



NEXUS

Creating Necessary Bonds Through Communal Living



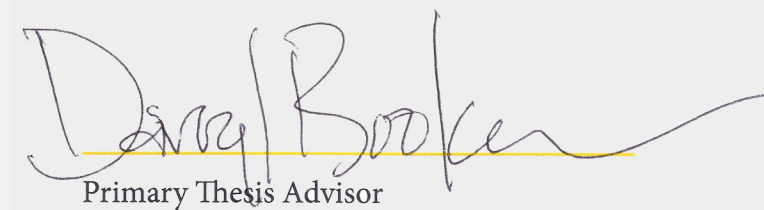
NEXUS

Creating Necessary Bonds Through Communal Living

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



Primary Thesis Advisor



Thesis Committee Chair

May 2017
Fargo, North Dakota

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RESEARCH INTRODUCTION

The main topic of this this thesis is community based public housing, meaning that this project focuses on the communal aspects of public housing and how they can be incorporated into a building in order to create a more welcoming and enjoyable living space. In addition, this thesis asks the question of how these community spaces can affect the people living and working in and around this building and the neighborhood as a whole. Problems stemming from a lack of community within residents has caused the major negative aspects that have been seen time and time again with public housing buildings. The main idea is that by providing these residents with adequate spaces of gathering, they will be able to better connect with one another creating a friendlier and more inviting environment. The thesis itself is broken up into two main sections, each having their own specific parts and important aspects of the project. The first section is the research portion of the project. Over the course of four months, extensive research was conducted so that I could gain a better understanding of how public housing works and the part it plays in cities for both myself, and you as the reader. To do this, the research was broken down into five pieces which all come together to support the thesis idea. The second section is the design phase. The design phase also takes place over four months and uses the research portion of the thesis to create a building that reflects the entirety of the research. The two separate sections then come

together to provide an answer to the thesis that captures every aspect within.

Research into this topic was conducted in several steps. Research began with a thorough look into the history of public housing in America. Its successes, its failures, and everything in between. Following that was research into how residents behaved in public housing buildings and its reactions to the surrounding community. Case studies of individual buildings of this project typology were then analyzed to see how designers have tackled some of the failures that exposed themselves over time through public housing. Lastly studies of the proposed site and the code requirements for the area were conducted to understand the neighborhood and the restrictions that the city might have when building in a particular location.

Research from the design side of this project lead to a deeper look into buildings located within the nearby area of my site. Construction types were also studied in order to find the best way to construct a building that needs to be cost effective, resilient, and aesthetically pleasing. The main goal of this research was to help answer the main question of this thesis and to better understand how to do so.

Public housing buildings tend to lose a strong sense of community because residents are isolated through multiple floors in towers, no common spaces, and large numbers of residents causing rundown, crime ridden, and unlivable conditions. Because lack of community they have diminished values for public space, causing these negative effects. Thus, by designing low rise housing based largely on community values public housing can be a beneficial addition to surrounding neighborhoods. This thesis is conducted through research, analysis, and case studies, to form the following key aspects:

The overarching idea behind this thesis is to provide low-cost housing to people and families who cannot afford the high cost of living in cities with emphasis on providing these people with a community where they feel safe and have strong connections with their neighbors benefiting both the residents and the surrounding neighborhood.

Research included three separate studies on the site, precedents, and codes. Each of these studies were focused on different aspects but fit together for the project as a whole. The site and codes fit together to better understand the limits and the possibilities of what can be built in the city of Los Angeles. The precedent research was conducted to get an idea for how designers have aimed to solve some of these main problems in the past and how I might be able to build

off of their designs.

The main research included studies in public housing history, community within public housing, and economic aspects of public housing. These studies were chosen to further understand how public housing has evolved since its introduction and how residents have reacted to the living conditions within these buildings. The Economic studies investigated the government programs that have changed over the years and how buildings were paid for and constructed along with how families are selected and are able to secure homes in these buildings.

The key aspects of this thesis cover a large amount of information but all come together to form a single cohesive idea. The definition of project typology covers the type of building and scale that will be worked with. Project emphasis identifies the main keystone part of the design and thesis. The goals of this thesis project helps to understand what is hoped to get out of the project throughout and after its completion in order to apply the thesis with meaning. User client or audience description gives an idea of who the project will be built for and who will be occupying the building the most after it is completion. Project justification explains why this project is important to me. It also explains why this project is important to architecture as a whole and how it applies to being a final thesis design project. The research design plan will show how I plan to design this thesis project over the course of a semester

in a step by step process. Design methodology is the research and design research method that was used in order to obtain the information needed and the way this information is used for the design process. Design process plan documentation will explain the way that I will go about designing the building for this thesis. It explains my process from the beginning to end of the design project. Lastly, the project schedule is an expansion of the design process plan documentation that will give a time specific schedule on a weekly basis of when the separate parts of this design process will be completed. These aspects make up the entirety of this thesis book for both you, as the reader, and myself, to understand the processes and ideas behind this thesis project.

—PROJECT TYPOLOGY—

The building typology for this thesis project is a low rise housing building. The building will consist of two or three levels and will house 15 studio apartments as well as houses to serve as dwellings for larger families.

—PROJECT EMPHASIS—

There are many parts that make up this thesis, each of which have their own specific importance. However, there are a few key parts that go into forming this thesis as a whole, setting a basis for the rest to follow. The first is the Research Paper. This was the first element produced in this thesis which helped to define the main ideas and narrow down the focus of the project. By looking into public housing in the past,

it helped to better understand where low-cost living will be heading in the future and what to avoid when designing a building of this typology. Researching the benefits and negative aspects of public housing helped me to better understand the relationships people have when living in these buildings which lead to the development of the pieces that came to follow in this thesis. The second most important part of this thesis is the Design and Research Methodology. The methods that were used to conduct the research portion of this thesis and the methods that will be used in the design phase lay the groundwork for how this thesis was put together. These methodologies allowed this thesis to follow a guideline of how each part was conducted and allowed for a uniform project from start to finish.

—THESIS GOALS—

The goals of this thesis was to research and study public housing in the United States and Around the World in order to better understand how the public housing industry works and how it might be possible to make it better. The main idea of this thesis is to connect residents with each other and their surrounding neighborhood in order to create a more successful and enjoyable environment to live and work. Certain aspects of public housing today and in the past have shown the negative reactions toward public housing and through this thesis, I aim to isolate those aspects and use them to improve the current public housing conditions.

—USER/CLIENT—

The main client for this project, being a government building, will be the city of Los Angeles. The users that will occupy the residences will be low-income workers or families who are struggling to find a place to live in the Los Angeles area. These low-income tenants main goal will be to find work within the area until they are able to support themselves enough to move out of low-cost public housing.

—PROJECT JUSTIFICATION—

I believe that housing can be the key to providing low-income people with what they need to move up to a higher functioning member of society. The cost of living in Los Angeles is among one of the highest in the country and they also have one of the highest numbers of homeless people. I believe by getting people into homes first, they are then more

easily able to get onto their feet to start getting a regular income. I have been to Los Angeles many times and I have seen the types of conditions that some of these people are living in. On a personal level and on a larger architectural level, helping to get people off the street can benefit the city in many positive ways. This project will be able to demonstrate my skills through a thesis project for a number of ways. First it will require the design of nice living conditions in a large building that is working with a tight budget. Second, it will require the design of a building that will be able to last and maintain its resiliency for many years. Third and most importantly, it will require a design that fits in and works well with not only the surrounding community but the downtown neighborhood as a whole.

—RESEARCH DESIGN PLAN—

The plan that this thesis will follow over the course of a semester involves several key components. Initially there will be a further investigation into public housing buildings themselves. There are four main milestones that will be involved in the process of design which include: beginning initial/schematic design, design development, final design decisions, and final project documentation. I will research several different buildings to find out the reasons to why each one either succeeds or fails as a low-cost living facility. Research will be done through the Design Research methodology, meaning the design of this building will be through an investigative strategy process. All research found will play a part in the overall design aiming to address this thesis question. After this will follow initial/schematic design. The elements in this stage will include many iterations of building form and spatial design to find the best solution for the project. Second is design development. After an initial design is chosen, design development is the further investigation into the

overall design decisions. Here the building form will begin to take its final shape and the spaces within will be perfected. Next is the final design decisions, where all decisions based on the project will need to be chosen and where the building will take its final form. The last milestone is project documentation. Construction drawings and final images will be produced during this stage which will then be finalized and arranged into presentation format.

In order to get the best documentation throughout the design process it is critical to keep weekly folders of the work that was produced during each week. At the end of each week, drawings will be scanned and photos of models will be taken so that all work can be accumulated into a single location. By doing this it sets a full timeline of the thesis design from start to finish. Weekly documentation also allows for quick and easy access to previous work if there ever is a need to look back for reference or design changes.



RESEARCH PAPER

All over the world there are people living in poverty. In large cities, homeless people can have a great impact on a neighborhood. These areas can cause residents and businesses to evacuate or avoid all together. Streets become dirty, crime rates rise, and buildings become vacant. Why has public housing not been successful in the past? Previously, public housing has failed because of tall high-rises and lack of community values, therefore, public housing should consist of low-rise buildings that focus on bringing a neighborhood and its community closer together. New forms of Public housing will help to clean up the streets, lower crime rates, and open neighborhoods up to a better and brighter future.

This thesis focuses on public housing located in poverty stricken areas of Los Angeles. It asks the question of, what are the benefits that might come from providing homes for people who cannot afford their own. Because these people cannot afford homes, they are forced to take shelter in the streets which, unfortunately, doesn't provide much shelter at all. With so many people living in the streets it causes many problems for cities to deal with. Streets become dirty and littered with trash. This leads to dirty runoff water which can cause problems for cities down the line. Areas of a city that could possibly have great potential push away businesses and tourists leaving these places susceptible to high levels of crime. One specific area that I aim to focus on is Skid Row located

in Downtown Los Angeles. This area is home to nearly 6,000 people and occupies an area of 4.3 square miles. Being located in the heart of Downtown Los Angeles, it brings up problems for neighboring communities and businesses. There is far too many people to completely house everyone that needs it, but there are many benefits that can come from erecting one simple building. Getting people off of the streets and into a place that provides them with shelter, clean water, and a place to call their own could benefit the city in ways that we might not even know. It can lead to cleaner streets, safer neighborhoods, open up more opportunities for business, and a better overall wellbeing for the city as a whole.

I truly believe that, as an architect, we have the right and the ability to make to world a better place. With this thesis, I aim to do just that by examining the problems of public housing that have an impact all over the world. There are many problems that need to be addressed when first thinking about designing a building located in a place that has so many low-income individuals. Let's start by asking the question, how will we decide which individuals will be able to live in the new building. Will the building be strictly for low-income families or will it serve a mixed-income population. There are positive and negative takes from both of these possibilities but, it all comes down to what the area and the city's demands are. In an area such as Los Angeles, it might

be more beneficial to have more low-income tenants than high-income tenants for the simple fact that they more urgently need shelter. This way, there will be room for more low-income families to find units.

Another question worth bringing up is what will happen to the population of these areas during construction? Constructing a new building takes up massive amounts of space. Space that was once used by these people for shelter and sleeping. Large quantities of these people are likely to be forced into relocation. There is almost certain to be large amounts of backlash from people when they realize that they must move somewhere else. The other issue with this is that there must be someplace for these people to go. Where will they be relocated to? Is temporary housing going to be supplied for these people or are they just going to be forced to find new shelter on their own? It is difficult to know the answer to these questions before we know more about the problem. It might also be the case that there is no perfect answer and it comes down to trying to find the best solution.

By providing shelter for a large amount of low-income people in a single area, it can begin to show how big of a problem this truly is. It can show these people that there are some in the world who care about them and are doing everything they can to help make the world a better place. By helping to providing shelter for these individuals, it can give them hope and

a brighter look into the future. Most of these people spend every day wondering where they are going to spend the night. If we are able to give them the shelter that they need then it can lead to more opportunities for these individuals and families to get back on their feet.

The design process for a project such as this differs from an ordinary housing project. This design process will need to fully fit in with the surrounding area to give these people exactly what they need out of a housing building. The needs that come out of this project are what must to be addressed first. What is the best possible solution for a housing project for this type of area? When thinking about the massive amount of people that live in such a small area, I want to believe that it would be best to be able to house as many people as possible. The problem that this brings up is that larger buildings take up more space and take longer to erect. This means that more people would possibly have to be relocated and for a longer amount of time. Larger buildings also cost more money and if the entire purpose of this thesis is to provide housing for people that have little to no money, then how is it going to be possible to even get the building constructed in the first place? For this reason I think this design should stay clear of the high rise typology and be focused more towards the multilevel housing units.

Another question that comes up is what type of units are going to be needed. In order to house the most people possible it would make sense to have apartment style housing. Small units with one or two bedrooms and multiple per floor. Another option is townhome style housing. Every unit, in this case, would get a street level walkout. This option is better for community building but at the same time, is it practical? The design process all depends on what these people who live here need out of a housing project. These units aren't meant to be lavish, luxury condos with views of the ocean. These types of rooms are meant and need to be designed for people with the simple idea that they need homes. They need a place where they too, can feel safe at night and not have to worry about being exposed to the elements while also providing community involvement. The type of building I am proposing will do just that; provide a building that can house as many families as possible, while not taking away from the connective aspects of a neighborhood and community.

The need for public housing can be seen just by simply taking a walk down any big city. Even cities like Fargo, ND can benefit from more public housing. It is a problem that has been around since the beginning of time. Nobody should have to fight to get a place to sleep indoors in this day and age. We must fight this issue so that we can clean up our streets and give everyone a place where they can call home. The research that follows is found from online databases,

books, and government documents in order to get a clear understanding of where we have been and what the future may look like for public housing. . I first begin with a brief history of public housing in the United States followed by the three aspects that I believe relate closest to my overall thesis. Aspects that are focused on are community/neighborhood values, social issues, and economic history. These three points were chosen in order to better understand how a public housing community operates and to determine what steps can be taken in order to make a change.

History of Public Housing in the U.S.

Historically, there have been many different actions put into place to try to solve the problem of public housing. "The Federal public housing program began in the 1930s after decades of concern over the conditions of the housing stock inhabited by low income families" (Shester, 2011). Right from the beginning people had their doubts about public housing and how it would function. The Housing act of 1937 was passed and the main goals were "to provide financial assistance for the elimination of unsafe insanitary housing conditions, for the eradication of slums, for the provision of decent, safe and sanitary dwellings for families of low income, and for the reduction of unemployment and the stimulation of business activity to create a united states housing authority, and for other purposes" (Shester,

2011). However this lead to poor architecture and even the public housing residences to become alienated. Many also believe that these first public housing units helped contribute to slums because of people began gathering around and living outside of buildings while waiting for their chance to get access.

Hope VI was a project set in place by George H. W. Bush in 1992 and aimed to demolish old public housing high-rise buildings and replace them with low-rise projects to help desegregate and expand communities. These new housing projects would also turn to mixed-income in hopes of bringing in all ranges of tenants and opening more room for the expansion of businesses. Problems with HOPE VI arose rather quickly for many reasons. One reason was that there was supposed to be a one for one reconstruction of dwelling units but this was never fulfilled. In fact, "HOPE VI leveled about 110,000 public housing units but only 60,000 were replaced as mixed income" (Blumgart & Kim, 2015). Because of this, many families were left out of a home to live in. They were torn from their homes, promised better housing conditions, and then left with nothing. Another problem with this came with the housing vouchers that people received when evicted, which only gave them 90 days to find a new place to live with little information on housing availability. HOPE VI had some great initial ideas but because of poor execution didn't see as much success as it should have.

Under President Obama the Choice Neighborhoods Program focused on the redevelopment of the HOPE VI program. "The Choice Neighborhoods program aims to transform public housing communities into sustainable mixed income redevelopments by investing holistically in the neighborhood business, schools, transportation, and other systems" (Walker, 2016). For an individual to apply for the Choice Neighborhoods Program they must first show that they have an input in the community. They must also provide and propose an area of interest and must be prepared to help displaced residents with their search for new housing. This program has many great benefits but the problem comes down to the financial support from the government. They simply don't provide enough money to help get these projects completed.

One project that had the most beneficial impact was the development of Section 8 in 1974, which then turned into the Housing Choice Vouchers Program in 1998. This section let low-income families have rental vouchers that they were able to take wherever they pleased. Before section 8, vouchers were only allowed to be used in the city or county that they were issued in. Now, families were able to spread out into neighboring cities. The benefit from this is that the people in areas in which these massive public housing high-rises were placed were able to spread out which helped lower crime rates and also helped to

desegregate these communities.

Community/Neighborhood Values

A connected community is a big part of any successful neighborhood. A community that can act as one can have better social, business, and economic outcomes than a community that acts against itself. Public housing neighborhoods have differed greatly from other residential neighborhoods for many reasons but the underlying reason is that these neighborhoods are poor, which has a great impact on the overall connectedness of the community. First off, public housing is meant to help people to get back onto their feet so they can make steps to better their lives and living conditions, but not all people see it that way. Some people might be taking advantage of American public housing and using it so that they don't have to pay as much for housing. "The provisions of Public housing might encourage some families to keep their income low" (Sink, 2011). If people are acting this way then there is no chance for advancement within the community. Not only are those families not moving out of their homes, but other families are being denied of public housing services as a result. What comes from this is that "public housing increased the geographic concentration of poor residents and could increase the strength of negative peer effects within low-income neighborhoods" (Sink, 2011).

Secondly, when public housing was first established the buildings were placed away from major communities which caused these areas to have neighborhoods of their own. Right from the start, the residents of public housing weren't given a chance to interact with the communities that they were placed in. With the implementation of HOPE VI these communities were brought a little closer together. The smaller low-rise public housing developments and their mixed-use occupancy helped to bring in all different types of people from all different kinds of life. Low-income families were able to live next door to medium or high-income families. HOPE VI also opened the door for businesses to move into these neighborhoods that may have not seen it as an option before. Section 8 and Housing Choice Vouchers brought an even better solution to community issues with public housing. With vouchers that were good for anywhere that residents wished, they were easily able to move into new communities often times unnoticed. This means that wherever they decided to move in, the neighbors would have no idea that they were living next to low-income families.

Social Issues

Social issues have been a problem since the beginning of public housing in America. The causes of this issue all seem to stem from the idea that public housing brings a large concentration of low-income

families into a single area. One example of this, possibly the biggest controversy of this type to come out of public housing, is the slums that were developed in Chicago. The large concentration of low-income families transformed a large area of Chicago into a dirty, crime ridden, and rundown neighborhood.

