



VOIDS

transforming

Transforming Voids

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

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Degree of Master of Architecture.



Primary Thesis Advisor



Thesis Committee Chair

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This thesis will begin to explain the benefits of building new residential architecture in harmony with our social communities to provide a redevelopment of housing in downtown Fargo. By studying how developments in the downtown area has created voids through time we can begin to rebuild our communities and relationships through architecture.

thesis abstract

problem statement

How can voids in our urban landscape become design opportunities that incubate a new residential design model that reconnects our cities, communities and environment?

typology

Co-housing community

claim

The continuous urban sprawl of Fargo has created voids and separation within the city's infrastructure and pushed residential housing out of the heart of the city.

actor

Fargo citizens

actions

residential housing

the object

a sustainable residential community

statement of intent

statement of intent

premise

The urban sprawl of today divides cities and the opportunities within them, turning once pedestrians to vehicle operators and once neighbors to strangers.

By realizing the negative effects of urban sprawl we can begin to see the opportunities left in the wake of rapid growth and city separation; opportunities for new, living, thriving communities.

The life of the city is the community that inhabits it.

unifying idea

As architects, we have the ability to design social environments that can directly affect the well being of people through human connection and interaction.

project justification

Developments in modern society have driven mass infrastructure and misuse of material into sprawling cities and suburbs while we have overlooked potential in the voids we have created along the way. By utilizing the spaces in between our urban infrastructure we can begin to reconnect our cities physically and socially.

statement of intent



the proposal

narrative

What makes a home? Our culture, specifically that of the Midwest, tells us that true achievement and success come from owning a piece of property one can call a house. This goal of ownership and personal gain gives a person a sense of security and pride in knowing they have accomplished something for themselves. It provides a safe environment to start a family, to provide a safe and sheltering space to teach and to help children grow. In reality it is a space that no one no matter how old will ever forget. This personal, emotional attachment to such a place has a lifelong impact on a person and it can affect a life forever.

Through the past 100 years there has been significant increase in population and technology, but how has this affected our lives at home? It has created a need for new housing on a rapid scale and given the apartment complex a new life. Although we are creating homes and successfully sheltering our population the true question is what is going on inside our homes. Have our home lives become better or worse in the past 100 years? I personally believe it is impossible to get an accurate account of personal well being however I would rather look at the activities taking place inside our homes and how that has changed in just the past 20 years.

Technology has boomed in the past 20 years and more specifically it has changed how we connect with others unlike anything ever before. The Internet has created a worldwide connection at the touch of a mouse and has the ability to bring two people face to face (digitally) at any point in time on any place on earth. Although this is one incredible piece of technology it simply scratches the surface of what the Internet truly is. It is a place of endless information, entertainment and opportunity. It provides a completely digital environment that can do almost anything anyone could imagine. While the Internet has become something I could not imagine ever living without I have to ask myself, is it bringing me true happiness?

The time we all spend sitting in our homes staring at a screen, whether it be for work, entertainment or connection purposes has it begun to take over our lives? I feel that with the creation of Facebook specifically we have resorted to lives of digital connections as opposed to those of real life connections. We have become so disconnected in our homes that we long for some type of human interaction and because our built environment has begun to drastically separate us from each other we are resorting to a digital world. One that cannot provide a connection that real life interaction can create, one that is no comparison to the emotional connection provided with the simple touch of a hand or a hug. By resorting to this digital life I feel that we are losing the most vital piece of life and human happiness, which is that of our connections to one another.

Society is changing just as fast as updates are notifying us to get the newest version of an Internet feature and we have become lost in this cyber world. There is no denying that technology is here to stay and is going to continue evolving but is it possible that this connection that has been pushed so far digitally is in turn disconnecting us in reality and to each other? I feel that there are endless reasons for the voids society has created due to the technological boom but it is possible for our surroundings and environment to bring us back together. I believe that a sustainable housing complex that provides endless opportunities for friends and family to grow and share together is just the solution.

A cohousing community will provide homes for all types of people interested in creating a life or family surrounded with fulfilling human interactions turning once neighbors to family.

The residents living in the community will own or have the ability to rent a living space. While the ownership or lease of the living space is private all citizens living in the community will have the opportunity to utilize all aspects of the common spaces, provided and shared. Dues will be shared in conjunction with a rent or mortgage and will create a sustained upkeep as well as a reserve for the community to be used as needed for communal, shared spaces. These spaces include a large shared kitchen, living and dining area, a garden and an outdoor space. The community as a whole is fully responsible for decisions made within and for the community. As an active member of the community it is upon the individual to share and voice opinion for the well being of all. In this development there is no one leader or member more valuable than another. By creating an open environment for all to speak and be heard the community can sustain a free setting for ideas and actions, creating teamwork and care in all aspects of the community. A home for everyone to share.

individual residences

The privately owned residences are provided for a variety of individuals as well as families, including different layouts as well as bedrooms. Spaces within the residences include a kitchen/dining area, living room, laundry, and bathroom(s).

communal kitchen/dining/living

All members will have access to an industrial kitchen with adequate appliances and space to prepare a meal for all residents at the same time. The dining space will be an extension of the kitchen and provide an indoor/outdoor space for all to eat and share together. A living space large enough for the community to gather and share ideas and conversation, host meetings and events, as well as relax

community garden

The garden is an indoor/outdoor garden tended by the residents to provide food for all members year round. Due to the climate most produce will be tended during the summer months but providing a green house will allow for growth of some produce year round.

outdoor space

Provided green space for the community will allow all members to get out and enjoy the outdoors in the comfort and security of the facility. A playground will be especially helpful for families and young children and facilitate interactions with members of all ages.

region

The site is located in North Dakota's Cass County and sits just one mile from Minnesota, separated by the Red River. The site is located in a 500-year flood plain and experiences 4 seasons with a temperature variance of 150 degrees plus.

city

The site sits on the eastern edge of Fargo, North Dakota and is only a mile from Moorhead, Minnesota to the East, and three miles from West Fargo, North Dakota to the West. In 2009 it was estimated Fargo had a population of over 95,000 residents and it is currently the largest city in North Dakota. Fargo is the county seat of Cass County and had an estimated 200,102 metropolitan population in 2009. (Fargo, North Dakota, 2010)



site

The site is located North of Interstate I-29 and East of Interstate I-94. It is located in the downtown district of Fargo and is at the corner of 10th St. N. and NP Ave. The site is a partially open lot and shares land with what is currently a dilapidated brick building that once was a cold storage facility.

The site is ideal for a redevelopment and revitalization because it is a large void in the downtown infrastructure and would bring life to what is now an empty piece of the city. Voids in the downtown landscape are an opportunity for a sustained connection between individuals and the urban environment.

emphasis

This thesis will examine how architecture can create opportunities where human interaction comes naturally on a level that will result in life long connections and true happiness. Filling the voids that technology and the urban landscape have created relies solely on the user however the architecture will become the connection that unites friends and family, turning houses into homes.

research direction

Research for this thesis will be a collaborative compilation of multiple resources including but not limited to, case studies of current co-housing communities, interviews from Fargo residents, statistics and history of Fargo as well as the psychological impacts of human interaction. By primarily focusing on the Theoretical/Unifying idea and programmatic requirements this thesis will take shape to be a combined effort of past and present knowledge to better suit the needs of the future.

design methodology

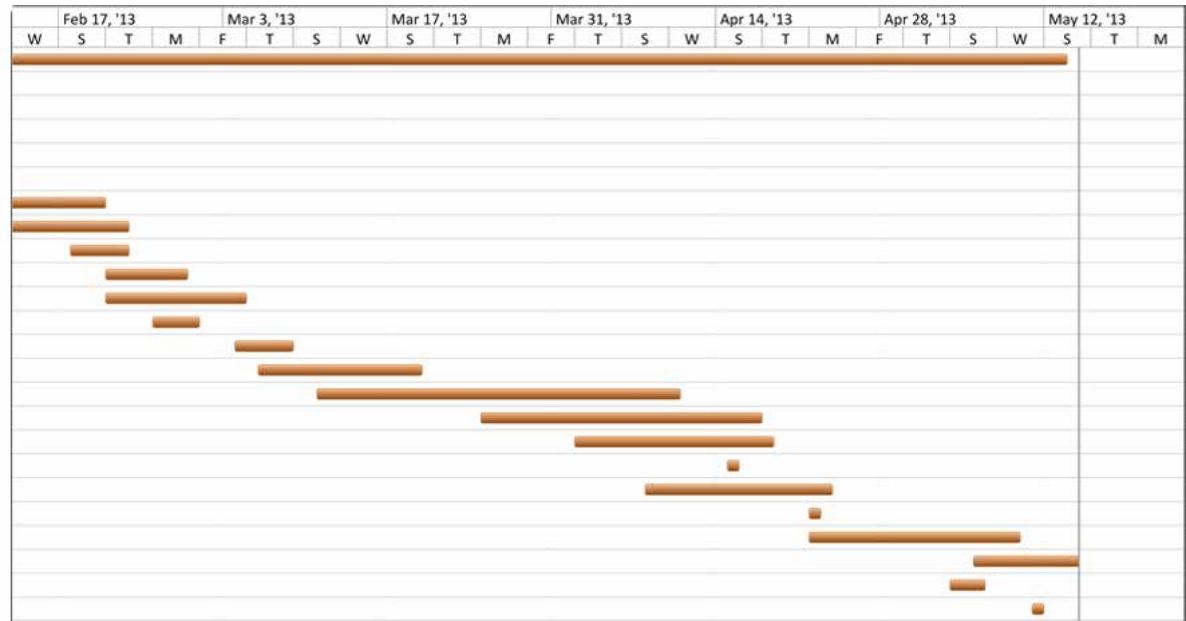
The design methodology will be a varying method of quantitative/qualitative analysis in conjunction with both graphic and digital analysis. Interviews and psychological human analysis and statistics will also be combined through charts and or graphs to best illustrate the reasons for design choices.

documenting design process

This thesis will be documented on a weekly schedule through photographs, research and analysis, interviews, statistics and historical findings. By putting a strong emphasis on documenting the process of work and reasons for design choices this thesis will show a concise meaning and understanding.

the proposal

ID	Task Name	Duration	Start	Finish
1	Project Documentation	91 days	Mon 1/7/13	Mon 5/13/13
2	Context Analysis	5 days	Mon 1/7/13	Fri 1/11/13
3	Conceptual Analysis	8 days	Mon 1/7/13	Wed 1/16/13
4	Structural Development	12 days	Thu 1/17/13	Fri 2/1/13
5	Floor Plan Development	10 days	Thu 1/17/13	Wed 1/30/13
6	Context Redevelopment	4 days	Wed 1/30/13	Mon 2/4/13
7	Envelope Development	12 days	Tue 2/5/13	Wed 2/20/13
8	Materials Development	14 days	Tue 2/5/13	Fri 2/22/13
9	ECS Passive Analysis	5 days	Mon 2/18/13	Fri 2/22/13
10	ECS Active Analysis	5 days	Thu 2/21/13	Wed 2/27/13
11	Section Development	8 days	Thu 2/21/13	Mon 3/4/13
12	Structural Redevelopment	4 days	Mon 2/25/13	Thu 2/28/13
13	Midterm Reviews	5 days	Mon 3/4/13	Fri 3/8/13
14	Project Revisions	10 days	Wed 3/6/13	Tue 3/19/13
15	Artistic Development	23 days	Mon 3/11/13	Wed 4/10/13
16	Preparation for Presentations	18 days	Mon 3/25/13	Wed 4/17/13
17	Presentation Layout	13 days	Tue 4/2/13	Thu 4/18/13
18	CD to Thesis Advisor	1 day	Mon 4/15/13	Mon 4/15/13
19	Plotting and Model Building	12 days	Mon 4/8/13	Tue 4/23/13
20	Thesis Exhibit Installation	1 day	Mon 4/22/13	Mon 4/22/13
21	Thesis Exhibit	14 days	Mon 4/22/13	Thu 5/9/13
22	Final Thesis Reviews	7 days	Mon 5/6/13	Tue 5/14/13
23	Final Thesis Document Due	1 day	Fri 5/3/13	Mon 5/6/13
24	Commencement	1 day	Sat 5/11/13	Sat 5/11/13



Tea House Boat House	Heather Fischer	fall 2009
Twin House Airport Expansion	Stephen Wisher	spring 2010
Hotel Urban infill Competition Lincoln Bridge Competition	Regin Schwaen	fall 2010
Shaker Barn Renovation Homeless Shelter	Ron Ramsey	spring 2011
High Rise KKE ACS Competition	Don Faulkner	fall 2011
Urban Design Redevelopment European Travel Seminar	Paul Gleye	spring 2012
Museum Addition ACS Competition	Regin Schwaen	fall 2012



the program



the research

the program

'The spiritual path is not a solo endeavor. In fact, the very notion of a self who is trying to free her/himself is a delusion. We are in it together and the company of spiritual friends helps us realize our interconnectedness'

- Tara Brach

Human interaction and socialization is the goal to be attained through a cohousing community in an attempt to create a better well being for all residents. The idea of a cohousing facility is relatively new (within the past 50 years) however the principles that make up this type of residence have been around since the beginning of time in cultures throughout the world. The separation that we have created in our social lives along side our urban context has us searching for ways to have a stronger connection to one another. This connection has recently been manipulated to take place in our digital world but if we look to communities and villages in third world countries it would be easy to see that they thrive off of a life of community, and social interaction. By letting technology take the place of real life interactions we continue to search for new digital outlets but in reality the answer has been with us all along. We need to work together and bring back the essence of a community.

