FOR THE NEED

to create a life for those
who need it most

MEL ROSE WALKER + NORTH DAKOTA STATE UNIVERSITY + ARCHITECTURE PROGRAM

FOR THE NEED

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

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

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FIGURES AND IMAGES

a low-income community and
housing center designed to bring
together and support those who
can most benefit from the power
of architecture

ABSTRACT

Architecture is often thought of as a grand, expensive undertaking – one reserved only for the privileged and for those who can afford to build huge houses, breathtaking museums, and playthings for the rich.

However, it is my belief that not only can architecture help those truly in need, but that it should. Those who struggle most in our current climate are usually those dealing with the struggles of living below the poverty line. Low-income housing and community centers are widely known to be often ugly, ramshackle, and generally undesirable.

And yet, the people burdened with these failures of architecture are those who are in most need of architecture's power. This project is a dual study into the architectural needs of such communities, and a possible building system, or center, that is not only affordable, but is also strong, useful, beautiful, and beneficial to uplift poor communities most in need. This study would create a working design, but also outline issues that most affect communities below the poverty line. After not only reading and doing research into those issues, but also directly asking those in these communities what they most need, an offering of a working solution to put into place in other projects will be displayed.

The word 'architecture' suggests towering skyscrapers, magnificent museums, and breathtaking residences. But when I decided, after years of internal debate, to study architecture, I didn't want to build impossible high-rises and poetic mansions. I looked around the world at eye-level, and I saw that architecture could help those next to me.

I grew up in a small house in Minneapolis. I was lucky, and I knew this from a young age. I always had enough to eat, a roof over my head, and more left over. But I saw dear friends struggle, neighbors and entire communities less than a short walk away deal with poor housing, even with no housing. I saw communities divided.

As I grew up, this divide became more and more clear. I found LGBT+ friends who were kicked out of their homes and had no place to go. When I left my small school and began to make friends outside of my regular circle, I began to meet even more people of all kinds of minorities who were denied housing, who lived in cars and shelters and on friends' couches for years, who struggled to pay exorbitant rent, and who in the end, had nowhere to go, and no community to turn to.

I have greatly enjoyed my time in college, and have learned an immense amount. However (though this far from universal) I often see both classmates and professionals eager to design those towering skyscrapers or elaborate metaphorical projects. In no way are these bad or wrong; they are proof of the creativity and ingenuity of humans and serve as wonderful monuments to architecture. But time and time again, I realized that that was not the path I wanted to take. I wanted to design close to the metaphorical ground; to stay affordable, while still bringing something, as Vitruvius said so long ago, beautiful, strong, and useful.

This project is one that will create a physical space to bring together those in need of somewhere to go. It will research the issues that keep people in need from forming a community, and offer a design solution, mainly focused around a community center and housing, that will be affordable and replicable.

TYPOLOGY

This project's typology will be a mixed-use residential and communuty based project. The focus will be on creating affordable housing in unity with open, inviting communuty spaces both inside and outside.

These spaces will have a variety of uses, from communal garden to classroom to library, and will inspire those who use it to unite as a community and give them a chance to improve their neighborhoods and their lives.

This project will focus on light and life, bringing community focused design and daylighting into a large, low landscraper.

In summary, each of these projects contains vital considerations for my thesis.

Each of them aligns with my typology - However, the first two are examples gone wrong, and the next four are ones that went well.

The first two are negative examples of the public housing ideal that can be stuied to see what went wrong. The rest are multi-use, affordable, community focused spaces that make use of their surroundings and materials in such a way as to elevate them while still remaining reasonable.

Each of the successful case studies also have a so-cioeconomic focus - each building not only lifts its impoverished surroundings and/or users, but also ac-tively works to help them improve their quality of life and move forward to help others do the same.

These last selected projects are works of art that are strong, useful, and beautiful, and all have been suc-cessful as of yet.

PRUITT IGOE HOUSING PROJECT

MINORU YAMASAKI + 57 ACRES + 1951 + ST LOUIS, MI

Pruitt-Igoe was meant to be a triumphant showing of Modernist architecture that would solve an increasing crisis of housing, slums, and poverty. Instead, over two decades, the residential towers fell to the ills of racial segregation, poor structural integrity, unfixed maintenance, and societal ills.

Site diagram of Pruitt Igoe Housing Project Immediate Surroundings

TYPOLOGICAL PRECEDENTS

Pruitt-Igoe was a group of 33 11-story buildings on a 57-acre site. St Louis changed the initial design of a racially segregated project – where white people and people of color would be separated – as it cleared one of the least habitable neighborhoods of St Louis. What was also removed was the architect's desire for additional low-rise units, ground floor restrooms, and more landscaping, in order to cut costs.

The project was not built well, but residents initially (and some to this day) called it beautiful and an 'oasis in the desert' and a 'poor man's penthouse'. There were, in fact, some good design choices, including breezeways and beautiful rooms, and some of the fault was not in the architect's plans, but in the cut costs and failed social ramifications.

The complex was never full, and the initial 9% vacancy nearly doubled in 3 years, and then shot to 65% vacancy by 1970, less than 15 years after it was built. One of the main causes of its failure was the idea that maintenance would be paid for out of tenants' rent, and as vacancy increased, the building became unusable and disgusting, which only encouraged more to leave, beginning a downward spiral.

Another main factor of decay was the breaking of families and communities with racist demands. Black women were not allowed to have men in their apartments, as the policy makers assumed that that would lead to more children, which would cost taxpayers more money.

TYPOLOGICAL PRECEDENTS

With the increasing decay of the building and the increasing vacant spaces, Pruitt-Igoe became a hotbed for criminal activity, where residents were often assaulted, and some even killed. Maintenance, delivery workers, and even police sometimes refused to come. It was renovated in 1965, but the damage was done. In 1972, the federal government ordered it demolished, and had the 600 residents (of the 10,000 planned residents) removed. People called it the death of Modernist architecture.

CABRINI-GREEN HOUSING PROJECT

PACE ASSOCIATES, ET AL. + 70 ACRES + 1942-61 + CHICAGO, IL

Cabrini-Green was a housing project by the CHA (Chicago Housing Authority) that is well-known as one of the greatest failures of public housing.

Dedicate Housing Project

Tall buildings of William Green public housing project, comprising 1,099 family units at cost of 17 million dollars, which were dedicated yesterday at 624 W. Division st. New fire station is in foreground. [TRIBUNE Photo]

It began as a series of 56 2-3 story rowhouses for war workers in 1942. In 1955 15 high rises were added to the now much-larger mass of rowhouses, referred to as the Cabrini public housing complex. In 1961, the William Green Homes are added, 8 15-16 story high buildings.

Initially, in 1942, these were considered attractive alternatives to the slums, and for a while were praised for their fixed rates according to income, their elevators, the heating, running water, sanitation, and sturdiness. However, in the 1950s, the northward migration of people of color required more public housing. The city cleared existing slums against protests to make way for this housing. These buildings were massive superblocks of high rises, creating row after row of ugly, towering concrete masses that cut off communities and isolated residents. The buildings were shoddily built and difficult to maintain, and the sheer amount of people crammed in them made community unsustainable.
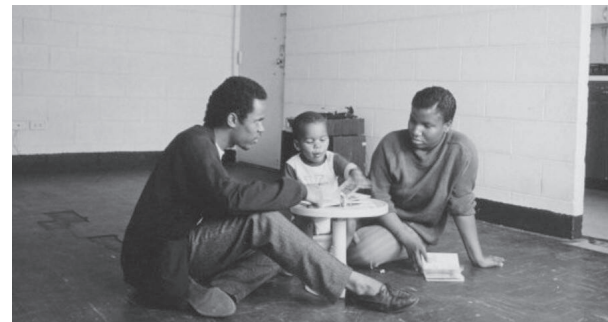
Part of the downfall can be contributed to racism that did not allow African Americans the same rights and other things like mortgage loans that white people were given, and redlining that barred POC from investments and public services. These factors led to the suffering of many Black inhabitants in Cabrini-Green, which snowballed into the tenants being unable to self-fund the maintenance and the city being unable to support the buildings. The FHA made the problem worse by denying aid to African Americans, claiming that they would drive down home prices in white neighborhoods.

The city dumped in people after the 1968 Chicago riots, and with the mixing of gangs and no aid from the city, gang wars began, and many had no one else to turn to but gangs. Drugs and violence ravaged the community, and only 9% of the residents had jobs.

In 1970, two police officers were shot by a sniper in one of the buildings. This kicked off decades of gangs, crimes, and drug epicenters, and nothing the city did seemed to work – the mayor of the time even moved in for a few weeks in 1981 to show solidarity, but other than calling attention to the problem and creating anger from the actual inhabitants, little changed.
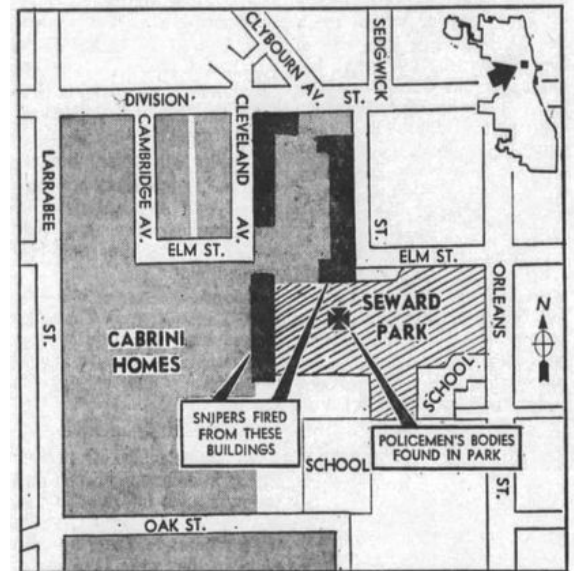
In 1992, a 7-year-old is shot by a sniper walking with his mother to school. That same year, the horror movie Candyman is filmed in Cabrini-Green.
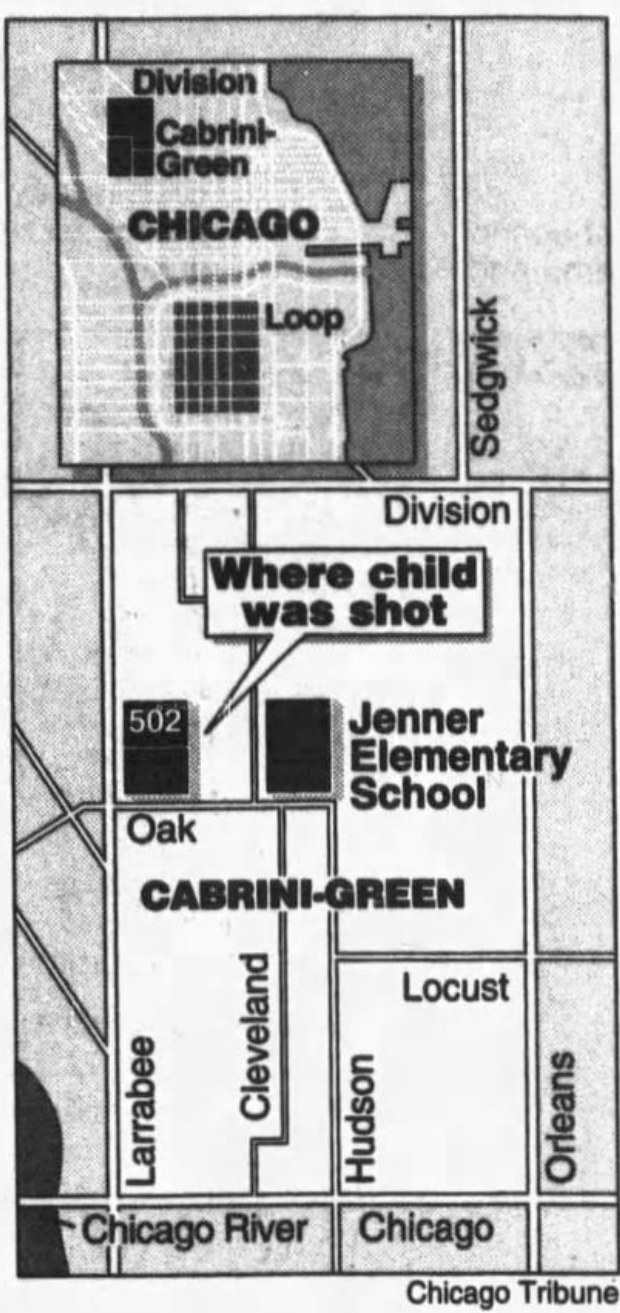
In 1995, Cabrini-Green began to be demolished when the US Dept of Housing and Urban Development took over. Many residents were promised relocation, but most of those were completely abandoned, promises forgotten.

QIXIAN XIAFANGQIAO CITY LIBRARY

LEEKO STUDIO + 5608 FT2 + 2019 + SHAOXING, CHINA

This library was designed with the intent to create a beautiful building in a once-thriving historical area, that would bring an adequate public space and allow local people to gather once more.

The large steps and square allow people to mingle, and there are often public events hosted in the ample exterior space. These steps neutralize the boundary between the open publc square and the library, encouraging passer-by to come in and engage.
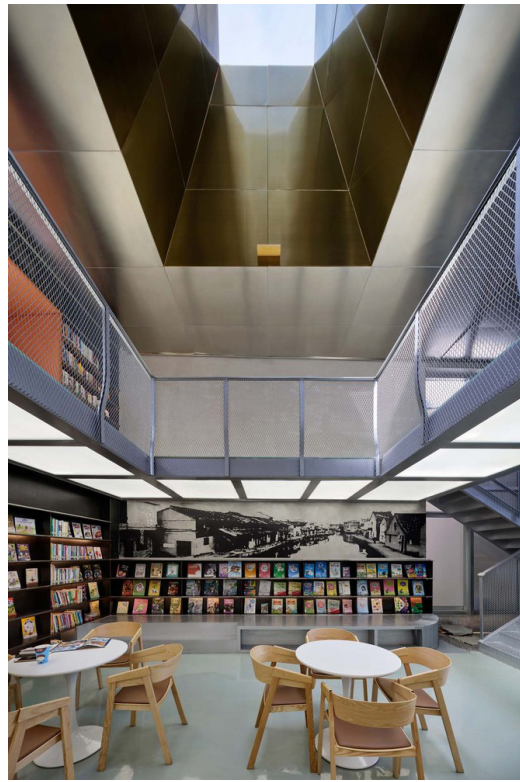
As the library was designed along a historic waterfront, the architects went with a 'minimally invasive surgery', but still chose to demolish several unused, collapsing pre-existing buildings to save costs. The design is compatible with local architecture but still incorporates different styles from different time periods, while reflecting the waterfront and street onto itself.

TYPOLOGICAL PRECEDENTS
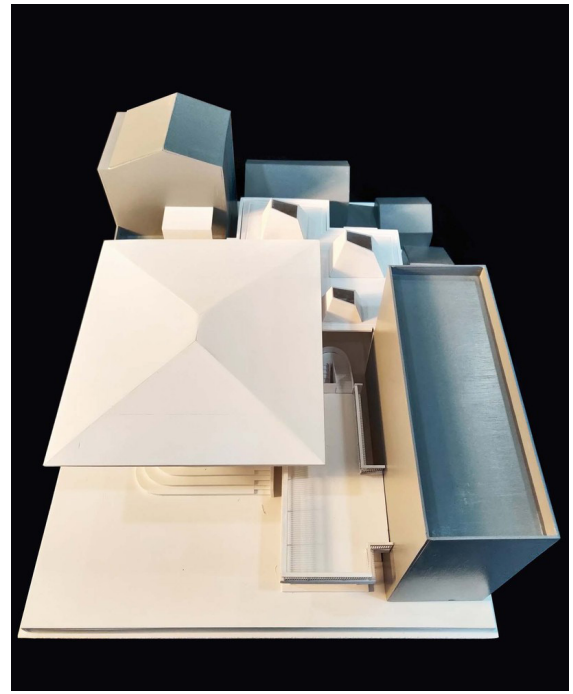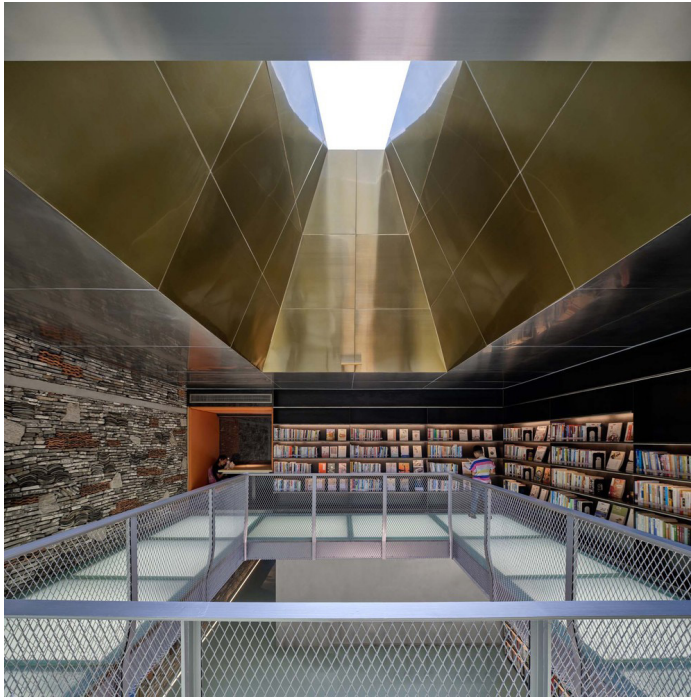
The library also contains a cafe, and so to keep the library open, the only partition is horizontal. This makes goo duse of limited space, and keeps the library feeling airy and comfortable. The library is used for many events, uncluding lectures, conferences, and study sessions for local students.

功能分区图

图书馆
文创咖啡馆
景观庭院
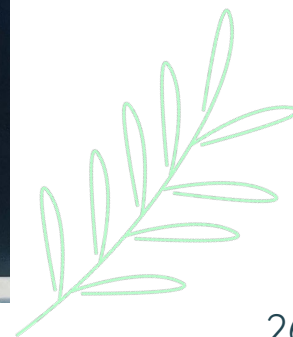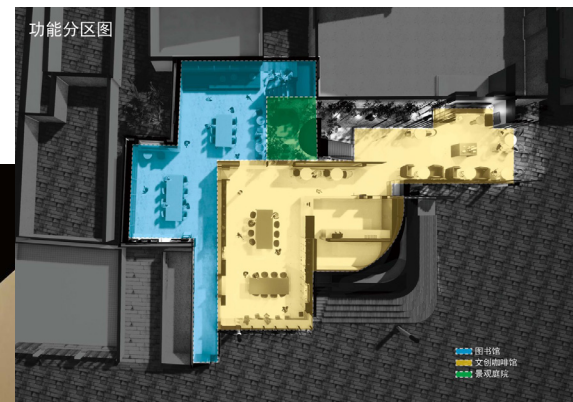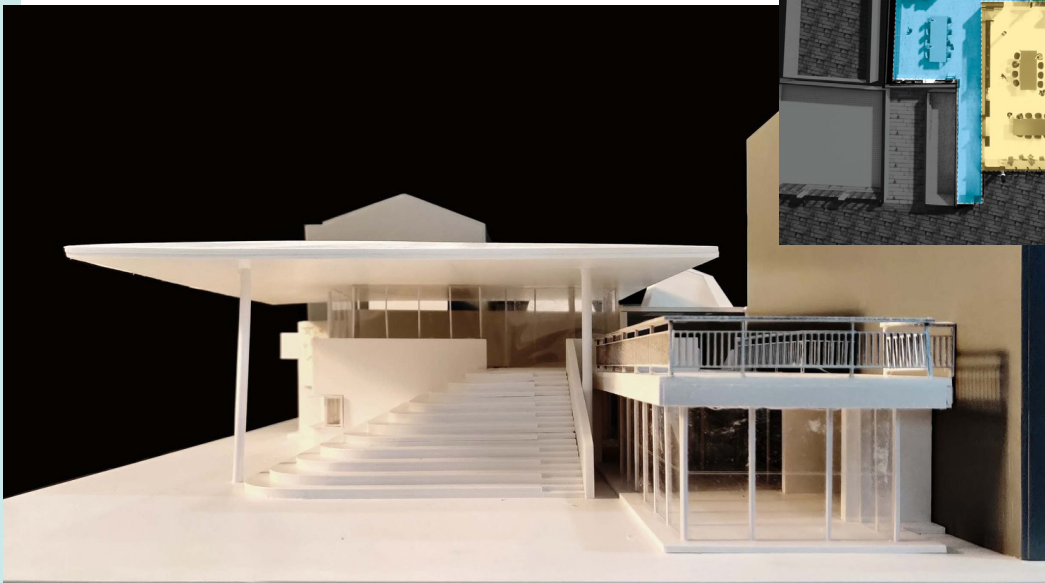
COMMUNUTY CANVAS SCHOOL

PK_INCEPTION + 689 FT2 + 2021 + SAWARPADA, INDIA

A primary school in Sawarpada, India used one single hexagonal rooom for 40 students for over a decade. Thus, these teachers and students learned to use their surroundings - ceilings, floors, walls, even trees - to their advantage. Inspired, Pooja Khairnar along with pk_iNCEPTiON, designed this multi-use school and adaptable infrastructure.

1. PARKING & ENTRANCE
2. GROUND
3. STAGE
4. AMPHITHEATRE
5. CLASSROOM 1
6. CLASSROOM 2
7. INFORMAL ACTIVITY AREA
8. COURTYARD
9. EXISTING BUILDING
10. EXISTING KITCHEN
11. WATERTANK
12. BACKYARD
13. WAY TO TOILET

0 1m 2m 4m

N

CLASSROOM
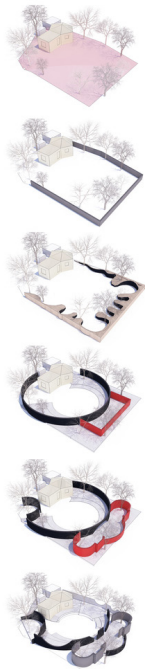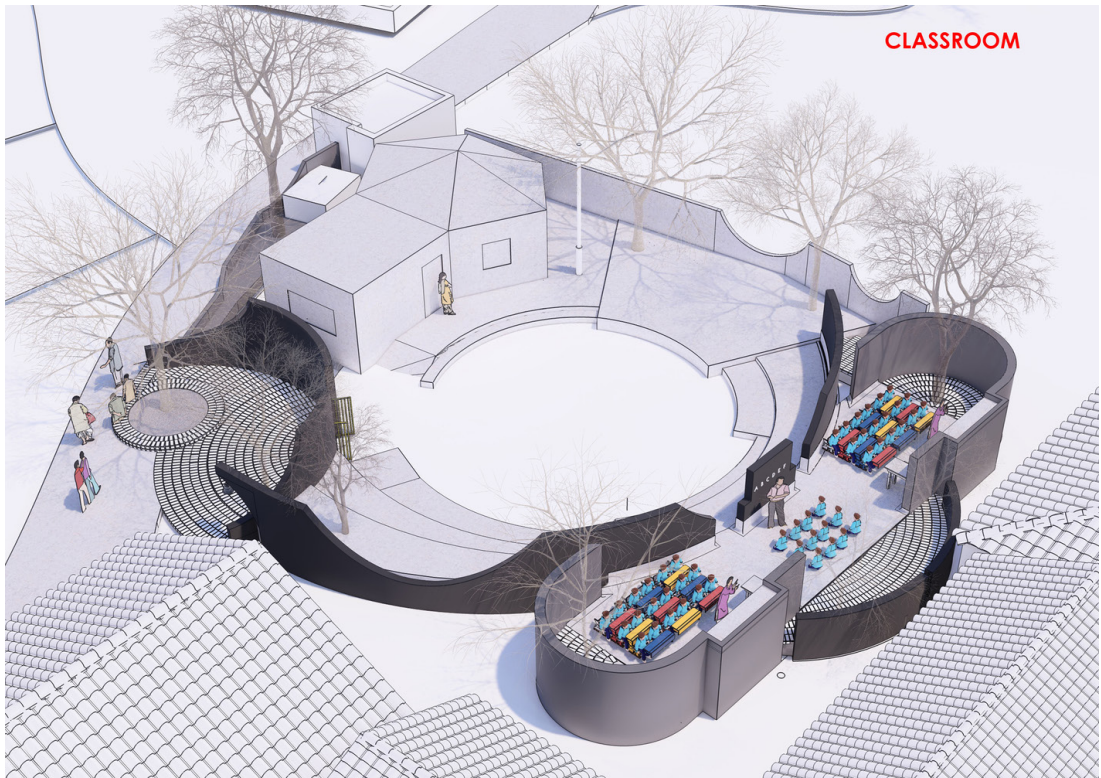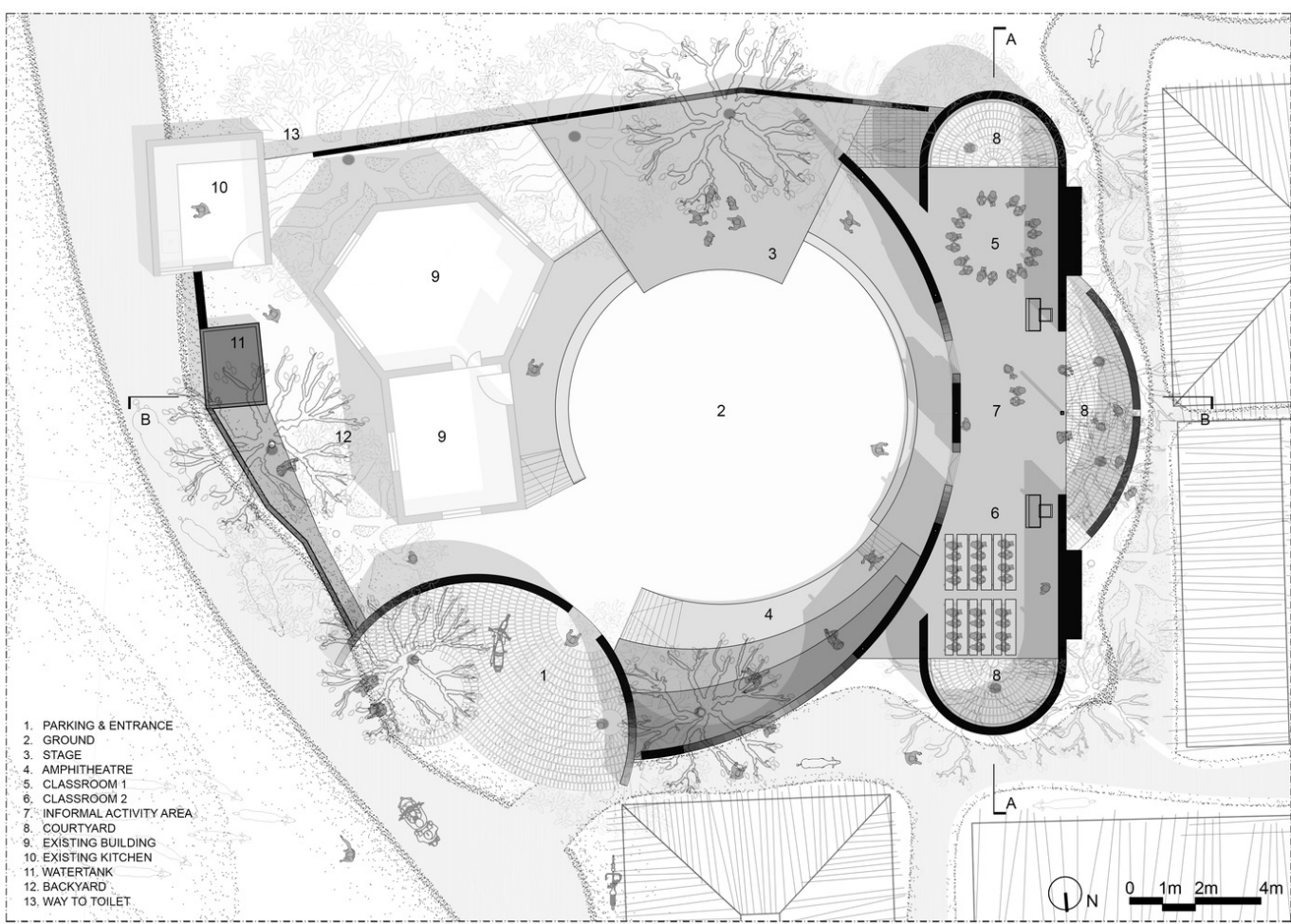
This school for underpriveleged students is a master class in using every square inch of space cleverly and allowing for multi-purpose spaces in every corner. The enfilade is smooth, and the courtyard is an open space to bring the community together.

