

Accessibility Through Design



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Accessibility Through Design

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Landscape Architecture of North Dakota State University

By
Erik Schwarzkopf

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of Architecture


Primary Thesis Advisor


Thesis Committee Chair

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Abstract



Abstract

This thesis, *Accessibility Through Design*, will seek to explore the question: How can the design of a long-term care facility help promote physical and social accessibility of the elderly within an urban fabric, so as to benefit both the residents and the community?

The current minimum standards for long-term care facilities can be a detriment to the health and welfare of its residents. A long-term care facility is better for both the community it is a part of and for its residents when it enables the two to easily interact. As a society, we need to find new ways to maintain the elderly's sense of independence and

freedom, while encouraging their integral involvement in our communities.

This thesis will culminate in a long-term care facility located in Duluth, Minnesota. This project will endeavor to fully explore its site context and program requirements in order to find valuable ways for the elderly to interact with their community and environment. If there is to be a revolutionary increase in the population of the elderly in the coming years, then there must also be a revolution of architecture related to long-term care design.

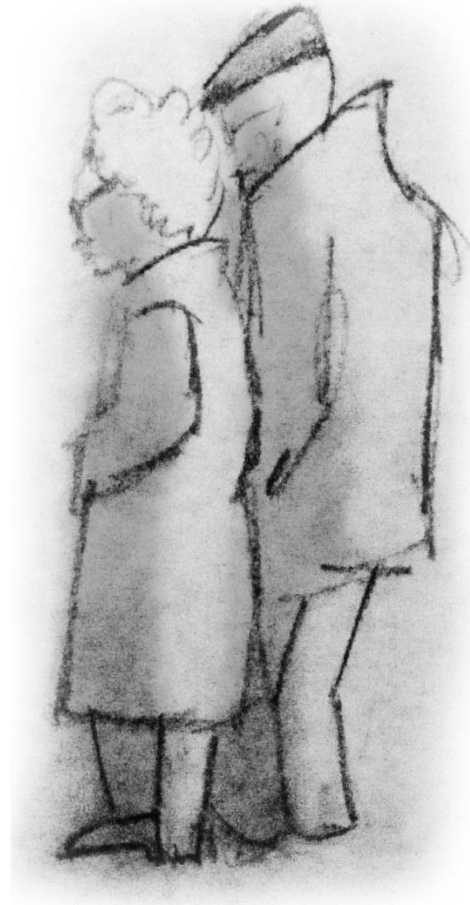
Problem Statement



Problem Statement

How can the design of a long-term care facility help promote physical and social accessibility of the elderly within an urban fabric so as to benefit both the residents and the community?

Statement of Intent



Statement of Intent

Typology

The typology for this thesis is a long-term care facility.

Claim

Designing to form connections with the surrounding community and environment, and incorporating a level of accessibility that surpasses current standards will foster an architecture that is beneficial for the elderly who need assisted-living and an even greater level of care.

Premises

Actor:

The elderly can thrive both mentally and physically through connections with their surrounding community and environment.

Action:

Designing to current standards should be seen as a starting point that is meant to be surpassed so that the elderly can more easily engage with their community.

Object:

A long-term care facility is more advantageous to both the community it is a part of and to its residents once it enables the two to easily and positively interact.

Theoretical Premise/Unifying Idea

Many long-term care facilities follow a model that hinders the elderly's ability to enjoy the community around their residence. Both physical and social accessibility are key components in any architecture that seeks to benefit the elderly and the community it serves.

Project Justification

Elderly populations are and will be on the rise in almost every statistical category. "Many areas of public life will be greatly affected by the aging of the baby-boom cohorts" (Siegel, 1996). Along with sheer numbers of people, baby boomers will also control a large amount of wealth and voting power

within our country for years to come. There is no doubt that this incoming generation of the elderly still has much to offer to our society, especially as life expectancy and care increases. It is more important than ever for architects to respond to their impending needs in new and creative ways that can promote the greater good for all parties involved.

Narrative

The current model for housing the elderly, or people who need or will need assisted living in the near future, is woefully inadequate. We need designs that benefit the body and spirit of its occupants. As architects, we are faced with the need to increase the amount of housing for the elderly and along with that we are being given the opportunity to rethink how we design those residences.

Our population in this country is aging rapidly. “From 2010 to 2030, the number of Americans between 25 and 64 will climb by 16 million, but two-thirds of the increase will consist of people 55 and 64” (Fishman, 2010). As the baby-boomer generation ages

gracefully into retirement, our country will be faced with a myriad of imminent problems to be solved. There is no doubt that our ability to extend and increase the quality of life is becoming exponentially better. Therefore, how we care for and house the elderly needs to improve as well. We must realize that the generation responsible for the Summer of Love and largely for the economic boom of the 90's will not want to spend their last years wasting away in a rest home. Rather, we should expect to discover new and inventive opportunities for the elderly to interact at a meaningful level with their surrounding community and environment. The purpose of this is not just to benefit the health of the people such a facility would serve, but to improve the urban fabric it is located in as well.

As cities across America are seeing a rebirth and strengthening of their downtown areas, they need to look towards the future and how to make this new growth sustainable. One way to do this is to create a population within the urban fabric that is sure to be continuously growing for the foreseeable future.

We are not just facing an increase in elderly citizens, but an increase in a more able-bodied and engaged aging population. Just as much as the elderly need to be a part of their communities to increase their quality of life, we need them to increase the quality of our communities. Their involvement in the residential component of the

urban fabric should be a crucial factor in the creation and growth of downtown areas. Beyond that, the accessibility needs of the elderly should be seen as a design opportunity to capitalize on links and connections within the community that all of the community can enjoy. The reintroduction of the elderly population into the downtown area is not a 'handicap' but the design opportunity of a lifetime.

User + Client Description

Residents

The residence will be elderly individuals who are for the most part independent, but still need to rely on the benefits of a long-term care facility.

Caregivers

A staff of medical professionals will be working around the clock. This will include nurses, doctors, pharmacists, etc. They will need dedicated parking and living facilities onsite.

Restaurant

The restaurant will serve both the residents and other guests. It will need a full kitchen, and act as a hub of interaction between the residents and visitors.

Visitors/Patrons

Both family members visiting their loved ones and patrons of the restaurant will require parking. They will need to feel just as comfortable as the residents during their visit. This means that the design must be inviting to outside users.

Owner

Essentia Health will pay for the construction and operate the facility, while the restaurant and grocery space will be rented out and managed by different companies.

Major Project Elements

Residential

The apartments will consist of varying sizes and styles depending on the level of care (or independence) needed by the resident.

Social spaces that are accessible to all the residents and visiting family will include lounges, gardens, and a wellness facility. These facilities will be geared towards sustaining physical and social wellbeing.

Commercial

A kitchen and deli service for the restaurant will be needed for food prep. Along with that will be a serving area for the restaurant, and a display and storage area for the grocery.

Medical Facility

This will consist of a pharmacy, patient rooms, and offices. While routine medical care for residents can take place onsite other procedures requiring surgery and more specialized care will be provided by St. Mary's Hospital. This facility is also owned and operated by Essentia Health as is less than a mile away.

Site Information

The immediate site is currently used as parking lot located in the heart of the downtown of Duluth, MN. It is on East Superior Street near the intersection with 1st Avenue East. Recently this area of the downtown has gained multiple theatres, restaurants, bars, and condos/apartments that have given new life to the surrounding community. It is less than a mile away from a regional hospital that can accommodate any medical need. Beyond that this site is within reach and sight of Lake Superior and the regionally famous Lakewalk.

So why does a long-term care facility belong here? With the influx of elderly people wanting to live within a downtown environment this site provides a great opportunity. It will bring a sustainable population to make a good downtown a great downtown. In other words, this site provides for a design opportunity that is uniquely beneficial to both the elderly residents and the community they would live in.



fig 1. U.S. Map. Retrieved from (U.S. Political Map, 2012)

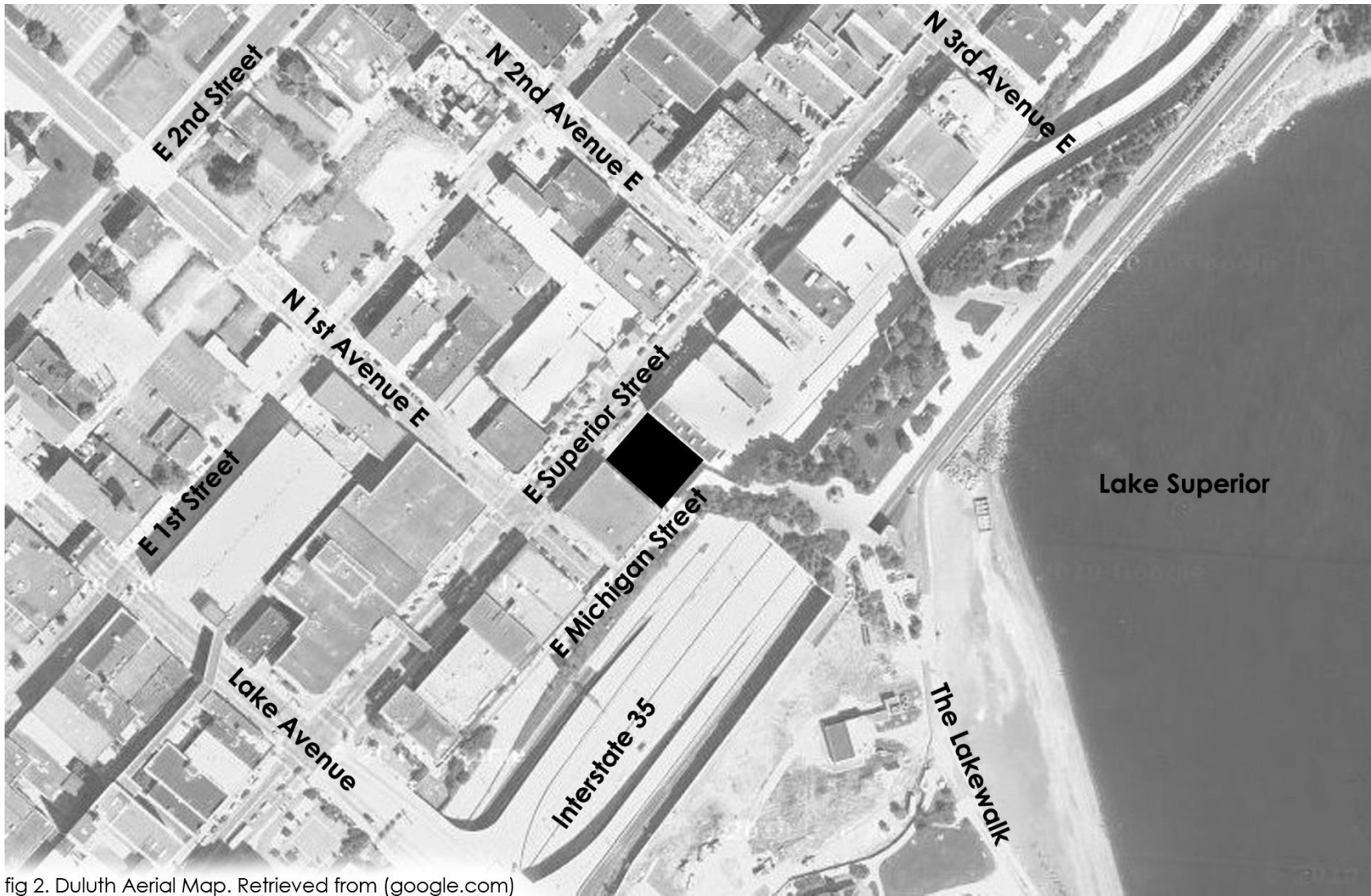


fig 2. Duluth Aerial Map. Retrieved from (google.com)

Project Emphasis

The focus of this project will be on how we design for the elderly in an urban environment. Currently, many long-term care facilities follow an inhospitable model. Both physical and social accessibility are key components in any architecture that seeks to benefit the elderly and the community it serves.

Finding various ways to achieve this goal is crucial to the design. Multiple elements including safety, entertainment, nature, etc. must be considered. The project will incorporate all of these subjects in order to create a successful and meaningful design for long-term care in an urban environment.

A Plan for Proceeding

Research Direction

Research needs to be completed during the entirety of the thesis process. The focus will be on the theoretical premise/unifying idea, project typology, historical context, site analysis and programmatic requirements.

Design Methodology

The design methodologies that will be employed are: a mixed method quantitative/qualitative analysis, graphic analysis, digital analysis, and interviews with the elderly and their families. This will be achieved by following a Mixed Method, Quantitative Qualitative Approach and a Concurrent Transformative Strategy. The framework

for the strategy will be the theoretical premise/unifying idea. Quantitative and qualitative data will be collected concurrently.

Precedence will be given to the theoretical premise/unifying idea. Incorporation of the data will arise at several critical points in the process of the research and will be contingent on the requirements of the analysis of the theoretical premise. This will result in both text and graphics.

Quantitative and qualitative data will be collected. Examples of quantitative data include: statistical

data, scientific data, and experiments. Examples of qualitative data include: data from direct observations, data from a local survey, data from archival searches, and data from direct interviews.

Documentation Plan

All physical process work will be compiled digitally on a computer and backed-up onto an external hard drive that will be kept in a secure, undisclosed location. This will be done on a biweekly basis so that a well-organized product can be assembled and presented in the thesis book and presentation.

Thesis Design Schedule

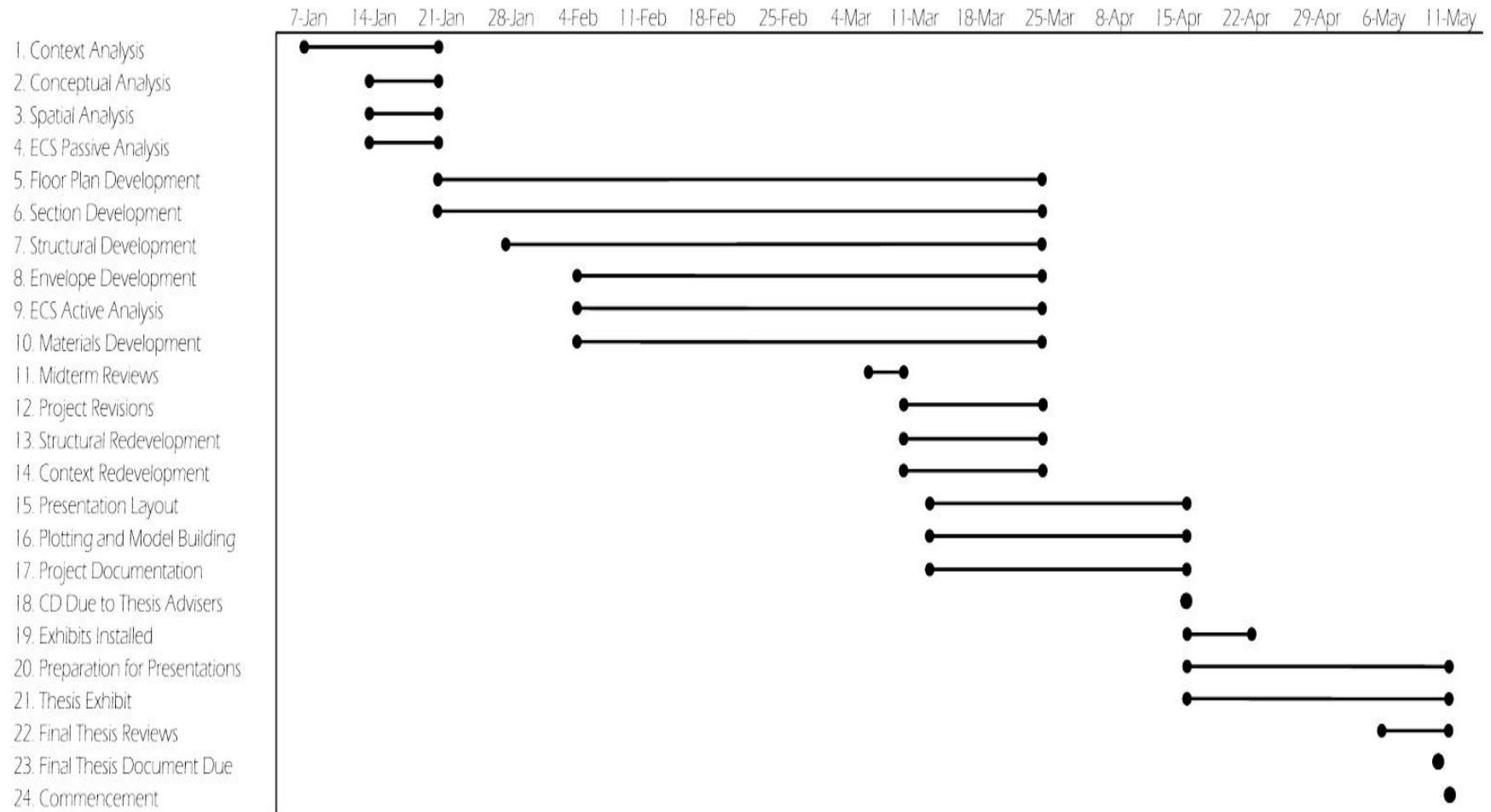


fig 3. Thesis Design Schedule

Studio Experience

Fall 2009

Professor Joan Vorderbruggen

-Teahouse

-Boathouse

Spring 2010

Professor Darryl Booker

-Montessori School

-Marfa Residence

Fall 2010

Professor Regin Schwaen

-Wooden Hotel

-Kilbourne Group Competition

Spring 2011

Professor Steve Martens

-Agricultural Research Facility

-Dinosaur Museum

Fall 2011

Professor David Crutchfield

-San Francisco High rise

Spring 2012

Professor Kathleen Pepple

-Trelaze Park

-Oguela Master Plan

-Emscher Rehabilitation

*Theoretical Premise/Unifying Idea
Research*



Theoretical Premise/Unifying Idea Research

America is facing an increasingly aging population.

“In the next period, 2010 to 2030, the population aged 65 and over is expected to grow by 75 percent to over 69 million... from 2010 to 2030, the growth rate of the elderly exceeds that of the population under age 65, so that the proportion of the elderly in the overall total increases sharply to 20 percent” (Seigel, 1996). We are not just facing an increase in elderly citizens, but an increase of more able-bodied and engaged seniors than we have ever seen before. “Doctors say that not only is

lifespan increasing, but more important, the ‘active’ lifespan is increasing as well” (Parker-Pope, 2009). In a way, these variables make the elderly of the near future unlike any other aging generation. They will set a new trend in how western society treats its elderly citizens. With so many people entering the stage in life where they will need greater health services and care, among other things, our society will need to answer a myriad of questions: Where will they live? Or, perhaps importantly, how will they live? These questions are ‘up for grabs’ with many different players, and their many different motives, involved in how the elderly will enjoy this stage of their lives.