The answer to this question of a new social community needs to start within our homes and an alternative housing method may be the answer. Serious design strategies need to be considered in order to provide the best possible solution for a successful housing community providing daily social interaction and opportunity for human connection. There are few housing options today that could hope to offer such dynamic life on a daily basis but the cohousing model has been proven to offer these exact characteristics.

One of the beacons of a cohousing community is the common house, providing an open layout where all residents can cook, work, socialize and entertain together. Designing this space for social interaction becomes an essential process in the scheme of the community, as it will serve to facilitate a diverse group of individuals.

'Although our monthly house payment increased, our total lifestyle costs decreased because of the common facilities and shared resources available here.'

-resident at Trudeslund cohousing in Denmark

The common house also has resources for hobbies, including a woodshop, a darkroom for photography, and a music room. (McCamant and Durrett) For most people it would be unrealistic and impossible to budget for all of these resources in a single-family home however with the cohousing community it is possible as each individual partially pays for the shared spaces with dues.

The location of the communal house in relationship to private residences will also need to be highly considered. Creating fluid circulation and transition space from private to public space will help encourage a social interaction through the design. (Williams, 2005) This circulation space of communities is primarily outside as most communities feature detached single family homes. In some cohousing communities in the northern climate of Denmark the circulation spaces from private residences to the common house were enclosed allowing residents to stay inside during their transitions.

Other design strategies that need to be considered during the design process are the division/cohesion between public and private spaces. These spaces can be difficult to understand and design appropriately due to individual predisposition and want for social interaction. This personal predisposition is something that no designer could possibly fully prepare for as all people are different, however certain design strategies may still help interactions. "Social contacts are enhanced in a community when residents have opportunities for contact, live in close proximity to others and have appropriate space for interaction"(Williams, 197). The key word of proximity must be highly considered in the transition phases between public and private spaces to provide the best solution to meet the needs of the individuals and the community.

Niels Christian Andersen, an architect and a cohousing initiator stated: "It's not the practical advantages of living in cohousing that are most important to me. It's the sense of belonging, a real home; I need the community as a safe harbor to come home to after a trying day. What I like about cohousing is that I can choose to use it when I want it – it's there when you need it, but not forced on you". (McCamant and Durrett).

'One of our first topics was privacy versus public space. Although most of us wanted to stop off at the common house on the way home, I can be a grouch for a while after work, and want to be to stop at home first. I can do that. But when I feel sociable, which is most of the rest of the time, a stroll back toward the common house is certain to result in an encounter with the smiling face of a friend or the chatter of a child. I find myself stepping out the fron door often, just to see who's out there.'

*- Jane, a resident at Muir Commons
Cohousing CA*

Social interaction is the selling point and the most beneficial feature of a cohousing development however all residents still need their own private spaces. Primarily cohousing communities provide private residences at a smaller scale than most typical single family homes in the United States today. With down sized kitchens, living spaces and bedrooms in private residences the communities can focus their spending and efforts into the spaces that are communal, that provide opportunities for all. Although there proves to be slight disadvantages with space and residents want for greater private square footage it does not prove to be a prominent factor for residents to move out. According to a study done at Winslow and Puget Ridge cohousing communities, 100% of residents believed there were advantages to living in cohousing opposed to single-family homes. (Dorit, 96)

The location of the cohousing community in context to the city and local public environments is also key in providing a positive social interaction with in the community. According to a case study of two cohousing communities in California, residents spent an average of 61.9 hours monthly outside of the community. (Williams, 209) This statistic shows that about 3 hours person's time is spent outside of the community daily (not including work). Their ability to interact with the public and show personal interest in the city can become a catalyst to provide a stronger connection with others inside of the community who may share the same interests. It is not the goal of a cohousing community to take the place of a person's social life but simply to become a living environment that provides opportunity for social interactions, to share common interests.

'it is through the activities in the common house that we get to know each other and are able to keep in touch. And that carries over to outside, adding life to the street scene.'

- cohousing resident at Sun and Wind in Denmark

The cohousing movement has proven to be a wonderful alternative housing option but it has also stepped forward in utilizing alternative energy. At Berkeley cohousing in Sacramento, California, creating a sustainable and environmentally efficient community was of great importance in the construction phase. The residents insisted upon building with reused existing building stock and fly ash concrete, they implemented strategies for sustainable timber usage, and contoured land forms to optimize storm water soakage and reduce the amount of run off. The location of the cohousing community was also important in reducing the vehicle usage by building within an urban location. (Meltzer)

Another cohousing development, the Earthsong Eco-Neighborhood in Auckland NZ chose to build sustainably as well utilizing a variety of sustainable technologies and resources. The residents implemented a rainwater collection system, solar hot water, on-site storm water, grey water and sewerage treatment as well as intensive compost and recycling systems in an attempt to reach 'zero waste' on site.

Although almost all cohousing facilities are built from the ground up with a concrete building strategies another alternative to an environmentally friendly model is the reuse and renewal strategy of repurposing an existing structure. This happened to be the case for the Jernstoberiet cohousing community in Denmark when architects went to work, repurposing an iron foundry. The narrow shell of the foundry was repurposed as the central hall of the community providing an open space for play, informal gatherings and dances. The houses were branched of either side of the hall with a common house on the north end of the foundry. By repurposing an existing empty structure the community saved time and money on building costs while creating a one of a kind beauty within their home. One resident of Jernstoberiet observed, 'I think it functions fantastically well – not without problems, but with problems that I would much rather deal with than those one has in an ordinary house.'

The benefits to the residents and environment alike prove to be endless within a cohousing community. The ability to design a community together, choosing passive energy techniques and implementing sustainable strategies that could not be afforded by one individual alone make living in cohousing truly unique and sustainable.

With all research, comprehension is the key factor in applying the knowledge of others successes and mistakes in an attempt to create something better than before. Especially with a design profession knowing how infrastructure was built and specific reasons for spatial layout and programming, new designs can be created to better suit the needs of the users. Research seems to be a study of trial and error through history, but it is error that can be read on a page as opposed to experienced first hand at a sometimes a devastating cost. It is also a way to admire and learn from the success of others, in an attempt to use their knowledge in conjunction with individual imagination and ideas. Research becomes a compilation of knowledge that we constantly refer back to during times of problem and question.

The knowledge retained through research helps inform the decision making process as it acts as an example and a type of guideline to follow. It is of vital importance in a thesis project because it gives blatant answers to questions most don't know first hand. It is a source of reference, and its inability to answer all questions lead designers to make up their own answers through a trial and error process, essentially propelling research deeper. It is an ever-evolving resource that must constantly be referred to throughout the design process.

introduction

The creation of this thesis will provide a learning opportunity unlike any before and test my own limits and personal abilities. It is a project of process and knowledge providing a greater understanding of not only a subject but of myself.

academic

I want this thesis to be a projection of my personal design strategies and beliefs attained through my architectural career. I want to work through the design with endless process and conceptual ideas, creating a story as I see it, an extension of my imagination and who I am.

professional

Professionally I am uncertain as to where I want to end up. I simply want to create and design, with the hope that my ideas will become physical pieces for the enjoyment of others.

personal

Happiness.



Co-housing Hoogvilet / van Bergen Kolpa Architecten
Hoogvilet, Rotterdam, Netherlands

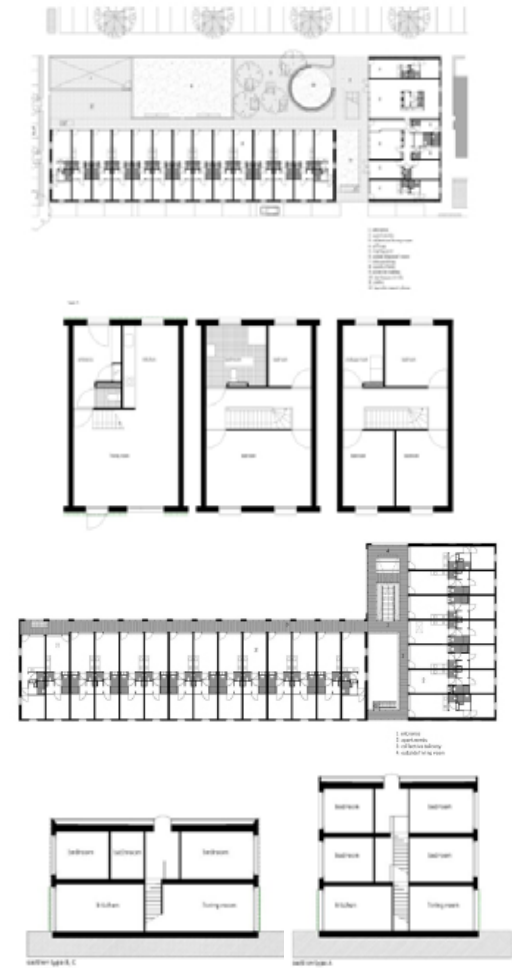
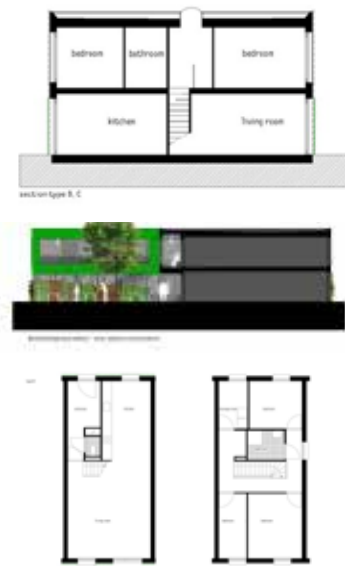


figure 1.1

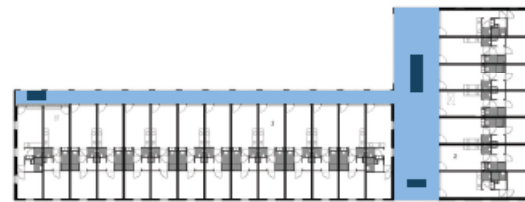
program documents



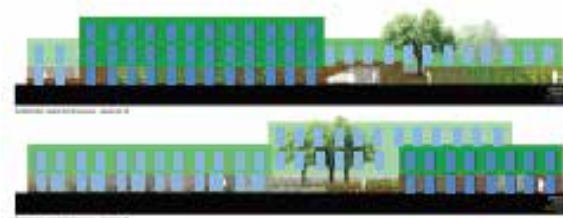
section/elevation/plan



structure



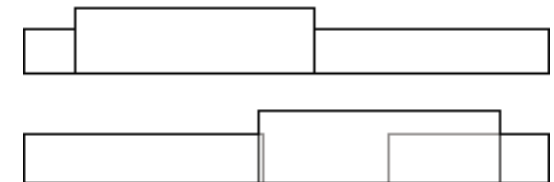
circulation



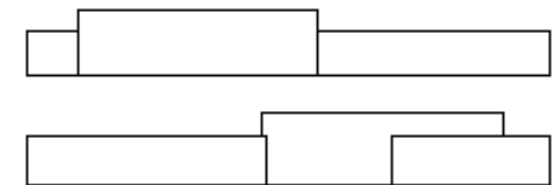
natural light



massing



hierarchy



geometry

figure 1.2

Co-housing Hoogvilet is a modular co-housing facility located in the southwest corner of Rotterdam, Netherlands. This co-housing model features sixteen one-family homes complete with personal gardens. Hoogvilet is a unique co-housing facility because although it offers community spaces to the residents it also offers communal spaces to the adjacent apartment complex built for people that are mentally disabled. The residents of Hoogvilet and the 'De Tuinkamers' apartment complex share a bicycle room, a sports room and a hang out room. This extra interaction takes the co-housing model to another level and is not only a wonderful place for the residents to live but also directly provides for the select public as well.

