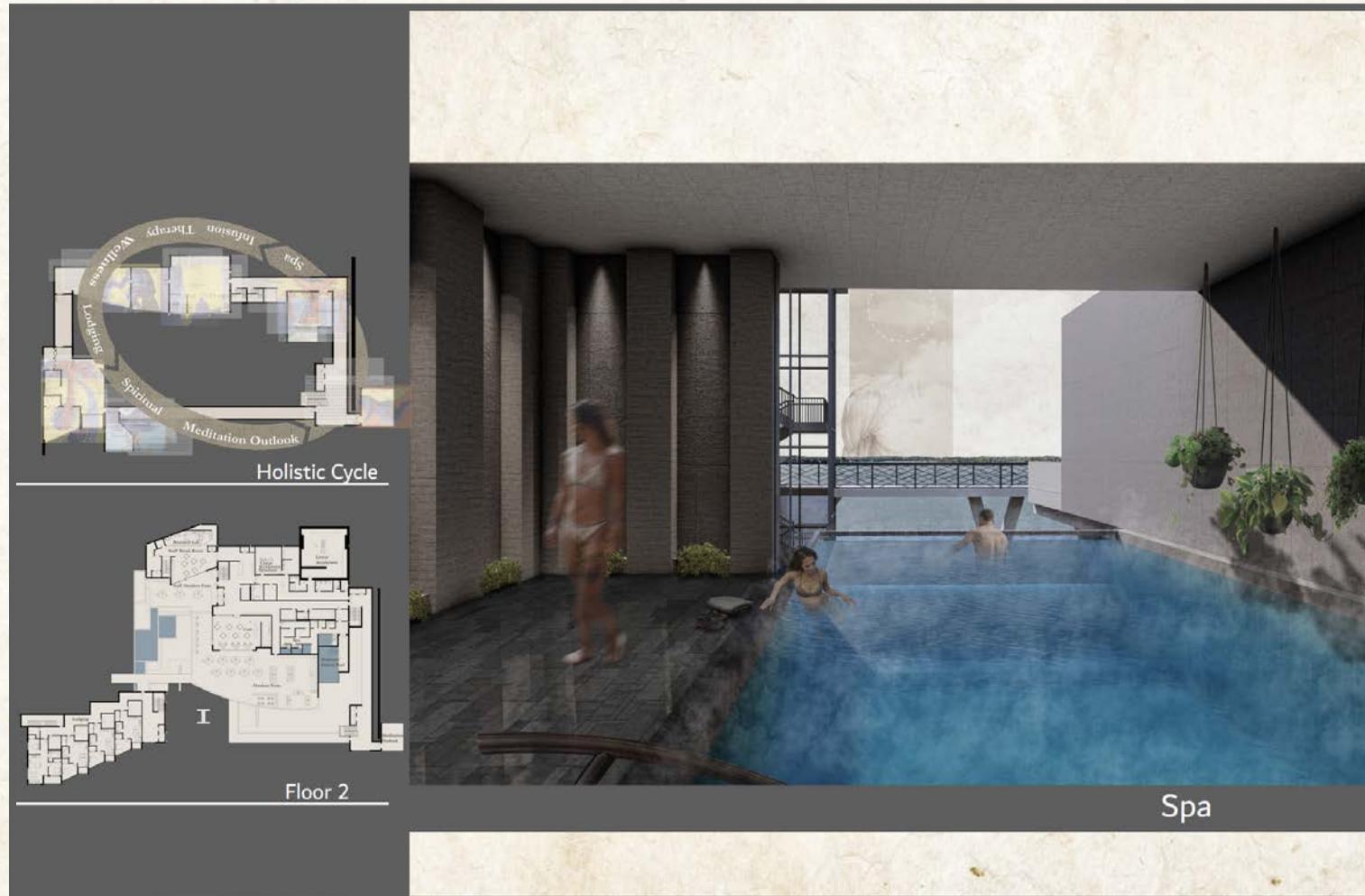
Spirituality plays an important role in wellness, coping with illness, and promoting healing and recovery. The room itself is very intimate. Natural light is brought in through a skylight that frames the interior garden, along with small square windows that create unique paths of light. The patient prays to have a clear mind to start the day and to have a positive mindset through the good and the bad. The next 30 minutes are spent in a devotional that allows the patient to be grounded and strong in their faith and trust the plan that God has for them. The journey then continues towards the meditation outlook.

