Dwelling in Nomadic Architecture
Transitional Housing for the Suddenly and Chronically Homeless
DWELLING IN NOMADIC ARCHITECTURE:
Transitional Housing for the Suddenly and Chronically Homeless

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

By:
Nathan Miller

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

Steve C. Martens, Architect, Professor
Primary Thesis Advisor 9/5/2016

Thesis Committee Chair

May 2016
Fargo, North Dakota
# Table of Contents

Project Title and Signature Page 3  
List of Tables and Figures 7  

**THESIS PROPOSAL**  
Thesis Abstract 11  
The Narrative of the Theoretical Aspects of the Thesis 12  
Premises  
Site  
Case Studies 15  
Star Apartments *Los Angeles, CA*  
Bamboo Micro Housing Proposal *Hong Kong, China*  
The Bridge Homeless Assistance Center *Dallas, TX*  
Major Project Elements 32  
User/Client Description 34  
The Project Emphasis 35  
Goals of the Thesis Project Appendix 36  
A Pan for Proceeding 37  

**THESIS PROGRAM**  
Theoretical Premises 40  
Project Justification 45  
Historical, Social and Cultural Context 47  
Site Analysis 74
DESIGN SOLUTION
Process Documentation 104
Project Solution Documentation 128
Performance Analysis: Response to the Site 152
Performance Analysis: Response to the Typological or Precedent Research 153
Performance Analysis: Response to Goals and Project Emphasis 154

DESIGN SOLUTION
Reference List 158
Previous Design Studio Experience 163
Personal Identification 163
The goal of this thesis project is to create a welcoming and respectful space to house, educate, and rehabilitate the chronic homeless population in the Minneapolis area. The challenge of this premise is to provide transitional housing that separates itself from the stereotypical institutional stigma many facilities face. This will be done by studying the difference between smooth and striated places as referenced by Deleuze and Guattari, nomadic tendencies and architecture, and case studies demonstrating different responses to homelessness. There is a growing need for solutions addressing homelessness, particularly the significant rise of new age groups such as seniors, two-parent families, and teenagers under the age of eighteen. The number of homeless persons with mental illness is also on the rise. The challenge will be to match different age groups or living situations with their preferred type of space. This will require the ability to design spaces that are flexible and supportive of the nomadic tendencies many of the chronically homeless are accustomed to. It will also require the ability to design efficient, institutional spaces that act as more of a system to elevate people out of homelessness.
The goal of this thesis project is to create inclusive and respectful spaces to provide transitional housing, education, and healthcare. The challenge is to provide sustainable dwelling opportunities for the homeless population, with a focus on the chronically homeless. To do this we need to understand why this is important we have to first start with what the reality of a home really is and what it means to dwell.

One issue of homelessness that needs to be addressed is the difference between home and shelter. Many people understand homelessness as not having a tradition living space such as a house or apartment as a permanent residence. What some people fail to realize is that just because someone has a house, that doesn’t mean they have a home. And in the opposite view, just because someone doesn’t have a house doesn’t mean they are not without a home. Matthew Allen points out that there are people living in traditional houses all around the world that he would define as homeless. They might move anywhere year to year with hardly anyone taking notice. Yet there could be someone living in Tent City, Seattle changing locations every few months who might not change their living situation because of their community. So what makes a shelter a home?

Flusser, talking as an emigrant, understands home as where we choose to invest in connections within a community. “In my now hard-won freedom, it is I who ties the binds that connect me to my neighbors, in cooperation with them. This, I believe, demonstrates what freedom means: not cutting off all relationships with others, but weaving these connections in cooperation with them.” It is much easier to find a home where your neighbors accept you, and you choose accept them. Connections are not the only thing that is needed however.

Stability and habit are also the other necessary ingredients of a home. “The secret codes of homes are not made of conscious rules, but rather spun from unconscious habits.” –Flusser. One is truly at home when they can lose themselves in their own consciousness, between the private and the public. Flusser references Hegel to explain a home. “If I find the world, then I lose myself; if I find myself, then I lose the world. Without a home, I would be unconscious; that is, without a home, I would not actually exist. A home is how I find myself in the world.” How I understand Flusser and Hegel is that a true home is where we find balance between ourselves and the outside world.

However, to find connections, stability, and habit we need to build, and building is dwelling. Heidegger dives deep into the meaning of dwelling. Bauen means to build, and baun means to dwell. “Building as dwelling, that is, as being on the earth, however, remains for man’s everyday experience that which is from the outset ‘habitual’ —we inhabit it, as our language
says so beautifully: it is the Gewohnte.” –Heidegger. Taking all this into consideration, I take this to mean building our home is dwelling; not physically building but building up relations with neighbors and the community, building positive living habits, and building a stable way of life. Doing this, you can get a sense wunian, which means to “be at peace, to be brought to peace, to remain in peace.” And the word for peace is Friede, which means “preserved from harm and danger, preserved from something, safeguarded. This brings us to the last element of a home — security. However, according to Allen “dwelling requires an acceptance of the limits of the human ability to impose order on a chaotic world.”

It seems that we have always struggled with the differentiation between shelter and dwelling. Since the Industrial Revolution, we have especially struggled with the efficiency and economics of providing shelter. Is providing basic, efficient, mass produced shelter better than no shelter at all? It maybe be good in a short term solution, but that depends on its ability to allow those sheltered to eventually dwell.

A focus of transitional housing needs be to exhibit a quality of welcome-ness and acceptance. More and more we are seeing architecture design for the defense against the homeless. “When you’re designed against, you know it. Other people might not see it, but you will. The message is clear: you are not a member of the public, at least not of the public that is welcome here.” The same is true of all defensive architecture. The psychological effect is devastating.” –Ocean Howell. It seems everyone claims they want homelessness to be ‘solved’ but none want to live with the problem and help solve it. “Defensive architecture acts as the airplane curtain that separates economy from business and business from first class, protecting those further forward from the envious eyes of those behind. It keeps poverty unseen and sanitizes our shopping centers, concealing any guilt for over-consuming. It speaks volumes about our collective attitude to poverty in general and homelessness in particular. It is the aggregated, concrete, spiked expression of a lack of generosity of spirit.” We are becoming more aware of this problem however. There are unconventional ways to blend in shelter into the built environment. These out of the box solutions can be effective and start to change part of the existing culture.