This school is inspiring for its uses for learning, festivals, workshops, social functions, politics, performing arts, health care, and so much more. All of it strives to improve the community in the most cost and space effective ways possible.

COURTYARD   CLASSROOM   AMPHITHEATRE   ENTRANCE   EXISTING BUILDING   BACKYARD

SECTION B

0   1m   2m   4m

COURTYARD   CLASSROOM 1   INFORMAL ACTIVITY AREA   CLASSROOM 2   COURTYARD

SECTION A

0   1m   2m   4m
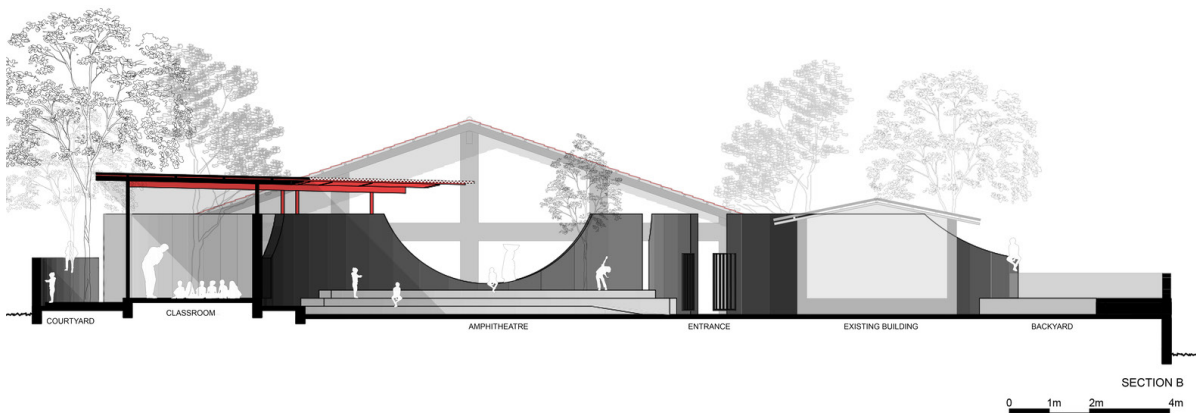
ARCUS CENTER FOR SOCIAL JUSTICE LEADERSHIP

STUDIO GANG + 25,000 FT2 + 2014 + KALAMAZOO, MI

The Arcus Center, a formal space that gathers social justice leaders and entrepreneurs together to facilitate discussion and bring about change, is an open and beautiful concept that masterfully combines light and materials to create a design that shines just as much as its vision for the future.

Using low-tech and an inexpensive design, the Arcus Center balances affordability with an incredibly high performance building.
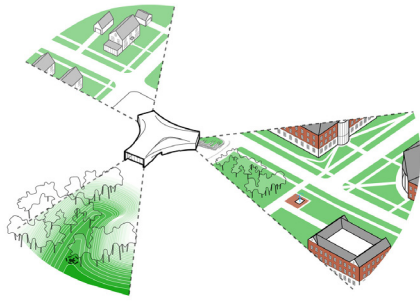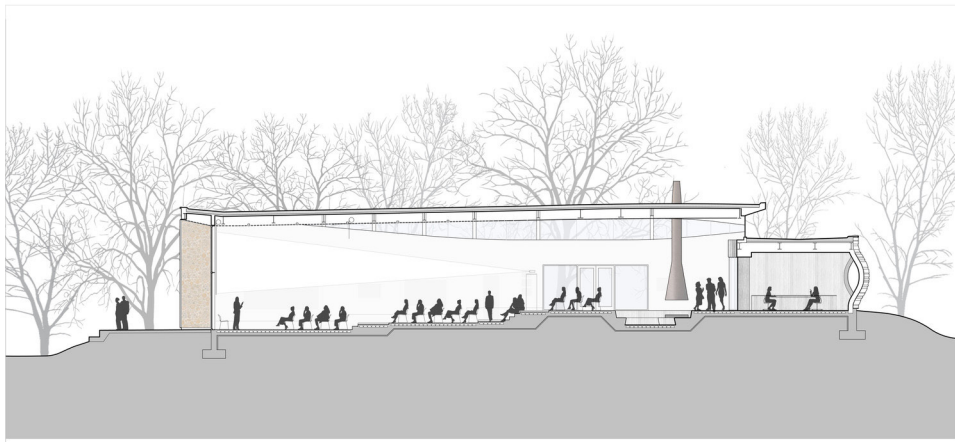
The open-flow and naturally lit interior design allows for ease of public gathering and works to break down psychological and cultural barriers between people. It serves multiple purposes as a study space, a public meeting space, and a place to help further up-and-coming leaders in their goals.

The Arcus Center, just as one must integrate all sorts of different cultural contexts in social transformation, neatly responds to its disparate physical contexts - a residential neighborhood, a university campus, and a woodland grove.

01 CITY ENTRY
02 CAMPUS ENTRY
03 HEARTH
04 WORKROOM
05 CITY FRAME
06 WCS
07 SEMINAR
08 OFFICE
09 CAMPUS FRAME
10 CASCADE
11 GROVE FRAME
12 GROVE
13 COMMUNITY GARDEN
14 ACADEMY GARDEN
15 CAMPUS GARDEN

ARCUS CENTER FOR SOCIAL JUSTICE LEADERSHIP
SITE PLAN
1"=40'
STUDIO/ GANG /ARCHITECTS
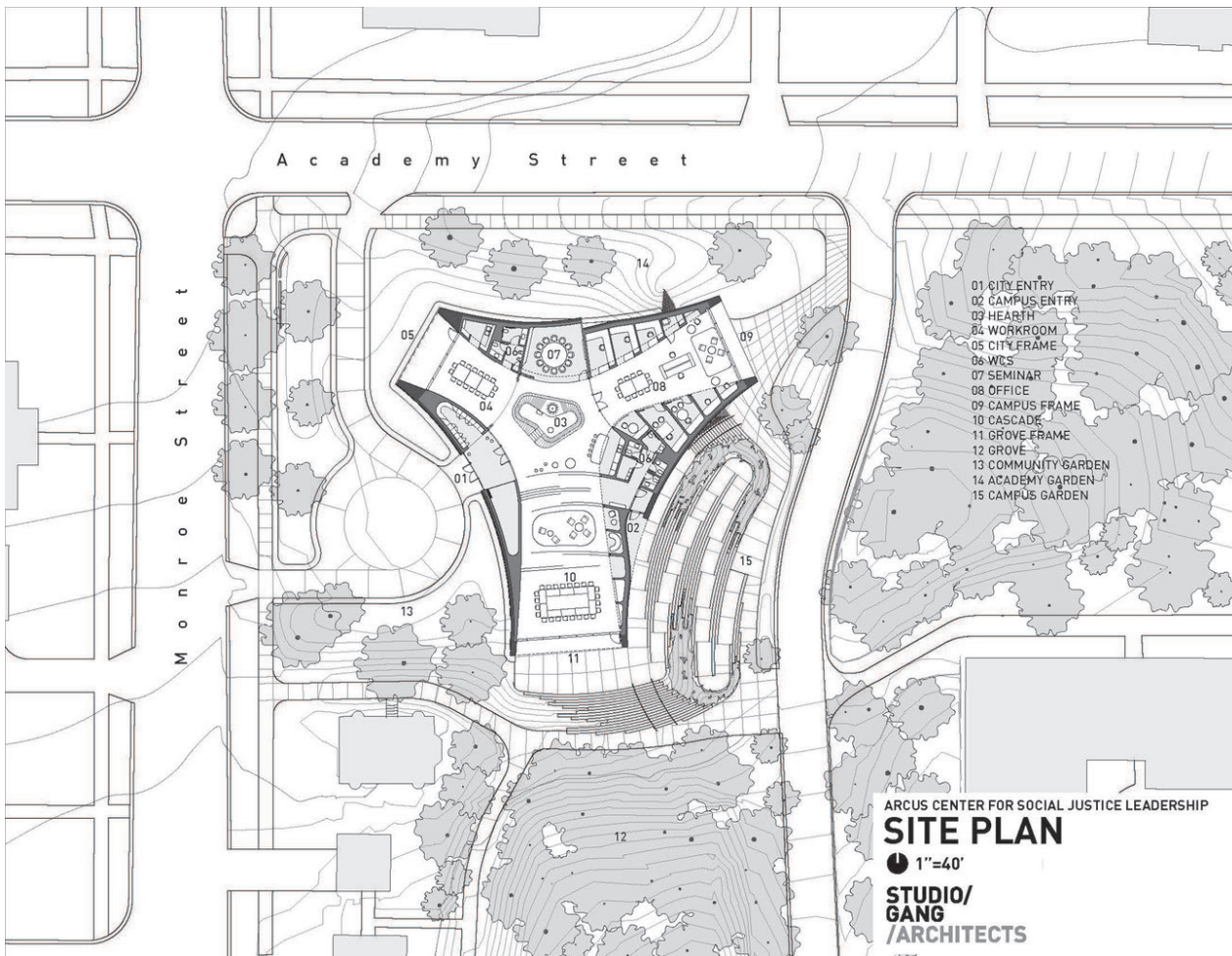
SAVONNERIE HEYMANS

MDW ARCHITECTURE + 70000 FT2 + 2011 + BRUSSELS, BELGIUM

On the site of what was once a former soap factory sits one of the most successful public housing projects. The Savonnerie Heymans is a 'village' of 42 passive-energy sustainable apartments, from studios to 6 bedrooms, as well as lofts and duplexes.

Though it is meant for public housing, the complex also contains glass-enclosed bioclimatic loggias, or enclosed porches, that bring privacy but a feeling of openness to the space, as week as a social gathering room, a game library, a garden, a landscaped park, a playground, and a promenade.
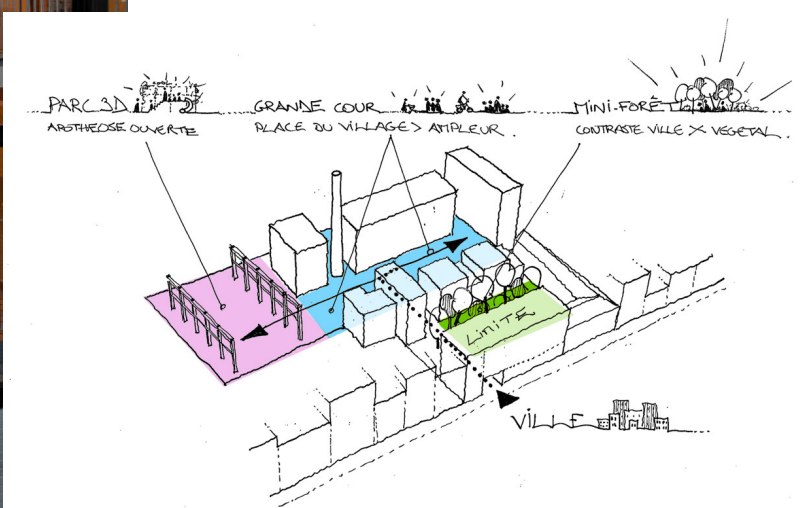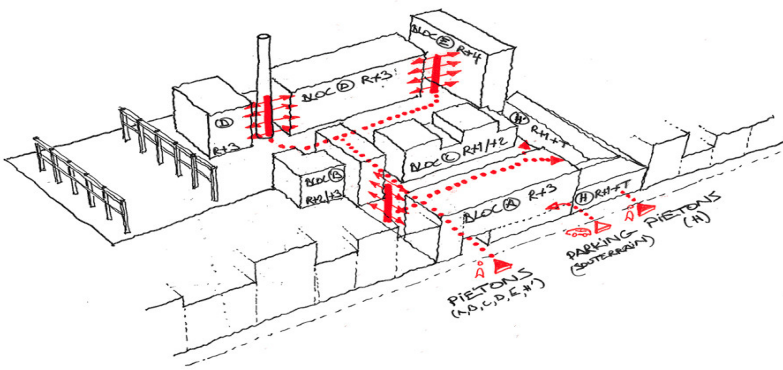
The complex integrated historic and valuable buildings and elements like a 19th century house into itself.

PARC 3D

GRANDE COUR

MINI-FORET

HALTE-GARDERIE

ⓐ ⓑ ⓒ ⓓ ⓔ ⓗ

ENTREE PRINCIPALE

PARKING

PLAN REZ-DE-CHAUSSEE
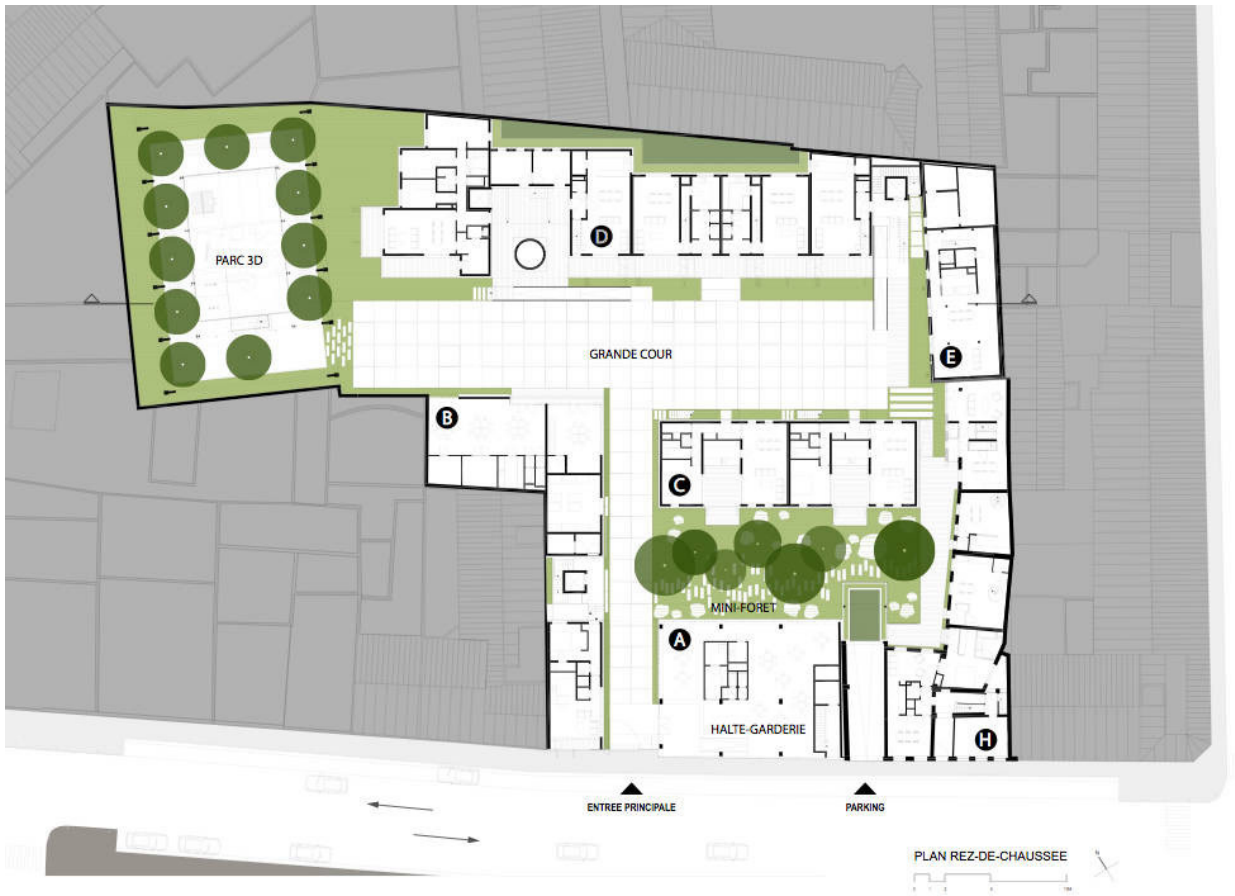
Each housing unit, due to the loggias, is given an acoustical and thermal barrier that is easily and cheaply maintained and lowers energy consumption. The complex also has a collective heating system, solar panel heated hot water, rainwater harvesting for the water closets, and when possible, natural materials for insulation.
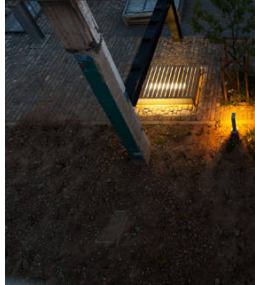
1. AN EXTERIOR GATHERING SPACE

2. A COMMUNITY GARDEN

3. LOW INCOME HOUSING

4. A LIBRARY

5. RENTABLE ROOMS

6. A SOUP KITCHEN

7. UNDERGROUND PARKING

8. A DAYCARE

9. A BUS STOP

10. CLASSROOMS

Aside from ensuring the project has the necessary spaces, this project will also focus on certain important design aspects.

The project will be cost effective, striving to use materials that are both hardy and easily available. There will be research done into what local materials are common, but also - given that this project is intended to be a replicatable one - will focus on naturally, univeral materials.

This project will also be attractive, using natural light and a clean design to support the users but also to improve and not detract from local surroundings.

This project will also rely on feedback, conversation, and even personal experience to ensure that the community recieves only what it wants from the project, and does not intrude on their needs and desires.

Finally, the project will be completely accessible, and strive to bring as many in as it can to bring life back to communities and the people struggling in them.

USERS:

The users will be those in the Minneapolis area under the poverty line, and/or those minorities that struggle to find housing and community.

Realistically, these will compose of residents from the nearby North Minneapolis, as well as students from the University of Minnesota campus next door.

This project will also contain many public areas, including a K-12 classroom that also serves adults in the evenings, a daycare, a soup kitchen, rentable rooms, and a library, all of which will be open to the public. These will be especially focused towards homeless populations and people who have otherwise nowhere to turn, or to learn.

CLIENT:

This will be a government funded project, using tax dollars to give directly back to the people.

INITIAL PROPOSED SITE
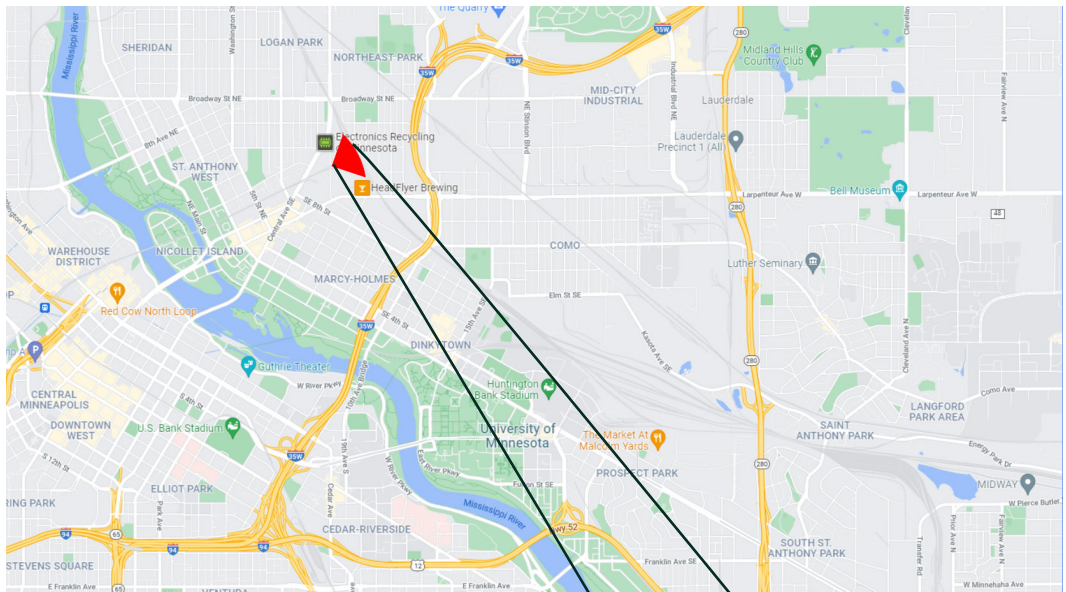
The initially proposed first site this project will be built on is in a mostly unused lot just next to the University of Minnesota in Minneapolis, by the intersection of Harrison St NE and Spring St NE.

This site is near North Minneapolis, where a great deal of clients will come from. It is also directly next to the U of M, and students are likely to make up a large bulk of the clientelle. It is also, from personal experience, near a large amount of homeless communities.

The site was not chosen only for its proximity to potential clients, however.

Being near a thriving college campus means a wealth of amenities, especially those like affordable food, convenience stores, bus routes, and more - all things that the intended clients of the project will need to heavily rely on, and cannot thrive without being near.

The site is currently being used for very little - mostly just parking space and open fields - and the only drawback is the proximity of train tracks, which can be fixed by adding a bridge.

Being next door to the U of M campus also allows access to the thriving and diverse cultures and communitites of the area, bringing people who may not have had access to these into the fold.

There is also a personal aspect to this choice as well. I grew up not far from here, and often took the bus to this area with friends and to run errands and such. I know the area well, and I know that this project can and will benefit the neighborhood.

Later on in the research process, I moved the site over merely by a few blocks to avoid the proximity to trains.

PROJECT EMPHASIS

1. TO USE ARCHITECTURE AS A TOOL FOR THOSE IN MOST NEED OF IT

2. TO CREATE COMMUNITY AND BROTHERHOOD AMONGST THOSE WHO HAVE NONE

3. TO HOUSE AND SUPPORT THOSE BELOW THE POVERTY LINE OR OTH-ERWISE UNABLE TO SUPPORT THEM-SELVES

4. TO DESIGN SOMETHING THAT IS BOTH REALISTIC AND BEAUTIFUL, AF-FORDABLE AND ATTRACTIVE

1. TO PERSONALLY IMPROVE UPON MY RESEARCH AND ARCHITECTURAL SKILLS

2. TO IMPROVE LIFE FOR THE OVER-LOOKED AS WELL AS EDUCATE MY-SELF ON THE SUBJECT

3. TO CREATE A BASIS OF RESEARCH AND KNOWLEDGE THAT OTHERS CAN DRAW UPON WHEN BEGINNING SIMILAR PROJECTS

PROJECT GOALS

PLAN FOR PROCEEDING

RESEARCH DIRECTION

Research direction begins with asking a question or formulating an idea that can be studied, researched, and built upon.

Next, reseach into previous and historical solutions and case studies, including typology and site design, must be studied.

A site must be selected and then analyzed.

Finally, a plan must be drawn up for the program and design, relying on the past research and study.

DESIGN METHODOLOGY

The methodology will follow the research direction, using both historical research, case studies, sute analysis, architectural tools, and surveys to create the design for the project,

PROJECT SCHEDULE

thesis proposal due

OCT 14

thesis research due

DEC 16

floor plans, mass model, materials

FEB

SEPT 14

thesis draft due

NOV 24

site visit

JAN

analysis and sketches

structure, me-chanical, design

detail drawings, renders

reviews

MARCH

APRIL

MAY

LATE MARCH

LATE APRIL

detailing

presentations
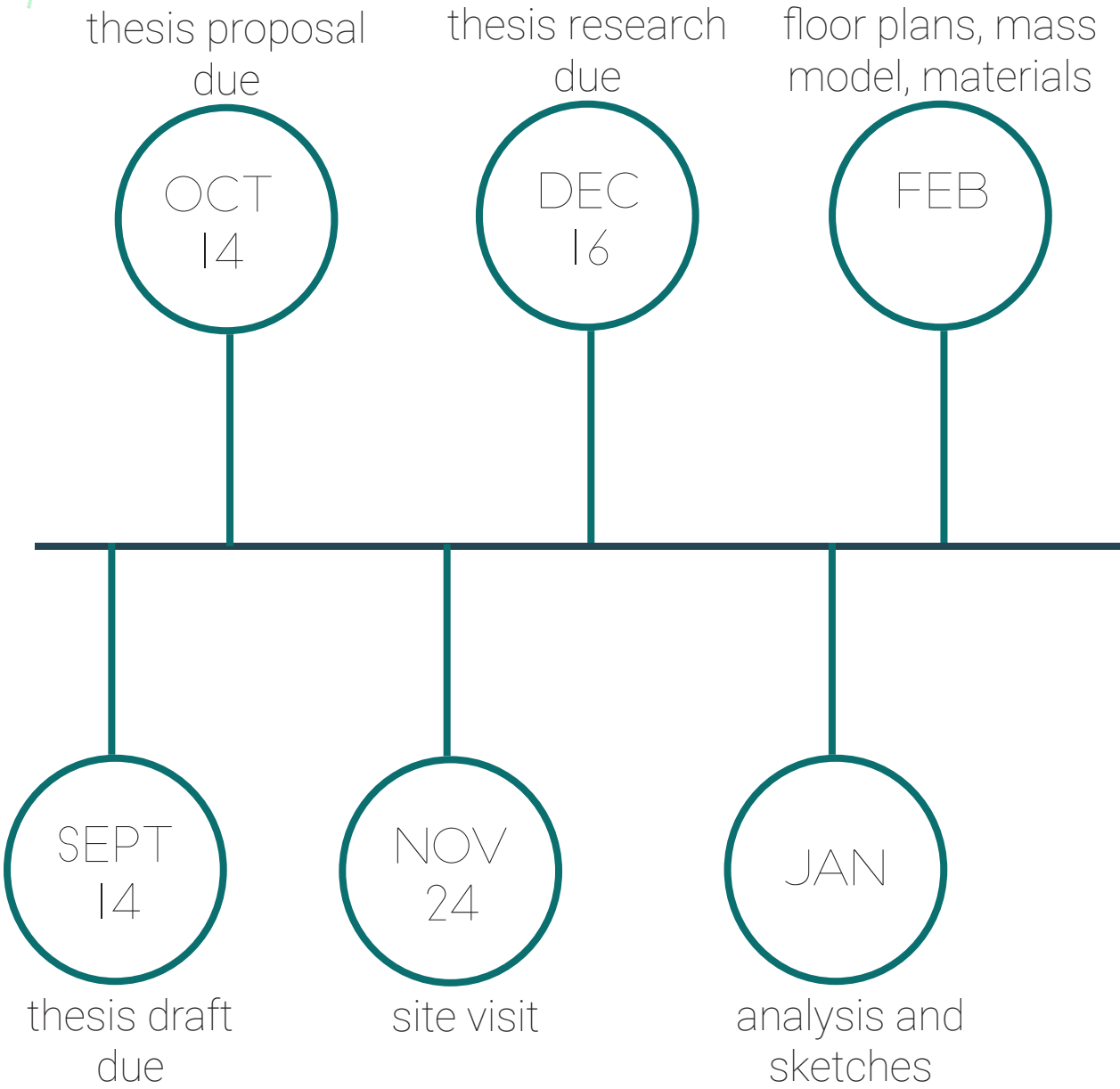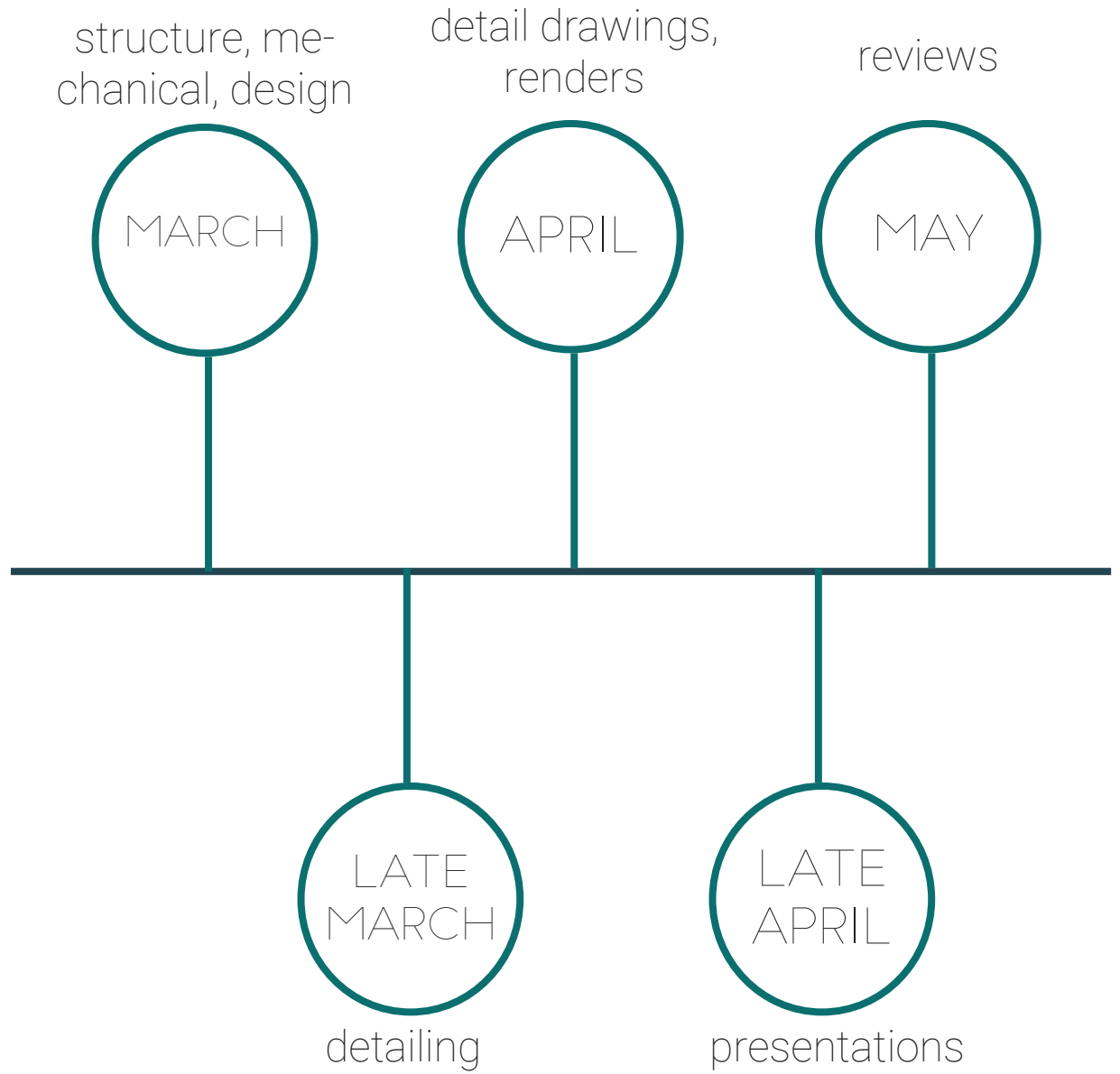
THESIS RESEARCH

RESULTS FROM PREMISE RESEARCH

OVERVIEW

In researching my theoretical premise, I wanted to focus on narrowing my definitions of the main points of my thesis, understanding the perceptions and myths surrounding my topic, and research into pre-existing frameworks I can use to help me go forward.