Presentation Slides



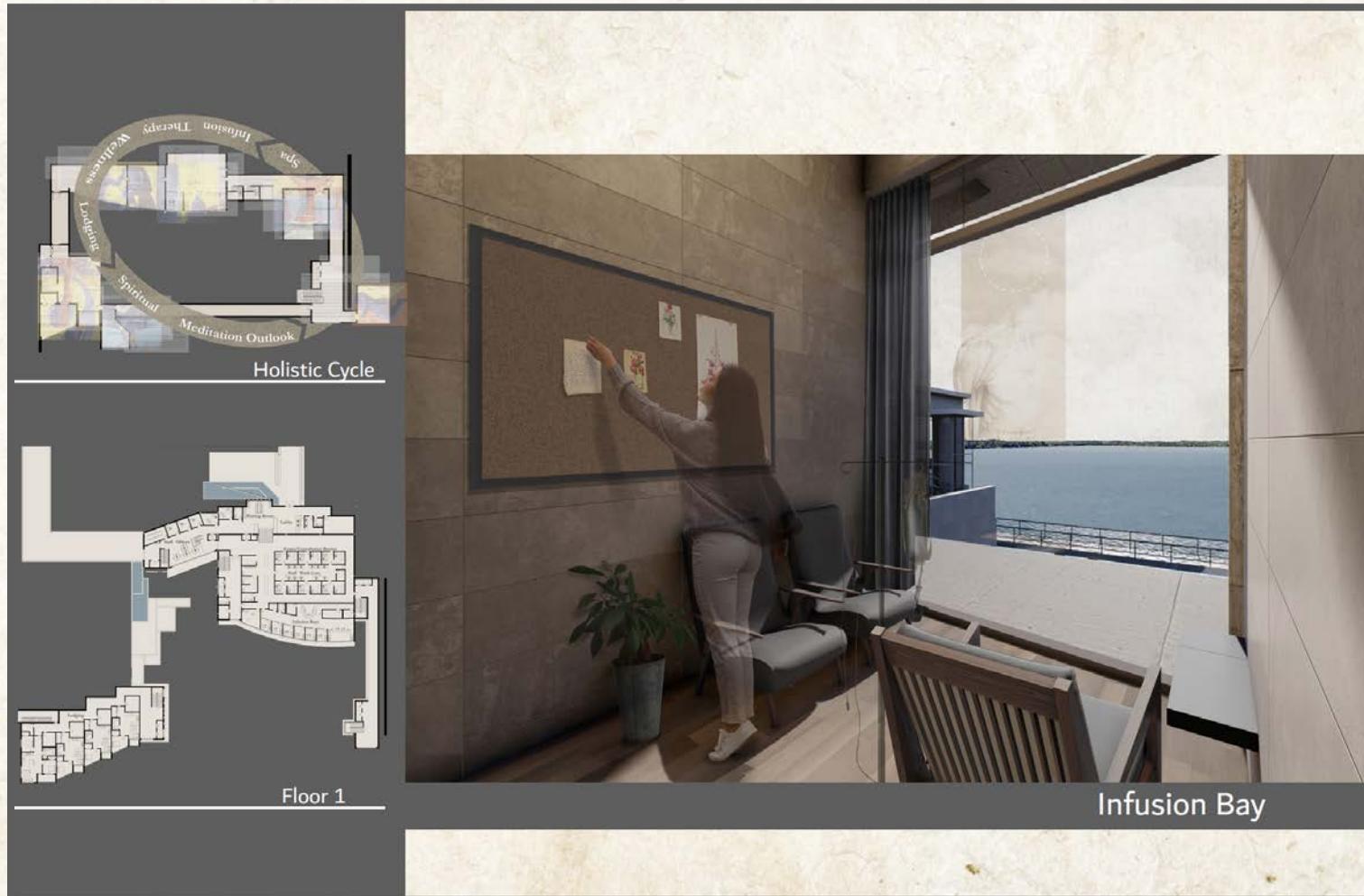
The meditation room creates a very unique experience. Its cantilevered design reaches over the natural landscape. A large concrete wall divides this space from the rest of the site creating a moment where one can completely focus on themselves and forget, for a moment, about the built site around them. The large glass walls give way to views of the trees, water, and the landscape that climbs the side of the dividing wall. The patient spends time practicing mindful meditation to broaden their conscious awareness by focusing on the flow of breath, allowing them to observe their thoughts and emotions, and letting them pass by without judgment. Jumbled thoughts become more clear which creates a clear path to restoring their mental mindset. As the sun reaches its apex the patient makes their way to the spa.

Presentation Slides



Taking inspiration from Peter Zumthor's design of Therme Vals, this spa is made up of multiple spaces that a patient can occupy. The spa has two changing rooms, five different pools ranging in temperature and sensory engagement, and two sweat stone coves. Right as one enters, they are greeted with a dim atmosphere and the sound of water trickling down the wall on the left side. The patient changes into the appropriate bathing attire and slowly wanders through the space discovering the different areas of relaxation. They find themselves in the hot bath resting at a temperature of 102 degrees. Taking a short amount of time within this intimate space allows a reduction in muscle tension and the calming of the body in a physical sense. The patient then moves to the larger pool that is open to the views of the water with a pool edge that starts to blend in with the scene behind it. Another patient is relaxing within the walls of the pool where conversation are had, stories are shared, and inspiration is given. Early afternoon arrives and the patients changes for a chemotherapy treatment.

Presentation Slides



Located on the top floor on the south side of the building, the infusion rooms allow patients to receive chemo therapy treatment specific to their cancer diagnosis. there are 6 individual bays that are intimate to the patient and close family members, as well as a group infusion area that allows patients to interact with each other while receiving treatment. The patient enters the specific bay that was prepared by the nurse. The left hand side of the room has a large cork board where the patient pins up paintings, writings, and inspiration quotes and words, both written and drawn by the patient themselves or their loved ones. The large glass storefront window frames the view of lake waconia. The combination of the views, along with the ability to personally decorate the room with mediums that give them hope, create a space of light within the dark effects of chemo therapy. late afternoon arrives and the patient enjoys dinner from the cafe and makes their way to the therapy and wellness area.