“The proper dwelling plight lies in this, that mortals ever search anew for the essence of dwelling that they must ever learn to dwell. What if man’s homelessness consisted in this that man still does not even think of the proper plight of dwelling as the plight? Yet as soon as man gives thought to his homelessness, it is a misery no longer. Rightly considered and kept well in mind, it is the sole summons that calls mortals in their dwelling.” What I understand Heidegger to mean is that we as a society need to keep building. Our cultures, problems, and solutions will continue to evolve. If we are always searching for ways to truly dwell, the homeless can take comfort that we are unified in the search to build a true home.
Star Apartments
Designer: Michael Maltzan Architecture
Typology: Mixed-Use, Permanent Housing for the Formerly Homeless, Prefabrication
Location: Los Angeles, California

Purpose
Star Apartments is the first mixed-use, multi-unit residential project for the formerly homeless made with this construction method in Los Angeles. The Star Apartments sought to create a mixed use of services for residents and the community through its architecture. The building fuses together community and residential services with accelerated prefabricated construction, adaptive reuse, and ambitious sustainability. The “project opens up the protected communal space to light and air and views, a liberation that is not simply a compositional or morphological experiment – it results directly from carefully examined methods of construction.” -Architectural critic Raymund Ryan. The form was informed by the attention to the cultural topography and the physical and visual experience the body encounters as it moves through the building. Michael Maltzan makes the supportive housing composition a landmark in a high-traffic area, encouraging visitors to engage with the community within.
Construction Methodology
Constrained by limited budget and a tight schedule, Maltzan used an existing one story building as a podium for the design. The building was retrofitted with the necessary structure and prefabricated modules were lifted into place. The prefabrication allowed for an accelerated construction time and improved control of sustainable design. Star Apartments was able to achieve a Platinum rating in LEED for Homes.

Program Elements
The building is composed of three tiers: a public health zone, community and wellness programs, and residential floors. The strategic placement of public and private spaces promotes the interaction between the residents and the general community. For example, users of the Wellness Center must navigate through the building, chancing encounters with regular residents. This encourages interaction contributing to the therapeutic purpose of the building.

Street Level
  Medical clinic
  Art Center
  LA Country Department of Health Service for Housing and Health Division
  Parking
Second Level
  Health and Wellness Center
  Community Garden
  Green Spaces
Third Level
  Four floors of 102 residential units
Bamboo Micro Housing Proposal
Designer: AFFECT-T
Typology: Temporary Housing
Location: Hong Kong

Purpose
The Bamboo Micro-House building project is being developed to tackle the lack of stable and permanent public housing. It does this by creating an assortment of living spaces constructed out of bamboo and placing them in Hong Kong’s disused industrial buildings. The low-cost bamboo structures are created as different micro-housing and community facilities like dining, games, and education. The units are flexible to provide space for individuals, couples, families. The micro-homes have their own water, electricity, and waste disposal while the group as a whole would share heating and cooling needs.
**Nomadic Architecture**

This type of architecture is indicative of nomadic culture in some ways. The architecture of the nomad is flexible, easy assembled and reassembled, and is able to respond to the needs of the land and the needs of its people. While still housed under the same roof, these micro-structures respond to the needs of the people, either those who are new or those who are adapting.

The micro-structures are an attempt to smooth over the striated space of the existing industrial buildings in to smooth space. The basic needs of a person reclaim and repurpose a defined space into a space that fits the necessity of a time.
The Bridge Homeless Assistance Center

Purpose

This five building campus style is a large scale solution to the housing needs of six thousand people. The Bridge provides housing, along with emergency and transitional care. After cutting down the population of chronic homelessness, the building, or arguably its system, has become a pride in the community. The Bridge attempts to accept people as they are and provide the needed assistance in house. Overland Partners used part of an existing warehouse, contributing to its sense of sustainability. Once feared to have a negative effect on the neighborhood and housing market, the building has been one of the more successful ones downtown and has had the opposite effect on property values.
The design of the Bridge was based on the needs of a large and diverse clientele, the trade of budget and aesthetics, urban design, image, and of course sustainability. The team strived to design a center that would project an image of community and an image the guests would be proud to associate with.

A facility designed like a campus was deemed necessary to best serve the diverse clientele needs. This gave many opportunities for the design and utilization of courtyards. To the design team, courtyards symbolized a space where a community can grow.

The image of the building is a key contributor to its success. The designers attempted to create a complex that avoided the typical institutional character of homeless shelters. Local affordable materials were used, mostly brick, to help ground the building in its context. The use of light, glass, and volume were used to create a “beacon” or a “lantern” symbolizing a place of safety in the night. The glass was further used to relay openness to the homeless population. On many windows, doors, and walls the words and art of the homeless are etched into the glass, embracing the situation its guests are in.
The design of the sleeping arrangement is a compromise between giving each guest their own room and having a large group of people in one large room with no separation or privacy. The structure of the arrangement helps incubate the balance of safety and visibility in a large group and individual privacy.
These case studies were conducted for the purpose of examining the different types of affordable housing available to those experiencing or have experienced homelessness. They were chosen because of their diversity of social structure, services provided, and the way shelter is provided. Adaptive reuse and sustainability was also present in all the case studies presented. The precedence studies all addressed the use of striated or smooth space, consciously or not, and who would be using them.

All precedents studies had a different level of social engineering. Star Apartments goal was to get the homeless off the street and into living spaces as fast as possible regardless of where they were in their lives. This may seem like a bold approach as most critiques argue that residents should have to prove they were “turning their lives around” and making healthy life choices. Michael Maltzan Architecture found that providing consistent shelter, whether it is temporary or permanent, affected people in the way that they start to make better choices naturally. Public business and wellness activity was then blended with affordable housing to create intermingling between residents and the public. The intermingling of people helps stave off the solidarity the homeless often experience.

The Bamboo Micro Housing Proposal addressed the needs of smooth spaces and a modern day adaption of nomadic architecture. The proposal takes an existing unused industrial building and transforms it based on the needs of people. The micro-houses are flexibly made to be assembled, reassembled, combined, or separated based on the needs and amount of residents. The buildings are not unlike the Tent Cities of Seattle, where they are made to be a flexible community centered around emergency shelter. It obscures the line between privacy and visibility in the name of safety and peace of mind, as the micro-houses’ residents are not completely hidden from view do to the construction of the bamboo walls.

The Bridge is a more systematic approach to addressing the needs of the homeless. It seems to be a contradiction to itself; it tries not to be a stereotypical homeless facility but it uses many of the same programmatic elements as the growing number of similar shelters across the country. The impressive thing about it is it works. The Bridge appears very institutionalized, but puts its own individual touch on some spaces, such as the converted emergency shelter warehouse and the dorms. The Bridge acknowledges that
some of its residents need the institutionalized system to feel safe or elevate themselves out of homelessness, while others are not ready or willing to embrace the institution so more basic, unstructured places are allowed for them. The Bridge hopes to cater to all its residence needs by providing as many different services and spaces it can, serving as a catch-all to homelessness.

