

U R B A N I N D I V I D U A L I T Y

R Y A N F U G L E B E R G - D E S I G N T H E S I S

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URBAN INDIVIDUALITY

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

By

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



Primary Thesis Advisor



Thesis Committee Chair

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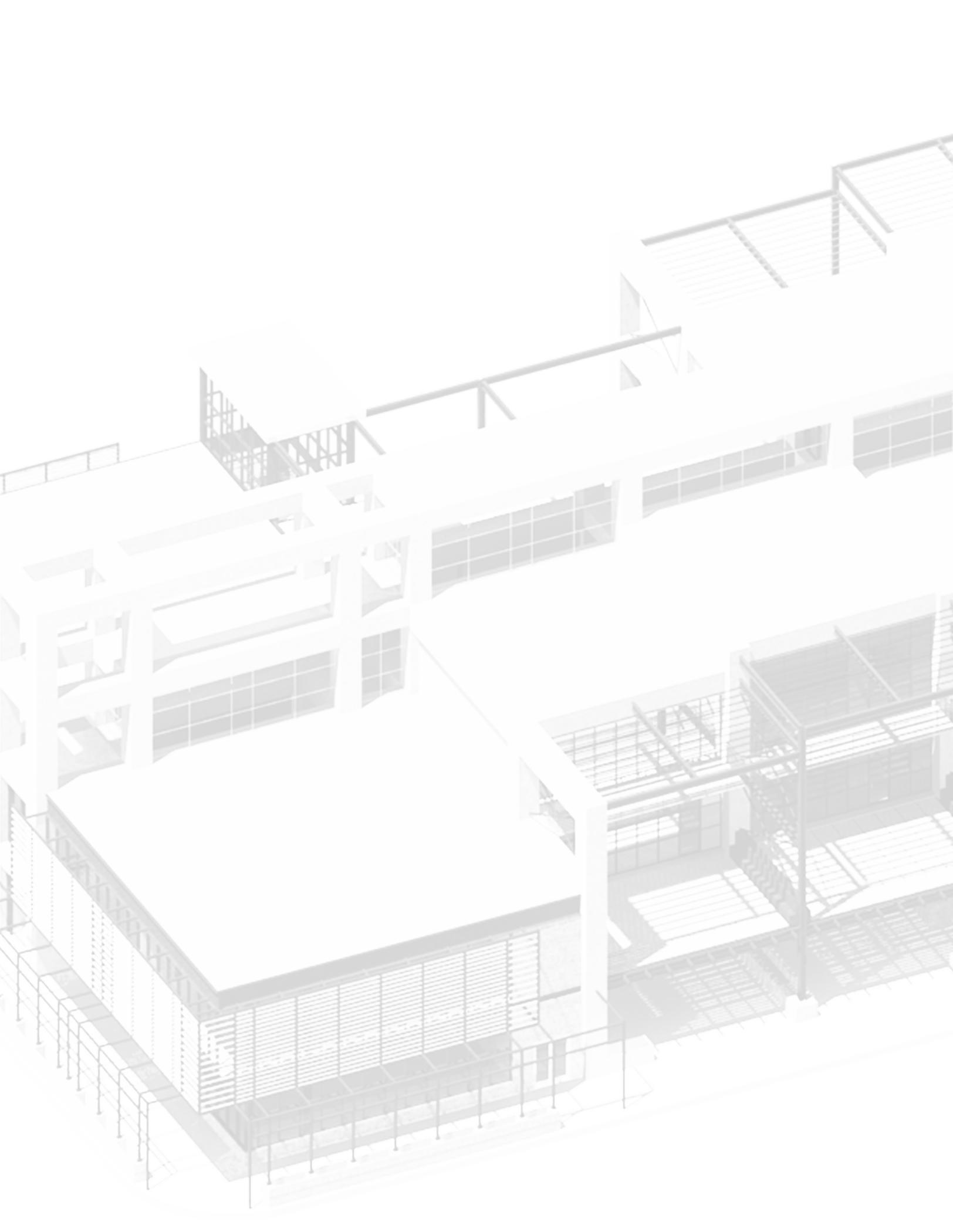


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THESIS ABSTRACT



This thesis explores possible answers to the question, is individualism slowing the growth of dense housing? The Typology used to examine this problem is a dense residential/mixed use complex. The Theoretical Premise/Unifying Idea that the research will be based on is, “For urban housing to grow in popularity, dense residential complexes need to reflect the individuals within them.” The site for this project is located in Wyoming, Minnesota, a small community north of the Minneapolis and St. Paul. The announcement of an expansion for Polaris Industries’ Product Development Center in Wyoming has created a large demand for housing. The city also hopes to recreate a city center that has been lost through years of poor planning. These circumstances combine to create an ideal place to experiment with a new urban housing form.

Key Words:

Housing, individualism, urban, sprawl, dense living, identity



PROBLEM STATEMENT

Is individualism slowing the growth of dense housing?



The Statement of Intent



The Typology

This design thesis will center around the dense residential/mixed use typology but the complex will embody humanist ideas in order to create a more desirable environment.

The Claim

People have an innate desire to express themselves. There are many ways a person can express themselves but the suburban home is the largest medium most people in the Midwest will use in their lifetime. A person's desire to alter their living environment contributes to the demand for free-standing suburban homes.

Premises

In Western Culture, a person's belief that they are unique is a requirement for good mental health. When a person feels anonymous and/or unimportant they begin to develop mental health disorders. (Snyder, 1980)

A person's ability to customize their life is vital to their sense of individuality and it is something most people actively do. People customize their hair, clothes, car, beliefs, attitudes, etc. and even their environments(if they are able).

Currently, dense forms of housing like apartment complexes and condominiums do not allow for customization or outward expression. Owning a freestanding home is the only way for a person to have control over their environment.

STATEMENT OF INTENT



Theoretical Premise/Unifying Idea

For urban housing to grow in popularity, dense residential complexes need to reflect the individuals within them.

Project Justification

Home ownership is something people will always desire within our culture, so we must find a more sustainable way of allowing for it while keeping the individuality that makes current suburban homes satisfying places to live.



The Proposal

NARRATIVE



During holiday get-togethers I always get hit with twenty questions from my extended family about the field of Architecture. Usually, the questions deal with what I am currently doing in school, do I have time to design an expansion for an aunt & uncle's lake place, or what do I think about some new hospital design but I was asked one question last Christmas that actually made me think. "Where is Architecture headed? "

It's a loaded question but the response I went with was 'density'. Obviously sustainability is also a large concern within the field but the issues go hand in hand. Population density will increase within cities because it has too. Issues of climate change and rising energy prices are pushing a need for us to be more sustainable and density brings efficiency with it. Sounds a bit like the ideas behind new-urbanism, right?

The problem is, new-urbanism fails to allow for individual expression. New-urbanism is about recreating a sense of community by increasing density and allowing for good public spaces but they don't touch on the need for individual expression. My relatives would never move from their suburban homes and into one of the typical apartment complexes or town-homes often seen illustrated in a proposal for suburban redevelopment under new-urbanist ideas. We can't force people to live in dense residential places, and even though they may be more sustainable, currently, they are not all good places to live.

We need to learn what makes suburban homes desirable and good places to live. In my opinion, outdoor space is important but I don't believe the private lawn is what's selling suburban homes. I believe the ability to alter your environment is what sells the suburban home. Personal expression is something we all enjoy.



USER/CLIENT RELATIONSHIP

In 2005 Polaris Industries opened a 126,000 square foot engineering facility in Wyoming, MN that brought almost 300 people to the small city. On September 28th 2012, Polaris held a groundbreaking ceremony for an expansion that will more than double the size of the complex. The expansion is set to be completed by late 2013. The number of people that will be added to the facility been announced yet but over 200 would be a safe assumption.

The announcement of the expansion is going to kick start housing developments and provides me with the perfect opportunity to design the next generation of suburban housing. The housing complex will be designed for the Polaris employees that are moving to Wyoming once the expansion is complete. The residents will own their homes and the space they reside in but a developer will own the physical ground and retail space.

Polaris Industries Inc. is a company that specializes in manufacturing recreational vehicles like motorcycles, snowmobiles and all-terrain vehicles. The majority of the people employed at the Wyoming facility are Industrial and Mechanical Engineers.

These people need to know the machines they are working on and designing inside and out. Polaris lends them personal snowmobiles, ATVs and motorcycles to use depending on the division they work in. They don't just have Polaris equipment though. These people are recreational vehicle enthusiasts. They likely have many other vehicles like dirt bikes, personal watercraft and boats especially since there are many lakes near Wyoming. This all means they need a large amount of storage space and work space.

MAJOR PROJECT ELEMENTS



Housing Units

Housing is the basis for this project but attached to the home will be personal workspace and private outdoor spaces.

Outdoor Community Space

An outdoor space/park will be created for the residents of the complex. The large space will be a place to play, meet and hold community activities.

Indoor Community Space

An indoor community space will be created for the residents of the complex as well.

Retail Space

Ground level retail space will be integrated into the project to be a convenience for the residents and to create a way for the complex to turn a profit after the housing space has been sold to the residents.

Office Space

The site currently has small but occupied office space so the new complex will provide a space for those clients as well as additional space for new clients.

Fitness Center

A fitness center will be incorporated into the project to allow Polaris' employees to maintain the physical well being standards of the company.

On Site Storage Space

The wall systems within the complex need a storage space for additional panels.

Maintenance Space

The community spaces will need to be maintained so a space for maintenance equipment to be stored and serviced will be provided.



SITE INFORMATION

Wyoming is located in the southeastern part of Minnesota, just 30 miles north of the Twin Cities along I-35. It's close proximity to the interstate and many small lakes has begun to make it a popular place to live for people who want to escape from the big city life in Minneapolis and St. Paul.

Figure 1.1 - Regional Map

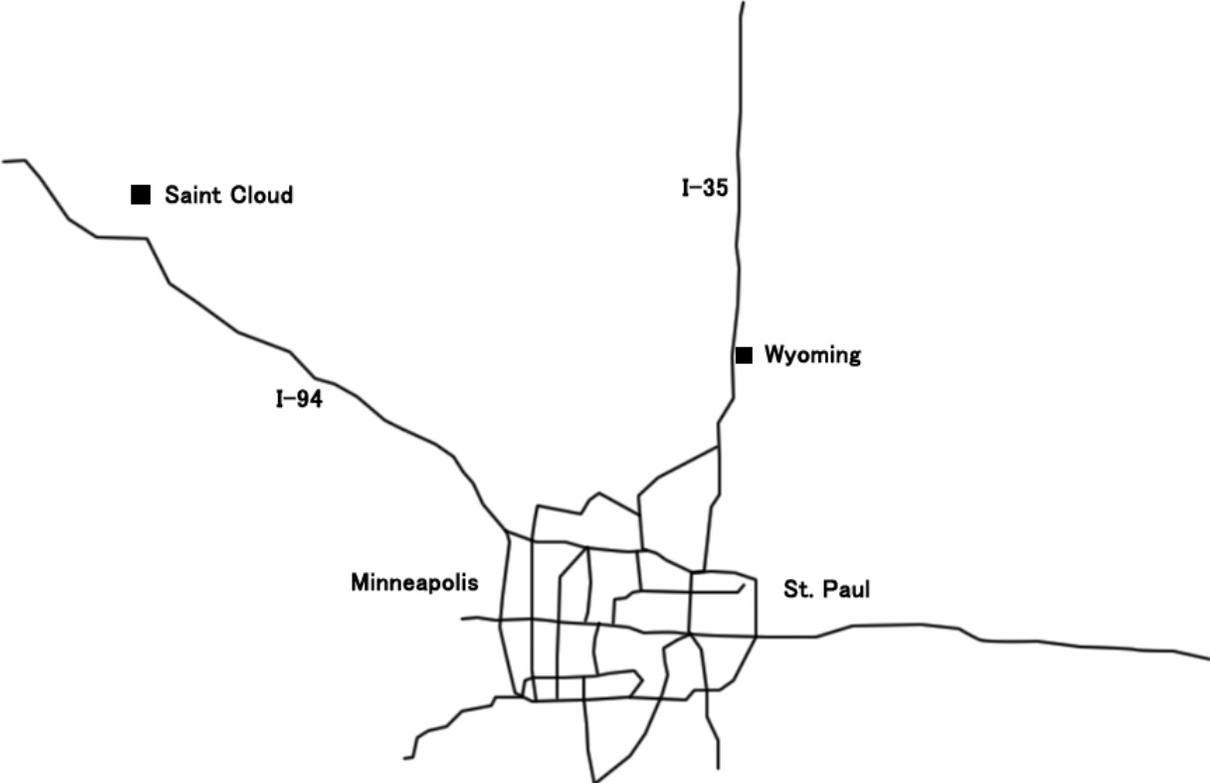


SITE INFORMATION



The city of Wyoming was fairly small until recently. In the last 10 years the population of the city has more than doubled. In 2000 the city had 3,048 residents. The 2010 census recorded 7,791 residents. The 155% increase in population is creating a large demand for housing in the area. Currently only suburban homes are being built. This trend is spreading the residents even further from the city's center and weakening it's downtown. The city recognizes this occurrence in it's comprehensive plan from 2009 and states a desire to reinvigorate the area.

Figure 1.2 - Proximity Map



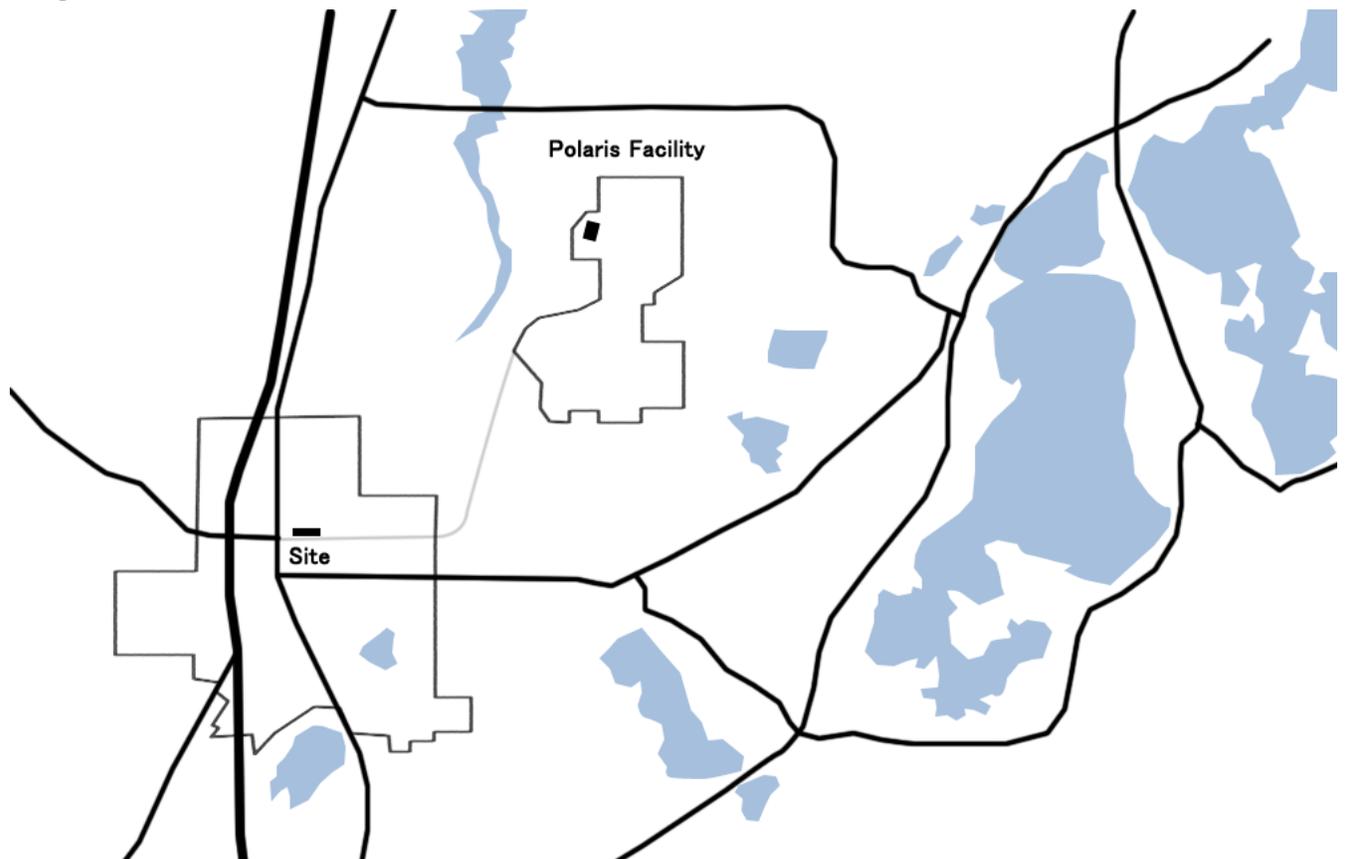


SITE INFORMATION

Polaris' Product Research facility accounts for a bit of the population growth Wyoming has seen but mostly, they account for a large amount of the city's physical expansion. The large impact Polaris has had on the city can be seen in the map below. The outline around Polaris' facility is the private land that they hold that is technically part of the city but completely private. The other outline is of the city itself.

My proposed site is located in what used to be Wyoming's downtown near the intersection of Viking Blvd and Superior St. Viking Blvd runs to the Polaris facility but Wyoming is in desperate need of a true city center. The retail and commercial side of the project will be used as the beginning of a redevelopment of Wyoming's downtown.

Figure 1.3 - City Map



data from Google Maps

PROJECT EMPHASIS



The emphasis for this project is to create a more sustainable system for housing that people want to live in. In order to encourage people to live in a denser community we need to understand how expression and ownership affect the choices that people make. To ensure that our civilization has the resources to continue into the future we need to begin making changes in the way we live our lives. With proper planning and design I intend to create a model community that is a welcomed change for people currently living in suburban homes and apartment complexes.



