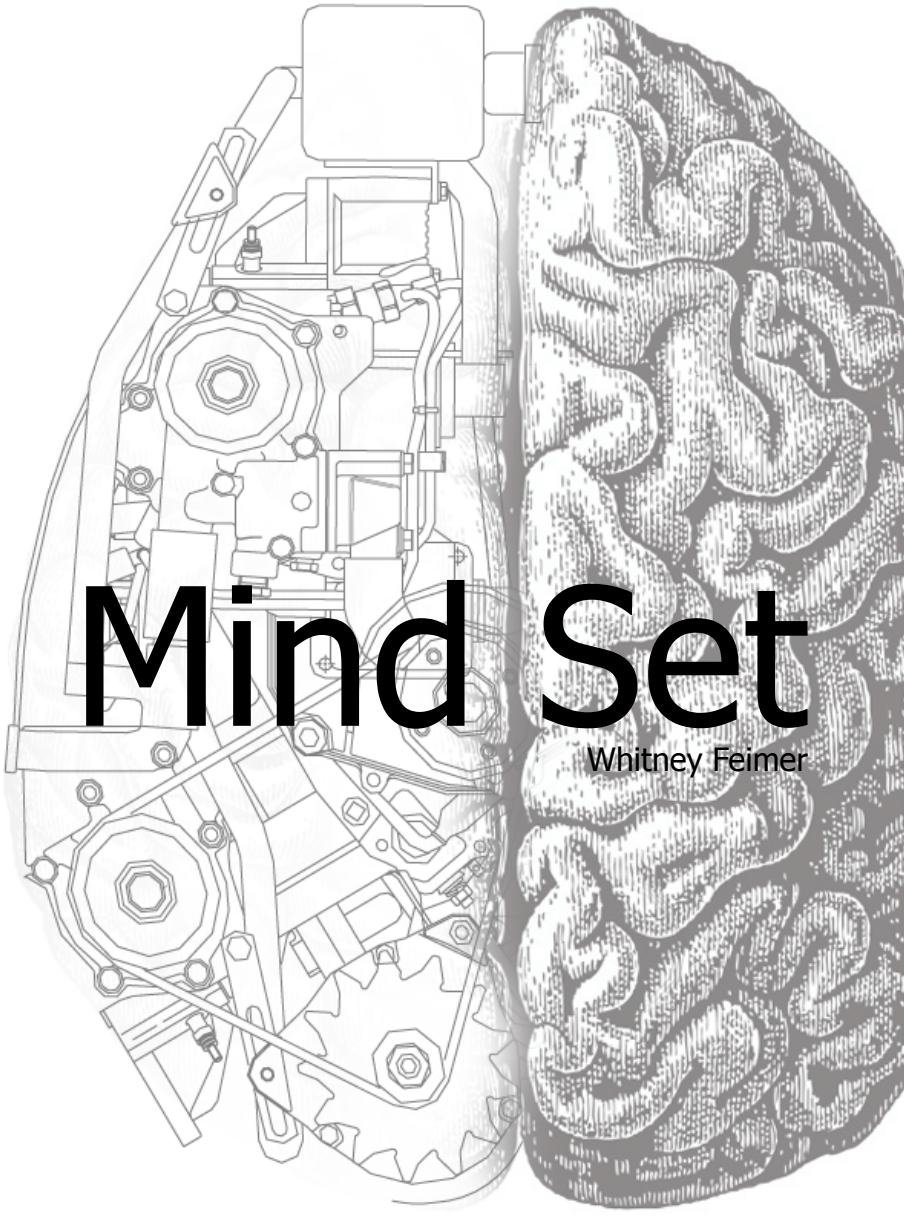

Mind Set

Whitney Feimer

Cover Image (Feimer, 2013)

Mind Set

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

By

Whitney B. Feimer

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

Joan Vorderbruggen 5/8/13
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Thomas M. Barnhouse May 7th, 2013
Thesis Committee Chair

May 2013
Fargo | North Dakota

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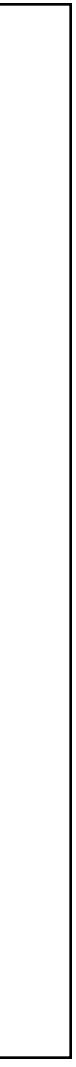

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(Payne, 2009)

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| Abstract |

Society utilizes space as a tool to distance its most challenging and difficult citizens. In examining the question, "How can architecture influence the re-establishment of psychiatric stability in the mentally ill?", the understanding of spacial issues and how the users interact with the space can better the understanding of psychiatric facilities and the environment. Once the interaction is understood, the challenge of creating spaces that better addresses the user's needs can be applied as a solution to the situation. The premise of this dissertation is to explore the relationship between architecture, the space that architecture creates, the manner in which the mentally ill interact and react to space defined environments, and the impact of space on the treatment of the mentally ill. The need for psychiatric facilities has not decreased. South Dakota currently houses a state psychiatric facility on the eastern side of the state. To better accomodate the state's patients and the surrounding area, this thesis proposes a satellite facility in Rapid City, on the western side. Research conducted will support the theoretical premise and unifying idea in a quantitative and qualitative manner.

|Keywords|

Psychiatric | Mentally Ill |
Space | Environment

| Problem Statement |

How can architecture and environment influence the re-establishment of psychiatric stability in the mentally ill?

STATEMENT OF INTENT

| Project Typology |

South Dakota Satellite
Psychiatric Facility

| Claim Under Investigation |

Architecture can facilitate the integration of spacial context and parameters with the challenge of meeting the psychiatric, physiological, biorhythmic and social needs of the mentally ill patient.

| Theoretical Premises |

Actor |

The mentally ill patient should be treated in an architecturally advanced environment that demonstrates complex space, parameters and appropriate medical treatment facilities to ensure the protection of self and others. Despite the beneficence of protection, an environment that is clinically informed, and offers patient-centered design features, can produce positive influences on patient's overall process of achieving competency (Karlin and Ziess, October 2006).

Action |

Within the architectural space, appropriate medical, psychiatric, psychological and social treatment modalities can be provided to the mentally ill with the intention of re-establishing the mind to a state of stable reasoning. It is when the architect possesses knowledge of how to treat the insane that the architecture becomes part of the regimen (Yanni, 2007, p.15) par.

The Object being acted upon |

The mind of the mentally ill patient can be medically treated within the parameters of an architecturally complex structure with the intention of re-establishing that mind to a level of reasoning so that the individual can either achieve competency, or function in a lesser restrictive environment.

Manor of Action |

The challenges of spacial composition and contextual function integrate to accommodate specific treatment goals for the mentally ill patient (i.e. clinic, pharmacy, behavioral de-escalation, coping skills development, life skills achievement, recreation, activities of daily living, medication administration). Together, these independent design entities work synergistically to promote the re-establishment of psychiatric stability.

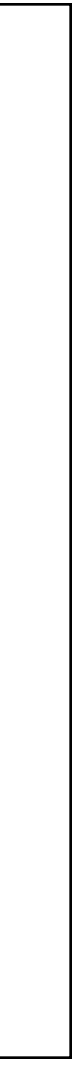
Theoretical/Unifying Idea |

The architecture of space adapts to a spectrum of function needs, from advanced security to appropriate medical care and high intensity psychiatric treatment. Design plays an important role in creating a therapeutic environment where the mentally ill can receive appropriate psychiatric attention, while simultaneously protecting the patient and society from dangerous situations. Approching this facility with an evidence-base design emphasis, a suitable environment will ensure the well being of its users. (Huisman, Morales, van Hoof, & Kort, 2012).

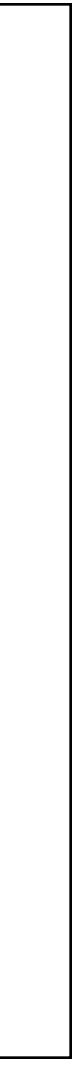
| Project Justification |

Often, the general public has a distorted view of those who suffer from mental illness. Cinema production often times portrays the mentally ill as people who hear voices to kill and be disruptive; vary rarely does cinema demonstrate these people can recover and be productive in society (Stuart, 2006). Journalism is often a source that the public get their news from, and what better way to tell a story than to distort the information. The reporting of violence and irrational behavior is often associated with someone with a mental illness as opposed to someone acting on impulse or under the influence. The recovery stories of the mentally ill are often left out of coverage, leaving the public with views and perceptions of inappropriate conduct (Stuart, 2006).

Mentally ill patients themselves are at the greatest harm of the illness. Very rarely are hallucinations within someone's mind orchestrating them to inflict massive pain on society. When an act of violance occurs the offender may turn to the insanity plea, implying that the "voice's in there head" told them to commit their offence, instead of the coming to terms with legal action. When this occurs the public interpretes speculation of the mentally ill and the actions they are capable of committing. The mentally ill carry a heavy burden of social stigma. Unfortunately, when describing historical psychiatric hospitals, the terms – asylum, snake pit, lunatic, padded cell, ieerie – come to mind. The purpose of this project is to use architecture as a flexible tool to educate others about the nature of psychiatric treatment. This project is about designing space that accommodates and facilitates the re-establishment of cognitive reasoning and behavior to those who suffer from severe mental illness. This form of architecture is achieved with the understanding of how patients and staff use their space, and how the natural and built environment affect behavior.



THE PROPOSAL



|**Narrative|**

Mental illness is a difficult concept to understand. There are no laboratory tests to confirm the diagnosis. Bizarre behaviors and abnormal thinking patterns are the primary symptoms. I learned at a fairly young age that my Mom, as a practicing forensic neuropsychiatrist, treated patients who were "different." While the concept of "normal" is difficult to define, we are all pretty good at recognizing when something is "abnormal,." I was raised to understand that treating mental illness is challenging, but that individuals who suffer from mental illness are not to be judged based on preconceived notions or ignorance regarding their illnesses. As I got older, I often visited the State Psychiatric Hospital with my Mom. In a state psychiatric setting homegoods are rare for patients and so I baked goodies for patients on my mom's units. Other times I would bring my dog, Nike to the hospital for pet therapy for patients on the units. When patients saw Nike come onto the unit, the glow of happiness and normalily refected in many patients underneath their illness. Nike became a friend for many patients.

Interactions of pettting, playing with, talking to and hugging Nike gave patients a connection with a compainion. This connection is no different than what is seen in people who are psychiatrically well and have a companion pet. From these experiences, I came to realize that individuals who suffer from mental illness yearn to be "normal". This thesis focuses on how architecture can influence the return of normalicy to the mentally ill.

Socially, economically and politically, the mentally ill are often looked upon by society as outcasts. Treating mental illness is an issue that the general public tends to sweep under the rug in hopes that it will "cure" itself on someone else's watch, or in someone else's backyard. It is a difficult road that the mentally ill travel to function and be accepted in a society that is quick to judge those who are "different." By providing a facility that offers the mentally ill a place where they have an opportunity to learn how to re-enter society, how to function "normally", the mentally ill can improve their ability to be successful in independent living. This facility will accommodate

|User and Client Description |

The facility that I am proposing will be designed to meet the unique and specific needs of those who suffer from severe mental illness. Treating mental illness cannot be addressed with architectural space alone. The design and construction of this facility keeps in mind the work force that will be integral in caring for the mentally ill patient. This project is a satellite inpatient psychiatric facility (hospital) located in western South Dakota. It's larger, parent facility is located in Yankton, South Dakota (eastern South Dakota). Because this typology is State provided, the State of South Dakota is the prime contributor to the support of this facility. While being maintained by the State, the State will also select an administrative team that is highly qualified and experienced to manage the facility. Because this facility is intended to treat the most severely mentally ill, I anticipate a variety of special need areas that will be filled by highly educated/trained staff.

|Workforce|

Administration
Physicians
Social Workers
Psychologists
Nurses
Pharmacists
Security
Maintenance
Laboratory
Specialists (Occupational
Therapy, Physical Therapy)
Food Service
Mental Heath Aids/Technicians
Dietitians
Clerical

|Patient Diagnosis|

Schizophrenia
Bipolar Disorder
Schizoaffective Disorder
Major Depressive Disorder

|Major Project Elements|

|Clinical Areas|

focuses on the psychiatric and medical needs of the mentally ill patient. Addressed below are aspects that contribute to stabilizing the patient's psychiatric symptoms:

Patient Specialty Units
- -Acute Admission
- -Long term Admission
- -Intensive Treatment

Medical exam rooms
Clinical Examination
Pharmacy
Nursing stations
Laboratory

|Administration|

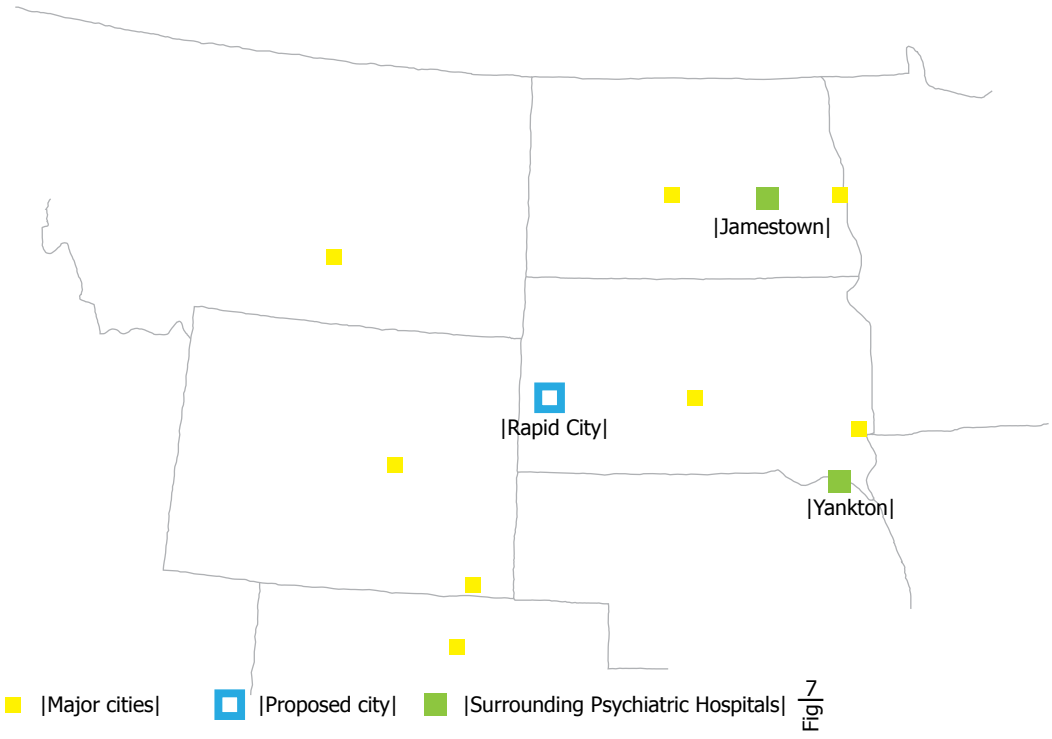
focuses on the management side to keep the facility functional, safe and accessible. The framework that defines these specialty areas include the following:

Medical records
Security
Admissions
Business Administration
Staff Offices and Meeting Space
Communications/Switchboard
Facility Maintenance
Housekeeping/Janitorial
Food Service/Dining

|Lifestyle Areas|

are defined as either everyday basics that are needed to function or as amenities that assist in reaching social and interpersonal goals of individual patients. These elements include the following space areas:

Physical Therapy
Occupational Therapy
Speech Therapy
Learning/ Life Skills
Programed Activites
Recreation
Active and Personal Space

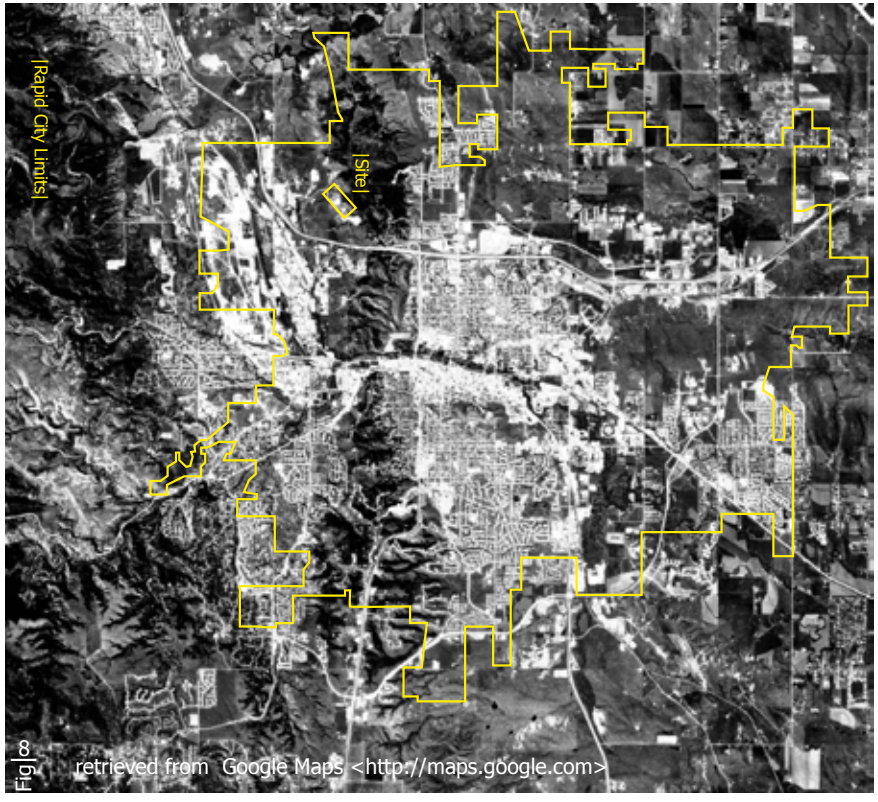


Fig| 7

Original Map retrieved from Free Maps <Free US and World Maps.com>

|**Region**|

"For more than half the nation's history, vast mental hospitals were prominent architectural features on the American landscape. Practically every state could claim to have at least one" (Payne, 2009, p.7). South Dakota is one of the Midwestern states that still operates a State sponsored inpatient psychiatric hospital. South Dakota's current psychiatric hospital is located in Yankton, SD. Despite being located in the far southeastern region of South Dakota, this single State hospital services the entire state of South Dakota, as well as five surrounding states (Nebraska, Iowa, Minnesota, Montana and Wyoming). By placing a second psychiatric facility on the outskirts of the Rapid City region (western South Dakota), this proposed location would better service the western half of South Dakota, Wyoming and Montana.



Fig|8 retrieved from Google Maps <http://maps.google.com>

|**City**|

The proposed facility will require a wide spectrum of diversely skilled personnel to run the hospital and care for patients. Rapid City boasts a population base of approximately 85,000 people, from which qualified employees can be found. A rural setting would complicate the facility's ability to attract and retain qualified personnel. To support the lifestyle of hospital personnel, Rapid City offers quality schools, cultural entertainment, a variety of restaurants, low cost of living and multiple levels of housing.

(Feimer, 2012)

Fig | 9

Fig | 10

Fig | 11

Fig | 12

Fig | 13

Fig | 14

Fig | 16

Fig | 15

| Site |

The site for this project is located on the Northeast outskirts of the Rapid City, city limits. An abundance of space is one of the greatest attributes of this site. Because society utilizes space to distance its' most challenging and difficult citizens, the distance from the proposed site to the city proper provides a security boundary. Instead of creating a perimeter with fencing and gates, many psychiatric hospitals ensure safety by slightly distancing these facilities from the general public. To the East of the sight, a modest change in elevation and topography similarly help create a natural barrier. To accommodate the transportation requirements of patients being admitted and discharged, this site is ideally located north of Interstate 90 with easy access on and off this major interstate system.

| Project Emphasis |

This project will emphasize the understanding and incorporation of space and environment as it relates to the treatment of the seriously mentally ill. Research will be specific in understanding how the mind perceives space, the needs of the mentally ill and how architecture and the environment can aid in creating a more therapeutic surrounding. Analysis and interpretation will then provide the information needed to construct the appropriate spaces for assisting these conditions. The architecture will respond in a sense that assists in bettering psychiatric symptoms and improving patient care and well-being.

|**Research Direction**|

In order to fully understand the scope of this proposal research will be conducted to re-enforce the Theoretical Premise/ Unifying Idea. Supporting research within the areas of project typology, historical context, site analysis and programmatic requirements will be evaluated and applied to the underlying model of spacial and built environments to the mentally ill.

|**Design Methodology**|

The design methods that will be used in conducting research for this project include Mixed Method approaches, Quantitative approaches and Qualitative approaches. The strategy of Concurrent Transformative Theory provides a model that is guided by the research of the Theoretical/Underlying Idea which will be the strategy of choice throughout this process. Quantitative data will be collected through statistics and series of numeral records. Quantitative data will be compiled using a series of periodicals, archival research, interviews and observations. In using the Concurrent Transformative Theory method in collecting qualitative and quantitative data the research will be expressed in a graphical manner as well as through text.

|**Documentation**|

Documentation of this design thesis will be compiled digitally. Computer information will be kept up routinely and backed up regularly in multiple locations. Work process, including sketches, diagrams, photos and models, will be documented for final material in the project booklet. Documentation of the work in process will be collected and compiled bi-weekly in an organized and orderly manner. The composition of work will illustrate the process of how the end product came to be.

Upon completion the process work and data will be compiled and hardbound within the thesis book, as well as deposited into the Architecture Digital Repository.

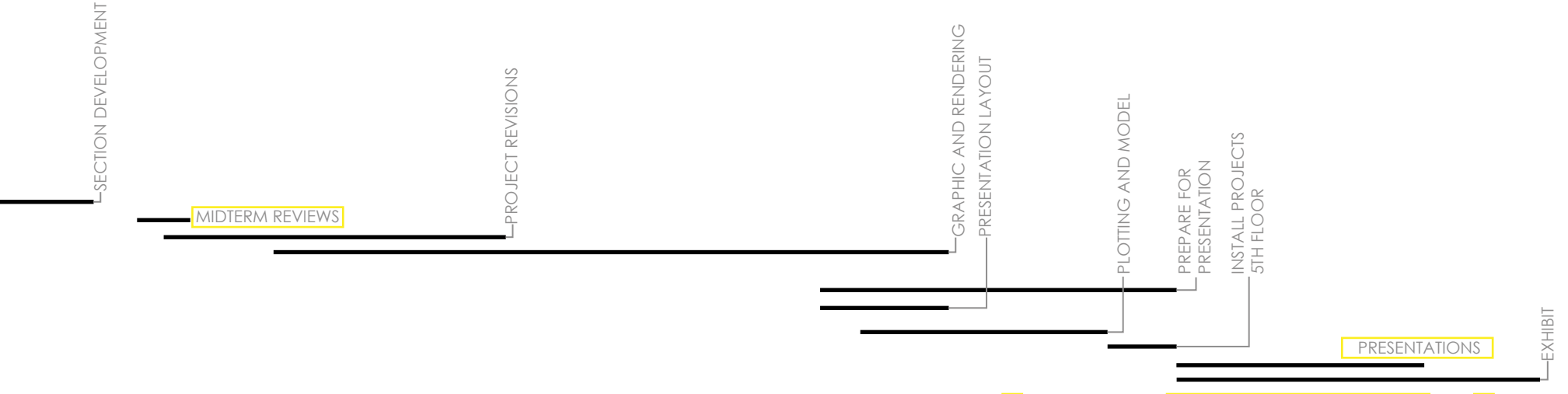
Context Analysis	5	days	01.08.13 - 01.14.13
Conceptual Analysis	10	days	01.08.13 - 01.21.13
ECS Passive Analysis	5	days	01.21.13 - 01.25.13
ECS Active Analysis	5	days	01.28.13 - 02.01.13
Structural Development	8	days	01.21.13 - 02.01.13
Context Redevelopment	5	days	02.04.13 - 02.08.13
Floor Plan Development	11	days	02.04.13 - 02.15.13
Envelope Development	14	days	02.08.13 - 02.28.13
Materials Development	10	days	02.13.13 - 02.27.13
Structural Redevelopment	7	days	02.13.13 - 02.22.13
Section Development	10	days	02.15.13 - 03.01.13

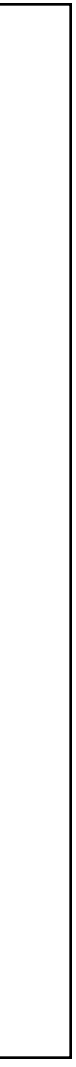
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
January

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
February

Fig Project Schedule

Midterm Reviews	5	days	03.04.13 - 03.08.13
Project Revisions	12	days	03.06.13 - 03.22.13
Graphics and Rendering	24	days	03.12.13 - 04.12.13
Preparation for Presentation	15	days	04.05.13 - 04.22.13
Presentation Layout	6	days	04.05.13 - 04.12.13
CD of Boards to Thesis Advisor	0	days	04.15.13
Plotting and Model	11	days	04.08.13 - 04.19.13
Exhibits Installed on 5th floor	3	days	04.19.13 - 04.22.13
Thesis Exhibits	14	days	04.22.13 - 05.10.13
Final Thesis Reviews	6	days	04.25.13 - 05.2.13
Final Thesis Document Due	0	days	05.10.13
Commencement	0	days	05.11.13





|Studio Experience|

Fall 2009| Darryl Booker
Teahouse, Boathouse

Spring 2010| Joan Vorderbergen
Montessori School,
Birdhouse Competition, Dwelling

Fall 2010| Paul Gleye
Cycle Shop, Fire House

Spring 2011| Regin Schwaen
Homeless Shelter Competition

Fall 2011| Frank Kratky
High Rise, KKE Competition- Trash to Treasure

Spring 2012| Paul Gleye
International Study Abroad, Urbanism Infill

Fall 2012| Mark Barnhouse
Water Analysis, Water Research Station

THE PROGRAM

Fig 18

Fig 19

Fig 20

Fig 21

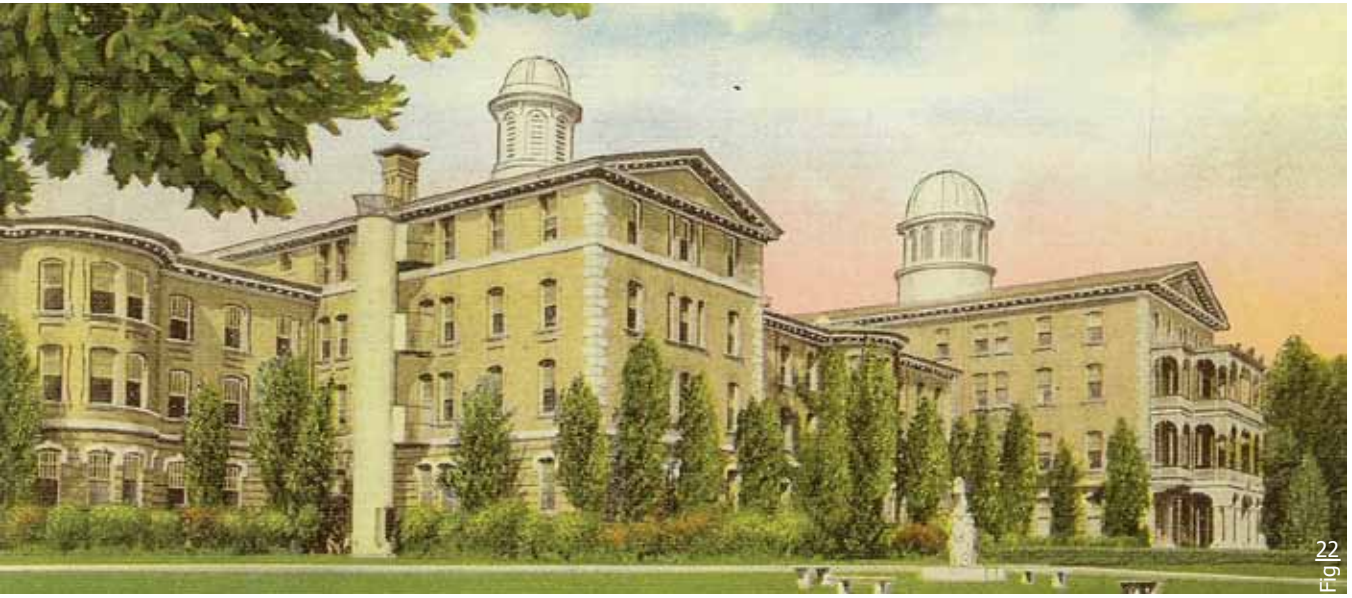


Fig 22

Fig 23

| HISTORY |

In years prior to the nineteenth century, families often cared for their mentally ill relatives within their homes. This responsibility became costly, timely and burdensome to families. As doctors learned more about mental illness and made claims that "insanity" could be treated - but only in an institutional setting - families volunteered their loved ones for commitment to these institutions. "For most of the nineteenth century, doctors believed that between 70-90 percent of insanity cases were curable, but only if patients were treated in specially design buildings "(Yanni, 2007, p. 1).

During much of the nineteenth century the dominant landscape of the United States was that of the insane asylum. Insane asylums constructed in the nineteenth century were created as a social experiment built with noble intentions and to grand proportions. In the twentieth century overcrowding and pharmacutical advances turned these facilities into human warehouses, and eventually emptied them leaving only secrets and untold stories within the walls.

Just shy of one-hundred years - more than 300 insane asylums decorated the landscape servicing nearly half a million people. The largest new facility was Pilgrim State Hospital (New York) built in 1933. Situated on a plot of 1,000 acres, boasting 10,000 patient beds, and housing 14,000, patients, this facility was an example of a fully functioning city (Payne, 2009). Asylums were design by architects and physicians with the intention that these facilities would be a place of healing. Insane asylums often functioned as self-sufficient communities that provided their own food, clothing, medical attention and services such as fire departments, power plants and train stations. In order for states to fully maintain these facilities, up to a quarter of their state budget was set aside for insane asylums. Because "lunacy" could only be "cured" within an architecturally appropriate building, structure and grandness became the pinnacle for these institutions. Architecturally, these facilities were as grand as any high society mansion. Carla Yanni, author of *Madness of Architecture*, points out that asylums were architectural paradoxes. On one side - insane asylums should be meek and utilitarian representatives of the State's economic standing. On the other side - insane asylums manifested the social status of the hospital, seducing public citizens to see the asylum as a source of civic pride.

It was in the late eighteenth century that the notion of removing the chains from "*madmen*" was implemented. Two men – William Tuke and Phillippe Pinel – pioneered a paradigm shift in the way mentally ill individuals were treated. Separately, these men championed a moral, humane treatment approach rather than locks and chains. Their treatments offered therapeutic programs that would allow patients to work towards a goal of competency, rather than mere confinement. Humane psychosocial care and moral discipline was regimented by a well-structured daily routine that incorporated work and activities. The movement towards moral treatment would be the foundation of architecturally informed treatment that continued through the remainder of the century.

One of the most highly successful and accredited hospital designs of this time was the Kirkbride Plan. Thomas Kirkbride was a physician and the administrator of the Pennsylvania Hospital of the Insane. As a treating psychiatrist, Dr. Kirkbride advocated for the moral

treatment of the mentally ill. Between 1840 and 1880, he was perhaps the single most important physician to influence architecture and asylums. Kirkbride authored a book in 1851 addressing the architecture of insane hospitals. It would later be endorsed by the Association of Medical Superintendents of American Institutions for the Insane (AMSAII; today known as the American Psychiatric Association). Kirkbride's work became the handbook and guideline for constructing of mental hospitals across the country. With the adoption of Kirkbride's guidelines to the construction of asylums, psychiatry became a part of the profession of medicine (Yanni, 2007).