One of the biggest social issues to hit public housing in Chicago was racial and economic segregation. "Some believe public housing has worsened racial and economic segregation, minimized education and employment opportunities, and increased crime, especially youth crime" (Voborníková, 2016). By locating these large public housing high-rises all into a single area, low-income families were completely cut off from the rest of the city. With so many low-income families in a single area people were forced to fight for the things that they needed, resulting in a large increase in crime rates. "Studies Suggest the shape of high-rise towers caused residents to commit crimes, destroy building equipment, and other unusual behaviors" (Voborníková, 2016). This was eventually realized and HOPE VI was part of the solution to help reduce the problems of segregation and crime with limited success.

After the HOPE VI program was implemented and put in place, people had hope that the social

problems would change, and they did. Unfortunately, they got better on some aspects and worse on others. "When residents moved back into the low-rise mixed-use housing, they weren't treated the same" (Fixsen, 2015). Policies for these neighborhoods changed dramatically and most of it was focused onto the low-income families. People were no longer able to sit outside of their buildings, low-income families were forced to take annual drug test, and even had limits on where they could or could not socialize. While most people thought the HOPE VI program was helping to better these communities, low-income families felt like they were being targeted and mistreated.

Economic History

The economic aspects of American public housing is where a majority of the issues of public housing come from. Since the start of the Housing Act of 1937 the funding for public housing has been far from efficient. The fact is that there is simply not enough funding for projects to be completed to their potential, especially with the newest Choice Neighborhoods program. Just in the past three years the budget for public housing had declined by over 30%. "The HUDs capital budget has fallen from 2.5 billion in fiscal 2012 to 1.8 billion in fiscal 2015" (Blumgart & Kim, 2015). Even with the budget declining, other aspects of public housing have been on the rise.

Cost of projects through the HOPE VI program and the Choice Neighborhoods program have risen because more than just housing has to be involved. In the year 1960 “using a rent-income ratio of 20 percent, the monthly rental for the average size family of 3-4 persons was \$55.60” (Prescott, 1974). Now with the introduction of the new programs, mixed-income housing is more expensive to build and thus is more expensive to live in. The original budget for public housing had low rent costs but created problems in the long run. “In 1937 the public housing authorities were created but set the maximum cost for each unit at \$5,000” (Voborníková, 2016). This led to cheap housing that couldn’t stand the test of time and forced the PHA to make the changes that we see now. “A 2015 study shows that 25% of renters spend half of their income on housing costs” (Blumgart & Kim, 2015), which is well above the average 30% income rent costs that were initially set forth by the housing act of 1937. Through community redevelopment public housing costs have risen greatly and made it more difficult for low-income families to find homes.

The Various ways that construction is being paid for over the years has changed throughout the public housing industry as well. “Traditionally the actual construction of the project is financed by the sale of short-term notes. When the construction phase is over and the project is ready for occupancy the projects debt is permanently financed” (Prescott,

1974). When new programs were put in place, the financing just couldn’t cover enough of the cost to get projects done. With project costs on the rise, the Public Housing Authority needed to find new ways to cover additional costs to projects. By using mixed financing “on May 2, 1996 HUD issued an interim rule adding a new subpart F to the public housing development program, which permits PHAs to use a combination of private financing and public housing development funds to develop public housing units” (Naparstek et al., 1997). This became the first step towards privatizing public housing.

Furthering the step toward privatization, the Rental Assistance Demonstration, introduced by President Obama, puts more emphasis on the private individual and less on the federal government. “The US invests 75% of federal housing support into homeownership programs and only 25% into rent based housing” (Voborníková, 2016). With less investment into rent based housing by the US, the RAD allows private landlords to take over previous units under the Section 8 housing program. Although the RAD program has been shown to keep the public housing market alive, it shows a disinvestment by the federal government and may lead to further distancing government in the future.

Conclusion

There is no doubt that there have been major problems with the public housing in America over the years and something new has to be done. By sifting through all of the history of public housing since its start in 1937, we can filter out the negative aspects and combine the positive aspects. Low-rise homes have been able to give a neighborhood a stronger sense of community, choice vouchers have given low-income residents the freedom to choose a neighborhood as they please, and private funding has allowed for higher costs to be met. All three of these aspects have shown to improve the public housing experience and need to be the base of the changes that lie ahead.

Annotated Bibliography

Blumgart, J., & Kim, W. (2015). The slow death of public housing: HUD’s latest approach keeps it alive (barely) but makes it much less “public.” *Planning*, 81(10), 12–20.

Joseph Shuldiner has a long history of working in public housing. He started work under Reagan’s presidency and is the executive director of the municipal Housing Authority for the City of Yonkers, New York. The article looks at the declining stock of Public Housing and the steps that are being taken to try to keep it alive. It focuses on the history of program and how the HUD and the rental Assistance Demonstration are helping the industry but are making it much less public.

Fixsen, A. (2015). Sheltering Chicago: the changing face of the city’s public housing. *Architectural Record*, 203(10), 92–98.

This article examines the city of Chicago and how the public housing has changed over the years. It looks at how residents see public housing and what they think public housing should be. Chicago is the face of many problems within public housing and is where many of the changes of the industry have originated. The article focuses on the problems that came along with high-rise public housing and the transition to low-rise more community based public housing. Both successes and issues have come from these new

programs and the author identifies these and how they can be approached to make changes for the future.

Naparstek, A., Dooley, D., & Smith, R. (1997).

Community Building in Public Housing: Ties that Bind People and Their Communities. The Urban Institute/Aspen Systems Corporation.

This book looks at the relationships within a public housing community and how through the new programs put in place by the Housing and Urban Development can connect its people to become a community of opportunity. Aspects such as family and health problems, education and labor force development, economic investment, and affordable housing are focused on to help strengthen a community. Different ways that a community can execute these aspects are discussed along with ways a community can better how each of these aspects effect their neighborhoods.

Prescott, J. (1974). *Economic Aspects of Public Housing* (Vol. 8). Sage Publications.

The main focus of this book is the indirect economic impacts of the public housing market. Smaller focuses also look at the direct benefits of tenants living in low-cost housing. The author looks at project data collected from the Public Housing Administrations main office in order to analyze the economic effects that are indirectly related to public housing. Seven different public housing projects were analyzed along with over

one thousand tenant observations. The main points taken from the book are the cost and income relationships of public housing construction as well as tenant benefits and their impacts on cost.

Shester, K. L. (2011). *American public housing's origins and effects* (Ph.D.). Vanderbilt University, United States -- Tennessee.

This document follows the effects of public housing during the programs expansion from 1933 through 1973. It covers a wide range of public housing aspects beginning with a historical account of public housing in the U.S. Other aspects of this document that formed my research were community characteristics that were associated with rapid public housing adoption, the effects of public housing over time, and roles of negative selection into public housing. This document dives deep into the inner workings of public housing in order to find the short-term and long-term effects that come from public housing in the United States.

Sink, T. W. (2011). *Assessment and impact of gentrified public housing neighborhoods in the United States: A case study of Chicago* (Ph.D.). Indiana State University, United States -- Indiana.

This article relates to my research by studying the effects of HOPE VI program for public housing. Mainly, it focuses on how the HOPE VI program has effected gentrification in the city of Chicago directly

and indirectly. The Author studies the effects of the HOPE VI program from 1990-2007 to show how the new program has placed itself at the base of the gentrification of Chicago. New mixed-income buildings are bringing in more wealthy tenants and pushing out low-income residents leading to problems within the new program and public housing residents.

Voborníková, P. (2016). The Transformation of American Public Housing. *Scientific Journal of Humanistic Studies*, 8(14), 75–83.

This article looks at the history of Public housing in America and the changes that it has gone through since its development. The issues of each new program are examined in order to show what needed to change and how the Public Housing Authority reacted to these issues. The article also explains the beginning of segregated public housing projects and how they played roles in the segregation of racial and economic residents. As the history is analyzed the author uses the data to determine new ways to change the American housing policy in the future.

Walker, L. A. (2016). Public Housing Residents' Neighbors and Neighborhood: Good, Neutral, or Troublesome/Unstable. *Journal of Social Service Research*, 42(3), 332–351.

This article mainly looks at the social aspects of public housing and the effects of residents who have or have soon to be relocated. It takes into effect of how

residents experienced their relocation and how they have or have not settled into their new communities. Relationships between tenants are also examined, looking at how the residents feel about being relocated based on their connection to their homes and their neighbors. Social ties, connection to neighborhoods, and supportive or problematic neighborhood climates give residents preferences of where they wish to be relocated. As neighborhoods are being redeveloped, the author examines whether or not tenants want to maintain their connections or to be relocated to a different community.



ANALYSES

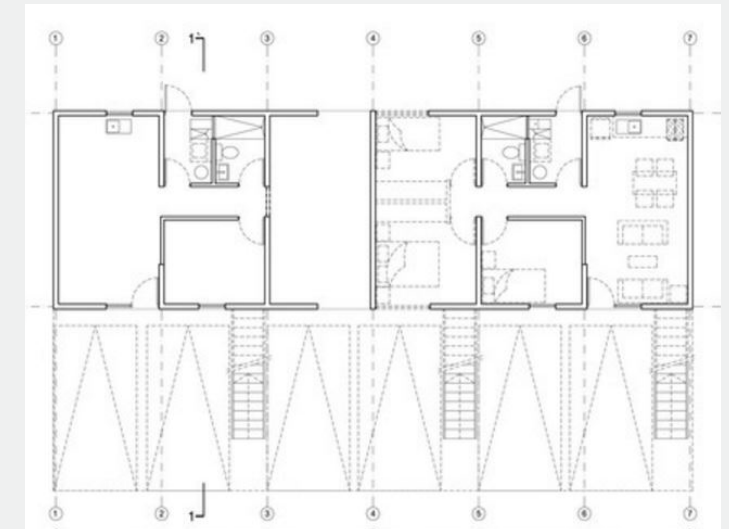
PRECEDENT NARRATIVE

The precedent analysis was a three part case study looking into public housing that would be beneficial to this project. Each building was chosen because they displayed aspects of design that follow the ideas that have been put in place for this thesis. The three main aspects that were analyzed were how community space was used within the building program, how parking was used either in or

around the building and the individuality of apartment spaces within the building. Each building handled these three components differently but they all worked together to provide efficient public housing.

CASE STUDY 1

- Project:** Monterrey Housing
- Location:** Monterrey, Mexico
- Architect:** ELEMENTAL
- Program:** 70 Low Income Housing Units
- Area:** 6591 SqM
- Completed:** 2010
- Materials:** Concrete



1st Floor Plan with Possible Addition



Elevation



Areal View of Shared Outdoor Space



CONCLUSIONS

This building encompassed the idea of individuality between housing units. The open spaces within each of the units are meant to allow the residents to add to their apartments if needed. They can be used as either outdoor space as provided or added to make extra space. This gives the adaptability in the building so that it can be adapted for future use and can allow for families to expand. This building also incorporates the idea of low-rise housing to eliminate issues that have emerged from high rise buildings. Another aspect of this project that I have been focusing on is parking. In areas such as this where most residents will have access to vehicles it is important to include parking spaces. The unique way this building incorporated those spaces is simple. Two small concrete slabs that

rest in the “front yard” of each unit give an area that can be used for parking as well as other uses if the family happens to not have a vehicle. First floor is a single home with a two story apartment located on the second and third floors. Only kitchen, bathrooms, stairs, and dividing walls are provided in 40 m², but the extra 58m² for the house and 76m² for the apartment are meant for expansion. The open public space centralized between the rental units was used because the architect found that many public spaces in social housing were not well taken care of because residents didn’t have direct access. This design allows all residents to have direct access to a large public space and in hopes that they will keep the area taken care of.



North Elevation



East Elevation

CASE STUDY 2

Project: Sint Agatha Berchem Sustainable Social Housing

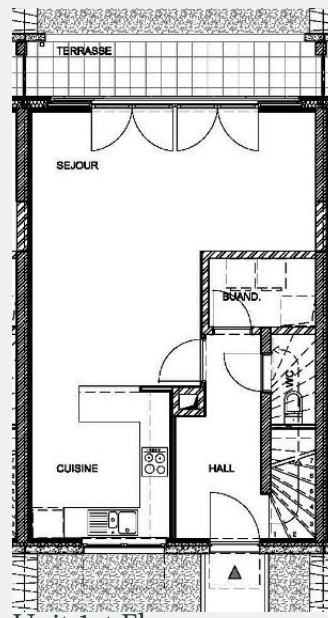
Location: Sint Agatha Berchem, Belgium

Architect: Buro II and Archi+I

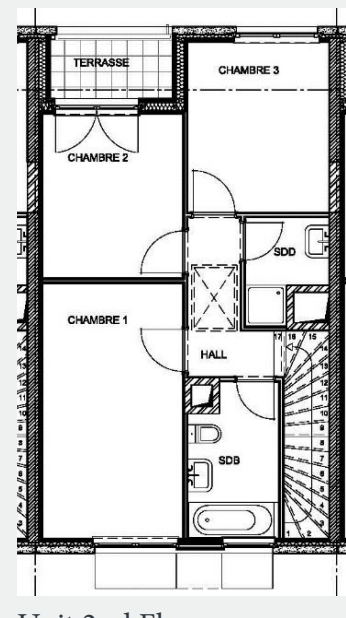
Program: 75 Social Housing Units

Completed: 2012

Materials: Concrete, Wood



Unit 1st Floor



Unit 2nd Floor



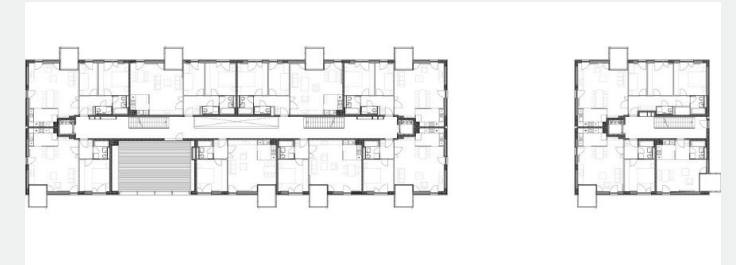
Outdoor Parking and Bike Rack



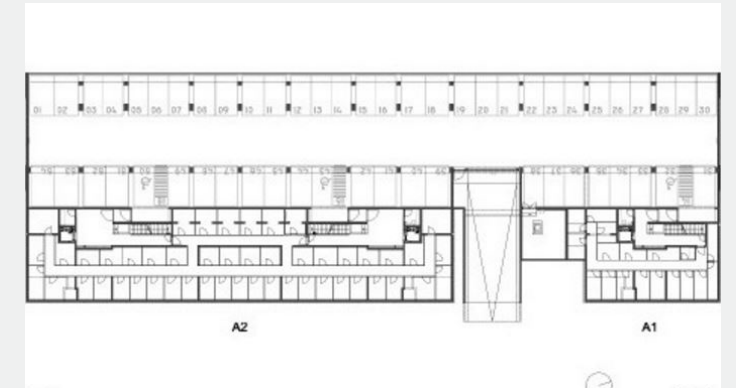
CONCLUSIONS

This building also uses the idea of low-rise housing. The idea that I had that relates well to this building is that it houses fewer units than most. The idea here is that with fewer units, the residents can have a stronger sense of community and will be able to connect better between themselves and the surrounding area. Another reason why I chose this example is because it spans over an 8 block area which gives the residents access to many public and outdoor spaces. A large centralized common area gives residents easy access to outdoor recreation or leisure space. The building uses solar panels, water collection, local and environmentally friendly materials, and

insulation with optimized ventilation to ensure a sustainable design. Various floor plans give individuality to apartments and offer different sizes to accommodate many different families. A goal of this project was to have excellent energy performance as well as exceptional architectural quality. Parking on the site was well designed by placing it under second floor units and providing canopies from the units overhead. These units are an addition to a previous social housing project that was built in 1925 and the design adds to the modernist forms of the previous buildings.



3rd Floor Plan



Basement Plan

CASE STUDY 3

Project: Poljane Social Housing

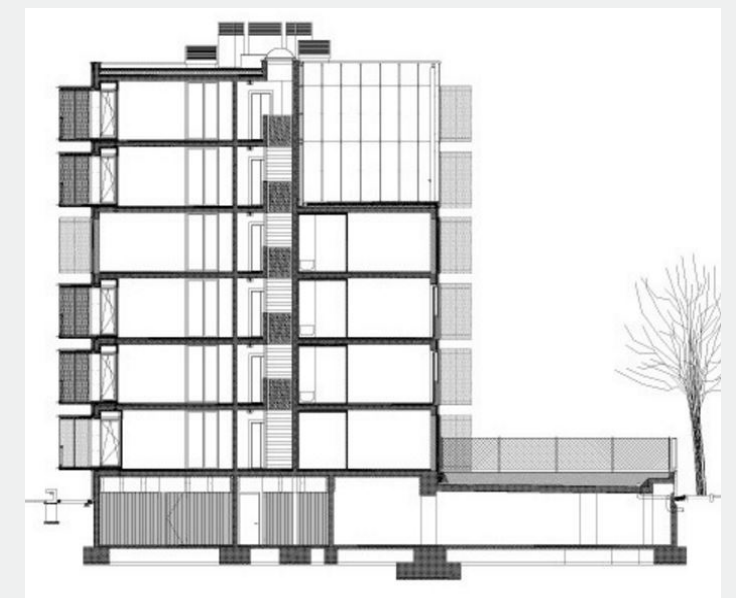
Location: Maribor, Slovenia

Architect: Bevek Perovic

Program: 130 Social and Non-Profit Units

Completed: 2007

Materials: Cement, Steel



Section



Indoor Community Space



CONCLUSIONS

The reason that I chose this building is because it uses the idea of having many public areas throughout the building. There are many areas inside where residents can connect and there are also areas on the roof and on the exterior site. The idea of having multiple public areas also gives the residents a stronger sense of community and can help to connect neighboring residents. These apartments show their individuality through the balconies that extend off of the façade. The color shows where apartments are located and give an accent to the building and the character. The way that this building tackles parking is by locating parking in the basement level of the

building. Underground parking keeps cars off of the street but can also involve wasted space in case residents don't use all of the spots provided. The interior public areas were a result of the rigid urban plan of the area. These areas are either covered open air or roof gardens oriented toward the sun. The complex contains 4 separate buildings. Two slab buildings and two towers and encompasses a total of 130 units. The materials on the facades show how the location of each floor on the inside by using ondulated cement on the spaces where apartments are located and a smooth metal panel where the floor plates sit.