Presentation Slides



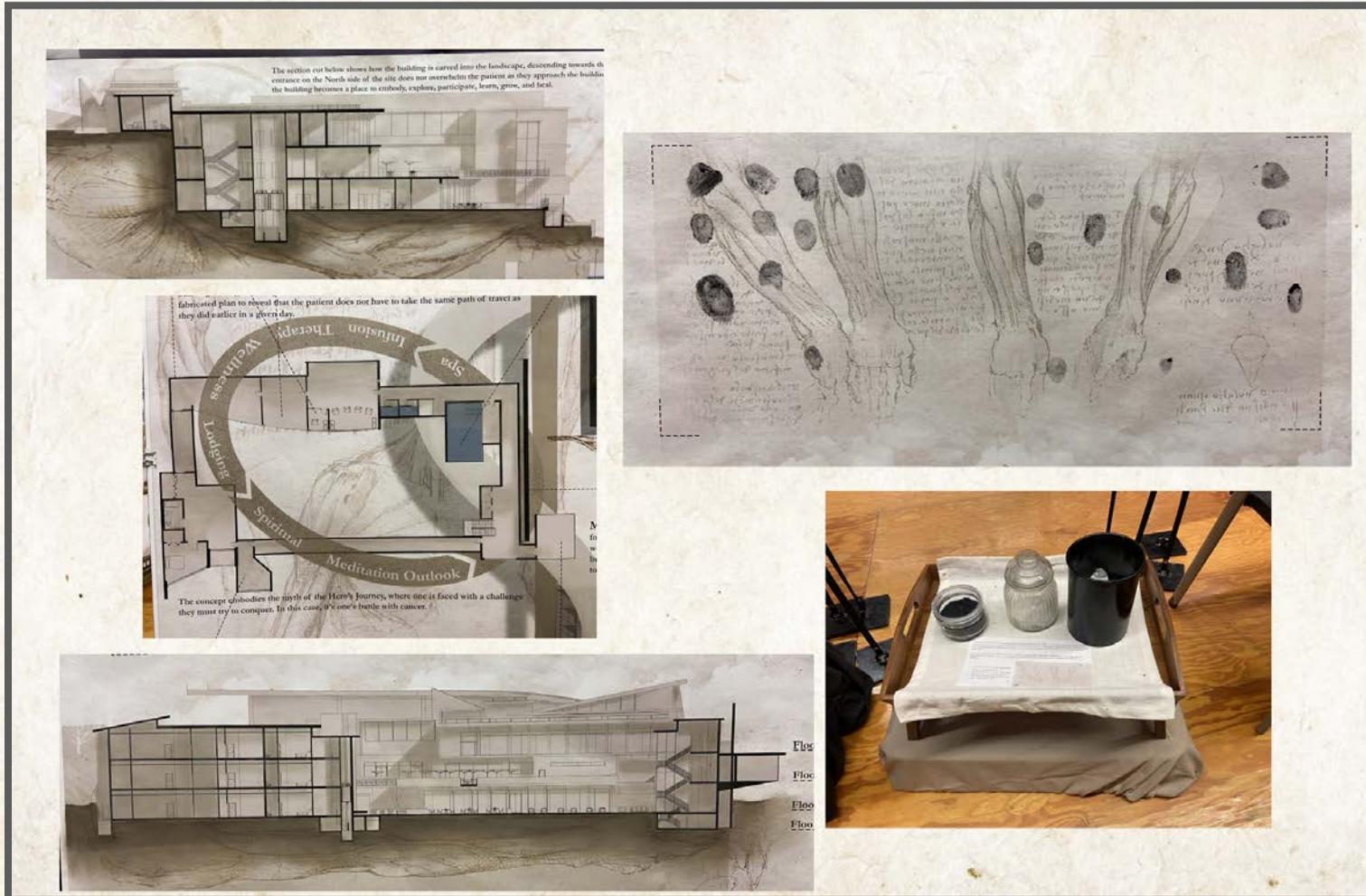
The library, wellness area, fitness room and therapy space find it's home on the third level. The patient uses these spaces to unwind and recover from the day. During their treatment an unpleasant thought about the uncertain future made its way into their mind. Instead of keeping this feeling inside, the wellness room allows the individual to express those feelings through their choice of medium, whether that be painting, writing, speech, or sculpting. The render above portrays specifically the therapy space. This supportive expressive space help patients face and adjust to their existential concerns allowing them to increase social support and strengthen their relationships with family, the physicians and fellow patients. Large doors open these spaces to the outdoor patio that let conversations, stories and experiences travel in different environments and settings. The patient finished their day in the comforting walls of the apartment provided for them and will continue on with their journey with cancer.

Presentation Slides



Obviously a patient will develop their own schedule, path and journey but creating the spaces that one can embody establishes a more attuned atmosphere that goes far beyond the modern style of healthcare. Trading functionality and efficiency for more emotionally focused experiences allows for healing of the mind and body as one instead of separated. Both historical context and modern research provides support for this importance of the connection of mind and body in the overall process of achieving equilibrium within oneself.

