
THE GLEN
REHABILITATION CENTER

Signature Page

Recovery through design

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

By:
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In Partial Fulfillment of the Require-
ments
For the Degree of
Master of Architecture

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Thesis Abstract

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Abstract of Master's Thesis, Submitted 23 October 2014:

Recovery through Architecture

The aim of this thesis Recovering Life Through Architecture is to investigate and identify the environmental psychological needs of patients receiving treatment for addiction and mental health diseases.

The research aims to implement architectural spacial design and elements of nature to provide a holistic environment to support and encourage patients healing. This holistic environment addresses issues of the body, mind, and soul.

The results of this study suggest that patients environment have a substantial impact in changing patients health and attitudes towards establishing life-long behavior changes.

Keywords:

Recovery
Rehabilitation
Addiction
Mental health

The number of drug and alcohol addiction diagnoses has grown dramatically in recent years and has become epidemic. This problem afflicts people equally in all demographic groups.

Although attitudes towards addictions are changing, there is still a general attitude that addiction problems are caused by overindulgent behaviors. If someone choses to start consuming an addictive substance such as alcohol then surely one can stop. Society still sees stopping the addiction as simply a matter of will power. However attitudes are slowly changing and society is now beginning to accept addiction as a disease that like all other diseases needs medical intervention. Addictive substances vary widely, some legal and some that are illegal. The most difficult addictions to overcome are addictions to legal substances such as cigarettes and alcohol. These substances are readily available and socially promoted.

The consequences of the abuse of these legal substances is substantial. The physical damages that are caused by these substances can be significant, chronic, and many times lethal. Additionally, users of illegal substances such as not -prescribed pharmaceuticals and narcotics risk arrest and incarceration.

The treatment of individuals with addictions needs to begin with a change in societal attitudes and medical professional attitudes. In the last 50 years substantial changes occurred to address individuals as a unique type of patient. For this type of patient, the treatment environment can influence treatment out comes. Change in treatment environment begins

with the physical architecture normally employed. The physical aesthetic of architecture needs to be de-institutionalized and refocused on a home type environment. Elements of color, light, and proportioning must be carefully combined to achieve healing spaces.

Treatment of addiction can also be enhanced by bringing natural elements into the treatment environment. Natural light, flora, and fresh air incorporated into a facility design also positively affect treatment progression.

Staff

The primary users of this facility include:

1. Administration (Business)
2. Clinical Psychology Department
3. Facility Services
4 Food Services
5. Medical Department
6. Patient Units
7. Spiritual Center
8. Recreational Center
9. Visitors: Consultants, Development (Fund-raisers)

Client

The client for this facility are persons with behavior disorder addiction and chemically dependent patients. Patients are assessed for the severity of their disease. Outpatient services are available during the work day (8am to 5pm), evenings (7pm to 9pm), and weekend group counseling and lectures.

Those patients assessed to have more severe medical needs have the option of a standard stay of 30 days or 60 to 90 days based on medical needs.

Major Project Elements

Administrative Center

- Patient and Visitor Reception
- Business Services
    - -Insurance Billing
    - Development Foundation
    - Senior Management
    - Financial Management
    - Development Foundation Conference Room

Clinical Psychology

- Director of Clinical Psychology
- Clinical Psychologists
- Psychiatrists
- Conference Room

Facility Services

- Maintenance Equipment Storage
- Shipment and Receivables Area

Food Services

- Meal Preparation
- Dining Facilities

Medical Department

- Medical Intake/Records
- Patient Exam Rooms
- Laboratory
- Treatment Rooms
- Staff Offices

Major Project Elements

Outdoor Park

-Seating and Landscaped Areas

Patient Housing

- Short-Term (30 days or less) Patient Rooms
- Long-Term (30 day or more) Patient Rooms
- Counselor Offices
- Group Counseling Rooms
- Unit Group Area/Recreation Area

Parking

- Visitor and Patient Intake Parking
- Staff Parking
- Long-Term Patient Parking

Recreation

- Aerobic and Weight Training Equipment
- Locker Storage and Shower

Spiritual Center

- Inter-denominational Counseling Offices
- Sanctuary

Room Name:	Business Administration	**Location:**	Administration (Business Center)
Users:	Development Fundraising Financial Services IT Services Billing Insurance	**Activities:**	Financial Administration

Furniture/ Equipment	Mechanical/Electrical	Architectural
Furniture: • Workstation • Records Storage	**Heating/ Vent/ AC:** • Central All-System: Single Duct Variable Air Volume • Individual temperature controlled thermostat • 35 – 50 cfm air per occupant	**Floors:** • Low pile carpeting
Equipment: • N/A	**Plumbing/ Fixtures:** • 2- Business Center (8'x 8') ADA compliant lavatory.	**Wall Partitions:** • 1 hour wall rating system • Modular wall system (5' tall)
Hours of Operation: • 8am – 5pm	**Communications:** • Wireless capable • Data Ports (2 computers)	**Ceilings:** • 8 foot ceiling height • 2'x2' acoustical ceiling panels
Special Provisions: • Open plan	**Electrical:** • Smoke/flame detector (per code) • Fluorescent cove ceiling lighting • Standard lighting control switches.	**Doors/ Windows:** • Operable windows on exterior walls, 36' AFF
Occupancy: • Development Fundraising (2) • Financial Services (2) • IT Services (3) • Billing (2) • Insurance (2)	**Room Size:** • 150 square feet	**Natural Lighting:** • Natural lighting requires glare control mechanism • Operable window shading devices.

Additional Information: Employee parking requirements: 9 dedicated spaces, 4 spaces for consultants.

FIGURE 1: Business Administrator User Profile.

Room Name:	Senior Business Administration	**Location:**	Business Administration Center
Users:	President (1) Vice President (1) Administrated Aids (2) Visitors/Patients (4)	**Activities:**	Senior Business Management

Furniture/ Equipment	Mechanical/Electrical	Architectural
Furniture: • Workstation -2 (office) • Records Storage • Reception Desk • Waiting Room Chairs (4)	**Heating/ Vent/ AC:** • Central All-System: Single Duct Variable Air Volume • Individual temperature controlled thermostat • 35 – 50 cfm air per occupant	**Floors:** • Low pile carpeting
Equipment: • N/A	**Plumbing/ Fixtures:** • 2- Business Center (8'x 8') ADA compliant unisex lavatory.	**Wall Partitions:** • 1 hour wall rating system on enclosed offices.
Hours of Operation: • 8am – 5pm	**Communications:** • Wireless capable • Data Ports (2 computers)	**Ceilings:** • 8 foot ceiling height • 2'x2' acoustical ceiling panels
Special Provisions: • Conference Room: 40'x 30' equipped with 4' x 9' table with chairs.	**Electrical:** • Smoke/flame detector (per code) • Fluorescent cove ceiling lighting • Standard lighting control switches.	**Doors/ Windows:** • Operable windows on exterior walls, 36' AFF • 4-40" min. door opening
Occupancy: • President (1) • Vice President (1) • Administrated Aids (2) • Visitors/Patients (4)	**Room Size:** • 2-12'x12' enclosed offices • 2-5'x5' workspaces	**Natural Lighting:** • Natural lighting requires glare control mechanism. • Operable window shading devices.

Additional Information: Employee parking requirements: 3 dedicated spaces, 12 visitor spaces.

FIGURE 2: Senior Business Administrator User Profile.

Room Name:	Clinical Psychology	**Location:**	Clinical Psychologist Service
Users:	Director of Clinical Psychology(1) Clinical Psychologists (2) Psychiatrists (2) Visitors/Patients (12)	**Activities:**	Psychological treatment of patients

Furniture/ Equipment	Mechanical/Electrical	Architectural
Furniture: • Workstation -5 (office) • Records Storage • Reception Desk • Waiting Room Chairs (12)	**Heating/ Vent/ AC:** • Central All-System: Single Duct Variable Air Volume • Individual temperature controlled thermostat • 35 – 50 cfm air per occupant	**Floors:** • Low pile carpeting
Equipment: • N/A	**Plumbing/ Fixtures:** • ADA compliant unisex lavatory.	**Wall Partitions:** • 1 hour wall rating system on enclosed offices.
Hours of Operation: • 8am – 5pm (Note: Emergency Cases may facilitate variations in hours.	**Communications:** • Wireless capable • Data Ports (2 computers)	**Ceilings:** • 8 foot ceiling height. • 2'x2' acoustical ceiling panels.
Special Provisions: • Conference Room (20'x30') equipped with 6'x 8' table with chairs.	**Electrical:** • Smoke/flame detector (per code). • Fluorescent cove ceiling lighting. • Standard lighting control switches.	**Doors/ Windows:** • Operable windows on exterior walls, 36' AFF. • 4-40"' min. door opening.
Occupancy: • Director of Clinical Psychology (1) • Clinical Psychologists (2) • Psychiatrists (3) • Receptionist (2) • Patients/Visitors (12)	**Room Size:** • 2-12'x12' enclosed offices • 2-5'x5' workspaces	**Natural Lighting:** • Natural lighting requires glare control mechanism. • Operable window shading devices.

Additional Information: Employee parking requirements: 8 dedicated spaces, 12 visitor spaces.

FIGURE 3: Clinical Psychology User Profile.

Room Name:	Medical Department	**Location:**	Medical Services Department
Users:	Medical Staff Patients Visitors	**Activities:**	Physical Examination

Furniture/ Equipment	Mechanical/Electrical	Architectural
Furniture: • Physical Exam Tables • Waiting Room Chairs • Reception Desk • Laboratory Facility	**Heating/ Vent/ AC:** • Central All-System: Single Duct Variable Air Volume • Individual temperature controlled thermostat • 35 – 50 cfm air per occupant	**Floors:** • Sheet vinyl flooring
Room Requirements: • Patient Exam Rooms • Restrooms (2- Unisex) • Laboratory • Patient Recovery Rooms • Staff Offices • Administrative Intake • Medical Reception • Emergency Processing	**Plumbing/ Fixtures:** • 2- ADA compliant unisex lavatory. • 1- Dedicated laboratory. ADA compliant lavatory.	**Wall Partitions:** • 1 hour wall rating system on enclosed offices.
Hours of Operation: • 24 hours operation (staff fluctuates determined by patient needs.	**Communications:** • Wireless capable • Data Ports (2 computers)	**Ceilings:** • 8 foot ceiling height • 2'x2' acoustical ceiling panels
Special Provisions: • Conference Room 10'x 10' equipped with 4'x4' table with chairs.	**Electrical:** • Smoke/flame detector (per code). • Fluorescent cove ceiling lighting. • Standard lighting control switches.	**Doors/ Windows:** • Operable windows on exterior walls, 36' AFF. • 4-40" min. door opening.
Occupancy: • Doctors (MD) – 2 • Registered Nurses – 10 • Laboratory Staff – 2 • Administrative Staff -4 • Physician Assistants -3 • Patient/Visitors-30	**Room Size:** • 4-Patient Exam Rooms- 8'x 10' • 2-Private Offices • 6- Patient Rooms • 1- Laboratory • 1- Administrative Office • 1- Receiving Desk • Waiting Area	**Natural Lighting:** • Natural lighting requires glare control mechanism • Operable window shading devices.

Additional Information: Employee parking requirements: 24 dedicated spaces, 12 visitor spaces.

FIGURE 4: Medical Department User Profile.

User and Client Profile

Room Name:	Women's Housing Unit	**Location:**	Patient Housing
Users:	Counseling Staff Patients Visitors	**Activities:**	Sleeping, hygiene, informal social, food preparation and dining, group and individual counseling.

Furniture/ Equipment	Mechanical/Electrical	Architectural
Furniture: • 1,2, & 4 bed rooms • Storage Armoires • Nightstands • Desks • Seating (Social & Group) • Offices: Workstations Patient Seating • Dining: Tables and Seating	**Heating/ Vent/ AC:** • Central All-System: Single Duct Variable Air Volume • Individual temperature controlled thermostat • 35 – 50 cfm air per occupant	**Floors:** • Low pile carpeting • Bathroom: sheet vinyl
Room Requirements: • Laundry • Kitchen/ Dining • Recreation Room • Unit Manager Room • Case Manager Room • Patient Rooms • Social Rooms • Group Counseling Rooms	**Plumbing/ Fixtures:** • 2- ADA compliant unisex lavatory (guest).	**Wall Partitions:** • 1 hour wall rating system on enclosed offices.
Hours of Operation: • 24 hours operation (staff fluctuates determined by patient needs.	**Communications:** • Wireless capable • Data Ports (2 computers)	**Ceilings:** • 8 foot ceiling height • 2'x2' acoustical ceiling panels
Special Provisions: •	**Electrical:** • Smoke/flame detector (per code) • Fluorescent cove ceiling lighting • Standard lighting control switches.	**Doors/ Windows:** • Operable windows on exterior walls, 36' AFF • 4-40" min. door openings
Occupancy: • Patients • Visitors • Unit Manager-1 • Counseling Staff-3 • Maintenance/Cleaning -1	**Room Size:** • Laundry (10' x 12'). • Patient Rooms (Varies). • Group Counseling (12' x 12') • Unit Manager (9' x 10'). • Counseling Offices (10' x 10').	**Natural Lighting:** • Natural lighting requires glare control mechanism. • Operable window shading devices.

FIGURE 5: Women's Housing User and Client Profile.

User and Client Profile

Room Name:	Men's Housing Unit	**Location:**	Patient Housing
Users:	Counseling Staff Patients Visitors	**Activities:**	Sleeping, hygiene, informal social, food preparation and dining, group and individua counseling.

Furniture/ Equipment	Mechanical/Electrical	Architectural
Furniture: • 1,2, & 4 bed rooms • Storage Armoires • Nightstands • Desks • Seating (Social & Group) • Offices: Workstations Patient Seating • Dining: Tables and Seating	**Heating/ Vent/ AC:** • Central All-System: Single Duct Variable Air Volume. • Individual temperature controlled thermostat. • 35 – 50 cfm air per occupant.	**Floors:** • Low pile carpeting • Bathroom: sheet vinyl
Room Requirements: • Laundry • Kitchen/ Dining • Recreation Room • Unit Manager Room • Case Manager Room • Patient Rooms • Social Rooms • Group Counseling Rooms	**Plumbing/ Fixtures:** • 2- ADA compliant unisex lavatory (Guest)	**Wall Partitions:** • 1 hour wall rating system on enclosed offices.
Hours of Operation: • 24 hours operation (staff fluctuates determined by patient needs.	**Communications:** • Wireless capable • Data Ports (2 computers)	**Ceilings:** • 8 foot ceiling height • 2'x2' acoustical ceiling panels
Special Provisions: •	**Electrical:** • Smoke/flame detector (per code) • Fluorescent cove ceiling lighting • Standard lighting control switches.	**Doors/ Windows:** • Operable windows on exterior walls, 36' AFF • 4-40" min. door openings
Occupancy: • Patients • Visitors • Unit Manager (2) • Counseling Staff (3) • Maintenance/Cleaning (1)	**Room Size:** • Laundry (10' x 12') • Patient Rooms (Varies) • Group Counseling (12' x 12') • Unit Manager (9' x 10') • Counseling Offices (10' x 10')	**Natural Lighting:** • Natural lighting requires glare control mechanism • Operable window shading devices.

Additional Information: Employee parking requirements: 6 dedicated spaces, 12 long-term patients parking.

FIGURE 6: Men's Housing User and Client Profile.

Room Data Sheet Programming / Schematic Design

Room Name:	Dining	**Location:**	Food Services
Users:	Staff Patient Visitor	**Activities:**	Food Distribution Dining

Furniture/ Equipment	Mechanical/Electrical	Architectural
Furniture: • Food Service Buffet • Meal Preparation Kitchen • Self Service Station • 3 Dining rooms-Seating for 30	**Heating/ Vent/ AC:** • Central All-System: Single Duct Variable Air Volume • Individual temperature controlled thermostat • 35 – 50 cfm air per occupant	**Floors:** • Dining: Low pile carpeting • Food Service: Sheet Vinyl
Room Requirements: • Preparation: Prep Counters, Sinks, Kitchen Appliances • Buffet: Heated Service Center • Self Service: Drink Dispensers, Utility Equipment	**Plumbing/ Fixtures:** • Kitchen Prep Sinks, Cleaning Dishwasher/Sink	**Wall Partitions:** • 1 hour wall rating system on enclosed offices.
Hours of Operation: • 3services/day (breakfast, lunch, dinner)	**Communications:** • Wireless capable • Data Ports (2 computers)	**Ceilings:** • 8 foot ceiling height. • 2'x2' acoustical ceiling panels.
Special Provisions: • Gate to block access to food buffet and self-service during off hours.	**Electrical:** • Smoke/flame detector (per code) • Fluorescent cove ceiling lighting • Standard lighting control switches.	**Doors/ Windows:** • Operable windows on exterior walls, 36' AFF. • 4-40" min. door openings.
Occupancy: • Patients • Visitors • Facility Staff	**Room Size:**	**Natural Lighting:** • Natural lighting requires glare control mechanism. • Operable window shading devices.

Additional Information: Employee parking requirements: 6 dedicated spaces.

FIGURE 7: Dining Area User and Client Profile.

Geographical Analysis:

The client chose to locate the new project within a four state area: North Dakota, South Dakota, Minnesota, and Iowa. A comparative analysis was performed of all four states to determine the psychiatric and addiction facilities currently operating and the services offered.