Over the next few pages, I will explain just what public housing is and how it works. I will also discuss mixed-use and mixed-income buildings, as I intend to include these in my projects.

I also researched the common perception around public housing. As I researched the typological precedents, I found many instances of public housing that failed for a number of reasons and heavily impacted how people view housing complexes.

Finally, I also researched the ideas of social enterprise, New Urbanism, human scale, and community cohesion, as all of these are topics that will improve architecture intended to be an affordable, attractive, environmentally friendly, and uplifting design.

PUBLIC HOUSING

Public housing is a government assisted program run by a housing agency that provides rental housing to low-income households, or households that are below 80% of the median income. In most cases, the housing authority acts as a landlord and owns the building. Residents must submit an application to the housing authority and wait to hear back. Some public housing tenants have priority given certain conditions, like age or disability. Tenants in public housing, as a general rule, pay about 30% of their income for rent including utilities, though some agencies require a 50$ minimum rent regardless of income. With these limited costs, tenants can tend to focus their money and energies on other basic necessities.

Oftentimes public housing is confused with subsidized housing. In subsidized housing, the housing authority is not the landlord, but the landlord does receive subsidies from the government for renting out to low-income tenants. If someone receives a voucher for housing, they are likely to be in subsidized housing.

Public housing is important because it gives those struggling below the poverty line, such as the homeless and marginalized and vulnerable minorities, a chance to live a decent life. Oftentimes public housing is located in a neighborhood that has access to important resources like good schools and better jobs, which may not have been available in poorer areas.
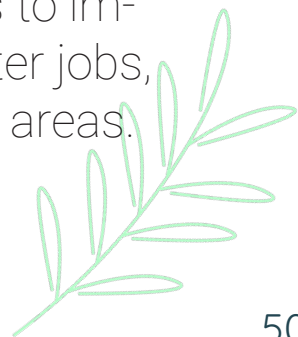
Public Housing Helps 1.8 Million People. Who Are They?

Sex

| Female: 62% | Male: 38% |

Age

| Under 18: 37% | 18-24: 9% | 25-50: 25% | 51-61: 11% | 62+: 18% |

Race/ethnicity*

| Black: 44% | Latino: 20% | White: 31% |

Asian or Pacific Islander: 3%
Native American: 1%
Multiracial: 1%

Disability status

| Disability: 22% | No disability: 78% |

Location**

| Urban: 53% | Suburban: 26% | Rural: 21% |
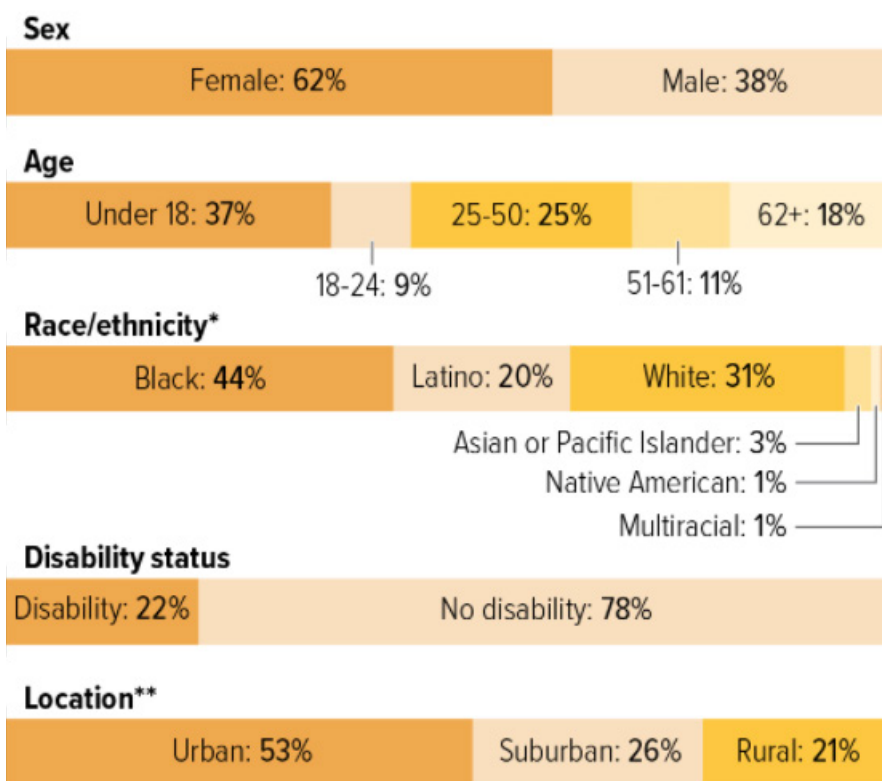
'All race/ethnicity categories other than Latino are non-Latino only. Those identifying as Latino may be of any race.

'Urban, suburban, and rural designations for U.S. territories were not available.

Note: Category percentages may not sum to 100 due to rounding or missing data.

Sources: CBPP analysis of HUD 2018 administrative data and the Housing Assistance Council's urban, suburban, and rural Census tract designations (for location)

There are roughly 960,000 public housing units in the 50 states, and only about 47% of those were located in low- to moderate-poverty areas. However, public housing is severely underfunded, in both the Public Housing Operating Fund and the Public Housing Capital Fund. Public housing units have been declining for years because of underfunding, though a select number have been changed to voucher and rental assistance programs.

PUBLIC PERCEPTION

The common views of public housing are often negative at best, repulsed at worst. Public housing projects have gained a bad name for themselves in relatively recent years, especially with the failures of projects like Cabrini-Green and Pruitt-Igoe, where media portrayed the gang wars, systemic racism, violence, and drug crimes as being the strict fault of the architecture itself, rather than a system of complicated factors.

Garth Davies, a criminologist, posits that much of the systemic issues around public housing come from the neighborhoods and contexts they reside in rather than the housing itself – no architecture rests in a vacuum. He also argues that much of the research that backs up sensationalist perceptions of public housing is either decades out of date or from a biased and too-small sample size.

A large issue he brings to the table is that this negative perception often leads to a downward spiral. When the public views public housing as something to be afraid of, they will spread the fear that public housing is a haven for crime and push against it, leaving housing complexes to be built in only poor and unsuitable locations, which stay unfunded and deteriorate, and the image only grows worse.

Stigma against public housing is often rooted in racial bias, as well. From the beginning, redlining and refusal to give people of color the same amenities that white people received such as mortgage loans meant that those same people of color were forced into shoddy and ill-planned public housing units, and when these complexes inevitably failed, people of color became linked to failed public housing images.

A common acronym associated with negative perceptions of public housing is 'NIMBY' – Not In My Back Yard. This phrase is touted by people who assume that public housing carries with it poverty and crime, as well as who worry that public housing will lower property values and are by necessity ugly and underfunded.

If public housing is to ever be accepted, the common perception of it must be shown to be wrong.

SELF-HELP AND SOCIAL ENTERPRISE

Given that architecture does not exist in a vacuum, it cannot solve every problem public housing faces. However, the architecture can work to mitigate issues, and uplift the residents, giving them agency to help themselves is important to better the neighborhood and improve their situations.

Welfare models that do not allow for the improvement of their recipients only draw marginalized and vulnerable people into dependency and do not allow for any kind of contribution to society. However, many people do want to contribute. Self-help and social empowerment are important factors in giving marginalized and vulnerable people a sense of community. In order to do that, they must be recognized for their abilities and talents, not, as the perception of welfare often leads to, looked down upon for perceived deficits.

In order to achieve this, measures must be taken to allow the improvement of life and the ability to contribute in the design itself. Design choices like classrooms and a library will allow residents to grow their skill sets, a community garden will give them a chance to connect and work with others in something fulfilling, and a daycare will give both the young tenants a leg up while allowing parents and guardians the freedom and time to work. All of these spaces will also come with job opportunities, both working directly in the design, and passing on skills for future jobs.
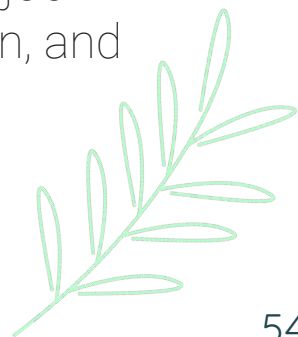
MIXED INCOME

Mixed income properties are properties that contain a variety of units that can go from low-income to dominant housing market-rate units. These are useful because not only does it help ensure the housing complex regularly brings in revenue while still supporting low-income families and people, but also heps end class-based stigmas and promote engagement. When forming communities, income becomes less of a divisive factor. However, issues can arise when perceived social order due to income and class becomes prominent, and disagreements may arise on what constitutes high-quality and safe neighborhoods.

MIXED USE

Mixed use design is the merging of three or more uses into a singular structure or complex. This is a useful design, as it brings in more revenue, makes a building more adaptable and useful in the long term, brings character as well as necessary services to a neighborhood or community, and is more energy efficient and sustainable.

In the case of public housing, including useful services will promote a sense of community, bringing others in to use the services but also connecting those who live there with each other and the wider world.

COMMUNITY COHESION

Community cohesion has a number of definitions that slightly vary, but many have certain traits in common. A cohesive community is just that; cohesive. It binds together with similar goals. The community must have a similar belonging, there must be respect and communication with its diverse and disparate parts, and there must be relationships that are both strong and positive.

While this definition of cohesion is clearly an important one, author Harris Beider encourages the definition of community cohesion as a 'highly ideological response to race during a remarkable and politicised period in our history' and stresses that community cohesion must not allow individual groups and minorities to fade into the background, and warns that some marginalized people may choose not to join a new community if they

Thus, while community cohesion remains an important goal for any kind of community center and public housing, it cannot be allowed to overwhelm its disparate parts.

NEW URBANISM

Recent developments in American cities post WWII have led to increasingly inaccessible and sprawling designs that isolate those who live and work there. Single-use, low-density city planning has time and time again proven itself to have a severely negative impach on multiple facets of a community.

There are ten main principles of New Urbanism:

1.   Walkability – pedestrian friendly, with most amenities near both home and work
2.   Connectivity – a high quality hierarchy of pedestrian walkways and public realm
3.   Mixed-use and Diversity – a diverse blend of both people and services, homes, and jobs
4.   Mixed Housing – a range of designs and price ranges
5.   Quality Architecture and Urban Design – focus on beauty, comfort, and community
6.   Traditional Neighborhood Structure – clearly planned space that contains a range of densities and amenities with a focus on a public space
7.   Increased Density – no sprawling, everything is walkable and near
8.   Smart Transportation – available public transport, including amenities like rentable bikes and a pedestrian focused design
9.   Sustainability – low environmental impact, high energy efficiency
10. Quality of life – should improve those who life there and raise them up

"The vulnerability to crime of many public housing projects, particularly large projects, does not stem just from design and equipment deficiencies . . . The problem of security in public housing also stems from the weak social structure of the residents, the absence of supporting groups, and a lack of interpersonal trust – all factors that inhibit people from protecting and helping each other (1975:47)."

  BRILL AND ASSOCIATES, litigation specialists in New York

One of the greatest benefits of New Urbanism is the higher quality of life that stems from an ease of community and neighborhood. There is more diversity, more jobs, better business, more tax dollars saved, and it benefits the environment.

A highly important factor in a successful pulic housing development is the development of a community to build interpersonal relationships and trust, which work together to support individuals. New Urbanism can be applied to an entire city, but also to something as small as a single building.

Luckily, even in the worst Midwestern winter, Minneapolis is a good example of a New Urbanist city. The downtown has walkways, wide streets, plenty of street-level shops and restaurants, and an extensive bus and lightrail system.

Even outside of downtown, much of Minneapolis is covered in green spaces and parks, and the bus system travels far.

HUMAN SCALE

"Is it really possible to stimulate any kind of community sense among unskilled and often broken and poor families in a 22-story building? Is an 'elevator culture' the best possible — or even a good — starting point for families who already have great difficulty with adjusting to an urban society? We do not know the answer to these questions."

 MONSIGNOR JOHN EGAN, director of urban affairs for the Archdiocese of Chicago, during the Cabrini-Greene crisis

Oscar Newman, architect and city planner, found in his early research that building size was the greatest contributing attribute to both crime and fear of crime in developments across New York City. Places like Cabrini-Green, with their massive monoliths of concrete and stone, do not inpire community or even comfort. Buildings on such large scales evoke senses of insignificance and loneliness, and are part of the reason why the public perception of large public housing developments is so negative.

Whlie a one-for-one renovation might bring the idea of filling up large developments, that is rarely true. On the flip side, relocation and vouchers for the displaced often backfire. However, the project's design will not be removing any housing from the area, so it is not required to be large enough to house everyone it displaced. Therefore, the project will be large, but will attempt to maintain human scale to foster community and engagement with the spaces.

PERSONAL

This project is important to me because it is something I grew up with and around. Many of my peers and friends have struggled finding community where they live, especially given the current sociopolitical situation brewing in the United States that targets and attacks minorities and those most in need. These problems are compounded by the inaccessibility of affordable housing, given the low minimum wage combined with the rising housing prices, especially when any affordable housing is so far from any kind of amenities or jobs. I know too many people who must live in dangerous situations just to be able to live with their families and/or survive.

It is important at this stage of my development because not only is it helpful to combine everything I have learned about design, research, and problem solving that I have studied through the past four and a half years, but it is also in the direction I want to head in when I begin working as an architect. It is my hope that researching all about public housing and community-based design, as well as inexpensive but sturdy and aesthetically pleasing will serve as a wide knowledge base that will allow me to move forward in many directions and serve all kinds of uses.

PROJECT JUSTIFICATION

PUBLIC

The problem of public affordable housing and the issue of our cities failing to support and unite marginalized and vulnerable communities is one that is currently prevalent in our society and one that architecture should be focused on solving. It is important for architects to focus more on more down-to-earth, immediate problems to solve with their projects and I think ideas like public housing and community centers can help mitigate these problems. It is an imperative for not only me, but also for the country as a whole. This is a problem that will not become solved if everyone, in many professions, does not start addressing it.

This project will use affordable resources, relying on solutions both from civil resources and government welfare in order to make it a sustainable and viable project that could actually be built, though it also shall produce its own revenue with classrooms, rentable spaces, and donations. It will attract donations and welfare given that it will help the ever-growing homeless population, as well as allow for the unification of communities and a better city morale. There will be a gradual return of investment given that rent will still be collected, but it may be a minimal amount. Still, the city would be justified in funding this project given the betterment of community and the projects goal of raising up community members in society.

The project will be useful to be introduced in all manner of sites across the country, but the original site is Minneapolis for both personal and professional reasons. I grew up in Northeast Minneapolis, very close to both downtown Minneapolis and more dangerous and difficult parts of the city. This project would not completely solve all the issues, but Minneapolis is a good first site given the current social status it has in the media, as well as its reputation as both a beautiful, growing city, but also one with a great disparity of wealth and the sociopolitical issues of recent years

CONTEXT

In 1937, the federal public housing program began as the Housing Act of the New Deal. It was intended to be a jobs program that also cleaned the slums, and soon grew with public support to something bigger. However, from the very beginning it had roots in segregationism, one of the first projects clearing out hundreds of Black families to make room for a whites-only neighborhood.

In the 1940s Truman created the Office of Housing Expenditure, and in 1949, the first Housing Act and Truman's Fair Deal – one that only benefitted white WWII veterans and forcibly relocated Black slums. That same year, the Supreme Court ended 'separate but equal' schooling, but did not repeal it for housing.

In 1956, another Housing Act began to pay reparations and relocating payments to those displaced. In 1968, the Fair Housing Act made it illegal to discriminate in sale or renting of housing based on a number of identities including race, religion, sex, disability, and more.

In 1974, Nixon placed a moratorium on housing spending, and as much of federal housing subsidies shift to vouchers instead, there has been no great expansion of public housing funding since, and Reagan only continued to cut funds.

In 1989 Congress made the National Commission on Severely Distressed Public Housing, and appointed $600 million to the urban renewal project HOPE VI. It was a success for a few, but many were relocated and unable to return to their homes, and decreased the public housing stock drastically.
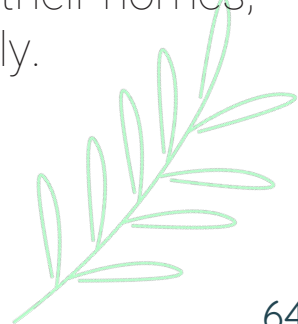
FROM DESPAIR TO HOPE
HOPE VI AND THE NEW PROMISE OF PUBLIC HOUSING IN AMERICA'S CITIES
HENRY G CISNEROS AND LORA ENGDAHL

OVERVIEW

HOPE VI is a federal program that brings forth mixed-income housing alongside with various resources and services. It works to bring about a replacement for the failures of previous public housing. Hope VI acknowledges that in the past, public housing was isolating both socially and economically, and strives to fix that. Hope VI was used in Atlanta, Baltimore, Louisville, Seattle, and even more cities, making it an interesting and worthwhile study for my thesis. Cisneros and Engdal are familiar with the disastrous public housing projects of the 1990s that devastated the cities they were built in, and work to do better.

THE PROBLEMS

Public housing is well known as a challenge throughout history. For example, in places like Baltimore, housing that was intended to be transitional after WWII ended up as 'poverty traps', where people became stuck and caught in a cycle of crime, unemployment, and disastrous conditions.

LITERATURE REVIEW

Instead of actually working to fix conditions like these, the government gave the barest amount of money to keep buildings just barely livable. The tenants became second class citizens and the government, with no incentive to do better, allowed the situations to worsen.

One of the other problems that arises, even with the Hope VI program, was the knowledge that no matter how good the new housing and ideas may be, they are not a cure-all, and cannot hold the entire population nor solve the root of every problem.

Public perception also has a high negative impact on public housing. Things like the shooting of an eight year old child in Chicago's Cabrini-Green and the disaster that was Pruitt Igoe have tanked any high ideals people may have about public housing. Deterioration and high maintenance costs were side effects that became well known to all.

HOPE VI

Hope VI began by changing the outlook of the cities themselves, making them out as 'centers of opportunity' and squashing the idea that they were merely poverty shelters. Hope VI stood out as unique for the idea that, while federally funded, the real difference would be made in the communities themselves, and with the people who may have loved their community but despised their housing. Public housing residents quickly changed from suspicious to excited, finally being treated like first class citizens and with the knowledge that they themselves could make a difference.
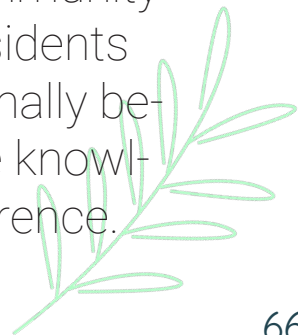
Hope VI was not perfect, in Baltimore or anywhere else. It was unable to hold every resident, especially as the design called for a reduction in the large population density. The program instead gave vouchers for relocation to other neighborhoods to those who needed to be redistributed, or even gave them other housing in the same neighborhood. This led to some contention, but did work for some, and even of those relocated and not returned, many reported better living coonditions.

Change was led by bringing the public to realize the problem needed to be fixed, and soon, and even bringing in members of Congress and the House. They stressed the need to design something new, that simply reusing old formulas were worthless. "HOPE VI was more than a housing or urban redevelopment program. It forced a dialogue on basic concepts concerning housing, redevelopment of cities, and generation of opportunities," says Cisneros.

Some implemented ideas included walkability, connection to the city and using human scale, neighborhood participation, defensible space, and repealing the idea of a 'one-for-one' replacement rule that only created massive densely packed high rises that isolated users and, even though some people advocated that every unit was necessary, often ended up mostly vacant and looted. After repealing this, Hope IV promised that everyone who was not given space would still be relocated somewhere with housing that exceeded adequacy.

"The Robert Taylors [the notorious Robert Taylor Homes public housing project in Chicago] are so distasteful, we can't get the American public to ever fund any of it. So the real way to get housing for people is to have a product that the American public will be willing to pay for." said Joe Shuldiner, HUD assistant secretary for public and Indian housing. Mixed-income allowed for the end to isolation of public housing and reconnected the housing with the neighborhood. Not only would Hope IV be well maintained, but it would also include socially beneficial amenities.

CONCLUSIONS

Hope VI is an incredibly useful case study and reference for both ideals for my thesis and concrete conclusions. While I am uncomfortable with the removal of the one-for-one law and the relocation of some residents, I read on to find that some relocated residents had been moved to still better communities and all reported the drastic improvements of their lives, though a large amount reported no change from their previous lives. However, I am not removing any housing on my site, which means this will be less of an issue for me – this failure of Hope VI will not be one I repeat. The actual design of Hope VI was well-received and successful, though other issues did arise, especially poor communication and difficulty reaching out to the communities they were attempting to help. Finally, while it did drastically improve the lives of those that lived there, it did not do much to improve the resident's self sufficiency.

LIVING A GOOD LIFE

BRINGING RELATIONSHIPS, COMMUNITY, AND PURPOSE TO THE LIVES OF MARGINALIZED PEOPLE

DIANE DIACON AND JIM VINE

OVERVIEW

This book is a report of the three-day long meeting of eighteen participants, social innovators from around the world, working to see that marginalized and vulnerable people are both well-housed and comfortable in a dignified and respected community. These marginalized people include those from historically vulnerable communities such as the Roma people of Europe, the Indigenous people of Australia, Canada, and India, and the Dalits in India. These people also include those set apart by physical and mental differences.

Some of the main insights included the solutions received from addressing issues of what creates a good life, the idea of sanctuary, the ability of members to contribute, the continuation and creation of relationships, the need for betterment of government funding, and the necessity of self-help and social enterprise.

RELATIONSHIPS AND PURPOSE

Community and interpersonal relationships are key to personal happiness. This is a fundamental necessity that is often denied to marginalized and vulnerable groups who are excluded from their own societies. Focusing only on needs and inabilities leads to isolation, and focusing on abilities leads to inclusion. Everyone wants to be able to contribute, and a key component of contribution is giving people a community and relationships to support and create ideas, resources, and abilities to contribute. To receive all of this, everyone must be accepted into community life.

The answer cannot be simply to hand people housing, but also to allow them and support them to becoming full contributing citizens.

SOLUTIONS

Basing welfare only on entitlement leads to focus on the deficit of those they support, excluding many, and not recognizing their own abilities. Government welfare systems are often increasingly unaffordable while somehow still not giving those they support what they need. The perceptions of what marginalized people need must be reframed, to the idea that marginalized and vulnerable people deserve home, meaningful employment, and a sense of community, and not just simply because they are sick or poor. Instead, the focus should turn to enabling people to have meaningful and productive lives that contribute to their community, and not just delivering 'entitled' services.
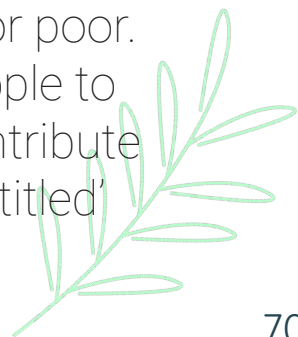
Self-help, empowerment, and social enterprise are also key components. Welfare models must not only be hand-outs, because this traps marginalized and vulnerable people into dependency on welfare programs. Supporting these people instead and enabling them to feel like they belong to society means that they must be allowed to establish social enterprises and giving them an opportunity to contribute to society. Without this, welfare becomes an increasingly unaffordable cycle of dependency, lost confidence, and money draining. Skills for self sufficiency must be encouraged and developed. Outside intervention, especially at the start, is of course necessary, but it cannot become a constant paternalistic solution.

CONCLUSION

This book was a simple and clear setting off point for the consideration of social needs in the future of an affordable housing and community center that intends to not only support but raise up those in need. It laid out good stepping stones, such as prioritizing belonging and community relationships, encouragement of abilities and capacities of the marginalized and vulnerable, improving the opportunities for self-help, drawing upon resources from governmental organizations, and participating in civil society to assist the government and provide practical resources.

RACE, HOUSING, AND COMMUNITY
PERSPECTIVES ON POLICY AND PRACTICE

HARRIS BEIDER

OVERVIEW

This book is a critical analysis of the progression and interaction between race, housing, and community cohesion. Beider encourages the definition of community cohesion as a 'highly ideological response to race during a remarkable and politicised period in our history'. Throughout history, housing has been both a metaphor and a concrete example of race and community cohesion. The author is from the UK and much of the book is therefore concerned with the logistics and history of the UK, but some of what he discusses in regards to definitions and possible solutions are relevant in America as well. It lays the foundations for a framework to continue to discuss race and housing, and begins an complex dialogue into the topic. Not all of his points are ones that I agreed with, but I still was able to find specific ideas he brought up that I was interested in and inspired by.

HOUSING AND COMMUNITY

Housing is tied inextricably with public policy and politics. Housing organizations must use their funding to not only feed the ever-fluctuating demand, but also must attempt to solve more overarching societal conflicts and issues. New housing developments are key in building the basis of societal interaction and the norms of a community and neighborhood. If housing organizations and developers are not careful they may end up creating a community of 'parallel lives', with differences in education, employment, and housing. Clustering may be a necessary evil in the case of supporting services, but if this encroaches into mono-cultural communities and environments based on these parallel lives, the possibilities of cross-cultural contact are greatly reduced. When communities are barred from each other and live parallel lives, they often grow to demonize each other.

However, it also remains true that communities are often more complex than that, more diverse. Multicultural policy environments are expanding and becoming more common, and the push for housing and race equality led to the requirement of commitment to wider equality issues.

