

MindHealing Center

a place for alleviating depression



Prashanta Singh

“Mind Healing Center”

A place for alleviating depression

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

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

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Mind Healing Center

“A Place for Alleviating Depression”

Prashanta Singh

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Table of Contents:

1.	Statement of Intent	9
1.	1. Thesis Abstract	10
	2. Problem Statement, Claim	11
	3. Premises, Theoretical Premises, Project Justification	12
	4. Personal Identification	13
	5. References	14
2.	Proposal	13
1.	1. Narrative	14
2.	2. User Client Deescription	15
3.	3. Major Project Elements	16
4.	4. Site Information	19
5.	5. Project Emphasis / Plan for Proceeding	20
6.	6. Scheduling	22
7.	7. Previous Studio Experience	24
3.	Program Document	29
1.	1. Unifying Idea	31
2.	2. Color	32
3.	3. Design	33
4.	4. Case Study: DjavaMowafaghian Center for Brain Health	36
5.	5. Case Study: Ronald Regan UCLA Medical Center	40
6.	6. Case Study: Children's Center for Psychiatric Care	42
7.	7. Historical Context	46
8.	8. Goals	48
9.	9. Climate	54
10.	10. Program	60
4.	Design	74
1.	1. Plans	74
2.	2. HVAC System	75
3.	3. Structure	76
4.	4. Sections and Elevations	77
5.	5. Details	78
6.	6. External Perspectives	80
7.	7. Internal Perspectives	81
8.	8. Models	83

Tables

Figures:

Figure 2.1. North Dakota. University of Texas Libraries	19
Figure 2.2. Fargo. State Map Online	19
Figure 2.3. Fargo Site. Google Earth Image	19
Figure 2.4. View from park to site. Taken Sep. 29, 2012	20
Figure 2.5. North West View. Taken Sep. 29, 2012	20
Figure 2.6. North View. Taken Sep. 29, 2012	20
Figure 2.7. North East. Taken Sep. 29, 2012	20
Figure 2.8. South East. Taken Sep. 29, 2012	20
Figure 3.1 DjavaMoawfahian Centre for Brain Health aerial perspective.....	36
Figure 3.2 additive subtractive	36
Figure 3.3 Circulation to use	36
Figure 3.4 Hierarchy	36
Figure 3.5 Parti	36
Figure 3.6 Symmetry and balance	37
Figure 3.7 Structure	37
Figure 3.8 Natural Light	37
Figure 3.9 Massing	37
Figure 3.10 Plan	37
Figure 3.11 Internal Perspective	38
Figure 3.12 Floor Layout of DjavaMoawfahian Center	39
Figure 4.1 Symmetry and Balance	40
Figure 4.2 Structrue	40
Figure 4.3 Repetitive to unique	40
Figure 4.4 Parti	40
Figure 4.5 Massing	40
Figure 4.6 Hierarchy	40
Figure 4.7 Circulation to use	40
Figure 4.8 Additive Subtractive	40
Figure 4.9 Plan	41
Figure 4.10 Ronald Regan Medical Center Internal View	41
Figure 5.1 Children's Center	42
Figure 5.2 Strucuture	42
Figure 5.3 Unit to whole	42
Figure 5.4 Plant to Section	42
Figure 5.5 Plan	42
Figure 5.6 Circulation to use	43
Figure 5.7 Additive Subtractive	43
Figure 5.8 Parti	43
Figure 5.9 Massing	43
Figure 5.10 Natural Light	43
Figure 5.11 Hierarchy	43
Figure 5.12 Hidden and open spaces	44
Figure 5.13 Alcoves	45

Figure 6.1 Old Fargo	46
Figure 6.2 Damaged by fire	46
Figure 7.1. Average Temperatures	54
Figure 7.2 Wind Speeds	55
Figure 7.3 Wind Rose	55
Figure 7.4 Snowfall	56
Figure 7.5 Cloudy Days	56
Figure 7.6 Precipitation	57
Figure 7.7 Humidity	57
Figure 7.8 Solar Chart of Fargo	58
Figure 7.9 Topographic map	59
Figure 8.1 Program Matrix	61
Figure 9.1 First Floor Plan	74
Figure 9.2 Ground Floor Plan	74
Figure 9.3 Underground Plan	74
Figure 9.4 First Floor Airflow System	75
Figure 9.5 First Floor Heating System	75
Figure 9.6 Ground Floor Airflow System	75
Figure 9.7 Ground Floor Heating System	75
Figure 9.8 Structure Plan	76
Figure 9.9 Structure Diagram	76
Figure 9.10 Sectional Perspective	77
Figure 9.11 South Elevation	77
Figure 9.12 North Elevation	77
Figure 9.13 Brick over CMU Wall Detail	78
Figure 9.14 Curving Wall Detail	79
Figure 9.15 Circular Window Detail	79
Figure 9.16 Corner View from Island Park	80
Figure 9.17 View from Pool Area towards the main building	80
Figure 9.18 Sun Room	81
Figure 9.19 Garden	81
Figure 9.20 Entry	81
Figure 9.21 Activity Room	82
Figure 9.22 Bedroom	82
Figure 9.23 Context Model	83
Figure 9.24 Structure Model	83



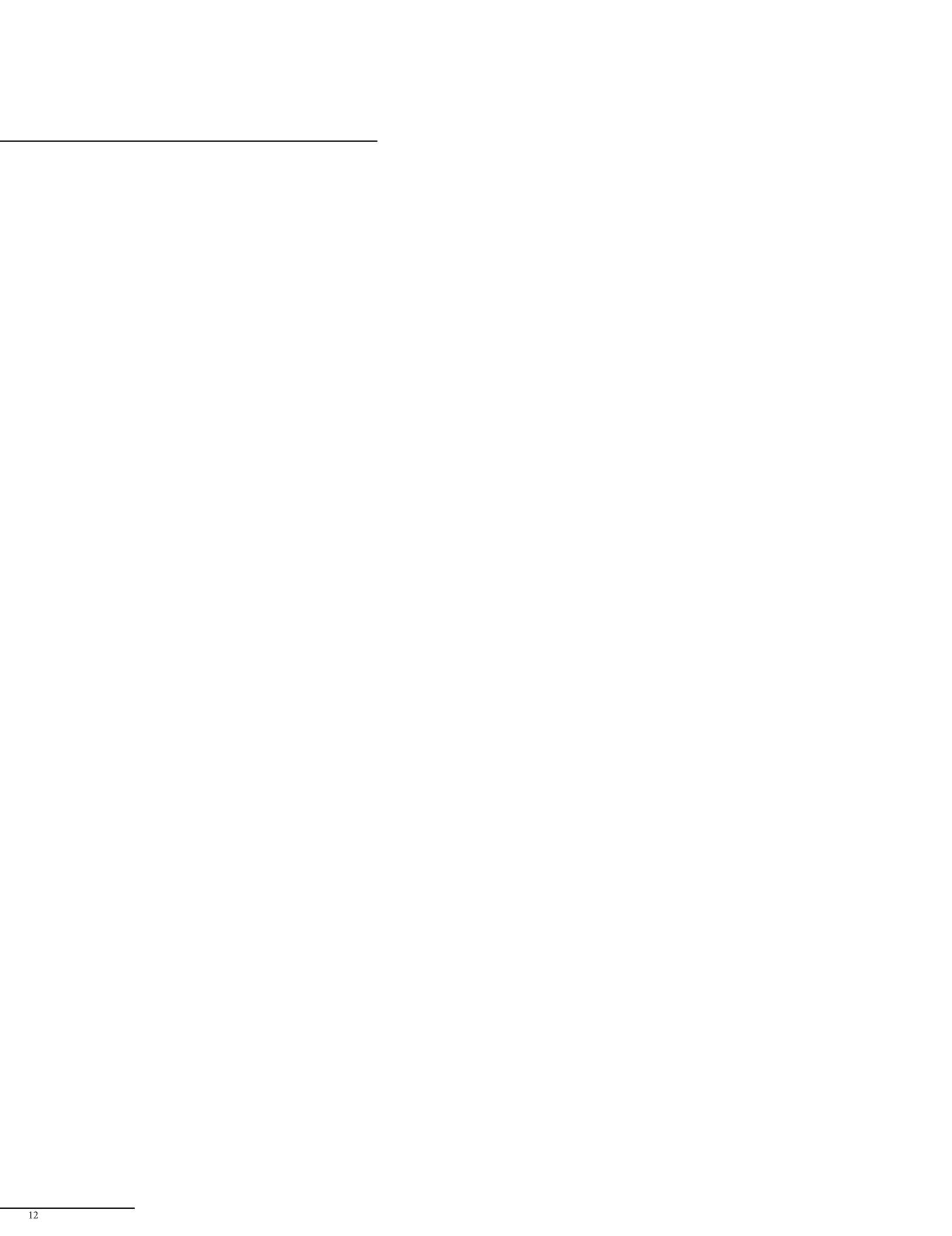
Thesis Abstract

Architectural details, can brighten the mood of a person. A healing design might shower a clearer method of refreshing the minds of clients. The quality of the spaces would magnify importance on selection of color, texture, symbols, and even the placement of doors and planters.

The design will be a rehabilitation center for patients with depression. It will be located next to existing Prairie St. John's hospital in Fargo, ND, next to the island park. I will use secondary research method to analyze and get information about the design criteria. The main idea behind my project is that healing can be achieved through architecture.



Statement of Intent



Problem Statement

How does perception of place evoke uplifting mood within an architectural setting?

Claim

The mood uplifting elements are key to bring about a positive change in human mind through touch, smell, sight and interaction inside an architectural design:

The Actor(s):

Mood uplifting elements

The Action:

Positive Change

The object (acted upon):

Human mind

Manner of action:

Touch

Smell

Sight

Interaction

Project Typology

Psychiatric wards are typically areas of hospital where people need to feel uplifted and cared for. The unstable mind can sometimes be soothed and healed by evoking positive feelings through architecture and its elements.

Premises

“Psychologists tell us that mental health is a product of genetic, metabolic, behavioral, and environmental influences.”

Aroma, paint, forms and space have positive or negative influences through sensory input into the human mind.

The sensory organs in human give chemical feedback which in turn gets to the human mind, creating brain wave patterns, which could be uplifting in nature.

The brainwave patterns translate into human emotions of anger, disgust, fear, happiness, sadness and surprise.

The emotions are therefore set in certain pre-programmed state which can be reinvigorated by sensing of select elements.

Theoretical Premise/ Unifying Idea

I will design a clinical mental health rehabilitation facility adjacent to the existing Prairie St. John's Hospital in Fargo, ND that explores the potential of architecture to contribute to a healing environment for patients of all ages experiencing depression.

Project Justification

Architecture that can bring select emotions is necessary for more distressing of minds. Emotions in the mind are essential in keeping people uplifted in unfavorable situations in which they are drenched. Softer tones of color, form, light, and textures will be prime focus of research in trying to find the ideal situations for the mind to be healed. Natural light, no matter how difficult it is to bring in, will be considered after a bit of research on its healing purposes. The setting most appropriate would be next to a park where the person will feel like they are not going to a mental facility but healing facility, next to a nice park.

Proposal



Proposal

Who does the architecture influence the most in terms of mental harmony? Surprisingly, persons with psychiatric problems were the ones affected the most in a clinical rehabilitation setting.

The thesis will gather and explore known information on the elements that create an architectural space soothing for the minds, with lot of thought to the people working there as well. Some would be suicidal, some scared, some in heightened anxiety that is not even under their own control. The only solace they can find would be on the people who help them and the environment they are in. The amount of outside time might become too less in these kinds of facilities too, making a more prison environment than anything else. The nurses are the ones who will be impacted a lot as well due to this. The architecture of the place would be one of their anchors on the work environment to which they can relate to. Thus it should fulfill their needs as well.

The architecture can contribute to the healing process of depressive people in need of help. This part is what I want to develop for them and their care takers.

A mental health treatment facility for clinically depressed outpatients will be proposed in relationship to the Prairie St. John's Hospital complex in Fargo, ND. The architectural design will be developed as a satellite facility within the residential neighbourhood to the south. The architectural solution will explore and express sensory and experimental impacts of space upon the treatment regime that attempts to address genetic predisposition, metabolic factors, behavioral and cognitive theories in addition to environmental variables. A variety of interior and landscape spatial conditions will be explored in terms of their potential impact on rehabilitation and treatment of depressive inpatients.

User/Client Descriptions

Patients ~30

The project will be firstly be for inpatients of the hospital, i.e. the clients who are in need of psychiatric care. The requirements of the patients would be the limiting factor in the design. Their need for wheelchair access, mental lows and ups, smell or anything that they can sense or see outside must be addressed. There would be at least 15 men and 15 women patients. They will not have any parking requirements.

Nurses ~16

The doctors, nurses, and other staff would require private rooms for interviews without external influences. They would however require some outside visions for their mental health too. The patients are usually there overnight staying for weeks, thus requiring food and lodging areas. These spaces will require to be multi-use for the patients require mental activities and creative work during the day.

Doctors ~8

There will be mental health doctors and skilled counselors available during certain periods of time but they will present their inner thoughts in group sessions. They will require an office for files.

Major Project Elements

Living

The major room where people gather and talk about their problems in a more casual form with people they have come to know during their stay in the hospital. These patient to patient talks are part of the healing process where the act of sharing uplifts them. This space must give a warmth and positive vibe.

The Garden

The garden is one space dedicated to the process of connecting with the nature. The patients will come in after long hours of being indoors without much view from the outside, because outside world distracts and has a ever changing amount of light, the sun. Patients might even think they see some person outside that they associate with a depressing memory. Even the setting sun could trigger sadness. Thus these gardens should be safe and secured and yet not feel like its walled from the outside world. It should give them the feeling of being outside being one to one with nature, which has potential to heal too.

