The background features a series of dotted lines forming a grid-like pattern. A vertical line of dots runs down the center, with horizontal lines crossing it at various points. Several overlapping squares in shades of light blue, grey, and teal are positioned across the lower half of the page. The overall aesthetic is clean and modern.

Kimberly A. Farmer

Reconnect the Aging:

Residential Assisted Living for the Elders in a Great Plains Small Town.

RECONNECT THE AGING:

Residential Assisted Living for the Elders in a Great
Plains Small Town

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

By

Kimberly A. Farmer

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

Steve C. Martens 5/7/2013

Steve C. Martens, Architect, Associate Professor
Primary Thesis Advisor

Mark A. Barnhouse 8th of May, 2013

Mark Barnhouse, Associate Professor
Thesis Committee Chair

May 2013
Fargo, North Dakota

Abstract6

Problem Statement.....8

Statement of Intent..... 10

The Proposal..... 14

Previous Studio Experience.....35

The Program.....37

Theoretical Premise/ Unifying Idea Research.....35

Case Studies.....48

Historical Context.....84

Project Goals.....92

Site Analysis.....96

Programmatic Requirements..... 120

The Design..... 126

References..... 161

Personal Information..... 166

3 Table of Content



Figure 1..... Regional Site Location Map, pg 23	Figure 30.....Geometry, pg. 66
Figure 2..... Brookings South Dakota Map, pg 24	Figure 31.....Natural Light, pg. 66
Figure 3..... Site Map, pg 25	Figure 32.....Hierarchy, pg. 68
Figure 4..... Facility Relocation Map, pg 26	Figure 33.....Plan to Section, pg. 68
Figure 5..... Upper Floor Plan, pg. 49	Figure 34.....Massing, pg. 68
Figure 6..... Ground Floor Plan & Site, pg. 49	Figure 35.....Ground Floor Plan, pg. 70
Figure 7..... Section Cut, pg. 49	Figure 36.....Dementia Floor Plan, pg. 70
Figure 8..... Circulation to Use, pg. 50	Figure 37.....Third Floor, pg. 74
Figure 9..... Natural Light, pg. 50	Figure 38.....Second Floor, pg. 74
Figure 10.....Massing, pg. 51	Figure 39.....Ground Floor, pg. 74
Figure 11.....Plan to Section, pg. 51	Figure 40.....Brookings Soil Map, pg. 92
Figure 12.....Structure, pg. 52	Figure 41.....Map, pg. 94
Figure 13.....Hierarchy, pg. 52	Figure 42.....Temperature, pg. 95
Figure 14.....Geometry, pg. 52	Figure 43.....Humidity, pg. 96
Figure 15.....Floor Plans, pg. 57	Figure 44.....Precipitation, pg. 97
Figure 16.....Section Cut (1), pg. 57	Figure 45.....Cloudiness, pg. 98
Figure 17.....Section Cut (2), pg. 57	Figure 46.....Wind Speed & Direction, pg. 99
Figure 18.....Circulation to Use, pg. 58	Figure 47.....Wind Speed, pg. 100
Figure 19.....Natural Light, pg. 58	Figure 48.....Shading Studies, pg. 101
Figure 20.....Geometry, pg. 59	Figure 49.....Shading Studies, pg. 102
Figure 21.....Structure, pg. 59	Figure 50.....Sunshine, pg. 103
Figure 22.....Hierarchy, pg. 59	Figure 51.....Snowfall, pg. 104
Figure 23.....Massing, pg. 60	Figure 52.....Horizontal Sun Path, pg. 105
Figure 24.....Plan to Section, pg. 60	Figure 53.....Vertical Sun Path, pg. 106
Figure 25.....Fifth Floor Plan, pg. 65	Figure 54.....Site Topo & Air Movement, pg. 107
Figure 26.....Site Plan, pg. 65	Figure 55.....Noise, pg. 108
Figure 27.....Sectional Elevation, pg. 65	Figure 56.....Interaction Matrix pg. 111
Figure 28.....Elevation, pg. 65	Figure 57.....Interaction Net pg. 112
Figure 29.....Circulation to Use, pg. 66	



This thesis project, Reconnect the Aging: Residential Assisted Living for the Elders in a Great Plains Small Town, addresses forgotten and unnoticed elderly in society and how they can be reconnected to the surrounding community that is called home. It will look at challenge with a growing elderly population, their need for an improved and greater quality of living and how design can help seniors to live a more active and fulfilling life. The typology to be explored will be an Assisted Living Facility located within an existing residential neighborhood near the downtown of the city of Brookings, South Dakota. The research of the Theoretical Premise/Unifying Idea for thesis will look at the increase of the aging population and ways to improve their quality of living. As people age their quality of life can decrease because of the physical and medical limitations. Younger generations will face and deal with the challenge of providing exceptional care and places of residences for the baby boomer generation that is near retirement. This thesis project will take a look at several case studies that show how important design detail can affect lifestyles and new architectural strategies for elderly housing. Accessibility and universal design strategies can provide the elderly with a revitalized and reconnected surrounding community that brings meaning to quality of life.

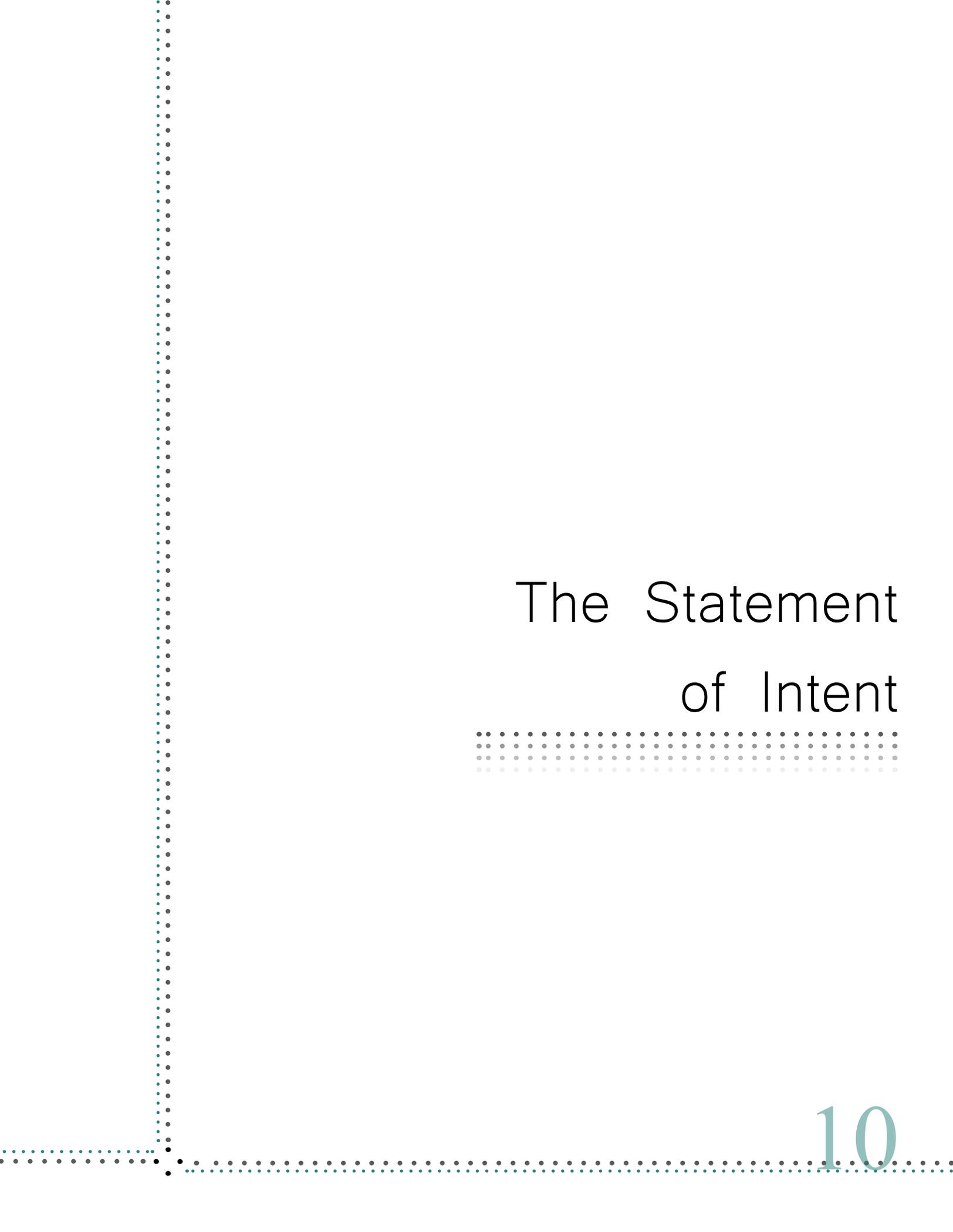
Key Words:

Assisted Living Facility, Forgotten, Elderly, Reconnect, Universal Design, Accessibility

7



Can design decisions help reconnect disconnected, forgotten and unnoticed residents within their community?



The Statement of Intent



Project Typology

Assisted Living Facility for the elderly population.

Claim

Architecture can help to integrate and connect the aging generation that has been forgotten through careful detailed decision. Architecture can create meaningful places that will provide a fulfilling and more vibrant quality of life. A group that goes unnoticed is the elderly population who, after a certain age, are in need of assistance to help complete basic tasks in their daily life.

Premises

Actor: The elderly population is growing older and much larger. Older people are in need of more care because of chronic conditions and disabilities that requires different levels of long term assistance (Lisbon and Stone, 2011, pg 5). These limitations can cause a disconnect from their surroundings. With a large amount of our population near retirement age, the need for senior housing and assisted living for the elderly will also increase.

Action: By creating a place of vibrance for the elderly to live, the negatives of old age can become less evident in their lives. The elderly can enjoy life and feel independent while living in a healthy and secure atmosphere suited for their needs.

Object: An Assisted Living Facility should be integrated into the community and its surrounding neighborhoods. This can help foster the creation of a revitalized life for the elderly and make them feel a part of the community.

Manor of Action: Older residents of a community have different needs that should to be addressed when designing a place for them to live and exist.





Theoretical Premise/ Unifying Idea

In past decades the elderly population went unnoticed because limitations due to old age causing them to be seen as a burden. A demand for change is being made for senior housing. By creating a place that does not feel institutional the independent senior population can connect and feel cared about within the larger community. Implementation of universal design strategies can help to reconnect elders to the world around them.

Project Justification

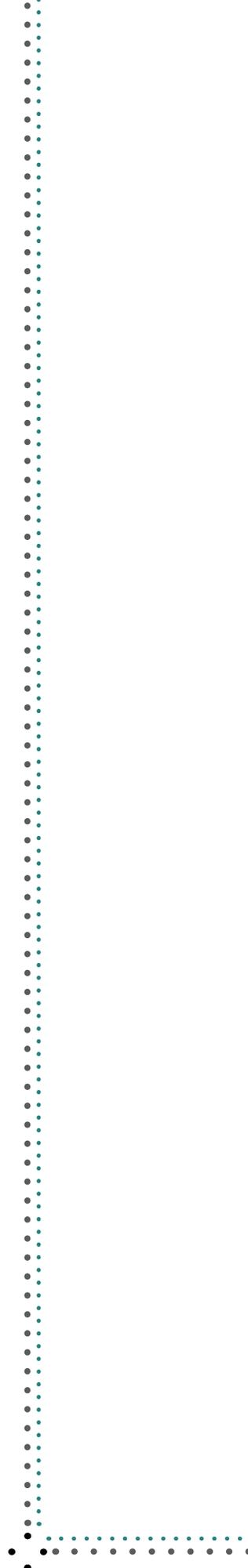
Our senior population is growing and by 2030 the number of elderly will have doubled (Lisbon and Stone, 2011, pg 4). This is an issue that designers will be challenged with. By using detailed design decisions, sustainable strategies and universal design principles, an assisted living facility can feel like home and a place where long term residence belong.

The Proposal



We all age. At some point in our future there will come a time in our life where we can not fully care for ourselves in one way or another and the a question we might ask ourselves is, who can we depend on? Society is continually advancing and making large improvements though science, technology, heath care and sanitation. This means that people will live a longer life. As these advances are made, the overall health of the aging population improves but other abilities such as, sensory, cognitive, physical health and dexterity decline (Feddersen and Ludtke, 2009, pg 9). When someone's ability to do something declines so does that quality of life. By 2025, the elderly population above the age of 60 will have reach 1.2 billion. As the number of our elderly population grows appropriate living environments for their needs will need to be create. (Feddersen and Ludtke, 2009, pg 9).

“The process of growing old has been ignored.” (Feddersen and Ludtke, 2009, pg 42). The lack of concern for the elderly being ignored or forgotten can be demeaning towards them. When a person knows that there is little concern for their well-being, it can take away their ability to utilize human rights, freedom, dignity and the option to make their own decisions (Feddersen and Ludtke, 2009, pg 10). Designing for the elderly and accommodating different levels of health and abilities will become a major part of life for the younger generations. We can provide seniors with a socially inviting and friendly place to live. Designing for everyone to create accessible, safe, healthy and barrier free environments will help to limit the dependencies that the elderly seek and provide a more active and independent life (Feddersen and Ludtke, 2009, pg 10). Elders in any community need a place of residence that provides social interaction, ability to access basic needs, convenience and quality of life. By providing these needs we can develop a positive cultural living space.





The challenge of creating a universally and socially sustainable place is very important to understand. No one wants to feel as if they are not cared about. When lack of consideration and concern toward others is shown, life and energy can dwindle away. It is hard for older people to leave the familiarities of a home. Elderly are leaving the feeling of safety and security. Emotionally it can be hard for seniors who have to transition into a new place of living. I have personally seen, with one of my own family members, the difficulties associated with age and the negative experience when a living facility did not fitting their needs. Older people need to feel cared about and be shown that everyone around them has not forgotten that they exist. A place of residence should be more than just a facility, it should be a home, a place to live and a place to dwell meaningfully.

Showing care and concern is something that will need to be emphasized in this thesis project. All aspects and decisions need care and thoughtful attention. This challenge of developing appropriate elderly housing will become a reality and I feel that it is important for myself as a designer to pursue issues that will be part of my future. Our society's aged population is increasing. With age comes difficulties with medical issues and mobility, requiring us as designers to reconnect the elderly to a world that continues to move faster as they move slower. Beyond the elderly, design challenges dealing with the medical field are linked to this issue and will be something future architects will be faced with. Assisted living embodies careful design decisions and should look at appropriate accessibility needs. Universal design strategies can help create a life of ease with potential and purpose.

Facility Owner

The building owner would be the city housing authority responsible for staffing and maintaining the building and administration.

Permanent Users

Residents: The elderly and senior resident are the permanent users of an assisted living facility. Their needs, aspirations and limitations are the basis for design decisions.

Daily/ Weekly Users

Health Care Staff

Physician: A physician would visit the facility on a weekly basis to check-in on the residents and their medical needs.

Registered Nurse: The registered nurses would provide daily visits to the resident providing any medical assistance needed.

Licensed Practical Nurse: Provides care to the residents under the direction of the RN or Physician.

Resident Assistants: Additional staff that helps with bathing, dressing, eating, walking, supervision of recreation rooms and toilet needs.

Daily/ Weekly Users

Amenities Staff

Cleaning Staff: Responsible for maintaining interior and exterior features of the public areas of the building. They are responsible to maintaining the aesthetic qualities of the facilities.

Laundry Staff: Responsible for completing the laundry of the residents once a week.

Dietary Staff

Cook/Chef: The cook would prepare the 3 daily meal for the residents and is responsible for providing a nutritious diet for the residents.

Kitchen Cleaning Staff: Cleans kitchens and dining area and after meals.

Food Preparation Staff: Prepares for future meals and dietary needs.

Food Servers: Distributes daily meals to the resident either in the dining area or to their rooms and also provide a friendly face for the residents

Additional Staff

Secretary Staff: Secretary staff would be responsible for any clerical work, organization of document, transportation scheduling and visitor direction.

Security Staff: Nightly staff for security supervision of the residents and providing every one with the element of safety.

Additional Users

Visitors; Residents Family, Residents Friends



This thesis project will examine the special needs of the elderly population and how to design the appropriate accommodations and living environment for them.

The project will focus on creating convenience and comfort through developing an understanding of universal design strategies and accessibility regulations.

Residential Units- 18 to 24

Bedroom - Kitchenette - Living Room - Foyer - Bathroom - Storage/Closets

The residential units are the private living area for the elderly. They will be similar to small one bedroom apartments or studio size living space fit for them to personalize and make their own. The units will be big enough to provide all of the needed amenities but small enough so the area can easily be maintained. There will be two types of units, one for individual residents and for sets of married couples who choose to living in an assisted living facility together. The space will be designed to accessible needs.

Dining Areas

Dining Room - Kitchen - Food Prep Room - Food Storage - Break Room- Bistro

The dining area will be fit to provide 3 meals a day for the residents of the facility. It will include a full kitchen and food prep area similar to a high quality restaurant. More than just a place to eat, the dining area will be a social gathering place for friends and family come. This is meant to have a feeling of fine dining. In addition to the larger dining areas a small bistro will be located in the building for breakfast and coffee for residents. The bistro will provide variety in meals.

Medical Spaces

Clinic Room - Offices - Medical Storage - Staff Room

The medical space are for the uses of the medical staff, RN, LPN and visiting physician. They will contain a clinic for doctor visits, storage for medication and emergency equipment, as well as break rooms for the staff. The medical spaces will serve as a convenient and easy way to access basic medical check up for minor issue. Its presence will help provide ease for residence and let them know that if an emergency rises a qualified professional will be there to assist them.

Source: ("Assisted Living Services and Amenities," 2012.)
("Assisted Living," 2012.)

Social Spaces

Exercise and Wellness Room - Lounge/Parlors - Library- Recreation Spaces

The social spaces for the assisted living facility are intended to bring stimulation to residents. Activities will range from quiet and personal areas such as a library for reading to exercise and recreation spaces for games and energizing events. Spaces will provide options for elderly with all physical capabilities.

Additional Space

Supply Room - Storage - Rest rooms - Laundry Room - Mechanical - Circulation

The additional spaces for the project elements are required necessities that all buildings would be required to have. They are part of what helps to make the building function and run properly.

Elements of Comfort

Natural Lighting - Doors and Walkways wide enough for walkers and wheel chairs - Elevators - Accessible cupboard heights- appropriate hand rails - Non-slip surfaces - Appropriate temperature levels - Clean spaces to prevent germ contamination.

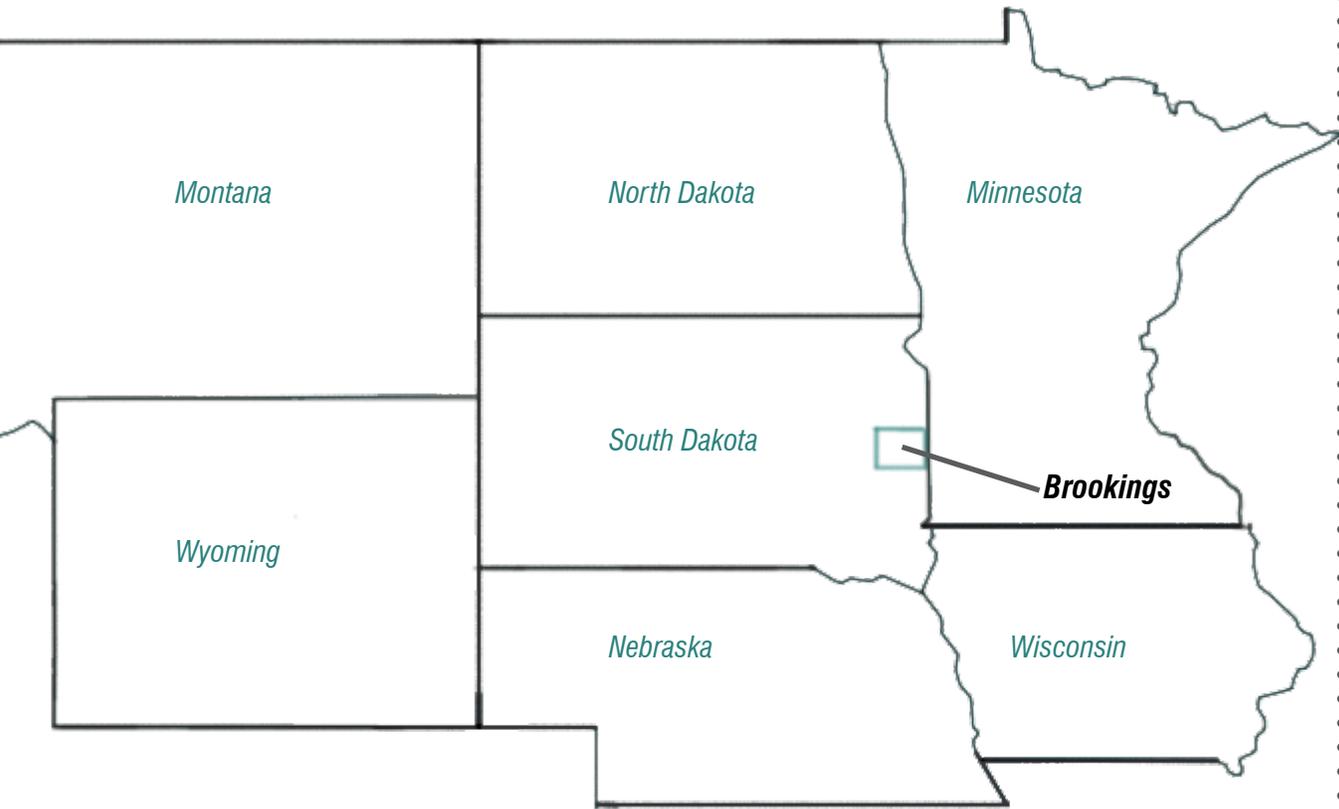


Figure 1: Regional map showing site location (Image create with use of Google Maps)

Region:

The location selected for this thesis project is the rural area of Brookings South Dakota in the mid-west region of the United States.

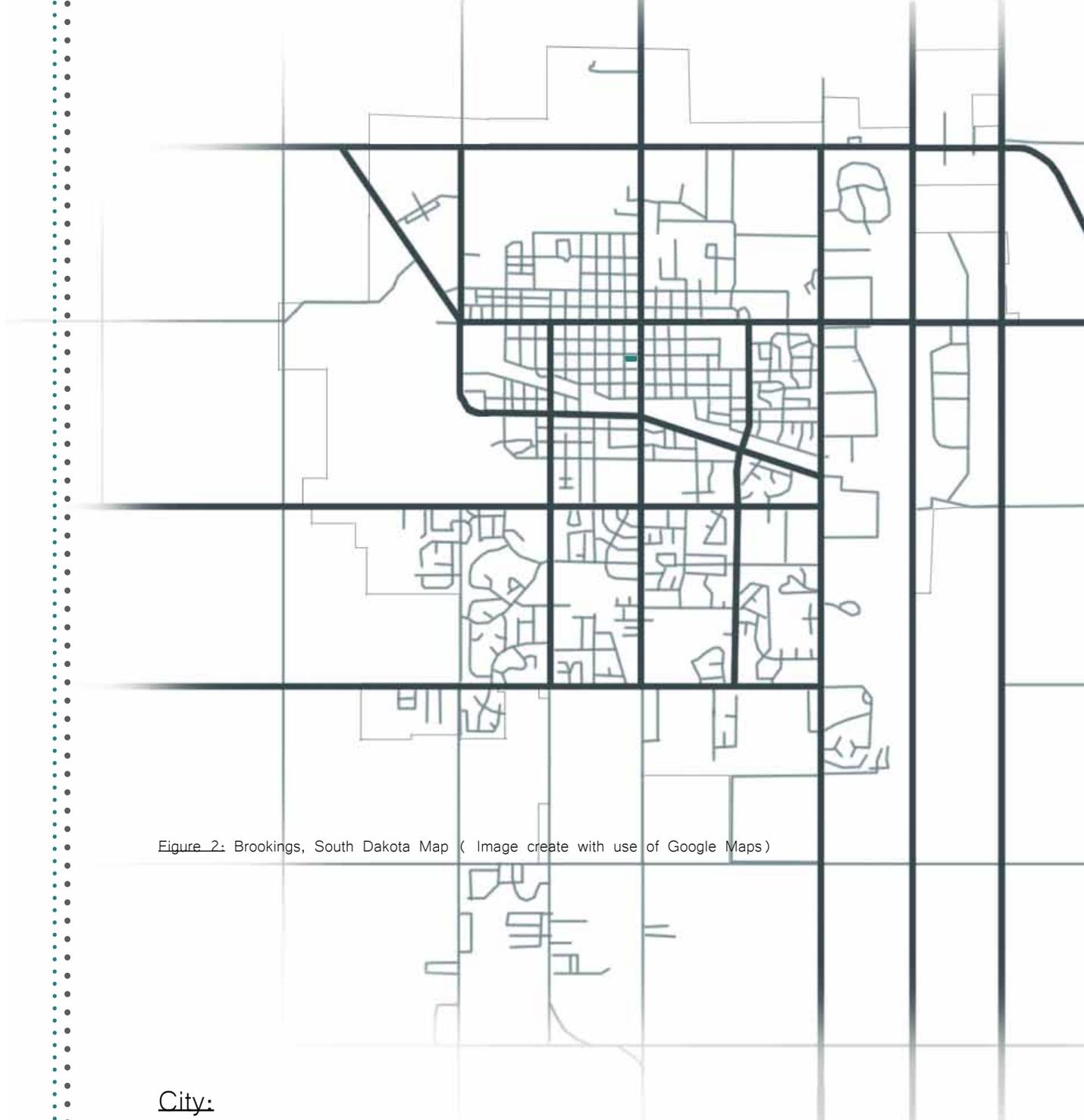


Figure 2: Brookings, South Dakota Map (Image create with use of Google Maps)

City:

Brookings is located along Interstate//29, 2.5 hours south of Fargo, ND. Brookings is a town of about 22,000 people (Brookings County, South Dakota, 2012). Brookings is an agricultural area but also provided the needed amenities of a larger city. It is also the location for South Dakota State University which provides a new and young population for the town. Rural Areas can be places that do not always receive attention or can be seen as forgotten. The area is not too large but not too small and has many of the needed amenities for people. The community can provide the comfort and convenience the elderly need.



Figure 3: Site Map (Image create with use of Google Maps)

Site:

The specific site select is located on 4th st. and 9th ave., in a quiet and older residential area of the town. It is 66,000 sq. ft. and is a 3 block walk from the heart and downtown area of the city. The site is currently a paved parking lot. Several old buildings that were once a functioning church are now used as rental space (“Old Sanctuary Offices,” 2012). Two of three undistinguished buildings on the site will be removed to provide ample amounts of space for the building design. This site suits the purpose of the thesis project because of it close proximity to many of the basic needs. It is located within a suitable walking distance from many amenities that are easy for the elderly to access. These amenities include the downtown shops, restaurants, activities center, library, several churches, parks and a children’s museum. The location is relatively quiet, with low traffic flow and can provide a relaxing environment. Views around the site consist of residential houses. The site is located in what is titled by the NRHP as a “residential historical district”. Three sides of the site are surrounded by road and the fourth by a back alley.

25 Site Information

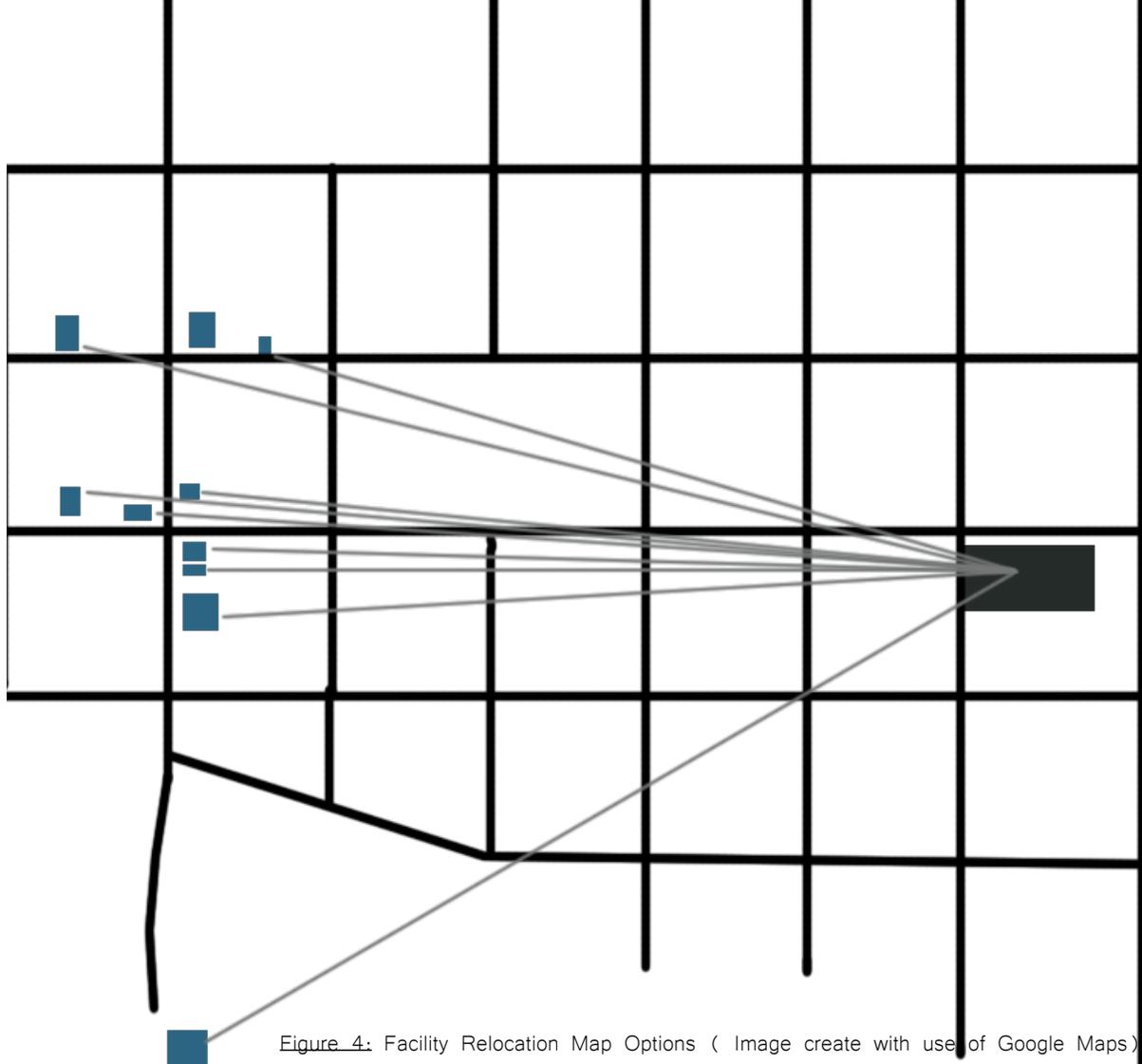


Figure 4: Facility Relocation Map Options (Image create with use of Google Maps)

Existing Buildings

The site location for this thesis project currently has three existing buildings and have a similar scale and height to the surrounding houses. These buildings are identified as an auditorium, office building and apartments. The facilities were once a church building and spaces for the congregation to use. Today these spaces serve several purposes including an event center, apartments, Career Advantage, Dakota Rural Action, Den-Wil Inc., Drivers License Examiner’s Station, Family Resource Network, Old Sanctuary Associates, South Dakota Resources Coalition, The Institute of Lutheran Theology and the UMVIM-NCJ office. Most of the offices are branch offices for large business that serve one person and those that serve a more public uses have limited hours that they are open (Old Sanctuary Office, 2012). All of these services could easily me moved to other rental spaces within the city of Brookings, to locations that are near by and in the downtown area or be integrated into the thesis design. Two of the three buildings will be removed from the existing site. With the removal of two of these buildings, apartment, only 5 business/offices and a conference room will be removed. By removing these building the site can be better utilized for the purpose of an Assisted Living Facility and those offices used can help to create in fill in the downtown area.



Site View, (Farmer, K.A.)

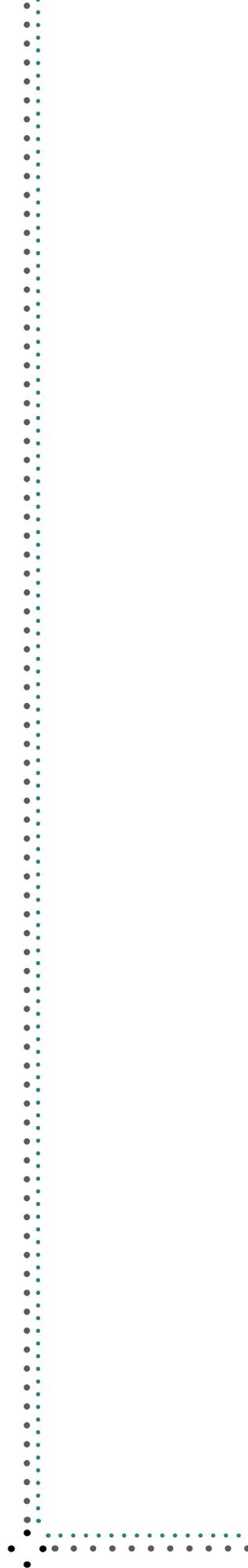


Site View, (Farmer, K.A.)



Site View, (Farmer, K.A.)

27 Site Information





Site View, (Farmer, K.A.)



Site View, (Farmer, K.A.)



Site View, (Farmer, K.A.)

Direction of Research

The research for this thesis project will be completed during fall 2012. The research will be more heavy in the beginning because a greater understanding of background information will be needed before the actual design of the project is required. When developing the project typology, historical context, theoretical premise/unifying idea and program requirement. Resources used will be books, periodicals, online journals and case studies of existing buildings to help fully comprehend different aspects of the project. The site analysis will include research from the same resources but will also include several site visits; one which was completed in September 2012 and a second in October of 2012.

Design Methodology

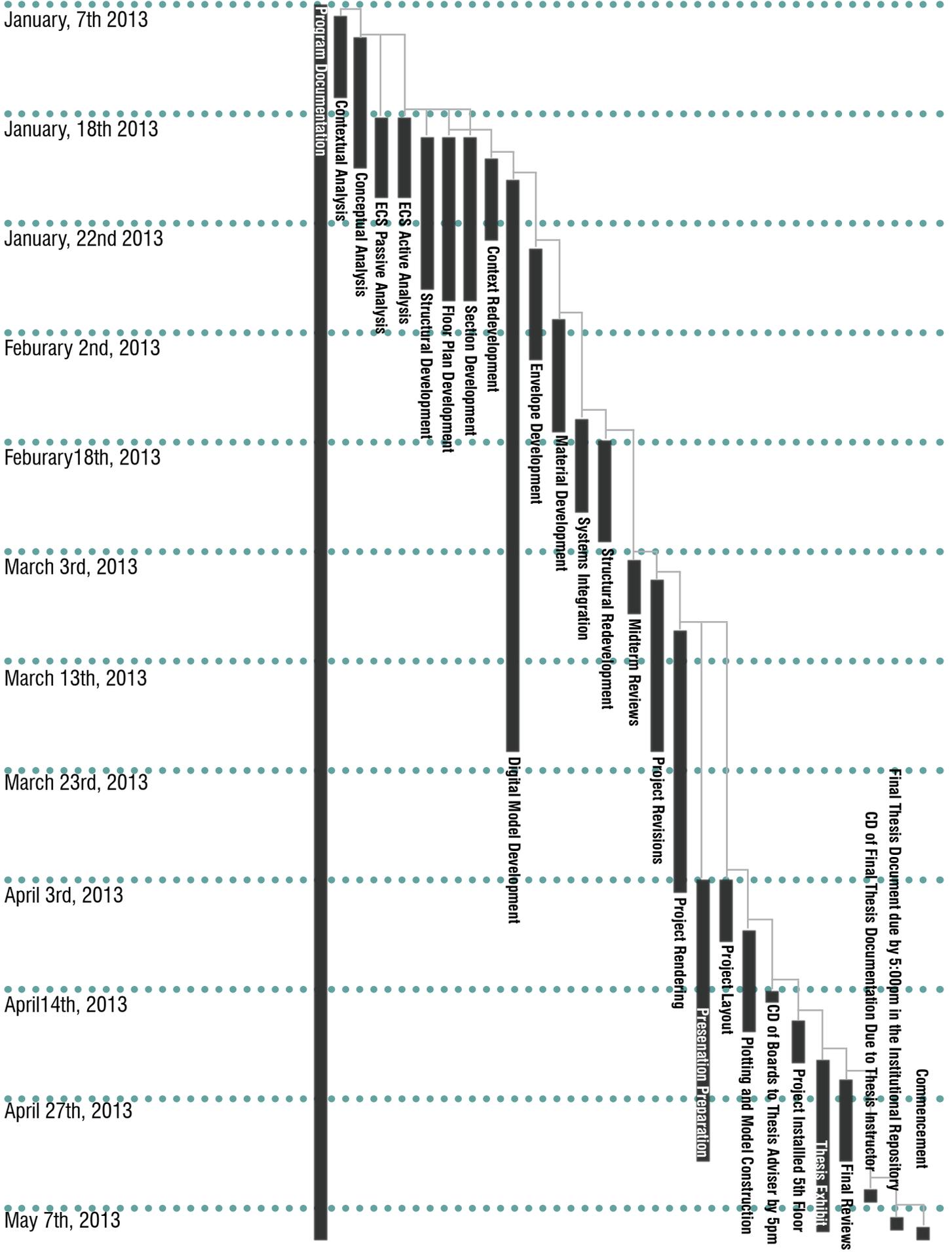
The method for designing and creating this thesis project will be a mixed method analysis as well as a qualitative analysis. Quantitative analysis will come from the technical information and hard facts, statistical data and graphics of existing building collected from the initial research. Qualitative data to be analyzed will come from understanding of case studies, tours of existing facilities, personal interview with related staff to understand and analyze the positive and negative of the facilities they live and work in. Analysis of the research and data will be continuous during this process and will be prioritized based on the theoretical premise/ unifying idea.

Documenting the Design Process

The documentation of the design process will continue until the end of the final presentation. All process and research will be collected by digital means. It will be gathered and updated every one to two weeks. All drawings, sketches, research, notes and written observations will be scanned and compiled in several digital locations. Documentation of the process will be made evident in the final presentation because it show the thought process of how the final conclusion was obtained.