The general term - congregate hospital - was one that described large asylums. The Kirkbride plan still held true to the definition of a congregate hospital but differed in plan from other designed institutions. One of the largely acclaimed developments in institutional history was the incorporation of detached pavilions within hospital designs. These separate, individual spaces were typically arranged in a U shape or quadrangle plan that provided good ventilation to patients, but isolated the ability to provide proper surveillance.

The Kirkbride plan (also known as the linear plan) provided a connection between short pavilion wards at right angles to each other. This created a shallow V -shape plan with administration situated at the vertex of the branching wards.

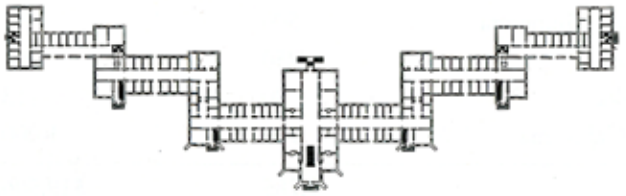


Fig 24 Kirkbride Plan
Image retrieved from Architecture of Madness, Yanni.

Prior facilities were also constructed using different arrangements such as an E,H, U, or T format. These arrangements often resulted in wards that were parallel to one another and kept patients from accessing natural elements. The shallow shape of the V allowed for better air movement, sunlight and views of the natural elements – all factors believed to be integral in moral and humane treatment. The symmetrical plan of the V also allowed for segregation of patients, with males housed in one wing and females in the other. Wings were then sub-divided by race, social class and illness, placing the most insane in the outer most wards. The theory of the design was that as a patient progressed through treatment they would move closer to the vertex where administration and staff were housed. This theoretical organization assisted the psychiatrist in grouping patients by symptoms, characteristics, and behaviors. Eventually, these groupings became specific diagnosable illnesses that are still recognized as mental illnesses today.

In relation to moral treatment, the natural environment played a critical role in the success of the patient. Rural settings offered the capability of providing countryside views and optimal fresh air for ventilation compared to the urban setting of a city (Yanni, 2007). While moral treatment is no longer in practice the concepts and role of nature have presented themselves in present day psychatric facilities as a sense of caring for patients well being. Placement of asylums in agricultural dominated areas and townships guaranteed economic security. Comparatively, these mental facilities were nothing more than oversized dormitories (Payne, 2009). As the Kirkbride plan was copied across the country, it came with grand expectations as well as glaring errors. "Morally",the practice of segregation is contrary to treatment. While moral treatment may have been a contributing element in attempting to make people better, those who occupied these institutions rarely achieved a state of normality that would allow them to enter back into society. Gradually, the "moral treatment" that marketed these institutions dissipated due to the time and space it demanded. With the advent of the twentieth century, pharmaceutical medications began to appear on the market as the new treatment for "lunacy". Interestingly, because insane asylums were the status-quo of the century for many States, these type of facilities continued to be constructed despite dwindling justification for funding them.

After decades of "moral treatment" in Kirkbride institutions, the humane approach to treating the mentally ill was replaced with bitter pessimism. Mental hospitals were starting to become overcrowded and looked upon as a place of confinement rather than a place for a cure. Patient admissions seriously outnumbered patient discharges. As the century progressed, architectural plans for asylums were modified. Two of the larger contributors to the twentieth-century institutional design were the "Cottage Plan" and the 'change in title'. The "Cottage Plan" was a European approach to designing mental hospitals that resembled college campuses by creating smaller living wards connected by sidewalks, greenery and streets. As society began to accept the modified layout for these institutions, the Kirkbride approach ironically re-popularized. As stated in Christpoher Payne's leacture on Asylum, "Buffalo State Hospital was more than one-third of a mile long forcing the care of the patient to be secondary" (C. Payne. University of Virginia Medical Center Hour, Lecture given on 2011). Simultaneously, the name "insane asylum" or "lunatic asylum" was discarded and institutions began referring to themselves as State Hospitals. The change in name was a tactic to legitimize the profession of psychiatry and implement modern medical practices into treating the mentally ill. Despite these changes, psychiatric hospitals continued to operate along the lines of self-sufficient communities. In years leading up to the Cottage Plan, the concept of chronic mental illness was hypothesized. This revolutionary concept resulted in a need to create residential wards for patients who could not be stabilized well enough to discharge back to society. These wards needed to be separate from individuals who's illnesses were treatable. The Cottage Plan met this need much better than the Kirkbride Plan. It also better accommodated both patients and staff. The segmented plan offered doctors and staff the flexibility to reuse the housing units based on type of illness. Unlike the rigid structural design of the Kirkbride plan, the Cottage Plan allowed for variety in plan layout. Additionally, due to overcrowding and State's heavy financial investments in showcasing a Kirkbride building, the Cottage Plan facilitated supporting housing units to accompany a pre-existing structure.

Fig 25 Kalamazoo, Michigan Psychiatric State Hospital Cottage Plan

Fig 26

Fig 27

Fig 28

Fig 29

Fig 30

Fig 31

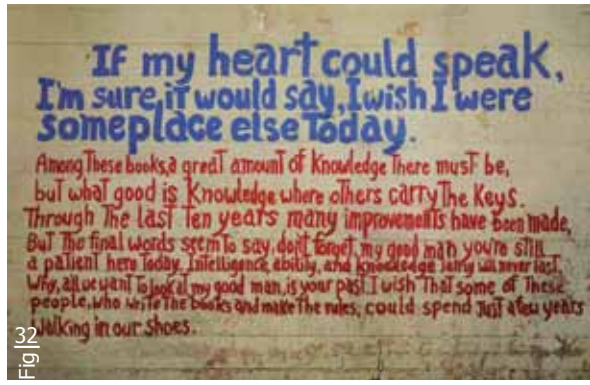


Fig 32

Fig 33

For patients who occupied these new quarters, a home-style representation was incorporated. As opposed to Kirkbride structures, Cottage Plan housing units generally held fewer than forty occupants and provided a more residential allure. Cottages were constructed with two to three levels. Lower levels were intended for social and communal interactions, while sleeping quarters were housed on the upper floors. Pitch roofs and porches opened up onto suburban-like streets landscaped with flowers and shrubbery. These units were erected from timber framing which reduced cost compared to the elaborate masonry and stonework materials of earlier Kirkbride asylums. Today, many new facilities implement a similar Cottage Plan strategy.

Regardless of the physical building and prideful designs, these institutions use the environment as a therapeutic tool to aid in the treatment of mental illness. One of the first advocate's of incorporating nature into patient recovery at State Hospitals across the country was school-teacher turned reformer, Dorothea Dix. Dix's persuasion tactics involved convincing State legislatures that the humanitarian approach should include erecting large civic institutions on vast spaced that could enlighten society. At the time of this enlightenment, Thomas Kirkbride served as a member of the Association of Medical Superintendents of American Institutions for the Insane. This assembly of asylum superintendents subsequently drafted a list of functions that outdoor environments would provide for these institutions.

"No hospital for the insane, however limited its capacity, should have less than fifty acres of land devoted to gardens and pleasure grounds for its patients. At least one hundred acres should be possessed by every State hospital (Cooper Marcus & Barnes, 1999, p. 241-242)."

Because many insane asylums were functioning communities, farms and gardens were developed on the grounds and patients were put to work. It wasn't until late in the nineteenth century that legislation against utilizing unpaid patient labor would be enacted. During the rapid craze of constructing asylums, the garden and grounds were often designed like English style landscapes. The English style offered vast amounts of open area with rolling hills and groves of trees. Walking paths were created throughout the landscape that passed in and out of cherished gardens near the vertex of the

Kirkbride complex. These elaborate gardens of insane asylums became model projects recreated in many city and State park landscapes (Cooper Marcus & Barnes, 1999). Ironically, insane asylums or State Hospitals became status symbols for States across the American landscape. For many visitors traveling across the country, touring State Hospitals was as common an entertainment activity as camping. Unfortunately, while the grounds and gardens of State psychiatric hospitals were open to the public because they were considered State property, patients who resided at these institutions were subjected to ridicule and mockery.

With the population of patients rising, support staff were frequently out numbered. Wards became dangerously overcrowded. Patient's access to natural environments for walking and recreation slowly disappeared. In Carla Yanni's book, *Madness of Architecture*, a female reporter by the name of Nellie Bly faked her own insanity to immerse herself in the life style of the insane within the Kirkbride plan. Bly discovered that what the gardens and buildings were intended for differed greatly from their true use. "Bly was appalled by the manner in which women traversed the grounds; they were not strolling, rambling or promenading. Two attendants dragged patients along using a single rope and a series of belts. A long cable rope fastened to wide leather belts, and these belts locked around the waists of fifty-two women" (Yanni, 2007, p. 142). The movement to the Cottage Plan in the late nineteenth century eventually allowed patients easier access to their environment due to the decrease in occupants in housing units.

The twentieth century brought about an end to the of treating "insane" patinets in asylums. The new field of Neurology embarked on discovering the biological cause of brain disorders through scientific research techniques. This approach differed significantly from asylum doctors who approached the mentally ill in a management style rather than from a physiologic basis. From a neurologist's perspective, healing the mentally ill started with healing the body; not from an architectural compartmentalizing of patients in wards. As scientific research took place on college campuses, away from hospital institutions, a new approach involving short-term care hospitals and community monitoring systems emerged. (Yanni 2007).

The Freudian method of treating the mentally ill was another intervention that diminished the impact of architectural practices in psychiatry. Here, observing how the mentally ill behave in an environment fell short to understanding the influence of experience on the subconscious mind. "Psychoanalysis worked best on patients who were mildly neurotic, not severely psychotic" (Yanni 2007, p. 147).

In 1950s, political policy deinstitutionalized most mentally ill patients. State hospitals were reserved for treating the most dangerous, incompetent or criminally insane. Deinstitutionalization resulted in the creation of community based clinics to treat psychiatric illnesses. Unfortunately, deinstitutionalization occurred haphazardly over several stages and several years, leaving hundreds of mentally ill individuals homeless and on the streets.

> *Most of those who were deinstitutionalized from the nation's public psychiatric hospitals were severely mentally ill. Between 50 and 60 percent of them were diagnosed with schizophrenia. Another 10 to 15 percent were diagnosed with manic-depressive illness and severe depression. An additional 10 to 15 percent were diagnosed with organic brain diseases -- epilepsy, strokes, Alzheimer's disease, and brain damage secondary to trauma. The remaining individuals residing in public psychiatric hospitals had conditions such as mental retardation with psychosis, autism and other psychiatric disorders... The fact that most deinstitutionalized people suffer from various forms of brain dysfunction was not as well understood when the policy of deinstitutionalization got under way. (PBS Frontline, 2005).*

New psychotropic medication became available a short time following the shift to deinstitutionalization. The first antipsychotic drug, chlorpromazine, and the first antidepressant drug , imipramine, were made available to psychiatrist in 1952 and 1957, respectively (Yanni, 2007). Patients were discharged from small community programs if they responded positively to antipsychotic drugs. The height of deinstitutionalization didn't occur until the late 1960s and 1970s when hospital funding shifted from State to Federal dollars. Hospitals could no

longer allow patients to work without paying minimum wage. This movement eliminated the source of cheap labor State hospitals took advantage of in order to keep operation costs low and remain open (Payne, 2007). The premise of deinstitutionalization was to give patients a more community-based center of care in a homelike environment. The architectural contribution to assisting the mentally at this time was minimal. Sadly, the most common architectural setting for schizophrenics and manic-depressives were not elegant, elaborate buildings - but urban streets (Yanni, 2007).

Thanks to continuing advancements in medicine, research and technology, psychiatry has flourished as the brain and the mind are better understood. However, the architectural impact on psychiatric facilities no longer purports a "cure" that was once associated with them. The buildings that once highlighted the landscape of the nineteenth century are now skeletons and shells that only remain partly intact (Payne, 2009). States now struggle to find funding in an effort to renovate, restore or, deconstruct these institutions. Many sit boarded up and crumbling, as remnants of architectural madness.

| THE BRAIN, THE MIND AND MENTAL ILLNESS |

The brain is roughly a three pound mass of neurons, synapses (spaces between neurons) and connective cells that provides structure to the mind. The brain is highly organized and mapped into functional regions such as motor movement, sight, thought processing, emotional regulation and autonomic function (i.e. breathing, heart rate, temperature regulation). The brain functions through intra-cellular communications using a variety of chemical compounds called neurotransmitters. The primary neurotransmitters in the brain include dopamine, norepinephrine, serotonin and glutamine. Normal brain function involves the release of the right neurotransmitters, at the right time, in the right place within the brain structure itself. Deviation from this precisely orchestrated script results in physical, emotional and behavioral disturbances (Wedeen, et al., 2012).

While the brain is the computer center for the rest of the body – directing the activity of all other organs – the mind is a demonstration of higher level brain function. "[The mind] is the manifestation of thought, perception, emotion, determination, memory and imagination ("Differnce Between Brain and Mind," 2010, para.3)."

The brain itself provides the structure and communication for the mind to process and integrate environmental awareness. Similar to the structure of a light bulb, the brain operates as the outer bulb [structure], the production of, light within the bulb is similar to the result of the minds activity. When the brain has incorrect physical connections, it is reflected in the mind as abnormal perceptions, disorganized thinking and inappropriate behaviors. This is the basis for mental illness.

To fully understand how space and architectural design influence the treatment of the mentally ill, mental illness must be defined. According to *Mental Health First Aid*, "A mental disorder or mental illness is a diagnosable illness that affects a person's thinking [or] emotional state and disrupts a person's ability to work or carry out other daily activities" (Kitchener, Jorm, Kelly, 2009, p.12). Disorders of mental illness are divided into two categories called Axis I and Axis II. Axis I psychiatric (mental) illnesses are driven by abnormal brain chemistry. Axis II psychiatric illnesses are related to defects in personality that are influenced by experiences and environment.

Surprisingly, mental illness is not rare. In any given year within the United States, one in four adults 18 and older will experience a mental illness, which is approximately 57.7 million Americans.

The proposed facility will be designed to treat patients who suffer from Axis I psychiatric illnesses. Of the Axis I disorders, the most common illnesses treated in an inpatient setting include Schizophrenia, Bipolar Disorder, Schizoaffective Disorder and Major Depression.

Schizophrenia is the most severe of all mental illnesses. Schizophrenic symptoms typically begin as a patient enters his/her late teen years or early 20's. The most common symptoms include auditory hallucinations (hearing voices that others cannot hear), visual hallucinations (see things that others cannot see), delusions (fixed false beliefs that do not fluctuate with contrary evidence), disorganized thinking (an inability to think in a clear, systematic, linear manner) and disorganized behavior (bizarre behaviors that are nonsense or culturally inappropriate). Schizophrenia is not all that uncommon. It afflicts 1% of the general population, regardless of race, gender or culture (National Institute of Mental Health, 2012). Patients who suffer from schizophrenia struggle with differentiating what is real and what is not real in their environment. The following patient's story illustrates the impact of schizophrenia on activities of daily living. These case examples (and others to follow) were provided by Dr. Josette Lindahl, M.D., Ph.D., a staff psychiatrist at the South Dakota Human Services Center (State Psychiatric Hospital), in Yankton, SD.

Robert is a 32 year old, single, Caucasian man who suffers from Paranoid Schizophrenia. Robert receives instructions from voices within his head that provide him with instructuions on what he should do during the day. The voices tell Robert that he must download directions from sources outside of his brain. Robert believes that these messages are transferred to his brain through pop machines. Subsequently, Robert stands in front of many local pop machines with his head firmly placed just above the selection buttons. Depending on how many instructions Robert believes he must receive in a day, he will stand in this position for hours without moving. This has caused some distress to residents in his apartment building as they find his behaviors bizarre and unsettling.

Nicole is a 54 year old, divorced Caucasian woman who suffers from Paranoid Schizophrenia. Nicole was presented to the State Psychiatric Hospital after her family became concerned that she had not sat down in any chair or hard surface for over three weeks. Nicole spends her entire waking hours in a standing position. When asked what her concern was regarding sitting down, Nicole explained that the voices were telling her that every chair made in China was equipped with built-in infrared cameras that could penetrate clothing and take pictures of "private parts." Nicole was convinced that if she sat down on chairs made in China, her "private parts" would be photographed and placed on the internet for all to view.

Bipolar Disorder is an illness affecting emotional control. Bipolar Disorder presents with extreme emotional highs and lows. Patients fluctuate between periods of euphoric mania to suicidal depression. There are few moments of stable, neutral emotion. The emotional dysfunction associated with Bipolar Disorder often results in racing thoughts, grandiose delusions and strange behavior.

Similar to Schizophrenia, Bipolar Disorder typically starts in the late teens to mid-20's. Unlike Schizophrenia, however, Bipolar Disorder can also present later in life during changes in age related hormone levels. Similar to Schizophrenia, Bipolar Disorder affects approximately 1% of the general population regardless of race, gender or culture (NIMH, 2012).

Tim is a 28 year old, married Asian man who was brought to the State Psychiatric Hospital by his wife. Tim's wife explained that Tim had been up for 5 days without sleep. During this five day period, he decided to replace all the windows in the house, so he used a sledge hammer to break every window and then removed them all at one time. Their house now has no windows – only empty spaces. The wife explains that Tim believes that he is trained as master carpenter and can replace all the windows, despite never having used a hammer or any other tool in a tool box. One month prior to this episode, Tim attempted suicide by hanging himself over a rafter in the basement furnace room. At that time, Tim cried constantly, could not get out of bed to go to work and felt his life was completely empty and useless.

A combination of Schizophrenia and Bipolar disorder is called Schizoaffective Disorder. This mental illness is characterized by the emotional fluctuations of Bipolar Disorder in addition to the hallucinations and unusual delusions of Schizophrenia. However, typically the symptoms are less severe, but require multiple medications to stabilize the patient (Kitchener, et al., 2009).

Major Depression is one of the most common of all mental illnesses. While sadness is a normal emotion that everyone experiences from time to time, Major Depression is an extreme form of sadness and despair that results in an inability to be motivated or perform daily activities. The most desperate behavior associated with Major Depression is suicide. Major Depression is more prevalent than Schizophrenia or Bipolar Disorder. In the United States, nearly 6.7% of adults will experience a Major Depressive episode in a year's time span. Unlike Schizophrenia or Bipolar Disorder that affect men and women equally regardless of race, white middle aged women are 70% more likely to suffer from Major Depression than other demographic groups. The average age of onset for Major Depression is 32 years of age (National Institute of Mental Health, 2012). Sandy is a 38 year old, married white woman who was committed to the State Psychiatric Hospital following a suicide attempt by medical overdose. Sandy stated that she had been crying constantly for approximately two weeks. She slept 18 hours a day and simply had no energy to get out of bed. Sandy had always enjoyed being outdoors with her husband and children, but over the last two weeks, could not cook for her family, play with her children or be intimate with her husband. Sandy felt excessively guilty that her family was suffering from her problem. She couldn't even concentrate long enough to read her children a bedtime story. Sandy had not showered in nearly three weeks. She felt utterly hopeless and helpless. Prior to admission to this hospital, Sandy believed her situation would never improve. She took a serious overdose of narcotics and anxiety medications. When her husband discovered her, unresponsive, sitting in the backseat of the car that was parked in the garage, he called EMS. Sandy was comatose for five days in intensive care prior to transfer to a psychiatric facility.

| MIND AND PERCEPTION |

The connection between brain, mind and perception shares an interesting relationship. The brain is the structural foundation for the mind to function. The mind perceives the surrounding environment through the senses. Although not tangible, perception is therefore a form of reality. Perception is not just the comprehension and recognition of surrounding space. It is also the emotional experience that allows users to interact with their space. Because each mind functions independently, and no two minds are alike, perception is very personal. Perception differs from person to person – even when the situation, the space, the setting remains the same.

Space is an environment that the user moves through without interruption. Phenomenology is the study of human experience. The combination of space, phenomenology and perception creates a formula for the phenomenology of architecture; the experience of space through materials and details as recorded through the senses. "The architectural synthesis of foreground, middle ground and distant view, together with all the subjective qualities of material and light, form the basis of complete perception (Holl, Pallasmaa, & Pérez-Gómez, 2006, p.55)."

Processing information about a space that surrounds us results in overlapping perspectives that coalesce to create an experience. Additive elements such as light, color, time, materials and details (among others) give experience to the space. If one or more elements are removed, a different space is experienced. Architecture is therefore a tool by which information derived from the senses is organized into experience.

For example, light and shadow depict depth and void. Light is an element that amplifies surface, color and texture. Light and shadow can also act as guidelines. A space that is in shadow can be perceived as boundary. Because a space is dimly lit, the interpretation of not being able to experience the space is implied. If sight is obsolete, the other senses become amplified in order to continue moving someone through the space.

Unlike the other four senses, sound is actually experienced throughout the entire body. The addition or subtraction of materials creates echoes or vibrations that inform the user about the space. Sound can therefore, effectively navigate someone through their environment.

Questions of Perception: Phenomenology of Architecture, it is noted that "the strongest memory of a space is often its odor … memory and imagination remain associated" (Holl, et al, 2006, pg.32). Spaces are often remember not through direct visualizations, but through the scent of the environment. For example, hospitals have a unique odor that is strongly associated with the concept of sterilization and disinfection. This odor is not a clean smell, but rather, a sterile smell – despite the fact that patients within are riddled with germs and infections. The "sterile" odor overpowers the reality of sickness, providing a level of comfort to proceed through the space.

Time – the movement through space – is often perceived as a linear model (Holl, et al, 2006). Architecture creates a framework that determines how much time one spends in a space. For example, if a hallway is designed with the purpose of moving individuals from one point to another, the structure of that hallway impacts how the user perceives time spent in it. If the hallway is short, the experience of time is hardly recognizable. However, if the hallway exceeds a level of reasonable distance, time spent in that hallway becomes uncomfortably noticeable.

Skin is the largest organ of the human body. It is through skin that touch is differentiated – rough, soft, warm, cool, hard, light. Users experience touch in architecture through details and materials. The feeling of a surface produces an emotion about the space. By varying materials and details within a space, users are informed that the space itself is changing and therefore, their interaction and emotional experience with the space will also change.

"All the senses, including vision, are extensions of the tactile sense; the senses are specializations of skin tissue, and all sensory experiences are modes of touching and thus related to tactility" (Holl, et al, 2006, p. 36). Architecture is a unique instrument that bridges nature's environment and human ingenuity to create experiential space. Architecture is cultivated through a multi-sensory array of interactions with the environment and surrounding space. By understanding how the human senses move an individual who is psychiatrically well through space, one can ask, "How is space perceived by an individual who suffers from serious mental illness?"

The psychiatrically ill experience a world that is often depersonalized, desocialized and de-realized. This type of disembodiment affects the mentally ill whereby reality cannot be differentiated from non-reality. The psychiatrically ill experience space and surroundings through a veil of distortion that includes visual hallucinations, auditory hallucinations and delusional thought processing. For example, to a schizophrenic patient who is actively hallucinating, floor patterns and wall coverings begin to appear three dimensional. These floor and wall designs can protrude outward, causing confusion and disorientation as they attempt to meander through the space.

Sound environments are especially critical to a schizophrenic patient. Echoes and reverberations make it difficult for these individuals to orient themselves. This again, results in confusion and disorientation. When a patient's concentration is so fixed on the sounds that occupy that space, one's ability to move about or through the space becomes crippling. In addition, synesthetic experiences transpose sensory experiences. In these cases, patients hear colors and visualize sounds.

Often, the sense of touch becomes a reality check for the mentally ill. When the mentally ill patient is psychiatrically disengaged with the environment, the sense of touch is used to orient and move a patient through space. Patients will frequently travel against a wall instead of within an open corridor in order to use the wall as a guide. Interestingly, however, these individuals will move to wherever that wall takes them. When the wall ends or turns directions, patients find themselves in a different space that they did not anticipate (Spivack, 1984).

Time is one phenomenology that approaches the psychiatrically well and the mentally ill with similar feelings and experiences. It is the level of tolerance and extended threshold that determines an uncomfortable situation. Because the mentally ill often lose concept of time, in the relative reality of the physical environment, their sense of time and speed is severely distorted (Spivack, 1984). For example, when the psychiatrically ill pass through a long corridor of repetitive doors and windows, they sense no passage of time – no progression through that corridor.

Through the understanding of phenomenology, architecture and perception can influence how humans proceed through space. Identifying how the psychiatrically ill relate to their environment provides the architect with feedback on how to improve the presentation of space to these unique individuals. Built and natural environments clearly play a significant role in how mentally ill patients interact with their surroundings, and correlate their emotions and sense of well-being. By examining phenomenology as it relates to the psychiatrically ill, space and environment can be improved to facilitate the care and treatment of these individuals.

| PHYSICAL ENVIRONMENT |

"Because the environment is familiar ... we are accustomed to turning our awareness to more significant things, such as other people and our tasks. Even if the environment is uncomfortable, we tend to ignore it unless our discomfort reaches extremes (Spivack, 1984, p.118)." An individual with a mental illness perceives their environment in a way that is altered by their cognitive impairment. It is often said that the best way to experience space through another's eyes is to follow their thoughts and movements. For those who do not struggle with mental illness, perceiving and experiencing space as a severely mentally ill person would is difficult to achieve without the influence of illegal substances or practices. Observing patients in their current physical environment is a critical tool for expanding our understanding of how to optimize space for future settings.

Psychiatric patients present new challenges for medical treatment. Not only are they subject to a higher incidence of general medical illnesses, but their mental disorders often render the psychiatric patient difficult to manage. Psychiatric patients typically present for inpatient hospitalization when their illness renders their behaviors out of control, or, they present a physical danger to themselves or others. The integration of higher security measures within a patient's physical environment is a critical aspect that is typically not needed in other hospital spaces. To protect psychiatric patients from harming themselves or others, amplified security systems are needed that are not used in general medical hospitals. These security systems include locked units, seclusion rooms, shatterproof windows, fixed bed positions, no closets, bathroom andsecurity systems.

The architecture of psychiatric facilities affirms that patients are treated in the least restrictive environment that provides safety and security to both staff and patients. Architecturally, lesser restrictive environments are inevitably determined by those individuals who are most at risk on the unit (i.e. the vulnerable patient). According to the design and definitions overview of many asylums, "the moral issues of psychiatric hospital architecture and design remain caught in between the biomedical ethics principle of patient autonomy and the good of paternalism (Sine, 2008, p.1062)."

Psychiatric patients suffer from the same medical conditions as any other general medical patient.

Therefore, routine clinic and examination rooms, along with diagnostic facilities (i.e xray, ekg, lab) are offered at an inpatient psychiatric hospital. What makes treating psychiatric illnesses different and therefore, requiring unique space, is the average length of time that a patient remains hospitalized. For an acute stay, the average length of admission is 14 days. For an extended hospitalization, the average length of stay is over 6 months. When a patient remains hospitalized for this length of time (either acute or extended) different facility spaces are needed to address different treatment goals. For the average person who enters a general medical hospital, doctors and nurses are not typically concerned with their ability to care for themselves. Patients are treated and released quickly from a general medical hospital. Not so with a psychiatric hospital. Because, when patients are cognitively challenged to a point where they cannot discern reality from non-reality, the concept of "treatment" takes on a whole new meaning.

When you consider basic activities of daily living, multiple environments are utilized to accomplish multiple goals. In a psychiatric facility, those numerous daily activities take place in one space. These facilities become self sufficient communities. A community is a large scale concept that is compressed into a small scale program. In this case, the program must provide security, function, and comfort.

Psychiatric patients often struggle with activities of daily living that most of us take for granted. For example, when a patient is struggling with auditory or visual hallucinations, it's difficult for them to focus on making a meal, taking a shower, paying their bills, or personal safety. Therefore, treatment plans usually include strategies for improving those areas of functioning. In order to do that, you need practice kitchens and laundry spaces, bathrooms that are large enough to get 3 people in (i.e. patient and 2 staff to assist) basic recreation rooms, and classrooms or conference room space for patients to meet with occupational, recreational and psychological therapists. These are services that general medical hospitals do not offer, but are critical for stabilizing psychiatric patients.

Length of stay also impacts the layout of a psychiatric hospital. In a general medical hospital, rooms are usually private and do not provide homelike amenities. In a psychiatric hospital, where patients struggle to think clearly - the environment attempts to provide more of a homelike feel. For example, there is a large "dayhall" that represents a living room. Patients eat together in a "dining space" that is in juxtaposition to a full kitchen. Bedrooms are down hallways that could be more representative of a real home. The nurses' station is positioned so that patients can be easily monitored and accounted for. However, in a general medical hospital, patients remain in their rooms until discharge. In a psychiatric hospital, treatment includes getting patients OUT of their rooms and interactive with their environment - a completely opposite approach that requires more consideration of the environment itself. This would also include providing outdoor areas for patients to enjoy the sunshine and be physically active.

A clinically informed, patient-centered approach to environmental spaces includes a number of accommodations. Focusing design elements on ambient features, interior furnishings and social interaction provides these environments with that "homelike" atmosphere.

- Soft, indirect and full spectrum lighting should be used in major patient oriented rooms such as living areas, dining and bedroom spaces. Overhead lighting should be used within more universal type spaces such as hallways, bathrooms and recreational areas.

- In many psychiatric settings, the volume of noise remains at a constant level. When feelings and emotions are expressed in a confined setting, the noise level tends to elevate. If the overall room volume is excessive, stronger expression of emotion and feeling can result in physical altercations. Space can be used to identify different noise level areas (i.e. quiet areas, living space and activity areas) so that the overall dynamics of the common and shares spaces are at a comfort level.

- Furnishings and their arrangements within a space reflect the activities that are intended to take place in that area. "One of the most consistent recommendations... on psychiatric hospital design is the importance of reducing the institutional feel of the facility and incorporating a homelike environment whenever possible. When furniture can't necessarily be replaced, the rearrangement of furniture into a social conversational manner is recommended”(Karlin & Zeiss, 2006, p. 1377).
- Functional but flexible space is beneficial in the sense that it provides the patient with a variety of interaction and communication levels.

A general medical hospital encourages quick recovery and the return to personal space and a familiar setting. An inpatient psychiatric hospital encourages interaction with others and instruction on how to care for yourself. Environment plays a large role in the assisting the psychiatrically ill become more self sufficient. Indoor environments provide necessary space to perform activities of daily living. The incorporation of natural environment to psychiatric hospitals focuses on enhancing patient well-being.

| NATURAL ENVIRONMENT |

In the early setting of asylums and mental hospitals, staff and administrators realized that the connection to nature has a direct effect on a patient's behavior. Through the early years, asylums made minimal effort to incorporate natural lighting within wards. Patients often spent days, weeks and months confined indoors with little exposure to nature. This approach, however, is changing. One of the driving forces behind the push to include natural environment settings in healthcare areas is the vast amount of scientific evidence that re-enforces the discovery that environmental features play a significant role in improving patient health outcomes (Cooper Marcus, 1999). Nature has an aesthetically direct connection to the well-being of any individual – regardless of whether that individual is psychiatrically ill or not. In psychiatric facilities, the connection to nature needs to be valued as a treatment tool that improves a patient's potential for achieving stability. .

No different than the internal organization of a psychiatric facility, the exterior natural environment provides for positive experiences that contribute to a persons' well-being. Active gardens that allow for physical rehabilitation and horticultural therapy provide patients with motivation and physical interaction with their surroundings. Active gardens provide psychiatric patients with meaningful and productive activity that simultaneously strengthens social interaction.