Los Angeles, California

District/Neighborhood: Skid Row

Location: Corner of South Main Street and East 3rd Street

Total Site Area: 31,460 sq. ft.



Total Site Dimensions/Key Objects

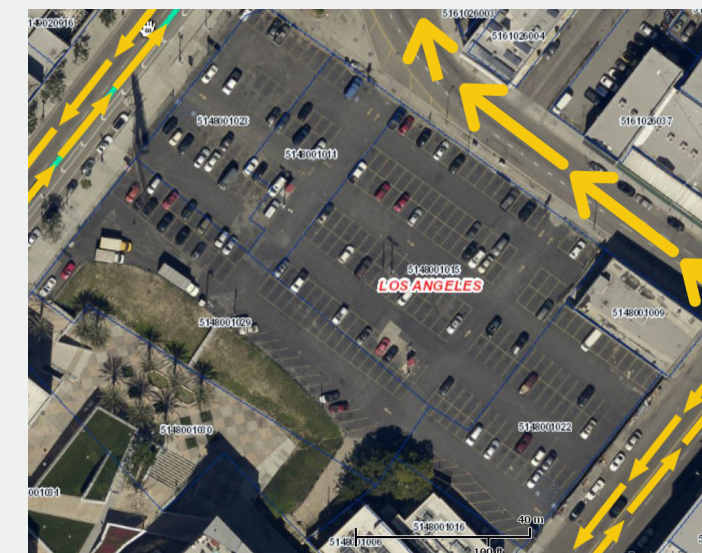


Total Site Dimensions/Key Objects

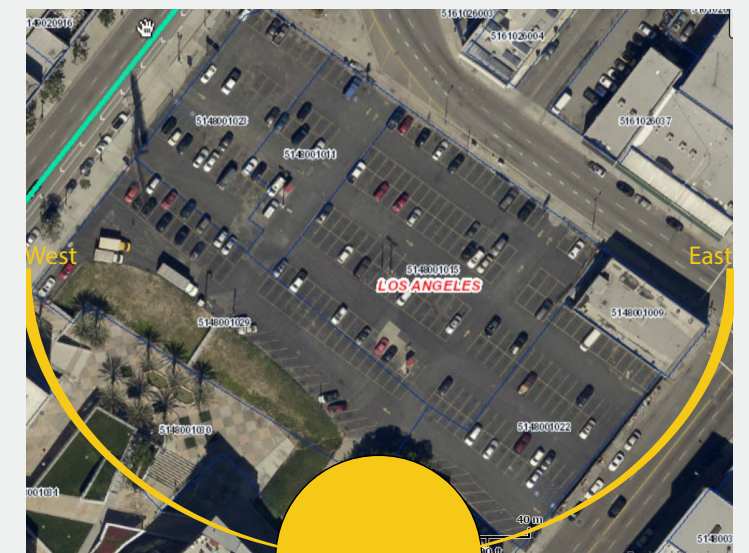
SITE NARRATIVE

The selected site for this thesis is Downtown Los Angeles California. This area was chosen because of the large amount of homeless individuals and low-cost living residents. The specific site was chosen because of accessibility, sun exposure, and relation to transport. Located on a one-way street, the building has easy access to the parking facilities. There are also

public bus transit routes and bike paths located nearby for easy access to transportation. With an open lot to the south it gives the building and the central open space plenty of natural light with also the option of expansion in the future. The analysis shows the importance of sun exposure, traffic flow, and the relationship of the site within the neighborhood.



Traffic Flow



Sun Path



Existing Conditions



Buildings Across From Site



SITE CONCLUSIONS

Figure Ground

A figure ground study was done to understand and see what the surrounding buildings are and how they are associated in the area. A figure ground study also helps to show where open spaces are in an area and how those spaces can affect the design of a building on a certain site.

Traffic Patterns

Traffic patterns are important to my design to know where heavy traffic flow and light traffic flow circulate around the site. Heavy traffic flow means the building will be seen by more people on a given day than if it were located on a site with little traffic flow.

Bike and pedestrian paths

In large cities walkability is an aspect that must be taken into consideration. Also, with low-cost housing, some or most of the residents may not have vehicles so a bike is an alternative option. This site is located close to bike paths and has plenty of access to pedestrian sidewalks for easy access.

Sun Movement

Sun studies are important to this project because any living space should have optimal exposure to natural light. On a site such as this, there is great southern light access, even for a site that is located in the middle of a large city.

Site Dimensions

The site dimensions are always a good aspect to study so that you know what the possibilities are of designing on the site and how large or small you need to design for. They also help to identify proper setbacks and the locations of where you can or cannot build.

Photographs of Existing Conditions

The photographs of existing conditions help to understand what is already located on the site. It helps to know what you are in for before designing. In most cases, demolition and removal of materials is needed in order to begin construction so studying what the site already has it can make sure that you are prepared for the construction process.

Visual and Spatial Impact of the Surroundings

The surroundings of a site help to set the scale of what is being proposed. By studying photographs of the surrounding buildings you can easier design a building that will fit into the site rather than a building that is off in proportions and looks unnatural.

Locations of Key Objects

Locating key objects helps my design be letting me understand where important objects may interact with my site. A fire hydrant, electric box, and a power pole that extends over my site are key objects that might affect what I may or may not design.

CODE NARRATIVE

The code analysis is a study into the specific code regulations for the city of Los Angeles. Each building typology has its own set of regulations, thus requiring different aspects of design to be included into the building. The code also sets restrictions on aspects that are not allowed and provides a framework for the design of a project. This study was helpful in finding those regulations so that during the design of this thesis, these codes are at easy reference. Although the city code for Los Angeles goes vastly further in

depth, the codes that were studied are the main sections where the more specific details fall under. The regulations that were studied include height restrictions, floor areas per occupant, fire ratings, plumbing fixture requirements, paths of egress and egress size, and handicap bathroom requirements. These code requirements set the initial study of regulations for further investigation that will take place during the design phase.

Means of Egress

- Stairways: Roughly 15 People Per Floor, 4.5ft
- Exit Travel Distance: 250ft
- Corridor Width: 44in

Doors

- Width Between Exit Doors: 48” Plus Width of a Door Swinging Into Space
- Required Number of Doors: 1

Maximum floor area per occupant: 200 Gross

Allowable Stories Above Grade: Unlimited

Fire Resistance Rating

-Primary Structural Frame	3hr
-Bearing Walls Exterior	3hr
-Bearing Walls Interior	3hr
-Non-bearing Walls Interior	0hr
-Floor Construction and Associated Second Members	2hr
-Roof Construction and Associated Second Members	1.5bhr

Handicap Bathroom Size:

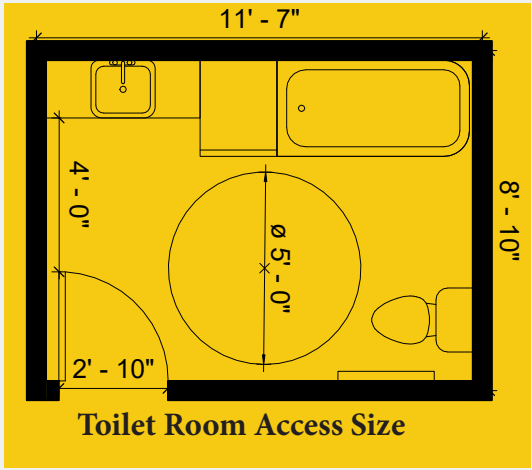
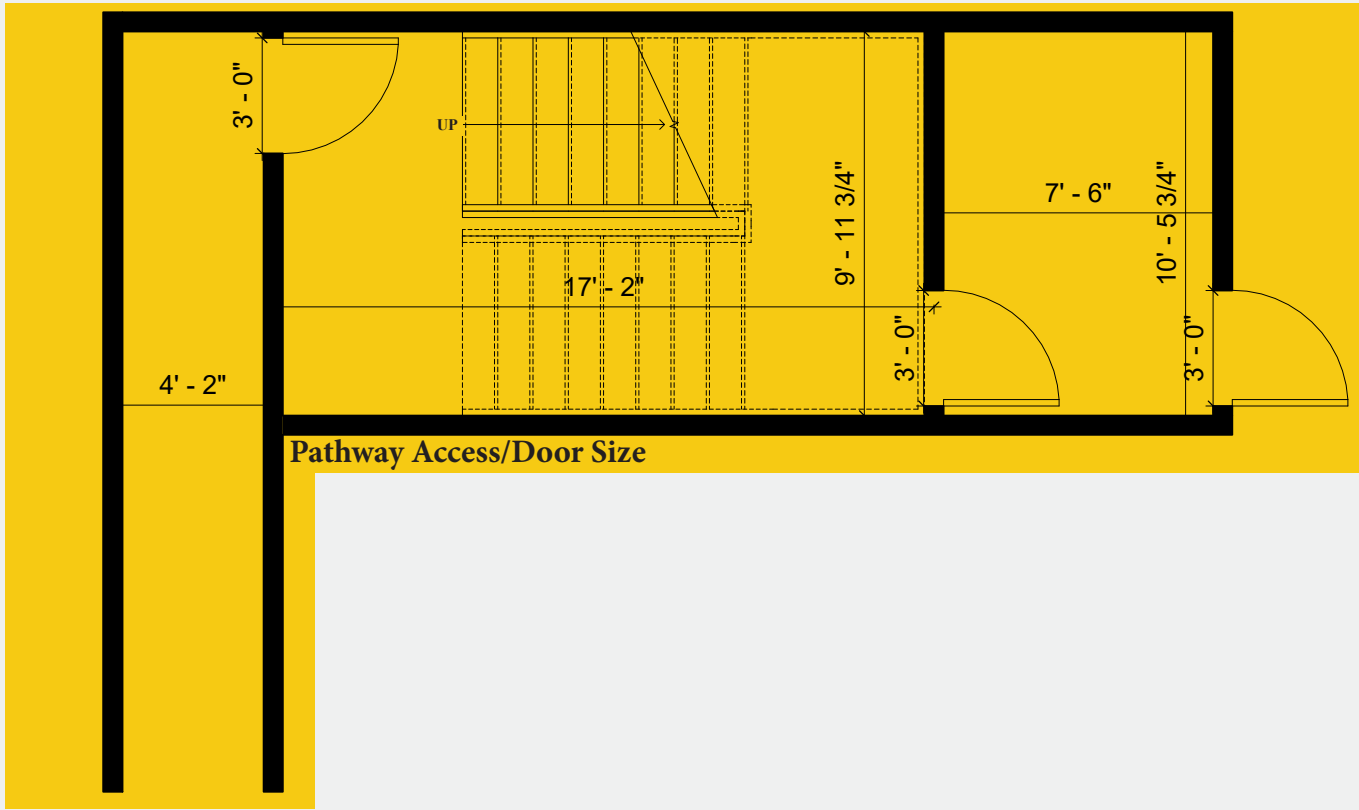
- Shower Seat: 17-19” High
- Sink: Approached from the front needs 34” maximum rim height with 27” clearance for knees, or sink can be approached from the side
- Toilet: 17-19” High with one grab bar 18” from closest wall or fixture
- Area: Needs one space with 5’ diameter, 4x2.5’ in front of each fixture or between fixtures on same wall
- Door Width: 34”

Allowable Height: Section R Unlimited

Allowable Area Factor: (SM Without Height Increase) Unlimited

Plumbing Fixtures Required:

- Lavs/Sinks - 1 Per Unit
- Water Closets/Toilets - 1 Per Unit
- Bathtub or Shower - 1 Per Unit
- Kitchen Sinks - 1 Per Unit
- Automatic Cloths Washer Connections - 1 Per 20 Dwelling Units



PROGRAM

PROGRAM NARRATIVE

The program for this thesis focuses on a small three story building typology that houses 15 apartment units as well as homes designed for families with larger number or family members. The building wraps around a central open public space which is accessible from every apartment building. The central open space will give a community space where residents will be able to interact with each other to form a tighter bond between residents. Parking occupies the ground floor of the building providing

adequate space for individuals that need parking access. The areas for parking are adaptive so if residents do not own a vehicle, the space can be used as additional outdoor space. Community space located inside the building will allow for residents to interact internally within the building for a more communal living feeling. These aspects will allow the residents to be connected with their neighbors both inside and outside of the building while also having their own space within their apartments.

SPACE LIST

Function	People	Capacity	Unit	No. of Units	Area/Unit	Net Area	Net Area Subtotal
Public Housing Building							
Front door							
Lobby				1	1200	1200	
Storage Closet				1	100	100	
Mechanical				1	1800	1800	
Subtotal							3,100
Interior Public Space							
Open Room		200		2	1000	2000	
Subtotal							2,000
Exerior Public Space							
				1	14,136	14,136	
Subtotal							14,136
Studio Apartment							
	1	2		15	550		
Kitchen	1	2		1	80	80	
Bathroom	1			1	60	60	
Closet				2	15	30	
Bedroom/Living Area	1	2		1	350	350	
Extra					45	45	
Subtotal							8,220
3 Bedroom House							
	3	5		4	1556		
Kitchen	1	5		1	250	250	
Bathroom	1			2	60	120	
Closet				4	15	60	
Bedroom	1	2		3	120	360	
Living Area	3	5		1	400	400	
Extra					366	366	
Subtotal							6,224

BUILDING AREA SUMMARY

Building Area		Phase 1					
Space Name	People	Capacity	Unit	Net Area	Net:Gross	GrossBuilding Area	
Social Housing Building							
Lobby			1	1,200	0.6	2,000	
Interior Public Space	35	200	2	1,000	0.6	3,334	
Exterior Public Space			1	14,136	0.6	23,560	
Studio Apartmnet	1	2	15	550	0.6	13,750	
Three Bedroom Unit	3	6	4	1,556	0.6	10,373	
Subtotal						53,017	

LAND USE REQUIREMENTS

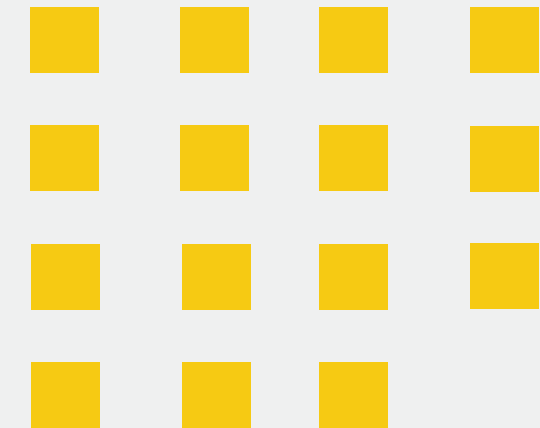
Land Use Area		Phase 1					
	People	Gross Building Area	Floors	Building Footprint	GAC	Land Area	
Public Housing Building							
Building	35	28,316	4	11,360	25%	45,440	
Exterior Public Space	35	14,136	1	14,136	70%	20,194	
Parking							
Tenants	35	4,508	1	7,520	70%	10,743	
	35	42,452		25,496		65,634	