Spring Work Schedule

Project Documentation	89 days	Mon 1/7/13	Thu 5/9/13	
Contextural Analysis	6 days	Tue 1/8/13	Tue 1/15/13	
Conceptual Analysis	9 days	Thu 1/10/13	Tue 1/22/13	2SS+2 days
ECS Passive Analysis	6 days	Fri 1/18/13	Fri 1/25/13	3SS+6 days
ECS Active Analysis	6 days	Fri 1/18/13	Fri 1/25/13	3SS+6 days
Structural Development	11 days	Mon 1/21/13	Mon 2/4/13	5SS+1 day
Floor Plan development	12 days	Mon 1/21/13	Tue 2/5/13	5SS+1 day
Section Development	12 days	Mon 1/21/13	Tue 2/5/13	5SS+1 day
Context Redevelopment	6 days	Wed 1/23/13	Wed 1/30/13	7SS+2 days
Digital Model Development	41 days	Fri 1/25/13	Fri 3/22/13	9SS+2 days
Envelope Development	7 days	Fri 2/1/13	Mon 2/11/13	10SS+5 days
Materials Development	7 days	Fri 2/8/13	Mon 2/18/13	11SS+5 days
Systems Integration	7 days	Mon 2/18/13	Tue 2/26/13	12SS+6 days
Structural Redevelopment	8 days	Wed 2/20/13	Fri 3/1/13	13SS+2 days
Midterm Reviews	5 days	Mon 3/4/13	Fri 3/8/13	14SS+8 days
Project Revision	13 days	Wed 3/6/13	Fri 3/22/13	15SS+2 days
Project Rendering	20 days	Mon 3/11/13	Fri 4/5/13	16SS+3 days
Presentation Preparation	15 days	Fri 4/5/13	Thu 4/25/13	17SS+19 days
Presenation Layout	4 days	Fri 4/5/13	Wed 4/10/13	17SS+19 days
Plotting and Model Construction	8 days	Wed 4/10/13	Fri 4/19/13	19SS+3 days
CD of Boards to Thesis Advisor by 5:00pm	1 day	Mon 4/15/13	Mon 4/15/13	20SS+4 days
Thesis Exhibits Installed on 5th Floor	2 days	Fri 4/19/13	Mon 4/22/13	21SS+3 days
Thesis Exhibit	13 days	Tue 4/23/13	Thu 5/9/13	22SS+2 days
Final Thesis Reviews	6 days	Thu 4/25/13	Thu 5/2/13	23SS+2 days
CD of Final Thesis Documentation Due to Thesis Instructors	1 day	Mon 5/6/13	Mon 5/6/13	24SS+7 days
Final Thesis Document due by 5:00pm in the Institutional Repository	1 day	Thu 5/9/13	Thu 5/9/13	25SS+3 days
Commencement	1 day	Fri 5/10/13	Fri 5/10/13	26SS+1 day



Fall 2009: Professor Darryl Booker

Japanese Tea House
Minnneapolis Boat House

Spring 2010: Professor Joan Vorderbruggen

Montessori School
Bird House
Dwelling

Fall 2010: Professor Cindy Urness

Fargo Moorhead Food Cooperative
Snow Symposium
NDSU Wellness Center

Spring 2011: Professor Mike Christenson

Sixth Street House: Exploration, Reduction & Expansion

Fall 2011: Professor Aly Ahmed Bakr

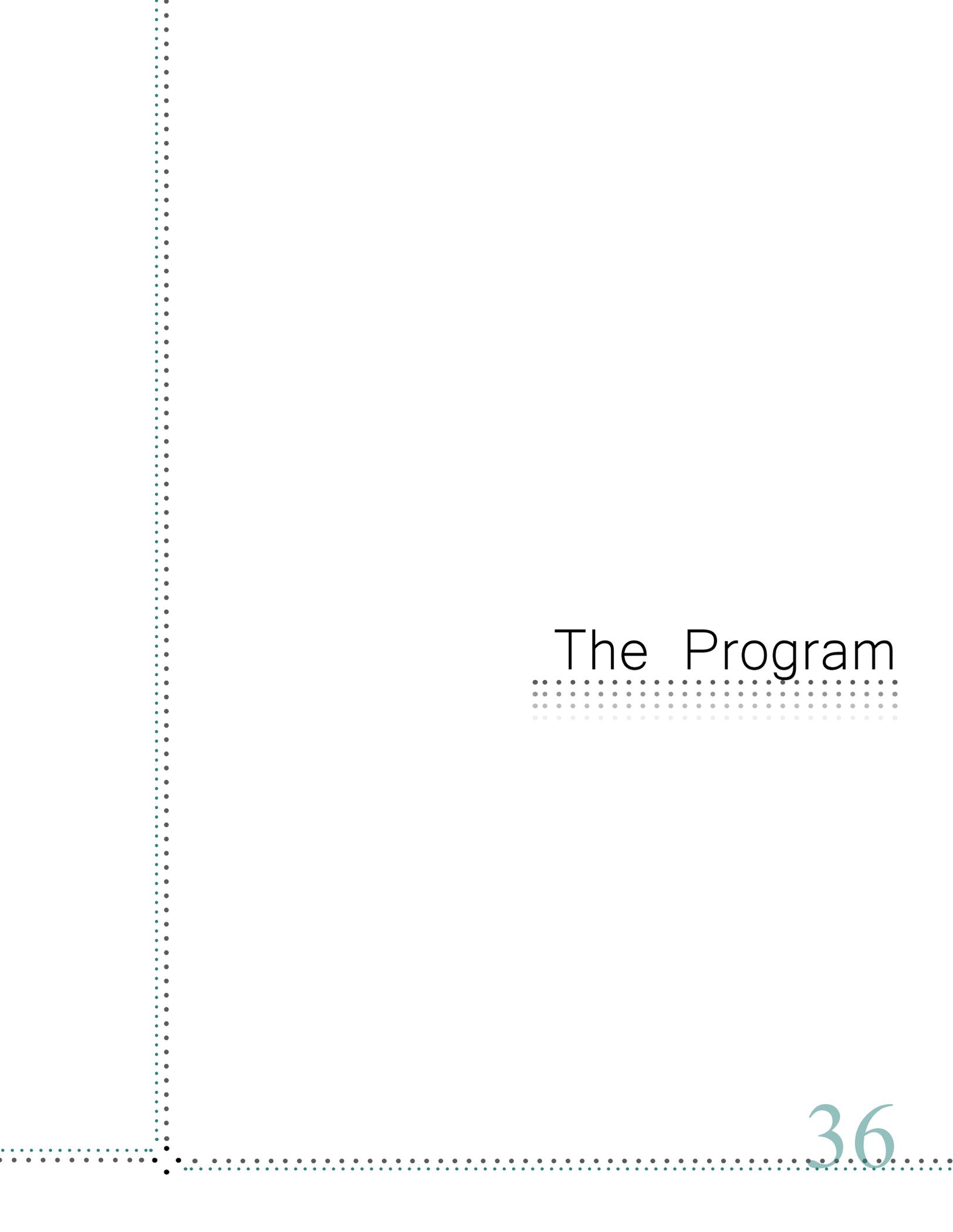
San Francisco Highrise
KKE/DRL Competition

Spring 2012: Professor Frank Kratky & Don Faulkner

Marvin Windows & Door Competition
Kindred Urban Development Project

Fall 2012: Professor Mark Barnhouse

Water Research Experiment Station

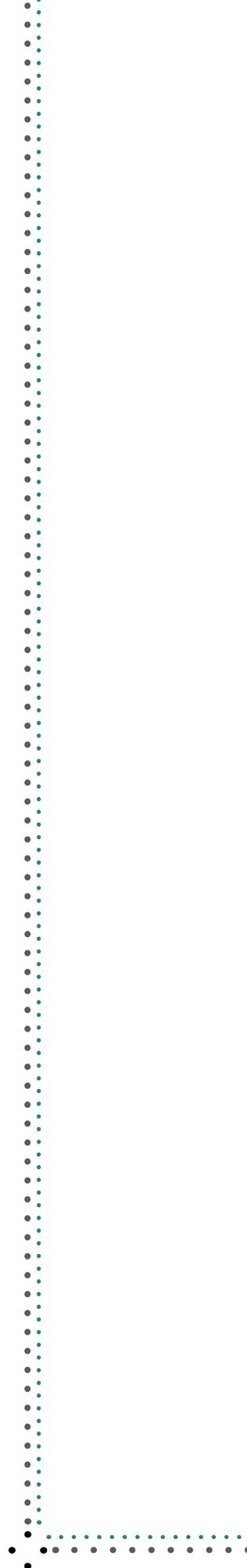


The Program

Our Aging Population

Growing old can bring many challenges. With age comes limitations of both cognitive and physical abilities that can influence the quality of a person's life. Society is continuously advancing and improvements of technical and economical progress have helped to enhance standards by contributing to the advancement of effective health care practices (Dychtwald, 1990,pg 203). Health care improvements are allowing elderly populations to experience a greater number of fulfilling years of life. Medical science is striving for successful aging with low chance of disease, high physical and cognitive functions and living an actively engaging life (Dychtwald, 1990, pg 27). Along with an increase in life expectancy, an increase in our aging population is occurring. This has been a common trend for centuries. In 1776 life expectancy for a person was 35 and today's life expectancy has grown to the upper 70's (Dychtwald, 1990,pg 2). At the end of World War II birth rates grew substantial amounts, contributing to 76 million baby boomers being born. This generation known as the baby boomers is currently on the verge of retirement and are transitioning into older age (Ward, 2012, pg 16). The baby boomers will need new and refreshing living options.

Public health, increase in life expectancy and caring for the elderly has become a major worldwide issue that is drawing attention (Regnier, 2002, pg1). Today's senior citizens above the age of 60 represent a majority of our population. Everyday an additional 6,000 people turn 65 years of age (Burby, 1990). Apprehension is being felt by the younger generations as retirement of the baby boomers approaches. Dychtwald (1990) states that, "this apprehension comes from two widely held beliefs often generated by media... the first is the notions that caring for a nation's frail elders is primarily an economic drain... the second belief is that workers contributing to the care of elderly population own all they generate," making it seem to them like an act of charity.



With these negative views and resistance toward the aging population, elderly member of a community feel unappreciated and like a burden. People near the age of 65 are hesitant to enter into retirement and places of living that would provide them with daily assistance. Nursing homes have been the common choice of senior housing for many years and have become less attractive. A confining nursing home with more regulations means less independence and dignity (Regnier, 2002, 11).

Shift In Senior Housing

Assisted living is the new alternative for nursing homes and there are many reasons for this shift. Better senior housing is becoming a reality. Assisted Living has become the dominate choice for senior housing since 2011 and is more in demand than independent housing, nursing homes or memory care facilities (Fenske & Johnson, 2012). The first major reason for this shift is due to society's resistance to nursing homes. Nursing homes are more expensive and long term health care costs are continuously rising. Nursing homes are restrictive and are seen as institutional. There have been past reports of abuse in nursing homes. Generations near retirement have placed their grandparents in homes that they feel were institutionalized (Regnier, 2002, pg11).

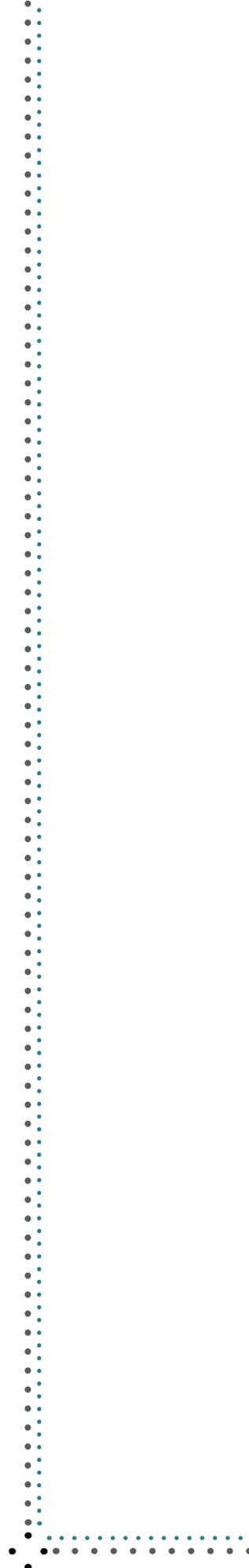
The second reason for this shift is because assisted living appears to be more attractive. Assisted living implements different approaches to develop a holistic living environment. Modern trends associated with assisted living can help people live longer with greater freedom. People want flexibility and to maximize the choice in living spaces. Assisted living provides a friendlier, brighter and less expensive alternative (Regnier, 2002, pg9). Today it is more common to see hospitals release surgery patients earlier and for them to finishing recovery in an assisted living facility. Assisted living is seen as a better fit for recovery needs (Farr & Freisbie, 2012). The third reason for preference of assisted living is the boomer generation.

The baby boomers are a group that supported and fought for change as they were growing up. They experienced inventions of many new technologies. Although many of the baby boomers are not ready for assisted living yet, they have high expectations for a better quality of life for themselves and their elderly parents (Fuhr & Strivland, 2012). The boomers want to “avoid institutional creep,” and want cutting edge technology and services for assisted living (Farr & Freisbie, 2012). Appropriate assisted living that provides flexibility and choice are amenities the baby boomers demand.

What is Assisted Living?

Designers have an opportunity for innovation when creating senior housing. An assisted living facility is defined by the Assisted Living Federation of America as “a special combination of housing support services, personalized assistance and health care design to respond to individual needs” (Regnier, 2002, pg3). Assisted living facilities are a community based place of living that provides special amenities that can support physical, emotional and health needs. Assisted living creates and provides a more satisfying environment than a nursing home (Regnier, 2002, pg1). These places of living should not be too large in size and have anywhere from 18–30 residents. Smaller size facilities provide for a greater attentiveness to personal care by the staff (Farr & Freisbie, 2012).

There are several characteristics that the design of an assisted living facility strives to achieve. These characteristics are to have a residential character, be small in size, provide privacy and completeness, have unique qualities for each individual, create stimulation, allow for family and friend involvement, serve the frail and to connect to the surrounding communities (Regnier, 2002, pg4). Not all senior housing and assisted living facilities meet each of these characteristics but these characteristics represent a goal that designers strive to achieve. A wide variety of residents reside within these places of living.





These residents include people who are single, widowed, married couples, different physical capabilities and different income levels. To provide convenience and comfort, common amenities provided by assisted living facilities include three meals a day, housekeeping, laundry services, snacks, wellness activities, linen services, transportations opportunities, distribution of medicine, beauty shops, barbers and social activities, which range from dancing and gardening, playing cards and games, to the option for overnight guests (Regnier, 2002, pg9). Other amenities include ones that are brought into the facility, such as therapy, rehab and medical services. Assisted living is the new alternative to traditional nursing homes and more desired options for senior housing. Assisted living facilities allow for personal care for daily activities, while allowing residents independence to self manage their lives (Regnier, 2002, pg19). Assisted living is accessible, provides security, and allows residence to add personal touches and to create a feeling of home (Regnier, 2002, pg31).

What can make assisted living facilities move from great care to exceptional care is giving elderly residents a choice. This could be a choice in daily activities; a choice in the staff and a choice in food selection. An example of providing variety could be to provide a café for breakfast, deli for lunch and a fine dining restaurant for dinner (Farr & Freisbie, 2012).

Site selection and development for assisted living is incredibly important and can contribute to the success of senior housing. Assisted living locations are a link the community, the site should be easy for visitors to access, have close proximity to amenities such as grocery store, walking trails, parks, medical facilities, and recreation activities (Farr & Freisbie, 2012). A new trend in location for assisted living is one that provides the elderly with action views and stimulation. Senior housing does not have to be in a secluded place, away from main stream society but could be near energized areas such as downtowns, higher traffic roads or universities.

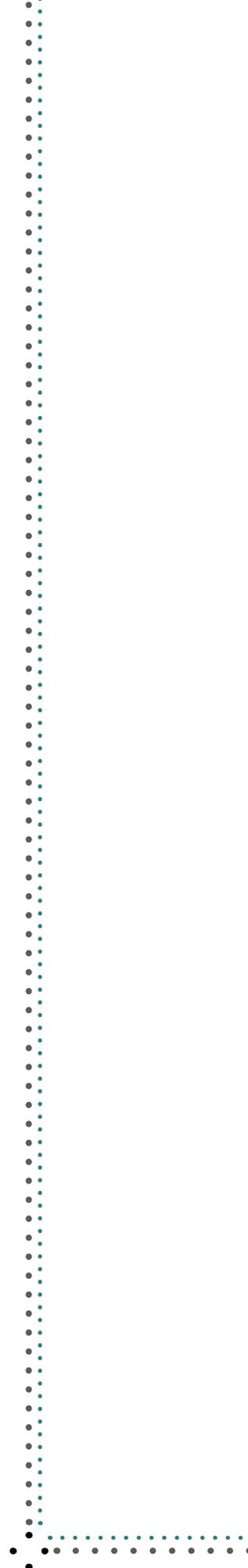
Elderly like seeing activity taking place around them because physical limitation can sometimes not allow seniors to participate (Farr & Freisbie, 2012).

Emotional & Social Well-being for Elderly

Over the past decades, elderly housing has become an important part of the housing market. Seniors have specific needs that require careful attention. The reduction of physical competence and financial resources have always been a worry to the elderly population and a major consideration in the design of senior housing and assisted living (Burby, 1990). Architects and designers need to begin to look beyond the addressing not only the physical well-being, convenience and comfort, but begin to address issues of emotional and social well-being for senior housing. Burby(1990) states that “social interaction, perception and fear of crime, and residential satisfaction should be of particular interest to planners” when it comes to approaching senior housing design. These are all additional issues that affect living environments and housing satisfaction for the elderly.

An important guideline for designers to look at when addressing emotional well-being for in assisted living design is to create stimulation and social connections with friends and family. Family support is one of the best solutions to helping elderly deal with emotional issues. Helping elderly stay connected contributes to their overall well-being. “People who have strong family ties have a 50% less chance of dying over a given period of time...” (Battest, 2012, p4). Lack of social support has a direct link to depression, a decrease in physical activity and low levels of life satisfaction (Battest, 2012, p4). Social interaction helps promote longevity, reduces stress levels, connect people to community and give emotional and physical support, all of which describe characteristics of assisted living (Battest, 2012, p4). Beyond providing opportunities for interaction with families and friends, creating connections amongst the neighboring residents can also become very important.

41 Theoretical Premise/Unifying Idea Research





Seniors who live in an assisted living facility spend a majority of their time around other inhabitants of the building. Designers should consider the effects of age segregation amongst older generations (burby 1990). It has been assumed in the past integration of elderly age ranges was the best to promote social interaction but Burby (1990) states that “in an age-segregated the environment, the more interaction he found among older tenants.” By group similar age ranges together resident will have more in common with each other.

A disadvantage of aging that affect well-being in a negative way is for a person to experience the loss of a friend through death or disability. Death can affect emotional and mental stability causing elderly to experience sadness (Regnier, 2002, pg255). This emotional strain felt by seniors increases the importance and need for a vibrant atmosphere, one that can engage residents in their surroundings. A characteristic for well designed assisted living facility to offset the experience of loss is to find ways invite and incorporate family, friend and other residents in daily life activities (Pil Yoon, 2006, p62). Opportunities for social interaction help to provide emotional assistance needed (Burby, 1990).

Another issue that affects emotional well-being is fear. The elderly fear for their safety. Seniors feel that they are more vulnerable to crime because of their declining physical condition. Fear can restrict them and sometimes cause “self imposed house arrests” (burry 1990). Appropriate site selection is one solution to address this fear held by the elderly. Living in a safe neighborhood with on site or nearby services helps to bring comfort and ease. A safe location can help to encourage residents to venture out to nearby facilities and still maintain independence in old age(Burby, 1990). A well designed assisted living facility can address many of the concerns of the elderly. There can be less worry, fear can be reduced, the elderly can live an enriched social life with many opportunities and satisfaction can be felt with living conditions.

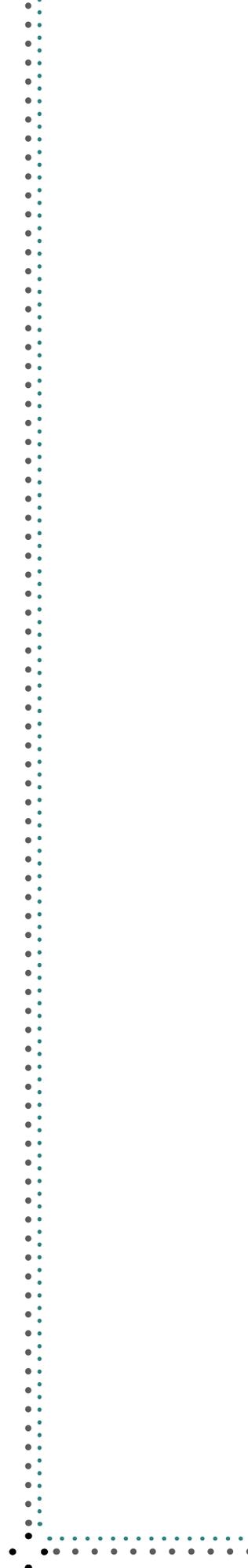
Disadvantages in Rural Areas.

Many rural areas lack the resources to address elderly needs. Poverty rates are much higher than in urban and metropolitan area. Senior care, medical care, public transportation, basic services, and social activities are all limited for seniors in smaller rural areas (Bull, 1993). It becomes much easier for older residents to isolate themselves from other and be institutionalized when their physical capabilities decline. Social interaction in rural setting becomes even more of an importance. The lack of senior housing in rural areas provides less convenient opportunities for activities for the elderly. Smaller communities have lower number of families to support amenities for senior housing (Lisbon & Stone , 2011, p5).

Not only are poverty rates higher in rural areas but mortality rates have shown to be higher as well (Pil Yoon, 2006, p61). Living in rural area for the elderly have greater disadvantages, they are smaller scale, low density and healthcare facilities have limited scopes (Pil Yoon, 2006, p61). Senior citizens lack social stimulation in rural area. Providing opportunities of quality care and assisted living in rural areas can help to improve the insecurities that the elderly have about aging (Bull,1993).

Universal Design

Universal design is a strategy and approach to help design compliant places to dwell. This approach is human centered. Universal design creates places that are suited for the special needs of the all ages of users in a facility. ADA compliance and accessibility codes are only one part of the dynamic principles of universal design (Goldsmith, 200, p1). There are 7 principles developed for universal design, These principles correspond with many of the guidelines and characteristics of assisted living. By following the principles of universal design elderly resident can feel secure. Both universal design and assisted living look to accommodate, provide safety and create convenience for users (Goldsmith, 200, p1).





The principles of universal design were created in 1997 and are as following: (1) to provide social equality for users, housing design cannot disadvantage or privilege any group, must be usable by all, (2) environment must be flexible and accommodate a wide variety of individuals (3) designs should be simple to understand for all skill level, a persons knowledge should not disadvantage them to live comfortably, (4) design must include “perceptible information.” The environment of the building should address communication for cognitive and sensory abilities, (5) Design should minimize possibilities for hazards and accidents for user. Users of a building should be safe and feel safe. (6) Design should be comfortable, user friendly and minimize fatigue, (7) design is the appropriate size and space for intended use (Feddersen & Ludtke, 2009, p10-11).

Universal design principles are an appropriate approach for assisted living and senior care because the ideas go hand in hand with what is important and meaningful in design strategies for the elderly population. Universal design looks at the needs and abilities for all people (Feddersen & Ludtke, 2009, p10).

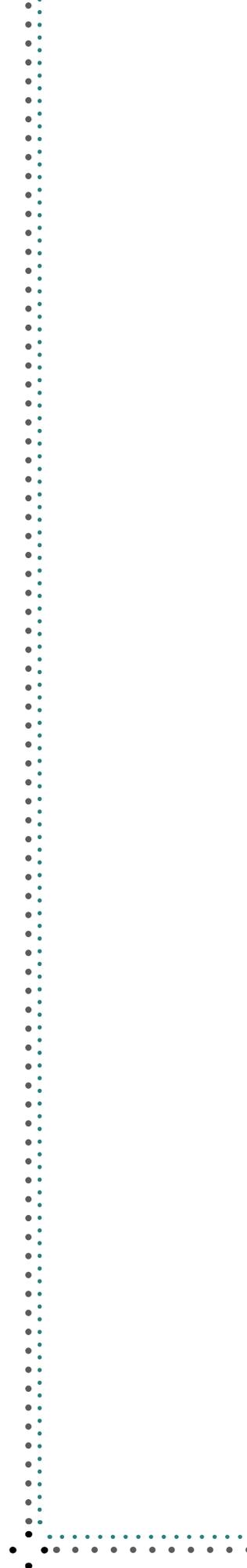
The transition for people into old age can emotionally be hard. There comes a point where the elderly can no longer live in their homes safely. Most Elderly do not want to leave their homes, closeness with family and friends and security (Feddersen & Ludtke, 2009, p2). Living and care needs vary amongst young and old. The needs also vary within the diverse age levels of the elderly generation themselves. Regnier (2002) defines different levels of care for the elderly. The lowest Level is measured as minimal help with medicine distribution. The highest level of care would be the need for staff to assist with everything, eating, bathing and dressing. Universal design strives to accommodate for all. With these 7 principles and the guidelines for assisted living senior housing for old age can become a revitalized experience.

Summary

The need for senior housing has been catching the attention of multiple professional groups in today's busy world. With a growing elderly population, appropriate housing to fit seniors specialized needs has become an issue that demands a solution. What has helped to make this issue of senior housing visible to America's population are the advocacy effort made on behalf of the baby boomers. The baby boomers want improvements and modern ideas. Seeing their parent and grandparents living in nursing homes and senior care facilities that showed neglect is something the boomers do not want. Keeping independence in living as long as possible is important. The baby boomer have become the voice and a driving force in the creation and development of assisted living and are helping to instill passion in people to fight for a meaningfully quality of life in an older age.

The solution and ideas for better senior housing have always been present in the back of our minds. The universal design principles that were developed in the late 90's are a great example of what assisted living should be and show that designers were starting to understand the importance of enjoyable and barrier free living environments. Apply those principles to senior housing and the elderly can live comfortably in old age. Serious action in designing assisted living facilities has not been taken until this current decade because people are now beginning to realize the importance of holistic and healthfully living at an old age that can help to keep the elderly connected to younger generations. But when it come to creating senior housing for the elderly it is important to move beyond designing for the physical comfort needs. Aging has mental effect on the elderly as well, fears and worries increase because they are starting to realize that they can no longer care for themselves 100% of the time.

45 Theoretical Premise/Unifying Idea Research

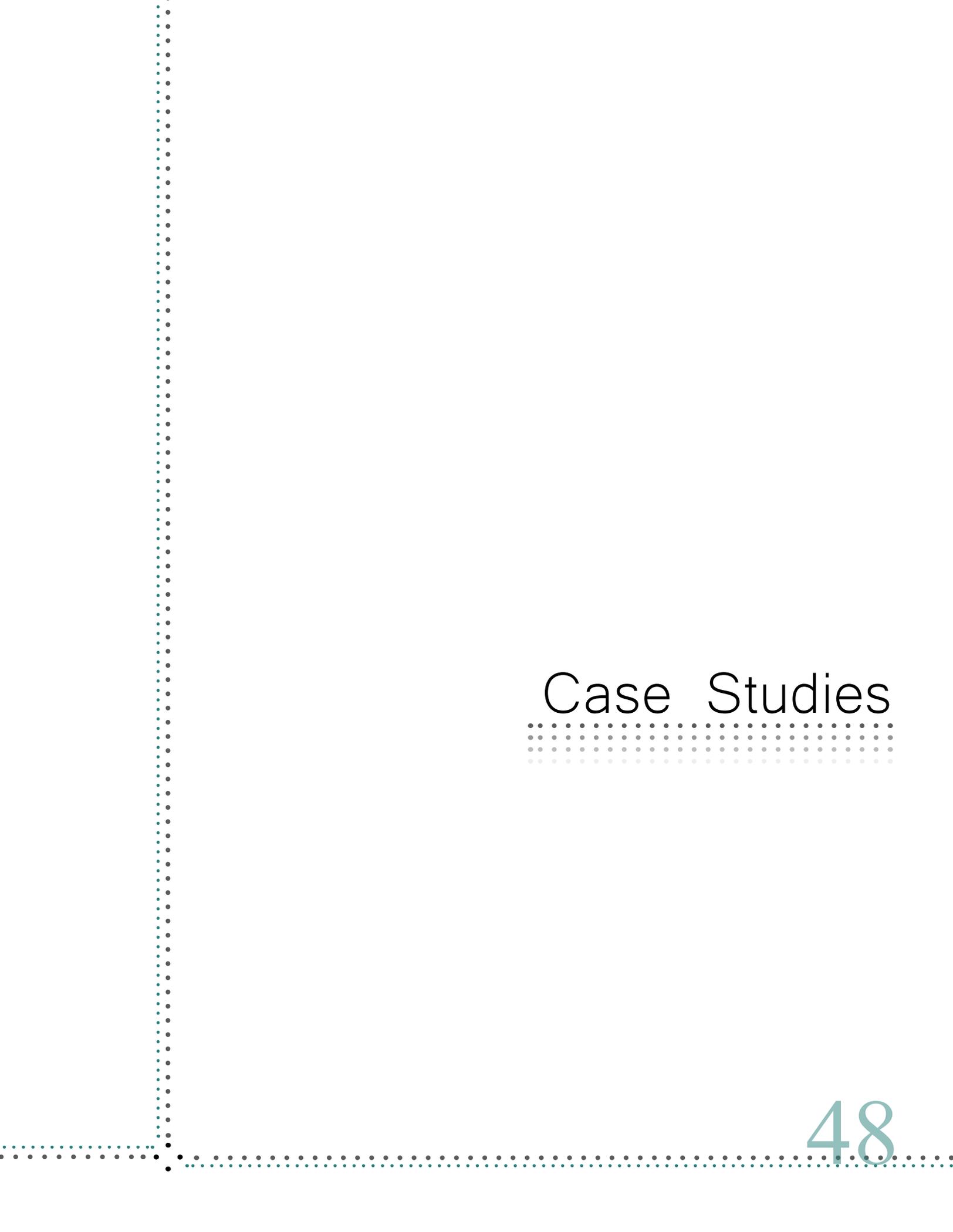




Assisted living should encompass ways to provide social interaction that can reconnect residents to the surrounding community. Activities and opportunities to travel out into the neighborhood can help to add excitement and stimulation for seniors daily lives. Rural areas, which have a lower amount of amenities for the elderly, are even more in need of well design care for senior who live in isolation.

The research for the Theoretical Premise/ Unifying Idea begins by defining the challenge with senior housing as a whole. It is important for designer to fully understand the problems that need to be solved with assisted living. Research has shown that currently and in the future, the need for better senior housing has become important and necessary especially in rural area. The elderly population is continuing to grow and as they grow there housing needs become part of the housing market. Society has developed mixed feeling of how address the issues with senior housing. Creating accessible and healthy housing for the elderly show seniors that they are not a generation to be pushed to the side.

After the challenge was fully defined the research seeks to discover solution and guidelines for senior housing. There are currently design strategies established to help design assisted living communities that are suited for the frail and elderly. They are important to providing ease and flexibility. The research explains the general ideas and strategies behind an assisted living facility and shows how a living environment can truly make difference in ones quality of life. The research supports the Theoretical Premise/ Unifying Idea to help understand why change in senior living is necessary and how it can appropriately be implemented to serve the needs of everyone.



Case Studies



Competence Center for People with Dementia

Typology: Housing for People with Dementia

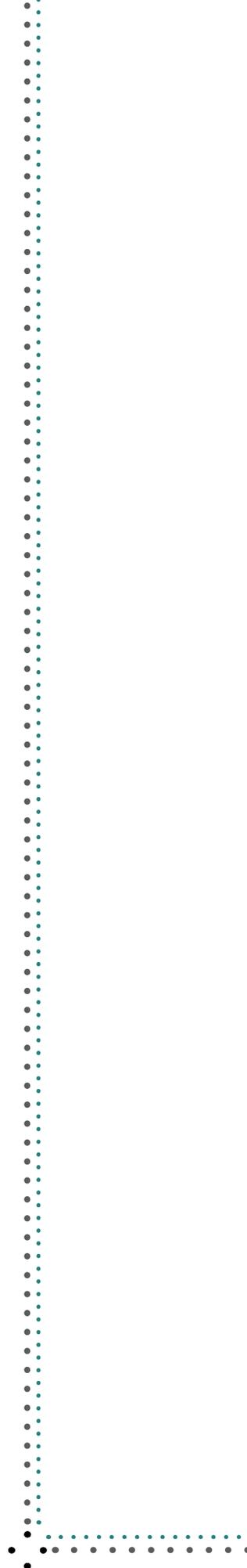
Location: Nuremberg, Germany

Size: 37,813.62 Sq. Ft.

Personalization

The Competence Center for People with Dementia is a large scale 5 story building that is equipped to provide housing for 96 residents. This center for dementia is designed to be integrated with the surrounding areas and neighborhoods. The complex has 3 connected buildings that have a unique set up. The 3 buildings are positioned around a central courtyard used to highlight and mark the entrance (Feddersen and Ludtke, 2009, pg 160). Within the residential area of the building 8 large apartments or “care groups” were created. Within these apartments the residents have their own rooms with semi-public entrances but share a community space that includes, living rooms, lounge, dining area, and kitchen. The Competence Center also includes a public area that provides convenient services and important medical information for those who live there such as a chapel, wellness bath, a baker, chemist, rooms for consultations with medical staff and nurses, care training, social events and lounge spaces and corridors for individual or groups of people to think about their surroundings (Feddersen and Ludtke, 2009, pg161).

The Competence Center for People with Dementia has three distinctive design characteristics that contribute to its uniqueness. The first characteristic is the buildings ability to create variety and distinct living environments. The building separates the louder public area from the quiet residential and individual area by bringing public functions to the front of the complex in its design. Even within the different apartments, spaces are created for individual contemplation and group activities. There are also diverse internal spaces a “patio style,” the has lights and modern interiors, “rustic living,” the is design for rural living and “janus type,” that provide a dark and cave like feel (Feddersen and Ludtke, 2009, pg161).





(Feddersen & Ludtke, pg. 164, 2009)



(Feddersen & Ludtke, pg.161, 2009)



(Feddersen & Ludtke, pg.163, 2009)



(Feddersen & Ludtke, pg.161, 2009)



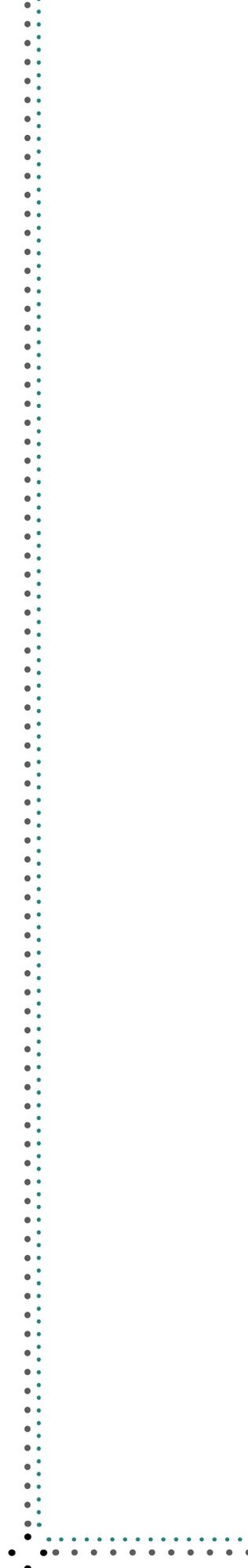
(Feddersen & Ludtke, pg.163, 2009)

Each floor and apartment within the building uses a variety of materials and colors to enhance the experience for the residents who dwell there. The design minimizes corridors to create short walking distances and a feature call “stable doors,” which allow resident to open the top half of the door allowing the to still be able to know what is going on in other areas to stay connected (Feddersen and Ludtke, 2009, pg162).

The second characteristic is that the design attempts to bring “personalization to each individual resident. A personal sense of ownerships is given by having personal boards outside the room for resident to decorate. They are able to show a sign of welcome and tell about themselves for visitor who approach their entry door. Each individual entrance area has a different material or pattern and color variation on the outside of each entry (Feddersen and Ludtke, 2009, pg162). The third unique element in the design of the Competence Center for People with Dementia is the ability to connect to the outdoor environment. There are large gardens for social activities that are intertwined with the building, small outdoor seating pavilions, raised garden bed to limit the need for residence to bend down, and the use of large curtain wall for residents to feel connected to the outside from the inside (Feddersen and Ludtke, 2009, pg162).

The Competence Center for People with Dementia embodies the new trends that are being observed within the European areas. Like many other senior care facilities, the design displays the importance of providing a place of living that provides comfort and enjoyment for residents. Elderly with dementia have special unique need that should to be taken into consideration and this is shown though the elements of group or community living. What is uncommon in the design are the implementation of some of the internal spaces that embody different societies and cultures such as the space designed for rustic living. This case study shows that understanding of the needs of residents is important for quality of living.

51 Case Study





(Feddersen & Ludtke, pg.164, 2009)



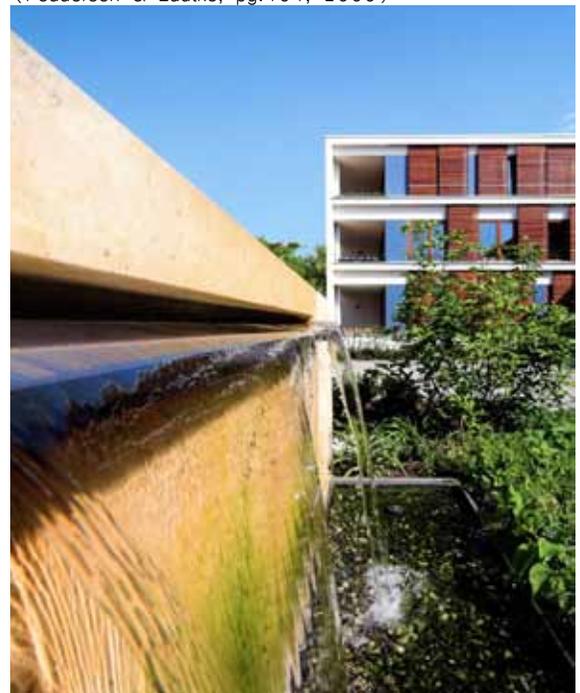
(Feddersen & Ludtke, pg.160, 2009)



(Feddersen & Ludtke, pg.164, 2009)



Figure 19: Garden(Feddersen & Ludtke, pg.164, 2009)



(Feddersen & Ludtke, pg.164, 2009)

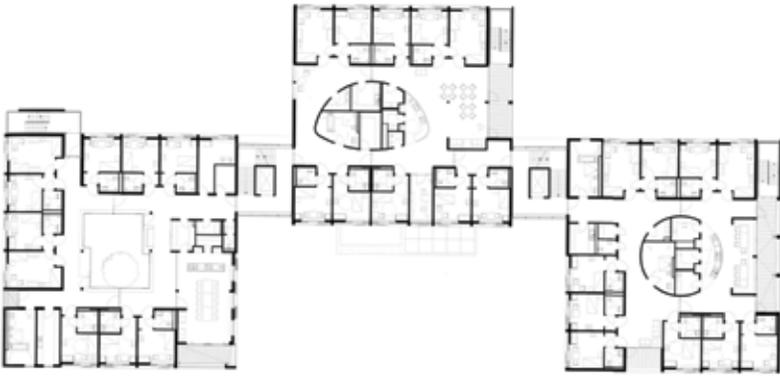


Figure 5: Upper Floor Plan, Source: Feddersen & Ludtke, pg. 163 (2009).