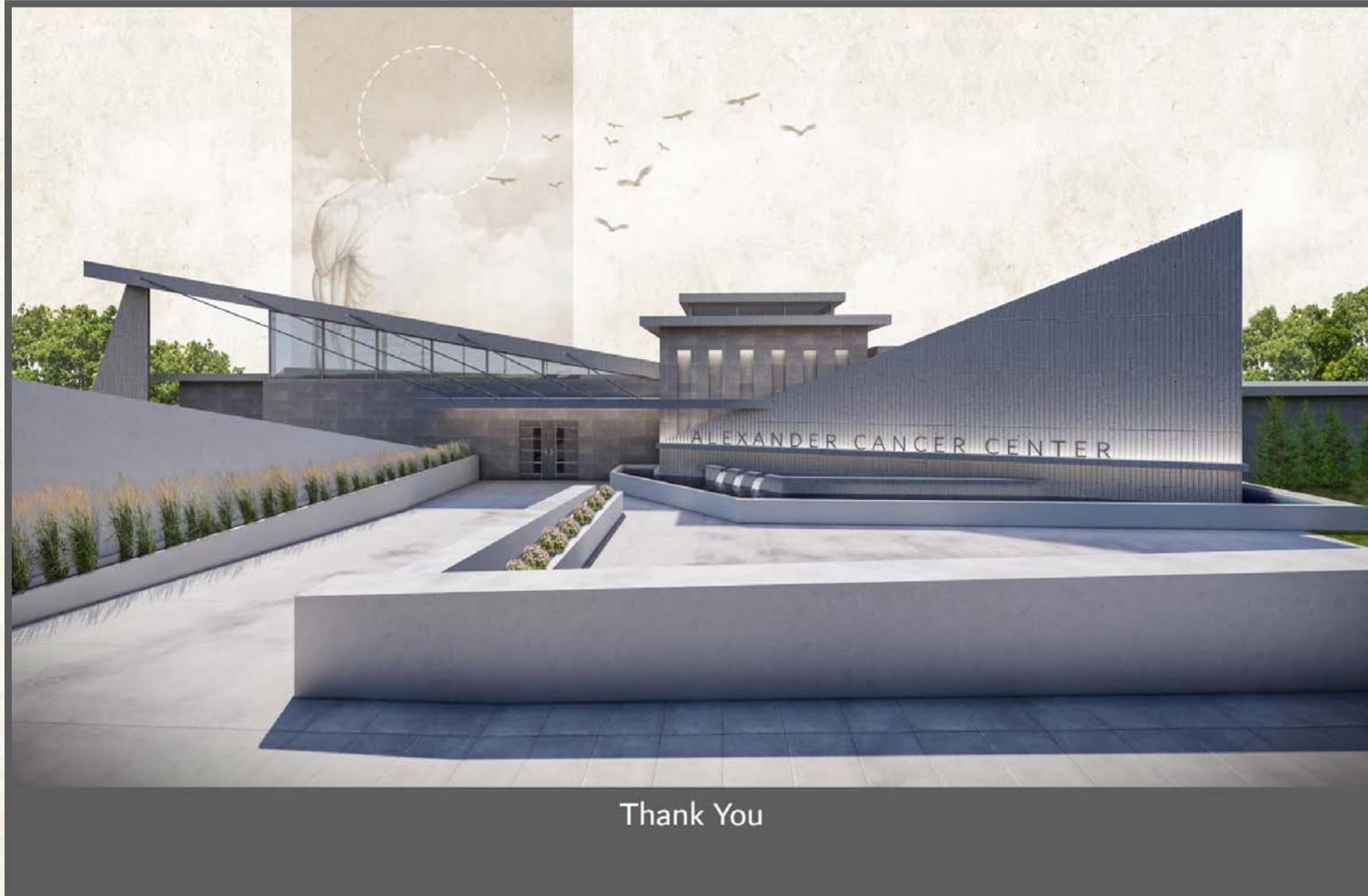
Presentation Slides



This thesis is a critique to how most healthcare architecture is designed today. Modern implications of science have brought about technology that forgets the true value of human nature and its importance in health. I want to conclude by bringing back the term *behandlung* and its importance not only in health but in architecture as well. It means treating people and handling them with care. I believe both healthcare and architecture needs to once again recognize the importance that the hand has in its context. Within my own physical boards I used my own hand, separated from the computer, to shade the plans and sections with charcoal. This allowed me to study how the light truly comes into the spaces and created a deeper understanding between myself and my architectural design. I wanted to share this idea and connection with my fellow students, staff, and others who viewed the wonderfully displayed thesis boards of my class. Using black powered pigment, one was able to leave their fingerprint on my board to emerge an understanding of connection between the body, the architectural representation, atmosphere of healthcare spaces, and the hand.