Public Housing
Los Angeles, California

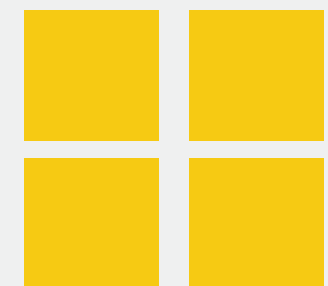
May 2017

Living Spaces

14,474 NSF



One Bedroom Unit
15@550 = 8,250 NSF



Three Bedroom Unit
4@1,556 = 6,224 NSF

Community Spaces

17,336 NSF



Lobby
1@2,500 = 2,500 NSF



Interior Public Space
2@1,000 = 2,000 NSF



Exterior Public Space
1@14,136 = 14,136 NSF

Grand Total Net

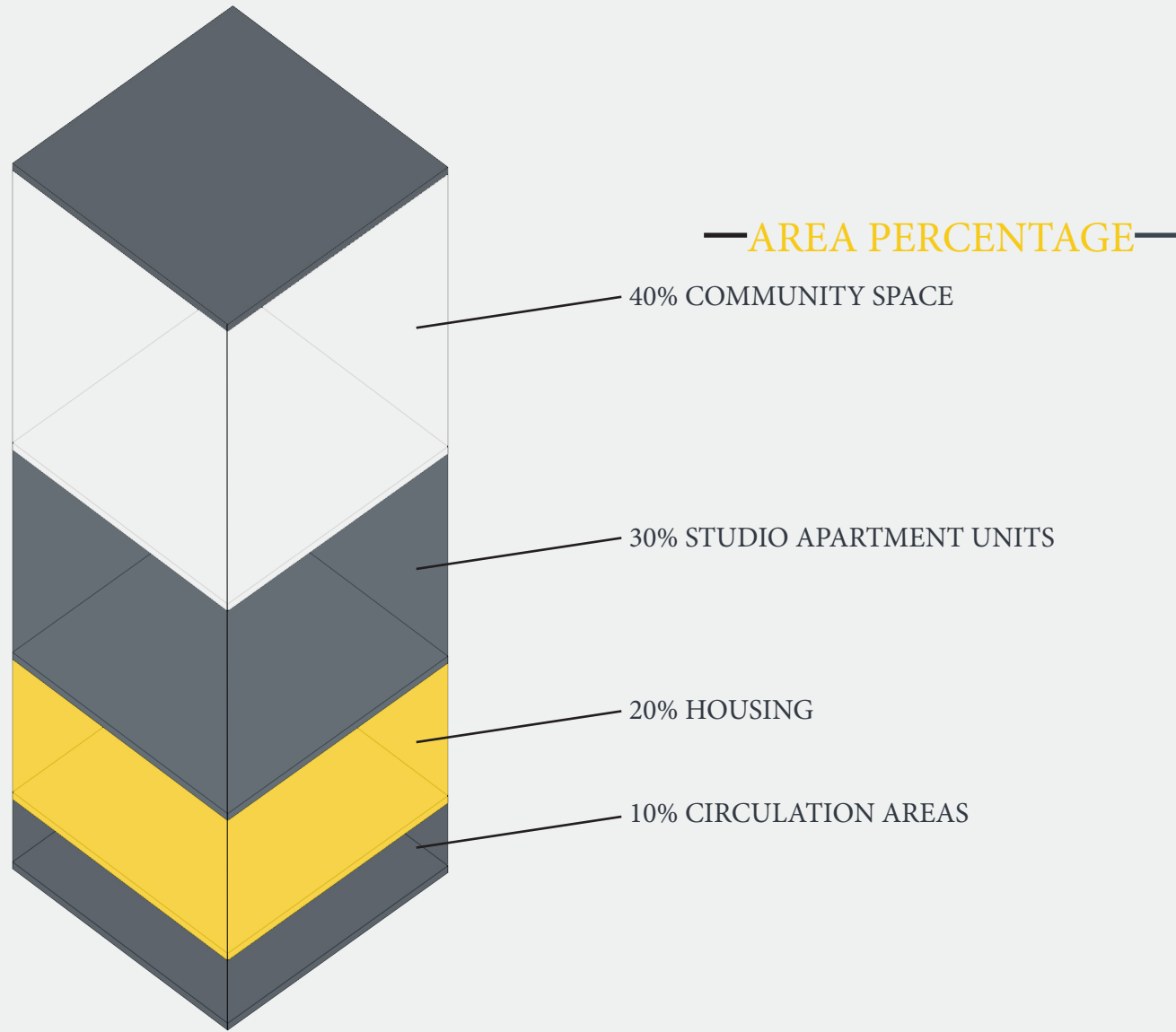
31,810 NSF

Overall Building Efficiency

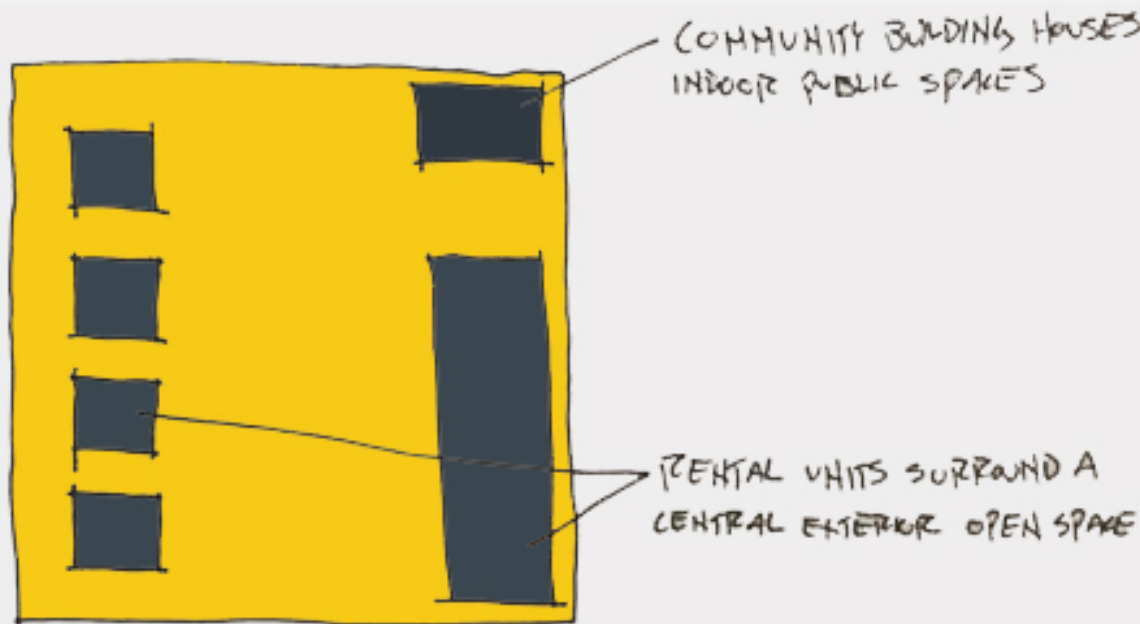
60%

Grand Total Gross

53,017 GSF



— PROGRAM LAYOUT —



— PROBLEM STATEMENT —

Public Housing Facility

Concept Design
November 2016

Function

The Public Housing Building must revolve mostly on neighboring and community connection **resulting in proper orientation and site areas to create space to bring community and housing together.**

Since the main aspects of the building are the residential units and to give each resident equal space, **each unit should be unique to its tenants, yet simmlar in floor area.**

Economy

Public Housing units must follow a tight budget in order to provide decent living spaces with a low-cost rent. **Cost control techniques as well as long term savings must come together to provide a sustainable and enjoyable building.**

Form

The basis of the Public Housing building is to give each tenant easy access to outdoor public space and community areas, **therefore each unit should have direct access to a central open site area.**

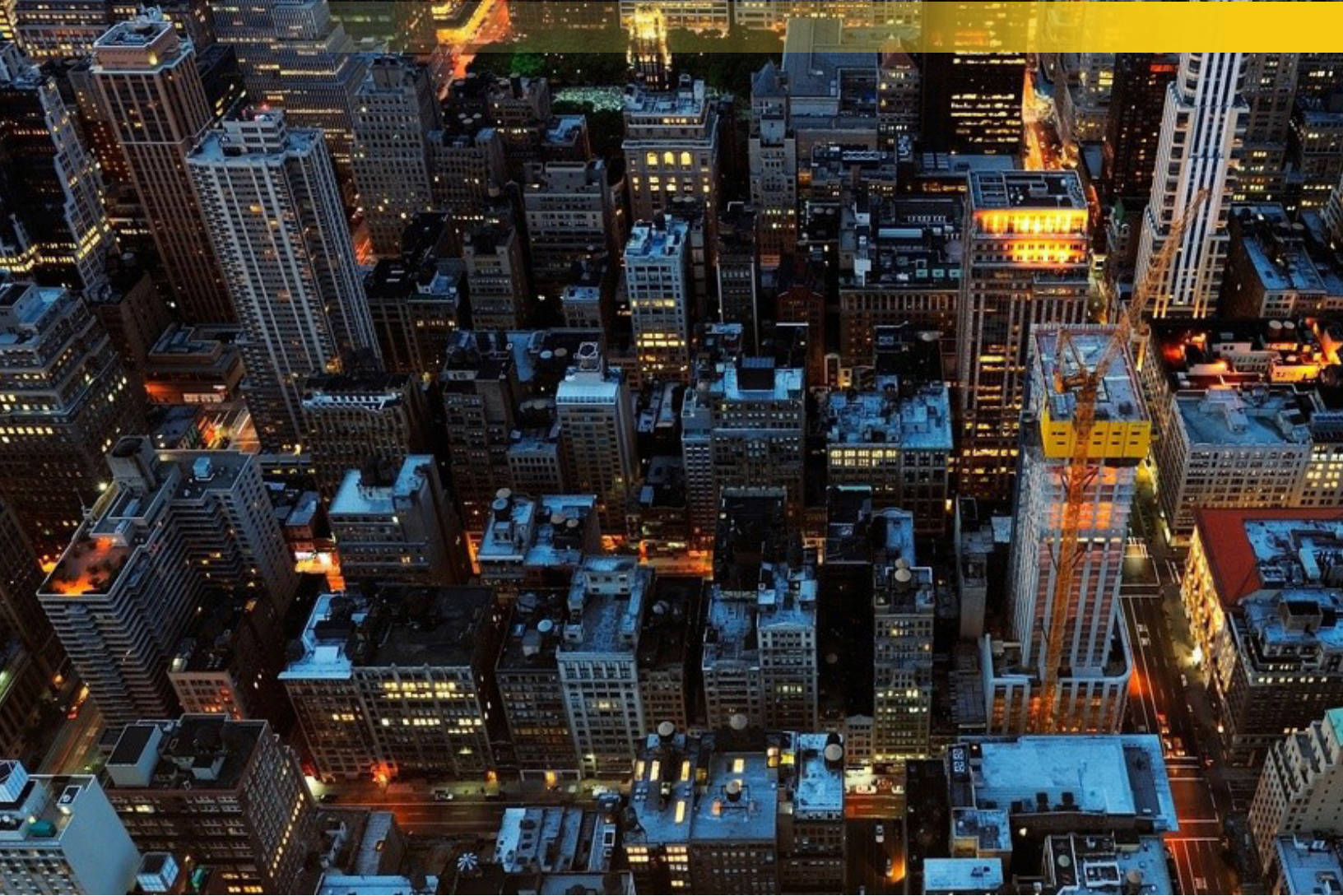
In order to provide protection from negative outside influences the central courtyard should be surrounded by a privacy wall creating a safe, secluded outdoor recreation area.

Since many tenants will not require parking areas, only a select number of parking should be included to provide parking for specific tenants and special occasions.

Time

This building may serve as a possible test building for future expansion, **therefore the building must be able to be replicated on neighboring sites and or sites around the city.**

Tenants must be able to move into units at set times in order to avoid paying multiple rents, **therefore the building must be completed in a timely matter and on schedule.**



PLAN FOR PROCEEDING

RESEARCH DIRECTION

Research for the design portion of this thesis will include a more in depth study of the public housing buildings in the US. I will research several different buildings in various eras of the program to find out the reasons why each one either succeeds or fails as a low-cost living facility. Research will analyze the failures that I have found in public housing buildings and how the successful designs have approached those problems. The findings will then help this thesis design to find the best possible solution to those issues in question.

PROCESS DOCUMENTATION

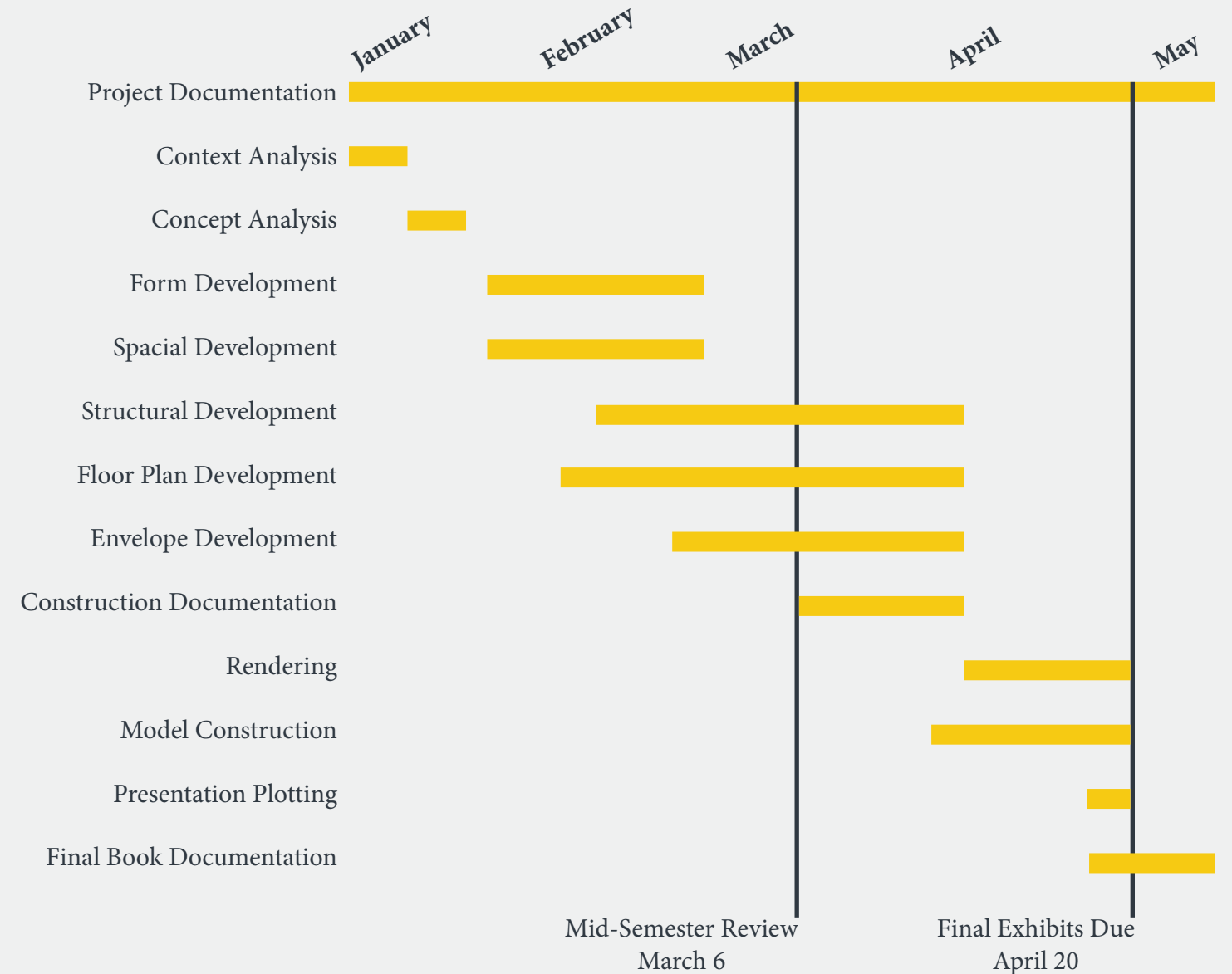
In order to get the best documentation throughout the design process it is critical to keep weekly folders of the work that was produced during each week. By doing this it sets a full timeline of the thesis design from start to finish. Weekly documentation also allows for quick and easy access to previous work if there ever is a need to look back for reference or design changes.

DESIGN METHODOLOGY

Research will be done through the design research methodology, meaning the design of this building will be through an investigative strategy process. All research found will play a part in the overall design aiming to address this thesis question. The outcome will be a building that encompasses specific aspects of the history and design of public housing buildings in the past.

PROJECT SCHEDULE

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Weekly Progress	Design Research	Design Research	Initial Design	Initial Design	Schematic Design	Schematic Design	Schematic Design	Design Development
Completed								
	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Weekly Progress	Design Development	Design Development	Design Development	Final Design Decisions	Project Production	Project Production	Project Production	Project Complete
Completed								





PART II

Designing a Community

INFLUENTIAL PUBLIC HOUSING

Le Lorrain – Brussels, Belgium

- Built from an old Iron Dealer Facility was completed in 2011
- Consists of Multi-unit apartments and three terraced maisonette homes each with its own private garden.
- Has a large, open communal space for residents
- MDW Architecture
- 835 Square Meters
- 4 flats connected by a large common open space to 3 maisonettes at rear of site
- Garage at street level

The main parts of this design that relates strongly to my project are the use of a central open space for residents to interact with each other and also the addition of the 3 separate homes. Including homes into the design might help to create a larger variety of families that are able to live in this building. This design also incorporates a great sense of place into the design by using metal cladding on the exterior to play back to when the building use to house a sheet metal factory. The 4 Flats are lifted off of ground level in order to let the street side breathe and create opportunities for more light to enter the units. The building incorporates vegetation through creeping plants along the street front and party walls, planted common space including a tree, and private gardens and green roofs.



Elmas Social Housing/ 2+1 officina architettura

- 09030 Elmas Province of Cagliari, Italy
- 977.72 Square Meters
- Completed in 2010
- Includes an office and also housing units
- Entrance to housing units is achieved through the inner courtyard
- Exterior mesh covered staircase
- Sleeping areas are placed on north side and living areas are placed on south side
- A brise soleil balcony protects the southern windows against strong summer sun
- Stair and walkway balconies are all external creating cohabitation and social integration

The entrance to the private units is through an inner courtyard that creates a space between the road and the building itself. The exterior staircase and the exterior walkways are helpful in creating more open spaces where residents can interact with one another. The walkways also double as shading from the sun during the summer months and shutters on the north façade protect against the cold northern winds.



Social Housing in Sa Pobla

- Mallorca, Spain
- Architects – RIPOLLITIZON
- 2498.7 sqm
- Completed in 2012
- Includes an interior courtyard-plaza that organizes the circulations and public areas

Once again the building is located around a central courtyard providing residents with open space. The units include a mixture of apartments and maisonettes that can have either two or three bedrooms in each home. In order to create a sense of place the wooden shutters and doors are a reinterpretation of the fenestration found on other buildings that surround the site. The design is based off of a modular system where bedrooms, bathrooms, and storage, are added onto the main core elements comprising of living, dining, and kitchen spaces. Holes in walkways are punched out of the exterior walls in order to frame meaningful views both inside and outside of the complex.



L'Astrolarbre

- Paris, France
- Designed by KOZ Architects
- Completed in 2007
- Part of the design incorporates a tree that was on site before construction began, purpose was to infuse the urban residential development with nature.
- Front gardens on the ground floor add a break between the road and apartments
- Eco-friendly rainwater harvesting system incorporated over the entire development.
- 12 Housing units

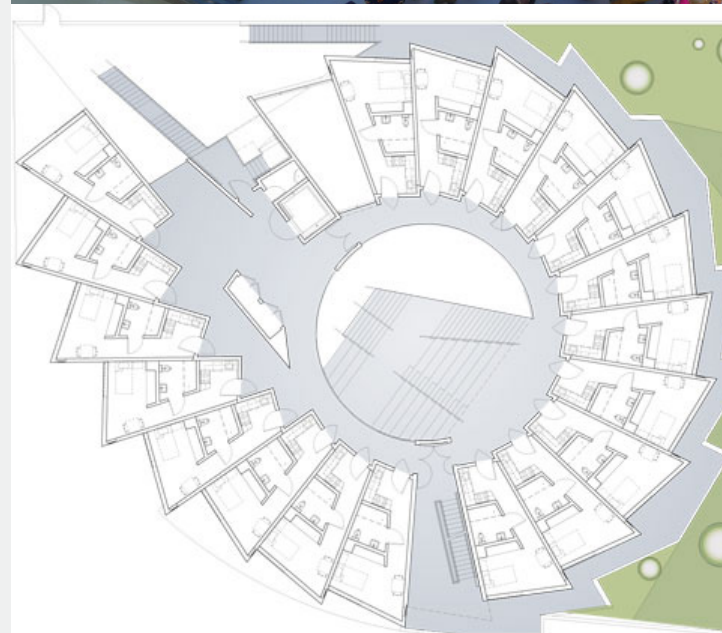
On an area of 1256 square meters the building consists of a small courtyard with small gardens throughout and 12 housing units. An all glass base level connects the building to the sidewalk on one side of the site while the courtyard and garden connects to the opposite street. The building uses an open air entrance into the site with open walkways spanning across the entrance. The walkways also serve as deck space giving the residents views of both the city in one direction and the courtyard and gardens in the other.