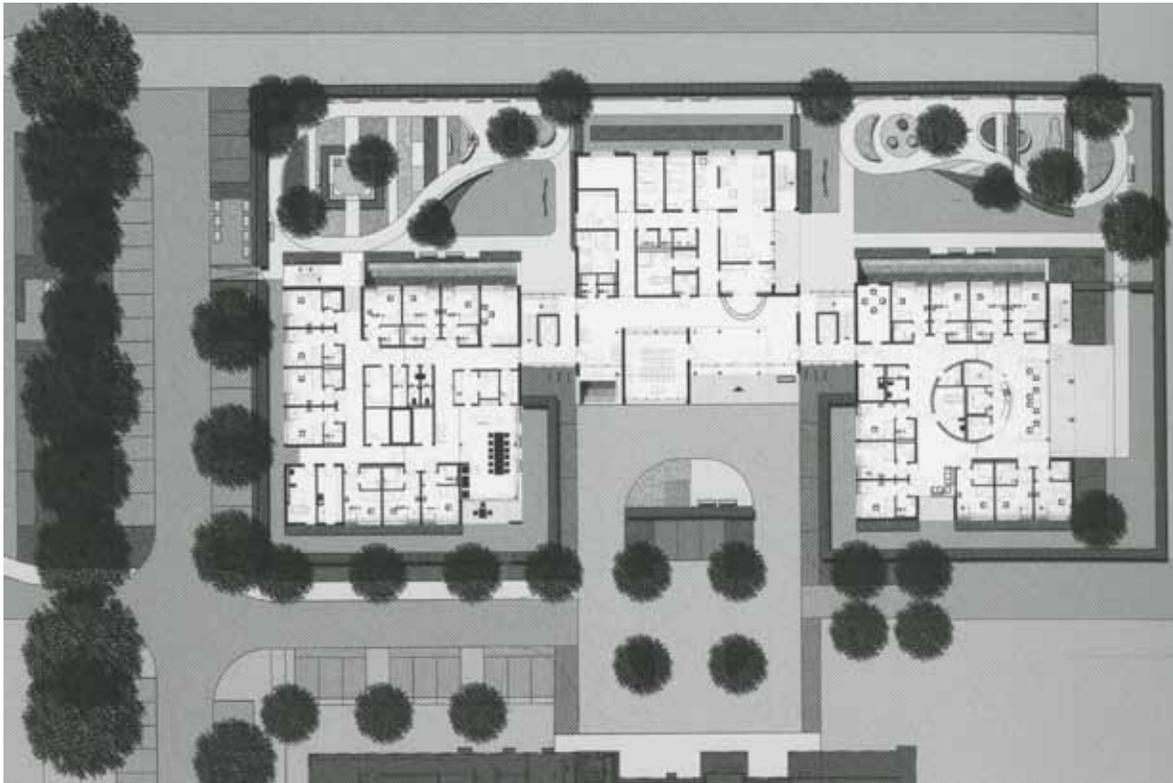


Figure 6: Ground Floor Plan & Site, Source: Feddersen & Ludtke, pg. 160 (2009).



Figure 7: Section Cut, Source: Feddersen & Ludtke, pg. 161 (2009).

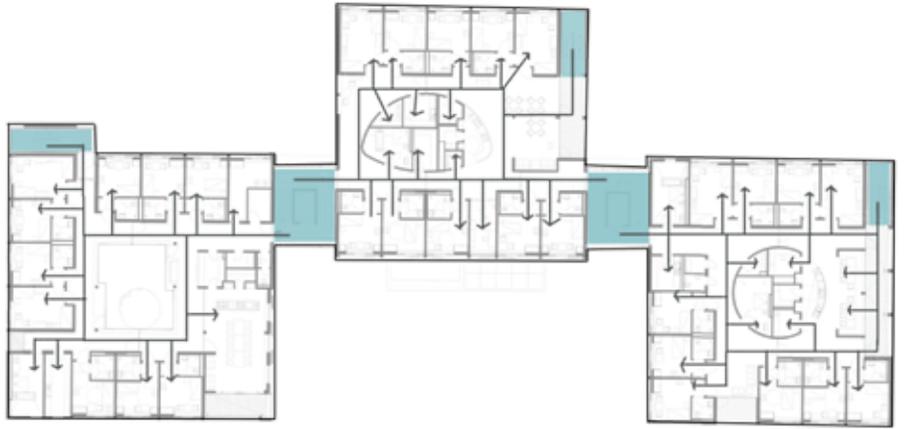
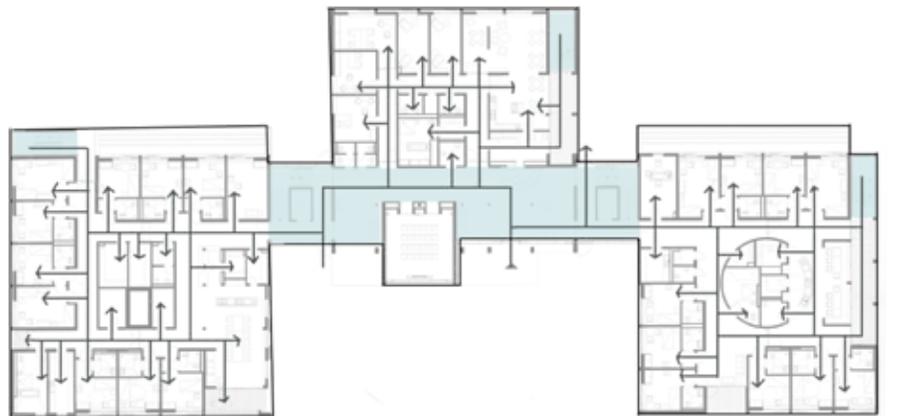


Figure 8: Circulation to Use, Floor Plans



Circulation to Use



Figure 9: Natural Light

Natural Light

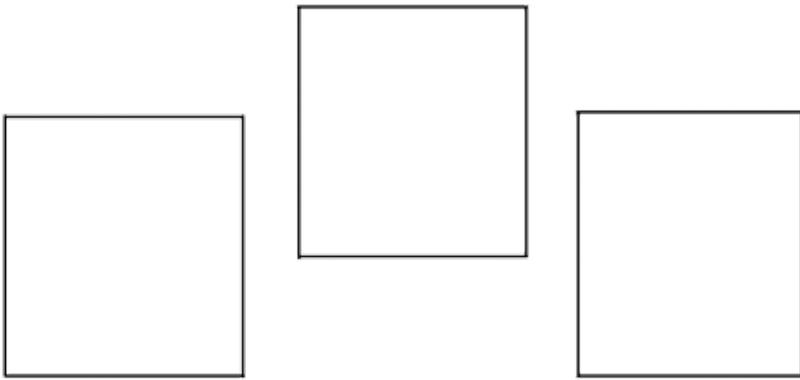


Figure 10: Massing

.....
Massing

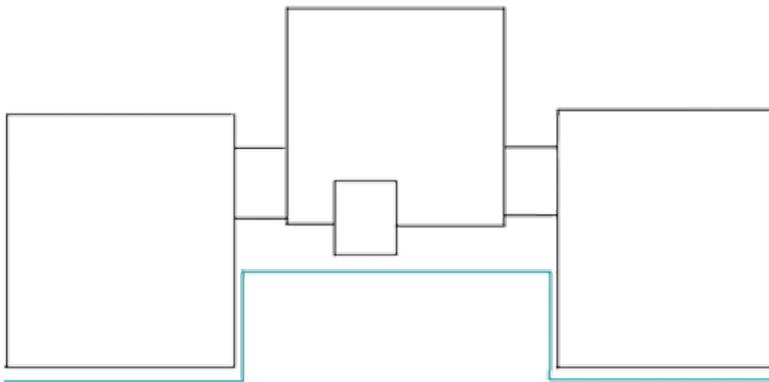


Figure 11: Plan to Section

.....
Plan to Section



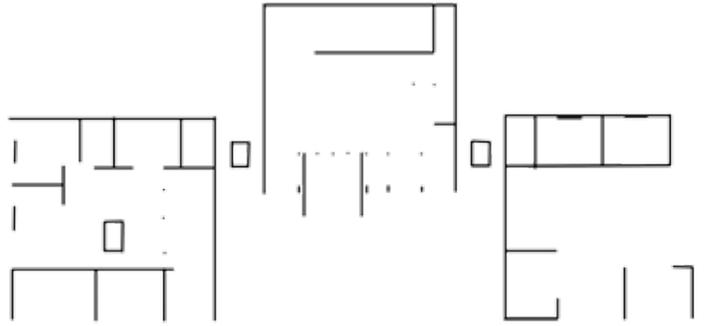


Figure 12: Structure

Structure

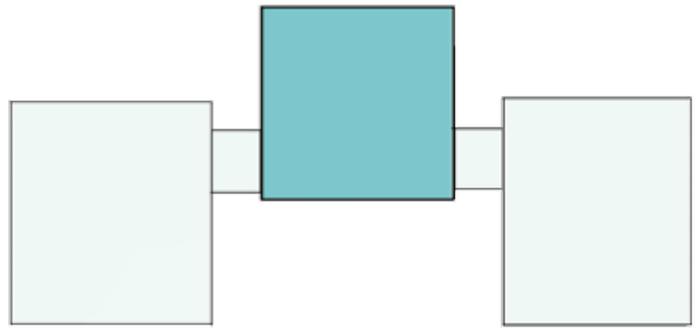


Figure 13: Hierarchy

Hierarchy

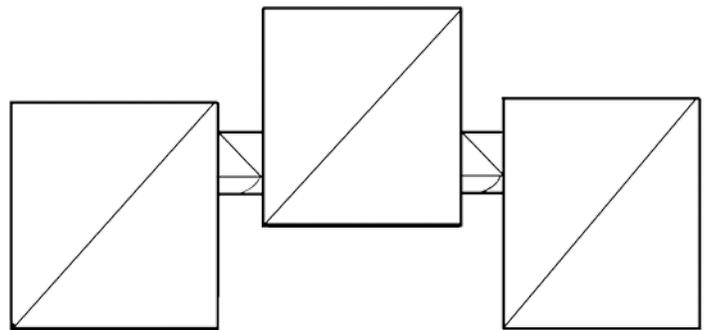


Figure 14: Geometry

Geometry

Stadtcarre

Typology: Assisted Living Apartments

Location: Rapp nau, Germany

Size: 63,216.45 Sq. Ft.

Community Integration

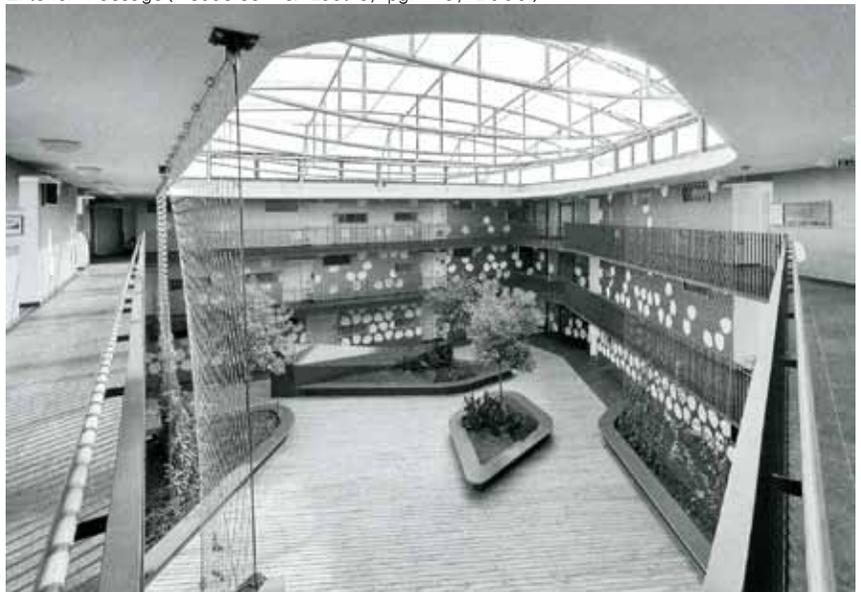
The Stadtcarre facility is a senior care building located in the center of the busy city of Rapp nau Germany. The building design employs a variety of private and public uses for residence who live within the complex. The private areas of the facility are the residential units which are divided into two section. The first section is defined as an assisted living facility with 36 different units. All residential units are designed to fulfill German barrier-free codes to ensure comfort when living there and include the basic amenities for living (Feddersen and Ludtke, 2009, pg116). These features include a living room, kitchen, bathroom and bedroom areas. The second section of the building is comprised of 15 accessible apartment complexes for independent elderly living. These are for residence who do not require additional care for daily tasks (Feddersen and Ludtke, 2009, pg115).

What is important about have two different section for elderly with different living physical abilities is that the residence are able to interact. Residents are not segregated based on their care need. They are within a close proximity to visit and see one another. An element that is unique and specific to the residential areas are the semi-private entries for each unit. Windows over looking the entry, cameras and door bell are meant to give the residence a sense of security (Feddersen and Ludtke, 2009, pg115).

The lower level or the public area for the building includes shops, retail store, underground parking and a large courtyard community space used for gatherings, gallery shows and social events. It also includes care assistance facility with offices, kitchens for dining and snack and therapy pools for the residence of the building (Feddersen and Ludtke, 2009, pg115).



Exterior Passage (Feddersen & Ludtke, pg.119, 2009)



Community Space (Feddersen & Ludtke, pg.114, 2009)



Exterior (Feddersen & Ludtke, pg.118, 2009)

The courtyard community space is one that is enclosed year round it provides fresh air and natural ventilation opportunities, temperature is regulated through the concrete core walkways that go around every level. The area is filled with trees and fresh vegetations. The space provides a mist of evaporated moisture that helps to cool that area and provide climate control (Feddersen and Ludtke, 2009, pg116).

A defining and unique element of this building, is the public passageways that divide and split the building down the center. This feature provides major integration and connection to the surrounding community (Feddersen and Ludtke, 2009, pg114). This building not only brings life, daily activities, social interaction for the residents but it also gives back to the community providing safe transportation options for the people of the city. The passageway is a protected connection between the railway and town center. People can travel from one area to another uninterrupted (Feddersen and Ludtke, 2009, pg114).

Like other senior care facilities, Stadtcarre provides additional comfort services for the residents. Providing for the specific needs of residents is important to give ease in living and Stadtcarre displays this. An uncommon element of this senior care facility is its integration into the community. The building becomes part of the public realm and allows residence to stay connected to the activity of street life. Another element that is not as common in previous senior care facilities is the site selection. The busy city life contributes to the uniqueness of the building and it is more than just a place of living but a connection point between the one of the church spires and old railway station (Feddersen and Ludtke, 2009, pg114).





Figure 34: Community Space (Feddersen & Ludtke, pg.119, 2009)



Community Space (Feddersen & Ludtke, pg.118, 2009)



Community Space (Feddersen & Ludtke, pg.119, 2009)

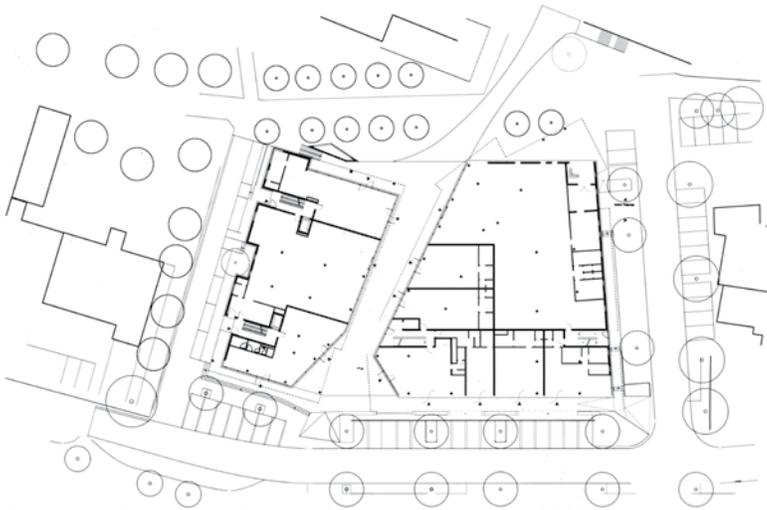


Figure 15: Floor Plans (Feddersen & Ludtke, pg.114, 2009)

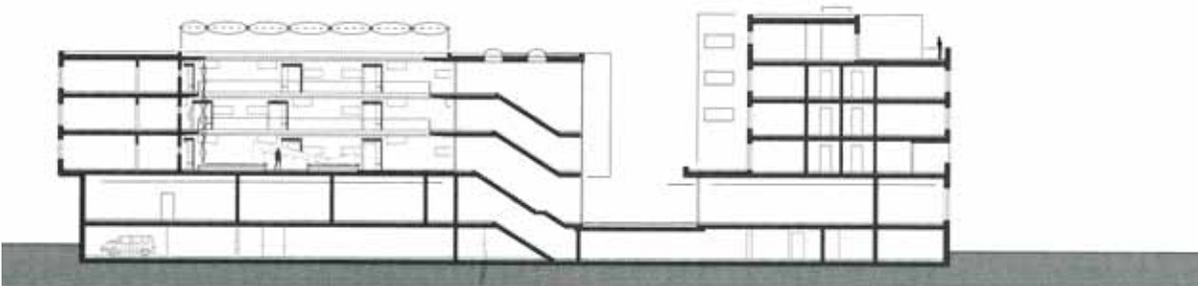


Figure 16: Section Cut (1), (Feddersen & Ludtke, pg.114, 2009)

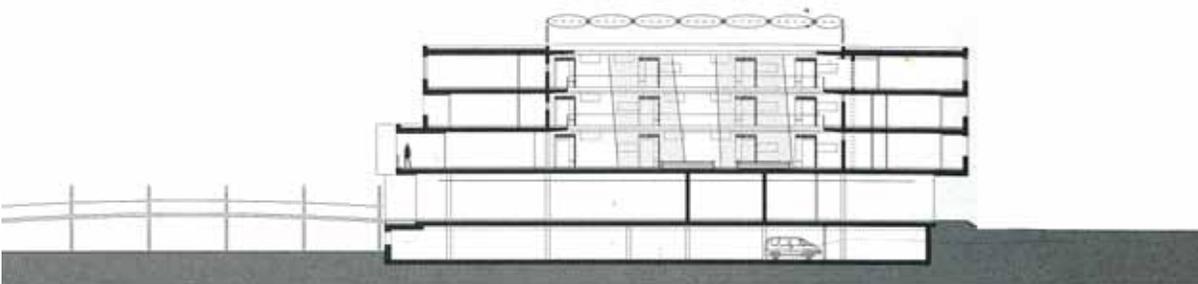


Figure 17: Section Cut (2), (Feddersen & Ludtke, pg.114, 2009)

61 Case Study: Graphic Analysis



Figure 18: Circulation to Use

Circulation to Use

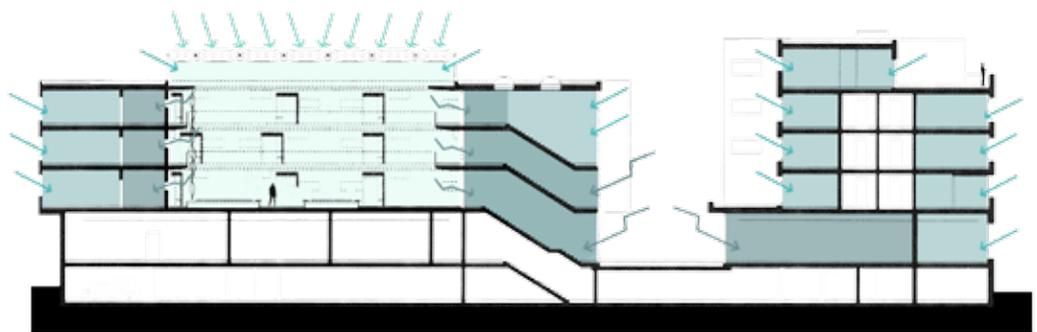


Figure 19: Natural Light

Natural Light

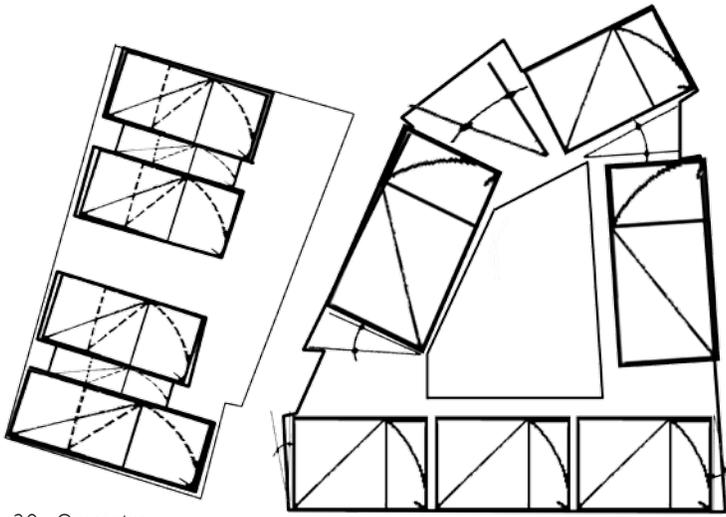


Figure 20: Geometry

Geometry

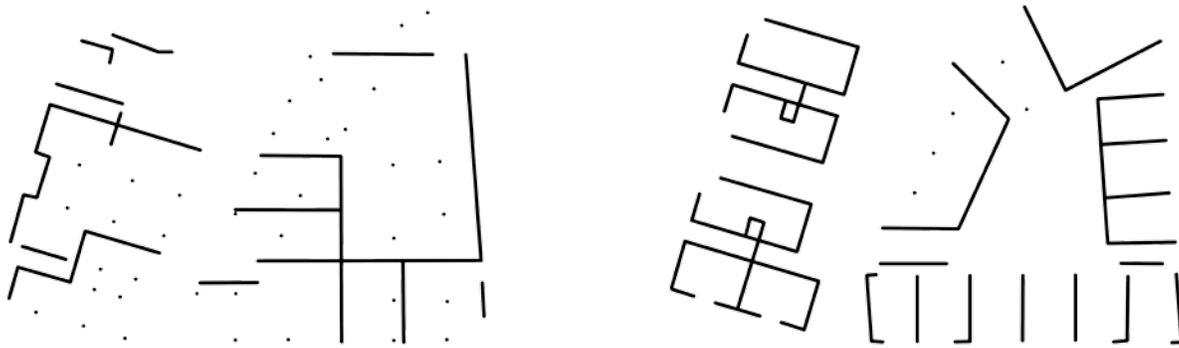


Figure 21: Structure

Structure

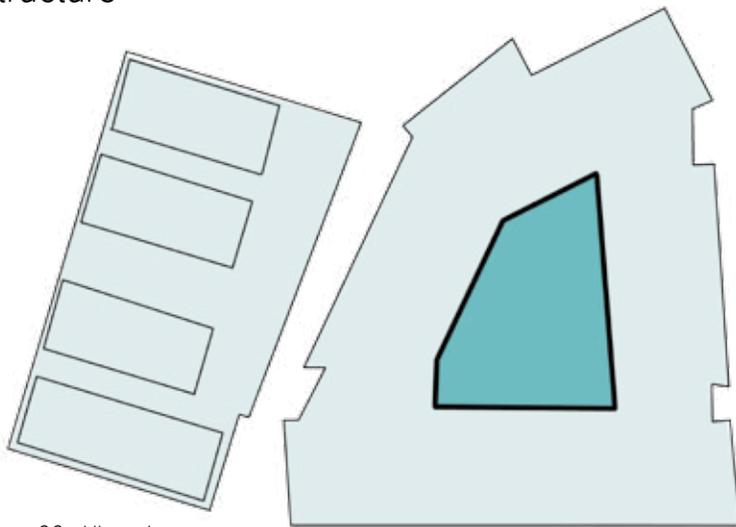


Figure 22: Hierarchy

Hierarchy

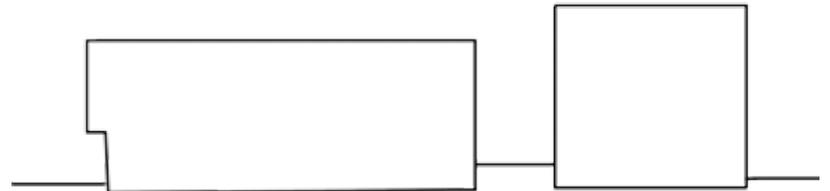
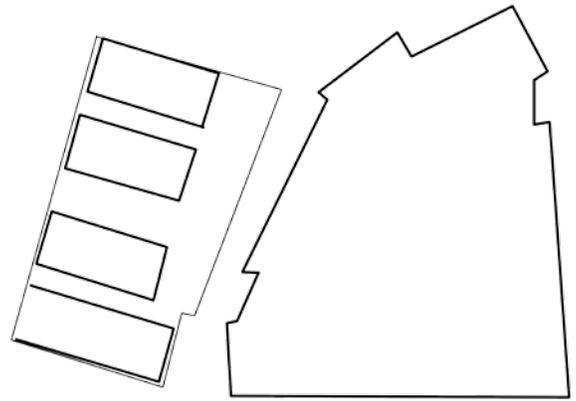


Figure 23: Massing

Massing

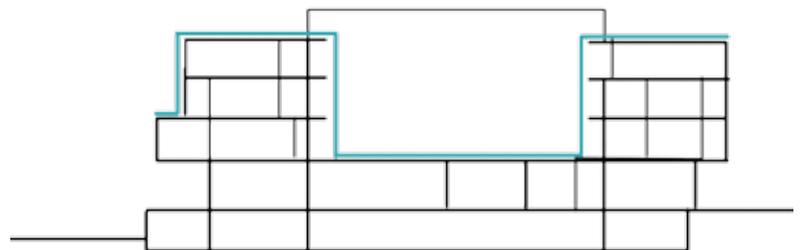
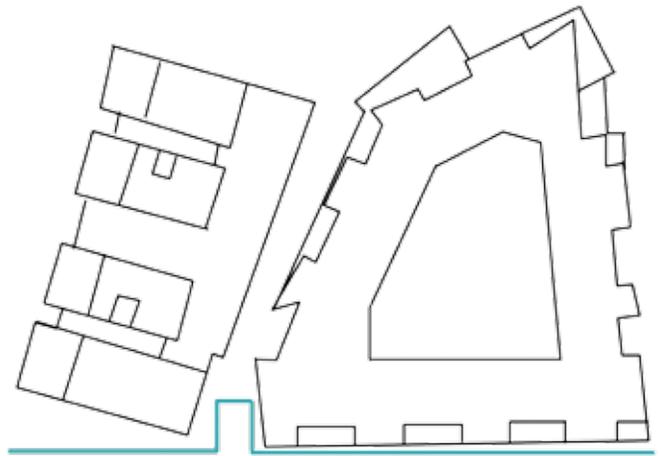


Figure 24: Plan to Section

Plan to Section

Cronstetten House

Typology: Assisted Living Facility

Location: Frankfurt am Main, Germany

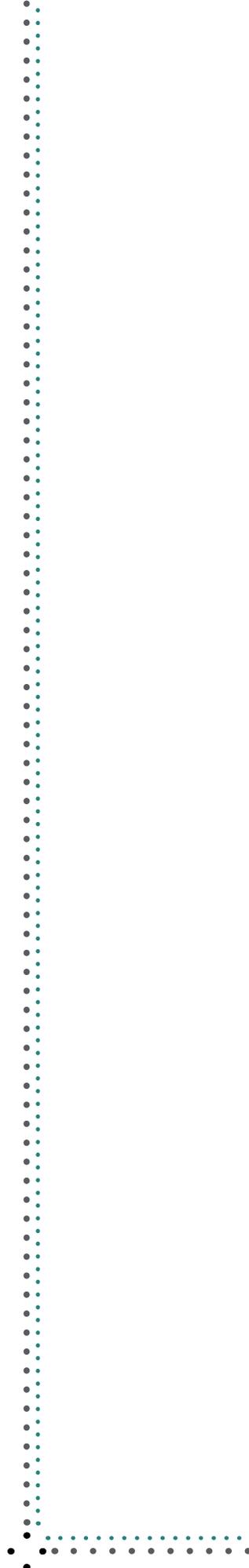
Size: 89,222.05 Sq. Ft.

Accessible Amenities

Cronstetten House is a 7 to 8 story assisted living facility with 75 apartments was designed to serve the elderly population. It is designed to accommodate resident 60 years of age and older (Feddersen and Ludtke, 2009, pg105). The facility can be broken up into two major elements, private and public. In addition to the diverse types of residential units for the elderly, the facility's private elements for residents only include a place of worship, lounge areas, exterior patios with green spaces, offices, care services, a wellness area and gym, activity room and club room. The residential areas on the upper floors are separated into different sections labeled A-E. Each has its own entrance and emergency exit stair cases to provide an element of privacy (Feddersen and Ludtke, 2009, pg106).

The public elements of the building on the ground level of the facility include a restaurant, shops, several community spaces for events, an art room for gallery display and a courtyard all of which are facing the main square of this urban area and are meant to promote social interaction and community engagement for the residents of Cronstetten House (Feddersen and Ludtke, 2009, pg106). The Cronstetten House invites in the public and their daily activities to the building. It allows residents of limited mobility to stay connected to the city around them.

The distinctive characteristics of this case study are its ability to be integrated into its surrounding area and the how it utilizes the area to create a pleasant living environment. The building is located along a harbor by the Main River near an urban area of the city (Feddersen and Ludtke, 2009, pg104).





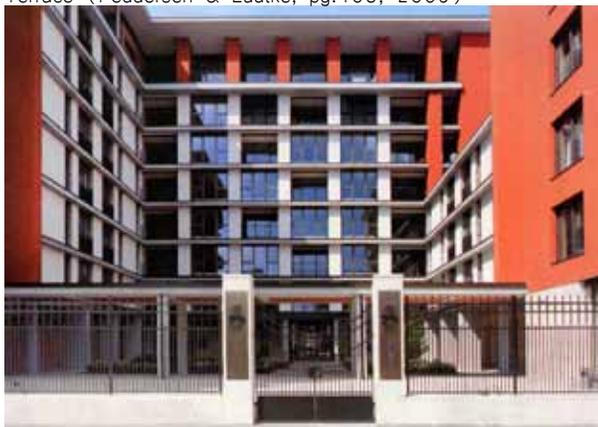
River View (Feddersen & Ludtke, pg.108, 2009)



Terrace (Feddersen & Ludtke, pg.108, 2009)



Exterior (Feddersen & Ludtke, pg.104, 2009)



Courtyard (Feddersen & Ludtke, pg.1078)



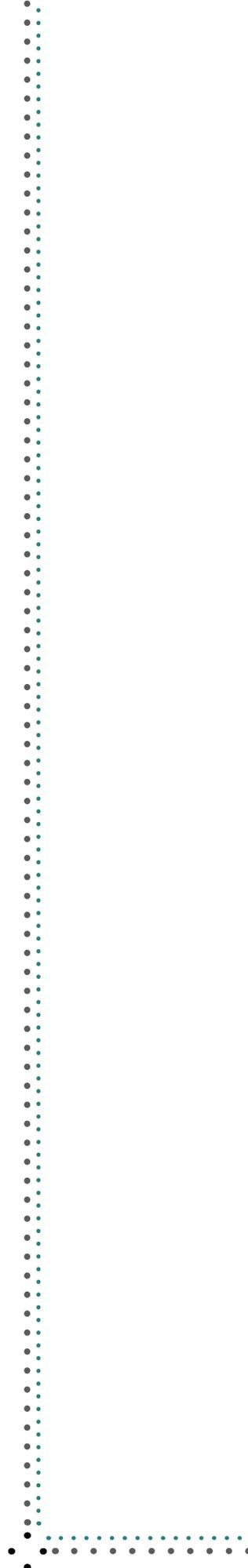
Lower Courtyard (Feddersen & Ludtke, pg.107, 2009)

This location provides beautiful view of the river and surrounding area. The height of the building is cohesive with the surrounding structures and allows it to fit with the buildings around them. Public engagement around the building and areas of living is a new trend that is being seen in many places for senior living. By having shops, restaurants and retail facilities, the Cronstetten House is given a modern appeal.

The assisted living facility provides easy access to for visitor to the public functions on the main floor through separate entrances for elderly residents or the main doors on front of the building. The building has one main entrance which connects to a direct walkway around the courtyard area as well as the small private entrances for each residential section of the building. (Feddersen and Ludtke, 2009, pg105).

The Cronstetten House design gives close attention to small details that are meant to bring well-being to the residents. There are naturally lit stair cases, accessibility lifts for resident in wheel chair and for ones who need to use walkers, balconies and terraces for resident to sit and enjoy their surroundings and the river view below, a central courtyard area that promotes needed social interaction and underground parking for residents and public visitors (Feddersen and Ludtke, 2009, pg107). The building utilizes the importance of color both on the interior and exterior. Designation of a colors within the building is meant to help residents and visitors functions easier and to be able to find their way. The stair cases have different color so people know what section of the building they are in (Feddersen and Ludtke, 2009, pg107). The vibrant and bright colors allow the Cronstetten House to be very recognizable to those who pass by. The Cronstetten House is able to communicated the interior spaces to the outside world making it a stand out place in the area.