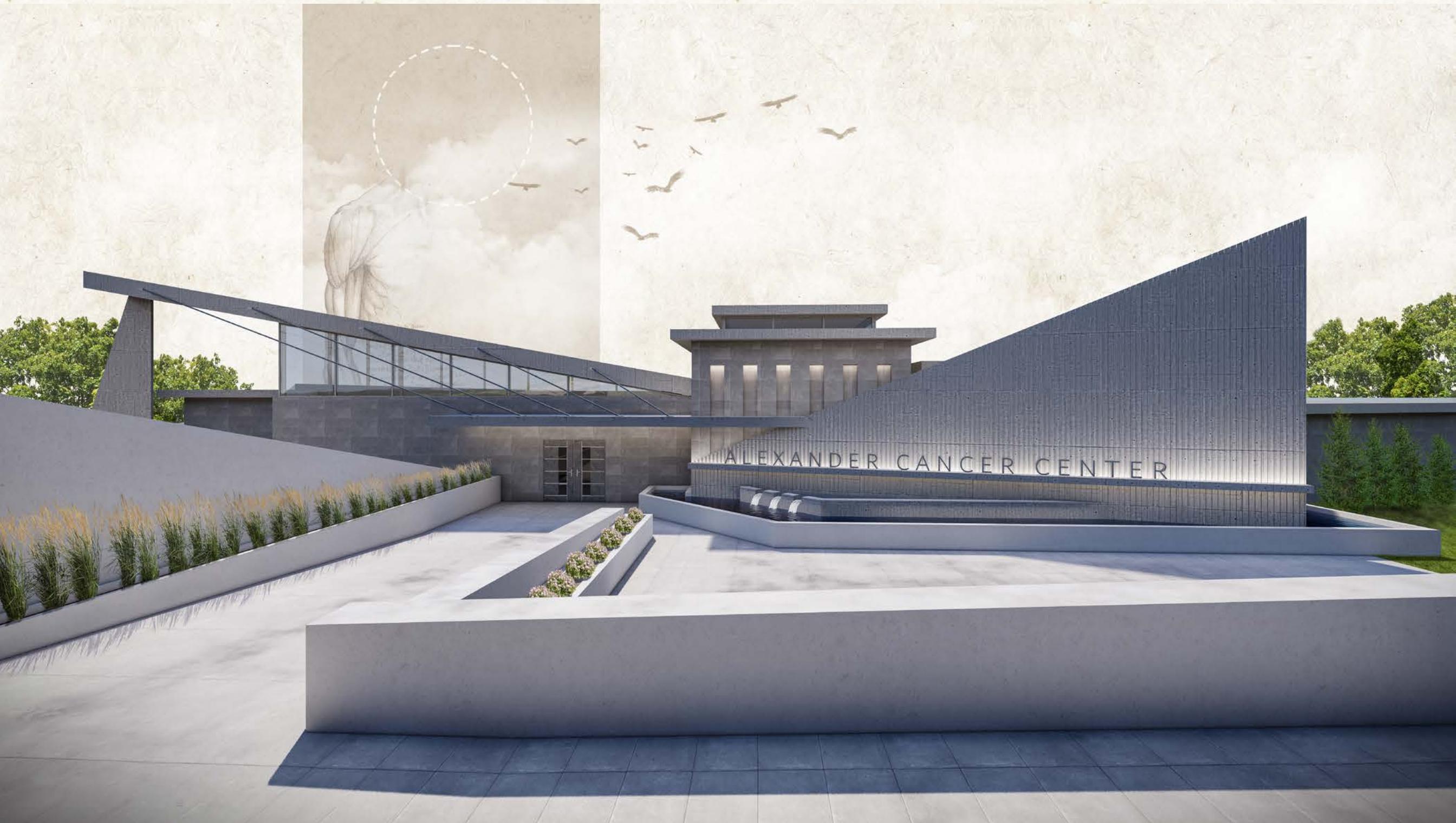
Presentation Slides

Thank You



Thank You

Entrance



Lake Side



Infusion Bay



Spa

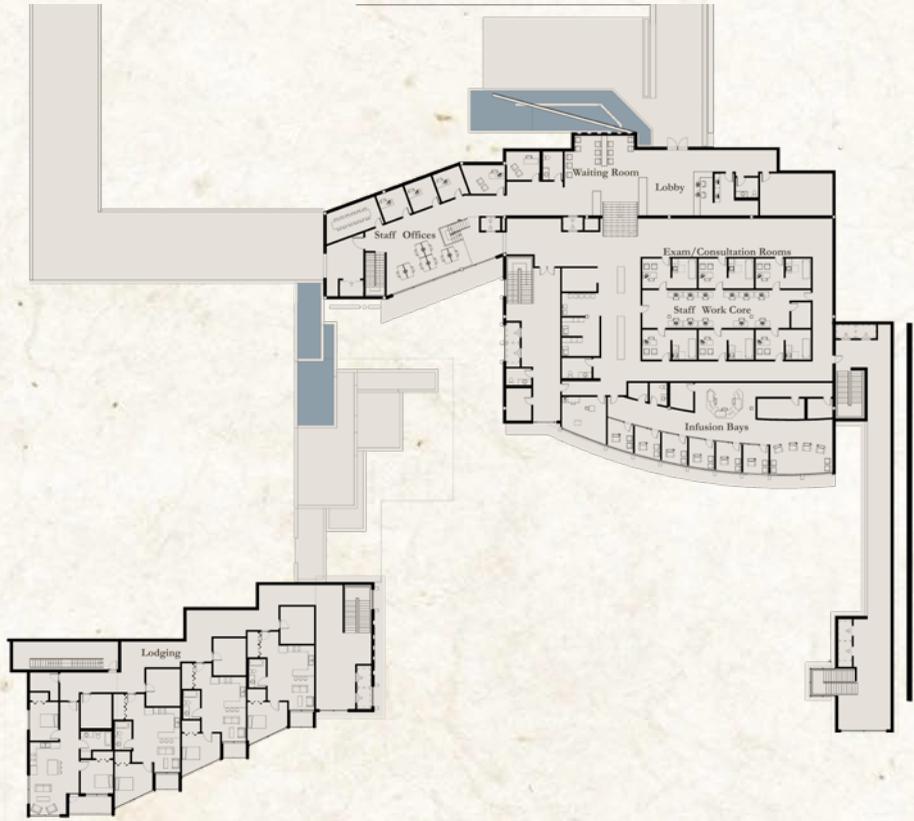


Spiritual Space

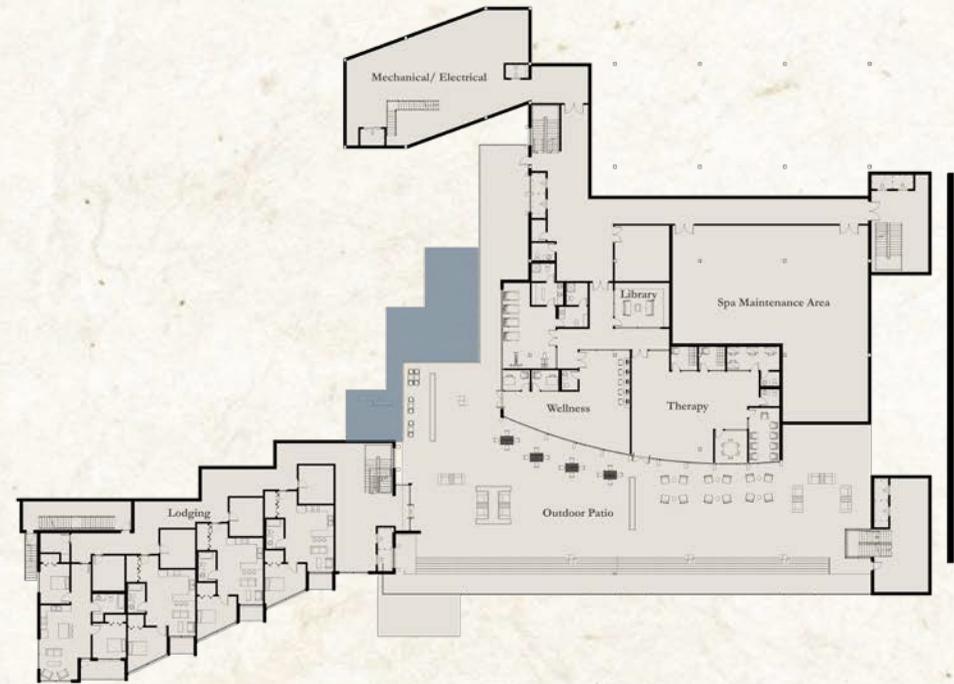


Therapy/Wellness Space





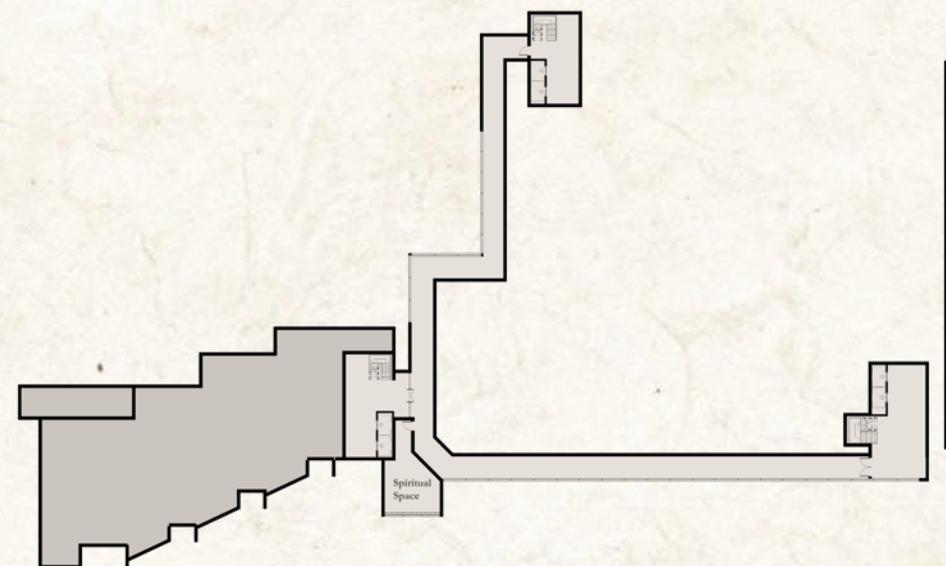
Floor 1



Floor 3

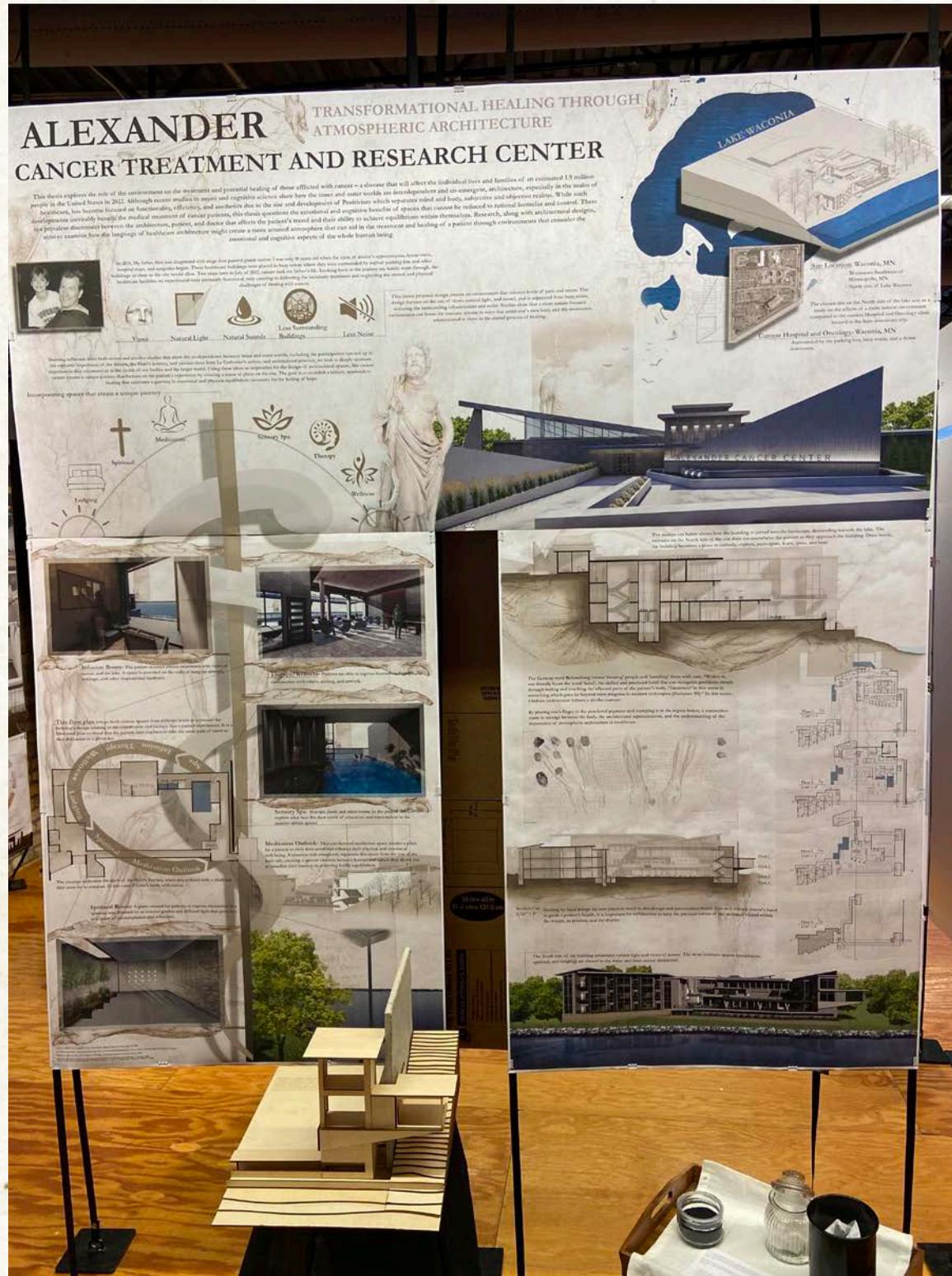


Floor 2



Floor 4

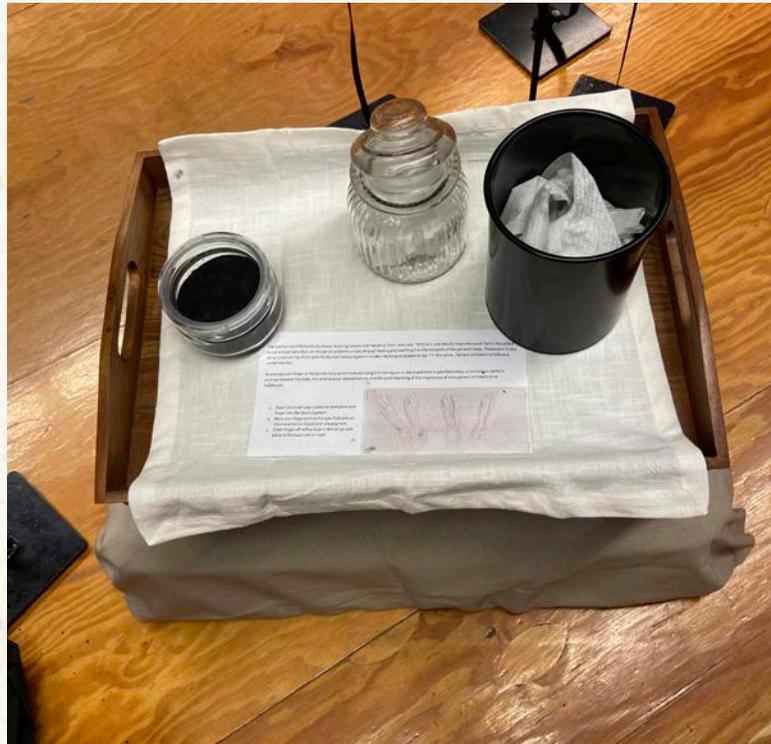
Project Installation



Project Installation



Project Installation



Project Installation



Thesis Appendix References

- Akrherz@iastate.edu, D. H. (n.d.). *IEM :: Site wind roses*. Iowa Environmental Mesonet. Retrieved December 10, 2021, from http://mesonet.agron.iastate.edu/sites/windrose.phtml?station=DSM&network=IA_ASOS
- ArcGIS web application. (n.d.). Retrieved December 7, 2021, from <https://carver.maps.arcgis.com/apps/webappviewer/index.html?id=0d150771bc8f4b4a9f3e7313672b41>
- Banner MD Anderson Cancer Center by HKS, Inc.* Architizer. (2016, July 12). Retrieved October 16, 2021, from <https://architizer.com/projects/banner-md-anderson-cancer-center/>