As a whole, the precedent studies show that a homeless assistance facility needs to have a space for privacy, interaction, and a mix of social structure and non-structure to be a well-received and utilized building.

The use of existing buildings in a new design may serve as a metaphor for a (for lack of a better word) recovering homeless person. The homeless person is not unlike a vacant building. When they receive help their old flaws are stripped away or embraced, helping to develop character. Once the restoration is complete, they have a new use/purpose or can be used for the same thing, just now remade in a new sense. They are similar in their exposure, fear of the unknown and new vigor in their architecture.
Sleeping Spaces
Storage
Courtyard
Administrative Offices
Common Space
Classroom(s)
Computer Lab
Psychiatric Practitioners Office
Dining Space
Water Closets
Music Room
Nondenominational Sanctuary
Breakout space
Apartments
Counselor's Office
Personal Storage
Art Studio
Laundry Facilities
Grouping Related Program Elements Together

**Sleeping Spaces**
- Personal Storage
- Laundry Facilities
- Storage
- Administrative Offices
- Computer Lab
- Classroom(s)
  - Breakout space
  - Art Studio
  - Music Room

**Apartments**
- Common Space
- Nondenominational Sanctuary

**Dining Space**
- Courtyard
- Water Closets

**Counselor’s Office**

**Psychiatric Practitioners Office**
This building is designed for people without homes and the people that will be assisting them. The building will be owned either privately or by the city. The main user will not be owners. The users include the homeless population, low-income housing residents, staff, skilled and unskilled volunteers, teachers, and counselors, and other supportive staff.

With the homeless population there will be the need to accommodate for unique individual needs. The initial target for this thesis is to provide transitional housing to one hundred and fifty people.

Accessibility and mental illness challenges will be the most important. According to the Treatment Advocacy Center thirty-three percent of the homeless population have a serious mental illness that goes untreated. Twenty-seven to thirty-six percent of people released from mental institutions became homeless in six months. Psychotic individuals are significantly more likely to get assaulted or threatened while homeless.

More handicap accessible parking may be required. It is also important to pay attention to the location of those spots, the slope of the parking lot, and the material of the parking lot. Winters can be very treacherous for parking lots especially for those wheelchair bound or with physical limitations.

Figure A1

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless Women ages 55+</td>
<td>up 57% from 2009 to 2012</td>
</tr>
<tr>
<td>Homeless Men ages 55+</td>
<td>up 44% from 2009 to 2012</td>
</tr>
</tbody>
</table>
The emphasis of this project is not just to provide transitional housing to the homeless, but to explore the effectiveness of smooth and striated space in providing successful dwelling spaces for the homeless. The plan is to develop a flexible facility where residents can somehow temporarily dwell in the Heideggarian sense of dwelling, that is dwell by building connections with the community around them. In this sense here lies the paradox of going from homelessness to Heideggarian dwelling. Heidegger claims homelessness is synonymous with freedom. Someone is free to go where they want without much fear of consequence, but they are not dwelling. To dwell one needs to build, and in the modern time building means building relationships with your surroundings: the greater community, the culture, and neighbors. In this sense you are now tied to your relationships, but free of homelessness.
Academic Goals

- Develop better story telling skills, both verbal and written
- Discover if adaptive-reuse or new construction is better for a homeless shelter
- Find out what makes homeless shelters successful and what caused others to fail
- Learn what are design strategies that are inclusive, respectful, and helpful for those with mental challenges
- Seamlessly integrate accessibility strategies within the design

Professional Goals

- Design realistically, taking into account all systems needed in the building
- Further develop my knowledge in professional software such as Revit, Autocad, and rendering software
- Be able to produce real world level details
- Show that as many social issues as possible are accounted for and have been addressed
- Prove that I can take all these goals into consideration, address them, and do it well enough that I can get a job where I can continue to address these social issues

Personal Goals

- Work on this thesis at a consistent pace allowing for a healthy life style and a comprehensive project
- Compete with the best of my classmates about design, presentation, graphics, and critical problem solving
- Branch out of comfort zones, especially when doing research
- Accomplish all the goals set in previous years that were saved for thesis.
<table>
<thead>
<tr>
<th>Month</th>
<th>Tasks</th>
</tr>
</thead>
</table>
| October  | Begin Artifact  
Finish formal studio presentation  
Research and Visit Site |
| November | Begin Thesis Program Guidelines  
Finish Artifact  
Continue Precedence Study Research |
| December | Complete Thesis Program Guidelines  
Conduct research through doing, volunteering |
| January  | Conceptual massing  
Architectural Response to site characteristics  
Begin site model |
| February | Development of spacial planning  
Place key programatic elements  
Identify defining features |
| March    | Develop technical drawings  
Completion of a comprehensive digital model  
Start rendering and planning boards |
| April    | Finish site and building model  
Finish presentation installation  
Presentation |
| May      | Thesis review  
Graduation |
THESIS PROGRAM
My thesis incorporates the following theoretical premises:

**Anthropology** is referenced in the reading of “Non-Places: Introduction to an Anthropology of Supermodernity” by Marc Auge. Auge talks about defining places and non-places in history as an anthropologist would. The distinction of place and non-place comes from the opposition of space and place. Space is a frequented place, where moving people intersect and interact. He gives three distinctions to help understand. The first is actually given by Merleau-Ponty. He distinguishes geometric space and anthropological space in the sense of existential space, where “the scene of an experience of relations with the world on the part of a being essentially situated in relation to a milieu.” The second distinction is similar to language, or what word becomes when it is spoken. Place is a space in which ambiguity is grasped. A general place now has able to be communicated with a specific. The third distinction is that place is a anthropologic place when it is established and symbolized. It is defined by the journeys made in it and the language characterizing it.

Auge states “anthropological places create the organically social, so non-places create solitary contractuality.” Non-places create “neither singular identity nor relations: only solitude and similitude.” Place and non-place could be understood as the difference between identity and anonymity both in a sense of space and its relation with the people inhabiting the space. The space of non-place is inhabited only by individuals such as customers, passengers, and users that are only identified upon entering or leaving. Non-place in this sense is the product of supermodernity, which is the belief that humanity has the ability to understand, control, and manipulate every aspect of human experience. In the non-place of supermodernity, the characteristics of a person do not matter. Only that the keep the purpose of the non-place in motion. An example of non-place in the modern world could be Wal-mart. While it has a specific name and place, it anonymizes its customers making at a space of non-place. An example of a place, could be a legitimate home, which does not anonymize its dweller, but functions specifically to meet and adapt to the dweller’s needs. It is in the relationship between people and place and non-place that place can become and non-place and vice versa. Auge explains that historical landmarks that were once great places can now become non-places. People can become tourists and prioritize simply being in a place over experiencing a place. It is this in which we learn the lesson that place and non-place are always relative to each individual, but if we look as an anthropologist we determine place and non-place relative to a population.
Psychology is a critical concern with the homelessness population with many different aspects. Many of the homeless today are the resultants of a broken support system. Some children are homeless and don’t even realize it. Some people choose to be homeless. Others are victims of tragedy or mental or physical illness. All of these situations lead to a vast diversity of mentalities that need to be designed for.

