

# THE NATURE OF HAPPINESS

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FINDING HAPPINESS THROUGH ARCHITECTURE AND DESIGN

A design thesis submitted to  
the Department of Architecture  
and Landscape Architecture of  
North Dakota State University.

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In partial fulfillment of the  
requirements for the Degree of  
Master of Architecture.

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## PREFACE:

Finding happiness has been a personal journey of mine for the past few years and one that I have just recently found to be a fruitless endeavor. This is not to say that happiness cannot be obtained, but rather that it is not a constant state of being nor should it be. Knowing happiness without sorrow goes against the idea of yin and yang. Balance is only achieved through the existence of both yin and yang. Happiness is a moment, a moment that should be enjoyed and cherished.

*[ Now and then it's good to pause in our pursuit of happiness & just be happy. ]*

- Guillaume Apollinaire

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## **ABSTRACT**

Designed as a 384,300 SF urban mixed-use community Node and placed in Minneapolis, MN this thesis attempts to show how architectural design may respond to the overwhelming pollution, poor quality of life and mass urban sprawl produced by today's urban environment? Nature has given us the basic building blocks to create more harmonious environments for ourselves. If we apply what we observe from nature into our own urban environments we have an opportunity to reduce urban sprawl, reduce stress on infrastructure, reduce overall pollution, and increase the quality of life for ourselves and our community.

## **KEY WORDS:**

Holistic, Community, Human scale, Happiness, and Quality of Life

## **PROBLEM STATEMENT**

How may architectural design increase  
the poor quality of life within today's  
rapidly growing urban environments?



# STATEMENT OF INTENT

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## **TYPOLogy**

Mixed-Use Community Node  
384,300 SF

## **CLAIM**

Redesigning the urban model of rapidly growing cities with an adaptable and replicable program will reduce pollution, reduce urban sprawl, reduce stress on infrastructure, and increase urban communities quality of life and happiness.

### **ACTOR:** *Community*

The current model of urban communities is failing and needs to be redesigned to increase the quality of life and overall happiness of the urban community. “There are many benefits of big-city living; high levels of happiness are not among them”

### **ACTION:** *Strategic placement of Mixed-Use Community Node*

Each Node development has the ability to adapt to its environment through the implementation of a flexible program. Utilizing existing amenities and infrastructure are key elements to the projects success and will create a basis from which to discover what program elements will take priority.

### **OBJECT ACTED UPON:** *Rapidly growing cities*

Over the next 50 years, 1.8 billion people will be added to the current urban community (*World Bank, 2013*) (*United Nations, 2013*). Rapidly growing cities inherently create issues such as pollution, urban sprawl, and stretched out infrastructure leading to a lower quality of life for the inhabitants of the city.

## **THEROTICAL PREMISE**

Redesigning rapidly-growing cities with a focus on human scaled communities will reduce pollution, reduce stress on infrastructure, reduce urban sprawl, and increase the overall quality of life and happiness within an urban environment.

## **PROJECT JUSTIFICATION**

We have a responsibility to each other and to future generations to maintain and preserve a quality life and level of happiness at least on par with our own. The rampant pollution, urban sprawl, and lack of happiness within urban environments is unacceptable. Reprogramming cities is essential to the preservation of our natural environments and to the global communities overall quality of life and happiness.

### **SITE:**

311 2nd Street South East  
Minneapolis, MN 55414



# THE PROPOSAL

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## RENDERING HAPPINESS

It is not my intention to render happiness in the form of architecture. Rather, to see if how we design our environments can effectively create moments where happiness may exist. One reoccurring idea behind happiness is community, which is where this project will find its metaphorical heart-beat. How can architectural design respond to the issues facing rapidly growing cities in such a way as to increase the quality of life and overall happiness of urban communities and their environments? One avenue is through reprogramming cities to act more like nature; where replication, adaptability, and environment become major players in harmonious design.

Before we can increase the quality of life and overall happiness of urban communities, we must first understand where the problems exist in urban environments.

Current urban growth exceeds what the city can accommodate, leading to a situation where urban sprawl, mass pollution, and decrepit infrastructure have become commonplace. The worst detrimental effect of these issues has been loss of community. Community relates to many aspects of life. Issues facing growing cities stem from a lack of community. By reprogramming urban environments to a model that is based around community, quality of life will increase and moments of happiness have an opportunity to exist.

So, how do we reprogram rapidly growing cities? The first step is to understand where the rapid growth stems from. In the United States immigration into the city is the major source of population increase; the actual birth rate is relatively stable.

## RENDERING HAPPINESS

In addition to increasing the population, new members correlate to new cultures and more diversity within a community. So now we have an added element of culture and language barriers. This however, is not an excuse for lack of community or reason for it. What rapid inflow of new population means is a need for a new urban program based on adaptable architecture.

When a new program is introduced into the urban fabric, what will make it work is its ability to adapt to its environment and be easily replicated. This is where nature comes into the equation, specifically plants and trees. A plant starts with a single seed. The seed carries within it a basic genetic code. The code is one that can be replicated over and over again in the form of buds which form flowers. The flowers are what could be called a node.

A community in this new design would be set up much like a plant's flower; where the community is setup with a basic program which is then used to setup a unique "Community Node" and replicated based on its environment. Each node's program has within it a basic elemental make-up where density is "combined with other strategies, such as connections to major centers, a high-quality local transportation network, a mix of land uses, and transit" (Jacobson, 2013). The last part of this new urban program is the replication process. After one node exists more nodes can then begin to replace parts of the urban context. Eventually creating a new urban environment placed at a human scale where community becomes the urban heart-beat breathing life into the city.

## RENDERING HAPPINESS

How do we make this concept a reality? Through the design and implementation of a single community node that will act as a precedent for others to follow. The node placement is just as important as its design. By using existing urban infrastructure and placing the node within close proximity to basic amenities and transportation, stress on infrastructure, pollution, and urban sprawl will all be reduced. All because of re-implementing community design and nature back into the urban environment; leading to an increased quality of life and overall happiness within the urban context.

## USER/CLIENT DESCRIPTION

In such a diverse community many different groups play a role in the projects success. In order to make this vision become reality, every member of the community will need to work together. Mutual benefit and incentives are the key to making this happen. Listed on the preceding page are the major users and clients and their respective roles within the urban com-

## OWNER OVERVIEW

### GOVERNMENT / TRANSPORTATION AGENCIES

In order to have sufficient access to the rest of the city government funded or aided public transportation, access to bus stops, post offices, and other governmental amenities will be a crucial element to the success and design of the new urban nodes. The issues facing this owner range from a diverse culture, to multiple language usages, low income users, high income users, and accessibility in terms of walking distance and ADA compliance.

### ENTREPRENEURS / DEVELOPERS / COMMUNITY MEMBERS

These individuals will own the residential and commercial spaces within the urban node. In addition, provided by the investor and company clients will be easy access to amenities such as clothing and food and also easy access to shelter in the form of dense housing spaces. Other responsibilities of this client typology will be catering to individuals of all kinds including the elderly, and poor.

## USER / CLIENT OVERVIEW

### COMMUNITY

The urban community will be a unique client/user. In addition to leasing apartments they will live, work, and play within and outside of the urban node. The community will be diverse in every aspect of the term. Access for all community members will be 24/7 allowing individuals who need to work night hours transportation. As per code each household will need a single parking space. The collective community will be diverse, ADA guidelines, and multiple language/cultural design ideas will need to be implemented.

## USER / CLIENT BREAKDOWN

### FACILITY EMPLOYEES

Faculty: Receptionists / Maintenance Staff / Fitness Trainers / Teachers / On-site Security / General Staff

Administrators: Facility Managers / Maintenance Director

### RESIDENTIAL USERS

Apartments: College Students / Families / General Users

Condominiums: College Students / Families / General Owners

### NON-RESIDENTIAL USERS

Community Members: Bikers / General Site Visitors / Residential Guests

### COMMERCIAL USERS

Owners: Retail / Offices

Faculty: General Employees

## TIME OF USAGE BREAKDOWN

TYPICAL USAGE        MINIMAL USAGE    



## MAJOR PROJECT ELEMENTS

### OVERVIEW

Each major project element relates to the site adaptable program theory. That is to say, each elements overall percentage of the program is based on what already exists on and around the site in question. Other project aspects are also sensitive to cultural and climatic aspects.

### RESIDENTIAL

The vast majority of the community node will be High density Housing

### COMMERCIAL SPACE

The area around the site will generate much of the commercial need for the site so minimal new commercial will be required.

### WELLNESS CENTER

The wellness center acts as a community catalyst. The design intent is wholistic wellness; encompasses the mind, body, and spirit. A space where groups or individuals are free to pursue personal and community goals.

### GREEN SPACES

Green space within the urban environment allows for exercise, recreation, and leisure for the urban community. Another benefit of such spaces, is the benefit of CO<sub>2</sub> reduction and an increase in urban beauty.

### CIRCULATION

Site permeability is vital to the integration of the project into the existing urban environment.

## **COMPONENTS OF MAJOR PROJECT ELEMENTS**

### **RESIDENTIAL**

Apartments / Condominiums

### **WELLNESS CENTER**

Fitness Space / Workshops / Studios  
Spiritual Space / Day Care Space /  
Classrooms / Lounge & Media Space  
/ Locker Rooms / Reception Space  
Multi-purpose Gym/ Meditation  
room

### **GREEN SPACE**

Courtyard / Pocket Park / Terraces /  
Private and Public Gardens / General  
Green Spaces

### **COMMERCIAL SPACE**

Cafe / bar

### **CIRCULATION**

Bike Storage / Bus Stops / Pedestrian /  
Vehicle

## SITE INFORMATION

● MINNESOTA, USA





HENNEPIN COUNTY, MN

## SITE INFORMATION

### Site Location:

North Boundary: University Ave. SE  
South Boundary: SE 2nd Street  
West Boundary: SE 2nd Avenue  
East Boundary: 5th Avenue SE

### Importance of the Location:

Key aspects in the choice of this site include the following:

- ✓ Close Proximity to existing public transit.
- ✓ Close Proximity to existing shopping areas and community spaces such as bars and parks.
- ✓ The location is within the existing urban infrastructure
- ✓ The location is near a major University campus.

### Importance of Site Model/issues:

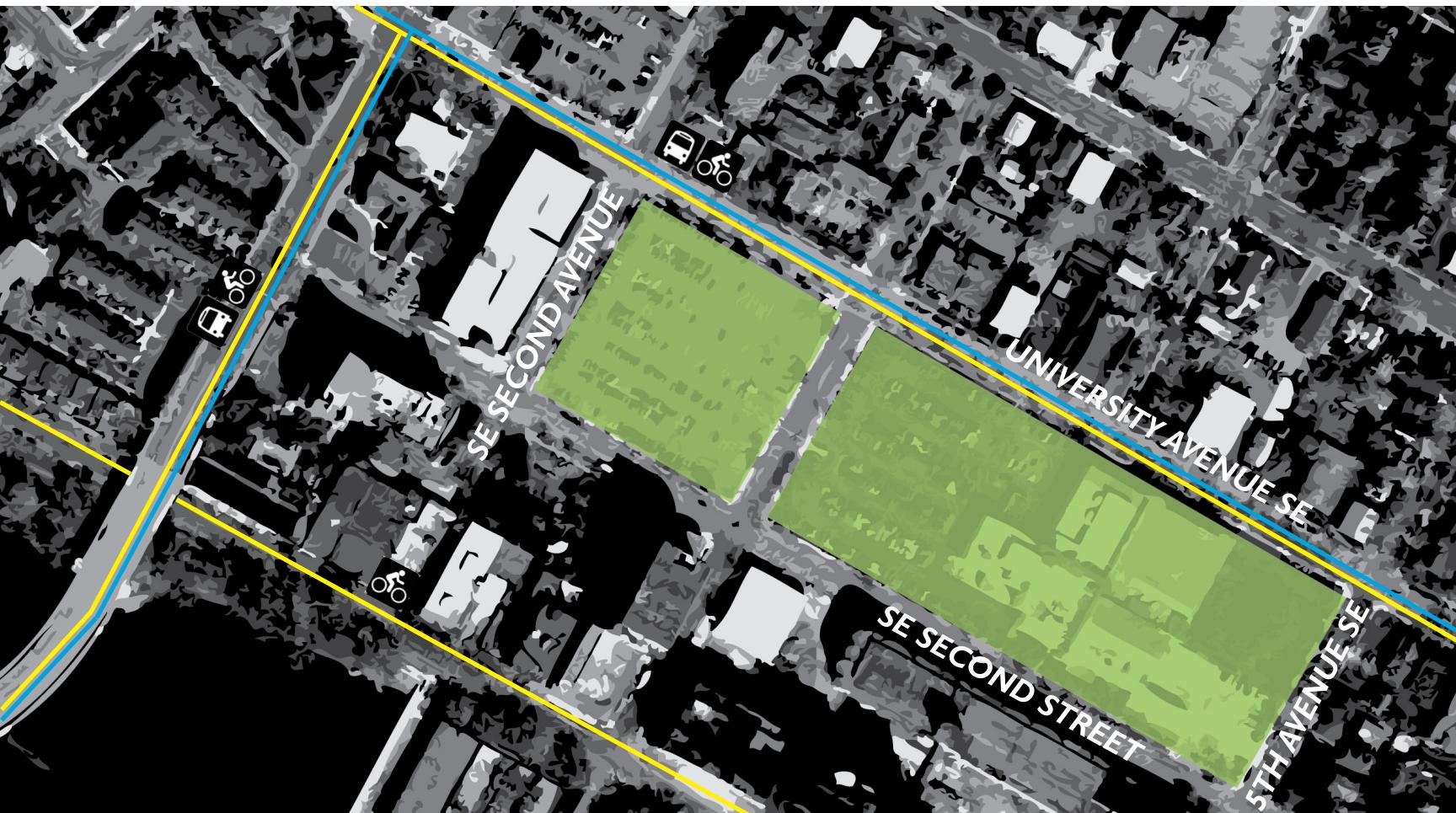
This location with its, high density, good diversity, high traffic flow, and poor community design make this an ideal location for the site. The fact that the location sits on an existing parking lot means that demolition and preservation of existing site conditions will be less of an issue in the pursuit for a harmonious design solution.

### Major Landmarks:

Stone Arch Bridge

### Views:

Southeast views of the Mississippi River and the Stone Arch Bridge are spectacular. As for other view directions. Parks and green space are sporadic, but still create some beauty. The worst views are to the west where a tall parking structure blocks many



## **PROJECT EMPHASIS**

**Increasing the quality of life and creating moments of happiness is the ultimate project outcome.**

We all have a desire to be happy, but in today's urban environments lack of human scale has led to lack of human interaction and community. We only have so much time in our lives to experience life to its full potential. The joy of life should not be dismantled by feelings of loneliness and depression. Community creates situations where individuals can live, learn and laugh together. The great thing about reprogramming the urban environment to be centered around communities that it solves other major issues facing urban environments. By creating communities; urban sprawl is reduced, pollution is reduced, and stress on infrastructure is reduced. The reason for this is because mixed-use communities need to travel less, live closer together, and use already existing infrastructure.

## **PLAN FOR PROCEEDING**

### **DEFINITION OF RESEARCH DIRECTION:**

Research will be conducted in the Theoretical Premise/Unifying Idea, Project Typology, Historical Context, Site Analysis, and Programming Requirements.

### **DESIGN METHODOLOGY PLAN:**

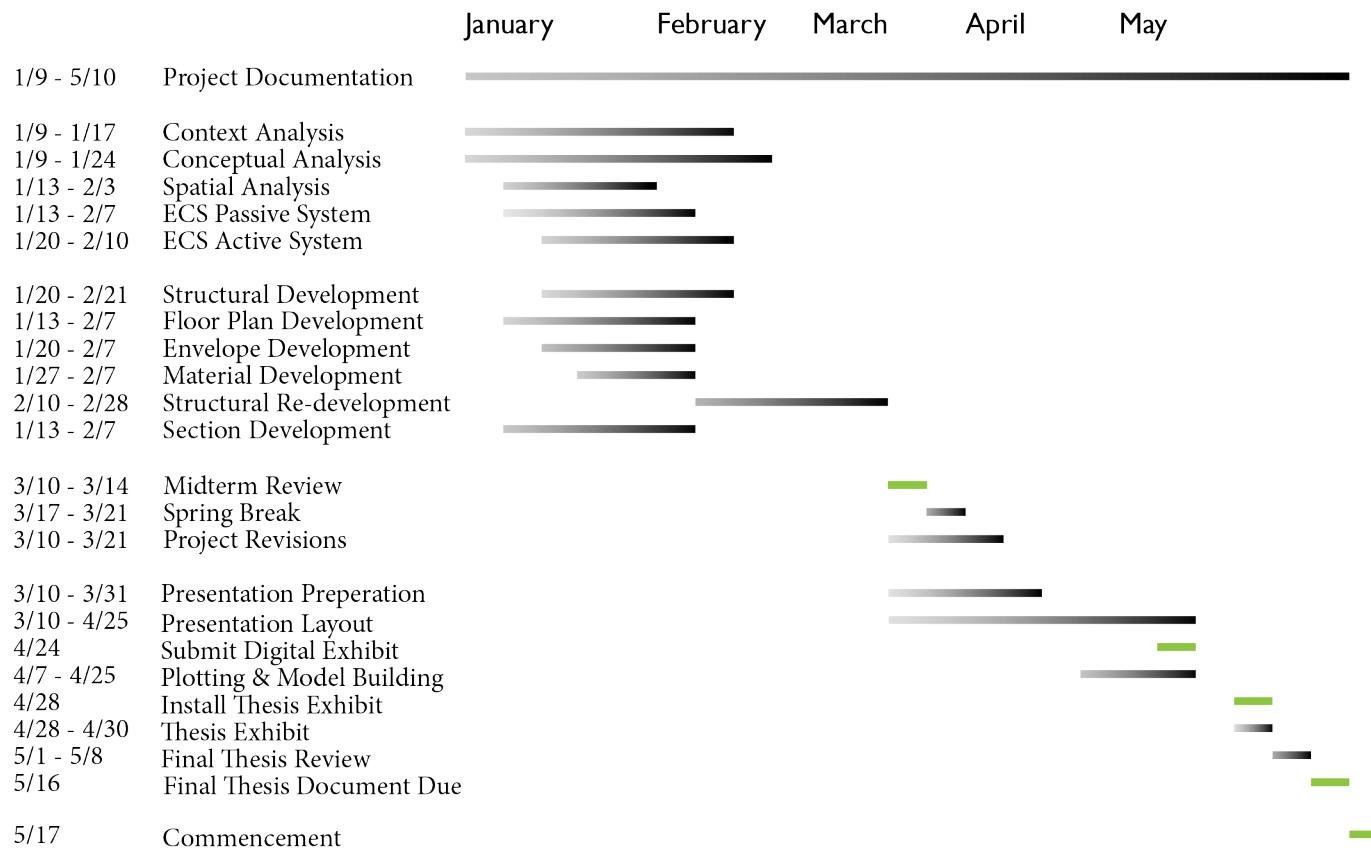
The following design methodologies will be utilized throughout the course of this thesis project: mixed method quantitative/qualitative analysis, graphic analysis, digital analysis, and interviews with urban residents

### **DESIGN PROCESS DOCUMENTATION PLAN:**

This thesis will document and preserve the design process in a concurrent manner through the following methods: hand sketches, writing, digital reproduction, digital representation

This will be made available to scholars in the North Dakota State University Libraries digital collection in the Architecture thesis institutional repository. It shall be prepared for dates approved by the department. The intended schedule for the spring semester's design project is presented in the graphic on the following page.

## PLAN FOR PROCEEDING



## PREVIOUS DESIGN STUDIO EXPERIENCE:

### **2010 - 2011**

Arch 271 / Architectural Design I / Darryl Booker, Associate Professor of Architecture  
*Tea House, Boat House*

Arch 272 / Architectural Design II / Cindy Urness, Associate Professor of Architecture  
*Dwelling, Montessori School, Bird House*

### **2011 - 2012**

Arch 371 / Architectural Design III / Steve Martins, Associate Professor of Architecture  
*Animal Research Facility, Free Mason's Guild Hall*

Arch 372 / Architectural Design IV / Mike Christenson, Associate Professor of Architecture  
*NDSU Research Facility*

### **2012 - 2013**

Arch 471 / Architectural Design V / Don Faulkner / Professor of Architecture  
*High Rise*

Arch 722 / Urbanism / Paul Gleye, Professor of Architecture  
*Eilandje Park Urban Redevelopment*

### **2013 - 2014**

Arch 771 / Advanced Architectural Design / Mark Barnhouse, Associate Professor of Architecture  
*Water Resource Experimentation Station*



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# THE PROGRAM

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# THE PURSUIT OF HAPPINESS

## INTRODUCTION

In order to solve the major issues facing rapidly growing cities we must first understand where those problems stem from. Research in the fields of Social Science, Philosophy, & Architectural Theory are the main areas of focus. **The research primarily places emphasis on the ties between community and urban environments.** Emphasis is placed on ties between community and the components that make up community. Major components researched are; overall health, environment, happiness, and gross domestic product. The research outcome shows how redeveloping urban environments with an emphasis on community will lead to lower pollution, less stress on infrastructure, increased quality of life, and increased happiness within the urban environment.



## RESEARCH FINDINGS

### COMMUNITY & MENTAL HEALTH

Communities offer us an interesting opportunity to connect with each other and create support networks. What has recently been found is that “*The degree of integration into a social network may also directly produce positive psychological states, including a sense of purpose, belonging, and security, as well as recognition of self-worth*” (Kawachi & Berkman as cited in Berkman & Glass, 2000). However, the type interactions we have are also important. As our interactions move further and further to a technology- based network one would think loneliness would decrease, the reality is actually the inverse. According to a 2011 survey done by Relationships Australia, “*The proportion of respondents indicating they felt lonely increased as the number of methods of technology used increased*”

(Relationships Australia, 2011). Sadly, these findings are not out of the ordinary. Sherry Turkle, author of the book, *Alone Together*, states in an article done by The Guardian that “[the] online you becomes the self you want to be” But, the down side [is] we lose the “raw human part” of being together” (de Lange, 2013).

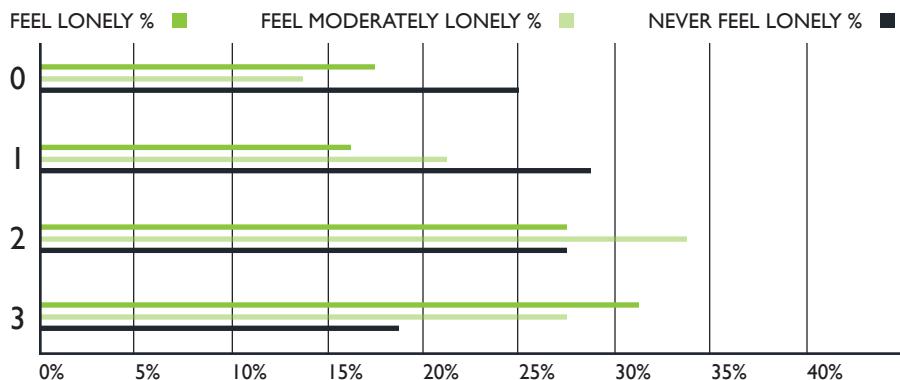
Besides reducing loneliness, communities give us the opportunity to learn from each other and create a knowledge base that we would otherwise be unable to ascertain. Child development is a great example of why community education is so important. “*We have evolved a special and very powerful form of learning. That special form of learning is “imitation,” the ability to learn behavior from observing the actions of others*” (Meltzoff, 1999).