Growth of the Elderly Population in the U.S.

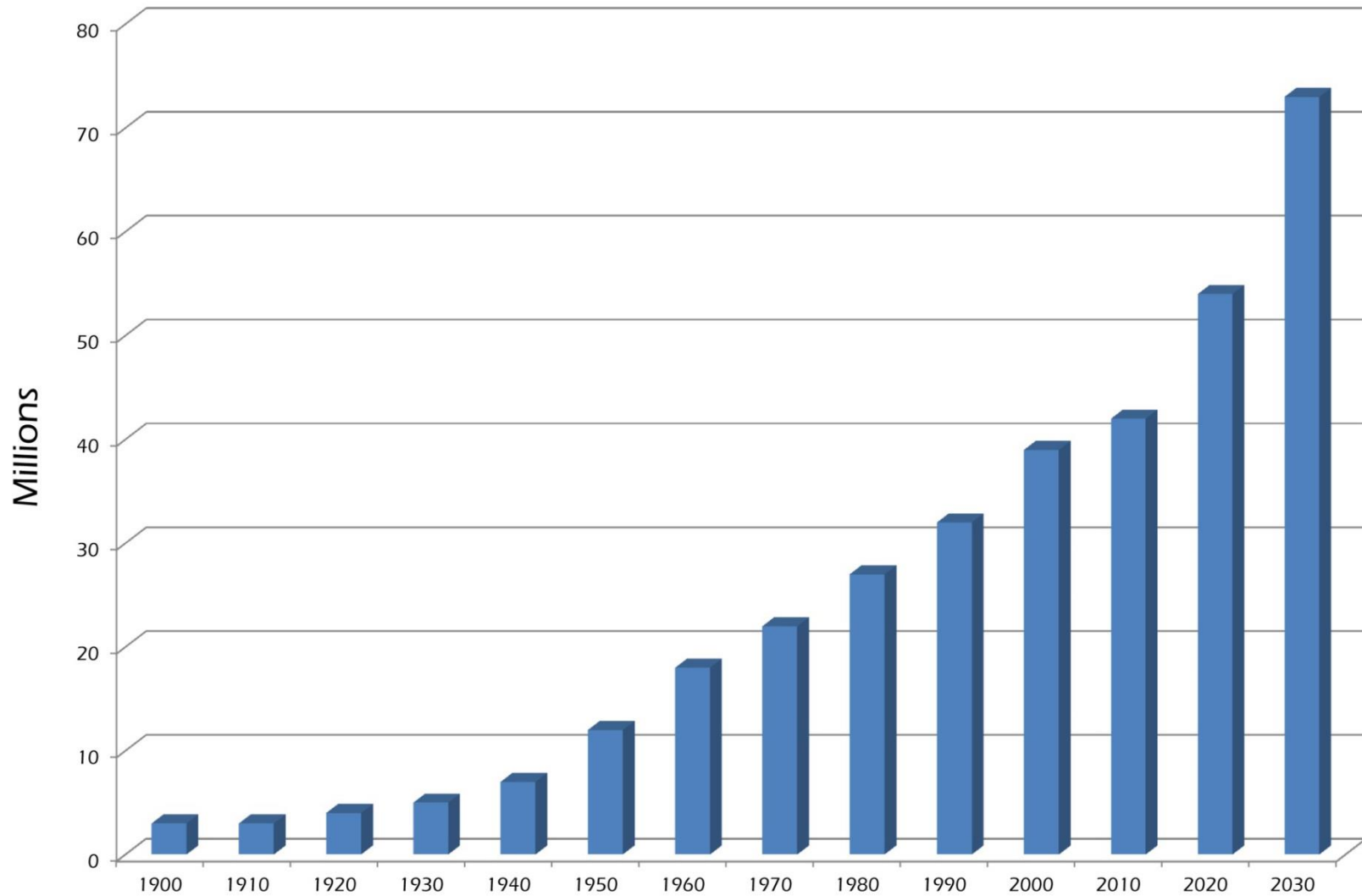


fig 4. Growth of the Elderly Population in the U.S. Retrieved from (Puccini, 2004)

This generation of elderly people will at some point in their life need living conditions that better suit their particular health and lifestyle needs. “Seventy percent of Americans over 65 will need long-term care at some point in their lives. Those individuals will need an average of three years of care” (Long Term Care, 2009).

The long-term care industry has developed various ways of fulfilling that need. Currently, it is hard to argue that this industry is ignoring its most basic services, keeping its clients alive and healthy. However, designers need to also address the future of this field. “Many mentally and physically frail older people are dependent on nursing homes to

meet their health and personal care needs. But nursing homes are designed as healthcare institutions. They are not residential in character and appearance, nor are they designed to encourage independence, to facilitate autonomy, or to secure privacy” (Housing for the Elderly, 1994).

A place for the elderly cannot just be a designated storage area for family members we can no longer take care of ourselves. Long-term care facilities need to become places that encourage the wellness of its inhabitants. The elderly are still in fact people with hopes and dreams. As the esteemed American Feminist, Betty Friedan, once said “Aging is not ‘lost youth’ but a new stage of opportunity

and strength” (Elder Quotes, 2012). Yes, the elderly need the resources that come with living in long-term care facilities, but there is a case to be made that they are not living well. “... a lack of enthusiasm in professional health policy circles for nursing home expansion have led to experimentation with more humane housing and service environments. These settings seek to replace much of nursing home care with "residential" long-term care alternatives” (Housing for the Elderly, 1994). If elderly people and their families are going to be expected to pay for care and a place to live, then they should in turn expect human dignity and the ability to enjoy life.

Among the gravest challenges currently facing our elderly people is mental health issues and health delivery to the elderly in general. “A proactive attitude of primary care practitioners is required if they are to adequately empower and assist their older patients. One of the key hallmarks of aging is an increase in inter-individual variability, which means that clinical approaches need to be even more subtle and personalized than in younger people” (Boeckxstaens, 2011). Too often, our healthcare system inadequately addresses or simply ignores the many deficiencies in the health of the elderly population. “Few seem to receive proper care and treatment for (their) mental illnesses. It is also a distressing reality that the suicide rate of the elderly stands at an alarming 21 percent, the highest

of all age groups in the United States. Every day 17 older individuals kill themselves" (Persky, 2012). Despite these challenging figures, the opportunity for designers to help play a role in the mental wellness of the elderly is more than obvious. "Families are often burdened by the decision to place a loved one in long-term care. The family, community, and resident are all potential beneficiaries of an improved system for long-term care" (Kuelbs, 2012, p. 10). A long-term care facility should be utilized as a place to help the overall health of its clients, not hinder it. "Remaining at home or within the community seems to be a high priority for aging individuals. Indeed, care should strive to help older persons to remain as active as possible and to receive services they need in their

own environment... providing informal care is a natural part of our relationships and social capital in society" (Boeckxstaens, 2011).

As Oscar Niemeyer once said "Things are difficult. You get older and find yourself saying goodbye to people. Life doesn't make a lot of sense. But it's more meaningful if the will to be useful and to help your neighbor predominates" (as cited in Godfrey, 2010).

The underlying premise of much of this thesis is that the elderly would actually benefit from a thriving urban environment far more than they would an

isolated environment. There are many opportunities for cultural recreation in the neighborhood surrounding the site; just to name a few: theatres such as the Zeitgeist (www.zeitgeistarts.com), art galleries such as Lizzard's Art Gallery & Framing (www.lizzards.com). Along with that notion, it can be generally assumed that the elderly (like anyone else) would enjoy a scenic, naturalistic environment. Duluth, Minnesota fulfills both of these criteria perfectly. Downtown Duluth is becoming increasingly successful and thriving, while attracting many newcomers in the form of tourists and others who want to live in a city full of natural beauty.

Along with the attractiveness of Duluth for the elderly, there are many benefits that Duluth would see from such an arrangement. Healthcare jobs are among the most desirable in our country, and attracting more healthcare professionals to Duluth would become just as essential as attracting elderly people. According to [The Huffington Post](#), both doctors and nurses were ranked in the top ten professions to pursue for new graduates (Guzzardi, 2011). The lists of economic benefits are relatively endless, but suffice it to say that bringing the elderly back into the city center would bring a very consistent consumer base to the local economy.

Going beyond the general economic benefits that would ensue, perhaps more notably from a design perspective, we can also see the potential of what is referred to as 'universal design'. "Universal design is the process of creating products (devices, environments, systems, and processes) which are usable by people with the widest possible range of abilities, operating within the widest possible range of situations (environments, conditions, and circumstances)" (Vanderheiden, 1996). Both physical and social accessibility are key components in any architecture that seeks to benefit the elderly and the community it serves.

Finding various ways to achieve this goal is crucial to not just Duluth, but our society as a whole. That being said, this thesis cannot be construed as an attempt to change the world. Instead, it should serve as a possible example of how we can positively alter the typology while at the same time keeping in mind the potential limitations/difficulties posed by trying to integrate universal design into an already existing city. The other limitation to consider is that this thesis will seek to introduce a relatively small amount of new inhabitants to Duluth, MN when considering the actual impact the residents will have on the entire city. Rather, this thesis will seek to show how such a project could help to improve things on a localized, neighborhood level.

Theoretical Research Summary

The population of the elderly is increasing. "In the next period, 2010 to 2030, the population aged 65 and over is expected to grow by 75 percent to over 69 million..." (Seigel, 1996). With this expected rise in the number of elderly people we can expect a rise

in the amount of places they will need to live. They need places to live that ensure them the dignity and freedoms they so rightly deserve. The elderly need places to live that will increase their quality of life while providing the health services they need.

The health of the elderly is a critical issue facing elderly care and housing, especially as the number of elderly people continues to rise. Many elderly people deal with mental health problems along with their physical frailties. It is imperative that improvements be made in elderly care both from a healthcare perspective and a design perspective.

The elderly would benefit from living in a more interactive, urban environment instead of an environment of isolation. Their continued interaction and involvement within the community is necessary for them to maintain a high quality of life. Duluth, MN is a city full of opportunities for social and environmental interaction.

Although it's by no means a miracle cure, this thesis project would seek to explore the benefits for Duluth, MN in having an urbanized elderly care facility. The increase of healthcare jobs would be a more immediate benefit. Beyond that, the local economy could come to thrive on a more or less

constant supply of local residents that want to be involved.

Universal design is something we, as designers and as a society, need to strive for if we are going to incorporate the elderly into the urban environment. The advantages of universal design do outweigh the challenges of making an urban environment accessible.

Typological Research



Typological Research

New Carver Apartments

New Carver Apartments in Los Angeles, California is a residency for homeless elderly and disabled people. The site of the building is next to freeway I10 and is less than a mile from the heart of Skid Row (Lost Angeles), a well-known place for its high concentration of homeless and under privileged residents. "The project aims to construct not only a new optimism for the public space and public housing in Los Angeles, but to form an armature for change through the architectural program, organization, and form." (Todorova, 2010)

The total structure comes to 57,000 sq. ft. with 97 apartment units. It also contains communal kitchens, dining areas, gathering spaces, gardens, and medical and social services. The form is a very geometrically derived doughnut that rises 6 stories high. The materiality, white metal panels, is one of lightness and brightness that brings a sense of playfulness to the exterior and interior of the building. Much like the other case studies the building features a prominent interior courtyard which provides ample amounts of natural daylight to the interior of the building, along with the opportunity for more social interactions within the building.

While this thesis does not focus on the economically disadvantaged this case study does point out several aspects to consider for the design of an elderly care facility. The type of space that is designed can say a lot about the values of the people living in it and how they are meant to feel. New Carver Apartments is a good example of a space meant to dignify its residents by bringing a sense of levity and beauty not seen in a typical apartment building. The vocabulary of both the form and the materiality of a building go a long way in defining how its users are meant to act and react within it.

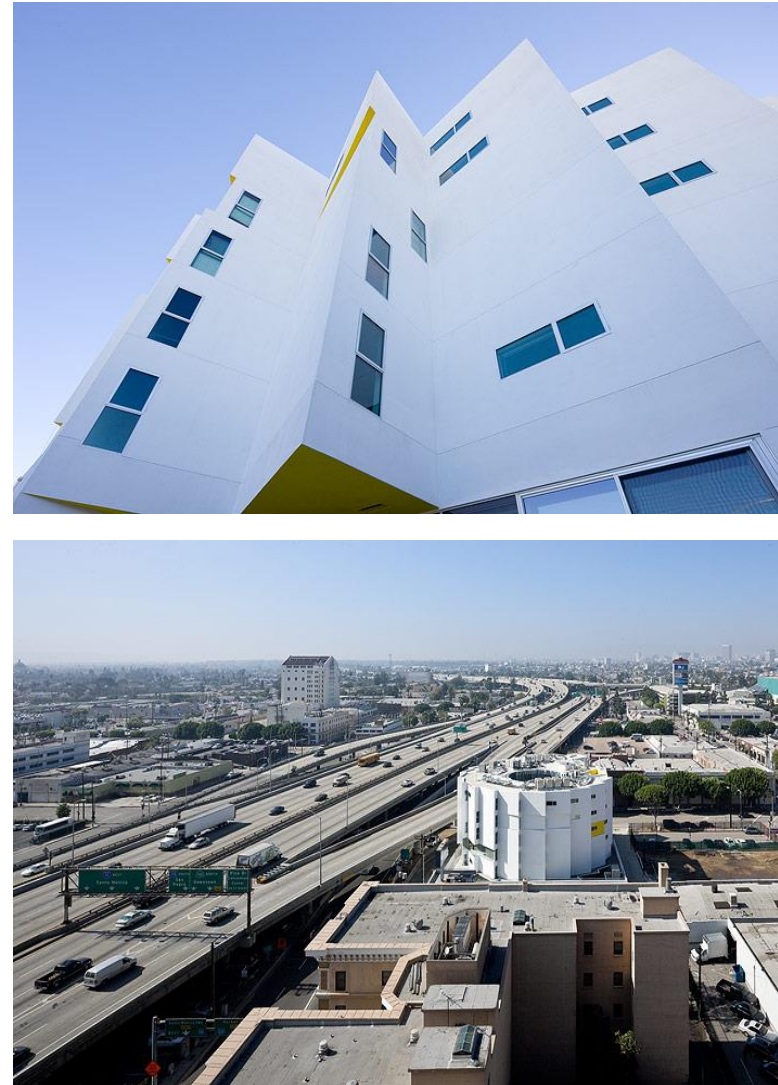


fig 5. Photos of New Carver Apartments. Retrieved from (Todorova, 2010)



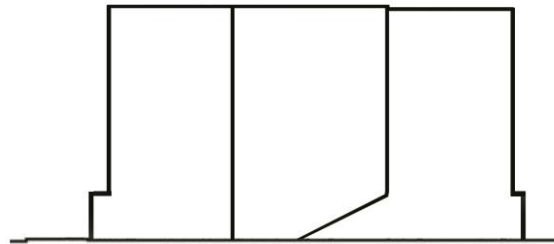
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Circulation

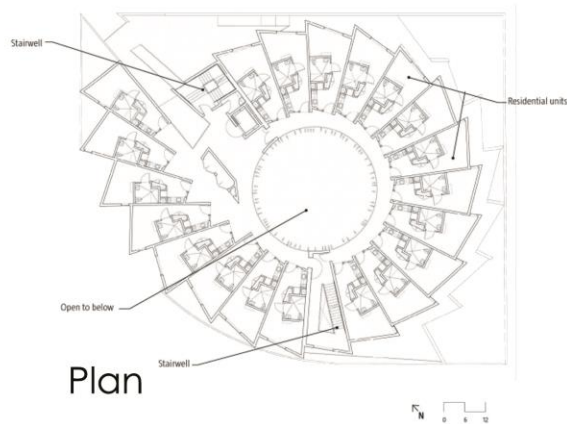


Natural Light

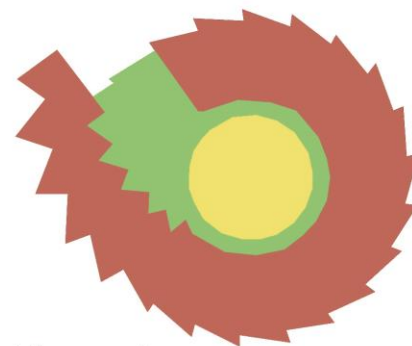


Massing

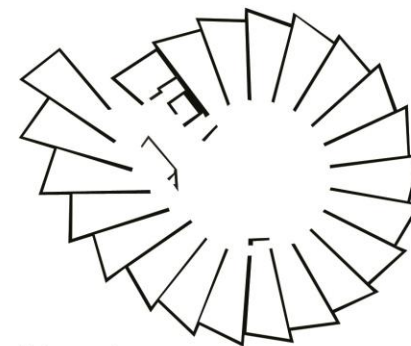
Located: Los Angeles, CA
 Built: 2009
 By: Michael Maltzan Architecture
 Program: Social Housing



Plan



Hierarchy



Structure

fig 6. Graphic Analysis of New Carver Apartments. Retrieved from (Todorova, 2010)

Shanchita

Shanchita is an apartment building in Dhaka, Bangladesh. It is a smaller building with only several units. This is due mostly to the fact that it is on a very compact site and fits the profile of its neighboring structures. The design intent was to deviate from the “uncaring high-rise apartments” (Shanchita, 2008) in the surrounding neighborhood. Shanchita was designed to be more akin to traditional housing in the Dhaka neighborhood. This meant using such elements as trees, verandas, balconies, and gardens. The result is a structure that does well to incorporate nature into each aspect of the design. Additionally, the arrangement of spaces focuses on social interaction with others. Instead of enclosed hallways Shanchita uses transition spaces as an

opportunity to open up to an interior garden or a communal living room. The design vocabulary of Shanchita is one of modernism and esoteric proportions.