New Carver Apartments, Los Angeles, California

- Architect – Michael Maltzan Architecture
 - 53,000 Square feet
 - Completed in 2009
 - Located at 1624 S. Hope St. LA 90015
 - Cost 18.4 Million to construct
 - Labeled as special needs and elderly housing
 - Homeless older adults and homeless adults with chronic disease/disabilities
- Located next to Interstate 10, this public housing

building is designed as a “beacon” for the homeless people of Los Angeles. This was built by the Skid Row Housing Trust in purpose to help keep people off of Skid Row when they are dismissed from Jail, Hospitals, or other facilities and situations. The units are only efficiency but they come furnished and have a total of 97 within the building. The circular design helps to quiet the noise from the freeway and comes with a sky deck, open community room, gardens, communal spaces and sites for medical and social service’s needs. The circular shape provides an open air community space at the center providing the residents with an area in the building to get fresh air and sunlight. Pathways of interior streets within the building connect to the exterior streetscape. The Kitchens, dining areas, and other common spaces are located directly adjacent to the medical and social spaces creating a connection of the residents within the building and the community outside of the structures walls.



Skid Row Housing Trust

- Total of 25 buildings
- Supporting formerly homeless individuals with permanent homes
- Buildings close to my site location
 - St. George Hotel
 - Boyd Hotel
 - New Genesis Aartments
 - New Pershing
- Buildings similar in size to my project
 - San Pedro House
 - Hart Hotel Apartments
 - The Six (52 Apartments)

San Pedro House

- 647 S. San Pedro Street
- 19 Special needs/efficiency apartments
- Completed in 1999
- Designed by Matlin, Duoretzky, and Partners

The Six

- 811 S. Carondolet Street
- 52 Apartments
- Designed by Brooks + Scarpa Architects
- Specifically for homeless veterans
- The six means “I’ve got your back”
- Leet platinum certified
- The open lobby lets lots of light in - aiming to help with PTSD

Hart Hotel Apartments

- 508 East 4th Street
- Completed in 1992
- 39 SRO apartments
- 2 Commercial Spaces
- Designed by Killefer, Flammang, and Purtill

Star Apartments

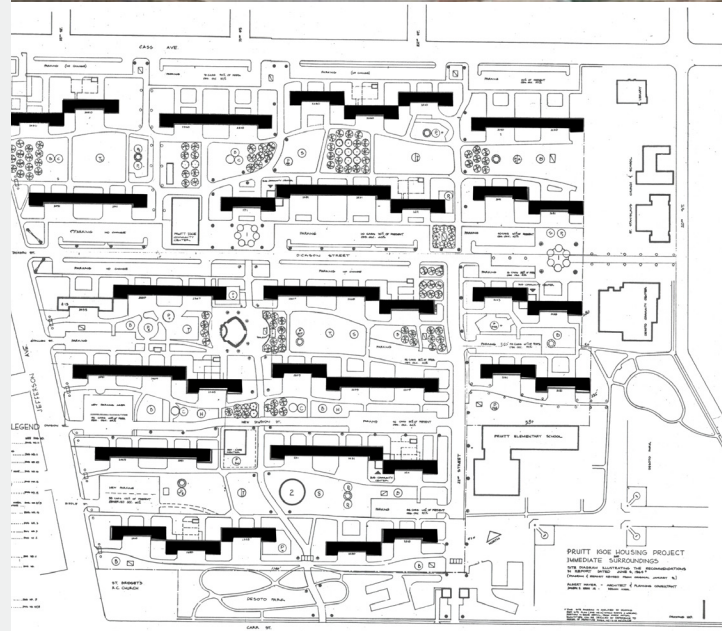
- Prefabricated construction
 - First pre-fab for multi-unit housing in 50 years
- Contains gardens, kitchen, basketball court, and a jogging track
- Pre-fab resulted in poor detailing, bad joints, uneven surfaces, and unintentionally exposed surfaces
- Uses exterior walkways



— **FAILED PUBLIC HOUSING** —

Pruit-Igoe, St. Louis MO

Designed by architect, Minoru Yamasaki, the same man to design the world trade centers, designed this complex that consisted of 33 eleven story buildings. The complex was built to house segregated sects of young, middle-class blacks and whites, but ended up becoming mostly inhabited by African Americans as the white population largely relocated into the suburbs. The use of skip stop elevators, that only made stops every 3 floors, caused crime in stairwells as people would wait around corners for people to make their ways to their floor. The complex only lasted for 20 years having been completed in 1956, half of the buildings were destroyed in 1971 and half were demolished later in 1976.



Robert Taylor Homes, Chicago IL

These homes were once the largest public housing buildings in the United States. Completed in 1962, the development was named after the first African American to enroll at the Massachusetts Institute of Technology in 1888. The complex had 24 sixteen story high rises including 4,415 units. These homes housed some of the poorest residents in the entire country. 95% of the 20,000 residents were unemployed, only using public assistance as their income. The Poverty in this complex caused some of the highest rates of crime and gang activity in Chicago.



Jordan Downs, Watts CA

These public housing units were constructed for the purpose of being temporary housing for war workers during WWII but were converted in the 1950s. The complex began as a partially integrated development but later became majority African American by the 1960s because of LA's restrictive covenants and large migrations of African Americans after the war. Police Brutality and a lack of employment began to contribute to great hostility among African Americans living in the complex. The resulting actions eventually lead to the 1965 Watts riot and the large amount of gang violence in the 80's and 90's.

**Cabrini Green, Chicago IL**

At the peak of Cabrini Green, originally named the Frances Cabrini Row houses, it housed more than 15,000 residents with only 3,607 Units. In the 1950s a large factory nearby closed down leaving many of the residents without jobs. Resulting poverty and crime began to make its way throughout the Cabrini Green Development. The crime rates and conditions have been documented more than any other housing development in Chicago. Cabrini Green has been described by the USA Today as "a virtual war zone, the kind of place where little boys were gunned down on their way to school and little girls were sexually assaulted and left for dead in stairwells." Cabrini Green was shut down and closed in 2010.



MODULAR PREFABRICATION

Modular Systems

These are complete buildings or sections of a building and are brought complete and whole to the site and are then connected together on site.

Advantages

- Faster construction speeds
- Indoor construction avoids weather delays
- Low waste materials (50-75% Less)
- Environmentally friendly construction process
- Flexibility allows for easy additions
- Safer for taller buildings
- Cuts back on noise in neighborhood during construction
- Everyone works together on construction causing less errors.

Common Materials

- Steel and Wood are used most often

Must be designed stronger than standard construction because each unit has to make it through the transportation process to the site

Insulated concrete forms are a type of prefab and have an acceptable ductility to be used in high seismic risk zones

Roof and building skin can be applied after assembled on site

High cost of living in the West coast could give the lower cost and advantage

The buildings are 90-95% complete when arrived on site

Quality control allows for proper examination to avoid mistakes that may cause problems over time.



Materials

Wood

-Mostly used for single family and low-rise multifamily buildings

Rules of thumb

- Maximum width 16'
- Maximum length 64'
- Maximum height 12'
- Maximum building height 3-4 stories
- Estimated depth of floor mate line 2'
- Limited to type III or type V construction

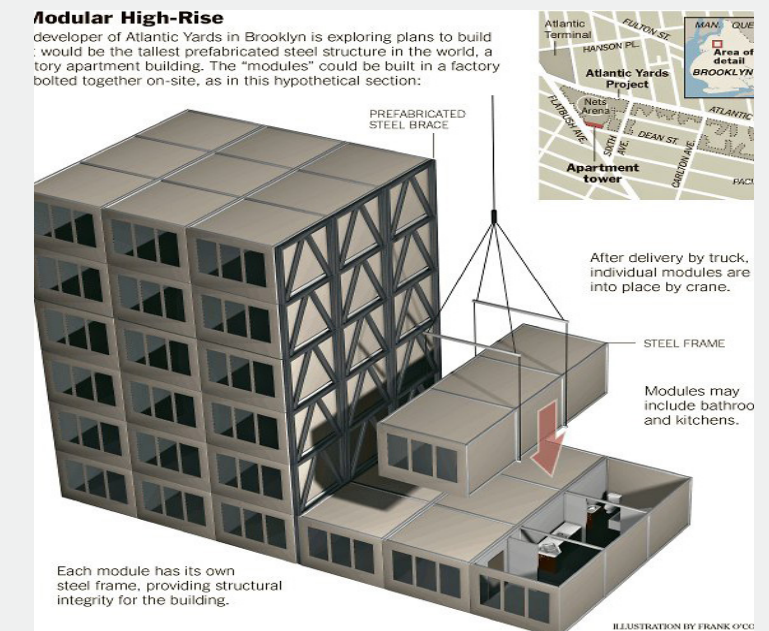


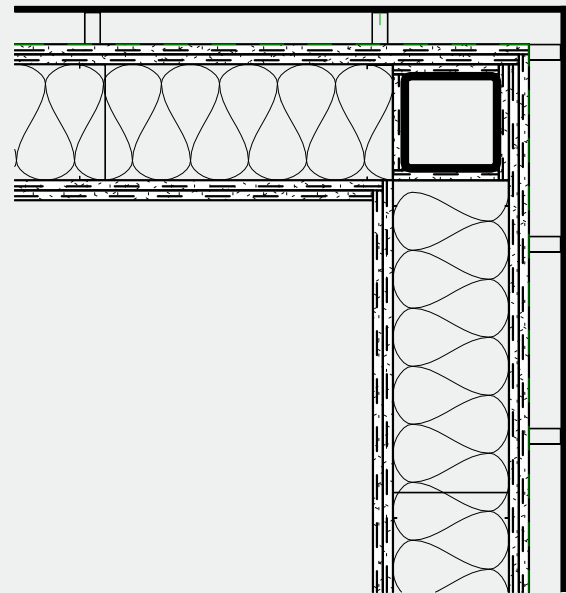
Steel

-Used for taller, higher performance or seismic designed buildings
-May not have to be over structured for transport

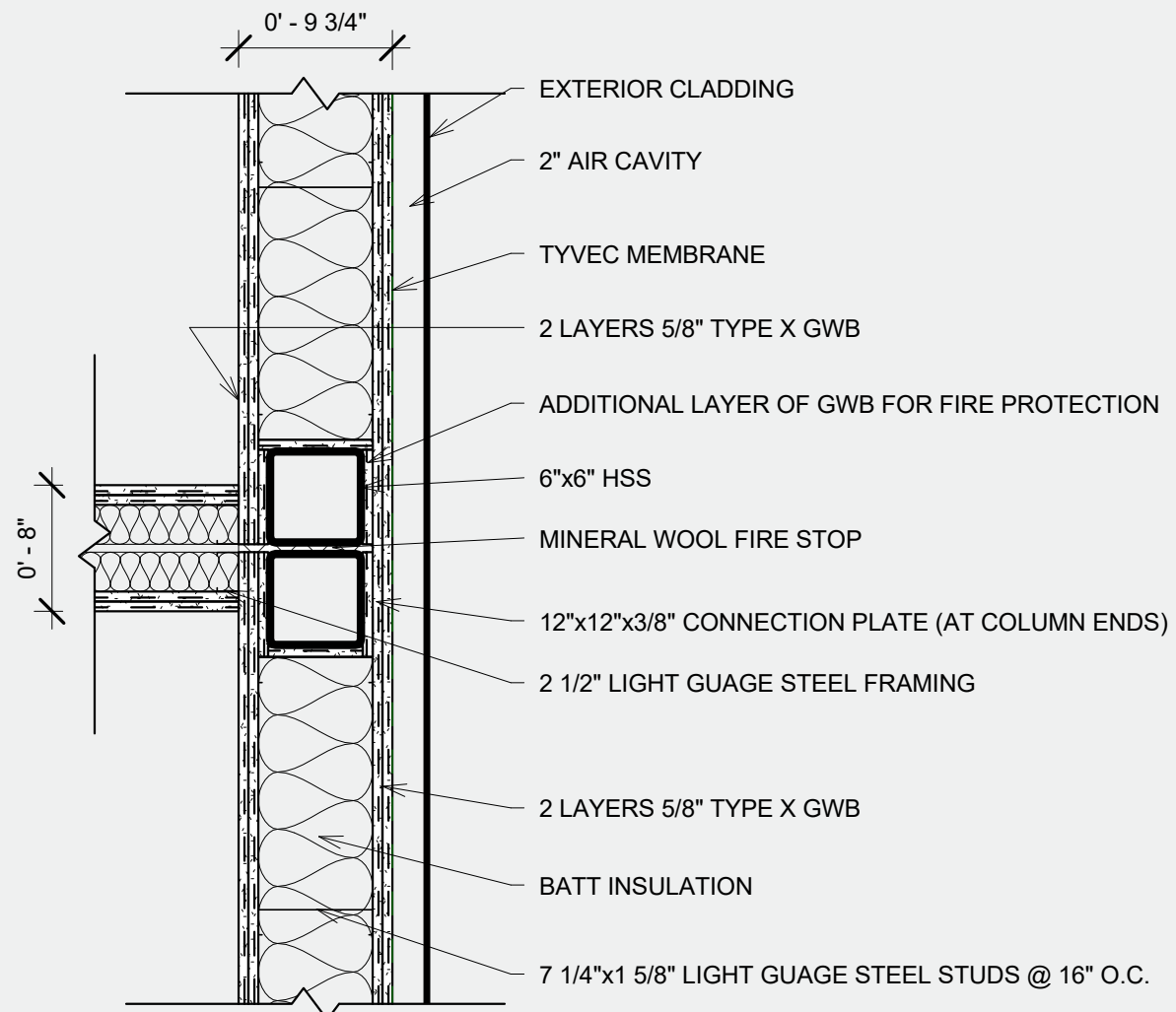
Rules of thumb

- Maximum width + Length using concrete deck
 - 12'x46'
 - 14'x30'
 - 16'x35'
- Maximum width + length using cement board
 - 12'x65'
 - 14'x58'
 - 16'x50'
- Maximum height 12'
- Maximum building height 5-12 Stories
- Estimated depth of floor mate line 1'6"
- Type I or II construction
- Steel floor joists 16" on center with 4.5" concrete deck
- Can install finishes, appliances, and fixtures in factory