## RESEARCH FINDINGS

### COMMUNITY & MENTAL HEALTH

Meltzoff's research shows how the imitation of others is very important to the development of infants, but what it also suggests is that imitation is also important in the adult world. The importance of education to mental health is giving individuals the ability to not only survive in the world, but thrive in it. Through community education we attain the ability to lift each other up. This is becoming more and more important as higher educated workers are required for today's jobs. According to a 2010 report by the Federal Reserve Bank of Boston, "The structure of the U.S. economy has changed dramatically over the past few decades, leading to an increase in the demand for more highly educated workers" (Modestino, 2010). Besides mental health, communities have ties to physi-

### PROFILE OF LONELINESS - BY TECHNOLOGY USAGE



## RESEARCH FINDINGS

### COMMUNITY & PHYSICAL HEALTH

In the pursuit of overall happiness physical health plays a bigger role than we may think. Exercise, nutrition, and human interaction are key elements in an individual's overall happiness and well-being. The connection between community design and physical health is also a lot more important than we may believe. According to the *American Journal of Preventative Medicine*:

*Each additional hour spent in a car per day was associated with a 6% increase in the likelihood of obesity. Conversely, each additional kilometer walked per day was associated with a 4.8% reduction in the likelihood of obesity (Frank, Andresen & Schmid, 2004).*

This type of information makes a good case for walkable cities and the importance of the human scale in design.

Reinforced by the statistic that “55% of Americans would like to walk more than they do” according to the book, *Creating Walkable Places* (Schmitz & Scully, 2006). However, just reducing city scale is not enough to create good physical health. Social networks are very important as well.

“Social support is one of the most well documented psycho-social factors influencing physical health outcomes” (Uchino, 2009).

A statement that does not stand alone as the online journal, *Science*, states that “more socially isolated or less socially integrated individuals are less healthy, psychologically, and physically” (House, Landis & Umberson, 1988).

## RESEARCH FINDINGS

### COMMUNITY & ENVIRONMENTAL HEALTH

When we think of health, the environment may not seem important, but it plays a crucial role in our overall health and happiness. Poorly-integrated rapidly-growing cities built into the natural landscape generate high levels of pollution, extensive urban sprawl, and poor infrastructure. Out of these three city issues, pollution, and more specifically, air pollution is one of the largest issues facing growing cities. According to the online journal, *The Lancet*; “Exposure to pollutants such as airborne particulate matter and ozone has been associated with increases in mortality and hospital admissions due to respiratory and cardiovascular disease” (Brunekreef & Holgate, 2002). Brunekreef’s research is made relevant today by an air pollution alert by the city of Minneapolis, MN.

The alert stated; “*high temperatures and low winds caused pollution to accumulate and form ozone that was rising toward unhealthy levels*” (Meersman, 2013). Going further to state the causes were “*between pollutants released from motor vehicles and other activities that involve fuel burning*” (Meersman, 2013). This warning goes hand in hand with an MPR News article that found “*sources such as power plants and factories contribute 14% of the state’s toxic air pollution. Two-thirds of the toxic chemicals come from the tailpipes of automobiles, ATVs and boats*” (Hemphill, 2011). Interestingly, if we address the issue of air pollution we are also addressing urban sprawl and infrastructure as well.

## RESEARCH FINDINGS

### COMMUNITY & QUALITY OF LIFE

The ties between the idea of community, mental health, and physical health, all lead to an understanding of how design may influence a communities or an individual's quality of life and give opportunity to moments of happiness. Human interaction is an important factor in community design and also in a community member's quality of life; "*being around people makes us feel happier, and when we are happier we are more fun to be around, creating an upward spiral of happiness*" (PBS, 2011). Communities give us the opportunity to make connections with one another; unfortunately the modern city design has chosen segregation over integration; allowing "*the automobile to shape the environment, and everyone's lives, neglects the civic and social infrastructure that supports community*" (Schmitz & Scully, 2006).

So reintroducing human scale into city planning and design is important to increasing quality of life in urban environments. However, bringing back the element of human scale is not just about increasing happiness through interaction, but through movement. A national study conducted in 2003 analyzed 448 counties and "found that the residents of the most sprawling county in the country weighed an average of six pounds more than the residents of the most compact" (Schmitz & Scully, 2006). Creating cities at a human scale requires taking the amenities such as; shopping districts, workplaces, schools, recreational areas, and cultural centers that are today spread far away from each other and placing them within walking distance of one another. This idea of mixed-use design is backed by an article done in 2003 by

## RESEARCH FINDINGS

### COMMUNITY & QUALITY OF LIFE

*The American Journal of Public Health* concluding that; “Walkable, mixed-use neighborhood designs can encourage the development of social capital” (Leyden, 2003). This social capital includes knowing your neighbors, political participation, trusting others more, and becoming socially engaged.

### COMMUNITY & GDP

In addition to physical and mental health a cities or communities economic health is also important. “Gross domestic product (GDP) is one of the primary indicators used to gauge the health of a country’s economy” (Investopedia, 2009). When the GDP of a city or community is high so is the city or community standard of living; shown through lower unemployment rates, higher education, and lower birth rates. The correlation is best

shown between the developing world and the developed world or good versus poor GDP. According to a 2013 report on GDP, the United States has the highest GDP in the world in comparison to Guam which does not even make the chart (World Bank, 2013). The correlation comes into play when economic reports like one done in 2009 show that “Fertility starts to drop at an annual income per person of \$1,000-2,000 and falls until it hits the replacement level at an income per head of \$4,000-\$10,000 a year” (The Economist, 2009). This same 2009 report also conducted a demographic experiment where,

## RESEARCH FINDINGS

### COMMUNITY & GDP

*some villages and households got family planning, others did not. According to one study of the results, fertility in the areas that received help declined by around 15% more than in those that did not. And over the two decades of the experiment, indicators of the well-being of women and their children—health, earnings, household assets and so on—were all higher in the villages that got the planning (The Economist, 2009)*

This type of planning relates to education and education costs money; gross domestic product is a measure of economic health and therefore how much money a city or community has is directly connected to its birth rates and its overall standards of living.

## RESEARCH SUMMARY

### INTRODUCTION

Modern city design has praised the automobile. Personal vehicles give there users an awesome sense of freedom, but it has also become our metaphorical ball and chain. Yes the modern city has made it so we can just hop in our car and go wherever we please, but that is the essence of the problem. Modern design does not allow the user to just walk out from their dwelling and within a short period of time arrive at a destination of interest like a shopping center or grocery store. Many of the major issues facing rapidly growing cities such as: pollution, stretched out infrastructure, urban sprawl, and a poor quality of life stem from the lack of human scaled urban

### RESEARCH OUTLINE

The Theoretical Premise research is an analysis of how the current urban model stands and what the benefits of a human scaled community are. Community has ties to; mental health, physical health, environmental, health, economic health, and the quality of one's life. By emphasizing the connections between human scaled communities the research sheds light on how current city design for rapidly-growing cities is failing its inhabitants and how a new model is needed if cities are to continue to grow and exist.

## RESEARCH SUMMARY

### CONCLUSION

The premise of this project states that human scaled community design has the ability to address the issues facing rapidly-growing cities. By researching aspects pertaining to healthy and holistic community design, connections are now able to be made that show how human scaled communities may impact the current modern city in a positive manner. The human scaled community does a few key things; emphasizes reduces vehicle dependence, reduces urban sprawl, reduces the stress on infrastructure, and increases quality of life and overall happiness. However, these findings and this new model of city design is not in itself a solution to the cities problems or to the question of what creates happiness but, rather a step in the right direction. The findings act as a path or a guideline for what could be stated as



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# CASE STUDIES

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## CASE STUDY I

### RIVERSIDE PLAZA

1600 South 6<sup>th</sup> Street Minneapolis, MN

Ralph Rapson Architects

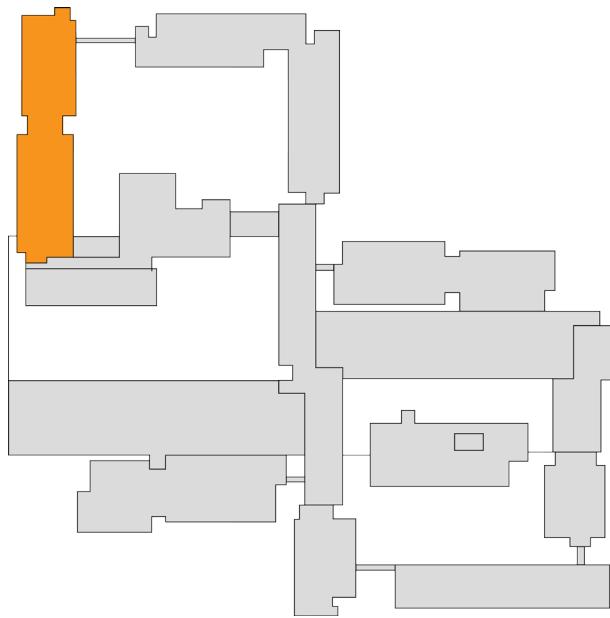
#### INTRODUCTION

Constructed between 1971 and 1973. The architect, Ralph Rapson modeled the project as a Modernist / Brutalism design based on Le Corbusier's Unite d'Habitation, most prevalent in the use of colorful exterior panels. The project is a high-density mixed-housing initiative with funding from the government. Riverside Plaza encompasses 1,225,000 square feet over 11 buildings, 6 of which are high-rise apartments. Between the 6 apartments 1,303 units exist, housing over 4,000 residents. The original idea was to create a utopian housing design encompassing 4 neighborhoods and housing 30,000 people.

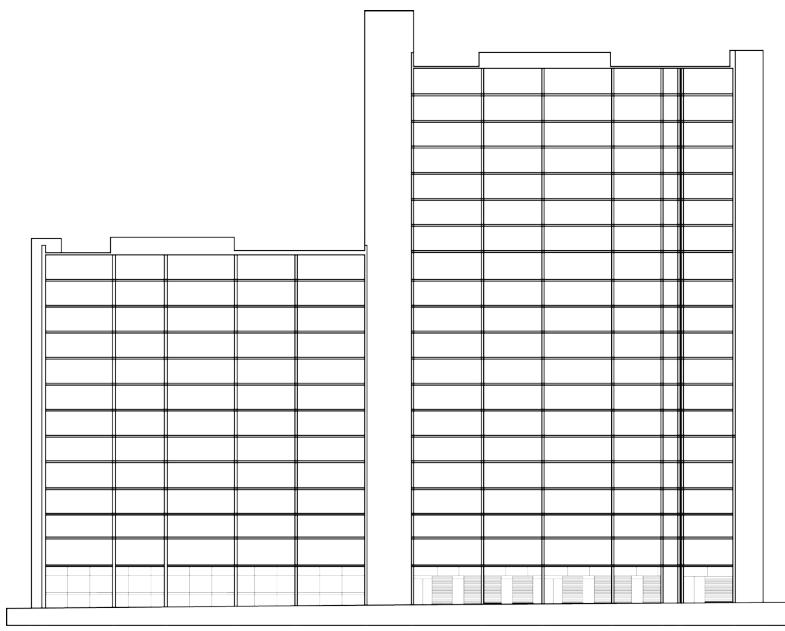
What distinguishes riverside as a design is its reliance on concrete as a building material in an effort to create affordable housing for poor incoming immigrants. Riverside's design has a commitment to community which stands out in the program elements, including; a K-8 Charter school, a small grocery store, and a tenant resource center dedicated to helping adults move into the job market (Riverside, 2011).



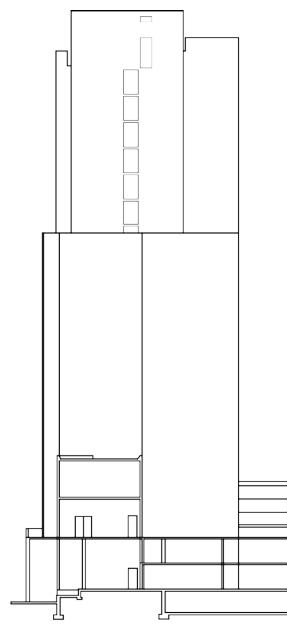
cedar square west



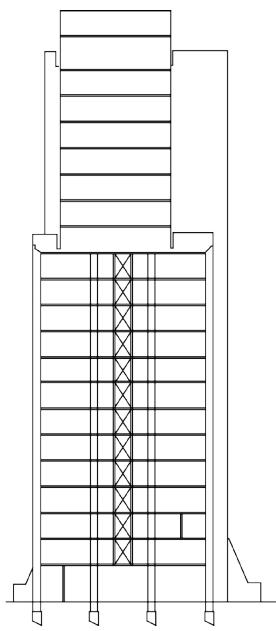
*Site Plan*



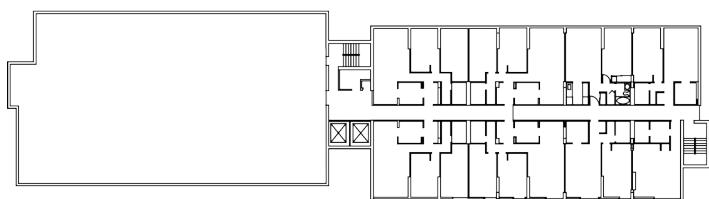
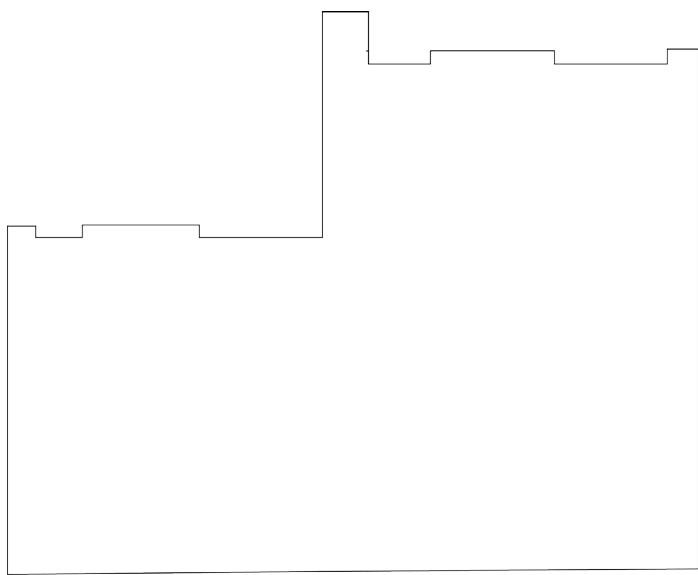
*West Elevation*



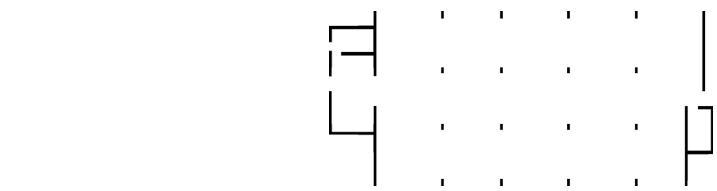
*South Elevation*



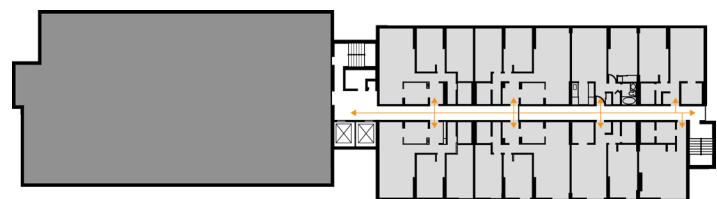
*South Section*



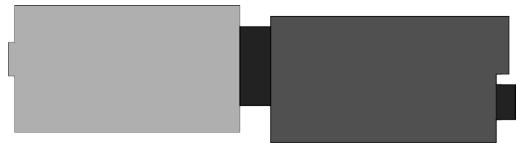
*Plan to Section*



*Structure*



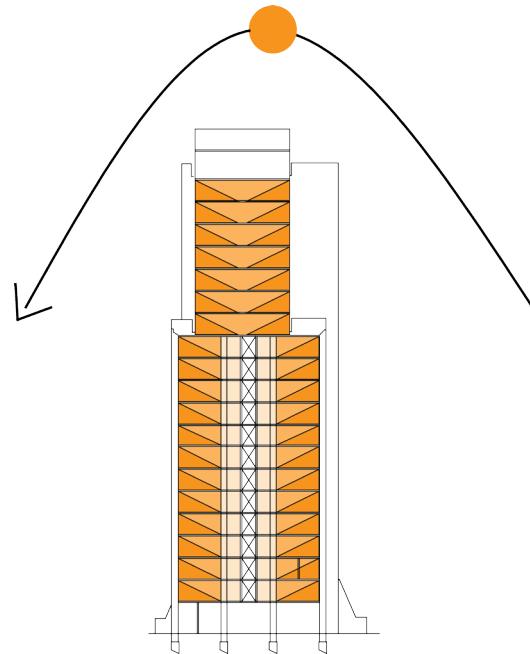
*Circulation to Use*



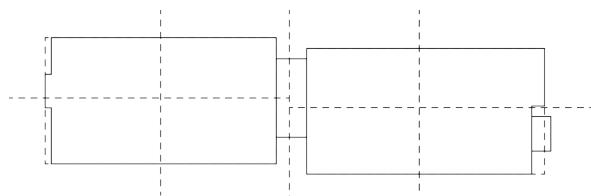
*Hierarchy of Spaces*



*Massing*



*Natural Light*



*Geometry*

## RESEARCH FINDINGS

The trends between the Riverside and the other two case studies; Lakewood and Le Terrazze, is its focus on public needs and multi-functional program. What stands out about Riverside from the other two case studies is a focus on low income users. The program focuses on creating affordable housing and helping individuals move into the job market. These ideas can be seen in the use of concrete as a major building material and the incorporation of program elements such as a school and adult education center. Riverside's response to the environment is inadequate for a design of such magnitude. Although it does incorporate some green spaces, the overall design with its emphasis on concrete has no attention to any site conditions that would make it a site specific project. Socially and culturally the project makes sense as the design allows for its target market of low income inhabitants to

prosper. The design however, does not adequately fit the needs of its inhabitants as the site is disconnected from the majority of the city. Other than a single bus line, Riverside is an island unto itself. The culture of Riverside could also be better, seeing as the vast population consists of immigrants, a cultural center or spiritual center, or a community space does not exist and therefore does not allow for community interaction. Also the aesthetic appeal of the design is less than desirable as the buildings have not been properly maintained over the course of its 35 year existence. Many aspects of the Riverside Plaza were never completed leaving much to be desired and leading to many short comings in creating the truly utopian community design that Rapson had in mind. The importance of Riverside as a case study however, is that it shows the extents of what can be done and where issues may arise

## **RESEARCH FINDINGS**

undertaking. The ultimate goal of a utopian design is a nice idea on paper, but the real feasibility of the program may be too much without extravagant funding and constant maintenance.

## **CONCLUSION**

Riverside Plaza's contribution to the Theoretical Premise is one of scale and site. We now know that trying to do too much within a single program will lead to problems in overall completion and design. So although the Theoretical premise does not change the design of the program, it will reflect findings from Riverside Plaza in terms of overall scale and location.

## CASE STUDY 11

Le Terrazze

Carità Villorba-Treviso, Italy

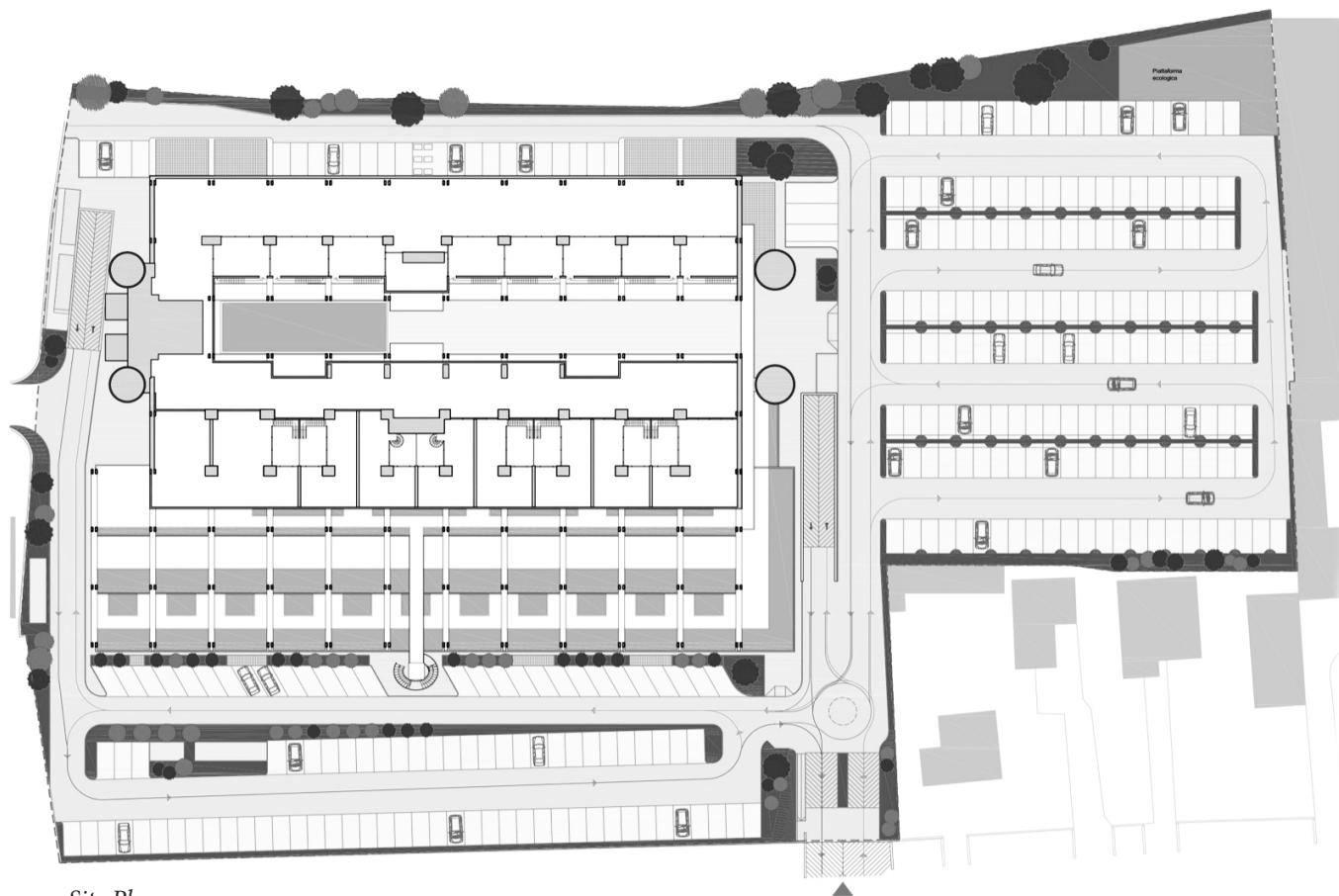
Studio Marco Piva

### INTRODUCTION

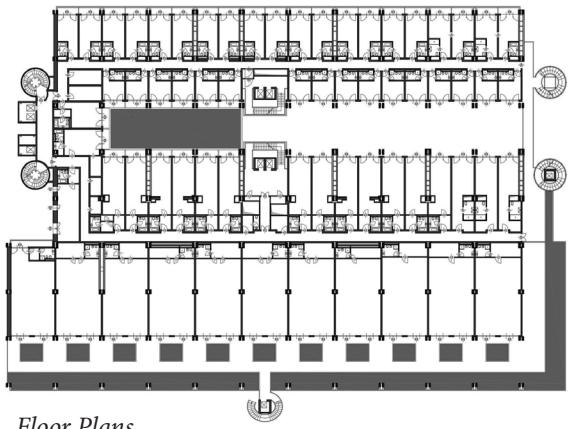
Constructed in 2011, Le Terrazze exists as a multi-functional building; “Designed as a pleasant place to live or simply enjoy” (Le Terrazze, 2011). The program exists within a single complex totaling 393,500 square feet. What distinguishes this design is the use of an existing parking structure as the structural system for the building and vertical circulation elements that shoot through all 4 levels. The parking structure creates a beautiful repeating pattern and a sloping volume. The vertical circulation creates a highly efficient system for moving throughout the building and the surrounding area. Studio Marco Piva intended for the design to integrate itself into not only

city, but the region as well. Accomplished through a very community based program consisting of the following elements; A 4 star hotel, an auditorium for cultural events, a wellness center, a restaurant, business and commercial spaces, and multiple residential types (Le Terrazze, 2011).