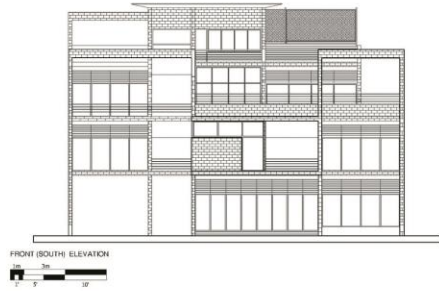
Shanchita is designed for a client with more economic resources than the first case study, New Carver Apartments. The material palette of spider glass curtain walls and polished stone floors speaks of a higher income clientele. The rich use of materials is not the important thing to take away from this project. Instead, the use of interior gardens and communal spaces is a key feature to hone in on. Also, the appealing proportions and nature of the building are as big an advertisement as any

landlord should need. If you are going to design a space where you want people to live, then you had better design a place where people will actually want to live. The character of Shanchita is one of casual comfort. This character goes a long way when trying to comfort the afflicted, no matter the affliction. Images from (Shanchita, 2008)

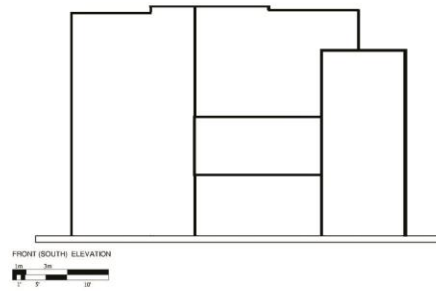


fig 7. Photos of Shanchita. Retrieved from (Shanchita, 2008)

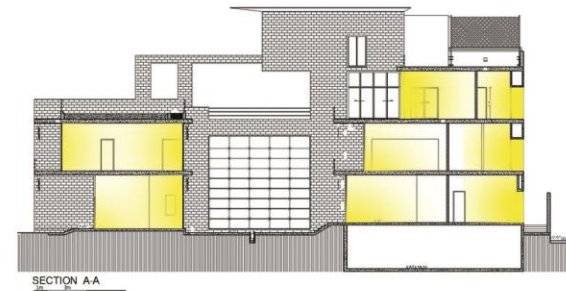




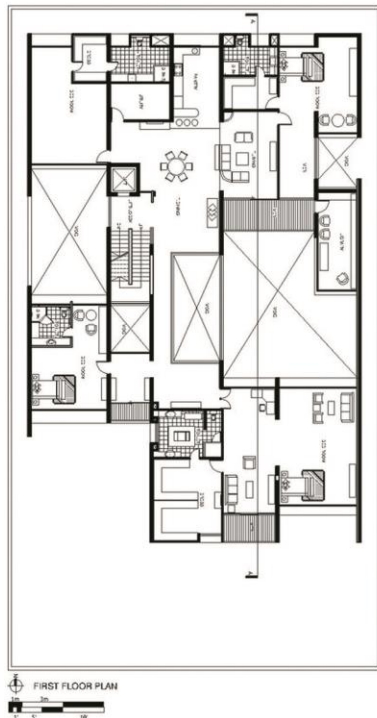
South Elevation



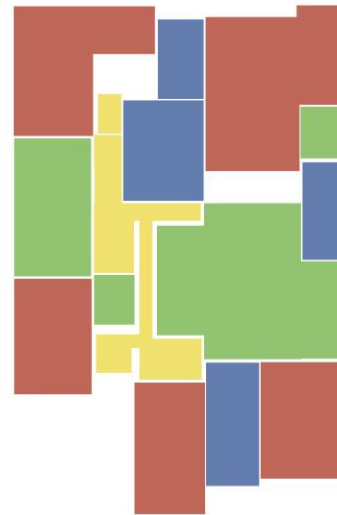
Massing



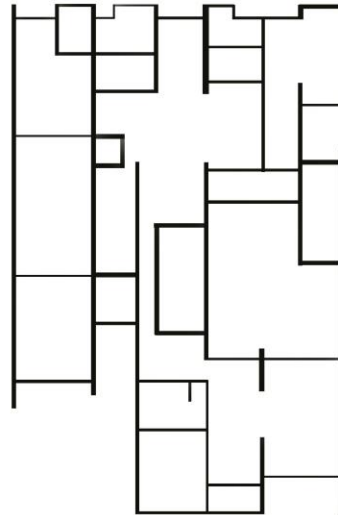
Natural Light



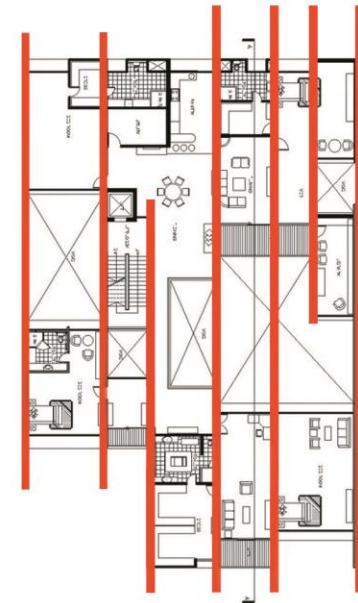
Plan



Hierarchy



Structure



Geometry

Located: Dhaka, Bangladesh
Built: 2008
By: ArchSociety
Program: Private Homes

fig 8. Graphic Analysis of Shanchita. Retrieved from (Shanchita, 2008)

Triamant Velm

Triamant Velm, located in Turnhout, Belgium, is an elderly care facility focused on keeping the residents involved with their family, neighbors, and friends. "The central theme was not how to build an old people's home, but how to link the different forms of providing care to the experience of a normal everyday residential concept" (Nikolova 2010). Keeping this in mind, the overall emphasis of the project was to bring as much dignity to the residents as possible by combining independence with care.

The site of the facility is Peten in Velm, which is a village south of the Belgian city of Sint-Truiden. More

specifically, the site is an abandoned castle and school campus. The school campus structures were in too great of disrepair to save so they were demolished while the castle was reused as a main dining area and obvious entry point to the new facility. A U-shaped campus of buildings was developed with the castle at the end. All of the public functions were kept to the first floor. These spaces, which are open to people from the surrounding community, include shops, a full hospital, a wellness center, and a swimming pool. Everything on the first floor was made transparent so that all of the residents could see the activity down below from their apartments. The entire interior is white and fairly austere. This was done to stay on budget and also to give a bright, light feel to the

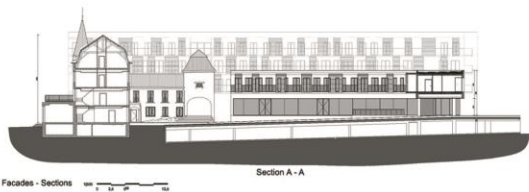
spaces. A brick façade on the exterior was done to frame the new residences with the castle while also drawing inspiration from the typology of the rural farmhouse.

Unlike the other two case studies this project was done in a rural area. While this is contrary to the ideals of this thesis, that does not preclude this case study from being included for its excellent design. The rural environment is embraced by incorporating functional natural landscapes and plentiful natural beauty. Also, despite its rural location this facility pushes to engage the community and keep the residents socially active. Such values as independence and dignity are ones to be

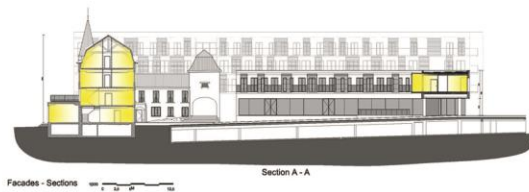
exemplified in the typology of elderly housing and care.



fig 9. Photos of Triamant Velm. Retrieved from (Nikolova, 2010)



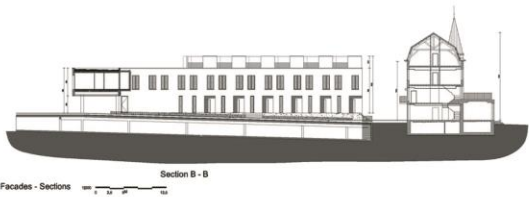
Section



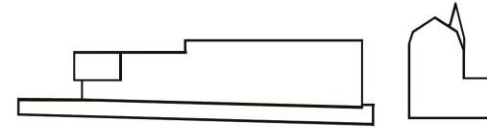
Natural Light



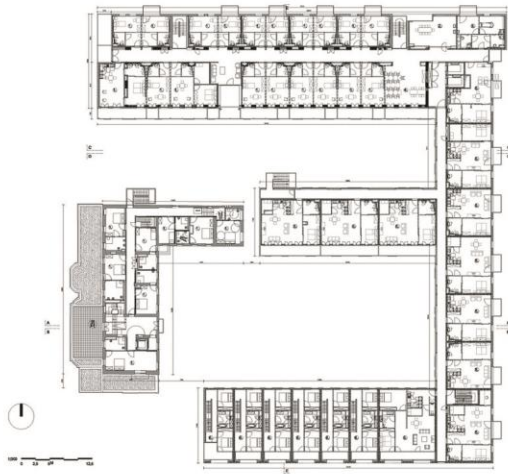
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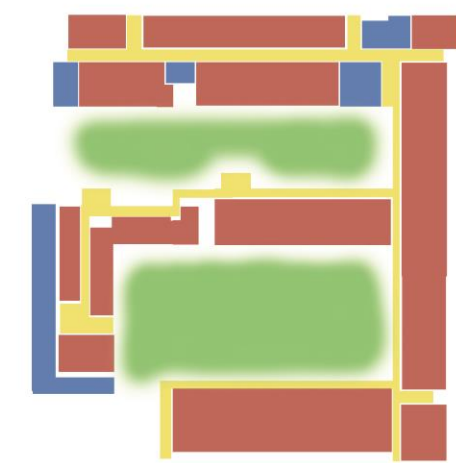
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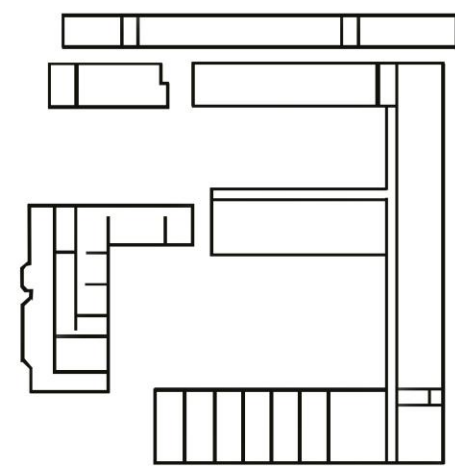
Massing



Plan



Hierarchy



Structure

Located: Turnhout, Belgium
Built: 2010
By: BURO II & ARCHI+I
Program: Elderly Care

fig 10. Graphic Analysis of Triamant Velm. Retrieved from (Nikolova, 2010)

Typological Research Summary

This series of case studies examined three distinctly different projects. All of the projects excelled in some aspect of design that warranted their use in conjunction with this thesis topic. New Carver Apartments is a block of low income elderly and disabled apartments in Los Angeles, California. Shanchita is a small scale apartment complex in Dhaka, Bangladesh. Triamant Velm is a mixed-use elderly-care facility in Turnhout, Belgium. These projects were chosen because of their diversity of global location, building typologies, and site typologies. Overall, these case studies helped to show examples of real-world solutions to the vital issues facing this thesis.

New Carver Apartments is used for its emphasis on bringing a sense of levity and happiness to the project. The use of bright colors and an untypical form made for an apartment complex that strives to increase the quality of life of its users. Additionally, this project focuses on the homeless elderly and disabled and how dignity plays a role in the design of such a typology.

The Shanchita apartment complex is on a smaller scale than the other case studies and the intended thesis project. That being said, its use of multiple gardens and communal living spaces provide for a framework of how to use such spaces as ways to

encourage social engagement on the micro-scale of an apartment complex. Also, this project's site fits the chosen thesis site the most by being bound on opposite sides by pre-existing structures.

Triamant Velm in Belgium serves as an example of a mixed-use elderly care facility. Interestingly, it also utilized a very bright interior just like the New Carver Apartments. The organization of spaces in this facility is the main reasoning behind this project being used as a case study. By placing the public spaces at an accessible location, the ground floor, the project strove to involve the community directly on the site. It exemplified the saying 'Build it and they will come'.

In an attempt to sample a greater variety of design ideas; these three case studies were chosen because of their differences as opposed to their similarities. Each of the three brought forth different cultural and societal perspectives, as well as different motives for designing them in the first place. This doesn't mean, however, that no similarities were found amongst the three projects. Obviously, two of the three projects focused on designing a bright, welcoming interior, although for slightly different intentions. Social interaction and human dignity and comfort also played a part in all three of the studies. The intended goal is to draw from all three case studies in order to form a better solution for the thesis.

Historical Context



Historical Context

Housing for the elderly has been a part of society for a very long time. The history of elderly care and housing has been a story of changes in demographics and political persuasions over time. Those responsible for housing the elderly have been different over the course of time and include such parties as the government, family, private companies, and non-profits.

The challenges associated with this subject have been constant no matter the caretaker involved. As life expectancy is projected to increase, just as it has increased through the course of several centuries,

so is the number of elderly people who need care and housing.

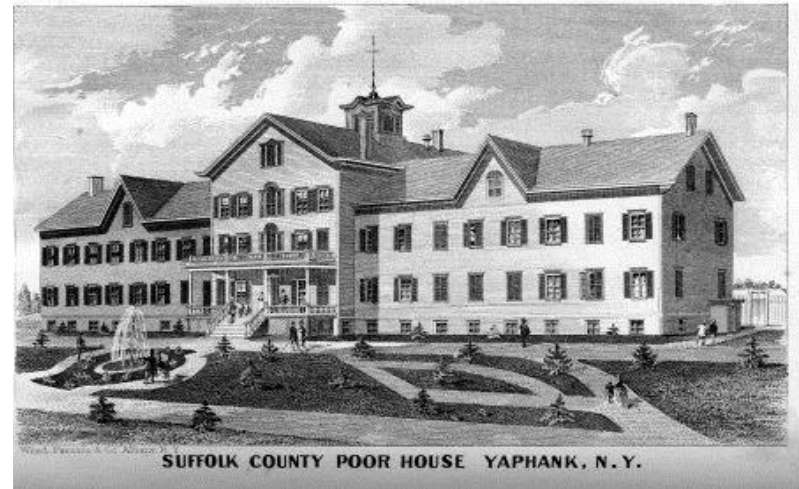


fig 11. Suffolk County Poor House. Retrieved from (Homan, 1875)
The first version of elderly housing came in the form of the almshouse during the 18th and 19th centuries. An almshouse, otherwise known as a poorhouse, was paid for and administered by the government, and was a place where everyone and anyone who couldn't afford to live anywhere else was either

forced to live by circumstance or by the government. The government created almshouses for a myriad of people. People finding themselves in such circumstances did not just include the elderly. “They ranged from the mentally handicapped, convicts, and a range of other indigent people” (Niles-Yokum & Wagner, 2011, p. 101).

Unfortunately, if someone did not have the family or the means to be supported otherwise, then the almshouse was their last stop. Needless to say, these almshouses were not somewhere people wanted to end up.

Changes for the better, from the almshouse model, began to occur around the 1930s. As other groups

of people began to be removed from the almshouses to more fitting institutions such as insane asylums and prisons it became more and more apparent that something needed to be done for the elderly in particular. “In 1929, the Old Age Assistance Act began to offer funding to families and foster families in order to prevent their loved ones from becoming institutionalized” (Kuelbs, 2012, p. 73). This aid, along with Social Security, which barred almshouses from giving ‘old-age’ support, helped many elderly people keep out of almshouses and stay with their families. Sadly, not everyone had families who could care for them, so the first nursing homes were created to house and care for the elderly.

In the 1950s both private and public nursing homes became federally funded. This was due to changes that congress made to Social Security and then the Medical Facilities Survey and Construction Act of 1954 which created institutions specifically for the elderly. Further fuel was added to the elderly care industry when, in 1965, Medicare and Medicaid gave senior citizens more resources. Thus, there was more profit motive for care providers mostly in the private sector. "Between 1960 and 1976, the number of nursing homes grew by 140 percent, nursing-home beds increased by 302 percent, and the revenues received by the industry rose 2,000 percent." (Herman, 2008). Regrettably, this increase in funding did not always translate to an increase in the quality of care. Many critics accused the

nursing home industry to being akin to the almshouses of old. Because of this, in 1971 the federal government created the Office of Nursing Home Affairs which was responsible for nursing home standards. This institution was given further power under the Older American Acts in 1973 and 1987. This gave the elderly a voice in the administering of care at nursing homes. All of this was not enough as people still feared the almshouses of old. Other alternatives have become increasingly popular.

"Increasingly large numbers of seniors are choosing assisted-living options over nursing homes... Between 1998 and 2003, the number of assisted-living facilities grew by 50% to nearly 40,000 facilities" (Yokum & Wagner, 2011). Many elderly people believe the

nursing care industry to be too controlling and impersonal. These individuals are often opting for assisted-living situations that allow for choices in the kind and amount of care being provided. This choice is somewhat of a luxury that not everyone can afford. There are other options, though.

Retirement communities have been around since at least the 1960s. “Most retirement communities are characterized by imposed minimum age limits, complete community planning, low-cost housing, and a high level of amenities” (Kuelbs, 2012, p. 77). These kinds of institutions provide their elderly clients a slightly more affordable option with a lifestyle that appeals to some.

In parts of Europe many elderly people want to stay with or near their families. This has been termed ‘aging in place’. Due to this want, some European cities have designed entire intergenerational neighborhoods with the intent of incorporating universal design with help from government funds. As opposed to the American model of relative isolation this European model relies on the intentions of universal design to improve the quality of life for all people. When done successfully universal design encourages people of all ages to use the same medical, social, and community services.

Elderly housing and care has been a process of evolution through several centuries. From almshouses to intergenerational neighborhoods, the treatment of our elderly citizens has progressed. With the amount of elderly people needing housing and care expected to rise in the coming years there are now several options available to them. Ultimately, which option will prevail as the best model for elderly care has yet to be decided.

Goals for the Thesis Project



Goals for the Thesis Project

Not unlike other professionals, architects are entrusted with the health, safety, and welfare of the public. My original reason for entering the field of architecture was to make the world a better place. My grandmother recently left her home and moved to an elderly care facility where I visited her this summer. The facility she lives in is actually very well designed and very comfortable. However, it is surrounded by absolutely nothing. No elderly person in a nursing home has a driver's license, and therefore they have no freedom of mobility over long distances. A well beautiful, well designed fortress of solitude is still a lonely place to live. It is my hope to correct this mistake. It is for this reason that I

am pursuing a thesis based on universal design and altering a typology in a way that I believe will benefit all of its users.

'Nursing homes' as they are called now tend to bring up thoughts of lonely, smelly, old people. Obviously, this perception needs to be changed, permanently. This thesis seeks to discover an academic solution to the question: how can the design of a long-term care facility help promote physical and social accessibility of the elderly within an urban fabric so as to benefit both the residents and the community? As much as this is a theoretical project it should still serve as an example of the

opportunities available to an elderly care facility in an urban environment.

I have always thought that a thesis should move you towards somewhere or something that you want. I am hoping this thesis will help me to develop a connection with Duluth, Minnesota. The city has always been my home. I hope that I will be able to continue to call it that upon my graduation and the start of my career.

Site Analysis



Site Analysis

Site Narrative:

I have lived in Duluth, MN all of my life. The phrase 'I know it like the back of my hand' doesn't begin to describe my love for the place I call home. Duluth is a small, compact city that has been in the midst of an economic and cultural transition for the better part of a century. Over the years, even during my short lifetime, it has morphed from an industrial port city towards an ecological paradise for tourists and artists alike. Duluth, like many other cities, is seeing the opportunity to revitalize its downtown districts. New growth in the way of urban living, such as, shops, apartments, and other amenities are becoming more popular to an ever emergent

group of people that want to live in the downtown areas of cities.