The common house of Hoogvilet offers an industrial sized kitchen a communal living room and a separate 'hangout room'. It also offers extraordinary balcony views of the community garden as well as the canal across the street. The communal house is typically the nicest facility within the co-housing development, promoting human interaction and Hoogvilet offers a perfect example.

Environmentally, Hoogvilet practices and promotes sustainability in a variety of ways. The housing complex has a shared rainwater collection system and uses compostable toilets. This recycling process is then utilized as fertilized nutrients and water for the communal garden. The green spaces provided also extend to the building facades, as all of the housing units south facing walls are adorned with living walls, providing the community with beauty and cleaner air. The facility also offers bike storage, both indoor and outdoor, promoting convenient alternatives to fossil fuel transportation.





Karakida Community Center / Chaiki Arai
Tama City, Tokyo, Japan



figure 1.3

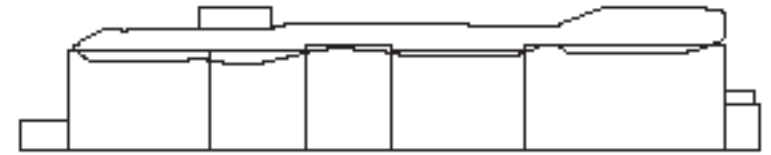




figure 1.4



massing



geometry



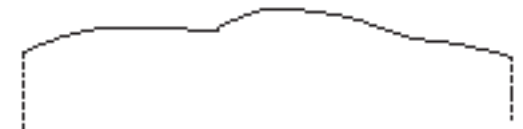
natural lighting



circulation



structure



hierarchy

Karakida Community center located in Tama City, Tokyo, Japan provides a 28,000-sqf communal place for the public to gather with a variety of resources. The center was built for the well being of the public and similarly to the co-housing model, it was designed in conjunction with local citizens. The design team of Chiaki Arai Urban and Architecture designed the community center in place of what was once a small hill that previously provided a community play area that the residents had grown up with. The architecture features elements of the hill in the curvilinear rooflines and the living green roof. By restructuring elements of the once natural hill into the building the architects created an environmentally friendly center that provides for both the community and the environment.

The center features a library, recreation space with a basketball court, and a play area for children and meeting areas. This community center relates on many levels to a common house in a co-housing facility because it provides common areas for human interaction and pleasure. It incubates the same opportunity for human contact that a common house would, it is just built on a much larger scale as it provides for an entire community. By analyzing and understanding a variety of communal places the design of a common house can become more successful as they all serve the same purposes.

For this case study it is important to focus on interior layouts and design choices because unlike most co-housing facilities it does not feature vast outdoor spaces. Spatial layout is vitally important in the design of communal spaces to maximize space potential and functionality. The Karakida community center is successful because it features an open layout while also providing more intimate spaces where multiple activities don't become distracting or overwhelming, where a basketball game and research can be done at the same time in the same facility. This idea relates directly to a common house where a kitchen and a living space reside, creating effective separate spaces that can work together simultaneously.





Kilmeena Village / Cox Power Architects
Moyna, Kilmeena, Westport, County Mayo, Ireland

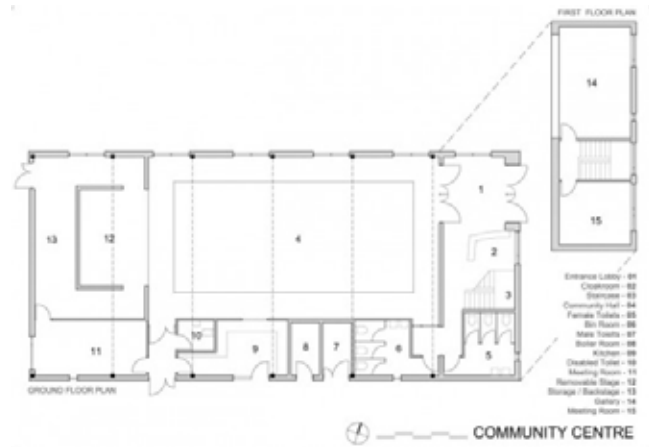


figure 1.5

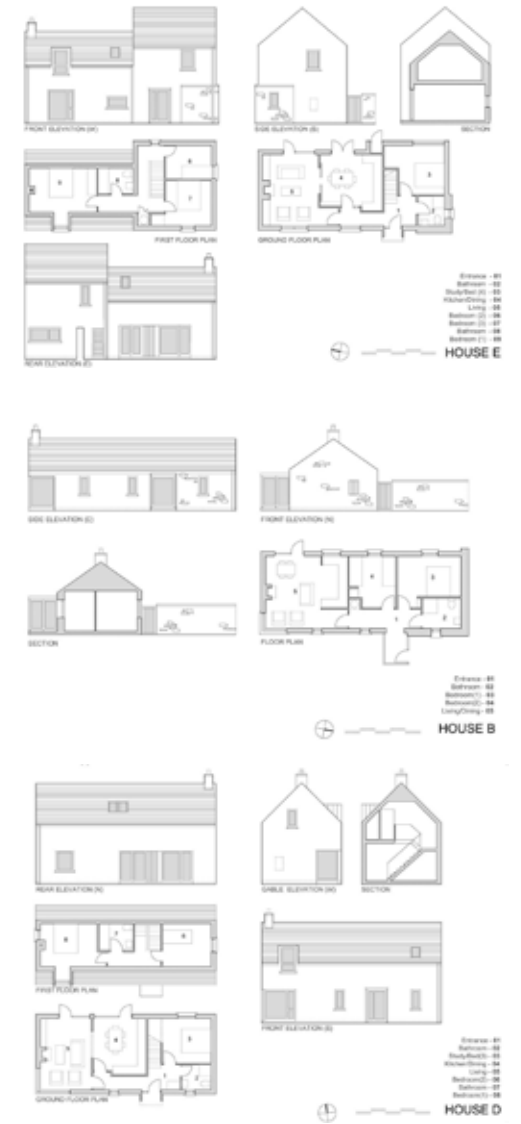
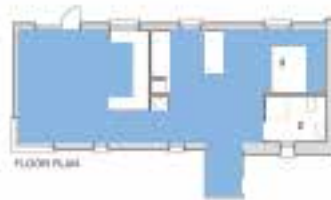




figure 1.6



structure



circulation



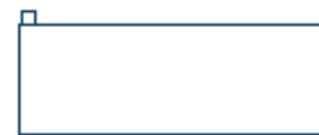
hierarchy



natural lighting



mass



geometry



The Kilmeena Village, located within the Kilmeena parish in Westport, County Mayo, Ireland is a design solution by Cox Power Architects for a community in need of housing, a community center and a childcare facility. The village development provides fourteen, one and two story dwellings all located within walking distance to the community center, childcare facility, church and school. The layout of the Kilmeena village focuses solely on a human scale and provides multiple communal meeting areas and green spaces. The village features many aspects similar to a co-housing facility with the community center acting as a type of communal house. Although the community center does not feature a communal kitchen or dining area it offers a place to gather for leisure and recreational entertainment.

The houses, childcare facility and community center are designed to have little impact on the environment while providing sustainable, beautiful architecture. The height of the structures are limited to two stories, while the community center was built below grade to provide ample space for recreation while still featuring a human scaled exterior. The narrow homes and facilities also provide optimal natural lighting reducing heating and electric costs. The village also constructed a wetland using a Willow Plantation that provides a wastewater management system, recycling organic waste to provide nutrients for the Willows. The Willow Plantation provides wood for the village as a bio-energy and the tree rows create wind barriers for the village.

The Kilmeena village is essentially a co-housing facility, featuring a variety of communal green spaces, meeting areas and recreation spaces. By understanding how a village can work and live together directly relates to how a co-housing unit can thrive to be a sustainable living working environment as well. For the Kilmeena Village the site plan and layout will serve to inform a co-housing design strategy due to it's effectiveness, beauty, and sustainability.





The case studies show a variety of different program elements and design strategies that created successful architecture for a variety of different communal needs.

The first case study, Co-housing Hoogvilet features a communal complex as well as individual residences that provide for not only members of the cohousing community but also for the adjacent apartment complex. The successfulness of the architecture proves that by creating proper communal spaces along side private facilities that a cohousing complex can work in quite remarkable harmony. Hoogvilet pushes the cohousing model to a new level by opening its doors to others. It proves that this alternative to residential housing can provide spaces that are utilized and successfully facilitate human interaction, while giving back to its surroundings.

Karakida Community Center, the second case study, located in Tokyo, shows the success and benefits of providing communal spaces for human interaction. This large community center shows that the want and need for human interaction is a part of the human spirit, as it sees an average of 650 visitors per day. It offers resources, meeting areas, recreation space and environmentally friendly beauty, the same features that a common house in a cohousing community should contain.

Kilmeena Village, the third case study is a remarkable settlement that directly relates to a cohousing community. The village provides more privacy to the residents than a typical cohousing model usually would however it features many similar communal spaces. The spatial layout of the homes, community center and childcare facility provide a sense of unplanned human interaction as opposed to the guided approach of a cohousing community. It enables the residents to find human interaction as they wish, walking down the sidewalk or while taking children to school. The walkability of the village and the environmental design strategies implemented are design qualities that will also create a successful cohousing community.

It is important to look at a variety of community based projects for they all have different qualities to offer. Understanding the essence of community and how it relates to real life applications is of vital importance in designing spaces that are not only beautiful and sustainable but also useful and practical.





The geography and climate directly contribute to the settlements formed in North Dakota throughout history. The rich soils and continental climate proved to be an ideal place for the growth of crops and natural resources. The Red River Valley, located on the far eastern part of the state separates the state from Minnesota to the East. The area was formed through time as glacial melt created lakes and eventually dried up forming what once was the bed of Lake Agassiz. The Red River Valley is a vast open plain with very little topographic change that sits at the states lowest elevation. This area proved to be ideal for early settlers as it offered fertile farmland and a strong flowing water source. (Institute for Regional Studies, North Dakota State University, 2012)

The boom of Settlers, coming from all parts of the United States and Europe, came to reside in North Dakota statewide between 1879 and 1886. This settlement can be partially accredited to the great North Pacific Railway as construction through the state began in 1871. As the railroad entered the state in 1871 a small settlement in the Red River Valley became the city of Fargo, named after William G Fargo, a director of the Northern Pacific Railway. Fargo and the Red River Valley saw its boom in settlers between 1875 and 1890 as land was purchased from the Northern Pacific Railway to be farmed. Thriving profit and success from these farms gave the city of Fargo a true presence among the Dakota Territory.

historical context

Fargo had a true sense of place at this time with a population of over 6,000 residents. As newly built wood-frame buildings began to form the downtown area the city began to take on a true identity in the Red River Valley. This identity was tragically destroyed on June 7, 1893 when a fire started on Front Street engulfing and incinerating a majority of the downtown area. This tragic event was a turning point for the character of the city as the residents quickly rebuilt 246 buildings many of which were designed by regional architects. (City of Fargo, 2012)

The population of Fargo grew rapidly through the early 1900's as word of the promise for wealth and livelihood spread throughout Europe. Norwegian immigrants made up the majority of the population influx as they began settling and forming lives in the city (Advarneg, Inc., 2009). From 1910 to 1930 Fargo's population had increased from 14,311 to 28,619 and growth from that point on was inevitable. (Harrigan, 1992)

The city growth required new business infrastructure, medical centers, schools and housing that expanded the city in all cardinal directions. The downtown district offered new locally-owned stores and business becoming a dynamic shopping destination between Minneapolis-St. Paul and Spokane, Washington. Downtown Fargo also featured the tallest building in the state when George Black built the Black Building in 1930. (Holzkamm & Dormanen, 1993)

Within this booming period Fargo also became the second largest distributor for agricultural products and supplies. Fargo's downtown district, filled with industry and shopping, pushed residential housing primarily to the north and south of the downtown center. This housing shift was the start of city wide residential housing movement that has continued to push residential housing away from the heart of the Fargo.

As of July 2011 the population of Fargo had reached 107,349 residents and has been increasing annually since 2005. (United States Census Bureau, 2012) The population increase has created the now vast, sprawling city that is Fargo and has created residential housing communities over 70 city blocks from downtown. The citywide sprawl has also created massive infrastructure in roads and parking to provide for the demand of vehicular traffic.