Garden areas that focus on providing resting and walking activities accomidates patients with quiet spaces that encourage reflection and calming coping skills. Often, psychiatric patients are physiologically driven to meander and walk aimlessly as a means to cope with their illness. The providence of an environmental space gives patients emotional and spiritual support, as well as an expanded sense of personal space.

Passive environmental spaces similarly provide those with limited physical mobility, an opportunity to enjoy the benefits of nature. These areas offer tranquil and quiet activities. They can be indoor or outdoor environments. Even if the physical reaction is minutely expressed, the psychological well-being of the individual is largely impacted.

The aesthetics of nature captures all of us. We all utilize nature to escape our constructed environments. The benefits of natural environments include physical rejuvenation and enhancement of self control. The natural environment is a setting the stimulates all of the senses of human experience. The architecture of a combined built and natural environment impacts psychiatric patients in a manner that reduces psychiatric symptoms and bolsters patient's well-being.

| SUMMARY |

Mental illness is a difficult concept for society to understand and process. Many elements are addressed when treating those who suffer from psychiatric disorders. These include social restructuring, pharmacologic medications, psychosocial therapy and life skills training. The application of appropriate space can influence the restoration of psychiatric stability. This project will emphasize the understanding and incorporation of space and environment as it relates to the treatment of the seriously mentally ill.

In order to understand the function of a psychiatric facility, mental illness must first be defined. Mental illness is a diagnosable condition or conditions the negatively influence an individual's thoughts, emotions, perceptions of their environment and ability to function in society. Each mental illness carries it's own burden of characteristics and symptoms. Knowing how psychiatric symptoms influence a patient's interaction with their space and environment is important when proposing the use of architecture to aid in recovery. To fully appreciate the impact of architecture on restoring psychiatric stability, one must be knowledgeable about how hallucinations, delusions, suicidal thoughts, manic behaviors etc. drive a patient to interpret their world. In this capacity, a patient's environment – or more importantly – a patient's interpretation of their environment, is paramount to healing the mind.

The mind is an individualized collection of perceptions and experiences. No two individuals perceive or interpret the same experience in the same way. Our interactions with our surroundings are uniquely our own. The five senses – sight, hearing, touch, taste and smell - allow us to adapt to a flexible surrounding and therefore, are critical in maneuvering each of us through space. Psychiatric illness complicates appropriate interactions with the environment. The psychiatrically ill individual experiences a world that is often depersonalized and distorted - where reality cannot be differentiated from non-reality.

Architectural spaces that are informative and adaptive to the manner in which patients interact with space will create environments that reduce risk of harm to the patient and to others. Through the examination of phenomenology and the incorporation of how a

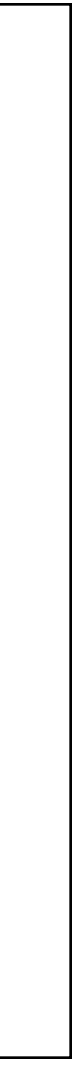
psychiatrically ill patient perceives space, architectural influences can assist in reestablishing reality based experiences.

Physically, psychiatric hospitals differ from general medical hospitals in many capacities. For example, psychiatric hospitals purport a higher level of security while maintaining an environment that meets patient needs for longer lengths of stay. Psychiatric facilities respect patient's privacy and dignity to the highest level that security can allow, while ensuring the safety of difficult to manage individuals. Physical environments that allow patients to feel some sense of privacy, while still allowing staff to monitor the daily activity on the floor, provides a comfort level to both staff and patients.

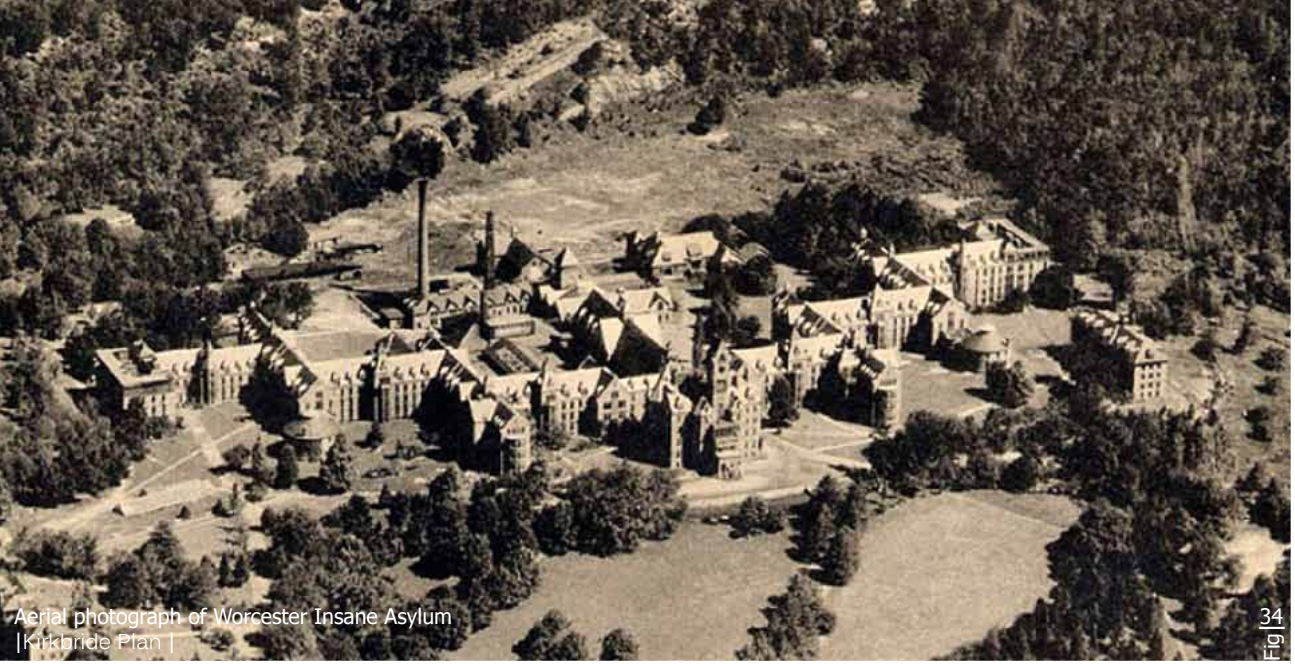
Security aside, psychiatric facilities are often times "home" to individuals for extended periods of time. They become a place of residence for those who can not be restored to appropriate social functioning. Spaces within psychiatric facilities attempt to resemble a "homelike" environment that encourages interaction with other occupants and the natural environment.

Significant research has surfaced regarding the well-being of individuals when they have a direct connection to nature. Nature's aesthetics create a calming and neutral environment for psychiatric patients. The natural environment offers structured space for psychiatric patients to simply enjoy a simple slice of what most consider normal. Incorporating natural elements into a patient's space has far reaching effects on stabilizing their symptoms.

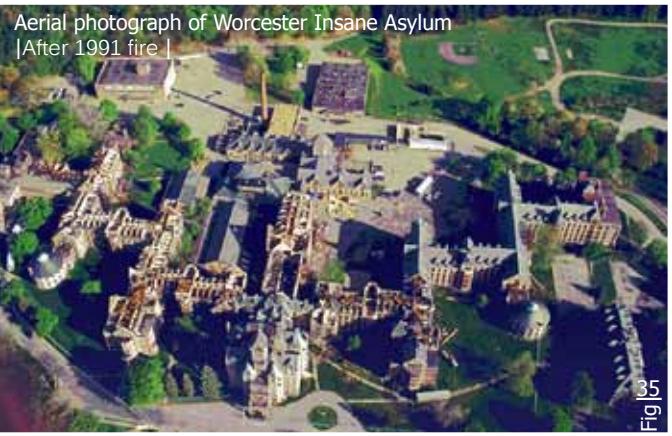
Despite the fact that psychiatric patients struggle with symptoms that many find difficult to understand, it is society's responsibility to provide for their care and treatment. By creating an environment that is adaptive to the needs of the patients and the staff, a clinically informed and patient oriented space can be helpful in the improvement of symptoms.



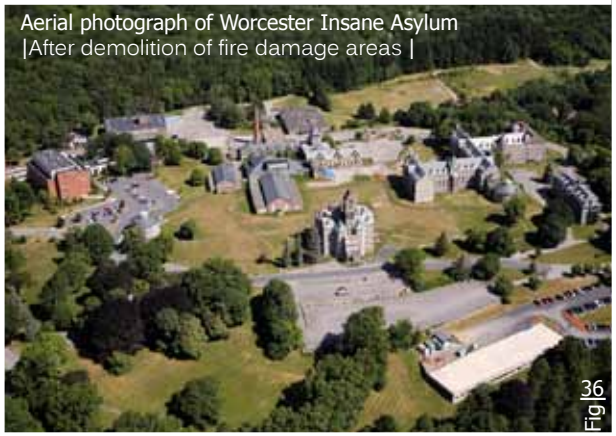
CASE STUDIES



Aerial photograph of Worcester Insane Asylum
|Kirkbride Plan |
Fig|34



Aerial photograph of Worcester Insane Asylum
|After 1991 fire |
Fig|35



Aerial photograph of Worcester Insane Asylum
|After demolition of fire damage areas |
Fig|36

Worcester Recovery Center and Hospital
|Aerial photograph of construction | (Mass.gov 2012).
Fig|37

Fig|38
Worcester Recovery Center and Hospital
|Aerial photograph of proposed plan (A+ Architecture 2012)

Fig|39 Worcester Insane Asylum
|Clock Tower|

WORCESTER RECOVERY CENTER AND HOSPITAL

Project Type: Long-Term Recovery Center and Hospital
Location: Worcester, Massachusetts
Size: 428,000 gross square feet

A site that was once home to a Massachusetts Insane Asylums now houses a newly constructed advanced Recovery Center and Hospital. This facility is designed to house long-term adult, adolescent and forensic patients (forensic patients have participated in a criminal act and have done of the following to be places on a high security forensic (criminology) unit of a psychiatric facility; pleaded not guilty by reason of mental illness, has been evaluated as unfit for trial, has been given limiting terms by the court or is a transferee from a prison). The 320 bed hospital encompasses architecture as a design tool for therapeutic programs and community-centered recovery tactics. This facility offers amenities to patients that allows them to prepare for re-establishing themselves back into a community. Mr. Francis Pitts of A+ Architecture specializes in psychiatric space design. For the Worcester Recovery Center and Hospital project, Mr. Pitts addressed the question "How do you design a place where people who are not related are going to live and heal together?" (Wen, 2012).

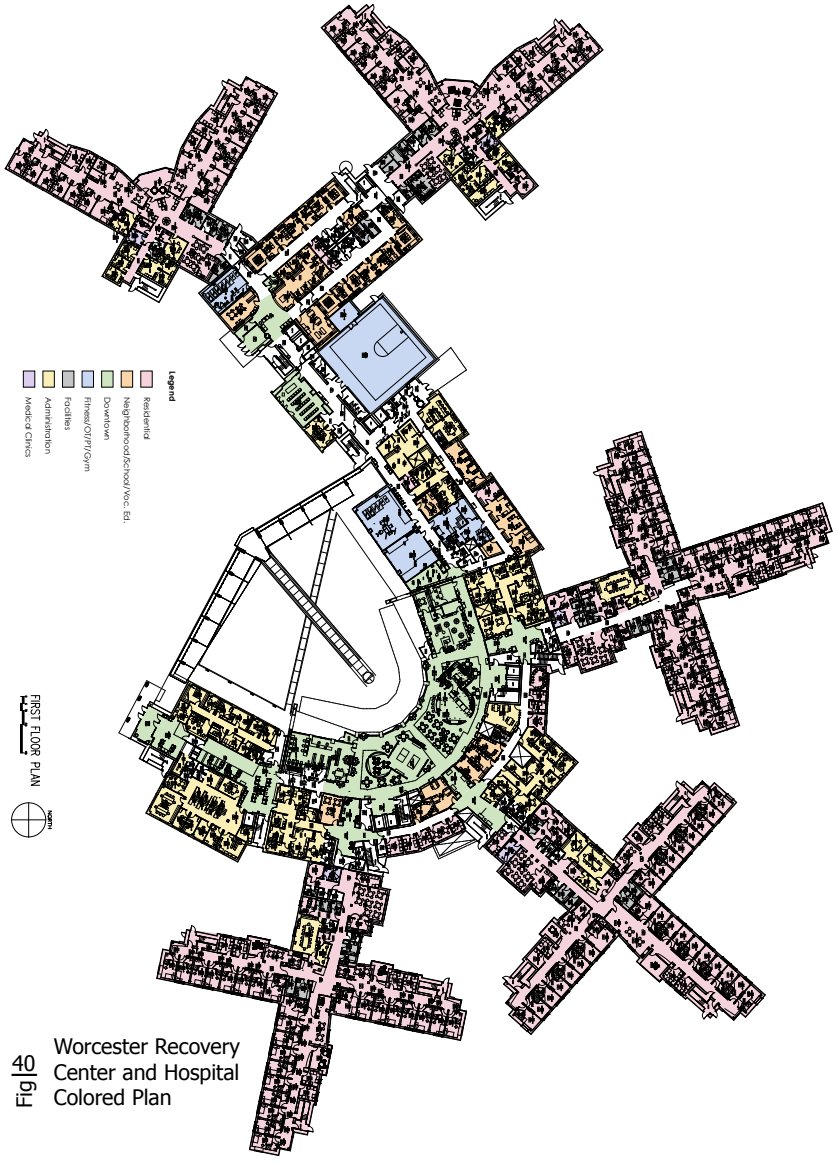


Fig 40 Worcester Recovery Center and Hospital Colored Plan

The overall design of this building is sketched out in a [J] like structure. The [J] outline section houses many of the community, vocational, administrative and therapeutic programs. Cleverly named, the social space that occupies the J structure is called "downtown." Amenities such as a cafe, bank, salon and library offer the opportunity for patients to engage in daily activities that they would encounter in society.

This color coded floor plan highlights the different functions within the facility and the spatial relationships between different areas. These spaces become important to understanding how activities, learning skills and other patient amenities are accessible to patients in a downtown atmosphere. A downtown atmosphere which is separate from patient living quarters simulates a community scenario where daily activates and functions are located apart from living areas. This design encourages patients to re-acclimate into a community setting that offers separate spaces for separate functions. Unit sections branch off from this main spine of the facility into more privatized housing units and suites.

The concept of creating a "downtown" atmosphere is an excellent example of transitioning patients back into personal routines and assimilation into a social community. Downtown spaces provide patients with the skills and practice of understanding daily activities such as getting a haircut, going to be bank, stopping at the library or the park. "Downtown" accommodations offer patients additional "home style" amenities including occupational therapy, life skills programming, educational services and employment experience. While the proposed facility will be significantly smaller than the Worcester Recovery Center, incorporating a main area for patients to socialize and perform personal routines is paramount to psychiatric treatment.

Fig 42 Recreation Area

Fig 41 Downtown Café

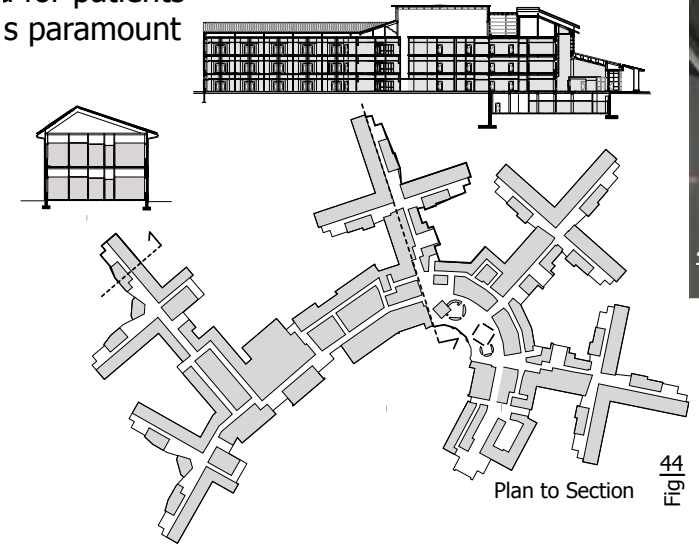


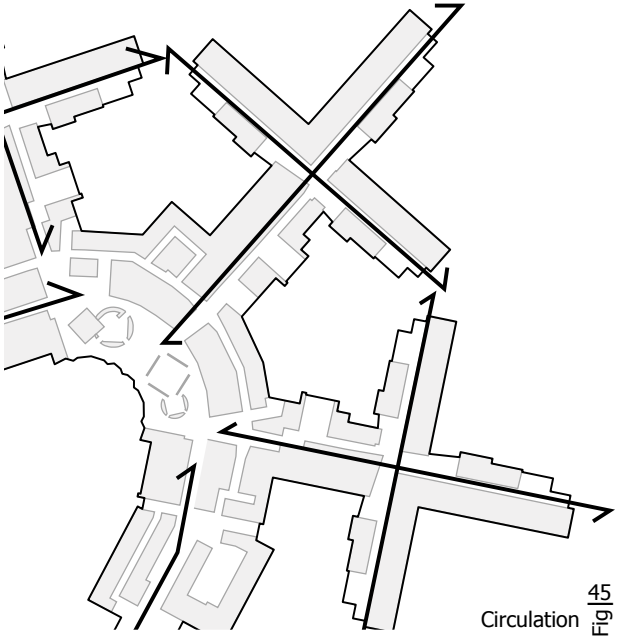
Fig 44 Plan to Section

Fig 43 Downtown

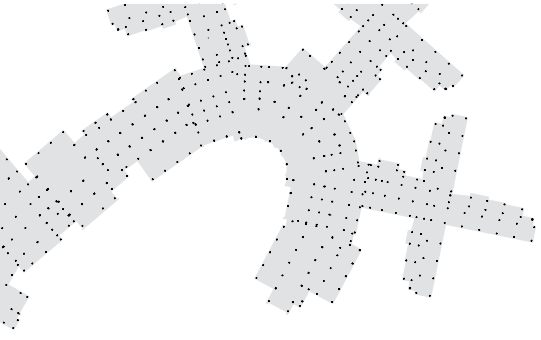
Figure 44 Illustrates a plan to section view cutting through both the Downtown area and the patient sleeping quarters. From right to left, the Downtown is much more open and scaled because of the anticipation for more physical activity. Moving to the left, ceiling heights change creating a different scale within the houses - or patient units.

Figure 46 demonstrates the structural grid that the facility is built on. The grid is divided into sectors representing the main spine of the facility with patient houses or cottages branching from that spine.

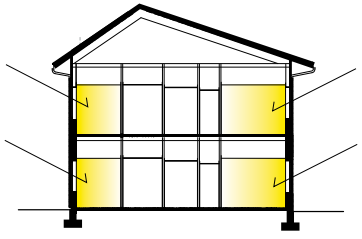
Figure 47 Illustrates the natural lighting patterns that are accessible from both directions of the facility. Natural light plays an important role in contributing to the well being individual patients. Natural light is therefore critical to psychiatric patient care.



Circulation Fig 45



Structure Fig 46



Lighting Fig 47

The housing units and suites were designed with key elements that better addressed patients' living style in a community-based setting. Housing units offer a more home-like setting with a kitchen, community dining, living areas, and quiet areas illustrated in the images on the adjacent page. This setting provides a manageable activity level for staff to monitor and for patients, a comfortable setting that with minimal overcrowding. Sleeping quarters branch from the main living area, offering more private space. Private bedrooms are arranged for single occupancy with an on-suite (attached) bath. Understandably not all people, psychiatrically ill or otherwise, can live together. Single occupied bedrooms offer patients privacy and a personal space for themselves.

Indicated in the circulation diagram patient rooms branch off of a main vertex in the center of each house. Moving through the hall of the sleeping quarter at Worcester Recovery Center and Hospital, the corridor is single-loaded; implying that only one side of the corridor is weighted with bedrooms. This is in comparison to a double loaded corridor with bedrooms on both sides of the hall. Much of the construction that was under

the Kirkbride Plan offered double-loaded corridors allowing for greater occupancy except for case involving troublesome patients. Single-loaded corridors were practiced on a smaller scale, offering a more humane approach with natural views and improved ventilation.

The Worcester Recovery Center is a fine example of how to successfully situate patient private spaces relative to more communal social areas. The patient's private space respect's an individual's need for introversion and introspection, yet encourages interaction with minimal effort to seek out others. This proposed design is preferred in this facility as the primary goal is to utilize architecture to influence the re-establishment of stable patients back to natural environments. For the design process, special details need to be considered for highly suicidal patients. Specialty features such as pocket doors on patient rooms, 180° swing bathroom doors and door hardware should be addressed as a safety measure in this new facility.

In the Worcester Recovery Center and Hospital the single loaded corridors allow for views of the outdoors and seating areas for quiet and low impact activities.

Fig 48 Patient Bedroom

Fig 49 Seating Area

Fig 50 House Dining | Kitchen

While patients are encouraged to be active and social in any setting, the units offer a number of designated spaces for different activity levels. The innovative design of separate housing units brings the overall total square footage from 428,000 down to a comfortable human scale setting.

The overall shape of the building is intended to maximize the views of the Village Green and the surrounding planted grass areas. Each housing unit offers outdoor green space to patients by incorporating both outdoor recreation and quite seating areas with gardens and courtyards. Figure 53 & 54; Providing walking paths that allow for continuous movement is a detail that should be considered for the proposed facility. A continuous path that expands to accommodate rest areas will address the movement needs of the mentally ill. Much of the design within the Worchester Recovery Center and Hospital is within the details.

Much of the design within the Worchester Recovery Center and Hospital is within the details. The details of lighting, furniture, and security are considerable within this facility. Lighting fixtures are arranged to minimize

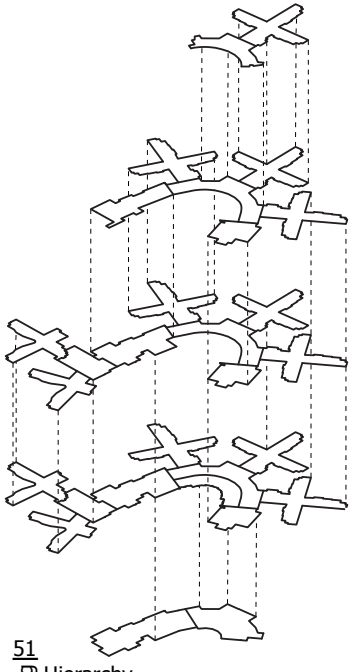


Fig 51 Hierarchy

Fig 52 Exterior Perspective

Fig 53 Patient Garden Space

Fig 54 Patient Garden Space

Fig 55 Patient Garden Space

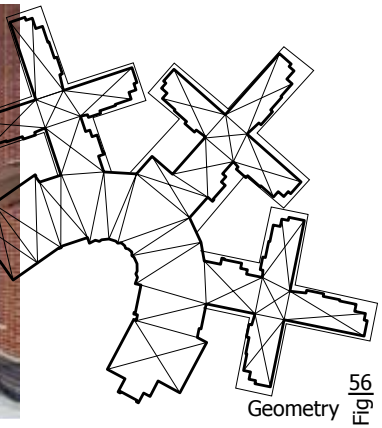


Fig 56 Geometry

The Image above illustrates one of the recreational green spaces that Worcester Recovery Center incorporated into their design. For the proposed facility, many different types of outdoor environment should be considered. No different than the mentally well- the mentally ill experience and interact with environments differently. By offering diverse outdoor activity areas, patients can choose their level of outdoor stimulation and pleasurable environments.

The mass [Figure 58] and geometry [Figure56] of this facility can be described as a main spine with several units branching in a "T" formation. This design offers an opportunity for the void spaces between the structures to become usable space. Void spaces can then be repurposed as gardens or green spaces.

Fig 57 Village Green

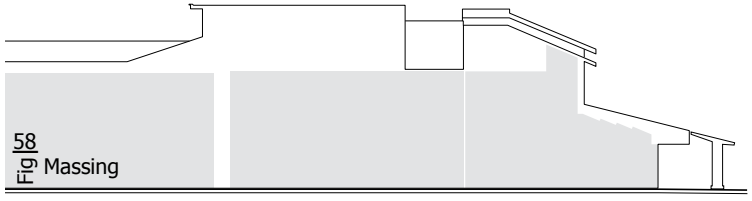


Fig 58 Massing

the ability for patients to inflict self harm. Furniture within the common areas of the facility has minimized the "institutional look" while in the bedrooms furniture is efficient and yet heavy enough for it not to be removed or misused by patients.

In conclusion this psychiatric care facility demonstrates the new movement to understanding how architecture can be used as a tool to help restore a patient's psychiatric stability. This case study offers an in-depth look at the amenities that staff, administrators, public health officials and many others deem important to treating the severely mentally ill. This model is an example of how spacial organization contributes to facility operation. One drawback that is of note to patients who occupy floors two through four are hindered in accessing outdoor spaces when compared to patients who reside on the ground floor. Since many factors affect space allotment, verticality is a reasonable compromise when space is limited.

Fig 59 Historic Postcard

Fig 62 Historic Aerial

Fig 60 Entry to Yanklton Campus

Fig 63 Mead Building Women's

Fig 64 Administrative Building

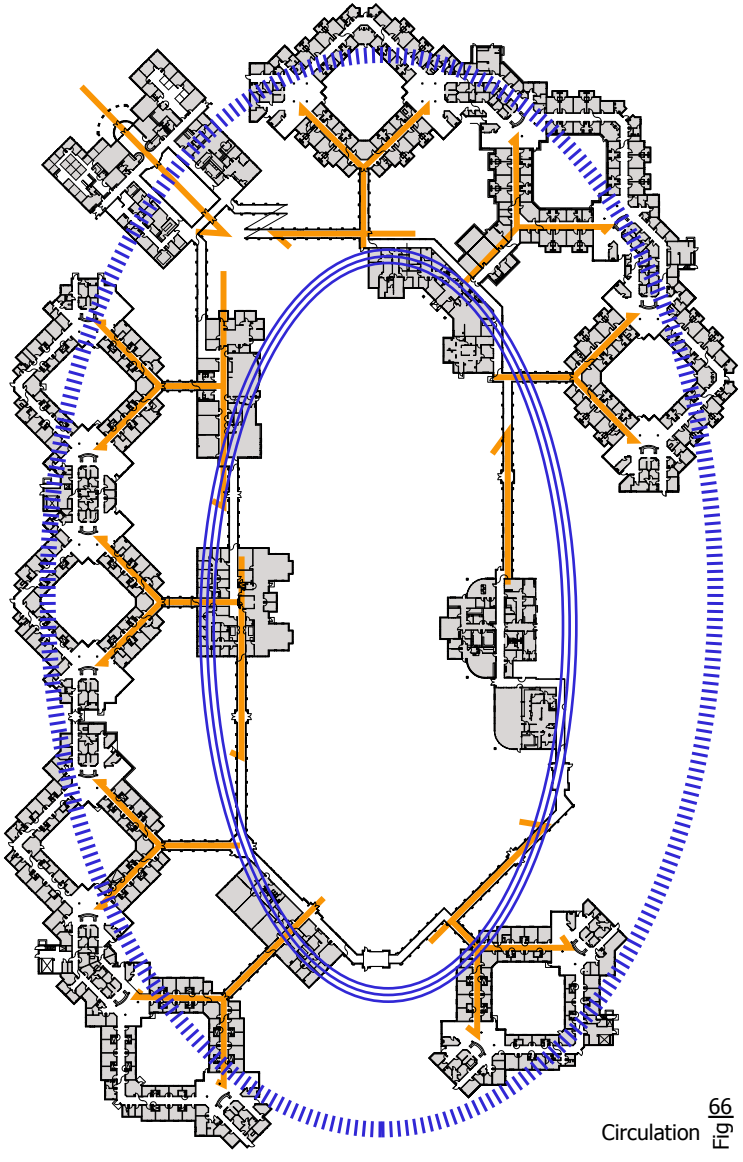
Fig 61 Aerial Photograph| Historic and Current campus

Fig 65 Current Campus

Yankton Hunan Services Cenrer

Project Type: Psychiatric Treatment
Chemical Dependency Treatment
Location: Yankton, South Dakota
Size: 259,134 sq feet including
new admissions area and dietary center
gross square feet

The South Dakota Human Services Center is located on the northern outskirts of Yankton, South Dakota. A survey was conducted in 1991 to assess the buildings on the old State Hospital campus. It was determined that the financial cost to upgrade and renovate the historic buildings would require more fiscal investment than constructing a new facility. Subsequently, The Mickelson Center (also known as the South Dakota Human Services Center) was newly constructed and completed in 1996. It is situated on the northern section of the campus of the old Yankton State Hospital grounds. The old State Hospital is patterned after the "Cottage Plan" layout with separate buildings connected by roads, greenery, and walkways. On the southern section of the campus many of the original buildings are occupied by South Dakota State offices that are not related to patient services.



Circulation Fig 66

The Mickelson Center layout is oriented in a radial pattern. This 295 bed facility focuses on inpatient programs including Acute Psychiatric programs, Intensive Psychiatric treatment, Psychiatric Rehabilitation, Geriatrics, Adolescents and Chemical Dependency.

The Circulation graphic to the left [figure 66] diagrams the plan of the Mickelson Center as two ovals; an outer oval and an inner oval connected by a common walking path. The outer oval of the facility houses administration and eight patient pods. The inner oval houses program space and activity areas with recreational amenities such as a gym, Olympic sized swimming pool, bowling alley, chapel and library. The inner oval also provides medical and rehabilitative services such as a pharmacy, clinic, occupational and physical therapy, speech therapy, a beauty shop and small restaurant.

Walking paths within this facility are inter-connected to enhance functional movement for users. An analysis of covered walkways should be considered

for proposed facility to provide for protected movement during inclimate weather conditions. One aspect to take note of is the amount of pathway that this facility supports. Because the HSC is a larger scale facility than the one being proposed, actual amounts of necessary lineage walkway will be relatively assessed.

To avoid the "gerbil tube" or "tunnel effect" walkway areas should be incorporated as extensions of the adjacent main spaces. This area of an enclosed walkway should be large enough to avoid the "forever hallway" perception and function as more than just a conduit to move from point [A] to point [B]. Comfortable furniture and conversation areas will promote these transitional spaces as areas for social interaction.

In analyzing the geometry of the Yankton Human Services Center and Worcester Recovery Center and Hospital, there is significant repetition regarding living areas and movement patterns. During construction this repetition becomes an easy and effective means of controlling construction costs but also provides for a sense of familiarity for patients and staff. It is not uncommon for patients to move from one unit to another

Figure __&__ The image to the right and below is of the breezeway interior within the Taunton State Hospital at Taunton, Massachusetts. This image indicates that the idea of covered connections was an appropriate and functional aspect to asylums. This breezeway displays that natural light and visual connections to nature was designed for but this area lacks the ability for social interaction.

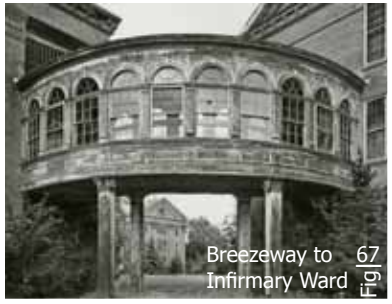


Fig 67 Breezeway to Infirmary Ward

Fig 68 Breezeway Interior

Fig 69 Connection Path Yankton SD

Figure 67 & 68 The images above are of the breezeway interior within the Taunton State Hospital at Taunton, Massachusetts. This image shows the functional aspect of covered connections in early asylums. This breezeway highlights the use of natural light and scenic views but lacks the design for social interaction.