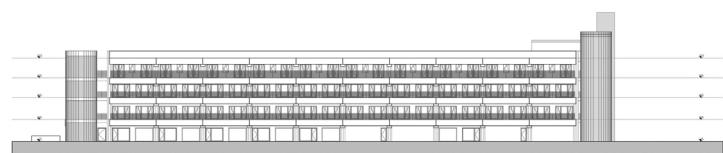
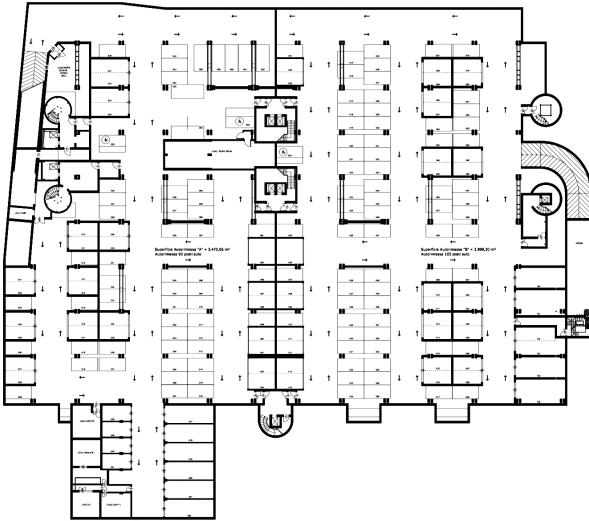




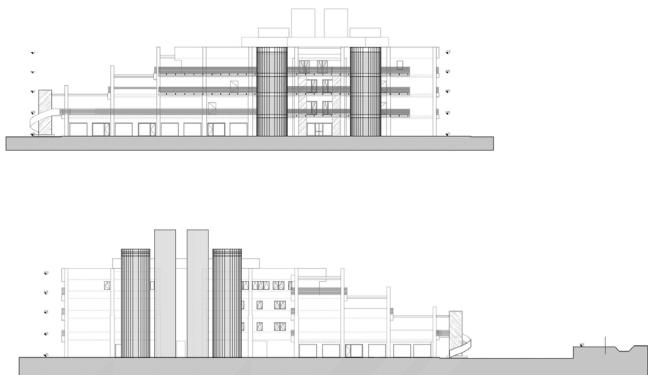
*Site Plan*



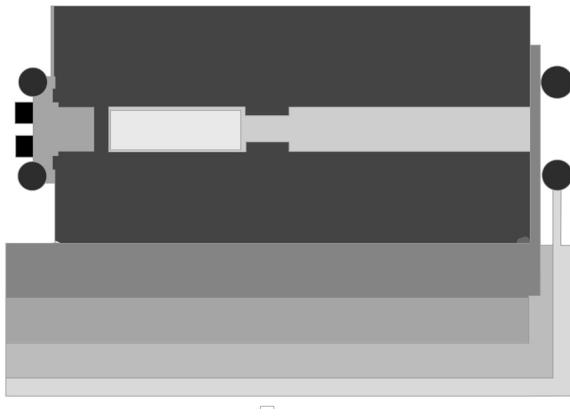
*Floor Plans*



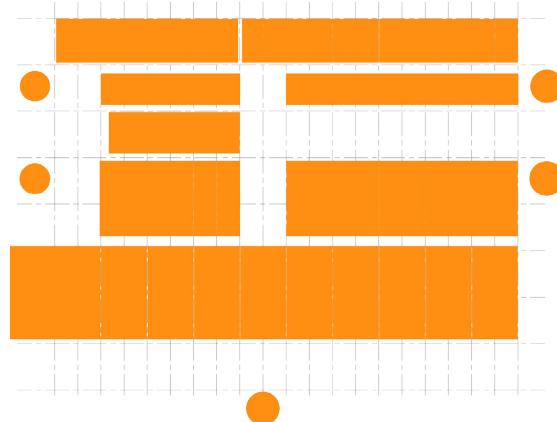
*Plan to Section*



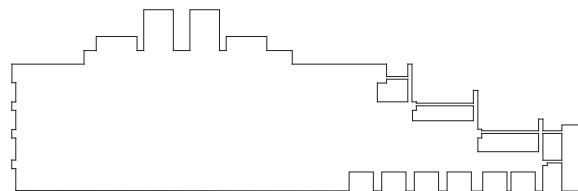
*Elevations*



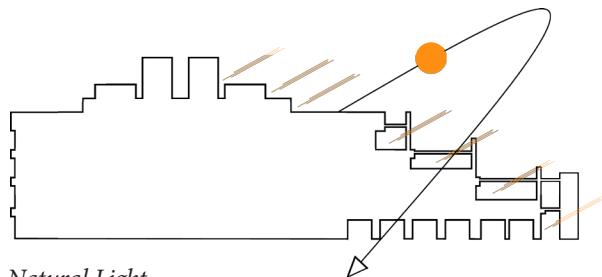
*Hierarchy of Space*



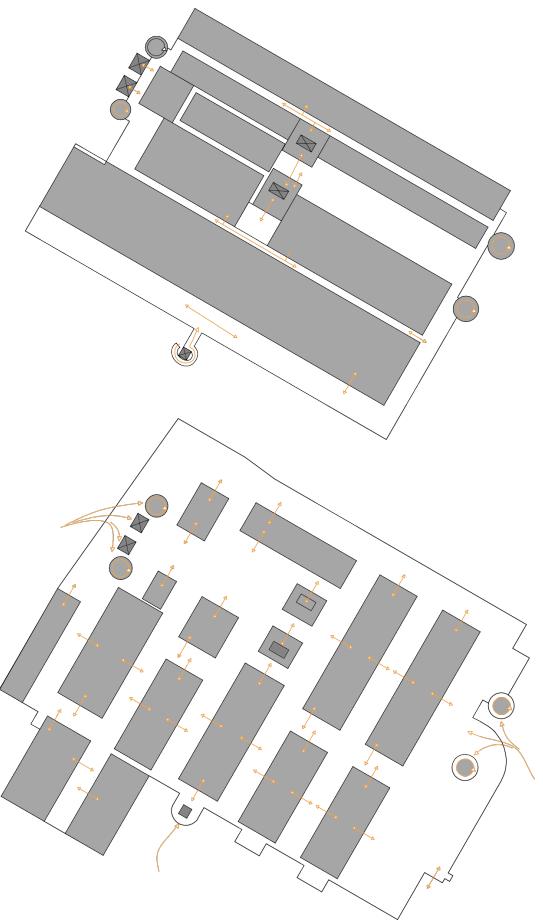
*Geometry*



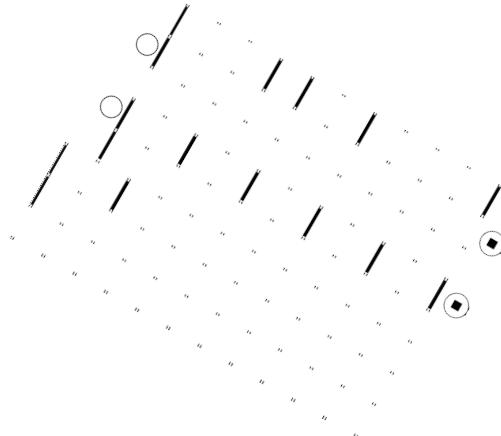
*Massing*



*Natural Light*



*Circulation to Use*



*Structure*

## RESEARCH FINDINGS

What relates Le Terrazze to Riverside and Lakewood, much like Riverside, is its focus on a multi-functional design and focus on multiple community aspects / groups. What separates Le Terrazze is that unlike Riverside the program fits within a single building and more adequately addresses community needs. In addition the design is more responsive to its location. From an environmental stand point the design utilizes an already existing structure within the landscape so site disturbance was not much of an issue. The incorporation of a stepped level concept that allows for garden spaces and terraces is a nice touch and relates to the site by responding to lighting and the surrounding landscape which is mainly rolling prairies. Socially and culturally the incorporation of program elements such as retail spaces, a wellness center, and an auditorium although not extensive,

give the programs users a core group of community necessities. The scale of the project is fairly large, but by understanding the needs of the site and of the local inhabitants Le Terrazze has been very successful in creating a pleasant community design. The incorporation of large vertical circulation spaces at the entries and exits really help individuals navigate the building and transition from the exterior spaces to the interior spaces. However, the connection of the site to the surrounding community is a lacking element; even though the project was meant to integrate itself into the city and region the design does not blend with the surrounding architecture and is too remote to call it a walkable design. Le Terrazze shows that a holistic community design is possible within a single building and describes what elements are essential to a connected community, but it also shows how

## RESEARCH FINDINGS

important location is to the integration of the project into an existing urban setting.

## CONCLUSION

As a case study Le Terrazze contributes to the Theoretical Premise an understanding of how community can impact a site / city in an inward manner rather than an outward one. The Theoretical Premise relies on understanding human scaled communities and what makes them tick. Le Terrazze shows major community elements that should be integrated at some level into a holistic community design. It also shows how a single entity may prove to be an issue when attempting to integrate a new community design into an existing urban environment. Much like Riverside the case study reflects more on the final program design and less on the Premise.

That being said the premise has changed slightly to reflect a need for human scaled design as a tool of urban integration.

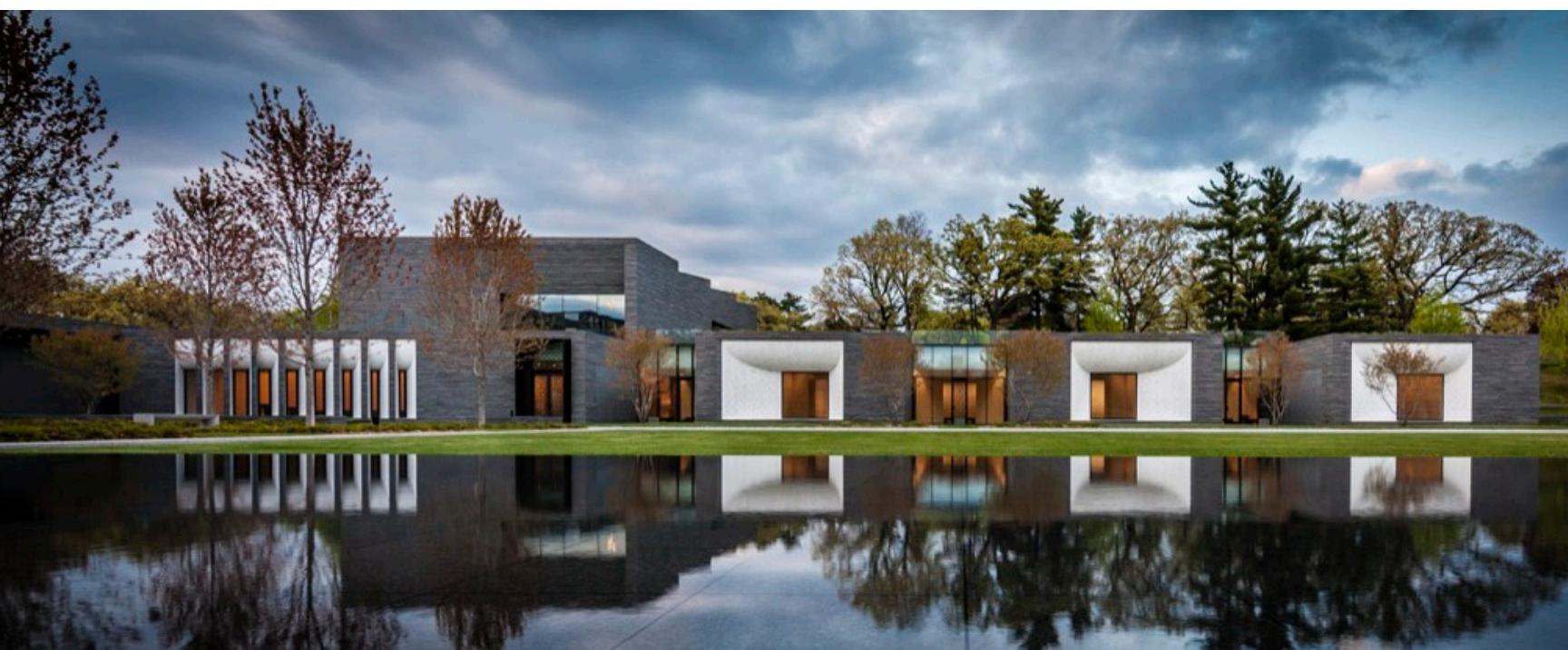
## CASE STUDY III

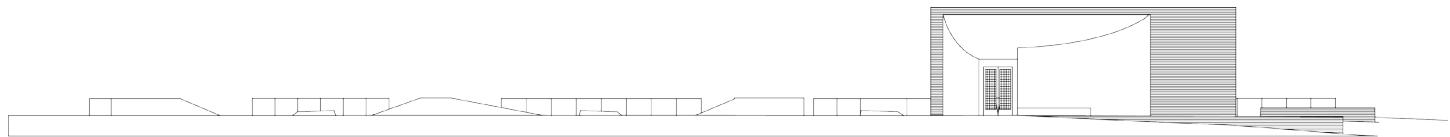
Lakewood Cemetery Garden Mausoleum  
3600 Hennepin Avenue, Minneapolis, MN  
HGA Architects

### INTRODUCTION

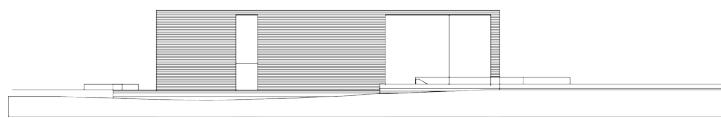
Constructed in 2012, Lakewood Garden Mausoleum's typology is just that; a Garden Mausoleum. The building design is an addition to an already existing mausoleum adding space for a few much needed cemetery elements. The program scope covers 24,500 square feet on a 4 acre site encompassing 3 major project elements; a small chapel, a mausoleum, and a garden. The mausoleum added 10,000 burial spaces, but did so in a manner that respected the landscape and its typology. What distinguishes Lakewood is its emphasis on materiality; "the contrast of textures – light and dark, rough and smooth, rustic and refined –

call upon both visual and tactile senses... beams of daylight trace arcs across the Alabama White marble walls" (Lakewood, 2013). The way light washes in through skylights into the below grade level, truly creates a moment for contemplation and reflection as one gazes through uninterrupted views of the landscape (Lakewood, 2013).

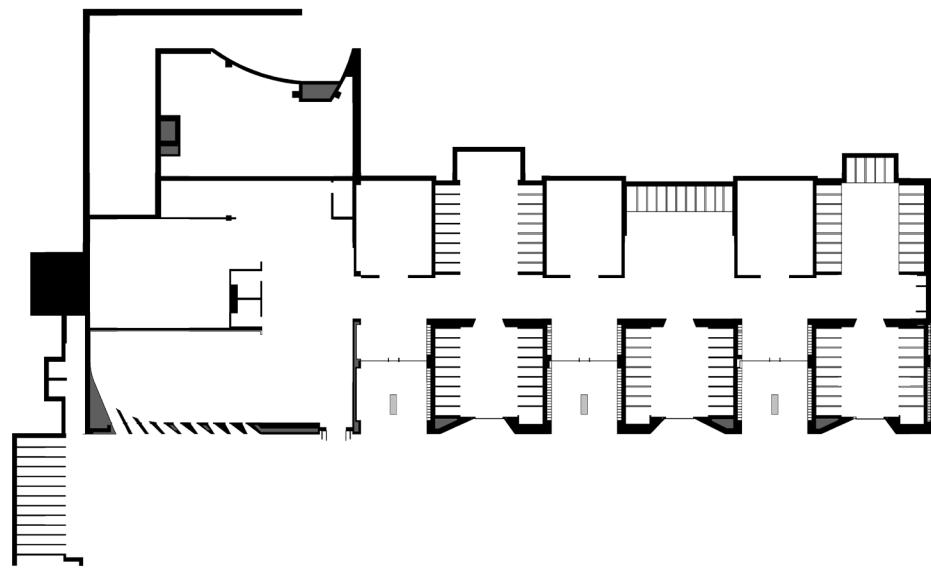
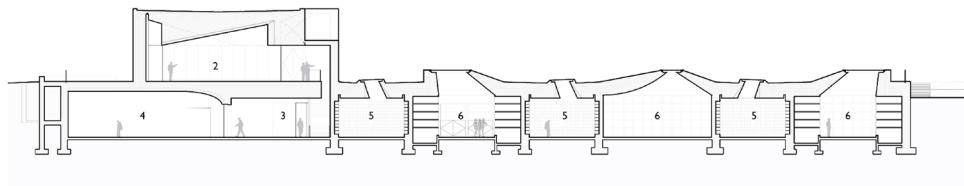




*North Elevation*

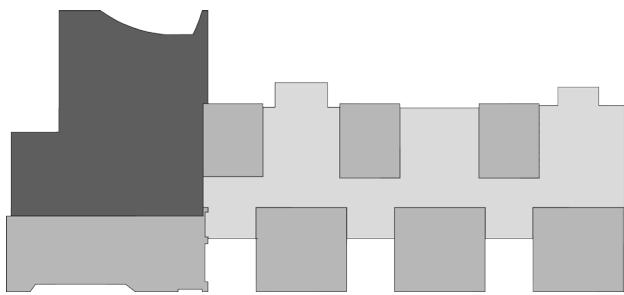


*West Elevation at sidewalk level*

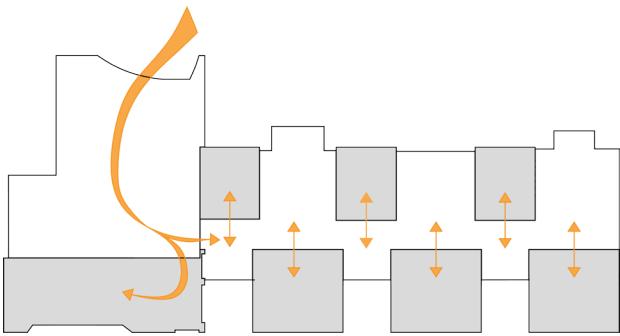


*Plan To Section*

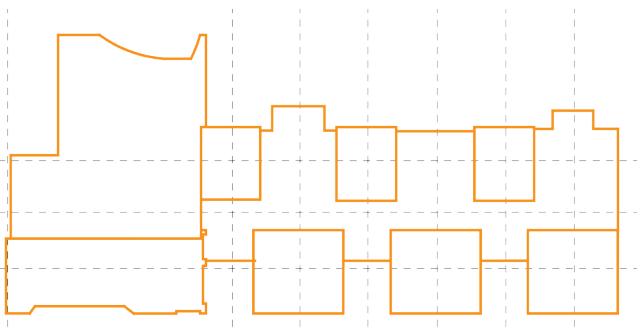




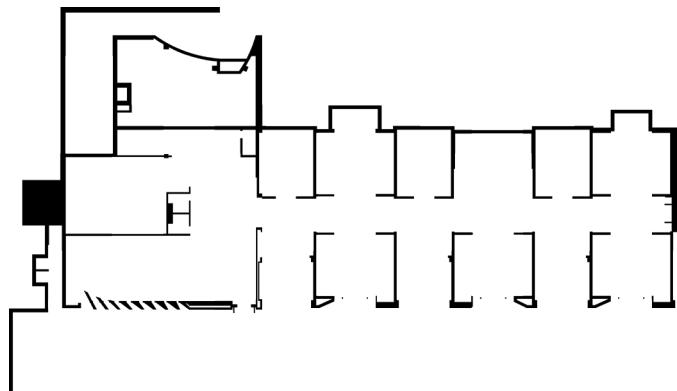
*Hierarchy of Spaces*



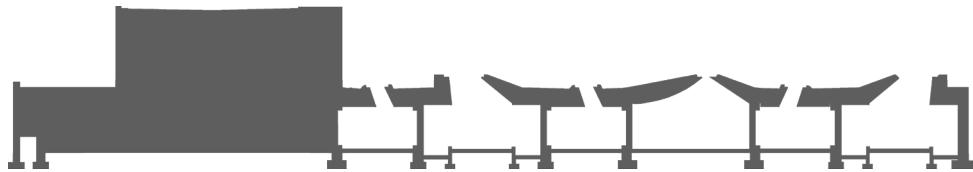
*Circulation to Use*



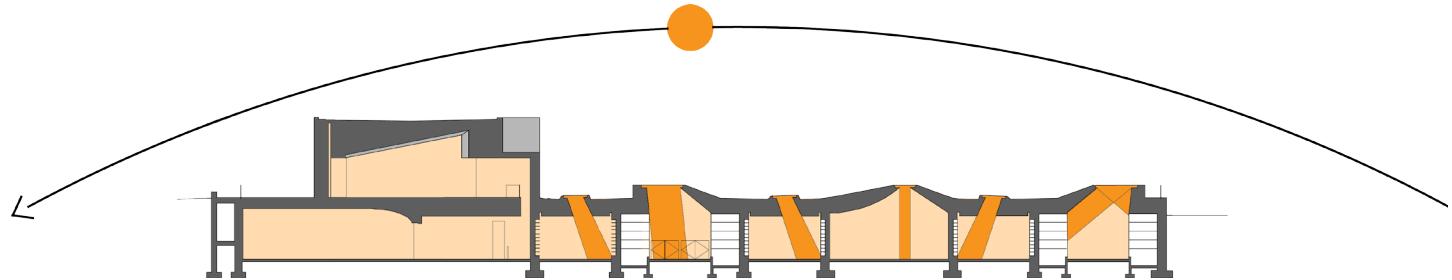
*Geometry*



*Structure*



*Massing*



*Natural Light*

## RESEARCH FINDINGS

The common thread in all three case studies is the focus on community design and public engagement. The Lakewood Garden Mausoleum sits in a highly prestigious cemetery, but the site is open to the general public and open for use by the general public for ceremonial purposes. The reason this project is included as a case study is less about how it reacts to the community and more about how the design interacts with the individual. How an individual reacts and experiences space is an important aspect in the overall design of the Lakewood Garden Mausoleum. From the choices in material to the use of skylights to the views created, Lakewood has created a special moment where an individual can be completely absorbed in a space, in a moment, and in a thought. The consideration of site and building integration into the landscape are elegant and respectful.