Services:

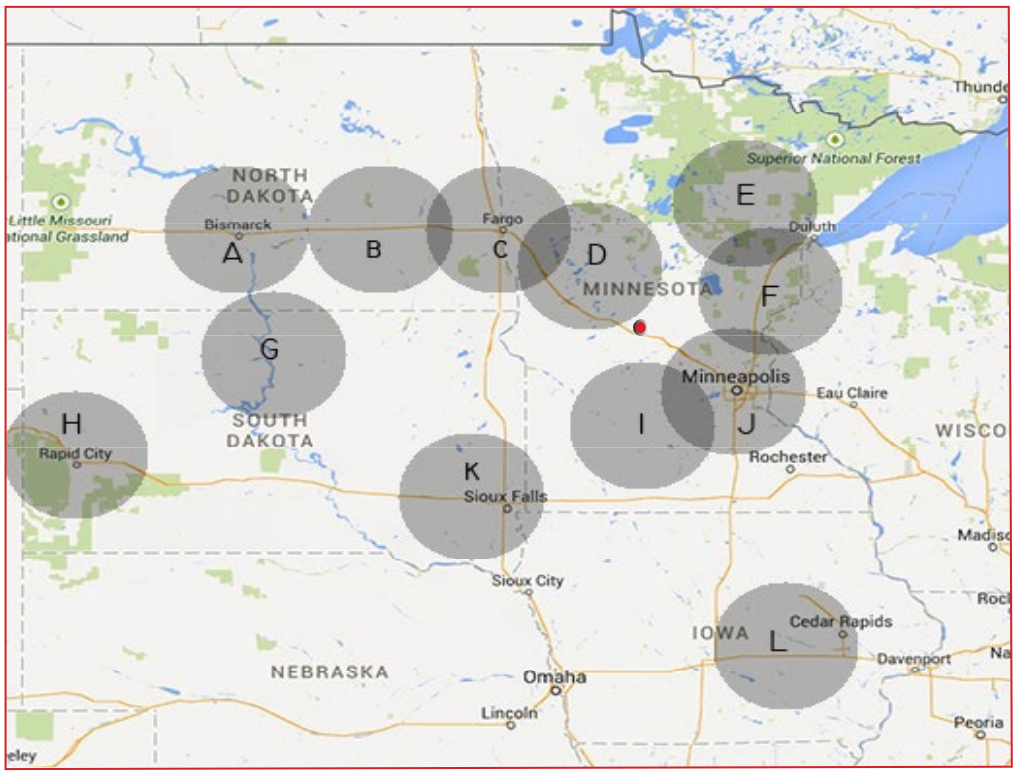
The services for comparative analysis of facilities is provided by the Substance Abuse and Mental Health Services Administration of the U.S. Department of Health and Human Services. The client has chosen to offer the following services at the new facility. A market analysis was performed to locate facilities that offer equal services. The providers are as follows:

1. Mix of mental health and substance abuse services.
2. General health services.
3. Substance abuse treatment.
4. Detoxification.
5. Outpatient treatment.
6. Partial hospitalization/ Day treatment.
7. Residential short-term treatment (30 days of less).
8. Residential long-term treatment (30 days or more).
9. Treatment with co-curring mental substance abuse disorders.
10. Criminal justice clients (patients).

Many rehabilitation facilities operate within this geographic area, however this list includes only those facility that provide all services required. Additionally many facilities provide a greater amount of care for more critical care patients that is not included in this analysis of design requirements.

MAP:

The following map indicates the location of mental health substance abuse facilities. A radius of 60 miles is indicated. A 60 mile radius was chosen to be a comfortable driving distance time of approximately 1 hour. This is for the ease of visitors and for patients receiving outpatient care. The red dot indicates the city of Alexandria, Minnesota. Alexandria is not currently within the existing facilities 60 mile coverage area.



A. Heartview Foundation: Bismarck, N.D.
B. North Dakota State Hospital Chemical Dependency Services: Jamestown, N.D
C. Prairie St. Johns, LLC: Fargo,N.D.
D. Drake Residential Treatment Center: Detroit Lakes, M.N.
E Pine Manor Inc. Chemical Dependency Services: Grand Rapids, M.N.
F. Hazelden Foundation: Center City, M.N.
G. Chief Gall Treatment Center: Modbridge, S.D.
H. Behavior Management Systems Full Circle: Rapid City, S.D.
I. House of Hope, Inc.: Mankato, M.N.
J. Hazelden Betty Ford Foundation: St. Paul, M.N.
K. Keystone Treatment Center: Canton, S.D.
L. Mid Eastern Council on Chemical Abuse: Iowa, City

Images accessed January 7, 2015. http://www.googlemap.com

FIGURE 8: Marketing Analysis Map of Existing Facilities.

Project Emphasis

The project emphasizes an integration between addiction recovery, design, and the natural environment. Research has shown that incorporating natural elements into healing spaces does increase successful recovery rates. The project will produce a design which integrates natural elements in healing spaces, personal spaces, work spaces and public spaces

Plan For Preceeding

A PLAN OF THE DESIGN METHODOLOGY

Research is an inherently iterative process, enveloping multiple versions of sketch, drawing, digital modeling, and hand modeling. Through quantitative and qualitative analysis, research is developed and refined into a final design.

The information that is to be analyzed by this research will be gathered from journals, web sites, medical literature, community resources, and expert interview. Analysis will apply this information at each stage of design to ensure a complete solution.

The initial analysis for the collected information will lead to schematic design and requirements planning. Design development will include using both computer and hand modeling to describe possible solutions and to refine a spatial solution. Design development will also include an analysis of materials and environmental concerns that will be considered for the design. The process includes multiple milestones that represent design progress, and at which point editing and revisions will be finalized. Through this iterative process a final project design will be completed.

The Social Sciences

The Hard Sciences

Summary

Drug and alcohol addiction have been a universal problem for all societies. The traditional response of society to the issues created by addiction has been a reactive and punitive. The behavior has been punished while the addiction itself has in large part gone unaddressed. The costs of this reaction to drug and alcohol abuse are substantial, a great deal of money and resources are spent every year in response to drug and alcohol abuse outside of treating the addiction. These costs include law enforcement, criminal justice institutions, emergency medical services, and damages paid by victims of crime. "As many as 60% of federal prisoners meet diagnostic criteria for substance dependence disorders and as much as 50% of all property crimes are committed under the influence of alcohol, drugs,, or alcohol and drugs, or with the intent to obtain alcohol, drugs, with the crime proceeds." (Kimberly & McLellan, 2006)

Proper medical treatment of addiction can greatly reduce the economic and social costs that we have traditionally been paying. The medical community has recognized addiction as a disease for several years and a great deal of research has resulted in several different treatment options. Research is showing that these treatment options "…have been shown to produce sustained improvements in patterns of substance abuse and in reductions in the associated health and safety problems of those affected." (Kimberly & McLellan, 2006)

In order to affect a change in paradigm from treating addiction as an offense against society, to treating addiction as a treatable medical condition, society at large must recognize that addiction is a disease. In the last few decades gradual progress has been made in this direction. "One possible explanation for the shortage of tangible (i.e., financial and legislative) support for addiction programs despite encouraging economic evidence relates to the deep division among politicians and the public on whether substance abuse/dependence is a medical condition. (French, Homer, & Nielsen, 2006) This division between those who accept that addiction can be treated by medicine, and

those who believe that addiction should continue to be addressed by the criminal justice system, continues to influence decisions as to where resources are spent. Also, within the medical community, the way addiction is viewed has changed. "…a fundamental change has occurred in the way addiction has been conceptualized. Addiction is increasingly being seen by researchers and treatment providers as a chronic illness rather than an acute condition. … Traditionally, addiction has been treated as an acute condition with timelimited, often residential, forms of care designed to teach the affected patient a lesson or to produce an insight leading to continued abstinence without continuing care." (Kimberly & McLellan, 2006) Treating addiction as an ongoing, chronic illness, is leading to improved results. Continuing care, research shows, is a critical component to recovery.

As public perception of substance abuse has continued to shift to the view of addiction as a disease, both public and private investment in treatment and treatment facilities has grown. In response to these dynamic trends, the need for additional drug and alcohol addiction treatment facilities is growing. Medical treatments and therapies for addiction require a distinctly different environment than traditional medical facilities provide. While traditional facilities are designed to focus on providing individual care for a patient. Addiction treatment facilities need to integrate pharmacological treatments with psychiatric and behavioral treatments over time in a removed environment. (Solinas, Chauvet, Thiriet, El Rawas, & Jaber, 2008)Patients seeking treatment are often required to travel significant distances to reach treatment facilities. The increase in acceptance and necessarily the increase in demand, is making it feasible for more communities to support addiction treatment facilities.

Research in addiction treatment is providing new treatment options that provide better levels of success when applied to patient profiles. Like other diseases, after a diagnosis is made the best course of treatment for the individual situation must be made. In the last decade several new drug therapies have become available for various addiction profiles. New behavioral therapies such as Rational-Emotive Behavior Therapy (REBT), Cognitive Behavior Therapy (CPT), motivational enhancement therapy, as well as the traditional 12-step facilitation therapy are all viable options to be considered for a patient.

The physical environment in which addiction treatment takes place is also recognized by research

as a contributing factor to success. "Environmental conditions can dramatically influence the behavioral and neurochemical effects of drugs of abuse. For example, stress increases the reinforcing effects of drugs and plays an important role in determining the vulnerability to develop drug addiction. On the other hand, positive conditions, such as environmental enrichment, can reduce the reinforcing effects of psychostimulants and may provide protection against the development of drug addiction." (Solinas, Chauvet, Thiriet, El Rawas, & Jaber, 2008) A facility design which includes enrichments such as natural lighting, properly proportioned spaces, thermal comfort, and access to a natural outdoor environment can help recovery outcomes.

There is an increasing need to bring drug and alcohol treatment facilities into communities which do not have near access. A well designed facility that integrates evolving medical treatments with positive environmental factors is essential. The treatment center being located in a community with access to emergency medical facilities, public transportation, and community support services is also essential to treating addiction as a chronic illness.

Typological Research

Center for Psychological Rehabilitation

Medical Resort Bad Schallerbach

Resort Summary Groot Klinnendaal

Typological Summary

The project typology is a hybrid design. The primary facility combines an administrative space that contains business office spaces with a medial intake area. The enterance to this area acts primarily as a patient intake area where patients are processed through both the financial requirements for patient stay and the medical evaluation of the condition of the patient and course of treatment.

Center for Psychosocial Rehabilitation

Architect: Otxotorena Arquitectos
Locations: Alicante, Spain
Area: 16,657 sq_m

IMAGES ACCESSED: January 7. http://www. archdaily.com
Figure 9: Center For Psychosocial Rehabilitation.

The Center for Psychosocial Rehabilitation is located in the area of Costa Blanca in the port city of Alicante Spain on the Mediterranean Sea. The building was produced by architect Otxotorena Arquitecctos in 2014. The 16,657 square meters is hospital hybrid topology functioning as a treatment facility for two types of patients with serious mental disorder.

Approximately 50 patients with chronic mental illness are housed in residence in an internship organization. Additionally 25 other mentally ill patients receive day time care through structured activities. While the facility is designed to accommodate patients with deteriorating physical and mental function, the facility does not provide services for patients requiring hospitalization.

The structure of the Center for Psychosocial Rehabilitation is a long one story linear parallelepiped mass form. The large size of the plot allow for the delineation of three individual exterior patio garden areas that provides important visual barrier, as well as, an important physical control measure for patients and staff.

IMAGES ACCESSED: January 7. http://www. archdaily.com

FIGURE 10: Center For Psychosocial Rehabilitation Interior Spatial Layout.

The interior spatial layout echoes the exterior mass of the structure. Two primary corridors divide the interior mass laterally. The residential patients are separated from cross-sectional division that divides the structure: one-third devoted to patients for day structured patient treatment. The residential treatment program.

The materials incorporated emphasis the strong linear structural design. Natural and artificial lighting emphasis clear transitional spaces. Although divided into separate rooms and spaces the use of same material throughout the space relates to the project goal of creating a facility that unifies the design.

The strong dominant horizontal mass of the building can be seen in the elevations of the property. The building is appropriately scaled to an irregular shaped land plot. The vertical light control slats reiterate a rhythmic articulation that emphasizes the character of the building. The use of large expanses of glass fenestration draw focus to the surrounding mature vegetation.

Case Study- Diagrammatically Analysis

Circulation

Figure 11: Center For Psychosocial Rehabilitation Circulation pattern diagram.

The primary circulation pattern follow the length of the building and are transversed by a wide corridor that acts as a public accessibility and divides the function of the space (shown in red). The long rectangular mass of the building (shown in blue) is maintained in plan and elevations.

Lighting

IMAGES ACCESSED: January 7. http://www. archdaily.com: Images are modified for diagrammatic purposes.

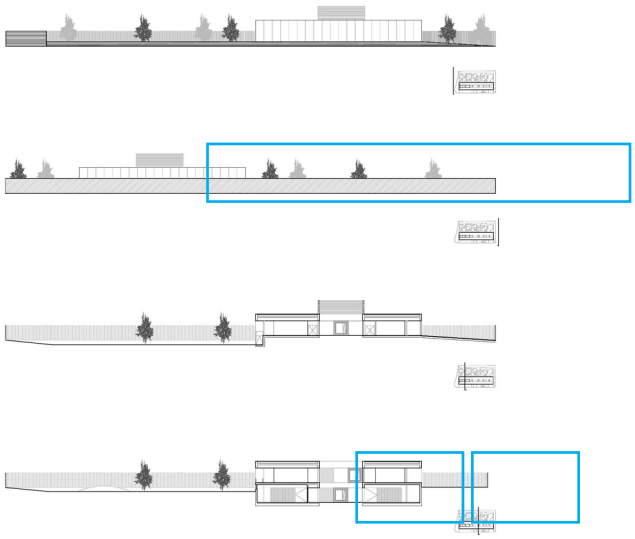
Figure 12: Center For Psychosocial Rehabilitation Lighting.

Natural light permeates the structure during the early hours and is controlled by the recessing of windows and the use of movable vertical blinds.

The recessed glass window delineated by the concrete slats create a dynamic sense of movement which emphasizes the long, slim horizontal architectural design.

Case Study- Diagrammatically Analysis

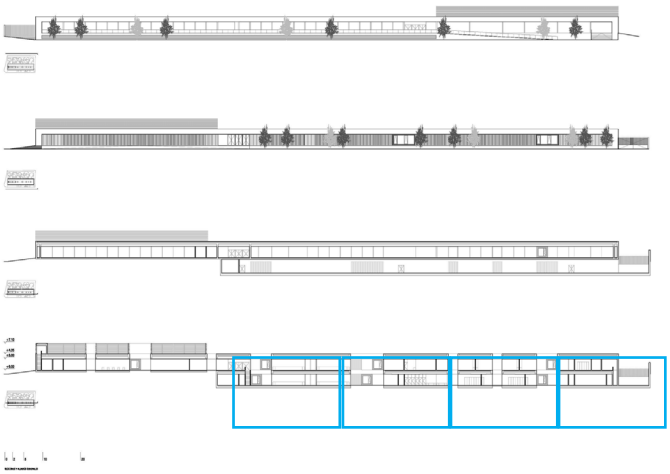
Geometry and unity to whole



The rectangular geometry as seen in the floor plan is again reiterated in the section and elevation plans. The sectional division of the units, as shown below, is divided into elements yet function as a whole through repetition of the whole forms.

The form functions visually as a whole unit because of the similarity of the repetitive form. The vegetation further reiterates the rhythm and cohesive structure of individual elements.

Hierarchy



The design hierarchy is seen in the long dominant elevation. The elevation is delineated by the individual structures yet visual projects as a comprehensive whole. There is no clear geometric hierarchy other than the horizontal lines expressed in the elevation

IMAGES ACCESSED: January 7. http://www. archdaily.com

FIGURE 13: Center For Psychosocial Rehabilitation Geometry and Hierarchy Illustrations.

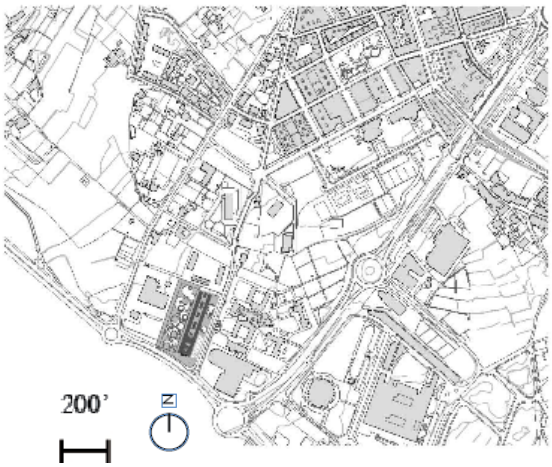
Site Geometry

The site geometry is echoed in the building design. The building is located on flat terrain overlooking the Balearic Sea at the southern end of the building. While the site is landscaped with foliage, including large trees, the landscaping is set back away from the building which further emphasizes the dominant longitudinal architectural design of the building.

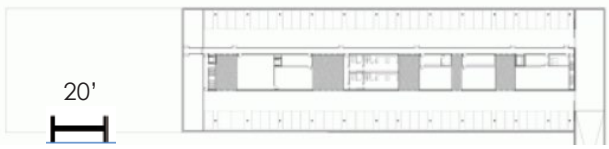
Plan To Section

The nature of the design is intimately integrated into the surrounding landscape. The segmentation of facade create a rhythm and strongly reiterate the long lean lines of the building and the strong relationship with the landscape.

Massing



Structural



Primary structural support is conveyed by the concrete exterior walls.

FIGURE 14: Center For Psychosocial RehabilitationSite Geometry.

Rehabilitation Centre Groot Klinnendaal

Architect: Koen van Velsen
Locations: The Netherlands
Area: 14,000 sqm
Built: 2013

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© Rene de Wit

© Rene de Wit

Figure 15: Rehabilitation Centre Groot Klinnendaal.

The Rehabilitation Centre Groot Klinnendahl is located in the Dutch forest just outside the city of Arnheim in the Netherlands. The structure is located in a picturesque heavily wooded area.

The three story rehabilitation Centre features patient and community amenities such as a sports facility featuring a swimming pool, a restaurant, theater, health clinic, and administrative offices.

Nominated in 2011 for the Mies van der Rohe European Community Prize for Contemporary Architecture. The 14,000 square meter structure is clad in brown anodized aluminum. The stairwell that connects all three level is shallow and compact.

The interior of the structure is flooded with natural light. The extensive use of glass throughout the structure provides spectacular views of nature. The incorporation of nature into the interior area are an important element in the design that seemingly transcend the outside into the inside of the building.

The structure was designed to not mimic the typical clinical and health facility. Instead the cantilevered footprint juts out over the lush aspects of the nature that surrounds the structure.

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© Rene de Wit

© Rene de Wit

Figure 16: Rehabilitation Centre Groot Klinnendaal Interior Space.

