

Industrious Revival: Anticipating Architecture

Displaying Adaptability by Rehabilitating Place




Industrious Revival: Anticipating Architecture

Displaying Adaptability by Rehabilitating Place

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

By: Matthew F. Hall

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

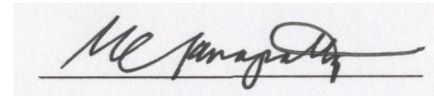


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Thesis Abstract

Utilizing the combination of the adaptive reuse design strategy and prefabricated architecture building systems this thesis will explore strategies that enable a building to adapt to better fit into its environment. Taking an abandoned warehouse building in the industrial area of Superior, Wisconsin the project revitalizes a rundown area on the edge of the city near the water and gives new life to an old building that was once adored by the inhabitants of the city. The Twohy Warehouse will become a mixed use building in order to bring a variety of users to the site. Housing a restaurant, jazz club, meeting spaces, and residential units will begin to unlock the potential of the building, and open up numerous possibilities for the future. Along with the renovation of this underappreciated building this project will explore a way to integrate an addition of prefabricated panels. The use of a panel system will allow

the addition to be flexible in order to fit with the theme of adaptability. The prefabricated panels will be able to be taken apart, reassembled, and arranged in a variety of ways in order to fit the needs of the users. This new site will draw attention from not only the surrounding communities but visitors to the area as well. Allowing for the high tourist levels of nearby Duluth to cross the lake and begin to establish an identity for the city of Superior.



Image 002

Narrative of Theoretical Aspects of Thesis



Image 003

One of society's greatest concerns today is being environmentally conscious, one way to do this is to reduce waste, and unfortunately buildings are large producers of waste. Another unfortunate result of the building industry has been urban sprawl, where cities spread out with low rise buildings instead of building up and increasing their density. I feel both of these can be solved by restoring old building to

make them usable once again. While not all building are able to be reused most have a great potential for rebirth and we only need to take the initiative for these great opportunities.

Even though renovations can be an expensive process, the benefits justify the cost. Along with reusing buildings to reduce waste we can increase urban density by building appropriate additions onto these buildings where applicable. That is where the prefabricated architecture comes into play. This building technique has an endless amount of potential as not only the primary building material but as additions as well. The prefabricated building parts can be designed to fit any style of building, making it possible to blend with a pre-existing structure or contrast it in a complimentary way. Along with being highly customizable prefabrication can also save time and money as the parts are easily and quickly assembled together at the project after being constructed off site.

While the existing building is being renovated for its new use the prefabricated pieces of the addition can be built off site and then shipped and assembled when the renovation is finished or close enough to completion to allow for the parts to be installed. Furthermore the project will be exploring the possible future applications of prefabricated architecture. This thesis will be trying to find an assembly system that will allow the prefabricated panels to easily come apart and be added on to or reassembled as needed to allow for the appropriate amount of space required by the tenant. This type of assembly will make prefabricated buildings able to be highly adaptive and customizable.

Image 004



To begin this process this thesis will start with the renovation of the Twohy Building located in Superior Wisconsin. Constructed in the late 1800's as a mercantile building the Twohy Building was praised when it was first built. Regarded as "an elegant structure", "a monument to Superior" and "an ornament to the commercial district." It served various uses and has housed several different tenants for nearly one hundred years up until the early 2000's with a few intermittent years of vacancy along the way. It has been about 10 years since the Twohy Building has housed a resident and I feel that it is now ready to serve its latest purpose. I will go into

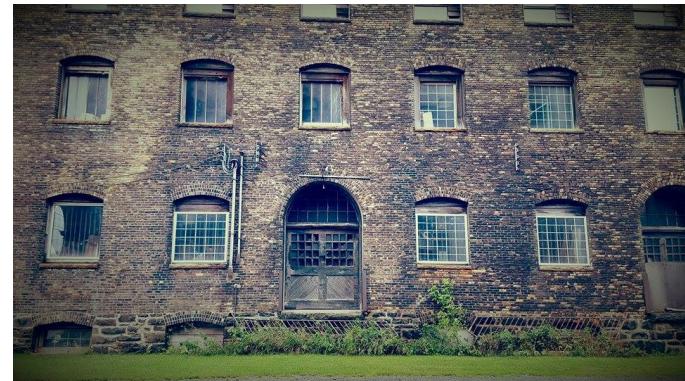


Image 005

further detail of the Twohy building's history later when I describe the site it resides on.

With a building like this that once was such a regarded addition to the prospering city, it seems a missed opportunity to leave it unused and as an afterthought to the city. This is the perfect opportunity to not only revive a historic building but to bring new life to a district that played such an integral part in the growth and development of Superior's identity. After re-establishing the original building to its former glory the project will begin to explore how to improve it further with the prefabricated additions to the building. Playing with different configurations and arrangements to find what fits the best with the well-established architectural style of the old building.

Adaptive reuse and prefabricated architecture are both flexible and sustainable architectural tools but in different ways. Back when the Twohy was built it was the definition of

flexibility. Large structural bays and an open floor plan allowed the interior of the building to become anything it wanted. The large floor plan and high ceilings are able to house almost any activity desired.

While prefabricated architecture is also a very flexible construction method it differs from the way open floor plans are flexible. Open floor plans allow for flexibility in the building, being able to move things around and having no specific use in mind when first built. Where with the use of prefabricated panels a building can be flexible in the amount of space it has. With the correct system of panel and hardware assemblies the building can be assembled, disassembled, and reassembled in a nearly endless amount of combinations. Instead of being made into a type of cube and repeating the cube in a stacked arrangement the idea is to make the building like a set of leg pieces. Being able to combine different pieces of different sizes to make new shapes and configurations.

This allows a building to be flexible with its gross square footage. For example with the proposed use of this project, say there is an average number of people that attend the jazz club and restaurant on a regular basis. Then when Duluth has its jazz festival there is an influx in the number patrons and in anticipation for this the club takes a number of panels and attaches them to the building. This allows them to use the extra space for more seating or a larger dance floor or even more stage space for a larger act. Essentially it allows the building to anticipate and prepare for the size of crowd that will be coming in. It makes it easier to accommodate these large functions without having to make expensive additions that sit unused for a majority of the year. It can also allow for expansion of business, in any of the mixed use areas, which makes it more appealing to a larger selection of clientele who want to rent space.

Finally, after discovering the best solution for merging the two major steps in my design process, the project will then go further into detail about the construction of the prefabricated panels and pieces. Coming up with an easy way to assemble, take down and reassemble the addition or additions that are added to the building. When it comes to designing and laying out the addition of prefabricated pieces the most important thing is to have an organized system. Correctly developing and utilizing a system for the panels is the best way to show the efficiency of prefabricated architecture.

The project will explore these ideas while providing supporting evidence from case studies, research, and an integrated design. The final design proposal of a mixed use building for commercial, and residential uses, will show one of the ways an existing building can be renovated to adapt to its changing environment by finding a new purpose and meeting the new needs that come with it.

Project Typology

The Twohy Building is a multi-floor brick and wood construction building. With a structural brick façade that is accompanied by the wood timber structure on the inside of the building, and structural wood deck floors. Originally built as a warehouse with some office space the building is inherently open and almost a blank slate on the inside. This allows for the building to accommodate nearly any type of function desired.

The Twohy Building sits in an industrial neighborhood on the North end of Superior near the edge of the lake. The site is quite large and the building only takes up a small portion of it sitting in the South-East corner near the road on the South side of the site and some railroad tracks which are located on the East. The city is open to this site being used for any purpose that an owner desires, and not strictly industrial use.



Image 006

With this freedom of use the challenge comes with finding the appropriate use. Given the condition of the area the building is located in and the feel of the surrounding community the most appropriate function for the project would be a mixed-use building focused on the public. Creating space for a jazz club that will include a large performing area, dance floor, plenty of seating, and a bar. There will also be a

restaurant that will work in conjunction with the club to serve food and have a separate bar. Behind the building there will be an outdoor patio space that will also be available for use by the club or rented out for private parties. Above those there will be rentable meeting spaces to hold a variety of events, as well as any additional office space that is needed. Finally there will be an addition of residential units varying in size and able to be changed as needed. These spaces will serve the purpose of revitalizing the historic industrial area by drawing in the general public for entertainment and work along with permanent residents.



Image 007

Case Studies

The Porter House

The Porter House is a six story warehouse built in 1905 with a four story addition that was completed SHoP Architects in 2003. The porter house is located in the meat packing district of New York City, it was originally built as a wine warehouse and distribution facility. The addition of twenty two



Image 008

condominiums cantilevers over the edge of the existing building eight feet and is covered with prefabricated zinc panels. In order to get the intricate façade of panels to correctly align on the building the architects had to collaborate closely with a fabricator. They used a highly detailed digital model in order to correctly arrange the metal panels in a way that fit well with nominal sheet sizes. The precision of the digital model was especially important in this project because the fabricator took the dimensions used in the model to laser cut and bend each panel.



Image 009

The two styles are very different with a high contrast in not only material but color as well. The original building is a masonry building built in the renaissance revival style, while the addition is metal clad, it is a very modern looking edition, sleek, smooth, and sharp. It is interesting that Gregg Pasquarelli the architect for the project decided to build an addition with such a different style when the building already had such a strong and well established style.

This project is a great example of how to correctly build a building using prefabrication, by working closely with fabricators. Making sure that the people who are building the prefabricated parts is essential to making the progress run efficiently. Efficiency is a key concept in prefabricated design because the efficiency of the parts is the major money saver. SHoP architects have said again and again that working closely with the fabricators is what makes their projects possible.

The one thing that I don't like about this project is the way they did the addition. While finding a way to safely cantilever the building was an astounding piece of design and the technology of the construction was also innovative, I do not particularly like the addition itself. Using metal panels and contrasting the original building may not have been the best option in my opinion. This is the way people traditionally think to use prefab. The beauty of prefabrication is that you can make it look like anything, even stone. This would have been the perfect area to do that as well, being in a historic part of one of the most famous cities in the world.

Overall this is a great project and shows the capabilities of prefabricated architecture and was innovative in ways. In the end it failed to show one of the most important qualities of prefab. Being able to make a building look exactly the way the client wants it will be what they want to take advantage of the most, and prefabrication gives them that ability.

The Power House



Image 010

Located in St. Louis, Missouri the Power House is a 19,000 square foot building that was renovated to have a grand total of 32,000 square feet. The unique thing about this project is that Cannon Design increased the gross square footage of this building without adding on to the outside of the building.



Image 011

The Power House was built in 1928 to be a courthouse, then after several years the city converted it into a coal fueled power plant. It powered close to a dozen buildings before it was decommissioned in 1980. After it served its purpose which gave it its name the building sat vacant for about thirty years. Then when Cannon Design needed a new office they decided to purchase and retrofit the building. Since the interior of the building was mainly a massive single space that stood nearly four stories tall the architects built three floors within the walls

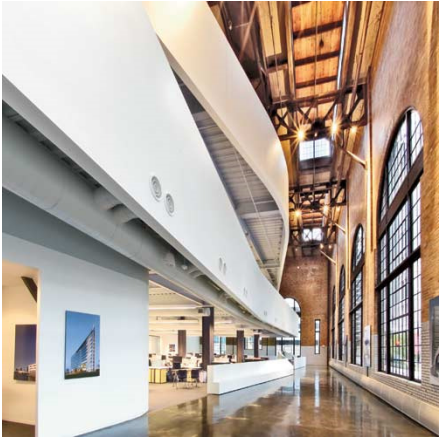


Image 012

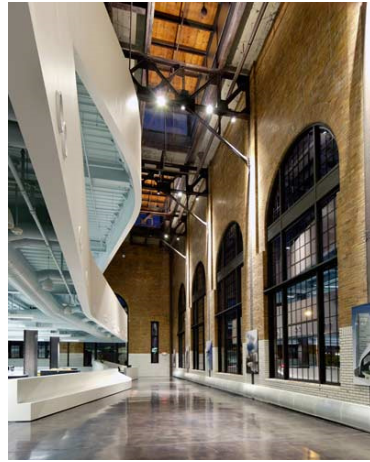


Image 013



Image 014

of the existing building. They were even able to renovate the basement and keep all of the existing steel structure.

