Thesis Proposal

BIOPHILIC ARCHITECTURE & MENTAL HEALTH

FIGURE 1

M.S. Thesis Proposal
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Biophilic Architecture & Mental Health

Submitted to:

School of Design, Architecture and Art
Department of Architecture

By

Litzy Chamu

Biophilic Architecture & Mental Health

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

By

Litzy Chamu

In Partial Fulfillment of the Requirements
for the Degree of
Masters of Architecture

Primary Thesis Advisor	Thesis Committee Chair
Cindy Urness	Stepehen Wischer

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ABSTRACT

This thesis proposes the effects of biophilic interaction on people experiencing and struggling with mental health issues. In order to properly treat patients with mental health issues, the psychology behind the architecture designed to promote wellness must be properly and thoroughly understood. It is well known that the application of Biophilic Design reduces stress, stimulates creativity and clear thinking, improves physical and psychological well-being and accelerates healing. Considering the relentless process of global urbanization, these benefits will become increasingly important in the design of our urban spaces, architecture and interiors. In addition to what the architecture includes in terms of promoting an overall relationship with the natural environment, less noticeable elements, such as patterns within the architecture must be addressed to create a cohesive and effective design. The primary focus is designing a building that maximizes the amount and quality of positive interactions with nature. These biophilic relationships, combined with traditional and alternative therapies, will improve the health and healing of patients residing at the treatment facility.

Keywords: biophilia; biophilic design; restorative environment; sustainability; mental health; well-being.

THESIS NARRATIVE

For my thesis project, I wanted to create something that would have a beneficial impact on people and the physical world. I started thinking about all the issues we are seeing today, and which issue I am drawn to more. Mental health has always been something I am passionate about. I am a huge advocate of mental health awareness and finding solutions to help generations to come.

What does mental health have to do with architecture? There's a lot more correlations with each other than one would think. No matter where we may be, our mental health is affected by the architecture that surrounds us. Studies have shown that a space in which a person utilizes daily can affect one's emotions and mental health. For instance, most people will be more productive in a bright, communal, relaxed environment as opposed to a dark, solemn, anxiety-inducing one. In a study conducted by Conellanetal. (2013), it was determined that design choices such as light, noise, communal spaces, and art spaces influence mental health.

Designing our work and living spaces around our comfort and mental wellness is becoming increasingly important over time. Since the pandemic, mental health has increasingly become one of the largest issues affecting people's lives. Studies show that 1 in 5 people suffer from some type of mental health issue. Mental health is a direct link to physical health, all environments that we spend long periods of time in would benefit from thoughtful design. Poor design evokes negative reactions like anxiety, raised blood pressure, and increased risk of infections.

So, what about spaces that are meant to evoke rehabilitation, spaces meant for you to get better, spaces like a psychiatric center? People who may need the extra help in bettering themselves may decide to stay in these clinics. However, a lot of these clinics don't provide those design aspects meant for mental health improvement. Instead, the designs are dull and instill negative reactions. I want to design a psychiatric center that includes all these helpful design aspects, an ideal psychiatric center aimed for improvement of mental health.

FIGURE 2

PROJECT TYPOLOGY

As I mentioned in my thesis narrative, the objective of my thesis idea is to create an ideal psychiatric center that is centered around the improvement of the patient's mental health.

Looking back at the history of psychiatric buildings several asylums were built on linear or hollow-square plans, but the classic structure was based on the Alabama Insane Hospital, designed by Samuel Sloan and built in 1852, and codified by Thomas Kirkbride, M.D. The "Kirkbride Model" called for a large building constructed symmetrically on either side of a central administration building that was flanked by attached wards set back in steps. The division into setback wards allowed more severely ill patients to be placed by themselves, in the wards farthest away from the central building. The central building contained offices and housing for the superintendent and his family and marked the boundary between men and women patients, who were housed in separate wings. By 1890, about 70 Kirkbride-style asylums had been built in the United States.

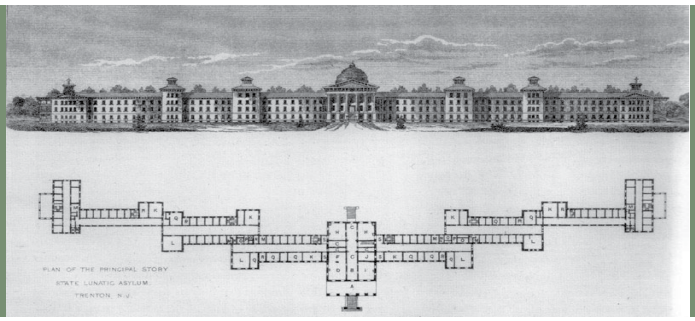


FIGURE 3

However, a lot of these asylums started to fail, they were declining, unhygienic, racially segregated, and socially isolated facilities. They were not doing the job they were built to do. For decades, psychiatric hospitals were grim settings where patients were crowded into common rooms by day and dorms at night.

Fast forward, the design approach of psychiatric centers has evolved now that new research into the health effects of our surroundings is creating the development of facilities that feel more residential. With all this, nature also plays a big role: Windows provide views of greenery, landscapes decorated walls, and outdoor areas give patients and staff access to fresh air and sunlight, which is extremely beneficial.

CLIENT DESCRIPTION

This building is designed to be a psychiatric center to accommodate;

Patients struggling with their mental health while on the road to recovery. Psychiatric centers are tailored to people that range from adolescents, adults and elderly people, with a whole range of mental health problems, like depression and anxiety, drug and alcohol problems.

Healthcare Staff trained to work hard and help you get through what can be a stressful time for you and your family.

Patient Visitors visiting their loved ones want to also be in a safe enviornment.

FIGURE 4

SITE INFORMATION

FIGURE 5

Location: Madison, Wisconsin

Currently Madison, Wisconsin is listed as one of Americas cities with the highest rate of depression. However, Madison is a beautiful city with plenty of nature that people could enjoy.

This biophilic designed building has a major focus of integrating nature with patients. Nature has a lot of benefits with recovering patients. Buildings in a nature bult enviornment always patients to enioy the outdoor nature.

MAJOR PROJECT ELEMENTS

Directect and indirect connection with nature

There are two ways we experience nature - directly and indirectly. Direct refers to physical exposure to natural elements. Indirect is exposure to only the likeness of nature, such as images or simulations of nature.

Indoor / outdoor plants

Introducing and planting gardens and trees around and inside the facility premises can create environments that make patients feel more connected with nature, thereby reducing their stress.

Non-rhythmic sensory stimuli

Non-Rhythmic Sensory Stimuli are stochastic and momentary connections with nature that can reduce stress and improve productivity.

Optimal view of green spaces through windows / walls / glass

Large glass doors and windows also help occupants connect with nature and feel more at ease in hospitals and health-care facilities.

Total commitment to natural light

Natural light has a decisive psychological and emotional effect on patients. Various studies, over the last decades, have identified that natural light guarantees better results for patients, helping them in their recovery and reducing fatigue.

Presence of textures, materials, aromas and shapes that allude to nature

Using materials such as wood, stone or adding plants and green spaces makes the sanitary environment a more comfortable and pleasant place.

PROJECT EMPHASIS

To emphasize, my overall project is going to be a modern, biophilic psychiatric center. This building is meant to reduce stress and promote positive effects on health and wellbeing.

Biophilic design refers to the practice of increasing connectivity between people and the natural environment through mindful design of interior spaces and the spatial experience. Hospitals often go against the needs of their visitors increasing the levels of mental and physical stress of patients. The positive effects on the health of human beings in response to biophilic design of the built environment have been proven by numerous studies. Design has only recently started to take in the patients needs for not only their physical, but also their social and psychological needs.

FIGURE 6

GOALS OF THE THESIS PROJECT

1. Successfully Integrate Ideas
Academically, the most important goal of my project is integration of all the different aspects of my project.
2. Effective Circulation Flow
Efficient circulation will be a challenge I will face in my design. I plan to use case studies and design techniques to reach this goal.
3. Intentionality
I want to be intentional with as many aspects of the design as I can to strengthen my project.
4. Innovative Design
Creating an innovative design will help my project stand out from the rest.
5. Better Design Based on Precedents
I want to use my case studies to better my design the best I can.
6. Educate
I want to educate whoever comes across my thesis about the importantce of biophilic design and its impact on mental health.
7. Design for the Place
It is very important that this design fits in Madison, Wisconsin and is still unique.
8. Improve My Rendering Skills
Professionally, I want to work on learning better rendering techniques.
9. Work on Mastering My Own Design Process
Professionally, I want to constantly be improving the way I work to produce better designs.
10. Create a Project I Am Proud to Show Off
I want a product that I am proud of with no major regrets or mistakes.

PLAN FOR PROCEEDING

RESEARCH DIRECTION

THEORETICAL PREMISE
1. Precedents in biophilic features.
2. Identifying sustainable strategies for biophilic design.
3. Identifying charateristics of biophilic design.

PROJECT TYPOLOGY
1. Identify community expectations and values

HISTORICAL CONTEXT
1. What effect does the cities depression rate have on design? How to solve them?
2. Precedents in communities mental health.

SITE ANALYSIS
1. All typical site analysis still needs to be completed.

DESIGN METHODOLOGY

SYSTEM OF METHOD
1. Theoretical Premise
2. Research on the topics surrounding that premise to help answer related questions and discover new design solutions
3. Testing those design solutions
4. Formulating your own design opinions about the newly tested design solutions
5. Formulating your own opinions into a conclusion to be used in your design.

TYPES OF ANALYSIS

Quantitative Analysis:
Interpret and analyze data through investigation

Qualitative Analysis:
Compare conclusion formulated from opinion against the needs and values of the community and client.