PLAN FOR PROCEEDING

Research Direction

To ensure that I have the knowledge to design this new community I will be conducting research in many different areas. I will need to fully understand the theoretical premise/unifying idea, the project typology, the historical context of the site, the current state of the site and the programmatic requirements of this new way of life.

Design Methodology

In order to properly design the complex a mixed method quantitative/qualitative technique will be used. Graphic, physical and digital analysis' will help me develop form and structure for the complex while interviews and the theoretical premise/unifying idea will ensure that everything needed to make it a desirable place to live is in place.

Documenting the Design Process

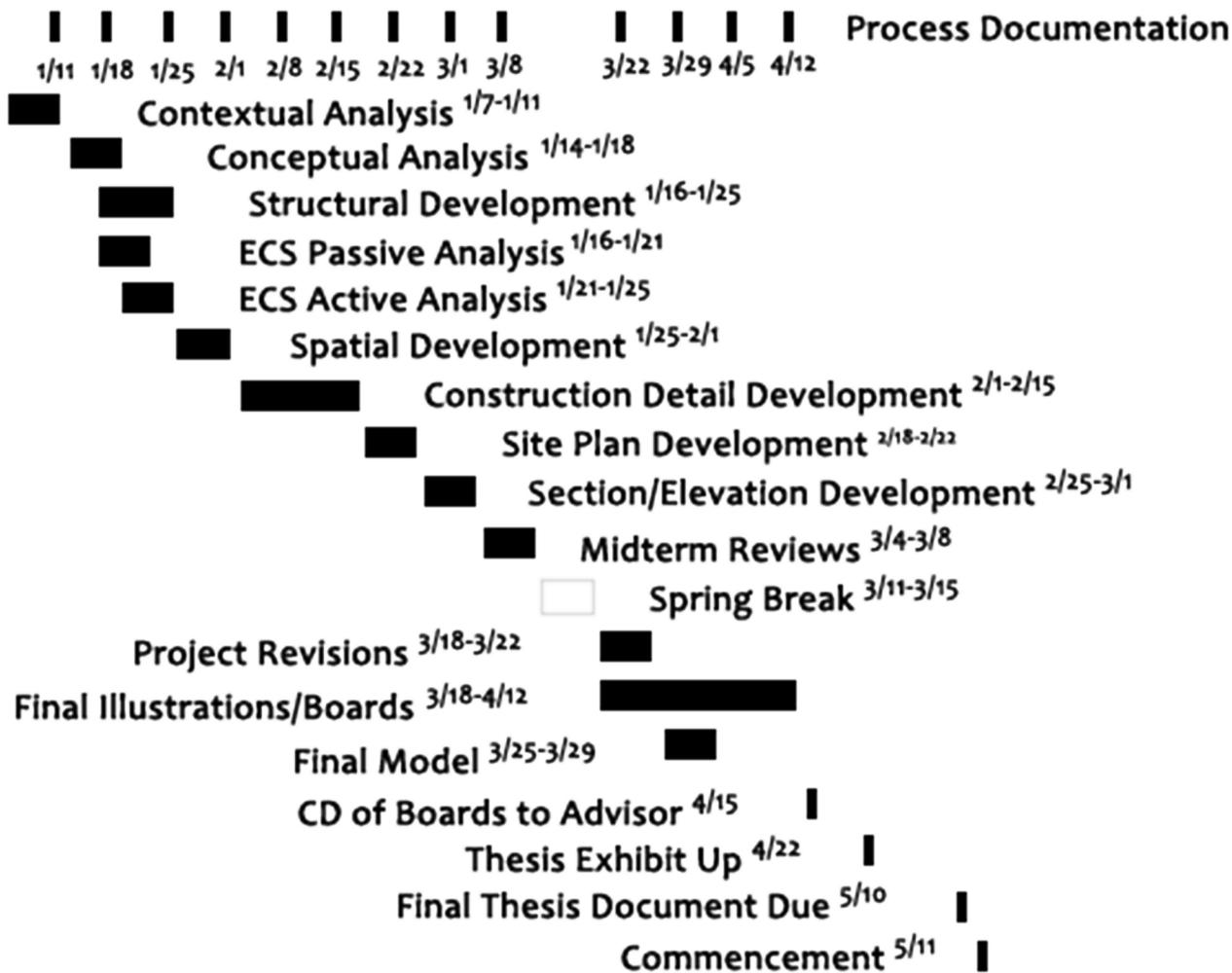
In order to properly explain the design I will need to show my design process. As the design progresses an effort will be made to catalogue my ideas as they change and progress. Sketches and thoughts will be saved digitally and posted to a blog for my advisors to easily follow along. Progress documents will be gathered at the end of each week when the blog is being updated. At the conclusion of this thesis project I will digitally present the design process to show how it informed the final design.

FIGURE 2.1 - DESIGN SCHEDULE



| January | February | March | April | May |

Start 1/7





PREVIOUS STUDIO EXPERIENCE

Fall 2009 - Heather Fischer

-Tea House

-Boat House

Spring 2010 - Stephen Wischer

-Twin House

-Hector International Airport Expansion

Fall 2010 - Milton Yergens

-Bus Conversion

-Healdsburg Guitar Festival Administration & Visitor Center

-Hebron Mason's Guild Hall

Spring 2011 - Steve Martens

-Children's Museum

-Center for the Study of Great Plains Geology

Fall 2011 - David Crutchfield

-Hybrid Highrise

Spring 2012 - Ronald Ramsey

-Facade Studies

-Motorcycle Manufacturing Facility

Fall 2012 - Regin Schwaen

-North Dakota Art Museum Expansion

-Future Housing Competition



The Program Document



The theoretical premise that is guiding my research is “For urban housing to grow in popularity, dense residential complexes need to reflect the individuals within them.”

With that statement I am trying to say that dense housing complexes like apartment buildings are a more sustainable option than the typical free-standing suburban home but I think they lack some of the necessities for human well being. It is my hope that this research will open up ideas for designing a better dense residential environment.

The majority of my research is based around how living conditions affect the resident. Studies about individuals overall satisfaction with where they live are very important. Statistical information about housing types is also necessary.

LAND & ENERGY

The way we use land becomes exponentially more important as the population of the United States and the world increases. To feed this growing population we need more farm land. To house this growing population we need more housing. To allow for leisure activities we need more space for recreation. And, to ensure that all of these people can live the ‘modern’ lifestyle we need more room for industry, healthcare, etc.

Between 1945 to 2002 the amount of urban and residential land quadrupled. In the same period of time the total population only doubled. Logic tells me that the residential and urban acreage growth rate should follow population growth rate but it didn’t. Advancements in farming technology could account for more people moving to an urban area and causing a greater need for land than what’s



reflected in the population growth but this time period is also when suburbia became the American dream.

It's important to note that urban and residential land accounts for less than 3% of the total land in the U.S.(USDA:ERS , 2006). However, that doesn't necessarily mean that we have enough room for expansion. Every piece of land in the U.S. has a designated use and an owner of some sort. 52% of the total land in the U.S. is used for agriculture, 28.8% is forest land and the remaining percentage is designated as miscellaneous-use or special-use which typically serves a transportation, government or conservation function(USDA:ERS, 2006).

Once land use in the U.S. is broken down it becomes difficult to see where more land for built environments will come from. In my opinion, there is no need to expand out of the current urban areas when density can be increased instead. 63% of American homes are single-family freestanding structures while only 17% of American homes reside in Apartment structures containing 5 housing units or more.

This is unfortunate since apartment complexes use less land than the equivalent number of suburban homes required to house the same number of people. The apartment complex is also much more energy efficient because the individual dwellings typically only have one exterior wall so they have less of a chance to lose heat or gain heat and negate any of the air conditioning.

Increasing the density of our built environments would also lessen our automobile usage. If work and the everyday items you needed were within a walking distance from your home, driving would no longer be a necessity. The automobile may become something that is only used when traveling out of the city for a holiday or vacations.



However, people enjoy living in suburban areas. A study done by Howley (2010) found that 77% of the people living in dense residential areas within the city's center had plans to move to less dense suburban areas once they had the means. Of those people, the majority were planning on moving to a free-standing suburban style home.

Strangely, another study that measured the overall satisfaction of people who recently moved from a dense urban environment to a more suburban setting found that only half of the people were more happy living in the suburbs, the rest were equally satisfied (Barcus, 2004). Keep in mind, amenities, distance from family and attachment to the previous home are all variables that could alter someone's immediate opinion of a new home.

Nonetheless, the reason for this exodus from the city is a great debate but individuals like Barcus (2004) believe the lower density promises a better lifestyle because people are living in a less built and more natural environment. I believe that there is more to it than that.

If we are honest with ourselves and look at the landscape within a Midwestern (or plains region) suburb it's difficult to say that residents have views or that they are living within a more natural environment. A few homes in Wyoming, MN are located near fully grown trees or natural ponds but the majority of the homes only have views of more homes but they do all have lawns.

Outdoor space is something that all suburban homes have but apartment complexes lack. Overall interior space is another shortfall of the apartment complex. In the Midwest, the average detached single-family home has 2,773 square feet while the average size of an



apartment unit is 787 square feet(USEIA, 2009). It's easy to see why a suburban home is more desirable than apartment living with those numbers but even if apartment units averaged 2,773 square feet they still wouldn't be seen as an equally desirable home.

CREATING SATISFACTION

The suburban setting encourages people to do things that result in interactions with neighbors. The most mundane maintenance tasks associated with suburban life create opportunities that build a sense of community. Someone doing yard work or getting the mail is suddenly in a position to converse with another member of the neighborhood passing by on the sidewalk. Working on a vehicle in the driveway can be seen as an invitation by a curious neighbor to drop in and ask a few questions. These interactions start to an individual's feelings about their environment.

Feeling satisfied with where you live partly comes from a sense of community. That community comes from interaction with the people who live around you but in an apartment complex people rarely interact with each other because of the way the complex is designed. This isn't a new idea. It just seems that nothing has been done to encourage interaction in dense residential environments. Evans, Wells and Moch came across a studies from the 1950's about this topic during their research on mental health among people living in dense residential buildings.

Evans, Wells and Moch(2003) came across the following:

Several of the studies...indicate that women in high-rise housing report more loneliness and less social contact with their



neighbors partly due to a lack of proximity to communal gathering places. Physical proximity to other living units as well as doorway orientation to high-use pathways and interaction nodes (e.g., mailboxes) affect social interaction patterns as well. (p. 493)

In their paper Evans, Wells and Moch(2003) come to the conclusion that proper housing design can promote the creation and continuation of social ties. Florida, Mellander and Stolarick(2011) also determined that social interaction not only makes people more satisfied with where they live but the act of interacting with other people brings about greater mental health. From here, we can make the assumption that knowing your neighbors is a very important factor in creating a healthy community.

That idea is becoming common knowledge within Architecture but it's not something that can be quantified and given a value so most developers won't pay for it. But, I'm not here to discuss economic issues influencing developers decisions. I am searching for a better dense residential form.

People are individuals so they won't all have the same thoughts about what good housing is but in their research, Evans, Wells and Moch(2003) found that single-family detached homes cause the least amount of mental health problems. Dense residential buildings cause the most mental health problems among the studied housing types for a few reasons.

The residents of an apartment complex all live in the same condition. They live in identical spaces, they have identical appliances, wall and floor finishes and so on. There is no sense of individuality among the residents especially when there are no spaces for interaction to



build a sense of community. This environment creates a feeling of anonymity and loneliness within the residents(Snyder & Fromkin, 1980). These mental health issues can bring about other mental health problems like depression and low self-esteem.

It's very important that we do everything in our power to create spaces within a dense environment that do not create these negative feelings. By nature people attach feelings to objects and places and will begin to avoid things that produce negative feelings, like suppressive homes(Hauge & Kolstad 2007). If dense residential housing is ever going to grow in popularity the stigma that the housing type currently has needs to be overcome.

EXPRESSION

Creating a sense of community isn't the only way that suburban living helps mental health. The people living within suburban homes usually own the homes. Ownership opens up an opportunity for the residents to use their homes as an object for expressing who they are. As I mentioned earlier in this book, people have an innate desire to express themselves.

It's an interesting idea but it is very important to note that people do actually think of their homes as an object of personal expression.

A study by Hauge and Kolstad(2007) determined that 84% of people living in a middle to upper class neighborhood and 69% of people living in a lower income neighborhood thought of their dwelling as an expression of who they are.



Hauge and Kolstad(2007) expand more on this idea:

We not only read information about others through their dwelling, but also about ourselves. Our own dwellings and neighbourhoods create self-concepts about who we are. Where and how we live therefore affects how we see ourselves. We become in some way a person moulded by our physical environment. (p. 273)

This is all very good if you are living in a place that you feel reflects your personality, lifestyle and tastes. The major problem is that apartment complexes do not allow for any outward expression. Since apartments are rental properties they need to remain neutral spaces in order to allow for a constant changing of hands. Even if residents within apartments were allowed to alter their spaces it is very unlikely that any of them would. The money and time invested in the modification of the space would have no monetary return so there is very little motivation beyond enjoying your short time in an apartment a little bit more.

CONCLUSION

I believe that dense residential forms of housing can become more desirable places to live if they are properly designed. Economics will continually drive developers towards the cheap standard form of apartment and condominium design until a new design shows the public that there is a better way.



Through this research I have learned what this new design needs to accomplish and allow for. If the design succeeds and creates a new form of residential architecture people would be much more willing to live densely. If people wanted to live in a more dense environment many things could change. Less need for automobiles and public transportation could lessen our dependency on fossil fuels. There would be less suburban sprawl meaning good land would not need to be sacrificed to meet the needs of only a few. A maybe, just maybe we would see the return of the corner store and the end of Wal-Mart.



The research conducted to provide a backing for the statement, “For urban housing to grow in popularity, dense residential complexes need to reflect the individuals within them.” was prioritized into 3 main areas that I found most important.

Statistical information dealing with general information about housing types was considered. The way residents felt about their home was very important and the reasons why residents either liked or disliked their home was discussed.

Information on these subjects was plentiful which immediately raised the question, why are poorly designed dense residential buildings still being built? I have to assume that economic factors are at play since creating spaces that people will enjoy means adding square footage that cannot directly be sold or rented.

I am talking about public spaces that will encourage interaction among the residents of these buildings. These spaces are necessary for creating a sense of community with the complex but that cannot be assigned a value. However, It is a desired attribute that could be used as a marketing tool.

Since people attach feelings to objects and places it was very important for me to understand all the ways housing can create positive feelings. In order for dense living to become popular, dense buildings need to make people feel good. The ubiquitous dense housing that currently exists suppresses individuality and any sense of community that may try to exist.



These things result in poor mental health which people begin to associate with the places. Dense residential housing has been given a bad wrap in the last decades because of the way the places make people feel. In the Midwest the word ‘apartment’ conjures up images of a 3-story rectangle duplicated numerous times around a city.

This stigma is a problem because apartment complexes are much more efficient and have the potential to be much more convenient than the standard suburban house if designed properly. A new form of dense housing almost needs a new name just so it won’t be associated with poor housing of the past.

There is good news though, it is possible to create dense housing that people will enjoy. Throughout my research I have singled out 2 things that are necessary for creating an enjoyable living space.

The residents must be able to use their homes to express themselves and interactions with neighbors must be encouraged. Allowing for expression seems relatively easy but the building program is going to have to give people passing by one another a reason to chat.

I am still not entirely sure how that will be accomplished but many lessons can be learned from the mundane tasks that suburban living creates.