67 Case Study





Penthouse (Feddersen & Ludtke, pg.107, 2009)



Event room(Feddersen & Ludtke, pg.104, 2009)



Lounge(Feddersen & Ludtke, pg.106, 2009)



Entry(Feddersen & Ludtke, pg.105, 2009)



Entry (Feddersen & Ludtke, pg.108, 2009)



Figure 25: Fifth Floor Plan, (Feddersen & Ludtke, pg.109, 2009)

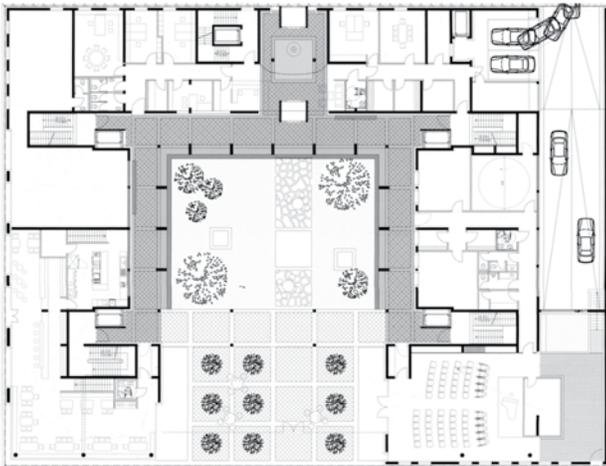


Figure 26: Site Plan, (Feddersen & Ludtke, pg.109, 2009)



Figure 27: Sectional Elevation, (Feddersen & Ludtke, pg.105, 2009)



Figure 28: Elevation, (Feddersen & Ludtke, pg.107, 2009)

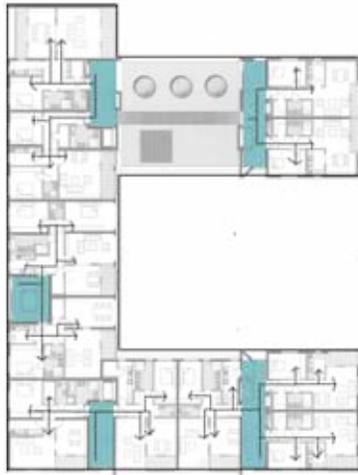
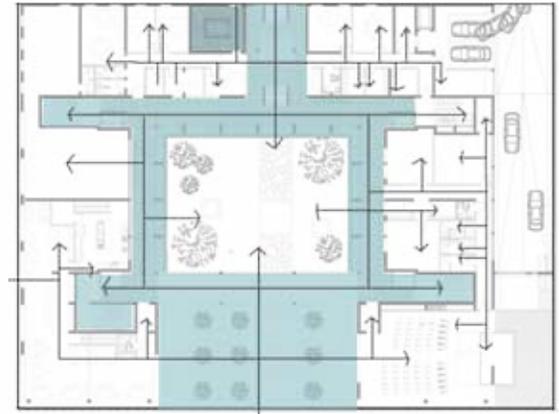


Figure 29: Circulation to Use



Circulation to Use

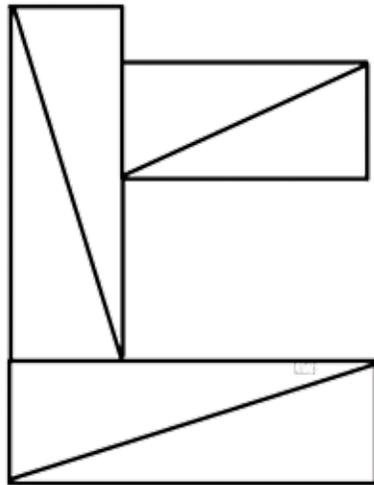
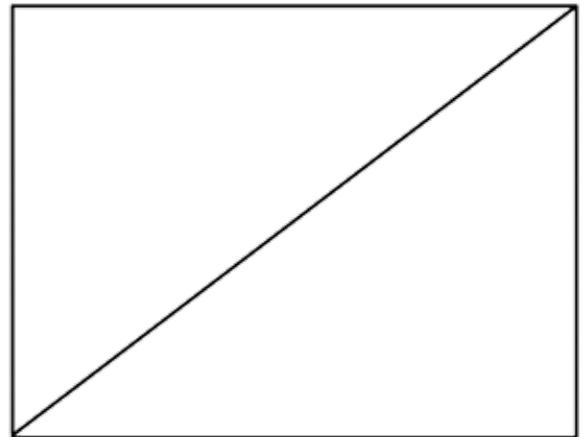


Figure 30: Geometry



Geometry

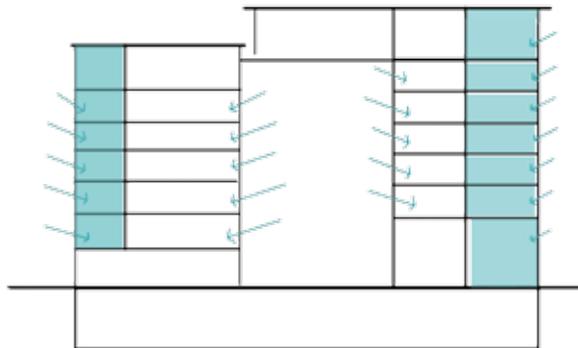


Figure 31: Natural Light

Natural Light

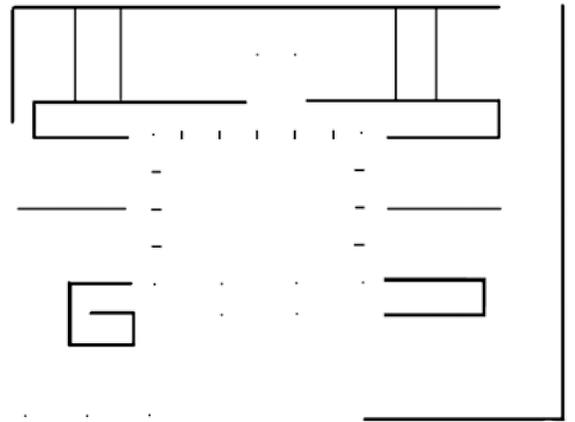
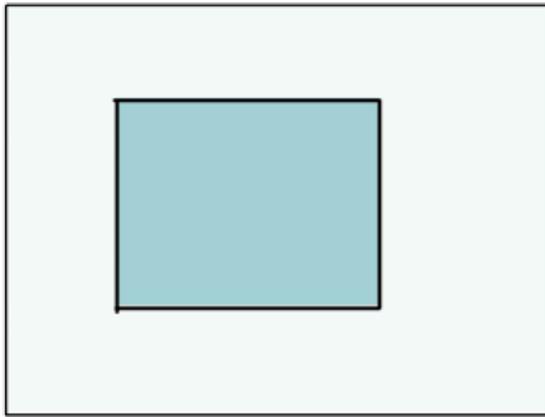


Figure 32: Hierarchy

Hierarchy

Structure

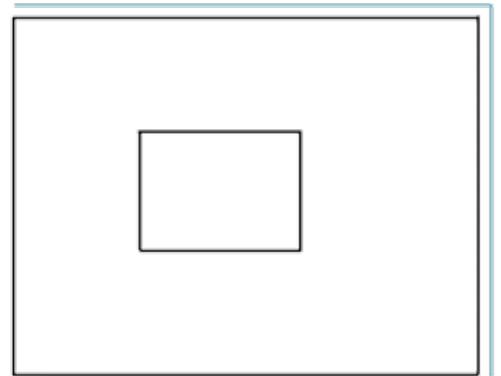
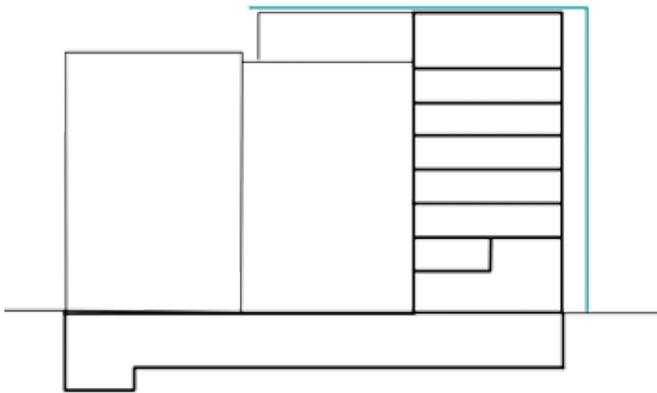


Figure 33: Plan to Section

Plan to section

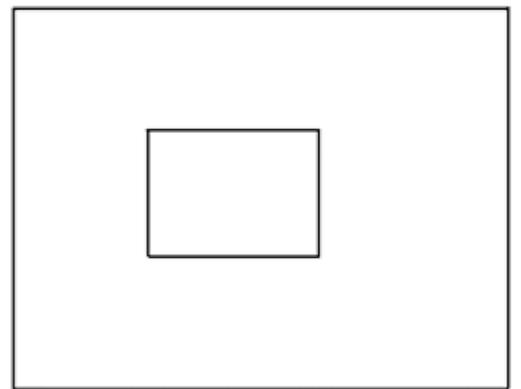
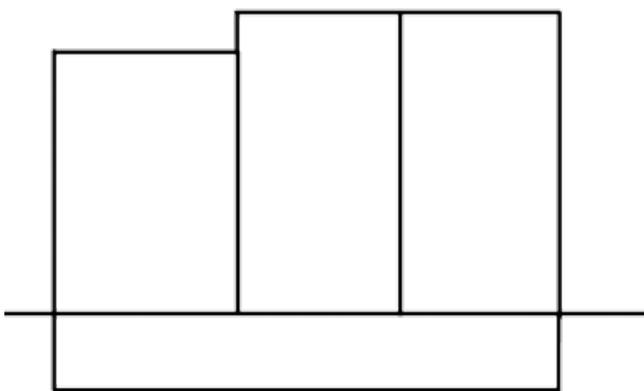


Figure 34: Massing

Massing

Sunrise of Bellevue

Typology: Assisted Living and Dementia Facility

Location: Seattle, Washington

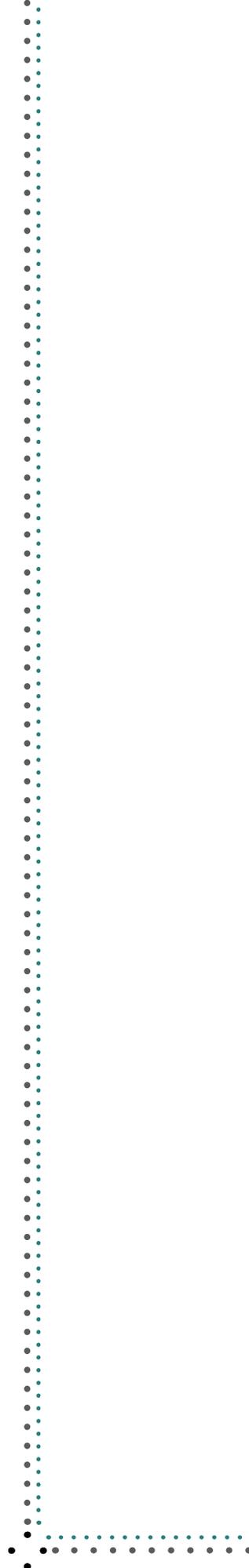
Size: Total SQ Ft. unknown

Social Interaction

Sunrise of Bellevue is Assisted Living and Dementia Facility located in Seattle Washington designed to have an Arts and Crafts style. The building is 4 stories high with a total of 70 units. There are 3 different unit types, studio, one bedroom, and dumbbell units ranging from 315 sq. ft. to 525 sq. ft. (Regnier, 2002, pg.191). The first three floors are dedicated to assisted living with a few select rooms for Alzheimer's patients and the 4th floor is for patients with Dementia.

The selection of site location for the building focuses on community integration. Sunrise of Bellevue is surrounded by parks, retail store and a community center. The spaces within the assisted living areas on the first 3 floors include a library, TV room, parlour, foyer, bistro, conference room, dining room, private dining room, exterior gardens, kitchen, office, laundry, public toilet, staff lounge and residential units with small kitchen and bathrooms (Regnier, 2002, pg.192). The building also incorporated care giving areas to help residents with daily tasks. At least six activities a day are run as an option for residents (Regnier, 2002, pg.193).

The plan of the building is very tight and compact which is helpful to provide ease of access to elevators and activity spaces for those with physical impairments. The 4th floor is for elderly with dementia have space 18 units which are divided into two group communities. Spaces include living rooms, office that looks over the community spaces, spa bath, laundry, toilet, balcony and dining room (Regnier, 2002, pg.194). The dementia focused floor strives to create "pleasant days for each resident because there can be unpredictable circumstances. Sunrise of Bellevue also provide life skill stations for the residents with dementia with activities such as sports, crafts, gardening, beauty and more (Regnier, 2002, pg.195).



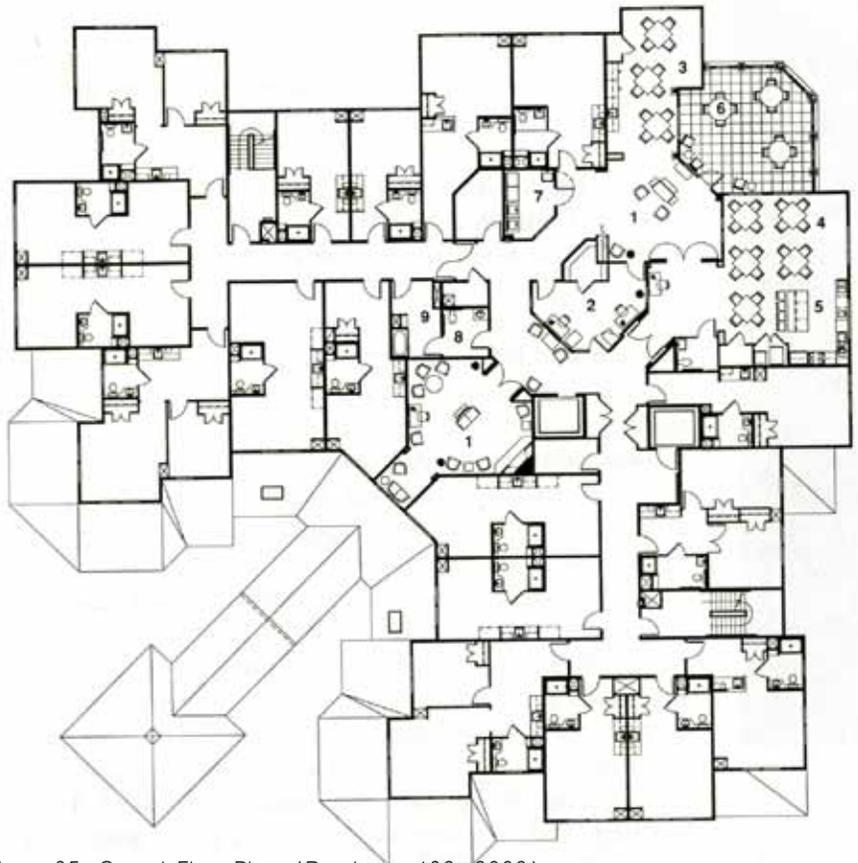


Figure 35: Ground Floor Plan, (Regnier pg.192, 2002)

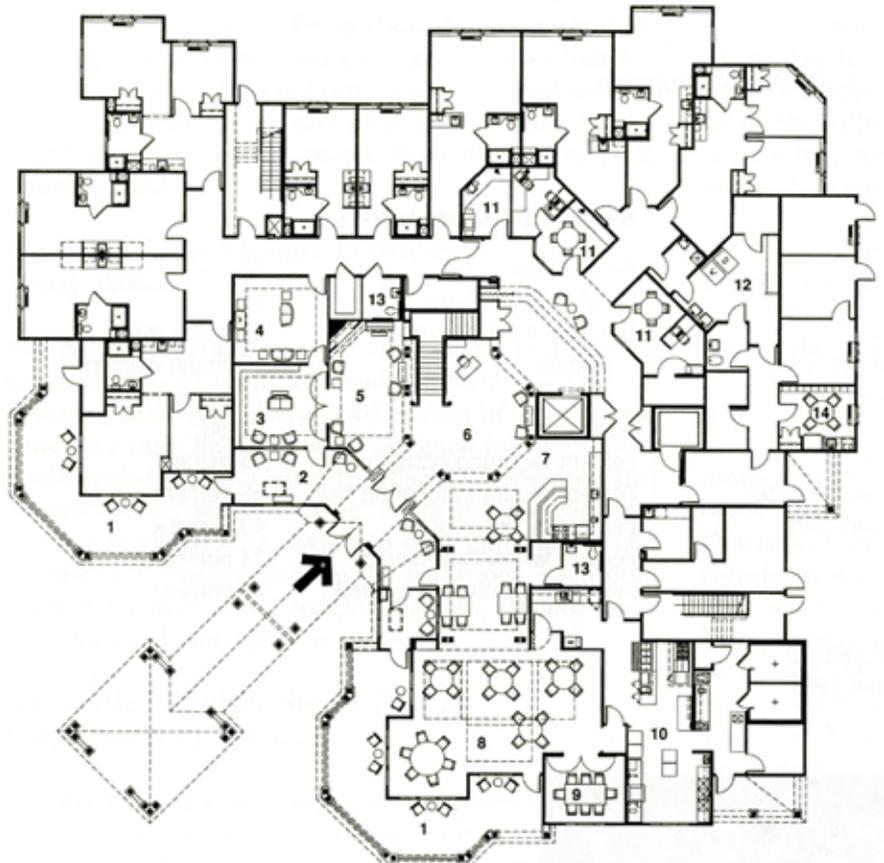


Figure 36: Dementia Floor, (Regnier, pg.192, 2002)

All spaces within the building including the bathroom and kitchen comply with ADA and accessible regulations. Shelves and cabinets are easy to reach and railings and grab bars are available if needed (Regnier, 2002, pg.195).

The unique features of the facility that can set it aside from others are Sunrise Signature. These are 22 different added elements that help to enhance the quality of living. Some of these signatures include, live-in cat and dog, children toy box, shadow boxes outside of the doors for residents to personalize, firelight glass windows that provide a connection to the corridors, programs to encourage families, friends and visitor to spend time with the residents and in the rooms with special features for elderly with Alzheimer the bathrooms are painted with distinct color such as green so residents can visually tell the difference between the toilet and sink from walls (Regnier, 2002, pg.194-195).

Sunrise of Bellevue focuses on making the place approachable. Policies are focused on the desires of the residents. Personal attention is given to each resident and their needs. Even the staff offices are design to welcome anyone with questions or concerns with dutch doors and half walls (Regnier, 2002, pg.193). The building has an open floor plan in the entry so when visitors come in they can view all public areas. Each room has distinct feature though materials and color choices in flooring, walls and ceiling (Regnier, 2002, pg.193). The entry includes a porch that provides a friendly atmosphere.

Sunrise of Bellevue responds to the needs of residents. The design looks at elements that can make them feel at home. What is uncommon about this building are the perks that are offered though the sunrise series. With having a diverse range of residents, transition from one level of care to another can be made easy and convenient.





Exterior (Sunrise of Bellevue, 2012)



Entry (Sunrise of Bellevue, 2012)



Lounge (Sunrise of Bellevue, 2012)



Dining Room (Sunrise of Bellevue, 2012)

Crown Cove

Typology: Assisted Living Independent Living and Dementia Facility

Location: Corona Del Mar, California

Size: Total square footage unknown

Quality Care

Crown Cove is a mixed use and diverse 5 story assisted living facility that is located along the pacific ocean. An ocean front location allows for a peaceful relax atmosphere for the elderly to enjoy in their old age. The building is integrated into a residential and commercial community. Crown Cove is described as a shingle style building that have features resembling lighthouse features (Regnier, 2002, pg189).

Crown Cove has a total of 75 residential units that average 400 sq. ft. in size. The residential units are divided into 3 different care groups or programs (Regnier, 2002, pg187). Within the care programs the units are grouped into cluster. There are 17 units on the top level that are designated for residents with dementia, 14 units on the lower level for enhanced care resident, or residents that have a great physical impairment and require more care and the remaining units which fill the middle floor are for independent living. All of the public spaces and 40% of the dwelling units have view of the ocean and sea shore side (Regnier, 2002, pg190).

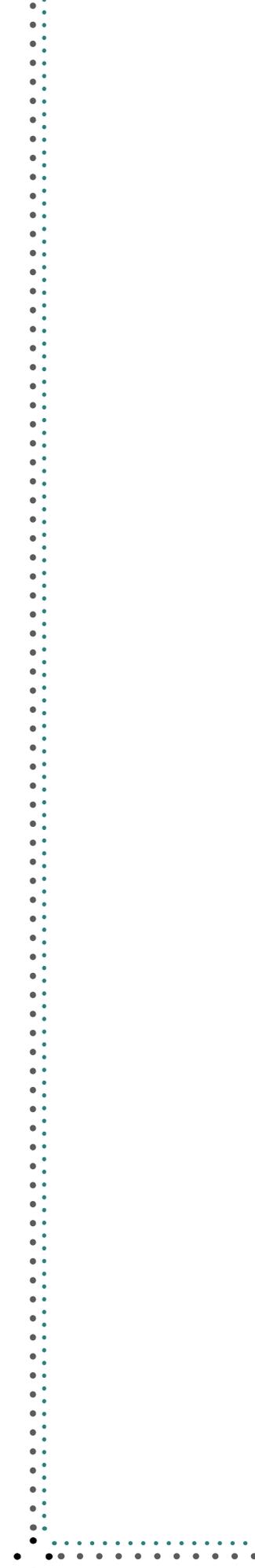
Crown Cove had a wide variety of spaces in the building program. A library with a fire place, public dining room, private dining room for family gatherings, reception area, administration, laundry, physical therapy, beauty salon, morning room, directors offices, lobby, bistro for snack and coffee, gift store, child care center, and lounge area with a parlor and piano (Regnier, 2002, pg.188). The exterior of the building is surrounded by garden and casual sitting patios for residence to social in.



A special sensory garden that covers an underground parking area is used for the dementia care program. Balconies are located on every level of the building for residents to sit outside and see the ocean view (Regnier, 2002, pg 189). Residents with dementia are provided with life skill kitchen and similar life skill activities. Shadow boxes for an element of personalization are given to each resident (Regnier, 2002, pg).

Crown Cove is described as a friendly and residential focused building that was detailed and designed to blend with the buildings that surround it. Residents in the 3 different care programs have individual and personalized care plans with little change in nursing staff to provide stability. Quality service for the residence is important to the staff and sponsor of the facility. Staff is required to respond to residents need within 30 minutes and fix problems within 24 hours after or residents will receive financial compensation (Regnier, 2002, pg190). For residents with dementia a program titled “Memory in the Making” provides organized and schedules care.

Crown Cove has many common feature that resemble general standards in other senior care facilities. Similar elements such as shadow boxes for dementia patients, bistro’s and exterior garden spaces for the elderly are similar to other case studies. The design address 3 completely different care levels for the elderly all combine into to one which is not as common and unique. This can allow for easy transition for elderly from one care level to the next. All three programs, enhanced care, independent living and residents with dementia, were give equal amounts of understanding to accommodate for elderly needs.





Exterior Patio (Senior Beach Living, 2011)



Dining (Senior Beach Living, 2011)



Exterior Turret (Senior Beach Living, 2011)



Exterior Dining (Senior Beach Living, 2011)



Dining (2) (Senior Beach Living, 2011)



Exterior Patio (2),(Senior Beach Living, 2011)



Garden (Senior Beach Living, 2011)



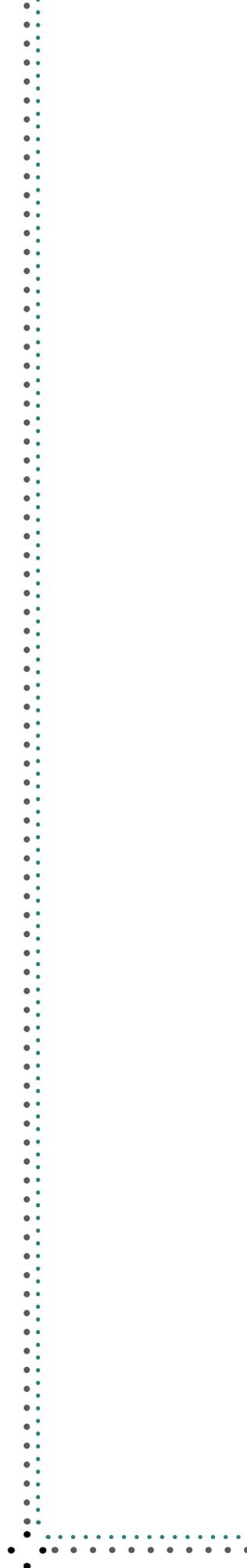
Exterior (Senior Beach Living, 2011)

Summary

Understanding the importance of senior care can help to contribute to the quality of life for the elderly. Assisted living facilities take different approaches to providing stimulating and comfortable care for senior. Each one has different and unique qualities that make the building stand out amongst other. But many senior care facilities embody the same similarities as well. This shows that a general standard is beginning to be set for assisted living. Designers are gaining knowledge of what is appropriate for senior living residences. The 5 case studies selected to examine for this thesis are all located in diverse location both in the United States and in European countries. The example projects embody vibrant and unique characteristics that approach new ways to design assisted living facilities. The case studies help to support the Theoretical Premise / Unifying Idea by showing that the move from institutional living facilities to a more independent, comfortable and connected community can have a positive effect on the elderly both physically and mentally.

The Cronstetten House is integrated into the busy city life of Frankfurt Germany. The building help to bring in the surrounding public by providing public serves such as restaurants, shops and community event spaces. This senior care facility provides an enjoyable, comfortable and accessible living space for resident of different ages and physical abilities. The Competence Center for Dementia is a specialized care facility for residents with dementia. It provides group care living for resident but also allows them to add personal touches to make their space feel like a home. Stadtcarre, like the Cronstetten House, is integrated into a busy urban city and has a public passage way that serves as a connection point between parts of the city. The facility has separate section of housing for elderly that are at different physical stages in life. Crown Cove and Sunrise on Bellevue are both an assisted living and dementia care facility located on the western part of the United States. Both embody similar characteristic on how they care for the elderly and people with dementia. Crown Cove is in a mixed-use residential community that was design to not only focus on the residents need but the beautiful Pacific Ocean view. All five facilities are relatively large in size and house anywhere from 70 to 96 residents.

81 Case Study

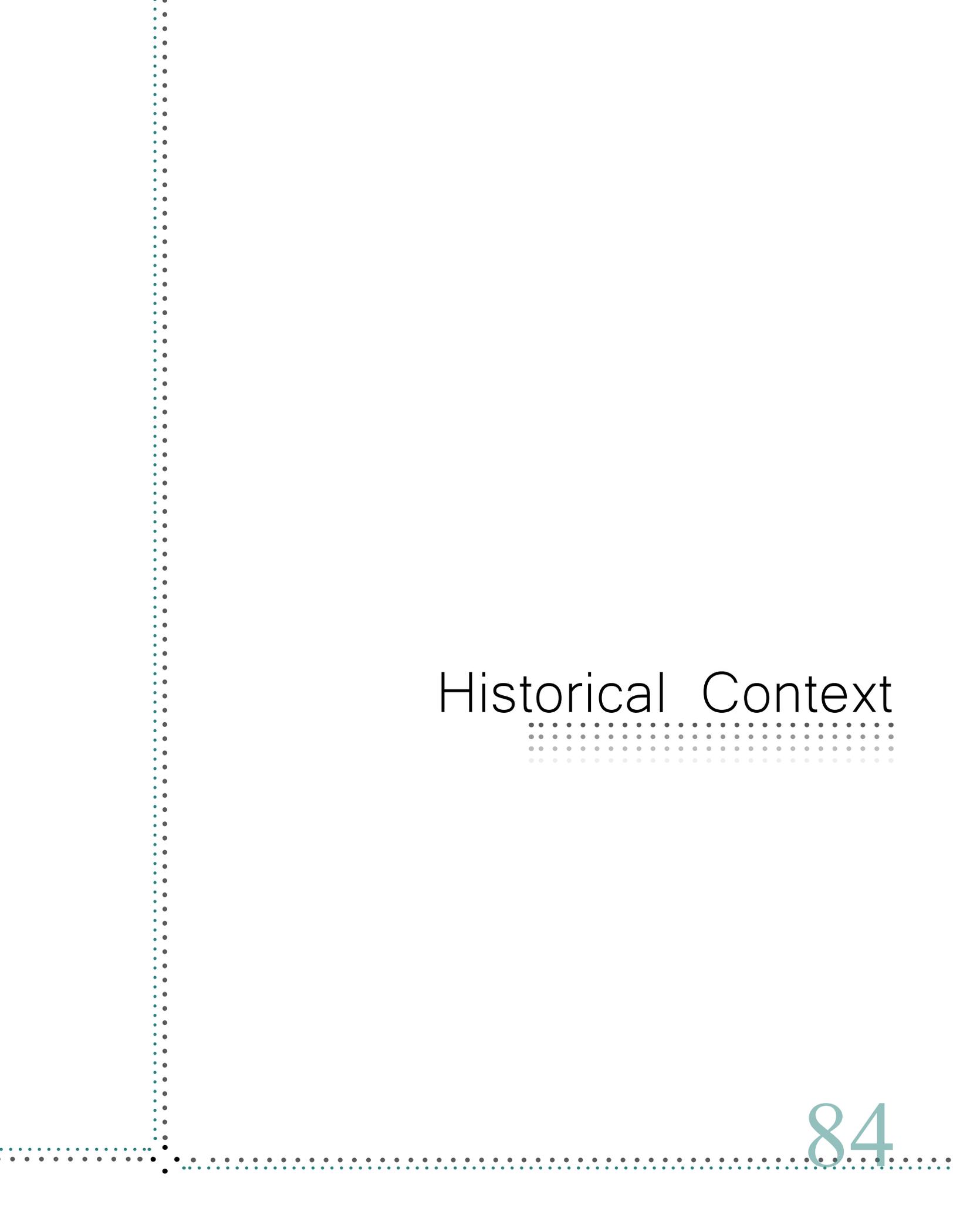




All five case studies examined provide a diverse yet similar look and appropriate design for assisted living. Common characteristics that are presents in most of the case studies are were the decision to select a site that was integrated into a mix-use community or near basic amenities. The Cronstetten House, Stadtcarre, and Sunrise on Bellevue are located in denser city area that is within walking distance amenities. The locations allow residents to connect and be part of the surrounding community. The Competence Center for Dementia and Crown Cove also have location that is in communities with mixed-use building but the areas have a quieter atmosphere. ADA compliance and accessibility is another common characteristic within all 5 building. The designs of the senior care facilities were created to provide a sense of ease for resident. Physical limitations were taken into design consideration so the elderly could move comfortably.

The last characteristic or new trend that is common in Crown Cove, The Cronstetten House, Sunrise on Bellevue, The Competence Center, Stadtcarre and many other assisted living communities as well, are the in-house services and activities that the senior living communities provide. All of the building programs include different types of amenities for residents in the form of dining facilities, social lounges, recreation spaces, life skill activities, beauty parlor, retail store, outdoor patios and gardens, therapy centers, medical services, spaces for worship, spaces for community involvement and child care centers. Several of the assisted living community case studies have unique or uncommon elements that are not seen in other building. For example, Sunrise on Bellevue incorporates Sunrise Signature which is special amenities that show attention to deal and go above and beyond the care provided from other senior living communities.

These five assisted living or senior care facilities show the influence of changing trends in elderly housing over time. Although all have different site locations, the design and layout of the building works to give convenience and comfort to resident to create enjoyable lives for aging persons with a wide variety of abilities and aspirations.



Historical Context

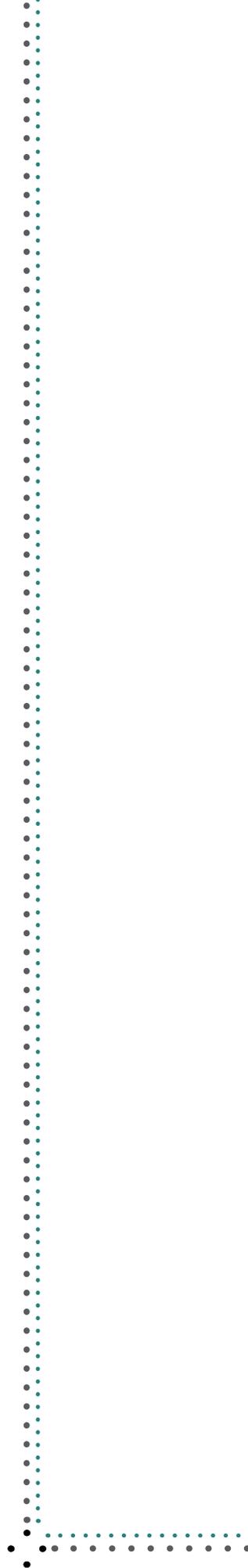


Development of Assisted Living

The development of senior care and assisted living facilities has overcome great challenges. The influence of changing trends, time periods and cultures, as well as needed improvements in society have helped to create the current standard for assisted living facilities. In the past, care for the elderly did not exist outside of the home; many generations would live under the same roof. All social classes including the wealthy, middle class, poor and even immigrants cared for the elderly within their own homes. As people aged they were taken care of by younger generations such as their children and grandchildren.

At the beginning of the 20th century the concepts of nursing homes, assisted living facilities and any form of federally funded housing for the elderly did not exist (Ratcliff, 2009). There were, however, almshouses. An almshouse, also known as a poorhouse, was a place where those who could not work to make a living for themselves could live for free (Almshouse, 2012). Sometimes the elderly would end up in an almshouse because they faced the potential of poverty after retirement. Unfortunately, almshouses did not provide the level of care for their needs (Social Security Act 1935, 2012).

One of the first initiatives to help support elderly people in their old age came in the 1930s. President Roosevelt helped to create and pass the Social Security Act in 1935. The Social Security Act created funding and resources for the elderly to pay for living care (Ratcliff, 2009). Social security funding was supported by federal taxes collected from people but before this time elderly care was the concern of local or state levels (Social Security Act 1935, 2012). It was not until the 1940's that nursing homes began to develop. The majority of the nursing homes created were not well regulated; they had very poor living conditions and a low quality of life (Ratcliff, 2009). A decrease of extended family was occurring and the elderly could not rely on their children for care anymore (Burby, 1990).





The poor conditions of senior living facilities soon became evident to many. People began to realize the need for change and wanted to reform nursing homes. Most homes were not fit to address the special needs of the elderly (Ratcliff, 2009). In the 60s there were many attempts to create regulations for elderly care. Most attempts at reform failed because the cost of elderly care became too great an expense for anyone to support. In an attempt to save elderly care, an amendment, the Medicare Amendment Act, was passed in 1965. President Lyndon B. Johnson signed this amendment in hopes that it would “improve a wide range of health and medical services for Americans of all ages.”(The 1965 Medicare Amendment to the Social Security Act, 2012). This amendment was an extension of the Social Security Act and was federally funded.

In the 1970s the poor conditions and mistreatment within nursing homes started to become a publicly noted issue. Reports were published showing patient neglect, disparity in the levels of care provided for residents and under funding given to the facilities (Ratcliff, 2009). Residents were secluded and lacked social interaction with other which was affecting their overall well-being (Burby, 1990). With medical advances allowing the elderly to age in place, people began to refuse the idea of nursing homes. The neglect for the elderly was becoming apparent and institutionalized nursing homes were no longer acceptable (The History of Assisted Living, 2012). Because of growing awareness younger generations at the time did not want to be institutionalized like their parents and grandparents

Small groups of citizen’s initiatives in the 1980s began to take action to reinvent what long term elderly care (Regnier, 2004, pg ix). The Retirement Research Foundation was an organization that was established around this time and still exists today. The Retirement Research Foundation funds research initiatives and studies that relate to individuals and industries that work with retirement and the elderly. The RRF works to improve the quality of life in long term elderly care and to engage the elderly in the surrounding community (Mission, 2011).

Many other advocacy groups were also created to help project aging Americans. These include: CCAL–Advancing Persons Centered Living, the National Center for Assisted Living (NCAL), and the Assisted Living Federation of America (The History of Assisted Living, 2012). Citizen’s groups and organizations wanted to create a better life for the elderly that focused on their needs; their solution was to reject institutionalized facilities. During the 80s there arose enthusiasm for developing new ways to allow elderly to live with dignity and to create a setting that resembles as home (Regnier, 2004, pg ix).

European countries have set design standards for senior housing. During the 1980s Americans started to take notice of European trends and designs in the senior housing. Assisted living in Europe proved to be pleasant and well suited for the needs of the elderly. The influence of European countries served as an inspiration and sparked desire for change in America. Europeans took a new design direction that looked at the special and individualized needs of the elderly (Feddersen and Ludtke, 2009, pg.25).

The Europeans addressed the shift to an aging society much earlier that American’s did. After World War II, Europeans were proactive and began to create policies that would avoid institutional facilities as an option for senior care. Quality in living became important. Change was occurring in multiple countries, but each in a different ways (Regnier, 1994, pg6). Each European country developed unique housing for the elderly based on their own culture and tradition.

In Denmark, social integration of different age housing units was important. Older residents should live among the younger (Feddersen and Ludtke, 2009, pg.25). In 1993, Gynemosegrad, a housing community built in Denmark, showcased the integration that characterized senior housing design in this country.





The project is integrated into mixed-development surroundings. There are a combination of accessible units with options for care services for the elderly and housing for young families with children. The integration within the community brings energy and life for the senior residents (Regnier, 2004, pg 175).

The Netherlands developed residential zones or settlements that offered efficient and optimal living conditions for the elderly (Feddersen and Ludtke, 2009, pg.25). Humanitas Bergweg, an assisted living facility for the elderly built in 1996, is an “apartment for life” building in Rotterdam. The building was created specifically for the needs of frail people in an apartment like complex. The design accommodates ADA standards and encourages residents to be independent. The building and units were developed to accommodate for aging. As residents’ age increases, services are provided and switching rooms is not necessary (Regnier, 2004, pg159).

In Germany, new elderly housing was design to integrate young and old (Feddersen and Ludtke, 2009, pg.25). This strategy has been implemented in many situations throughout the country. Stadtcarre is one example of age integration that combined two elderly age groups in one complex. This building integrated age ranges as well as those with different physical capabilities (Feddersen and Ludtke, 2009, pg.115).

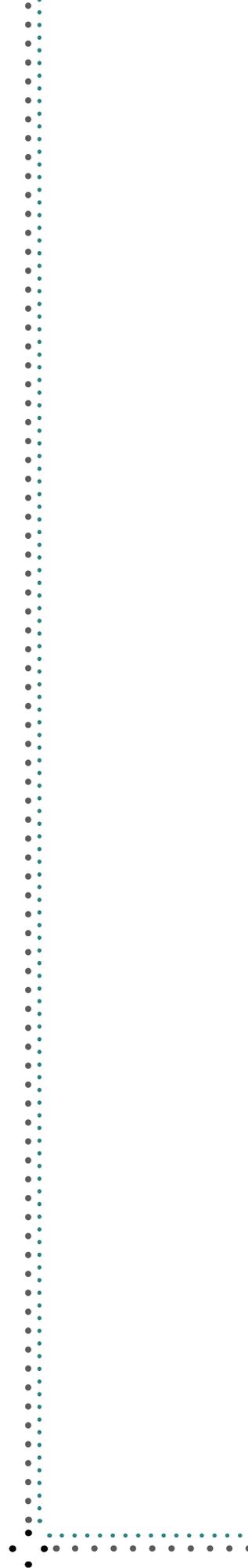
European countries address assisted living with the influence of new architectural forms in order to improve health care and remedy social problems. American’s shift in the treatment of senior care was influenced by the study of European trends (Regnier, 1994, pg7). “Numerous influences from foreign and domestic models have stimulated the thinking behind today’s assisted living prototype,” (Regnier, 1994, pg12). Studies have shown that the original focus of Elderly housing in America was to fit the maximum amount people into one place with minimum amounts of effort. This created places that lacked identity (Building LLC, 2010).

European trends in assisted living showed that human scale and human needs were important. The design focused on engaging the surrounding community and to evoke a sense of meaning (Building LLC, 2010).

The term assisted living was first used in the publication "Provider, Contemporary Long Term Care, and Retirement Housing Report" (Regnier, 1994, pg.1). New influences have contributed to the creation of assisted living. There have been over 40,000 new assisted living facilities have been created and developed throughout the United States since 1981 and into the 90s and 2000s (The History of Assisted Living, 2012). Americans are aware of what elderly care was like in the past and have learned from that. Studies of assisted living typologies have shown evidence of increased happiness and better quality of life for the elderly in current elderly care facilities. European countries have shown how important the development of senior living can be. It is an on going process of change; similar to social trend and movements in society. When change for the better is made in one aspect of life, other areas are sure to follow soon after.

History of Site Area

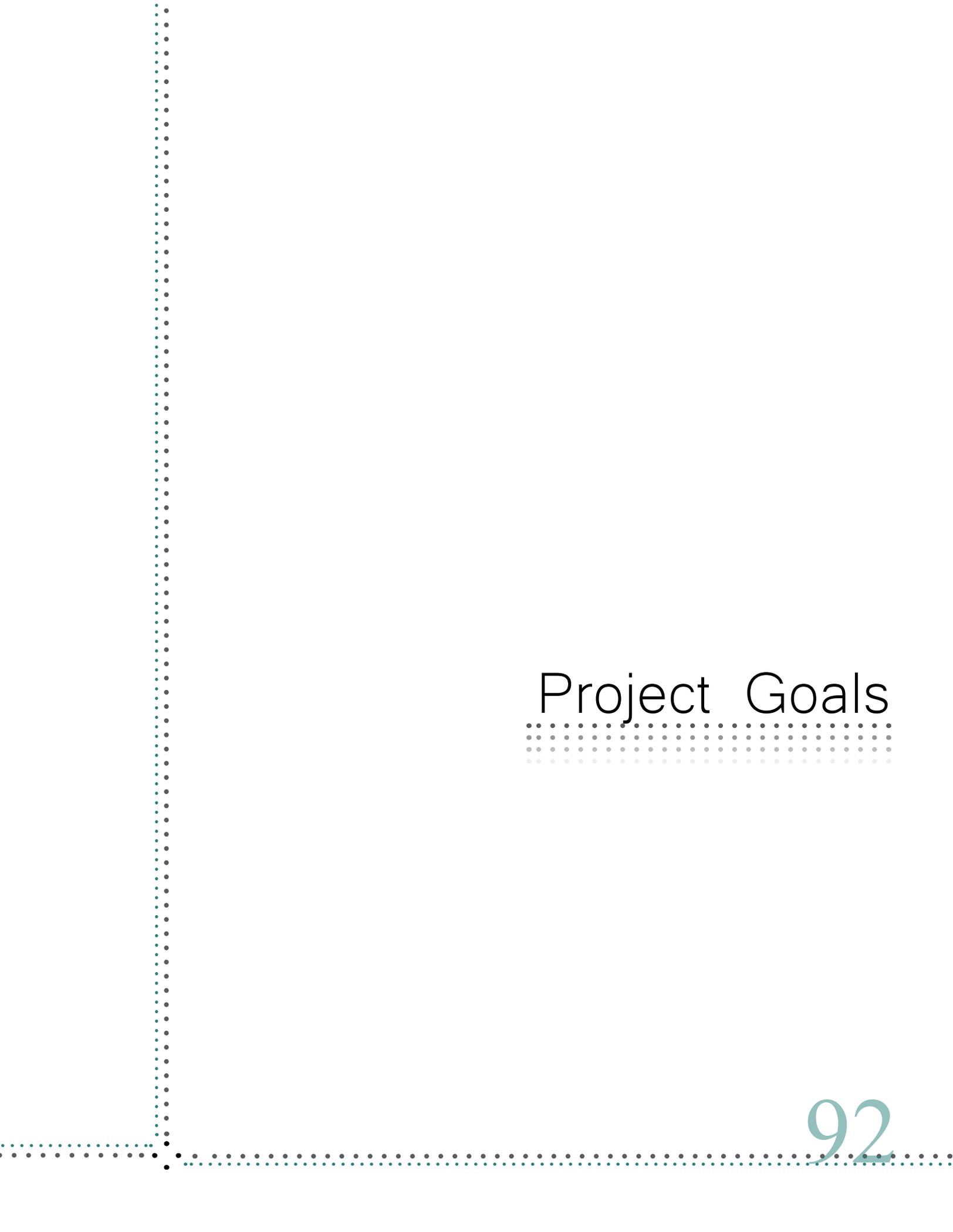
The development of the site and area has also undergone many changes over the years. Brookings County is located on the eastern side of the state of South Dakota. The area was first occupied by a Native American tribe and it was not until 1850 that the first settlers arrived in the area (History of Brookings, 2012). The county was organized in 1871 and was primarily composed of German, English, Irish and Norwegian immigrants who settled in the area (Soil Survey of Brookings County, South Dakota, 2004, pg.14). In 1880 the population within Brookings County was 4,965 people. 100 years later in 1990 the county had grown to 25,207 residents. The city of Brookings alone at the time was over 16,000 people making it the largest city in the county (Soil Survey of Brookings County, South Dakota, 2004, pg.14). There are several crucial elements that contributed to the development of the Brookings county area.