Canal Park and Park Point are known by the locals of Duluth as tourist hotspots, so despite their pleasant natures these neighborhoods do not portray the sense of urban authenticity that the project requires. The more historic downtown (up the hill a couple of blocks) provides the sort of urban environment that would help facilitate beneficial connections with an elderly care facility. With its many shops, restaurants, theatres, and museums would be a wonderful place to live, no matter your age.

More specifically, the site, located between 1st Ave E and 2nd Ave E on Superior St. is currently used as a parking lot. This makes for the perfect opportunity for the design to become an urban infill. It would connect the elevated park and the waterfront beyond with the downtown area. The surrounding structures include a restaurant and shop on either side and a parking garage and casino across the street. The atmosphere of the site is not unlike the rest of downtown Duluth. It has brick streets and sidewalks and masonry construction describes most of the surrounding structures.

For these reasons, and many more, downtown Duluth serves as an idyllic site location for an elderly

care facility that seeks to integrate itself with its surrounding environment in order to strengthen the health and happiness of its residents.

Movement- car, bus, and human:

Superior Street and Lake Avenue are by far the busiest streets in the immediate vicinity of the site. East Michigan Street is more or less a service alley for businesses on Superior Street. East First Street and East Second Street are both one-way streets and aren't as busy as the other streets.

There are two bus stops within a block or less of the immediate site location. The bus routes and service in Duluth is well connected and used. It links its users

with such amenities as the hospital, entertainment, and the greater city area.

Duluth has pros and cons when it comes to walkability. It is a very hilly city and sometimes a very icy one as well. Conversely, Duluth is well known for its parks, greenways, and skywalk system. The Lakewalk will be a crucial element to consider.

Plant cover:

Across Superior Street there are several planted deciduous trees that can't be more than a few years old. On the elevated park there is a myriad of coniferous trees and other smaller plantings. The site itself and the sidewalk and streets surrounding it are

bereft of any vegetation whatsoever. Duluth, MN is in zone 4b for plants.

Soils:

"Bedrock is near or at the land surface in the Duluth area and mainly consists of Proterozoic volcanic and igneous rocks..." (Fitzpatrick, 2006). This makes for relatively easy construction for taller buildings within the city of Duluth.

Water table:

The city of Duluth, MN is located in the Lake Superior Water Basin. Western Lake Superior Sanitary District is responsible for storm water management and waste treatment in Duluth.

Slopes:

The site, marked in yellow, has a slope of 4.3% generally sloping from North to South. This slope is to be expected considering the current use of the site as a paved parking lot. A slope of 4.3% is relatively flat and suitable for walking along, among other things.

Light:

The site receives a large amount of solar gain. With only having 3 story buildings flanking it on two sides, South-West and North-East, it does not receive much shade until late into winter when the shadows cast are much farther. In order to receive maximum solar gain on some part of a structure built on the site the structure would need to be at least 35' tall.

Built features:

Surrounding the site on its East and West faces (Duluth orientation) are brick structures which are both three stories in height. Across Superior Street is a 5 story brick building. On the opposite side (South) is an elevated park over I-35. Generally speaking, the entirety of the block is 3-5 story brick structures with the sole exception being the site itself.

The function of most of the buildings on the block is mixed use with commercial spaces on the ground floor and residential on the floors above. There is also a parking garage and casino across the street from the site.



fig 12. Site Topography Map. Retrieved from (google.com)

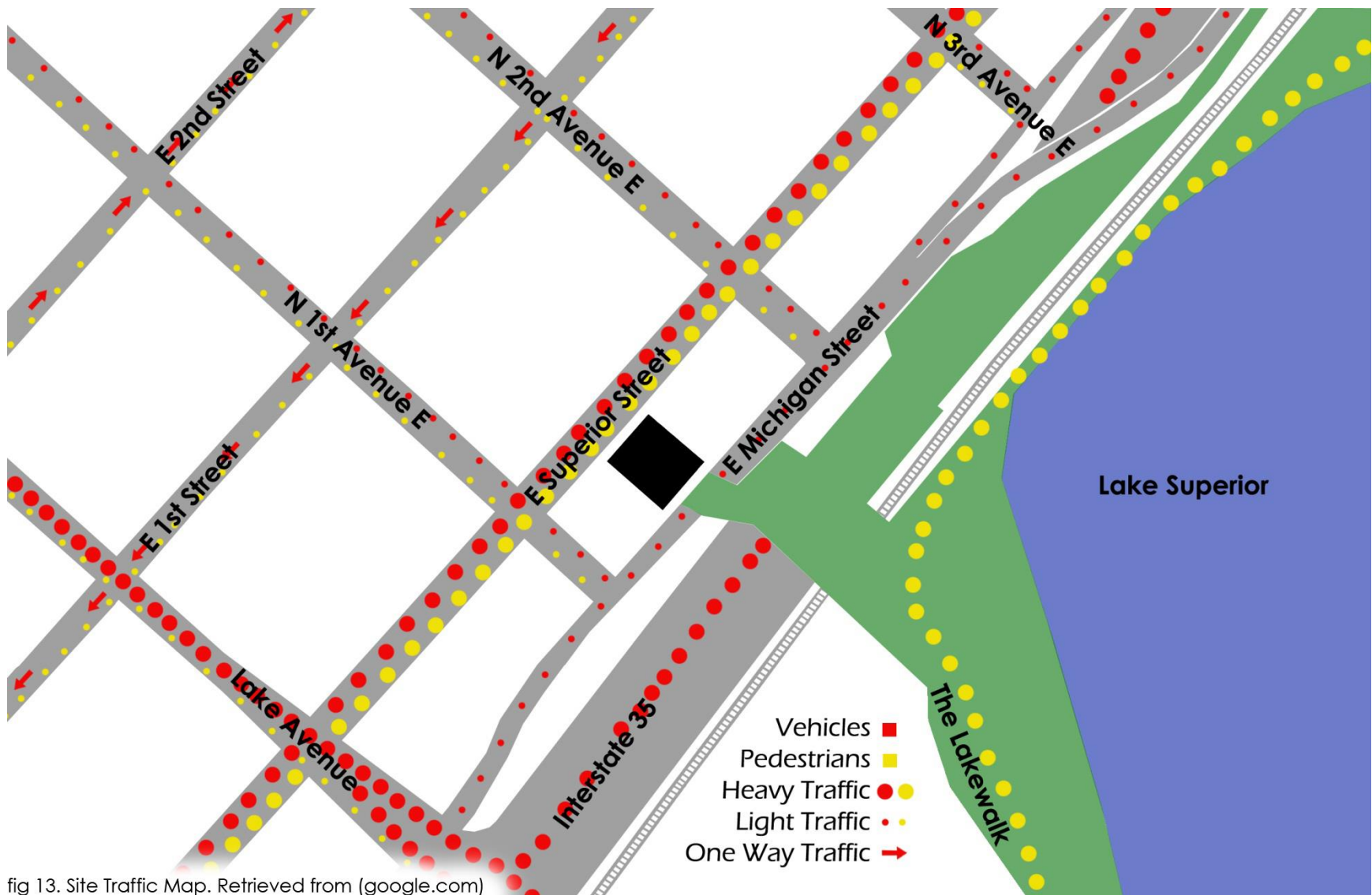


fig 13. Site Traffic Map. Retrieved from (google.com)

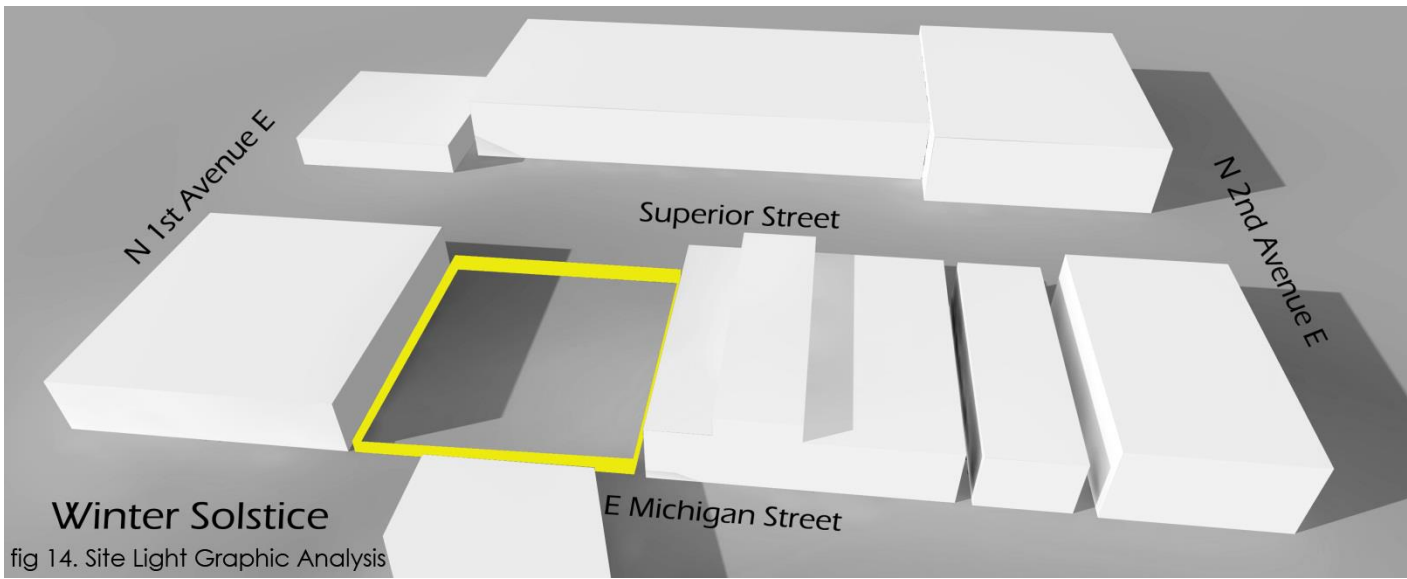
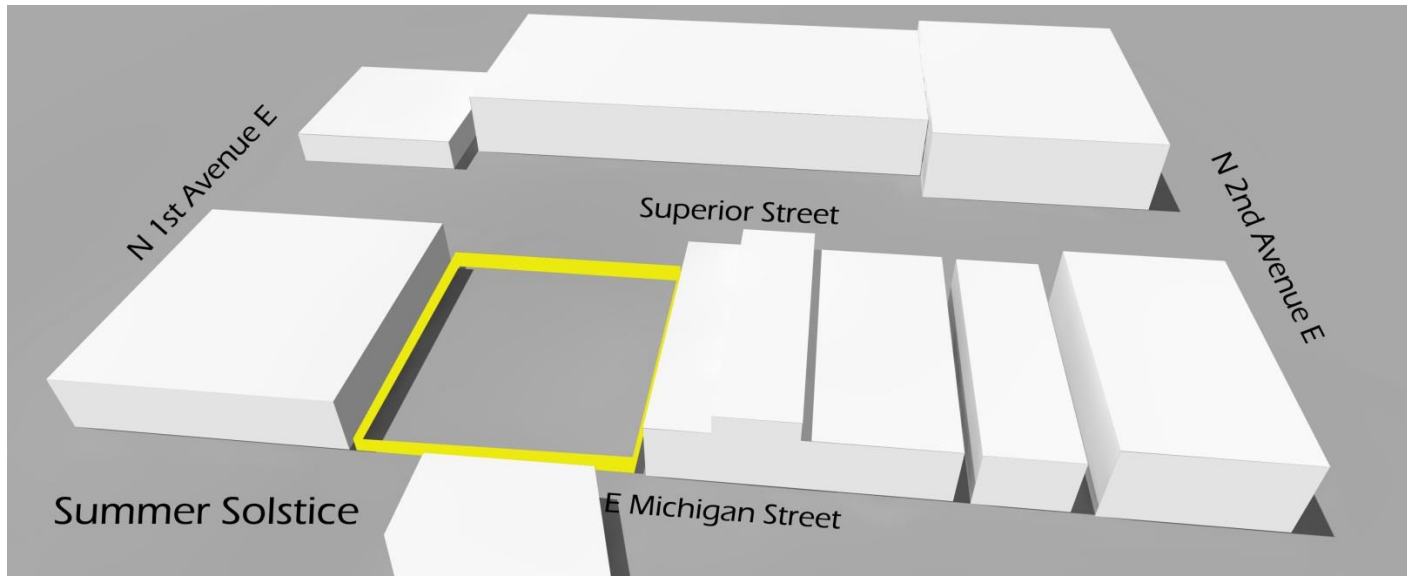


fig 14. Site Light Graphic Analysis

Average Temperatures : Duluth, MN

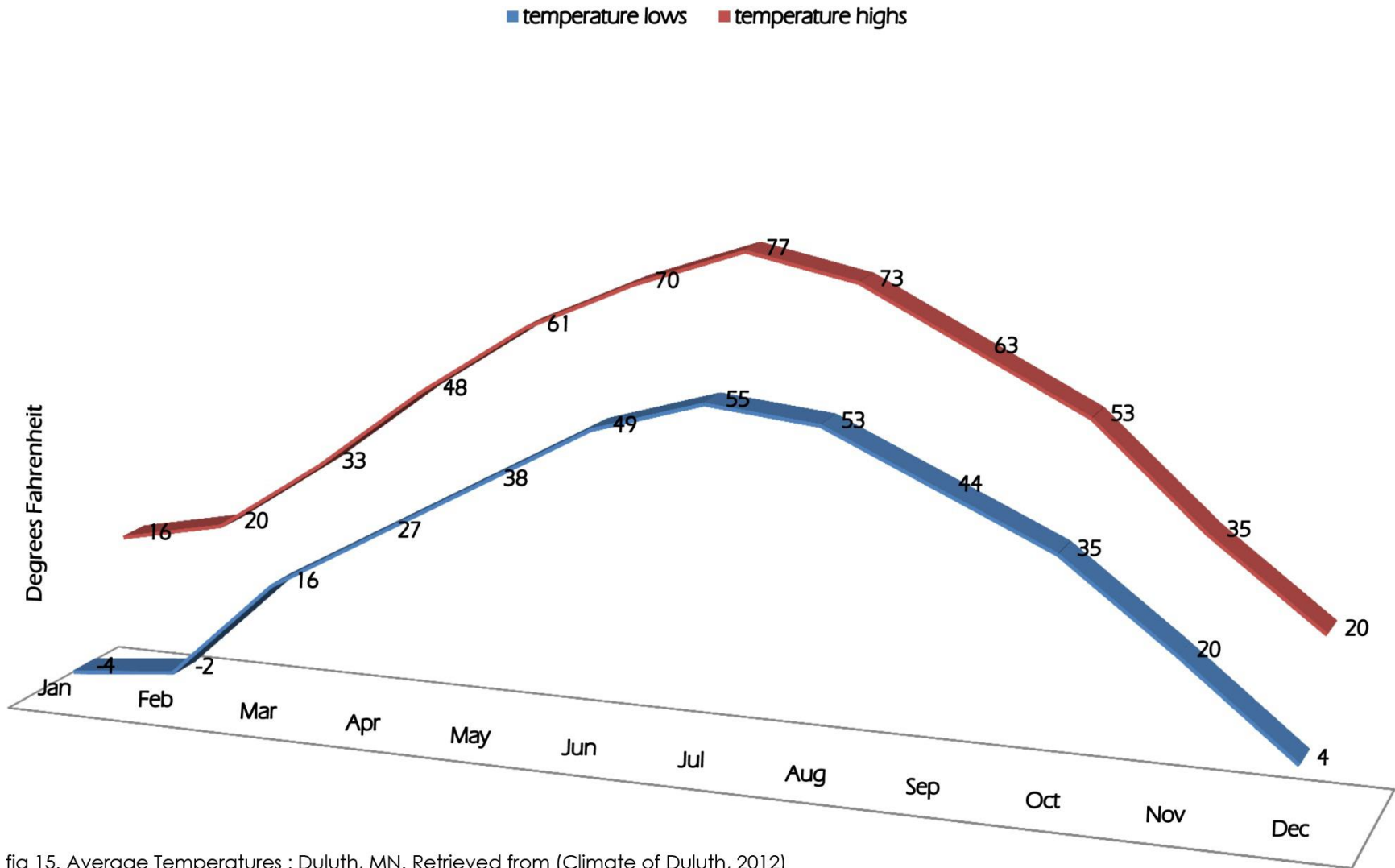


fig 15. Average Temperatures : Duluth, MN. Retrieved from (Climate of Duluth, 2012)

Cloud Cover : Duluth MN

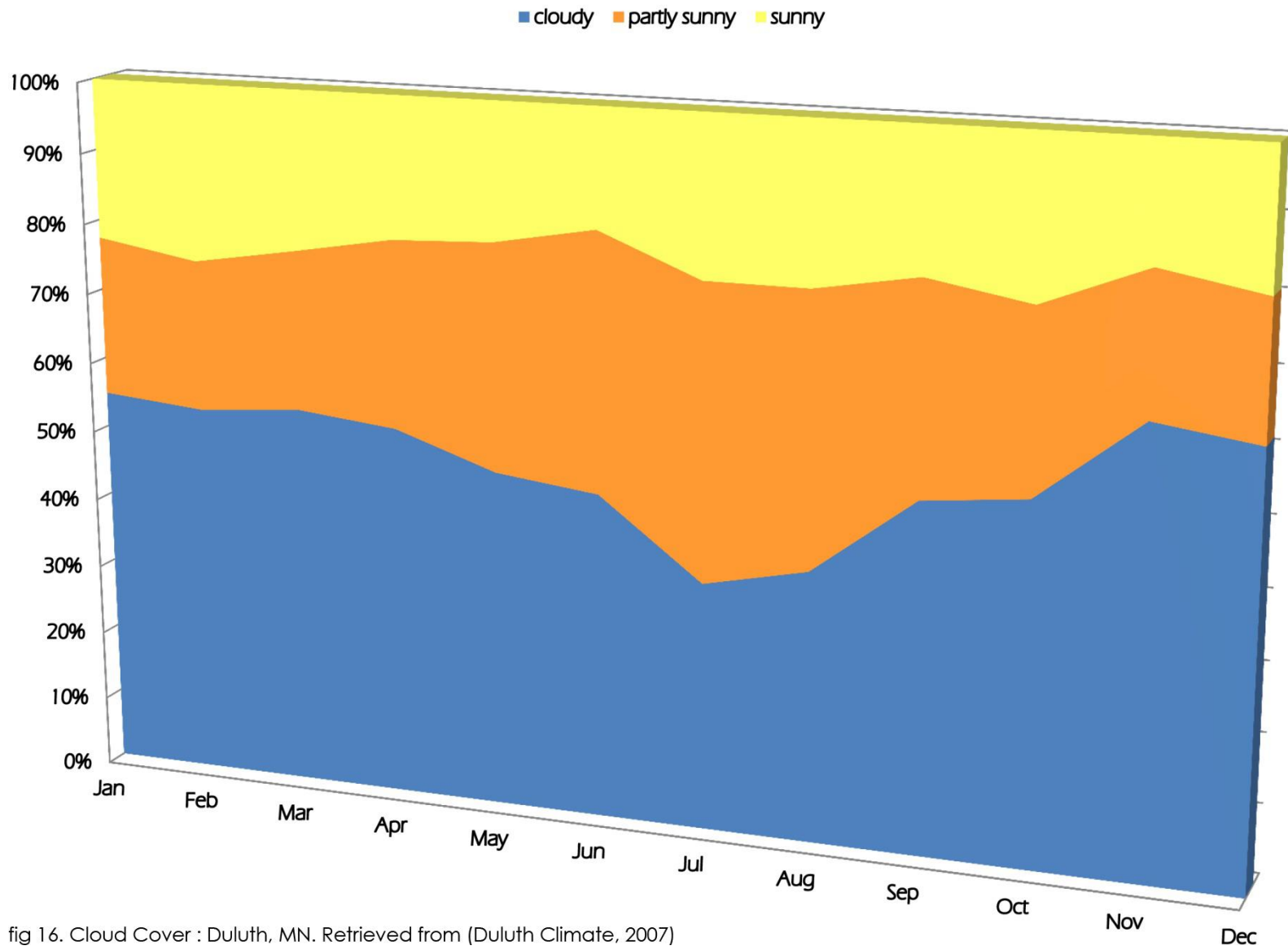


fig 16. Cloud Cover : Duluth, MN. Retrieved from (Duluth Climate, 2007)