Fargo today offers more than 20,000 houses, twin homes and condos and more than 22,000 apartments located in 34 residential neighborhoods (City of Fargo, 2012). The housing market in the city of Fargo has seen extensive growth to the south and west with a primary housing strategy for apartment complexes, creating an average of 500 units annually. Apartments are an affordable housing strategy to the population demand and a thriving business market in the Fargo community.

The apartment trend has brought individual residents of Fargo closer together physically however it has also pulled the cities infrastructure and community apart. Alternative housing options in the Fargo area may be the best option to begin reconnecting the Fargo infrastructure and community. Cohousing is a residential housing alternative that has not yet been implemented in the city of Fargo and is a viable option for the growing population.

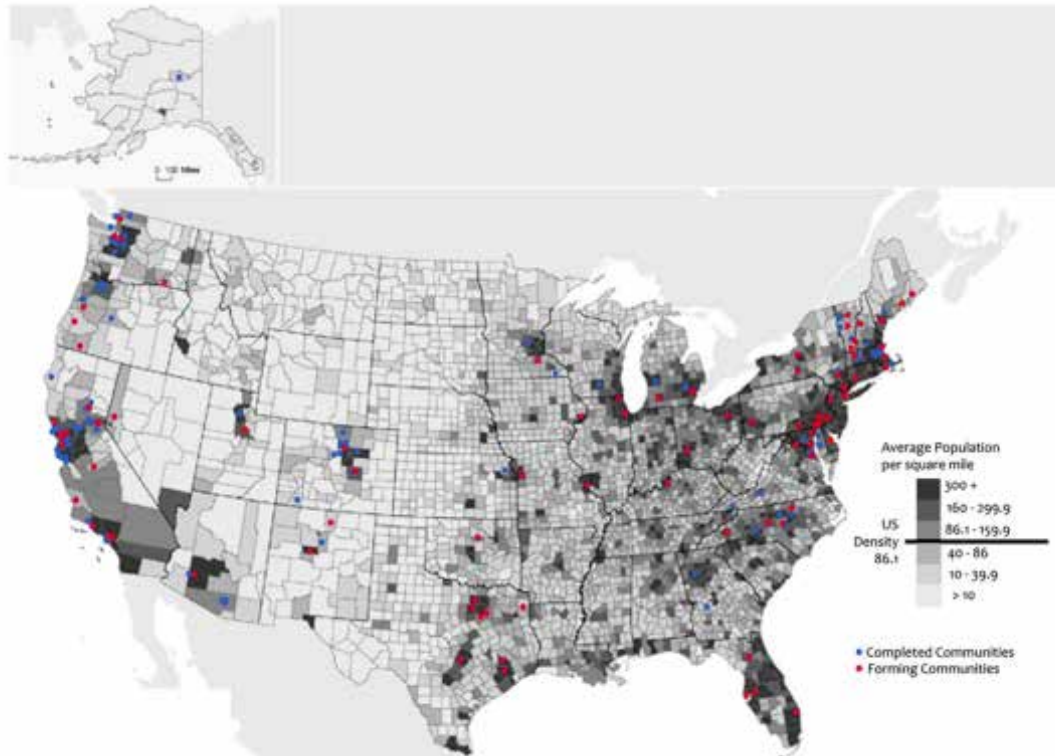
Cohousing is a residential housing alternative that began in 1964 by a Danish architect Jan Gudmand-Høyer in the city of Hareskov, on the outskirts of Copenhagen. (McCamant & Durrett, 1988) The idea came about as Jan Gudmand-Høyer and his wife were looking for a new place to live and after discussing alternatives with their friends the idea of a cohousing community was born. 'Agreeing that cooperation was necessary at home as in the workplace, they decided their housing complex should be small enough to allow residents to know each other and to feel comfortable using the common area as a living room. In addition, the design should encourage social interaction among neighbors' (McCamant & Durrett, 1988).

The land was purchased and the plan to begin building the first cohousing community was underway. As locals and neighbors heard of the plan for such a place an overwhelming up roar occurred opposing the idea. Many agreements were tired to be made let the cohousing facility proceed however after years of negotiating they were forced to sell the land. This effort was the first of its kind and Gudman-Høyer was determined to make his dream a reality.

As word spread of a housing alternative many people took interest in the idea and contacted Gudman-Høyer in an attempt to try to build again. Groups were formed and meetings were held to design a new community that would not face opposition from local residents. The communities of Saettedammen in Hillerød were built in 1972 housing 27 families and a year later Skraplanet in Jonstrup was built housing 33 families. These were the first two cohousing communities and started the alternative housing idea that is cohousing. 'By 1980, 12 owner-occupied cohousing communities ranging in size from 6 to 36 households, had been built in Denmark' (McCamant & Durrett, 1988). The cohousing communities nearly doubled in the next two years as 11 more communities were built, solidifying this alternative housing lifestyle.

The desire for cohousing started increasing strongly among citizens of Denmark and other European countries and many people took initiative to attempt getting more communities started. As many found out the task of such a large project was very difficult to plan and fund in the early stages. Gudmand-Høyer experienced the struggles first hand and because he was such an advocate for the idea he started the SAMBO association, which roughly translates to (live together). The SAMBO association was a tool and a support system for new cohousing developments and was responsible for starting several more communities throughout Denmark. Another big step that was taken to assist in the cohousing development process was the passing of new legislation through the Ministry of Housing making financing easier and less expensive. The determination and desire for one cohousing community set the initial idea into motion and the alternative housing communities took off.

Cohousing today can be seen internationally in countries throughout Europe, Canada, the United States, Australia and the United Kingdom and it continues to grow in popularity. The cohousing models range in size and form and are primarily designed by residents in conjunction with an architect/urban planner. The communities are almost always designed for, and with, a specific group of people and in doing so the cohousing facility can meet the specific needs of all its users.



Rueff, Brittany T. "Characterization Study of Urban Cohousing Communities." (2012): n. pag. Web. 08 Dec. 2012.

Co-housing in the United States today

site analysis





46.875627,-96.796262

site analysis

The flat landscape and proximity of surrounding structures give the site optimal lighting with few obstructions. The existing, delapidated cold storage building located in the center of the site has the only major impact on light quality throughout the day varying the color, temperature and intensity within the buildings cast shadows. The ground cover which is primarily gravel and overgrown grasses offers almost no light reflection or refraction.



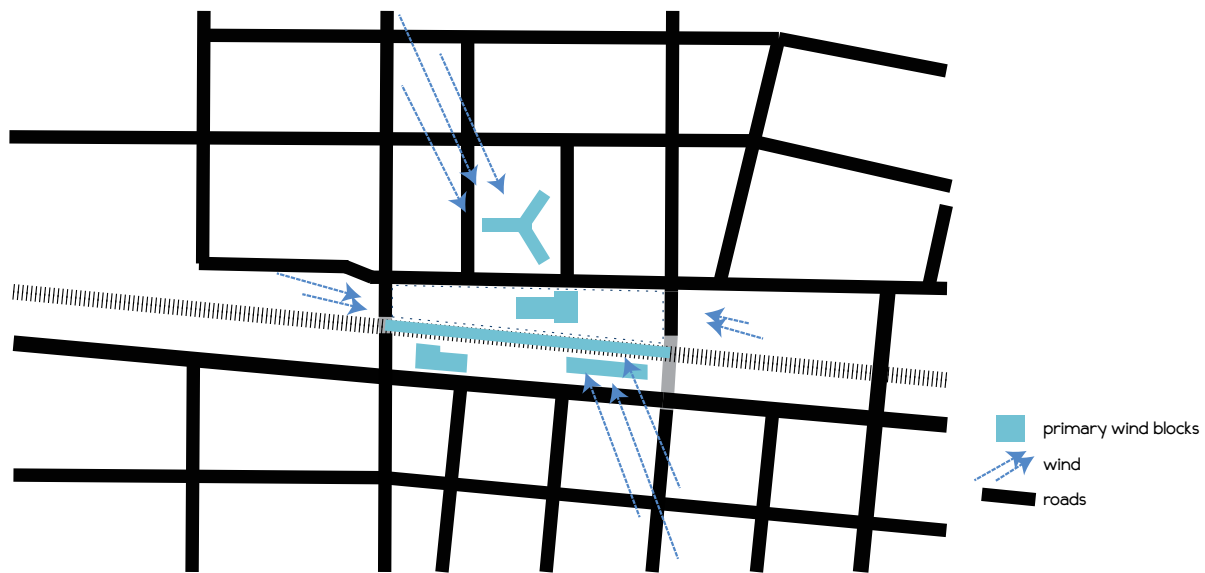


figure 2.1

With winds coming primarily out of the NW and SE, the sites surroundings offer little protection from the Dakota winds. The primary wind blocks are the 1 - 3 story buildings to the south and north as well as the elevated railroad tracks to the south.

site analysis

The site today shows some signs of human interaction however a majority of the site is currently private property and as shown in the picture below has been vandalized. Most of the human interaction takes place around the south side of the cold storage facility, and is made apparent from the garbage and graffiti. The north side of the site offers a sidewalk that sees most foot traffic as a result of the on-street parking availability close to downtown Fargo. The Nestor, a local tavern to the NE of the site shows the most human interaction as seen from the site on the East side. The site is on the outskirts of the downtown fabric and is located in between two of the busiest streets in Fargo, University Drive North and 10th street. As a result the site is primarily passed by vehicular traffic with little human interaction.

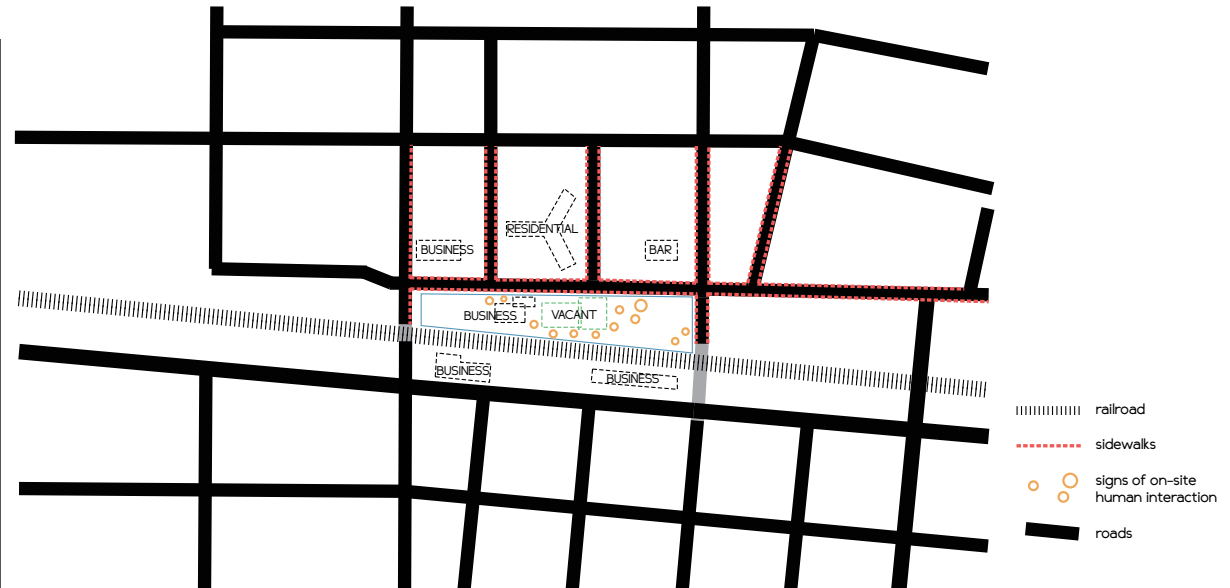


figure 2.2





The site shows serious signs of distress through time on both the built and natural environment. The cold storage building shows distress in almost all aspects and it appears that a majority of the wear on the building through time is a result of vandalism. The overgrown vegetation and decaying sidewalk show a forgotten piece of Fargo in dire need of repair.

