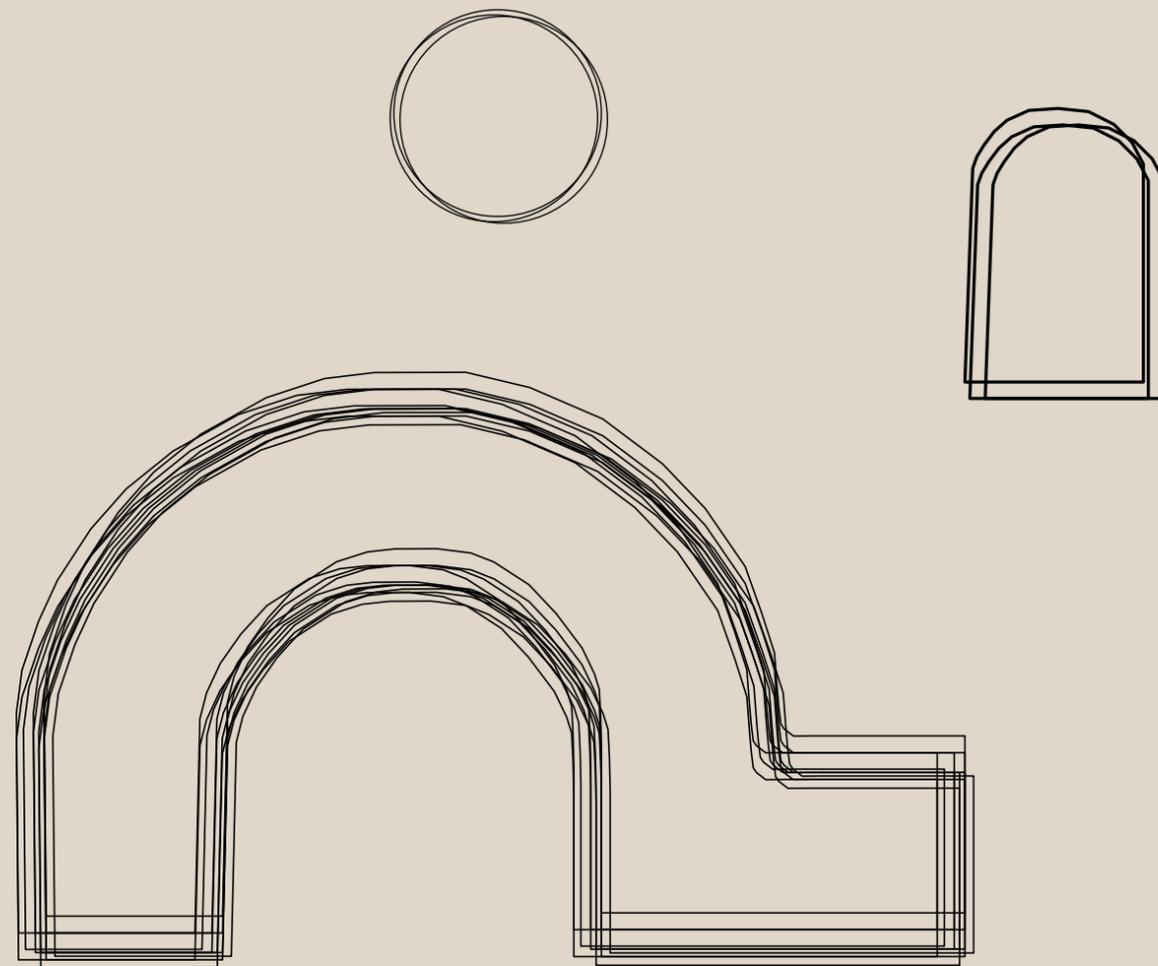
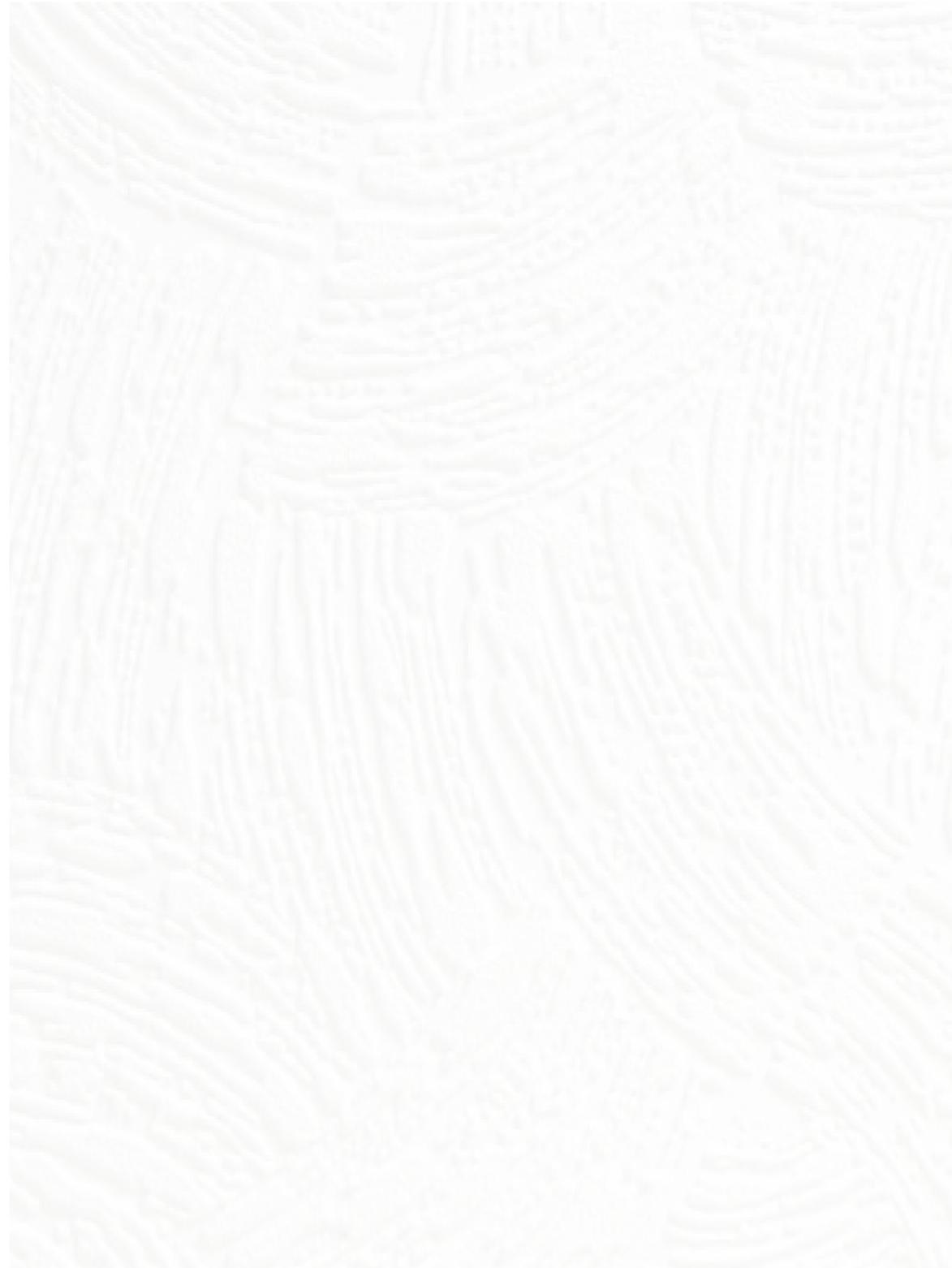


PLEASE FEEL INVITED  
CHILDREN'S PSYCHIATRIC REHABILITATION CENTER USING SALUTOGENEIC DESIGN







PLEASE FEEL INVITED: CHILDREN'S  
PSYCHIATRIC REHABILITATION USING  
SALUTOGENEIC DESIGN

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

By  
**Eva Marie Taylor**

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

North Dakota State University Libraries Addendum

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May 2022

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Mental health is a state of psychological, emotional, and social well-being that can have a variety of difficulties that affect the daily function of a person. Mental illness is a persistent problem, with the most frequent anxiety disorders being generalized, social, panic, and depression. These illnesses may affect anyone, regardless of background especially children. Because of the influence on the transition to maturity, focusing on children's mental health is extremely important.

The National Mental Health Act was established in 1946, making the psychological well-being of the people a federal priority. It highlighted research aimed at dramatically improving diagnosis and treatment options. Architecture evolves in tandem with society's social requirements. These new public values lead to the development of children's mental health centers.

The paradigm shift we hoped for has taken a long time to arrive, and it brings with it new strategies of architecture. One of these new ways is salutogenic design, which is defined as a method that prioritizes the support of human health and well-being. The main goal of this project is to show how salutogenic design can have a positive influence on youths' mental health through the built environment. The building's architecture will incorporate natural links with nature and how children might benefit in the healing process, particularly for young people.

## NARRATIVE

According to the American College of Obstetricians and Gynecologists (ACOG), one in eight children and adolescents experience one of many symptoms of an anxiety disorder illustrated by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). This is a major problem. However, our society is in the midst of a change of how we view mental health as a stigma. Mental health has become more of a priority. Additionally, the twenty-first century has seen significant urbanization, globalization, and technological and communication advancements. These, as well as other societal changes such as the structure and shift in family systems, emerging kinds of relationships, migration, and socioeconomic mobility, will provide new obstacles for identifying and treating mental health issues. The premise of my thesis is to address how can architecture can take on salutogenic qualities to nurture mental health to help children.

What is the best way to do this? Architects have to recognize and react to components in mental health institutions that have a detrimental impact on patient outcomes. It is vital to arrange architectural elements that allow patients to participate actively with their environment.

Salutogenesis can be introduced into buildings by design decisions that are beneficial to the physical and emotional well-being of residents. Design has the potential to act as a channel for salutogenesis. The goal of salutogenic architecture is to create surroundings that improve people's well-being. The inhabitants of a structure constructed with sufficient exposure to sunlight and air circulation are more likely to have a healthy body and mind.

## PROJECT TYPOLOGY

The proposed design will be a psychiatric rehabilitation center for children. It will consist of a short-term to long-term stay, educational, and therapeutic spaces for children to regain their mental health and thrive.

- Healthcare, Rehabilitation Center, Residential, Learning Center

### CONTEXT:

Patients' imaginations are encouraged and they feel as if they are at a playground by structuring rooms in such a way that they establish social spaces and by utilizing a diversity of forms, colors, and materials to make them feel as if they are at a playground. Color, according to artists and designers, is a potent tool and communication tool for altering emotions, psychological and physiological responses.

### IMPACT:

Architectural design can be used to further learn the psychology of spaces, to provide a shelter, and sensory experience especially for young children to adolescents. While in the process of regaining their mental capability the goal is for them to remember the spaces they once learned to thrive in.

With a sustainable impact by incorporating nature into design.

Another important aspect is community involvement. Bringing people together on the mental health topic can be such a healing and transformative experience.

# MAJOR PROJECT ELEMENTS

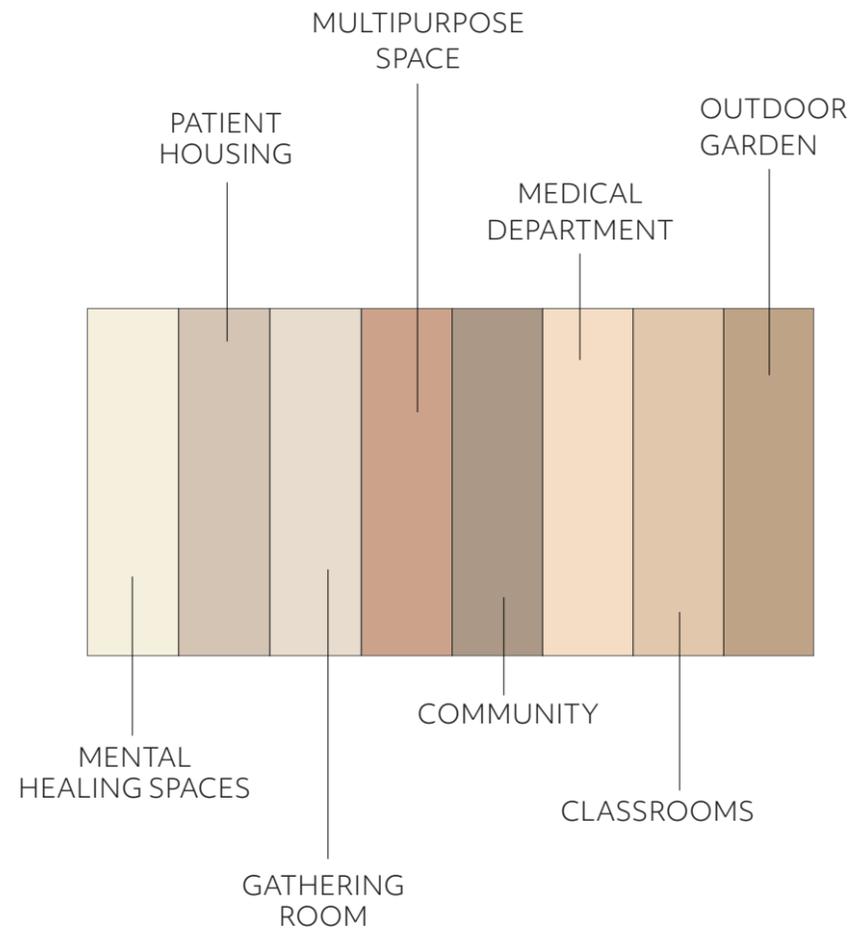


Figure 01 | Major Project Elements

# EMOTIONAL COLOR THEORY - INFLUENCING SPACES

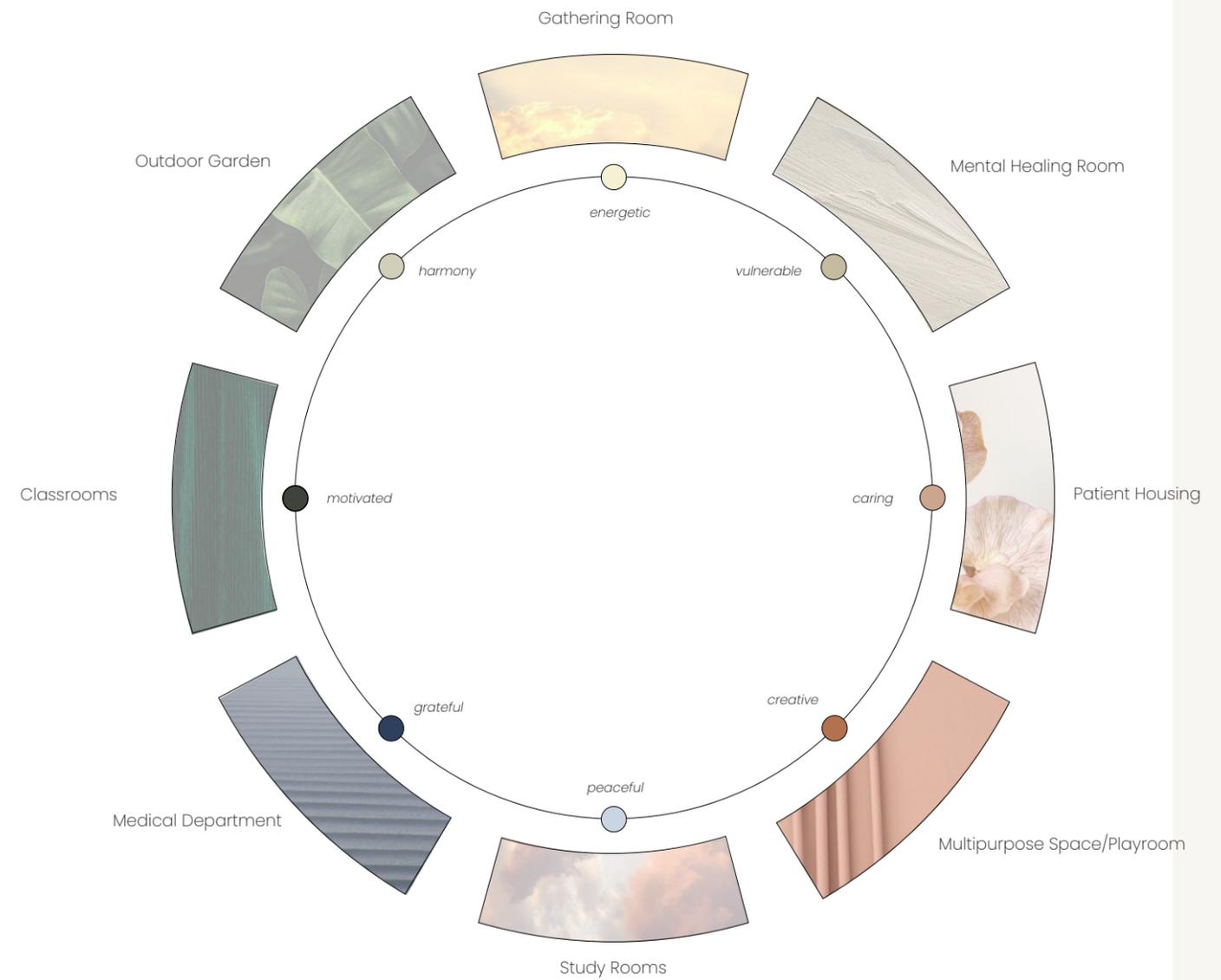


Figure 02 | Emotional Color Theory

Visual representation of spaces relating to adjectives

## USER/CLIENT DESCRIPTION

### Children

- Ages between 7 to 18

### Medical Support Staff

- Caretakers + Nurses
- Taking care of day-to-day tasks, provides overnight stay

### Therapists

- On staff therapists to guide children through therapy lessons

### Psychologists

- Resource for children
- Research purposes

### Doctors

- On staff doctors in case of any emergency
- Potential partner with nearby hospital Shodair Children's Hospital

### Teachers

- On staff teachers for educational classes for children

### Other:

#### General Faculty

- Children mentors

#### Parents:

- Classes will be provided for parents to encourage engagement while children are in long-term stay

#### Support Staff

- Maintenance, admin

#### Security

- Low security in case of emergency

#### Community

- Engagement from the community as well as bringing in awareness of mental health
- Volunteers from community
- Some classes on mental health issues

# THE SITE: HELENA, MONTANA

REGION + CITY



Figure 03 + 04 | Site



## WHY MONTANA?

According to Mental Health in America states between ranking 39-51 show that youth have a higher prevalence of mental illness and lower rates of access to care. Montana is ranked 45 and is also one of the highest ranked with youth that experiences major depressive episodes.

In terms of accessibility, to chose specifically to have my site in Helena, which is also the capital of Montana. By choosing a bigger city, but also one that was not very dense the design can carry the serene atmosphere.



Figure 5 | Site Location



This is a great site location based on views, location, and accessibility. Towards the northwest are views to fields then eventually mountains. Down the street in the left direction of Colonial Dr. is Shodair's Children Hospital which could be a potential partner to the facility. With the ability to achieve picking a location near the city, but far enough away that it will not feel overwhelming.

## PROJECT EMPHASIS

---

In today's society, mental health, particularly among children, is often stigmatized or sometimes even dismissed. Ones effected, are often dismissed by their peer groups for being different, not able to find a place to fit in. This often leads to an internalization of these ideas, resulting in further damage to their psyche, self-esteem and aspirations.

Mental health facilities have seen a marked improvement in design over the past decade, but there is still work to be done. By incorporating natural elements and organic architecture, we can begin to address these issues. Creating a place for disadvantaged youths, in their journey towards self-actualization.

This project is designed with a holistic approach to architecture in mind. Implementing natural elements to allow patients to connect with nature while healing.

As designers, we have the ability to design for others and we can improve upon the psychology of spaces. We can first do this by helping our youth with mentail health issues that are being dealt with and not understood; once they are able to thrive on a day to day basis, we can learn to understand mental health instead of ignoring it and coping with it.

While our architecture can benefit the spaces for children to thrive in; a last point is the environment. Choosing a site that promotes healthy living and connection to nature will help manifest serene energy with a sense of safety + incorporation into architecture design.

## GOALS FOR THE PROJECT

---

1. Design a rehabilitation center for children to regain their mental health
2. Bring awareness to how architecture can impact mental health
3. Apply psychological impacts space has on its users in a design response

4. Connect + engage with the community while ensuring supportive + inclusive atmosphere space for youth
5. Eliciting an emotional response to surrounding site
6. Arrangement of spaces that encourages independence

## A PLAN FOR PROCEEDING

Moving forward I plan to follow a schedule planned out for myself.

Step one is to start researching psychology of spaces, hollistic design approach, and understand what mentally ill children need architecturally and emotionally.

Also to conduct a site analysis and its surrounding + get to know Montana better.

## SCHEDULE

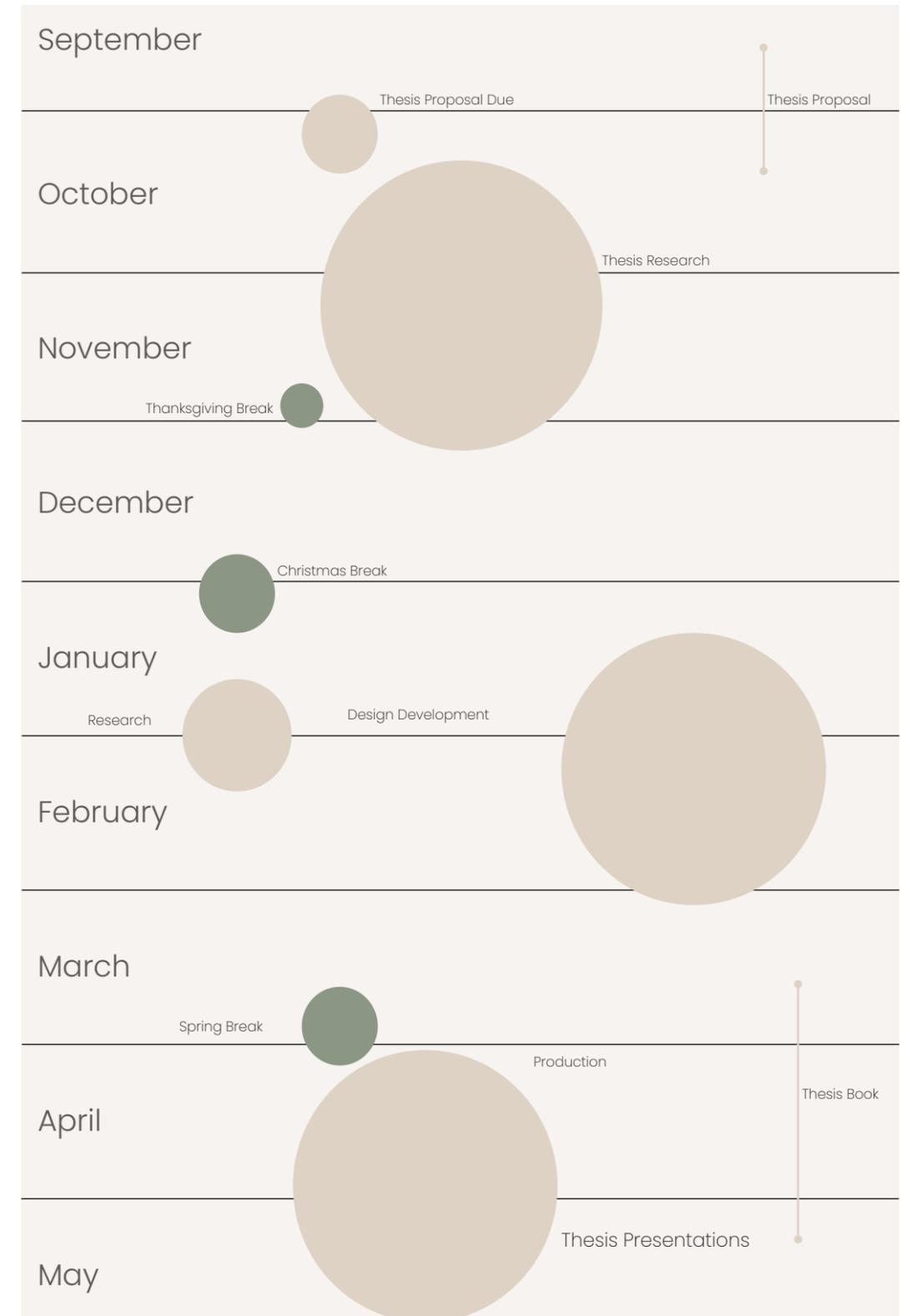
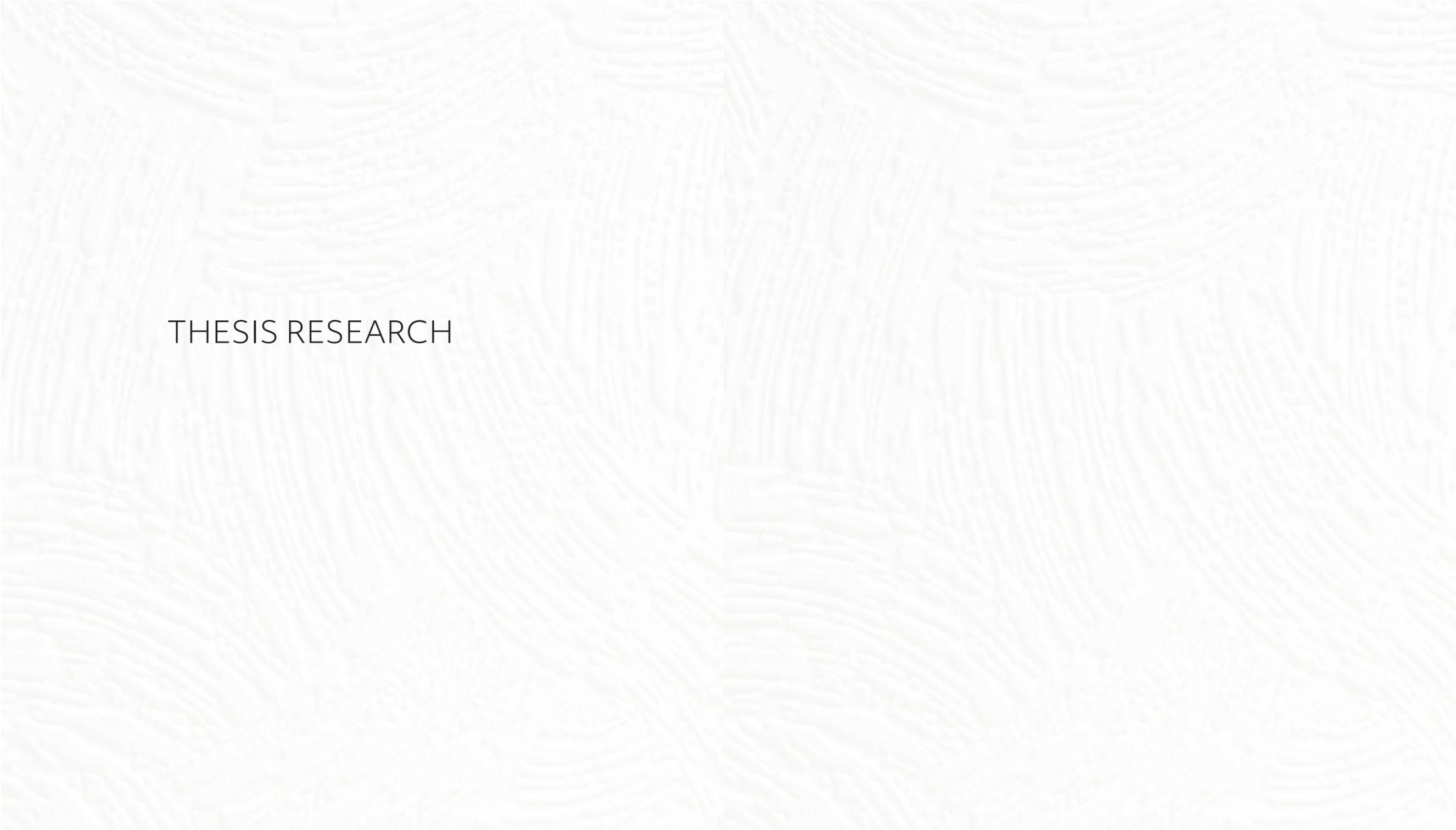


Figure 06 | Schedule



## THESIS RESEARCH

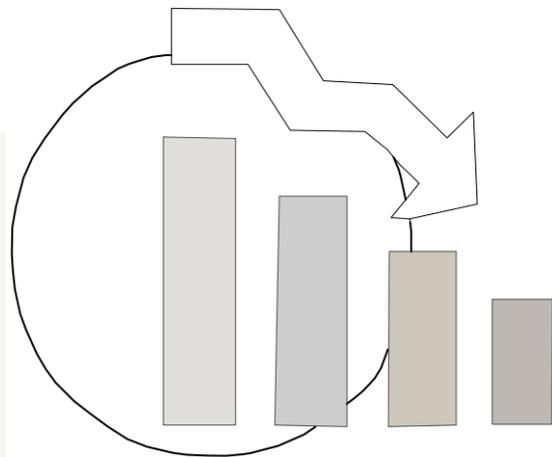
Aaron Antonovsky was a medical sociologist and academic whose research focused on the link between stress, health, and well-being. In addition, Antonovsky was the first to create the term salutogenesis. He investigated the factors that influence health. The question of what creates health was examined. His response was based on the SOC (sense of coherence) and GRRs (generalized resistance resources). Our ability to manage tension and stress is influenced by how we interpret the environment. The SOC has three dimensions: understanding, manageability, and meaningfulness, which represent the individual's engagement with the environment.