Exploration:
Examine how quantitative and qualitative answers can influence the design questions/answers that come from the design process

DESIGN PROCESS

DOCUMENTATION OF THE DESIGN PROCESS

Tools for creating documentation:
1. By Hand
- Sketching, Modeling
2. Investigating through computer design software
- Revit, Sketchup, AutoCad
3. Representing through computer design software
- Illustrator, Photoshop, Indesign

DESIGN PRESERVATION

1. Creating and investigating the represented drawings and models
2. Advisor(s) feedback taken and utilized
3. Weekly check-ins with main advisor
4. Keep, Date and reference later all notes, ideas and sketches
5. Document research material and keep list of sources and what they are for
6. Backup new stuff every Friday to google drive
7. Update thesis book weekly

CONTENT PUBLICATION

Final content material will be recorded and credited
in the final thesis book.

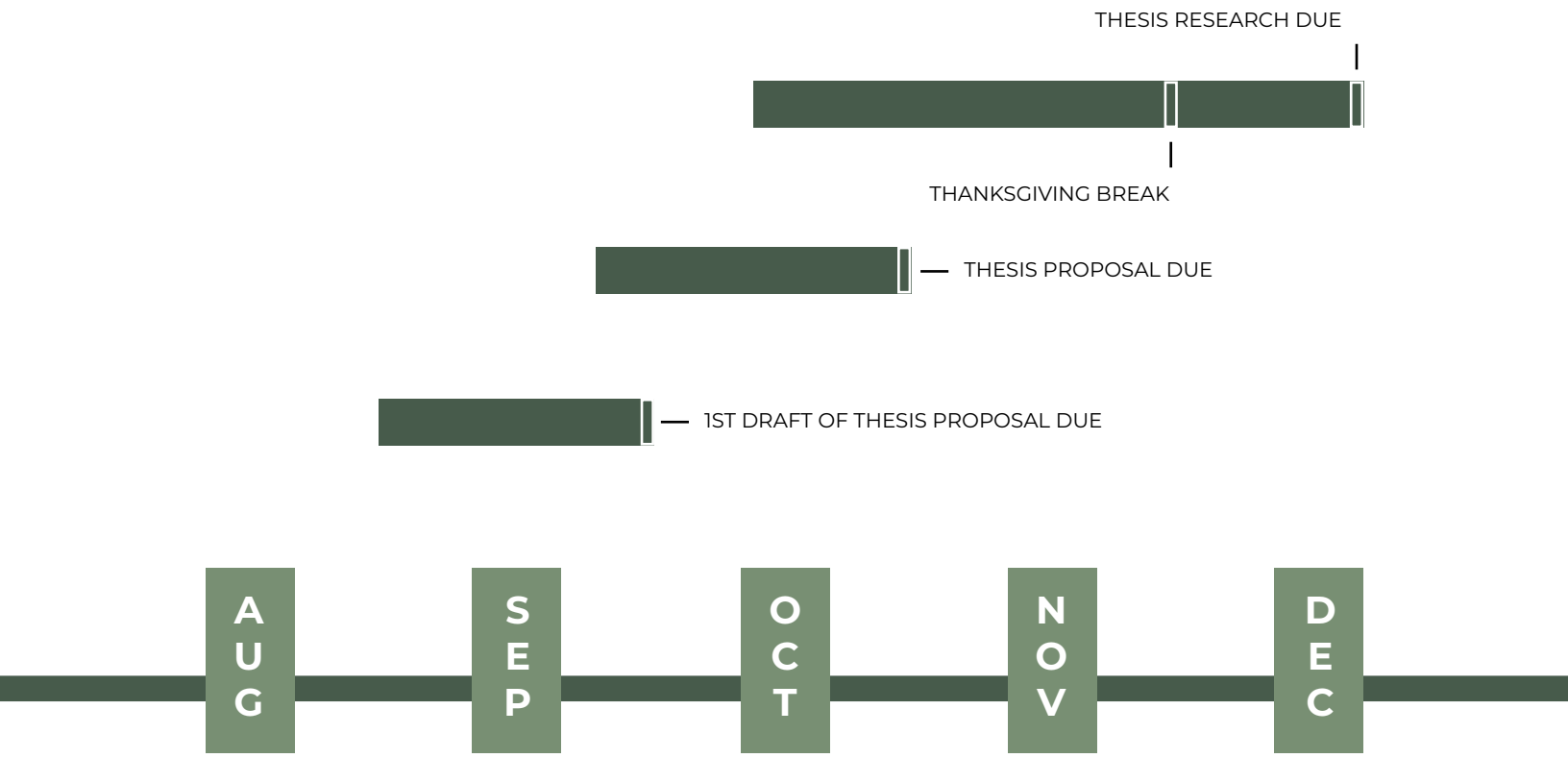
PRESENTATION INTENTIONS

1. Power Point Presentation to walk through my process and final design
2. Presentation boards containing my final design
3. Final Model

THESIS RESEARCH

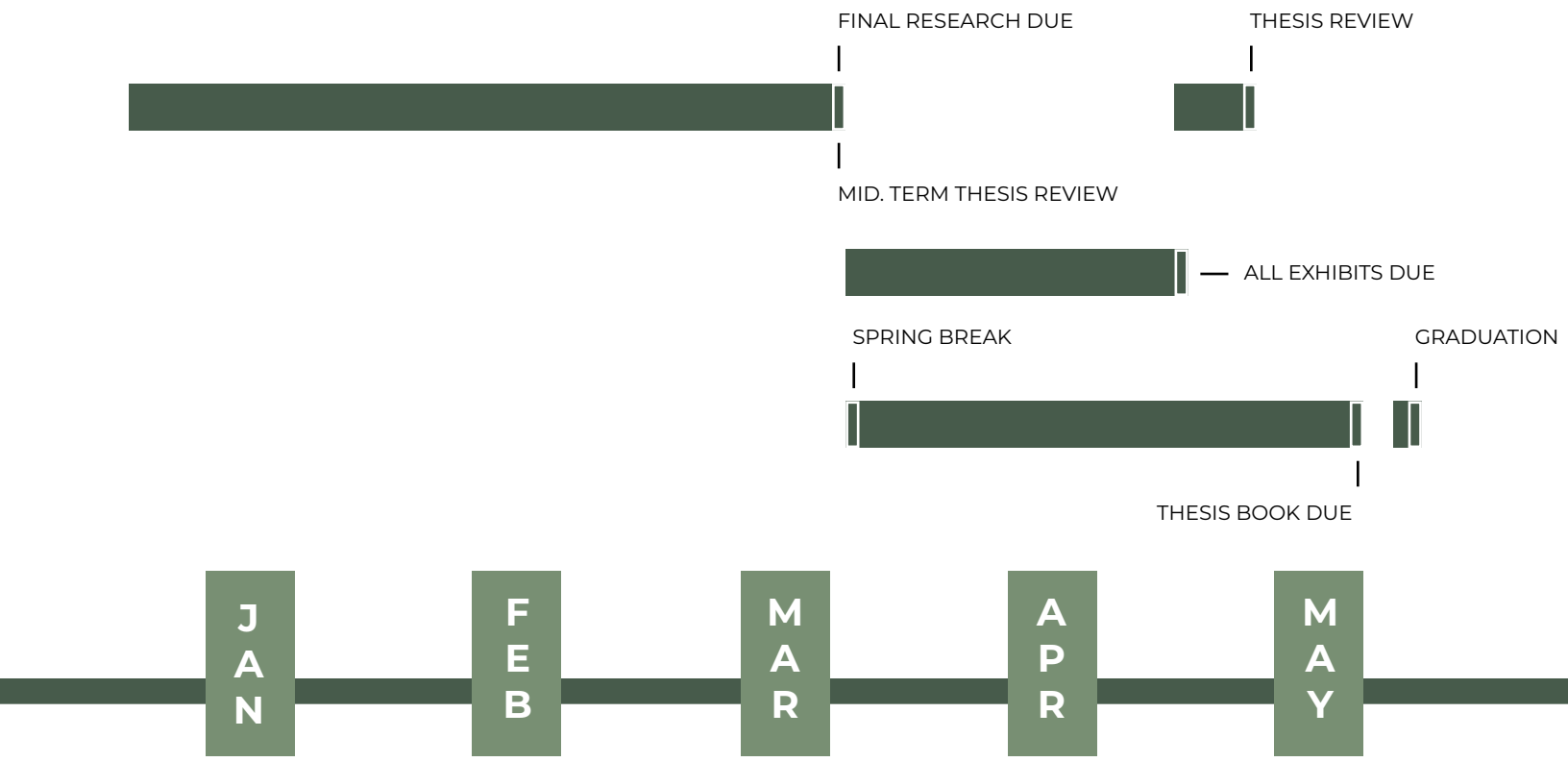
PROJECT SCHEDULE

FALL SEMESTER



PROJECT SCHEDULE

SPRING SEMESTER



RESULTS FROM RESEARCH

Throughout the thesis research process. Historical research will be done to see how previous facilities incorporated biophilic elements and how efficient their methods back then were. Qualitative research will also be done through readings related to both mental health issues and the Architecture field. These correlations will be made and expanded upon throughout the design process. The look into case studies is also going to be an incredibly important part to see what the typical building programs are and how the circulation and design affected the building, whether that be positively or negatively.

FIGURE 7

CASE STUDIES

CHEROKEE STATE HOSPITAL (POOR DESIGN)

FIGURE 8

Cherokee State Hospital opened in 1902 and is still operational providing acute care to adults, adolescence, and children.

HISTORY

The Cherokee Mental Health Institute is a state-run psychiatric facility in Cherokee, Iowa. It opened in 1902 and is under the authority of the Iowa Department of Human Services.

There was a strong need in the State of Iowa at the time for an additional hospital to relieve overcrowding at the other state mental hospitals in Mount Pleasant, Independence, and Clarinda.

The towns of Sheldon, LeMars, Fort Dodge, and Storm Lake in northwestern Iowa lobbied hard to bring the asylum to their area, since it meant jobs and economic growth.