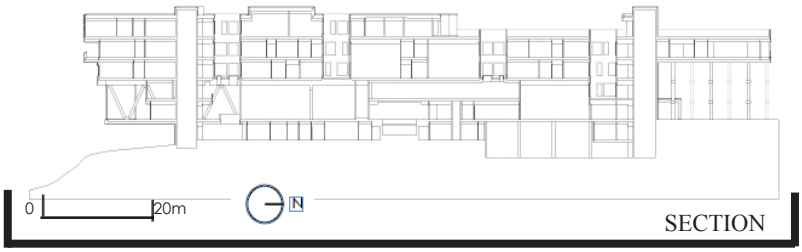
The interior of the Rehabilitation Center are central spaces combined through a series of interweaving walkway passages. The extensive amount of passages were designed to encourage patients and community citizens to engage in physical fitness through walking.

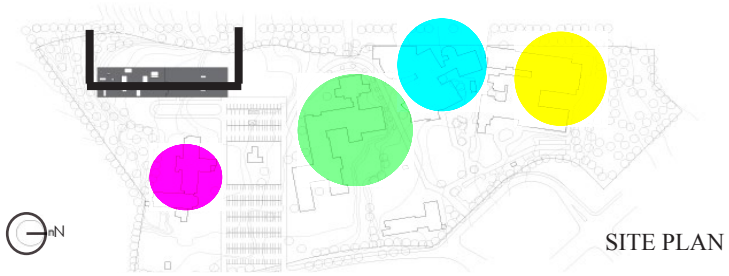
Central to the hallway are series of alcoves of various sizes. All of the areas are connected visually by glazing that expands the full height of the wall. This design provides necessary privacy and intimate space, yet full incorporate the woodland views.

The interior materials feature a muted color pallets. Natural pine colored wood is used on stair treads and handrails. This material choice reiterates the natural surroundings of the structure.

The design of the structured focused on holistic medicine. The floors were divided into 3 separate functions. The first floor is used for administrative and clerical services. The second floor is dedicated to health clinical care and recovery activities. The third floor is available for both patients and the surrounding community. Located on the third floor is a restaurant. The figure to the left shows this recessed area. The lighting casting from the restaurant reflects off the brown, anodized aluminum.

Massing and Hierarchy





Massing is accomplished through the strong vertical structure that extend from floor 0 to the third floor. These vertical columns visual establish a rhythm that is emphasized through all vertical elements. This is particular present in the cantilever that interest the southern column.

Plan To Section

The placement on the site reiterates the design of the structure cantilevers project over the land form below. Despite the three unique levels of the glass form and undulating form create a connected relationship between occupants and the ground level landscape.

LIGHTING

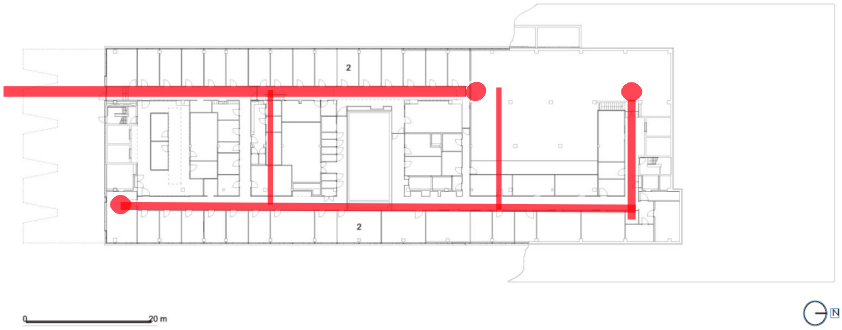
A combination of internal artificial lighting and natural lighting seen through the structural supports of the building.

The walls are treated in muted colors to aid in the reflection of the interior and exterior illumination. The bright blue is vibrant and the brightly colored lighting panels create an energetic visual movement.

By choosing this primary color palette the muted wall color is enlivened. If the ceiling was painted standard white of the wall color the space would project a dull dissatisfying environment.

© Rene de Wit
Images accessed January 7, 2015. http://www.dezeen.com
Figure 17: Rehabilitation Centre Groot Klinnendaal Massing, Site Plan and Lighting.

Circulation

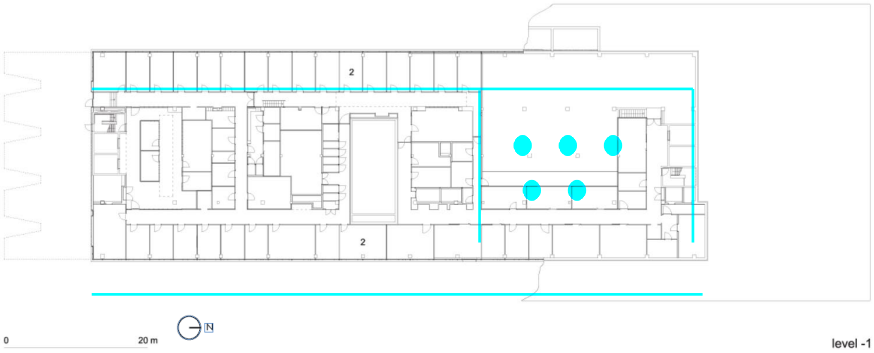


Private and public circulation walkways are indicated in red. The long horizontal design of the structure produces long corridors that branch off into smaller corridors that lead to utilities.

Site Geometry

The positioning of the structure relative to the geographical location allows for panoramic views of Nederjin River deep in the Het Dorp Mariendall Forest area. The deep forest provides a private oasis for patients and visitors.

Structural



The blue dots indicate a structural open area used for gathering and group activities.

Images accessed January 7, 2015. http://www.dezeen.com

Figure 18: Groot Klinnendaal Circulation, Site Geometry, and Structural Diagrams.

Medical Resort Bad Schallerbach

Architect: Collective ZT GmbH
Locations: Rabistrase, Bad Schallerbach Austria
Area: 10,200 sq_m
Built: 2013

© Hertha Hurnaus

© Hertha Hurnaus

© Hertha Hurnaus

Images accessed January 7, 2015. http://www.archdaily.com

Figure 19: Medical Resort Bad Schallerbach.

The primary facility, built in 1968, functions as a traditional hospital that was remodeled and integrated with the addition of the 6,000 health spa focused on the holistic care of patients in both treatment situations and preventative care.

Patient diagnostic and treatment rooms are flush with natural lighting. Natural materials such as slate flooring, stone, and natural wood are employed throughout the patient areas.

One of the primary focuses of the medical resort is to create a "...harmonious exchange between health, nature, and human ecology." References to the exterior are seen throughout the elevations as nature is integrated into the transitions from interior to exterior spaces (Arch-daily 2009).

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Images accessed January 7, 2015. http://www.archdaily.com

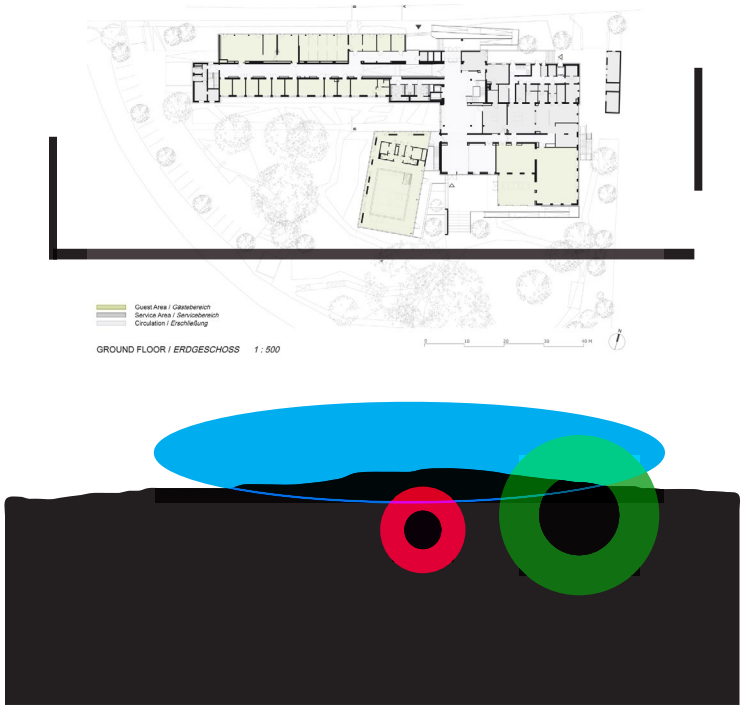
Figure 20: Bad Schallerbach Interior.

Interior spaces flow seamlessly to exterior outdoor seating spaces which feature seating areas under mature trees and other vegetative shade materials.

Natural materials are used throughout the facility further blurring the transition between the exterior and interior of the facility. Natural lighting is utilized throughout the facility by the implementation of light shelves which deliver natural light to interior spaces and expansive use of glass revealing the exterior landscape.

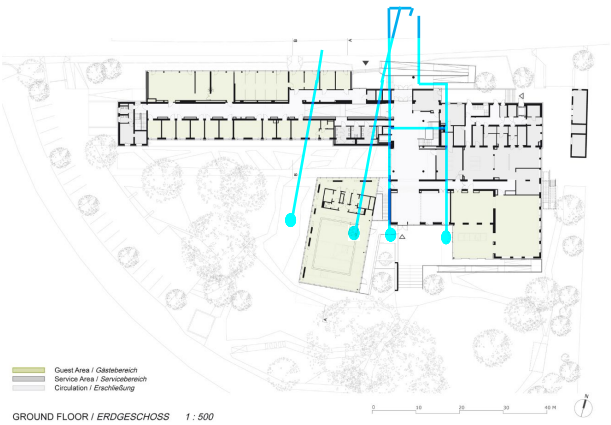
The Medical Resort Bad Schallerbach in Austria conforms to a new standard of energy efficient standards. Some of these standards include high efficiency windows. Energy efficiency materials was used in construction and design.

Plan To Section



This plan to diagramming analysis is to, in a visual form, examine the relationship in the visual weight of the facade of one building. In this case although blue mass is elongated and seemingly less visually significant than the 2 circular form which at this view point cast a more dominant because the forms are cast into the foreground from this point of view.

Site Geometry



Images accessed January 7, 2015. http://www.archdaily.com

FIGURE 21: Bad Schallerbach Site Geometry.

Geometric grid/points intersect for views of the landscape, particularly the mass angled at the north-eastern direction of the buildingthatisdirectedattheSportplazastraBe

Circulation

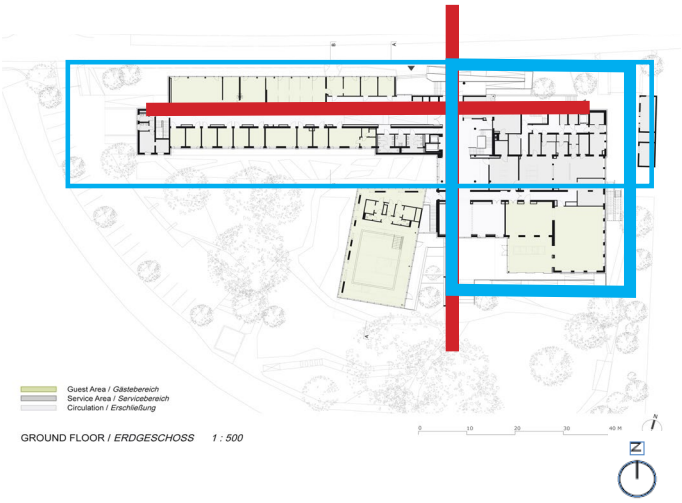


FIGURE 22: Bad Schallerbach Circulation.

The circulation pattern shown in red cuts through existing building and unites the new structure to the existing structure. The hierarchy is shown in blue. The larger thicker mass dominates the thinner structure extension.

Lighting

© Hertha Hurnaus

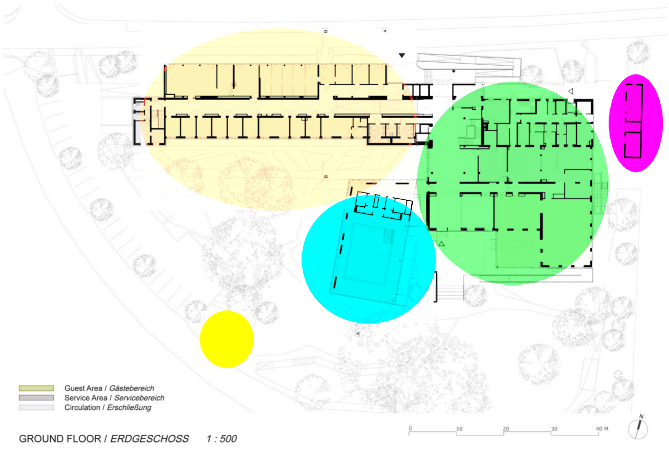
FIGURE 23: Bad Schallerbach Lighting.

Natural lighting permeates the structure throughout the day and the use of large overhangs are used as a passive sun shade system.

In the evening, as seen above the facility is brightly illuminated and the facility glows with the inviting light.

Images accessed January 7, 2015. http://www.archdaily.com

Massing



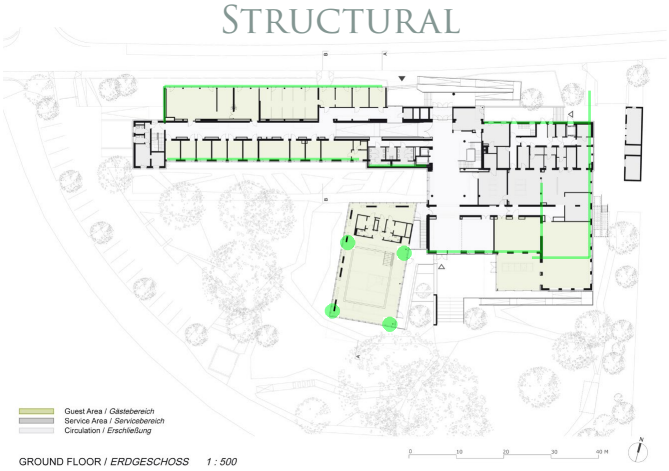
Massing on this site involves the group of the different segments of the primary building structure. Two smaller utility type structures exist on the property shown in pink and yellow. These structures do not influence the sequencing between the primary structure or are part of the property pathway layout to be points of destination or points of site enjoyment.

Hierarchy

© Hertha Hurnaus
Figure 25: Bad Schallerbach Hierarchy Illustration.

The hierarchy of this structure is not based on the three story structure surrounding. The hierarchy of this structure overwhelmingly is the structure that projects at an angle from the primary 2 rectangular forms. Even viewing this structure at ground level height the flat, thick overhang of the roof dominates the hierarchal structure as a whole.

Structural



The structural support columns in the community room that projects at an angle from the building supports an open community area.

Figure 24: Bad Schallerbach Structural Diagram.
Images accessed January 7, 2015. http://www.archdaily.com

Typological Summary

The first project I chose to study was the Center for Psychological Rehabilitation in Spain. The facility was designed to house non-critical care patients with severe mental disorders. The design process for this group of patients is similar and in some cases overlaps with the treatment of patients with addiction disorder.

There are a number of important design decision that are directly applicable to a addiction rehabilitation facility. The first and foremost issue is addressing the needs of privacy for individual seeking treatment. Both mental illness and addiction patients face social stigmas associated with their medical conditions. At the Center for Psychological Rehabilitation, 3 gardens have been implemented into the outdoor area of the design. The gardens are recessed below grade and implement vegetation for additional privacy. These recessed gardens also act as a means of controlling patients to a specific location to prevent wandering and/or escape, yet allow patients access to natural ventilation, sunlight, and the local flora and fauna.

Additionally in the Center for Psychological Rehabilitation the vegetation has been very obviously set back away from the adult trees and foliage. This allows some types of patients to walk around the length and width of the building. The density of this wall of vegetation provides a great deal of privacy for these patients, as well as, emphasizing the sleek lines of the structure.

The interior of the center features large number of windows that follow the length of the facade of the building, however, the windows are recessed into regular spaced cement panels. In the daytime the interior is flooded with natural light but are protected from direct views of the interiors.

The materials used throughout the center are sleek glass and brushed steel. The materials have been carefully implemented in numerous varieties to aid in way finding. Negotiating large architectural spaces can be particularly difficult for persons with mental and addiction disorders.

The Rehabilitation Center Groot Klinnendaal located in the Netherlands is the second facility to be examined. The facility is located in a heavily wooded Dutch forest. Patients and visitors are presented with beautifully lush wooded trails. The exterior facade of the structure is covered with brown anodized aluminum. The material reflects the surrounding nature, yet adds an element of sleek visual qualities that emphasize natural qualities of foliage.

One element in particular that is different that the other case studies is the delineation of floor levels dedicated to single purpose development. The first floor (or the floor labeled 0 in Netherland documentation) is the administrative floor. This floor is only used for business purposes related to the facility. The second floor is dedicated to the treatment and preventive care of patients. The top floor features a restaurant that is open to visitors and community members. The shallow spaced stairwell extend in a continuous flow from the 1st floor to the third floor. Window wells allow occupants to view the other floors unobstructed by structure.

The interior space is organized with long inter-winding walkway passages to encourage walking exercises throughout each floor. At the second floor level are glass enclosed privacy alcoves.

The alcove are constructed of floor to ceiling glass to minimize obstructed views. Yet for those users the alcove creates a sense of privacy and intimacy.

The Medical Resort Bad Schallerbach in Rabistrase Schall Austria, the third case study, was once a tradifunctional hospital serving the community. In 2013 the hospital facility was remodeled adding 6,000 additional beds and care focused on preventative and treatment care in a health spa environment. One of the most notable design element is how actively natural light is incorporated into the spaces. Through the use of large spacious windows and ceiling light shelves it would seen that even on a cloudy day the space would seem illuminated with natural lighting.

The interior of the Medical Resort focuses on the use of natural materials such as stone, wood, and slate. The Resort is focused on the improvement of the human ecology through holistic health by interacting with nature.

In very similar ways the Center for Psychological Rehabilitation organized its interior through repeating materials, the Medical Resort ventures one step forward by delineating spaces of different purposes with differing invigorating color. The effect is invigorating and would aid tremendously in way-finding through such a large facility.