Therapy Room

These rooms require to be the most healing. The space needs to be identifiable so that they can refer back to their memories and be healed even by the mere visitation of the memory. To set such warm and yet healing tone the space needs natural or artificial lighting. The space will need to uplift as well as become motherly at the same time whose face you can remember in troubled times.

The Bedrooms

The bedrooms need to be separated into different wings for men and women. They need to be brightly colored but not lit brightly. Only the sunlight in the morning should have some appearance into it.

Counter and the Supply-room

The supplies for the patients like bedrolls and pillows need to be stored behind Counter if possible where they first come to ask for the help.

The medicine room and check up

The medicine room needs to be protected. It needs to be dry and out of reach of solar radiation. The check up room / space should be next to it if possible for easier flow of movement form medicine to check up to bed. If possible the medicine room needs to be attached to the counter area so that everything the nurses do can be behind the scene and not too obstructive to the flow of activities for the patients.

Meeting Rooms

These are rooms where the doctor and patient talk about their disability. These need to be accessible through the Gathering room and be medium to small scale so that the doctor actually feels closer, reflecting that he or she cares

about the things the patient has to say.

The bathrooms

The bathrooms need to be wheelchair accessible. Bathrooms will need to be cheerful.

Offices

There will be offices for the doctors to maintain files on patients. They need ample light and access to the meeting rooms.

Visitor Room

This room needs to be sound insulated and have additional features to make it feel both homelike and private/personal. It will see 3-4 people at most at any given time.

Site Information

The design site location is in Fargo, North Dakota. The mid-western region is agriculture based and has lots of potential for growth. The state of North Dakota is recently seen economic improvement due to the oil bloom on it's western region. Fargo is a city on the edge of the State right next to Moorhead City. The site is recently acquired by the hospital for use as a research facility.



The project site is located next to a park, island park, and is just south of a major mental health facility. It is slightly not in contact with the park, yet has access to it which helps create visual reference yet isolation of immediate contact.

Figure 2.1. North Dakota. Retrieved Sep. 01, 2012 from University of Texas Libraries



Figure 2.2. Fargo. Retrieved Sep. 01, 2012 from State Maps Online



Figure 2.3. Fargo Site near Island Park. Retrieved Sep. 01, 2012 from Google Earth



Figure 2.4. View from park to the site. Taken Sep. 29, 2012



Figure 2.5. North West View. Taken Sep. 29, 2012



Figure 2.6. North View. Taken Sep. 29, 2012



Figure 2.7. North East. Taken Sep. 29, 2012



Figure 2.8. South East. Taken Sep. 29, 2012

Project Emphasis

The architecture will facilitate in providing soothing space for the bipolar, mania and other extreme cases that will be affected by the environment.

The primary design focus will be on the architectural details that makes up the environment. Plants, light, forms, and color will be the four major elements that will be research upon. There will also be focus on the seamless integration of the existing building to the new designed building.

A Plan for Proceeding

There will be a through plan with all the elements shown below to ensure that the quality of work is maintained throughout the project phase.

Research Direction

I will first conduct research on the types of mental illnesses that require the need of care from the environment. I will procure qualitative and quantitative analysis on the journals and research that has been done on effects by the environment on those mental states.

Design Methodology

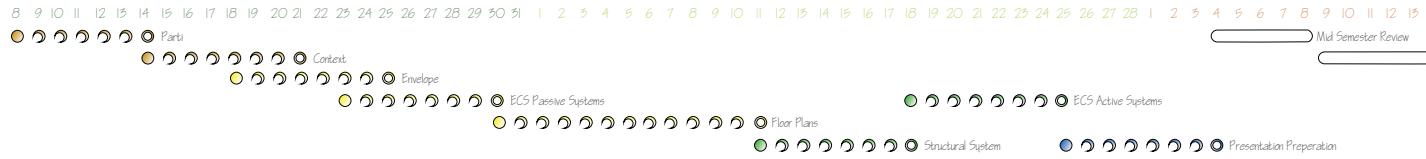
There will be weekly readings on the scientific journals forwarded on the scientific design issue being explored architecturally that week. There will be quantitative analysis conducted on the scientific data. There will be qualitative analysis conducted through interviews, archives, and case study visits.

The research will be analyzed and implemented in design. The lighting quality will be changed to the brightness brought forth by the research. The color restrictions will be acknowledged and implemented in the interiors. Plant types will be provided and given specific place where they can be grown inside according to the healing properties they have. The forms will be changed if found to be harmful in any way. All safety measures will be taken according to the research for designing such a facility. These design changes will be carried out throughout the design process till the final stages of design.

Documentation of the Design Process

I will discuss changes made on the design itself in my documentation.

Schedule



8 9 10 II 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 I 2 3 4 5 6 7 8 9 10 II 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 I 2 3 4 5 6 7 8 9 10 II 12 13

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | 1 2 3 4 5 6 7 8 9 10 || 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Spring Break

● ○ ○ ○ ○ ○ ○ ○ ○ Project Redevelopment
● ○ ○ ○ ○ ○ ○ ○ ○ Structural Redevelopment
● ○ ○ ○ ○ ○ ○ ○ ○ Contextual Redevelopment

● ○ ○ ○ ○ ○ ○ ○ ○ Renderings
● ○ ○ ○ ○ ○ ○ ○ ○ Presentation Layout
● ○ ○ ○ ○ ○ ○ ○ ○ Model and Plotting
● ○ ○ ○ ○ ○ ○ ○ ○ CD Due
● ○ ○ ○ ○ ○ ○ ○ ○ All Exhibits Due

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | 1 2 3 4 5 6 7 8 9 10 || 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Previous Studio Experience

Bachelors of Science Program

Second Year Design Studio

Fall 2009 Instructor: Heather Fisher
Tea House Project
Boathouse Project

Spring 2010 Instructor: Stephen Wisher
Twin House Project
Hector Airport Expansion Project

Third Year Design Studio

Fall 2010 Instructor: Milt Yergens
Churchill Manitoba Museum Project
Freemason Lodge Project

Spring 2011 Instructor: Ronald Ramsay
Chicago Consulate
Shaker Barn Restoration Project

Fourth Year Design Studio

Fall 2011 Instructor: Frank Kratky
KKE
Sustainable High-rise Project

Spring 2012 Instructor: Don Faulkner / Frank Kratky
Marvin Windows
Kindred Urban Design

Master of Architecture Program

Fifth Year Design Studio
Fall 2012 Instructor: Paul Glye
Urban Redesign



Program Document



BACKGROUND RESEARCH

What is Clinical Depression?

Clinical depression is a medical illness that affects the way a person feels about the world and everything in it. The person has prolonged periods of sadness in which one cannot feel the same about the things one used to like. The person cannot just outgrow from the depression through sheer willpower too. It takes hold of life and brings it down slowly until you reach the point where suicide becomes a choice they think about. It can effect the person's body, mood thought and behavior according to Tang center at UC Berkeley's website. The treatment through medication helps to alleviate from depression.

Types of Depression

There are three different types of depression according to Tang center at UC Berkley website:

Major Depression

It is a combination of the symptoms that lead to interference in work, sleep, eat and activities.

Dysthymia

It is a long term depression of lesser degree which keeps people from functioning at their full capabilities.

Bipolar Disorder

It is a periodic depression that takes place after periods of elated states which are termed mania.

What causes Clinical Depression?

Clinical depression could be caused by combination of genetic, biological, environmental, and psychological factors according to National Institute of Mental Health.

It is believed through brain imaging technological reports that depression lies deep in the brain and is a disorder that can be cured. Some of it is hereditary while some forms are caused by events, or environment that trigger the brain in depression state.

Color

Color has effect on a human being's psyche but a research done on relationship between color sensitivity and mood disorder by Towson University doctors suggest some other possibilities. The research was done on 120 patients with bipolar disorder and unipolar patients. Its results suggests that the patient undergoing depressive state have lower sensitivity to color. While the research also inclines towards a higher insensitivity in inpatient it is not taken as the truth for the sample selection and error are greater there. This color research shows that no matter which color setting I use, it will be useless for them, in the beginning at least. According to Dr. Lind in an interview on September 29, 2012, "patients might not be effected by the environment at the state of depression but once they are out of it, the environment can help in the healing of the person."

So with some chance of healing the people with color, one of the aspects of the environment, I have taken some of the colors and what they evoke:

White

White color has been tested and found to decrease arousal and even sometimes detrimental in the psyche of humans (Dijkstra, Pieterse & Pruyn, 2008). All efforts will be to not include any white elements in the interior or exterior of the design.

Orange

Orange color in the experiment conducted by (Dijkstra, Pieterse & Pruyn, 2008) suggests that it is an arousing color with some levels of healing ability. Although the higher level of arousal in their experiment seemed to go against their need for it, it would be the best color to input in depressive patients for uplifting mood.

Green

Green again in (Dijkstra, Pieterse & Pruyn, 2008), suggests to be less stressful than white and orange a bit. The color seems to be useful in healing environment. I need to use this in the group discussion rooms where people need more nature's green color.

Design Suggestions

The following suggestions were collected by E.R.CM. Huisman, E. Morales, J. Vanhoof. H.S.M. Kort, in their article “Outcomes of Healthcare design.” I have sought to use as much of it as reference since it is a collective summary of several articles written on mental health design.

Identical rooms:

According to Huisman, et al. the reduction of human error is critical in healthcare. Having similar rooms makes it easier for people who clean it to make it a formula and do it best in each and every room. Also, natural lighting and electrical lightings are needed to be in every corner so that human error is reduced even more.

Lighting:

The use of lighting affects the ability to gain information and act on it, which in turn effects the error levels. According to the article, 58% of all medication errors occurred on the first quarter of the year, which is really winter and there is less natural light to go with. Also, an error is more likely to occur in December than in September (Huisman, et al). In order to make this better I will have to design secondary lighting systems on top of the natural lighting areas so that there is always a consistent amount of light on the pharmacy, as well as some other areas where it might be crucial. A greater powered lighting will have to be used also in such areas with best overall lighting quality.

Increasing Safety and Security:

According to E.R.CM. Huisman, et al. the safety of the patient can be assured better if there were reduced falls, reduced infections, improved hygiene and cleanliness, accessibility and indoor quality.

Reduced falls: The article suggests that the falls occur mostly due to change of the posture, when a patient is trying to get out of bed or going to the restroom. It occurs mostly in patient rooms, near the bed. To help reduce falls I would propose floor that doesn't go slippery even with water added to it. Or there could be rubber or carpet beneath to help reduce the damage from the fall. But there are mixed reviews on the use of carpet so the design decision remains to be taken. The falls also occur 29% of the times in the bathroom, most of it also near it or in the path to it. The reason for this fall is possibly the unavailability of handrails, so I will add them on the sides of the room towards it so that people who might be in need of it can still use it.

Reduced infection rates: The article suggests that the beds and curtains have higher rate of bacteria than the rest of the place. This will have to be easily accessible to be changed. The use of automated sink is more hygienic so it will be used throughout the design. Since tight corners are harder to clean a lot of priority will be given to make the spaces open and easier to access.

Indoor Quality: Better quality of space comes with the best cleaning and control of dust, smell, relative humidity, and air quality. I will create less

sharp edges so that the place can be cleaned easily. The quality of air will have to be controlled through isolating design in HVAC system so that if there is a problem it would not spread to the neighboring site. The smell will have to be controlled through the use of sprays or natural smelling flower, but there might be people who are allergic to pollen, in which case it must be removable. The humidifier will be used in winter due to low humidity here. It will need to be well in the vision of the patient too.

Enhancing Control:

The best way to reduce mental pressure is to let mind do what it wants to do, which give people a sense of control over their surroundings. The article suggests the patient be given control over bed, temperatures, lights and sounds in his/her room.

Privacy:

The privacy of the patients is one of the major factors here, which is not always the case due to design. Overhearing conversation in the reception seems to be a major problem in the hospital designs. To overcome this I will setup water features that will create white noise as well as give visual attraction. The article suggests we use white noise, music or physical barriers. I will try to make use of some barriers if possible as well.

The privacy in the bathrooms for adolescents seems to be one of the primary concerns according to this article. I will make sure that the patients will get private bathrooms in rooms and it's well hidden.

The article suggests solid walls for waiting and private rooms and not even glass walls due to the potential of being too open to others. This will be taken into consideration in the design.

Comfort:

The comfort of the patients is one of the crucial entities in the psychiatric facility.

Materials: The article suggests there are conflicting ideas in using of carpet in hospital setting. The presence of toxicogenic stains of clostridium difficile causes PME pseudomembranous enterocolitis. These organisms are considered to be in the carpets thus use of carpets on the design is not recommended.

Art: Artistic elements like paintings of “psychologically appropriate artwork” have been found to reduce stress and pain. The paintings suggested are usually waterscapes, natural landscapes, flower gardens, and figurative art of positive gestures and facial expressions(E.R.CM. Huisman,et al.). There will be a space dedicated to inclusion of artwork in the design and also sculpture on the reception area.

Summary

Depression can be one of the mental diseases that causes people to live a life of misery. There is very little environment can do at the beginning of the stages when the patients are at the lowest point of depressive condition. They lose the spark from the life and literally start to see the color in a more gray palette. The proposed design will use the colors of orange and green in a mix with other colors which are more played in value so that the room feels more dynamic. The proposed design will assure that there are very little falls in the hospital environment by adding a lot of handrails where they would be required. The floors will be all rubber so that even when a fall occurs it will result in major damage to the patient. Rooms will be designed to be accessible. The needs of the care providers will be well thought out as well. There will be noise reduction as well as white noise near the reception area for better privacy.

Mental stress can be reduced if one gets more control over their surroundings. For this reason patients will have control over the blinds on windows, the humidifiers, the temperature controls and even the lighting of the room.

The comfort of people will be one of the highest priority. The materials will be more warm and friendly textured. There will be special alcoves for paintings well lit for viewing as it seems to give off a positive experience.



Case Studies

Sustainable

Case Study :DjavadMowafaghian Centre for Brain Health

DjavadMowafaghian Centre for Brain Health is located at UBC, in Vancouver, British Columbia in Canada. Its major features include LEED gold certification, patient focused design, and interdisciplinary integration.