CONTEXT

The Cherokee State Hospital is an example of the Kirkbride model. Kirkbride believed that asylum buildings and their surroundings were a central component of treatment for the mentally ill. Kirkbride buildings were built between 1848 and 1890. Patients were housed in a hierarchical system based on gender and illness. Kirkbride felt this arrangement would make patients more comfortable and their treatment more productive by isolating them.

CONTRIBUTION TO THESIS

This case study is a great example of what to steer away from in the process of designing a psychiatric center. While Kirkbride buildings were beautiful, they were also impractical due to their size and lack of functionality. There was a consistent gap between the architects' ambitions for the building, and how the building actually functioned.

Another big issue was many patients staying at Kirkbrides didn't leave. From the beginning, the idea had been that the patients in any Kirkbride hospital would soon be cured, making room for new patients. Patients were originally expected to stay there for no more than a year.

CONCLUSION

Kirkbride is a blueprint to architects in todays age on what to avoid for functional, practical and resourceful psychiatric centers. There have been around 80 kirkbride buildings constructed between the years 1845 and 1910, 30 that are still standing, slowly starting to decay as well.

Kirkbrides entire theory was that architecture itself can cure mental illness. Research has shown that there is more to that. The biggest positive impact architecture has on mental health is including biophilic deisgn.

FIGURE 9

CASE STUDIES

ÖSTRA HOSPITAL – PSYCHIATRY WARD (GOOD DESIGN)

FIGURE 10

PROJECT SUMMARY

Because of biophilic architecture, a psychitric hospital in Sweden has shown that introducing natural elements to medical spaces reduces stress and agression and increase relaxation, focus and recovery.

The design of Östra Hospital's Acute Psychiatry Ward creates a free and open environment that breaks down preconceptions formed by traditional institutional environments. Evidence-based research suggests that successful care requires the gradual increase of patients' personal space from their room, to the garden, to the wider public realm with an eventual return to life outside.

There are 3 key aspects associated with biophilic healthcare design and how they can be implemented in the healing enviornment.

1. Complexity and Order

2. Indoor and Outdoor Spaces

3. Natural Lighyt Promoting Natural Rhythms

CONTRIBUTION TO THESIS

This case study is a great example of biophilic architecure in the healthcare typology. Sweden has designed a psychiatric center that has successfully reduced agressive and negative behaviors and encouraged independence for patients throughout the facility. Studies have shown that this is the type of design we should be implementing in these healthcare facilities. Biophilic design can reduce stress, enhance creativity and clarity of thought, improve our well-being and expedite healing.

CONCLUSION

The Ostra Hospital has all the key elements that a good biophilic design should have. There is a spatial atmosphere, a sense of personal space and autonomy to set boundries for mental health and safety. Ostra provides indoor and outdoor spaces, fostering happiness and wellbeing, while reducing stress and agression. Lastly, Ostra provides natural light throughout the day from windows, skylights and light features all contributing to improvement of mental health.

FIGURE 11

CASE STUDIES

MCLEOD TYLER WELLNESS CENTER (GOOD DESIGN)

FIGURE 12

PROJECT SUMMARY

EYP's design for McLeod Tyler Wellness Center is intended to be a beacon for health and wellness for the community. Along with the building's architectural character, the landscape design was developed in response to the natural setting and the overall result is welcoming and non-institutional.

Inspiration for the design concept came from two primary sources: architect Philip Johnson's Glass House and the iconic garage in the movie "Ferris Bueller's Day Off." These structures frame and integrate the landscape with the building. Research has proven the positive effects of nature on mental and physical well-being.

The design team incorporated biophilic elements throughout the interior with strategic use of natural patterned fabrics, stone, wood, and a large water feature along a wall in the lobby. Designers also chose a color palette with soothing earth tones to reinforce the Center's connection to nature and to contribute to the calm, restorative environment.

CONTRIBUTION TO THESIS

This case study is another great example of biophilic architecure in the healthcare typology. Scientists first uncovered the effects of biophilic design in 1984. Dr. Roger Ulrich discovered that hospital patients whose rooms faced vegetation and water recovered faster than patients who stared at a brick wall all day. This is another building showcasing all the benefits biophilic design can provide for people.

CONCLUSION

Healthcare facilities like the McLeod Tyler wellness center, employ the principles of biophilic design improve patient outcomes and reduce staff stress. By making simple choices like using more natural building materials or installing a circadian lighting system, healthcare designers can make hospitals into more comforting environments. They help patients recover faster. Biophilic elements are an essential part of modern healthcare design.

FIGURE 13

FIGURE 14

PROJECT JUSTIFICATION

As I have mentioned before, mental health is a crisis that unfortunately is still on the rise and any efforts in helping is a good effort. Mental health problems are very common. In 2020, about 1 in 5 american adults experienced a mental health issue, 1 in 6 young people experienced a major depressive episode and 1 in 20 americans lived with a serious mental illness.

The reason I chose to dive into this topic and essentially make it my thesis is because I believe that everyone should have a good experience in bettering their mental health, especially in situations where one might have to be part of a psychiatric center. Using biophilic design in healthcare can lessen the stress on patients because it creates a more natural environment that is conducive to a successful recovery.

FIGURE 15

HISTORICAL, CULTURAL AND SOCIAL CONTEXT

TREATMENT IN THE PAST

For much of history, the mentally ill have been treated very poorly. It was believed that mental illness was caused by demonic possession, witchcraft, or an angry god. For example, in medieval times, abnormal behaviors were viewed as a sign that a person was possessed by demons. The most common treatment was exorcism, often conducted by priests. Another form of treatment for extreme cases of mental illness was trephining: A small hole was made in the individual's skull to release spirits from the body. In addition to exorcism and trephining, other practices involved execution or imprisonment of people with psychological disorders. Generally speaking, most people who exhibited strange behaviors were greatly misunderstood and treated cruelly.

From the late 1400s to the late 1600s, a common belief perpetuated by some religious organizations was that some people were witches. They were often burned at the stake. It is estimated that tens of thousands of mentally ill people were killed after being accused of being witches or under the influence of witchcraft.

By the 18th century, people who were considered odd and unusual were placed in asylums. Asylums were the first institutions created for the specific purpose of housing people with psychological disorders, but the focus was ostracizing them from society rather than treating their disorders. Often these people were kept in windowless dungeons, beaten, chained to their beds, and had little to no contact with caregivers.

In the late 1700s, a French physician, Philippe Pinel, argued for more humane treatment of the mentally ill. He suggested that they be unchained and talked to.

In the 19th century, Dorothea Dix led reform efforts for mental health care in the United States. Dix began lobbying various state legislatures and the U.S. Congress for change (Tiffany, 1891). Her efforts led to the creation of the first mental asylums in the United States. However, a typical asylum was filthy, offered very little treatment, and often kept people for decades. Conditions like these remained common until well into the 20th century.

TREATMENT TODAY

Today, there are community mental health centers across the nation. Instead of asylums, there are psychiatric hospitals run by state governments and local community hospitals focused on short-term care. They are located in neighborhoods near the homes of clients, and they provide large numbers of people with mental health services of various kinds and for many kinds of problems.

FIGURE 16

HISTORICAL, CULTURAL AND SOCIAL CONTEXT

CULTURE

Mental health is a complex issue that can be affected by many different factors. Culture still plays a significant role in shaping how people think and feel about their mental health. It is important to understand culture's role in mental health to create an inclusive environment that supports people of all backgrounds. When it comes to mental health, culture can have both positive and negative impacts.

In some cultures, it is more acceptable to express emotions openly, while in others, emotional restraint is the norm. This can affect how we cope with stressful situations. Some cultures may also emphasize individualism, while others may emphasize the importance of community and interdependence. This can affect how we view ourselves about others, and how much support we seek when facing challenges.

In some cultures mental disorders are often seen as medical conditions that need to be treated with medication or other medical interventions. But in many traditional cultures, mental health problems are seen as spiritual issues that need to be addressed through religious or shamanic rituals.

In some cultures, mental health problems are seen as a sign of weakness, and people may be reluctant to seek help for fear of stigma or discrimination. In other cultures, Mental health problems may be seen as a normal part of life, and people may be more likely to seek help from family, friends, or community members.

CULTURE IN HEALTH CARE

Cultural competence is understanding, appreciating, and working with different cultures' beliefs, values, and practices. Mental health care providers need to be culturally competent to provide quality care to all patients. This includes understanding how culture can impact mental health and being aware of the different cultural traditions and practices around mental health. It also means respecting patients' beliefs and values, even if they differ from ours. When providers are not culturally competent, they may make assumptions about their patients that are not accurate. This can lead to misdiagnoses, inappropriate treatments, and a lack of trust between patients and providers.

FIGURE 17

HISTORICAL, CULTURAL AND SOCIAL CONTEXT

SOCIAL

Mental health issues are still very prevalent in our society today. However, we are in a time where seeking help is more accepted and encouraged. In the last couple years, the stigma behind mental health has taken a turn towards the right direction. Previously, older generations strayed away from seeking help and treatment. This change in the social concept of mental health, care and architecture is paving the way to show a new way of mental health care centers and the benfits that they may offer.

FIGURE 18

SITE ANALYSIS

SITE SUMMARY

Located in the most northern part of Lake Mendota, on the block between County Highway M and Highway 113. The site sits at 17.7 acres and is located right across from Lake Mendota. The site is tucked away in a forested area, providing privacy and great views, making it a great location for further exploration of the thesis.

Through further anylization and exploration into the city and neighborhood it has been proven to be the best location for this project to sit. Through design and the use of existing conditions patients of this new facility will be immersed into the existing nature.

This site will be able to help the goals for this project by allowing for community growth, and sustainability. By locating the project here it allows for the community to accept the new building instead of being out of context without these guidelines. Sustainability will be utilized through every process but due to this specific location having ample time throughout the year for direct sunlight, long growing seasons, and the climate will help achieve these goals.

Overall, this was the best site that could have been picked due to its direct connection to the existing nature and privacy.