site analysis



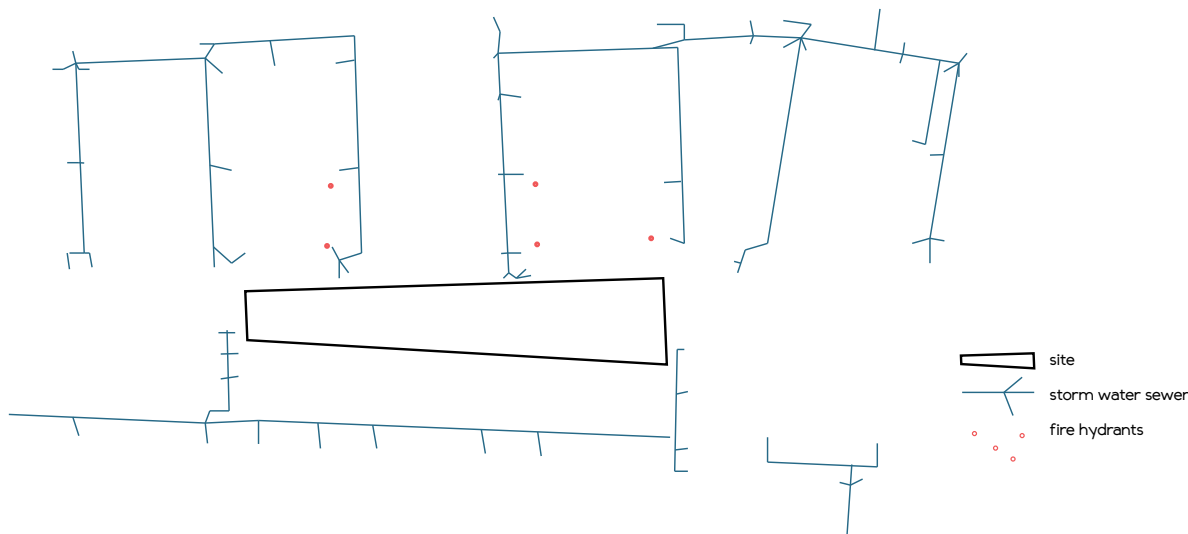


figure 2.3

The flat landscape of fargo requires a comprehensive drainage system due to the heavy snowfall during the winter months and the legendary flooding the city has seen in the spring. The North side of the site has multiple storm water drains located in the street on NP avenue. University Drive North, to the West of the site has a tunnel that leads traffic under the trains, requiring a more extensive water run off system to deter water from backing up in the depression. The extra points of entry for water run off helps keep the streets clear however in some heavy rains and snow melts the tunnel has flooded, becoming impassable. This problem has also occurred on the north bound 10th street just East of the site.

site analysis

The streets directly to the North, East and the West of the site see a heavy traffic flow throughout the year. Nother Pacific avenue, to the North of the site contains 5 bus routes that serve North Dakota State University buildings and the greater downtown area. Norther Pacific avenue also offers on street parking directly in front of the site which accounts for a majority of the foot traffic the site sees. The vehicular traffic patterns surrounding the site are all on one-way grids as seen in the graphic.

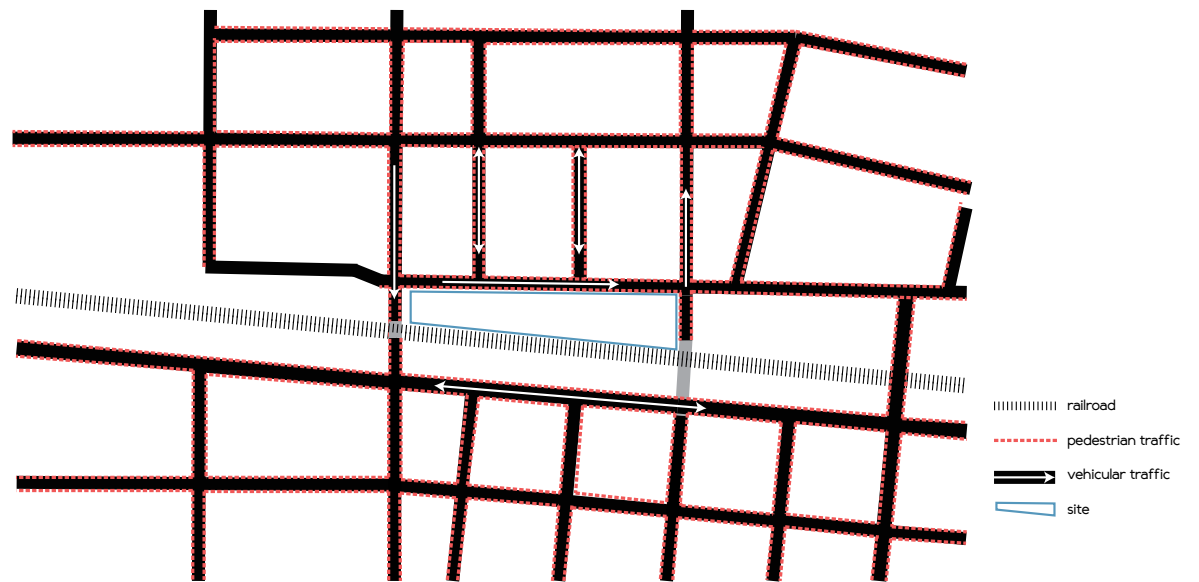
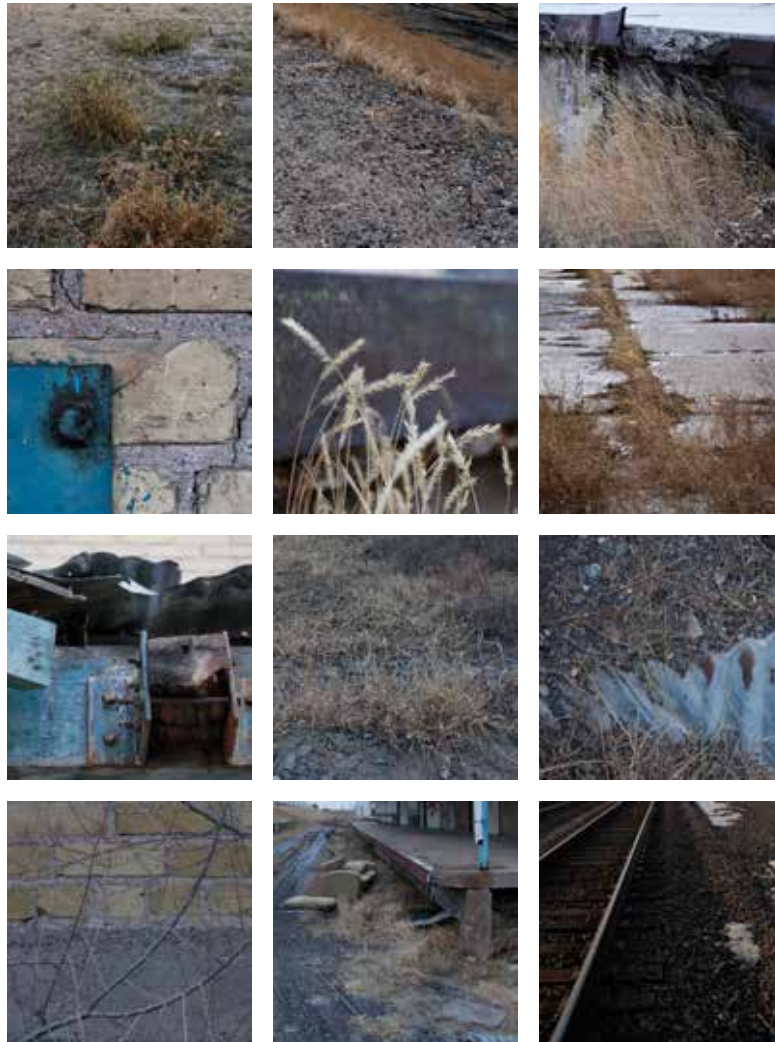
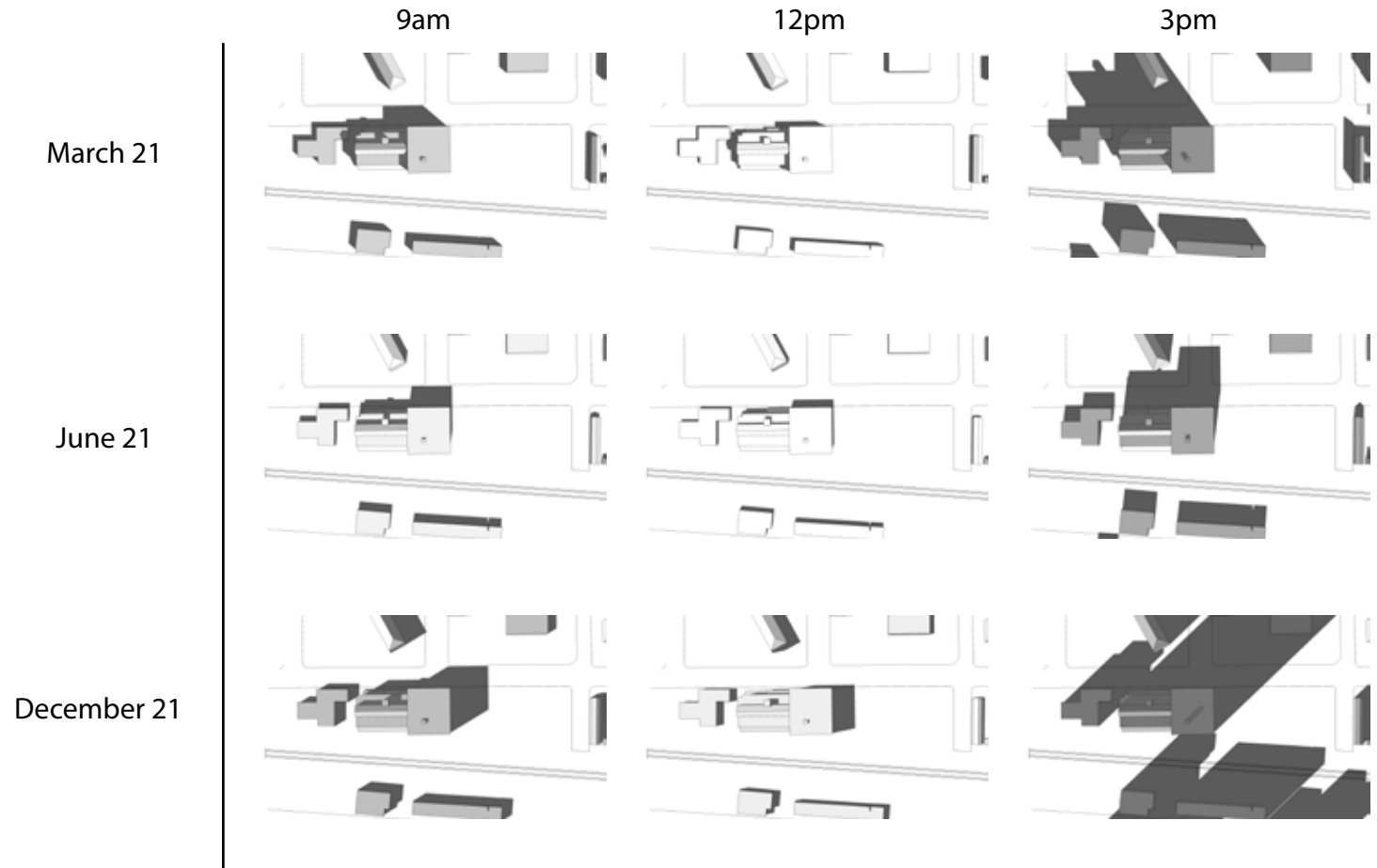


figure 2.4



The material and textures of the site show signs of damage, decay and abandonment. This type of beauty is a sign of a once better day and provides a unique opportunity for revitalization.