While there are many good shelters and programs existing today to help ‘rehabilitate’ the homeless, there is still an abyss between the homeless and society. Many feel this in the form of exile, which is only being furthered by defensive or ‘anti-homeless’ architecture. Ocean Howell combats defensive architecture by saying “When you’re designed against, you know it. Other people might not see it, but you will. The message is clear: you are not a member of the public, at least not of the public that is welcome here. The same is true of all defensive architecture. The psychological effect is devastating.” Journalist Hannah Butler criticizes the use of defensive architecture as well by saying “Defensive architecture acts as the airplane curtain that separates economy from business and business from first class, protecting those further forward from the envious eyes of those behind. It keeps poverty unseen and sanitizes our shopping centers, concealing any guilt for over-consuming. It speaks volumes about our collective attitude to poverty in general and homelessness in particular. It is the aggregated, concrete, spiked expression of a lack of generosity of spirit.”

Edward Said describes some of the psychology in Reflections of Exile by saying “Exile is strangely compelling to think about but terrible to experience. It is the unhealable rift forced between a human being and its true home: its essential sadness can never be surmounted. And while it is true that literature and history contain heroic, romantic, glorious, even triumphant episodes in the exile’s life, these are no more than efforts meant to overcome the crippling sorrow of estrangement.” Said helps explain the mentality that some people might think they want to experience exile, but once it happens to them it is hard to find somebody that still wishes they were in exile.

The sense of exile can easily lead to chronic homelessness, transforming the polis into a labyrinth. This is what leads the homeless to become nomads but not by choice. Nomadism is a way of life defined by adaptability and movement. In the labyrinth of the polis the homeless do move and adapt to survive, but if they are not making any progress isn’t it far to saw the nomad is one who does not move in a metaphorical sense?
Materialism and Positivism is directly related to the shift of nomadic dwelling to sedentary dwelling and the evolution of supermodernity as previously defined by Marc Auge. Materialism is the choice to consider material possessions and physical comfort more than spiritual values. Positivism is based on natural phenomena, sensory experience, reason and logic. Alberto Pérez-Gómez tells us in “Polyphilo's Thresholds: Alternatives for Nomadic Dwellings” fulfillment was found in nomadic life through a sense of participation in the cultural order and the natural world. With the discovery of place came the discovery of poetic image through ephemeral structures. The desire to understand these poetic images led to the prioritized search of knowledge of geometrical order and human stability. This shift in knowledge seeking helped lead to the shift of ephemeral structures to sedentary poleis.

Also contributing was humanities confrontation with nihilism. During the nineteenth century as scientific knowledge and understanding of the physical world grew, poetry and mythical stories became illegitimate forms of knowledge. Because of the continued growth of positivism, a confrontation with nihilism was forced. The result was a radical attachment to physical property, giving way to an increase in conflict. Positivism fueled materialism which contributed to the decreased acceptance of nomadic dwelling and an increased emphasis on sedentary dwelling.

Topology and Structuralism are both addressed in “Nomadology: The War Machine” written cooperatively by Gilles Deleuze and Felix Guattari. Topology is the study of geometric and spatial relations unaffected by the continuous change of shape or size of figures. Structuralism is the theory of elements of human culture that can be understood in terms of their relationship to a larger, overarching system or structure. The main point of this reading is Deleuze and Guattari’s definition of smooth and striated space and their relationship in the polis. They define smooth space as vectorial, projective or topological. “The space is occupied without being counted.” “The nomad has a territory, he follows customary paths, he goes from one point to another, he is not ignorant of points (water points, dwelling points, assembly points, etc…)The nomad distributes himself in a smooth space, he occupies, inhabits, holds that space; that is his territorial principle.” Smooth space is the in-between space, the space that is used in a way that it wasn’t intended based on the needs of the nomad. This is in contrast to striated space which much more defined, where a space has a specific purpose or set of purposes. Striated space is described by Deleuze and Guattari as metric or homogeneous, where “space is counted in order to be occupied.”
According to them smooth space is an occupied by the nomad and striated space is possessed by the “State.” Nomads try to temporarily reclaim striated space for their own human need, re-striating it. Now States are accepting that not all smooth space can be striated, so they have taken a new strategy: defining where that smooth space is. We can see this happening in defensive architecture.

Martin Heidegger’s writing *Building Dwelling Thinking* also addresses structuralism in respect to dwelling. He states building is dwelling, and we are building to spare ourselves from danger, to preserve. This building however must take place in the fourfold: the saving of the earth, the receiving of they sky, the awaiting of the divinities, and the initiating of mortals. Heidegger claims that without the caring for the fourfold we will not be able to stay within the fourfold. that preservation will not happen.

**Summary**

My architecture will attempt to address anthropology, psychology, materialism, positivism, topology, and structuralism in the form of a diversity of smooth and striated spaces, places and non-places, and sedentary and nomadic dwelling. The homeless population have a vast variety of experiences, and each one my require a different space to encourage rehabilitation. Space for those wishing to remain anonymous will be able to do so by dwelling in designed non-places. The homeless wishing to interact with other homeless will have a choice of places. These could be in both transformable smooth spaces or in more permanent striated spaces. Essentially space will be provided for those looking to dwell anonymously and quickly, as well as those looking to building their own dwelling.

Providing both place and non place is essential to for the psychology of a homeless person. For example a person might be chronically homeless without much meaningful human interaction. They may wish to have a place where they can form meaningful relationships, or not. It is up to them. Another person might have become homeless rather suddenly and need a place to stay for a short but possibly indefinite amount of time. They may wish to stay in the non-place and remain anonymous as they could be embarrassed by what they have lost or how they have lost it. Again maybe not, everyone is different.
These places and non-places will be discovered in smooth and striated spaces. The space place and non-place is directly influenced by the quality of the smooth and striated places. They are inseparable but have infinite possibilities of spacial qualities they can compose. It will be critical to design spaces that are harmonious between either smooth and striated spaces with place and non-place.