WEATHER PATTERNS

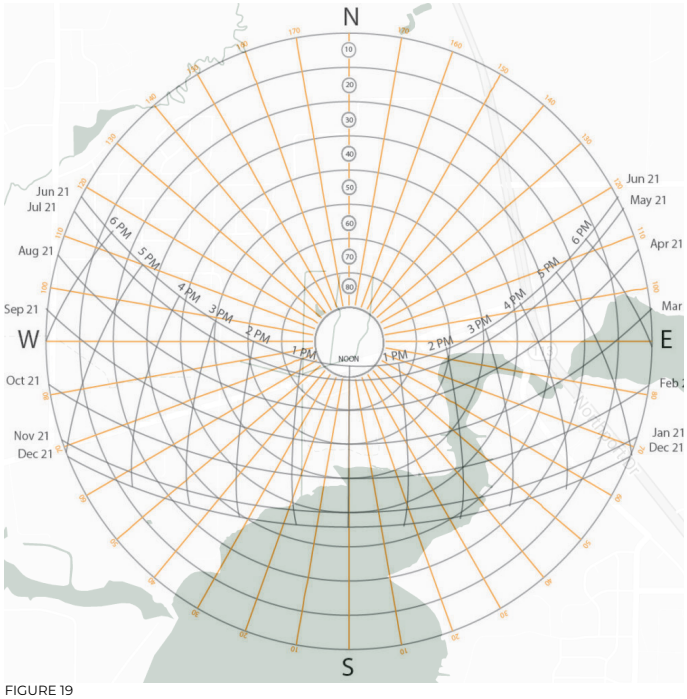


FIGURE 19

SUN PATTERN

In Madison, the sumers are warm and wet; the winters are freezing, snowy, and windy; and it is partly cloudy year round. Over the course of the year, the temperature typically varies from 13°F to 82°F and is rarely below -7°F or above 90°F. Throughout the year the site will still get plenty of sunlight.

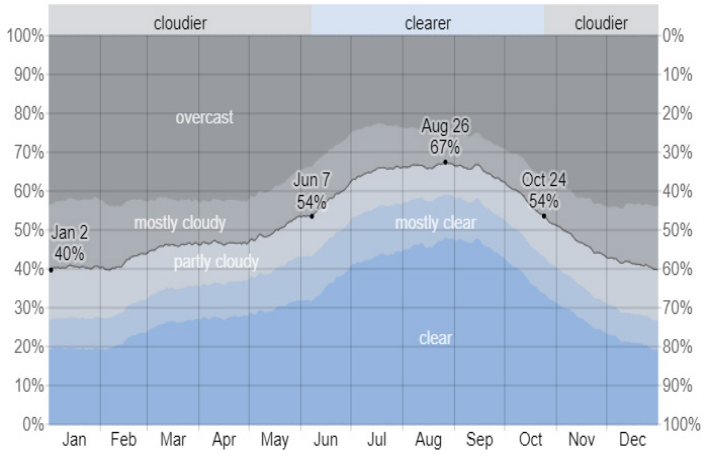


FIGURE 20

CLOUD PATTERN

In Madison, the average percentage of the sky covered by clouds experiences significant seasonal variation over the course of the year.The clearer part of the year in Madison begins around June 7 and lasts for 4.5 months, ending around October 24.

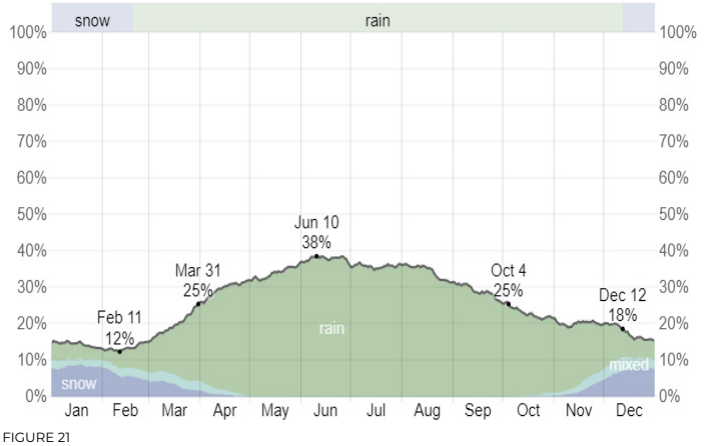


FIGURE 21

RAIN PATTERN

Rain alone is the most common for 9.7 months, from February 19 to December 12. The month with the most days of rain alone in Madison is June, with an average of 11.3 days. Snow alone is the most common for 2.3 months, from December 12 to February 19. The month with the most days of snow alone in Madison is January, with an average of 2.6 days.

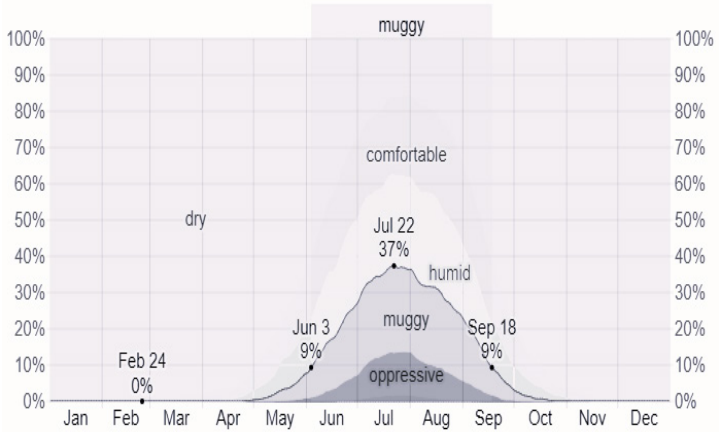


FIGURE 22

HUMIDITY PATTERN

Madison experiences significant seasonal variation in the perceived humidity.The muggier period of the year lasts for 3.5 months, from June 3 to September 18, during which time the comfort level is muggy, oppressive, or miserable at least 9% of the time.

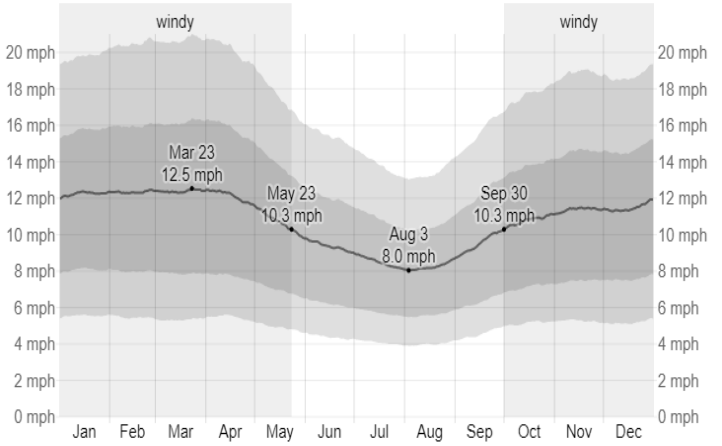


FIGURE 23

WIND PATTERN

The average hourly wind speed in Madison experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 7.8 months, from September 30 to May 23, with average wind speeds of more than 10.3 miles per hour. The windiest month of the year in Madison is March, with an average hourly wind speed of 12.4 miles per hour.

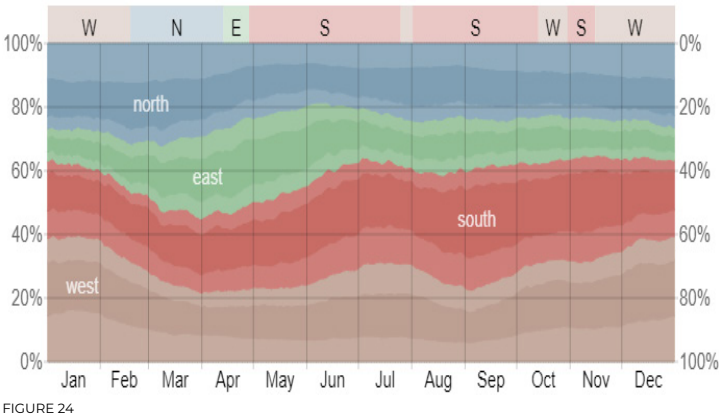


FIGURE 24

WIND PATTERN

The wind is most often from the north for 1.8 months, from February 18 to April 13. The wind is most often from the south for 2.9 months, from April 28 to July 25; for 2.4 months, from August 1 to October 13; and for 2.3 weeks, from October 30 to November 15. The wind is most often from the west for 1.0 weeks, from July 25 to August 1; for 2.4 weeks, from October 13 to October 30; and for 3.1 months, from November 15 to February 18.

PREFORMANCE CRITERIA

SPACE ALLOCATION

The design is going to be a cohesive design that allows for the spaces to work together to maximize square footage as well as optimizing sustainable practices through the placement of the different programs. These spaces will include administration offices, healthcare offices, pharmacy, healing gardens, inpatient rooms, therapy rooms and a green roof.

ENERGY CONSUMPTION

Energy consumption throughout my building is going to be on the lower side of energy production due to the immense amount of natural lighting and circulation.

ENVIRONMENTAL PERFORMANCE

Thermal control within the building is going to be a big area that will have to be addressed within the final design of the thesis process. The building provides plenty of natural sunlight which means there are a lot of curtain walls and windows, this will affect how the building is cooled as well as how it is heated. Overall, the building will achieve NET Zero to enhance the Environmental Performance.

CODE COMPLIANCE

All local codes, ADA, and IBC codes will be used in the production of the design of my building when it comes to the time of designing it.

BEHAVIORAL PERFORMANCE

Since the building I am designing for my thesis is a inpatient mental health center it will technically be operating 24/7, however visitor hours will be from 8 am to 8 pm, Monday through Sunday. This means that paients and healthcare staff will be occupying the space in conjuction to visitors occupying the space.

PSYCHOLOGICAL IMPACT

The psychological impact within the mental health center is going to be a positive, encouraging, and a peaceful experience for those who come and occupy it. Patients will be pushed, and encouraged to learn and grow in a positive healing environment. Guest will also be able to enjoy the space and see how patients imerse in nature and improve their well-being.