The first was the Big Sioux River which winds through the county and served as a primary water source for settlers. The second was the development of the railroad that brought settlers out west. Having the railroad made it easier for people to travel out west and to access needed supplies. The railroad, Big Sioux River, along with many lakes and rich soils, served as great attractions for people to live in the Brookings area, (History of Brookings, 2012).

Both the city of Brookings and the county were named after Wilmont W. Brookings who initially settled in the Sioux Falls area in August of 1857. Brookings traveled throughout the area, and during one of his trips he encountered a blizzard, leaving him with frostbitten feet which were later amputated (History of Brookings, 2012). Brookings was well known for his drive and determination to develop the Dakota area despite hard conditions. He was a highly respected man who held high authority positions as he traveled through the territory, and he was honored by having the area named for him (History of Brookings, 2012).

Throughout the last century, the site location for this project was primarily used for St. Thomas More Catholic Church which is located in what is titled as the Central Residential Historic District of Brookings. The area is given this name because of the styles of many of the residential houses in the area. The houses are described as having “exaggerated overhanging eaves, extra chunky millwork, and elaborately wrapped in gingerbread and include dramatic features such as turrets and sprawling wrap-around porches.” (Pandolfi, 2009). The church on the site was originally constructed in 1906. As the congregation grew throughout years, the original church was torn down and rebuilt in 1950 to accommodate for a larger amount of people (History of Old Sanctuary, 2012). In 1959 it was decided to have several additions made to church in the form of a rectory and a catechetical for more space. The additions were completed in 1964. 35 years later in 1999 the congregation grew to a size that could no longer fit in the existing building and was moved to another location within the city. The sanctuary and other buildings left behind were converted into rental spaces, offices and community spaces (History of Old Sanctuary, 2012). The site area has undergone many transitions over the years. These transitions have helped to create an appropriate location and community surrounding for an assisted living facility.



Project Goals

Introduction

There are many elements that are required to complete and create a successful thesis project. Thesis projects require many hours of detail work, persistence and dedication. A thesis project generates many questions and elements that need to be researched, cared about and understood to create a well developed design. It is important for anyone who takes on the task of completing a thesis to be self aware of the time commitment and effort they require. Setting goals of all kinds, academic, professional and personal are incredibly import to showcase ones full efforts. Goal can help to manage a project and enlighten one on what they hope to achieve in a thesis.

Academic

Academically, I would like for my thesis to show my development and the progress that I have made as a designer. My thesis should show that I have gained full understand and knowledge of the problem statement, building typology, site and issues related to the project. Designing an assisted living facility, or any building typology, takes concentration and understanding of the specialized needs of the client and the users of the building. Academically I want to push myself to succeed. If there something I have learned during this long process becomes intriguing, I want to continue my research on that topic so that the knowledge I have gained can contribute to end result of the project. If someone were to ask me a question related to my thesis, I would like to be able to answer the question with confidence and to assure people that I know what I am talking about. This Thesis should show how design is important in our world and how it can affect the quality of a person's life.

Professional

Professionally, my goals for this thesis project would be that at the completion of the process, I would be able to take my work for a firm that is hiring and show them my capabilities. My thesis should show that I have what it takes to work in the architecture world and that I understand important design issues. A thesis project should show the qualities that one can possess and the learning that has occurred over the years. It is a culmination of one's abilities at the present stage in life. I would like my thesis project to show people that I was dedicated, persistent, and hardworking and am willing to take on challenges to improve myself as a designer.

Personal

My personal goals for this thesis are to complete the project in full and to obtain my Master's of Architecture. I do not want to be disappointed in the work that I produced. It is important for me leave NDSU with a clean slate, to feel confident in myself and the knowledge I have gained to succeed in the real world. I do not want wonder "what could I have done differently?" My thesis should be something that I am proud of I want no regrets. It should show the vast amount of knowledge I have gained over the years. I would like for future student and professor to look at my project as a good example of how to approach a thesis. Completion of this thesis project and a professional degree in architecture will show anyone who has ever doubted my abilities that I can succeed and that hard work pays off. As mentioned before I want to push myself academically and to continuously be learning. I do not want to be remembered as nobody but as someone who works hard and will do well.



Site Analysis

Views /Vistas & Built Features

Views around the site location consist of residential housing, back alleys with garages, large trees that line the streets and low traffic roads that reside on a flat and minimal sloped area in the city of Brookings. The residential area is defined as a two family residential area and public signs denote the area as a “Residential Historic District.” The National Register of Historic Places defines the boundaries of the Brookings Central Residential Historic District as Third St., Sixth St., Meadly Ave. and Fifth Ave (South Dakota–Brookings County, 2011). All buildings are 2 to 2.5 stories high and are covered with wood or plastic paneling that is common in residential housing. The built features and existing structures that surround the site are place in a grid like pattern that is common with residential neighborhood planning and property lines. The only exceptions to these two characteristics are the on site building. The old sanctuary built in 1952 and is currently used as an event center rises above the surrounding built structures. All 3 buildings on the site area masonry constructed building with a dark red brick façade.



Site Image, (Farmer, K.A)



Site Image, (Farmer, K.A)



Site Image, (Farmer, K.A)



Site Image, (Farmer, K.A)

Light Quality

The light quality on the site felt very warm and inviting. The light that touches the site highlights and emphasizes the green colors of the trees and grasses over the dull black and grey colors of the streets and parking lot pavement. On the northwest and southwest sides of the site there was low direct or harsh light that could be harmful or disruptive to the sight of a person. This is due to the carefully planned tree coverage of the site that allow a soft and filtered glow that is allowed on the site in the late afternoon, evenings and mornings. On the Northeast and Southeast sides of the site the amounts of direct light increases as you move closer toward Meadly Ave. There is less tree coverage on the busier road.

Site Reconnaissance/ Photogrid- Around the Site



NORTH- 4th St.



SOUTH- Back Alley



EAST- Meadly Ave.



WEST- 9th Ave.

Historic Building Features

There are several building characteristics that are seen in the surrounding residential buildings. Several of the houses have turrets, wrap around porches, pediments, dormers, porticos, columns at the residential entrances and ornamental details on the exteriors. The houses also have a variety of roof styles including; hipped, front gabled roofs, pyramidal and gambrel roofs. The slopes of the roof range anywhere from 3 in 12 to 12 in 12 . Through visual observation a majority of the slopes range from 8 to 10 in 12 slopes (Garage Building, 2008).

Materials

The materials of the surrounding site buildings consist of a majority of panel siding of either wood for plastic in a variety of colors with the exception of the on site buildings which are brick. Selected buildings have an additional material of masonry stone the front side near the entry as a decorative element.

Vegetation & Plant Cover

Vegetation location on the site is very controlled and restricted. A variety of deciduous trees that have been in the area for many years line the north, west and east sides of the site providing ample amounts of shade. Grass is neatly trimmed in the yard areas and along the sidewalks. Shrubbery is minimal and if present, is located near the building entrances, as a marker to determine property lines, landscaping and aesthetic purposes.



Vegetation, (Farmer, K.A.)



Vegetation, (Farmer, K.A.)

Water

No visible water was present during the two site visits. On the second site visit at the end of October, a light layer of snow was present on parts of the site. After the winter season there is a potential for standing water when the snow melts on the south side of the site. The back alley on this side consists of pavement that has not been well kept up and has small pot holes that could hold melted snow. This would be intermittent water.



Vegetation, (Farmer, K.A.)



Vegetation, (Farmer, K.A.)

Wind

Direct and harsh wind on site is minimal. The existing structure and vegetation provide coverage. Greater wind speed comes from the northwest in the winter and southeast in the summer months. Through all seasons of the year wind from the east and west is very little.



Vegetation, (Farmer, K.A.)



Vegetation, (Farmer, K.A.)



Human Characteristics

There is human interaction currently on the site and within the surrounding. Residents of the area are continuously coming and going to use the services on site. The interaction is evident by the traffic that is present on all sides of the site and the vehicles parked on site and on the surrounding streets. Adults and children utilize the sidewalks that surround the site for exercise or recreational activities.

Distress

The site does show some signs of distress that are present because of time and natural wear and tear. The on site parking lots and street curbs have cracks in the pavement. It is visibly evident that the pavement areas have been refinished and sealed many times. Chunks of pavement are breaking off and the back alley had a depression in the center of the road. Some of the edges of the grass areas that surround the site are not a neatly trimmed and are growing over the curbs and into the pavement area. The distress of the site is also evident in the surrounding residential area because it is an older community.

Site Distress & Human Use, (Farmer, K.A.)

Soils

The city of Brookings is located on a high land plateau area call Coteau Des Prairie (Soil Survey of Brookings County, South Dakota, 2004, pg.12). Brookings soils are comprised of many 14 different series of soils. The two dominate series in the city of Brookings and located on the site location are a mixture of Vienna and Brookings soils (General Soils Map, 2004). Both of these soils are of the Mollisols order and has anywhere from a 1-6% slope (Soil Survey of Brookings County, South Dakota, 2004, pg.247).

Vienna Soil

-Agricultural Classification- Mollisols, Udolls, Calcic Hapludolls, fine-loamy, mixed, substrate, frigid- Vienna

-Engineering Classification- 46% Silt Loam, 21% Silty Clay, 33% Sand mixture

-Properties- well drained, silty loam texture, depth to water table is more than 6ft, non-flooding area, depth to bedrock is very deep, and permeability is moderately slow and has a high water capacity.

Brookings Soil

-Agricultural Classification- Mollisols, Udolls, Aquertic Hapludolls, fine-silty, mixed, substrate, frigid – Brookings

-Engineering Classification- 46% Silt Loam, 21% Silty Clay, 33% Sand mixture

-Properties- moderately well drained, depth to water table is 3ft to 5ft, non-flooding area, depth to bedrock is 10 to 20ft, and permeability is moderately slow and has a high water capacity.

(Soil Survey of Brookings County, South Dakota, 2004, pg.14)

(Soil Classification Key, 1994, pg.15)

Water Tables

Test were conducted on the soils in Brookings County by SDSU Plant Science Department and Agricultural Experiment Station in 2002. The percentage of water or moisture found in the soils was 32% maximum and 16% minimum (Soil/Water Research, 2002, pg. 9). The depth to the water table ranges from 3ft to 6ft depending on the type of soil. The site is not considered a non-flooding area and has a high water capacity (Soil Survey of Brookings County, South Dakota, 2004, pg.14). The site has previously been developed with building paved road and grading meaning subsurface problems are of low concern.

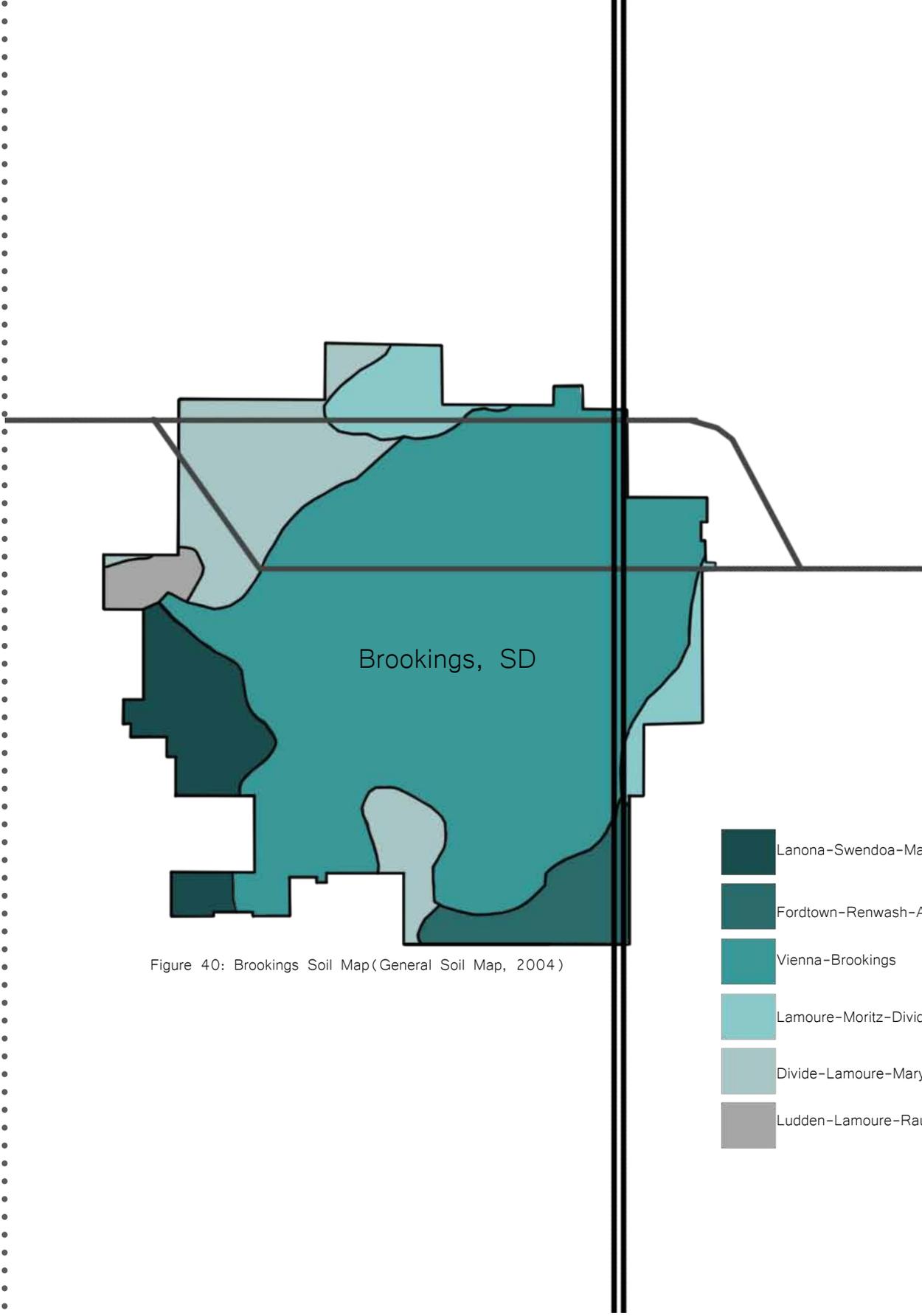


Figure 40: Brookings Soil Map (General Soil Map, 2004)

Slope Analysis & Visual Form

Based on the type of soil located on the site the topographic slope will can range anywhere from 1-6%. Vienna soil is 1-6% and Brookings is 1-2%. Because the area is mostly paved, is relatively flat and site work grading has been done drainage on the site is controlled and the area is usable for all types of activity (Soil Survey of Brookings County, South Dakota, 2004, pg.14).

Site Character

The character of the site can be describe and “lived in.” The neighborhood has grown and developed over time. The site shows signs of wear and tear from decades of use. But the wear and tear of the site does make the area look run down but gives it a feeling of comfort and safety for residence who live in the surrounding houses. There are signs of up keep and maintenance that has been done on the site. Zoning code for this two-family residential area require setback for each property of 25 feet for street sides and backyards and a 7 foot set back on from the property line boundaries (District Regulations, 2012).



Site Image, (Farmer, K.A.)



Site Image, (Farmer, K.A.)



Existing Structures, (Farmer, K.A.)

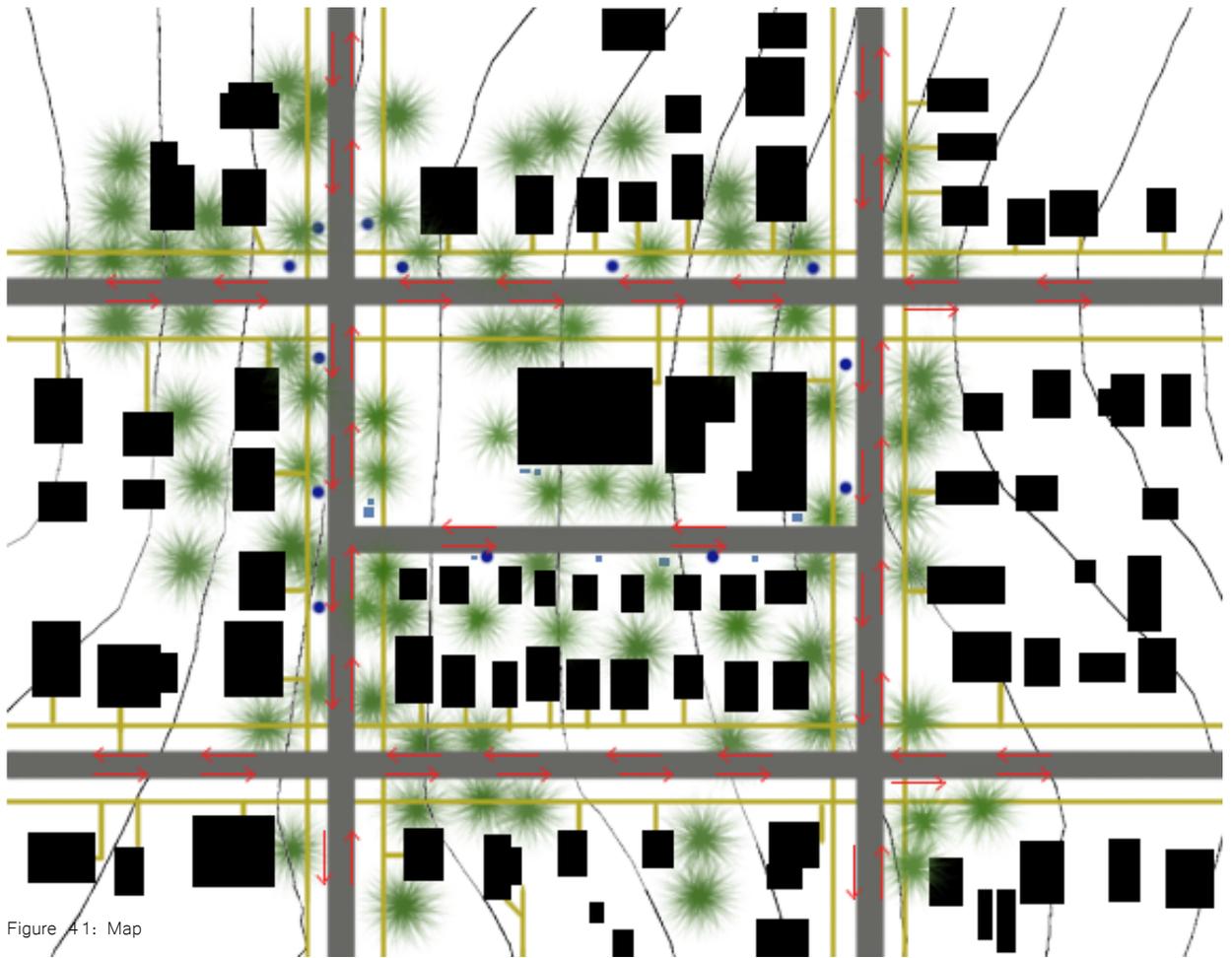
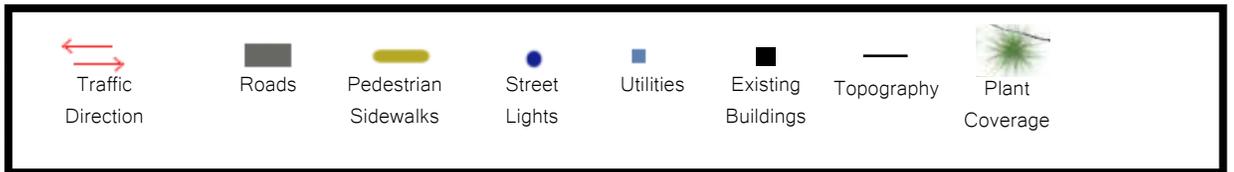


Figure 41: Map

Site Analysis Map



Ariel Photos

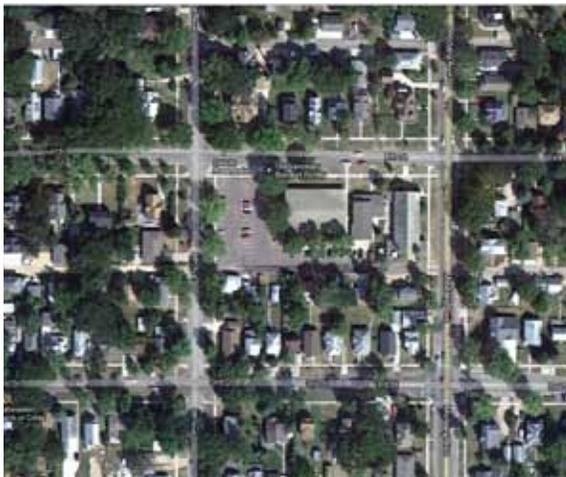
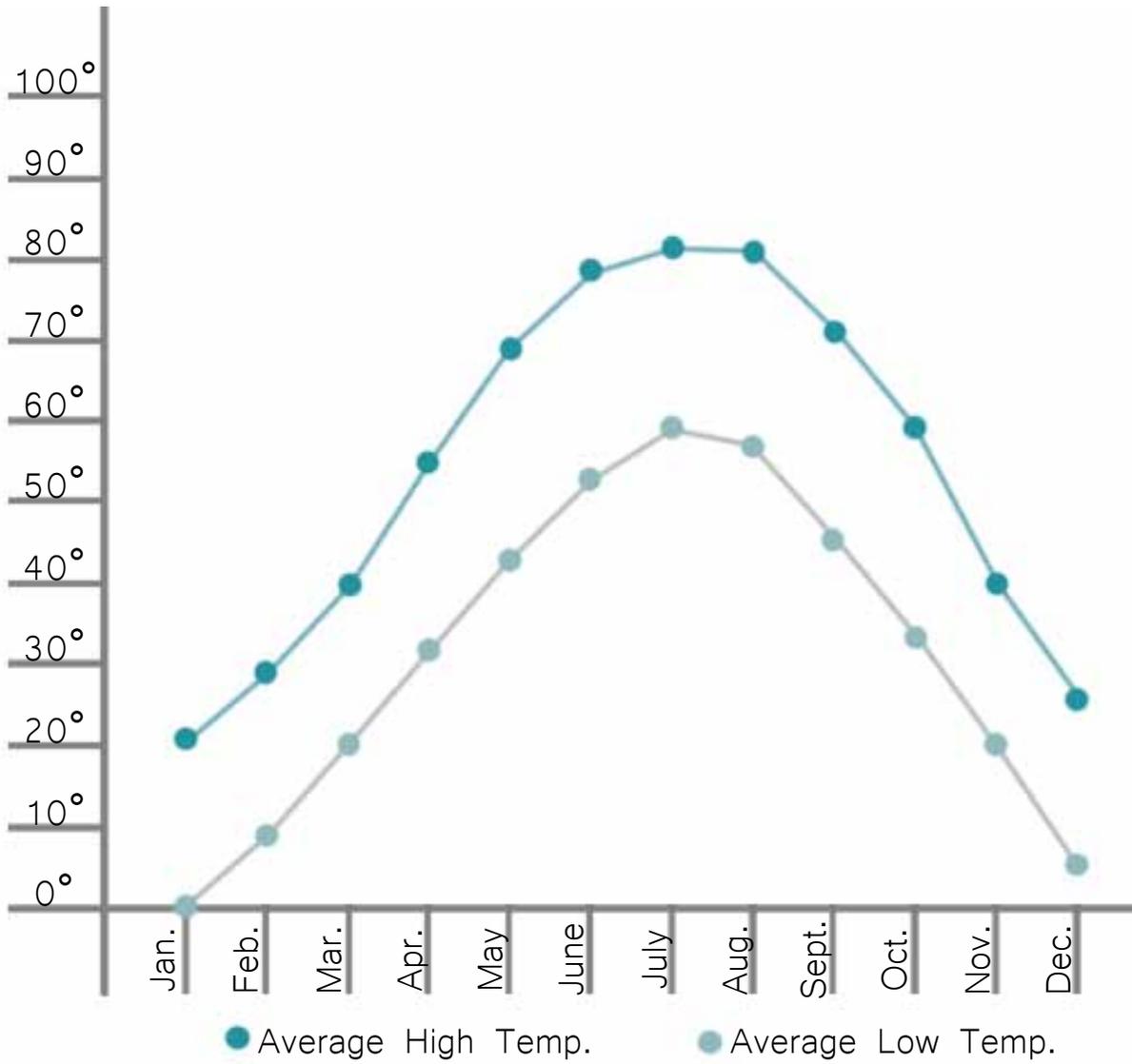


Figure 28: Ariel Photo (Google Maps, 2012)



Figure 28: Ariel Photo (Google Maps, 2012)



Temperature

Figure 42: (Brookings, South Dakota, 2012)

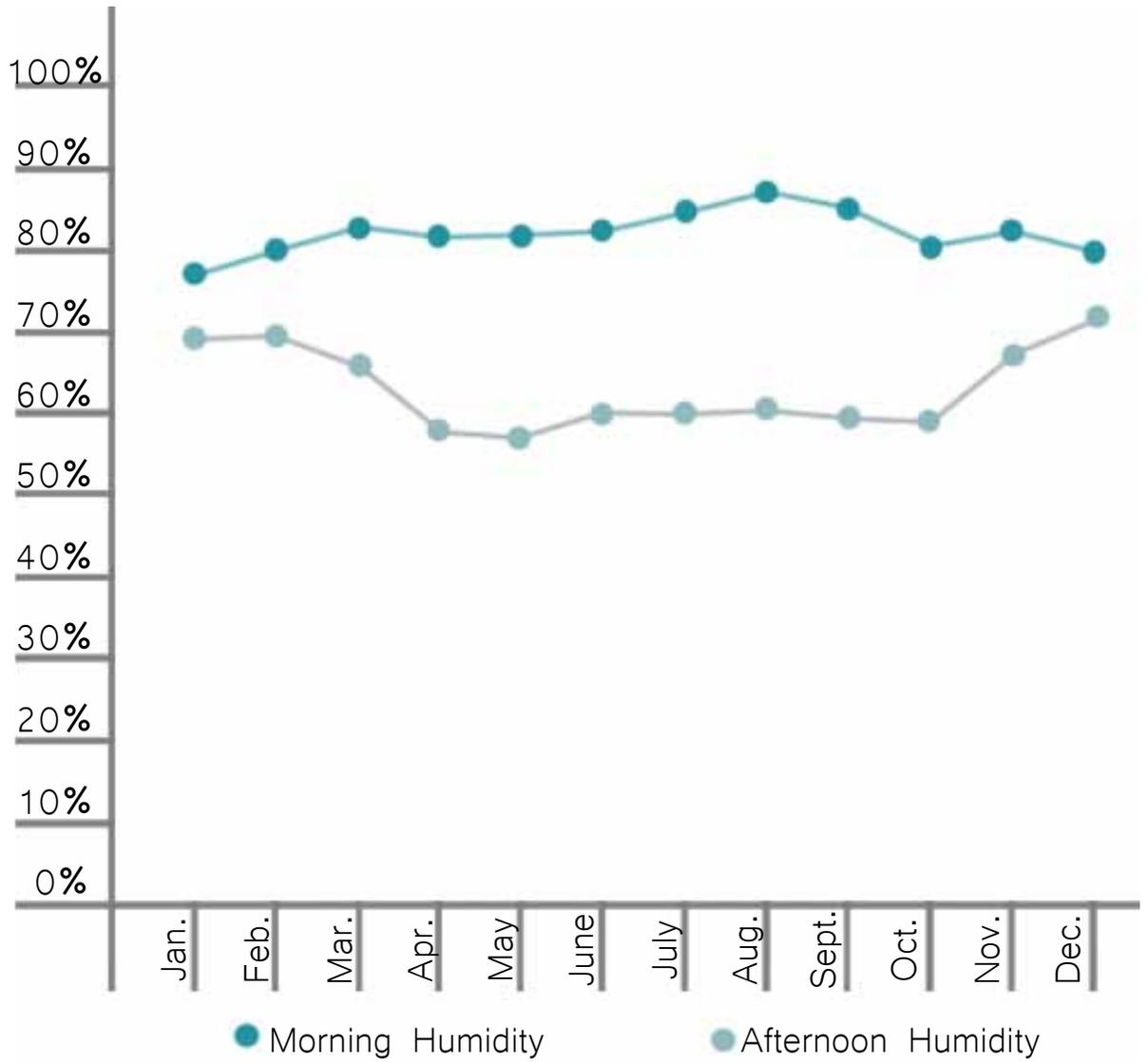
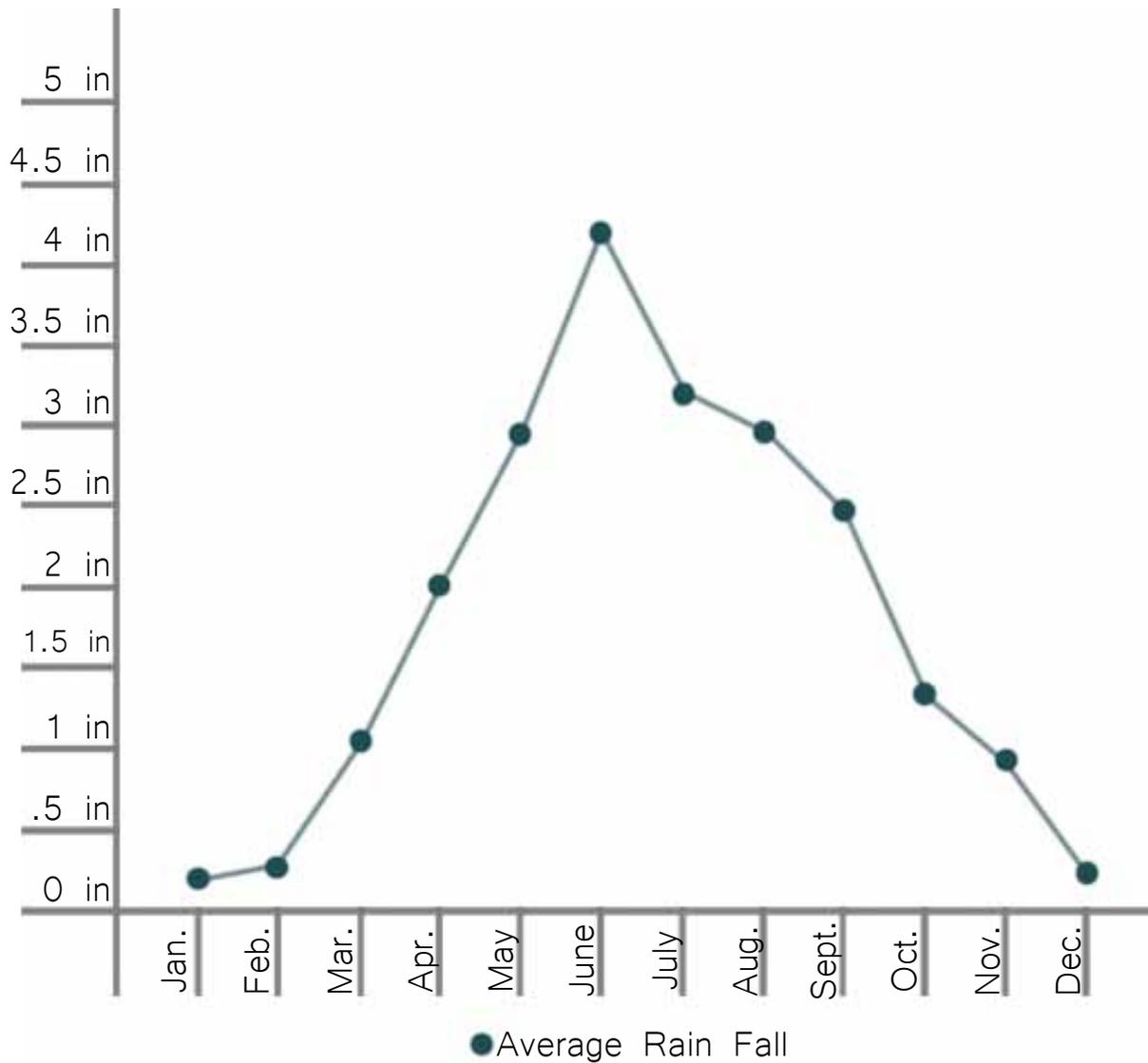


Figure 43: (Brookings, South Dakota, 2012)

Humidity



Precipitation

Figure 44: (Brookings, South Dakota, 2012)

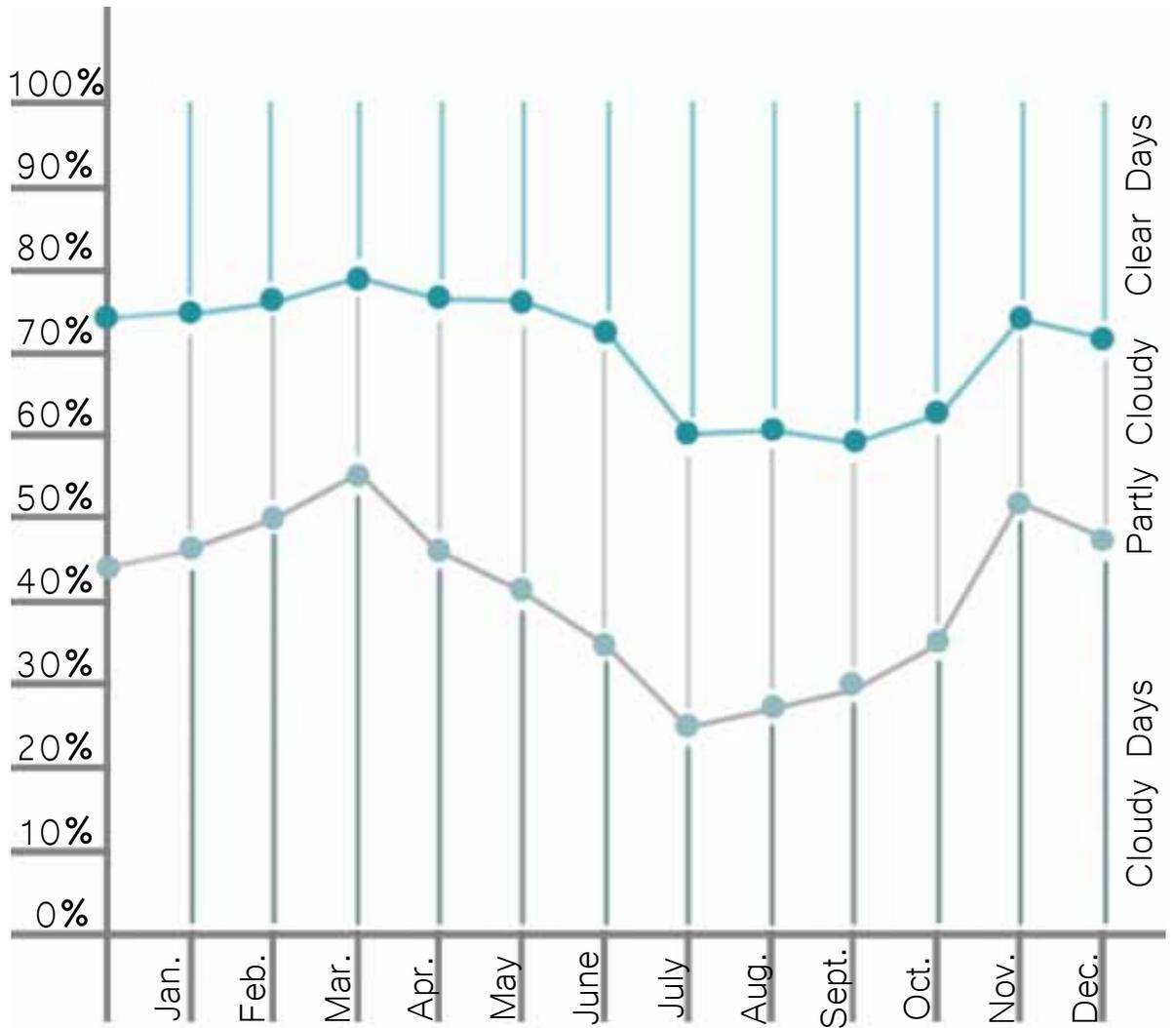
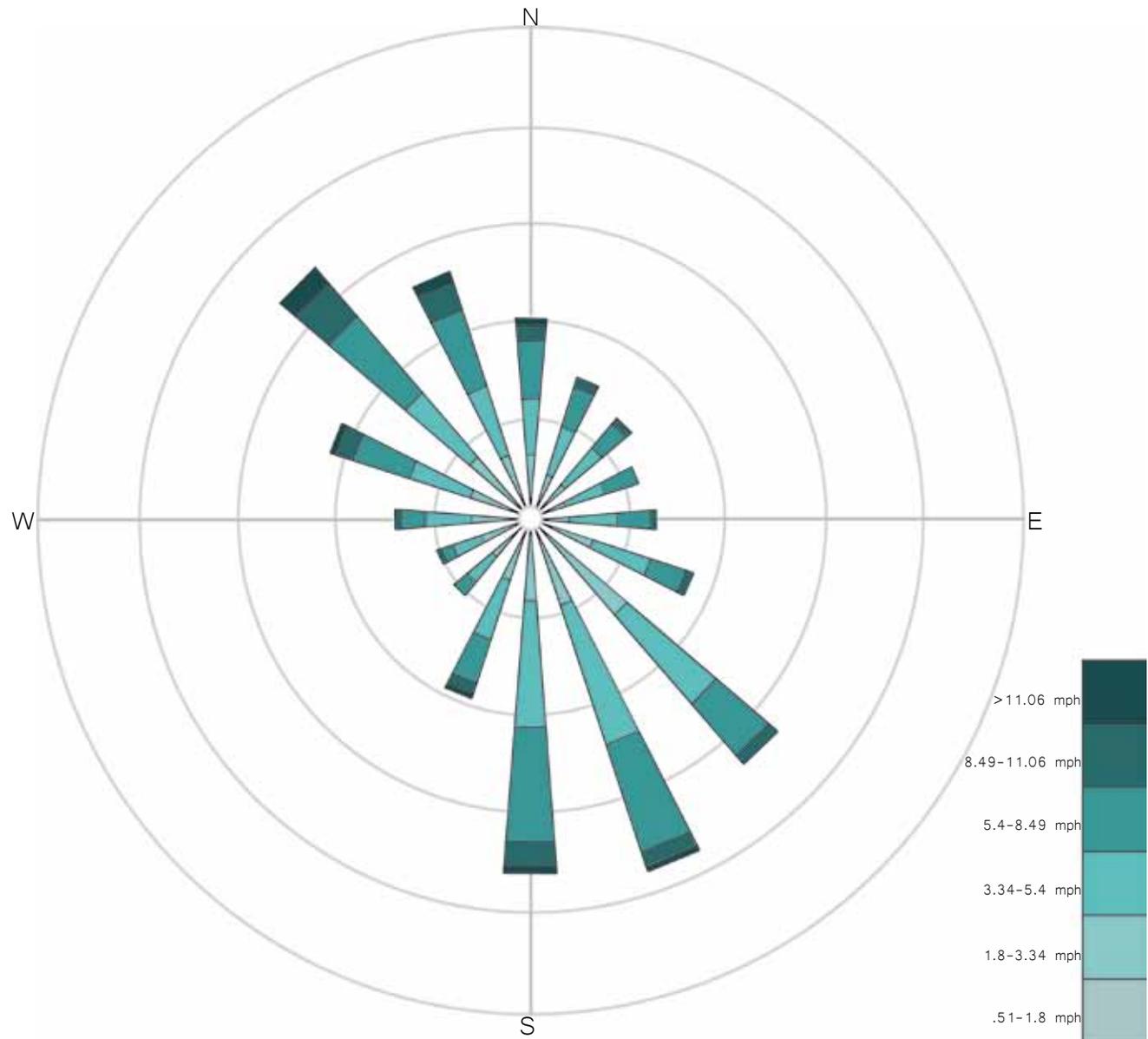