A gorgeous granite stone coats the structure, but by lowering the majority of the design into the hillside the project appears minimalistic and blends in well with the surrounding landscape. Socially and culturally the space attracts a wide variety of users. The design allows for a respectful ceremonial process that truly helps individuals feel fully present in the experience and allows for personal meditation and reflection. The actual Mausoleum caters to a higher level cliental, but even so, it allows the general public to still be invited in and participate in a very community based ceremony. In death we may be alone, but it is in that last breath that we may truly understand the depth of our personal connections. The design done by HGA truly captures the idea and place of a mausoleum and truly understands the depth that materiality adds to the experience of a space and a moment.

## RESEARCH FINDINGS

This is why Lakewood was included as a case study; to show an example of how a moment or an experience may be generated or given a metaphorical breath within a design.

## CONCLUSION

The contribution to the Theoretical Premise made by the Lakewood project is one that shows up in the conceptual design and not so much in the actual Theoretical Premise as it pertains more to the experience than the over-arching idea. Lakewood does show how having higher end program elements supplements lower income members of a community, but the case study made no impact on the Theoretical Premise. This does not mean that the case study is irrelevant as Lakewood pertains more to the actual conceptualization of the project than to the Theoretical Premise.



## CASE STUDY SERIES AND TYPOLOGICAL SUMMARY

### INTRODUCTION

The three case studies all relate to the realm of community in some manner and attempt to engage with their surroundings through multi-functional programs. However, the manner through which community engagement is accomplished changes. Riverside attempts a very large multi-building utopian design, Le Terrazze attempts a single enclosed entity, and Lakewood attempts to engage community through the site itself. The impact of these case studies was one of scale. The focus on community development and how that impacts urban environments is still the big piece of the puzzle but, how we design that community has changed to address human scale more appropriately.

### ANALYSIS

Through the analysis these three case studies; Riverside Plaza, Le Terrazze, and the Lakewood Garden Mausoleum a few concepts and ideas were brought forth that will aid in the design and conceptualization of a holistic urban intervention. Analysis of these case studies aided in the understanding of what elements made up a good community design and how those elements should relate to one another. The elements that will become foundations in the project will be a wellness center and mixed-type housing. Another area that was addressed is how our senses effect perception and mood. The Lakewood project more than the other case studies shows how an architectural space can place us in a moment by embracing us in a full body experience. This experience will be translated in the form of the

## ANALYSIS

make up a community; from the materiality to where we interact with one another.

## CONCLUSIONS

Between the three studies a common thread was the use an inner circulation system that placed the spaces on either side of the path. I found this to be an interesting trend. It makes the buildings very efficient and easy to move through. The studies also all place emphasis on the user not on the design; the spaces and how one moves around is based on how a person may use the spaces and how the user may interact with the design. The effects on the Theoretical Premise of these case studies are a view more geared toward human scale and human experience in terms of engaging with a space. A few uncommon characteristics found

in these case studies were; how each study approached the concept of community. Lakewood uses high income users to aid low income users, Riverside focuses on affordable housing, and Le Terrazze focuses on the resort aspect of community. The designs could be stated to be a situation of introverted versus extraverted design; where the Riverside project extends into its surroundings, Lakewood and Le Terrazze bring you inward. The impact on the Theoretical premise from this conversation of inward versus outward becomes one of scale and spatial configuration. Although the premise is left unchanged by this con-

## CASE STUDY SERIES AND TYPOLOGICAL SUMMARY

### CONCLUSIONS

completely effects the final conceptualization of the Theoretical Premise. The sites for the case studies are all very different; one being a landscaped cemetery, another being an Italian hillside, and the last being a downtown intervention. Each site has its advantages and dis-advantages, but looking at the three locations it appears that in order to truly engage with a community being centrally located in the heart of an urban city is vital to the success of the project. Placing the community in a quiet hillside makes the place serene and peaceful but, poorly integrates itself into a holistic community design that the project truly needs and also makes site accessibility too much of an issue; not to mention it must then add to infrastructure rather than play on existing conditions. The project type after reviewing the case studies

has not changed but, like the Theoretical Premise the change comes more in the actual conceptualization and less in the idea behind the conceptualization. What is meant by this is that the project will remain as a mixed-use community node, but how the program is set up and spatially design has been effected by the case studies. This will shine through in aspects such as permeability of the site and inward versus outward spatial configuration. Spatial design will be a big factor in the final design as it pertains to how the community will interact with the site and its program elements. Functionally the spaces and the site need to react to the site users and site clients in a way that holistically fits everyone's needs. Understanding of the extent to which fitting everyone's needs may be accomplished is also very important as

## CONCLUSIONS

compromise is always necessary when designing for multiple occupants and users. The case studies did show that the function of the site must relate to the context of the site as what exists must be interacted with and understood as part of the design rather than something to be ignored. The goal is not to design a parasitic intervention but, rather a symbiotic relationship. Some issues were found when looking at these cases studies. If the project hold all of its element within a single building it becomes introverted and isolated from the environment, but if it overreaches its bounds the concept may fail altogether. So in order to integrate and engage properly with the site and surrounding context care must be taken in understanding proper scale and site needs.

## HISTORICAL CONTEXT

### TRADITIONAL CITY DESIGN

In the **1st century BC** Marcus Vitruvius Pollio wrote a series of books entitled *De Architectura*; most know this collection as the 10 books of architecture (Barnett, 2011). The most notable of Vitruvius' writings is known as the "Vitruvian Triad"; stated as *firmitas*, *utilitas*, and *Venustas* roughly translated as function, structure, and beauty. Vitruvian used the triad as the basic building block in design, "Vitruvian gave us the ABC of architecture" (O'Gorman, 1998). Vitruvius' work has been replicated in more recent times perhaps, most notably by Karl Gruber.

The "German architect and city planner, Karl Gruber, published a series of drawings in **1914** describing the evolution of a hypothetical German city

from the twelfth century to the eighteenth [century]" (Barnett, 2011). Gruber's illustrations depict a city design with a very distinctive cruciform layout with two main streets, one running north and south the other running east to west. At the intersection of the two are the main city structures; a market square, a cathedral, and a town hall. The design is almost identical to the colonial roman city (Barnett, 2011).

Before Karl Gruber and closer to Vitruvius' time was Pope Sixtus V who also used the ideals set forth by Vitruvius between **1585 and 1590**. "The key elements of Sixtus V's plan for Rome was a succession of long, straight, streets, the changes of direction marked by piazzas with central

## HISTORICAL CONTEXT

### TRADITIONAL CITY DESIGN

been repeated throughout history but, has been more typical in European cities.

After the great London fire in **1666** architect, Christopher wren, took the tragedy as an opportunity to redesign the city. Although Wren's plan was never implemented it is worth mentioning because, it shows how political opposition and time can cast shadows on utopian dreams. Wren's plan was to reconstruct the entire city of London, England as "A combination of Renaissance planning and large-scale French garden design, the plan's central streets connect public squares and landmarks, while a narrower street grid fills the residual space" (Royal, 2013). The traditional style but was added to by a new type of city.

### GARDEN CITIES

One advocate of the new Garden-City-design was John Nash. John Nash designed Regent Street and Regent Park in **1810**.

*Instead of a repeating pattern of street and square, Nash created a large park, like the grounds of a country estate, which was to serve as a green belt between the rows of houses around the outer edge and a circular cluster of development near the center (Barnett, 2011).*

The design was originally intended to be used only in the private realm, but over time the area was opened up to the public due to lack of funding. After the area was opened to the public the area saw a flood of continuous use and prosperity (Jackson, 2011).



## HISTORICAL CONTEXT

### GARDEN CITIES

John Nash was followed by radical thinkers like Ebenezer Howard and his book entitled, *To-morrow a Peaceful Path to Real Reform*, published in **1898**.

Howard was not an architect or a city planner, but a shorthand reporter. Even so his writing had a profound effect on architectural city planning up through the mid twentieth century (Barnett, 2011). “The garden-city united public parks, suburban development, and affordable cottage housing in a green setting” (Barnett, 2011). The green-city design style could be stated as “self-contained clusters within the natural landscape” (Barnett, 2011). This style of city design coupled with the invention of the motor vehicle spurred what has now come to be known as Modernism.

### MODERNIST CITY DESIGN

The modernist movement holds within its design many aspects of Vitruvian planning. In **1910** The Royal Institute of British Architects held an international conference on town planning where designs for Chicago and Washington, D.C. were unveiled. The designs diagramed monumental city centers, railway-based industrial districts, and lower density residential areas linked by rail lines and designed as garden-suburbs (Barnett, 2011). These city ideals were kept in close regard with high ranking architects such as Le Corbusier and Mies Van Der Rohe. In **1922**, Le Corbusier revealed a modernist utopian city plan for Paris, France. The components of Corbusier’s design included the following; a group of sixty-story cruciform skyscrapers, housing offices and flats for the wealthy set within large

## HISTORICAL CONTEXT

### MODERNIST CITY DESIGN

a centralized transportation hub including an airport, segregated pedestrian circulation, and lower level housing for the working class (Architecuul, 2013).

Much like Le Corbusier Frank Lloyd Wright admired the modernist city. In **1935** Wright unveiled a city plan entitled, Broad acre city. Neither Le Corbusier's or Wright's modern plans were put into construction however, other projects such as Mies Van Der Rohe's Lafayette Park in Detroit Michigan were. Lafayette Park began construction in **1961** and had much the same characteristics as Le Corbusier's modernist designs but, at a smaller scale and with more respect to the landscape.

*The complex is a collection of one- and two- story town homes, a small neighborhood shopping center, and two high-rises set adjacent to a 19-acre municipally-operated park also called Lafayette Park. The buildings are planned along three roadways that enter the development from the west. Mies planned for Lafayette Park to embrace the automobile from the beginning—after all, Detroit is the Motor City. However, he does not show off the parking areas, instead sinking them about four feet below the level of the sidewalks and lawns of the town homes. A resident peering out of the floor-to-ceiling windows of his unit would scarcely be able to see them (Mitchel, 2012).*



## HISTORICAL CONTEXT

### MODERNIST CITY DESIGN

Not long after the era of Modernism began did it come under criticism for its encouragement of sprawl and lack of beauty. A professor at Cornell University, Colin Rowe along with a man named Fred Koetter wrote a critique on modernism entitled, Collage City (Barnett, 2011). This critique became a book in **1978**; “Rowe and Koetter’s basic point is that city design is more like collage than like drawing on a clean sheet of paper” (Barnett, 2011). The idea being that design should stem more from existing development rather than attempting to redesign the city.

Going on close to the same time, around as the modernist movement was a push for mega-structures and something called the “Plug-in City”.

### PLUG-IN CITY DESIGN

In the age of modernism, futuristic concepts began emerging, creating things like the plug-in city. The concept for a plug-in city is just as it sounds; They are futuristic mega structures that rely on a module plan where elements such as residential units and other spaces can be plugged in or moved based on need. The idea was brought to reality in **1967** in the form of a mega structure affectionately titled, Habitat by its architect, Moshe Safdie. From the outside Habitat just looks like a single large structure however upon closer inspection the design has many different aspects.

## HISTORICAL CONTEXT

### PLUG-IN CITY DESIGN

*Built over railway tracks and a connection to the metro system, it had a shopping concourse, a convention hall of more than 200,000 square feet, six floors of merchandise mart, and then a hotel built around courtyards at the top of the structure (Barnett, 2011).*

Unfortunately, like the utopian designs of Le Corbusier, mega-structures and plug-in cities encountered issues. “Most city development is financed in increments over time; it is rarely feasible to build structures for hundreds of thousands of people in just a few years” (Barnett, 2011). Other issues facing the concept were that the market could not absorb so much development all at once and the current structure of cities would not support the new plug-in design method.

Understanding the problems with Modernism and the futuristic concept of cities planners and designers began to look back at traditional design techniques to inform new city plans.

### NEW URBANISM

“The criticism of modernist city planning of the **1960's** lead to post modern architecture and what could be termed “new urbanism”. Jane Jacobs was one of the major contributors to writings on the subject of new urbanism. Jacobs is the author of, *The Death and Life of American Cities*, originally published in **1961**. Jacobs wrote about topics such as; walkable cities, incremental development, and need based change. New urbanism is definitely a look back on traditional city design as it attempts to preserve the



## HISTORICAL CONTEXT

### NEW URBANISM

landscape and reduce sprawl. Jacobs' writing is backed by Herbert Gans' article, *The Urban Villagers*, written in **1975**. Another proponent of new urbanism was a professor of architecture, Christopher Alexander. Alexander's ideas were first published in **1964** but, were pursued for many years afterwards by multiple design groups including his own. Alexander spent a great deal of his life attempting to generate "scientific basis for what he calls wholeness and the quality of aliveness" (Barnett, 2011). The following fifteen items are the result of his research; levels of scale, strong centers, boundaries, alternating repetition, positive space, good shape, local symmetries, deep interlock and ambiguity, contrast, gradients, roughness, echoes, the void, simplicity and inner calm, non-separateness (Barnett,

New urbanism is the hot button topic of the present is still evolving but shows promise for today's urban environments.

### HISTORY OF MINNEAPOLIS

The Dakota Sioux were the first to inhabit the Minneapolis area. Around 1680 French Settlers began to move into the territory. The settlers built Fort Snelling between **1820** and **1825**. Fort Snelling began a spur of growth in the area and in **1856** Minneapolis became a town. It only took Minneapolis a little over 10 years after becoming a town to become a city in **1867**; complete with a railway that ran all the way to Chicago, IL. One of the major reasons Minneapolis began growing was the proximity to the Mississippi River and St. Anthony's Falls. Between **1880** and **1930** Hydro-power became

## HISTORICAL CONTEXT

### HISTORY OF MINNEAPOLIS

a major source of power, leading Minneapolis to be described as “the greatest direct-drive waterpower center the world has ever seen”; the major exports being Lumber and Flour. 17 Mills were set up and powered by the falls. By **1871** the west bank of the river boasted 23 businesses including; flour mills, woolen mills, iron works, a railroad machine shop, and mills for cotton, paper, sashes, and planing wood. Around **1905** Minneapolis delivered 10% of the country’s flour and grist. At the same time between **1886** and **1946** Minneapolis became a hot bed for cultural reform and acted as the birthplace for the American Indian Movement. After all the reform Minneapolis began razing buildings as part of the urban renewal movement between **1950's** and **1960's**; the city razed about 200 buildings across 25

destroying the gateway district and many buildings with notable architecture. Minneapolis may have started small, but it did not take long for it to become the state’s business and transportation center (Bycitylight.com, 2013)

### CITY POPULATION TRENDS

The population of Minneapolis, MN has been growing from between **2010** and **2012**. The estimated population stands now at 392,880. The metro area has gained an estimated 59,000 people since **2010**. The twin cities have been seeing a greater interest in urban living and rental housing (Kimball, 2013). Overall Minneapolis’s population size has been increasing since **1970** to the present going from just below 2 million to close to 4 million residents. The pattern of growth in Minneapolis is



## HISTORICAL CONTEXT

### CITY POPULATION TRENDS

projected to slow and level off by **2040**. “Births in excess of deaths – will account for more than two thirds of the total population growth between **2010** and **2040**” (Dornfeld, 2012). A third of the city’s growth will stem from migration and the city council expects the region to gain 463,000 international residents and only lose 179,000 individuals, 83% being minorities (Dornfeld, 2012).

### CITY POLLUTION TRENDS

Between **2003** to **2012** Pollution, particularly air pollution has been decreasing. However, the trend varies greatly and times of extremely poor air quality still occur about 5 times a year as well as being poor for about 50% of the year (EPA, 2013). The average levels of pollution in Minneapolis, MN today are lower than the United

average across the board, including; CO<sub>2</sub> and particulate matter (Advameg, Inc, 2013).

### CITY ECONOMIC TRENDS

Currently rent is at an all-time high in Minneapolis’s downtown areas. The price for a typical studio ranges from \$966.00 per month to upwards of \$1,200. “A national study recently ranked Minnesota the least affordable state for housing in the Midwest” (Mador, 2013). The current state of the housing economy in Minneapolis has made the suburbs a safe haven for low income individuals (Mador, 2013). The housing economy within the metro area has been fairly steady since **2002** but, the income needed for a medium priced home has fluctuated a great deal; starting **2002** housing spiked at income needed of \$80,000

## HISTORICAL CONTEXT

### CITY ECONOMIC TRENDS

and dipped down to \$60,000 as of **2009**. The income for a 2 bedroom apartment however, has stayed fairly steady between **2002** and **2010**; rising slightly from \$825.00 per month to an estimated \$934.00. The sad truth however is that most individual working in the metro area cannot afford current market prices (Minnesota Housing Partnership, 2010).

### CONCLUSION

Minneapolis, MN has created a situation in which they have used space as an excuse to expand without regard to city design and without regard to its environment. Although the population will eventually become steady and allow for continued redevelopment, Minneapolis is failing to create an environment conducive to good community design and walkability.

Minneapolis takes more after the modernist designs of Chicago with an emphasis on vehicle transportation, but recently with the introduction of new light rail and urban infill projects the city is showing a lot of promise. This new city however, needs to be able to bring individuals into the metro area not push them out. Lowering housing costs is a must for Minneapolis if it is going to reverse the urban sprawl it has thus far created.



## GOALS FOR THE THESIS PROJECT

### ACADEMIC

The Nature of Happiness will be added to the collection of thesis projects at North Dakota State University. Future Thesis students and academic members will have the ability to use its information, data, and design as a case study for further investigation into community design and urban planning. Although the final thesis will in its entirety only be a theoretical concept, the concept could be treated as a springboard for further investigation into solving the problems of rapidly-growing cities.

### PROFESSIONAL

In terms of the professional real The Nature of Happiness acts much like it does in the academic realm; as a case study for future design endeavors. As Firms and designers pursue creative design solutions for the betterment of our world, this thesis project will become a tool for the firms and designers. The goal of this is inevitably a happier environment for the members of rapidly-growing cities.

## GOALS FOR THE THESIS PROJECT

### PERSONAL

The personal goal or outcome for The Nature of Happiness is to create an understanding of how our current way of living and building in rapidly growing cities is destroying us slowly and giving us a possible method to resolve the major issues facing rapidly-growing cities. Other major goals include redesigning cities to act more at the human scale, and creating a higher quality life for everyone. Understanding that this is just one project, The nature of happiness does not attempt to resolve the issues of the world but, rather a communities. Everyone should have the opportunity to be happy and hopefully through design and architecture a moment of happiness may be generated.



# SITE ANALYSIS

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QUALITATIVE AND QUANTITATIVE ASPECTS

## QUALITATIVE ANALYSIS

### OBSERVING OCTOBER

It's cold and raining, but the sun is out and makes the open void between the parking garage and the industrial facility inviting. Water puddles have collected throughout the asphalt parking lot. With umbrella in hand as the rain drizzled down I looked south to the city skyline; the view is framed by old brick buildings and tall colorful trees with leaves blowing off in the wind. Moving clockwise small side streets pass by a tall ambiguous parking structure. The usual faint sound of cars parking moving within it is present. To the North West Hennepin Avenue just barely comes into view; crowds of people move from one shop to the next. Looking North residential homes appear to be silent. No one in view, it is a quiet location with small multi-family dwellings recognizable by toys strewn about and a playground.

Finally, looking east, a multi-floor industrial building sits silent and calm. Now moving about the site, small birds begin to chirp and sing, the wind rustles the many trees lining the Mississippi. The sweet aroma of coffee passes through from the Caribou on Hennepin just two streets over. People come and go; walking pets and making small talk as they peer south towards the city and Saint Anthony's falls. Old Factory buildings lay barren to the South East, but the over-sized industrial Grain Belt Brewing Company sign gives the area character and a sense of place. Just across the street lies a bike path with restaurants and small stores that line the river. Pedestrians rent bikes and ride slowly down the quiet calm pedestrian centered paths, down toward the stone arch bridge and into the heart of the city. The sound of the falls becomes

## QUALITATIVE ANALYSIS

### OBSERVING OCTOBER

more than background noise, but less than overwhelming; the sound of the rushing water generates a calming and tranquil feeling. One could sit and listen for the simple act of meditation. A siren sounds out and brings the pedestrian back to reality. The sound of the siren passes and all is silent again, save for the low and constant hum of traffic from Hennepin Avenue. The rain has stopped and the umbrella is put away. The empty parking lot sits silent and calm as gusts of wind make the leaves blow down to the ground. The site location at the corner of South East 2nd Avenue and University Avenue South East has key features such as; existing infrastructure, existing public transportation, proximity to amenities and proximity to sprawl that make it ideal for a human scaled mixed-use community housing development.



## QUALITATIVE ANALYSIS

### BUILT FEATURES



A single building rests between the two open parking lots. The building acts as a place holder for the owner of the site and will be acquired for the project. The site is a parking lot with a short wooden fence distinguishing its borders and a large metal advertisement sign at the northwest corner.

### LIGHT QUALITY



The sight is washed with light during the majority of the year but, later in the afternoon tall buildings place the entire site in shadow in the morning and afternoon. When the sun is at its highest the site has no protection so light is very intense at this point. However, the sun does a good job of warming the space during these times when the sun is high as well.

## QUALITATIVE ANALYSIS

### WATER



The water of the Mississippi is clean and flowing. Saint Anthony's falls can be heard faintly from the site but is more tranquil than uninvited. The falls are a source of power and have been turned into an attraction of the site.

### WIND



Surrounding buildings make the wind cut along the sides of the site. The parking garage and other tall buildings resting to the west of the site create wind blocks. The wind is typically mild but can become severe in the later months of the year, particularly between October and January.

## QUALITATIVE ANALYSIS

### HUMAN CHARACTERISTICS



People crowd the streets of Hennepin Avenue, but direct site traffic is minimal. The majority of human interaction comes from people walking pets or going for a jog. Some people park their cars and then walk to jobs or to other locations to interact with the existing site amenities.

### DISTRESS



Seeing as the actual site is a parking lot no distress exists on the site. To the South East rest old factory buildings that appear to be unoccupied and need renovating. The site has a very minimal slope so water pools on the site in a few locations, so the ground may need to be sloped to accommodate for water run-off.