Since this building is on the national register of historic places the architects wanted to and had to preserve the façade as much as possible. The most they did to it was replace the windows with some authentic era windows. They even kept the floors they built inside of the structure away from the walls in order to show of the character of the building.

One of my favorite factoids about this building is that it was retrofitted by the city before it was retrofitted by the architects at Cannon Design. It went from being used by people publicly to serving a function that many people didn't think about, back to being used by people. It has served several distinct purposes and been successful at housing all of them. That is the beauty of adaptive reuse that architects are able to



Image 015

see, all it takes is the right opportunity and desire to realize the potential of these fantastic buildings.

This is one of if not the best example of adaptive reuse that I have seen. From the outside you can hardly even tell that the building has been renovated. Then once you step inside you are greeted with this unique and stunning assembly of floors.

This building provided a fantastic opportunity for the architects to make this possible and they took full advantage of it. It is a wonderful combination of old and new where the two parts work cohesively together while providing a wonderful amount of contrast. The two parts work together without hardly even touching each other, it is a delicate handshake between two distinct time periods happening in the present.

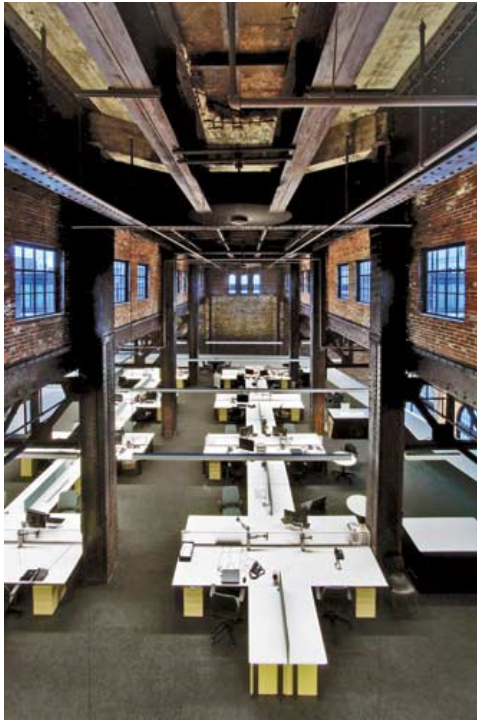


Image 016



Image 017

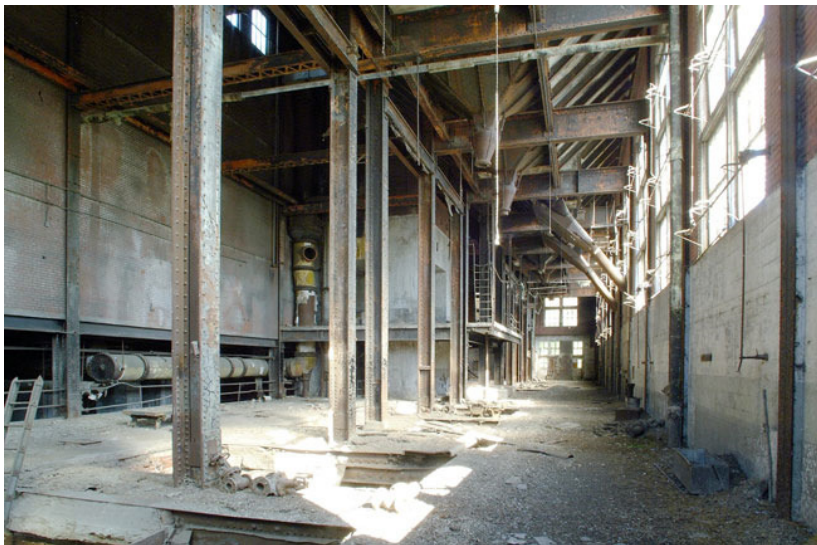


Image 018

Todd Bolender Center for Dance and Creativity

Finished in August of 2011 the former coal power plant for Kansas City's Union Station now houses the Kansas City Ballet. The building was part of an overall area redevelopment that has been very successful. Originally designed in 1913 by architect Jarvis Hunt, it was redesigned by Kansas City based architects BNIM after sitting vacant for 30 years. It had various uses proposed to fill the space, but was eventually given a user when the ballet was in need of a new home. Taking a building that once produced power and energy with coal, and filling it with the power and energy of classical ballet.

The 66 thousand square foot building was an eagerly accepted challenge by the architects, as they saw a great deal of potential in the extraordinarily large building. They started with gutting the building allowing them to make use of one giant interior. Taking advantage of the double floor heights and



Image 019



Image 020

massive interior space the architects were able to add a new mezzanine and second floor into the building. While the interior was gutted to allow for more flexibility of the space there are still many historic elements left in the building to remind the users of what this building used to be. On the exterior the old power house chimney can be seen still sitting prominently atop the building, and if you were to journey inside you would see old coal shoots hanging from the ceiling studios with natural daylight. The project boasts six studio spaces and a 180 seat performance theater, along with administrative spaces, and production areas with space for wardrobe and costumes. It has everything that is needed for a successful ballet, when you ask visitors about it seems the building is able to provide even more. Even people outside of the discipline of architecture have only good things to say about the building. Ballet and performing arts directors say the building is part of what makes the ballet so great.



Image 021



Image 022

There are hardly any other buildings that come to mind when they try to think of buildings that reach this level of beauty and functionality.

The reasons I chose this case study is not only for its impeccable display of adaptive reuse but for how it fits in an overall redevelopment plan. This is a successful and well supported redevelopment of an area in Kansas City that not many people wanted to visit. The Union Station was the center of the area and the start of the project. The fact that this building can be so celebrated and have so many great things said about it when was simply an additional project to the main focus is very promising. My hopes are that not only would my project be successful in reviving an old building but bringing new life to a rundown area like this one was in Kansas City. It is a great example of how a city can and should invest in itself and take existing historical features and give them new and meaningful purposes.

Summary of Case Studies

As a whole the case studies that were conducted were informative and helpful. They showed several examples of what this thesis project intends to do. They covered different ways in which buildings with similar and different backgrounds can be transformed for new purposes. Each of the new functions these buildings were retrofitted for are drastically different. Even with this disparity between project functions each one is successful. Showing that adaptive reuse projects are very flexible and able to be used for just about any purpose. This ties in with prefabrication wonderfully since prefabrication can be made into or look like anything. Showing that buildings can accommodate additions on both the inside and outside is very useful, as this provides even more advantages for prefabrication to be used.

In addition to the case studies shown here I also did some case study research on architectural firms that work almost exclusively with prefabricated materials. Studying there processes, methods, and philosophies about prefabrication has been very helpful as well. It has shown me how to appropriately approach the use of prefabrication, and what avenues of research I need to look into to complete my understanding of the design and construction process. They also pointed out how to think about prefabrication in a way that differs from traditional construction methods.

Overall these case studies have strengthened my idea of the theoretical premise. They have shown me things I can anticipate and interesting ways to work around them. It may take some time and a few versions of trial and error but they have shown there are ways around them.

Major Project Elements

For this project there will be residential units that will be added on to the building either in the existing building or in the addition that will be built onto the building. Along with residential units some office or administrative spaces will be needed as well in order to allow for businesses to use this space and to run the building itself. For this area of the building there will need to be storage spaces, custodial closets, mechanical rooms, and restrooms. A jazz club and restaurant will be put into the building which will need a kitchen for preparing food orders, a bar for drinks for guests of the restaurant and jazz club, seating for both the restaurant area, and for viewing the different jazz performances, restrooms for everyone visiting the club and restaurant with the potential of separate restrooms for the staff, a performance area for various sized acts and performances, backstage and production areas for the

performers to prepare for the shows, as well as staff to help run the shows, and an undefined size dance floor. If at all possible it would be ideal to find a way to incorporate some space for showcasing the history of the building and area. This way the building can really tie into its heritage and show how the town of Superior thrived on different industries as it grew into the city it is today. As with any mixed-use project sufficient parking will be needed to accommodate workers, patrons, and residents.

As for the addition on the building it will be made out of prefabricated architectural pieces. One of the main focus for will be dedicating time to figuring out a useful, efficient, and effective way to disassemble.

User & Client Description

The Twohy building currently has an owner and is looking for ideas on what to do with the space. After the project is complete it is logical to think that he would rent out the office space, and possibly put an office in it for himself. Based on my recommendation for the building use the building would be used almost all the time, whether it is workers, patrons, or residents. The spaces will need to be designed with workers, servers, cooks, bartenders and musicians in mind. In addition to the staff and workers of the building there will also be a number of patrons that will be visiting the Twohy for a variety of reasons. All of these different reasons that people will be visiting the building for will also be taken into consideration in order to provide the best experience possible for them. More information and research into the size of the

existing building and city code will determine the number of occupants this building will be able to hold.



Image 023

Site Info

The Twohy Building as described previously was built in 1894 and has been occupied for the better part of a century with a few years of vacancy between tenants. Finally sometime around the turn of the millennium the last tenant of the building vacated and it has sat unused since. The building is currently quite rundown. There is some water damage in the North-East corner, as well as several flaws in the façade. Bricks are missing, cracks can be seen running up the sides, and the entire cornice on the front is gone. The water damage will lead to some of the structure needing to be replaced as well as flooring and a few windows. The roof is in disrepair as well and will also need replacement.

Located on the north side of Superior, Wisconsin the Twohy Building sits on a large site of 54 thousand square feet. Built near the waterfront of Superior on North First Street near

the Hughitt Slip and the waterfront of Lake Superior it is in an area that is in need of revival. This provides the perfect climate for a project that wants to revitalize a dilapidated part of the city. It is a flat site with minimal vegetation and no existing pavement. North First Street sits on the south of the site, with railroad tracks nearby on the East and Dock Street on the West. To the north there are a large number of grain bins. The current condition of the site is in rough shape. It is rundown, dirty, and not in a popular area.

The entire state of the project is in need of rehabilitation. From the building to the site itself it is currently cast aside by the city of Superior even though it was once so revered when it was built. Superior Wisconsin is located on Lake Superior which has given it a large history of shipping and commerce. It also sits across the lake from Duluth, MN which is a popular tourist town, this site, and Superior itself has the potential to draw that crowd.

Project Emphasis

The first major emphasis of this project will be focusing on the historic restoration of the building. Restoring buildings is much more than simply re-using an old building.

Determining the architectural features that are relevant and need to be highlighted take a great deal of thought. Along with finding the features that need to be preserved you also need to find the areas that need to be replaced. After deciding on these areas finding appropriate material to fill in these areas can be a tricky process. If the new material used doesn't match the existing building material it can end up looking like a patchwork of random materials which does not look appealing.

The next major emphasis of the project will be looking at prefabricated architecture and how it can be effectively used to add to the existing building. Looking at whether or not the

additions should look just like the existing building or differ from it in a way in order to highlight both parts of the project.

The second part of the prefabricated focus will be dedicated to finding a way to assemble, disassemble, and reassemble the prefabricated panels. With the goal of creating an easy and efficient system for detaching and reattaching the pieces that still allow the building to be safe and usable for everyone.

Finally the last major focus for this project will be finding an appropriate and viable use for the building that the community supports and will actually use. There is no point in proposing a project in an area and for people who have no interest in it and will not want to use it.