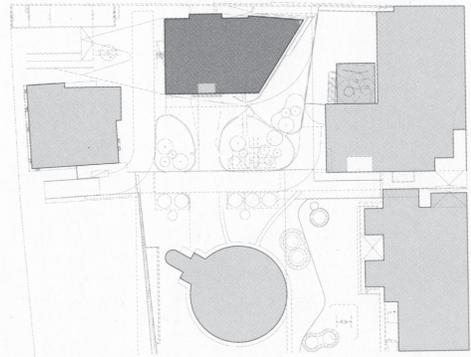


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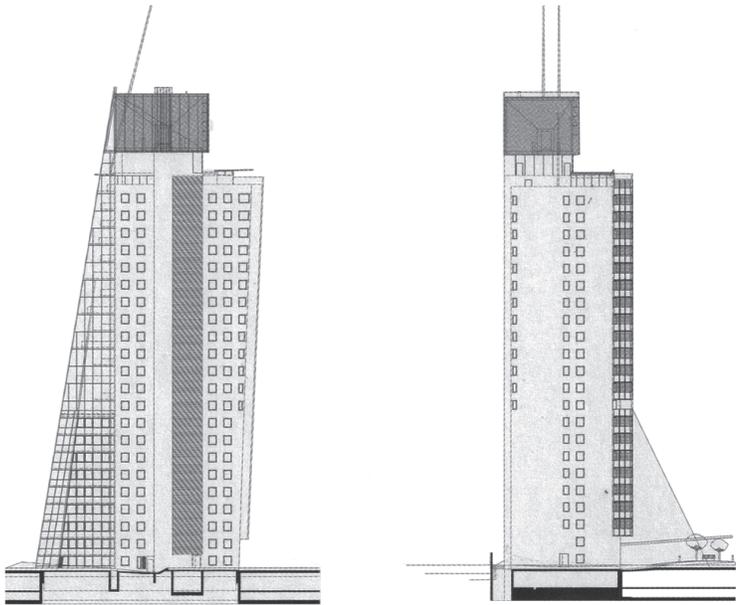
- SEG Apartment Tower
- Backerstrasse Apartment Building
- Residence Etudiants

SEG Apartment Tower

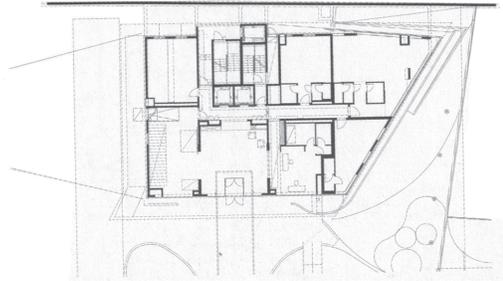
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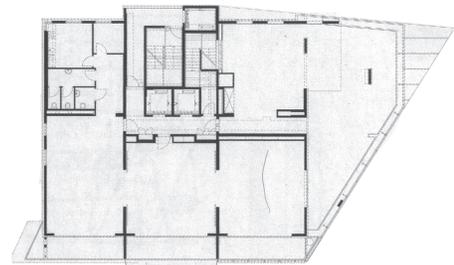
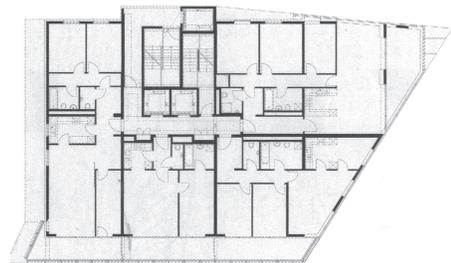
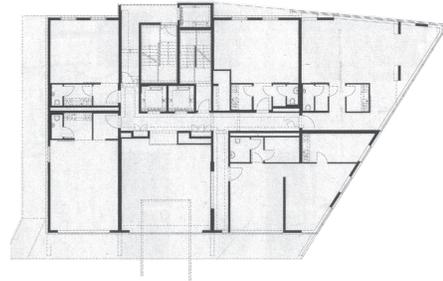
Site Plan



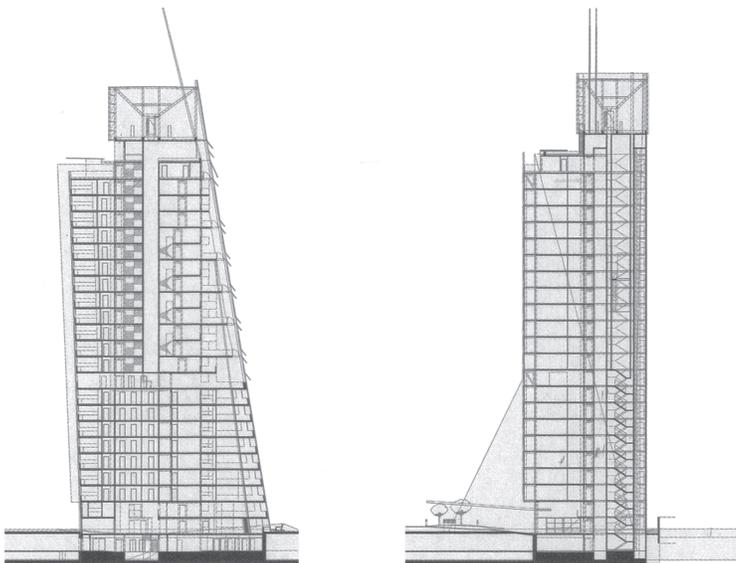
Elevations



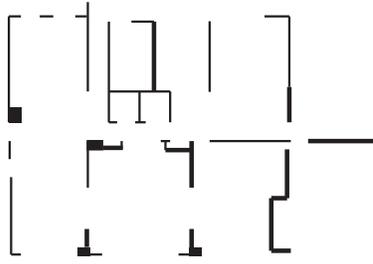
Ground Floor Plan



Floor Plans



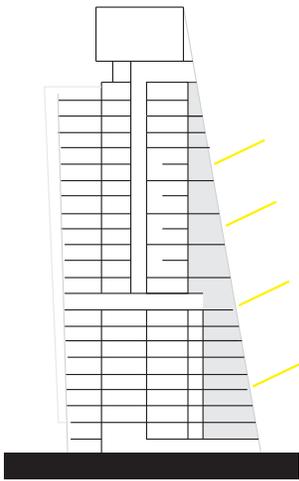
Sections



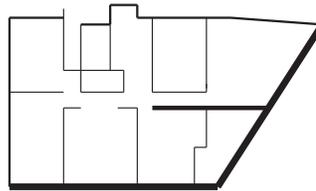
Structure

SEG Apartment Tower

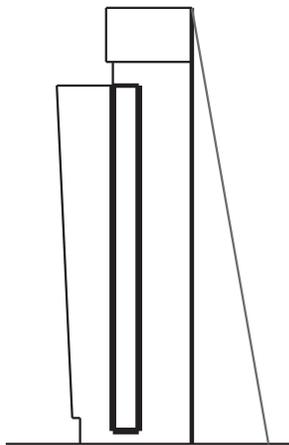
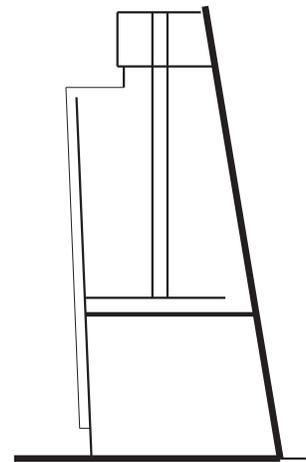
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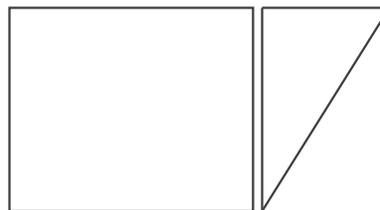
Daylighting



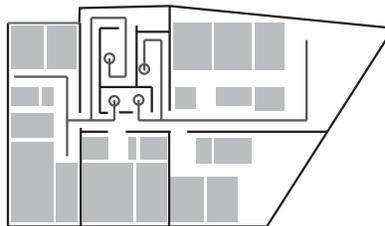
Plan to Section



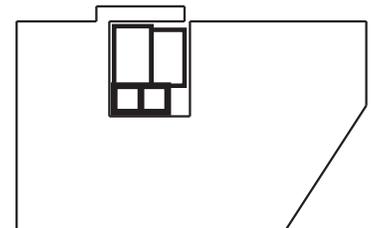
Massing



Geometry



Circulation To Use



Hierarchy



The SEG Apartment Tower is an example of a very dense mixed-use building located Vienna, Austria. The tower is made up of 25 floors and contains 70 apartments, 9 restaurants and plenty of office space.

The most outstanding feature of this is the passive environmental control system that has been incorporated into the building. This isn't the first building to incorporate passive systems but this is one of the few tall buildings that has successfully accomplished this.

The program of this building is very intricate but it has been homogenized on the facade. From the exterior it's easy to see where the vertical movement occurs but distinguishing between office space, restaurant space and residential space is almost impossible.

I personally feel that a building should explain itself on the exterior. Not only should separate buildings have different design elements but the facades of individual buildings should be broken up as well. It's as if I feel the overall building should be able to outwardly express itself along with the residents.

The facade of the structure does not allow for this same customization but it does allow for interior customization. None of the walls within the apartments of the tower are load bearing. The spaces were designed to be as flexible as possible which allows the residents to alter the space to better serve their unique needs. This is something I hope to accomplish in my design.

It partially meets my thoughts about allowing individual expression but it doesn't have spaces that encourage interaction among the



residents. The restaurant spaces are interesting elements of the program but there isn't a way to know if people within the restaurant are neighbors or people who are just there to eat.

Outward expression isn't possible here since the facade is almost entirely made up of operable glass. The glass is an integral part of the buildings passive systems so allowing residents to alter it could compromise the system.

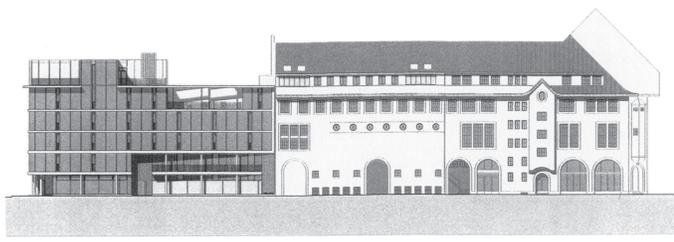
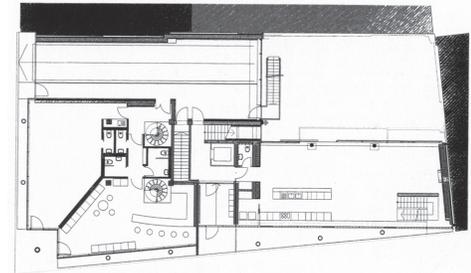
I am hoping to make my project as energy efficient as possible but it will be difficult to have passive systems that are not affected by alterations made by the residents.

This project doesn't alter my theoretical premise, it reinforces ideas I had about flexible interior spaces and makes me wonder if incorporating passive environmental control systems could compromise the residents ability to customize their space.

It is worth noting that the act of letting spaces share walls makes them much more efficient than there free-standing counterpart.

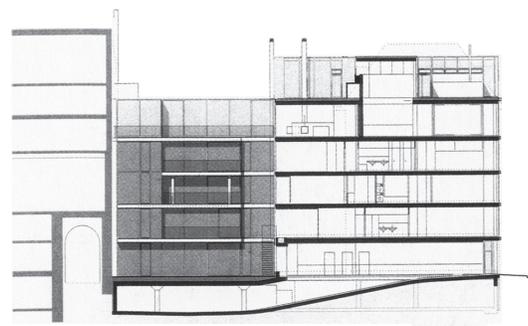
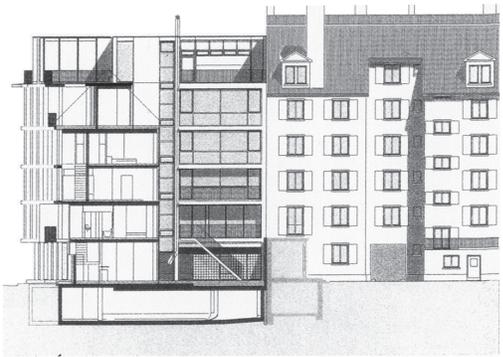
Backerstrasse Apartment Building

Theo Hotz
Zurich-Aussersihl, Switzerland
2000

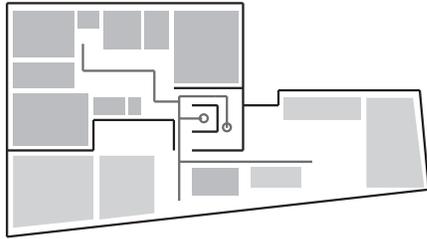


Elevations

Floor Plans



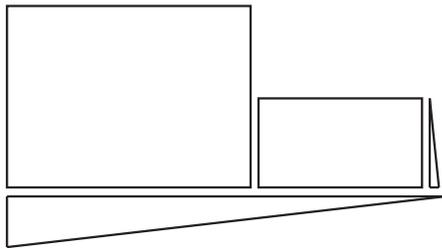
Sections



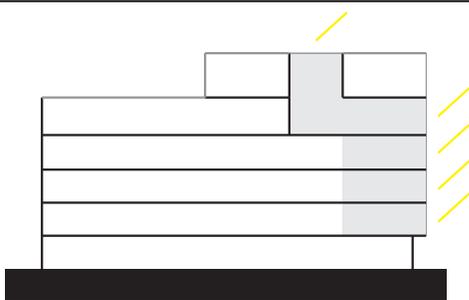
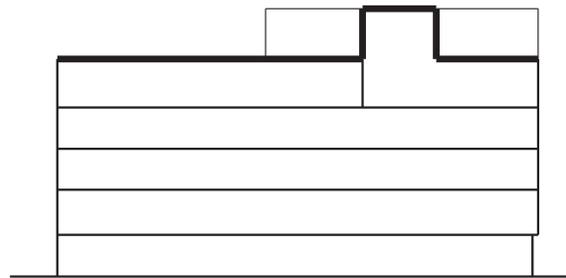
Circulation To Use

Backerstrasse Apartment Building

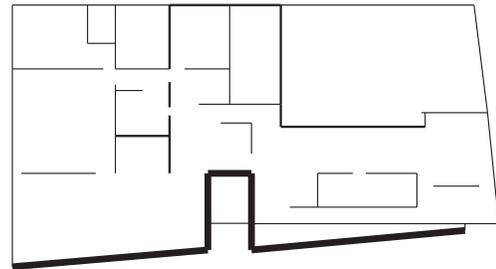
Theo Hotz
Zurich-Aussersihl, Switzerland
2000



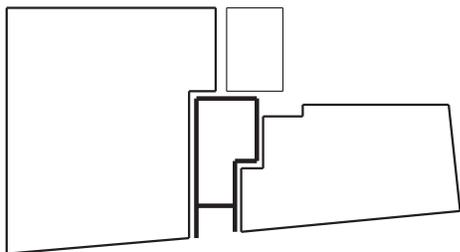
Geometry



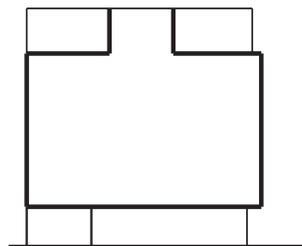
Natural Light



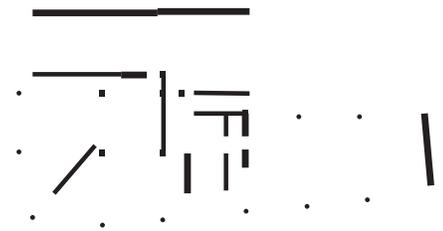
Plan To Section



Hierarchy



Massing



Structure



The Backerstrasse Apartment Building is located in Zurich-Ausser-shil, Switzerland. It is comprised of 6 interior levels and 1 roof level. The lowest level is underground and designated as a parking lot for the residents of the building. The street level is made up of shops and the upper 4 levels are the residential floors. The roof doubles as a private garden for the buildings residents.

This is technically a mixed-use building but with it's dense location it would be idiotic to not include retail space.

The way this modern building fits into its historic surroundings is what I find most fascinating. Even though the building has an entirely glass facade it doesn't clash with the neighboring stucco and stone block facades. It is definitely a contrast but the correct proportions and form make it appear to belong.

However, the existence of an all glass facade negates any ability for the resident to outwardly express themselves. The window coverings within each unit are identical and most likely cannot be changed. The glass facades of these last two case studies are very beautiful and that is starting to cause concern.

I am starting to wonder if giving people complete freedom to alter the appearance of the facade would create something that is awful to look at.

I suppose it could be compared to most suburbs. Usually people make tasteful choices when it comes to the exterior of their home, especially in newer developments. Major elements of the structure that do not relate to individual homes could be highlighted to en-



sure that the building still appears to be a connected entity.

Anyway, the Backerstrasse Apartments make up for what they lose by not allowing residents to make alterations with its private roof garden. The roof garden is a great space for creating interactions between residents. Those small interactions will create a familiarity with neighbors that will help build a sense of community.

The roof gardens are a catalyst for creating relationships that will grow on the street and in areas surrounding the building. After residents meet each other in the community spaces of the building they will be able to recognize each other in public places outside of the apartment.

The area of town that the Backerstrasse is located in is so dense that chance encounters with neighbors on the street or in a nearby market are guaranteed.

There is so much that American cities could learn from the density of European neighborhoods. Sadly, owning a suburban home has become the unofficial sign of success within American. It's almost impossible for me to imagine an America without miles upon miles of suburban areas.

I doubt dense residential housing will ever be as popular as suburban housing but making it as satisfying to live in would be a good start.

Residence Etudiants

Atelier Cattani Architectes
Porto Di Le Havre, France
2010



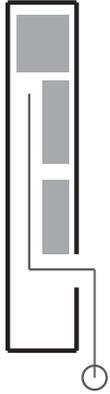
Site Plan



Plans



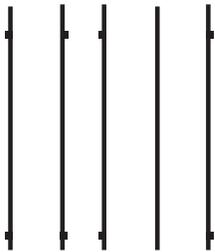
Sections



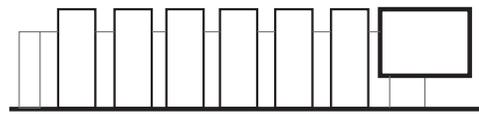
Circulation To Use



Geometry



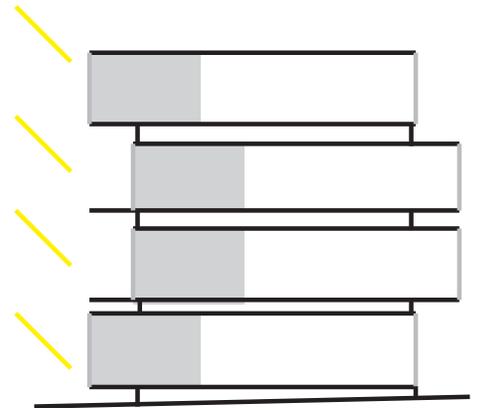
Structure



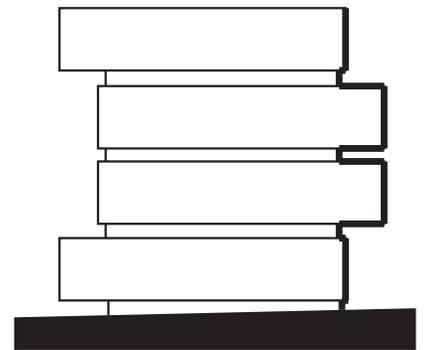
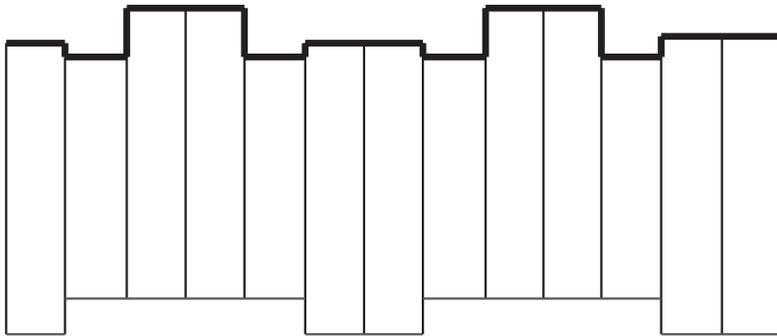
Massing

Residence Etudiants

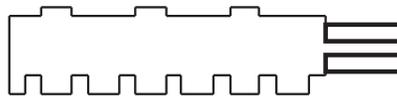
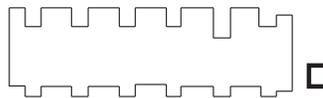
Atelier Cattani Architectes
Porto Di Le Havre, France
2010



Natural Light



Plan to Section



Hierarchy



Residence Etudiants is an example of a medium density housing complex in Porto Di Le Havre, France. Every residence has an attached garage space and a larger than average private outdoor space but the most striking feature of the development is its use of shipping containers as a building material.