On the other hand, resistance deficits (GRDs) are the ever-present threats to these resources. Without a positive feeling of coherence push, they exert a constant disintegrative force, allowing sickness to take hold. Unless the most basic support for manageability is delegated, fate follows total failure of manageability. Physical and mental health will 'breakdown' if one is unable to adjust to changing circumstances and experiences. Evidence suggests that SOC is closely linked to one's perception of health, particularly mental health. (Eriksson, M., & Lindstrom, B.)

Comes from Latin '**salus**' - health/safety + '**genesis**' - source/origin

Sense of coherence (SOC) - reflects a coping capacity of people to deal with everyday life stressors and consists of three elements: comprehensibility, manageability and meaningfulness.

Antonovsky's salutogenic health paradigm affected the development of health promotion in the 1980s. Antonovsky spoke at the event and offered his salutogenic paradigm as one way to promote health. There was consensus and agreement that the focus should now be on health rather than sickness. This was a significant departure from earlier theoretical approaches, which were mostly based on the biological concept of disease.



51.3% OF MONTANANS AGE 12-17 WHO HAVE DEPRESSION DID NOT RECEIVE ANY CARE IN THE YEAR 2020.

**10,000**  
MONTANANS  
AGE 12-17 HAVE  
DEPRESSION OUT  
OF  
**1,084,225** TOTAL  
POPULATION



1 IN 6 YOUTH **AGED 6-17** EXPERIENCE A  
MENTAL HEALTH DISORDER EACH YEAR

Figure 07-09 | Mental Health Statistics

As society's needs evolve, so does architecture. Scientists have also become more cognizant of human mental health, prompting architects to return to placing people at the center of their designs. WELL Building Certification, the world's first certification completely focused on such concerns as health and well-being, was created in response to a growing interest in human health and well-being.

Salutogenic design is concerned with the beneficial effects of various locations on human health. It's a quantifiable feature of design that may help a building's occupants function at their best, preserve physical and emotional well-being, and perhaps live longer lives. According to Carolyn Rickard-Brideau, AIA, LEED AP BD+C, WELL AP, whom is at the forefront of salutogenic design; mechanisms such as the WELL Building Standard, which highlights not just industry-standard features such as air, water, and light, but also program elements such as comfort, nourishment, fitness, and mind (Rickard-Brideau).

Designing buildings with consideration for the way the brain reacts to its environment and how that environment supports brain function will have positive effects on the health and wellness of people who enter that building.

## CASE STUDY 1:



GIRLS INC. OF OMAHA  
KATHERINE FLETCHER CENTER - RENOVATION/ADDITION

AO\* ARCHITECTS  
LOCATION: OMAHA, NE  
BUILDING TYPE: CHILD FACILITY  
YEAR BUILT: 2016  
SIZE: 55,000 SF

Each year, Girls Inc. serves more than 1,000 girls. Transportation, counseling services, healthy meals and snacks, and computer access are a few of the services offered. Girls Inc. of Omaha's health and wellness center is located in a low-income neighborhood in north Omaha, providing girls with a safe and inspiring environment. The construction project expands on the 1916 building and maximizes the use of the complex site.

Figure 10 | Girls Inc. of Omaha - Exterior 1

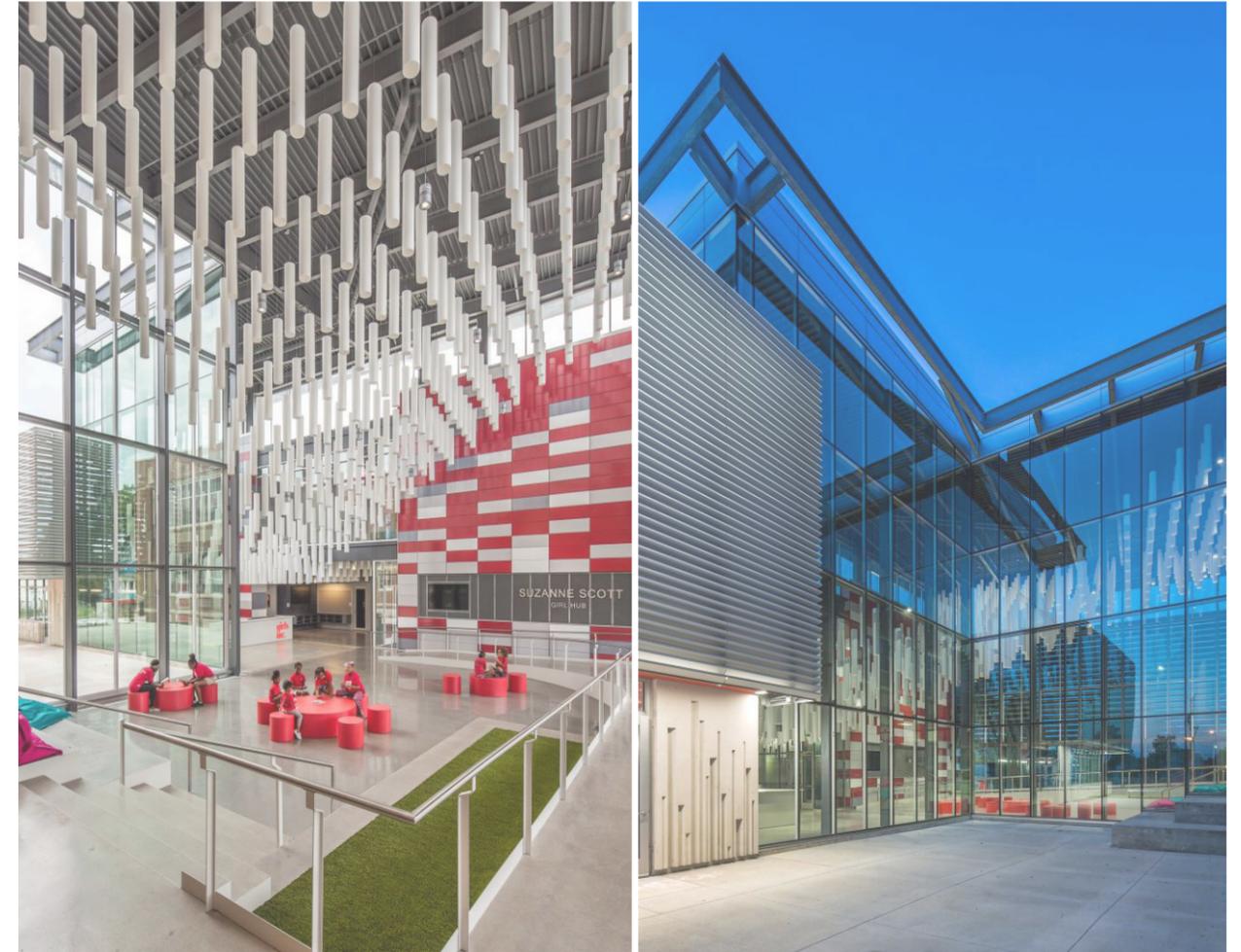


Figure 11 | Girls Inc. of Omaha - Hub Area

Figure 12 | Girls Inc. of Omaha - Exterior 2

These images show the core hub space as well as an external perspective of it. The entire glass display allows light to pass through the section that links the areas. In addition to providing a well-known entrance, here is also where girls gather to complete homework and rest in between programs.

PROJECT ELEMENTS:

- Media Center
- Fitness Center
- Locker Room
- Full Gym
- Health Clinic
- Exercise Studio
- Educational Kitchen
- Teen Center

Girls Inc. chosen color red. Red is associated with strong emotions such as action and passion. It's also a global hue for strength and bravery. It may also energize, motivate, and instill confidence in shy people.



Figure 13 | Girls Inc. of Omaha - Gym



Figure 14 | Girls Inc. of Omaha - Yoga Studio

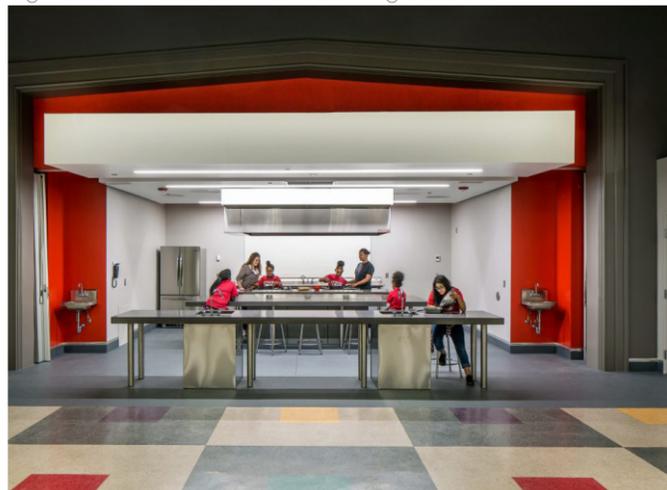


Figure 15 | Girls Inc. of Omaha - Instructional Kitchen

The architecture of the previous facility produced a complex entry-exit sequence, and the children had risky contacts with vehicles when they went outside. The addition was built around a transparent, well-defined "girl hub" that connects the old and modern parts of the structure. On both the north and south sides of the facility, there is a centralized check-in station where girls are dropped off and picked up. Spaces and materials reinforce the brand and "inspire all girls to be strong, smart, and bold."



Figure 16 | Girls Inc. of Omaha - Exterior 3

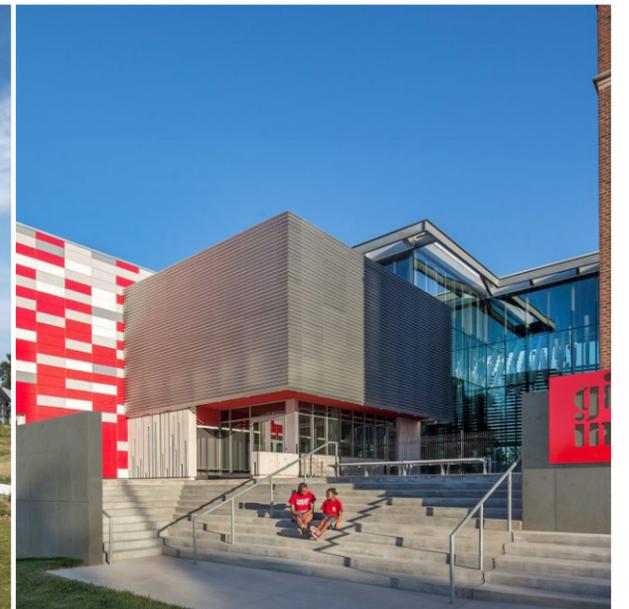


Figure 17 | Girls Inc. of Omaha - Exterior 4

The Katherine Fletcher shelter allows young people to be exposed to a lot of natural light and open space, which helps these young ladies boost mood and engage about their daily activities. Despite their frequently tough family conditions, the girls in the program are encouraged to create and achieve objectives, boldly tackle problems, reject peer pressure, see college as attainable, and explore alternative career sectors.



Figure 18 | Girls Inc. of Omaha - Interior

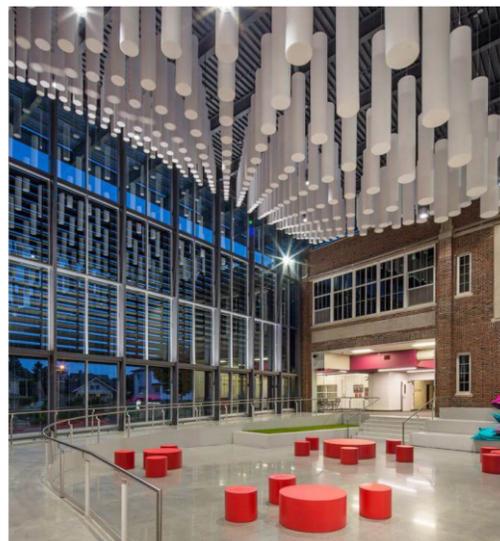


Figure 19 | Girls Inc. of Omaha - Hub Space 2



Figure 20 | Girls Inc. of Omaha - Exterior 5

#### Project Takeaways:

Overall, this is a personal case study - as a former member of Girls Inc., the upgrades to this project are incredibly beautiful, extremely beneficial to the community, and most importantly efficient. The important aspect to remember is how much of an influence this structure has on others. It provides a secure environment.

## CASE STUDY 2:

### EKH CHILDREN'S HOSPITAL

IF (INTEGRATED FIELD) ARCHITECTS  
LOCATION: SAMUT SAKHON, THAILAND  
BUILDING TYPE: HOSPITAL  
YEAR BUILT: 2019  
SIZE: 64,584 SF

Design Philosophy: Playing is Healing.

People would rather avoid hospitals as much as possible. In the medical field, we have seen more attempts to create a welcoming and pleasant environment. How can a built environment like this make the experience of visiting a hospital more pleasant for adults, let alone the little ones?

The fear of needles, the pain, the bitter taste of medicine cannot be eased by luxury. So, designers look for things that will make youths happy throughout their stay at the hospital. A child's viewpoint reveals that 'fun' is what each child looks for instinctively. All kids want to live a fun life regardless of their backgrounds. The key here is to use 'fun' to tackle the design from the child's perspective, which poses a significant challenge.

Imagination is stimulated by the pastel color tone. Children create their own imaginary worlds when they experience a new place for the first time. Through the curated spatial program, children will be able to interact with the hospital and enjoy the areas according to their own imaginations and develop an experience of their own.



Figure 21 | EKH Children's Hospital - Lobby



Figure 22 | EKH Children's Hospital - Interior 1



Figure 23 | EKH Children's Hospital - Patient Room



Figure 24 | EKH Children's Hospital - Interior 2

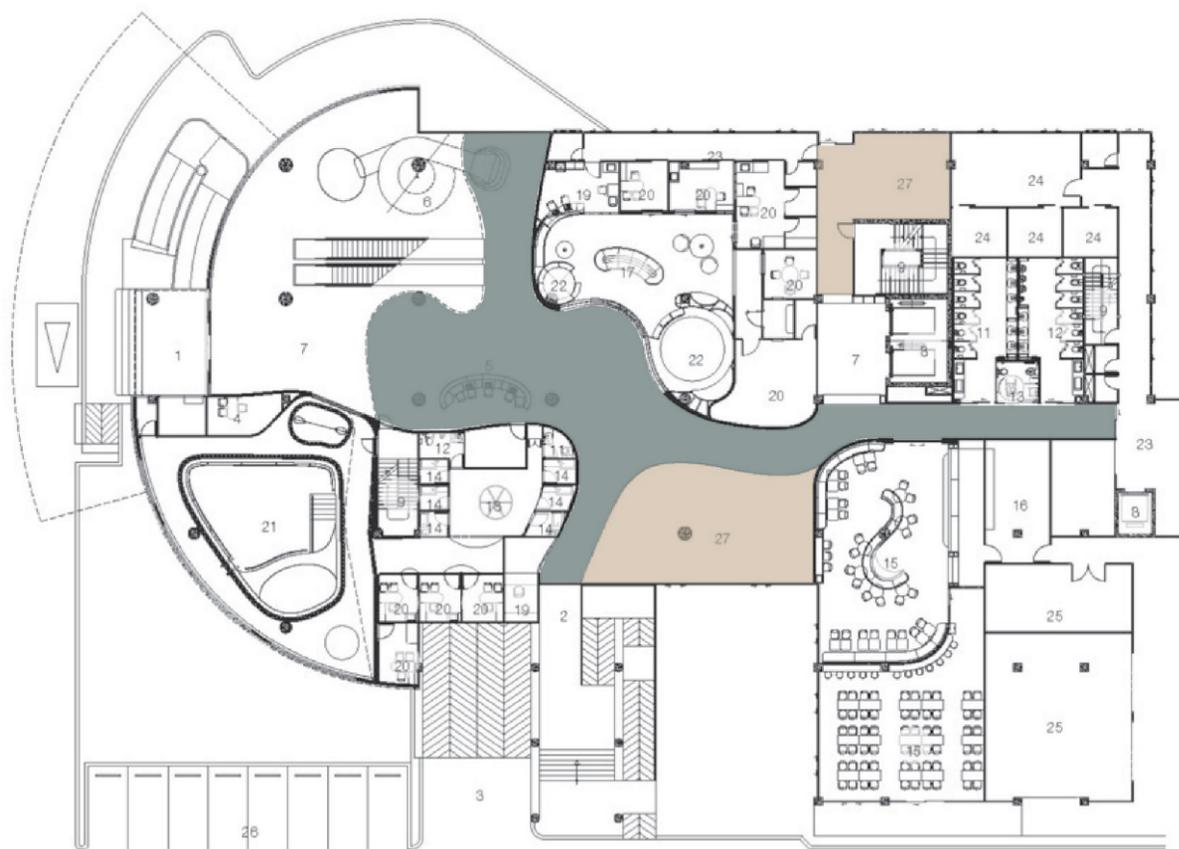


Figure 25 | EKH Children's Hospital - Floor 1

- Common Area
- Retail - Public Space

The legend describes what the areas signify while reviewing the floor layouts. As a result, on the first floor I saw that the public places were located on the building's borders. For an example, the retail spaces are on both ends of the building, while the more intimate spaces were reserved for the young patients. This is crucial because it helps young patients to sense their own area, which they may freely explore.

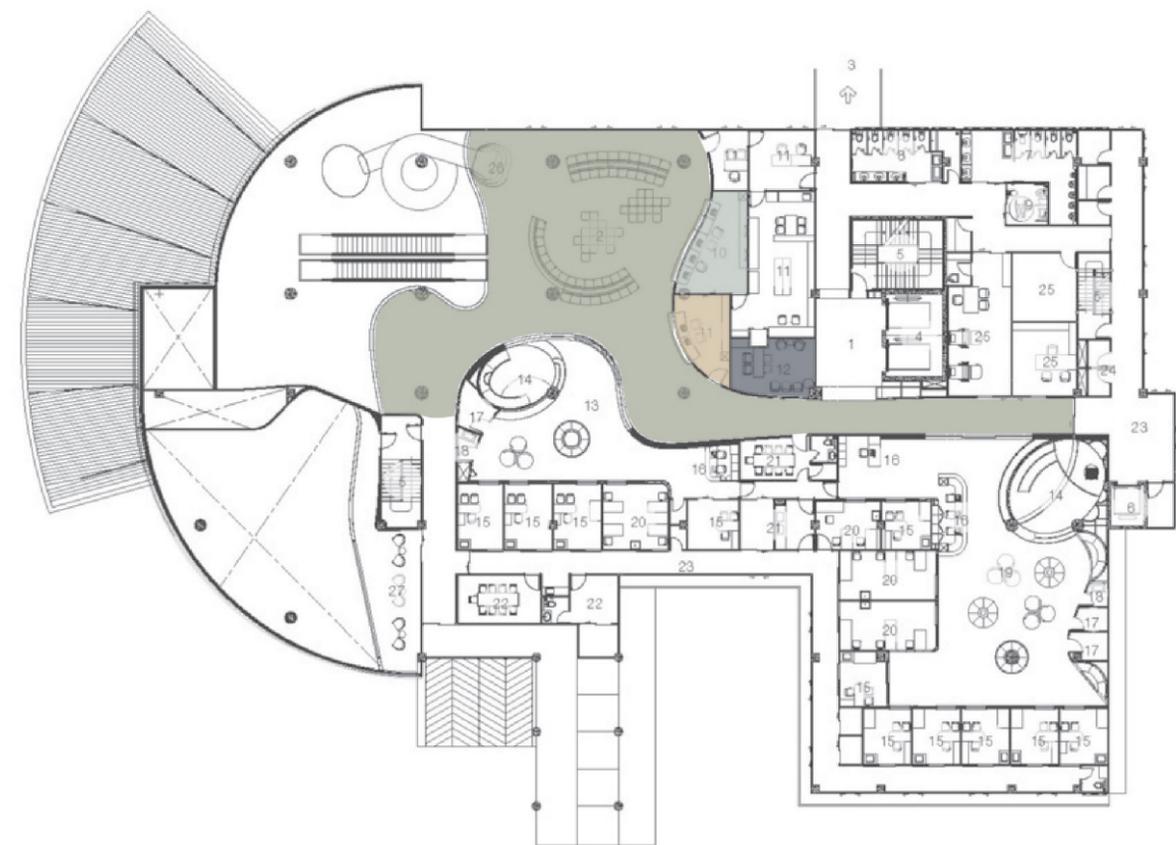


Figure 26 | EKH Children's Hospital - Floor 2

- Waiting Area
- Pharmacy
- Cashier
- Admission

On the second floor, children begin to construct their own experiences. As a component of the layout of the 'waiting area,' which includes the 'play space,' a scenario is developed and built near the pharmacy counter. The application allows parents and children to engage while also allowing adults to keep an eye on their children as they wait.



Figure 27 | EKH Children's Hospital - Exterior 1

EKH Hospital has a majestic entrance as well as a more intimate entry for children. The openness and brightness appear to be appealing to children, as if they are entering a play center dedicated solely to allowing children to explore and be themselves.

### Project Takeaways:

This project provided excellent inspiration and insight into how to design in the best possible way for children in a hospital context. The use of pastels, organic forms, and the open flow of the entire structure proved to have a significant influence on children.

Figure 28 | EKH Children's Hospital - Exterior 2



## CASE STUDY 3:

### CHILDREN'S CENTER FOR PSYCHIATRIC REHABILITATION

SOU FUJIMOTO ARCHITECTS  
LOCATION: HOKKAIDO, JAPAN  
BUILDING TYPE: SPECIALITY CARE; BEHAVIORAL HEALTH; REHABILITATION CENTER  
YEAR BUILT: 2006  
SIZE: 157,045 SF

It is here where mentally disturbed children live together for regaining their mental health. It might seem like something very special, but it is really a life space that was intended to be like a large house and also a city.

Materials Used:  
Wood  
Concrete

Figure 29 | Sou Fujimoto Architects - Exterior



The idea of making buildings with such a method of scattered pieces is a dreamlike building. As for this method, it allows for surprising precision planning. Instead of the complex program of moving a box delicately, it is possible with the method as it is.

There is an alcove-place clearly irregular between the randomly placed boxes. It is a place for small children to hide in while they are connected to a living room. It is the space without any functionality yet it can be avoided in a convenient way.

Children fill the place with life and play and enjoy nature effortlessly. They hide behind something, show up, relax at back, run about here and there. Separated from freedom and connected to freedom are compatible.