Goals for Project

Academic

My academic goal for this thesis project is to find a way effectively integrate prefabricated architecture design, and existing building that is appropriately rehabilitated. In order for this to happen I must come to understand the design practices of adaptive reuse projects. Learn the techniques used to care for an old building and how to appropriately address concerns brought on from old age and repetitive use. There are also several misconceptions about adaptive reuse that are widely accepted without any backing information. Identifying these and showing why these are not always true will also be an important part of the project. In addition to researching adaptive reuse there is also research that needs to be put into the process of prefabrication. The different ways it is used and the different ways they are made. Like adaptive reuse there are

many misconceptions and bad impressions involved with prefabricated architecture. My goal is to show the positive points for both of these architectural styles, and to find a creative and appropriate way to merge the two styles

Professional

One of the most important factors in the practice of architecture these days is to keep up on new technology. Building technology has advanced greatly in recent years and is always coming up with new materials and new ways to construct things. Another push in practice today is focused on sustainability. Both of the main focuses in this project involve these ideas, prefabrication is an underutilized technology that has limitless possibilities, while adaptive reuse is also a sustainable practice. Producing less waste by reusing a building and by building pieces offsite also saves time and money. Adaptive reuse projects are becoming more and more popular

in both the public and professional eye. While prefabrication is up and coming, it is currently popular among contractors and builders but some architects are taking notice and getting on the train early.

Personal

I am very interested in both adaptive reuse and prefabrication. I think they are both and effective ways of constructing important and significant architecture. Prefabrication is innovative and efficient and I feel that it is highly underutilized. Adaptive reuse is another design strategy that I believe is highly important. Reusing beautiful and historic old buildings in order for them to be vital to the public once again is fantastic. I hope that my project will show that a new innovative building technology and a tried and true design strategy can be merged successfully in order to create a

wonderful building typology and change the misconceptions about these two strategies.



Image 024

Plan for Proceeding

Research Direction

In order to continue with my thesis project an important step is to continue my research into prefabricated architecture assemblies and adaptive reuse design strategies. Finding more examples of strategies that have been successful, and well accepted. Also finding instances when things have failed, why they failed, how long it took them to fail. These questions are also important and it is good to see examples of this as well in order to learn what not to do. Find out which ideas seem like they would easily succeed and actually fail.

Also looking into the mechanics and production of these prefabricated assembly systems. One of the reasons prefabrication can be efficient is because designers work closely with the manufacturers. I too must understand this

process in order to take full effect of prefabrication. Knowing how these pieces and panels will be assembled can help me design them efficiently and correctly.

On top of this research I will also continue research into my site in the form of a detailed analysis. I will look more closely into the patterns on and around my site. Travel patterns of pedestrians, automobiles, and trains, both on and off my site. Sun, and wind patterns, in addition to general weather patterns. A closer look at vegetation, what is currently growing on the site, what may be successful in growing on my site, what plants and planting styles do I want to introduce to my site and so on.

Another area of research that will come into play once I start my design is material can construction research. What new materials can I mix with the existing old ones? How do I get more of the old materials? Which materials should stay and which should go? Also how can I build onto this building? In

what ways can I correctly and safely replace old and damaged materials in the building? All of these questions and many more will take further research as I begin to design and even more will surely appear the further the project gets.

Finally I will look into building acoustics, how a building affects music, and how music affects a building. With the main function of the building being for a jazz club this is an important avenue of research that will help make my building a success.

Design Methods

I will be using a mixed method approach when designing this project. I will identify the problem or series of problems categorize them by importance and begin problem solving from there. The next step will be experimentation and exploration in which designs will be produced and analyzed. After analysis I will take what I've learned and apply it to a

new design or set of designs. This process of production and analysis may be repeated several times in order to settle on a final design. Throughout this design process I will get feedback and be challenged by my thesis advisor and classmates.

Learning how my designs impact people and the impressions they get from the design will help me in deciding upon final features and my help me see what I may have been missing in certain parts of the design.

Documentation

In order to conduct this experimentation, analysis, and research I will use a variety of tools at my disposal. Through the use of hand drawings, 3D modeling both digitally, and physically I will be able to see my designs play out and be able to thoroughly analyze them. I will use Autodesk AutoCAD, Autodesk Revit, Laser Cutters, 3D printers, and tools in a wood shop in order to construct these models. I will also be documenting the design process with photographs that will be compiled in the end to form a final process document. In the end my final design document, final design presentation boards, and final design photos will be uploaded to the NDSU libraries depository in order to be digitally preserved and viewable by future students and other users.

Results of Theoretical Premise &

Unifying Idea Research

One of the biggest takeaways from the research that was done on adaptive reuse projects was how much a project of that typology can affect a community. In almost all of the case studies done on adaptive reuse there was mention of the community or neighborhood and how the project aimed to change it.

Some projects were part of a larger development plan that aimed to revitalize entire parts of the city. Seeing how those architects and developers went about planning and designing their projects as part of a larger project was extremely helpful. It forces you to think about the surrounding community as more than static objects. You have to think about their potential in the same way that you look at your project. If the current project

you're working on has the potential to change so do the other properties in the area. This project follows those same lines where it starts with one building and then has potential to inspire others and continue the development across area.

One aspect of the adaptive reuse projects that really stood out was how the projects weren't just seen as a fun thing the community can get behind, nor were they simply a new place for someone to conduct their business. Most of the time if not all of the time they were used as an economic boost for the city. The new forms of business that flowed through these projects, whether it be from tourism, new or continuing businesses, all of these aspects helped the community financially.

It was also good to see how the residents of the community responded to these projects. Almost all of the projects that were looked at were celebrated by the residents of the community and the occupants of the buildings. It did not matter what the project was being used for people seemed to take a great deal of pride for being associated with the building. Residents, workers, owners, all of these groups deeply enjoyed the revitalized building they used on a daily basis.

When it came to the physical aspects of the building most projects carried quite a few similarities. A majority of the revitalized buildings were constructed with some form of masonry, brick and stone being the most common. The most likely reason is that these are materials that can last a long time and withstand the natural elements better than other materials. With such a strong influence from the materiality of the existing building figuring out how to design the look of the prefabricated panels may not be such a difficult task after all.

The most significant result of the research was discovering the rich history that this site has and how large of a role it has played in how the city of Superior came to be. It has been a building of significance and a steadfast representation of what the city started as and how the community continues to operate. It is a dignified building that deserves to be treated respectfully and with a great deal of care. It cannot be overlooked and allowed to fall into disrepair any longer. It is time for the Twohy Mercantile Building to receive new life and become a focal point for the city of Superior once more.

The Adaptive Reuse of Historic Industrial

Buildings: Regulation Barriers, Best Practices

& Case Studies

This thesis project focused on the adaptive reuse projects of industrial buildings and the different types of codes that cities have implemented over the years. It related the different programs and ordinances to various projects that fit within those guidelines, as well as several groups involved in the adaptive reuse of buildings.

The most surprising thing that was discovered in the thesis was how many cities have made incentive programs, and other types of ordinances. All across the country cities are using these types of programs to help redevelop areas in their

town. They have taken these old iconic buildings that sit unused after the industries have left the city and turned them into useful structures once again.

This project focused on industrial buildings and talked a great deal about the projects that have been completed in the northeastern United States. Since this was one of the first areas settled it has many historic industrial buildings. As time progressed those industries moved out of the area and whole districts were left unused and now cities are taking action to get people interested in renovating these buildings.

Sustainability Through Adaptive Reuse: The

Conversion of Industrial Buildings

This is another thesis project that was centered on the adaptive reuse of industrial buildings. The main focus of this project was on the use of the buildings and what their new purposes are. In this thesis there was a greater focus on case studies than there was on city ordinances and what the overall plans for the city districts were.

The nice thing about this project was the focus on case studies. It did a great job of showing how to analyze built structures and showing how to discover what the new purpose of a building should be. It also displayed how to determine the effectiveness of the repurposed building.

While the case studies were all on industrial buildings the project did very well at highlighting the differences in the

projects and focusing on what made each project unique and why each new use was proposed for each building.

The last thing this thesis covered was going through the process of designing for an adaptive reuse project. It went in depth with site analysis, the existing building analysis, and the changes that were made in the new design. It showed the full design process and final drawing for the proposed project

Seeing how they went about designing this project and the in depth analysis of the process and final design was greatly helpful. It showed new ways to look at things and how to handle certain problems that tend to be common amongst projects of this kind.

Prefab Architecture: A Guide to Modular Design and Construction

This book was extremely helpful and provided great information on the process of prefabrication. It covers a wide variety of topics and shows fantastic examples of prefabrication projects. It covers the history of the industrialized prefabrication building processes, goes over the process of designing and working with prefabrication, and finally shows wonderful case studies of both residential and commercial prefabrication projects.

Reading this book helped define what the scope of prefabrication covers. It also showed how long this process has been around which is much longer than expected. Designers and manufacturers have been working with this process and have been making improvements for a long time. It has become an industry full of precision and flexibility. It is still evolving

and strives to continue improving in order to make the process even more streamlined.

The second part of the book covers the application of prefabrication. It covers the principles, fundamentals, elements, assembly, and sustainability of prefabrication. There is a lot of work that goes into designing with prefabrication and the biggest thing is defining a clear cut process and working closely with manufacturers to achieve a well-organized process.

Finally in the last part of the book it covers case studies. There are fantastic examples of prefabricated buildings that have been made to last and others that have been made to be assembled and disassembled in a matter of days and then transported to a new location and the process repeated.

Project Justification

The town of Superior, Wisconsin is almost a polar opposite of Duluth, Minnesota which sits only a few minutes away across the lake. Duluth has revitalized their downtown and taken full advantage of their location on the lake and become a lively tourist destination. Superior on the other hand is in rough shape, there are a lot of rundown areas, and there has been almost no attempt to attract tourists. After visiting with several people who have been to Superior almost everyone agrees that it is nothing special. They don't have any desire to go there because they don't know of anything to do there. Despite this disinterest in the city a large number of people that visit Duluth end up in Superior, usually because they want to drive a cross the bridge to get a closer look at it. The proposed thesis would not only surprise people who cross over into Superior want to stay but eventually make Superior the destination. The industrial

district is right next to the bridge, you can see it on the way across. With the proximity to Duluth and the bridge this district could be a great welcoming sight into the city. If the area is fixed up and becomes an attraction to the public and its visitors eventually the whole city can begin to experience the benefits of the tourism that comes into the North Shore area.

There have been several examples of cities redeveloping old industrial neighborhoods with great success. One being Kansas City, which was discussed earlier as a case study. Superior is in a perfect situation to successfully redevelop its industrial district and draw some of the tourism from Duluth. There is plenty of space that is ripe for development, and with the current popularity of renovated industrial buildings there are even more opportunities for the town of Superior. Right now it has everything it needs to be successful, location on the lake, size of the area that can be developed, and there are already people visiting the area.

Historical, Social and Cultural Context of Thesis

One major trend in architecture right now is sustainability which is one reason that adaptive reuse is so popular, especially the renovation of industrial buildings. There has been a big push for our society to become environmentally conscious, with our profession really focusing on sustainable design since our buildings have such an impact on the environment. With advances in building technology architects are able to retrofit old buildings to have the same sustainable practices as new buildings. The reduction of waste is another way of being environmentally conscious, and renovating an existing building instead of tearing it down greatly reduces the amount of waste. Utilizing prefabrication is another way to reduce waste and promote sustainability. The process of prefabrication is efficient, time saving and reduces the amount of wasted material by being assembled in an offsite controlled

environment and put together on site. People love to be in old buildings with an exposed structural system and there is a wide variety of examples across the nation and even the world.

As was mentioned earlier a popular style in today's society is reusing old things. This applies to several aspects of our society and not just architecture. The use of old industrial and warehouse buildings with exposed structure and a gritty tough look is visually appealing to designers and the public alike. Cities have taken notice of this and have begun to redevelop old industrial districts. While cities have always had programs to revitalize neighborhoods and parts of the inner city, but they are usually just turned into new nicer versions of what they are originally. While a new trend is to turn industrial districts into areas for the public to visit and businesses to set up offices. Discussed in the case studies is one of the best examples

in the United States, the Kansas City Downtown Development Project. The project had a total of 79 projects of which 25 are already completed and 27 more are in progress. Which means within the next couple of years 65 percent of the projects will be completed. In addition to those projects 21 more have already been proposed leaving only 6 projects still in the concept phase. This is a five and a half billion dollar project by Kansas City which established a Downtown Development Group to take charge of the nearly eighty projects they want to complete.