An important caution to remember is not to design a transitional housing building that will not be viewed or act as a pill or cure. Many people see the transitional housing as a system that one just has to go through and they will be solved of homelessness. That is not the case in my architecture. My architecture will be transitional housing moving into dwelling, whether that is a sedentary or nomadic lifestyle is up to the person doing the transitioning. Juhani Pallasmaa reminds us of the importance of architectural design beyond its program.

“Architecture cannot, however, become an instrument of mere functionality, bodily comfort and sensory pleasure without losing its existentially mediating task. A distinct sense of distance, resistance and tension has to be maintained in relation to programme, function and comfort. A piece of architecture should not become transparent in its utilitarian and rational motives; it has to maintain its impenetrable secret and mystery in order to ignite our imagination and emotions.”

Pallasmaa explains that in architecture, functionality and experience cannot be separated. My architecture and its program need to be functional, but to help the effectiveness of the architecture itself a distance needs to be achieved for the dweller that allows for an opportunity of self discovery.
Homelessness has been and continues to be a large issue in not just our country, but around the world. Specifically in Minneapolis where my site is, there are people in new demographics that are experiencing a rise in homelessness. These include but are not limited to: adults over the age of fifty-five, two parent families, and adolescents under the age of eighteen. There are also the homeless experiencing mental illness that has been on the rise since the seventies. It is estimated that twenty five percent to one-third of the homeless experience mental illness.

There is a large diversity of backgrounds among the homeless population, and I believe this calls for a variety of spaces to serve a variety of people. Many people become homeless unexpectedly sudden. These people might desire or require a space different from a chronically homeless person living a nomadic lifestyle for years. Different spaces evoke different emotions and experiences and I believe we are fooling ourselves if we can aid the homeless with one universal space.

A reasonable number of the homeless are homeless by choice however. This are the ‘homeless’ nomads as will be referenced in the Historical, Social, and Cultural Context chapter. The purpose of this thesis is not to ‘solve’ all homelessness but to provide a variety of ways to help those who no longer wish to be homeless. This means providing assistance to those wanting to live a more modernly traditional sedentary lifestyle or historically traditional nomadic lifestyle.
“Over the centuries, nomadic life has offered humanity real possibilities for fulfillment, revealing to the individual a sense of participation in the cultural order and the natural world. Whether for the Bedouin in the desert or the Christian pilgrim in the Middle Ages, enacting our condition of passerby upon the face of the earth by walking and belonging to no permanent physical place held a profound significance.”
Nomadism had always been a largely accepted way of dwelling until the 18th and 19th century. Man-made structures allowing for participation in the natural world, such as the tent and the tabernacle, were held of upmost importance in the social, political, and religious realms. According to Perez-Gomez, it wasn’t until Western cultures ceased to regard poetry and mythical stories as legitimate forms of knowledge that freed individuals from traditional, often oppressive political orders. However, this ultimately forced humanity to confront nihilism, resulting in an acute attachment to personal property. This confrontation consequently transmuted the ephemeral design of cities to sedentary. These sedentary cities contribute to supermodernity, which is the belief that humanity has the ability to understand, control, and manipulate every aspect of human experience.

In today’s supermodernity, nomadism is challenged by the sedentary polis. Dwelling and nomadism are often thought of as a contradiction in the city. This manifests in the homeless population, who are forced to live a nomadic lifestyle. The relationship between the homeless nomad and the polis presents the challenge of restoring a sense of dwelling to a people often left to reside in the smooth spaces.
The polis and its surroundings are composed of smooth and striated spaces as introduced by Deleuze and Guattari. They define smooth space as vectorial, projective or topological. “The space is occupied without being counted. Smooth space is the in-between space, the space that is used in a way that it wasn't intended based on the needs of the nomad. This is in contrast to striated space which much more defined, where a space has a specific purpose or set of purposes. Striated space is described by Deleuze and Guattari as metric or homogeneous, where “space is counted in order to be occupied.”
The struggle of the homeless nomad is the difficulty they have to create a dwelling in smooth space. Their choices to define space are often heavily influenced by their everyday needs. The need to sleep, cook, and even urinate can define smooth spaces that would otherwise be undefinable, striating a space temporarily. "Streetlights look like house lights, stairs next to a freeway lead to a makeshift tarp door. A freeway off-ramp functions as an overhang to guard against the rain. The definition of a wall expands to include cardboard, blankets, cinderblocks." This redefinition of smooth spaces is not always welcomed by the inhabitants of the polis’s striated space, thus the birth of defensive architecture, exiling the homeless.
“Exile is strangely compelling to think about but terrible to experience. It is the unhealable rift forced between a human being and its true home: its essential sadness can never be surmounted. And while it is true that literature and history contain heroic, romantic, glorious, even triumphant episodes in the exile’s life, these are no more than efforts meant to overcome the crippling sorrow of estrangement.”
Many of the homeless of today feel a sense of exile as more and more we are seeing architecture design for the defense against the homeless. “When you’re designed against, you know it. Other people might not see it, but you will. The message is clear: you are not a member of the public, at least not of the public that is welcome here. This mentality leads many of the homeless to be stuck in the state of nomadism, becoming chronically homeless.
It could be this that led Deleuze to knowingly contradict himself by saying “It is therefore false to define the nomad by movement. Toynbee is profoundly right to suggest that the nomad is on the contrary he who does not move.”
Dwellings have a sense of place, and one could argue that the homeless nomad is a nomad without their place, that they are actually stuck in the non-place. What is interesting about the nomads is their ability to bring their sense of place with them or adapt their sense of place to a new place. A place can be defined as relational, historical and concerned with identity, while the non-places are the opposite of which Auge hypothesizes are the product of supermodernity. “The space of non-place creates neither singular identity nor relations: only solitude and similitude.” The space of non-place is inhabited only by individuals (customers, passengers, users) that are only identified upon entering or leaving. While non-place often receives a negative connotation, the space of non-place is welcomed in some instances. Travelers often enjoy or seek the anonymity that comes with the non-place. It allows them to observe and contemplate their surroundings, allowing for “the movement of the fleeting images enabling the observer to hypothesize the existence of a past and glimpse the possibility of the future.” The nomad takes advantage of this, moving between the place and non-place to continuously dwell and re-dwell.
Stephanie Carlisle, who studied the relationship between nomadic people and their environments and how their relationship was expressed through their architecture, claims “For the nomad ‘home’ cannot be understood except in terms of journey, just as space is defined by movement.” If a homeless person or nomad is stuck in the same spot in their journey, wouldn’t it be fair to say that in this sense they are not moving?
Carlisle goes on to explain the importance of nomadic architecture which allows for movement in the journey. In the polis, the nomad’s architecture is defined by responding to the instability of society both socially and spatially. This is achieved by their building of a sense of space, home and community in its relationship to the land or context. This causes tension between the nomad and the settled people, as the nomad makes visible the issues society would rather ignore. Nomads are urged to settle but are reluctant as this changes their defining cultural mentality of adaptation. Carlisle claims “There is no one type of healthy housing environment” and we as architects and planners can do a better job of accommodating the need to adapt to a context, to a sense of both place and non-place. I hope to achieve this through my architecture.
I am proposing to design transitional housing for the suddenly and chronically homeless in Minneapolis, MN. The building will have a diversity of smooth and striated spaces for those wanting to live more nomadically or those comfortable in a more structured and permanent space. This will allow those seeking shelter or dwelling to find an inhabitable space in a place or a non-place, providing an element of flexibility and adaptability for a dynamic and ever changing group of people. Additionally as trends tend to shift towards housing-first homeless models, the program of the building will change to be a more complementary group of programs for the formerly homeless. The program and its architecture will become buoyant relative to the needs of the suddenly, chronically, and formerly homeless. In this diversity of spaces and programmatic buoyancy, I hope to design a building that allows for a form of transitional dwelling that can be taken with once the homeless are no longer homeless.
However, according to Matthey Allen “dwelling requires an acceptance of the limits of the human ability to impose order on a chaotic world.” This opens up a critique of our culture in its entirety and whether or not we are truly dwelling. Heidegger claims the essence of dwelling is a preservation of peace, a sparing. We dwell when we care for the four-fold: the earth and sky, the divinities, and the mortals. This safeguarding of the four-fold is what inspires us to build for the protection of the well-being of ourselves, our neighbors, our environment and our beliefs. Truly dwelling balances all aspects of life. Modernity, according to Auge does not obliterate the aspects of dwelling, but does push them into the background. Many of today’s homes are designed with scientific efficiency in mind, not the balancing of life. When this is the case, it is hard to argue true dwelling takes place. Homes designed this way anonymize its dwellers, making them the residents of a non-place. Taking this into consideration it is fair to say just because someone has a house, that doesn’t mean they have a home. And in the opposite view, just because someone doesn’t have a house doesn’t mean they are not without a home.
So how does one design a dwelling if true dwelling is virtually impossible in today’s supermodern world? One can look to Flusser who understands dwelling in relation to exile, nomadism, and homelessness. He argues that being an emigrant or a nomad allows for a freedom only obtainable in this state of being. “In my now hard-won freedom, it is I who ties the binds that connect me to my neighbors, in cooperation with them. This, I believe, demonstrates what freedom means: not cutting off all relationships with others, but weaving these connections in cooperation with them.” Flusser places the emphasis of dwelling not on the four-fold that Heidegger does but in the relationship between the nomad and its neighbors and culture. This better correlates with how the homeless nomad can begin to dwell in today’s world.
The secret codes of homes are not made of conscious rules, but rather spun from unconscious habits.” –Flusser. One is truly at home when they can lose themselves in their own consciousness, between the private and the public. Flusser references Hegel to explain a home. “If I find the world, then I lose myself; if I find myself, then I lose the world. Without a home, I would be unconscious; that is, without a home, I would not actually exist. A home is how I find myself in the world.” One could interpret Hegel as saying if he lived only in the space of non-place, he would not exist, but if he lives only the space of place, the rest of the world would not exist relative to him. Dwelling occurs at the balance between the place and the non-place.
Site Narrative
The site for my thesis architecture is located in downtown Minneapolis Minnesota. I will be doing an adaptive reuse of the Minneapolis Armory. The armory has a large variety of spaces including a large voluminous column free open space, two levels long narrow side wings on each side of the open space, two small three stall garages on the sides of the wings, four levels of various rooms adjacent to the back side of the open space centered between the two wings, and one level of parking underneath.