Figure 3.1 DjavadMowafaghian Centre for Brain Health aerial perspective

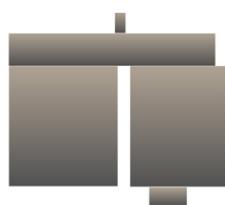


Figure 3.2 additive subtractive

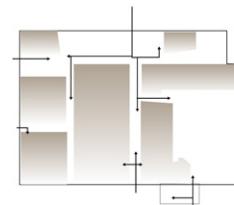


Figure 3.3 circulation to use

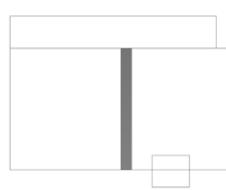


Figure 3.4 Hierarchy

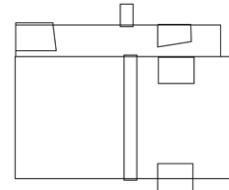


Figure 3.5 parti

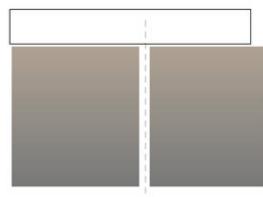


Figure 3.6 symmetry and balance

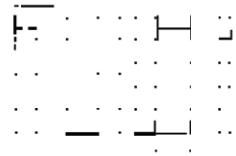


Figure 3.7 structure

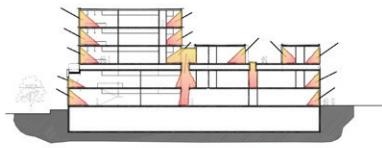


Figure 3.8 natural light

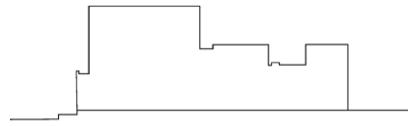


Figure 3.9 massing



Figure 3.10 plan

Analysis

Summary Observations:

The facility includes 134,500 sq. ft. There are exam/consultation rooms, lab benches, a full conference center with auditorium, DNA bank, and MRI capabilities.

The major design decisions include shorter corridors and simpler circulation paths so that mental and physical stress is reduced. There are access to sunlight and gardens giving moments of respite. There are also various spaces for rest within the facility.

The architects Stantech had these following principles while designing this project:

Patient-care centered: The patient is in control of what type of care he or she receives.

Integration: The multi-disciplinary approach to provide services to varied patient population.

Flexibility: The spaces are adaptable and even the resources are flexible to enhance co-operation and better health solutions.

Collaboration: The building tries to create spaces for interdisciplinary associ-

ations, teamwork, knowledge transfer and promotion of best practices.

Sustainability: The building tries its best to be state of the art facility which is LEED Gold Certified.

Research findings:

This design is similar to other case studies in its approach to human mind's stability while it is inside its facility. The mind oriented design seems to be apparent when one experiences the shorter corridors and simple layout. The inclusion of sunlight is another touch to bring in better light quality into the space.

The design is also dissimilar in its function. The building houses research capabilities and even MRI for animals.



Figure 3.11 Internal Perspective

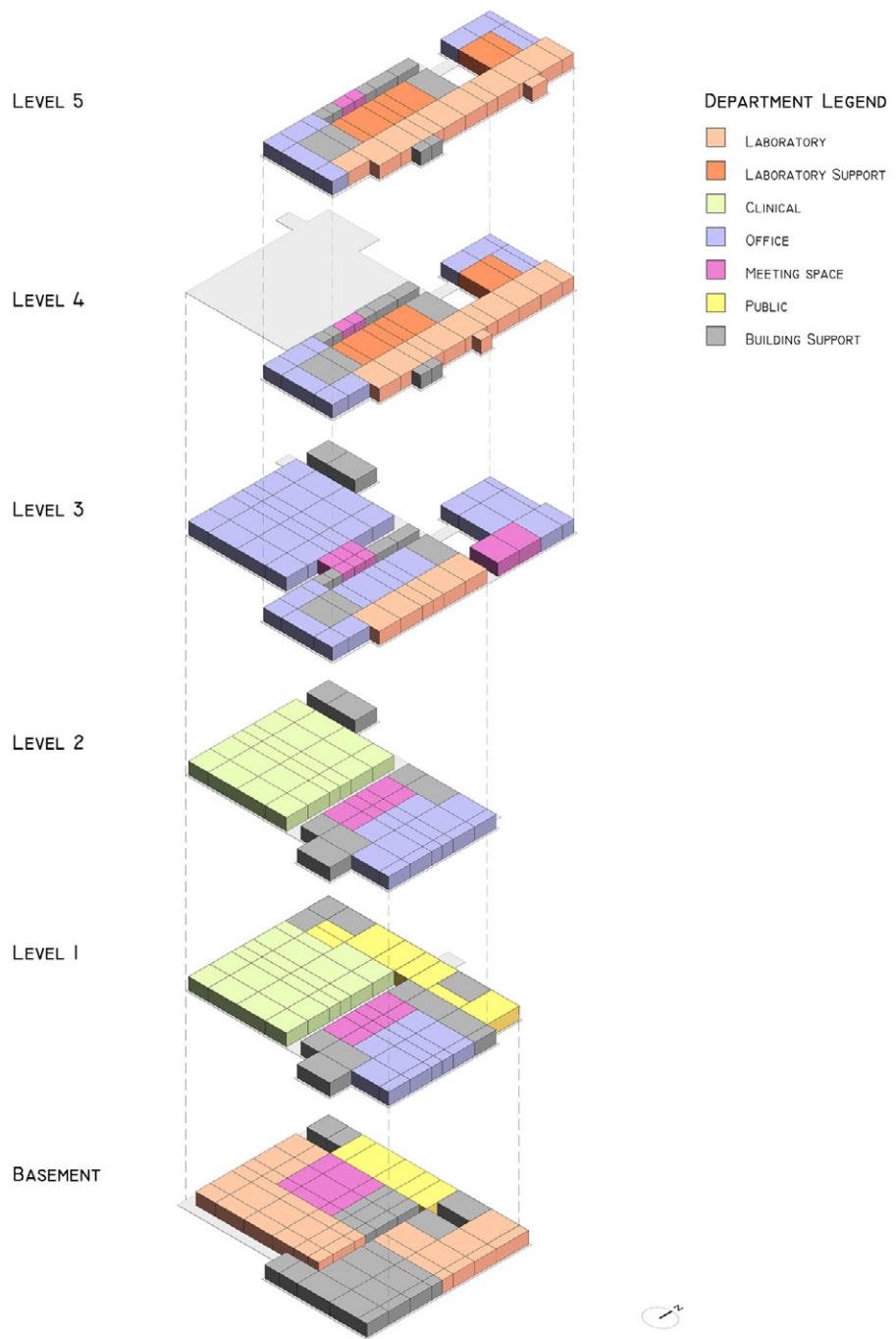


Figure 3.12 Floor Layout of Djavamawfahian Center

Large Scale

Case Study: Ronald Regan UCLA Medical Center

Ronald Regan UCLA Medical Center is a medical center with Mattel Children's Hospital and the Stewart and Lynda Resnick Neuropsychiatric Hospital. It is located 757 Westwood Boulevard in Los Angeles California. Its gross square footage is around 1,200,000 sq. ft. It is a facility built to withstand 8.0

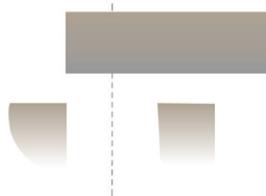


Figure 4.1 symmetry and balance

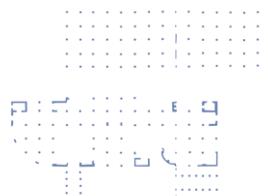


Figure 4.2 structure



Figure 4.3 repetitive to unique

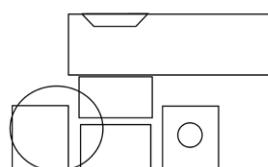


Figure 4.4 parti

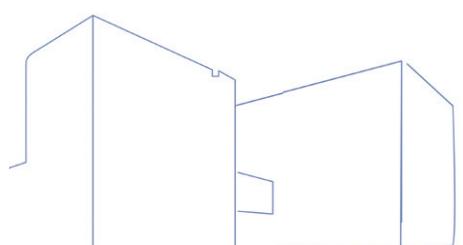


Figure 4.5 massing

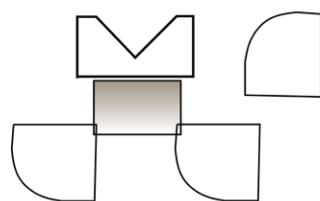


Figure 4.6 hierarchy

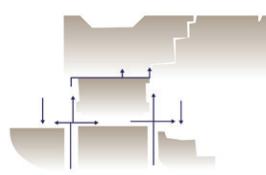


Figure 4.7 circulation to use

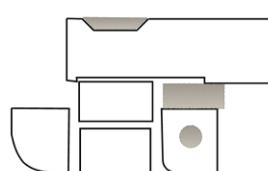


Figure 4.8 additive subtractive

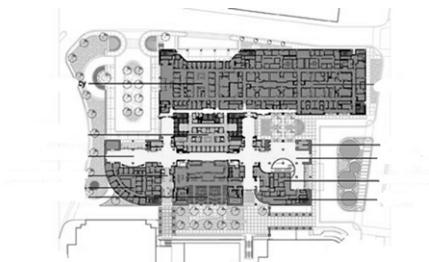


Figure 4.9 plan

magnitude earthquakes.

This case study has common grounds with other case studies in that it consists of humanizing and uplifting environment. There is plenty of daylight coming through the large windows.

Its design is different from the other case studies because of its typology and its varied ways of trying to make the space more accessible. The rooms have visitor nooks and try its best to provide care that the patient needs without the person being moved. It has clear way finding design such that you know where you are. There are identifiable landmarks visible from inside and outside.

The fourth floor Resnick Neuropsychiatric Hospital has a soothing environment with even out door terraces with spectacular ocean views (Ronald Regan UCLA Medical Center, 2008).

The building itself has 1.2 million sq. foot and eight story. Its exterior boasts three million pounds of travertine cladding and 80,000 sq. ft. of windows (Ronald Regan UCLA Medical Center, 2008).

The general layout of the building seems to like the middle portion is the core of the set of buildings which distributes people to the towers named north, east and west. The building at the ground floor has all the emergency and imaging areas as well as the executive offices and a huge cafeteria. Also in ground floor circulation core is the diagnostic observation and treatment area.

On the second floor it has cardiac interventional, surgery, interventional imaging, pediatric observation unit, PACU, Medical Procedure, Pre/Post Treatment and some offices. The ICU, Medical/Surgery, and Dialysis are located on the 8th floor. The circulation here feels fluid for people can know the wing where they are headed. The corners of the circulation tower are used as the way finders for the medical towers.



Figure 4.10 Ronald Regan Medical Center Internal View

Intimate Case Study: Children's Center for Psychiatric Care



Figure 5.1 Children's Center

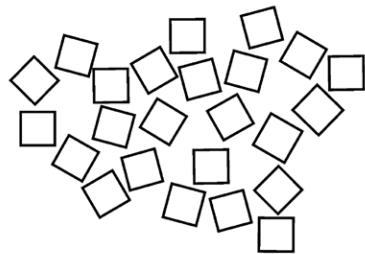


Figure 5.2 structure

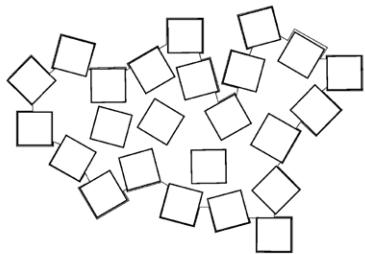


Figure 5.3 unit to whole

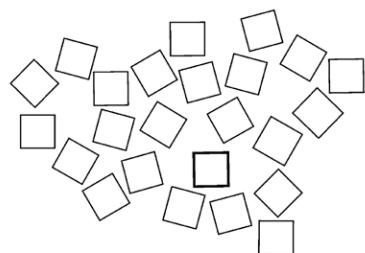


Figure 5.5 plan

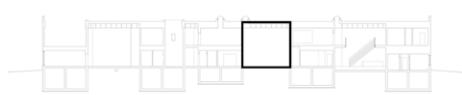


Figure 5.4 plan to section

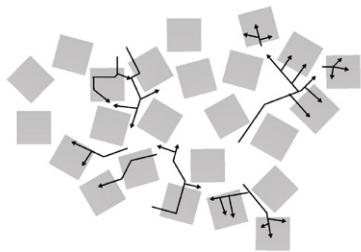


Figure 5.6 circulation to use

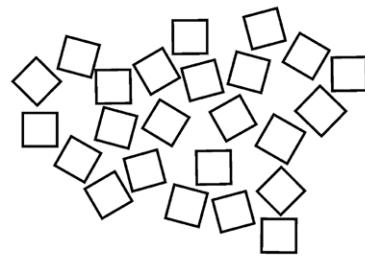


Figure 5.7 additive subtractive

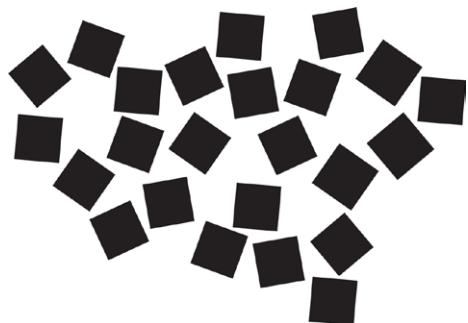


Figure 5.8 parti - geometry



Figure 5.9 massing

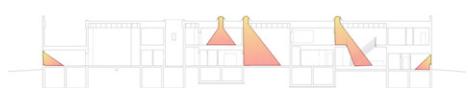


Figure 5.10 natural light

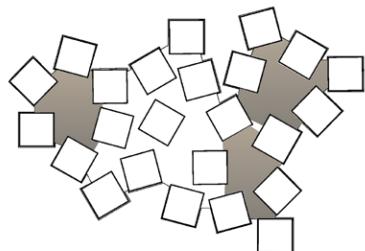


Figure 5.11 hierarchy

It is located in Hokkaido, Japan and was built in 2006. The total built area is around 27300 Sq. Ft. on a 157,000 site. The architects in the project were from Aou Fujimoto Architects.