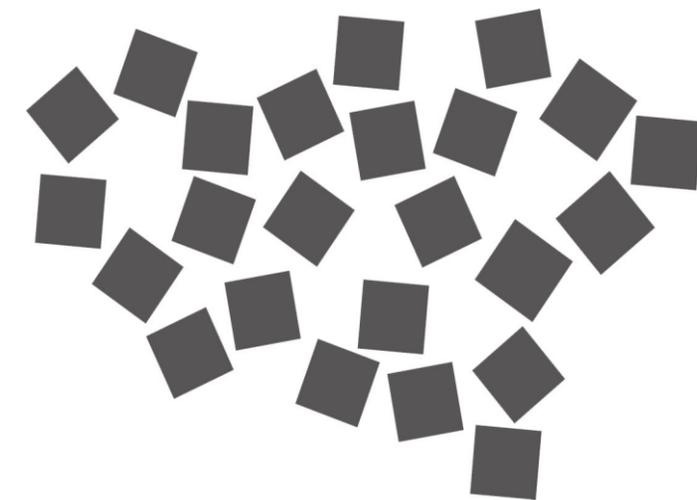


Figure 30 | Sou Fujimoto Architects - Mass/Void





Figure 34 | Sou Fujimoto Architects - Interior Space 1

## PROJECT ELEMENTS:

Living Spaces  
 Play Areas  
 Offices  
 Kitchen  
 Library  
 Dining  
 Counselling

A space created by an infinite, strict and artificial design process, it stands as if it were unplanned, as though it were made without intention. It is a place on the fringe, obscure, vague, a place that is unknowable.

## Space Planning:

Creation of multiple of 'centres'  
 No hierarchy of spaces nor building  
 There is a sense of ambiguity when walking throughout the spaces and applies as well to the overall planning concept. The ambiguity revolves around the question is the centre a large home or a small city? Is it about the intimacy of the single building or the variety of the larger whole?

## Project Takeaways:

Overall, the project itself is beautiful. In the way that is "planned" out for the children, but to also develop a sense of their own personality and a natural resourceful place to grow.

Figure 35 | Sou Fujimoto Architects - Interior Space 2



Figure 36 | Sou Fujimoto Architects - Interior Space 3



## CASE STUDY 4:

### MASONIC CHILDREN'S HOSPITAL

TSOI KOBUS DESIGN

LOCATION: MINNEAPOLIS, MINNESOTA

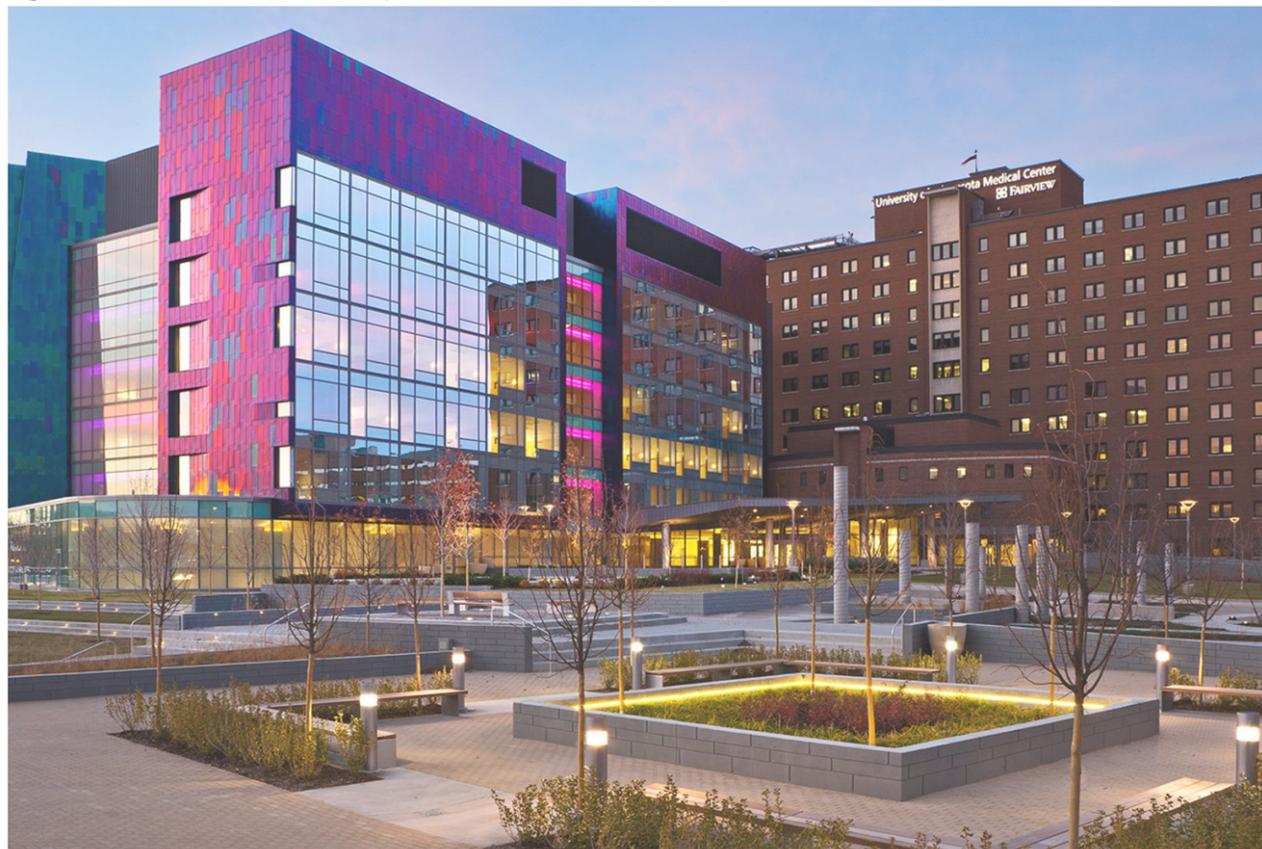
BUILDING TYPE: CHILDREN'S HOSPITAL/PEDIATRICS; CLINIC/AMBULATORY CARE

YEAR BUILT: 2011

SIZE: 353,100 SF

Incoming guests are greeted with the Masonic Children's Hospital entry pavilion, which is positioned in a park-like environment. The outside material, which is made up of colorful anodized polychromatic stainless steel panels, was chosen for its cost-effectiveness as well as its fun nature. The colors change according to the time of day. It is referred to as 'magical' by the children.

Figure 37 | Masonic Children's Hospital - Exterior 1



The research hospital's objective, "Driven to Discovery," inspired an interior design motif that was wide enough to appeal to a varied audience. "Passport to Discovery," the chosen topic, is a fun travel and adventure idea. Each kid receives a passport that encourages them to visit various locations across the institution, with each destination showcasing a "storyteller" character. The stories' environments, which include deserts, grasslands, and the seas, serve as the inspiration for a variety of interiors with unique floor and wall patterns, lighting fixtures, finishes, materials, graphics, and signs.

Figure 38 | Masonic Children's Hospital - Interior 1



Figure 39 | Masonic Children's Hospital - Interior 2





Figure 40 | Masonic Children's Hospital - Lobby

At each level's elevator lobby, the information-rich concept is portrayed through wall, ceiling, and floor patterns, ornamental lighting fixtures, furniture, finish materials, and integrated graphic components. The team incorporated imaginative navigational components at key architectural junctures, while also identifying these times as opportunities for patients and family to learn, pause, or play.



Figure 41 | Masonic Children's Hospital - Floor plan travel distance

- Patient
- Family
- Staff

Patient safety results, staff efficiency, and patient/family satisfaction all improved as a result of research and focus groups. During a normal shift, a nurse's commute distance was lowered from 9 miles at the east campus facility to 5 miles in the new hospital.



Figure 42 | Masonic Children's Hospital - Landscape

#### Project Takeaways:

This project's atmosphere is stunning. The connection to the ground, while encouraging self-actualization and creativity in order to improve the children's experience. It's critical to keep in mind worker efficiency and commuting time from one location to the next in order to avoid employee burnout.

## LITERATURE REVIEWS

### *The Handbook of Salutogenesis*

Mittelmark, M. B. (2017). *The handbook of salutogenesis*. Springer.

The Handbook of Salutogenesis, is a comprehensive overview with over 40 chapters about the need for salutogenesis. Written by Jürgen M. Pelikan, Head of WHO-CC Health Promotion in Hospitals and Health care at the Austrian Public Health Institute; Monica Eriksson, a researcher at Folkhälsan Research Center and a Senior Professor and a few other either professors or researchers embody Aaron Antonovsky's emerging idea of salutogenesis and describe real-world applications. Specifically, mental health care settings. Nursing science, psychology, sociology, educational science, medicine, public health, and health services research have all made major contributions. Altogether, this book is ideal for people who want a complete understanding of the subject.

Aaron Antonovsky, an Israeli sociologist asked the question, "what makes people healthy?" He was more interested in psychological factors manifested themselves in people than in the onset of any specific sickness. Salutogenesis was created as a result of this. This way, many individuals will start to focus on the causes of disease or the way to remedy illness in place of taking a holistic technique and learn to stop disease from onsetting.

In regard to design, salutogenic design philosophy allows spaces to indirectly influence the healing process of patients in the healthcare field. Things like windows, colors, furniture, and lighting all effect a patients illbeing. If one of these areas are lacking, a patient may experience more illbeing. For example, hospitals are notorious for causing anxiety in patients. One main cause of this anxiety is the bright white fluorescent lights. Utilizing more natural-colored lights, or actual natural lighting, promotes healing and healthy lifestyles. As it provides something closer to the outside world, as opposed to fluorescent lighting, which amplifies feelings of anxiety and paranoia in many. Sometimes the simplest change in color of a room or adding an additional window can have profound effects on people's ability to receive healthcare. Not just in traditional healthcare, but mental health as well.

#### CHAPTER 25: THE APPLICATION OF SALUTOGENESIS IN HEALTHCARE SETTINGS

Authors: Eva Langeland and Hege Forbech Vinje + Jürgen M. Pelikan

The health-care industry still operates mostly on a pathogenic model. Its goal is to professionally manage sickness by attempting to cure what is characterized as a disease or, if that is not feasible, by providing chronic patient care and hospital care. Salutogenesis is the opposite to this westernized thinking. As a result, applying salutogenesis to health care in theory entails limiting the main pathogenic orientation in health care practice (research and policy) and promoting the salutogenics orientation. Salutogenesis, on the other hand, must establish its evidence-based nature in order to be accepted.

One main challenge to this theory entering the healthcare field, is that the field is almost entirely follows the pathogenic model. Which goes in opposition to salutogenesis philosophy, which treats health as a composite problem. Comprised of many facets that effect how health is assessed. While it is not widely accepted, it is gaining attention as an important part of healthcare design. Langeland expresses the unrealized potential of traditional healthcare, to be preventative and restorative, rather than for just treatment.

Comprehensibility, meaningfulness, and manageability are the three most important dimensions to salutogenic design. These are created through spatial and socioenvironmental structures that are conducive to healing. Specifically, how aesthetic design impacts on healthcare outcomes. Studies have shown that better aesthetic design leads to better health outcomes. This can be achieved in a multitude of ways. Things like physical layout, color, and lighting. Studies suggest that windows that produce lots of natural lighting actually assists in a patient's recovery. It can even reduce energy costs. By providing natural light and a window that can open, one can save on lighting and heating costs. The window provides its own light and gives the room a way to cool.

#### CHAPTER 26: SALUTOGENEIC ARCHITECTURE IN HEALTHCARE SETTINGS

Author: Jurgen M. Pelikan

The industry of design needs a theory to determine whether or not views of nature are likely to be rehabilitative on a particular circumstance basis, as well as a means to go beyond this principle and find new approaches to create and develop restorative surroundings. Salutogenic theory, in the marketer's opinion, is a valuable tool for understanding the consequences of the design process on the health and sickness range. If utilized effectively, there is a noticeable increase in the quality of life of occupants of the space. One the other hand, if not considered, spaces that are designed to be places of healing, turn into anxiety inducing experiences. Especially for those who have chronic illness or have more risk factors.

Evidence has suggested that neurotransmitters in the brain react to stimuli, particularly environmental stimuli. The salutogenesis philosophy can be applied here, as design has been proven to have an impact on people's mind. Providing fascinating stimuli for someone to interact with to ensure that they do not become bored or complacent. Designing structures in ways that do not stand out obtusely and take someone's attention away from the care they are receiving. The very design of the space that a person receives care from impacts their ability to heal, be positively or negatively.

While all of these ideas are relevant to hospital design, they overlook the fact that architecture can play a role in psychologically manipulative behavior whether that is good or bad. Architecture does this by creating a narrative framework that influences a person's behavior, neurological and endocrine systems, and health through its effect on the brain and body.

## CHAPTER 28: THE APPLICATION OF SALUTOGENESIS IN MENTAL HEALTHCARE SETTINGS

Authors: Eva Langeland and Hege Forbech Vinje

As incidences of mental health issues rise, so does the need to a salutogenesis approach to the care these patients receive. Anatovsky's idea of coherence is more aligned with mental health than it is physical health. So, the use of salutogenesis philosophy on those with mental health patients was an obvious and important transition. Salutogenesis principles manifest in multiple ways within the mental health sphere according to Langeland, beginning with an understanding that mental health is unique to the individual. It depends on how they are perceiving their illness, not how it is classified as. Articulating that the experience of mental illness is determined by the patient suffering.

Next, the space provides specific forms of salutogenesis theory. Salutogenesis is comprised of many facets, including psychological, physical, and social. For example, having a group therapy program for patients would help with the social aspect. Providing activities and engaging architectural design can help fulfill the physical aspect. The idea of this aspect is to increase a patient's confidence in their surroundings, giving them a feeling of control, which is something that mental health patients are known to struggle with.

Finally, that the setting itself and materials must be designed with salutogenesis principles in mind. This means utilizing design to be meaningful and manageable. Langeland calls attention to the plight that long time mental health patients suffer when exposed to traditional institutional-esq settings. By changing the physical environment they exist in, one can ease their suffering and make their recovery more natural.

In conclusion, the Handbook of Salutogenesis is an ideal book to have on hand, especially on the extensive depth it goes into about healthcare settings in addition to incorporating this valuable information into design. Using salutogenic principles in the mental health field can foster aesthetically pleasing design, and also a space that is conducive to healing. Traditional care facilities did not understand this theory, so they designed spaces to be as affordable as possible. Not considering the salutogenic needs that each patient has. This design approach is fast becoming the leading edge of evolution in the healthcare field. Taking into considering the patients psychological, physical, emotional, and spiritual needs, allows a space to foster real healing.

Design for Health addresses the idea of well-being, specifically, how design can positively impact the well-being of individuals indirectly. Written by Emmanuel Tseklevs, leader of Design for Global Health at Imagination Lancaster, at Lancaster University and Rachel Cooper, make references throughout to an idea called ill-being. It is the antonym of well-being, and the authors make the argument that designers ought to be aware of their creation of ill-being and understand of how to prevent it. Through 26 case studies, covering a wide variety of fields and disciplines, the authors illustrate design methods that aid in the help of those who experience them.

The first half of the book is sectioned into 4 main themes, the design section of the book focuses on design for public health, acute health, chronic health and ageing well. Detailing design philosophies that pertain to those themes. The back half of the book gets into research methods, recommendations, and foresight into the designing for the healthcare field.

One common theme throughout the book, is the idea of healthcare design, and how it has an impact of patients healing process. Through a patient centered, holistic lens, much can be done to increase the wellbeing of people. Their well-being is tied to many things like social, physical, and emotional needs, each of which can be addressed through design philosophy. Each of which also contributes to behavior-change design, where design is applied in a way to foster behavior change in individuals. This effect is used to great effect in the healthcare field, specifically the mental health field. As behavior change is the name of the game.

## CHAPTER 7:

Focusing on care centers, this chapter explores the advancement of their design in the last decade. How they have transitioned away from being nothing more than places to serve patients, into providing a theoretical refuge through design. Aiding in their rehabilitation and recovery. This chapter also explores three fundamental elements of the theoretical hypothesis of salutogenic design. Including how people perceive their environment, the impact of someone's sociocultural background, and finally, how social interaction is a part of healing. These are the core tenants that comprise salutogenics and lay the foundation of where architects can build from. Design, specifically in the healthcare field, is presented in this chapter through a case study that exists in a before and after format. Illustrating the impact of salutogenic design principles have on the wellbeing of those exposed to them.

Codinhoto speaks of a changing healthcare system, where there are five philosophies that link design and health, these include "medical", "custodial", "holistic", "caring", and finally "health-promoting". He argues that these five models, among others, are still widely in use today, with design being based heavily upon which philosophy the designer wants to convey. Changing demographics of patients in these facilities also warrants change in design. Codinhoto asserts that as the elderly population gets larger and larger with each year, more people are going to be exposed to these care facilities. So, design features within the facilities, are being tailored to meet their needs. This idea of a changing demographic also goes the other way, as more and more young people suffer from mental illness, the number of kids exposed to these facilities is going up. So, in reaction, there should be a push to meet their needs as well.

Codinhoto also addresses the idea of patient centered design. In regard to healthcare facilities, designing them in a way to be more “homey” and less traditional. Providing an “hotel-like” feel, as to not make the patient feel more isolated than they already are. Hospital environments have long been known to cause anxiety and stress in people, not conducive to the healing process. By changing the design philosophy to accommodate for patient satisfaction, one can greatly increase a patient’s susceptibility to healing, by not providing their care in an environment that increase their stress levels.

#### CHAPTER 5:

Salutogenic design is beginning to be at the forefront of updating architecture across the globe. Its main purpose is to promote health in all forms, whether that be physical, mental, or emotional. Design principles can shape how individuals perceive their environment. Fostering an environment, more conducive to healthy lifestyles and effective treatment. This chapter delves into the idea of information imbalance, where people who have less access to knowledge about health, will suffer because of it. Not only because they are then uninformed, but also are more susceptible to the risk factors in their immediate environment.

Dilani presents two viewpoints in regard to health, biomedical and holistic. He makes the argument that the vast majority of institutions have adopted the biomedical view as the only view. Biomedical, being the idea that health is simply being in a state of non-illness. It is essentially a one-faceted idea, either you’re ill or not ill. Addressing health holistically on the other hand, subdivides health into different categories. Now a multi-faceted idea, health in the holistic view is comprised of physical, psychological, emotional, spiritual, and social needs. In a research setting, they are separated into pathogenic and salutogenic. Pathogenic being the biomedical view, and salutogenic being the holistic view.

The idea of the restorative environment is also explained in this chapter. This philosophy was created by Kaplan and Kaplan’s research in the 1990s, resulting in the creation of a list of four needs individuals have when they seek restoration or recreation. These needs being:

- 1) The need for escape from everyday life
- 2) The need for captivating stimuli that provokes the mind and alleviates boredom
- 3) The need for breathing room, which conjures feelings of being in a different world within the space
- 4) The need for compatibility for the occupant’s tasks

There are many other things that influence the salutogenic properties in a space, outlined in this chapter, including noise, music, culture, art, colors, sunlight, and windows. Nature is also something Delani argues is as important part of restorative environments, as studies have shown that people believe nature environments are more restorative than urban environments. That is a phenomenon that has been recognized for millennia. Utilizing it in architecture is key to providing a restorative atmosphere. Seeing nature out of a window promotes positive health outcomes, as stated by Dilani. Windows actually play a very important role in salutogenic design. By providing a portal to the outside world, individuals inside a space can observe nature from indoors, while also providing fresh air and sunlight into the room. Rooms without windows by contrast, are designed to be oppressive and confusing. They can work to develop sensory deprivation and trouble keeping track of time. As without windows, there is no connection to the outside world. Spaces like prison use this to effect, by providing as limited view as possible for prisoners to the outside world. So, in that way, the importance of a window can be used with bad intentions. In addition to health benefits, windows are also a great way to reduce energy consumption, as it gives the room a natural light source, as well as a way to cool the room.

#### CHAPTER 14:

This chapter focuses on urban design and how it effects well-being. Factors like urban density, deprivation and natural environments all contribute peoples illbeing. Boyko suggests that urban areas are often plagued by a lack of green spaces. While most cities have some sort of green spaces, it is nowhere near the amount the average persons should have. With the ever-increasing population of major cities, and urban density increasing, the expansion of built environment into nature areas will continue. Further limiting inhabitants access to these spaces, which has been proven to have a negative effect on peoples mental and emotional health.

According to Boyko, crowded environments amplify psychological stress, lower quality of life and actually provide less opportunities for social interaction. Despite what one may think, very crowded spaces do not foster and environment conducive to people interacting, just existing very close to one another. There needs to be an appropriate amount of free space between individuals to reduce stress and encourage social interaction. On the other hand, Boyko suggests that high-density areas allow for more foot travel, resulting in better physical health. These individuals are more likely to partake in vigorous physical activity, compared to their non-urban counterparts.

Another part of this chapter focuses on the walkability of areas. Urban landscapes often allow for easy movement around the area, but this is not always the case. In fact, walkability can actually be obstructed much easier when in an urban setting. Issues like low-income areas with damaged pavement can result in less walkability. In that case, non-urban foot travel is much easier. But urban design also features higher street connectivity. Studies have shown that higher levels of street connectivity promotes walking among residents. Much more than places without street connectivity.

The salutogenics handbook and Design for Health are both essential for my research for this project. They both delve into salutogenic design principles and how they are used in healthcare design. Specifically, how spaces can influence a person's ability to heal from something, whether that be traditional healthcare or mental health. The salutogenics handbook is more of an overview of salutogenics as a whole. Its goal is to provide researchers a handbook for salutogenics, which the author argues is not currently available. Virtually all Salutogenic research has taken place across multiple industries and from multiple organization. So, this book is designed to provide a place where all of the knowledge is together in one place. Much for the book is focused on design and how salutogenic design can positively impact those who are exposed to it. Different ways in which to improve the salutogenic design of spaces, focusing a lot on the design of healthcare spaces. In that way it is very similar to Design for Health, as that book focuses almost exclusively on the healthcare field.

Design for Health is a dive into how design, programs, and other facets of healthcare play into the patients healing process. That is a theme that is constant throughout the book, the patient's perspective on their care. Salutogenics is based around the patient-based approach, where any design decision should be catered to provide the best possible environment for their healing process. This can include things like numerous windows, calming color scheme, and provoking social interaction. When it comes to healthcare, specifically mental healthcare, these parts of salutogenic design are crucial. Not only for the care of the patient, but also economically. Windows and natural light can make a real impact on energy costs. Providing a natural light source during the day so that lights may be turned off or dimmed. If they open, that can provide a way to cool a space down instead of using air conditioning. So not only is this design philosophy important for the wallet of the owners, but also for the environment. Salutogenics is also consider for the societal impact it has. Contributing to lower energy emissions is a clear and easily seen benefit for this design philosophy.

Both texts provide three elements of salutogenic design philosophy, manageability, comprehensibility, and meaningfulness. Specifically, how these ideas relate to the mental health field. Individuals who are exposed to mental health facilities for extended periods of time, will be more susceptible to requiring these elements to be implemented successfully. Manageability and meaningfulness are of the utmost importance, and both books place high priority on them. Individuals who are extended stay patients need an environment that is meaningful to them. As they spend all of their time there, they need to be stimulated by the environment. In a similar way to you needing stimuli in your own home, patients who live in these facilities need the same.

Antonovsky places a specific importance on the mental benefits a space can provide as opposed to physical benefits, which is why its implementation into the mental healthcare field was inevitable. Mental health patients are far more at risk when it comes to visual disturbances. Examples would include patients experiencing anxiety while in a traditional healthcare setting, or extremely claustrophobic in a not-so-small space. Their reaction to this type of stimuli is far more impactful than healthy people. So aesthetically pleasing design, goes hand in hand with recovery, which both texts explain in detail.

Design for Health also differs in that it explores the idea of urban design, and how historically, these communities have had to deal with circumstances that negatively affect them. Whether they realize it or not. Traditional urban design features dense population centers of crisscrossing intersections and walk paths. Studies have shown that crowded places can cause anxiety as well as a feeling of isolation. As opposed to what many think, having too many people around can actually lead to less social interaction taking place. As it is more about the hustle and bustle of the space, as opposed to the interactions themselves. Adequate space must be provided to be conducive to conversations and interactions. Mobility is also something that influences a populations wellbeing or illbeing. With urban area infrastructure widely underfunded across the country, low quality sidewalks and other walking paths, contributes to a lower quality of life and less desire to walk. Walkability is paramount to salutogenic design, as it gives peoples a sense of connectivity. One aspect of effective urban design as it relates to mental health, is the idea of green spaces. In this way, it relates to the handbook, as they both mention the importance of nature in design. In Design for Health, Cooper suggests that the ever-expanding urban empire have made it harder and harder to maintain green spaces. Green spaces have been proven to provide a health outcome benefit to those from urban setting, as they do not get to experience nature on a daily basis. Strange to thin for those of us who do not live in the city. But individuals from places like New York or San Francisco, may not see much nature at all in their daily lives. While this segment was primarily focused on urban design, its philosophies are easily transferred to healthcare facilities.

In conclusion, these two texts have provided a great deal of research to base my proposal on. The salutogenic design philosophy is one that I plan on utilizing throughout this project, implementing elements of the philosophy into the design of my project. Given that this is a relatively new field, I hope to uncover some of the untapped potential Mittelmark mentions in the salutogenics handbook. There are certainly design elements within this philosophy that have yet to be discovered, which is very exciting as a student. There are a few pieces within these books, for instance the urban settings piece, that do not directly relate to my topic of mental health. But the message and ideas from those chapters can be transferred, and I will utilize them throughout the design process of my mental health facility

## PROJECT JUSTIFICATION

This project defines me as a person because mental health is something that I have been involved with for a long time. It is a study that I am directly involved in and is how I first noticed the lack of facilities like this in key areas with a high rate of mental health issues in children. It is important for me to make an impact on people, especially children. Recently I began working with children, studying their behavior and how their environment impacts their comfort level. This project is also in the healthcare field, which is the area of architecture that I would one day like to be a part of. It would bring me joy to one day design a building for youth to learn to handle their emotions, stress, and anxiety.