## QUANTITATIVE ANALYSIS

### SOIL TYPE

Urban Land - Udipsamments (Cut & Fill Land)

% URBAN LAND  
65-85%

% UDIPSAMMENTS  
15-50%

GEOMORPHIC SETTING  
Outwash plains and stream terraces

GEOMORPHIC SETTING  
Outwash plains and stream terraces

SLOPE RANGE  
0-2%

SLOPE RANGE  
0-2%

FLOODING / PONDING  
None

FLOODING / PONDING  
None

DESCRIPTION  
Typical urban land consists of industrial parks, office buildings, warehouses, and railroad yards and is covered in impervious surfaces. Most areas were originally wet, mineral or organic soils in depressions.

DESCRIPTION  
Consists of nearly level areas that have undergone minimal grading. The cut and fill material is dominantly sandy.

## QUANTITATIVE ANALYSIS

### UTILITIES

The site currently has above ground electric lines. No other utilities service the location. However many surrounding buildings use utilities that run nearby the site; making access to utilities relatively easy.

### VEHICULAR TRAFFIC

The majority of traffic is off Hennepin Avenue and Central Avenue. University Avenue acts as an access point for traffic going to the University of Minnesota. Bus lines also run along University Avenue. Second Street South East has the least amount of traffic as it lies near an industrial zone that currently has a minimal usage. The current site acts as a public parking lot with individuals coming and going at normal business hours.

### PEDESTRIAN TRAFFIC

The site has a minimal pedestrian usage; as it is a parking lot the average individual currently has no reason to come to the site other than to pass through or park a car. Most traffic comes from individuals heading down to Main street to shop or bike.

### SITE CHARACTER

The location is an asphalt parking lot which acts as an impervious cover on the site. The space appears as a void in the urban landscape; sitting calmly with potential. Trees line the sidewalks, water pools in low spots, and the air is free to come and go. The site is peaceful yet empty. It contains a sense of purpose, yet looks ignored and abandoned.

## QUANTITATIVE ANALYSIS

### PLANT COVER

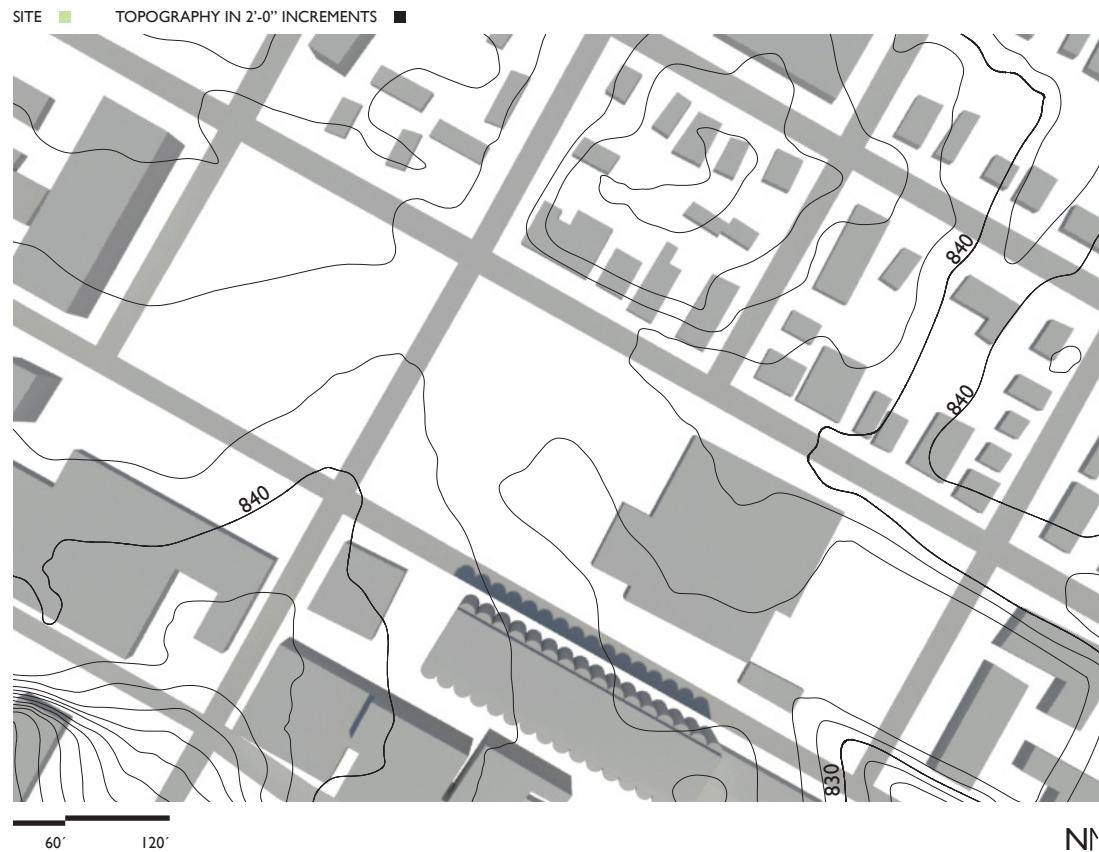
Short grasses with sparse tree cover on upland soils cover an estimated .85 Acres of the site

### TOPOGRAPHY SURVEY

The downtown Minneapolis landscape is typically flat. The site location follows this flat trend; sloping less than 2%. The site rests 840 feet above sea level and has a slight grade change of 2 to 6 feet. The largest grade change occurs off the site and at the Mississippi River's edge dropping 30 to 40 feet down to 800 feet above sea level.

## QUANTITATIVE ANALYSIS

### BASE MAP TOPOGRAPHY



## QUANTITATIVE ANALYSIS

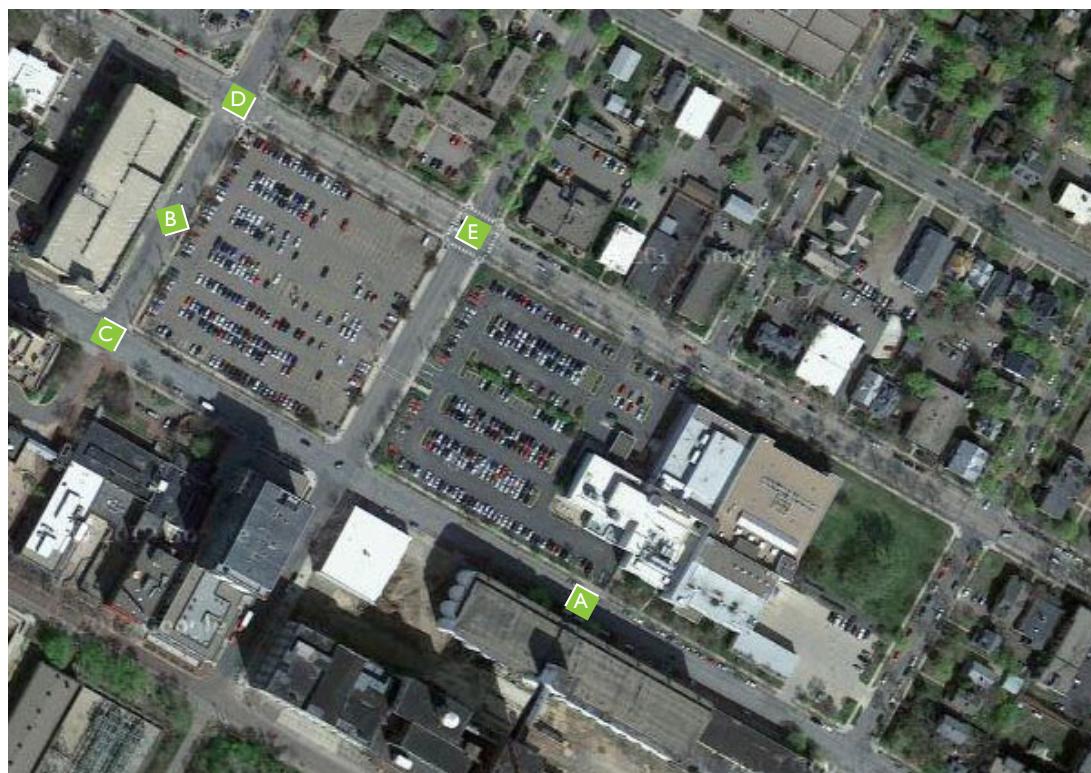
### BASE MAP SITE CONDITIONS



## QUANTITATIVE ANALYSIS

### SITE RECONNAISSANCE

IMAGE IDENTIFIER ■



60' 120'

N

## QUANTITATIVE ANALYSIS

### SITE RECONNAISSANCE



A



B



C



D



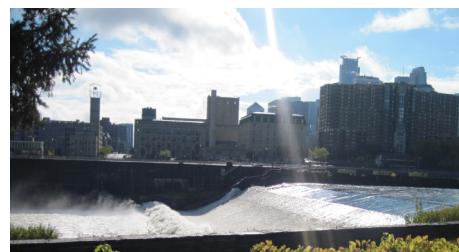
E



E

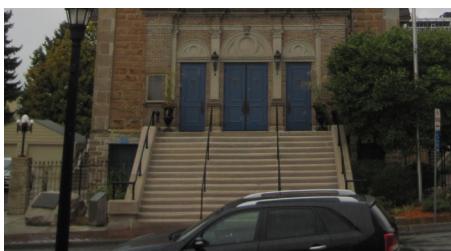
## QUANTITATIVE ANALYSIS

### SITE CONTEXT

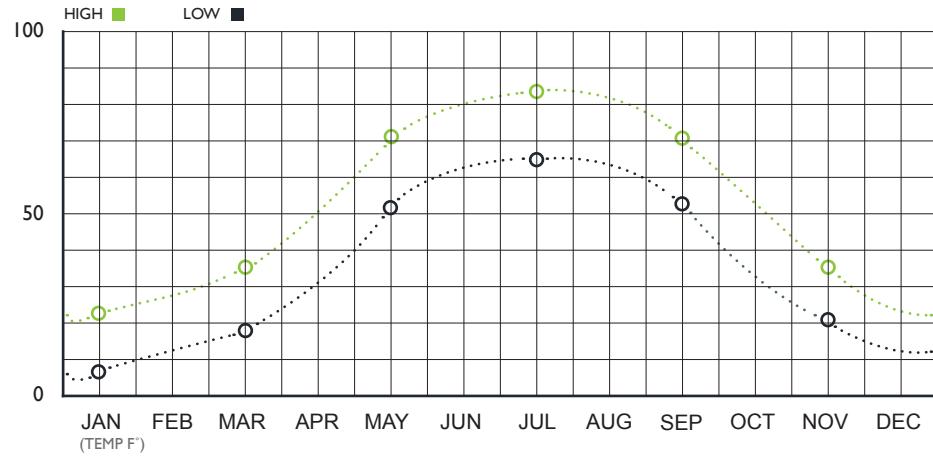


## QUANTITATIVE ANALYSIS

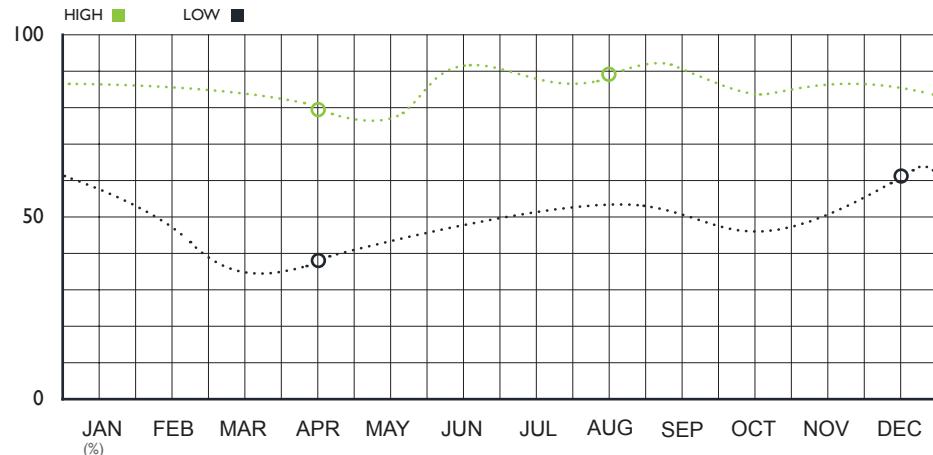
### SITE CONTEXT



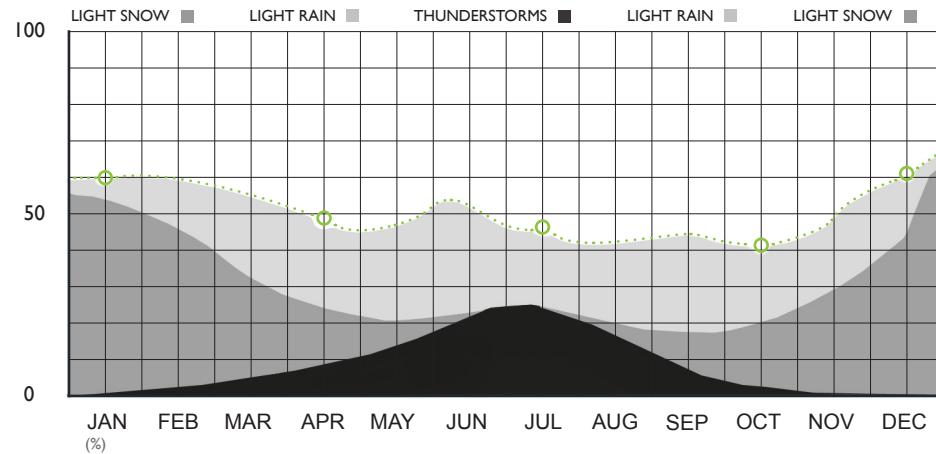
## TEMPERATURE



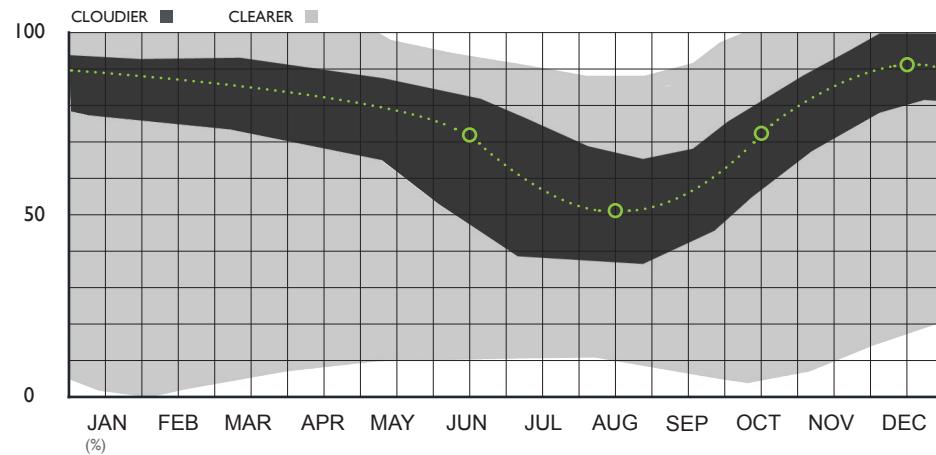
## HUMIDITY



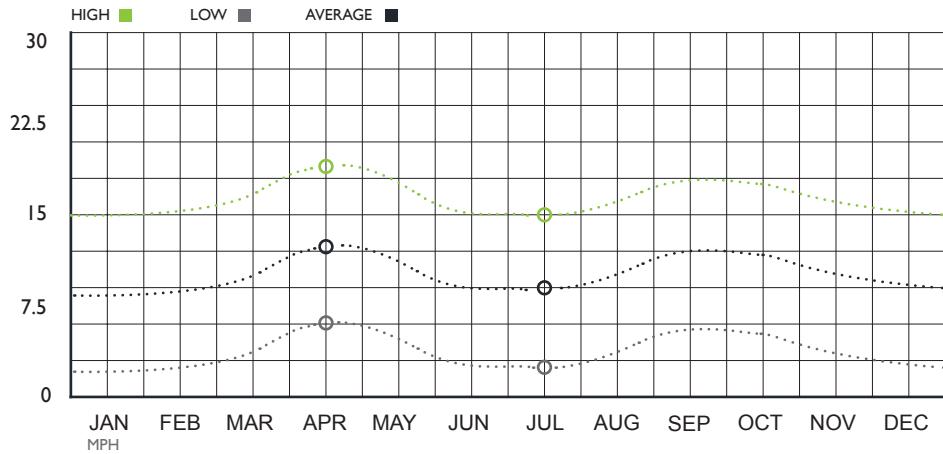
## PRECIPITATION



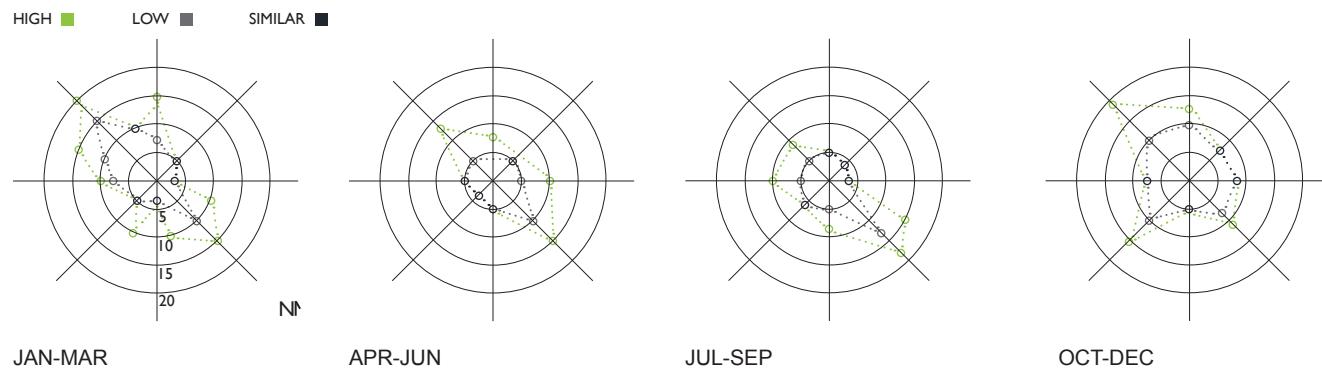
## CLOUDINESS



## WIND SPEED

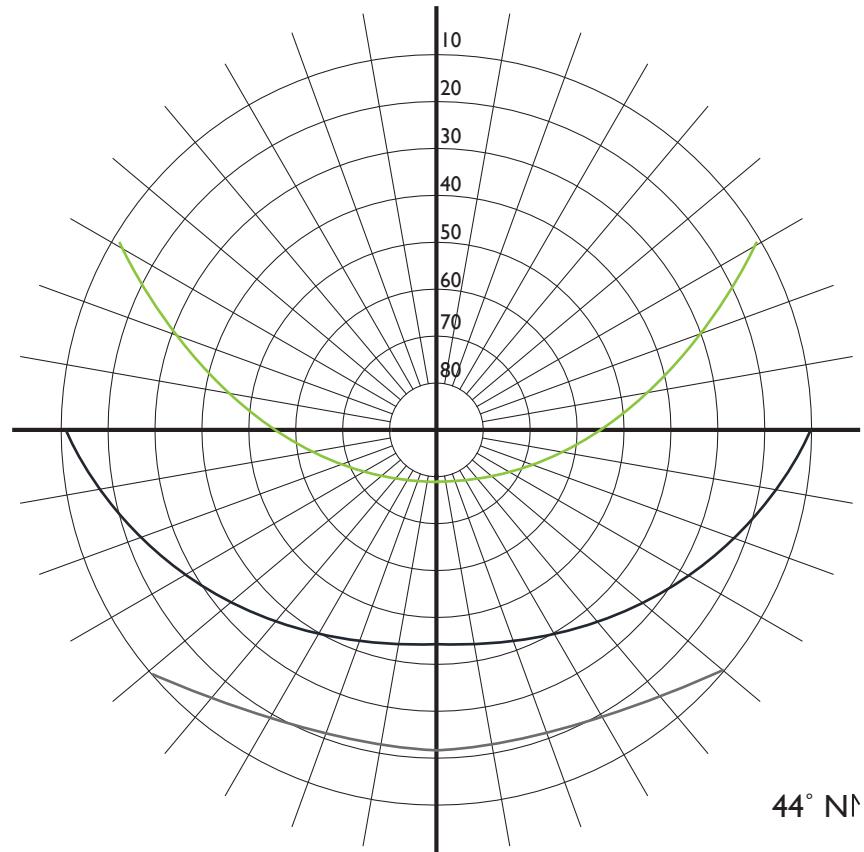


## WIND DIRECTION



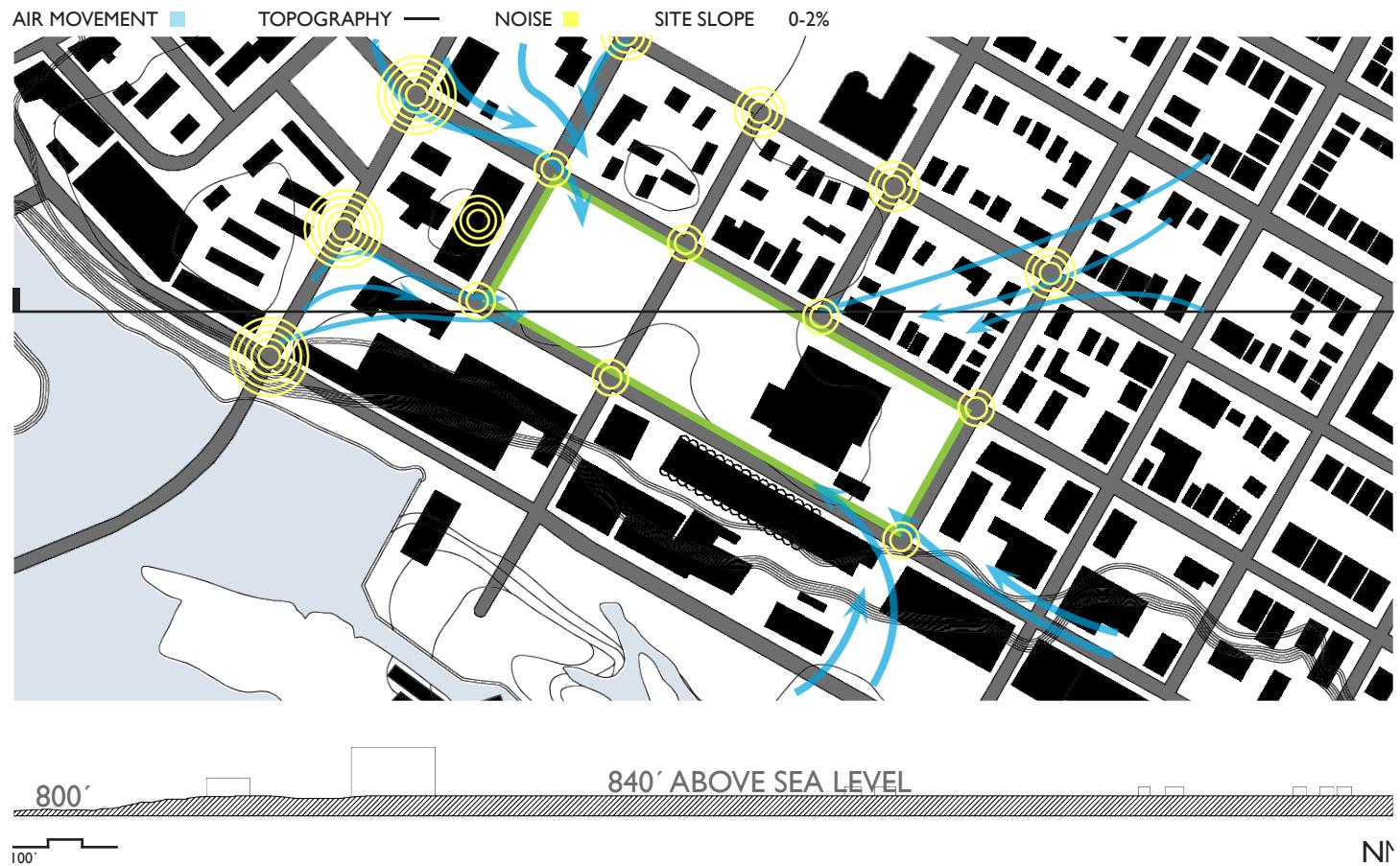
## STEREOGRAPHIC SUN PATH

SUMMER ■ SPRING / FALL ■ WINTER ■



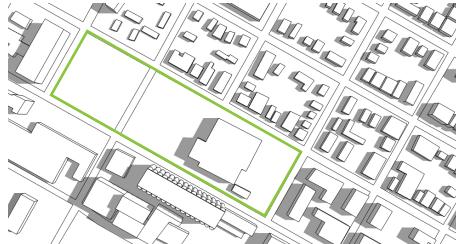
44° N

## SITE MAP / SECTION CUT

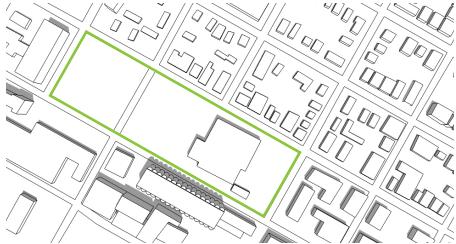


## SHADING

8 AM



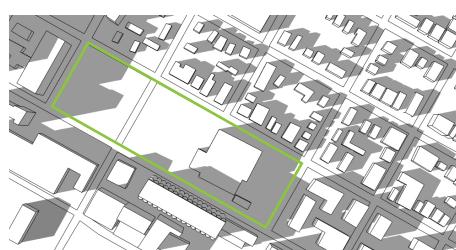
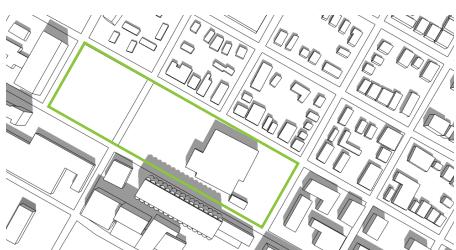
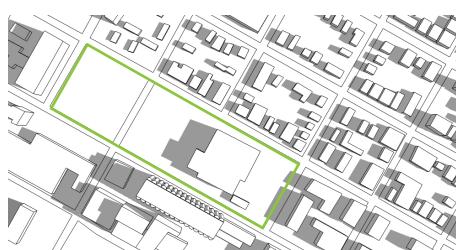
12 PM