The children's center for psychiatric care is built on the idea of scattered pieces of cubes that encircle areas to create space.

Research Findings:

The building is designed with the care for of children suffering in depression. It avoids long corridors like the previous design which may be trying to minimize mental stress when trying to find your way around the building. There is also the freedom to choose which type of space one wants to inhabit that is common with other case studies. The spaces are either for making connection

or for separation, going towards social life or away from it.

The theme of the building seems to be dynamic nooks and pathways that all look unique from each view which sets it apart from the other case studies.



Figure 5.12 Hidden and open spaces

The spaces are formally engaging to the mind and it is easy to remember the spaces due to variation on angles and lighting qualities that strikes them.

Natural light is allowed into the space with skylights and high windows which creates a warm interior. “The paths taken by the children are never straight,” this is a very dynamic building.

The controlled yet disordered arrangement of this architecture speaks similar to the disordered variety of a city but while also giving the intimacy of a house. The architecture speaks of both togetherness and solitude which is given as a choice, leading to a better environment for the people. This is something I would like to be included in the architecture of the proposed thesis project. The center of the room differs with each individual group that uses the space, which creates their own special architectural memories. These architectural memories will need to be one with the nature and more focused towards creating a positive environment at these specific nodes so that their day to day life is enriched by a space that they inhabit.



Figure 5.13 alcoves

Typological Summary

The Children's center for psychiatric care, the Ronald Regan UCLA Medical center and Djavad Mowafaghian center for brain health are the three case studies I have examined. Each of them were designed with psychiatric patients in mind and for their needs. The case studies showed ideas into creating spaces that are easier to find, light filled, and patient friendly.

The spaces inside a facility should be really easy to find with end points of a rectangular space defining four spaces or something similar to that. The easier it is to find the desired space, the lower the mental stress. The case studies had shorter corridors and clear sections where smaller functions took place. It was designed in categories it seemed, where each set of space was compartmentalized. This grouping helps in wayfinding of space as well as access by the people who use it daily. The proposed thesis project will design spaces in compartments as well so that there is no confusion where people are working in the general area.

The spaces should also have high levels of natural and artificial lighting. Each and every design in the case study focused on bringing in ample amount of light to the patients as well as a common space.

There needs to be flexibility within the space to accommodate for the needs of the patients and not the other way around. The spaces should keep in mind if the space is built for elderly, children, middle aged or adolescents. The design should then address to the special needs of each of them as they will have their special needs. One case study focused on children and their need to be both playfully social and partly isolated. This is all by the choice of the patient which makes it a good design.

The design should be well lit through skylights and light chambers especially into an open common space. There should be thought given to the adolescents and their mindset of being partly social and partly isolated. There should be a grouping of common areas where the care providers would mostly be spending their time, so that they can move comfortably through the space.



Historical Context

Historical Context



Figure 6.1 Old Fargo

History of Fargo

Fargo is a city named after William G. Fargo, a director of the Northern Pacific Railroad, and co-founder of Wells Fargo Express Company. Its beginnings can be drawn from the settlers who chose this place where the railroad would cross the red river, dating back to 1871.

Fargo had its humble beginnings with only 600 inhabitants soon grew with more settlers looking for cheap fertile farmland.

On June 7, 1893 fire destroyed most of the downtown. It destroyed 31 blocks but was soon replaced by 246 new buildings, some of which still survive.

Fargo has grown to be one of the cities with less crime and numerous opportunities for work and creative activities.



Figure 6.2 Damaged by fire

The Site

The surrounding site to the north seems to have been claimed through a diversion of the river. The site topography still shows imprints of the river on it.

Recent Events

The Moorhead area got the news a tragic death recently of a resident, a 55 year old woman who battled depression. This tragic event got me and many other Fargo -Moorhead people thinking about depression. She was an accomplished opera singer and musician. She came home with her sister after days of treatment at Sanford. She spent the afternoon with the family, and then few minutes later she went for a walk. She took her life by jumping from the 34th street bridge to interstate 94. The family question if more could have been done. People will always want to improve their facility and create a safer environment. Her life is just one of many people suffering from the same mental illness. The depression is a illness that deserves to be seen with equal weight as any other life threatening disease. The people just don't die; they die slowly from inside, which is worse than most other diseases.

Prairie St. John's Hospital

Prairie St. John's Hospital was established in Fargo with a clinic in Moorhead area too. It is a place with a mission of offering hope and healing to the people suffering from mental conditions and addictions. It is a place with compassion, integrity and respect. It is a Catholic health care organization which believes in promoting and defending human dignity, attending to the whole person, caring for the poor and vulnerable, stewarding resources, promoting the common good, acting on behalf of justice and abiding by the ethical and

religious directives of the Catholic church (Prairie St. John's). Prairie St. John's has range of services available, ranging from clinic services to inpatient hospitalization. Care is tailored for the type of patient.

Inpatient Hospitalization:

Patients requiring detoxification, treatment for withdrawal or behavioral problems are admitted in as inpatient for overnight and given the daily programming with also therapy.

Partial Hospitalization:

Partial hospitalization is reserved for patients with more seriously acute disorders requiring intervention, support and structure.

Residential Treatment:

Residential treatment is focused on addiction related patients, for those who need daily support.

Intensive Outpatient Programs:

This program is designed for people seeking a treatment while continuing day to day activities.

Low Intensity Outpatient Programs

Low Intensity Out patient Program is a lower level of care in a group setting for once or twice a week.

Clinic Services

The clinic provides diagnostic services. It provides also play therapy for kids.



Goals

Goals

The goal of this project is to explore the best possible architectural, landscape and interior solutions that can be possibly be useful in creating a healing space for the people with depression.

The first goal is to analyze the data received from various reliable sources to gain understanding of the problem. The data will be taken both from scientific journals as well as other resources.

Summarily, the proposed project will emphasize and improve upon depending on the data and its conclusion.

The design will be developed on those crucial ideas compared with the case studies for reliability.

A digital model of the design will be created and tested for environmental effects on the design. There will be energy analysis run on building form to make sure it is sustainable. There will be addition of sustainable design entities for a more sustainable design.

I will make changes to the model with the new sustainable elements added to it. There will be discussions with peers on its workings and research time will be devoted to architectural detailing.

Time will be devoted to the structural details and how clear and appropriate structure strengthens design. The local materials will be given the priority and surrounding architectural facades checked for harmonious blend.

The entry will be made more appealing to anyone who enters, and gardens will be developed to create more welcoming environment and interior plantscapes.

On a more personal level the design should satisfy expectation of creating a haven from mental depression. My goal is to use vegetation, art, and even color to evoke healing in the minds of the patients.



Site Analysis

Site Analysis

Qualitative

The buildings to the south are residential apartments which have balconies facing towards my site. There is also an access way to the parking on my site from the 7th Avenue South, which cuts the block in vertically.

There are a lot of trees separating the residence and the site so noise pollution as well as any privacy issues should be minimum from it.

The west side faces towards a white colored residential building, which is actually being used as a Fine Arts Club. The buildings ground floor has lines on the outside which is similar to something you see on other buildings in the vicinity made out of bricks. The lines seem to be going all over this building. This building has been painted and well maintained. Its lawn and its residential look sets the tone of this place as a residential area. To the west again, lies a bus stop with a shelter and a seat for the people.

To the north is the existing St. Prairie John's Hospital. Its got light orange bricks and very unique style of facade treatment. There are lines which are on the base of the building to give a visual difference between the levels and the brick linings. The bands stop and the bricks themselves make horizontal lines on the second floor. The windows are arch topped on this level. After that level comes two levels of straight windows topped with a capstone even though they are not arched. And finally the top most level with windows that are actually arched hemispherically and also is capped. A band runs on this top most level which is colored in yellowish tint. The building has the roof whose extensions show the details that one can see in old architecture made out of wood. The details may reflect to its catholic affiliation. In certain areas small windows seem to bring in light just enough and not reveal too much of the outside world to the inhabitants. This building has two column like entities on the edges without any windows but doors, which could be the emergency exits of the building.

The north west side of the site is the island park with most of the deciduous trees looking at my site. The park view is partially blocked by about three to four layers of trees, so any view cast on this direction will show mostly trees. The winter season view is not that pretty for there will be only barks and twigs, which might induce negative emotions in the patients. The east of the site is a sky blue building which seems to be used as residential. Its raised to a level above ground about five feet with the basement showing a different character on the outside. The other buildings that follow also have residential feeling with again the horizontal lines being a predominant entity. The next two buildings are mixed brick apartment buildings. Then after that the river becomes visible.

Light Quality

Light quality of the space is partly shady due to presence of trees to the south. The quality of sunlight is yellowish and not too warm, possibly due to the an-

gle of the sun. The intensity of the solar power is not extreme.

Vegetation

The vegetation to the south is deciduous. The leaves turn from dark green to brown in autumn and fall down in winter. They block a lot of natural sunlight during both summer and winter. They seem to be in healthy condition. The trees go above about 40' above the ground. Due to the huge shadow cast by the trees any sunlight that can and should come would need to be from the skylights. The building to the south is not tall enough to cast a shadow on the proposed project during summer but in winter the shadow reaches the ground floor of the existing building on the site.

Water

There is a river to the east of the site, which has known to flood during the winter times. There is a current plan to divert the river which is underway. The river is slightly murky but I believe it is not polluted.

Wind

The buildings to the south and the vegetation all block the wind from the south, up-to a certain height. The wind direction is from the south south east for March to October, then it is north west for November to February.

The wind in the warmer times will be blocked by the building to the south for certain. If the design is to harvest any amount of wind, then the equipments are required to be above forty feet. The wind from the north will be blocked by the Prairie St. John's Hospital. It can be certain that the wind tunnel tests will reveal how much of the wind will be blocked by it.

Human Characteristics

The site is being used currently in a small single story building. It is being used by Sanford South University. The building has been refurbished and cleaned for the use. The people are using it as a study area.

Soils

The soils of the area seem to be non-plastic clay soil.

Water Table

The depth to the water table is about 0 to 18 inches. The site doesn't flood much but has frequent ponding issue (USDA). The site is not well drained.

Vehicular Traffic

The site is on the intersection of the 6th avenue south and 4th street south. The road north of the site, 6th avenue south, is used minimally and doesn't pose much noise pollution. It is a single lane road with two opposing lanes. Its lower level of traffic allows for pedestrian friendly area in a way. The west road, 4th Street South, is a medium load traffic which does create a lot of vehicular noise.

Pedestrian traffic

The pedestrian traffic is minimal here due to the lower density design of the area.

Topographic Survey :Slope Analysis

The slopes are around 0 to 2 percent and is relatively sloping down towards north east. It doesn't drain well and will require some work otherwise it will have problems in the future. There is no great change in the grade as it is relatively uniformly sloping.

Quantitative

Climate

The climate of Fargo north Dakota is below average on temperatures and above average on wind speeds. There are many other variations that I have shown with the help of charts.

Average Temperatures

The average temperature swings from around -5 deg F to 15 deg F on January, which seems to be the coldest of the months. The figure shows the daily maximum and minimums.

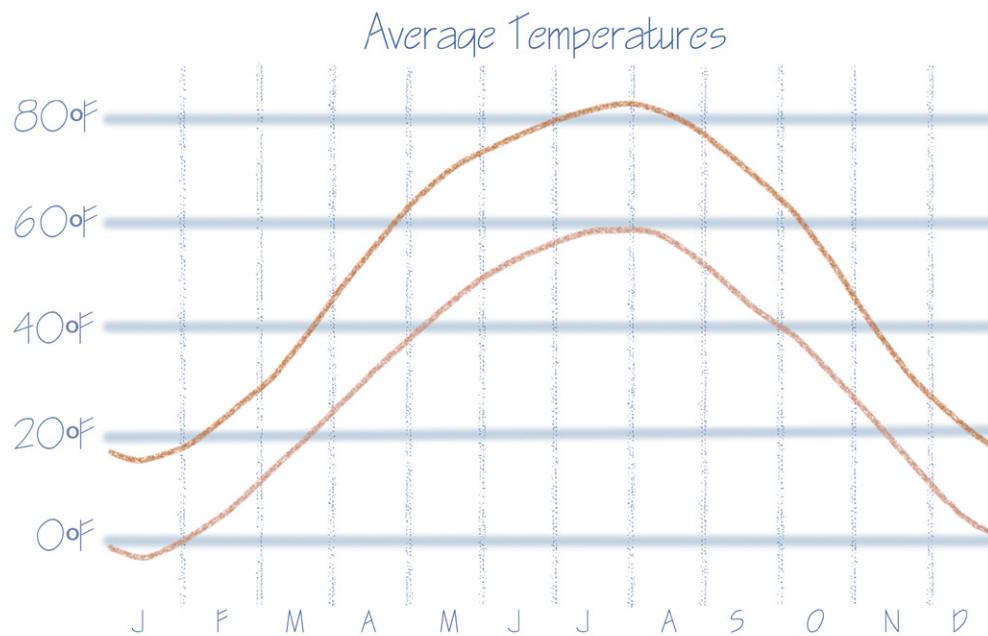


Figure 7.1 Average Temperatures

Wind Speed

The wind speeds are above average of USA all year long, which makes Fargo an ideal place to set up wind harvesting devices for a more sustainable design.