ENVIRONMENTAL IMPACT

With the emphasis of sustainable green design within my building I will be pushing the bounds of what can be possible throughout the site and building. I will be researching the best ways to implement green design into the building for the climate and conditions it is set in.

	MIND	BODY	SPIRIT
Accessibility	Activities presented in different medias	Meets ADA guidelines	Inclusive environment
Circulation	Easily understood connections	Open sight lines to allow easy maneuvering	Inviting and self-guided
Color	Limits distractions by integrating neutral colors	Colors dont create any negative feelings	Creates sense of calmness
Daylighting	Connections to nature	100 to 500 fc	Transparency and openness to outdoors
Flexibility	User decision making	Flexible elements for user customization	User freedom and control
Furniture	Variety of options	Ergonomically correct for mental patients	Clean and well maintained
Height	Spacious environment	9'-0" ceilings	Feeling of comfort and security
Lighting	Task lighting for added concentration, 100 fc	50 fc for general healing spaces	Uniform and without glare
Socialization	Opportunity for connections between patient and staff	Multi-user interactive elements	Friendly Environment
Sound	35 to 45 dBA in healing areas	45 to 55 dBA in community spaces	Contributes to the sensory experience of the space
Structure	Contributes to experience of the space	Follows any and all safety codes	Adds to the environments aesthetic
Technology	Understood by users	Used by healthcare staff to provide adequate care	Communication and connectiveness to world
Temperature	Comfortability	68 to 74 degrees	Relief from any heat or cold
Ventilation	15 to 20 cfm per occupant	Access to the outdoors and operable windows	Not congested with high activity

DESIGN SOLUTION

PROCESS SKETCHES

FIGURE 25

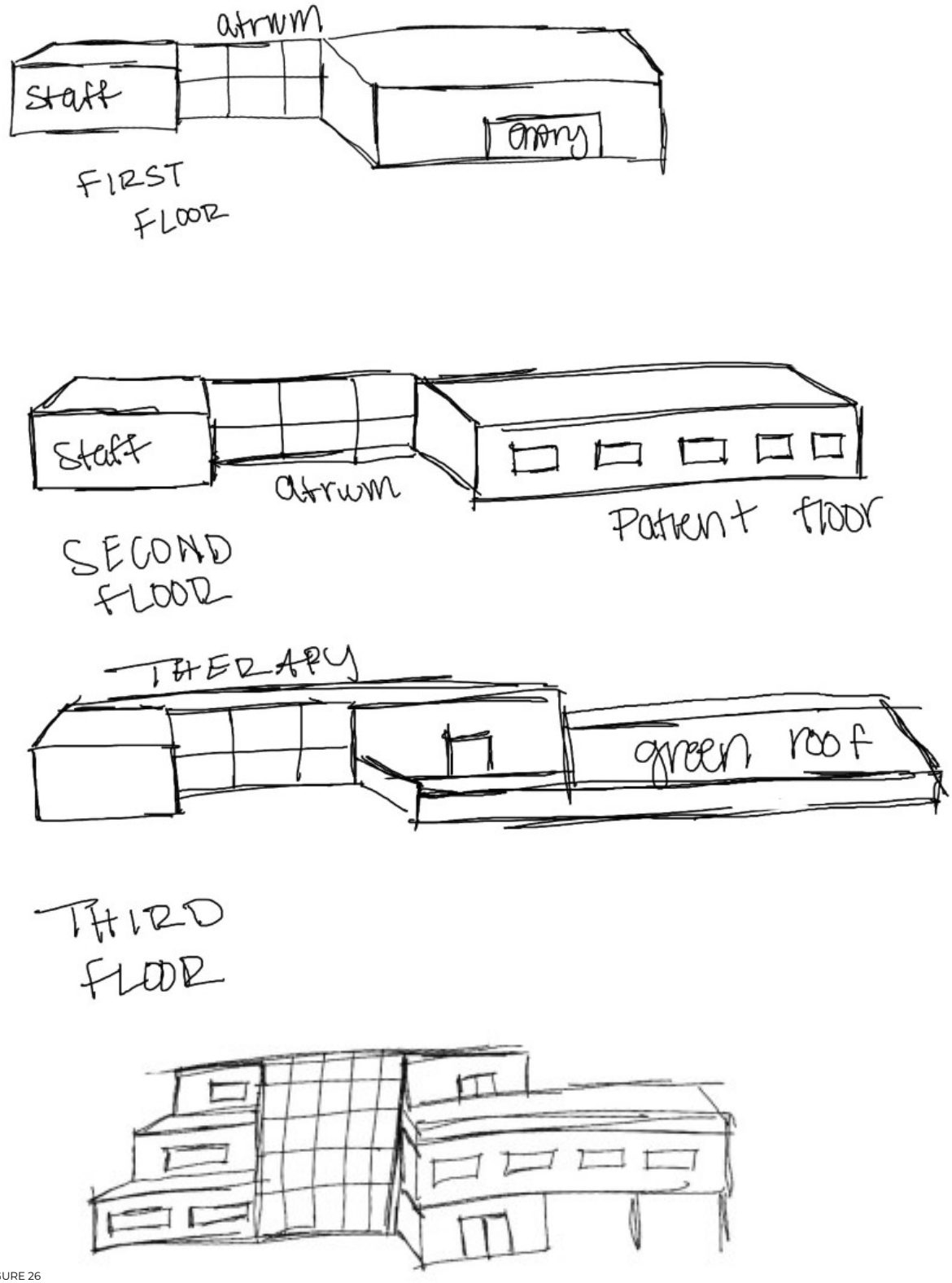
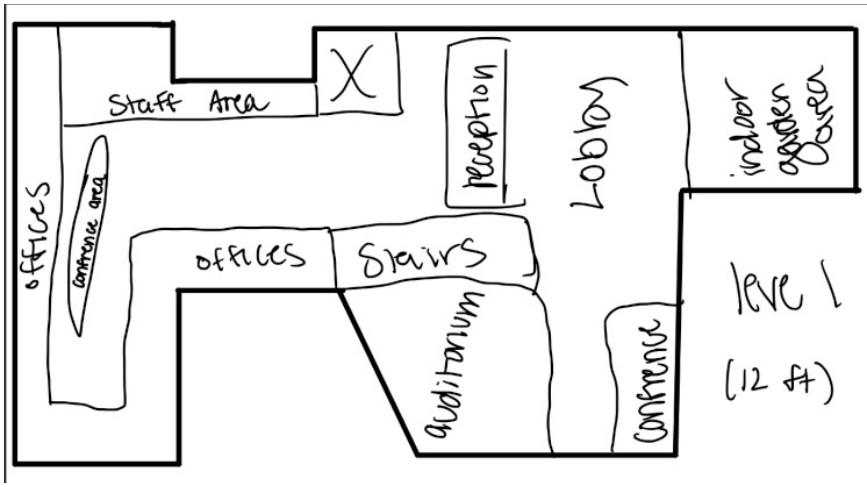
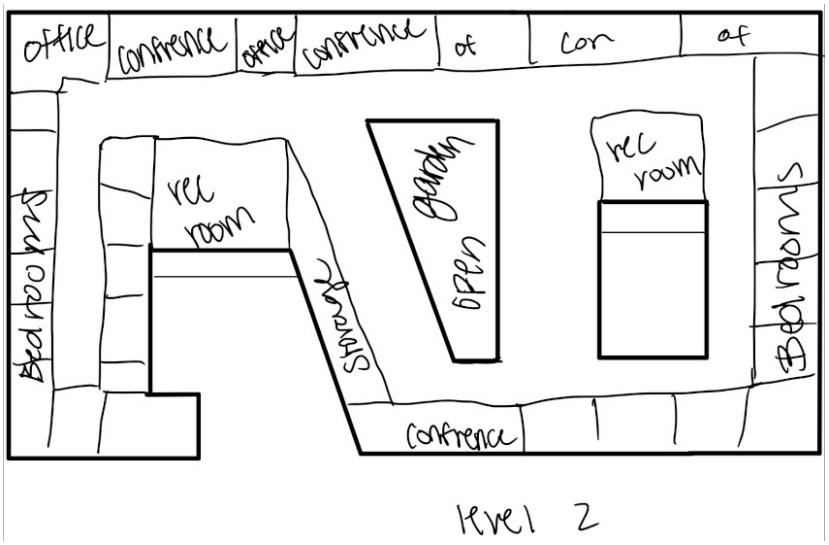
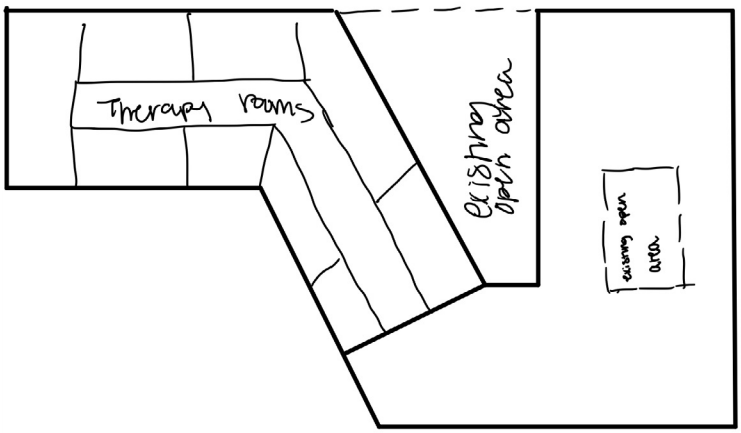