SITE

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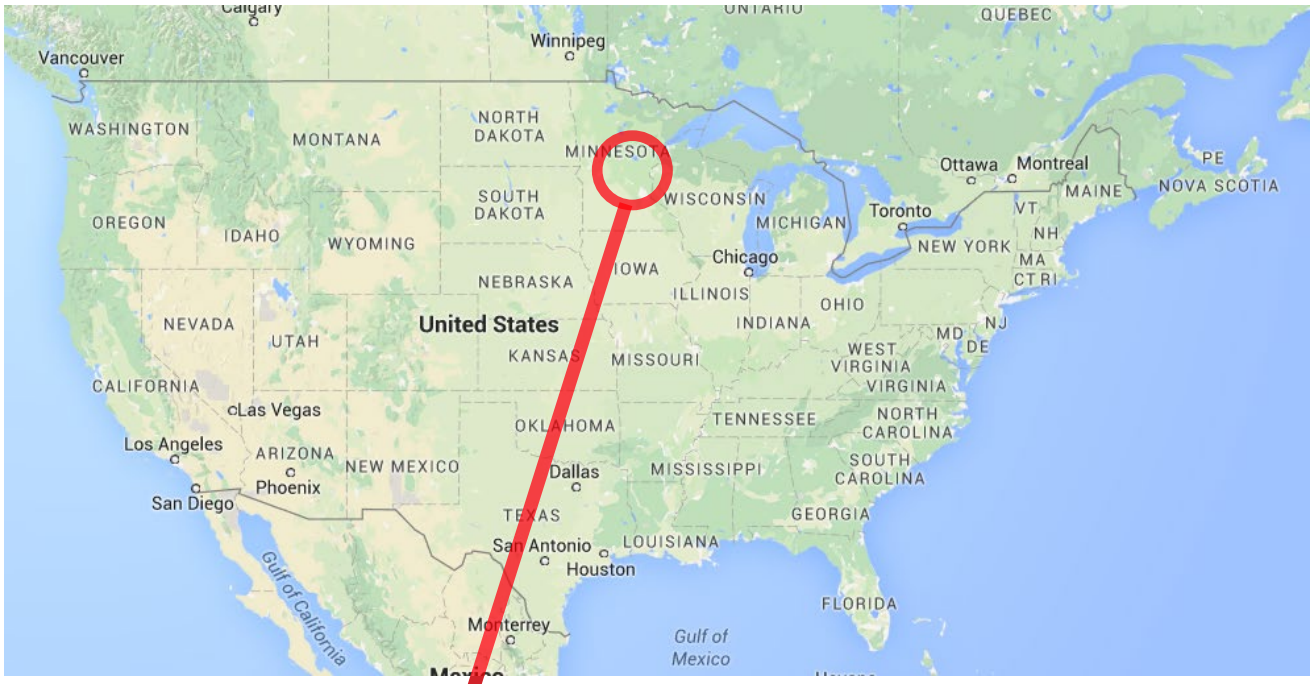
Site History

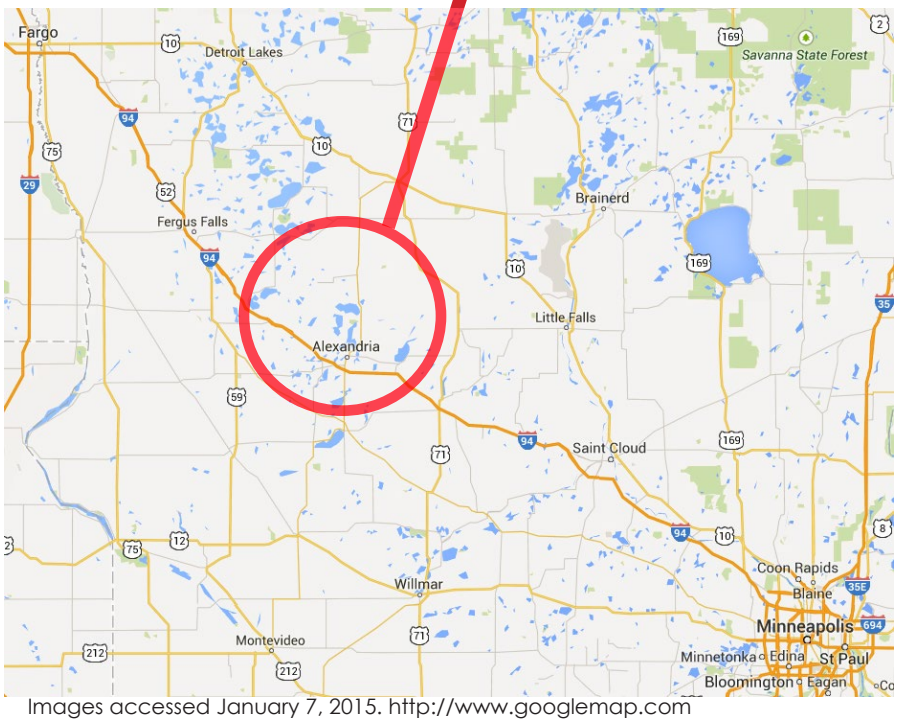
Site

Climate Charts

United States Map



Alexandria, MN



Images accessed January 7, 2015. http://www.googlemap.com

FIGURE 26: Location on U.S. and State Maps.

Minnesota, USA

Alexandria is located in the state of Minnesota. Minnesota is known as the land of 10,000 lakes. Minnesota has a typical continental climate with four distinct seasons. Warm summers and cold winters give Minnesota the 3rd largest variance in temperature of any non-mountainous state.

The land of lakes is a popular tourist attraction serving vacationers from around the world (Resources, 2014).

Alexandria, MN & Site Location

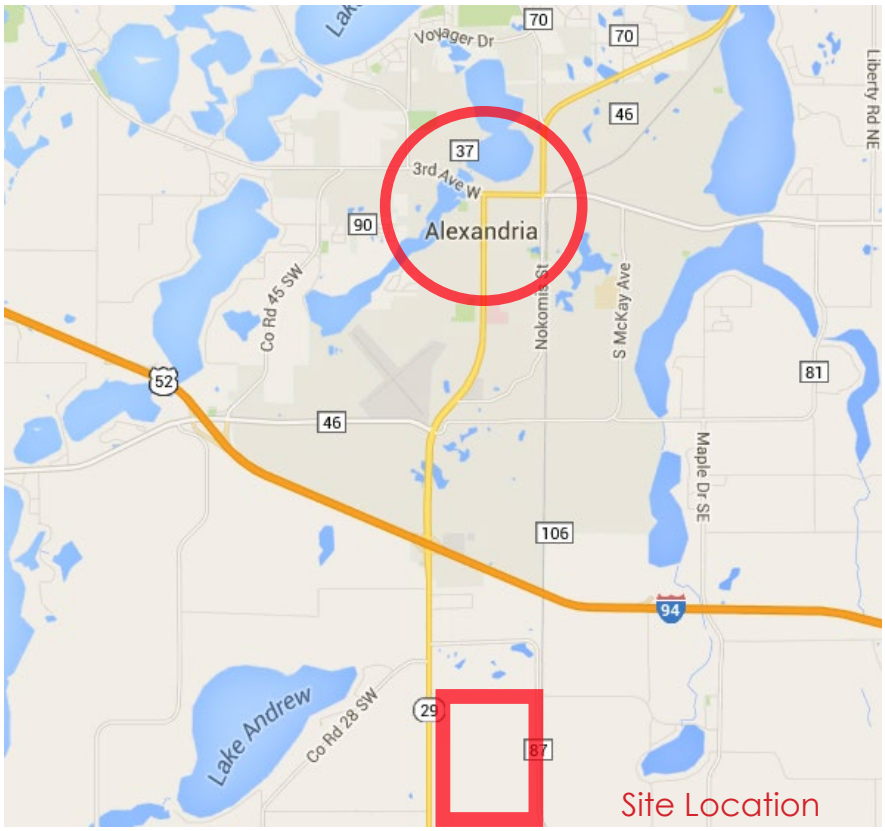


FIGURE 27: Regional Site Map.

Alexander Lakes Area
West Central, Minnesota

Alexandria Area is located in Douglas County in West Central Minnesota, USA. Alexandria is located geographically at Latitude 45° 53' 06" and Longitude 95° 22' 39" and is 1407 feet above sea level.

Alexandria is a quickly growing small town in West Central, Minnesota. Situated on Interstate 94 between Minneapolis, MN and Fargo, ND, Alexandria is easily accessible to all in the Great Lakes area (Date and Time Info, 2014).

Regional Information

Minnesota's continental climate produces an average temperature range from 8 degrees Fahrenheit in January to 70 degrees Fahrenheit in July. Annually the area receives 26 inches of precipitation on average (Resources, 2014).

Douglas county has a total workforce of 21,406. Alexandria itself had a 2013 population of 13,045. According to the Alexandria Area Development Commission the top 3 projected growers for this region through 2020 will be Service, Education, and Health Service, and Health Care (Alexandria Area Development Commission, 2014). With both Health Services and Health Care in the top 3 projected employment fields, the leaders are planning to support health related business.

The site location is located 1 mile south of Interstate 94 on MN State Highway 29. The site is a quiet pastoral area. Located to the west of the site is Highway 29. Facing the east is a wetland bordering on farmland. Further south along is single family rural farmsteads. I-94 and Highway 29 provide easy access for staff, patients, and visitors. State Highway 29 provides direct access to essential services in Alexandria, Minnesota.

Images accessed January 7, 2015. http://www.googlemap.com

The welcome sign to Alexandria reads

"Easy to Get to Hard to Leave".

FIGURE 28: Alexandria MN Street Views.

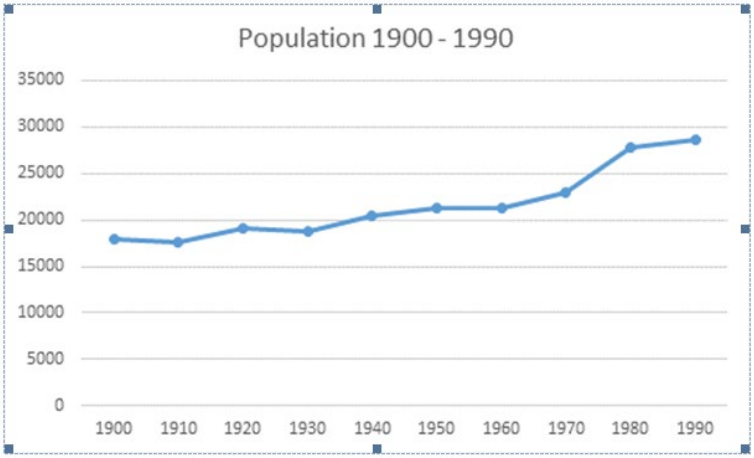
The street views looking north on Broadway (Minnesota State Highway 29). The top pictures is a view of the west side of Broadway and the lower right picture looks down the east side of Broadway Street at the 7th Avenue intersection.

Before the city of Alexandria was founded, the region was inhabited primarily by Dakota Sioux Native Americans. The Dakota Sioux an extensive trading network throughout the region and extending to other Native American groups extending as far as Florida. The rich culture and tradition of these people still greatly influence the culture of Alexandria.

Alexandria as we know it today began when 2 brothers, Alexander and William Kinkead staked homestead claims on the shore of Lake Agnes. The Kinkead brothers were working on a government contract to survey a road from St. Cloud to Fort Abercrombie on the Minnesota, Dakota Territory border. In 1859 the government road was built and that same year Alexander Kinkead established a post office at his homestead. The name Alexandra came from his first name.

In 1862 the Army established a small fort in Alexandria, establishing it as a trading post. The fort was closed in 1866. The Douglas County area continued to be settled, primarily by people from Scandinavia and Northern European countries through the end of the century.

The last 100 years has seen a constant growth for both Alexandria and Douglas County. The region's population has grown from just under 18,000 in 1900 to more than 36,000 today.

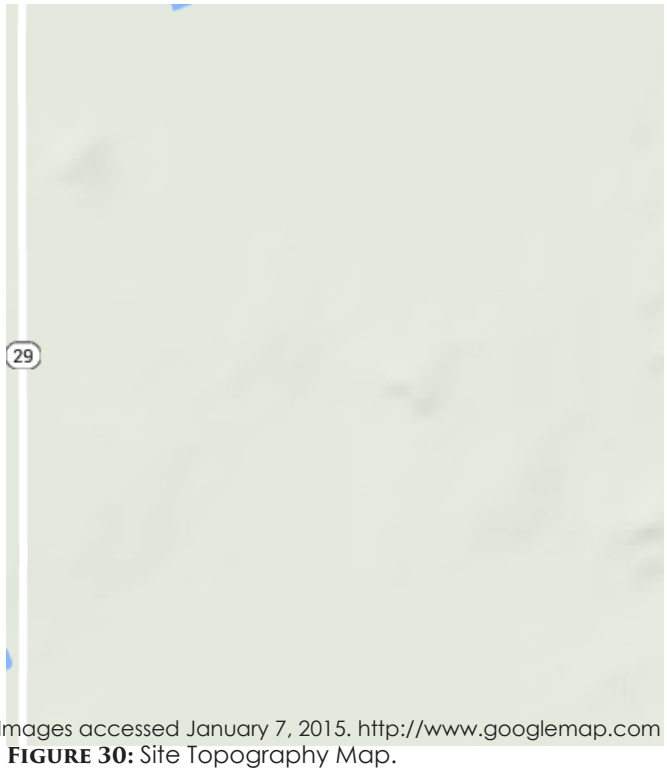


Images accessed January 7, 2015. http://www.census.gov/prod/
FIGURE 29: Alexandria MN Population trend graph.

In modern times, Alexandria has developed a culture that incorporates the rich heritages of both Native Americans, and Scandinavia to form a distinctly Minnesotan culture. The picturesque lakes combined with this attractive culture makes the Alexandria area popular for tourists and vacationers from across North America. As a regional center Alexandria also continues to attract people looking for work in industry and medical facilities, ensuring that the region continues to grow.

Topography

7897 Minnesota State Highway 29



Images accessed January 7, 2015. http://www.googlemap.com

Figure 30: Site Topography Map.

The extreme uniformity of the topography is less than a 3% grade. The diagram at the left shows the edge of the property which is Minnesota State Highway 29. This land was used as farmland and was tilled to a nearly perfectly flat parcel. This makes this an ideal location to build as the development costs of the land is minimal.

The land form is similar throughout the area of Alexander. One exception is the area directly surrounding the 20 plus lakes that surround the city.

Eastern View

Figure 31: Site View facing East

This is a view facing East. The picture was taken standing on the edge of Minnesota State Highway 29.

The picture shows the deeply wooded area that marks the Eastern edge of the property. The property is currently covered with native wild grasses approximately 3 feet deep. A barb wire fence is in the foreground denoting the county easement related to the Highway 29.

Northern View

Figure 32: Site View facing North

This picture shows the North view of the property. In the distance is a grouping of white structure that denotes a farmstead. The many of the trees and foliage located on the property are in poor condition and most likely need to be removed.

Southern View

Figure 33: Site View facing South A

This picture shows the view of the South edge of the property. The trees shown in the picture are primarily scrub trees that act as a wind barrier when the land was used for farming. The foliage requires pruning and some removal of poorly shaped and dead plantings.

Western View

Figure 35: Site View facing West

This Western view look across Minnesota State Highway 29. The terrain and foliage is the same as the Eastern view. Approximately a mile from this site is a body shop business that also sells used automobiles. It was a quiet business at the time of the visit and along with the distance factor is highly unlikely to cause noise pollution.

Southern View

Figure 34: Site View facing South B

This is close-up view of the southern edge of the property. The remains of a cattle feeder still remain covered with wild foliage including hops.

South View of MN State Hwy. 29

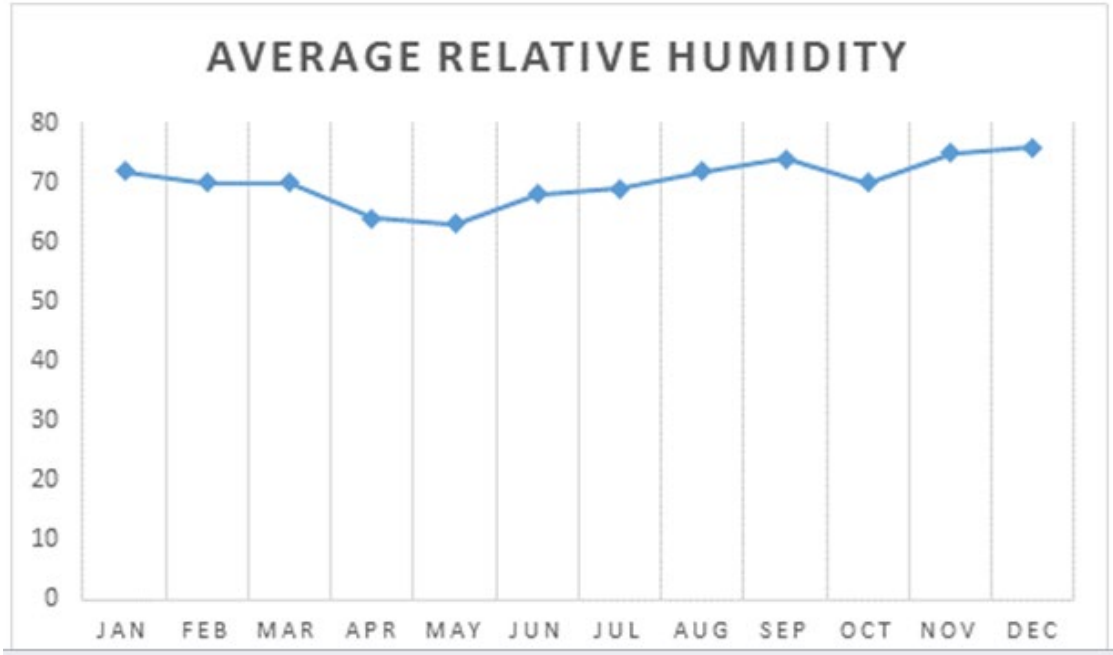
Figure 36: Site View South MN State Hwy 29

The tree grouping on the left shows the area where a farmstead existed. Some old, dilapidated farm building still exist in this area.