5 PM



JUNE 21<sup>ST</sup>



SEPTEMBER / MARCH 21<sup>ST</sup>



DECEMBER 21<sup>ST</sup>



# PROGRAMMATIC REQUIREMENTS

## SPACE ALLOCATION

### PROGRAM SQ FT

384,300

### MAJOR PROJECT ELEMENTS

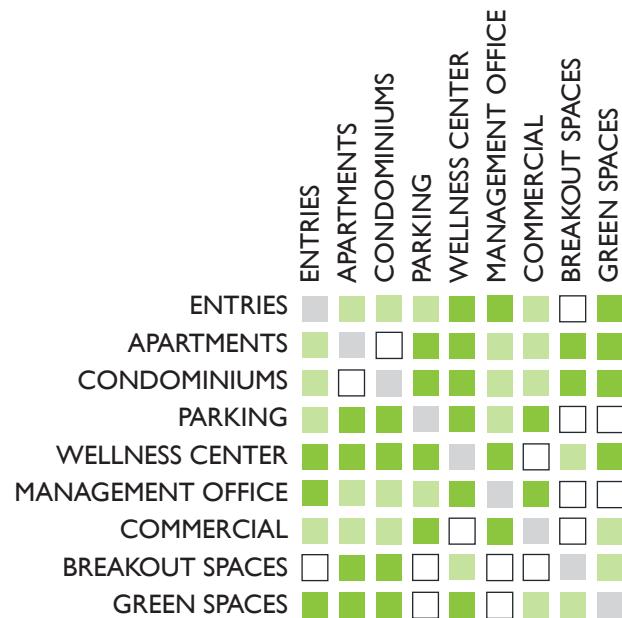
Apartments	Condominiums	Wellness Center	Green Space	Circulation	Mechanical
210,000	90,000	60,000	10,000	10,300	3,000

### MINOR PROJECT ELEMENTS

STUDIO	SINGLE	FITNESS SPACE	COURTYARDS	BIKE STORAGE	JANITORIAL
400 / UNIT	500 / UNIT	10,000	500	1,000	500
SUITE	SUITE	STUDIOS	POCKET PARKS	PARKING	MECHANICAL
800 / UNIT	900 / UNIT	25,000	500	40,000	2,500
FAMILY	FAMILY	SPIRITUAL SPACE	TERRACES	TRANSIT STOP	
1200 / UNIT	1300 / UNIT	2,500	5,000	500	
MAIL ROOM	MAILROOM	DAYCARE	GARDENS	PEDESTRIAN	
60 / 150 PPL	60 / 150 PPL	2,500	1,000	14,000	
LAUNDRY	RECYCLING	CLASSROOMS	GREEN SPACES		
400 / 150 PPL	400	4,000	4,000		
RECYCLING		MEDIA LOUNGE			
400		10,000			
		LOCKER ROOMS			
		1,000			
		LOBBY SPACE			
		500			
		MANAGEMENT			
		500			
		CAFE / BAR			
		3,000			

## INTERACTION MATRIX

STRONG CONNECTION ■ WEAK CONNECTION □ UNCONNECTED □



## INTERACTION NET

PRIVATE

PUBLIC

TRANSITIONAL

DIRECT CONNECTION

ASSOCIATED CONNECTION

**ENTRANCES**

**PARKING**

**CIRCULATION**

**MANAGEMENT**

Bike Storage

Management Offices

Bus Station

Recycling / Trash

Pedestrian

Mail Rooms

Vehicle

Public Restrooms

**MECHANICAL**

Mechanical Room

Janitorial / Storage

**GREEN SPACES**

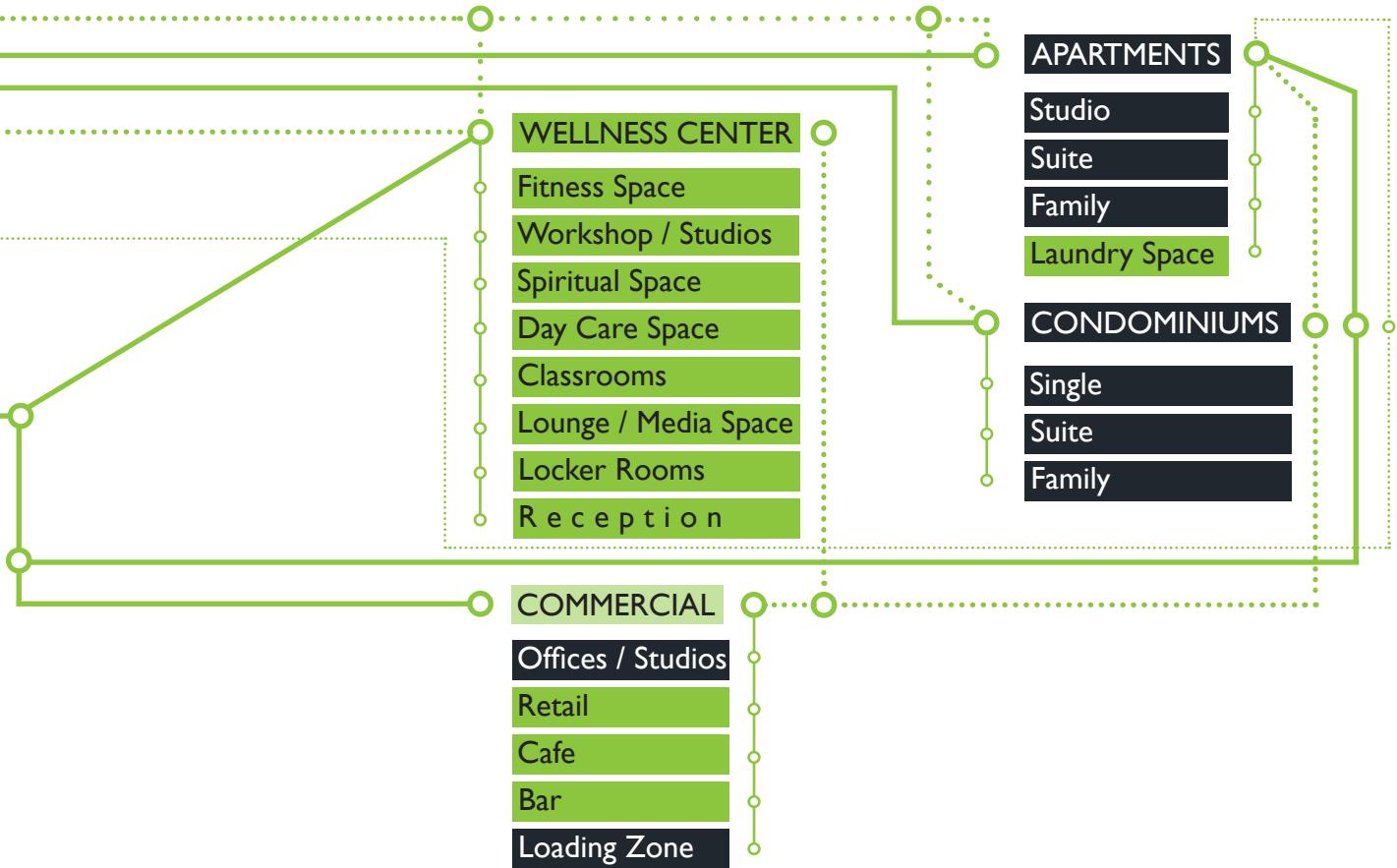
Courtyard

Pocket Park

Terrace

Garden

General Green Space





# DESIGN DEVELOPMENT

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## DESIGN INFLUENCES

### MAJOR PROGRAM ELEMENTS



#### 01 URBAN LIVING

The major element of the program is that it adapts to its location and designs itself based on what is needed. The current site location acts as an under utilized parking lot. The program transforms it into a high density mixed use community node. The need for high density housing is in response to growing sprawl in Minneapolis.



#### 02 HEALTH + WELLNESS

The health and wellness center stems for a need to create a place for community development and aid in both the individual's and community's overall quality of life and happiness.

### INCREASE CONNECTIONS



#### HOLISTIC DESIGN

As the concept design developed a need for a greater level of connection presented itself. By generating a more compact design the design allows for easier access to amenities and a greater sense of community. The shape lends itself to the views to the south of the city skyline and of Saint Anthony's Falls. Alluding to its history and context.

## INCREASE DENSITY



### DENSITY

Stated previously, the population of Minneapolis is growing and in order to counteract the trend towards sprawl. The program includes over 240 residential units to accommodate 350 users. Underground parking has been generated to accommodate 1 vehicle per unit and extra parking spaces for public use. The inclusion of parking is an understanding that the current urban model does not currently lend itself to a fully walkable concept design.

## OBSERVE NATURE



### WIND

In order to better fit the location the concept design has been catered to the wind and the sun. Wind on the site comes mainly from the south and the north. These edges of the design have been pulled up like a coat collar to block the wind from the interior spaces.



### LIGHT

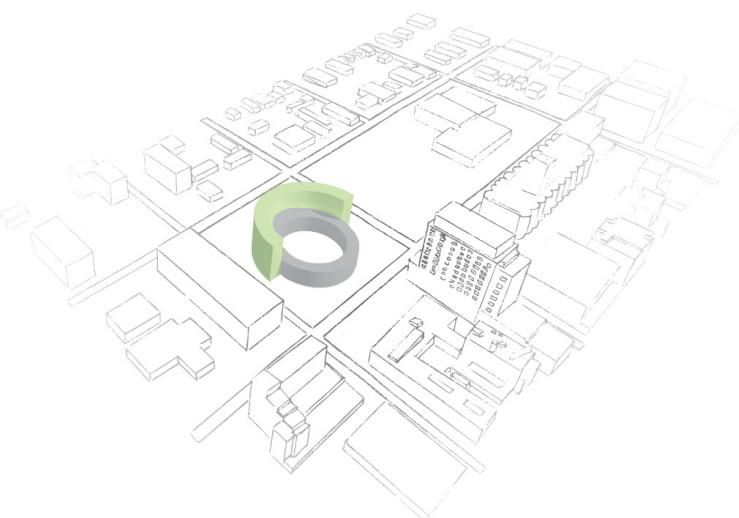
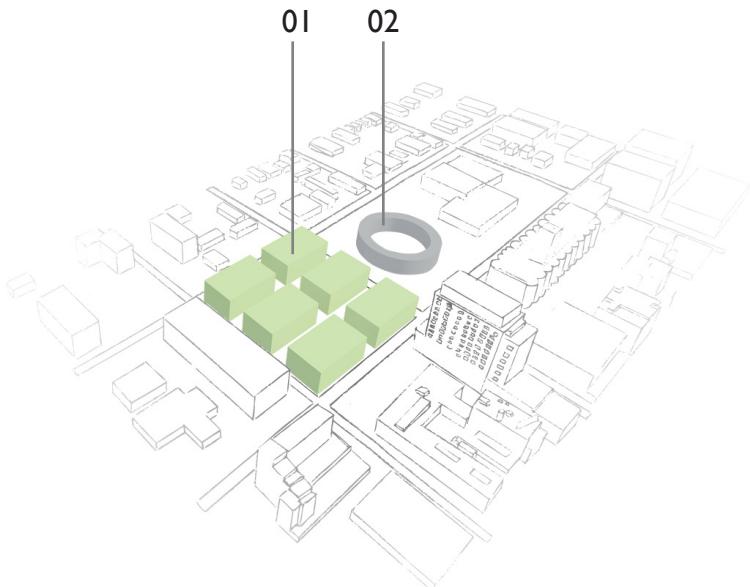
The residential areas have been sloped to match the pattern of the sun. Sloping the design in accordance with the sun pattern allows for more natural light into the interior of the site and into the health and wellness center. This design also lends itself to the views to the south of the city skyline and of Saint Anthony's Falls.

## DESIGN INFLUENCES

### MAJOR PROGRAM ELEMENTS



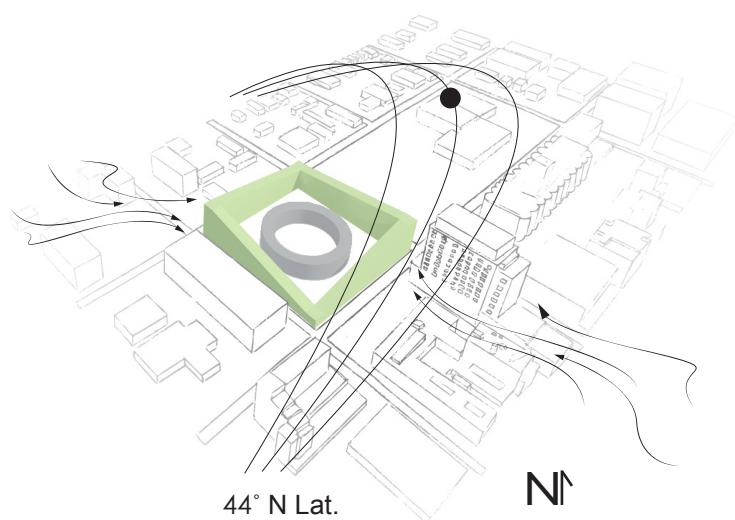
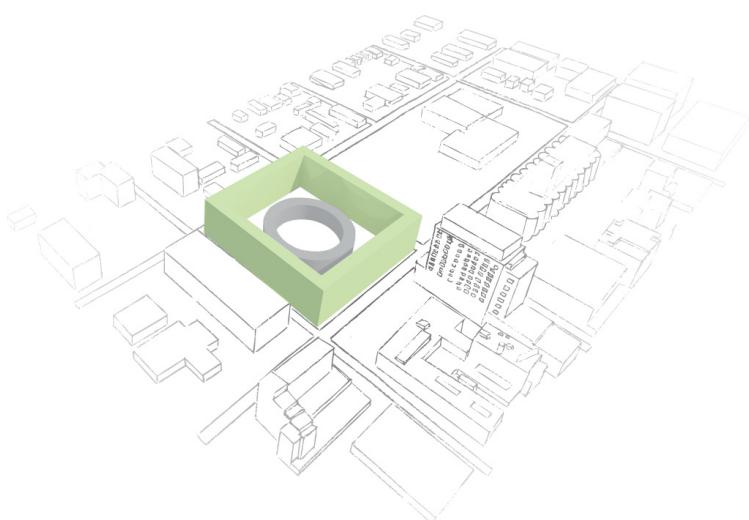
### INCREASE CONNECTIONS



## INCREASE DENSITY



## OBSERVE NATURE

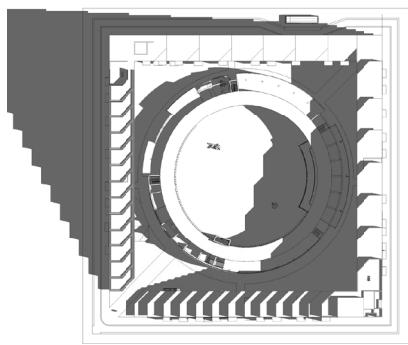


## DESIGN INFLUENCES

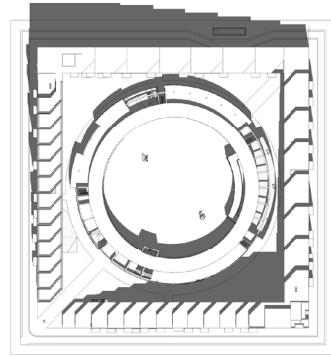
### SOLAR GEOMETRY

In order to better gain daylight into the interior courtyard and green spaces, the residential units have been tiered.