Using the building to house the jazz club will benefit not only the community but the building itself. The correlation between music and architecture is a strong one, and will only enrich the quality of everything involved. The process of designing architecture is similar to that of designing music. The disciplines both contain the same elements of, rhythm, style, form, harmony, and overall composition. The most important of the shared elements is rhythm since it is one of the fundamental

parts of jazz music and one of the most recognizable traits of architecture. The architectural rhythm is strong in the Twohy building as it is in all the buildings of that style and many of the buildings in the area around the site. This will allow for a strong correlation between the music and the building which in turn will make the space feel more natural in its environment.

Site Analysis

The Building



The existing Twohy Mercantile building that will be used for renovation sits on southeast corner of the site. It is a four story building, and has a basement, with each floor being around 10,000 square feet. The Twohy has structural brick walls on the outside of the building with timber frame construction and structural wood decking on the inside.

The building is in good shape for the most part, but some renovations will be needed in order to make the spaces useable for the public. There is one column in the north east corner of the building that will need to be replaced along with some structural beams and flooring around the column. Along with the renovations in the north east corner the existing stairs will need to be replaced in order to meet code as well as some work to the elevator shaft in order to put in a new elevator system. In addition to the structural renovations there will need to be work done to add plumbing and HVAC systems throughout the building.

As for the outside the building there will need to be some miscellaneous brick replacement in several spots around the building, including the entire cornice on the front of the building. Also there will need to be windows replaced throughout the building and some doors as well. Finally the entire roof and elevator penthouse will need to be replaced in order to stop leaks

that are allowing water into the building and to support the weight of the new prefabricated addition. Luckily the piles and foundation were recently tested and are in good shape so there won't be any additional work needed there.

Currently the building is filled just about floor to ceiling with an assortment of items on each floor, the benefit of seeing the building in this state is that it shows how tough it is and proves it can sustain substantial loads even in its current dilapidated state. Which shows a lot of promise for what it can do once it is renovated and some structural components are fixed.

The Twohy Mercantile Building has a distinct feel and style that is easily recognizable and relates to its surrounding area. The heavy timber construction and exposed structure gives it an industrial, rugged, gritty, feel. All of which are strong feelings that many people can relate to. It embodies the

industrial district that it is in, and at over 120 years old it proves that hard work and quality construction can last a long time.

Built in 1894 the Twohy was originally used as a mercantile building. The basement housed the boiler and was used for storage, and the first floor had offices and spaces for outgoing shipments. The second floor was used to roll cigars and was also home to the packing department. The last two floors were used for storage for incoming shipments and cargo storage. They boasted about being able to accommodate all kinds of deliveries, with large loading doors on both sides. On the east side of the building are large loading doors to take shipments off of trains and a loading dock with another set of large doors on the west for unloading horse drawn carts. Along with large pathways to accommodate the traffic of the carts.



Loading doors on East side



Masonry Detail on South side of building



Arch on South side of building



Structural beam and column connection



Structural Decking under floor



Structural timber beam



Wood Structure



Bays filled with items



Window on exterior wall



Underside of slightly water damaged floor



Connection of timber structure

Existing stairs



Inside of loading doors



Large windows on first floor





Timber beam meeting exterior wall



Water damaged structure



Water damaged floor



Broken window



Water damaged floor



Water damaged beam



Result of sagging beam



Sunken column



Result of water damage



Result of water damage at exterior wall



Water damaged top floor



Underside of water damaged roof



Water damaged structure



North East corner with most water damage



Existing elevator shaft



Basement



Basement elevator doors



Existing office area



Interior of south side



Existing safe door



First floor window on west side



Masonry detail



Existing South entrance



Damaged windows



Damaged cornice



Damaged brick at window



Damaged brickwork



North
Façade



South
Façade



West
Façade



East
Façade

The Site

Context

The area in which the project's site resides is an industrial part of town focused on businesses involved in rail and aquatic shipments. Often involving large trucks and the need for storage the work done in this area is not considered retail by any means. It is however rich in history and contributes greatly to the city of Superior as the city was founded by the work done in this district. There are a lot of open lots near the site and while most are used it does not seem that they are ever full. With this in mind the area could hopefully follow in the footsteps of this project and give the surrounding properties a facelift and possibly even construct some new buildings.

There are several improvements needed in the area concerning access to the site. In the area around the site there is only one bus route and it actually leads away from the bars and

restaurants in this part of the city. So a new route that focused on the north end of superior a little bit more would be nice. A few more bus routes that went around the city in general would be an improvement. Especially with there being a college in town with young adults looking for things to do. It would also be beneficial to the project if there was at least one footpath that led to the site. There are currently no sidewalks leading to the site even though the rest of the area is quite walkable. In fact almost 13% of the people in the area walk to work, about 6 ½% ride their bikes and less than 1% take public transportation. Which once again shows the need for an additional bus route to help improve the city.

It is understandable that there is not much accommodation for pedestrian and bicycle traffic given the

blocks immediately around the site are industrial work areas, but it isn't out of the question to have at least one means of access for people who do not want to drive a car to the area. With the University of Wisconsin Superior just under a mile and a half away the entire north side of Superior is within walking distance. This is a key demographic to draw into the area for business, and there is also a large neighborhood within a half mile of the site as well. With the proximity the site has to these areas it is crucial to find a way to make this part of the city walkable, even if it is only one road that is all that's needed since the industrial area only covers a few blocks.

As for the immediate area around the site, the places within a half mile of the building area, there is actually a fair amount of places to visit. Including several local restaurants and bars, and a park located near a neighborhood. There are even two hotels about two blocks away from the project site, which

will be perfect for out of town visitors since it is easily within walking distance from the project location.

Another important linkage that needs to be made is across the bridge to downtown Duluth. This is where bus routes could be highly effective since Duluth is a large tourist attraction and also has a college along with the people who live and work in the downtown let alone the city itself. Downtown Duluth is a mere ten minutes from the site which is extremely close. The only thing people have to do is cross the bridge and they are right in the area of the site.

Existing Conditions

The current site is almost perfectly flat, any slope is negligible. There are a few low spots that cause pooling of water but those can be easily fixed. The rest of the water that lands on the site drains into the ground, and towards the lake just north and east of the site. Aside from the Twohy Mercantile building there is only one other structure on the site, which is a small garage in the southwest corner of the site which may have been originally used as stables for the mercantile company's horses. The site is mainly dirt and grass with trees lining the western side and most of the northern edge of the site. This means the site will be very easy to work with, and grass will be able to grow, and is only worn away in areas from vehicle traffic. It is safe to say that new vegetation will be able to grow as based on the amount of existing vegetation.

As of right now the site is filled with various vehicles, tires and other various items which are strewn about the site. None of which is difficult to clean up but will take some time as will emptying the building of its current contents. Luckily the site is quite large, approximately 60,500 square feet, this will allow for large trucks to be able to take things away from the site just as it originally did as a mercantile business. It will also make it easy for construction to bring in any equipment that is needed.

Environment

For the most part the site experiences the kind of climate you would expect in northern Wisconsin. Its average temperature is below the average in the rest of the country given its northern altitude and proximity to the lake which causes a lot of wind to hit the site. It also receives above average precipitation throughout the year. Through the summer months it gets a good amount of rain and then receives more snow in the winter months than is average across the country. With this increased level of precipitation and proximity to the lake it also has to deal with above average levels of humidity.

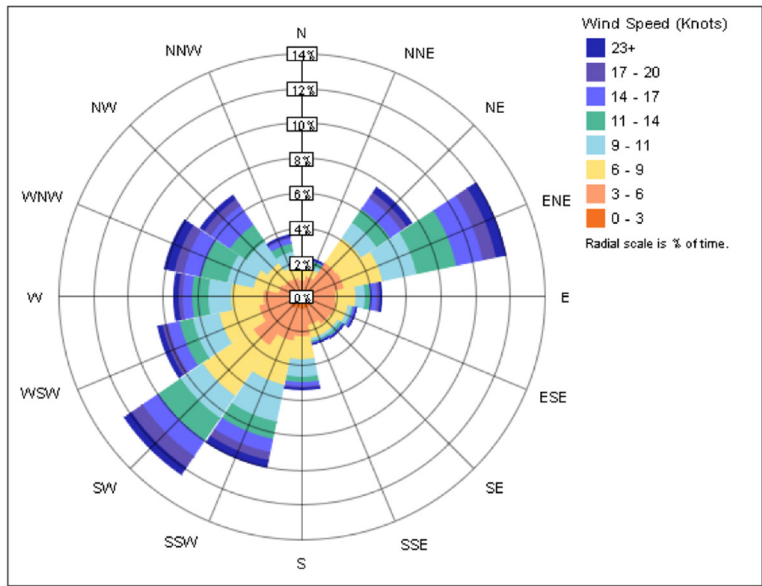
Most of the wind comes from the northeast where the lake is while there is wind that comes from the south as well. Winds are mostly blocked from the northwest because of the large grain bins in that direction.

The site gets a large amount of sunlight on days that are sunny. The only structures that are taller than the Twohy building are the grain bins to the north so they do not block any sunlight. Unfortunately it is very common to have cloudy and overcast days which can reduce the amount of sunlight that makes it to the site.

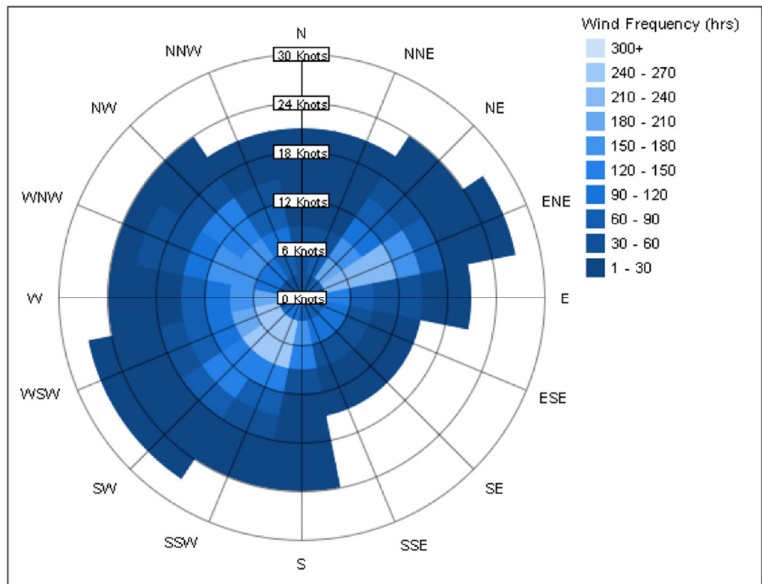
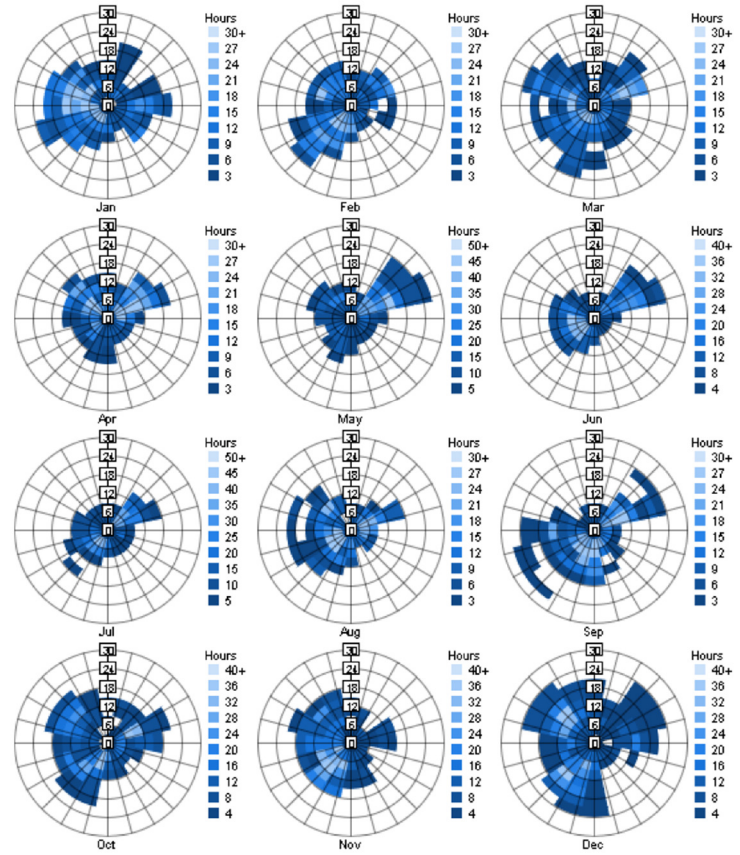
Since there are not many tall structures surrounding the site it is very visible and has good views from the site as well. To the northwest are tall grain bins but the only thing they block is the lake behind them. To the northeast is the Blatnik Bridge which provides a great view of the site as you come across from Duluth to Superior. From the top of the building you can see almost all of the northern end of superior, a good view of the Blatnik Bridge, and the surrounding industrial area including the large grain bins.