The residential space has been created within 96 shipping containers that are stacked on top of one another. Modular housing has been around for a very long time, the idea has even been incorporated into high-rise buildings but I want to use this project in particular to make an argument.

Projects like Residence Etudiants usually get praised for their inventive use of a common, readily available, material that was never intended to be inhabited by humans but do they deserve it? I do appreciate the creativity that is necessary to create a living space within such a rigid framework but I don't think the end result is any different than a type of housing I see everyday where I live.

Here in Fargo, ND it is fairly common place to see a plan for 2 identical, adjoined-homes to be copied down the length of an entire block with only enough space left between the next set of homes to swing a hammer. These neighborhoods are something you would only expect to see in a communist state. If automobiles weren't on display in the concrete lawn the blocks would have no variety at all. It's like someone has taken an apartment complex and flattened it out so people can have an attached garage.

I don't see a difference between these homes and modular homes anymore. It's even difficult for me to believe that using the steel shipping containers to create awkward housing instead of recycling



RESIDENCE ETUDIANTS

them is better for the environment than using a light timber-frame construction method. The shipping container will likely have a longer lifespan though.

I probably haven't given Residence Etudiants some of the respect it does deserve. The complex has a detached community space with laundry services, added bicycle storage and they have managed to get a good amount of green-space into the site, all of which will encourage interaction between residents.

Those things aside, I struggle to see how this type of idea creates a place to live that is any better than a standard apartment complex. It looks different than most other apartment complexes but the actual spaces are identical. In my project I am going to have to ensure there is a variety of spaces available.



For me, case studies are always a good chance to see what works and what doesn't within a specific typology. Comparing different spatial layouts and sizing is important but at this stage in the project I am more concerned with larger ideas. How these buildings react to their human inhabitants and how they are creating community is what I was really hoping to learn about.

I haven't come across a dense residential building that has given freedom of expression to its residents so that will be the most difficult part to incorporate into the design. Since I do not have any examples to study I will have to do a large amount of experimentation. Thankfully many projects have tried to create a greater sense of community within the complex. In order to create a sense of community the residents need public spaces that they want to spend time in and chance interactions need to be encouraged.

Initially, I had hoped that my project could be incredibly energy efficient but that is becoming an afterthought. I don't feel like that is worth spending a lot of time on. Dense residential housing is inherently more efficient than other types of housing just because of the density. Less materials are needed for construction and individual units only have 1 or 2 exterior walls.

From my case studies I have learned that an extensive passive environmental control system could compromise the residents ability to truly make the space their own which goes against what I am trying to accomplish. The residents would have complete freedom so in theory they could alter their space to work like a passive system.

Another important lesson that my case studies have taught me is even though rhythm and repetition within Architecture is aestheti-



CASE STUDY SUMMARY

cally pleasing it may not have a place within my project. In order to really push this idea of individuality among the housing units they physically cannot be the same. The size and shape will have to vary just so I can honestly say that they are different from one another before any alterations are made by the residents.



As I mentioned in the research portion of this book, dense residential buildings being poor places for human existence is not a new idea. However, the reasons why they are bad have changed throughout time.

Cities in general used to be horrible places to exist before indoor plumbing and sewer systems were introduced but if you weren't rich or making a living farming you didn't have a choice. Back then, your quality of life would drastically improve if you had the means to move out of the city but only the richest could.

As travel became more efficient people making lower wages could begin to justify living outside of the city but a large scale movement towards low density living wasn't made until 1903.

In 1903 Ebenezer Howard created the Letchworth Garden City in England (French, 2008). Letchworth was designed to be an ideal town that combined city life and country living. It became the low density housing model that the entire world would begin to copy.

Thankfully, cities and people who were against the Garden City movement realized that they were losing the fabric of their city. In order to try and retain residents, dense housing began to be improved to provide a better quality of life. Courtyards and other forms of outdoor space started to become commonplace along with indoor plumbing and sewer systems.

And so it goes, dense-residential housing was made as nice as possible and it remained that way. Plenty of Architects have altered the layout of spaces to create a more functional interior but very little else has changed.



The invention of the skyscraper allowed for greater population density and refrigeration technology allowed for more environmental control. Aside from that, only the materials and objects within the spaces have changed.

It's very odd to not see progression in the world today. Virtually everything we touch during the day is continuously trying to be made better. The laptop I am creating this book on is a massive improvement from computers 10 years ago but I purchased it 3 years ago so now it's nearly obsolete. Automobile companies are continuously striving to build the best vehicle that they can build. Even producers of cigarettes and alcohol are trying to make their products better even though they have a guaranteed client base.

There aren't many things you can look at and truly say that they were designed better 60 years ago but when it comes to housing I believe you can.

Frank Lloyd Wright began questioning the way cheap suburban homes were designed over 76 years ago. His Usonian ideas were intended to create something affordable but also something that was more functional and had a better relationship to it's site. Arguably the construction methods may not have been an improvement but in my opinion the rest of the home was.

The importance he put into passive ventilation systems and daylighting was way before it's time. Those ideas weren't widely used until recent environmental concerns and the introduction of the LEED system.

61 years ago Le Corbusier's Unite d'Habitation was constructed. I



don't think an apartment complex with the same amount of amenities and community spaces has been built since (excluding massive high-rise projects). Along with a pool, running track, outdoor gym, and ground breaking layout the Unite d'Habitation even contains a small hotel for the guests of its residents. (French, 2008)

Even though we have these amazing examples to follow people are still living in apartments with no amenities or site specific design.

How did the attitude towards construction and design ever change?

I know most Architects are trying to produce something that is better than what came before it but dense housing is stuck in a stalemate.

The developers themselves could ask for a new design but there isn't a demand for it. Even I am partially to blame for that. When I first planned on moving into an apartment last summer I should have began looking months in advance but I didn't. I waited too long and ended up signing a lease at one of the first places I saw to guarantee I had a place to live by the end of the month.

Any company will gladly continue to sell a product unchanged if they can barely keep up with demand as it is. The same idea goes for the majority of suburban homes, but at least owning a suburban home means it can be changed as your needs change.

My hope is to create dense housing that has many similarities to suburban living while offering more amenities. Maybe then we can begin to develop a demand for improved housing across the board.



HISTORICAL NARRATIVE

Our complacency with poor housing seems to go in cycles. The initial move to suburban areas caused dense housing to be improved to keep people within the city. Now that enough time has past and dense living is once again failing to keep up with the desirability of suburban living it will need to go through another round of improvements.

Today we are seeing cities trying to return their downtown to the vibrant places they used to be before the post-war mass exodus to the suburbs happened. Even Wyoming, MN has a future zoning plan that indicates they intend to create a city center in the area where my project is currently set. My new urban housing model could be what is needed to bring people back into the city.



In order to ensure that this project has academic, professional and personal value I need to examine what the project can do. I want the project to do more than getting me a passing grade so I graduate on time.

Every project I've worked on in school has furthered my knowledge of a typology, techniques or software but I have specific goals for this project.

I hope to expand my knowledge of housing design in general. Since most of us have lived in homes for our entire lives it's hard to think that we don't know much about it but we don't(or at least I don't). I took a seminar that was based solely on Frank Lloyd Wright's Usonian homes last fall and quickly realized how little I had thought about residential spaces. The current standardization of homes makes it difficult to imagine different ways they could be and probably should be designed.

My design thesis has little impact on my professional aspirations. Oddly, housing isn't a typology that I want to spend much time on once I am done with school. I may only feel that way because housing is so standardized. I chose this project because it is the largest Architectural problem that has an affect on the people I know and myself.

I hope parts of this project will enhance my portfolio to increase my odds of receiving an internship but I will not be using the project as an advertisement to get into a firm that does a large amount of dense residential work. I'm mostly interested in working for a firm that focuses on innovation, so the project may carry some weight in that sense.



As I mentioned a moment ago, I feel that poor design within dense housing complexes is the largest Architectural problem facing the people I know and myself. In my opinion urban sprawl is caused by a love of suburban homes. It's great that people love suburban homes but if we cannot create another type of home that is more desirable urban sprawl will continue with the population growth rate.

For me this problem is personal because my friends and relatives don't believe that living within a dense environment could be as enjoyable as living in the suburbs. I really want this project to be an example of how enjoyable dense living could be.





S I T E A N A L Y S I S

SITE ANALYSIS



To put it frankly, my site boundaries contain 2 empty parking lots, a rundown house and a small 2-story building made up of office space and cheap apartment units. What is considered Wyoming's downtown consists of a bar/grill, 5 office spaces, a library, a post office and the previously mentioned 'mixed-use' building. However, it does have 2 arterial roads and many light-residential neighborhoods nearby.

Since the area receives a large amount of traffic I can only assume the downtown area of Wyoming hasn't flourished because there isn't a reason for people to stop. The bar/grill is a fairly popular spot but unless you needed some spinal re-alignment there is nothing else to experience.

Image from Bing Maps





SITE ANALYSIS

Wyoming's downtown is marked in red in the image on the left. My proposed site is marked in white and where I would like to see an actual downtown develop is marked with yellow.

As you can see the area lacks built density. The 2 smaller white rectangles are empty lots that I intend to include in my project. The larger rectangle contains an empty parking lot and the small mixed-use building. As it stands, Wyoming has no center. Since there is no center new businesses have scattered themselves throughout the community in search of a high traffic area.

I'm proposing that the city create a high traffic area by redeveloping their downtown. My dense residential /mixed use project will be the perfect place to start. The residential project will increase the population of the area so businesses will be more likely locate to the area.

At the moment, the site is almost a blank asphalt and gravel canvas. There is no elevation change, views or vistas. Thankfully the surrounding neighborhoods are old enough to have fully grown vegetation to soften the landscape.

The building located just to the left of the larger white rectangle contains the bar/grill. The building itself has a beautifully detailed brick facade and is one of the few pieces of history left in the town. I want my project located as close to that building as possible. To me, that building represents the environment I want to create. The building was originally constructed when cities were walkable and downtown was an important place.

SITE ANALYSIS



In some way creating a new downtown with this building as the corner stone seems to legitimize the idea. The building has been altered slightly but its permanence is still apparent. You can see the additions to the building in the image below.





S I T E P H O T O S

SOUTHEAST CORNER



N



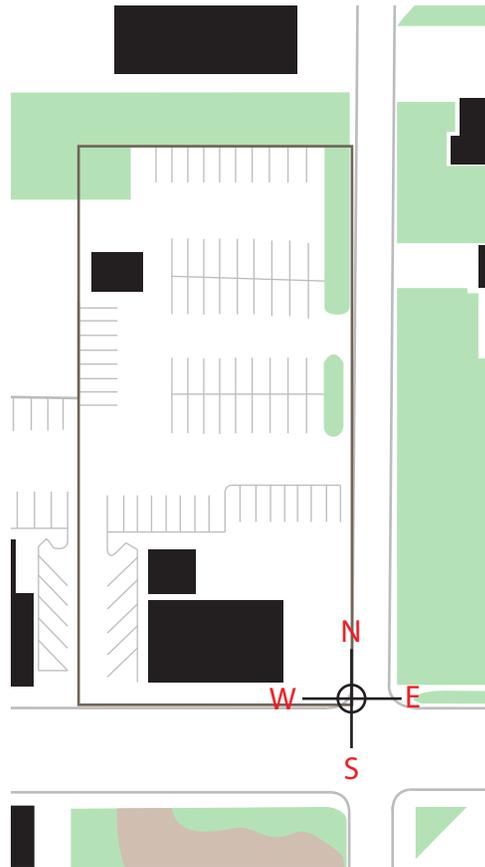
E



S



W





NORTHEAST CORNER

E



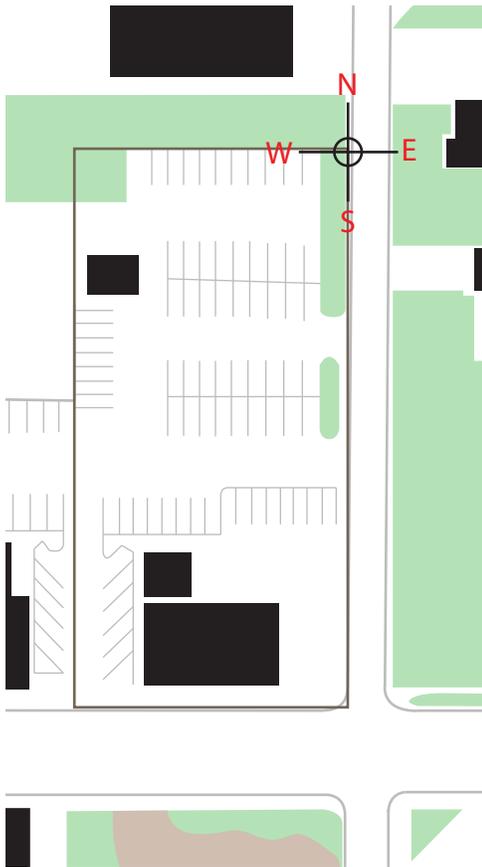
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S



W

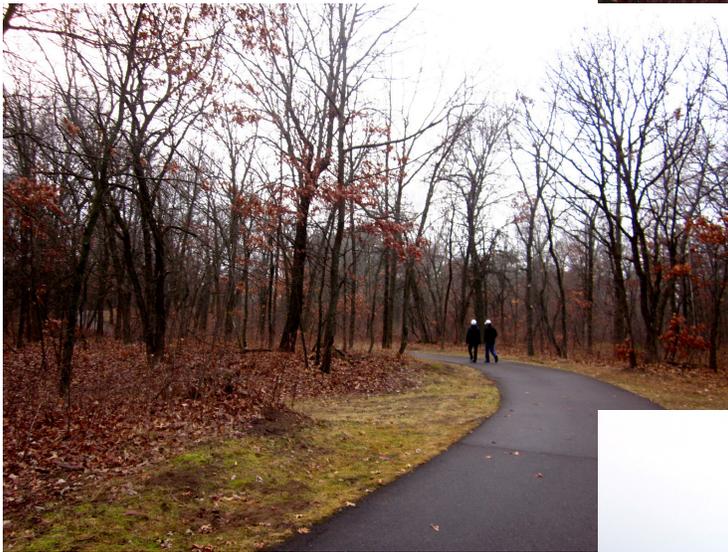


CONTEXT





NATIVE VEGETATION





Average Monthly Temperature

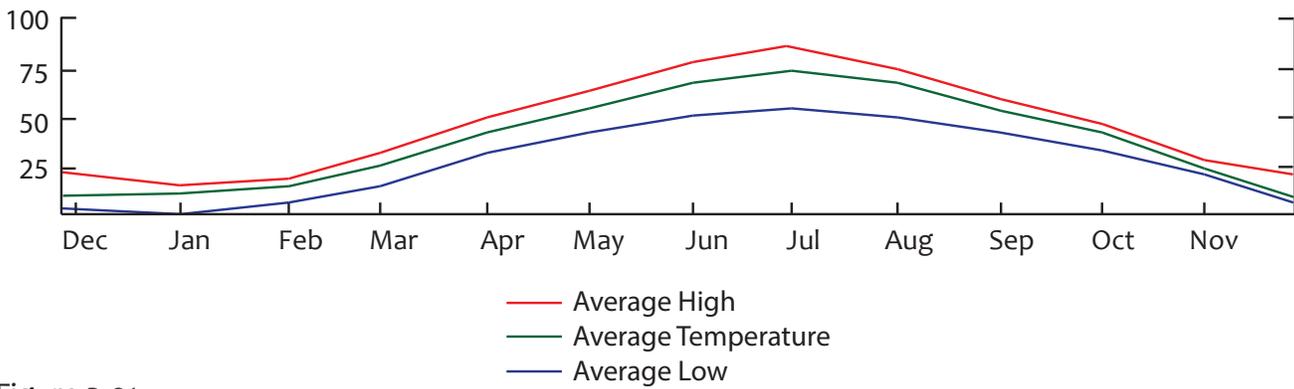


Figure 3.01

Average Monthly Humidity - %

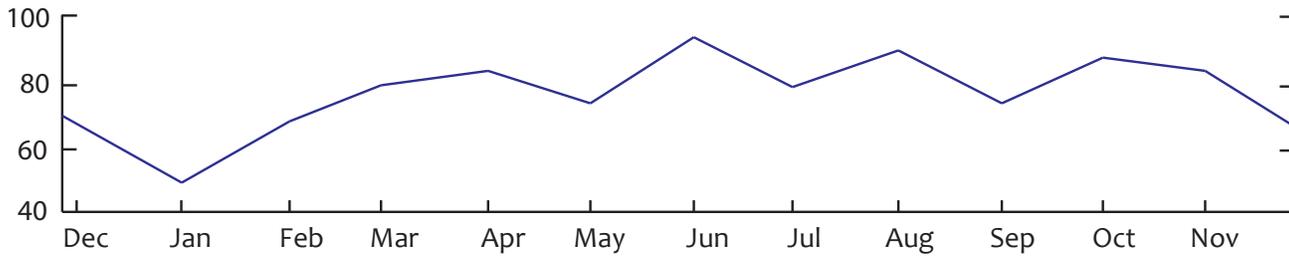
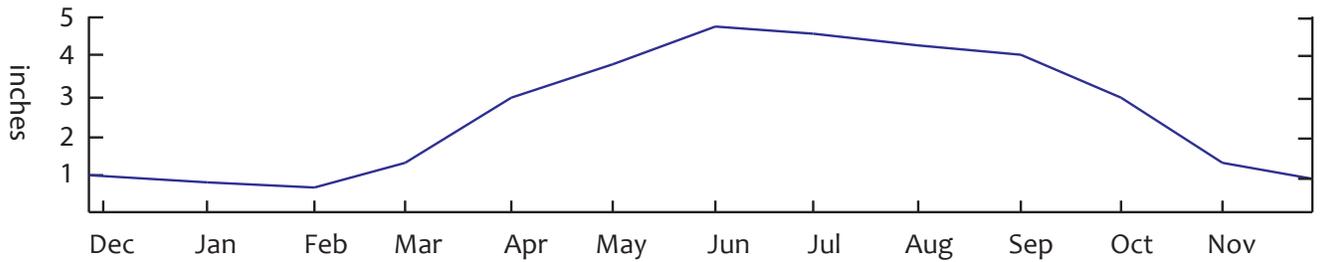