Figure 69 This is the current connection path within the Yankton Human Services Center, Yankton, South Dakota. In comparison to the image above the change in the connection design from the 20th Century to the 21st Century shows a tendency toward utilitarianism. This connection path functions purely as a means to get from point [A] to point [B].

as they progress and improvement with treatment. By maintaining a similar geometric design from one unit to another, patients should adapt to their new location more readily. Similar to patients, staff frequently alternate between units. Similar plans and layouts allow staff to quickly familiarize themselves with their environment - allowing for faster responses to difficult situations.

This proposed facility should embody the idea of similarity and familiarity among users. What should be avoided or cautioned against is the use of symmetry. Symmetry often yields rigidity that is inflexible to change. Resulting designs may then present well in plan but not in function.

When analyzing geometry, mass comes into consideration. Unlike the Worcester Recovery Center and Hospital that functions on numerous vertical levels, the Yankton Human Services Center remains at one level. This single level resident style offers a perception of consistency. Because many patients arrive at this facility in a state of psychosis or confusion, excessively large overwhelming spaces often contribute to additional anxiety for these individuals. The proposed facility

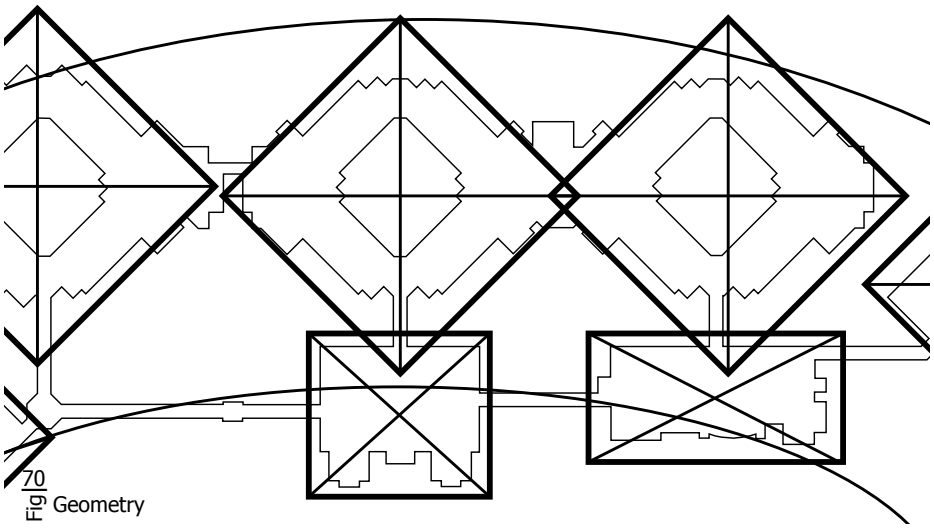


Fig 70 Geometry

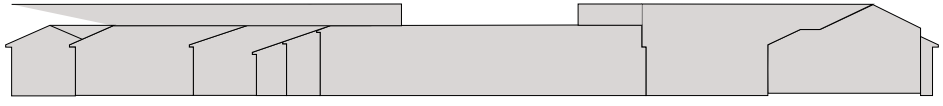


Fig 71 Massing

should reflect an understanding of human scale to environmental space. This issue is addressed both internally and externally.

Internally the spaces should be responsive to the activities that take place within them. Social areas can offer an open feeling to patients who require a larger "personal bubble". Social areas are also designed to enhance staff's ability to monitor patients and redirection those who's behaviors are escalating. Because the proposed facility is situated at the foothills of a site that experiences topography changes, the mass of the structure should be proportionate to the site itself. This could imply that the proposed facility sit fairly low to the ground or slightly mimic the top of the hillside.

Improving these designs comes with the understanding that connection space can be appealing and encourage social interactions. The addition of conversational alcoves and areas of comfortable seating allows for more interaction that just subconscious movement through this space. The incorporation of landscape views provides a more comforting feeling than just being in a hallway.

In between the patient pods and Common areas are individualized courtyards created between units. At the very center of the design is a large common courtyard that is available for group activities and recreation.

Each pod contains two units that are organized by illness severity, treatment intensity, and age (i.e. adults, adolescents and geriatrics). This facility is equipped with three different sleeping arrangements. Each unit offers both double and single occupancy bedrooms. The facility also offers 3 pods (6 units) of medical isolation treatment. These quarters are reserved for patients with contagious illness (i.e. tuberculosis) or those who require extra sanitary measures (i.e. antibiotic resistant infections). All units are arranged in a double-loaded corridor fashion. From an economical stand point, this arrangement proves to be fiscally strategic . The main living areas within each unit offer an activity area and a quiet area with views and access to the small shared courtyards.

At the center of each unit is an open nurses station. In the early construction and development of State Hospitals, many nurses' stations were isolated from the

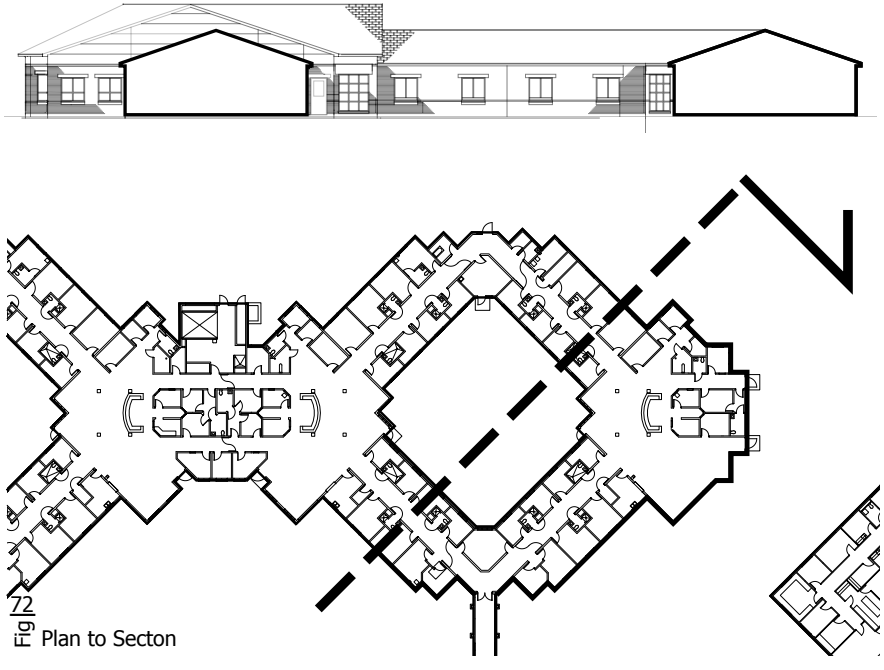


Fig 72 Plan to Secton

unit itself - allowing little contact with patients. This often contributed to an impression of inaccessibility. Depending on the facility, some nurses stations are more sheltered than others.

By having an open nurse's station, patients feel that they can approach a staff member with issues and concerns without feeling unwelcome. In many cases where nurse's stations are open, a more secluded area is designated to protect private patient records. While an open nurse's station fosters better communication between patients and staff the actual size of the nurse's station should be evaluated. A large nurse's station can invite patients to idle around and distract nurses from completing critical documentation work. While a small nurse's station can be cramped, crowded and difficult to maneuver in.

At the time of construction (1996) this facility boasted state- of-the-art techniques in building advancements that pertained to psychiatric health care. From the standpoint of analyzing this facility as a student of architecture, I find that this building offers both advantages and disadvantages. One of the biggest advantage of the South Dakota Human Services Center

is that this facility is one level accessible. This provides easy access for those patients who have limited mobility and need to move about the hospital. Another advantage to a one level facility is that it allows accessibility to the outdoor environment for everyone. A multi-story facility provides only those on the main ground level direct access to the outdoors. Patients who occupy upper levels have reduced access to natural environments.

One drawback to the construction of this facility is that most of the interior walls are painted concrete masonry units. This is a rigid material choice that represents a very heavy and indestructible setting. Much of the rationale behind this choice of materials was that mentally ill patients are too destructive for a normal environment (Spivack, 1984).

It is noted that the material choice at the time of construction (1996) was best suited for the advanced medical treatment of the nineties and that certain adjustments in construction materials needed to be budgeted. While these building blocks are the structural framework for the facility (illustrated in Figure 74) the materials exude a sense of lifelessness, leaving spaces

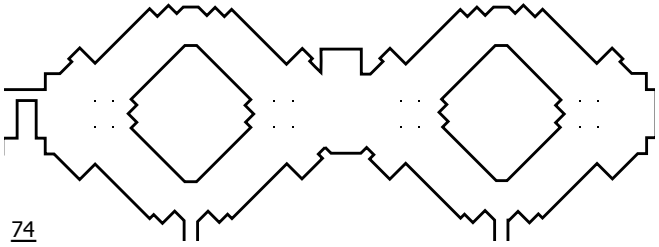


Fig 74 Structure

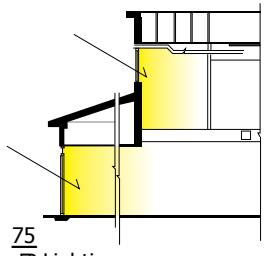


Fig 75 Lighting

feeling harsh and unwelcoming. Also, these rigid structural materials do not provide enough flexibility to maximize natural lighting and therefore, standard window orientation is the default.

In conclusion this psychiatric facility demonstrates care and consideration for a wide range of potential patients. Because this facility is interconnected with an enclosed walking path surrounded by courtyards and utilized by both patients and staff, movement and mobility were obviously significant factors considered in the planning and layout of this facility. The South Dakota Human Services Center facility encourages patient interaction with the inclusion of double occupancy bedrooms, connecting courtyards and a wide variety of activity spaces.

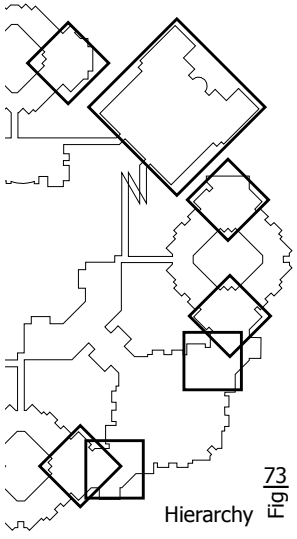


Fig 73 Hierarchy

Fig 76 Design Relation

Fig 77 Detail | Garden

Fig 78 Entry

Miner's Refuge

Project Type: Residential
Location: Mazama, Washington
Size: ≈1,900 gross square feet

This study represents the integration of building and environment. While this space is considered psychiatric treatment, on a small scale it is a residential psychiatric home for the severely and persistently mentally ill. The Miner's refuge is carefully situated within the base of a hillside allowing the viewer or occupant to observe and absorb the surroundings. By nestling the residence within the hillside and reducing the height of the structure, the impact to the site itself is kept minimal. The residence is constructed in a linear pattern following the contours of the hillside. By mimicking the slope pattern of the hillside through the roof , the simplicity of the structure quietly reflects the landscape. Large picture windows allow for the beauty of the outdoors to be appreciated within.

Materially, the choices made for finishes reflect the landscape and comfort of a home. Warm tones of the interior with only enough furnishings for the essentials and natural views are found throughout the refuge. The beauty of simplicity is the theme for this facility. f

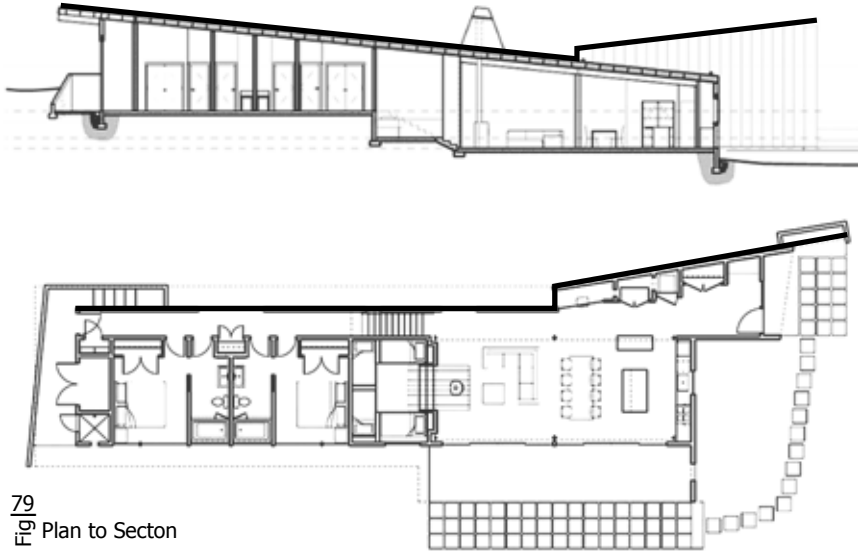


Fig 79 Plan to Secton

Fig 80 Site Integration I

Fig 81 Site Integration II

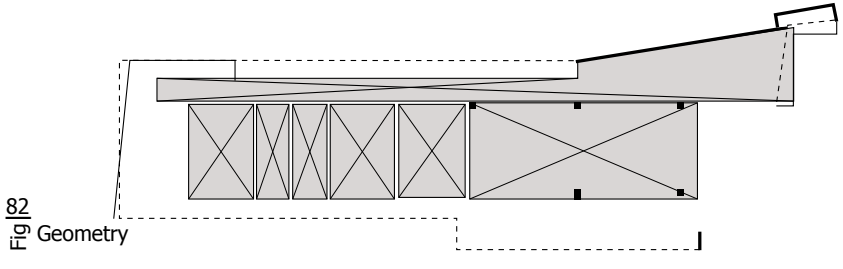


Fig 82 Geometry

Fig 83 Foothills

Fashion follows function in the case of many healthcare facilities and institutional settings. And yet, the materials and furnishing that are placed within our own homes are found at the Miner's Refuge.

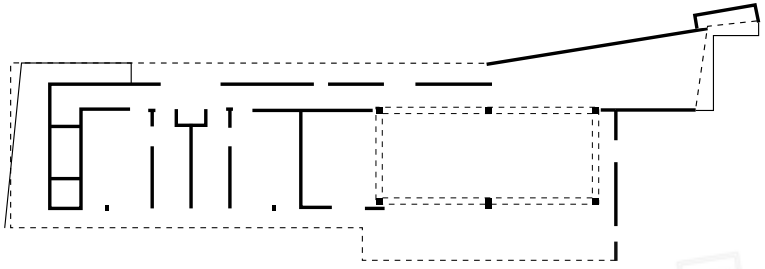
This case study demonstrates a couple of aspects related to this thesis project. Both the Miner's Refuge and the site for this thesis project are located at the base of a hillside.. Illustrated both in the plan to section diagram and the images on the facing page the site selected for this dwelling was not flattened to one level. The topography of the base of the hillside directs the plan as to how it should lay on the site. In turn this creates various levels within the dwelling to better integrate the space geometry with functional use.

This new facility should encompass the idea of changing with the landscape and creating different levels that correlate with different activities. Within the plan to section, dwelling spaces become more privatized as one travels up in elevation. Within the proposed facility, as patients stabilize, they transition from a more highly monitored level to a more independent elevation. This approach represents transition from public to private in a more gradual manner than a rigid gesture of walls or doors.

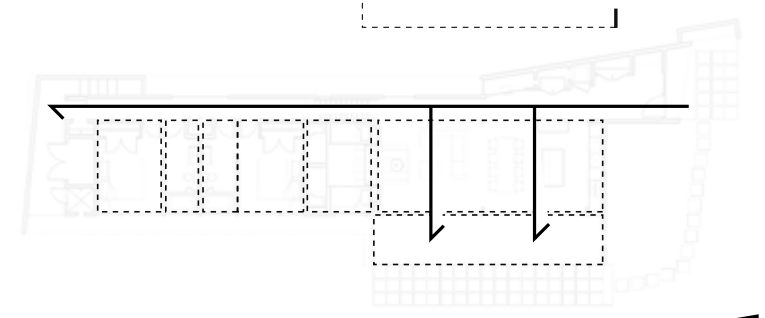
The image figures of this dwelling re-instate the connection that structures can have with the environment. The hillside facing facade becomes submerged allowing the topography to rest against the dwelling and giving a visual anchoring at its base. This demonstration for site integration is one that is appealing to this proposed site. By anchoring a sector of the building within the base of the hill the visual flow of building to background becomes softer and less defined than carving out or flattening a desired area.

In Figure 83 the orientation and relationship of dwelling to hillside becomes prevalent. The humbling gesture of horizontal orientation to the hillside respects the natural landscape. The arrangement on the site allows for the natural surroundings to become a shelter to the dwelling. This site case study represents an appropriate analysis of the site to dwelling relationship. Overall this proposed project should mimic similar site analysis relations including orientation, scale, drainage and natural elements that can assist in climate control.

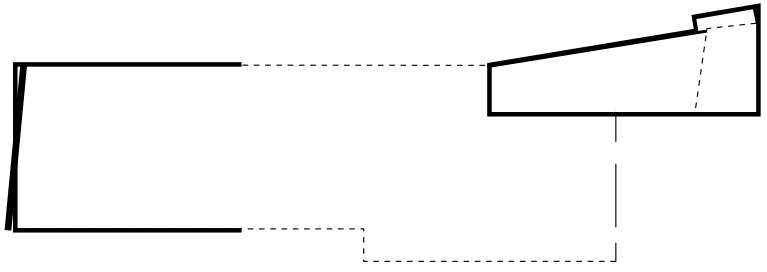
STRUCTURAL Fig 84



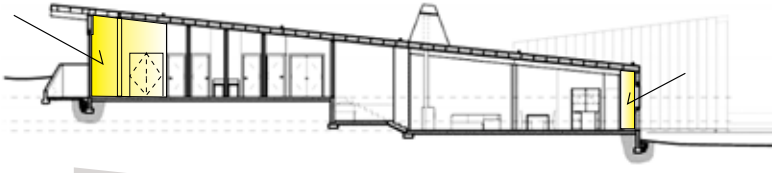
CIRCULATION Fig 85



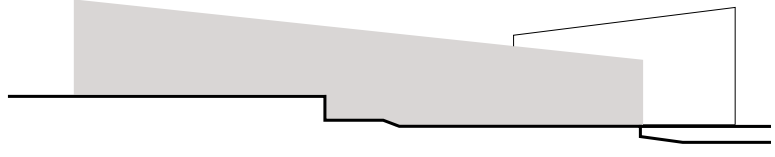
HIERARCHY Fig 86



LIGHTING Fig 87



MASSING Fig 88



The environment is an aspect to be considered in any new healthcare design. By utilizing the idea of indoor outdoor space this allows patients to enjoy the environment of the outdoor even when inside and not just through a pane of glass. Circulations indicated on the left describe this space as simple and easy to navigate through. The two arrows pointing downward indicate a direct path from the center of the dwelling to the outdoors. This circulation to the outdoors provides users with a simple way to pass from natural to structured areas. Simple transitions for this new facility will allow patients to experience interior and exterior environments with ease and accessibility.

In conclusion, materials and environmental surroundings help make a space enjoyable. What this residence offers as a guide to this thesis is how to integrate building to site and how to take advantage of the surrounding environment to provide patients with optimal views and access to the environment. This case study also highlights the contribution of furnishings and finishes. The way in which materials appear in a space allows one to judge how fitting the space is to its occupants.

Fig 89 Exterior

Fig 90 Hillside Relation

Fig 91 Social Space

Fig 92 Movement

Fig 93 Clock Tower

Fig 94 Grounds

Fig 95 Main Entry

Fig 96 Unit Courtyard

Fig 97 Aerial Current Facility

Fig 98 Aerial before Cottage were removed

Whitby Mental Health Centre

Project Type: environmental landscaping
Location: Whitby, Ontario, Canada
Size: 86 Acres total campus
500,000 gross square footage

The Whitby Mental Health Centre is a facility that accommodates 325 beds, between eight interconnected buildings, each with their own courtyard design. This facility emphasizes the concept of brining an outdoor environment – indoors. The Whitby Mental Health Centre applies three primary principles that highlight a connection with nature (Cooper Marcus, 1999).

- Utilizing outdoor space as a means to both passively and actively motivate patient interaction
- Utilizing visual and physical access to minimize an institutionalized feel
- Utilizing the basic pleasures of nature such as fresh air and sunlight as beneficial amenities to patient recovery.

The outdoors space describes a simple atmosphere filled with color and vegetation, yet provides low maintenance for upkeep. The overall plan and intention of the landscape is to provide a home and neighborhood like setting. In Cooper Marcus' book, the author describes how a home-like feeling is created by an entry that connects a front door and a back door. In the image figures located on the adjacent page the front entry to the facility provides a welcoming entry that visual ensures care which carries throughout the grounds to the privatized patient gardens.

The outdoors space describes a simple atmosphere filled with color and vegetation, yet provides low maintenance for upkeep. The overall plan and intention of the landscape is to provide a home and neighborhood like setting. In Cooper Marcus' book, the author describes how a home-like feeling is created by an entry that connects a front door and a back door. In the image figures located on the previous page the front entry to the facility provides a welcoming entry that visual ensures care which carries throughout the grounds to the privatized patient gardens.

The sprawl of this relatively low facility allows for a front courtyard of color and vegetation. The use of landscape provides a break from the materials and textures of the facade. Attention to the facility's front courtyard

Fig 99 Patient Unit Courtyard

Fig 100 Lakeside Courtyard

Fig 101 Forensic Grounds

Fig 102 Gazebo on Waterfront Trail

provides an entrance to the building which allows visitors, guests and patients to feel a sense of welcoming. Unique to the Whitby Mental Health Centre are numerous bike paths to be utilized by both patients and the public. This landscaping amenity serves as an invitation to all to enjoy the grounds, landscape and gardens designed by the facility.

Displayed in image figure 99 each courtyard within the primary Centre grounds offers amenities that are specific to the unit and its' treatment approach. Depending on the security required, some units are completely open such as the one in image figure 100 while others are more boundaried with fencing or walls. Common to all units is accessibility to outdoor furniture and barbeques. Individual courtyards also provide shade to its occupants through tree canopies or pergola. To reduce the possibility of patients abusing the proper function of furniture, it is often securely fastened to immobile objects (the ground or pavement).

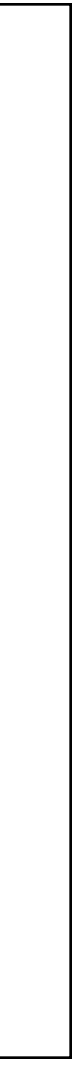
At the Whitby Mental Health Centre, units that specialize in treating schizophrenia utilize a backyard setting approach illustrated above in image figure 99 and 96 on previous page. These courtyards provide large areas of yard and grass space. Paved areas are also available for casual

conversation or simply sitting to enjoyment of the outdoors. These backyard spaces also provide room for patients to engage in physical recreation. Other units within the Whitby Mental Health Centre service the forensic treatment program.

The forensic unit houses mentally ill patients who have committed various crimes. This area of Whitby is under much tighter security and surveillance than other unit courtyards. Fencing or wall are often the most efficient means of separating these patients. Even though this type of restraint may appear to be harsh, the criminally insane patient struggles with recognizing society's boundaries. For these individuals, privileges are earned back rather than given upfront.

Image Figure 101 on the adjacent page illustrates that the forensic area is scaled larger than the other courtyards because this unit utilizes physical activity as an outlet for its patients. This courtyard provides a small running track and basketball courts for patient who wish to exercise at an aerobic high level. The green space within this courtyard is smaller but still offers atmosphere of socialization with outdoor seating and eating areas centered around a barbeque.Other courtyards surrounding Whitby Mental Health Centre are for therapeutic or occupational treatment. Horticultural gardens elicit a peaceful reaction from patients who respond to quiet and more private activities. Peace gardens offer patients and the staff a place for retreat and calm observation of nature. These courtyards are filled with meandering paths and strategically placed seating areas.

In conclusion, the Whitby Mental Health Centre has made a generous effort towards providing patients and staff with a variety of enjoyable outdoor environments. Each courtyard is appropriately tailored to the units' unique needs, cares and concerns. Author, Cooper Marcus, highlights mild disadvantages and potential drawbacks of this design. Areas of concern include (1) numerous shadows casted by landscaping elements contributes to a greater potential for patient disorientation; (2) visual surveillance of patient location is an going challenge for forensic units. Marcus reminds us that while it is generous to provide views of the surrounding grounds and landscape, public safety remains a paramount concern. Despite minor drawbacks, the Whitby Mental Health Centre is one that has taken great pride in accommodating the patients and encouraging the public to realize the value of sharing common ground.



| SUMMARY |

The case studies described above represent a range of design approaches for inpatient psychiatric facilities. I chose these case studies because each facility represented a different set of values and perspectives that I intent to consider for this thesis proposal.

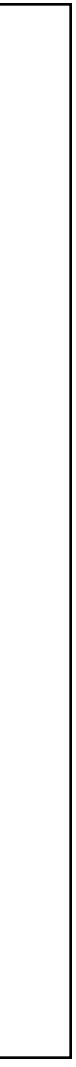
The Worcester Recovery Center and Hospital reports the newest advancements in planning and organization of psychiatric facilities. As a designer, it is important to understand how people who don't know each other can live and function in a community based, home-like program. This facility emphasizes programs that teach social skills and activities of daily living. Their space accomodations reflect this approach.

The South Dakota Human Services Center represents an economical and realistic approach to situations many facilities are in today. The accommodation of several different configuration plans for units demonstrates versatility. The single level plan allows all patients and staff to have access and views to the environment. This plan also allows for easy accessibility for patients and visitors.

The Miner's Refuge Retreat is a case study that was not directed at program compatibility but rather, building relations to nature. Site impact is one that is often overlooked with grand and towering facilities. This facility is a home to many and deinstitutionalizing the setting of the built and natural environment creates a homelike atmosphere.

The Whitby Mental Health Centre spot lights the outdoor environment. Using a variety of courtyard and landscape designs, this facility encompasses the idea of the outdoors as an extension of the indoors. The outdoor courtyards are utelized in the same fashion as indoor spaces with dedicated areas for the patient therapy programs. This integration of outdoor space is beneficial to the well being of patient, staff, and visitors.

A goal of this design thesis is to create a facility that offers the highest level of psychiatric care by creating a homelike atmosphere that emphasizes social skills and communication development. This project facility will be designed to prepare patients to re-enter society as stable individuals. The challenge with this project facility (as with all the case studies reviewed above) is to create an environment that is comfortable and therapeutic, but not so enchanting that patients feel no inclination to become independent.



GOALS

| GOALS |

Five years ago, I enrolled as a first year architecture student, competing for a seat in the North Dakota State University Architecture program. After finishing my freshman spring semester I told my parents that even if I did get a letter of acceptance I was NOT going to go through anything like first year EVER again. With a little encouragement and much patience from my parents, here I am – four year later – defending a thesis to earn a Master's Degree in Architecture from North Dakota State University. And while I must say that there's nothing quite like first year, I have come to respect and appreciate the process of learning. The most valuable lesson learned is the one that teaches you – how to think.

The following is a list of goals that I will strive to achieve while completing this Master's Thesis Project. I propose to …

- Effectively communicate through design, the knowledge that has been gained through research; demonstrating the connection between solid research and the design itself.

- Design an inpatient psychiatric hospital that will go above meeting the needs of its patients, with a focus on patient- environment interactions.

- Present a comprehensive project that represents my comprehension of the chosen topic, my work ethic and my professionalism.

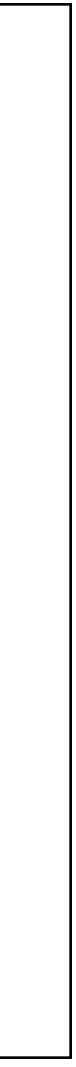
- Practice making timely and informative decisions while not spending an excessive amount of time on an area that is only a small portion of the larger picture. This will minimize my tendency to dwell on an issue that is causing unnecessary frustration.

Academic - This project addresses the question, " How can architecture and environment influence the re-establishment of psychiatric stability in the mentally ill?" It is my academic goal to research various aspects of mental illness, to identify psychiatric patient needs and to assess how environments (both natural and built) influence the treatment and recovery of psychiatric patients. By understanding the history of psychiatric institutions and asylums, it is evident that architecture does in fact impact the realm of health and medicine. For this thesis, it is my academic goal to educate the

audience about mental illness and how space and design influence patient recovery.

Professional- This thesis serves as an example that an architectural project is more than just designing a building. Becoming an architect requires communication skills, listening skills and most importantly – an ability to compromise. It is my professional goal to learn about my client, to hear my client's concerns and modify the design to meet my client's needs.

Personal- During the middle of fall semester I came to realize that I was engulfed in research that was going to back up my claim and hypothesis. I realized that my knowledge base had expanded way beyond what I could reasonably write. It is my personal goal to condense all that I have learned into a final format that is creative, engaging, unique and effectively educational. It is my personal goal to be able to do this without driving myself, my husband, or my family crazy.



SITE ANALYSIS

Fig 103


Fig 104


Fig 105


Fig 106


Fig 107


Fig 108

Fig 109

Fig 110

| NARRATIVE |

The site chosen for this thesis project offers psychiatric patients and health care personnel an appealing environmental area that is readily accessible and amenable to security requirements. This project site is located on the Northeastern outskirts of the Rapid City, South Dakota city limits. An abundance of space is one of the greatest attributes of this site. Because society utilizes space to distance its' most challenging and difficult citizens, the distance from the proposed site to the city proper provides a security boundary. Instead of creating a perimeter with fencing and gates, many psychiatric hospitals ensure safety by slightly distancing these facilities from the general public. This site location provides a similar type of security space buffer. During the 19th and 20th centuries, asylum patients had less opportunity to leave their facilities unauthorized because they were too psychiatrically disorganized. Because asylum grounds were open to the public as objects of civic pride, patients were frequently kept out of sight in back quarters. When patients were taken outside, it was not uncommon to tie or shackle patients to each other or to inanimate objects to enhance monitoring by staff and to prevent escape. With current advancements in psychiatric medications, today's psychiatric patients improve quickly but still lack the skills to successfully re-enter society. Therefore, natural land barriers serve to encourage patients to remain at the facility until those skill sets are mastered.

The eastern portion of the site is a hillside known as Cowboy Hill. This hill provides a natural barrier or security buffer for patients and staff. The site environment provides ample room to expand the facility, enhance program activities, create gardens and develop enjoyable recreation spaces.

Admitting and discharging patients will require access to a variety of transportation options. Interstate 90 – that transects South Dakota east to west – is in close proximity to the site. Easy access on and off of Interstate 90 also facilitates commuting staff and visiting friends and families.

Views

During the 19th century, psychiatrists recognized the impact that the natural environment had on the well being of patients in an insane asylum. Rural locations offered better ventilation, views, and a sense of place and connection to the natural environment in comparison to a suburban site.

The area chosen for this thesis project is one that encompasses views on many different levels, with unique details. The site is situated at the base of Cowboy Hill within a grove of coniferous trees. The hillside runs in a north- south direction with the site located on the west side of the peak. To the west the site opens outwards to the start of the Black Hills National Forest. This elevated site allows for views of the landscape and is lofted above ground level to the town.

The site is far enough removed from the main stream traffic to allow for a large foreground in the front of the site. The east area of the site has a more topographic aspect as it is backed up against the hillside. To the north of the site the views of the hillside extend into farming areas at the flattest terrain of the base. Views to the south encompass the city limits of Rapid City and a small industrial area. To embrace the flow of the landscape in correlation with views, this facility should be humbling to the foothills of Cowboy hill and resemble a meaningful landscape without necessarily being super imposed on top of the landscape. To accompany the change in topography, specific sections of this facility will not be at the same grade. Varying the grade of each building will allow for views to be unobstructed by building facades.