FIGURE 26

FIGURE 27





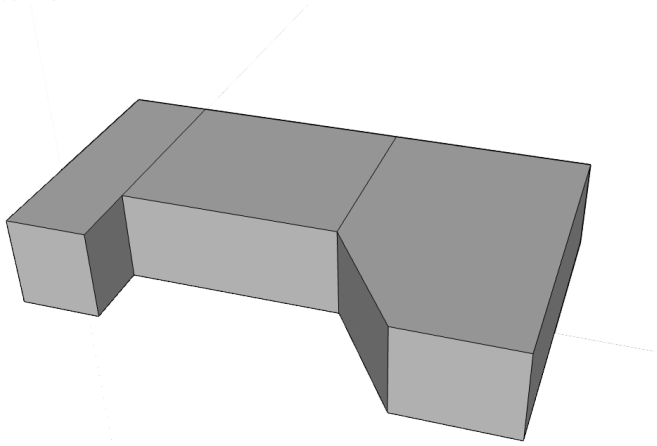


level 3 roof top

MASS AND MODELING

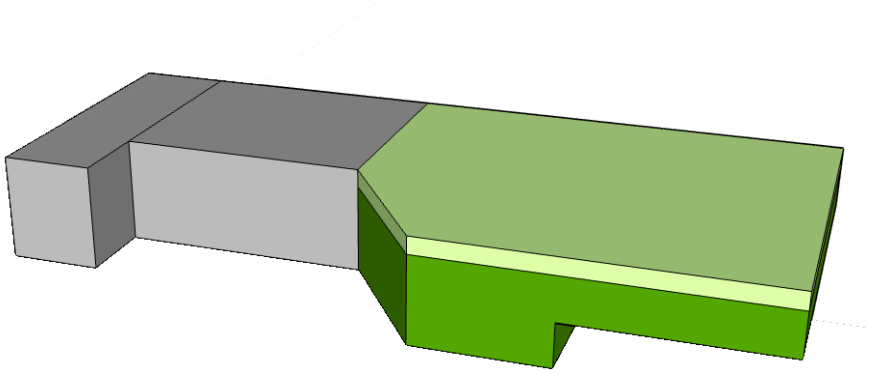
Connection is a recurring theme throughout the design solution. The chosen final form responds to the surrounding context, site influences, and program needs.

FIGURE 28



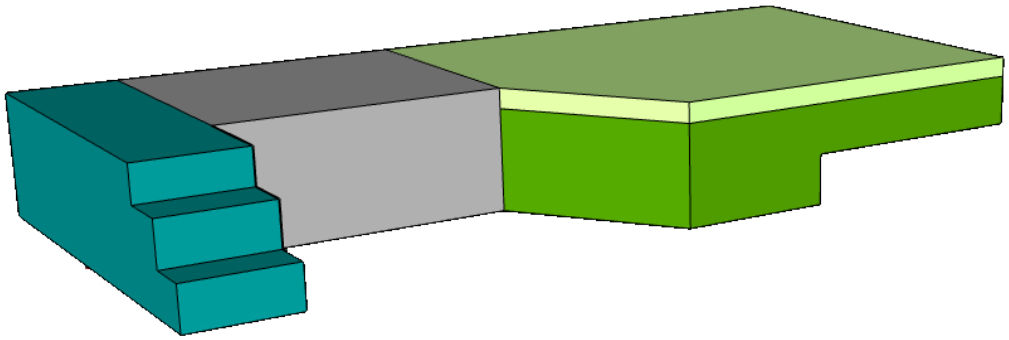
The extension on the right wing creates more room for patients and staff. This alo opens the first floor and creates a space for outdoor usage for all patients, staff, and visitors. The left wing also highlights the green roof.

FIGURE 29



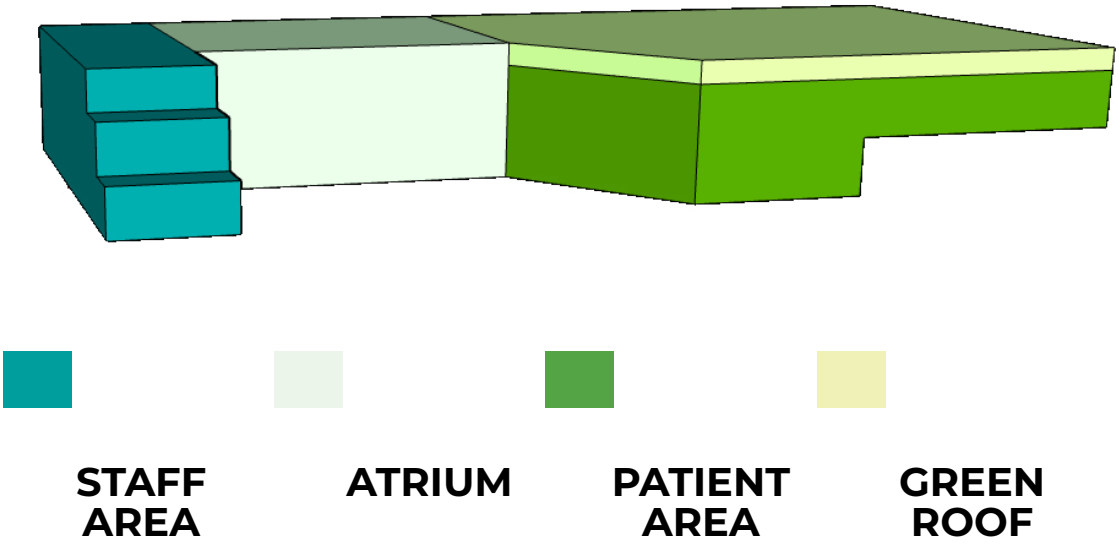
Shifting the left wing into a form that takes on the shape of steps, creates more room for each healthcare office from top to bottom. The right wing highlights the healthcare offices and where staff find their space.

FIGURE 30



Openings added in the form allow for outdoor circulation through and around site. Multiple circulation routes add flexibility and exploration for users. Levels of the project are adapted to the original topography of the site. The form is further adjusted to connect all 3 forms into one.

FIGURE 31



PROJECT SOLUTION DOCUMENTATION

FIGURE 32

PERFORMANCE ANALYSIS: RESPONSE TO SITE

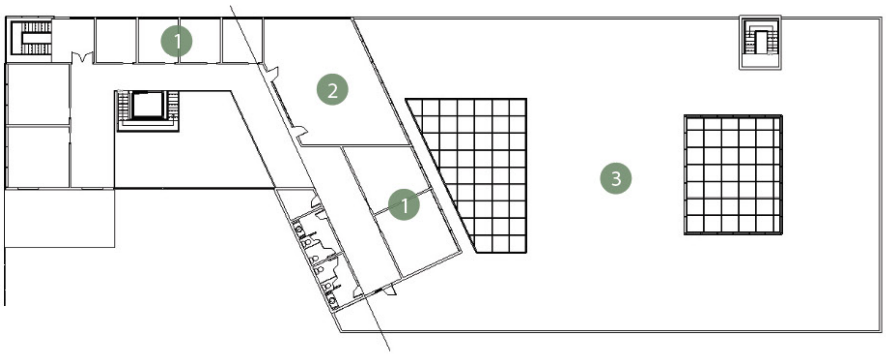
The design process, explained earlier, demonstrates many of the decisions for the building form as it relates to the site context. Additionally, sustainable solutions were integrated into the design that responds to Madison's climate. One of these sustainable solutions being the commitment to natural lightig. The building design includes a large curtain wall that allows plenty of natural lighting.

As a response to the large size of the site, the west portion of the site is dedicated to the future development of a gardens, offering additional resources that allow intergration of nature and healing.

PERFORMANCE ANALYSIS: RESPONSE TO TYPOLOGICAL RESEARCH

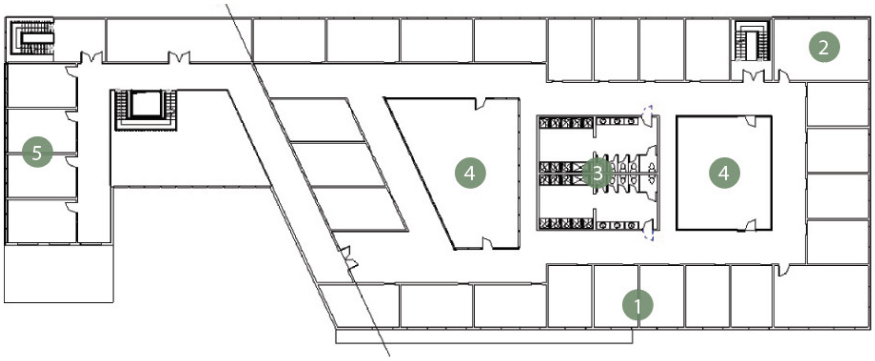
The typological research concluded that the use of dynamic forms, hands-on elements, and sustainable strategies were necessary in this project if the goals were to be achieved. The architectural forms and elements of the design solution entice user engagement. Careful consideration was given to the circulation strategies employed.

FLOOR PLANS



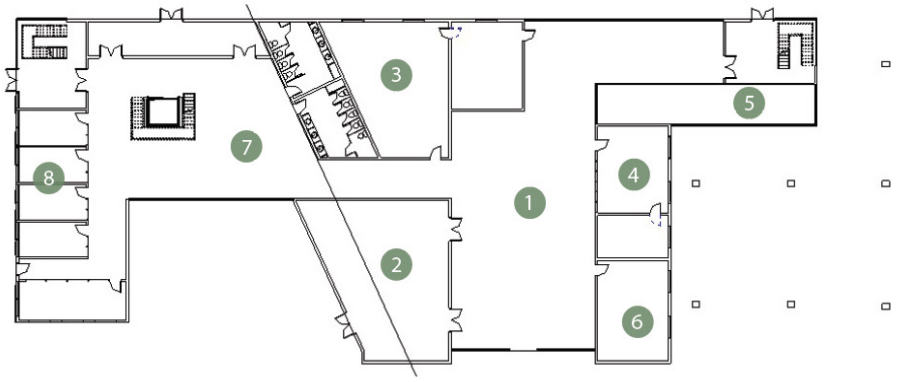
FLOOR 3

1. THERAPY ROOMS
2. RECREATIONAL ROOM/GROUP THERAPY
3. GREEN ROOF



FLOOR 2

1. INPATIENT ROOMS
2. STAFF AREA
3. COMMUNAL BATHROOMS
4. INDOOR GARDEN
5. STAFF OFFICES



FLOOR 1

1. LOBBY
2. AUDITORIUM
3. DINING
4. PHARMACY
5. INDOOR GARDEN
6. MEETING ROOM
7. ATRIUM
8. STAFF OFFICES

FIGURE 33

FIGURE 34

GREEN ROOF

The green roof provides patients to connect with nature while still being in the building. This space is provided for patients to heal and decompress. The green roof is a great location for any therapy sessions.