Figure 3.02



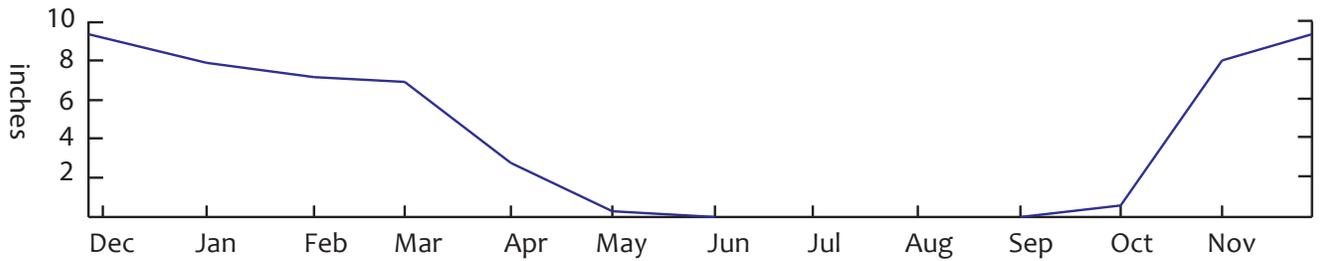
Average Monthly Precipitation



Average Annual Precipitation: 31.69 inches
Average Number of Days with Precipitation: 60.62

Figure 3.03

Average Monthly Snowfall



Average Annual Snowfall: 44.19
Average Number of Days with at least 1" of Snow: 94.67

Figure 3.04



Average Annual Sky Clarity

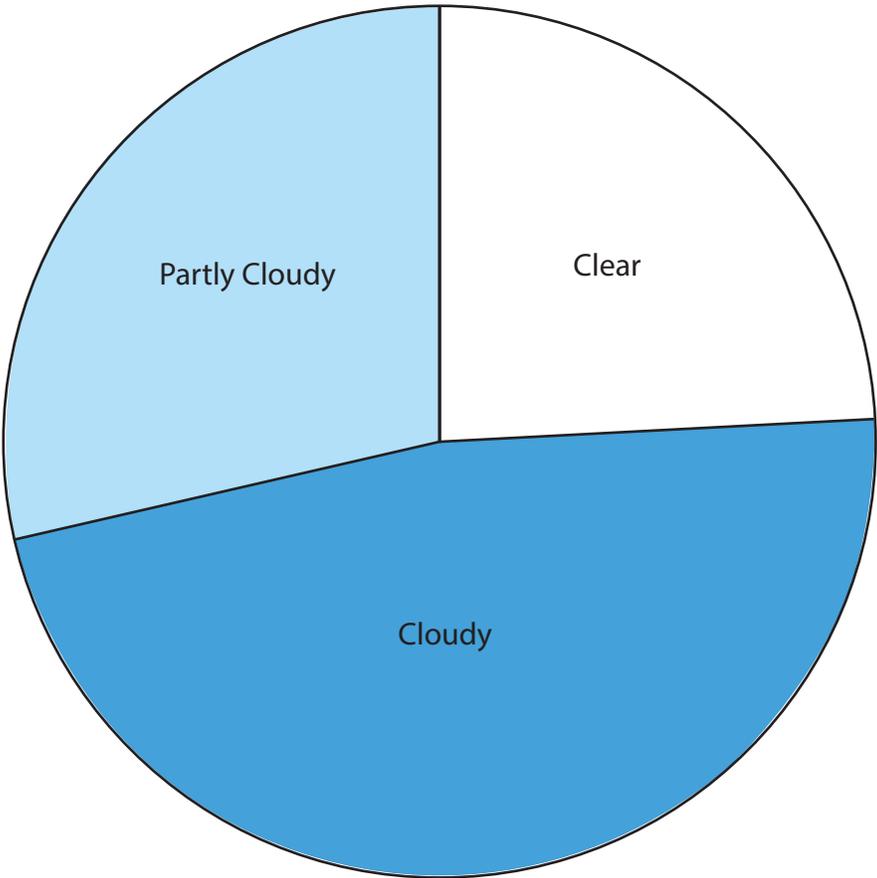


Figure 3.05



Average Wind Direction

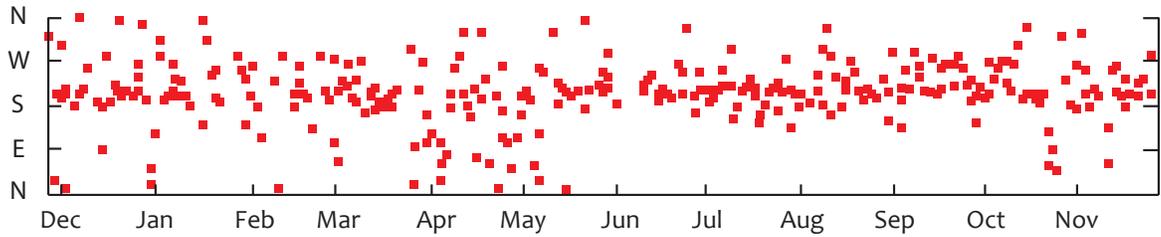


Figure 3.06

Average Wind Speed and Maximum Gust

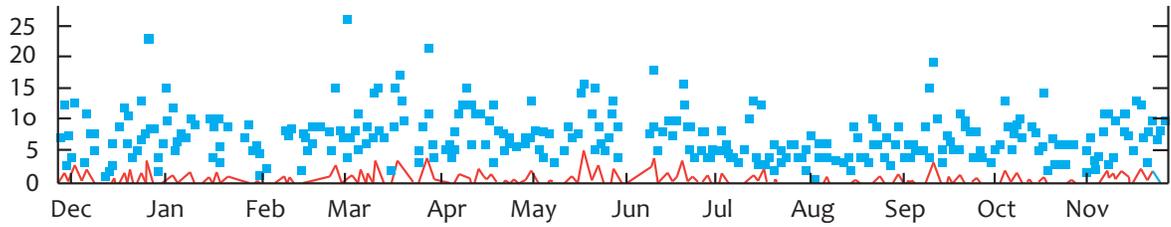


Figure 3.07

Prevailing Wind: Site Section

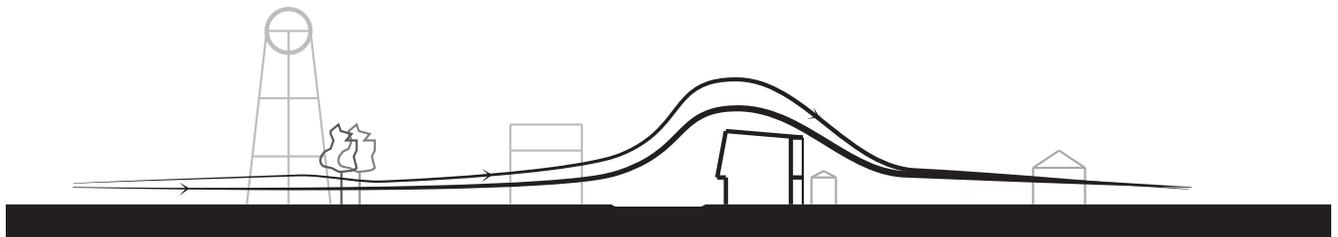


Figure 3.08



Sun Path Diagram

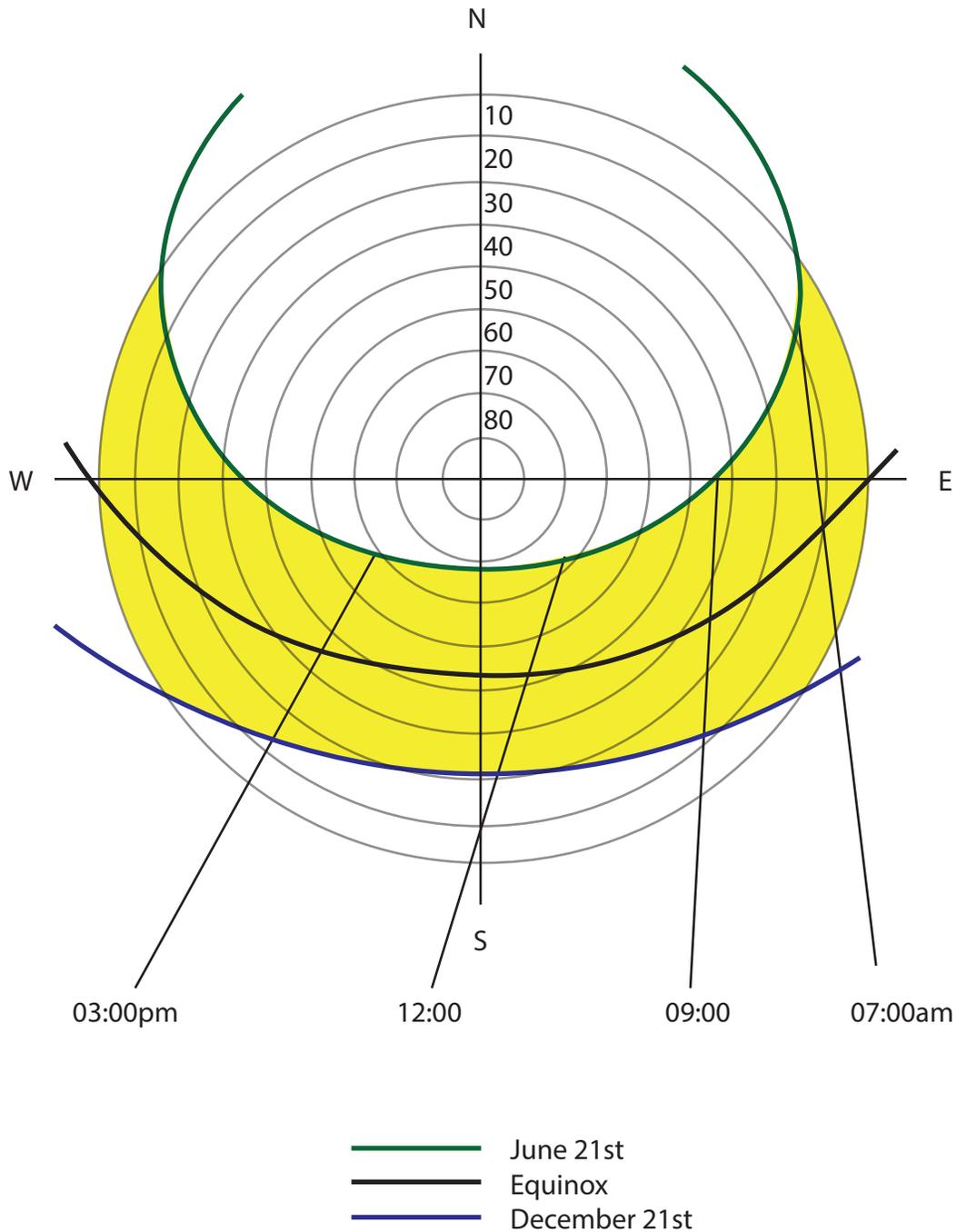


Figure 3.09



CLIMATE DATA

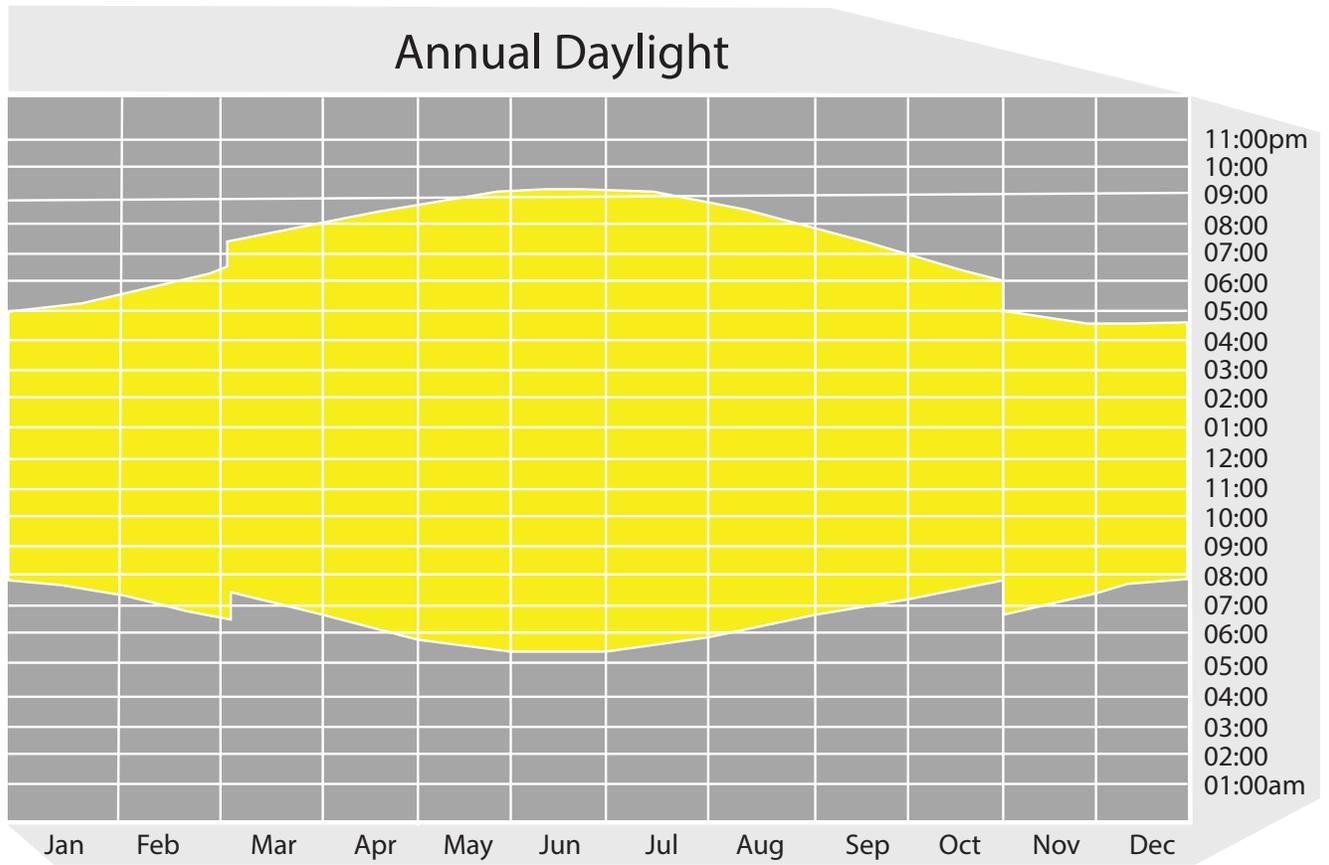


Figure 3.10

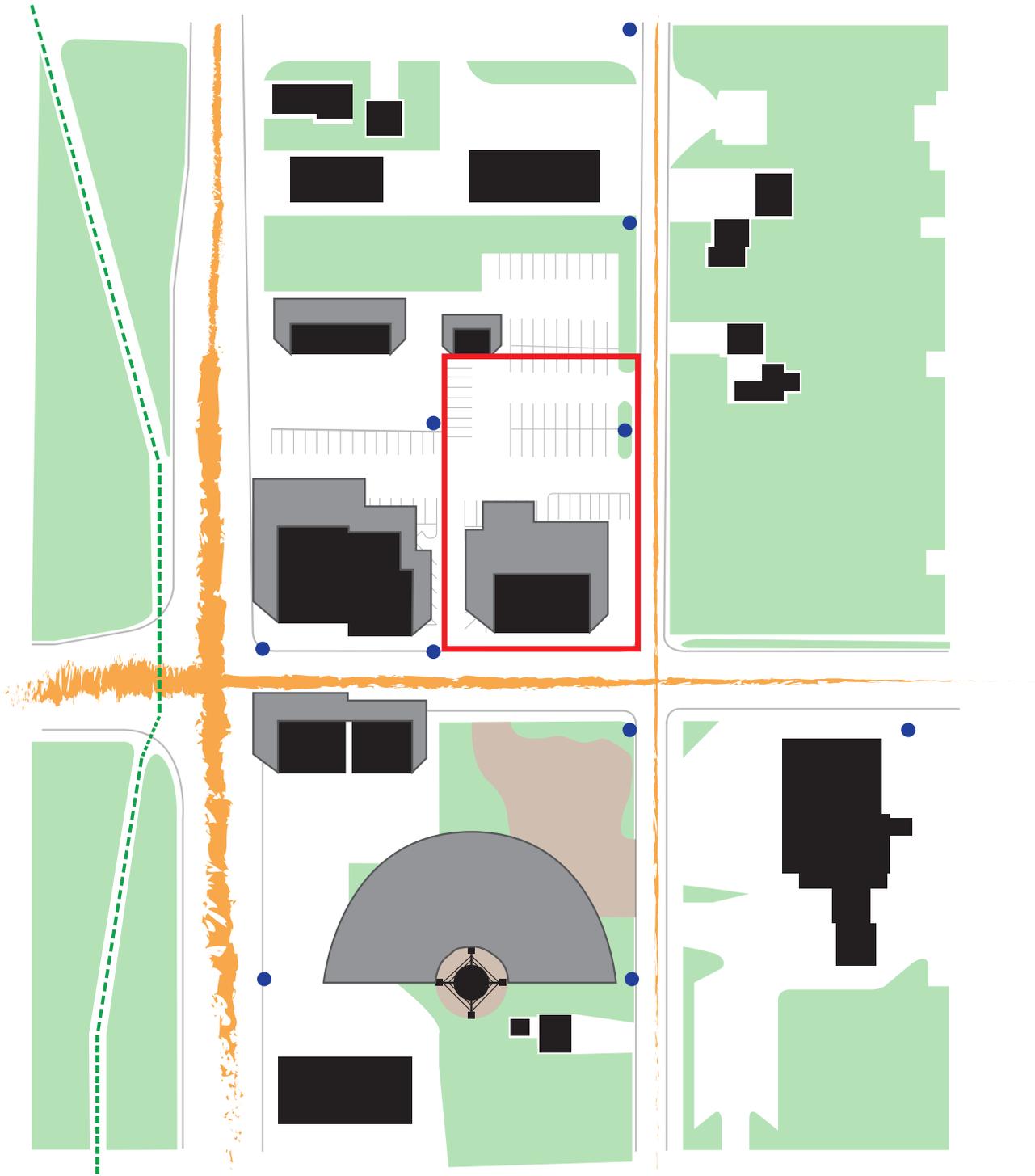


Figure 3.11

Site Features

Above, you can see that the only objects casting shadows onto the site are built structures. The amount of traffic in the area determines how much noise there is on the site. Currently, pedestrian traffic only exists on the recreational pathway. There is a fair amount of utility poles near the site.