- Banner MD Anderson Cancer Center*. HKS Architects. (2021, June 14). Retrieved October 16, 2021, from <https://www.hksinc.com/what-we-do/case-studies/banner-md-anderson-cancer-center/>
- Carver County, MN / home*. (n.d.). Retrieved December 9, 2021, from <https://www.co.carver.mn.us/home/showdocument?id=11986>
- Current information*. 7132 Therme: Thermal Baths in Vals. (n.d.). Retrieved October 12, 2021, from <https://7132.com/en/therme/thermal-baths-and-spa/overview>
- Encyclopædia Britannica, inc. (n.d.). *Minneapolis*. Encyclopædia Britannica. Retrieved December 16, 2021, from <https://www.britannica.com/place/Minneapolis>
- Fracalossi, I. (2013, February 1). *Lakewood Cemetery Garden Mausoleum / HGA Architects and engineers*. ArchDaily. Retrieved October 10, 2021, from <https://www.archdaily.com/326697/lakewood-garden-mausoleum-hga>
- Gadamer, H. (1996). *The Enigma of Health*. Stanford University Press.
- Historical aerial. (n.d.). Retrieved December 7, 2021, from https://gis.co.carver.mn.us/historical_aerial/
- Lakewood Cemetery Garden Mausoleum*. HGA. (n.d.). Retrieved October 10, 2021, from <https://hga.com/projects/lakewood-cemetery-garden-mausoleum/>