COMPLICATIONS

Beider mentions that new and old migrants will feel less likely to contribute to their community if they are seen as part of the problem, and migrants to new communities or areas may also feel unsure about giving up their traditional community infrastructure – such as religious structures, shops, and families –in order to pursue better housing. Finally, Beider warns against a 'tick box' mentality where minorities become simply included in policies based on representative output. This can lead to accusations of handouts and favoritism, or worse. People have different forms of identity that change depending on their current context, including work, home, and school, and to use their identities solely as requirements to fulfill a diversity quota is shortsighted and ineffective.

CONCLUSIONS

This was a unique read that went very in-depth of the recent history of the UK's housing development. While I did not agree with all his ideas and terms, and some points, especially on UK history and policies, were irrelevant, he brought up some interesting key points. Beider explains, in short, that ideas on race and housing have shifted over recent history, partly due to the fact that people have begun to see the world, as well as race and housing, in a more complex way. Simple solutions are egregious and unhelpful.

Beider discusses topics of community cohesion and identity in depth, explaining that cohesion is a rarity rather than a surety, though he believes that the mixing of communities and the creation of diversity instead of a conglomerate cohesion is something of value. He also discusses the idea that a need for a common identity is problematic, given that identity is a multi-faceted thing, especially for fragmented or migrated minorities. To trade an ethnic identity for an unclear, unhelpful 'common identity' does not improve the quality of life. He paraphrases President Obama and says that class is a key factor but race cannot be ignored, nor can we refuse to bridge the gap of deepening racial divides. Finally, Davies says that we must change our idea of community cohesion and understand that social justice and equality are just as important as identical norms and values, and that this diversity is a good thing.

CRIME, NEIGHBHORHOOD, AND PUBLIC HOUSING

GARTH DAVIES

OVERVIEW

Public housing has only relatively recently been a topic closely associated in the public eye with the social pathologies that go along with the stories of places like Cabrini-Green. Even in the more recent past, criminologists paint public housing as more of a stage where criminal behaviors take place, and less as one facet in a series of complex factors that characterize the issues.

This book details a criminologist's perspective on the links between crimes and public housing, and how it is not simply a cut-and-dry reason that public housing is associated with crime, but rather a complex series of reasons that often originate in the community and neighborhood of public housing. Housing does not exist in a vacuum.

PERCEPTION AND RESEARCH

Davies explains that in criminology, the idea that public housing is assumed to be rife with serious crime at all times, though he says there is actually very little empirical evidence that shows this. One of the biggest problems, he adds, is the idea of 'crime' as a dependent variable. Public housing has a severe image problem, which has only gone on to negatively impact the perception of public housing, which in turn leads to public push-back against it, which does nothing to improve the issues rooted in that perception in the first place. Fear of crime is often as much a deterrent to community as committed crime. Oftentimes the physical image did not help either – the towering sizes complete with locations in high-crime areas and low-cost appearances only increased the stigma.

Much of the evidence on crime and public housing being linked, he says, stems from dated research from the 70s and 80s, and even then is affected by currently irrelevant factors. Much of the recent research is flawed and based on assumptions, given public housing is rarely judged by itself and not in the context of its entire neighborhood. In addition, the use of the word 'crime' is vague and unclear.

This book details a criminologist's perspective on the links between crimes and public housing, and how it is not simply a cut-and-dry reason that public housing is associated with crime, but rather a complex series of reasons that often originate in the community and neighborhood of public housing. Housing does not exist in a vacuum.

PHYSICAL SPACES

Activist Elizabeth Wood explained that the physical features of an architectural design can contribute to the absence of community and individual social control by cutting out gathering and interaction. Architect Oscar Newman brought interest into the links between criminality and public housing when he posited the idea of defensible spaces; that is, the idea that physical design has an influence on crime and the fear of crime in design development. Findings proved that crime was in fact influenced by things like lacks of surveillance, locks, alarms and defined areas, but the findings also proved that large factors could be attributed to a lack of social organization and cohesion, a territorial tension among residents, and lacks of trained culturally sensitive security, social service programs, organized youth activity, and employment opportunities for residents. These were just as, if not more, important links to crime. Physical factors were not alone. However, things like project size did indirectly effect crime and perception.

CONCLUSION

While the early chapters of this book were useful, later chapters delved into statistical hypotheticals meant to help further criminological research. This was an interesting read, though very far out of the scope of the thesis. Still, Davies' discussion of perception, the statistical and research errors in crime and public housing research, and the effect of physical spaces and neighborhoods on public housing and the knowledge that public housing does not exist in a vacuum all were helpful.

His main takeaways were that 1) violent and drug related crime may be disproportionately centered in public housing areas, but 2) this is not necessarily the fault of public housing, as the neighborhood around it influences and encroaches upon the public housing as much as the opposite is true, and 3) social control, or giving the residents the ability to control and direct their own lives and homes, can help diffuse this.

HISTORY

The original settlers of the Minneapolis region were the Sioux and Ojibwe peoples. Louis Hennepin, a Franciscan missionary, visited in 1680 and named it St Anthony Falls, and later became Fort Snelling in 1819. The village of St Anthony was born on the east side.

West of the river, in 1848, settlers began occupying military land, which eventually was given to them in 1855. In 1856, they named themselves Minneapolis, which was a combination of the Sioux word minne, water, and the Greek word polis, city.

. In 1860 St Anthony became a city, and in 1867 Minneapolis did the same, and five years later, after a near disaster of eroding limestone caps near the falls that forced St Anthony and Minneapolis to work together to fix it, the two cities merged into one. This was the original meaning of the nickname the Twin Cities.

In 1851, the University of Minnesota was chartered, though it closed briefly during the Civil War, and eventually grew into a huge campus along the east bank as well as a sister campus in St Paul and in the 1960s a west bank campus.
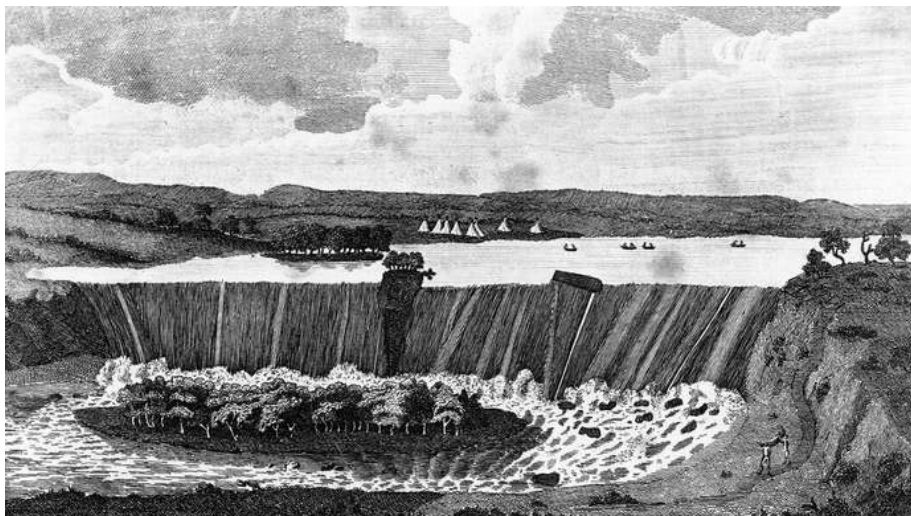
In 1857, the first park was established, and over the next few decades Minneapolis became a leading example of park systems.

With St Anthony, Minneapolis was the top producer of flour in the entire US. Lumber was a large export as well, until the last mill closed in 1919, and not long after Minneapolis lost their title of foremost flour distributor, though the Mill City Museum, the wreckage of an exploded flour mill, remains a popular attraction.

Minneapolis' downtown area suffered from the Great Depression, often called ugly, but leapt back up with urban renewal and began to create its notable skyline, as well as beginning to capitalize on the riverfront.
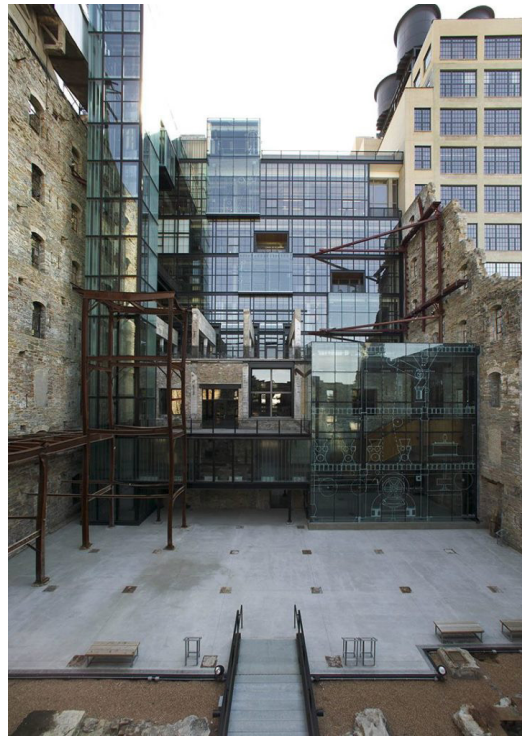
In 1950, Minneapolis had almost 522,000 people, and though it declined after that, it stabilized in 1990. However, the area that soon became known as the Twin Cities not because of St Anthony but now the nearby city St Paul continued to balloon in size, as well as grow more diverse beyond its original mainly Scandinavian residents.

In 2004, a 12-mile light rail opened up and connected Minneapolis with the airport and the Mall of America. In 2007, Minneapolis made international news when the I35W bridge over the Mississippi River collapsed due to a design flaw, killing 15 and injuring 150 (an event notable to me for the fact my father should have been on it at that exact time had he not stayed home from work that day, which led me to become interested in engineering, and from there, architecture).

Minneapolis, while beautiful, is home to some of the largest racial disparities in the entire US. People of color face discrimination and socioeconomic differences on wide-spread scales, and in the 2010s clashes between the police and men of color led to the deaths of multiple Black men, and incidents like these continued to happen until May 2020, when George Floyd was murdered while in custody of Minneapolis police, which sparked peaceful protests that were egged on into riots. The resulting unrest soon rose to the second most destructive in US history, and has brought to light the suffering of marginalized and vulnerable communities in Minneapolis to the whole world.

LOCATION

Beltrami Park
1111 Summer St N E
Minneapolis MN 55413
8.05 Acres
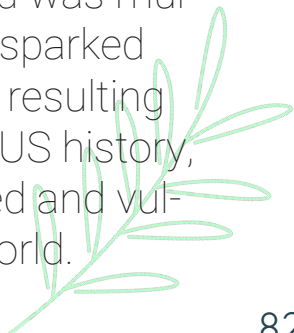
This site is less than a block away from my originally proposed site. I chose to move it because while the original site was less used, the surrounding railway tracks made it precarious, and the views from this site are far better while still retaining ever other amenity the original one possesed.

The site is still just minutes from the University of Minnesota, providing it access to food, entertainment, education, and jobs, while also being close to North Minneapolis, where many of the residents will come from.

RESIDENTIAL INFORMATION

Population: 429,954
Female: 49.4%
White: 63.6%
African American or Black: 19.2%
American Indian or Alaska Native: 1.4%
Asian: 5.9%
Two or More Races: 4.8%
Hispanic or Latino" 9.6%
Veterans: 13,704
Foreign Born Persons: 15.6%
Persons 65 and older: 10%
Persons with a disability: 8.9%
Persons without health insurance: 7.2%

Travel time to work: 24.1mn
Households: 176,974
Persons per household: 2.28
Units: 192,708
Language other than English spoken at home: 22%

POVERTY AND HOMELESSNESS

Median gross rent: $1,027
Median household income: $62,583
Median per capita income: $39,617
Persons in poverty: 19.1%
Adults without homes: 12,895
Youth (18-24) without homes: 2,429
Children without homes: 5,913
Waiting household placements: 8,237

CIRCULATION

The site is within easy walking distance of numerous bus stops that run the lines 10, 4, and 30, all of which run through nearly all of Minneapolis, and those that do not will be easy to transfer to another. It is also near several main roads like Hennepin Ave, Broadway, and Central Ave, and numerous county roads that will lead to the highway.
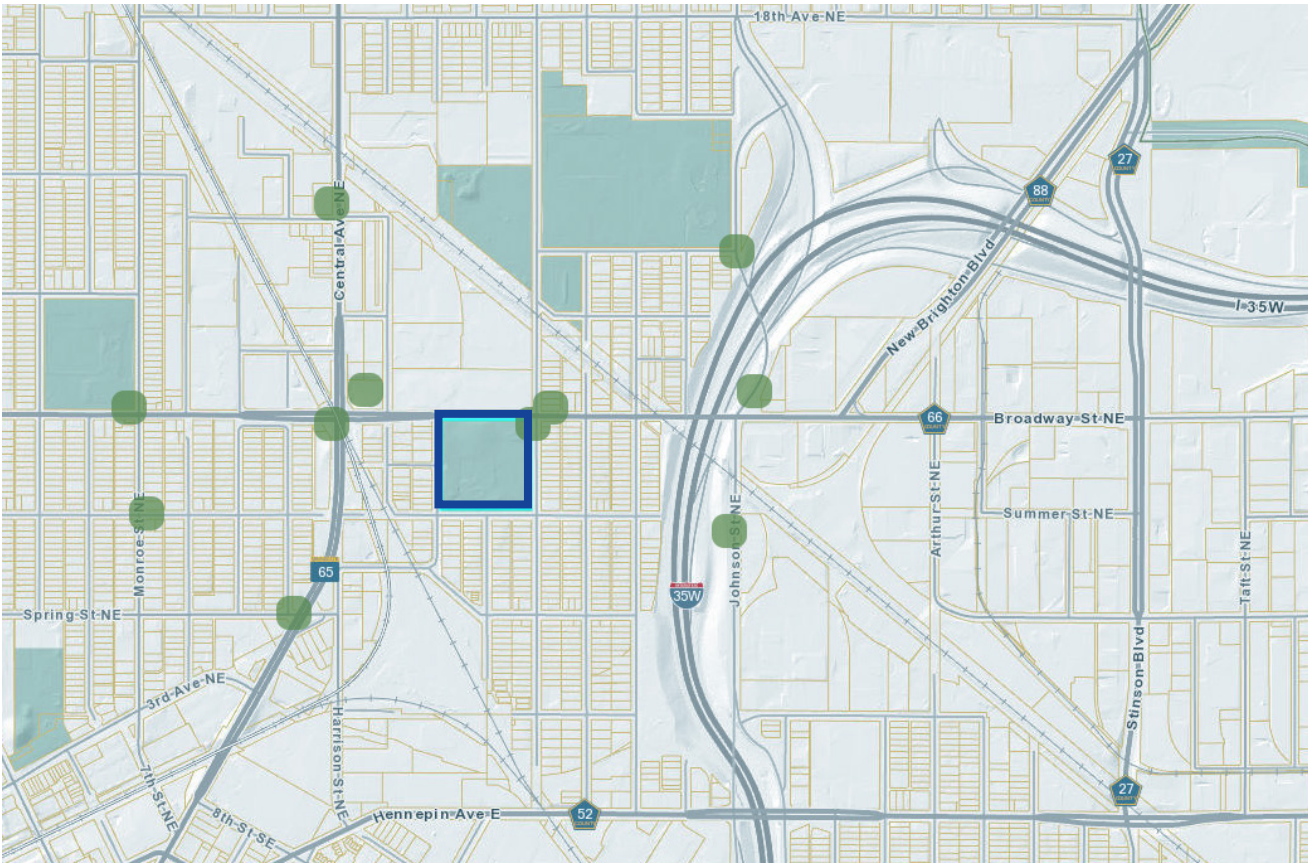
TOPOGRAPHY

CLIMATE

MAXIMUM TEMPERATURES

- 🔴 > 95°F
- 🟠 > 86°F
- 🟡 > 77°F
- 🟢 > 68°F
- 🟢 > 59°F
- 🟢 > 50°F
- 🔵 > 41°F
- 🔵 ≥ 32°F
- 🔵 < 32°F
- 🟣 < 23°F
- 🟣 < 14°F
- 🟣 < 5°F
- — Frost days

SKY CONDITIONS
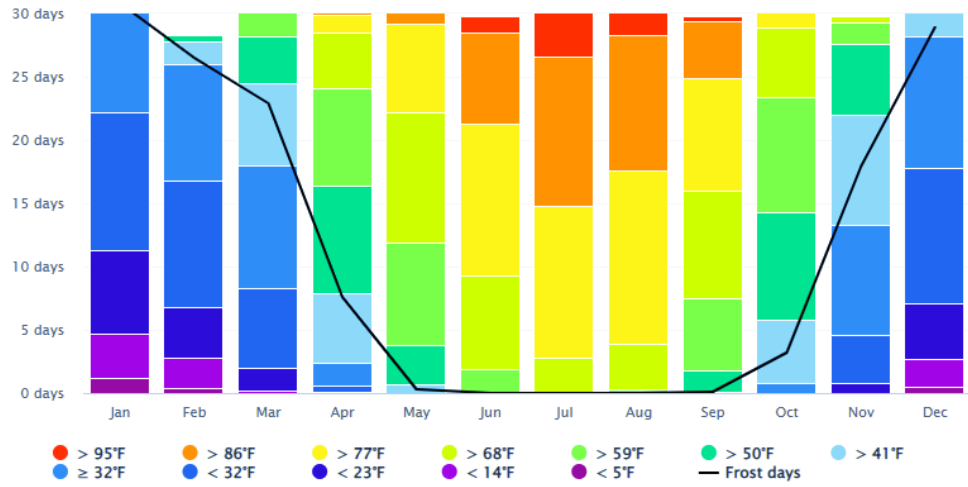
- 🟡 Sunny
- 🟢 Partly cloudy
- 🔵 Overcast
- — Precipitation days
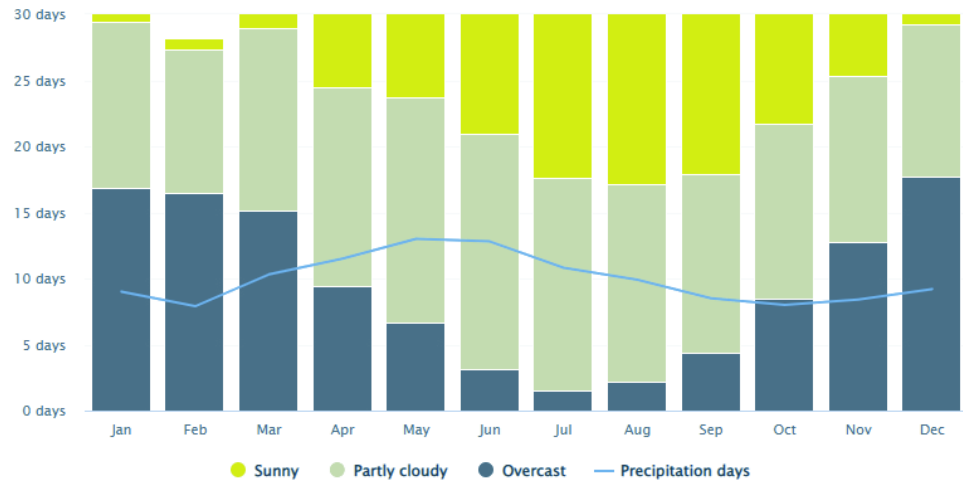
AVERAGE TEMPERATURES AND PRECIPITATION

- 🔵 Precipitation
- — Mean daily maximum
- --- Hot days
- — Mean daily minimum
- --- Cold nights
- — Wind speed
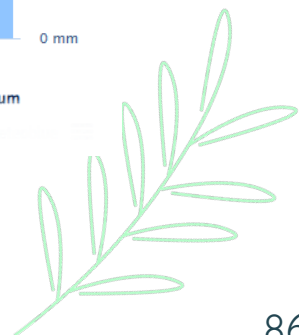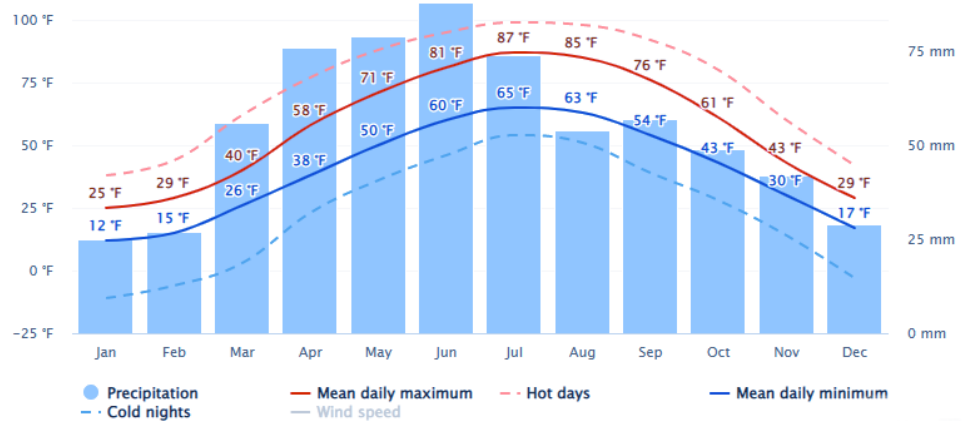
ZONING

 Zone R: Multiple Family District

 Zone C3S: Community Shopping Center District

 Zone OR1: Neighborhood Office Residence District

 Zone I1: Light Industrial District

 Zone C1: Neighborhood Commercial District
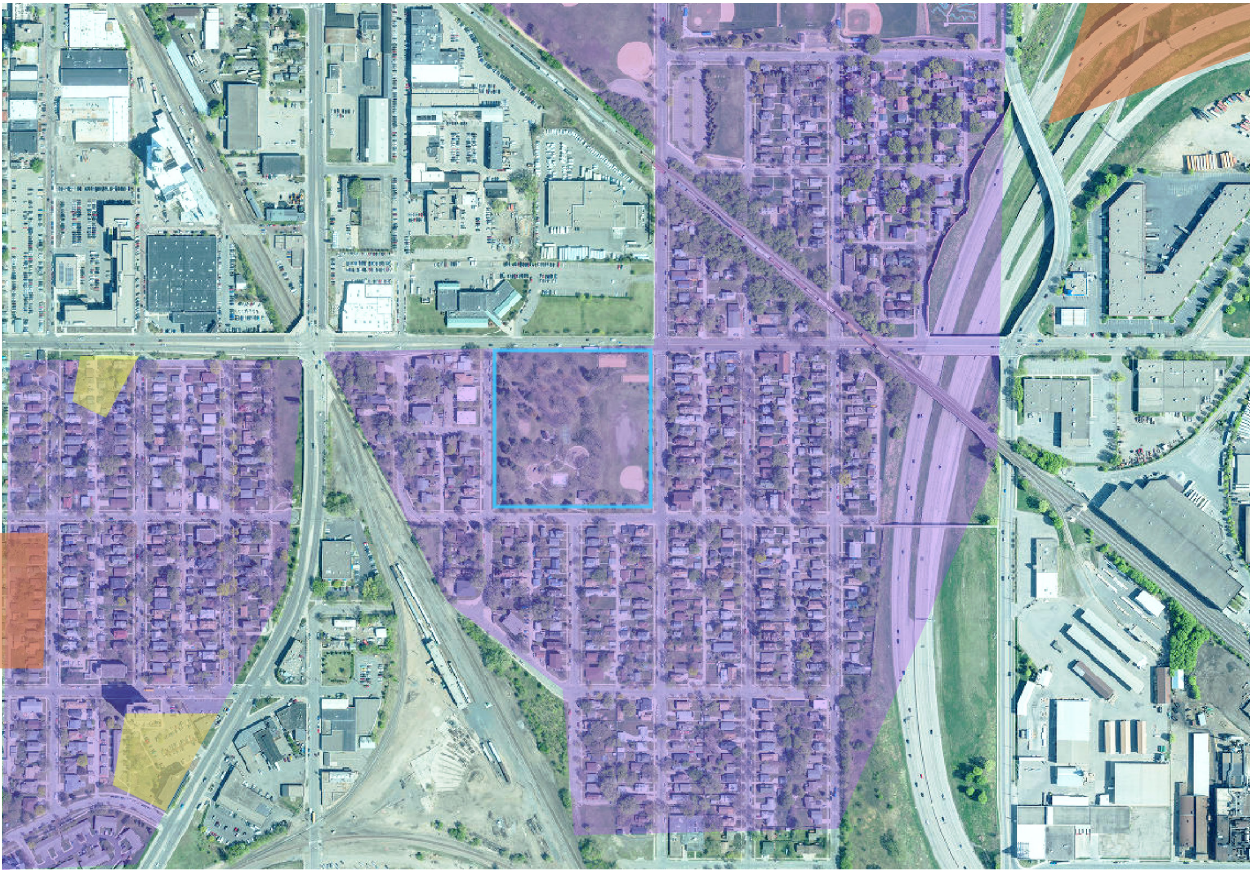
THE SITE

PERFORMANCE MEASUREMENTS

It is important to be able to measure the success of the project. Given that, there are nine standards of success that the project will be held to, which can be quantified in three separate divisions: a quantifiable number of people, a quantifiable number in US dolalrs, and those less easily quantified results including happiness, vaguer environmental impacts, and replicability.

1. How many people the design can service in regard to living quarters and private users
2. How many people the design can service in regard to public amenities, i.e. rentable rooms, the library, the soup kitchen, the community garden, the daycare, the classrooms, and parking
3. How much revenue the design makes from the direct users
4. How much revenue the design is awarded from donations and grants
5. How much the design costs – how affordable are the materials and how can it be intelligently built with care to make it stable and beautiful but not overtly expensive
6. How much of an impact the design has on the local environment
7. How much the design cuts down on local homelessness
8. How pleased is the local community with the design
9. How replicable is the design – parts will have to be altered to suit different environments, but overall is it a sturdy reusable design
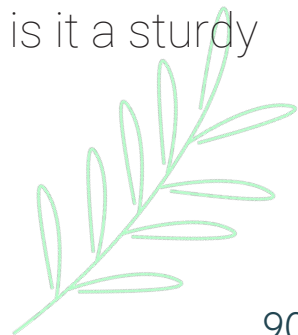
PERFORMANCE ANALYSIS

Some of the performance measurements will not be able to be accurately quantified until post-building, but others can be measured as the design is begun and completed by way of pro-formas, research, and design.

Measurements 1 and 2 will be answered simply by designing the building to the best of the architect's ability. 3-5 can be answered by research into local income and spending habits, local government grants and common donation amounts, and research into affordable materials. 6 can be determined by case studies of similar buildings on the environment as well as research into the materials and building methods of the design. 7 will be related to 1 and 3-4, given how many the design can service and how the population will have to pay. 8 cannot be quantified beyond theoretical polls until after the design is physically built. 9 will be quantified after the design using all other measurements.

The design's criteria will be met if the design would be able to reasonably be built given all 9 of the measurements. Understandably, 'reasonable' is a subjective argument, but if the building can service a large amount of people and the cost can be justified, all while having a positive impact on the local community, the criteria will be met.

SPACE ALLOCATION

Space	Percent
Exterior Gathering Space	8%
Community Garden	5%
Public Housing	35%
Library	5%
Rentable Rooms	10%
Soup Kitchen	5%
Underground Parking	15%
Daycare	5%
Bus Stop	n/a
Classrooms	10%

ENERGY CONSUMPTION

Space	Percent
Exterior Gathering Space	2%
Community Garden	3%
Public Housing	50%
Library	5%
Rentable Rooms	10%
Soup Kitchen	10%
Underground Parking	5%
Daycare	5%
Bus Stop	n/a
Classrooms	10%

BEHAVIORAL PERFORMANCE

The design will be in use at all times given the public housing, though some parts of the design will be closed during late night and early morning hours. However, even the classrooms and the soup kitchen will be ideally open until the very late hours. Thus, half the building will be 24/7, and the rest will be roughly 6am-12am.

ENVIRONMENTAL PERFORMANCE

Environmental performance is not at the head of the design, but it does remain an important factor. However, using the criteria from the State of Minnesota Sustainable Building Guidelines, I will strive to achieve:

• Exceed existing energy code by at least 30 percent
• Achieve lowest possible lifetime costs for new buildings
• Encourage continual energy conservation improvements in new buildings
• Ensure good indoor air quality
• Create and maintain a healthy environment
• Facilitate productivity improvements
• Specify ways to reduce material costs
• Consider the long-term operating costs of the building including the use of renewable energy sources and distributed electric energy generation that uses a renewable source of natural gas or a fuel that is as clean or cleaner than natural gas.