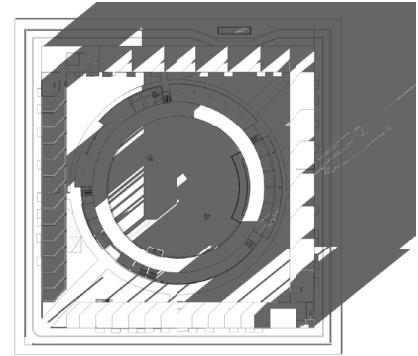
### SUMMER



9 AM

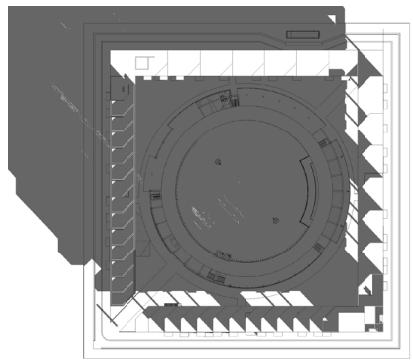


12 PM

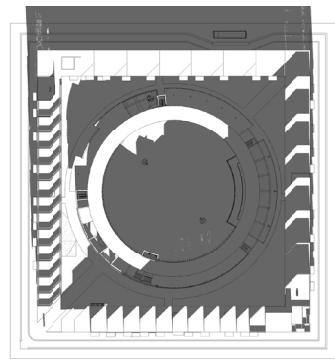


4 PM

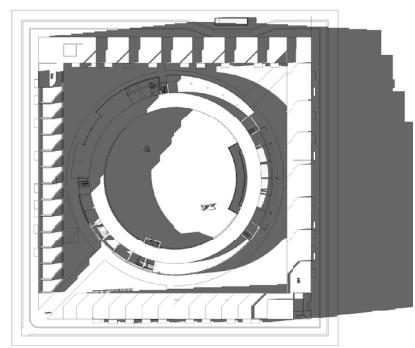
WINTER



9 AM



12 PM



4 PM



# FINAL CONCEPT: NODE ONE

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## CONCEPT WALKTHROUGH

### SITE MAP

### FLOOR PLANS

GROUND LEVEL

WELLNESS CENTER FLOOR 1

WELLNESS CENTER FLOOR 2

WELLNESS CENTER FLOOR 3

RESIDENTIAL FLOOR PLAN 2

### RESIDENTIAL UNIT DESIGN

EXPLODED AXONOMETRIC

FLOOR PLANS

SECTIONS

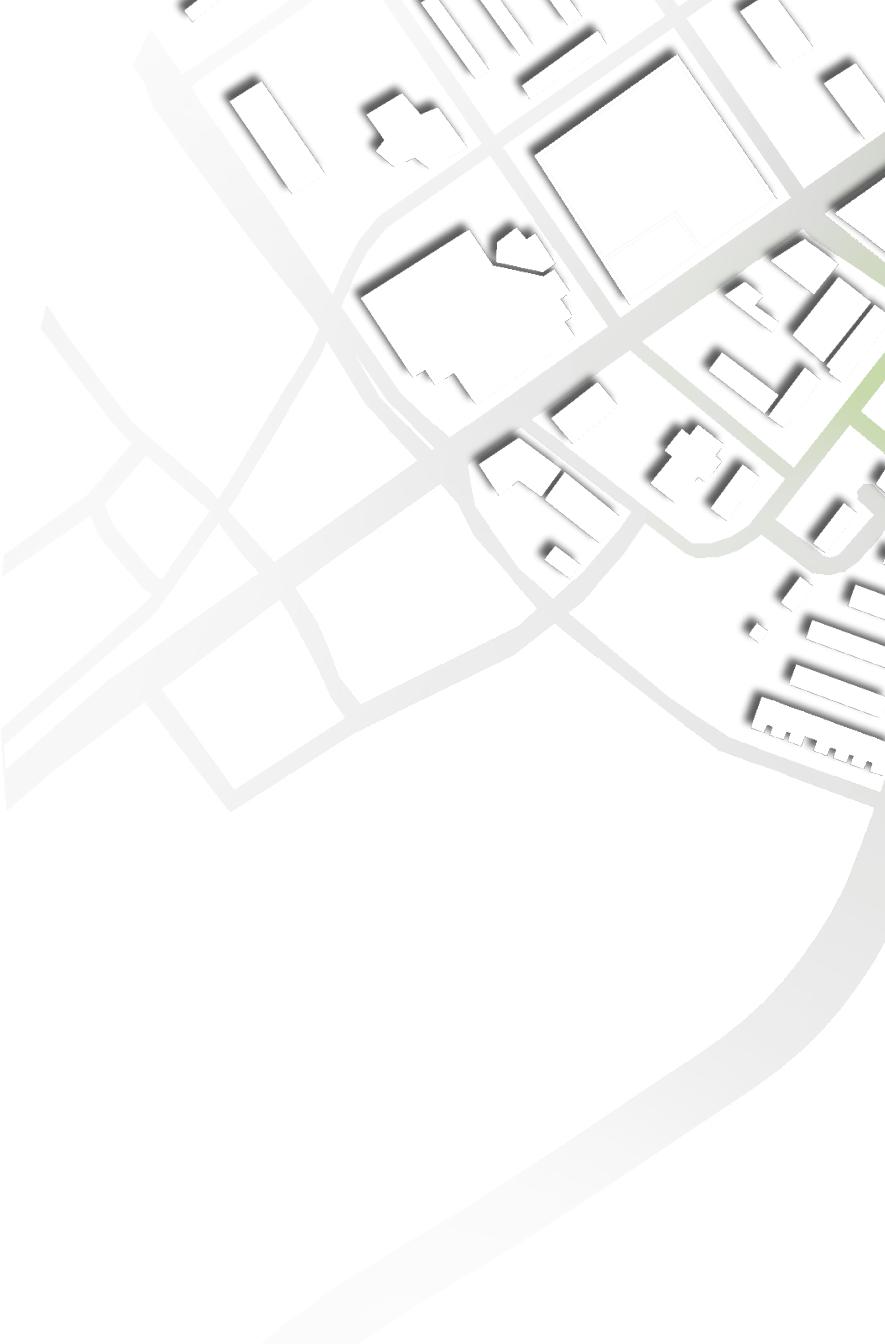
### SECTION PERSPECTIVES

STRUCTURAL DESIGN

MECHANICAL DESIGN

SPATIAL ANALYSIS

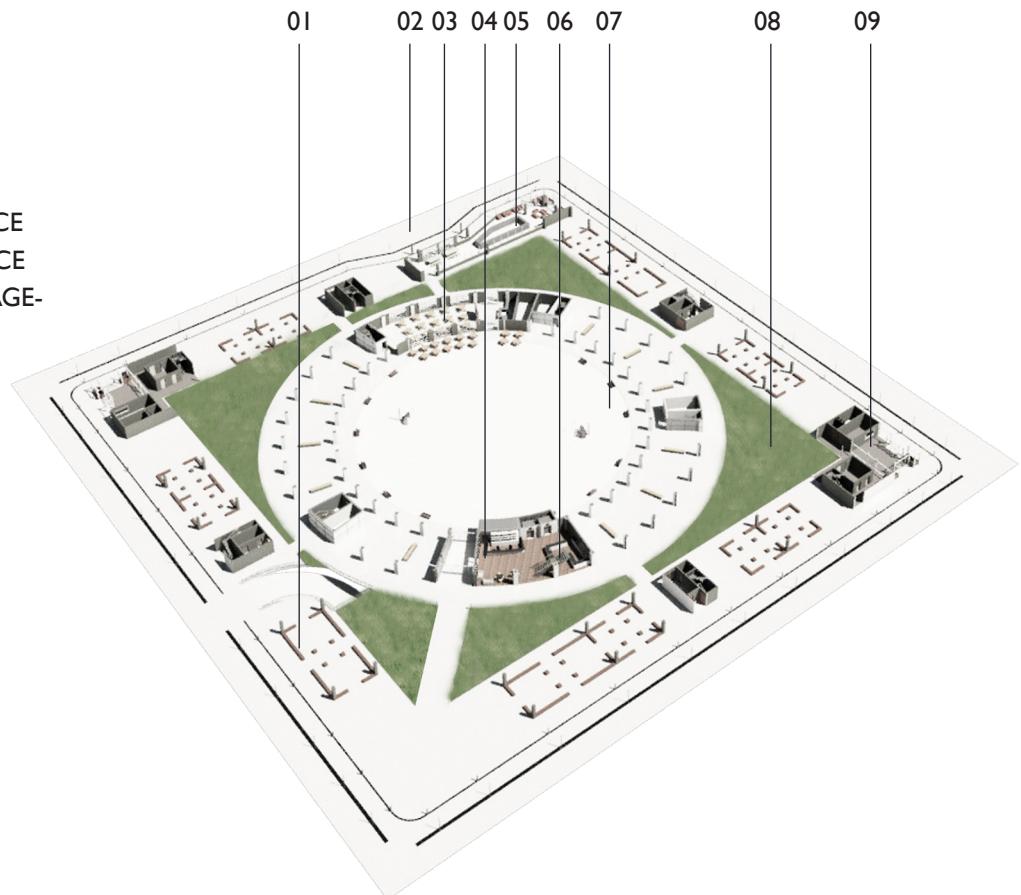
### RENDERS





## GROUND LEVEL

- 01 SEATING SPACES
- 02 BUS STATION
- 03 RESTAURANT
- 04 LOBBY
- 05 CAFÉ
- 06 HEALTH BAR
- 07 ACTIVE OUTDOOR SPACE
- 08 PASSIVE OUTDOOR SPACE
- 09 APARTMENT MANAGEMENT



## LEVEL I FLOOR PLAN

DIRECTOR'S OFFICE

EMPLOYEE OFFICES

BREAK ROOM

YOGA / PILATES STUDIO

MARTIAL ARTS STUDIO

MULTI-PURPOSE STUDIOS

EXERCISE MACHINES

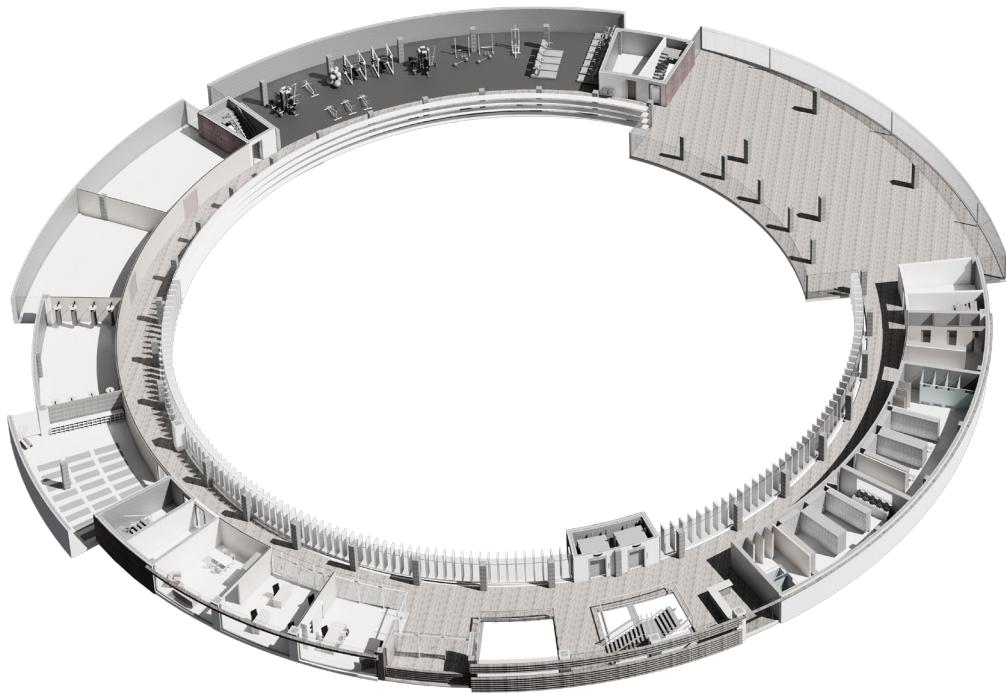
HELP DESK

MEN'S LOCKER ROOM

WOMEN'S LOCKER ROOM

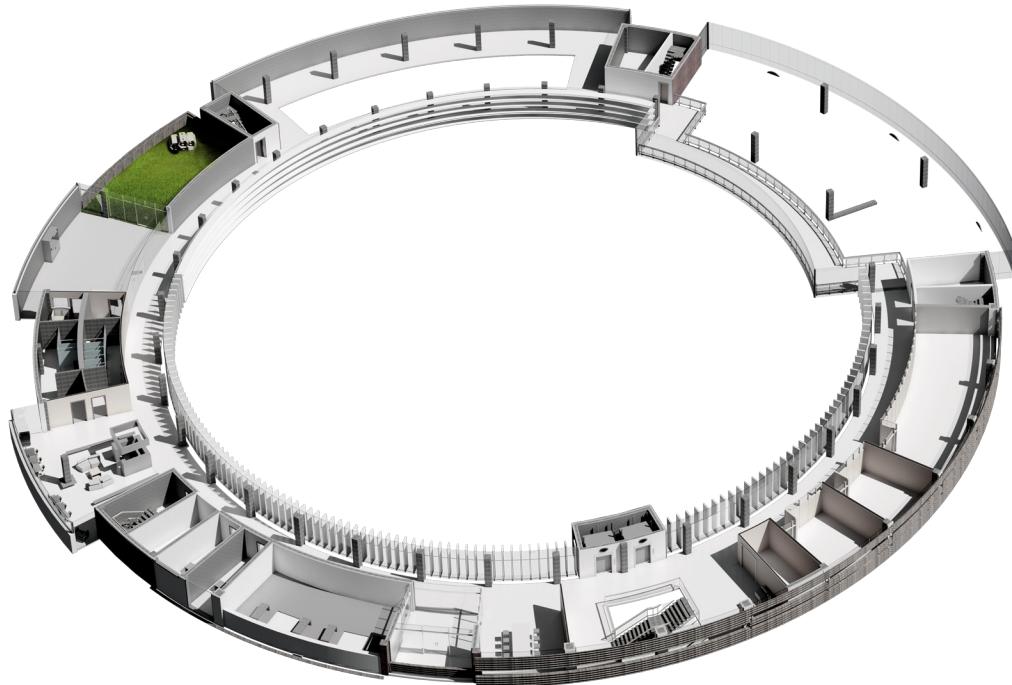
FAMILY LOCKER ROOMS

RECREATIONAL GYM



## LEVEL 2 FLOOR PLAN

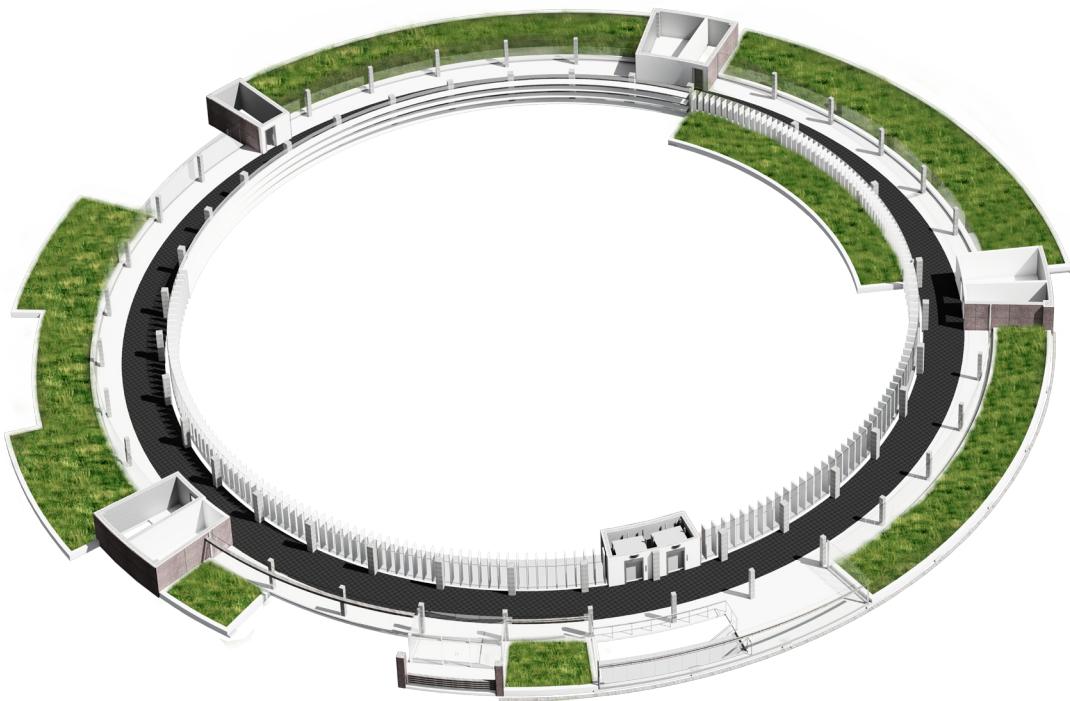
OUTDOOR FIRE PLACES  
MEDITATION SPACE  
MEDIA LOUNGE  
REST ROOMS  
DAY CARE CENTER  
EXERCISE MACHINES  
STORAGE  
CLASSROOMS  
WORKSHOPS



## LEVEL 3 FLOOR PLAN

RUNNING TRACK

VEGETATED ROOF



## RESIDENTIAL FLOOR PLAN LEVEL 2 (TYPICAL)

### BREAKDOWN OF RESIDENTIAL PLAN

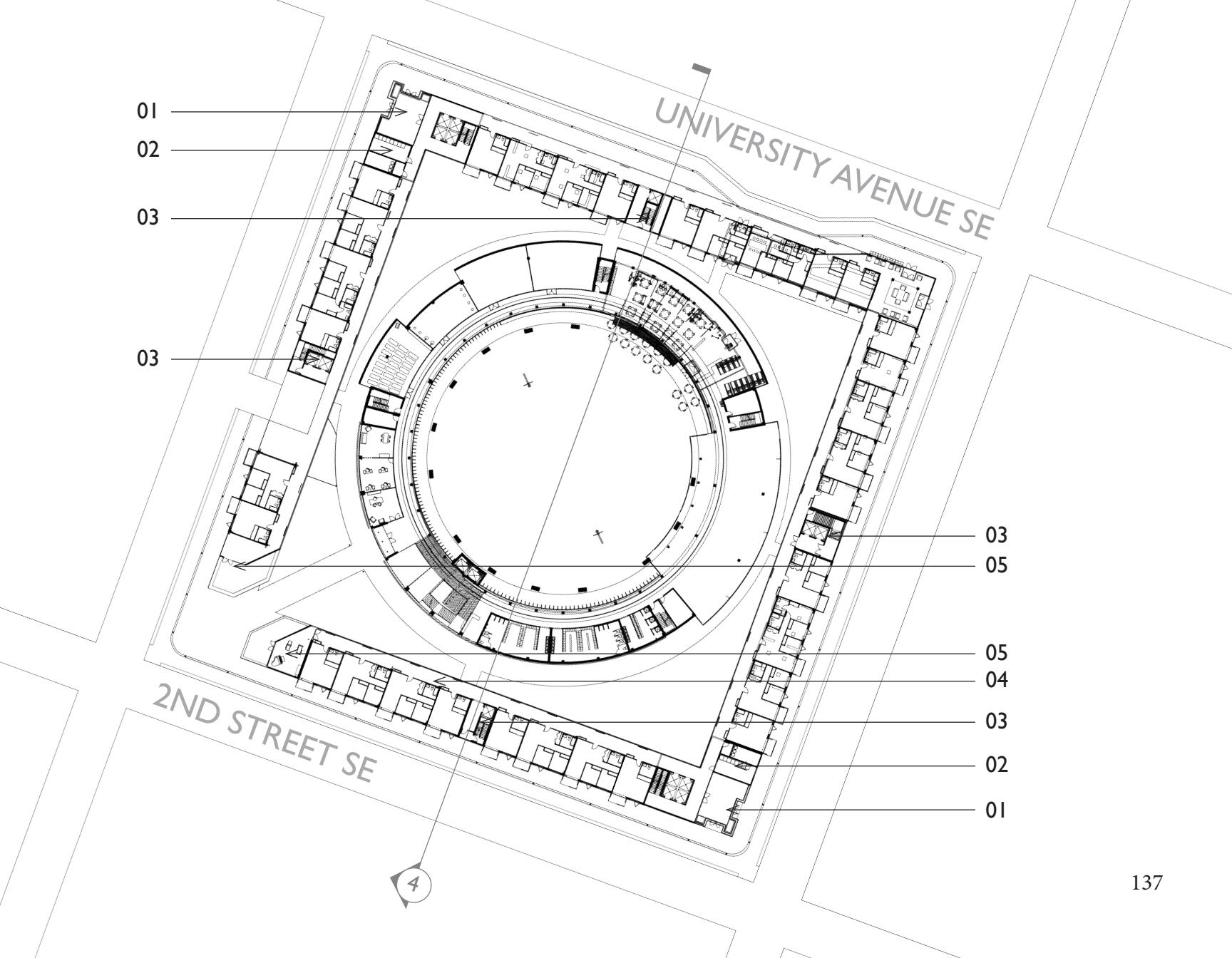
- 250 TOTAL No. OF RESIDENTIAL UNITS
- 350 TOTAL No. OF RESIDENTS
- 90% APARTMENTS
- 10% CONDOMINIUMS

### RESIDENTIAL FLOOR PLAN LEVEL 2 COMPONENTS

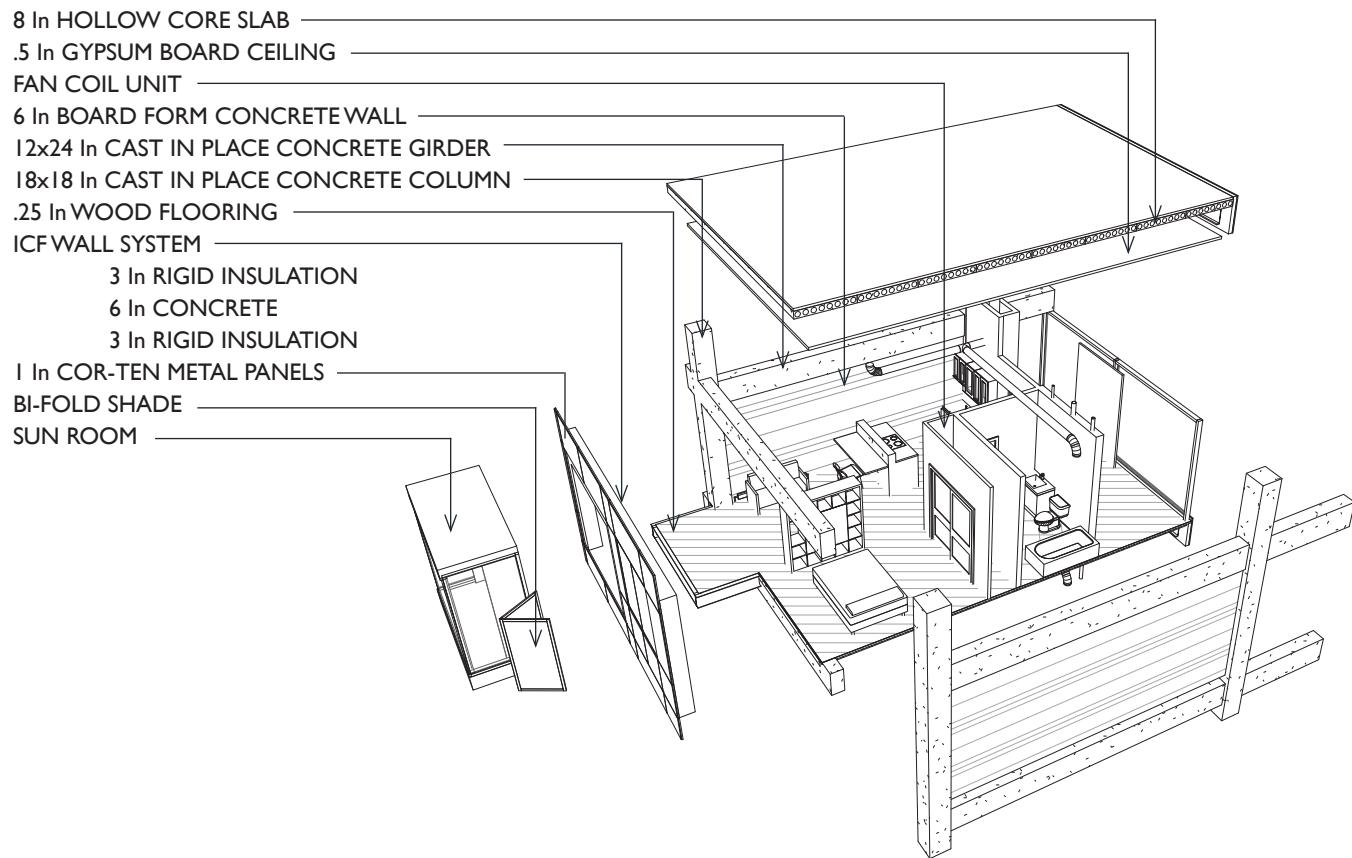
- 01 MAIN ENTRY AND RECEPTION
- 02 LAUNDRY / STORAGE/ TRASH COLLECTION
- 03 SECONDARY ENTRY POINTS
- 04 CIRCULATION CORRIDOR
- 05 COMMUNITY LOUNGES