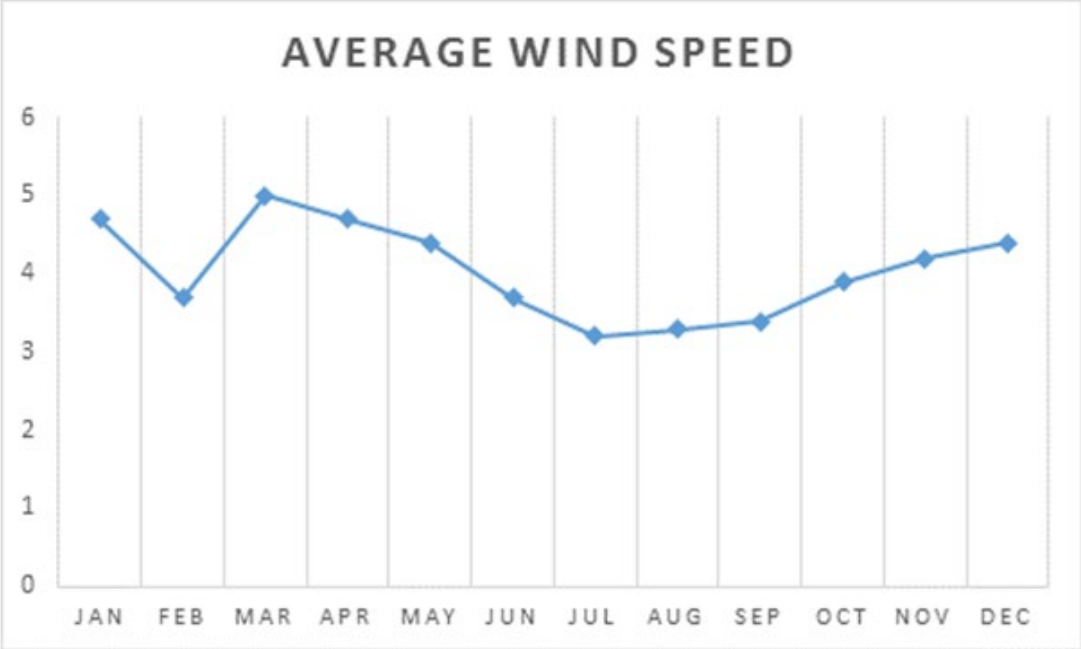
North View of MN State Hwy. 29

Figure 37: Site View North MN State Hwy 29

This views looks North in the direction of downtown Alexandria. The auto body shop's used auto sales can be seen on the west side of MN State Hwy 29.



http://www.wcc.nrcs.usda.gov/climate/.html



http://www.wcc.nrcs.usda.gov/climate/.html

FIGURE 38: Average Relative Humidity and Average Wind Spee charts.

Climate Alexandria - Minnesota °C | °F

	Jan	Feb	Mar	Apr	May	Jun
Average high in °F:	19	24	37	54	67	76
Average low in °F:	1	7	19	33	45	55
Av. precipitation in inch:	0.71	0.47	1.26	2.13	2.8	4.06
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	10	6	9	3	0	0

	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F:	81	79	69	55	37	23
Average low in °F:	60	58	49	36	22	7
Av. precipitation in inch:	3.43	3.54	2.91	2.32	1.02	0.47
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	0	0	0	1	7	7

Precipatation

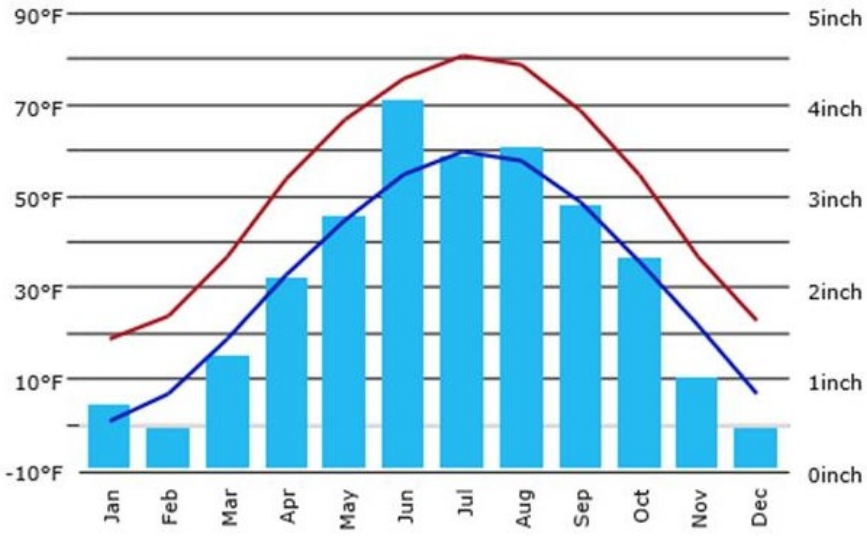


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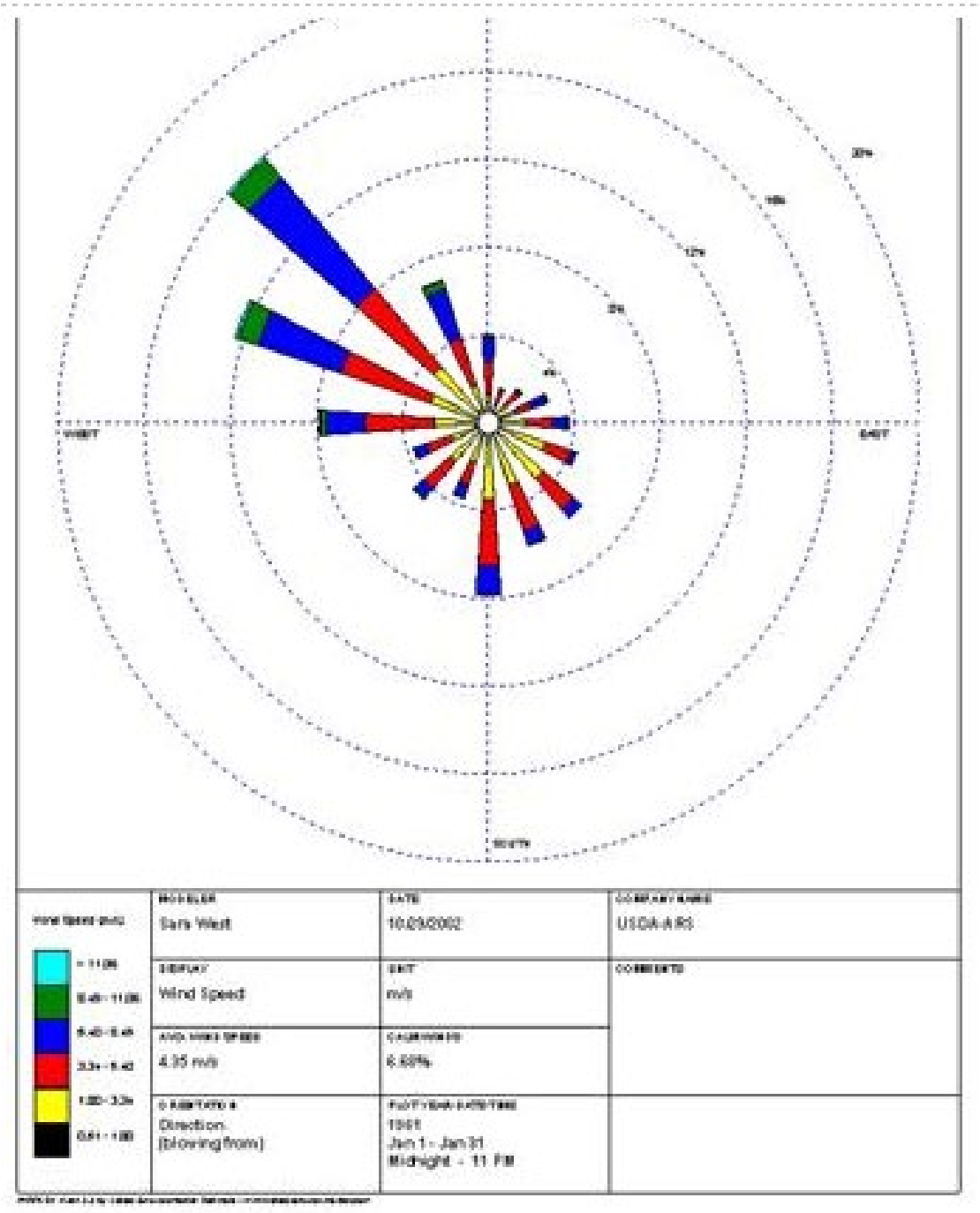
Figure 39: Temperature and Precipitation Charts.