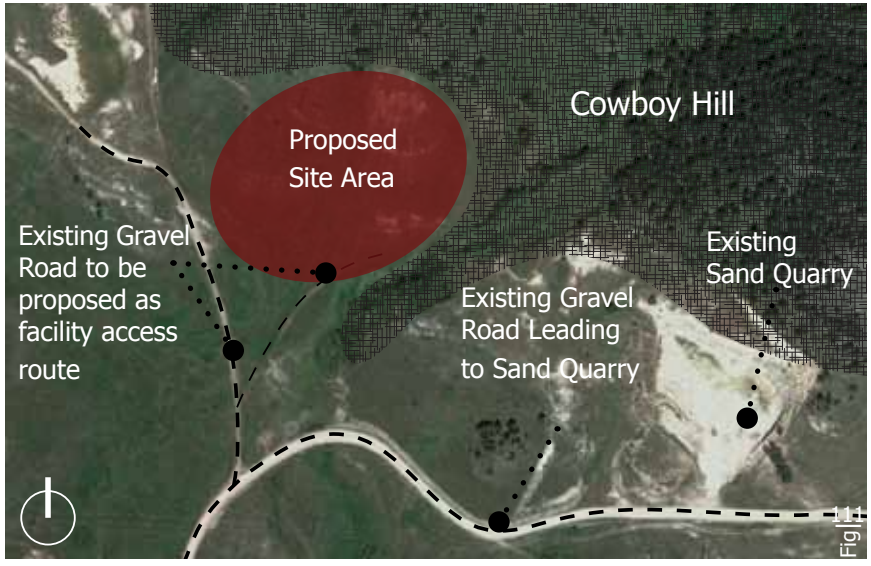


Fig 1.1

Geometric Relationship
Figure 111 illustrates that the hillside forms a boundary between the gravel road that forks left and right. The proposed site is within this area. Placement between boundaries will be analyzed in order to determine proper location and orientation of the thesis project.

Built Features
There are a number of built features within close proximity to the site. However, there is a comfortable distance between the site and surrounding structures. An electrical transformer is located roughly one-third of a mile from the proposed site. This transformer site experiences little activity, primarily for maintenance and routine check-ins and is situated further down the foothill to the northwest. Other surrounding occupied sites are construction and industrial facilities. These buildings house the offices and parking lots for employees. There is minimal activity noted during business hours.

The benefit to placing this facility in this type of area is that if there were to be a security breach or unauthorized leave, the surrounding area is less personal to the community than homes, schools or areas that are heavy populated. The industrial facilities and surrounding sites are also only active for a given hours in a week and have significantly less traffic than facilities that operate 24 hours per day, or have heavy pedestrian traffic.

Fig 112

Shade Shadow and Light

Primarily shade and shadow affects occur mainly in the morning as the sun rises from the East. Figure 113 to the right demonstrates shading through the early morning hours. During this period, the site is in full shadow because it is tucked tightly up against the base of the hillside. Figure 113 shows that towards the midmorning and noon hours, the shadows of the tree line appear long until mid afternoon. Figure 114 and 115 (sunshine and cloudiness) illustrate the natural patterns of shade and shadow as they occur during the months where cloudiness and sunshine are most expected . A large portion of sunlight can be absorbed on the west and south side of the site. However, the direct sunlight during the mid to late afternoon hours will be very intense, especially during summer months.

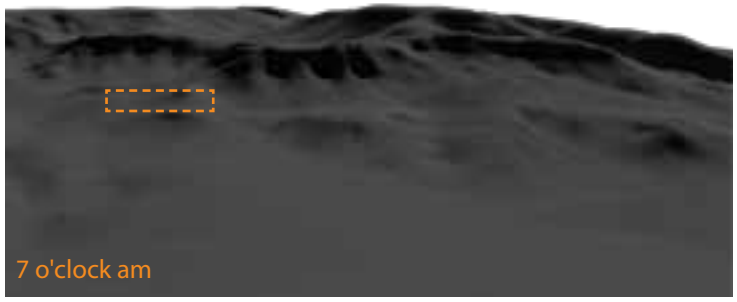
The proposed facility will be situated on the site to maximize daytime sunlight as natural light is important in patient therapy. If placed too close to the hillside, the facility won't receive sunlight until well into mid morning. In order to gain the most out of natural lighting the facility should face a the southern direction. The use of large overhangs on the facility will allow for proper shading when needed during intense hours of the day. While sunshades are a practical and efficient means of shading, they are a question of safety and security; patients can easily reach for or climb over these implements as a means to achieve unauthorized leave. This situation could obviously present as an endangerment to themselves or others. By utilizing the highest point of the facility to provide shading for other areas, the need for exterior finishes will be eliminated.

For the well being of patients and staff, ample natural light in highly occupied areas is key. Patient rooms and spaces should be filled with natural light which suggests that patient rooms and patient centered spaces should avoid the eastern areas of the facility. For spaces that require a more even lighting atmosphere north light is suggested for reading and office areas.

Light Qualities by Number

The most intense light is received from the south, southwest. While there is minimal to moderate covering at the foothills, the north and northeast areas reflect a more comfortable light intensity. By using color as a

Shading



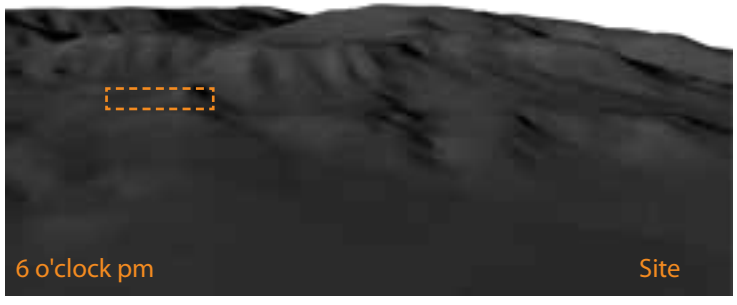


Fig 113

Cloudiness

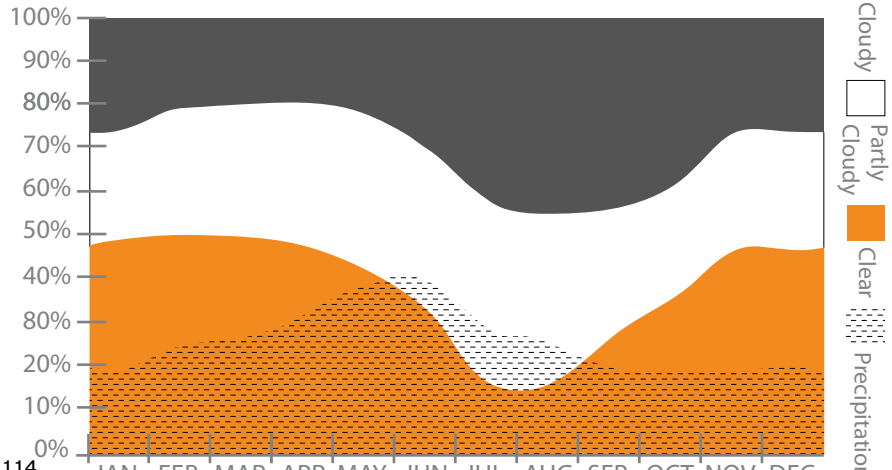


Fig 114

Sunshine

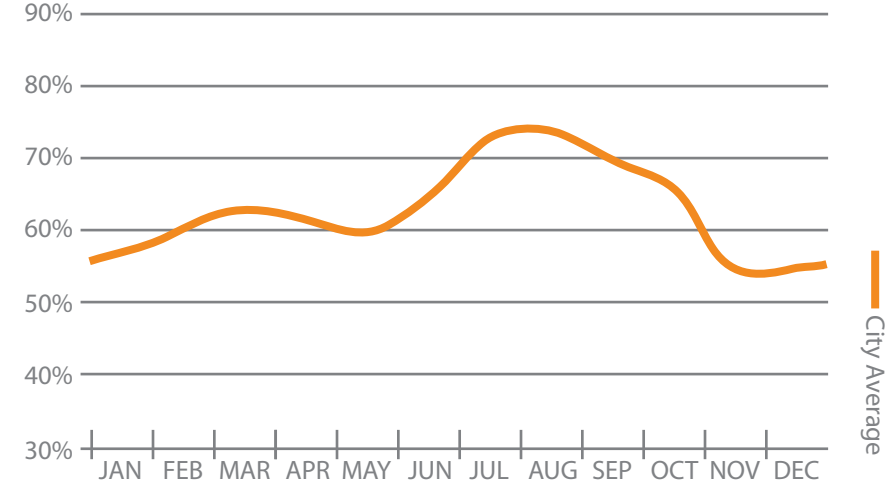


Fig 115

measurement of light, it appears that this site experiences a range of 2,000K to 10,000 Kelvin. Because lighting color is measured in Kelvin, the lower the degree, the cooler the temperature, the warmer the visual color of the light. During mid noon, this site experiences a temperature of roughly 5,400-6,000K. At sunset, the color temperature measures in the range of 2,000K - 3,000K. Beneficial warming or comfortable spots on the site are expected to be found in the upper northern area as well as the eastern area but the greatest lighting qualities will be within the southern areas.

Sun Path

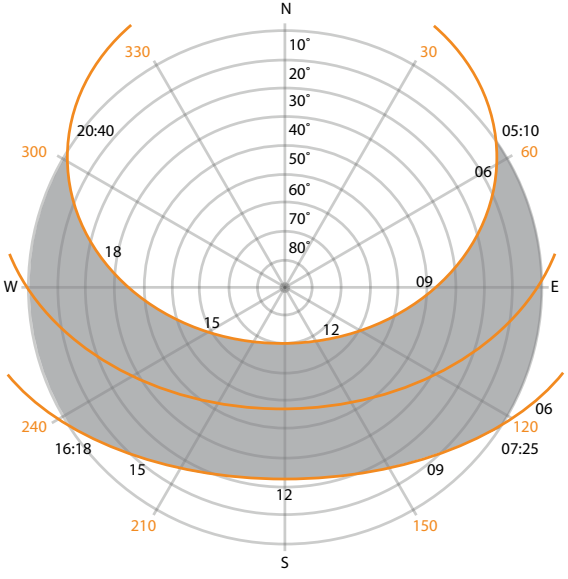


Fig 116

Human Characteristics

The site shows evidence of once being used as a sand quarry. While there are no signs indicating it is still being used as a sand quarry, it is reasonable to assume that the site absorbed the impact of weighted pressures from heavy equipment. Further south on the gravel road, it appears that the sand quarry has been moved – perhaps due to the need for a larger area. The entry to this new quarry measures roughly 2,500 feet from the edge of this projected thesis site. While many of the hills and forested areas in and around Rapid City, South Dakota are available for public interaction, this site remains undeveloped for human to site interaction.

Distress

As mentioned above the site has been used for commercial purposes implying that some distress to the site has occurred. With the use of heavy machinery the distress to the soil and ground can be impacted causing dense compaction of the soil below. This site also shows signs of distress and neglect in that it has been used as a repository for old car pieces and trash. A large crevasse on

Fig 117

the southern part of the site could be considered a man-made erosion area. Natural erosion spots on the site are not readily apparent. Some vegetation shows signs of water shortage but this is not uncommon in dry and drought summer months. While not distinctive in visiting the site this area of South Dakota can experience drought which heightens the level of fire risk and precautions.

In noting that this area is dense with vegetation it should be taken into account the likelihood of fire in this proposed area. Unique fire precautions should be taken into account when designing this type of facility. Many of times psychiatric facilities do not operate under the well taught "exit the building" precautions. This facility will need to be design in a manner of moving patients to fire rated areas instead of outside the safety parameters of the facility.

Precipitation

Figure 118 and 119 demonstrate the area's moisture. Where the area lacks precipitation in the formation of rain, it supplements precipitation

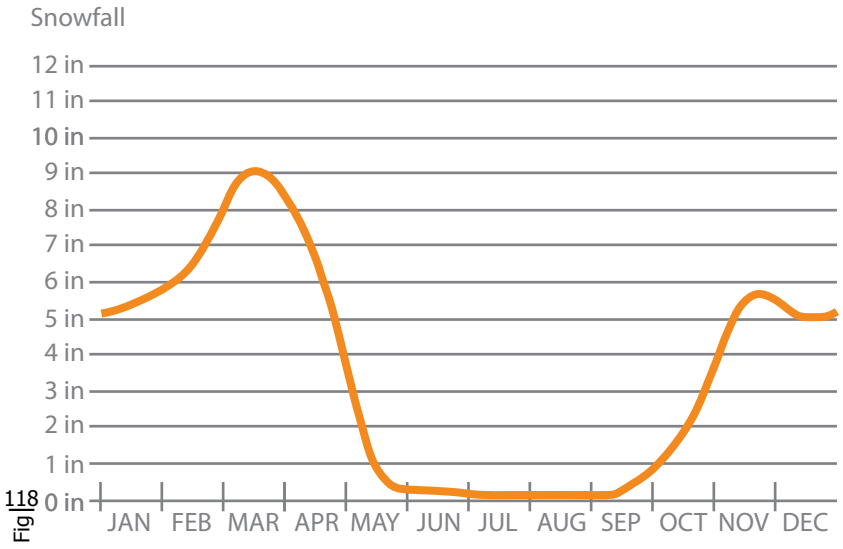


Fig 118

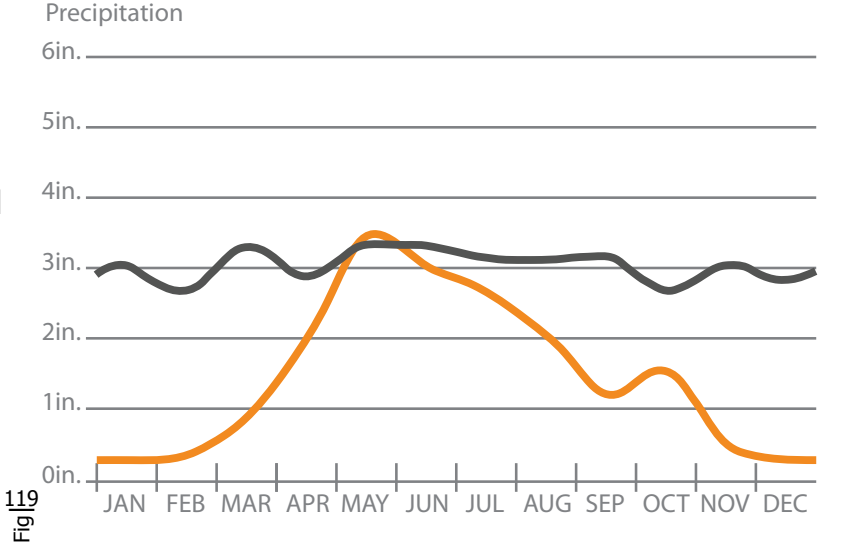


Fig 119

in the form of snow. While average precipitation varies year to year, water collection systems could be installed to supplement summer month water shortages. These supplemental systems could also be used for watering gardens and as gray water for plumbing.

Wind

Wind flow is affected by the landform and topography, vegetation and season. Figure 123 shows that the main direction of wind for this area is out of the northwest. These winds are generally cooler and occur more so in the winter months than the summer months (see Figure 122). With the winter months comes snow, and blowing snow that creates undesired drifting.

Structures that are not located near a populated area create a shelterbelt that lines the most vulnerable area of the site. Vegetation is expected to diffract the wind and blowing snow. This site offers some natural burms that will eliminate the need to do excessive planting.

Unfortunately, when snow piles alongside these burms, it will create an extension that could become a barrier. The topography of the hill creates a natural barrier along the eastern section of the site. In the summer months the hillside acts as a stop to the south as west winds allow for more ventilation to pass through the site.

In structuring this proposed, facility outdoor space will need to provide shelter from the natural elements. The idea of a centrally enclosed garden creates a barrier from the prevailing winds but also creates its own micro climate that is more suitable for patient needs. Additional plantings for vegetation may be necessary to the north. While there is a slight burm present the planting of vegetation will better minimize the drifting of snow to the north and assist in absorbing the winds throughout the year.

Wildlife

While no animals were encountered during this site visit, a variety of wildlife is anticipated within in this wooded habitat. This area is notoriously known to shelter deer, skunks, raccoons and many other night vermouths that utilize the tree line as a place of dwelling. It is of note that

Fig 120

Fig 121

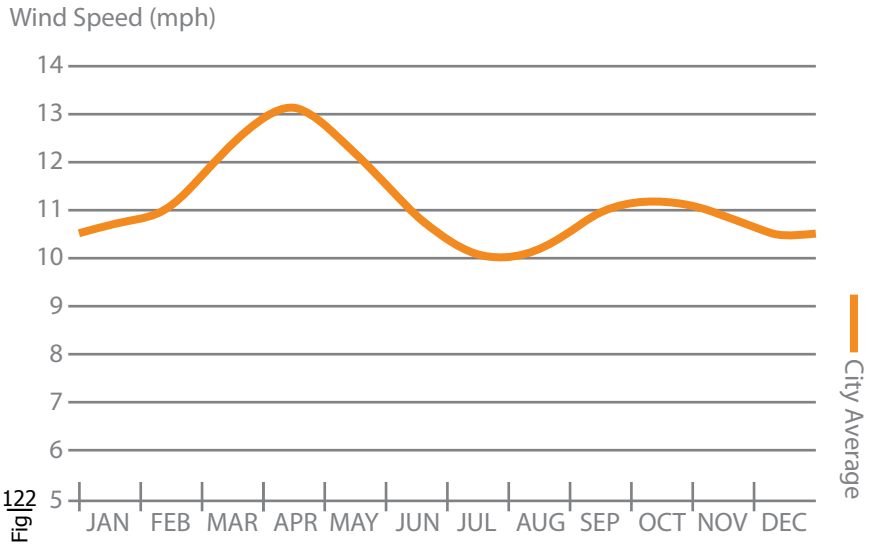


Fig 122

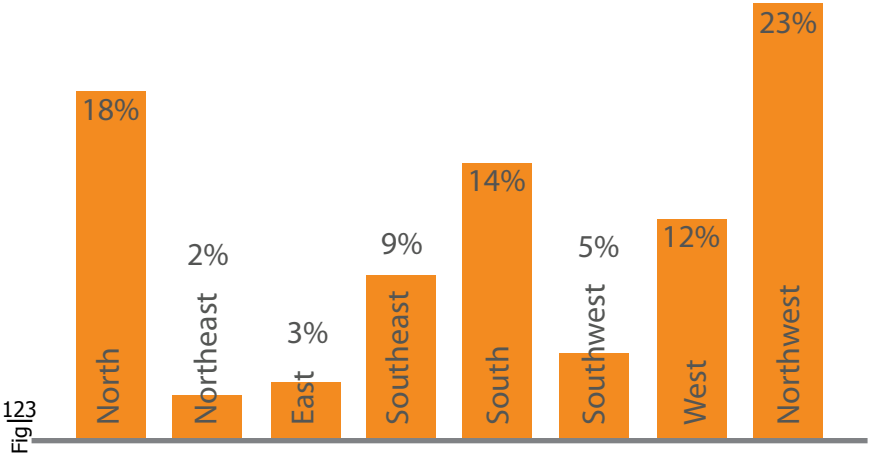


Fig 123

Fig 124

from animal droppings found on the site, this land has previously been used as pasture for livestock. While it is not anticipated or necessarily encouraged that these animal admit [or invite] themselves to this facility the movement of natural wildlife is anticipated and provides patients with a setting of nature.

Vegetation

Vegetation to a site provides detailed information much like hydrology and climate. If crops and vegetation can grow at a site or location, this indicates that the capacity for habitation is present. Vegetation, such as shade or structural blockage from the elements, provides a microclimate to the site.

Much of the proposed site's vegetation is consistent with its' natural setting. Plants, trees and foliage seem to be native to the site with little indication that other vegetation such as flowers and flora grow regularly. Many of the trees are coniferous, mainly rooted along the hillside and more aggressive topography. The flats of the site are home to sporadic areas of deciduous trees and shrubbery. The deciduous vegetation experiences little color change during the fall season. Nearly all trees show a mature age and growth to their appropriate height and circumference. This site may experience episodes of drought, judging by the dried color of the foliage and the underskirt of pine needles. The ground covering and foliage appears as a couple of different types of field grasses similar to bluegrass, wheatgrass, smooth bromegrass and straw grass. Because carnivorous trees hold their color year-round the tree line that meanders up the hill side allows for continuous color and dense covering. There appears to be little to no signs of standing water. Thus, vegetation must rely on precipitation and soil moisture.

Vegetation to this site should remain mostly native. If a central courtyard is proposed the microclimate within the contained area will experience a different reaction to mother nature than what surrounds the perimeter of the facility. While natural and native planting are visually appealing, a stimulation garden that houses colorful and pleasant scented plants should be considered for patients well being.

Fig 125

Fig 126

Fig 127

Fig 128

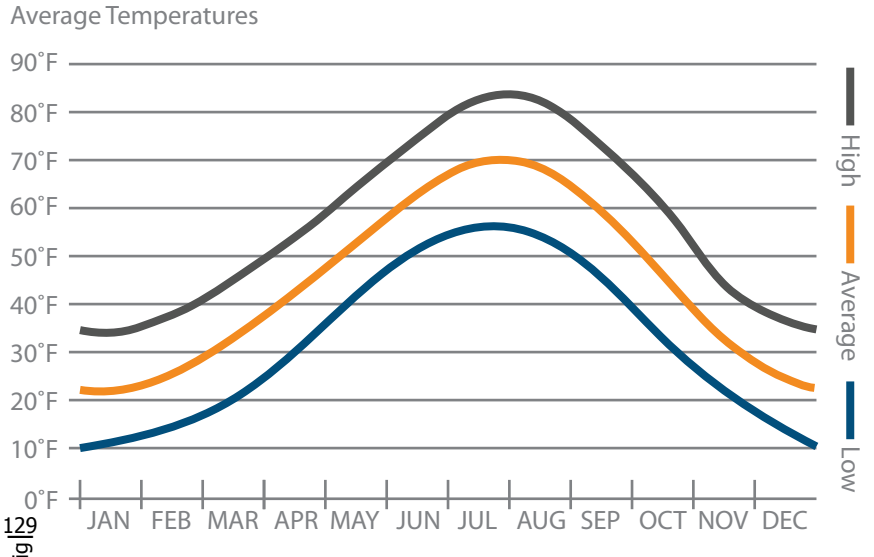


Fig 129

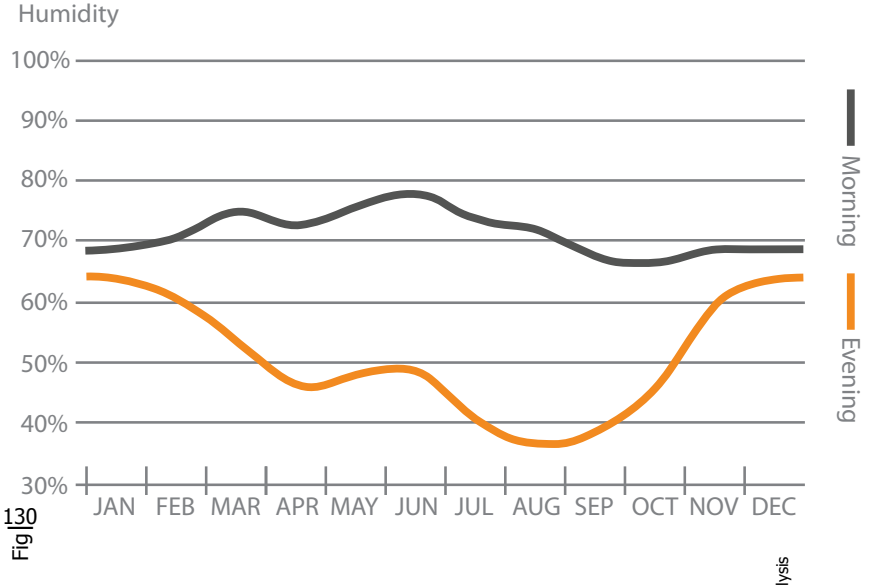


Fig 130

Therapeutic gardens such as planting and vegetable gardens should be available for patient interaction. While these suggested vegetations require much more attention and care than native vegetation, outdoor stimulation with vegetation and patient interaction is a goal that should be identified in this type of environment and facility.

Soils

According to the United States Department of Agriculture- National Resources Conservation Service this site is composed of two different agricultural classifications; Canyon Rock and quarry. In conjunction with the geology mapping service provided by the South Dakota Department of Environment and Natural Resources, the site's soil structure is composed of sandstone, redbeds, and shale. Site observations show a ground surface of sand, dirt and gravel.

Much of the sand is a gravel type consistency; with medium granules, moderately dense in weight. The soil or "dirt" that is present at the site is very compact, brittle and low in nutrients. The soil is combined with large pieces of gravel that would commonly be used to form a path or low maintenance roadway. Currently this soil is not conducive for an environment outside of a low maintenance natural state. Proper nutrient - treated soil, fertilizer, and water resource will need to be implemented in order for plantings and grassy environments to remain healthy.

For the use of lush and fresh gardens, nutrient rich soil will need to be brought in and combined with the current soil or planted in raised beds to allow nutrients to remain within the soil. Proper care for facility grounds will require extensive watering if landscaping is to be kept alive shortly after it is transplanted to the site.

Topographical Survey

This site presents a change in topography from the relatively flat plains of typical South Dakota area. Survey maps and summaries indicate that the proposed site experiences slopes ranging from a 6%- 25% grade. A grade of 25% is approaching the upper limit of pedestrian accessibility without the need for stairs. To better understand the slope and topography of this site, Figure 132 is a color coded map indicating the change in topography.

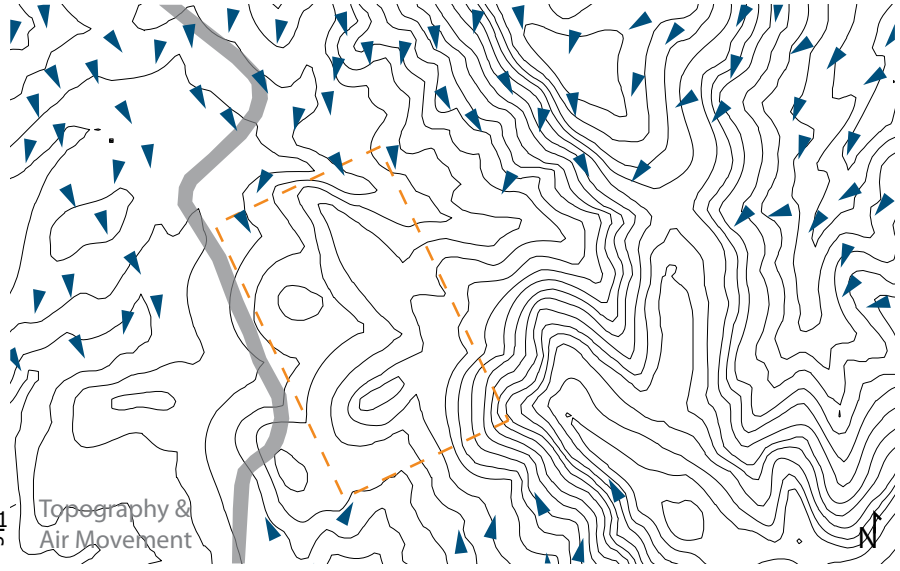


Fig 131

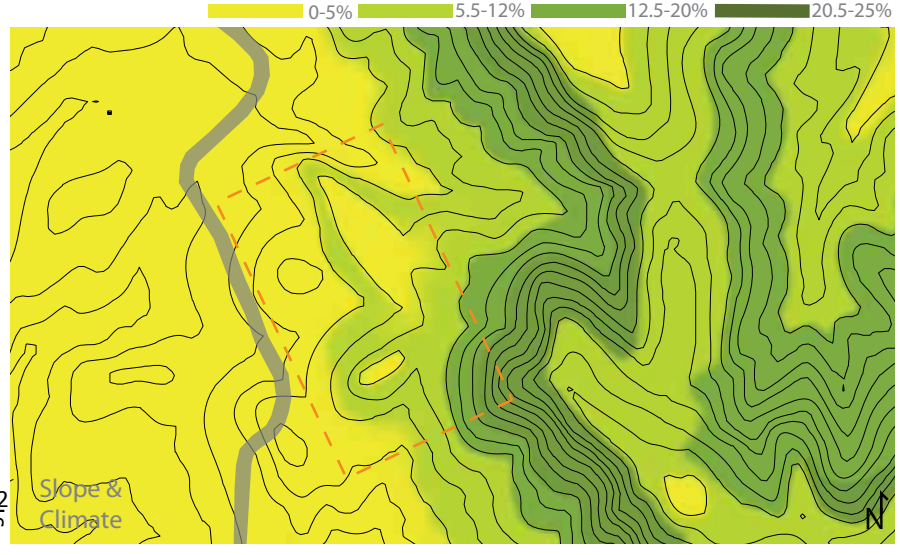


Fig 132

Noise

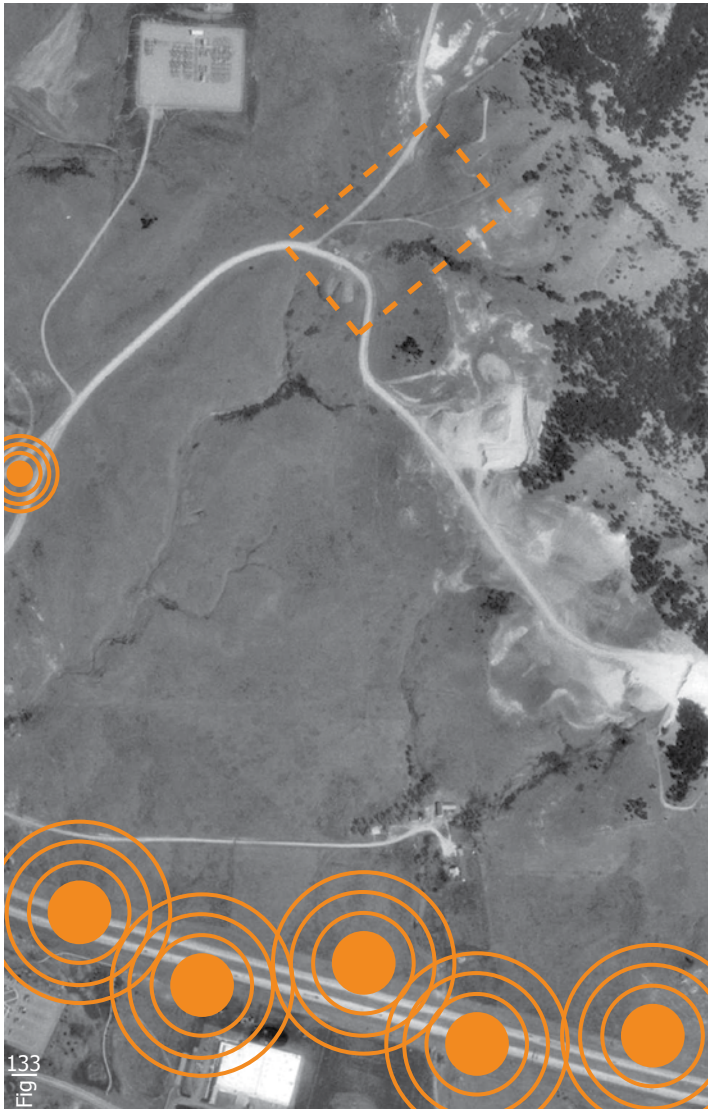


Fig 133

To the East of the sight, a modest change in elevation and topography help create a natural barrier. Because the human body can only experience a slope of less than roughly 14 percent before needing some extended type of assistance (i.e. a handrail or walking stick) Cowboy Hill provides a security buffer for the area. If unauthorized leave does occur, Cowboy Hill's topography reduces the likelihood that individuals will move East over the Hill. By minimizing the direction that patients can take during unauthorized leave, search crews can be focused in smaller search areas.