FINANCIAL PERFORMANCE

The rent will be affordable on a minimum wage compliance, and the building will strive to be as affordable as possible using concrete and recycled materials, and avoid using things like lumber which are currently at very high prices.

While there will be governmental assistance, the project will retain some revenue by use of the rentablel spaces and the classrooms, as well as using the outdoor space to host large events. Other revenue may come from donors.
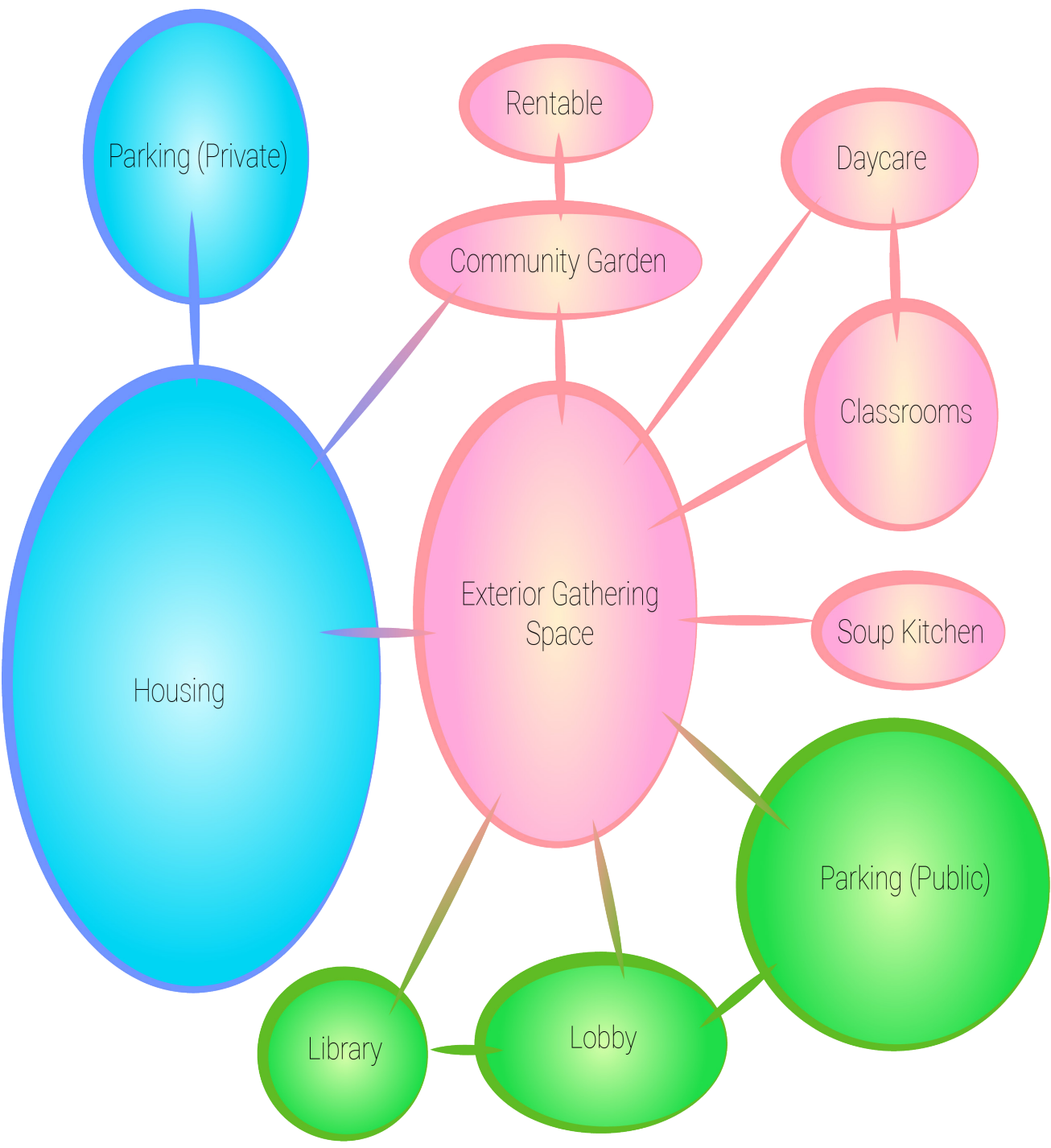
PERFORMANCE CRITERIA

Spatial Interaction Matrix with the following criteria (top to bottom):
- Exterior Gathering Space
- Community Garden
- Public Housing
- Library
- Rentable Rooms
- Soup Kitchen
- Daycare
- Underground Parking
- Lobby
- Classroom
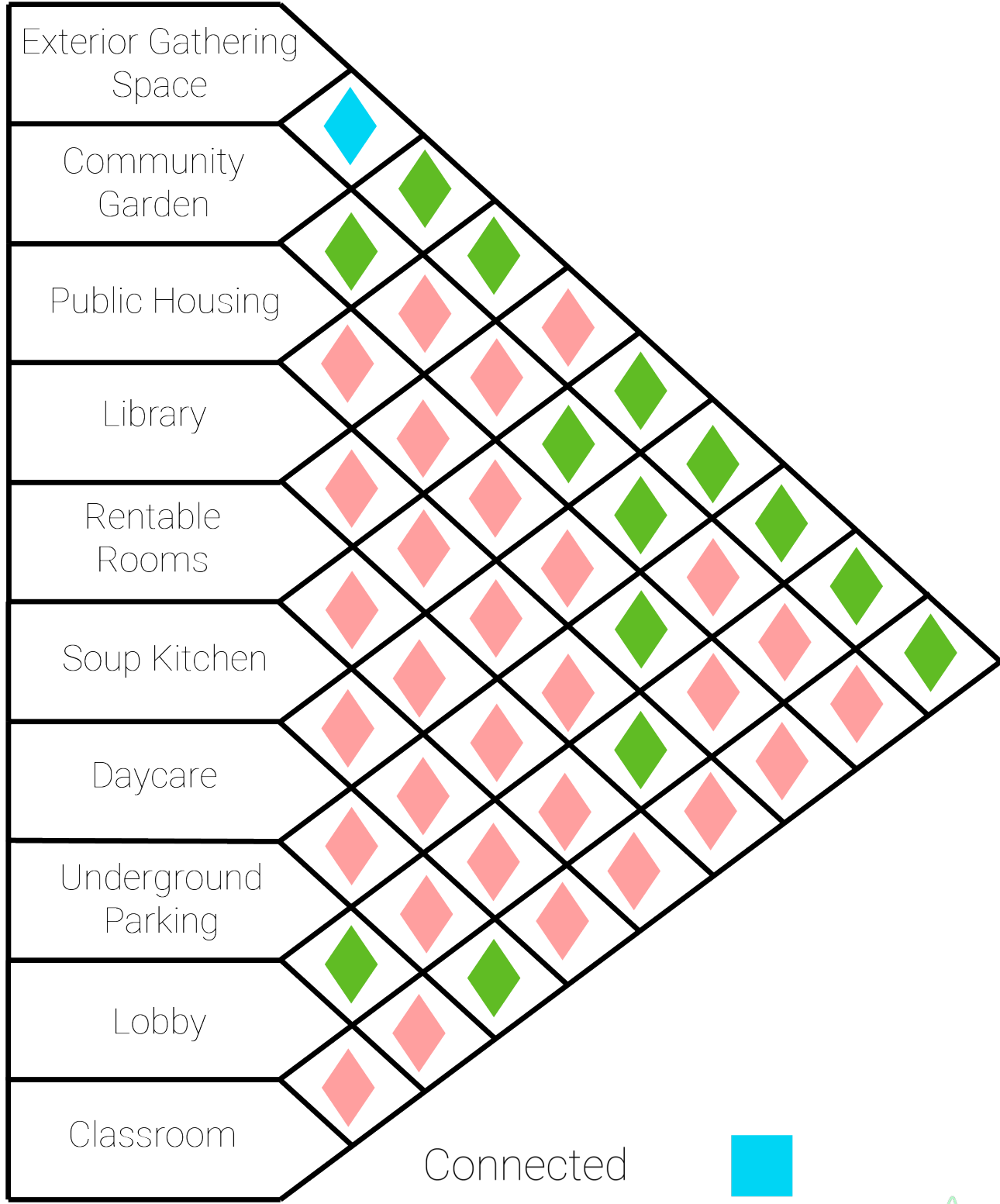
Legend:
- Connected (cyan)
- Adjacent (green)
- Unconnected (pink)

Private — (blue)

Public — (green)

Controlled Access — (pink)

Parking (Private)

Rentable

Daycare

Community Garden

Classrooms

Housing

Exterior Gathering Space

Soup Kitchen

Parking (Public)

Library

Lobby

PERFORMANCE CRITERIA

PERFORMANCE SUMMARY

The design will strive to complete everything outlined, however, it shall focus mainly on affordability and helping the most amount of people possible while remaining a strong, useful, and beautiful building.

To achieve these goals, strict research will be done into the materials and methods used in order to keep costs down. Local materials especially will be considered, with regards to recycled materials and avoiding currently difficult to obtain materials such as lumber. The long term costs will be just as important.

The psychological impact of the design will be crucial, considering the design is meant to uplift and bring communities together. When possible, the design will focus on open spaces and natural lighting, especially centered around a large outdoor communal area and a community garden.

Useability is key, with an eye to those users with less options and availability. The bus stop is important, as well as access to necessities often overlooked by those who have never been in need. Useability will also require strict adherence to ADA guidelines, going above and beyond to make a design not only accessi-

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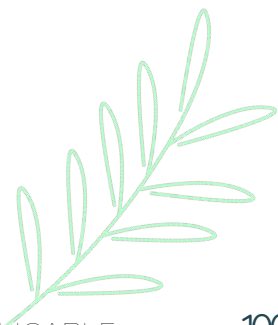
DESIGN
SOLUTION

PROCESS

From the very beginning of the design phase, I knew I wanted to begin more with spatial diagramming than with exterior modeling. While the exterior would be important, especially in welcoming the community and making the building seem attractive and approachable, I also knew that the residents and users of the building must feel comfortable and welcomed.

I knew from research that I needed to include more spaces beyond those just directly necessary for living - that is, more than just an apartment complex. After all, Pruitt-Igoe and Cabrini-Green had proven that, regardless of design choices, simpy four walls and a roof were not enough to heal and bolster a suffering community. Homelessness and related issues are not solved simply by building mass amounts of homes.

However, I also had seen successful architecture, especially along the lines of the Savonnerie Heymans project. Architecture can be more than the sum of its parts - bringing together housing as well as communal spaces and greenery had made housing into a wonderful, beautiful space to live.

With all that in mind, I decided to include housing alongside community greenspaces, a public library, a daycare, rentable rooms, a school, and more.

Though I intially did not have an exact number of floors decided, I knew I wanted to leave the design lower to the ground, leaning more towards a landscraper design. While this would take up more land space, it would also be more affordable than building high, and look more natural on the site without imposing on nearby buildings. However, it would make daylighting difficult.

Having my spaces already figured out, I knew it was only a matter of finding a spatial program that fit them best. Starting with only one floor, I began creating a number of quick, loose sketches, designed to allow me to see how the spaces interacted with each other and, eventually, the site itself.
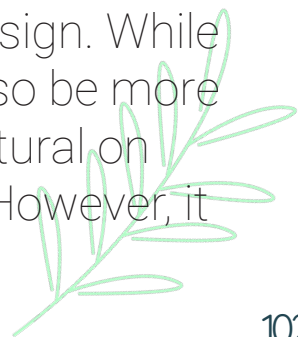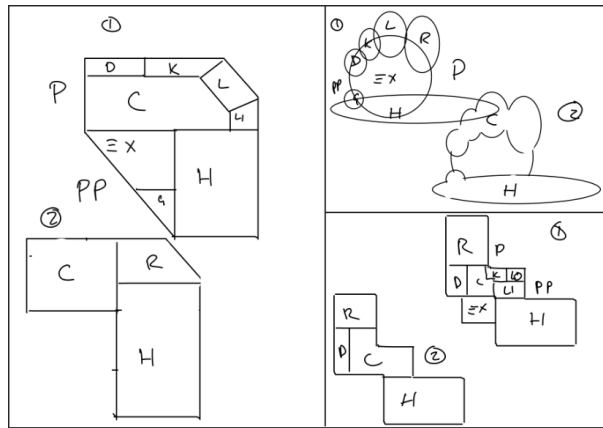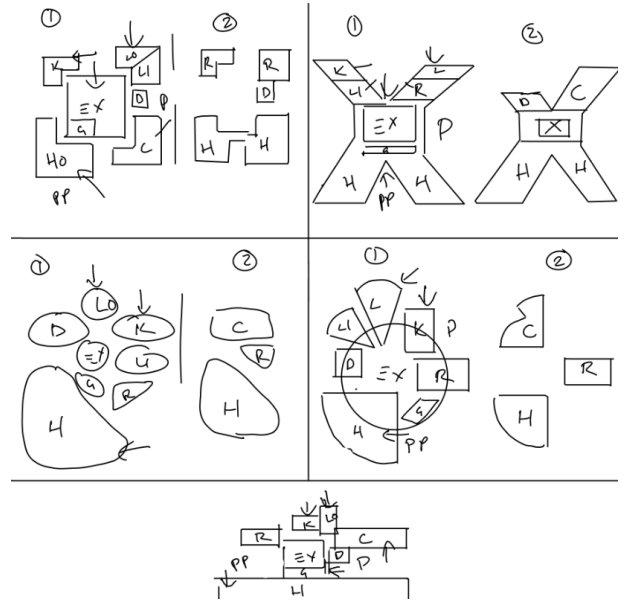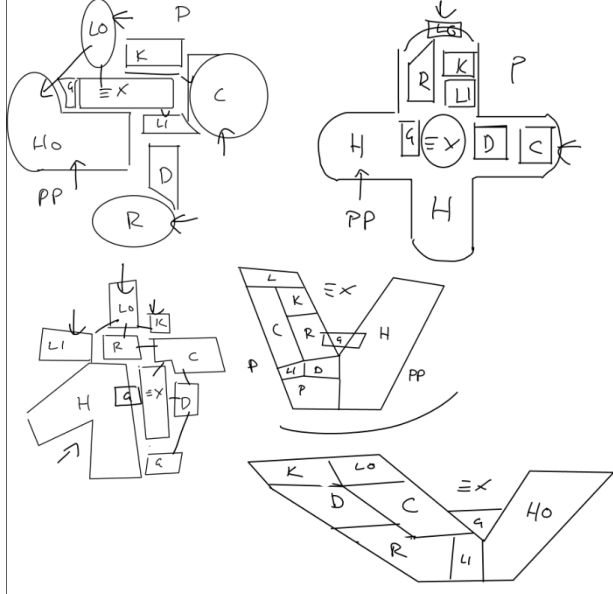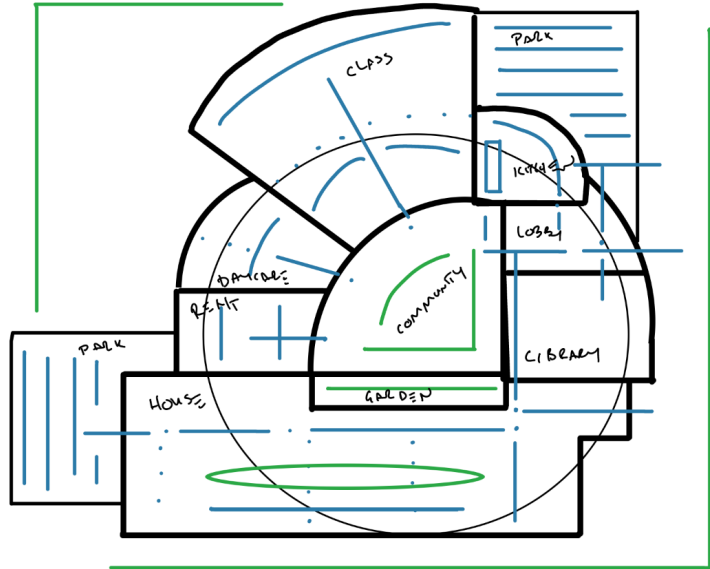
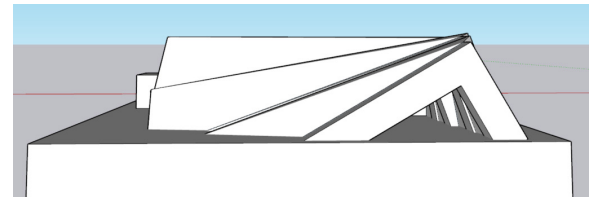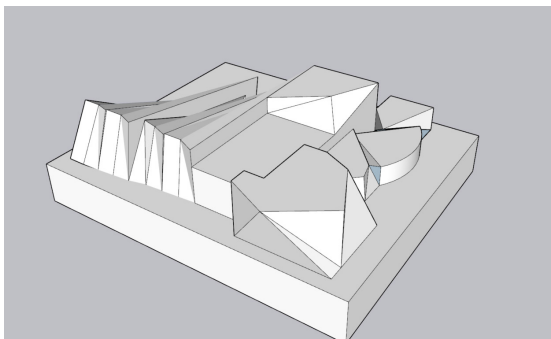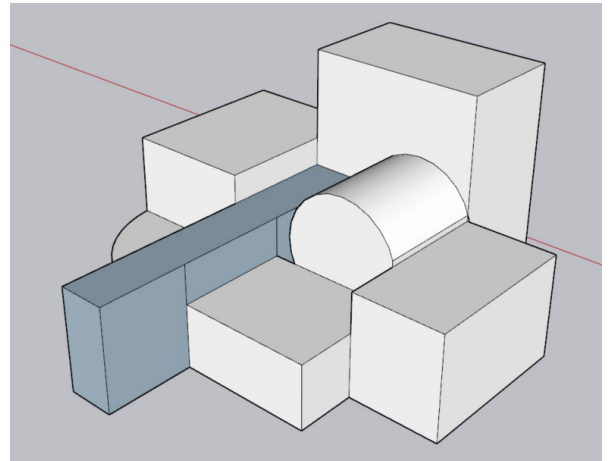After forty iterations of quick sketches, I settled on a more exact layout, and began to plan the form and footprint.
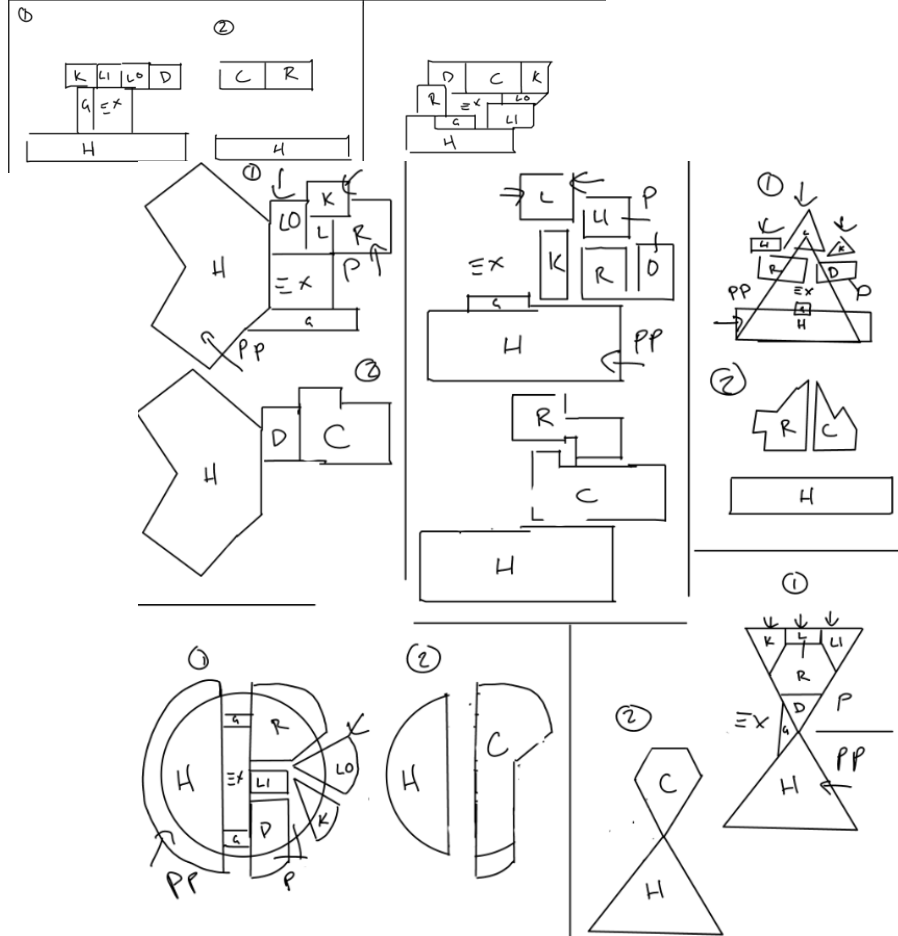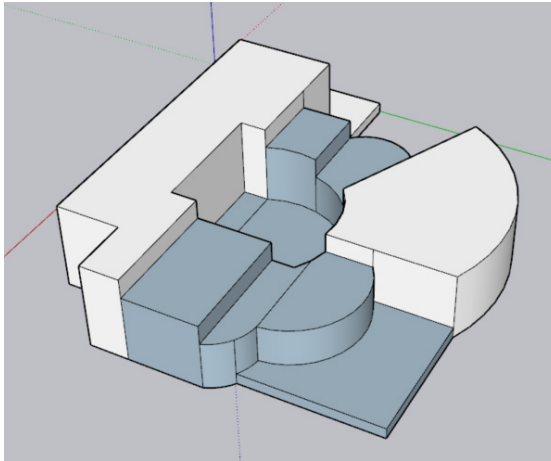
These sketches planned out how one would move throught the space, where they would linger, and how the building would flow. I also wanted to get a final sense of the layout.
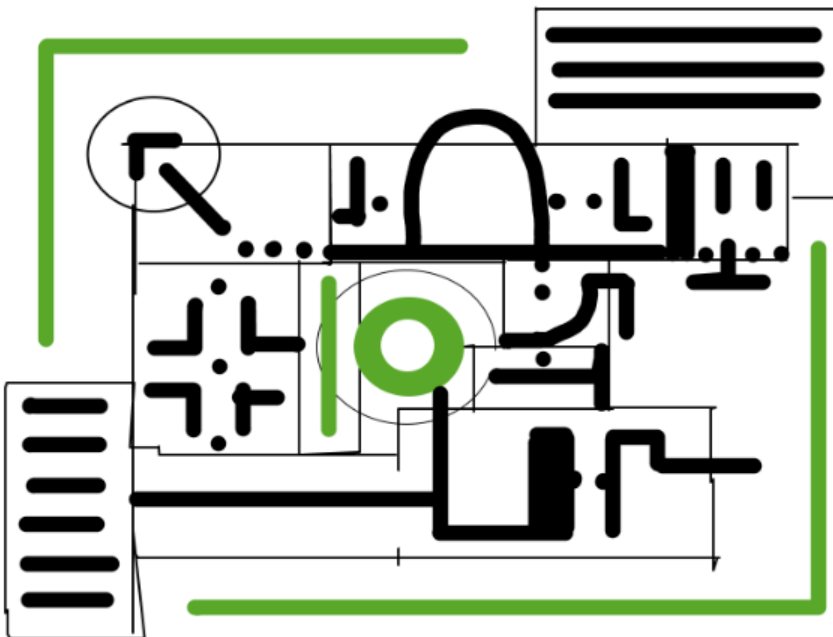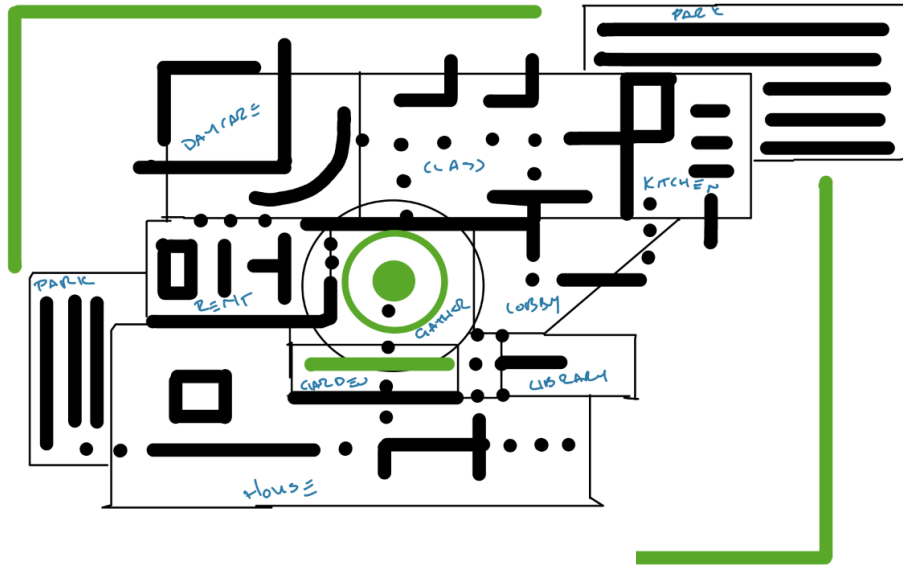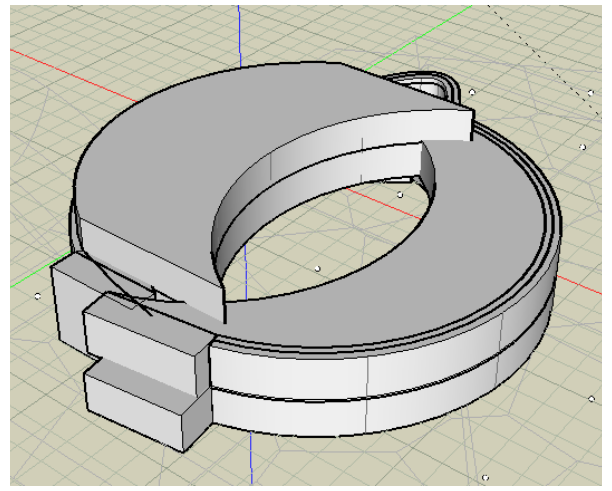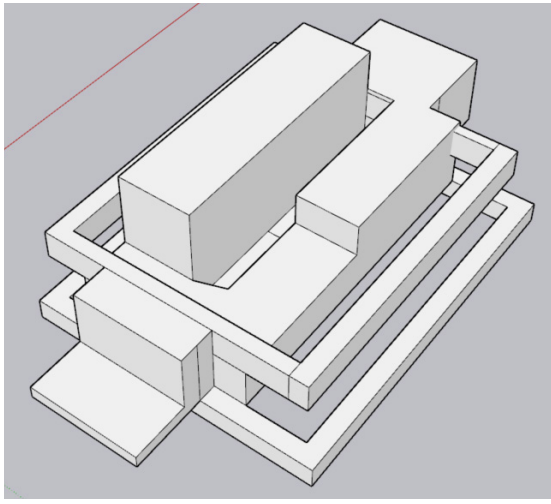
While I did test some three dimensional forms, I found myself unsatisfied - I was only guessing at the required footprint, and though I liked the way some designs circled around a central courtyard, I decided to finish a more complete floor plan before working on the exterior.
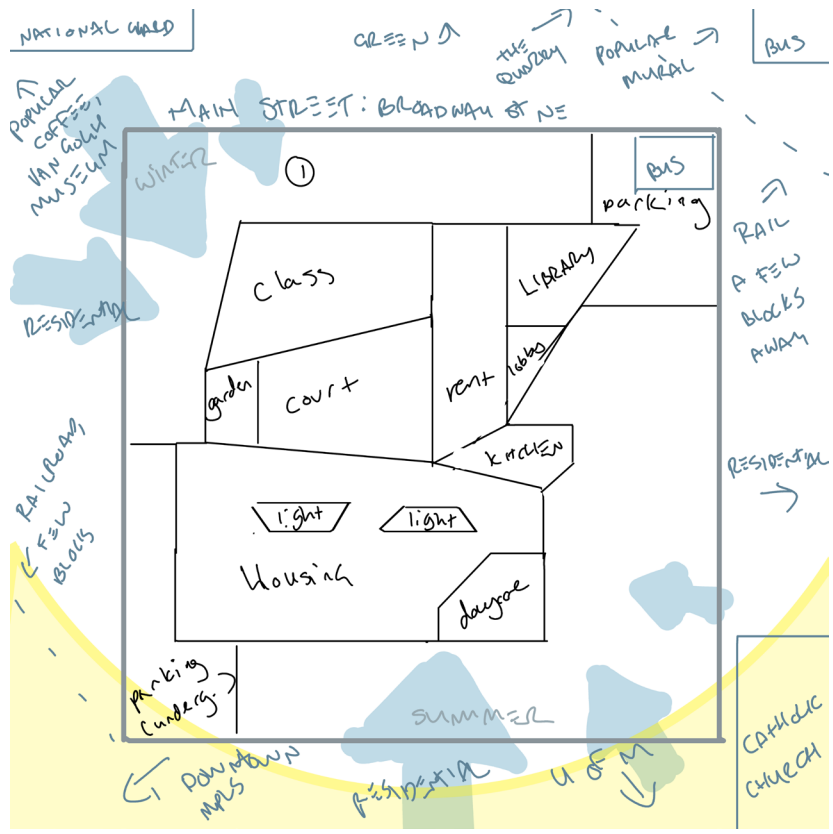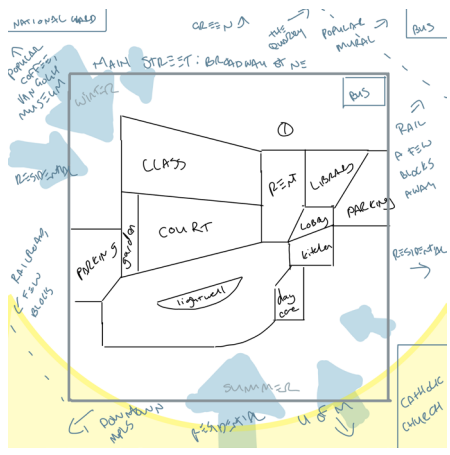
Drawing a rough site map and grid, I planned out more exactly how I wanted everything to interact. I decided, since the site was so large, to only use two stories, and spread out over the land instead. I would have at least two large courtyards to keep green spaces, as well as allow light in. I also tried to create a footprint that would bring in the most sunlight to spaces that needed it, thus the angles.
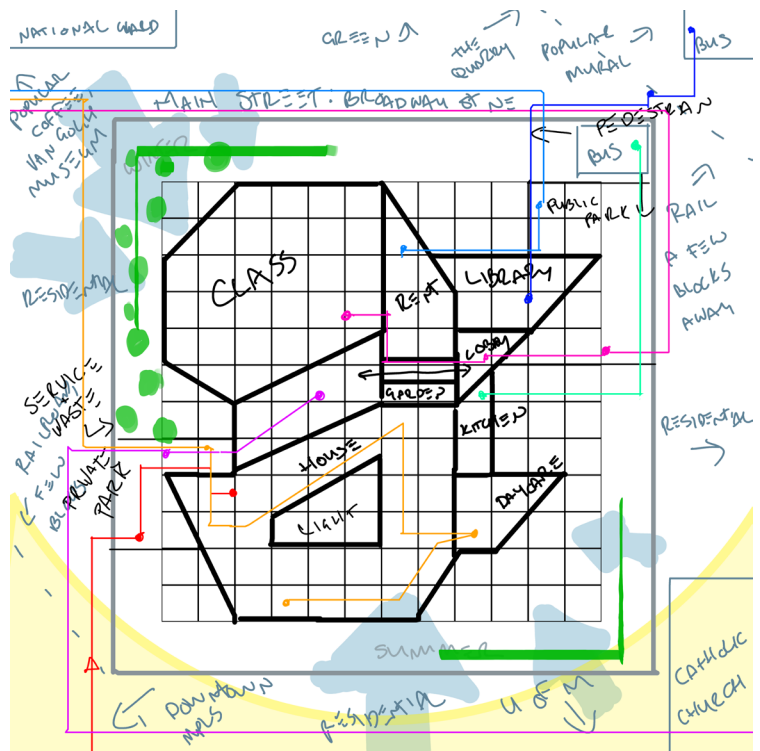
When I began to finalize the floor plans, I ended up using a 32' by 32' grid, ensuring that many aspects of the building, including the precast wall panels and column system, as well as actual wall lengths and paths, would lay along an 8', 16', or 32' measure. This made design easier, and would make building go more smoothly.