site analysis



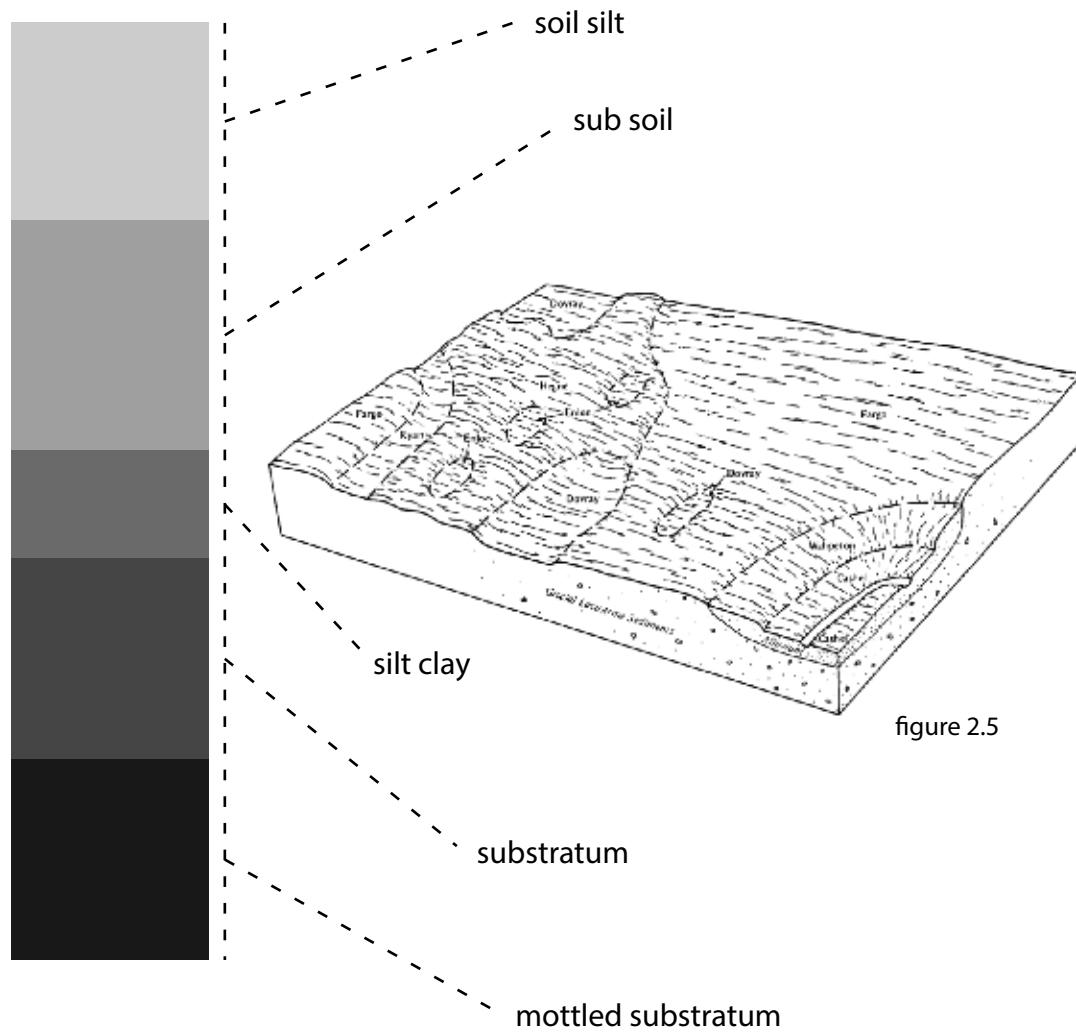


figure 2.5

The soils that make up the Fargo area were formed in glacial sediment and are characteristically deep and have poor drainage . These sediments formed on the glacial lake plane are fairly level with moderate sloping due to underlying swails and varying depressions.

site analysis

The site character shows varying signs of change as a result of time and human interaction. The image on the far right shows a soft wet top soil that has been compressed and torn from vehicular traffic leaving muddy water behind. Overtime this traffic has left tracks and a hard dirt crust essentially forming a type of minimally maintained road. Erosion of the retaining wall, shown in the image on the right, can be seen in the concave concrete wall as the land has been pushed towards the cold storage facility. Time and water runoff has had a strong impact on site conditions both naturally and structurally.



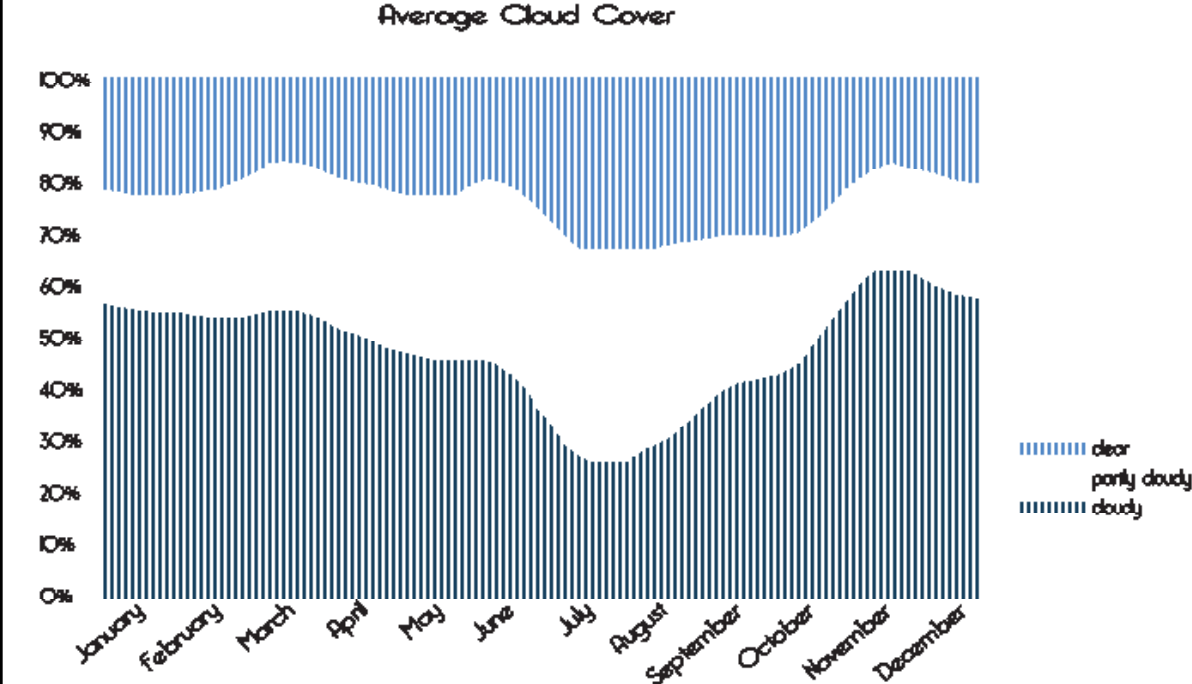
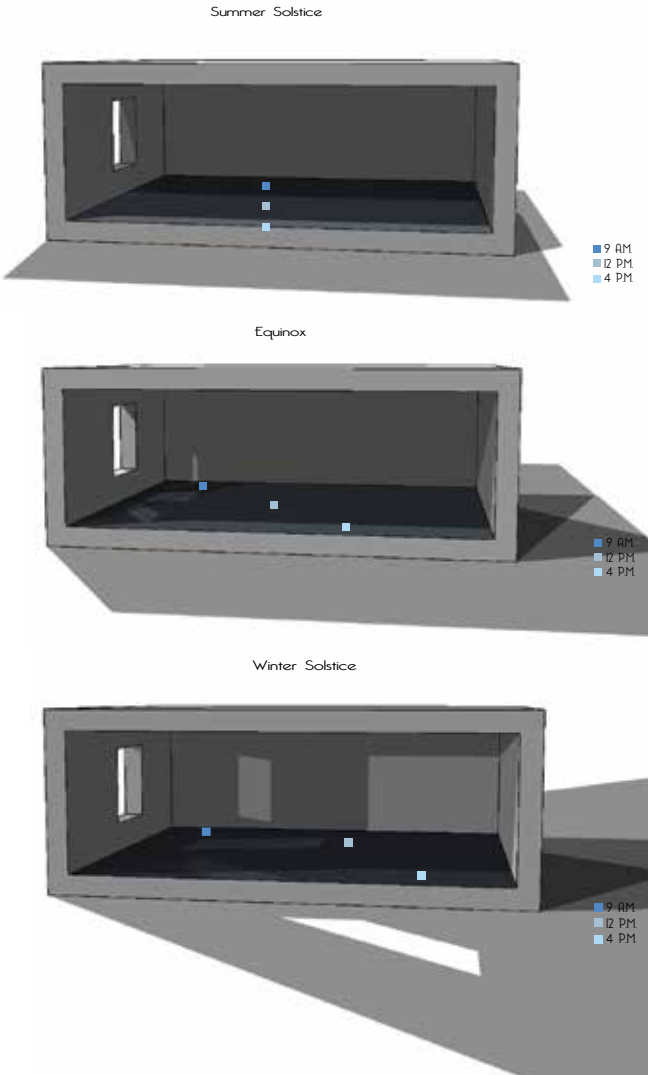


figure 3.1

climate data

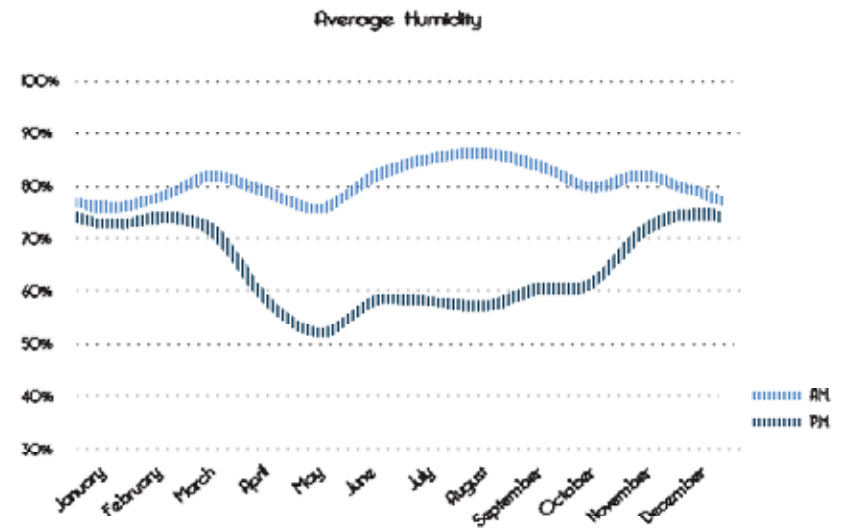
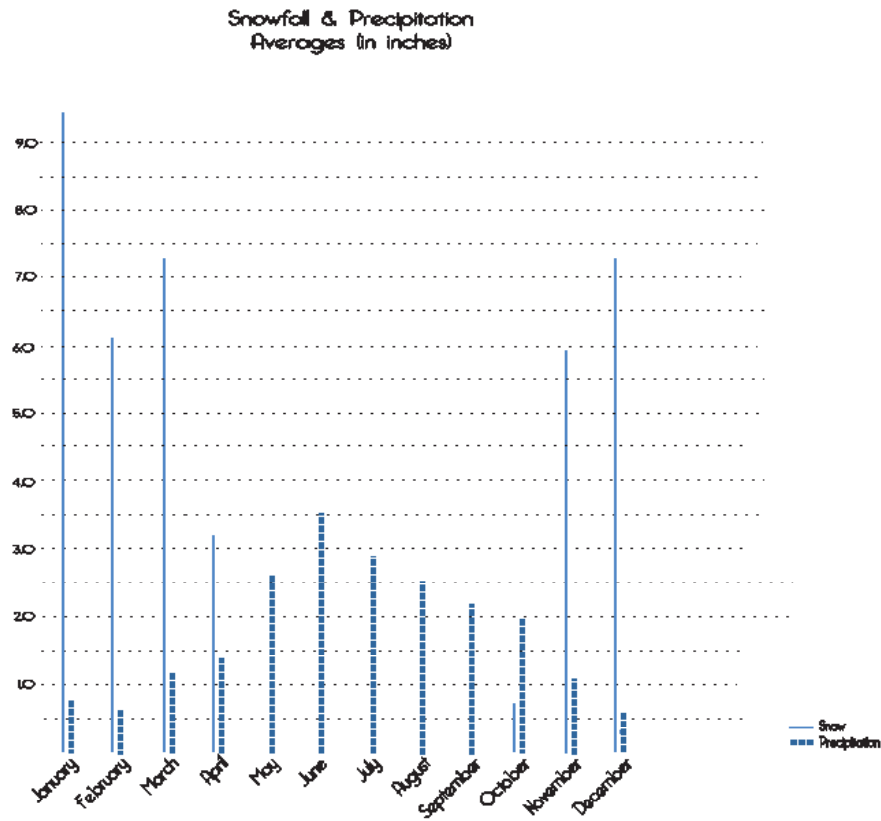