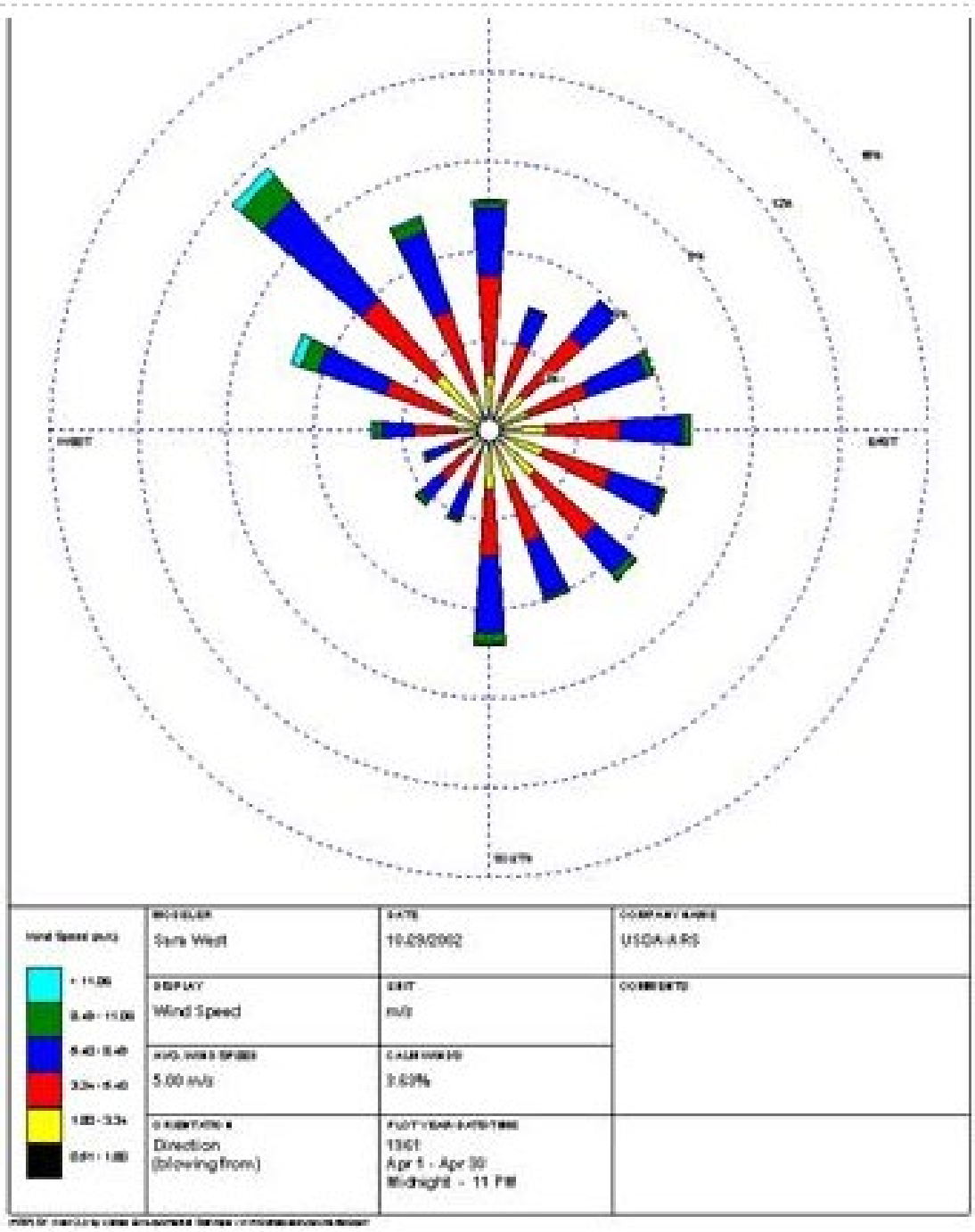
Wind Speed Charts



http://www.wcc.nrcs.usda.gov/climate/windrose.html

Figure 40: Wind Speed Chart A

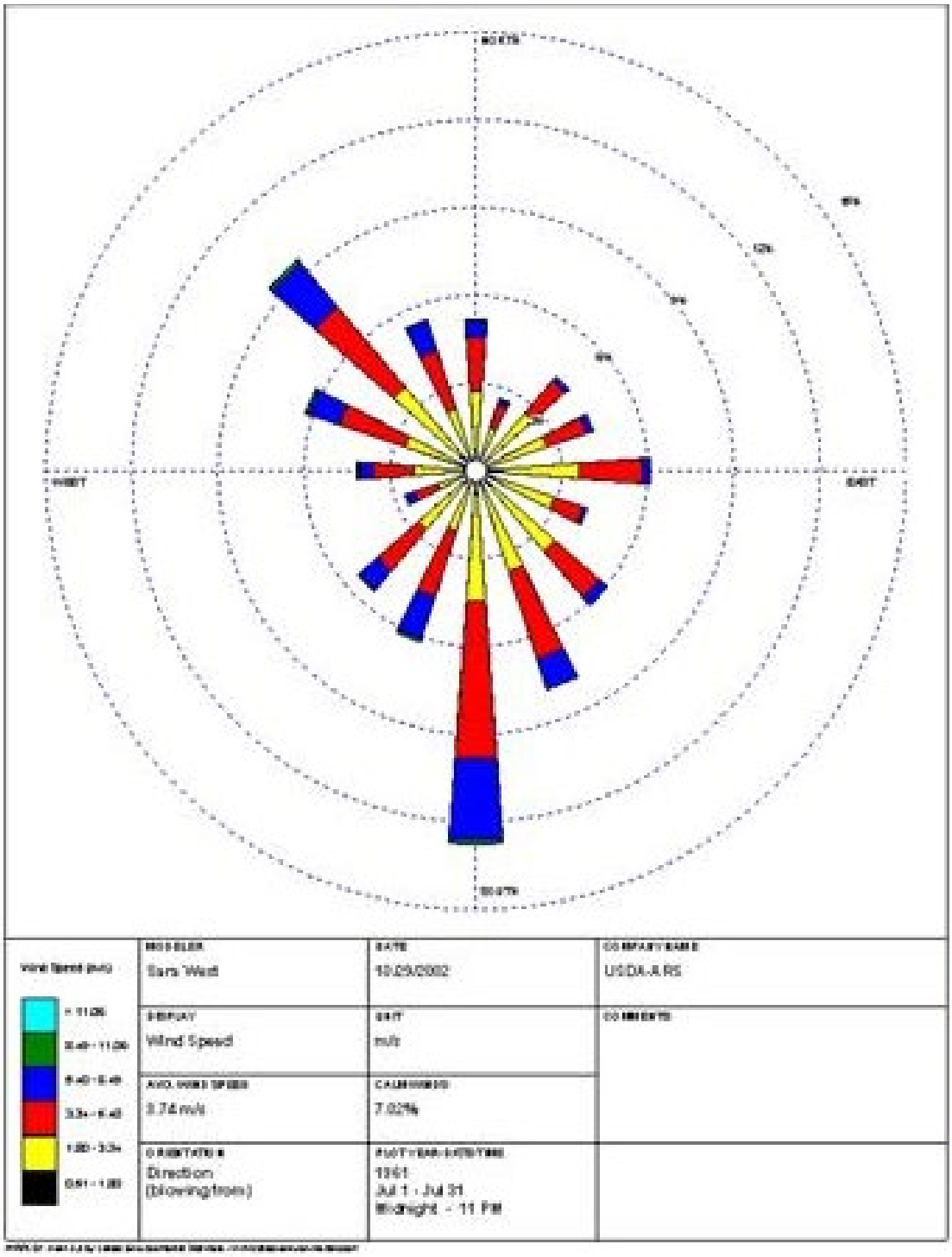
Wind Speed Charts



http://www.wcc.nrcs.usda.gov/climate/windrose.html

Figure 41: Wind Speed Chart B

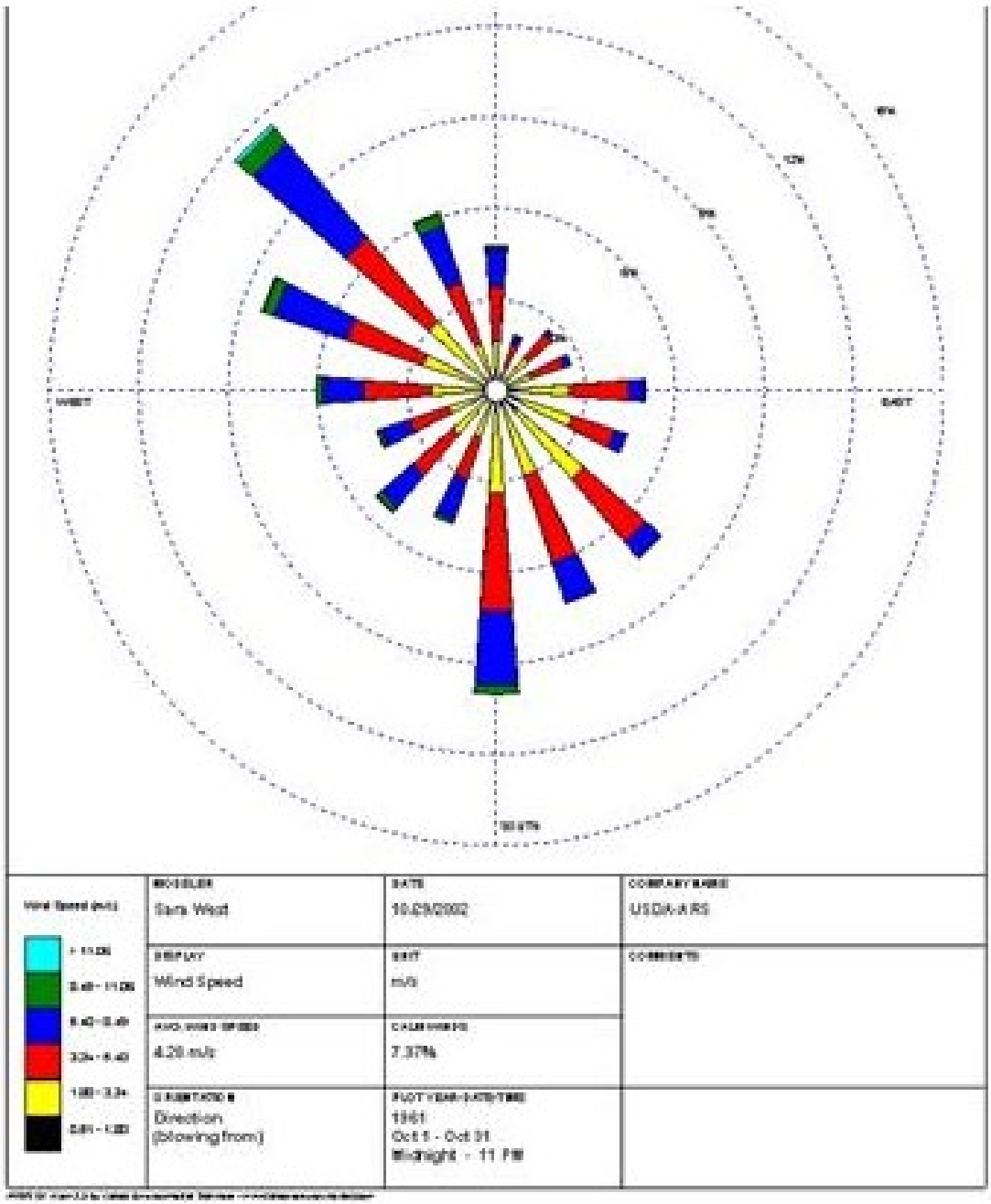
Wind Speed Charts



http://www.wcc.nrcs.usda.gov/climate/windrose.html

FIGURE 42: Wind Speed Chart C

Wind Speed Charts



http://www.wcc.nrcs.usda.gov/climate/windrose.html

FIGURE 43: Wind Speed Chart D

The Program Decision Components

Interaction Matrix

Interaction Net

Gant Chart

Interaction Matrix

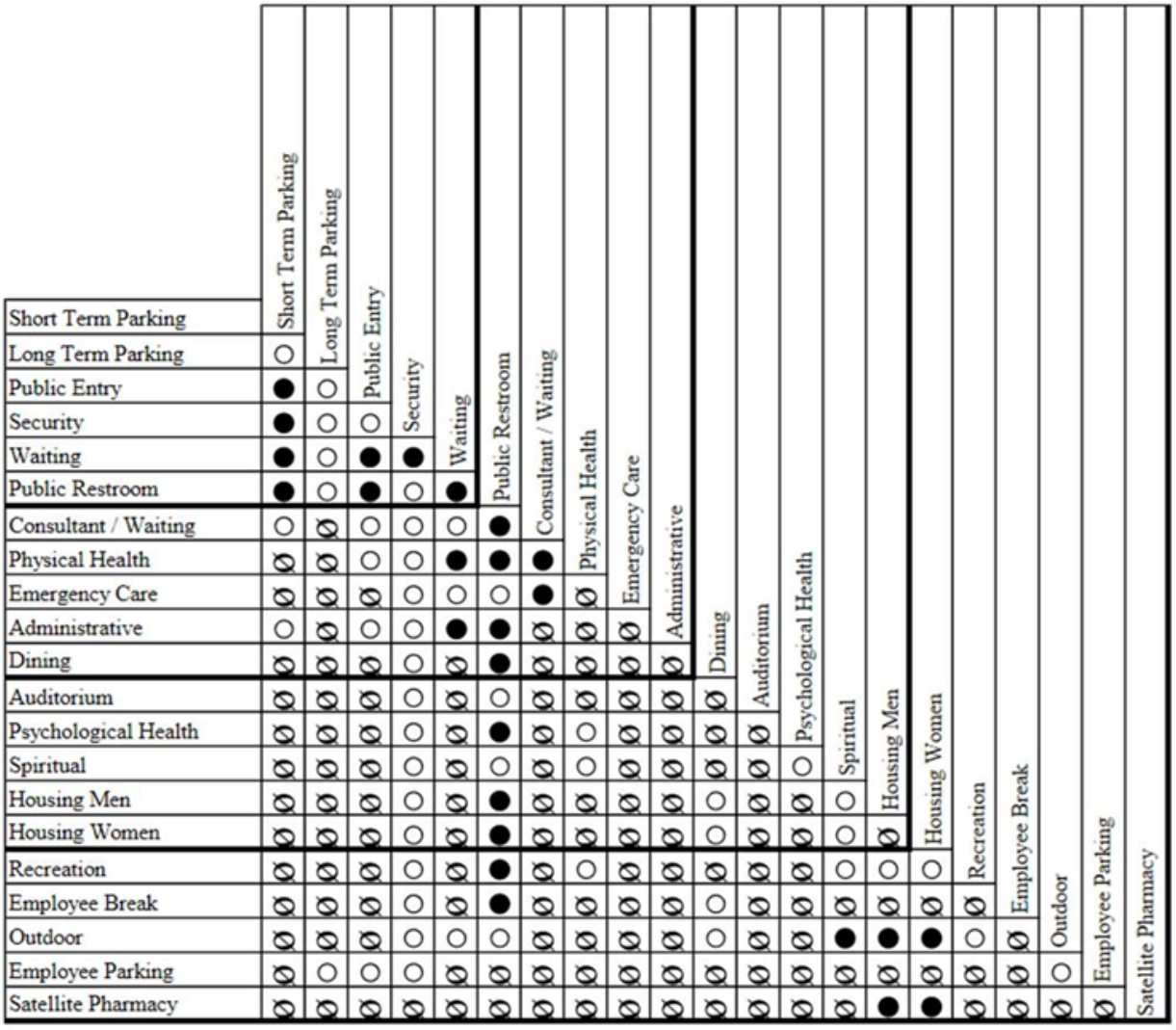


FIGURE 44: Interaction Matrix

FIGURE 45: Interaction Net

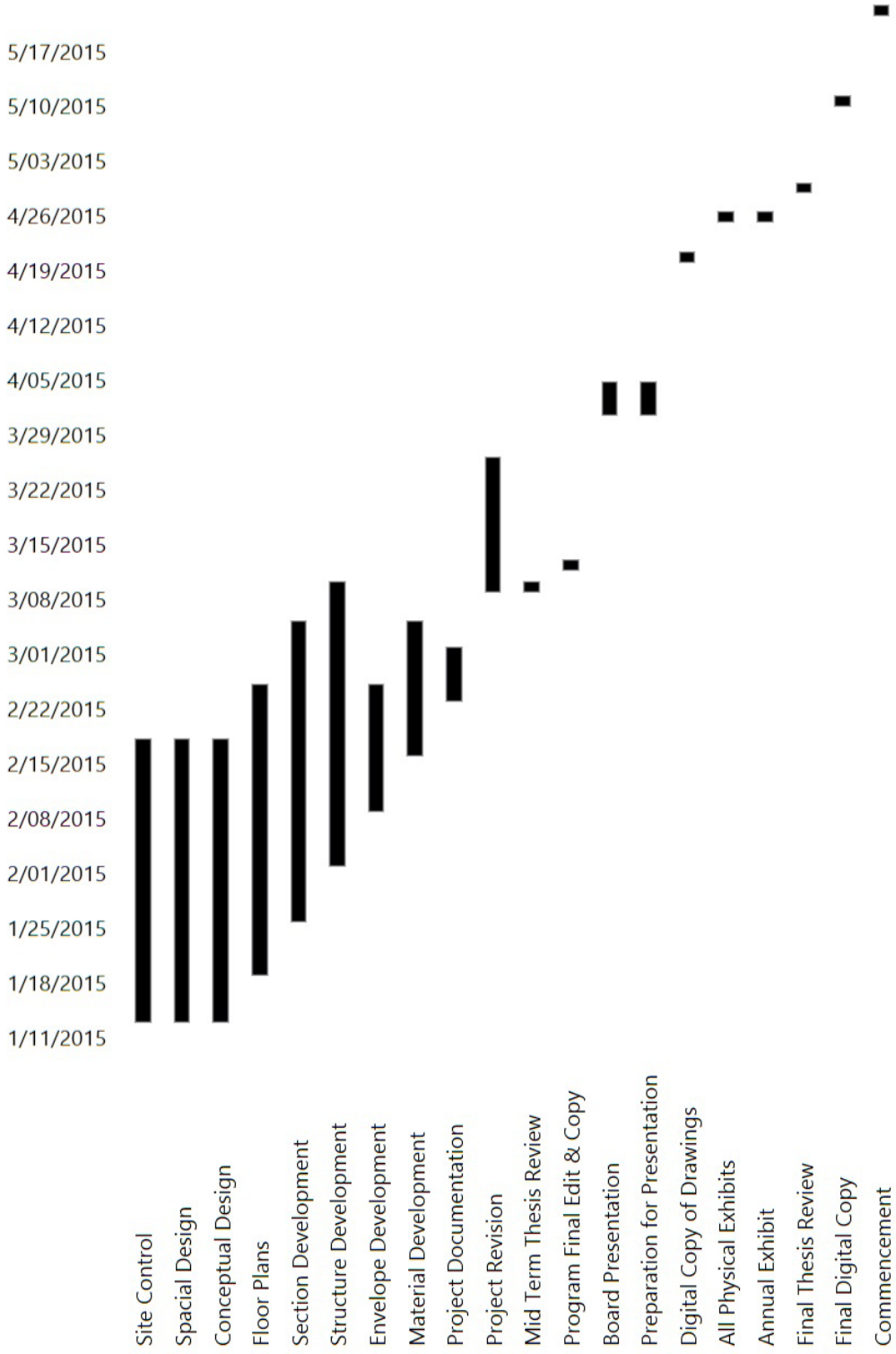


FIGURE 46: Gaant Chart

Design Solution

Final Building Program

Spacial Allocation

Process Documentation

Project Solution Documentation

Spatial Allocation

Medical

Exercise

Resident Housing - Male

Resident Housing - Female

Meditation / Yoga

Theatre

Business and Finance

Administration

Dining and Food Services

Medical

100 Reception	
101 Patient Room	190 Sq. Ft.
102 Patient Room	190 Sq. Ft.
103 Patient Room	190 Sq. Ft.
104 Patient Room	190 Sq. Ft.
105 Patient Room	190 Sq. Ft.
106 Patient Room	190 Sq. Ft.
107 File Storage	190 Sq. Ft.
108 Interview Room	70 Sq. Ft.
109 Interview Room	70 Sq. Ft.
110 Laboratory	85 Sq. Ft.
111 Counseling	123 Sq. Ft.
112 Counseling	123 Sq. Ft.
113 Counseling	123 Sq. Ft.
114 Counseling	123 Sq. Ft.
115 Counseling	123 Sq. Ft.
116 Counseling	123 Sq. Ft.
117 Counseling	123 Sq. Ft.
118 Lavatory	57 Sq. Ft.
119 Lavatory	57 Sq. Ft.
120 Pharmacy	75 Sq. Ft.
121 Blood Draw Room	54 Sq. Ft.
122 Patient Group Room	700 Sq. Ft.
123 Patient Room	247 Sq. Ft.
124 Patient Room	247 Sq. Ft.
125 Supply Room	180 Sq. Ft.
126 Patient Room	310 Sq. Ft.
127 Patient Room	310 Sq. Ft.
128 Employee Break Room	248 Sq. Ft.
129 Patient Room ADA	209 Sq. Ft.
130 Patient Room ADA	209 Sq. Ft.

Exercise

200 Exercise Room	2500 Sq. Ft.
201 Exercise Office	124 Sq. Ft.
202 Exercise Lavatory	50 Sq. Ft

Residential Housing - Male

300 Unit Counseling / Relaxation	1600 Sq. Ft.
301 Patient Room	300 Sq. Ft.
302 Patient Room	300 Sq. Ft.
303 Patient Room	300 Sq. Ft.
304 Patient Room	300 Sq. Ft.
305 Patient Room	300 Sq. Ft.
306 Patient Room	300 Sq. Ft.
307 Patient Room	300 Sq. Ft.
308 Counseling / Unit Administration	260 Sq. Ft.
309 Counseling / Unit Administration	260 Sq. Ft.
310 Storage	89 Sq. Ft.
311 Pharmacy Satellite	77 Sq. Ft.
312 Group Counseling	190 Sq. Ft.
313 Group Counseling	170 Sq. Ft.
314 Laundry	81 Sq. Ft.
315 Janitor	36 Sq. Ft.
316 Public Lavatory ADA	57 Sq. Ft.
317 Kitchen and Dining	268 Sq. Ft.

Residential Housing - Female

400 Unit Counseling / Relaxation	1600 Sq. Ft.
401 Patient Room	300 Sq. Ft.
402 Patient Room	300 Sq. Ft.
403 Patient Room	300 Sq. Ft.
404 Patient Room	300 Sq. Ft.
405 Patient Room	300 Sq. Ft.
406 Patient Room	300 Sq. Ft.
407 Patient Room	300 Sq. Ft.
408 Counseling / Unit Administration	260 Sq. Ft.
409 Counseling / Unit Administration	260 Sq. Ft.
410 Storage	89 Sq. Ft.
411 Pharmacy Satellite	77 Sq. Ft.
412 Group Counseling	190 Sq. Ft.
413 Group Counseling	170 Sq. Ft.
414 Laundry	81 Sq. Ft.
415 Janitor	36 Sq. Ft.
416 Public Lavatory ADA	57 Sq. Ft.
417 Kitchen and Dining	268 Sq. Ft.

Spatial Allocation

Meditation and Yoga

500 Meditation / Yoga	1560 Sq. Ft.

Theatre

600 Theatre & Group Counseling	3241 Sq. Ft.

Business and Finance

700 Financial MA Reception/Waiting	460 Sq. Ft.
701 Office	187 Sq. Ft.
702 Office	187 Sq. Ft.
703 File Storage	44 Sq. Ft.
704 Senior Staff Office	320 Sq. Ft.
705 Office	130 Sq. Ft.
706 Office	130 Sq. Ft.
707 Office	130 Sq. Ft.
708 Office	130 Sq. Ft.
709 Office Equipment	52 Sq. Ft.
710 Conference	320 Sq. Ft.
711 Lavatory ADA	62 Sq. Ft.
712 Kitchen Employee Storage	124 Sq. Ft.
713 Financial Services	1020 Sq. Ft.

Administration

800 Reception	718 Sq. Ft.
801 Security / Safe Deposit Storage	220 Sq. Ft.
802 Coat Closet / Storage	95 Sq. Ft.
803 Storage	39 Sq. Ft.
804 Waiting Area	415 Sq. Ft.
805 Waiting Area	415 Sq. Ft.