I also ensured that the second floor would be set back towards the north, and include skylights along the roof, so that with such a large footprint, many spaces would recieve sunlight. Alongside that, I also made sure to include not only the main courtyard, but also three smaller ones.
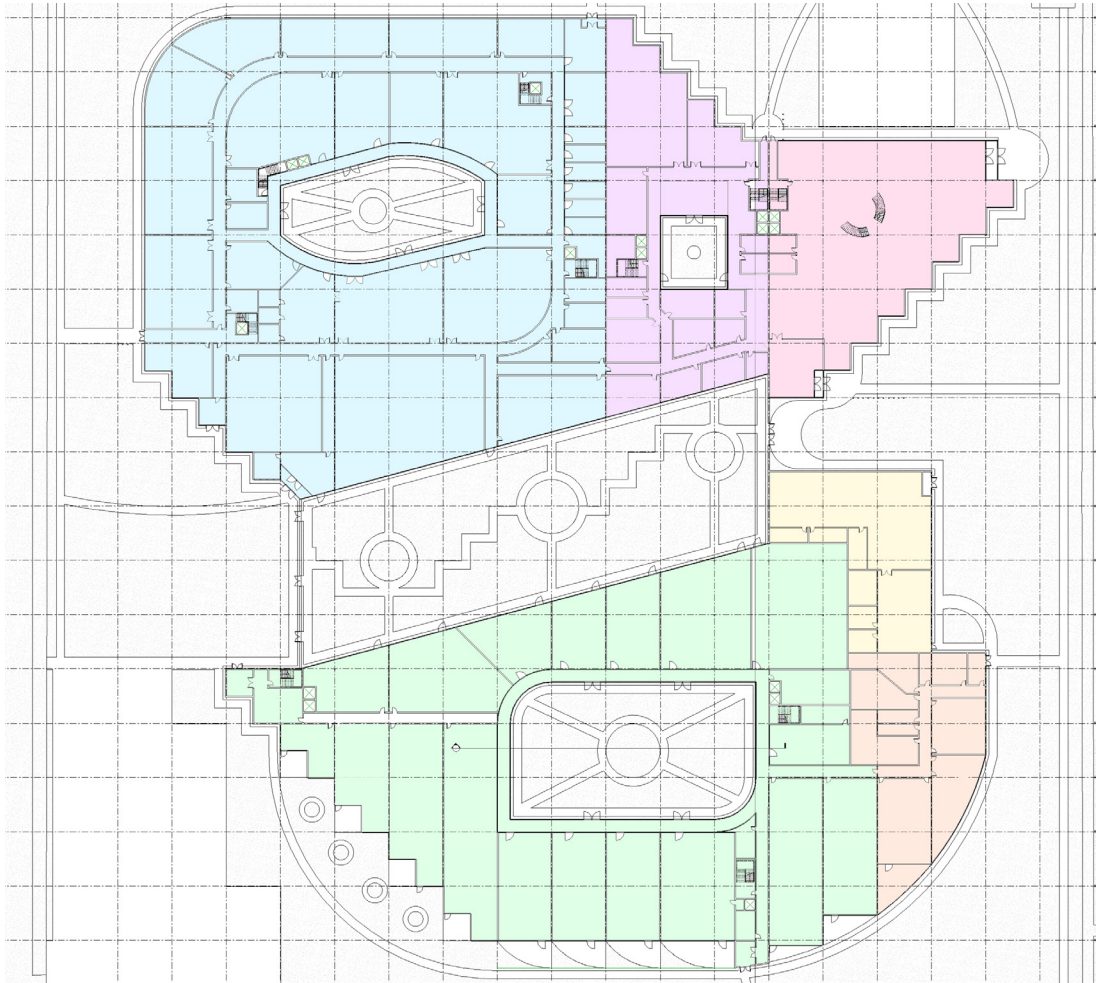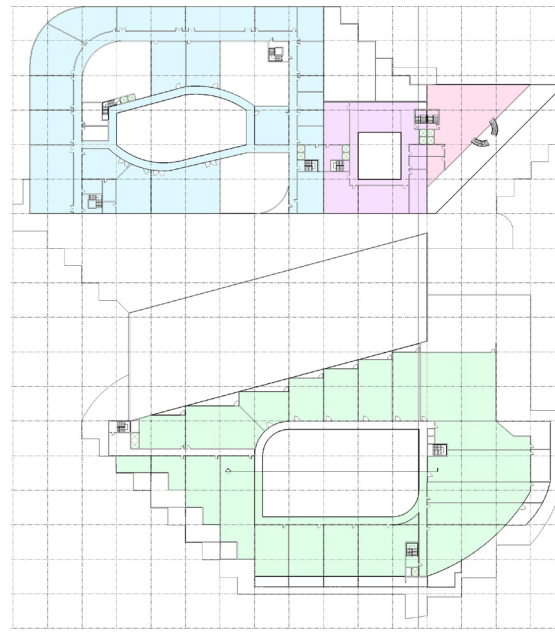

Above is shown the first floor, with classrooms, rentable spaces, the library, housing, the soup kitchen, and the daycare.
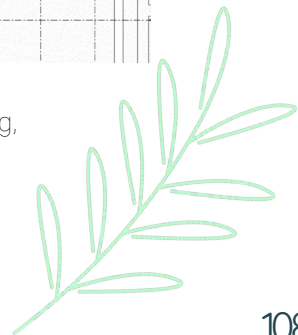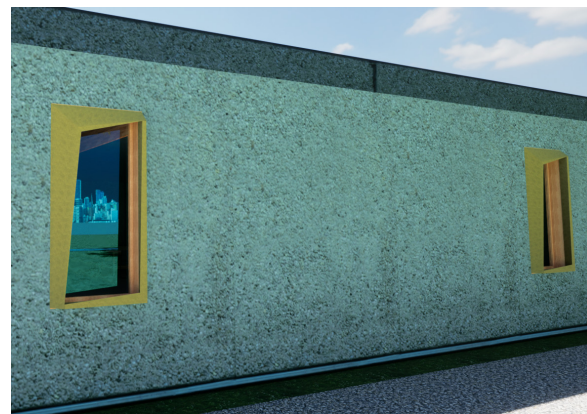
This was a very deliberate design choice - not only to increase daylighting, but also to center the traffic and paths of the building. It was very important to me to ensure that wherever you were in the landscraper, you were only a short walk to a green, public space. Since I wanted to maintain the ideas of light and life throughout my design, it was necessary to keep usable spaces surrounding publically accessible courtyards. This brought daylight and biophilic design to human-centered spaces. Nearly every apartment, and many classrooms, have access to an exterior wall as well as a double-glass hallway facing a courtyard.

Along the roofs and panel walls, I dotted windows and skylights inspired by Marcel Breuer, using ochre concrete to create visual and haptic interest on the long, monotonous panels. I also made the overhangs on all doors a deep red to do the same, which also indicated doors on an otherwise long and easily confusing building.

Above is shown the second floor, with classrooms, rentable spaces, the library, and housing.

The main courtyard, I decided, should also be usable even in the long, harsh Minnesota winters. While heating it would be too expensive for the intented small budget, I decided having a retractable canvas roof on an aluminum structure would be feasible in both long periods of bad weather and through-out the long winter.
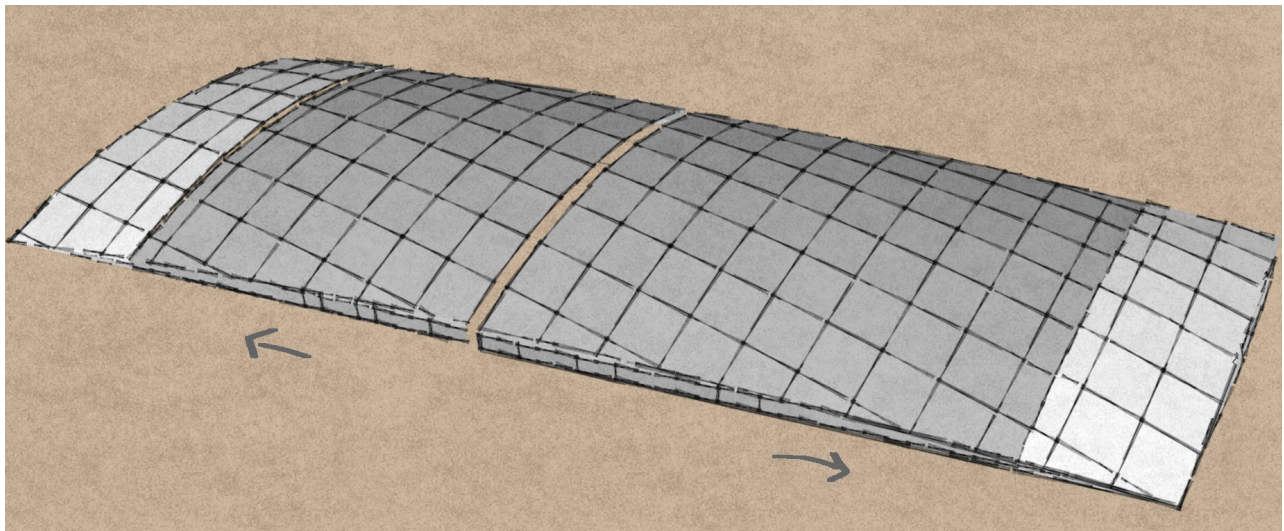
Of course, this solution would also be expensive, and I ended up settling on a simple permanent, unmoving aluminum frame that could be stretched manually with canvas when needed.
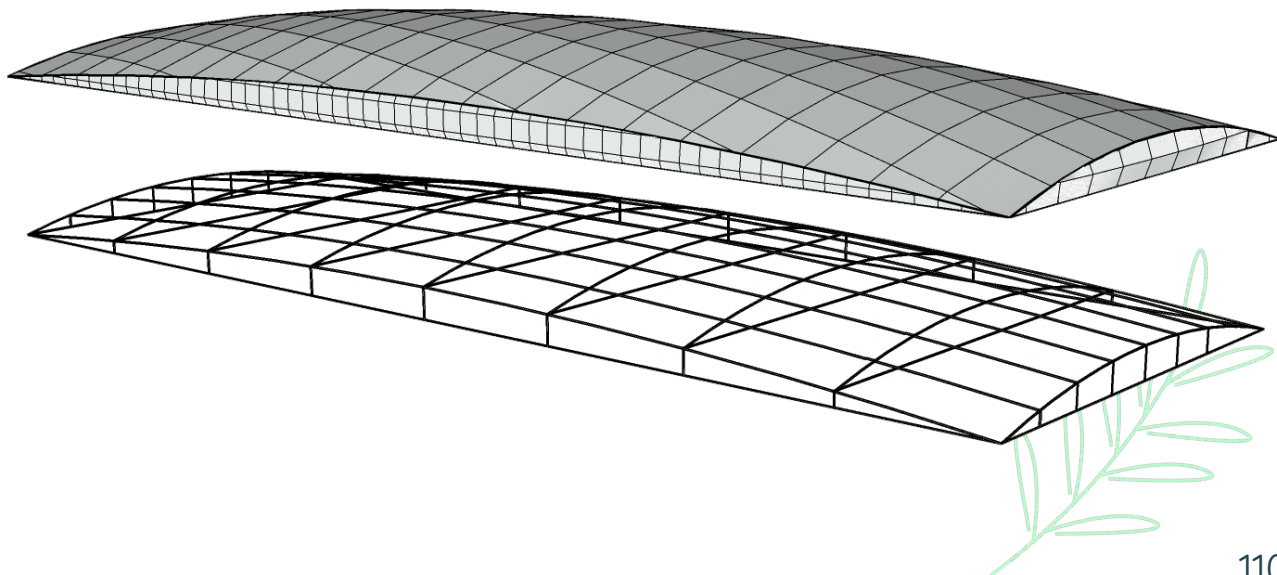
From the beginning, I knew I wanted to use pre-cast concrete panels, both because they are affordable and easy to make en masse, as well as for concrete's ability to be pigmented. I had used pigmented conrete in previous projects, and loved the way it brightened up usually-grey space.
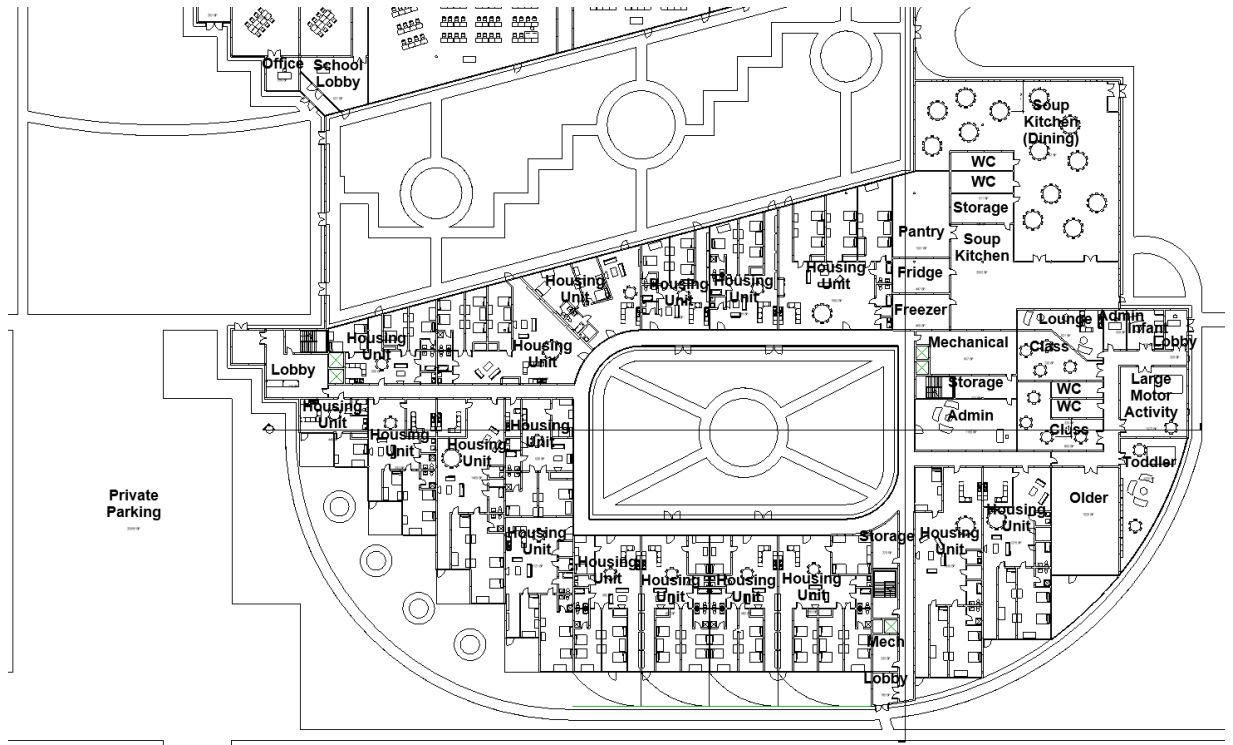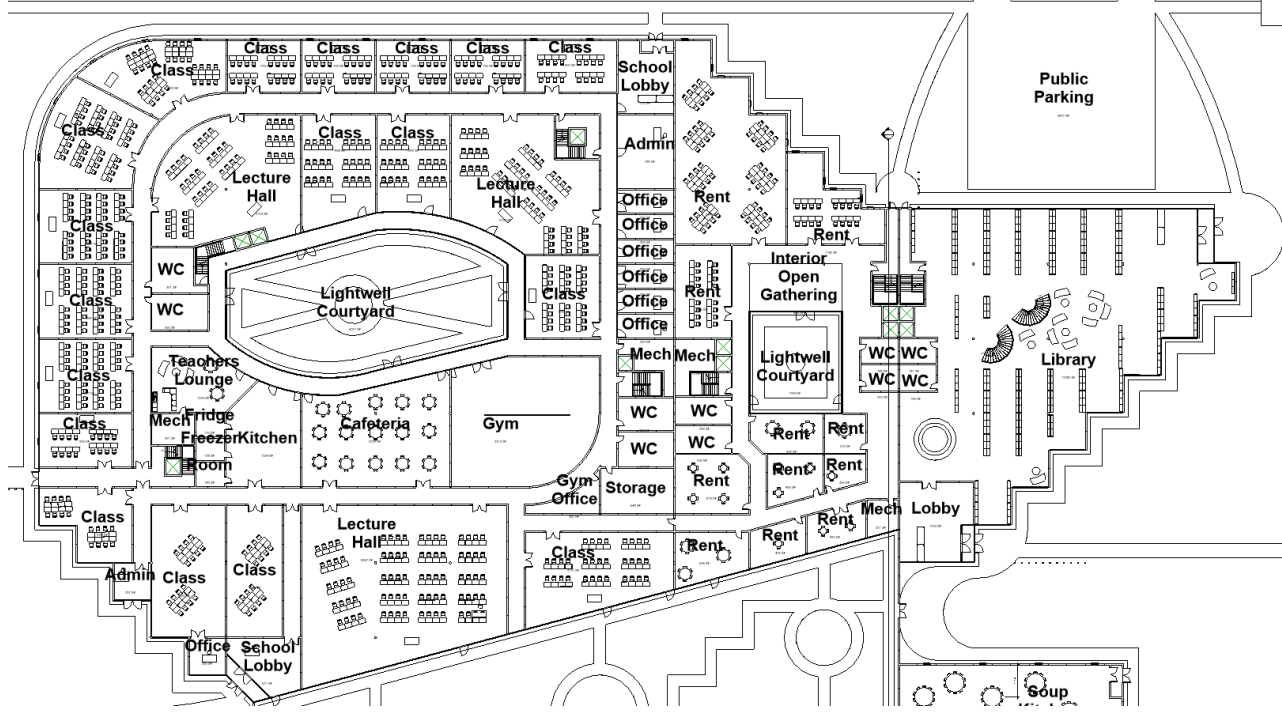

I also admit to using precast concrete a bit out of spite - the most popular miscinceptions around public housing are often associated with ugly, monolithic concrete towers, and I wanted to show that concrete could do so much more.

For my other materials, I decided to use a simple steel structural frame. I would, of course, need glass. I also decided to use accents of cork and granite. Cork, to bring a warm color to the cool blues and greens of the concrete and greenery, as well as for its affordability and sustainability. Granite, because of the nearby Minneapolis quarry that had been turned into a historic shoppng center.

Finally. I decided on floor-to-ceiling thermal curtains for any space with a curtain wall that might require privacy, to allow user-controlled privacy and/or daylighting, as well as keep heat loss to a minimum.
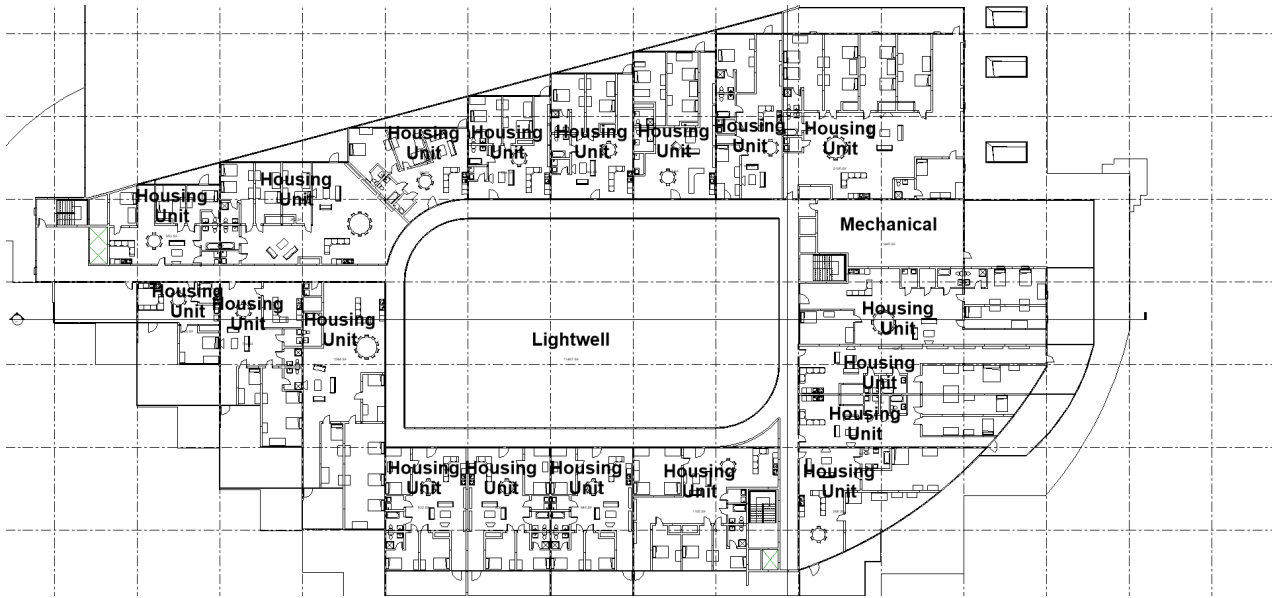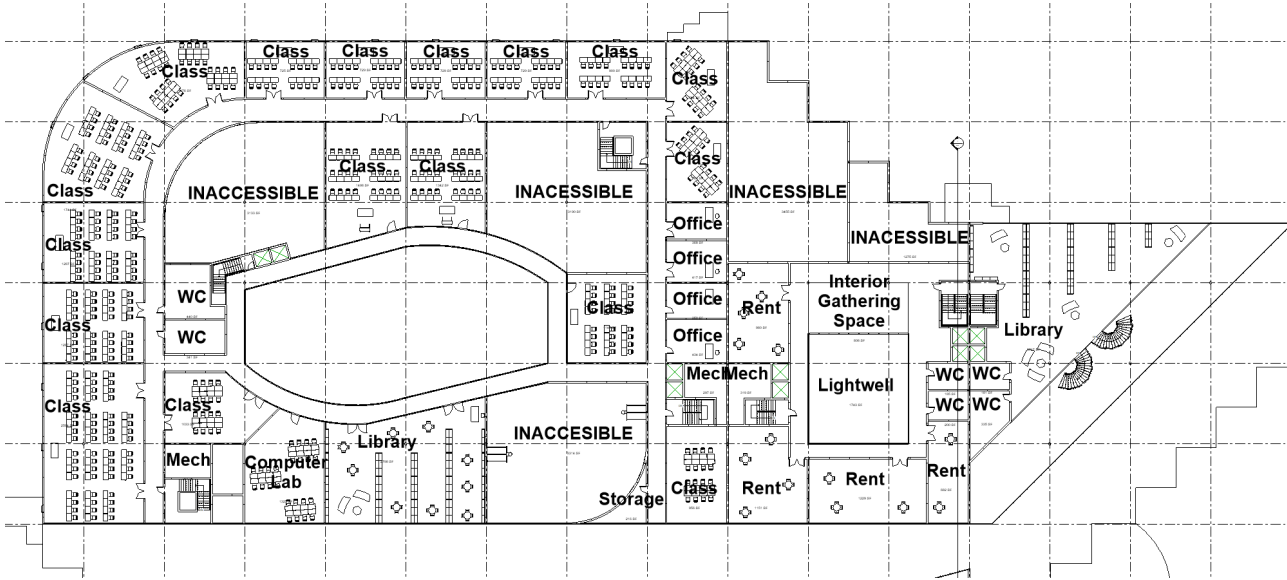
The first floor, furnished with labelled spaces.
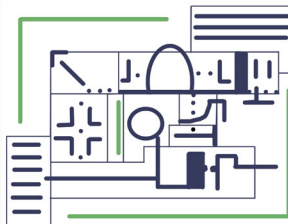

First floor plan — labelled spaces including:

Class, Class, Class, Class, Class, Class, School Lobby, Public Parking, Admin, Office, Office, Office, Office, Office, Office, Rent, Rent, Rent, Rent, Rent, Lecture Hall, Lecture Hall, Lightwell Courtyard, Interior Open Gathering, Lightwell Courtyard, Library, WC, WC, WC, WC, WC, WC, Mech, Mech, Teachers Lounge, Fridge, Freezer, Kitchen, Mech, Room, Cafeteria, Gym, Rent, Rent, Rent, Rent, Rent, Lobby, Gym Office, Storage, Rent, Rent, Rent, Mech, Admin, Class, Class, Class, Lecture Hall, Office, School Lobby, Soup

Second floor plan — labelled spaces including:

Office, School Lobby, Soup Kitchen (Dining), WC, WC, Storage, Pantry, Soup Kitchen, Fridge, Freezer, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Housing Unit, Lobby, Lobby, Private Parking, Mechanical, Lounge, Admin, Infant, Class, Lobby, Storage, Admin, WC, WC, Large Motor Activity, Class, Toddler, Older, Storage, Mech

The second floor, furnished with labelled spaces.