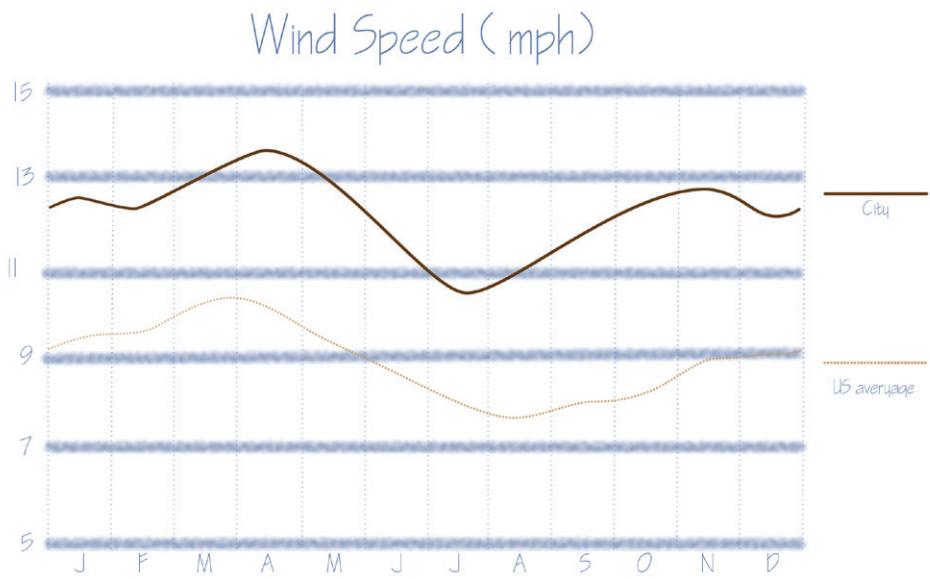


Figure 7.2 Wind Speeds

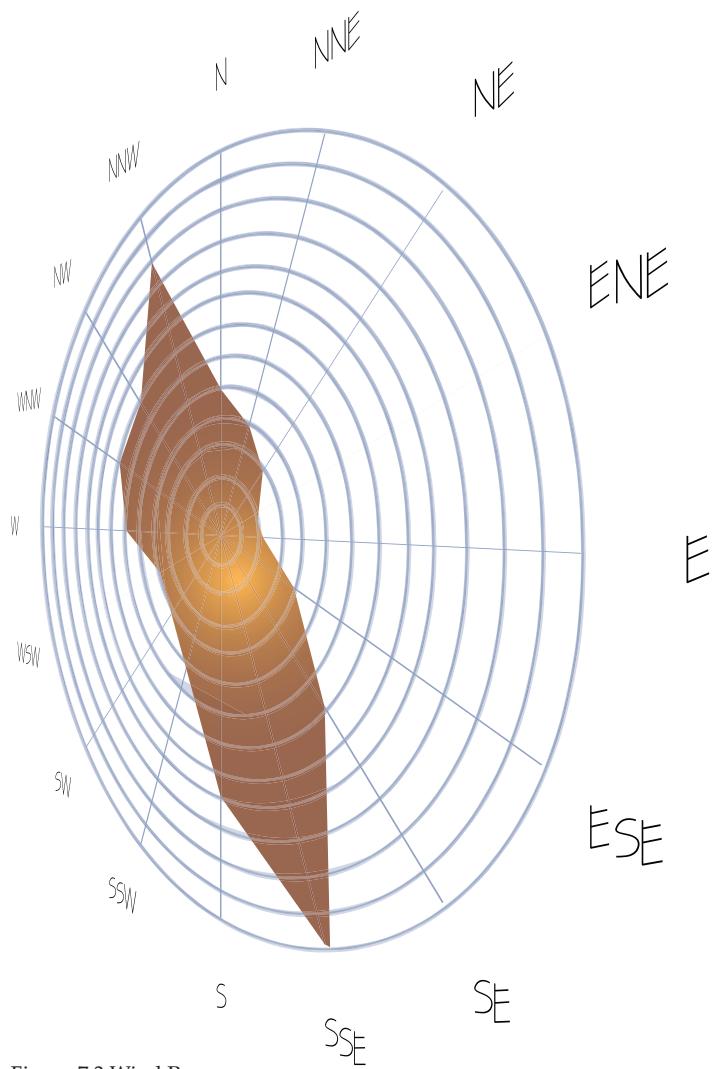


Figure 7.3 Wind Rose

Snowfall

The amount of snowfall is high compared to the US average according to City Data website. Snow loads will be calculated while designing the structure of the roofing system.

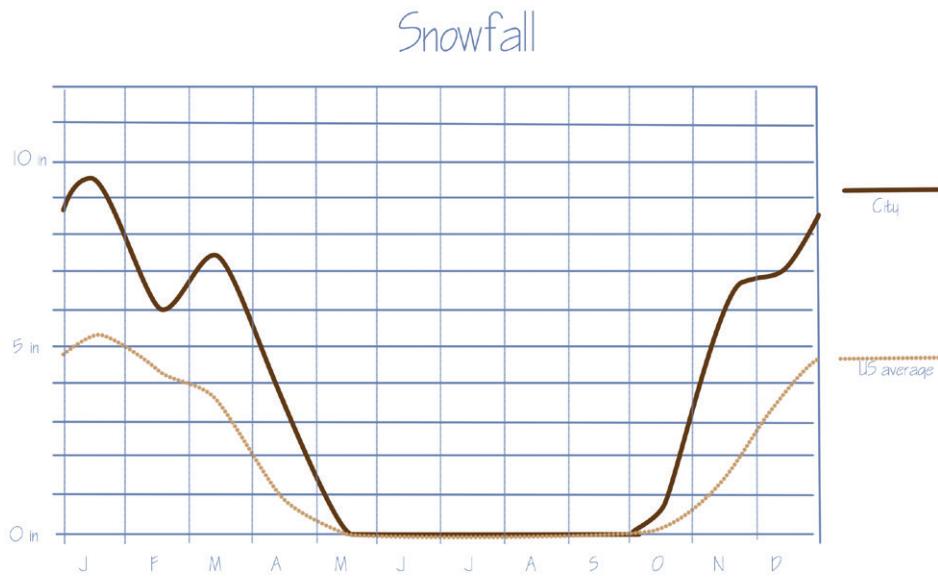


Figure 7.4 Snowfall

Cloudy Days

The cloudy days and precipitation remain throughout the year. The precipitation seems to be more during the summer days and the sky is clearer during July to October. If there are going to be any solar harvesting to be done these will be the months to do them.

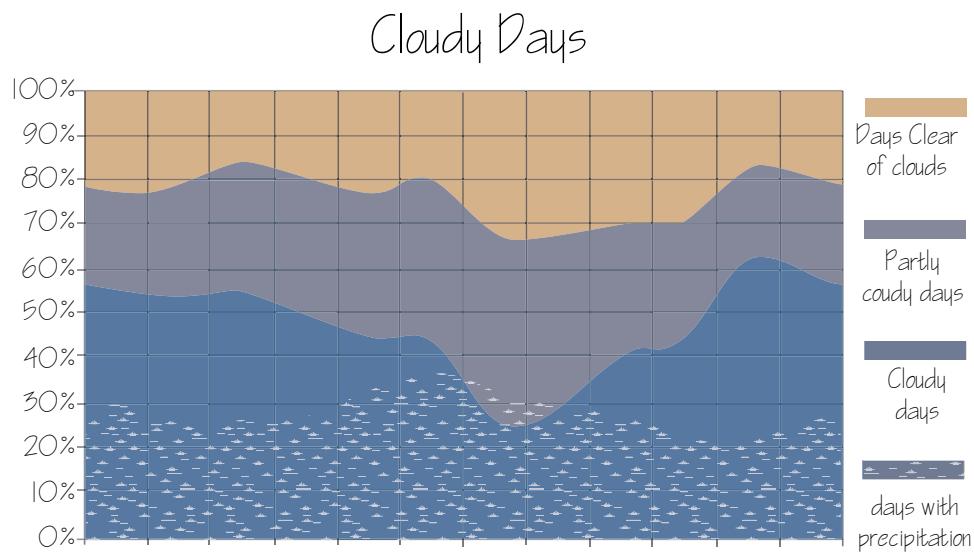


Figure 7.5 Cloudy Days

Precipitation

The summer precipitation is high from May till July with about 3 cm of rainfall. The water could be har-

vested and reused for the general use in restrooms. If a design decision is taken then there is adequate amount of rainfall during the summer times to justify its design.

Humidity

The humidity levels of the city are pretty on par with the us average. It is maybe due to the presence of the river that the humidity levels of the area is high even in the winter.

Precipitation

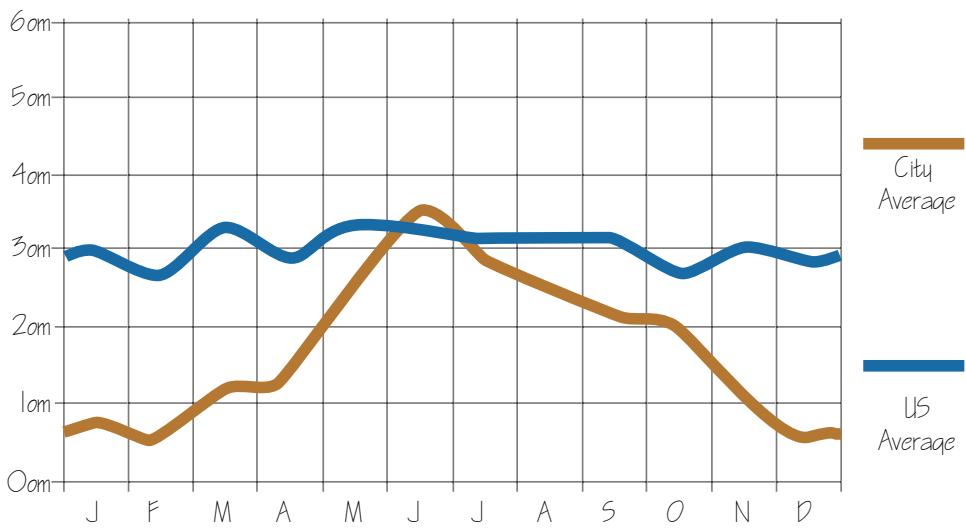


Figure 7.6 Precipitation

Sun path

The sun angles are around 20 degrees at its minimum during winter season. During summer the angle is around 76 degrees. The solar chart shown above helps in determining the angles of the sun for any shading devices as well as any solar harvesting elements that would be used. By my calculations the optimum angle for the solar panels if used would be 42 degrees since the sun comes in at an average angle of 48 degrees.

Humidity

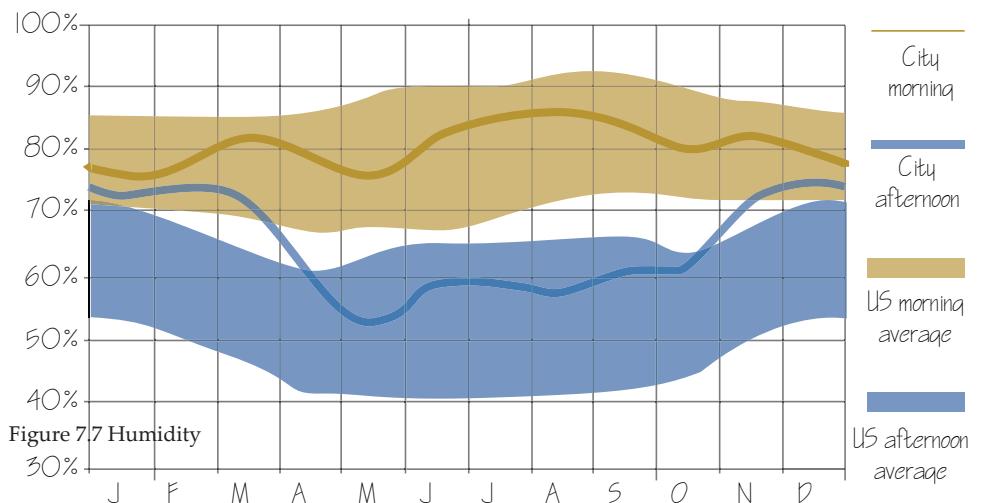


Figure 7.7 Humidity

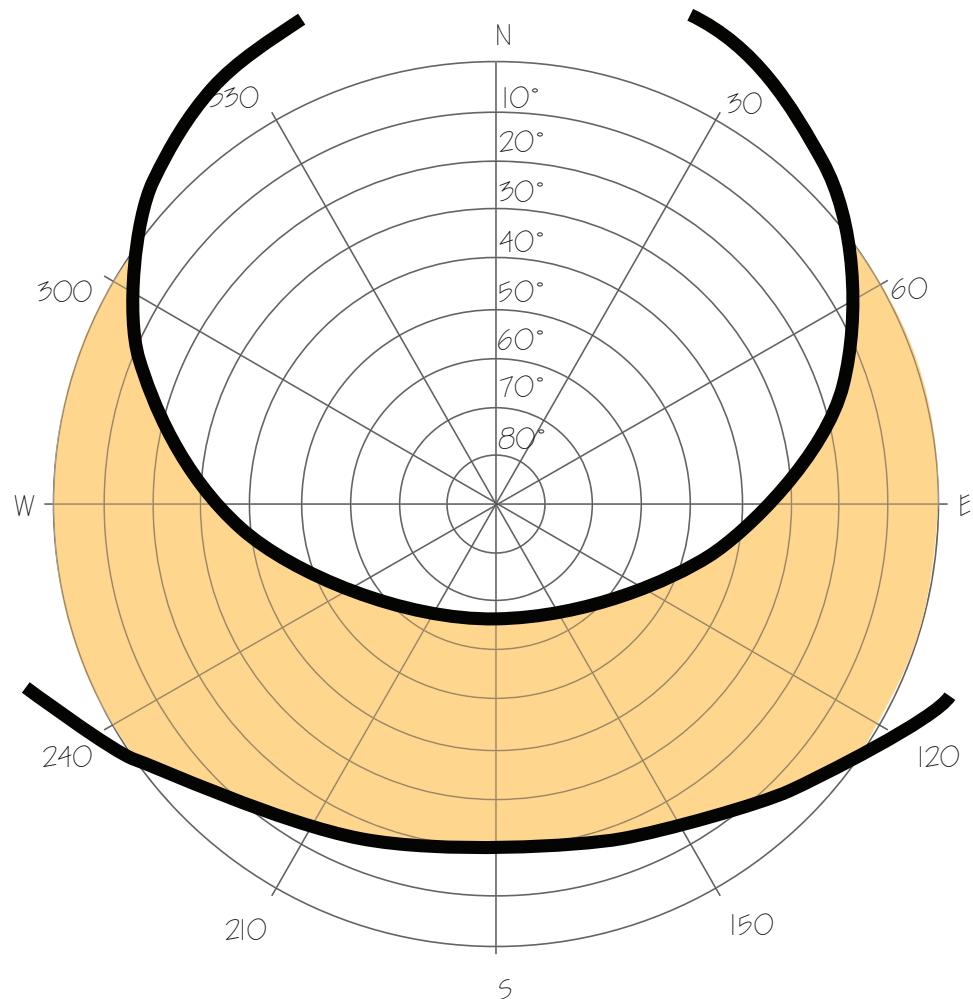


Figure 7.8 Solar Chart of Fargo

Topography

The topography of the site is such that it slopes down to the river north east wards. The topography diagram shows the river was diverted at some point in time. The proximity of the river brings in a lot more slope but still the land is extremely flat.