Being a 5th year student means being closer than ever to beginning my career in architecture. At this point, I know that I want to get involved with healthcare architecture. That is hospitals, clinics, treatment centers, etc. I realized this within the last year and wanted to create a project that emulated what it would be like in the professional sphere. Researching for this project has led me to lots of new and exciting information. Most notably, the idea of salutogenic design, which I plan on utilizing in my professional life. This project is also challenging in the sense that I have been forced to look at architecture new and unique ways. Specifically coming so late in my academic career, I wanted to really challenge myself for the thesis project.

This project will allow me to add to my skillsets in important areas like computer programs, like Revit, Enscape, and the Adobe Creative Suite through using them throughout the process. With the ever-digitizing workplace, proficiency in these programs becomes ever more important. In addition, this project will hone my academic skills through continuous research, reading and source collecting. Fostering growth in my academic practice and future employment positions.

## SITE JUSTIFICATION

Montana is renowned for its tranquility and beauty. The open fields and rolling hills provide many scenic locations for people to enjoy. Thus, there are lots of outdoor activities to partake in. One thing that Montana is also unfortunately known for, is high rates of childhood mental health issues. Montana ranks 45th in the “youth mental health and access to care” rankings, making it one of the worst in the United States. To compound this, Montana state officials have stated that there are a very high number of youths that are being diagnosed with depression and other serious mental health issues.

A youth oriented mental health facility would be of great value to the citizens of Montana. Places like my project are very few and very far between in Montana, most all of their mental health spaces exist within hospitals. Which have been proven through scientific studies to trigger anxiety within people. Providing a standalone space allows for patients a space to deal with their illness, without exacerbating their symptoms by unintentionally stressing them out.

## HISTORICAL CONTEXT

### MENTAL HEALTH IN CHILDREN HISTORY:

A juvenile court was created in Chicago, Illinois, in 1899, when the nation's first child psychiatric court was established. From that day forward, several events transpired. Juvenile delinquency shocked a group of powerful and socially concerned female directors of Jane Addam's Hull House. Interested in its causes, prevention and solutions, they set out to learn more. The Juvenile Psychopathic Institute was founded in 1909 by these women, who hired a neurologist, William Healy, M.D, to become its director. Rather than being established in medical schools, child psychiatry became embedded in the community, and its coworkers were more likely to be judges, social workers, and social scientists. (Gail Huggard)



Figure 43 | Helena Historical Orphanage

Throughout the next two generations, child guidance clinics flourished in nearly every city in the United States. During this time, European child psychiatrists such as Hermine Hug-Hellmuth, Anna Freud, and Melanie Klein influenced the development of child psychology in the U.S.

The World War II era helped child psychiatry in many ways, despite its seeming paradox. The military draft allowed a large number of late adolescents and young adults from diverse backgrounds and socioeconomic levels to have their background histories recorded. The National Mental Health Act, signed by President Harry Truman on July 3, 1946, declared war on mental illness. This led to the founding of the National Institute of Mental Health three years later. The goal of prevention was paramount.

## HELENA HISTORY:

The town of Helena was founded as a mining town. It is believed that Helena was founded accidentally by four Georgians who are known in history books as the "Four Georgians." After looking for gold all throughout western Montana and coming up empty-handed, these four men wandered into what is now Helena. On July 14th, 1864 the guys struck gold that evening.

Helena became a bustling city almost instantly once word of the gold find spread. Several hundred enterprises had emerged in Helena in just a few years, and more than 3000 people called Helena home. In 1875, the territory seat was moved to Helena due to the growth in Helena and the inflow of miners following the Bannack gold strike.

Last Chance Gulch, like many mining settlements, ran out of gold quickly. Helena, on the other hand, continued to thrive. The town's central location in Montana, along with its status as the state capital.



Figure 44-46 | Historical Helena

The Blackfeet or Blackfoot Confederacy of the Northwestern Great Plains, which includes five separate tribes and is situated in Montana, USA (Blackfeet) and Alberta, Canada (Blackfoot), was founded by five distinct tribes in Montana, USA (Blackfeet) and Alberta, Canada (Blackfoot). The Blackfoot, Blood, and Piegan tribes all spoke the same Algonquian language, as did two other allied tribes, the Sarcee and GrosVentre, who broke away from the confederacy in the 1860s.

The Helena area has been inhabited for around 12,000 years, according to archeological findings. Although no one Native American group ever made the valley their permanent home, it became a "transitional zone" through which tribes like the Blackfeet, Salish, Crow, and Bannock passed on a regular basis. Native American tribes, such as the Pikuni-Blackfeet, have regarded plants to be important in determining their identity throughout history. Plants have an important role in the Pikuni-Blackfeet culture and identity as remedies, tangible representations of spiritual powers.



Figure 47 | Blackfoot

It was the potential therapeutic value of plants that the Blackfeet people had employed for medical purposes for years, and they offered insight on ways by which plant extracts may reduce depression.

The Pikuni-Blackfeet people regard medicinal plant knowledge to be sacred, and it is passed down ceremonially to designated healers. Healers use a number of rituals when picking plants and preparing medicines, which are similar to most Native American tribes.

*Arnica mollis*, *Betula occidentalis*, *Hypericum perforatum*, and *Scutellaria galericulata* are the principal plant species stated by members of the Pikuni-Blackfeet tribe to cure inflammation, sedative, and anxiolytic properties. The anti-inflammatory action of helenalin, a chemical extracted from *Arnica* flowers, was demonstrated by blocking a transcription factor linked in inflammatory responses, suggesting that this flower is healing in general.



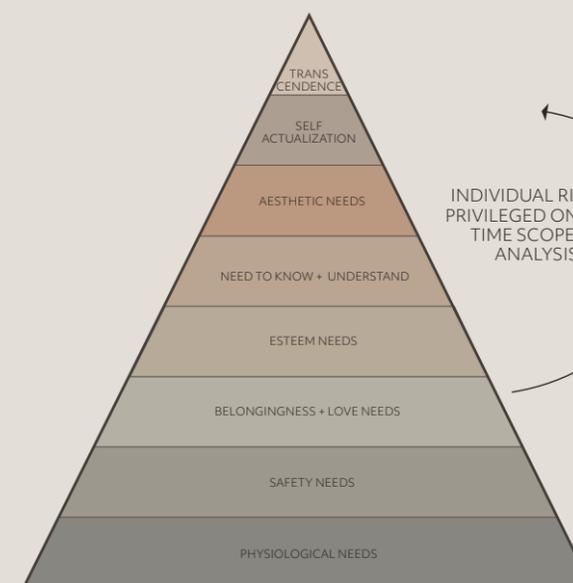
Figure 48 | Arnica Mollis

The creator of hierarchy of needs, Abraham Maslow, believed that humans are driven to meet their most fundamental needs first, such as food, clothes, and shelter. They move on to the need for safety and security after those requirements are addressed. Before obtaining self-actualization, the needs develop to love and intimacy, then self-esteem, and finally self-actualization. At the greatest level, humans are self-aware and strive to reach their full potential.

Maslow was supposedly stuck on his theory of human development, so he traveled to spend time with the Blackfoot, who had an effect on him. To improve his psychology theory on the hierarchy of wants, he took what he learned from the Blackfoot people.

#### MASLOW'S HIERARCHY OF NEEDS - INFORMED BY BLACKFOOT NATION

##### WESTERN PERSPECTIVE



##### FIRST NATIONS PERSPECTIVE

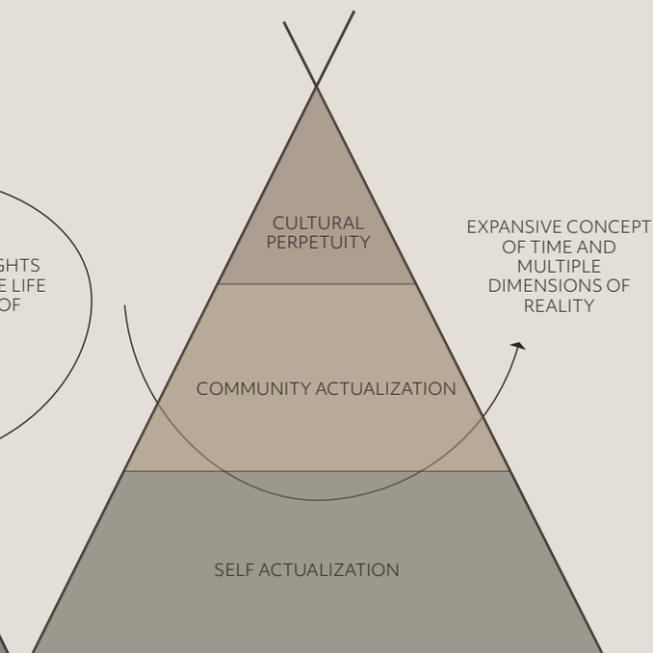


Figure 49 | First Nation's Triangle

Safir, Shane. "Before Maslow's Hierarchy: The Whitewashing of Indigenous Knowledge." Shane Safir, 17 Feb. 2021, <https://shanesafir.com/2020/12/before-maslows-hierarchy-the-whitewashing-of-indigenous-knowledge/>.

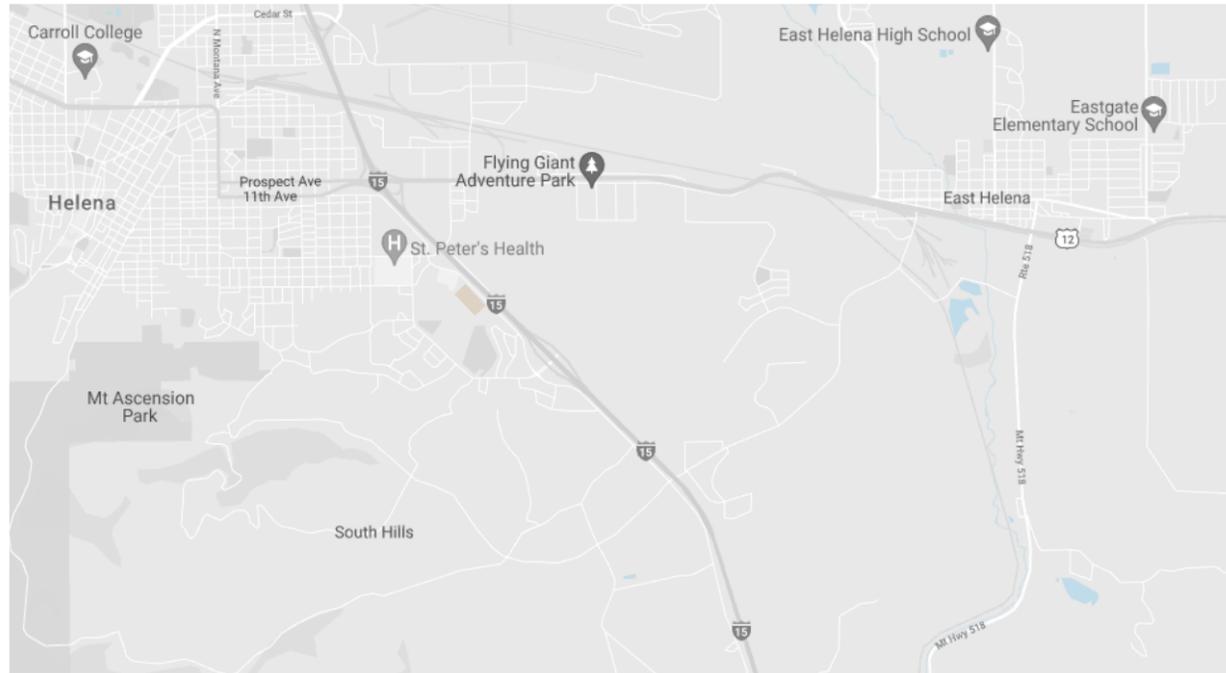
The fact that self-actualization is at the bottom of the triangle (tipi), rather than the top, where Maslow placed it, is a significant distinction. Self-actualization, according to the Blackfoot, is the basis upon which communal actualization is created. The ultimate form a Blackfoot may achieve is "culture perpetuity," which the Gitskan people refer to as "the breath of life."

"In Montana, there's a stigma around the old cowboys and how tough they were; you pull up your bootstraps and get over yourself," says CEO Dennis Sulser, Ed. D. "Today it manifests itself in how people, especially men, address their mental health. Fortunately, we're starting to overcome that culture in Montana, and recognize that tough guys need help at times. We all need to tend to our mental health."

Montana is noted for its mountainous terrain and sparse settlements. It's a location where trees, deer, and elk outnumber humans; it's a place where the Wild West still exists. Montana people face many obstacles as a result of the rural scenery, which is beautiful but often challenging.

Many of the adolescents and teenagers served by Youth Dynamics, a non-profit program who helps youth with mental health problems, which offers children and families strength-based, client-centered, and supportive mental health treatments have been diagnosed with depression. Addressing the incidence of depression among Montana's younger population is a primary focus at this point in the organization's 40-year history.

## SITE ANALYSIS



HELENA, MONTANA  
LEWIS + CLARK COUNTY

Figure 50 | Helena Map

According to Mental Health America, Montana ranks 45 out of 50 states, showing higher rates of mental illness and difficulty accessing services among young people. (2020 mental health in america)

Across the state of Montana lies a network of 25 mostly not-for-profit mental health services that provide sliding fee scale mental health services to the community. There are a wide array of mental health services offered by these care centers. These include intensive case management for adults and youth, day treatment, crisis stabilization, inpatient care, and group homes. Mental health centers in the community serve a diverse clientele with a variety of needs.

## NORTH VIEW

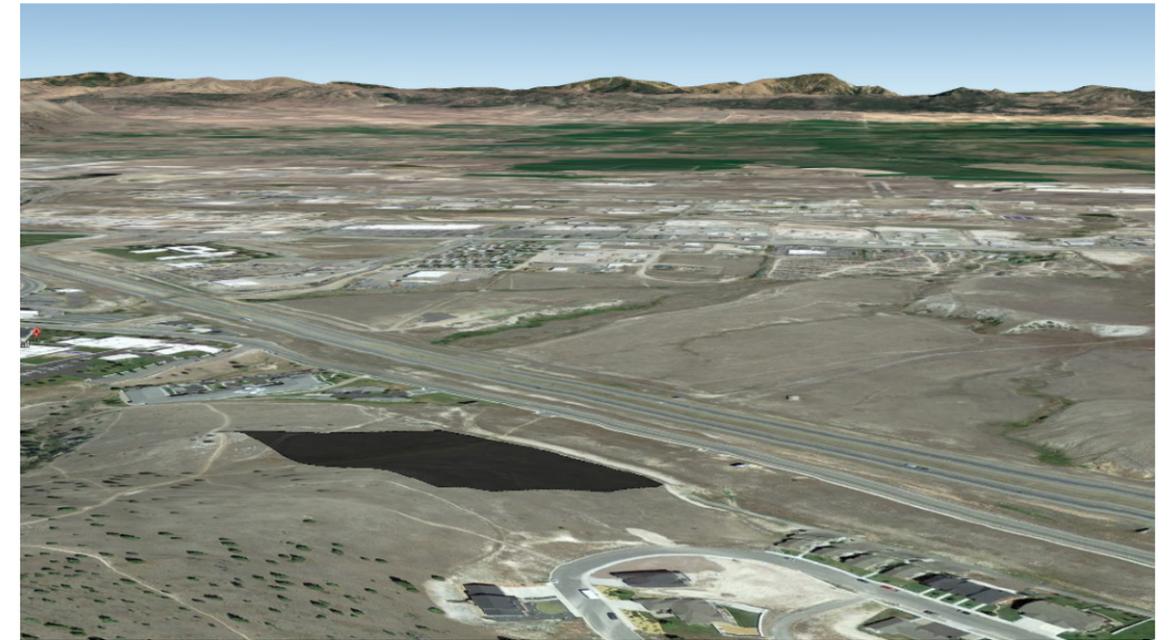


Figure 51 | North View - Site

## SOUTH VIEW

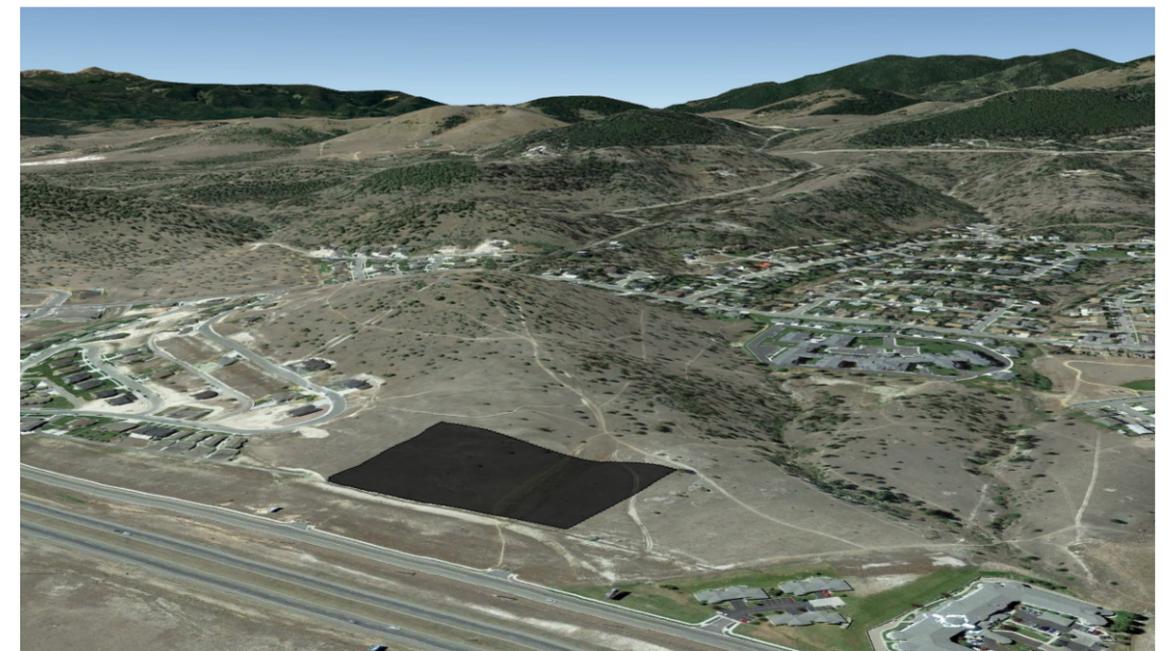


Figure 52 | South View - Site

EAST VIEW

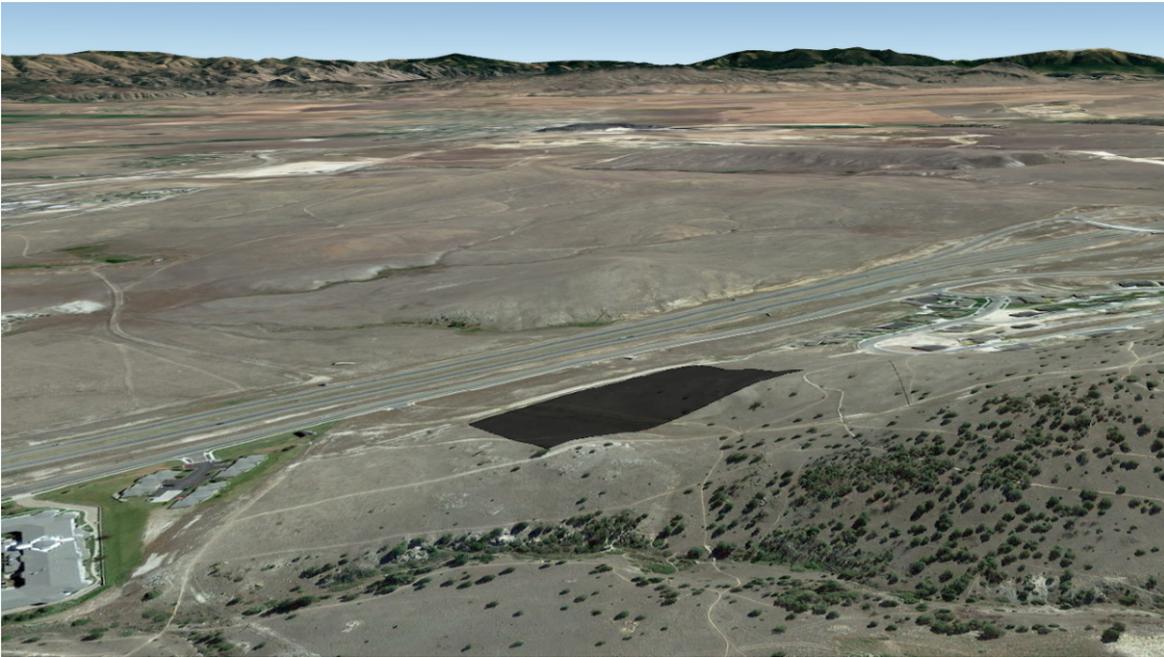


Figure 53 | East View - Site

WEST VIEW



Figure 54 | West View - Site

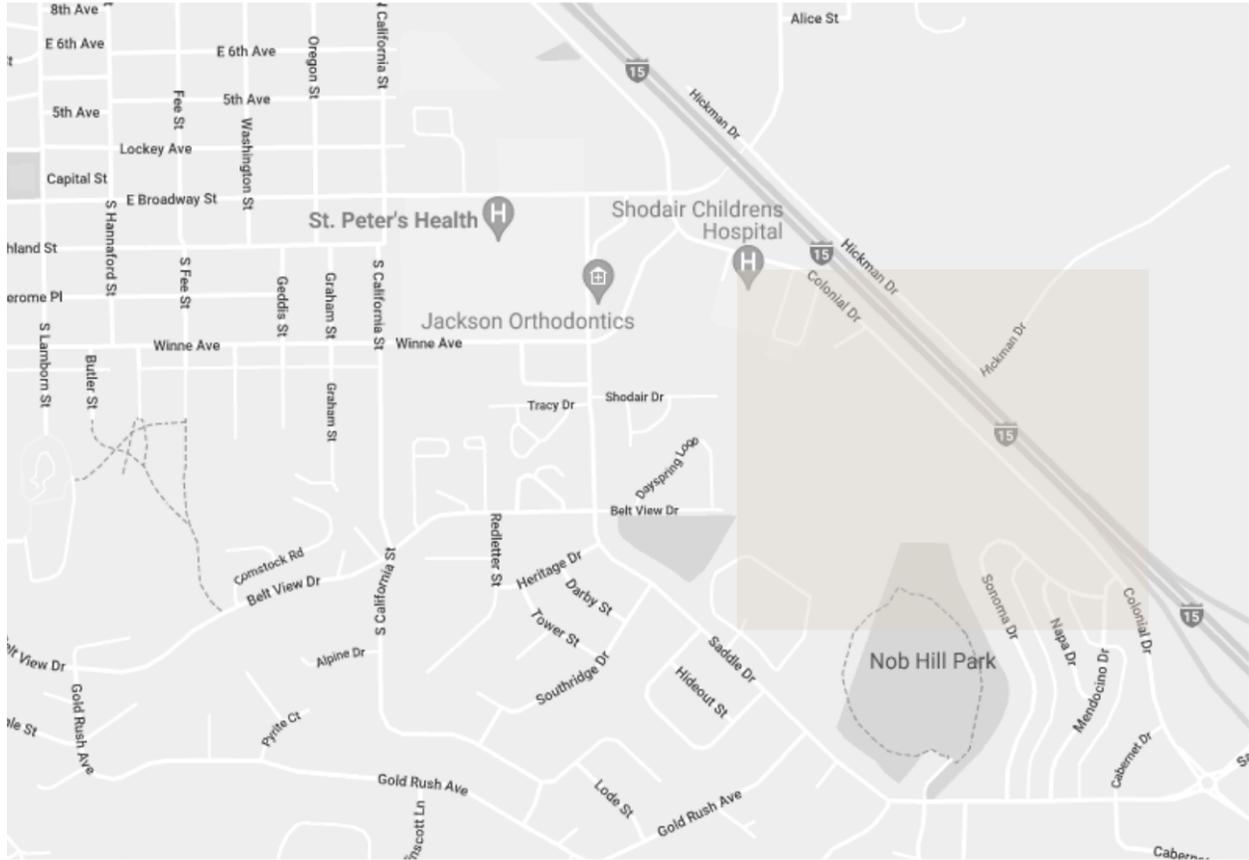


Figure 55 | Helena Map 2

## VEGETATION

There are isolated pockets of mountain grassland and shrubland throughout the study site, but it is mostly coniferous forest. Bluebunch Wheatgrass, Douglas fir, and lodgepole pine are a few notable native species. Lower elevations are occupied by grassland and shrubland, which includes flora from neighboring intermountain basins.