FIGURE 35

FIGURE 36

INPATIENT ROOMS

Patient rooms are designed to provide alot of space to avoid the feeling of confinment. They are designed with neutral tones and textures to help make the patient feel calm and peaceful.

FIGURE 37

ATRIUM

The atrium is a central area for circulation. The atrium provides a large curtain wall that allows plenty of natural sunlight into the building. The atrium also helps seperate the sections of the building. Off to the left, you will find the staff are and off the right, you will find the patient area.

FIGURE 38

LOBBY

The lobby is the main point of the builidng. Here you check in as a patient or visitor. Patients, staff and visitors have access to all amenities in this area. There is a pharmacy, auditorium, dining hall and healing garden in this area.

PERFORMANCE ANALYSIS: RESPONSE TO GOALS AND PROJECT EMPHASIS

DESIGN GOALS

1 Create a design that allows healing through nature and architecture for patients struggling with mental health issues. The project implements strategies to support the physical and psychological needs of patients. Attention to color, natural lighting, textures, socialization, structure, flexibility, and ventilation to achieve these goals can be seen through the spaces detailed on the previous pages.

2 Better understand how architectural form and elements such as nature can support the healing and well-being of patients. The understanding of nature and the benefits it provides patients can be found through the green roof on the third floor, as well as the healing gardens on the first and second floor.

3 Set a connection between patient and staff. Socialization between staff and patients is important. It allows empathy throughout the journey, making it easier for patients to feel comfortable and open during therapy sessions. Therapy areas are designed with a welcoming and calming environment in mind.

4 Produce an environmentally conscious project through integration of sustainable strategies. To achieve an environmentally conscious project and promote the well-being of occupants, ultimate sustainability is predicted to be achieved throughout the building.

DIGITAL PRESENTATION

FIGURE 39

02. ABSTRACT

This thesis proposes the effects of biophilic interaction on people experiencing and struggling with mental health issues. In order to properly treat patients with mental health issues, the psychology behind the architecture designed to promote wellness must be properly and thoroughly understood.

It is well known that the application of Biophilic Design reduces stress, stimulates creativity and clear thinking, improves physical and psychological well-being and accelerates healing. Considering the relentless process of global urbanization, these benefits will become increasingly important in the design of our urban spaces, architecture and interiors.

In addition to what the architecture includes in terms of promoting an overall relationship with the natural environment, less noticeable elements, such as patterns within the architecture must be addressed to create a cohesive and effective design.

The primary focus is designing a building that maximizes the amount and quality of positive interactions with nature. These biophilic relationships, combined with traditional and alternative therapies, will improve the health and healing of patients residing at the treatment facility.

Keywords: biophilia; biophilic design; restorative environment; sustainability; mental health; well-being.

WHAT IS BIOPHILIA?

The world biophilia originates from the greek 'philia' meaning 'love of'. Translating to "love of life" Humans have always been drawn to, dependent on, and fascinated by the natural world.

Biophilia describes the human drive to connect with nature and other living things. Nature's power for humanity can influence our mental health, our hobbies, our travels, and our homes and workplaces.

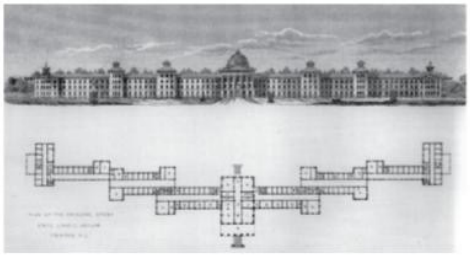
Spending time in nature can have beneficial effects on both physical and mental health. Time spent in green spaces, for instance, is associated with lower levels of stress, improved memory, and heightened creativity. Symptoms depression can decrease adults as outdoor time increases.

03. TYPOLOGY

The objective is to create an ideal mental health/psychiatric center that is centered around the improvement of the patient's emotional, psychological and physical well-being.

Looking back at the history of psychiatric buildings several asylums were built on linear or hollow-square plans. However, a lot of these asylums started to fail. They were not doing the job they were built to do.

Fast forward, the design approach of psychiatric centers has evolved. With all this, nature also plays a big role: Windows provide views of greenery; landscapes decorated walls, and outdoor areas give patients and staff access to fresh air and sunlight, which is extremely beneficial.



04. GOALS, EMPHASIS & JUSTIFICATION

SHORT TERM GOALS

- Improve mental health of patients
- Design a safe and welcoming space for patients who are struggling
- Bring more attention to biophilic design and its benefits

LONG TERM GOALS

- Create relationship between patients and nature to develop healthy patterns and improve mental health
- Connect building occupants more closer to nature
- Inspire more mental health centers to take on a biophilic design approach

04. GOALS, EMPHASIS & JUSTIFICATION

The primary focus is designing a building that maximizes the amount and quality of positive interactions with nature. These biophilic relationships, combined with traditional and alternative therapies, will improve the health and healing of patients residing at the treatment facility.

The positive effects on the health of human beings in response to biophilic design of the built environment have been proven by numerous studies.

04. GOALS, EMPHASIS & JUSTIFICATION

Mental health is a crisis that unfortunately is still on the rise. In 2020, about 1 in 5 american adults experienced a mental health issue, 1 in 6 young people experienced a major depressive episode and 1 in 20 americans lived with a serious mental illness.

05. SITE INFORMATION

site

site

05. SITE INFORMATION

wisconsin

madison

06. CLIENT DESCRIPTION

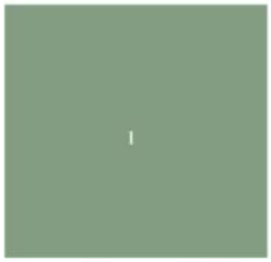
This building is designed to be a psychiatric center to accommodate;

Patients struggling with their mental health while on the road to recovery. Psychiatric centers are tailored to people that range from adolescents, adults and elderly people, with a whole range of mental health problems, like depression and anxiety, ptsd, ect.

Healthcare Staff trained to work hard and help you get through what can be a stressful time for you and your family.

Patient Visitors visiting their loved ones want to also be in a safe enviornment.

07. PROGRAM



HEALING GARDEN

space designed to meet the physical, psychological, social and spiritual needs of patients

GREEN ROOF

large green space that provides the same benefits as the indoor healing gardens

THERAPY ROOMS

private, family and group therapy session rooms

PATIENT ROOMS

spacious, private, single bed rooms for patients

STAFF OFFICES

staff area, healthcare information

LOBBY

check-in area for patient and visitors, informtaion provided for anyone seeking inpatient treatment

RESTROOMS

male, female, and unisex ada compliant restrooms

STORAGE

storage for healthcare utilities, garden and general building

MAINTENANCE

mechanical room,electrical room,maintenance, janitorial

08. DESIGN STRATEGIES

MATERIALITY

BIOPHILIC DESIGN

SUSTAIN-ABILITY

MATERIALITY

TULIPWOOD

ROCK PANEL

CONCRETE

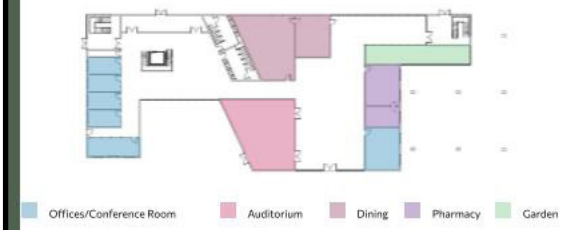
BIOPHILIC DESIGN

The sustainability aspect of biophilic design is crucial for living buildings and environments. Providing green spaces, water features, abundant plants and natural materials creates a host of benefits, including helping to reduce a development's carbon footprint and regulating the temperature of buildings.

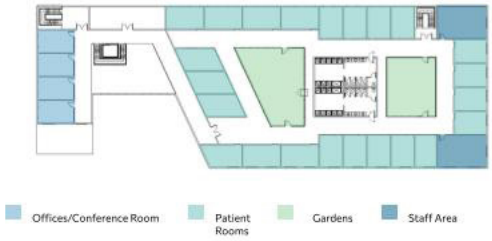
SUSTAIN-ABILITY

- Allow/Utilize More Natural Lighting in the Building
- Adding a Green Roof
- Installing Water-Efficient Faucets & Faucet accessories
- Passive & Active Sustainable Design