Figure 7.9 Topographic map

Program

Patient Room (single bed)	160 net SF	3360 S.F.
Bathroom	50 net SF	
Seclusion Area:		500 S.F.
Seclusion Room	180 net SF	
Isolation Room	180 net SF	
Anteroom	80 net SF	
Bathroom	65 net SF	
Nurse Area:		790 S.F.
Nursing Station	300 net SF	
Nurse Workroom	120 net SF	
Medication/ Dispensing Room	150 net SF	
Team Room	220 net SF	
Food Area:		4200 S.F
Dining Room	1800 net SF	
Serving Line w/ Pantry Storage	600 net SF	
Kitchen/ Food Prep	1800 net SF	
Therapy Spaces:		3250 S.F.
Day Room		800 S.F.
Group Room		600 SF
Indoor Garden		1000 SF
AV Room		250 SF
Visitor Room		600 SF
Interview Room		@250 SF
Public Spaces:		
Reception		600 SF
Entrance		200 SF
Building Systems:		
Mechanical & Storage		1620 SF
Circulation (15% of gross total)		2400 SF

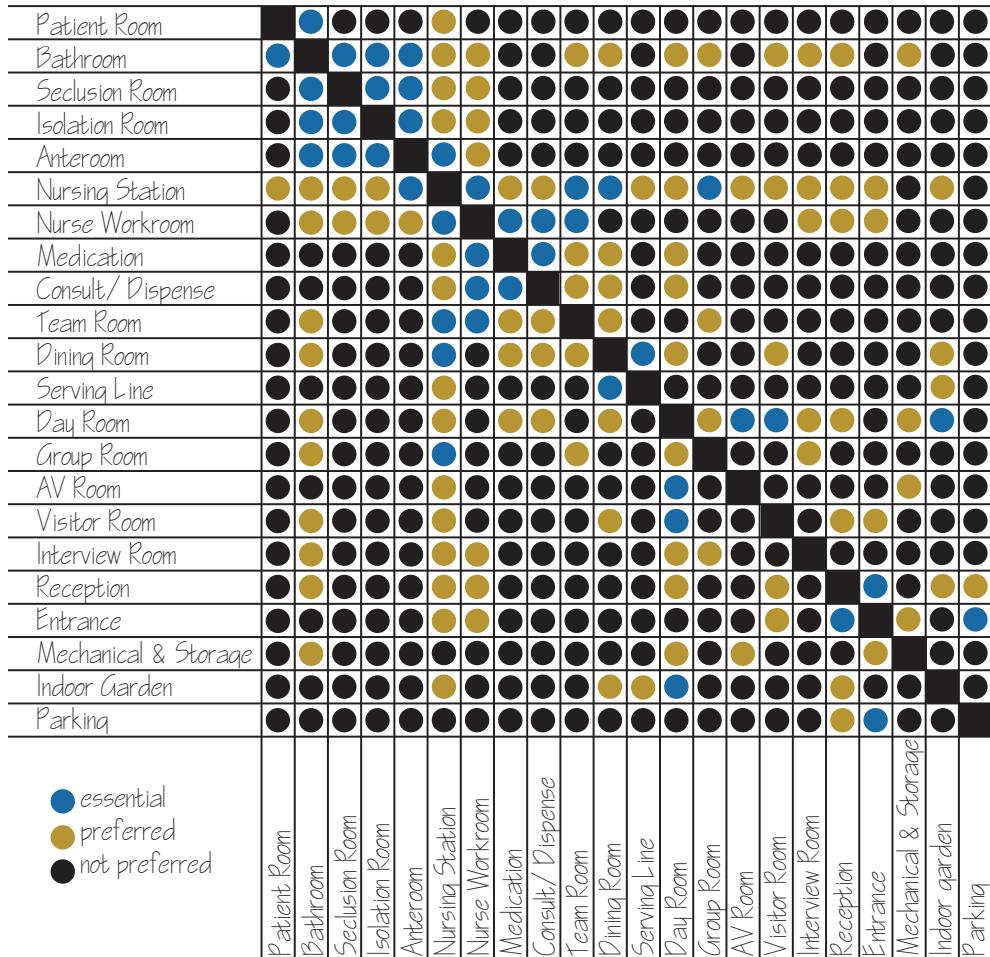


Figure 8.1 Program Matrix

Program Recommendations

Patient Room (single bed & two bed)

The patient room will require to have a 20% of the space to accessibility towards the adjoining bathroom. The windows are needed to have integral blinds for sun control. The internal layer of glass needs to be laminated for security. The window can be operable but only open 4 inches.

The flooring recommended area sheet vinyl, linoleum or rubber floorings (mental health, 2010). I think my design would benefit with rubber floorings trying to minimize the damage from falls.

The lighting must be 30fc fluorescent lights should be used in recessed holders with cover. There must be a 75 fc lamp next to the bed for more reading based lighting. In emergency another light should be provided. At night low level lighting will be used to find the way to the bathroom.

Bathroom:

The floor finish is recommended to be 2x2 ceramic tile. The height of the ceiling is recommended to be around ten feet and eight inches. The space needs to have noise resistance of 40 STC which gives privacy to the person

resting. This can be achieved through use of fiberglass insulation on wood studs (the complete,2005). The bathroom doors need slope set on the base facing inwards.

Isolation Area:

The isolation room will contain, a restraint room, seclusion room, an anteroom and a bathroom. An easy access to this from the nursing station is recommended without the direct vision from the other patients in the unit. The restraint room is where there is a bed or a platform to restrain a patient. It requires the room to have enough space for staff access as well. The isolation room is void of any furniture and has padding on the walls.

The windows if any are recommended to be at a higher sill level and have impact resistance to them. There should be blinds between interior and exterior glazing without any exposed hardware in the room. The viewing windows require to be laminated on one side.

Nursing Area:

The nursing area is the hub where the nurses provide the necessary items and care to the patients. It needs to be near to the day room as well as the isolation room. It consists of Nursing Station, Nurse Workroom, Medication Room, and Team Room.

The flooring should be similar to the flooring in adjacent corridor floor finish. The ceiling should be acoustical ceiling tiles.

The lighting should be around 30fc for the general purpose and 50 fc for more task oriented work areas.

Dining area

The dining area is similar in flooring and lighting requirements to other rooms. The main purpose of dining room is the distribution of food from the pantry to the dining room.