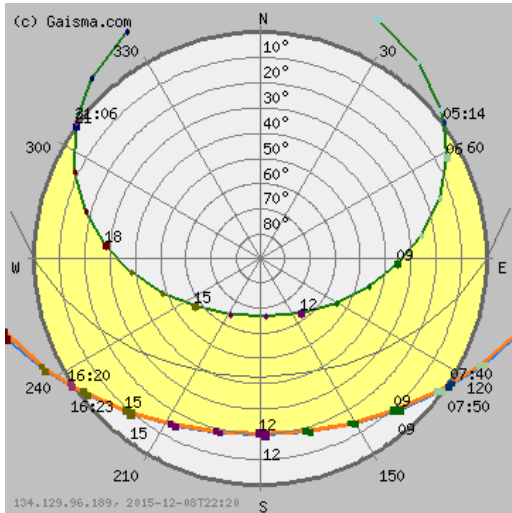
With the work done around the site it can get quite noisy. The most noise comes from the east side of the site where the railroad tracks are very close to the building. There is also a large amount of noise from the north of the site where there is a lot of work with the trains and the bins. From the south and the west sides of the site there is noise, but it isn't anything significant just general traffic noise.

As for the ground beneath the building, the site has the typical type of soil you would find near a lake or body of water. The sandy, loamy soil that makes up the site is very good at two things: water drainage, and growing plants. This allows for a variety of opportunities to not only improve the site quality visually, but environmentally as well. By properly using different types of vegetation the site can improve its air quality and help filter harmful substances out of the water that runs off and soaks into the ground before it reaches the lake.

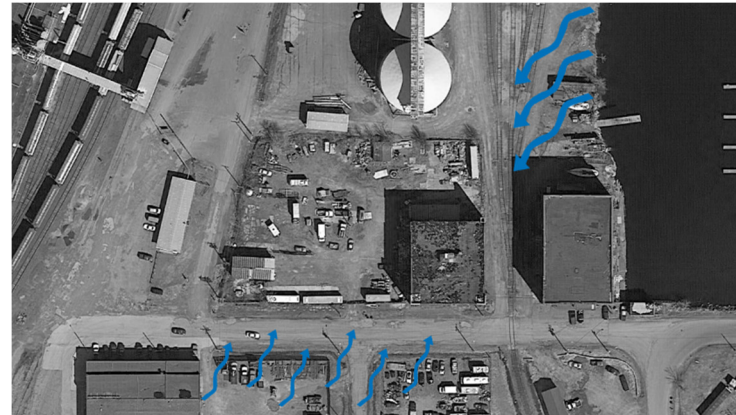


Monthly Wind Roses

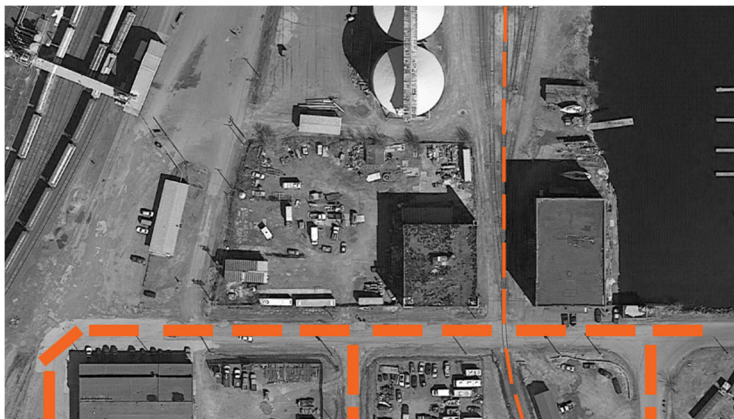




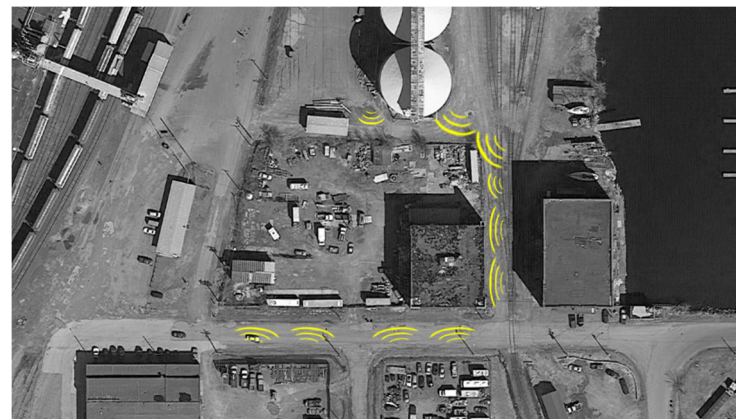
Sun Diagram



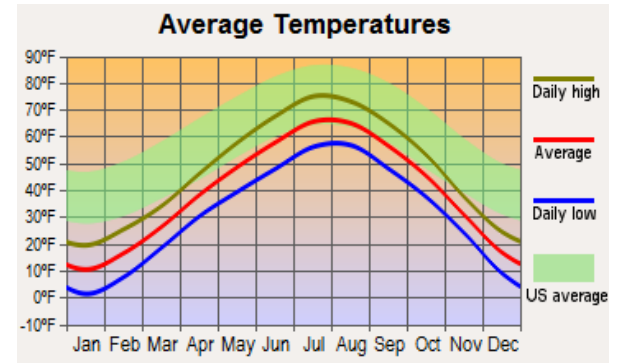
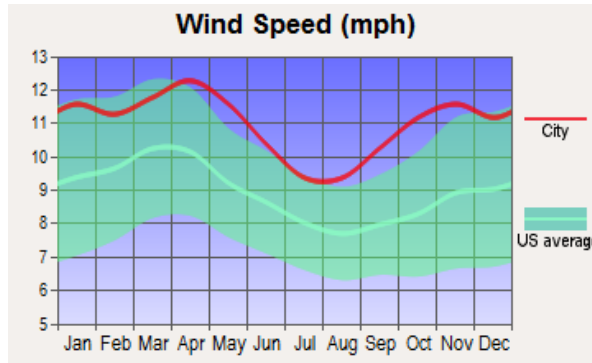
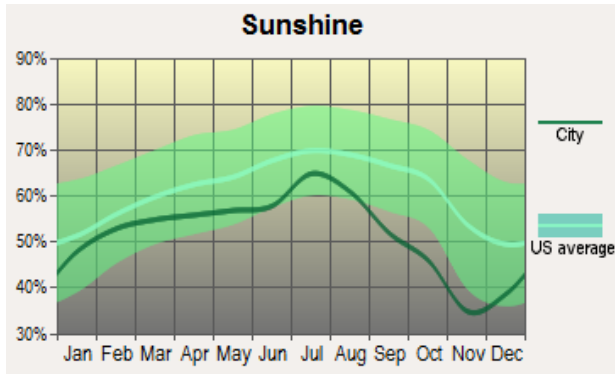
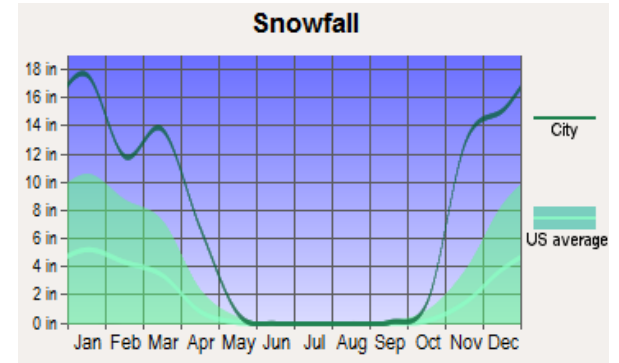
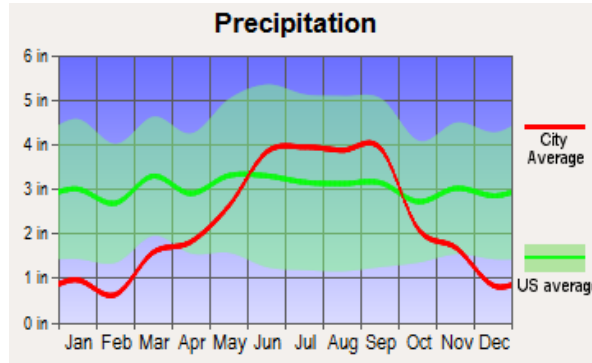
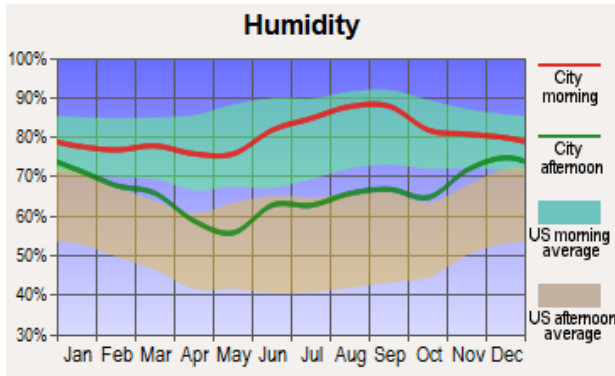
Site Wind Analysis



Pathways Around Site

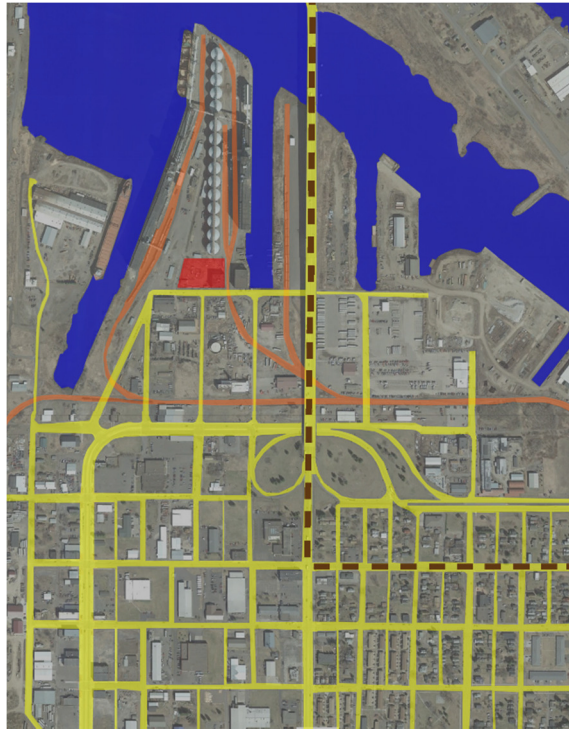


Site Noise Analysis

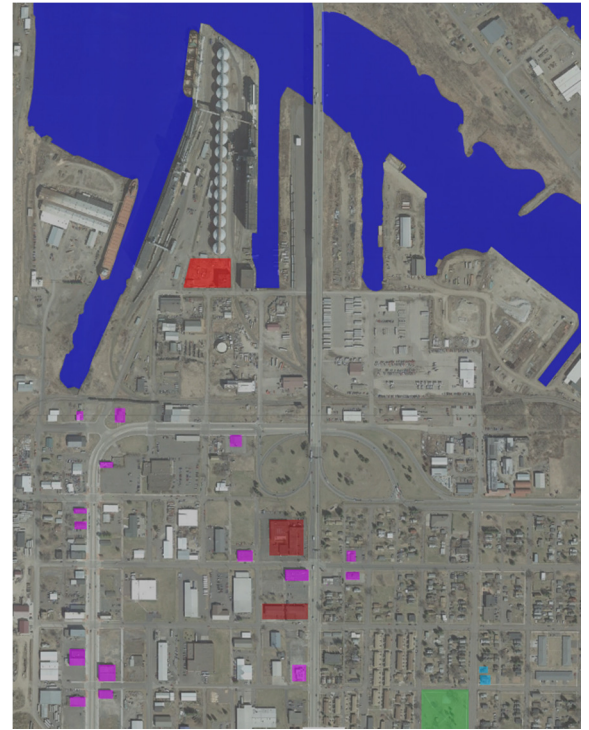




Site with half mile of Superior



Connecting paths to site



Places of interest within a half mile of site

Final Building Program

Main Entry

Use of Space: The function of this space is to allow people to enter the building have sufficient time to gather themselves and find the direction they need to go. It should serve as the welcoming space for the building as well as a guide to the spaces. Clear concise directions to the allocated spaces will be provided as well as a suitable waiting and gathering area for the patrons.