T H E P R O G R A M

PROGRAM



Space	Square Feet
HOUSING UNIT - 1,400 x 11	15,400
ATTACHED WORKSPACE - 750 x 11	8,250
RETAIL SPACE - 880 x 4	3,520
OFFICE SPACE - 950 x 4	3,800
FITNESS CENTER	3,075
PANEL STORAGE	960
COMMUNITY SPACE	860
PUBLIC OUTDOOR SPACE	1,700
TOTAL	37,565



INTERACTION MATRIX

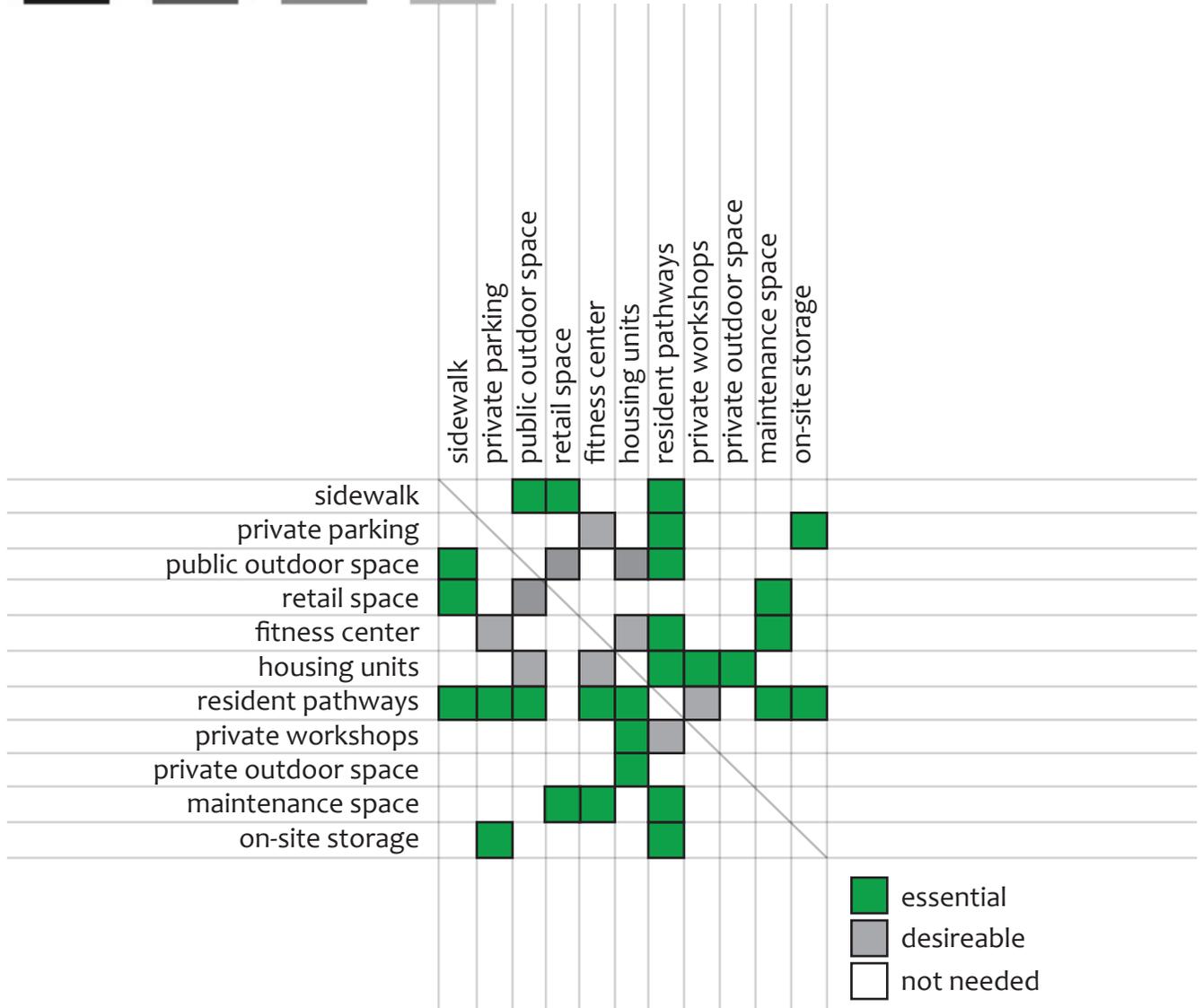
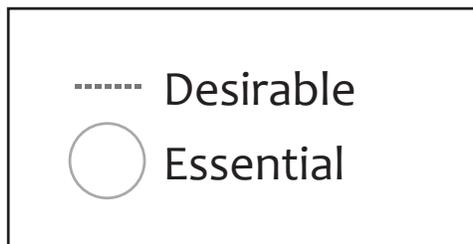
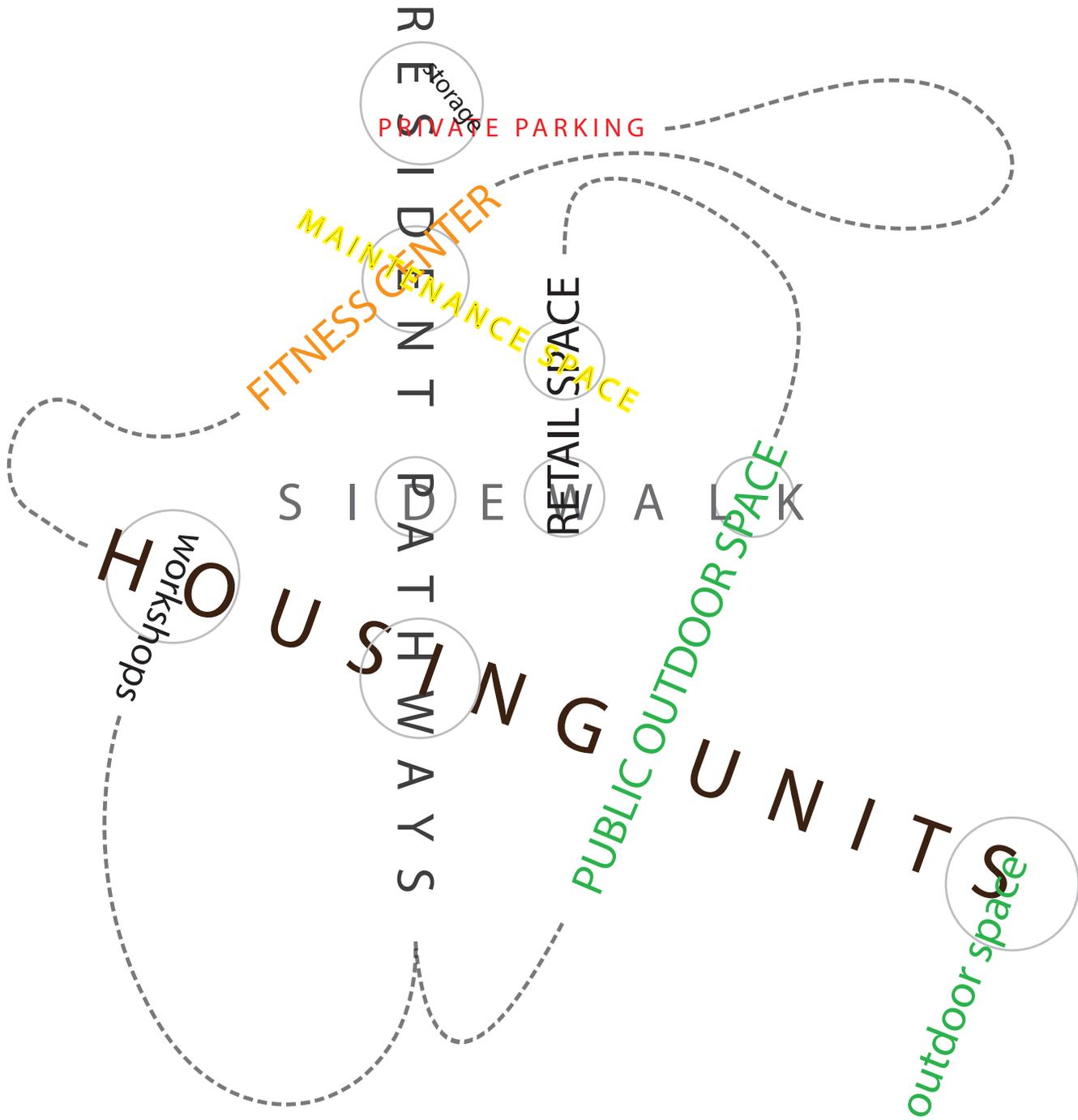


Figure 4.2

INTERACTION NET





The spaces for encouraging chance interactions are not something I can quantify at this time. They will be determined as the movement through the complex is developed.

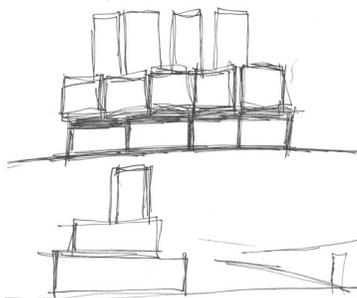
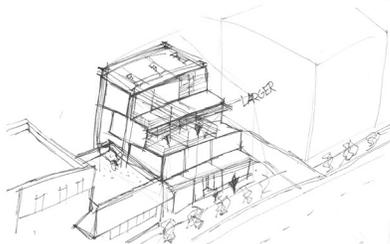
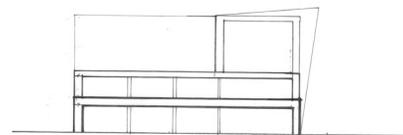
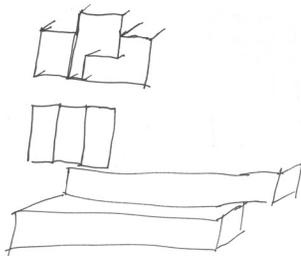
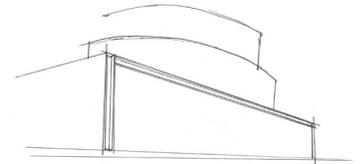
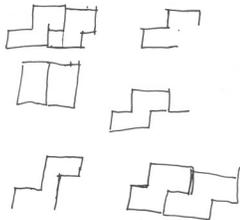
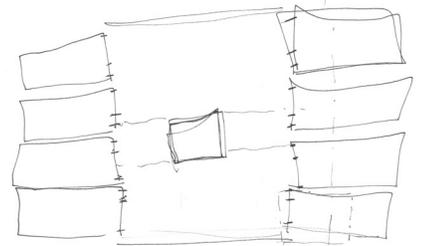
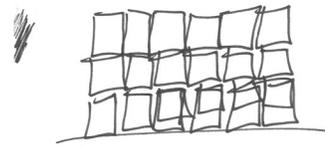
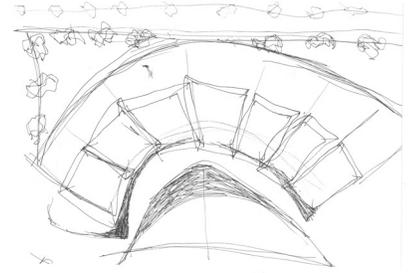
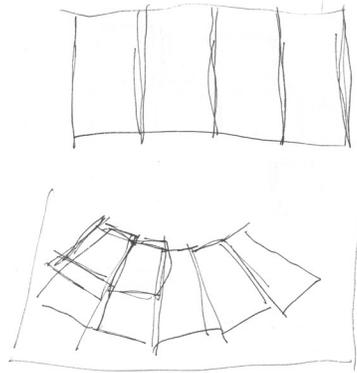
The exact square footage of the residential units will also vary slightly because variances will be designed into the homes to ensure they are not copies of one another.



T H E D E S I G N

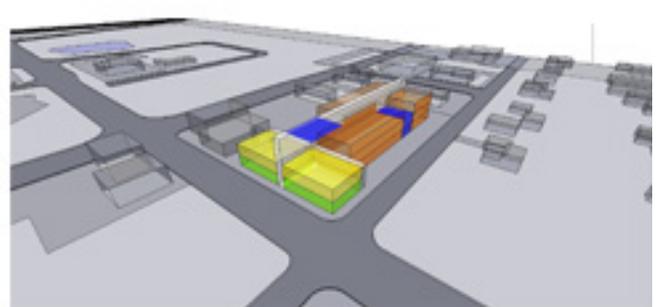
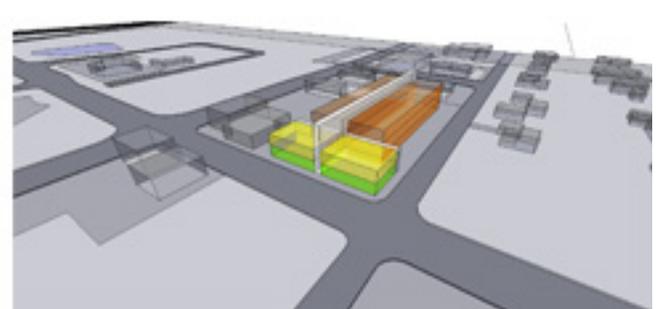
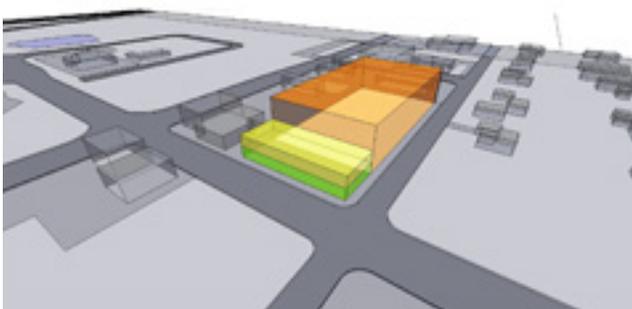
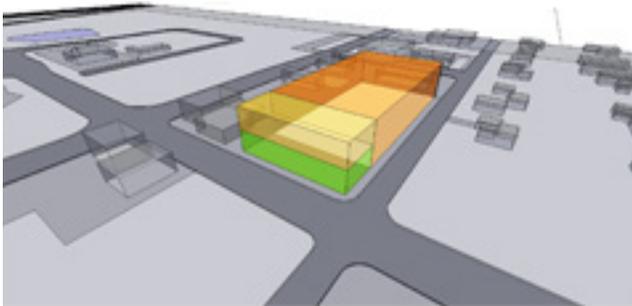
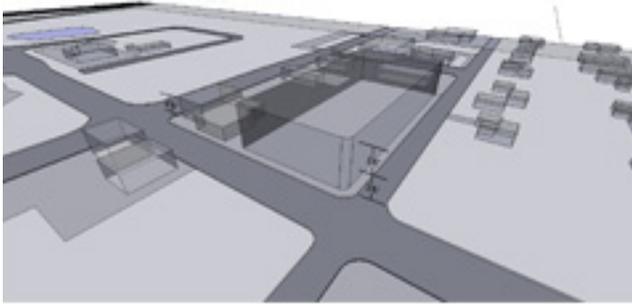
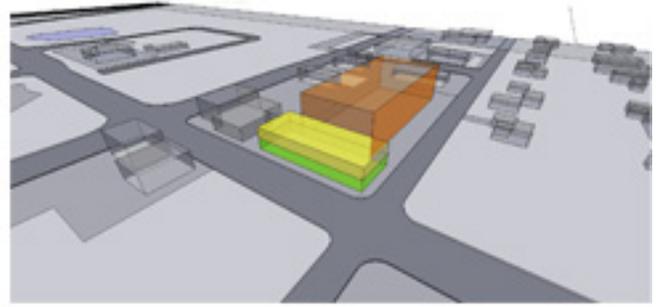
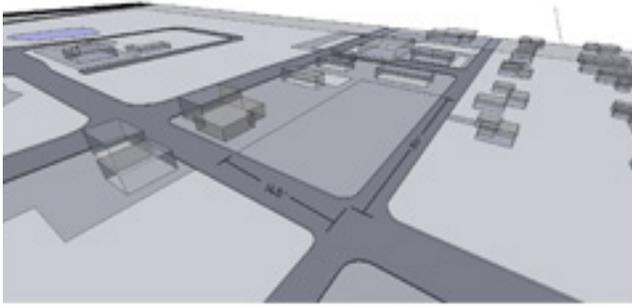