figure 3.2

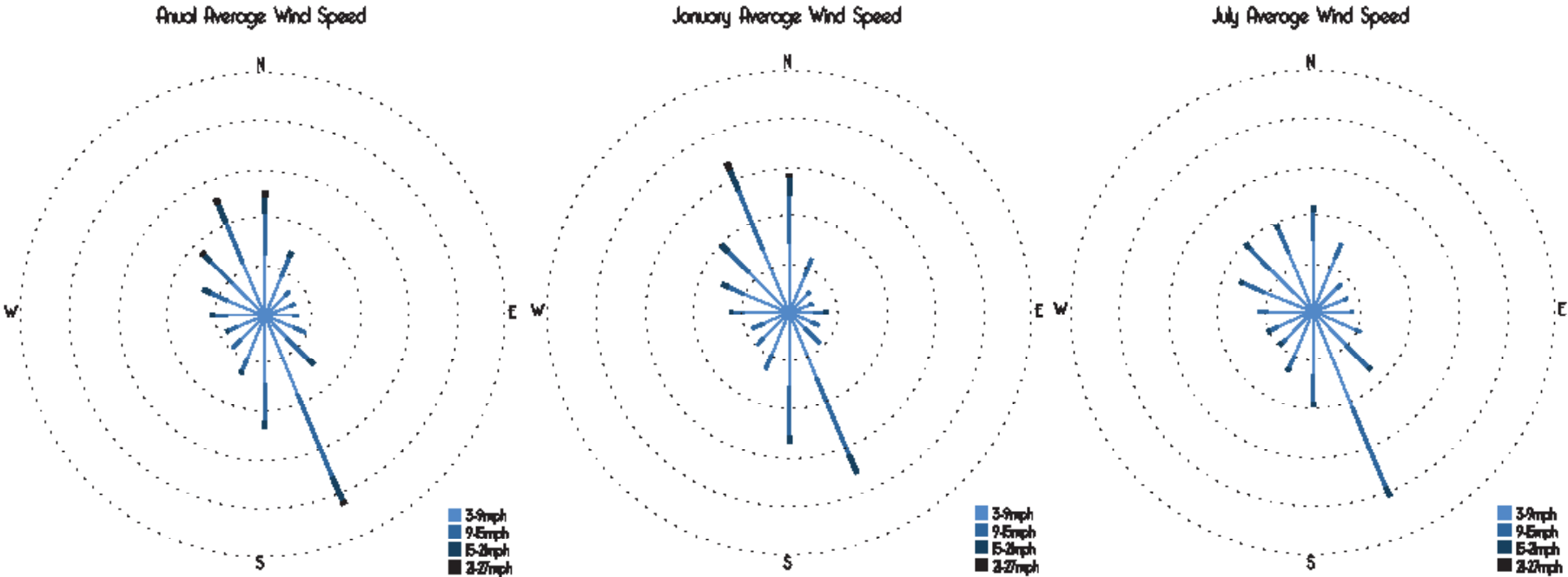


figure 3.3

climate data

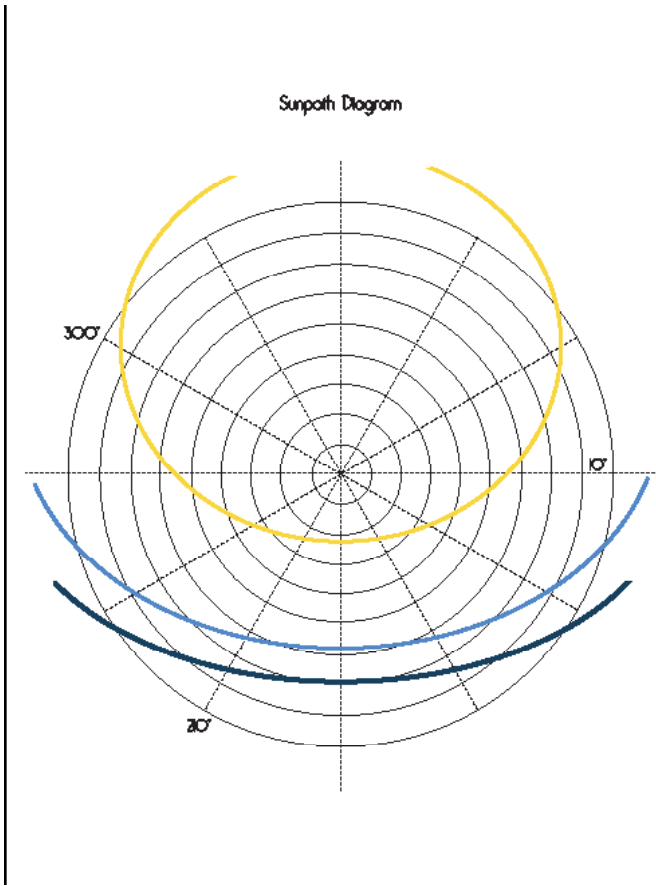
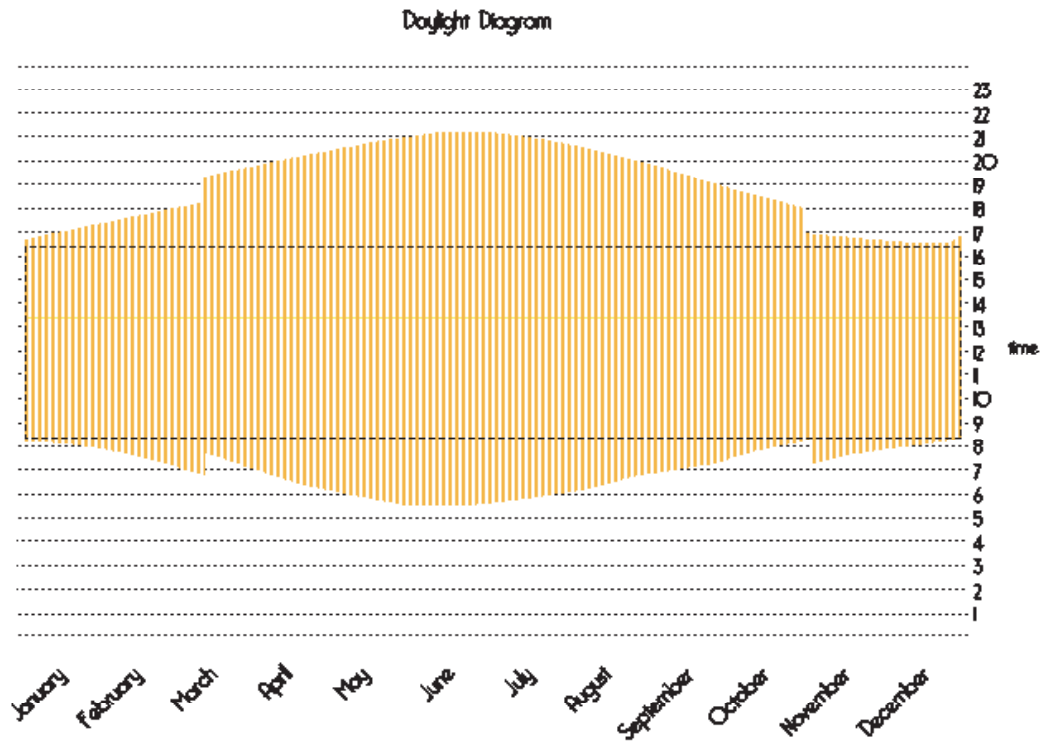


figure 3.4

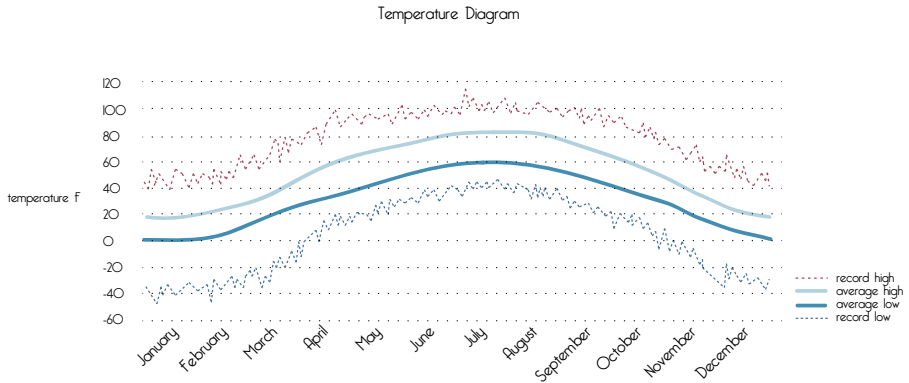
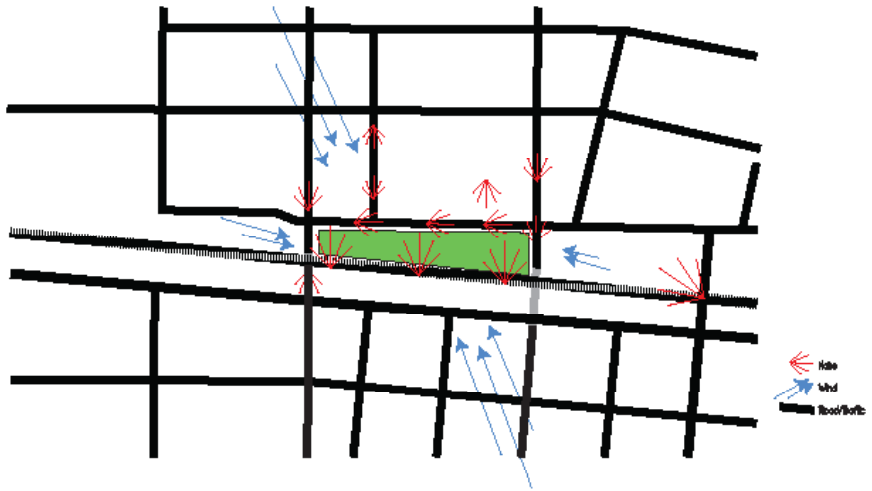