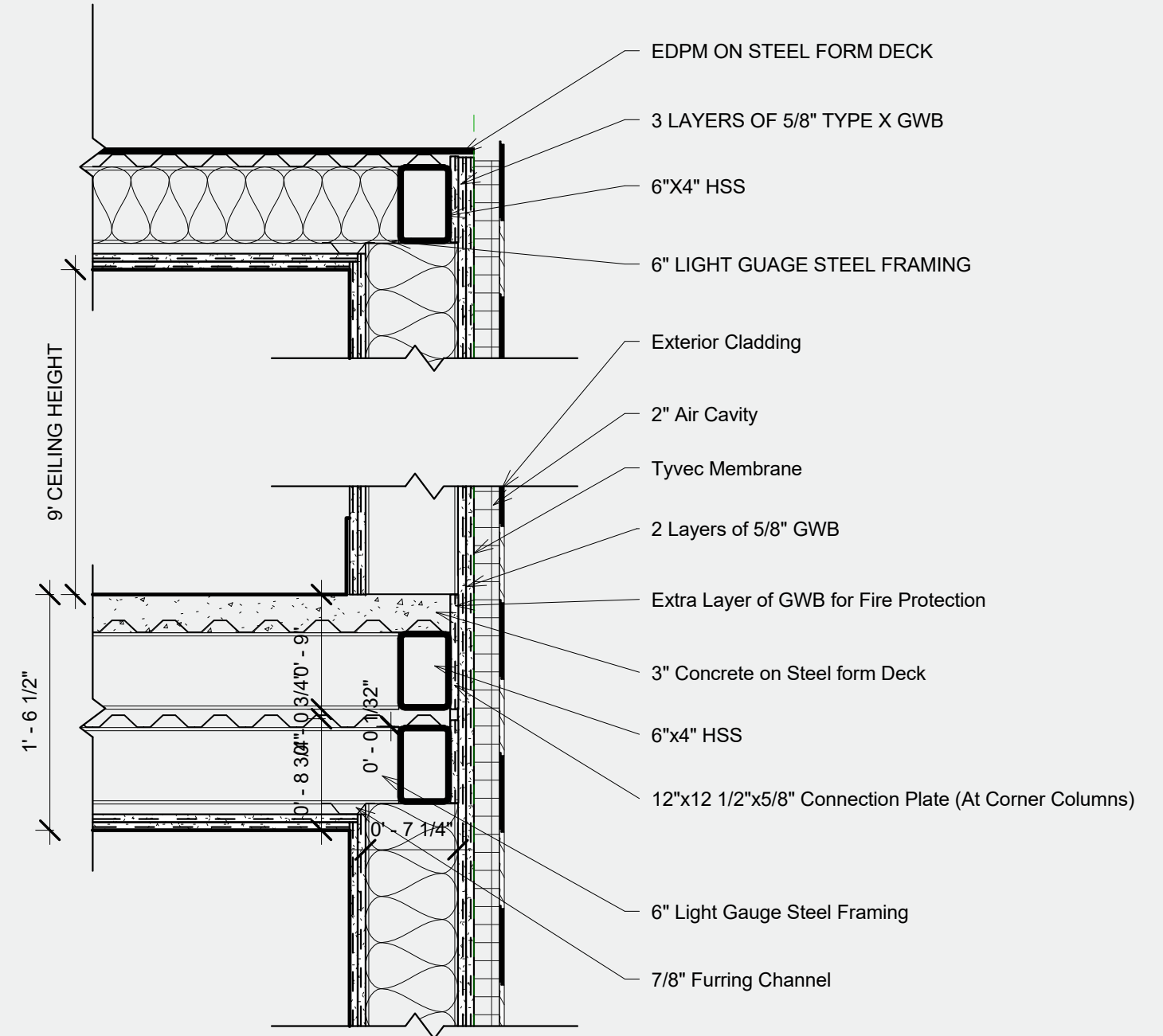


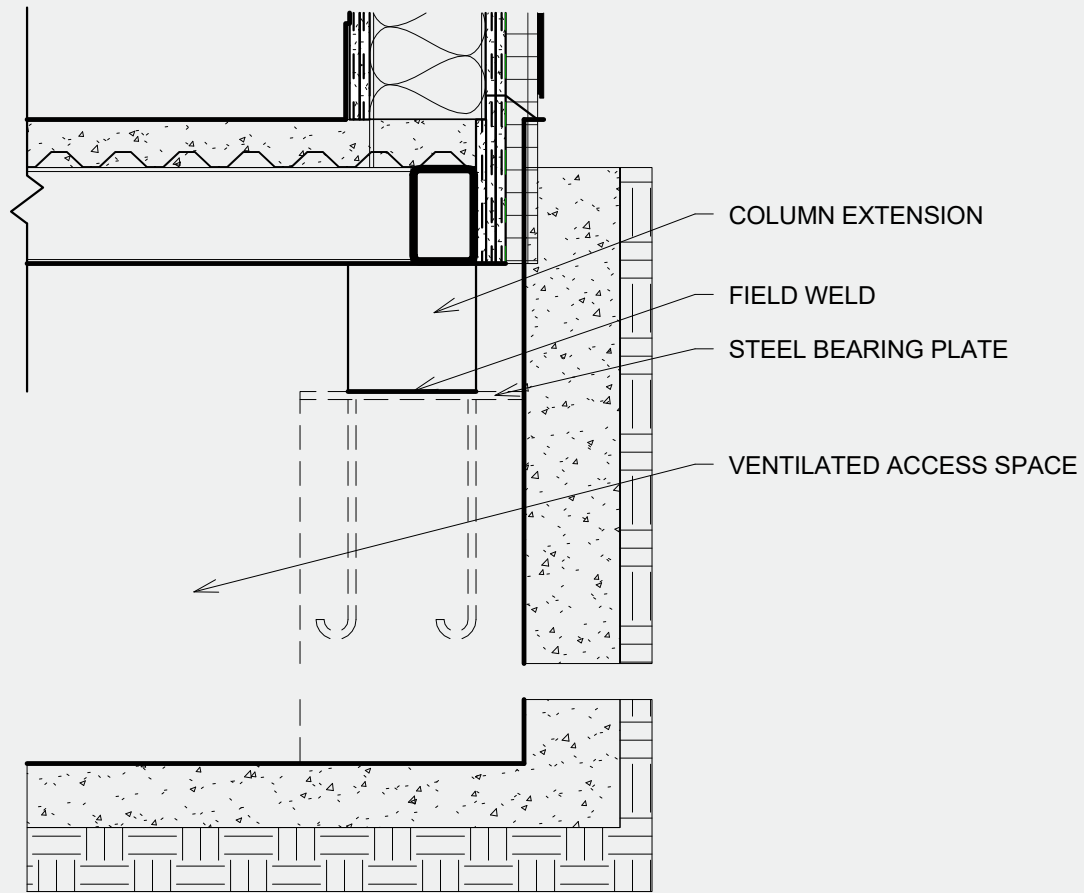


PLAN DETAIL

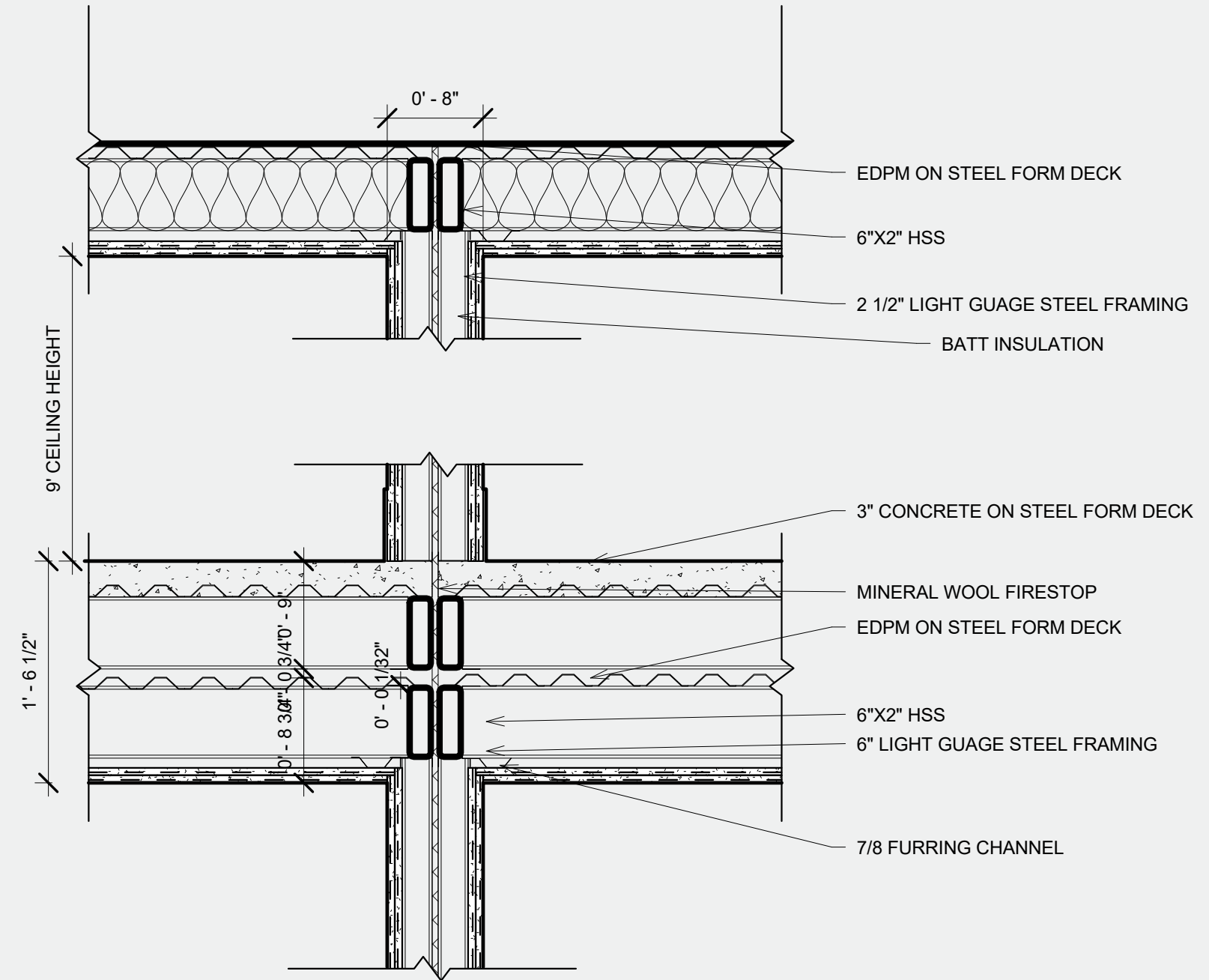


SECTION DETAILS





MATE-LINE DETAILS



DEMOGRAPHICS

Homeless population in Los Angeles

-254,000 Men, women, and children are homeless sometime during the year
 -82,000 People on any given night

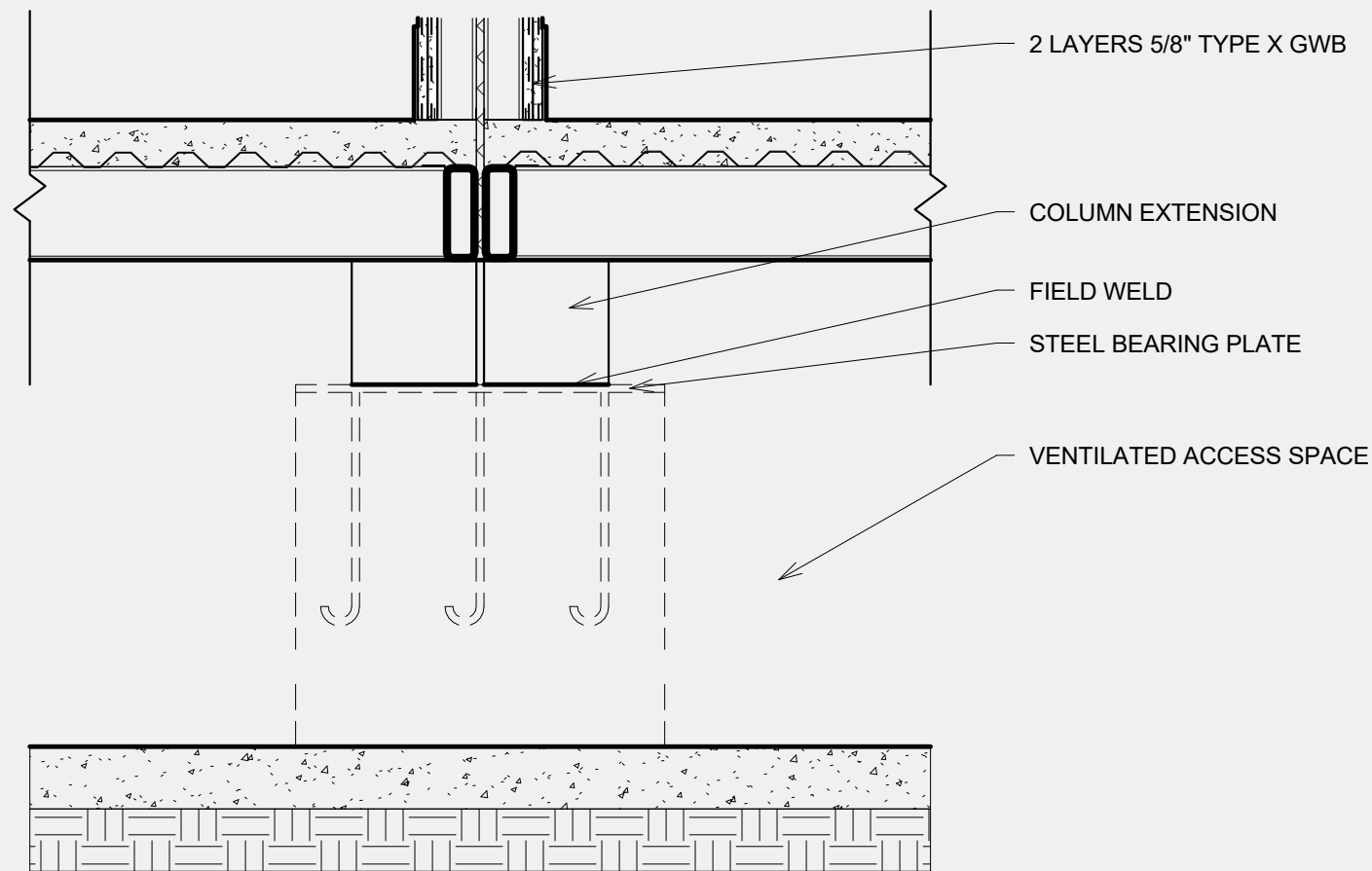
-Average age is 40
 -Men make up 75% of the single population
 -42-77% Don't receive public benefits they are entitled to
 -Estimated 20% are physically disabled
 -20-43% Are single families (typically by mothers)
 -16-20% Are employed
 -33-66% Have substance abuse
 -11% Are veterans

-4,700 Live downtown (more than any other area)

-Los Angeles pledged to end veteran homelessness last year but it only dropped by 41%

-Most of the homeless population in Los Angeles are working class adults between the ages of 25 and 54, totaling 60% of the homeless

-Since 2013 the homeless population has almost doubled from 26,000 to 43,000 in 2016 in the Los Angeles area alone



PROJECT RESEARCH CONCLUSIONS

This portion of the research was conducted in order to better understand the environment that I will be designing for and how I can best design for that environment. Multiple case studies were done to find the optimum number of residents to house and to find design aspects that have been shown to create interaction between individuals in the past. Public housing buildings of the past were also analyzed for the purpose of understanding negative design aspects and which of those should be avoided during design. Case studies of buildings around the world as well as case studies from the neighborhood of my site location allowed for proper knowledge in regards to scale, density, and design strategies that provide a solution to this thesis.

Research on structural systems was also conducted to find the best possible solutions to constructing a building typology such as this. Modular prefabrication research and case studies found this technique the most suitable for this project based on cost, functionality, durability, and flexibility.

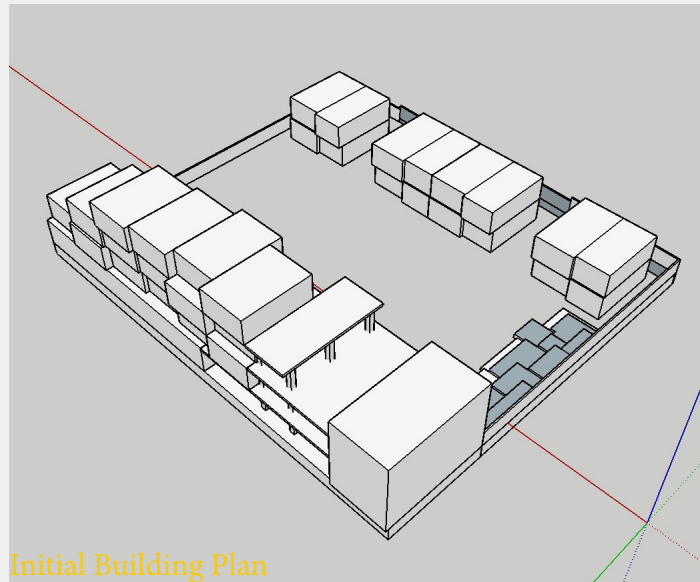
A horizontal bar with a yellow-to-gold gradient, spanning the width of the page.

THE PROJECT

—PROCESS WORK—

Designed to solely provide living spaces for homeless veterans and single family mothers, this project focuses on creating healthy bonds between the two distinct groups that are essential, healthy influences on early childhood and towards veterans with little to no family.

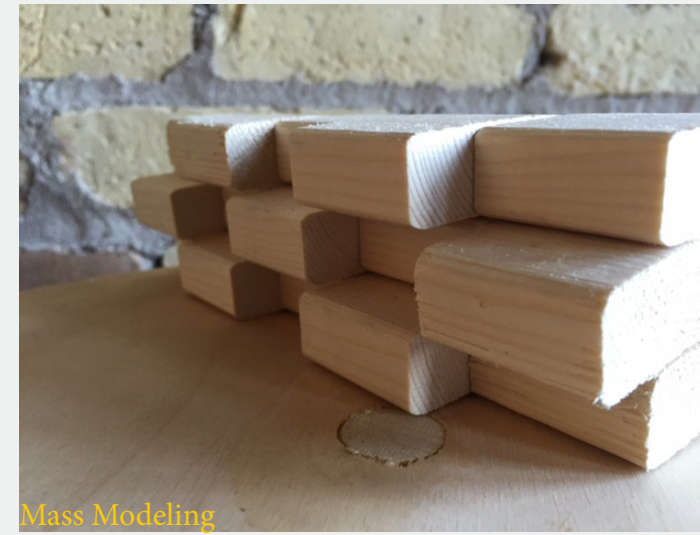
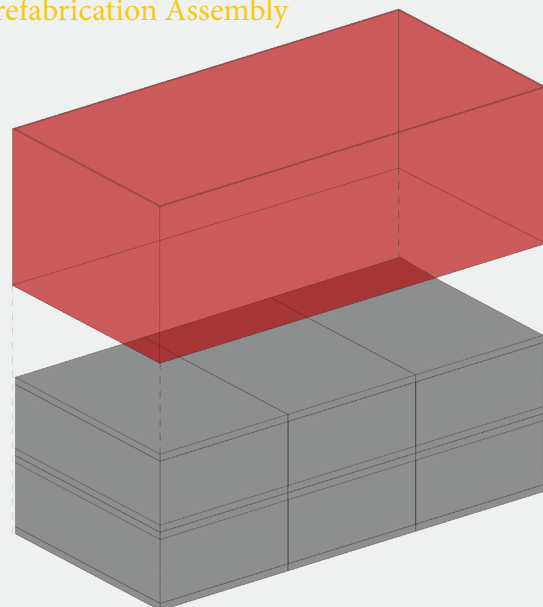
Fifteen studio apartments offer rental units for homeless veterans while four small homes prived adequate space for families, keeping the building population to an optimal number for interaction and community connection.



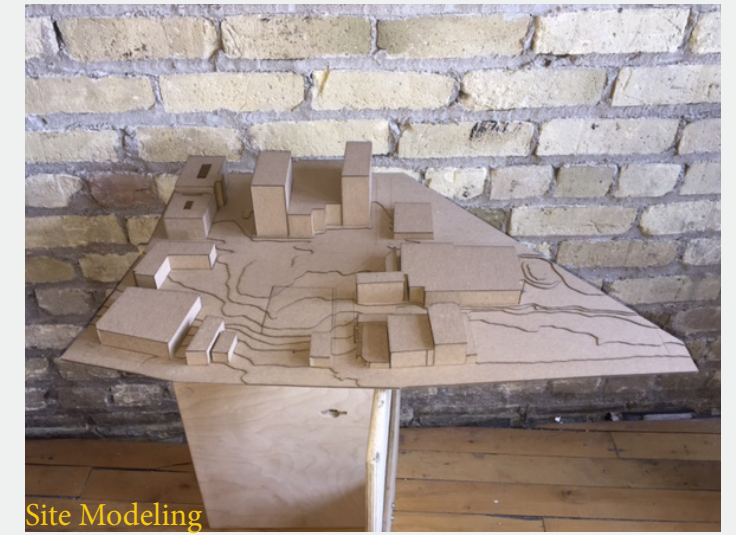
Initial Building Plan

Designed using modular prefabrication, the building creates a template that can be easily recreated to provide housing to more homeless individuals. Prefabrication allows the building to be cheaper, constructed faster, and stronger than standard construction types. By creating units in a factory setting, the building itself is delivered to the site and assembled, followed by the application of the building skin and roofing materials.