Figure 45: (Brookings, South Dakota, 2012)

Cloudiness



Wind Speed & Direction

Figure 46: (Wind Rose Charts (m/s), 2002)

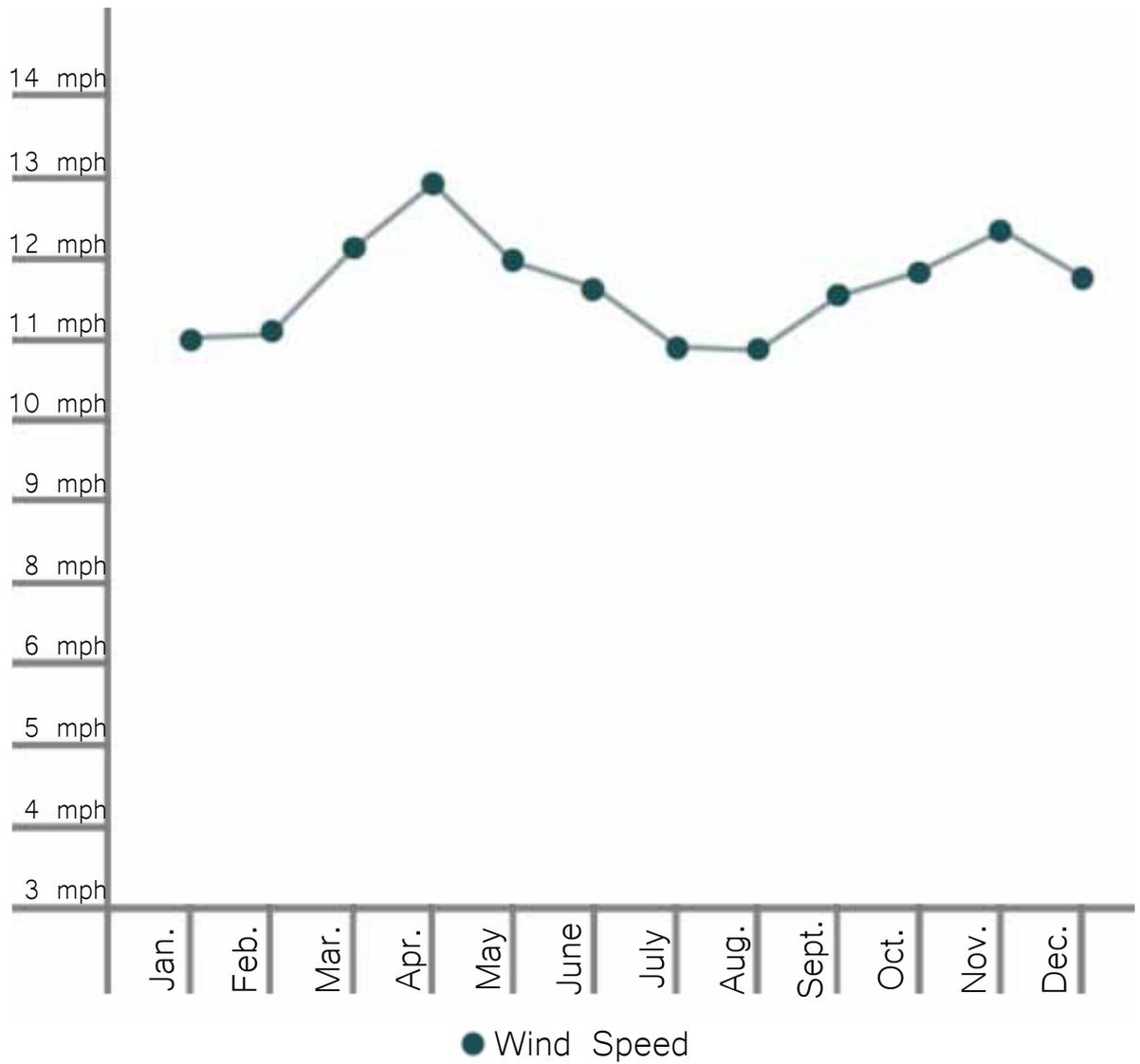
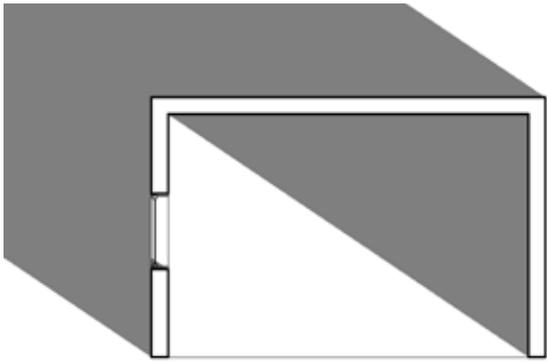
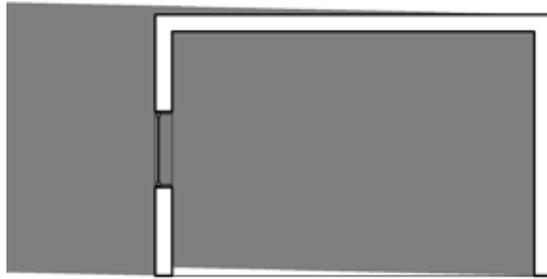


Figure 47: (Brookings, South Dakota, 2012)

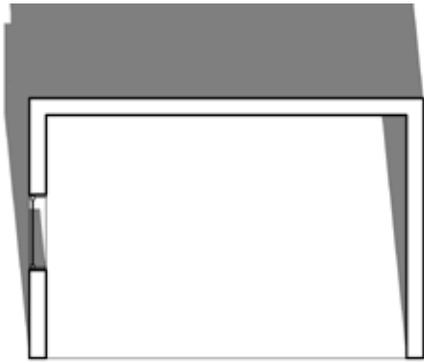
Wind Speed



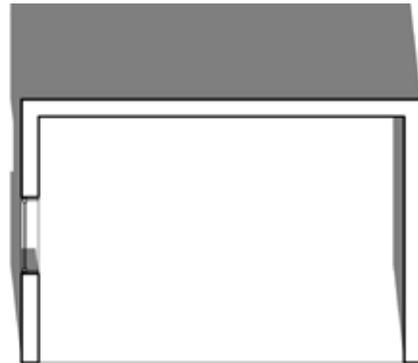
Morning, Winter Season



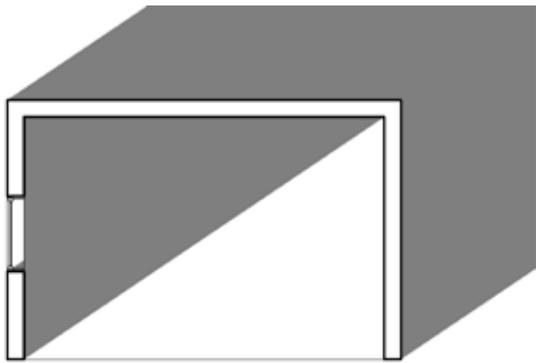
Morning, Spring Season



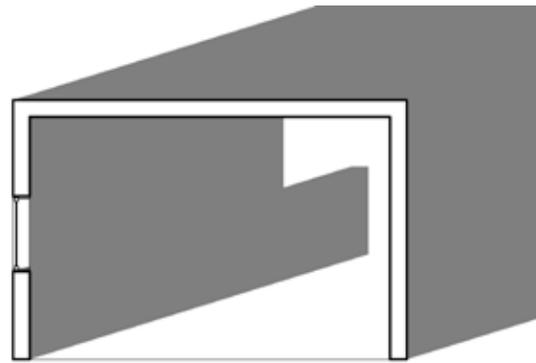
Noon, Winter Season



Noon, Spring Season



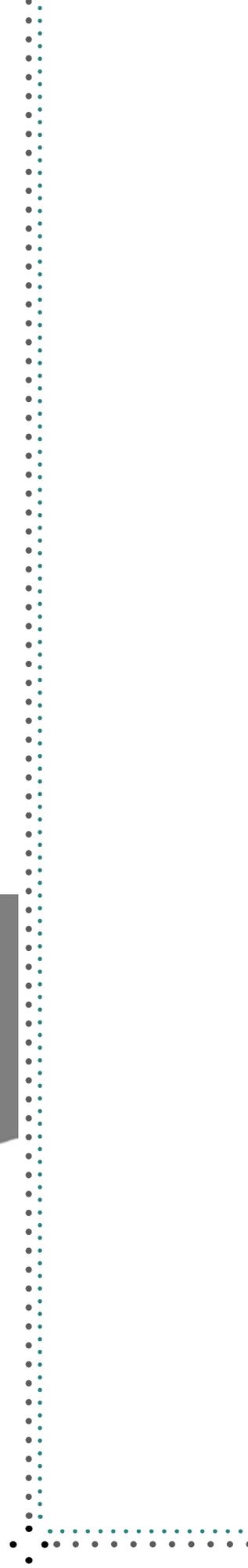
Evening, Winter Season

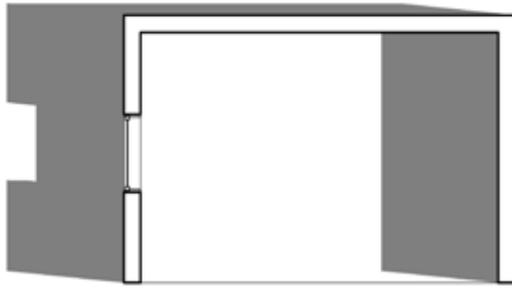


Noon, Spring Season

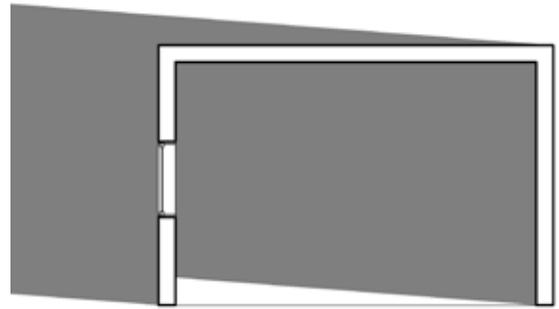
Figure 48: Sun and Shading Diagrams

Shading Studies

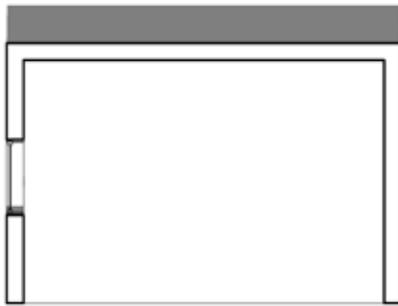




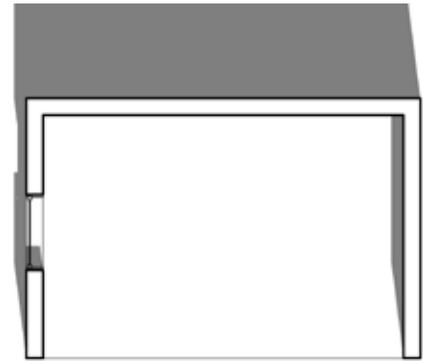
Morning, Summer Season



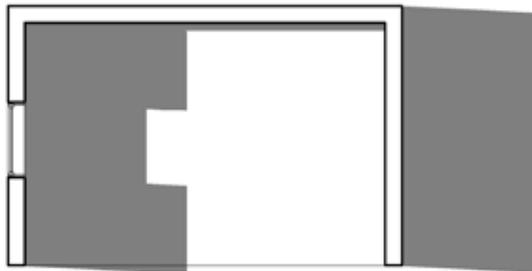
Morning, Fall Season



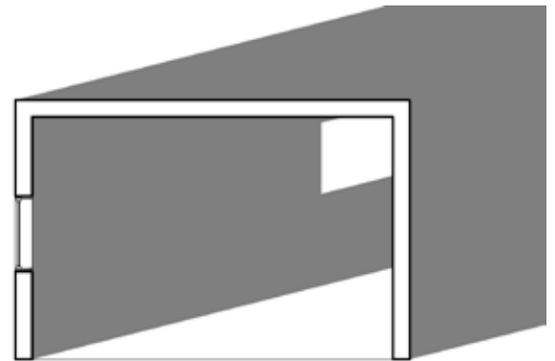
Noon, Summer Season



Noon, Fall Season



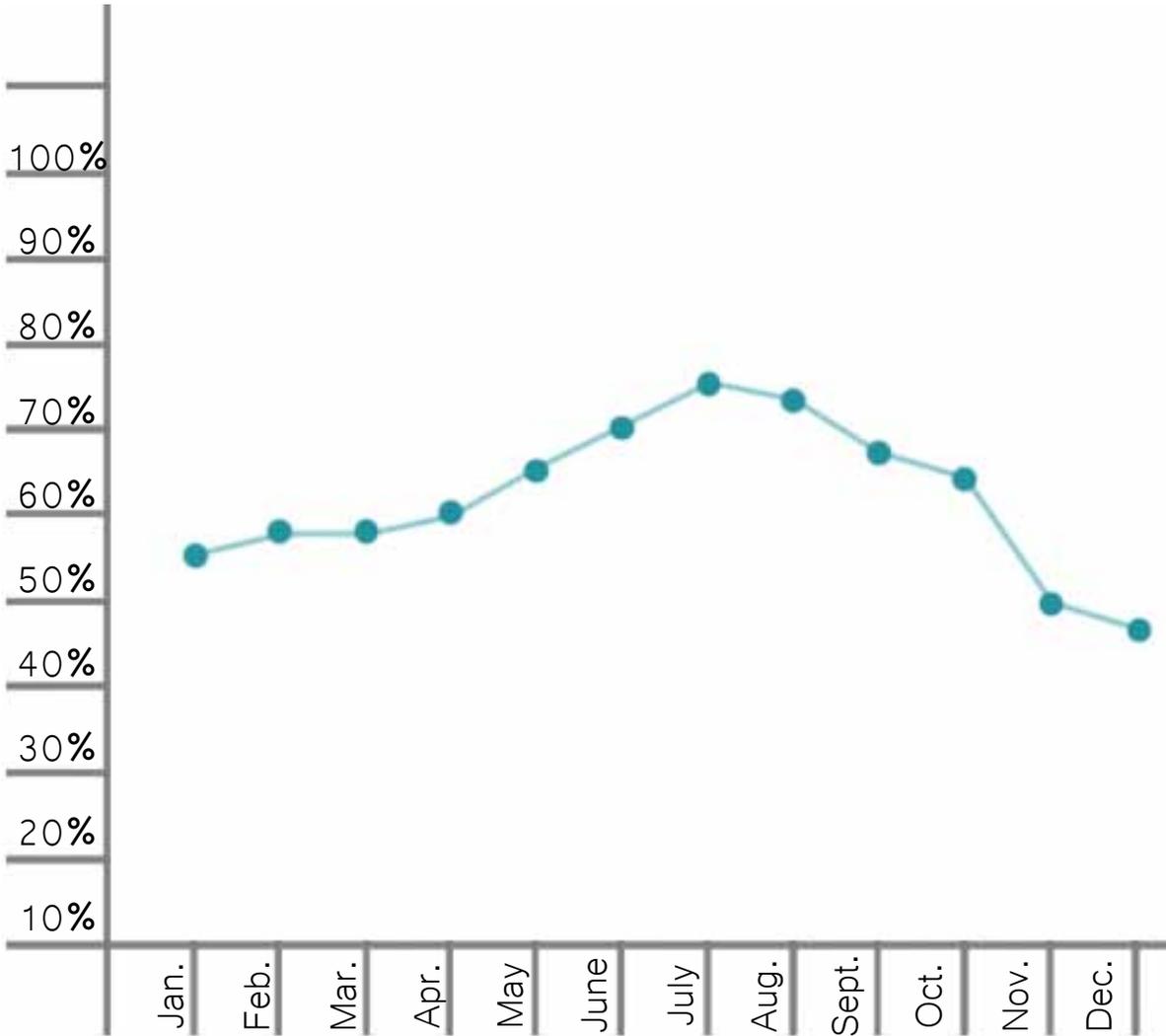
Evening, Summer Season



Evening, Fall Season

Figure 49: Sun and Shading Diagrams

Shading Studies



Sunshine

Figure 50: (Brookings, South Dakota, 2012)

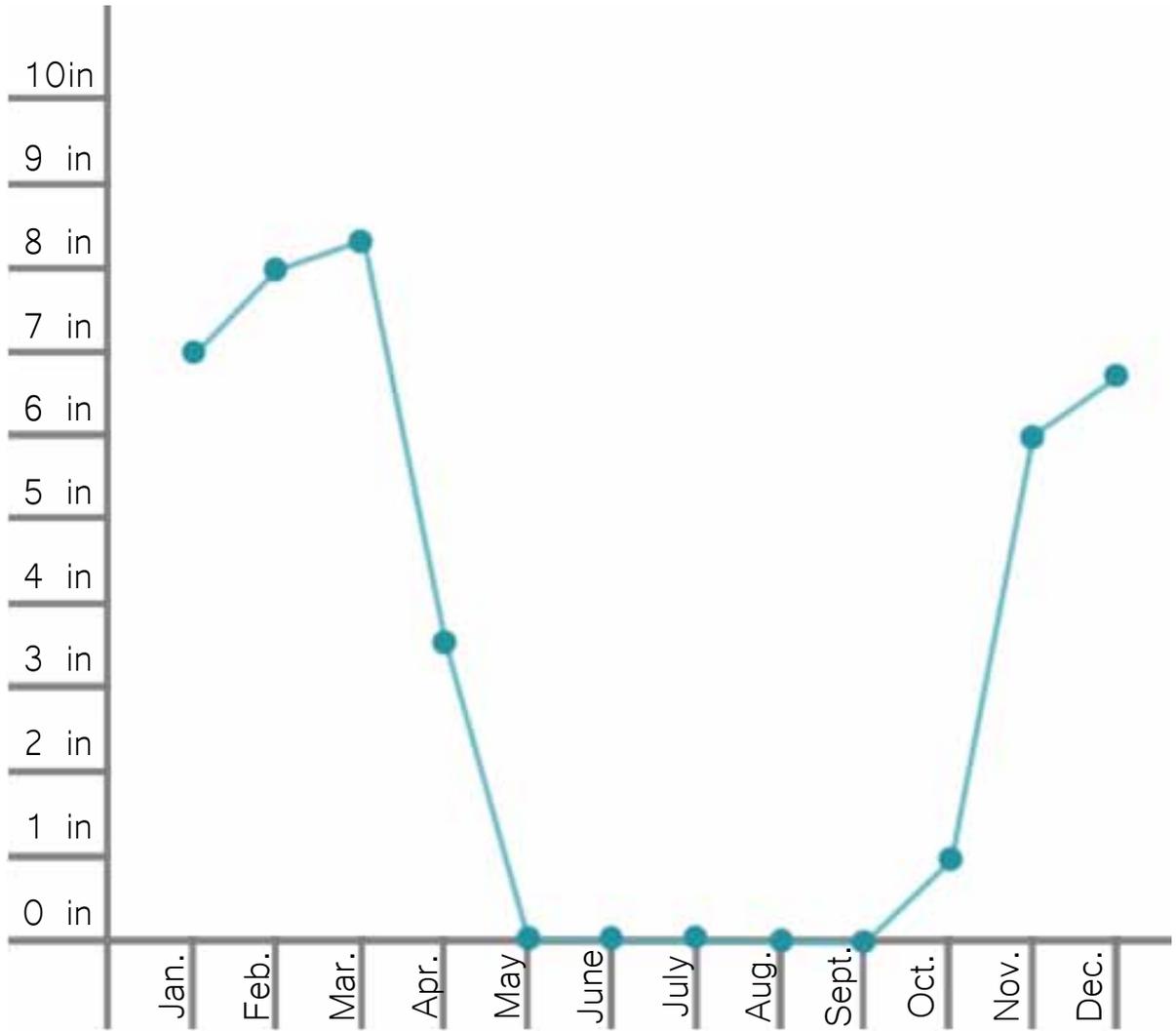
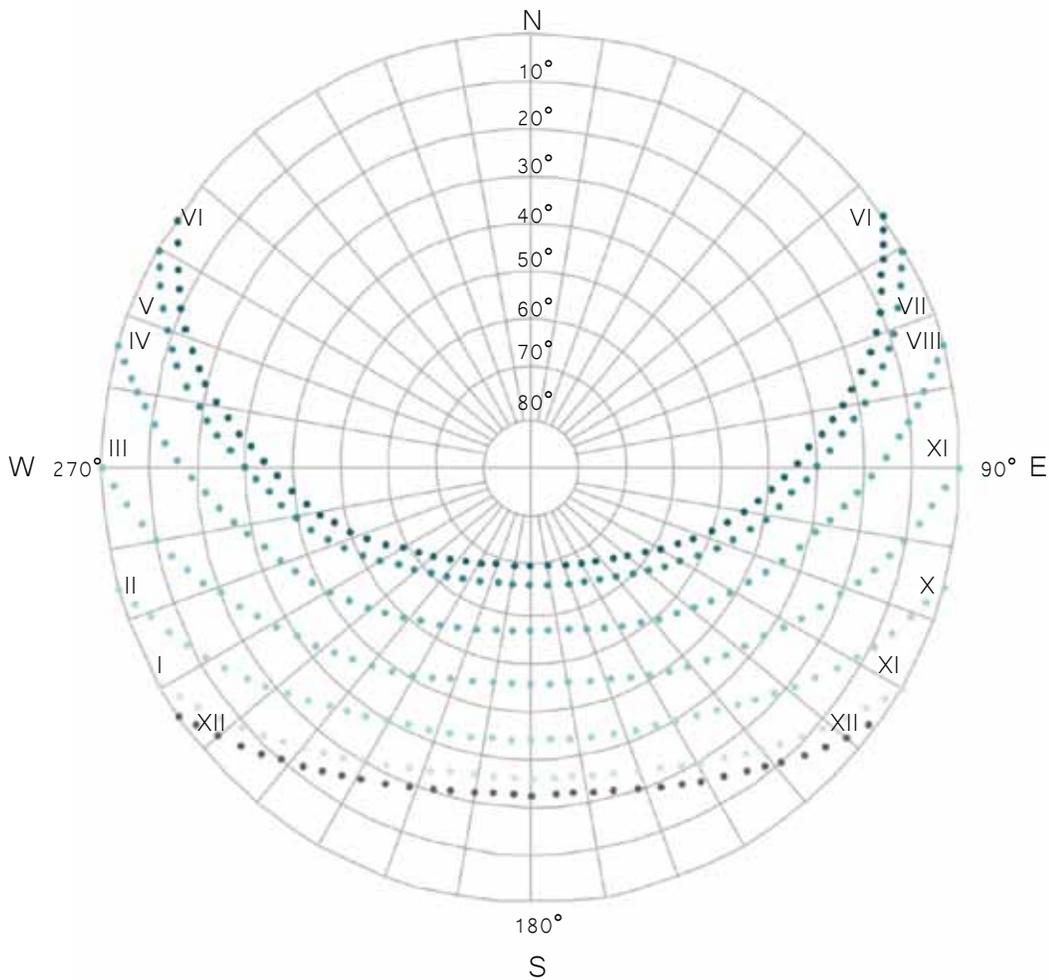


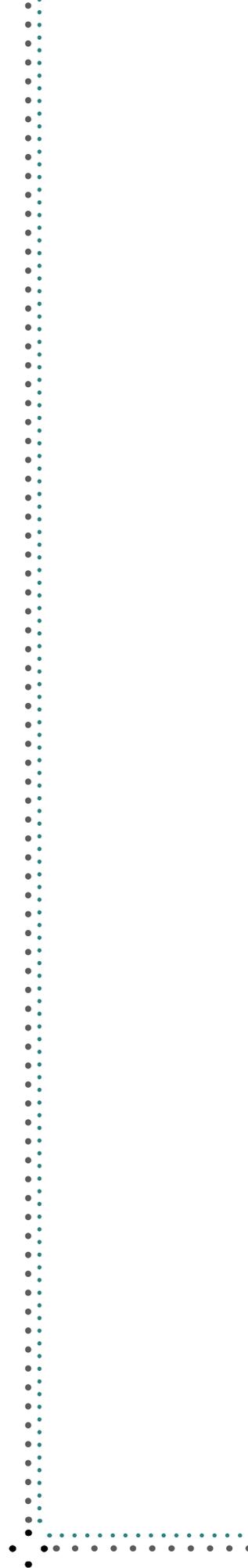
Figure 51: (Brookings, South Dakota, 2012)

Snowfall



Horizontal Sun Path

Figure 52: (Lechner, N. 2009, pg, 593)



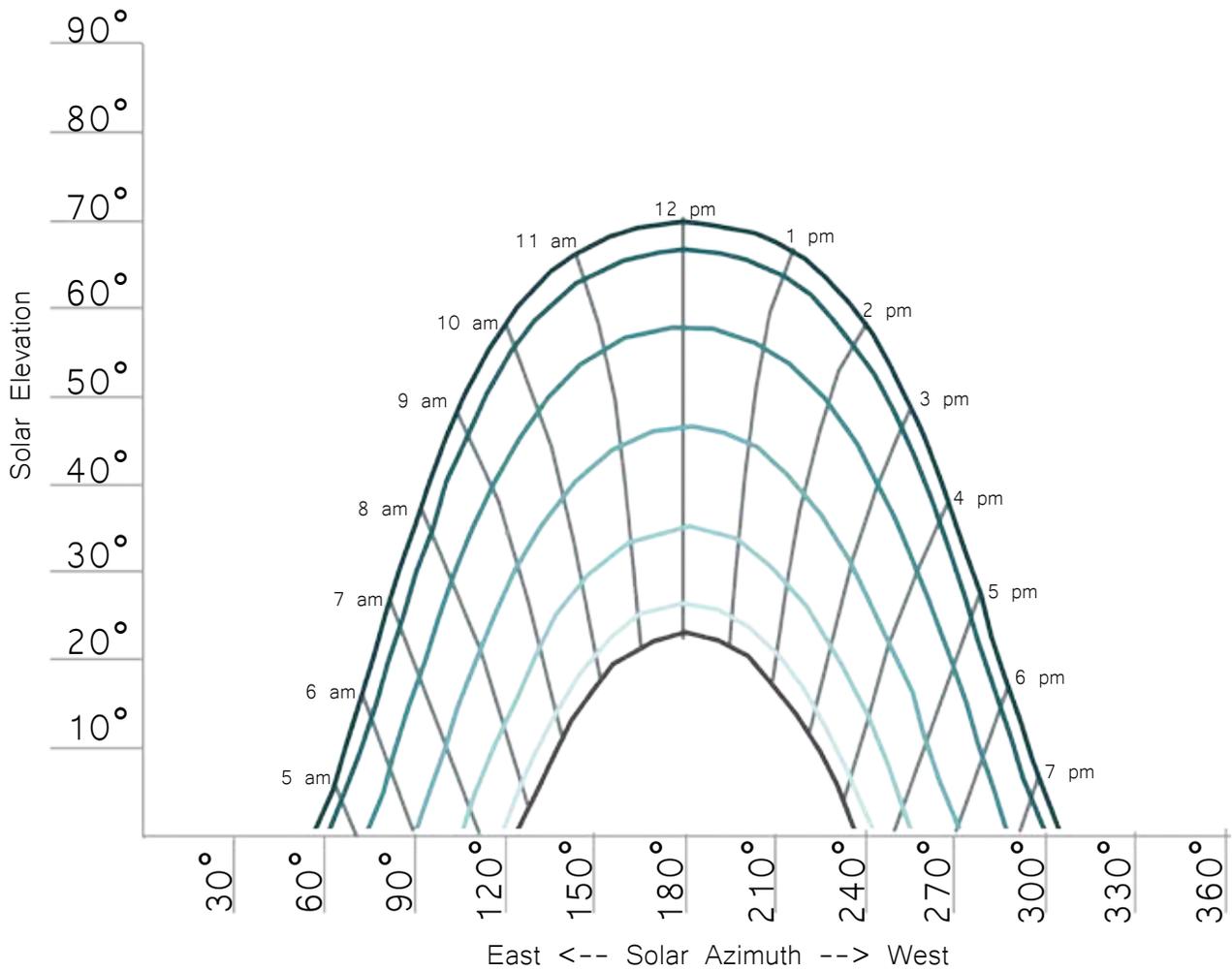


Figure 53: (Lechner, N. 2009, pg, 603)

Vertical Sun Path

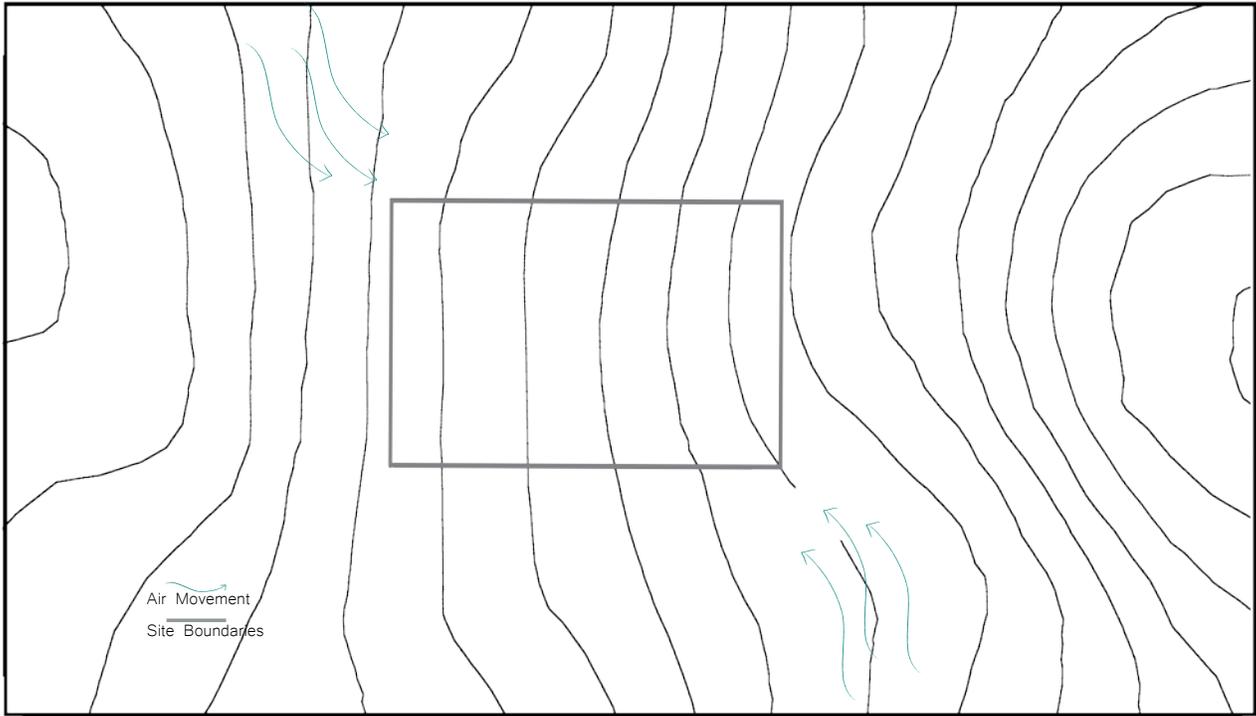


Figure 54: Topo & Air Movement Diagram

Site Topography & Air Movement

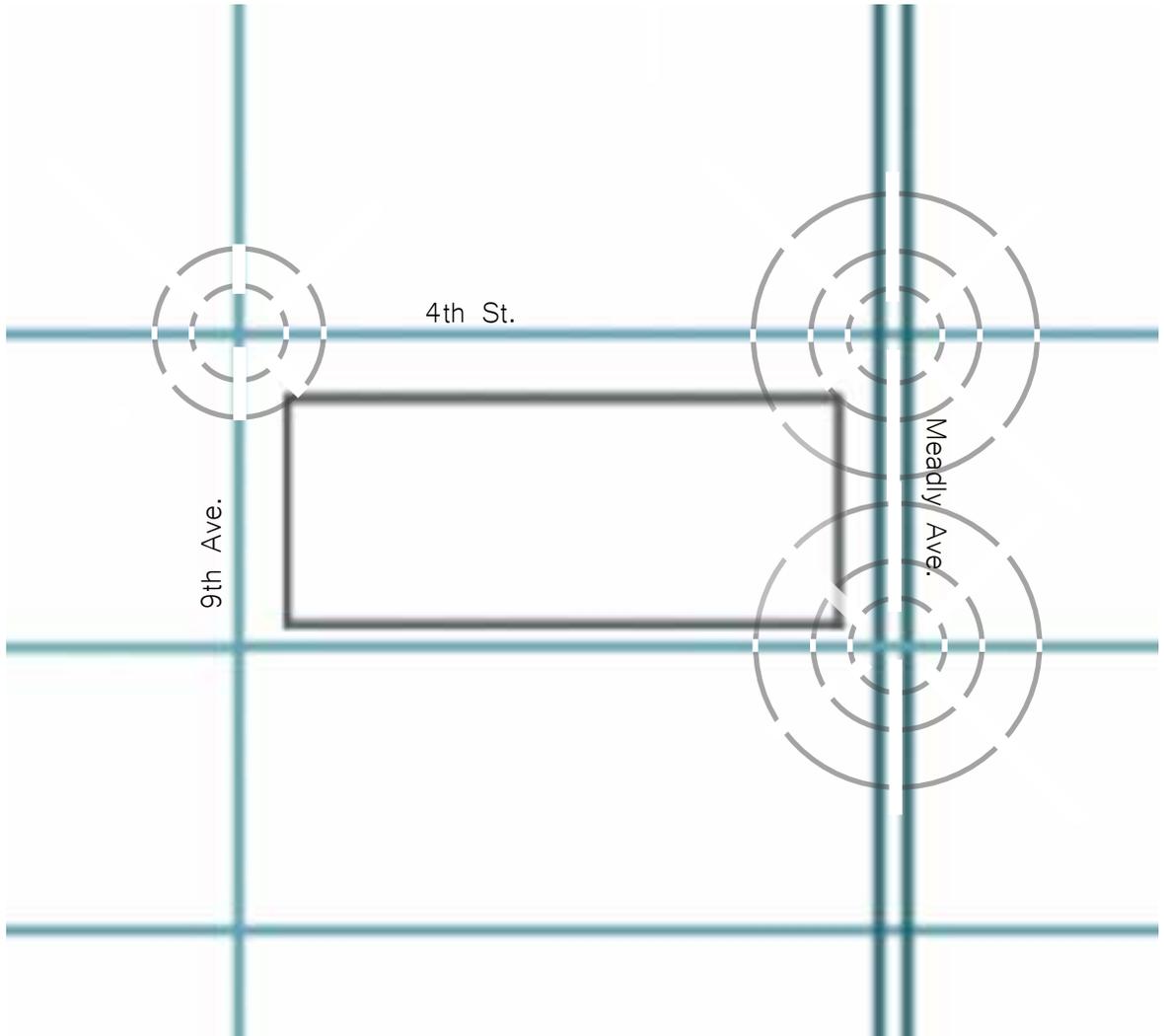
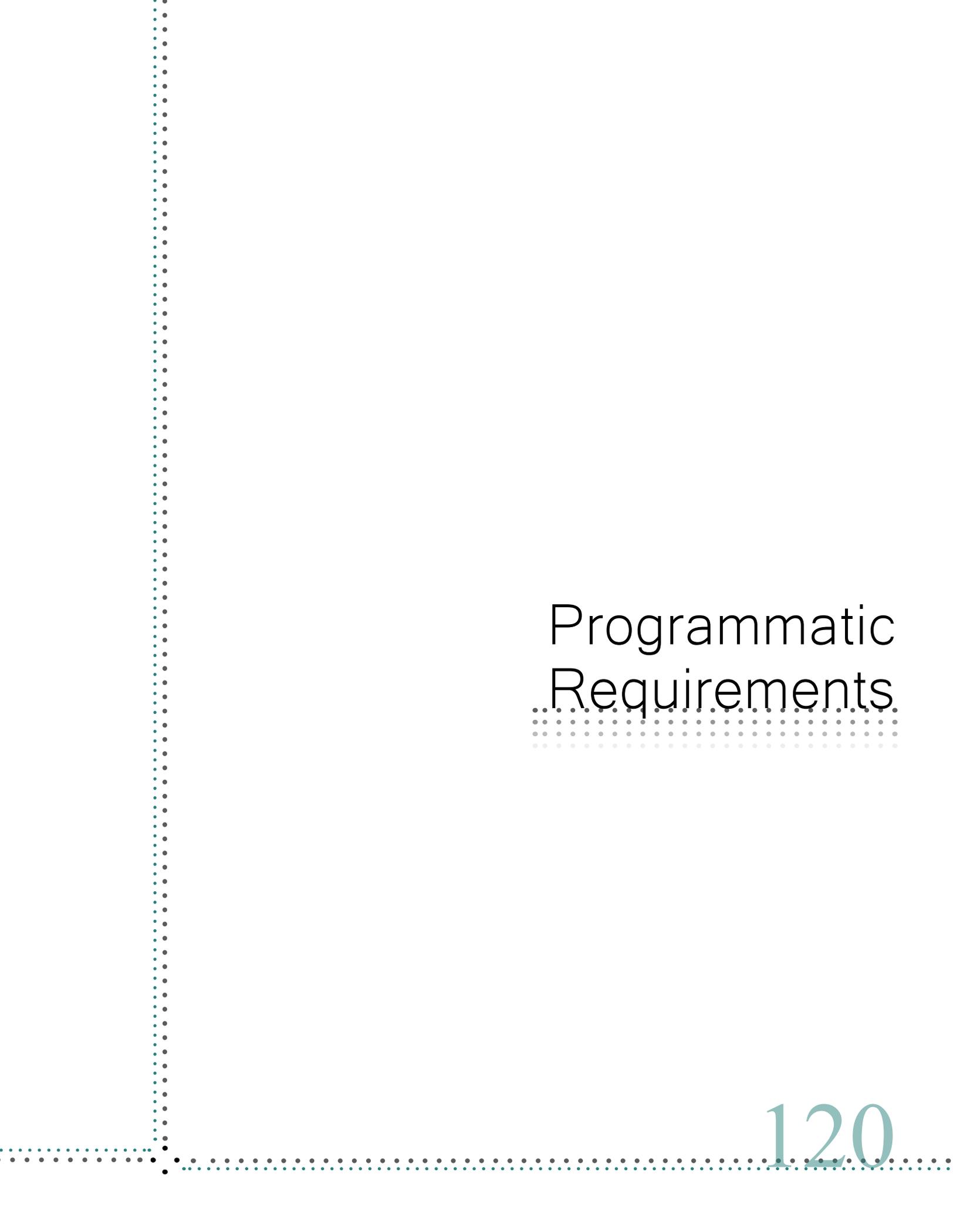


Figure 55: Noise

Site Noise



Programmatic Requirements

Thesis Space Allocations

18 Units Residential Units

- Washroom- 80ft sq.
- Sleeping Quarter- 144 ft sq.
- Kitchen/dining- 140 ft sq.
- Living area- 160 ft sq.
- Foyer- 25 ft sq.
- Closets- 36 ft sq

Total Sq. Ft.= 585 x 20= 11, 700

Dining Areas

- Fine Dining
 - o Customer Seating- 850 ft sq
 - o Cuisine Preparation/Kitchen- 550 ft sq
 - o Cuisine Storage- 200 ft sq
 - o Employee Break Space – 200 ft sq
- Bistro
 - o Customer Seating- 100 ft sq
 - o Kitchen/ Services Area- 120 ft sq
 - o Food Preparation- shared with restaurant area
 - o Food Storage- shared with restaurant area
 - o Employee Break Staff- shared with restaurant area

Total Sq. Ft.= 1,750

Health Amenities

- (2)Clinic rooms- 432 ft sq
- Medical Staff Offices -300 ft sq
- Medical Staff Break Space 150 ft sq
- Storage/ Medical supply area/Lab- 225 ft

Total Sq. Ft.= 1,539

Social Interaction & Community Engagement

- Wellness / Exercise- 800 sq. ft.
- (1) Community Lounges- 300 ft. sq.
- (3) Contemplation Spaces-30 ft sq.
- Children's Library/ Reading Area: 225 ft. sq.
- Recreation/ Game Space - 1000 ft. sq.