Utilities

As noted previously, there is an electrical transformer station within proximity to the proposed thesis site. It is unknown at this point if this transformer site has any relation to the proposed thesis site. Power lines are in place on the opposite side of the road and further to the north of the site moving up the hill. It is unknown if the power lines that are across the road service the proposed site but it can be concluded that electrical power is accessible to the area.

Vehicular Traffic

Much of the vehicular movement takes place south of the site on South Dakota's Interstate 90 traveling east to west. Due to the major transportation thoroughfare, this area produces a sizeable amount of traffic and accompanying noise (see Figure 133 on previous page). Other vehicular traffic relevant to this site includes movement along the gravel road that extends to the site and beyond it to the sand quarry. This road is utilized during normal business hours.

Because admissions are transferred during all hours of the day and from many different locations, the selected site provides easy on/off access to the facility making it less stressful on patients. From a staff or administrative view Interstate 90 provides a quick and timely means of getting to and from the facility in situations such as seclusions and emergency codes. Much of the city of Rapid City is situated to the south of I-90. With the placement of this facility to the north of the Interstate, city resident safety and privacy is likewise respected.

Pedestrian Traffic

Very little pedestrian movement takes place around, within or near the site. This area is not yet pedestrian

"friendly", implying that there are few reason for pedestrians to be venturing into this location.

While unlike the 19th and 20th Century where insane asylums were popular places to stop and walk the grounds while on a family vacation, one generally needs specific purpose and reason to be on the grounds of a psychiatric facility. Those who are authorized to be on these grounds should have the proper pathways to guide them to their intended locations.

Site Character

This location has tremendous potential to accommodate the goals of the proposed thesis typology. While there is evidence of change to the site, the addition of a new facility and expansion of the surrounding environment will enhance the site's innate character. In designing a facility in this location, the project should be informative and functional, while humbling to the foothills of the site and landscape. A structure that is overpowering and competitive to the landscape will distract from the unique character and beauty of the chosen site.

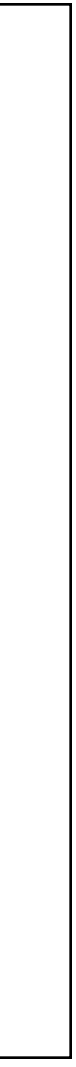

Fig 134

Fig 135

Fig 136

Fig 137

Fig 138



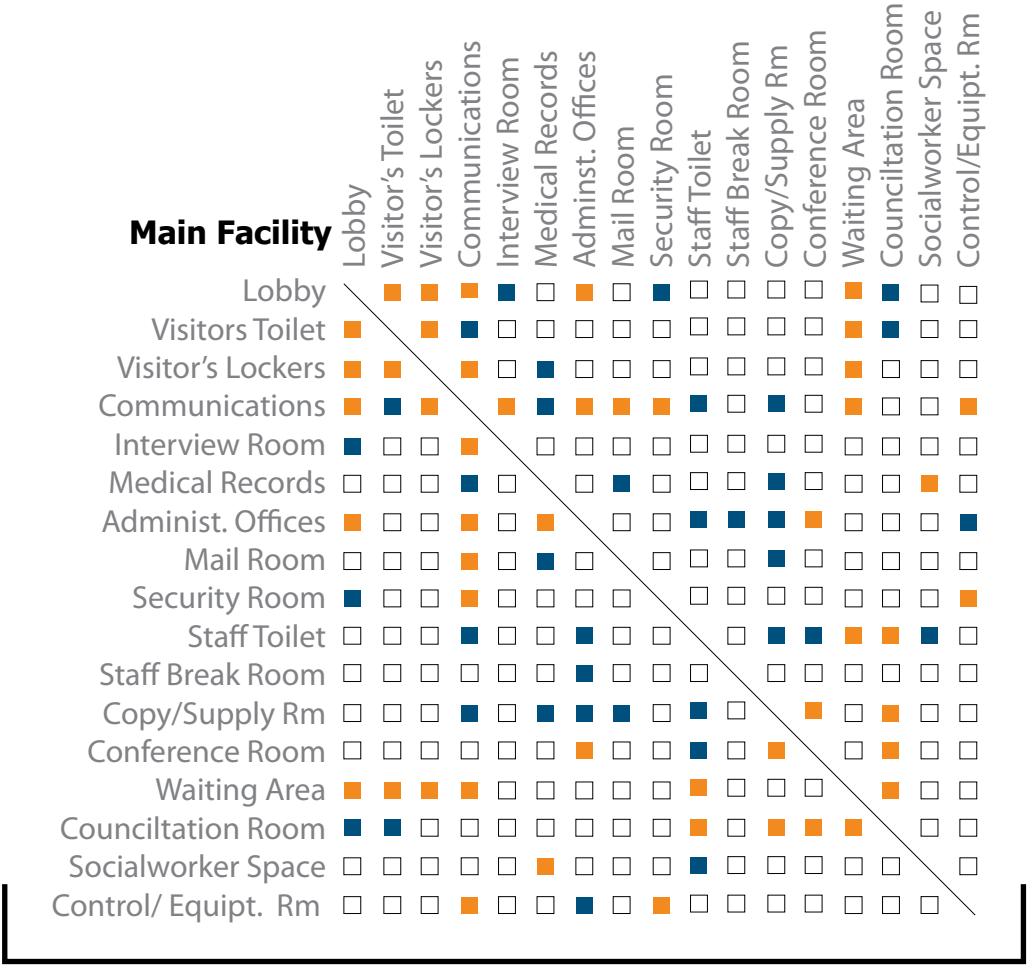
PROGRAMMATIC REQUIREMENTS

Main Facility	
Lobby	475 sq ft
Visitors Toilets	100 sq ft
Visitors Locker	225 sq ft
Communications	400 sq ft
Interview Room	150 sq ft
Medical Records	400 sq ft
Administrative Offices	2,000 sq ft
Mail Room	200 sq ft
Security Room	500 sq ft
Staff Toilet	100 sq ft
Staff Break Room	850 sq ft
Copy/ Supply Room	250 sq ft
Conference Room	300 sq ft
Waiting Area	600 sq ft
Counciltation Room	100 sq ft
Socialworker Space	1,200 sq ft
Control/Equipt. Room.	250 sq ft
Total	8,100 sq ft

Main Facility |Patient Access|	
Social Space	3,000 sq ft
Library	2,500 sq ft
Porch	1,000 sq ft
Exercise/ Gym	6,500 sq ft
Physical Therapy	3,000 sq ft
Occupational Therapy	3,000 sq ft
Classrooms	2,000 sq ft
Group Rooms	800 sq ft
Pharmacy	1,800 sq ft
Clinic	5,000 sq ft
Total	28,600 sq ft

Cabin Units	
Entry	75 sq ft
Visitors Toilet	30 sq ft
Lobby/ Corridor	1200 sq ft
Visitation Room	125 sq ft
Dinning area	800 sq ft
Kitchen	500 sq ft
Exam room	75 sq ft
Seclusion Room	50 sq ft
Houskeeping	150 sq ft
Staff Toilet	75 sq ft
Patient Toilet	75 sq ft
Meds	100 sq ft
Charting and Records	200 sq ft
Conference Room	350 sq ft
Nurses Station	300 sq ft
Laundry/ Storage	75 sq ft
Dictation office	75 sq ft
Total	4,255 sq ft

Cabin Units Patient Access|	
Quiet Area	600 sq ft
Common Area	600 sf ft
Outdoor Activity	175 sq ft
Visitation Room	125 sq ft
Counciltation room	100 sq ft
Dbl Occup. Bedroom x8	1,000 sq ft
Bathroom x 8	50 sq ft
Laundry/ Storage	100 sq ft
Total	3,100 sq ft



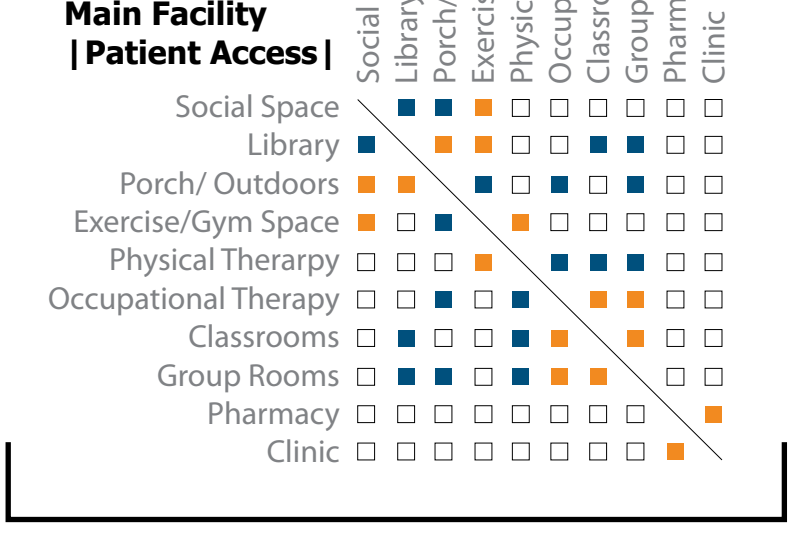
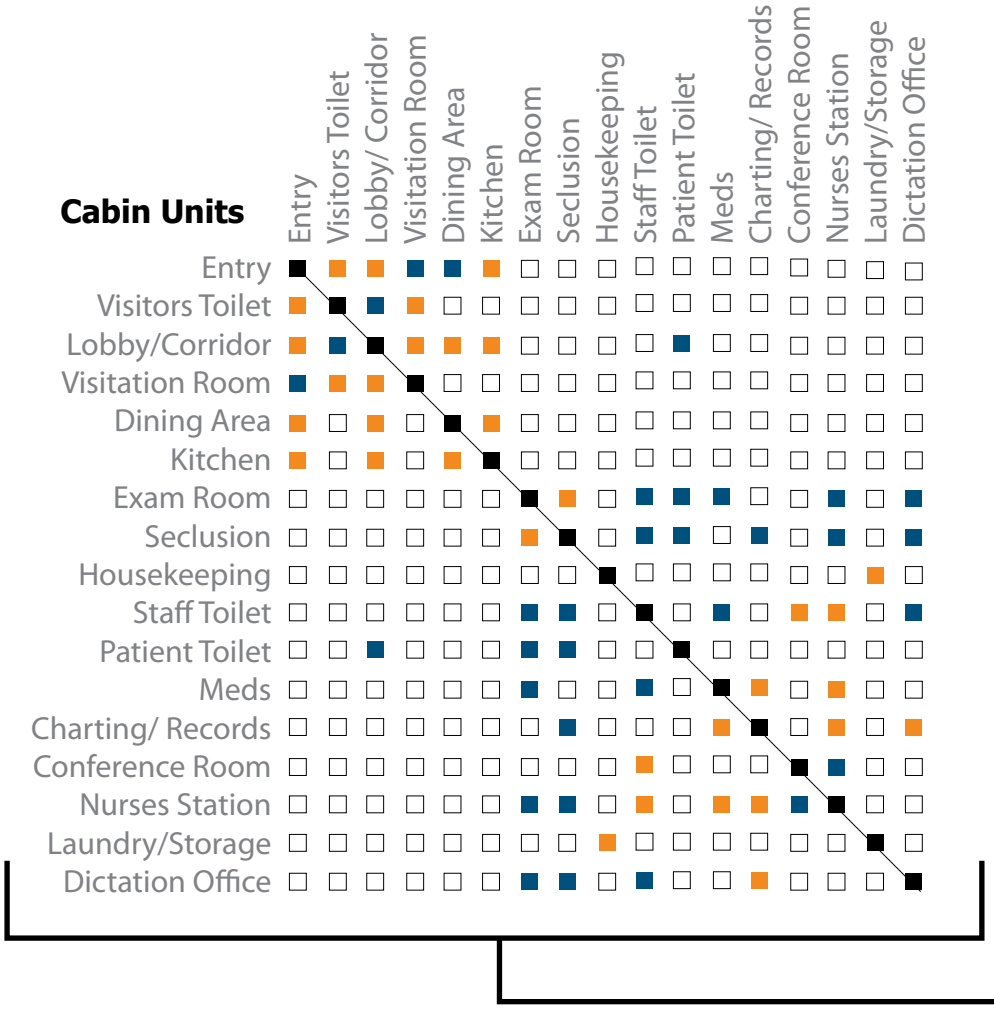
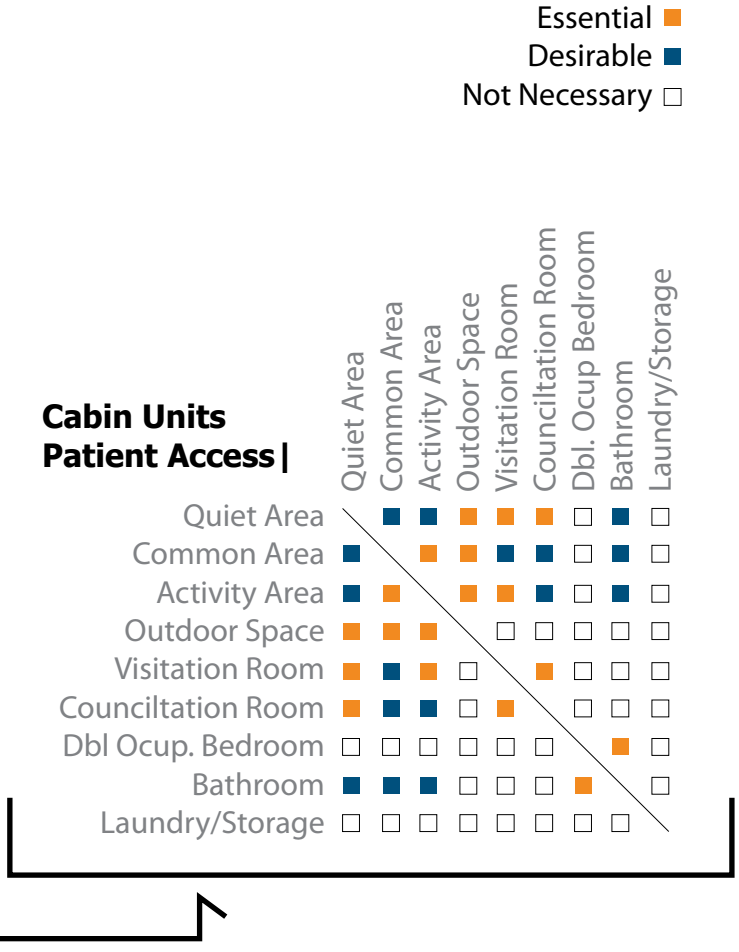
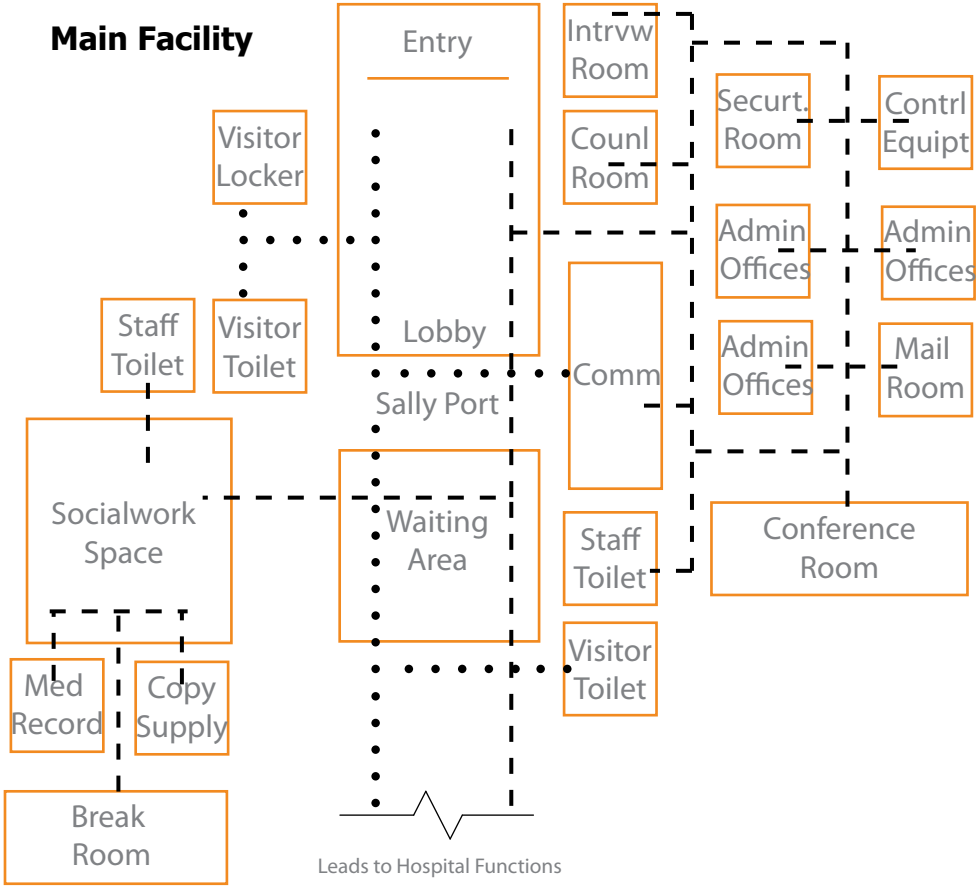


Fig. Program Interaction Matrices





Essential ■
Desirable ■
Not Necessary □



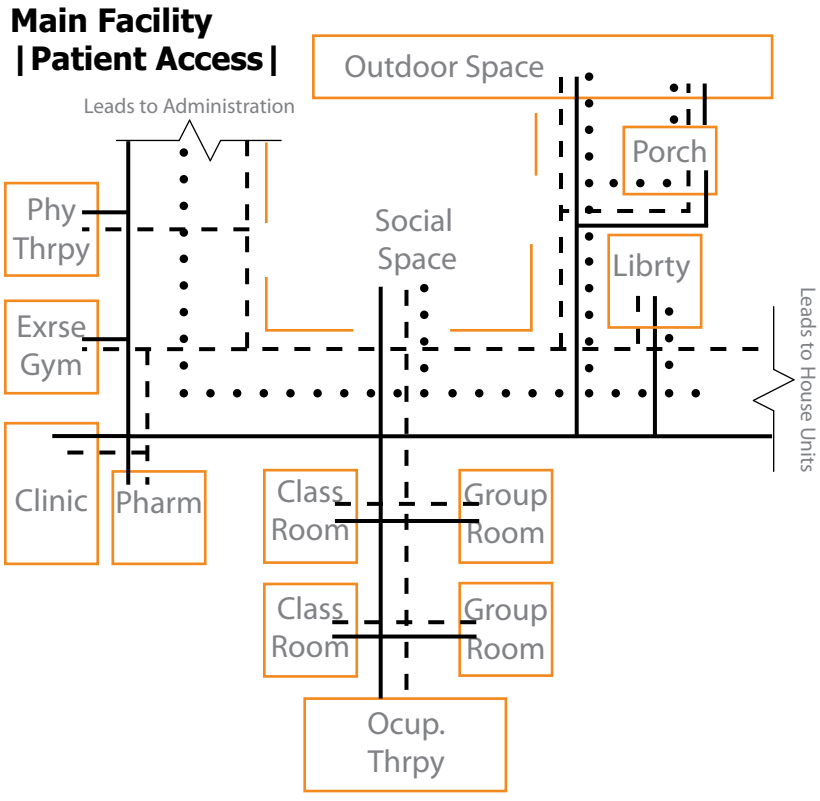
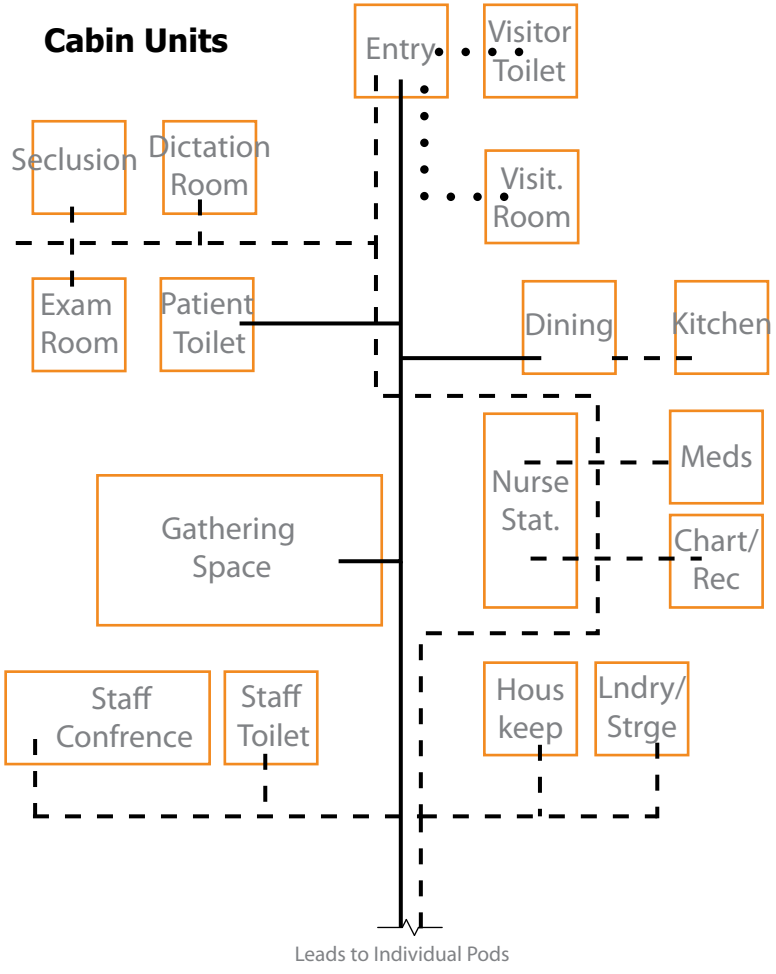
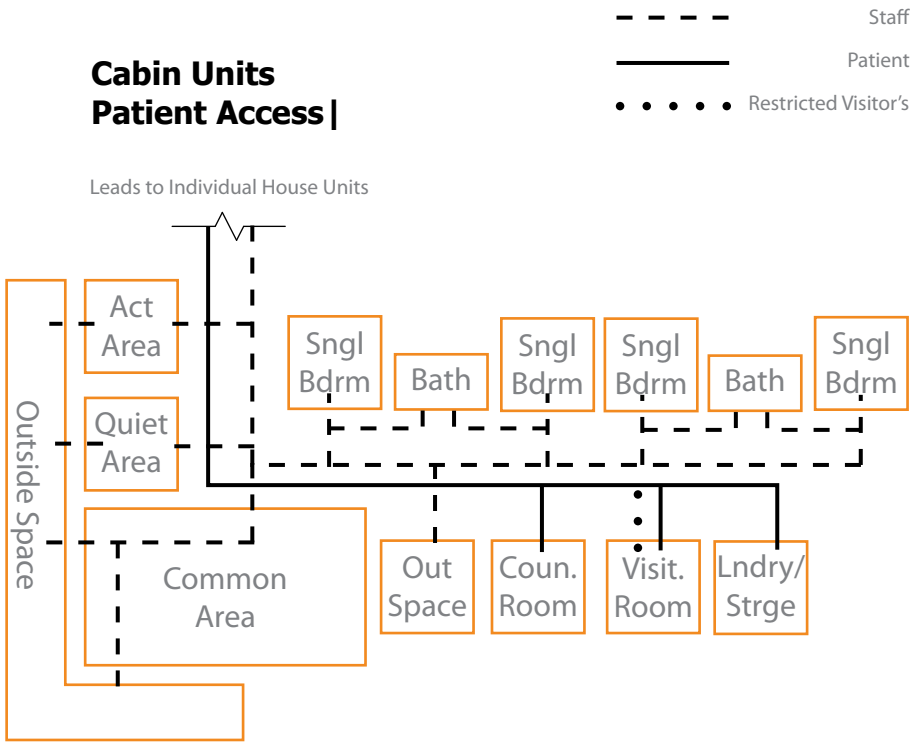
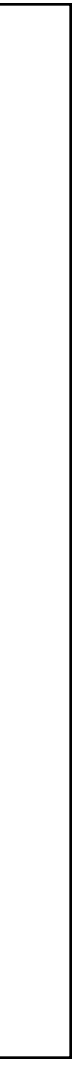


Fig Program Interaction Net


Cabin Units
Entry
Visitor Toilet
Seclusion
Dictation Room
Visit. Room
Exam Room
Patient Toilet
Dining
Kitchen
Meds
Nurse Stat.
Gathering Space
Chart/ Rec
Staff Confrence
Staff Toilet
Hous keep
Lndry/ Strge
Leads to Individual Pods


Staff
Patient
Restricted Visitor's
Cabin Units
Patient Access |
Leads to Individual House Units
Outside Space
Act Area
Quiet Area
Common Area
Sngl Bdrm
Bath
Sngl Bdrm
Sngl Bdrm
Bath
Sngl Bdrm
Out Space
Coun. Room
Visit. Room
Lndry/ Strge



PROCESS | MIDTERM

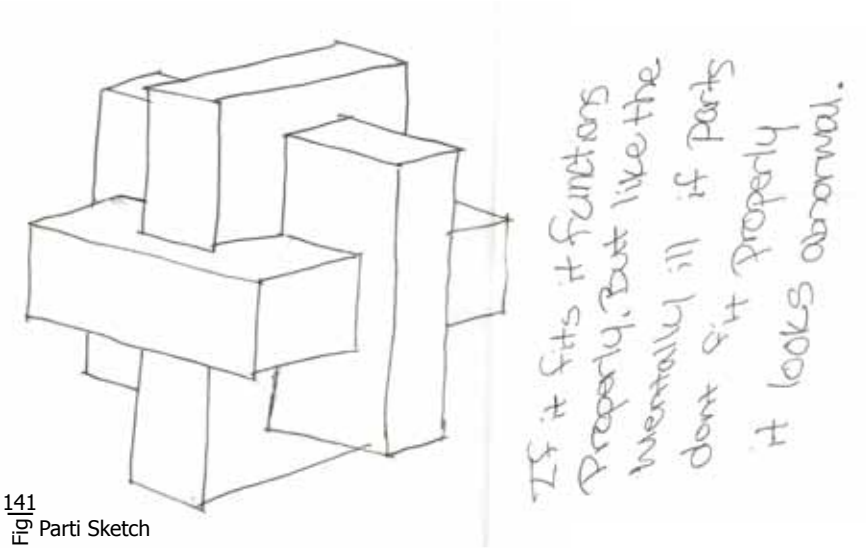


Fig 141 Parti Sketch

Fig 142 Parti Disassembled

Fig 143 Parti Process

Fig 144 Parti Assembled

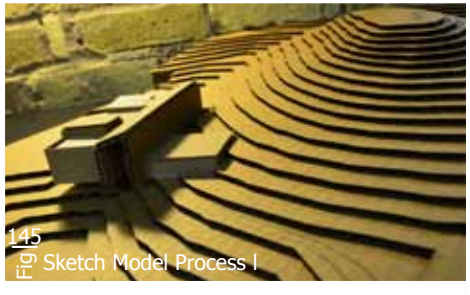
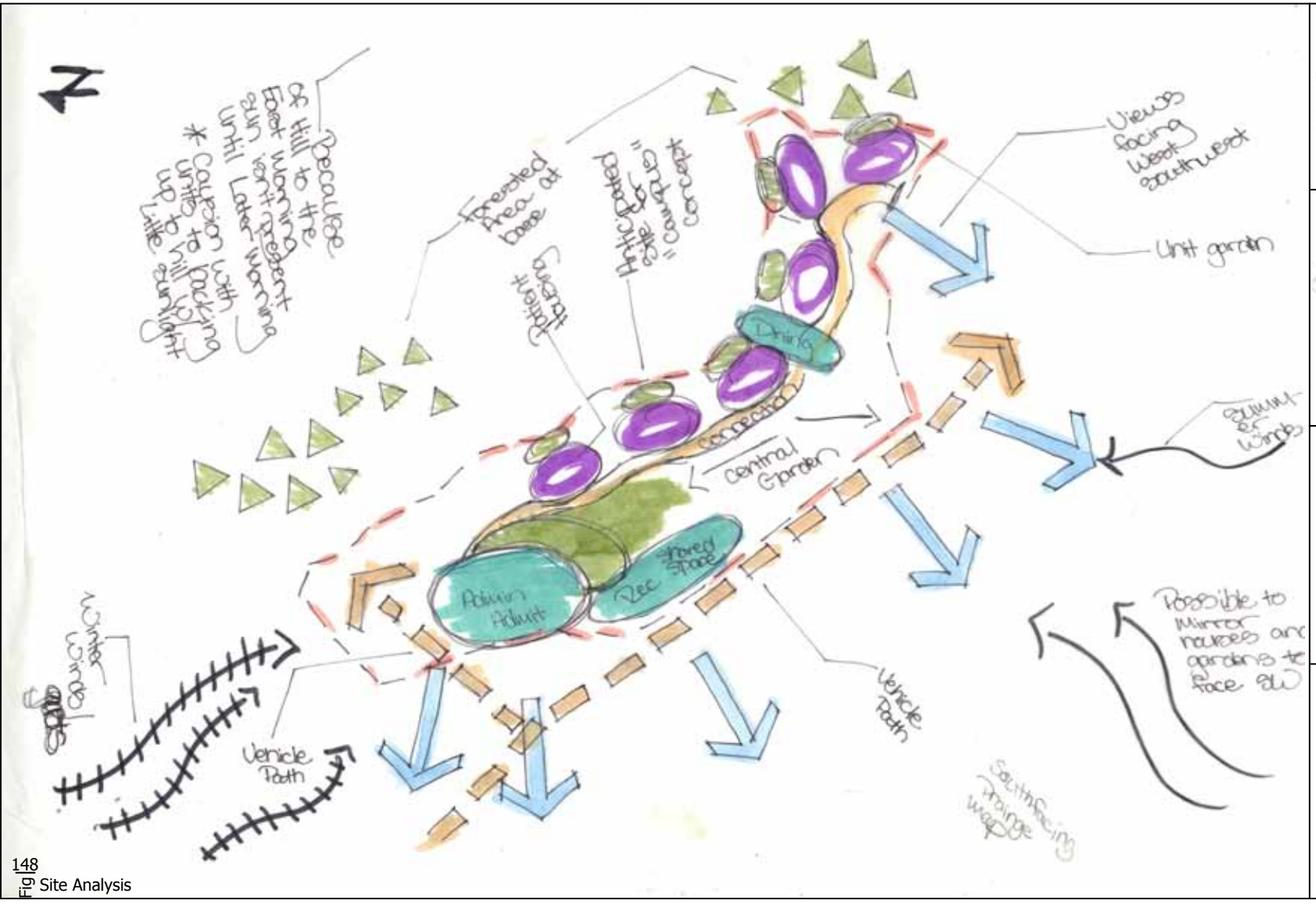