Thesis Appendix References

- O'Grady, E. (2009, February 11). *The Therme Vals / Peter Zumthor*. ArchDaily. Retrieved October 12, 2021, from <https://www.archdaily.com/13358/the-therme-vals>
- Pallasmaa, U. (2005). *The Eyes of the Skin*. Wiley-Academy, a division of John Wiley & Sons Ltd.
- Pérez-Gómez, A. (1983). *Architecture and the Crisis of Modern Science*. The MIT Press.
- Pérez-Gómez, A. (2016). *Attunement: Architectural Meaning after the Crisis of Modern Science*. The MIT Press.
- Pérez-Gómez, A., Parcell, S. (1994). *Chora I: Intervals in the Philosophy of Architecture*. McGill-Queens University Press.
- Ratcliffe, M. (2009). *Why Mood Matters*. Retrieved October 18, 2021, from https://www.researchgate.net/publication/290089652_Why_Mood_Matters
- Seer cancer stat facts*. SEER. (n.d.). Retrieved December 2, 2021, from <https://seer.cancer.gov/statfacts/>
- The MAP Collection – O N C A. O N C A.* (2022). Retrieved 11 February 2022, from <https://onca.org.uk/about-us/michele-angelo-petrone/>.
- Vesely, D. (2010) *On The Relevance of Phenomenology*. World Press.