Class | Class | Class | Class | Class | Class
Class | Class
Class | INACCESSIBLE | Class | Class | INACCESSIBLE | INACCESSIBLE | Class
Class | Office | INACCESSIBLE
Class | Office
WC | Office | Rent | Interior Gathering Space | Library
WC | Office | Mech | Mech | Lightwell | WC | WC
Class | Class | Library | INACCESIBLE | WC | WC
Mech | Computer Lab | Class | Rent | Rent | Rent
Storage | Class | Rent

Housing Unit | Housing Unit | Housing Unit | Housing Unit | Housing Unit | Housing Unit
Housing Unit | Housing Unit
Mechanical
Housing Unit | Housing Unit | Housing Unit | Lightwell | Housing Unit
Housing Unit
Housing Unit | Housing Unit | Housing Unit | Housing Unit | Housing Unit

FOR THE NEED

Site:
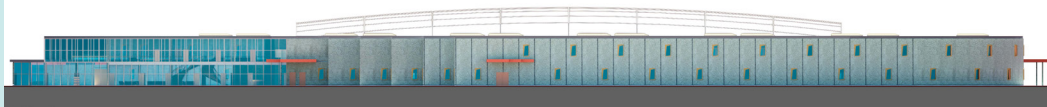Beltrami Park, Minneapolis

Spatial Ideation

Architecture for the Need is a low-income school, community, and public housing center designed to bring together and support those who can most benefit from the power of architecture. Our most at-risk and in need are usually those dealing with the struggles of living below the poverty line. Architecture can create a place for those with little else - to give them a place to not only live, but thrive. Using inspiration from Anne Lacaton and Jean Philippe Vassal regarding their ideas of reinventing public housing, this landscraper collects education, housing, childcare, a library, a soup kitchen, and four distinct courtyards to offer hope, assistance, and necessities to its residents and the surrounding neighborhood. Using affordable materials such as precast concrete panels for a clean, simple design, putting first the ideas of light and life, this thesis strives to create a place that brings people together in a community and lifts them up.

Estimated Distrubited Costs Per S.F.			
	Cost per S.F.	Floor Area	Total
Housing	$133.62	96,972 s.f.	$12,957,398
Public	$126.38	136,520 s.f.	$17,253,397
Total Cost of Build:			$30,210,795

Totals calculated using the RSMeans Data
Square Foot Estimator and Estimate Manager

Cost Estimate
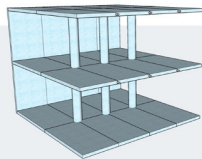
Simple 8' Precast Concrete
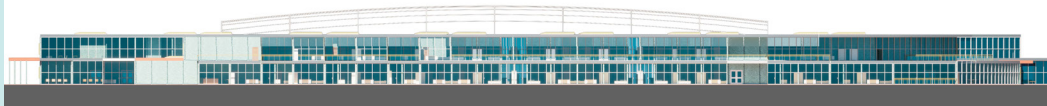Panels on a 36' x 36' Grid
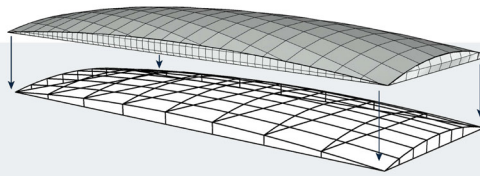
Removable Canvas Roof over
Aluminum Frame

North Elevation

East Elevation

South Elevation
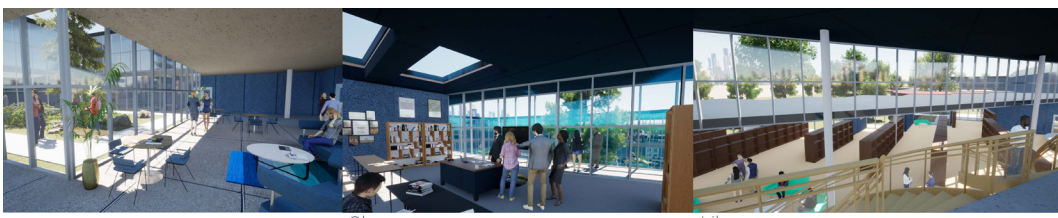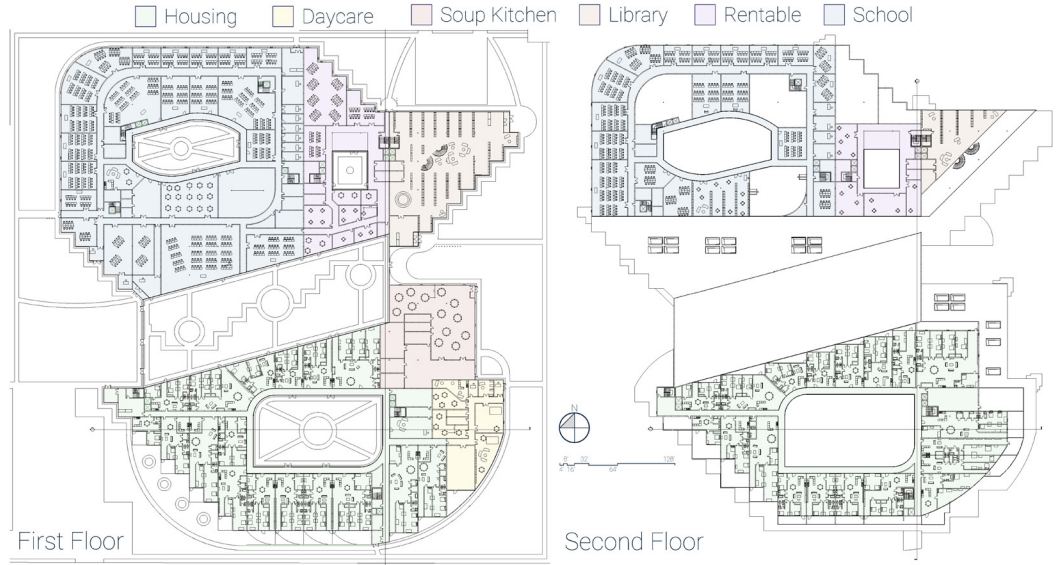
West Elevation

Rent

Class

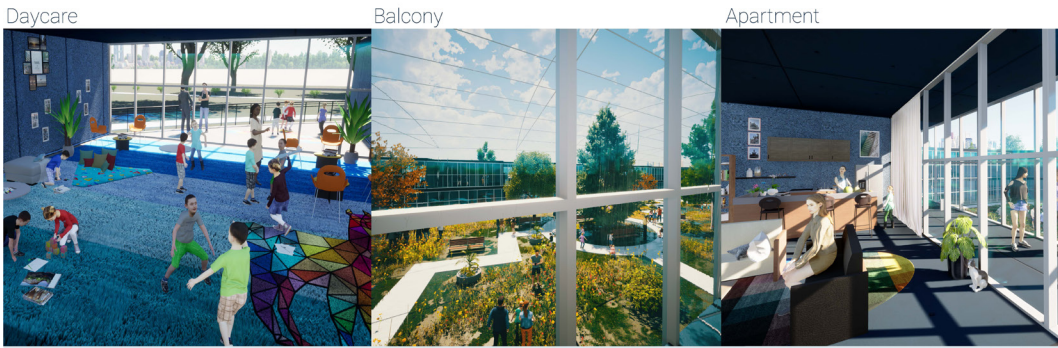Library

Housing ☐   Daycare ☐   Soup Kitchen ☐   Library ☐   Rentable ☐   School ☐

First Floor

Second Floor

Daycare

Balcony

Apartment

The site I built on, Beltrami Park, is a large, 8 acre site. It sits right at the corner of bus stops, including the 4, 10, and 32, which go throughout all the city. Since the site was flat, no modifications needed to be made. The site (blue) also sits near the University of Minnesota (red) and downtown Minneapolis (green) and can make use of their amenities, while still being close to North Minneapolis as well as a great deal of homeless encampments and others who may need the site.
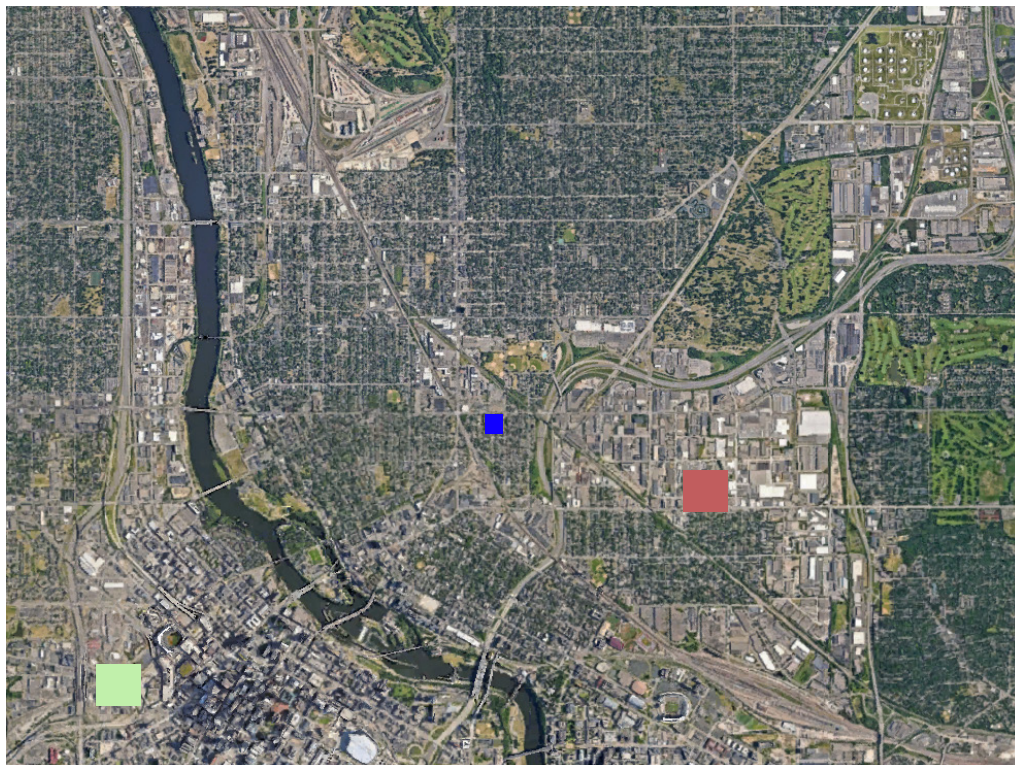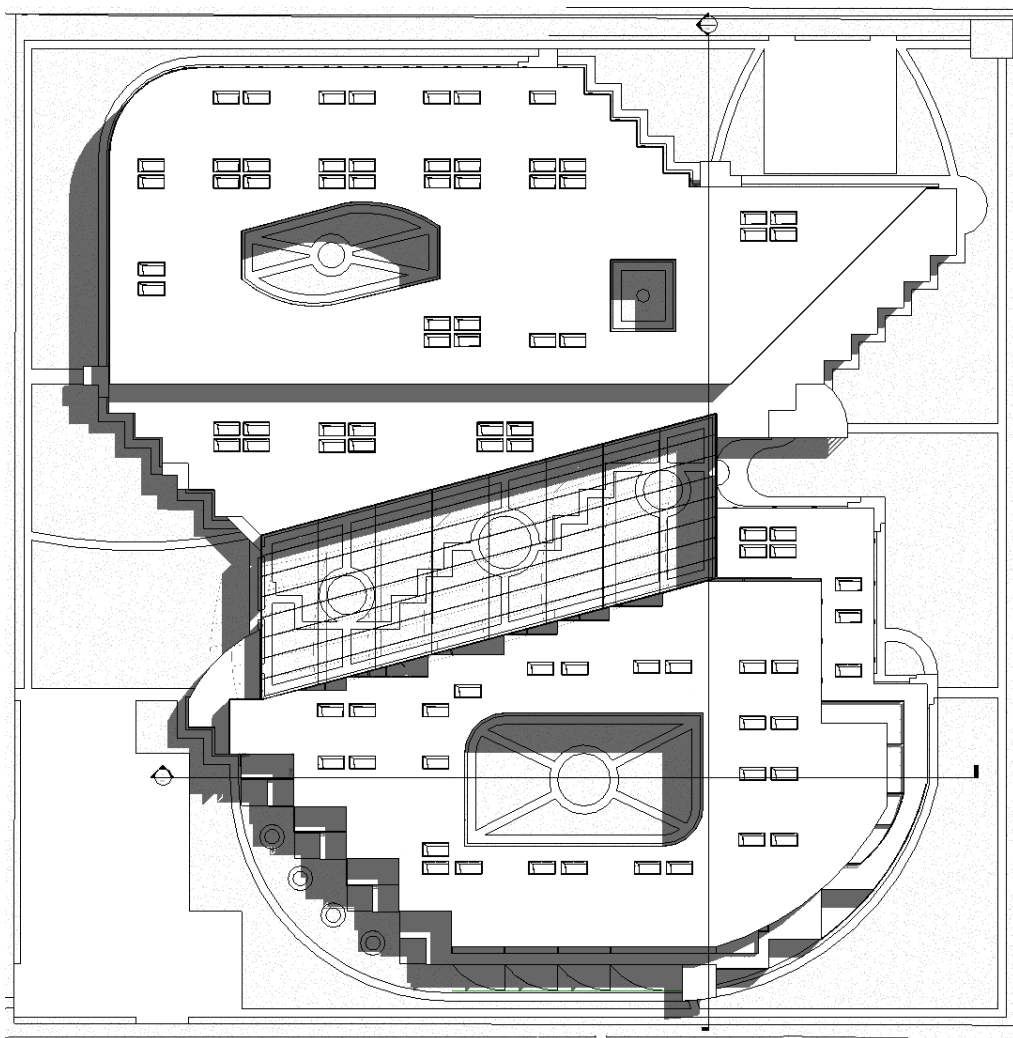
Because this is built on a park, I wanted to retain green space as well as bring in daylighting. To avoid cutting too much into greenery, many courtyards were left, and the public parking (northern) was left small. This also helps encourage visitors to use the bus, especially since a station lies on the northeast corner and more just across the street.

The building's footprint, though odd, is designed to encourage as much southern exposure as possible for a site this large. Multiple cuts down toward the center increase perimeter exposure to southern sun (though they are made stepped rather than simply angled, for visual interest) and the second floor, especially on the northern half, is stepped inwards to allow daylighting from above.

When doing research on case studies for my project, I focused on three different areas: successful public housing, unsuccessful public housing, and similar typological precedents.

Looking at unsuccessful public housing was my first step towards design. I used concrete, like many 'bad' public housing projects do, but I wanted to make sure my design would not end up like these projects. While researching, I saw that while the actual architectural design of the buildings had both pros and cons, what really failed was the approach and the methodology of the projects. These projects ended in disaster because they did not take into account the many socioeconomic factors that had failed their users. Instead, when I designed my thesis, I decided to take a more holistic approach, including building features beyond housing that would help sustain these communities.

When I looked at successful public housing projects, I saw what made them successful, and adopted those qualities. Light, airy designs, open concepts, and a focus on community. Successful projects allowed users privacy, but refused to cut off people from one another. Strength and healing are in unity, in neighborhoods, in communities. I made sure to implement these design necessities, in regards to both my excess of large, open courtyards, as well as multiple different facets of public amenities.

Finally, when looking at similar mixed-use precedents that focused on spaces like libraries and areas for social justice, I wanted to take in their ease of use and open feelings. My project used these necessary features while still feeling airy and bright.

1. TO USE ARCHITECTURE AS A TOOL FOR THOSE IN MOST NEED OF IT

Throughout the entire project, I kept in mind who the design was for - local communities and peoples who were most in need of what architecture could provide. Spaces for public housing, as well as childcare, education, food, rest, and flexibility, all centered around community, were all designed to give the neighborhood disadvantaged communities a palce to improve their lives and feel a part of something greater.

2. TO CREATE COMMUNITY AND BROTHERHOOD AMONGST THOSE WHO HAVE NONE

Something I noticed both in my research and in my own expereinces is that those who are homeless, who are cut off from their families or their community at large, feel isolated. Being homeless, being a member of a diaspora, being LGBT+, or any sort of minority divorced from the conglomerate whole, is a very scary, very alienating experience, and without a community, there is no one to help you or to rely on you. I wanted to create a design that encouraged togetherness. Using a design that created spaces centered around open green space, and designing for large gatherings and small alike, as well as public necessities, allows others to easily reach out and be heard.

3. TO HOUSE AND SUPPORT THOSE BELOW THE POVERTY LINE OR OTH-ERWISE UNABLE TO SUPPORT THEM-SELVES

As mentioned in points 1 and 2, this project creates spaces that allow everyone, especially the disadvantaged, to work and live together and make a better life.

4. TO DESIGN SOMETHING THAT IS BOTH REALISTIC AND BEAUTIFUL, AF-FORDABLE AND ATTRACTIVE

Though the materials are simple and the design itself is fairly uncomplicated, the design uses a long and low landscraper style of precast concrete to remain affordable and still have numerous beautiful vignettes of open, light, airy, green, and populated spaces.

While my research gave a me a very good history and view of precedents into public housing - what it is, how it has been done, how it is seen - I would have liked to have a more comprehensive understanding.

More than anything, though, I would really have liked to have taken a further dive into researching beyond simply case studies and definitions of my precedent. I would like to have had a better understanding of my materials, as well as structural capabilities, and I would love to have had more time and ability to work on the affordabbility aspect further.

Still, given the time allotted, my project successfully was inspired by the good public housing I had studied, was driven by the bad, and was bolstered throughout by the understanding the research had provided me. Without delving into what constituted public housing and how it was seen, as well as its history in America, I do not think my project would have been nearly as successful. It lent me a drive to do better and show the world how necessary and beautiful this type of project could be, all while avoiding previous pitfalls.

for the need

mel walker
spring 2022 thesis
advisor: ganapathy mahalingam
north dakota state university

abstract

Poverty and homelessness are at a staggering high right now in Minneapolis. While architecture is often used for grand, beautiful works, it can not only help those truly in need, but it should.

Solutions like low-income and public housing often have a negative connotation, mostly due to infamous failures of large, bare, and underfunded concrete monoliths. However, another common failing of public housing is that it simply is only one part of a solution to a larger problem, and cannot take on every aspect of the issue.

Giving our most at-risk and in need populations solely a roof to live under is not enough. Architecture can do more than that - to not only give them a place to live, but also thrive.

Architecture for the Need joins public housing along with other essentials such as a library, a school, a soup kitchen, childcare, open rooms for renting, and four distinct courtyards. Using affordable materials such as precast concrete panels for a clean, simple design, putting first the ideas of light and life, this thesis strives to create a place that brings people together in a community and lifts them up.

background

public housing

Public housing is a government assisted program run by a housing agency that provides rental housing to low-income households, or households that are below 80% of the median income. Tenants in public housing, as a general rule, pay about 30% of their income for rent including utilities.

area statistics

Persons in poverty: 19.1%
Adults without homes: 12,895
Youth (18-24) without homes: 2,429
Children without homes: 5,913
Waiting household placements: 8,237

community cohesion

A cohesive community is just that; cohesive. It binds together with similar goals. The community must have a similar belonging, there must be respect and communication with its diverse and disparate parts, and there must be relationships that are both strong and positive.

BRILL AND ASSOCIATES, litigation

"The vulnerability to crime of many public housing projects, particularly large projects, does not stem just from design and equipment deficiencies . . . The problem of security in public housing also stems from the weak social structure of the residents, the absence of supporting groups, and a lack of interpersonal trust – all factors that inhibit people from protecting and helping each other (1975:47)."

DIGITAL PRESENTATION

Images of Cabrini-Green in Chicago and Pruitt Igoe in St. Louis, showing how many people view public housing.


Top left: Community Canvas School by pk_INCEPTION in Sawarpada. Top right/botttom right: Savonerrie Heymans by MDW Architetcure in Brussels. Bottom: Jean Philipe Vassal and Anne Lacaton's Pritzker winners. Middle: Qixian Xiafangqiao City Library by Leeko Studio in Shaoxing.

program

The program was developed at the very start of the design process, containing spaces that would work together to lift up the community and help with every aspect of their lives.
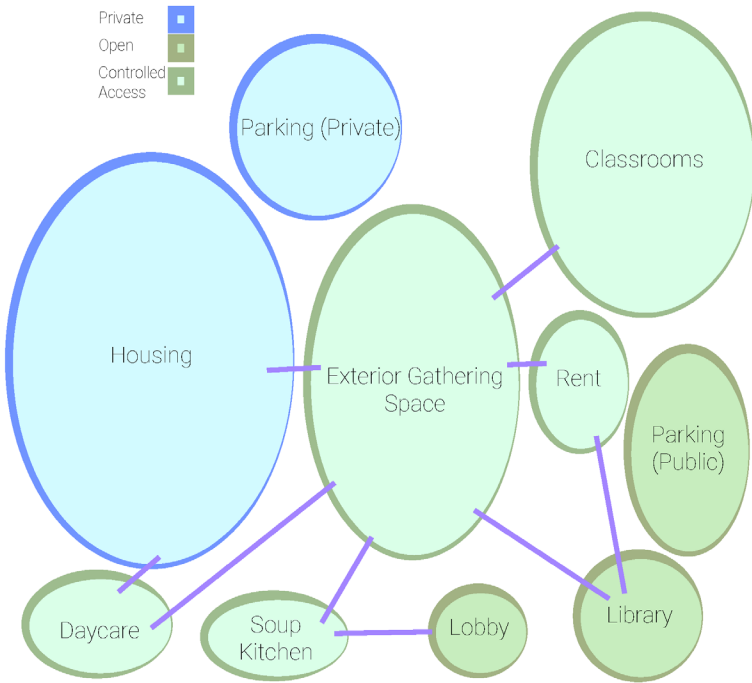
light and life

Despite the fact that the building is a landscraper, numerous courtyards allow daylight to be brought in to every corner, and everything is centered around lively public spaces.

Here are a selection of quick sketches, out of over 40 total, where I played with design, interaction, and traffic.

spatial ideation
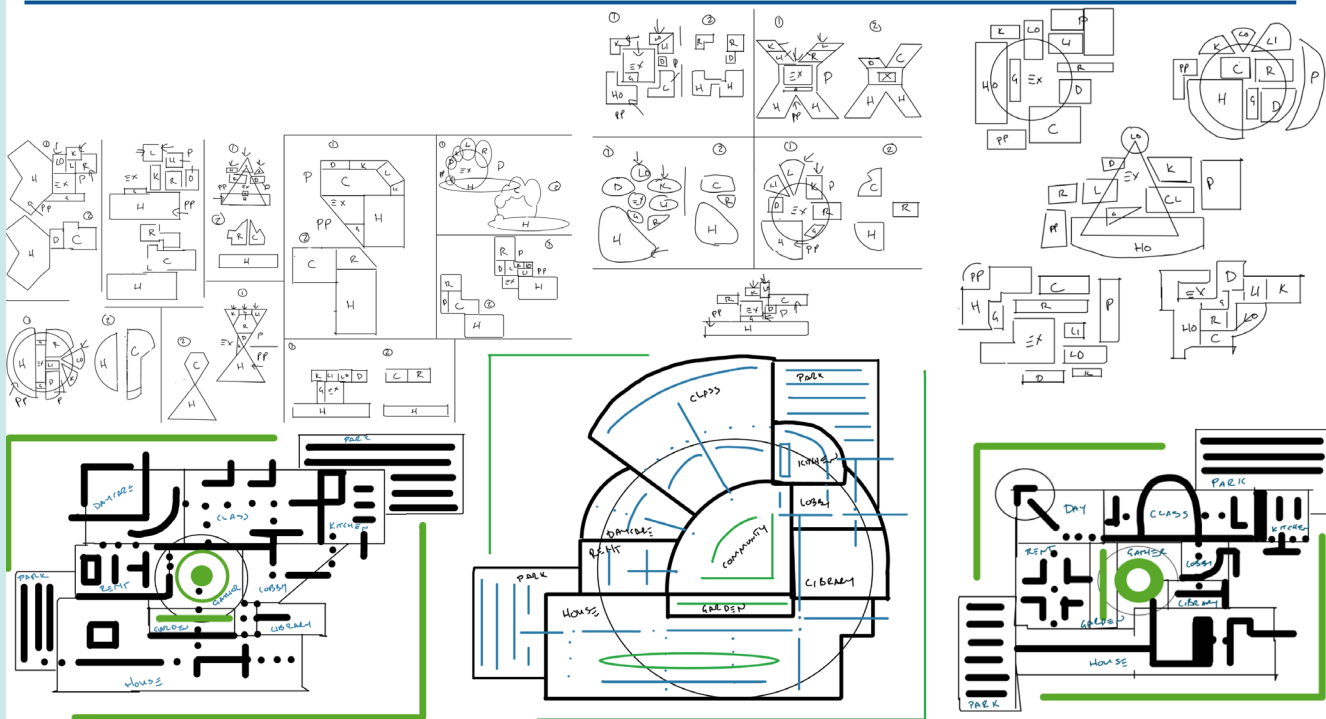
material palette

A material palette of precast pigmented concrete, steel structure, and glass, with accents of thermal curtains, cork, and Minnesota granite.

The site is Beltrami Park in Minneapolis, right near downtown as well as the University of Minnesota. Site conditions like southern sun and traffic, as well as preserving green space, were considered.
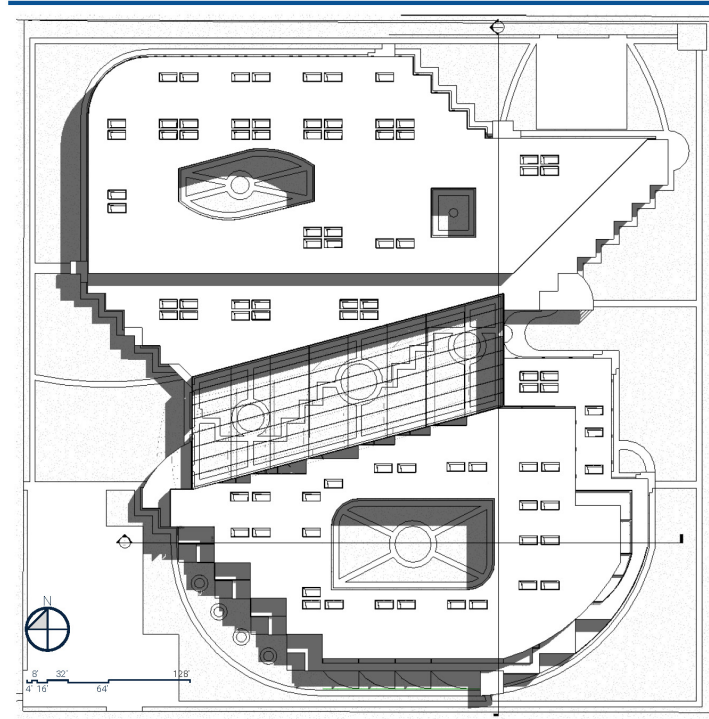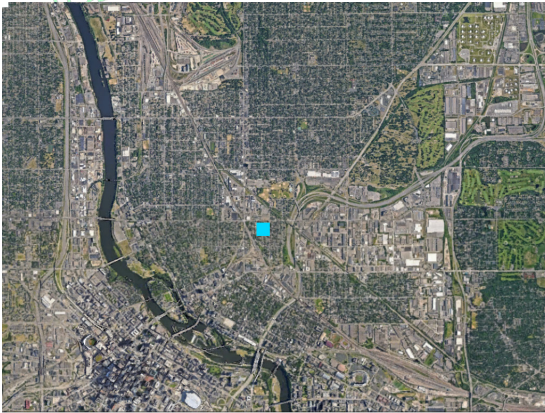
site

A collage of views from the sight, including the trains - picturesque and quieted by greenery - and local historic buildings, all fairly short.