Figure 56 | Grassland



Figure 57 | Bluebunch Wheatgrass



Figure 58 | Douglas Fir

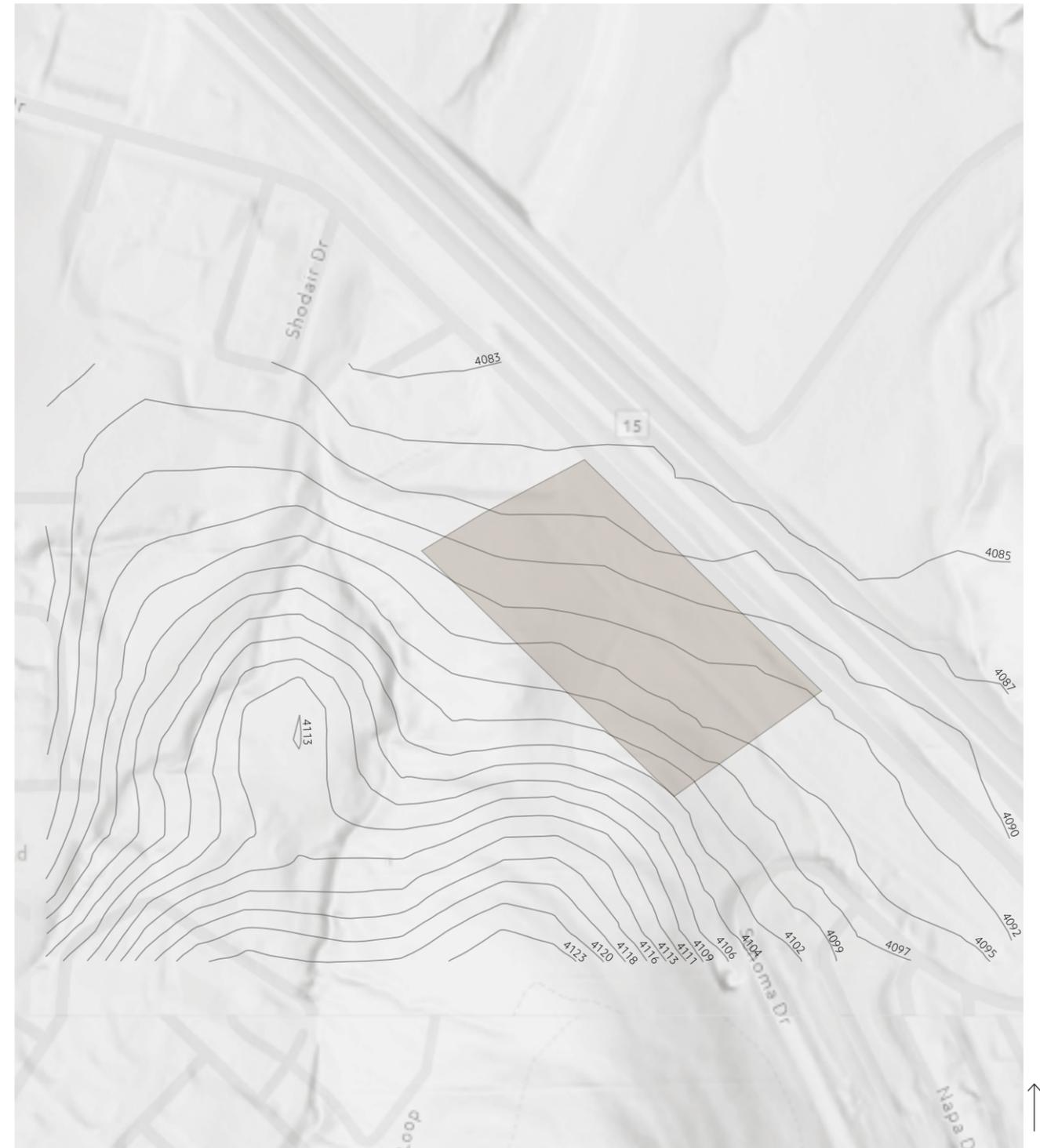


Figure 59 | Contour Map

### CONTOUR MAP OF SITE

# SOIL

Scobey soil was chosen as Montana’s state soil by the National Resources Conservation Service. Till-formed, very dense, well-drained soils make up the Scobey series. These soils can be found on grasslands, hills, and mountain ranges; farmers. Scobey soils are typically used to cultivate drier crops. The soil texture is made up of three different size fractions named sand, silt, and clay, which may be separated from one other. The topsoil in Scobey soil has a clay loam texture, is dark grayish brown in color, which can be up to 6 inches deep. The subsoil is a dark grayish brown tint.



Figure 60 | Soil Map

SOIL MAP OF MONTANA

## SCOBEY SOIL



Figure 61 | Scobey Soil

# WIND MAP

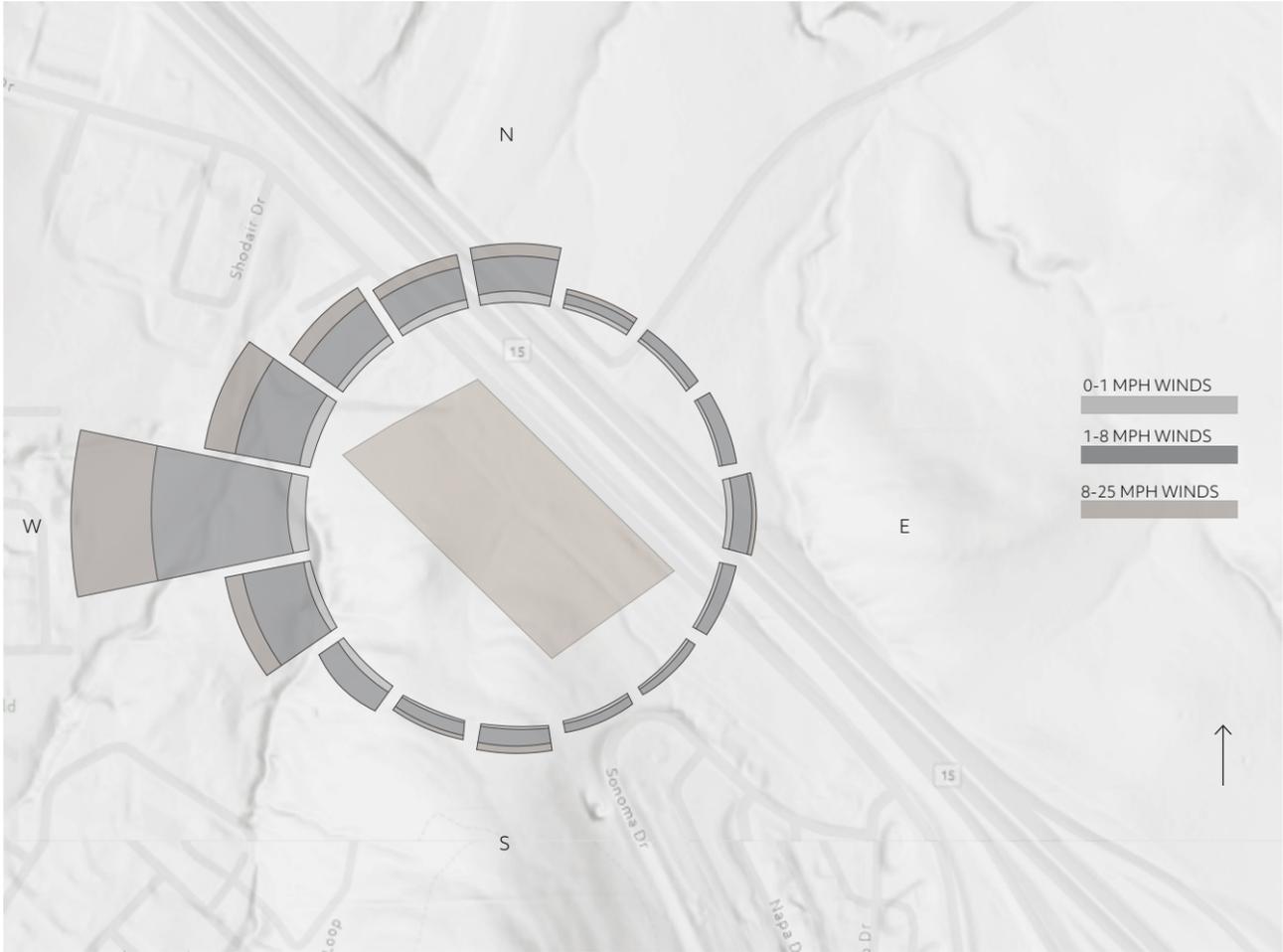


Figure 62 | Wind Map

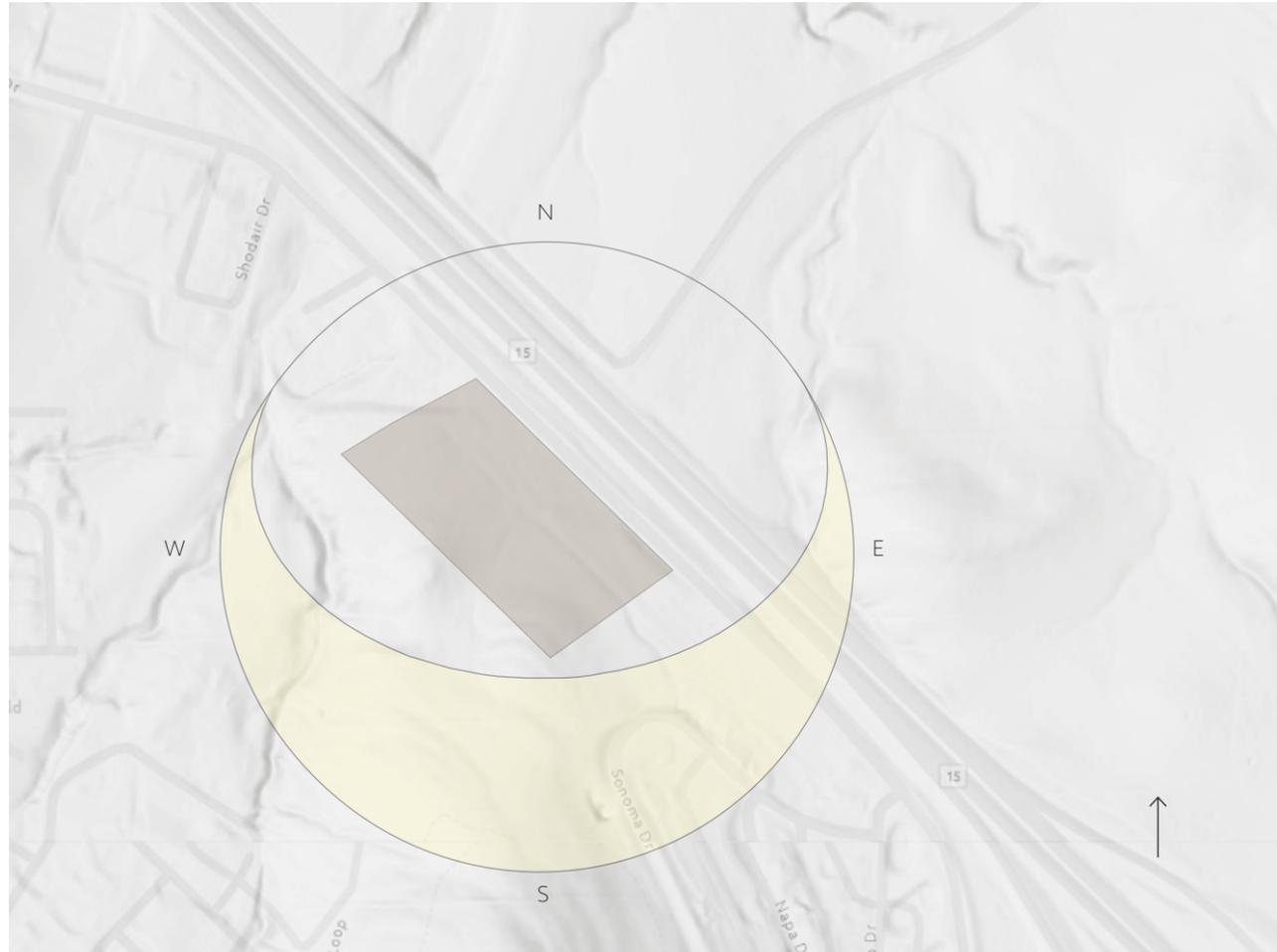


Figure 63 | Sun Map

ANNUAL AVERAGE TEMPERATURE

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AVERAGE HIGH F°	33	39	48	56	67	76	85	86	73	59	43	32
AVERAGE LOW F°	13	17	24	32	41	49	54	52	43	33	22	12

Figure 64 | Average Temp

ANNUAL PRECIPITATION GRAPH

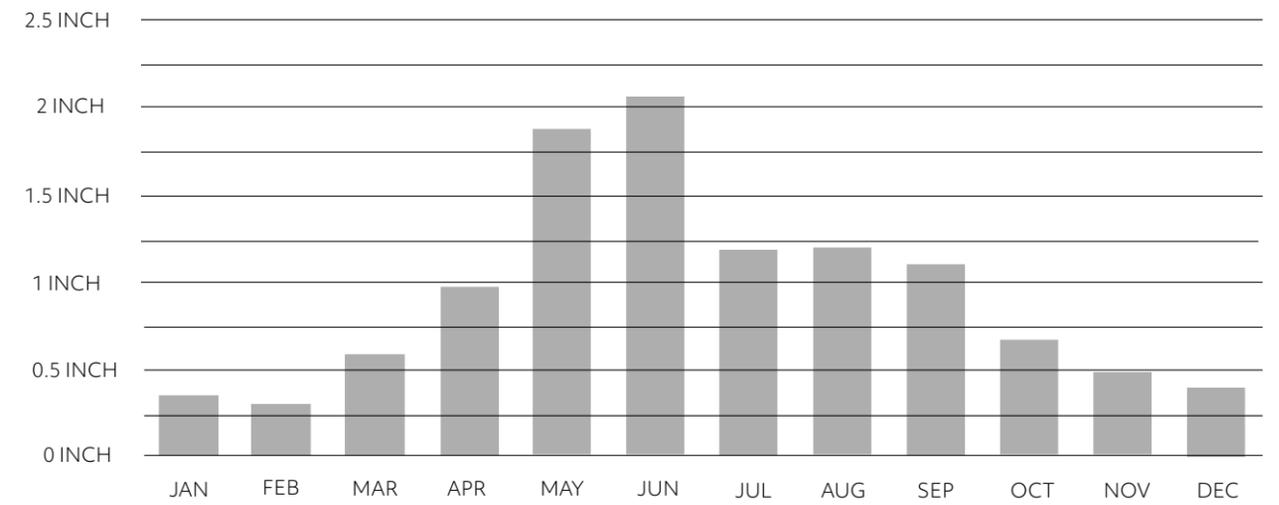


Figure 65 | Precipitation Graph

## CIRCULATION MAP

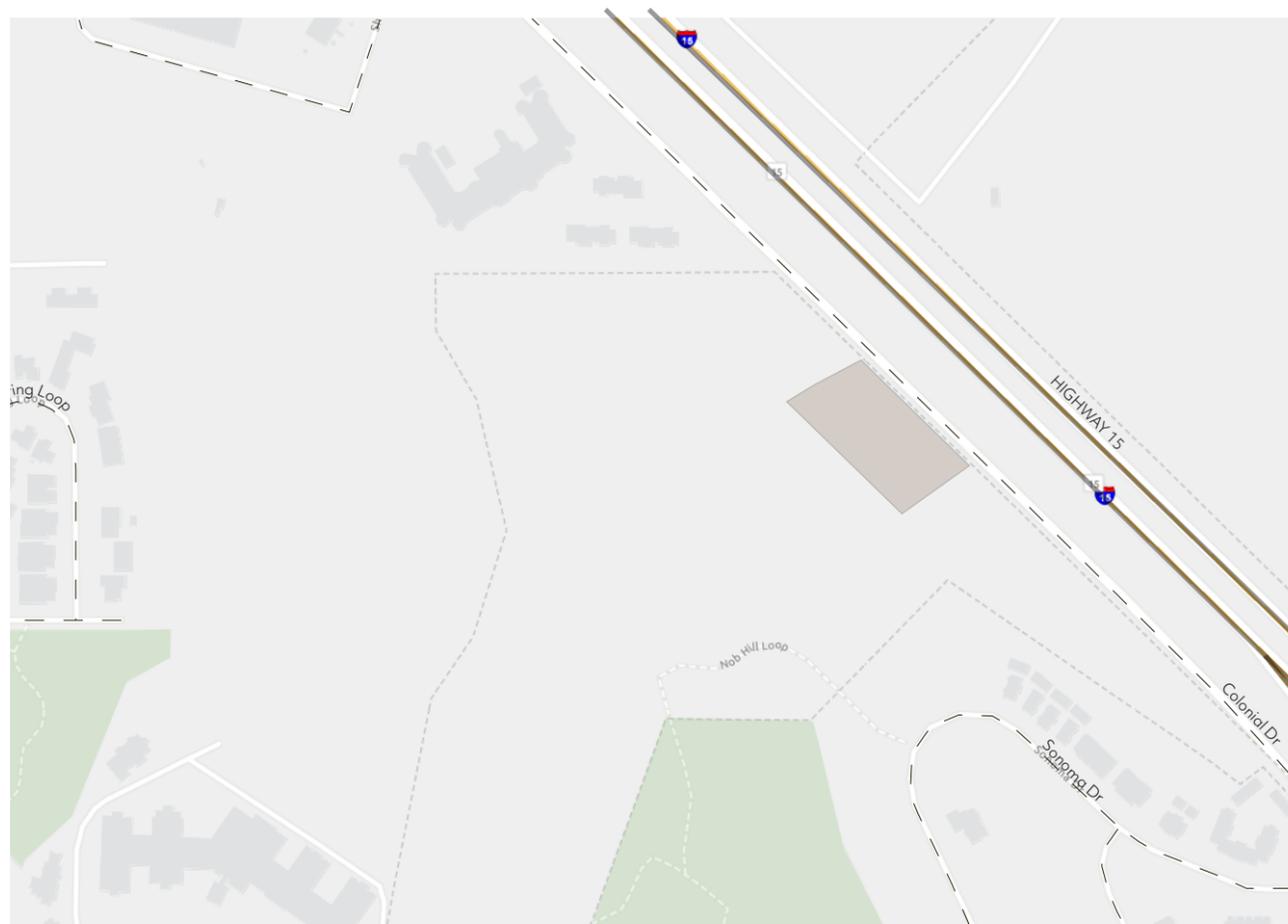


Figure 66 | Circulation Map

- Major Roads
- - - Minor Roads

## NATIVE PLANTS



SILVER SAGEBRUSH



YUCCA



RABBITBRUSH



SILVER BUFFALOBERRY



MALLOW NINEBARK



BIG BASIN SAGEBRUSH

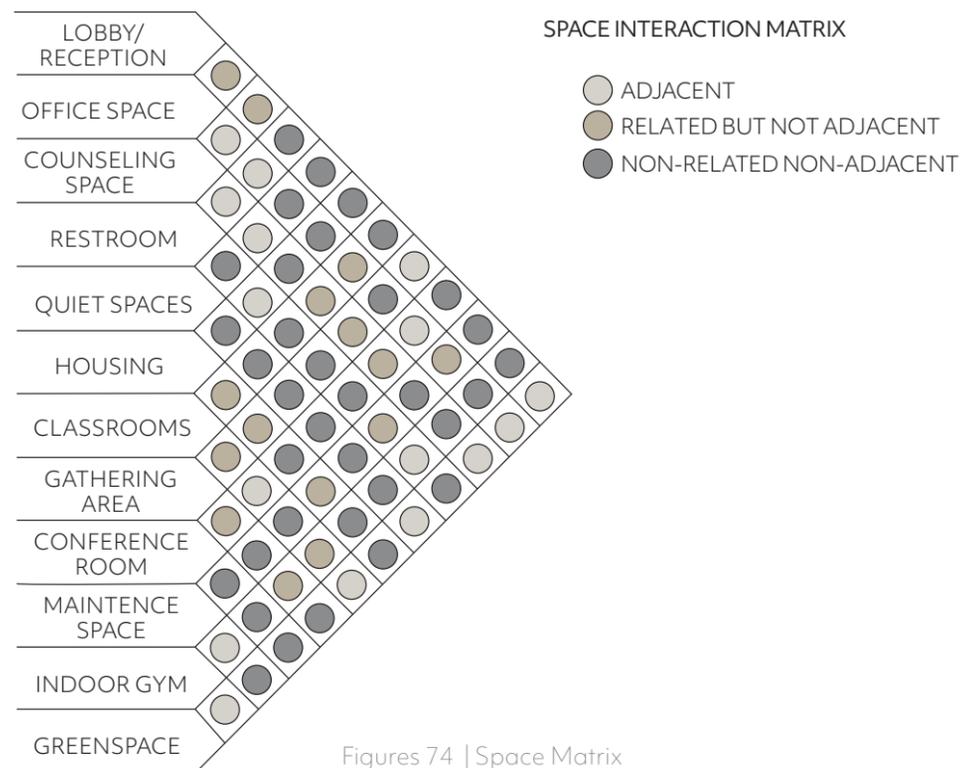
Figures 67-72 | Native Plants

## PERFORMANCE CRITERIA

SPACE TYPE	SPACE ALLOCATION PERCENTAGE	SQUARE FOOTAGE (SQ. FT.)	ALLOWABLE HEIGHT
OFFICE SPACE	9%	15,151	5
CLASSROOMS	22%	37,170	5
QUIET SPACES/BREAKOUT	8%	13,799	5
HOUSING	29%	49,993	5
INDOOR GYM/PLAY AREA	2%	2,919	5
GREENSPACE	30%	51,014	N/A
TOTAL	100%	170,046	

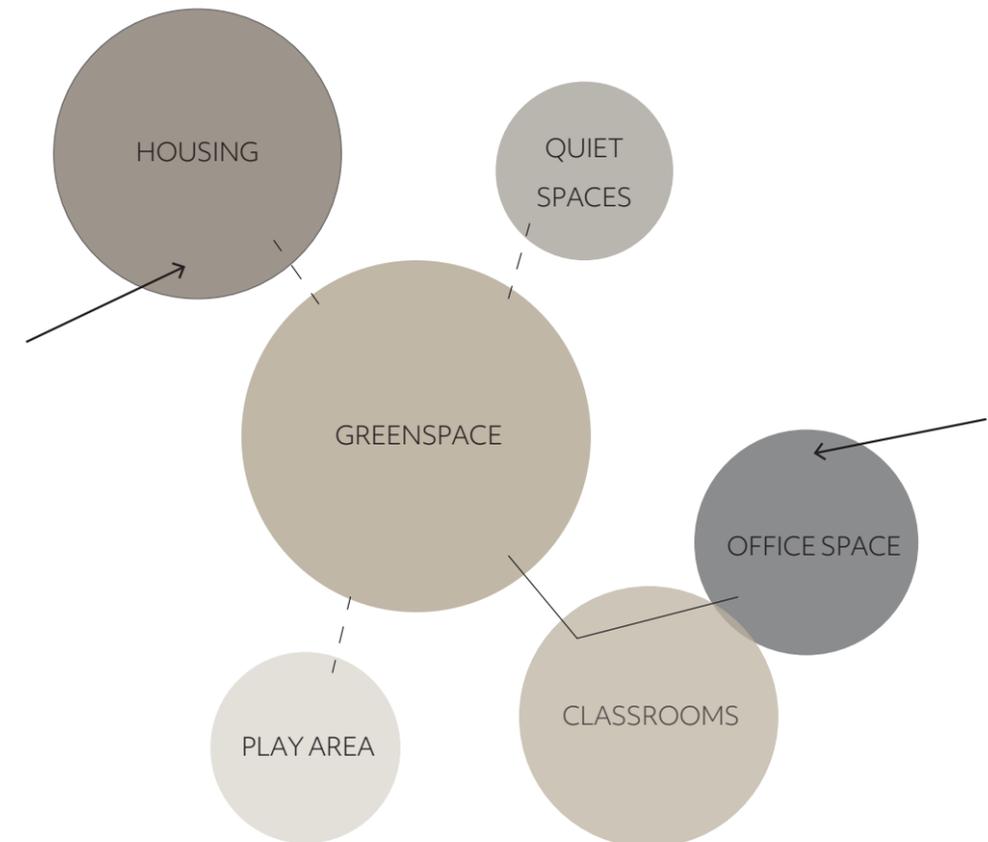
Figures 73 | Space Table

This property, which sits on a total of 170,046 square feet. These figures will change over the project, so keep that in mind. Institutions cannot be more than 5 floors tall, according to Montana Building Codes. A preliminary estimate for each of the typologies is helpful in establishing the square footage required for each.



Figures 74 | Space Matrix

## INTERACTION NET



Figures 75 | Interaction Net

The interaction of the spaces is shown through the diagram above. The spatial layout represents a potential interaction of spaces; first you'll notice how large the green space is in the center. This represents the importance of greenspace for the project and would be impactful to have greenspace touch each space. Secondly, when putting the spaces together, I had to think about how I wanted close or far I wanted them to be to the quiet spaces in particular. Furthermore, the arrows represent potential entrances to the spaces. My initial thought was to have the entrance close to the offices and then another entry way towards the housing/indoor-outdoors feel with the 'backyard.'

HUMAN LEVEL IMPACT

By implementing the WELL Building Standard (WELL v2) within spaces, buildings, organizations can create thoughtful and intentional spaces that enhance human health and wellbeing. Through design interventions, operational protocols, and policies, WELL v2 is intended to advance human health and engender a culture of health and well-being. The standard runs off of 11 concepts listed below, but I picked out seven concepts I felt were most important to implement into my project. (Rickard-Brideau)



**NOURISHMENT:** The notion of nutrition necessitates the availability of fruits and vegetables as well as nutritional clarity. It promotes the construction of eating situations in which the healthy option is the most convenient one.



**MOVEMENT:** We know that all movement is beneficial to our health, and that physical activity may be collected in a number of ways throughout the day. As a result, it's imperative that our buildings, and communities contexts recognize mobility as an important component of the human experience.



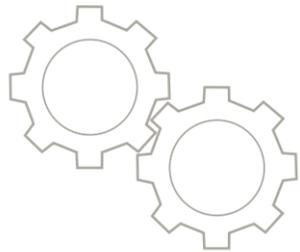
**THERMAL COMFORT:** Through better HVAC system design and operation, the Thermal Comfort concept seeks to increase human productivity and provide a maximum degree of thermal comfort for all building users. Taking a holistic approach to thermal comfort benefits human health, productivity, and well-being. However, we must remember that thermal comfort is a subjective concept, which implies that not everyone would be equally comfortable in the same circumstances.



**SOUND:** Exposure to noise sources such as traffic and transportation has just recently been discovered to harm people's health and well-being in a variety of ways. Sleep disruption, hypertension, and a loss in mental arithmetic skills in school-aged children have all been related to the impacts of outside noise from vehicle or industrial sources. As a result, it is critical to strive to improve occupant health and well-being through the identification of potential hazards.