Design

Plans

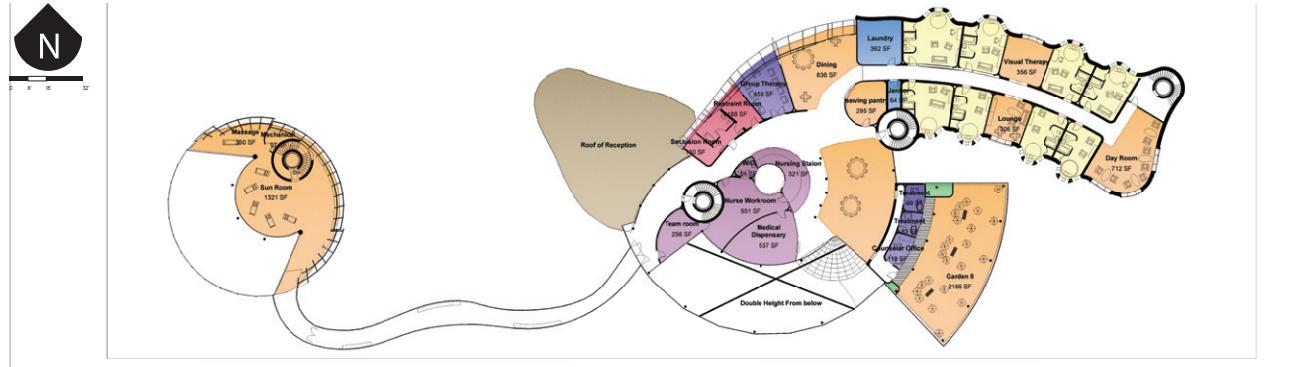


Figure 9.1 First Floor Plan

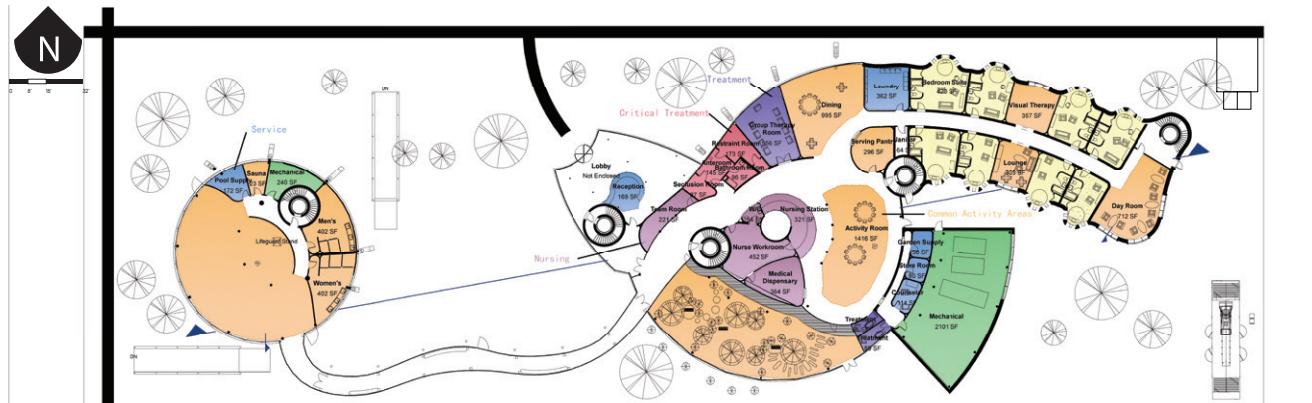


Figure 9.2 Ground Floor Plan

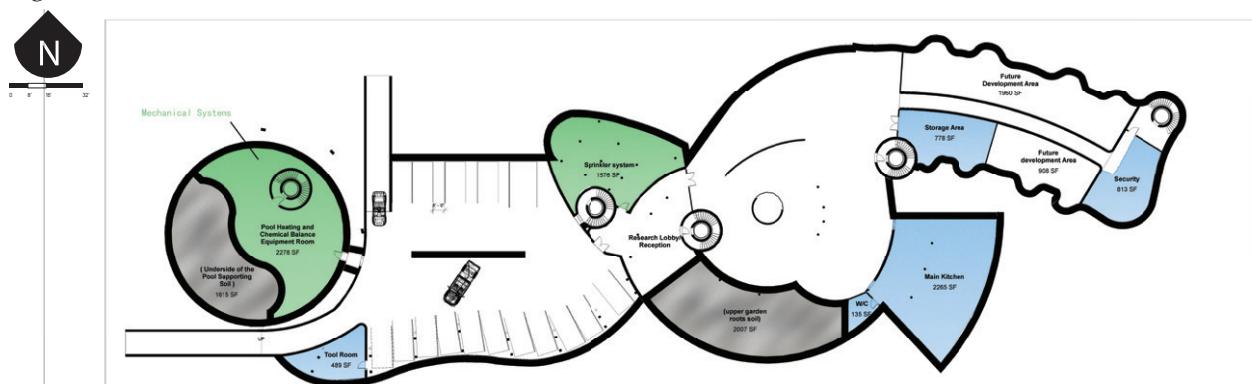


Figure 9.3 Underground Plan

HVAC Systems

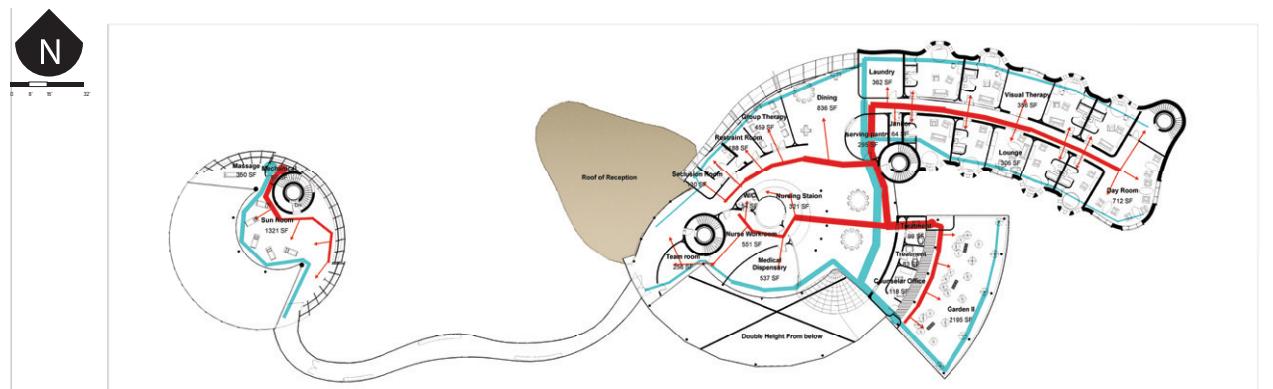


Figure 9.4 First Floor Airflow System

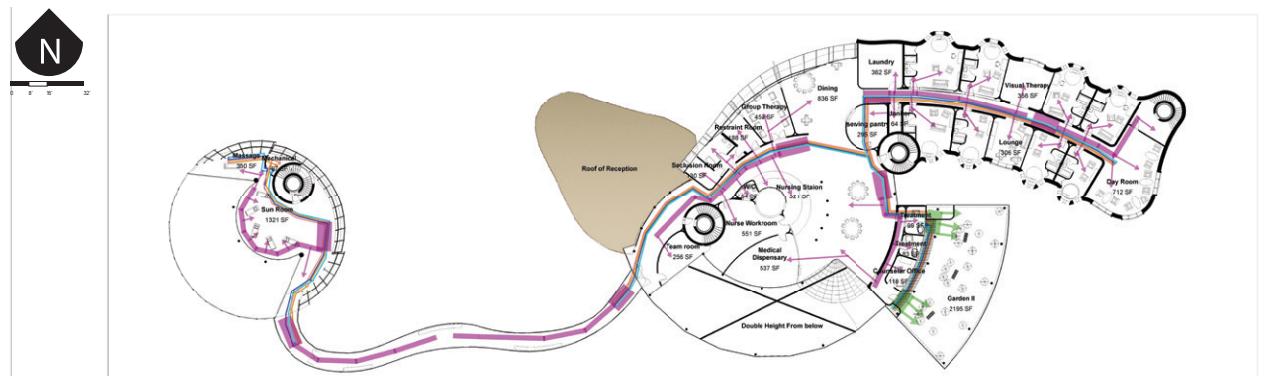


Figure 9.5 First Floor Heating System

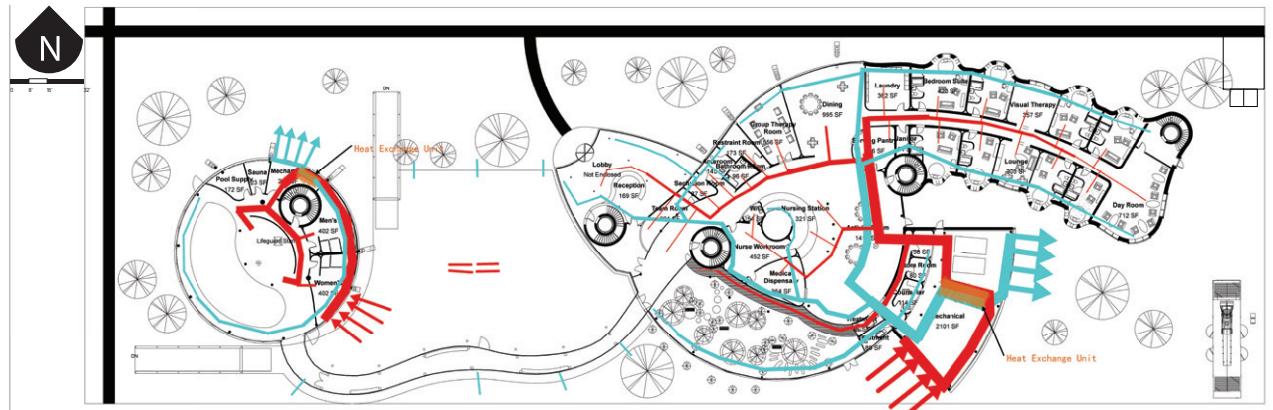


Figure 9.6 Ground Floor Airflow System

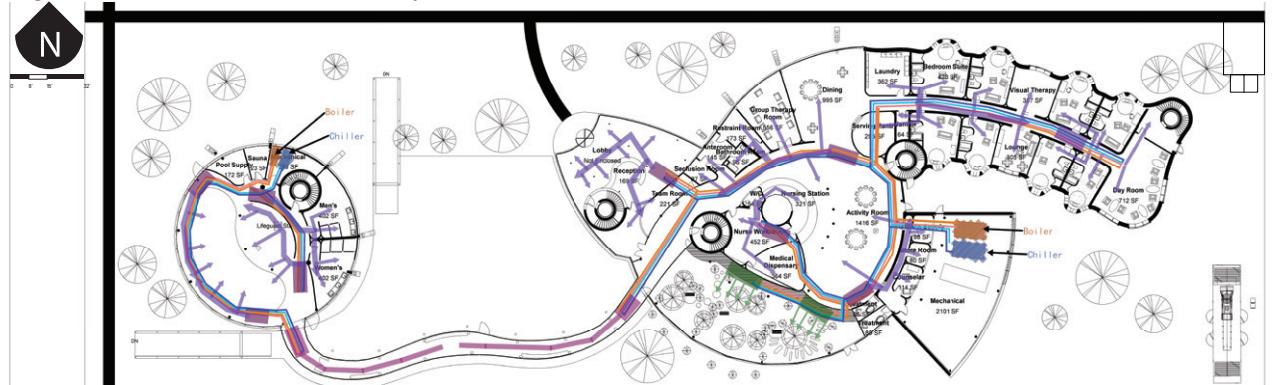


Figure 9.7 Ground Floor Heating System

Structure

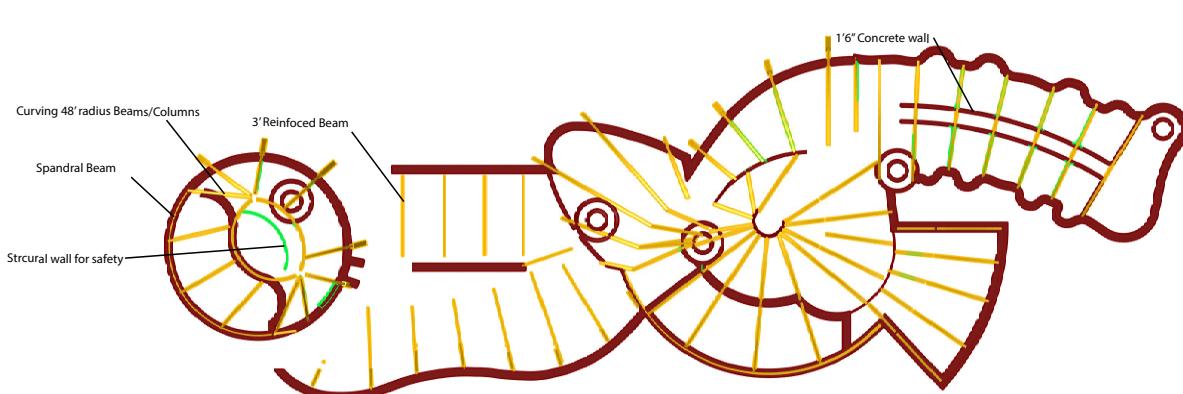


Figure 9.8 Structure Plan



Figure 9.9 Structure Diagram

Sections and Elevations



Figure 9.10 Sectional Perspective



Figure 9.11 South Elevation



Figure 9.12 North Elevation

Details

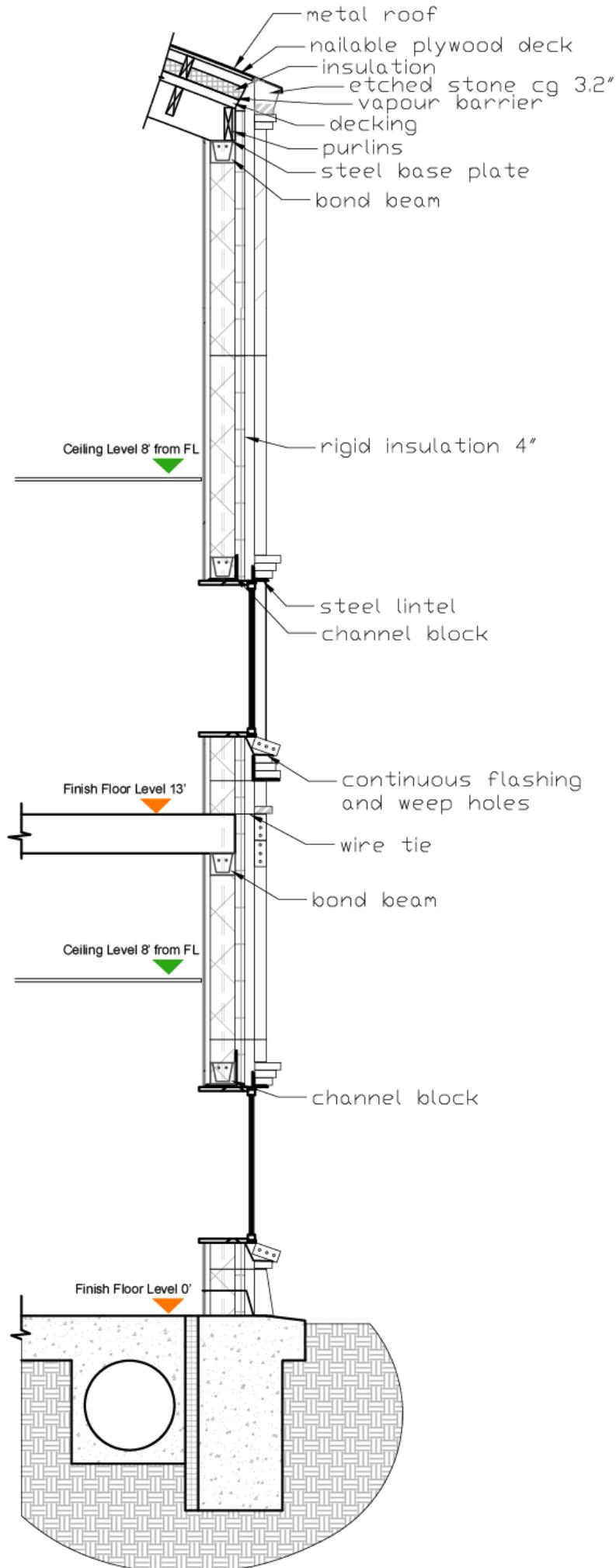


Figure 9.13 Brick over CMU Wall Detail

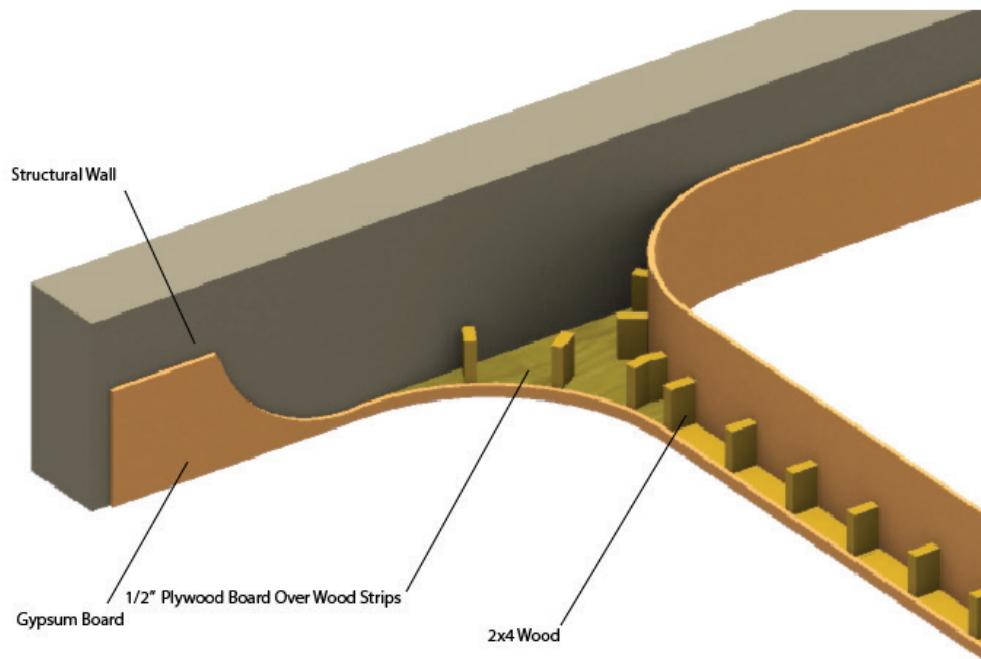


Figure 9.14 Curving Wall Detail

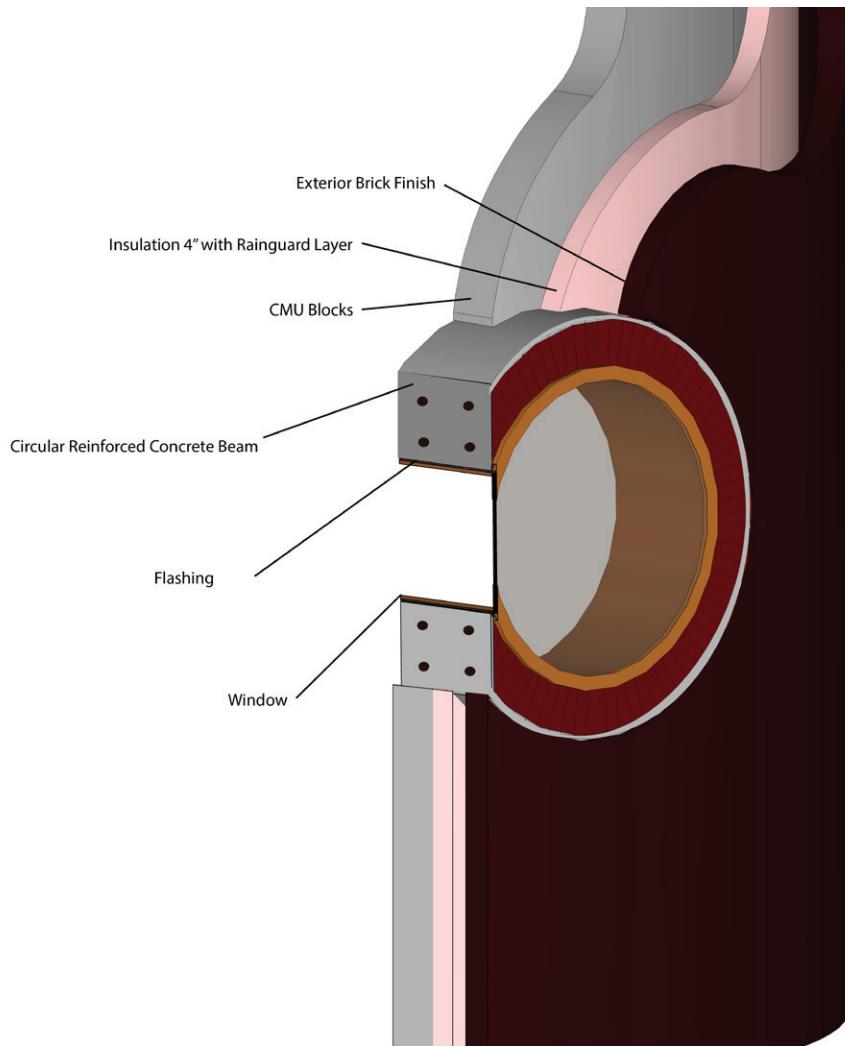


Figure 9.15 Round Window Detail

External Perspectives



Figure 9.16 Corner view from the Island Park

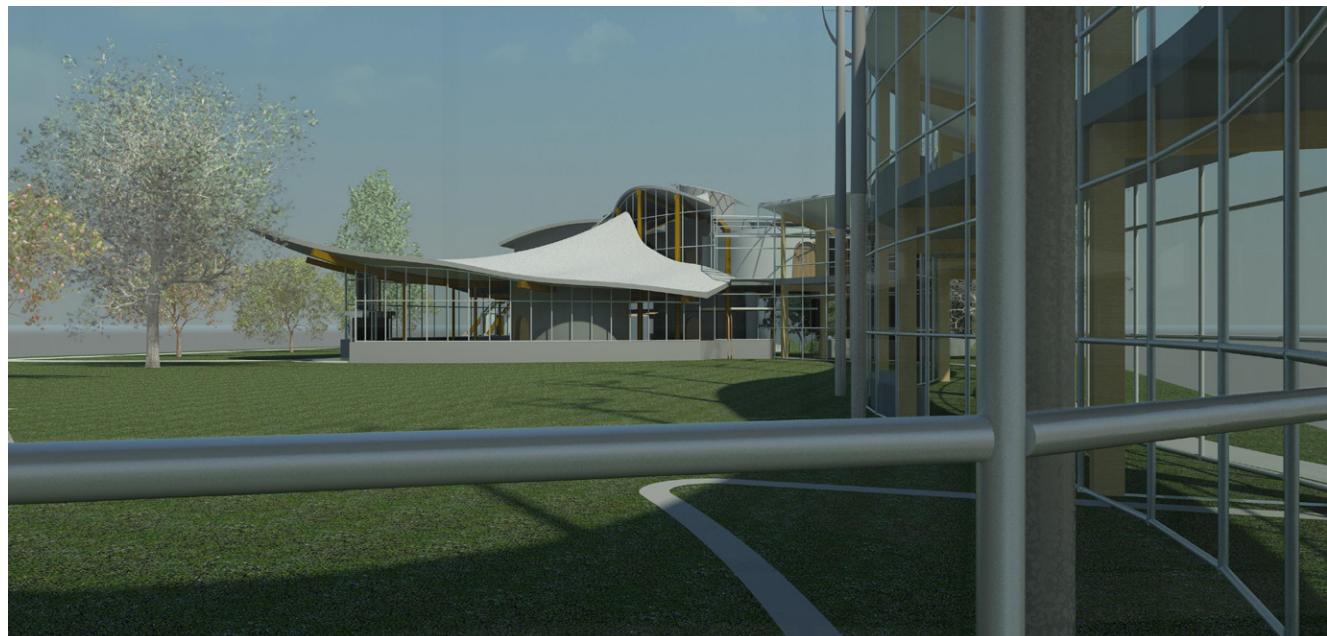


Figure 9.17 View from the pool area towards the main building

Internal Perspectives

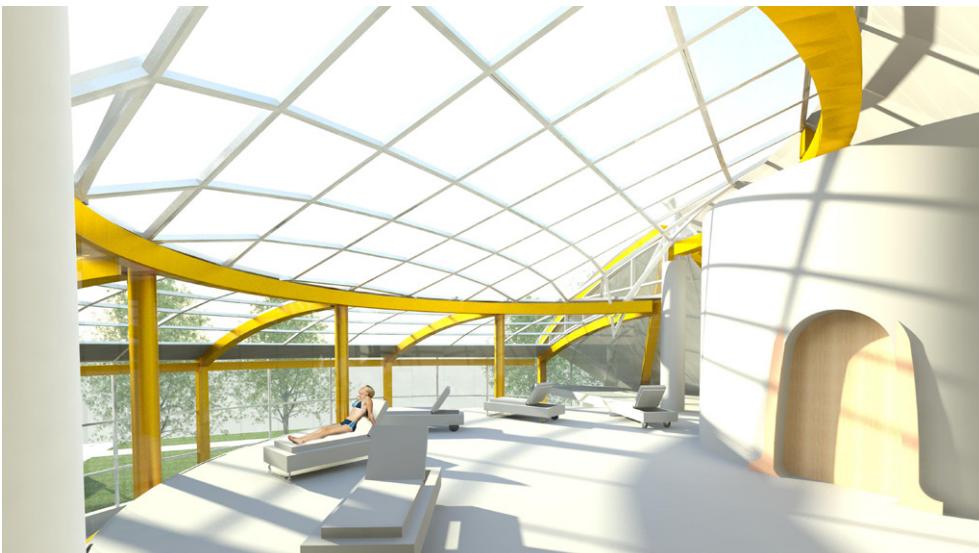


Figure 9.18 Sun Room
Heliophilia or Love for sun can be seen through Seasonal Affective Disorders (SAD)



Figure 9.19 Garden
Biophilia or love for nature can be found in the research where they talk about giving views outside mostly towards nature and people
three different sections with wooden, grass and gravel paths leading to different scented and different types of plants ready for experimentation for healing properties

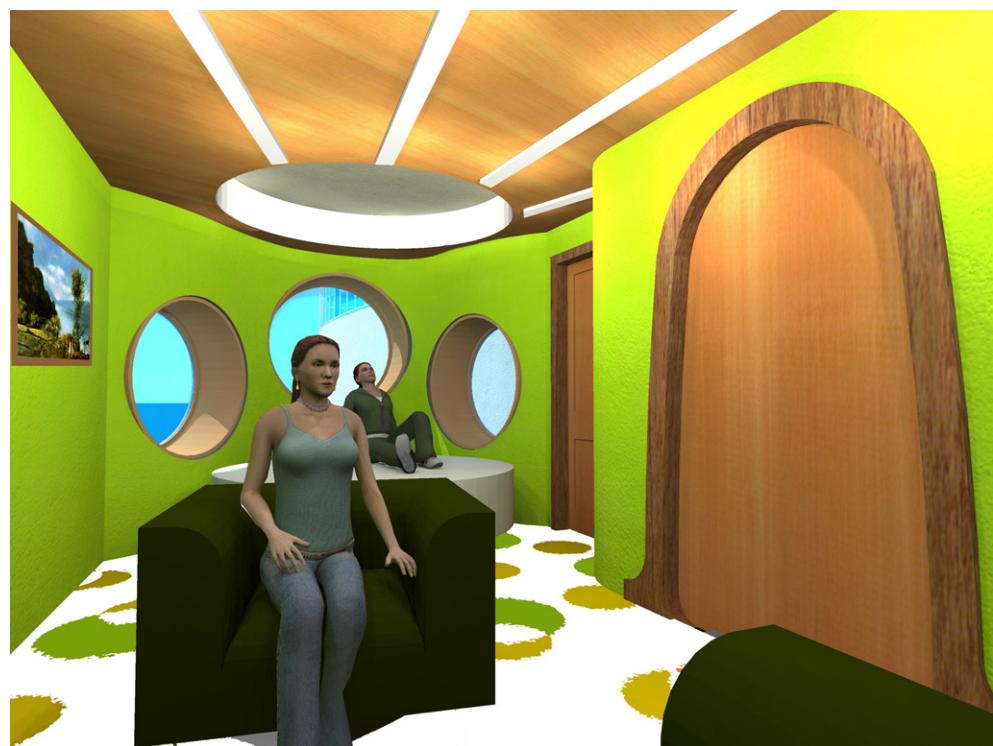


Figure 9.20 Entry
Spiritual connection to the other worldly visually gives reassurance of not just technical but also moral values

Figure 9.21 Activity room
Core housing the symbol or artifact that radiates energy seen on the ceilings and also gives nurses a strong force that inspires



Figure 9.22 Bedroom