Precipitation : Duluth, MN

■ precipitation

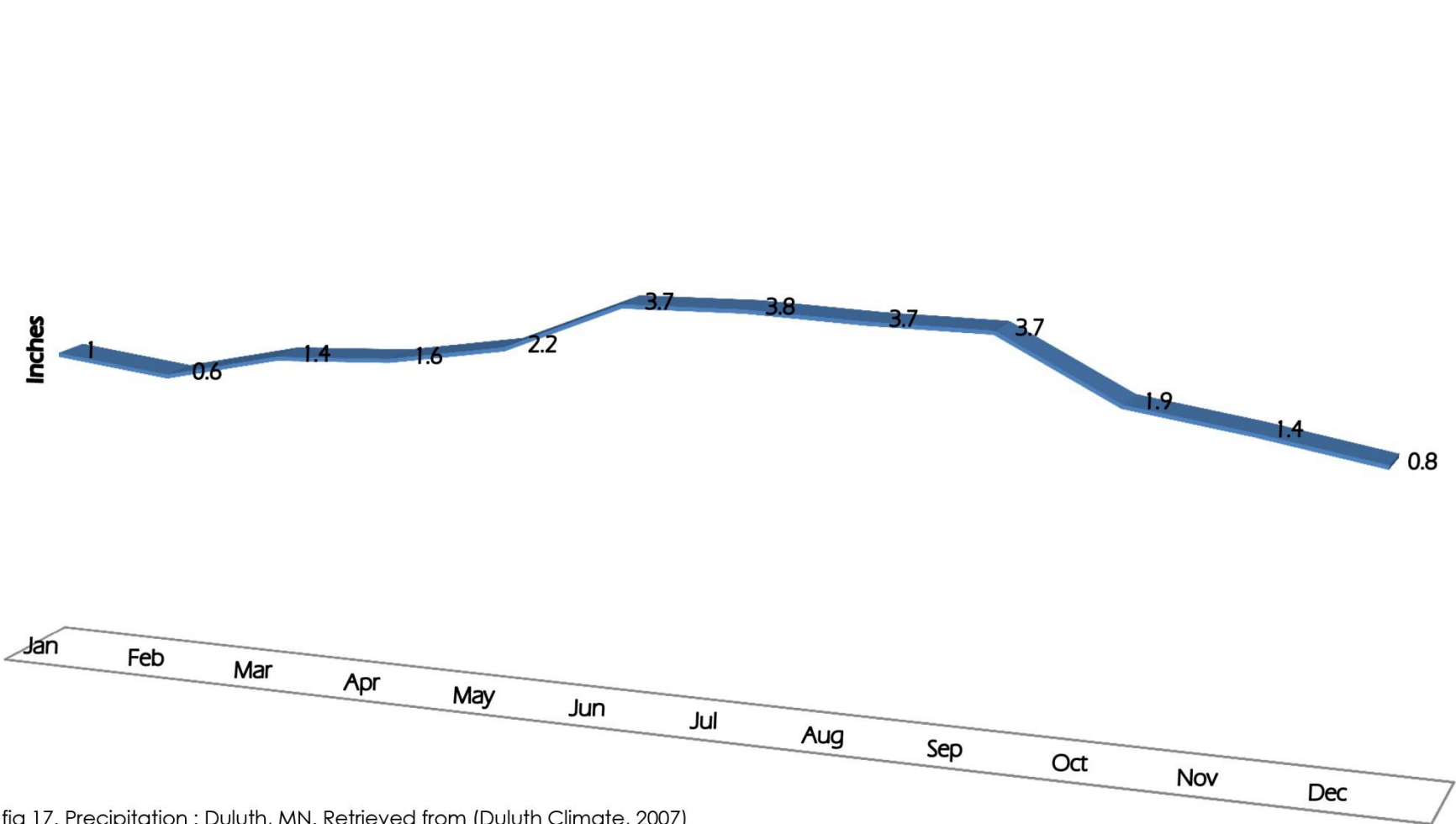


fig 17. Precipitation : Duluth, MN. Retrieved from (Duluth Climate, 2007)

Relative Humidity : Duluth, MN

■ humidity AM ■ humidity PM

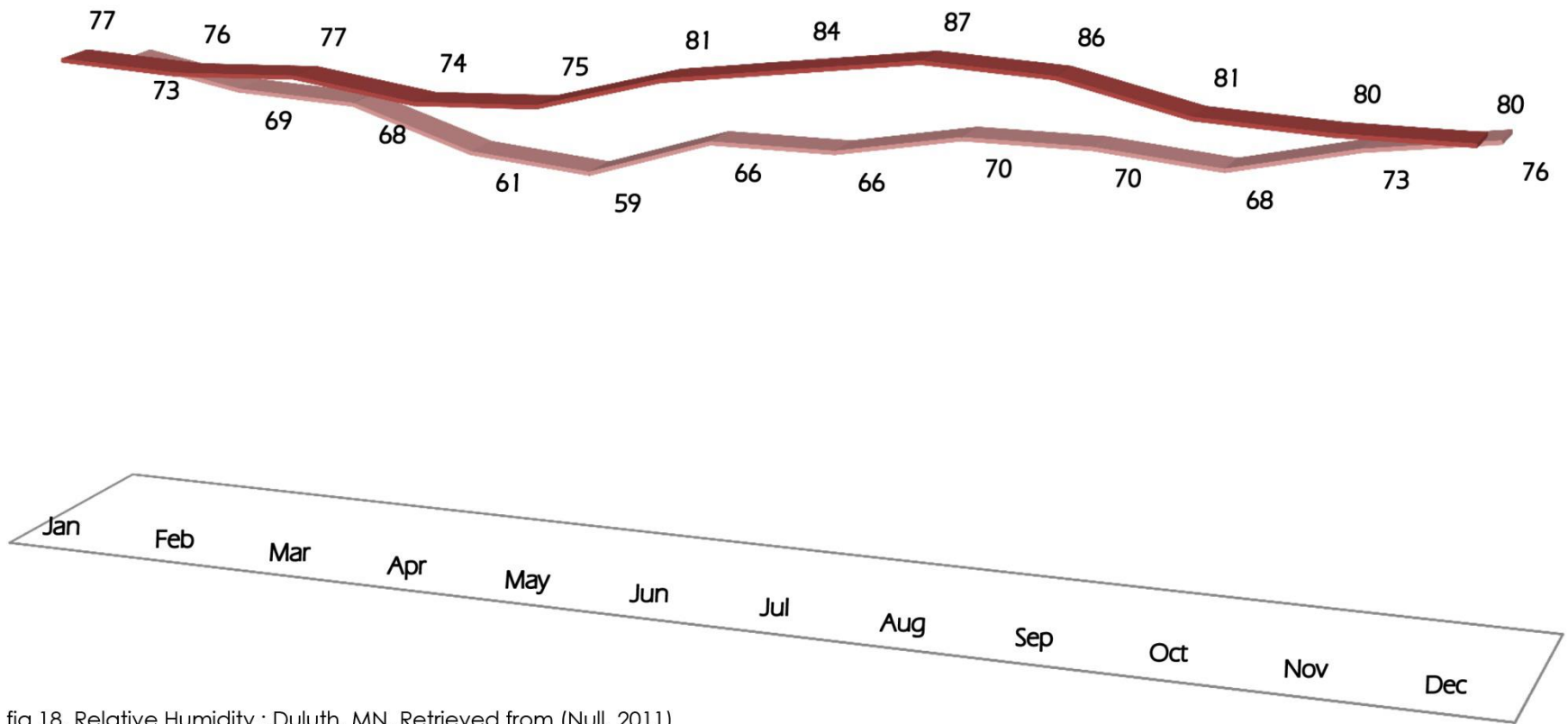


fig 18. Relative Humidity : Duluth, MN. Retrieved from (Null, 2011)

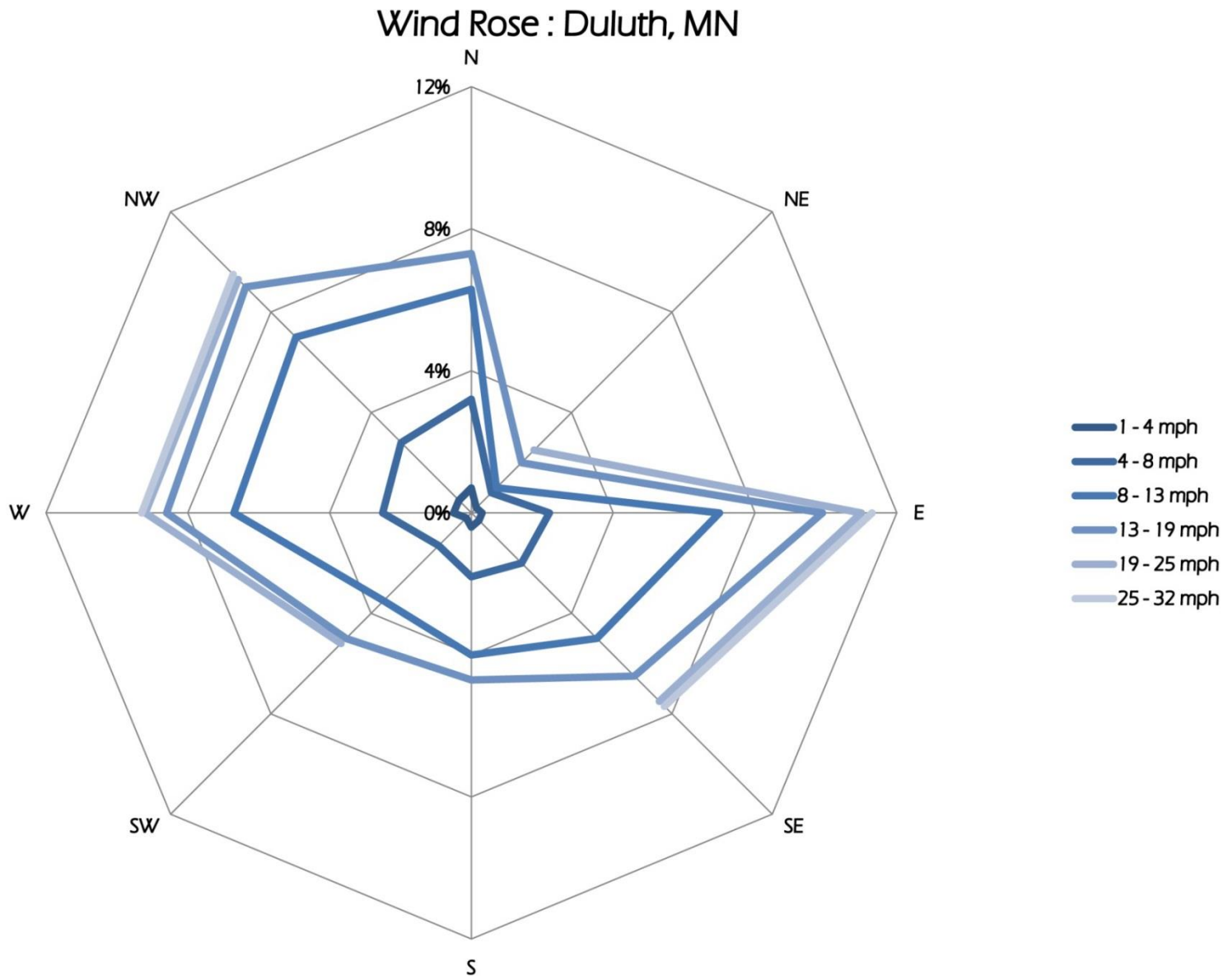


fig 19. Wind Rose : Duluth, MN. Retrieved from (Duluth Climate, 2007)

Program



Program List & Interaction Matrices

Spaces	Sq ft
assisted apartments	15,500
circulation	6,300
clinic	3,400
café	2,500
kitchen	900
loading dock	800
lobby	500
mechanical rooms	800
outdoor park	n/a
parking	8,200
public restrooms	1,000
skyway	800
staff lounge	1,200
storage rooms	1,250
commons	10,800
roof garden	2,400
wellness center	3,600
total	73,150

fig 20. Program List and Allocation of Square Footage

	assisted apartments	circulation	clinic	café	kitchen	loading dock	lobby	mechanical rooms	outdoor park	parking	public restrooms	skyway	staff lounge	storage rooms	commons	roof garden	wellness center
assisted apartments		essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential
circulation	essential		essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential
clinic	essential	essential		essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential
café	essential	essential	essential		essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential
kitchen	essential	essential	essential	essential		essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential
loading dock	essential	essential	essential	essential	essential		essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential
lobby	essential	essential	essential	essential	essential	essential		essential	essential	essential	essential	essential	essential	essential	essential	essential	essential
mechanical rooms	essential	essential	essential	essential	essential	essential	essential		essential	essential	essential	essential	essential	essential	essential	essential	essential
outdoor park	essential	essential	essential	essential	essential	essential	essential	essential		essential	essential	essential	essential	essential	essential	essential	essential
parking	essential	essential	essential	essential	essential	essential	essential	essential	essential		essential	essential	essential	essential	essential	essential	essential
public restrooms	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential		essential	essential	essential	essential	essential	essential
skyway	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential		essential	essential	essential	essential	essential
staff lounge	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential		essential	essential	essential	essential
storage rooms	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential		essential	essential	essential
commons	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential		essential	essential
roof garden	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential		essential
wellness center	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	essential	