WELLNESS CENTER LOBBY

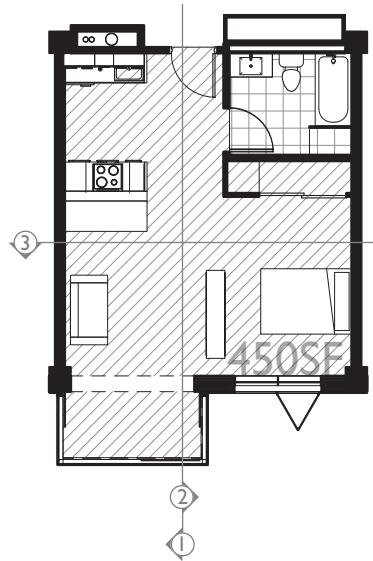


## RESIDENTIAL UNIT DESIGN EXPLODED AXONOMETRIC

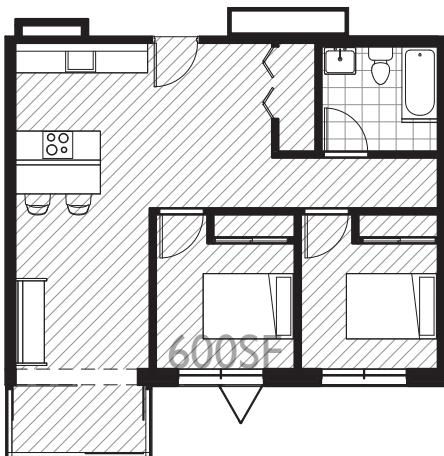


## RESIDENTIAL FLOOR PLANS

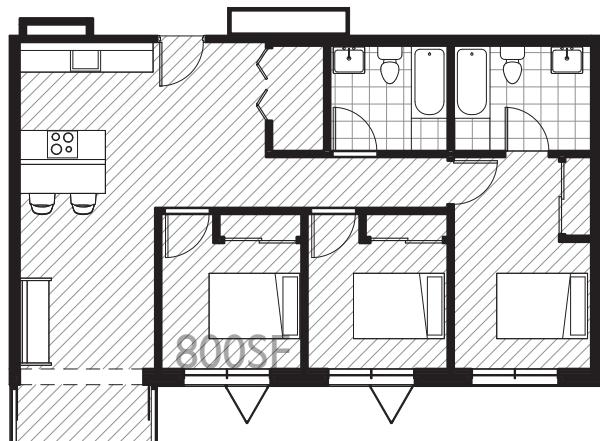
STUDIO



SUITE

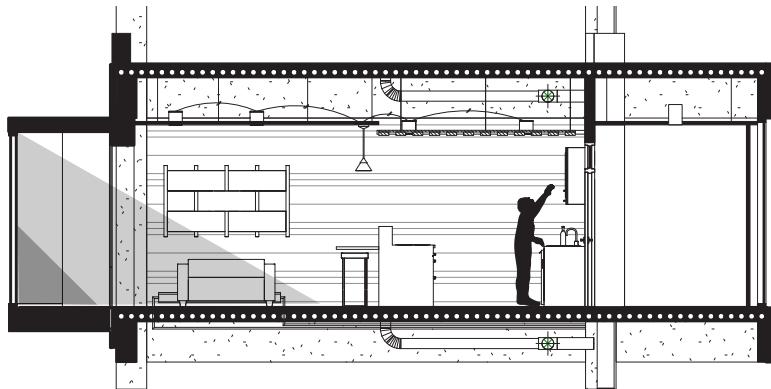


FAMILY

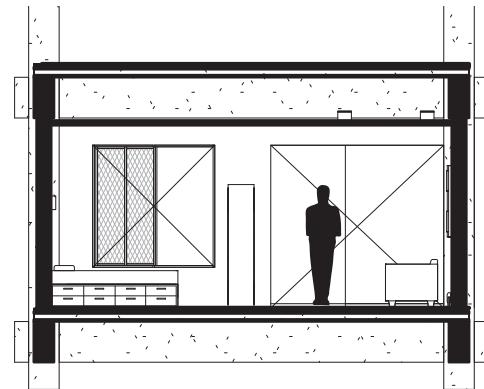


## STUDIO SECTIONS

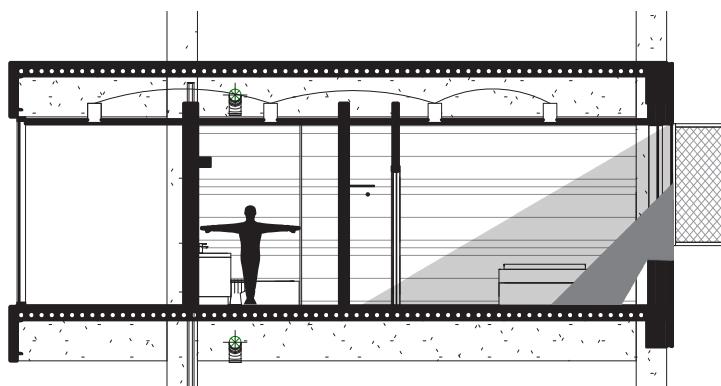
### SECTION 1



### SECTION 3



### SECTION 2



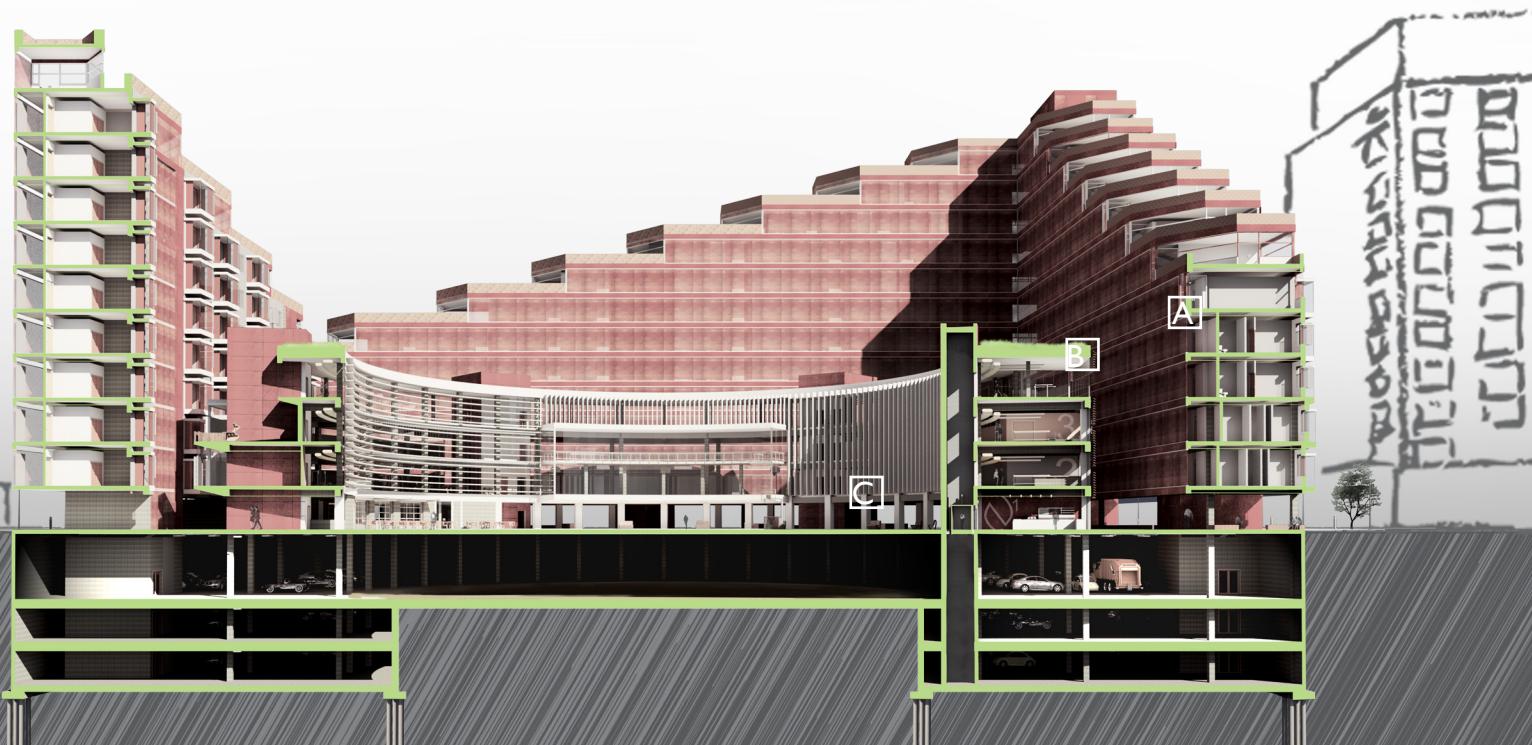
## STUDIO APARTMENT

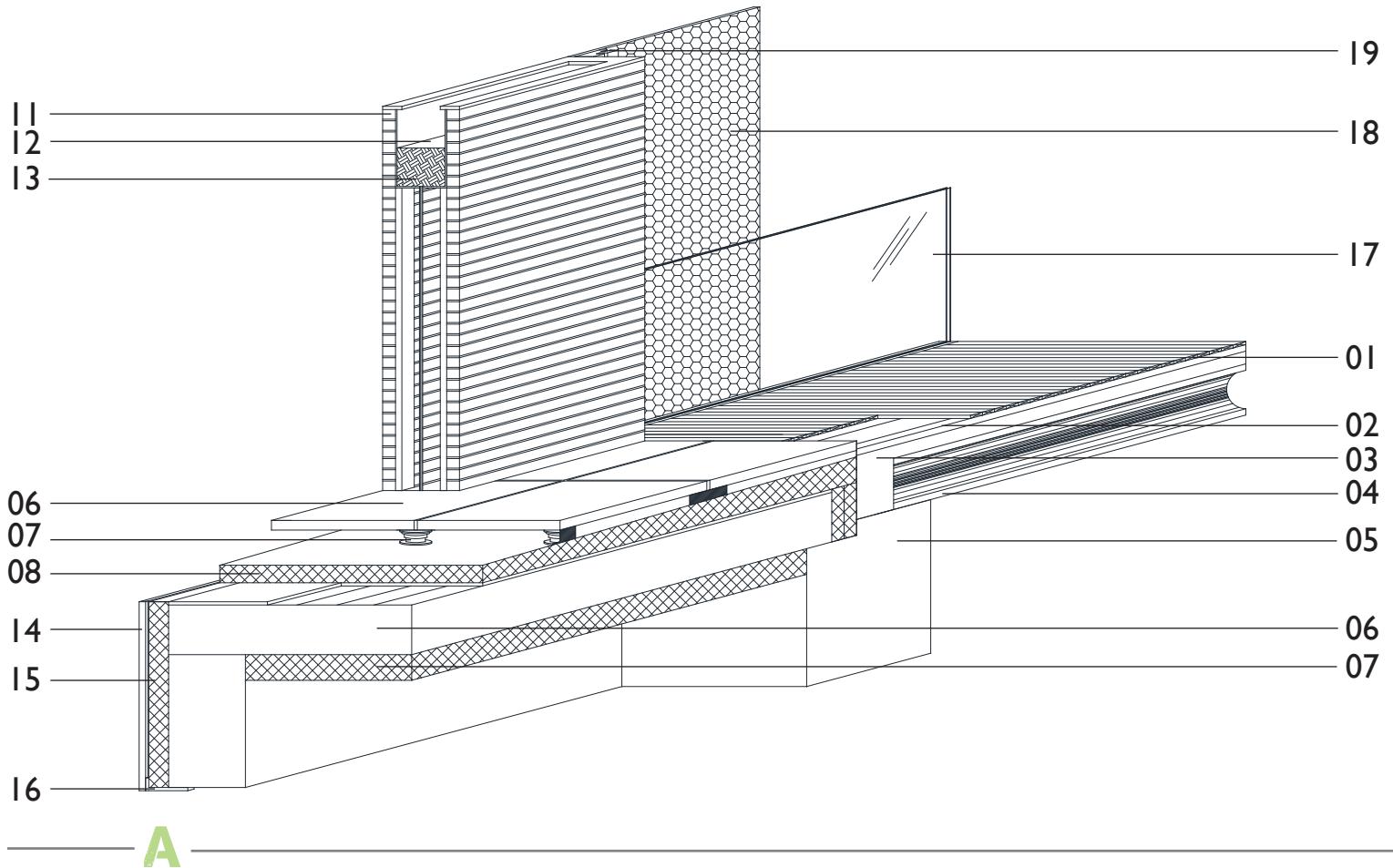


## SECTION PERSPECTIVE

4

The entire design has been lifted off the ground to allow for easy access to the interior spaces. The ground level acts as a public plaza where members of the city may interact and enjoy the site.



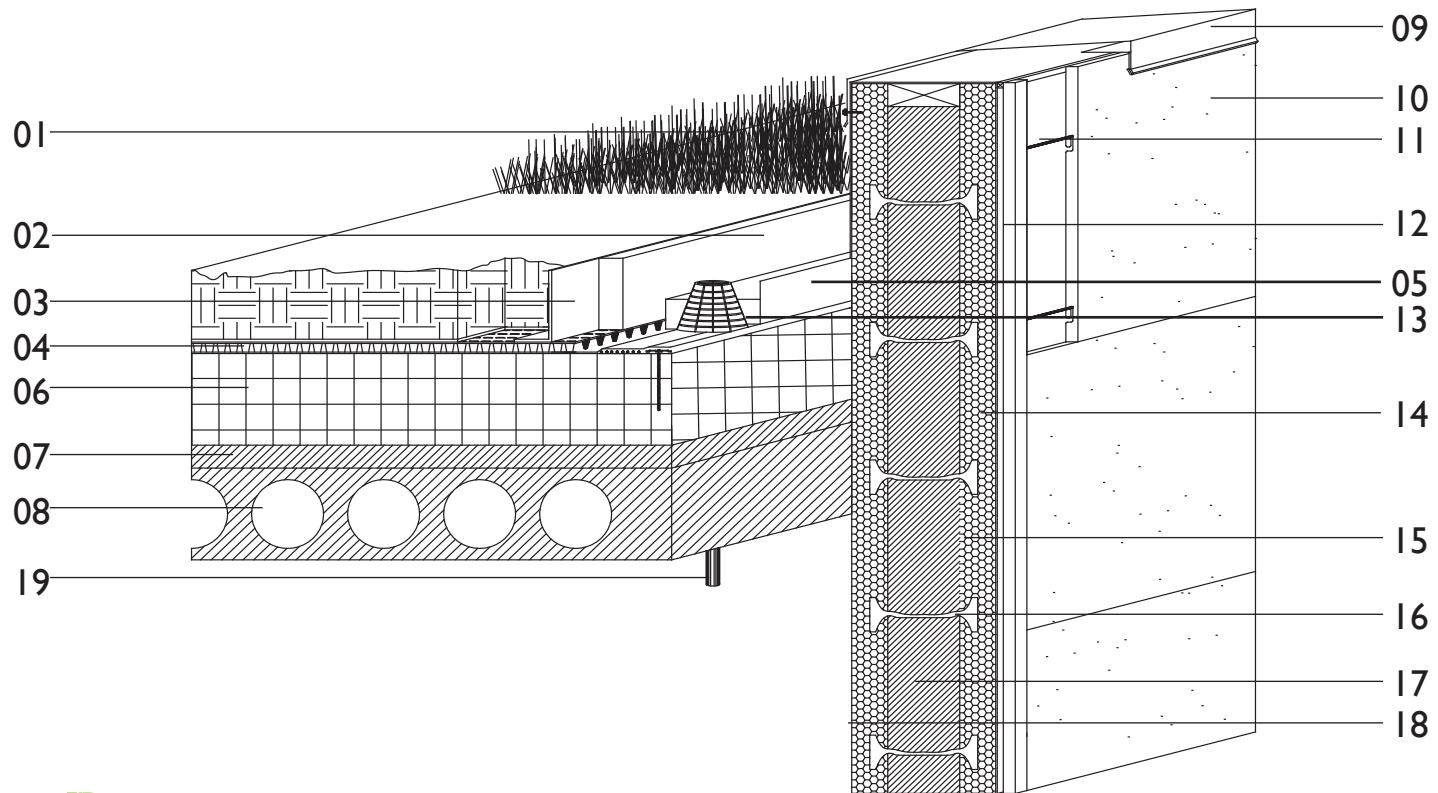


01 NORTHERN MAPLE FLOORING  
02 WOOD SLEEPERS @ 16 IN O.C.  
03 CONCRETE TOPPING  
04 HOLLOW CORE SLAB  
05 CONCRETE L GIRDERS  
06 CONCRETE PAVER  
07 PAVER PEDESTAL

08 4" RIGID INSULATION @ 1/4" SLOPE  
09 POURED CONCRETE SLAB  
10 4" RIGID INSULATION  
11 WOOD RAILING  
12 PLANTER BOX  
13 SOIL  
14 COR-TEN METAL PANEL SYSTEM

15 RIGID INSULATION  
16 PANEL ANCHOR  
17 DOUBLE PANED GLASS  
18 CURTAIN WALL MULLION  
19 PERFORATED COR-TEN METAL PANEL

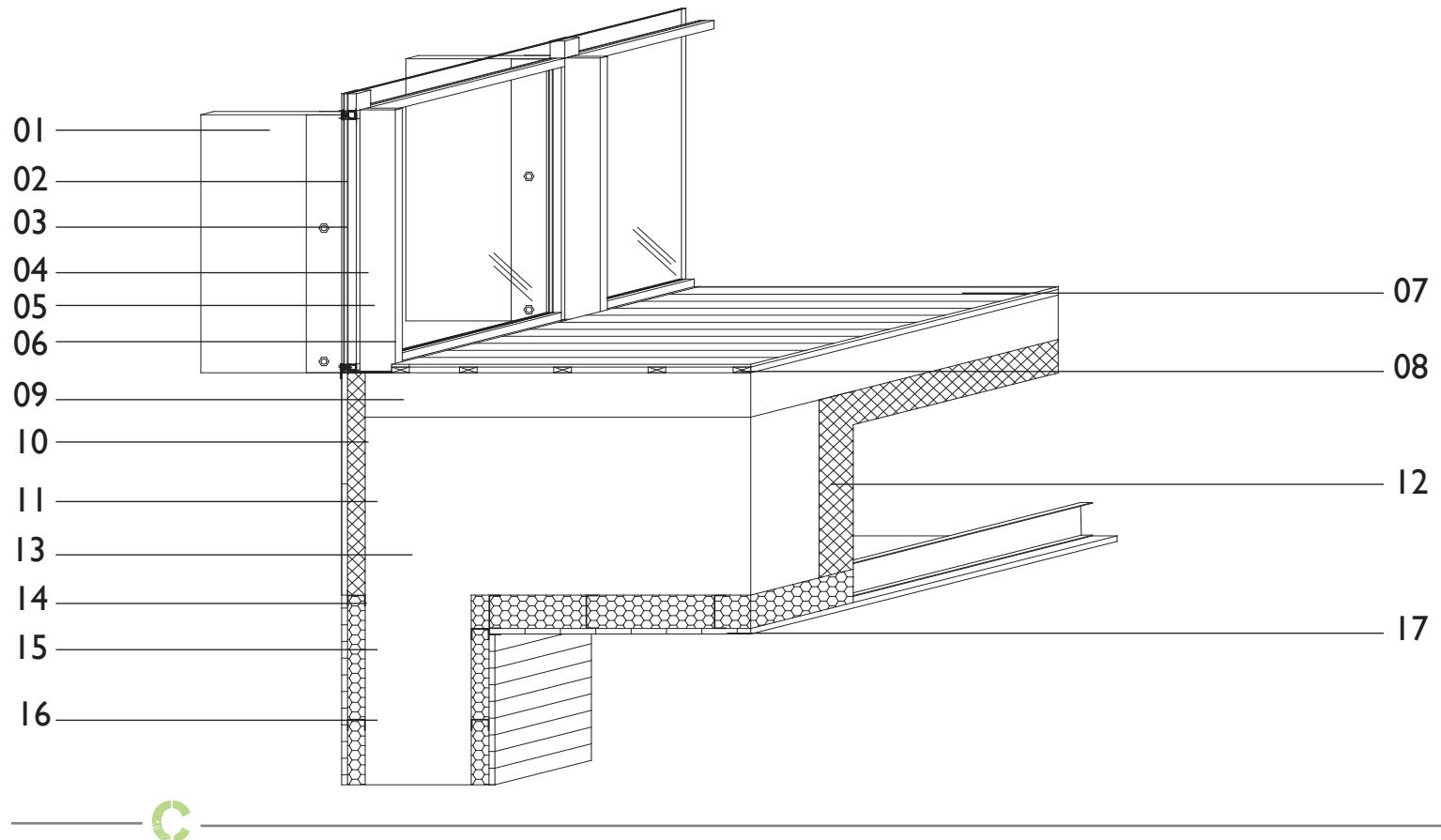
*Fig. 093 Opposite Page / Fig. 094*



01 GROWING MEDIUM  
02 CONCRETE CURB  
03 FILTER FABRIC / ROOT BARRIER  
04 DRAINAGE MAT  
05 WATER PROOF MEMBRANE  
06 RIGID INSULATION  
07 CONCRETE TOPPING

08 HOLLOW CORE SLAB  
09 METAL FLASHING  
10 COR-TEN STEEL PANEL  
11 PANEL HANGING ROD  
12 PANEL MULLION  
13 GRAVEL STOP  
14 AIR SPACE / VAPOR BARRIER

15 RIGID INSULATION  
16 INSULATED CONCRETE FORM TIE  
17 REINFORCED Poured CONCRETE  
18 RIGID INSULATION  
19 DRAINAGE PIPE



01 EXT ALUMINUM SHADE  
02 SHADE FASTENER CHANNEL  
03 SHADE FASTENER  
04 DOUBLE PANED GLAZING  
05 MULLION SYSTEM  
06 CURTAIN WALL STIFFENER  
07 NORTHERN MAPLE FLOORING

08 WOOD SLEEPERS @ 16 IN O.C.  
09 POURED CONCRETE SLAB  
10 COR-TEN METAL PANELS  
11 RIGID INSULATION  
12 RIGID INSULATION  
13 2 WAY CONCRETE SYSTEM  
14 SPRAY FOAM

15 ALIWOOD ALUMINUM SIDING  
16 C CHANNELS  
17 ALIWOOD ALUMINUM SOFFIT



146 Fig. 097 Spread





Fig. 098



## VIEW LOOKING OUT

As the seasons change so also do the activities. During the summer the interior courtyard hosts public sports, farmers markets, dining, dancing, and many more events. When the chilly months arrive the plaza transitions into a winter wonderland complete with a skating rink and hot chocolate.

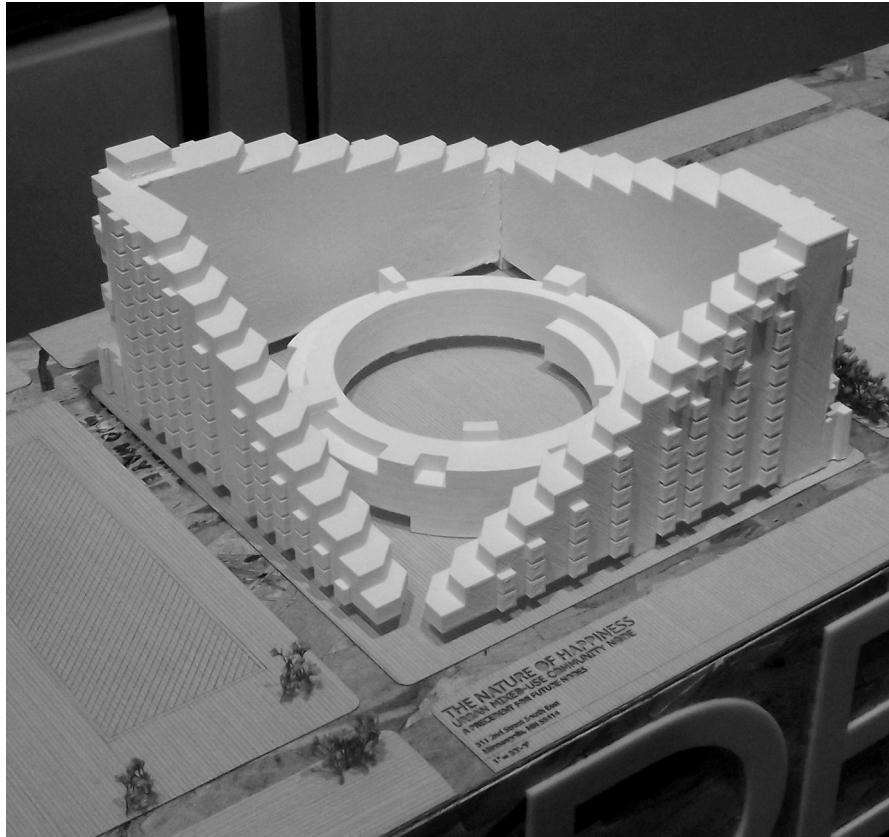




## THESIS DISPLAY



152 Fig. 100 Left / Fig. 101 Opposite Page



PHYSICAL MODEL

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*“Capturing happiness is like trying to capture the air, it is always around us, all we need to do is breathe”*

- Alex Carlson