**MATERIALS:** Despite their widespread use, most chemicals have unknown health and environmental consequences. Many of the compounds that were formerly widely utilized have been shown to be hazardous, persistent, and susceptible to bioaccumulation. The materials concept strives to prevent human exposure to substances that may have a negative influence on health during the construction, refurbishment, furnishing, and operation of buildings, whether directly or indirectly through environmental pollution.



**MIND:** The mind concept is an idea to address and support these mental health factors in order to improve the cognitive and emotional health and well-being of people who live, work, learn, or spend time in built environments.



**COMMUNITY:** Truly inclusive environments meet accessibility standards while also incorporating universal design principles that allow individuals of various abilities, needs, and identities to use the place. Henning Larsen's three-year research used the following criteria to evaluate the design's objectives for social well-being: building mobility and occupancy, user social interactions and group formations, and user activities and social distances.

Figures 76-81 | WELL Standard



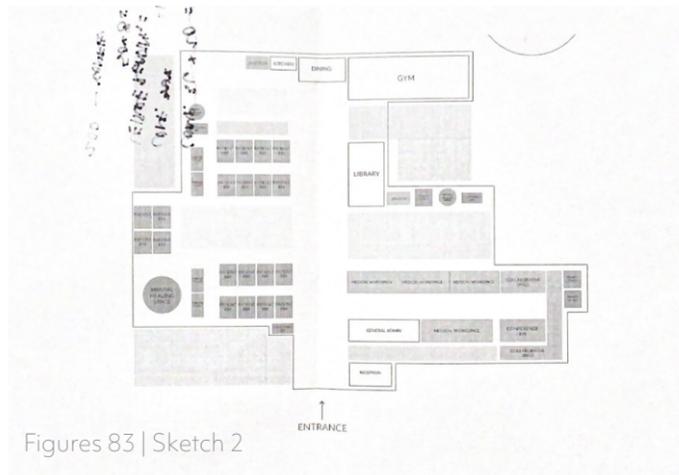


DESIGN SOLUTION

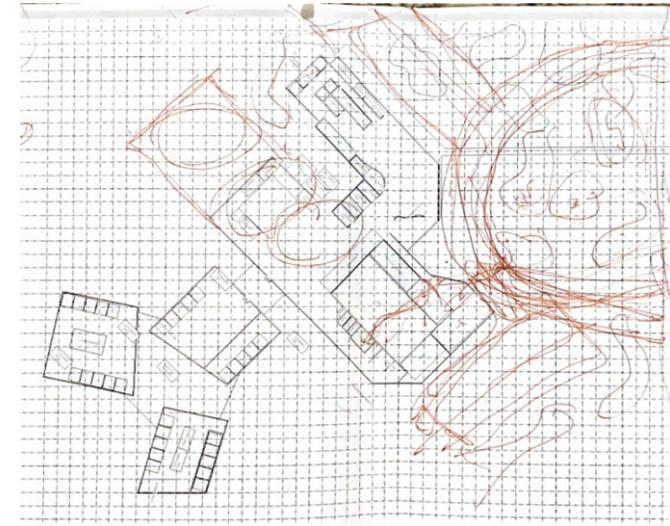
# PROCESS DOCUMENTATION



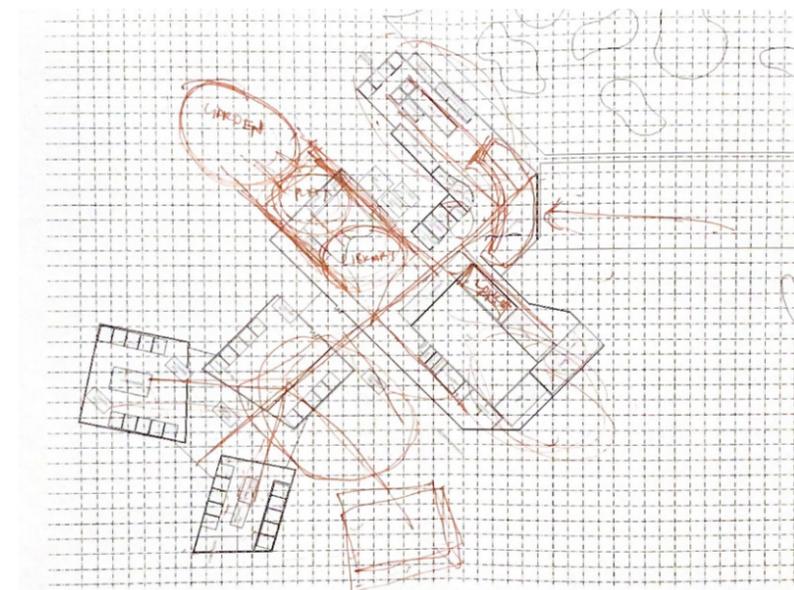
Figures 82 | Sketch 1



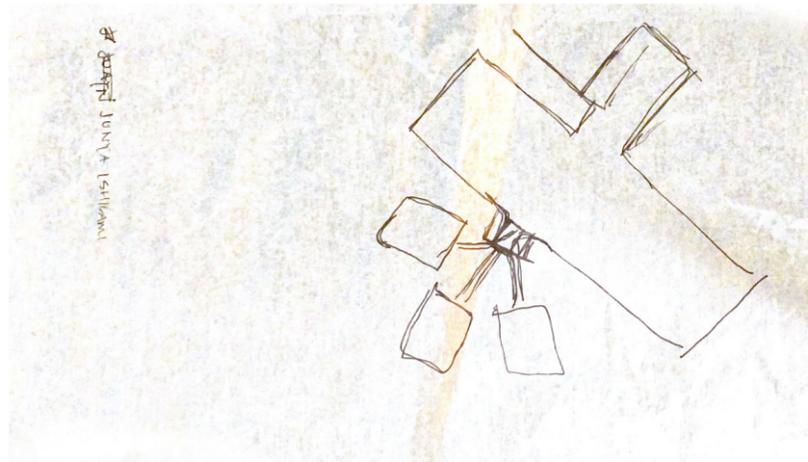
Figures 83 | Sketch 2



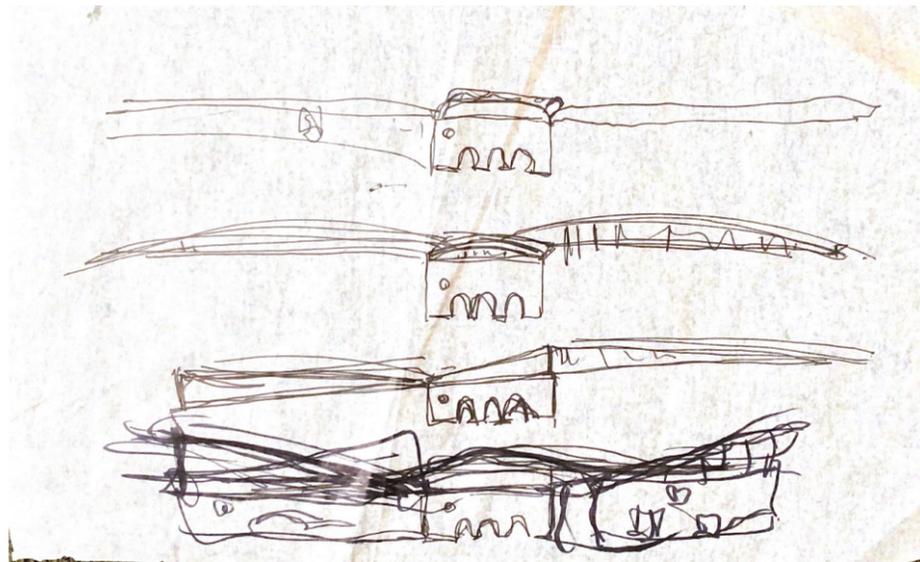
Figures 84 | Sketch 3



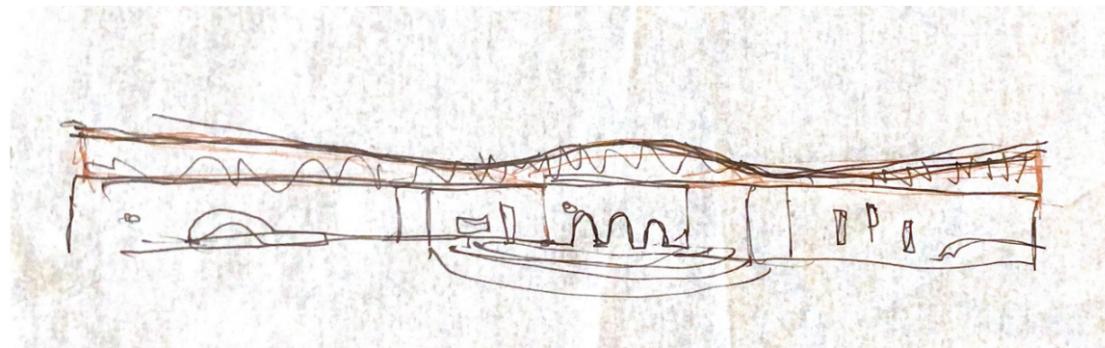
Figures 85 | Sketch 4



Figures 86 | Sketch 5



Figures 87 | Sketch 6



Figures 88 | Sketch 7

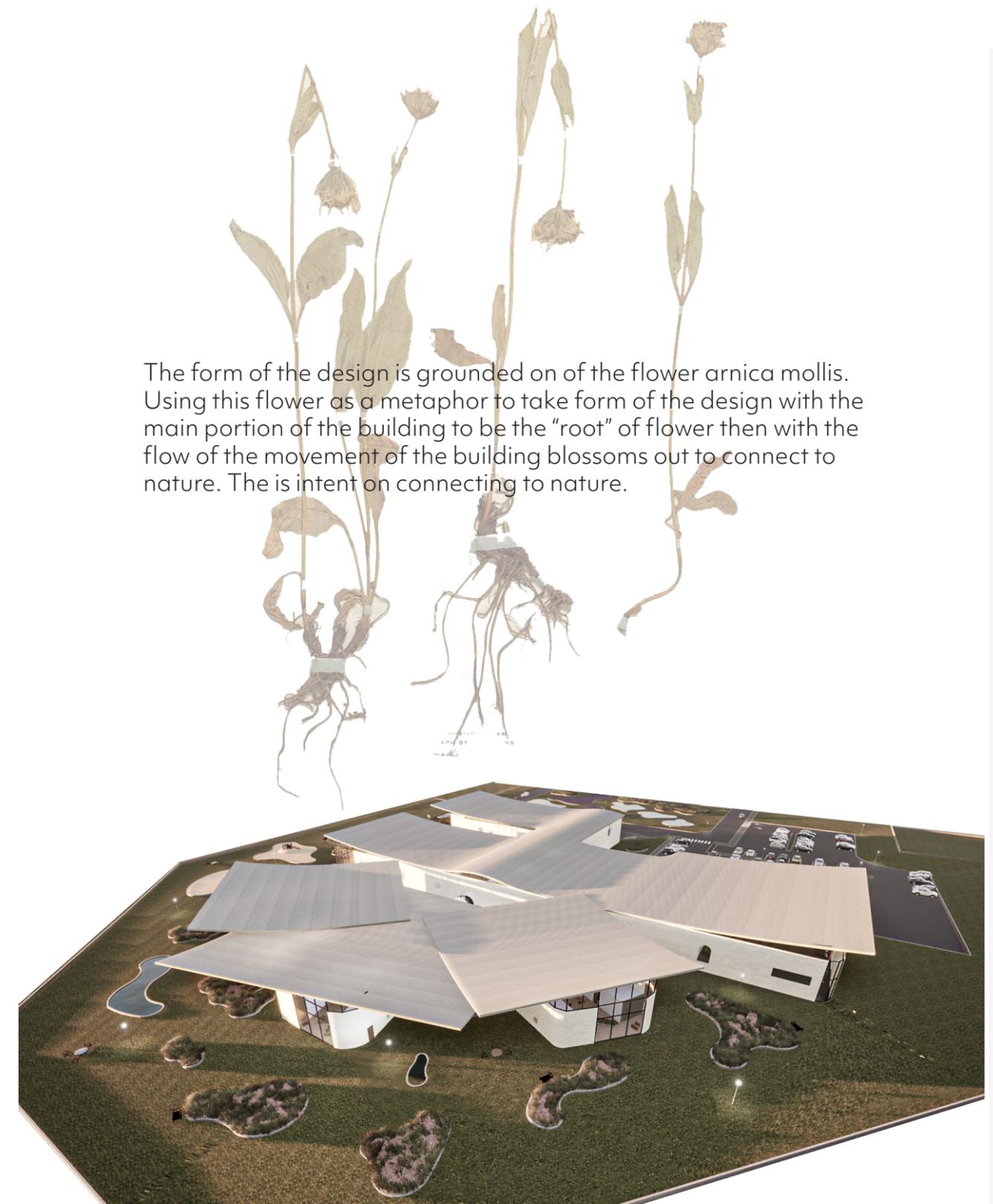
## Space Program

Space Name	SQFT	QTY	NSF
<b>Community Spaces/Activity</b>			
Atrium	400	1	400
Courtyard	800	1	800
Canteen	1046	1	1046
Studio - multi-purpose space	650	1	650
Dining	1400	1	1400
Gym	4700	1	4700
Pool	800	1	800
Locker Room			
<b>Private</b>			
In-Patient Rooms	120	30	3600
Mental Healing Room	120	2	240
Medium mental healing room	200	2	280
Group Therapy Rooms	400	1	800
Library	1024	1	1024
Living Room	400	1	400
Staff Toilet	40	2	80
Staff Dining	300		300
Caretaker area			
Meds rm			
Soil			
Utility			
<b>Work Spaces</b>			
Medical Workspace	100	4	400
Collaborative Workroom	440	1	440
Registration + Customer Services	300	1	300
Breakroom	250	2	500
Counseling	140	12	1680
<b>Service Spaces</b>			
Janitor	72	2	144
Trash	40	1	40
Storage	120	1	120
Equipment	96	1 ?	
Mechanical		1 ?	
Laundry	300	1	300
Kitchen	800	1	800
Storage	100	3	200
IT			
Electrical			

# Schemes

EVALUATION CRITERIA	SCHEME 1	SCHEME 2	SCHEME 3
<b>1. WELL v2 Standard</b> <ul style="list-style-type: none"> <li>- Designing form to promote fluid movement throughout spaces</li> <li>- Achieving thermal comfort by using natural materials</li> <li>- Controlling sound through building orientation</li> <li>- Implementing materials native to Montana</li> <li>- Creating spaces that promote a cognitive and emotional experience</li> </ul>			
<b>2. Environmental Connection</b> <ul style="list-style-type: none"> <li>- Eliciting an emotional response to surrounding site</li> <li>- Minimal environmental impact to site</li> <li>- Design is to be inspired by the natural world</li> </ul>			
<b>3. Engagement</b> <ul style="list-style-type: none"> <li>- Providing a space for community + family involvement</li> <li>- Arrangement of spaces that encourages independence</li> </ul>			
<b>4. Psychology Impact / Healing</b> <ul style="list-style-type: none"> <li>- Following salutogenic design key sense of occurrence: feeling something larger than themselves</li> <li>- Ensuring supportive + inclusive atmosphere space for youth</li> <li>- Space for social interactions/user activity spaces</li> </ul>			
<b>5. Functionality</b> <ul style="list-style-type: none"> <li>- Regenerative spaces that facilitates the flow of people</li> <li>- Connects to the local city</li> <li>- Approachability - front entrance is easy to find</li> </ul>			

# PROJECT SOLUTION DOCUMENTATION



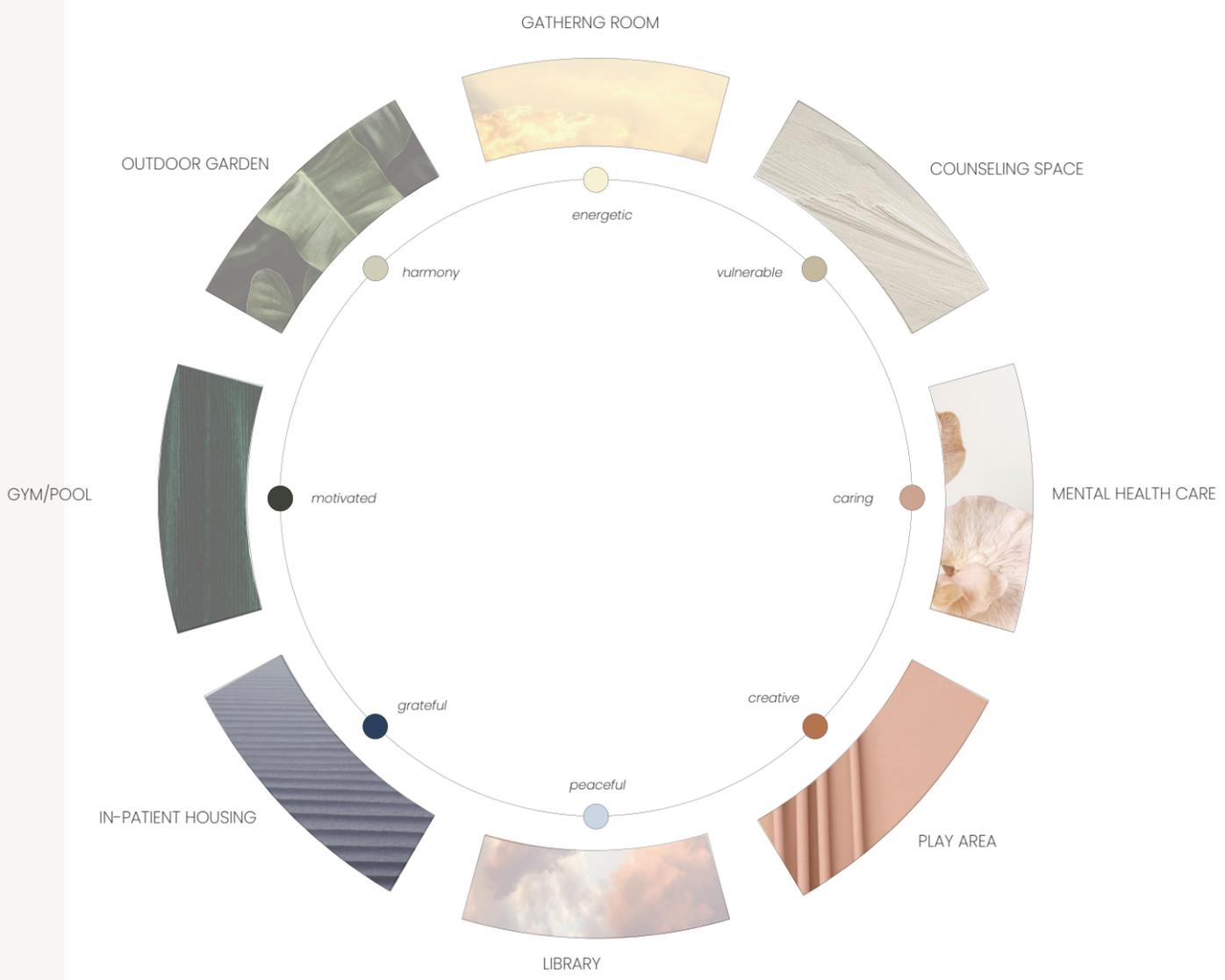
The form of the design is grounded on of the flower arnica mollis. Using this flower as a metaphor to take form of the design with the main portion of the building to be the "root" of flower then with the flow of the movement of the building blossoms out to connect to nature. The is intent on connecting to nature.

- 1. Waiting Area
- 2. Library
- 3. Dining
- 4. Play Room
- 5. Youth Living Space
- 6. Admin Office
- 7. Private Office
- 8. Staff Break-out
- 9. Mental Care Workspace
- 10. Collaboration Space
- 11. Medication Room
- 12. Conference
- 13. Unisex Bathrooms
- 14. Storage
- 15. Counsel Room
- 16. Library Storage
- 17. Group Therapy Room
- 18. Youth Play/Reflection
- 19. Janitor
- 20. Canteen

- 21. Multi-Purpose Space
- 22. Kitchen
- 23. Women's Locker Room
- 24. Men's Locker Room
- 25. Pool Storage
- 26. Pool
- 27. IT
- 28. Laundry
- 29. Pool Mechanical
- 30. Electrical
- 31. Mechanical
- 32. Facility Loading
- 33. Gym
- 34. Reflection Space
- 35. Patient Rooms
- 37. Housing Front Desk



↑ North



Waiting Area - "root" of the building

Color, reported by Jacob Olesen, a color expert, is a potent and communication tool for altering emotions, psychological and physiological responses. These colors correlate with each space, reflecting the energy of that space. (Olesen, Jacob.)



Outdoor garden - connects to counseling rooms, where youths or the community can connect



Features color privacy glass, utilizing the color blue to bring serene to their reading environment



Where youths connect with family and with each other

## PERFORMANCE ANALYSIS: SITE

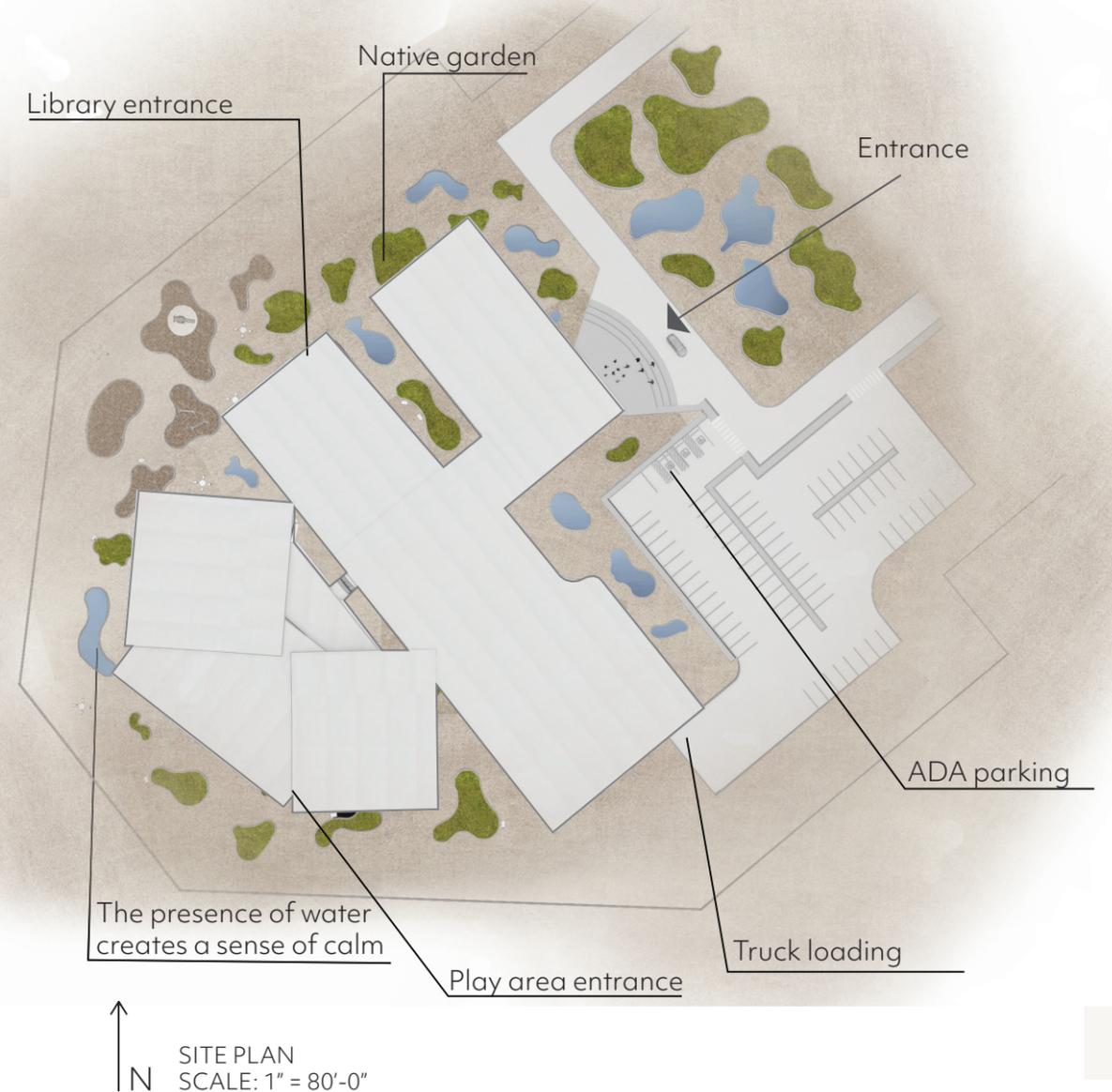
This thesis's location in Helena, Montana is advantageous in a number of ways, the most important of which is access. Montana is a vast state. As a result, placing this design near the state's epicenter would be advantageous. Many members of the community would be involved. The location is also close to a children's hospital, which might lead to a collaboration in assisting Montana's youths.

A wonderful site based on views is also available. Restorative perspectives are crucial, according to my study. It is really beneficial to have in-patient pods with views of mountains and nature in general.



Utilizing and preserving Montana's natural plants is critical. They are utilized in a variety of ways, including gardening for both food and therapeutic purposes.

The design adheres to the neighborhood's three-story restriction, preserving a one-story height with potential to expand. This design is accessible since the surrounding region has comparable typologies and neighborhoods.



## PERFORMANCE ANALYSIS: TYPOLOGICAL/PRECEDENT RESEARCH

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The research information was one of the most valuable parts. This is where I learned salutogenesis posits that health can be influenced through design in a multitude of ways, ways that passively, yet effectively, aid in a person's healing process. Approaching this project with this philosophy in mind, I was able to create design elements that address each of the tenants of the theory, which are manageability, comprehensibility, and meaningfulness with their environment.

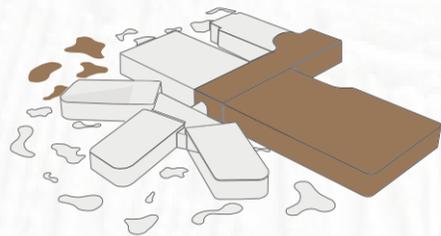
In addition to this, learning the two views of how we see health. The biomedical and holistic viewpoints, this is where it was learned that health should be viewed in different ways. Addressing health holistically on the other hand, subdivides health into different categories: physical, psychological, emotional, spiritual, and social needs.