Occupants of Space: Building workers, patrons, and residents alike will have access to the main entry of the building as it will lead to all of the spaces. This space will be occupied for a good portion of the day if not having an occupant in it at all times.

Space Allocation: 500 SF

Restaurant Kitchen

Use of Space: One of the main spaces in the restaurant will be the kitchen as it will serve as the food source for the restaurant which is the main function of the restaurant. The kitchen is a busy place with a lot of people doing a variety of tasks. There is food prep and production are the main activities, but food storage will need just as much space. Space needs to be allocated for large amounts of equipment that will be used in the kitchen. This will be a busy and somewhat chaotic space so it needs to be able to handle people rushing in and out and having to get by each other while carrying dishes and food.

Occupants of space: Although the restaurant will be used to serve the public the kitchen will only be occupied by the staff. Various cooks, and servers will use the space and there may even be managers and bartenders occupying this space from time to time.

Space Allocation: 1000 SF

Restaurant Seating

Use of Space: This will be the largest portion of the restaurant. It needs to be able to house a large number of restaurant patrons, and restaurant staff. In addition to have seating the space will need plenty of room for people to move about as well. Customers getting up and heading to tables, the different members of the staff moving about with food and dishes, all of these activities need room to operate among the tables and chairs. It will house several different seating types, with a mix of different sized tables, and booths. The space should feel comfortable and follow the same theme as the jazz club as these two functions are closely related. It will also be right next to the kitchen so there needs to be a buffer in order to try to keep all the noise from the bustling kitchen from disturbing the customers. Overall the space should have a relaxed feel so people can come in and enjoy a nice meal and be able to easily converse with others.

Occupants of Space: The seating area will be mainly filled with the customers of the restaurant but waiters and waitresses will constantly be moving through the space as well. Bus boys and other workers will be using the space as well.

Space Allocation: 8,000 SF

Restaurant Lobby

Use of Space: This space will be the formal entrance to the restaurant area. It will mainly be used for people checking in to the restaurant and waiting for their table to be ready. It should be large enough though to allow people to gather for a short time if their group is getting ready to leave or just arriving. There will be a small check in podium for the hosts and hostesses to organize the seating and reservations of the guests.

Occupants of Space: Similar to the seating area of the restaurant the lobby will mainly house the customers of the restaurant as they wait to be seated. Along with the customers there will be a small number of staff that will also occupy the lobby area. A few hosts and hostesses will always be in the lobby to receive the customers to let them know when their table is ready and to escort them to their seats.

Space Allocation: 100 SF

Bar

Use of Space: This space will be similar in function to the seating area of the restaurant with the key difference being the atmosphere of the space. While the restaurant will be quieter and more relaxed the bar area will be a little more lively and slightly louder as well. The main purpose of this area is to serve customers drinks, and small appetizers if they are desired. There may be a small kitchenette area that will allow the appetizers to either be prepared or kept warm there. This space will be closer to the jazz club area than the restaurant as it will be mainly used for the guests of the club. It will be much more of an informal space than the restaurant and facilitate a livelier group of people.

Occupants of Space: Once again this space will need to be able to house both customers and workers, although this time it will be used by a smaller crowd than the restaurant. There will be a small seating area with mainly high tables where the customers will sit and servers will move about the tables delivering drinks and cleaning tables. The actual bar will act as a sort of divider splitting the public space from the private space for workers. The bartenders will be behind the bar preparing and serving drinks while servers will move from in front of and behind the bar as needed to deliver the orders of the customers at the tables.

Space Allocation: 500 SF

Jazz Club Performance Space

Use of Space: This space will serve as the focal point of the jazz club, because this is where live acts will perform for the customers, and the workers. It will be designed to host a variety of performances varying in size. It will be able to facilitate the use of different instruments and theatrical acts that have different necessities. It will be flexible to the size of act whether they need a lot of space for the number of performers or the performance itself as well as different lighting and sound configurations for them to be able to perform.

Occupants of Space: This space will be exclusively used by the acts performing at the club that day. It may be a single performer or a whole ensemble of performers and instruments. These ensembles may vary in size from a duo or trio to a full band in excess of ten performers. It may be used by a select few workers in order to perform set up, introductions, and cleanup. If the club decides to have a sort of open performance schedule such as karaoke or open mike night it needs to be able to receive those guests as well.

Space Allocation: 300 SF

Jazz Club Dance Floor

Use of Space: The function of this space is exactly what the room name suggests, it is used for dancing. It will be open floor space so naturally it can be used for several things. A majority of the time though it will be used for dancing while the performers are playing music on the performance stage which will be on one side of the dance floor. Since these two functions are directly linked they are right next to each other in order to allow for the audience to enjoy the music to its fullest.

Occupants of Space: The dance floor will be used almost exclusively by the guests of the jazz club. There may be special events or contests where participants and performers may use the space, but even in those cases it will be used in the same way as it is meant to be used by the everyday patrons.

Space Allocation: 1,000 SF

Jazz Club Seating

Use of Space: This space will serve the same function as the seating for the restaurant where patrons can relax and converse with each other while having some drinks. They can also enjoy the music from the acts that will be performing as well as take a break from any dancing that they are doing.

Occupants of Space: Just like the restaurant the space will be mainly used by the patrons of the club while servers move about the tables delivering drinks. Other staff may be moving through the space as well to help with various setup activities for the performances, but they will not be the main users of the space.

Space Allocation: 5,500 SF

Dressing Rooms

Use of Space: These rooms will be used for preparation for the performers of the jazz club. They can do what they need to do before they go perform in here, such as warm up exercises, pre performance rituals, and even use it as a cool down space afterwards. It is a private space that the performers will be allowed to use as they see fit during their time performing at the club. Which means it can take a variety of atmospheres depending on the wants and needs of the performers.

Occupants of Space: As mentioned before this space will be used by the jazz performers almost exclusively. There really is no other worker or visitor that will need this space so it will be a space dedicated to the performers allowing them to use it however they want.

Space Allocation: 200 SF

Control Room

Use of Space: This space will be essential to the performances carried out in the jazz club. From here an operator can control all of the lights and the sound levels in order to help complete the performances that take place and make a show out of it. It will be a small room occupied by very few people at a time and more than likely only one person during the performance.

Occupants of Space: This small room will be used by very few people, more than likely one operator at a time as there is no need for a large number of people.

Space Allocation: 60 SF

Office

Use of Space: These office areas will be used to carry out the day to day operations of various businesses. It will also be used to carry out the business operations of the building, controlling the activities of different tenants and the financial and business operations of the restaurant and the jazz club. The exact use of the spaces depends on the tenants that occupy the spaces. Most of the spaces will be used for general office work given the size and condition of the spaces. So the overall feel will be very business oriented promoting productivity.

Occupants of Space: The spaces will be occupied by office workers of the various businesses that are in the building. There may be several small businesses with a few workers or a few large businesses with a lot of workers.

Space Allocation: 10,000 SF

Convention Space

Use of Space: The convention spaces will be able to host a variety of activities from various sizes of different exhibits and being able to house meetings, or lectures. The spaces can be suitable for any type of convention that is needed from business technology, to education, to personal hobby fairs and other shows. Housing the large numbers and diverse groups of people will be the main operation of this space.

Occupants of Space: This space will be used by a variety of people serving both the public and business people alike. There are likely to be large numbers of people in the convention spaces while they are being used and that's what they will be designed for.

Space Allocation: 10,000 SF

Custodial

Use of Space: This space will essentially be a larger closet and storage space. It will house all the equipment, tools and cleaning materials needed by the custodial and maintenance staff. It will need to be a more secure room only accessible by the staff. It will be a utilitarian space seldom occupied, used only when needed.

Occupants of Space: The space will be used only by the custodial and maintenance staff of the building. It will be seldom occupied and only have active users when the staff is removing the equipment they need.

Space Allocation: 100 SF

Mechanical

Use of Space: This space will be separated from the public spaces as much as possible as it will be loud because of the mechanical equipment inside. All of the mechanical equipment needed to run the building will be housed here.

Occupants of Space: This space will rarely be occupied if things go well. The only people that will go in here will be in there for a short time for maintenance and annual checkup purposes. There will not be any members of the public allowed into this space.

Space Allocation: 4,000 SF

Restrooms

Use of Space: There will be several restrooms throughout the building. They will be used as much as is needed by the various occupants of the building when they need the facilities. Some of the restrooms will be larger than the others depending on their location in the building and what activity groups they serve.

Occupants of Space: These rooms will be used by everyone in the building but only a few people at a time. Depending on the location of the restroom they will mainly be used by the people that occupy the spaces nearest to them.

Space Allocation: 2,000 SF Total

Storage

Use of Space: This space will be used to store extra things needed at various times by the occupants of the building. One such item that will be stored will be extra prefabricated panels that can be used to add on to the building when needed by the building owners and tenants.

Occupants of Space: Like the mechanical room this space will not be regularly occupied. It will only be accessed when things need to be retrieved or put into storage. When those times occur the building staff will be allowed to access this space. The public will not be allowed in this area.

Space Allocation: 4,000 SF

Mail Room

Use of Space: This space will be used for receiving mail for both the businesses and the residents of the Twohy building. There will be individual mailboxes for the various business and residential tenants.

Occupants of Space: This space will be used mainly by the tenants of the building in order for them to receive their mail. It will also be accessible by the various mail carriers that need to make deliveries to the building.

Space Allocation: 25 SF

Residential

Use of Space: This space will be used as living quarters for people who wish to rent the apartment and condo units that will be added on to the building. These people will use these spaces for all the normal activities carried out by individuals. Providing them with spaces to eat, sleep, carry out personal hygiene tasks, entertain, and areas for them to simply relax after a long day.

Occupants of Space: Each unit will be occupied by the person or persons currently renting it. Any guests that the tenants host will be using the various spaces in the units as well.

Space Allocation: 15,000 SF

Private Entrance

Use of Space: This space will be used by the tenants of the building, both residential and business tenants. It will be nice for them to have another place to enter the building if the main entrance happens to be particularly busy or if they have personal items they do not wish to bring through the other public spaces.

Occupants of Space: As mentioned this space will not be open to the various public groups that are visiting the building for any convention they are attending or if they are coming to visit the jazz club or restaurant. That way they have a private area in order to bypass the crowds that may be using the main entrance.