Prefabrication Assembly



Mass Modeling



Site Modeling



Building Process 1



Building Process 2

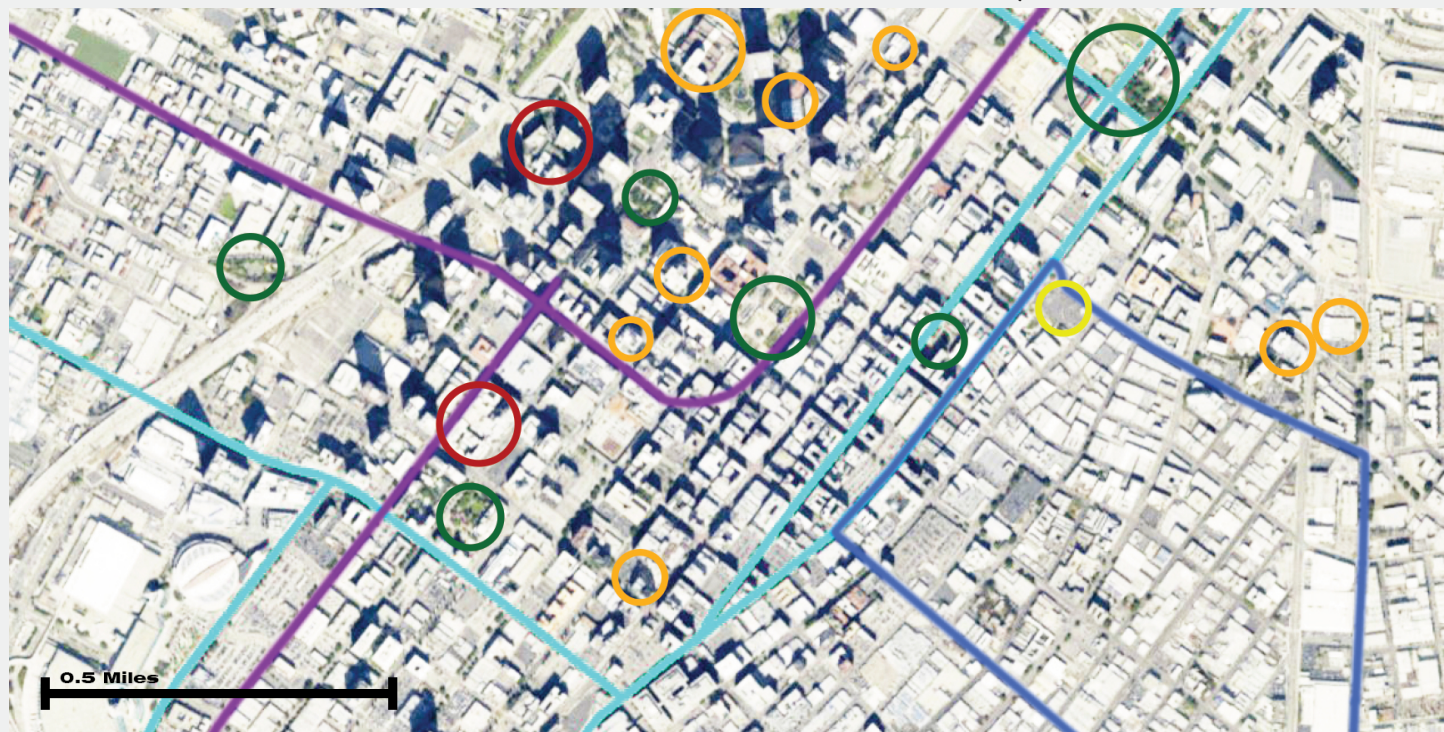
SITE AND SPACE

In order to better understand the site and the areas in close proximity that might be useful for the individuals that will occupy this building a thorough investigation into the neighboring buildings was conducted to identify locations such as parks, hospitals, schools, and bus/metro routes.

The location allows for the building to be included into the Skid Row Housing Trust. This program centers on providing homes for homeless individuals of the Downtown Los Angeles area focusing on Homes, Support, and Success.

Space list

- Homes (4)
 - Living Room
 - Dining Room/ Kitchen
 - Bathroom (2)
 - Bedroom (3)
 - Storage/Mechanic (2)
 - Closet (4)
- Apartments (15)
 - Living/Dining/Kitchen
 - Bathroom
 - Closet (2)
- Community Building
 - Lobby
 - Public Restrooms
 - Office
 - Storage (3)
 - Laundry Room
 - Public Room (2)
- Parking Garage
 - Parking Stalls (5)
 - Handicap Parking Stalls (2)
 - Mechanical/Storage (2)
 - Trash Room
- Exterior Courtyard



Hospitals **Parks** **Schools** **Site** **Metro** **Skid Row Boundry** **Bike/Bus Lanes**

LOCATION: LOS ANGELES, CALIFORNIA
DISTRICT: DOWNTOWN
NEIGHBORHOOD: SKID ROW
POPULATION: 17,740

HOMELESS POPULATION: 4,700
VETERAN HOMELESS PERCENTAGE: 6%
SINGLE FAMILY MOTHER PERCENTAGE: 32%

Spaces are all allocated around a central courtyard gathering space. Apartments to the north provide living units for homeless veterans, while homes to the south provide housing for single family mothers of families of 3,4,or 5.

A community building houses indoor public space that provides residents with spaces to gather and connect with both the interior and exterior communities.

Select parking is available in the lower level of the apartment building for residents, special visitors, or managers of the building or program.

The central courtyard provides the residents with a safe haven are for exercise, gathering, or interacting with other residents.



NEIGHBORING BUILDINGS



VIEWS



West



East



North



South

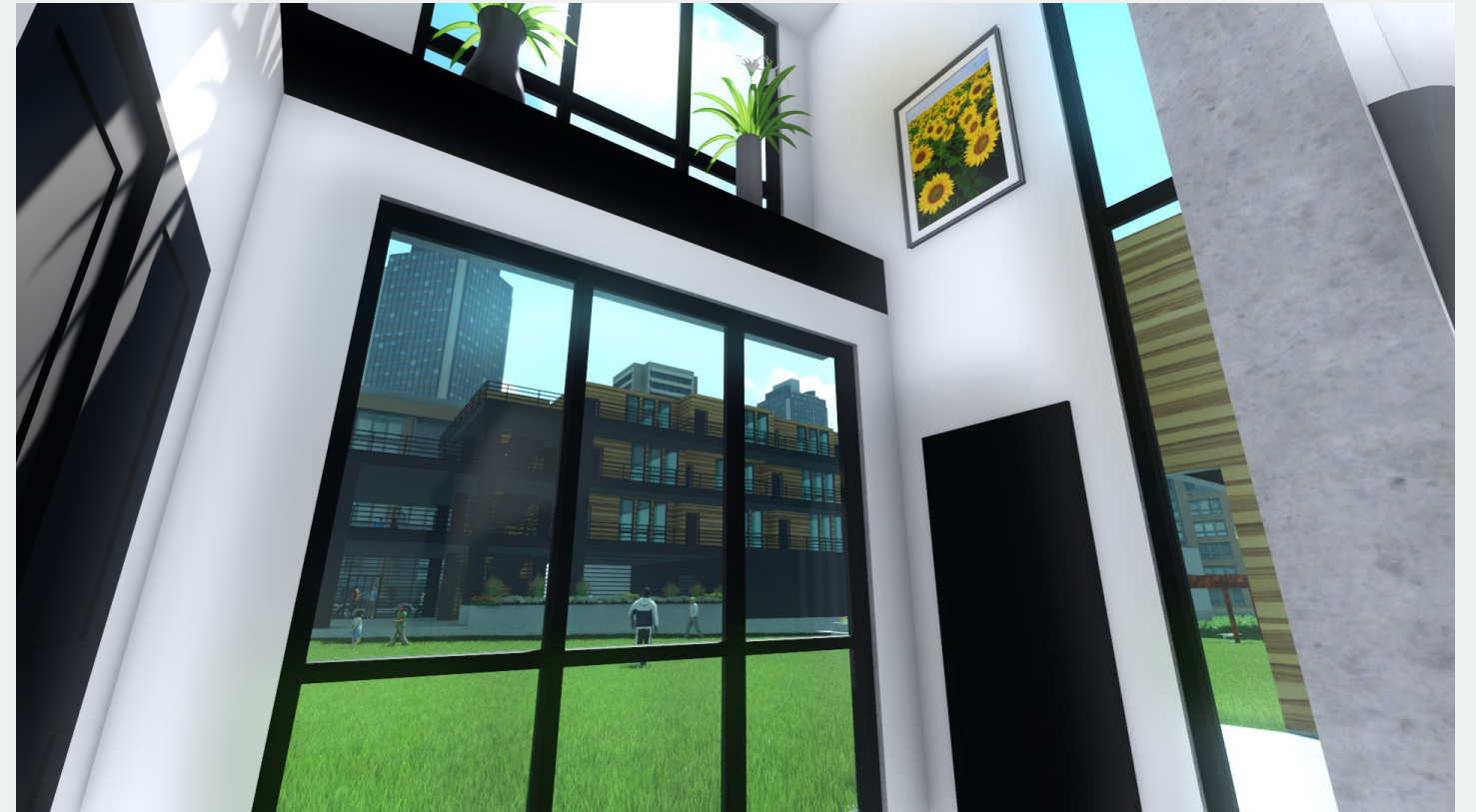


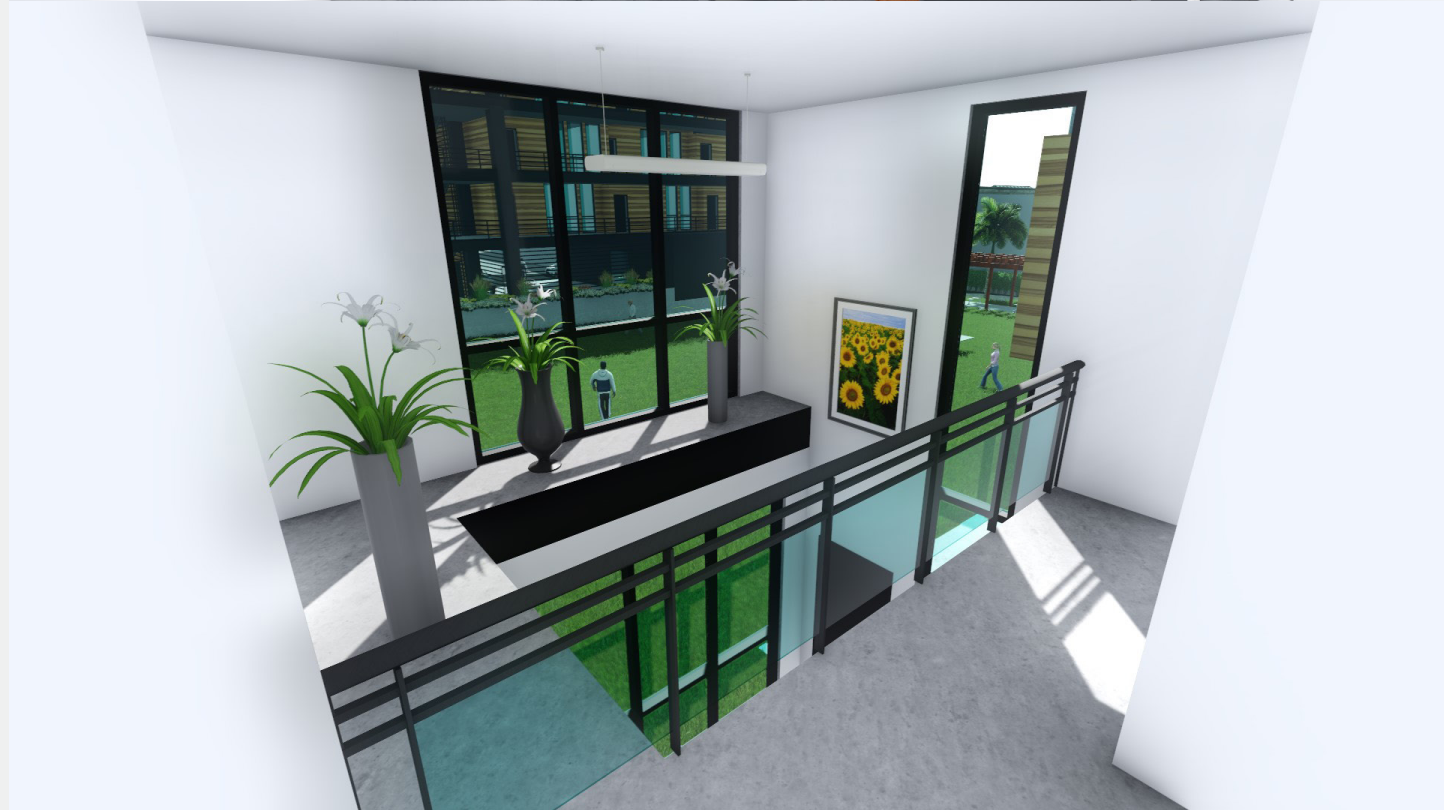
PRESENTATION IMAGES

APARTMENT RENDERS



HOUSE RENDERS





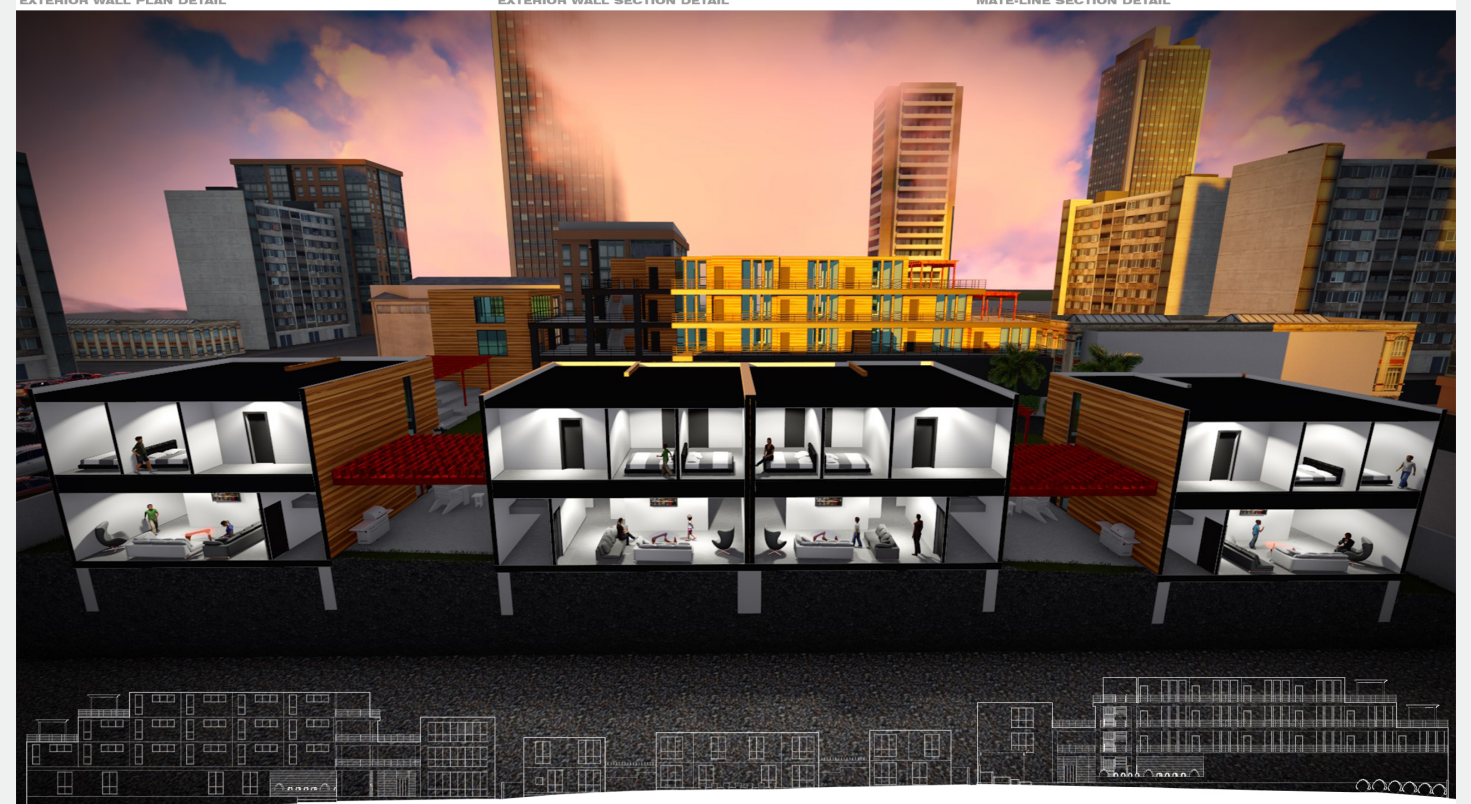
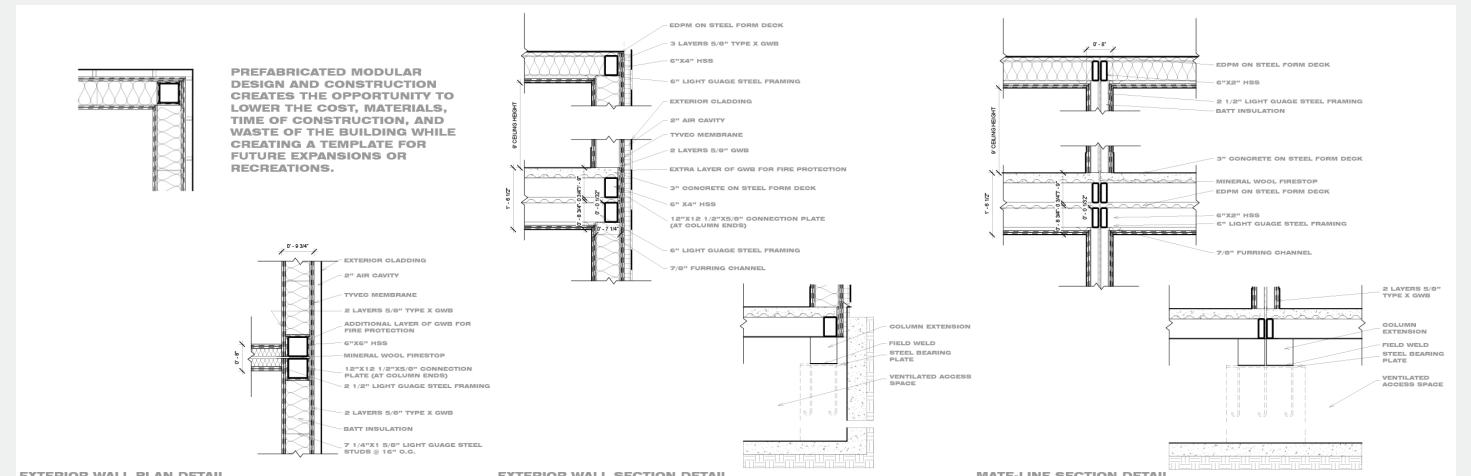
COURTYARD RENDERS