PROCESS WORK

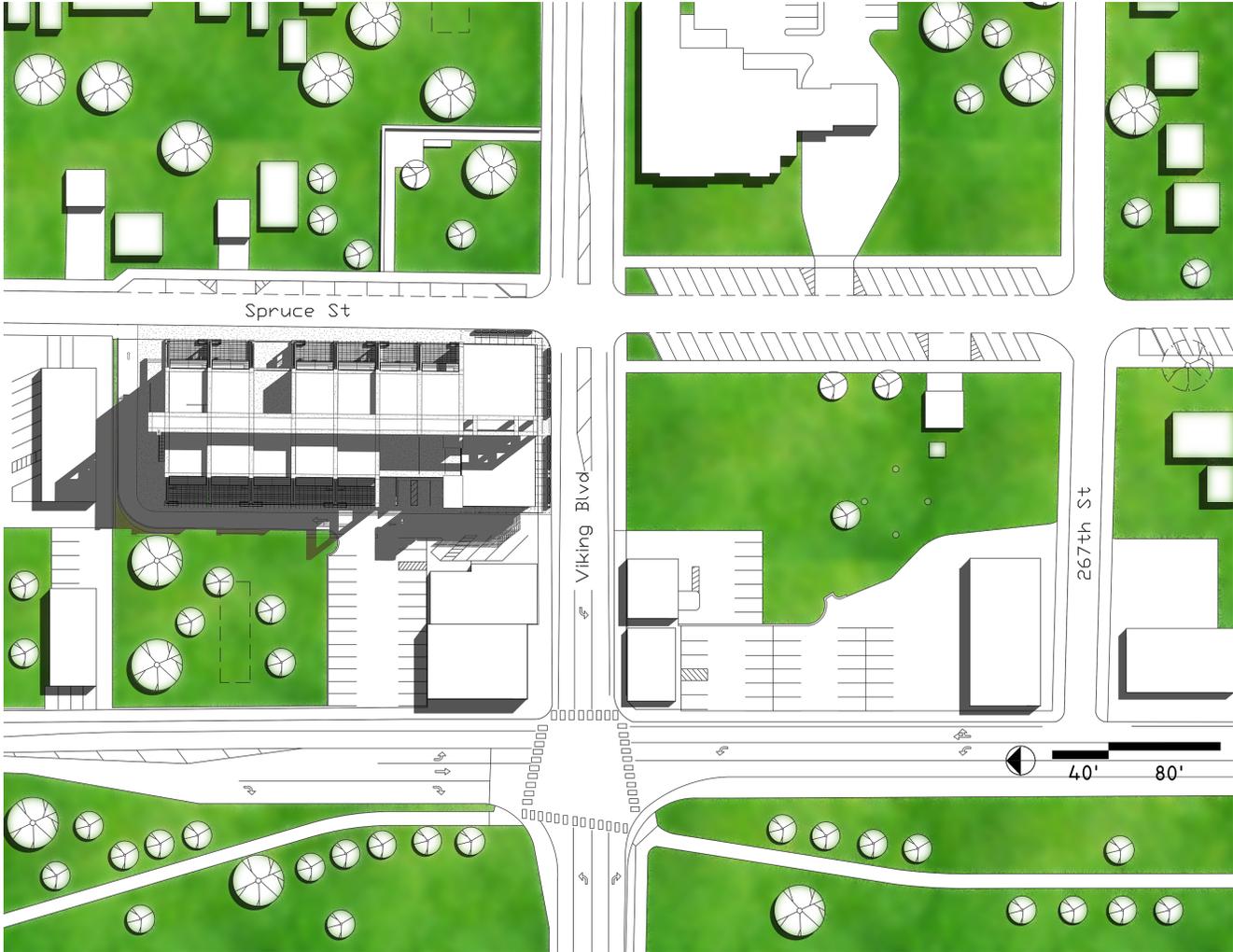




PROCESS WORK

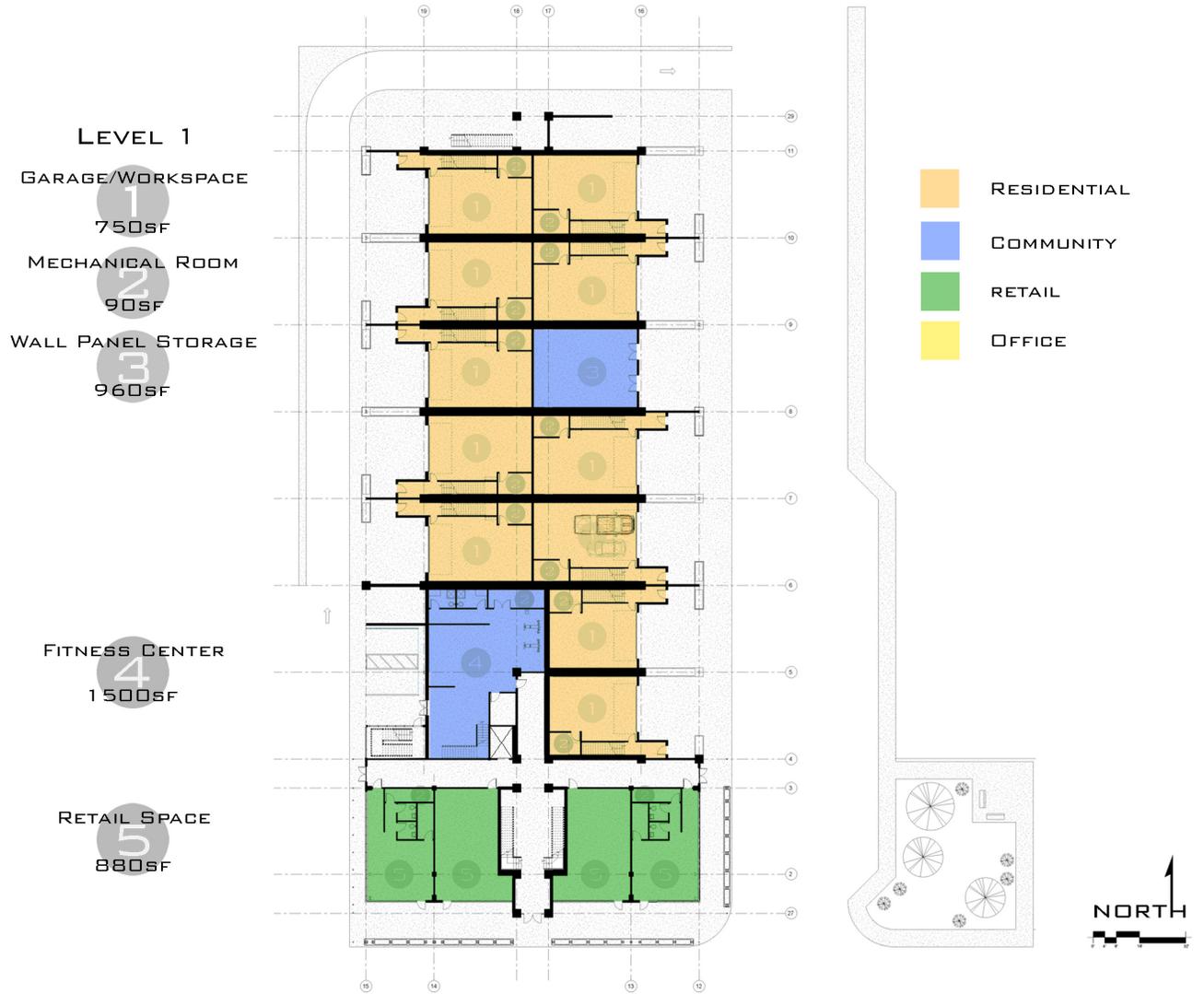


SITE PLAN

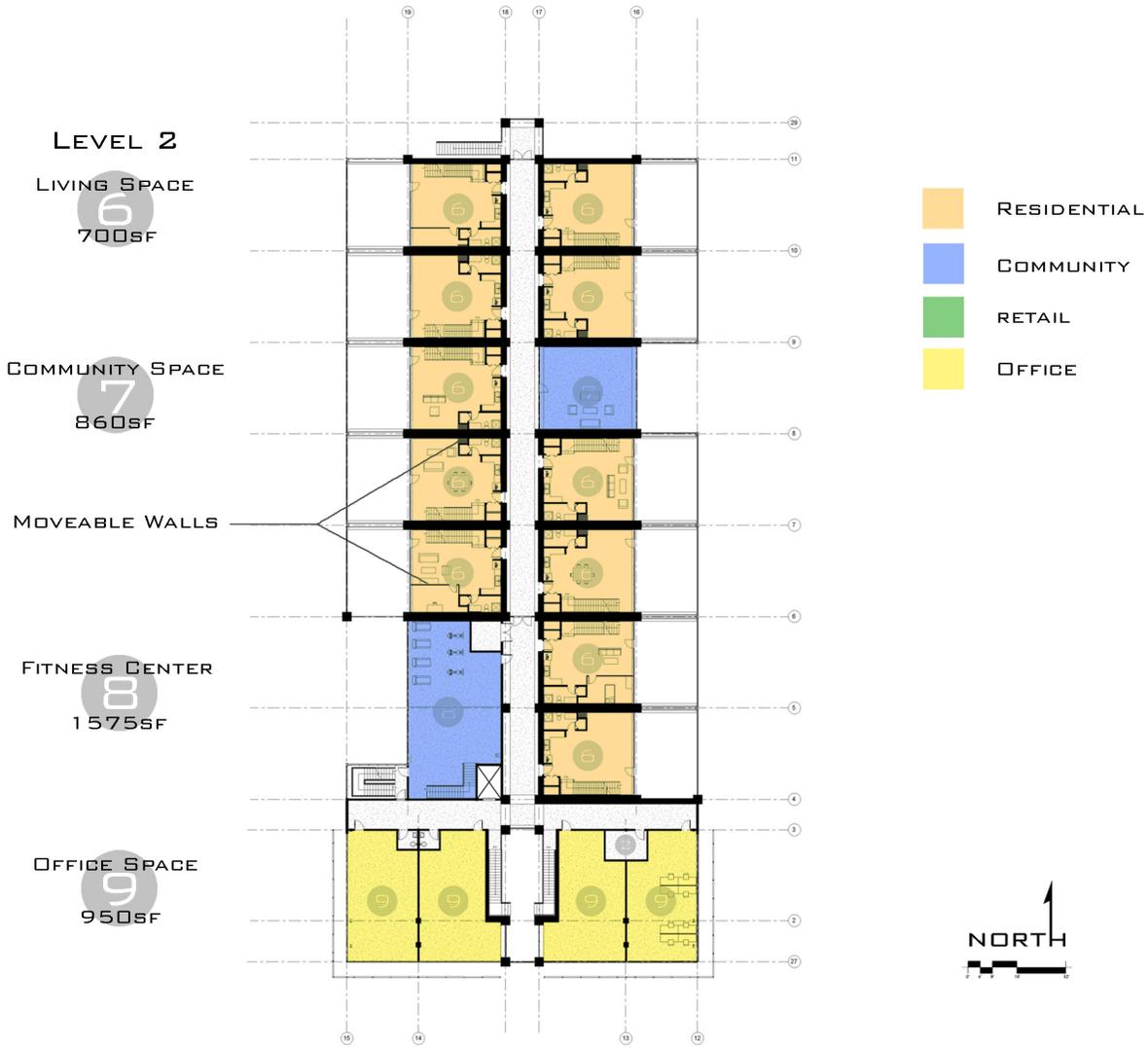




FLOOR PLANS



FLOOR PLANS

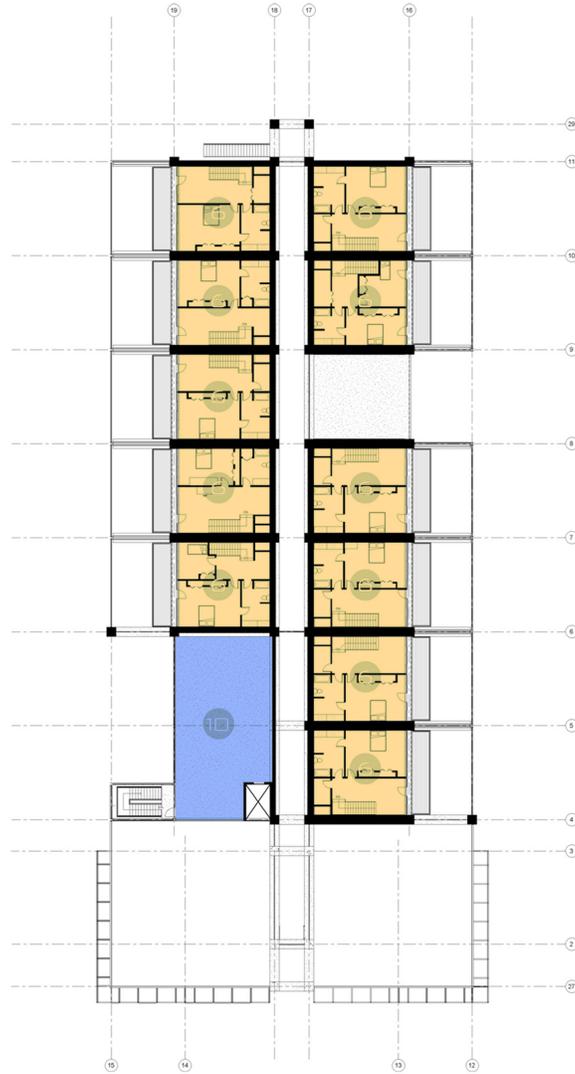




FLOOR PLANS

LEVEL 3
LIVING SPACE
6
700SF

GREEN ROOF
10
1700SF



- RESIDENTIAL
- COMMUNITY
- RETAIL
- OFFICE



ELEVATIONS



EAST



WEST



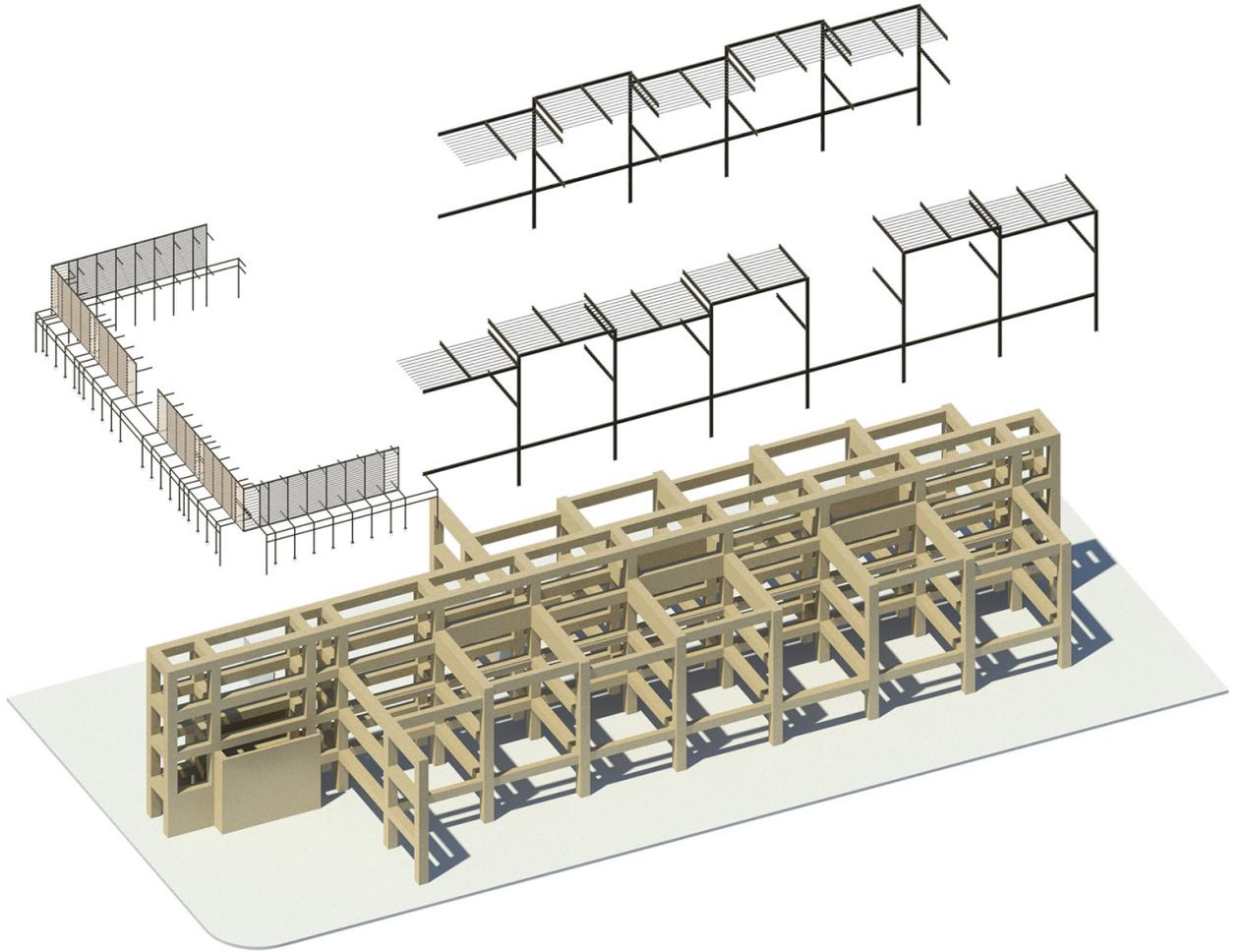
NORTH



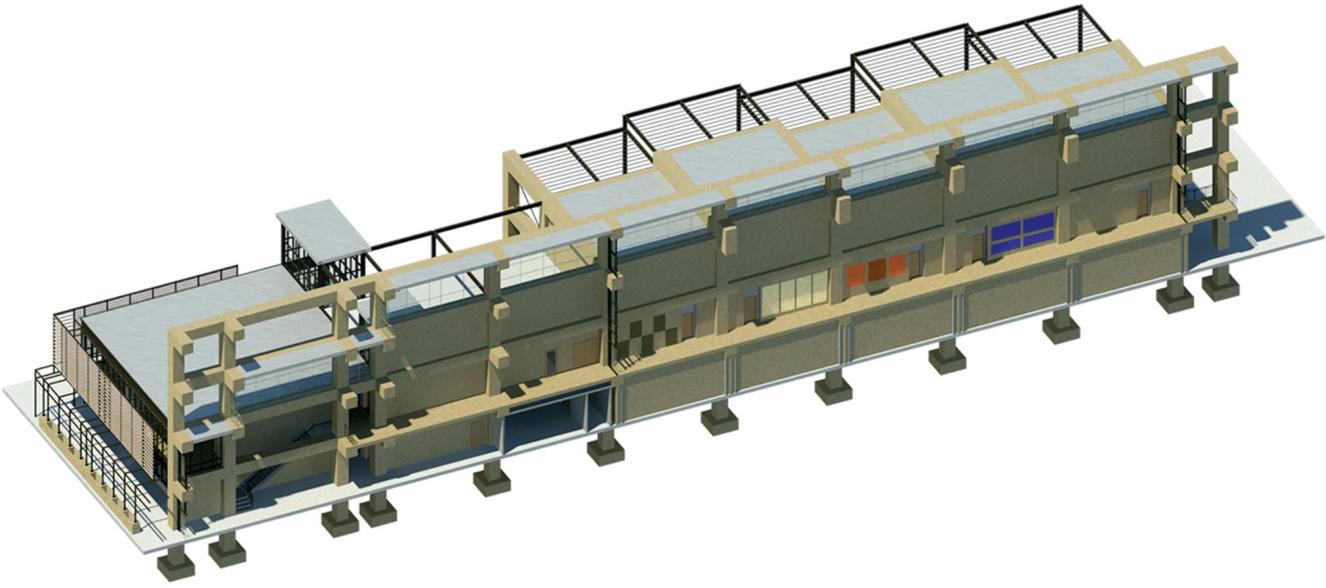
SOUTH



SHADING & CONCRETE STRUCTURE

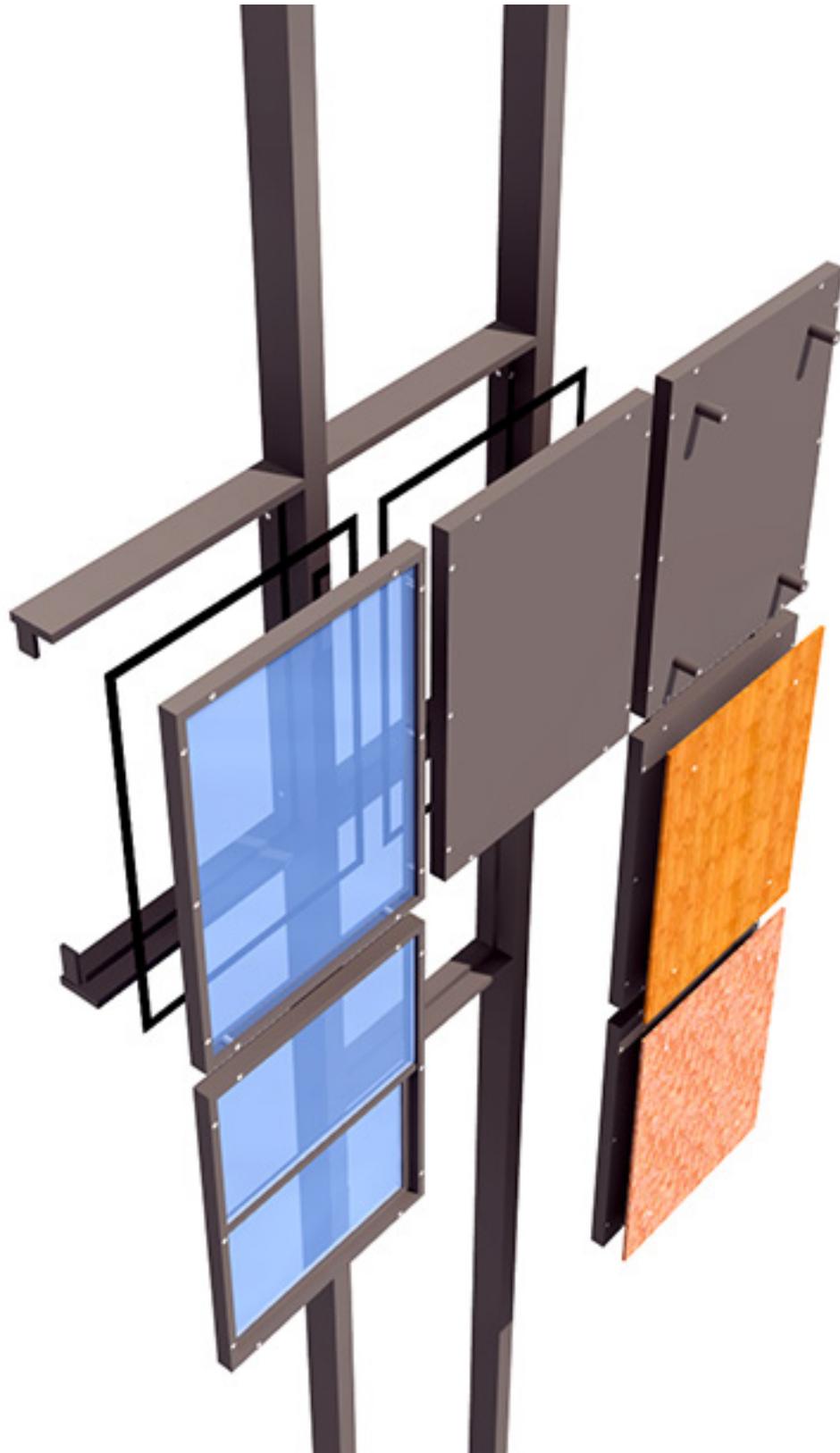


SECTIONS

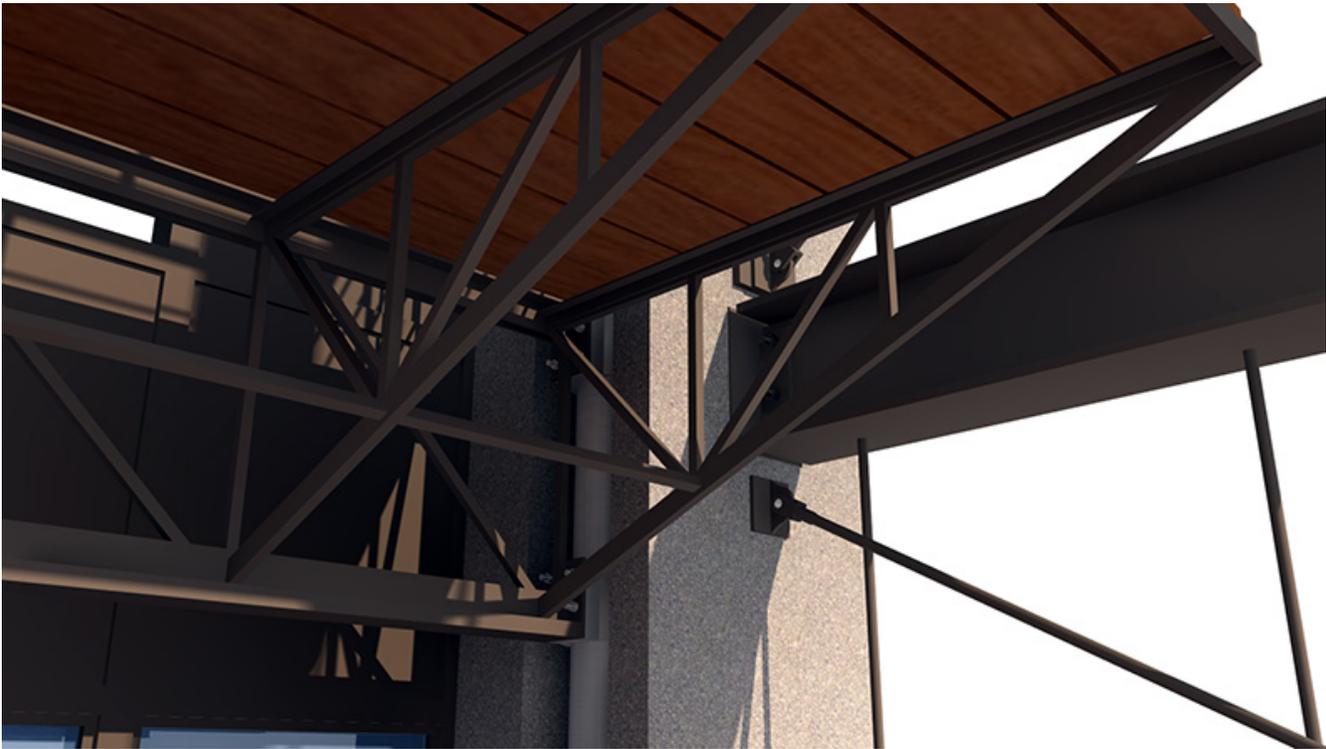




FACADE SYSTEM



MOVING BALCONY





RENDERINGS



GARAGE



OFFICE



CENTRAL CORRIDOR



OUTDOOR SPACE ABOVE FITNESS CENTER



RENDERINGS



EAST SIDE RESIDENTIAL



SOUTH SIDEWALK

RENDERINGS



FROM THE SOUTH



PRESENTATION BOARDS

URBAN INDIVIDUALITY

FOR URBAN HOUSING TO GROW IN POPULARITY, DENSE RESIDENTIAL COMPLEXES MUST ADAPT TO REFLECT THE INDIVIDUALS WITHIN THEM.

IN WYOMING, DIVERSITY IS A BOUNDING REALITY THAT HAS MADE IT A REPUTATION FOR BEING "THE GREAT PLAINS" METROPOLIS. WITH A HISTORY OF A DIVERSE AND VIBRANT COMMUNITY THAT SEEMS TO REFLECT NEARLY EVERY TYPE OF CULTURAL HERITAGE.

A PERSON'S ABILITY TO EXPLORE THEIR LIFE IS VITAL TO THEIR SENSE OF INDIVIDUALITY AND IS ESSENTIAL FOR A COMMUNITY TO THRIVE. DIVERSE HOUSING TYPES CAN SUPPORT THIS BY OFFERING DIFFERENT TYPES OF HOUSING THAT ARE ACCESSIBLE TO ALL.

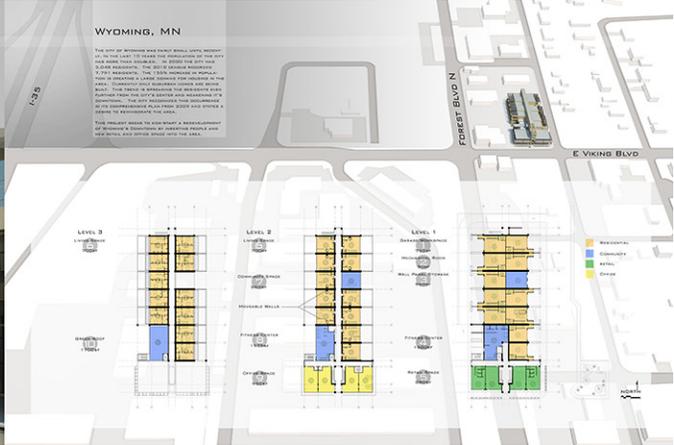
INDIVIDUALITY IS ESSENTIAL FOR HOUSING TO BE SUCCESSFUL AND ESSENTIAL FOR THE CITY TO THRIVE. HOUSING THAT IS DIVERSE AND ACCESSIBLE TO ALL IS THE ONLY WAY FOR A COMMUNITY TO THRIVE.



WYOMING, MN

The city of Wyoming and Forest Bluff, MN, is a vibrant and diverse community. The city is located in the heart of the Great Plains and is known for its rich history and culture. The city is a mix of urban and rural living, and it offers a wide range of housing options for its residents.