The case studies chosen has taught me the use of color, organic forms, and the open flow of the entire structure proved to have a significant influence on children. Similarly, one of the most significant aspects of the design is the efficiency of the personnel and patients in the floor layout. The relationship between workers and patients is crucial, thus providing areas for both to thrive is essential. The connection to the ground, while encouraging self-actualization and creativity in order to improve the children's experience.

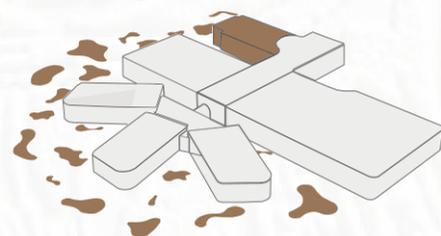
## PERFORMANCE ANALYSIS: GOALS

Combating a multi-faceted issue requires a multi-faceted solution. Utilizing the holistic approach, this project is designed to support the five characteristics of health and wellness which are physical, psychological, emotional, spiritual, and social. My two main goals for the design is the way the project is being approached. The first set of diagrams show each space in how the five characteristics of health and wellness in the holistic view. These spaces working in tandem with each other show how the design is holistic.

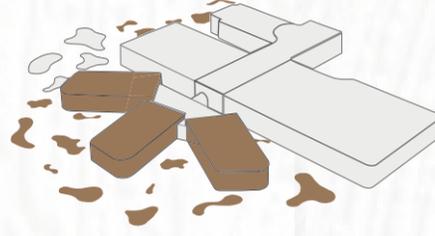
The second set of diagrams is the implementation of the WELL V2, I chose this because it uses holistic approach, but through an architectural lens.



**PHYSICAL:** The gym and the walkway allows easy movement. While the "blobs" are designed for outdoor recreation while creating opportunities for stimulating mind and body.



**PSYCHOLOGICAL:** The "blobs" offers breathing room while connecting to nature and evokes the feeling of being in a different world. Equally important, mental health care spaces.



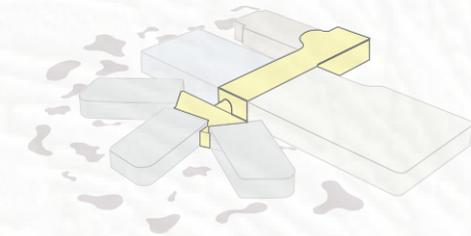
**EMOTIONAL:** The in-patient housing offers reflection, perspective, where vulnerability is encouraged. In each pod has a reflection space that allows users to seek alone time or with family.



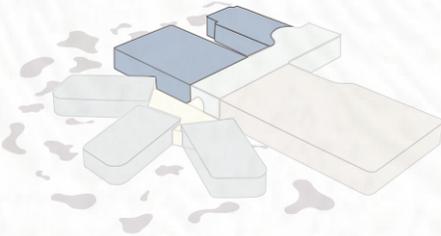
**SPIRITUAL:** Outdoor spaces that allows people to connect with nature. Which is a gateway to restorative atmosphere. There are a variety of "blobs" that contain native plants, water, or play equipment that suits needs of reflection.



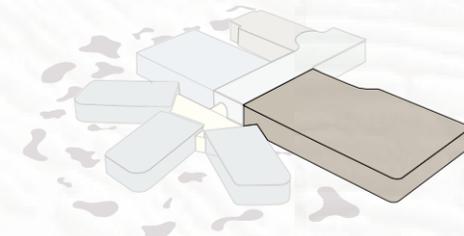
**SOCIAL:** Communities may come together on a number of dimensions thanks to a range of contexts such as the play area, walkway, library, and outdoor areas.



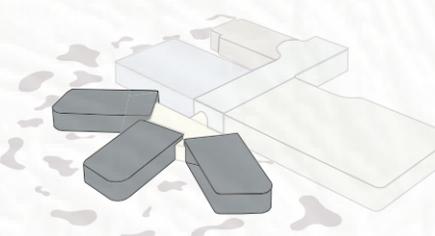
**MOVEMENT:** We now know that all movement is beneficial to our health. The design is aimed to promote movement, physical exercise, and active living.



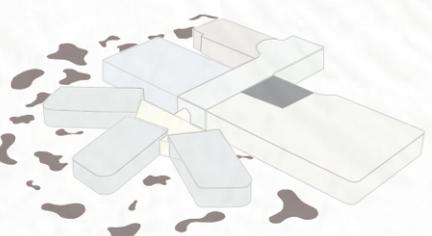
**MIND:** The design improves mental health by addressing the various aspects that influence cognitive and emotional well-being



**COMMUNITY:** The design intends to improve access to vital healthcare, and create an inclusive. Interacting with the general public may be done in a number of ways.



**COMFORT:** Developed to create interior surroundings that are distraction-free, productive, and pleasant. Each person will have their own personal space.



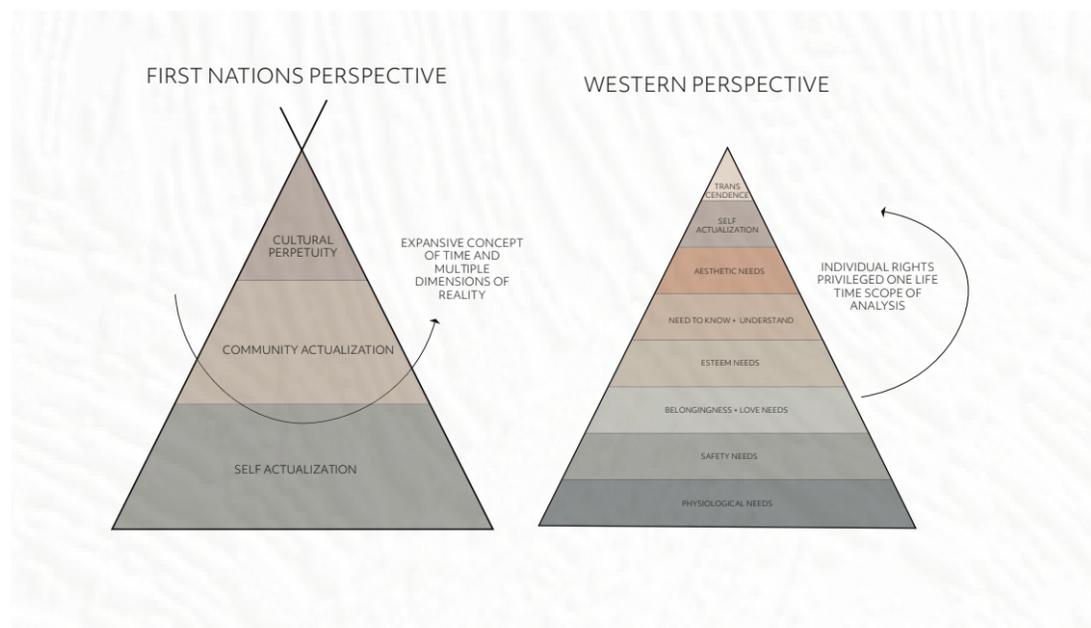
**NOURISHMENT:** The development of food ecosystems is fostered by using Montana's native plants community garden.

## CRITIQUE OF APPLIED RESEARCH METHODS

The First Nations took a more esoteric view on what a person's needs truly are, focusing on the idea of spirituality and self-acceptance. They believed that the most basic personal need was self-actualization, and only after obtaining it can one progress through community, then finally cultural perpetuity. The fact that self-actualization is at the bottom of the triangle, rather than the top, where Maslow eventually placed it, is a significant distinction. Self-actualization, according to the Blackfoot, is the basis upon which communal actualization is created. Culminating in cultural perpetuity.

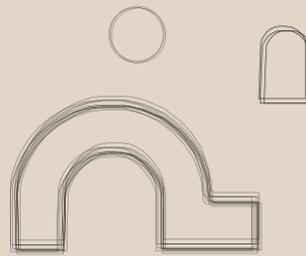
Utilizing the Blackfoot model, the design reflects the idea that self-actualization is the basis for good health in the Blackfoot culture. Mental health closely mirrors the idea of self-actualization, in that it relates to a person's fulfillment with their life and is considered a driving factor in one's experiences. Pushing someone forward and motivating them to be healthy, not for someone or something, but for one's self. Consisting of a wide variety of factors that can influence it.

In conjunction with Dr. Dilani's idea of holistic health, this project is designed so that each zone facilitates the 5 categories of Dilani's work, those being physical, social, mental, emotional and spiritual. Once all those needs are met, one can experience a fruitful healing process.



# DIGITAL PRESENTATION

Please Feel Invited: Children's Psychiatric Rehabilitation using Salutogenic Design



## History of Salutogenesis

Comes from Latin 'salus' - health/safety + 'genesis' - source/origin  
The question of what creates health was examined.

**Salutogenic design:** defined as a method that prioritizes the support of human health and well-being.

How salutogenic design can have a positive influence on youths' mental health through the built environment?



WEST ELEVATION

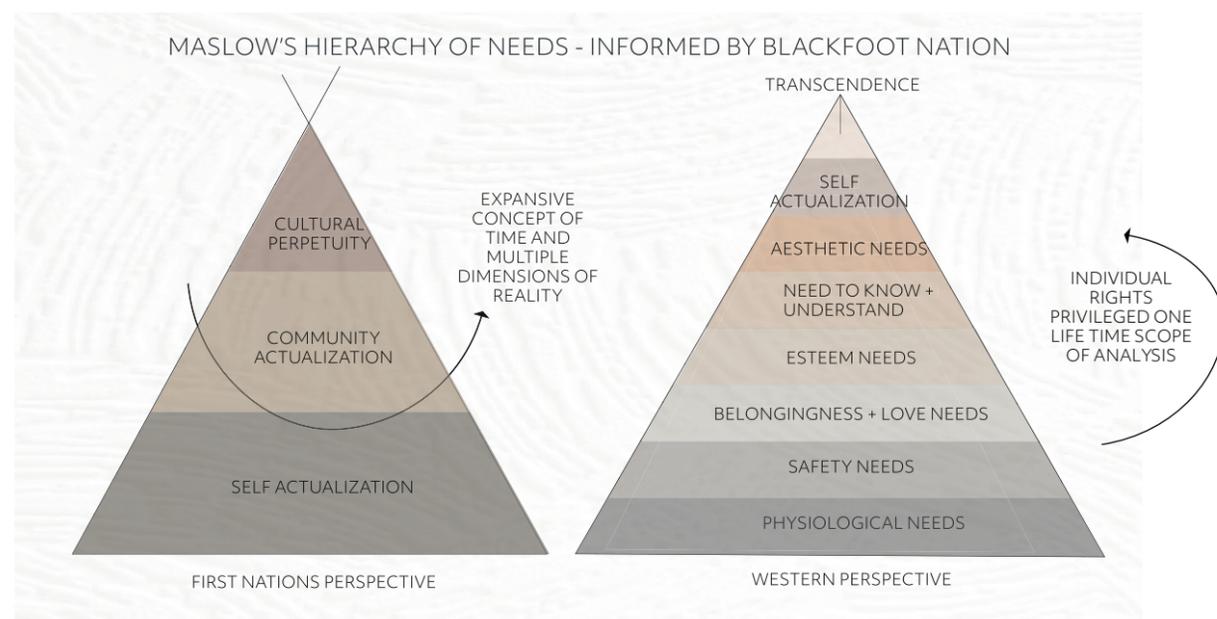
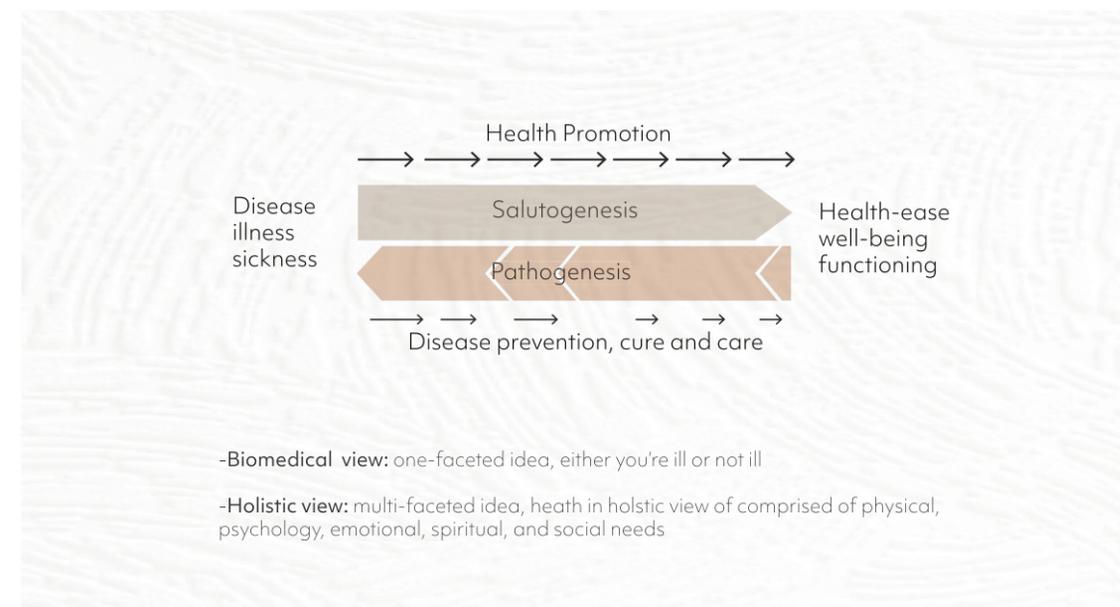
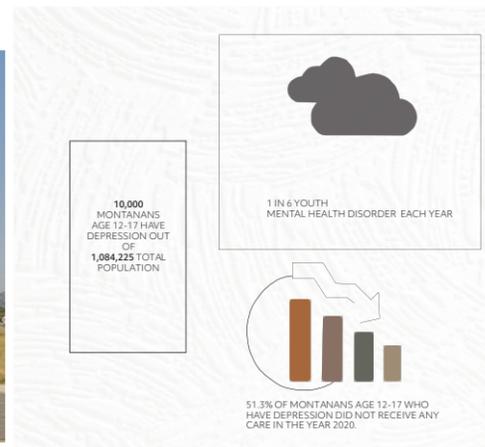


SOUTH ELEVATION

## History of Helena, MT

"In Montana, there's a stigma around the old cowboys and how tough they were; you pull up your bootstraps and get over yourself. Today it manifests itself in how people, address their mental health."

- CEO Dennis Sulser, Ed. D.



- The Helena, Montana area has been inhabited for around 12,000 years it became a "transitional zone" through which tribes like the Pikuni-Blackfeet, Salish, Crow, and Bannock passed on a regular basis.

- Native American tribes, such as the Blackfeet, have regarded plants to be important in determining in having an important role in the Blackfeet culture and identity as remedies therapeutic value of plants that the Blackfeet people had used for medical purposes for years



Montana Native Plants



SILVER SAGEBRUSH



YUCCA



MALLOW NINEBARK



RABBITBRUSH



SILVER BUFFALOBERRY



BIG BASIN SAGEBRUSH



Mental Health + WELL Building Standard

Form

-Form is founded by the flower arnica mollis



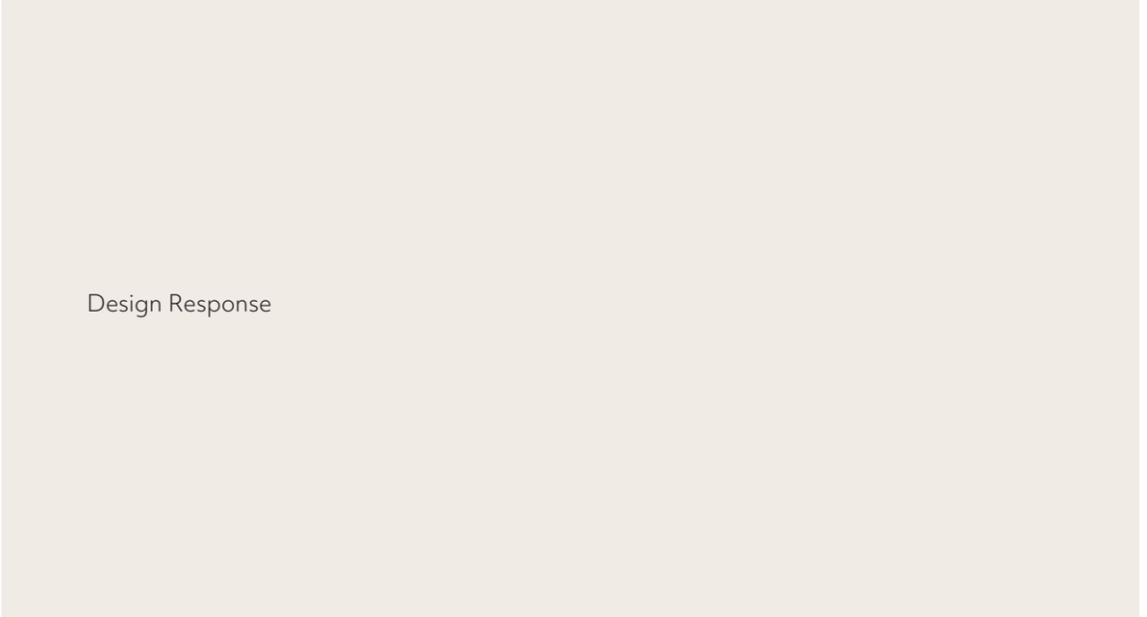
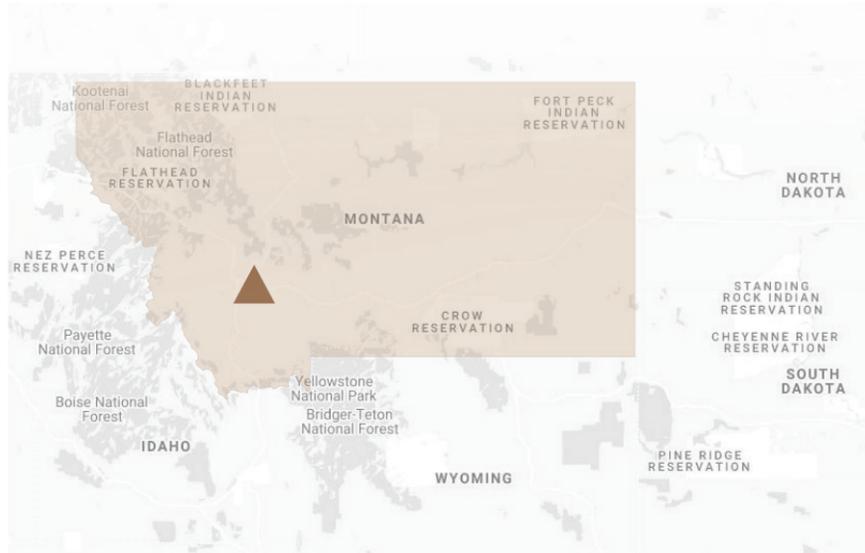
WELL Building Certification, the world's first certification completely focused on such concerns as health and well-being, was created in response to a growing interest in human health and well-being.

According to Carolyn Rickard-Brideau, AIA, LEED AP BD+C, WELL AP, whom is at the forefront of salutogenic design; mechanisms such as the WELL Building Standard, which highlights not just industry-standard features such as air, water, and light, but also program elements such as comfort, nourishment, fitness, and mind





### Helena, MT



Program:

The design is a psychiatric rehabilitation center for children. It will consist of a short or long-term stay, educational, and therapeutic spaces for children to regain their mental health and thrive. Emphasizing holistic approach to architecture in mind. Implementing natural elements to allow patients to connect with nature while healing.

Goals:

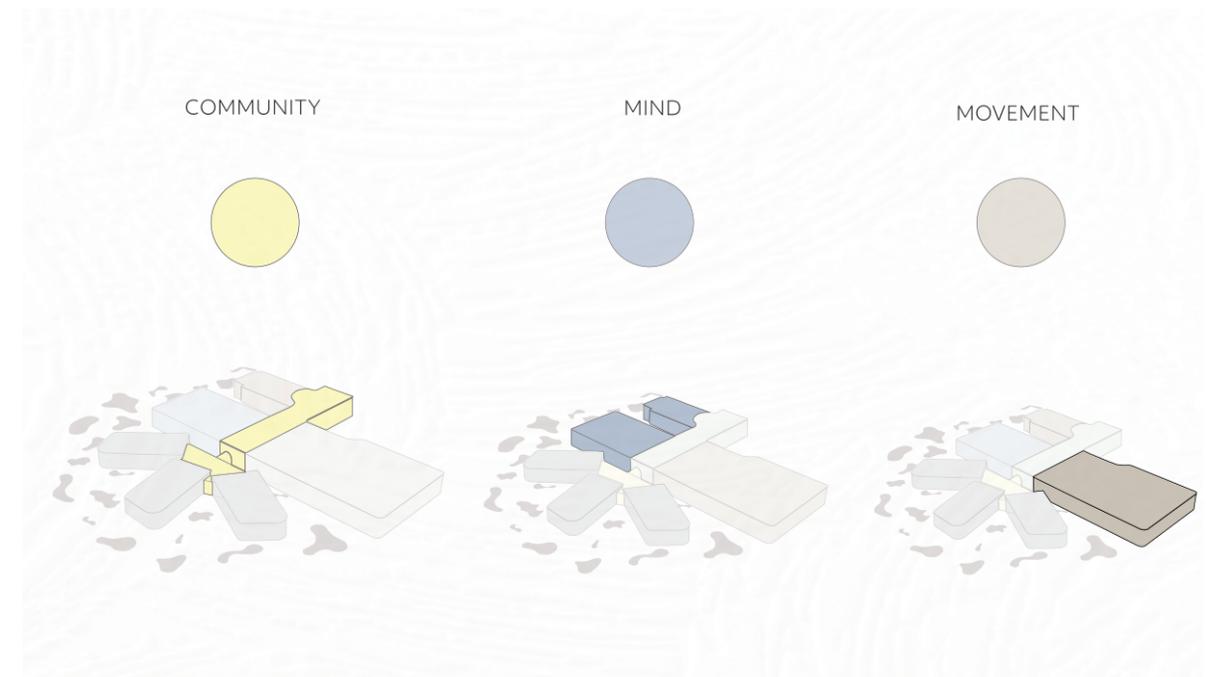
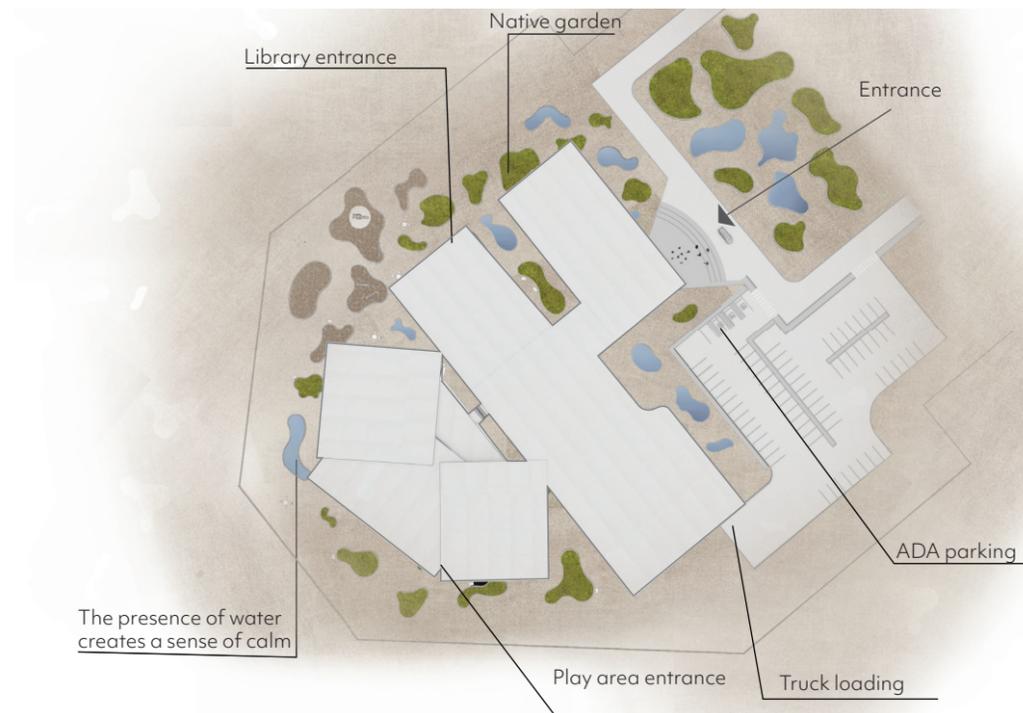
- 2. Implement WELL V2 Standard
- 4. Connect + engage with the community while ensuring supportive + inclusive atmosphere space for youth
- 6. Arrangement of spaces that encourages independence