fig 21. Interaction Matrices

Interaction Net

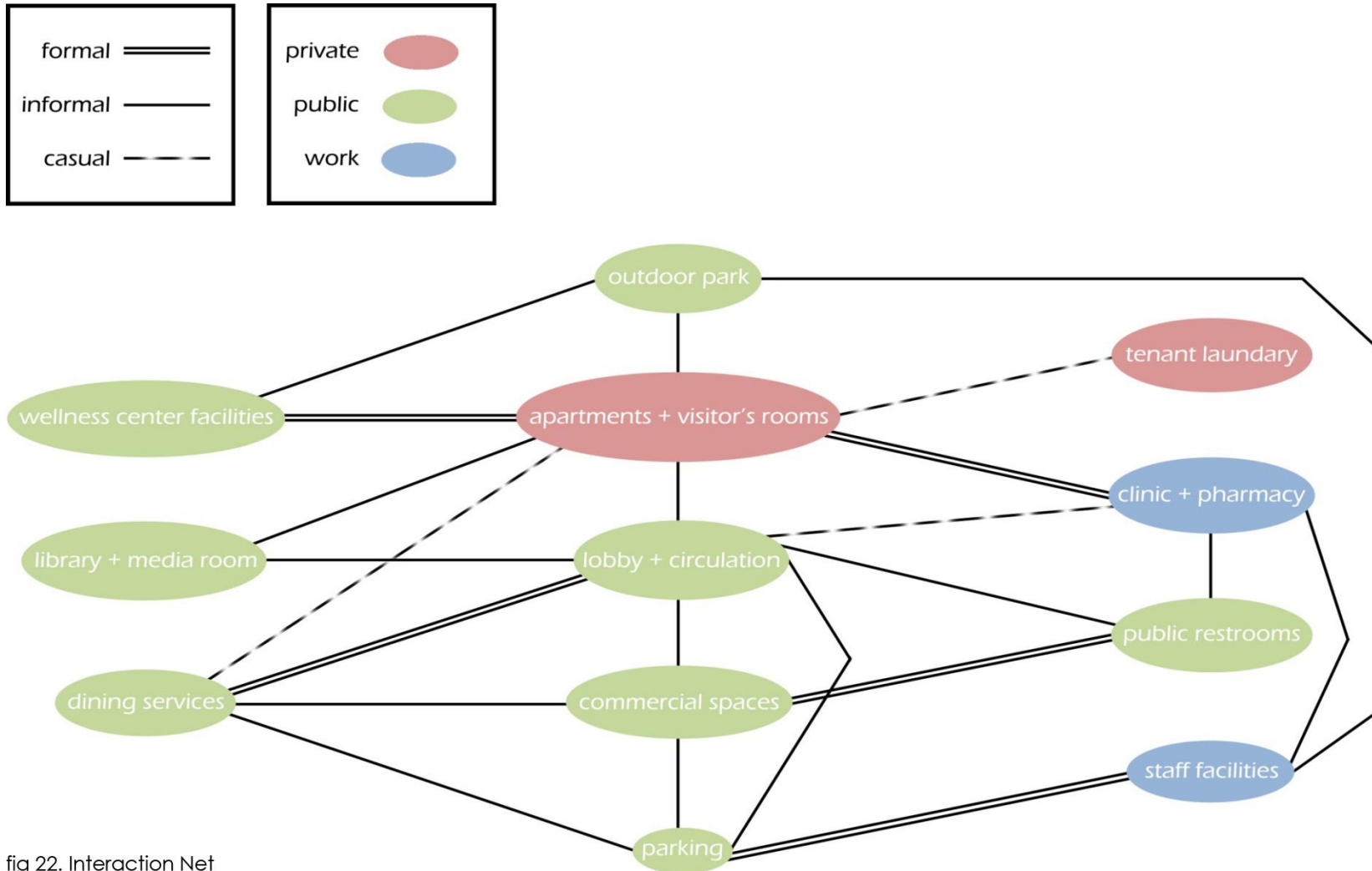


fig 22. Interaction Net

Process



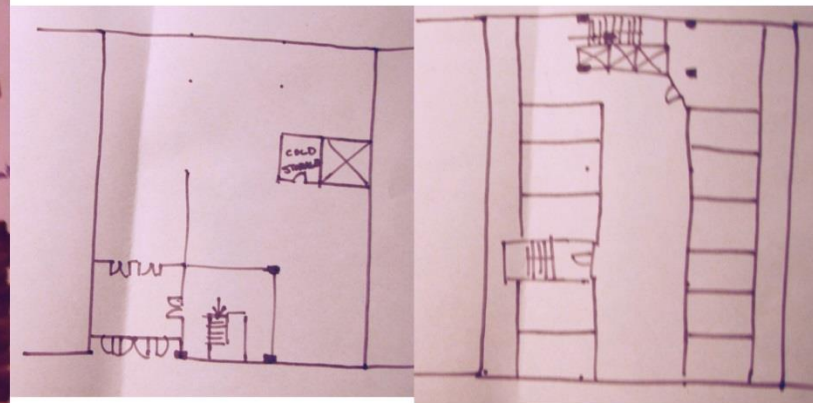
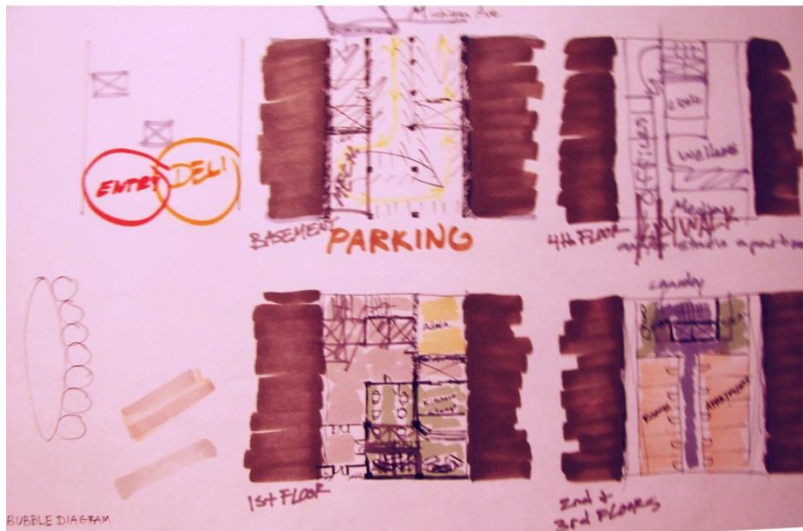
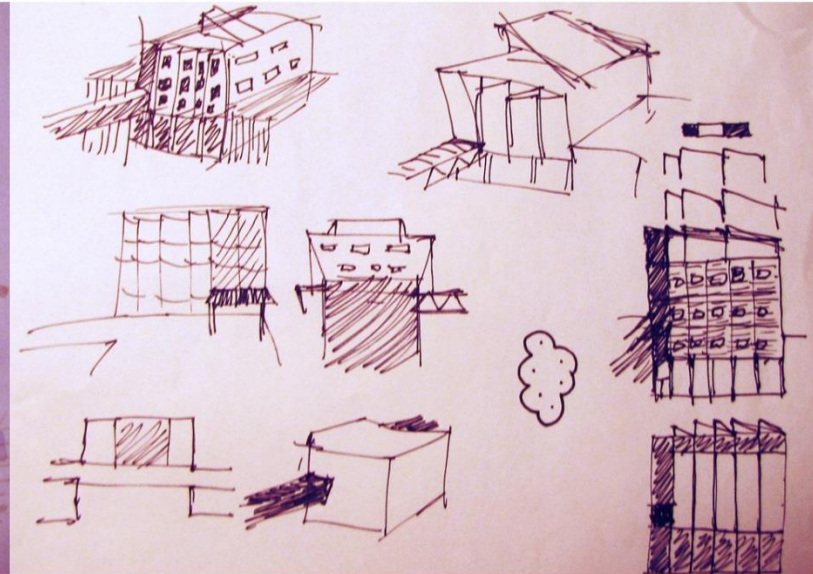
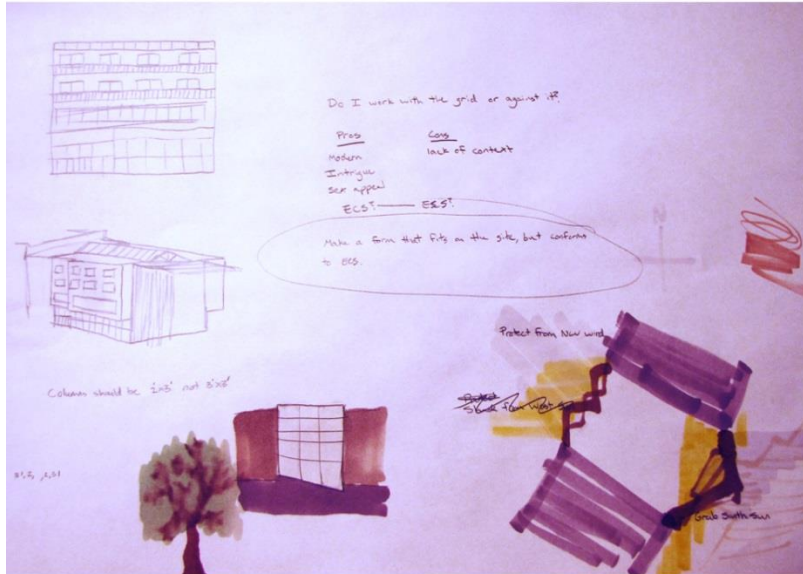
Model



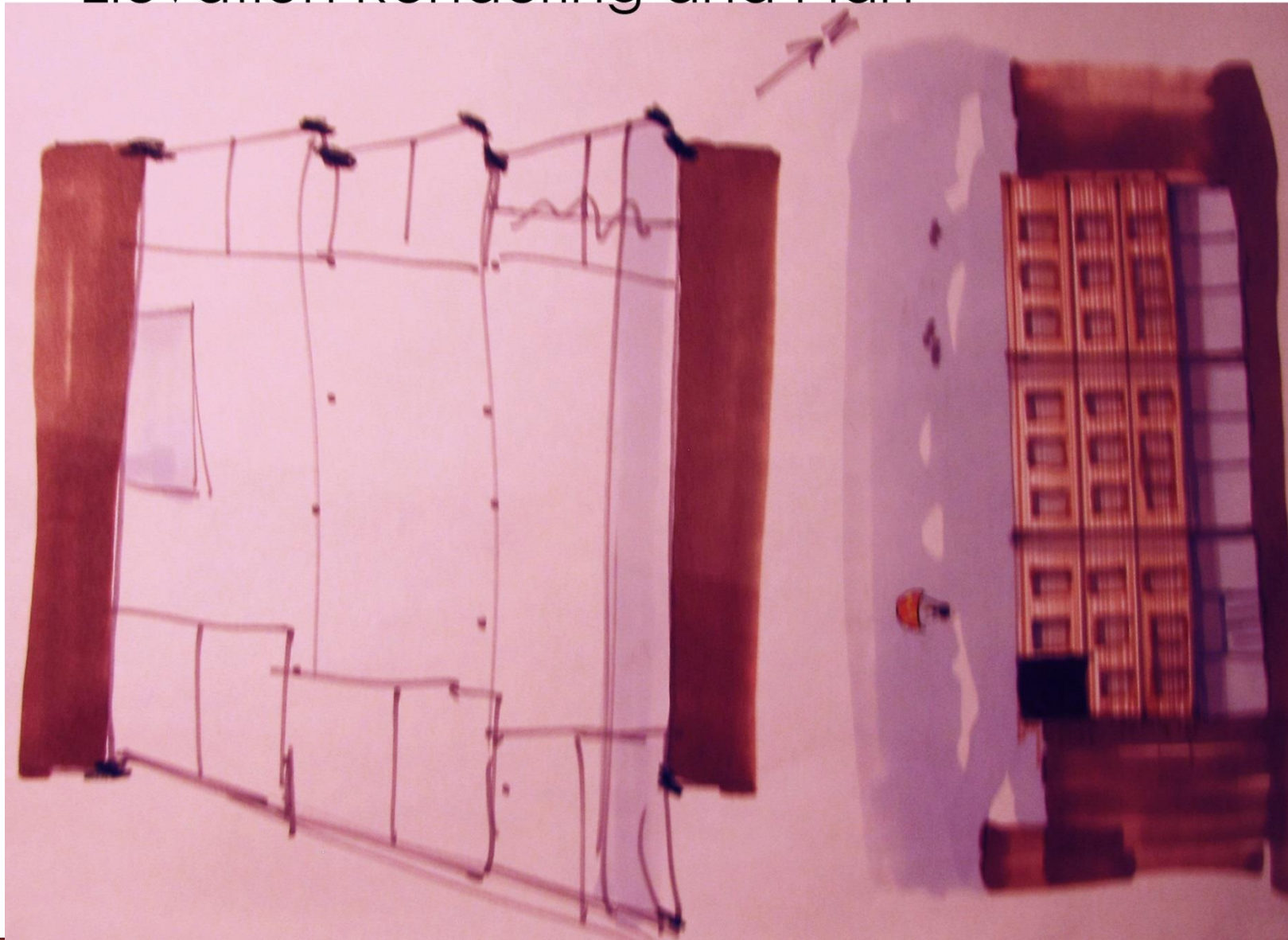
Site Analysis



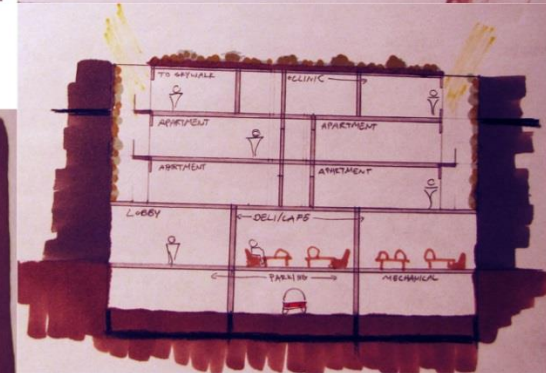
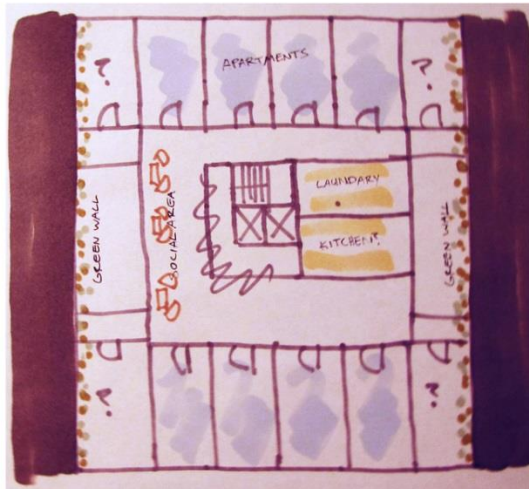
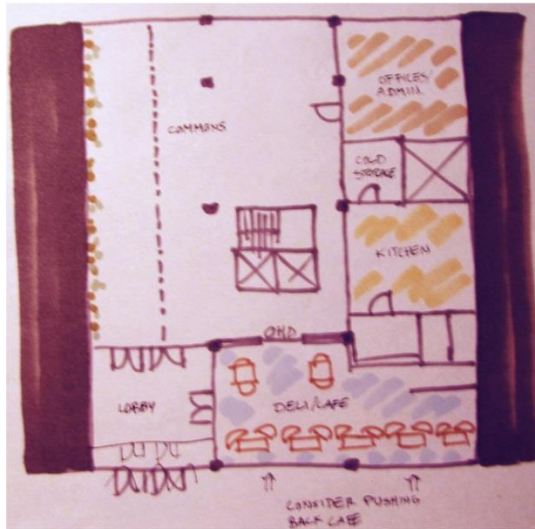
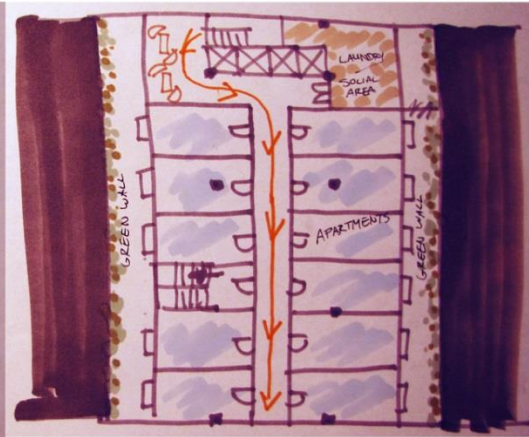
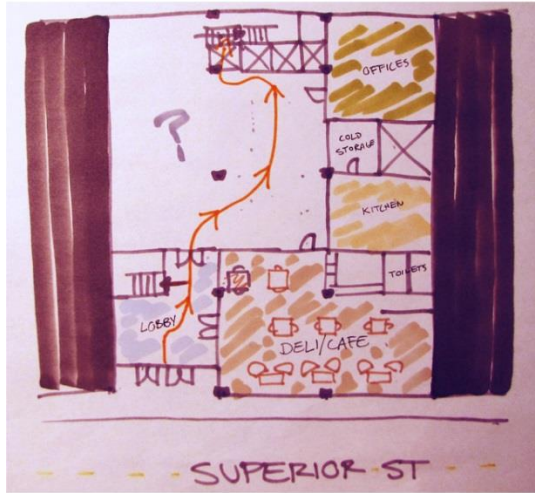
Preliminary Sketches



Elevation Rendering and Plan



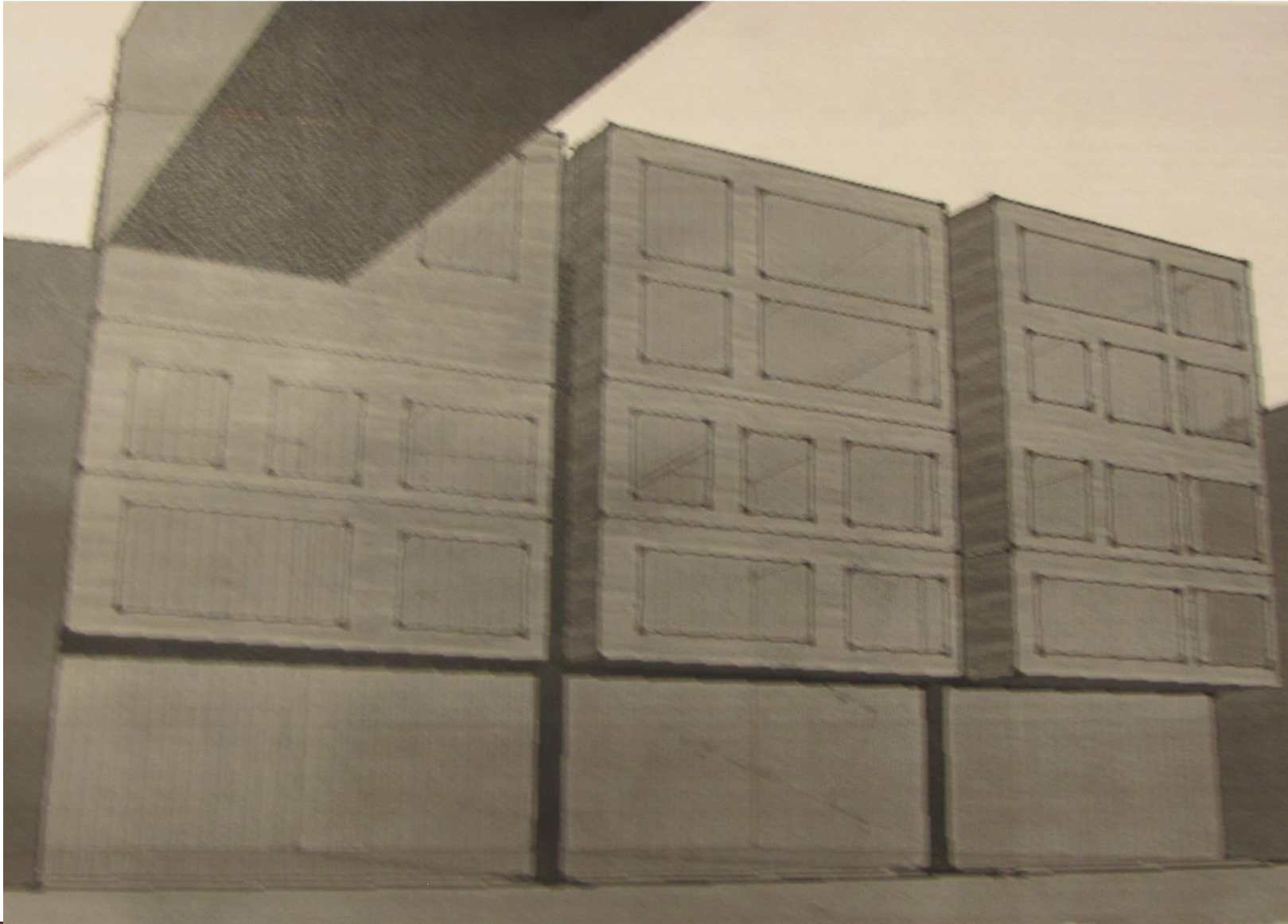
Hand Drawn Plans



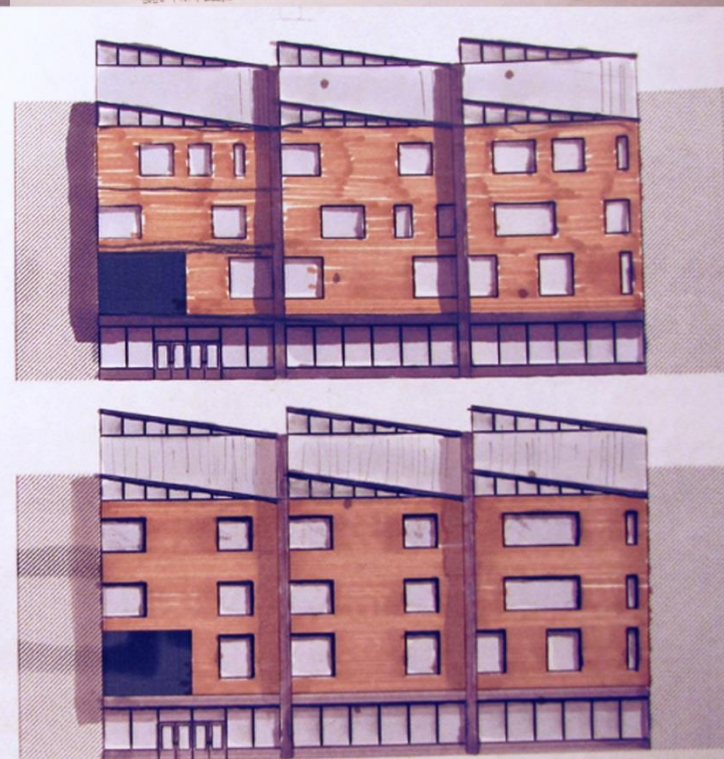
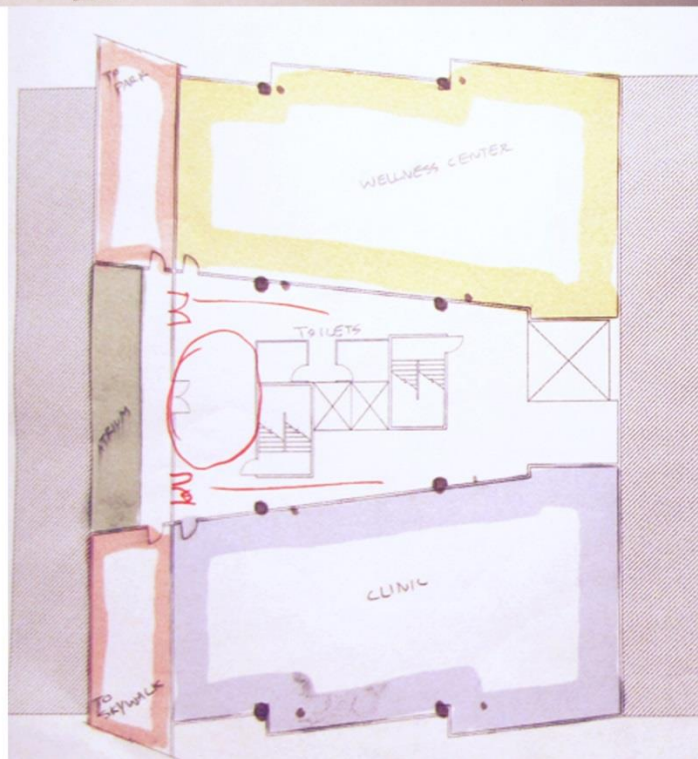
Sketchup Perspectives