The city is a mix of urban and rural living, and it offers a wide range of housing options for its residents. The city is a mix of urban and rural living, and it offers a wide range of housing options for its residents.

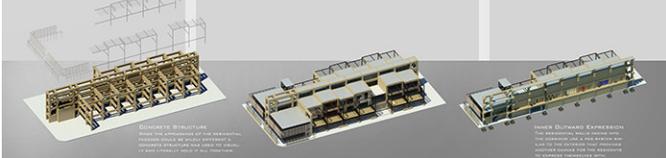


PATHWAYS



The exterior facade of the building is a mix of materials, including brick, stone, and metal. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.

The exterior facade of the building is a mix of materials, including brick, stone, and metal. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.



The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.

The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.

EXPRESSION



The exterior facade of the building is a mix of materials, including brick, stone, and metal. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.

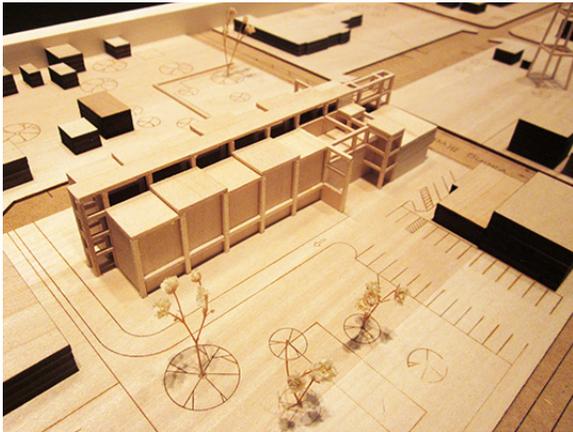
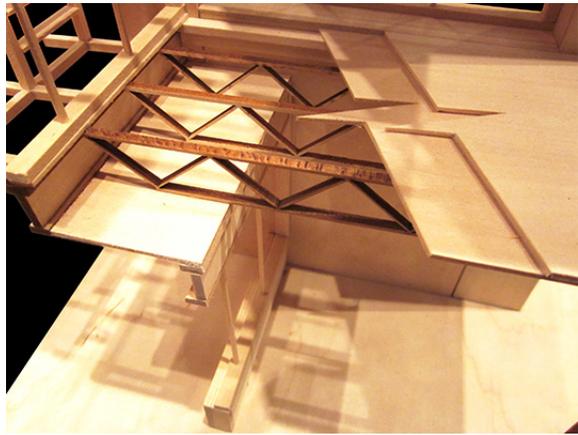
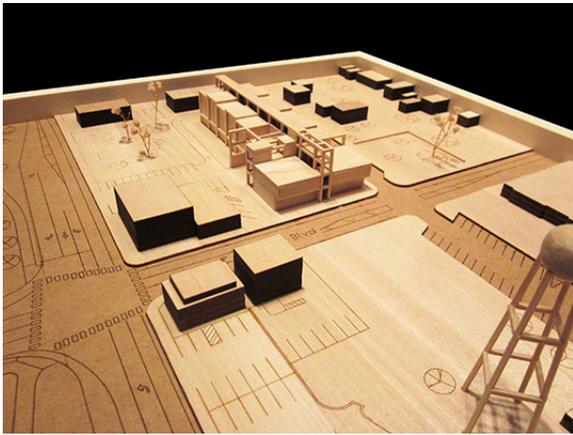
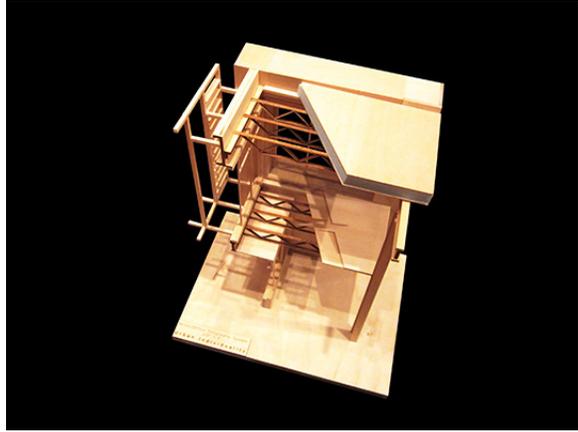
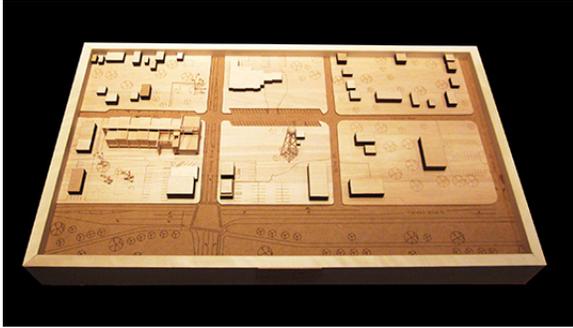
The exterior facade of the building is a mix of materials, including brick, stone, and metal. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.

RESIDENTIAL UNIT SECTION

The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.

The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents. The building is designed to be a mix of urban and rural living, and it offers a wide range of housing options for its residents.

MODEL PHOTOS





INSTALLATION



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PERSONAL IDENTIFICATION



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“I still don’t fully understand the difference between bison and buffalo but I do know that I am a Bison.”

Hometown: Roseau, MN