Space Allocation: 50 SF

Outdoor Space

Use of Space: This will be an open and flexible space that can be used by any tenant of the building as they see fit. It will even be available for rental by any of the tenants if they would like to use it to host a special event. It will be an inherently open space with the ability of things to be moved into the space to facilitate the various functions that will take place there.

Occupants of Space: All users of the building will be able to access this space. The public that attends events at the building and the tenants of the building will be allowed to use this space for a variety of different uses.

Space Allocation: 30,500 SF

Parking

Use of Space: This space will be used for the storage of cars that users take to the building. It may be used as extra outdoor space if an even gets too large for the designated outdoor. Alternative and sustainable parking materials, and layouts will be looked at while designing the parking area. These different strategies will be looked at with the occupants of the space in mind. Thinking about what is best for them, what they will want, and how they will use the space will be a big influence on how the parking lot is going to be designed.

Occupants of Space: This space will be used by all types of people that will use the building. It will mainly be occupied by cars, and people will mainly just walk through the space to get from their cars to the building and vice versa.

Space Allocation: 20,000 SF

Total Square Footage

Site: 60,500 SF

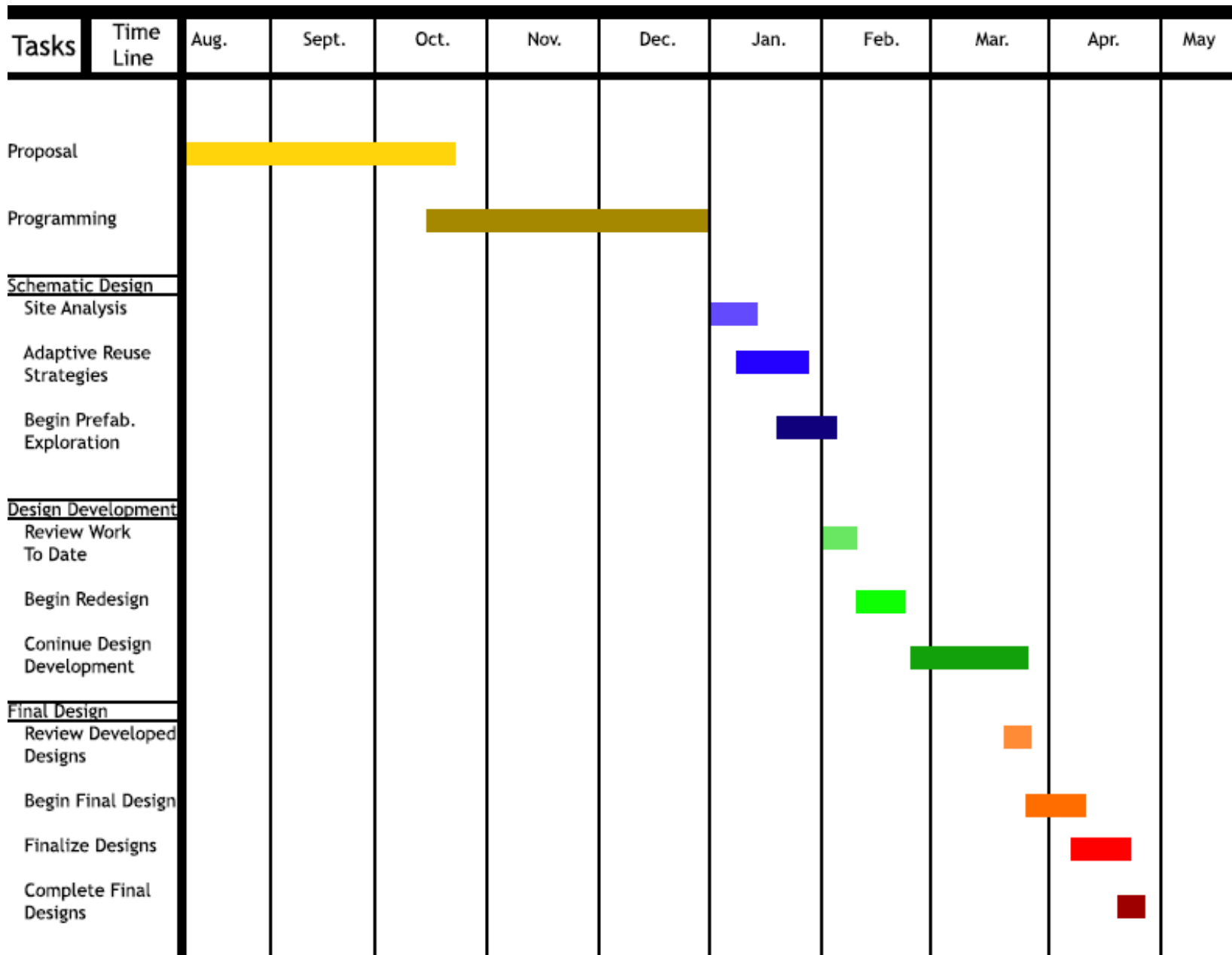
Building Footprint: 10,000 SF

Total Building: 62,335 SF

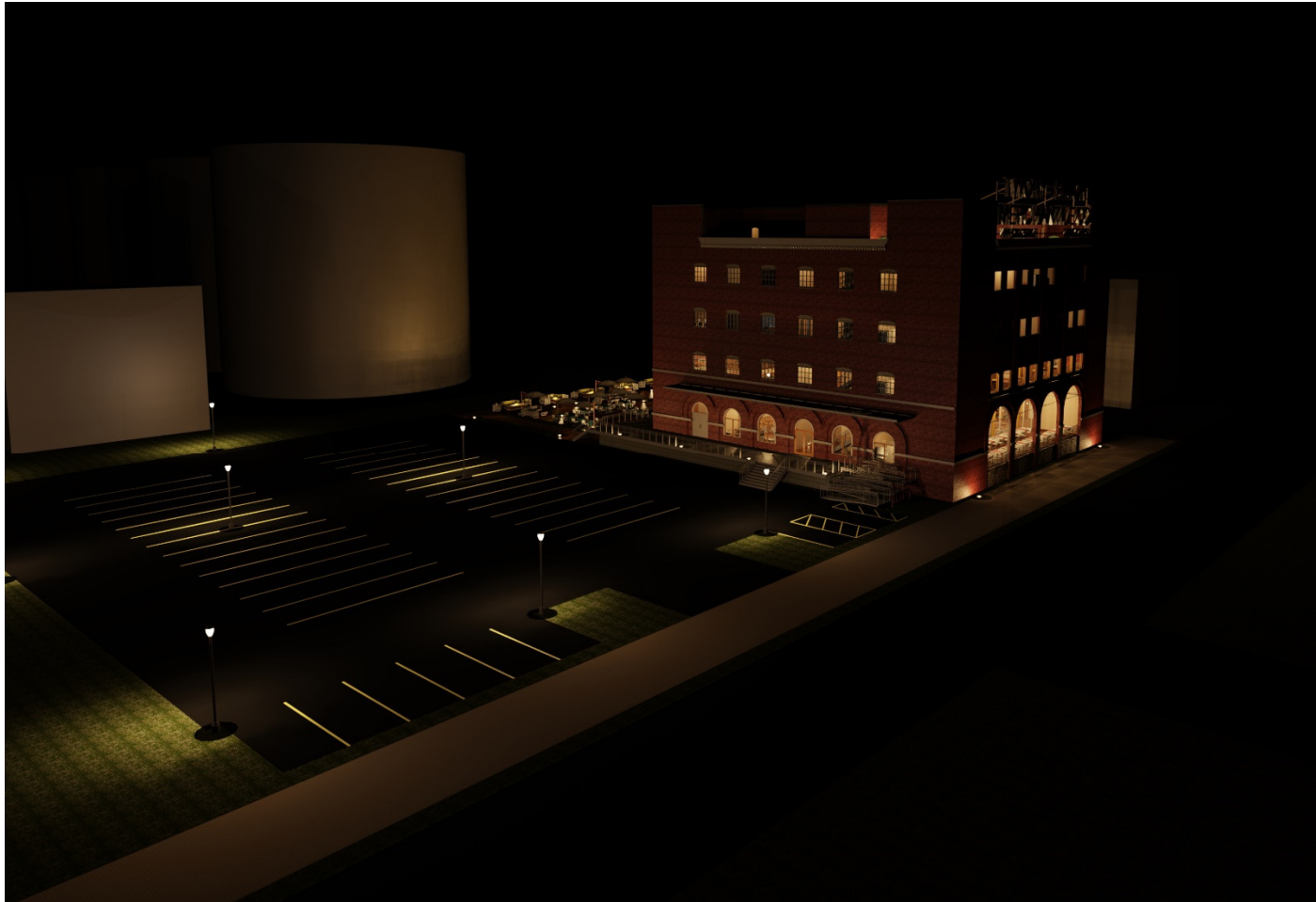
Gross Total: 112,835 SF

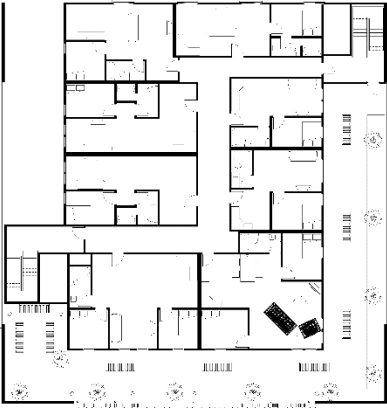


Project Site

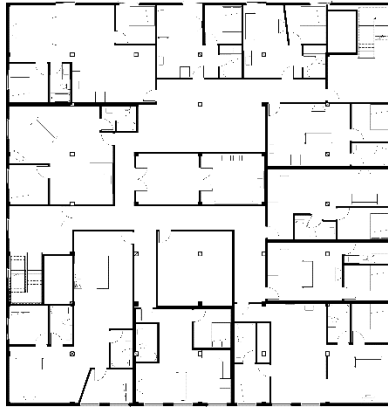


Final Design Proposal

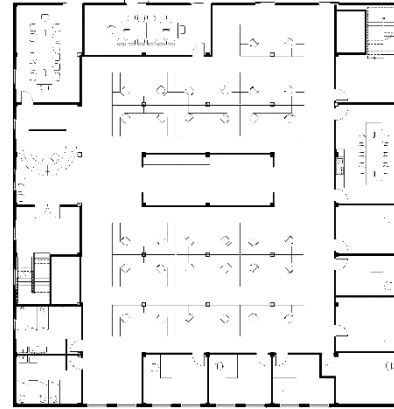