Curving walls hold the bed in warm hug and windows give view to the outside, the lights again are like spiritual existence looking over the patient



Models



Figure 9.23 Context model

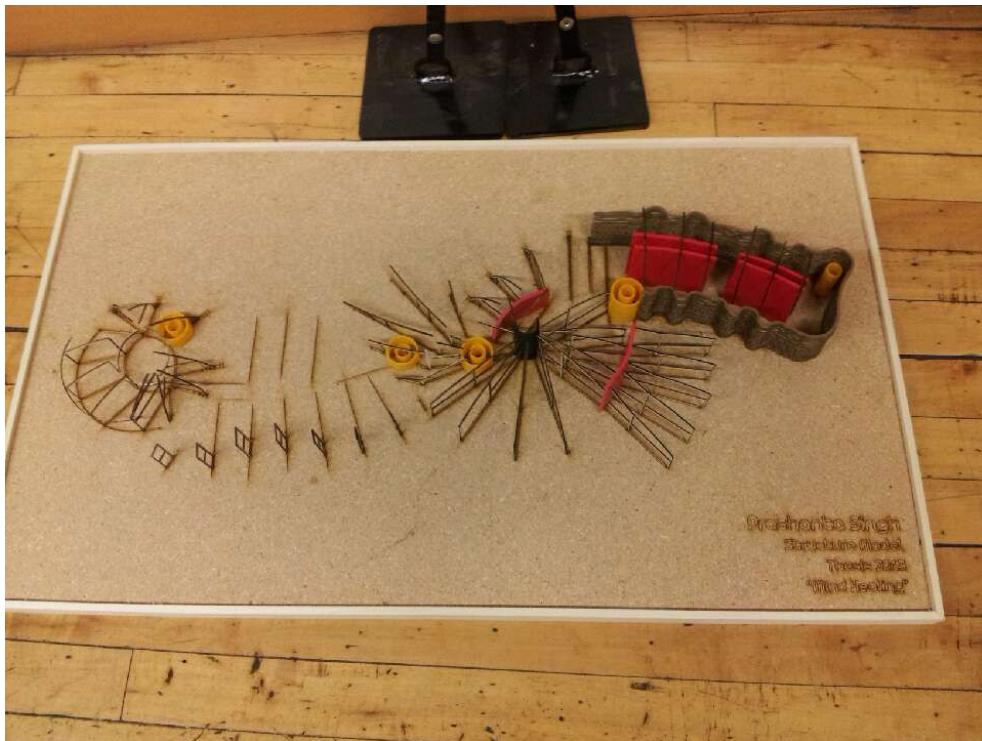


Figure 9.24 Structure Model
Steel Members with Concrete Walls (red), CMU wall (brown cardboard paper), reinforced structural cores (yellow) and Stone Wall (black)

Endnotes

1. Paint Quality Institute. (2011, Feb. 16). "Psychology of Color is Helpful in Choosing Interior Paint Schemes." Retrieved from <http://finance.boston.com/boston/news/read?GUID=17246196>
2. University Health Services Tang Center at UC Berkeley. (2012) "Clinical Depression." Retrieved from <http://uhs.berkeley.edu/lookforthesigns/depressionsuicide.shtml>
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9. Lind, . Interview with Prashanta Singh, (Sept.29,2012) in Fargo.

Case Study Endnotes

1. Vinnitskaya , Irina. "DjavadMowafaghian Centre for Brain Health" 21 May 2012. ArchDaily. Accessed 04 Dec 2012. <<http://www.archdaily.com/235712>>
2. "Children's Center for Psychiatric Rehabilitation / Sou Fujimoto" 03 Nov 2008. ArchDaily. Accessed 08 Dec 2012. <<http://www.archdaily.com/8028>>
3. "Ronald Regan UCLA Medical Center" 2008. Architectural Record. Accessed 7 Dec 2012. <http://archrecord.construction.com/projects/bts/archives/healthcare/08_RRMC/default.asp>

Historical Data Endnotes

1. Wallevand, K. (2012, October 09)Tragic death in Moorhead sparks talk on suicide and mental health. *WDAY 6 News*. <<http://www.wday.com/event/article/id/69857/>>

Image Endnotes

1. Google Earth. (2010, Oct. 2). "Google Earth Image of Fargo, ND." Retrieved Sep. 01,2012
2. University of Texas Libraries. "United States Blank Map." Retrieved from http://www.lib.utexas.edu/maps/united_states/usa_blank.jpg
3. State Maps Online. "North Dakota State Capitol Counties Map." Retrieved from <<http://www.statemapsonline.com/images/maps/north-dakota/North-Dakota-State-Capitol-Counties-Map.gif>>

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“There is nothing so bitter that a patient mind cannot find some solace for it” - Seneca (Roman Philosopher Mid-1st Century AD)