The building was designed in 1934 by Minnesota National Guard architect Major Philip C. Bettenburg and completed in 1936 as part of the Project Public Works Administration (PWA) during the Great Depression era. The PWA was not considered a relief agency, but as a way to stimulate economic recovery by providing employment for workers in the building trades. This is similar to what I want to do in my architecture. When it comes to dwelling, we are all builders in one way or another. I don’t want my architecture to be considered a relief project, but a way that stimulates a transition into truer dwelling.

Figure # Historical photo of the Minneapolis Armory
Currently the armory itself is homeless on its own site. Originally the building was mainly used by the Minnesota National Guard, trade shows, political conventions, and sporting events, but since the mid-1970s the building has lacked a true purpose. After being saved from demolition in 1993 because the city was moving to building a jail in its place, the armory has been the converted into a public parking garage out of necessity. In this sense the armory has always been historically nomadic. It may not changed locations, but it has adapted out of need relative to its context. This has allowed it to stand the test of time, and if it is converted into transitional housing for my thesis it will allow people experiencing the same thing to do the same.

Figure # Current Minneapolis Armory

I was drawn to this site for a number of reasons. First of all, Minnesota is home to me personally so I decided to design at the heart of it, Minneapolis. I chose the downtown area because of where other homeless shelter/transitional housing was, the proximity to public transportation, and also to help make more visible to issues facing homelessness and nomadism today. I thought it would be beneficial and encouraging to pick a site that shows investment and prioritization in the people there that might not have experienced that much at all before. The goal is to provide a site and building that the people of Minneapolis and Minnesota can be proud of how they are helping the homeless.
**Built Features**

The site, being downtown, is in a very dense location. Notable built features in near the armory are

- Hennipin County Medical Center
- Hennipin County Public Health
- House of Charity and Food Center
- Greater Twin Cities United Way
- Metro Station
- US Distric Court
- Hennipin Country JDC
- Gold Medal Park
- US Bank Stadium

**Figure #** Figure ground showing the density of buildings. Most empty lots are construction or parking lots
Views

The existing armory gives adequate views all around the building. The view to the north-east is the view the existing architecture undeniably frames with emphasis. The wall gives a nearly four floor floor-to-ceiling view to the north-east. The view however is of new constructed apartment buildings. The view to the northwest is one that is desired as it is a view of downtown Minneapolis’s skyline. Unfortunately the height of the building coupled with the size of the parking structure on the other side of the street do not necessarily make this view accessible.

Shade and Shadow Characteristics in Plan
The neighboring buildings next to the south and west corners of the armory do cast shadows onto it at during the very beginning and end of days but their impact is minimal. The following plans show the paths of shadows during the solstices and equinoxes.
Spring Equinox
3:00 PM
Summer Solstice
3:00 PM
Summer Solstice
8:00 PM
Fall Equinox
3:00 PM
Fall Equinox
5:00 PM
Winter Solstice
9:00 AM
January Wind Rose
February Wind Rose
June Wind Rose
September Wind Rose
Site Analysis

October Wind Rose
November Wind Rose
December Wind Rose
DESIGN SOLUTION
Design Process

The process of the design solution began with trying to understand the Minneapolis Armory’s structure, spaces, and design language. The project needed to be harmonious with the existing building, trying to compliment and maximize what was already part of the building.