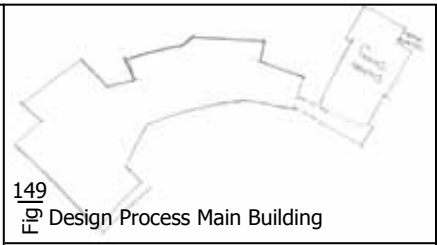
Fig 145 Sketch Model Process I

Fig 146 Sketch Model Process II

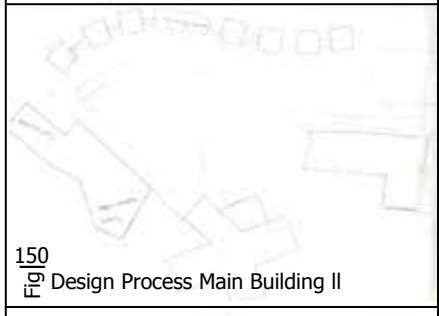
Fig 147 Sketch Model Process III



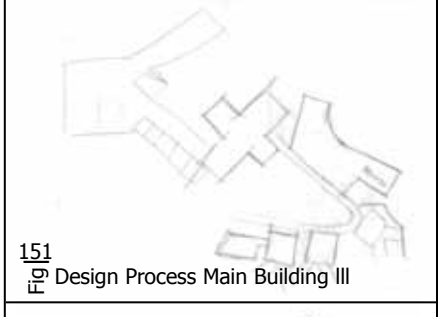
148
Fig Site Analysis



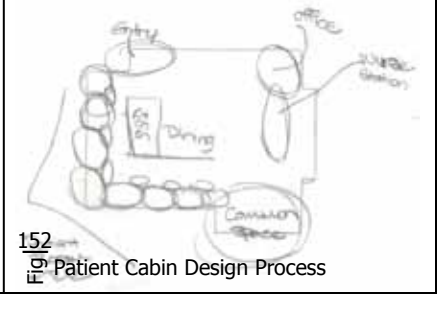
149
Fig Design Process Main Building



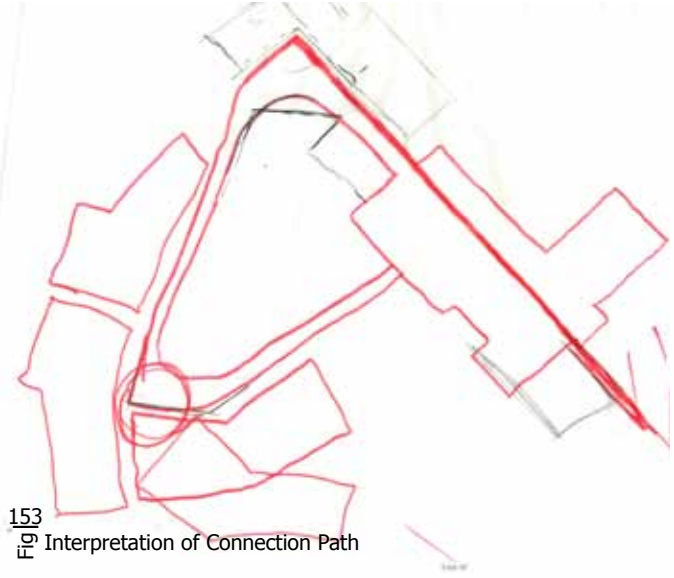
150
Fig Design Process Main Building II



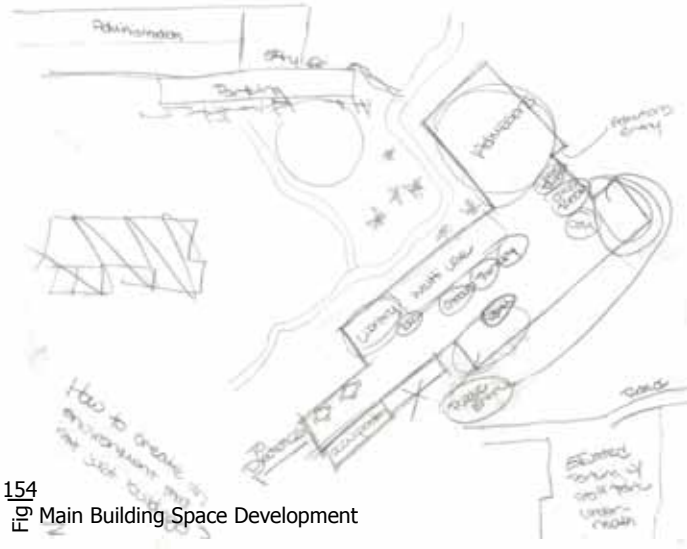
151
Fig Design Process Main Building III



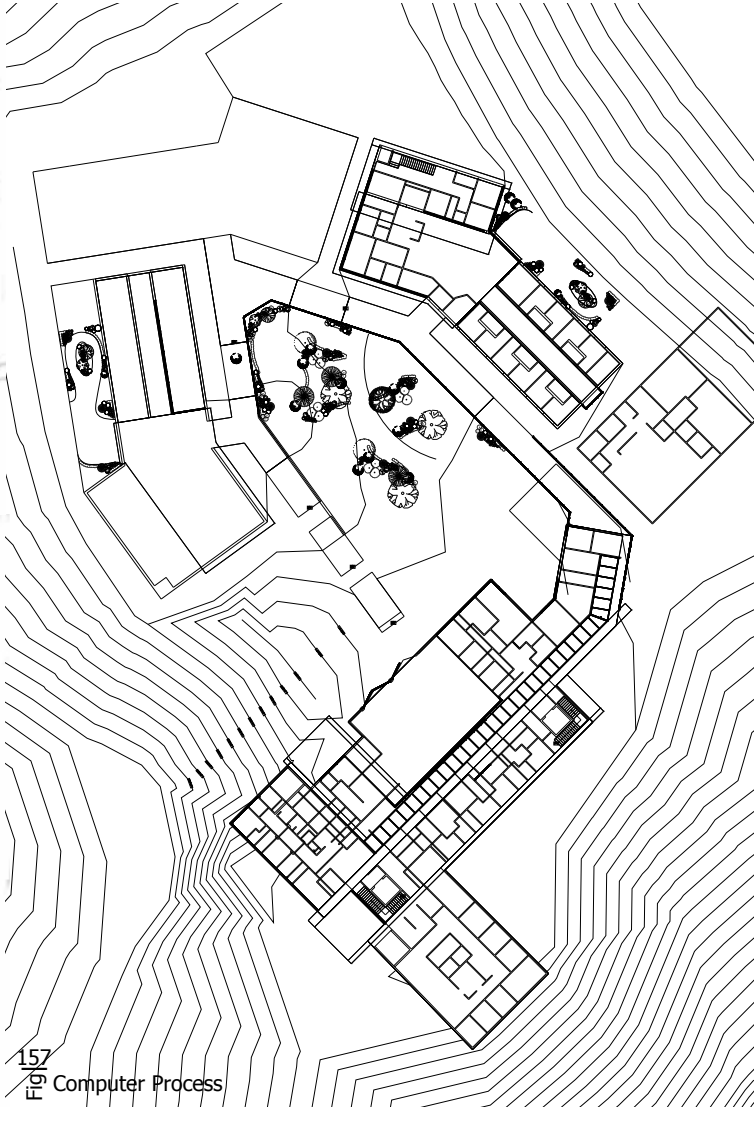
152
Fig Patient Cabin Design Process



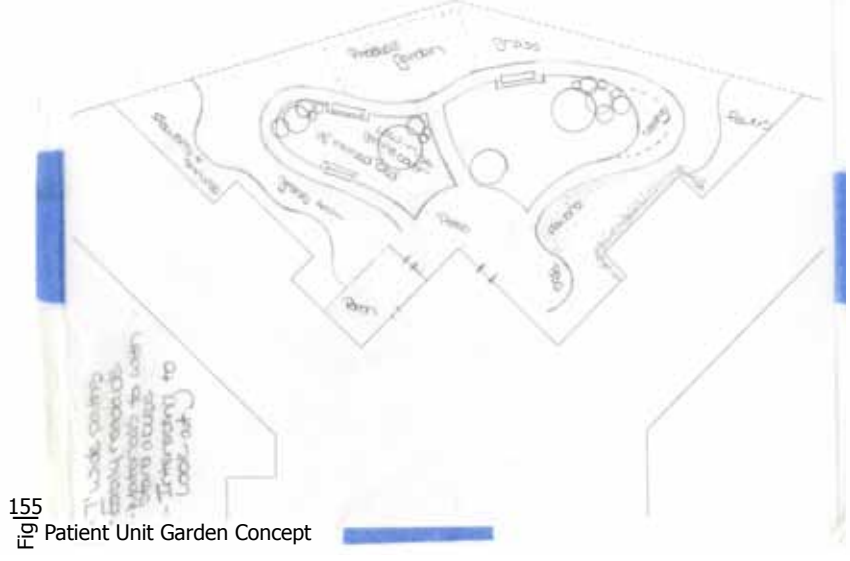
153
Fig Interpretation of Connection Path



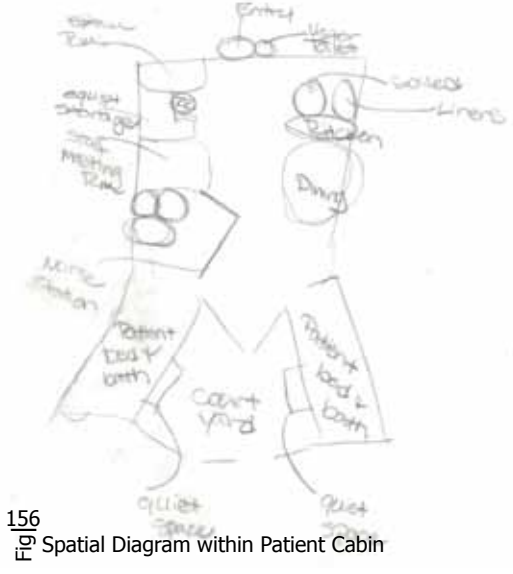
154
Fig Main Building Space Development



157
Fig Computer Process



155
Fig Patient Unit Garden Concept



156
Fig Spatial Diagram within Patient Cabin

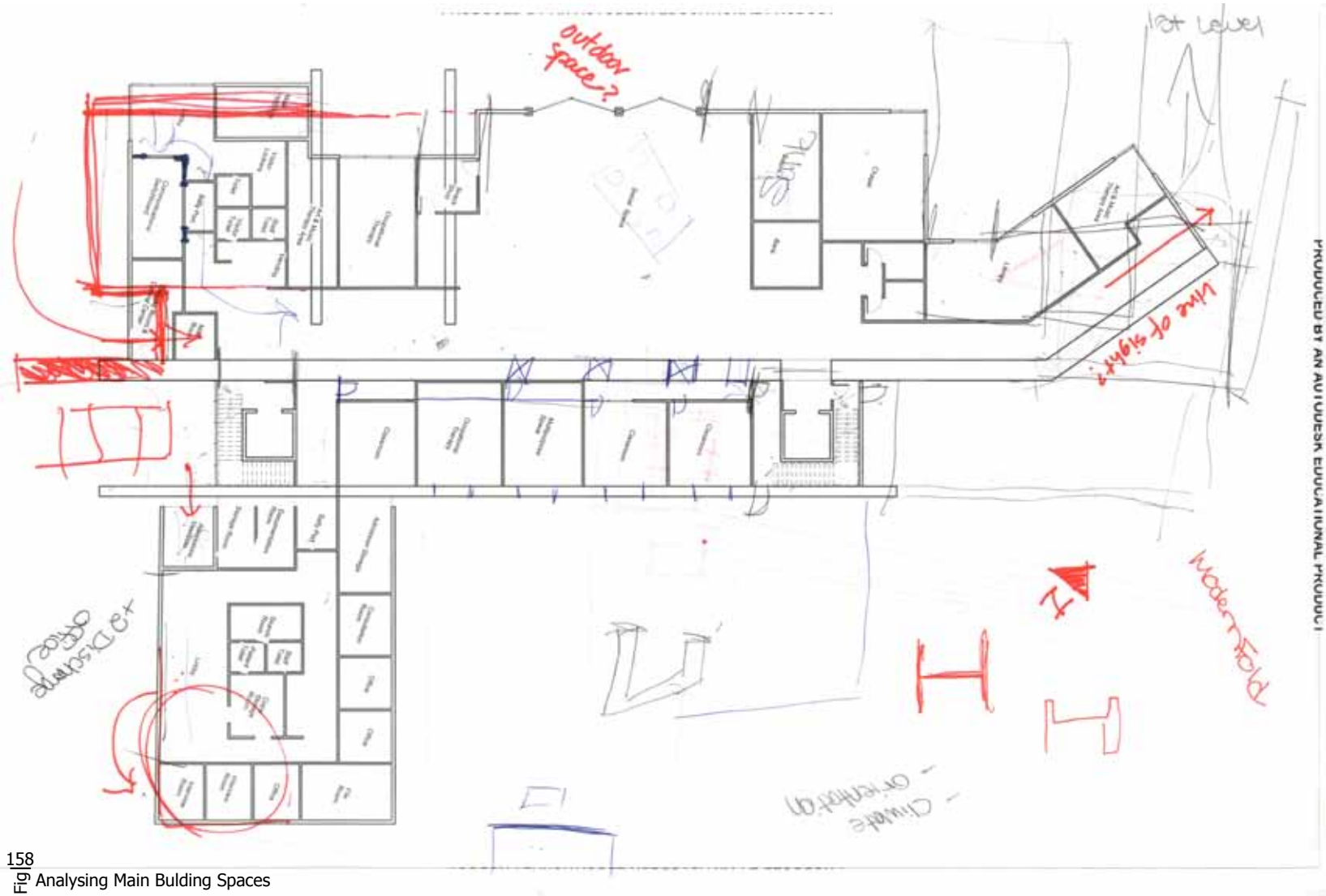


Fig 158 Analysing Main Bulding Spaces

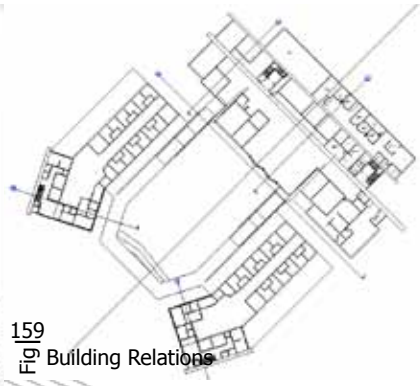


Fig 159 Building Relations

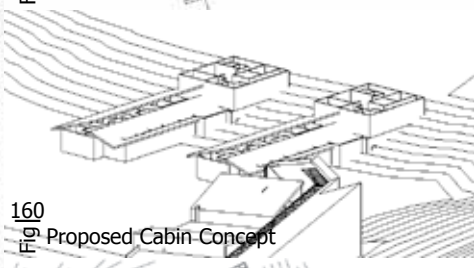


Fig 160 Proposed Cabin Concept

Fig 161 Building and Site Relationship

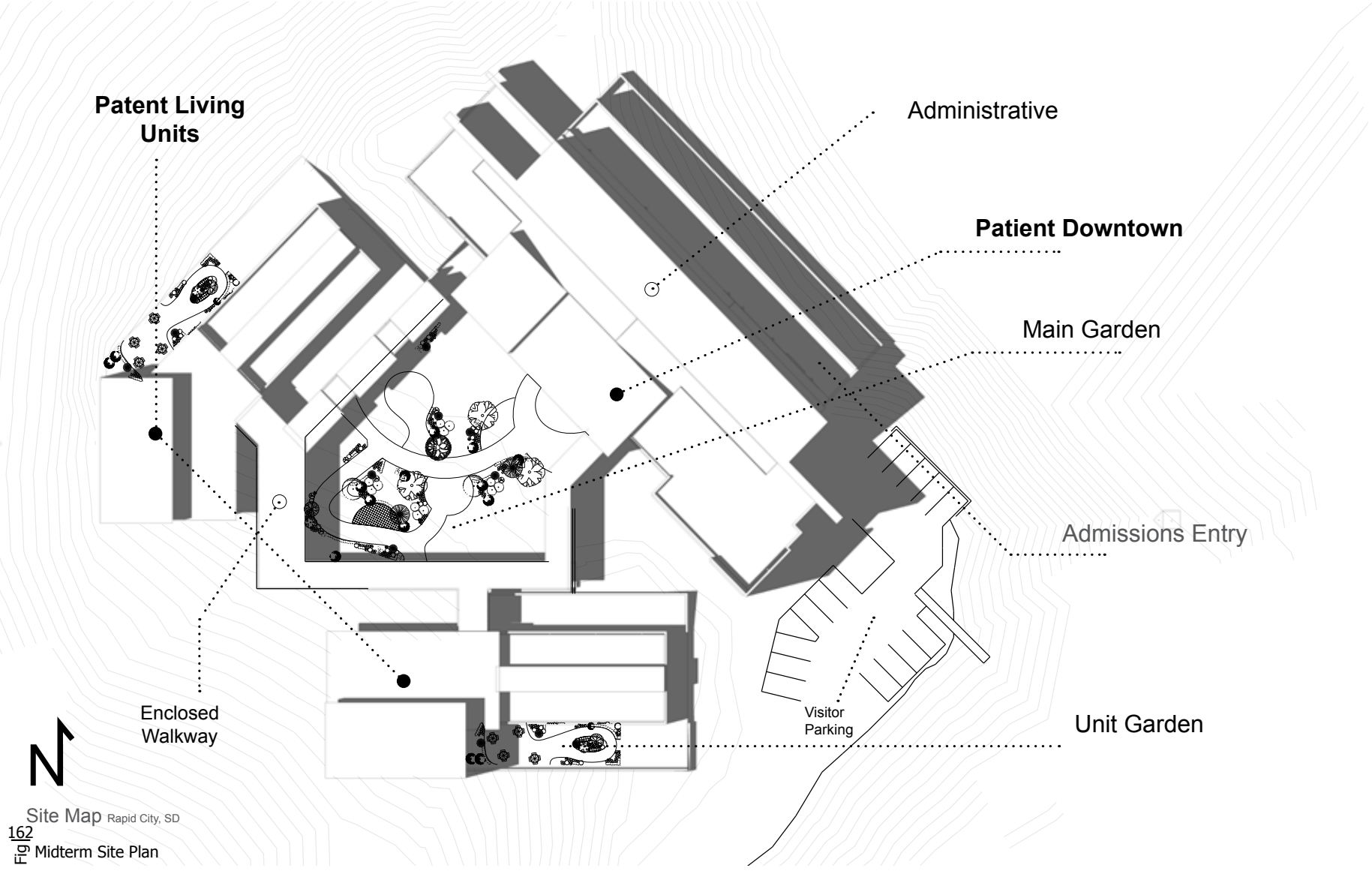
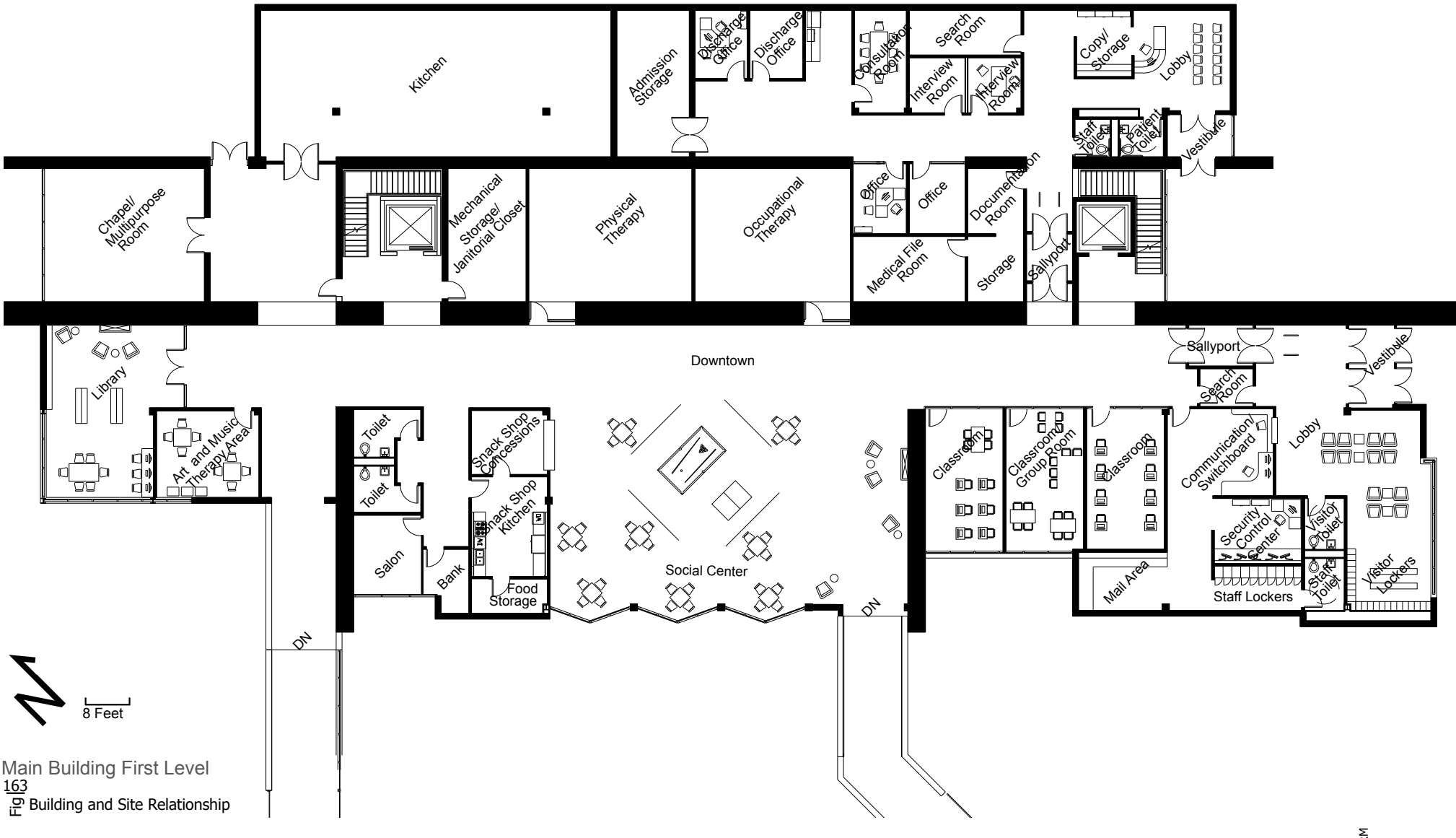