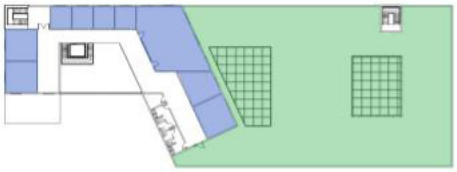
09. SCHEMATIC & PRELIMINARY DESIGN



Offices/Conference Room Auditorium Dining Pharmacy Garden



Offices/Conference Room Patient Rooms Gardens Staff Area

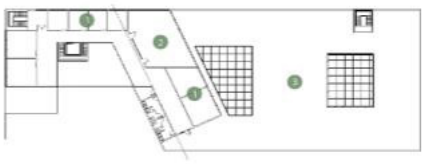


Therapy Rooms Gardens

09. SCHEMATIC & PRELIMINARY DESIGN

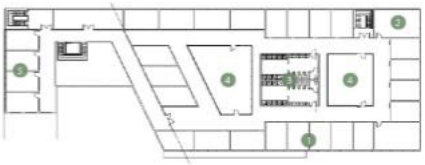
10. FINAL DESIGN

10. FINAL DESIGN



FLOOR 3

1. THERAPY ROOMS
2. RECREATIONAL ROOM/GROUP THERAPY
3. GREEN ROOF



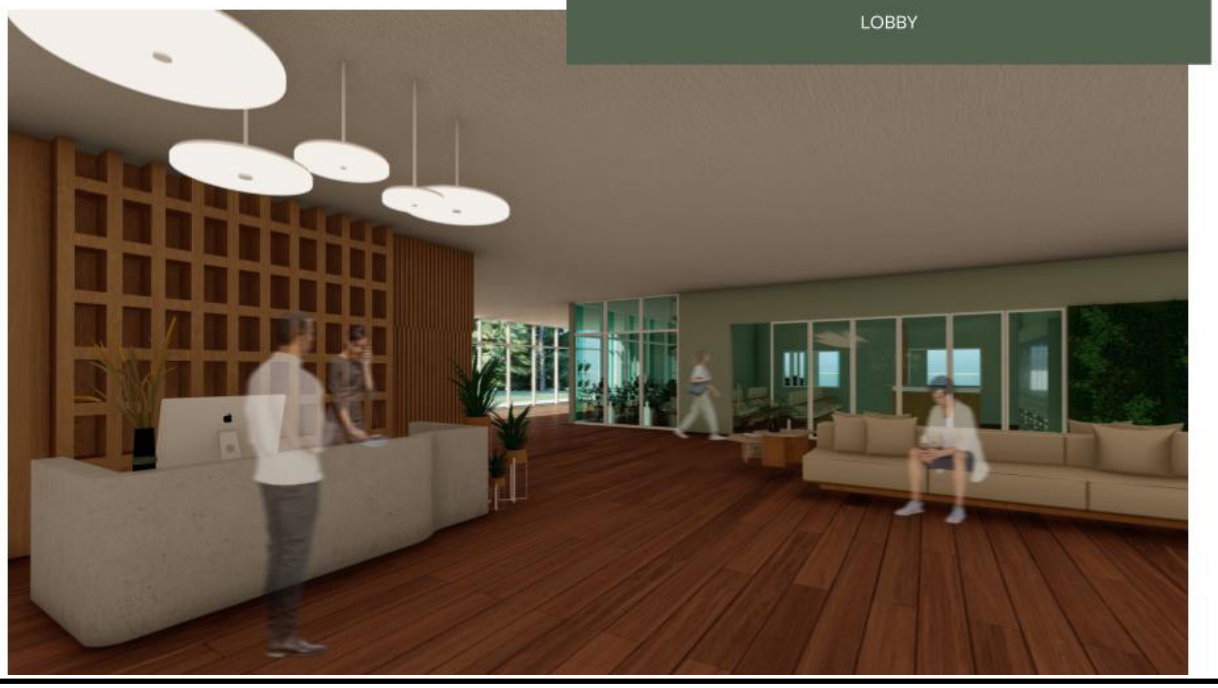
FLOOR 2

1. INPATIENT ROOMS
2. STAFF AREA
3. COMMUNAL BATHROOMS
4. INDOOR GARDEN
5. STAFF OFFICES

FLOOR 1

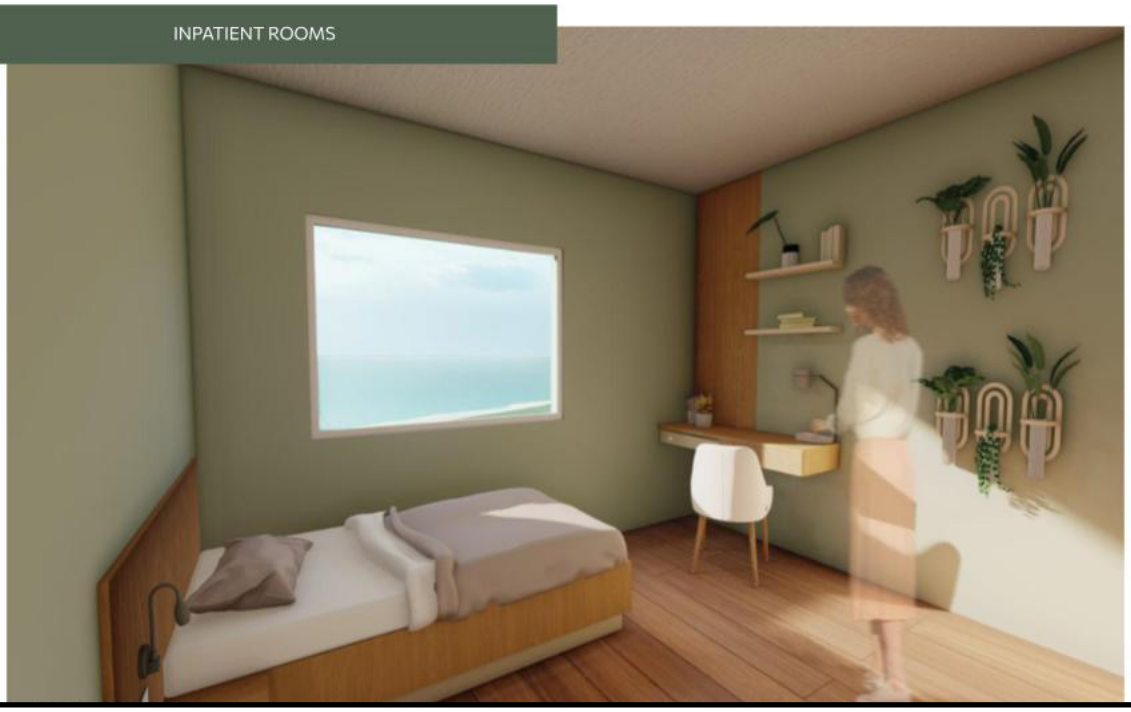
1. LOBBY
2. AUDITORIUM
3. DINING
4. PHARMACY
5. INDOOR GARDEN
6. MEETING ROOM
7. ATRIUM
8. STAFF OFFICES

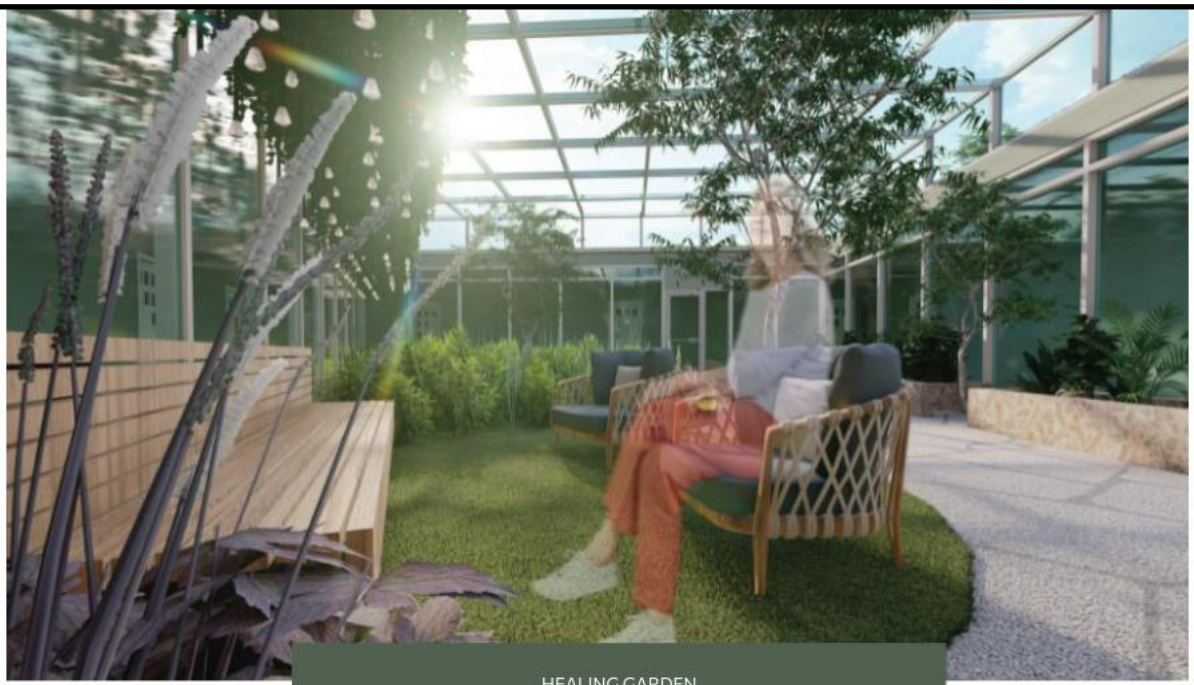
ATRIUM



LOBBY

INPATIENT ROOMS





HEALING GARDEN

GREEN ROOF

GREEN ROOF

THANK YOU

PROJECT INSTALLATION

FIGURE 40

APPENDIX

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PREVIOUS STUDIO EXPERIENCE

2ND YEAR

FALL SEMESTER: EMILY GUO

- ARTIST RESIDENCE
- BOATHOUSE

SPRING SEMESTER: MILTON YERGENS

- BIRDHOUSE
- MIXED-USE HOUSING
- MARFA DWELLING

3RD YEAR

FALL SEMESTER: BAKR ALY AHMED

- RESORT/RECEPTION - CONCRETE

SPRING SEMESTER: CINDY URNESS

- SAME DAY SURGERY CLINIC

4TH YEAR

FALL SEMESTER: AMAR HUSSEIN

- HIGHRISE CAPSTONE PROJECT

SPRING SEMESTER: AMAR HUSSEIN

- MARVIN WINDOWS COMPETITION
- PROJECT URBAN DESIGN, BAL HARBOUR

5TH YEAR

FALL SEMESTER: CINDY URNESS

- WETLAND RESEARCH CENTER

SPRING SEMESTER: CINDY URNESS

- FINAL THESIS PROJECT