Structure: The structure was composed of two structural systems. The first was found in the main larger volume of space. There were large steel trusses that were set a distance of thirty feet apart. The rhythm of these were communicated on the exterior of the buildings with the large bump-outs. This was the primary rhythm of the building. These very directly influenced the breakdown of interior space. These interior spaces ended up being interior living spaces. The second structural system was a precast concrete post and beam system. These naturally broke down spaces in direct relation to the south-west facade.

Spaces: The existing spaces were comprised of two types of spaces. The first is the large volume of space originally used as the ‘event’ space of the armory. To me this implied that for the program it should include the flex smooth space or a large gathering space, and living spaces. The second type of space was on the southwest extrusion. These seemed to naturally be perfect for support spaces such as counselor offices, case workers, etc. The two types of spaces are separated by a bearing wall, making a natural separation between personal living spaces and staffed support spaces. This helps keep the living spaces private and independent rather than feeling supervised at all times.

Design Language: The design language is heavily influenced by the internal structure of the Armory. There is a clear rhythm built on symmetry and order. The primary structure is spaced every thirty feet. Between these trusses the wall openings happen in pairs of either twos or fours. Depth in the brick walls is used to exaggerate the rhythm of the armory. This is significant to the creation of new roof and wall openings. Roof openings are exclusively arches, while the new wall openings are the same proportions as the existing ones.
To maximize the space within the Armory a new structural system needed to be made. A precast post and beam system, mirroring the southwest wing was implemented. Using the circulation stairs and primary structural steel trusses as guides cues to create the structural system, interior spaces could be formed.

Before a structural system was desided on, the spaces were analysed in relation to a potential design solution. The following images are the process of how the final spacial and structural solutions were developed. Floor Plan Development 1A-1C explored the possibilities of how the program could be arranged within the Armory.

**Floor Plan Development 1A**
Floor Plan Development 1B
Floor Plan Development 1B
Floor Plan Development 2

Floor Plan Development 2 represented a change in mentality towards trying to maximize the utilization of the massive volume of space the Armory provided. A structural and spacial pattern can be seen and calculations are being made to see how many people in the homeless population can find a sense of dwelling in the Armory. Space also began to be developed outside of plan. Consideration were taken in elevation studies as well as section studies.
Floor Plan Development 3 was a further development of Development 2 in that it was doing the same things just at a closer level of detail. Spaces were looked at in accordance to wall details and HVAC studies were made to try and see how active systems could work in harmony with circulation spaces.
Design Process
Design Process
Project Solution Documentation
MINNEAPOLIS ARMORY THROUGHOUT HISTORY

- Design and Construction: 1934-1936
- National Guard Use: 1939-1990
- Minneapolis Lakers Alternating Court: 1947-1960
- Prince records video for "1999" in Minneapolis Armory: 1982
- Burnt by fire to tear down and build jail: 1989-1998
- Unoccupied: 1990-1999
- National Register of Historic Places: 1996
- Parking structure conditional on presentation: 1996-2015
- Sold for renovation: proposed mid-level event center: 2015-2017
- Transitional housing: 2017-2017
Overflow Sleeping Units

Many homeless shelters have only rows of bunk-beds or cots for emergency sleeping space. In the Minneapolis Armory each person is allotted a Murphy bed with a lockable closet to keep their valuables safe. Each unit also has a translucent collapsible screen to allow for some privacy and safety.
FIRST FLOOR

Single Units: 8
Double Units: 16

Minimum number of residents: 42
SECOND FLOOR

Single Units: 17
Double Units: 16

Minimum number of residents: 49
THIRD FLOOR

Single Units: 17
Double Units: 12

Minimum number of residents: 41
FOURTH FLOOR

Single Units: 2
Double Units: 24

Minimum number of residents: 50
Fifth Floor

Single Units: 2
Double Units: 10

Minimum number of residents: 22
Sixth Floor

Minimum of 82 Emergency Sleeping Units
First Floor

Support Spaces
1. Computer Research Lab
2. Large Classroom
3. Conference Room
4. Councilor Office
5. Kitchen

Community Spaces
1. Central Fireplace Community Room
2. Neighborhood Kitchen and Lounges
3. Welcome Waiting Area
4. Flexible Smooth Space

Residential Spaces
1. Single
2. Double
3. Resident Manager
4. Semi-Outdoor Sleeping Spaces

Storage Spaces
1. Food and Kitchen Storage
2. Dining Table Storage
SECOND FLOOR

COMMUNITY SPACES
1. Community Garden
2. Neighborhood Kitchen and Lounges
3. Conversation Nooks

RESIDENTIAL SPACES
1. Single
2. Double
3. Loft
4. Resident Assistant

STORAGE SPACES
1. Community Garden Storage
2. Adaptable Wall Material Storage
THIRD FLOOR

SUPPORT SPACES
1. Case Worker Offices
2. Psychiatric Practitioner Offices
3. Fitness Room
4. Art Classroom

COMMUNITY SPACES
1. Neighborhood Kitchen and Lounges
2. Community Work Desk Space

RESIDENTIAL SPACES
1. Single
2. Double
3. Loft
4. Resident Assistant

STORAGE SPACES
1. Furniture Storage
FOURTH FLOOR

SUPPORT SPACES
1. Case Worker Offices
2. Psychiatric Practitioner Offices
3. Children’s Play Room
4. Music Rooms

COMMUNITY SPACES
1. Neighborhood Kitchen and Lounges
2. Community Work Space
3. Reading Space
4. Child-free Lounge

RESIDENTIAL SPACES
1. Double
2. Loft
3. Resident Assistant

STORAGE SPACES
1. Clothing Storage
Fifth Floor

Support Spaces
1. Library
2. Case Worker Offices
3. Conference Room
4. Councillor Office
5. Personal breakout space

Community Spaces
1. Small lounge space
2. Community work desk space

Residential Spaces
1. Double
2. Loft
3. Resident Assistant

Storage Spaces
1. Home starter kit and personal item storage
Sixth Floor

Support Spaces
1. Supervision stations

Community Spaces
1. Use spaces of fifth and first floor

Residential Spaces
1. Overflow sleeping units
Performance Analysis: Response to Site

The site responses to this site were a challenge because the existing building already had responded to the site from which it was originally designed in 1936. The views that the north-east wall had framed are no longer there, they have changed to the north-west. The building entrances cannot be changed without major changes to the design language. Minor changes to the arrival procedures could be changed a little. More paths were added to increase the feeling of improved approachability. Vegetation was added to compliment the rhythm of proportion of the Armory. The garages and the site around them were left alone because they worked for their purpose. The site was mostly left open to allow for outdoor activities. A pair of pergolas were added as designated outdoor community space.
Performance Analysis: Response to the Typological or Precedent Research

The responses to typological and precedent research are found in response to the concepts of smooth and striated space, place and non-place, sedentary and nomadic dwelling, and the case studies.