Total Sq. Ft.= 2,355

Additional Spaces

- Supply/Storage- 80 ft. sq.
- Public Washrooms- 150 ft. sq.
- Laundry - 100 ft. sq.
- Mechanical- 100 ft. sq.
- Circulation - 10% of building square footage
- Presentation / Movie Space- 550ft sq.
- Conference Room- 120ft sq.
- Offices- 500 ft. sq.
- Lobby/ Reception- 100 sq. ft.

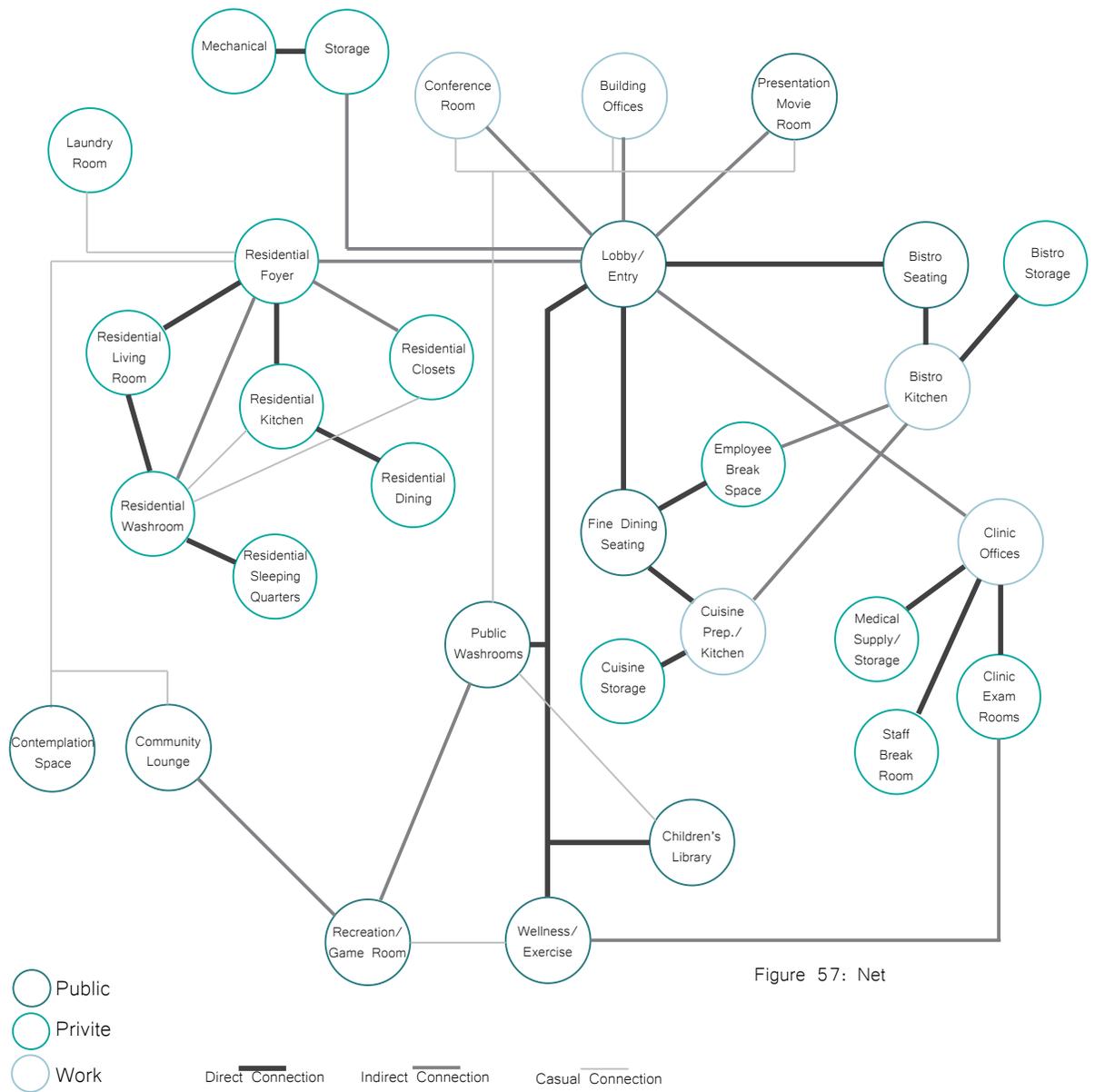
Total Sq. Ft.= 1,700

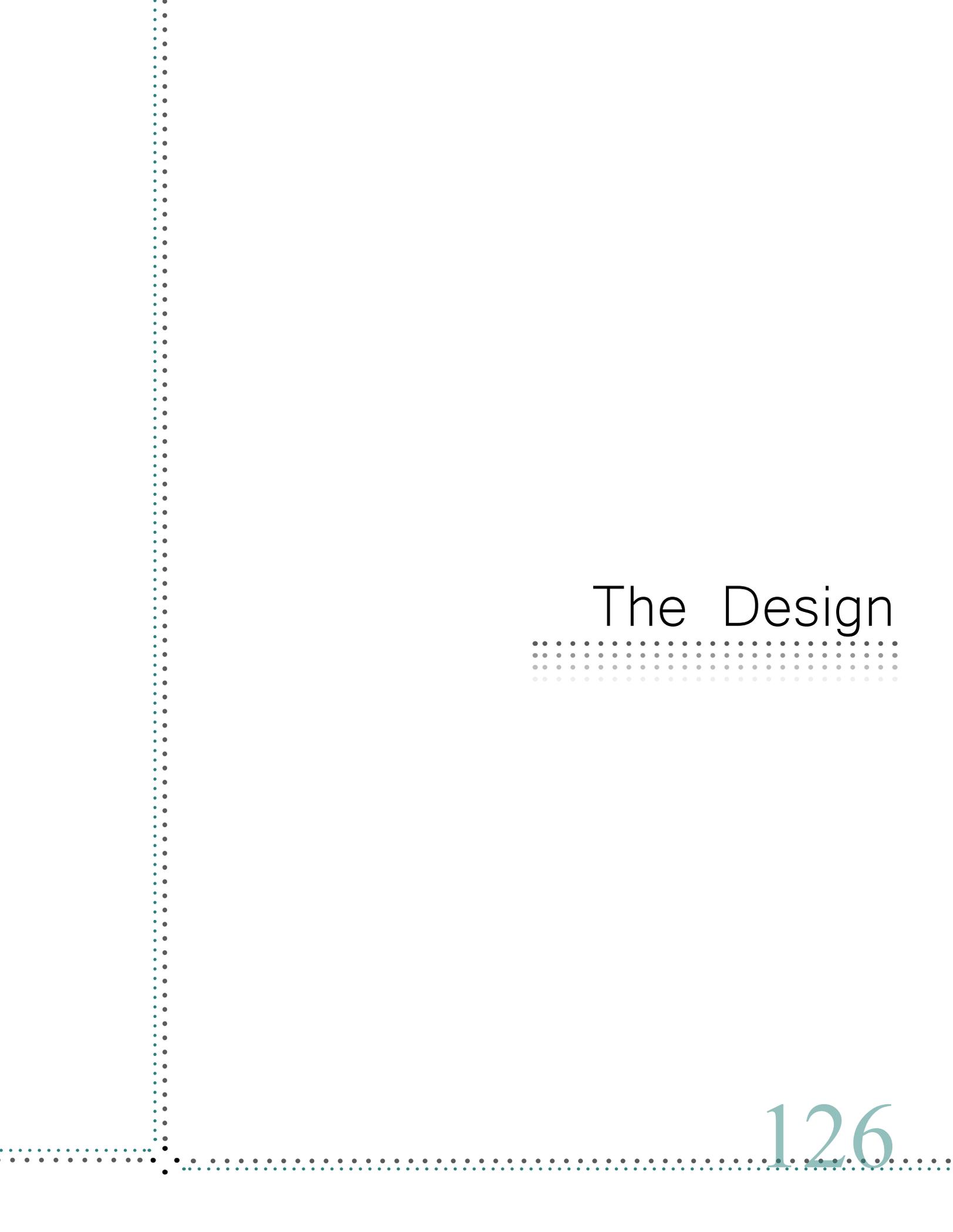
Total Building Area= 19,044 Sq. Ft.



Figure 56: Matrix

● Not Needed ● Desired ● Essential





The Design



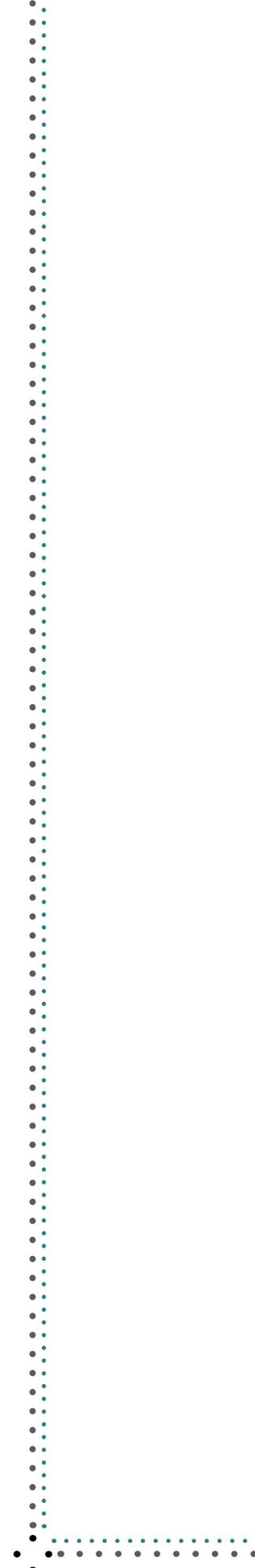
“Assisted Living Facilities are a link... “

Creation of connective pathways between private & public, interior & exterior, visual & physical and community connectivity

Integration of public and residential pods/units

“Creation of social stimulation... “

Stimulating activities, mental challenges, community engagement, provide amenities and physical activities.



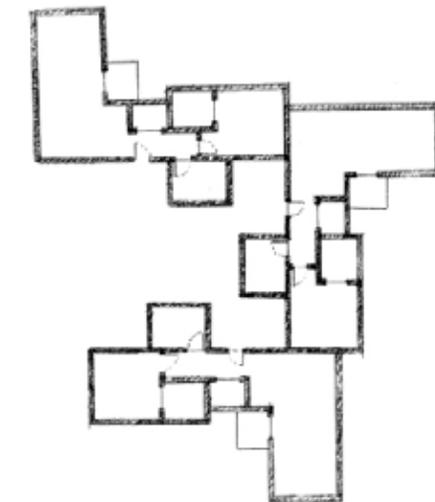
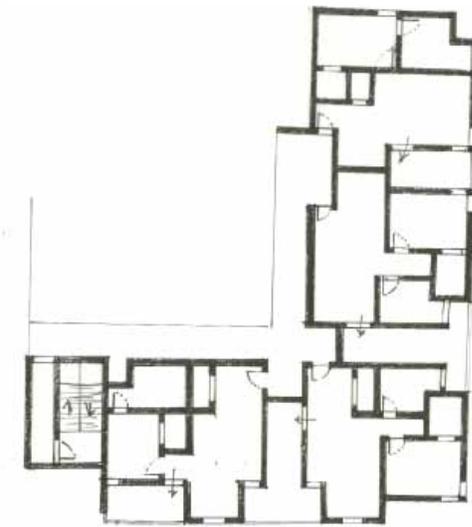
“Understanding needs of building users...”

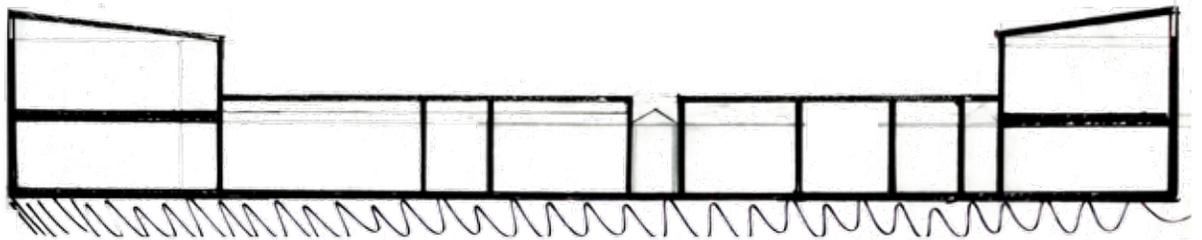
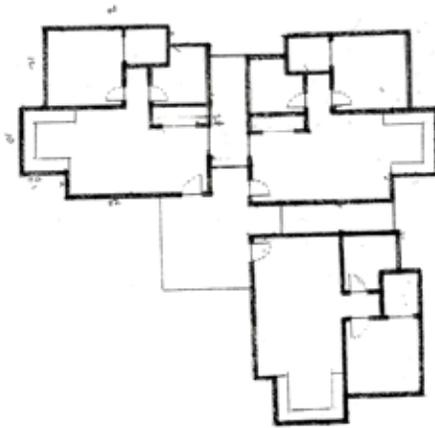
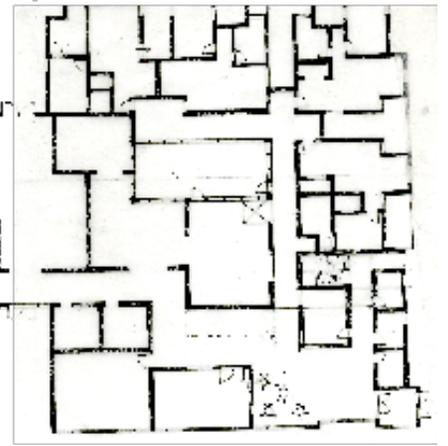
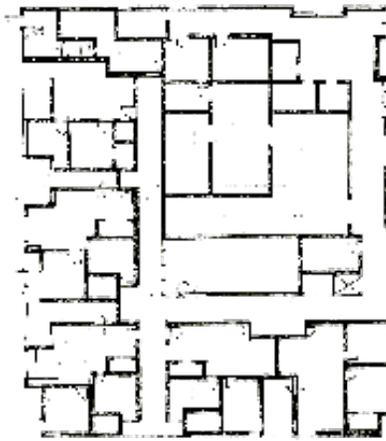
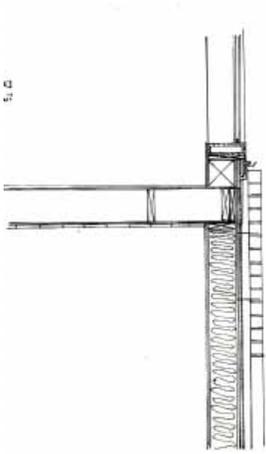
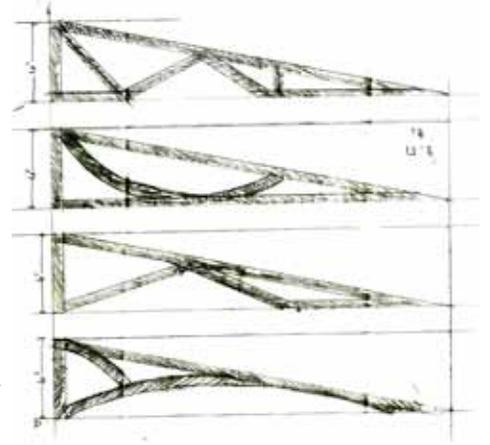
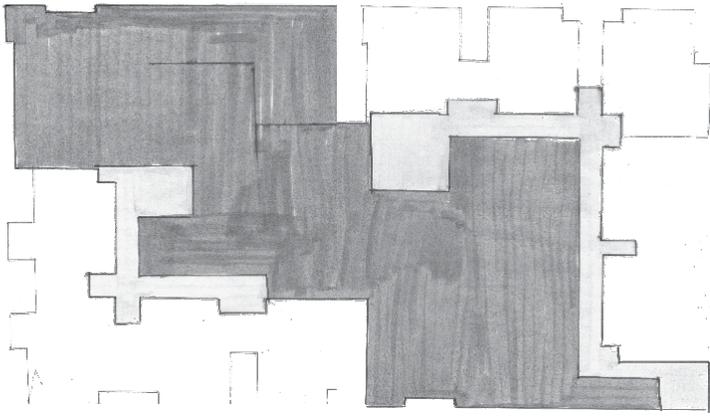
Space should be friendly, accommodating, comfortable and address assisted living guidelines.

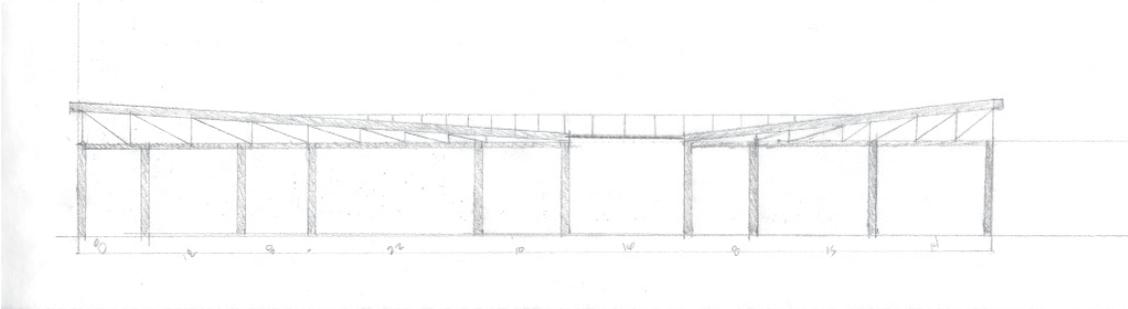
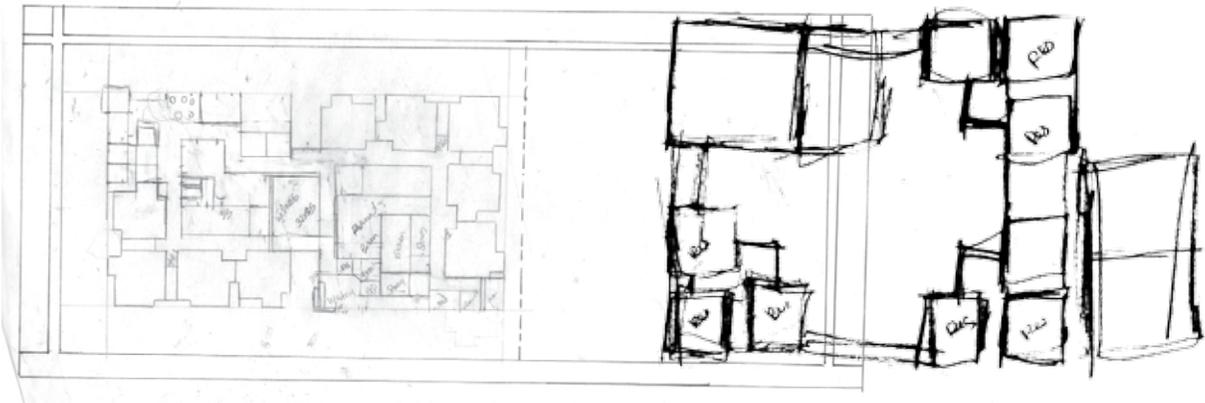
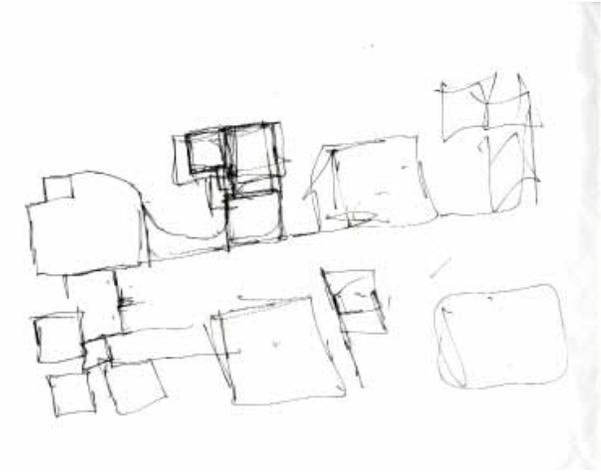
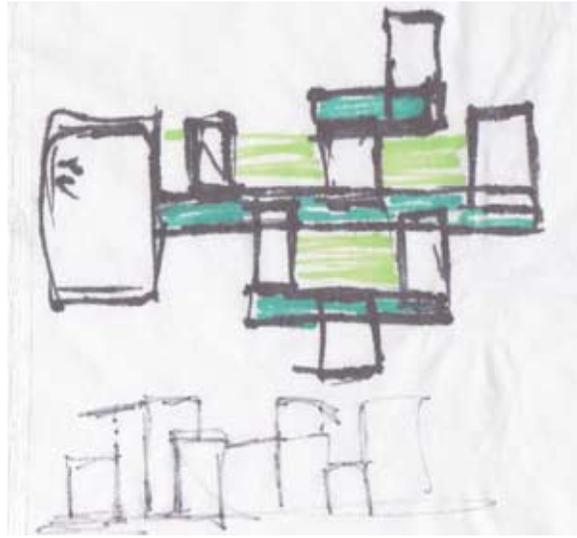
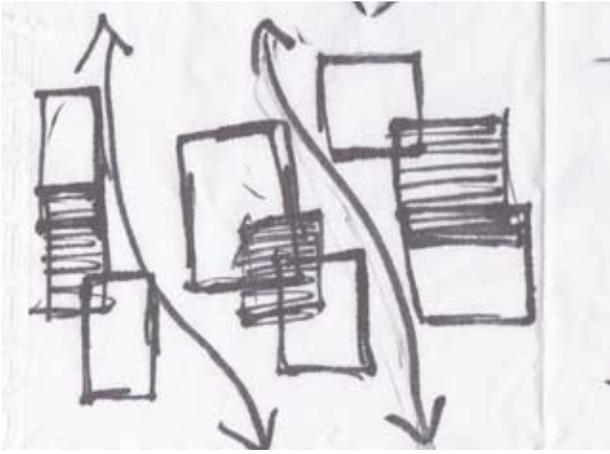
Residential in character, small in size, create stimulation, family involvement, connect to communities.

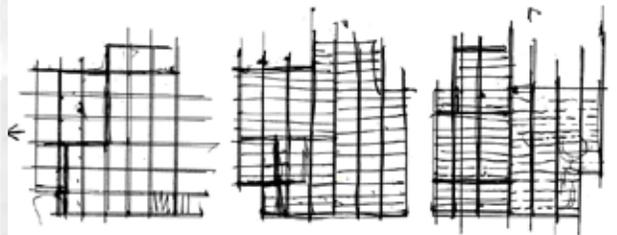
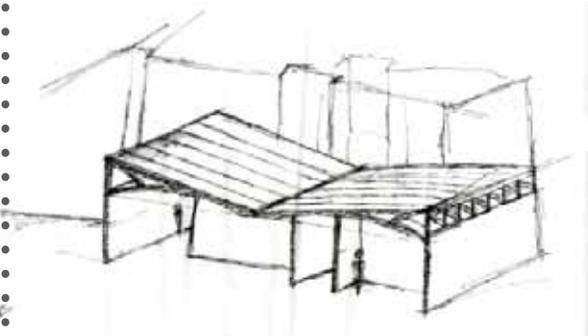
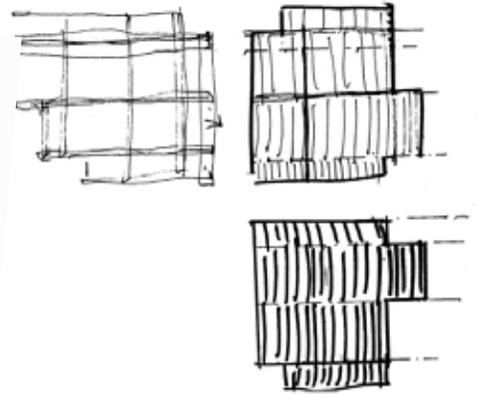
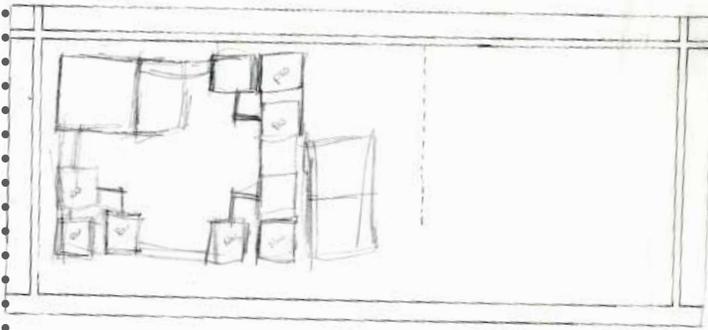
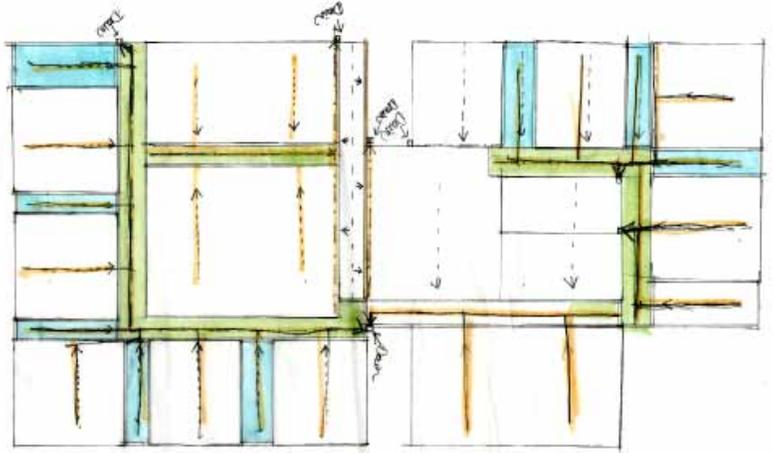
“Should allow elders to live with dignity & create settings the resemble a home...”

Create independence, personal spaces, be self-sustaining and have qualities of a home.











Site Plan

133 Midterm Progress





Public Spaces Circulation Gardens Residential Units Non-Public Spaces



Public Spaces Circulation Gardens Residential Units Non-Public Spaces

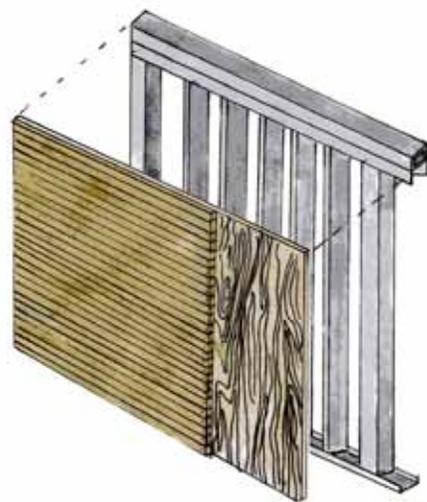
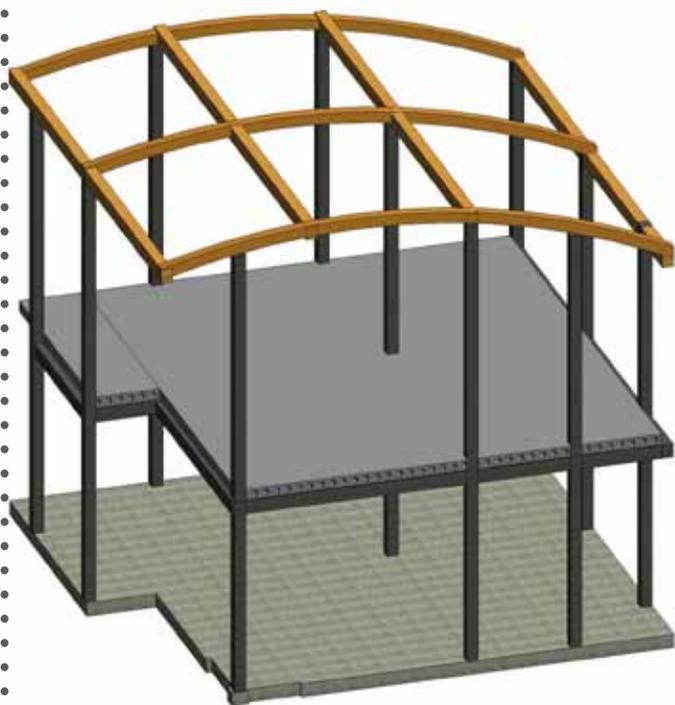


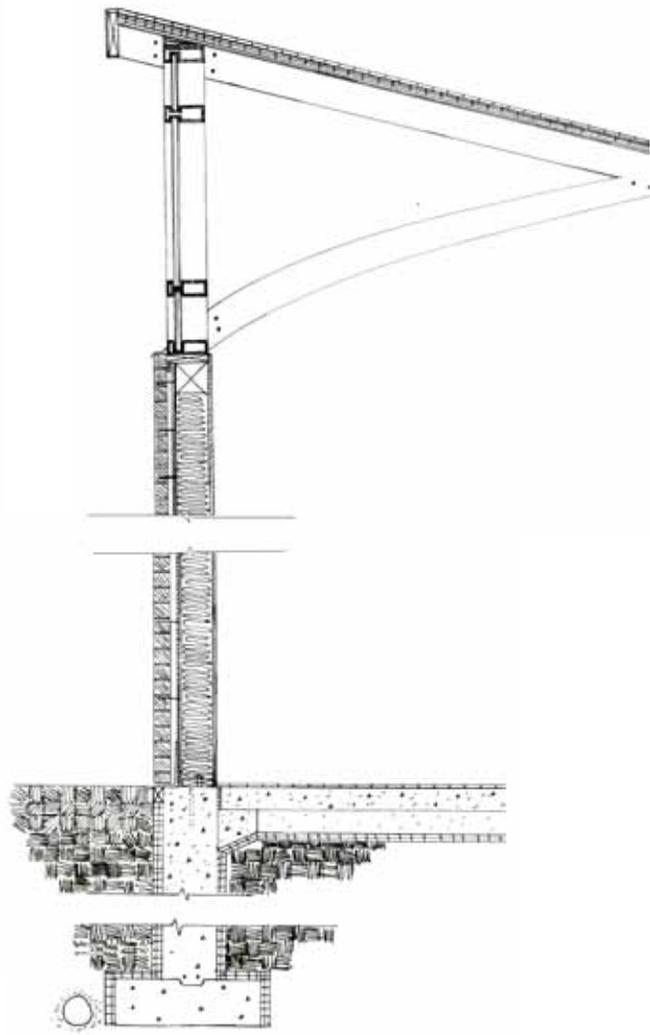
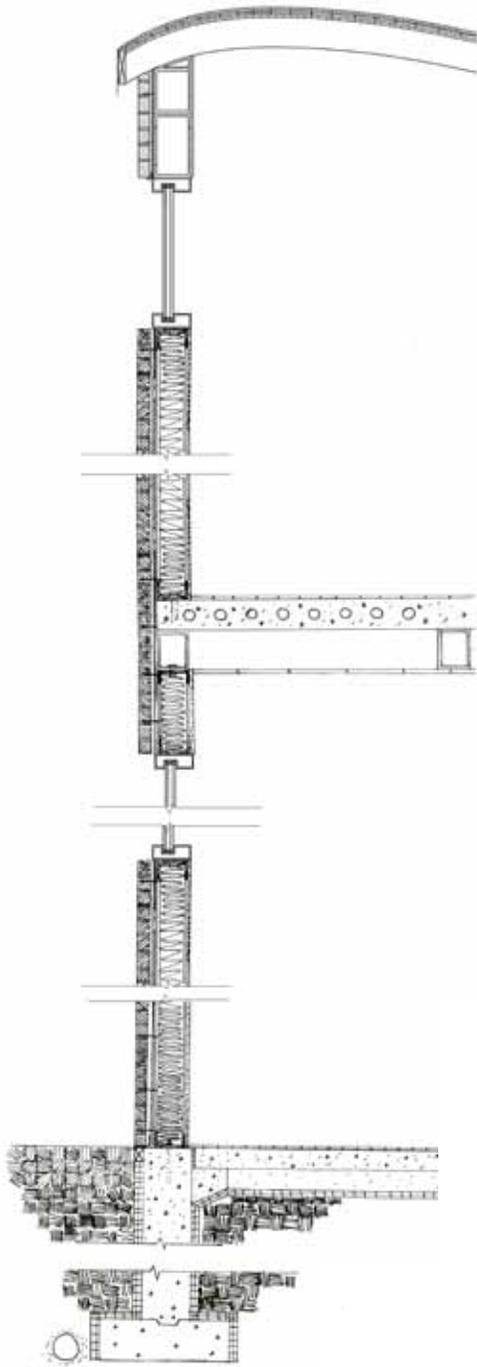
Hand Rendered Elevation- North Side



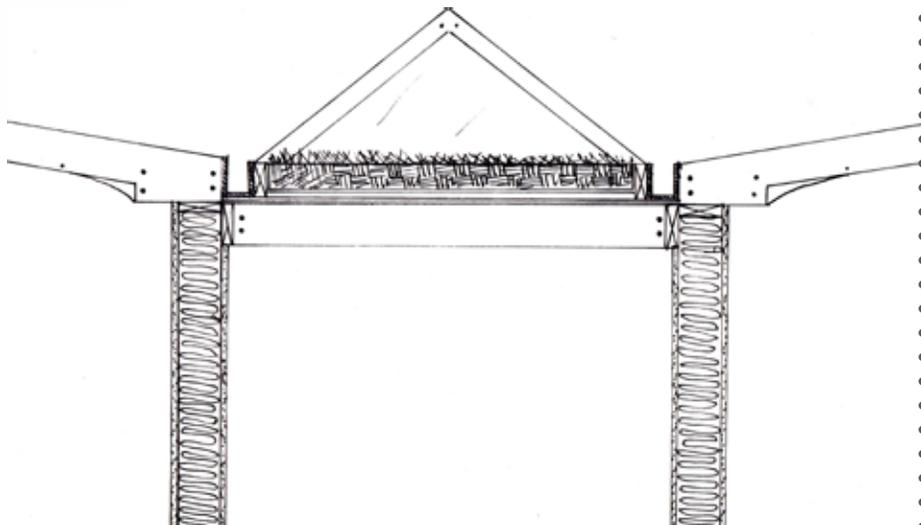
Hand Rendered Elevation- South Side







Construction Details

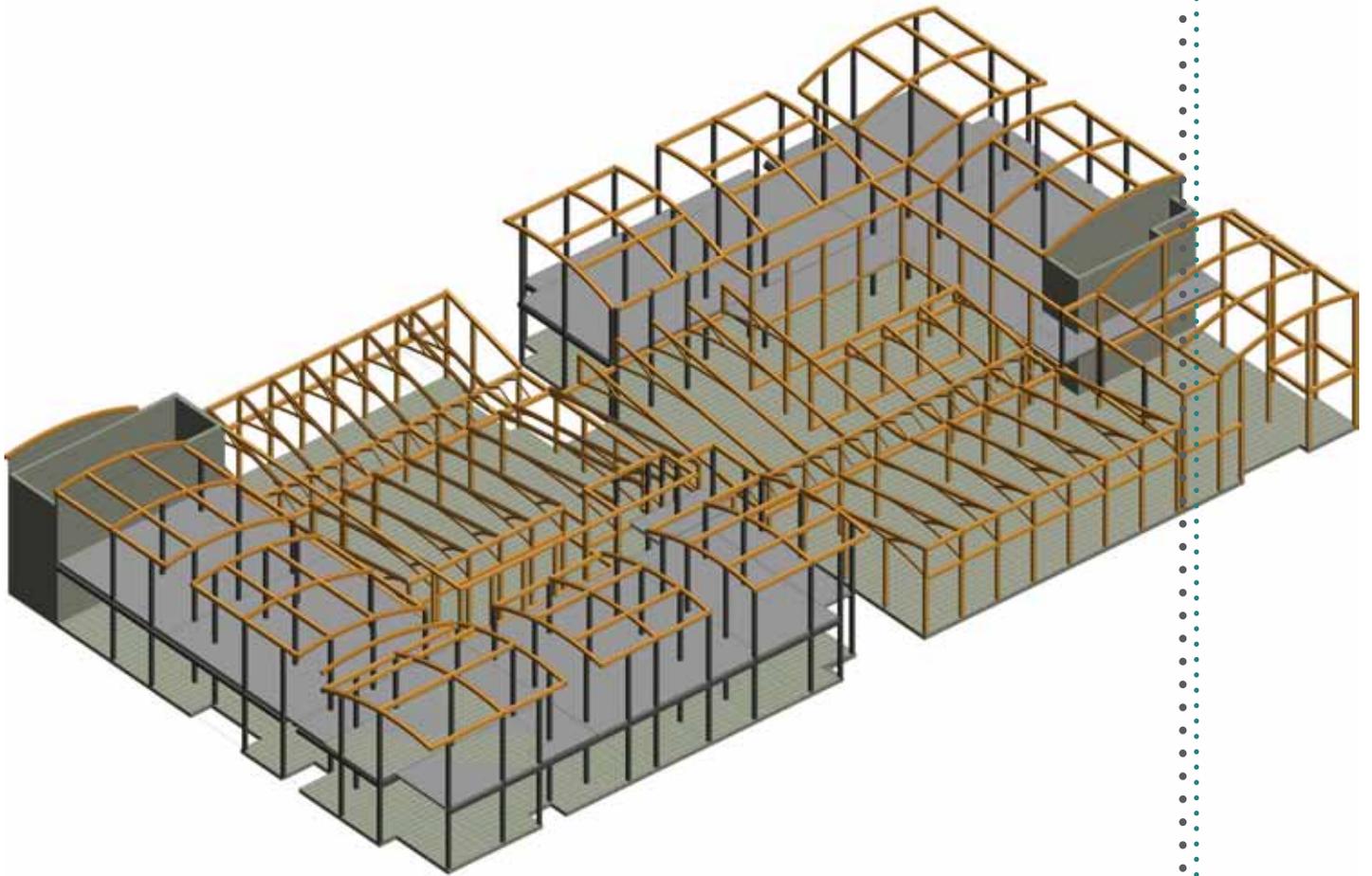




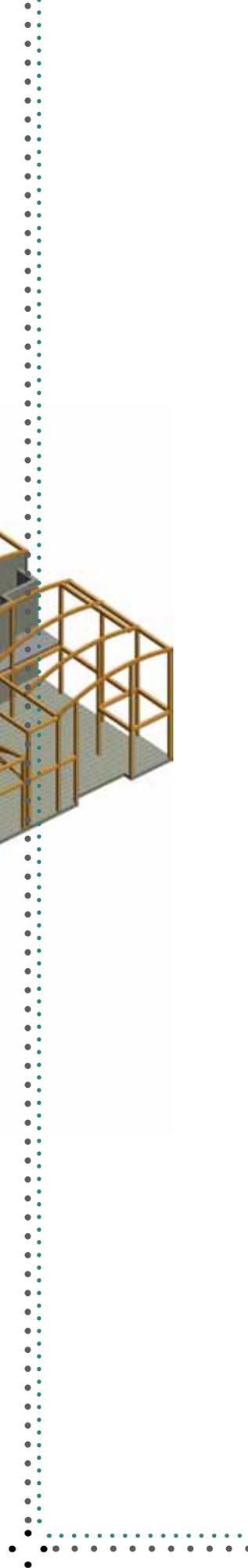
Structural Truss Layout



Proposed HVAC

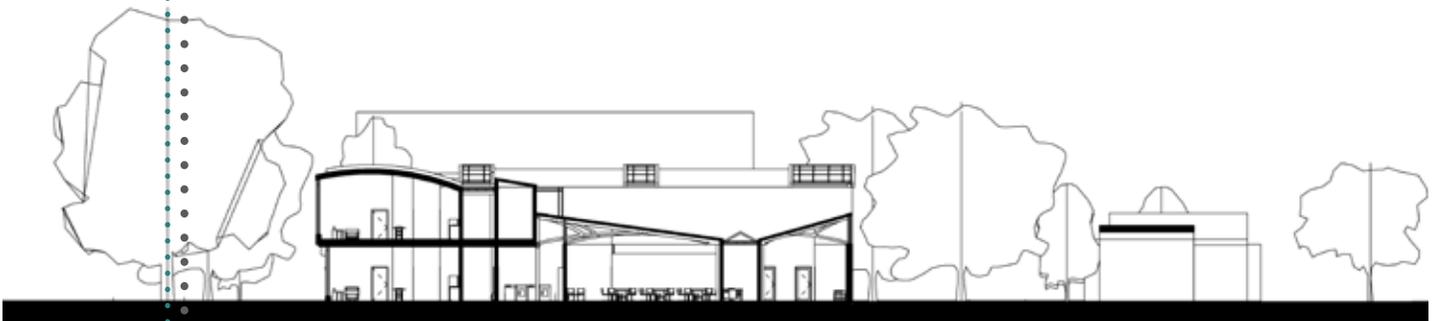


Building Structural System





Section Perspective



Section Cut



Exterior Rendering

Residential Units- 12,434 sq. ft.