The southwestern housing units transfer into the greater park, making the building seem more welcoming to the world at large and avoiding the restriction of a gated neighborhood.

southwestern housing units

main courtyard

The main courtyard here is shown with the canvas roof off, open to the sky, slightly wild in order to preserve the feeling of the original park.

The first floor is divided mainly into more public and more private areas by the largest courtyard, but the soup kitchen lies next to the housing units because it may need to share similar mechanical spaces. These spaces, as well as the pantry and fridge, serve as barriers between housing and the open kitchen.

first floor

Housing
Daycare
Soup Kitchen
Library
Rentable
School
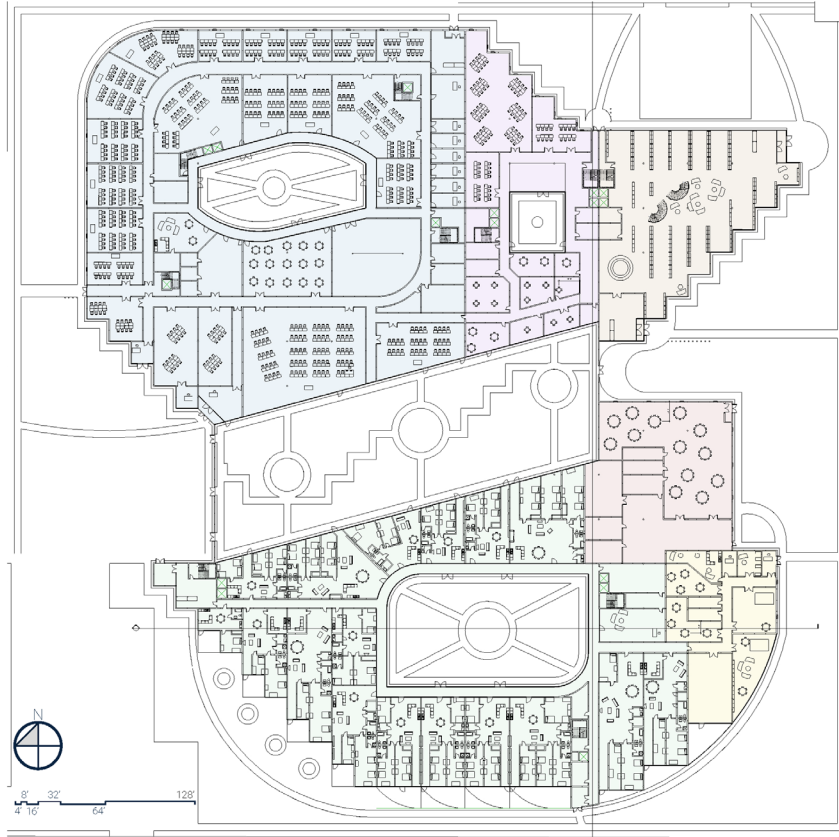
second floor

Housing
Library
Rentable
School
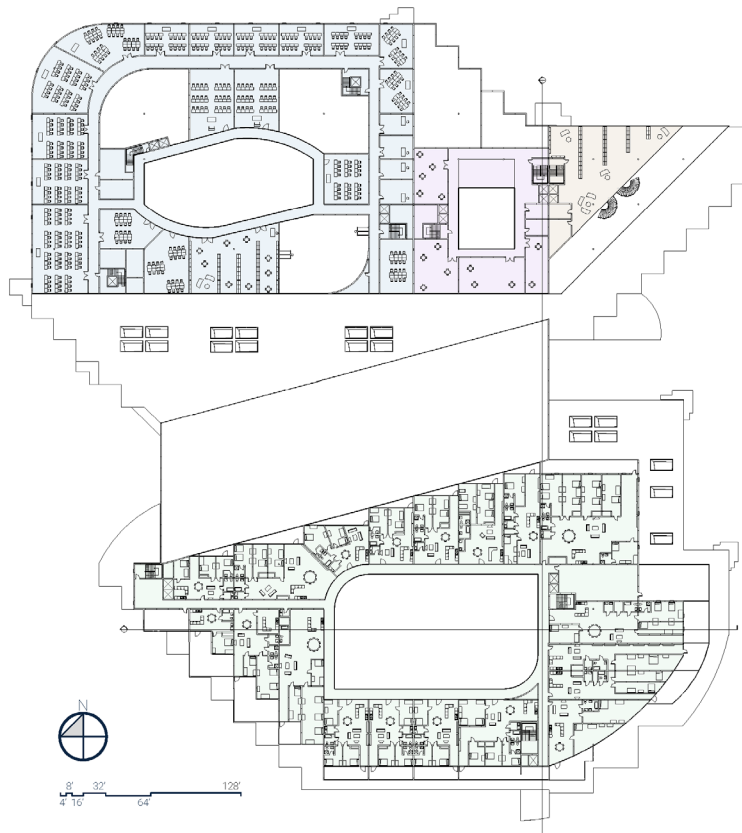
The second floor is set back towards the north in order to maximize southern sun, and several spaces are omitted because the first floor is two-storied.

Though the building is large, circulation is interesting and easy to follow. A user is only ever a few steps away from glass and light. The soup kitchen is the only un-connected space, because it is a more public area bordering the private spaces.

circulation
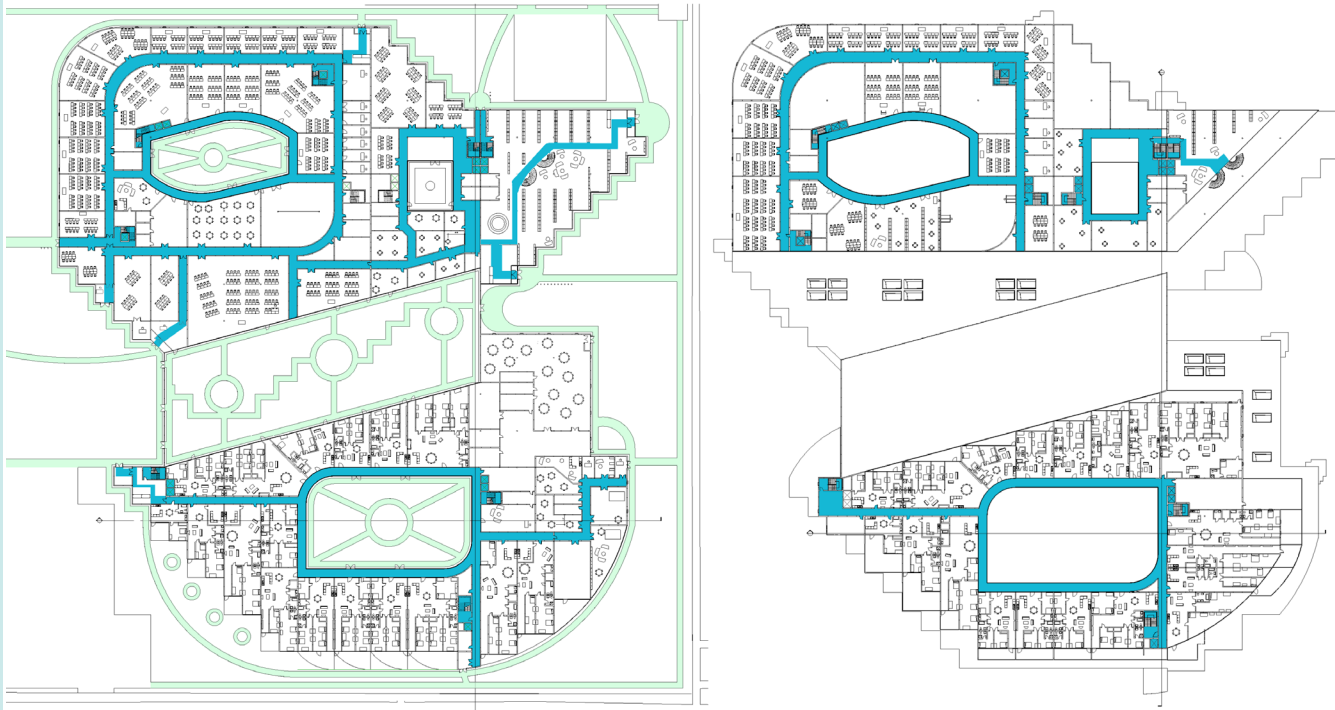
elevations
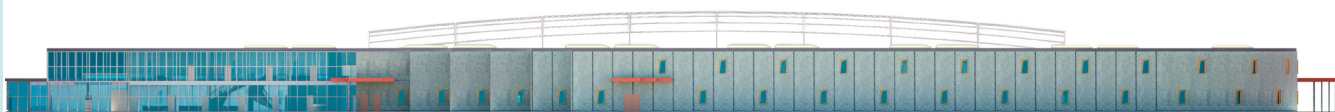
north

east

south

west

Elevations here are broken up by ochre haptic windows as well as red balconies indicating exits.

This section cuts through the housing courtyard and units, as well as a section of the daycare in the lower right hand corner.

east-west section

north-south section

This section cuts through the school courtyard and classrooms on the left, and housing units and balconies on the right, with the main courtyard in the middle.

These financials were obtained by doing simple math calculations using RS Means estimating software. The software did not have my exact structure necessary with their square foot estimator, so I calculated using similar ones, and then figured out some slight differences. The total cost is probably a little high here.

rough financials

Model: Apartment, 1-3 Story with Stucco on Concrete Block / Steel Joists

Small edits had to be made regarding the material prices, as well as doubling the square footage, but the estimate is close.

$5,548,557.23	NATIONAL AVERAGE	2
Building Cost	Location	Stories (Ea.)
$134.02	41,400	12.00
Cost per S.F.	Floor Area	Story Height

Model: School, High, 2-3 Story with Decorative Concrete Block / Steel Frame

The material prices were closer to accuracy here, if perhaps a little high.

$17,391,313.88	NATIONAL AVERAGE	2
Building Cost	Location	Stories (Ea.)
$127.39	136,520	12.00
Cost per S.F.	Floor Area	Story Height

All data calculated using RS Means Square Footage Estimator, bolstered by their cost data. All labor is union.

	Cost per S.F.	Floor Area	Total
Housing	$134.02	96,972	$12,996,187
Public	$127.39	136,520	$17,391,313

Total Cost of Build: $30,387,500
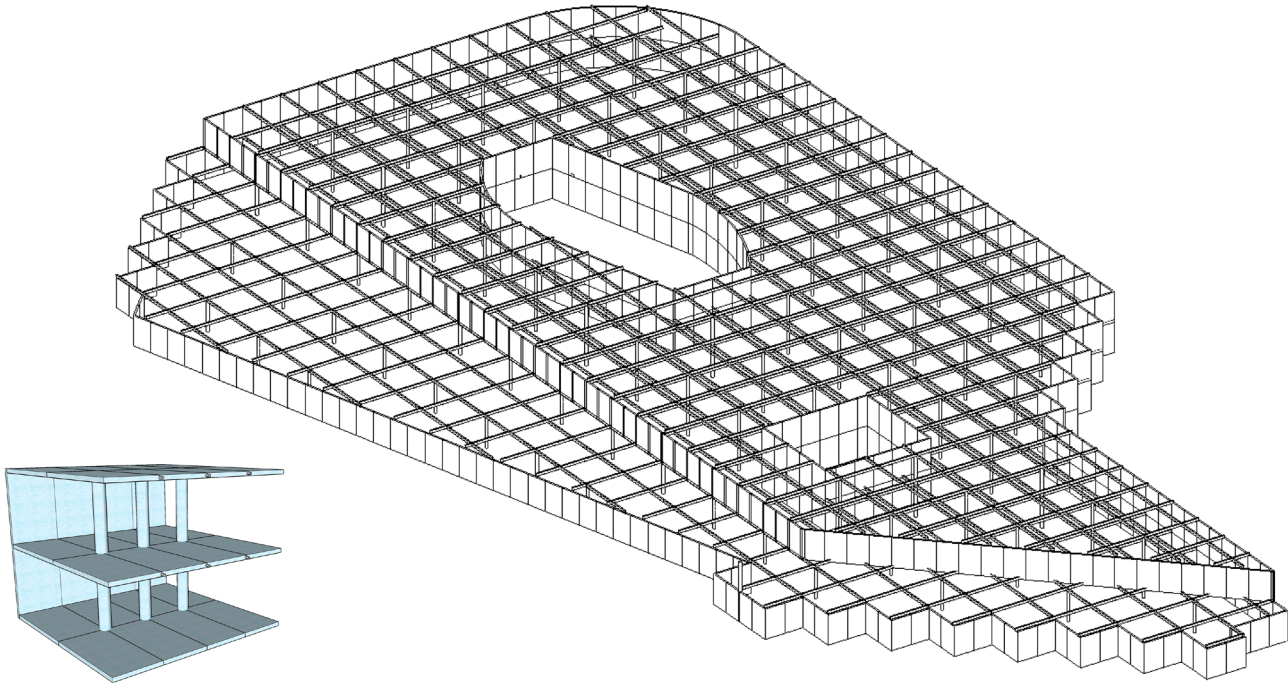
mechanical and plumbing
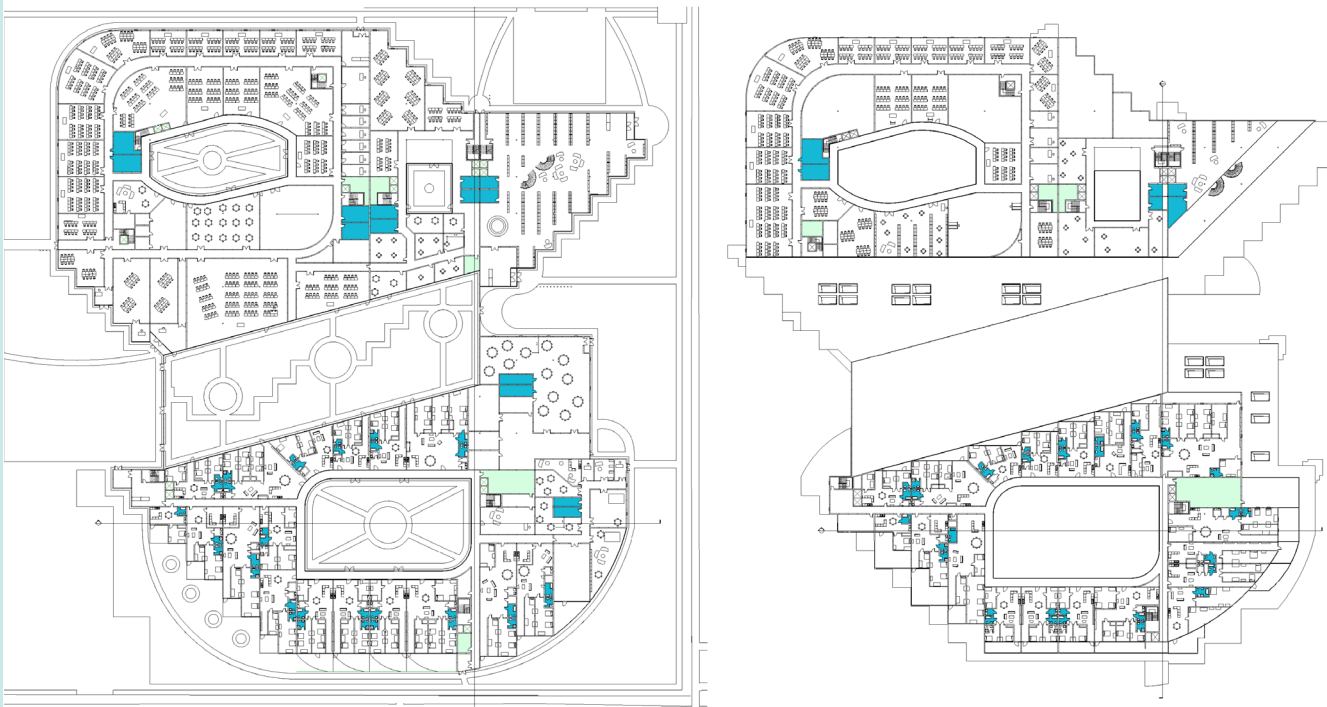
The plumbing spaces are in blue, and where possible they share walls. I tried to make plenty of large mechanical spaces - the ones in green - to account for the large building and heavy mech needs.
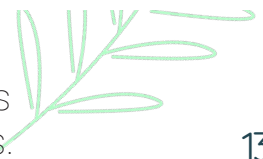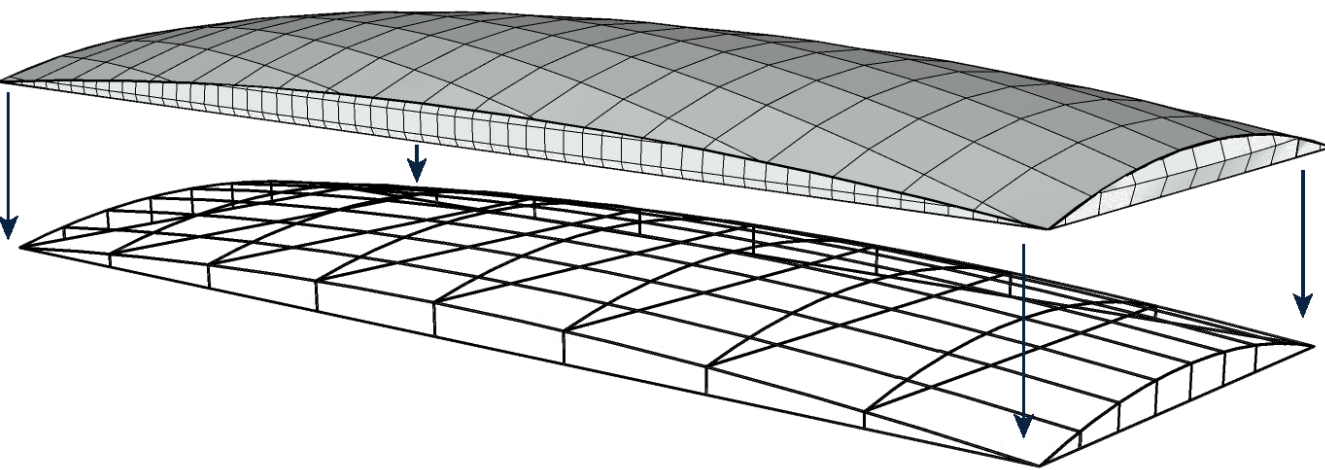
structure

The structure is very simple, being only two stories. A steel joist/concrete coulumn system on a 32' x 32' grid was utilized.
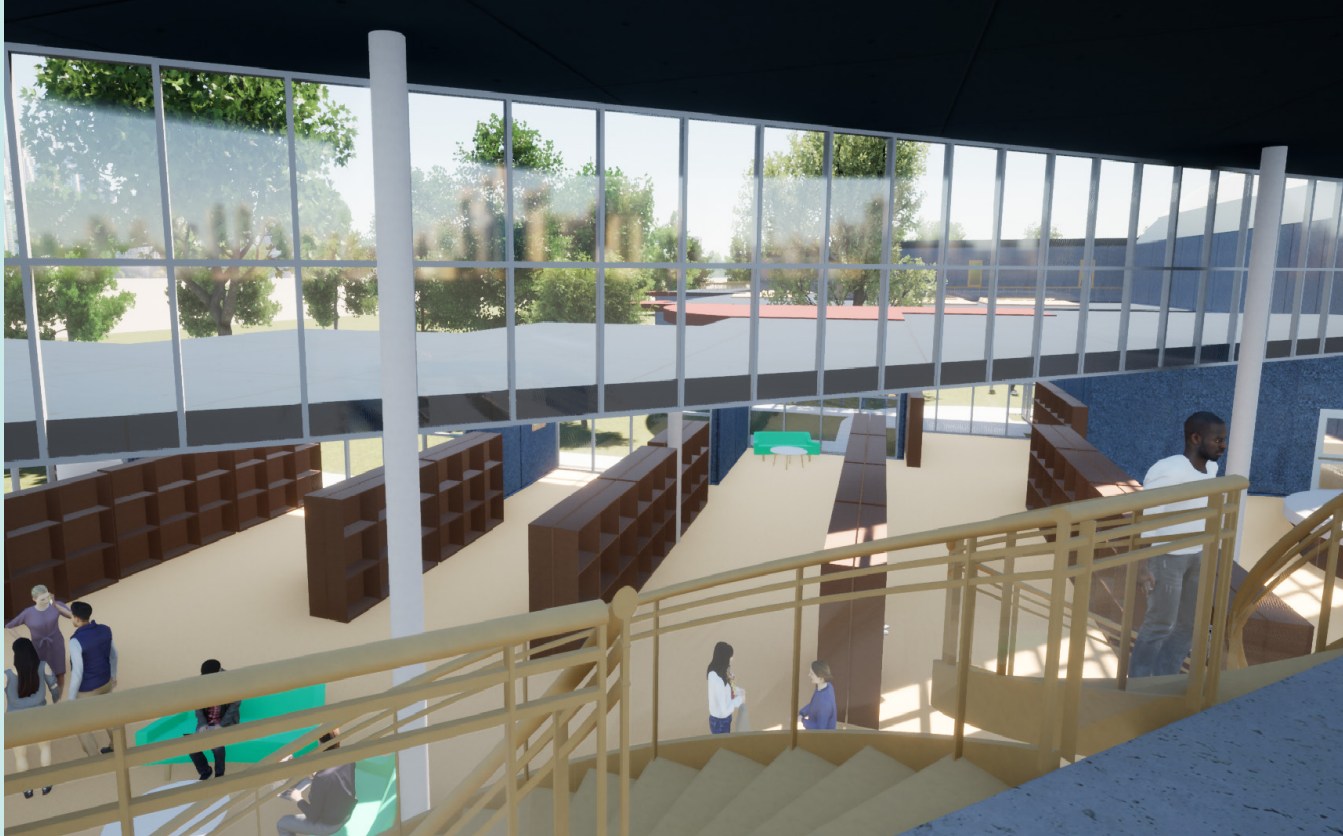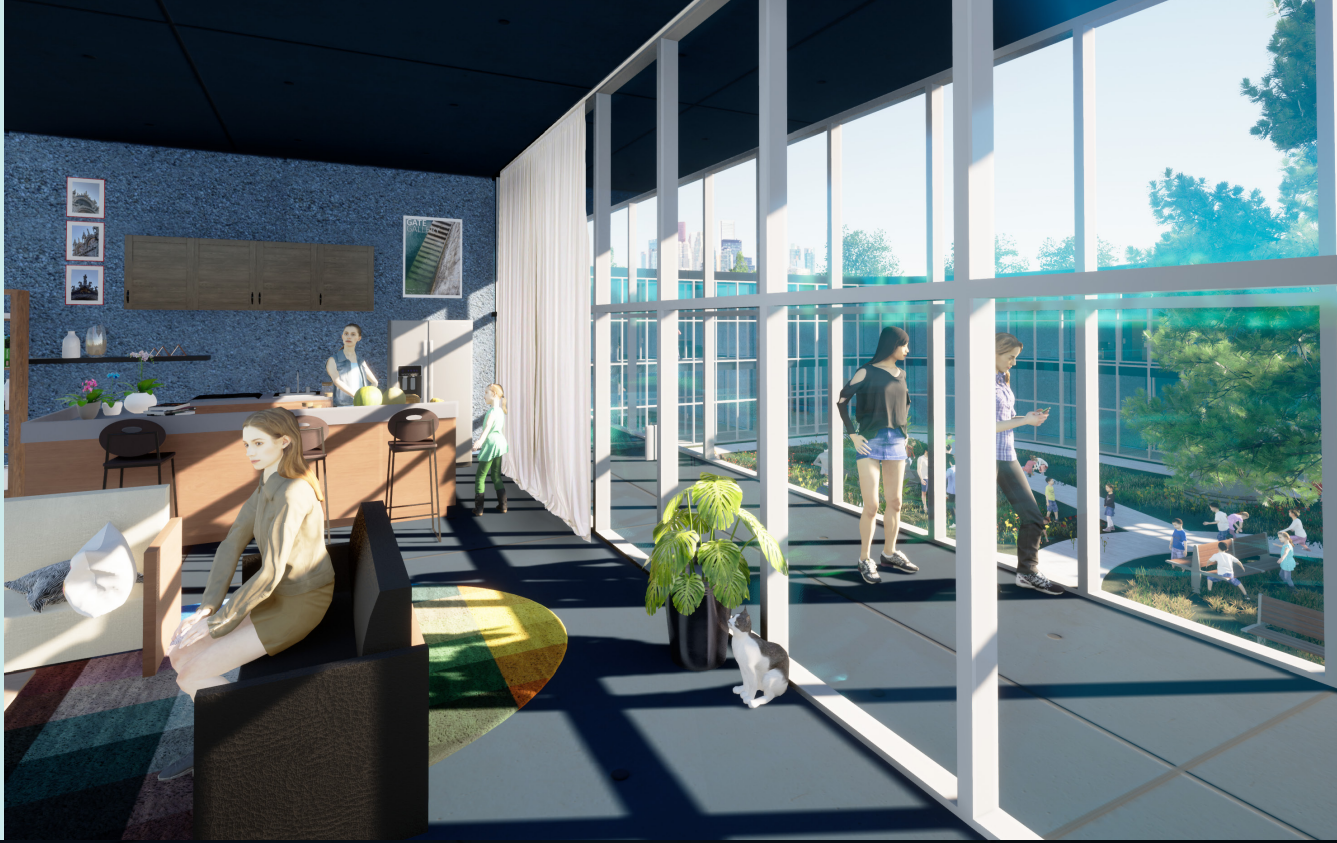

canvas roof and aluminum frame

The canvas roof can be manually stretched over a permanent aluminum in-place frame during stretches of inclement weather or during the winter.

A view of a two-bedroom second story apartment, looking out the double-paned hallway to the housing courtyard.

A view from the library mezzanine, looking out the clerestory windows to the park and the University of Minnesota.
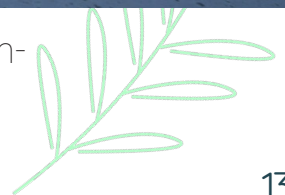
The main activity room from the daycare, featuring open indoor space to play, along with a private patio.

The indoor gathering area in the rentable spaces, where people can sit and relax and mingle while waiting for a room to open, or just for the sake of community.

A view from a second story classroom, looking out past the double paned hallway into the school courtyard.

A view from a second story apartment balcony into the main courtyard.

thank you

THE AUTHOR

MEL ROSE WALKER

A graduate architecture student at North Dakota State, with a passion for art and humanities, I excel at both creative design and staying grounded. I believe architecture is an art with which to uplift and celebrate people, as well as a tool to better the lives of everyone it impacts. I am dedicated to improving the world around me and am excited to find any opporunity with which to do so.

2ND YEAR

    Fall 2018: Darryl Booker

        Meditation Garden | Fargo, ND

        Boat House | Minneapolis, MN

    Spring 2019: Charlott Greub

        Dwelling Place | Cripple Creek, CO

        Tadao Ando Bird House

        Multi-Use Apartments | Fargo, ND

3RD YEAR

    Fall 2019: Niloufar Alenjery

        A Design For The Blind | Chicago, IL

        Labyrinth | Chicago, IL

    Spring 2020: Regin Schwaen

        House for the 21st Century | Fargo, ND

        Landscraper | Fargo, ND

4TH YEAR

    Fall 2020: Cindy Urness

        Miami High Rise | Miami, FL

    Spring 2021 | Mark Barnhouse

        Marvin Windows Competition | Fargo, ND

        Water Filtration Plant | Miami, FL

5TH YEAR

    Fall 2021 | Ganapathy Mahalingam

        Performing Arts Center, Moorhead MN

PREVIOUS EXPERIENCE

FIN