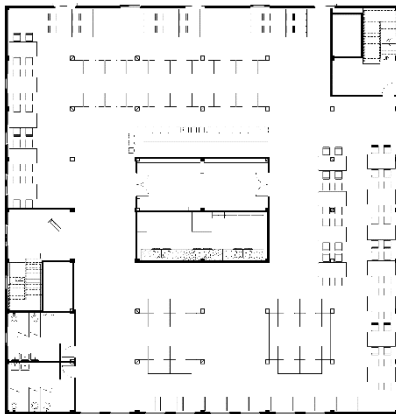
Fifth Floor



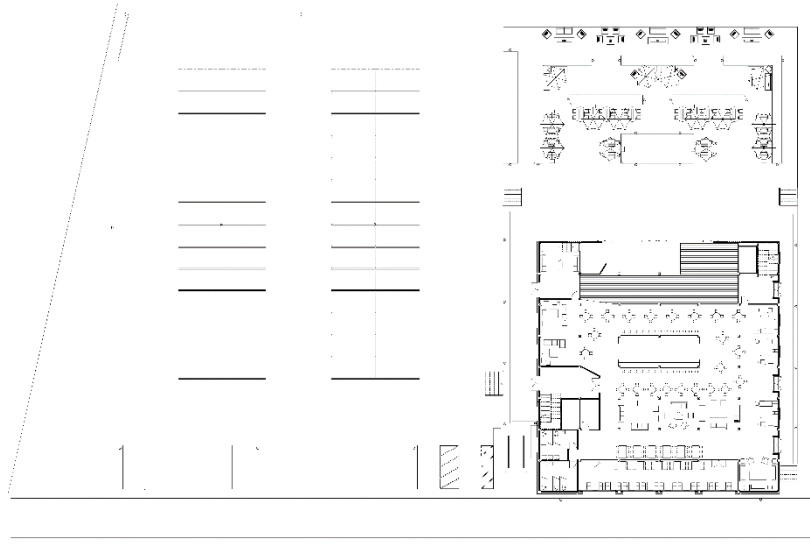
Fourth Floor



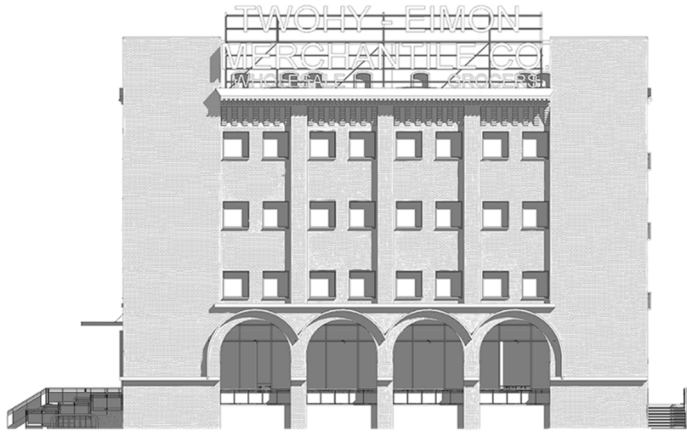
Third Floor



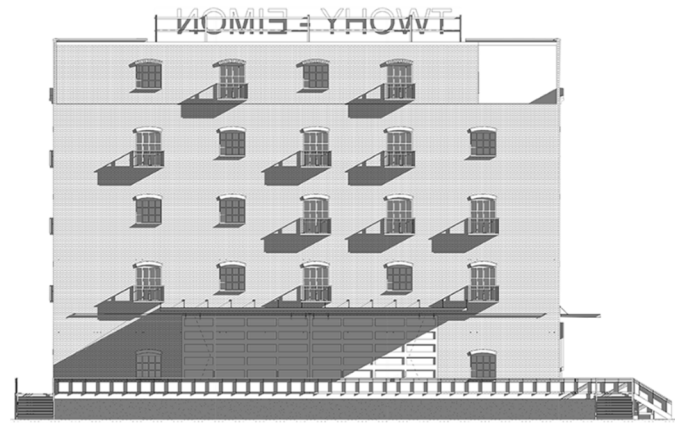
Second Floor



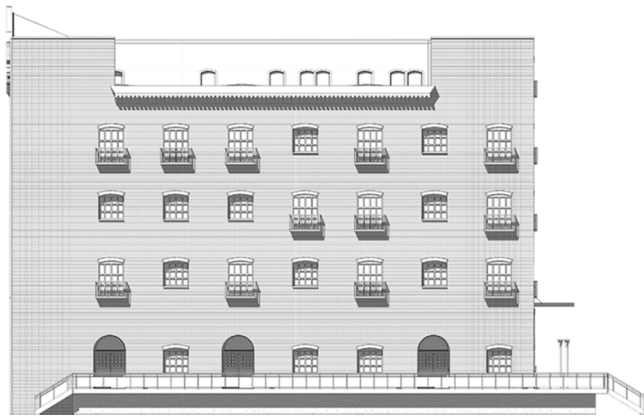
First Floor



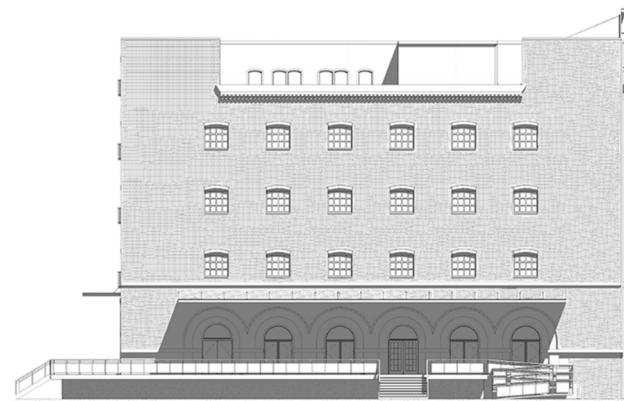
South
Elevation



North
Elevation

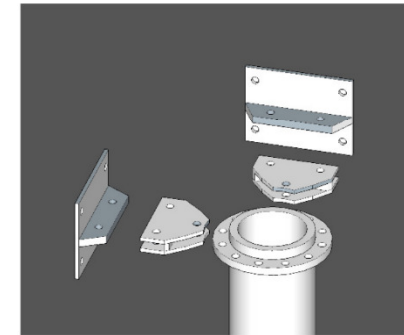
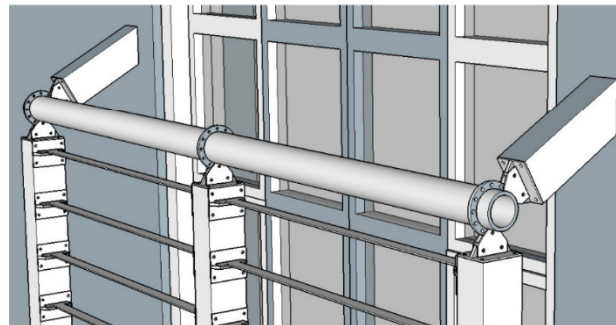
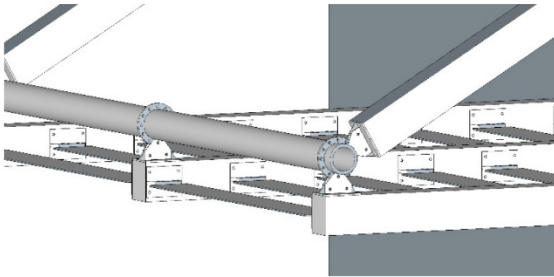
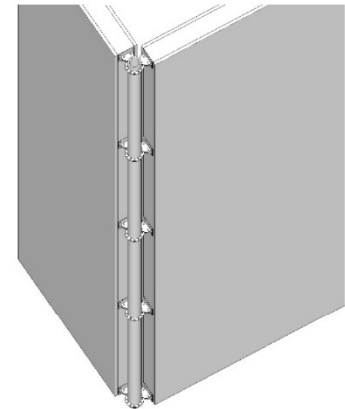
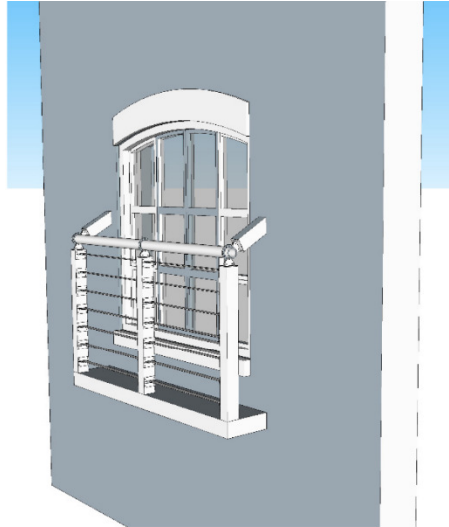
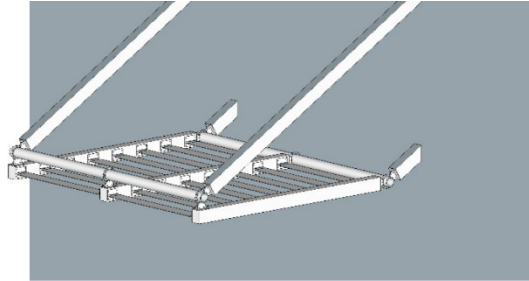


East
Elevation



West
Elevation

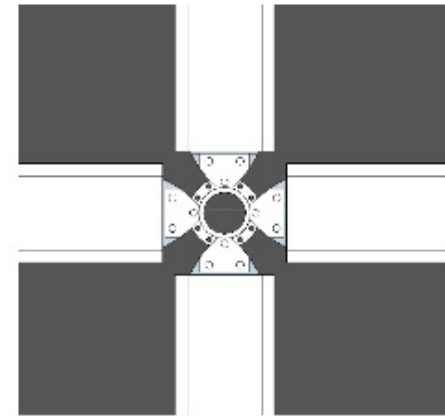
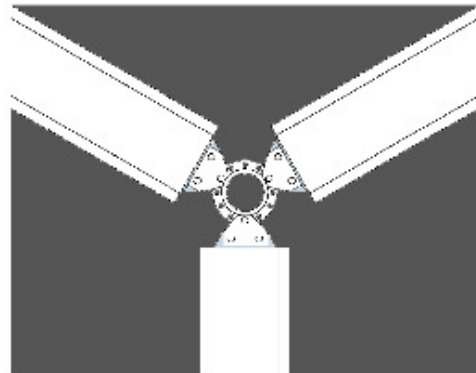
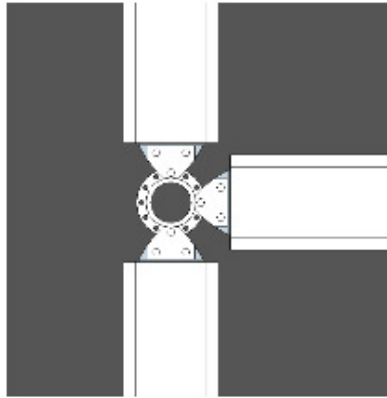
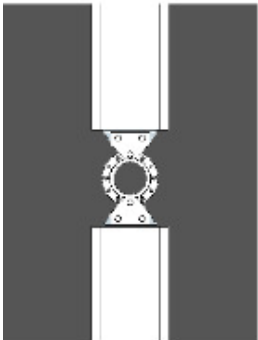
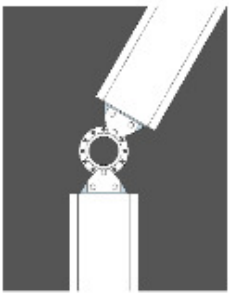
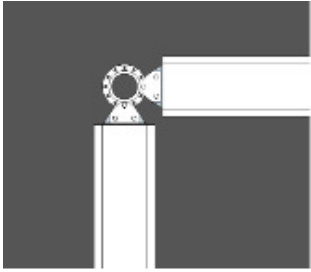
Prefabrication Uses



Awnings

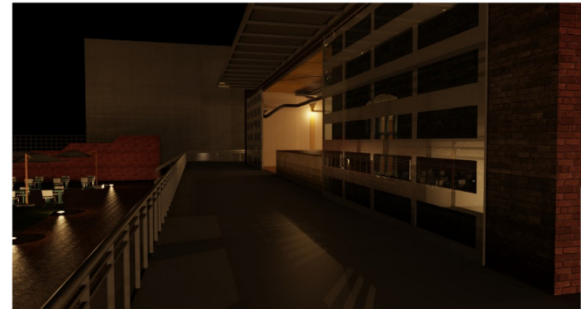
French Balconies

Prefab Hardware



Prefab Wall Panel
Connections

Final Scene Renders



Previous Studio Experience

2nd Year Studio

Fall Semester: 1. Tea House: Fargo, ND

2. Boat House: Minneapolis, MN

Spring Semester: 1. Twin House: Fargo, ND

2. Music Center: Fargo, ND

3rd Year Studio

Fall Semester: 1. Guitar Festival Center: Healdsburg, CA

2. Literary Center: Portland, ME

Spring Semester: 1. Culinary School: Fargo, ND

2. Border Crossing: Italy/France Border

4th Year Studio

Fall Semester: 1. High Rise Project: San Francisco, CA

Spring Semester: 1. Marvin Windows Project: Fargo, ND

2. Urban Master Plan: Uptown

Minneapolis, MN

5th Year Studio

Fall Semester: 1. Timber in the City: New York City, NY

Personal Information

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“Like its students NDSU does great work and is always improving.”

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