Dining Areas- 2,741 sq ft.

Health Amenities- 1,353 sq. ft.

Social Interaction & Community Engagement- 2,725 sq. ft.

Additional Spaces- 1,446 sq. ft.

Circulation Space- 4,962 sq. ft.

Total Square Footage: 25,570

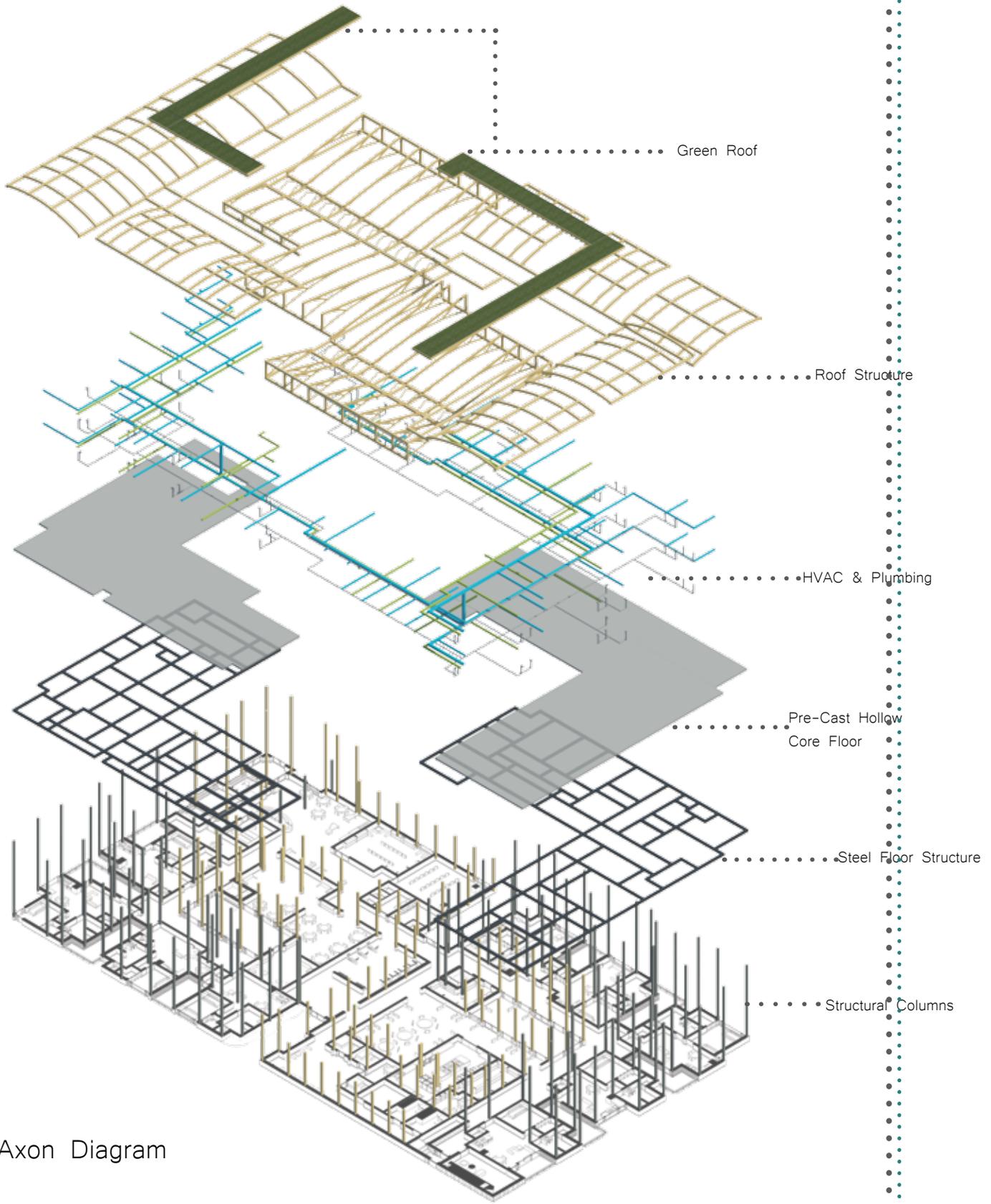
141 Final Design



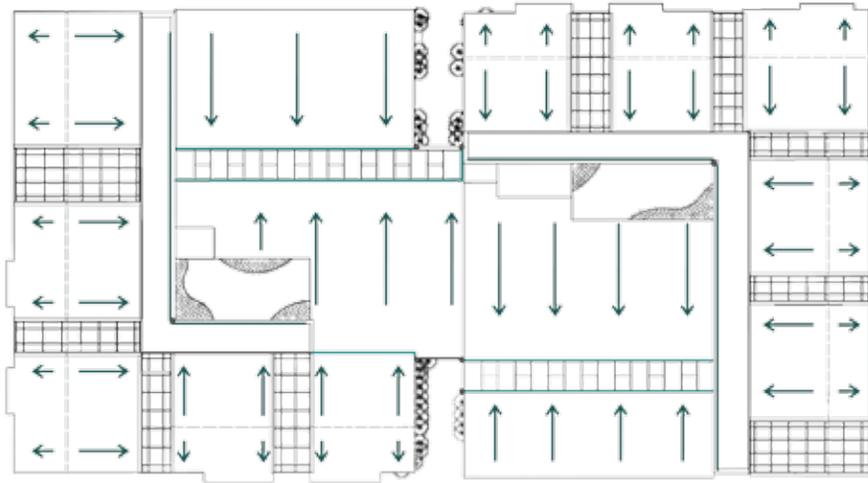
Second Level Floor Plan
1:20 Scale

Ground Floor Plan & Context
1:20 Scale

- Private
- Residential
- Circulation
- Public



Axon Diagram



Rainwater Collection & Drainage Diagram

■ Water Drainage Direction
 ■ Gutter
 ● Vertical Drains



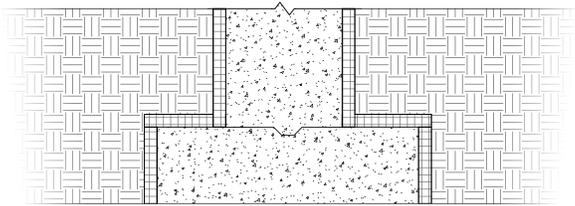
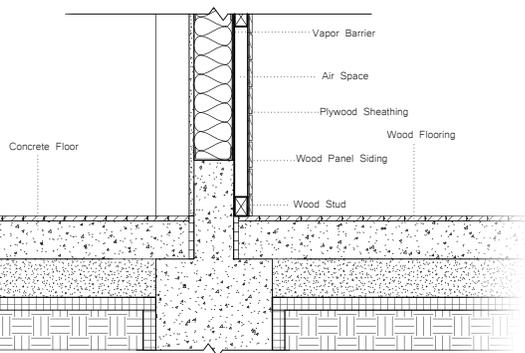
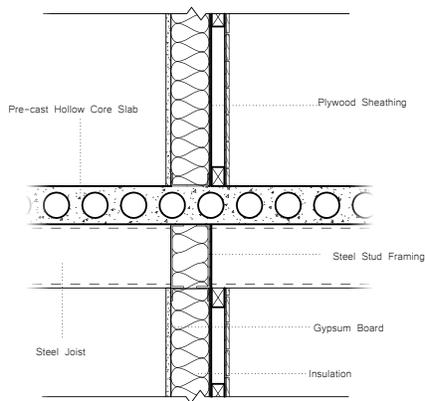
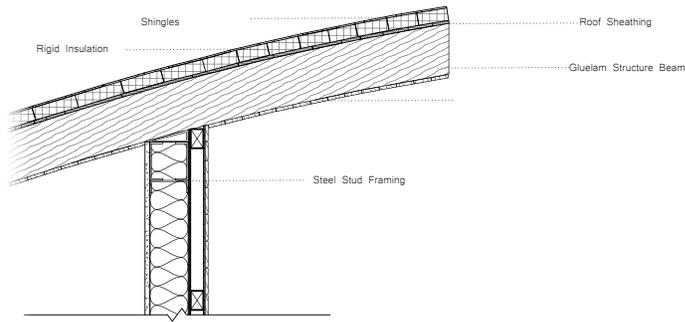
HVAC Second Floor

■ Fresh Air Supply
 ■ Exhaust

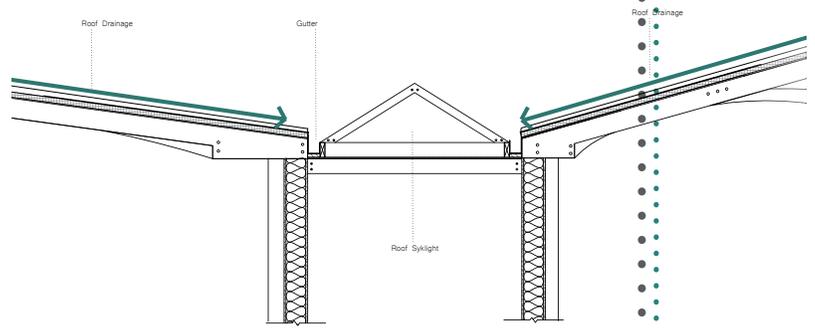


HVAC Ground Level

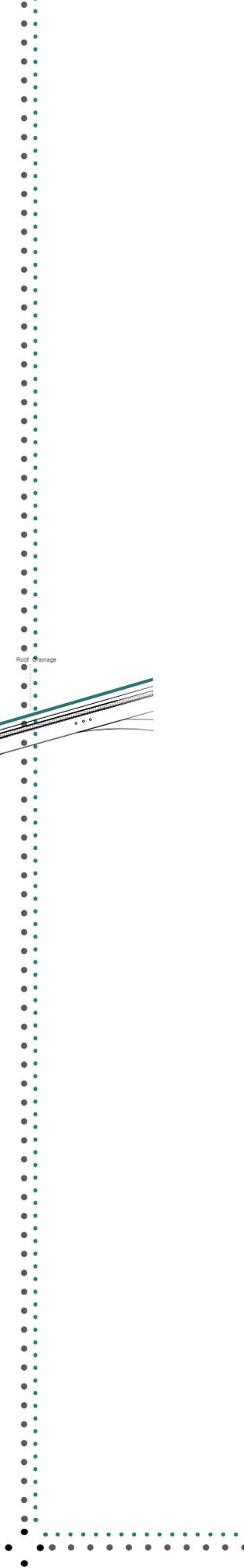
■ Fresh Air Supply
 ■ Exhaust

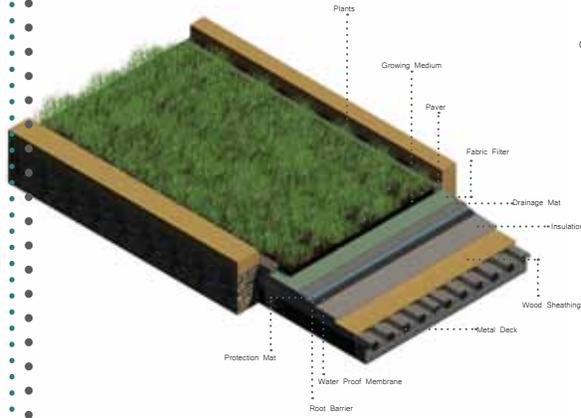


Construction Detail

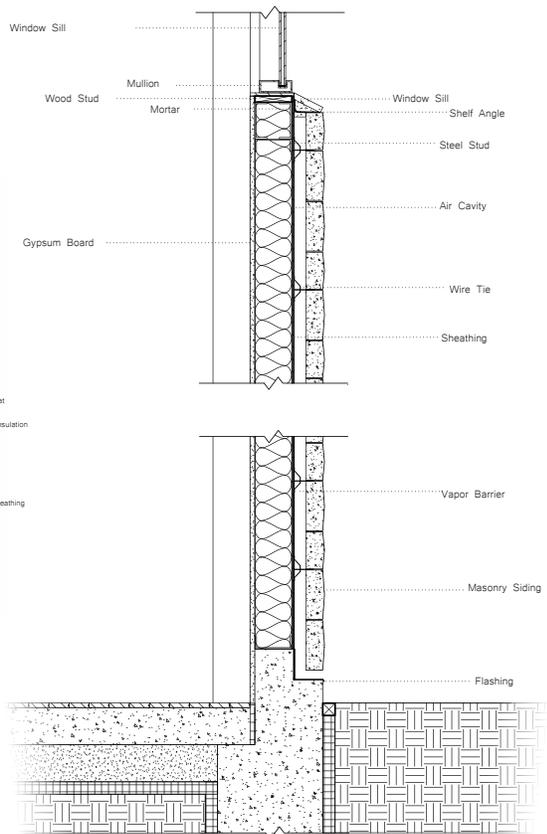
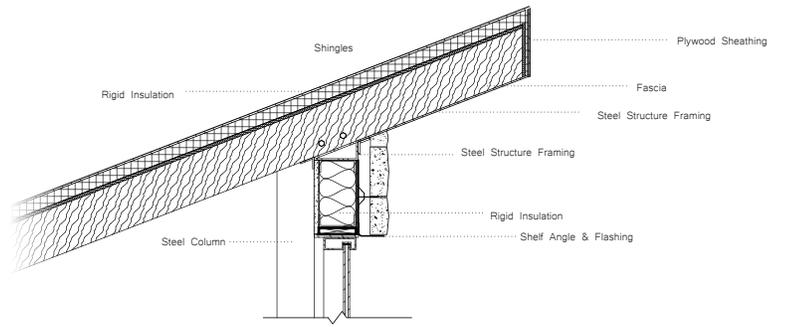


Roof Detail & Drainage Diagram





Green Roof Diagram

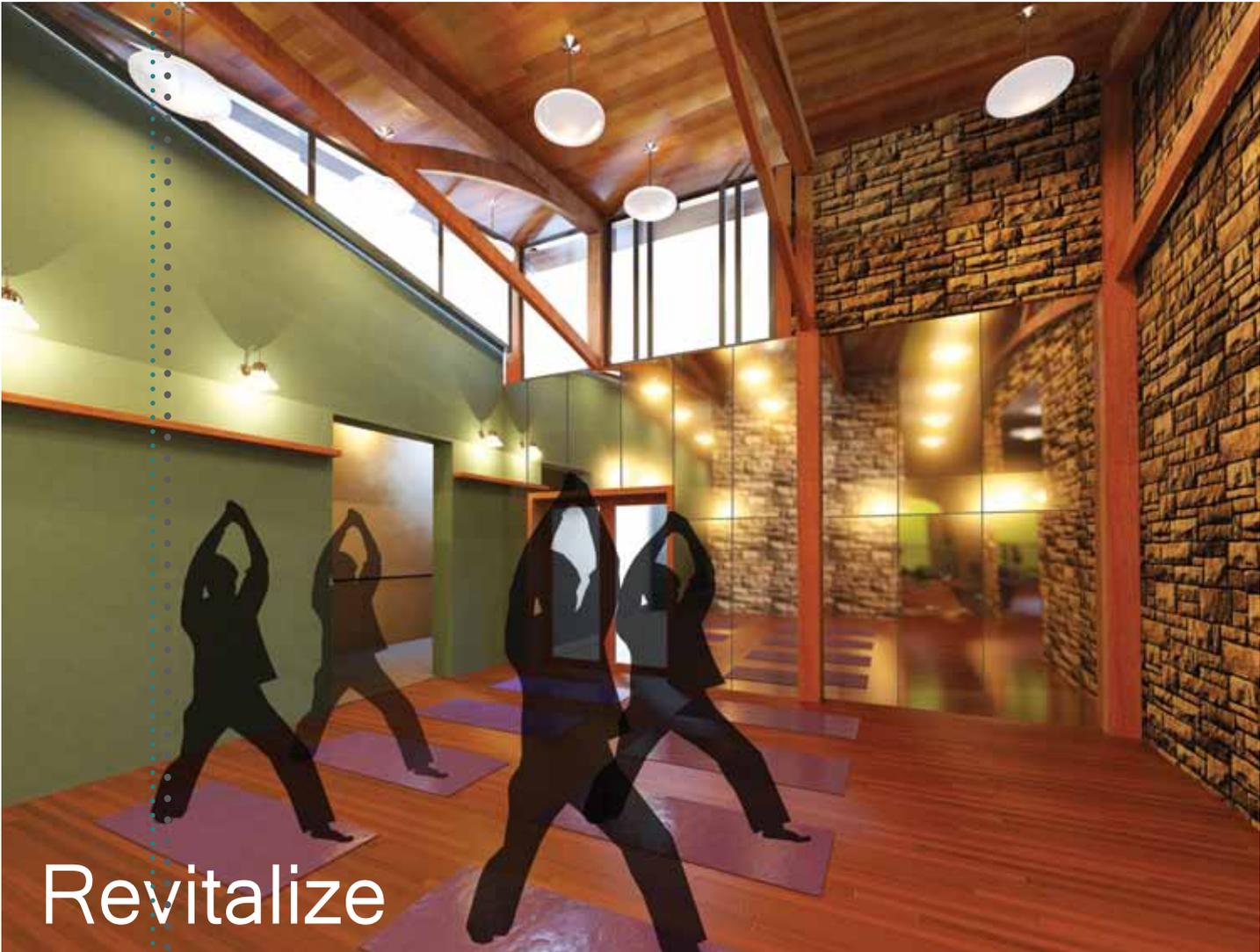


Construction Detail



Engage

Game Room



Yoga Room



Community Connection

Exterior Rendering

149 Final Design





Lobby Rendering



Comfort

Residential Living Room

151 Final Design



Care

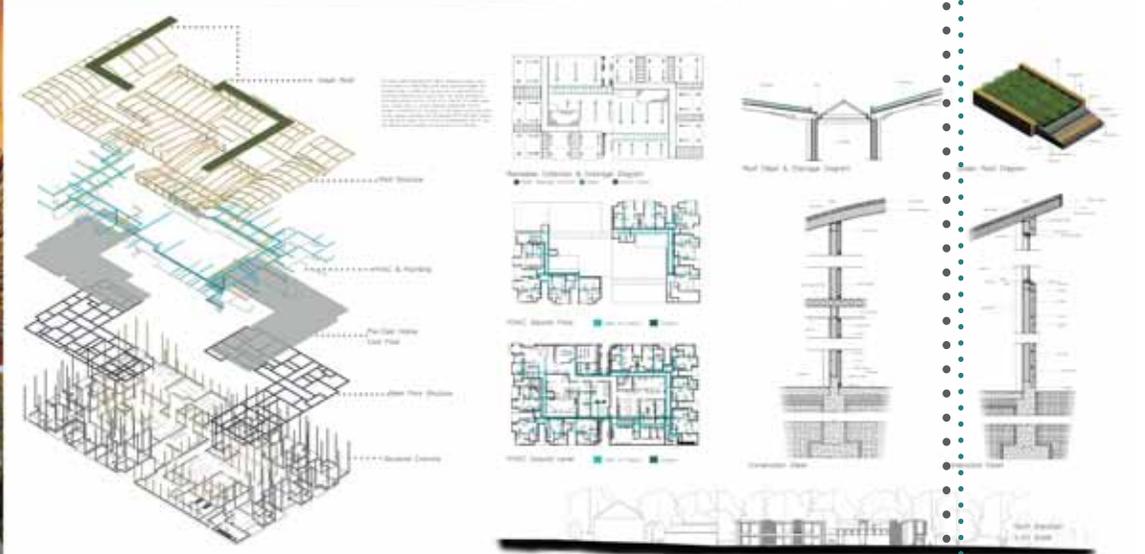
Garden Space



153 Final Design



Section Perspective

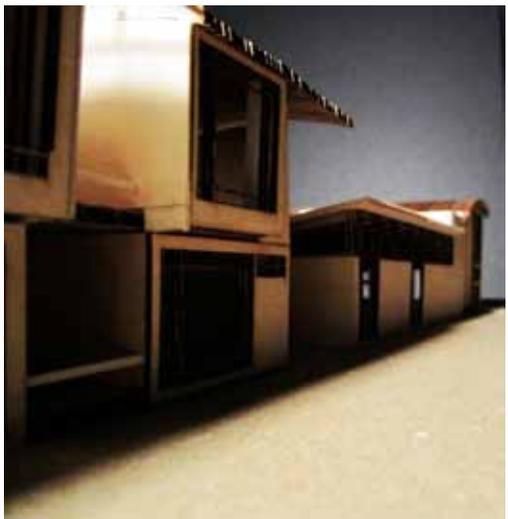






157 Final Detailed Model



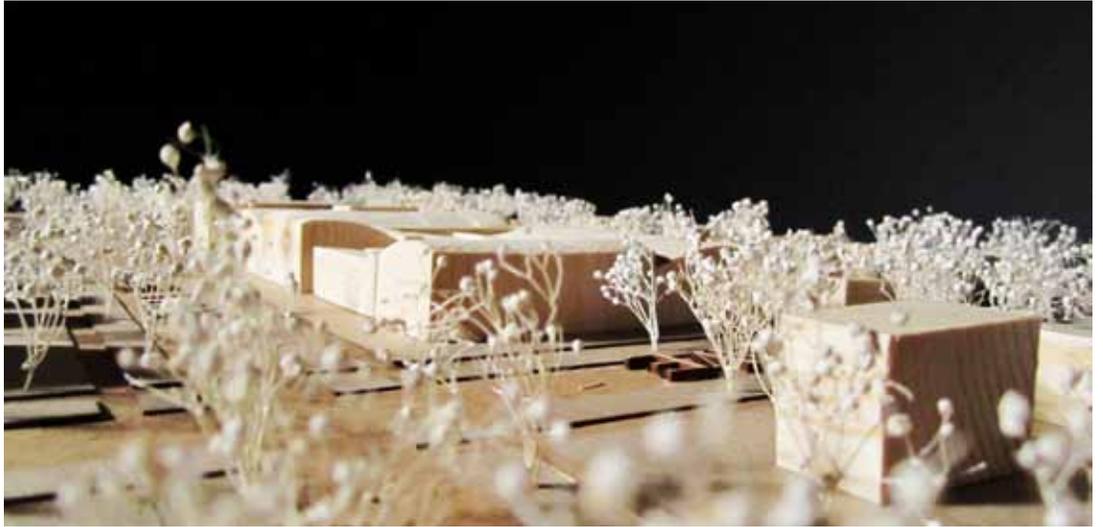
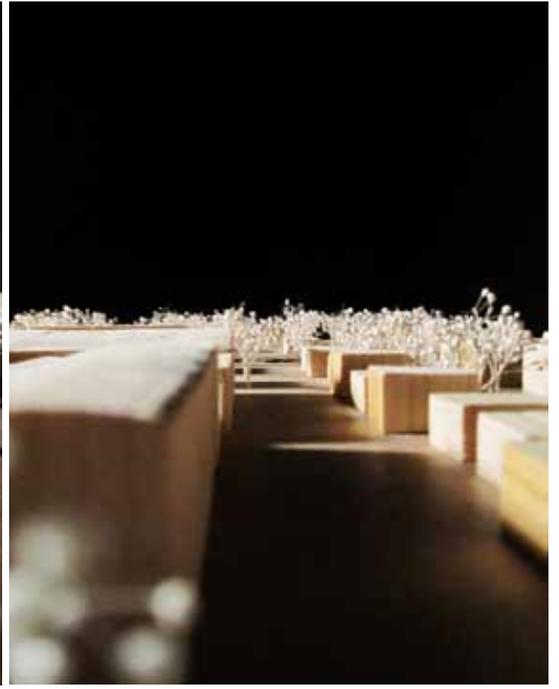


Final Detailed Model **158**



159 Final Site Model





Final Site Model **160**

Research Bibliography

- Almshouse. (2012). Retrieved Dec 2, 2012, from Merriam Webster website:
<http://www.merriam-webster.com/dictionary/almshouse>
- Assisted Living Services and Amenities. (2009). Retrieved September 28th, 2012, from ALFA website: http://www.alfa.org/alfa/Lifestyles_and_Amenities.asp
- Assisted Living. (2009). Retrieved September 28th, 2012, from ALFA website:
http://www.alfa.org/alfa/Assisted_Living_Information.asp
- Battest, J. (2012, October 15). "Social interaction enhances health." *Spectrum*, p. 4.
- Brookings County, South Dakota. (2012, July 10). Retrieved September 7, 2012, from Fedstats website: <http://www.fedstats.gov/qf/states/46/46011.html>
- Building LLC. (2010, march 21). "Elderly Housing Design in Europe." Retrieved December 2, 2012 from Build Blog website: <http://blog.buildllc.com/2010/03/elderly-housing-design-in-europe/>
- Bull, C. N. (1993). "Growing old in rural America." *Ageing*. 365.18-26. Retrieved from <http://web.ebscohost.com/ehost/detail?vid=4&hid=13&sid=a8570dce-96c5-45c0-a939-8804eabc4e03%40sessionmgr14&bdata=JnNpdGU9ZWwhvc3QtbGI2ZSZzY29wZT1zaXRl#db=keh&AN=9308190276>
- Burby, R. J. (1990). "Providing for the housing needs of the elderly." *Journal of American Planning Association*. 56, 324-335. Retrieved from <http://web.ebscohost.com/ehost/detail?sid=450ca35a-24c4-452e-a6e6-3b5100a2d148%40sessionmgr4&vid=19&hid=15&bdata=JnNpdGU9ZWwhvc3QtbGI2ZSZzY29wZT1zaXRl#db=keh&AN=9608146988>
- District Regulations. (2012). Retrieved January 18, 2012 from Brookings, South Dakota, Code of Ordinances website: http://library.municode.com/HTML/10484/level4/PTIICOOR_CH94ZO_ARTIVDIRE_DIV1GE.html#PTIICOOR_CH94ZO_ARTIVDIRE_DIV1GE_S94-126RETMIDI
- Dychtwald, K. (1990). *Healthy Aging: Challenges and Solutions*. Maryland: Aspen Publishers.
- Farr, S. & Freisbie, M. "Senior Housing Design Trends and Marketing Trends." Senior Housing Summit (Conference). Golden Valley, MN. 31 Oct. 2012.
- Fedderson, E. & Ludtke, I. (2009). *A Design Manual: Living for the Elderly*. Medialis, Berlin: Birkhauser Verlag AG.
- Fuhr, B. & Strivland, D. "Future Trends and the Importance of Utilizing Technology in Senior Housing." Senior Housing Summit (Conference). Golden Valley, MN. 31 Oct. 2012.

Research Bibliography

- Garage Building Tricks & Tips. (2008). Retrieved January 27, 2012, from Sketch2Plan website:
<http://www.sketch2plan.com/building-a-garage-tricks-and-tips-and-tribulations.aspx>
- General Soil Map. (2004). Retrieved November 27, 2012, for USDA ; Natural Resources Conservation Service
website:<http://soildatamart.nrcs.usda.gov/manuscripts/SD011/0/maps/gsm.pdf>
- Goldsmith, S. (2000). Universal Design. Woburn, MA: Reed Educational and Professional Publishing Ltd.
- History of Brookings. (2012). Retrieved December 2, 2012, from Brookings Area Chamber of Commerce & Convention Bureau website: <http://brookingschamber.org/history-of-brookings/>
- History of Old Sanctuary. (2012). Retrieved December 4, 2012, from Old Sanctuary Reception, Lecture and Banquet Hall website: <http://www.oldsanctuary.com/faq.htm>
- Johnson J. & Fenske, R. "Senior Housing Market Overview." Senior Housing Summit (Conference). Golden Valley, MN. 31 Oct. 2012.
- Lisbon N. and Stone R. (2011/2012, December/January). Affordable Housing and Services for Seniors: The Challenges in Rural America. Rural Voices. 17(4). 4.
- Mission. (2011). Retrieved November 27, 2012, from The Retirement Research Foundation website: <http://www.rrf.org/about-rrf/mission>
- Old Sanctuary Offices. (2012). Retrieved September 29th, 2012, from Old Sanctuary Reception, Lecture and Banquet Hall website: <http://www.oldsanctuary.com/faq.htm>
- Pandolfi, K. (2009). Best Old House Neighborhood 2009: The Midwest. Retrieved February 4, 2013 from This Old House website: http://www.thisoldhouse.com/toh/photos/0,,20283028_20634461,00.html
- Pasi, E. (2011). "Spotlight on Senior Housing Initiatives." Journal of Housing & Community Development, 86, 22-55. Retrieved from <http://web.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=450ca35a-24c4-452e-a6e6-3b5100a2d148%40sessionmgr4&vid=7&hid=15>
- Pil Yoon, D. (2006). "Factors Affecting Subjective Well-Being for Rural Elderly Individuals." Journal of Religion & Spirituality in Social Work: Social Thought, 25:2, 59-75.
http://dx.doi.org/10.1300/J377v25n02_04
- Ratcliff, T. (2009, July 28). "A Short History of Nursing Homes in the United States." Retrieved December 1, 2012, from National Seniors Partners Network website:
<http://nslpn.com/daily-dose/2009/07/28/a-short-history-of-nursing-homes-in-the-united-states/>

Research Bibliography

Regnier, V. (1994). Assisted Living Housing for the Elderly. New York, NY: Van Nostrand Reinhold.

Regnier, V. (2002). Design for Assisted Living: Guidelines for Housing the Physically and Mentally Frail. New York, NY: John Wiley & Sons.

Social Security Act 1935. (2012), Retrieved December 3, 2012, from 100 Milestone Documents website: <http://www.ourdocuments.gov/doc.php?flash=true&doc=68>

Soil Classification Key. (1994). Retrieved November 28, 2012, South Dakota State University website: http://pubstorage.sdstate.edu/AgBio_Publications/articles/TB96.pdf

Soil/Water Research. (2002). Retrieved December 6, 2012, from SDSU plant Science Department and Agricultural Experiment Station website:
<http://www.sdstate.edu/ps/research/soil-fertility/reports/upload/02-38-SOIL-MOISTURE-BULK-DENSITY-SOIL-TEMPERATURE-AND-SOIL-SENSOR-VERIS-3100-AND-GEONICS-EM-38-RELATIONSHIPS-PART-2-BROOKINGS-COUNTY-SITE.pdf>

Soil Survey of Brookings County, South Dakota. (2004). Retrieved November 28, 2012, from United States Department of Agriculture Website:
http://soildatamart.nrcs.usda.gov/Manuscripts/SD011/0/Brookings_SD.pdf

South Dakota-Brookings County. (2011, June 13). Retrieved December 5, 2012, from the National Register of Historic Places website:
<http://www.nationalregisterofhistoricplaces.com/SD/Brookings/state.html>

The 1965 Medicare Amendment to the Social Security Act. (2012, August 27). Retrieved December 2, 2012, from LBJ Presidential Library website:
<http://www.lbjlibrary.org/press/the-1965-medicare-amendment-to-the-social-security-act>

The History of Assisted Living: The who what where when & why of assisted living. (2012). Retrieved December 1, 2012, from Assisted Living History- the Evolution of Assisted Living Facilities: <http://www.assistedlivinghistory.com/>

Ward, Bill. (2012, October). "Boomers truckin into old age." Star Tribune, E1, E16.

What is Assisted Living?. (2011). Retrieved September 27, 2012, from ALFA website:
<http://www.assistedlivinginfo.com/Assisted-Living-Care/What-is-Assisted-Living>

Woodbury University. (2011). Rethinking accessibility: Illustrated principles toward a universal specificity. Burbank, CA: The Center for Community Research and Design at Woodbury University.

Images Resources

4th St & 9th Ave, Brookings, SD. Retrieved September 20th, 2012. From Google Maps website:
<https://maps.google.com/maps?oe=utf-8&client=firefox-a&q=Brookings+South+Dakota&ie=UTF-8&hq=&hnear=0x8788fdc9d55114ed:0xe13e12427ce25b2c,Brookings,+SD&gl=us&ei=X9x0UOXbO-XKyQHGroD4Dw&ved=0C1cBELYD>

Brookings, SD. Retrieved on September 20th, 2012. From Google Maps website:
<https://maps.google.com/maps?oe=utf-8&client=firefox-a&q=Brookings+South+Dakota&ie=UTF-8&hq=&hnear=0x8788fdc9d55114ed:0xe13e12427ce25b2c,Brookings,+SD&gl=us&ei=X9x0UOXbO-XKyQHGroD4Dw&ved=0C1cBELYD>

Feddersen, E. & Ludtke, I. (2009). A Design Manual: Living for the Elderly. Medialis, Berlin: Birkhauser Verlag AG.

Regnier, V. (2002). Design for Assisted Living: Guidelines for Housing the Physically and Mentally Frail. New York, NY: John Wiley & Sons.

Senior Beach Living. (2011). Retrieved December 4, 2012, from MBK Senior Living website:
<http://mbkseniorliving.com/communities/crowncove/index.php>

Site Photos taken by the Author of this book, Farmer, K.A. (2012).

Sunrise of Bellevue. (2012). Retrieved December 4, 2012 from Sunrise Senior Living website:
<http://www.sunriseseniorliving.com/communities/sunrise-of-bellevue/Overview.aspx>

Climate Data Resources

Brookings, South Dakota. (2012). Retrieved November 12, 2012, from City Data website:
<http://www.city-data.com/city/Brookings-South-Dakota.html>

Lechner, N. (2009). Heating, Cooking, Lighting: sustainable Design Methods for Architects. Hoboken, NJ: John Wiley & Sons, Inc.

Wind Rose Charts (m/s). (2002). Retrieved November 26, 2012, from South Dakota Climate and Weather website: <http://climate.sdstate.edu/windrose/windrose.shtm>



Address: 62785 230th st
Litchfield MN, 55355

Phone: 320-221-2646

Email: Kimberly.Farmer@my.ndsu.edu

Hometown: Litchfield, MN

Quote: "Promise me
You'll always remember
You're braver than you believe
Stronger than you seem and
Smarter than you think"

-Christopher Robin To Pooh-

Personal Identification **166**