BOARD 1



BOARD 2



HOUSE SECTIONS AND BUILDING ELEVATIONS

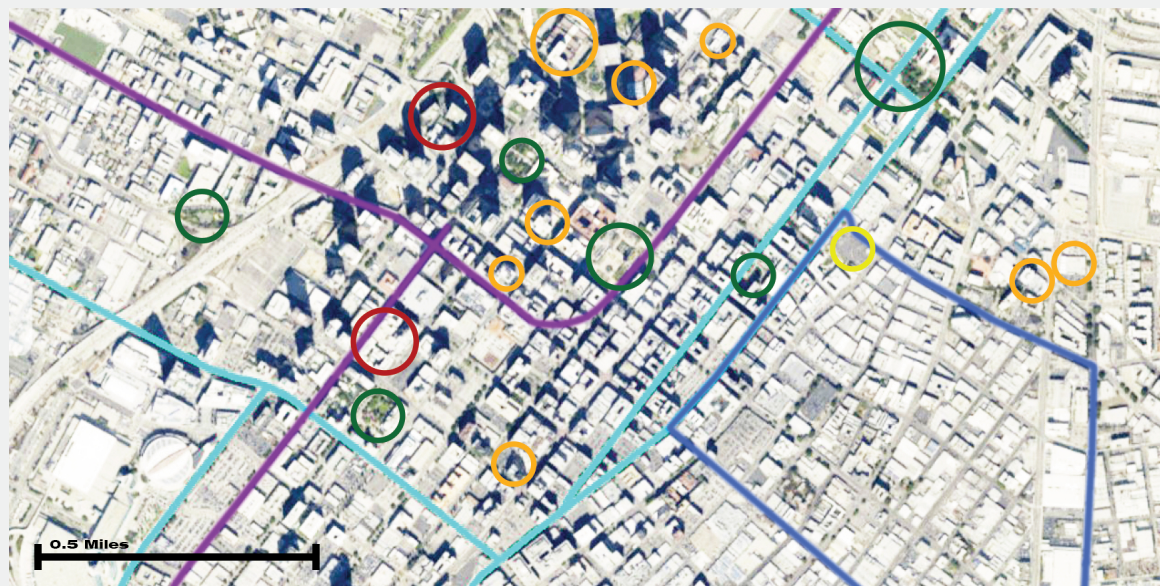
SEAN COLBERT

5TH YEAR GRADUATE THESIS

SPRING 2017

PROFESSOR DARRYL BOOKER

BOARD 3



Hospitals Parks Schools Site Metro Skid Row Boundry Bike/Bus Lanes

LOCATION: LOS ANGELES, CALIFORNIA

DISTRICT: DOWNTOWN

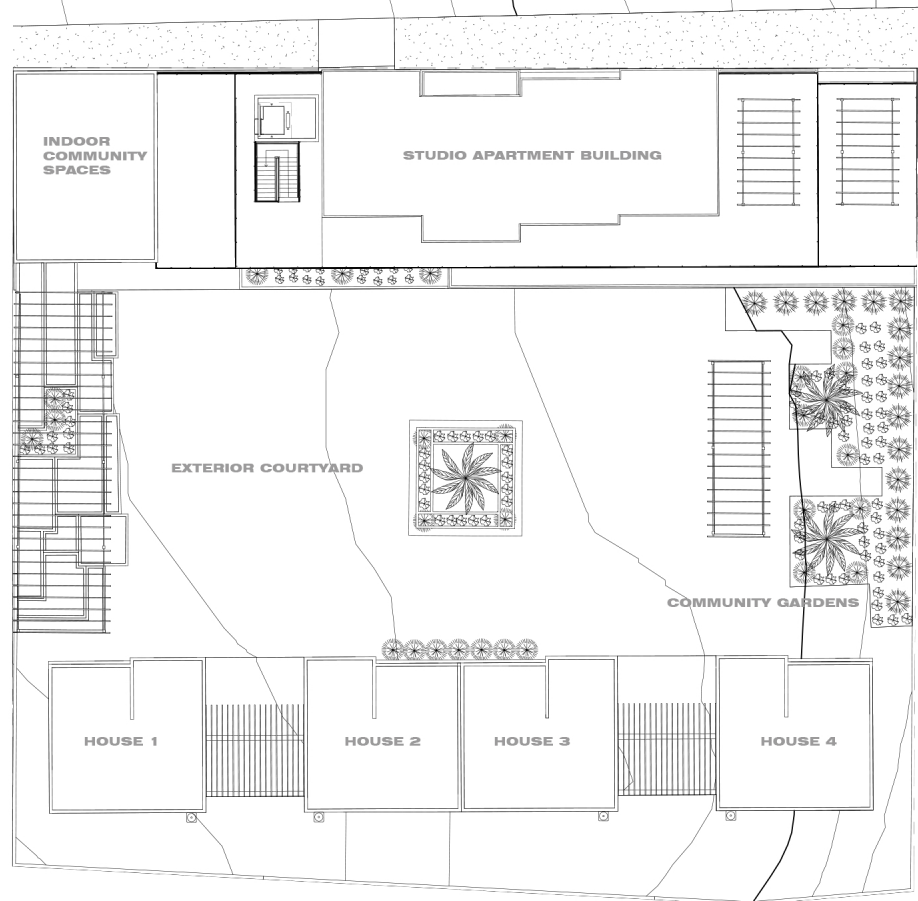
NEIGHBORHOOD: SKID ROW

POPULATION: 17,740

HOMELESS POPULATION: 4,700

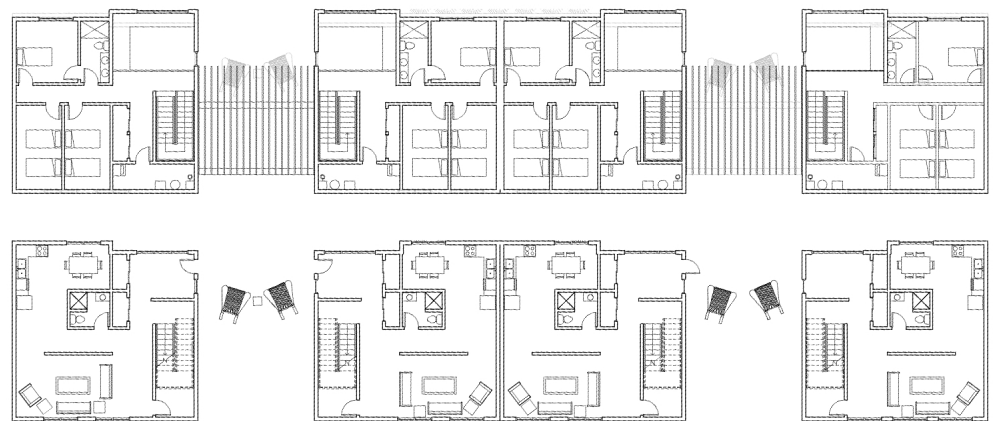
VETERAN HOMELESS PERCENTAGE: 6%

SINGLE FAMILY MOTHER PERCENTAGE: 32%



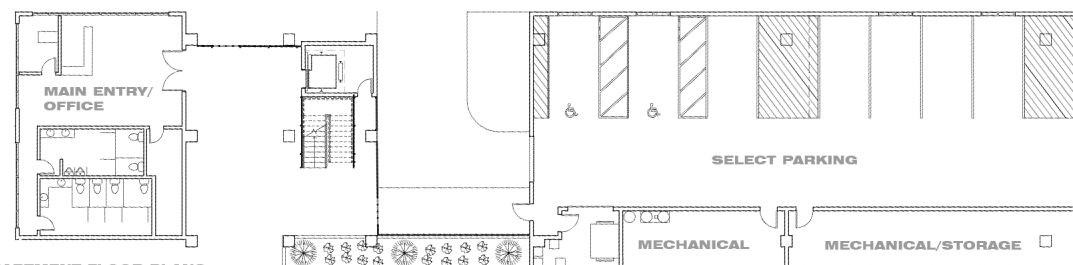
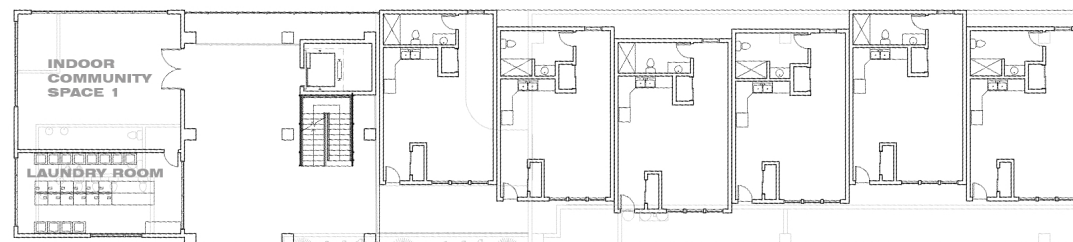
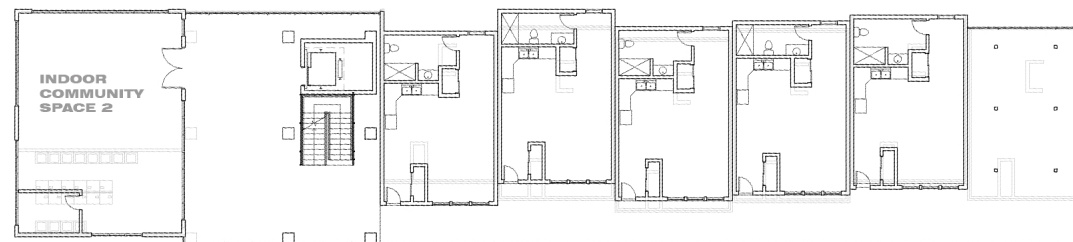
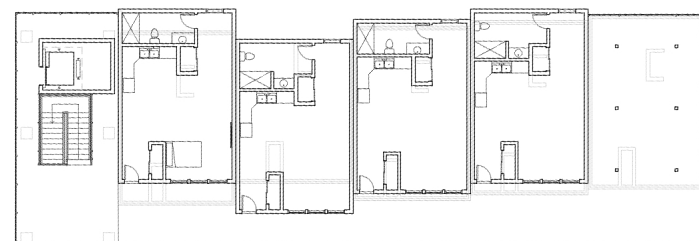
SITE PLAN

BOARD 4



HOUSE FLOOR PLANS

THE DESIGN OF THIS PROJECT AIMS TO CREATE BONDS WITHIN RESIDENTS IN A NUMBER OF WAYS. BY INTRODUCING ITS RESIDENTS TO A COMMUNITY THROUGH PUBLIC ROOMS, EXPOSED CIRCULATION AREAS AND A SHARED OUTDOOR COURTYARD, THIS PROJECT GIVES THE OPPORTUNITY FOR INTERACTION IN ORDER TO GAIN THE NECESSARY AND HEALTHY BONDS NEEDED TO MAKE A POSITIVE CHANGE.



APARTMENT FLOOR PLANS



APPENDIX

Figure 1.0 (Vector Open Stock)	https://www.vectoropenstock.com/vectors/preview/79018/los-angeles-skyline-silhouette
Figure 2.0 (Bottlelot)	https://www.reddit.com/r/LosAngeles/comments/396t2i/shot_i_took_last_night_near_skid_row/
Figure 3.0 (ADG Lighting)	http://adglighting.com/2016/09/dtla-architecture/
Figure 4.0 (Bianca Barrigan)	http://la.curbed.com/2014/8/6/10063916/handsome-new-mural-maps-skid-row
Figure 4.1 (ELEMENTAL)	http://www.archdaily.com/52202/monterrey-housing-elemental
Figure 4.2 (ELEMENTAL)	
Figure 4.3 (ELEMENTAL)	
Figure 4.4 (ELEMENTAL)	
Figure 4.5 (Buro II & Archi+I)	http://www.archdaily.com/280158/st-agatha-berchem-sustainable-social-housing-buro-ii-archii
Figure 4.6 (Buro II & Archi+I)	
Figure 4.7 (Buro II & Archi+I)	
Figure 4.8 (Buro II & Archi+I)	
Figure 4.9 (Buro II & Archi+I)	
Figure 4.10 (Buro II & Archi+I)	
Figure 4.11 (Bevk Perović arhitekti)	http://www.archdaily.com/90095/social-housing-poljane-bevk-perovic-arhitekti
Figure 4.12 (Bevk Perović arhitekti)	
Figure 4.13 (Bevk Perović arhitekti)	
Figure 4.14 (Bevk Perović arhitekti)	
Figure 4.15 (Bevk Perović arhitekti)	
Figure 4.16	http://rpgis.isd.lacounty.gov/GIS-NET3_Public/Viewer.html
Figure 4.17	
Figure 4.18	
Figure 4.19	
Figure 4.20	

Figure 4.21	http://rpgis.isd.lacounty.gov/GIS-NET3_Public/Viewer.html
Figure 5.0 (Sean Colbert)	
Figure 5.1 (Sean Colbert)	
Figure 6.0 (Prolos)	http://www.prolos.co/wp-content/uploads/los_angeles_view_top_view_night_city_93240_1920x1080.jpg
Figure 7.0 (Sean Colbert)	
Figure 7.1 (MDW Architecture)	http://www.bestmswprograms.com/impressive-social-housing-projects/
Figure 7.2 (2+1 Officina Architettura)	
Figure 7.3 (RIPOLLITIZON)	
Figure 7.4 (KOZ Architects)	
Figure 7.5 (Michael Maltzan)	http://skidrow.org/buildings/new-carver-apartments/
Figure 7.6 (Skid Row Housing Trust)	http://skidrow.org/
Figure 7.7 (News One)	https://newsone.com/1555245/most-infamous-public-housing-projects/
Figure 7.8 (News One)	
Figure 7.9 (News One)	
Figure 7.10 (Drew Reed)	http://www.citymetric.com/skylines/20-year-battle-demolish-chicago-s-notorious-cabrini-green-housing-project-1575
Figure 7.11 (Prefab Market)	http://www.prefabmarket.com/products/steel-container/
Figure 7.12 (Marken Design + Construction)	https://passivegreen.wordpress.com/2013/06/26/cree-modular-wood-prefab-system-is-revolutionizing-multi-storey-construction-in-north-america/
Figure 7.13	http://www.designventurer.com/prefab/?paged=10
Figure 7.14 (Sean Colbert)	
Figure 7.15 (Sean Colbert)	
Figure 7.16 (Sean Colbert)	

Figure 7.17 (Sean Colbert)

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Figure 9.10 (Sean Colbert)

Figure 9.11 (Sean Colbert)

Figure 9.12 (Sean Colbert)

Figure 10.0 (Jteadoredieu)

Figure 10.1 (Sean Colbert)

<http://la.curbed.com/2016/1/8/10848298/los-angeles-huge-homelessness-plan>

<http://jteadoredieu.blogspot.com/2014/08/skid-row.html>

Figure 10.2 (Sean Colbert)

Figure 10.3 (Sean Colbert)

Chapter 3 Use and Occupancy Classification.pdf. (n.d.). Retrieved from <http://codes.iccsafe.org/app/book/content/2016%20California%20Codes/Building%20Volume%201/Chapter%203%20Use%20and%20Occupancy%20Classification.pdf>

Chapter 5 General Building Heights and Areas.pdf. (n.d.). Retrieved from <http://codes.iccsafe.org/app/book/content/2016%20California%20Codes/Building%20Volume%201/Chapter%205%20General%20Building%20Heights%20and%20Areas.pdf>

Chapter 6 Types of Construction.pdf. (n.d.). Retrieved from <http://codes.iccsafe.org/app/book/content/2016%20California%20Codes/Building%20Volume%201/Chapter%206%20Types%20of%20Construction.pdf>

Chapter 7 - Fire and Smoke Protection Features.pdf. (n.d.). Retrieved from <http://codes.iccsafe.org/app/book/content/2016%20California%20Codes/Building%20Volume%201/Chapter%207%20-%20Fire%20and%20Smoke%20Protection%20Features.pdf>

Chapter 10 Means of Egress.pdf. (n.d.). Retrieved from <http://codes.iccsafe.org/app/book/content/2016%20California%20Codes/Building%20Volume%201/Chapter%2010%20Means%20of%20Egress.pdf>

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Hart Hotel Apartments. (n.d.). Retrieved April 28, 2017, from <http://skidrow.org/buildings/hart-hotel/>

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Star Apartments. (n.d.). Retrieved April 28, 2017, from <http://skidrow.org/buildings/star-apartments/>

The 7 Most Infamous U.S. Public Housing Projects. (2011, September 29). Retrieved April 28, 2017, from <https://newsone.com/1555245/most-infamous-public-housing-projects/>

The Six. (n.d.). Retrieved April 28, 2017, from <http://skidrow.org/buildings/the-six/>

Wattenhofer, J. (2016, January 8). Inside LA's More-Than-\$1.85-Billion Plan to End Homelessness. Retrieved April 28, 2017, from <http://la.curbed.com/2016/1/8/10848298/los-angeles-huge-homelessness-plan>



Previous Studio Work

2nd Year (2013-2014)

Fall 2013 - Professor Darryl Booker

Tea House: Designed for a Japanese tea drinking ceremony and located in a nearby park in Moorhead, MN. Centered around finding meaning in a design project.

Spring 2014 - Professor Cindy Urness

Dance Studio: Studio space designed around the ideas, style, and spirit of street dance.
Dwelling: A home for a sustainable community located in the mountains of Colorado providing its own energy and work space.

4th Year (2015-2016)

Fall 2015 - Professor David Crutchfield

High Rise: The design of an energy efficient tower located in the SOMA District of San Francisco, CA encompassing the needs and aesthetic of the area

Spring 2015 - Professor Malini Shrivistrava

Design Build: Partnering with Habitat for Humanity with the plan of designing and building four homes that would be the first Passive Homes in the state of North Dakota.

3rd Year (2014-2015)

Fall 2014 - Professor Steve Martens

Three Affiliated Tribes Community Center: Located in Western North Dakota providing the Mandan, Hidatsa, and Arikara Tribes with a community center that encompasses their beliefs and traditions.

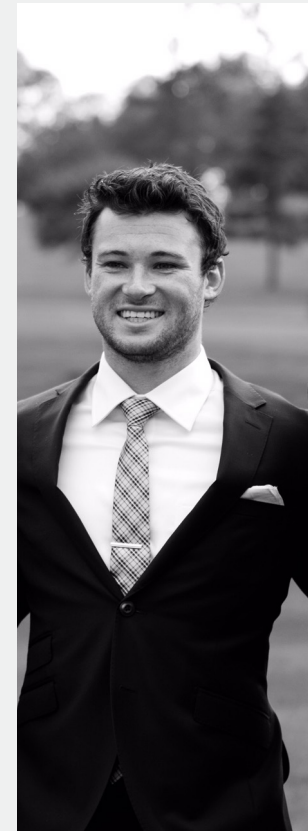
Spring 2015 - Professor Malini Shrivistrava

E-Fargo Center: A building for the work and display of the energy saving organization of E-Fargo located in a new development in Downtown Fargo, ND.

5th Year (2016-2017)

Fall 2016 - Professor Ronald Ramsay

Wiessenhof Germany House: History based project focused on the design of a 1930's home located in the Wiessenhof development of Stuttgart, Germany. Two designs one of past and one of present use the design techniques of two separate eras for the addition of a home to the development.



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Lake Park, MN 56554

Phone: (701)200-2323

Email: seancolbert9@gmail.com

Home: Detroit Lakes, MN

“As an architect you design for the present with an awareness of the past for a future which is essentially unknown”

-Norman Foster