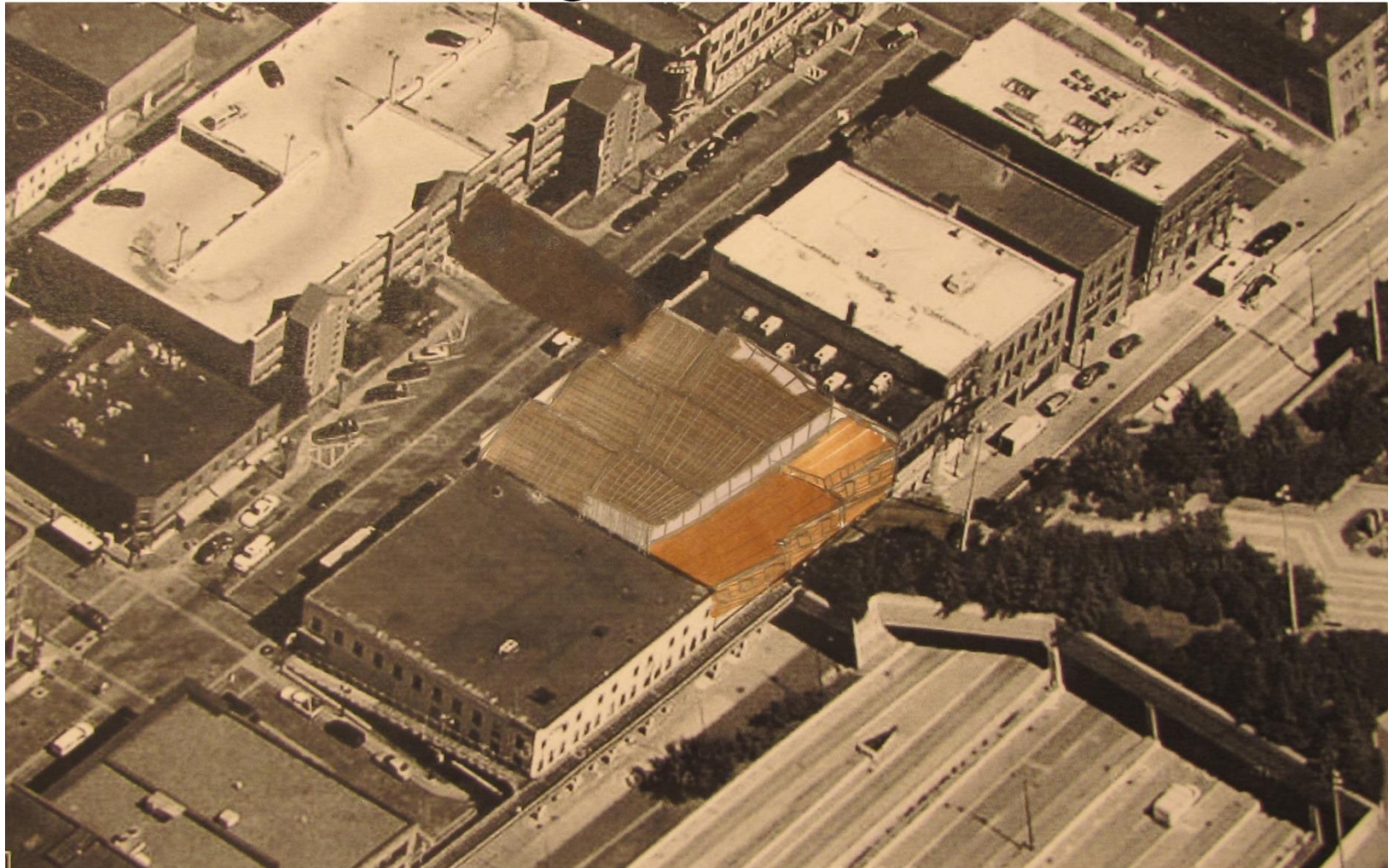
Sketchup Exercise



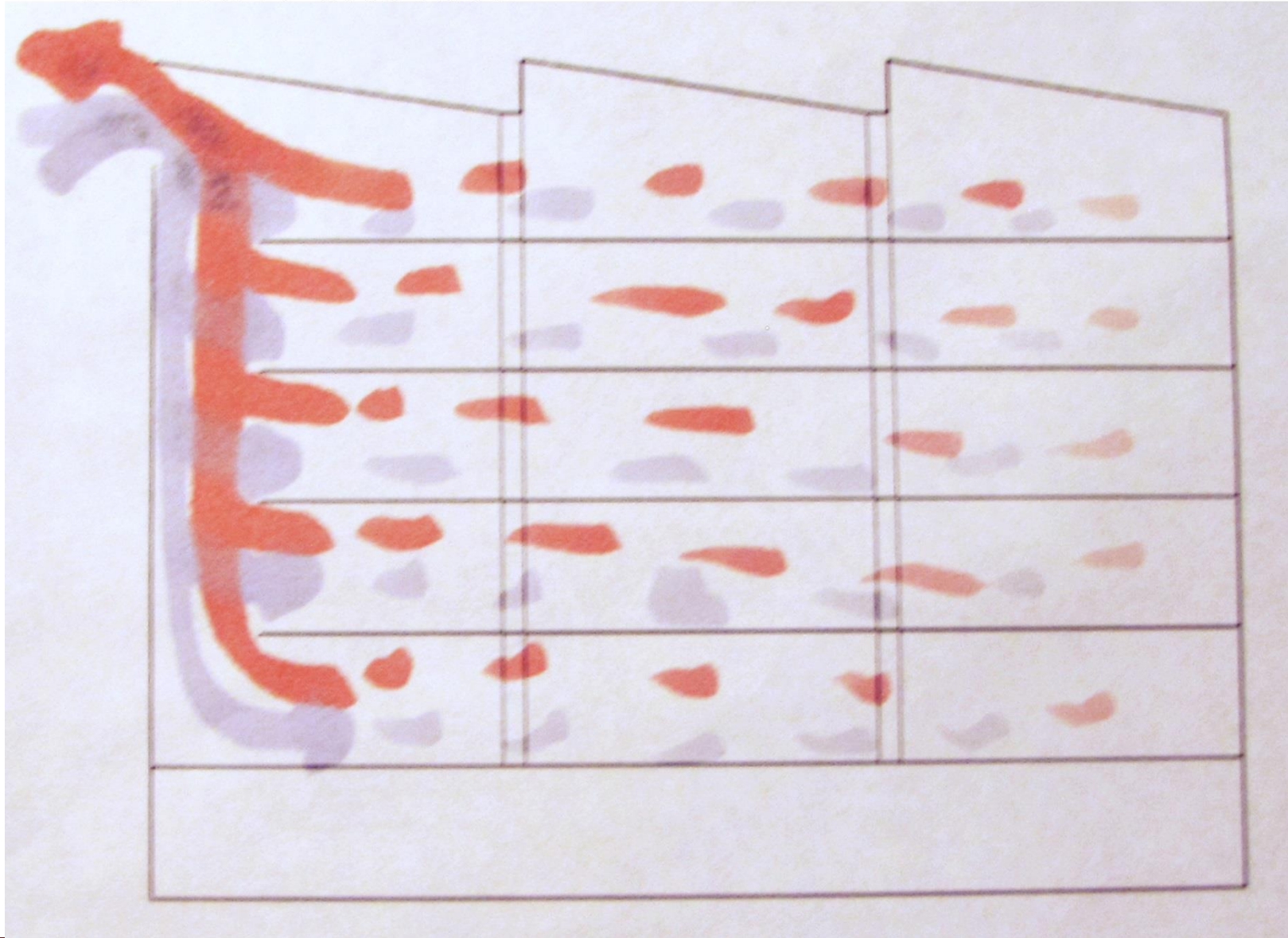
Plans and Elevations



Aerial Rendering



Air Flow Sketch



Midterm Presentation



Accessibility Through Design

How can the design of a long-term care facility help promote physical and social accessibility of the elderly within an urban fabric so as to benefit both the residents and the community?