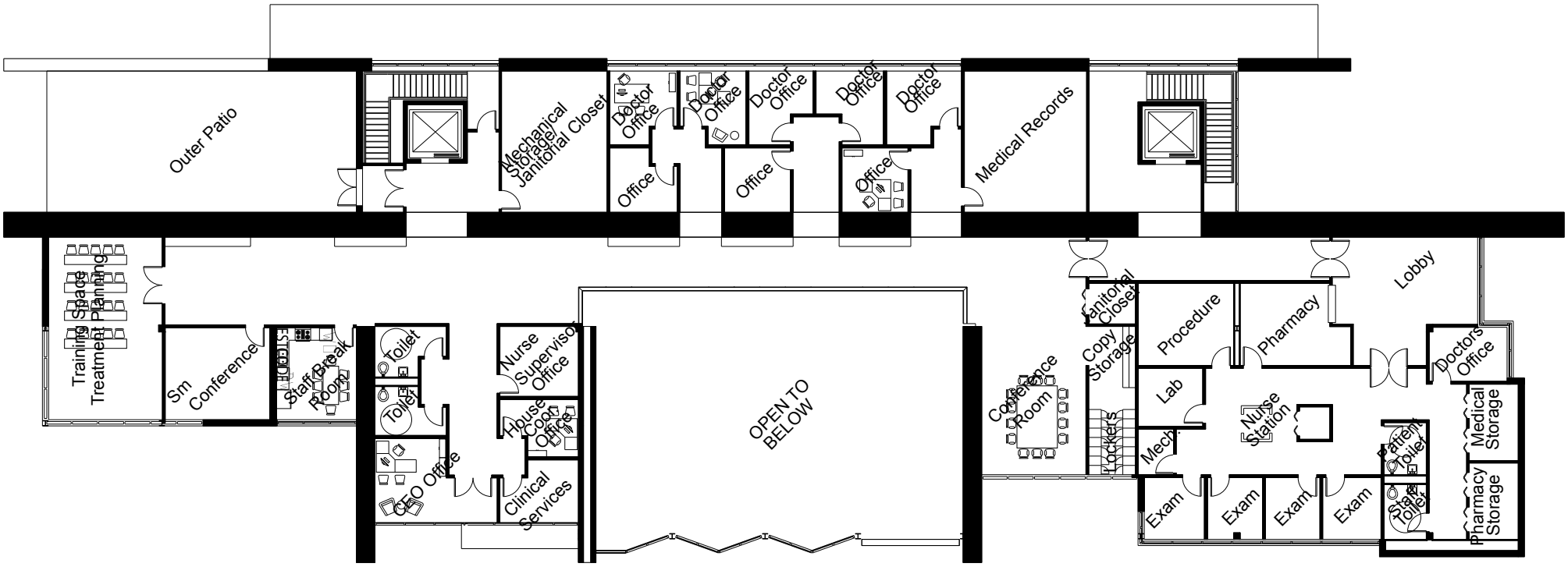
Fig Midterm Site Plan

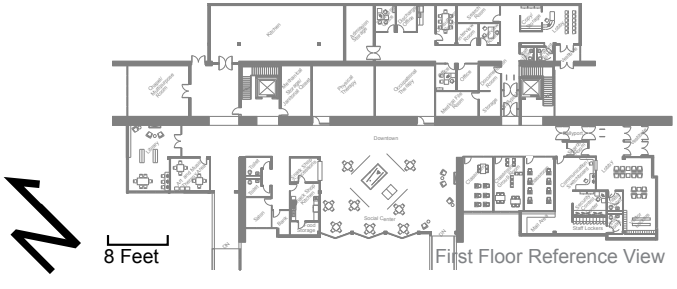


Main Building First Level

163

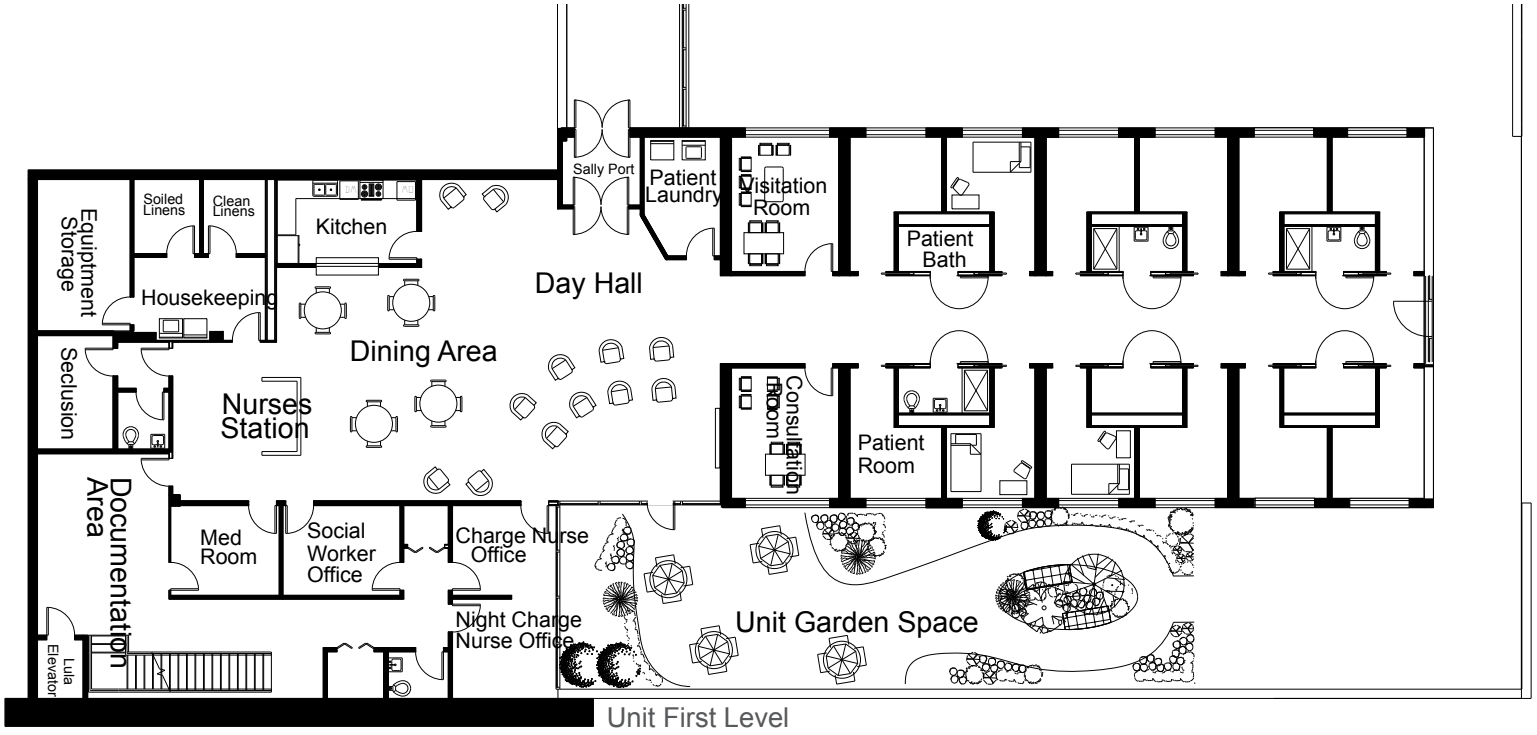
Fig. Building and Site Relationship



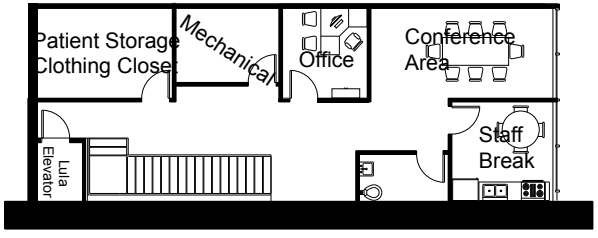


Main Building Second Level

Fig Main Building Second Level

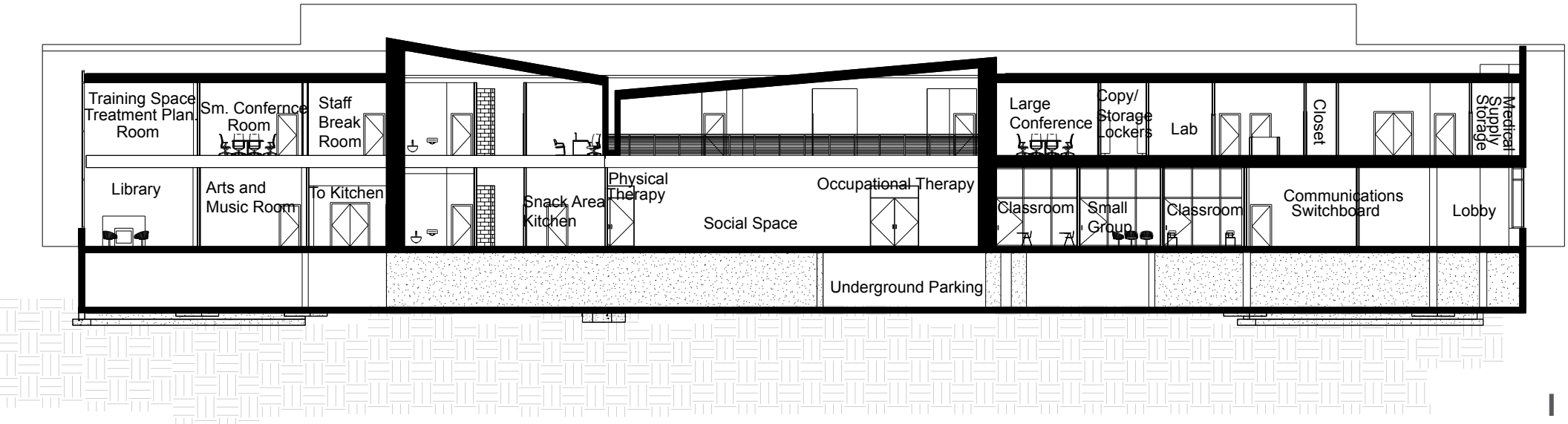


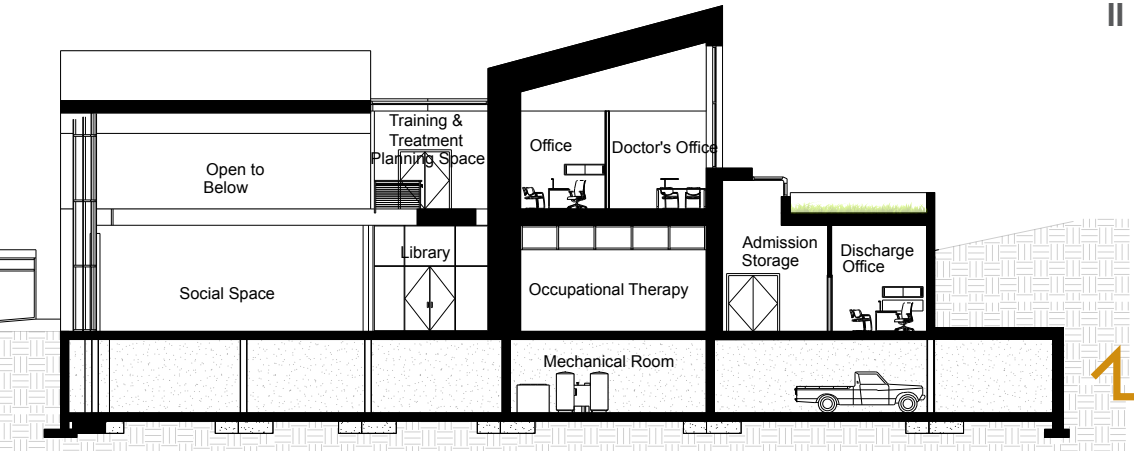
Unit First Level

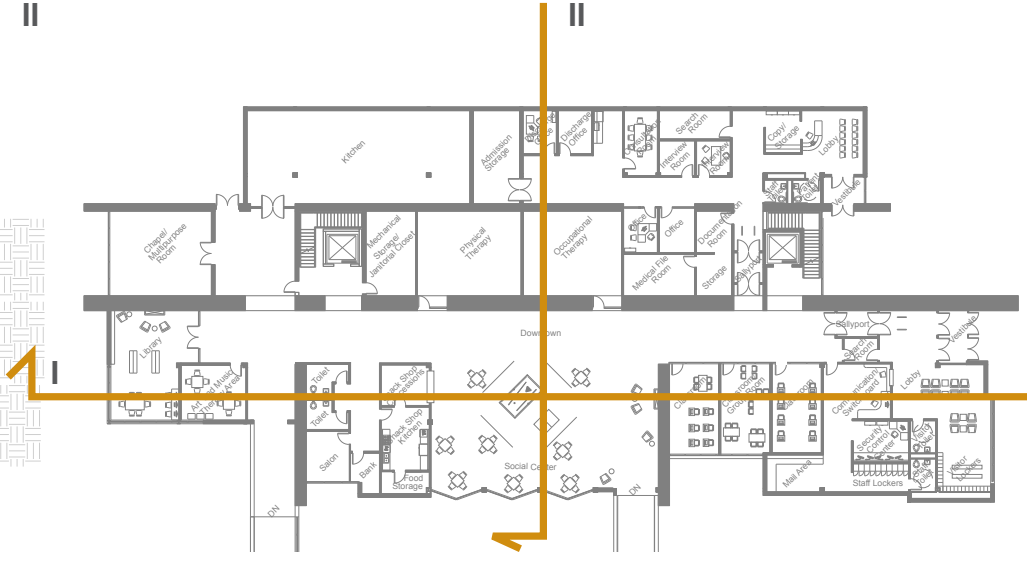


Unit Second Level

165
Fig Patient Cabin 1 | 2



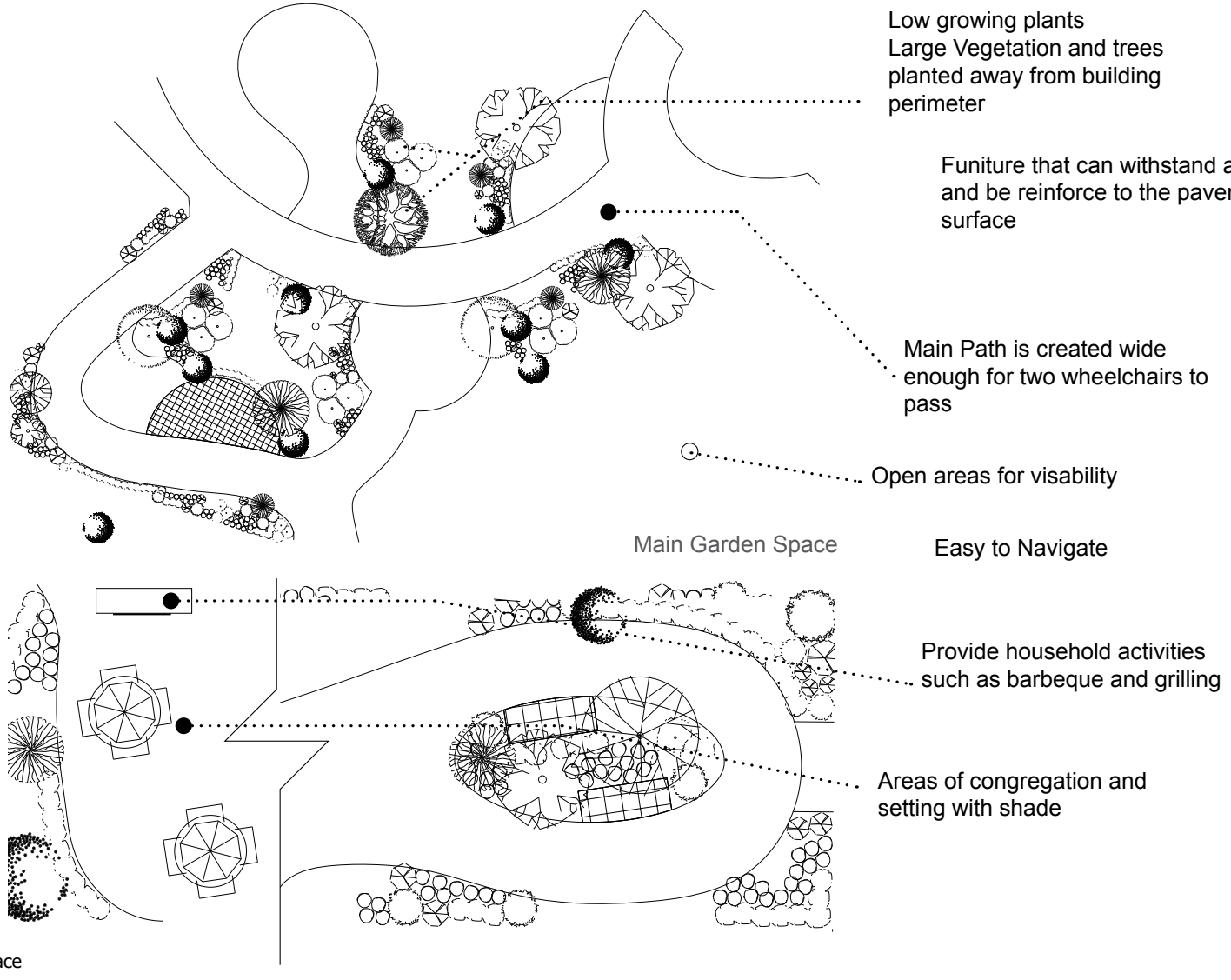




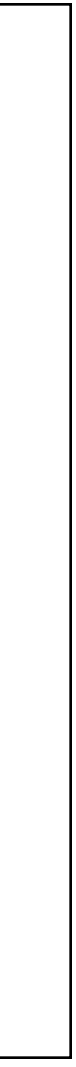
Main Building Section

166

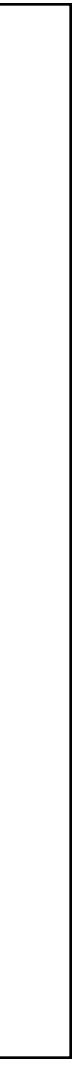
Fig Main Building Sections



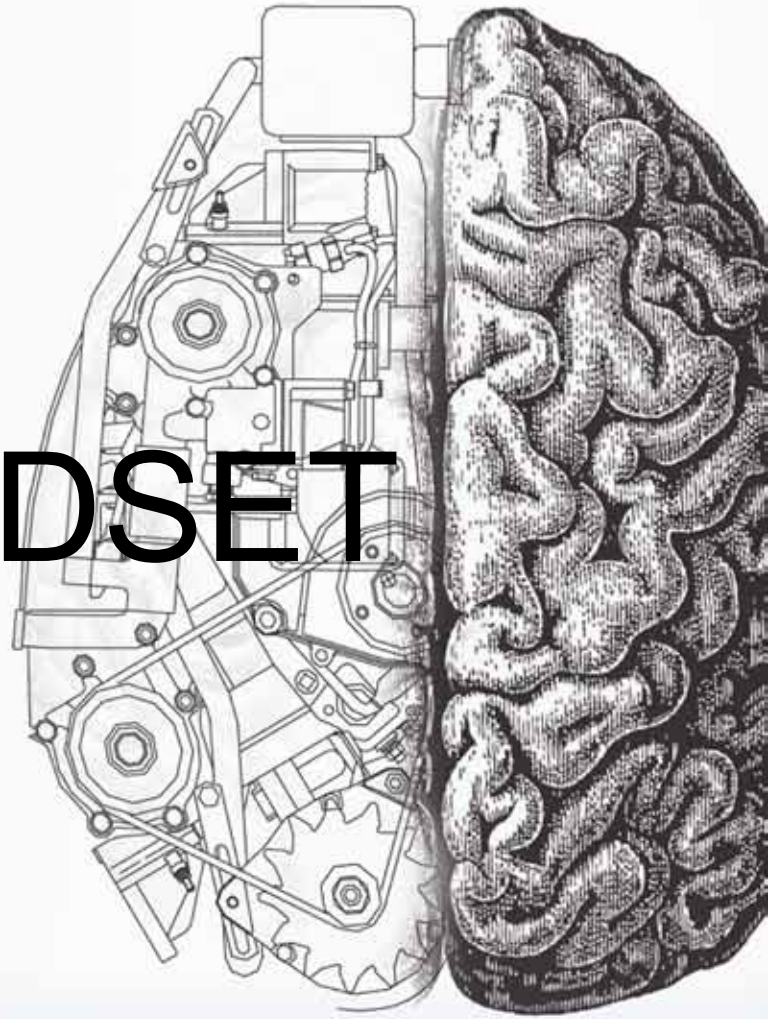
167
Fig Patient Cabins Garden Space



PRESENTATION OF DESIGN



MINDSET



| Problem Statement |

How can architecture and environment influence the re-establishment of psychiatric stability in the mentally ill?

Fig 168 Exterior Prospective

Main Facility

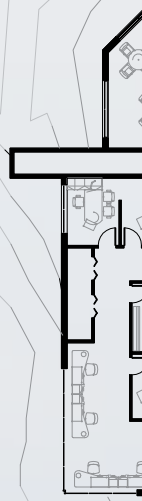
1 Guest and Visitor Entry
2 Communications | Security
3 Classroom| Small Group Room
4 Occupational Therapy
5 Physical Therapy
6 Commercial Kitchen
7 Snack Shop
8 Quiet Area
9 Salon
10 Chapel |Multifunctional Area
11 Art and Music Area
12 Library
13 Janitorial | Mechanical Closet

Admission Area

14 Admission Entry
15 Luggage Storage
16 Interview Room
17 Search Room
18 Consultation Room
19 Discharge Office
20 Documentation Area
21 Medical Records
22 Admission Storage

Patient Cabin 1| 2

43 Patient Laundry
44 Nurse Station
45 Kitchen
46 Housekeeping
47 Soiled | Clean Linen
48 Equipment Storage
49 Seclusion
50 Documentation Area
51 Social Worker Office
52 Medication Room
53 Day | Night Charge Nurse
54 Dining | Common Space
55 Quiet Area
56 Patient Room
57 Visitation | Consultation Space



1 | 30scale

Main Facility First Level 1 5,911 sq ft.

Patient Cabin First Level 18,062 sq ft.

Fig 169 Main Building | Patient Cabin Level 1

1 | 30scale

Basement Level

18,554 sq ft

Main Facility
Second Level

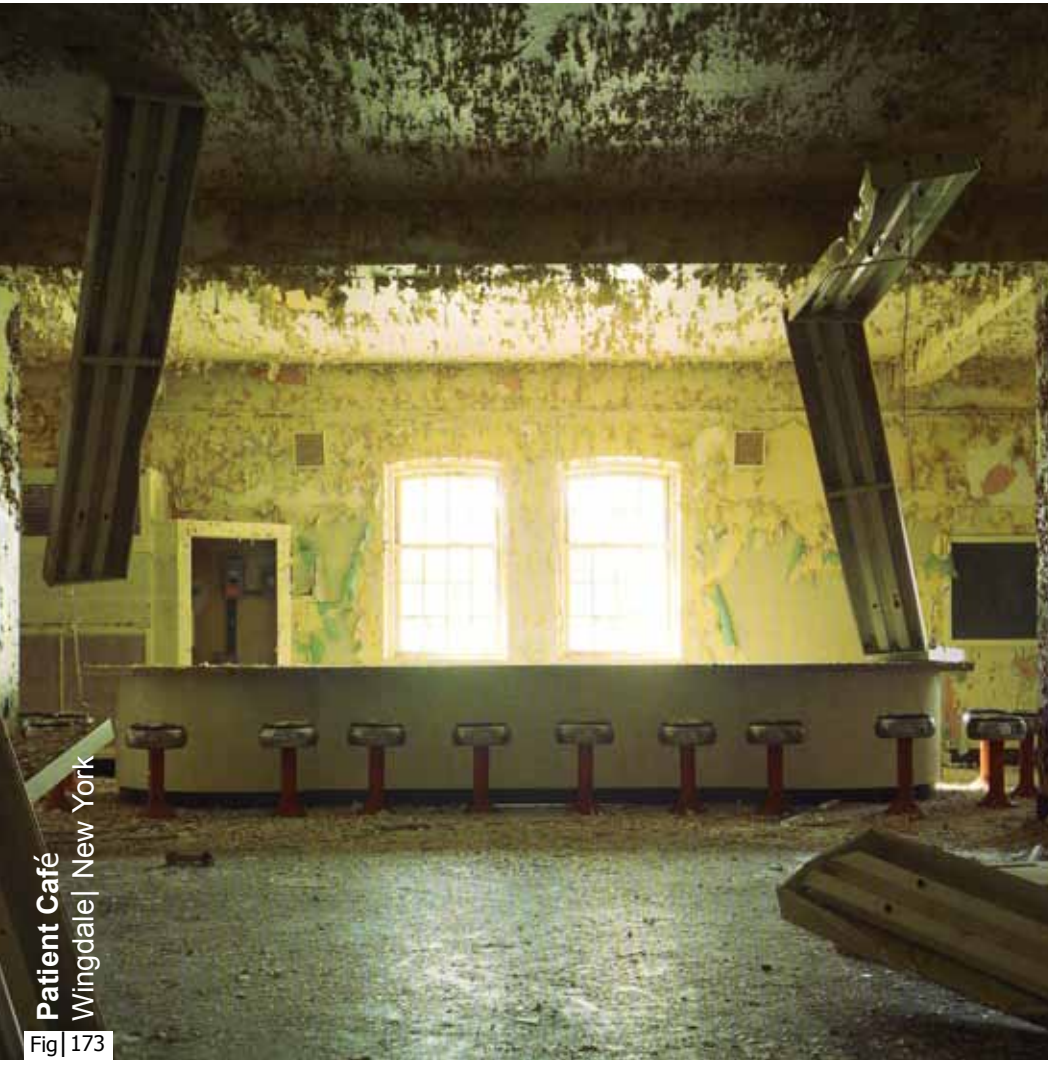
Clinic 23
Medical Storage 24
Lab Work 25
Pharmacy 26
Conference Room 27
Medical Records 28
Doctors Office 29
Mechanical | Janitorial Closet 30
Copy | Locker Storage 31
Staff Kitchen 32
Team Planning | Education Area 33

1 | 30scale

Main Facility
Second Level
9,106 sq ft

Fig 171 Main Facility Second Level

Fig 172 Patient Cabin Second Level



Patient Café
Wingdale| New York
Fig| 173

Patient Dining
Yankton | South Dakota
Fig| 174

Downtown
Dining

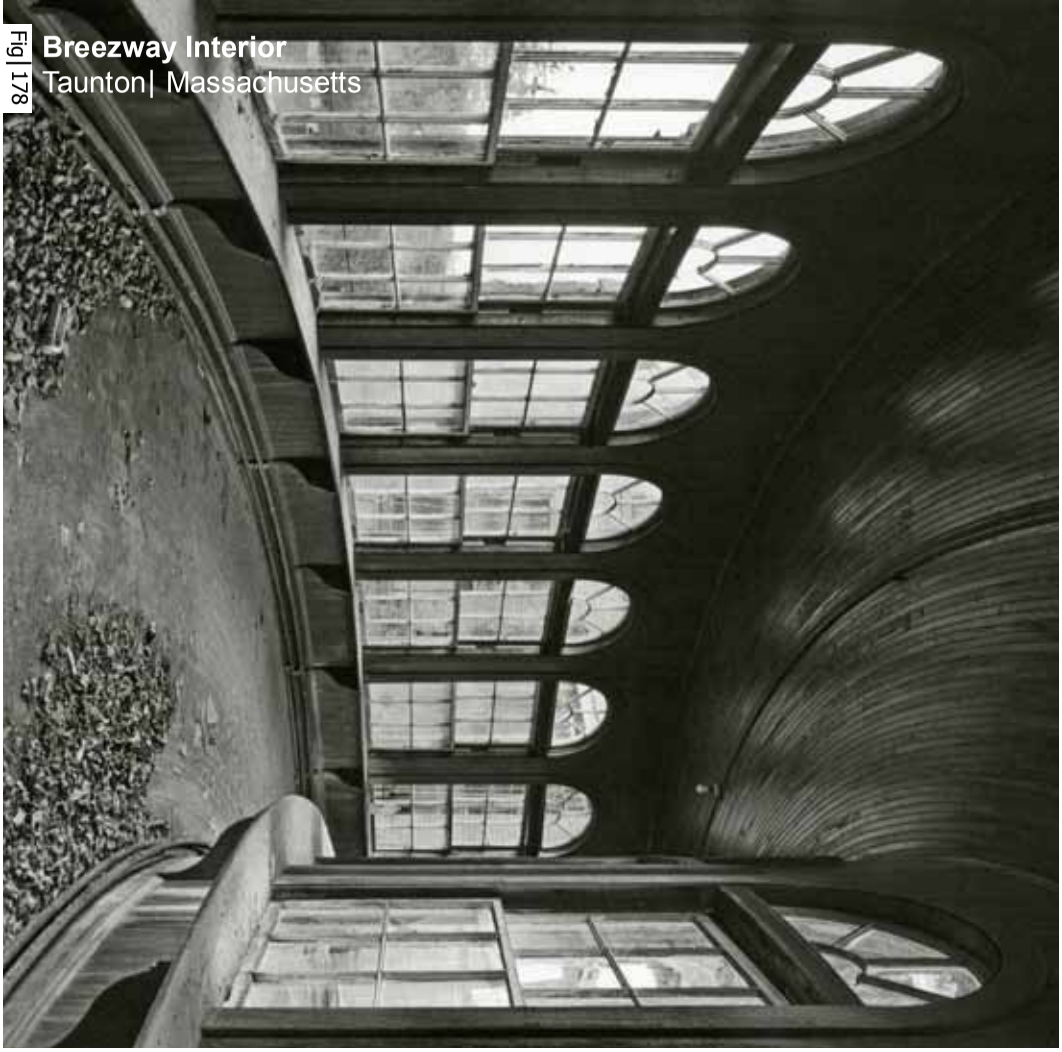
Fig | 175

Vacant

Patient Library
Yankton | South Dakota
Fig | 176

Patient Library

Fig | 177



Fig| 178 **Breezway Interior**
Taunton| Massachusetts

Fig| 179 **Connection Hallway**
Yankton | South Dakota


Removal of Oversized lighting and repacement of ambiant atmosphere
Earth tone wooden ceilings to de-institutionalize the environment
Floor to ceiling bubble water features to promote calming emotions through sight and sound
Large landscape windows overlooking the horizon
Aroma therapy sections with pleasing smells
Solid floor tiles to reduce visual stimulations (hallucinations)
Tiled floors for cleanliness
A Sensory Experience
Psychiatric patients spend a great deal of time walking the hallways. These spaces are critical to orienting patients to their environment as well as offering open areas for quiet meditation and social interaction.
Spacious, comfortable lounging chairs and coffee tables to encourage participation in social interactions
Connection Pathway

Fig| 180

Enclosed Courtyard Taunton | Massachusetts

Fig | 181

Enclosed Courtyard
Yankton | South Dakota

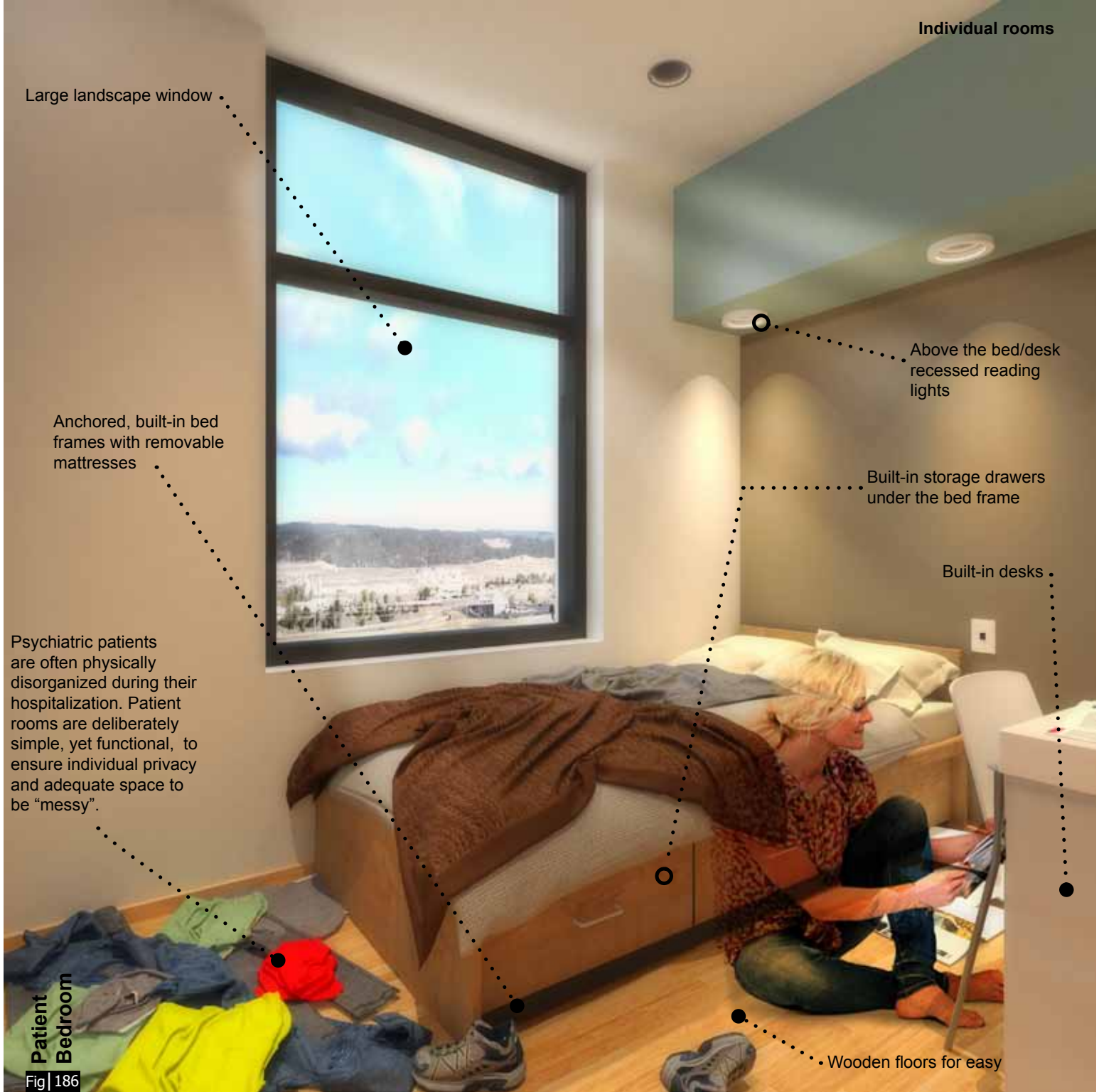
Fig | 182

Enclosed Courtyard

Fig| 183

Fig| 184 **Patient Bedroom**
Preston | Connecticut

Fig| 185 **Patient Bedroom**
Yankton | South Dakota



Patient Bedroom

Fig | 186

Patient Lounge
Hudson River | New York
Fig | 187

DayHall
Yankton | South Dakota
Fig | 188

Patient Cabin Lounge

Fig| 189

Fig. Main Facility Visitor | Admission Entry

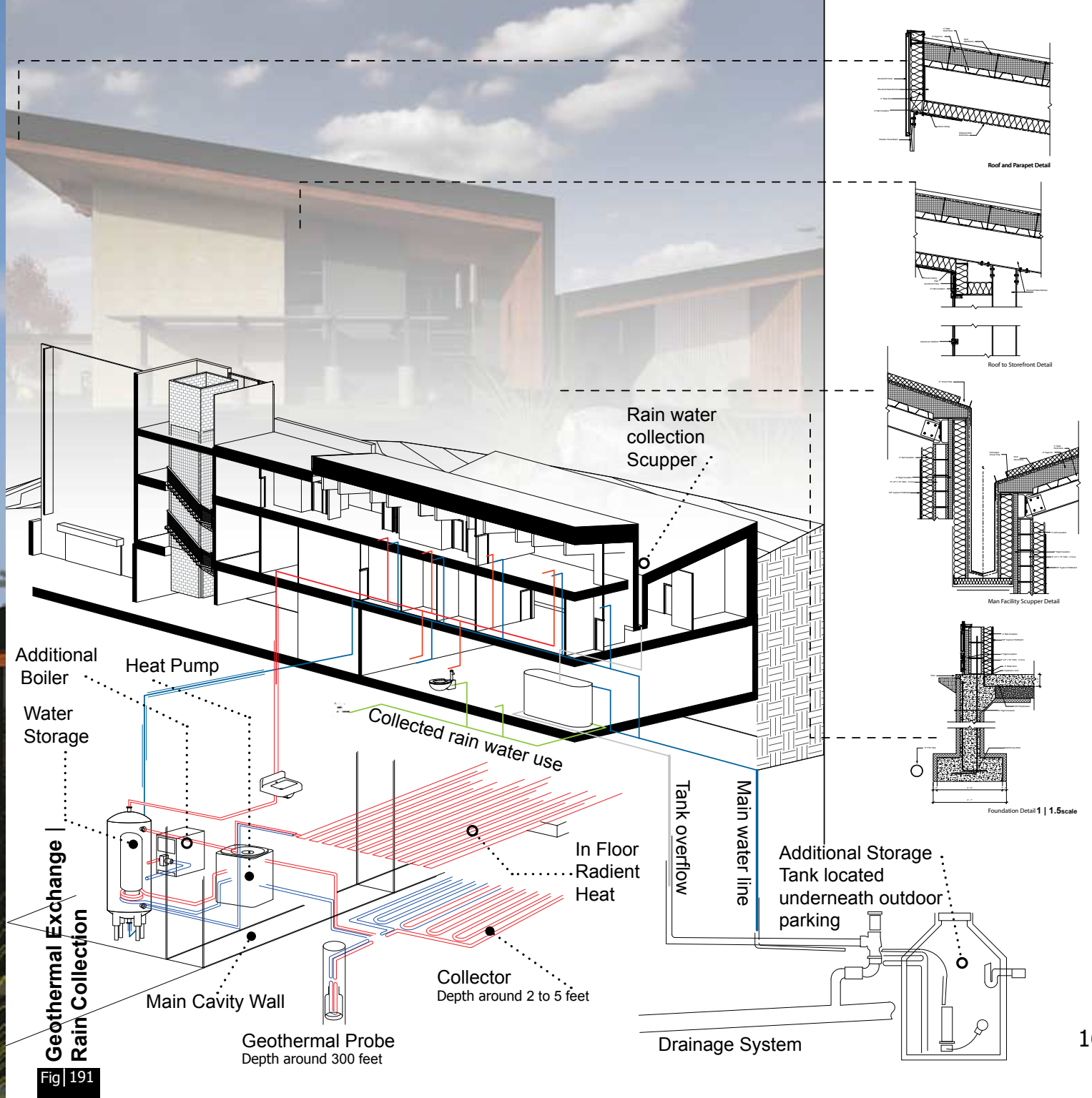

Roof and Parapet Detail
Roof to Storefront Detail
Man Facility Scupper Detail
Foundation Detail 1 | 1.5scale
Rain water
collection
Scupper
Additional
Boiler
Heat Pump
Water
Storage
Collected rain water use
Tank overflow
Main water line
In Floor
Radient
Heat
Additional Storage
Tank located
underneath outdoor
parking
Collector
Depth around 2 to 5 feet
Main Cavity Wall
Geothermal Probe
Depth around 300 feet
Drainage System
Geothermal Exchange |
Rain Collection

Fig | 191

Fig 192 Final Display I

Fig 193 Site Model

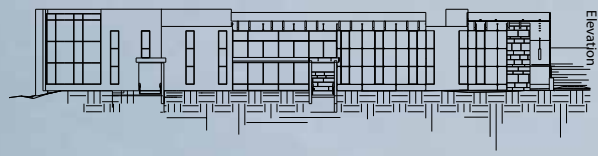
Fig 194 Main Facility

Fig 195 Patient Cabin

Fig 196 Site Assembly

Fig 197 Final Display II

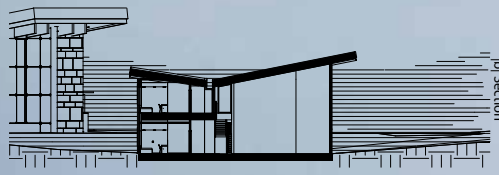
Fig 198 Final Display III



Main Facility Elevation

Patient Cabin Elevation

Main Building |a| Section



Patient Cabin |b| Section

Patient Cabin |c| Section

Fig. 199 Facility Approach Perspective

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