The concept of Smooth and Striated space manifests in the flex/event space and in the adaptable residential units. The residential spaces are made smooth by the adaptable wall units designed specifically for this purpose. They can be taken down to make larger spaces. They were designed to be adaptable to fit the needs of the residents, an ever changing group of people. They allow for individuals or larger groups of people, allowing groups to stay together in the same space, a rare possibility in most shelters.

The concept of place and non-place is recognized in the hierarchy of community spaces, and breakout support spaces. Place and non-place in this instance is understood as spaces that allow for anonymity and identity. The main community space allows for a space of full identity. It has max visibility and encourages conversation. The community kitchens and lounges allow for identity within a certain group of neighbors. The are private to most of the Armory but allow conversation and community between a more relatable group of people. There are also nooks on each floor allowing for various levels of anonymity that overlook the large dinning hall/flex space. This allows for anonymity will still being able to observe a larger community or activity.

The Armory acts as a bridge between sedentary and nomadic dwelling. While most of the architecture is designed to move people from nomadic to sedentary dwelling, the flex space and certain residential units allow for that relationship to be reversed. True nomadism is not homelessness and it is important to allow and support healthy nomadic living. By providing transitional units on the fifth floor and a flex space large enough to support the construction of mobile personal nomadic architecture, we can make opportunities for the bridge to be crossed from both ends.

The case studies helped me identify useful spaces as smooth and striated spaces, and places and non-places. I could see where each was most effective and see how I could implement them either in the same way or in different ways. For example the individual sleeping spaces in the Bridge Homeless Assistance Center provided personal space and some privacy. I saw these as useful non-places, but I could use them better. So I created the overflow sleeping units that offered the same things with increased privacy and space utilization with the murphy bed and desk.
Performance Analysis: Response to Goals and Project Emphasis

The goals at the beginning of this thesis were stated as such in the thesis proposal: “The goal of this thesis project is to create inclusive and respectful spaces to provide transitional housing, education, and healthcare.” These goals were met mostly with the adaptable residential spaces and hierarchy of community spaces. The support spaces were pretty straightforward after the analysis of the case studies. The only thing that was changed for these spaces was the inclusion of various break out spaces for groups of people or individuals to meet with their case workers outside of an office space. Respectful transitional spaces were made by integrating the community spaces within the residential spaces and keeping the staffed support spaces separate from the living spaces. This allowed for some distance as some people are not comfortable having staffed spaces close as it feels like constant supervision.

One unique response was the decision to keep the garage spaces as smooth spaces so they could function as breakout spaces but more importantly sleeping spaces for those who need shelter but are not ready to leave the outdoors completely. This allows for people to take their time deciding if they do indeed want to find a transitional home within the Armory.

Most important to achieving the goals as stated above was the inclusion and understanding of smooth and striated space and place and non-place. This allowed me to design specifically for certain circumstances and provide as many spaces that allow for healthy transition as possible. While it is tricky to balance these concepts, providing an health equilibrium of transitional space is necessary in a transitional housing complex of this magnitude.
THESIS APENDIX
References - Books


References - Documents

http://www.brunerfoundation.org/rba/pdfs/The%20Bridge%20HC.Final.pdf


References - Online Publications

http://www.archdaily.com/115040/the-bridge-homeless-assistance-center-overland-partners


http://www.archdaily.com/320991/thermopyles-soa-architectes


http://www.archdaily.com/480729/bamboo-micro-housing-proposal-affect-t

http://www.archdaily.com/602915/dvor-housing-saaha

http://ced.berkeley.edu/bpj/2013/08/from-project-to-pre-fab-a-window-into-future-affordable-housing/

https://gis.hennepin.us/Property/Map/default.aspx


http://www.hennepin.us/gis

http://www.mmaltzan.com/projects/star-apartments/

http://www.mngeo.state.mn.us/chouse/utilities.html


http://www.nrel.gov/gis/solar.html

http://www.usclimatedata.com/climate/minneapolis/minnesota/united-states/usmn0503/2015/1

https://weatherspark.com/averages/30956/Minneapolis-Minnesota-United-States

http://websoilsurvey.nrcs.usda.gov/app/

References - Images


http://asorblog.org/wp-content/uploads/2015/05/1.jpg
References

http://www.bayvoice.net/wp-content/uploads/2015/03/seattle_homeless_tent_020615.jpg

http://2.bp.blogspot.com/-moYqO-MqT8Q/VODlckYo-4I/AAAAAAAAlwo/tQv23v7Akco/s1600/63328d10-864e-4d9f-95f0-d5cb7195952c-2060x1236.jpeg

https://elmiraaghsaei.wordpress.com/page/5/

http://i4.imageban.ru/out/2014/12/10/180e4f7aed14eb1528c2ac17d62e89ad.png

http://i.timeout.ru/pix/429920.jpeg

https://i.ytimg.com/vi/w9_n3rvPsA0/maxresdefault.jpg

http://galleryhip.com/the-tabernacle-of-moses.html

http://nudges.org/people-can-be-too-smart-for-choice-architecture-sometimes/


http://www.quotidiano.net/polopoly_fs/1.859754.1429173726!/httpImage/image.jpg_gen/derivatives/gallery_800/image.jpg
https://shiboriorg.files.wordpress.com/2014/01/pics_912232.jpg


**References - Audio**


http://heatherzinger.virb.com/build-a-house-build-a-community-art-resi
Previous Studio Experience

2ND YEAR STUDIO  Joan Vorderbruggen
Projects include:
    Minneapolis Boat House
    Tea House

3RD YEAR STUDIO  Steve Martens
Projects include:
    North Dakota Marine Research Center
    Hauenstein Spa and Wellness Center

4TH YEAR STUDIO  Don Faulkner
Projects include:
    High Rise

4TH YEAR STUDIO  Bakr Aly Ahmed
Projects include:
    NDSU Culinary Art School
    Border Crossing

5TH YEAR STUDIO  Stephen Wischer
Projects include:
    Thesis Theory and Artifact

Personal Identification
Designer: Nathan D. Miller
Hometown: Sleepy Eye, MN
Contact: nd.miller@outlook.com