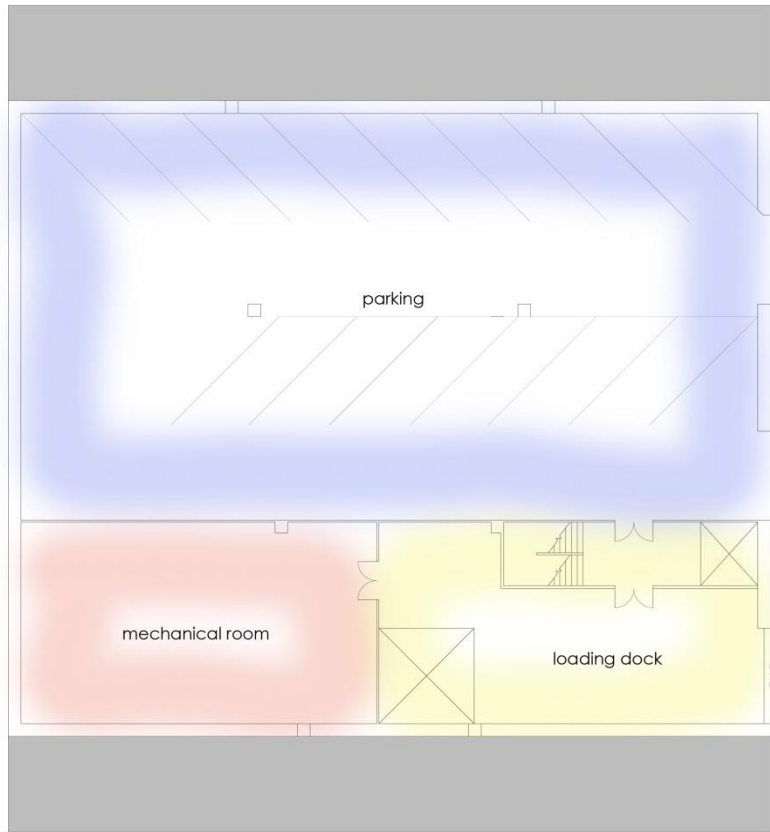




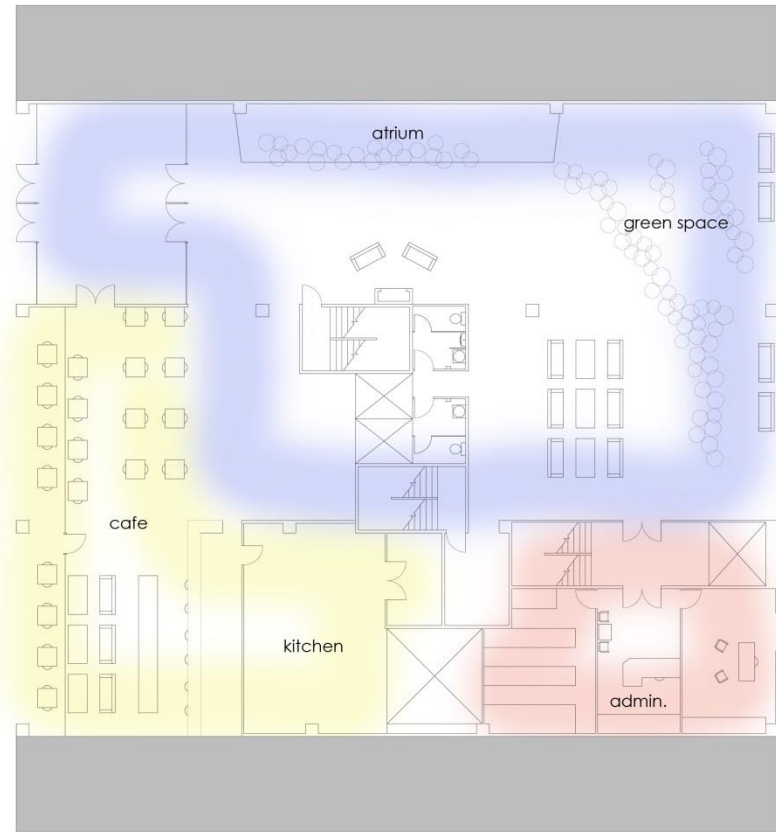


site photo

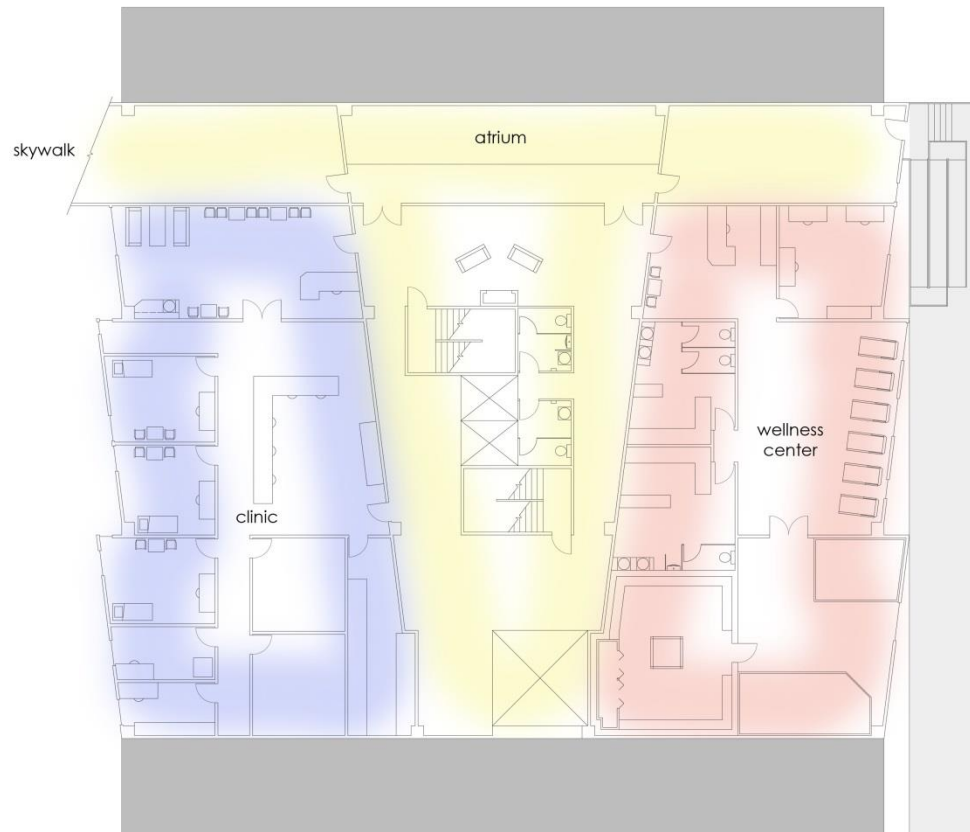




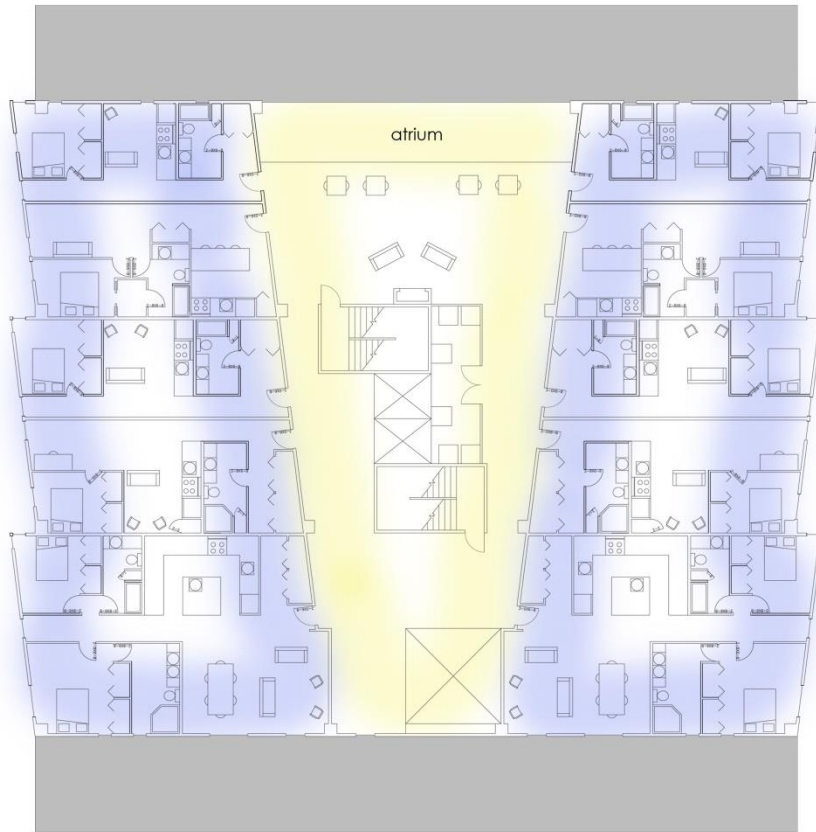
basement



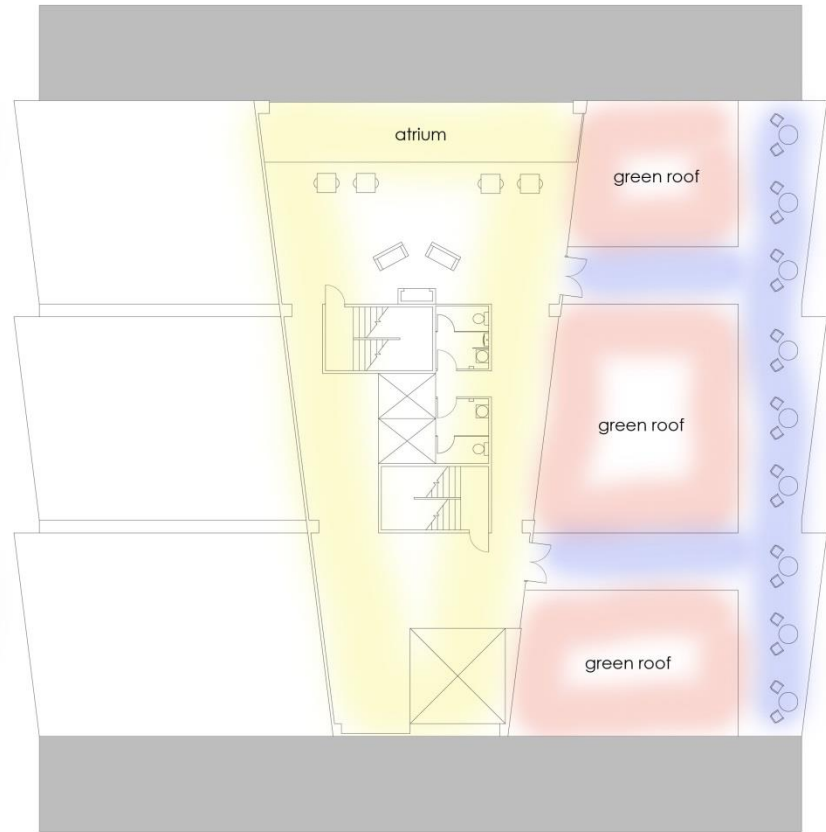
1st floor



2nd floor



3rd + 4th floor



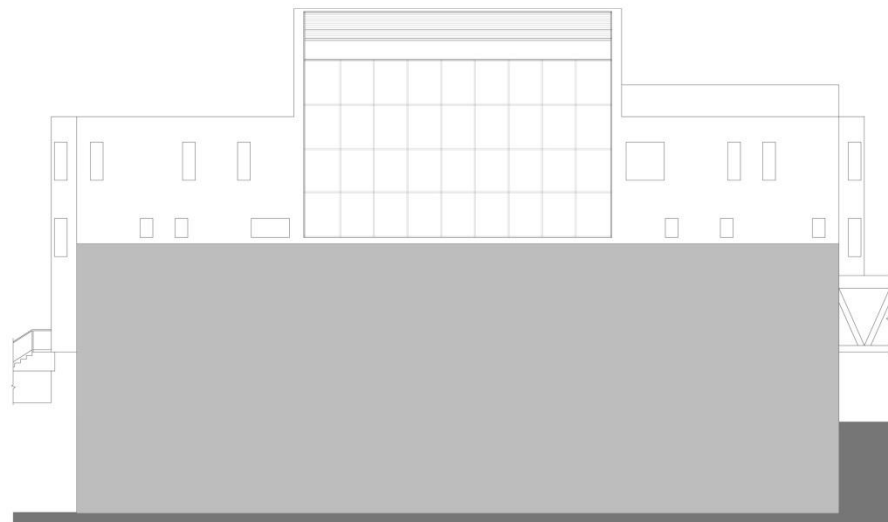
5th floor



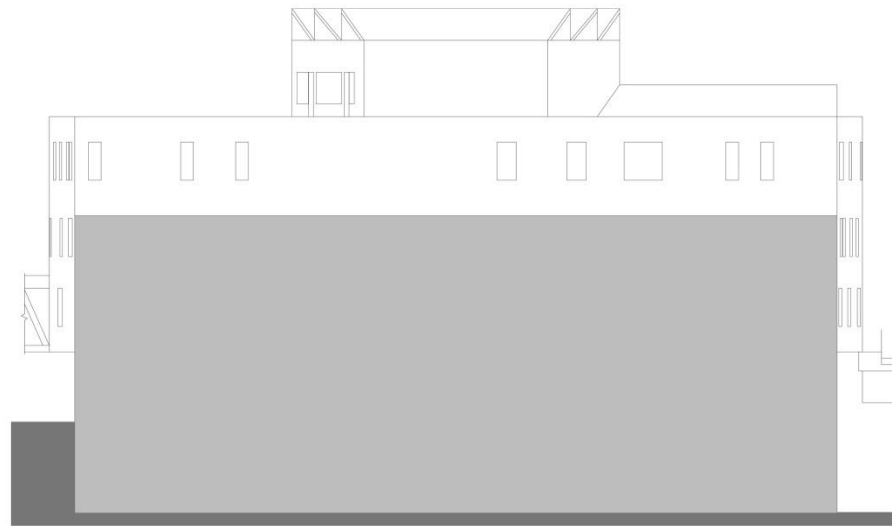
east elevation



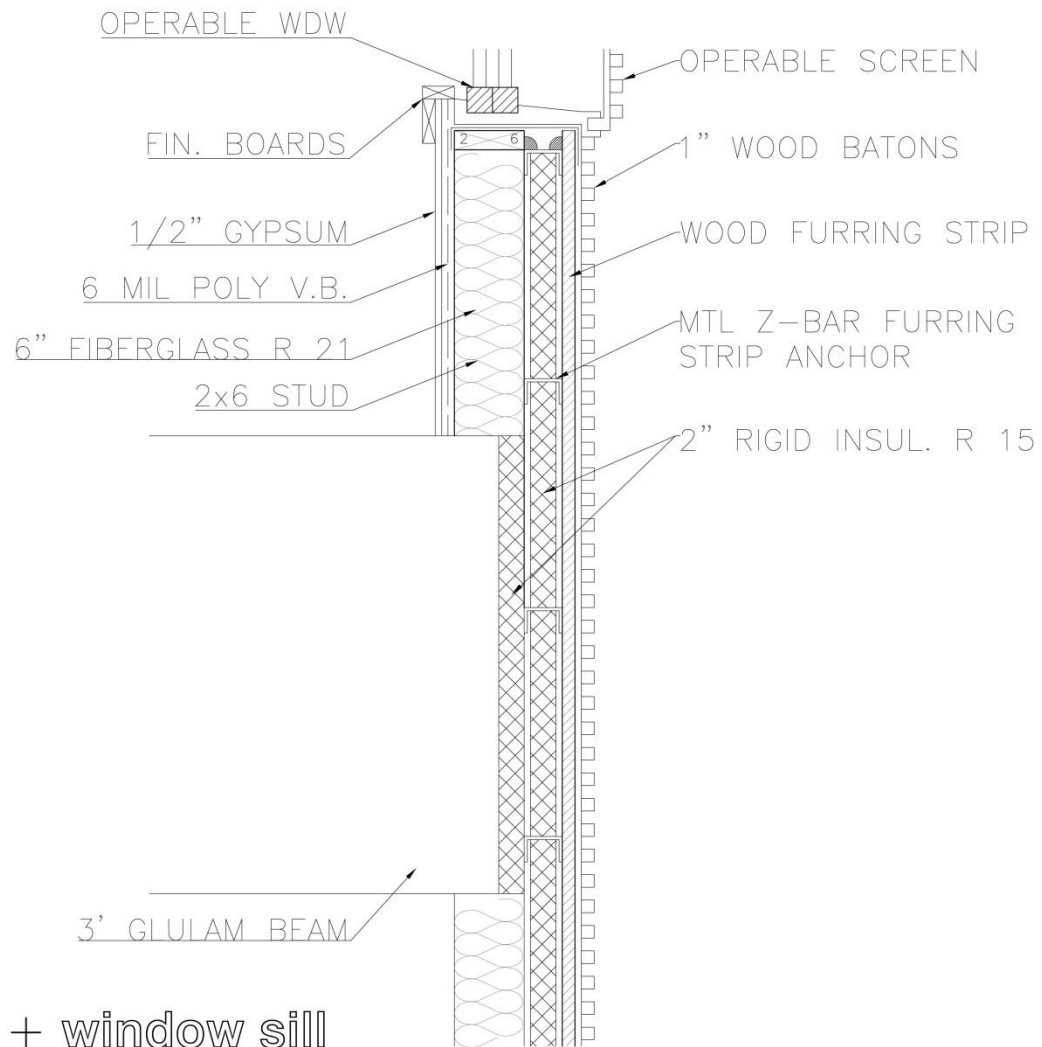
west elevation



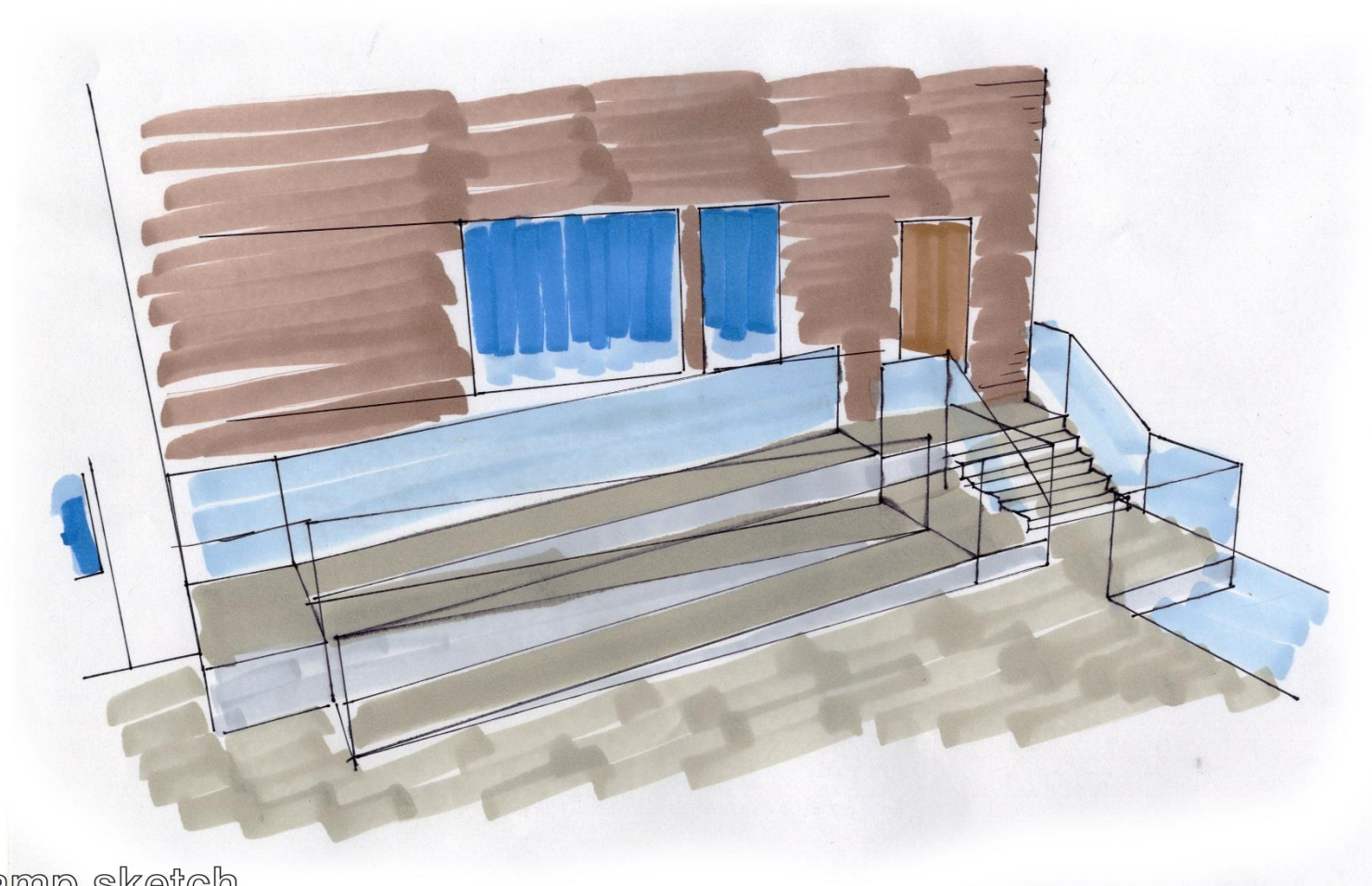
north elevation



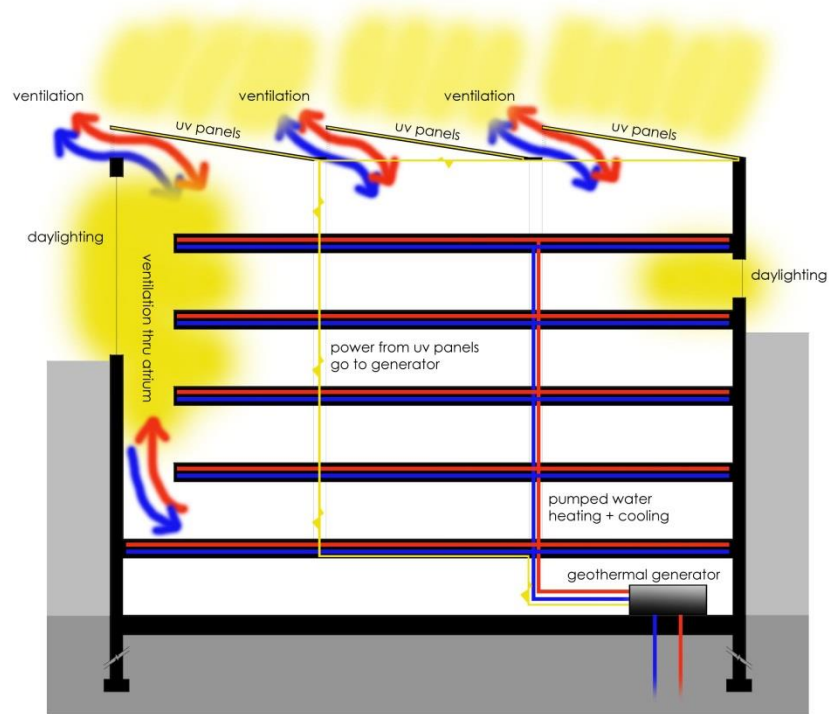
south elevation



wall section + window sill



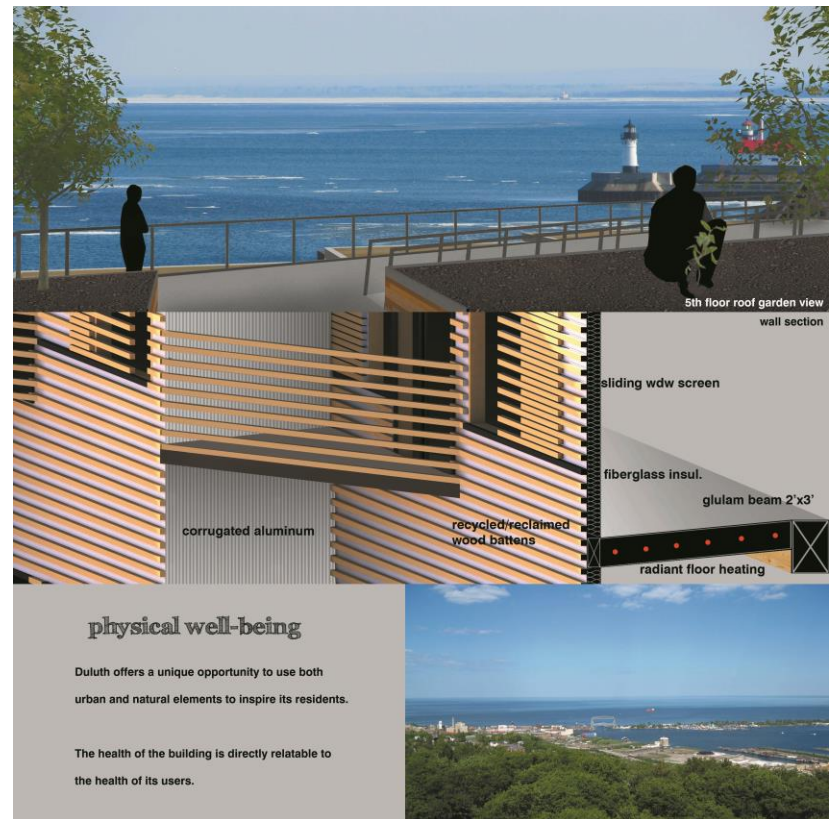
ramp sketch



ecs section

Final Design







1st floor cafe view

social interaction

A long-term care facility is more advantageous to both the community it is a part of and to its residents once it enables the two to easily and positively interact.

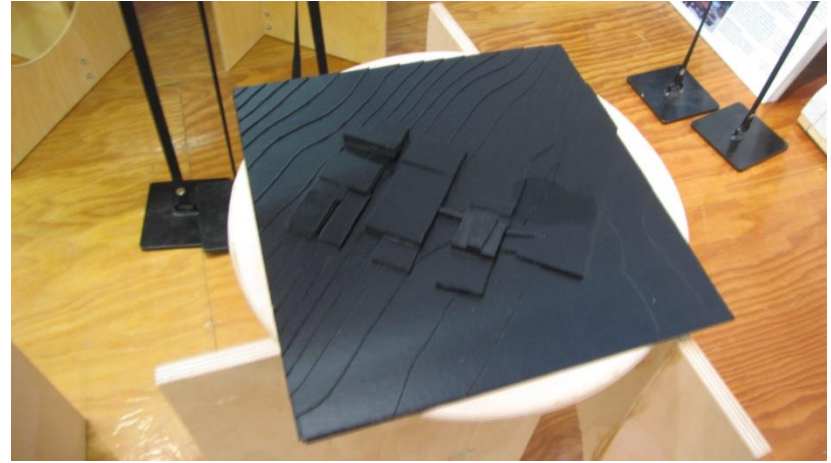


exterior view from Superior Street

connections

Designing to form connections with the surrounding community and incorporating a level of accessibility that surpasses current standards fosters a beneficial architecture for the elderly that need assisted-living care.





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Personal Identification

Erik Schwarzkopf

5537 Morris Thomas Road
Hermantown, MN 55810

218-428-4676

erik.schwarzkopf@my.ndsu.edu

Hometown: Hermantown, Minnesota

"The weather may be cold, but at least the people
aren't"

-Phelan Porter