figure 3.5

programmatic planning

Residential Units

2 bedroom - 980 sf

1 bedroom - 400 sf

Common House

Kitchen - 1,000 sf

Living - 1,100 sf

Dinning - 1,500 sf

Laundry - 800 sf

Flex - 1,200 sf

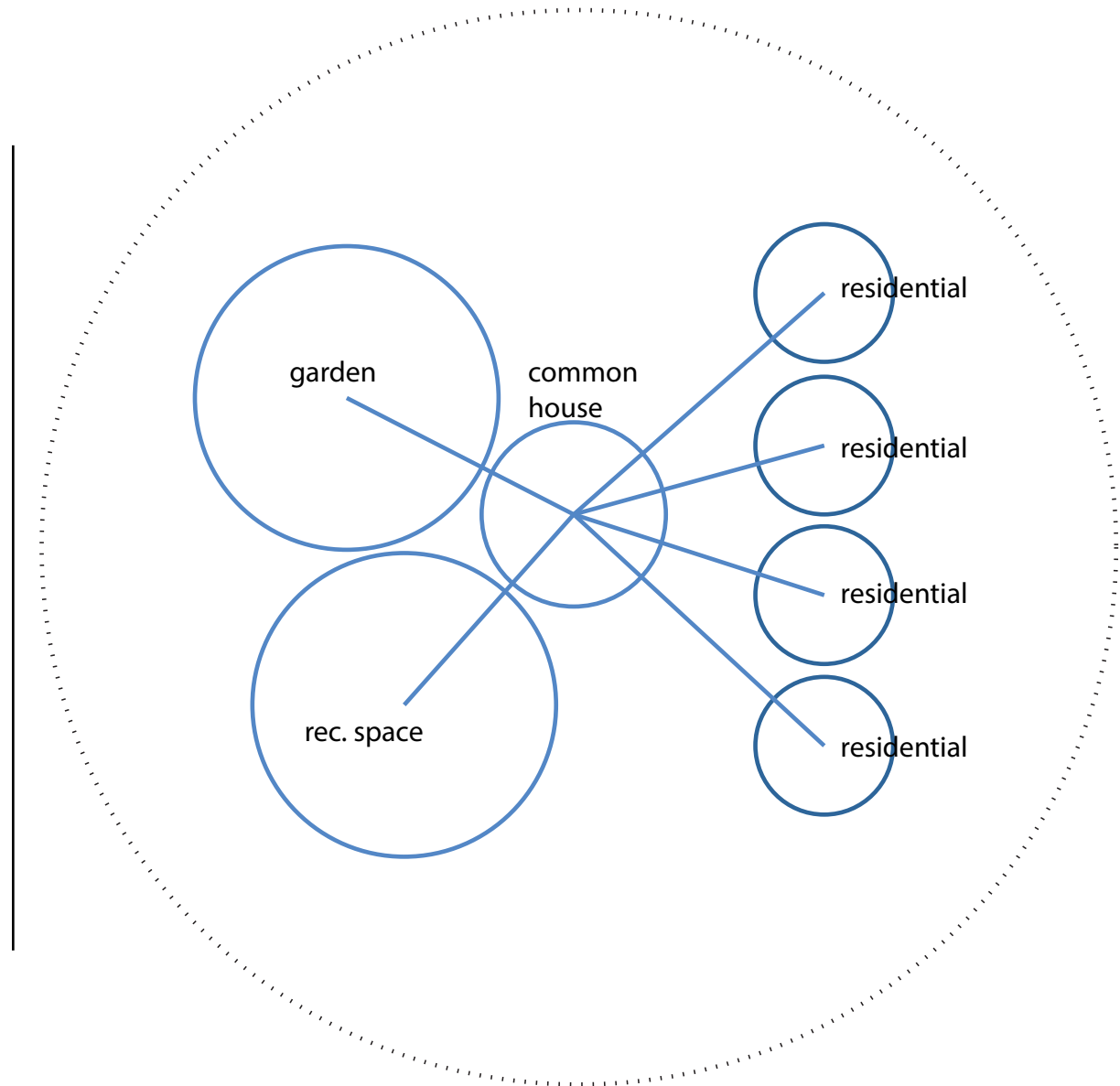
Storage - 8,000 sf

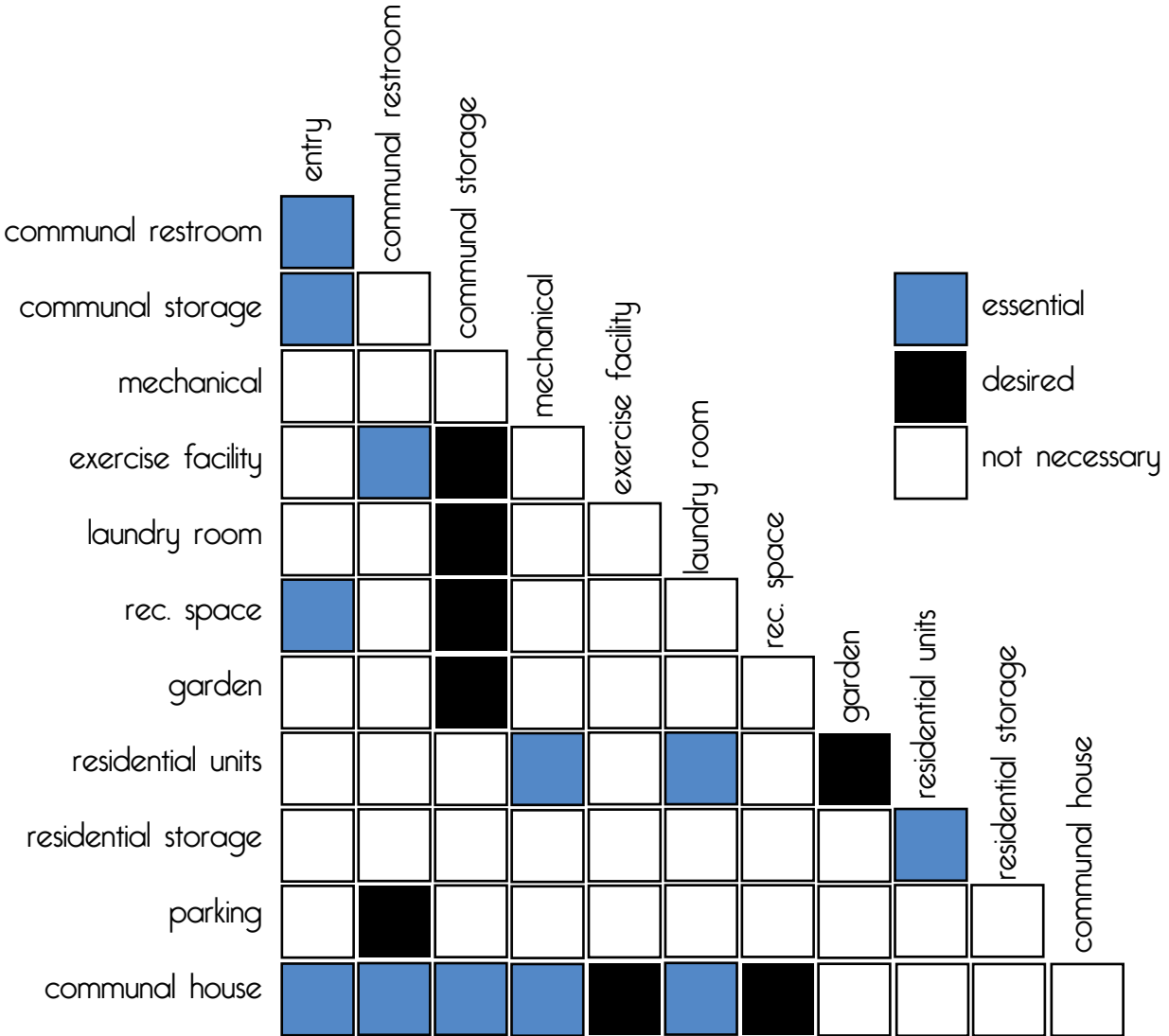
Mechanical - 1,400 sf

Parking - 40 cars

Garden - 5,000 sf

Rec. Space - 6,000 sf

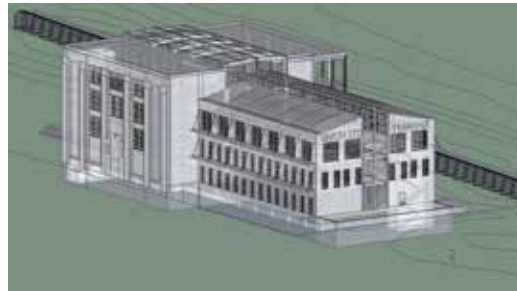




design process

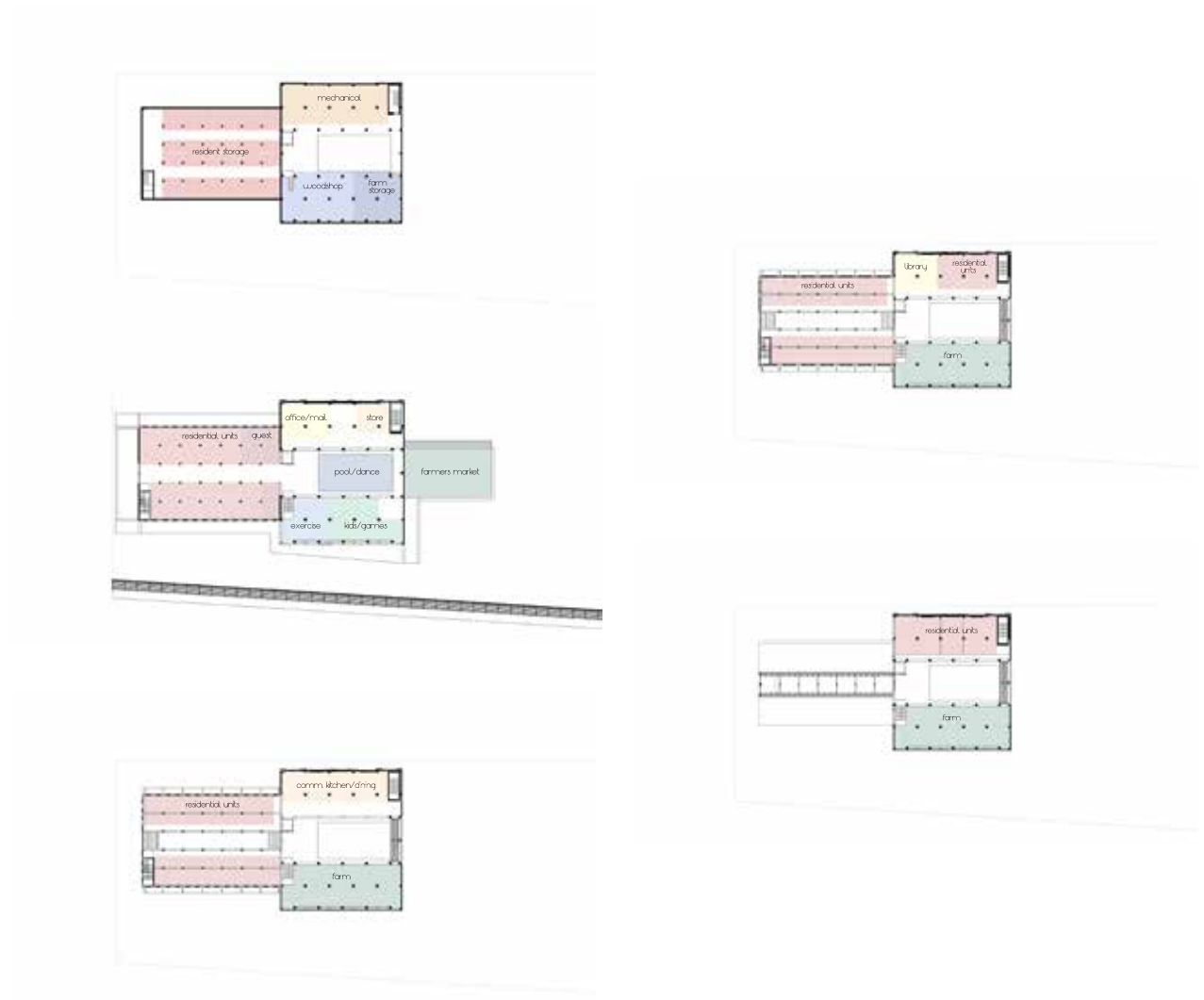


working models of schematic design and site context

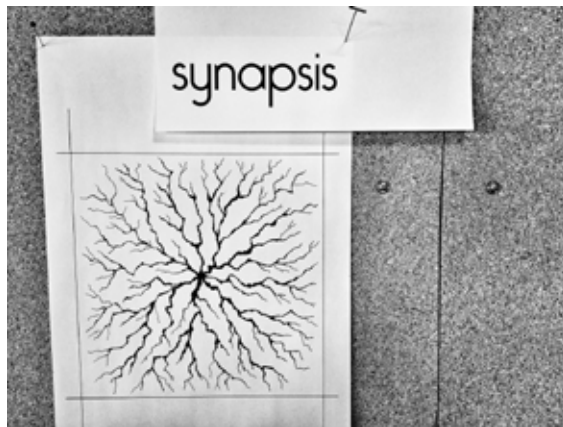


design process

Included are the initial layouts for interior floor plan layouts. A process of spatial planning.

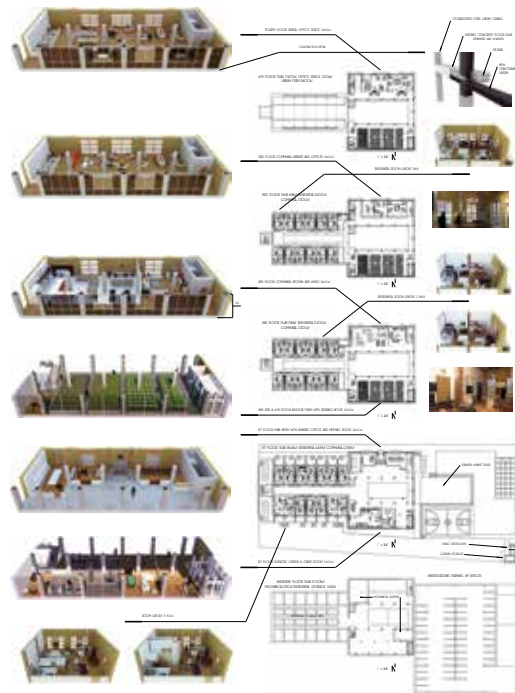


design inspiration



An initial design sketch inspired the modification and reuse of a cattle feeder into a standing light. The main purpose of the project was to create a new working piece out of a dilapidated and forgotten object. By adding voids to the cattle feeder it brings a new life and function to something that once was.

Design Solution



ARMOUR COHOUSING ARCHITECTURE
ARCHITECTS
1000 14TH AVENUE, SUITE 100
DENVER, CO 80202
303.733.1111
WWW.ARMOURCOHOUSINGARCHITECTS.COM

PHOTO: SHARPE



The building's design is a response to the need for affordable housing in an urban setting. It features a mix of unit types, including single and double units, and a central courtyard with green space. The building is designed to be a community-oriented living environment.



design solution





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“Discovery exists not in
seeking new lands but
in seeing with new eyes.”

-Marcel Proust



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