- Waconia*. Carver County Historical Society | Waconia. (n.d.). Retrieved December 2, 2021, from <https://www.carvercountyhistoricalsociety.org/waconia.php>
- What is distress?* American Cancer Society. (n.d.). Retrieved December 3, 2021, from <https://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/emotional-mood-changes/distress/what-is-distress.html>

Personal Identification Jared Hunt

2nd Year:

Fall: Charlott Greub
Meditation Garden- Moorhead, MN
Boat House- Minneapolis, MN

Spring: Amar Hussein
Dwelling Project- Cripple Creek, CO
Affordable Housing- Fargo, ND

3rd Year:

Fall: Regin Schwaen
Visitor Center- Ronald Regan Missile Facility-
Cooperstown, ND
Museum- Nekoma, ND

Spring: Bakr Aly Ahmed
Residential Dwelling- Fargo, ND
Capital Office Building- Bismark, ND

4th Year:

Fall: Cindy Urness
Highrise Capstone- Miami, FL

Spring: Amar Hussein
Residential House- Fargo, ND
Urban City Redesign- Bal Harbour, FL

5th Year

Thesis Advisor: Stephan Wischer
Alexander Cancer Treatment and Research
Center



Hometown: Forest Lake, MN

Email: jared.hunt@ndsu.edu