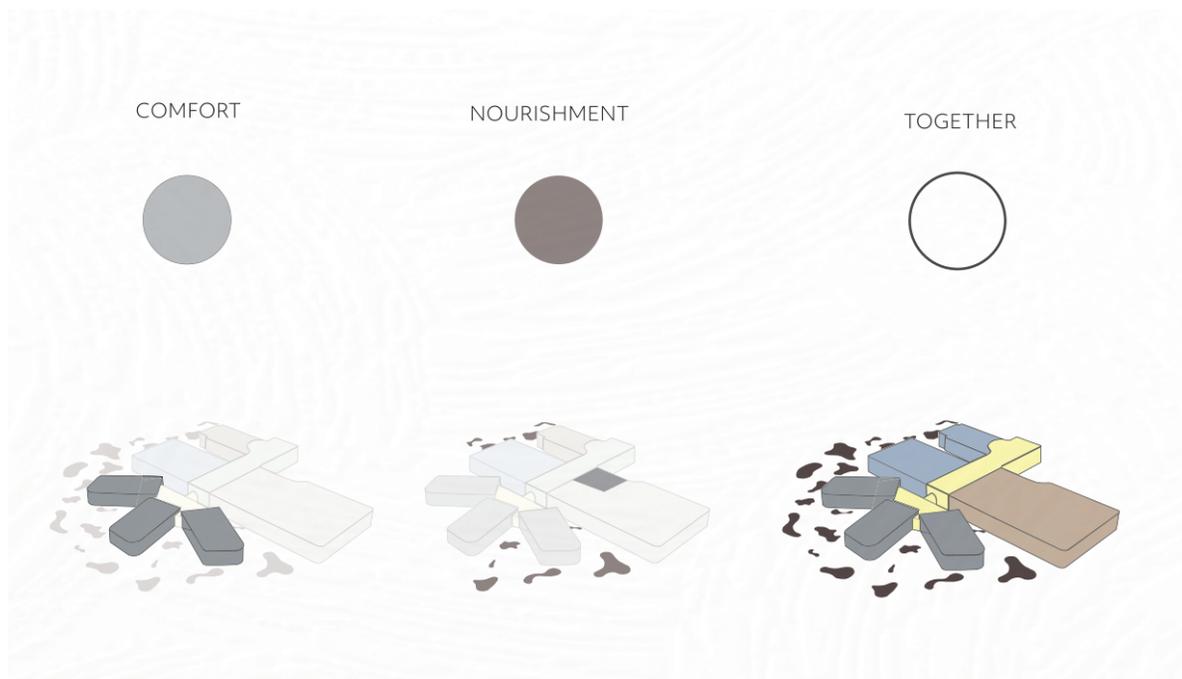


WELL Standard

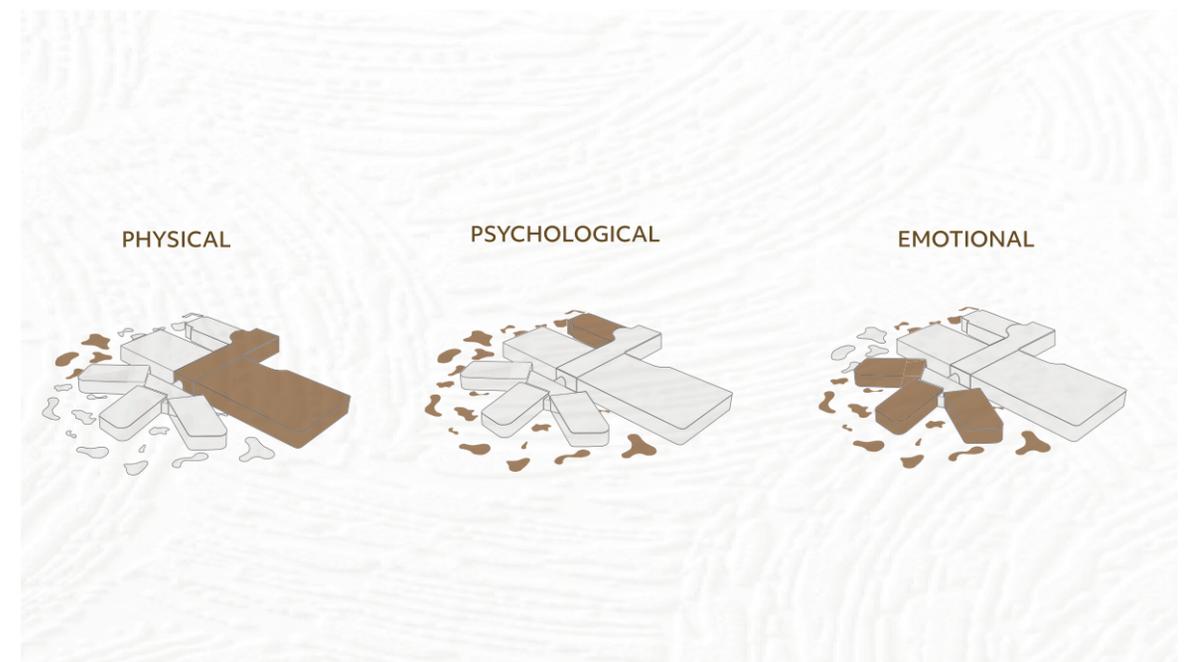
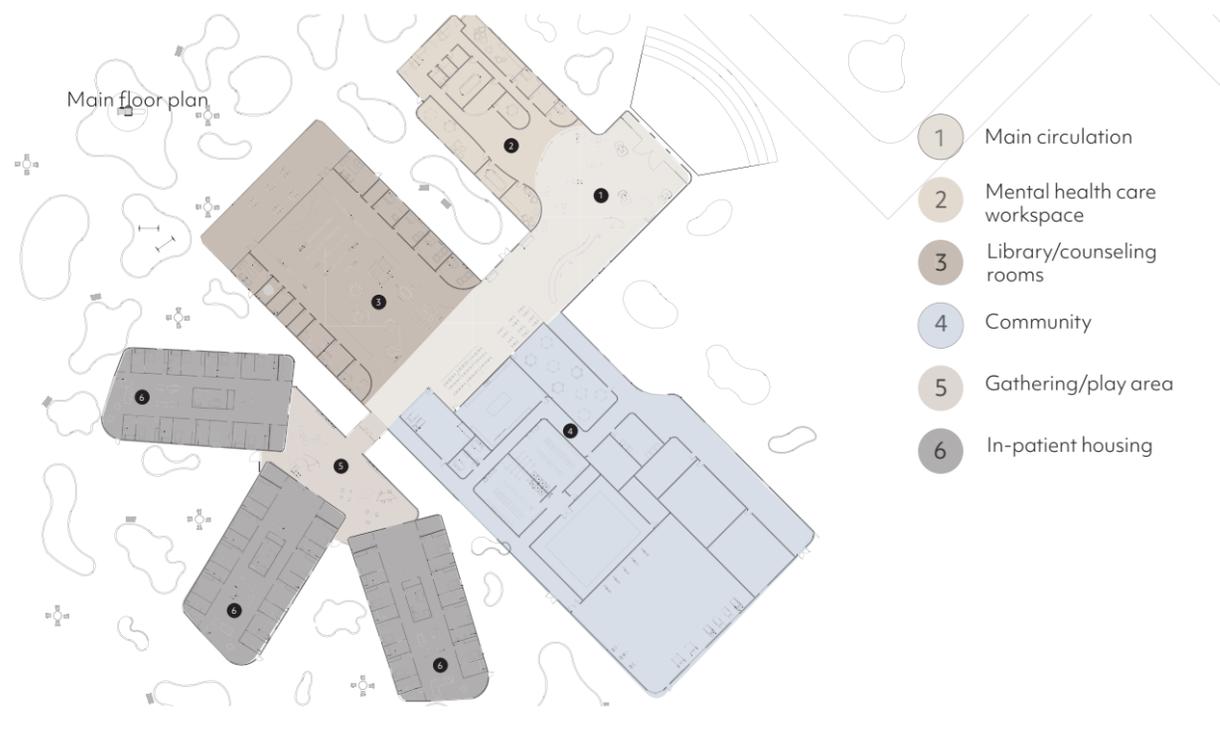


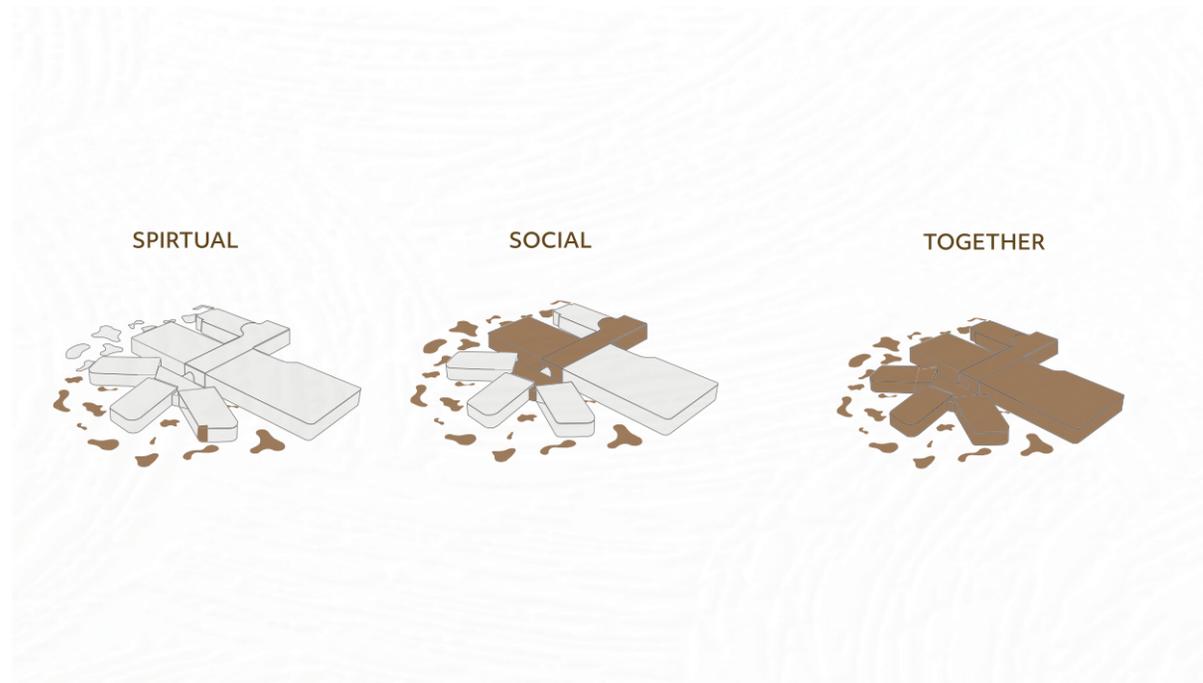
Site Plan



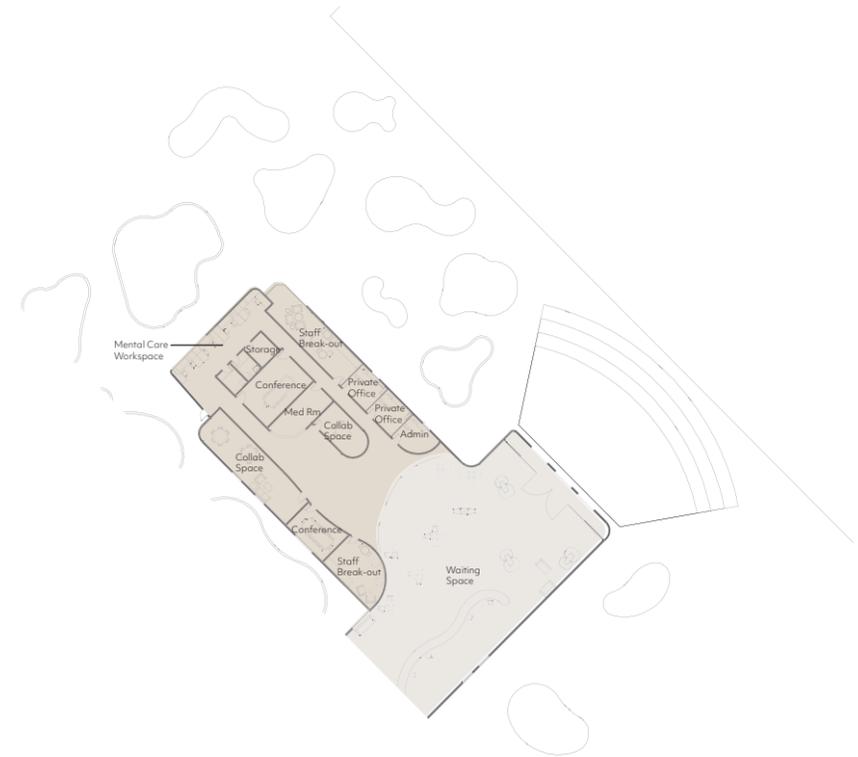


FIVE CHARACTERISTICS OF HEALTH AND WELLNESS IN THE HOLSTIC VIEW

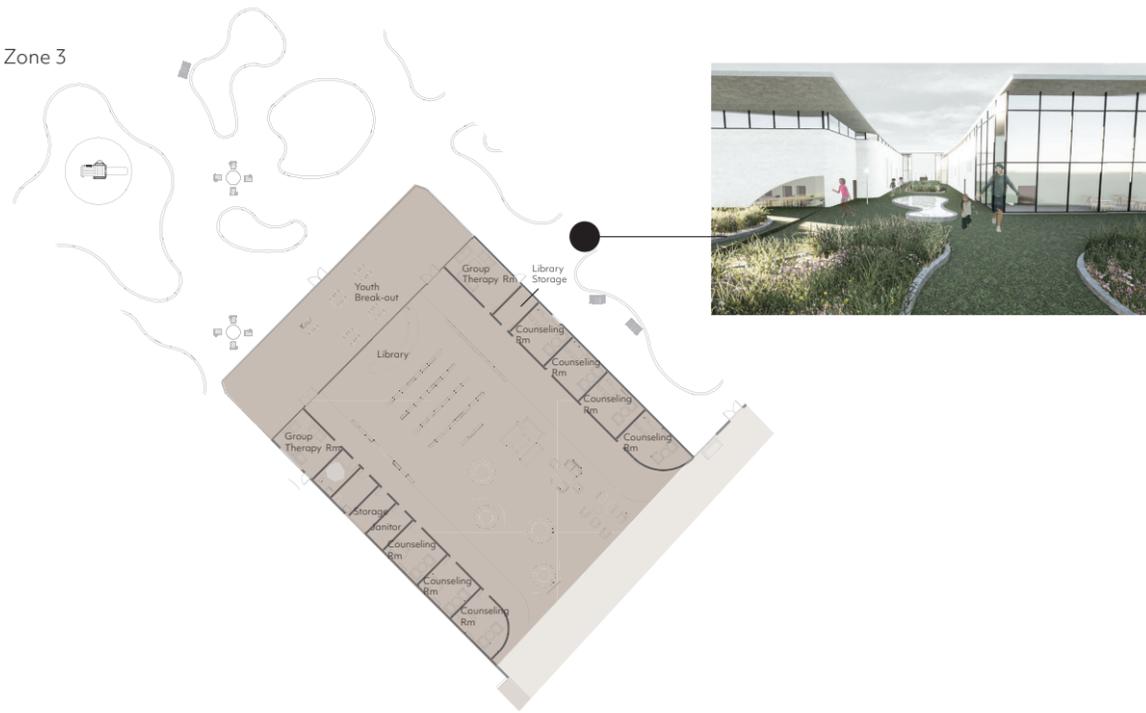




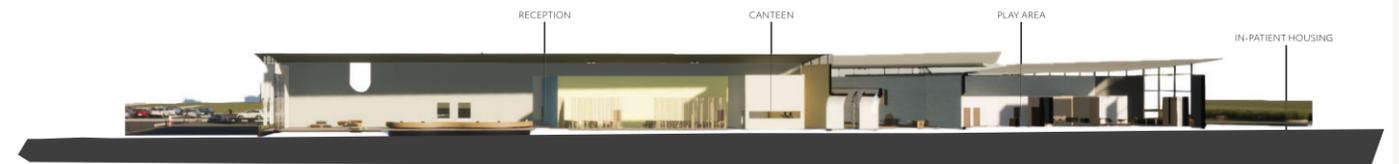
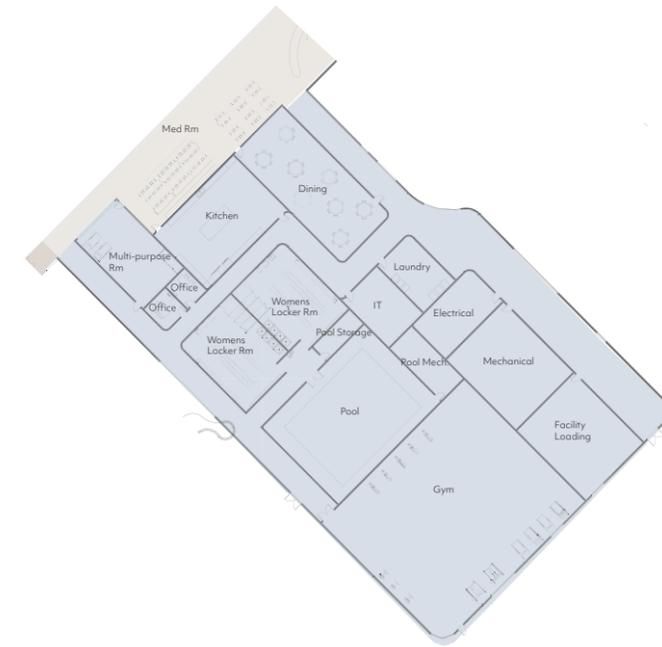
Zone 1 + 2



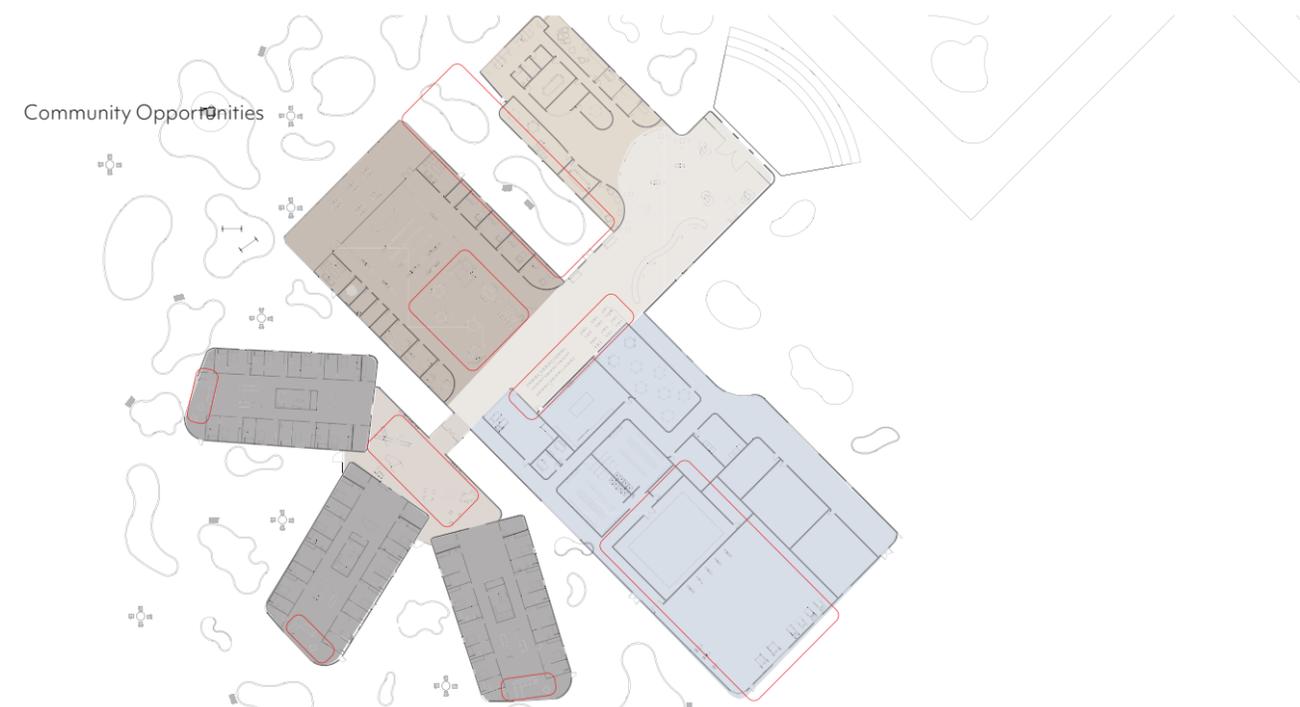
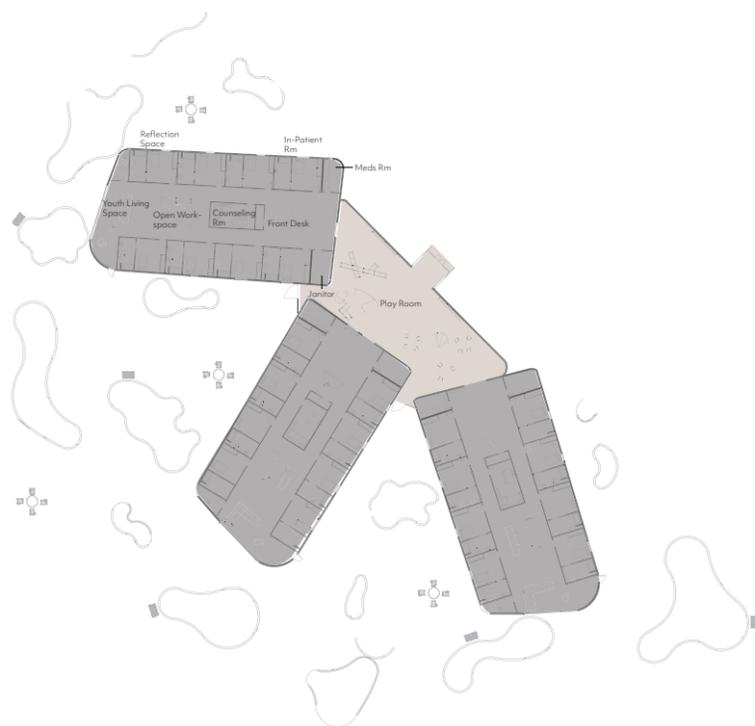
Zone 3



Zone 4



Zone 5 + 6





# PROJECT INSTALLATION

## PLEASE FEEL INVITED: CHILDREN'S PSYCHIATRIC REHABILITATION USING SALUTOGENIC DESIGN

A safe space is an environment in which a person feels confident that they will not be exposed to harm, a place where people feel heard. The feeling of safety and security are integral to the feeling of health. Part of holistic wellness is mental health and the diagnosis of mental illness is on the rise. Common mental illnesses can affect the states of psychological well-being, resulting in a variety of difficulties that affect a person's daily life. These psychological disorders can affect anyone, regardless of sociocultural background, but especially children. Architects and designers should evolve in tandem with societal patterns to address the basic need for health. The Salutogenic Design approach is described as a strategy that supports health and well-being. Aaron Antonovsky, a medical sociologist, was the first to coin the term salutogenesis. In the 1980s, he examined the question of "what creates health?" Equally important, among the leading figures in salutogenic design is Carolyn Rickard-Brideau, who uses the WELL Building Standard to create spaces for health. This research and design project demonstrates how, in addition to WELL building standards, salutogenic design may positively address overall community health but particularly youths' mental health needs.

**FIVE CHARACTERISTICS OF HEALTH AND WELLNESS IN THE HOLISTIC VIEW**

**PHYSICAL:** Spaces that allow easy movement and play while creating opportunities for different health, fitness, and well-being goals.

**PSYCHOLOGICAL:** Spaces that offer learning and play, as well as opportunities for different health, fitness, and well-being goals.

**EMOTIONAL:** Spaces that offer reflection, perspective, and vulnerability, where health care is encouraged.

**SPIRITUAL:** Spaces that allow people to connect with nature. Offering a gateway to nature is crucial to feeling and providing a restorative environment.

**SOCIAL:** Spaces that allow communities to come together. There are opportunities for both small and large scale.

**MASLOW'S HIERARCHY OF NEEDS - INFORMED BY BLACKFOOT NATION**

**PHYSICAL NEEDS:** COMMUNITY SUSTAINABILITY, HEALTH AND WELL-BEING, SAFETY NEEDS, PHYSIOLOGICAL NEEDS.

**EMOTIONAL NEEDS:** TRANSCENDENCE, AESTHETIC NEEDS, INDIVIDUAL WELL-BEING, NEED FOR UNDERSTANDING, EXTREM NEEDS, COMMUNITARIAN + LOVE NEEDS.

**WELL STANDARD**

By implementing the WELL Building Standard (WELL) in public spaces, buildings, organizations can create thoughtful and meaningful spaces that enhance human health and well-being.

**MOVEMENT:** All aspects of daily living are closely linked to movement. We now know that all movement is beneficial to our health, and that physical activity may be collected in a number of ways throughout the day. The design is aimed to promote movement, physical exercise and active living.

**MIND:** The design optimizes mental health by addressing the various aspects of our thinking, cognitive and emotional well-being through programming and design solutions.

**COMMUNITY:** The design intends to create spaces to build healthy communities that offer to the responsibility of a system's operation, and create an inclusive, well-used building area with public and general public, may be done in a number of ways.

**COMFORT:** Designed to create interior surroundings that are distraction-free, productive, and pleasant. Each person will have their own personal space.

**NOURISHMENT:** The development of food ecosystems is fostered by using materials that are locally sourced, organic, and healthy. Well-designed building areas with tables and water, as well as the availability of daily lunch breaks.

**Color, according to artists and designers, is a powerful communication tool for conveying emotions, psychological and physiological responses.**

**RECEPTION** **COURTYARD** **PLAY AREA** **IN-PATIENT HOUSING**



## THESIS APPENDIX

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## PREVIOUS DESIGN EXPERIENCE

### 2nd Year: Darryl Booker + Cindy Urness

Fall Semester:  
Meditation Space | Fargo, ND  
Boat House | Fargo, ND

Spring Semester:  
Birdhouse | Fargo, ND  
Dwelling | Marfa, TX  
Mixed- Use Building | Fargo, ND

### 3rd Year: Bakr Aly Ahmed + Regin Schwaen

Fall Semester:  
21st Century House | Fargo, ND  
Mixed-Use Building | Fargo, ND

Spring Semester:  
Art Museum | Nekoma, ND  
Visitor Center | Indian Creek

### 4th Year: Amar Hussein

Fall Semester:  
Highrise Capstone | Miami, FL

Spring Semester:  
Marvin Windows Competition | Fargo, ND  
Urban Design | Indian Creek, FL

### 5th Year: Bakr Aly Ahmed + Jennifer Brandel

Fall Semester:  
Educational Learning Park | Taos, NM

Spring Semester:  
Graduate Thesis Project | Helena, Montana



Eva Taylor