Dining and Food Services

900 Kitchen	1245 Sq. Ft.
901 Coffee Bakery	482 Sq. Ft.
902 Dining	1200 Sq. Ft

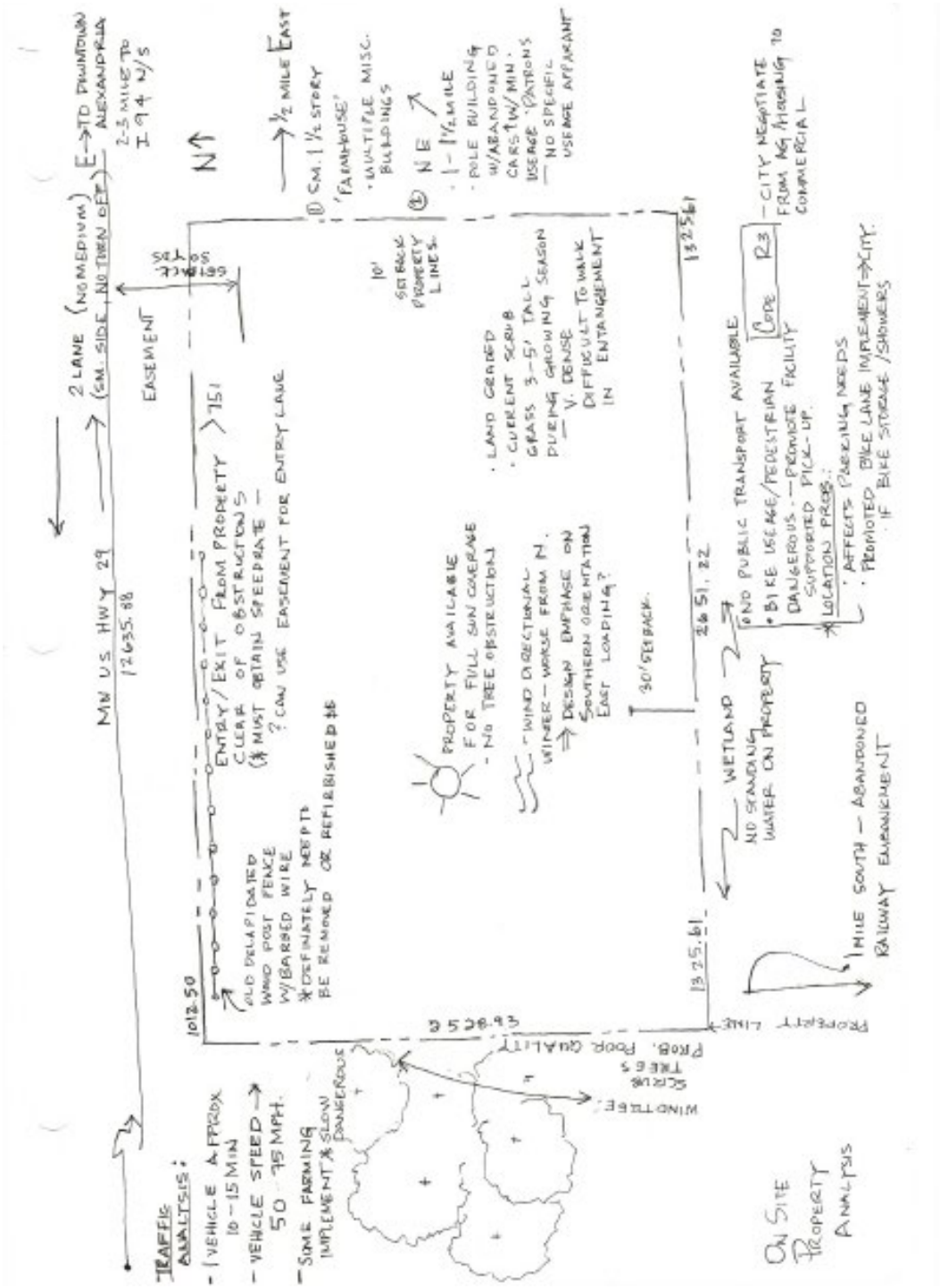


FIGURE 47: On Site Analysis

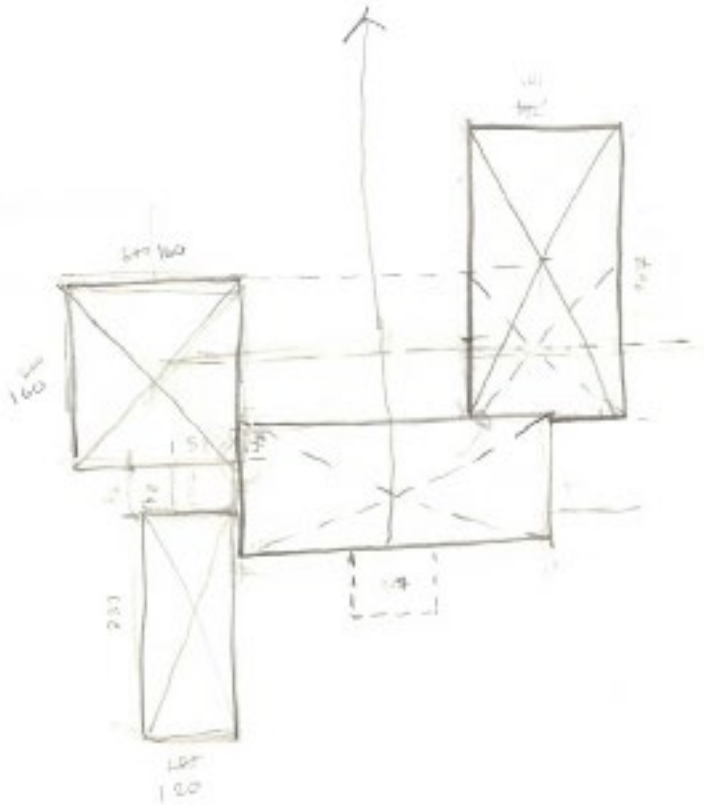


Figure 48: Spatial Symmetry / Balance

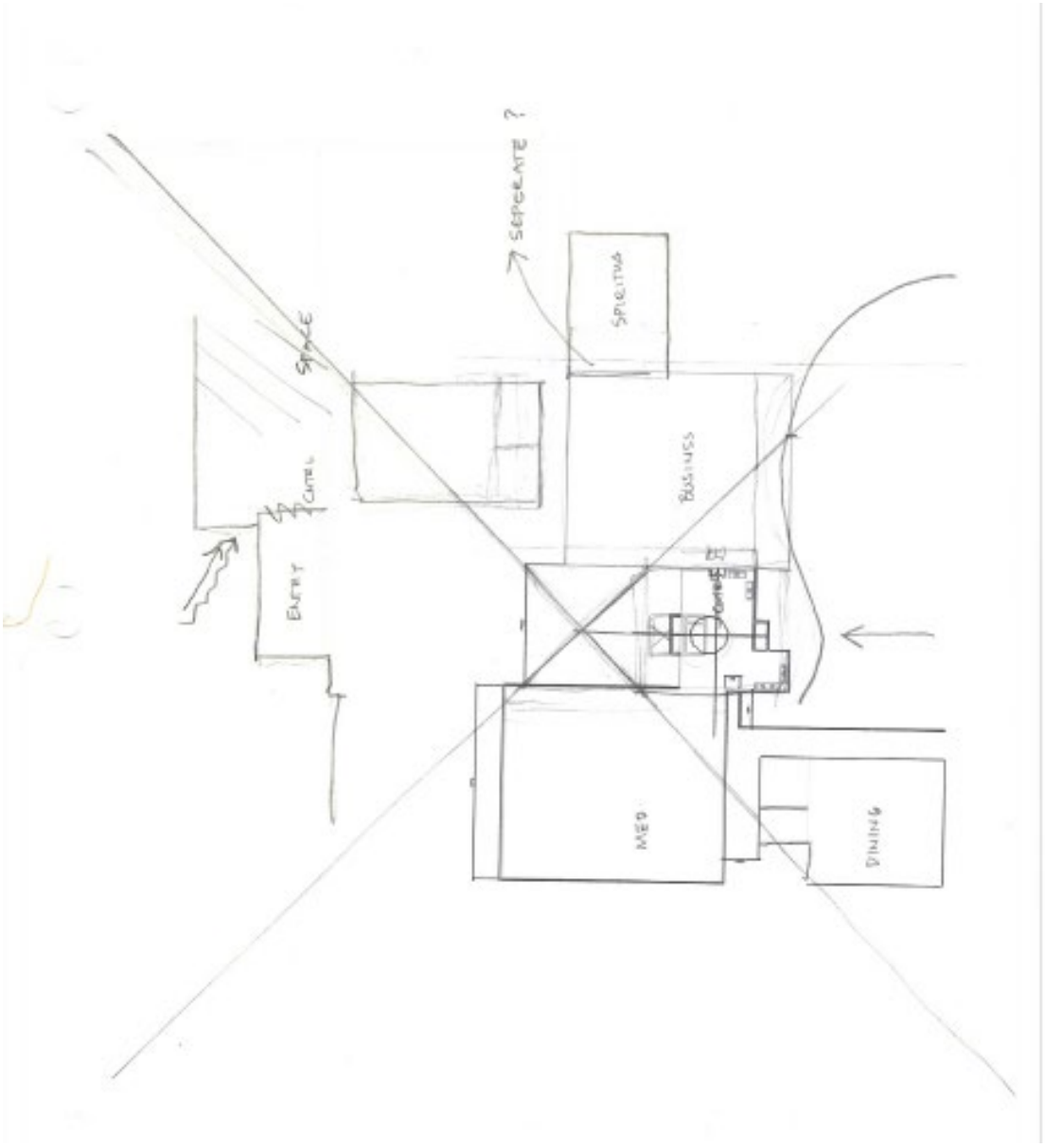


Figure 49: Hierarchical Analysis

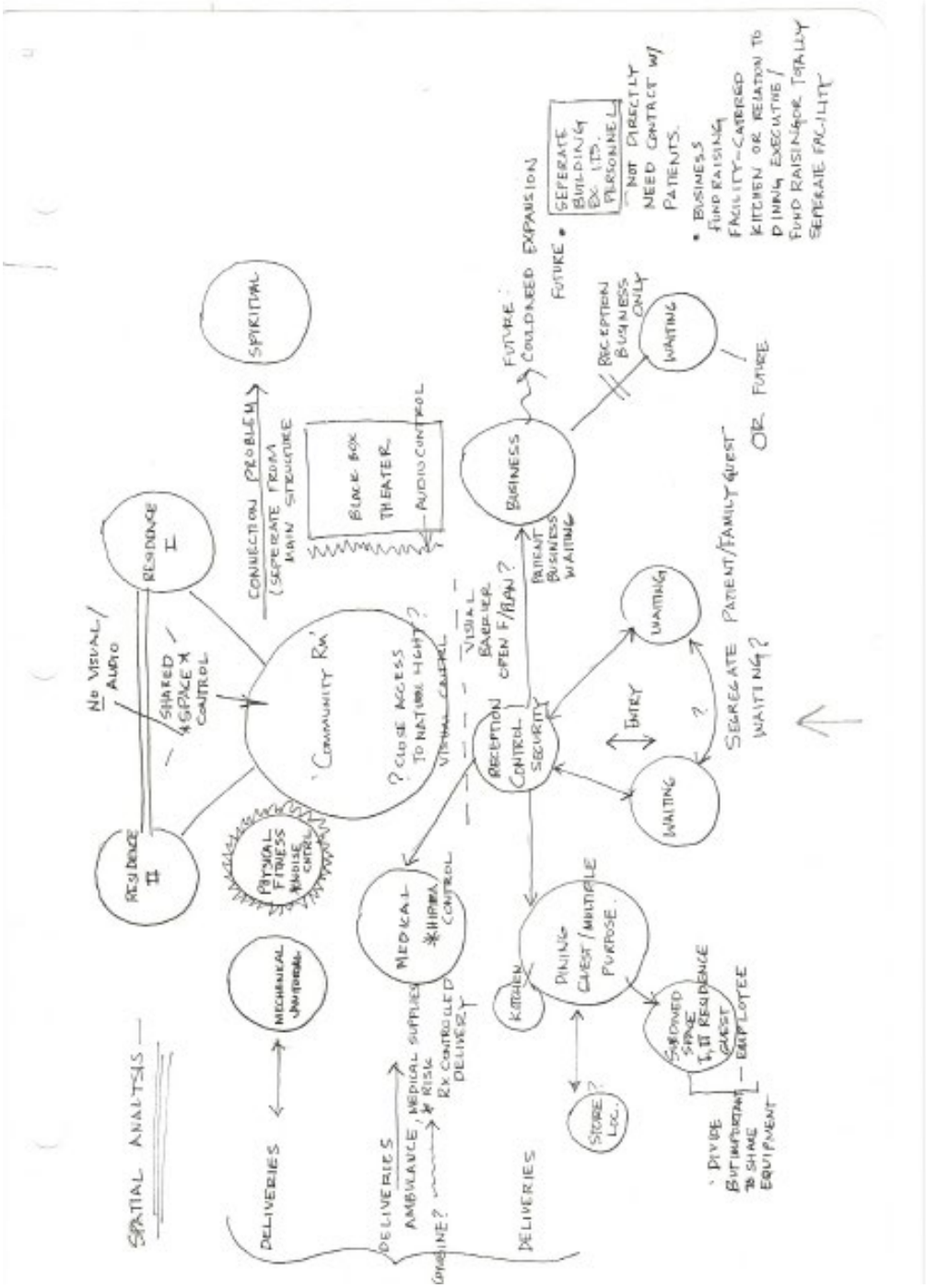


FIGURE 50: Relational Analysi

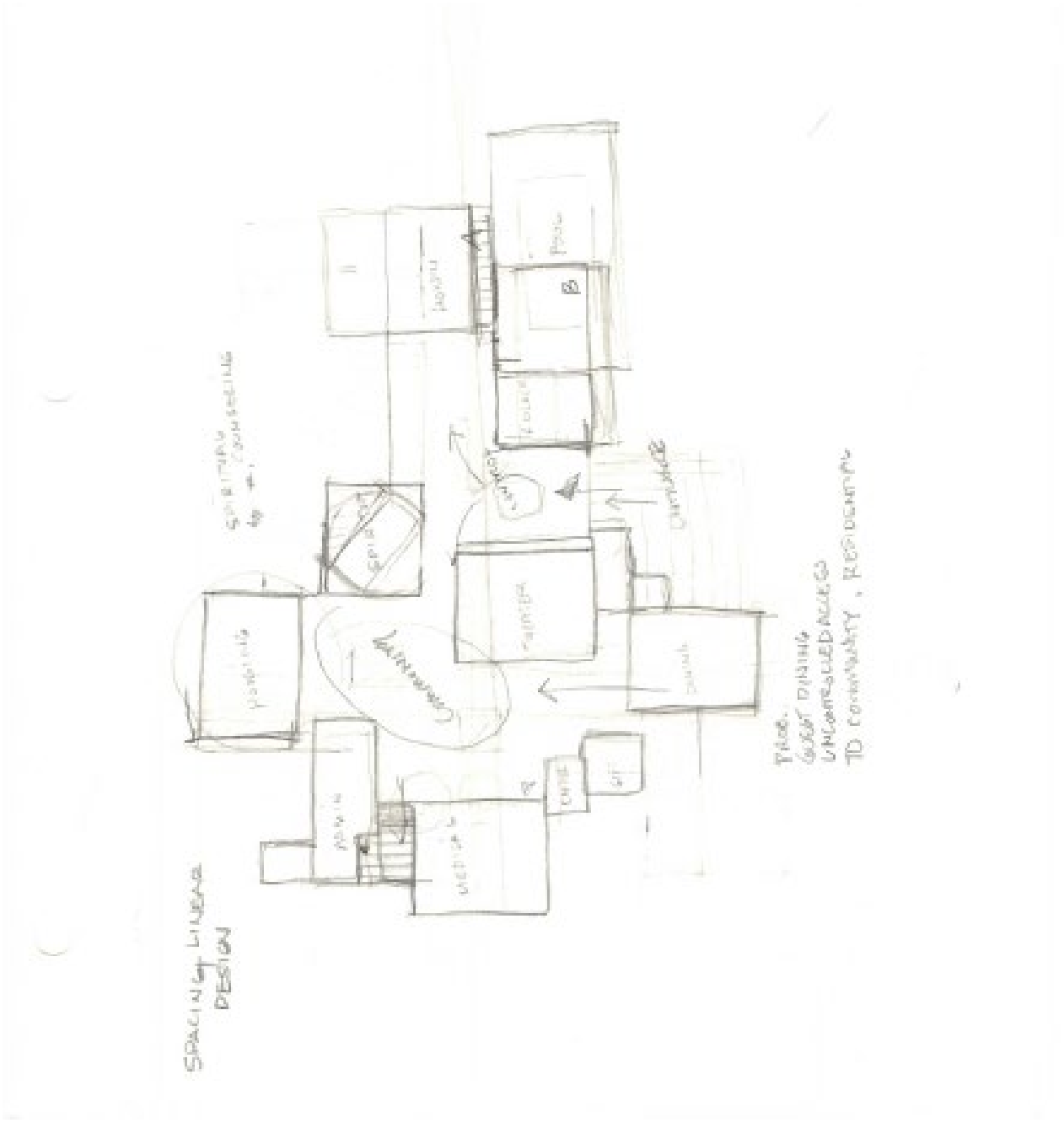
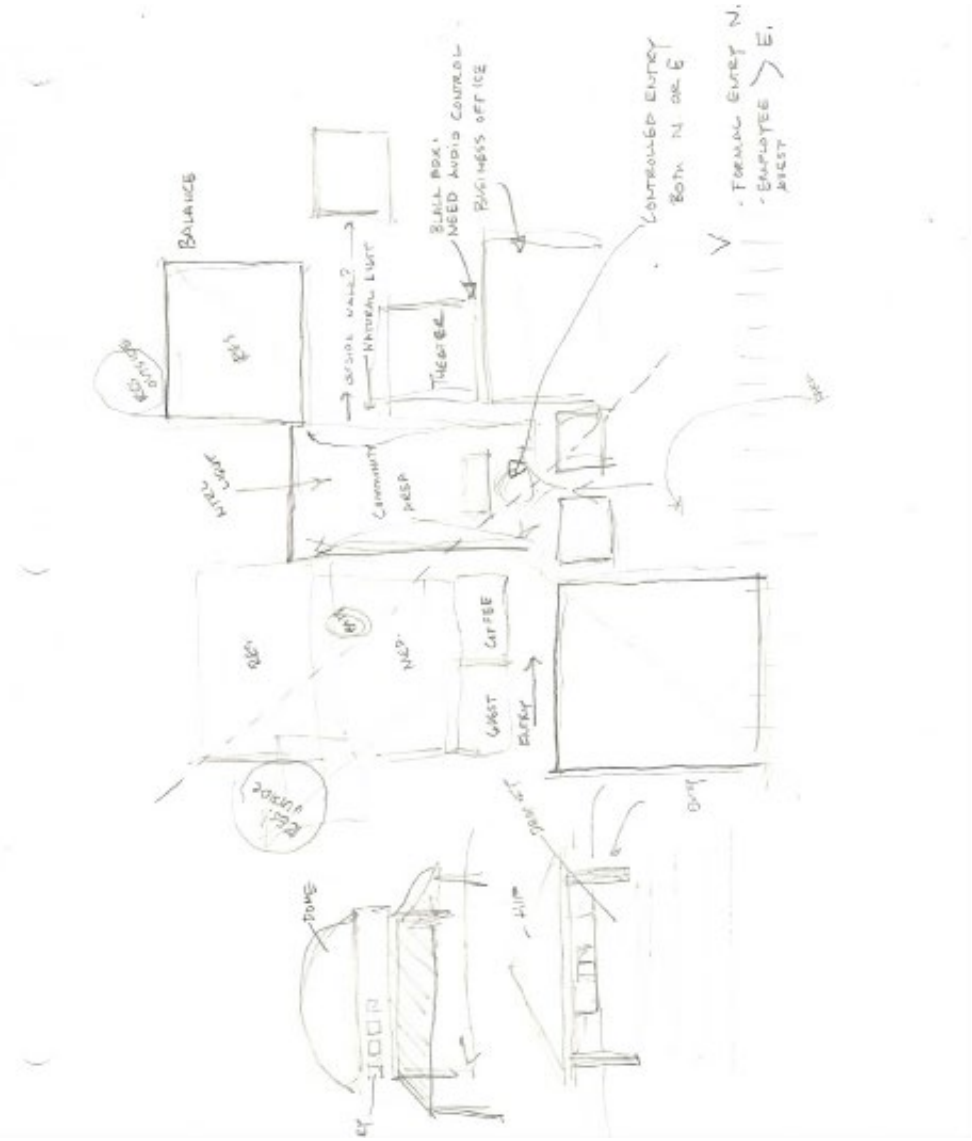


Figure 51: Spacial Linear Design

Process Documentation



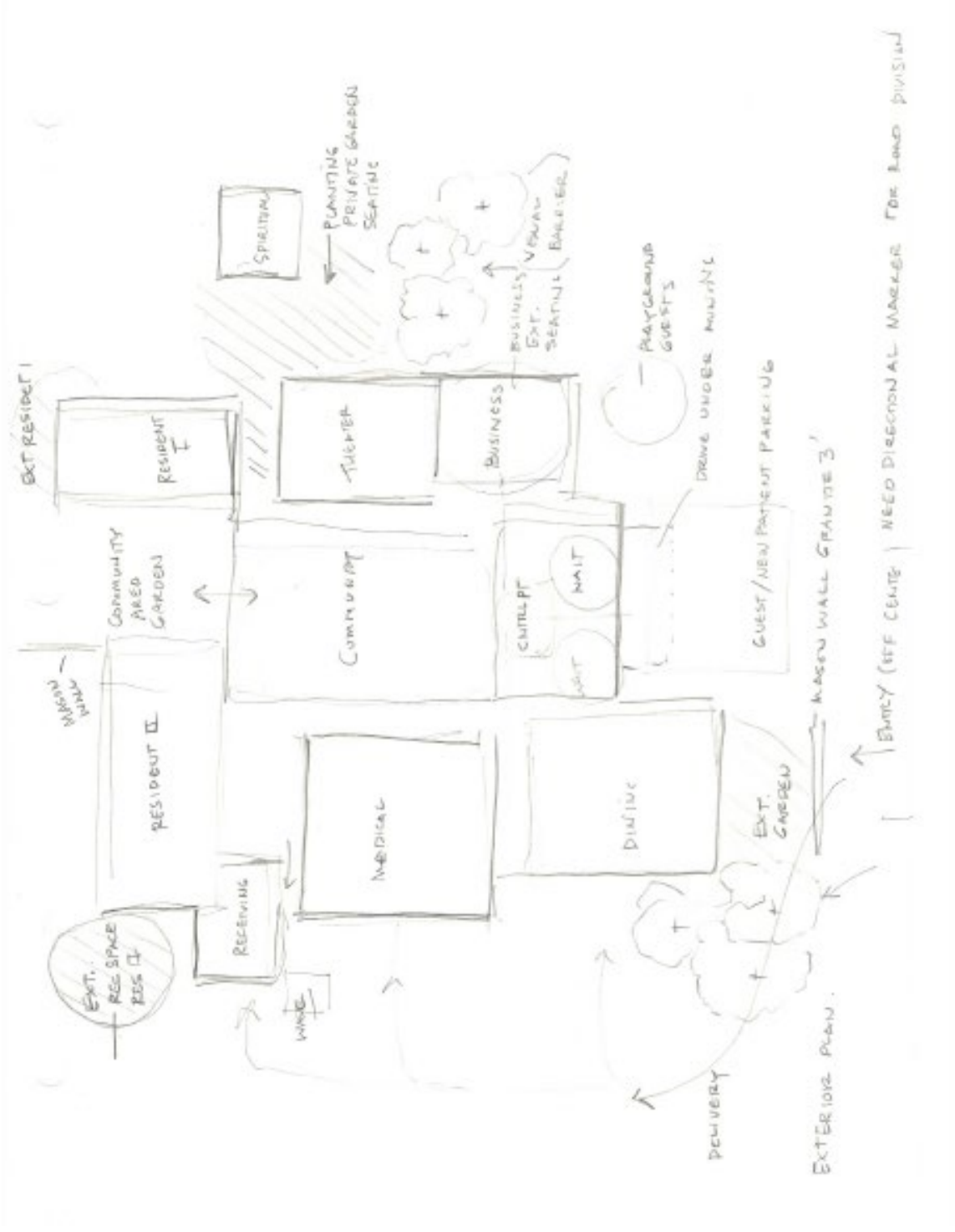


FIGURE 52: Landscape Process Design

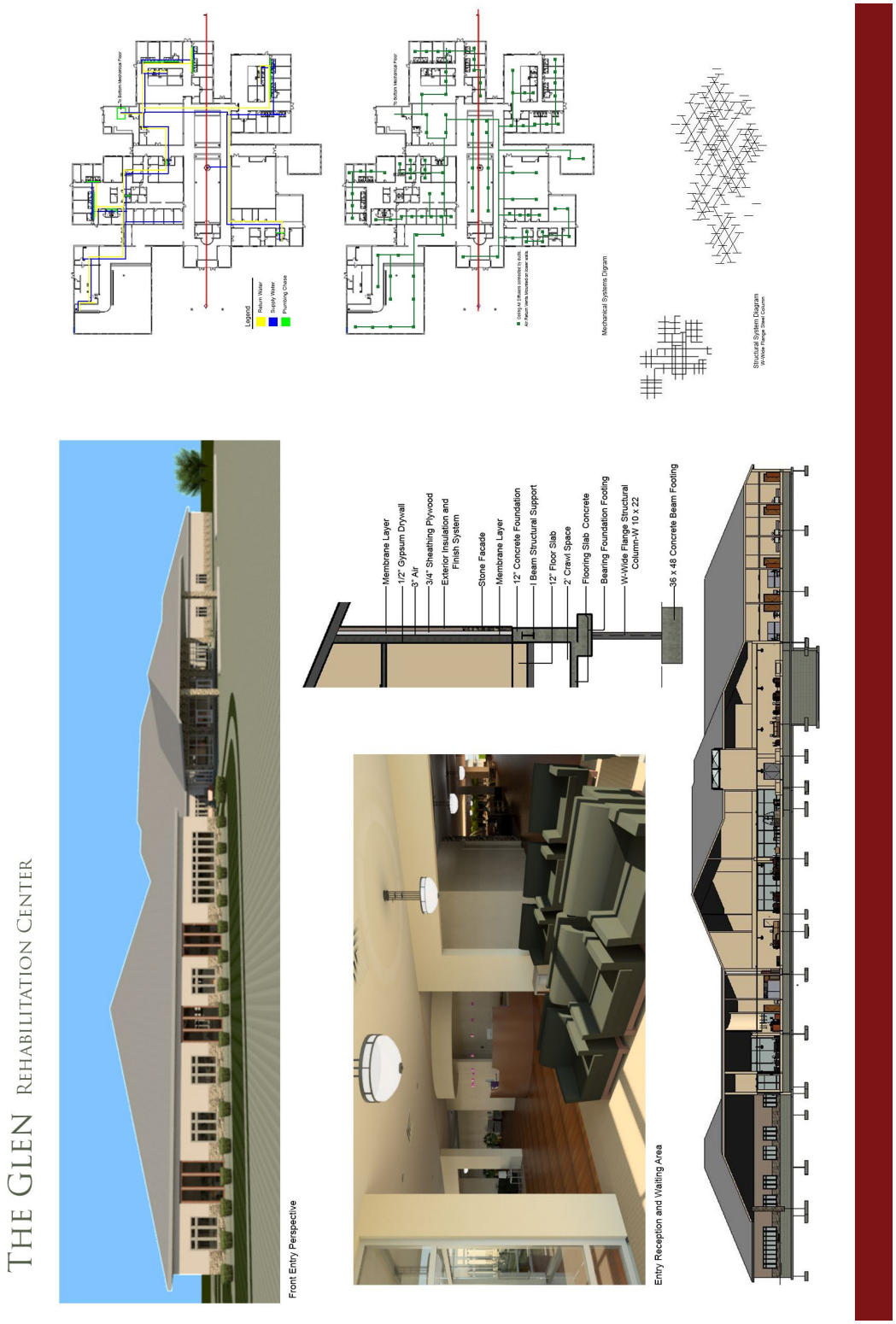


FIGURE 53: Presentation Board 1

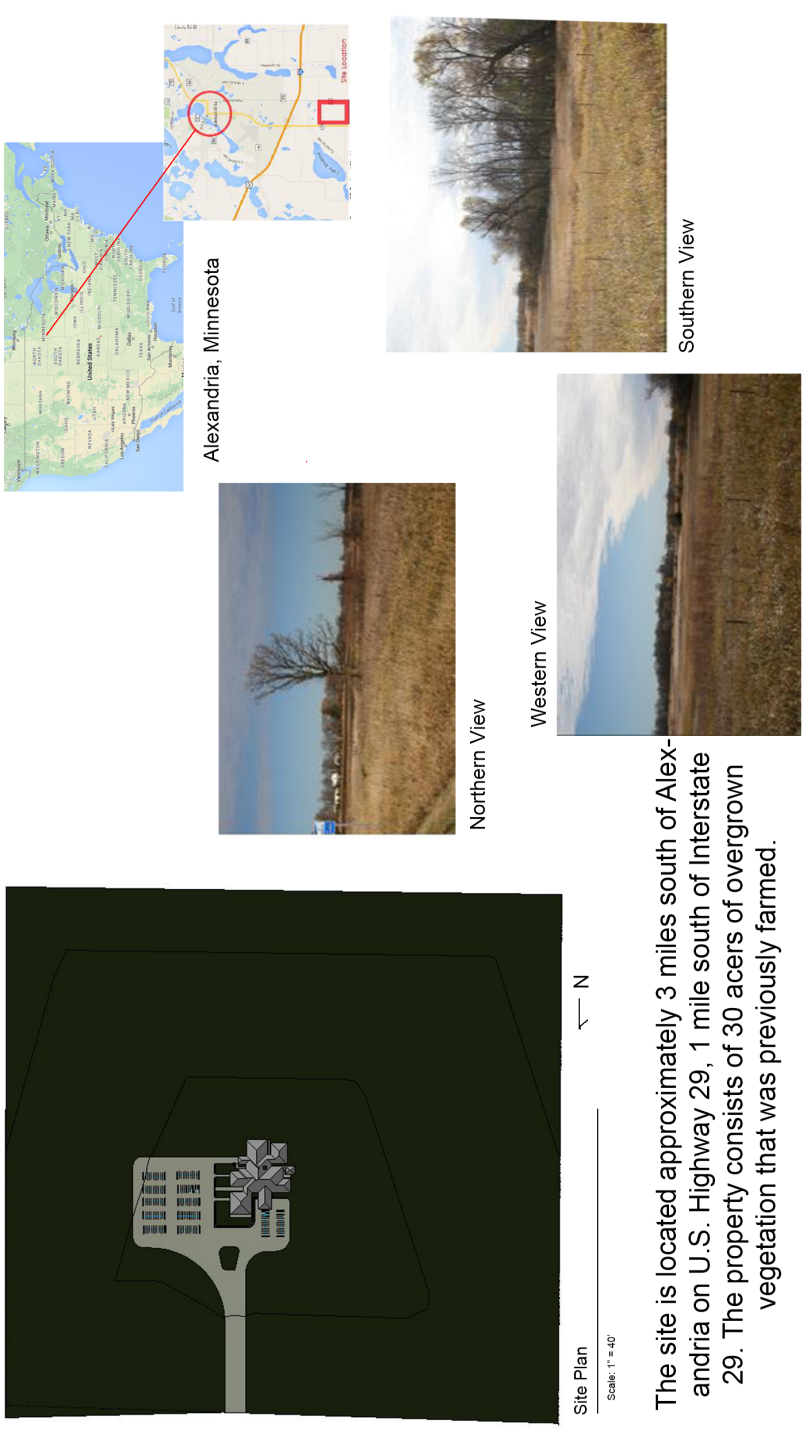
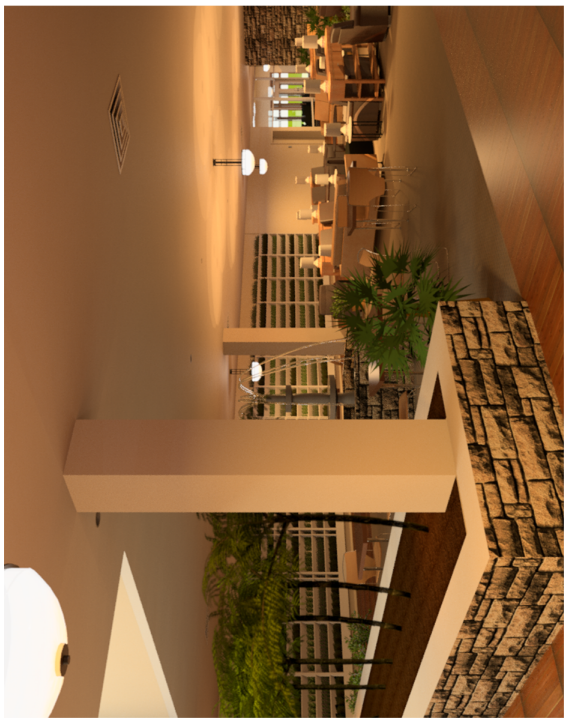


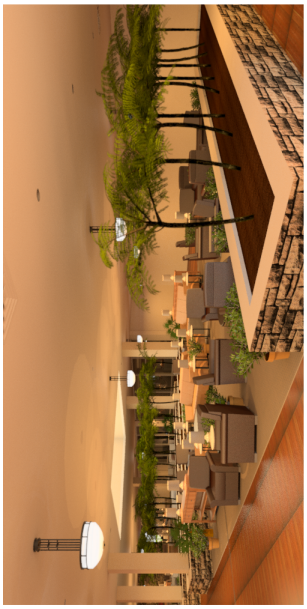
FIGURE 54: Presentation Board 2



This is the Common area designed primarily for patient development and growth through conversations with other patients, medical staff and visiting family.

The space focuses occupants by creating a variety of seating variations in seating grouping and view angles. There are no exterior windows in this area to encourage users to direct their attention on the interactions necessary for addiction rehabilitation.

Despite the lack of exterior views the space utilizes natural material in a manner that are common to the area landscape. There is a large skylight in the middle of the space which directs natural light highlighting natural stone planters and a fireplace. The floors are a rich warm wood material and the furnishings feature a rich palette consisting of plush leather, natural wood, and plush green plants.



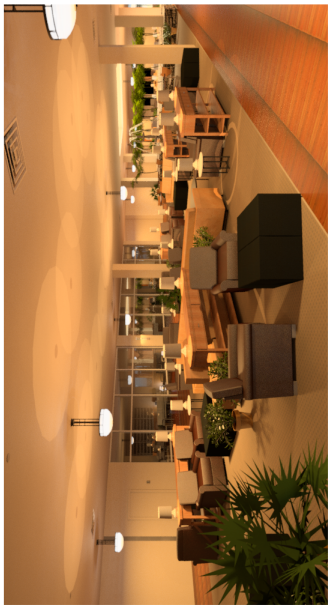
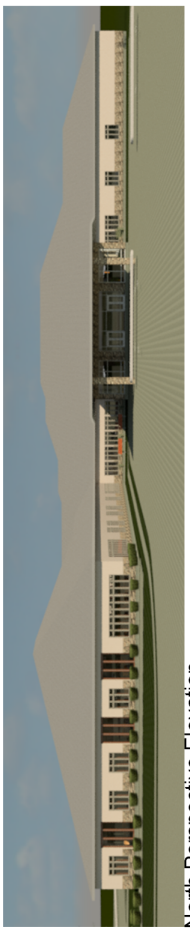


FIGURE 55: Presentation Board 3

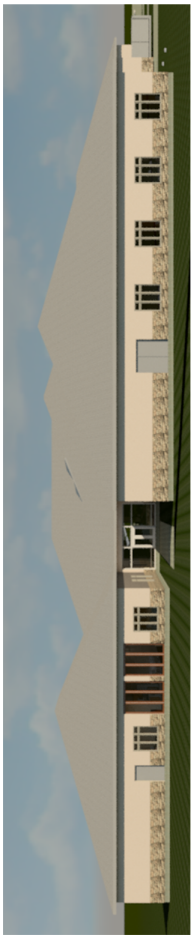
Group Meeting Area and Kitchen/Dining Area

Cafeteria/Coffee-Bakery Diningroom

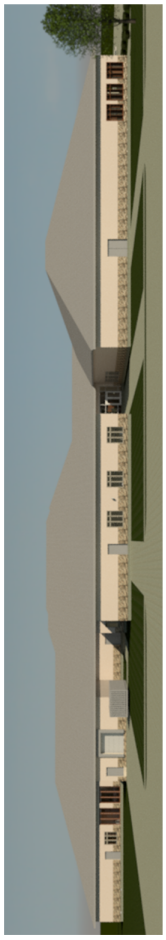


North Perspective Elevation

East Perspective Elevation



South Perspective Elevation



West Perspective Elevation

Figure 56: Presentation Board 4

Thesis Appendix

Reference List
Previous Studio Experience
Academic
Professional
Personal Goals

Reference List

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Previous Studio

1st Year: Fall Semester 2007: Interior Design 251
Prof. Ann Reagan
Residential Apartment Remodel

2nd Year: Fall Semester 2008: Architecture 271
Joan Vordebruggen
Tea House
Boat House

2nd Year: Spring Semester 2008: Interior Design 253
Prof. Ann Reagan
Large Commercial Design: Google Inc.

2nd Year: Spring Semester 2008: Interior Design 254
Prof. Ann Reagan
Korean Kiosk Design
Small Medical Dental Office

2nd Year: Spring Semester 2009: Architecture 272
Meghan Duda
Performance Theater
Residential Home

3rd Year: Fall Semester 2009: Architecture 371
Prof. Cindy Urness
NDSU Athletic Complex

3rd Year: Spring Semester 2010: Architecture 372
Prof. David Crutchfield
Musical Performance Theater

4th Year: Fall Semester 2010: Architecture 471
Prof. Don Faulkner
San Francisco Highrise

4th Year: Spring Semester 2011: Architecture 472
Prof. Don Faulkner

Academic Goals

The foremost goal of this thesis project is to find a fusion between modern architectural design and the advanced treatment of addiction in a regional setting. Conventional medical facilities are not able to properly address the care and treatment methodologies that recent research shows provides the best chance of recovery from addiction. Large rehabilitation centers are few, and inaccessible to most people. Through thoughtful design, facilities that are scaled to serve on a regional level can fill the growing need for treatment that face communities everywhere. This design will address many questions. What are the needed spaces? What environmental factors can affect treatment outcome? How can this facility be a positive influence in the community? What sets of services are needed to ensure a successful facility?

Professional Goals

Professionally, this project will develop my research, analytical, and most of all design skills. I will further learn to analyze the needs of other professions, clients of those professions, and the general public, and to integrate those needs into a cohesive design. Throughout the project I will be developing the processes and skills that I have learned throughout my time in the Architecture Program. Iteratively applying these skills to this project's domain will allow me to gain greater proficiency, further preparing me for my career in architecture.

I will also be achieving greater proficiency with tools, both manual and computer, that are the same or similar to those that I will be required to use in practice. The use of software tools is ubiquitous in today's workplace, and the experience I have with industry standard software tools on this project will be essential to my future success.

Personal Goals

This Thesis project will challenge me personally in many ways. My first goal, in this regard is to provide the best design of which I am capable. I also want to learn to address the problems encountered throughout with thoughtfulness and grace, and to learn something from each.

Personal Identification

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Hometown: Fargo, North Dakota

“NDSU is a place of opportunity and self discovery.

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